

VOYAGER METALS INC.
DRAFT NO.: 211-05276-03

MONT SORCIER MINING PROJECT INITIAL PROJECT DESCRIPTION - SUMMARY

MAY 2023





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VOYAGER METALS INC.

PROJECT NO.: 211-05276-03
DATE: MAY 2023

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May 2, 2023

Date

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Reference to be cited:

WSP. 2023. *MONT SORCIER MINING PROJECT. INITIAL PROJECT DESCRIPTION - SUMMARY.*
REPORT PRODUCED FOR VOYAGER METALS INC. 63 PAGES.

ABBREVIATIONS/ACRONYMS

AQI	Air Quality Index
CHSJB	Cree Board of Health and Social Services of James Bay
CH4	Methane
CO₂	Carbon dioxide
COMEV	Environmental and Social Impact Assessment Committee
COMEX	Environmental and Social Impact Review Committee
CMC	Miyupimaatisiun Community Centre
CN	Canadian National Railway Company
D019	Guideline 019
ECCC	Environment and Climate Change Canada
EIA	Environmental Impact Assessment
EQA	Environmental Quality Act
Fe	Iron
FIFO	Fly-in fly-out
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
IAA	Impact Assessment Act
IAAC	Impact Assessment Agency of Canada
ISAQ	Inventory of Archaeological Sites in Quebec
JBNQA	James Bay -and Northern Quebec Agreement
JBRHSSC	James Bay Regional Health and Social Services Centre

kV	Kilovolt
MCC	Ministry of Culture and Communications of Quebec
MELCCWP	Ministry of the Environment, Climate Change, Wildlife and Parks
MFWP	Ministry of Forestry, Wildlife and Parks ¹
MMDMER	Metal Mining and Diamond Mining Effluent Regulations
MNRF	Ministry of Natural Resources and Forestry ¹
Mt	Millions of tons
Mt/year	Millions of tons per year
MTSM	Ministry of Transportation and Sustainable Mobility
NO₂	Nitrous oxide
NPRI	National Pollutant Release Inventory
SO₂	Sulfur dioxide
SPA	Saguenay Port Authority
SARA	Species at Risk Act
SS	Suspended solids
t	Tonne
t/d	Tons per day
UGAF	Fur management unit
3RV	Source reduction, reuse, recycling and recovery
WSP	WSP Canada Inc.

1. With the appointment of the new Cabinet in October 2022, the Forestry sector now falls under the Ministry of Natural Resources and Forestry (MNRF) while the Wildlife and Parks sectors fall under MELCCFP .



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PART F – SUMMARY

This document is a summary of an Initial Project Description as required by the Impact Assessment Agency of Canada (IAAC) in recognition of Schedule 1, paragraph 25 of the 2019 Information and Management of Time Limits Regulations (SOR / 2019-283) and the Guide to Preparing an Initial Project Description and a Detailed Project Description under the Impact Assessment Act (IAA) (LC 2019, c. 28).

Briefly, the Mont Sorcier Mining Project includes:

- the operation of an open pit mine over approximately 21 years;
- the establishment of an ore processing plant;
- the implementation of access roads and water management infrastructure;
- installation of a railway connecting to the existing network;
- storage areas for waste rock and tailings generated by the processing plant;
- the implementation of related infrastructures (power supply, telecommunications, water treatment, ore storage area, housing, etc.).

This document is a translation of the official French language version of the Initial Project Description Summary. In case of discrepancy, the original official document in French shall prevail.

1.1 GENERAL INFORMATION

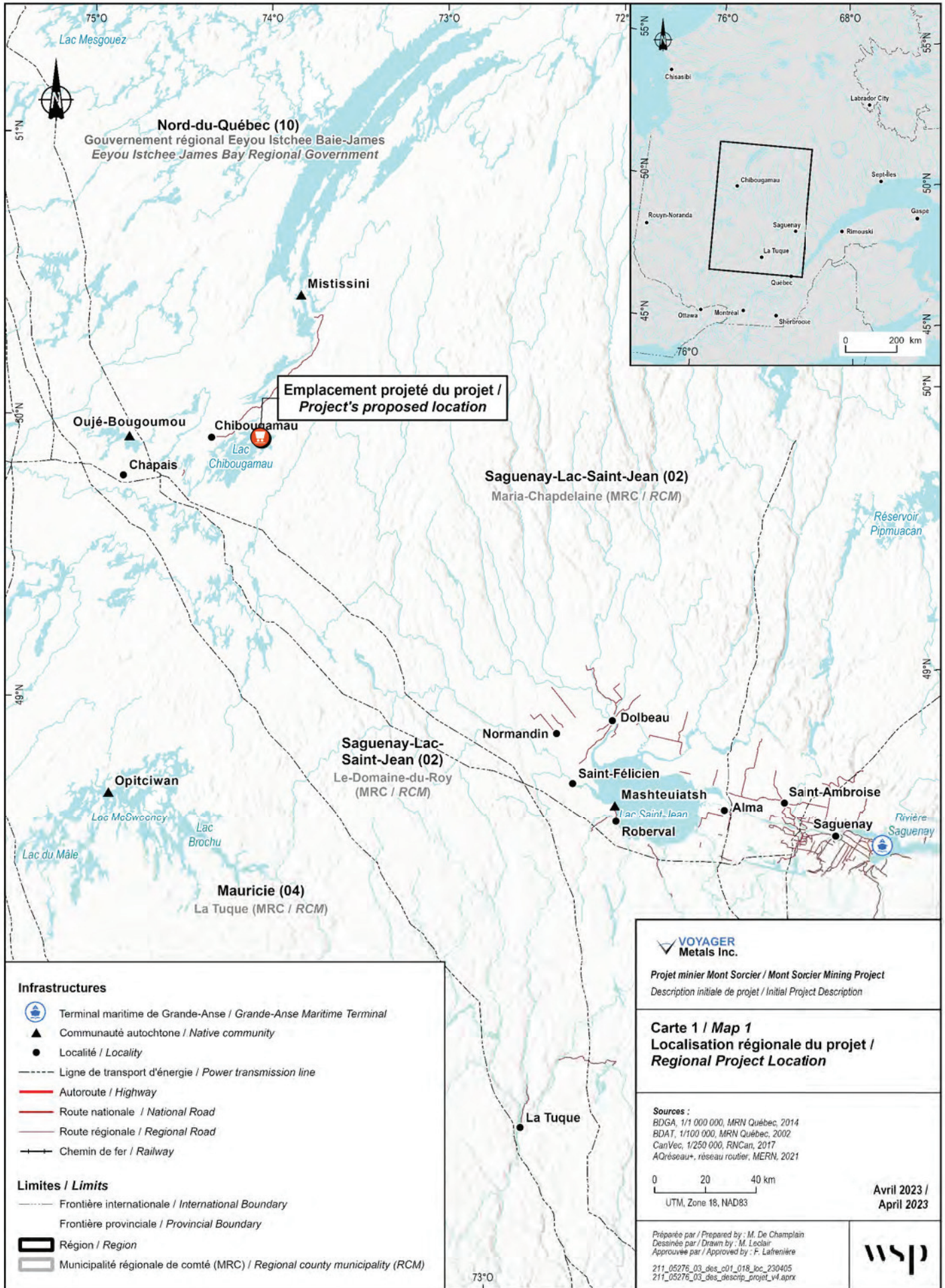
1.1.1 PROJECT NAME, SECTOR AND LOCATION

PROJECT TITLE	Mont Sorcier Mining Project
TYPE/SECTOR	Mining and minerals, iron, and vanadium
PROJECTED LOCATION	Mainly on the municipal territory of the Eeyou Istchee James Bay Regional Government, approximately 17 km from the center of Chibougamau, Northern Quebec administrative region, Province of Quebec

Map 1 illustrates the location of the Project at the regional level.

1.1.2 PROPONENT INFORMATION

DEVELOPER	Voyager Metals Inc.
STREET ADDRESS	200 Bay Street, Suite 3205, Toronto, Ontario M5J 2J2
PRIMARY REPRESENTATIVE FOR THE PURPOSE OF PROJECT DESCRIPTION.	Robert Girardin, Project Director 418-965-1764 rgirardin@voyagermetals.com
WEBSITE	https://voyagermetals.com/



Nord-du-Québec (10)
Gouvernement régional Eeyou Istchee Baie-James
Eeyou Istchee James Bay Regional Government

**Emplacement projeté du projet /
Project's proposed location**

Saguenay-Lac-Saint-Jean (02)
Maria-Chapdelaine (MRC / RCM)

Saguenay-Lac-Saint-Jean (02)
Le-Domaine-du-Roy (MRC / RCM)

Mauricie (04)
La Tuque (MRC / RCM)

Infrastructures

- Terminal maritime de Grande-Anse / Grande-Anse Maritime Terminal
- Communauté autochtone / Native community
- Localité / Locality
- Ligne de transport d'énergie / Power transmission line
- Autoroute / Highway
- Route nationale / National Road
- Route régionale / Regional Road
- Chemin de fer / Railway

Limites / Limits

- Frontière internationale / International Boundary
- Frontière provinciale / Provincial Boundary
- Région / Region
- Municipalité régionale de comté (MRC) / Regional county municipality (RCM)

VOYAGER
Metals Inc.
Projet minier Mont Sorcier / Mont Sorcier Mining Project
Description initiale de projet / Initial Project Description

Carte 1 / Map 1
**Localisation régionale du projet /
Regional Project Location**

Sources :
BDGA, 1/1 000 000, MRN Québec, 2014
BDAT, 1/100 000, MRN Québec, 2002
CanVec, 1/250 000, RNCan, 2017
AOréseau+, réseau routier, MERN, 2021

0 20 40 km
UTM, Zone 18, NAD83

Avril 2023 /
April 2023

Préparée par / Prepared by : M. De Champlain
Dessinée par / Drawn by : M. Leclair
Approuvée par / Approved by : F. Lafrenière
211_05276_03_des_c01_018_inc_230405
211_05276_03_des_descrp_projet_v4.aprx



Note that Voyager Metals Inc. was known as Vanadium One Iron Corp. prior to October 18, 2021. All references to Voyager Metals Inc. in this document include Voyager Metals Inc. (hereinafter referred to as "Voyager") and Vanadium One Iron Corp.

1.2 ENGAGEMENT ACTIVITIES

1.2.1 CONSULTATION PROCESS

As part of the Project design and environmental impact assessment (EIA) for the Project, Voyager held initial information sessions, which began in 2022. Recognizing the importance of involving Indigenous groups, local communities and authorities, interest groups and land users in the design, planning and development of the Project, the main objective of these sessions was to contextualize the Project and to gather preliminary concerns, recommendations, and interests from stakeholders.

The stakeholders targeted for this first information process were:

Indigenous communities and regional organizations:

- Cree Nation Government;
- Ouje-Bougoumou Band Council;
- Mistissini Band Council;
- Innu Nation of Pekuakamiulnuash Takuhikan;
- Innu Nation of Essipit;
- Main users of the territory (tallymen/families);
- Cree Trappers Association (Oujé-Bougoumou);
- Cree Board of Health and Social Services of James Bay (CBHSSJB);

Politic:

- Eeyou Istchee James Bay Regional Government;
- James Bay Regional Authority (JBRA);

Municipal:

- City of Chibougamau;

Economic:

- Chibougamau Development;
- Saguenay Port Authority (SPA);
- Société du Plan Nord (marketing office);

- Owner of the rail service to the Port of Saguenay (Rio Tinto);
- Hydro-Québec;
- Roberval-Saguenay Railway Company;

Public (citizens, citizen groups):

- Private owner of Marguerite Island;

Recreational tourism:

- Camping club CIGAM.

Different means of communication have been used to communicate and interact with the authorities and various stakeholders since 2022. This includes the following:

- written communications (emails, letters);
- verbal communications (telephone interviews, video conferencing);
- face-to-face meetings;
- memorandum of understanding.

1.2.2 MAIN CONCERNS

The main concerns raised by the local Jamesian community in the consultations conducted to date, and the actions taken by Voyager in response to these concerns, are presented in Table 1.

1.2.3 PLAN FOR FUTURE ENGAGEMENT

In terms of a future engagement plan, and with a view to maintaining a strong and ongoing relationship with Indigenous groups affected by the Project, Voyager wishes to continue the process of informing and formalizing consultations with stakeholders to incorporate their views as the Project develops and is designed.

The approach that will be retained by Voyager will have for main objective to identify the elements that favor the achievement of the social acceptability of the Project and to ensure to obtain the prior, free, and informed consent of the Indigenous groups affected by the Project in a dynamic of collaboration and co-construction.

Following the filing of the Initial Project Description, further consultations will be undertaken in greater detail, staggered over time as the Project progresses. For this phase of the consultation process, new stakeholders, who have not been met until now, will be added. Information sessions for the public are also planned and advisory committees dealing with environmental, social, and economic issues will also be established. At this stage, Voyager will focus on gathering stakeholder comments, questions and concerns about the Project, the goal of this phase being to optimize the performance of the Project as a whole and to ensure that it is well integrated into the host community.

Table 1 Main concerns expressed by the Jamesian community and Voyager's responses

THEME	CONCERNS	ACTIONS TAKEN BY VOYAGER
Quality of life	<ul style="list-style-type: none"> - Fears of expropriation caused by the Project. - Desire that the Project will not be "in my backyard". - Impact of the arrival of fly-in fly-out (FIFO) workers on local health services. 	<ul style="list-style-type: none"> - The design of the Project will be developed to minimize the size of its footprint and its impact on local communities. - A compensation program may be developed for landowners in the immediate vicinity of the Project who wish to relocate, which will be tailored to each case specifically.
Landscape	<ul style="list-style-type: none"> - Concerns associated with the disappearance of Mont Sorcier from the locally known and recognized landscape. 	<ul style="list-style-type: none"> - Collaboration is planned with Indigenous and non-Indigenous groups in the preparation of the mine site reclamation plan to incorporate their views into it.
Land use	<ul style="list-style-type: none"> - Mont Sorcier is an important part of the community and is considered a local asset in the use of the land for various activities. There are concerns that access to those activities, including the Mont Sorcier walking trail network, will disappear. 	<ul style="list-style-type: none"> - A land use compensation plan, such as relocating segments of walking trails, will be developed, and implemented by Voyager.
Housing	<ul style="list-style-type: none"> - In the context of the housing shortage in the Project's insertion area, concerns were raised about the potential negative effect that the Project could have on the retention of the local workforce with the arrival of FIFO workers who would potentially occupy housing. 	<ul style="list-style-type: none"> - Voyager will collaborate with the City of Chibougamau to support residential development in its new urban plan.
Workforce	<ul style="list-style-type: none"> - Stakeholders would like to see: <ul style="list-style-type: none"> · the local and regional labour pool to be favoured by the proponent; · considering the labour shortages, a labour strategy including the use of immigration be considered by the proponent; · training and regional capacity building be provided by the proponent. 	<ul style="list-style-type: none"> - Voyager intends to maximize the positive effects of the Project on local and regional businesses and workforce, to develop and enhance their expertise and maximize opportunities for them. - Measures will be proposed to enable members of the Cree community to acquire the necessary skills related to the jobs offered during the construction and operation periods. In this regard, training and development programs will be developed in collaboration with local, regional and Cree organizations. - Measures will be proposed to encourage the hiring of Cree workers, including women and young workers, and to reduce barriers or constraints to employment (e.g., mechanisms for worker integration such as information sessions, a Cree employment counsellor, etc.).
Social cohesion	<ul style="list-style-type: none"> - Concerns raised included the desire to ensure coordination and alignment of actions and strategies between Voyager and the local actors involved in the Project. 	<ul style="list-style-type: none"> - Committees will be set up with local actors to promote and facilitate collaboration for the benefit of the community and stakeholders.

Some additional activities will be implemented in the regions as the Project develops:

- At least two public information sessions with Voyager will be organized in Chibougamau and Oujé-Bougoumou (to which Mistissini stakeholders would be invited). These information sessions will invite the public, the users of the territory as well as the regional businesses. They will be an opportunity to present the Project and to gather the first observations and questions from the public. WSP will be present to support Voyager and answer any technical questions that may arise. Please note that other public information sessions could be added at the request of the community.
- A second meeting with the City of Chibougamau, Développement Chibougamau and the administration of the Eeyou Istchee James Bay Regional Government.
- Meetings with boundary users/recreationists/villagers.

It should also be noted that there are plans to formalize an approach aimed at local stakeholders in the Saguenay region concerned with the rail and sea transportation that will serve the Project. To date, an agreement in principle has already been concluded between Voyager and the Port of Saguenay.

Finally, as the iron produced by the Project will be exported by a third party from the port of Grande-Anse through the Saguenay Fjord (which flows into the St. Lawrence River), Voyager will consult with stakeholders who would potentially be affected by the impacts of shipping on marine mammals.

To maintain a strong and continuous link with the authorities and other parties, Voyager also wishes to set up working groups in collaboration with local communities and stakeholders affected by the Project. Once established, the working groups will play an important role in the assessment of the Project's impacts, in a spirit of collaboration and solution-seeking among the parties. Meetings may be held on topics of interest to the stakeholders to address in greater depth the elements that concern or interest them.

1.3 ENGAGEMENT ACTIVITIES WITH INDIGENOUS GROUPS

1.3.1 CONSULTATION PROCESS

The Project site is located near the Ouje-Bougoumou Cree community, more specifically on trapline O-57/M-57 (see Map 2 for more information on the location of the Project in the Indigenous context). A segment of the rail route considered at this stage of Project development will be constructed from the eastern portion of the Project site and will cross Trap Area O-59 to connect with the existing Canadian National Railway (CN) rail line¹. Part of the rail route (existing and operating link) to the port of Grande-Anse in Saguenay also crosses the Nitassinan (traditional land) of the Pekuakamiulnuash Takuhikan Innu Nation.

¹ Also called Canadian National.

It should be noted that a second railroad option was considered in the western sector of the site, on traplines O-55 and O-58 (Map 2). This option was presented to the two tallymen concerned, but the railroad option in the eastern sector of the mine site remains the preferred one at this stage of the planning and design of the Project.

It should also be noted that the Project involves the maritime transport of iron concentrate by boat from the port of Grande-Anse to the St. Lawrence River seaway, in the vicinity of Nionwentsio, traditional land of the Huron-Wendat Nation and the Pessamit Innu Nation.

Table 2 presents the list of First Nations likely to be affected by the Project.

Table 2 First Nations potentially affected by the Mont Sorcier Mining Project

FIRST NATIONS	LAND STATUS	NAME OF THE RESERVE/ VILLAGE	AFFILIATED TRIBAL COUNCIL	APPROXIMATE DISTANCE FROM THE PROJECT
Cree Nation of Ouje-Bougoumou	Land of the James Bay and Northern Quebec Northern Quebec	Oujé-Bougoumou	Grand Council of the Crees	Village: 50 km west
Cree Nation of Mistissini	Land of the James Bay and Northern Quebec Northern Quebec	Mistissini	Grand Council of the Crees	Village: 60 km northwest
Innu Nation of Pekuakamiulnuash Takuhikan	Reserve	Mashteuiatsh	Mamuitun Tribal Council	Land :13 km east Village: 200 km southeast
Atikamekw of Opitciwan	Reserve	Obejwan 28	Atikamekw Sipi - Atikamekw Nation Council	Land: 100 km southwest Village: 150 km southwest
Innu Nation of Essipit	Reserve	Essipit	Mamuitun Tribal Council	Land: 200 km east Village: 500 km southeast
Huron-Wendat Nation	Reserve	Wendake	Council of the Huron-Wendat Nation	Land: 300 km southeast Village: 400 km southeast

Source: Environment Canada and Geolocation, 2011; Government of Canada, 2021 and 2022a.

In 2022, Voyager initiated a series of information meetings with Indigenous groups and organizations. The target groups for this first phase were:

- Cree Nation Government (CNG);
- Ouje-Bougoumou Cree Nation;
- Cree Nation of Mistissini;
- Innu Nation of Pekuakamiulnuash Takuhikan;
- Cree tallymen of traplines O-57, O-59, O-55 and O-58 of Ouje-Bougoumou and M-57 of Mistissini;
- Innu Nation of Essipit.

Other Indigenous groups to be met in the future including the CCSSBJ.

1.3.2 MAIN CONCERNS

The meetings held to date have identified preliminary concerns shared by Indigenous groups. While these will guide many of Voyager's actions during Project development, some actions have already been considered for the Project. The main concerns expressed, and the actions taken by Voyager in response to these concerns are outlined in Table 3.

1.3.3 PLAN FOR FUTUR ENGAGEMENT

To maintain a strong and continuous link with the Indigenous groups affected by the Project, Voyager wishes to put in place adapted and concerted information and consultation processes with the Indigenous groups and to establish mutual agreements of collaboration and partnership with them.

To this end, a formal consultation, communication, and engagement plan that will incorporate an ongoing Project update will be developed by Voyager in consultation with the community. This plan will aim to gather the concerns and interests of Indigenous groups, including those related to environmental issues, land use, employment, training opportunities, service provision, potential collaborations, etc. The outcome of the discussions with the Indigenous groups will allow the Project to be designed to address their concerns and interests and to optimize the social acceptability of the Project.

It should be noted that a formal presentation of the Initial Project Description is planned for the members of the Ouje-Bougoumou, Mistissini and Pekuakamiulnuats Nations in 2023. Meetings with socio-economic and education/training stakeholders of the communities will also be held that same year.

It is important to note that the Project is mainly located in Cree territory, which is governed by the James Bay and Northern Quebec Agreement (JBNQA). It will therefore be subject to review under the JBNQA. The Project is designed in compliance with the framework prescribed by Section 22 of the JBNQA, its guiding principles as well as the mining policy of the Cree Nation Government².

1.3.4 STUDIES, PLANS OR ASSESSMENTS

Voyager has commissioned the following studies to update information on the Project:

- NI 43-101 compliant engineering study updating mineral resource estimate for the Mont Sorcier mining property. Completed in April 2019 by CSA Global Consultants Canada Ltd. (2019);
- Environmental and social scoping study produced in April 2019 by Norda Stelo to identify the environmental and social opportunities and constraints of the Mont Sorcier mining project (Norda Stelo, 2019);
- Preliminary economic study in accordance with NI 43-101 on the Mont Sorcier mining property conducted in April 2020 by CSA Global Consultants Canada Ltd. (2020);
- Preliminary economic study in accordance with NI 43-101 for the Mont Sorcier mining project produced in September 2022 by DRA (DRA Global 2022).

² https://www.engov.ca/wp-content/uploads/2018/03/politique_miniere_de_la_nation_crie.pdf

Table 3 Main concerns expressed by Indigenous groups and Voyager's responses

THEME	CONCERNS	MEASURES TAKEN BY TRAVEL
Fish habitat	<ul style="list-style-type: none"> - Impact of mine effluent on the environment. - Surface water management/runoff from the mine. - How water will be treated by the developer. - Disturbances caused by vibrations generated by blasting. - Dust emissions and their impacts. - Impact of the Project on the nearby walleye sanctuary in Chibougamau Lake. - Impact of the Project on walleye spawning grounds. - Cumulative impacts on fish habitat. 	<ul style="list-style-type: none"> - Implementation of a responsible water management plan, aimed at minimizing water use in the mill process and treating water before it is discharged to the environment. - Fish habitat monitoring will be conducted during the Project to assess the impact of the Project on fish habitat and to implement appropriate mitigation measures, if necessary. - A compensation plan to offset the loss of fish habitat by the Project will be developed in collaboration with Indigenous groups.
Current use of land and resources and resources for traditional purposes	<ul style="list-style-type: none"> - Disruption of traditional activities (hunting, fishing, trapping, berry picking, etc.) throughout the life cycle of the mine (construction, operation, and closure). - Fears are expressed by camp and cabin owners about the impacts of the Project on their living space. 	<ul style="list-style-type: none"> - Measures will be implemented in consultation with the tallymen so as not to affect activities during periods reserved for traditional hunting (goose break, moose break).
Protected area	<ul style="list-style-type: none"> - The Wapachee family raised the fact that a proposed biological refuge is located in the Project area. 	<ul style="list-style-type: none"> - Voyager will ensure that the Project's footprint is minimized as much as possible by considering technical, environmental, social, and economic aspects.
Cumulative Impacts	<ul style="list-style-type: none"> - To date, the cumulative impacts of disturbances on the traplines would have depleted the resource to the point where it could no longer meet the subsistence needs of the Cree families of traplines O-57 and O-59. The growing number of land users, the development of the city of Chibougamau and the intensification of mining activities in the 1940s to 1970s would top the list of contributors to cumulative impacts. Land users mentioned that due to heavy metals and other mining contaminants, fish consumption has decreased significantly, and the fish population has dropped considerably over the years. 	<ul style="list-style-type: none"> - As part of the Project planning, working committees will be set up to help avoid or minimize the various anticipated cumulative impacts, particularly with the tallymen concerned. - Relevant concerns and actions raised in other projects and other interviews with the family will be analyzed and updated as part of the Project.
Local and regional economy	<ul style="list-style-type: none"> - The Indigenous communities do not want only to suffer the negative impacts of the Project, but also to benefit from the opportunities it offers. - There would be an interest on the part of the users of the territory to associate themselves with the proponent in the various activities and works that will be carried out on the territory as the environmental and social assessment of the Project evolves. - Comments were made about the importance of addressing future training and employment/contracting opportunities within the affected families and the community. It was also clarified that the current spirit of collaboration in these early stages of the Project does not translate into acceptance or approval of the Project. - Members of the Indigenous groups have expressed their vision of development, policies or strategies concerning the Project. There may be divergent intergenerational perceptions among the Crees. It is hoped that Voyager will document and consider these different views and perceptions in the development of the Project. - It is hoped that collaborative agreements with Indigenous groups will be initiated prior to the development of the Project at the appropriate time. 	<ul style="list-style-type: none"> - The needs in terms of services and manpower as well as the related training will be communicated in advance to local and regional authorities. Local businesses and the workforce will be given preference, given equal competence. - Voyager will ensure to produce and implement each of the policies, strategies and agreements related to the Project. - Proceed with the common drafting of a collaboration agreement in the pre-development phase of the Project with Indigenous groups (prior to the impact and benefit agreements that will be signed in due course). The family directly impacted by the Project as well as the Innu community of Mashteuiatsh were respectively invited to transmit a model agreement to Voyager. - Collaborative arrangements will be made between Voyager and the local community. - The young users of the territory and young generations of the community will be invited to the engagement activities.
Participation in consultations	<ul style="list-style-type: none"> - Crees are of the opinion that it is important to inform them in advance of any work that will be carried out on their territory and to solicit them, if necessary, on a priority basis. - There would be too many consultation events, which would affect the attendance of members of Indigenous groups who are solicited. This leads to concerns that raised issues not being adequately transmitted. - For the Crees, and particularly the main users of the territory, the costs incurred by travel for the multiple consultations and participation in the various committees are significant and affect their participation, which may also affect the consultation process. 	<ul style="list-style-type: none"> - Counteract the fatigue associated with multiple consultations by optimizing the use of information already shared/published in similar projects developed in the region. - A remuneration protocol will be established between Voyager and the main users of the territory called upon by the multiple consultations.
Wildlife	<ul style="list-style-type: none"> - There are concerns that a project of the size of Mount Sorcier will directly affect the wildlife habitat, causing the species to move elsewhere in the area or affecting their behavior. 	<ul style="list-style-type: none"> - Supervise work when certain mammals are present (e.g., caribou) and during sensitive wildlife periods. - Establish and implement compensatory measures for loss of avian and terrestrial wildlife habitat. - Implement avian and terrestrial wildlife monitoring programs to verify the accuracy of the environmental assessment conducted for the Project and to assess the effectiveness of the mitigation measures implemented by Voyager with respect to the adverse environmental effects of the Project on wildlife.
Landscape	<ul style="list-style-type: none"> - Concerns associated with the disappearance of Mont Sorcier from the known and recognized landscape. 	<ul style="list-style-type: none"> - Collaboration is planned with Indigenous and non-Indigenous groups in the preparation of the mine site reclamation plan to incorporate their views into it.

Table 3 (cont.) Main concerns expressed by Indigenous groups and Voyager's responses

THEME	CONCERNS	MEASURES TAKEN BY TRAVEL
Transport	<ul style="list-style-type: none"> - The proximity of the new rail segment to the hunting camps is a concern for the Crees. - The risks of accidents/collisions (rail, ground transportation) caused by the traffic increase, particularly in the middle of the community of Mashteuiatsh, are a concern for some members of the Cree Nation. - Concerns have been raised about noise, dust and light pollution caused by transportation. 	<ul style="list-style-type: none"> - A transportation management plan with associated mitigation measures will be developed.
Climate change	<ul style="list-style-type: none"> - Concerns associated with the effects of climate change on workers were raised. 	<ul style="list-style-type: none"> - Voyager will consider climate change in the design of the infrastructure and will consider Ouranos' recommendations to increase its capacity to manage climate hazards over the life of the mine. This will be done with the objective of optimizing the resilience of the Project's infrastructure to climate change.
Quality of life	<ul style="list-style-type: none"> - Several concerns related to social, and quality of life issues were raised: <ul style="list-style-type: none"> · employment equity; · addiction problems (gambling, drugs, and alcohol); · personal financial management (employee support); · work-family balance (access to daycare); · access to social and community services due to increase in the number of citizens; · safe circulation around the mine site for the users of the territory; · risks and failures related to site operations (exceptional events); · impact on the lifestyle of the territory's users. - The rate of diabetes among the Cree population. 	<ul style="list-style-type: none"> - Collaboration with the CCSSSBJ and local health services (Chibougamau and Nord-du-Québec) to prospectively identify issues and target what is relevant and feasible for Voyager to do as part of the Project. - Implement policies and programs to: <ul style="list-style-type: none"> · employment equity and inclusion; · responsible environmental management; · safe and healthy work environment; · risk management (Environmental and Operational); · personal financial management; · addiction problems (drugs, alcohol); · prevention of risks incurred by diabetic workers. - Form a joint committee to monitor policies, programs, and issues as they arise. - Collaborate with government and local authorities to support the development of a skilled workforce.
Greenhouse gases	<ul style="list-style-type: none"> - Questions were raised about the impact of the Project on climate change. 	<ul style="list-style-type: none"> - GHG emissions will be monitored, and the Project will be designed using available technologies to minimize GHG emissions, where technically and economically feasible.

In developing the Project and regulatory filings related to the Project, Voyager will rely on a combination of sources, including the following:

- feedback from consultations with authorities and stakeholders;
- indigenous people and government authorities (regional, municipal, provincial, and federal);
- the traditional knowledge of the First Nations;
- the knowledge and expertise of its team and its consultants involved;
- industry codes, standards, and best practices;
- the findings of the environmental and technical work carried out;
- policy documents, studies and plans published by regulatory and government agencies.

Based on the available information consulted, no regional assessment in relation to the Project has been conducted pursuant to sections 92 and 93 of the IAA (S.C. 2019, c. 28, s. 1), or by or on behalf of any other jurisdiction, including an Indigenous governing body.

1.4 STRATEGIC ASSESSMENT UNDER SECTION 95 OF THE EIA

Environment and Climate Change Canada has released a document on strategic climate change assessment. This will provide guidance on how federal impact assessments will consider a project's greenhouse gas emissions and climate change resilience. This will allow for consistent, predictable, effective, and transparent consideration of climate change throughout the impact assessment process.

1.5 PURPOSE OF AND NEED FOR THE PROJECT, AND POTENTIAL BENEFITS

The Project takes place in a global context in which the demand for high-grade iron ore has increased in recent years. When used in blast furnaces to produce steel, high-grade iron concentrate contributes to significantly reduce GHG emissions in steel production, since it reduces the amount of energy required for steelmaking processes or allows the use of electric furnaces.

Moreover, the Mont Sorcier mineral deposit contains not only high-quality iron, but also an iron deposit mainly in the form of magnetite. Compared to hematite, the magnetite-type iron generally reduces coal consumption by steelmakers. In short, the deposit present at Mont Sorcier allows the production of a high-grade magnetite-type iron concentrate for the benefit of steelmakers, while at the same time supporting the fight against climate change.

Based on the preliminary economic assessment study completed by DRA Global in 2022, the Mont Sorcier deposit is estimated to contain 559.3 million tonnes (Mt) of indicated mineral resources at an average grade of 28.2% Fe₃O₄, yielding 163.4 Mt of iron (65%) and vanadium (0.52%) concentrate. In addition, a total of 470.5 Mt of inferred mineral resources generating 128.9 Mt of the same concentrate are also believed to be present on the property.

The results of the DRA Global (2022) study indicate that the Project has potentially viable economic results under the following scenario:

- An annual production of approximately 5 Mt of high quality, low impurity iron concentrate containing 65% iron and 0.52% vanadium.
- A base selling price of \$100/t of 62% iron concentrate plus a \$20/t premium for 65% iron content and a \$15/t vanadium credit.
- A lifespan of 21 years.
- Open pit mining with a stripping ratio over the life of the mine of less than 0.9:1.
- Average annual EBITDA of US\$348 million and average annual free cash flow of US\$235 million over the 21-year life.
- Total operating costs of US\$66/t of concentrate over the life of the mine (including freight to China).
- Initial capital expenditures are estimated at US\$574 million, including a US\$118 million contingency.
- A repayment period of less than two years.

Based on the assumptions used by DRA Global (2022) in conducting the preliminary economic assessment study, it is reasonable to believe that the open pit operation of the Project is amenable to the expectation of "reasonable prospects for eventual economic extraction", as per the Canadian Institute of Mining guidelines.

Furthermore, in addition to the favorable results of DRA Global's preliminary economic assessment study (2022), several factors support the Project:

- strategic location of the mining site;
- presence of favourable transportation infrastructure near the mining site;
- presence of favorable port infrastructure;
- presence of favorable renewable energy infrastructure.

1.6 APPLICABLE PROVISIONS

The provision in the Schedule to the Concrete Activities Regulations (SOR/2019285) describing the Project in whole or in part is as follows:

- 18(c) : The construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine, placer mine or uranium mine, with an ore production capacity of 5 000 tonnes per day or more.
- 18(d) A new metal mill, other than a uranium mill, with an ore input capacity of 5 000 t/day or more.

Thus, the preliminary analysis of the Project indicates that it is subject to the IAA as it involves a new mine and metallurgical plant with an average ore production capacity of approximately 13,700 t/d. The IAAC will decide on whether the designated project will be subject to an impact assessment if it is likely to have significant environmental effects on the components referred to in section 7(1) of the IAA, namely:

- fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act;
- aquatic species as defined in subsection 2(1) of the Species at Risk Act;
- migratory birds as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994;
- any other component of the environment identified in Schedule 3 of the IAA (no components currently identified in that schedule as of April 18, 2023);
- changes to the environment on federal lands, in a province other than the province in which the action is taken and outside Canada;
- the impact in Canada of changes affecting Indigenous peoples on :
 - natural and cultural heritage;
 - the current use of land and resources for traditional purposes;
 - a structure, site, or thing of historical, archaeological, paleontological, or architectural significance;
 - changes in health, social or economic conditions;
 - changes in any health, social or economic matter set out in Schedule 3 of the IAA that is within the legislative authority of the Parliament of Canada.

The Project is not a component of a larger project that is not listed.

It should also be noted that the Project involves the deposition of tailings and waste rocks in fish habitat and as such, a modification of Schedule 2 of the Metal Mining and Diamond Mining Effluent Regulations (MMDMER) will be required for the Project.

1.7 ACTIVITIES, PERMANENT OR TEMPORARY INFRASTRUCTURES AND STRUCTURES, AND PHYSICAL WORKS

1.7.1 SITE PREPARATION

The first phase of the Project will be to prepare the site to receive the equipment and allow for the construction of the infrastructure, structures, and works. The main activities associated with the preparation of the site will be carried out mainly with the help of subcontractors and their machinery and will consist of the following:

- deforestation;
- access road construction;
- setting up of construction trailers and temporary sanitary infrastructures;

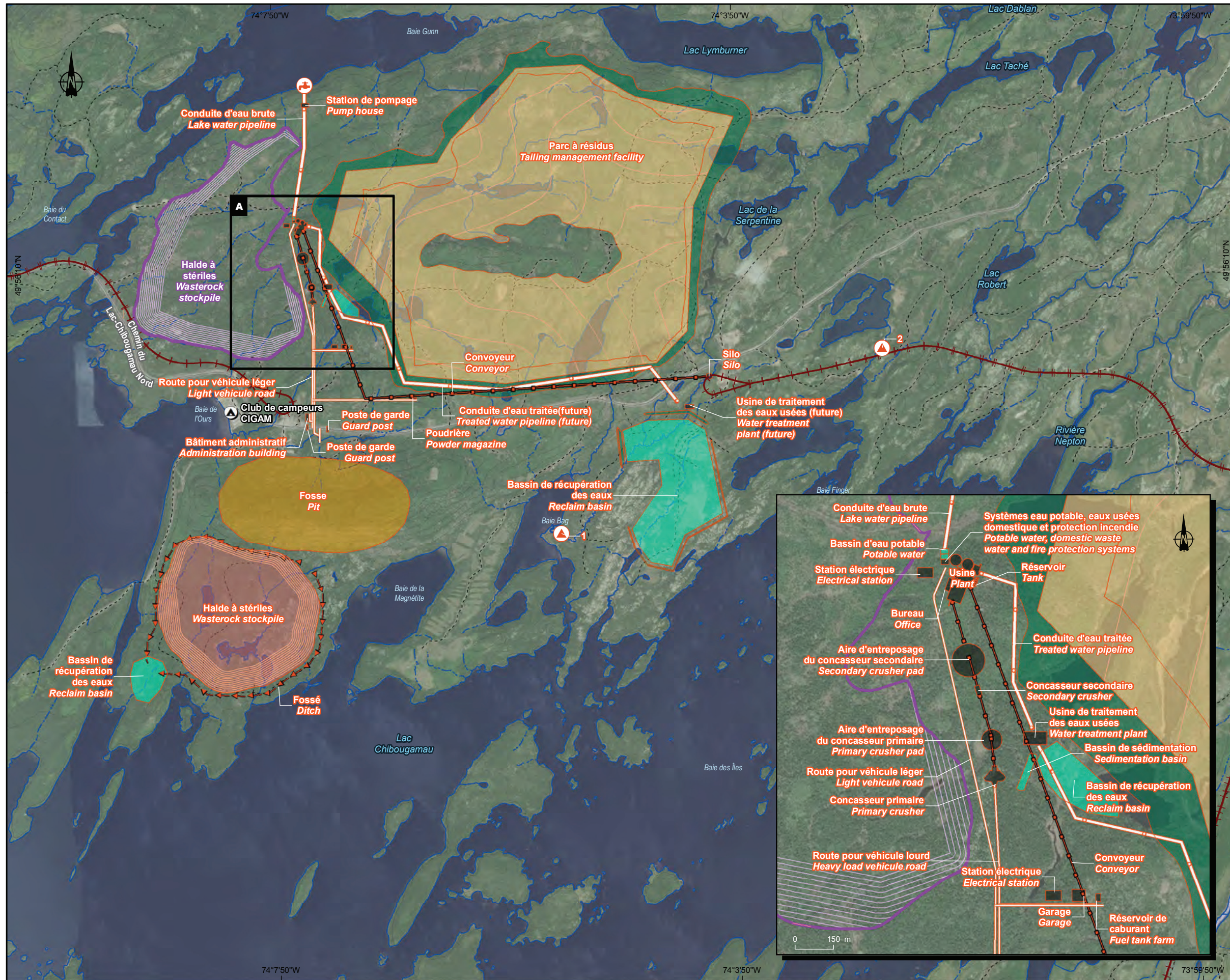
- development of temporary water management infrastructure;
- erection of machinery storage areas;
- transportation, circulation and refueling of machinery;
- development of areas for future infrastructure, structures and works.

1.7.2 CONSTRUCTION

The main infrastructures, structures, and work to be constructed for the mining operations of the Project are presented in Table 4. An overview of the future mining facilities as proposed at the Initial Project Description stage is presented on Map 3.

Table 4 Main infrastructures, structures, and work

ACTIVITIES RELATED TO MINING OPERATIONS	INFRASTRUCTURES, STRUCTURES AND WORK
Mining pit operation	Open pit
	Access ramps to the pit
Management and storage of waste rock and overburden	Waste rock and overburden storage areas
Ore processing	Primary and secondary crushers
	Ore conveyor network
	Ore processing plant
	Concentrate storage area and associated building
Transport of iron concentrate	Loading tower for iron concentrate into wagons
	Section of track connected to the existing rail network in the region
Storage and loading of iron concentrate at the port	Use/rental of existing infrastructure at the port
Tailings management and storage	Tailings storage area (tailings pond)
Water management	Ponds and water pumping stations associated with tailings management
	Network of ditches, ponds, and pumping stations for collecting surface runoff in contact with mining infrastructures
	Dewatering pumping system
	Natural freshwater withdrawal system
	Process water recirculation system at the tailings management facility
	Mine wastewater management and treatment system
	Water treatment and distribution system for human consumption
	Domestic wastewater treatment and management system
Wash bay water treatment and management system	
Support to mining operations	Power lines and substations
	Administrative offices and cloak room/drying room
	Warehouses containing an inventory of parts and consumables
	Maintenance workshop for railway equipment and infrastructure
	Safety healer
	Telecommunication system
	Fuel fleet
	Mechanical workshop and water/oil separator
	Wash bay
	Powder magazine, detonator storage and explosives preparation area



- Composantes projetées / Projected Components**
- ▲ Emplacement potentiel du point de rejet de l'effluent minier / Mining effluent discharge potential location
 - Prise d'eau potable / Drinking water intake
 - Conduite / Pipeline
 - Convoyeur / Conveyor
 - Fossé / Ditch
 - Route / Road
 - Élévation / Elevation
- Infrastructures de surface / Surface Infrastructures**
- Contours des composantes / Component contours
 - Bassin de récupération des eaux / Reclaim basin
 - Digue / Dyke
 - Fosse / Pit
 - Halde à stériles / Wasterock stockpile
 - Parc à résidus / Tailing management facility
 - Autre / Other
- Version conceptuelle préliminaire / Preliminary Conceptual Version**
- Halde à stériles / Wasterock stockpile
- Composante connexe projetée / Related Projected Component**
- Option de voie ferrée / Railroad option
- Loisirs et tourisme / Recreation and Tourism**
- ▲ Camping / Campground
- Hydrographie / Hydrography**
- Écoulement / Waterflow**
- Intermittent / Intermittent
 - Permanent / Permanent
 - Permanent partiellement souterrain / Partially underground permanent
- Réseau routier / Road Network**
- Chemin forestier / Forest road
 - Rue / Street

VOYAGER Metals Inc.

Projet minier Mont Sorcier / Mont Sorcier Mining Project
Description initiale du projet / Initial Project Description

Carte 3 / Map 3
Aperçu des installations minières / Overview of the Mining Installations

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec+, 1/50 000, RNCAN, 2014
BDTA, 1/250 000, MRN Québec, 2002
BDGA, 1/5 000 000, MRNF Québec, 2010
AQRéseau+, réseau routier, MERN, 2016
SDA, 1/20 000, MRNF Québec, avril 2015

0 400 800 m
UTM, fuseau 18, NAD83

Avril 2023 / April 2023

Préparation / Prepared by : M. De Champlain
Dessin / Draw by : M. Leclair
Approbation / Approved by : F. Lefrenière
211-05276-03_des_c03_026_comp_prj_230420.mxd



1.7.3 MINING OPERATIONS

1.7.3.1 MINING PIT OPERATION

The Mont Sorcier mine will use a Voyager controlled open pit, bench, and step mining approach. Mining will be carried out in the following stages: 1) drilling and blasting; 2) waste rock extraction and transportation; and 3) raw ore extraction and transportation.

- **Drilling and Blasting:** Drill operators will drill holes into which a mixture of explosives will be poured to blast the rock. All accessories and products used to make the emulsion will be purchased from a bulk explosives supplier and transported to the pit using explosives specialized trucks.
- **Waste rock extraction and transportation:** Once fragmented, the waste rock will be extracted from the pit using large capacity excavators and loaded into 190 t haul trucks using the same excavators or loaders. A total of 288 Mt of waste rock will be transported by these same trucks via ramps and haul roads to stockpiles for safe storage (waste rock management and storage is discussed later). It should be noted that a total of 8 Mt of overburden is expected to be excavated and stored near the pit for use in progressive reclamation as required (the location of the overburden stockpile will be provided as part of the Final Project Description).
- **Extraction and transportation of the raw ore:** The raw ore fragmented by blasting will be extracted from the pit using large capacity mechanical shovels and loaded into mining haul trucks using the same shovels or by loaders. A total of 341 Mt of raw ore will be extracted and transported by these same trucks on ramps and haul roads to the crushing equipment.

The infrastructure used to operate the mining pit is essentially access ramps and haul roads to transport the mined ore to the crusher and the waste rock to the stockpiles.

The main mining equipment used for the pit operation will be development and production drills, mechanical shovels, haul trucks and support equipment such as loaders, bulldozers, graders, and explosives specialized trucks. Service vehicles such as pick-up trucks and small trucks will also be used.

The waste rock will be stockpiled in two piles, one to the south and one to the north of the pit (Map 3), using two placement methods. The first method is used to dump the material near the crest with mining trucks and then push it down the slope with a bulldozer. The second method is used to dump individual waste rock batches onto the stockpile using haul trucks and then to level the surface with a bulldozer.

Geochemical characterization and leachate testing of the waste rock was underway at the time of filing this project description. The results will be used to determine the acid-generating and leaching potential of the waste rock and to identify water protection measures to be implemented, if required.

The overburden will be stored next to the pit to be used for progressive restoration as needed.

1.7.3.2 ORE PROCESSING

The processing plant will be designed to produce 5 Mtpa of magnetite concentrate. The plant will operate 365 days a year, 24 hours a day, with 90% utilization of the plant equipment.

The Mont Sorcier mill process consists of four main circuits: crushing, grinding, magnetic separation and flotation. The concentrate produced is then thickened, filtered, and dried prior to shipment, while the tailings from the ore processing are thickened prior to being sent to the tailings management facility for safe storage. A simplified preliminary process flow diagram of the ore processing plant is shown in Figure 1.

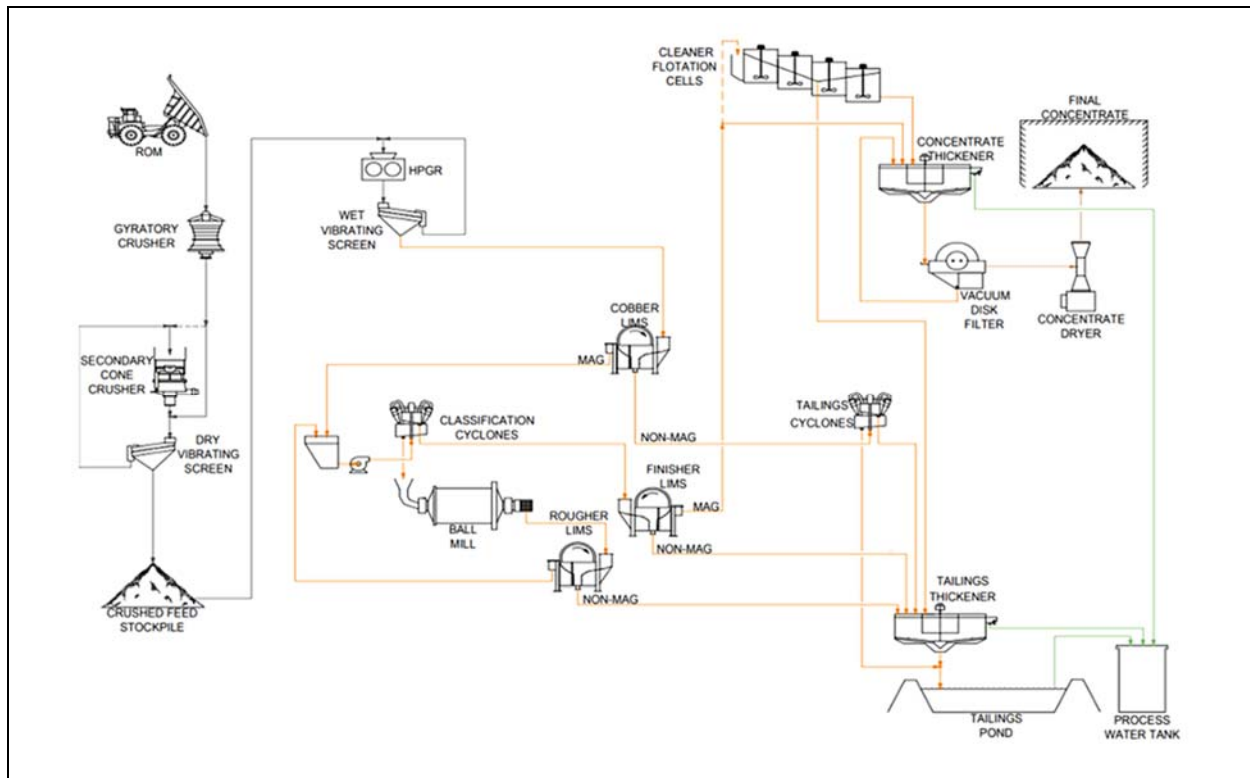


Figure 1 Simplified preliminary process diagram

Services to support the ore processing plant include the water supply, which is composed of two separate systems:

- A process water tank fed by the overflow of the thickener and recirculated water from the tailing's facility.
- A natural freshwater tank fed by the surrounding water system, which is used for on-site human consumption, reagent preparation, gland seal water and the fire protection system.

The ore processing plant support services are complemented by a compressor and an air dryer.

The milling process also includes the use of reagents to feed two processes. First, the flotation process involves the use of froth and reagents to adjust the pH and recover the sulphur and silica contained in the ore. The concentrate dewatering and tailings thickening process is also supported using a flocculant.

1.7.4 TRANSPORT OF IRON CONCENTRATE BY TRAIN

The concentrate produced will be transferred to railcars via a conveyor structure and a loading tower for transport by train to Grande-Anse in Saguenay (Map 1). The concentrate will then be transferred to ore carriers for delivery to customers.

Rail transportation will require the construction of a new 49 km long rail spur to connect to existing CN-owned rail infrastructure (Map 2), from where it will travel approximately 300 km to the port. The rail transportation system includes six trains each, with 120 gondola cars operating year-round.

The rail spur proposed at this stage of the Project will originate at the site (from a loop), proceed east and then south, and terminate by connecting to CN's existing rail infrastructure. The rail is a single line.

Approximately 30 km of the new rail line will closely follow the existing proposed route through the Blackrock iron ore mine project, located southeast of Mont Sorcier. The remaining 19 km between the Project and the Blackrock mining project area will be added to the line to reach the Mont Sorcier mine, completing the 49 km rail route.

The railroad right-of-way will be approximately 18 to 20 m wide, with a maximum area of about 100 ha. Approximately 35 km of the route will be in wooded areas, 11 km in wetlands and the remaining 3 km in unproductive land.

The proposed rail line will cross 58 logging roads, but no snowmobile or ATV trails. Crossings will be provided to allow various users to safely cross the track.

The proposed railroad alignment also includes 37 watercourse crossings (22 intermittent and 15 permanent) for a total of approximately 17 m of crossing length. It should be noted that bridges and culverts are planned to be installed according to the configuration of each crossing. The choice of bridge and culvert layout has not yet been determined at this stage of the design and will be the subject of a detailed analysis for each of the individual crossings as part of the EIA work, the report of which is expected to be submitted later. The objective for the development of the crossings will include minimizing encroachment into the water environment. Where appropriate, protection of fish habitat will be promoted, including the maintenance of free fish passage and protection of fisheries. The approach will also aim to minimize environmental impacts during construction, operation, and maintenance of the facilities and to comply as much as possible with the recommendations and mitigation measures concerning the development of bridges and culverts of Fisheries and Oceans Canada (DFO), as well as the requirements of the Cree Nation Government and other First Nations concerned.

1.7.5 STORAGE AND LOADING OF IRON CONCENTRATE AT THE PORT

Voyager plans to ship its iron concentrate to the federally owned Grande-Anse Marine Terminal, which is managed by the Saguenay Port Authority (SPA). The Grande-Anse wharf was built on the right bank of the Saguenay River. This wharf is made of sheet piling and topped by a concrete cap wall. It is equipped with mooring bollards on both sides of its structure, allowing it to receive ore carriers. The available water depth at low tide is 13.8 m.

Various infrastructures have already been developed on the terminal's service area, including an administrative building with a parking lot, a transshipment shed and a storage area. These infrastructures have been developed to meet various needs for the transportation of goods for regional industries.

To avoid the construction of additional rail infrastructure and to reduce the effects of the Project, the use of the existing rail line connecting the Grande-Anse Marine Terminal to the CN rail network in the Saguenay area will be necessary to allow for the management and loading of iron ore concentrate at the port facilities. This rail line is currently owned by Rio Tinto and an agreement will have to be concluded between Voyager and Rio Tinto to allow its use.

A memorandum of understanding has already been signed between Voyager and SPA in 2021, which provides for the two entities to work together to try to develop a plan to handle, store and load iron ore concentrate produced at the Mont Sorcier mine into ore carriers.

This plan will need to include multi-user type infrastructure, the construction, operation, and management of which will be part of the upcoming discussions between Voyager and SPA, with a view to reaching a successful agreement for all stakeholders, with respectful approach of the environment and the community.

1.7.6 TAILINGS MANAGEMENT AND STORAGE

The mill thickener, as described above, will receive tailings from the milling process before sending them as pulp to the tailings management facility. The tailings will be hydraulically deposited in the tailings management facility and confined by containment structures, which are dams that will need to be constructed and raised as the tailings facility fills. The tailings management facility dams were under design at the time of filing this project description. The technical details of the structures will be presented in the Feasibility Study Report to be produced later, which will be incorporated into the Project EIA, the report of which will also be provided to IAAC later.

It should be noted that geochemical characterization and leaching tests will be conducted on the tailings. The results will be used to determine the acid generating and leaching potential of the tailings and to determine the water protection measures to be implemented in the tailings facility if required.

1.7.7 WATER MANAGEMENT AT THE MINE SITE

1.7.7.1 WATER CONTAINED IN TAILINGS

The water content of the tailings stored at the tailings management facility will drain to a pond. A pumping station will be in place to recirculate the water to the ore processing plant for reuse in the ore processing.

Surplus water will be sent to a water treatment unit to ensure compliance with the MMDMER and the Ministry of Environment, Fight against Climate Change, Wildlife and Parks (MEFCCWP) Mining Industry Directive 019 (D019) quality criteria, before being discharged to a nearby watercourse.

The design criteria for the tailings facility water retention pond will meet D019. This will allow the tailings facility water retention structures to contain a design flood, which will be based on the cumulative volume of water from a critical rainfall event (based on a 1,000- or 2,000-year 24-hour rainfall event) and the 30-day average snowmelt (the amount of snow is corresponding to the maximum predicted 100-year return period). The base recurrence selected for the critical rainfall event for the design of the water retention structures will depend on the type of tailings:

- 1 : 2,000 years for acid-generating, cyanide-rich, radioactive, or high-risk tailings as defined in Appendix II of D019;
- 1 : 1,000 years for any other type of tailings.

In addition, in order to take into account the effects of climate change and to reduce the severity of the consequences that could result from it on the site's water management structures, the capacity to manage extreme rainfall and snowmelt events will be increased by considering, among other things, the results of the study published in 2022 by an Ouranos consortium concerning the regional climate portrait in reference to future climate in support of the analysis of impacts and adaptation to climate change in the James Bay Eeyou-Istchee, northern Abitibi-Témiscamingue and Nunavik regions (Paquin et al., 2022). According to this study, the increases to be applied to the Intensity-Duration-Frequency (IDF) curves in a future climate were estimated to be between +13% (2020-2040 period) and +48% (2080-2100 period) for the ARMs (annual rainfall maximums - maximum rainfall intensities recorded during the June-September period of each year) of 1 hour duration, according to an intermediate scenario. On the other hand, these same increases would be +7.5% to +28% for these same two future periods for 24-hour duration ARM. In comparison, an increase of +18% is generally recommended by Mailhot et al. (2014) for the IDF curves at the horizon for 2050 for the region between latitudes 51° N and 55° N.

1.7.7.2 SURFACE RUNOFF IN CONTACT WITH INFRASTRUCTURE

Overall, stormwater and snowmelt in contact with the mining infrastructure will be collected and managed by ditches, ponds, and pumping stations: pit, ramp and access road, waste rock and overburden stockpiles, tailings management facility, industrial sector related to the ore processing plant and support infrastructure.

The collected water will be directed to the tailings pond for reuse in the ore processing or for treatment and discharge of the surplus of water at the effluent when required.

A collection pond will also be constructed in the industrial area associated with the ore processing plant, east of the north waste rock stockpile. A second pond will be constructed in the south waste rock stockpile area. The water collected in these ponds will also be sent to the tailings management system.

Infrastructure and contact water management structures will be designed to meet D019 for non-water retaining structure, i.e., a 1:100-year flood.

Design criteria for water retaining structure will meet D019, and thus will be able to contain a design flood, which will be based on the cumulative volume of water from a critical rainfall event (based on a 1,000- or 2,000-year 24-hour rainfall event) and the average snowmelt over a 30-day period. The above-mentioned surcharges to account for climate change will be included in the design of the structures.

It should be noted that the stormwater management approach will focus on diverting natural runoff through diversion ditches before it comes into contact with the mine infrastructure, to minimize the amount of contact water generated.

1.7.7.3 DRAINAGE WATER

As the pit is developed, mine water will be pumped to the collection pond for use in the ore processing plant process. The mine water pumping equipment was under design at the time of filing the project description. The technical details of the equipment will be presented in the Feasibility Study report to be produced later, which will be incorporated into the EIA for the Project, the report of which will also be provided to the IAAC later.

1.7.7.4 NATURAL WATER WITHDRAWAL

A natural water pumping station north of the facility will be installed to pump water required for the Project. The preliminary location of the natural water intake, considered at this stage of the Project, is shown on Map 3.

1.7.7.5 WATER AND EFFLUENT TREATMENT

A mine wastewater treatment system will be used at the mine site. It will be used primarily to treat excess water accumulated in ponds. The treatment system will meet MMDMER and D019 criteria. The site will have one final mining effluent, which will discharge to one of the two locations considered at this stage of the Project development (Map 3).

The Project also includes a water treatment system for human consumption for distribution and sanitary use on the site. It will include water filtration and disinfection components to meet the criteria of the Quebec Regulation respecting the quality of drinking water (chapter Q2-, r. 40).

A domestic wastewater treatment and management system will also be installed on the site. This system will consist of a treatment plant. The effluent from this treatment system will be discharged into a tributary of Chibougamau Lake. The sludge from the treatment system will be recovered and disposed of off-site by a specialized independent company.

1.7.8 OPERATION SUPPORT

In addition to the water management infrastructure, the Project includes the use of the following infrastructures:

- power lines and substations;
- administrative offices and cloak room/drying room;
- parts and consumables warehouse;
- fuel fleet;
- mechanical workshop;
- wash bay;
- railway maintenance workshop;
- powder magazine and detonator storage and explosives preparation area;

- safety healer;
 - telecommunication system;
 - housing building;
 - liaison office.
-

1.7.9 SITE CLOSURE

Remediation work on the site will be carried out in compliance with the applicable regulatory provisions, the *Guide de préparation du plan de réaménagement et de restauration des sites miniers au Québec* (MERN, 2022a), the D019 sur l'industrie minière (MDDEP, 2012) and any other applicable provisions, such as the Politique de protection des sols et de réhabilitation des terrains contaminés and the Règlement sur la protection et la réhabilitation des terrains (c. Q2-, r. 37). The tallymen and the Cree community will be consulted in the development of the remediation plan.

Amongst elements that will receive special attention in the restoration of the site include:

- the management of contaminated water at the mine site and the effects of planned remediation measures on the levels of various contaminants in the effluent and in the natural environment;
- how forests affected by the Project will be rehabilitated;
- the effects of the Project on Indigenous communities related to post-mining site remediation.

The work will be completed by the implementation of a post-remediation monitoring and maintenance program that meets the requirements of section 4.14 of the *Guide de préparation du plan de réaménagement et de restauration des sites miniers au Québec* (MERN, 2022a). This program will aim to verify the integrity of the structures and the effectiveness of the corrective measures applied in the field and will also include environmental and agronomic monitoring.

1.8 MAXIMUM PRODUCTION CAPACITY AND PRODUCTION PROCESS

The ore processing plant will be built to the north of the pit (Map 3). Daily production will be variable, particularly during the start-up period of mining operations, as is common in the industry. Once the start-up and stabilization phase of the production operations is completed, the maximum annual production is expected to be of 5 Mt of iron ore concentrate, representing an average production rate of 13,698.6 t/d with a maximum daily rate of 25,000 t/d (subject to adjustments following the completion of the feasibility study).

1.9 PROJECT SHCEDULE

The main stages of the Project are summarized in Table 5.

Table 5 Main stages of the Mont Sorcier Mining Project

PERIOD	STAGE OF REALIZATION
2020	Preliminary Economic Study (by CSA)
2021-2023	Field inventory work
2022-2023	Update of the preliminary economic study (by DRA Global)
	Analysis of alternatives for the storage of mining waste
2023	Submission of the Initial Project Description to the federal authorities
	Development of the Fish and Wetland Habitat Compensation Plan
	Filing of the feasibility study
2024	Filing of the impact study (including the alternatives analysis report and the compensation plan)
2025	Start of the MMDMER Schedule 2 water body and watercourse modification process
	Federal Regulatory Authorities' Decision on Order Amending Schedule 2 of the MMDMER
2026	Start of site preparation and construction work
2027-2048	Mining operation
2048-2049	Closure and remediation of the site

1.10 POTENTIAL ALTERNATIVE MEANS

1.10.1 POTENTIAL ALTERNATIVES MEANS TO CARRYING OUT THE PROJECT

The evaluation of potential alternatives means to carrying out the Project is primarily considering components such as locations, development or implementation methods, routes, designs, technologies, mitigation measures, etc. The evaluation may also consider other means of enhancing the positive effects of the Project.

The project components described above (activities, infrastructure, structures, and work, whether permanent or temporary) are the alternatives means that have been determined to be preferable at the time of preparation of this document. The Project development process will include more detailed analysis and adjustment or optimization of these preferred means. Table 6 presents the project components for which alternatives means have been considered as well as the solution selected at this stage of the Project development.

Table 6 Project components for which alternatives were considered

Project components	Selected solution
Type of mining	Open pit
Method of storing waste rock and tailings	Surface storage with minimal footprint in water and wetlands
Tailings management method	Hydraulic deposition in a tailings management facility
Location of mine effluent discharge	<ul style="list-style-type: none"> – Solution 1: Bab Bay Area – Alternative 2: Finger Bay Area
Railroads	– Southeast route of approximately 49 km connecting to the existing railway in the southeast area of Chibougamau Lake
Port	– Grande-Anse Marine Terminal
Workers' housing	– The choice of the location, the duration (temporary or permanent building) and the housing modalities are not fixed, and the solution remains to be developed in collaboration with the local stakeholders

1.10.2 POTENTIAL ALTERNATIVES TO THE PROJECT

Alternatives to the Project are defined as functionally different ways to meet the need for the Project and achieve its purpose. These alternatives must be technically and economically feasible.

Voyager is a mining company with no other properties in operation. In addition to the Project, Voyager owns claims on which they are conducting manganese exploration in the Clinton area of British Columbia, Canada. There is, therefore, no economically viable alternative to the Project to develop a high-quality iron resource that would produce a high-grade iron concentrate.

1.11 PROPOSED LOCATION

A) GEOGRAPHIC COORDINATES

The Project is located in the administrative region of Northern Quebec, approximately 17 km east of downtown Chibougamau, in the municipal territory of Eeyou Istchee James Bay. The geographic coordinates (latitude/longitude, Nad 83) of the main components of the Project are as follows

- pit: -74° 07' 30.441; 49° 54' 51.711;
- tailings facility: -74° 05' 35.176; 49° 55' 49.908;
- south barren stop: -74° 08' 11.086; 49° 54' 15.142;
- north barren stop: -74° 08' 11.941; 49° 56' 12.425;
- industrial sector³: -74° 07' 35.605 ; 49° 56' 25.039;
- final effluent - Option 1: -74° 5' 21.391; 49° 54' 40.958
- final effluent - Option 2: -74° 2' 33.182; 49° 55' 41.989
- water intakes: -74° 7' 32.618; 49° 57' 12.737;
- western access: -74° 7' 33,159"; 49° 55' 17,49
- east access: -74° 7' 22,640"; 49° 55' 16,950.

B) SITE MAP

Map 3 shows the general projected location of the Project and its various components in relation to each other.

³ The industrial sector refers to the location of industrial buildings, including the ore processing plant and the iron concentrate storage area.

C) LAND OWNERSHIP

The Project site is located within the territory of the Regional Government of Eeyou Istchee James Bay. More specifically, it is located on Category III lands under the JBNQA. These lands are public lands that are part of the domain of the State where the Indigenous have hunting, fishing, and trapping rights in accordance with the hunting, fishing, and trapping regime enacted in Chapter 24 of the JBNQA.

To date, Voyager holds 64 mining claims in the Mont Sorcier area covering an area of approximately 3,195.6 ha. Map 4 shows the location of the mining claims held by Voyager and Vanadium.

All the Project's infrastructures are located on land in the public domain of Quebec (belonging to Her Majesty in right of the Province of Quebec).

D) PROXIMITY OF LOCAL COMMUNITIES

No permanent residences are located within the footprint of the proposed infrastructure. However, a municipal campground (CIGAM Camper Club) is located on the Voyager mining claims in Bear Bay (Map 5). This campground has 111 places, a beach and access to the lake for small boats. It is located approximately 800 m from the proposed pit. Three buildings are also present on Marguerite Island, within the Voyager mining property. These buildings are located approximately 3.2 km from the proposed pit.

An outfitter without exclusive rights (Pomerleau Fishing Camp) is located about 2 km west of the Project, on the shore of Chibougamau Lake (Map 5). This outfitter has 13 cottages used on a seasonal basis. Finally, as mentioned above, the town of Chibougamau is located approximately 17 km west of the Project. This town has a population of 7,233 (Statistics Canada, 2022).

E) PROXIMITY TO INDIGENOUS COMMUNITIES

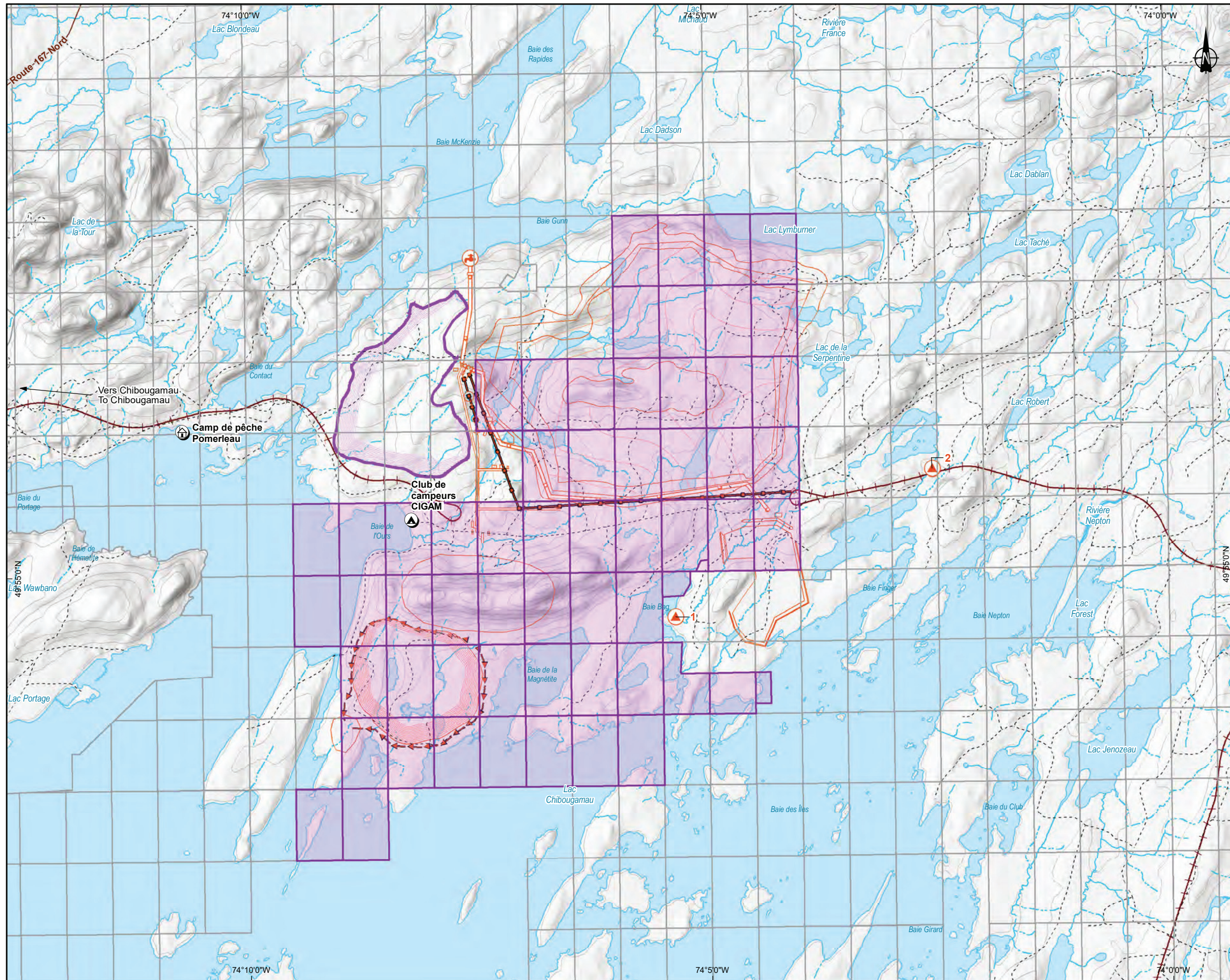
The closest Indigenous communities to the Project site are: 1) the Ouje-Bougoumou Cree community located approximately 50 km to the west on the shores of Lake Opemiska and 2) the Mistissini Cree community located approximately 60 km to the northeast -on the shores of Lake Mistassini.

Traditional lands claimed by other First Nations are also located to the east and south of the Project area. However, these territories are located outside the territory defined by the JBNQA. The traditional territory of the Pekuakamiulnuatsh First Nations is located approximately 13 km east of the Project site and that of the Obedjiwan Atikamekw, approximately 100 km to the southeast. Both Nations will be consulted in the context of the Project.

Map 2 illustrates the location of the Project in relation to Indigenous communities and lands that are subject to a comprehensive land claim agreement or self-government agreement.

F) PROXIMITY OF FEDERAL LANDS

No federal lands (as defined in section 2 of the IAA) are located in the Project area.



Composantes projetées / Projected Components

- Emplacement potentiel du point de rejet de l'effluent minier / Mining effluent discharge potential location
- Prise d'eau potable / Drinking water intake
- Conduite / Pipeline
- Convoyeur / Conveyor
- Fossé / Ditch
- Route / Road
- Élévation / Elevation

Infrastructures de surface / Surface Infrastructures

- Contours des composantes / Component contours

Version conceptuelle préliminaire / Preliminary Conceptual Version

- Halde à stériles / Wasterock stockpile

Composante connexe projetée / Related Projected Component

- Option de voie ferrée / Railroad option

Limites / Limits

- Claim du promoteur / Promoter's claims
- Autre claim / Other claim

Loisirs et tourisme / Recreation and Tourism

- Camp de pêche / Fishing camp
- Camping / Campground

Hydrographie /

Écoulement /

- Intermittent / Intermittent
- Permanent / Permanent
- Permanent partiellement souterrain / Permanent partially underground

Réseau routier / Road Network

- Route régionale / Regional road
- Chemin forestier / Forest road
- Rue / Street

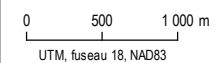


Projet minier Mont Sorcier / Mont Sorcier Mining Project

Description initiale du projet / Initial Project Description

**Carte 4 / Map 4
Claims miniers détenus par Voyager /
Mining Claims Owned by Voyager**

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec+, 1/50 000, RNCAN, 2014
BDTA, 1/250 000, MRN Québec, 2002
BDGA, 1/5 000 000, MRNF Québec, 2010
AQRéseau+, réseau routier, MERN, 2016
Gestion des titres miniers (GESTIM), MERN Québec, 8 mars 2022
SDA, 1/20 000, MRNF Québec, avril 2015

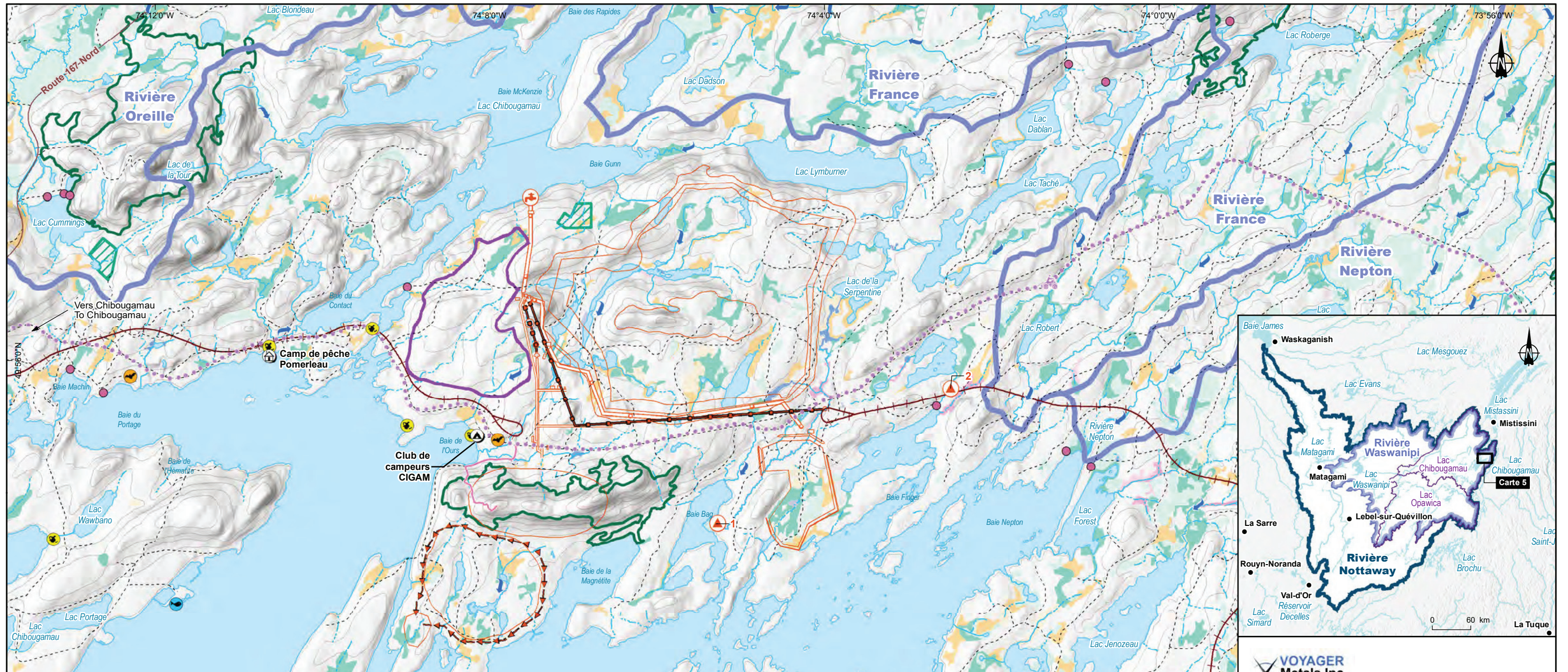


UTM, fuseau 18, NAD83

Avril 2023 / April 2023

Préparation / Prepared by : M. De Champlain
Dessin / Draw by : M. Leclair
Approbation / Approved by : F. Lefrenière
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Composantes projetées / Projected Components

- Emplacement potentiel du point de rejet de l'effluent minier / Mining effluent discharge potential location
- Prise d'eau potable / Drinking water intake
- Conduite / Pipeline
- Convoyeur / Conveyor
- Fossé / Ditch
- Route / Road
- Contours des composantes / Component contours
- Halde à stériles / Wasterock stockpile
- Composante connexe projetée / Related Projected Component**
- Option de voie ferrée / Railroad option

Réseau routier / Road Network

- Route régionale / Regional road
- Chemin forestier / Forest road

Loisirs et tourisme / Recreation and Tourism

- Bail de villégiature / Vacation lease
- Camp de pêche / Fishing camp
- Camping / Campground
- Sentier de motoquad / Quad bike trail
- Sentier pédestre / Pedestrian trail

Aires protégées / Protected Areas

- Écosystème forestier exceptionnel / Exceptional forest ecosystem
- Projet de refuge biologique exclu de la production forestière / Biological refuge project excluded from forest production

Habitats fauniques / Wildlife Habitats

- Site de maternité de chauve-souris / Bat maternity site
- Frayère / Spawning site

Archéologie / Archeology

- Site à potentiel archéologique / Site with archaeological potential

Milieus humides / Wetlands

- Eau peu profonde / Shallow water
- Marais / Marsh
- Marécage arbustif / Shrubby swamp
- Marécage arborescent / Forested swamp
- Tourbière ombrotrophe ouverte / Open bog
- Tourbière ombrotrophe boisée / Forested bog
- Tourbière minérotrophe ouverte / Open fen
- Tourbière minérotrophe boisée / Forested fen

Hydrographie / Hydrography

- Sens de l'écoulement / Water flow Direction

Écoulement / Waterflow

- Intermittent / Intermittent
- Permanent / Permanent
- Permanent partiellement souterrain / Permanent partially underground

Bassins versants / Watersheds

- Niveau 1 / Level 1
- Niveau 2 / Level 2
- Niveau 3 / Level 3
- Niveau 4 / Level 4

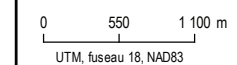


Projet minier Mont Sorcier / Mont Sorcier Mining Project

Description initiale du projet / Initial Project Description

**Carte 5 / Map 5
Principales composantes du milieu /
Main Environmental Components**

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec+, 1/50 000, RNCAN, 2014
BDTA, 1/250 000, MRN Québec, 2002
BDGA, 1/5 000 000, MRNF Québec, 2010
AQRéseau+, réseau routier, MERN, 2016
Baux de villégiature, MRNF Québec, janvier 2018
SDA, 1/20 000, MRNF Québec, avril 2015



UTM, fuseau 18, NAD83

Avril 2023 / April 2023

Préparation / Prepared by : M. De Champlain
Dessin / Draw by : M. Leclair
Approbation / Approved by : F. Lefrenière
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1.12 BIOLOGICAL AND PHYSICAL ENVIRONMENT DESCRIPTION

The Project area is located in the Nottaway River watershed, more precisely in the Chibougamau Lake sub-basin. Chibougamau Lake, with a surface area of 210 km², is an important body of water located near the Project site. Bear Bay, Magnetite Bay and Bag Bay of the Chibougamau Lake are located on Voyager's mining claims (Map 5). A few small streams and lakes are also present on the claims.

In the past and today, Chibougamau Lake and its shores have been impacted by mining activities (gold, copper, vanadium, etc.) and lake sediments still contain elevated concentrations of metals in some areas. In lake sediments, some metal concentrations have been measured at higher levels near the Copper Rand (arsenic, vanadium, etc.) and Principale (arsenic, cadmium, copper, nickel, and zinc) mine tailings impoundments, and these concentrations could potentially affect the more sensitive aquatic organisms. Water sampling of Chibougamau Lake in 2008 revealed that all metal concentrations were below water quality criteria for the protection of aquatic life (Norda Stelo, 2019).

Vegetation and wetlands

The Project area is located in the boreal vegetation zone, specifically in the open boreal forest subzone colonized by dense stands of boreal softwood and light hardwood species. This area is also located in the Western Spruce Moss bioclimatic domain (MFFP 2021).

According to the mapping of potential wetlands in Quebec produced in 2019, the wetlands potentially present on the mining property are mainly composed of swamps and, to a lesser extent, wooded and open peatlands (Map 5). These environments are located mainly in the area south and north of Mont Sorcier.

Aquatic Fauna and Fish Habitat

Chibougamau Lake, one of the largest lakes in the region, supports a diverse fish community, including some species prized by sport fishers and Cree communities. According to information obtained from the Ministère des Forêts, de la Faune et des Parcs⁴ (MFFP, 2022a), 21 species have been inventoried in this lake.

A baseline study conducted in 1998 and 1999 revealed that the fish population of Chibougamau Lake was dominated by walleye and burbot, while the status of the lake trout population was precarious (Norda Stelo, 2019). There is currently a total ban imposed by the MFFP on lake trout fishing due to low recruitment and poor population health in Chibougamau Lake (Norda Stelo, 2019).

Four wildlife sites of interest are present in Chibougamau Lake and correspond to walleye spawning grounds. In addition, 14 potential spawning grounds as well as deep water summer habitats for lake trout have been identified and mapped in the northern part of Chibougamau Lake (Norda Stelo, 2019).

⁴ Following the appointment of the new Council of Ministers in October 2022, the Forestry sector now falls under the Ministry of Natural Resources and Forestry (MRNF) while the Wildlife and Parks sectors fall under the Ministry of the Environment, Climate Change Control, Wildlife and Parks (MELCCFP).

Avian and terrestrial wildlife

According to the James Bay wildlife portrait produced by the CRRNTBJ (2010), several species of mammals are likely to frequent the area where the Project is located. Although not very abundant, the presence of white-tailed deer has also been confirmed in the Chibougamau and Chapais sector. The presence of the rock vole and Cooper's vole has also been confirmed by the MFFP (2022a) in the Project area. These species have a special status in Quebec, as do the pygmy weasel and the woodland caribou (forest ecotype). The woodland caribou (forest ecotype) also has a special status in Canada.

According to the information obtained from the MFFP (2022a), seven of the eight species of bats present in Quebec are present in the sector targeted by the Project. Among these species, five have a special status in Quebec or in Canada. In addition, a hibernaculum of northern bats and little brown bats is located near the Project site. Several active and potential maternities are also listed. These are generally dormitories installed on private land and are monitored annually by the MFFP (Map 5).

According to data from the *Atlas des oiseaux nicheurs du Québec*, there are 94 species of birds listed in or near the area where the Project is located: 23 water birds, 10 birds of prey and 63 forest birds (AONQ, 2022). Among these species, five have a special status in Quebec or in Canada. These are the Common Nighthawk, Bank Swallow, Canada Warbler, Bald Eagle and Rusty Blackbird. Four other special-status species were also observed near the town of Chibougamau according to eBird Québec (2022) data, namely Barrow's goldeneye, Peregrine falcon, barn swallow and red-necked phalarope. Information obtained from the MFFP (2022a), also mentions the presence of short-eared owl and olive-sided flycatcher.

Finally, according to the information transmitted by the MFFP (2022a), nine species of amphibians and three species of reptiles are present in the sector targeted by the Project. These are the blue-spotted salamander (*Ambystoma laterale*), the spotted salamander (*Ambystoma maculatum*), the two-lined salamander (*Eurycea bislineata*), the American toad (*Anaxyrus americanus*), the spring peeper (*Pseudacris crucifer*) wood frog (*Lithobates sylvaticus*), leopard frog (*Lithobates pipiens*), green frog (*Lithobates clamitans melanota*), northern frog (*Lithobates septentrionalis*), garter snake (*Thamnophis sirtalis*), painted turtle and snapping turtle. Of these species, only the Painted and Snapping Turtles have special status in Canada.

Species at risk

Several special-status species have been identified in the Project area.

Among the species at risk listed in Schedule 1 of the SARA, twelve are present in the sector targeted by the Project and five are likely to frequent this sector. The presence of the bank swallow, the little brown bat and the northern bat was confirmed based on data obtained from the Centre de données sur le patrimoine naturel du Québec (CDPNQ, 2022b). Information obtained from the MFFP (2022a) also confirmed the presence of lake sturgeon, bumblebee, short-eared owl, olive-sided flycatcher, and painted and snapping turtles in the Project area. Finally, the presence of Canada warbler, American nightjar and rusty blackbird was confirmed based on data from the *Atlas des oiseaux nicheurs du Québec* (AONQ, 2022).

The data obtained from the CDPNQ (2022a and 2022b) also mentions the presence of two plant species and three other wildlife species of special status in Quebec in the sector targeted by the implementation of the Project or in the vicinity. These are the modest aster, the field dicranelle, the bald eagle, the rock vole and Cooper's vole. The presence of other species of special status in Québec (pointed freshwater limpet and silver, ash, and red bats) has also been confirmed in this sector according to data obtained from the MFFP (2022a).

Protected areas and wildlife habitats

Two wildlife habitats protected under the Act respecting the conservation and development of wildlife (chapter C61-.1) are in the vicinity of the project area (Map 5). These include an island/peninsula inhabited by a bird colony as well as fish habitat. The latter includes all water bodies, marshes, swamps, and watercourses frequented by fish (including eggs and sexual products of fish, molluscs, and aquatic crustaceans) at one time or another of their life cycle.

An exceptional forest ecosystem protected under the Sustainable Forest Development Act (chapter A18-.1) is located approximately 3 km north of the Project area. It is the rare forest of Gunn Bay (Map 5).

A biological refuge project excluded from forest production (02664R022), covering 188.5 ha, is located on the Voyager mining claims (Map 5). This refuge project is awaiting legal recognition under the Sustainable Forest Management Act (chapter A18-.1). Even though this land is not legally protected, the MFFP applies the principle of prudent management to this area to maintain the conditions for eventual legal designation (e.g., territory excluded from all forest planning). This administrative protection does not, however, cover tree cutting for non-forestry rights, such as clearing corridors for exploration or mining. These activities could be allowed due to the presence of an active mineral title or high and recognized potential for mineral development based on the Biological Refuge Management Guidelines (Poulin, 2014).

1.13 HEALTH, SOCIAL AND ECONOMIC CONTEXT

1.13.1 POPULATION

As previously mentioned, the Project is located in the territory of the Eeyou Istchee James Bay Regional Government in the administrative region of Northern Quebec (Region 10). This territory has a total area of approximately 274,623 km² (MAMH, 2010) and is located between the 49° and 55° parallels. It is made up of the traditional territory of Eeyou Istchee, represented by the Cree Nation of the East, as well as the Jamésie, a non-Indigenous territory equivalent to a regional county municipality (RCM). Divided into 16 communities, the Jamesians and the Crees live together.

The Jamesian populations are grouped within the towns of Chapais, Chibougamau, Matagami and Lebel-sur-Quévillon, as well as the communities of Valcanton, Villebois and Radisson. For their part, the Crees are established in nine communities along the James Bay coast, at the mouths of the main tributaries or inland. These are the Cree communities of Chisasibi, Eastmain, Mistissini, Nemaska, Oujé-Bougoumou, Waskaganish, Waswanipi, Wemindji and Whapmagoostui. Each municipality and locality are administered by a municipal council and each Cree community is administered by a band council.

1.13.2 GLOBAL HEALTH PORTRAIT

An assessment of the health and well-being of Jamesians was conducted in 2009 for the Nord-du-Québec health and social services region (CRSSSBJ, 2009). The main results of this assessment are as follows:

- Drinking water quality and environmental tobacco smoke exposure are the two documented indicators that show the greatest potential for adverse health effects. In addition, workplace risks are significantly higher than those observed in other resource regions.
- The proportions of smokers and alcohol users are declining, although the age at which the first fully smoked cigarette is smoked is younger than in Quebec.
- Compared to Quebec as a whole, the region hospitalizes more people for diagnoses related to conditions that are suitable for ambulatory care. It stands out especially for hospitalizations for chronic obstructive pulmonary disease and pneumonia, diabetes, and hypertension.
- The physical health of Jamesians is similar to that of the Quebec population.
- Jamesians have a comparable or better mental health record compared to Quebec, except for suicidal ideation, which shows no difference.
- With respect to morbidity, an increase in the incidence of cancer has been observed. Lung cancer is of great concern, given that the rate of regular and occasional smokers has long been higher than in Quebec.
- An increase in the prematurity of newborns is observed in the region.
- The life expectancy of Jamesians does not differ significantly from Quebecers.
- The observed decline in trauma deaths is overshadowed by a meteoric rise in tumor mortality, which is the leading cause of death at 4 out of 10 deaths.

1.13.3 ACCESS TO HEALTH SERVICES

1.13.3.1 JAMESIAN CITIES

The cities of Chibougamau and Chapais are primarily served by the CRSSSBJ, which provides health and social services to the population. The territory of this CRSSSBJ includes the James Bay territory and covers an area of 350,000 km². The Jamesians are grouped mainly in the municipalities of Chapais, Chibougamau, Label-sur-Quévillon, Matagami and James Bay.

1.13.3.2 CREE COMMUNITY OF MISITISSINI

The Cree Nation of Mistissini is served by the Miyupimaatisiun Community Centre (MCC) of Mistissini, which offers medical services (cancer screening, occupational therapy, speech therapy, physiotherapy, etc.) and other more specific services for children, youth, and adults. The center also offers medical imaging services (partnership with the Chisasibi Hospital), pharmacy, mental health, paratransit, and dental care. Services are offered in French, English and Cree.

A multi-service day center also serves the territory by providing a space for gathering, healing, and learning for people in isolation, seniors, adults with special needs and people with mental health issues. It also provides services for youth, home and community care, and paramedical services.

A new Eeyou Istchee Youth Rehabilitation Centre was also opened in Mistissini in 2020. It provides a place of residence for youth who need intensive out-of-home interventions for substance abuse, trauma, and other serious problems.

1.13.3.3 OUJE-BOUGOUMOU CREE COMMUNITY

The Ouje-Bougoumou Cree Nation is served by the Ouje-Bougoumou Healing Centre, which offers emergency physical and psychological medical services, as well as more specific services for children, youth, and adults (minor surgery, family medicine, cancer screening, occupational therapy, speech therapy, physiotherapy, etc.) The center also offers pharmacy, mental health, home care, youth protection and dental services. Services are offered in French, English and Cree.

The community also has a multi-service day center that offers adapted transportation and paramedical services, such as audiology, psychoeducation, speech therapy, respiratory therapy, etc.

1.13.4 SOCIO-ECONOMIC CONDITIONS

1.13.4.1 JAMESIAN CITIES

EMPLOYMENT AND ECONOMIC ACTIVITIES

The economy of Northern Quebec is based primarily on the exploitation and transformation of natural resources. In 2021, the share of the primary sector was eight times higher than the rest of Quebec (17.6% vs. 2.2%), while the tertiary sector appears to be less present (62.6% vs. 79.7%).

In 2016, the unemployment rate for Jamésie was just over 8% (7.2% in Quebec), while the participation and employment rates were 69.0% and 63.2% (64.1% and 59.5% in Quebec) (Statistics Canada, 2013; 2017). Note that men (10.3%) are more affected than women (5.8%) by unemployment in Jamésie. This situation is partly the result of the difficulties experienced by the forestry industry, a sector where women are not very present. The start-up of several exploration and mining projects in James Bay should result in an increase in the labour force and a decrease in unemployment in the next census.

Although it remains strong in its mining and forestry heritage, the economic activities of the city of Chibougamau also include the service, energy, and recreational tourism sectors. Among the total active population aged 15 and over in 2016, the largest occupational category was sales and service, followed by education, law and social, community and government services (Statistics Canada, 2017).

As for workers in the mining industry, there were 250 people, including 210 men and 40 women. The construction industry accounted for 175 people, including 165 men and 10 women (Statistics Canada, 2017). However, the effects of the COVID-19 pandemic were significantly felt in Chibougamau, and many people left the city due to business closures, labor shortages and difficulty accessing services. According to the latest Statistics Canada census, the city has gone from 7,504 to 7,233 residents between 2016 and 2021 (Statistics Canada, 2022). Northern Quebec is also one of the 5 regions out of 17 that had a negative interregional migration balance in 2020-2021.

The labour force participation rate was 72.1% (74.8% for men and 69.2% for women), the employment rate was 67.1% (67.9% for men and 66.3% for women) and the unemployment rate was 6.9% (9.0% for men and 4.5% for women). The majority of workers were employees (3,935 people) while only 380 people were self-employed (Statistics Canada, 2017).

INCOME

In Jamésie, in 2015, the average income of people aged 15 and over was \$46,759, which is higher than that of Quebec, which was \$42,546. Indeed, in 2015, the average total income in Chibougamau was \$45,702 (\$53,215 for men and \$37,506 for women) and in Chapais it was \$43,531 (\$54,484 for men and \$31,285 for women) (Statistics Canada, 2017).

SCHOOLING

In 2016, educational attainment was lower in James Bay than in Quebec in general, as approximately 27.0% of residents aged 15 and over did not have a high school diploma, as opposed to 19.9% for Quebec (Statistics Canada, 2013; 2017). The gap is even more pronounced at the university level, as only 12.1% of Jamesians had a university education, nearly half the rate of the Quebec population (24.1%). There has been a slight decline in the graduation rate for the Jamesian region from 1,430 university graduates (12.5%) in 2011 to 1,360 graduates (12.1%) in 2016. It should be noted that there are no university institutions located within the Jamesian region. Only a few college campuses offering professional training are located there.

For the city of Chibougamau, in 2016, for the population aged 15 and over in private households, 25% did not have a certificate, diploma or degree, with a slightly higher proportion of men (53%). Eighteen percent of the population had a high school diploma, with a slight majority of females (53%) and 56% had a post-secondary certificate or degree, with a higher proportion of males (52%). The proportions are similar to the province and the country, except for the population without a degree, which is larger (Statistics Canada, 2017).

1.13.4.2 INDIGENOUS PEOPLES

EMPLOYMENT AND ECONOMIC ACTIVITIES

For the Cree community of Mistassini, there were 120 people (90 men and 25 women) in the mining, quarrying and oil and gas extraction industry in 2016. The construction industry, meanwhile, accounted for 110 people (105 males and no females) out of a total of 1,590 working age labor force. Of the total labor force aged 15 and over in 2016, the largest occupational category represented was Sales and Service, followed by Education, Law, and Social, Community, and Government Services. The labor force participation rate was 65.2 percent (68.8 percent for men and 61.8 percent for women), the employment rate was 54.1 percent (54.7 percent for men and 53.5 percent for women), and the unemployment rate was 16.7 percent (20.5 percent for men and 13.4 percent for women). The majority of workers were employees (1,490 people) while only 50 people were self-employed (Statistics Canada, 2017).

The Cree community of Ouje-Bougoumou had a labour force of 365 people aged 15 years and over in 2016 compared to 50 unemployed people (13.7%). A total of 10 people (100% male) were employed in the mining, quarrying and oil and gas extraction industry and 20 people in the construction industry in 2016, 15 of whom were male.

Of the total labor force aged 15 and over in 2016, the most represented major occupational category was Education, Law, and Social, Community, and Government Services, followed by Business, Finance, and Administration. The labor force participation rate was 74.5 percent (73.6 percent for men and 73.3 percent for women), the employment rate was 64.3 percent (60.4 percent for men and 68.9 percent for women), and the unemployment rate was 13.7 percent (17.9 percent for men and 9.1 percent for women). The majority of workers were employees (340 people) while only 15 people were self-employed (Statistics Canada, 2017).

INCOME

In 2015, the median total income among beneficiaries aged 15 years and older in Mistissini was \$35,392 (\$35,691 for males and \$35,072 for females) while the average total income was \$40,203 (\$40,572 for males and \$39,871 for females). In 2015, the median total household income in Mistissini was \$92,928, while the average total household income was \$102,080 (Statistics Canada, 2017).

In the community of Oujé-Bougoumou, the numbers are similar, with a median total income among recipients aged 15 years and older that was \$36,480 (\$28,864 for men and \$41,728 for women) and a mean total income that was \$39,384 (\$35,274 for men and \$44,035 for women) (Statistics Canada, 2017). It is interesting to note that the income of women in the community of Oujé-Bougoumou is higher than that of men.

SCHOOLING

Regarding education, in 2016, for the population aged 15 and over in private households, 54% did not have a certificate, diploma or degree in Mistissini, with an equal proportion of men and women, which is almost three times higher than in Quebec (20%) and Canada (18%). Only 8% of the population had a high school diploma with a majority of women (66%), and 37% had a post-secondary certificate or degree with a slight majority of women (52%). The proportions are significantly lower than the province and the country, demonstrating some vulnerability in education (Statistics Canada, 2017).

For the Cree community of Ouje-Bougoumou, the proportions for the same year (2016) were 40% of the population aged 15 and over in private households who did not have a certificate, diploma, or degree, with a higher share among men (60%), which is twice as high as in Quebec and Canada. Only 14% of the population had a high school diploma, with a majority of women (57%), and 45% had a post-secondary certificate or degree, with an equal proportion of men and women. The proportions, like Mistissini, are lower than the province and the country (Statistics Canada, 2017).

1.13.5 HUNTING, FISHING AND TRAPPING

Hunting, fishing, and trapping are very popular activities in the region and provide numerous jobs and significant economic benefits. The Project site is located in hunting zone number 17 and in fur management unit number 87 (Government of Quebec, 2022b and 2022c). More specifically, walleye fishing and moose and black bear hunting are activities of great interest in the region.

The Project area is located on Category III lands. These lands are accessible to all communities, but the Indigenous Cree population retains exclusive rights to hunt, fish and trap certain aquatic and fur-bearing species.

The harvesting of furbearers is an important part of the traditional activities of Indigenous trappers. The trapline of tallyman James B. Wapachee (O57) encompasses the Project site (Map 2). Trapline 059 is located near the Project, in an area being studied for the construction of a section of railroad (southeast alignment) to link the future mine site to the existing railway network (Map 2).

According to a complementary study to an environmental impact assessment of the BlackRock mining project, located about 10 km southeast of the Project site, the predominant traditional activities of the Oujé-Bougoumou (and sometimes Mistissini) Crees in this area are the following

- moose and migratory bird hunting;
- fishing on Chibougamau Lake and other smaller bodies of water;
- trapping of furbearing species such as beaver, weasel, and lynx;
- and gathering (fruits and plants).

1.13.6 HERITAGE AND ARCHAEOLOGY

According to information obtained from the *Inventaire des sites archéologiques du Québec* of the Ministère de la Culture et des Communications du Québec (MCC), four sectors with high archaeological potential have been identified west of the Project site: the Bear Bay sector, the Chibougamau Lake sectors and the Valiquette Strait sector (Map 5; MCC, 2022).

1.14 FINANCIAL SUPPORT

Voyager is considering all forms and sources of funding for the Project, but no federal, provincial, territorial, Indigenous, or municipal government involvement is contemplated at the time of filing this project description.

1.15 STATE-OWNED TERRITORIES

No federal lands (as defined in section 2 of the IAA) are located in the Project area. No federal lands will be used for the purposes of the Project.

1.16 FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS AND MUNICIPAL INVOLVEMENT

1.16.1 GOVERNMENT OF CANADA

Upon completion of the environmental assessment processes, Voyager will proceed with permit applications for the construction and operation of the Project.

Voyager also places great importance on relations with the Indigenous people and their representatives and on respecting the JBNQA in its activities related to the Project. For this reason, Voyager intends to work closely with the Cree Nation Government in the authorization process for the construction and operation of the mine.

A preliminary, non-exhaustive list of federally required applications, notices and statements is provided below:

- a licence to manufacture and store explosives (Explosives Act);
- a permit to transport explosives (Explosives Act);
- a report to the National Pollutant Release Inventory (NPRI);
- a notice and emergency plan based on the nature and quantities of products stored at the site (Environmental Emergency Regulations);
- an authorization to cause the harmful alteration, disruption, or destruction of fish habitat (Fisheries Act);
- an amendment to Schedule 2 of the MMDMER for storage of tailings in waters frequented by fish;
- an amendment to Schedule 2 of the MMDMER to store mine waste rock in fish habitat;
- a notice for the mine effluent(s) (MMDMER).

1.16.2 PROVINCIAL GOVERNMENT AND CREE NATION GOVERNMENT

The Project is located in the territory covered by the JBNQA. The provisions applicable to the James Bay and Northern Québec region for projects located south of 55° (Environment Quality Act [EQA], Title II, Chapter II) thus apply to the Project.

As part of the implementation of the assessment and review procedure applicable to projects located on the territory of the JBNQA, the functions of the James Bay Advisory Committee on the Environment (also known as the "Gaweshouwaitego Asgee Weshouwehun") are to monitor, through the free exchange of views and information, the application of Section 22 of the JBNQA and to provide administrative oversight of the Assessment Committee referred to in Section 148 of the CEQA.

Since mining projects such as Mont Sorcier are listed in subsection (a) of Schedule A of EQA, it is mandatorily subject to the assessment and review procedure set forth in Title II, Chapter II of CEQA. The evaluation and review of the project must be conducted by two EQA committees (Title II, Chapter II, Division II of EQA):

- Evaluation Committee (COMEV): a tripartite Quebec-Canada-Cree body responsible for the preliminary evaluation and development of project guidelines;
- Review Committee (COMEX): a bipartite Quebec-Cree body responsible for reviewing projects.

The realization of the Project will thus require a certificate of authorization issued by the Government of Quebec, provided that the decision is favourable to the project once the planned evaluation and review procedure has been completed.

Since the Project is provincial in nature and located on Category III lands of the JBNQA, this decision will be made by the Government of Quebec and will be based, among other things, on the recommendations and opinions of the COMEV and COMEX.

Upon completion of a favorable project evaluation and review process, Voyager will proceed with applications for authorization to construct and operate the Project.

As with the federal applications, Voyager will also work closely with the Cree Nation Government for any information related to the issuance of permits and certificates required for the construction and operation of the mine at the provincial level as well.

A preliminary, non-exhaustive list of applications for provincial permits and certificates is presented below:-

- a specific authorization to erect or modify a structure, undertake the operation of an industry, carry out an activity or use an industrial process that could affect the quality of the environment (EQA);
- an authorization to establish a water supply intake;
- a specific authorization to erect or modify a structure, undertake the operation of an industry, carry on an activity, or use an industrial process that may affect a watercourse, lake, or wetland (EQA);
- a compensation plan (An Act respecting compensation measures for projects affecting a wetland or water body);
- an authorization for devices or equipment intended to prevent, reduce, or stop the release of contaminants into the atmosphere (EQA);
- an Industrial Hygiene Certification;
- an authorization for any activity involving the withdrawal of groundwater or surface water (dewatering, keeping dry, water supply, etc.) (EQA);
- an authorization to carry out an activity that may alter wildlife habitat (Loi sur la conservation et la mise en valeur de la faune);
- an intervention permit for the cutting of wood for the purpose of carrying out certain mining activities (Sustainable Forest Development Act);
- an authorization to construct or improve a multi-use road (Sustainable Forest Management Act);
- a permit for use of high-risk petroleum equipment (Safety Code and Building Code. These codes are governed by the Building Act);
- an approval of the site to receive tailings (waste rock, overburden and tailings) and the mill site (Mining Act);
- approval of the rehabilitation and restoration plan (Mining Act);
- a public land use permit (Crown Lands Act);
- an explosives permit (Explosives Act);
- a permit from the Sûreté du Québec (Explosives Act).

1.17 CHANGES TO THE COMPONENTS OF THE ENVIRONMENT

Table 7 presents the changes that could potentially be caused to environmental components for the entire life cycle of the Project.

It should be noted that the potential effects and changes presented in this section are proposed before the Project is fully designed. They remain to be confirmed and refined once the planning and design of the Project is completed and the EIA is completed.

1.18 NAVIGATION

The number of water bodies and watercourses encroached upon by the mining infrastructure planned at this stage of Project planning and design is presented in Table 8. The number of watercourses crossed by the two rail scenarios analyzed for the Project is presented in Table 9. It should be noted that the quantities presented in Tables 8 and 9 are preliminary and may vary as the Project develops.

The navigability of all water bodies and waterways affected by the Project had not been established at the time of filing this project description. Ongoing work will determine the navigability of each of these and assess the effects of the Project on navigation. The results will be presented in the EIA report to be produced and submitted to the IAAC at a later date.

Table 7 Potential changes to components of the environment

PROJECT PHASES	SOURCES OF POTENTIAL EFFECTS	CHANGES
Construction	<ul style="list-style-type: none"> - Site preparation: clearing, stripping, excavation, earthwork, - Drilling and blasting - Construction and installation of temporary and permanent infrastructures and equipment: foundations, construction of buildings and access roads, dykes, and ditches - Encroachment into lakes and watercourses during construction - Construction of certain structures and infrastructure in lakes and rivers - Noise and vibration generated by construction activities - Dust and air contaminant emissions - Use of equipment and heavy machinery and refueling of machinery - Accident and failure - Presence of outside construction workers and additional labor for the Project. - Management of hazardous materials and residual materials (hazardous, domestic and construction) - Increase in road traffic - The increase in the purchase of goods, materials, and services 	<ul style="list-style-type: none"> - Change in valued components related to community health (to be validated in the impact study to be carried out) - Disruption of the safety of Indigenous and non-Indigenous girls and women - Disruption of access to health and social services - Change of the sound and light environment - Change in demographic profile - Change in ambient air quality through the emission of gaseous contaminants, particulate matter, and metals into the air - Alteration of surface, drinking and ground water quality - Change in water use by water users at the scale of the affected watersheds: recreational water bodies and drinking water - Disruption, degradation and loss of fish and benthic habitat - Alteration of surface water quality (suspended solids emissions, accidental spills) - Modification of the hydrological and hydrogeological regime - Modification of natural surface water flow patterns - Modification of free passage of fish - Increased fishing pressure - Depending on the nature of the effluent discharge: acute or chronic effects on ichthyological fauna - Loss of vegetated areas and disturbance of plant associations in natural terrestrial and wetland environments - Spill or contamination of natural terrestrial and wetland environments - Loss of wildlife habitat - Loss of wetlands and associated ecological functions - Loss of biodiversity - Loss of carbon sink - Habitat disturbance and fragmentation - Disturbance in the behavior of animal populations - Sensory disturbances of wildlife (noise, vibration, light) - Risk of collisions, destruction of nests or mortality - Changes in the quality of wildlife habitats in the event of a spill - Increased hunting pressure - Depending on the nature of the accidental release: acute or chronic effects on wildlife
Operation	<ul style="list-style-type: none"> - Mining activity, including vehicle traffic, ore crushing, use of explosives containing nitrogen - The presence and operation of new infrastructure - Blasting - Dewatering of the pit / lowering of the water table / pumping of mine water - Surface water withdrawal - Surface runoff management - Management of water in contact with mining infrastructures, waste rock and ore - Management of water contained in tailings stored in the tailings facility - Treated mine effluent discharge - Treated domestic effluent discharge - Use and circulation and refueling of machinery - Dust and air contaminant emissions - Wind erosion of tailings - Mining drainage - Contaminant emissions to surface and ground water - Management of hazardous materials and residual materials (hazardous, domestic and construction) - Accident and failure - Settlement of new residents in the community 	<ul style="list-style-type: none"> - Modification of the quality of drinking water (to be validated in the impact study to be carried out) - Change in valued components related to community health (to be validated in the impact study to be carried out) - Disruption of the safety of Indigenous and non-Indigenous girls and women - Changing the community landscape - Disruption of access to health and social services - Changing demographic profile - Change of the sound and light environment - Change in ambient air quality through the emission of gaseous contaminants, particulate matter, and metals into the air - Increase of greenhouse gases in the atmosphere - Alteration of surface and ground water quality - Modification of the hydrological and hydrogeological regime - Change in water use by water users at the scale of the affected watersheds: recreational water bodies and drinking water - Modification of surface water quality (suspended solids emissions, accidental spills) - Increased fishing pressure due to increased population and workers - Depending on the nature of the effluent discharge: acute or chronic effects on ichthyological fauna - Spill or contamination of natural terrestrial and wetland environments - Modification of hydrological regimes essential to the maintenance of wetlands - Disturbance in the behavior of animal populations - Sensory disturbances (noise, vibration, light)

Table 7 (cont.) Potential changes to components of the environment

PROJECT PHASES	SOURCES OF POTENTIAL EFFECTS	CHANGES
Operation (cont.)	<ul style="list-style-type: none"> - Shuttling of fly in/fly out workers - Increase in road traffic - Cumulative effects related to other projects in the area and the establishment of new business and suppliers in the local community - The arrival of additional workers who settle in the community - Economic Benefits of the Project - Creation of professional training opportunities for indigenous and non-indigenous people - Increased purchase of goods, materials, and services 	<ul style="list-style-type: none"> - Risk of collision or mortality - Alteration of habitat quality - Increased hunting pressure due to increased population and workers - Depending on the nature of the release: acute or chronic effects on wildlife - Alteration of food quality and traditional resources such as fish caught in the surrounding water bodies and streams - Increase in direct and indirect employment - Attraction and retention of local citizens - Increased local economic vitality - Creation of more favourable conditions for the establishment of services to the population in the local community - Enhanced social well-being and economic prosperity of Indigenous communities including increased employability of Indigenous people (training) and the creation of business opportunities for Indigenous businesses - Economic benefits for local and regional suppliers - Stimulation of the local and regional economy
Closing	<ul style="list-style-type: none"> - Remediation of the site - Dismantling of equipment and infrastructure - Ditching of the pit - Management of hazardous materials and residual materials (hazardous, domestic and construction) - Use, circulation and refueling of machinery - Long-term effects on economic conditions in the post-closure phase of the Project 	<ul style="list-style-type: none"> - Opportunities to optimize land use in the vicinity of the mine site through the use and redevelopment of existing infrastructure in a manner that promotes resilient local socio-economic conditions - Change in ambient air quality through the release of gaseous contaminants, particulate matter, and metals into the air (remediation work) - Alteration of groundwater and surface water quality by accidental spills (remediation work) - Following the remediation work: <ul style="list-style-type: none"> - Landscape change - Re-establishment of vegetated areas and wetlands - Modification of the hydrological and hydrogeological regime - Restoration of surface water, groundwater and drinking water quality - Gradual decrease of disturbance in the behavior of populations - Progressive reduction of sensory disturbances (noise, light, vibration) - Gradual reduction of the risk of collision - Progressive restoration of forest cover on decommissioned sites - Improvement of the quality of habitats

Table 8 Number of water bodies and watercourses encroached upon by mining infrastructure

DESCRIPTION	QUANTITY
Water bodies	24
Intermittent Stream	47
Permanent water courses	43

Table 9 Number of Rivers Crossed by the Two Railway Scenarios

NUMBER OF WATERWAYS CROSSED	WESTERN ROUTE	EAST ROUTE (ROUTE RETAINED FOR THE PROJECT)
Intermittent	20	22
Permanent	14	15

1.19 CHANGES TO FEDERAL, OTHER PROVINCIAL OR FOREIGN LANDS

The area targeted by the implementation of the Project is located within the territory of the City of Chibougamau in the Province of Quebec. No effect of the Project is apprehended on the federal territory, outside the province or outside Canada.

1.20 IMPACT ON INDIGENOUS PEOPLES

Voyager believes that the use of the Project area is a privilege that must be granted by the Indigenous peoples, and it is with this in mind that Voyager is committed to developing and maintaining excellent relationships with them to ensure a fruitful collaboration that fosters a relationship of understanding, trust, cooperation, transparency, and mutual respect.

The recognition and unconditional respect of the rights of indigenous peoples is fundamental to the success of Voyager and to the sustainable development of local indigenous peoples and host communities.

Voyager intends to respect the rights, interests, aspirations, culture, and natural resource-based livelihoods of indigenous peoples in the design, development, and operation of the Project. Voyager also intends to work to obtain the free, prior, and informed consent of Indigenous peoples and to outline both the positive and negative effects of the Project that are likely to occur, whether related to the disturbance of traditional lands and resources or to natural, cultural, and spiritual heritage. At all times, Voyager will ensure that the results of engagement processes and potential agreements are well understood by Indigenous peoples in advance, to ensure their free and informed consent to the Project.

Table 10 presents the potential impacts of the Project on Indigenous peoples.

It should be noted that the potential impacts presented in this section are proposed before the Project is fully designed. They remain to be confirmed and refined once the Project planning and design is complete and the EIA is completed.

1.21 GREENHOUSE GAS EMISSIONS

1.21.1 ASSESSMENT OF NET GHG EMISSIONS

As the Project is still in the design and planning stage, all detailed GHG emissions information is not available to accurately determine net GHG emissions for each year of the Project's life. The assessment of net GHG emissions will be conducted after the feasibility study is completed. The results will be presented in the EIA report to be produced and submitted to the IAAC later. Nevertheless, for the purposes of the initial project description, a preliminary estimate of GHG emissions is provided in subsection 1.21.4.

1.21.2 DIRECT EMISSIONS

Although liquefied natural gas and hydrogen may be considered as a source of energy for the Project, hydroelectricity will be the preferred source of energy (assuming Hydro-Québec can meet the needs at the site). Gasoline and diesel will be used to meet energy needs in cases where hydroelectricity cannot be used or is not available for a specific need. If liquefied natural gas or hydrogen technologies are available as an alternative energy source to diesel or gasoline from equipment suppliers or other types of suppliers at the time of making the purchases required for the Project, these would be preferred to meet energy needs.

Emissions from stationary and mobile combustion

Stationary fuel combustion sources are devices that burn fuel for the purpose of producing heat or useful work. This includes boilers, power generation units, cogeneration units, combustion turbines, engines, incinerators, and heating devices. Mobile combustion refers to devices that burn fuel and are not stationary (e.g., transportation activities - road, off-road, air, rail, and waterborne). Since the Project is still in the planning and design stage, details of the type of energy expected to be used for each of the activities carried out are not available. GHG emissions from stationary and mobile fossil fuel combustion will be assessed once the feasibility study is completed and will be presented in the EIA report to be produced and submitted to the IAAC later.

Emissions from land use conversion

GHG emissions and removals resulting from land use conversion as a direct result of Project construction are normally included in direct GHG emissions. At the time of filing this project description, work to estimate the area of affected land in each Intergovernmental Panel on Climate Change land use category (forest land, wetland, cropland, grassland) was underway. The assessment of direct GHG emissions from Project-affected lands will be presented in the EIA report to be produced and submitted to the IAAC at a later date.

Table 10 Potential Impacts of the Project on Indigenous Peoples

PROJECT PHASES	SOURCES OF POTENTIAL EFFECTS	CHANGES
Construction	<ul style="list-style-type: none"> - Installation and presence of the site - Site preparation (deforestation, stripping, excavation, earthworks, blasting) - Installation of temporary and permanent infrastructures (foundations, construction of buildings and access roads) - Increased heavy vehicle and worker traffic on local and regional roads - Removal of plant species of cultural value to Indigenous peoples - Noise and vibration generated by construction activities - Dust and air contaminant emissions - Need for manpower - Presence of construction workers from outside - Accident and failure - Purchase of goods, services, and materials - Cultural differences of workers 	<ul style="list-style-type: none"> - Loss of area and practice of traditional activities - Temporary disruption of traditional activities - Wildlife movement - Changes in access to land and resources - Alteration of food quality and traditional resources such as fish caught in the surrounding water bodies and streams - Nuisances caused by light and noise pollution - Constraint to the transmission of knowledge - Discovery of archaeological remains - Potential disturbance to sites and places of cultural, sensitive heritage and sacred interest to Indigenous peoples - Disruption of the ability of people to practice their culture - Alteration of waterscape and woodland components and associated viewsheds - Change in valued components related to community health (due to increased population and workers) - Disruption of the safety of Indigenous girls and women - Disruption of access to health and social services - Decreased sense of safety for road users and increased risk of accidents - Increased direct and indirect employment opportunities for local Indigenous community members - Increased business opportunities for Indigenous communities - Economic benefits to Indigenous suppliers - Difficulty to integrate Indigenous workers
Operation	<ul style="list-style-type: none"> - Mining activity, including vehicle traffic, ore crushing, use of explosives containing nitrogen - Management of ore, tailings, and waste rock - Water management and treatment - Presence of mining and railway infrastructures - Environmental contaminant emissions to air and water - Mining drainage - Contaminant emissions to surface and ground water - Increased heavy vehicle and worker traffic on local and regional roads - Workforce needs and presence increase - Cultural differences of workers - Settlement of new residents in the community - Cumulative effects related to other projects in the region - Dust and air contaminant emissions - Wind erosion of tailings - Accident and failure - Shuttling of fly in/fly out workers - Cumulative effects related to other projects in the region - Economic Benefits of the Project - Creation of professional training opportunities for indigenous people - Increased purchase of goods, materials, and services 	<ul style="list-style-type: none"> - Permanent impacts on community use of land and water resources (change in land use) and on intergenerational transmission of knowledge - Modification of the natural heritage using water bodies and waterways - Changes in land and water use at the watershed level by Indigenous peoples for recreational, navigational, or ceremonial purposes - Changing accessibility to sites of spiritual and cultural significance - Modification of drinking water quality (to be validated in the impact study) - Change in valued components related to community health (to be validated in the impact study to be carried out) - Disruption of the safety of Indigenous girls and women - Change in the community landscape - Disruption of access to health and social services - Change of the sound environment - Alteration of food quality and traditional resources such as fish caught in the surrounding water bodies and streams - Decreased sense of safety for road users and increased risk of accidents - Increased direct and indirect employment opportunities for local Indigenous community members - Difficulty integrating Indigenous workers - Retention of local Indigenous community members - Increasing the economic strength of Indigenous communities - Increased economic prosperity and resiliency of Indigenous communities including increased employability of Indigenous people (training) and the creation of business opportunities for Indigenous businesses - Economic benefits to Indigenous suppliers
Closing	<ul style="list-style-type: none"> - Installation and presence of the former mining site - Dismantling of equipment and infrastructure - Remediation of the site - Transportation and Traffic - Ditching of the pit - Management of hazardous materials and residual materials (hazardous, domestic and construction) - Final remediation long-term effects on economic conditions in the post-closure phase of the Project 	<ul style="list-style-type: none"> - Progressive reduction of the mine's labour requirements - Concerns about human health risks (dust, groundwater quality, noise, stress) - Temporary disruption of traditional activities - Reuse and reappropriation of land for traditional or spiritual activities - Opportunities to optimize land use at the mine site through the use and redevelopment of existing infrastructure in a manner that supports the resilience of Indigenous peoples

1.21.2.1 GHG EMISSIONS FROM PURCHASED ENERGY

GHG emissions from acquired energy are those associated with the production of electricity, heat, steam, or cooling, purchased, or acquired from a third party for the Project. Hydrogen used as fuel is also considered purchased energy if it is produced off-site by a third party. The details of the type of energy expected to be used for each of the activities carried out will be presented in the EIA report to be produced and submitted to the IAAC, later.

1.21.2.2 DOMESTIC GHG EMISSIONS AVOIDED

The Project does not foresee any avoided domestic GHG emissions, nor does it foresee a scenario where emissions are reduced or eliminated in Canada. The Project will, however, reduce GHG emissions in the production chain of steel customers located elsewhere in the world, due to the high-quality concentrate produced by Voyager. The Mont Sorcier deposit contains iron that is primarily in the form of magnetite, which generally reduces the consumption of coal by steelmakers. This particularity of Mont Sorcier iron makes it possible to produce an iron concentrate that contributes to the fight against climate change in the steel industry worldwide.

1.21.2.3 COMPENSATORY MEASURES

At the time of writing this project description, the Strategic Climate Change Assessment Technical Guide (ECCC, 2021) noted that the federal GHG Offset System was under development and that it was not possible to use international offset credits or internationally transferred mitigation outcomes (ITMRs) as offset credits. As such, no offsets, as defined in the Strategic Climate Change Assessment Technical Guidance (SCCAT, 2021), are planned at this stage of the Project design and planning.

1.21.3 EFFECT ON CARBON SINKS

To determine the effect of the Project on carbon sinks, the area of land directly affected by the Project over its lifetime, classified by IPCC (2006) land use category, will be estimated as part of the EIA to be produced.

As part of the planning and design of the Project, several potential alternatives will be evaluated to minimize GHG emissions in the construction, operation, and decommissioning phases.

The most significant measures will be presented in the EIA report, which will also present the potential impacts on GHG emissions for each measure, as well as the selection process that will be used to choose the preferred alternative.

1.21.3.1 USE OF RENEWABLE ENERGY AND LOW CARBON FUELS

Voyager is aware that the transition to a greener and more prosperous economy must be a priority and a sustained effort in the years and decades to come by all sectors of Canadian and Quebec societies. Therefore, the company intends to put in place several measures to minimize its GHG emissions for all phases of the Project. One of the important measures envisaged by Voyager is associated with the use of renewable energy and low-carbon fuels.

Voyager will initially favour the use of hydroelectricity to power the maximum amount of its operations for the life of the Project. The technical and economic feasibility of this approach, however, depends on the possibility of connecting the mine site to the Hydro-Québec grid, which has a 735 kV electrical substation in the Chibougamau area. For planning purposes, Voyager considers the connection to the Hydro-Québec power grid to be feasible.

1.21.3.2 FIXED SOURCES

Like many mining projects in Quebec, Voyager plans to power the fixed iron concentrate production equipment, including building heating, with hydroelectricity. This approach will minimize direct GHG emissions from the Project.

1.21.3.3 MOBILE SOURCES

Service equipment (pick-up truck and small service truck)

The fleet of service equipment planned to be used by Voyager will be predominantly electrically powered. Currently available technology allows for a minimum of 75% of the fleet to be electrically powered, supplemented by specialized, fuel-powered service trucks (estimated to be up to 25% of the fleet). It should be noted that this estimate remains preliminary and is subject to change depending on the context and circumstances of the Project.

Heavy mining equipment

As part of the Project design and planning, major equipment manufacturers and innovative companies will be invited to submit detailed proposals and performance specifications for mining production equipment solutions using low-carbon fuels or renewable energy technologies. Through this approach, Voyager will seek equipment that minimizes its direct GHG emissions and can meet its operational needs in the harsh conditions associated with surface mining in Northern Quebec.

1.21.4 PRELIMINARY ESTIMATE OF GHG EMISSIONS

The preliminary estimate of GHG emissions was calculated taking into account the information available at this stage of the Project and considering maximum production during the operation phase. The estimated values presented herein will be reassessed following the completion of the Project feasibility study and the results will be presented as part of the impact study report that will be submitted to the IAAC at a later date.

The estimate of GHG emissions is based on the following assumptions:

- Fixed equipment will be powered by hydroelectricity supplied by Hydro-Québec, including the electric boiler.
- Heavy mobile mining equipment will use diesel unless equipment using low carbon fuels or renewable energy technologies is available when the mining equipment is initially purchased or at the time of its replacement during the operation.
- 75% of the service vehicle fleet (pick-up truck and small service truck) will be powered by hydroelectricity supplied by Hydro-Québec and 25% will use gasoline.
- Propane will be used to fuel certain load-handling equipment and certain stationary machinery.
- The refrigeration equipment used in the process will use refrigerants with a GIEC's global warming potential of less than 1500, with some exceptions such as rooms intended for the comfort of users and the computer server room.

- Although Voyager will aim to use mixtures of explosives that minimize GHG emissions, for the purposes of this estimate, the explosives considered are of the ANFO type (mixture of ammonium nitrate and gasoline).

Direct emissions from the project are estimated at 45,092 t CO₂eq annually, while indirect emissions related to electricity consumption are estimated at 306 t CO₂eq annually. Preliminarily, the project could thus emit approximately 45,398 t CO₂eq of GHG annually during the operation phase. As mentioned previously, this preliminary estimate will be reassessed following the completion of the Project feasibility study and the results will be presented as part of the impact study report that will be submitted to the IAAC at a later date.

1.21.5 NATIONAL AND INTERNATIONAL EMISSION REDUCTION EFFORTS

The Government of Canada's 2030 Emissions Reduction Plan is an ambitious and realistic roadmap that sets out a sector-by-sector pathway to meet Canada's target of reducing emissions to 40% below 2005 levels by 2030 and achieving carbon neutrality by 2050.

As previously stated, through all efforts to reduce its GHG emissions from the planning and design stage of the Project and on an ongoing basis thereafter, Voyager intends to contribute to emission reduction efforts to the best of its technical and economic ability.

1.21.6 RESILIENCE TO CLIMATE CHANGE

As part of the EIA, a multi-hazard 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. The work will include, but not be limited to:

- analysis of climate trends for the region in which the Project is located;
- analysis of available future climate models for the region;
- identification and analysis of the most recent climate forecasts and trends for weather and climate hazards relevant to the Project;
- collect information and observations from the indigenous peoples affected by the Project;
- identification of the consequences of climate forecasts and trends on people, infrastructure and the environment related to the Project;
- specific assessment of the severity of the consequences identified according to the context of the Project;
- establishing the mitigation/adaptation measures that will be implemented as part of the Project to reduce the severity of the consequences;
- establishing the levels of residual risk related to climate change following the implementation of mitigation/adaptation measures that the Project will face by considering the severity of the identified consequences in relation to the degree of probability of the corresponding weather and climate hazards.

1.22 WASTE AND EMISSIONS

1.22.1 RESIDUAL MATERIALS MANAGEMENT

The management of residual materials will favour the implementation of practices optimising reduction at source, reuse, recycling, and reclamation of residual materials produced within the framework of the Project. The residual materials will be managed in accordance with the laws and regulations in force. A framework contract will be concluded with a waste management company in the region. A management plan will be established in a later phase of the Project and can be submitted to the stakeholders upon request.

The main residual materials produced are the following:

- household solid waste;
- dry residual materials (building materials, wood, metal, plastic, various packaging, paper, and cardboard, etc.).

1.22.2 MANAGEMENT OF RESIDUAL HAZARDOUS MATERIALS

The management of residual hazardous materials is regulated, and the disposal of these products will be done in accordance with the laws and regulations in force.

A master contract will be signed with a company that manages residual hazardous materials in the region. A management plan will be established in a later phase of the Project and can be submitted to stakeholders upon request.

The main residual hazardous materials produced will be the following:

- used oil;
- waste grease;
- aerosol cans;
- oil filters;
- rags soiled with petroleum hydrocarbons;
- containers soiled with petroleum hydrocarbons;
- used glycol;
- solvents used for cleaning mechanical parts;
- batteries.

Residual hazardous materials also include any material or object that is hazardous material type.

1.22.3 AIR EMISSIONS

During the construction and operation phase, the Project will contribute to:

- atmospheric emissions (mainly GHGs and SO₂) from the ore processing plant as well as from the machinery and equipment used and the use of explosives;
- emissions of particulate matter from road traffic and from the loading, unloading, piling and outdoor storage of material.

An air quality management and particulate matter control plan will be developed in a later phase of the Project design and will be available to stakeholders upon request.

1.22.4 LIQUID DISCHARGES

All mine wastewaters will be reused as much as possible in the operations. Excess water will be sent to a water treatment plant before being released to the environment as final effluent.

The Project will also include a domestic wastewater discharge, which will be treated prior to discharge.

Details of the liquid discharge treatment process will be provided in the EIA report to be produced and submitted to the IAAC at a later date.

1.22.5 MANAGEMENT OF CONTAMINATED SOILS

Road transport, heavy machinery traffic, machinery operation, use of refueling sites and temporary storage or handling of waste and hazardous materials will represent potential sources of accidental spills.

Appropriate work practices and a contingency plan will be put in place to avoid accidental spills and in the event of such a spill, contaminated soils will be recovered and managed in accordance with applicable regulations during all phases of the Project.

1.23 ACCIDENTS AND MALFUNCTIONS

A contingency plan will be developed to minimize the impacts of Project-related accidents and malfunctions. This plan will be included in the EIA report to be produced and submitted to the IAAC at a later date.

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