PRODUCT	COPPER	PROVINCE OR TERRITORY	British Columbia	N.T.S. AREA	92 I/6	REF.	CU 7

NAME OF PROPERTY VALLEY COPPER

OBJECT LOCATED – Centre of mineralized zone.

UNCERTAINTY IN METRES 300. Lat. 50°29'15" Long. 121°02'35"

Mining Division Kamloops District

County Township or Parish

Lot Concession or Range

Sec Tp. R.

OWNER OR OPERATOR AND ADDRESS

Cominco Ltd.

DESCRIPTION OF DEPOSIT

The rocks which host this deposit are mainly porphyritic Bethsaida-phase granodiorites, the most central and youngest phase of the 198 m y old Guichon Creek batholith. Age of the Bethsaida phase is post Karnian stage of Upper Triassic but prior to the Middle Jurassic.

Localization of the deposit is related to the formation of a zone of intense fracturing near the intersection of the northerly trending Lornex fault and the easterly trending Highland Valley fault. Predominant orientations of faults, fractures and quartz veinlets in the deposit are parallel to these two regional faults.

The sulphides present in the deposit are, in order of relative abundance: bornite, chalcopyrite, digenite, covellite, pyrite, pyrrhotite, molybdenite, sphalerite, galena and gudmundite (FeSbS). The greater part of the copper mineralization is associated with areas of abundant vein sericitic alteration and quartz veinlets. Bornite is the dominant sulphide in this sericitic association, whereas chalcopyrite is the dominant

see Card 2 ....

Associated minerals or products of value – Molybdenum.

HISTORY OF EXPLORATION AND DEVELOPMENT

The Valley Copper deposit is located in the Highland Valley, on the west side of Quiltanton Lake, about 33 miles southwest of Kamloops. The deposit extends from the valley floor at the 4,000 foot elevation up the south side to about the 4,350 foot elevation and is slightly elongated to the northwest. Overburden is less than 100 feet thick over much of the deposit, but thickens to more than 500 feet near its northeast edge.

Bethsaida Copper Mines Limited, incorporated February 1956, acquired 64 claims in part covering the Valley deposit. Exploration work by the company was largely confined to old showings at higher elevations about one mile to the southwest. The remainder of the Valley deposit was in subsequent years covered by claims held by Bethlehem Copper Corporation Ltd.

Valley Copper Mines Limited was incorporated in May 1964 to amalgamate the holdings of a number of companies and individuals. Cominco Ltd. became the operator and in return for exploration expenditures could earn additional shares in Valley Copper Mines. Over 300 claims were acquired in several separate claim groups. Claims which overlie the Valley Copper deposit are parts of the DF, HH, AL, and LTK groups.

According to Allen and Richardson (1970), the area of the deposit was considered interesting in 1966 because regional geologic mapping suggested that: ore deposits in Highland Valley are structurally controlled; the fault that apparently cuts off the west side of the Lornex deposit passes through Quiltanton Lake; offset on the Lornex fault was right lateral and of the order of 2 miles; Highland Valley might be underlain by faults that would intersect the Lornex fault. Work by Cominco Ltd. during 1967 included an induced potential survey which disclosed several broad, weak anomalies that correlated well with known areas of weak mineralization but did not indicate significant extensions of these. An additional 8 line miles of induced potential survey was run early in 1968 and this did reveal a large significant anomaly. On completion of the survey a program of percussion drilling was begun and 41 holes totalling 11,350 feet were drilled on or adjacent to the anomaly. This was followed later in the year by 15,500 feet of diamond drilling in 21 holes. Work during 1969 included a

see Card 2 ....

Mineral Development Sector, Department of Energy, Mines and Resources, Ottawa.

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HISTORY OF PRODUCTION

MAP REFERENCES

Preliminary Map No. 7, Sheet 1, Highland Valley Project, (Geol.), Sc. 1":1,320 feet, British Columbia Dept. of Mines.

Geology of the Guichon Batholith, Sc. 1":2 miles (1969) - accomp. B.C. Dept. of Mines Bulletin No. 56.

Map 1010 A, Ashcroft, (Geol.), Sc. 1":4 miles - accomp. Memoir 262, Geol. Surv. of Canada.

Map 5211 G, Spences Bridge, (Aeromag.), Sc. 1":1 mile (1968).

*Map 92 I/6, Spences Bridge, (Topo.), Sc. 1:50,000.

#Map of Valley Copper prospect, Sc. 1":1,000 ft., Fig. 48, Geology, Exploration and Mining, British Columbia Dept. of Mines, 1970, p. 356.

REMARKS

Comp./Rev. By	DMacR	DMacR	DMacR				
Date	05-78	09-81	08-83				

REFERENCES

+Osatenko, M.J. and Jones, M.B.; Valley Copper; Porphyry Deposits of the Canadian Cordillera, The Canadian Institute of Mining and Metallurgy, Special Volume 15, pp. 130-143, 1976.

Report of Minister of Mines, British Columbia: 1968, p. 181.

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1969, p. 266; 1970, pp. 354-369 ++ ; 1971, p. 341.

Allen, J.M., and Richardson, J., 1970; Geological Setting of the Valley Copper Orebody; paper delivered at the C.I.M.M. Annual Meeting, April 1970.

International Geological Congress, Canada, 1972, Guidebook, Field Excursion A 09-C 09, pp. 63-69.

Mines Branch, Ottawa; Investigations in Ore Dressing and Metallurgy: Investigation Report 70-71.

Mineral Policy Sector; Corporation Files: "Valley Copper Mines Limited"; "Cominco Ltd."; "Bethlehem Copper Corporation".

Sulphide zones and hydrothermal biotite alteration in porphyry copper-molybdenum deposits, Highland Valley, B.C.; Geol. Surv. of Canada, Paper 77-12, 1978.

Schabas, W.; Cominco's Bethlehem purchase paves way for Valley development; Canadian Mining Journal, November 1981, pp. 24-31.

PRODUCT COPPER	PROVINCE OR TERRITORY British Columbia	N.T.S. AREA 92 I/6	Card 2 - REF. CU 7

NAME OF PROPERTY VALLEY COPPER

DESCRIPTION OF DEPOSIT (continued)

sulphide accompanying K-feldspathic alteration. Bornite/chalcopyrite ratios show highest values in the central part of the deposit, where they exceed 3 to 1, and decrease away from the core to the fringes of the deposit, where chalcopyrite predominates. The deposit has a weakly developed pyrite halo.

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)

geochemical survey, percussion drilling totalling 1,800 feet in 9 holes, surface diamond drilling totalling 38,000 feet in 40 holes, and 9,033 feet of underground drilling in 10 holes. A decline was driven southwesterly on an approximate grade of minus 20 per cent for a distance of 1,189 feet. A station was cut and two declines, B and C, were driven northeasterly, diverging at an angle of 60 degrees back under decline A at the same slope. B and C declines were each driven 1,120 feet to their objective points during 1970. The underground exploration and bulk sampling program was completed in mid 1970. Diamond drilling during the year totalled 37,488 feet on surface and 19,355 feet underground. Feasibility studies were carried out in 1971.

Part of the northerly edge of the mineralized zone extends into claims held by Bethlehem Copper Corporation. Reserves have been reported as follows:

Valley Copper Mines - 800,000,000 tons averaging 0.475% copper (Cominco Ltd., Prospectus, 1976).

Bethlehem-Lake Zone - 209,000,000 tons averaging 0.42% copper (Bethlehem Copper Corporation, 1977 Annual Report).

Bethlehem outlined its portion of the orebody during 1968-69 with 24,678' of diamond drilling in 21 holes.

Cominco Ltd. through exploration expenditures and acquisitions to 1981 increased its interest in Valley Copper to 92%. During the period 1977-81 Cominco increased its interest in Bethlehem Copper from 12 to 100%. Reserves mineable by open pit were estimated at 1,048,000,000 tons averaging 0.42% copper (at 0.25% cutoff) (Canadian Mines Handbook, 1980-81, p. 39).

Preproduction stripping began in July 1982 to prepare the mine for production at a reduced scale of 23,000 tons-per-day, approximately one fifth of its ultimate potential. The mill at Bethlehem Copper's Jersey mine, which was shut down in June 1982, was rehabilitated to treat Valley Copper ore. Provision was made to truck the ore to the mill, about 6.8 k from the mine and 300 metres higher in elevation. Cominco Ltd and its wholly owned subsidiaries Valley Copper Mines Limited and Bethlehem Copper Corporation were amalgamated December 31, 1982 under the name Cominco Ltd. Production began in mid January 1983.