PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
MOLYBDENUM	British Columbia	93 K/3	MO 1

NAME OF PROPERTY *NOM DE LA PROPRIÉTÉ*: ENDAKO (STELLA)

OBJECT LOCATED *OBJET LOCALISÉ* - Endako open pit.

UNCERTAINTY *FACTEUR D'INCERTITUDE* 300 m

Lat. *Lat.* 54°02'10"

Long. *Long.* 125°06'30"

Mining Division *Division minière*: Omineca

District *District*: Range 5 Coast

County *Comté*:

Township or Parish *Canton ou paroisse*:

Lot *Lot*:

Concession or Range *Concession ou rang*:

Sec *Sect.*:

Tp. *Ct.*:

R. *R.*:

OWNER OR OPERATOR/*PROPRIÉTAIRE OU EXPLOITANT*

Placer Development Limited

DESCRIPTION OF DEPOSIT/*DESCRIPTION DU GISEMENT*

The orebody occurs in the Topley Intrusions, which are considered to be of late Jurassic age. They are intruded into Upper Triassic and Lower Jurassic volcanic and sedimentary rocks of the Takla Group. The intrusions comprise a composite batholith consisting of granite, quartz monzonite, granodiorite, quartz diorite, diorite and gabbro. The molybdenum deposit occurs wholly within Endako Quartz Monzonite, which is bounded on the south by Francois Granite, and on the north by Casey Alaskite and Glenaman Granite. In the vicinity of the orebody the quartz monzonite is intruded by pre-mineral aplite, andesite, porphyritic granite and quartz-feldspar porphyry, and post mineral basalt dykes. Four major fault trends occur in the mine area, the easterly trending South Boundary fault, north-westerly trending Casey fault, northerly trending Tailings Creek fault, and northeasterly trending West Basalt fault.

The molybdenum deposit occurs wholly within the Endako Quartz Monzonite. The orebody can be considered as a series of en-echelon easterly trending ore bands with complementary east-

see Card 2 ....

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

The property is located at the 3,300 foot elevation on the north side of Francois Lake 5 miles southwest of Endako, a village on the Prince George-Terrace Highway No. 16.

The showings were discovered by C.H. Foote and A. Langley, of Fraser Lake, in 1927 and the Stella group of 4 claims was staked over an area of mineralized float. Trenching revealed several mineralized quartz veins and during the following years the owners explored the showings by further trenching and a short inclined shaft and adit. By 1929 the property was expanded to 11 claims, including the Snowbird 1-5 and Pineridge 1 & 2. The last work reported by the original owners was in 1939. Kennco Explorations, (Canada) Limited, optioned the property in 1952 and carried out limited bulldozer trenching, mapping and sampling before allowing their option to lapse. The original discoverers allowed their claims to lapse in 1958.

The property was restaked (26 claims) by Dr. C.H. Riley & associates, of Vancouver, in 1959; mapping and bulldozer stripping was carried out the following year. Mining engineer Andrew Robertson optioned the property for eastern interests in 1961 and staked additional ground to the south and east; the option was dropped in November of that same year. Robertson obtained a new purchase agreement in January 1962 on behalf of his own company, R. & P. Metals Corporation Limited and diamond drilling was begun later in the year. Early results of the drilling was encouraging and Endako Mines Ltd. was incorporated in June 1962 as a private company; conversion to public status took place in August of that same year. Trimart Investments Ltd., of Toronto, provided the funds for the initial work by the company.

By a September 1962 agreement Canadian Exploration, Limited, a wholly owned subsidiary of Placer Development, Limited, took over financing and development and assumed full management control of Endako Mines Ltd. An accelerated drill program continued throughout 1963 and by the end of February 1964 Endako Mines had drilled 190 holes for a total of 82,902 feet, and had driven 2,755 feet of crosscuts, drifts, shafts and raises to confirm drill results. The decision to develop for production was announced in March 1964 and the mine was

see Card 2 ....

Associated minerals or products
Minéraux ou produits associés

Mineral Policy Sector, Department of Energy, Mines and Resources, Otta
Secteur de la politique minérale, ministère de l'Energie, des Mines et des Ressources, Otta
507808

ISTORY OF PRODUCTION/*HISTORIQUE DE LA PRODUCTION*

From start of production in June 1965 to the end of 1974, 2,311,000 tons of ore were milled. The 121,320,289 pounds of olybdenum recovered from this ore were contained in 57,962 ons of molybdenite concentrate, 48,664 tons of molybdic oxide, nd 1,926 tons of ferromolybdenum. Production for the period 975-1978 inclusive totalled 36,805,200 tonnes of ore milled. he 26 052 680 kg of molybdenum recovered from this ore were ontained in 2,610 tonnes of molybdenite concentrate, 40,573 onnes of molybdic oxide, and 833 tonnes of ferromolybdenum.

MAP REFERENCES/*RÉFÉRENCES CARTOGRAPHIQUES*

Map 631 A, Fort Fraser, (Geol.), Sc. 1":4 miles, Geol. Surv. of Canada, 1941.

Detailed Geology of the Endako Area, Sc. 1":½ mile, Fig. 23, Report of Minister of Mines, British Columbia, 1965.

Geology of the Endako Area, Sc. 1":2 miles, Fig. 2, p. 445, CIM Spec. Vol. 15.

Map 5304 G, Endako, (Aeromag.), Sc. 1":1 mile.

Map 93 K/3, Endako, (Topo.), Sc. 1:50,000.

REMARKS/*REMARQUES*

Comp./Rev. By *Comp./rév. par*	DMacR						
Date *Date*	05-81						

REFERENCES/*BIBLIOGRAPHIE*

Reports of Minister of Mines, British Columbia: 1927, p. 152; 1928, p. 179; 1929, p. 182; 1934, p. C 13; 1939, p. 100; 1952, p. 98; 1961, p. 19; 1962, p. 17; 1963, p. 32; 1964, p. 58; 1965, pp. 114-133, 136+; 1966, p. 117; 1967, p. 114; 1968, p. 142.

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PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
MOLYBDENUM	British Columbia	93 K/3	MO 1

NAME OF PROPERTY *NOM DE LA PROPRIÉTÉ* ENDAKO (STELLA)

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)

northeast and northeast sets that are oriented so as to form an elongated ore zone in a northwesterly direction. The orebody, including the Denak zone, is 3,360 m long by 370 m wide. The West Basalt fault offsets the western part of the ore deposit 150 m in a northerly direction. This fault spatially divides the orebody into two distinct domains. The east half of the orebody, on which the Endako open pit has been developed, dips 40 to 60 degrees south and plunges westerly from a very shallow east end to a depth of 370 m over a length of 1,830 m. The west half of the orebody, which is developed by the Denak pit, attains a maximum depth of 150 m adjacent to the West Basalt fault and becomes progressively shallower in a westerly direction to a depth of 50 m along its 1,530-m length.

The most abundant primary ore minerals in the orebody are molybdenite, pyrite and magnetite, with minor amounts of chalcopyrite and traces of bornite, bismuthinite, scheelite and specularite. All of these minerals are intimately associated with quartz veins. The major quartz-molybdenite veins, 15 cm to 1 meter wide, occur as a series of subparallel and complementary sets within the ore zone. The molybdenite typically occurs as thin closely spaced laminae, but also as scattered to concentrated finely divided grains in quartz. Quartz, molybdenite and associated ore minerals occur in randomly oriented fractures in a stockwork adjacent to and surrounding the major quartz-molybdenite veins.

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

officially opened on June 8th, 1965; Endake Mines Ltd. was at that time 76.6% owned by Canadian Exploration, Limited. In April 1966 the parent company, Placer Development, Limited, amalgamated with Bulolo Gold Dredging Limited under the name Placer Development Limited.

Mill capacity, initially at 10,000 tons per day, was gradually increased to 15,000 by May 1966, to 22,000 by 1968, to 28,000 by December 1970, and to 35,800 tons per day in 1978. Roaster facilities to convert molybdenite to molybdic oxide were expanded in 1969, in 1975, and in 1980 to an annual capacity of 23,800,000 pounds. Late in 1980 the company put into operation a plant for refining molybdenite into lubricant grade molybdenum disulphide; plant capacity is one million pounds of refined molybdenum disulphide annually.

In 1968 Endako Mines Ltd. acquired Denak Mines Ltd. (owner of 75 claims adjacent to the west - see 93 K/3, Mo 3) for consideration of $904,040; Denak Mines was wound up voluntarily in January 1976. Denak reserves were initially estimated at 5,400,000 tons averaging 0.232% MoS_2 (Endako, 1978 AR).

In February 1971 Endako Mines Ltd., then owned 82.8% by Placer, was amalgamated with Placer Development Limited under the latter name. From January 1972 the mine operated as a division of Canadian Exploration, Limited, which underwent a change of name in October 1972 to Canex Placer Limited. Canex Placer was placed in voluntary liquidation in December 1977 and from January 3, 1978 the mine operated as a division of Placer Development Limited. With the haulage route for Denak ore being through the Endako pit area it became necessary to mine the Denak ore before further expansion of the Endako pit and accordingly production was shifted from the Endako to the Denak pit in October 1978. Production during 1979 was at a reduced rate due to a 8½ month strike. Total reserves as of Dec. 31, 1980 were 254,000,000 tonnes at 0.082% Mo (Placer 1980 AR).