

PRODUCT MOLYBDENUM
PRODUIT

PROVINCE OR PROVINCE OU British Columbia
TERRITORY TERRITOIRE

N.T.S. AREA 103 P/6
RÉGION DU S.N.R.C.

REF. MO 1
RÉF.

NAME OF PROPERTY KITSAULT, LIME CREEK (ALICE) (LYNX)
NOM DE LA PROPRIÉTÉ (CARIBOO) (CARIBOU)

OBJECT LOCATED - Centre of mineralized ring structure.
OBJET LOCALISÉ

UNCERTAINTY 300 m Lat. 55°25'20" Long. 129°25'10"
FACTEUR D'INCERTITUDE Lat. Long.

Mining Division Skeena District
Division minière District

County Township or Parish
Comté Canton ou paroisse

Lot Concession or Range
Lot Concession ou rang

Sec. Tp. R.
Sect. Ct. R.

OWNER OR OPERATOR/PROPRIÉTAIRE OU EXPLOITANT

Amax of Canada Limited

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT

The country rock is metamorphosed Hazelton Group sediments about 2 miles east of the eastern edge of the Coast Range crystalline complex.

Molybdenite mineralization at Lime Creek is associated with a small elliptical stock, of quartz monzonite to quartz diorite composition, which intrudes siltstones and greywackes of Late Jurassic to Early Cretaceous age. The main stock is 1,000 m in diameter and composed largely of porphyritic rocks. An eastern appendage to this body, about 500 m long, is composed of quartz diorite.

Dykes and lenses of white to pink equigranular alaskite intrude the quartz monzonite porphyries and the quartz diorite, particularly in the contact areas of the main stock. Intrusive into all rock types and apparently confined to the northern half of the main stock are irregular lenses and dykes of relatively fine grained quartz monzonite and granodiorite porphyry, and intrusive breccias. Lamprophyre dykes, varying in width from 1 to 10 m, cut all rocks in the main stock, but are especially abundant near the eastern contact. These dykes, which occur in northeasterly trending swarms, include both biotite and pyroxene varieties and have sharp chilled contacts.

Associated minerals or products
Minéraux ou produits associés

see Card 2

HISTORY OF EXPLORATION AND DEVELOPMENT
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

The deposit is located at elevations of 1,800 to 2,200' on the east fork of Lime Creek, 5 miles southeast of the village of Alice Arm, and 3 miles southeast of the Kitsault townsite.

Part of the Lime Creek deposit was first staked in 1911 by W. McLean, but the main feature of interest at that time was a narrow silver-lead-zinc vein later determined to be peripheral to the molybdenite deposit. In 1916 the Caribou group of 5 claims was owned by Messrs. McLean, Wells, and Donald. Exploration work to that time included open cuts and a 50 foot adit to the east of the zone of molybdenum mineralization.

No further activity was reported until 1921 when the property was restaked as the Lynx group. Yearly assessment work was reported for several years following. In 1929 the property, now called the Caribou group, was owned by J. Wells and under option to D.S. Tait, however, no work was reported under this option. The owner resumed prospecting on the property in 1930. An option was granted to the Dalhousie Mining Company, Limited, that same year but there is no report of work done.

Kennco Explorations (Western), Limited, ^{PURCHASED} a wholly owned subsidiary of Kennecott Copper Corporation, the Patricia 1-5 claims (Lots 6467-6471) from Gunn Fina of Alice Arm, and subsequently expanded the property to 72 full and fractional claims. Work during the year included trenching and 1,021 feet of X-ray drilling in 10 holes. Diamond drilling during the period 1960-1963, inclusive, amounted to 42,131 feet in 56 holes.

British Columbia Molybdenum Limited was incorporated in August 1963 as a wholly owned subsidiary of Kennecott Copper Corporation to acquire the property. Construction of a 6,000 tons per day mill and open pit mining facilities was begun in 1965 and the concentrator commenced tune-up operations in October 1967. Reserves were reported as 40,173,700 tons at 0.23% MoS₂ (Northern Miner, April 7, 1966). A drilling program completed during 1969 (10,992' in 11 holes) increased the estimated ore reserves to almost double, although the average grade of molybdenite declined. Milling operations were suspended on April 28, 1972 due to low molybdenum prices and a 20% discount due to high amounts of lead in the concentrate.

see Card 2

HISTORY OF PRODUCTION/HISTORIQUE DE LA PRODUCTION

Total ore milled by British Columbia Molybdenum Limited from start of production in 1967 until the operation closed in April 1972 was 10,284,255 tons. From this ore 23,076,768 pounds of molybdenum were recovered.

REFERENCES/BIBLIOGRAPHIE

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1916, p. 66; 1921, p. 47; 1929, p. 82; 1930, p. 86; 1959, p. 10; 1960, p. 10; 1961, p. 10; 1963, p. 12; 1965, p. 62; 1966, p. 49; 1967, p. 47; 1968, p. 63.

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1969, p. 69; 1970, p. 94; 1971, p. 121; 1972, pp. 504-506; 1973, p. 489; 1974, p. 326.

Mineral Policy Sector; Corporation Files: "British Columbia Molybdenum Limited"; "Kennecott Copper Corporation"; "Amas Inc."; "Climax Molybdenum Corporation of British Columbia, Limited"; "Amax of Canada Limited".

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Woodcock, J.R.; Bradshaw, B.A.; Ney, C.S.; Molybdenum Deposits of Alice Arm, British Columbia; Tectonic History and Mineral Deposits of the Western Cordillera, The Canadian Institute of Mining & Metallurgy, Special Volume No. 8, pp. 335-339, 1966.

B.C. Molybdenum Mine; International Geological Congress, Canada, 1972, Guidebook, Field Excursion A06-C06, p. 9.

Born, C.A. and Lenton, W.D.; The Kitsault Project; The Canadian Mining and Metallurgical Bulletin, December 1979, p. 55.

New Life for Kitsault moly mine; Canadian Mining Journal, December 1980, p. 44.

MAP REFERENCES/RÉFÉRENCES CARTOGRAPHIQUES

Map 307 A, Portland Canal Area, (Geol.), Sc. 1":4 miles - accomp. Memoir 175.

Geology of the Lime Creek Area, Sc. 1":4,000', Fig. 1, Report of Minister of Mines, 1964.

#Geology of the Lime Creek Property, Sc. 1":500 ft., Fig. 2, Report of Minister of Mines, British Columbia, 1964, p. 31.

Geology of the Lime Creek area, Sc. 1 cm:80 m (approx.), Fig. 3, C.I.M. Spec. Vol. 16, p. 468.

Map 5252 G, Aiyansh, (Aeromag.), Sc. 1":1 mile.

*Map 103 P/6, Aiyansh, (Topo.), Sc. 1:50,000.

REMARKS/REMARQUES

Comp./Rev. By Comp./rév. par	DMacR						
Date Date	06-81						

PRODUCT PRODUIT	MOLYBDENUM	PROVINCE OR TERRITORY	PROVINCE OU TERRITOIRE	N.T.S. AREA RÉGION DU S.N.R.C.	103 P/6	REF. NO 1 RÉF.
NAME OF PROPERTY NOM DE LA PROPRIÉTÉ		KITSAULT, LIME CREEK (ALICE) (LYNX) (CARIBOO) (CARIBOO)		HISTORY OF EXPLORATION AND DEVELOPMENT (continued) HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR		
DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)		<p data-bbox="1083 236 2081 819">American Metal Climax, Inc. purchased the property through an option agreement dated December 18, 1972 for its wholly owned subsidiary Climax Molybdenum Corporation of British Columbia, Limited. The company name (American Metal Climax) was changed in 1974 to Amax Inc. During 1974 the diamond drilling of 17 surface holes totalling 11,297 feet was carried out over the area of the open pit. Proven and probable reserves were calculated at 105 million tons averaging 0.192 per cent molybdenite with the full extent of mineralization as yet undefined (Amax Inc., 1977 AR). Activity in subsequent years was related to the evaluation of the economic feasibility of re-opening the open pit mine. Rehabilitation and expansion work begun in 1979 included increasing the mill capacity from 6,000 to 12,000 tons per day and the installation of a lead leaching circuit. As a result of an internal reorganization by Amax Inc. early in 1980 the Kitsault operation was transferred from Climax Molybdenum to Amax of Canada Limited. The mine re-opened in April 1981.</p>				
<p data-bbox="51 272 1051 455">Emplacement of the stock was accompanied by contact metasomatism of the greywackes to biotite hornfels. Hydrothermal alteration is represented largely by quartz, orthoclase and sericite. These minerals form an almost circular zone of intense alteration centered in the northern half of the Lime Creek stock.</p>		<p data-bbox="1083 464 2081 786">The zone of molybdenite mineralization is a ring structure, slightly elliptical in outline and elongated east-west. This ring occurs within and outward from the intense quartz-orthoclase alteration zone. The annular mineralized zone conforms roughly to the north, east and west contacts of the stock, whereas the southern part of the zone cuts across the stock at its midpoint. The ring of mineralization has its best grades adjacent to the hornfels contact. Molybdenite content decreases toward the center of the zone, so that a barren core contains only traces of molybdenum.</p>				
<p data-bbox="51 794 1051 1133">Four separate but superimposed substages of molybdenite mineralization followed by a polymetallic vein stage are indicated. The first substage is related to the alaskite dykes and is represented by disseminations and rosettes and by fracture fillings of molybdenite. The second and third substages are represented by quartz-orthoclase-pyrite-molybdenite veinlets in a closely spaced stockwork pattern in the northern parts of the stock and the adjacent biotite hornfels. Subsequently, quartz monzonite breccias were intruded, and these are in turn cut by banded quartz-molybdenite veins up to 0.3 m thick.</p>		<p data-bbox="1083 1141 2081 1331">Higher grades of molybdenite mineralization occur in areas of intense fracturing and faulting, particularly in the north-east contact area of the stock. However, the intensity of fracturing has also provided channelways for the later lamprophyre dyke swarms, thus reducing the over-all grade in this area.</p>				
<p data-bbox="51 1339 1051 1496">The final stage of mineralization is represented by polymetallic quartz veins up to 1 m wide. These occur in two conjugate fracture sets that cut the molybdenite zone. A north-northeast set is generally predominant. However, in places the northwest set is predominant and in other places both sets are</p>		<p data-bbox="1083 1504 2081 1562">see reverse of Card 2</p>				

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)

present. The quartz veins contain pyrite, galena, sphalerite, molybdenite, tetrahedrite, chalcopyrite, fluorite, ankerite, dolomite and a variety of lead bismuth sulphosalts.