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COMPOSITE REPORT  
GEOLOGICAL, GEOCHEMICAL AND PHOTOGEOLOGICAL

SNOW PEAK PROPERTY  
Mack 1-28 Mineral Claims  
LIARD MINING DIVISION  
DEASE LAKE, B.C.

SF23

Latitude 58° 30' North; Longitude 130° 30' W.

N.T.S. 104 J/8

TOURNIGAN MINING EXPLORATIONS LIMITED

703-535 Thurlow St.,  
Vancouver 5, B.C.

Report by:  
J.F. ARIZ  
April 1972

## INTRODUCTION

This report is written for the purpose of summarizing and correlating preliminary geological and photogeologic reports and studies done by the writer and a geochemical survey report by Mr. D.R. Cochrane on the property. The following illustrations are part of this report:

<u>Figure No.</u>	<u>Title</u>	<u>Scale</u>
1	Photogeologic Lineaments	1 inch to 1/2 Mile
2	Compilation Map	1 inch to 1,000 Ft.
3	Idealized Vertical Section A-B	1 inch to 1,000 Ft.

## CONCLUSIONS

1. There are two Cu-Mo geochemical anomalies on the property. Anomaly-1, covering partly the main showing along the cirque wall, has excellent coincidence of the Cu and Mo both in extent and along trend. This anomaly is about 500 feet by 2,500 feet in plan. Anomaly-2, located about 1/2 mile south-east of Anomaly-1 at the southeast quadrant of the grid area, is open and undefined to the east and south.
2. Of the three small tungsten geochemical anomalies outlined two are in the general area of the undefined Anomaly-2 where no direct coincidence is presently suggested. The third anomaly, open to the north, is found 800 feet north of the northeast end of Anomaly-1, and is isolated from all the other anomalies.
3. Photogeologic study of lineaments on the property have outlined two areas showing radial-concentric patterns, and one area with a radial pattern. The first radial-concentric pattern is observed in the general vicinity of Anomaly-2 with a point of intersection at the west side of the anomaly.
4. Observation on the main showing suggests that molybdenite and chalcopyrite mineralization occurs as fillings along fractures in a coarse-grained biotite granodiorite, with

or without pyrite or in quartz veinlets. Moderate silicification and pyritization mostly related to the fracture system is the dominant form of the rock alteration observed. However, faint K-feldspar alteration is seen developed along some of the fractures that appear to intensify at lower elevations in the lower sections of the cirque rim showings.

5. A hypothetical vertical section across the surface trend of Anomaly-1 thru anomaly 2 summarizes the ideas of the writer regarding possible subsurface geology using presently available information, which is reconnaissance in nature. The section infers the presence of a small quartz monzonite(?) stock intruding the larger granodiorite stock in the area, in the vicinity of the lake, and the main showing. The mineralized zone may be related to the eastern side of this small stock. The section suggests a mineralized zone dipping to the south-east. The inferred three-dimensional configuration of the mineralized zone would then be a roughly lenticular mass lesser than 600 feet thick and over 2,000 feet wide with undetermined length along dip resting on the south-east side of the inferred stock.
6. Anomaly-2 is undefined both geologically and geochemically.
7. It is my opinion that present data on the property warrants an initial program of subsurface exploration work to test Anomaly-1, and also to conduct follow-up surface work to delimit geochemical Anomaly-2, and to prospect the second area showing radial-concentric lineaments on the property.

#### GENERAL GEOLOGY

Molybdenum-copper mineralization on the property occurs in a granodiorite stock approximately 2 miles wide by 3 miles long, that intrudes mostly lower Jurassic metasediments, and partly upper Jurassic metasediments at its north side. Both metasedimentary rock units are part of a metamorphic band about 4 miles wide by 12 miles long developed along a fault contact zone between the greater and generally unmetamorphosed

equivalents of the rock units. The fault is known as the "King Salmon", and in the general Snow Peak area the lower Jurassic rocks on its south side appear to have been thrust (?) upwards. The sedimentary rocks both belong to the "Laberge Rock Assemblage". These are dominantly clastic rocks deposited along a north-west trending narrow trough satillitic to the northern tip of the successor basin of North-Central B.C., and generally bordering the southwestern side of the Atlin Horst.

### LOCAL GEOLOGY AND MINERALIZATION

The most common igneous rock in the mineralized area has been megascopically identified as coarse-grained biotite granodiorite containing light grey euhedral grains of orthoclase and plagioclase with biotite plates and minor subhedral hornblende. Quartz is generally anhedral and occurs interstitially between the other rock components. Some tiny grains of magnetite and disseminates of pyrite are formed locally in the rock at the rim of the mafic components.

The main showing on the property is along the east wall of the cirque adjacent to the small lake east of Snow Peak (Figure-1), where mineralization is found along a distance of 800 feet between elevation 5750 and 5800 feet; two sets of fractures in the rock trend N15-20W/60-70N and N-S/50E; the first set predominates. Spacing between fractures ranges from a few inches to several feet. Molybdenite with subordinate chalcopyrite occur as fillings in the openings together with pyrite with or without quartz that range in thickness up to 3/4 inch. Some drussy quartz veinlets carrying molybdenite rosettes were seen.

A zone about 200 feet wide near the north end of the 800 foot section earlier mentioned seems to have sufficient close-spacing of fractures to make ore-grade material. However, intense weathering has leached out much of the sulfides, so that a visual estimate and sampling was not done. The rock appears to be generally fresh and massive in the mineralized outcrops. Closer studies of unmineralized fractures indicate incipient silicification occurring along very tight fractures that would otherwise be overlooked with the unaided eye. A faint K-feldspar alteration of some feldspar grains along the walls of a few molybdenite-chalcopyrite filled hairline fractures were seen. In the short vertical distance of the cirque-wall observed, there is suggestion of a growing intensity downwards of both silicification and K-feldspar alteration in the tight fractures. On this basis it is inferred that the outcrop of the mineralized zone could be its upper part where the above type of rock alteration (and accompanying mineralization may improve at lower subsurface elevations.

#### PHOTOGEOLOGIC LINEAMENTS

Figure 1 shows the patterns of the photogeologic lineaments observed from the air photographs. Of possibly great significance are two areas showing combined sets of concentric and radial lineaments which are considered as "photogeologic" anomalies. The first area is in the vicinity of the lake and Anomaly-1. The second area is at the head of the little creek about 7,000 feet south-east from the lake. A radial pattern, less concentrics, is also apparent near Anomaly-2, with a center at the west side of the anomaly. This could be related to the small plug at the center of the intersection of the radials.

The significance of the radial-concentric pattern may not be over emphasized, but they are often related to small stocks or plugs intruding the host rocks of porphyry Cu/Mo deposits in an igneous environment.

Figure 2 is a hypothetical vertical section A-B across the strike of Anomaly-1 and undefined Anomaly-2. A quartz monzonite stock is inferred to occur in the vicinity of the small lake. It is drawn in the section with a steeply-dipping west contact beneath the western edge of the lake, and a gently dipping east contact midway up the cirque wall just below the talus-line.

The horizontal thickness of Anomaly-1 is about 600 feet. The mineralized zone inferred from this geochemical expression would have a narrower thickness if the zone dips gradually to the southeast as shown in the drawing. A thicker mineralized zone is indicated in the section to accommodate the western "tongue" of the Mo geochemical Anomaly-1.

Anomaly-2 is presently undefined. It could either be an "outer" ring related to Anomaly-1, or an entirely separate entity. The second "photogeologic anomaly at the southeast may also be related to Cu-Mo mineralization. This area is presently untested.

#### GEOCHEMISTRY

Geochemical soil sampling taken at 200 foot intervals along grid lines 400 feet apart in general covered the area of the main showing and the gently sloping grounds farther east. 984 geochemical soil samples were obtained, that were analyzed by atomic absorption and colorimetric methods.

The copper content of the soils ranged from a low of 15 p.p.m. to a high of 2,000+p.p.m. The arithmetic mean is 180 p.p.m. On a statistical basis the values above 750 p.p.m. were classed as highly anomalous, and two areas of "highly anomalous copper were located. These anomalies coincide well with the copper soil anomalies, and the coefficient of correlation between the Cu and Mo results is 0.56.

The Cu and Mo soil anomalies are shown both in Figures 1 and 2. There is strong coincidence between Cu-Mo anomalies-1, both in extent and trend. Cu-Mo Anomaly 2 open to the east and south, is undefined.

The tungsten content of the soils was also tested. Two Closures at 25 p.p.m., considered anomalous are found in the area of Anomaly-2 suggesting no direct coincidence with either the undefined Cu or Mo anomalies. A small open W anomaly is found 800 ft. north of the east end of Anomaly-1 and is so far untested.



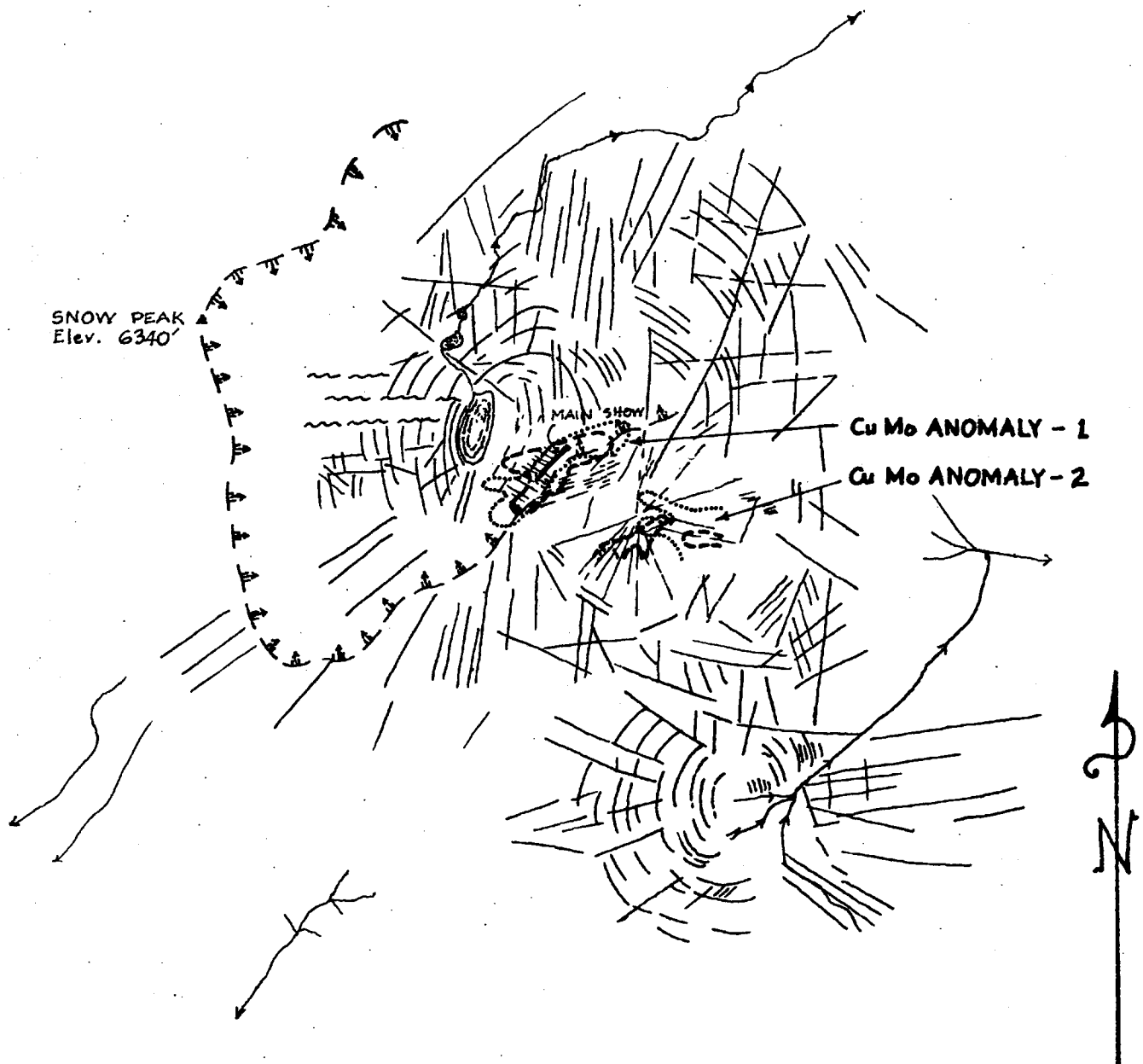
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Jaime F. Ariz (Geologist - Engineer)

REFERENCES

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3. Ariz, J.F. Preliminary Survey Report,
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4. Cochrane, D.R., P. Eng.
  - Preliminary Geological Report, July 1971.
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**LEGEND**

- Outline of Geochemical Anomaly
  - Mo : 220 ppm
  - ..... Cu : 300 ppm
- Photogeologic Lineaments
- ⌒ Cirque
- ⊖ Lake
- ~~~~~ Creek

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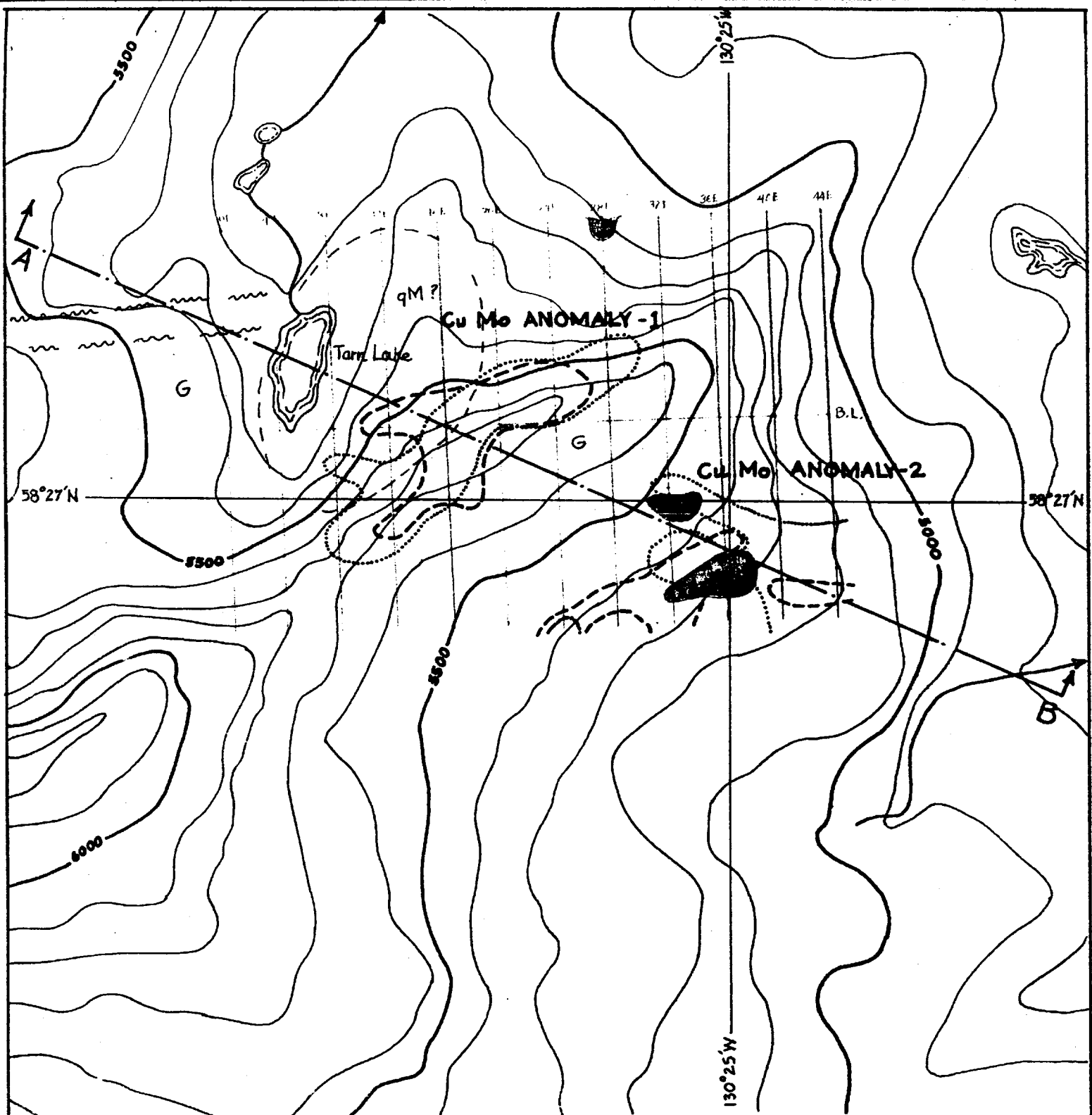
**SNOW PEAK PROPERTY**  
**PHOTOGEOLOGIC LINEAMENTS**

FIGURE 1

SCALE - 1 In. to 1/2 Mi.  
FEET

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**LEGEND**

- Outline of Geochemical Anomaly
- Mo 220 ppm
- ..... Cu 300 ppm
- W > 25 ppm
- Contour Lines, 100-Ft. Interval
- - - - Inferred Contact
- ~~~~ Fault
- G Granodiorite
- qM Quartz Monzonite

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**SNOW PEAK PROPERTY  
COMPILATION MAP**

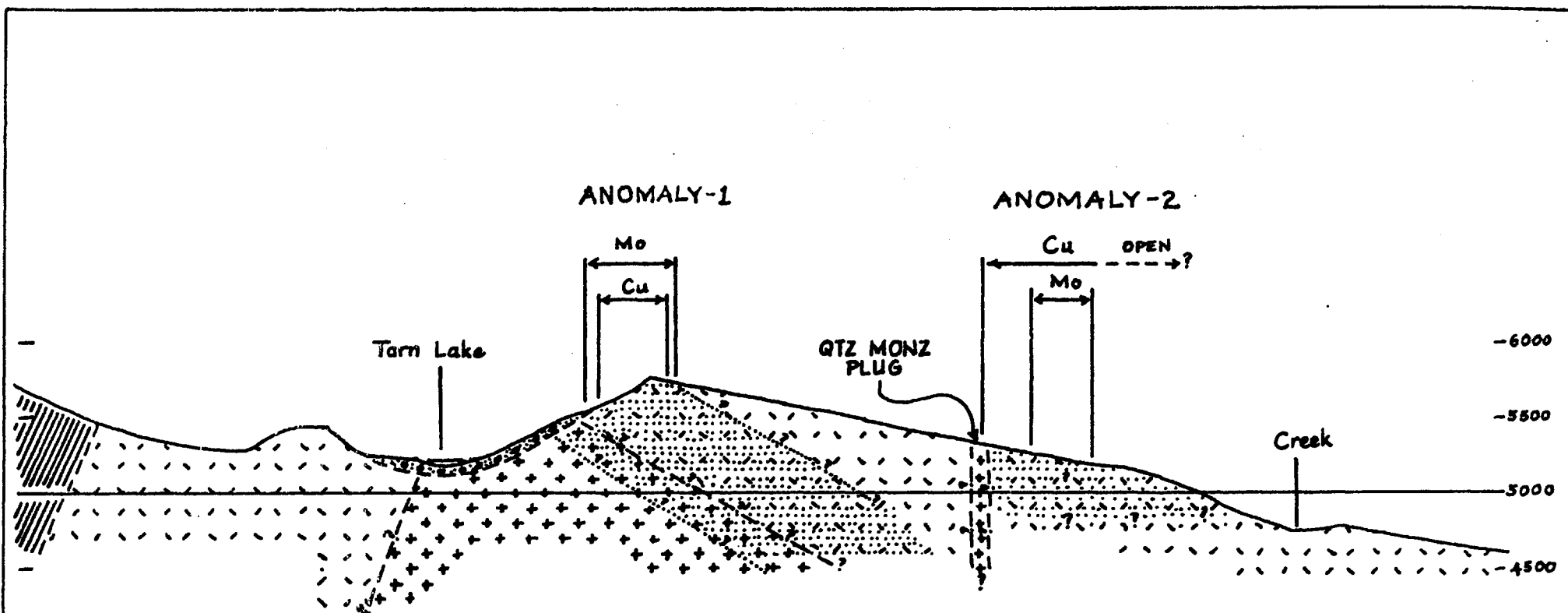
FIGURE 2


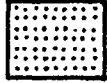

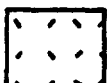

SCALE - 1:1000



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 WIDTH OF GEOCHEMICAL ANOMALY FOR Cu/Mo
- 
 INFERRED MINERALIZED ZONE
- 
 QUARTZ MONZONITE
- 
 GRANODIORITE
- 
 METASEDIMENTS

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**SNOW PEAK PROPERTY**  
 IDEALIZED  
 VERTICAL SECTION ALONG A-B

FIGURE 3  
 SCALE - 1:1000

0 FEET 2000

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