

Strathcona Park

76 MINFILE NUMBER: 092F 071

** Geology

NAME(S): MYRA FALLS, LYNX MINE

STATUS: Producer

Open Pit, Underground

NTS MAP: 092F12E

UTM ZONE: 10

LATITUDE: 49 34 04

NORTHING: 5493613

LONGITUDE: 125 36 13

EASTING: 311743

ELEVATION: 0427 Metres

LOCATION ACCURACY: Within 500M

COMMENTS: The Lynx portal is located 0.5 km N of Myra Creek, 3 km W of Buttle Lake. Follow lake road to its end. If in doubt, stop and listen: the mine's extractor fans can be heard for miles.

COMMODITIES: Copper
Cadmium

Zinc

Lead

Gold

Silver

MINERALS

SIGNIFICANT: Chalcopyrite

Sphalerite

Galena

Pyrite

Tennantite

Bornite

Stromeyerite

Digenite

Covellite

ASSOCIATED: Quartz

Sericite

Chlorite

Talc

Pyrrhotite

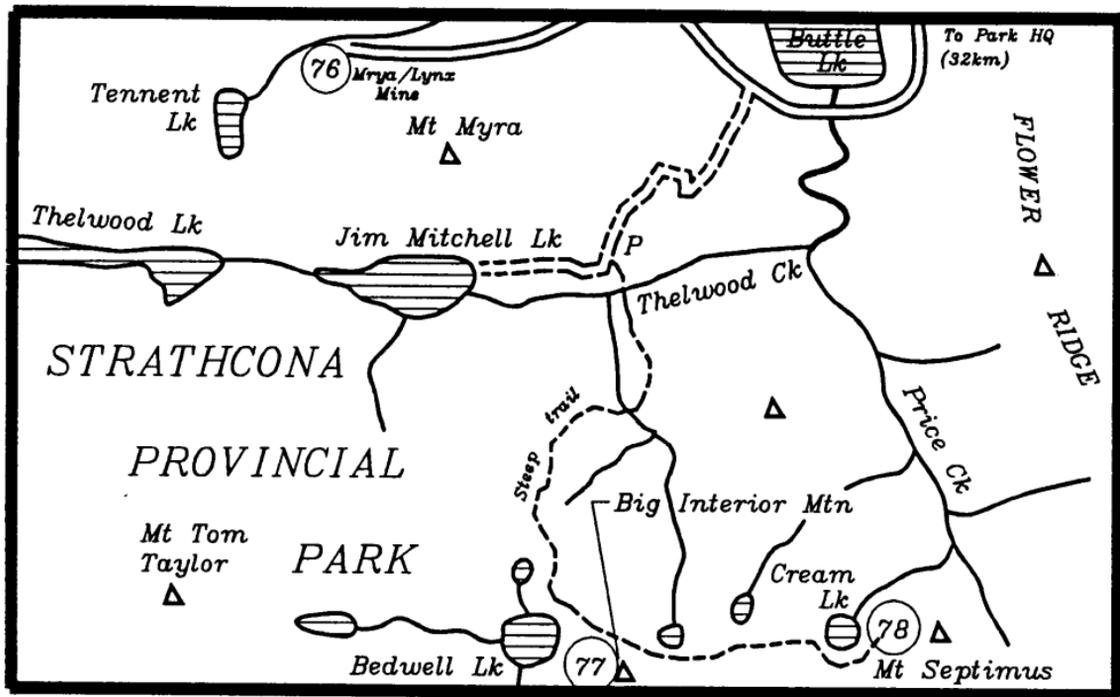
Barite

The major ore zones of the Lynx mine are the G, S, South Wall and the W G zones, all of which are located within an area of 2.5 x 0.7 km. The massive sulphide horizon lies within a zone of quartz-feldspar rhyolite tuff and minor chert, and comprise chalcopyrite, galena, sphalerite, pyrite and pockets of barite. Minor tennantite, bornite, pyrrhotite, digenite, covellite and stromeyerite are present. The lenses are up to 12m thick and 244m long, pinching out along strike.

The Lynx occurrence was mined by open pit methods from 1966 to 1976, then by underground mining techniques to the present. Significant new finds recently have ensured an extended life for the mine.

POINT OF INTEREST:

The only other operating mine on Vancouver Island is presently Quinsam Coal in the Quinsam Lake district NE of Myra Falls. (See IRON RIVER for details.)



Map Site No.: 76

Myra Falls Operations:

1965 - Lynx production began

1979 - Price* & H-W discovered

<u>YEAR</u>	<u>Mined(+)</u>	<u>Milled(+)</u>	<u>Mines</u>
1980	278,244	278,244	Lynx, Myra
1981	246,150	246,150	Lynx, Myra
1982	287,584	287,584	Lynx, Myra
1983	248,376	248,376	Lynx, Myra
1984	203,636	203,636	Lynx, Myra
1985	585,670	585,670	Lynx, H-W, Myra ore depleted.
1986	1,066,664	1,066,664	Lynx, H-W
1987	1,089,796	1,089,805	Lynx, H-W

2,742,130

* no production figures found for Price mine.



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MINISTRY ENERGY, MINES & PETROLEUM RESOURCES
430A - 817 GOVERNMENT STREET
VICTORIA, BRITISH COLUMBIA V8V 1X4
Main Telephone: (604) 387-3787

RE: Myra Falls Production

NUMBER OF PAGES SENT: 2 INCLUDING COVER SHEET

Myra Falls

Successful Mining in a Provincial Park

By Julie Domvile

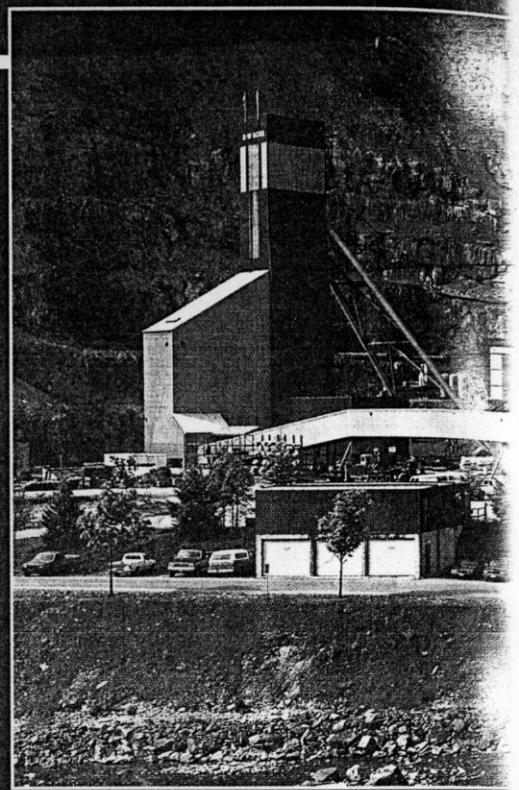
The Myra Falls mine is a zinc, copper and gold producer in Strathcona Park, B.C.'s oldest provincial park. An unlikely pairing, a mine and a provincial park, it is, nonetheless, a successful one. The mine has been producing for over thirty years and the horizon is still open.

A veritable workhorse, Myra Falls is one of many in the stable of Boliden Resources, (BOL-TSE) the new Swedish owners of Westmin Resources. Boliden took over the company earlier this year. The mine is now operated under the title of Boliden Westmin Limited — Myra Falls Operations.

Driven by the need to replace a depleting reserve base, mine site exploration in 1998-1999 will reach historical highs in terms of metres of development and diamond drilling. Total expenditures are planned at \$4.1 million Cdn this year and rising to \$5.0 million in 1999.

The plans for the 1998 campaign include 1,000 metres of level development to provide a number of drilling cutouts, 21,000 metres of underground diamond drilling and 6,000 metres of surface drilling. The plans for 1999 are not finalized but are tentatively budgeted at 1,500 metres of underground development and 36,000 metres of underground drilling.

Cliff Pearson, Chief Geologist, has been at Myra Falls since 1969. He explains, "We have a long and successful history of minesite exploration, and believe we have a good grasp of exploration targets. Target selection is important and is carefully considered each year. Currently, the main target areas chosen for testing in 1998-99 are the Marshall and West Test zones. These represent the continuation of the highly mineralized HW horizon to the west of the actively producing Battle mine. Approximately 3 km of strike length are unexplored along this trend to the west



property boundary.

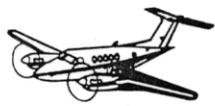
The exploration drilling platform of choice is 10 level in the Lynx mine, which lies some 700 metres above the expected ore position. From this advancing development, drilling will test the trend on a predetermined pattern. This work will be augmented by a number of other target areas, which can be tested by surface drilling or underground drilling from pre-existing drilling platforms. These target areas include a potential rhyolite horizon in the footwall to known HW horizon mineralization, the Trumpeter trend along the east half of the property and areas along the upper Lynx-Myra-Price horizon."

The majority of Canadian vol-

092F 071, 072, 073, 380



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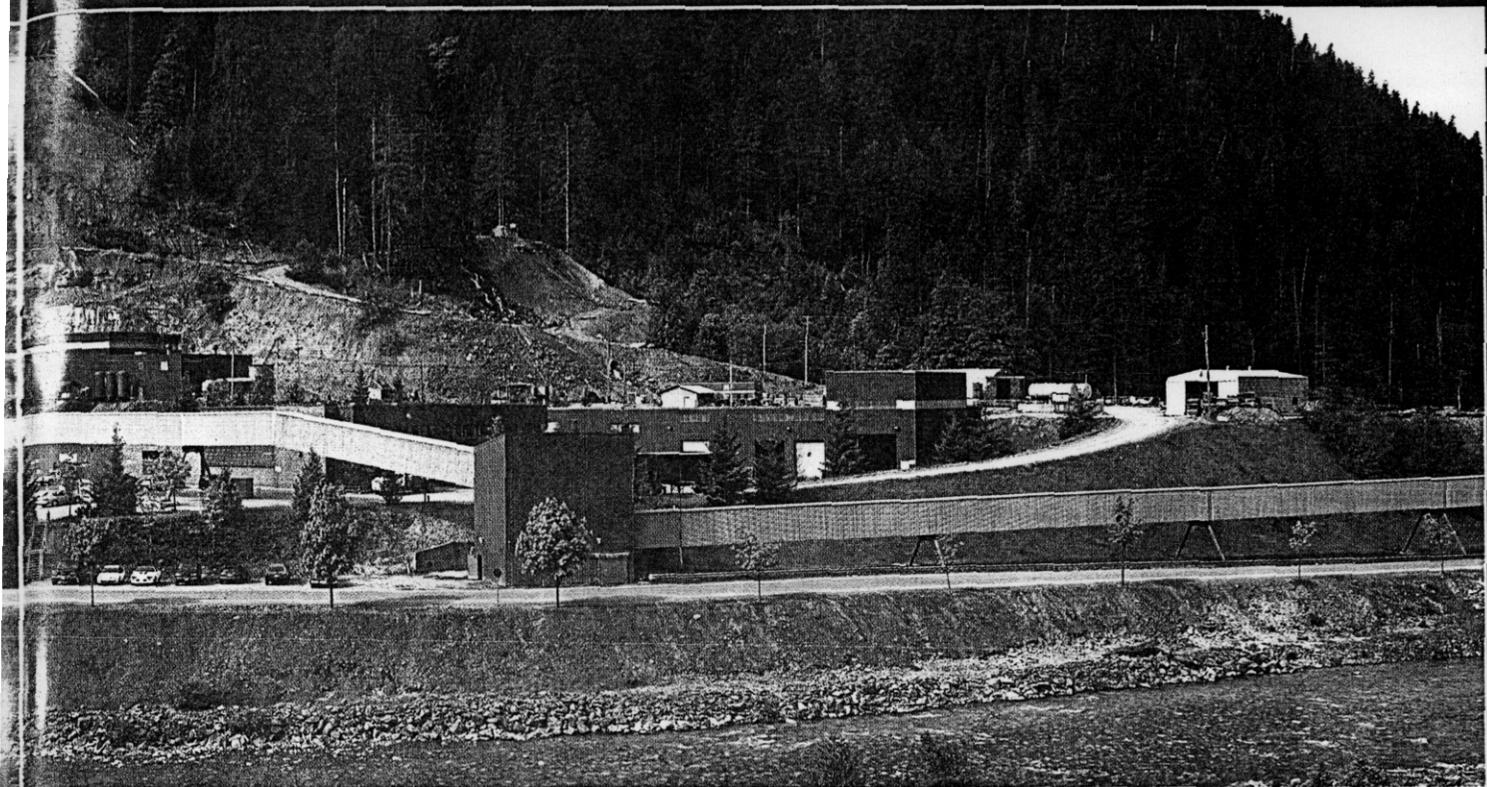
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canogenic massive sulphide deposits are located in the east. A sense of isolation in terms of a relevant pool of knowledge led the geology department to develop an on-going relationship with the CODES (Centre for Ore Deposit and Exploration Study) group from Hobart, Tasmania. CODES is an Australian technical research agency active throughout the Pacific Region countries. Over the past four years, students from CODES have been conducting research and writing reports on Myra Falls, while visiting CODES professors offer their expertise. The Geological Survey of Canada has also done studies on the geochemistry of the deposit on an ongoing basis. The Mineral Deposit Research Unit at the

University of British Columbia has also done studies on the geochemistry of the deposit.

Strathcona Park encompasses 225,000 hectares in the mid-section of Vancouver Island. Of that total, the Myra Falls claim block is 3000 hectares and of that, the actual total of disturbed land is only 150 hectares. One advantage to operating within the boundary of a park is the lack of competition. "Our claim block is discreet; nothing can be done outside the claim block by anyone else or by ourselves," says Mr. Pearson. The company has to seek approval for all surface work from the B.C. Environment Lands & Parks and the Mines Branch, and in some cases the company has had to go

through public process as well.

"You can't just go out, set up and start surface diamond drilling in the same way an exploration company can do outside the park." But, in the last decade, Mr. Pearson says the relationship with the Parks branch has been very good. A hidden advantage to operating a mine in such an area is the high environmental standards the company has developed and maintains. Monitoring of the water quality in Buttle Lake show that metal concentrations in the lake are near pre-mining background levels.

Myra Falls is a classic example of what the mining industry can achieve in terms of environmental excellence. ✕



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Geology of Base Metals

Evolving Geological Models at the Myra Falls VMS Camp, Vancouver Island, BC: An Update and Examples from the Marshall and Ridge Zones

by **S. D. McKinley, Boliden - Westmin (Canada) Ltd.**

Co-authors:

A. Chong, Boliden - Westmin (Canada) Ltd.

D. Crick, Boliden - Westmin (Canada) Ltd.

A. Hartley, Boliden - Westmin (Canada) Ltd.

Abstract

The Myra Falls camp is a polymetallic volcanogenic massive sulphide district located in central Vancouver Island, 90 km southwest of Campbell River, British Columbia. The massive sulphide deposits are hosted by subaqueously-deposited volcanic rocks of the Devonian Myra Formation which comprises part of the Sicker Group volcano-sedimentary assemblage. The numerous individual sulphide lenses are grouped into several major zones that occupy two main felsic-dominated stratigraphic units in the lower H-W Horizon and the upper Lynx-Myra-Price Horizon. Over 21 million tonnes of ore have been mined since the mine opened in 1966. As of January 2001, proven and probable mining reserves for the Myra Falls site were 7.72 million tonnes grading 1.3% Cu, 6.6% Zn, 0.4% Pb, 1.3 g/t Au and 36.4 g/t Ag. In recent years, exploration at Myra Falls has been focussed primarily on the Marshall and Ridge Zones to the west and northwest of the major Battle-Gap deposits. A measured, indicated and inferred resource of over 2 million tonnes of ore grade material has been outlined in this area to date. Although the Marshall Zone and Ridge Zone sulphide lenses occupy the felsic-dominated H-W Horizon, the lithologies that host this mineralization vary greatly from north to south. The Marshall Zone is associated with thick, massive quartz „feldspar porphyry rhyolite flows and in-situ flow breccias, but the Ridge Zone West is associated with sandy rhyolite volcaniclastic rocks and fine-grained mudstones and cherts with lesser black argillites. This north to south change in lithologies within the H-W Horizon represents a volcanological facies change from the vent to vent-proximal rhyolite flow facies in the north to the finer-grained, more distal or basinal facies in the south. In addition, the absence of numerous andesite volcaniclastic units of the Middle and Upper Myra Formation are absent in the vicinity of the Marshall Zone. This suggests that the proximal facies rhyolites may have formed domes with a relief of over 150 metres that hindered the deposition of the mafic volcaniclastic material being transported from the south. Detailed volcanic stratigraphic and facies analysis indicate that the Marshall Zone and some Ridge Zone sulphide lenses formed predominantly within the existing felsic volcanic strata. As such, they occur throughout the H-W

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Horizon. This is in contrast with the much larger, more sheet-like Battle and H-W lenses which are interpreted to have formed predominantly by seafloor exhalation and occur at the base of the H-W Horizon in contact with the Price Andesite. Textures within the RZW and Marshall Zone sulphides also indicate that they were deposited within a coarse fragmental pile and through replacement of the finer grained strata. However, some of the massive sulphide zones exhibit bedding-parallel layering and possibly local normal grading suggesting that at least some exhalation has occurred. These ideas of volcanological facies variations within a stratigraphic unit and the recognition of replacement style mineralization illustrate part of the evolution of the geological model at Myra Falls. Early models for ore genesis at Myra Falls considered the sulphides to be syntectonic and related to a major east-west strike-slip fault. Further work in the 1970s showed that the sulphides were more intimately associated with the rhyolitic volcanic rocks as opposed to the structures and thus the model fit well with the evolving VMS models of the day. Discovery of the H-W and Battle deposits demonstrated that seafloor exhalation was a dominant process of sulphide deposition. More recent work has shown that sub-seafloor replacement and infilling is also a significant means of sulphide deposition. The history at Myra Falls has demonstrated the importance of having a flexible and evolving model. Strict adherence to a structural/syntectonic model for sulphide genesis at Myra Falls likely would have precluded discovery of the large H-W Horizon deposits. In the same way, strict adherence to a classic Kuroko/rhyolite dome-hosted exhalative sulphide model would likely hinder the discovery of zones such as the Ridge Zone West which is partially comprised of replacement-style sulphides deposited in a distal volcano-sedimentary environment.

Presented at:

Geology of Base Metals - CIM Vancouver 2002

April 28, 2002 - May 01, 2002

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test a soil geochemistry anomaly. 1991 work confirmed several porphyry targets, as well as locating an abandoned trench from which samples show good values in gold, silver, copper and molybdenum. An exploration program began on the property in June 1992. The program will include geological mapping, geochemical sampling and prospecting on several porphyry copper/gold targets. As of Oct/92 no significant results were encountered.

LA CHOYA, MEXICO

Workings: Surface, exploration
 Reserves: Gold (ind. geo. 3,200 kt @ 0.04 oz/t)
 Owners: Cia Mineral Desierto Dorado (100%)
 Hecla Mining Company (option)
 Opportunity: Seeking financing
 Contact: HECLA MINING COMPANY
 6500 MINERAL DRIVE
 BOX C-8000
 COEUR D'ALENE, ID USA
 83814-1931
 Tel: (208) 769-4100
 Fax: (208) 769-4107

The property consists of 4 concessions covering 35,200 acres in the State of Sonora, Mexico.

Gold mineralization occurs in shear zones up to 160 feet thick in Mesozoic granites. 13,000 foot reverse circulation program planned for 1991. 92 holes drilled as of April 30/91. July/91 updated reserves for La Choya Sur deposit. Infill drilling and step out drilling scheduled 1991-92 as well as feasibility study.

MIDDLE VEIN, BC, CANADA

Workings: Surface, exploration
 Reserves: Gold (30.17g/t - sample assay)
 Owners: Ashworth, Clive
 Canadian Imperial Mines
 Opportunity: Seeking joint venture partner
 Contact: CANADIAN IMPERIAL MINES
 BOX 288 - 48808
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 VANCOUVER, BC CAN, V6M 1B4
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Lower part of Sicker Group dacite tuffs, andesite and breccias contain gold bearing lenticular quartz-carbonate veins up to 5m long and 20 cm wide, all within a shear zone.

In Nov/91 a two stage exploration program was recommended. The first phase comprising mapping, trenching and sampling followed by phase II diamond drilling mainly on the Apex claim. Drill target in the northern part of the claim block have been identified on sloping ground 40 m east of the Middle Vein, on the Apex claim.

Drilling of 2 holes completed May/92.

NANSEN CREEK PLACER CLAIMS, YT, CANADA

Workings: Placer, production
 Reserves: Gold (sample assay)
 Production: Gold (1991 - 14,774g, 1992 - 1,089g)
 Silver (1991 - 3,421 g)
 Owners: B.Y.G. Natural Resources Inc.
 Opportunity: Seeking purchaser or an operating partner to take over.
 Contact: B..Y.G. NATURAL RESOURCES
 STE 801-602 WEST HASTINGS ST
 VANCOUVER, BC CAN, V6B 1P2
 Tel. (604) 681-9696
 Fax. (604) 681-3599

35 placer claims on Nansen, Discovery, and Rusk Creeks. Wet season and equipment mechanical problems accounted for poor production results in 1991.

NELSON PROPERTY, NV, U.S.A.

Workings: Surface, exploration
 Reserves: Gold (inf. - 1,069 kt @ 0.045 oz/t)
 Owners: Intermountain Exploration Co (50%)
 Arizona Juno Resources Inc (50%)
 Opportunity: Seeking a partner to lease the property
 Contact: INTERMOUNTAIN EXPL. CO.
 1680 NEVADA HIGHWAY
 P.O. BOX 60006
 BOULDER CITY, NV USA
 89006-0006
 Tel: (702) 293-1098

There are two properties consisting of: (1) the Main Group with 17.5 patented, 92 unpatented claims together with 5 millsites and 3 placer claims covering 2,067 acres; and (2) a group of 7.5 patented claims located in the Capital Camp area covering 150 acres. All claims are in the Eldorado Canyon Mining District of Clark County, Nevada.

Bulk tonnage gold-silver target. 19 diamond, 12 hammer and 12 churn drill holes were completed along with trenching prior to 1987. 24 holes were drilled between 1987-90 to block out bulk tonnage reserves estimated at 1,003,000 tons grading 0.061 oz/ton gold