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COPPERADO (TURLIGHT)

92I/SE - 55, 123, 124, 125

92I/2E

- 12 -

APPENDIX 1

REPORT
ON THE

COPPERADO PROPERTY
NICOLA, M.D.

FOR

DANSTAR MINES LTD.

BY

M. K. LORIMER

17 JANUARY, 1974

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January 17, 1974

The President and Directors
Danstar Mines Ltd.
Vancouver, B. C.

Dear Sirs:

The following report is based on two visits to the described property and on a study of the reports listed in the bibliography.

SUMMARY:

The Copperado property consists of one Crown-granted Mineral claim and 40 located claims situated about 14 miles northeast of Merritt and accessible by road.

Since the first work was done in 1929, much exploration and some development work have been done. Several extensive areas of copper and molybdenum mineralization have been found. The grades were formerly regarded as low but with recent changes in metal prices and technology these same grades have become marginal.

The most promising areas appear to be on the contacts of a central mass of granodiorite. In particular, the western contact, which is largely obscured by overburden, seems to warrant an exploration programme.

A phased programme of induced polarization surveys and drilling is recommended at an estimated cost of \$48,800.

LOCATION:

The Copperado property is about 14 miles by road northeast of Merritt. From the Merritt-Kamloops highway at Nicola, good gravel and dirt roads give ready access to the claims.

The geographic location is 50°12'N, 120°36'W, the National Topographic System area is 92 I 2 E, the Mining Division is Nicola and elevations range from about 3800 feet to over 4900 feet above sea level.

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TITLE:

The property consists of one Crown-granted and 40 located mineral claims, all contiguous. The following information concerning these claims was obtained from the Merritt and Vancouver Mining Recorders' offices on 8 January, 1974:

<u>CLAIM</u>	<u>NUMBER</u>	<u>EXPIRY DATE</u>	<u>OWNER</u>
Turlight	L4841	--	Toluma Mining & Development Co. Ltd.
MAR 1-20	58098-117	29 Jan. 74	Copperstar Mine Ltd.
A 1-12	58417-28	16 Apr. 74	Copperstar Mine Ltd.
TM 1	15281	4 Oct. 81	National Trust Co. Ltd.
TM2,4,6,8	58094-7	29 Jan. 74	Copperstar Mine Ltd.
J22	9187	25 Aug. 78	National Trust Co. Ltd.
J23-24	9188-9	25 Aug. 77	National Trust Co. Ltd.

TOPOGRAPHY:

The claims are on the southwest slopes of Mount Pleasant, east of Clapperton Creek and north of Nicola Lake. The ground has an average slope of less than 10 degrees but locally there are benches and steeper slopes. The northeastern claims are rocky and rough in parts.

Most of the area is covered with overburden that varies from shallow to deep. The forest cover is generally light although there are thickets of small trees, mostly lodgepole pines and firs. Parts have been logged.

Several small streams cross the property and there are a few ponds. In the summer and fall most of these are dry and water supply, even for exploration, can be a problem.

CLIMATE:

The climate is dry with long pleasant summers. Although there may be short periods of severe cold in the winter, the average temperature is moderate and the snowfall is comparatively light. Most exploration and mining operations can be carried on throughout the year.

HISTORY:

The property was located about 50 years ago, being centred on a high-grade copper showing in a strong shear zone. About 1929, a shallow shaft was sunk on this showing.

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After a long period of inactivity the property was acquired by Guichon Mine Limited in 1947. About this time the Anaconda Copper Mining Company took an option on the property, did some drilling in the vicinity of the shaft and then withdrew. By 1951 the shaft had been deepened to 450 feet, several levels had been established and about 200 tons of ore averaging 5 per cent copper had been mined and shipped to Tacoma.

Western Copperado Mining Corporation acquired control in 1956. There followed a period of extensive exploration both underground and on the surface. In the mine more development was done and several holes drilled. On the surface pits and trenches were excavated near the shaft and at a showing about a mile northwest of the shaft. A short adit was also driven at the latter location, and several shallow holes drilled. An electromagnetic survey in 1957 covered most of the property. Several of the conductors located by this survey were checked by diamond drilling.

Toluma Mining and Development Co. Ltd. optioned the property about 1960. Extensive surface exploration was carried out by this company over the next few years. Although more work was done at the northwest showings, emphasis was placed on the southeast area. Spontaneous polarization surveys were conducted over both areas, copper geochemical surveys covered the southern two-thirds of the property, and induced polarization and molybdenum geochemical surveys were made of the southeastern part. Several located anomalies were checked by stripping and/or diamond drilling.

In 1965, Rio Tinto Canadian Exploration Limited did a magnetometer survey of the western and southern parts of the property in an effort to locate geologic contacts, magnetic mineralization and shear zones.

An aeromagnetic survey covering the area was done in 1966-68 by the Provincial and Federal Governments as part of a regional survey.

In the fall of 1973, the Turlight shaft was pumped out to permit a re-examination of the underground workings. They were surveyed by chain and compass, geologically mapped and sampled.

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GEOLOGY:

The regional geology has been described by W. E. Cockfield of the Geological Survey of Canada in Memoir 249 and drawn on Map 886A. These sources show the property to be located near the southwestern extremity of the Central Nicola Batholith, a north-south intrusive body about 25 miles long and averaging about 5 miles wide. The claims cover a contact with the older Nicola Group of volcanic and sedimentary rocks on the west, and older granite intrusions on the south and east.

The central part of the property is underlain by granodiorite with Nicola volcanics to the west and south, and granite to the east. Map 3. The granite contact has been accurately located from outcrops and surface operations but the volcanic contact on the west is obscured by overburden and has only been definitely located at the northwest showing. There it has a flat dip of about 25 degrees to the west.

The granodiorite is foliated in a north-south direction with a steep westerly dip. Towards the volcanic contact the granodiorite becomes darker than elsewhere and is gneissic in texture. This alteration is also common in the Turlight workings.

Throughout the granodiorite there are north-to northwest-trending shear zones many of which contain quartz veins and lenses. They range from less than an inch to about 9 feet wide and the maximum observed length is 130 feet. The strikes are fairly constant but the dips vary in both direction and degree. Some pinch out at the ends; others are terminated by faults.

Within the quartz veins bornite is the most common copper mineral in the shaft area. In other areas chalcopyrite predominates. Chalcocite, malachite and native copper also occur in the veins or adjacent sheared rocks. Coarse-grained molybdenite is found in shears in the gneissic rocks.

Locally, particularly in the Turlight mine, good grades of copper over mineable widths occur. For example, in the mine two small blocks of ore total 2300 tons grading 2.7 percent copper over a width of 5.7 feet. It is reported that former owners shipped about 200 tons of ore assaying 4.7 percent copper and 1.5 ounces of silver per ton.

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DISCUSSION:

The physical work done so far has mainly been concentrated in three areas: the Turlight shaft, the northwest and the southeast. Map 3.

The Turlight shaft and its levels have opened up several veins with high-grade but small shoots of copper mineralization. Although they are too limited for profitable extraction they may be indicative of important deposits elsewhere on the property.

The northwestern and southeastern showings are both near contacts and it is probable that these contact areas are the most favourable for large deposits. The limited work done to date has shown that these areas are extensive and, although low in grade, changes in metal prices and technology are fast making them more attractive. Several of these contact areas seem to merit more work.

One of these is the western contact between the granodiorite and the Nicola volcanics. Little is known of this contact since most of it is covered by overburden that is known to be at least 50 feet deep in two places. It is exposed at the northwestern showings and has been found in two diamond drill holes there. It has a dip of about 25 degrees to the west. This flat dip makes it difficult to determine its location by magnetometer and the deep overburden makes geochemistry unreliable. Other investigators have assumed a straight southerly strike to this contact but there is evidence to suggest that it is, at least in part, farther east than previously assumed.

This evidence is derived from three sources. Firstly, dark, gneissic granodiorite occurs in the Turlight underground workings. This rock type has been recognized elsewhere as a contact marker. Secondly, the aeromagnetic map shows that the 2400-gamma contour line has a pronounced curve to the east: Farther north this contour line is well to the west in the volcanic areas. Map 3. Thirdly, the ground magnetometer survey done by Rio Tinto in 1965 shows a magnetic "low" in the same area.

Two diamond drill holes about 1500 feet west of the shaft are apparently in granodiorite. It may therefore be hypothesized that there is a tongue of Nicola volcanics extending east into the area north or northwest of the mine and that the high-grade mineralization in the mine is in some way related to the nearby contact. In any event this area appears to warrant investigation.

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The southern showings are in a large geochemical copper anomaly about 2500 feet long. Trenching and limited drilling have found copper and molybdenum mineralization over an area about 200 feet square with one section 200 feet long and 24 feet wide averaging about 0.20% copper, 0.07% molybdenite and 0.50 ounce silver per ton. About 500 feet south, apparently in the same zone, a vertical 201-foot hole, TM 16, penetrated copper mineralization to its full depth and molybdenum for at least 145 feet. The average grades were 0.21% copper and 0.04% molybdenite. A steady increase in copper values and a decrease in molybdenum values over approximately 50-foot ranges were noted, as shown in the table below:

From	To	% Cu	% MoS ₂
0	49.5	0.06	0.08
49.5	98	0.18	0.01
98	150	0.25	0.01
150	201	0.32	No assays

This area was covered by spontaneous polarization and induced polarization surveys yet neither indicated the presence of metallic minerals where they have been found, although the I.P. Survey did indicate a "possible" anomaly close by. This situation is undoubtedly due to the low sulphide content of the mineralized areas and to the fact that induced polarization was in its infancy at the time of the survey. Several other "possible" anomalies were found in areas not yet tested. These could indicate deposits of higher grade than those that have been drilled. Four of them, on lines 22, 25, 35 and 40 and west of base line E, coincide with geochemical copper anomalies. Map 3.

The magnetic anomaly at the extreme south end was investigated by Rio Tinto and found to be due to finely disseminated magnetite in andesite. Copper values were low.

CONCLUSIONS:

The work done on this property has delineated several areas that merit more exploration work.

Efforts should be directed towards finding a large low-grade deposit rather than developing the high-grade, but apparently limited, deposit at the Turlight shaft.

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Initial efforts should be concentrated on the volcanic contact to the west and northwest of the shaft where conditions appear to favour metallic deposits and where the grade might very well be higher than elsewhere on the property because of proximity to the shaft.

Consideration should be given to step-out and deeper drilling in the vicinity of hole TM 16. Much of this drilling could be done by percussion drill.

RECOMMENDATIONS:

In accordance with the foregoing discussion and conclusions it is recommended that a phased exploration programme be carried out as follows:

- Phase I:
- 1) Re-cut and re-stake the existing grid lines between the shaft and the northwest showings (line 78N) and extending westward to the property boundary.
 - 2) Carry out an induced polarization survey over this area, approximately eight line-miles. Some flexibility should be allowed for since the advisability of doing more or less work might become apparent during the progress of the survey.

- Phase II:
- 1) Diamond drill any anomalies found in Phase I, or
 - 2) If no anomalies are found, proceed with step-out drilling in the vicinity of hole TM 16.

Phase III: If success has been achieved to this stage proceed with drilling to prove up tonnage as indicated by the results of the previous phases. Consideration should be given to doing all or part of the drilling by percussion methods.

COSTS:

The estimated costs of the first two phases are as follows. The costs of the third phase cannot be estimated at present.

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Phase I:

1) Restore old grid	\$ 1000
2) I. P. Survey	6000
3) Engineering & Super- vision	1000
4) Misc. & Contingencies @ 10%	800
Total Phase I	<u>\$8800</u>

Phase II:

Allowance for 2000 feet of diamond drilling @ \$20.00 per foot including all cost	<u>40,000</u>
Total both phases	\$48,800

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M. K. Lorimer, P.Eng.

MKL/cal

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CERTIFICATE OF QUALIFICATIONS

I, MALCOLM KEITH LORIMER, of the City of Vancouver, Province of British Columbia, Mining Engineer, hereby certify:

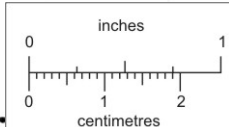
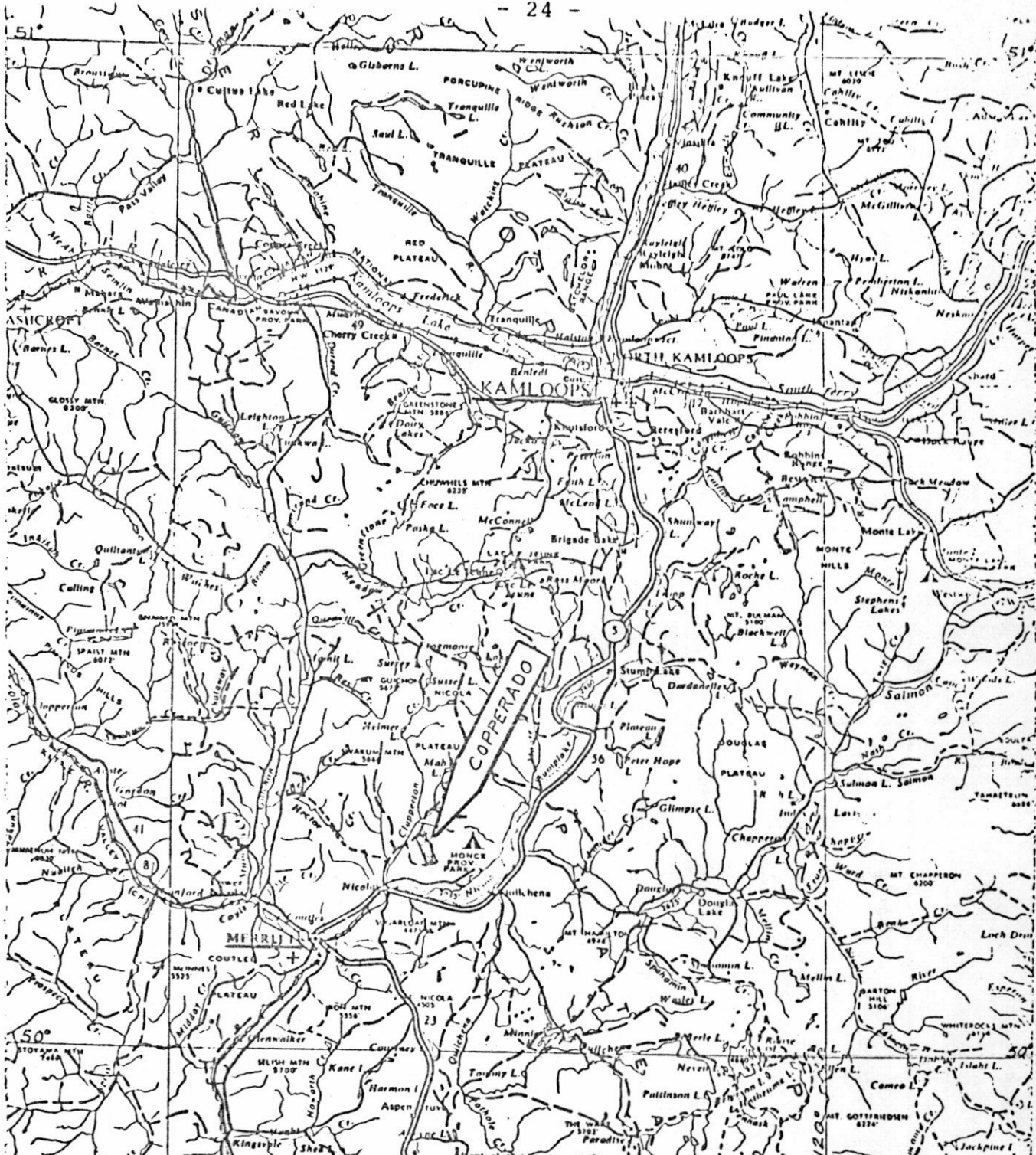
1. THAT I am a practicing Mining Engineer and reside at 3022 West 27th Avenue, Vancouver, B.C.
2. THAT I am a graduate in Mining Engineering of the University of British Columbia, Bachelor of Applied Science, 1950 and have been practicing my profession for over twenty-two years.
3. THAT I am a member of the Association of Professional Engineers of the Province of British Columbia.
4. THAT I am a member of the Canadian Institute of Mining and Metallurgy.
5. THAT I am an associate of the firm of L. J. Manning & Associates Ltd., Consulting Mining Engineers, of 510 - 890 West Pender Street, Vancouver 1, B.C.
6. THAT the following is a true record of my employment and experience:

1950 - 52	General engineering, Consolidated Mining and Smelting Company of Canada Limited, Kimberley, B.C.
1952 - 56	Chief Engineer, Pioneer Gold Mine of B.C. Ltd., Pioneer Mines, B.C.
1956 - 57	Chief Engineer, Buchans Mining Co. Ltd. - Buchans, Nfld.
1957 - 59	Chief Engineer and Mine Superintendent, Cowichan Copper Co. Ltd., Cowichan Lake, B.C.
1959 - 65	General Exploration work for various companies mostly in southern British Columbia.
1965 - Present	Associate, L. J. Manning & Associates Ltd., Vancouver.
7. THAT I have no direct or indirect interest in the properties or securities of Danstar Mines Ltd. or any of its affiliates nor do I expect to acquire any.

DATED at Vancouver, British Columbia, the 17th day of January, 1974



M. K. Lorimer, B.A. Sc., P. Eng.



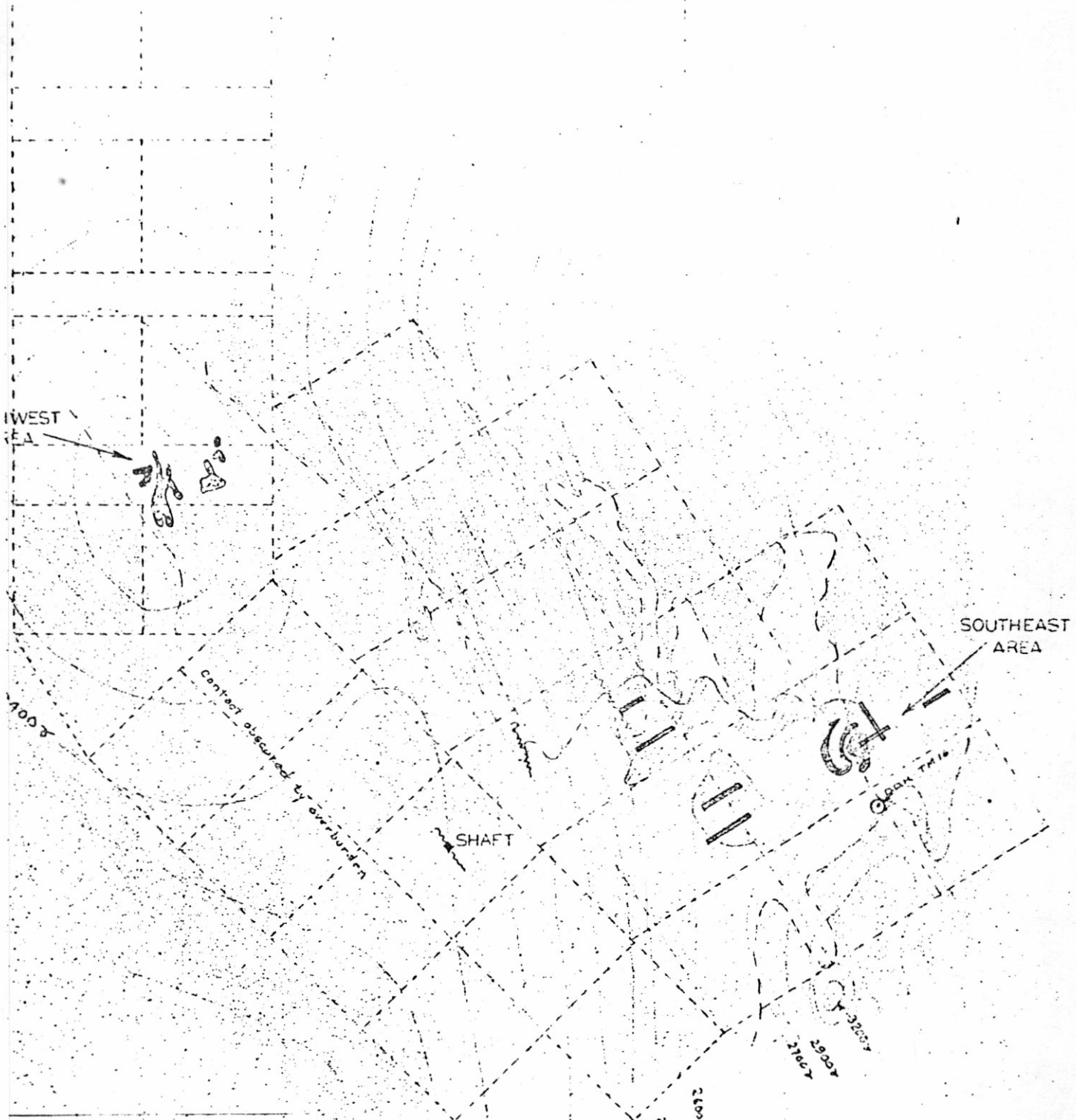
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 VANCOUVER BRITISH COLUMBIA
STAR MINES LTD
 COPPERADO PROPERTY
LOCATION MAP

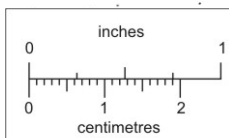
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 TRACED BY M.K. Lorimer

SCALE 1" = 10 Mi.
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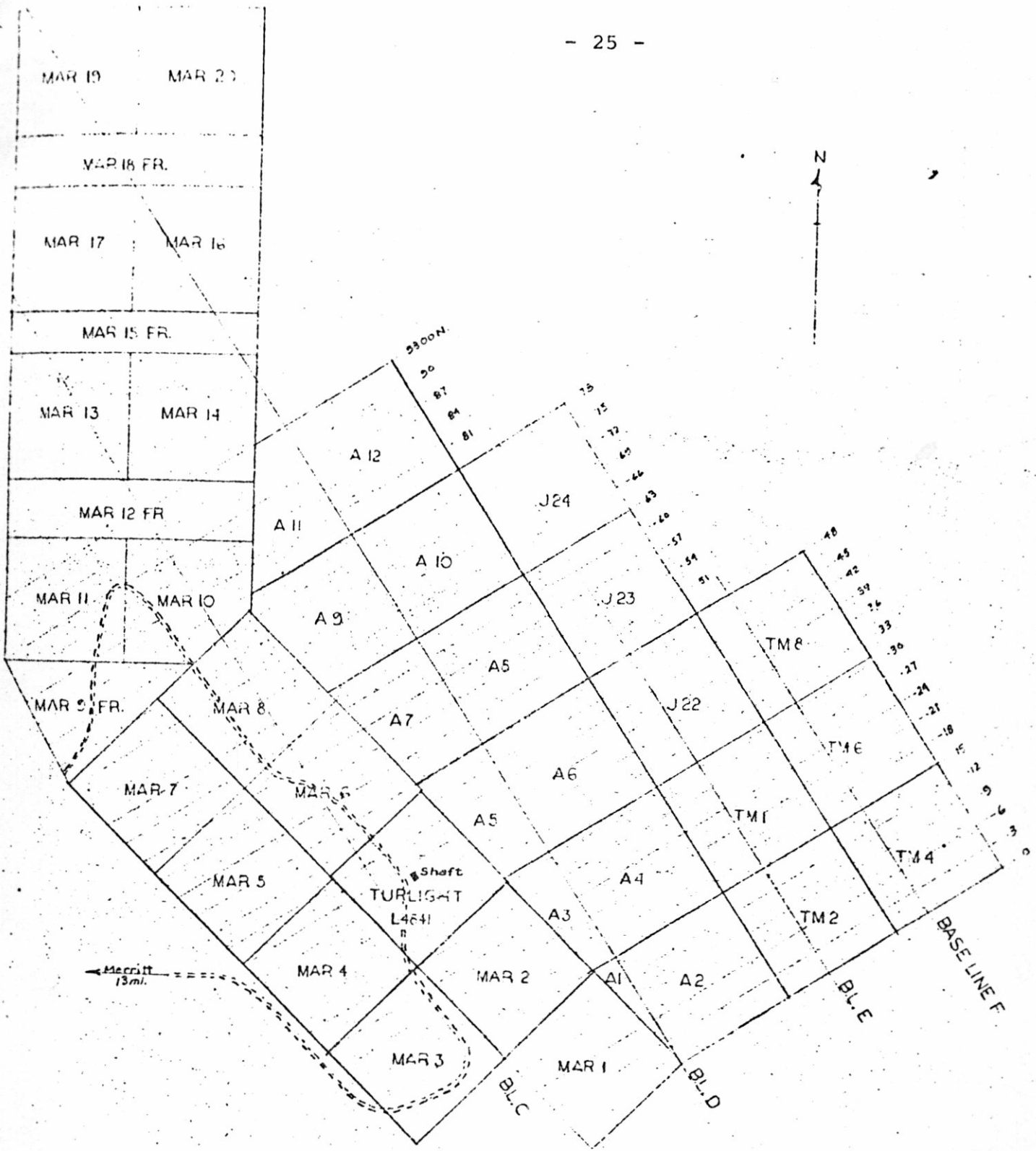
LEGEND

- - - Apron claim boundary
- - - Geologic contact
- - - Fault, shear zone
- - - Granodiorite
- - - Granite
- - - Nicola volcanics
- 2400 - Aeromagnetic contour
- Strong magnetic copper anomaly

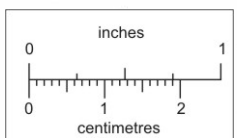


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MAP 3



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MAP 2

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CORPORATE PROPERTY

EXPLORATION