

GEOLOGY AND GEOCHEMISTRY

OF THE

ICE CLAIM GROUP



Claim Sheet No. 105B/6W

Lat.: 131° 30' W
Long.: 60° 18' N

DATE DUE

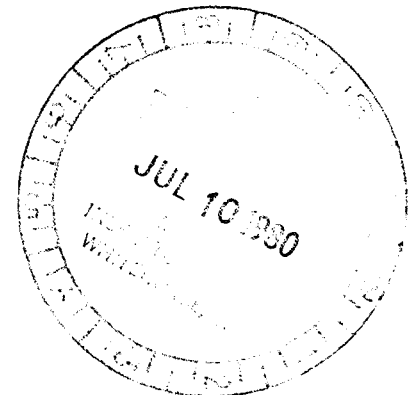


CLAIMS: ICE 1 - 30

Watson Lake Mining District
Yukon Territory

090 633

by:



Eric James Sacks, M. Sc.

Work Completed July 4th and 18th, 1979.

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

\$ 4500



~~Geologist or~~
Business Mining Engineer

Considered as representation work under
Section 52 (4), Yukon Quartz Mining Act.

Commissioner of Yukon Territory

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SUMMARY

The ICE Claims are located at 131°30'W, 60°18'N within NTS map sheet 105B/6W, Watson Lake Mining District, Yukon Territory. The claims were staked on June 27th, 1979 to cover the headwaters of a stream sediment anomaly (13 ppm Mo, 42 ppm U), discovered by the G.S.C.- U.R.P. survey of the Wolf Lake sheet in 1978. The immediate headwater was already staked as the HL Claims and the ICE Claims were staked adjoining them to the north.

On July 18th, 1979 a 4-man crew from CanadianOxy carried out preliminary geological mapping and geochemical sampling of the ICE Claims. The claims are underlain by a locally megacrystic, unaltered, one-mica, biotite-quartz monzonite which contained from 3 to 7.5 ppm U and 100 to 560 ppm F. Biotite-feldspar schist, cut by quartz-muscovite pegmatite veins outcropped about 1000 feet to the south of the claims. The intrusive was highly fractured but apparently unaltered.

Stream sediment, stream water, and soil sampling revealed a broad, strongly anomalous area of U, Mo and W response in the eastern portion of the claims underlain by biotite quartz monzonite with high U content. A strong correlation between U, Mo and W response in soils was noted. Several other U - Mo and U-Mo-W anomalies in soils occur primarily in the eastern and southern parts of the claims. High pH in waters suggest the presence of alteration within the quartz monzonite and/or of xenolithic material contained within it.

Potential uranium mineralization could be of intergranitic vein or skarn type. Skarn type U-Mo-W or primary vein type Mo-W

mineralization are also possibilities given the element correlations in soils and presence of the quartz-muscovite pegmatite veins.

Soil and stream geochemistry have proven to be highly effective on the ICE Claims. Further systematic mapping, prospecting, soil geochemistry and radiometric surveys are recommended.

I. INTRODUCTION

The ICE Claims were staked on June 27th, 1979, to cover the headwaters of a stream sediment anomaly (13 ppm Mo and 42 ppm U) discovered by the G.S.C. - U.R.P. survey of the Wolf Lake map sheet in 1978. The immediate headwater was already staked as the HL Claims and the ICE Claims were staked adjoining them to the north.

On July 18th, 1979, a 4-man crew from CanadianOxy conducted preliminary geological mapping and geochemical sampling of the ICE Claims. The results of that survey are presented in this report.

II. LOCATION AND ACCESS

The ICE Claim Group is located at $131^{\circ}30'W$, $60^{\circ}18'N$ within NTS map sheet 105B/6W. The claim group comprises 30 claims, covering 2.4 mi^2 (6.2 km^2), within the Watson Lake Mining District, Yukon Territory.

The claims lie approximately 7 mi. (11 km) south of Ice Lakes and 20 mi. (32 km) NW of the Pine Lake airstrip at mile 722.5 (Km 1156) on the Alaska Highway.

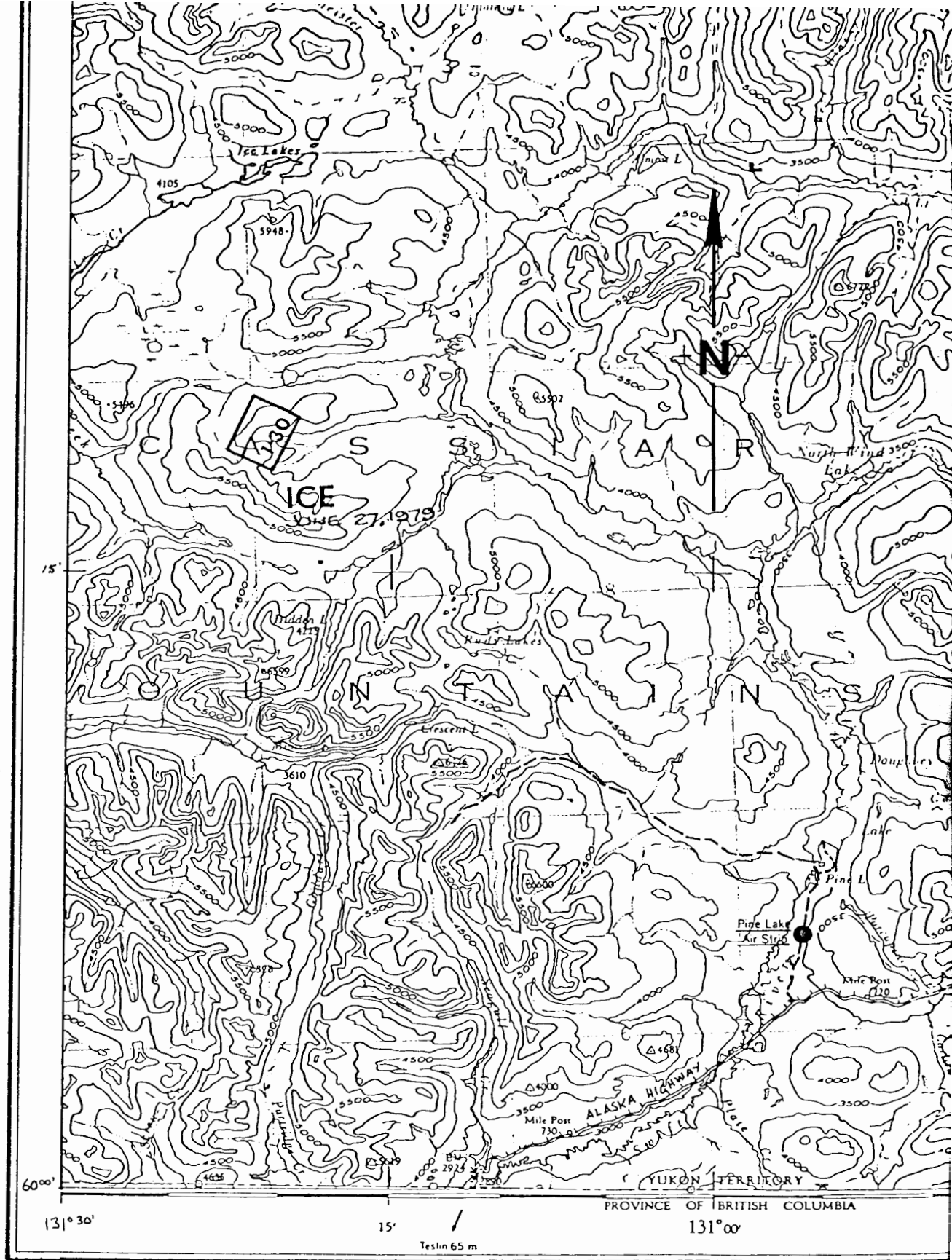


FIGURE 1
 LOCATION AND ACCESS OF ICE CLAIMS
 NTS 105B/6W
 SCALE: 1: 250,000

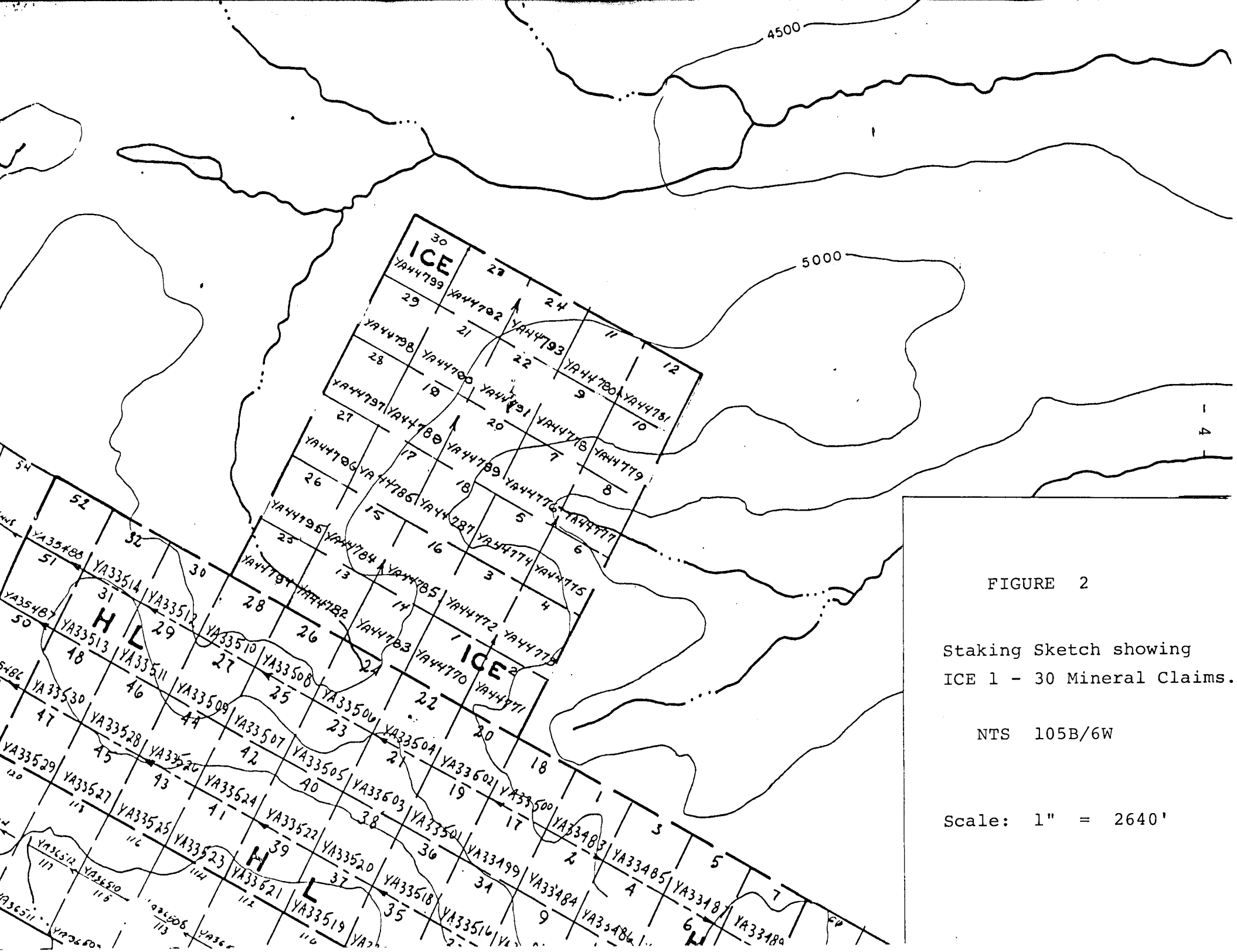


FIGURE 2

Staking Sketch showing
ICE 1 - 30 Mineral Claims.

NTS 105B/6W

Scale: 1" = 2640'

Access to the claims is by helicopter, approximately 15 minutes from Pine Lake airstrip. A dirt track runs north and west of Pine Lake airstrip to Seagull Creek, within 11 mi. (17.5 km) of the claim group.

The ICE Claims adjoin the HL Claims along their southwest edge. The HL Claims are in good standing.

III. PHYSIOGRAPHY AND VEGETATION

Relief over the ICE Claims is 500' (150 m). The claim group lies entirely above the tree line and consists of a central N-NE trending ridge underlain by scattered outcrop with gentle, undulating, grassy slopes.

The central ridge forms a drainage divide; the eastern part of the claims drain to the east and the western parts drain to the west.

IV. PREVIOUS WORK

To the author's knowledge, there has been no previous work done on the ICE Claims. No evidence of trenching etc., was found, however, the adjoining HL Claims have been gridded and soil sampled. The ICE Claims may have been examined at that time.

The Wolf Lake map sheet was geologically mapped at a scale of 1" = 4 mi. by Poole, Roddick and Green, all of the G.S.C., between 1951 and 1959, and the results published as G.S.C. Map 10 - 1960.

The entire Wolf Lake sheet was sampled for stream sediments during 1978, as part of the G.S.C. - U.R.P. coverage of the southern Yukon. Results were released on June 15th, 1979 and the ICE

Claims were staked on June 27th, 1979 to cover the headwaters of a 13 ppm Mo and 42 ppm U stream sediment anomaly. The HL Claims covered the immediate headwaters of the anomaly and the ICE Claims were staked adjoining their north side.

V. WORK COMPLETED - 1979

5.1 Staking

The ICE Claims were staked on June 27th, 1979 by MBW Surveys of Whitehorse, Y.T., for CanadianOxy. The claim group comprises 30 claims, covering an area of 2.4 mi.² (6.2 km²).

5.2 Geological Mapping

Wallis and Hooper of CanadianOxy, visited the ICE Claims on July 8th, 1979 and collected 3 rock samples for analysis. On July 18th, 1979 Hooper conducted a reconnaissance geology and prospecting traverse over the central portion of the claims, and collected 4 samples for analysis. A total of 1.2 man days of work was performed.

5.3 Rock Geochemistry

A total of 7 rock samples were collected and analysed for Mo, U, Th and F, for a total of 24 analyses. Results are listed in Appendix I.

5.4 Stream Sediment Geochemistry

A total of 4 stream sediment samples were collected by Pelletier, Jermackowicz and Zayachivsky of CanadianOxy. All samples were analysed by Chemex Labs Ltd., Vancouver, B.C., for Cu, Mo, Pb,

5.8 Names and Addresses of Personnel

Dr. R.H. Wallis Minerals Division, 311-215 Carlingview Drive, Rexdale, Ontario M9W 5X8	Chief Geologist
E.J. Sacks, M.Sc. Same address as above.	Project Geologist
J. Hooper Same address as above.	Senior Assistant
E. Jermakowicz Same address as above.	Junior Assistant
C. Pelletier Same address as above.	Junior Assistant
B. Zayachivsky Same address as above.	Junior Assistant
Dr. C.F. Gleeson C.F. Gleeson and Associates Ottawa, Ontario	Consulting Geochemist

VI. GEOLOGY

6.1 General Geology

The Wolf Lake map sheet was geologically mapped by Poole, Roddick and Green, all of the G.S.C., at a scale of 1" = 4 mi. The area of the ICE Claims is underlain by Cassiar Batholith biotite quartz monzonite and granodiorite of Jurassic and/or Cretaceous age. (Unit 15a of Poole, et al (1960)). To the south of the claims, the intrusives are in postulated fault contact with Lower Cambrian and Precambrian metasediments comprising quartzite, slate, phyllite, quartz grit and fine pebble conglomerate. (Unit 2 of Poole, et al (1960)).

Geological mapping and prospecting by CanadianOxy personnel indicates that the ICE Claims are directly underlain by massive

and megacrystic, biotite quartz monzonite and graphic granite. The intrusive was seen in contact with foliated coarse sandstone and conglomerate, south of the claims. The intrusive was cut by numerous fractures at 40° to 50°, 90° to 100° and 150°.

6.2 Table of Formations (PLAN 1)

<u>Unit</u>	<u>Description</u>
2	Biotite quartz monzonite; graphic granite
1	Biotite-quartz-feldspar schist (meta-impure sandstone); muscovite-pegmatite veining; rare pyrite.

6.3 Description of Rock Units

Descriptions of rock samples are listed in Appendix II.

6.3.1 Unit 1 - Biotite-quartz-feldspar schist

This unit consists of a dark grey, fine-grained, fissile, biotite-quartz-feldspar schist. The rock contains plagioclase (30% K-feldspar (5%), quartz (5%), and biotite (40%). (Samples ICE 1, 2)

This unit is cut by zoned, muscovite pegmatite veins paralleling the foliation. The veins consist of a coarse center dominated by muscovite, plagioclase and quartz, and medium-grained rims comprising plagioclase, K-feldspar, quartz and traces of fine muscovite. (Sample ICE - 1)

6.3.2 Unit 2 - Biotite-quartz monzonite; graphic granite.

This unit is dominated by a medium to coarse-grained, white, massive, biotite-quartz monzonite. Occasionally, perthite megacrysts up to 1/2" (1.3 cm) in size occur. The rock consists of plagioclase (20 - 30%), K-feldspar (40 - 50%), quartz (30%) and

biotite (1 - 2%). Quartz and K-feldspar were intergrown in a graphic texture. (Sample JH-ICE-4)

This unit underlies all of the ICE Claims.

6.4 Structure

Rocks underlying the ICE Claims are cut by numerous fractures which can be resolved into sets at 70° - 90° T/ 25° to 50° S, 70° - 90° T/ 40° to 70° N, 120° to 140° T/ 30° S - 80° N, and 040° T/ 70° SE to 70° NW. Rocks are generally cut by numerous fine fractures.

The schists south of the claim group display well-developed foliation and are fissile. No evidence of the fault contact of Poole, et al. (1960) was found.

6.5 Metamorphism

With the exception of local porphyroblast development (megacrysts) the intrusive quartz monzonite is unmetamorphosed.

The schists, south of the claims have been subjected to regional metamorphism prior to the intrusion of the quartz monzonite. No contact metamorphic effects were noted.

6.6 Alteration

No alteration other than surficial weathering was noted.

6.7 Economic Geology

No visible mineralization was noted with the exception of rare pyrite in the quartz veins, cutting the clastic meta-sediments, south of the claims.

Potential economic uranium mineralization on the ICE Claims is likely to be structurally controlled, and of intergranitic vein type. Primary Mo, W and Sn mineralization should be considered, given the presence of local quartz-muscovite veining. Skarn mineralization is also a possibility if the meta-sediment contact extends onto the claims and/or if large xenoliths of metasediment are contained within the intrusive.

VII. GEOCHEMISTRY

The primary medium sampled on the ICE Claims was B-horizon soils. Stream sediment and water samples were collected from all streams where crossed by soil traverses. Analytical results for all media are listed in Appendix I.

Laboratory procedures are presented in Appendix III.

Mean, possibly anomalous and probably anomalous levels for all elements in soils, stream sediments, and stream waters were determined from cumulative frequency curves constructed from Project WATSU, regional follow-up sampling. In the case of soils, the combined data from all claim groups sampled during Project WATSU was used. The levels were chosen at the 50th, 84th and 97th percentiles, respectively. These levels are presented in Table 1.

TABLE 1

Mean, Possibly Anomalous and Probably Anomalous Levels -
Soils, Sediments, Waters, Heavies.

Note: levels chosen from cumulative frequency curves at 50th, 84th and 97th percentiles, respectively.

A. Heavy Minerals

	ppm Cu	ppm Pb	ppm Zn	ppm Ag	ppm Mo	ppb Au	ppm Sn	ppm W	ppm U	ppm Th
Mean	24	17	75	.05	1.5	<10	2.3	15	3.8	44
Poss. Anom.	63	89	200	.38	3.5	19	38	60	26	330
Prob. Anom.	165	280	440	.95	8.5	3150	300	160	120	1200

B. Stream Sediments

	ppm Cu	ppm Pb	ppm Zn	ppm Ag	ppm Mo	ppm Sn	ppm W	ppm U	ppm Th
Mean	11	5	58	<.1	<1	<1	<1	2.5	13
Poss. Anom.	28	21	115	<.1	3	2	5	17	29
Prob. Anom.	54	59	320	1	11	5	16	38	50

C. Soils

	ppm Cu	ppm Pb	ppm Zn	ppm Ag	ppm Mo	ppm Sn	ppm W	ppm U	ppm Th
Mean	8	8	48	<.1	<1	<1	<1	2	14
Poss. Anom.	22	32	115	.1	2.5	1	7.5	7	36
Prob. Anom.	120	150	270	.8	5	2	40	30	75

D. Stream Waters

	ppb U	ppb F	m.mhos/cm S.C.
Mean	.25	19	18
Poss. Anom.	.85	100	46
Prob. Anom.	2.5	210	100

7.1 Rock Geochemistry (Plan 1, 10)

A total of 7 rock samples were collected during the mapping survey, and analysed for U, Th, Mo and F. Analytical results along with rock descriptions and U/Th ratios, are listed in Appendix II.

1. Biotite-quartz monzonite contains from 3 to 7.5 ppm U. In the one sample for which Th results are available, the U/Th ratio is very low (0.08).
2. The schists south of the claims, contains 3.5 and 5 ppm U. U/Th ratios are low (0.2 - 0.5).
3. Biotite-quartz monzonite contains significant F (100 - 560 ppm), and low Mo (1 ppm).
4. Mo contents in the schist unit are slightly elevated (2 - 4 ppm).

7.2 Stream Geochemistry - Sediments (Plan 2, 3, 4, 5, 10)

4 stream sediment (and water) samples were collected from all streams draining the ICE Claims where they were crossed by the soil sampling traverses. Samples were analysed for Cu, Mo, Pb, Zn, Ag, U, Th, Sn and W.

1. > 400 ppm U ($0.063\% \text{U}_3\text{O}_8$), 20 ppm Mo and 5 ppm W occur near the headwaters of the stream draining the east-central part of the claim group. A sample approximately 0.4 mi. (0.6 km) downstream, contains 22 ppm U and 1 ppm Ag. This stream drains the central ridge underlain by biotite-quartz monzonite, which contains up to 7.5 ppm U (Plan 10).

2. 46 ppm U and 8 ppm Mo occurs in a stream sediment sample from a small stream draining southwards off the main ridge of biotite-quartz monzonite, mentioned above, in the eastern part of the claims.

3. 9.5 ppm U and 18 ppm W occur in a stream sediment sample in the SW corner of the claims. A single station, 13 ppm W soil anomaly occurs adjacent to the stream sediment sample site.

In summary, significant contents of U (0.063% U_3O_8), W (5 ppm), and Mo (20 ppm) occur in stream sediments draining the main biotite-quartz monzonite ridge, in the eastern part of the claims. Rocks from this ridge contain up to 7.5 ppm U.

An 18 ppm W and 9.5 ppm U anomaly occurs in stream sediments in the SW corner of the claims, adjacent to a 13 ppm W soil anomaly and in the general vicinity of the quartz-monzonite-schist contact.

7.3 Stream Geochemistry - Waters (Plan 2, 6, 10)

4 stream water samples were collected in conjunction with the sediments, and analysed for U, F, and As, and for pH and specific conductivity in the field.

1. 2.4 ppb U occurs near the headwater of the stream draining east from the main biotite-quartz monzonite ridge. This value coincides with the 400 ppm U stream sediment anomaly. 1 ppb U occurs in water approximately 0.4 mi. (0.6 km) downstream from this site (Plan 10).

2. There is a good correlation between U in

water and specific conductivity (0.4) although S.C. is low (20-22 m. mhos/cm.).

3. There is excellent correlation between U in water and pH (0.9), and between U in water and U in stream sediments (0.94).

4. pH ranges from 8.3 to 8.8 over the claims, which is very high for an area underlain by quartz-monzonite, suggesting the presence of some other rock type as well.

In summary, waters containing from 1.0 to 2.4 ppb U drain from the main ridge of biotite-quartz monzonite, in the east-central part of the claims. Rocks from the ridge contain up to 7.5 ppm U. pH in these waters are high, suggesting the presence of some other rock type and/or modification of the quartz monzonite (shearing, metasomatism, etc.).

7.4 Soil Geochemistry (Plan 2, 7, 8, 9, 10)

Overburden on the ICE Claims consists of Pleistocene glacial material of unknown depth. Soil samples were collected at intervals of 500 ft. (150 m), from B-horizon along 3 NE-SW traverses. 31 samples were collected and analysed for Cu, Mo, Pb, Zn, Ag, U, Th, Sn and W.

1. Up to 150 ppm U and 23 ppm Mo occur within a N-S striking area, approximately 1650 ft. X 5400 ft. (500 m X 1650 m) in size, in the eastern part of the claim group. A single station 10 ppm W anomaly occurs at the southern end of this anomaly. This anomaly is centered on an area of biotite-quartz monzonite, containing up to 7.5 ppm U. (Plan 10). The

northern end of the soil anomaly, which contains the highest U and Mo values, straddles the main anomalous creek (also anomalous in U, Mo, W).

2. 18.5 to 70 ppm U, 5 ppm Mo and 12 ppm W occur in a 1000 ft. (300 m) long, NE trending area in the NW corner of the claim group. (Plan 10)

3. 23.5 to 33 ppm U occur in a 1000 ft. (300 m) long, NE trending area along the northern claim boundary. (Plan 10)

4. 83 ppm U, 60 ppm W, and 21 ppm Mo occur in a single station anomaly near the southern claim boundary. (Plan 10)

5. 43 ppm U, 14 ppm Mo and 7 ppm W occur in a single station anomaly at the SE corner of the claims.

6. 13 ppm W occurs as a single station anomaly in the SW corner of the claims. An adjacent stream sediment sample contains 18 ppm W. (Plan 10)

7. 40 ppm W occurs as a single station anomaly in the NE corner of the claim group. (Plan 10)

8. Good spatial correlations exist between anomalous U and Th, U and Mo, and U and W values in soils. Calculation of correlation co-efficients indicates excellent correlation between U and Th (0.8), and a good correlation between U and Mo (0.3), however, correlations of U and W, and Mo and W, are poor (0.1).

In Summary, a large, intense U-Mo soil anomaly occurs in the east and SE parts of the ICE claims. The most intense part of the anomaly straddles a stream with highly anomalous U and Mo contents in sediments, and U in water. The area is under-

lain by biotite-quartz monzonite, with up to 7.5 ppm U.

Several other, one or two station, intense U-Mo-W anomalies occur primarily in the east and south parts of the claims. There is good correlation between U and Mo response in soils and a lesser correlation between U and Mo, and W in soils.

VIII. CONCLUSIONS

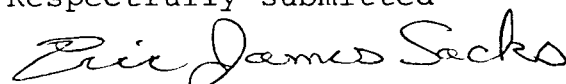
1. The ICE Claims are underlain by massive, unaltered one-mica, two feldspar, biotite-quartz monzonite. Biotite-feldspar schist cut by quartz-muscovite veins, outcrops to the south of the claims.
2. The quartz monzonite is highly fractured, yet unaltered. No visible mineralization was noted.
3. Soil, stream water, stream sediment, and rock geochemistry reveal strongly anomalous U, Mo and W contents in the east and southeast parts of the claims, particularly in the biotite-quartz monzonite ridge, underlying the east-central area.
4. Numerous, weaker U-Mo-W anomalies, mainly in soils, occur in the southern and eastern areas.
5. The western and northern areas contain weak, one to two station U-Mo-W anomalies, and appear to be of lesser potential, however, these areas contain more predominant overburden which may mask geochemical response.
6. Potential U mineralization may be of intergranitic or skarn type. The high pH (8.3 to 8.8) in waters draining the central biotite-quartz monzonite ridge, suggests the presence of alteration within the intrusive (e.g. carbonate shear zones) and/or the presence of xenolithic material. The U-Mo-W association suggests the possibility for skarn or primary U-Mo-W mineralization. The presence of quartz-muscovite veining south of the claims, suggests the potential for primary U-Mo-W mineralization.

7. There is a good correlation between rock, stream sediment and soil geochemistry on the ICE Claims. Soil geochemistry should be particularly useful as a detailed survey technique.

IX. RECOMMENDATIONS

1. The ICE Claims should be mapped at a scale of 1" = 400'.
2. Systematic soil and radiometric surveys should be carried out on lines, a maximum of 800 ft. (240 m) apart.
3. Heavy mineral samples should be obtained from all streams draining the claims, and analysed for Cu, Mo, Pb, Zn, Ag, U, Th, Sn, W, and Au. Since topographic map coverage was very poor, it is highly probable that some streams have gone unsampled. Sediment, water and heavy mineral samples should be obtained.
4. Air photo bases, at a scale of 1" = 400' should be used for all future work.
5. Air photos should be examined for the presence of lineaments and other potential controlling structures.
6. Prospecting should concentrate on delineating shears, quartz veining, alteration, and structure.
7. The owners of the HL Claims should be approached with the aim of obtaining results of surveys over the adjoining claims. The possibility of options on either claim group should be considered.

Respectfully submitted



Eric James Sacks, M.Sc.

Toronto, Ontario

November 1979.

APPENDIX I

ANALYTICAL RESULTS



CHEMEX LABS LTD.

217 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE 694-2221
 AREA CODE 604
 TELEX 043 52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49031

TO: Canadian Occidental Petroleum Ltd.,
 Minerals Division
 Ste. 311 - 215 Carlingview Dr., ROCKS
 Rexdale, Ont.
 ATTN: WATSU-ROCKS C.C. E. Sacks

INVOICE NO. 31611
 RECEIVED July 24, 1979
 ANALYSED August 3, 1979

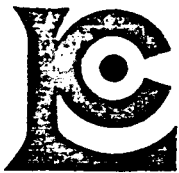
SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPM U	PPM F	PPM Th	PPM W
JH-PLATE-5A			4	4	0.1				
JH-PLATE-5B			1	24	0.1				
ES-PLATE-1			2	4	0.1				
2A			1	32	0.2				
2B			2	98	1.4				
3A			2	98	0.2				
3B			4	56	0.8				
3C			2	124	0.2				
4			2	10	0.1				
5A			2	56	0.1				
ES-PLATE-5B			1	18	0.1				
JH-ICE -1		1				3.0	520		
2		1				3.0	100		
3		1				4.0	390		
JH E -4		1				7.5	200		
JH-SHAR(1)-1			6	48	0.1	2.5			
2			20	3500	0.8	5.5			
3			4	46	0.2	2.5			
4			4	74	0.1	1.0			
5			2	40	0.2	0.5			
6			2	48	0.1	0.5			
7			4	22	0.1	0.5			
8A			8	66	0.1	2.5			
8B			36	26	0.1	0.5			
JH-SHAR(1)-9			20	84	0.1	1.0			
ES-SHAR(1)-1			2	40	0.2	2.5			
2			2	16	0.1	1.5			
3			6	50	0.1	1.5			
4A			4	56	0.1	9.5			
4B			4	4	0.2	<0.5			
5A			2	72	0.1	1.0			
5B			40	52	0.2	1.0			
5C			6	82	0.1	2.5			
6			10	28	0.2	2.0			
7			14	20	0.1	2.5			
8			455	154	0.4	0.5			
ES-SHAR(1)-9			146	680	0.8	4.5			
ES-SHAR(5)-1	24					<0.5	380		1
ES-SHAR(5)-2	14					<0.5	185		1
ES-SHAR(5)-3	20					0.5	55		2



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY:

Hart Biddle



212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 884-0221
AREA CODE: 604
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49001

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont.

INVOICE NO. 31616

RECEIVED July 24/79

ATTN: WATSU-ICE-SOIL

CC. E. Sacks

ANALYSED Aug. 6/79

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPM Sn	PPM W	PPM U	PPM Th(N.A.)
79 WT 0202	12	1	20	70	0.1	1	15	23.5	50
0203	4	1	16	12	0.2	1	1	33	27
0204	8	1	10	18	0.2	1	1	4.5	20
0205	8	1	18	70	0.1	2	1	3.5	53
0206	8	1	6	10	0.2	1	1	150	142
0208	20	5	32	120	0.1	1	2	67	55
0209	6	2	10	14	0.1	1	1	25	25
0211	8	1	16	42	0.1	1	2	4.0	35
0212	4	1	24	34	0.1	1	4	3.5	55
0213	10	21	14	32	0.1	1	4	83	39
0214	26	1	14	66	0.1	1	60	3.0	17
0146	6	2	6	26	0.2	1	1	5.0	4
0147	4	1	4	4	0.1	1	1	3.5	2
0148	16	5	30	50	0.1	1	12	70	91
0149	6	2	2	50	0.2	1	1	18.5	5
0150	2	1	2	2	0.1	1	1	1.5	8
0151	4	1	16	34	0.1	1	3	2.5	35
0152	2	1	4	6	0.1	1	1	4.0	8
0153	20	6	16	74	0.1	1	5	8.0	21
0154	6	1	22	46	0.1	2	4	1.0	37
0155	10	1	12	52	0.1	1	4	2.0	29
0157	18	2	6	66	0.1	1	13	2.0	17
0971	10	2	18	80	0.1	2	2	1.0	37
0972	8	1	12	48	0.1	1	2	1.0	27
0973	8	1	16	38	0.2	1	40	2.5	23
0974	14	3	14	58	0.1	2	2	24.0	40
0976	6	4	16	52	0.2	1	1	7.5	33
0977	2	23	18	18	0.1	1	3	7.5	32
0978	12	7	20	78	0.1	1	6	56	65
0979	1	1	6	12	0.1	1	10	2.5	24
79 WT0981	12	14	4	102	0.1	1	7	43	48



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY:

Hart Biddle



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 984 0221
 AREA CODE: 604
 TELEX: 043-52597

- ANALYTICAL CHEMISTS
- GEOCHEMISTS
- REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49026

TO: Canadian Occidental Petroleum Ltd.,
 Minerals Division,
 Ste. 311 - 215 Carlingview Dr.,
 Rexdale, Ont.

INVOICE NO. 31616
 34007 - Th only
 RECEIVED July 24/79

ATTN: WATSU-ICE-STREAM SILT CC. E. Sacks

ANALYSED Aug. 6/79

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPM Sn	PPM W	PPM U	PPM Th
79 WT 0975	4	8	10	62	0.1	1	3	22.0	46
STD 0980	16	1	4	40	0.1	1	7	2.5	22
0207	14	20	10	44	0.1	1	5	>400	43
0210	6	8	20	62	0.1	1	4	46	36
79 WT 0156	16	1	6	84	0.1	1	18	9.5	17



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY:

J.F. Madson

CERTIFICATE OF ANALYSIS

CHEMEX LABS LTD.
212 BROOKSBANK AVENUE
NORTH VANCOUVER B.C. CANADA

CLIENT : CAN-OXY

SAMPLES RECEIVED : 07-SEP-79
ANALYSIS COMPLETED : 16-SEP-79
NOVATRACK CERT. NO. : B90074.
CHEMEX CERT. NO. : ASSAY 66171
INVOICE NO. : 32701

ATTN. : E. SACKS

SAMPLE ID	US06 PERCENT
--------------	-----------------

79 WT 207	0.063
79 WT 1025	0.109
79 WT 1045	0.045
79 WT 1068	0.105
79 WT 1261	0.062
79 WT 1262	0.087
79 WT 1263	0.066
79 WT 1279	0.047
HM 712	0.322
HM 713	0.322

APPENDIX II - ROCK DESCRIPTIONS, - U, Th, F and
Mo Contents, U/Th Ratios.

ROCK NO.	NAME	% COMPOSITION					DESCRIPTION	ppm U	ppm Th	ppm Mo	ppm F	U/Th
		Plag	Ksp	Qtz	Bi	Other						
ICE - 1	Biotite-fsp-qtz schist cut by muscovite pegmatite vein	30	5	5	40	-	-Fine grained, fissile, bi-qtz -fsp vein parallel to foliation with c. grained center fining outward.	5	10	<u>4</u>	<u>520</u>	0.50
ICE - 2	Biotite-qtz-fsp schist	30	5	5	40	-	-As above ICE-1; no pegmatite.	3.5	15	1	<u>620</u>	0.23
ICE -3	Biotite-quartz monzonite	30	30	20	5	tr.lt.	Med. grained, massive; bi has slight lt. stain.	4	46	2	<u>560</u>	0.08
JH-ICE-1	Biotite-qtz monzonite	30	40	10	5	-	C. grained, slight- ly megacrystic with subhedral perthite grains to 1/2".	3	-	1	<u>520</u>	-
JH-ICE-2	Biotite-qtz monzonite	20	40	30	5	-	C. grained, few megacrysts of perth- ite; smokey quartz	3	-	1	100	-
JH-ICE-3	Biotite-qtz monzonite	20	50	25	5	-	C. grained, few meg- acrysts of perthite; smokey quartz very dark.	4	-	-	<u>390</u>	-
JH-ICE-4	Graphic gran- ite	10	50	30	1-2	-	Very c. grained, graphic growth of qtz and fsp; smokey quartz.	7.5	-	1	<u>200</u>	-

APPENDIX III

LABORATORY PROCEDURES

APPENDIX III - LABORATORY PROCEDURES

A. Sample Preparation

i) Heavy Minerals

1. Samples dried and weighed.
2. Screen - 10 mesh material from sample and weigh; weigh and retain +10 mesh material left on screen.
3. Use -10 mesh fraction for heavy liquid separation.
4. Transfer -10 mesh (fine) fraction into a 1000 ml. separatory funnel containing 200 mls. of tetrabromoethane (S.G. 2.96)
5. Shake sample gently in heavy liquid. Particles of fines adhering to sides of the separatory funnel can be washed into the heavy liquid by slowly rotating the funnel at an oblique angle. The "heavies" (S.G. >2.96) will slowly settle to the bottom of the heavy liquid.
6. Drain the "heavies" into a small filter funnel. Drain excess heavy liquid and light materials into a separate filter funnel. Collect all heavy liquid into a waste receiving bottle.
7. Save light minerals (S.G. <2.96). Wash "heavies" fraction with methanol to remove residual tetrabromoethane. Use the same procedure on light minerals fraction. Dry both fractions and weigh. Retain the "lights" in a suitable sealed container. Save 0.5 gm of "heavies" in a plastic vial for visual examination.
8. Pulverize the remaining "heavies" in an agate mortar and pestle and homogenize before weighing for analyses.

9. Analyse the "heavies" powder for appropriate elements. The number of elements analysed for is determined by the amount of "heavy" material obtained in separation.

ii) Stream Sediments

1. Samples are sorted and dried at 50^oc for 12 to 16 hours.
2. Dried material is then screened to obtain the -80 mesh (177 micron) fraction. The rest of the material is discarded.
3. -80 mesh fraction material is weighed and analysed for appropriate elements.

iii) Soils

Same procedure as for stream sediments.

iv) Rocks

1. Entire sample is crushed.
2. If necessary (>250 gms.). The sample is split on a Jones splitter, the reject is retained for a short period.
3. The split fraction is pulverized in a ring grinder such that 90% passes a 200 mesh (74 micron) sieve.
4. The -200 mesh material is weighed and analysed for the appropriate elements.

v) Waters

See individual element descriptions for U and F.

B. Elemental Analyses

i) ppm Copper, Lead, Zinc, Silver, Molybdenum (Atomic Absorption)

1. A 1.0 gm portion of -80 mesh soil or stream sediment or -200 mesh rock flour or pulverized "heavies" is digested in concentrated, hot, perchloric - nitric acid (HClO₄-HNO₃) for 2 hours.

2. Digested sample is cooled and made up to 25 mls. with distilled water.

3. Solution is mixed and solids allowed to settle.

4. Cu, Pb, Zn Ag and Mo are determined by atomic absorption, using background correction for Pb and Ag analyses.

<u>Element</u>	<u>Bkgd. Corr.</u>	<u>Flame Type</u>	<u>Wave Length hm</u>	<u>Detection Limit</u>	<u>Chemex Standard</u>	<u>+ 1 Std. Deviation</u>
Cu	No	A	324.7	1 ppm	71 ppm	+ 3
Pb	Yes	A	217.0	1 ppm	59 ppm	+ 1
Zn	No	A	213.8	1 ppm	52 ppm	+ 3
Ag	Yes	A	328.1	0.2 ppm	8.5 ppm	+ 0.5
Mo	No	N	313.3	1 ppm	25 ppm	+ 1

A = Air acetylene flame.

N = Nitrous oxide - acetylene flame.

ii) ppm Tin (Sn) (Atomic Absorption)

1. A 1.0 gm sample of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is scintered with ammonium iodide.

2. The resulting tin-iodide is leached with a dilute HCl - ascorbic acid solution.

3. The TOPO complex is then extracted into MIBIC (Methyl isobutyl ketone) and analysed via atomic absorption.

4. Detection limit: 1 ppm Sn

iii) ppm Tungsten (W) (Colourimetric)

1. 0.5 gm of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is fused with potassium bisulfate and leached with HCl.

2. The reduced form of W is complexed with toluene 3, 4 dithiol and extracted into an organic phase.

3. The resulting colour is visually compared to similarly prepared standards. (Colourimetric method)

4. Detection limit: 2 ppm W

iv) ppb Gold (Au) (Atomic Absorption)

1. A 5 gm sample of -200 mesh rock flour or pulverized "heavies" is ashed at 800°C for 1 hour.

2. Ashed material is digested with aqua regia twice to dryness.

3. Digested material is taken up in 25% HCl.

4. Au is extracted as the bromide into MIBK and analysed via atomic absorption.

5. Detection limit: 10 ppb Au

v) ppm Thorium (Th) (Neutron Activation)

1. 1 gm of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is weighed into a polyethelene vial and heat sealed.

2. Samples, along with standards, are then irradiated

for sufficient periods to receive a neutron dose of $1-3 \times 10^{10}$ to $10^{15}/\text{cm}^2$.

3. Following irradiation, samples are cooled for at least one week and thorium determined by the measurement of its characteristic gamma ray, using a semiconductor (Ge (Li)) detector.

4. Detection limit: 1 ppm Th

vi) Uranium (U) (Fluorimetry)

A) Uranium in soils, stream sediments, "heavies", rocks.

1. 1 gm of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is digested with hot, $\text{HClO}_4\text{-HNO}_3$ to strong fumes of HClO_4 for approximately 2 hours.

2. The digest is diluted to volume and mixed.

3. An aliquot is extracted into MIBK with the acid of an aluminum nitrate-tetrapropyl ammonium hydroxide salting solution. (TPA)

4. Uranium in the MIBK is determined by evaporating a portion of the MIBK in a platinum dish and fusing with a mixture of $\text{Na}_2\text{CO}_3\text{-K}_2\text{CO}_3\text{-NaF}$.

5. The fluorescence of the fused flux is measured to determine the uranium content.

6. Detection limit: 0.5 ppm U

B) Uranium in Water

1. A portion of the sample is filtered to remove sediment (if necessary), is acidified and then evaporated to dryness.

2. Residue is leached with a small volume of HCO_3 .

3. Uranium in the leachate is extracted into MIBK, with the aid of TPAN salting solution.

4. Uranium is determined as for solid materials, above by fluorimetry.

5. Detection limit: 0.2 ppb U

vii) Fluorine (F) (Specific Ion Electrode)

A) Fin soils, stream sediments, rocks, "heavies"

1. 0.25 gm of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is fused with a 2:1 $\text{NaCO}_3\text{-KNO}_3$ mixture.

2. The melt is leached with water and citric acid, adjusted to pH 5.5 and the activity measured with a fluoride specific ion electrode.

3. Detection limit: 10 ppm F

B) F in Waters (Potentiometric)

1. An aliquot of the sample is filtered and treated with an equal volume of Total Ionic Strength Adjustment Buffer (TISAB) consisting of glacial acetic acid, sodium chloride and cyclohexanediamine tetraacetic acid.

2. The resulting solution is stirred for 3 minutes to allow the fluoride electrode to stabilize.

3. The F concentration is read from a specific ion meter which is calibrated frequently with freshly prepared standard fluoride solutions.

4. Detection limit: 0.02 ppb F

viii) ppb Arsenic (As) (Atomic Absorption)

a) As in waters

1. An aliquot of water is acidified with HCl and then reduced with potassium iodine to reduce As (V) to As (III).

2. A portion of this solution is further reduced with sodium borohydride to arsine, AsH₃.

3. The volatile arsine is swept into a heated cell in an atomic absorption spectrophotometer and decomposed to free arsenic to determine the arsenic concentration.

4. Detection limit: 2 ppb As

ix) pH

1. pH in waters was determined in the field, using a portable pH meter.

2. The meter was standardized by means of buffer solutions, every 10th sample to minimize meter drift.

x) Specific Conductivity (S.C.)

1. S.C. in waters was determined in the field, using a portable S.C. meter.

2. The electrode was washed in a standard water, after each determination, to minimize and standardize contamination.

APPENDIX IV.

Comments of Dr. R.H. Wallis - Visit to ICE Claims

ICE Claims
Commodity (U + Mo)

July 8th, 1979

RHW and JH

These claims appear to be the HL Claims of M Saugstad of June 7th 1978, which have been gridded and soil sampled, and would appear to be in good standing.

All above tree line, undulating, even slopes, very easy country.

Rocktypes:

1) a foliated, metamorphosed, conglomerate-coarse sandstone-quartzite, to biotite quartzite assemblage, Unit 2 of Poole, Lower Cambrian clastic sediments cut by quartz veins (with rare pyrite) cut by veins of K feldspar-quartz-muscovite.

2) The major intrusive, a biotite quartz monzonite with some perthite megacrysts. Unit 15a of Poole, the Cassiar Batholith; not foliated or sheared. At this contact there is no obvious evidence for the fault contact shown by Poole.

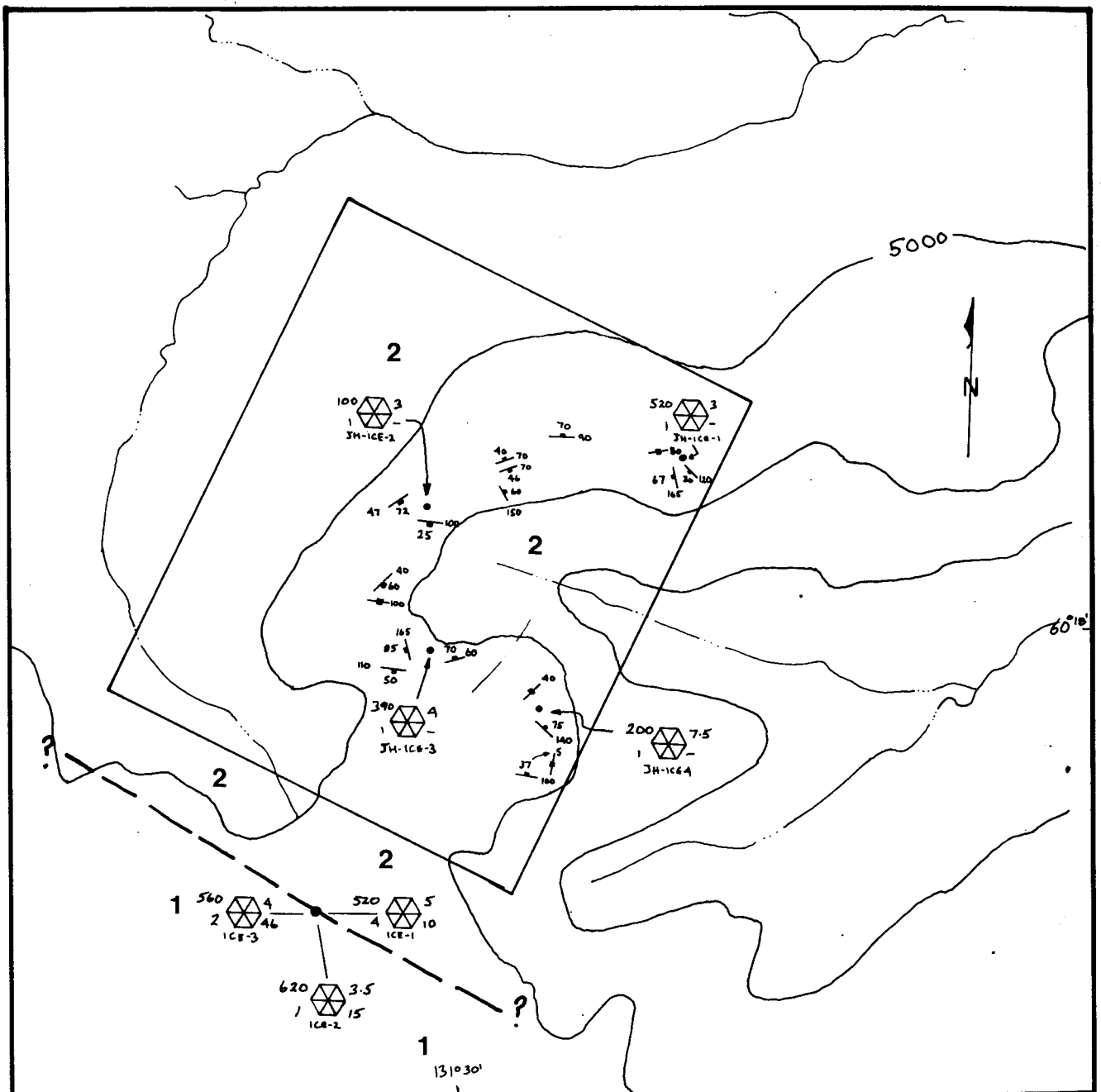
Future work - check ownership of HL versus ICE claims; did so pm July 9th in Watson Lake Mine Recorder's office. HL are in good standing, ICE attached to NE side.

APPENDIX V

REFERENCES:

1. Poole, W., Roddick, H.A., and Green, L.H. (1960): Geology of Wolf Lake map sheet, Yukon Territory; G.S.C. Map 10-1960, Preliminary Series.

2. G.S.C. (1979): Regional Stream Sediment Reconnaissance Data, Yukon Territory, 1978 - NTS 105B (Wolf Lake); G.S.C. OFR 563.



LEGEND

- 2 Biotite-quartz monzonite; graphic granite
- 1 Biotite-quartz-feldspar schist; muscovite-pegmatite veining; rare pyrite

SYMBOLS

- Geological contact (assumed)
- Jointing (vertical, inclined)

Rock GEOCHEMISTRY

ppm F ppm U
 ppm Mo ppm Th
 Sample No

CANADIAN OCCIDENTAL PETROLEUM LTD.
 MINERALS DIVISION

PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

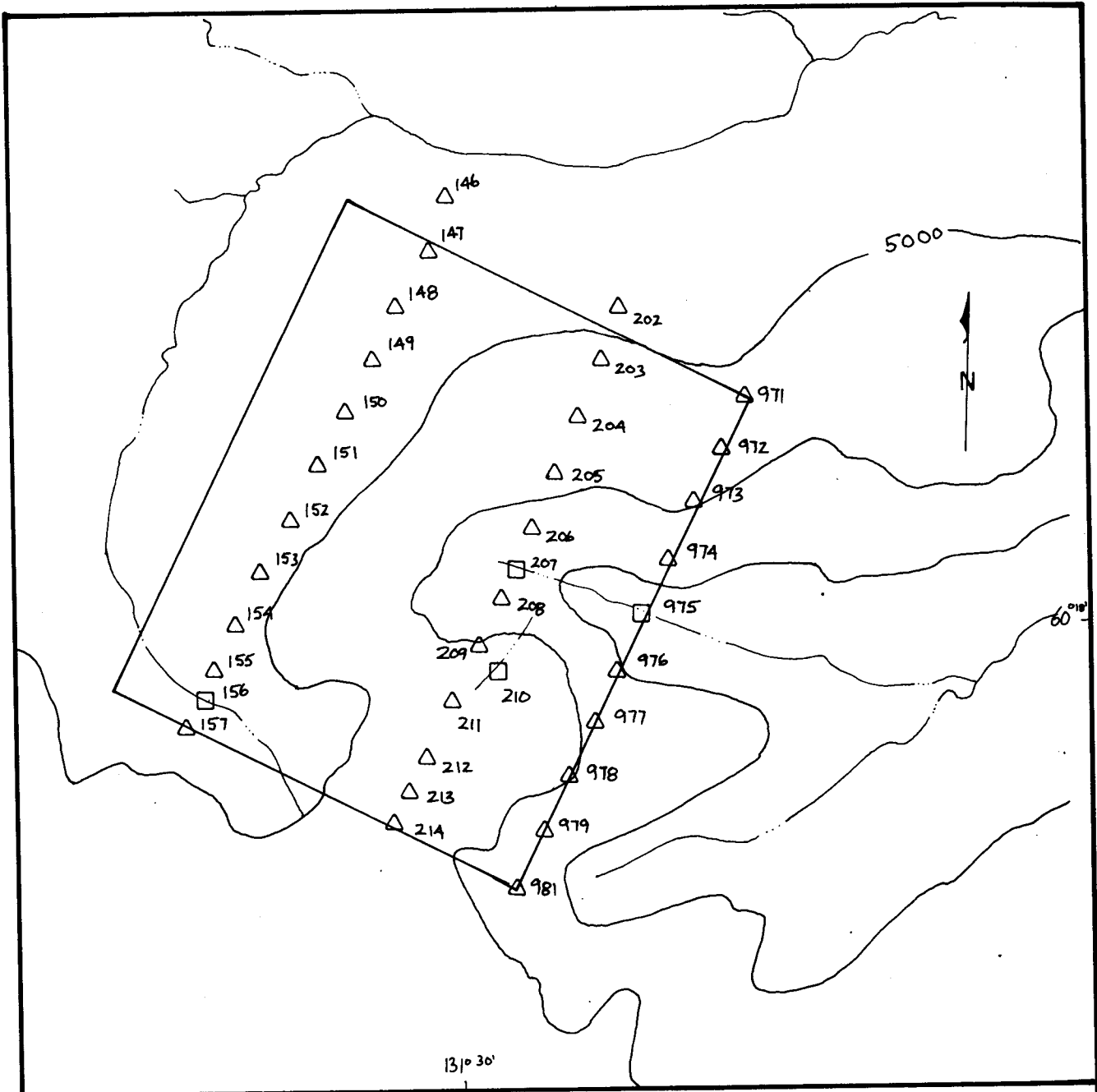
GEOLOGY &

ROCK GEOCHEMISTRY

Scale 1" = 2640' (1/2 mile)

PLAN 1

September, 1979



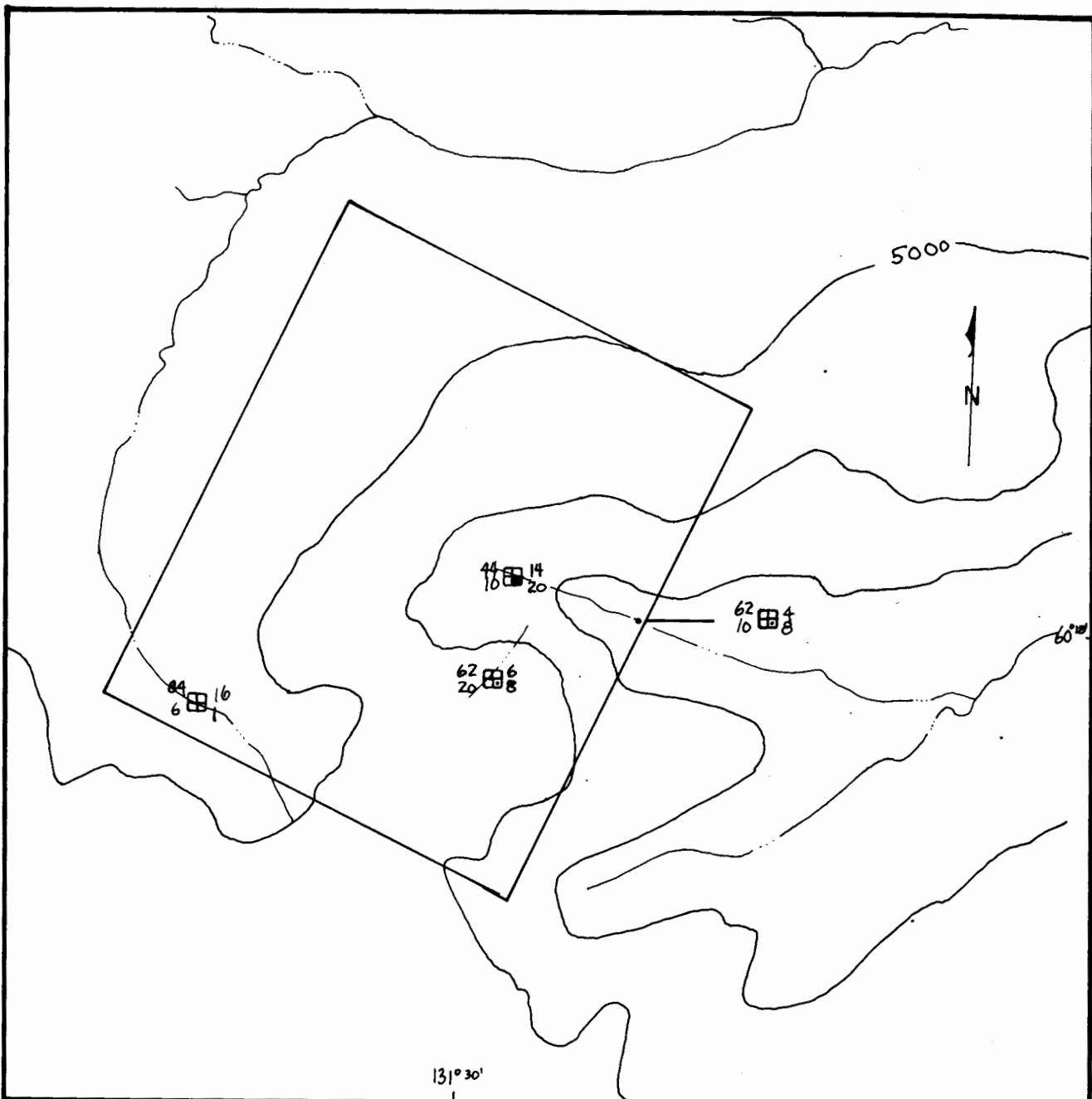
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU
ICE CLAIMS
YUKON TERRITORY



SAMPLE LOCATIONS



Scale: 1" = 2640' (1/2 mile) PLAN 2

September, 1979



LEGEND

ppm Zn  ppm Cu
ppm Pb  ppm Mo

	Cu	Mo	Pb	Zn
<i>Prob. Anomalous</i> 	54	11	54	115
<i>Poss. Anomalous</i> 	28	3	21	320

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

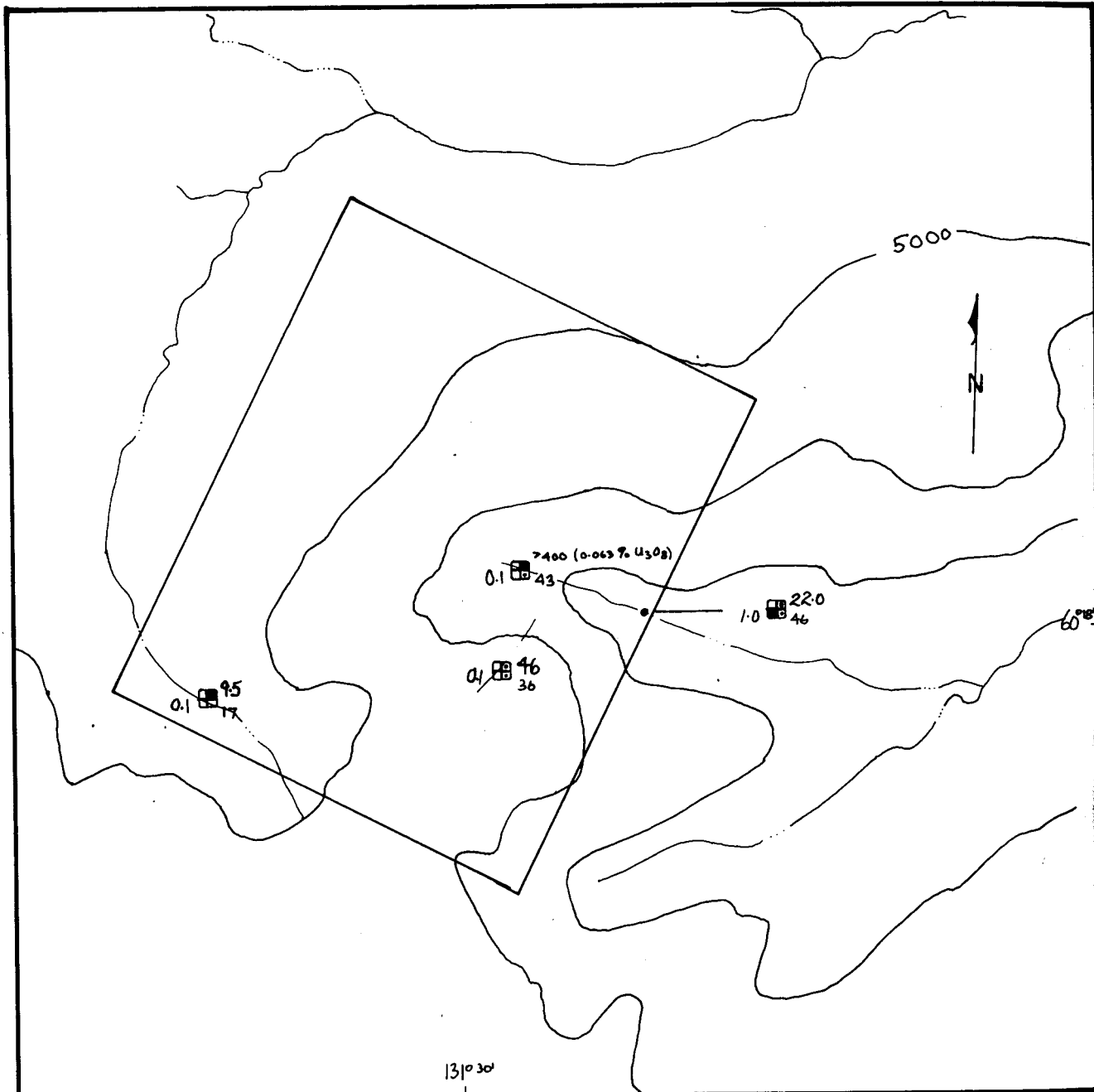
STREAM SEDIMENT GEOCHEMISTRY

Cu - Mo - Pb - Zn

Scale: 1" = 2640' (1/2 mile)

PLAN 3

September, 1979



LEGEND

ppm Ag \square ppm U
ppm Th

	U	Th	Ag
<i>Prob. Anomalous</i>	38	50	1
<i>Poss. Anomalous</i>	17	29	<1

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

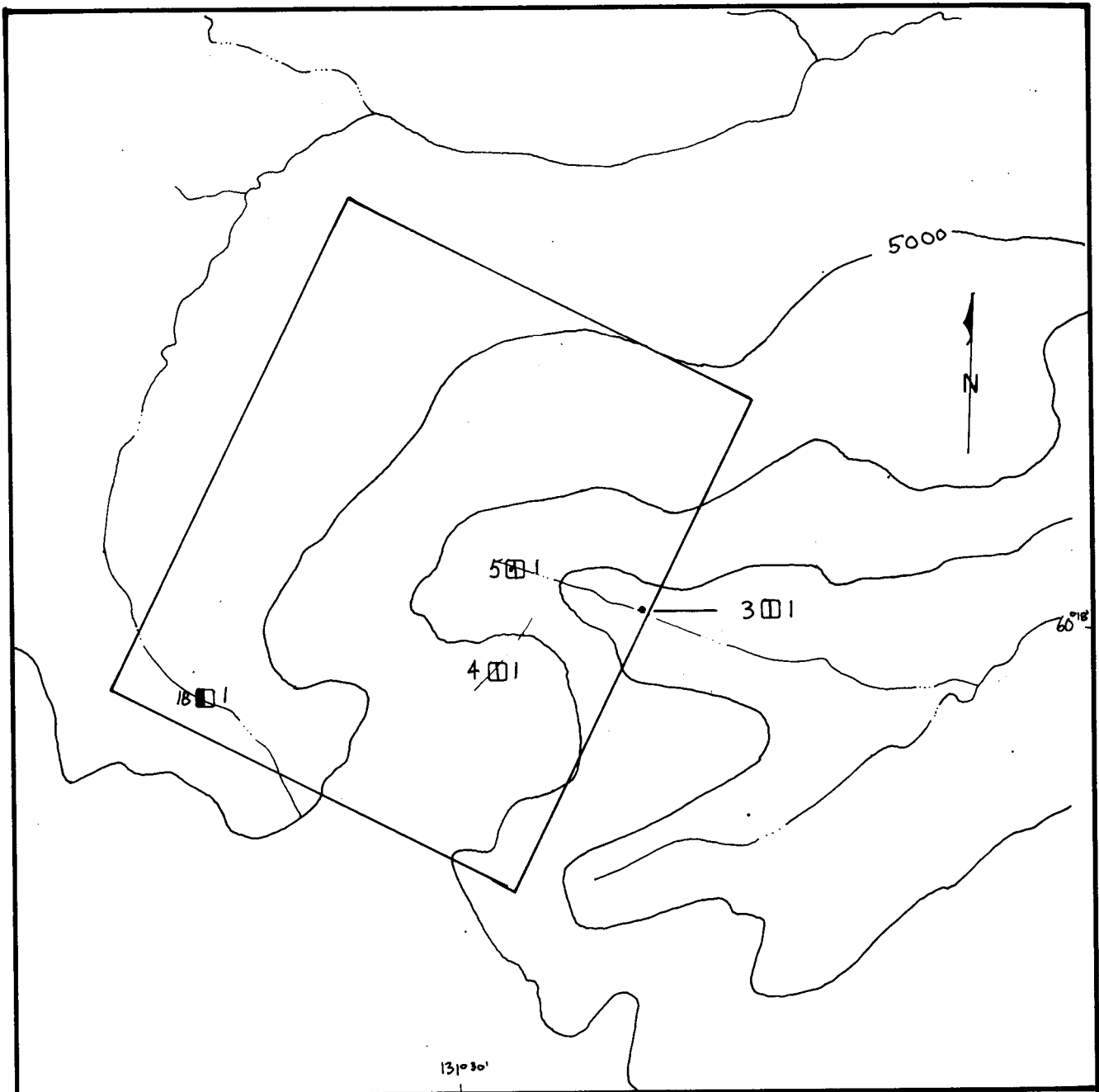
PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

STREAM SEDIMENT GEOCHEMISTRY

U-Th-Ag



LEGEND

ppm W □ ppm Sn

	Sn W	
<i>Prob. Anomalous</i>	5	16
<i>Poss. Anomalous</i>	2	5

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

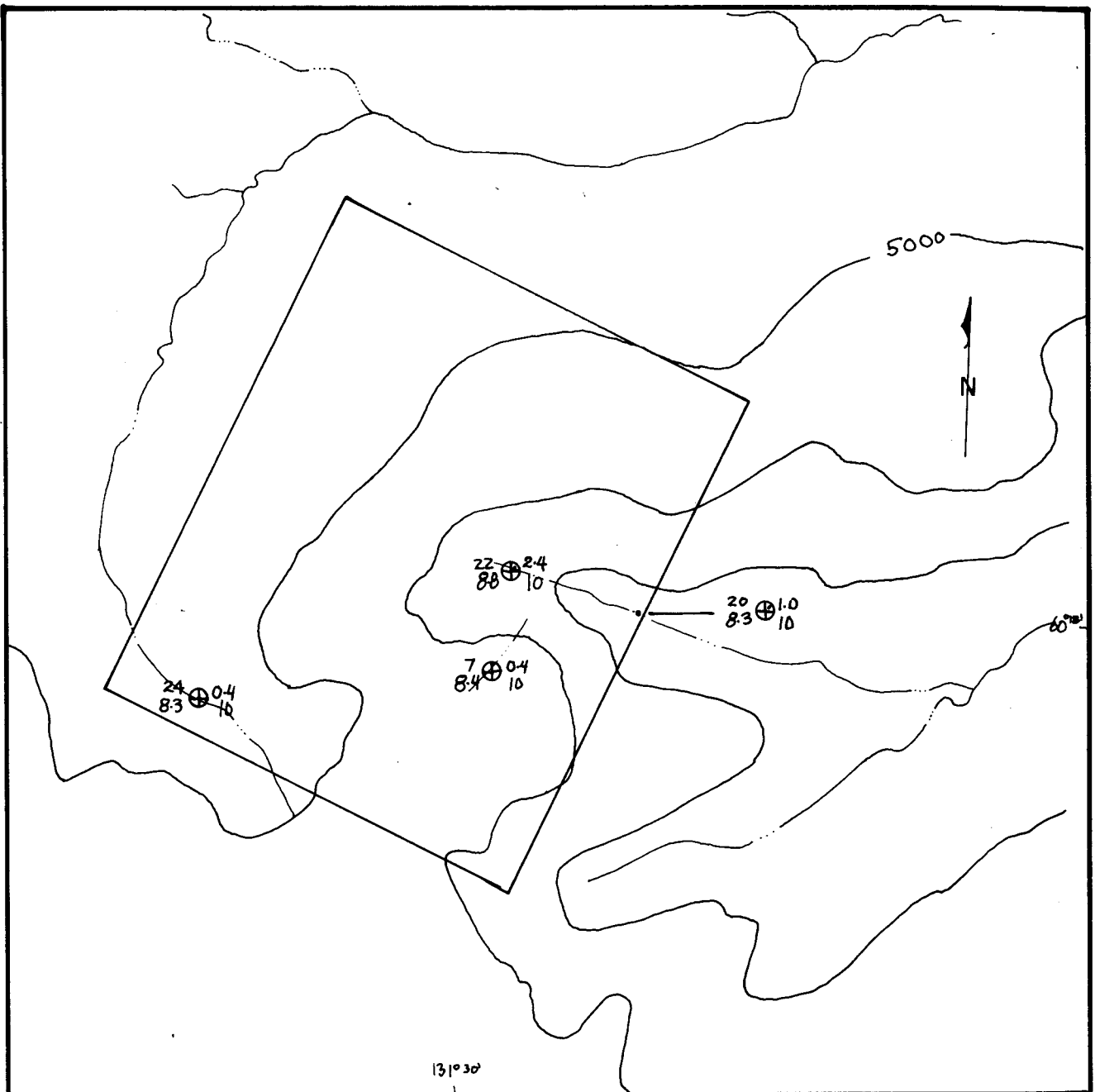
STREAM SEDIMENT GEOCHEMISTRY

Sn - W

Scale: 1" = 2640' (1/2 mile)

PLAN 5

September, 1979



LEGEND

S.C. \oplus ppb U ; All As < 2ppb
 pH ppb F

* S.C. units are μ -mols/cm

	U	F	S.C.
Prob. Anomalous	2.5	210	100
Poss. Anomalous	.9	100	4b

CANADIAN OCCIDENTAL PETROLEUM LTD.
 MINERALS DIVISION

PROJECT WATSU
 ICE CLAIMS
 YUKON TERRITORY

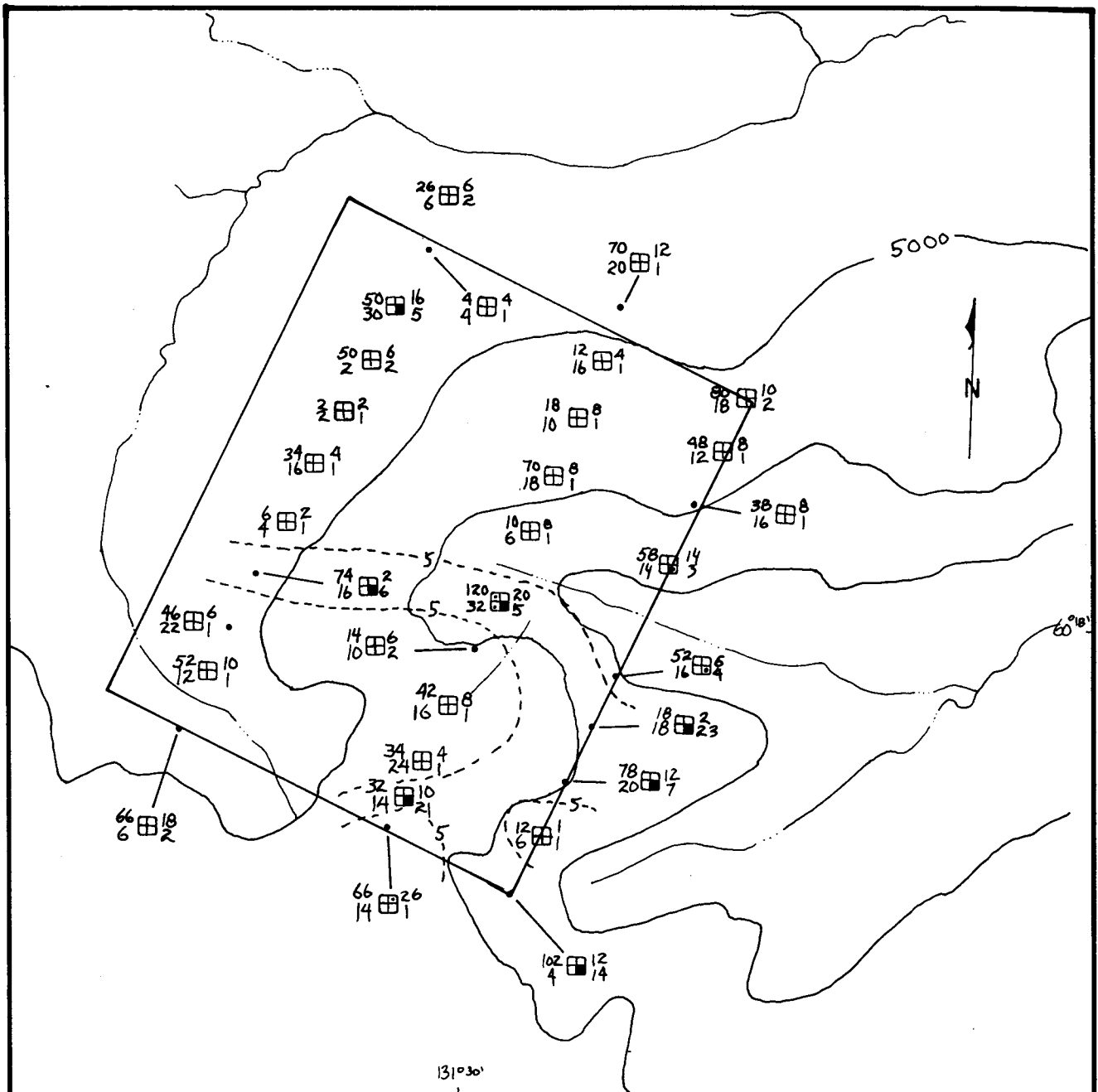
STREAM WATER GEOCHEMISTRY

U - F - As - pH - S.C.

Scale: 1" = 2640' (1/2 mile)

PLAN 6

September, 1979



LEGEND

ppm Zn □ ppm Cu
ppm Pb □ ppm Mo

	Cu	Mo	Pb	Zn
<i>Prob. Anomalous</i>	120	5	150	270
<i>Poss. Anomalous</i>	22	2.5	32	115

----- 5 ppm Mo

**CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION**

PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

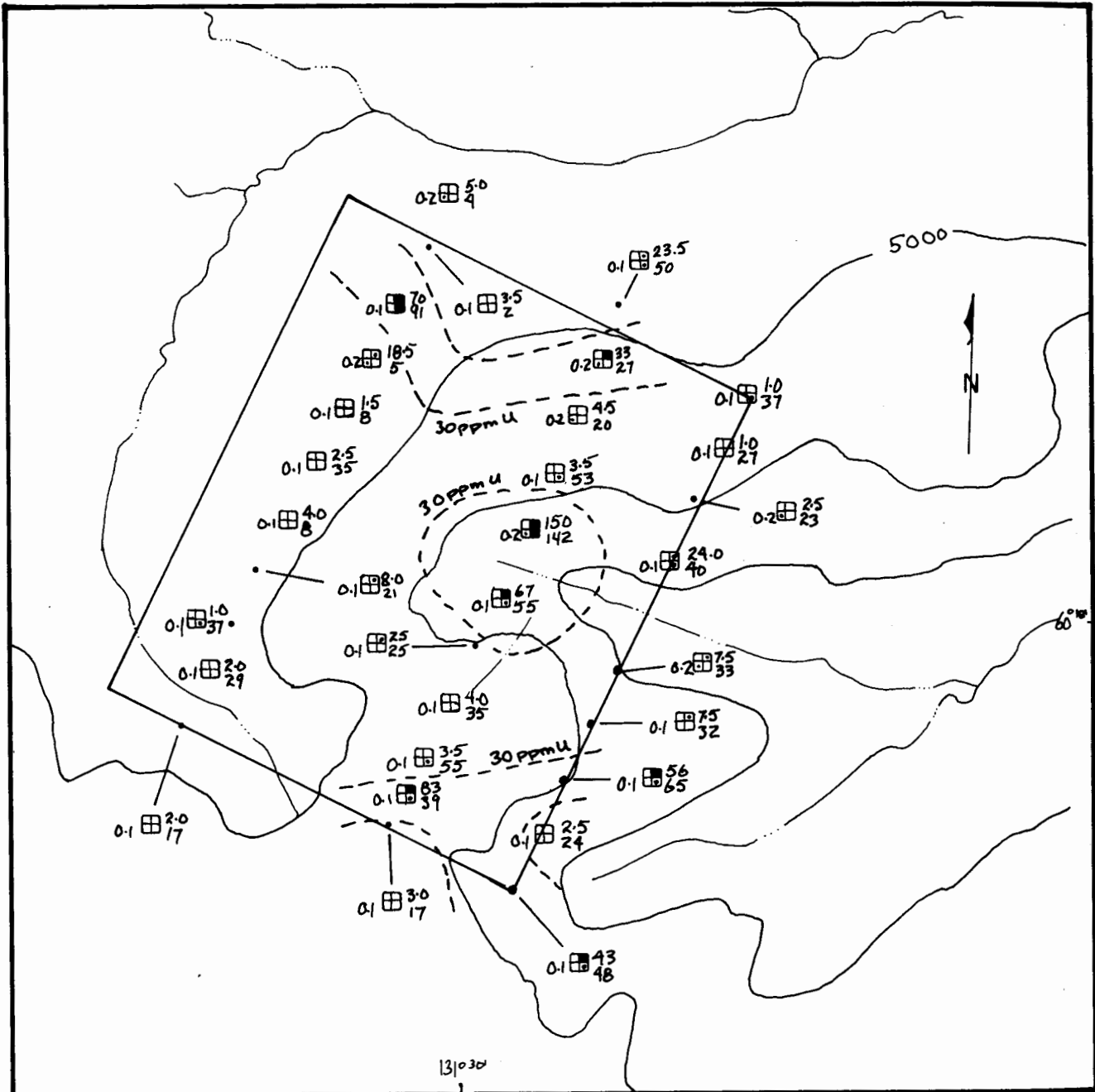
SOIL GEOCHEMISTRY

Cu - Mo - Pb - Zn

Scale: 1" = 2640' (1/2 mile)

PLAN 7

September, 1979



LEGEND

ppm Ag \square ppm U
ppm Th

	U	Th	Ag
Prob. Anomalous	30	75	.8
Poss. Anomalous	7	36	.1

----- 30 ppm U

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU

ICE CLAIMS

YUKON TERRITORY

SOIL GEOCHEMISTRY

U - Th - Ag

Scale: 1" = 2640' (1/2 mile)

PLAN 8

September, 1979

Author's Qualifications

Eric J. Sacks

Education - Graduated Queen's University,
Kingston, Ontario
M.Sc. in Geology, 1978
- Graduated University of Toronto,
Toronto, Ontario
B.Sc. in Geology, 1977

Work Experience - Employed as field exploration geologist
with Canadian Occidental Petroleum Ltd., Minerals Division,
Toronto, Ontario since 1978. Carried out and supervised
mineral exploration programs in B.C. and Yukon.

Statement of Expenditures

Claims ICE 1-30

Record Numbers YA 44770 - YA 44799

		<u>Pro-rated¹ Costs</u>
Salaries and Benefits		\$1,237.66
Travel and Accommodation		754.40
Drafting and Reproduction		265.04
Consultant		371.90
Camp costs and Supplies		848.56
Rental of Equipment		141.59
Other Work		362.32
	Sub-total	<u>\$3,982.47</u>
Helicopter 2.3 hr. at \$340/hr.	\$ 782.00	²
Geochemical 351 analyses	<u>798.64</u>	³
		<u>\$1,280.64</u>
	Total	<u>\$5,263.11</u>

Notes

¹ Pro-rated on basis of 4.2 man-days worked on claims conducting geological/geochemical/geophysical surveys out of a total of 115.6 man-days spent on these surveys during Project Watsu (see attached breakdown on following sheet).

² Helicopter flying completed by Associated Helicopters Ltd.

³ Geochemical analyses completed by Chemex Labs, Vancouver, B.C (see attached Cost Breakdown).

PROJECT 1

BC CLAIM GROUPS	TOTAL NO. OF MAN DAYS	PRO-RATED COSTS							REAL COSTS				SUB-TOTAL "B"	TOTAL "A" + "B"	
		SALARIES & BENEFITS	TRAVEL & ACCOMMODATION	DRAFTING & REPRODUCTION	CONSULTANTS	CAMP COSTS & SUPPLIES	EQUIPMENT RENTAL	OTHER WORK	SUB-TOTAL "A"	HELICOPTER		GEOCHEMISTRY			
										at \$310/hr	hrs.	cost			# ana
ALLEN	4.3	1267.12	772.36	271.35	380.75	869.78	144.96	370.63	4076.95	620.00	2.0	617.80	385	1237.80	5314.75
ASP	5.0	1473.40	898.10	315.53	442.73	1011.38	168.56	430.97	4740.67	682.00	2.2	627.28	396	1309.28	6049.95
COT	3.0	884.04	538.86	189.32	265.64	606.83	101.13	258.58	2844.40	620.00	2.0	378.24	201	998.24	3842.64
KAZ	5.0	1473.40	898.10	315.53	442.73	1011.38	168.56	430.97	4740.67	527.00	1.7	854.64	454	1381.64	6122.31
MAR	1.0	294.68	179.62	63.11	88.55	202.28	33.71	86.20	948.15	310.00	1.0	62.40	18	372.40	1320.55
NEED	5.0	1473.40	898.10	315.53	442.73	1011.38	168.56	430.97	4740.67	837.00	2.7	966.36	560	1803.36	6544.03
PLATE	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	961.00	3.1	793.24	464	1754.24	6874.15
RAN	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	1209.00	3.9	775.28	524	1984.28	7104.19
SHAR 1&2	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	1023.00	3.3	639.36	402	1662.36	6782.27
SHAR 3&4, 9	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	1488.00	4.8	480.04	619	2268.04	7387.95
SHAR 5&6	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	899.00	2.9	750.36	469	1649.36	6769.27
SHAR 7&8	5.4	1591.27	969.94	340.77	478.15	1092.29	182.04	465.45	5119.91	837.00	2.7	749.28	460	1586.28	6706.19
SUB-TOTAL (1)	55.7	16413.66	10004.78	3514.99	4932.03	11266.77	1877.72	4801.02	52810.97	10013.00	32.3	7994.28	4952	18007.28	70818.25
YUKON CLAIM GROUPS										at \$340/hr					
BIG OX	5.6	1650.21	1005.87	353.39	495.86	1132.74	188.78	482.69	5309.54	1020.00	3.0	879.76	541	1899.76	7209.30
BORDER	1.1	324.15	197.58	69.42	97.40	222.50	37.08	94.81	1042.94	204.00	0.6	165.16	101	369.16	1412.10
CLO	3.9	1149.25	400.52	246.11	345.33	788.87	131.47	336.16	3697.71	1224.00	3.6	316.96	185	1540.96	5238.67
CO	2.2	648.30	395.16	138.83	194.80	445.01	74.16	189.63	2085.89	918.00	2.7	535.24	372	1453.24	3539.13
GOAT	5.5	1620.74	987.91	347.08	487.01	1112.51	185.41	474.07	5214.73	782.00	2.3	1266.48	807	2048.48	7263.21
ICE	4.2	1237.66	754.40	265.04	371.90	848.56	141.59	362.32	3982.47	782.00	2.3	798.64	351	1280.64	5263.11
LICK	5.2	1532.34	934.02	328.15	460.44	1051.83	175.30	448.21	4930.29	748.00	2.2	920.36	546	1668.36	6598.65
MOX	5.9	1738.61	1059.75	372.32	522.43	1193.42	198.90	508.54	5593.97	1292.00	3.8	1205.04	705	2497.04	8091.01
OXY	4.6	1355.53	826.25	290.29	407.31	930.47	155.07	396.49	4361.41	884.00	2.6	732.44	449	1616.44	5977.85
PISA	5.6	1650.21	1005.87	353.39	495.86	1132.74	188.78	482.68	5309.54	714.00	2.1	757.96	512	1471.96	6781.50
SAL	5.6	1650.21	1005.87	353.39	495.86	1132.74	188.78	482.78	5309.54	1190.00	3.5	497.12	411	1687.12	6996.66
TIER	4.9	1443.93	880.15	309.21	433.91	991.10	165.18	422.71	4645.46	1156.00	3.4	750.76	438	1906.76	6552.60
WOX	5.6	1650.21	1005.87	353.39	495.86	1132.74	188.78	482.69	5309.54	952.00	2.8	841.08	579	1793.08	7102.62
SUB-TOTAL (2)	59.9	17651.35	10759.22	3780.01	5303.97	12116.23	2019.28	5162.98	56793.41	11866.00	34.9	9367.00	5997	21233.00	78026.41
TOTALS (1+2)	115.6	34065.00	20764.00	7295.00	10236.00	23383.00	3897.00	9964.00	109604.00	21879.00	67.2	17361.28	10949	39240.28	148844.66

THE ICE CLAIM GROUP
GEOCHEMICAL COST BREAKDOWN

<u>INVOICE #</u> ¹	<u># OF SAMPLES</u>	<u>DESCRIPTION</u>	<u>COST</u> ²
31611	4	Mo, U, F	\$ 38.00
31253	3	Mo, U, F	28.50
32113	3	Th	15.00
31616	31	Cu, Mo, Pb, Zn, Ag, Sn, W, U, Th	404.55
31612	4	U, F, As	37.00
31616	5	Cu, Mo, Pb, Zn, Ag, Sn, W, U	65.25
34007	5	Th	25.00
32701	1	%U ₃₈ ⁰ assay	10.00
		SUB-TOTAL	\$623.30 less 20%
		TOTAL	\$498.64

1 - all invoices from Chemex Labs unless otherwise noted
2 - cost includes preparation of samples