PRODUCT	COPPER	PROVINCE OR TERRITORY	British Columbia	N.T.S. AREA	94 D/10	REF.	CU 3

NAME OF PROPERTY SUSTUT

OBJECT LOCATED - mineralized area.

UNCERTAINTY IN METRES 300. Lat. 56°36' Long. 126°41'30"

Mining Division Omineca District Cassiar

County Township or Parish

Lot Concession or Range

Sec Tp. R.

OWNER OR OPERATOR AND ADDRESS

Falconbridge Limited

DESCRIPTION OF DEPOSIT

The rocks exposed on much of the property belong to the middle part of the Mesozoic succession, a thickness of about 3,500 feet of volcaniclastic beds. These consist of volcanic sandstone, conglomerate, tuff breccia, and lahar deposits; the latter predominating. Characteristically the lahars are rudely bedded and without much sign of internal layering or sorting. Blocks range to several feet in diameter and vary in shape from subangular to rounded. There is no detectable framework of coarse fragments, individual blocks being suspended in mud-size particles. Tuff breccia is intercalated throughout the lahars. These rocks are usually dark coloured and mottled in greenish and reddish shades. They are compact and massive consisting of unsorted angular lapilli and blocks, ranging to several centimetres in diameter, embedded in similar finer material. Conglomerate and sandstone beds are concentrated in a zone midway through the volcaniclastic unit, roughly coincident with the plateau-like upper surface of the mountain. Compositionally these rocks are much like the lahars from which they were

see Card 2 ....

Associated minerals or products of value

HISTORY OF EXPLORATION AND DEVELOPMENT

The property is located 4 miles west of Sustut Peak, approximately 100 miles north-northeast of Hazelton. The claims cover much of the southern extremity of Mount Savage. The mountain here is tabular in general outline with a broad highly elevated and somewhat tilted upper surface that lies at elevations of approximately 5,500 to 6,500 feet. This surface is contained within a wall of sharp ridges and peaks on the west and south, and truncated by a sinuous line of precipitous cliffs on the east and north.

Wesfrob Mines Limited, a wholly-owned subsidiary of Falconbridge Nickel Mines Limited, discovered copper mineralization near the end of the 1971 field season by helicopter reconnaissance of the cliff face. Following the initial find the area was investigated by detailed prospecting and geological mapping, and staked as the Sustut 1-129 claims. During 1972 diamond drilling was done in 26 widely spaced vertical holes totalling 8,500 feet. On the basis of this work indicated reserves were reported at about 60,000,000 tons averaging just under 1.25% copper. (Ref.: The Northern Miner, April 12, 1973, p. 3). Work during 1973-1974 included a further 48,103 feet of diamond drilling in 113 holes.

The company name (Falconbridge Nickel) was changed in 1982 to Falconbridge Limited.

Mineral Development Sector, Department of Energy, Mines and Resources, Ottawa.
512170 *

HISTORY OF PRODUCTION

MAP REFERENCES

Map 962 A, McConnell Creek, (Geol.), Sc. 1":4 miles - accomp. Memoir 251, Geol. Surv. of Canada, 1948.

Geology of the Sustut Area, Sc. 1":1-2/3 miles, Fig. 33 - accomp. Geology, Exploration, and Mining, 1974.

#Geology of Sustut Copper, Sc. 1":4,750 ft., Fig. 36, Geology, Exploration, and Mining, 1973, p. 418.

#Sustut Copper, computer fitted 'surface of mineralization' and 'ore isopachs', Sc. 1":1,470 ft., Fig. 40, Geology, Exploration, and Mining, 1973, p. 427.

*Map 94 D, McConnell Creek, (Topo.), Sc. 1:250,000.

REMARKS

Comp./Rev. By	DMacR	DMacR					
Date	10-76	12-83					

REFERENCES

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1972, p. 481; 1973, pp. 411-432 + ; 1974, pp. 305-309 ++ .

Kirkham, R.V.; Geology of Copper and Molybdenum Deposits in Canada; Report of Activities April-October 1973, Paper 74-1, Pt. A., p. 378, Geol. Surv. of Canada.

Mineral Policy Sector; Corporation Files: "Wesfrob Mines Limited"; "Falconbridge Nickel Mines Limited".

Harper, G.; Geology of the Sustut Copper Deposit in B.C.; Canadian Institute of Mining and Metallurgy, Bulletin, Vol. 69, No. 777, January 1977, pp. 97-104. +++

Wilton, D.H.C.; A Genetic Model for the Sustut Copper Deposit, North-Central British Columbia; M.Sc. Thesis, U. British Columbia, 1978. (Abstract in CIM Bull., Nov. 1980, p. 31).

PRODUCT	COPPER	PROVINCE OR TERRITORY	British Columbia	N.T.S. AREA	94 D/10	Card 2 - REF. CU 3

NAME OF PROPERTY SUSTUT

DESCRIPTION OF DEPOSIT (continued)

probably derived. The sandstones are often cross-bedded and form discontinuous lenses between conglomerate layers, apparently as a result of stream channelling.

Numerous measurements show that the strata are warped, forming a monocline-like structure. Near the summit bedding attitudes have an average strike of 100 degrees dipping 15 degrees southwest; farther south strikes swing more to the northwest and dips steepen with average attitudes approaching a strike azimuth of 140 degrees dipping 55 degrees southwest. An equal area plot of poles to bedding indicates a gentle fold axis with an azimuth of 167 degrees plunging 14 degrees southeast.

Mineralization is exposed at many widely separated points on or just below the surface of the central plateau area. The deposit consists essentially of reasonably conformable disseminated, zoned, pyrite, chalcopyrite, bornite, chalcocite, and native copper mineralization in the sandstone and conglomerate-rich layer in intermediate fragmental volcanic rocks that are probably Upper Triassic or Lower Jurassic in age. Close examination reveals chalcocite and lesser amounts of bornite, chalcopyrite, and native copper impregnated in lahars, tuff breccia, and conglomerate, mostly as small blebs and grains in the matrix between and peripheral to the clasts. Commonly the adjacent rocks are slightly silicified and locally strongly epidotized.

Mineral zoning is apparent in diamond-drill hole No. 1. Here the mineralized horizon, about 50 feet thick, is first intersected at a depth of 75 feet. The zoning consists of an envelope of weak pyrite dissemination followed inward by a chalcopyrite-bornite shell and a bornite, chalcocite, native copper core; the total mineralized section grading 2.47 per cent copper.

The discovery is very significant because it is the first occurrence of economically important, stratigraphically-controlled mineralization of the copper sulphide-native copper type in volcanic sequences found in Canada.