

MAP NO.: ASSESSMENT REPORT X  
106 D 6 PROSPECTUS  
CONFIDENTIAL X  
OPEN FILE

DOCUMENT NO: 092670  
MINING DISTRICT: Mayo  
TYPE OF WORK: Geology

-----  
REPORT FILED UNDER: C. Thomas and A. Smith  
-----

DATE PERFORMED: Aug 16-20, 1988

DATE FILED: Feb 17, 1989  
-----

LOCATION: LAT.: 64° 26'N

AREA: Carpenter River  
-----

LONG.: 135° 16' W

VALUE \$: 6400.00  
-----

CLAIM NAME & NO.: TAF 1-16 YB 02079-YB 02094  
-----

-----  
WORK DONE BY: L. Carlyle  
-----

WORK DONE FOR: C. Thomas and A. Smith  
-----

DATE TO GOOD STANDING: | REMARKS: #27 GREY COPPER HILL  
-----  
-----+-----  
-----+-----  
-----+-----  
-----+-----  
-----



ASSESSMENT REPORT ON THE  
TAF CLAIMS  
MAYO MINING DISTRICT, YUKON  
NTS 106 D-6

**092670**

Latitude: 64° 26' N

Longitude: 135° 16' W

FOR

CHRIS THOMAS and ANSON SMITH  
(Bonventures Ltd.)

by

LARRY W. CARLYLE, F.G.A.C., P. Geol

Whitehorse, Yukon

February 8, 1989  
[Faint, illegible text]



050800

This report has been examined by  
the Geological Evaluation Unit  
under section 53 (4) Yukon Quartz  
Mineral Act and is allowed as  
representation work in the amount  
of \$ 6400.00.

*W. LeBarge*

*for* Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.

Carlyle Geological Services Ltd.  
74 Tamarack Drive  
Whitehorse, Yukon  
Y1A 4Y6

Telephone: (403) 633-3910

February 8, 1989

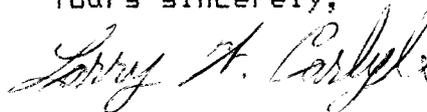
Mr. Chris Thomas  
Box 406  
Kaleden, B.C.  
VOH 1K0

Dear Mr. Thomas:

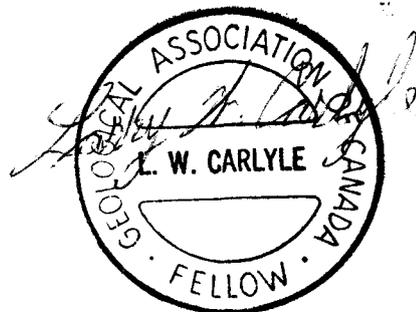
Please find enclosed my report entitled "Assessment Report on the  
TAF Claims, Mayo Mining District, Yukon".

I respectfully submit the report for your review and comment.

Yours sincerely,



Larry W. Carlyle, F.G.A.C.



## EXECUTIVE SUMMARY

The TAF Claims are located on Grey Copper Hill approximately 35 miles (58 km.) north of Elsa, Yukon in the Mayo Mining District. These claims are the only claims remaining in this area which has seen sporadic activity since 1923.

The property is underlain by discontinuous sections of black slates and limestones of probable Proterozoic age. These sediments are overlain by medium to thick-bedded, grey and buff weathering dolomites and limestones of Ordovician-Silurian age. The thrust fault or unconformity that must exist between these two units appears to be quite complex and is the most likely location for mineralization. Mineralization occurs as small irregular replacement pods of siderite containing tetrahedrite, pyrite, quartz, azurite and malachite. Copper and zinc mineralization is also reported to occur in quartz veins on the property.

The rocks described earlier are intruded by sills and dykes of green-brown augite diorite of possible Cretaceous age.

A program of detailed geological mapping and VLF-EM and soil sample surveys is recommended for the TAF Claims. Success obtained from this program should be followed with trenching by drilling and blasting or by a ripper equipped bulldozer.

## TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Property Location and Access	1
Claim Information	1
History	2
Regional Geology	6
<u>Property Geology</u>	
Proterozoic Rocks	6
Ordovician-Silurian Rocks	7
Conclusions	9
Recommendations	9
Proposed Work Program and Budget	10
Itemized Statement of Costs	10
References	11
Statement of Qualifications	12

### FIGURES

	<u>Following Page</u>
Location Map	1
TAF Claim Map	2
Figure 1: Preliminary Geology	6
Figure 2: Horst Moritz Samples	4
Figure 3: Bonventures Ltd. Trenching	5

### APPENDICES

Appendix 1: Carlyle Geological Services Assays
Appendix 2: Thomas and Smith Assays
Invoices

## INTRODUCTION

Carlyle and his field assistant spent 5 days, August 16, 1988 to August 20, 1988, prospecting on and around the TAF Claims. The prime objective of this work was to attempt to discover how and where the tetrahedrite mineralization was occurring. Mr. Chris Thomas and Mr. Anson Smith, the owner's of the TAF Claims, have contracted Carlyle Geological Services Ltd. to research and prepare an assessment report on the property. The report will describe work done by Carlyle as well as the claim owners.

## PROPERTY LOCATION AND ACCESS

The TAF Claims are located on Grey Copper Hill approximately 35 miles (58 km.) north of Elsa, Yukon (See Location Map). The town of Elsa is the center of operations for United Keno Hill Mines Ltd. Elsa is 30 miles (50 km.) from the town of Mayo. The two communities are connected by an all weather gravel road maintained by the Yukon government. Mayo is served by scheduled flights from the capital city, Whitehorse.

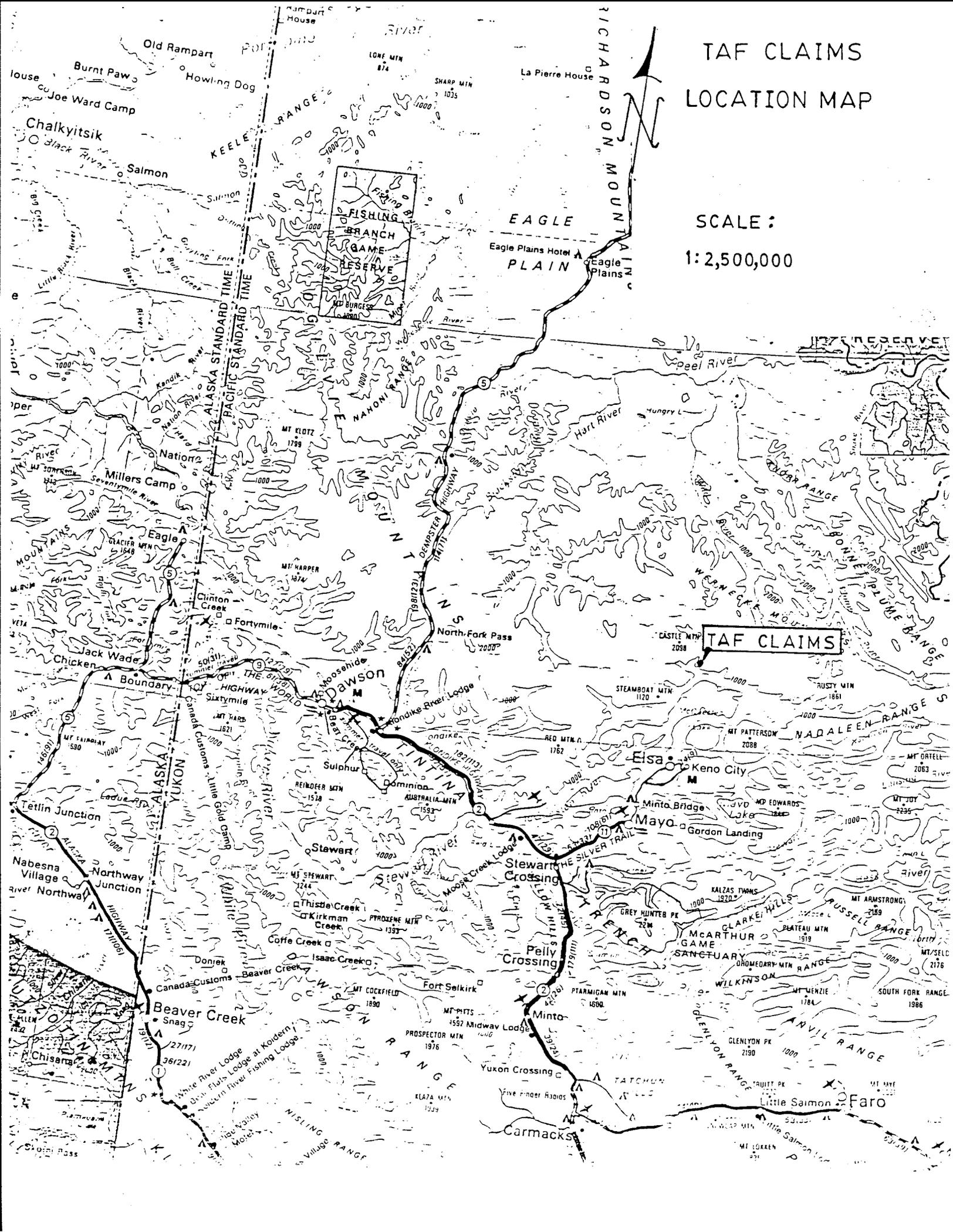
Previous operators on the property probably accessed the area by pack horse or canoe during the summer and by dog sled during the winter. The property is presently accessed by helicopter. A helicopter is stationed at Mayo during the summer months.

## CLAIM INFORMATION (See Claim Map)

Claim Name	Grant Numbers	Owner	Expiry Date
TAF 1 - 8	YB 02079-YB 02086	Chris Thomas	February 16, 1989
TAF 9 - 16	YB 02087-YB 02094	Anson Smith	February 16, 1989

# TAF CLAIMS LOCATION MAP

SCALE:  
1:2,500,000



## HISTORY

Silver-rich tetrahedrite float was discovered in the autumn of 1923 by Robert Fisher on a west facing ridge of Grey Copper Hill. A small stampede during the winter of 1923-24 resulted in the staking of about fifty claims.

Cockfield (1924) describes the vein as occurring in an open cut on the north side of a gulch a few hundred feet above timberline on Mr. Fisher's discovery claim - the Grey Copper King. The vein is a fault fissure estimated to be 24 to 30 inches wide and striking north 10 degrees west and dipping 78° southwest. The vein consisted largely of coarsely crystalline, light brown siderite with small specks and bunches of tetrahedrite and pyrite and some quartz, azurite and malachite. A sample taken from 16 inches of this vein assayed 52.0 ounces/ton silver.

Further uphill lay the King Tut claim also owned by Mr. Fisher and the adjoining Silver Queen claim owned by L.B. Erickson. Both claims contained siderite float with occasional lumps of fairly pure tetrahedrite which carried values up to 1,100 ounces/ton silver. Thick accumulations of frozen talus made trenching difficult.

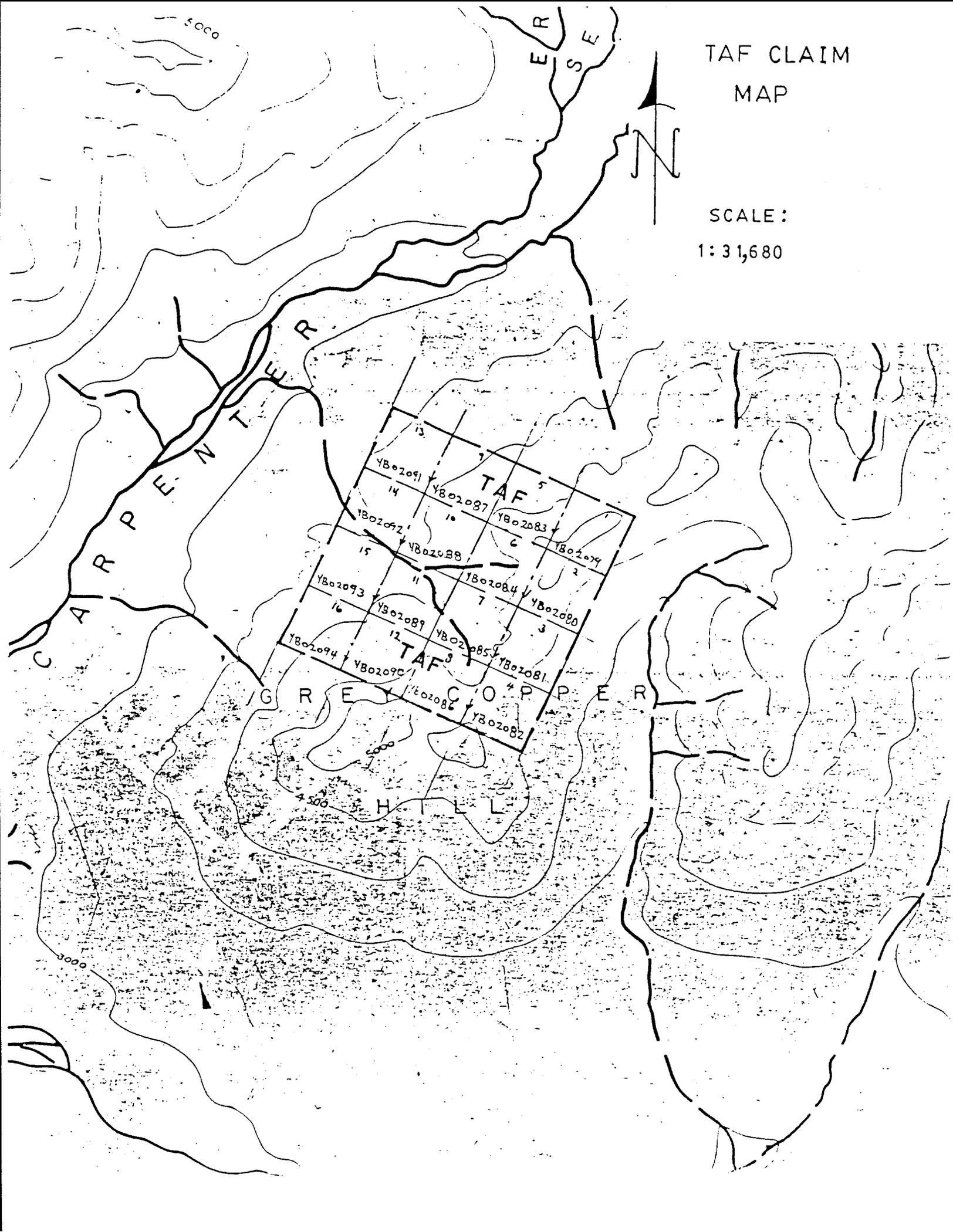
Quartz and siderite float were apparently discovered on some of the other claims but no veins had been located.

Prospecting, trenching and exploratory adits were done at various places on Grey Copper Hill throughout the 1920's and early 1930's. Very little record exists, either in archives or on the ground, of

TAF CLAIM  
MAP



SCALE:  
1:31,680



this work. Only partial records exist from a court case in 1928 concerning land ownership between Robert Fisher and his partners and L.B. Erickson and his partners. Erickson won the case resulting in Fisher losing part of his Grey Copper King claim. Minimal work seems to have been performed until the mid-1930's when records cease. Mr. Fisher is reported to have left the area in 1934.

United Keno Hill Mines Ltd. examined Grey Copper Hill during the summer of 1960 as part of a regional exploration program which included all showings in the Braine Creek - Carpenter Creek area. Four claims were staked to cover the lenses of siderite, quartz, pyrite, malachite, azurite, chalcopyrite and grey copper located. These claims were to have been recorded if assays of the material were good. The samples, taken from lenses described as discontinuous and small, returned low silver and gold assays; resulting in the claims not being recorded.

The area was again staked in about 1968 as the Jet and Fisher claims. At least the Jet claims were owned by Peter and Harry Versluis of Whitehorse. R.G. Hilker visited the property on June 29, 1969 and reports finding two slightly mineralized quartz veins. The first, exposed in a pit, contained iron stained siderite, chalcocite, sphalerite and chalcopyrite. The second vein was in an adit approximately 2000 feet east of the pit. He reports this vein to be milky quartz in brown quartzite and having a southeast strike with a vertical dip.

The next reported staking on Grey Copper Hill was by D. McGregor and D. Beatty on May 30, 1978. These men staked the 16 Silver Hawk claims which were optioned to Prism Resources Ltd. Assessment reports submitted by Prism describe 1979 and 1980 prospecting and rock and soil sampling programs. These programs did not reveal any significant anomalies and only revealed minor in-place mineralization. Additional soil sampling and trenching recommended does not appear to have been completed.

Mr. Horst Moritz of Elsa, Yukon staked the 8 Nancy Bea Claims in the late summer of 1983. Work done by Mr. Moritz is included in a report called "General Report of the Nancy Bea Claims, Grey Copper Hill, Yukon Territory". The report is dated September, 1985 and is thought to be the work of an unnamed United Keno Hill Mines geologist. Figure 2 shows the silver assays obtained from a soil sampling program completed by Mr. Moritz and an assistant in the fall of 1983. Also included on this figure are strong air photo lineations observed on air photographs of the Grey Copper Hill area. Some of the silver values obtained from the soil samples are as high as 45 times the assumed background value. These anomalous silver values roughly coincide with the photo lineations. Recommendations that hand held VLF and magnetometer surveys be carried out over the area and that a ripper equipped D7 or D8 bulldozer be brought in over a winter road which leads to within 5 or 6 miles of the property were not completed.

Mr. Thomas and Mr. Smith staked the 16 TAF Claims on February 16, 1988. Small amounts of trenching, and rock and soil sampling have been performed since that time. The blast trenching done has

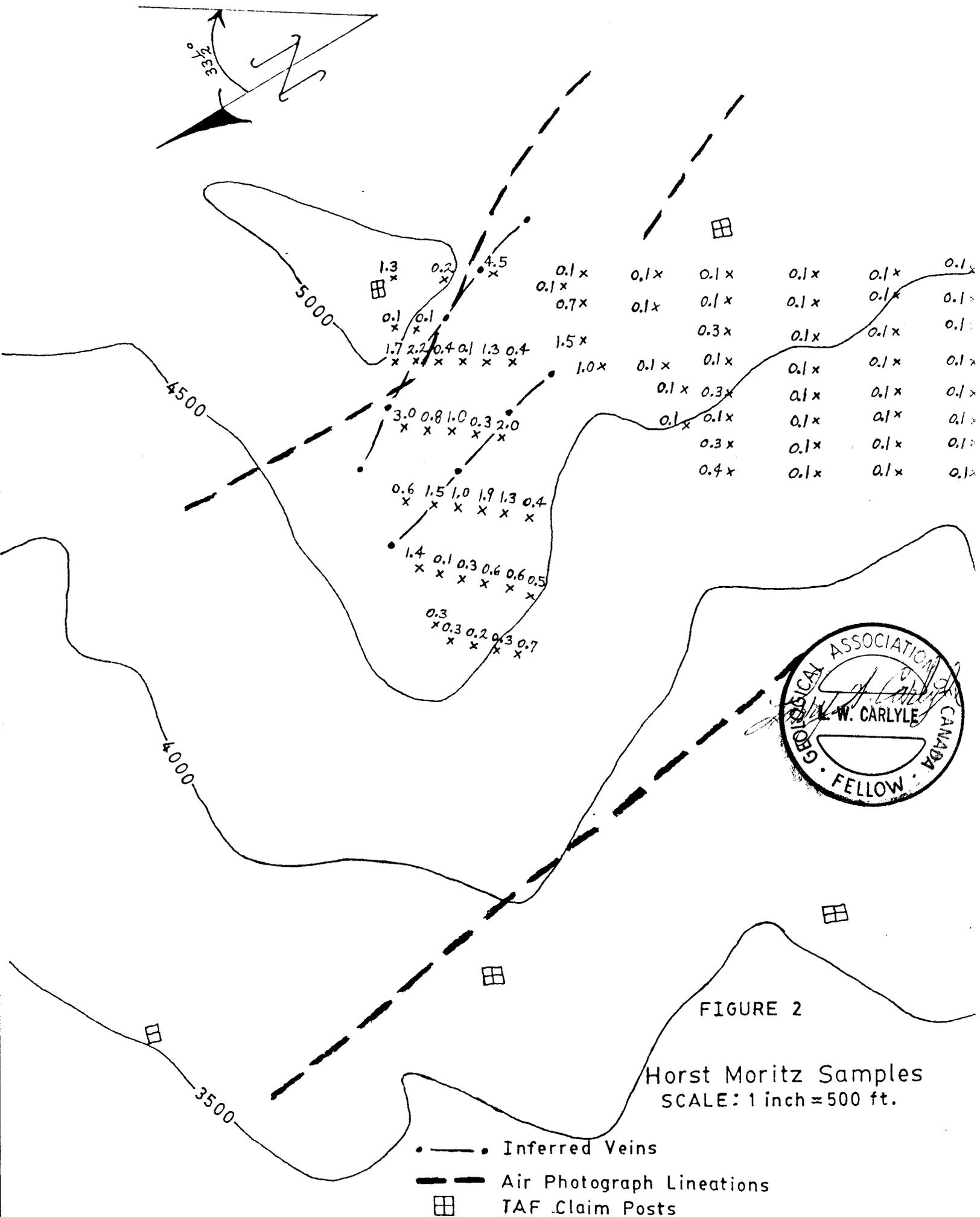


FIGURE 2

Horst Moritz Samples  
SCALE: 1 inch = 500 ft.

- - - - - Inferred Veins
- - - - - Air Photograph Lineations
- TAF Claim Posts

consisted of a major trench (marked as 1988 Trench in Figures 1 and 3) measuring 20 feet long, 4 feet deep and 3 feet wide as well as three other trenches each about 1 cu. yd. in size (not marked on figures) within 300 feet east of the main trench. Six soil samples were taken from the bottom of the 1988 Trench. The samples were taken at approximately 3 foot intervals and are listed from the south end to the north end.

Sample #	Ag (PPM)	Pb (PPM)	Zn (PPM)
SS1	2.3	188	1450
SS2	1.4	132	256
SS3	2.3	497	584
SS4	1.4	294	1080
SS5	0.6	80	768
SS6	1.7	196	262

The silver values correspond closely to those obtained by Mr. Moritz (Figure 2).

Seven rock samples from the property were analysed for silver in ounces/ton. These are:

Sample #	Description	Location
165439	Grey Copper	Sample from pail at cabin
165443	Interesting rock	1988 Trench
165444	Interesting rock	1988 Trench
165445	Pyrolusite	Old Trench (Fig. 3)
165454	Green rock	Dry gulley
165455	Grey Copper	Sample from pail at cabin
165456	Pyrolusite	Old Trench (Fig. 3)

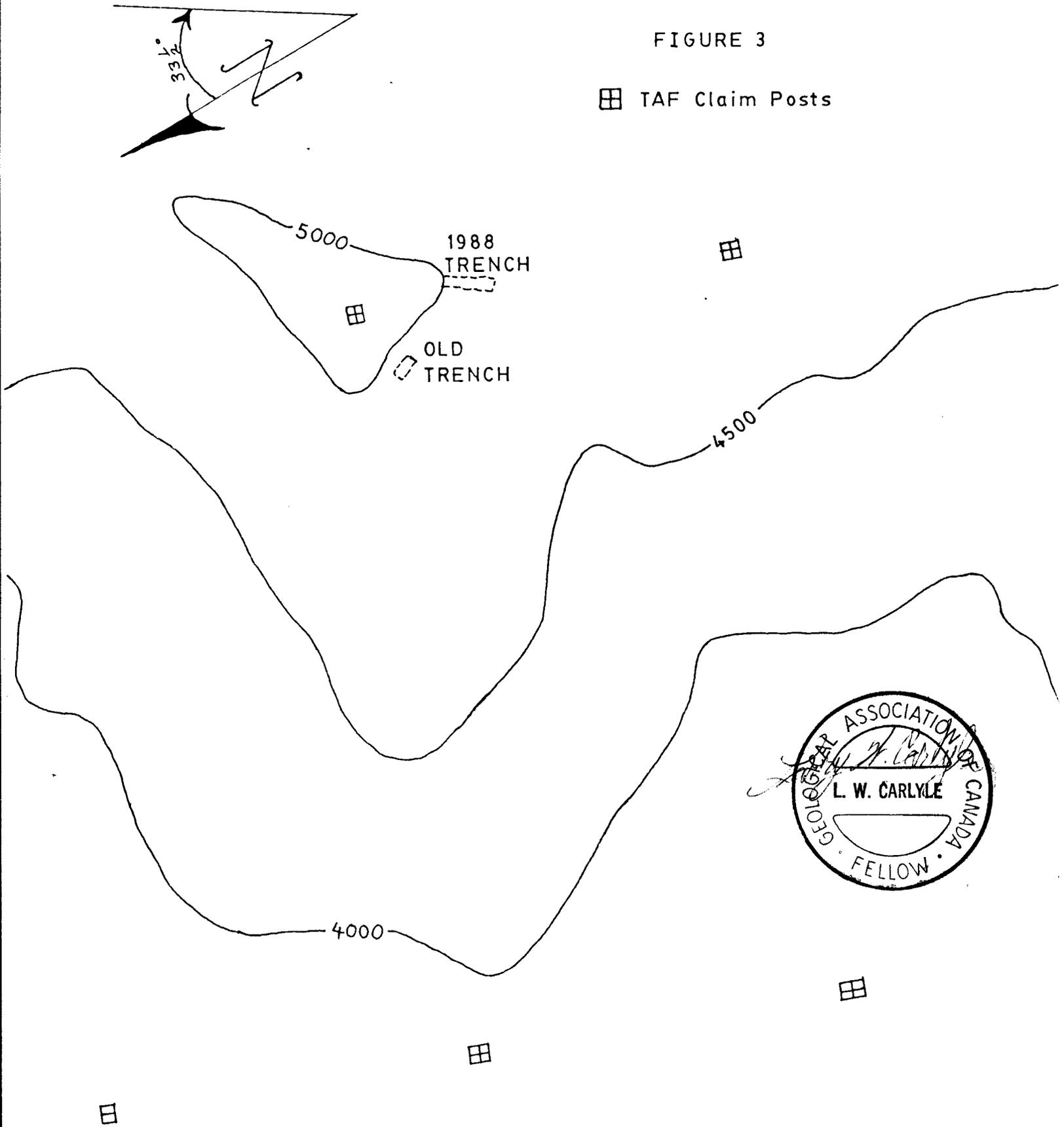
Samples from this property taken by Carlyle are numbered G. Cu - 1 to 3 and assay certificates are included in Appendix 1. Assay certificates for samples taken by Thomas and Smith are included in Appendix 2. Where samples from other prospects are included on assay certificates, samples from this property are marked with an

BONVENTURES LTD.  
TRENCHING

SCALE: 1 inch = 500 ft.

FIGURE 3

▣ TAF Claim Posts



asterix.

### REGIONAL GEOLOGY

Green (1972) has mapped the rocks which underlay the claims as an orange weathering, grey dolomite, cherty dolomite and conglomerate, and a black slate of Proterozoic age. These rocks are overlain by a grey and buff weathering limestone and dolomite of Ordovician-Silurian age. These rocks are intruded by sills and dykes of augite diorite of possible Cretaceous age.

### PROPERTY GEOLOGY

Preliminary geology in the TAF Claims region is provided on Figure 1. The writer believes that most of the rocks exposed in the Grey Copper Hill area are of Proterozoic age (Green, Unit 2). The medium to thick-bedded, grey and buff weathering dolomites and limestones of Ordovician-Silurian age (Green, Unit 8) are also exposed in the area. The thrust fault or unconformity that must exist between these two units appears to be quite complex and is the most likely location for mineralization.

### Proterozoic Rocks

The oldest rocks thought to exist on the property are the dark grey to black slates (Unit 1, Figure 1). This unit and the black limestone (Unit 2, Figure 1) above it are thought to be discontinuous. The slate is layered between 1/2 to 2 inches (1 to 5 cm.), most about 1 inch (2.5 cm.). The black limestone is thick-bedded with contorted lenses of white calcite. Some of these lenses are curved resembling replaced shell fossils.



Above the slate and separated by a sharp contact is an orange weathering silicified dolomite (Unit 3, Figure 1). This dolomite is thinly interbedded dolomite and argillite which exhibits very prominent small and medium folding and differential weathering. The folding may be the expression of compressional pressure placed on the Proterozoic rocks by the Ordovician-Silurian rocks being thrust over them. The interbeds of dolomite and argillite are approximately 1/2 inch (1 cm.) thick. The dolomite layers are more resistant to weathering probably due to silicification. Occasional white vuggy quartz stringers up to 5 inches (12.5 cm.) thick (most are 1/2 inch (1 cm.)) cut the dolomite.

On the southwest end of Grey Copper Hill, this orange weathering dolomite appears to grade into an orange weathering dolomite conglomerate (Unit 4, Figure 1). The dolomite cements dark grey, rounded limestone boulders; most are approximately 4 inches (10 cm.) in diameter. The conglomerate is strongly foliated with some weak folding.

#### Ordovician-Silurian Rocks

Only two rock types of this age are recognized in the Grey Copper Hill area. The lower of these two units is a medium-bedded, buff weathering dolomite (Unit 5, Figure 1). The upper unit is a blocky, thick-bedded, light grey to white limestone (Unit 6, Figure 1). The limestone - dolomite contact appears to be relatively flat lying.

Three old blasted and hand dug trenches were located on the TAF Claims. The first of these is just below the secondary peak

approximately one mile northeast of the Grey Copper Hill summit (Figure 1). The trench is approximately 10 feet (3 metres) long, 4 feet (1.2 metres) wide as well as deep. The only mineralization located in the trench was vuggy pyrolusite in siderite fractures in a limy slate (phyllite?). This material was sampled as Sample G. Cu - 2.

The other two trenches form a "V" over the ridge northeast of the cabin. The longer trench is 500 to 600 feet (154 to 185 metres) long, 2 feet (0.7 metre) wide and 1.5 feet (0.5 metre) deep. The second trench is approximately 350 feet (108 metres) long, 3 feet (1 metre) wide as well as deep. These trenches were caved. Mineralization consisted of light brown to yellow limonite and vuggy pyrolusite in siderite fractures in grey limestone. Sample G. Cu - 1 is of pyrolusite-siderite float taken from the longer trench near the junction point.

Two caved adits were discovered in the gulch directly east of the cabin (Figure 1). The upper adit extends into the north ridge of the gulch and appears to have been approximately 50 feet (15.4 metres) long and 4 feet (1.2 metres) wide. A few timbers remain among the strongly yellow and brown limonite and pyrolusite stained dolomite. Vuggy pyrolusite float similar to that found in the trenches was the only mineralization found at this adit. On the ridge approximately 500 feet (154 metres) directly south of this adit, one of the original claim posts of the Grey Copper King claim was located.

The lower adit extends into the south ridge of the gulch and

appears to have been approximately 35 feet (10.8 metres) long and 5 feet (1.5 metres) wide. A dump sample, given the number G. Cu - 3, was taken of coarse grained, brown siderite containing blebs of tetrahedrite (freibergite variety), pyrite and fracture fillings of malachite and azurite.

On the south ridge of the gulch approximately at the mid-point between the adits, there is a gossaned zone with pyrite (+ freibergite ?) and strong fracture fillings of malachite and azurite.

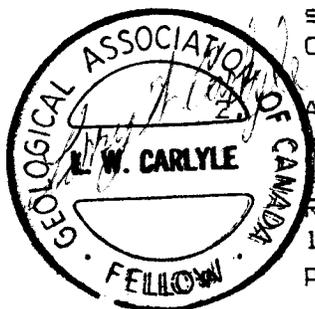
#### CONCLUSIONS

1. Most of the rocks exposed in the Grey Copper Hill area are thought to be of Proterozoic age (Unit 2, Green, 1972).
2. Mineralized zones seen on the property are on or near the footwall of a black slate considered to be the base of the Proterozoic rocks. A complex thrust fault or unconformity must exist between the Proterozoic and Ordovician-Silurian rocks. This contact is poorly exposed.
3. Silver mineralization most likely occurs as "replacement" pods in structural traps or as veins at the base of the slate.
4. Copper and zinc mineralization is reported to occur in quartz veins on the property. This should not be overlooked while performing additional work.

#### RECOMMENDATIONS

1. The search for more mineralization will benefit from more detailed geological mapping to determine the location and strength of the contact zone between the Proterozoic and Ordovician-Silurian rocks.

A VLF-EM survey using a baseline established parallel to the slate footwall should be considered. Lines perpendicular to the baseline should be spaced at 100 metre intervals. Readings should be taken at 30 metre spacings along these lines. The approximately north strike of the slate would probably couple best with the Seattle transmitter.



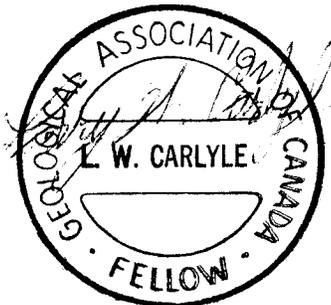
3. Trenching, soil sampling and other work should be concentrated in the area of the adits and the area of known mineralization in the gulch east of the cabin.
4. Steep slopes, talus cover and permafrost will limit the use of soil sampling for silver, copper, lead and zinc on the property.
5. The use of a ripper equipped bulldozer may be of great benefit in overcoming the talus cover and permafrost.

PROPOSED WORK PROGRAM AND BUDGET

Wages and Benefits	\$ 24,000.00
Food and Lodgings	\$ 6,000.00
Helicopter	\$ 3,000.00
Assaying	\$ 3,000.00
Report Writing	\$ 3,000.00
Contingencies	\$ 7,800.00
	-----
Total	\$ 46,800.00

ITEMIZED STATEMENT OF COSTS

Helicopter		\$ 5,514.00
Report Writing		\$ 500.00
Assaying		\$ 180.00
Food and Supplies		\$ 400.00
Drill Rental		\$ 245.00
Blast Trenching	12 cu. yds. @ \$30.00/yd	\$ 360.00
		-----
	Total	\$ 7,199.00



## REFERENCES

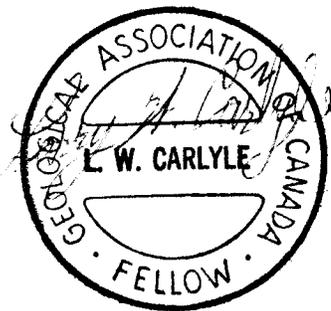
1. Cockfield, W.E., (1924) from Geological Survey of Canada Memoir 284, "Yukon Territory, Selected Field Reports of the Geological Survey of Canada 1898 to 1933"; compiled and annotated by H.S. Bostock, pages 538-539.
2. Green, L.H. and Roddick, J.A., (1972) "Nash Creek Geology Map 1282A" To accompany GSC Memoir 364.
3. Hilker, R.G., (1969) "Property Evaluation Report on the Jet Claim Group" Private report for Peter Versluce.
4. Sivertz, George, (1979) "Assessment Report - Geology of the Silver Hawk Claims" Report for Prism Resources Ltd.
5. Sivertz, George, (1980) "Assessment Report - Soil Geochemistry of the Silver Hawk Claims" Report for Prism Resources Ltd.
6. Unknown author, (1985) "General Report of the Nancy Bea Claims, Grey Copper Hill, Yukon Territory" Report for United Keno Hill Mines Ltd.

STATEMENT OF QUALIFICATIONS

I, LARRY W. CARLYLE, do certify:

1. That I am a professional geologist operating a business registered as CARLYLE GEOLOGICAL SERVICES LTD. with an office at 74 Tamarack Drive, Whitehorse, Yukon Y1A 4Y6.
2. That I hold a B. Sc. degree in geology from the University of British Columbia (1970).
3. That I am a Fellow of the Geological Association of Canada (F - 4355).
4. That I am a registered Professional Geologist in the Association of Professional Engineers, Geologists and Geophysicists of the Province of Alberta (41097).
5. That I am a Member of the Canadian Institute of Mining and Metallurgy.
6. That I have practiced my profession as a mine and exploration geologist for fifteen years.
7. That the conclusions and recommendations in the attached report are based on work done by the writer and a review of all available private and public reports.
8. That I hold no interest in the TAF Claims owned by Mr. Chris Thomas and Mr. Anson Smith (Bonventures Ltd.)

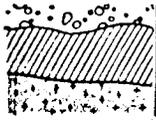
DATED at Whitehorse, Yukon, this 9<sup>th</sup> day of February, 1989.



APPENDIX 1

CARLYLE GEOLOGICAL SERVICES ASSAYS





REPORT: WSP-07003.4

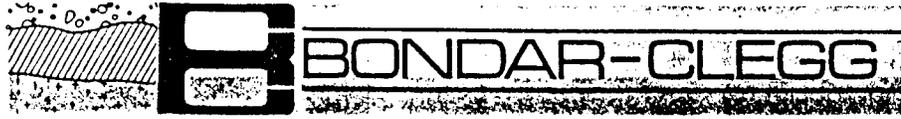
PROJECT: NONE GIVEN

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Ag OPT	0g OPT
R2 G.CU-1			0.07
R2 G.CU-2			<0.00
R2 G.CU-3	26.33		

*[Handwritten signature]*

Clegg & Company Ltd.  
1000 Amberton Ave.  
Vancouver, B.C.  
Canada V7P 2R5  
Phone: (604) 985 0681  
Telex: 04-352667



Certificate  
of Analysis

REPORT: V88-07988.6

PROJECT: NONE GIVEN

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Cu PCT
R2 G.CU-3		2.28

APPENDIX 2

THOMAS AND SMITH ASSAYS

Bondar-Clegg & Company Ltd.  
11500 101st Ave.  
Edmonton, Alberta, R0  
T6E 1A7  
TEL: 853-1931 FAX: 853-6677



# Geochemical Lab Report

REPORT: V89-00355.D

PROJECT: NONE GIVEN

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM
S1 SS1		2.3	188	1450
S1 SS2		1.4	132	256
S1 SS3		2.3	497	584
S1 SS4		1.4	294	1080
S1 SS5		0.6	80	768
S1 SS6		1.7	196	262



# Certificate of Analysis

TO McCrorry Expediting

REPORT NO. W89-00355.4

~~Claims~~ Claims

DATE Jan 18, 1989

I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

MARKED	oz/ton								
	Ag								
165439	41.8								
165443	0.43								
165444	0.37								
165445	0.02								
165454	0.03								
165455	1.74								
165456	L0.01								
1 A	0.03								
1 B	2.17								
2	L0.01								
#1 Zone									
#3 Trench	L0.01								