

3555

N.T.S. 92-H-15E

GEOLOGIC AND MAGNETOMETER REPORT  
ON NESBITT OPTION  
ASPEN GROVE, B.C.

D.B. Petersen

December, 1971

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 3555 MAP .....

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*1 Claim Map*

*2 Geologic Map G 8173*

*3 Mag Contour Plan M 8174A*

GEOLOGIC REPORT ON NESBITT OPTION

ASPEN GROVE, B.C.

N.T.S. 92-H-15

INTRODUCTION:

A partial control grid was placed on the property, geologic mapping done and a partial magnetometer survey completed from September 22nd through October 13th, 1971.

OWNERSHIP:

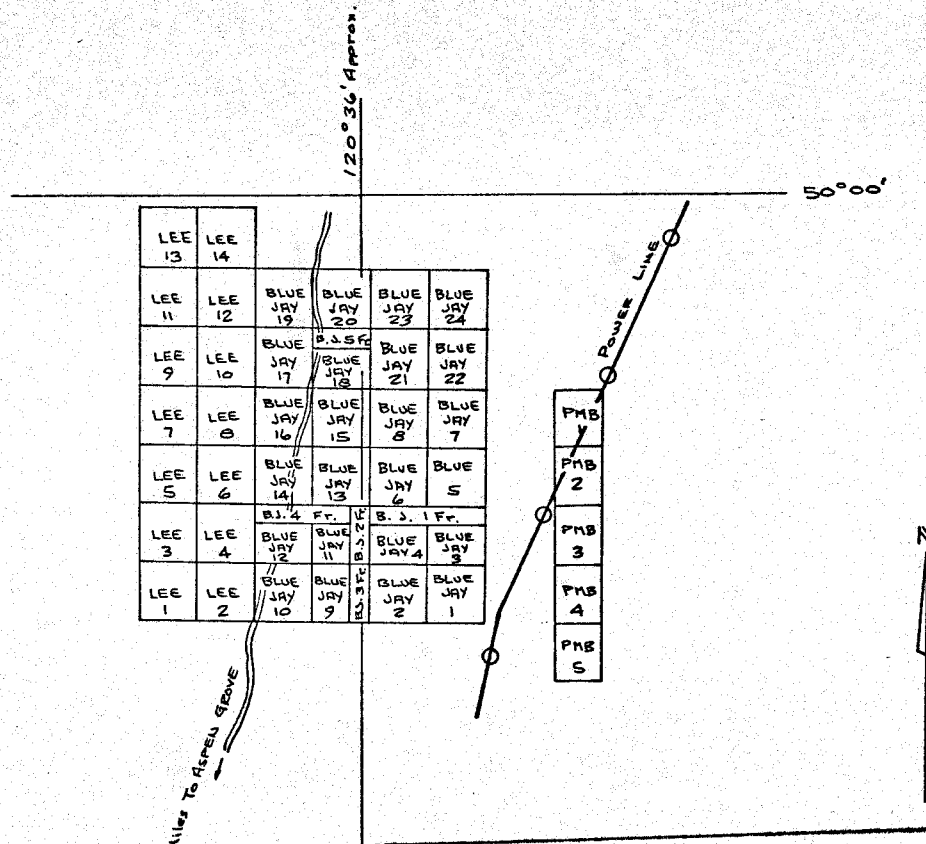
The Blue Jay claims, consisting of twenty-four full sized and five fractional mineral claims, were staked by or for Mr. Harry Nesbitt of Aspen Grove, B.C. His address is P.O. Box 697, Merritt, B.C., telephone No. 378-4113. Fourteen additional claims (Lee 1 - 14) were staked immediately west of the Blue Jay group and five additional (PMB 1 - 5) were staked on claim line (Van claims) to the east of the Blue Jay claims.

REGIONAL GEOLOGY:

The region is underlain by Nicola volcanic (G.S.C. Memoir 243). Small Coast Range age intrusives outcrop on the southeastern part of the property, the southeast edge of Lee claims and six miles southwest of the property. A north-south trending band of chert and quartz pebble conglomerate occupy the extreme western part of the Lee claim group. A predominant, north-south trending, Allison Fault offshoot partially cuts the western part of the property and separates conglomerate and volcanic rock units.

LOCAL GEOLOGY:

Rocks within the area of interest are a series of northwest trending volcanics intruded by coarse to fine grained diorite. The northwest part of the property consists of chert and quartz pebble conglomerate with a diorite - monzonite intrusive on the extreme southwestern segment of the Lee claim group.



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NESBITT OPTION B.C.  
 CLAIM MAP

SCALE 1:50,000 APPROX.

LOCAL GEOLOGY:- cont'd.-Volcanics:

The volcanic rocks are Cretaceous (Kingsvale Group) and Triassic (Nicola Group) in age and consist of greyish and reddish andesite, volcanic breccia, lava and basalt. The units strike at approximately northwest and dip southwest.

-Quartz and Chert Pebble Conglomerate:

The unit occupies the extreme west and northwest segment of the property and is separated from volcanic rock by a north-northeast trending fault. The unit is very resistant and forms a dominant north-northeast trending scarp. According to the G.S.C. the unit is Miocene or earlier in age.

-Intrusive Rocks:

The intrusive rocks are composed of a coarse grained hornblende diorite surrounded by medium and fine grained hornblende diorite to the east, west and north. The sequence from coarse to fine grain size appears to be a chilling effect of a single intrusive, or differential surges of a single magma. Compositionally, the rocks are equivalent.

According to G.S.C. the rocks are Jurassic in age and part of the Coast Intrusives.

Coarse Grained Hornblende Diorite:- The rock unit is in near contact with volcanic rocks in the southern part of the property. A 30 to 100 ft. wide, till covered topographic low covers the contact zone, therefore, no chilled border is seen. A single, 4 to 6 ft. wide pegmatite is in the southeast part of the unit.

Hand specimen identification of minerals is as follows: plagioclase, 55-60%; hornblende, 25-30%; chlorite, 5-10%. Accessory minerals are magnetite, hematite, quartz.

Medium to Fine Grained Hornblende Diorite:- The unit is immediately northwest of the coarse grained diorite and appears to represent a grain size change within a single intrusive. An apparently isolated segment of this rock is found within uniformly fine grained rock in the east central part of the area, indicating a separate surge from the magma.

## LOCAL GEOLOGY:

-Intrusive Rocks:- cont'd.

Fine Grained Diorite:- The unit occurs as a fringe zone to the east and west of the medium grained diorite and covers the entire northern part of the intrusive zone of interest. Contacts between the medium and fine grained diorite (east and west) are slightly gradational, but most significant changes are obscured by soil cover.

MINERALIZATION:

Significant minerals found in the area are: chalcopyrite, chalcocite, bornite, native copper, malachite and possibly molybdenite. All mineralization occurs within the fine grained diorite or volcanic rocks.

The most significant occurrence of chalcopyrite is within three trenches near lines 2E - 38S. The chalcopyrite is found as very finely (< 1 mm diameter) disseminated specks throughout the entire rock matrix. Much of the near-surface sulphide has been oxidized to malachite, which covers varying amounts of rock surfaces.

A small pit, 25 ft. southwest of line 0E-0S, reveals a similar distribution of disseminated chalcopyrite and minor malachite staining.

Minor chalcopyrite and malachite are within fractures of volcanic rocks approximately 300 ft. north of line 2W - 38N (north of property).

Native copper is found within fine grained diorite and volcanic rock on the south central part of the property. The copper occurs as disseminated specks (<1 to 1.5 mm diameter) in trenches between 4E - 5S and 12E - 14S. The rock is a very hard, green, slightly porphyritic diorite. Minor malachite is also noted. A single trench in this area has minor disseminated chalcopyrite and malachite.

Native copper within volcanic rock (south central area) appears related to the volcanic intrusive contact, for the amount of copper appears highest near the contact and decreases as one moves west. Minor malachite is noted in association with the copper.

A minor occurrence of native copper is in volcanic rock in the extreme northern area, approximately 400 ft. north of line 4W - 38N (off the property).

MINERALIZATION:- cont'd.

Chalcocite and bornite are found exclusively within volcanic rocks, except for a single occurrence within fine grained diorite at lines 18E-38S. The mineralization occurs as disseminations within joint and fracture zones (1 to 20 mm wide). Minor malachite is also associated with the mineralization. Nearly all of the copper ore has been removed from the larger pits.

A possible occurrence of molybdenite was noted at lines 14S - 16E. It was very fine grained, in a less than 1 mm wide fracture, and within fine grained diorite. Due to the mineral grain size, positive identification could not be made.

SECONDARY ALTERATION:

Secondary minerals in the area are: epidote, calcite, quartz, biotite and chlorite. The most predominant secondary mineral is epidote, occurring as slickensided shear and joint surfaces and veins. In general, epidote is within all units, but is concentrated as north-south trending, 1 to 5 mm wide veins within the fine grained diorite, especially the southern unit between 54S - 5E and 0N - 0E. Calcite is also associated with these veins.

Quartz, epidote and calcite veins are also noted at various locations (see geologic map) within fine and coarse grained diorite. These range from less than 1 mm to 15 mm in width, and appear to be randomly orientated.

Pervasive biotite alteration was noted in trenches at line 38S - 1E.

Minor chloritization of hornblende crystals is noted within coarse grained diorite.

FAULTING AND SHEARING:

Numerous east-west and north-south trending slickensided surfaces are noted within the intrusive rock, with minor shearing in volcanic rocks. The majority of these surfaces are epidote covered. Aerial photographic interpretation reveals major lineations which parallel the two fault directions (see geologic map).

Intrusive contacts, north and west, appear to be truncated by faults. Major faulting may also extend into the intrusive unit, with the north-south trend being major.

GEOLOGY - MAGNETOMETER CORRELATIONS:

Of the many geophysical and geological methods used for the exploration of mineral deposits, magnetometry has been used frequently, in many cases as an indirect application. For example, it can be used to trace the extent of a particular lithologic unit, which may be a favourable host for mineralization and have a different magnetic susceptibility from the surrounding rocks, beneath a cover of overburden.

On the Blue Jay claims geological mapping has revealed the fine grained hornblende diorite (B1) to contain quartz and carbonate stringers with associated hydrothermal biotite and disseminated chalcopyrite, as distinct from the coarse grained hornblende diorites and volcanics which are very weakly mineralized and display no hydrothermal association with the mineralization. The fine grained hornblende diorite is limited in area of outcrop and a magnetic survey was made to ascertain, if possible, its extent beneath the overburden.

The regional geologic trend in this area being approximately north-south, lines were flagged in an east-west direction, perpendicular to this trend, for the most part 400 feet apart with stations either at 200 or 100 foot intervals on these lines. In all, twenty-four lines were flagged, for a total of 1,264 stations.

A reading was taken at each station with a Seigel P.M.F.1 model magnetometer. Corrections for diurnal variations were not made. The reading for each station was recorded and then plotted on a map of scale 1 inch = 400 feet. This map was then contoured at intervals of 1,000  $\gamma$  (gamma).

CONCLUSIONS:

The intrusive rock consists of a single magma source which has been cooled at differential rates or represents a series of surges from the single magma. Disseminated chalcopyrite and secondary alteration within the diorite suggest a hydrothermal source, indicating the property to be a potential Cu-Mo porphyry deposit. Faulting appears to have truncated the more significant mineralized diorite. Mineralization within the volcanic rock appears to be minor.

RECOMMENDATION:

Continue with proposed investigation to prove or disprove quantity of ore grade material.



STATEMENT OF PERSONNEL EMPLOYED BY  
RIO TINTO CANADIAN EXPLORATION LIMITED  
ON BLUE JAY CLAIMS BETWEEN SEPTEMBER AND DECEMBER, 1971

GEOLOGICAL EMPLOYEES

<u>Employee</u>	<u>Occupation</u>	<u>Date</u>	<u>No. of Days</u>
E. Nahring	Geologist	October 5 - 7	3
		October 14 - 24	11
		October 28 - 31	4
D.B. Petersen	Geologist	October 18 - 19	2

GEOPHYSICAL EMPLOYEES

<u>Employee</u>	<u>Occupation</u>	<u>Date</u>	<u>No. of Days</u>
E. Nahring	Geologist	September 29 - 30	2
		October 2 - 4	3
		October 8 - 12	5
C. Lahmer	Geophysical Field Asst.	September 29 - 30	2
		October 2 - 4	3
		October 8 - 12	5
		October 14 - 17	4
		October 22 - 27	6
M. Holtby	Geophysical Field Asst.	October 19 - 20	2
		October 22 - 31	10
		November 1 - 4	4
R. Pinsent	Geologist	October 29 - 31	3
		November 1 - 4	4
D. Petersen	Geologist	November 30	1
		December 8	1

STATEMENT OF PERSONNEL EMPLOYED:- cont'd.DRAFTING

<u>Employee</u>	<u>Occupation</u>	<u>Date</u>	<u>No. of Days</u>
R.W. Rollings	Draftsman	November 7 - 11	5

STATEMENT OF COSTS FOR GEOLOGICAL AND GEOPHYSICAL WORK PERFORMED  
BY RIO TINTO CANADIAN EXPLORATION LIMITED  
ON BLUE JAY CLAIMS BETWEEN SEPTEMBER AND DECEMBER, 1971

GEOLOGICAL COSTS

<u>Item/Employee</u>	<u>No. of Days</u>	<u>Cost/Wage Per Day</u>	<u>Total</u>
E. Nahring	18	28.36	510.48
D.B. Petersen	2	45.36	90.72
R.W. Rollings	2	20.65	41.30
Camp Costs	20	20.00	400.00
Vehicle Rental	18	7.50	<u>135.00</u>
		Total	\$ 1,177.50

GEOPHYSICAL COSTS

<u>Item/Employee</u>	<u>No. of Days</u>	<u>Cost/Wage Per Day</u>	<u>Total</u>
E. Nahring	10	28.36	283.60
C. Lahmer	20	25.52	510.40
M. Holtby	16	24.95	399.20
R. Pinsent	7	30.24	211.68
D.B. Petersen	2	45.36	90.72
R.W. Rollings	3	20.65	61.95
Camp Costs	53	20.00	1,060.00
Vehicle Rental	18	7.50	135.00
Magnetometer Rental	31.6 line miles	10.00/line mile	<u>316.00</u>
		Total	\$ 3,068.55

STATEMENT OF COSTS FOR GEOLOGICAL AND GEOPHYSICAL WORK PERFORMED:-  
cont 'd.

Total Geological Charges	\$ 1,177.50
Total Geophysical Charges	<u>3,068.55</u>
Total Applicable Charges	\$ <u>4,246.05</u>

March 13, 1972.

D.B. Petersen.

*D.B. Petersen*



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3555 M-2

Legend

- C Chert & Quartz pebble conglomerate
- B Horblende diorite
- B<sub>3</sub> Coarse to medium grained
- B<sub>2</sub> Medium to fine grained
- B<sub>1</sub> Fine grained
- A Volcanic flows; andesite, basalt and volcanic breccia.

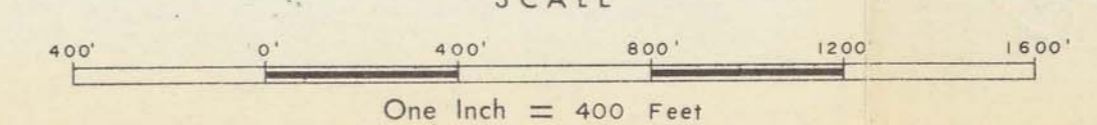
- Adit
- Diamond drill hole
- PH Building
- Trench
- Fault
- Bedding attitude

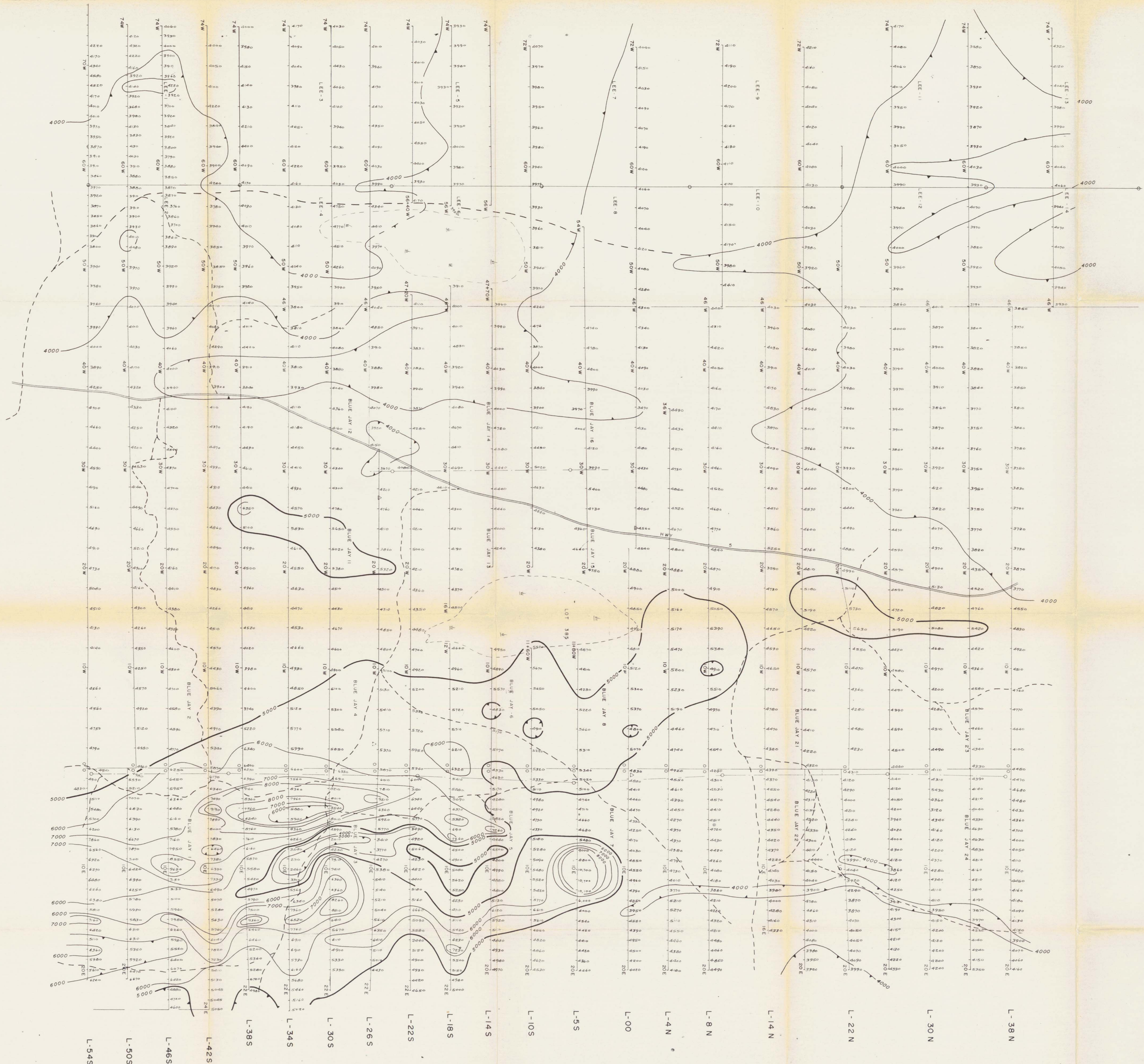
- Lot corner (discovered; not located)
- Chalcocite
- Chalcopyrite
- Barite
- Melchite
- Molybdenite

- Secondary biotite alteration
- Quartz & carbonate veining

N.T.S.  
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SCALE





Legend  
 --- Value in gammas  
 --- Contour interval 1000 Gammas  
 --- 5000 Gamma contour interval  
 --- 6000 " " " "  
 --- 7000 " " " "  
 --- 8000 " " " "  
 ( ) Mag low

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RIO TINTO CANADIAN EXPLORATION LIMITED  
 NESBITT OPTION B.C.  
 MAGNETOMETER CONTOUR PLAN  
 OCT 71 /rwr DWG. M-8174 A

NTS  
 92-H-15  
 SCALE  
 One Inch = 400 Feet

*A.B. Peterson*