

The Northern Miner

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Miss Moly no longer a wallflower BC a prime hunting ground for molybdenum deposits

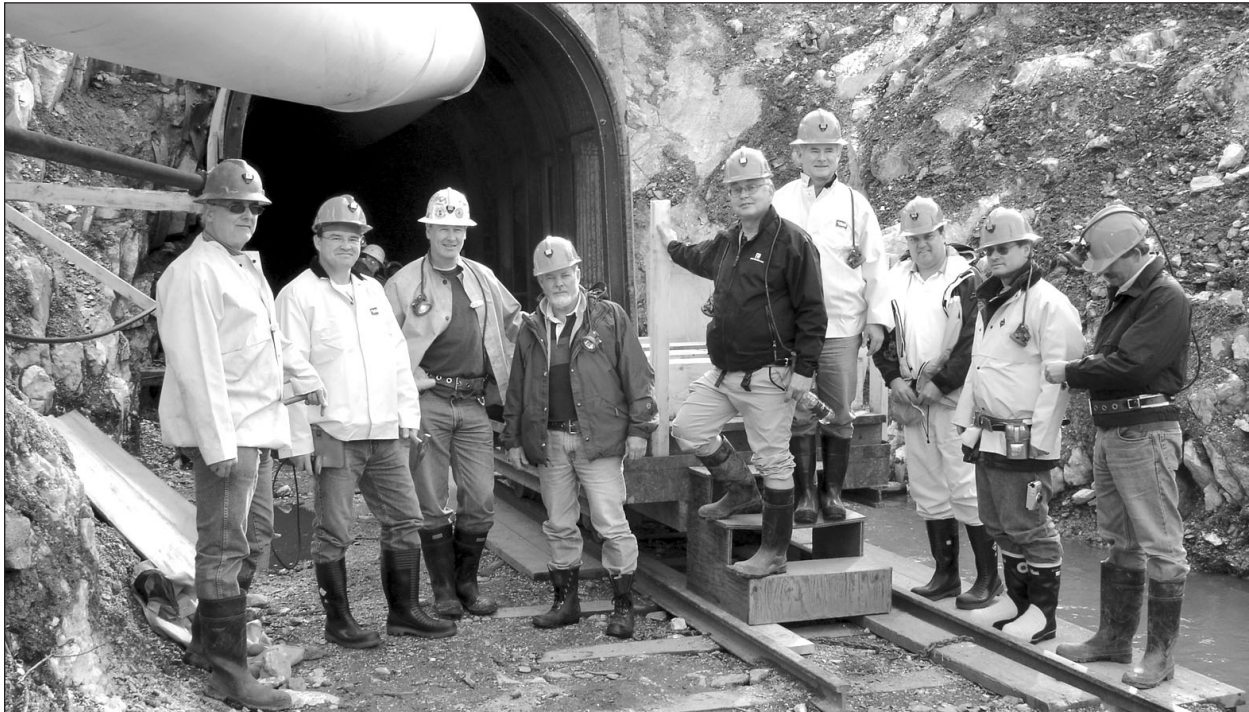


Photo credit: Tim Termuende, Eagle Plains Resources

From left to right: Roca Mines director John Mirko; Chris Morgan of Canaccord Capital; Roca Mines President and CEO Scott Broughton; John Baker, a senior advisor to Roca Mines; Douglas Leishman of Endeavour Capital; James Mustard of Haywood Securities; Jeff Austin, president of International Metallurgical & Environmental; John Kaiser, editor of the *Kaiser Bottom-Fishing Report*; and investor Roger Soar. The group participated in a tour of Roca Mines' Max molybdenum project, 60 km southeast of Revelstoke, B.C.

BY VIVIAN DANIELSON
AND JOHN CUMMING

VANCOUVER — British Columbia has become ground central for a flurry of exploration activity aimed at finding primary and secondary molybdenum deposits.

The recent, 1,300% spike in moly prices to US\$38 per lb. from a mere US\$2 in 2002 may not have sparked a full-fledged staking rush like the one that rocked the province in the late 1970s, but it *has* prompted many companies to dust off the files and examine projects that haven't received attention for decades.

"The last time we saw anything like the present level of interest was back

in 1979, when prices reached a high of US\$30 per pound," says Thomas Schroeter, senior regional geologist for the province's Ministry of Energy and Mines.

Schroeter notes that the previous rush was partly fuelled by a regional geochemical survey by government geologists, which showed that the region north of Terrace through Prince Rupert and Alice Arm was highly prospective for molybdenum.

Companies flocked to the region, but by 1981, moly prices had collapsed to US\$5, bringing the exploration boom to an abrupt end. The price spike had reflected a temporary shortage of processing capacity rather

than true demand, and the period was followed by the 1982 recession and increased byproduct supply from several newly built copper mines.

Nonetheless British Columbia became the second-largest producer of molybdenum in the world, owing to byproduct production from large copper-porphyry mines such as Highland Valley Copper, Brenda, and Island Copper.

The only significant primary mine was Endako, built in 1965 by a predecessor company of **Placer Dome** (PDG-T). It operates today under a joint venture held 60% by **Thompson Creek Mining** and 40% by **Sojitz Moly Resources**. Remaining reserves

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at the open-pit mine are 80.7 million tonnes grading 0.063% moly, sufficient for mining until at least 2011.

Today, many of B.C.'s grand old copper mines are closed or in their last years of production. As a result, the province has slipped to fifth place among moly producers, with 6.5% of production, behind the U.S. (26%), China (24%), Chile (23%), and Peru (7%). The province's standing could drop again over the short term as many existing moly mines near depletion: three in Canada (one primary and two secondary) are scheduled to close in the next seven years, though Endako will probably stay open for decades if high prices persist.

Schroeter and consulting geologist Nick Carter believe moly production could rise again over the long term, given B.C.'s so-called "moly advantage," though they caution that most new mines will be slow to develop. With 430 primary deposits and a total of 1,350 deposits to offer, B.C. offers some of the best potential for discoveries anywhere along the famed "Moly Line," which runs from Alaska down to Chile.

Almost two-thirds of worldwide molybdenum is found in the Western Cordillera, with three-quarters of global output coming from byproduct production. Chile, for instance, is a top moly producer even though the country does not have a single molybdenum mine; all production comes as a byproduct from the nation's huge copper mines.

In British Columbia, many deposits have established resources, including higher-grade cores, and are near good infrastructure, including power, rail, and ports. Custom-milling potential exists at the Endako, Highland Valley Copper and Gibraltar operations.

Few experts expect molybdenum prices to remain as high as they are now, at least not for long. On the other hand, demand is expected to remain strong considering the new



Photo credit: Roca Mines

Roca Mines' Chief Financial Officer David Skerlec stands in front of his company's Max molybdenum deposit in southern B.C.

uses for the metal generated in recent years, the boom in pipeline construction, and the reduction in exports from China. As a result of these and other factors, molybdenum has had its longest sustained price rise, staying above US\$10 per lb. for the past 15 months.

"The nice thing about molybdenum is it's a non-toxic element," says Ian McDonald, chairman of **Blue Pearl Mining** (BLE-V). "If you look on the back of the bottle of any quality multivitamins, it's there."

Moly has some new uses, such as fertilizers and catalytic converters, but more than 75% of global production is used as an alloy in stainless and full-

alloy steels. The metal strengthens steel, allows it to expand and contract, and makes it easier to weld.

As a steel additive, moly is used mostly in pipelines. For a standard pipeline 30 inches wide by 1 inch thick, about half a tonne of molybdenum is required for every thousand metres. For a proposed pipeline along the Alaska Highway, engineers are considering a 52-inch pipeline that would be up to 3 inches thick — clearly a project that would require substantial amounts of molybdenum.

And since molybdenum inhibits corrosion in pipelines, the metal is bound to prove useful in upcoming projects that entail transporting corro-

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sive liquid-natural-gas products and high-sulphur hydrocarbons, both of which are more economic to exploit in today's elevated oil-price environment.

Surging oil prices have spurred pipeline construction. Among the projects in the works are the \$7-billion Mackenzie Valley Pipeline and the \$20-billion Alaska Highway Pipeline.

Strong fundamentals

"The future looks good for molybdenum," says McDonald. "We can't predict where the price is going, but it does look as though the fundamentals have shifted positively. We know the demand is strong and growing at ten per cent per year; we just don't know where the supply is going to come from."

In the 1950s, '60s and '70s, mining companies were still searching for copper-moly projects in the form of big porphyries in the Western Cordillera. However, they eventually concluded that maybe that wasn't the best business model: moly and copper prices tend to move together, and if they nosedive simultaneously, the effect on a mine's cash flow could be catastrophic. And so, in the 1980s and 1990s, the big miners turned their attention to copper-gold porphyries, since, at the time, copper and gold prices tended to correlate negatively, thus buffering a mine's cash flow. The end result of this recent history is that it's mostly copper-gold projects that are currently on the drawing board and being engineered, not copper-moly deposits.

Another supply factor is that almost 30% of worldwide copper production comes from heap-leach, solvent-extraction electrowinning processing, and this percentage could increase in the years ahead. The process does not recover molybdenum, which must be recovered through a flotation circuit.

China has for years supplied a big part of the moly market, though that

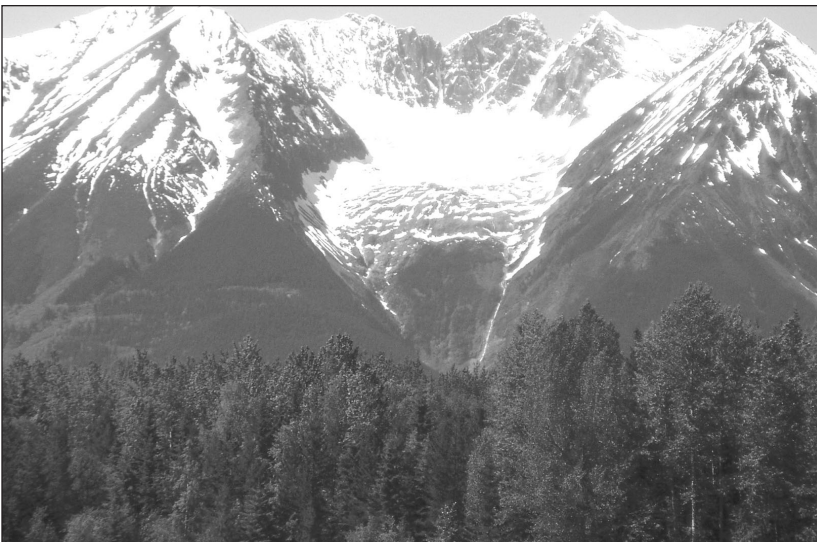


Photo credit: Blue Pearl Mining

Hudson Bay Mountain (left side of photo) near Smithers, B.C., hosts Blue Pearl Mining's Davidson molybdenum deposit.



Photo credit: Blue Pearl Mining

A view of the town of Smithers, B.C., looking west with Hudson Bay Mountain visible on the left.

has fallen substantially to under 25%. The country boasted a hundred or so molybdenum mines five years ago, yet, owing to power shortages and subsidy reductions, the Chinese government closed about half of them, leaving the country with one large mine and dozens of small ones.

The Chinese are still bullish on molybdenum, though, and in Febru-

ary the government stated it wanted a higher price for the metal.

Prices could fall rather than rise, however, if the large Quartz Hill project is ever developed in the Alaskan Panhandle. This one project alone hosts about 10% of the world's known moly reserves.

Originally developed by U.S. Borax in the 1970s, Quartz Hill

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is now owned by **Teck Cominco** (TEK-T). At US\$35 per lb. moly, existing resources are valued, *in situ*, at a massive US\$71 billion. However, the project is in a National Monument area, and previous attempts to obtain permits were blocked by the Environmental Protection Agency. The favourable geology hosting Quartz Hill, the Coast Crystalline Complex, extends into western British Columbia and is viewed as highly prospective.

BC preferred

Developing a mine is generally easier in British Columbia than in Alaska. At least that's the view of Blue Pearl Mining, which is working to bring the long-dormant Davidson (previously Yorke-Hardy) molybdenum deposit into production by mid-2007. The project is 10 km west of the north-central town of Smithers.

The company has moved fast: in late April, Blue Pearl changed its name from Patent Enforcement and Royalties Ltd. (of which "pearl" is the acronym), raised \$10.3 million, and began trading on the TSX Venture Exchange.

Blue Pearl's officers are: McDonald, chairman and CEO; Ken Collison, chief operating officer; Derek Price, chief financial officer; and Peter Tredger, vice-president. The directors are McDonald, Kerry Knoll, James Ashcroft, John Cocomile and John Kalmet. Knoll was the largest Blue Pearl shareholder until recently, when he was pushed out of top spot by Sprott Securities, which took part in the last financing.

The Davidson property is characterized by Jurassic and Cretaceous rocks of the Stikinia terrain, which are intruded by Upper-Cretaceous-to-early-Tertiary Bulkley-type, calc-alkaline porphyritic quartz-monzonite plutons.

The deposit was discovered in 1944 and staked by William Yorke-Hardy in 1957. A young geologist named

Donald Davidson moved to Smithers in 1965 to explore the new discovery and wound up spending his whole career there, directing all the drilling and underground development carried out in the 1960s and '70s by mining companies Climax and Amax.

That work included 58,000 metres of drilling and 2,600 metres of underground development, most notably a 2-km adit, which now descends into the heart of the deposit, deep inside Hudson Bay Mountain. The effort defined a shear-hosted deposit 1 km long by 500 metres wide by 30 metres thick.

By the time Davidson retired in 1996, molybdenum prices were low and his employer had gone through several transformations: Climax was taken over by Amax, which was taken over by Cyprus, which in turn was taken over by **Phelps Dodge** (PD-N).

Davidson wound up buying the deposit in 1996 and kept all the drill core and data, waiting for the moly market to improve. To honour his perseverance, Blue Pearl has renamed the deposit "Davidson."

Based on a conservative cutoff grade of 0.2% MoS₂, the Davidson deposit hosts a resource of 75 million tonnes grading 0.295% MoS₂, or 294 million contained lbs. of molybdenum. Dropping the cutoff to 0.1% boosts the amount of contained moly to 588 million lbs. These estimates are compliant with National Instrument 43-101.

'Flexible'

"The best part about the deposit is that the grades get higher as you get toward the middle," says Knoll. "So, depending on the moly price, you can mine at a higher grade or a lower grade; it's a flexible orebody in that sense."

Blue Pearl has hired consultants Hatch to carry out a feasibility study, including an environmental assessment. Snowden Mining Services has been hired to provide an

updated resource estimate, due later this summer.

Plans call for the excavation of a second adit under the existing one, and for the deposit to be mined at the rate of 2,000 tonnes per day. On an annual basis, 700,000 tonnes grading 0.57% moly would be mined, equivalent to 4.8 million lbs. moly.

Says Knoll: "It's going to be an easy bulk-mining situation because the ground conditions are fabulous."

High-grade ore would be conveyed 3 km from the portal to an existing Canadian National Railway station. Blue Pearl estimates that the cost of transporting concentrate to the Endako mill by rail is US\$5.30 per tonne.

In all, the company believes startup is possible at a total capital cost of US\$20 million.

At a molybdenum price of US\$15 per lb., the Davidson mine is expected to generate annual revenue of US\$72 million; at US\$35 per lb., the figure soars to US\$170 million. Costs are pegged at US\$5-6 per lb.

Blue Pearl has 23.3 million shares outstanding, though 17 million more will be issued July 23 in relation to the recent, \$10.3-million financing. Shares last traded at 67¢.

The company has \$9 million in the bank, which is enough to carry it through to a production decision.

McDonald says he's happy the deposit is in Canada. "Of all the places you can go to mine, and we've been to a few of them, Canada is still one of the best. The reason is we [Canadians] understand mining, and we have the laws. I think the tables have turned in welcoming mining back, certainly in British Columbia."

With offices in Toronto and Vancouver, Blue Pearl is run by much the same group that founded **Wheaton River Minerals** (WRM-T). The group brought Canada's first heap-leach gold mine, Golden Bear, into production in the mid-1990s, near Smithers.

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Under the **Glencairn Gold** (GLG-T) banner, much of the current Blue Pearl execs also helped build the Bellavista open-pit gold mine in Costa Rica. They now operate it, as well as the El Limon underground gold mine in Nicaragua.

Ruby Creek

Meanwhile, **Adanac Moly** (AUA-V) has submitted a description of its Ruby Creek molybdenum project, near Atlin, B.C., to the provincial government for review.

The proposed open-pit mine would produce 20,000 tonnes per day for more than 20 years. The property hosts a measured and indicated resource of 205 million tonnes grading 0.062% moly at a cutoff

grade of 0.04%.

In the Lardeau area of southern British Columbia, **Roca Mines** (ROK-V) is exploring the Max deposit, previously explored and developed by several major companies. Max has a measured and indicated resource of 42.9 million tonnes grading 0.12% moly at a cutoff of 0.06%. The company is focusing on a higher-grade portion of the resource — 260,000 tonnes at 1.17% moly — and hopes to advance the project to the permitting stage this summer.

Near Endako, **Leeward Capital** (LWC-V) is drilling the Nithi Mountain prospect while **New Cantech Ventures** (NCV-T) explores the Lucky Ship project, near Houston.

The Alice Arm region has seen a revival, too: **Tenajon Resources** (TJS-V)

is exploring the Ajax property in order to bring the existing resource of 178.5 million tonnes grading 0.07% moly into compliance with National Instrument 43-101.

Other reactivated or large projects in the region include the Tidewater project, held by New Cantech Ventures, Roundy Creek, held by **SNL Enterprises**, and Kitsault, held by a unit of **Phelps Dodge** (PD-N). Kitsault operated intermittently from 1968 until 1982 and hosts a historic (pre NI-43-101) resource of 104.3 million tonnes grading 0.11% moly.

Many other projects are being examined and explored elsewhere in the province, some for the first time in two decades and others for the first time ever.