

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 89.12.28

ASSESSMENT REPORT 18494

MINING DIVISION: Nicola

PROPERTY: FL 4  
LOCATION: LAT 50 20 30 LONG 120 22 00  
UTM 10 5579717 687376  
NTS 092I08W

CAMP: 013 Stump Lake Area

CLAIM(S): FL 4  
OPERATOR(S): Miller, D.C.  
AUTHOR(S): Miller, D.C.; Loranger, L.  
REPORT YEAR: 1989, 14 Pages  
KEYWORDS: Triassic, Nicola Group, Greenstone  
WORK  
DONE: Geophysical  
EMGR 11.0 km; VLF

LOG NO: 0308	RD.
ACTION:	
FILE NO:	

VLF-EM16 SURVEY

FL-4 CLAIM

NICOLA MINING DIVISION

NTS 92I/8W

LATITUDE: 50 DEGREES 20.5 MINUTES

LONGITUDE: 120 DEGREES 22 MINUTES

OWNER: D.C. MILLER

OPERATOR: D.C. MILLER

AUTHORS: D.C. MILLER AND LEO LORANGER

FEBRUARY 4, 1989

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**18,494**

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## INTRODUCTION

### LOCATION, ACCESS AND TOPOGRAPHY

The FL-4 claim is located some 2 km east of Stump Lake at geographic coordinates 50 degrees 20.5 minutes north and 120 degrees 22 minutes west. Access is by paved highway from Kamloops, which is situated about 40 km north of the property. The dirt road leading to the claim turns off the highway some 2.7 km south of Stump Lake.

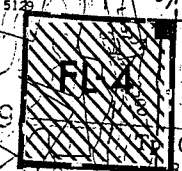
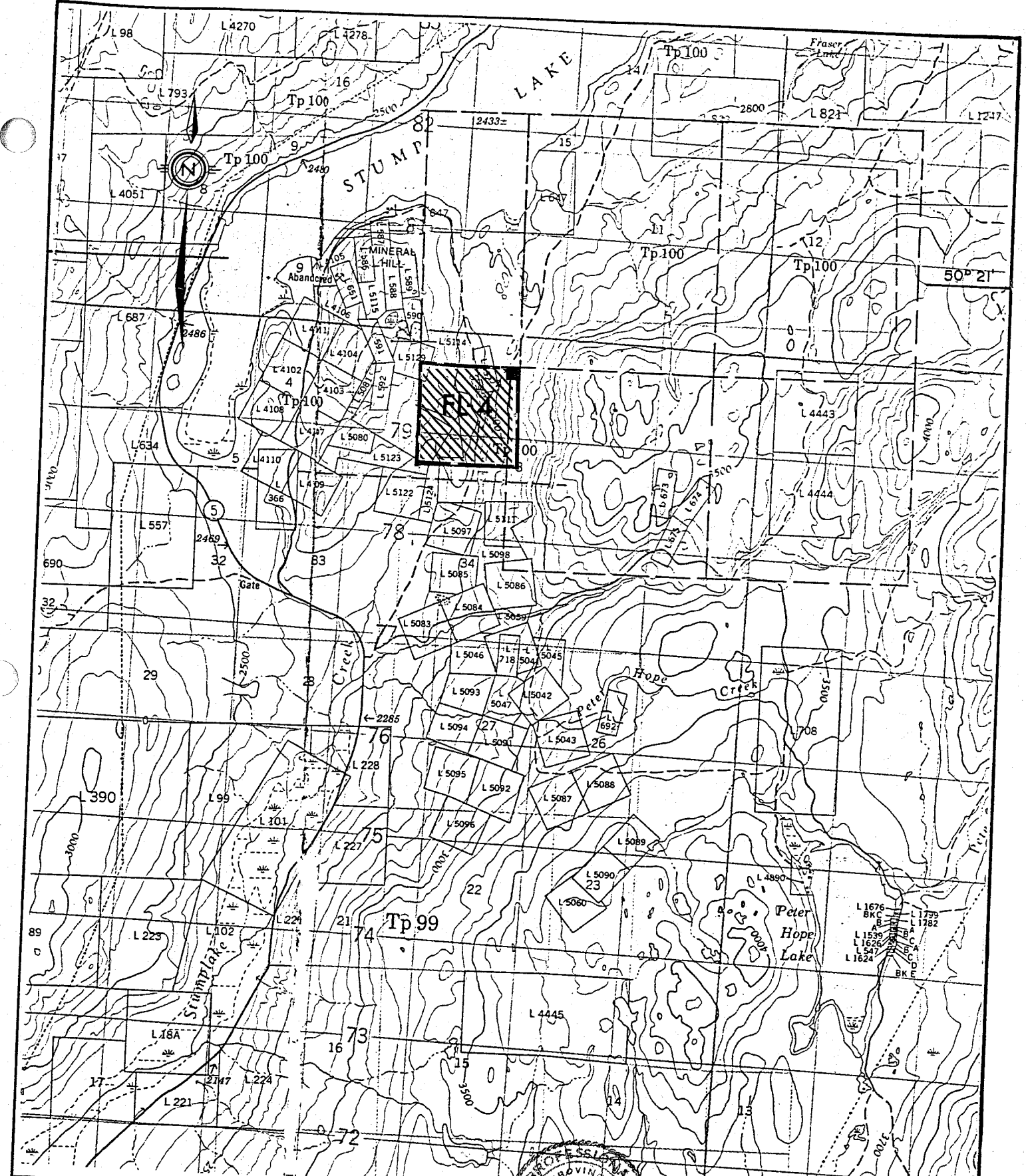
The property is situated in a small valley in an area of gentle topography. The base elevation is 760 m and topographic relief is about 60 m. Vegetation includes sagebrush and grass with some ponderosa pine. Rock outcroppings are sparse.



### PROPERTY DEFINITION

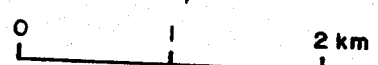
The property includes 1 claim comprising 4 modified grid units summarized as follows:

<u>CLAIM NAME</u>	<u>TAG NO.</u>	<u>RECORD NO.</u>	<u>NO. OF UNITS</u>	<u>ANNIVERSARY DATE</u>
FL-4	61596	1762	4	January 12

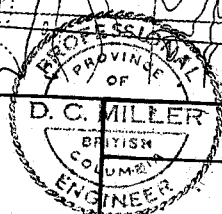
The recorded owner is D.C. Miller, 769 Fraser Street, Kamloops, B.C. The FL-4 claim overlaps small parts of adjacent crown granted claims and is located 1 km southeast of the former Stump Lake mine.



 AREA OF SURVEY  
 LCP



120° 22'



FL-4 CLAIM

LOCATION, CLAIM AND KEY MAP		
DRAWN BY: DCM	NTS 921/BW	FIGURE 1
REPORT DATE FEB. 4, 1989	PROJECT NO. 861	
D.C. MILLER GEOLOGICAL SERVICES		

#### PREVIOUS WORK

The area has undergone intermittent exploration since about 1882. Production from the nearby Stump Lake Mines property, mainly between 1931 and 1944, totaled 71,304 tonnes yielding 254,610 g of gold, 7,773,636 g of silver, 1,039,895 kg of lead and 234,828 kg of zinc. The mine was developed by an adit level, an inclined shaft, a winze and other levels over a vertical interval of 274 m and a total strike-length of 457 m. On surface, a 1000 m strike-length of vein was exposed in trenches. The main vein strikes northerly to northwesterly and dips 45 to 85 degrees easterly.

Starting in 1972 renewed exploration activity occurred in the area. The work consisted mainly of various geophysical and geological surveys mostly done to the west and the north of the subject property.

#### CURRENT WORK

Current work consists of 11 line-km of VLF-EM 16 readings at 25 m spacing along lines spaced 100 m apart. Field work was carried out by Leo Loranger during March 17-21, 1988. An additional 3 man-days was spent on data reduction, plotting and report preparation at this time and a further 2 man-days was spent on report preparation in Feb. 1989.

## GEOLOGY

The claims are underlain by Nicola volcanic rocks consisting mainly of greenstone. Pyrite, chalcopyrite, bornite, galena, sphalerite, tetrahedrite and scheelite have been recognized in quartz-carbonate veins in nearby mineral occurrences. No mineral occurrences are known on the property.

## VLF-EM 16 SURVEY

### INSTRUMENTATION

A Geonics EM16 was used for the survey. This receiver measures the in-phase and quadrature-phase components of the vertical magnetic field as a percentage of the horizontal primary field (i.e. the tangent of the tilt angle and ellipticity). The sensitivity for in-phase signals is +/- 150% and +/- 40% for quadrature signals with a resolution of 1%. Nulling is by audio tone. The in-phase indication is read from a mechanical inclinometer and the quadrature phase from a graduated dial. The operating frequency ranges from 15 to 25 khz on the VLF Radio Band. Station selection is done by means of plug-in units. The power supply consists of 6 disposable AA batteries.

The purpose of the survey was to test a largely overburden covered area adjacent to a large zone of known precious and base metal occurrences.

## METHOD

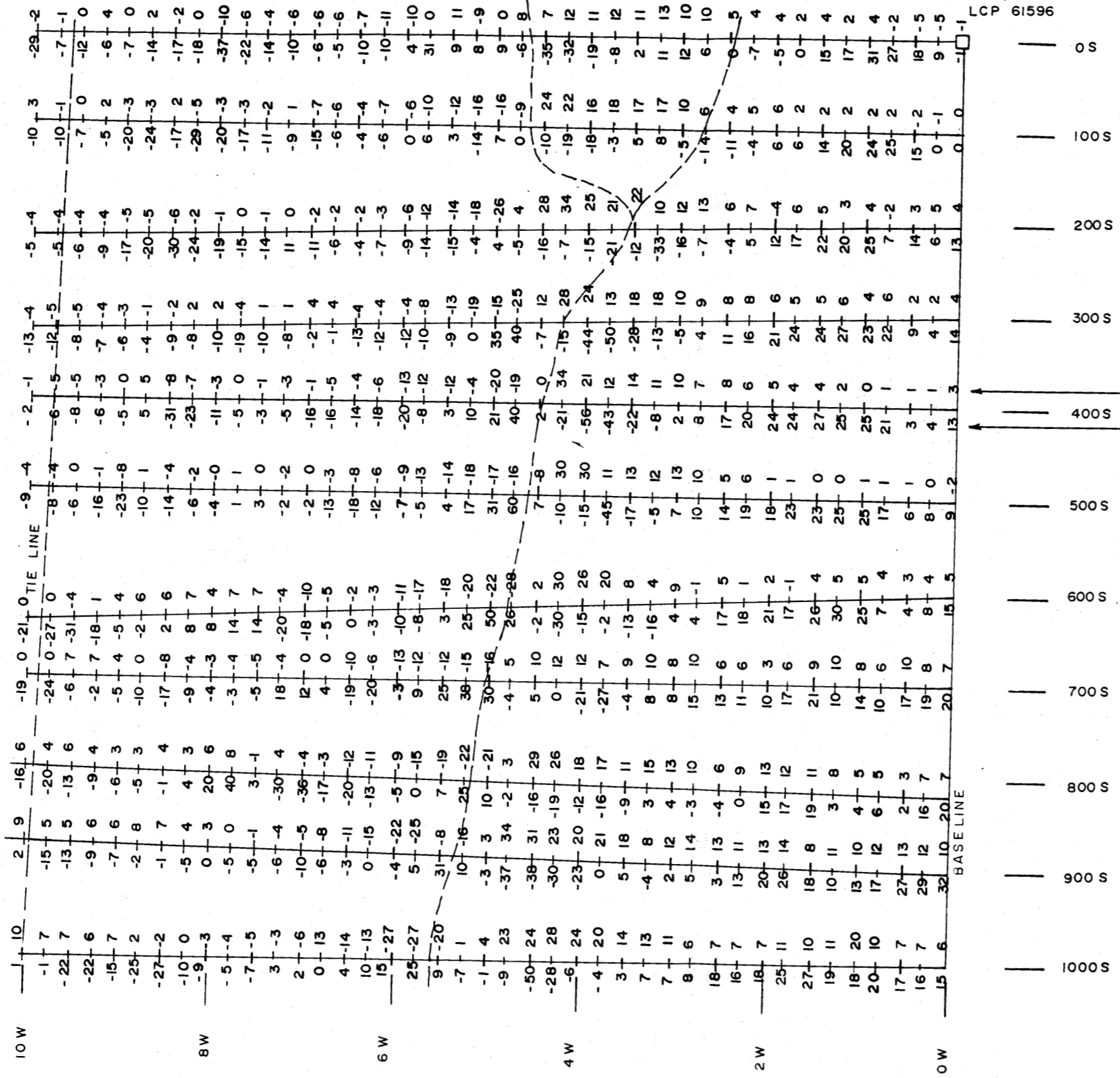
To be effective, the source of the VLF signal should be roughly in line with the long axis of conductive bodies to be tested. The primary magnetic field from the transmitting station will then cut such conductors nearly at right angles. As the known conductors in the area strike northerly, the Jim Creek transmitting station near Seattle, Wa. was selected as a VLF source. This transmitter sends signals at a frequency of 24.8 khz. The orientation of this station to the survey grid is shown on Figures 2 and 3. Grid lines were oriented east-west, nearly at right angles to the direction of Jim Creek.

In taking readings, the instrument is oriented at right angles to the direction of the signal and swung slowly back and forth for minimum sound intensity. The left hand is used to turn the quadrature dial to further minimize the sound. After finding the minimum signal strength on both adjustments, the inclinometer (in-phase) reading and quadrature reading are recorded. Throughout the survey the operator always faces in the same direction at each station where readings are taken.

## INTERPRETATION OF RESULTS

Results of the survey are shown on Figures 2, 3 and 4. Figure 2 shows the grid and raw data. Figure 3 shows a graphical plot of the in-phase readings and shows the location of interpreted conductor axes labeled A, B, C, D and E. Figure 4 shows a contoured plot of filtered data (Fraser Filter).





LCP 61596

### LEGEND

--- ROAD

INSTRUMENT - GEONICS EM16 SERIAL NO. 16888  
TRANSMITTER - JIM CREEK, WA., 24.8 KHZ

← QUADRATURE READINGS (NORTH OF LINE)  
← IN-PHASE READINGS (SOUTH OF LINE)  
UNITS = %

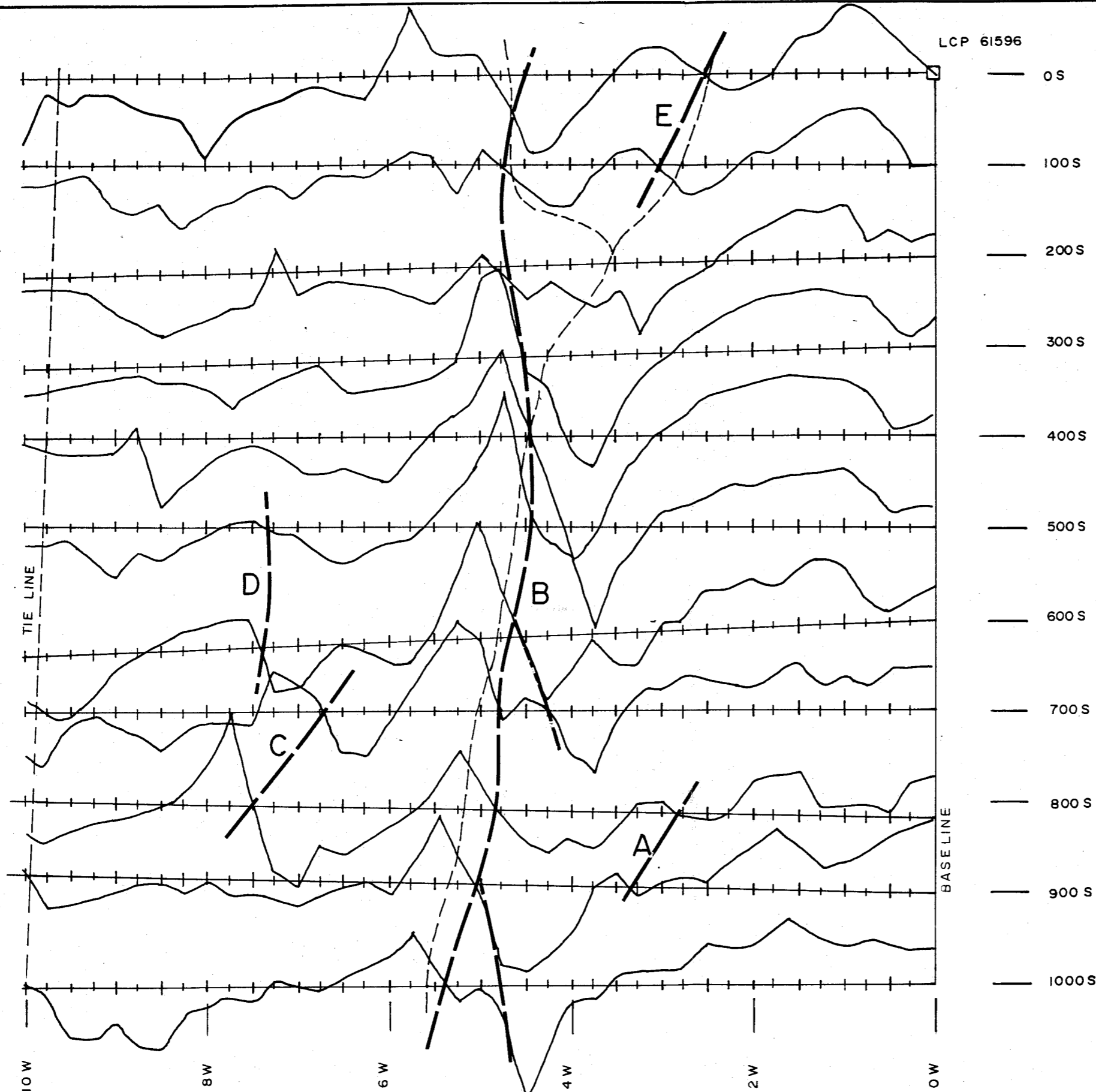
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

# 18,494



*Demille*

FL-4 CLAIM (RECORD NO. 1762)		
<b>VLF-EM16 SURVEY DIP ANGLE DATA</b>		
DRAWN BY: D. C. M.	NTS 92.1/8W	FIGURE <b>2</b>
REPORT DATE FEB. 4, 1989	PROJECT NO. 861	
D.C. MILLER GEOLOGICAL SERVICES		



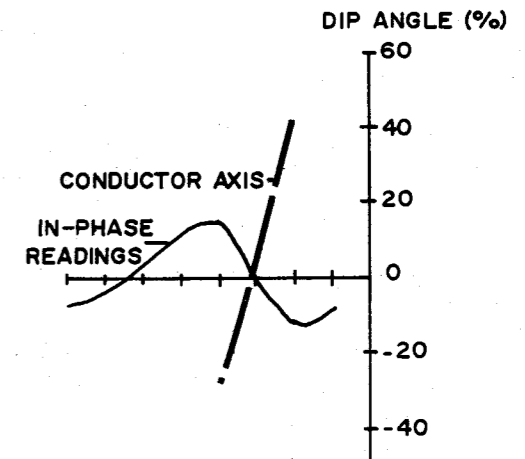
LCP 61596

- 0S
- 100S
- 200S
- 300S
- 400S
- 500S
- 600S
- 700S
- 800S
- 900S
- 1000S

### LEGEND

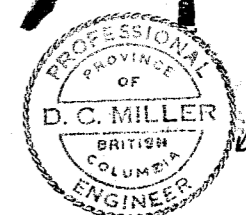
--- ROAD

INSTRUMENT: GEONICS EM-16  
 TRANSMITTER: JIM CREEK, WA., 24.8 KHZ  
 OPERATOR FACING EAST



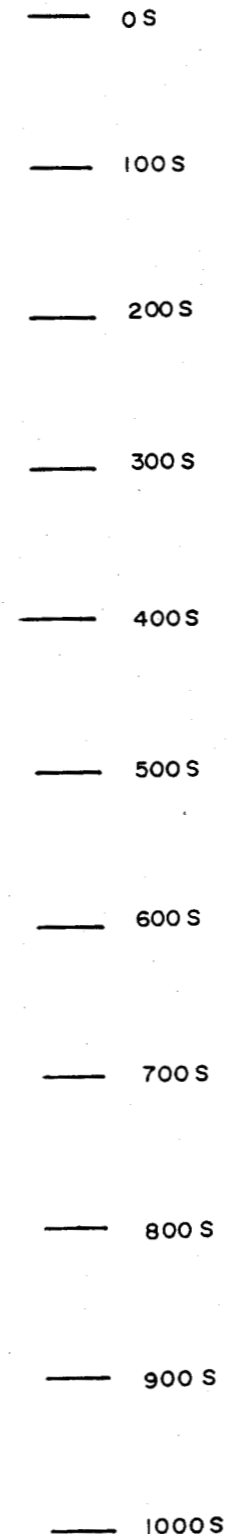
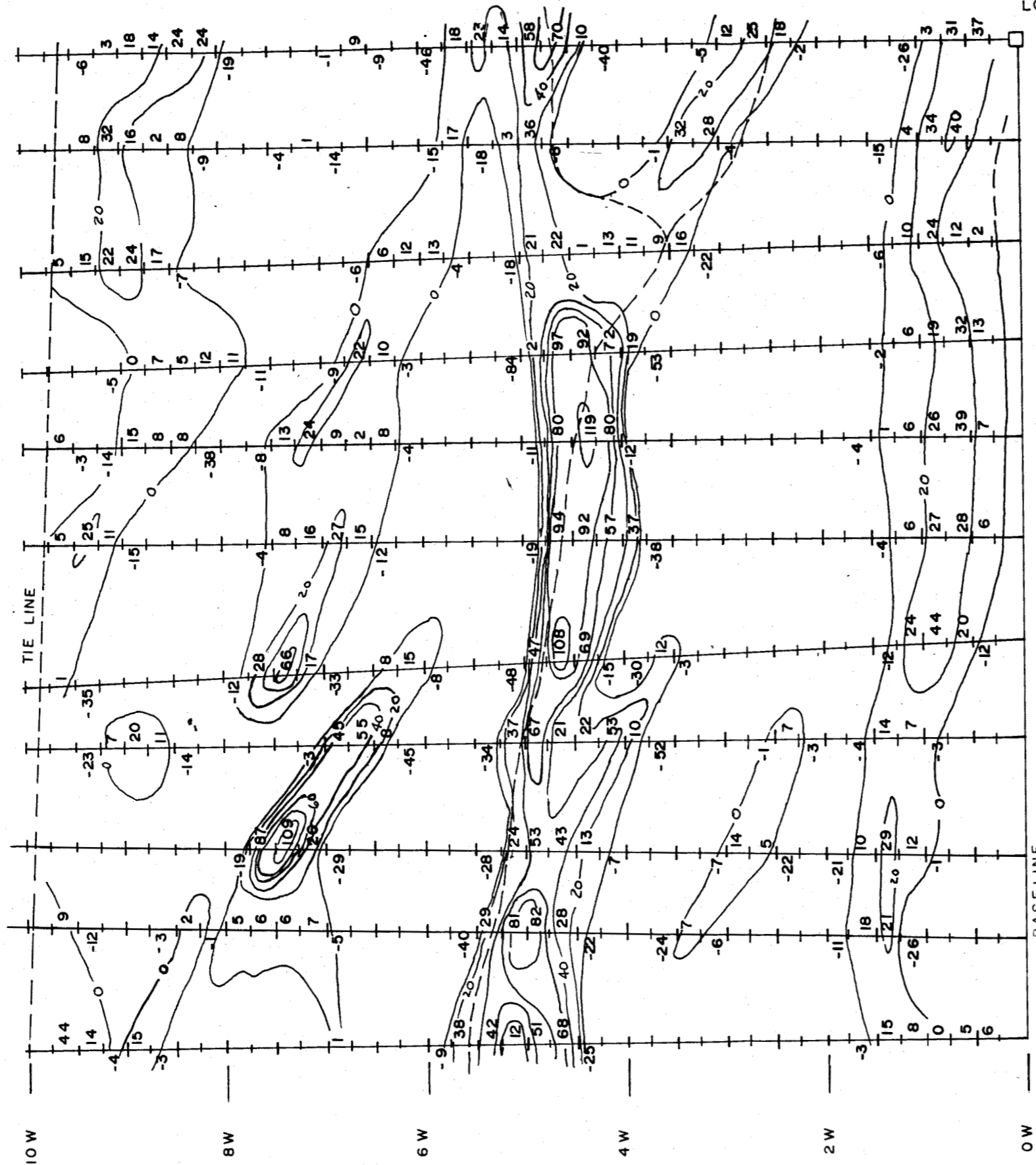
GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

JIM CREEK  
 SURVEY DIRECTION  
**18,494**



FL-4 CLAIM (RECORD NO. 1762)		
VLF DIP ANGLE PLOT IN-PHASE READINGS		
DRAWN BY: D. C. M.	NTS 921/8W	FIGURE <b>3</b>
REPORT DATE FEB. 4, 1989	PROJECT NO. 861	
D.C. MILLER GEOLOGICAL SERVICES		

LCP 61596



### LEGEND

--- ROAD

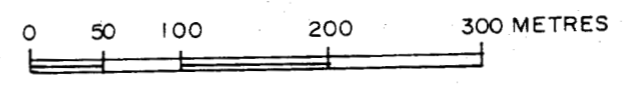
INSTRUMENT: GEONICS EM-16  
CONTOUR INTERVAL: 20 UNITS

## GEOLOGICAL BRANCH ASSESSMENT REPORT

# 18,494



FL-4 CLAIM (RECORD NO. 1762)		
VLF-EM16 SURVEY FRASER FILTERED DATA (POSITIVE VALUES ONLY)		
DRAWN BY: D. C. M.	NTS 92 1/8W	FIGURE 4
REPORT DATE FEB. 4, 1989	PROJECT NO. 861	
D.C. MILLER GEOLOGICAL SERVICES		



INTERPRETATION OF RESULTS (CONTINUED)

Conductor B, Figure 3, is the strongest conductor determined by the survey and is strongest between lines 300S to 600S and continues fairly strong to the south. It weakens to the north and may split into 2 branches. It also appears to branch at 2 locations to the south. This conductor occurs in a low, poorly drained area and is interpreted as being partly caused by conductive overburden and partly caused by other conductive materials, possibly metallic mineralization. The dip of this conductor is interpreted to be nearly vertical to steeply eastward.

Of the other conductors, 'C' is the next strongest but occurs only on 2 lines. The other conductors are weak and small and likely not of much interest.

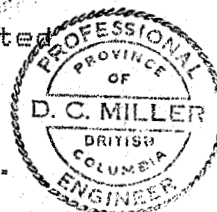
CONCLUSIONS AND RECOMMENDATIONS

Further work to determine the cause of conductor B is warranted. Work including soil and rock geochemistry, geology and backhoe trenching and/or drilling is recommended.

Respectfully submitted

*D.C. Miller*  
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D.C. Miller, P. Eng.

*Leo Loranger*  
-----  
Leo Loranger



COST STATEMENT


Re: Work on FL-4 Claim:

March 17-23, 1988- 11 line-km of VLF-EM16 survey,  
data reduction and plotting- 6.5 days @ \$165.00/day.....\$1072.50  
Transportation: 4 by 4 truck: 5 days @ \$55/day..... 275.00  
Instrument rental: 4 days @ \$35/day..... 140.00  
Room and board: 5 days @ \$35/day..... 175.00  
Dec. 20-24, 1988 preliminary report: 1.5 days @ \$300.... 450.00  
Prints and photocopies..... 25.00  
Subtotal .....\$2137.50  
Feb 3, 1989, 1 day drafting @ \$165.00.....165.00  
Feb 4, 1989, report writing, 1 day @ \$300.....300.00  
Total.....\$2602.50

AUTHORS QUALIFICATIONS

I, D.C. Miller, certify that:

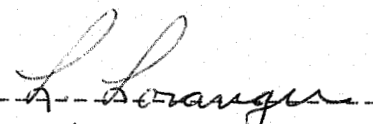
- 1) I am a consulting Geological Engineer with an office at 769 Fraser Street, Kamloops, B.C. V2C 3H1.
- 2) I am a graduate of the University of B.C. and earned a B.A.Sc. Degree in Geological Engineering in 1959. I am a member of the Association of Professional Engineers of B.C. and a fellow of the Geological Association of Canada.
- 3) I have practiced my profession for over 25 years.

  
-----  
D.C. Miller, P.Eng.

Feb. 4, 1989

I, Leo Loranger, certify that:

- 1) I have been employed in mineral exploration for over 29 years.
- 2) I was employed by Royal Canadian Ventures and Craigmont Mines Ltd. as an Exploration Fieldman during 1968 to 1983 and acted as instrument operator for several VLF-EM16 and ground magnetometer surveys.
- 3) Since 1983, I have been self-employed as a mineral exploration contractor.

  
-----  
Leo Loranger

Feb. 4, 1989

## REFERENCES

- B.C. Minister of Mines Report 1936:  
Part D, pp D-14 to D-23.
- Cockfield, W.E., 1948:  
Geology and Mineral Deposits of the Nicola Map-Area, B.C.,  
G.S.C. Memoir 249.
- Dunsmore, R.J., 1972:  
Report on 1972 Surveys on the FIR, SHER, and JO Claims,  
Stump Lake, for London Pride Silver Mines, Assessment  
Report 4410.
- Holcapek, F., 1974:  
Geological Report on the Stump Lake Property, Kamloops  
Mining District, for Jupiter Mines Ltd., Assessment Report  
5172.
- Westervelt, R.D., and White, Glen E., 1978:  
Geophysical Report on the Argus Claim Group for Amore  
Minerals Inc., Assessment Report 7133.
- Wynne, F.L., 1987:  
Report on the FL Property, Nicola Mining Division, B.C.,  
for Mr. Frank Barazzuol.