

Numerous minor streams are found throughout the area, with some forming prominent ravines in the upper, southeast end of the property. The north and west sides of the property are cut by Buchan Creek, a large, braided stream draining the FEE and White Moose glaciers. Several small tarn lakes are found in the moraine material below the FEE glacier.

### REGIONAL GEOLOGY:-

The FEE Claim Group lies within the metamorphic terrane of the Coast Plutonic Complex that bounds the Mesozoic strata of the Whitehorse Trough on the west.

The property lies within greenschist to amphibolite facies metamorphic rocks known as the Coast Metamorphic Rocks. These rocks may be Lower or Mid-Paleozoic age with perhaps some Precambrian.

In the FEE area, Taku Arm represents a fault or unconformity which separates the metamorphic rocks from the younger Laberge Group sediments that host the Engineer vein system.

The metamorphic rocks have a northwest trend that conforms to the regional structural pattern. Northwest trending folds are defined by a strongly developed foliation. These folds appear to be slightly overturned to the northeast.

### DETAILED GEOLOGY:-

#### UNIT 1 - METASEDIMENTS and METAVOLCANICS -

This unit consists of schists and gneisses with a predominantly pelitic nature.

Hornblende and/or biotite-feldspar-quartz gneiss and mixed pelitic schists are the two main members. Recrystallized impure limestone or marble is present as a minor member.

#### UNIT 1a - MIXED PELITIC SCHISTS -

This unit is dominated by fine grained, feldspar-quartz-mafic schists, where mafics comprise 50 to 90% of the rock. The mafic minerals may be biotite and/or amphibole and/or chlorite. Minor garnet is present locally. At the south end of the property, this unit grades to amphibolite. Minor actinolite is present in this area.

Schists of intermediate to felsic composition are interlayered with the mafic schists. A medium grained, crenulated, muscovite-quartz schist occurs locally as bands up to 7 meters in width. Muscovite constitutes up to 30 to 50% of the rock which, in some sections, contains 5 to 10% pyrite.

Both crosscutting and conformable felsic bands (Aplite or microgranite) are common in this unit. These bands are composed of muscovite-feldspar-quartz and are generally foliated. They are also found within other units on the property.

#### UNIT 1b - HORNBLLENDE and/or BIOTITE-FELDSPAR-QUARTZ GNEISS -

Medium - grained hornblende-feldspar-quartz gneisses cover the southwest section of the property. The rock is predominantly a hornblende gneiss with hornblende content ranging from 30 to 80%. Locally, biotite constitutes up to 30% of the gneiss. Mafic minerals generally comprise 40 to 50% of the rock.

#### UNIT 1c - RECRYSTALLIZED, IMPURE LIMESTONE or MARBLE -

Several small outcrops of carbonate-rich rock, ranging from impure marble to orange weathering limy schists occur on the property.

The main band appears to be 2 to 4 meters thick.

A moderately deformed unit of dark weathered, rusty, limy schists occurs at the south end of the property. This unit may have contained up to 20% pyrite, but most of the sulphides have been weathered out.

#### UNIT 2 - FOLIATED INTRUSIVE -

A large portion of the property is underlain by a porphyritic foliated intrusive unit.

The intrusive is generally fine to medium-grained and contains up to 40% white feldspar phenocrysts. These phenocrysts range up to 3mm in diameter. Biotite, chlorite and hornblende constitute 40 to 60% of the rock and the remainder is quartz.

Generally, chlorite (after biotite and hornblende) constitutes 20 to 35% of the rock, biotite 15% and the hornblende content is variable.

The unit is weakly to strongly foliated. Where chlorite and biotite are the dominant mafics the rock has a schistose texture. A more gneissic texture is apparent where hornblende is abundant.

### UNIT 2a - FOLIATED MICROGRANITE or APLITE -

In many places Unit 2 is intruded by both conformable and crosscutting, finer grained, foliated dikes or bands (aplites or mafic poor microgranites).

These bands are composed of quartz and feldspar with minor muscovite, mafic minerals and occasionally garnet. The bands pinch and swell along strike and vary from less than 2m to 15m in thickness.

### UNIT 3 - DIKES -

Numerous dikes, up to 10m wide, crosscut all other units in the map area and range in composition from rhyolite to basalt.

Pale beige, aphanitic rhyolite dikes (3a) are the most common. Massive and porphyritic (quartz phenocrysts) varieties occur. Some dikes contain both quartz and feldspar phenocrysts up to 5mm in diameter while those classified as rhyodacite (3b) also contain up to 5% mafic phenocrysts. The mafic phenocrysts are usually hornblende and/or chlorite and may be up to 2mm in size.

Rhyolite and rhyodacite dikes appear to be associated with mineralization in several locations. Dikes occurred as the bottom cutoff to several quartz veins and alteration zones. The dikes do not appear to have any alteration halos and sampling of the dikes revealed no mineralization.

A few dark green to black, very fine-grained to aphanitic basaltic dikes (3c) up to 3m wide also occur. These dikes were observed to crosscut quartz veins and do not appear to have any associated mineralization.

### MINERALIZATION:-

During the 1980 geological survey, eleven areas of vein mineralization were encountered (Occurrences A to K). In the 1981 program several new quartz veins were encountered. The highest assay was for 0.24m chip sample that returned less than 0.002 oz/ton Au and 0.20 oz/ton Ag.

Most of the veins on FEE trend northwest and consist of massive to vuggy white quartz with minor galena, tetrahedrite, chalcopyrite, pyrite, malachite and azurite.

In addition to vein mineralization, disseminated pyrite was observed at some outcrops.

Most of the veins have a limited strike length. The longest vein could only be traced for 180m.

Several occurrences returned moderate to good geochemical soil results in 1980 and were investigated in 1981 (see Geochemistry).

Occurrence G was blast trenched in 1981 and the results of this program are detailed under "Trenching".

Occurrence I (Rupert Group) was re-investigated in 1981. The veins in this area appear to be fracture fillings with limited strike lengths. Several of these veins exhibit good alteration zones and two of these were sampled to assess low grade potential. A 2.0m chip returned 0.005 oz/ton Au and less than 0.05 oz/ton Ag. A 5.4m chip that included three (3) narrow mineralized quartz veins returned 0.025 oz/ton Au, and 0.16 oz/ton Ag.

The limited strike lengths, low to moderate grade and the barren alteration zones of the observed quartz veins appears to preclude any potential.

### TRENCHING:-

#### GENERAL:-

During the period of August 5th to August 11th, 1981, a two man contract blasting crew conducted blast trenching on Occurrence G.

The showing is located on a talus covered, north facing slope. The showing remains snowcovered until early August.

Previous work on this showing consists of a 1.5m deep blast pit, located on the only outcrop exposure of the vein, and an adit that was collared 26m downslope from the blast pit and driven towards the pit (Figure 3). The adit is now caved, however, the size of the adit dump (approximately 110m<sup>3</sup>) indicates that the adit was from 25 to 30m long.

These workings appear to be contemporaneous with work on the Rupert and Lakeshore veins (early 1900's).

The quartz vein exposure by the blast pit is 1.1m wide with 3 to 6 percent disseminated galena, tetrahedrite, chalcopyrite and minor pyrite. A 0.1m band of massive sheared galena with some pods of chalcopyrite and minor tetrahedrite also occurs in the vein. Two, 1.1m wide chip samples, taken 2m apart on this vein in 1980, returned an average of 0.45 oz/ton Au, 7.14 oz/ton Ag and 9.85% Pb.

Quartz in the adit dump is weak to moderately mineralized with 1 to 5 percent disseminated galena, tetrahedrite, chalcopyrite and pyrite. Much of this quartz also contains coatings and narrow fracture fillings of azurite and malachite.

Mo  
Au 02/1  
Ag 07

The high returns from the 1980 chip sampling indicated that further investigation of this showing was required. Two trenches were put in on the vein in 1981.

#### TRENCH 1:-

This trench was started on the outcrop exposure, located on the eastern edge of the old blast pit, and extends 15m east along the projected strike of the vein (Figure 4). This trench revealed that the vein pinches out at 5.5m east of the edge of the blast pit.

Some 11 chip samples were taken of the quartz vein, wallrock and alteration zone. The highest returns were a 1.71m chip with 0.36 oz/ton Au, 5.69 oz/ton Ag, 1.36% Pb, 0.10% Zn and 0.07% Cu, and a 1.01m chip that returned 0.78 oz/ton Au, 0.82 oz/ton Ag, 0.67% Pb, 0.03% Zn and 0.04% Cu. A 1.07m chip sample of rusty rhyolite taken 0.8m along strike from where the vein pinches out returned 0.002 oz/ton Au and less than 0.05 oz/ton Ag.

The strike of the vein in Trench 1 is 125° with a dip of 80° southwest. The vein is bounded by silicious rhyolite on the south and by rusty rhyolite on the north. Chip samples of this rock adjacent to the vein indicate no significant mineralization.

#### TRENCH 2:-

This trench was started on the western edge of the old blast pit. The trench extends 11.5m northwest, along the strike of the vein, towards the portal of the old adit (Figure 5). The trench exposed the vein for 6.5m and it appears to pinch out on the north end.

The vein in Trench 2 is weakly mineralized with 1 to 5 percent disseminated galena, tetrahedrite, chalcopyrite and pyrite. Some 12 chip samples of vein and alteration zone were taken from the trench. The highest returns were a 0.85m chip sample with 0.13 oz/ton Au, 0.85 oz/ton Ag, 0.90% Pb, 0.03% Zn, and 0.04% Cu.

The strike of the vein in Trench 2 is 160° with a dip of 80° east. The vein is bounded by weak to moderately rusty rhyolite with some moderately clay-altered and incompetent rusty material immediately adjacent to the vein. Chip samples of the alteration zones and country rock taken adjacent to the vein did not contain significant mineralization.

The trenching revealed that the vein is 21m long, exhibits a 35° change in strike and that it pinches out at both extremities. Chip sampling indicated low to moderate grade for the vein and that the alteration zones contain no significant mineralization.

No Au or Ag

## GEOCHEMISTRY

During the period July 24th to August 23rd, 1981 a two man crew completed the reconnaissance soil sample survey over the property.

Geochemical sample lines were run at 040/220° using hipchains and compass at 100m intervals along baselines established in 1980. Samples were taken at 30m intervals along these lines using mattocks and trowels. At the southern end of the property several lines were run at approximately 130/310° using 200m intervals due to the rugged topography of the area.

Some 1288 samples were collected and analysed for silver, lead, zinc, copper and arsenic. Some 115 samples were also analysed for gold.

### INVESTIGATION OF 1980 ANOMALIES:-

An anomalous area with a high of 9.2 ppm Ag, south of the FEE glacier, did not reveal any visible mineralization. The area is a talus covered upland plateau with members of units 1a and 1b.

Occurrence H contains several anomalous values in lead and silver. A trench and a blastpit on two separate weakly mineralized quartz veins were the only observed mineralization in the area. Anomalies occur below these workings but the source of several other small anomalies remains unknown.

A widespread arsenic anomaly also occurs in this area. Some 89 samples taken from this area in 1980 were analyzed for gold in 1981. A high of 135 ppb Au was returned with many samples in the 20-40 ppb range.

Twenty grab rock samples were taken on two lines, run on outcrop exposure, upslope from this anomaly. These samples were analysed for gold and the highest return was 0.002 oz/ton Au.

Occurrence I is correlative with several strong silver and lead soil anomalies.

There are several spot silver, lead and zinc anomalies south of Occurrence C. Most of these can be related to small quartz veins and some weakly mineralized bands of crenulated muscovite schist and rusty silicified schist. Grab samples of this schist in the vicinity of soil anomalies returned a high of 0.12 oz/ton Ag, 0.24% Pb and 0.08% Zn. This weakly mineralized schist may be the source of the other widespread anomalies on the property.

Some 120 anomalous zinc samples, taken in 1980, were re-analysed in 1981 using a dilute (0.1 normal HCl) digestion. The results from this (Appendix A) indicate that most of the zinc is occurring as sulphide rather than oxide.

#### 1981 RESULTS:-

##### Baseline 2 to Baseline 3 Area -

A 250m long anomaly in silver, lead, zinc, copper and arsenic occurs 100m southwest of baseline 2. This anomaly trends northwest and contains values up to 9.0 ppm Ag and 2553 ppm Pb. The lower end of this anomaly is coincident with a 0.15m wide quartz vein that contains minor galena, chalcopyrite and tetrahedrite. The anomaly follows the strike of this vein.

A multi-element anomaly in silver, lead, zinc, copper and arsenic occurs 250m southeast of the FEE glacier. Silver exhibits weak to moderately anomalous results with a spot high of 10.0 ppm. Both northwest and northeast trends appear to exist. Anomalous results for zinc, lead and copper exhibit a more pronounced northwest trend. Copper and arsenic show a more restricted anomaly relative to the other elements. There is some minor quartz float in the area, but no significant mineralization was observed.

Several anomalies are associated with observed low grade mineralization in the area. Moderate anomalies are also present but these do not have any observed mineralization associated with them.

All the anomalies in this area appear to indicate vein structures with limited strike lengths.

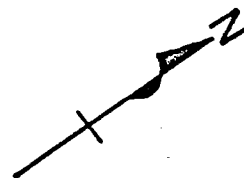
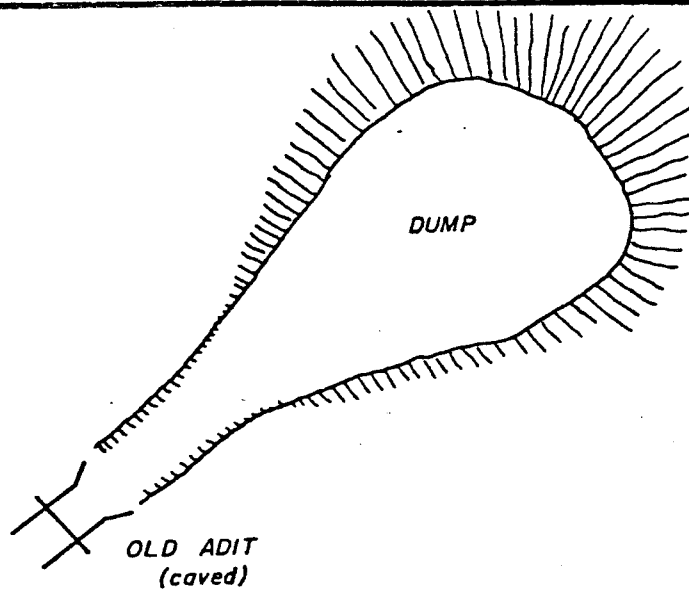
##### Baseline 3 to Baseline 4 Area -

Silver, zinc, and copper exhibit several local anomalous areas. A northwest trending lead anomaly with a high of 290 ppm Pb occurs beside baseline 4. No mineralization was observed in this area.

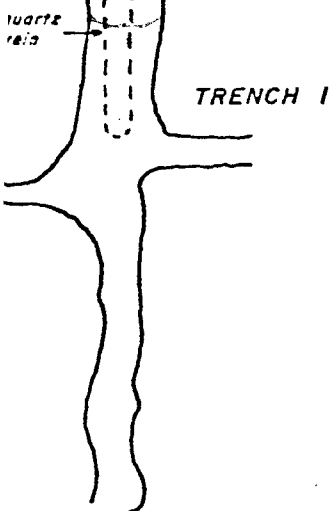
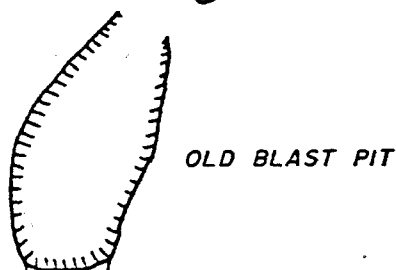
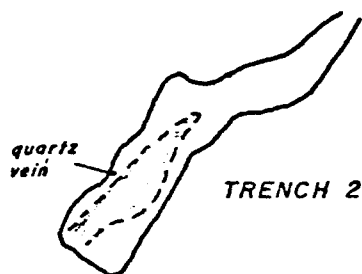
Most of the area is anomalous in arsenic. Since much of this area is on a steep east-facing slope, downslope transport probably exaggerates the size of the anomalies.

##### Baseline 4 to South Claim Line Area -

There are no anomalies in lead or arsenic. A zinc anomaly is coincident with talus exposures of limy schist.



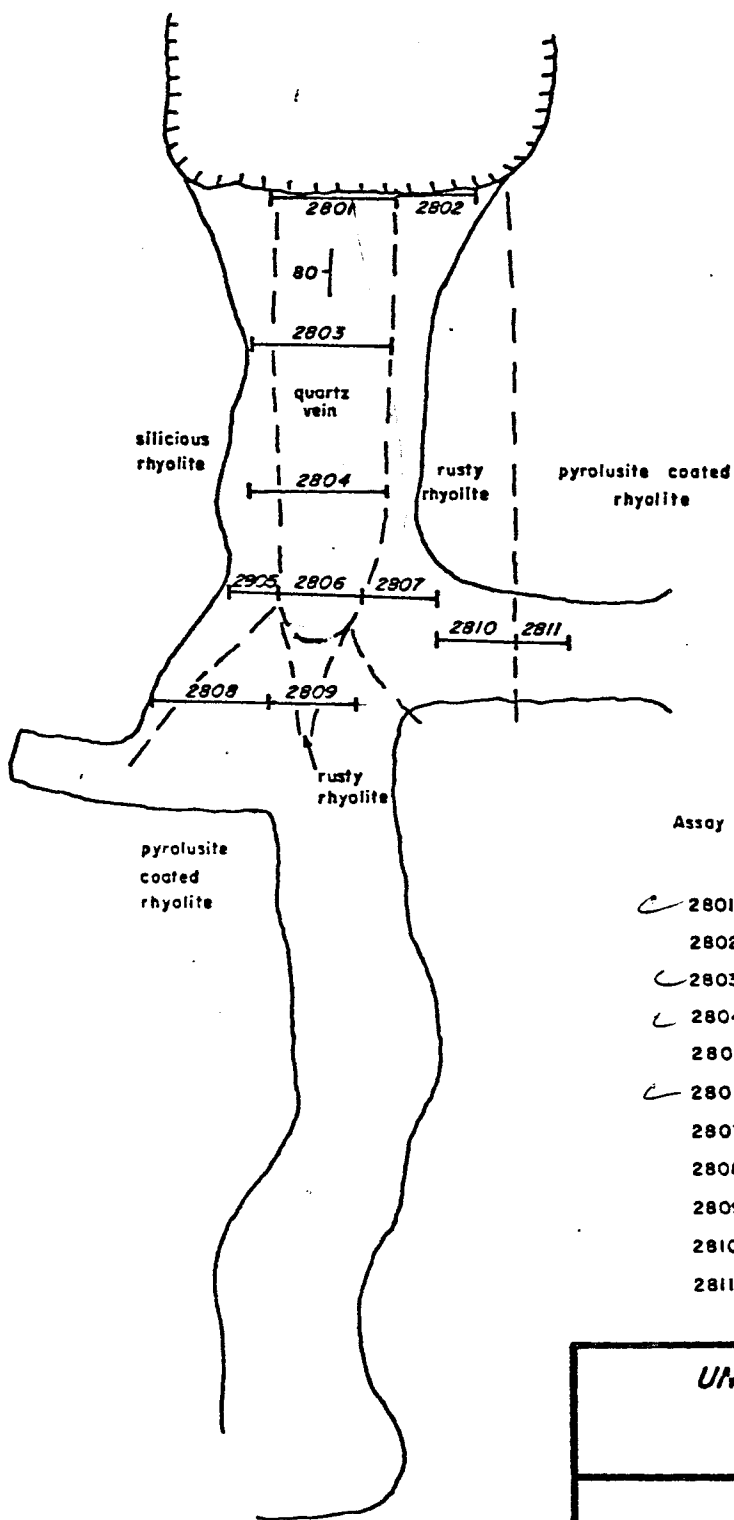
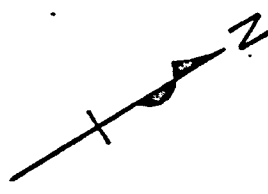
No. Au 02/1  
A0 02



<b>UNITED KENO HILL MINES LTD.</b> EXPLORATION DEPARTMENT WHITEHORSE — YUKON	
<b>OCCURRENCE G</b> <b>OLD WORKINGS and 1981 TRENCHING</b>	
<i>Mining District</i> <b>ATLIN, B.C.</b>	
<i>N.T.S. Sheet No.</i> <b>104-M-8</b>	
<i>Scale</i> <b>1:250</b>	
<i>Drawn by</i> <b>K.W.W.</b>	<i>Date</i> <b>01/10/81</b>

FIG 3





**ASSAY RESULTS**

Assay No.	Width (meters)	Au (oz/ton)	Ag (oz/ton)	Pb (%)	Zn (%)	Cu (%)
✓ 2801	1.52	0.10	1.72	2.80	0.07	0.07
2802	0.91	0.002	0.10	0.09	0.01	0.01
✓ 2803	1.83	0.11	5.62	1.40	0.09	0.16
✓ 2804	1.71	0.36	5.69	1.36	0.10	0.07
2805	0.61	0.002	0.18	0.38	0.02	0.01
✓ 2806	1.01	0.78	0.82	0.67	0.03	0.04
2807	0.91	0.02	0.16	0.26	0.20	0.18
2808	1.52	0.002	<0.05	0.06	0.03	0.01
2809	1.07	0.002	<0.05	0.05	0.04	0.01
2810	0.91	0.03	0.09	0.10	0.24	0.05
2811	0.61	0.002	<0.05	0.08	0.05	0.02

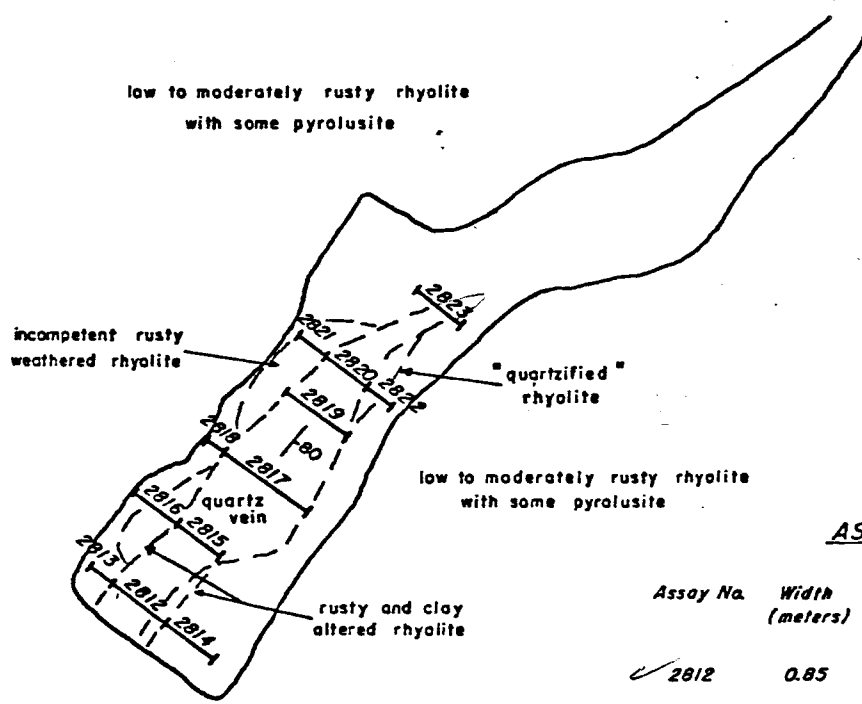
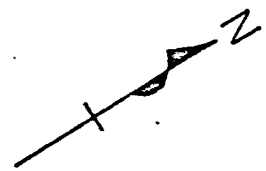
UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT  
WHITEHORSE — YUKON

**TRENCH I**  
GEOLOGY and ASSAYS

Mining District ATLIN, B.C.  
N.T.S. Sheet No. 104-M-8  
Scale 1:100

Drawn by K.W.W. Date 01/10/81

No. Au 02/1 Do 07



ASSAY RESULTS

Assay No.	Width (meters)	Au (oz/ton)	Ag (oz/ton)	Pb (%)	Zn (%)	Cu (%)
✓ 2812	0.85	0.13	0.85	0.90	0.03	0.03
2813	0.30	0.01	0.09	0.14	0.03	0.02
2814	0.76	0.04	0.54	0.34	0.12	0.10
✓ 2815	0.61	0.12	0.86	0.54	0.02	0.03
2816	0.76	0.04	0.18	0.36	0.04	0.03
✓ 2817	1.34	0.05	0.89	0.38	0.02	0.03
2818	0.30	0.06	0.29	0.65	0.03	0.06
✓ 2819	0.91	0.09	0.95	0.77	0.03	0.06
✓ 2820	0.64	0.085	1.90	1.77	0.03	0.07
2821	0.46	0.015	0.15	0.22	0.02	0.03
2822	0.43	0.005	0.36	0.11	0.01	0.01
✓ 2823	0.70	0.11	5.40	0.50	0.03	0.04

<b>UNITED KENQ HILL MINES LTD.</b> EXPLORATION DEPARTMENT WHITEHORSE — YUKON	
<b>TRENCH 2</b> GEOLOGY and ASSAYS	
Mining District <i>ATLIN, B.C.</i> N.T.S. Sheet No. <i>104-M-8</i> Scale <i>1:100</i>	
<i>Drawn by K.W.W.</i>	<i>Date 02/10/81</i>

FIG 5



UNITED KENO HILL MINES LIMITED  
EXPLORATION DEPARTMENT — 409 BLACK — WHITEHORSE  
FEE - TRENCHING

*ASSAY RESULT FORM*

DATE			Tag No.	Location and Description	ASSAY RESULTS								
D	Mo.	Yr.			Au oz/ton	Ag oz/ton	Pb %	Zn %	Cu %	Mo %	W %		
09	08	81	2812	Trench 2 - T12 - 0.85 m chip. Qtz vein with some altered rhyolite	0.13	0.85	0.90	0.03	0.03				
09	08	81	2813	Trench 2 - T13 - 0.30 m chip. Rusty rhyolite, porphyritic with qtz eyes	0.010	0.09	0.14	0.03	0.02				
09	08	81	2814	Trench 2 - T14 - 0.76 m chip. Rusty rhyolite with some manganese	0.040	0.54	0.34	0.12	0.10				
09	08	81	2815	Trench 2 - T15 - 0.61 m chip. Qtz vein with some disseminated sulphides	0.12	0.86	0.54	0.02	0.03				
09	08	81	2816	Trench 2 - T16 - 0.76 m chip. Rust weathered rhyolite with some clay alt.	0.040	0.18	0.36	0.04	0.03				
09	08	81	2817	Trench 2 - T17 - 1.34 m chip. Qtz vein, some sulphides	0.050	0.89	0.38	0.02	0.03				
09	08	81	2818	Trench 2 - T18 - 0.30 m chip. Rusty rhyolite, some clay alt near vein	0.060	0.29	0.65	0.03	0.06				
09	08	81	2819	Trench 2 - T19 - 0.91 m chip. Qtz vein similar to T17	0.090	0.95	0.77	0.03	0.06				
11	08	81	2820	Trench 2 - T20 - 0.64 m chip. Qtz vein, xtalline, low min'	0.085	1.90	1.77	0.03	0.07				
11	08	81	2821	Trench 2, T21 - 0.46 m chip, red to orange altered rhyolite	0.015	0.15	0.22	0.02	0.03				
11	08	81	2822	Trench 2 - T22 - 0.43 m chip. "Quartzified" Rhyolite	0.005	0.36	0.11	<0.01	<0.01				

UNITED KENO HILL MINES LIMITED  
EXPLORATION DEPARTMENT — 409 BLACK — WHITEHORSE  
FEE - TRENCHING

*ASSAY RESULT FORM*

DATE			Tag No.	Location and Description	ASSAY RESULTS								
D	Mo.	Yr.			Au oz/ton	Ag oz/ton	Pb %	Zn %	Cu %	Mo %	W %		
08	08	81	2801	Trench 1 - T1 - 1.52 m chip. Qtz vein + alt wallrock	0.10	1.72	2.80	0.07	0.07				
08	08	81		2802	Trench 1 - T2 - 0.91 m chip. Altered rusty rhyolite	0.002	0.10	0.09	0.01	0.01			
08	08	81	2803	Trench 1 - T3 - 1.83 m chip. Qtz vein plus alteration	0.11	5.62	1.40	0.09	0.16				
08	08	81		2804	Trench 1 - T4 - 1.71 m chip. Qtz vein plus alteration	0.36	5.69	1.36	0.10	0.07			
08	08	81	2805	Trench 1 - T5 - 0.61 m chip. Manganese stained rhyolite	0.002	0.18	0.38	0.02	0.01				
08	08	81		2806	Trench 1 - T6 - 1.01 m chip. Qtz vein	0.78	0.82	0.67	0.03	0.04			
08	08	81	2807	Trench 1 - T7 - 0.91 m chip. Rusty altered rhyolite	0.020	0.16	0.26	0.20	0.18				
08	08	81		2808	Trench 1 - T8 - 1.52 m chip low altered, manganese, silicious, rk.	0.002	<0.05	0.06	0.03	0.01			
08	08	81	2809	Trench 1 - T9 - 1.07 m chip. low altered highly silicious rk.	0.002	<0.05	0.05	0.04	0.01				
08	08	81		2810	Trench 1 - T10 - 0.91 m chip. Rusty altered, similar to T7	0.03	0.09	0.10	0.24	0.05			
08	08	81	2811	Trench 1 - T11 - 0.61 m chip as T-8	0.002	<0.05	0.08	0.05	0.02				



UNITED KENO HILL MINES LIMITED  
EXPLORATION DEPARTMENT — 409 BLACK — WHITEHORSE

FEE

ASSAY RESULT FORM

DATE			Tag No.	Location and Description	ASSAY RESULTS							
D	Mo.	Yr.			Au oz/ton	Ag oz/ton	Pb %	Zn %	Cu %	Mo %	W %	
01	08	81	2044	Line 1, Sample 6 - highly silicified gneiss - grab	<.002							
01	08	81	2045	Line 1, Sample 7, as above	<.002							
01	08	81	2046	Line 1, Sample 8, as above	<.002							
01	08	81	2047	Line 1, Sample 9, as above	<.002							
01	08	81	2048	Blast pit, B/L1 - 19NW, Grab from dump - qtz - rusted	.14	4.27	0.20	0.90	0.12			
01	08	81	2776	B/L1 - 20NW-2+40Sw, below = Line 2, Sample A, grab (banded gneiss)	<.002							
01	08	81	2777	Line 2, Sample B, silicious mod mafic, banded gneiss - grab	.002							
01	08	81	2778	Line 2, sample C, high mafic, folded schist with crenulated biot - grab	<.002							
01	08	81	2779	Line 2, sample D, similar to C - grab	<.002							
01	08	81	2780	Line 2, Sample E - same as B, Grab	<.002							
01	08	81	2781	Line 2, sample F - dark weathered rhyloite, grab	<.002							

