

ARIS SUMMARY SHEET

District Geologist, Prince George

Off Confidential: 92.03.01

ASSESSMENT REPORT 21409

MINING DIVISION: Cariboo

PROPERTY: Black
LOCATION: LAT 53 09 56 LONG 122 49 36
UTM 10 5890484 511588
NTS 093G02W
CLAIM(S): Black 1-5
OPERATOR(S): K.V. Campbell & Assoc.
AUTHOR(S): Campbell, K.V.;Candy, C.
REPORT YEAR: 1991, 30 Pages
COMMODITIES
SEARCHED FOR: Copper,Arsenic,Gold
KEYWORDS: Carboniferous-Jurassic,Cache Creek Complex,Chert,Argillite,Basalt
Serpentinite,Reinterpretations
WORK
DONE: Geophysical,Geochemical
INFR 225.0 km
MAGA 361.0 km
ROCK 17 sample(s) ;ME
SOIL 3 sample(s) ;ME
RELATED
REPORTS: 20052

SUB-RECORDER
RECEIVED

JUN 13 1991

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VANCOUVER, B.C.

LOG NO: JUN 17 1991 RD.

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FILE NO:

**GEOLOGICAL AND GEOPHYSICAL REPORT
ON THE BLACK CLAIMS**

<u>Claim Name</u>	<u>Record No.</u>	<u>Units</u>	<u>Recording Date</u>
Black 1	9601	20	March 23, 1989
Black 2	9602	20	March 23, 1989
Black 3	9603	20	March 23, 1989
Black 4	9604	20	March 23, 1989
Black 5	9605	16	March 23, 1989

Blackwater Mountain Area,
Cariboo Mining Division, British Columbia
N.T.S. Map Area 93G/2W
Latitude 53° 10'N Longitude 122° 50'

by K.V. Campbell, Ph.D., and
C. Candy, B.Sc.

June 6, 1991

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

21,409

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1 INTRODUCTION

1.1 LOCATION, ACCESS AND TERRAIN

The Black property is located in the Cariboo Mining Division near Blackwater Mountain in central British Columbia, 30km northwest of Quesnel. The property is approximately centered at 51° 10' North latitude, 122° 50' West longitude and is situated within National Topographic Series map sheet 93G/2W (Figure 1).

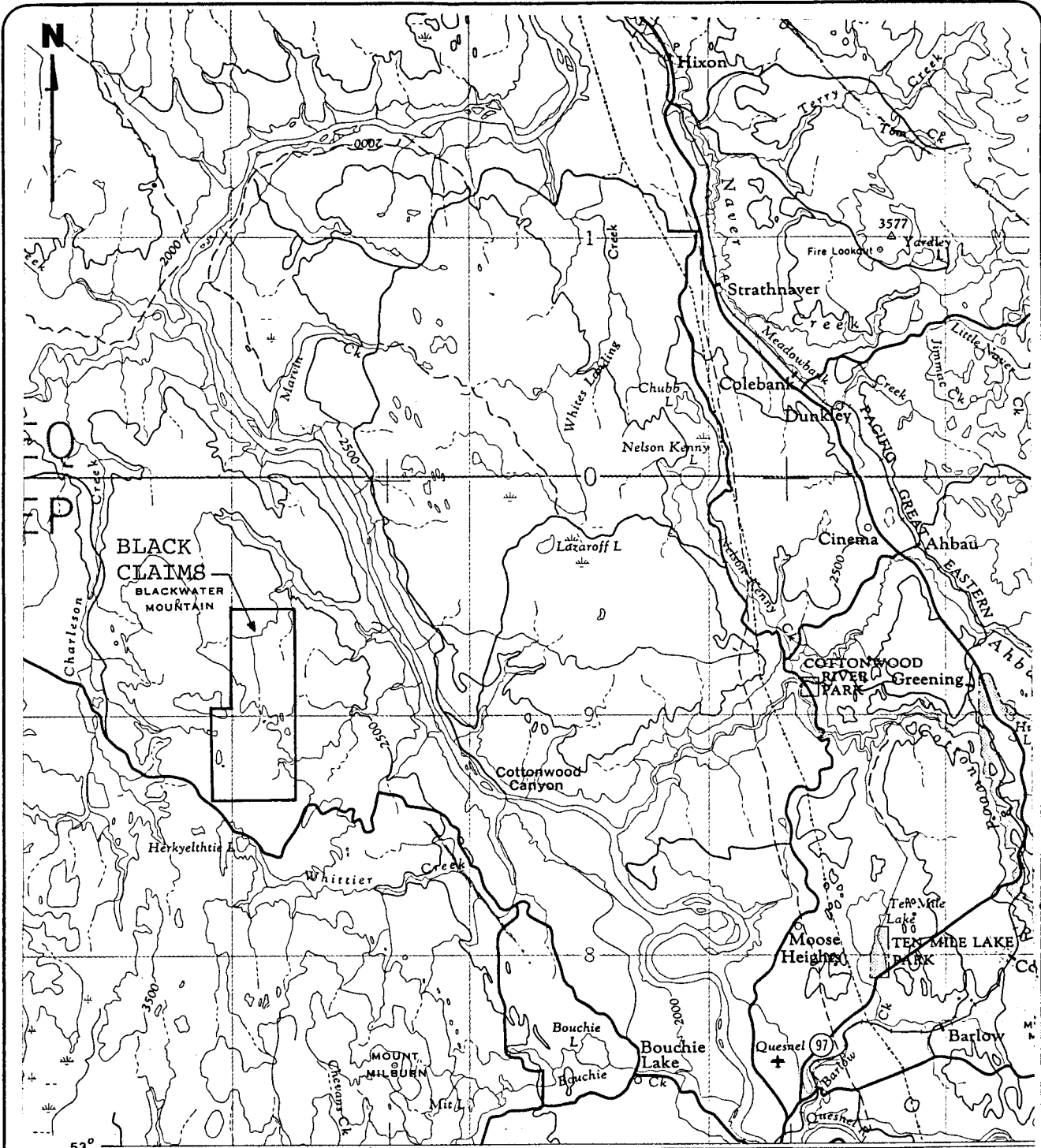
Access to the claims is from Quesnel along the Blackwater Road, an all-weather gravel road in good condition. It is about 26km from Quesnel to the bend in the road nearest the southeast corner of the claims. Recently constructed logging roads extend north off the Blackwater Road across the Black 5 claim.

The claims area has a subdued topography with a relief of no more than 300m (1,000ft). For the most part the creeks are slow moving but the main creek, which runs north through the claims, is deeply incised into thick till deposits and bedrock. Rock exposures are scarce but several are found along creeks, on the sides of knolls and on the south-facing slopes of higher hills.

Mapping by Tipper (1970) shows the direction of ice flow was to the north-northwest in this area.

1.2 CLAIM OWNERSHIP AND STATUS

The Black property consists of five modified grid system claims totalling 96 units (Figure 2). Table 1 summarizes the

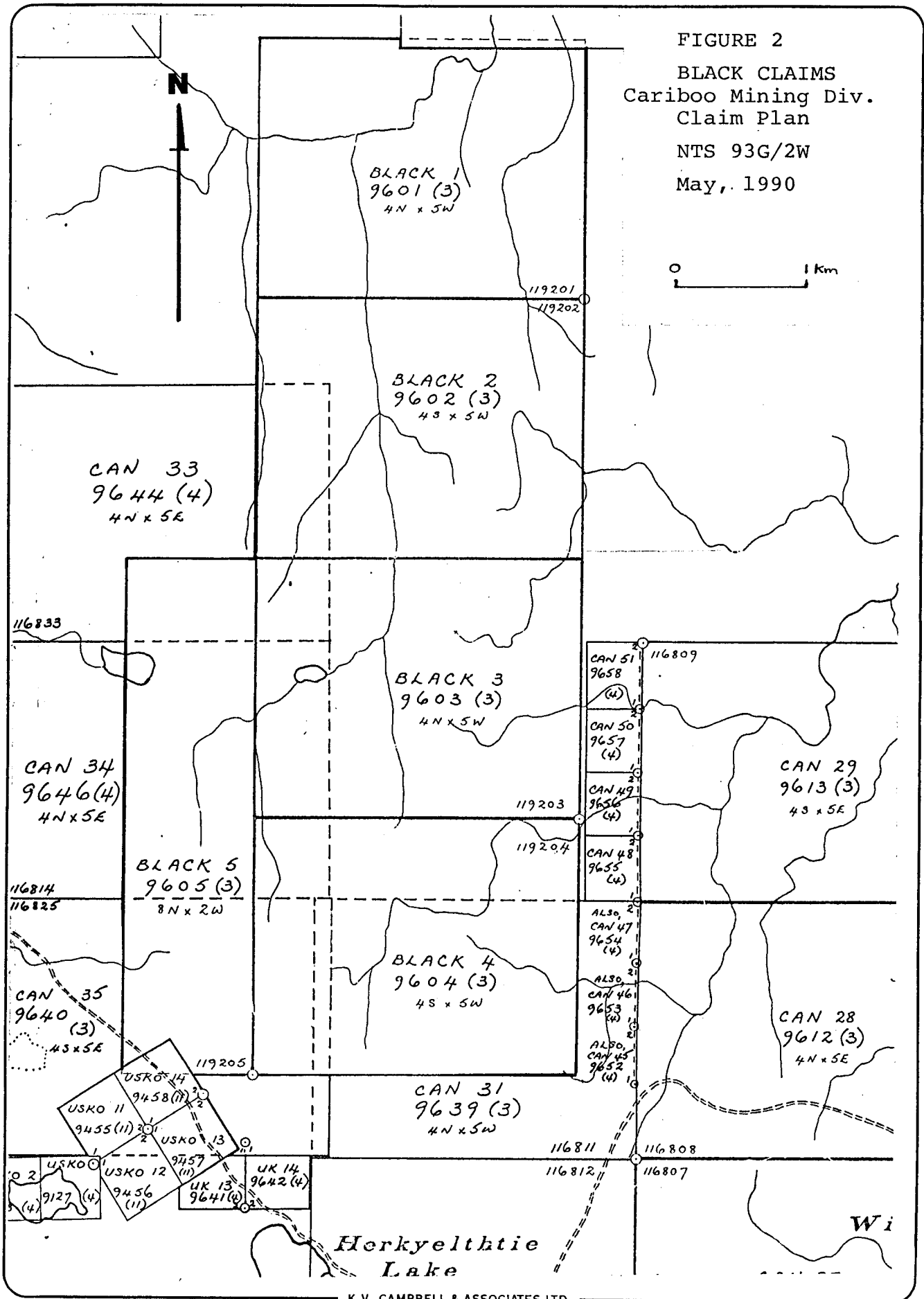


Scale 1:250,000

BLACK CLAIMS
 Cariboo Mining Div.
 NTS 93G May, 1990
 Location Map

FIGURE 1

FIGURE 2
 BLACK CLAIMS
 Cariboo Mining Div.
 Claim Plan
 NTS 93G/2W
 May, 1990



claim particulars. The claims are owned by K.V. Campbell of Vancouver, B.C.

Table 1. Summary of Claim Particulars

<u>Claim Name</u>	<u>Record No.</u>	<u>Units</u>	<u>Recording Date</u>
Black 1	9601	20	March 23, 1989
Black 2	9602	20	March 23, 1989
Black 3	9603	20	March 23, 1989
Black 4	9604	20	March 23, 1989
Black 5	9605	16	March 23, 1989

1.3 Previous work

In 1989 the major drainageways were prospected and silt sampled. Ground magnetometer surveys were done on two grids on the Black 2 and Black 4,5 claims. These results are described in an assessment report by Campbell and Hillman, 1990.

1.4 1990/91 Work Program

Field work was conducted during September of 1990, and included rock chip sampling along the major drainage running northwards across the Black 1, 2 and 3 claims. A few soil samples were also collected. A total of 17 rock samples and 3 soil were analyzed in 1990.

A digital analysis of Landsat Thematic Mapper (TM) was undertaken to aid in the identification of fractures believed to important in controlling mineralization. A digital analysis of aeromagnetic data was performed by Frontier Geosciences Inc. of Vancouver, B.C.

2 GEOLOGY

On a regional scale the property lies within the Cache Creek terrane of the Intermontane Tectonic Belt.

The bedrock geology of the claims area has not been mapped in detail. The most recent mapping by Struik et al (1990) shows the claims area to be underlain by rocks of the Pennsylvanian and/or Permian Cache Creek Group; dark gray ribbon chert, argillite, greenstone, minor limestone and serpentinite.

3 SOIL SAMPLING

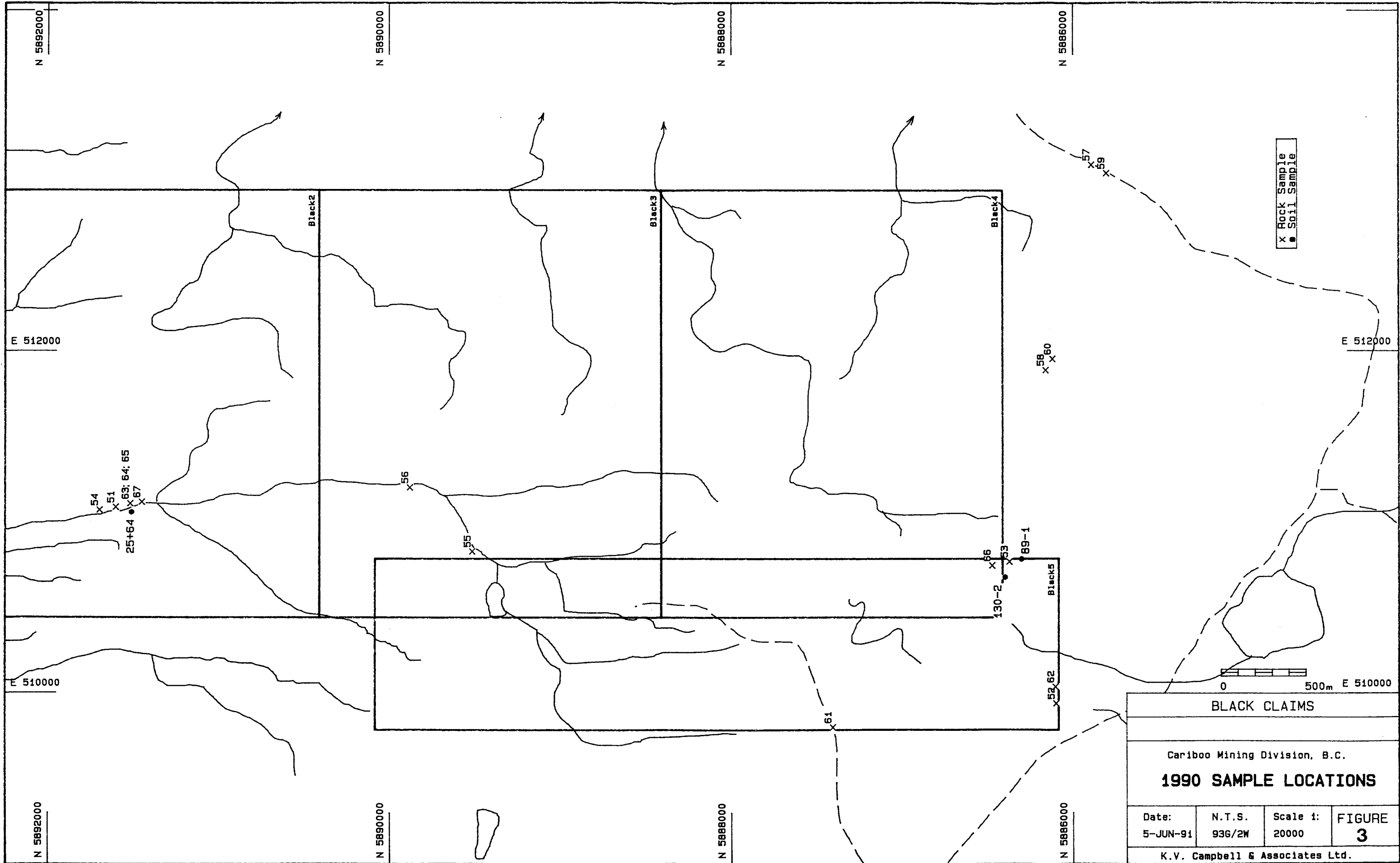
3.1 Procedure and Analytical Technique

Conventional soil sampling procedures were followed; a 4x6" Kraft paper bag was filled with material from the B horizon at depths of 15 to 20cm.

Analyses were performed by Acme Analytical Laboratories of Vancouver. Samples were dried and sieved to minus-80 mesh. A 0.5 gram sample was digested with 3ml 3-1-2 HCl-HNO₃-H₂O at 95°C for one hour and diluted to 10ml with water before ICP analysis. Gold analysis was by hot aqua regia leach on a 10gm sample followed by analysis by atomic absorption.

3.2 Results

The analytical results for the soil samples are included in Appendix I. Sample locations are shown in Figure 3 and values for copper, arsenic and gold are shown in Figure 4. Nothing of any interest was detected in the soils.



X Rock Sample
 • Soil Sample

0 500m E 510000

BLACK CLAIMS

Cariboo Mining Division, B.C.

1990 SAMPLE LOCATIONS

Date:	N.T.S.	Scale 1:	FIGURE
5-JUN-91	936/2W	20000	3

K.V. Campbell & Associates Ltd.

4 ROCK SAMPLING

4.1 Procedure and Analytical Technique

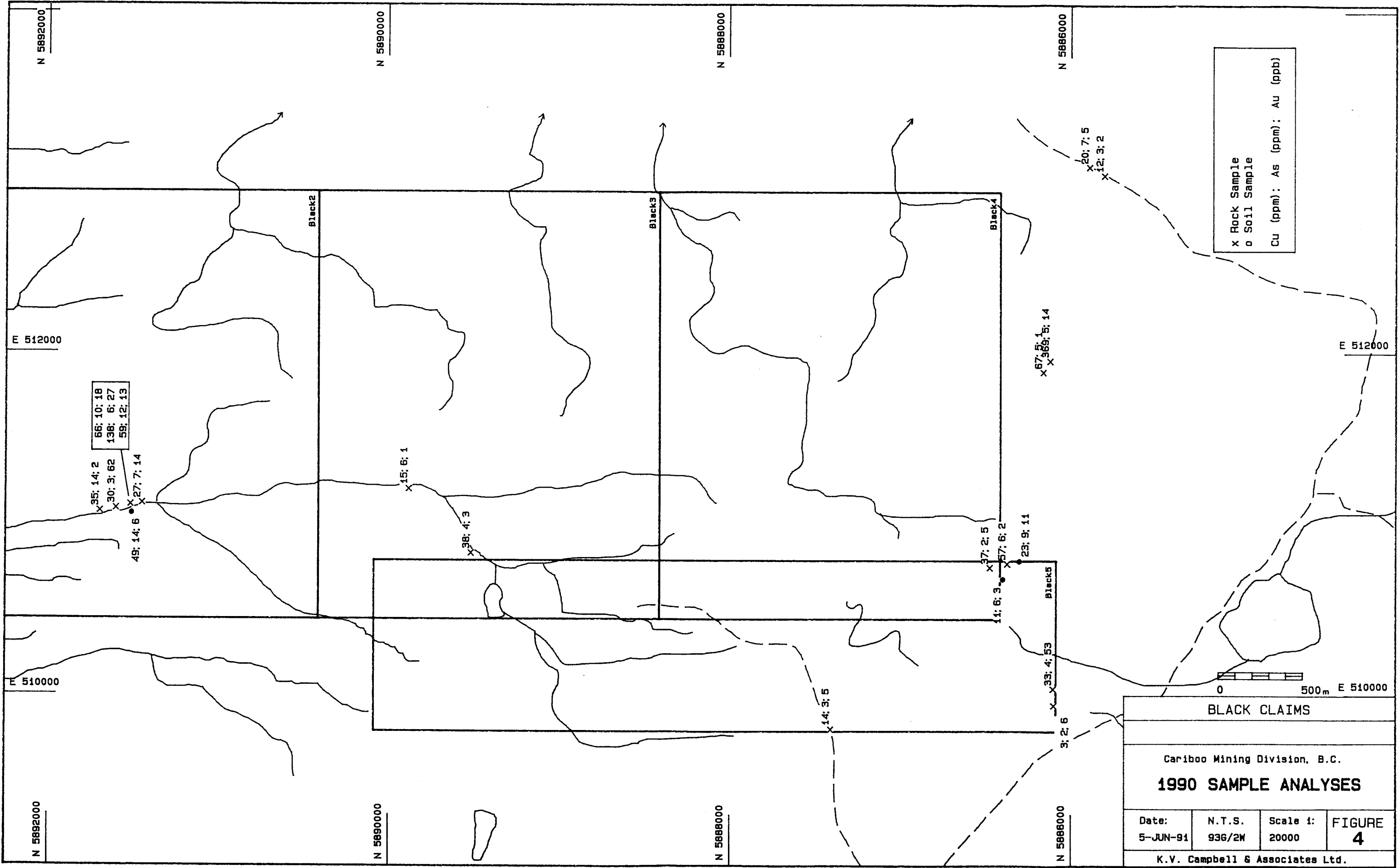
Rock sampling was done along the major drainage on the Black 2 claim where higher gold geochemical values were found in 1989 and at a few other locations where outcrop could be found. Sample locations are given in Figure 3.

Acme Analytical Laboratories Ltd. performed the ICP and Au geochemical analyses. Samples were ground to minus-100 mesh and subjected to the same digestion and analytical techniques as were the soil samples.

4.2 Results

Brief sample descriptions are given in Table 2. The analytical results for the rock samples are given in Appendix I. The results for copper, arsenic and gold are shown in Figure 4.

Cherts and fine grained quartzites from outcrops near the small waterfalls on the main drainage on the Black 2 claim are weakly anomalous in copper (138ppm, #64), gold (62ppb, #51) and arsenic (14ppm, #51). The volcanic rock with a trace of chalcopyrite (#60) carried 369ppm Cu with 14ppb Au. Andesite from outcrops along the south edge of Black 5 carried 53ppb Au.



X Rock Sample
 o Soil Sample
 Cu (ppm): As (ppm): Au (ppb)

0 500m E 510000

BLACK CLAIMS			
Cariboo Mining Division, B.C.			
1990 SAMPLE ANALYSES			
Date:	N.T.S.	Scale 1:	FIGURE
5-JUN-91	936/2W	20000	4
K.V. Campbell & Associates Ltd.			

Table 2. Rock sample descriptions.

<u>Sample No.</u>	<u>Description</u>
51	float; pale gray chert crisscrossed by fine fractures filled with black chert and clear quartz.
52	altered andesite, pale greenish gray, medium-grained
53	pale gray felsite, pyritic
54	float; gray, fine grained, even textured quartzite
55	gray siltstone
56	dark gray siltstone, microfolded
57	dark gray pyrititic siltstone, crossed by fine quartz stringers
58	black siltstone
59	rust stained vein quartz from argillite outcrop
60	greenish gray, fine grained volcanic, pyritic, contains a few fine grains of chalcopyrite
61	serpentinite
62	andesite, green, medium grained
63	bleached, purplish quartzite, fine grained
64	bleached, purplish quartzite, fine grained
65	bleached, silicified quartzite
66	vein quartz
67	black argillite

5 REMOTE SENSING ANALYSIS

5.1 Introduction

A remote sensing analysis was performed of an area about 15x15km² in the area of the Black claims. The study utilized Landsat 5 Thematic Mapper (TM) digital data, acquired from the Canada Centre for Remote Sensing.

There is a scarcity of regional structural information and a digital analysis of satellite imagery was undertaken to determine if subtle variations in the spectral reflectance of the vegetation and soil cover allowed the recognition of lineaments, some of which could then be interpreted to indicate structures.

Particulars of the imagery used are given in Table 4.

Table 3. Description of data

Image Date: June 18, 1985

Track 48, Frame 23

Pixel Size: 30x30m

Spectral wavebands included on the tape are:

TM-1	0.45 - 0.52	m	- visible blue
TM-2	0.52 - 0.60	m	- visible green
TM-3	0.63 - 0.69	m	- visible red
TM-4	0.76 - 0.90	m	- very near infrared
TM-5	1.55 - 1.75	m	- short wavelength infrared
TM-6	10.50 - 12.5	m	- thermal infrared
TM-7	2.08 - 2.35	m	- short wavelength infrared

Figure 5 shows the range of the TM wavebands in relation to other satellite scanners. Note that the infrared wavebands TM-4, 5 and 7, are reflected infrared, not thermal infrared.

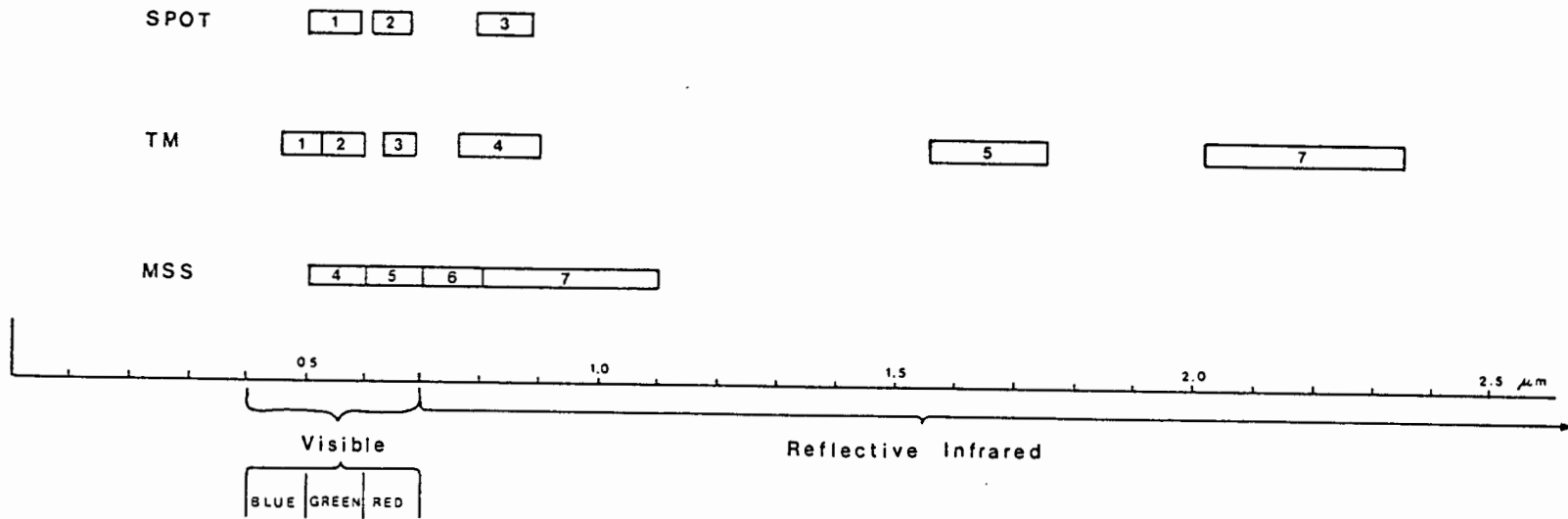


Figure 5. Satellite Scanner Wavebands.

5.2 Method

TM computer compatible tapes were acquired from the Canada Centre for Remote Sensing, Prince Albert, Saskatchewan. The imagery contained on the tapes covered an area of about 90x90km². A color transparency of the entire area at a scale of 1:500,000 was also provided by CCRS. This was a composite of TM bands 3,4 and 5. The relevant portion of this was photo-enlarged to a scale of 1:50,000 for conventional air photo analysis.

Basically, the digital analysis is as follows:

- 1) Histograms of each individual band of raw spectral data are examined.
- 2) The spectral data are 'stretched' from their raw distribution over the available brightness sensitivity range, according to the configuration of the histograms.
- 3) Each enhanced waveband is then viewed independently and a judgement made as to the quality of contrast and ability of the enhancement to identify geological structures.
- 4) Based on the above, a number of color composites are made using a combination of any three bands. Each band may be projected with either red, green or blue light. A judgement is then made as to which composites and color combinations have the most use. In this study composites of TM bands 543 and 754 (all projected in the order of red, green, blue) were the most useful. Composite TM 754 resulted in an enhancement showing outstanding lineament definition. Many of the lineaments seen on this image are literally invisible to the unaided eye. The particular location of several lineaments

strongly suggests fractures are propagated through not only glacial overburden but also through older volcanic rocks.

5) A principal component analysis was performed. This is a mathematical transformation wherein the six waveband data set is numerically transformed into a new data set that takes into account the high correlation between some bands. The entire six band data set can then be represented by three new bands or principal components which then can be color composited. The principal component analysis produces an image whose colors are unfamiliar and at first difficult to interpret, but they have the ability to maximize differences in the cover types (vegetation, soil, rock and cultural features). This particular enhancement produced an image that showed excellent differentiation of various surface cover types (clear cuts, coniferous forest, deciduous and mixed forests, grasslands, etc.). It aided greatly in the recognition of additional lineaments. Ground checking is required to match the colors on this image to particular cover types. It may aid in locating areas where there is a good chance of finding outcrop.

6) A TM band 5 image (which showed the most lineament detail of any of the bands) was 'sun shaded'. This is a technique where the computer generates a source of illumination at any particular azimuth and angle of incidence. This treatment picks up subtle spectral trends of topography and cover type, some of which may be interpreted as structures.

7) A Hue, Intensity and Saturation (HIS) transformation was also done. This converts Red, Green and Blue images into different color space. It was less successful in differentiating cover types than the principal component transformation.

Color hardcopies of selected composites were then generated either with a

color ink jet printer at a scale of 1:50,000.

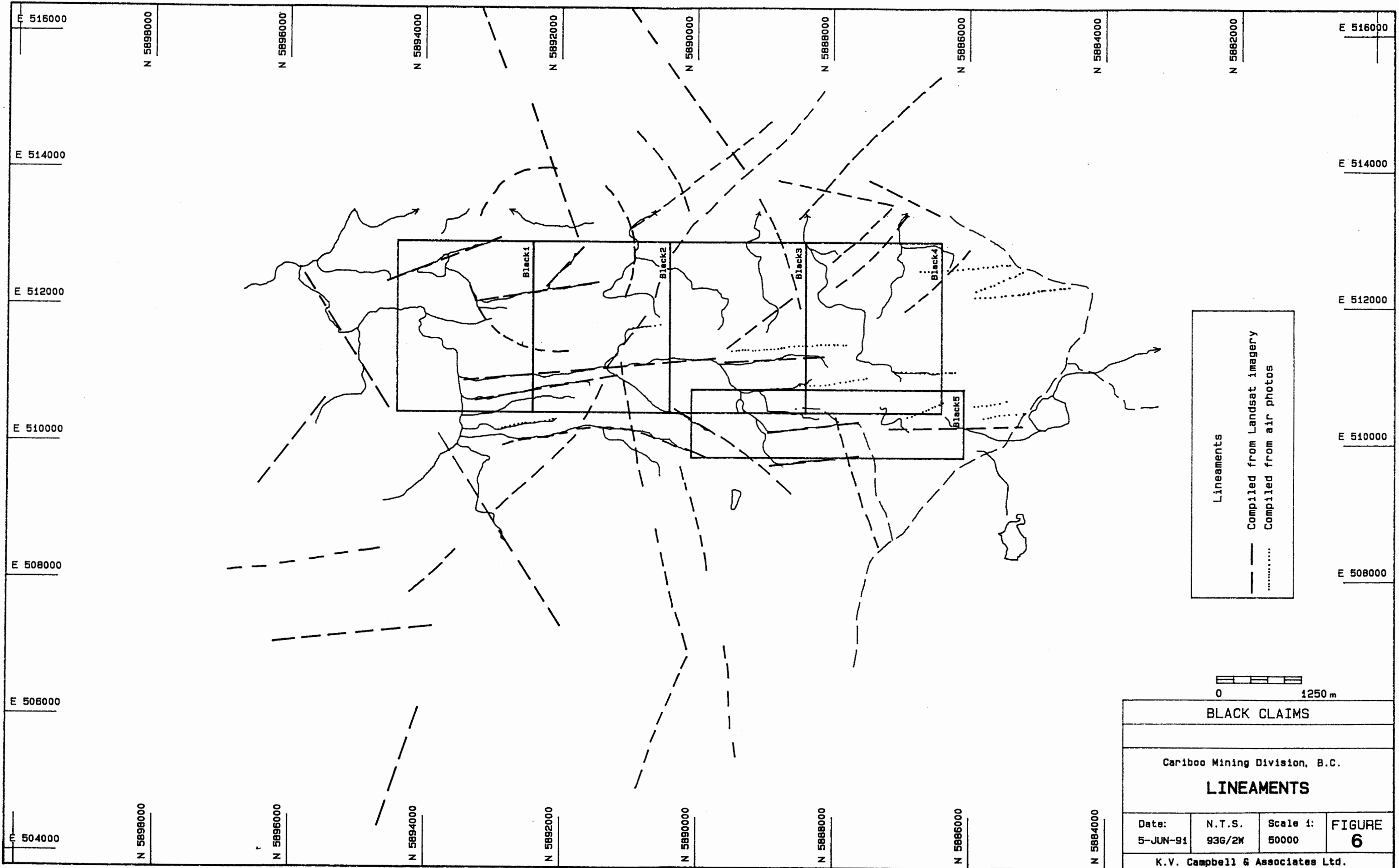
Lineament analysis is performed on acetate overlays on the hardcopies. The features making up a lineament may be geomorphic (caused by relief) or tonal (caused by contrast in color or brightness). Surface features may be landforms, linear boundaries between different types of terrain, or breaks within a uniform terrain. Tonal lineaments are caused by differences in vegetation, moisture content, and soil or rock composition.

After lineaments have been defined they are transferred onto topographic basemaps and compiled in Figure 6.

5.3 Results

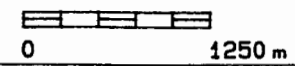
Figure 6 shows the regional structures compiled from the satellite imagery and from a conventional air photo analysis done on 1:20,000 scale air photos. Analysis of the lineaments is shown in Figure 7.

Three significant sets are recognized; northerly, northeast and northwest. The northerly set represents the prominent direction of glacial transport, evidenced by scores of shallow grooves and drumlinoid ridges that cross the area. However, at least one of the lineaments in this set, notably that along the main drainage across the Black 1,2 and 3 claims, is considered to mark a bedrock fracture. This is suggested by the presence of waterfalls and rock outcrops along part of the creek, located in the middle part of the Black 2 claim, just north of the confluence with the tributary from the southeast that marks part of a prominent northwest lineament. A circular feature, marked in part by drainage and in part by change in landforms, lies just northeast of the juncture of these same two lineaments, which are two most well developed lineaments in the local area.



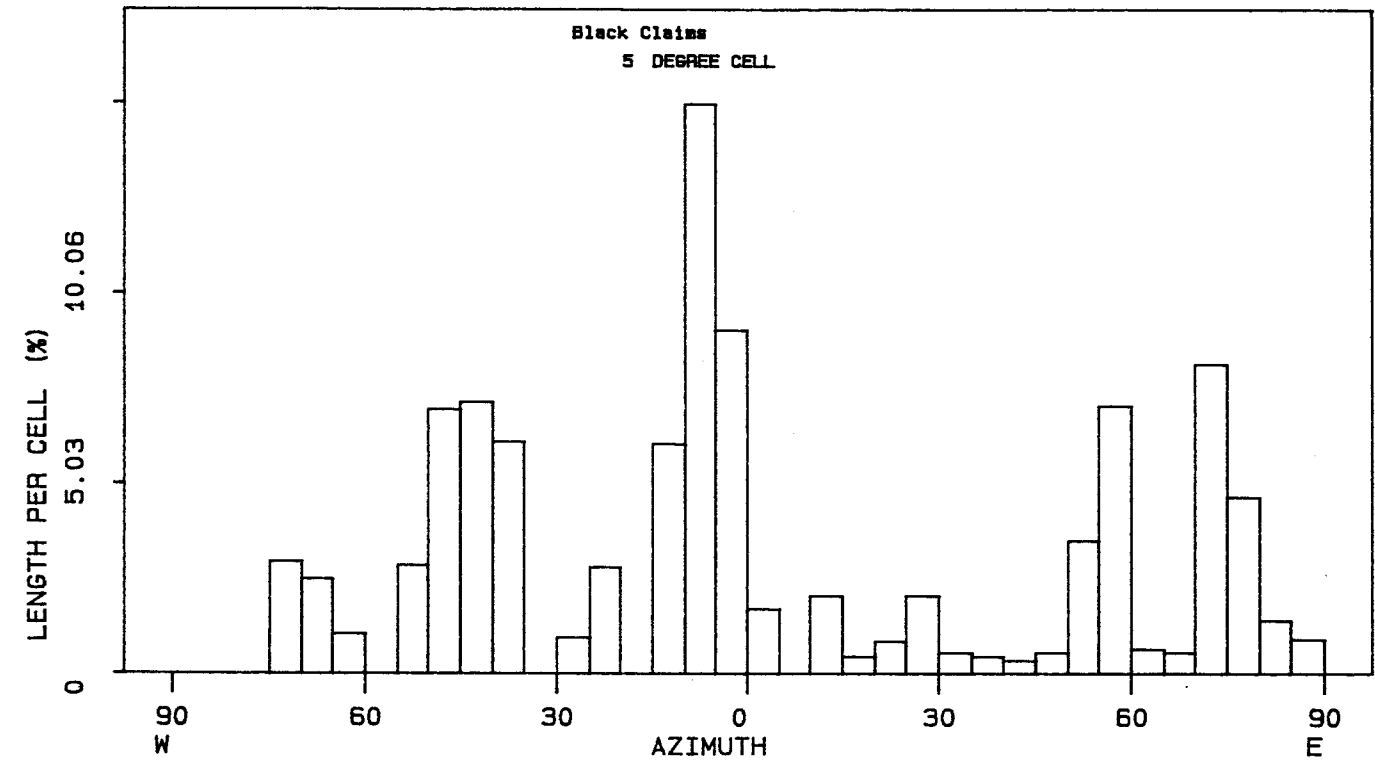
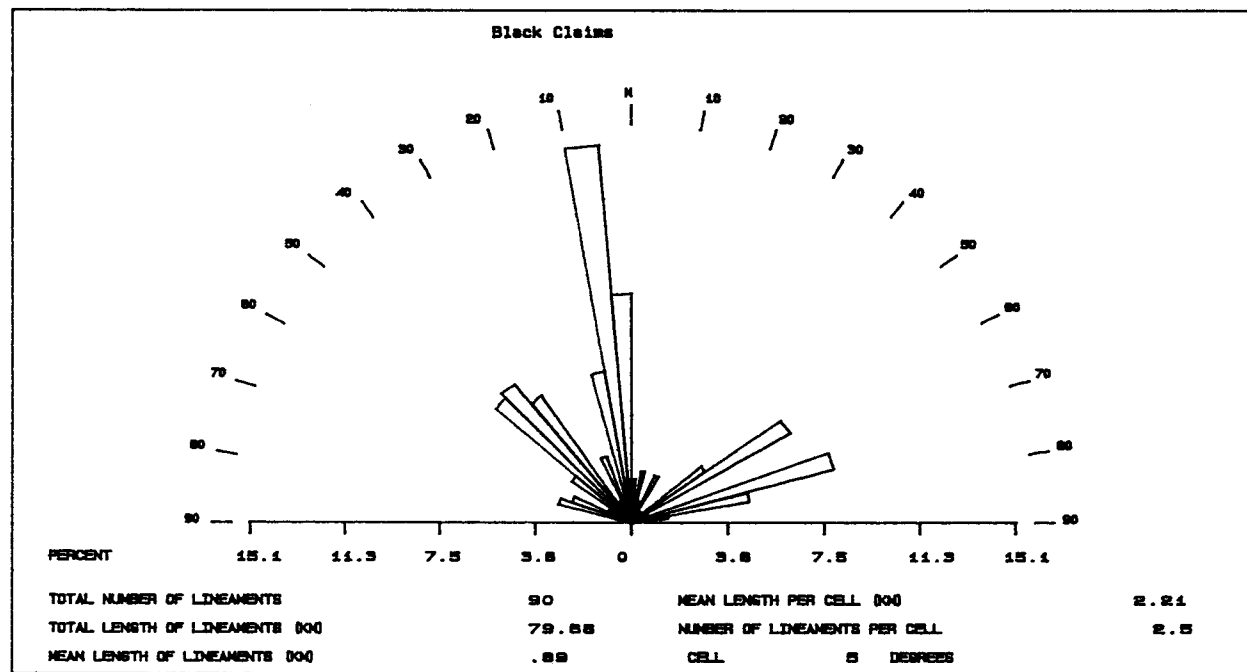
Lineaments

- Compiled from Landsat imagery
- - - - - Compiled from air photos



BLACK CLAIMS			
Cariboo Mining Division, B.C.			
LINEAMENTS			
Date: 5-JUN-91	N.T.S. 936/2W	Scale 1: 50000	FIGURE 6
K.V. Campbell & Associates Ltd.			

X



Black Claims			
Cariboo Mining Division, B.C.			
LINEAMENT ANALYSIS			
Date:	N.T.S.	7	FIGURE
7-JUN-91	936/2W		
K.V. Campbell & Associates Ltd.			

The northwest lineaments subparallel the regional geological trend and most likely represent bedrock trends.

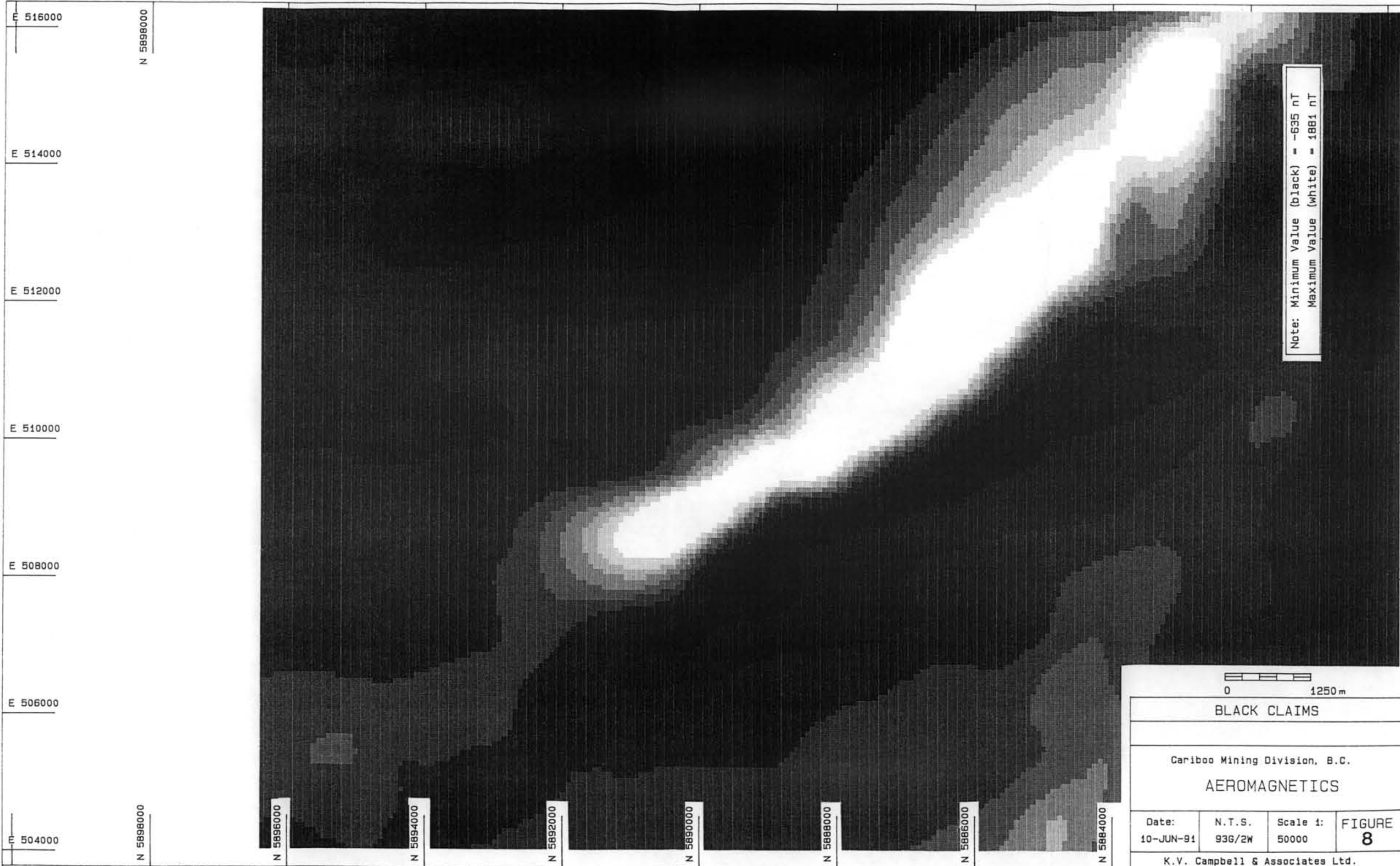
6 AEROMAGNETIC STUDY

6.1 Method

The aeromagnetic data set employed in this study was gathered by the Geophysics Division of the Geological Survey of Canada in 1961. The total field magnetic data was gathered at a nominal terrain clearance of 300m and with a flight line separation of approximately 800m. The data set was obtained from the Geophysics Division on diskette, gridded at 200m on a UTM projection, with a central meridian of 123°. The map area relevant to the Black claims was extracted from the data set and further gridded to a 75m pixel size. The data was mapped into an eight bit per pixel dynamic range of the image processing system and a 32 color or gray tone key was developed that best represented the details of the data.

6.2 Results and Interpretation

The data are displayed on the gray tone map, Figure 8, at a scale of 1:50,000. Interpreted features are illustrated in Figure 9. The strong northwesterly trending magnetic high crossing the central and south part of the Black 5 claim is interpreted to originate in the elevated magnetite content of a fault bounded serpentinite body, which outcrops along the logging road on the Black 5 claim. Major regional faults (A and B) are interpreted along the southwest and northeast sides of this prominent magnetic high. A second linear, northwest trending magnetic high crosses the Black 2 claim. Its source is considered to be granitic intrusives which outcrop along strike to the southeast. This body has been offset by two northeast trending faults (C and



Note: Minimum Value (black) = -635 nT
 Maximum Value (white) = 1881 nT

0 1250 m

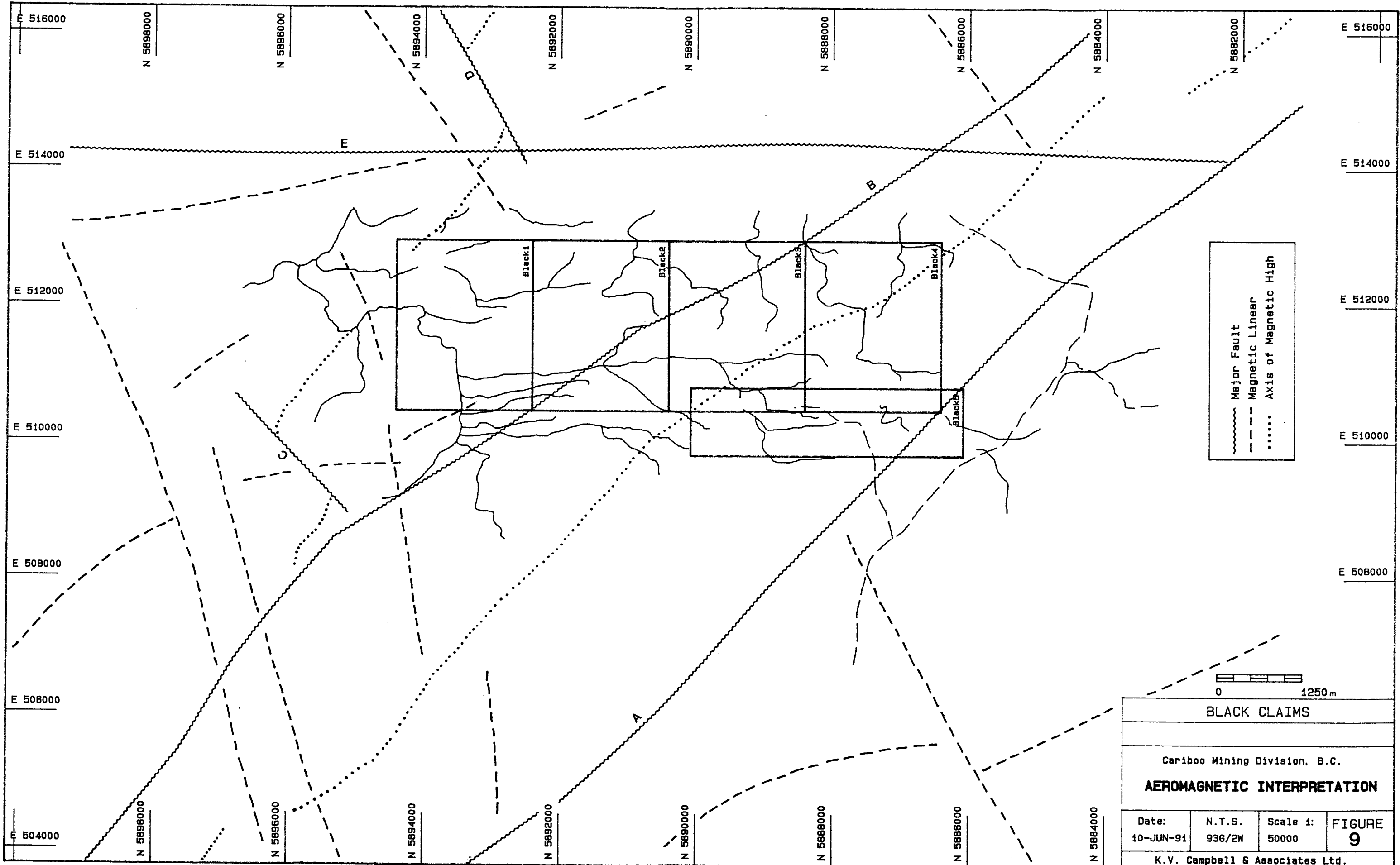
BLACK CLAIMS

Cariboo Mining Division, B.C.

AEROMAGNETICS

Date:	N.T.S.	Scale 1:	FIGURE
10-JUN-91	93G/2W	50000	8

K.V. Campbell & Associates Ltd.



~~~~~ Major Fault  
 - - - - - Magnetic Linear  
 ..... Axis of Magnetic High

0 1250m

|                                    |                  |                   |                     |
|------------------------------------|------------------|-------------------|---------------------|
| <b>BLACK CLAIMS</b>                |                  |                   |                     |
| Cariboo Mining Division, B.C.      |                  |                   |                     |
| <b>AEROMAGNETIC INTERPRETATION</b> |                  |                   |                     |
| Date:<br>10-JUN-91                 | N.T.S.<br>936/2W | Scale 1:<br>50000 | <b>FIGURE<br/>9</b> |
| K.V. Campbell & Associates Ltd.    |                  |                   |                     |

K

D), both with apparent left lateral displacement. A well developed northerly trending linear occurs east of the claims. It is considered to reflect another fault (E) as it marks the southeast terminus of the serpentinite body and westerly end of the strongest part of the anomaly east of the Black 1 claim, which is inferred to be due to an intrusive body.

## 7 CONCLUSIONS AND RECOMMENDATIONS

The Black claims are underlain by Cache Creek Group volcanic and metasedimentary rocks; argillites, limestone, cherts and basalts. In addition, a northwest trending belt of serpentinite crosses the south portion of the claims, in the neighbourhood of the south grid.

Sampling in the central part of the Black 2 claim indicates that the Cache Creek Group rocks there have slightly higher values of copper, arsenic and gold. These same rocks are pyritic, are often bleached and have quartz-filled fractures.

The digital analysis of Landsat imagery revealed the presence of three sets of major lineaments; northwest, northeast and northerly. Those exceeding 1½ km in length are considered to represent bedrock fractures, many of which have been accentuated by glaciation.

The aeromagnetic study indicates that the fractures and magnetic linears interpreted from the magnetics can be grouped into the same three orientation sets as the remotely sensed lineaments. By association and inference it is concluded that, in addition to the major northwest faults bounding the serpentinite body, there are northerly faults; for example E (Figure 9) and that along the creek crossing the Black 1 to 4 claims, and northeasterly faults; for example D (Figure 9) and its extension to the southwest and the zone of northeasterly lineaments and magnetic linears crossing and projecting onto the Black 3 claim.



## 8 BIBLIOGRAPHY

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9 ITEMIZED COST STATEMENTSalaries and Fees:

K.V. Campbell, geologist; 5 days @ \$150/day .... \$ 750.00

Disbursements:

|                                             |             |
|---------------------------------------------|-------------|
| 4x4 rental; 5 days @ \$55/day .....         | \$ 275.00   |
| 3500 km @ \$0.15/km .....                   | \$ 525.00   |
| Photocopies .....                           | \$ 30.00    |
| Meals, groceries .....                      | \$ 31.10    |
| Fuel .....                                  | \$ 86.09    |
| Assays .....                                | \$ 219.30   |
| Expendable materials .....                  | \$ 50.00    |
| Landsat imagery .....                       | \$ 1,800.00 |
| Photofinishing .....                        | \$ 257.32   |
| Telephone, fax, courier .....               | \$ 12.74    |
| Drafting .....                              | \$ 300.00   |
| Color plots .....                           | \$ 500.00   |
| Digital magnetic data .....                 | \$ 94.40    |
| Image analysis, 40 hours @ \$100/hour ..... | \$ 4,000.00 |

Contractor:

Frontier Geosciences Inc. .... \$ 2,116.20

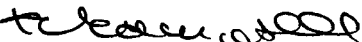
Total ..... \$ 11,047.25

10 CERTIFICATES

I, KENNETH VINCENT CAMPBELL, resident of Vancouver, Province of British Columbia, hereby certify as follows:

- 1) I am a Consulting Geologist with an office at #4 - 84 Lonsdale Ave., North Vancouver, British Columbia.
- 2) I graduated with a degree of Bachelor of Science, Honours Geology, from the University of British Columbia in 1966, a degree of Master of Science, Geology, from the University of Washington in 1969, and a degree of Doctor of Philosophy, Geology, from the University of Washington in 1971.
- 3) I have practised my profession for 25 years. I am a Fellow of the Geological Association of Canada (F0078) and a member in good standing with the American Society of Photogrammetry and Remote Sensing.
- 4) This report, dated June 6, 1991, is based on my field work on the Black claims in September 1990 and on my analysis of remotely sensed data.

Dated at Vancouver, Province of British Columbia,  
this 6th day of June, 1991.

  
\_\_\_\_\_  
K.V. Campbell, Ph.D., F.G.A.C.  
Geologist

10 CERTIFICATES

(continued)

I, Clifford E. Candy, resident of Vancouver, Province of British Columbia, hereby certify as follows:

- 1) I am a Consulting Geophysicist with an office at #7 - 84 Lonsdale Ave., North Vancouver, British Columbia.
- 2) I graduated with a degree of Bachelor of Science, Geophysics, from the University of British Columbia in 1977.
- 3) I have practised my profession for 14 years. I am an Associate member of the Society of Exploration Geophysicists.
- 4) I performed the computer processing, including detailed gridding, of the aeromagnetic data set covering the Black claims and the interpretation of the data.

Dated at Vancouver, Province of British Columbia,  
this 6th day of June, 1991.



Clifford E. Candy, B.Sc.  
Geophysicist

APPENDIX I  
Analyses Certificate

## GEOCHEMICAL ANALYSIS CERTIFICATE

K.V. Campbell &amp; Assoc. Ltd. PROJECT 88-130 File # 90-5400 Page 1

4 - 84 Lonsdale Ave, North Vancouver BC V7M 2E6

| SAMPLE#         | Mo<br>ppm | Cu<br>ppm | Pb<br>ppm | Zn<br>ppm | Ag<br>ppm | Ni<br>ppm | Co<br>ppm | Mn<br>ppm | Fe<br>% | As<br>ppm | U<br>ppm | Au<br>ppm | Th<br>ppm | Sr<br>ppm | Cd<br>ppm | Sb<br>ppm | Bi<br>ppm | V<br>ppm | Ca<br>% | P<br>% | La<br>ppm | Cr<br>ppm | Mg<br>% | Ba<br>ppm | Ti<br>% | B<br>ppm | Al<br>% | Na<br>% | K<br>% | W<br>ppm | Au*<br>ppb |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---------|--------|-----------|-----------|---------|-----------|---------|----------|---------|---------|--------|----------|------------|
| D 50551         | 4         | 30        | 3         | 12        | .1        | 17        | 1         | 203       | .65     | 3         | 5        | ND        | 1         | 18        | .2        | 2         | 2         | 5        | .32     | .005   | 3         | 13        | .08     | 35        | .01     | 4        | .13     | .01     | .05    | 1        | 62         |
| D 50552         | 1         | 3         | 5         | 20        | .2        | 5         | 1         | 259       | .51     | 2         | 5        | ND        | 2         | 63        | .2        | 2         | 2         | 8        | 1.96    | .018   | 3         | 3         | .10     | 62        | .07     | 3        | 1.63    | .02     | .20    | 1        | 6          |
| D 50553         | 1         | 57        | 2         | 72        | .1        | 38        | 28        | 600       | 6.32    | 6         | 5        | ND        | 1         | 24        | .5        | 2         | 2         | 174      | .95     | .040   | 2         | 42        | 2.58    | 146       | .47     | 36       | 2.87    | .05     | .03    | 1        | 2          |
| D 50554         | 2         | 35        | 4         | 60        | .2        | 37        | 14        | 670       | 3.54    | 14        | 5        | ND        | 1         | 31        | .4        | 2         | 2         | 90       | 2.12    | .025   | 2         | 14        | .99     | 37        | .18     | 11       | 2.43    | .03     | .12    | 1        | 2          |
| D 50555         | 3         | 38        | 4         | 19        | .1        | 13        | 1         | 76        | 1.83    | 4         | 5        | ND        | 3         | 5         | .2        | 2         | 2         | 10       | .03     | .013   | 8         | 14        | .38     | 42        | .01     | 5        | .60     | .01     | .10    | 1        | 3          |
| D 50556         | 3         | 15        | 14        | 14        | .1        | 11        | 1         | 47        | 1.43    | 6         | 5        | ND        | 2         | 13        | .2        | 2         | 2         | 6        | .01     | .008   | 6         | 10        | .19     | 46        | .01     | 5        | .35     | .01     | .10    | 1        | 1          |
| D 50557         | 4         | 20        | 4         | 16        | .1        | 18        | 3         | 84        | .92     | 7         | 5        | ND        | 2         | 5         | .2        | 2         | 2         | 5        | .03     | .008   | 3         | 17        | .19     | 38        | .01     | 7        | .26     | .01     | .05    | 1        | 5          |
| D 50558         | 1         | 67        | 4         | 92        | .1        | 19        | 13        | 607       | 4.63    | 5         | 5        | ND        | 2         | 25        | .4        | 2         | 2         | 102      | 1.55    | .061   | 5         | 28        | 1.48    | 19        | .33     | 5        | 2.53    | .04     | .08    | 1        | 1          |
| D 50559         | 2         | 12        | 4         | 13        | .1        | 15        | 2         | 143       | .76     | 3         | 5        | ND        | 1         | 10        | .2        | 2         | 2         | 5        | .05     | .011   | 3         | 12        | .22     | 46        | .01     | 4        | .31     | .01     | .03    | 1        | 2          |
| D 50560         | 1         | 369       | 3         | 60        | .3        | 8         | 12        | 770       | 3.52    | 5         | 5        | ND        | 1         | 160       | .2        | 2         | 2         | 30       | .85     | .033   | 2         | 7         | 1.62    | 95        | .19     | 3        | 2.10    | .04     | .09    | 1        | 14         |
| D 50561         | 1         | 14        | 2         | 21        | .1        | 1345      | 55        | 507       | 2.08    | 3         | 5        | ND        | 1         | 6         | .2        | 2         | 3         | 19       | .39     | .002   | 2         | 1104      | 16.95   | 4         | .01     | 41       | .28     | .01     | .02    | 1        | 5          |
| D 50562         | 1         | 33        | 2         | 48        | .1        | 14        | 8         | 349       | 1.98    | 4         | 5        | ND        | 2         | 57        | .2        | 2         | 2         | 46       | 1.32    | .051   | 3         | 14        | .88     | 51        | .15     | 3        | 1.82    | .03     | .15    | 1        | 53         |
| D 50563         | 3         | 66        | 4         | 107       | .1        | 33        | 9         | 90        | 1.91    | 10        | 5        | ND        | 5         | 11        | .5        | 2         | 2         | 47       | .05     | .018   | 9         | 41        | .79     | 102       | .09     | 2        | 1.50    | .02     | .42    | 1        | 18         |
| D 50564         | 4         | 138       | 5         | 178       | .4        | 32        | 14        | 55        | 1.04    | 6         | 5        | ND        | 4         | 6         | 1.4       | 2         | 2         | 47       | .07     | .032   | 8         | 33        | .47     | 58        | .01     | 4        | .77     | .01     | .17    | 1        | 27         |
| D 50565         | 8         | 59        | 3         | 197       | .3        | 70        | 16        | 68        | 1.42    | 12        | 5        | ND        | 5         | 10        | 2.8       | 3         | 2         | 19       | .03     | .009   | 7         | 52        | .92     | 56        | .02     | 4        | .75     | .01     | .19    | 1        | 13         |
| D 50566         | 5         | 37        | 2         | 21        | .1        | 16        | 2         | 210       | 1.32    | 2         | 5        | ND        | 2         | 11        | .2        | 2         | 2         | 9        | .06     | .033   | 5         | 12        | .18     | 62        | .02     | 4        | .27     | .01     | .04    | 1        | 5          |
| D 50567         | 2         | 27        | 3         | 72        | .1        | 14        | 4         | 485       | 2.09    | 7         | 5        | ND        | 3         | 26        | .2        | 2         | 2         | 32       | .04     | .014   | 15        | 18        | .66     | 173       | .13     | 2        | 1.54    | .04     | .69    | 1        | 14         |
| * D 50600       | 1         | 6         | 18713     | 12081     | 42.5      | 10        | 6         | 2126      | 8.74    | 44        | 5        | ND        | 5         | 182       | 83.7      | 34        | 5         | 3        | 11.79   | .032   | 2         | 11        | .83     | 42        | .01     | 2        | .19     | .02     | .12    | 6        | 49         |
| STANDARD C/AU-R | 18        | 59        | 36        | 131       | 6.9       | 72        | 32        | 1051      | 3.96    | 35        | 17       | 7         | 40        | 56        | 19.3      | 15        | 18        | 58       | .45     | .091   | 39        | 58        | .89     | 183       | .07     | 33       | 1.89    | .06     | .13    | 12       | 540        |

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 - SAMPLE TYPE: P1 ROCK P2 SOIL AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: OCT 19 1990

DATE REPORT MAILED: Oct 24/90

SIGNED BY: ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

✓ ASSAY RECOMMENDED

\* Not applicable

| SAMPLE#      | Mo<br>ppm | Cu<br>ppm | Pb<br>ppm | Zn<br>ppm | Ag<br>ppm | Ni<br>ppm | Co<br>ppm | Mn<br>ppm | Fe<br>% | As<br>ppm | U<br>ppm | Au<br>ppm | Th<br>ppm | Sr<br>ppm | Cd<br>ppm | Sb<br>ppm | Bi<br>ppm | V<br>ppm | Ca<br>% | P<br>% | La<br>ppm | Cr<br>ppm | Mg<br>% | Ba<br>ppm | Tl<br>% | B<br>ppm | Al<br>% | Na<br>% | K<br>% | W<br>ppm | Au*<br>ppb |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---------|--------|-----------|-----------|---------|-----------|---------|----------|---------|---------|--------|----------|------------|
| B 25+64      | 1         | 49        | 5         | 97        | .1        | 60        | 13        | 503       | 3.20    | 14        | 5        | ND        | 3         | 59        | .9        | 5         | 2         | 68       | .46     | .072   | 14        | 48        | .65     | 151       | .12     | 3        | 1.42    | .02     | .10    | 1        | 6          |
| L-130-2      | 1         | 11        | 5         | 49        | .1        | 92        | 10        | 185       | 2.59    | 6         | 5        | ND        | 1         | 24        | .2        | 4         | 2         | 56       | .22     | .140   | 6         | 60        | .52     | 138       | .11     | 2        | 1.80    | .01     | .02    | 2        | 3          |
| TM-139 89-01 | 2         | 23        | 2         | 145       | .2        | 44        | 9         | 214       | 3.43    | 9         | 5        | ND        | 2         | 19        | .3        | 6         | 2         | 73       | .20     | .228   | 8         | 50        | .43     | 114       | .10     | 3        | 2.40    | .01     | .07    | 1        | 11         |