



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

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Acronyms and abbreviations

CNG	Cree Nation Government
COMEV	Environmental and Social Impact Evaluating Committee
COMEX	Environmental and Social Impact Review Committee
FIFO	Fly in Fly out
GHG	Greenhouse gas
GTE	Groupe technique d'évaluation
ISQ	Institut de la statistique du Québec
MELCCFP	Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks)
TSS	Total Suspended Solids
pH	Potential of hydrogen
TSF	Tailings Storage Facility
MDMER	Metal Mining and Diamond Mining Effluent Regulations
PDA	Project Development Area
LSA	Local Assessment Area

6. Issues

6.1 Summary of issues observed during past operations

This section includes a summary of the main issues observed at the former Troilus Mine and how they were addressed.

The way in which historical issues have been taken into account in the design of the new project is further described in the chapters dealing with impacted components.

6.1.1 Environmental issues

6.1.1.1 Dust emissions from ore stockpiles during operations

Description of Issue

Because the ore stockpile was not covered during the old operation, a significant amount of dust from the ore stockpile was transported and deposited near the site. In addition to the impact on air quality, this dust, rich in minerals such as copper, zinc and cadmium, has contaminated the soil up to 3 km from the original source. These dusts may also have been transported by runoff or leaching to the river system, as well as bioaccumulating in various terrestrial and aquatic organisms.

Several characterization campaigns were carried out, and Phase 1 to 3 environmental characterization studies were carried out, including an assessment of toxicological and ecotoxicological risks and impacts on groundwater. This study led to the following conclusion regarding dust retention in place:

"Based on the conclusions of the human health and environmental risk assessment, it appears that the presence of metals, and more specifically copper, in the area of airborne deposition of ore dust is not associated with a significant risk either to the health of people residing or frequenting the site or to the health of the ecosystem and its various ecological components.

It is therefore reasonable to conclude that the maintenance in place of the ore dust that has accumulated in the natural environment, and the maintenance in place of the natural soils that have been contaminated by this ore dust, does not constitute an environmental issue. On the contrary, based on the preceding conclusions, it seems obvious that the removal of dust accumulations or contaminated soils would cause greater damage to the local ecosystem considering the time required to regenerate it" SNC Lavalin (2018, p. 90).

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In terms of the airborne ore dust deposition sector, the following activities and reports have been carried out:

- 2010 : Caractérisation complémentaire des sols, des eaux de surface et des sédiments des lacs et cours d'eau situés dans cette zone de contamination aéroportée (Stavibel, 2013);
- 2013 : Évaluation préliminaire des risques toxicologiques et écotoxicologiques et des impacts sur l'eau souterraine (phase 1 of the previous report);
- 2014 : Caractérisation environnementale et biologique complémentaire dans le cadre de l'évaluation des risques toxicologiques et écotoxicologiques (phase 2 of the previous report);
- 25 janvier 2017 : Presentation to the Groupe technique d'évaluation (GTE) du ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC) of the results of the phase 1 and 2 of toxicologic assesement and discussion about next steps to close the file.
- 2016 : Plan de réhabilitation préliminaire (CH0089-004-RE-01_0) proposing to keep in place soil with airborne contamination, forwarded to the Abitibi-Témiscamingue and Nord-du-Québec regional branch of the MDDELCC;
- 2022-2023: Characterization of the extent of soil contamination to define the limits of contamination in order to produce a notice of contamination that represents the actual limits of contamination in the field;
- 2024: Remediation plan including monitoring program and contingency plan submitted to the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) for approval;
- 2024: Formalization and registration of a contamination notice in the land register based on actual contamination limits as measured in the field.

It is important to note that the remediation plan for this issue is still being evaluated, and there may be further developments regarding the measures to be implemented.

Lessons learned

In terms of how the issue was resolved, it's more a question of lessons learned and how the issue was addressed during project design. Although the issue of airborne dust was addressed during operations, the measures put in place were deemed insufficient. It was therefore decided to address this issue during the design phase of the new project, so as to completely eliminate the potential for soil contamination due to the transport of airborne dust, notably by :

- The addition of a covered dome for ore stockpile;
- The use of covered conveyors to reduce the potential for transporting dust from the ore stockpile.

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6.1.1.2 Dust from the tailing storage facility

Description of issue

Another issue related to dust generation was noted during the former operation, as well as during the first years of environmental monitoring following the cessation of operations.

The tailing storage facility (TSF), being the final storage location for tailings from the process plant, received tailings from the process plant by "spigotting", i.e. the tailings were pumped to the TSF and their discharge points were controlled with drain valves to distribute the tailings evenly around the TSF.

Tailings from the process plant are very fine-grained, and when they become dry, they are prone to being mobilized by wind erosion. While good tailings management includes changing the spigotting points to always keep the tailings surface moist to prevent the tailings from drying out and becoming mobilizable, this measure alone was not sufficient.

Lessons learned

The problem was addressed with the revegetation of the TSF during closure.

Although it will not be possible to revegetate the future TSF while it is in use, its estimated useful life is 10 years. As a result, progressive restoration of this landscape would be possible during operation, starting in year 11. Revegetation work should therefore ensure the absence of dust from the TSF once it is no longer in use.

To ensure dust-free operation, Troilus Gold Corp (Troilus) suggests the following additions:

- Tailings thickening.

By producing a thickened tailings, the tailings is less prone to erosion, as it contains polymers that promote moisture retention. In addition, tailings are not segregated, which prevents the formation of sand beaches (Golder Associés Itée, 2009).

- Improving the tailings management program

By ensuring proper management of the tailing deposition plan, as well as the integration of a dust control program that will provide additional preventive measures such as watering the surface of the TSF during periods conducive to tailings erosion and transport.

6.1.1.3 Exfiltration of tailing storage facility rich in iron

Description of issue

The existing TSF dike is a filter dike. This means that the dike is not impermeable and allows water to exfiltrate at its foot. Three monitoring points collect exfiltration water at the bottom of the dike. The exfiltration points all differ in water quality but are characterized by a neutral pH of between 6.5 and 7.5, and by a high iron content. One of the points has an iron concentration above the instantaneous limit

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permitted for final effluent, i.e. 6 mg/l throughout the year, while the other two points have an iron concentration above the monthly limit permitted only in winter, i.e. 3 mg/l.

When Enviromine conducted leaching tests on 10 samples of waste rock and ore in 1993, iron concentrations in all leachate samples exceeded the maximum permissible concentration for final effluent under Directive 019. However, in 1995, there was no standard associated with iron concentration in the effluent.

That said, in the same report, three analyses carried out on leachate produced with residues from the process plant showed an iron concentration of 0.08 mg/l. The residues were therefore classified as non-leachable.

Land users also provided comments indicating that, prior to the mine, an ochre colour associated with the presence of iron was observed in the TSF area. It should also be noted that the overburden was not excavated beneath the TSF, and the seepage points correspond to historic streams. In addition, the monitoring station at the exfiltration point of the J4 pit waste rock pile has never shown iron concentrations in excess of the authorized limit. This problem is therefore only associated with the TSF despite the results of Enviromine in 1993.

Environmental monitoring data show that iron concentrations in the exfiltration points at the bottom of the dike are problematic. Solutions have been proposed and implemented to ensure that effluents meet the maximum iron concentration permitted by the Metal and Diamond Mining Effluent Regulations (MDMER) and Directive 019 (MELCCFP, 2025). In particular, the installation of retention pond would increase the retention time of water before it is discharged into the environment, giving iron more time to oxidize and precipitate naturally. These retention ponds constitute a passive treatment and have led to a reduction in the iron concentration observed in effluents. However, this treatment is insufficient during the winter period, when the treatment kinetic is slowed down by the water temperature and the lack of oxygenation in the water due to the ice cover that forms on the pond. In addition, ice formation also causes a decrease in the volume of water contained in the basin, reducing water retention time. The Pourbaix diagram further explains the process of iron oxidation in water as a function of pH and redox potential (figure 6.1). Ultimately, the aim is for the iron to oxidize sufficiently to precipitate and not end up in a water-soluble form.

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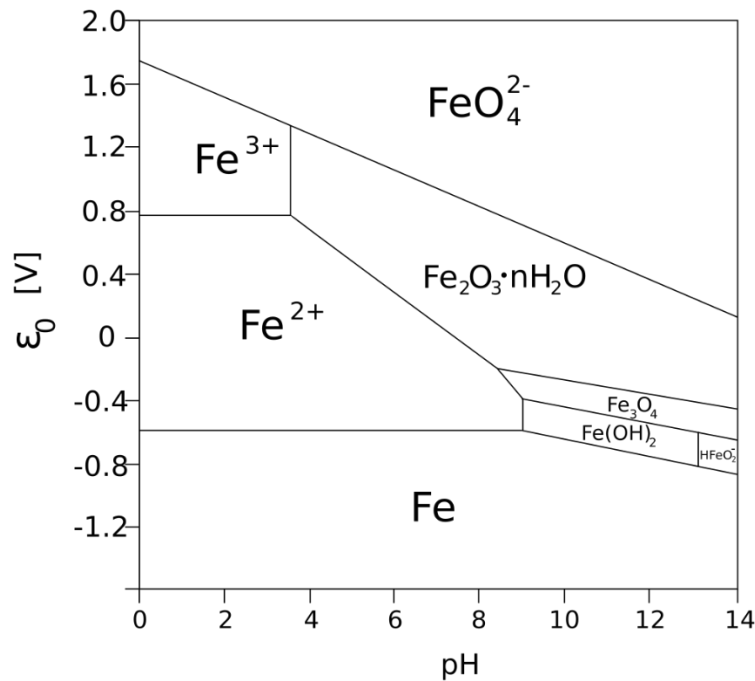


Figure 6.1 Pourbaix diagram for iron

Source: Pourbaix, 1963

Lessons learned

Although it's difficult to pinpoint the cause of the iron concentration in the TSF exfiltration points, this issue was raised during the project design phase and a solution was proposed.

The proposed solution consists in grouping the exfiltration points so that the water can be collected at a central point. As a result, all exfiltration water from the same source will be grouped together in a large sedimentation pond. The basin is planned to be built close to the industrial area. This exfiltration water can be used for the process.

Exfiltration from the TSF will be managed in such a way as to allow several options in the event of iron exceedance in the effluent (treatment and use in the process).

6.1.1.4 Use of cyanides in the industrial process

Description of the issue

The use of cyanide to increase gold recovery is a common practice and was applied in the historical process. However, the use of cyanide also comes with its own set of issues.

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The results of groundwater monitoring by a pumping well showed a concentration of 5.34 mg/l of cyanide in the groundwater in the industrial sector in March 1998. Enviroconseil was therefore commissioned in 1998 to carry out a study to address the issues affecting the area.

The study revealed the presence of a single aquifer consisting of a free water table located in bedrock, with groundwater levels ranging from 1.97 to 5.47 m deep (Enviroconseil, 1998).

In 2004, a modification was submitted to amend the certificate of authorization to completely abandon cyanidation in the process.

Groundwater monitoring in the industrial sector is carried out twice a year. Well PO-21 (formerly PO-15) is the monitoring well for determining cyanide concentration trend in groundwater. Cyanide contamination is documented in Troilus' annual environmental monitoring reports. In September 2024, the total cyanide concentration in well PO-21 was 0.012 mg/l, while in June 1998 the cyanide concentration in the well was around 1130 mg/l (there is no information on whether these were available or total cyanides). Since 2020, the average concentration of available cyanides in well PO-21 has been around 0.012 mg/l.

Appendix 7 of the Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés sets the maximum concentration of available cyanides for drinking water at 0.2 mg/l and at 0.022 mg/l for surface water resurgences.

Lesson learned

Troilus offers a cyanide-free process.

6.1.1.5 Suspended solids in the tailings storage facility

Description of the issue

The Troilus project TSF is located on the edge of a mountain, and a water pond is present on the TSF. The pond collects water from the process plant tailings. Runoff from the mountain bordering the TSF is also collected in this pond. Under the former operation, water contained in the TSF was either recirculated to the plant for the process, or treated by the water treatment plant by flocculation/settling to meet the maximum concentrations for a final effluent set by Directive 019 and the MDMER before being discharged to the environment.

The project proponent is required to ensure that the surface area of the pond on the TSF does not exceed 40 ha. The level of the pond is controlled by submersible pumps that pump water from the pond to a polishing pond upstream of the water treatment plant.

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The water contained in the pond had a high concentration of total suspended solids (TSS) during operations from 1996 to 2010. The maximum TSS concentration for a final effluent is set by Directive 019 and the MDMER at 30 mg/l, while the maximum acceptable average is 15 mg/l. During operations, TSS concentrations were as high as 600 mg/l, according to annual environmental monitoring reports. Golder Associés ltée (Golder) was commissioned in 2013 to conduct a study on the erosion process, to propose solutions to address this issue at closure. The causes of high TSS concentrations are ::

1. Presence of a tidal zone with no vegetation cover (remember that the level of the pond is controlled by pumping and that in winter pumping is interrupted due to water levels, while pumping restarts in spring when the snow melts). This creates a bare flood zone where fluctuating water levels prevent the survival of vegetation.
2. Erosion and input of tailings into the TSF pond due to runoff from the mountain bordering the tailings pond.
3. Erosion and input of tailings into the TSF pond due to discharge points from exfiltration points at the bottom of the dike (exfiltration water at the bottom of the dike is returned to the tailings pond when its quality does not meet maximum acceptable concentrations).
4. Precipitation-induced erosion and inflow of tailings into the pond
5. Wind erosion of tailings transporting and depositing fine tailings in surface waters

Several corrective actions have been implemented to address these issues, including :

- The addition of a wasterock strip around the pond (0.5 m below and above elevation 5397.7 m) to limit wave erosion (see figure 6.2);
- The addition of a rock berm around elevation 5397.0 m (see figure 6.2);
- The construction of discharge ditches for the exfiltration points at the foot of the erosion-proof dike (remember that exfiltrations at the foot of the dike are returned to the tailings pond when water quality does not meet maximum acceptable concentrations).

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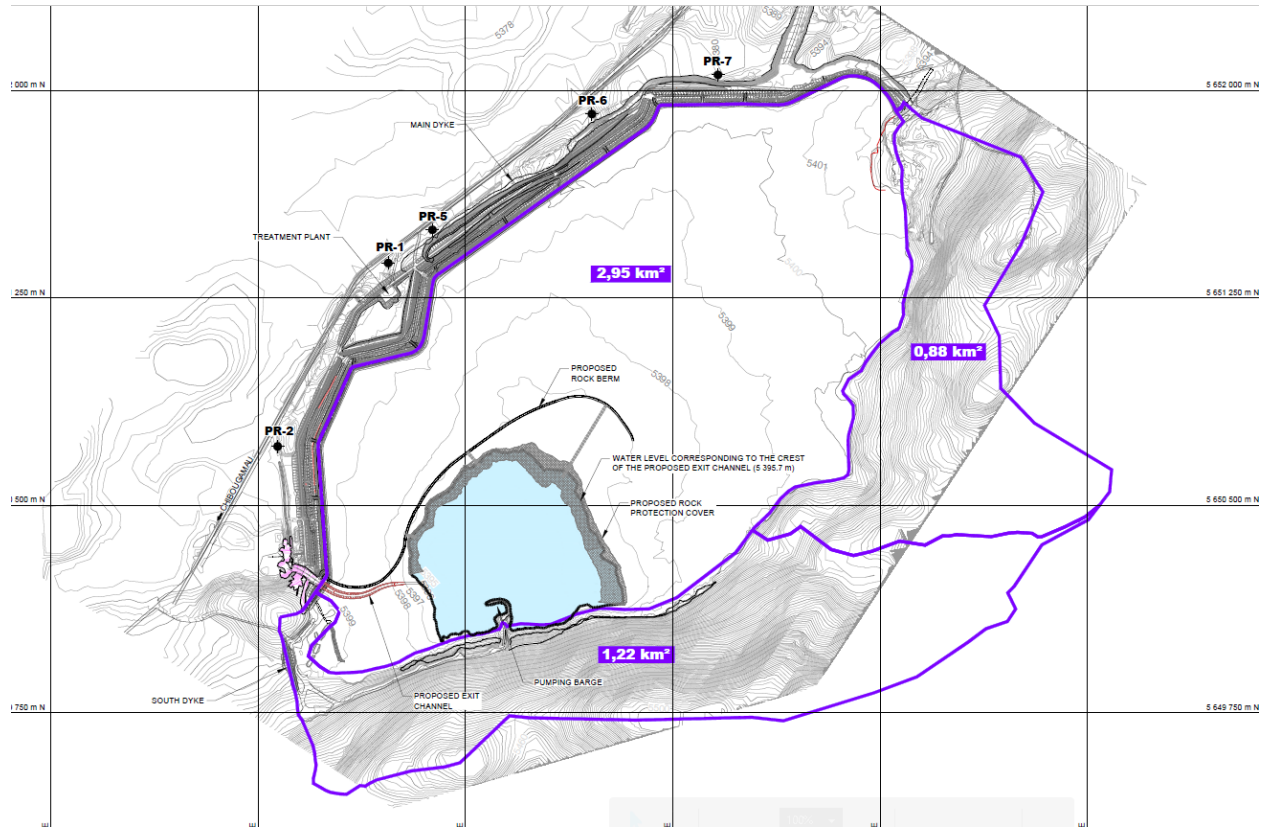


Figure 6.2 Current layout of the tailings pond

Source: Golder Associates Ltd., 2013

Based on the experience and observations of land users and the environmental department, maintaining the water level in the TSF pond below the waterrock strip is one of the most effective measures for controlling TSS concentration in the TSF pond. A steady decline in TSS in the pond can also be attributed to the revegetation efforts that have taken place on the TSF since operations ceased.

In fact, the revegetation program, the addition of waterrock strip, the control of pond water levels, and the natural consolidation of tailings over time have contributed to the fact that no treatment for TSS has been required since 2021 to meet the maximum discharge concentrations for the TSF effluent.

Lessons learned

Several lessons have been learned regarding the TSS problem in the TSF pond, and several measures are planned to address this issue in the proposed new project:

- Tailings from the process plant are to be thickened before being stored in the TSF. Modifying tailings properties by adding binding agents increases static and dynamic stability and reduces the likelihood of erosion;

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- The proposed location and design of the future pond on the TSF would make use of wind/wavebreaks to reduce the likelihood of erosion;
- A water treatment plant to treat TSS is planned from the start of operations;
- The planned life of the tailings facility is 10 years, allowing for progressive reclamation during operation;
- Storage of tailings from the concentrator after Year 10 would be directly in the pits that have been mined, addressing the five causes of high TSS identified by Golder in 2013.

6.1.2 Working conditions

6.1.2.1 Alcoholic beverages on site

Description of the issue

During the former operation, the consumption of alcoholic beverages was permitted at the camp. Although few negative events were raised in connection with this practice, it is important to consider that many employees may suffer from drinking problems and that the presence of alcohol in the workplace, even after their shifts, can exert a negative influence on both their work and their personal life.

What's more, the message this sends to workers is that alcohol consumption is acceptable as long as it doesn't affect their ability to show up for work the next day.

Lessons learned

As a company that wants to improve the live of its employees and prevent them from falling into the vicious circle of alcohol and drug use, Troilus has a dry camp and a zero-tolerance policy towards the presence of drugs and alcohol.

Employees who wish to receive help to combat their substance abuse problems will have access to services at this level through Troilus' Employee Assistance Policy.

Troilus plans to address the concerns of the Cree and non-native communities regarding drug and alcohol use by employees by offering a drug and alcohol-free work environment, to encourage its employees to avoid these substances both at work and at home.

6.1.2.2 Training, employment and promotion practices for the Cree workforce

Description of the issue

Ensuring the integration of Cree workers is an issue expressed by several members of the Mistissini Cree community. Indeed, hiring and integrating Cree personnel is of great importance for the new mining project.

Indigenous realities must be taken into account right from the hiring process, to ensure that working conditions (hours, language spoken at work, vacation time) are adapted to Cree cultural practices, so that they are not disadvantaged during the company's hiring process.

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In addition, a mechanism must be put in place to properly document the hiring and promotion process, to clearly describe the company's decision-making process and ensure that it has not been influenced by personal bias.

Lessons learned

The new Troilus project is fortunate to be able to draw on the experience of the historic Troilus mining project. Indeed, a case study on the benefits and shortcomings of the practices applied by the promoter and implemented by the Troilus Agreement was developed in 2008.

This case study discusses the measures that had been put in place and their level of success according to the workers hired.

Regarding the hiring process for Cree personnel, several measures had been put in place to ensure compliance with the 25% target for the ratio of Cree employees to be maintained:

- Hiring a Cree employment coordinator to assist Troilus in its recruitment process. The Cree Employment Coordinator's mission was to advise Troilus of any obstacles preventing a Cree employee from filling a position;
- Priority hiring for members of affected families, members of the Mistissini Cree community and then Cree in general, in that order;
- Ensure job advertising and recruitment in the Mistissini Cree community;
- The recruitment process was to be submitted to the Cree Adaptation Committee for review. The committee's objective was to submit recommendations for reducing or eliminating employment barriers for Cree hiring and promotion;
- When recruiting, Troilus had to respect the following measures:
 1. Inform the Implementation Committee 30 days in advance of job openings;
 2. Post job offers at various locations in Mistissini;
 3. Advertise job openings in Cree newspapers and magazines;
 4. Conduct job interviews in French, English or even Cree if the person is unfamiliar with either of these languages;
 5. Organize an information campaign on employment opportunities at the mine;
 6. Cree candidates could apply in either French or English.

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Additional measures taken to adapt the work environment to the Cree workforce included :

- Review of employment requirements by the Implementation Committee. Inmet was not obliged to hire Cree individuals who did not meet employment requirements, but did not impose arbitrary barriers to Cree employment;
- Review employment practices and working conditions annually to better adapt them to the Cree workforce;
- Not requiring Cree workers to speak French, except for specific positions and ensuring that supervisory personnel have sufficient knowledge of English;
- Translation into Cree of the most relevant and important general notices intended for the workforce;
- Allowing Cree employees to take annual vacations of up to three continuous weeks for goose and moose hunting, by adapting work schedules accordingly.

Regarding training, the Agreement provided the following measures for the Cree workforce:

- Offer the same training programs as for other non-indigenous employees;
- Participate in joint funding efforts with the Cree Nation Government (CNG) and the Cree Nation of Mistissini to provide on-site training programs for various job requirements;
- Where applicable, offer certain Cree candidates a pre-training program in mining operations (including a minimum of two weeks at other mining sites in Canada) in addition to the regular field training provided to all employees;
- Contribute to additional training programs required by the workforce to the exclusion of direct financial contributions, unless agreed by the company.

*(Roquet, Penn, 2008)

The measures put in place during the first project enabled several people in the Cree community of Mistissini to access jobs they might not have been able to hold if the measures had not existed.

6.1.2.3 Economic benefits for local communities

Description of the issue

Local communities potentially impacted by the mining project deplore the fact that mining projects do not contribute sufficiently to the region's economic development, because workers are not encouraged to stay or move to the region.

Although new mining projects create job opportunities for people who remain in the region, and some services and equipment are provided by local contractors and service providers, local communities say they are dissatisfied with the economic spin-offs, because the latest mining projects authorized did not include sufficient measures put in place to :

1. Promote the integration of workers into the region;
2. Retain workers in the region;

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3. Ensure significant economic spin-offs in the form of equipment and material purchases and rentals.

According to Statistics Canada, by 2021, one in five jobs in northern Quebec will be held by commuters. The Baie-James¹ and Nord-du-Québec regions face the highest rate of jobs filled by commuters, at 24.7% for Baie-James and 18.7% for Nord-du-Québec. Several reasons were cited by commuters for not wanting to move to James Bay:

- Distance from family and friends;
- Distance from urban centers;
- Social and cultural life;
- Willingness to stay in their native region;
- Access to consumer goods;
- Housing and accommodation;
- Access to specialists and health professionals.

Lessons learned

The historic Troilus project put in place several measures to ensure economic spin-offs in local communities and Troilus aims to build on these.

To encourage the integration of new workers into local communities, several measures were suggested. Many of them are measures that were successfully applied during the previous operation.

First and foremost, it is important to mention that the new Troilus mining project does not provide for Fly in Fly out (FIFO), which ensures that workers must transit through the community to reach pick-up points. Troilus' objective is to make a settlement in the region preferable to the alternative, by putting in place measures that favour workers who live near the planned pick-up points, which will be based in the surrounding communities.

Troilus plans to offer shorter working hours such as 7/7 or 4/3 to encourage workers to settle in local communities on a permanent basis. According to a survey of commuters' reasons for not relocating to the region: "17% of commuters might consider relocating to James Bay to be closer to their place of work". Although it is unlikely that 100% of the workers planned for the project will settle in the region, Troilus plans to work with local communities to propose possible solutions to the reasons cited as barriers to commuters moving to the region.

Other measures put in place during the historic project involved offering reduced-rate mortgages to encourage workers to buy homes. This measure has been very beneficial in retaining workers and is also being considered for the new project. Although the housing context is very different from that of 1996, the

¹ Now known as Eeyou-Istchee James Bay

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idea of offering benefits to workers, whether financial or related to social services, must be conceived in partnership with local communities.

To increase the economic benefits associated with equipment purchase and rental, Troilus had to consider the cost of the planned equipment plus transportation to its warehouse in Chibougamau. This measure benefited local suppliers, as their bids already took into account the transportation of materials/equipment to Chibougamau or nearby (Chapais, Mistissini or Oujé-Bougoumou). Other measures, such as support in developing service bids, could also benefit local suppliers who may lack the resources. These suppliers could then comply with the mine's service offering requirements.

6.2 Current Issues

6.2.1 Preserving the integrity of the hydrographic network and its processes

The hydrographic network of the Local Assessment Area (LSA) is made up of several lakes of special interest and lake chains, as well as several watercourses including Bibou Creek, the main watercourse in the LSA, which all drain into Lake PE43 (Lake A). The wetlands inventoried in the study area are typical of northern environments. Mostly peat bogs, a few swamps, marshes and ponds also make up the site's natural landscape.

Historically, the previous mining project had already altered the study site's hydrographic network, with Bibou Creek diverted to carry runoff around the 87 and J pits. A new detour of Bibou Creek is planned to divert runoff from natural watersheds upstream and around the Project Development Area. A participatory and iterative process for analyzing variants for the creek diversion was set up by Troilus with the various stakeholders involved, including members of the Cree Nation of Mistissini, land users, and others. The aim of the workshops and meetings held was to gather the fears and concerns of this diversion, and to integrate the raised issues into the final solution. This participatory approach, which Troilus adopted right from the project's inception, bears witness to the cultural importance accorded to Bibou Creek by land users. Moreover, during the public consultation process, a number of concerns were raised by land users regarding the development of the diverted watercourse, particularly about maintaining connectivity between Lake PE2 (Lac Amont) and Lake PE43 (Lac A), thus enabling fish to circulate in Bibou Creek between these two lakes. Indeed, the Bibou creek plays an important role in feeding the downstream water body, PE43 (Lake A), which is bordered by seasonally and permanently occupied Cree camps. The planned diversion of Bibou Creek, as well as the various planned construction activities and pit dewatering, may affect or alter the natural flow of surface water, in addition to encroaching on and disturbing wetlands and water bodies. The potential impacts of this diversion and these activities on the hydrological and hydrogeological regime, as well as on wetlands and riparian areas, make preserving the integrity of this network and these processes a major issue for the project.

The Valued Components associated with this issue are hydrology, hydrogeology, wetlands and riparian environments.

6.2.2 Conservation and protection of soil and water resources

Given the collective nature of water and the various laws and regulations governing its protection and management, water resources and their quality are a major issue. The various consultations held throughout the project also bear witness to the importance of this resource in the region, and particularly with the Cree communities occupying the territory. In addition, as previously mentioned in section 6.1.1.1, the demonstration of soil and sediment contamination, as well as surface water contamination, in certain sectors of the Project Development Area (PDA) as a result of poor ore management during the historical use of the site, makes the conservation and protection of soil and water resources an important issue. By working in areas identified as contaminated, the new mining project is likely to increase the risk of human exposure to contaminated soil and sediment, and of transferring this contamination to the water environment. In addition, any new contamination of soil and water is also a risk inherent in any worksite, especially one of the scale of a mining project. Managing contaminated soil and preventing the spread of

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this contamination to water is therefore an issue for the project, which involves several components: soil quality, surface and groundwater quality, as well as the components of the natural environment dependent on this resource, human health and ecosystems.

6.2.3 Protecting the climate and air quality

The emission of greenhouse gases (GHG), as the main contributor to climate change, is a major concern for the public and the authorities, including the Environmental and Social Impact Review Committee (COMEX) and the Environmental and Social Impact Evaluating Committee (COMEV). The Troilus mine project is likely to emit GHGs and other substances that could affect atmospheric quality. Several concerns and issues have been raised by land users and neighbouring communities about dust emissions from the former mining operation.

Thus, in line with the Canadian and Quebec government's climate change objectives, and in view of the issues raised by the project's various stakeholders, preserving the climate and air quality is an issue for the project, which involves two Valued Components, namely atmospheric quality and GHGs, and contributes to other components such as soils and sediments, water resources (quality), as well as flora and fauna and human health.

6.2.4 Maintaining the quantity and quality of vegetation and wildlife habitats

Maintaining the quantity and quality of plant and wildlife habitats is governed by several provincial and federal laws. In the North, protection of the environment and biodiversity is also dictated by the James Bay and Northern Quebec Agreement, and the treaties that flow from it, such as the Paix des Braves Agreement. Thus, several protection regimes coexist to ensure the protection of vegetation and fauna species and their habitats.

The Troilus site is located in an area already disturbed by past mining activities. Wherever possible, the engineering design has favoured the reuse of past infrastructures to reduce its footprint on the natural environment. However, some project activities, such as deforestation and the construction and operation of new infrastructures, will encroach on natural environments, including wetlands and water bodies. Other activities, such as pit dewatering and water management, are also likely to disturb wetlands and waterbodies in the vicinity of the project area. As a result, losses and disturbances of plant, wetland and waterbodies are expected, as well as disturbance of associated wildlife habitats. Nevertheless, the mining project is located on a territory recognized and used by the Cree communities (tallymen and the Nibiischii Corporation) for the quality of the vegetation and wildlife habitats it contains. A number of concerns regarding the preservation of these habitats have been raised by land users and neighbouring Cree communities. Indeed, several wildlife species of interest to the Cree frequent the mine area and its surroundings. Some, like the woodland caribou, are listed as special-status species under Quebec's Act respecting threatened or vulnerable species and Canada's Species at Risk Act. The protection of wildlife is therefore an issue for this Cree community. Similarly, vegetation is also a key concern, especially during the revegetation of the Troilus mine, which should encourage plant species attractive to wildlife. Fish and fish habitat are also a major concern, especially as a diversion of Bibou Creek is planned.

The mining project must therefore preserve as far as possible the Valued Components, i.e. vegetation, riparian and wetland environments, and terrestrial and aquatic fauna, including species of special status.

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For all these reasons, maintaining the quantity and quality of vegetation and fauna habitats has been identified as an issue for the project.

6.2.5 Maintaining quality of life

The new Troilus mining project encroaches on Category III lands, impacting various Cree family traplines and a wildlife reserve managed by the Cree communities. However, the project also encroaches on a territory that has already been anthropized as part of the historic mining project, and where past logging operations can be seen. Recreational uses have also been identified in the area. Although measures to limit the project's footprint have been considered since the design phase, certain current uses in the vicinity of the mine site will be restricted, and the Cree families affected will see their use of the land and resources disrupted by the project. The project will also generate a few nuisances that could disturb the peace and quiet of the area. A number of concerns have been expressed by project stakeholders regarding noise and light pollution, as well as the landscape aspect.

Maintaining quality of life is therefore an important issue, since the project must ensure that mine's usages of the territory are compatible with the various activities taking place in the vicinity of the mine site, and that nuisances are minimized. The Valued Components associated with this issue include land and resource used by both Crees and Jamesians, noise and vibration, light and landscape.

6.2.6 Community vitality

As previously explained (section 6.1.2.3), maximizing economic benefits in local communities was an issue during the previous Troilus mine project. Many of the measures of the historic project were taken up and integrated into the design of the current project. In addition, as also presented, recent consultations with the public have highlighted local community dissatisfaction with economic and regional development issues arising from other mining projects currently underway in the region. Indeed, a number of concerns have been raised by both Cree and Jamesian communities in relation to employment, local business development, attracting and retaining labour, promoting the region, and housing availability and affordability.

In the Nord-du-Québec region, mining and quarrying will account for 45.9% of GDP by 2022 (ISQ, 2024). The mining sector alone generated 18.2% of the region's GDP (EcoTec Consultants, 2024). The Troilus project therefore contributes to the region's economic development, which is why it is an important issue for the project. This involves the Valued Components of economic benefits, infrastructure and services. It also indirectly involves mental health and social well-being, given that the economic development of a region plays an important role in the quality of life and the physical and psychological health of its population.

6.2.7 Protecting human health and ecosystems

Human health and ecosystems are interdependent with several other components (e.g. quality of water resources, soils and sediments, infrastructures and services, economic conditions). The direct impacts of the project on these other components may indeed lead to human health issues for land users frequenting the vicinity of the mine site and consuming the natural resources found there (health risk due to poor air quality, contamination of natural resources and fauna/flora consumed by the Cree). Similarly,

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the project's impacts on saturation and possible competition for services and infrastructures, including health care, competition on the job market, the settlement of new arrivals, regional development, etc., may raise safety and mental health issues for local communities. The consultations also raised a number of concerns about ecosystem health, such as water quality due to contamination of the site by dust emissions from the former operation, and mercury contamination of water and fish. Mental health and safety issues, particularly for women victims of violence, were raised by various parties.

For all these reasons, the protection of human health and ecosystems has been identified as an issue, and involves the following components: surface and groundwater quality, soil and sediments, vegetation, aquatic fauna, land use, infrastructures and economic conditions.

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