

NAME OF PROPERTY **KRAIN (KEYSTONE)**

OBJECT LOCATED - mineralized zone.

UNCERTAINTY IN METRES 300. Lat. 50°34'15" Long. 120°59'45"

Mining Division Kamloops District

County Township or Parish

Lot Concession or Range

Sec Tp. R.

OWNER OR OPERATOR AND ADDRESS

DESCRIPTION OF DEPOSIT

Mineralization at Krain occurs within quartz diorites of the Highland Valley phase (Guichon variety) of the Guichon Creek batholith. The deposit is reported to be of Upper Triassic age.

The mineralized porphyry system occurs within a broad north-westerly trending zone that is characterized by numerous sub-parallel northwest-trending porphyry dykes, as well as by prominent fracture-related, but non-pervasive, chlorite-epidote-chalcopyrite - pyrite ± bornite hydrothermal vein and fracture selvage assemblages.

The property lies on the southern boundary of an extensive area of post-mineral cover consisting of continental volcanic and interbedded sedimentary rocks of the Early Tertiary Kamloops Group. These rocks cover the northern half of the mineralized zone and have protected an older oxidized cap as much as 100 m thick. Hypogene sulphides within this cap have been totally destroyed. In contrast, sulphides occur at surface within the southern part of the deposit, where Pleistocene glaciation has removed most of the oxidized zone.

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Associated minerals or products of value

HISTORY OF EXPLORATION AND DEVELOPMENT

The mineralized zone is located at approximately 5,650 feet elevation on the east side of Forge Mountain some 30 miles west-southwest of Kamloops.

The showing was originally staked in about 1907 by Messrs. Novak, Johnson, Fraser, and Cowans as the Keystone group of 6 claims and fractions. Exploration work was done in two adits at the same elevation and about 140 feet apart; one was driven 28 feet, the other 25 feet.

In 1955 Farwest Tungsten Copper Mines Limited and Beaver Lodge Uranium Mines Limited jointly staked and optioned 21 claims and fractions in the Krain, D.W., and R.K. groups. Under the terms of the agreement a new company, Krain Copper Ltd., was incorporated in November 1956. Exploration work was concentrated on the Krain Copper claims, which were a relocation of the Keystone group. Exploration work during 1955-56 included trenching, geochemical soil sampling, a magnetometer survey, and 7,178 feet of diamond drilling.

Kennco Explorations (Canada) Limited, through its subsidiary Northwestern Explorations, Limited, optioned the property in 1957. Work, mainly on the R.K. group, included trenching, geochemical and geophysical surveys, and 633 feet of diamond drilling in one hole. The option was dropped late in 1958. In 1960 Rio Tinto Canadian Exploration Limited obtained an option and carried out a geophysical survey and 530 feet of diamond drilling in one hole.

North Pacific Mines Ltd. optioned the property from Krain Copper Ltd. in 1965. Work included 8 diamond drill holes totalling 7,707 feet and 17 percussion holes totalling 2,645 feet. Canex Aerial Exploration Ltd. held a sub-option until July 1966 and completed 3,380 feet of diamond drilling in 16 holes. Krain Copper Ltd. changed its name in 1966 to Krain Copper Resources Ltd. and in May 1966 amalgamated with Comet Mining Corporation Ltd. to form Comet-Krain Mining Corp. North Pacific Mines Ltd. purchased an approximate 50% interest in the company in 1967. An option was granted to the "Shulman Syndicate" which carried out 4,739 feet of diamond drilling in 4 holes to test for mineralization under the volcanic cap at the northerly end of the deposit. Work during 1969 was carried out under an agreement with Brameda Resources Limited and Noranda Exploration Company, Limited, and included geochemical and geophysical surveys, and 3,160

see Card 2

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

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HISTORY OF PRODUCTION

REFERENCES

+Christie, James S.; Krain; Porphyry Deposits of the Canadian Cordillera, The Canadian Institute of Mining and Metallurgy, Special Vol. 15, pp. 182-185, 1976.

Reports of Minister of Mines, British Columbia: 1907, p. 136; 1917, p. 225; 1925, p. 179; 1955, p. 37; 1956, p. 43; 1957, p. 24; 1958, p. 28; 1960, p. 25; 1965, p. 145; 1966, p. 151; 1967, p. 149.

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1969, p. 259; 1971, p. 359; 1972, p. 224; 1973, p. 205; 1975, p. E 90; 1976, p. E 102.

Mineral Policy Sector; Corporation Files: "Krain Copper Resources Ltd."; "Comet-Krain Mining Corp."; "North Pacific Mines Ltd."; "Getty Mining Pacific, Limited"; "New Minex Resources Ltd."; "TRV Minerals Corporation".

Exploration in British Columbia; British Columbia Dept. of Mines: 1979, p. 178; 1982, p. 208; 1984, p. 215.

MAP REFERENCES

#Geology of the Krain Area, Sc. 1":1,600 ft., Fig. 1, accomp. report by Christie, 1976.

Preliminary Map, Highland Valley, (Geol.), Sc. 1":1,000 feet - British Columbia Dept. of Mines (1966).

Map 1010 A, Ashcroft, (Geol.), Sc. 1":4 miles - accomp. Memoir 262, Geol. Surv. of Canada.

Map 886 A, Nicola, (Geol.), Sc. 1":4 miles - accomp. Memoir 249.

Map 5217 G, Cherry Creek, (Aeromag.), Sc. 1":1 mile.

*Map 92 I/10 W, Cherry Creek, (Topo.), Sc. 1:50,000.

Map 92 I/11 E, Ashcroft, (Topo.), Sc. 1:50,000.

REMARKS

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| Comp./Rev. By | DMacR | DMacR | DMacR | | | | |
| Date | 6-78 | 05-86 | 04-87 | | | | |

PRODUCT

COPPER

PROVINCE OR
TERRITORY

British Columbia

N.T.S. AREA 92 I/10, 11

Card 2 -
REF. CU 1

NAME OF PROPERTY

KRAIN (KEYSTONE)

DESCRIPTION OF DEPOSIT (continued)

Unlike most copper deposits within the Guichon Creek batholith, Krain displays a strong genetic relationship with a small stock which, in this instance, intrudes Guichon Quartz Diorite. Texturally, the stock resembles the Bethlehem phase of the batholith, and a cupola-like part of it forms a core about which are developed strong zonal patterns of fracture intensity, sulphide and hydrothermal silicate mineralogy, and copper grade.

Mineralization and alteration are closely associated with the elongate 1000- by 200-m dyke-like stock, which is unroofed within a small area at the center of the deposit. The unroofed portion appears to be an abrupt cupola-like projection which developed above the stock. Fracturing, brecciation, alteration and mineralization are all most strongly developed in and around the central cupola-like core, and along the upper surface of the stock.

Well-defined zonal patterns of primary sulphide mineralization and silicate alteration have been recognized around the core area. Within the core and near the contacts of the stock, chalcopyrite-bornite assemblages are found associated with molybdenite-bearing quartz veinlets. Peripheral to this mineralization, chalcopyrite-pyrite assemblages occur in fracture stockwork fillings in which pyrite becomes more abundant outward, both within the wall rocks and the stock. Maximum total sulphide content is about 5 per cent and this occurs in a zone approximately coincident with the outer limit of 0.1 per cent copper grades.

In the oxidized cap in the northern half of the mineralized zone over-all average oxide copper grade is about 20 per cent higher than the over-all average hypogene copper grade, suggesting that copper enrichment has occurred within the cap. Malachite is the most abundant copper mineral, but chrysocolla and a black waxy copper oxide of dendritic habit (neotocite? copper-manganese?) are common. These minerals form very prominent fracture coatings, some of which are botryoidal, and also fill cavities previously occupied by sulphides. Minor cuprite and disseminated native copper are found most commonly in the outer parts of the deposit.

continued reverse Card 2

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)

feet of percussion drilling in 7 holes. Work during 1970 included percussion drilling (3,785 feet in 24 holes) in the known oxide zone to obtain samples for leaching tests. A feasibility study was also carried out. The company name, Comet-Krain, was changed in 1971 to Comet Industries Ltd. Getty Mining Pacific, Limited, a subsidiary of Getty Oil Company, Los Angeles, optioned the property in 1971. Work by Getty during the period 1971-1972 inclusive included induced potential surveys over 17 line-miles, resistivity surveys over 6 line-miles and a geochemical survey (100 samples) over the Krain claims. Diamond drilling totalled 4,562 feet in 5 holes in 1971-72, and a further 2,693 feet in 1973. Percussion drilling totalled 7,030 feet in 23 holes. The Getty option agreement terminated in January 1974.

In 1972, tonnage and grade estimates were made at Krain, including all areas of mineralization that could be recovered from a single open pit 250 m deep, using a 0.3 per cent copper cutoff grade. The calculations indicated a total reserve of 14 million tonnes grading 0.56 per cent copper and 0.01 per cent molybdenum. Of this total, about 9.1 million tonnes averaging 0.53 per cent copper contain primary sulphides, and 4.9 million tonnes grading approximately 0.64 per cent copper contain secondary copper carbonates and oxidation products. (Christie, J.S. (1976), in CIM Special Vol. 15).

The ground was apparently restaked in about 1974 as the Getty 1-24 and Getty A Fr., the deposit being on the Getty 1-4 and Getty A Fr. The property was reportedly owned in 1975 by John Lepinski. Percussion drilling in 3 holes totalling 171 metres was carried out on Getty 17 and 19, about 1 km south of the mineralized zone. In 1976 the property was reportedly owned by Robak Industries Ltd. Work carried out by W.R. Financial Consultants Ltd. included 540 metres of percussion drilling in 7 holes.

TRV Minerals Corporation optioned the property from Robak Industries in May 1980. Work in the period 1978-82 by TRV, or its associates W.R. Financial Consultants and New Minex Resources, included 302 m of diamond drilling in one hole and a magnetometer survey over 90 km on the Krain and adjacent Trojan properties.

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DESCRIPTION OF DEPOSIT (continued)

Chalcocite occurs in minor amounts as thin coatings on corroded grains of sulphide within a narrow zone, extending through the lower meter of oxidized rock to the upper few meters of the primary sulphide zone.

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)

Robak in 1984 carried out a geochemical survey comprising 119 soil, 6 rock and 3 silt samples over the Krain property and the Transvaal property adjacent to the west. Drill indicated reserves of 32 000 000 tonnes at 0.37% Cu are reported in a zone 400 m long by 45 m wide and 450 m deep (Exploration in British Columbia, BCDM: 1984, p. 215).