

MININGWORLD

Volume 1 • Issue 1

M A G A Z I N E

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in Commercial Production

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Copper Mountain Mine in Commercial Production

by Ellsworth Dickson



Jim O'Rourke does all the right things and places Princeton's Copper Mountain Mine back in production

The mill at the Copper Mountain Mine open pit, copper mine, may be brand new; however, this is actually an old story about the mining town Princeton in southwest British Columbia. Porphyry copper mineralization was first discovered on the property back in 1884 and, by 1925, Granby Consolidated Mining Smelting and Power was producing copper from an underground operation.

Even though approximately 34 million tons of ore grading over 1% copper was extracted by 1957, this represented only a small part of the mineral deposit. Operations were suspended in 1957 due to low metal prices and high railway transportation fees.



The new PC8000 Komatsu shovel fills a 240-tonne truck in Pit 3 in 60 seconds with three scoops.
Photo courtesy Copper Mountain Mining Corp.



Extensive drilling confirmed the continuity of copper mineralization between existing open pits 1, 2, and 3 that will enable the creation of a Super Pit.

Photo-illustration courtesy Copper Mountain Mining Corp.

Exploration resumed in 1966 when Newmont acquired Granby's interest and, by 1972, the mine was back in production, albeit, intermittently, until 1996. Finally, in 2006, **Copper Mountain Mining Corporation** [CUM-TSX] acquired the property and began an extensive drilling program that confirmed the existence of copper mineralization between the 3 pre-existing open pits. In an interview, Jim O'Rourke, P.Eng., CEO, a University of British Columbia Mining Engineer graduate, stated, "We purchased the mine at the end of 2006 and, by January, we had started the drilling program. By mid-year and the latter part of the year we had confirmed that resources where there to support a mining operation. We then did the preliminary assessment at the end of 2007 that was based on the US \$1.80 per pound copper price which gave us the comfort to proceed into a final and bankable feasibility study which we completed in July of 2008. By that time, we knew that we were going to go ahead with the project."

Actually, O'Rourke had already been using part of the property for a coal mining operation. **Compliance Energy Corp.** [CEC-TSXV], of which O'Rourke is Chairman, had an option to purchase the mine site for the purposes of putting in

a power plant. "We had a 35-year agreement with BC Hydro to purchase the power and the concept was to feed coal from the mine to the power plant at the site and sell the power to BC Hydro."

So what happened to that idea? "The BC government was promoting a green initiative and said that coal burning in BC was not allowed, so they, in effect, cancelled it," said O'Rourke.

"However, since Compliance Energy had the option to purchase the Copper Mountain Project and they are one of the large shareholders of Copper Mountain Mining Corporation, we formed a small company of which Compliance Energy was the founder."

At that point O'Rourke and CFO, Rod Shier, raised the funds to buy the Copper Mountain property. "Initially, it was private money that we put up. Then we went public in mid 2007 and raised funds at various levels during the next year."

"In 2007, we had five drills on site and we drilled about 44,000 metres," said O'Rourke. Meanwhile, in May 2007, Copper Mountain launched its initial public offering on the TSX Venture Exchange. By November 2007, a positive preliminary independent assessment was completed that

recommended going to feasibility. Consultants Hatch Ltd. were engaged in December 2007 to prepare the feasibility study.

The stock market crashed in 2008, but that didn't stop O'Rourke. Not afraid of challenges and seeing the opportunity, as he had a history of placing mines into production, including the Imperial Metals Huckleberry Copper Mine in northwest BC and the Taseko Mines Gibraltar Copper Mine in BC's Cariboo region. O'Rourke approached Mitsubishi Materials Corp., with whom he already had formed a relationship at the Huckleberry Mine. Despite the economic downturn, Mitsubishi consented to come aboard and became Copper Mountain's 25% partner and advanced funds to maintain its progress.

"We drilled about another 60,000 metres in 2008 that increased our resources by 45% to 5 billion pounds of copper. Initially, we had about 400,000 metres of historical drill data that did not qualify for NI 43-101 resource estimates. So the initial part of our drilling was to confirm historical data so that it could be used for the resource estimate."

Drill results in 2008 continued to be encouraging, and by July, a positive feasibility study had been completed that envisaged a conventional

open pit mine with a 35,000 tonne-per-day mill. Because there was a three-year lead time for acquiring the 34-foot diameter SAG mill and the ball mills, the management team stuck its neck out and actually ordered the equipment in February 2008, a decision that proved to be correct. There are six 8,500-horsepower variable-speed motors on the three mills which provide flexibility if more ball mill capacity is required. In September 2008, the company graduated to the Toronto Stock Exchange.

In October, the Copper Mountain board made the decision to proceed with the development of the project. Mitsubishi bought the 25% interest in the project for \$28.75 million, agreed to arrange a \$322 million project loan and contracted to buy all the copper concentrates. The pieces were now neatly falling into place. In September 2009, Copper Mountain completed a \$50 million equity financing and construction manager Merit Consultants International Inc. awarded Gisborne Industrial Construction Ltd. the contract to start mill foundation work. By December 2009, Komatsu had been awarded the contract to supply more than \$85 million worth of mobile mining equipment. These included thirteen 240-tonne haul trucks at \$3.8 million each, two PC8000 hydraulic shovels, the largest that Komatsu makes, the world's largest mechanical loader – the WA1200, as well as a fleet of support equipment. Also, production drilling in the open pits is handled by the Atlas Copco Pit Viper series of rotary blast hole drill rigs.


The haul trucks have high-efficiency diesel engines, and to foster further cost saving, each \$40,000 tire features microchips embedded in them to remotely monitor tire pressure and temperature. Copper Mountain estimates it will need about 120 tires per year, for an annual cost of some \$4.5 million. Each tires lasts for about 6,000 hours.

The Province of BC provided an amended Mines Act Permit that approved the mine plan and ultimate reclamation program in April 2010 which gave the company the green light to start the construction and operation of the mine. As well, management decided to take a \$34.5 million bought deal financing during April and, by May, project debt financing of US \$322 million was completed with a consortium of Japanese banks. An Impact Benefits Agreement was signed with local First Nations, the Upper Similkameen Indian Band, in July.

By February 2011, another financing of \$40 million had been completed and by April the new primary crusher had been commissioned. The first filtered concentrate was produced in June and the official opening of the Copper Mountain Copper Mine took place in mid August, making it the third largest copper mine in Canada.

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The coarse ore stockpile in the foreground is being expanded. In the background is the newly-constructed concentrator building.
 Photo courtesy Copper Mountain Mining Corp.

The ERIEZ Mineral Flotation Group Canada

was commissioned to design and build the froth flotation columns for the Copper Mountain Mine, depicted in the photo below. The company, with an office in Delta, BC, a suburb of Vancouver, is part of a worldwide network of consultants – the ERIEZ Flotation Group – with offices in Brazil, Chile, Pennsylvania, Australia, and representation in South Africa, Russia and Turkey. The company also designed the flotation columns for the Taseko Mines Gibraltar Copper Mine near Williams Lake and the Endako Mine, both in BC, as well as a Russian potash mine, and mines in Saskatchewan, Mozambique, South America and Mongolia. The Group also designs and builds mini pilot plants.



The froth flotation columns are an integral part of the mineral processing circuit at the Copper Mountain Mine.

Photo courtesy ERIEZ Mineral Flotation Group – Canada.

“Right now, we’re not quite at full capacity, although we have been on occasion,” says O’Rourke. “There are a few glitches in some of the equipment, but we expect to be at full capacity shortly at 35,000 tonnes a day through the concentrator.”

Mining costs are of paramount importance. Initially, the company had been projecting a cost of US \$1.30 per pound of copper. “The projection of a \$1.30 per pound was based on the feasibility study,” says O’Rourke. “I believe we put out our third quarter report and our costs were above \$1.40; however, we are pleased with that number despite changes in exchange rates, changes in metal prices, and other changes that have influenced the cost of mining.” Copper is still trading well above US \$3.00 per pound.

As it stands, the Copper Mountain Mine has at least 17 years of production with concentrate hauled by specially-built, nine-axle B-train freight trucks to the Port of Vancouver and shipped to Japan every three to four weeks in 12,000-tonne shiploads. This translates to about 175,000 tonnes of concentrate per year.

Of note, Copper Mountain derives about 15% of its income from gold and silver in the concentrate. The discovery of economic grades of copper between the old open pits has enabled the company to design a “super pit” that encompasses all three former open pits. Proven and probable ore reserves stand at 232,776,000 tonnes grading 0.36% copper, plus 0.09 grams gold/tonne and 1.25 grams silver/tonne. This represents about 5 billion pounds of copper, plus precious metal credits.

The 17 years of projected mine-life is based on open pit mining to a depth of 350 metres, but with a mineral resource that keeps expanding, the company will have to make updated mining plans in the future. Expected annual production is approximately 105 million pounds of copper at a copper recovery of over 89%.

Copper Mountain's drilling program is ongoing. "We did some drilling this year and hope to do a lot more in the future as we have some very attractive looking targets," says O'Rourke. "In terms of the reserves per-se, we haven't added recent drilling to the block model."

Based on the feasibility study, expected annual production is approximately 105 million pounds of copper at a copper recovery of over 89%.

Meanwhile, there are a number of junior explorers surrounding the mine, hoping to sell their copper prospects to Copper Mountain Mining. "If they find something that made economic sense, we would be very interested in it," says O'Rourke, "Keep in mind that we have an extremely large project property, (18,000 acres) and our pits are right in the centre of it, so anyone on the perimeter would be a fair distance away. There appears to be a great deal of copper mineralization in this area."

Environmental stewardship remains an important priority for the company. Copper Mountain's overall objective for its reclamation program is to return the surface of the land to pre-

mining productivity for the use of wildlife and re-establish traditional uses of the land by First Nations. As one drives along Highway 3, one can see reclaimed waste piles of crushed rock that have been successfully reseeded with local grasses by past operators.

Currently, Copper Mountain Mining employs 305 direct workers with indirect suppliers and other indirect service workers in Princeton and the company expects that number to grow to 362 in the not too distant future. "Many of our supervisors previously worked at the mine and this has been a great help to us," says O'Rourke. "Many employees went to Huckleberry and some went to Northgate's Kemess Mine. But recently, a lot of them have returned to Princeton."

In total, it took about \$438 million to place the Copper Mountain Mine into production, but O'Rourke points out that this figure was probably less than half the cost of building the mine from scratch. There already were open pits, a tailings

pond, paved roads to the site, water licences were in place, other permits were in hand, and electricity was available from a 138-kilovolt power line. The Copper Mountain mine site is about 20 km south of downtown Princeton and is accessed by good roads through gently rolling hills of sagebrush and forest.

The town of Princeton (population about 3,000) has welcomed the re-opening of the Copper Mountain Mine as it had been hit hard by the downturn in the forest industry thanks to the pine beetle infestation. With the construction of the mine and its ongoing operations, economic health has returned to the community and new businesses have opened up and young families are starting to return with the prospects of stable employment. In addition, Copper Mountain Mining Corporation has made a generous donation to a new local museum. The transformation that mining brings is remarkable – three new housing subdivisions are underway and two new townhouse projects are under construction.

It's gratifying to see how a mining project done right can create original wealth, provide employment as well as generate benefits for First Nations. ■

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