





In the country of giants

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Mining sites (Mont-Wright and Fire Lake)

The Mont-Wright mining complex and Fire Lake mine run day and night, 365 days a year, to produce more than 26 million metric tons of iron ore concentrate every year.

Over 1,000 employees work on the two sites on all kinds of operation, from the extraction of raw ore to the loading of trains of concentrate, not forgetting the concentration of raw material and maintenance on the gigantic equipment. The personnel working at Mont-Wright mainly live in the town of Fermont. Fire Lake employs around fifty people who work in rotation.

The Mont-Wright mining complex

This sector of AMEM consists of an open-pit mine, huge pieces of mining equipment, the crusher, concentrator, gigantic maintenance workshops, a warehouse with massive rooms and a train loading system.

The mine

The mine is 24 square kilometers in area. Its mineral resources amount to 5.6 billion metric tons of ore and the current mining plan runs up to 2045. Other plans are being studied to increase the production of concentrate and continue mining.

Generally speaking, 2.6 metric tons of raw ore need to be extracted from the ground to produce one metric ton of iron ore concentrate. Drill operators drill deep 16-meter holes in line with a predetermined plan. These holes are filled with an explosive mixture that smashes the rock by blasting.

Once the rock is fragmented by blasting, it is loaded onto giant trucks by powerful shovels. The buckets of some of them have a capacity of 60 cubic verges (yards) and three or four loads are all it takes to load our largest 400-metric ton trucks – the first to make their appearance in Québec.

The crusher

Production truck drivers make around 900 trips to the mine every day, most of them as far as the crusher. They empty their dumpsters into two rotating crushers which roughly crush the rock to around 20 centimeters in diameter. The crushed raw material travels by conveyor to the concentrator in the storage silos.

The concentrator

The concentrator consists of 8 silos to continuously receive the raw material crushed in the crusher. The blocks contained in the silos are carried to one of the seven autogenous grinders: the blocks of ore are broken down as they knock together. On leaving the grinders, the particles are sieved by vibration. The particles that are too large are returned to the grinding process and the others are directed to circuits of spirals for the concentration stage.

The 8,500 spirals enable the iron content of the raw ore to be increased via a centrifugal force principle: by adding water, the iron particles that are heavier than the tailings are separated by gravity. Concentrate with an iron content of over 66% is obtained while the tailings (mainly silica, better known as sand) is carried to the containment area that will be restored when mining is finished.

Once the water has been removed from the Mont-Wright concentrate, it is taken to the silo for loading onto trains that carry it to Port-Cartier, in four or five convoys a day.

The Fire Lake mine

55 kilometers south of the Mont-Wright mining complex is the Fire Lake open-pit mine, in operation since 2006. Initially mined on a semi-annual basis, since 2012 the site has been mined all year round. The iron content of the ore mined is higher than for the Mont-Wright mine. The contribution of this ore has an important role to play in increasing the company's production in the coming years.

Fire Lake is an extraction mining site without a crusher or concentrator. Mining activities are carried out as at Mont-Wright but the mining equipment is smaller in size.

All the raw ore from Fire Lake travels to Mont-Wright by train four times a day on average. Convoys of sixty or so wagons use the railroad segment linking Fire Lake to the main railroad. The ton of raw ore from this mine are unloaded, crushed and concentrated at the Mont-Wright mining complex. The concentrate obtained is also carried by train to Port-Cartier.

Given the quality of the ore extracted from Fire Lake, the tonnage extracted is likely to increase.

