

GEOCHEMICAL REPORT COVERING  
THE BLUEY GROUP OF CLAIMS  
ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA

Number of Units - 7

Located - 5 miles (8.05 km) North of Aspen Grove

N.T.S. - 92H/15E Lat. 49°53' Long. 120°35'

Work Performed - June 16, 1975 to July 16, 1976

- Prepared for Owner -

MR. FRED GINGELL

4306 DAWSON STREET

BURNABY, B.C.

- Prepared By -

ROBERT W. YORKE-HARDY, M.T., C.E.T.

15 EMERALD DRIVE

LOGAN LAKE, B.C.

- Date -

July 16, 1976

5908

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. 5908 MAP
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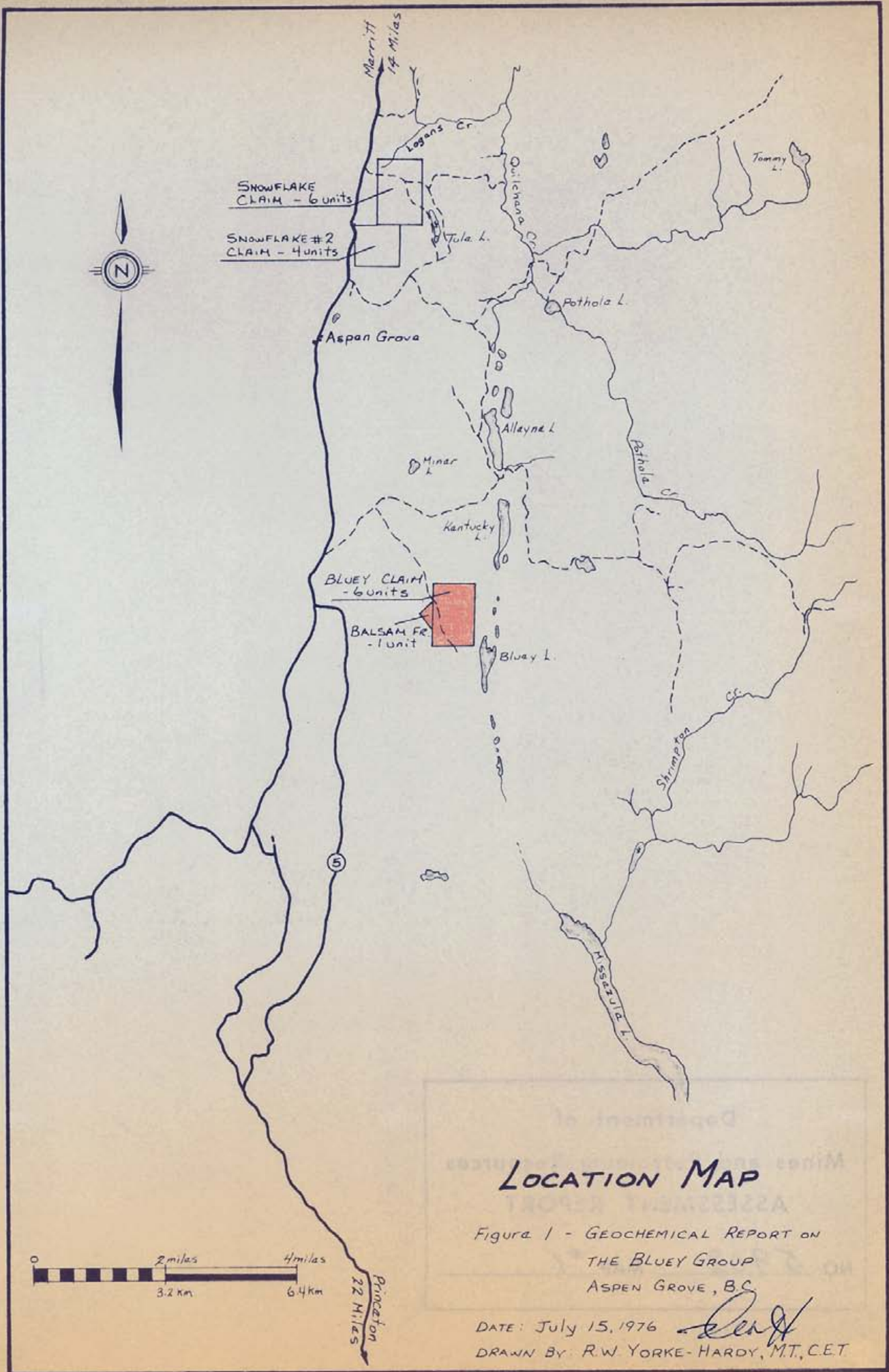
#1 Figure 1 - Location Map *BEFORE P. 1*

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## LOCATION MAP

Figure 1 - GEOCHEMICAL REPORT ON  
THE BLUEY GROUP  
ASPEN GROVE, B.C.

DATE: July 15, 1976

DRAWN BY: R.W. YORKE-HARDY, MT, CET

INTRODUCTION

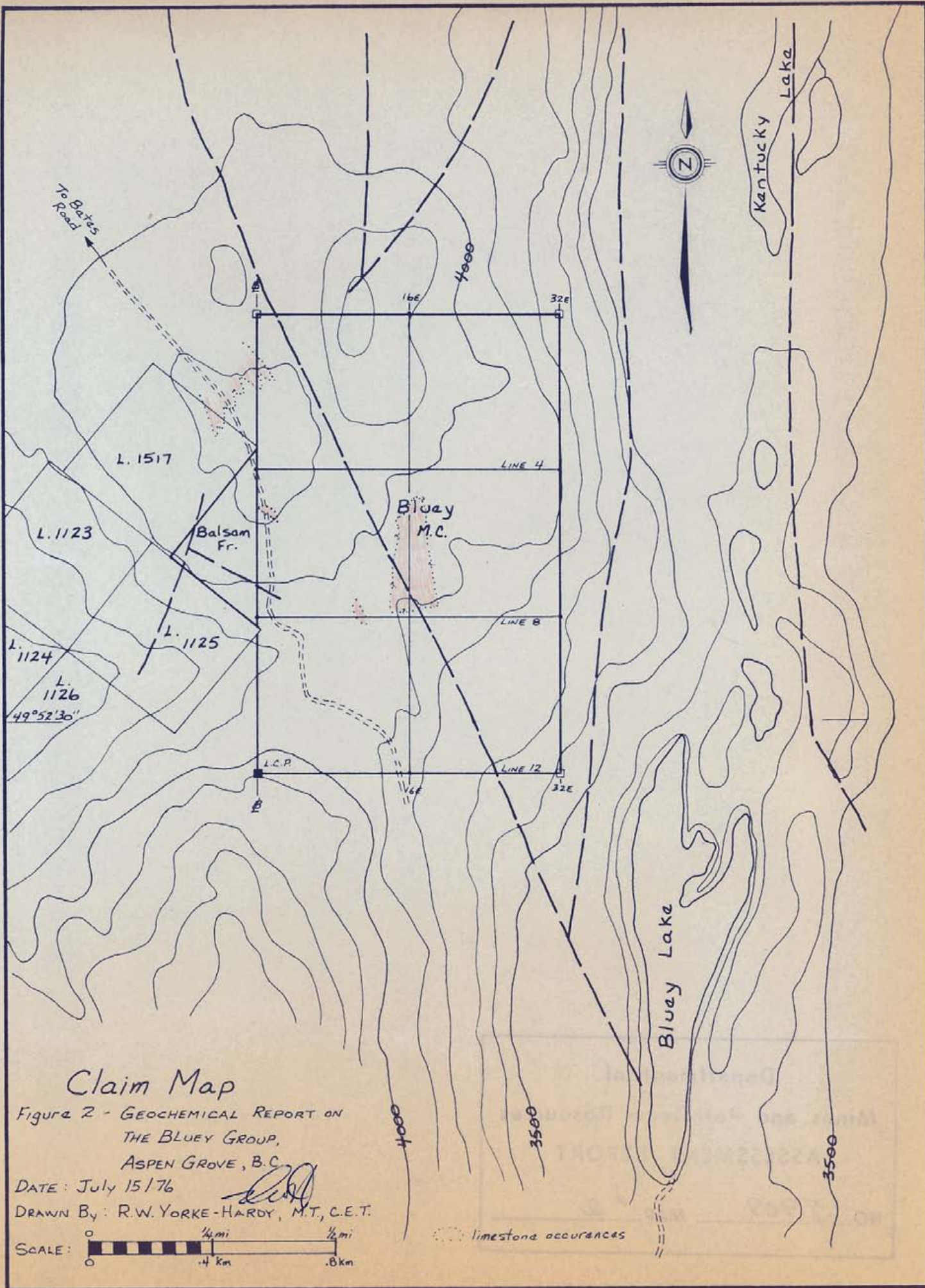
A geochemical survey was conducted on the Bluey mineral claim and the Balsam fraction during the spring of 1976. The claims are located in the Aspen Grove area of British Columbia and are owned by Mr. Fred Gingell, 4306 Dawson Street, Burnaby, British Columbia.

This program was undertaken at the request of the owner, at the recommendation and under the direction of Mr. J.M. Dawson, P.Eng., Kerr-Dawson and Associates Ltd., 1-219 Victoria Street, Kamloops, British Columbia. The program was performed under the immediate supervision of the writer, R.W. Yorke-Hardy, 15 Emerald Drive, Logan Lake, British Columbia.

Maps and illustrations showing the property location, claims and the results of the program are included in the report.

The work was performed to satisfy the assessment requirements on the Balsam fraction and the Bluey claim. This report is to support the submission of the geochemical survey for assessment purposes.





# Claim Map

Figure 2 - GEOCHEMICAL REPORT ON  
THE BLUEY GROUP,  
ASPEN GROVE, B.C.

DATE: July 15/76

DRAWN BY: R.W. YORKE-HARDY, M.T., C.E.T.

SCALE: 0 1/4 mi 1/2 mi  
0 .4 km .8 km

limestone occurrences

PROPERTY

The Bluey Group consists of two (2) mineral claims in the Nicola Mining Division of British Columbia, as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>No. of Units</u>	<u>Record Date</u>
Bluey	17	02060	6	June 16, 1975
Balsam Fraction	16	02061	1	June 16, 1975

LOCATION AND ACCESS

The Bluey group of claims is located in southern British Columbia approximately 5 miles south-east of Aspen Grove and approximately 1000 feet west of the north end of Bluey Lake. The claims can be reached by travelling easterly approximately three miles by dry weather road from the Merritt-Princeton Highway (Hwy. #5). Trails provide reasonable access to the west half of the claim block. The east half of the claim block is only accessible on foot.

GEOLOGY

The regional geology of the Aspen Grove area and the geology of the Bluey property in specific are described by Mr. J.M. Dawson, P.Eng. whose entire report is included in this report as Appendix "A".

### ANALYSIS

The Kamloops Research and Assay Laboratory dried and screened each sample to minus 80 mesh. Hot aqua regia was used for extraction of the elements to be tested for and atomic absorption was used to determine the quantities of copper and silver in each sample. The results were reported in parts per million - ppm.

The values reported were entered on plans of the property and the values were then contoured (Figs. 3 and 4).

### STATISTICAL DATA

The copper and silver values have been plotted as histograms (Figure 5) and both appear to have log normal distribution. The copper values are somewhat skewed to the left. Both the copper and silver populations appear to be somewhat complex and may contain more than one population.

The geometric mean of the copper and silver values were calculated using the following formula:

$$\text{Geometric Mean} = \sqrt[N]{X_1 \cdot X_2 \cdot X_3 \cdots X_N}$$

where  $X_1$  to  $X_N$  are the values obtained.

The values calculated were - Cu = 41.6 ppm.

- Ag = .42 ppm.

The standard deviation of the copper and silver values were calculated using the following formula:

$$\text{Standard Deviation} = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

where  $\bar{X}$  is the geometric mean and  
X are the values obtained.

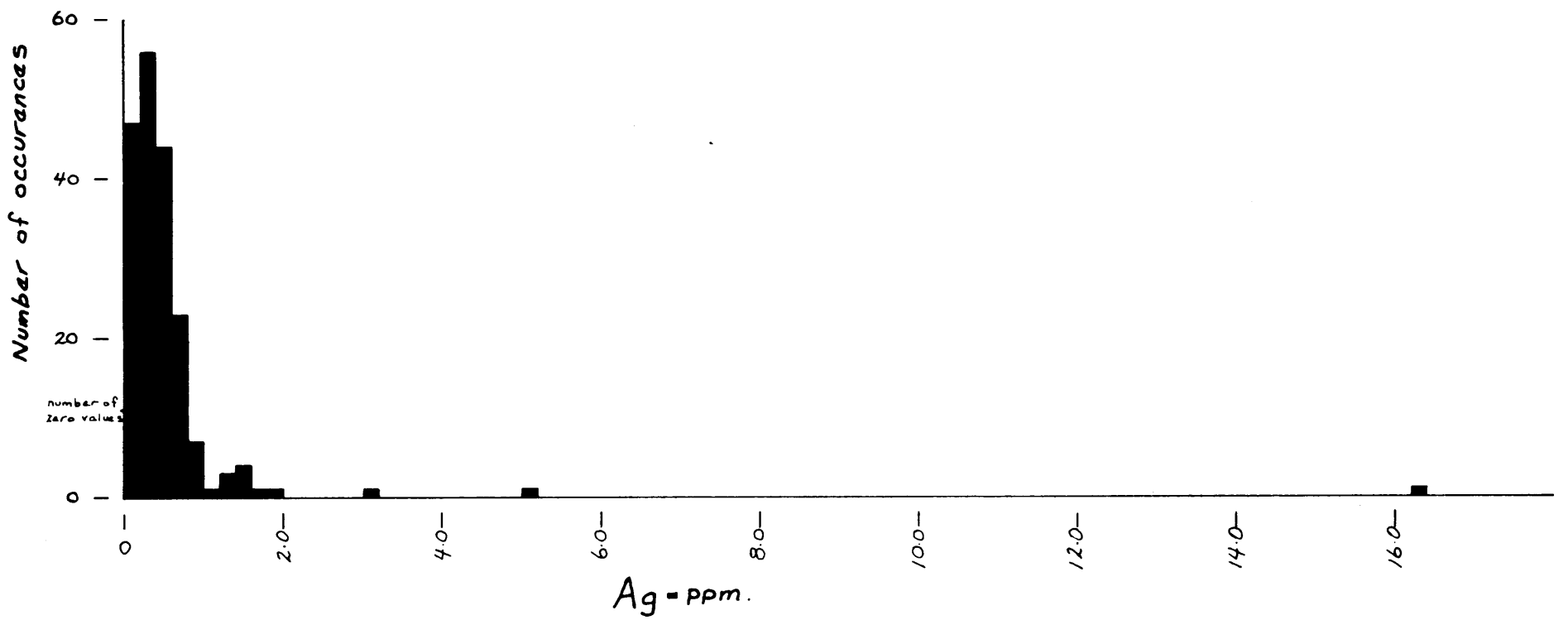
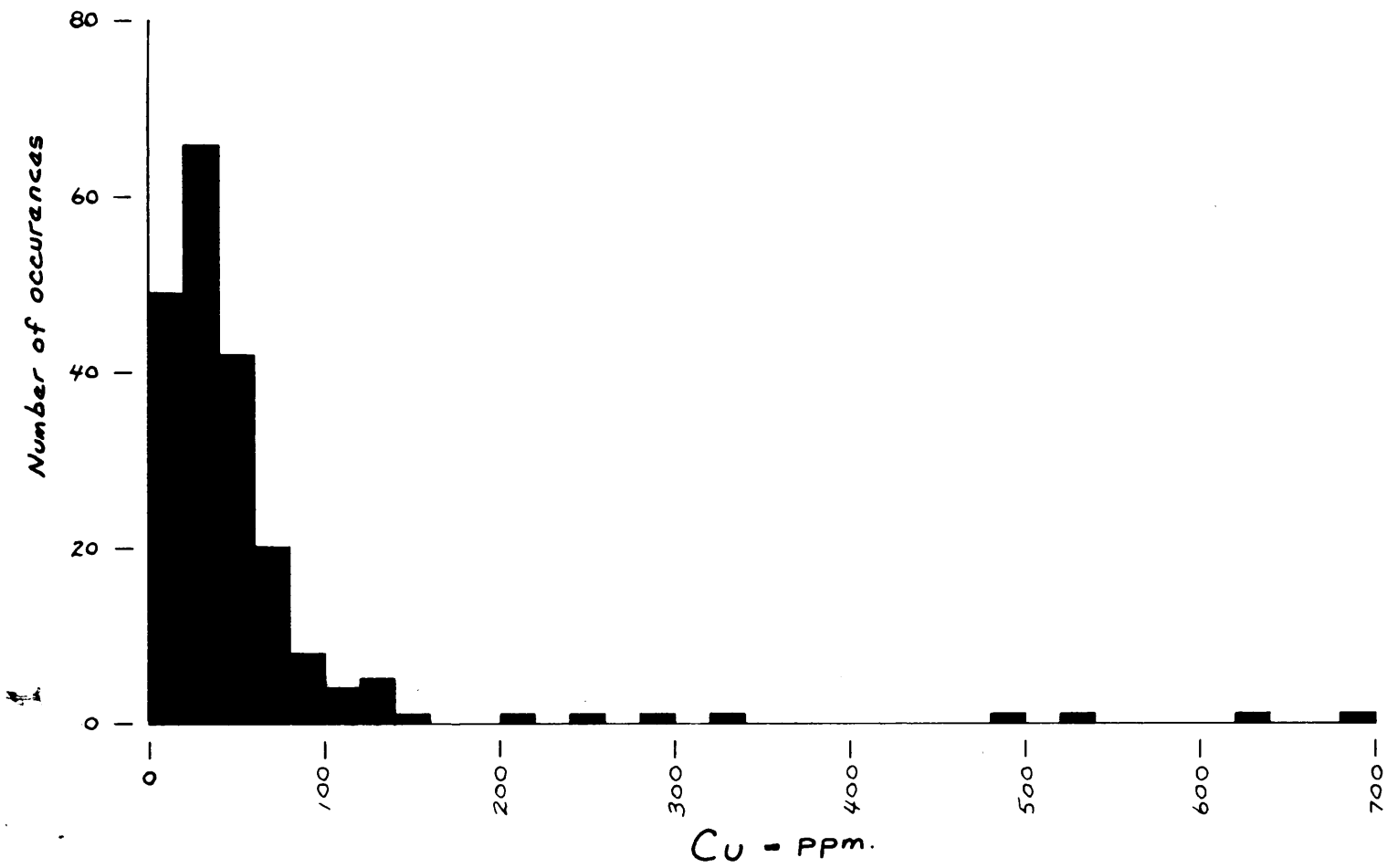


Figura 5 - Histograms of Copper and Silver Values

*Antonio J. M. C. F.*



The values calculated were - Cu = 89.1 ppm.  
 - Ag = 1.23 ppm.

Upon studying these calculated values it was apparent that the number of erratic values had had an extreme effect on the figures obtained. In an effort to obtain more true figures a number of the erratics were eliminated. Copper values over 300 ppm. and silver values over 2.0 ppm. were removed and the above calculations were repeated.

The following values were obtained:

Geometric Mean - Cu = 33.2 ppm.  
 - Ag = .40 ppm.  
 Standard Deviation - Cu = 40.3 ppm.  
 - Ag = .34 ppm.

Anomalous values have been defined as the geometric mean plus one standard deviation and this resulted in the following values:

1st order anomaly	-	$73.5$ ppm.	$.74$ ppm.
2nd order anomaly	-	113.8 ppm.	1.08 ppm.
3rd order anomaly	-	154.0 ppm.	1.42 ppm.

Values greater than one-half standard deviation greater than the geometric means have been considered positive.

#### DISCUSSION OF ANOMALOUS VALUES ENCOUNTERED

##### Copper:

As indicated in Figure 3, there are two prominent copper anomalies. In addition there are four somewhat isolated

copper anomalies. Significant second and third order anomalies occur within the two larger anomalous areas. Values of greater than 300 ppm. copper have been considered erratics. These erratic values appear fairly consistently along the strike of the anomaly and could be partly due to a collection effect along a minor creek drainage which follows part way along the same major structure as the anomaly.

The largest anomaly, which trends NW-SE from a central point located at 2000E on line 7; has an overall strike length of 2400 feet and varies in width from approximately 200 feet to a maximum of 500 feet. The only work evident is described along with the geology and mineralization of the Bluey property in J.M. Dawson's report (Appendix "A"). This anomaly appears to connect areas 2, 3 and 4 described in the above mentioned report. In addition there is a limestone outcrop, mapped by Mr. E.J. Wendeborne, P.Eng. (Nor Group Assessment Report - No. 175); closely associated to this anomalous area.

The other large anomaly trends NW-SE from a central location at 600E on line 8. This anomaly has a strike length of approximately 1000 feet and a width of 200 to 300 feet. This anomaly relates to area number 1 described in J.M. Dawson's report (Appendix "A").

The smaller, more isolated anomalies occurring along the

western boundary of the Bluey claim and onto the Balsam Fraction may or may not be continuous as shown in Figure 3. There is no evidence of work having been done on any of this area. The remaining two isolated anomalies occurring near the east end of lines 4 and 5 appear quite unrelated to the above described anomalies or evident structures but could be related to an easterly extension of the above mentioned limestone occurrence.

#### Silver:

As shown in Figure 4 there are a large number of relatively discontinuous areas anomalous in silver values. Second and often third order silver anomalies occur within these anomalous areas. Three extremely high silver values have been considered erratics.

The largest apparently anomalous silver area is located near the east end of lines 11 and 12. This area has not yet been closely sampled (sample spacings were 400 feet). No work was evident in this area. This anomaly appears to trend south easterly off the Bluey claim.

The single erratic silver value occurring at 800E on line 5 may be related to the two lesser silver anomalies located on the west end of line 4. These anomalies appear unrelated to the other silver or copper anomalies.

The silver anomaly extending north-easterly from 2400E on line 5 appears to have a relationship to the positive

copper area on the east end of lines 4 and 5. The steep topography throughout this section of ground has possibly resulted in rapid dispersion of the copper values while the silver value dispersion from the same source would be much less.

Upon examining the silver anomalies occurring 2000 feet east of the base line on lines 4 to 8 inclusive; it was evident that there was very close correlation between the copper and silver anomalies.

The silver anomalies which occur centered at 300E on line 8 and 800E on line 9 appear to flank the copper anomaly at 600E on line 8. The remaining isolated silver anomalies also appear to be related to copper anomalies or positive copper zones.

In general the silver values appear narrow and are probably related to the same mineralized zones discussed in the report by J.M. Dawson (Appendix "A").

#### Topography:

The entire property is located on an easterly sloping hillside overlooking Bluey Lake. The western third of the claim is generally gently sloping. This trend widens about the mid-point north-south and extends to approximately two-thirds of the claim width at the north end. East of this line the slope drops off steeply towards the claim boundary. Two minor drainages trending south easterly tend to flatten the slope slightly throughout the south east portion of the claim.

The major north-south trending feature is indicated as a fault which extends south towards Missezula Lake and north to Alleyne Lake. An off shooting north-west trending fault cuts diagonally across the Bluey mineral claim.

#### Soil Type:

In general the texture of the soils sampled was quite coarse. The composition was sand with minor silt and clay with a high percentage rock. The soil would be considered a sandy loam type. The color varied from light grey-brown to yellow-light rusty brown. In general the soils appeared somewhat leached and poorly developed. The drainage areas contained thick "A" horizons.

#### Additional Observations:

It was noted that the outlining of "positive" silver and copper values tend to tie together the somewhat more erratic anomalous areas. This is most prominent when considering the silver values. Without the outlining of the positive silver values the correlation to the copper anomalies is not nearly as prominent unless the plans are overlain and examined on a light table.

SUMMARY AND CONCLUSIONS

A geochemical survey was conducted in a systematic manner over the approximately three quarters of the Bluey claim and the entire Blasam fraction. A wide spaced (400 feet) survey was carried out over the southern two-thirds of the claim and later the spacing was closed down to 'detail' over areas of known mineralization, indicated favourable geology and of higher geochemical results after the first stage sampling. Line 3 was run at 200 foot spacings to test for possible extensions to the north. In all 203 soil samples were taken and analyzed for copper and silver.

The program has served to tie all the previously known mineralized areas together through areas in which prospecting has been hindered by heavy overburden cover. The higher, more consistent anomalies tend to follow the major NW trending structures. Both the copper and silver values generally occur centered within 100 feet of each other. This would indicate the same mineral source for both elements. Very little dispersion effect due to topography is evident upon examination of either of the contoured plans. There is a possibility of an intersecting fault structures in the vicinity of 1700 to 2000 feet east on line 7.

To conclude, it would appear that further work is warranted in an effort to delineate the extent of copper mineralization. Due to heavy overburden indicated in the



anomalous areas further trenching would be difficult. All previous work would appear to have been concentrated in areas of lesser overburden cover and as a result only small portions of the anomalous zones have been tested. Under these conditions the use of geophysical prospecting methods should be considered. Assays on rock samples should be run for copper, silver and gold as the possible precious metal content indicated by the silver geochemical results could significantly enhance the economic picture.

#### RECOMMENDATIONS

Continue as per recommendations by J.M. Dawson, P.Eng.

1. Prospect known mineralized areas and attempt to extend this zone throughout the anomalous areas.
2. Geophysical prospecting methods should be employed in an attempt to show the extension of mineralized zones under the areas of extensive overburden cover. An electro-magnetic survey would likely give the best results due to the apparently narrow zones of mineralization. This method would also be the most economical.
3. Cat trenches should be cut into the most favorable anomalous areas in an effort to expose fresh rock for sampling purposes. Assays should be run for copper, silver and gold.
4. Drill promising targets.

R.W. Yorke-Hardy, M.T., C.E.T.

R E P O R T

- on the -

SNOWFLAKE, BLUEY AND PRIZE PROPERTIES

ASPEN GROVE AREA

NICOLA MINING DIVISION

British Columbia

- for -

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 5908 MAP.....

F. Gingell,

4306 Dawson Street,  
BURNABY, B. C.

Prepared By:

KERR, DAWSON & ASSOCIATES LTD.,  
#1-219 Victoria Street,  
KAMLOOPS, B.C.

J. M. Dawson, P. Eng.,  
July 9th., 1975.

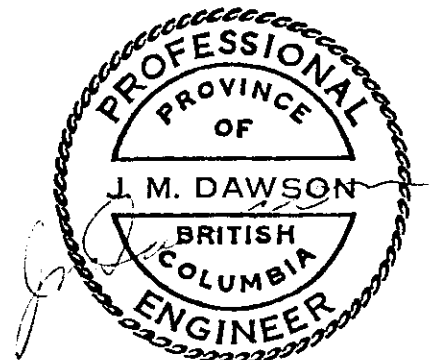


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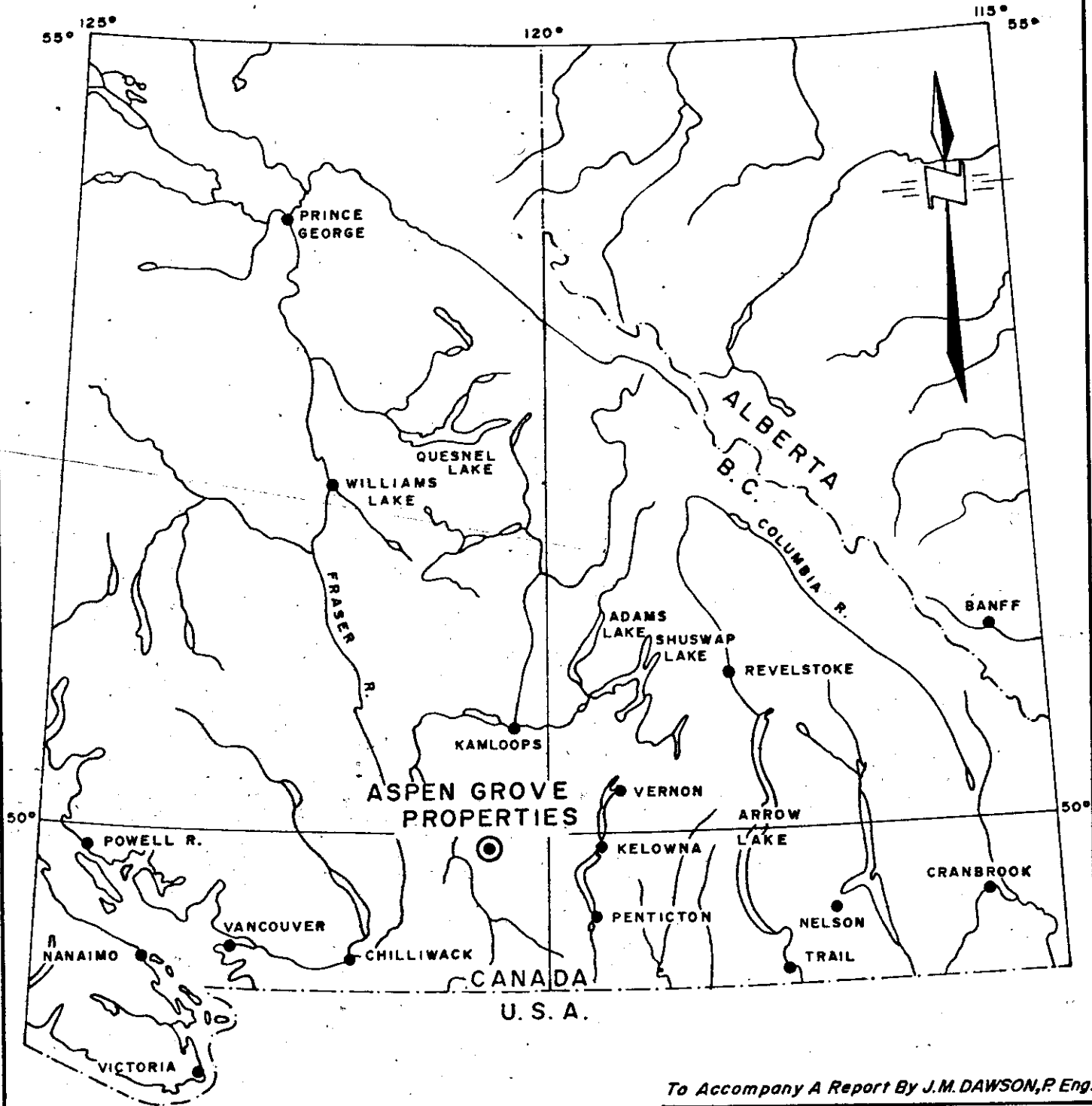
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To Accompany A Report By J.M. DAWSON, P. Eng.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 5908 MAP #6

LOCATION MAP  
SNOWFLAKE, BLUEY &  
PRIZE PROPERTIES  
ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA

Date: JULY 4, 1975

Scale: 1" = 64 Miles

Tech. Work By:  
KERR-DAWSON & ASSOCS.

Dwg no. III-1

## INTRODUCTION

This report has been prepared at the request of Mr. F. Gingell. It describes the results of a three day examination of the Snowflake, Bluey and Surprize mineral properties near Aspen Grove, British Columbia.

Maps showing property location, claims, geology, and location of mineral occurrences were prepared and are included in the text of this report.

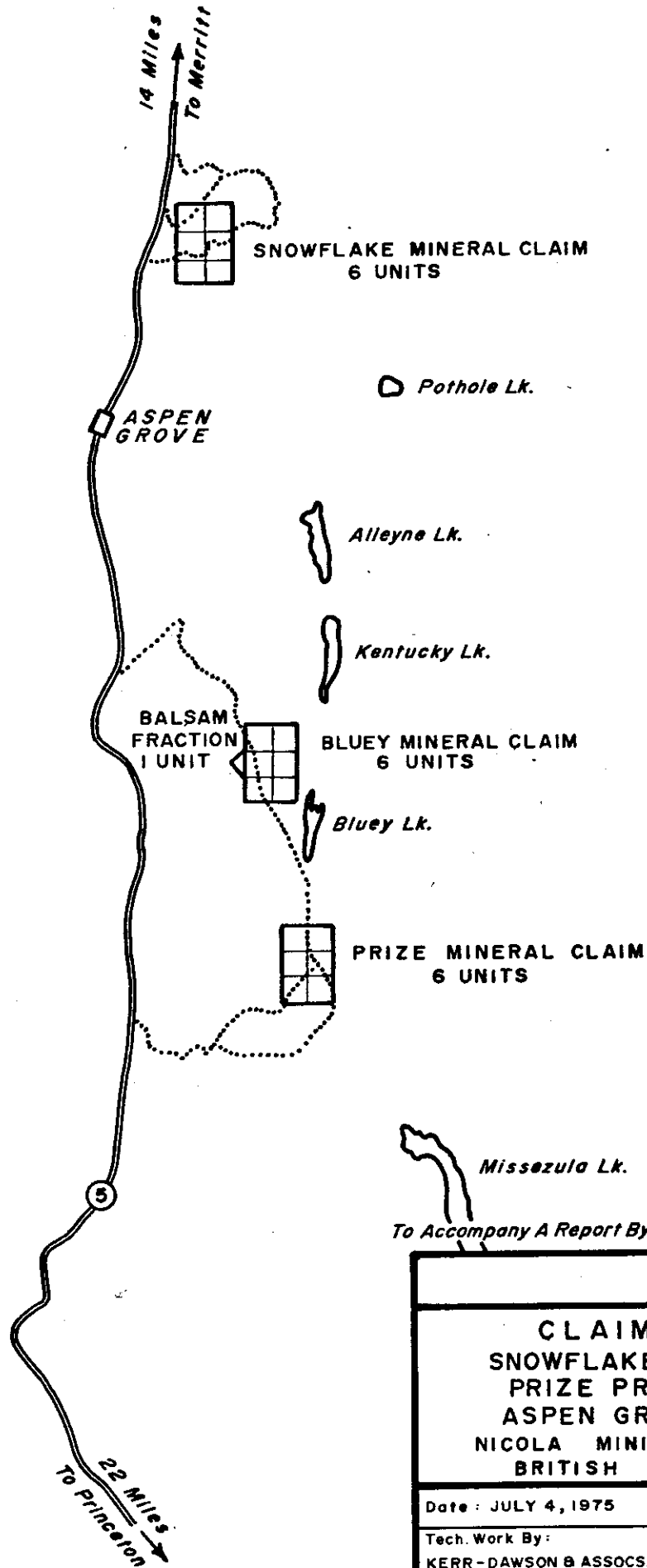
## PROPERTY

The property consists of three separated claim blocks in the Nicola Mining Division, British Columbia, as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>No. of Units</u>	<u>Record Date</u>
Snowflake	8	02059	6	May 13th., 1975
Bluey	17	02060	6	June 16th., 1975.
Balsam Fraction	16	02061	1	June 16th., 1975.
Prize	5	02058	6	April 28th., 1975.

## LOCATION AND ACCESS

The properties are located in southern British Columbia near the Merritt - Princeton Highway. The Snowflake property is located approximately 2 miles northeast of Aspen Grove. The Bluey claim and Balsam Fraction are located about



To Accompany A Report By J.M. DAWSON, P. Eng.

**CLAIM MAP  
SNOWFLAKE, BLUEY &  
PRIZE PROPERTIES  
ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA**

Date: JULY 4, 1975

Scale: 1" = 1/4 MILE

Tech. Work By:  
KERR-DAWSON & ASSOCS.

Dwg. No. III - 2



5 miles southeast of Aspen Grove and adjacent to the north end of Bluey Lake. The Prize property is located about 7 miles south-southeast of Aspen Grove and approximately 3 miles east of Highway No. 5.

All three properties are road accessible. A network of logging roads provides facile access to each claim group and various old trails and drill roads allow one to walk to any part of the individual claim blocks relatively quickly.

#### PHYSIOGRAPHY AND VEGETATION

The three subject claim blocks lie on the Thompson Plateau, an area of rolling uplands with occasional narrow steep valleys which are fault controlled. The Snowflake property occupies an area of very gentle topography with elevations varying from less than 3,500 feet A.S.L. in the northwest corner to just over 3,900 feet A.S.L. at the southern end of the claim block. The northwestern half of the block is occupied by two lakes and an area of rolling grassland which is devoid of outcrop. The rest of the property is covered with scattered coniferous trees alternating with burned out areas now covered with low deciduous underbrush.

The Bluey property covers steeper topography-elevations varying from more than 4,100 feet A.S.L. at the western and northwestern edges down to about 3,500 feet A.S.L. at the eastern margin of the claim block. This area is covered with a fairly mature growth of fir, spruce, and pine with virtually no open areas.

The Prize property lies on an easterly-sloping hillside varying from about 3,900 feet A.S.L. at the western margin down to about 3,300 feet A.S.L. in the prominent north-south valley which contains the Alleyne-Kentucky fault zone. This property is fairly heavily tree covered except for portions of the lower slopes.

### HISTORY

The Aspen Grove Copper Camp has a history of exploration and minor production extending back to the turn of the century. Numerous old diggings occur in this 8 mile long area which extends from the north end of Missezula Lake to the northern boundary of the Princeton Map-Sheet.

On the Snowflake property, a number of old surface pits and shallow underground workings date back at least 30 to 40 years. A second generation of trenching and some diamond drilling probably dating from the 1950's and 1960's is located in the south central and northeastern portions of the property. Claim posts dating from this period indicate that one of the previous owners was Valnicola Copper Mines. During 1972 and 1973, Craigmont Exploration carried out a programme of percussion and diamond drilling which covered portions of the northern portion of the existing property. It is reported also that two induced polarizations surveys covered a part of the present claim area (personal communication - N. B. Volle, Craigmont Exploration Ltd.)

The Bluey property contains a number of old prospect pits and short adits which probably predate 1940. A later series of bulldozer trenches and several diamond drill holes probably date from the early 1960's when the property was controlled by the Pyramid interests.

The Prize property, similarly, has several old, shallow adits and prospect pits which are at least 40 years old. A series of more recent bulldozer trenches are located in the northwestern portion of the property and at least two diamond drill holes - estimated to be not more than 10 years old, are present.

Much of this work should be documented in Assessment Reports and Annual Reports of the B. C. Minister of Mines and Petroleum Resources.

#### GEOLOGY

The Aspen Grove area is within a terrain commonly referred to as the Nicola Belt, a eugeosynclinal Upper Triassic island-arc rock assemblage. Massive andesitic flows and coarse pyroclastic rocks predominate in the central part of the area and a sequence of layered and massive volcanogenic rocks along the eastern margin. The southwestern section of the area is underlain by intercalated volcanoclastic rocks, flows, and calcareous sedimentary rocks that are partly covered by coarse volcanic breccia.

A sequence of massive red to purple and green augite porphyry flows, coarse volcanic breccia and dioritized volcanics is present in the central part of the region. This sequence may indicate the existence of a central zone of partly subaerial volcanic centres.

Intrusive rocks within the area are mainly dioritic and appear to be in part comagmatic with the Nicola volcanic rocks because of similar composition and gradational relationships. Several small areas of monzonite and/or syenite are found within the belt.

The structure of the Aspen Grove area is dominated by two regional, northerly-trending faults about 2.5 miles apart. They are linked by many splays and a terrain shattered by brittle fracture. In contrast, folding is obscure and may be slight except for drag near faults.

The Snowflake property is underlain by a sequence of flows, volcanic fragmentals and related volcanoclastic sediments intruded by a mass of diorite in the eastern half of the claim block. A small body of monzonite is present near the northeast corner of the property.

The Bluey property is underlain by red and green intermediate to basic flows, volcanic fragmentals with varying amounts of intercalated clastic sediments and calcareous rocks. This sequence is intruded by a body of "diorite" which occupies the northeast half of the property.

Portions of this "diorite" may in fact be altered and dioritized flows. A number of outliers of volcanic fragmentals are found in this diorite. A prominent northwesterly - trending fault transects the property and forms the boundary between the "diorite" and younger, intruded rocks.

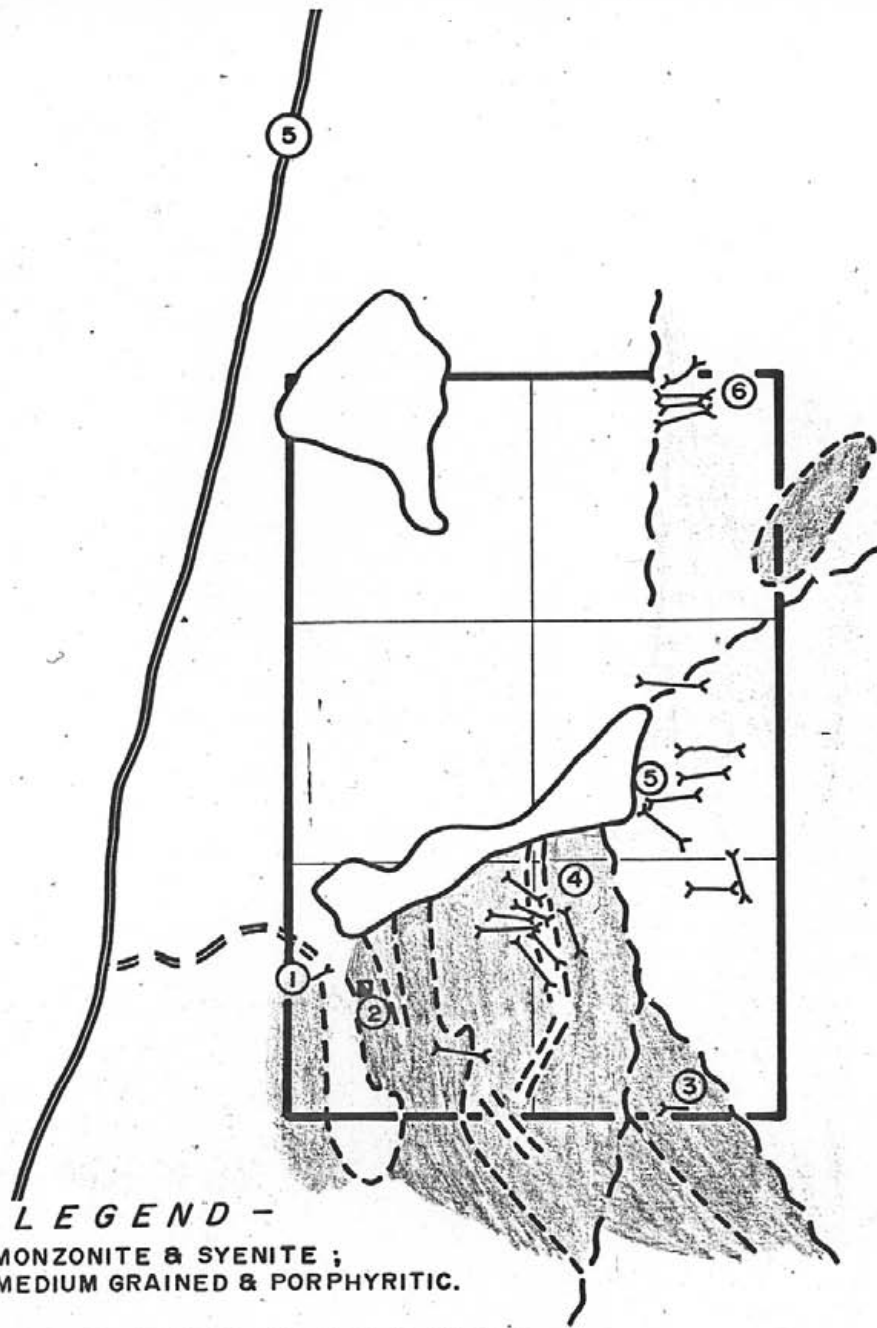
The Prize property is underlain almost entirely by a sequence of massive red and green, andesite and basalt flows of the Nicola Group. Minor horizons of volcanic fragmentals occur in the area and a small body of monzonite outcrops near the northwest corner of the claim block. Two small remnants of Pleisocene valley basalts are found in the eastern half of the claims.

#### MINERALIZATION










Copper mineralization is widespread in the Aspen Grove belt and various copper sulphides, oxides, and carbonates along with pyrite, hematite and magnetite are usually present in the various showings.

According to Christopher (1973) four main types of copper occurrences are found:

- (1). Chalcopyrite, bornite and native copper and chalcopyrite and pyrite mineralization in fine grained and brecciated zones along the western margins of the diorite bodies. (areas No. 5 & 6 on the Snowflake property).



- LEGEND -

-  MONZONITE & SYENITE ;  
MEDIUM GRAINED & PORPHYRITIC.
-  DIORITE, QUARTZ DIORITE & GABBRO.
- NICOLA GROUP**
-  VOLCANIC SILTSTONE & SANDSTONE.
-  VOLCANIC BRECCIA ; VOLCANIC  
CONGLOMERATE & LAHAR DEPOSITS.
-  AUGITE PORPHYRY FLOWS ;  
AUTOBRECCIATED IN PART.
-  GEOLOGICAL CONTACT.
-  FAULT
-  TRENCH
-  OLD WORKINGS : SHAFT, ADIT.
- ③** MINERAL OCCURRENCE DESCRIBED  
IN ACCOMPANYING REPORT.

To Accompany A Report By J.M. DAWSON, P. Eng.

GEOLOGY & MINERAL OCCURRENCES  
SNOWFLAKE MINERAL CLAIM

ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA

Date : JULY 4, 1975

Scale : 1" = 1/4 MILE

Tech. Work By:  
KERR-DAWSON & ASSOCS.

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- (2). Chalcopyrite, bornite, pyrite and magnetite in breccia zones in andesite, dioritized volcanics and diorite (area No. 2 on the Bluey property, area No. 3 on the Prize property).
- (3). Chalcocite, native copper and hematite in fracture zones in the massive volcanic sequence and in breccia sequences. (area No. 1 on the Snowflake property, areas No.1 & 2 on the Prize property).
- (4). Chalcocite, bornite, chalcopyrite, malachite, and pyrite in limestone and argillite (area No. 1 on the Bluey property).

Six areas of copper mineral occurrences were noted on the Snowflake property and will be described in order, (see figure III-3). At area No. 1, a 30 foot long quarry and a 15 foot long adit have been driven southwesterly into a sequence of coarse to fine volcanic fragmentals and graywackes. Malachite, chalcocite and minor bornite are found as thin coatings on three sets of fractures and also with thin calcite veinlets which occur along some fractures.

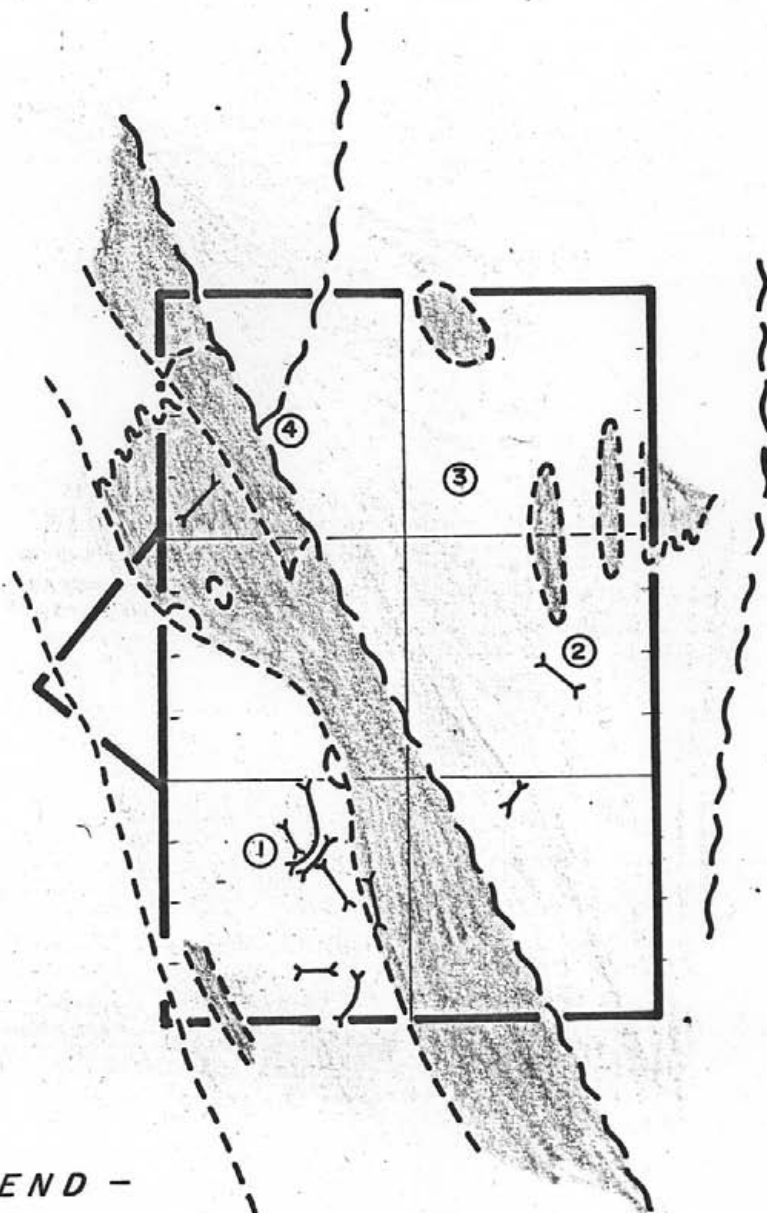
At No. 2 a partly caved 8 foot shaft has been sunk on a northerly-trending shear zone in greenish, basic volcanics. Minor scattered malachite was noted on fractures over a width of several feet within the shear zone.

Area No. 3 is located near the southern edge of the claim. This showing consists of a 15 foot tunnel driven northeasterly along a dike (?) or two parallel faults in fairly massive flows. Minor malachite was noted on several fractures. The zone cannot be traced on surface.

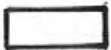

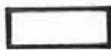






Area No. 4 consists of about 6 bulldozer trenches which have been cut around a series of shallow, older prospect pits. At least one short X-ray drill hole was drilled to cut this northerly-trending zone. This area is underlain by a series of red and green volcanic fragmentals and sediments cut by one or more north-trending diabase or diorite dikes? Scattered malachite and chalcocite were noted on fractures in volcanic and intrusive material in three trenches. The width of this zone is not known, but seems to be roughly 10 to 20 feet. It cannot be traced outside the trenched area because of overburden cover.

Area No. 5 consists of about 7 bulldozer trenches and irregular cleared areas. The eastern-most trenches are cut in coarse diorite which contains scattered pyrite and limonite but no visible copper mineralization. Nearer the lake (see figure III-3) several irregular cuts expose a zone (north-trending but of unknown width) of fine grained diabasic rocks, sparsely to moderately mineralized with disseminated, fine grained chalcopyrite. Some narrow stringers and blebs of chalcopyrite occur along incipient fractures. Frequent coatings of malachite occur on fractures where material has been exposed for some time.

Area No. 6 is a north-trending zone which may be as much as 100 feet wide and can be traced along strike for at least 750 feet. It may be the northern extension of mineralization exposed at area No. 5 (see figure III-3). A series of trenches and irregular cleared areas crosscut the mineralized zone. Very old prospect pits are noted in two areas. A number of diamond drill holes and percussion



- LEGEND -

-  DIORITE, QUARTZ DIORITE & GABBRO.  
NICOLA GROUP
-  SILTSTONE, SANDSTONE & ARGILLITE.
-  REEFOLD LIMESTONE & RELATED  
SEDIMENTARY ROCKS.
-  GREEN & RED VOLCANIC  
BRECCIA & LAHAR DEPOSITS.
-  RED & GREEN ANDESITE & BALSALT FLOWS  
WITH SOME INTERCALATED SEDIMENTS.
-  GEOLOGICAL CONTACT
-  FAULT
-  TRENCH
-  MINERAL OCCURRENCE DESCRIBED  
IN ACCOMPANYING REPORT.

To Accompany A Report By J.M. DAWSON, P. Eng.

GEOLOGY & MINERAL OCCURRENCES  
BLUEY & BALSAM  
MINERAL CLAIMS  
ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA

Date : JULY 4, 1975

Scale : 1" = 1/4 MILE

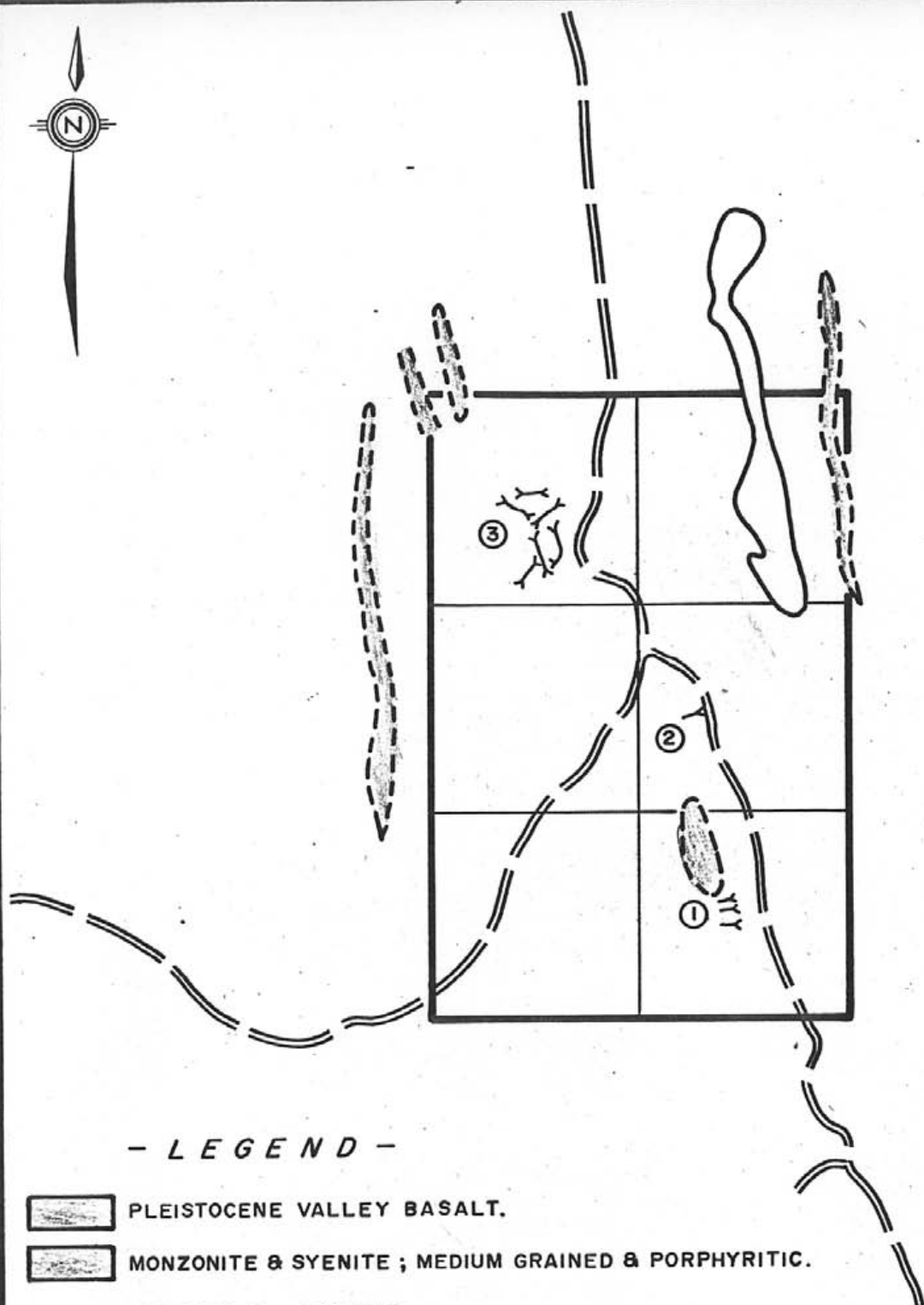
Tech. Work By:  
KERR-DAWSON & ASSOCS.

Dwg. No. III - 4

holes have been drilled in this area and south towards area No. 5. The mineralization consists of frequent coatings of malachite on fracture surfaces in rubble in the trenches. Only minor chalcopyrite was seen; however, there is very little fresh rock visible.

Four areas of mineralization were noted on the Bluey property and will be described in order (see figure III-4). Area No. 1 consists of about 6 bulldozer trenches in an area where several much older prospect pits were sunk on outcropping copper mineralization. The area is underlain by a sequence of northwesterly - striking volcanic flows, coarse fragmentals, calcareous conglomerates, graywackes and limestone, intruded by one or more dikes or small intrusions of monzonite. Mineralization consists of fracture coatings of chalcopyrite and malachite; streaks and segregations of chalcopyrite and malachite in calcareous material in the interstices of coarse conglomerates and as stringers and clots in small skarn-like areas in some tuffs and fragmentals. This mineralization does not seem confined to any one zone but occurs in several trenches over an area roughly 200 feet square. Poor exposures in the immediate area preclude tracing the mineralization further.

Area No. 2 consists of 3 old prospect pits and one more recent bulldozer trench in an area of massive fine grained diorite or dioritized volcanics. These rocks are brecciated or fragmental in a few places and the interstices between fragments are filled with massive to semi-massive blebs and stringers of bornite, chalcocite and magnetite. The zone seems to trend northwesterly and has been tested by one -45° drill hole transverse to its strike. The ultimate width of this zone or zones is unknown due to overburden cover;



- L E G E N D -



PLEISTOCENE VALLEY BASALT.

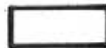


MONZONITE & SYENITE ; MEDIUM GRAINED & PORPHYRITIC.

NICOLA GROUP



GREEN & RED VOLCANIC BRECCIA & LAHAR DEPOSITS.



RED & GREEN ANDESITE & BASALT FLOWS.

--- GEOLOGICAL CONTACT

—< OLD WORKINGS - ADIT

>— TRENCH

③

MINERAL OCCURRENCE DESCRIBED  
IN ACCOMPANYING REPORT.

To Accompany A Report By J.M. DAWSON, P. Eng.

GEOLOGY & MINERAL OCCURRENCES  
PRIZE MINERAL CLAIM  
ASPEN GROVE AREA  
NICOLA MINING DIVISION  
BRITISH COLUMBIA

Date : JULY 4, 1975

Scale : 1" = 1/4 MILE

Tech. Work By:  
KERR-DAWSON & ASSOCS.

Dwg. No. III - 5

similarly very little can be said about extensions along strike.

Area No. 3 consists of 4 prospect pits in an outcrop area of diorite or dioritized flows. Mineralization consists of scattered coatings of malachite and chalcocite along fractures in several narrow shear zones. A drill hole inclined at  $-45^{\circ}$  in a northeasterly direction was drilled under one of the prospect pits.

Area No. 4 consists of 3 very old prospect pits in an outcrop of diorite or dioritized greenstone which lies just east of the prominent fault which cuts through the entire claim block. Mineralization consists of scattered malachite and chalcocite on fractures which are oriented in a northeasterly direction.

Three areas of mineralization were noted on the Prize property and are described in order (see figure III-5). Area No. 1 consists of one caved adit about 30 to 40 feet long and three nearby prospect pits. A drill hole inclined at  $-45^{\circ}$  was drilled in a westerly direction under the caved adit. The mineralization consists of coatings of malachite and chalcocite on fractures and associated with westerly trending calcite stringers in sheared buff to reddish andesite flows. Lack of outcrop prevents the tracing of the mineralization along strike.

Area No. 2 consists of 2 old pits in fairly massive, greenish gray andesite. Mineralization consists

of malachite and minor chalcocite on westerly trending fractures. Malachite staining on fractures was seen in outcrops both north and south of the prospect pits in an area about 100 feet long in a north-south direction.

Area No. 3 consists of about 6 bulldozer trenches in fairly massive reddish pillowed andesite. Scattered blebs and semi-massive lenses of chalcocite occur in small breccia zones and interstices between pillows. Some malachite staining occurs on fractures and associated with calcite stringers. Mineralization was seen only in the 3 lowermost trenches.

#### ECONOMIC POTENTIAL

Copper mineralization in widely separated localities occurs on all three properties. Many of these occurrences are of themselves insignificant; however, they do indicate the widespread nature of the mineralization and if a favorable structure or "trap" were present at depth or in areas currently obscured by overburden, more extensive areas of mineralization might occur. Two areas in particular seem to offer greater potential for the discovery of possible economic zones. Areas 5 & 6 on the Snowflake property seem to indicate the presence of a mineralized zone of appreciable strike length. Area No. 1 on the Bluey property contains several different modes of mineralization and might be expanded to a mineralized area of appreciable size.

In general, the presence of intrusives of several different types, of abundant volcanic fragmentals and breccias, of potentially favorable, reactive calcareous horizons and the location of major faults and shear zones which could act as channelways for mineralizing fluids gives the Aspen Grove area in general the potential for discovery of possible economic copper deposits.

#### SUMMARY AND CONCLUSIONS

- (1). The Snowflake, Bluey and Prize properties consist of eighteen full sized claim units and one fraction located in three separate areas of the Aspen Grove copper camp. All properties are road accessible and close to major supply centres.
- (2). The Aspen Grove copper camp has been extensively explored since the early 1900's and evidence of several exploration programmes is present on all three of the subject properties.
- (3). The properties are underlain by volcanic flows, fragmentals and intercalated sediments of the Nicola Group intruded by several types of intrusives - some of which may be comagmatic with the volcanics. Extensive faulting is a feature of the region.
- (4). Copper mineralization occurs in a number of environments in widely scattered localities on all three properties and in numerous other locations throughout the district. Two of the showings



examined - Areas 5 & 6 on the Snowflake property and Area 1 on the Bluey property seem to have particular merit.

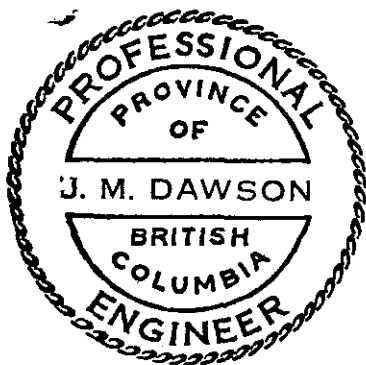
- (5). Many factors, including the presence of several types of intrusives, of areas of fragmental and brecciated volcanics, of potentially reactive calcareous rocks and of strong through-going faults give the properties added potential for the discovery of possible economic copper mineralization.

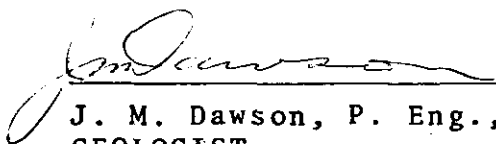
#### RECOMMENDATIONS

- (1). Compile all data from previous exploration programmes on the subject properties from government and private industry sources.
- (2). Carefully prospect and trace with soil geo chemistry the extensions and boundries of the mineralized zones.
- (3). Integrate previous geological, geochemical and geophysical data with results from initial prospecting and delineate areas for surface trenching.
- (4). Based on the results of trenching, selectively drill the most promising areas.

Respectfully Submitted:

KERR, DAWSON & ASSOCIATES LTD.,



  
J. M. Dawson, P. Eng.,  
GEOLOGIST

A P P E N D I X A

REFERENCES

## REFERENCES

- Rice, H. M. A. (1960): - Geology and Mineral Deposits of the Princeton Map Area; G. S. C. Memoir #293.
- Christopher, P. A. (1973): - Preliminary Geological Map of the Aspen Grove Area; B. C. Dept. Mines and Petroleum Resources, Preliminary Map #10.
- Preto, V. A. G. (1975): - Geology of the Central Part of the Nicola Group, British Columbia; B. C. Department of Mines and Petroleum Resources, Preliminary Map #18.
- Annual Reports of B. C. Department of Mines and Petroleum Resources, 1950 - 1973.
- Personal Communication: - N. B. Vollo, Craigmont Exploration, Kamloops, B. C.

A P P E N D I X B

WRITER'S CERTIFICATE

**JAMES M. DAWSON, P. ENG.**  
**GEOLOGIST**

9-219 VICTORIA STREET  
KAMLOOPS, B.C.

PHONE (604) 374-6427

CERTIFICATE

I, JAMES M. DAWSON OF KAMLOOPS, B. C., DO HEREBY CERTIFY THAT:

- (1). I am a geologist residing at 2753 Sunset Drive, Kamloops, and employed by Kerr, Dawson and Associates Ltd., of Suite #1 - 219 Victoria Street, Kamloops, B. C.
- (2). I am a graduate of the Memorial University of Newfoundland, B. Sc. (1960), M. Sc. (1963), a fellow of the Geological Association of Canada and a member of the Association of Professional Engineers of B. C. I have practised my profession for 12 years.
- (3). I am the author of this report which is based on personal examination of all three properties discussed as well as a perusal of various government reports and maps.
- (4). I have no beneficial interest in the properties discussed in this report nor do I expect to receive any.



July 9th., 1975,  
KAMLOOPS, B. C.

KERR, DAWSON & ASSOCIATES LTD.,

  
J. M. Dawson, P. Eng.,  
GEOLOGIST

APPENDIX "A"

APPENDIX "B"

REFERENCES

- Rice, H.M.A. (1960): Geology and Mineral Deposits  
of the Princeton Map Area;  
G.S.C. Memoir 243
- Preto, V.A. (1974): Geology of the Aspen Grove  
Area - Descriptive Notes and  
Preliminary Map #15
- Personal Communication: J.M. Dawson, P.Eng.  
Kerr-Dawson and Associates Ltd.  
#1 - 219 Victoria Street  
Kamloops, B.C.
- V.A. Preto, PhD.  
Department of Mines  
Victoria, B.C.



APPENDIX "C"

STATEMENT OF EXPENDITURES

Transportation - (4 x 4 Jeep)	
4 days @ \$35.00/day	\$ 140.00
Geochemical analysis	\$ 355.25
Printing and office expenses	\$ 125.00
Total labour	<u>\$ 1,855.00</u>
 TOTAL EXPENSES	 <u><u>\$ 2,475.25</u></u>

EMPLOYMENT EXPENSES

Name & Address	Dates Employed	Job Done	Rate of Pay	Total
J.M. Dawson, P.Eng. 1-219 Victoria, Kamloops, B.C.	June 16 to July 9, 1975	Property examination and report (Appendix "A")	\$1045.00	\$ 310.00 Bluey-Balsam portion
R.W. Yorke-Hardy, M.T., C.E.T. Box 325 Logan Lake, B.C.	June 16, 1975 ( $\frac{1}{2}$ day)	Project Management	\$120.00/day	\$ 20.00 Bluey-Balsam portion
	May 15 to July 16, 1976 (8 days)	Project Management	\$120.00/day	\$ 960.00
	(2 days)	Sampler	\$65.00/day	\$ 130.00
Gordon Knight 815 Morvin Kamloops, B.C.	May 15-16, 1976 (2 days)	Sampler	\$55.00/day	\$ 110.00
Steve Gapp 37 Beryl St. Logan Lake, B.C.	May 16 to June 5, 1976 (2 days)	Sampler	\$55.00/day	\$ 110.00
Dale Butler 825 Morvin Kamloops, B.C.	May 15-16, 1976 (2 days)	Helper	\$35.00/day	\$ 70.00
Lloyd Lindquist Chartrand Apt. Logan Lake, B.C.	May 16 to June 5, 1976 (2 days)	Helper	\$45.00/day	\$ 90.00

Name & Address	Dates Employed	Job Done	Rate of Pay	Total
Alana Yorke-Hardy Box 325 Logan Lake, B.C.	June 5, 1976 (1 day)	Helper	\$35.00/day	\$ 35.00
Carrie E. Dougan 17 Emerald Drive Logan Lake, B.C.	July 15, 1976 ( $\frac{1}{2}$ day)	Typist	\$40.00/day	\$ 20.00

APPENDIX "D"

## QUALIFICATIONS OF PERSONNEL

Gordon Knight: Pumpman at the Gulf Oil Refinery, Kamloops, B.C. Previous experience related to mining industry - crusher operator, claim staker, geochemical sampler. Trained and supervised by R.W. Yorke-Hardy on previous geochemical program.

Steve Gapp: Surveyor at Lornex Mining Corp. Ltd., Logan Lake, B.C. Previous experience as a geochemical sampler. Trained and supervised by R.W. Yorke-Hardy on previous geochemical program.

Lloyd Lindquist: Surveyor at Lornex Mining Corp. Ltd., Logan Lake, B.C. Previous experience related to the mining industry - diamond drill helper, geochemical sampler helper. Supervised by sampler.

Alana Yorke-Hardy: Housewife. Previous experience as a geochemical sampler helper. Supervised by sampler.

Dale Butler: Heavy duty mechanic. No previous experience related to the mining industry. Supervised by sampler.

## STATEMENT OF QUALIFICATIONS

I, Robert W. Yorke-Hardy, of the Province of British Columbia, do certify that:

1. I am a Mining Technologist and have practiced my profession for the past seven years. Prior to graduation, I had worked for several years in the mining and mining exploration industries.
2. I am a graduate of the British Columbia Institute of Technology, Burnaby, British Columbia.
3. I am a member of the Society of Engineering Technologists of British Columbia which is recognized by the Association of Professional Engineers of British Columbia.  
(Classification: Certified Engineering Technologist - Mining)
4. This report is based on a personally supervised program and personal observations of the property.
5. As much available reference material as possible was read in order to become familiar with the Aspen Grove area of British Columbia.

### Experience:

Dec. 74 - to date      Mine design draftsman, survey supervisor  
and project engineer.  
Lornex Mining Corp. Ltd., P. O. Box 1500,  
Logan Lake, B. C.

Apr. 73 - Dec. 74 Geological draftsman and assistant to geological staff.  
IPEC - B. C. Hydro, P. O. Box 160,  
Mica Creek, B. C.

Nov. 71 - Apr. 73 Draftsman for forest engineering department.  
Evans Products Ltd., Golden, B. C.

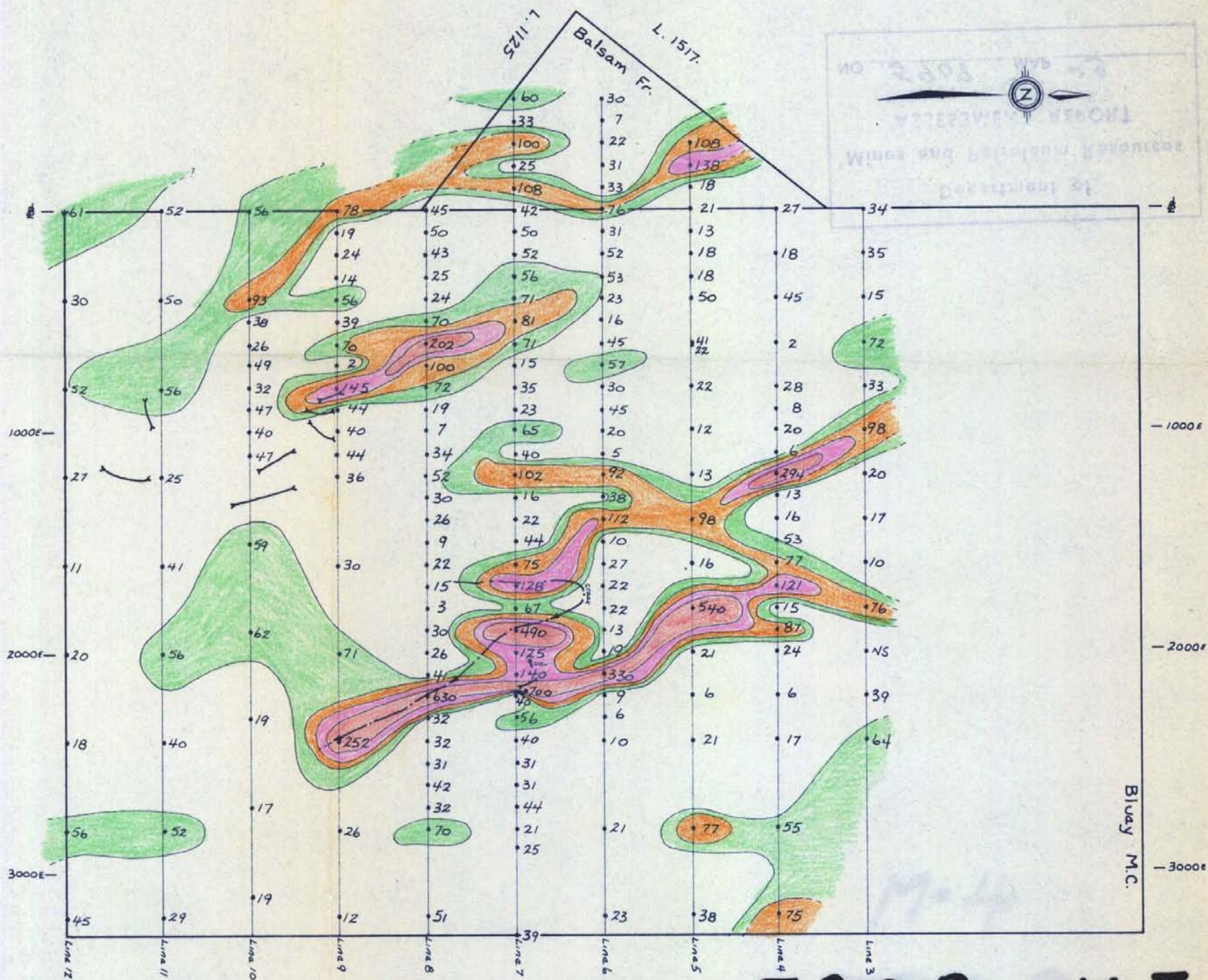
Jan. 70 - Nov. 71 Assistant mine geologist and field geologist on drill projects.  
Sherritt-Gordon Mines Ltd., Lynn Lake,  
Manitoba.

May 67 - Jan. 70 Geological assistant and project supervisor.  
Manex Mining Ltd., Vancouver, B. C.

June 63 - May 67 Miner, mining exploration worker.  
- - - Various companies - - -

*George W. H. H. H.*





**5908 M-3**

Scale: 0 500' 1000'  
0 150m 300m

Figure 3 - GEOCHEMICAL REPORT ON THE BLUEY GROUP  
ASPEN GROVE, B.C.

53 - 73ppm. - positive  
73s - 113ppm. - Anomalous  
113s - 154 ppm - 2<sup>nd</sup> order Anomaly  
> 154 ppm - 3<sup>rd</sup> order Anomaly  
Contour interval: 40.3ppm - one standard deviation

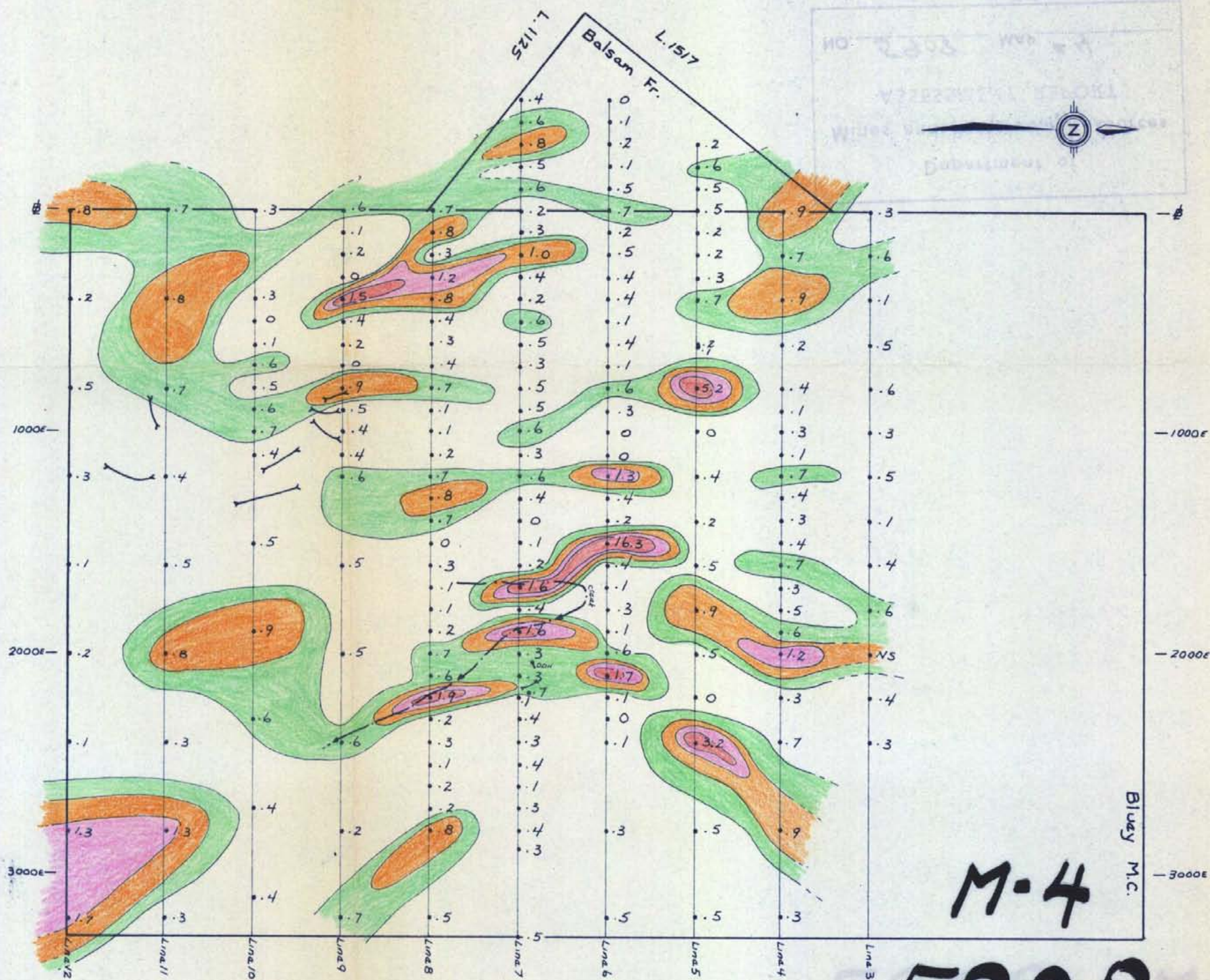
Plan of Copper Geochem Locations *[Signature]*

Date: July 15/76

Drawn by: R.W. YORKE-HARDY, M.T., C.E.T.

Bluay  
Lake





Scale: 0 500 1000  
0 150 300

Figure 4 - GEOCHEMICAL REPORT ON THE BLUEY GROUP  
ASPEN GROVE, B.C.

.57 - .74 ppm. - positive  
.74 - 1.08 ppm. - Anomalous  
1.08 - 1.42 ppm. - 2<sup>nd</sup> order Anomaly  
> 1.42 ppm - 3<sup>rd</sup> order Anomaly  
Contour interval = .34 ppm - one standard deviation

Bluey  
Lake

Plan of Silver Geochem Locations *Lawrence J. Yorke*  
Data: July 15/76 Drawn by: R.W. YORKE-HARDY, M.T., C.E.T.