

PRODUCT ASBESTOS
PRODUIT

PROVINCE OR TERRITORY PROVINCE OU TERRITOIRE British Columbia

N.T.S. AREA 104 P/5
RÉGION DU S.N.R.C.

REF. ASB 1
RÉF.

NAME OF PROPERTY
NOM DE LA PROPRIÉTÉ

CASSIAR

OBJECT LOCATED - Open pit.
OBJET LOCALISÉ

UNCERTAINTY 300 m
FACTEUR D'INCERTITUDE

Lat. 59°19'30" Long. 129°48'50"

Mining Division Liard
Division minière

District Cassiar
District

County Comté Township or Parish
Canton ou paroisse

Lot Concession or Range
Concession ou rang

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

OWNER OR OPERATOR/PROPRIÉTAIRE OU EXPLOITANT

Brinco Mining Limited

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT

The Cassiar asbestos deposit occurs within the Sylvester Group, a thick assemblage of volcanic and sedimentary rocks of late Devonian to early Mississippian age. These rocks are intruded by a number of ultramafic bodies of Mississippian age known as the McDame intrusives. The Sylvester group occurs in a syncline formed during the upheaval caused by the emplacement of the Cassiar batholith in Jurassic-Cretaceous time.

Locally, the Sylvester rocks comprise argillite, argillaceous quartzite, volcanics (greenstones) and graphitic schist. The contact between these rocks and the serpentine is conspicuously marked on the footwall by a zone of broken and incompetent argillite and graphitic schists. On the hanging wall, the contact is much less conspicuous and consists of a zone of indurated argillite locally referred to as the "alteration zone". This zone is composed of a zoisite-quartz-tremolite hornfels with local irregular bodies of nephrite jade and garnet.

Numerous seemingly random joints, shear zones and vein systems occur throughout the orebody. Faults and shear zones can be generalized into two groups. One group strikes east-

see Card 2

Associated minerals or products - Jade.
Minéraux ou produits associés

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

The orebody outcropped at the 6,700 foot elevation on a ridge at the north end of McDame Mountain, 3 miles north-northeast of Cassiar. The main showings were covered by the Rugged Nos. 5 and 6 claims.

The Rugged 1-7 claims were staked in June 1950 by Victor A. Sittler, H.H. Nelson, and R.L. & R.W. Kirk, of Fort Nelson and Lower Post. Adjacent claim groups were staked by John Bartle, J.F. Blanchard, and S.G. Birdcut.

Conwest Exploration Company Limited in October 1950 optioned the Rugged group, and also 5 claims (Asbestos 1-4 and Axe) from John Bartle. The property was subsequently expanded to 42 Crown-granted and 5 leased claims. The company transferred the property to a subsidiary, Cassiar Asbestos Corporation Limited which was incorporated in May 1951. A diamond drill program was begun in 1951 but had to be abandoned due to poor core recovery. Underground exploration began in 1952 in an adit collared at 6,000' elevation. An experimental mill of about 250 tons per day capacity was built in 1952 to treat the asbestos talus material; the mill was put into operation in January 1953. With the underground program indicating a substantial orebody, a new mill of 500 tons per day capacity was built and put into regular operation in July 1954. An aerial tramway 14,600 feet long was completed in May 1956 to transfer the ore from the open pit at about the 6,000 foot level to the mill. A new exploration adit, begun in 1958 at the 5,700 foot elevation, was driven 1,400 feet to the orebody; over 5,000 feet of crosscutting and drifting was carried out in the two exploration adits. Open pit mining was a seasonal operation from 1952 until 1962 when year round mining operations began. By this time mill capacity had been expanded to 1,600 tons per day. Subsequent expansions raised the mill capacity to 3,300 tons per day by 1975. A new 1,500 foot tramline with a capacity of 300 tons per hour was put into operation in 1975. Open pit reserves were estimated at December 31, 1977 to be 16,277,000 tons. A further nearly 8,000,000 tons of "geological" reserves, outside present pit limits (to the 5,000-ft. level) were partially defined by diamond drilling (F.G. Hewett, CIM Bull., Apr. 79, p. 62).

A new exploration adit begun at the 5,127 foot elevation in 1978 was driven to a length of 3,500 feet. This confirmed

see Card 2

HISTORY OF PRODUCTION/HISTORIQUE DE LA PRODUCTION

During the period 1953-1979, inclusive, 8,769,169 tons of ore were milled. From this ore 1,761,228 tons of fibre were recovered (Company data). Jade sales in 1980 amounted to \$860,000.

REFERENCES/BIBLIOGRAPHIE

++Gabrielse, H.; McDame Map-Area, Cassiar District, British Columbia; Memoir 319, pp. 123-126, Geol. Surv. of Canada, 1963.

Gabrielse, H.; The Genesis of Chrysotile Asbestos in the Cassiar Asbestos Deposit, Northern British Columbia; Economic Geology, Vol. 55, No. 2, pp. 327-337, 1960.

Smitheringale, Wm. V.; The Geology of Canadian Industrial Mineral Deposits, 6th Commonwealth Mining and Metallurgical Congress, 1957, pp. 49-53.

Stephens, Fred H.; Cassiar Asbestos Corporation Limited; Western Miner, Vol. 37, August 1964, pp. 48-54.

Reports of Minister of Mines, British Columbia: 1950, pp. 207-214; 1951, pp. 211-214; 1952, p. 243; 1953, p. 181; 1954, p. 174; 1955, pp. 88-90; 1956, pp. 146-148; 1957, p. 76; 1958, p. 83; 1959, p. 150; 1960, pp. 127-128+; 1961, p. 138; 1962, p. 145; 1963, p. 137; 1964, p. 179; 1965, p. 256; 1966, p. 259; 1967, p. 299; 1968, p. 295.

Geology, Exploration, and Mining; British Columbia Department of Mines: 1969, p. 379; 1970, p. 487; 1971, p. 451; 1972, p. 573; 1973, p. 536; 1974, p. 370.

Precambrian: Vol. 34, No. 6, pp. 23-30, June 1961.

+++The Cassiar Story; The Canadian Institute of Mining and Metallurgy, Bulletin, Vol. 71, No. 792, April 1978. Policy

Mineral/Sector; Corporation Files: "Conwest Exploration Company Limited"; "Cassiar Resources Limited".

MAP REFERENCES/RÉFÉRENCES CARTOGRAPHIQUES

Map 1110 A, McDame, (Geol.), Sc. 1":4 miles - accomp. Memoir 319.

Geological Sketch Map of Cassiar Asbestos Property, Sc. 1":300 ft., Fig. 14 - accomp. Memoir 319.

#Plan of Local Geology, Sc. 1":2,875', Fig. 2, CIM Bull., Apr. 1978, p. 57.

*Map 104 P/5, McDame, (Topo.), Sc. 1:50,000.

REMARKS/REMARQUES

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| Date Date | 11-80 | | | | | | |

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DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)
 west, with dips of ± 20 degrees from vertical. This group is characterized by the "70° shear" at the southern end of the main orebody. The other group strikes approximately north-south, with either a very steep western dip or an eastern dip near 45 degrees. This group is characterized by the "45° shear", which runs through the central portion of the main orebody and acts as the western boundary of the southern lobe. A major fault system (striking east-west and essentially vertical), sub-parallel to the west fault and 70° shear, occurs in the southern portion of the pit. This system, known as the south fault is the apparent southern termination of the ore.

The Cassiar orebody occurs in a sill-like body of serpentinite which intruded the west limb of the McDame syncline near the base of the Sylvester Group. The orebody strikes approximately north-south, with a dip of 30-45 degrees to the east. Approximate surface dimensions (1978) are 700 ft. (213 m) by 1,500 ft. (457 m). The northern limit has been partially eroded by glacial action, leaving a large cirque filled with serpentine and argillaceous talus and debris. The host body consists of blocky, locally slickensided, light to dark green serpentine containing numerous veinlets of chrysotile asbestos. Magnetite is fairly abundant, occurring in microscopic veinlets and larger veins throughout the serpentine. Disseminated magnetite is conspicuously absent. Other minerals associated with the serpentine emplacement include: picrolite, magnesite, nemalite, brucite, tremolite and antigorite.

Most of the asbestos occurs in cross-fibre veins in which the chrysotile crystals are oriented at large angles to the walls. One or more partings are generally present in the veins and are emphasized by magnetite grains or stringers and serpentinite chips. Individual veins may persist for as much as 10 or 15 feet but generally they are much shorter, particularly where the fractures are densely spaced. The fibre is exceptional both for length and quality. Fibres ranging from half an inch to an inch in length are common.

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

the downward extension of the known ore zone about 100 feet below the predicted open pit bottom. Diamond drilling from the adit indicated a downward faulted extension of the ore zone, or a separate lens, containing in excess of 5,000,000 tons of asbestos-bearing material (NM 13/11/80).

The company name was changed on August 1, 1980 to Cassiar Resources Limited. By December 31, 1980 Brinco Limited had acquired 98% of Cassiar's stock. Early in 1981 the property was transferred to Brinco Mining Limited.