



**Environmental and Social Impact  
Assessment for the Troilus Mine Project**

PROJECT INTRODUCTION AND  
JUSTIFICATION

# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT INTRODUCTION AND JUSTIFICATION

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### Acronyms and abbreviations

3R	Reduce, Reuse and Recycle
IACC	Impact Assessment Agency of Canada
AM	Ministerial Authorization (Autorisation ministérielle)
JBNQA	James Bay and Northern Quebec Agreement
COFEX-Sud	Federal Review Panel South of the 55 <sup>th</sup> Parallel
COMEV	Environmental and Social Impact Assessment Committee
COMEX	Environmental and Social Impact Review Committee
D019	Directive 019
ECCC	Environment and Climate Change Canada
ESIA	Environmental and Social Impact Assessment
FQML	First Quantum Minerals Limited
CNG	Cree Nation Government
LEET	Trench landfill
EIA	Environmental Impact Assessment Act
LQE	Environment Quality Act
MELCCFP	Ministry of Environment, the Fight Against Climate Change, Wildlife and Parks (Ministère de l'Environnement et de la Lutte contre les changements climatiques, de la Faune et des Parcs)
MRNF	Ministry of Natural Resources and Forestry (Ministère des Ressources naturelles et des Forêts)
MRN	Ministry of Natural Resources
MF	Ministry of Finance
Moz of gold equivalent	Million ounces of gold equivalent
DFO	Department of Fisheries and Oceans
MRNF	Ministry of Natural Resources and Forestry
MSPQ	Ministère de la Sécurité publique du Québec
Mt	Million tons
TIA	Tailings impoundment area
NRC	Natural Resources Canada

# Environmental and Social Impact Assessment for the Troilus Mine Project

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### 1. Background

Troilus Gold Corp (Troilus) plans to re-open the former Troilus gold-copper mine in Northern Quebec. The Troilus mine project ("the project") is located approximately 76 km northwest of the Cree community of Mistissini and 170 km north of Chibougamau, Quebec (Map 1.1). The project involves the mining of gold- and copper-bearing ore from four open pits. Two previously mined pits (J4 and 87) will be expanded, and two new pits will be developed, one adjacent to the J pit (X22 pit) and one to the southwest (Southwest pit). An ore processing plant will be built on site, with a maximum daily capacity of 50,000 t/d. Based on the proposed processing rate and current resource information, the current mine life of the proposed project is expected to be approximately 22 years.

The Troilus Mine was historically an open-pit operation with continuous gold, copper production from November 1996 to April 2009. The former mine produced over 2 million ounces of gold and around 70,000 tonnes of copper. After the mine ceased production in 2009, the 20,000 t/d plant processed low-grade stockpiles until the end of June 2010. The plant was then sold and shipped to Mexico, and the main camp facilities were dismantled at the end of 2010. Much of the site's infrastructure was left in place following mine closure and the disposal of certain key assets.

The proposed new Troilus mining project is based on a similar operation to the historic one, and involves the reuse of existing infrastructure, including the tailings facility, access road and power supply (substation and line).

The project is located on Category III lands under the James Bay and Northern Quebec Agreement (JBNQA). The environmental and social protection regime applicable in the James Bay region is established under Section 22 of the JBNQA and governed by the provisions of Title II of the Environment Quality Act (EQA). The project is subject to the JBNQA's environmental and social impact assessment and review process. It is also subject to Canada's Impact Assessment Act (IAA).

This document constitutes the main environmental and social impact assessment (ESIA) report for the Troilus mine project, required as part of the environmental and social impact assessment and review process (provincial level) and the impact assessment process (federal level). It has been prepared in accordance with the requirements of the "Directive pour le projet minier de construction et d'exploitation d'un gisement cupro-aurifère sur le territoire d'Eeyou Istchee Baie-James par Troilus Gold Corp" of the Ministry of Environment, the Fight Against Climate Change, Wildlife and Parks (MELCCFP) (Appendix A-1 of the ESIA), as well as the "Lignes directrices individualisées relatives à l'étude d'impact - Projet minier Troilus" issued by the Impact Assessment Agency of Canada (IAAC) (Appendix A-2 of the ESIA).

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**PROJECT INTRODUCTION AND JUSTIFICATION**

**Map 1.1 Troilus project location**



**LÉGENDE / LEGEND**

- Site Minier Troilus / Troilus Mine Site
- Réseau Routier / Road Network
- Région Administrative / Administrative Region

**NOTES**  
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**CLIENT**  
**Troilus Gold Corp.**

**PROJET/PROJECT**  
**Étude d'impact sur l'environnement et le milieu social pour le projet de mine Troilus / Environmental and Social Impact Assessment for the Troilus Mine Project**

**TITRE/TITLE**  
**Localisation du projet Troilus / Troilus Project Location**

NO. PROJET / PROJECT NO. 240433 / 167040485		DATE 02/ 25/ 2025	
CONÇU / CHECKED S. Sene		RÉVISÉ / VERIFIED C. Gardois	
DESSINÉ / DRAWN M. Baker		Carte No. 1.1	ED./REV. 1

C:\SP\BluMetric\_Environmental\Geomatics - Geomatics\Troilus\Project\_Data\240433 - Etude d'impact - EIA\APRX\2025-02-25\240433-Troilus-EtudeImpact(Series 12).aprx 1500 rue du Collège - Suite 200, Saint-Laurent (Québec) H4L 5G6, TEL: (514) 844-7199, FAX: (514) 841-9111, Courriel: montreal@blumetric.ca, Web: http://www.blumetric.ca



# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT INTRODUCTION AND JUSTIFICATION

### 1.1 Proponent presentation

#### 1.1.1 Proponent

Troilus TSX: TLG; OTCQX: CHXMF; FSE: CM5R is a Canadian mining company headquartered in Montreal, Quebec. Troilus is in the development stage and is dedicated to the systematic advancement and restart of its gold and copper mine. The Troilus asset was acquired by the company in 2017, following an extensive due diligence review that included a geological assessment as well as economic and technical analyses.

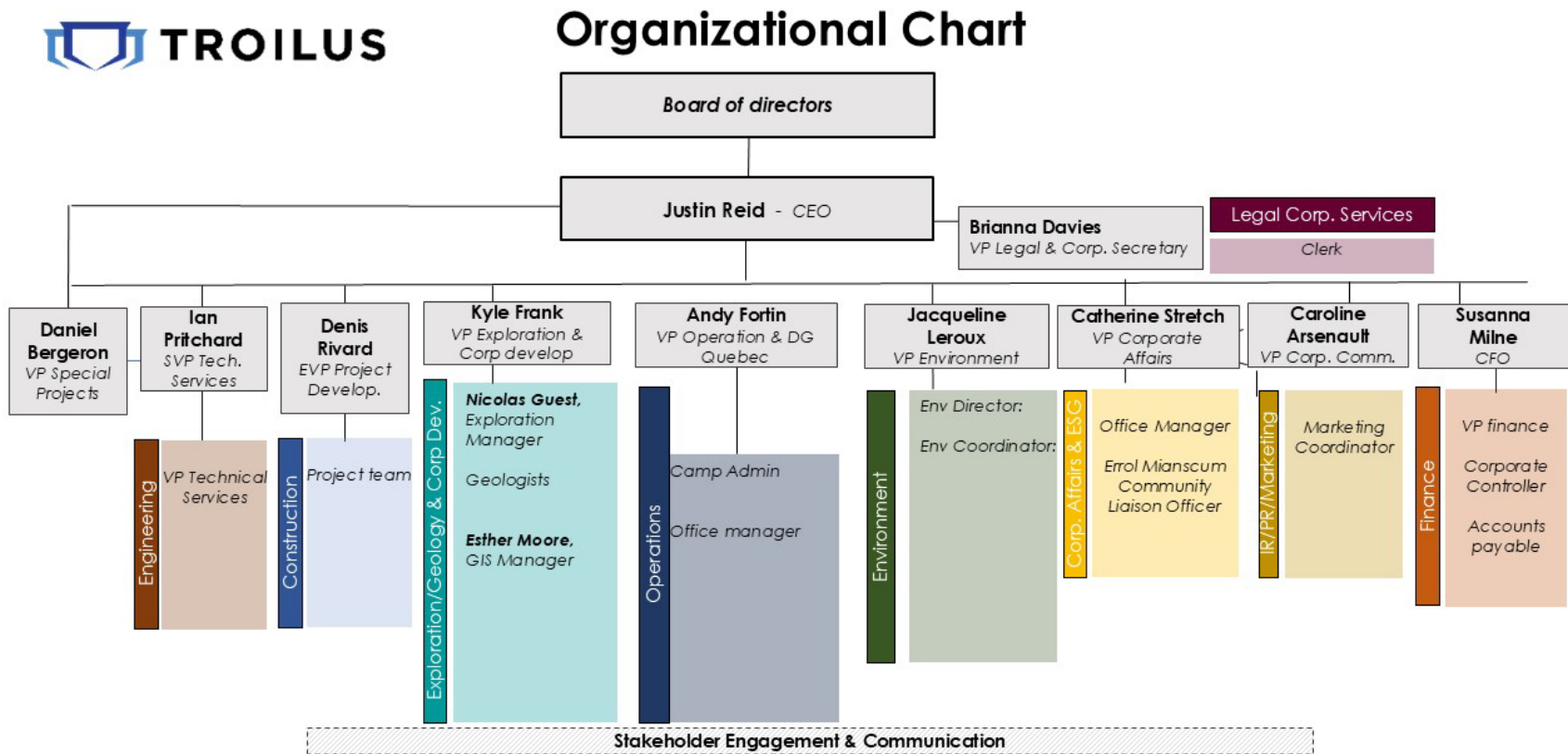
Troilus' key resources are:

- Justin Reid, MSc, MBA, ICD.D - President and CEO, Director
- Andy Fortin, Vice President, Operations and General Manager, Troilus Mine
- Denis Rivard, P.Eng. - Executive Vice-President, Projects
- Ian Pritchard, ICD.D - Senior Vice President, Technical Planning
- Susanna Milne, CPA - Chief Financial Officer
- Chris Sharpe, P.Eng. - Vice President, Technical Services
- Jacqueline Leroux, P.Eng. - Vice-President, Environment and Permits
- Catherine Stretch - Vice-President, Corporate Affairs and Sustainable Development
- Kyle Frank, P.Geo - Vice President, Exploration
- Brianna Davies, J.D. - Senior Vice-President, Legal Affairs and Corporate Secretary
- Daniel Bergeron, M.Sc. - Vice-President, Special Projects
- Caroline Arsenault - Vice-President, Corporate Communications
- Nicolas Guest, P.Geo, M. Sc. - Exploration Manager

Troilus' organizational structure, identifying the titles of key individuals, is shown in the organizational chart below (Figure 1.1).

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July 2025

Figure 1.1 Troilus organization chart

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Table 1.1 shows the contact details of the proponent's key resources for this ESIA.

**Table 1.1 Names and contact details of the promoter**

Name of project initiator (proponent)	Troilus Gold Corp.
Website	<a href="https://troilusgold.com/">https://troilusgold.com/</a>
Head office	715 Square Victoria, Suite 705 Montreal QC Canada H2Y 2H7
Main promoter contact and coordinates	Mathieu Michaud Environmental Manager E-mail : <a href="mailto:mathieu.michaud@troilusgold.com">mathieu.michaud@troilusgold.com</a> Phone: +1-418-770-5921
Corporate contact and coordinates	Jacqueline Leroux Vice-President Environment and Permits Email: <a href="mailto:Jacqueline.Leroux@troilusgold.com">Jacqueline.Leroux@troilusgold.com</a> Phone: +1-418-770-5990
Address	334, 3 <sup>e</sup> Rue Chibougamau QC Canada G8P 1N5
Quebec Enterprise Number (NEQ)	1163428072

### 1.1.2 ESIA team

The ESIA was prepared through the collaborative efforts of Troilus and its team of consultants (scientists, engineers, planners and other experts). The team for this project is composed of:

- BluMetric Environnement inc. (BluMetric®), in partnership with Stantec Experts-Conseils Itée (Stantec), who were mandated by Troilus to carry out the preparation and coordination of the ESIA, including the collection of complementary field data (soils, contaminants in plants and fish, archaeology, sound climate, landscape, traditional knowledge and Cree land use), First Nations consultation, impact assessment, conceptual plans for fish habitat compensation, technological risk assessment, description of follow-up programs, modeling of hydrology, hydrogeology and atmospheric conditions;
- APG Mining Consultants Inc/Lycopodium/WSP/Lamont: coordination and preparation of feasibility study, including water management plan and water balance, geotechnical studies, geochemistry;
- WSP: large wildlife inventory, land use study;
- MU Conseils: consultations and communications with local stakeholders;
- Wachiih Ressources: inventories (vegetation and wetlands, fish and fish habitat, herpetofauna, small mammals, avifauna), surface water and sediment quality;
- FaunENord: inventories (herpetofauna, small mammals, avifauna);
- WavX Inc: inventories (chiropterans);

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- Accomine: Analysis of ore transportation options;
- Anderson: logistics study.

The list of key contributors to the impact study is presented in Appendix B of the ESIA. The authors, reviewers and other contributors responsible for the various baseline studies (Appendix G) and technical data reports (Appendix H) are listed in these specific reports.

## 1.2 Project context

### 1.2.1 Site history

#### 1.2.1.1 Exploration and development, 1985 - 2010

Prior to 1985, the project area was explored regionally by Falconbridge Ltd (now Glencore) and Selco Mining Corp. The Quebec government also carried out an airborne survey over a large area of the eastern part of the Frotêt-Evans belt.

In 1987, Kerr Addison discovered mineralization in the project area. Metall Mining Corporation (now Inmet Mining) acquired the claims in 1993 and, following a positive feasibility study, took steps to open the Troilus mine. The mine operated from 1996 to 2010. During this period, approximately 69.6 million tonnes (Mt) of ore averaging 1.00 g/t Au and 0.10% Cu were mined, and 7.6 Mt of lower-grade mineralization was stockpiled. In total, some 230.4 Mt were excavated, including 18.4 Mt of overburden and 134.7 Mt of waste rock.

Operations at the old mine ended in 2009. The reasons for closure were largely related to the low profit margin generated by the project and the very low gold price. Another factor contributing to the project's closure was Inmet's interest in concentrating on its more profitable overseas assets.

Table 1.2 below provides a summary of the Troilus Mine's exploration and operating history since 1985.

**Table 1.2 Summary of Troilus mine history**

Date	Description
1985	Kerr Addison Mines Ltd (Kerr Addison) holds over 1,500 claims in the Troilus area.
1987	Kerr Addison stakes the Troilus mine area and discovers gold and copper.
1988	Minnova Inc (Minnova) opts for a 50% interest in Kerr Addison and becomes operator.
December 1991	Pre-feasibility study by Kilborn Inc. fails to demonstrate economic viability (7,500 t/d).
February to May 1993	Metall Mining Corporation (Metall) acquires 100% interest in Troilus.
August 1993	A feasibility study by Kilborn-Met-Chem-Pellemon demonstrates economic viability (10,000 t/d).
1993	Environmental and social impact study submitted to COMEX (Entraco, 1993) for mine operation.
Late 1994	Start of construction
May 4, 1995	Metall changes its name to Inmet Mining Corp (Inmet).
1995	Construction of 44 km of access road from the Route du Nord, 137 km of power line and two substations.

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Date	Description
October 1996	Construction of mine site completed.
November 1996	Inmet begins production at Troilus mine.
April 1997	Plant reaches 10,000 t/d
April 1998	Plant expanded to 15,000 t/d
1999	Plant reaches 15,000 t/d
2002	Plant reaches 16,000 t/d
2004	Plant expanded to 20,000 t/d
2005	Plant reaches 20,000 t/d
2007	The underground ramp stopped at 519.1 m from the portal on January 22, 2007.
2008	Mining of the J4 pit (now the J zone pit) was completed in May 2008.
2008	Backfilling at the southern end of the J4 pit began in April 2008.
2009	Mining of pit 87 came to an end, with the last truck load on April 13, 2009.
2010	Ore processing plant shut down on June 29, 2010.
2010	Ore processing plant in Mexico sold and shipped in September 2010.
2010	Camp sold on November 19, 2010 and subsequently dismantled.
2011	Dismantling of production infrastructure.
2011- present	Site restoration and characterization.
2013	Acquisition of the mine site by First Quantum Minerals.
April 2018	Purchase of First Quantum's property rights by Troilus.
2019- present	Set-up of an exploration camp and exploration work.
2019	Filing of a provincial impact study on the dewatering of the J4 and 87 pits.
2020-present	Mine reopening project, detailed project description/project notice/pit discovery, etc.

### 1.2.1.2 Exploration and development 2011-present

Restoration of the mine site began with the definitive end of mining operations in 2010. A number of tasks were completed, including revegetation of the waste rock piles, restoration of the tailings facility, dismantling of infrastructure, etc.

In 2013, First Quantum Minerals Limited (FQML) acquired the property, but not conduct exploration work. In April 2018, Troilus purchased the property rights from FQML.

The site still has reclamation status, but is also used as a mining camp for exploration work. Drilling programs for the current Troilus mining project were conducted from 2018 to 2023.

Since Troilus was registered in 2018, exploration activities have focused on developing the main mineralized zones: Z87, J, X22 and SW. Troilus has also been active on various exploration targets along these zones to the northeast (Allongé, Carcajou), between existing pits and the SW pit (Gap Zone), and to the southwest (Beyan, Cressida). Regional exploration targets include Testard, Pallador and Rocket.

Most drill holes in 2018 and 2019 targeted the Z87 and J mineralized zones at depth and along strike. Initial drilling in 2019 led to the discovery of the SW Zone, which was largely the focus of drilling programs in 2021 and 2022.

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In June 2020, Troilus completed a preliminary field exploration program, applying regional structural and geological models to areas along strike and to the south of known deposits. In 2020 and 2021, Troilus carried out two high-resolution magnetic geophysical surveys. Initial results revealed several zones of interest that were actively explored between 2020 and 2023. These include: the Beyan Target and the Cressida Target, located respectively approximately 8 km and 14 km southwest of and along strike from the SW Zone of the Troilus gold project; the Testard and Freegold-Bullseye Target located approximately 10 km south of the SW Zone; and the Pallador Target located approximately 35 km south of the Troilus mine.

Each of these target areas has been the subject, to varying degrees, of geological mapping and prospecting programs, ground geophysical surveys and exploration drilling programs.

In addition, in 2019, as part of the advanced exploration work at the former Troilus mine, an impact study on the dewatering of pits J4 and 87 was produced, in accordance with the EQA. Dewatering the pits will enable diamond drills to be installed on the benches to continue exploring the gold potential beneath the two pits, and at the same time finalize the J4 pit expansion plan for the future mine.

### 1.2.2 Toilus project overview

Troilus's proposed mine site will involve approximately three years of construction, twenty-two years of operation, two years of active closure (i.e., dismantling, grading and reclamation) and long-term post-closure monitoring.

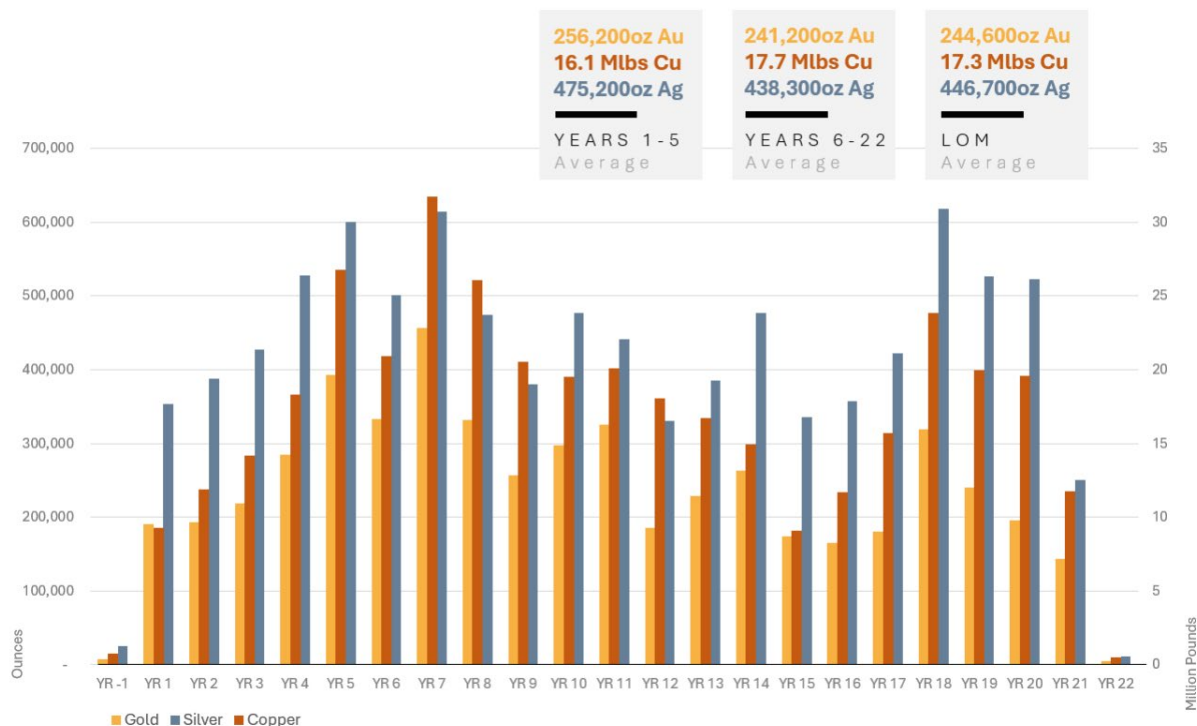
The Troilus project comprises four main zones of mineralization, located on a northeast-southwest corridor spanning approximately seven kilometers. These deposits will be mined using conventional open-pit mining methods. The ore will be processed in a flotation plant to produce a gold-rich copper concentrate that will be sold to a smelter. It is also planned to recover gold by gravity for gold production after year 1.

Average payable gold production is expected to be 256,200 oz per year for the first five years, and 241,200 oz per year for the remaining 17 years, for an average of 244,600 oz per year over the mine life. Average annual payable copper production is 16.1 million lb. per year for the first five years, 17.7 million lb. per year for the remaining 17 years, and 17.3 million lb. on average over the mine life. Annual payable silver production is 475,200 oz per year for the first five years, and 438,300 oz per year for the remaining 17 years, averaging 446,700 oz per year over the life of the mine. The production profile and summary are shown in Figure 1.2 and Table 1.3 respectively.

Total payable metals over the 22-year mine life are estimated at 5.4 million oz of gold, 381.8 million lb. of copper and 9.9 million oz of silver.

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**Figure 1.2** Production profile - Payable gold, silver and copper (AGP Mining Consultants Inc. [AGP], 2024)

**Table 1.3** Summary of projected Troilus mine production

Mine life	22 years		
Daily mill throughput	50,000 tpd		
Annual mill throughput	18.3 Mt/year		
Average annual metal production (payable)	Gold (oz)	Copper (M lb.)	Silver (oz)
Years 1 to 5	256 200	16,1	475 200
Years 6 to 22	241 200	17,7	438 300
Mine life	244 600	17,3	446 700
Proven and probable reserves	380 Mt containing 7.26 Moz gold-equivalent (6.02 Moz gold, 484 M lb. copper, 12.2 M oz silver)		
Average proven and probable grades	0.59 g/t eq.-gold (0.49 g/t eq.-gold, 0.058% copper, 1.0 g/t silver)		
Recovery rate	3,1: 1		
Life-of-mine average gold, copper and silver yields	92,7 % / 91,8 % / 91,9 %		

Source: AGP, 2024

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### 1.2.3 Project location

The Troilus project is located in the southeastern part of the Nord-du-Québec administrative region in the Eeyou Istchee Baie-James territory, approximately 76 km northwest of the Cree community of Mistissini and about 170 km north of the town of Chibougamau (Map 1.1). Access to the mine site from Chibougamau is via the Route du Nord. An existing access road, approximately 44 km long and starting at kilometre point (KP) 108 of the Route du Nord, provides access to the mine site.

The mine site is located at approximate coordinates 51° 00' North and 74° 30' West.

The property is located approximately 600 km north of Montreal in the province of Quebec. It is also located in the Albanel, Mistassini and Waconichi Lakes Wildlife Reserve, approximately 45 km west of Lake Mistassini and 9 km northeast of Lake Troilus.

#### 1.2.3.1 Official site description and plan

The project site is located in the Lac Saint-Jean-Ouest land division, in unorganized territory, on lot 1 of the Rupert River Basin cadastre.

The project site lies within the territory of the regional government of Eeyou Istchee Baie-James. More specifically, the site is located within the territory of the Cree community of Mistissini, on Category III lands under the JBNQA. Category III lands are public lands that are part of the domain of the State. On Category III lands, Aboriginals have the right to hunt, fish and trap, without a permit, without bag limits and at any time, subject to the principle of conservation (COMEX, 2022).

The Troilus gold property (Property) is divided into two sectors: the Troilus gold sector, which covers the former Troilus mine and relates to the current project, and the Troilus Frotêt sector. The property's mineral rights cover a total area of approximately 44,124.88 ha. Of this total area, 7,242 ha are owned 50% by Troilus and 50% by Argonaut Gold under a joint venture agreement, with the remaining mineral rights held 100% by Troilus.

Located in the primary mining jurisdiction of Quebec, Canada, Troilus holds claims over 435 km<sup>2</sup> within the Frôtet-Evans greenstone belt.

Troilus' current leases and claims holdings are summarized in Table 1.4 and shown in Figure 1.3 below. In addition, Troilus also has three land leases in effect for the following infrastructures:

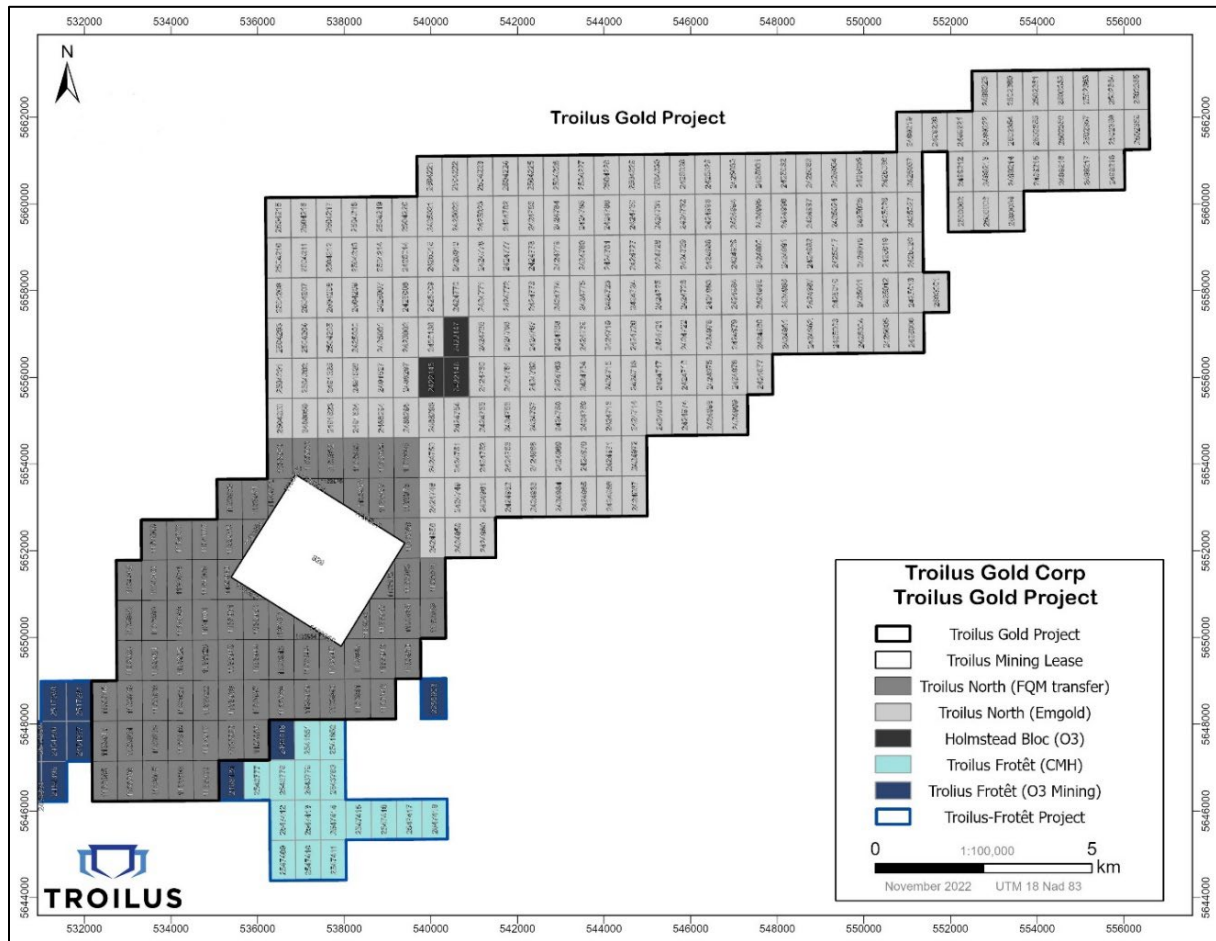
- 210664 00 001 - Exploration camp site;
- 210664 00 002 - Trench landfill (LEET);
- 210664 00 005 - Tailings impoundment area (TIA).

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**Table 1.4 Summary of mineral rights for the Troilus property**

Mineral rights	Mineral claim number	Number	Expiry date	Area (ha)	
Mining lease	BM 829	1	March 2026	835,46	
Mining claims Troilus gold project	2422145 - 2422147	3	Feb. 2025	162,38	
	2424713 - 2425732, 2424748 - 2424786, 2424958 - 2425037, 2488059	20 39 80 1	March 2025	7576,17	
	1133905 - 1134008, 1133913 - 1133926, 1133929 - 1133930, 1133936 - 1133980, 1133982 - 1133985, 1133998 - 1134008, 2488138, 2488294 - 2488297	5 14 2 45 4 12 1 4	April 2025	4149,31	
	2491523 - 2491527	5	May 2025	270,67	
	2499212 - 2499223, 2500001 - 2500004	12 4	August 2025	865,30	
	2502354 - 2502365	12	Sept. 2025	648,80	
	2504200 - 2504230	31	Oct. 2025	1677,01	
	Partial sum Troilus gold project		294		16 185,09
	Subtotal Troilus Frotêt sector		520		27 939,79
<b>Total</b>		<b>814</b>		<b>44 124,88</b>	



**Figure 1.3 Troilus mining rights**

**1.2.3.2 Proximity of nearest buildings and affected communities**

A Cree camp is permanently inhabited in the vicinity of the current mine site (about 3 km). This camp is located on the shores of Lake A (PE43). Two other camps are also located near this lake, but are used on a seasonal basis. In addition, there are three other seasonally inhabited camps along the access road to the mine site (approx. 10 km).

There are no permanently inhabited buildings in the vicinity of the Troilus mine project. The nearest local community is the town of Chibougamau, about 170 km south of the Troilus mine project.

There is a land lease approximately 11 km southwest of the future southwest pit site. This lease is for lodging in an outfitting operation with no exclusive rights.

**1.2.3.3 Proximity to aboriginal lands**

The closest aboriginal community to the Troilus mining project is the Cree community of Mistissini, located approximately 76 km southeast of the project site.

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The mine site is located on the converging point of three traplines (M-40 to the southwest, M-39A to the northwest and M-34 to the north), while trapline M-35A lies slightly to the east. Within each of these traplines, there are several camps used by family members at different times of the year (main camp, winter camp, hunting camp, etc.).

Figure 1.4 shows the location of the Troilus mine project site in relation to the boundaries of the traplines.

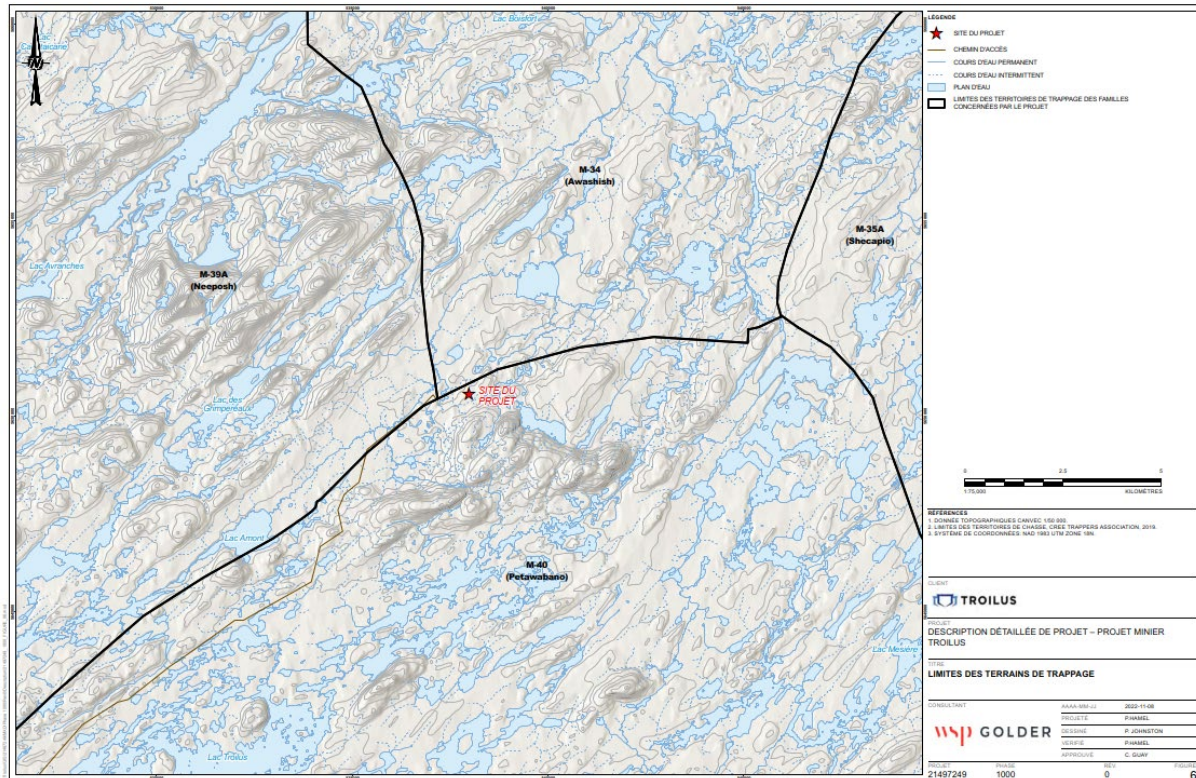


Figure 1.4 Traplines in the project area

### 1.2.3.4 Proximity to public lands

There is no state-owned land in the vicinity of the Troilus mining project site.

## 1.3 Project Justification

### 1.3.1 Project rationale

#### 1.3.1.1 National and global gold market

According to Natural Resources Canada (2024a) and the World Gold Council (2024), the largest share of global gold use was in jewelry (47%), followed by investment (24%), net purchases by central banks (23%) and technology (7%). Gold prices have fluctuated widely over the past decade. Prices fell overall from 2013 to September 2018, when gold prices began to recover (Figure 1.5).

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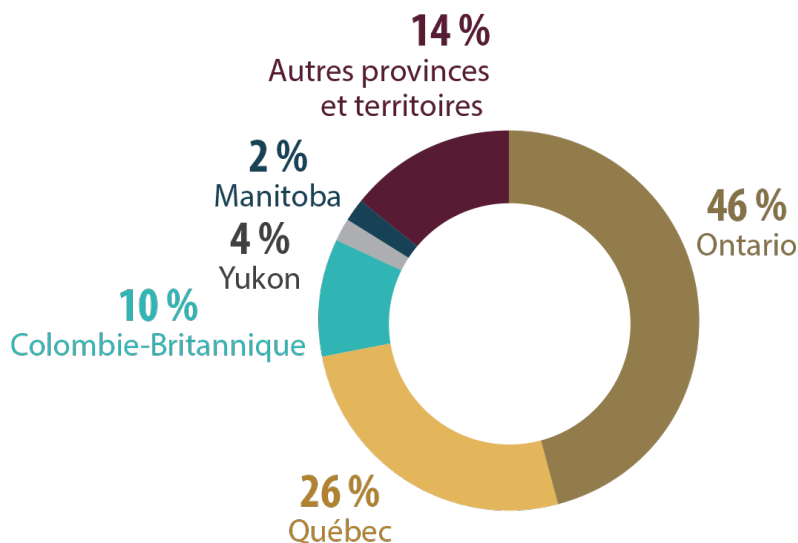


Données au 30 juin 2024  
 Sources: Administration de l'ICE Benchmark, Focus Métaux, Refinitiv GFMS, Conseil mondial de l'or ; Démenti

**Figure 1.5 Gold supply and demand statistics**

Canada is the world's fourth-largest gold producer, according to the World Gold Council (2024), with production of 191.9 tonnes in 2023.

Nationally, in Canada (refer to Figure 1.6), in 2022, Ontario was the leading gold producer with 92.9 tonnes (46%), followed by Quebec with 54.1 tonnes (26%), British Columbia with 20.4 tonnes (10%), Yukon with 4.6 tonnes (4%) and Manitoba with 3.2 tonnes (2%). The other provinces and territories produced 28.8 tonnes (14%) (Natural Resources Canada, 2024a).



**Figure 1.6 Canadian gold production by region, 2022 (Source: NRC, 2024)**

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In 2022, the quantity of gold imported and exported was virtually equal, with 297 tonnes of raw gold exported for \$21.0 billion and 290 tonnes of raw gold imported for \$14.4 billion (Natural Resources Canada, 2024a).

The World Gold Council (2024) reports that gold demand for technological applications in the electronics sector accounts for around 80% of gold used in technology. In electronics, it is used in the manufacture of connectors, microchips, contacts, switches and relays, in soldered joints, and in connecting wires and tapes. Metal is also ubiquitous in most consumer electronics and automotive manufacturing applications, where its chemical and physical properties combine to make it irreplaceable in many high-end devices. The trend towards electrification supports the demand for gold in this sector, with most types of semiconductor chips using the metal either as a coating or in the form of thin bonding wires. Gold is also an important component of space exploration technology.

### 1.3.1.2 Domestic and global copper markets

Canada has almost 900 million tonnes of copper reserves in abundant sulphide and porphyry deposits. Typically, as with the Troilus project, copper is mined as a co-product of other metals, such as gold, molybdenum, zinc, nickel and lead. Refined copper in Canada is produced in two provinces, Quebec and Newfoundland and Labrador, while Canadian mines produced a total of 510,782 tonnes of copper in concentrate in 2022 (Natural Resources Canada, 2024b).

As part of the project, Troilus plans to produce a high-quality copper concentrate, coveted by, among others, copper producers who recycle metals. Some of the copper concentrate produced will be sent directly to the Horne smelter. Some will also be sent overseas. In this case, exploiting the deposit potential of the Troilus project is in line with the Quebec Mineral Strategy - Preparing the future of Quebec's mineral sector (2009). On the one hand, it will improve the geological inventory of copper in Quebec, and on the other, it will enable the Horne smelter to obtain a local supply of copper concentrate.

Copper is one of Canada's critical minerals. It is one of Canada's six priority critical metals (copper, lithium, nickel, cobalt, graphite, rare earth elements) and ranks 5<sup>th</sup> out of 10 critical minerals in Quebec. Critical priority metals are the foundation on which modern technology is built, such as semiconductors, wind turbines, cell phones, solar panels, medical devices, certain defense applications and electric vehicles. As a result, global demand for critical minerals is set to double by 2040. (Natural Resources Canada, 2024c, 2024d and Ministère de l'Énergie et des Ressources naturelles Québec, 2020).

Copper is a strategic mineral essential to an energy transition from fossil fuels to electricity. The transition to green energy is expected to boost demand for copper considerably, due to its use in green technologies such as solar panels and wind turbines. According to the World Bank (World Bank Group, 2020), an anticipated 7% rise in copper demand in the 2018-2050 energy transition is to be expected, notably, its use in clean technologies. In addition, copper is used in a variety of industries such as manufacturing, construction and transportation. It is an excellent conductor of heat and electricity, as well as being corrosion-resistant and antimicrobial.

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### 1.3.1.3 Potential of the Troilus deposit

A feasibility study completed in May 2024 (AGP, 2024) supports a 22-year (50 ktpd) large-scale open-pit mining operation, projecting average annual production of 245,000 oz of gold and over 17 M lb. of copper. The Troilus project is one of Canada's largest undeveloped gold-copper assets. The former Troilus mine, located in the Eeyou Istchee James Bay region of Quebec, produced 2 million oz of gold and nearly 70,000 tonnes of copper between 1996 and 2010. Since Troilus acquired the asset in 2017, inherited indicated mineral resources have increased by 447% to 11.21 Moz eq.-gold (508.3 Mt at an average grade of 0.69 g/t eq.-gold), and inferred mineral resources have increased by 157% to 1.80 Moz eq.-gold (80.5 Mt at an average grade of 0.69 g/t eq.-gold).

Products from the Troilus mining operation will be partly destined for the national and international markets. Part of the copper concentrate will be destined for the Horne smelter, while the rest and the gold ingots will be destined for the international market, including refineries in Germany and Finland.

### 1.3.1.4 Environmental footprint

The Troilus mining project will give a second life to a closed mining site, and the reuse of existing infrastructure will limit the impact of mining operations. Bringing the Troilus project back into operation is in line with the 3Rs principle<sup>1</sup> and the circular economy.<sup>2</sup>

Indeed, the new Troilus project reduces the footprint required to establish a mining project, given the reuse of existing support and resource infrastructures still in place, including several mining developments, such as a power line, an electrical transformer substation, an access road and various buildings.

The project focuses on the extraction of known and potential gold and copper reserves, which would otherwise be left in place, in order to create economic and social benefits in the region where the project is located.

Furthermore, the footprint of the new mine will be limited. Ore will be transported from the open pits to the on-site mill for processing and tailings disposal. Tailings would be deposited in the existing redeveloped and expanded tailings facility and underwater in mined-out pits, thus limiting the increase in the footprint of the proposed mine.

### 1.3.1.5 Social and economic benefits

The mining and minerals sector is valuable to the Canadian economy. In 2022, it directly employed 420,000 people and contributed \$109 billion to Canada's total gross domestic product (Natural Resources Canada, 2024d).

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<sup>1</sup> The 3Rs principle is based on the following principles: Reduce, Reuse and Recycle .

<sup>2</sup> The Pôle québécois de concertation pour l'économie circulaire describes the circular economy as follows: "a system of production, exchange and consumption aimed at optimizing the use of resources at all stages of the life cycle of a good or service, in a circular logic, while reducing the environmental footprint and contributing to the well-being of individuals and communities" (Québec circulaire, 2019).

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In Quebec, according to the Ministère des Finances (MF) and the Ministère des Ressources naturelles et des Forêts (MRNF) (2023), the mining sector employed an average of 40,153 people annually from 2012 to 2019, and contributed \$8.1 billion to gross domestic product. For the same period, net revenues amounted to nearly \$6.3 billion for the Quebec government. Gold is one of the two main metals mined in Quebec, along with iron, as well as the most sought-after, accounting for 66.7% of claims in 2017 (MERN, 2019).

In 2020, the results of the preliminary economic study carried out were already favourable and support the restart of the former Troilus mine. The benefits of the project are numerous. The project will enable the development of an economically viable gold and copper deposit, as well as a more complete mining of the deposit.

The Troilus project is located in a mining region offering a skilled workforce, particularly in the mining sector, with a wide range of goods and services for the industry. Nord-du-Québec has a pool of skilled workers, as well as support and training infrastructures appropriate to the mining industry, such as a vocational training center.

The Troilus project represents an opportunity to maximize local and regional spin-offs and economic gains in a region that has historically relied on the mining industry to generate employment. In order to maximize the economic benefits associated with the purchase and rental of equipment, and to benefit local suppliers, Troilus will consider suppliers who will also offer transportation of materials/equipment to Chibougamau or nearby (Chapais, Mistissini or Oujé-Bougoumou).

Indeed, the proposed new Troilus project will help stimulate economic spinoffs and create numerous jobs in the Nord-du-Québec region and in Québec during the construction period, with around 1,100 jobs, and during operation, with around 450 jobs. When the old mine was in operation, it employed 280 people at peak production, with the majority of workers coming from the region. Economic spin-offs in the immediate region were estimated at around \$19 million (COMEX, 2020).

The proposed Troilus project and the creation of jobs will generate positive tax spin-offs for the governments of Canada and Quebec, both through direct revenues and expenditures from workers' income tax, corporate tax levies, budgetary expenditures, taxes, insurance and health plan contributions, etc., and through indirect revenues and expenditures (suppliers of goods and services). A third level of taxation, separate from federal and provincial/territorial income taxes, called the mining tax and/or mining Crown royalty, is imposed on mining companies to compensate the province or territory for the extraction of its non-renewable resources (Natural Resources Canada, 2025).

In addition, the proposed project will increase the permanent presence of workers in the region, as the commuting distance and types of schedules proposed will encourage workers to settle in the region. Troilus plans to provide incentives for workers based outside the region to relocate to the region in order to encourage permanent settlement. This initiative is part of the Quebec government's action plan to address the demographic decline of James Bay, which has seen its population drop by 50% since 1981. The local labor market is one of the axes targeted to counter this crisis, by encouraging the sustainable settlement of workers in the region (Ministère des Affaires municipales et de l'Habitation, 2024).

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Furthermore, as described in the Agreement Concerning a New Relationship Between the Government of Québec and the Crees of Québec (2002), the Québec Mineral Strategy - Preparing for the Future of Québec's Mineral Sector (2009) and the Cree Nation Mining Policy of the Grand Council of the Crees (2010), the Troilus project plans to promote jobs in the mineral sector and encourage the participation of local and aboriginal communities during all phases of the project, particularly during the mine operation and closure phase.

Depending on the skills required for the positions to be filled, Troilus intends to give priority to the employment of local workers, with priority given to families directly impacted by the project, the Mistissini Cree communities and other aboriginals.

The former Troilus mine was the first mining operation in Eeyou Istchee to be the subject of a comprehensive negotiated agreement covering social, economic and environmental issues such as employment, economic development and environmental protection. This first experience with the former Troilus mine enabled the Crees to gain experience and identify opportunities and challenges for Cree participation in the mining sector (Cree Nation Mining Policy, 2010). It should also be noted that this first experience was very beneficial to the relationship between the Jamesians and the Crees, according to the case study carried out in partnership between the Cree Nation of Mistissini, the Cree Regional Authority and Inmet Mining Corporation (Roquet and Penn, 2008). It helped forge ties between non-native and native employees that continue to this day. The proposed project is in line with this perspective, and will aim to maintain and foster these exchanges and relationships between the two communities.

Several factors have made the agreement a success in terms of integrating the Cree workforce into the Troilus project, including:

- The quality of in-house training programs offered to Cree workers, including training in French;
- A 7/7 schedule that allowed Cree employees to practice their traditional activities;
- Cultural awareness sessions in the early years of the project;
- The presence of a Cree employment coordinator at the mine to address the following issues: hiring of Cree personnel, support for workers, crisis management, etc;
- The contribution of the implementation committee and the families affected by the project;
- The dedication of the human resources team, especially during construction and the first years of operation.

### 1.3.2 Analysis of alternatives

The alternative to the project is not to carry it out. The Troilus mining project represents the only feasible solution to develop the deposit's gold and copper resources in an economically viable manner.

There is therefore no potential alternative to mining the deposit.

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### 1.4 Regulatory framework

The Troilus Project is subject to provincial and federal environmental impact assessment procedures. In addition, the Troilus project is located in the James Bay territory. Consequently, it is subject to a specific authorization process under the JBNQA. As part of the preparation of the impact study, a single report will be prepared and will meet the requirements of both the MELCCFP and IACC. The following sections provide an overview of the environmental legislation governing the Troilus project.

#### 1.4.1 James Bay and Northern Quebec Agreement

#### 1.4.2 Provincial requirements

##### 1.4.2.1 Environment Quality Act

Projects located on Category II and III lands may be subject to the environmental and social impact assessment and review procedure set out in Chapter II of the EQA. Projects automatically subject to the assessment and review procedure are listed in Schedule A of the Act, while projects automatically exempted are listed in Schedule B. Paragraph a) of Schedule A stipulates that: "(a) any mining project, including the expansion, conversion or modification of an existing mining operation".

The Troilus project is thus automatically subject to the environmental and social impact assessment and review procedure and requires authorization from the MELCCFP under sections 153 and 154 of the EQA. A directive was issued by the MELCCFP (a joint process with the JBNQA) in August 2022 (Appendix A.1 of the ESIA).

##### 1.4.2.2 Directive 019 on the mining industry (February 2025)

Directive 019 (D019) is the analytical framework used by the MELCCFP to evaluate applications for authorizations under the EQA. It sets out the environmental guidelines and basic requirements for different types of mining activities, with a view to preventing environmental deterioration.

##### 1.4.2.3 Other provincial regulations

Once authorization has been obtained under section 154 of the LQE, various ministerial authorizations (MAs), approvals and permits will also be required from the provincial authority prior to construction of the planned infrastructures, notably under section 22 of the LQE (Table 1.5).

**Table 1.5 List of approvals and permits potentially required at provincial level**

	Applicable regulations	Entity concerned	Description
Lease	Mining Act, section 100	MRNF	Lease for the exploitation of mineral substances
	Mining Act, section 140	MRNF	Lease for the exploitation of surface mineral substances: borrow pits, rock and sand quarries

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	Applicable regulations	Entity concerned	Description
	Mining Act, section 239; Règlement sur la vente, la location et l'octroi de droits immobiliers sur les terres du domaine de l'État, section 35 of the Land in the Domain of the State Act, section 47	MRNF	Lease of occupation of Crown land for: development of tailings and waste rock pile; ore concentration plant and - other facilities required for mining activities (camp, explosives warehouse)
Authorization	Environment Quality Act, section 22, paragraph 1	MELCCFP	Development of an industrial mining project
	Environment Quality Act, section 22, 2nd paragraph	MELCCFP	Surface or groundwater withdrawal activities of 75 m3/d or more.
	Environment Quality Act, section 22, 3rd paragraph	MELCCFP	Water management or treatment facilities
	Environment Quality Act, 4th paragraph of section 22	MELCCFP	Construction or intervention in wetlands and water bodies (dewatering, draining, diversion)
	Environment Quality Act, 6th paragraph of section 22	MELCCFP	Installation or operation of devices or equipment intended to prevent, reduce or halt the release of contaminants into the atmosphere
	Section 128.7 of the Act respecting the conservation and development of wildlife (c. C-61.1)	MELCCFP	Activity likely to modify a wildlife habitat
Approval	Mining Act, Section 240	MRNF	Location of mill
	Mining Act, Section 241	MRNF	Location of a tailings facility
	Mining Act, Section 232.1	MRNF	Mine site rehabilitation and restoration plan
Permit	Sustainable Forest Development Act, Section 73	MELCCFP	Intervention for tree cutting in state-owned forests
	Explosives Act articles 2 and 3	MSP3	Possession, storage and transportation of explosives
	Safety Code, Article 120 and Construction Code, Article 8.12	Régie du bâtiment du Québec	Use and storage of high-risk petroleum equipment
	Regulation respecting the public water domain	MELCCFP	Water catchment or discharge works

Below is a list of laws and regulations that may also apply to the Troilus project:

- Sustainable Forest Development Act (A-18.1):
  - Règlement sur l'aménagement durable des forêts du domaine de l'État (A-18.1, r. 0.01);
- Loi sur les terres du domaine de l'État (T-8.1);
- Watercourses Act (R-13):

<sup>3</sup> Ministère de la Sécurité publique du Québec

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- Règlement sur le domaine hydrique de l'État (R-13, r. 1);
- Act respecting threatened or vulnerable species (E-12.01):
  - Regulation respecting threatened or vulnerable wildlife species and their habitats (E-12.01, r. 2);
  - Regulation respecting threatened or vulnerable plant species and their habitats (E-12.01, r. 3);
- Act respecting the conservation and development of wildlife (C-61.1):
  - Regulation respecting wildlife habitats (C-61.1, r. 18);
- Cultural Heritage Act (P-9.002);
- Building Act (B-1.1):
  - Construction Code (B-1.1, r. 2);
  - Safety Code (B-1.1, r. 3);
- Explosives Act (E-22):
  - Regulations under the Explosives Act (E-22, r. 1);
  - Highway Safety Code (C-24.2);
  - Transportation of Dangerous Goods Regulations (C-24.2, r. 43);
- Mining Act (M-13.1);
- Environment Quality Act (Q-2):
  - Règlement sur les activités dans des milieux humides, hydriques et sensibles (Q-2, r. 0.1);
  - Règlement sur l'assainissement de l'atmosphère (Q-2, r. 4.1);
  - Regulation respecting quarries and sandpits (Q-2, r. 7.1);
  - Règlement sur la compensation pour l'atteinte aux milieux humides et hydriques (Q-2, r. 9.1);
  - Regulation respecting the declaration of water withdrawals (Q-2, r. 14);
  - Regulation respecting the mandatory reporting of certain emissions of contaminants into the atmosphere (Q-2, r. 15);
  - Règlement sur l'encadrement d'activités en fonction de leur impact sur l'environnement (Q-2, r. 17.1);
  - Règlement sur l'enfouissement des sols contaminés (Q-2, r. 18);
  - Regulation respecting the landfilling and incineration of residual materials (Q-2, r. 19);
  - Regulation respecting the operation of industrial establishments (Q-2, r. 26.1);
  - Regulation respecting the management of snow, road salt and abrasives (Q-2, r. 28.2);
  - Regulation respecting halocarbons (Q-2, r. 29);
  - Regulation respecting hazardous materials (Q-2, r. 32);
  - Regulation respecting water withdrawal and protection (Q-2, r. 35.2);

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- Règlement sur la protection et la réhabilitation des terrains (Q-2, r. 37);
- Regulation respecting the quality of the atmosphere (Q-2, r. 38);
- Regulation respecting the quality of drinking water (Q-2, r. 40);
- Regulation respecting royalties payable for the use of water (Q-2, r. 42.1);
- Regulation respecting the traceability of excavated contaminated soil (Q-2, r. 47.01);
- Guidelines for the reclamation of mine tailings (2015);
- Guide de préparation du plan de réaménagement et de restauration des sites miniers au Québec (2024);
- Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés (2021);
- Guide de caractérisation des résidus miniers et du minerai (2020).

### 1.4.3 Federal requirements

The EIA (S.C. 2019, c. 28, s. 1) and its regulations establish the legislative basis for federal environmental assessment practice. The EIA applies to projects designated by the Concrete Activities Regulations. A project may also be designated by the Minister of the Environment if he or she is of the opinion that the implementation of the project may cause adverse environmental effects, or that public concern about such effects warrants designation.

Under the EIA, the Troilus mining project is subject to an environmental assessment by the Canadian Impact Assessment Agency (the Agency), as it includes a designated activity described in paragraph 16 b, c) of the Schedule to the Regulations Designating Physical Activities, namely:

- " 16. The construction, operation, decommissioning and abandonment:
- b) a new metallurgical plant with an ore intake capacity of 4,000 t/d or more;
- c) a new rare earth elements mine or a new gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more;"

On June 20, 2024, the Budget Implementation Act (2024) received Royal Assent, bringing the amendments to the EIA into force. These amendments were made in response to the Supreme Court of Canada's decision on the constitutionality of the EIA. Transitional provision 305 of the Budget Implementation Act, 2024 (No. 1) describes the steps by which the CNSA or the Minister will bring designated projects under the amended EIA.

It should be noted that the project was subject to the Impact Assessment Act (2019) at the time of its initial filing in 2022. Following the reform of this Act, Troilus received a letter from IACC on July 12, 2024, confirming that the project was subject to the federal impact assessment procedure under the amended EIA. Table 1.6 lists the authorizations and other permits potentially required at the federal level for the Troilus project.

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**Table 1.6 List of potentially required federal authorizations and permits**

	Applicable regulations	Entity concerned	Description
Authorization	Fisheries Act, section 35	DFO <sup>4</sup>	Activities causing the death of fish and/or the harmful alteration, disruption or destruction of fish habitat
	Metal Mining and Diamond Mining Effluent Regulations	DFO and ECCC <sup>5</sup>	Activities involving the deposit of deleterious substances into waters frequented by fish
	Canada Navigable Waters Act	Transport Canada	Navigation obstruction activities
Permits	Explosives Act	NRC <sup>6</sup>	Explosives transportation activity
License	Explosives Act	NRC	Licence to manufacture and store explosives

- Canadian Environmental Protection Act (S.C. 1999, c. 33):
  - Environmental Emergency Regulations (SOR/2019-51);
  - PCB Regulations (SOR/2008-273);
  - Federal Halocarbon Regulations (SOR/2022-110);
- Species at Risk Act (S.C. 2002, c. 29);
- Canada Wildlife Act (R.S.C.<sup>7</sup> 1985, c. W-9);
- Explosives Act (R.S.C., c. E-17);
- Hazardous Products Act (R.S.C. 1985, c. H-3);
- Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c. 34):
  - Transportation of Dangerous Goods Regulations (SOR/2001-286);
- Nuclear Safety and Control Act (S.C. 1997, c. 9):
  - General Nuclear Safety and Control Regulations (SOR/2000-202);
  - Nuclear Substances and Radiation Devices Regulations (SOR/2000-207);
- Fisheries Act, R.S.C. 1985, c F-14:
  - Metal Mining and Diamond Mining Effluent Regulations (SOR/2002-222).

<sup>4</sup> Fisheries and Oceans Canada

<sup>5</sup> Environment and Climate Change Canada

<sup>6</sup> Natural Resources Canada

<sup>7</sup> Law and Regulations Canada



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### 1.4.4 Other environmental requirements

#### 1.4.4.1 James Bay and Northern Quebec Agreement (JBNQA)

The JBNQA was signed by the nine communities of Eeyou Istchee (Grand Council of the Crees of Quebec), and the governments of Quebec and Canada in 1975. The JBNQA defines the boundaries and rights of the communities. Section 5 of the Agreement defines the categories of land (I to III) within the boundaries of the James Bay territory. The present project is located on Category III land. These lands are public lands and can be used for economic development. The Crees have harvesting rights on these lands, in keeping with the principle of conservation and as long as this does not conflict with public safety. The species listed in Schedule 2 of Section 24 of the JBNQA are reserved exclusively for the Crees.

Section 22 of the JBNQA defines the environmental and social protection regime applicable in the James Bay region south of the 55th parallel. In particular, it provides outlines environmental impact assessment and review process for development projects. Under Section 22.5.1, all developments listed in Schedule 1 of the JBNQA are automatically subject to this procedure, and developers are required to submit preliminary information describing their project to the Assessment Committee (COMEV). This list includes "any major new mining operation excluding exploration."

The COMEV is responsible for reviewing the preliminary information provided by proponents of projects located in the area governed by the JBNQA south of the 55th parallel. The committee is made up of six members, including two representatives of the Government of Québec, two representatives of the Government of Canada and two representatives of the Cree Nation Government (CNG). Based on the information it receives, COMEV makes recommendations to the administrators of the JBNQA as to whether or not a project should be subject to an EIA, in accordance with Section 22 of the JBNQA.

Following transmission of the ESIA report, projects on Category III lands are reviewed by the Environmental and Social Impact Review Committee (COMEX) (three provincial members and two Cree members) or by the Federal Review Committee (COFEX -Sud) (three federal members and 2 Cree members), and the decision is made by the provincial or federal administrator of the JBNQA, depending on the nature of the project being assessed. COMEX and/or COFEX-Sud implications are determined by the issues under their jurisdiction (provincial or federal).

Following the transmission of project information submitted to the COMEV by Troilus, the COMEV recommended that an ESIA was required, and a directive to carry out the study was issued in August 2022 by the MELCCFP (Appendix 1.1 of the ESIA). As mining falls under provincial jurisdiction, the project will be reviewed by the COMEX.

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### 1.4.4.2 Other

The Troilus mining project must also comply with the regulations applicable in James Bay, namely the Act respecting land use planning and development (chapter A-19.1). The territory of Eeyou Istchee Baie-James also has specific regulations applicable to the project, notably with regard to zoning and nuisances:

- Zoning by-law (n°213);
- Nuisance by-law (n°149);
- Règlement relatif à la paix et l'ordre dans les lieux publics et privés (n°148).

Table 1.7 below summarizes the permits and authorizations required by the municipality.

**Table 1.7 List of permits and authorizations potentially required at municipal level**

	<b>Applicable regulations</b>	<b>Entity concerned</b>	<b>Description</b>
Authorization	James Bay Region Development Act, section 7.2 and other legislative provisions (D-8.0.1) By-laws respecting permits and certificates, conditions precedent to the issuance of building permits, article 5.1	Regional Government of Eeyou Istchee James Bay	Project construction activities (prior to issuance of building permit)
Certificate	James Bay Region Development Act, section 7.2 and other legislative provisions (D-8.0.1)	Regional Government of Eeyou Istchee James Bay	Certificate of compliance with regional regulations for service infrastructures, camp, roads and mining infrastructures
Permits	James Bay Region Development Act, section 7.2 and other legislative provisions (D-8.0.1) Bylaws respecting permits and certificates, conditions precedent to the issuance of building permits, section 5.1	Regional Government of Eeyou Istchee James Bay	Ground and surface water withdrawal structure

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