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1988 EXPLORATION PROGRAM  
ON THE  
FRENCH PEAK SILVER PROPERTY

Silverado Group: Silverado, Eldorado, Mag Hi, Silver Iron  
FP - 2, 3, 4,

Omineca Mining Division  
93M/7W

55° 21' N 126° 48' W

FILMED

OWNER & OPERATOR: Silverado Mines Ltd.  
AUTHOR: A.M. Homenuke, P. Eng. (Geol.)  
SUBMITTED: December 29, 1988

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

18,215

## CONTENTS

I.	INTRODUCTORY NOTES	
	Location and Access	1
	Physical Features	1
	Claims and Ownership	1
	History	4
	Economic Assessment	5
	Present work and Distribution	5
II.	GEOLOGY	5
	Mineralization	6
III.	GEOCHEMICAL SURVEYS	
	Procedure	9
	Discussion of Results	9
IV.	ELECTROMAGNETIC SURVEY	
	Procedure	10
	Discussion of Results	10
V.	CONCLUSIONS AND RECOMMENDATIONS	10
	COST SUMMARY	12
	REFERENCES	13
	CERTIFICATE	14
	Appendix I      Rock Sample Descriptions	
	Appendix II     VLF-EM Survey	
	Raw Data Profiles	
	MAPS	
FIG. 1.	1. Location Map	2
	2. Claim & Index Map	3
	3. Geology & Geochemistry	11
	4. VLF-EM Survey	

## I. INTRODUCTORY NOTES

### Location and Access

The claims are located southeast of French Peak, 10 km. west of the north end of the Babine Lake and 65 km northeast of Smithers, B.C., in the Omineca Mining Division (Fig 1).

The property is reached by gravel roads from Smithers along the route to Smithers Landing, the Nilkitkwa Forest Access Road and a mine road constructed in 1976, a total distance of 120 km.

### Physical Features

Elevation on the property ranges between 975 metres and 1,200 metres. On the north and south the terrain is mountainous with more moderate slopes towards Tsezakwa Creek which flows easterly across the central portion of the claim group.

Outcrop is generally scarce, with the major exposures being in creek banks and topographic highs. Further exposures have been provided by trenching.

Rainfall is relatively low, but snowfall exceeds 1.5 metres most years and last from late October until May.

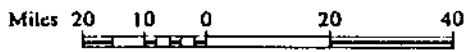
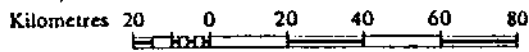
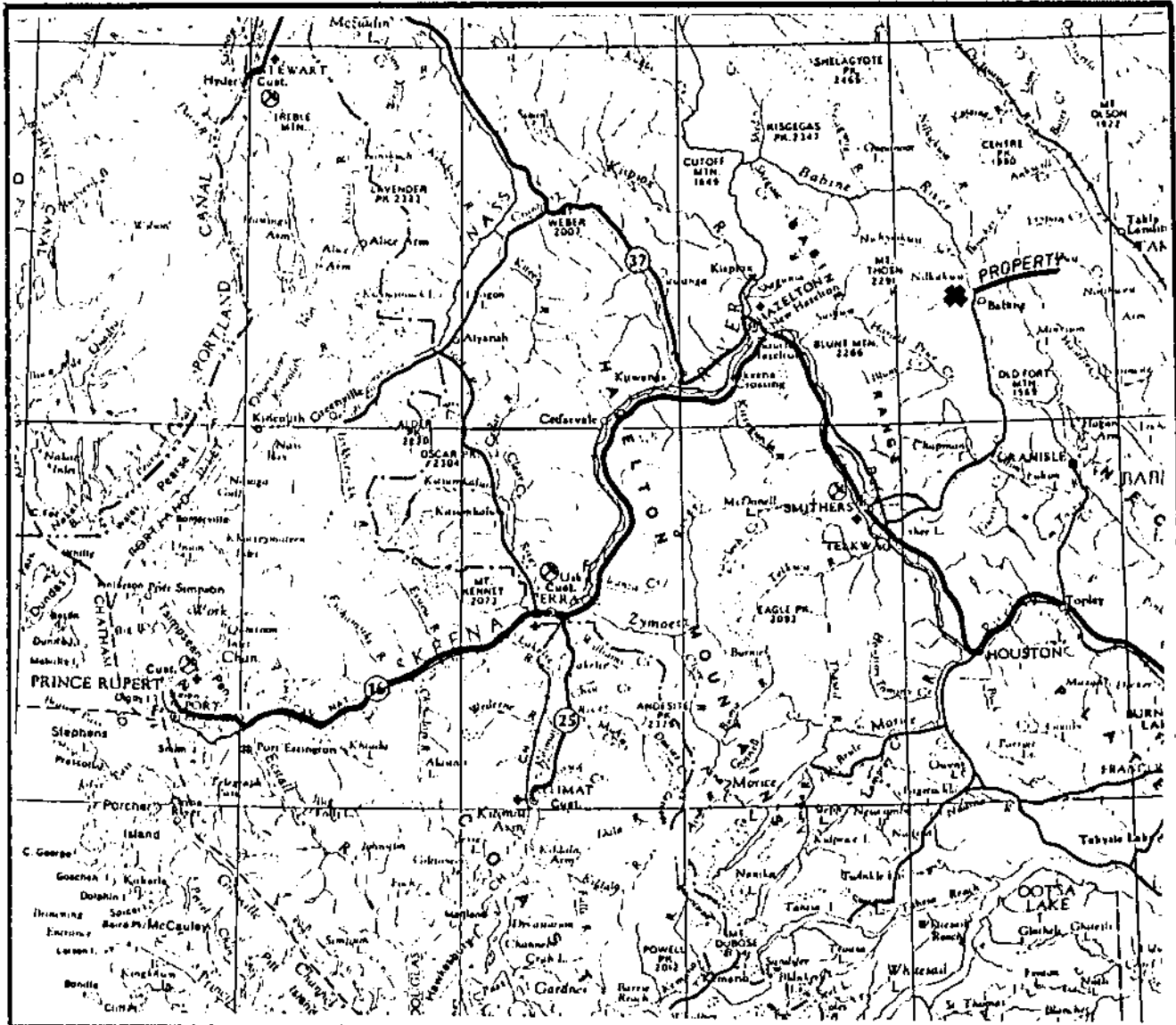
Vegetation consists mainly of subalpine fir, with spruce in flatter areas and poplar and alder near the main creeks. Old burnt areas are presently covered with a dense regrowth.

### Claims and Ownership

The French Peak Silver Property has been reduced to one group, the Silverado Group, containing 7 claims totalling 64 units (Fig. 2). The following table lists the claim data:

<u>NAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>RECORD DATE</u>	<u>YEAR OF LOCATION</u>
Silverado	298	9	May 26	1976
Eldorado	299	9	May 26	1976
Mag Hi	348	6	July 9	1976
Silver Iron	349	6	July 9	1976
FP - 2	5863	15 (reduced)	Oct 6	1983
FP - 3	5864	9 (reduced)	Oct 6	1983
FP - 4	5865	10	Oct 6	1983

The Claims are owned by Silverado Mines Ltd.



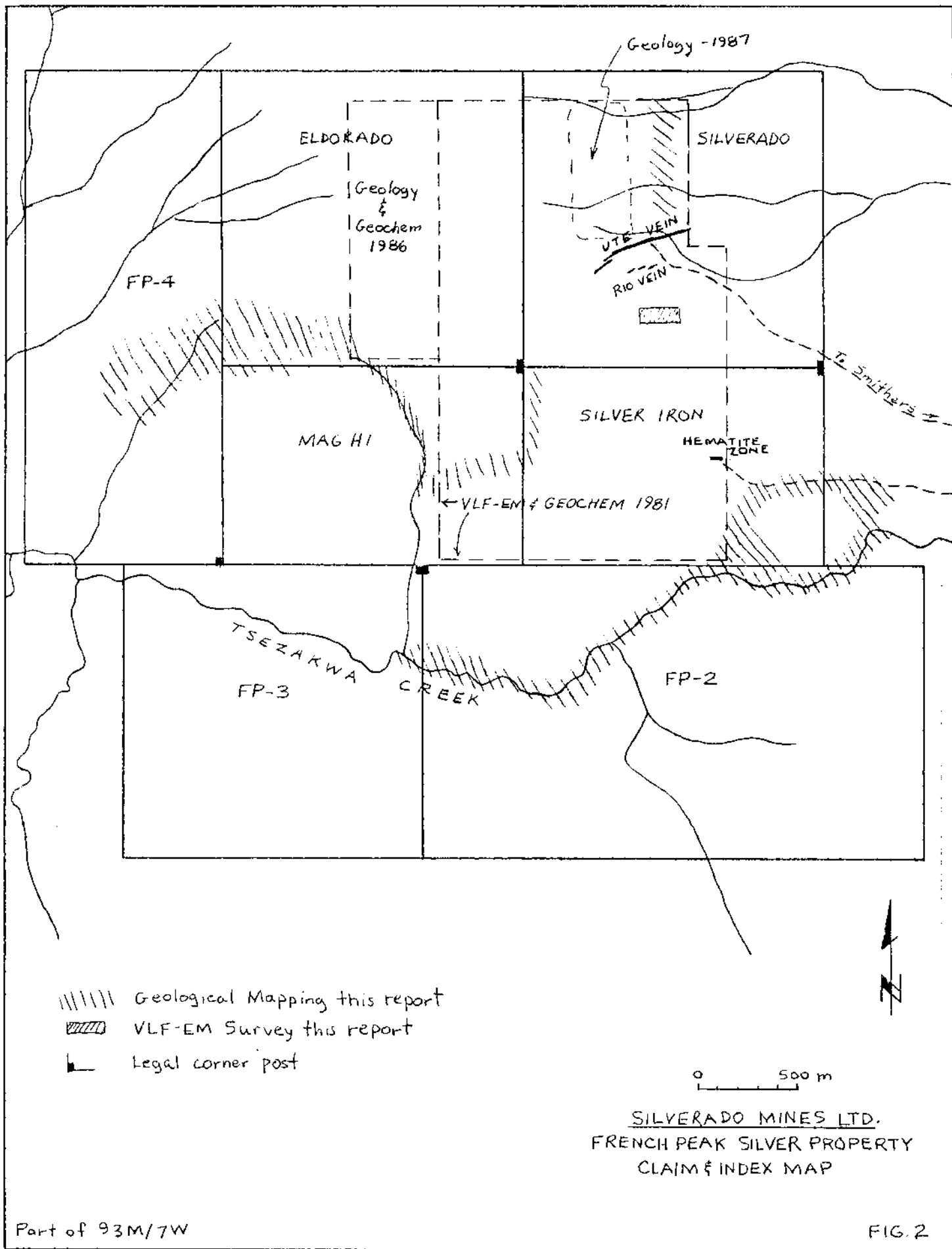
SILVERADO MINES LTD.

FRENCH PEAK SILVER PROPERTY

OMINECA MINING DIVISION, B.C.

LOCATION MAP

FIGURE 1



## HISTORY

The first mineralization was discovered by a Rio Tinto exploration party in 1955. In 1956 they explored the area of the Ute and Rio Vein Systems with trenching, 1722 feet of diamond drilling in 12 holes, mapping and surface sampling.

Sometime in the 1960's cat trenching to the south led to the discovery of the Hematite Zone.

In 1964, S. Homenuke and H. Gilleland leased the property and shipped a total of 24 tons of hand-sorted ore. In 1974, S. Homenuke and J. Sargent, having purchased the property, shipped a further 28.4 tons. The 52.4 total tons yielded over 10,500 ounces of silver, plus copper, lead, zinc and gold.

Renniks Resources Ltd. optioned the property in 1974 and carried out a program of mapping, sampling, trenching and electromagnetic surveying. Renniks allowed the option to lapse, due to commitments elsewhere.

In 1976, Silverado Mines Ltd. optioned the property and commenced a drilling program. Thirty holes were drilled, totalling 2,646 feet. Work also included construction of an access road, trenching, detailed mapping and magnetometer surveying and minor reconnaissance.

From 1977 to 1980, the property was optioned from Silverado to Mohawk Oil Co. Ltd. To cover assessment requirements, some linecutting and a petrographic study were done. In 1980, by agreement, Mohawk was required to have the property in production, at least on a limited basis. To this end, metallurgical testing, a preliminary environmental analysis, and a preliminary feasibility analysis were done. The project had reached the point of initial government permit applications when Mohawk, due to other commitments, returned the property to Silverado.

During the 1981 field season, Silverado, through Tri-Con Mining Ltd., and under the writer's direction, carried out an extensive program of geochemical sampling and geophysical surveying.

From 1983 to 1987, exploration included further drilling and trenching on the Ute Vein and Hematite Zone, further geochemical sampling, airphoto fracture analysis, geological mapping, a preliminary IP Survey and preparation of a new topographic base map. Several new veins related to the Ute System were discovered and several targets were enhanced for future exploration.

## Economic Assessment

The production record and drilling results indicate that the French Peak Silver Property has potential as a high-grade silver-gold-base metal producer. Some of the drilling and mapping indicates possibilities for larger tonnage, lower grade mineralized zones.

## Present Work and Distribution

Geological mapping, totalling 50 hectares was done on at least minor portions of all the claims. Thirty-two silt samples were taken from north and south contributories to Tsezakwa Creek on the Mag Hi, Silver Iron and FP 2-4 Claims. VLF-EM surveying totalling 1.4 km was done on the Silverado Claim. As an adjunct to geological mapping, 16 rock samples were submitted for analysis and 8 thin sections prepared and studied. Seven soil samples were taken from the Mag Hi and Silver Iron Claims during silt sampling traverses. In addition, tape and compass surveying and photointerpretation were carried out to tie in previous surveys to the topographic base map prepared in 1987.

## II. GEOLOGY

Mapping of the property geology has been rather piecemeal with most of the efforts directed towards the immediate vicinity of the Ute and Rio Vein Systems. This season, the writer traversed primarily away from the known mineralization in order to obtain information for the development of an overall geologic model that would assist in interpretation of previous geochemical and geophysical surveys.

The property, at the present level of mapping, appears to be underlain by two groups of rocks with the approximate contact in the vicinity of the Ute Vein trend. A 1976 magnetic survey over a small area in the central part of the property showed a relatively flat, low response north of the Ute Vein with much higher and varied response to the south. Local compass deflections have also been noted to the south.

Purple andesitic to dacitic, lapilli, lithic and crystal tuffs make up the bulk of the exposures on the property. To the south, andesite and rhyolite flows, rhyodacite, conformable sulfide zones and indications of hot spring activity are present. Magnetite in the andesite flows and some of the tuffs is the cause of the magnetic highs on ground and probably on government airborne magnetic surveys.

To the north, no flows have been observed and the rocks appear to be more dacitic. There is also an appreciable volcanoclastic component, especially to the east.

Detailed interpretation in the area of the Ute and Rio Vein Systems from 1976 diamond drilling, trench mapping and 1978 thin section studies indicated that growth faulting was present during deposition of the rocks in this area. Magnetic and VLF-EM surveys, photointerpretation and mapping have shown extensive block faulting trending north-northwest and easterly. A later compressional event caused shearing on the Ute Vein, bedding plane shearing on the Rio Vein and minor thrust faulting. Other conformable sulfide and hematite mineralization may be related to bedding plane shearing or may be syngenetic.

This season's mapping showed considerable quartz-carbonate veining along Tsezakwa Creek, mostly in extensional features. Where shearing is present, there are also sulfides. ("See Mineralization")

All of the bedding planes observed trend east-northeast with a moderate northwest dip, except on the southeast and northeast corners of the map area. Here the attitudes are more northerly with an east dip, suggesting extensional faulting sympathetic to the rifting which produced the Babine graben to the east.

In short, the property covers an area of intersection of north-northwest and easterly trending extensional fault zones. The rocks are Hazelton Group and belong either to the Telkwa formation or the Red Tuff Member of the Nilkitkwa Formation.

The results of this season's and previous mapping are compiled on Fig. 3. Thin section descriptions are included in the appendix.

### Mineralization

The area along Tsezakwa Creek is one of the few portions of the property with sufficient exposure for coherent mapping. Quartz-carbonate veins in extensional structures are common. There is also considerable float from these veins distributed along the creek. A few wider mineralized zones show multiple stringer veins and some shearing, plus minor sulfides. It may be that the veins observed are related to movement on larger regional faults.

A more detailed description of these occurrences follows. The Area Numbers are referenced on Fig. 3. The rock samples from these areas were analyzed at Chemex Labs for gold by fire assay/atomic absorption finish and for silver by aqua regia digestion/atomic absorption.



AREA 1

<u>Sample No.</u>	<u>Au(ppb)</u>	<u>Ag(ppm)</u>	<u>Description</u>
R-1	10	0.4	Specimen from R-2 zone, banded, vuggy, quartz and calcite.
R-2	255	0.5	Chip grab from 3-5 m silicified braided shear zone, pyrite to 10%, hosted by purple tuff, minor bleaching and silicification.
R-13	20	0.3	Float from creek (typical), limonitic weathering quartz-carbonate vein material abundant in creek.
R-14	10	6.4	Float from landslide, quartz-carbonate veining in bleached tuff, Pyrite dissem. and on frac., trace sphalerite and galena.

This collection of rock samples produced the highest gold (R-2) and silver (R-14) values encountered in any of the veining along the creek. This particular zone may be part of a regional structure and may project to the shear zone in Area 3 below.

AREA 2

R-3	-5	1.6	Specimen from 30 cm quartz-calcite vein with few % pyrite.
R-4	-5	3.6	Chip sample of same.
R-5	-5	0.4	Specimen from 30 cm grey chert (rhyolite?) vein or dyke with purple tuff breccia frags. to 2 cm.
R-6	10	0.8	Chip sample of same, trace grey sulfide.

At this location 2 breccia dykes (?) and a quartz-carbonate vein trend in different directions from southeast to southwest.

AREA 3

R-7	-5	0.8	Specimen from silicified shear zone, 2 cm quartz vein with trace malachite.
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This shear zone appears to be about 2 m wide with parallel quartz-calcite veins to 0.5 cm at a frequency of 3/metre. There is a trace of malachite on fractures. The host tuffs are brown weathering due to limonitic alteration. An outcrop 20 m north contains apparently conformable hands of intermittent specular hematite. The creek in this area contains abundant purple tuff breccia float with quartz-carbonate cement. Alteration is lacking in the fragments. There is also float with 2-5 cm veins of quartz, calcite and minor siderite.

AREA 4

R-8	15	0.4	Specimen, 5 cm vein, crustiform quartz-siderite banding, trace grey sulfide.
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At one location in this area there are several veins, some brecciated, from 0.5 - 5 cm across a 2 m wide zone. About 50 m northwest there are similar veins and fractures accompanied by a weak bleaching of the purple tuff host rock.

AREA 5

R-9	-5	0.3	Float specimens, quartz-carbonate stringer zone
R-10	30	0.2	trace tetrahedrite, malachite
R-11	10	2.0	Vein specimen, same

A small outcrop with a braided stringer zone is present on the east side of a landslide. Considerable float from larger similar veins is present at the foot of the landslide. It is surprising that silver values are not higher in that some tetrahedrite blebs are up to 2 mm across. It may be that this tetrahedrite is low in silver compared to that in the Ute Vein System.

AREA 6

R-15	25	3.3	Specimen of massive pyrite from old cat trench
R-16	25	3.1	Chip sample of same

The cat trench, probably excavated in the 1960's, has exposed an apparently conformable band of massive pyrite in bleached silicified tuffs. Outcrops above and below the trench are typical purple tuffs. The thickness of the band is in excess of 2 metres and contains about 20% pyrite where exposed.

<u>AREA 7</u>	R-12	20	0.3	Specimen of brecciated, bleached silicified tuff with 10% pyrite.
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This occurrence, also in a cat trench, is similar to Area 6 and is on approximate lithologic strike with the Rio Vein System, where conformable pyritic banding also occurs. Whether these sulfide bands are syngenetic or epigenetic remains to be determined.

### III. GEOCHEMICAL SURVEYS

#### Procedure

Thirty-two silt samples were taken from relatively small drainages at the locations shown on Fig. 3. The samples were delivered to Chemex Labs in North Vancouver where they were dried, sieved to -80 mesh and digested in hot aqua regia, except for gold analysis, in which a separate split was fire assay fused. The solutions were analyzed by atomic absorption for gold, copper, lead, zinc, silver and arsenic. Seven soil samples were also taken from the "B" soil horizon at a depth of 20-30 cm and subjected to the same analysis.

#### Discussion of Results

Fourteen of the silt samples were from the south side of Tsezakwa Creek. Most of them were taken from flat, slightly swampy areas at the base of the steep valley wall and consequently contain organic material. Only two samples, L-24 and L-25 are considered slightly anomalous in more than one element. The sequence L-27 to L-31 was taken upstream from the sequence L-23 to L-26. The upper samples are appreciably lower in values, indicating that the swampy conditions lower down cause an accumulation of metals and that the anomalous samples are not significant. Previous work showed stream sediment pH values in the range of 6.5-7.5 which causes low mobility for base metals. Therefore, the samples are considered representative only for an area about 200 metres upstream.

Two silt samples from the north side of Tsezakwa Creek, L-1 and L-22, showed no significant results.

The sequence L-7 to L-17 was taken down a larger creek on the centre of the map area. The first four, L-7 to L-10, taken as a group, show anomalous values in all elements analyzed. These are the most significant results from the silt survey. This creek drains one of the areas of the conformable sulfides and is also on projection with a previously outlined soil anomaly south of the Ute and Rio Vein Systems. As this area has deeper overburden these results may be quite significant.

L-18 to L-21 were taken east of the above area. There were no significant results. A line of seven soil samples taken during the course of the silt survey showed three samples high or anomalous in copper. However, these were near a known andesite flow which often contain minor chalcopyrite.

The final silt sample, L-32, was taken from a creek to the west. The results were negative.

#### IV. ELECTROMAGNETIC SURVEY

##### Procedure

The VLF-EM Survey was performed with a Sabre EM-27 using the Seattle transmitter as a source. Readings were taken on East-West lines at 20 metre intervals. Dip angle and field strength were recorded. The raw data profiles are shown in Appendix II and the Fraser filtered contoured plan on Fig. 4.

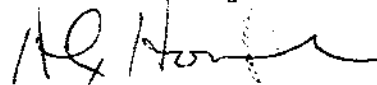
##### Discussion of Results

The survey was a preliminary test of the VLF response on East-West lines. A large area of the property was surveyed previously on a North-South grid. There were a large number of easterly trending conductors which appeared to be interrupted by northwesterly trending possible faults. This survey was done over two of these interruptions to see if they were conductive and could be traced by VLF methods. The results showed that the interruptions were conductive and are probably faults.

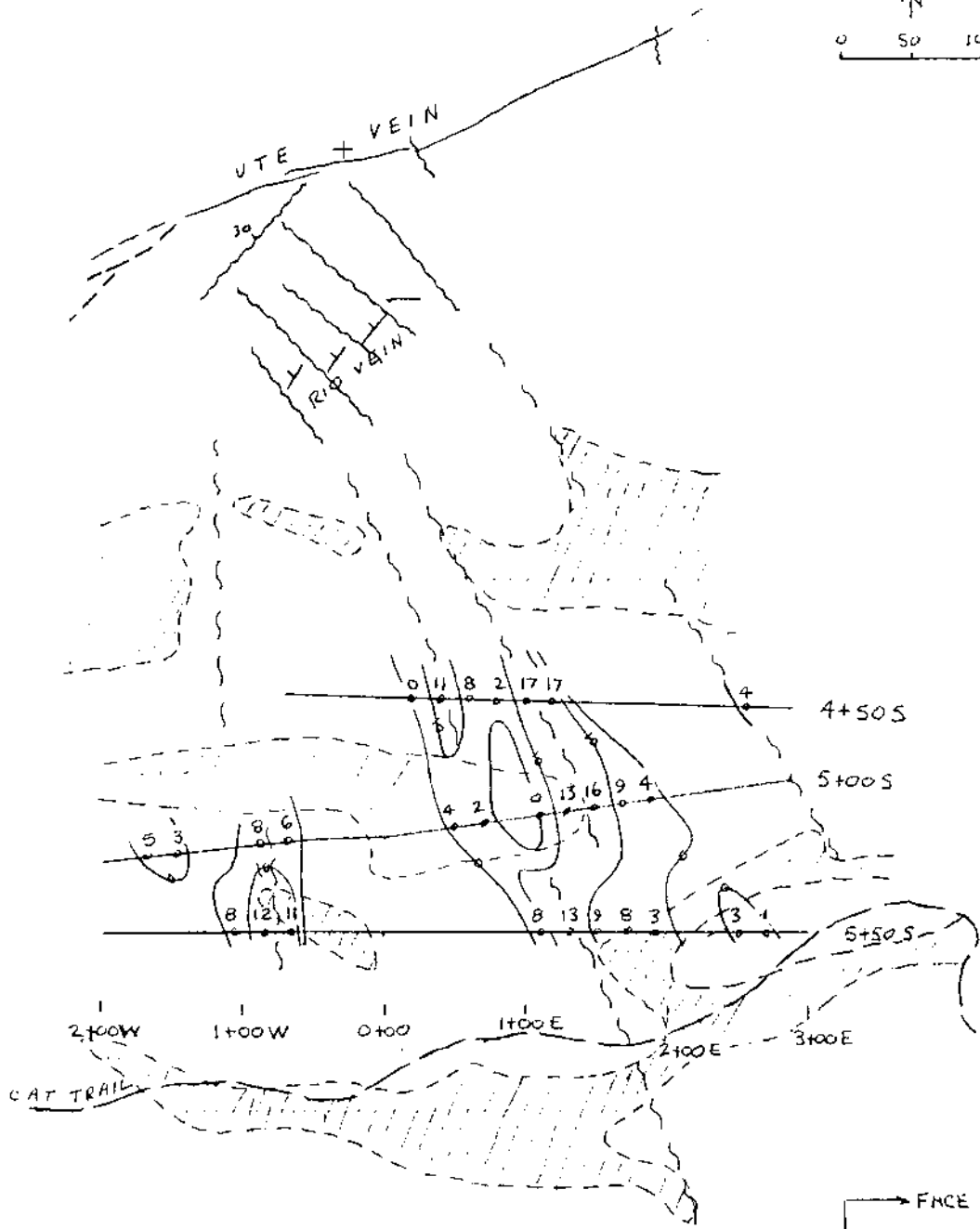
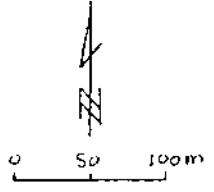
#### V. CONCLUSIONS AND RECOMMENDATIONS

Geological mapping has shown the presence of extensive hydrothermal activity where outcrop is well exposed. Some of the veins along Tsezakwa creek showed anomalous gold and silver, but not of economic interest. The lack of significant silt anomalies except in the central portion of the property suggest that future efforts should be concentrated on investigating the known mineralized areas and associated geochemical anomalies. East-West oriented VLF-EM surveying and expanded magnetic surveying will assist in unravelling the complex structural geology of the area.

Respectfully submitted  
Tri-Con Mining Ltd.



A.M. Homenuke, P. Eng.  
Senior Vice President



- (---) Conductor (>10%) from 1981
- (---) Conductor from 1988 contours - 0, 10°
- 12 Positive filtered values (degrees)
- ~~~~ Mapped fault
- - - Fault inferred from VLF-EM

FACE  
 TRANS.  
 (SEATTLE)  
 Inst. Sabre EM-27

SILVERADO MINES LTD.  
 FRENCH PEAK SILVER PROPERTY  
 VLF-EM SURVEY  
 (Fraser Filter)

A.M. Homenuke, P.Eng.  
 Dec, 1988

FIG. 4

**COST SUMMARY**

Sept. 8 - 16, 1988

A.Homenuke, P. Eng. 6 days field and travel, 4 days, thin sections, maps, interpretation and report 10 days @ \$400/day	\$ 4000.00
Crew 2 men, 5 days @ 200/day each	2000.00
Vehicle 8 days @ \$75/day (incl. travel)	600.00
Room and board 18 man days @ \$45/day	810.00
 Analysis:	
39 samples for Au, Cu, Pb, Zn, Ag, As @ \$16.75/each	653.25
sample preparation	65.00
16 rock samples for Au, Ag @ \$13.25/each	212.00
Thin section preparation (8 samples)	76.25
Secretarial, coping, miscellaneous field expenses	<u>300.00</u>
 TOTAL	 \$ 8716.50 =====

**REFERENCES**

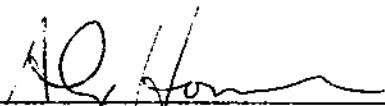
1976 - 1988, Homenuke, A.M., various assessment reports

### CERTIFICATE OF QUALIFICATION

I, Alexander M. Homenuke, do hereby certify:

1. THAT I am a member in good standing of the Association of Professional Engineers of British Columbia.
2. THAT I received the Degree of Bachelor of Science in Geological Engineering from the Colorado School of Mines in 1974.
3. THAT I received a Diploma of Technology in Mining from the B.C. Institute of Technology in 1969.
4. THAT I have been employed in various aspects of mining exploration for 19 years and am presently employed by Tri-Con Mining Ltd., of Suite 2580, 1066 West Hastings Street, Vancouver, British Columbia.
5. THAT I presently reside at 29825 Harris Road, Mt. Lehman, British Columbia.
6. THAT this report is based on work supervised or conducted by myself.

DATED at Vancouver, British Columbia, this 29th day of December, 1988.

  
\_\_\_\_\_  
A.M. Homenuke, P. Eng.  
Geological Engineer

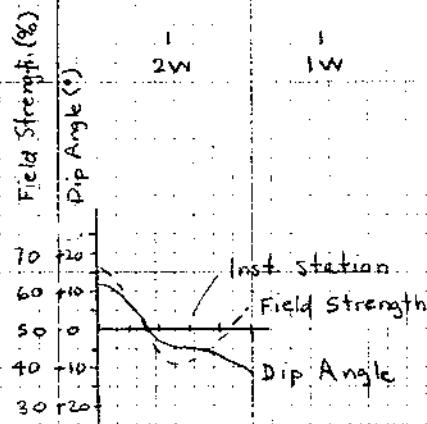
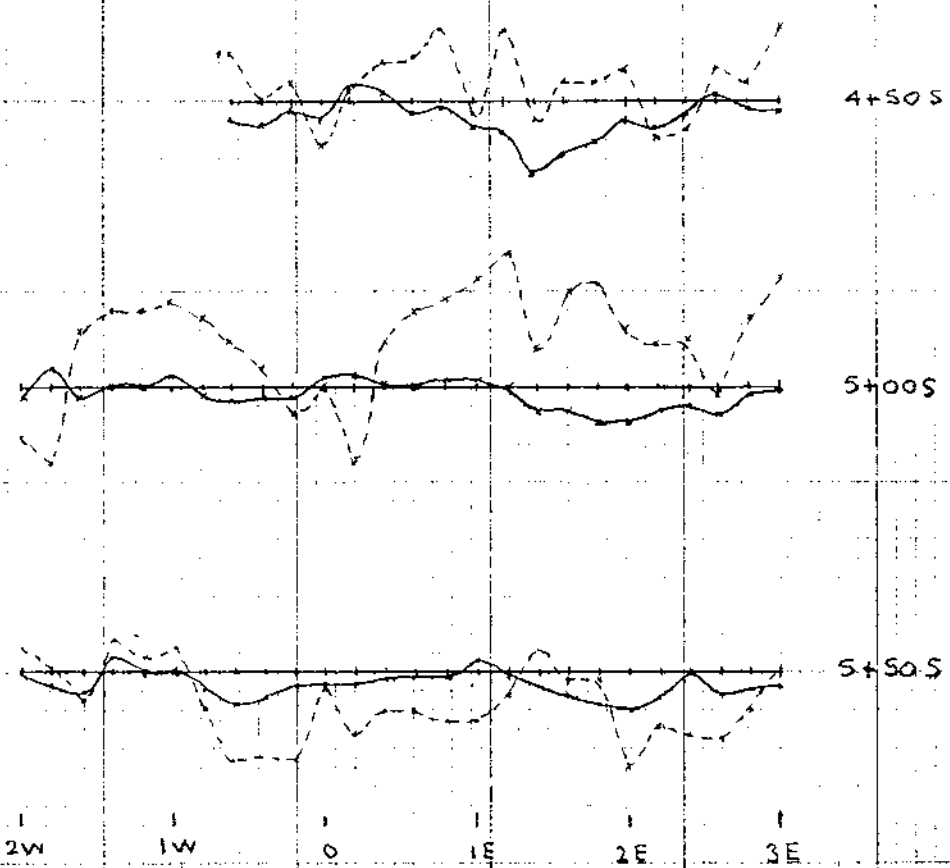


**APPENDIX I**  
**ROCK SAMPLE DESCRIPTIONS**

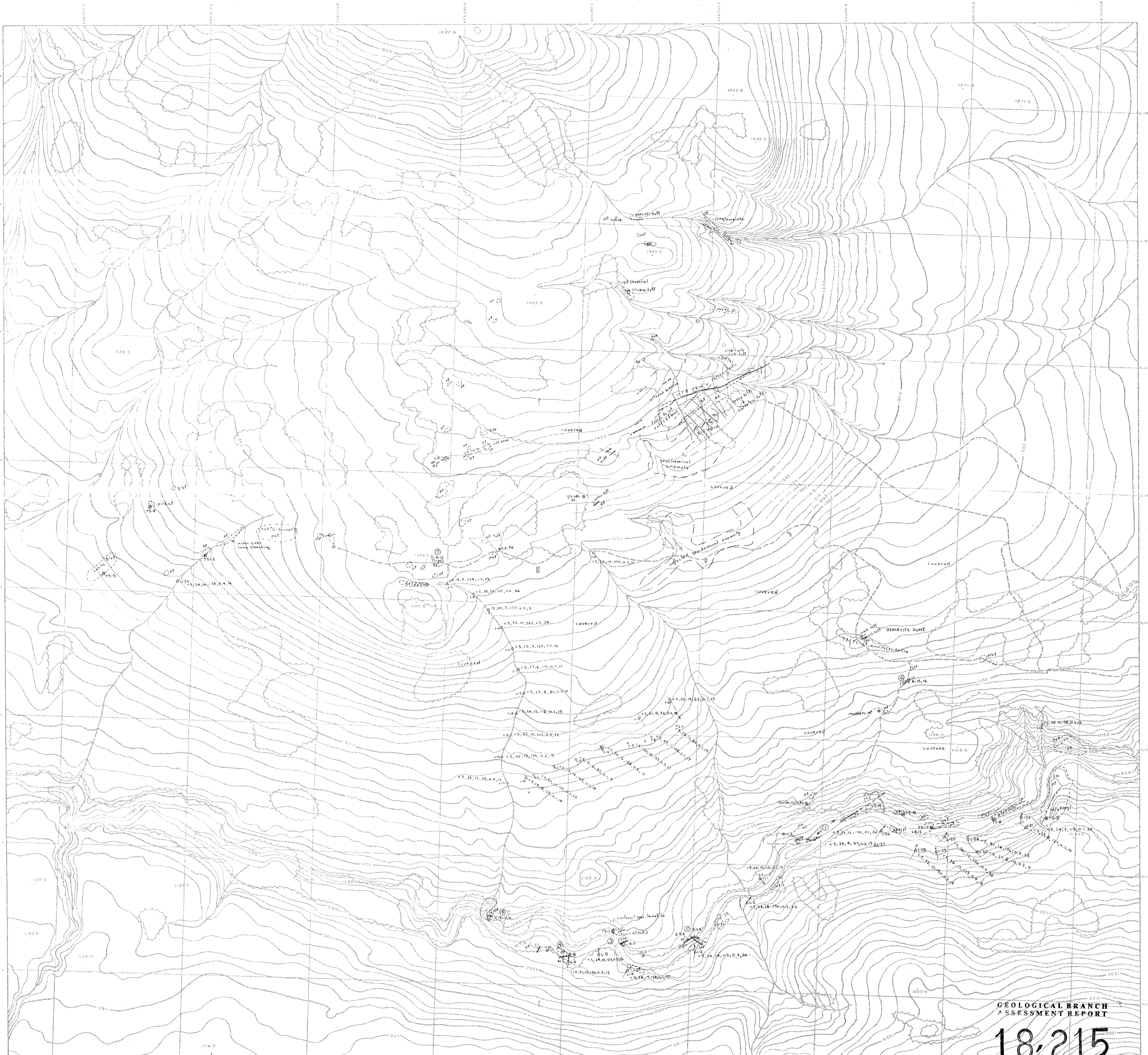
ROCK SAMPLE DESCRIPTIONS

MAP NO.	NAME	MACRO FEATURES	MICRO FEATURES
TS - 1	<u>Altered Ash Tuff</u> probably originally dacite)	pale grey-green, tan weathering (poss. orig. purple), minor dendritic manganese, siliceous	fine grained, ash tuff, silicified, sericitized, 50% qtz., slightly limonitic esp. along frac.
TS - 2	<u>Andesite Flow</u>	Dark grey-green, brown weathering, 5% med.grain mafics, magnetic	fine grained, cryst. equigranular, 70% feldspar, plag>orth., 5% biotite phenos 0.5-1mm, 3% dissem. magnetite, mod. argillic alteration.
TS - 3	<u>Dacitic Ash Flow Tuff</u>	Med. grey-green, med. brown weath., finely flow banded, calcite and siderite on fracs.	fine grained, ash tuff, mod. arg.alt., few larger alt xtls, minor sanidine, occas. xtl agg. of qtz.-feld intergrowths
TS - 4	<u>Dacitic Ash Flow Tuff</u> (ox equiv of TS-3?)	Pink, weakly banded, brown-purple weath.	alt.ash tuff, flow banded, 5% earthy hematite clots to 1mm, few totally alt relict cryst laths, minor qtz. frags.
TS - 5	<u>Rhyodacite(?) Lapilli-Crystal Tuff</u>	Mauve, siliceous	fine grained, siliceous, welded ash tuff groundmass, weak flow band, frag to 10mm of fine grnd xtl tuff or flow, white lath xtls to 2mm x 1mm, sanidine/orth., quartz.
TS - 6	<u>Dacitic, Welded Lapilli-Crystal Tuff</u> (Tuff equiv. of TS8)	Dark purple-green, weakly magnetic, wavy qtz. veinlet	fine-med grained, varitextured, zones of dirty strongly welded equigran. qtz., plag., hornblende xtls, altered shards, minor magnetite/hematite, corroded grain boundaries.
TS - 7	<u>Feldspar porphyry Dacitic Lapilli Tuff</u>	Dark purple, crystal lapilli tuff	fine grained ash ground mas. clots of finely dissem hem/lim brg lapilli oriented on weak bands, to 3x10mm, orth/sanidine xtls to 2mm
TS - 8	<u>Andesite Flow</u>	Dark purple-green strongly magnetic, amygduloidal, minor cp.	finely xtl., 70% plag., amygdules - epidote rimming quartz.

**APPENDIX II**  
**VLF - EM SURVEY**  
**RAW DATA PROFILES**



VLF-EM SURVEY  
RAW DATA PROFILES



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

18,215

**TUFFACEOUS UNITS**  
 pt - undifferentiated porphyritic tuffs  
 p - purple  
 sp - spargite  
 a - andesite  
 cr - crystal  
 va - vesicular  
 f - fault  
 ( ) - accessory minerals  
 mf - magnetite  
 op - ophioclastic  
 py - pyrite  
 ep - epidote  
 e.g. pink(m) - purple lithic crystal tuff with magnetite  
 In general composition  
 & dacite to andesite

**GEOLGY**  
 RF - Rhyolite Flow  
 AF - Andesite Flow  
 O - Outcrop  
 L - Landslide  
 V - Vein or shlar  
 F - Fault  
 B - Bedding  
 SSSS - Sulfide band  
 R1 X - Rock sample location  
 T5-2 - Thin section location  
 F - Fault  
 M - Mineralized area discussed in report

**Geochemical values**  
 Au, Cu, Pb, Zn, Ag, As  
 ppm  
 10, 20, 10, 15, 0.5, 17  
 Δ - Soil sample  
 ○ - Soil sample

SILVERADO MINES LTD.  
 FRENCH PEAK SILVER PROPERTY  
 GEOLOGY & GEOCHEMISTRY  
 COMPILED BY: EAGLE MAPPING SERVICES LTD.  
 DATE: 5 JULY 1987  
 A.M. Homeville, P.Eng. Dec. 1988