



# SUSTAINABLE DEVELOPMENT REPORT **2016-2017**







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## INTERACTION

The PDF format allows for interactive functionality, based on Adobe Acrobat Reader software. In order to reduce paper usage, it is easy to download the report and peruse it on-line.

### Note:

To activate the hyperlinks and other dynamic links on mobile devices, the free application Adobe Acrobat Reader needs to be installed.

## FUNCTIONALITIES



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## A WORD FROM THE VICE-PRESIDENT, ENVIRONNEMENT AND SUSTAINABLE DEVELOPMENT

Falco Resources Ltd. (Falco or Company) management team is a bold team which aims at demonstrating that the mining industry has a positive impact on communities. Absolutely nothing is left to chance as for environmental protection, safety and cohabitation with the community.

Our experience in this field indicates that it is rarely possible to elicit unanimity concerning mining projects. Our objective is however to gather the largest consensus possible on the Horne 5 Project. We believe that this project has all the required assets to succeed: long length of life, high technologies, low environmental impact.

At the time of writing these lines, the feasibility study is completed, while the environmental and social impact assessment is on the verge of being completed. Although it might seem a bit early to present this first sustainable development report, we think it appropriate to describe the foundations of a company and of a mining project that is future-oriented for the Rouyn-Noranda community.

We do things differently: we integrate sustainable development into each of our activities, every day. In this report, we expose the highlights of our activities of the last 18 months, pointing out the distinctive features of our approach to continue making Falco a model corporate citizen within the Rouyn-Noranda community.

I would like to personally thank all our collaborators and employees for their everyday efforts to integrate sustainable development into their activities.

Hélène Cartier, Eng. LL.B.





## A WORD FROM THE PRESIDENT

Years 2016 and 2017 will have been an important period for Falco to define the foundations on which will lie the development of Horne 5 polymetallic deposit, Falco's core asset. Among the activities completed or initiated, let us mention the conduction of a feasibility study, the filing of the authorization request for the Quémont 2 shaft dewatering, the publication of the preliminary economical assessment results, and the launching of an environmental and social impact assessment, as well as the continuation of the exploration activities. The management team is more than ever determined to take nothing for granted, to challenge the status quo down to the smallest detail. Innovation has quickly become the keyword in the design and planning of every phase of the project life cycle. Each constraint encountered is an opportunity to review concepts, to make original choices that allow reducing the project visual impact, to reduce the environmental risks, and to make a better use of current infrastructures, as well as natural and human resources in the area. For example, the repair and reconstruction of Quémont mine historical buildings will allow to fulfill the current needs while preserving the local patrimonial assets.

The Horne 5 Project will benefit from the extraordinary potential of mining workers in the Abitibi area; their skills, which are already world-class, will be upgraded to achieve optimal exploitation of all possibilities offered by equipment incorporating the most recent technological advances. This expertise will enable us to take to the very limit what can be done with currently available technologies. The explosion of potential uses of drones and the remote control of mining equipment are some examples of innovations from which we will benefit.

With an approach based on an open, respectful and transparent communication, Falco has been successful in getting a strong support for Horne 5 Project from the business community, the Municipality and citizens. According to their interests, they consider the Horne 5 Project to be a structuring project for the local and regional industrial ecosystem, a company that will bring investments in services to citizens, or a high-quality employer for themselves and eventually for their children.

With Horne 5, Falco's team has always had only one idea in mind: to carry out an unique project, to make it a reference in the mining industry, not only on the level of mining activities and of the efficiency of resources use, but also on the level of social acceptability and environmental protection. This first sustainable development report represents the opportunity for the company to demonstrate its efforts in this regard.

Luc Lessard, Eng.





Future Horne 5 mining complex - visual simulation, WSP.

# COMPANY PRESENTATION

Falco Resources Ltd. is an exploration and development company which currently focuses its activities on its mining properties located in the Rouyn-Noranda district in Quebec. Searching for base and precious metals, it mainly concentrates its efforts on its Horne 5 Project, for which it holds an exclusive right to the minerals.

Falco is one of the largest mining title owner in the province of Quebec, managing 67,000 hectares of mine camp sites in Rouyn-Noranda, which represents approximately 70% of the camp in its entirety and which includes 13 former gold and base metals mine sites.

In addition to the the acquisition of mining rights in the Rouyn-Noranda mining district, Falco has acquired an important database collected by Glencore Canada Corporation and its predecessors, comprising detailed 3D numerical models (GOCAD software) of the geology in the area, geophysical and lithogeochemical data as well as results from more than four million meters of surface and underground drilling.

As a member of the Quebec Mining Association (QMA) and of the Mineral Exploration Research consortium (CONSOREM), Falco is registered at the TSX Venture Exchange under the symbol FPC.



## Governance

Osisko Gold Royalties Ltd. is the most important shareholder of Falco and currently holds 13,3% of its outstanding common shares. Investissement Québec holds 6% of the outstanding common shares. Falco's board of directors is constituted of 8 administrators and can count on many permanent committees among which are the Environmental, Health, Safety and Sustainability Committee, the Governance and Nominating Committee as well as the Technical Committee.

The Environmental and Sustainability Committee has been formed to supervise the company activities as for work environment (occupational health and safety), human environment (social responsibility of the company) and physical environment (environment). It reviews, evaluates and recommends to the Council the measures to be taken in these three areas of activity; it also monitors the implementation of the company's management policies and systems in these areas. This committee, composed of three directors, has met on a regular basis since its creation in 2015, notably to evaluate the preparation of the Horne 5 Project environmental and social impact study, to revise the site selection study for the tailings management facilities, as well as to monitor the project's feasibility study and the company's health, safety and environmental performance.

The Governance Committee is formed to oversee the company's governance activities. It reviews, evaluates and recommends to the Board the measures to be taken for the implementation of practices in order to preserve the financial and operational integrity of the company and, above all, to ensure that it complies with all rules applicable to his activities.

The Technical Committee is trained to review and analyze the engineering of mining projects and to oversee the mining design and operational planning activities of the company. It reviews, evaluates and recommends to the Board the measures to be taken to ensure strategic technical planning, risk management and operational performance.

## Management Team

Our management team is made up of individuals with a long track record in the development of mining projects. Many have made a significant contribution to the development of the Canadian Malartic project, a success story in the industry. Part of the team lives in the Rouyn-Noranda area and some members are actively engaged in this community. The discussions with our stakeholders to date suggest that this experience, this expertise and our local presence give our team reassuring credibility. Acknowledging the support we have so far, we do not take for granted the trust placed on us.

Each team member recognizes the importance of demonstrating leadership in sustainable development and is fully responsible for being a positive actor in the sector. We invite you to get to know them:



[www.falcores.com](http://www.falcores.com).



## Sustainable Development Commitment

Fully adhering to the values underlying the concept of sustainable development (ecological, social and economic), we aim to preserve the safety of our employees and protect their health, to promote the protection of the environment and to foster the development of communities where we develop our projects. This commitment means that we strive to act consistently in all our activities.

Adopted in August 2014, the sustainable development policies were revised in 2017. Inspired by the Towards Sustainable Mining initiative, a program developed by the Mining Association of Canada to promote responsible mining practices, we have revised them to ensure that they were true to the values we carry every day in the company. They take into account issues specific to our industry.

In this first sustainable development report, we are proud to announce the publication of our new health, safety, environmental and social responsibility policies

 [www.falcores.com](http://www.falcores.com).





## Location of the Horne 5 Project in the Industrial Park



# PRESENTATION OF HORNE 5 PROJECT

Horne 5 deposit is immediately below the former Horne mine, which was operated by Noranda inc. from 1927 to 1976, with production of about 2.5 billion pounds of copper and 11.6 million ounces of gold. The acquisition of the rights to the minerals for the exploration of this deposit has allowed us to acquire a large database of exploration data with which we progress rapidly and with confidence in the development of this mining project. Indeed, we are counting on the results of 4,384 boreholes drilled by Noranda inc.

It is an underground mine project, with a view to exploiting an approximately 2-kilometer deposit. The project includes underground crushing facilities, then conventional crushing facilities on the surface, as well as three selective flotation circuits. Modern techniques and equipment will offer good outlook for profitability.

The metals mined by the Horne 5 deposit are gold and silver, in the form of ingots, as well as zinc and copper, in the form of concentrate

**F** [www.falcores.com](http://www.falcores.com). The future mine could become the next largest producer of gold in Quebec.

## HORNE 5 IN A GLIMPSE

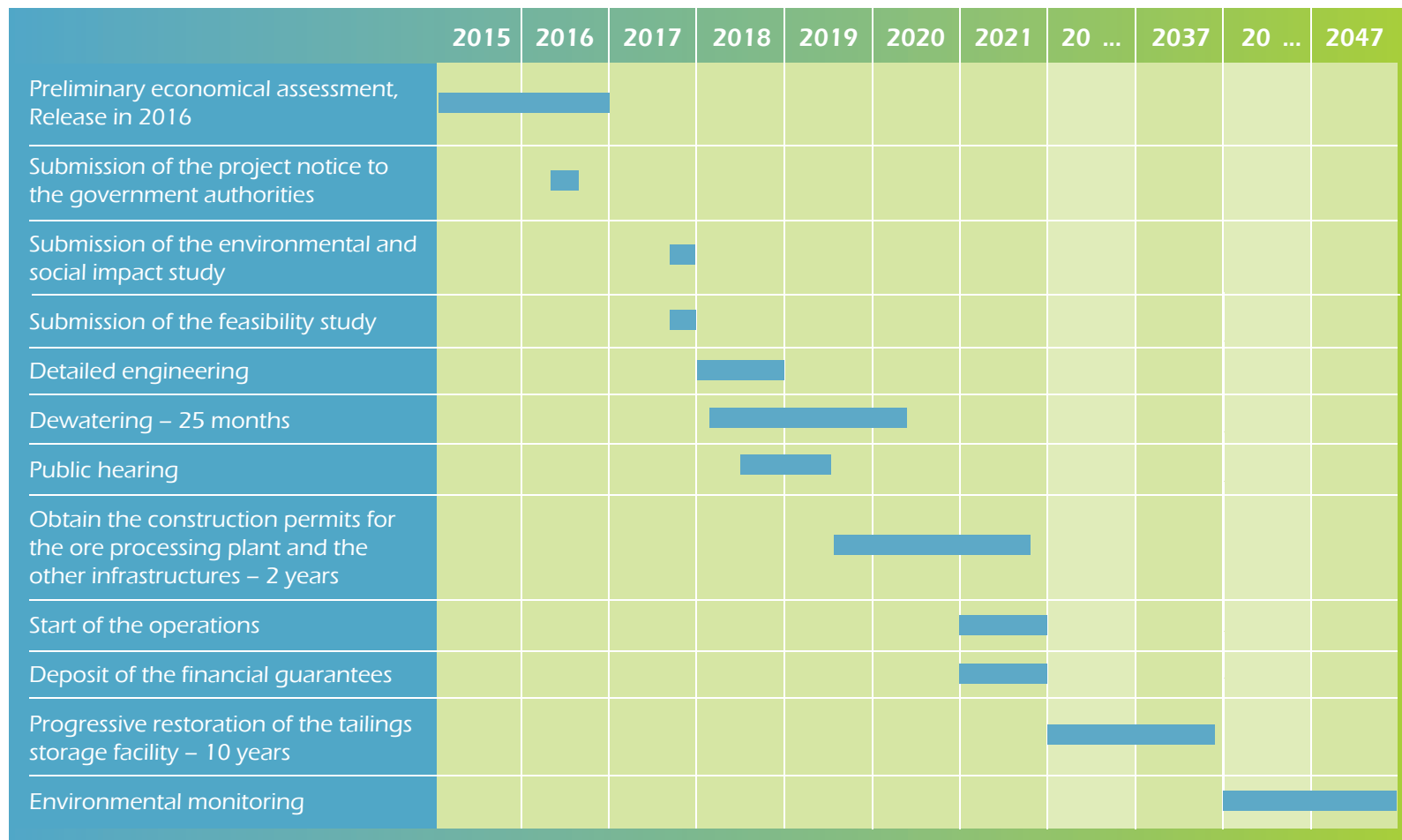
- |  |                             |
|--|-----------------------------|
| • Mine length of life                        | 15 years                    |
| • Capital Investment                         | 1 billion can               |
| • Benefits from the project for Abitibi area | 70% of investments          |
| • Permanent and well remunerated jobs        | 500                         |
| • Ore extraction                             | 15,500 tons/day             |
| • Length of life production                  | 3.3 millions ounces of gold |





# LIFE CYCLE

Horne 5 deposit will be intensively exploited for 15 years. If we add the 3 years of preproduction required for the processes start-up, this project offers 18 years of operation.





# BEYOND HORNE – REGIONAL EXPLORATION ACTIVITIES

Our objective is to operate the mill we will build as long as possible. To do so, we have developed a regional exploration program to locate new deposits within a reasonable distance from the mill that could eventually be used to supply the ore processing plant.







## OVERVIEW OF OUR ACTIVITIES

Amounts invested in the Horne 5 Project since 2013:

- 1- Environmental and social impact assessment: \$ 1,5M
- 2- Project feasibility study: \$ 11,8M
- 3- Exploration (central and regional): \$ 15M
- 4- Mine waste management study: \$ 1,4M
- 5- Definition of process and technological decisions: \$ 5M

# OUR ACHIEVEMENTS

As the Feasibility Study for the Horne 5 Project is completed and the environmental impact assessment and the consultation phase progress, our achievements in terms of sustainable development for the period 2016-2017 are associated with three main activities:

- Planning of mine dewatering activities at the Horne, Ouemont and Donaldal mines, including the installation of a water treatment plant, licensing and authorizations negotiation;
- Planning and design of all mining facilities;
- Assessment of environmental impacts.

Moreover, since 2015, we have been pursuing exploration campaigns on the Horne 5 site and in the surrounding area.

This first sustainable development report presents the highlights of our activities, in connection with various sustainable development issues generally considered to be of concern in the mining industry. The project described below is, of course, evolving and we are confident that, once in operation, it will be possible to target relevant project opportunities to further reduce our environmental footprint, to improve the performance of our mining operations, and to maximize Falco's involvement in the community.



# PERMITTING AND AUTHORIZATIONS

## Legal Requirements – Environmental Impact Assessment and Review

The Horne 5 Project is subject to the assessment procedure and the environmental impact assessment under the Quebec Environmental Quality Act. The average project production rate will be approximately 15,500 tons per day, which exceeds the threshold above which mining projects are subject to the procedure (2,000 tons per day). This procedure is illustrated on the right.

### Phase 1

#### Directive

- The promoter submits a project notice to the Minister
- The Minister issues its directive

### Phase 2

#### Impact Study

- The promoter conducts its impact study
- The Ministry validates its compliance with the Minister's directive

### Phase 3

#### Public participation

- Information and consultation on impact study (mandatory)
- Survey and public hearing or mediation (facultative)

### Phase 4

#### Analysis

- Environmental analysis of the project by the Ministry
- Survey and public hearing or mediation (facultative)

### Phase 5

#### Decision

- Recommendations to the Minister
- Decision from the Council of Ministers

### Phase 6

#### Monitoring

- Surveillance, monitoring and follow-up by the Ministry

Bureau  
d'audiences  
publiques sur  
l'environnement  
(BAPE)

Phases 1, 2, 4 and 6 are under the responsibility of the MDDELCC.



The first step of the Environmental Impact Assessment and Review Procedure is to file a project notice. In return, the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC) is issuing a directive outlining the elements to be addressed in the Environmental and Social Impact Assessment (the ESIA).

Under the Act, when completed, the ESIA is submitted to the MDDELCC and its compliance with the directive is validated before it is made public. The public is then given 45 days to request consultations to be conducted by the Bureau d'audiences publiques sur l'environnement (BAPE). During this period, the MDDELCC continues the detailed analysis of the ESIA and makes its recommendations.

Following the hearings, the BAPE also issues an analysis report and its recommendations to the Minister; however, it is the government that makes its final decision by decree.



## Notice of Proposal and Receipt of the Ministry's Directive

As of August 2016, the Minister of Sustainable Development, Environment and Climate Change was informed of our intention to proceed with the Horne 5 project by filing a project notice.

Similarly, a description of the project was forwarded to the Canadian Environmental Assessment Agency (CEAA), who informed us in November 2016 that the Horne 5 Project was not an activity designated by federal legislation and would therefore not be subject to an additional environmental assessment under federal law.

During the year 2016-2017, the Horne 5 project has evolved following the publication of new mineral resources. The addition of resources justified the addition of a tailings impoundment. A site selection study was completed, with the premise that the location of the tailings site should be selected from sites affected by past activities and not yet restored. The ESIA was extended to include the assessment of the impacts generated by the use of an old tailings facility, located approximately 11 kilometers from Rouyn-Noranda, as a tailings impoundment area.

The project notice and project description enhanced by the addition of the tailings pond were re-submitted to government (provincial and federal) authorities.

## Environmental and Social Impact Assessment

The completion of an ESIA was undertaken in the spring of 2016 and will continue until the fall of 2017. We expect to submit the ESIA to the authorities by the end of 2017.

The objective of this study is to document the state of reference of the natural and human environment as well as the impacts of the project on it. The ESIA also documents mitigation measures to reduce or eliminate the impacts of the project so that it can integrate into the environment as best as possible.

Topics covered include: air quality, noise and vibration, wildlife, light pollution, landscape, fish and fish habitat, vegetation and wetlands. In addition to the ESIA, four sectoral studies have been carried out to deepen our understanding of some aspects of greatest importance to us:

- A modeling of the dispersion of **atmospheric** contaminants;
- A study of **noise** propagation;
- A **traffic** and road safety study;
- A study of the propagation of **vibrations**.

These studies required significant work. State-of-the-art scientific instrumentation has been installed at various locations in the field to provide the most relevant, up-to-date and comprehensive data possible. Interviews were also conducted with representatives of municipal, regional, socio-economic and tourism organizations. Subsequently, experts from different disciplines examined data obtained in order to analyze and interpret them to draw a representative picture of the natural and human environment in which we plan to carry out our activities.

Photosimulations were also produced to assess how our facilities will integrate into the urbanized perimeter of Rouyn-Noranda city.

Approximately 1.5 million dollars were committed for all of these studies.



Sylvain Doire  
Director Environment

atmospheric  
atmospheric  
noise  
noise  
traffic  
traffic  
vibrations  
vibrations



## Characterization of Ambient Air Quality

An air quality characterization study aims at establishing measurable concentrations in air for various air contaminants. Such a study was carried out within the framework of the ESIA to establish what is known as the local background noise, taking into account all sources of pollution prior to the construction and operation of the Horne 5 Project. Known sources during the study period include road traffic, construction of the bypass road (Route 117), as well as the Lamothe Quarry and the Horne Smelter operations.

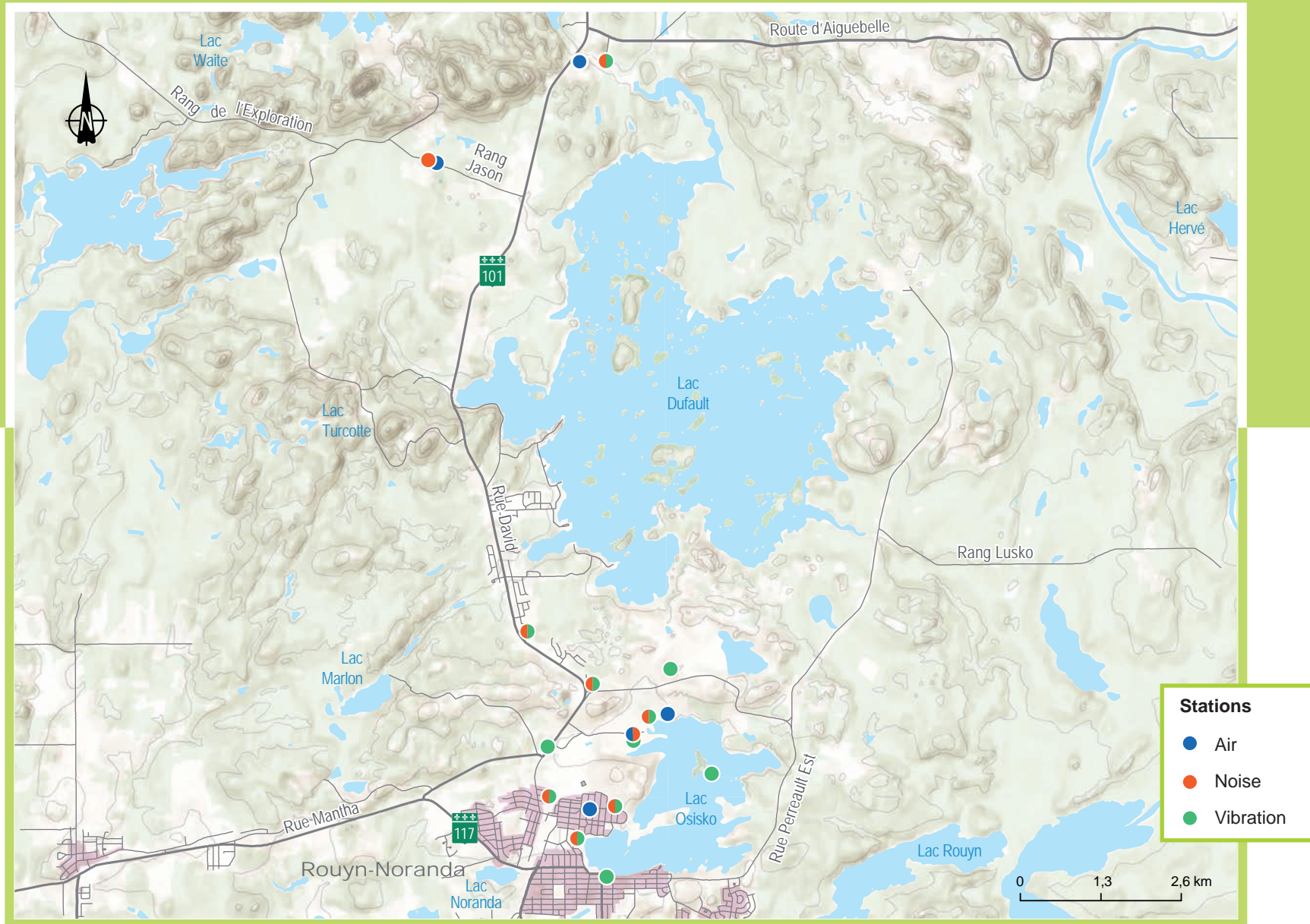
High volume samplers pumping about 2,000 cubic meters of air over a 24 hour period have been installed. During the sampling period, the air pumped by the apparatus passes through a quartz filter. The filter captures atmospheric contaminants, which gives, as a result of the analysis, the quantity and nature of contaminants in the air. Five measuring stations have been set up for air, 9 for noise and 12 for vibrations.

For nearly 6 months, from the beginning of June 2016 to mid-November 2016, these equipments were put into operation every 6 days. This periodicity makes it possible to obtain a reading for each day of the week, over the duration of the sampling.

Results obtained on particles and on metals could be compared with the historical data published by the government authorities. They were also compared to the Quebec Standards and Criteria for Air Quality, determined to protect human health and minimize nuisance and effects on ecosystems. These are important data that will confirm the impact of our activities on the air quality.



## Location of air, noise and vibration measuring stations







## Mine Closure

In Quebec, as soon as it is put into service, the operator of a mine is required to pay financial guarantees to ensure that funds will be available to carry out the mine rehabilitation and restoration work at the end of its period of operation. These amounts have been included in Falco's financing structure. In addition, the operator is required to submit a rehabilitation plan and have it approved by the authorities, namely the MDDELCC and the Ministère de l'Énergie et des Ressources naturelles (MERN).





## RELATIONSHIP WITH THE COMMUNITY

In December 2016, we acknowledged the content of the MERN's Livre vert on social acceptability. It defines the guidelines for the development of major projects in order to foster dialogue between the parties and reconcile economic prosperity and respect for living environments. We believe that the approach adopted to date in developing the Horne 5 project is entirely consistent with these guidelines.



Ground breaking of the La Source-Polymétier Complex, September 20, 2017.



**Claude Léveillé**, CRIA  
CRIA, Vice President, Community Relations  
And Human Resources

## Purchase of Lands and Buildings

Since the Quemont mine closure, companies have moved into the Noranda-Nord Industrial Park and the mine buildings have been rehabilitated to meet the needs of the moment. Today, these buildings and some plots of land are coveted by Falco to revive the mine. One of the most important challenges identified during the past year was the acquisition of the buildings and lands considered essential to the realization of the Horne 5 project. The Centre Polymétier Quemont is one good example (see insert on next page).



## La Source School Expansion Project

The Commission scolaire de Rouyn-Noranda (CSRN) offers vocational training at the Centre Polymétier, located in downtown Rouyn-Noranda, in a variety of fields, including hairdressing, aesthetics, accounting and carpentry. Given the popularity of the courses offered, the CSRN was no longer able to serve all of its clientele in the same building. It acquired a building formerly occupied by the Quemont Mine, which had various administrative activities, to move part of the courses in woodwork and carpentry. Approximately 100 students currently occupy the «Centre Quemont».

We want to quickly recover the Centre Quemont in anticipation of the mine's dewatering and development work. Indeed, from a simple point of view of safety on the site, it is impossible to think that we could allow the presence and circulation of students and teachers on the property during work. Moreover, we want to upgrade the building and eventually use it for our own needs.



We have therefore proposed to the CSRN to take over the transfer of the activities of the Centre Quemont to the place of its choice. We are therefore actively working on an expansion project at La Source High School and redevelopment of the Polymétier Center. The project also involves the transfer of soccer fields from downtown to the Noranda-North area. These fields are occupied by the CSRN student population and the leagues organized by the City's Recreation Department.

We plan to invest nearly \$22.5 million on this project, which has many benefits for the CSRN, students, the education staff and the public:

1. Facilitating access to a more pleasant learning environment for students and teachers who leave an industrial sector for downtown Rouyn-Noranda.
2. Bringing together all of its woodwork and carpentry students in one place, in modern and larger environments, that are more conducive to learning.
3. Upgrading the installations for all professional training programs.
4. Improving infrastructures where soccer fields will be installed (synthetic surface, changing rooms, etc.).

We hope that work will begin by the end of 2017, in order to deliver a functional building for the beginning of the 2018 school year.



# TECHNOLOGICAL PROCESSES AND CHOICES

Although the project is still in its infancy, our engineering teams have already begun working on process design. This has led to the need to make technological choices that will define the environmental impacts for the mine life. This design stage is also a unique opportunity to create a workplace where the risks of accidents are minimized. We present here the influence of our sustainable development commitments on the work of our engineers. The concepts presented below are detailed in the feasibility study. The fact that the project is evolutionary and that some design elements may change should also be taken into account.



Pilot plant – Water treatment.





## Eco-efficiency of Operations

We made the strategic decision to automate operations in order to operate some electrical equipment from the surface. This choice brings significant benefits in terms of eco-efficiency of operations:

- The elimination of mobilization time to drilling sites for operators makes it possible to consider a useful use of 5,000 hours per year for loaders, a 40% increase compared with the industry standard.
- By having less underground equipment, the amount of required fresh air is reduced to 800,000 cfm, that is 20% less than what would be required with the use of conventional equipment. This results in a reduction in the energy consumption for the heating of fresh air.
- By promoting the use of electrical equipment rather than thermal-powered equipment, maintenance costs are lower and the amount of waste oils and lubricants to be disposed is significantly reduced.



**Marylin Gagnon,**  
Senior technician – Environment

## Water Management

Our concern for water management involves both the quantity of fresh water consumed, the discharge of process water from our plant and the release of precipitation water to the environment that will be in contact with our tailings.

We propose to use fresh water for the ore treatment process, especially for the preparation of reagents. The goal of the design team is to minimize the fresh water supply by maximizing the recirculation of process water. For example, at the tailings pond, the pulp settling will recover more than 90% of its water content, which will be diverted back to the plant to supply the process. The rest of the water will remain in the partially dried pulp that will be stored in the containment cells.

A fresh water flow of about 300 cubic meters per hour is expected at the start of operations; it may eventually be reduced to 150 cubic meters per hour when the process will be perfectly controlled and when other internal sources of supply will contribute to the volume of recirculated water (underground water, water for filtration and thickening, surface water from the tailings disposal site).

## Energy and Greenhouse Gases

Energy consumption, both fossil and renewable, remains a constant concern for the reduction of greenhouse gases.

- Natural gas is the source of energy selected to heat the fresh air supply to underground galleries, general ventilation of the ore processing plant and some process equipment in the mill. The approximate consumption of 6 Mm<sup>3</sup> represents emissions of 11,340 tCO<sub>2</sub>eq, which is well below the 25,000 tCO<sub>2</sub>e threshold for emitters subject to the current greenhouse gas cap-and-trade system in Quebec (SPEDE).
- Electricity requirements, estimated at 404 GWh per year, will be met by Hydro-Québec's network, which is a benefit made possible by the proximity of facilities in the Rouyn-Noranda urbanized area. This clean energy source, with an emission factor of 1.8 gCO<sub>2</sub>eq/kWh, significantly reduces the plant's carbon footprint. As an indication, in 2015, the average Canadian emission intensity for electricity consumption was 152 gCO<sub>2</sub>eq/kWh, according to the most recent National Inventory Report published by Environment Canada.

Our design team has paid special attention to the selection of mining equipment:

- The jumbos will be equipped with electric motors coupled to a battery pack for their underground movement. Since they are already supplied with electricity in drilling mode, they will not consume any fossil fuel.
- Loaders are the most energy consuming equipment and are typically supplied with diesel. This is the baseline scenario used to date. However, we will investigate the possibility of working with electric loaders, powered by cable. The introduction of this technology would be a significant achievement in reducing greenhouse gas emissions.

- No mining equipment requires connection to a compressed air network. Compressed air systems are still common in the North American industry, but are recognized as being energy-intensive and inefficient due to heat loss and air leakage in the system. The purchase of electrical and hydraulic equipment was favored because they are much more efficient.

As for mining ventilation, we plan to explore the possibility of recovering heat from stale air. This concept is applied by several mines in order to reduce the energy consumption for fresh air heating.





## Presentation of the Project to Stakeholders

The Horne 5 Project is progressing rapidly; we intend to present the project to a wider audience as soon as the feasibility study and the ESIA are completed. Knowledge of the project will then be mature and certainly more likely to provide responses to the community's concerns.

Several targeted meetings made it possible to inform various stakeholders at an early stage of the project's main lines. Discussions are already well under way with several groups of interest: Rouyn-Noranda City Council, the Conseil Régional en environnement en Abitibi-Témiscamingue (CREAT), Neighborhood Council, Regroupement Vigilance Mines d'Abitibi-Témiscamingue (REVIMAT).

In general, we are convinced that the project is very well perceived for several reasons:

- Our intention to revive an underground mine changes the perception of the population, as the impacts associated with mining activities in the city will be very limited.
- Our ambition is to concentrate as much as possible the development of our facilities on sites impacted by the mining industry and to restrict them to the Noranda-Nord industrial park. In fact, our intention is to make this park visually more attractive with our facilities that will come from a modern industrial architecture.

- Our transparency in communications is appreciated by the stakeholders we are discussing with. This made it possible to establish a relationship of mutual respect from the outset.
- Our reputation and credibility are well established with the business community. The individuals at the head of Falco are known to entrepreneurs in the area, and their presence in the management team gives credibility to the project.

At this point, our perception is that we are laying the foundation for a project that is desired and expected by the local community, as it could give an impetus to the city by creating many quality jobs. First Nation communities will be consulted in accordance with agreements between the Government of Quebec and these nations.





## Use of Hazardous Materials

The design team has incorporated various preventive measures into industrial developments and processes to reduce the environmental risks associated with hazardous material storage and use (eg, sulfuric acid, peroxide and cyanide). Here are some examples:

- HAZOP Analysis – HAZOP (HAZard and Operability study) is being considered for the most hazardous storage systems in order to deploy the appropriate preventive measures, for equipment or methods, in accordance with provincial regulations.
- Minimal Storage – We plan to store on site the minimum quantities required to carry out the activities. We will rely on a network of suppliers that will have the ability to safely store and transport reagents in a timely and comprehensive way. Thus, the quantities in stock will cover about 3 days of production, rarely more.



Leaching tanks, visual simulation, WSP

- Cyanide – Gold is extracted from the concentrate by a leaching process, which requires the use of cyanide, a product that is of concern for human health and the environment. The production, transportation and use of this product is governed by the International Cyanide Management Code, a voluntary program that is supported by companies to ensure the safe management of cyanide, cyanide residues and leach solutions. For example, solid, rather than liquid, cyanide supplies from Code-certified companies will allow silo storage, which is safer and causes much less environmental damage in the event of an accident during their transportation towards the plant.

## Mitigation Measures

Our design team took care to think about the aspects of the activities that are most likely to disturb the local population; here too, design choices reduce the impact of activities:

- The fan that supplies fresh air underground will be installed at 100 meters underground, to create a minimum of noise;
- All ore transfer points will be enclosed to reduce dust emissions;
- The height of the headframe was reduced to a minimum and the design of the buildings was designed to minimize visual impact;
- Schedule and type of blasting were planned to reduce inconvenience to local population (blasting scheduled to take place on weekdays only, around 4 pm).



Queumont site





## Quality of Jobs and Regional Expertise

We will offer complex jobs given the operating techniques and equipment used. Common activities that can be automated will be. We will need employees with specialized training and diversified technical skills who will have as main responsibility to optimize the performance of equipment operating autonomously, in particular by implementing a program of preventive maintenance with a high technological content (mechanical, electrical, electronic, computer).

Although some technologies have existed for some years, our equipment manufacturers partners are very enthusiastic about maximizing the technological development of mining equipment, which is often limited by the ability of the workforce to exploit its full potential. Our intention is to develop a rare expertise in a context made possible by the development of a new mining project, led by a team determined to do things differently. This know-how, at all levels of the company, will be sought in the future and will be exportable at regional, national and international level..



We believe that the technological development represents the future of the labor market in the mining industry, and we are ready to take up this challenge. The university, college and professional training program in the region is excellent and we intend to collaborate with the regional education network to continuously improve the basic training and eventually to develop training that will meet our particular needs.

## Health and Safety

Throughout work, the design team's watchword was to reduce personnel exposure to potential safety hazards by eliminating them at source, which is significantly different from an approach of identification and risk control. In other words, a worker who is not exposed to any danger is unlikely to be injured.

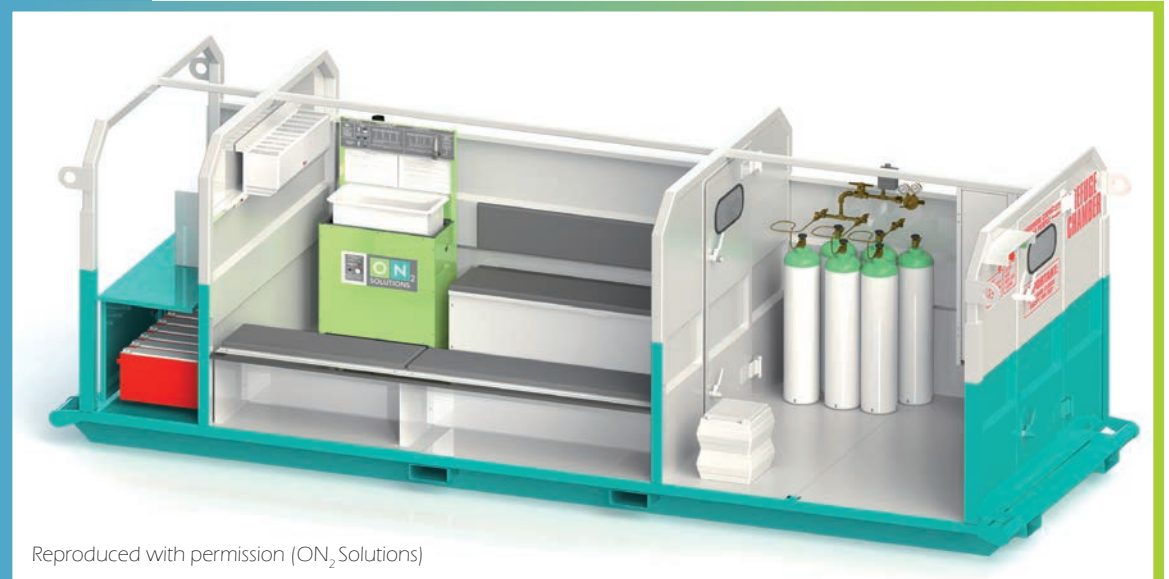
The available technology is fully exploited for our underground operations. Several of the technologies developed by the industry in recent years have been specifically designed to reduce staff exposure to hazards (gas, dust, etc.). Our choices have naturally arisen on these equipments: the use of drones, the remote surveying of openings and the use of remote-controlled shuttle loaders are some examples.

## Mobile Shelters

In the event of a major underground accident, it is essential to provide safe areas to allow workers to take refuge as long as the situation recovers. This is a requirement of the Mining Occupational Health and Safety Regulations. The refuges must be fire-resistant, smoke-tight, and equipped with a compressed air line to supply fresh air to the occupants. Historically, the obligation to provide shelter with this pipeline gave a «permanent» character to shelters, built at a fixed location.

Developed by the coal industry in the United States, mobile shelters are designed to survive for at least 3 days in complete autonomy, with no fresh air from the surface and no electricity. CO<sub>2</sub> sensors and oxygen sensors can be used to regulate indoor air quality according to the number of occupants.

For Falco, mobile shelters represent an excellent example of technological development that achieves the sustainable development objectives. From an economic point of view, mobile shelters help the mining industry to get rid of expensive compressed air lines. From a health and safety perspective, mobile shelters seem to be a safer solution than the traditional concept of permanent shelter.



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# EXPLORATION AND DEVELOPMENT PROGRAM

The Abitibi region is recognized as a particularly favorable territory for mining. It is at the heart of the Blake River Group geological formation, which has been attracting mining camps for nearly 100 years. This interest is attributable to, among others, mineralogical deposits of volcanogenic massive sulphides, rich in metals, including gold, silver, copper and zinc. More specifically, the Horne Historic Site operated by Noranda inc. showed contents of the order of 5 g Au/ton, with a high content of copper (2%), a rare phenomenon known worldwide. The operation of this site has ceased for economic reasons essentially. The exploitation techniques at that time did not allow to reach the break-even point expected by the promoters, taking into account the costs of metals in the market. The context has changed today, which gives hope for a promising future for the exploitation of what is called the Horne 5 site, a deeper and lower grade deposit.

We annually define an exploration program aimed primarily at optimizing the operation of the Horne 5 site and then identifying new areas of interest in the region.



## 2015-2017 Exploration Programs

The exploration program launched in 2015 follows the compilation of Noranda Inc. historical exploration data. This objective was essentially to confirm the location of Horne 5 mineralized zones, to confirm the concentrations documented at that time, and to provide a first economic estimate of on-site resources. Approximately 17,000 meters of surface drillings were carried out.

Metallurgical tests were performed on obtained samples to characterize ore and to develop crushing and milling processes required for metal development.

In 2016, the exploration program, including 20,000-m of surface drilling, aimed at verifying if the Horne 5 mineralized zone of interest extends to the west. The optimization of milling processes could be continued with obtained samples.

The 2017 program focused exclusively on regional exploration outside Horne 5 site boundaries. With a budget of \$ 10,000,000, nearly 40,000 meters should be drilled to test various regional targets within a 25 kilometer radius around Rouyn-Noranda.

The objective is to extend the life span of the ore processing plant. At the end of Horne 5 site operation, the plant could continue being in service if it is supplied by a nearby site.

## Permitting and Authorizations

We obtain required authorizations from the MERN before undertaking any exploration work on public lands. These authorization are issued following the consultation of the Pikogan community, which has then 30 days to review requests, in compliance with the Abitibiwinni First Nation agreement on consultation and accommodation.





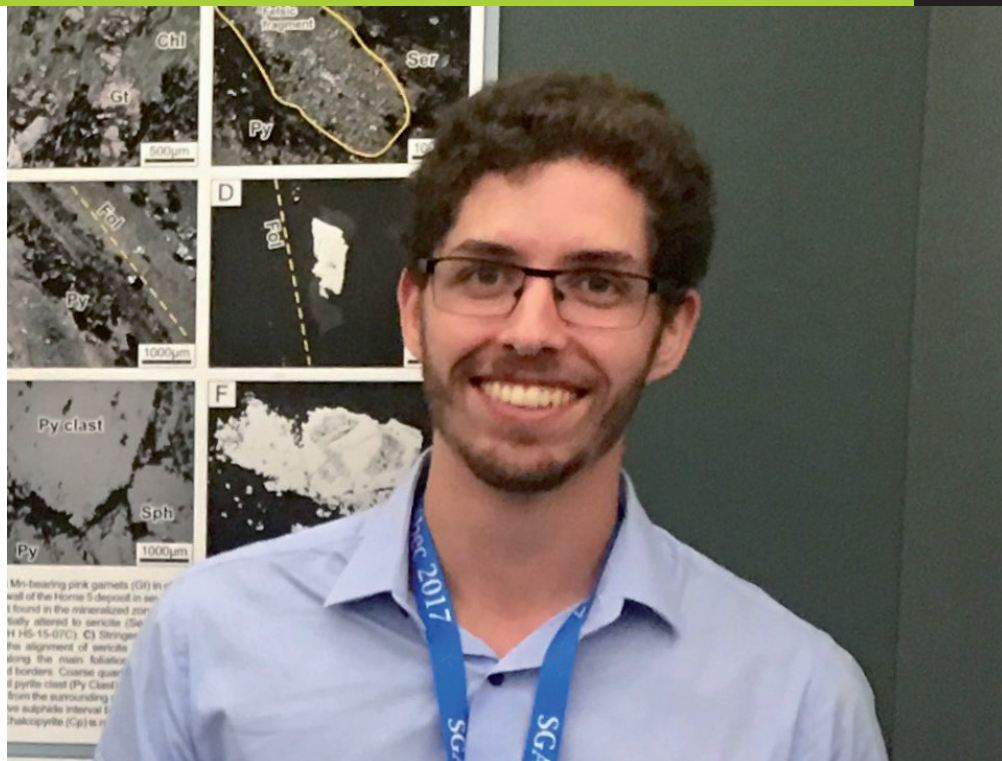
## Health and Safety Performance

The drilling is subcontracted to local companies with specialized equipment. By the end of 2016, 64,356 hours were worked by subcontractors. The frequency rate is 9.3 and the severity rate is 102.6. As of June 30, 2017, for 26,418 hours worked, the frequency rate was 7.6 and the severity rate was 22.7.

Health and safety results are reported on a 200,000-hour work basis, which is the industry standard, to allow for comparative analysis. This performance is disappointing when compared to the 2015 data published by the Joint Association for Occupational Health and Safety in the mine sector (frequency rate of 2.4, severity rate of 61.4).

The accidents reported were suffered by the personnel employed by subcontractors at work on our exploration program. As a result of these events, we undertook to work with our subcontractors to help them improve their management plan during work on our properties.





Monsieur Alexandre Krushnisky

## Collaboration with College and University

Our commitment to social responsibility is reflected, on the one hand, by the support of deserving students at the college level. In 2017, \$1,000 worth of scholarships were awarded to Mr. Robin Rodriguez and Mr. Gnango Souleymae Traore, two Mineral Technology students at the Abitibi-Témiscamingue college.

On the other hand, we are aware that the acquisition of scientific knowledge allows the development of new techniques and new technologies at all levels of the mining industry. That is why we support the work of graduate students.

- **Alexandre Krushnisky** – Master's degree, INRS.  
Mr. Krushnisky's work aims at understanding the distribution of gold mineralization within the Horne 5 lens, as well as identifying the possible source (s) of gold. In addition to financially supporting his work, Falco gave Mr. Krushnisky access to analysis data from our 2015 and 2016 exploration programs and provided samples for further analysis. The results of its work will eventually guide our regional exploration work.



- **Li Zhen Cheng** – Professor, University of Quebec in Abitibi-Témiscamingue. Ms. Cheng proposes and supervises various Masters work at UQAT. One of Ms. Cheng's most recent projects is to establish a correlation between gravimetric ground geophysical surveys and the geology at the depth of the Horne 5 site. Falco participates in defraying the costs of the geophysical survey and by providing the geological information as the 3D model related to the project. In addition to helping the geological understanding of the target area, this study could identify deep mineralized clusters, other than the Horne 5 lens.
- **Lyndsay Moore** – Postdoctoral Fellow, McGill University. Ms. Moore completed her Ph.D. on the Glenwood felsic complex, about 2 km south of Horne. With her postdoctoral project, she will study various felsic complexes near Rouyn-Noranda, including Horne 5, Quemont and Delbridge. The lithological facies, alterations, metallic and auriferous associations will be compared in order to determine the similarities and the distinctive traits. Falco financially assists Mrs. Moore in her work and provides access to the drill core and the campaign database for 2015-2016. The results, which will help local and regional geological understanding, may be used during exploration.



Lyndsay Moore on a geological field trip.



## Development

Essential work has been undertaken to develop the Horne 5 deposit. In order to better define the mineral resources involved and to determine the most suitable extraction techniques, we have to access the deposit which is as deep as 2 kilometers. Underground access is used to limit the boundary of the deposit and to obtain ore for additional metallurgical testing.

The mine dewatering and the installation of a hoisting system are necessary to continue the development work.



## Hoisting System

On March 24, 2017, an agreement was reached with ABB to provide engineering, procurement, delivery and services related to the installation and performance of the hoisting systems for the Horne 5 Project. Hoisting systems include a double drum type winch, a single-drum type auxiliary winch, and a friction type production winch. Delivery and installation of the service and auxiliary winches are planned for 2018. Equipment is manufactured abroad, but the engineering, installation, commissioning and support, as well as many of the electrical components, controls and automation, will come from Quebec suppliers.

This partnership is fruitful for both companies. Falco has the opportunity to save time on its project schedule and ABB has the opportunity to showcase its Montreal campus, where a team with a specialized expertise is active in North America, Central America and sometimes elsewhere in the world. Such a project adds depth to an already recognized and undoubtedly exportable expertise in large-scale international projects.



# MINE WASTE MANAGEMENT

Mine tailings storage is one aspect of mining operations that deserves special attention given the environmental and visual impacts that result. This is particularly the case for sulphide tailings with potential for acid drainage and metal leaching, as a part of those generated by Falco's activities.

The Rouyn-Noranda region offers few vacant spaces for the development of storage facilities in accordance with current rules. The most interesting areas are occupied either by the tailings of mining companies still active today or by the tailings of companies now closed. Over the years, the Rouyn-Noranda region has seen a multitude of mining projects, notably leaving behind tailings sites that have not been restored or that have been restored according to standards that are no longer acceptable today.

Falco acknowledges that the industry has let restored mining sites to the standards of the time, which do not meet current standards. As a result, we have made significant efforts to carefully plan an economically efficient management mode that meets today's environmental regulatory requirements and that minimizes the visual impact for our communities.

During the first two years of operation, we plan to take advantage of the available underground space to return ore from the ore processing plant, in the form of pulp backfill or thickened tailings. This approach is very advantageous because it does not have any environmental and visual impact, and it serves to consolidate the old underground infrastructures.

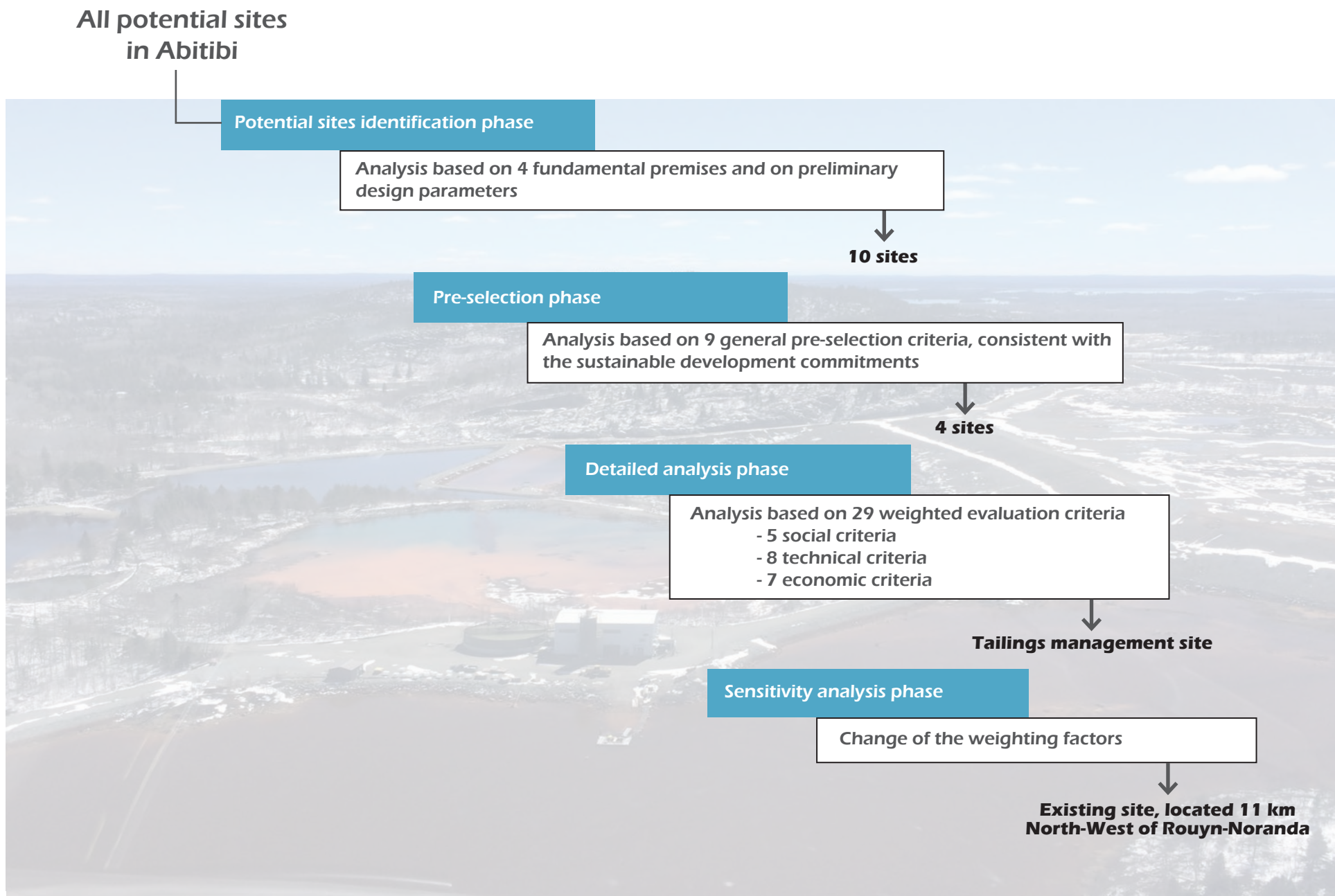
From the second year of operation, mine tailings will be directed to a surface storage site. We used a rigorous and systematic approach, consistent with our commitments to sustainable development, to evaluate various locations (see figure opposite). Among the evaluation criteria, we sought to avoid sites that could have an impact on agricultural land, recreational tourism activities, drinking water sources (Dufault Lake) and major rivers (river Kinojévis). This study was conducted in accordance with Environment Canada's Guidelines for the Assessment of Alternatives for Mine Waste Disposal and Directive 019 on mining industry. The tailings pond of a former mine located approximately 11 kilometers north-west of Rouyn-Noranda proved to be the one that best met all of our criteria.

We have mandated the Unité de recherche et de service en technologie minérale (URSTM), from the UQAT, to perform the physical, chemical and mineralogical characterization of the tailings that will be generated by ore processing of the Horne 5 mine and for the tests on cemented residues. We plan to continue to collaborate with URSTM on research and development projects related to tailings disposal. Although work on adding stabilizers to paste backfill is of great interest to Falco, we also wish to contribute to the work of the researchers most likely to have an impact on the rehabilitation of orphan tailings ponds in the region.





# SITE SELECTION PROCESS





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**LEGAL NOTICE**

To access Horne 5 project, Falco must obtain one or many authorizations from third parties, but must also acquire some right-of-ways or other surface rights, in order to build and install pipes that will transport wastes to the tailings management facility located approximately 11 km from the city of Rouyn-Noranda.

Although the Company believes that it will succeed in obtaining authorizations within the timeframe and that it could purchase required right-of-ways or other surface rights, there is no guarantee that any authorization, right-of-way or surface right will be granted. If they are, their issue will be in accordance with terms suitable for Falco and within reasonable delays.

Even though Falco thinks that all reasonable actions have been undertaken to ensure the ownership of its assets, there is no guarantee that any asset ownership will not be contested or reconsidered.



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