



REPORT ON
BARB CLAIMS
ANVIL RANGE, YUKON TERRITORY

f o r
UNION OIL COMPANY LIMITED



Toronto, Ontario, Canada
July, 1980

W. E. Brereton, P.Eng.

090831



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 1,800.00

Ruth D. Bickel A. Lee Geol
Resident Geologist or June 1981
Resident Mining Engineer

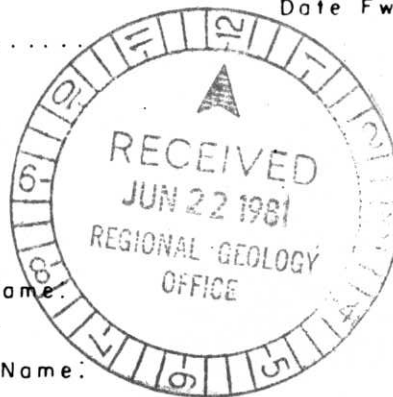
Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

188000

FROM Mining Recorder at WHITEHORSE

TO Supervising Mining Recorder at Whitehorse, Y.T.



FOR ACTION ARE:

NEW APPL'N for PLACER LEASE to PROSPECT: Name:

Lease No.

RENEWAL APPL'N PLACER LEASE to PROSPECT: Name:

Lease No.

AFFIDAVIT of EXPENDITURE on PLACER LEASE. Name:

ASSIGNMENT of PLACER LEASE No.

From:

To:

GROUPING APPL'N UNDER SEC. 52(2) PLACER MINING ACT.

Owner:

DIAMOND DRILL LOGS:

Claims:

Claim sheet no: 105-K-12

QUARTZ ASSESSMENT REPORT:

Claims: BARB 1-9

Claim sheet no: 105-K-12

Type of report: GEOL. MAPPING
GEOCH. SAMPLING

Submitted by: UNION OIL COMPANY OF CANADA LTD.

Cls. work performed on: BARB 1-9

\$ Req. for ren. application \$1,800.00

[Signature]
Signature

Statement of Expenditure

REPLY ACTION: 19 June 1981 [Signature]

Date Ret.

Signature



FROM Mining Recorder at WHITEHORSE

TO Supervising Mining Recorder at Whitehorse, Y.T.

FOR ACTION ARE:

NEW APPL'N for PLACER LEASE to PROSPECT: Name: _____ Lease No.

RENEWAL APPL'N PLACER LEASE to PROSPECT: Name: _____ Lease No.

AFFIDAVIT of EXPENDITURE on PLACER LEASE. Name: _____ Lease No.

ASSIGNMENT of PLACER LEASE No.
From: _____ To: _____

GROUPING APPL'N UNDER SEC. 52(2) PLACER MINING ACT.
Owner: _____

DIAMOND DRILL LOGS:
Claims: _____ Claim sheet no: 105-K-12

QUARTZ ASSESSMENT REPORT:
Claims: BARB 1-9 Claim sheet no: 105-K-12
Type of report: GEOL. MAPPING Submitted by: UNION OIL COMPANY
GEOCH. SAMPLING OF CANADA LTD.

Cls. work performed on: BARB 1-9 \$ Req. for ren. application \$1,800.00

[Signature]
Signature

REPLY ACTION.

Date Ret.

090831

Signature

STATEMENT OF EXPENDITURES

BARB CLAIMS YUKON TERRITORY JUNE, JULY, 1980

PERSONNEL (Consulting Limited)

June 26	1 day	W.E. Brereton, G. Sinclair
June 27	1 day	W.E. Brereton, G. Sinclair, N. Willoughby
June 28	1 day	W.E. Brereton, G. Sinclair, N. Willoughby
June 29	1 day	W.E. Brereton, G. Sinclair
July 6	1/2 day	W.E. Brereton
July 15	1 day	W.E. Brereton, G. Sinclair
July 16	1/2 day	W.E. Brereton
July 21	1 day	W.E. Brereton, G. Sinclair
TOTALS:		W.E. Brereton 6 1/2 days at \$240.00
		G. Sinclair 5 1/2 days at \$130.00
		N. Willoughby 2 days at \$150.00

\$2,575.00

HELICOPTER - (Shirley Helicopters Ltd. - CF HTV Jet Ranger 206B)

<u>Date</u>	<u>Flight Report</u>	<u>Total</u>	<u>Chargeable to Barb Claims</u>
June 26	74146	6.3 hrs.	3.4 hours
June 27	74147	8.2 hrs.	0.6 hrs.
June 28	74148	7.3 hrs.	0.7 hrs.
June 29	74149	3.3 hrs.	0.6 hrs.
July 6	74156	6.7 hrs.	0.5 hrs.
July 15	74165	13.2 hrs.	0.6 hrs.
July 16	74166	3.3 hrs.	0.5 hrs.
July 21	74171	3.4 hrs.	0.6 hrs.

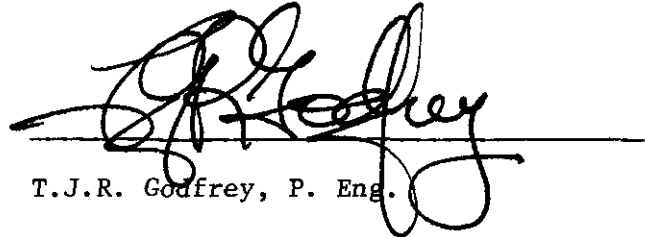
7.5 hrs. @ \$325.00/hr.

\$2,437.50

CAMP ACCOMODATION, SUPPORT, EXPEDITING, RADIO, EQUIPMENT RENTAL, FUEL, ETC.

14 mandays at \$75.00 (est.) \$1,050.00

TOTAL \$6,062.50

A handwritten signature in black ink, appearing to read 'T.J.R. Godfrey', is written over a horizontal line. The signature is stylized and cursive.

Approved By

T.J.R. Godfrey, P. Eng.

Date

May 20, 1981

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SUMMARY

Prospecting east of Anvil Batholith located Zn-Cu-Ag-W mineralization in float and then outcrop in late June, 1980. Nine claims, Barb 1 to 9, were subsequently staked to cover the showing area.

The mineralization occurs in a series of thin skarn beds in Upper Vangorda Formation rocks (Lower Paleozoic) within the contact metamorphic aureole of Cretaceous Anvil Batholith.

Individual skarn beds are thin, to a maximum true thickness of 2 m, and discontinuous along strike. Average grades in systematic chip samples across mineralized exposures are generally very low although good grades may be obtained on selected samples. Values of up to 3.50% Cu, 5.35% Zn, 4.38 oz Ag and 0.50% WO₃ with minor to trace Mo, Sn, Pb and Au were recorded on grab samples.

It is concluded that the skarn beds as exposed have no economic potential at the present time. There may be limited tungsten potential in the immediate granite contact area. Drill testing would be required as the contact is not exposed. No firm recommendations are made for this work at this time considering exploration results to date.

1. INTRODUCTION

This report outlines the results of a reconnaissance exploration programme completed on the Barb claims during June and July of 1980.

Field work consisted of claim staking followed by geological mapping, prospecting and geochemical sampling. The programme was carried out by personnel of M P H Consulting Limited of Toronto on behalf of Union Oil Company of Canada Limited.

2. PROPERTY

The 9 contiguous Barb claims were staked on June 26, 1980, recorded on July 21, 1980 and subsequently transferred to Union Oil of Canada Limited. The claim names and grant numbers are as follows:

<u>Claim Names</u>	<u>Grant Number</u>
Barb 1	YA 50999
Barb 2	YA 51000
Barb 3	YA 51001
Barb 4	YA 51002
Barb 5	YA 51003
Barb 6	YA 51004
Barb 7	YA 51005
Barb 8	YA 51006
Barb 9	YA 51007

3. LOCATION AND ACCESS

The claims are centred approximately 5.5 km (3.3 mi) east of Tay Mountain, Anvil Range, Yukon Territory (NTS 105K-12) in the Whitehorse Mining District.

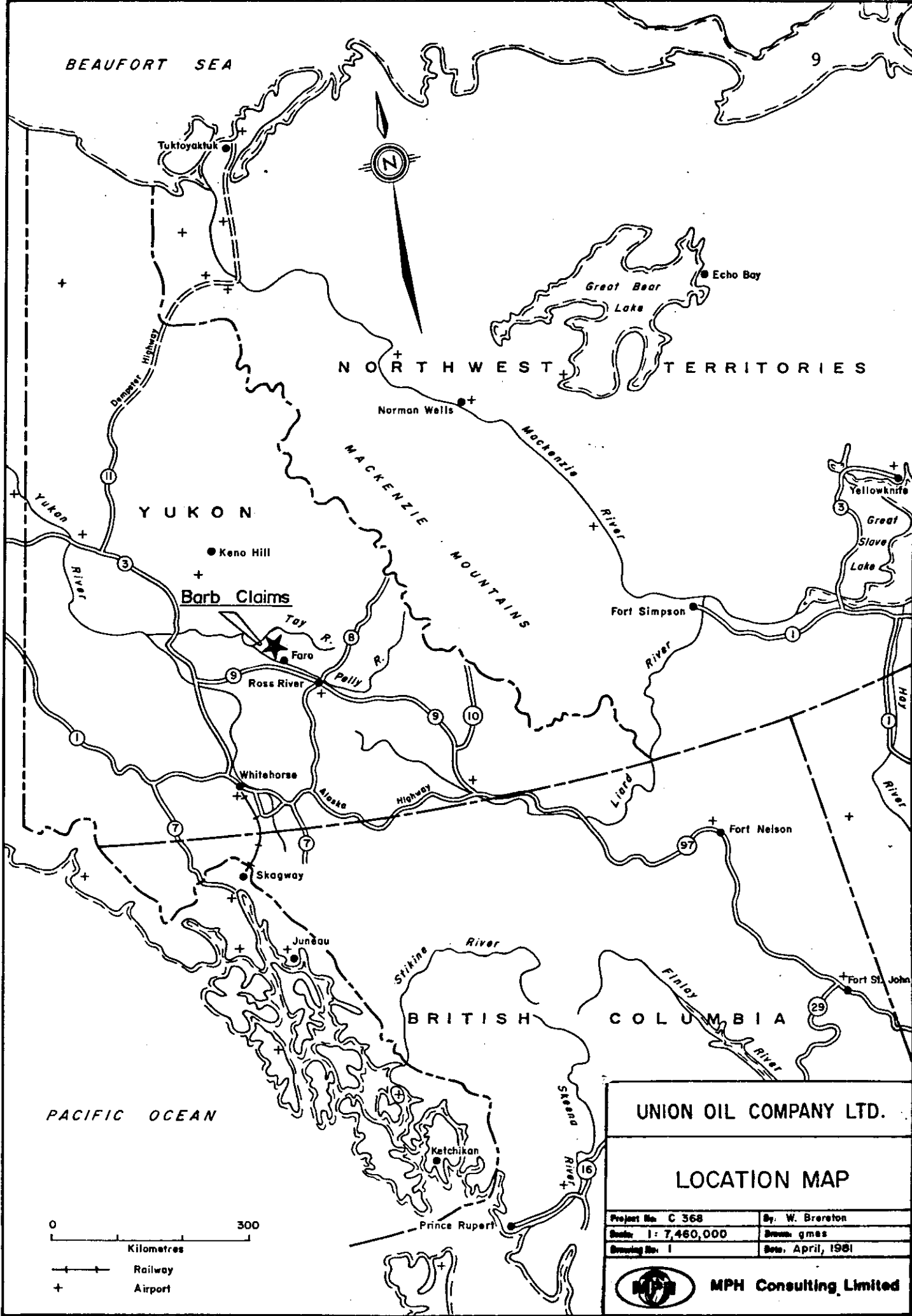
The town of Faro is located 44 km (27 mi) to the south-east (Figure 1).

Easiest access is by helicopter from Faro or Ross River which also act as local centres of service and supply for the area.

4. GEOLOGY

The immediate showing area was mapped in semi-detailed fashion using chain and Brunton compass techniques to correct for topographic relief. Results are presented on Map 3A.

Geological mapping and regional considerations indicate that the showing area occurs within the contact metamorphic aureole of the western extremity of Anvil Batholith where this intrudes limy to pelitic sediments of the Upper Vangorda Formation. In particular, the Zn-Cu-Ag-W mineralization is restricted to distinctive greenish skarn beds immediately adjacent to Anvil Batholith. Anvil Batholith is one of numerous quartz monzonitic intrusives which invade Selwyn Basin area. These rocks are late Cretaceous, typically dating in the 89 to 96 Ma range. Tungsten deposits and prospects associated with these intrusives are concentrated mainly along the eastern margin of Selwyn Basin where extensive Lower Paleozoic carbonates are present. This latter region contains the Canada Tungsten Mine, the MacMillan Pass Tungsten deposit and numerous skarn and vein showings.



BEAUFORT SEA

9



NORTH WEST TERRITORIES

YUKON

MACKENZIE MOUNTAINS

Great Bear Lake

Echo Bay

Norman Wells

Mackenzie River

Yellowknife
Great Slave Lake

Keno Hill

Barb Claims

Tay R.

Faro

Ross River

Pelly R.

Fort Simpson

River

Hoy River

Alaska Highway

Liard

Fort Nelson

Whitehorse

Skagway

Juneau

Stikine River

BRITISH COLUMBIA

Finlay River

Fort St. John

PACIFIC OCEAN

Ketchikan

Prince Rupert

UNION OIL COMPANY LTD.

LOCATION MAP

Project No. C 368	By. W. Brereton
Scale: 1: 7,460,000	Drawn: gmas
Drawing No. 1	Date: April, 1961



MPH Consulting Limited



- +—+— Railway
- + Airport

The skarn-hornfels rocks of interest herein are exposed in the head of a local valley predominantly on Claim Barb 4. They comprise a sequence consisting primarily of various limy skarn rocks including crystalline graphitic limestone and well laminated calc-silicate hornfels including garnetiferous, cherty and argillitic varieties. These rocks are overlain and underlain by non-calcerous sericitic phyllite. A relative major unit of distinctive red-weathering calcareous phyllite is interbedded with the skarn rocks. Coarse-grained limy amphibolite is a minor lithology. True stratigraphic thickness is difficult to estimate due to structural complexity but is on the order of several hundred meters.

The foregoing rocks are overlain by volcanics of the Menzie Creek Formation and underlain by non-calcerous quartzose phyllite of the Lower Vangorda Formation.

The skarn-hornfels rocks are complexly folded and faulted. Much of this deformation probably relates to the intrusion of Anvil Batholith. There are two structural fold domains. The west portion of the map area is characterized by broad, open, eastward-plunging folds. Fold style in the east is one of tighter, north-south trending folds with gently north-plunging axis.

Bedding dips in the east are typically steep to vertical relative to gentler dips in the west. There may be a major unconformity between limestone-skarn and underlying calcereous phyllite in the east part of the map area. At least two major faults and numerous subsidiary fractures transect the claim group. The most prominent of these are north-south and east-west breaks which intersect immediately south of the pond on Map 3A. 'Intrusive chert' is clearly associated with the faulting and brecciation in some areas.

This is cryptocrystalline silica, typically brownish in colour, which intrudes along faults and invades and replaces brecciated argillite. An intrusive origin is less evident for some of this material in which delicate, agate-like banding is visible. The chert is probably a late-stage effusion of Anvil Batholith.

The immediate host to the mineralization (Unit 3) is a diopside (\pm apatite) quartz-garnet-calcite skarn. The skarn rock is green in colour and may be well laminated although is typically massive in appearance. It displays a diagnostic brownish weathering colouration.

The mineralized skarn beds range up to 2 m in true thickness. They appear to be somewhat discontinuous along strike often forming small lenses or pods. There are at least 5 and possibly more individual beds in the stratigraphic thickness exposed on the property. The mineralized skarn beds are generally associated with and occur as sub-units within crystalline limestone and limy skarn. The one exception occurs within the central calcereous phyllite unit closely associated with a localized quartz monzonitic intrusive. This latter rock probably represents an offshoot of Anvil Batholith.

5. MINERALIZATION AND SAMPLING RESULTS

5.1 Mineralization

Metallic minerals identified consist of pyrrhotite, pyrite, chalcopyrite, sphalerite, arsenopyrite and minor molybdenite. The sphalerite, in particular, forms large bladed crystals. Total sulphide content is locally in excess of 25% although averages are considerably less than this, on the order of 3 - 5% over the width of a bed. The sulphides are typically concentrated into local, high grade patches or lenses within the skarn beds. At the 'upper showing' for example, chalcopyrite and sphalerite are noticeably concentrated at the top of the skarn bed. This sulphide concentration along upper skarn contacts is also evident at the 'south' and 'main' showings.

There is a strongly positive Cu-Ag correlation. On average, there is 1 oz Ag per 1% Cu.

Minor scheelite is present in the skarn. This mineral occurs as tiny disseminated grains and in coarser-grained, often vuggy quartz-garnet concentrations. Two selected samples from the 'rubble' showing returned 0.40% and 0.29% W. Several grab samples from other areas returned values in the 0.10% to 0.20% W.

Remaining values are low.

The mineralized skarn forms beds up to 2m true thickness. The beds appear to be somewhat discontinuous along strike where there is sufficient outcrop to make this determination as at the 'upper' showing.

The discovery area is that immediately south of the pond (Map 3A, 3B). Here, a mineralized skarn bed containing the 'main', 'lower' and 'south' showings outcrops discontinuously along a strike length of approximately 180m over an average width, where exposed, of 1.0 to 1.8m. A second bed of approximately the same thickness occurs beneath the above at the 'main' showing. What appears to be the southward continuation of the skarn re-appears at the 'upper' showing as 2 beds to 1.8m in thickness and several smaller pods and areas of mineralized float. This bed outcrops again at the 'rubble' showing as a train of mineralized float.

Mineralized skarn beds re-appear mainly as float with local outcrop in the east-central and east portions of the area mapped. These occurrences are similar in every respect including lithologies, grade, thickness, etc. to the foregoing although stratigraphically they appear to overlie the above beds by several hundred meters.

5.2 Sampling Results

Outcrop exposures of mineralized skarn were stripped and carefully sampled. Samples consisted of semi-continuous chip samples cut at approximately right angles to bedding. True bedding thicknesses represented by the samples were then either measured directly or calculated knowing bedding dips and sample lengths.

A total of 8 samples weighing an aggregate of 155.5 lb was collected in this fashion from the four most prominent outcropping mineralized skarn beds. The relatively large samples were collected in view of the obviously erratic distribution of much of the mineralization. Results of this systematic sampling are presented in Table 1, Map 3B. As can be seen, there are no values of economic significance in any of Cu, Pb, Ag, Au, W, Mo, or Sn. A value of 3.35% Zn over 1.1 m was recorded at the 'Main' showing. All other Zn values are uneconomically low.

Table 2, Map 3B, presents results of assays on grab samples of skarn mineralization selected both from the above chip-sampled exposures and from float and rubble elsewhere in the showing area as indicated. Values of up to 3.50% Cu, 5.50% Zn, 4.38 oz Ag and 0.40% W were recorded. This attests to the relatively high grade of selected samples although, as indicated in Table 1, average grades across skarn beds

are uneconomically low.

6. GEOCHEMISTRY

Silt samples collected during the above mapping and during the general reconnaissance indicate anomalous values in Cu, Pb, Zn, Ag and W in the showing area (Map 3B). Tungsten values range between 3 and 18 ppm.

It may be significant that the silt samples south of the 'rubble' showing returned the highest W values. This may indicate a continuation of the mineralized skarn in this direction, i.e. towards the granite contact.

Other silt sampling in the overall skarn showing area returned non-anomalous W values (generally less than 2 ppm). This includes some sampling over the granite immediately east of the contact zone.

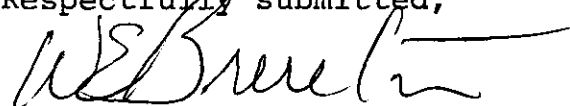
7. CONCLUSIONS AND RECOMMENDATIONS

Average grades in systematic samples across the skarn beds are very low and generally of no economic interest. It is therefore concluded that, although relatively spectacular in hand specimen, the skarn beds as exposed have no economic potential at the present time.

There may be limited tungsten potential associated with the contact between the skarn and Anvil Batholith which outcrops in the next valley to the east. This contact is presently unexposed being beneath the ridge which crosses the southeast corner of Map 3A. The granite was prospected in some detail in the adjoining valley. No mineralization was encountered nor was there any evidence of extensive hydrothermal activity in the form of quartz ⁺ tourmaline veining etc.

Should Union Oil desire to investigate the granite-skarn contact for tungsten potential, it is suggested that the best location to do this is somewhere on the above-mentioned ridge south of the major east-west fault. It would be necessary to carry out detailed geologic-topographic traverses over the ridge between the valleys to determine an optimum drill location. It appears that a 200 to 250 m drill hole would be sufficient.

Respectfully submitted,



W. E. Brereton, P.Eng.

WEB:g

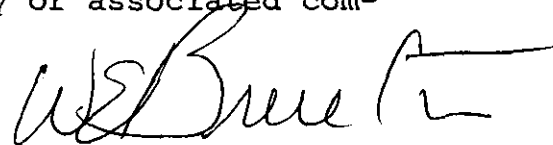
CERTIFICATE

I, W. E. Brereton of Toronto, Ontario hereby certify that:

- 1) I hold an Honours Bachelor of Science degree in Geology and Physics from Queen's University at Kingston and a Master of Science (Applied) degree in Mineral Exploration from McGill University in Montreal.
- 2) I am a Professional Engineer registered with the Association of Professional Engineers of the Province of Ontario.
- 3) I have practised my profession in exploration continuously since graduation.
- 4) I have based conclusions and recommendations contained in this report on my experience and knowledge of the area and on observations made during June and July of 1980. All field work conducted on the project during the summer of 1980 was carried out under my direct supervision.
- 5) I hold no interest, directly or indirectly in the Barb claims other than professional fees, nor do I expect to receive any interest in the property or in Union Oil Ltd. or any of its subsidiary or associated companies.

April, 1981

Toronto, Ontario, Canada



W. E. Brereton, P.Eng.

Toy Mountain
5 km West

Borb 5 (VA5005)	Borb 6 (VA5004)	Borb 9 (VA5007)
Borb 3 (VA5001)	Borb 4 (VA5002)	Borb 8 (VA5006)
Borb 1 (VA5009)	Borb 2 (VA5000)	Borb 7 (VA5003)

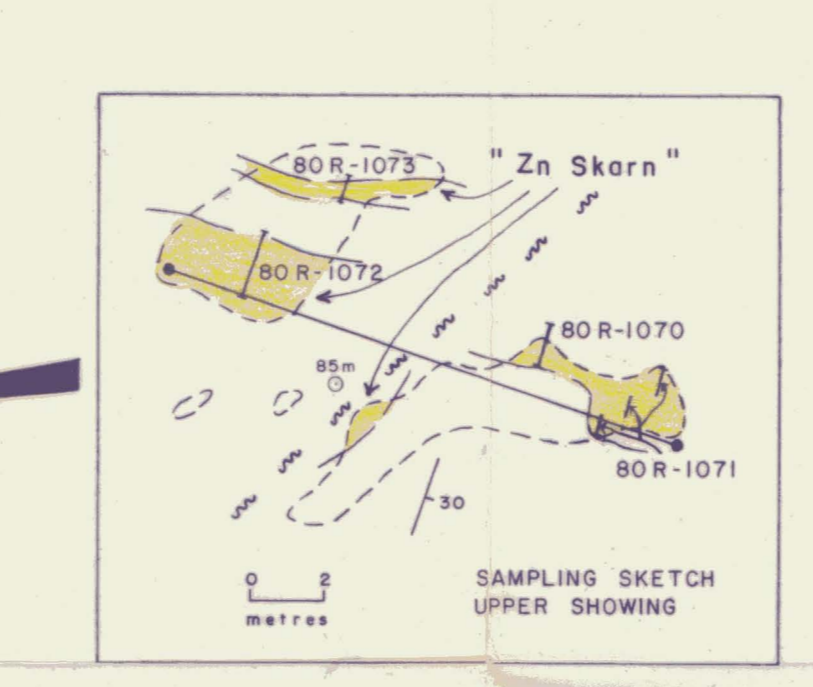
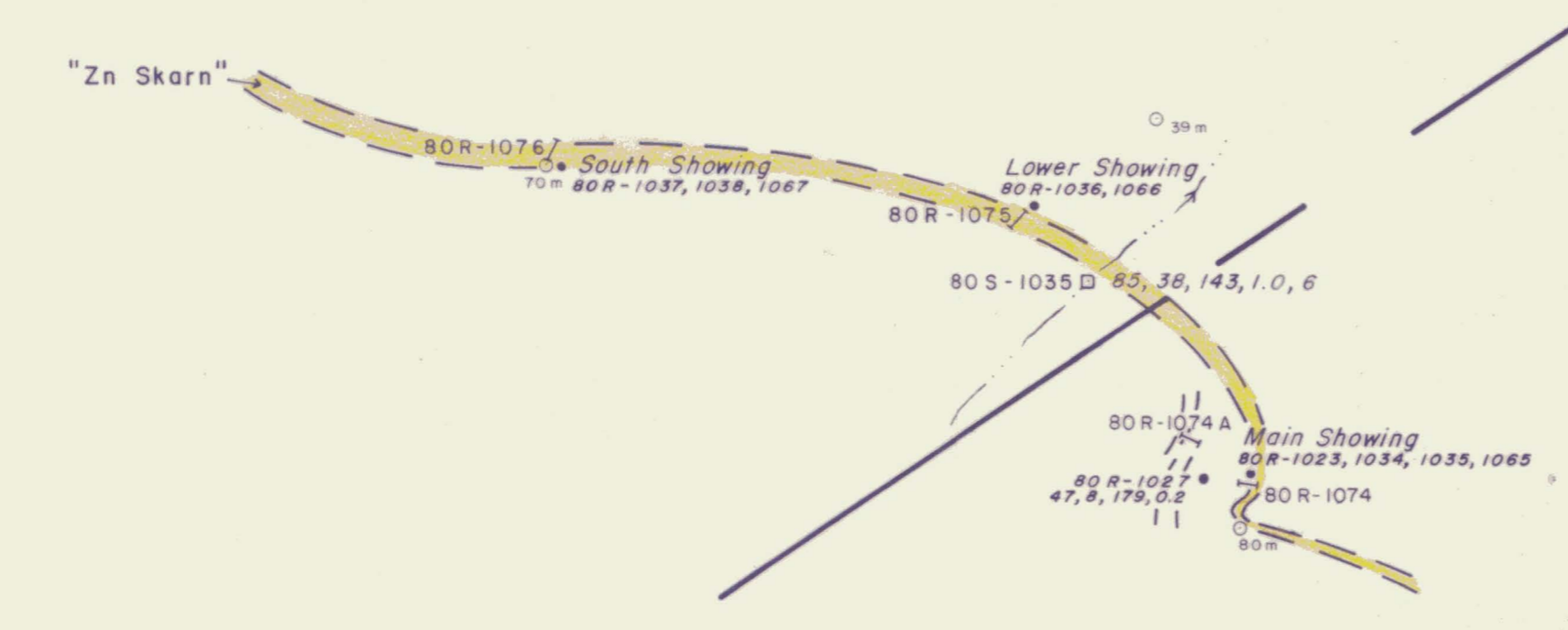
Claim Map 1:25,000

BARB 6

BARB 9

BARB 8

BARB 5



SAMPLE NO.	Cu	Pb	Zn	Ag	W	Mo	Sr	Fe
BOR-1074	30	14	77	0.3				
BOR-1075	44	6	88	0.2				
BOR-1076	35	18	72	0.2				
BOR-1077	46	7	63	0.2				
BOR-1078	33	41	74	0.1				
BOR-1079	37	10	407	0.1				

BARB 4

BARB 3

BARB 7

BARB 2

TABLE 1
SELECTED SYSTEMATIC CHIP SAMPLES — SKARN ROCKS

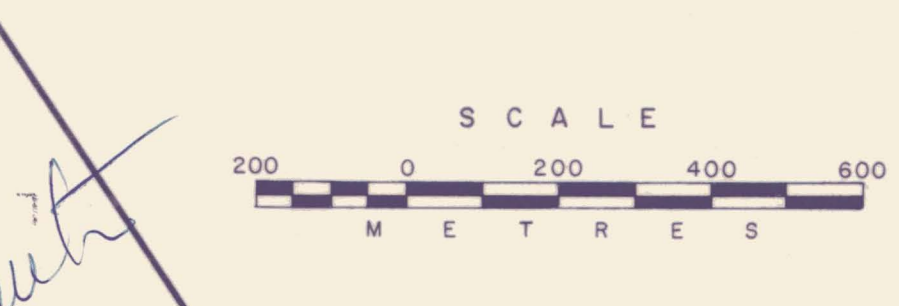
SAMPLE NO.	LENGTH (M)	SHOWING	ASSAY — %									
			Cu	Pb	Zn	Ag (oz)	As (oz)	W	Mo	Sr	Fe	
BOR-1070	1.5	18.5	Upper	0.08	1.0	0.71	0.10	0.002	0.03	1.0	0.007	11.8
BOR-1071	2.1	31.0	Upper	0.18	1.0	0.07	0.16	0.002	0.06	1.0	0.005	12.0
BOR-1072	1.8	23.0	Upper	0.02	1.0	0.01	1.0	0.002	0.008	1.0	0.005	8.0
BOR-1073	0.3	9.0	Upper	0.28	1.0	0.01	1.0	0.002	0.01	1.0	0.005	8.1
BOR-1074	1.1	28.0	Main	0.01	1.0	0.25	0.18	0.02	0.02	1.0	0.005	11.6
BOR-1074A	1.0	15.0	Main	0.01	1.0	0.26	1.0	0.02	0.06	1.0	0.005	10.8
BOR-1075	1.7	25.0	Lower	1.0	1.0	0.37	1.0	0.02	0.08	1.0	0.005	13.8
BOR-1076	1.8	11.0	South	0.02	1.0	0.16	1.0	0.02	0.03	1.0	0.005	12.8

TABLE 2
SELECTED GRAB SAMPLES — SKARN ROCKS

SAMPLE NO.	SHOWING	ASSAY — %									
		Cu	Pb	Zn	Ag (oz)	As (oz)	W	Sr			
BOR-1083	Main	0.08	1.0	0.25	0.12	0.017					
BOR-1074	Main	0.02	1.0	0.25	0.12	0.002	0.11	1.0			
BOR-1023	Main	0.04	1.0	0.20	0.18	0.002	0.080	1.0			
BOR-1028	Lower	0.28	1.0	0.01	0.18	0.002	0.014	1.0			
BOR-1027	South	0.02	1.0	0.08	1.0	0.002					
BOR-1028	South	3.50	1.0	1.40	4.16	0.008	0.15	1.0			
BOR-1029	Upper	0.04	1.0	0.75	0.01	0.002	0.007	1.0			
BOR-1040	Upper	1.70	1.0	0.25	2.82	0.002	0.016	1.0			
BOR-1041	Rubble	2.40	1.0	3.00	3.58	0.002	0.086	0.014			
BOR-1045	Main	0.02	1.0	4.00	0.10	0.005	0.17	1.0			
BOR-1048	Lower	0.28	1.0	0.20	0.09	0.002	0.18	1.0			
BOR-1047	South	0.01	1.0	0.08	1.0	0.002	0.038	1.0			
BOR-1048	Upper	1.03	0.002	0.37	0.88	1.0	0.16	1.0			
BOR-1049	Rubble	0.03	1.0	0.13	0.09	1.0	0.17	1.0			
BOR-1058	Rubble						0.40				
BOR-1053		0.02	0.01	2.74	0.24	0.002	0.014	0.020			
BOR-1054		0.08	0.01	0.28	0.83	0.002	0.10	1.0			
BOR-1055		0.02	0.01	1.03	4.38	0.002	0.14	1.0			
BOR-1056		0.02	0.01	1.32	1.0	0.002	0.10	1.0			
BOR-1057		0.04	0.01	3.85	1.0	0.002	0.07	1.0			
BOR-1058		0.06	0.01	0.05	0.13	0.002	0.037	1.0			
BOR-1059		0.15	0.01	0.16	1.0	0.002	0.014	1.0			
BOR-1050		0.02	0.01	1.47	0.09	0.002	0.014	1.0			

LEGEND

- BOR-1076 Systematic Chip Sample (Assay values - Table 1)
- BOR-1040 Grab Sample (Assay values - Table 2 or as indicated)
- BOR-1050 □ 54,15,04,04,6 Silt Sample, ppm Cu, Pb, Zn, Ag, W
- 280 m Elevation Control Station
- Fault
- Strike and Dip of Bedding
- Rock Outcrop
- Geological Contact
- Claim Post (1980 staking)



UNION OIL COMPANY OF CANADA LTD.
ANVIL-FISHOOK PROJECT, YUKON TERRITORY

SKARN SHOWING AREA
GEOCHEMISTRY AND
SAMPLING MAP

Project No. C-368 By: W. E. Brereton
Scale: 1:1000 Drawn: CARTO-GRAPHICS
Drawing No. 3 B Date: Sept 1980

MPH Consulting Limited

BARB 1