

REPORT ON GEOLOGY AND GEOPHYSICS OF THE
WHIPSAW CLAIMS (1881-88).

Whipsaw Gulch, Island Mtn.
Cariboo Mining Division, British Columbia
N.T.S. Map Area 93H/4E
Latitude 53° 08' Longitude 121° 38'

by

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C.J. Campbell, B.Sc.

September 1981

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SUMMARY

This report details the geological reconnaissance mapping and VLF-EM geophysical program carried out over the Whipsaw Claims, located 5 km northwest of Wells, B.C.

Initial interest in the area arose from its situation straddling the projection of the geology and structures at the Mosquito Creek Gold Mine, a few kilometers to the southeast. The Whipsaw claims were staked in August, 1980.

A scarcity of outcrop has limited the effectiveness of geological mapping. The mapping carried out to date, however, has shown the presence of bleached micaceous quartzite overlying black phyllites and argillites.

The VLF-EM survey has delineated the underlying geological trends, highlighting several zones of anomalous conductivity.

Soil sampling on a grid pattern with follow-up trenching is recommended.

INTRODUCTION

This report covers the 1981 geological reconnaissance and VLF geophysical program carried out on the Whipsaw claims, located in the Cariboo Mining Division.

A two-man crew established the geophysical grid and ran approximately 8½ line kilometers of VLF-EM in April, 1981. Preliminary geological mapping was carried out in the month of August, 1981. A further 4½ line km of VLF was completed over the claims in September, 1981.

LOCATION AND ACCESS

The Whipsaw claims, Whipsaw 1 to 8 inclusive, are located in National Topographic System map area 93H/4E and are 5 km northwest of Wells, B.C. Figure 1 is a location map of the claims. The claims lie on the north side of Island Mtn., south of the Willow River.

Access to the property is via 4 wheel drive along Hardscrabble Road from Wells and then by foot across the Willow River and walking about ½ km upslope to the location line.

OWNERSHIP AND CLAIMS STATUS

The property consists of eight 2-post claims in the Cariboo Mining Division. Figure 2 is a copy of the mineral titles map M 93H/4E showing the Whipsaw claims. The claim information is as follows.

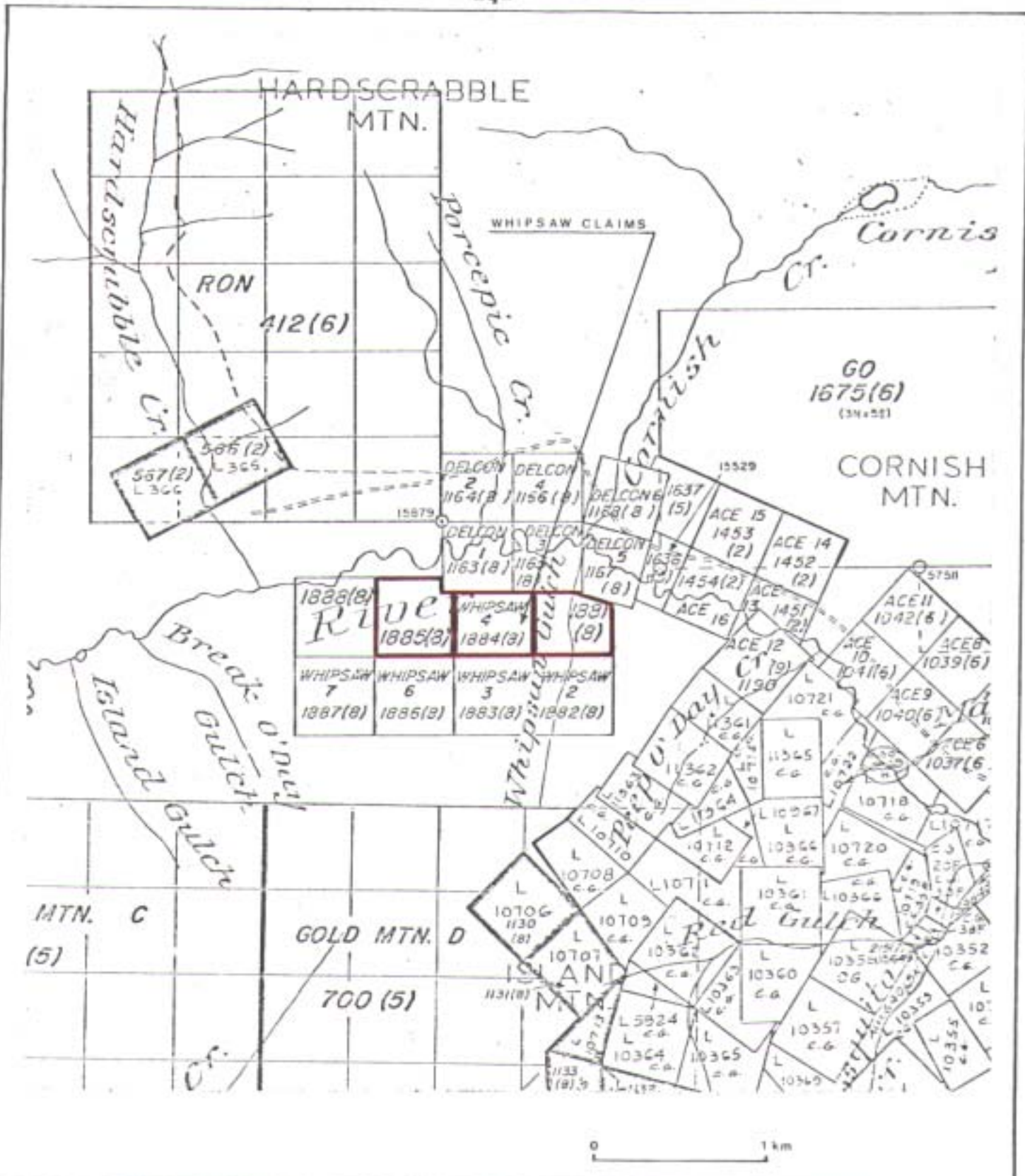
| <u>Claim Name</u> | <u>Record No.</u> | <u>Expiry Date</u> | <u>Recorded Holder</u> |
|-------------------|-------------------|--------------------|------------------------|
| Whipsaw 1 | 1881 | August 25, 1982 | K.V. Campbell |
| Whipsaw 2 | 1882 | " | " |
| Whipsaw 3 | 1883 | " | " |
| Whipsaw 4 | 1884 | " | " |
| Whipsaw 5 | 1885 | " | " |
| Whipsaw 6 | 1886 | " | " |
| Whipsaw 7 | 1887 | " | " |
| Whipsaw 8 | 1888 | " | " |



Location of Whipsaw Claims

Figure 1 | Sept. 4/81

K.V. Campbell



Claim Plan M93H/4E

Scale 1:31,620

Figure 2 Sept. 4/81
K. V. Campbell

HISTORY

The Whipsaw claims were staked in mid-August of 1980 because the area straddles the projection of the geology and structure at the presently active Mosquito Creek Gold Mine, a few km to the southeast.

No record of earlier mineral claims was found. A hydraulic flume, now mostly obliterated, crosses the claims in the vicinity of the location line. Presumably it served placer mining activities on Mosquito Creek, c. 1930. A cabin site and piles of boulders along the drainageways at the north edge of the claims attest to placer mining there. There are no known mineral showings on the property.

1980 AND 1981 FIELD PROGRAM

The schedule of work done is as follows.

| <u>DATES</u> | <u>PERSONS INVOLVED</u> | <u>ACTIVITY</u> |
|---------------|---------------------------------|-------------------------|
| Aug. 11,12/80 | K.V. Campbell P. Guiget | claim location, staking |
| Oct. 14/80 | K.V. Campbell | stream prospecting |
| Apr. 17-20/81 | C.J. Campbell K.V. Campbell | VLF-EM survey, 8½ km |
| Aug. 6,10/81 | K.V. Campbell | outcrop mapping |
| Sept. 2-6/81 | K.V. Campbell J. W. Boutwell | VLF-EM survey, 4½ km |

REFERENCES

The following is a chronological listing of public reports relevant to the Whipsaw property.

1. Report on the Geology of the Mining District of Cariboo, B.C., A. Bowman, Geological Survey of Canada, Annual Report 1987-88, Volume 3, Part 1.
2. Bedrocks and Quartz veins of Barkerville Map-Area, Cariboo District, B.C., W.L. Uglow, Geological Survey of Canada, Summary Report 1922, Part A.
3. Placer and Vein Gold Deposits of Barkerville, Cariboo District, B.C., W.A. Johnston and W.L. Uglow, Geological Survey of Canada, Summary Report 1932, Part A1.

4. Barkerville Gold Belt, Cariboo District, B.C., G. Hanson, Geological Survey of Canada, Memoir 181, 1935.
5. Geology of the Antler Creek Area, Cariboo District, B.C., A. Sutherland Brown, B.C. Department of Mines Bulletin No. 38, 1957.
6. Geology of the McBride Map-Area, B.C. R.B. Campbell, E.W. Mountjoy, and F.G. Young, Geological Survey of Canada, Paper 72-35, 1972.
7. Stratigraphy and Structure of the Barkerville-Cariboo River Area, Central B.C.. L.C. Struik, 1979, Geological Survey of Canada, Paper 79-1B, pages 33-38.
8. Snowshoe Formation, Central B.C., L.C. Struik, 1981, Geological Survey of Canada, Paper 81-1A, pages 213-216.

REGIONAL GEOLOGY

The Whipsaw property is on the northeast flank of the northwest trending Lightning Creek Anticlinorium, whose axis lies some 25 km to the southwest. The regional strike of the rock units is northwest-southeast and they dip moderately to steeply northeast. The rocks in the area have most recently (Struik, 1981) been classed as part of the Snowshoe Formation, a sequence of Paleozoic or older thin bedded metasedimentary rocks. These are overlain unconformably by Pennsylvanian volcanic rocks of the Antler Formation, as exposed about 5 km northwest of the Whipsaw property. The rocks have been regionally dynamo-thermally metamorphosed to a medium grade (amphibolite facies). Major faults have a trend parallel to the regional strike and are offset by northeast trending faults.

The Snowshoe Formation is divided (Struik, 1981) into five units, listed below in order of increasing age.

- Unit 5 - olive micaceous quartzite, dark gray phyllite
- Unit 4 - black argillite, slate, siltite, muddy conglomerate and limestone
- Unit 3 - gray siltite and quartzite
- Unit 2 - marble, calcareous sandstone, quartzite, calcareous phyllite, phyllite
- Unit 1 - olive micaceous quartzite, light olive gray phyllite and slate, garnet-biotite-muscovite schist

Unit 5 is that previously mapped by Sutherland Brown (1957) as the Snowshoe Formation, and Unit 4 was termed the Midas Formation by the same author. In the lower part of Unit 5, above Unit 4, is a limestone member (the Rainbow Member of Sutherland Brown, 1957). This limestone is the host rock for the replacement ore at the Mosquito Creek Gold Mine and the Island Mtn. mine to the southeast of the Whipsaw property a few kilometers. The former mine is presently active, the latter mine has been worked out. The ore at these sites is (was) gold and silver bearing pyrite.

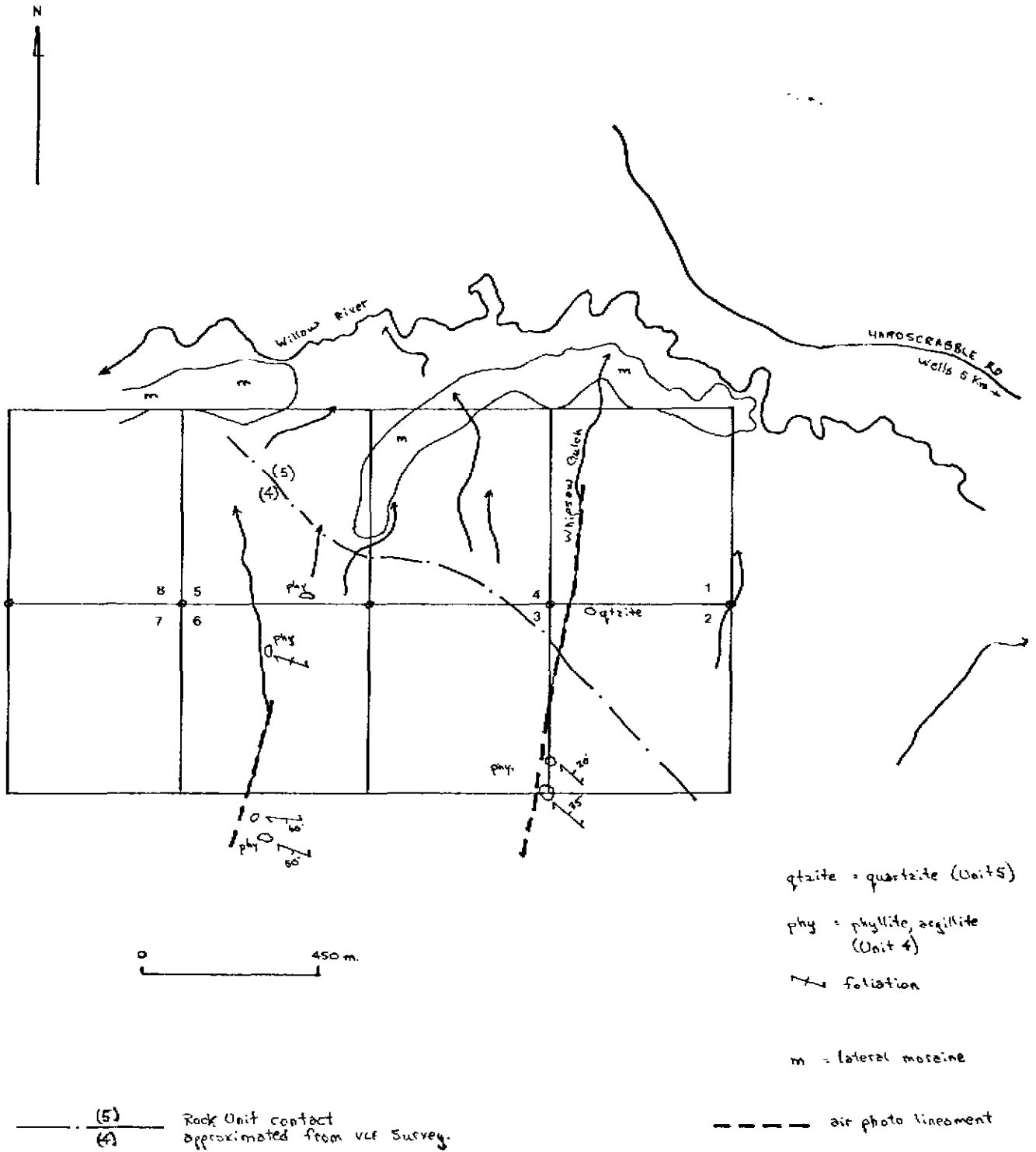
PROPERTY GEOLOGY

The forested slopes of the property are choked with willow alder and devil's club. Only five outcrops have been found on the claims. These outcrops are shown in the geology sketch, Figure 3. Two rock units of the Snowshoe Formation are represented.

One broken outcrop of Unit 5 was found near the location line of Whipsaw 1 and 2. The rock was light brownish gray micaceous quartzite, thinly laminated, well foliated, with abundant rusty spots.

The remainder of the outcrops are Unit 4 phyllites and argillites. These are thinly laminated to thinly bedded, sooty in places and locally very rusty weathering. These dip at moderate to steep angles northeast and southwest. There are at least two cleavages in addition to the foliation. The rocks have been tightly folded and overturned as well as being extremely sheared.

A well developed ridge of lateral moraine lies along the north edge of the claims. On the south side of this ridge is a narrow strip of lacustrine clays and silts with a rolloing topography. Upslope from this are outwash sands and gravels which extend to the vicinity of the location line. Compacted till and colluvium cover the upper slopes of the claims south of the location line.



Location of outcrops on Whipsaw Claims.

Scale 1:15,500

Figure 3 | Sept. 6/81

K.V. Campbell

GEOPHYSICS

A reconnaissance program of VLF-EM was conducted over the Whipsaw claims during April and September of 1981. The purpose of this work was to delineate the geological trends of the area. Complete procedures and results are described in the following section.

Geophysical Grid

A geophysical grid was established by means of hip-chain and compass. The base line corresponds to the existing location line of the claims, which is oriented true east-west. Traverse lines were run perpendicular (north-south) from this base line. Traverse interval was a nominal 150 meters, while stations were read every 25 meters along the slope. No corrections were made for topography as the hillside was, for the most part, of a fairly constant slope.

VLF-EM

13 km of VLF-EM were run over the Whipsaw claims. The instrument used was a Geonics EM-16 utilizing transmission from Seattle NKL at 18.6 kHz.

The EM-16 uses military and time standard Very Low Frequency (radio) transmissions as primary fields which are generated as a concentric horizontal magnetic field. When these horizontal magnetic fields encounter conductive bodies in the ground, a secondary vertical magnetic field is in turn generated. The total field will then be tilted on either side of a local conductor. This total field is not always in the same phase as the primary field on the ground surface. The EM-16 receiver measures the in-phase and quadrature components of the vertical field.

The VLF raw data has been filtered using the standard Fraser Filter operator:

$$F_{2,3} = (\theta_3 + \theta_4) - (\theta_1 + \theta_2)$$

VLF data is presented in profile form (vertical scale of 1 cm = 10%, horizontal scale of 1:5000) in Figure 4 and in contour form in Figure 5.

No obvious conductor trends are shown by the raw profiles. VLF responses are fairly active throughout the area, except in the northeast sector where an absence of anomalous activity corresponds to what is considered to be a localized thickening of overburden on the south side of the Willow River valley. Through the south and central portions of the survey, strong VLF responses are in evidence, indicating sharp resistivity contrasts.

The VLF Fraser Filter Contour Map is dominated by several parallel, northwest striking trends (approximately 135°). This conductor pattern is considered to be indicative of the underlying geology. The region of high conductivity is thought to correspond to an area underlain by black phyllites and argillites, Unit 4. The region of relatively low conductivity in the northeast part of the claims is thought to correspond to an area underlain by micaceous quartzite, Unit 5. This agrees well with the position of the few known outcrops on the claims.

CONCLUSIONS

1. Rocks of Units 4 and 5 of the Snowshoe Formation (Struik, 1981) outcrop on the claims. These are black phyllites and argillites (Unit 4) which are overlain by micaceous quartzite (Unit 5). The rocks strike southeast and dip at moderate to steep angles to the northeast and southwest.
2. VLF-EM conducted over the Whipsaw claims has been successful in delineating the geological trends of this area. Several zones of anomalous conductivity have been mapped.
3. The contact between Units 4 and 5 of the Snowshoe Formation is estimated from the VLF survey to lie near the change from low conductivity (quartzite) to relatively high conductivity (phyllites and argillites).

RECOMMENDATIONS

1. We recommend that soil sampling be done over the grid already established, at sample intervals of 50 m along the grid lines.

2. Contingent upon favorable geochemical results, we recommend trenching at locations where the contact between Unit 4 and 5 is estimated to be.

CERTIFICATE

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

1. I am a Consulting Geologist with an office at the corner of Dawson and Blair Avenues, Wells, B.C.
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 practiced my profession for ten years. I have been a member of the Geological Association of Canada since 1969.
4. This report, dated September 6, 1981, is based on my field work on the Whipsaw Claims.

DATED at Wells, Province of British Columbia,
this 6th day of September, 1981.

K. Vincent Campbell


K. Vincent Campbell, Ph.D.
Geologist

CERTIFICATE

I, CHRISTOPHER J. CAMPBELL, residing at 4505 Cove Cliff Road, North Vancouver, British Columbia, hereby certify as follows:

1. I am a geophysicist.
2. I graduated from the University of British Columbia in 1972 with a degree of Bachelor of Science, Geophysics, and have practiced my profession continuously since that time.
3. I personally conducted the 1981 geophysical field work which forms the basis of this report.
4. I am an active member in good standing of the Society of Exploration Geophysicists, the Canadian Society of Exploration Geophysicists, and the British Columbia Geophysical Society.

DATED at North Vancouver, Province of British Columbia, this 6th day of September, 1981.


Christopher J. Campbell, B.Sc.
Geophysicist

ITEMIZED COST STATEMENT

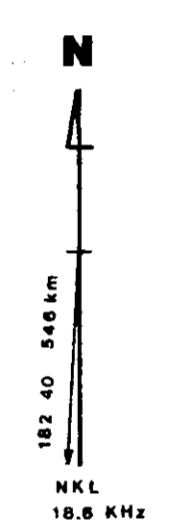
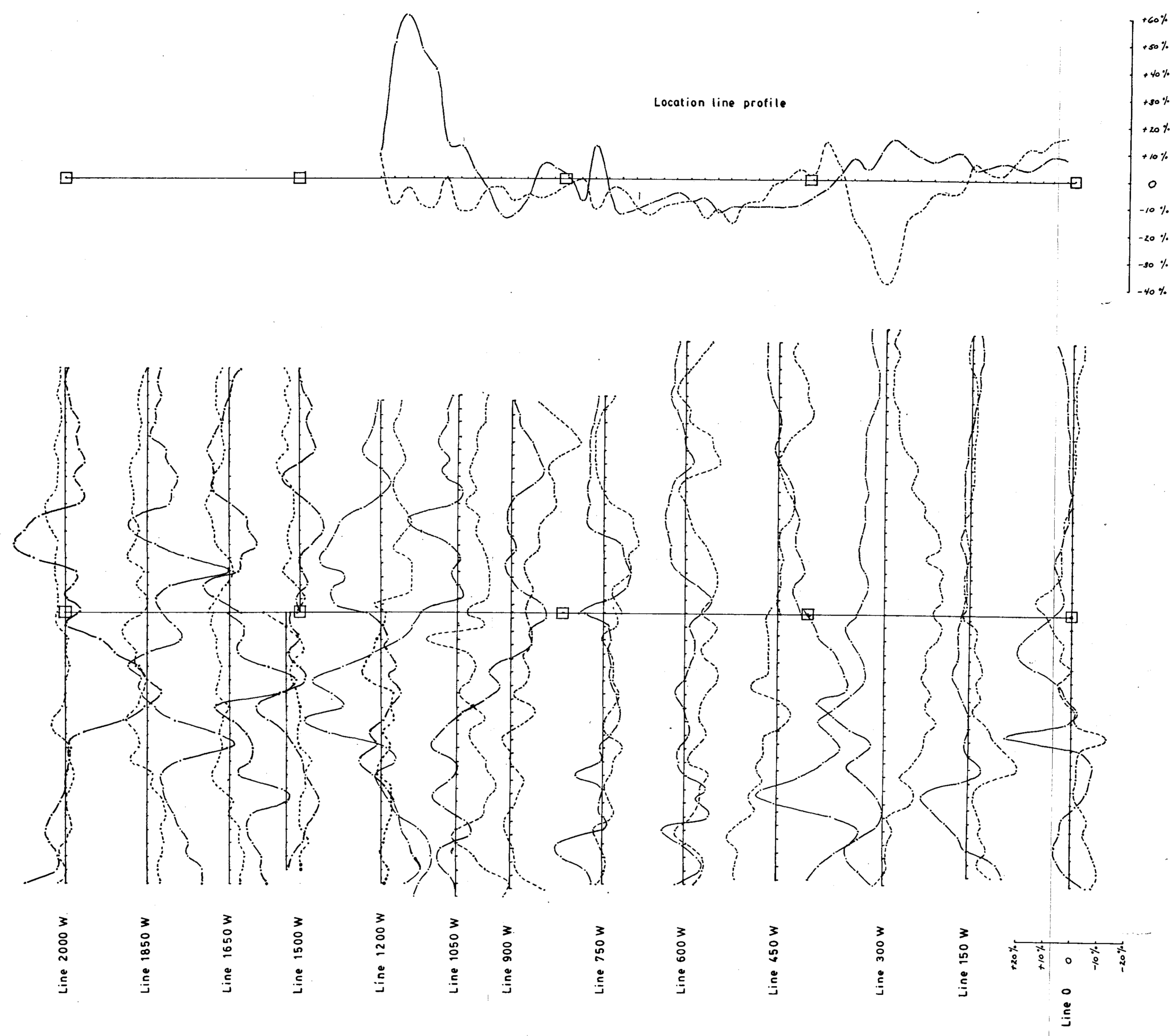
The following expenses were incurred during the course of a geophysical survey and preparation of a geophysical and geological report on the Whipsaw Mineral Claims, 93H/4E, B.C.

| | |
|--|-------------------------|
| a) Wages paid | |
| C.J. Campbell, April 17-20, 4 days @ \$200/day | \$ 800.00 |
| b) Transportation | |
| Return airfare, Vancouver - Quesnel, April 16 and 21, 1981; via PWA | 155.50 |
| c) VLF-EM16R rental, 1 week, April 15 to 22, 1981 at \$140/wk | 140.00 |
| d) Report preparation | 1000.00 |
| e) Expendible field supplies | 30.00 |
| f) Maps, Photos | 29.00 |
| | Total, \$ 2154.50 |
| | 2154.50 |

I make this solemn declaration conscientiously believing it to be true and knowing it is of the same force and effect as if made under oath and by virtue of the Canada Evidence Act.

Dec. 10, 1981

K. Vincent Campbell
K. Vincent Campbell

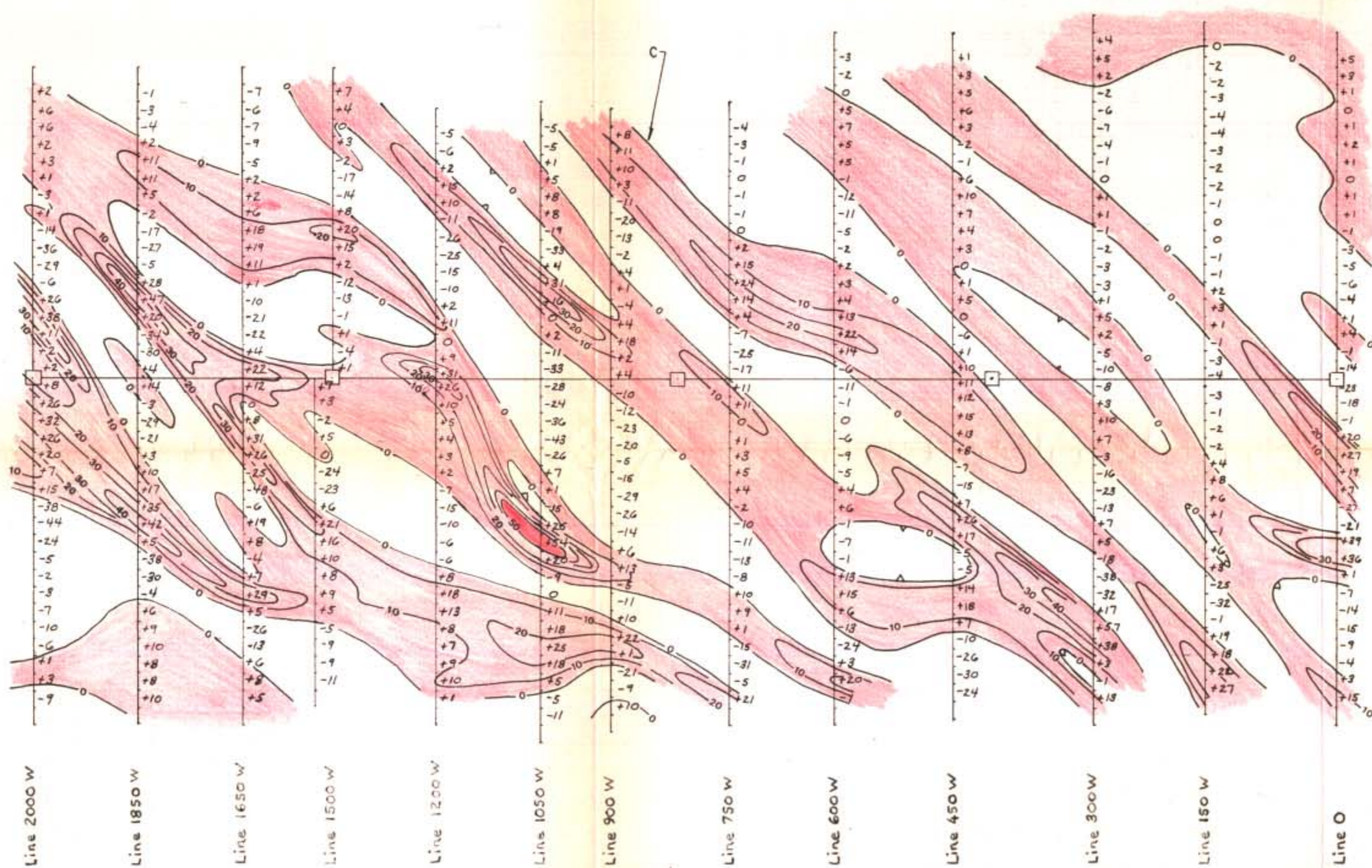


Scale 1:5000 horizontal
1cm : 10% vertical

9560

VLF Survey conducted with Geonics EM-16
via Seattle NKL, 18.6 KHz.
Positive dip angles (%) denote East dip.
Negative dip angles (%) denote West dip.

| | | |
|-----------------------|--------------------|------------------|
| WHIPSAW CLAIMS | | |
| VLF-EM PROFILES ① | | |
| DATE Sept. 4/81 | DRAWN BY K.V.C. | DWG. Figure 4 |



VLF Survey conducted with Geonics EM-16
via Seattle NKL, 18.6 KHz.

VLF data filtered using standard Fraser Filter.

$$F_{2,3} = (0_3 + 0_4) - (0_1 + 0_2)$$

Contour interval = 10 %

Contour C interpreted to represent
generalized boundary between quartzite
to NE and argillite to SW.

WHIPSAW CLAIMS

VLF-EM FRASER FILTER CONTOUR MAP (2)

| | | |
|------------|----------|----------|
| DATE | DRAWN BY | DWG. |
| SEPT. 6/81 | C.J.C. | FIGURE 5 |