

CANEX PLACER LIMITED, ENDAKO MINES DIVISION

93K

802906

(Latitude 54°N., Longitude 125°E., Elevation 3,200 feet)

LOCATIONS ACCESS AND CLIMATE

The Endako molybdenum deposit is located about 100 miles west of Prince George in Central British Columbia. The mine property is six miles southwest of the village of Endako, which is on Highway 16 and a branch line of the Canadian National Railway.

The Endako area is within the Interior system of the Canadian Cordillera and, more specifically, within the physiographic subdivision referred to as the Nechako Plateau. Local terrain is flat to gently rolling. Pleistocene glaciers moved eastward across the area, and have imprinted and accentuated easterly-trending lineaments. Topographic relief ranges from an elevation of 2,200 feet at Endako village to 3,500 feet on the crest of Endako open pit.

Climate for Endako area is characterized by relatively cold winters and mild summers. Winter season commences in early November and continues to late March. Temperatures can drop to -40°F. range for short periods during winter. Average temperature for summer months is about 50°F. with periodic hot spells when temperatures rise to 95°F. Snowfall accounts for approximately one-half of annual 20-inch precipitation. Maximum depth of snow on the ground at any time is about three feet.

HISTORY AND OWNERSHIP

The molybdenite deposit was discovered in 1927 by two local hunters who staked four mineral claims to cover an area of mineralized float. They subsequently uncovered a two-foot-wide quartz molybdenite vein. During 1934, a short inclined shaft was sunk on the vein structure and a short adit was driven into the hillside to intersect another vein. The property, during the period 1934 to 1959, was examined by various companies and individuals, but little exploratory work was done and the mineral claims were allowed to lapse.

The key claims were later re-staked and, following a program of trenching and mapping, R and P Metals Corporation Ltd. initiated diamond drilling in 1962. Drilling results were encouraging and Endako Mines (N.P.L.) was incorporated, initially as a private company and shortly afterwards as a public company.

Canadian Exploration Limited, a wholly-owned subsidiary of Placer Development Limited, entered into exploration of the property in October 1962. Following the completion and evaluation of 190 diamond drill holes totalling 80,000 feet and 2,700 feet of underground work for bulk sample testing, the decision to develop the property for production was announced in March 1964.

RD  
.86734m  
1974  
MINERAL INDUSTRIES IN WESTERN CANADA  
10th Commonwealth Mining + Metallurgical Congress  
Sept. 2-8  
1974

Construction of the 10,000 tons per day mine plant and development of the open pit began in June, 1964. The mine was officially opened on June 8, 1965. Modifications to the plant during the first two years allowed mine production to be gradually increased to a throughput of 17,500 tons per day. A major mill expansion to increase milling capacity to 25,000 tons per day was completed in November, 1967.

Endako Mines Ltd. was amalgamated with Canex Placer Limited in February, 1971. Production is currently being maintained at 27,500 tons per day at an average ore grade of 0.155 MoS<sub>2</sub>. Two products, molybdenum sulphide and molybdenum oxide are produced. Ore reserves within an ultimate pit design are calculated at a cut-off grade of 0.08% MoS<sub>2</sub> and are estimated at 218,000,000 tons with an average grade of 0.15% MoS<sub>2</sub>.

## GEOLOGY

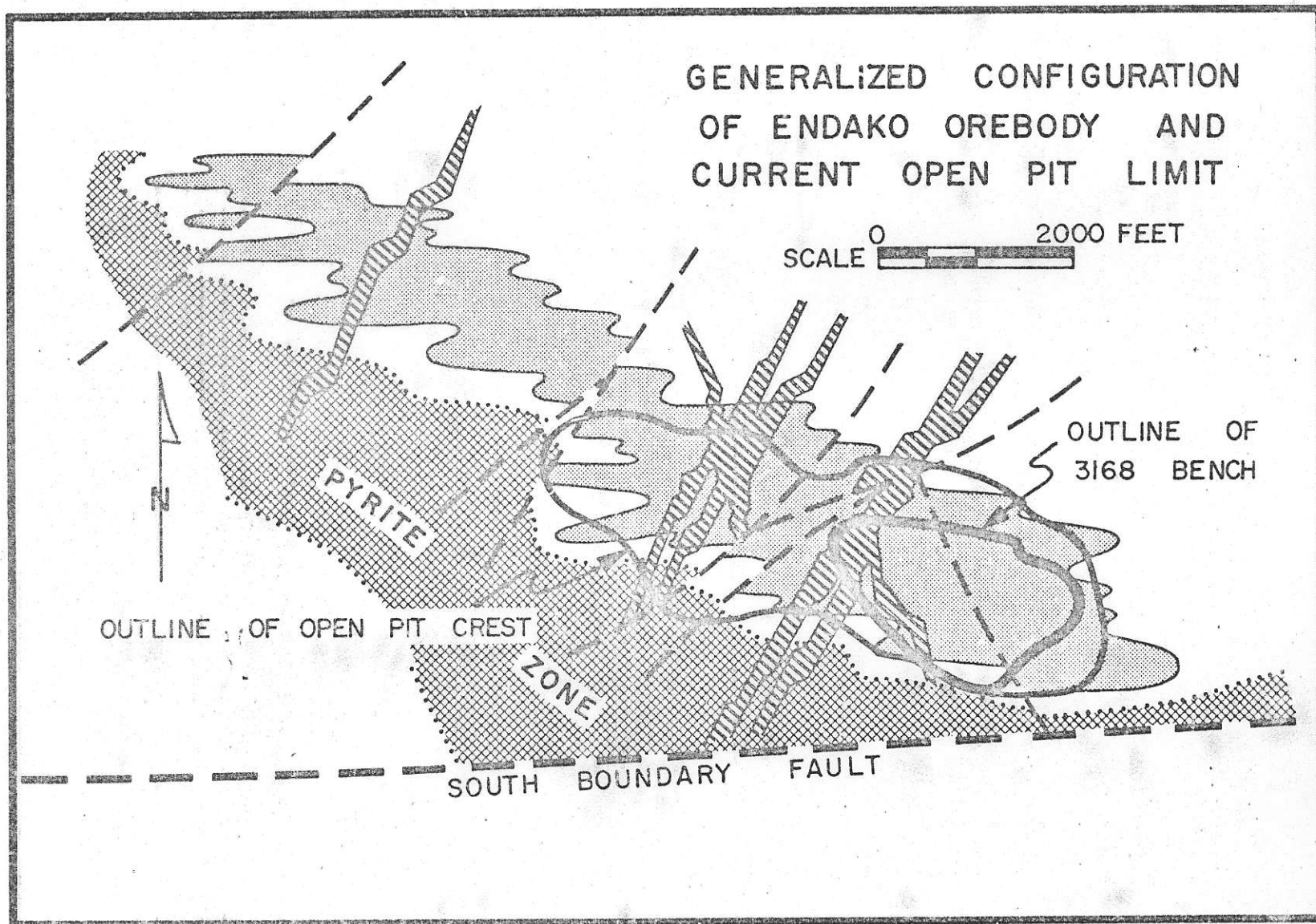
The Endako molybdenite orebody occurs in the Topley Intrusions, which are considered to be of late Jurassic age and are intruded into late Palaeozoic and early Mesozoic sediments and volcanic rocks. Regional distribution of the Topley Intrusions extends from the center of Babine Lake to Quesnel, a distance of about 180 miles along a regional north-westerly trend. It is a composite batholith in which granite, quartz monzonite, granodiorite, quartz diorite and diorite have been identified.

The Endako deposit is centrally situated within the batholith, and occurs in older Endako quartz monzonite that is bounded on the south by Francois granite and on the north by Casey alaskite and Glenannan granite.

The orebody in plan is roughly an elongated cigar-shaped zone of stockwork. The 11,000-foot-long westerly-plunging body strikes N 70 W. The westerly two-thirds of orebody length dips 30° to 60° south, whereas conjugating 50° south and 20° northwest dips prevail for easterly portion. The host Endako quartz monzonite is intruded by pre-mineral aplite, porphyritic granite and quartz-feldspar porphyry dykes that are proximal and crosscut the orebody. These dykes occur predominantly in two and possibly three concentrated swarms which are aligned to regional northwest and northeast trends. Post-mineral basalt dykes intrude several major faults. Movement along post-mineral faults, which predominantly trend northeasterly, north-westerly and easterly, is generally less than 25 feet. Larger inferred offsets up to 500 feet are apparent along several major northeasterly-striking faults. The major north-dipping South Boundary Fault is located 500 feet south of present East Pit and delimits ore deposit at depth.

Mineralization is simple and consists of molybdenite, pyrite, magnetite and minor chalcopyrite. Calcite and Chalcedony are late vein mineral. The ore minerals are intimately associated with quartz veining and occur in two types of veins: 1) as large four-inch to four-foot-wide veins in which molybdenite typically occurs as thin, closely spaced laminae, and 2) as fine fracture-fillings and veinlets in the form of stockwork. Orientation and limits of economic stockwork are controlled by major subparallel sets of south dipping and complementary flat-lying, southeasterly and north-westerly-dipping vein systems.





4

FIGURE 2



A pyrite zone bounds the orebody to the south. The zone consists of fine quartz and pyrite, minor magnetite and rare molybdenite mineralization as fracture-fillings in a poorly-developed stockwork. The zone has not been recognized in other peripheral areas of the orebody.

Three distinct hydrothermal alteration products are recognized in the Endako ore zone. Orange-pink K-feldspar has been developed as 1/8-inch envelopes to two-foot wide zones on veins and fractures. A quartz-sericite pyrite phase is also developed as 1/8-inch to two-inch wide envelopes on veins. Pervasive kaolinization of the Endako quartz monzonite is widespread, and varies from a slight development of kaolinite in plagioclase in otherwise unaltered rock to complete alteration of both plagioclase and K-feldspar to a soft creamy white or green clay.

A concept of elongated doming near or at an intersection of regional northwest and easterly structures is proposed for possible development of restricted Endako stockwork. Longitudinal major faulting, with attendant antithetic faulting and repetitive periods of concomitant fracturing across domal structure, is visualized for localization of a favourable fracture system for hydrothermal alteration and economic mineralization.

#### PROPERTY OPERATION

The surface layout of the Endako mine is shown in Figure 3, "General Plan of Endako Mine Area". The mine operates with six departments under the Administration of a resident Mine Manager and an Assistant Mine Manager. As of December 31, 1973, the total operating crew strength was distributed as follows:

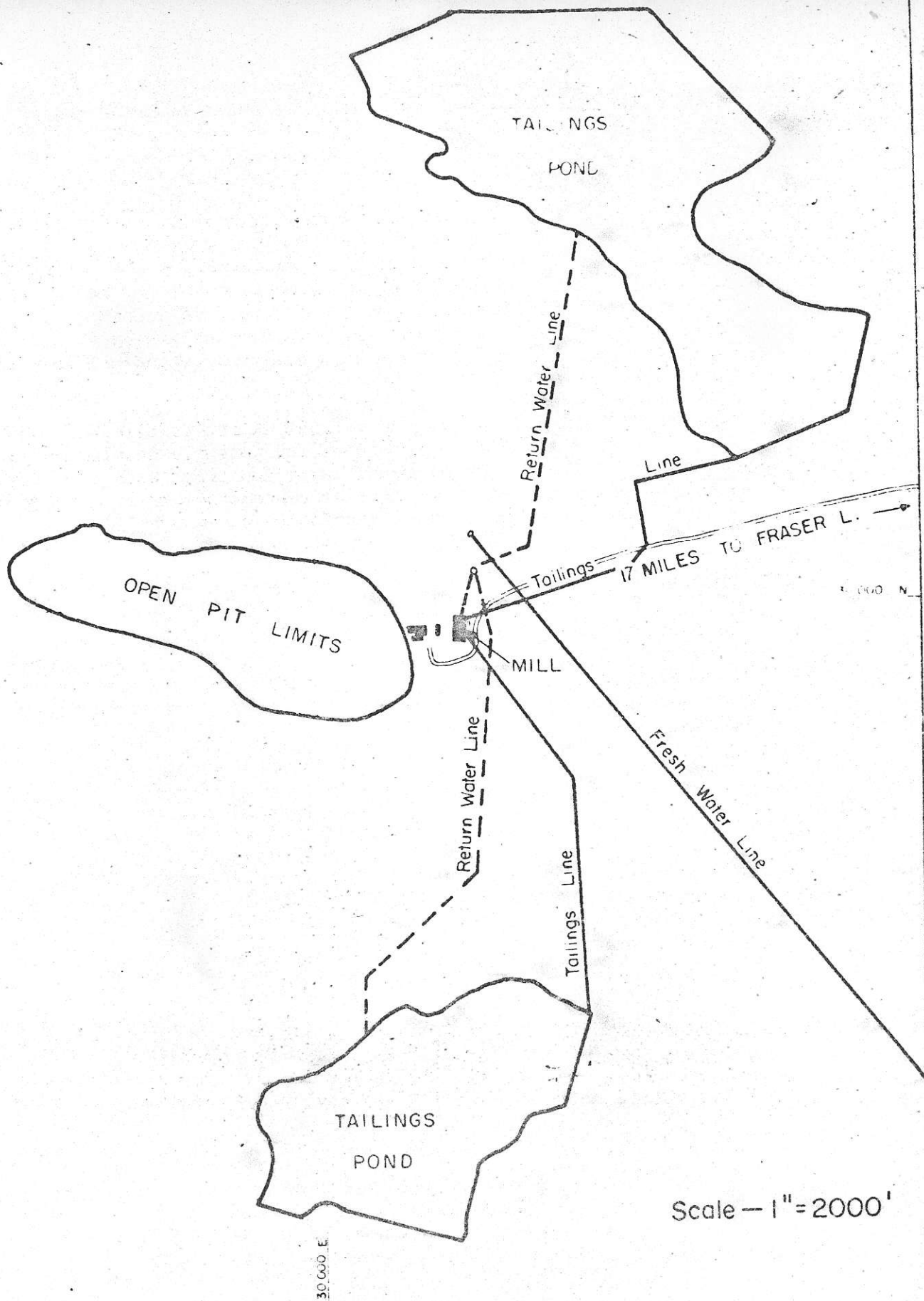
	<u>Hourly Rated</u>	<u>Staff</u>	<u>Total</u>
Administration	-	3	3
Employee Relations	7	10	17
Accounting	11	19	30
Mine Engineering	2	21	23
Mining	84	13	97
Mineral Processing	84	27	111
Plant Maintenance	<u>145</u>	<u>27</u>	<u>172</u>
TOTALS	<u>333</u>	<u>120</u>	<u>453</u>

#### MINE ENGINEERING FUNCTION

Pit planning, geology and exploration are the responsibility of the Mine Engineering Department, under the direction of the Chief Engineer.

#### PIT PLANNING

Long range planning uses the facilities of a Univac Data Communications Terminal (DCT) - 2000 which accesses a Univac 1108 computer in Calgary. Computer programs are available which determine a series of optimum pits. A cash flow analysis then indicates the combination of these pits which would give the best financial return.



Scale — 1" = 2000'

FIGURE 3 GENERAL PLAN OF ENDAKO MINE AREA