GEOLOGY AND GEOCHEMISTRY

OF THE

GOAT CLAIM GROUP

Claim Sheet 105-B-2E

Lat.: 60°10' N
Long.: 130°40' W

Claims:

GOAT: Claims 1 - 36

WATSON LAKE MINING DISTRICT

YUKON TERRITORY

090 632

by:

Eric James Sacks, M.Sc.

Work Completed: July 11th, 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

$ 720

[illegible] or
Resident Mining Engineer

Considered as representation work under Section 58 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

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SUMMARY

The GOAT Claims are located at approximately 60°10'N, 130°40'W within NTS map sheet 105B/2E, Yukon Territory. The claims were staked by CanadianOxy on June 25th, 1979 to cover a G.S.C. stream sediment anomaly (174 ppm U).

A reconnaissance geology-stream geochemistry-soil geochemistry survey of the GOAT Claims was conducted on July 11th, 1979. The claims are underlain by megacrystic biotite (± muscovite)-quartz monzonite which contacts marble and biotite-feldspar schist and gneiss in the northeast corner of the claim group. The biotite-quartz monzonite is cut by 060T trending shear zones which contain abundant muscovite, hematite and limonite alteration as well as pyrite and carbonate. Up to 62 ppm uranium occurs in one such zone. Unaltered quartz monzonite is low in U (1-3 ppm). In the northwest corner of the claim group, fluorite occurs as a fracture filling in quartz monzonite. Also, one sample of marble from the northeast sector of the claims contains 7800 ppm F.

Stream sediment and heavy mineral samples are anomalous in U everywhere except the southwest corner of the claims, where the quartz-monzonite is least altered and sheared. Anomalous contents of Pb, Zn, Mo, Ag, Sn and W occur in sediments and heavy minerals from the area of the quartz-monzonite-marble contact. Soils contain above normal U (6 - 18.5 ppm) in the north-central part of the claims, where Mo and in places, W are also anomalous.

It appears that enrichment of uranium is associated with the altered shear zones in a high volatile, two mica and two feldspar quartz monzonite. Skarn mineralization containing U, Pb, Zn, Mo, Ag, Sn, W and Au may occur near the marble contact in the

northeast corner of the claims. Although no greisen was found, the further possibility of primary Sn-W mineralization within the quartz monzonite, should not be ignored. The southwest corner of the claim group appears to be of least interest from the standpoint of potential U mineralization.

I. - INTRODUCTION

The GOAT Claims were staked on June 25th, 1979 to cover the headwaters of a 174 ppm U stream sediment anomaly generated by the 1978 G.S.C. Uranium Reconnaissance Program coverage of the Wolf Lake (NTS 105B) map sheet.

On July 11th, 1979 a reconnaissance geology-geochemistry survey was conducted by CanadianOxy personnel. This report will review the results of that survey.

II. - LOCATION AND ACCESS

The GOAT Claims are located approximately 5 mi. (8 km) north of mile 712 (km 1139) of the Alaska Highway, and within NTS map sheet 105B/2E, Watson Lake Mining District, Yukon Territory (Fig. 1). The claim group comprises 36 claims, covering an area of 3 mi^2 (7.5 km^2) (Fig. 2).

The settlement of Rancheria is located approximately 5 mi. (8 k south-southeast of the claims at mile 710 (km 1136) on the Alaska Highway, and contains a motel, restaurant and service station.

Access to the claims is by helicopter from Rancheria or Pine Lake Airstrip, located 10 mi. (16 km) south-southwest of the claims and 1 mi. (1.6 km) north of mile 722.5 (km 1156) on the Alaska Highway. The air strip is a well maintained, gravel,

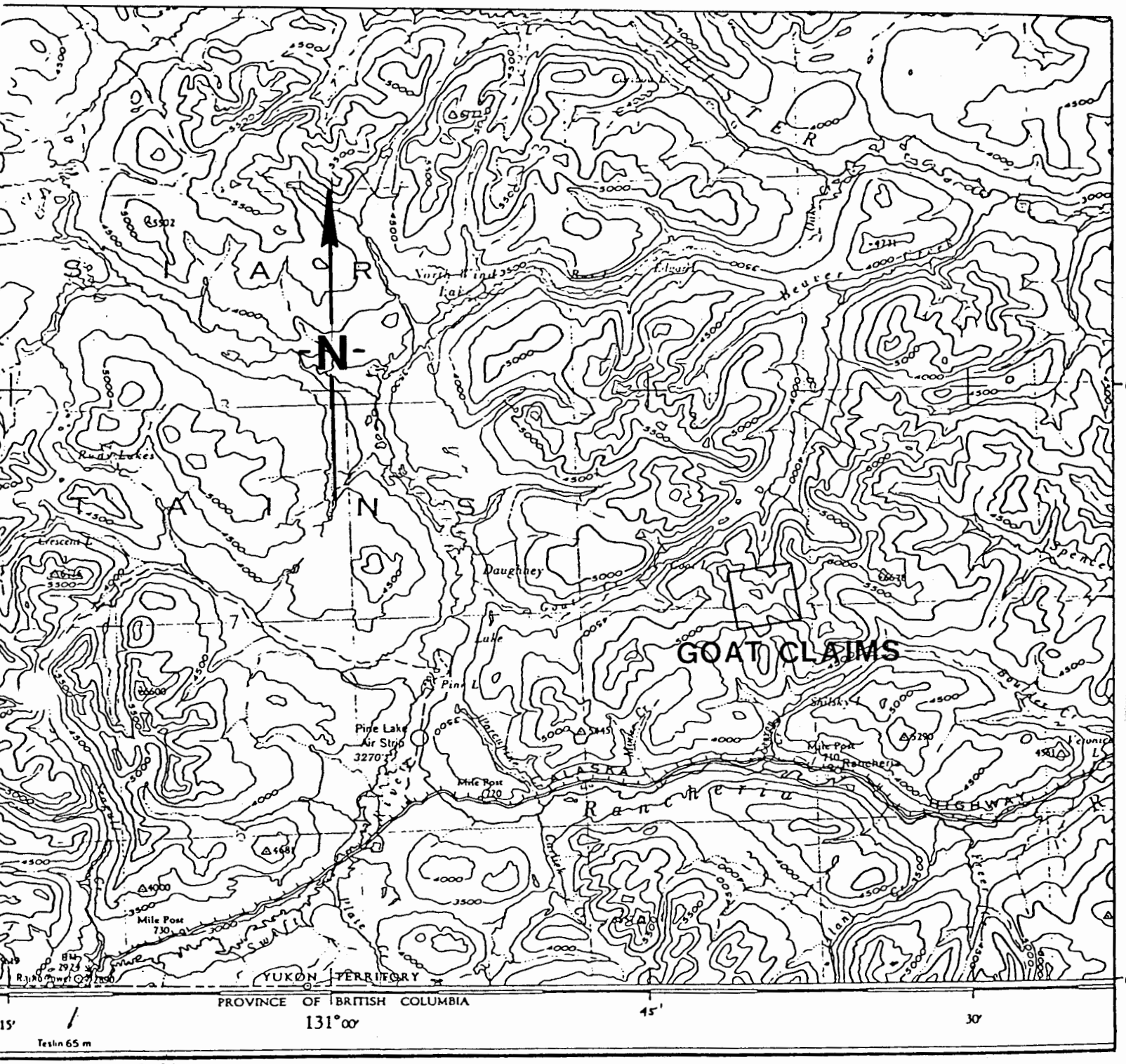


FIGURE 1

LOCATION AND ACCESS OF THE GOAT CLAIMS

Yukon Territory

NTS 105B/2E

Scale: 1:250,000

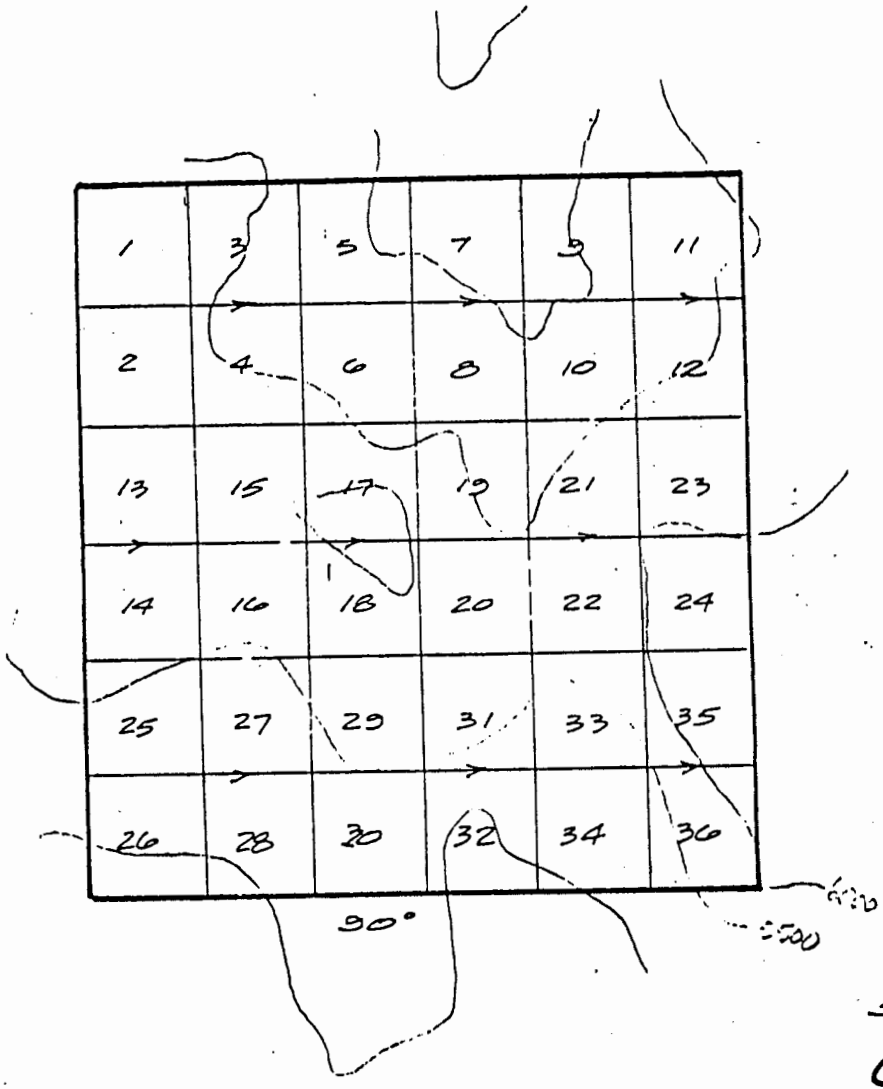


FIGURE 2

Staking Sketch Showing

GOAT 1-36

MINERAL CLAIMS

Watson Lake Mining District

Map Sheet 105 B/2

SCALE 1" 2640'

emergency airstrip, 6000 ft. (1830 m) long. It was built in 1942 by the U.S. Army Corps of Engineers, to service construction of the Alaska Highway. The airstrip is accessible by road and offers several excellent camping spots. No aircraft facilities are available.

A dirt road running north from mile 712.5 (km 1140) on the Alaska Highway, provides access to Shilsky Lake, which is within 2.5 mi. (4 km) of the southern claim boundary (Figure 1).

III. - PHYSIOGRAPHY AND VEGETATION

Relief over the GOAT Claims is 2400 ft. (715 m), between elevations of 4,300 ft. (1310 m) and 6,645 ft. (2,025 m) above sea level.

Over ninety percent of the claim group lies above the treeline. The southern portion of the claim group comprises grassland plateaus and steep, rocky hills bounded by very steep, outcrop-faced north-south trending cliffs which enclose a north-south trending central stream valley. The valley widens in the north part of the claims where it is joined from the east and west by subsidiary streams draining steep, rocky cirques which bound the north sides of the plateaus and hills.

Vegetation comprises tundra flora (grass, Labrador Tea, etc.) on the plateaus, and grass, scrub bushes and sparse, stunted conifer on the valley floors.

The north-south central stream valley reaches a watershed in the southern portion of the claim group. To the north drainage is to Goat Creek,and to the south to Shilsky Lake.

The physiography and vegetation present no serious obstacles

to traversing the claims.

IV. - PREVIOUS WORK

To the author's knowledge, the GOAT Claims have not been prospected in the past. No evidence of previous workings was found.

The Wolf Lake map sheet (NTS 105B) was geologically mapped at a scale of 1" = 4 mi. (1:250,000) by Poole, Roddick and Green (1960), all of the G.S.C., over the period from 1951 to 1959.

In 1978 the G.S.C. conducted a stream sediment and water sampling program as part of the Uranium Reconnaissance Project. This effort covered all of sheets 104O, 104P, 105B and 105F. Data was released on June 15th, 1979 as Open File 563. The GOAT Claims were staked on June 25th, 1979 to cover the headwaters of a stream sediment U anomaly (174 ppm).

V. - WORK COMPLETED 1979

5.1 Staking

The GOAT Claims which consist of a group of 36 claims, were staked on June 25th, 1979 by MBW Surveys, Whitehorse, Y.T., for CanadianOxy.

staked on June 25th, 1979 by MBW Surveys, Whitehorse, Y.T., for CanadianOxy.

5.2 Geological Mapping

R.H. Wallis and E. Sacks of CanadianOxy visited the GOAT Claims on July 7th, 1979 for a brief inspection. On July 11, 197 E.Sacks and J. Hooper conducted reconnaissance mapping and prospecting. In total, 2.5 man days of geological mapping were performed.

5.3 Geochemistry:

A total of 25 rock, 24 soil, 4 heavy mineral, 31 sediment and 28 stream water samples were collected over the claims, and sent to Chemex Laboratories Ltd., Vancouver, for analyses (See Appendix III.). Analytical results are listed in Appendix I and a summary of the work performed is presented in the following table.

5.4 Summary of Work Completed:

Type of Work	Man Days	No. Samples	No. Analyses											
			Cu	Pb	Zn	Mo	Ag	U	Th	Sn	W	F	Au	As
Geology and Rock Geochem	2.5	25	-	-	-	-	-	25	25	-	-	26	-	-
Soil Geochem	1.5	24	24	24	24	24	24	24	24	24	24	-	-	-
Stream Geochem	1.5													
Heavy Min		4	4	4	4	4	4	4	4	4	4	-	4	-
Sediment		31	31	31	31	31	31	31	31	31	31	-	-	-
Water		28	-	-	-	-	-	28	-	-	-	28	-	28
Helicopter (Bell 206-B)		2.3 hrs.												
TOTAL	5.5	112	59	59	59	59	59	112	84	59	59	54	4	28

Total Number of Analyses: 807

5.5 Names and Addresses of Personnel

Dr. R.H. Wallis — Chief Geologist
Canadian Occidental Petroleum
311 - 215 Carlingview Drive
Rexdale, Ontario, M9W 5X8

E. Sacks, M.Sc. — Project Geologist
Same address as above

J. Hooper — Senior Assistant
Same address as above

E. Jermakowicz — Junior Assistant
Same address as above

C. Pelletier — Junior Assistant
Same address as above

B. Zayachivsky — Junior Assistant
Same address as above

Dr. C.F. Gleeson — Consulting Geochemist
C.F. Gleeson and Associates
Ottawa, Ontario

VI.- GEOLOGY

6.1 General Geology

To distinguish plagioclase from potassium feldspar, all granitic rocks were stained with Sodium Cobaltinitrate after being immersed in a solution of hydrofluoric acid. Rock classification was based on nomenclature published by The Colorado School of Mines (Travis 1955).

Poole, Roddick and Green (1960) show that the GOAT Claims are underlain by Jurassic-Cretaceous biotite-quartz-monzonite and granodiorite of the Cassiar Batholith. Mapping by CanadianOxy personnel indicates that the GOAT Claims are underlain by a megacrystic, biotite (± muscovite) quartz monzonite unit with accessory fluorite and magnetite. This unit is locally sheared and brecciated. In the northeast part of the claims, biotite-feldspar schist and gneiss, and tremolitic marble outcrop.

6.2 Table of Formation (PLAN 1)

Unit	Description
2	Biotite (± muscovite) - quartz monzonite; local muscovite pegmatite and biotite-muscovite aplite; locally sheared and brecciated.
1	Biotite-quartz-feldspar schist and gneiss, banded tremolitic marble, hornfels.

6.3 Description of Rock Units

6.3.1 Unit 1 - Biotite-quartz feldspar schist and gneiss, banded tremolitic marble.

This unit comprises biotite-quartz-feldspar gneiss and schist, and banded marbles in which layers of carbonate alternate with layers of fine-grained tremolite. Since all samples of this unit were from scree, the interrelations of these rock-types are unknown.

This unit is cut by biotite-quartz-feldspar veins (sample JH-GOAT-1a). In one sample (JH-GOAT-6) the plane of foliation is oblique to the plane of mineral layering, indicating the possibility of 2 phases of deformation. Tight Z-folding of mineral layers was also noted on one sample (JH-GOAT-1b). The marbles contain traces of cubic pyrite with limonite staining, and one sample (JH-GOAT-4) contains 0.78% F (7800 ppm), however, no visible fluorite was noted, although the marble had a greenish cast.

6.3.2 Unit 2 - Biotite (± muscovite) - quartz monzonite; muscovite pegmatite, biotite-muscovite aplite.

This unit underlies eighty percent of the claim group and comprises a medium to coarse-grained, white to slightly pinkish, massive biotite (± muscovite) quartz monzonite with "megacrysts" (porphyroblasts) of euhedral, perthitic potassium feldspar up to

3 cm (1.2 in.) in size. Locally, fine-grained phases are present. Biotite generally dominates muscovite except where the unit is altered in shear zones. The unaltered rock contains plagioclase (20-30%), K-feldspar (35-50%), quartz (10-30%), biotite (2-10%), muscovite (1-2%) and trace magnetite. The unit is characterized by a scintillometer response of 280-320 cps (Urtec TCl).

In shear zones, the quartz monzonite is brecciated and lineated. The groundmass often shows a greater degree of brecciation than the megacrysts, which retain their euhedral shape though they may be cut by fine, parallel fractures and aligned parallel to the shearing. Within the shears, the rock becomes crumbly, due to a combination of brecciation and introduction of abundant limonite and carbonate coating grain boundaries. Pyrite may develop at fracture intersections (ES-GOAT-5). Carbonate stringers are abundant. No increase in radioactivity within the shears was noted.

Muscovite-pegmatite veins, up to 4 inches wide, are composed of large, euhedral orthoclase or perthite crystals, up to 5 cm (2 in.) in size, with interstitial books of muscovite up to 3 cm (1.2 in.) and anhedral quartz. In most places the veins parallel the shears and are often enclosed within the shear zones. Fractures are generally clean, however, massive purple fluorite was noted in one sample as a fracture coating (ES-GOAT-9b).

6.4 Structure

Numerous 060T striking shear zones within the quartz monzonite unit are present. These shear zones measure up to 10 ft. (3 m) in width and 100 ft. (30 m) in length. They comprise highly

brecciated and limonitic material, and they weather to form notches in the ridge crests and sides. Frequently, narrow muscovite pegmatite veins occur in the shear zones.

Fractures are resolved into sets at 060T/90°, 010T to 020T/30°W to 40°E, and 150T to 170T/20° to 40°W. Fractures are generally clean, but may be filled by pegmatite veins or fluorite (ES-GOAT-9b). Within the 060T shears fracture surfaces are often coated with hematite (ES-GOAT-7b).

6.5 Metamorphism

The entire GOAT Claim group has been subjected to varying degrees of metamorphism. The biotite feldspar schist and gneiss, and possibly the marble as well, have been subjected to development of mineral foliation and mineral segregation. Whether this is a regional metamorphic effect or a contact metamorphic effect due to intrusion of the quartz monzonite unit or a combination of the two, is presently unknown.

Porphyroblast development within the quartz monzonite, indicates that a metamorphic event either post dated or accompanied the intrusion of the quartz monzonite.

6.6 Alteration

Significant alteration appears to be confined to the shear zones. Several samples, eg. ES-GOAT-3, 4b contain abundant muscovite and some chlorite, both of which appear to be secondary. In ES-GOAT-4b, broken megacrysts of K-feldspar are contained within a matrix of felted muscovite grains. In most places, the shear zones (060T) are limonitized and carbonated. Outside the shear zones, the rock is fresh except for local, slight limonite alteration of biotite and limonite coatings around pyrite in the marble unit.

6.7 Economic Geology

1. Fluorite is present as coating on fractures within the quartz monzonite unit (ES-GOAT-9b).

2. Massive pyrite occurs at the intersection of fractures within 060T trending shear zones in quartz monzonite. (ES-GOAT-5)

3. Cubic pyrite occurs as traces in marble from the northeast corner of the claim group (JH-GOAT-4,5).

4. The biotite-quartz monzonite appears to be primarily a one mica granite with muscovite either a trace constituent or abundant as a secondary alteration product within shear zones. Anomalous amounts of U are present in the following four samples: 12.5 ppm U in muscovite pegmatite (ES-GOAT-4a); 62 ppm U in a brecciated, altered biotite granite (ES-GOAT-7b) in a shear zone; 15 ppm U in a massive biotite-quartz monzonite (GOAT-2); 7 ppm U in a sample of biotite-quartz monzonite, which also contains massive fluorite (ES-GOAT-9b). The presence of fluorite, muscovite, chlorite and carbonate in the quartz monzonite suggests deuteric alteration and it is possible that U may occur as veins within the quartz monzonite.

5. The presence of marble containing pyrite in the northeast corner of the claims, suggests the possibility for skarn-type mineralization in this area.

VII. - GEOCHEMISTRY

Possibly and probably anomalous levels for each element in each media were determined from cumulative frequency curves

constructed with data from Project WATSU regional follow-up data. In the case of soil data, the combined data from all claim groups examined was used. These levels are listed in Table 1.

Laboratory and sampling procedures are listed in Appendix III.

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 2)

25 rock samples were collected and analysed for U, F, and Th, results are listed in Appendix II and illustrated on PLAN 2.

1. ES-GOAT-7b - 62 ppm U and 830 ppm F occur within an latered, muscovite-rich, biotite granite. U/Th ratio is 2.1, the second highest on the claim group.

2. ES-GOAT-4a - 12.5 ppm U and 305 ppm F occur within a muscovite pegmatite from a shear zone.

3. ES-GOAT-9b - 7 ppm U and 365 ppm F occur within biotite quartz monzonite which also contains abundant purple fluorite.

4. ES-GOAT-4b - 1140 ppm F and 2 ppm U occur in a muscovite-breccia from a shear zone.

5. JH-GOAT-4 - 0.78% (7800 ppm) F occurs in a banded tremolitic marble.

6. Significant amounts of U occur within muscovite pegmatite (12.5 ppm) and altered monzonite from shear zones (7-62 ppm Unaltered biotite quartz monzonite contains from 1 to 3.5 ppm U.

7. All rocks contain significant amounts of F; up to 1140 ppm in quartz monzonite and up to 7800 ppm in marble.

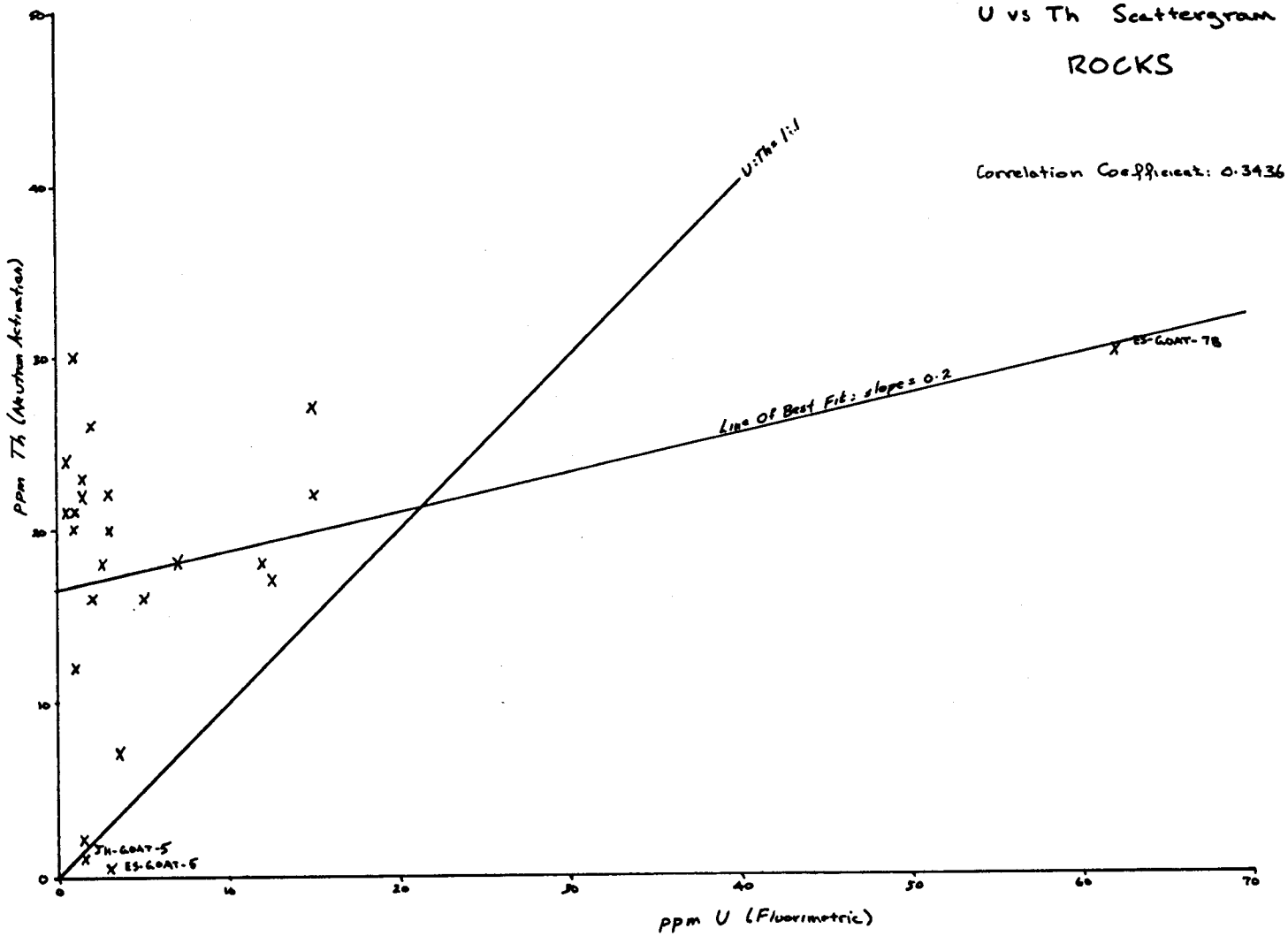
8. U/Th ratios are generally less than 0.5 (Fig. 3), with two noteable exceptions. A pegmatite (ES-GOAT-5) has a U/Th

FIGURE 3

GOAT Claims

U vs Th Scattergram

ROCKS



ratio of 3.0 with U content of 3 ppm; the 62 ppm U sample from an altered shear zone has a U/Th of 2.1 (ES-GOAT-7b). The pegmatite with 12.5 ppm U (ES-GOAT-4a) has a U/Th of 0.73, which is anomalous. This indicates the introduction of U into altered shear zones, while the quartz monzonite unit is not in itself enriched in U. Figure 3 illustrates the distribution of U versus Th in rocks, and shows that there is poor correlation between the two.

7.2 Stream Geochemistry - Heavy Minerals (Plan 3,4,5)

Heavy mineral samples were panned from 4 of the 5 streams draining the GOAT Claims.

1. Uranium ranges from 430 to 1000 ppm, while Th ranges from 360 to 830 ppm. In all cases U/Th ratios are greater than unity. The two highest values (1000 ppm U) come from streams draining the central part of the claims.

2. Anomalous amounts of Mo (12-48 ppm), Pb (304-515 ppm), and Ag (0.6 - 1.2 ppm) occur in streams draining the northern parts of the claims. Only one of the 4 heavy mineral samples taken had sufficient material for a Au analysis. It proved to be above normal with 280 ppb Au.

7.3 Stream Geochemistry - Sediments (Plan 3, 6, 7, 8)

Stream sediment samples were collected at 500 ft. (150 m) intervals from all major streams and their tributaries.

1. U contents are anomalous over most of the claim group. Sediments from the northeast corner contain the highest amounts of U (15 to 400 ppm), while those from the south-central area contain 11 to 216 ppm U. Sediments from the northwest corner contain 30 to 92 ppm U and the sample from the southwest corner

corner of the area is low in U (3.5 ppm). Th ranges from 24 to 57 ppm and in all anomalous samples U/Th ratios are greater than unity (Figure 5).

2. One sample from the southern portion of the claims contains 25 ppm Mo. Stream sediment samples from the rest of the claims have 1 to 7 ppm Mo in them.

3. Two samples from the stream draining the quartz monzonite-marble contact the east-central part of the area contain anomalous amounts of Pb (114, 200 ppm) and Zn (310, 410 ppm).

4. Downstream from the above samples, there are 3 W values ranging from 12 to 50 ppm.

In summary, significant anomalies in U are present in sediments from streams draining muscovite bearing quartz monzonite in the north and south-central parts of the claims, Mo is high also at the latter location. In the northeast part of the claims, anomalous W, Pb and Zn values occur in stream sediments draining a monzonite-marble contact.

7.4 Stream Geochemistry - Waters (Plan 3,9)

Water samples were taken at each stream sediment site. They were analysed in the laboratory for U, F and As, and for pH and specific conductivity in the field.

1. Values ranging from 0.6 to 1.8 ppb U occur in waters from the north-central and northwest parts of the claims. All these values fall into the possible anomalous range (Figure 6).

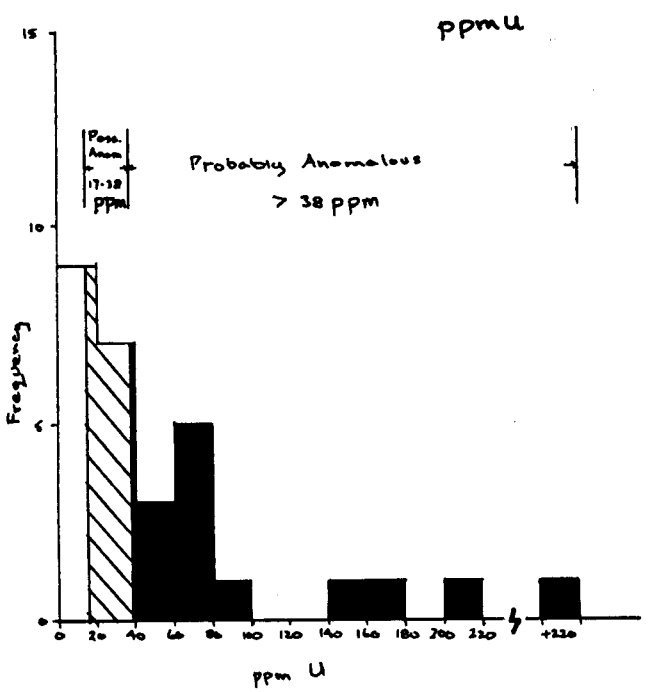
2. pHs in streams draining quartz monzonite are lower (6.9 to 7.3) than pHs in waters draining the schist and marble (7.8 to 8.3).

3. Specific conductivities are low (6 - 62 u mhos) as are F (10-40 ppb) and As (0.2 ppb) values.

FIGURE 4

GOAT Claims

Distribution of U and Th In Stream Sediments



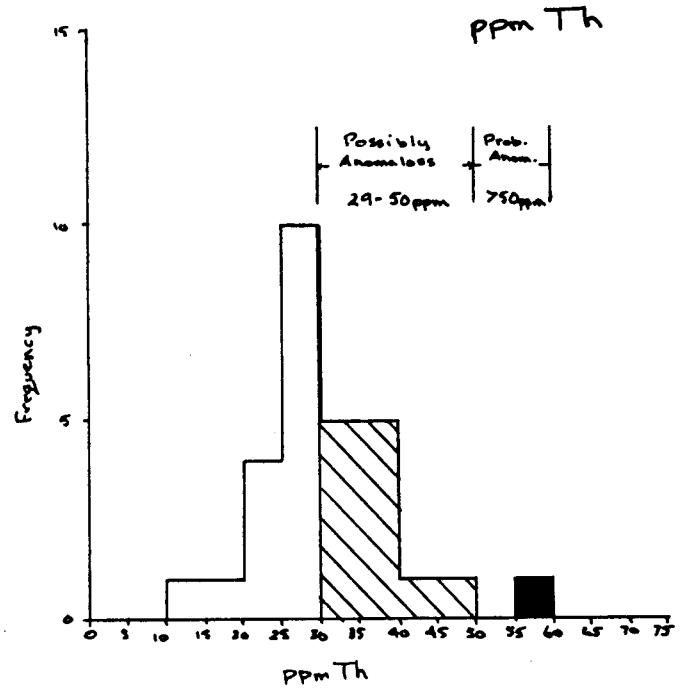


FIGURE 5

GOAT Claims

U vs Th Scattergram

STREAM SEDIMENTS

CORRELATION COEFFICIENT = -0.4175

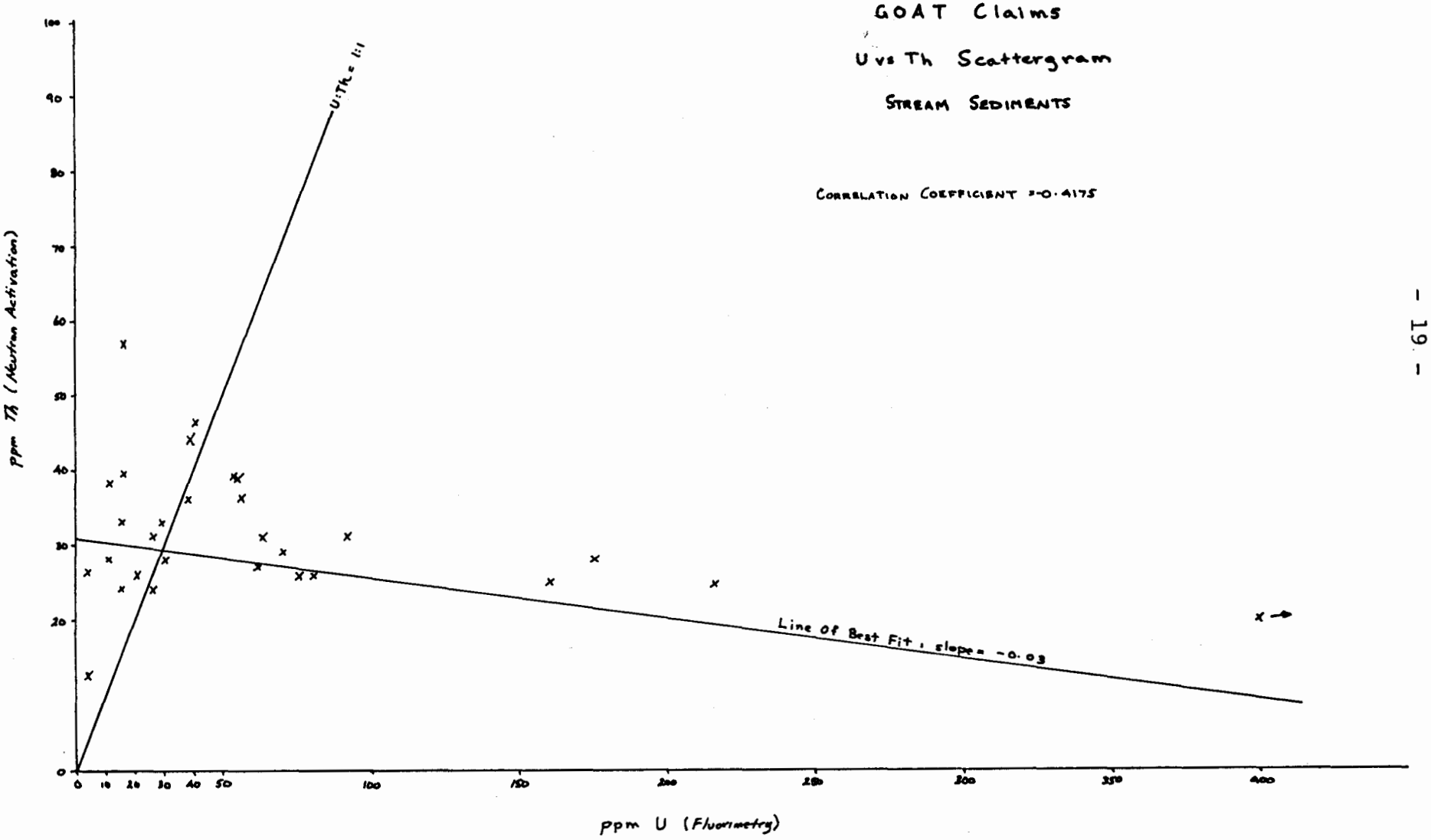
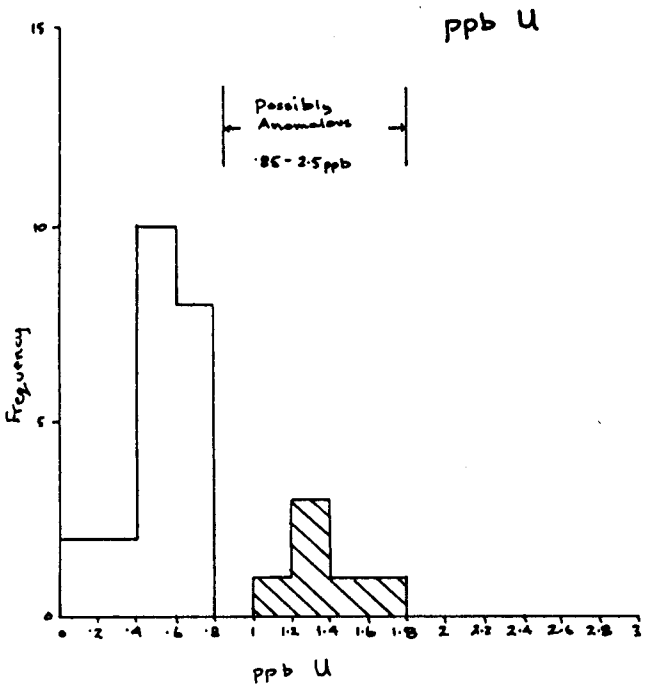


FIGURE 6

GOAT Claims

Distribution of U and Specific Conductivity In Stream Waters



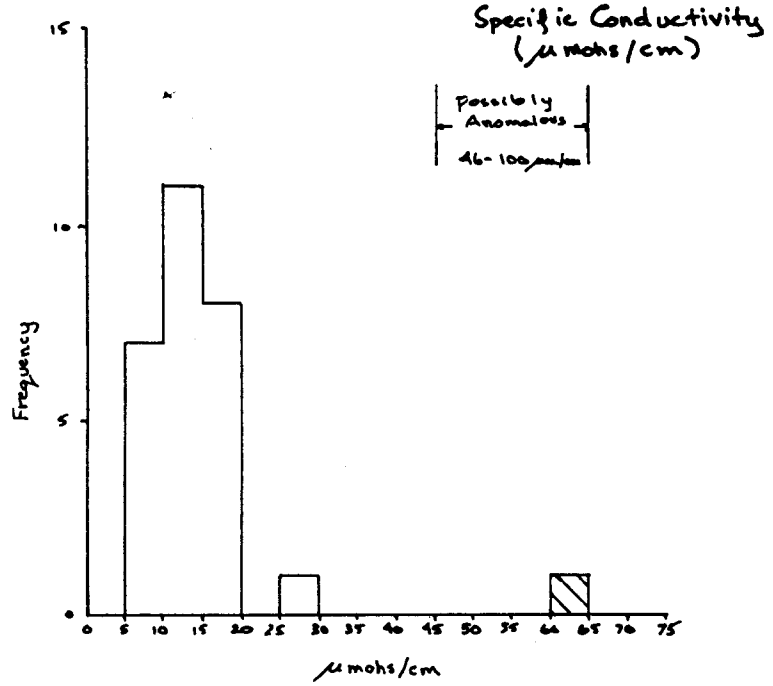
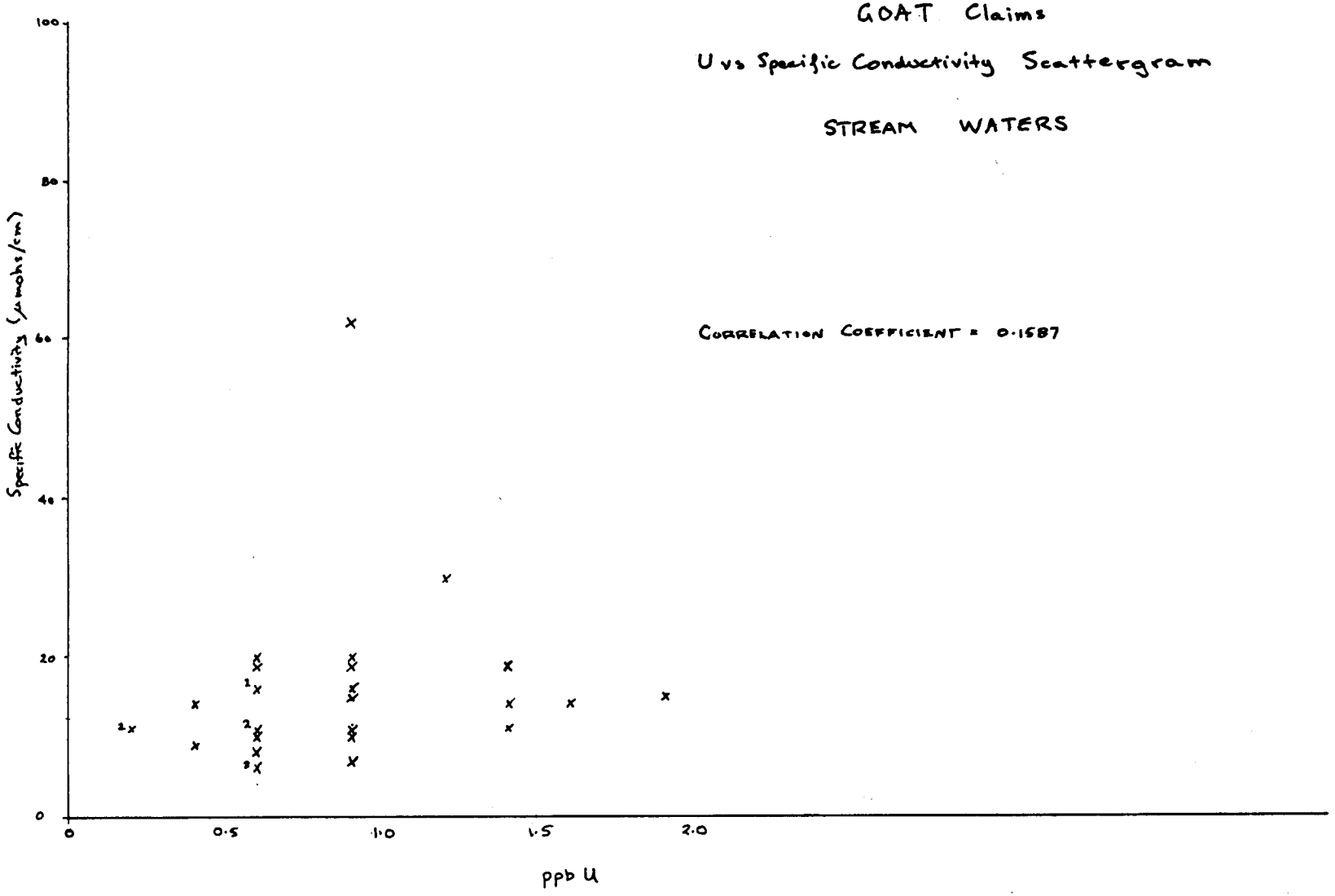


FIGURE 7

GOAT Claims

U vs Specific Conductivity Scattergram

STREAM WATERS



CORRELATION COEFFICIENT = 0.1587

4. There is no significant correlation between U in water and specific conductivity (Figure 7).

7.5 Soil Geochemistry (Plan 10, 11, 12, 13)

Soil Samples from talus fines were collected at 500 ft. intervals along several traverses parallel to the streams.

The highest U in soil values (6 - 18.5 ppm) are located in the north-central part of the claims. Coincident high values in Mo (5 - 9 ppm) and W (2 - 11 ppm) also occur in this area. Here and there, above normal Zn (120, 140 ppm) and Pb (40, 58 ppm) values are present. These anomalies define the source area for the stream sediment anomalies on the north half of the claims. High U values in the rocks also occur within the U soil anomaly.

In general Sn is low in the soils, the highest value is 7 ppm in the southwest corner of the claims, and another of 3 ppm occurs in the east-central portion of the property.

Histogram for U and Th in the soils from the GOAT Claims, are presented in Figure 8 and Figure 9 shows that in all cases, U/Th ratios are less than unity. However, the ratio would probably approach unity or greater if total U was analysed for.

VIII. CONCLUSIONS (PLAN 14)

1. The GOAT Claims are underlain by Jurassic-Cretaceous megacrystic biotite (± muscovite) quartz monzonite in contact with marble and biotite-quartz-feldspar schist and gneiss, in the northeast corner of the claim group.

2. Fresh biotite-quartz monzonite contains 1 to 3 ppm U, with very low U/Th ratios (0.02 to 0.3). Significant U in rocks is associated with altered shear zones within the intrusive, which

contain abundant muscovite, limonite, hematite, pyrite, carbonate and coarse muscovite-pegmatites. One quartz monzonite sample from a shear zone contains 62 ppm U with a U/Th ratio of 2.1.

3. Heavy mineral and stream sediments from the SE, NE, and NW parts of the claim group, contain significant amounts of U and correlate with areas of sheared quartz monzonite. In the NE corner, U could be associated with skarn development along the quartz-monzonite-marble contact as anomalous contents of Mo, Pb, An, Ag, and Au, accompanying the anomalies. In the SW corner, there is little geochemical response over an area of predominantly unaltered biotite quartz monzonite.

4. Anomalous amounts of W occur in stream sediments from the NE corner, and may be related to possible skarn development.

5. All rock samples contained significant amounts of F. In one case, visible fluorite as a fracture filling was seen in otherwise fresh quartz monzonite.

6. One sample of marble contains 0.78% F ; high contents of Mo, Pb, Zn, Ag, Au, Sn and W occur in sediments and heavy minerals from this area.

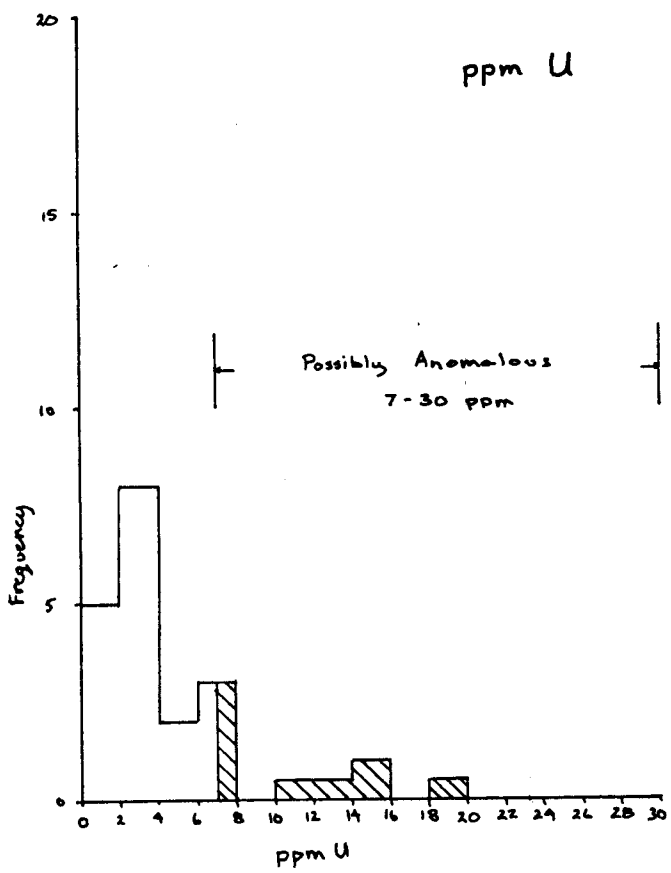
7. Potential economic U mineralization is likely to be associated with altered shear zones in the quartz monzonite. An intergranitic vein type model is suggested. Rock geochemistry suggests these shear zones to be the source for anomalous U content in stream sediments - waters, heavy minerals and soils.

8. Potential U, Sn, W, Pb, Zn, Ag and Mo mineralization could occur as skarn type mineralization in the northeast corner of the claim group.

FIGURE 8

GOAT Claims

Distribution of U and Th in Soils



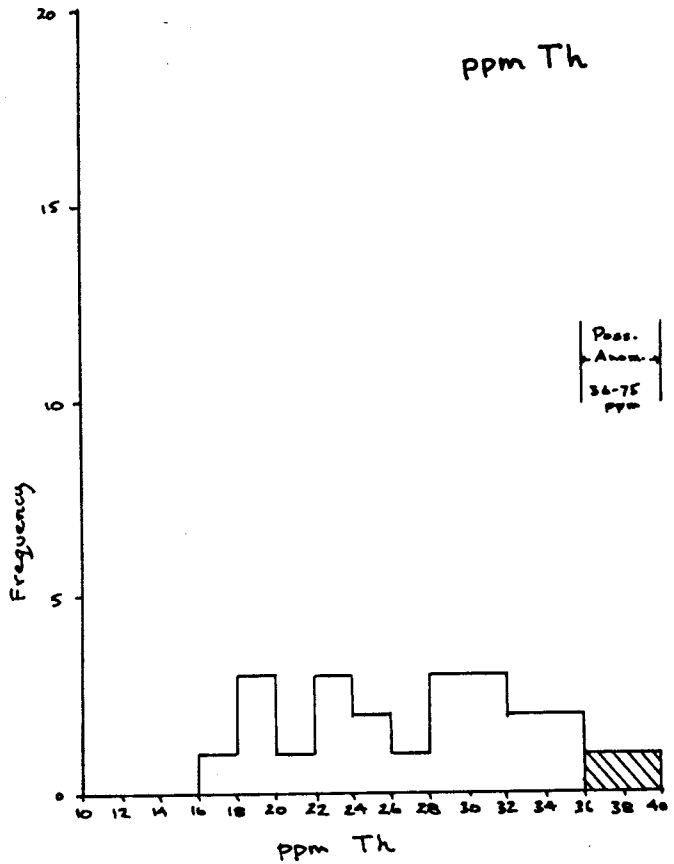
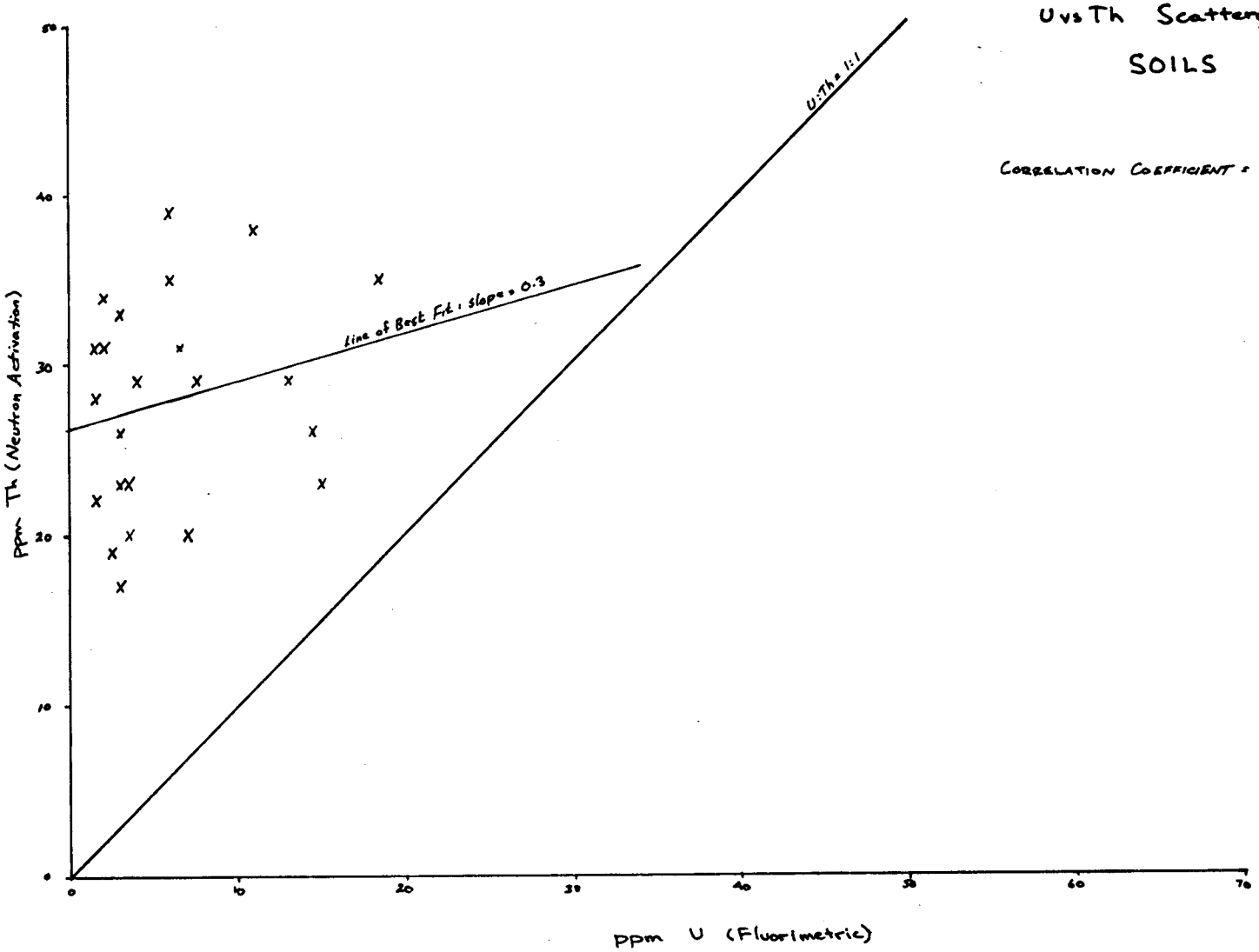


FIGURE 9

GOAT Claims

U vs Th Scattergram

SOILS



CORRELATION COEFFICIENT = 0.2284

9. Stream sediment, heavy mineral and water geochemistry appear to be effective in delineating potential mineralization on the GOAT Claims. Reconnaissance soil geochemistry appears to be effective in outlining general source areas for the metals. However, prospecting and rock geochemistry was the most effective tool in outlining potentially economic areas within the claim group.

IX. RECOMMENDATIONS

1. The entire claim group should be geologically mapped and prospected with a scintillometer, at a scale of 1" = 400'.
2. Systematic soil and rock geochemistry, and radiometric surveys should accompany the mapping.
3. Prior to field work, air photographs should be studied for evidence of lineaments (possible shear zones) and contacts. Stereoscopic pairs should be used.
4. 1" = 400' air photo bases should be used for all future work.
5. The northeast corner of the claim group should be thoroughly examined for any evidence of skarn mineralization and the quartz monzonite-marble-gneiss relationship established.
6. Since the presently available topographic maps are not totally accurate, some tributary streams were not sampled. Once air photos are available, all such streams should be sampled for heavy minerals, sediments and waters, and analysed for the appropriate metals.
7. Rock samples on hand should be analysed geochemically for base metals, Ag, Mo, W, Sn and Au.

Respectfully submitted,

Eric James Sacks

Eric James Sacks, M.Sc.

Toronto, November, 1979.

APPENDIX I

ANALYTICAL RESULTS - GOAT CLAIMS -

ROCK, SOIL, SEDIMENTS, WATERS, HEAVY MINERALS

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 48503 A

INVOICE NO. 31253

RECEIVED July 12/79

ANALYSED July 23/79

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
Ste. 311 - 215 Carlingview Dr.
Rexdale, Ont. M9W 5X8

ATTN: PROJECT: Watsu-Goat-Rock ROCKS CC: E. Sacks

SAMPLE NO. :	PPM F	PPM U
Goat-1	275	12.0
Goat-2	225	15.0
Goat-3	190	5.0

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Fiddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
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TO: Canadian Occidental Petroleum Ltd.
Minerals Division
Ste. 311 - 215 Carlingview Dr.
RExdale, Ont. M9W 5X8
ATTN: PROJECT: Watson-Goat-Rock

ROCKS
CC: E. Sacks

SAMPLE NO. :	PPM Th (NA)
GOAT-1	18
2	27
GOAT-3	16

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Bickle

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 48617

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division
311 - 215 Carlingview Dr,
ATTN: Rexdale, Ont.,
M9W 5X8

INVOICE NO. 31614 32113-Th

RECEIVED July 16, 1979

PROJECT WATSU
ROCKS
c.c. Penticton

ANALYSED Aug. 3/79

SAMPLE NO. :	PPM U	PPM F	PPM Th (N.A.)
JH - GOAT - 1A	3.0	780	20
1B	1.0	720	21
2	2.0	285	16
3	2.0	580	26
4	1.0	>4000	12
5	1.5	270	1
6	1.0	490	30
7	1.5	510	23
8	0.5	440	24
JH - GOAT - 9	1.0	390	20
ES - GOAT - 1	3.0	540	22
2	0.5	450	21
3	1.5	570	2
4A	12.5	305	17
4B	2.0	1140	16
5	3.0	490	<1
6	3.5	205	7
7A	15.0	360	22
7B	62	830	30
8	2.5	290	18
9A	1.5	280	22
ES - GOAT - 9B	7.0	365	18

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

CHEMEX LABS LTD.

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

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CERTIFICATE OF ASSAY

CERTIFICATE NO. 66171

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

ATTN: E. Sacks

INVOICE NO. 33600

RECEIVED Sept. 5/79

ANALYSED Nov. 2/79

SAMPLE NO. :	% F
ES TOOZ 7B	0.74
JH GOAT 4	0.78

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
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CERTIFICATE NO. 48683

INVOICE NO. 31990

RECEIVED Th-32448 July 17, 1979

ANALYSED Aug. 19/79

TO: Canadian Occidental Petroleum Ltd.,
Minerals Divison
311 - 215 Carlingview Dr.,
Rexdale, Ont.
M9W 5X8

CC: E. Sacks
c.c. Penticton

ATTN:

WATSU-GOAT-HEAVY MINERALS

SAMPLE NO. :	PPM U	PPM Th	Total	-10 Frac.	-10 Mag Hm	-10 Non Mag	(WEIGHT IN GRAMS)
79 WT 0724	>1000	830	224	216	2.15	2.26	
0731	>1000	480	617	518	3.89	3.35	
0434	30	360	134	119	8.97	2.80	
0435	6.0	56	117	108	7.46	5.62	
0442	795	650	302	266	3.06	2.02	
79 WT 926	430	360	355	338	2.41	1.96	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

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

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CERTIFICATE NO. 48683

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division
311 - 215 Carlingview Dr.,
Rexdale, Ont.
M9W 5X8

INVOICE NO.

RECEIVED July 17, 1979

ANALYSED

ATTN: c.c. Penticton

WATSU-GOAT-HEAVY MINERALS

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPB Au	PPM W	PPM Sn
79 WT 0724	28	1	165	110	0.8	NSS	5	48
0731	28	12	304	164	1.2	280	2	42
0434	12	6	28	48	0.4	<10	40	4
0435	12	3	20	38	0.4	<10	20	13
0442	28	48	515	195	0.8	NSS	1	50
79 WT 926	40	5	140	220	0.6	NSS	1	20

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biesle

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 48585

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

INVOICE NO. 31310 32113-Th

RECEIVED July 16/79

ANALYSED July 23/79

ATTN: WATSU - GOAT - STREAM SED.

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPM Sn	PPM W	PPM U	PPM Th (N.A.)
79 WT 0433	6	1	46	94	0.4	1	1	30	28
0434	16	1	8	42	0.2	1	2	2.0	22
0435	54	2	350	890	1.8	8	120	1.0	14
0436	10	1	42	112	0.1	1	2	20.0	26
0437	6	1	36	88	0.2	1	1	38	26
0438	6	7	20	50	0.1	1	3	16.0	39
0439	6	2	34	104	0.1	1	1	56	36
0440	6	1	32	106	0.2	1	1	24.5	31
0441	4	2	14	24	0.1	1	1	15.0	24
0442	4	2	28	100	0.2	1	1	28	33
0721	14	25	36	102	0.6	1	1	216	25
0722	10	6	22	86	0.2	1	1	76	26
0723	8	7	16	54	0.1	1	1	26	24
0724	6	1	14	42	0.2	1	1	11.0	28
0725	12	4	28	106	0.1	1	4	15.0	33
0726	10	1	22	76	0.2	1	2	12.0	38
0727	10	2	22	82	0.2	1	1	>400	20
0728	8	3	20	80	0.1	1	2	80	26
0729	10	4	22	90	0.1	1	1	175	28
0730	10	3	22	110	0.1	1	1	160	25
0731	8	2	18	76	0.1	1	1	92	31
0920	30	4	200	410	0.2	1	3	68	29
0921	26	3	114	310	0.1	1	1	62	27
0922	12	2	40	122	0.1	1	1	15.5	57
0923	12	1	36	132	0.1	1	50	40	46
79 WT 0933	6	1	10	48	0.1	4	1	3.5	26

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

CHEMEX LABS LTD.

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

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CERTIFICATE OF ASSAY

CERTIFICATE NO. 67011

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

INVOICE NO. 34078

RECEIVED Nov. 19/79

ANALYSED Nov. 29/79

ATTN: WATSU GOAT STREAM SED.

SAMPLE NO. :	% U308	From Geo. #48585
79 WT 727	0.062	

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49049
INVOICE NO. 31613
RECEIVED July 25/79
ANALYSED Aug. 6/79

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

ATTN: WATSU-GOAT-WATER CC. E. Sacks

SAMPLE NO. :	PPB U	PPB F	PPB As
79 WT 0433	1.4	35	<2
0436	0.6	30	<2
0437	0.8	45	<2
0438	0.6	10	<2
0439	0.6	40	<2
0440	0.8	40	<2
0441	0.8	10	<2
0442	0.6	30	<2
0721	0.6	10	2
0722	0.8	10	<2
0723	0.6	10	<2
0724	0.6	10	<2
0725	0.8	10	<2
0726	0.6	10	<2
0727	1.8	20	<2
0728	1.4	10	<2
0729	1.6	20	<2
0730	1.4	20	<2
0731	0.8	20	<2
0920	0.8	10	<2
0921	0.8	10	<2
0922	1.2	10	<2
0923	0.6	10	<2
0924	0.6	10	<2
0925	0.2	20	<2
0926	0.4	20	<2
0927	0.2	10	<2
79 WT0933	0.4	10	2

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 48578

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
STe. 311 - 215 Carlingview Dr., CC. E.Sacks
Rexdale, Ont.

INVOICE NO. 31310

RECEIVED July 15/79

ANALYSED July 23/79

ATTN: WATSU-GOAT-SOIL

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	PPM Sn	PPM W	PPM U	PPM Th
79 WT 0443	2	1	16	42	0.1	1	1	6.5	
0444	2	1	12	46	0.1	1	2	3.5	
0445	2	1	28	74	0.1	1	1	4.0	
0446	4	2	58	120	0.1	1	1	14.5	
0447	10	1	34	94	0.1	1	1	15.0	
0448	12	4	26	118	0.1	1	2	13.0	
0449	2	7	24	90	0.2	1	11	7.5	
0450	8	2	28	140	0.1	1	2	6.0	
0451	8	6	22	74	0.1	1	3	6.0	
0452	6	9	24	72	0.1	1	3	11.0	
0732	6	3	14	66	0.1	1	2	3.0	
0733	4	3	10	38	0.2	1	1	3.5	
0734	12	5	40	98	0.1	1	5	18.5	
0735	6	1	12	48	0.1	3	1	3.0	
0736	6	1	14	52	0.1	1	1	3.0	
0737	54	3	370	970	2.0	6	70	7.0	
0738	4	1	12	34	0.1	1	1	3.0	
0739	4	2	16	54	0.2	1	1	2.0	
0740	4	1	18	36	0.2	1	1	1.5	
0928	6	2	12	56	0.1	1	1	2.5	
0929	10	2	12	62	0.1	1	1	1.5	
0930	8	4	14	46	0.1	1	1	7.0	
0931	4	1	10	56	0.1	1	1	2.0	
79 WT 0932	6	2	10	42	0.1	7	1	1.5	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
ES-GOAT-1	Biotite quartz monzonite	30	30	20	5	-	tr.Mt	c. gr. mega-crystic with euhedral Kspar grains up to 2 cm.	540	3	22	0.14
-2	Biotite muscovite quartz monzonite	20	40	30	5	2-3	-	c. gr. mega-crystic with euhedral Kspar Megacrysts to 1 cm. - ms in groundmass.	450	0.5	21	0.02
-3	Muscovite biotite quartz monzonite	30	30	20	<1	10	Mt:1-2%	fine to med. gr. massive with euhedral Ksp to 2 cm, massive magnetite to 5 mm - possibly brecci-ated - muscovite secondary?	570	1.5	2	0.75
-4a	Muscovite pegmatite	-	50	30	tr.	20	tr.lt	Very c. gr, Kfsp-qtz-ms pegmatite - euhedral Kfsp up to 5 cm (cryst-alline).	305	12.5	17	0.73

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
ES-GOAT-4b	Muscovite chlorite breccia	10	10	<2	5	70	Chl 1-2; tr. lt	Breccia-Kfsp megacrysts with Carlsbad Twinning in ms-chl matrix - megacrysts seem unbroken as a whole, but cut by numerous parallel fine fractures - bulk of ms appears to be secondary.	1140	2	16	0.13
-5	Muscovite pegmatite	-	50	30	tr	20	tr. lt,	c. grained pegmatite.	490	3	<1	>3.0
-6	Muscovite biotite quartz monzonite to granite	20	60	20	tr	1-2	tr. lt, ht.	c. gr., brecciated, cut by numerous fine, parallel fractures.	205	3.5	7	0.5
-7a	Biotite quartz monzonite	15	40	20	5	tr.	tr. mt.	c. grained megacrysts of ksp up to 2 cm; slightly brecciated.	360	15	22	0.68

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
ES-GOAT-7b	Altered muscovite biotite granite	10	60	15	1-2	5-10	tr. ht, lt.	Kfsp megacrysts in a fine gr. ms-bi-plag-qtz groundmass; brecciated; lt, ht grain coatings; massive ht on fracture surfaces.	830	62	30	2.1
-8	Biotite quartz monzonite	25	50	20	5	tr.	tr. mt.	c. grained megacrystic; Ksp. megacrysts aligned.	290	2.5	18	0.14
-9a	Biotite quartz monzonite or aplite	20	40	25	5	tr.	-	f. grained, massive, aplitic.	280	1.5	22	0.07
-9b	Biotite quartz monzonite	15	40	20	<2	tr.	up to 5% fluorite	f. grained, megacrystic, Ksp megacrysts up to 1 cm; abundant massive purple fluorite in fracture plane.	365	7	18	0.39

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
JH-GOAT-1a	Biotite-quartz feldspar schist					tr.		f. grained; cut by Ksp-qtz vein.	780	3	20	0.15
1b	Biotite-feldspar gneiss						tr. lt. stain	contorted with close Z folding; good mineral segregation.	720	1	21	0.05
2	Biotite-muscovite quartz monzonite	20	40	20	1-2	1-2	tr. mt.	f. grained, massive; slight foliation.	285	2	16	0.13
3	Foliated biotite quartz monzonite	30	25	30	5	-	tr. mt.	med. grained with megacrysts Kfsp up to 1 cm. slightly broken and aligned; foliated.	580	2	26	0.08
4	Banded tremolitic marble						tr. py, lt.	alternating bands of greenish marble with trace cubic pyrite and bands of massive, fine grained tremolite with lt. stain; contorted. - No visible flourite.	0.78% (7800)	1	12	0.08

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
JH-GOAT-5	Banded impure marble						tr. py.	fine grained, massive	270	1.5	1	1.5
-6	Muscovite-biotite quartz feldspar gneiss							fine grained; alt. layers bi and qtz-fsp, tr. lt; foliation of micas oblique to mineral layering.	490	1	30	0.03
-7	Biotite quartz monzonite	25	30	30	5	-	-	c. grained, megacrysts of ksp up to 3 cm.	510	1.5	23	0.07
-8	Biotite quartz monzonite	25	30	30	5	-	-	c. grained, megacrysts ksp up to 3 cm.	440	0.5	24	0.02
-9	Biotite quartz monzonite	25	30	30	5	tr.	-	fine to medium grained, Ksp megacrysts up to 2 cm.	390	1	20	0.05

APPENDIX II - GOAT CLAIMS - ROCK DESCRIPTIONS, U, Th and F CONTENTS, U/Th RATIOS

ROCK NO.	NAME	% COMPOSITION						DESCRIPTION	ppm F	ppm U	ppm Th	U/Th
		Plag	Ksp	Qtz	Bi	Ms	Other					
GOAT - 1	Biotite quartz monzonite	20	40	25	<5	tr.	tr. mt.	fine grained, massive.	275	12	18	0.67
GOAT - 2	Biotite quartz monzonite	20	40	25	<5	tr.	tr. mt.	as GOAT - 1	225	15	27	0.56
GOAT - 3	Biotite quartz monzonite	25	50	20	5	tr.	-	c. grained, megacrysts euhedral Kspar.	190	5	16	0.31

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. $\geq$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°c 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 ($HClO_4$-HNO_3) 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.

Element	Bkgd. Corr.	Flame Type	Wave Length hm	Detection Limit	Chemex Standard	± 1 Std. Deviation
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 anaylsed 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^{o}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 X 10^{10} to $10^{15}/cm^2$.

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, $HClO_4$-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 $Na2CO_3$-K_2CO_3-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 $NaCO_3$-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, AsH_3.

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 Conducitvity (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 - REFERENCES

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

2. Travis, R.B., (1955): Classification of Rocks; Quaterly of the Colorado School of Mines, Vol. 50 No. 1.

3. G.S.C. open file 563.

APPENDIX V

Comments of R.H. Wallis - Examination of GOAT Claims

GOAT CLAIMS 105 B 2E½ July 7, 1979

Commodity (U) RHW and E.S.

Mixture of subdued topography and broken cliffs, all claims above treeline. No need for cut lines, can soil sample and scint. on bearings on blow-up 1:50,000 and airphotographs.

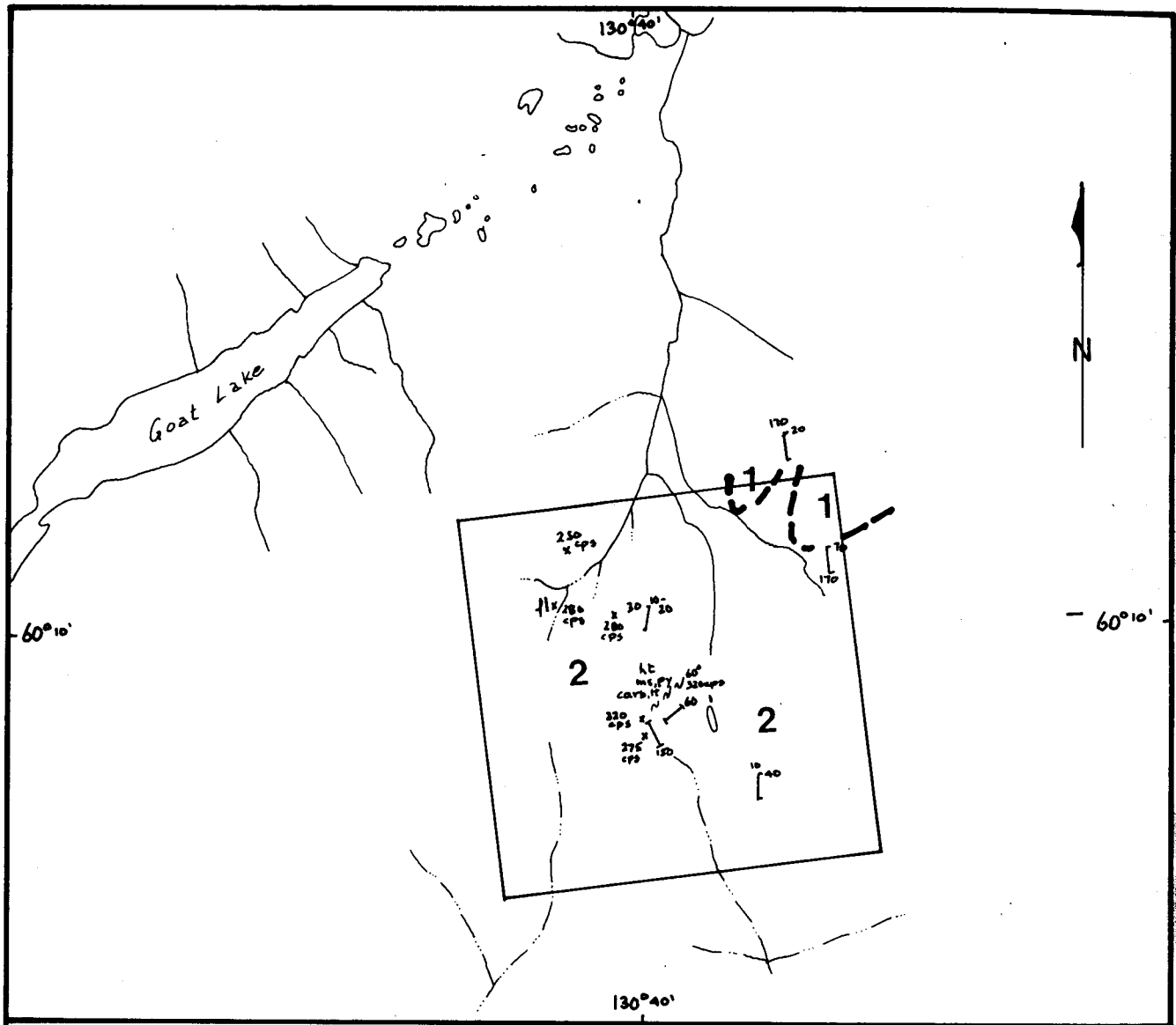
Rocktypes

1) Coarse-grained biotite quartz monzonite and large to very large (2-3 ins) perthite megacrysts.
2) with smaller units of ?dykes-veins of medium to fine-grained quartz monzonite without megacrysts, these zones are limonitic ±epid obvious shears and closely spaced joints and make low ground.

The original G.S.C. geochem samples (2) lie on striking N-S valley which cuts right through claim group.

Obviously the low ground is the important area in follow-up.

Road to radiotelegraph is only ½ mile south of claim group - so would be accessible to drill.



LEGEND

1 Bi - Qtz - Fsp schist, banded diopsidic marble, hornfels

2 Massive to megacrystic Bi(Ms) Qtz monzonite, local pegmatite, Bi-Ms aplite

Geological Contact (assumed)

Fracture (vertical, inclined)

Fault, shear zone (assumed)

ms muscovite
py pyrite
carb carbonate
lt limonite
fl fluorite

Note: all scintillometer readings with Urtec UG-130 on TC1

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU

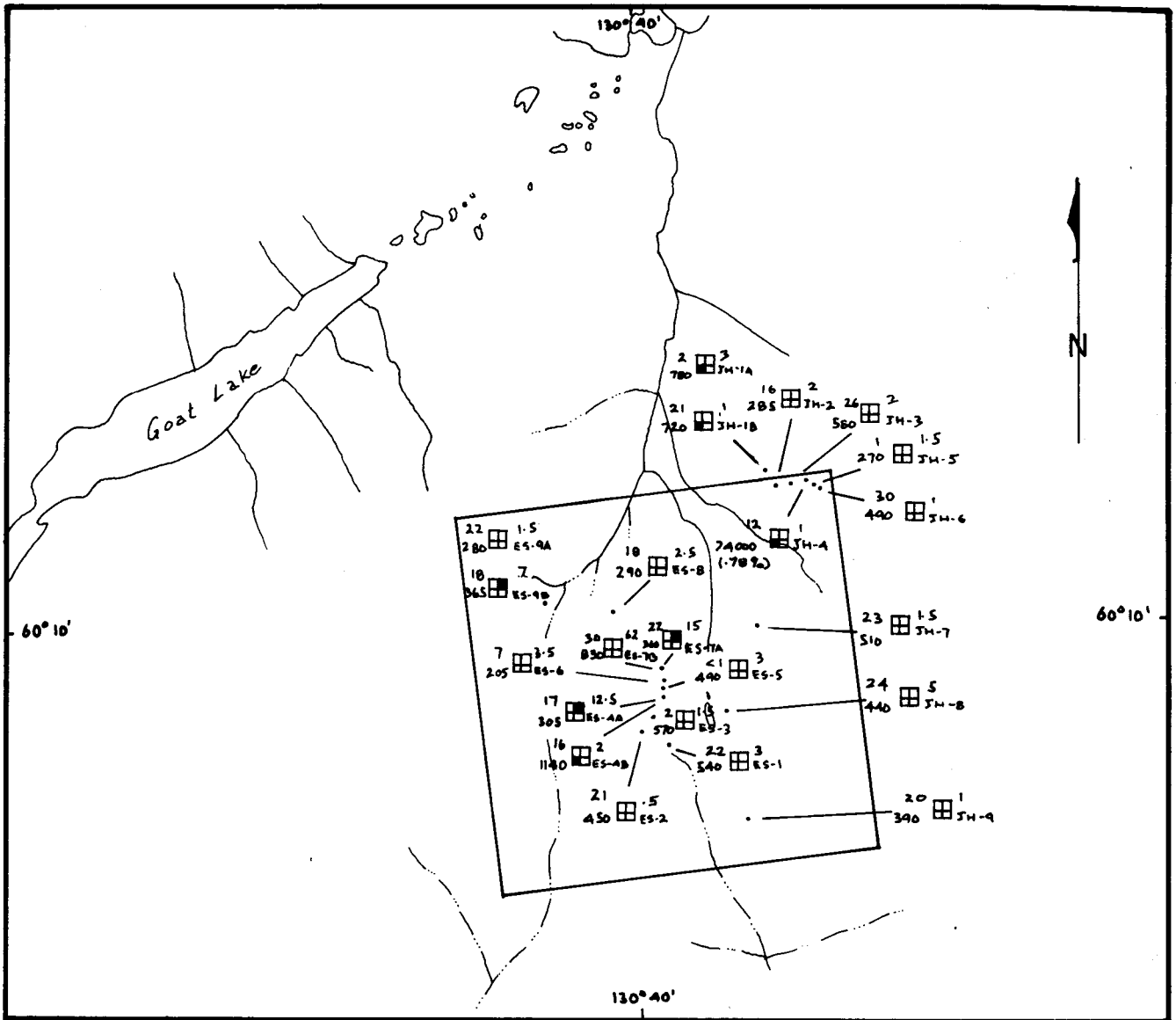
GOAT CLAIMS
YUKON TERRITORY

GEOLOGY

Scale: 1: 50,000

PLAN 1

September, 1979



LEGEND

ppm Th (N.A) ppm U (Fluor.)
ppm F Sample No.

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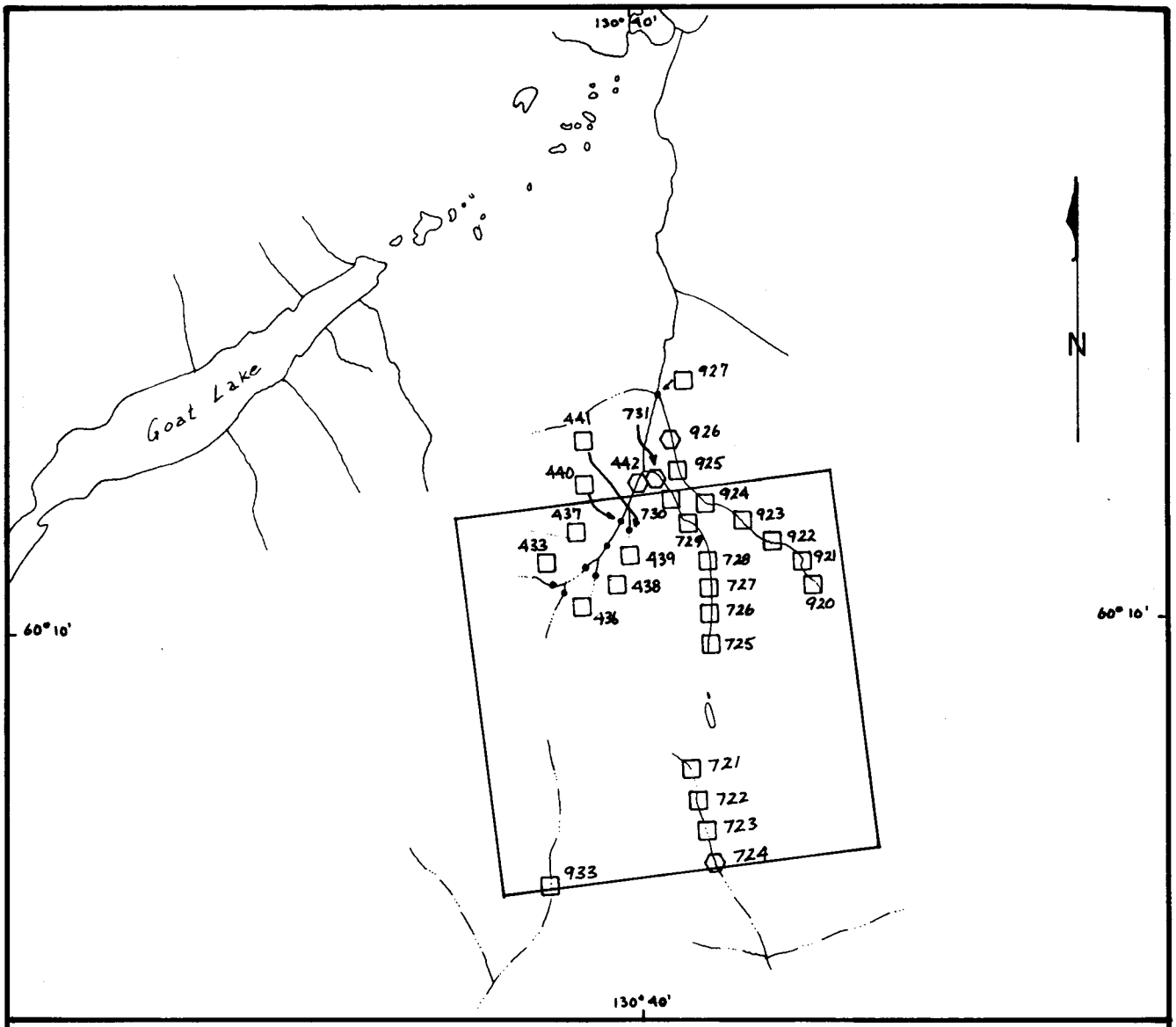
GOAT CLAIMS

YUKON TERRITORY

ROCK GEOCHEMISTRY

Scale: 1:50,000 PLAN 2 September, 1979



HEAVY & SEDIMENT & WATER

SEDIMENT & WATER

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

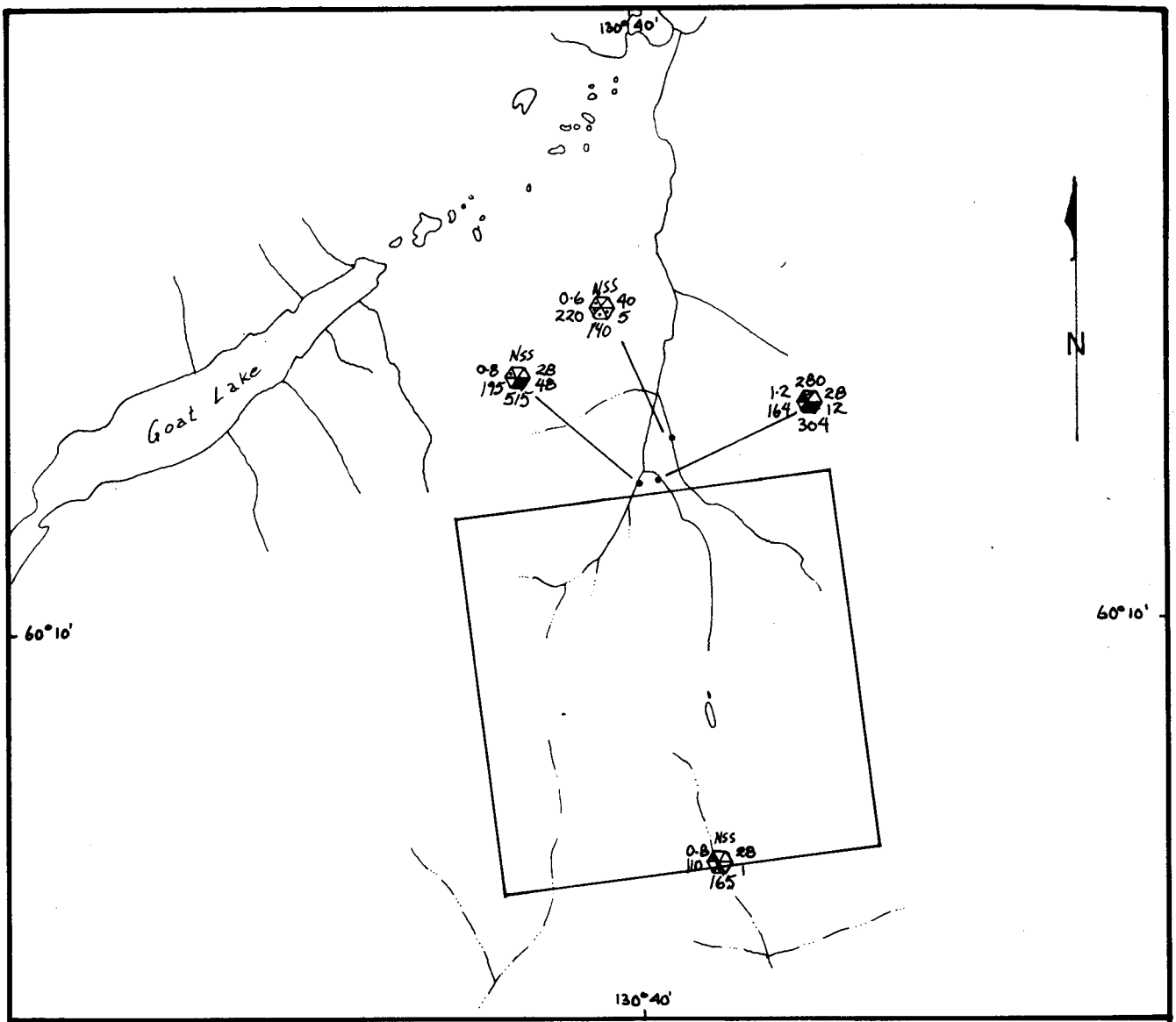
PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

STREAM SAMPLE LOCATIONS

Scale: 1:50,000 PLAN 3 September, 1979



LEGEND

ppb Au
ppm Ag ppm Cu
ppm Zn ppm Mo
ppm Pb

	Au	Cu	Mo	Pb	Zn	Ag
Prob. Anomalous	3150	165	8·5	280	440	1
Poss. Anomalous	19	63	3·5	89	200	.4

NSS = Not Sufficient Sample

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PROJECT WATSU

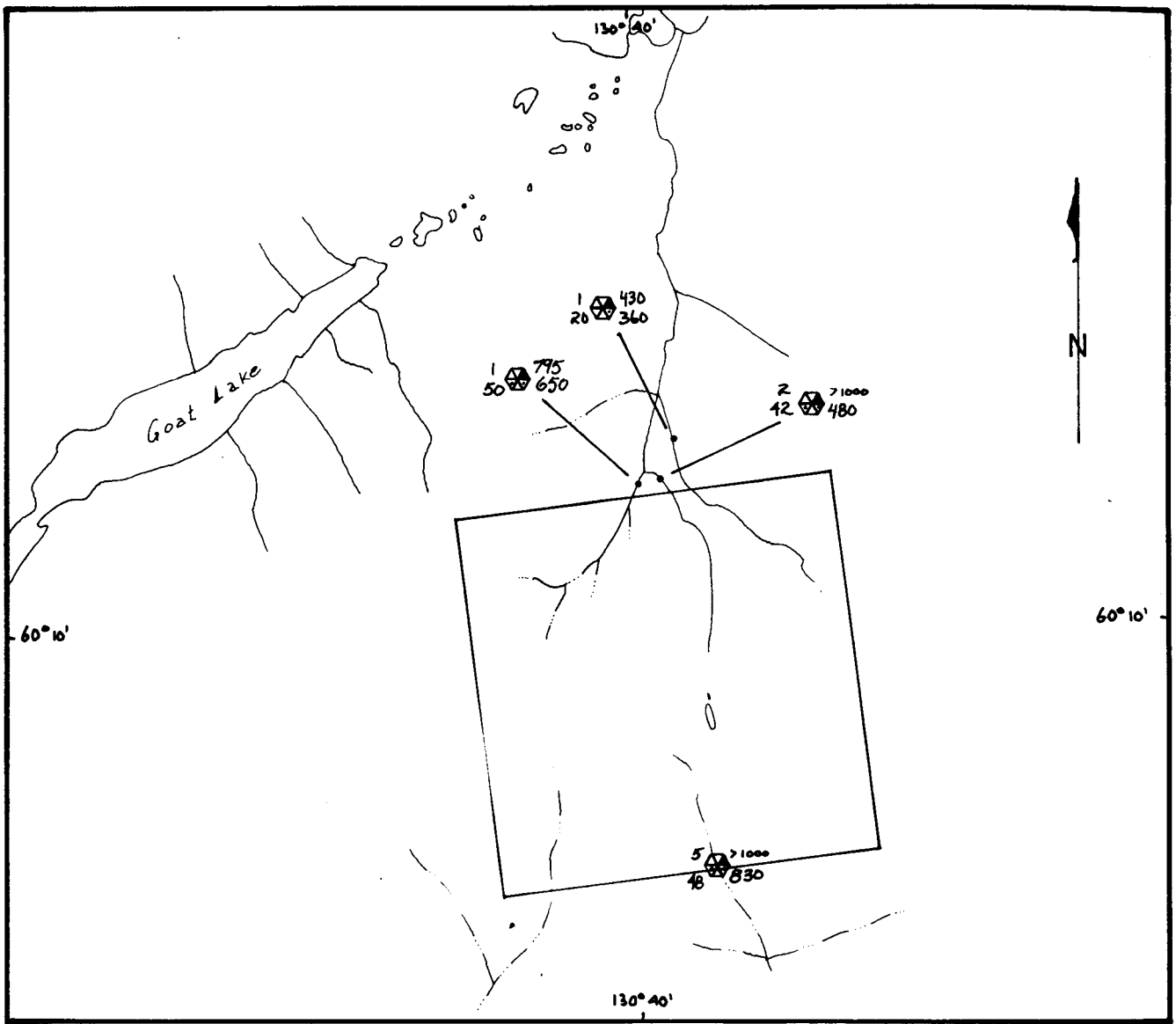
GOAT CLAIMS

YUKON TERRITORY

HEAVY MINERAL GEOCHEMISTRY

Cu - Mo - Pb - Zn - Ag - Au

Scale 1:50,000 PLAN 4 September, 1979



LEGEND

ppm W / ppm Sn — ppm U / ppm Th

	U	Th	Sn	W
Prob. Anomalous	120	1200	300	160
Poss. Anomalous	26	330	38	60

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PROJECT WATSU

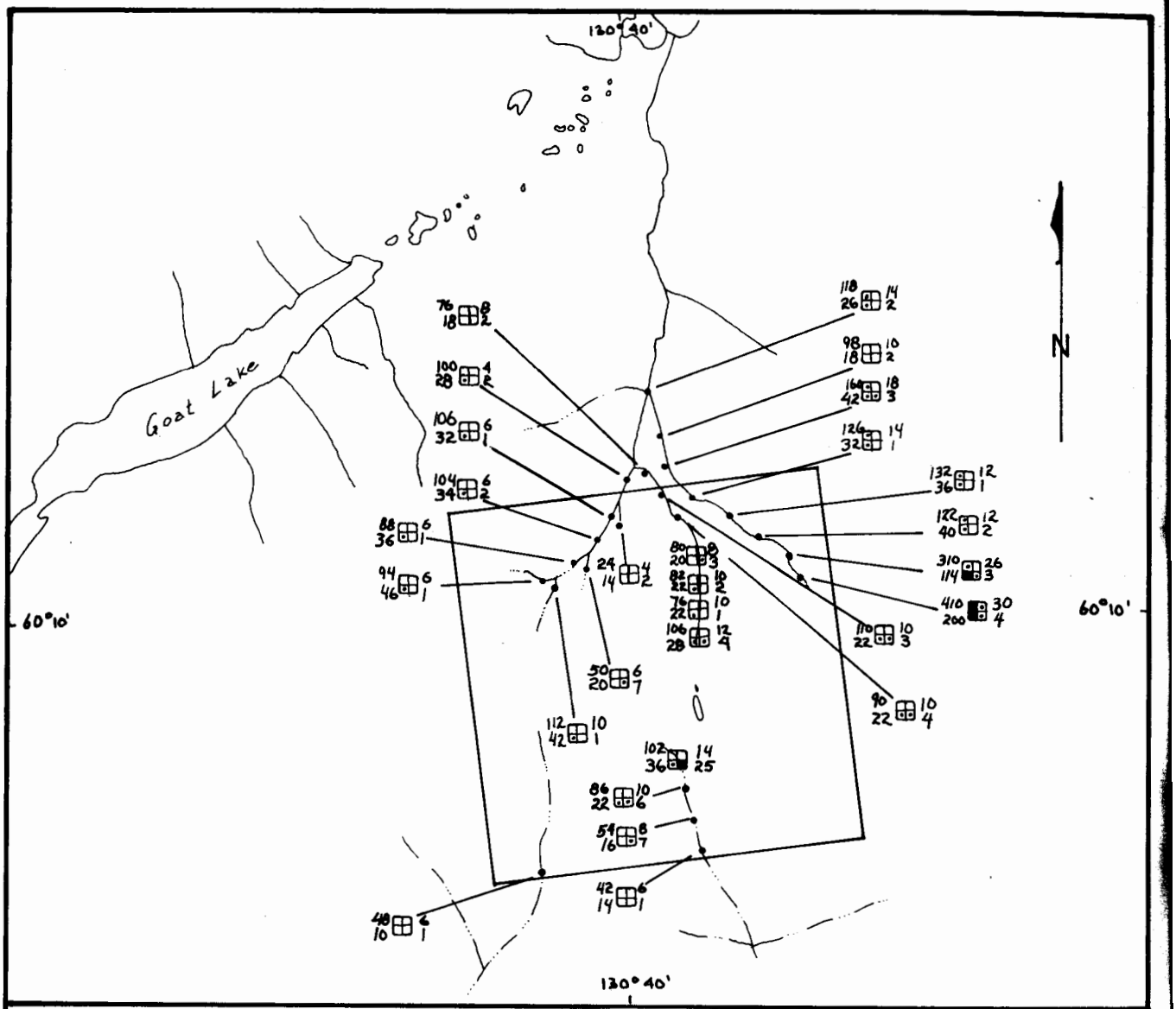
GOAT CLAIMS

YUKON TERRITORY

HEAVY MINERAL GEOCHEMISTRY

Th - U - Sn - W

Scale 1:50,000 PLAN 5 September, 1979



LEGEND

ppm Zn / ppm Pb ⊞ ppm Cu / ppm Mo

	Cu	Mo	Pb	Zn
Prob. Anomalous	54	11	59	320
Poss. Anomalous	28	3	21	115

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

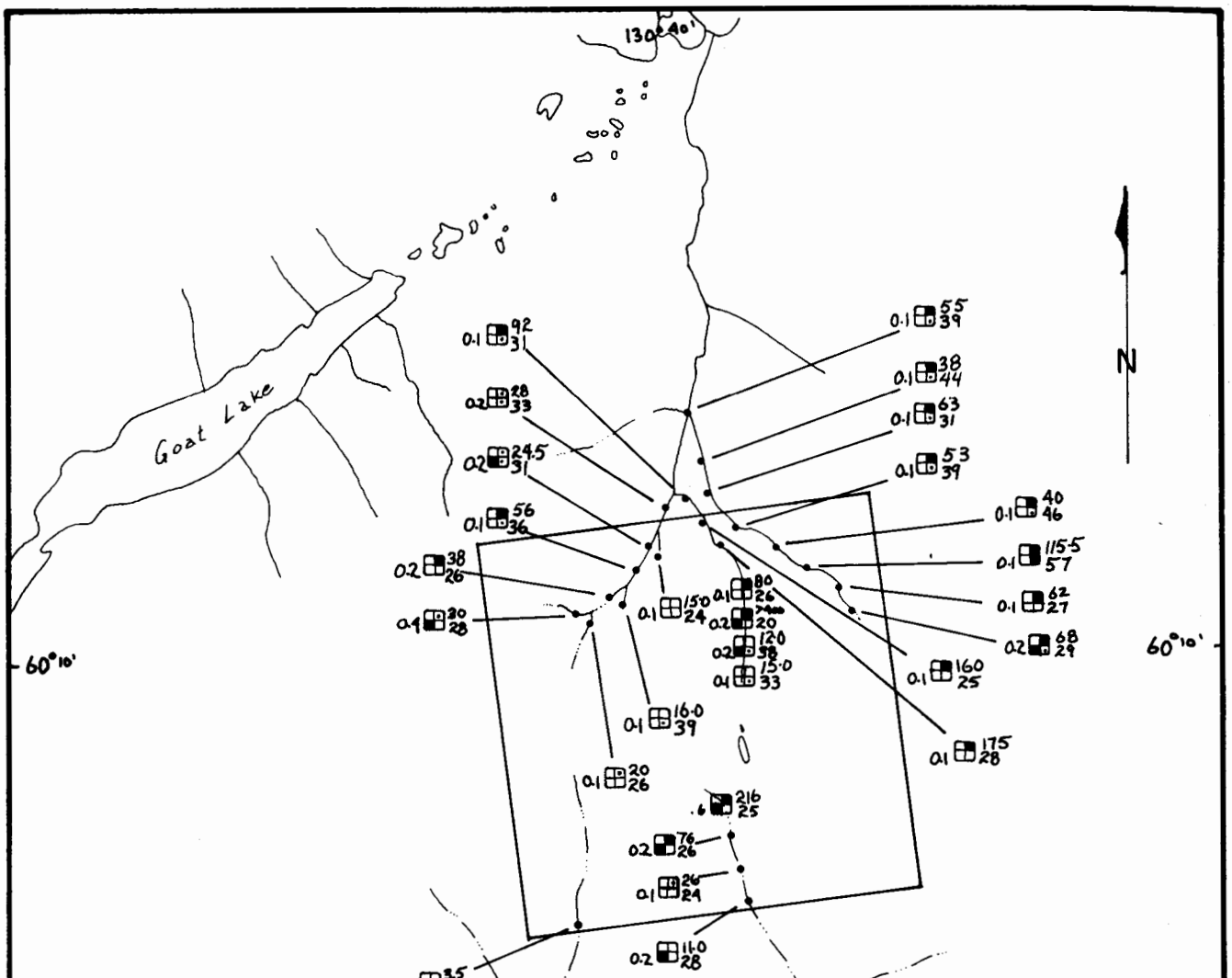
STREAM SEDIMENT GEOCHEMISTRY

Cu - Mo - Pb - Zn

PLAN 6

Scale 1:50,000

September, 1979



LEGEND

ppmAg ppmU / ppmTh

	U	Th	Ag
Prob. Anomalous	38	50	>1
Poss. Anomalous	17	29	–

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PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

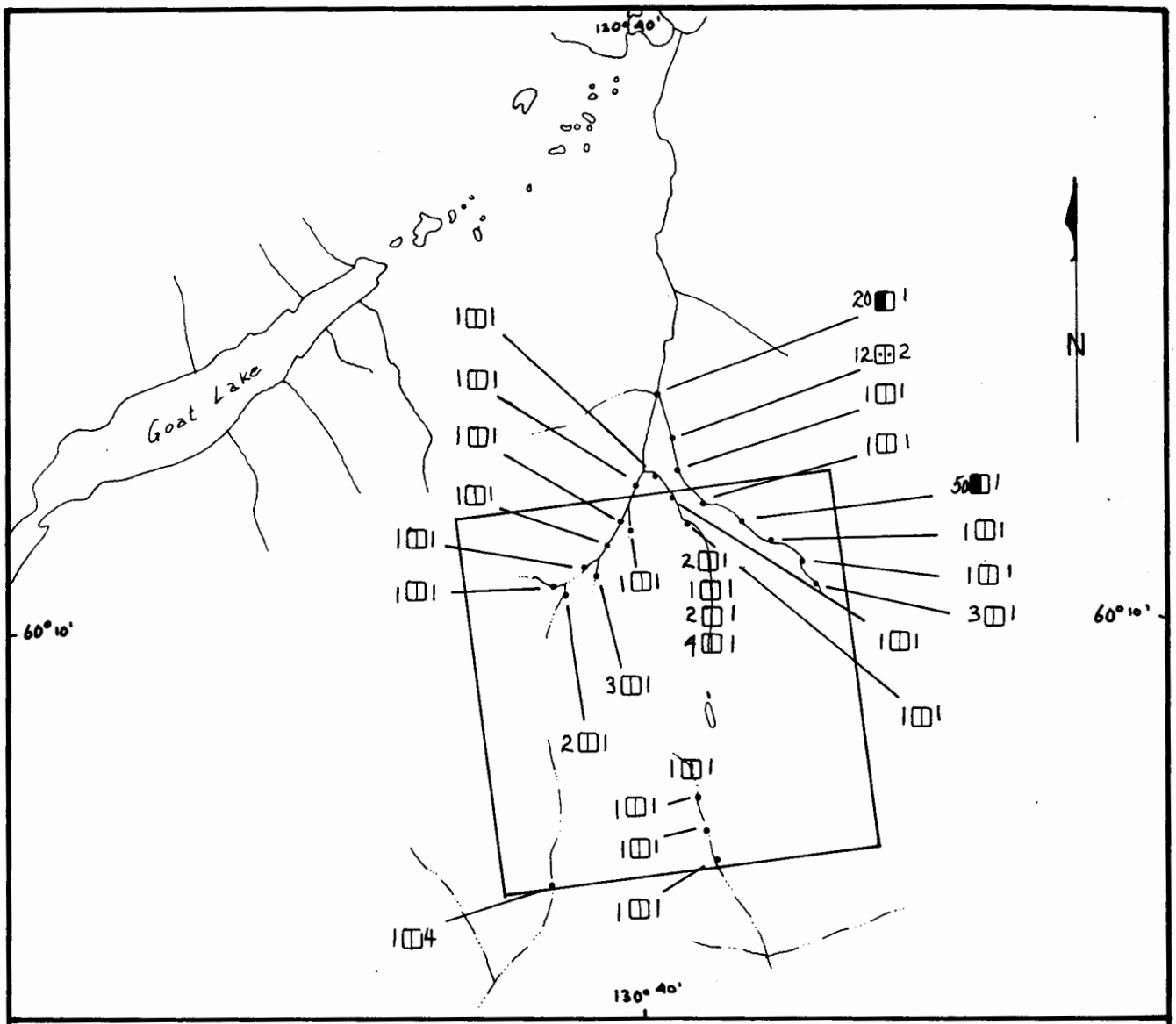
STREAM SEDIMENT GEOCHEMISTRY

U-Th-Ag

Scale 1:50,000

PLAN 7

September, 1979



LEGEND

ppm W ppm Sn

	W	Sn
Prob. Anomalous	16	5
Poss. Anomalous	5-2	2

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PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

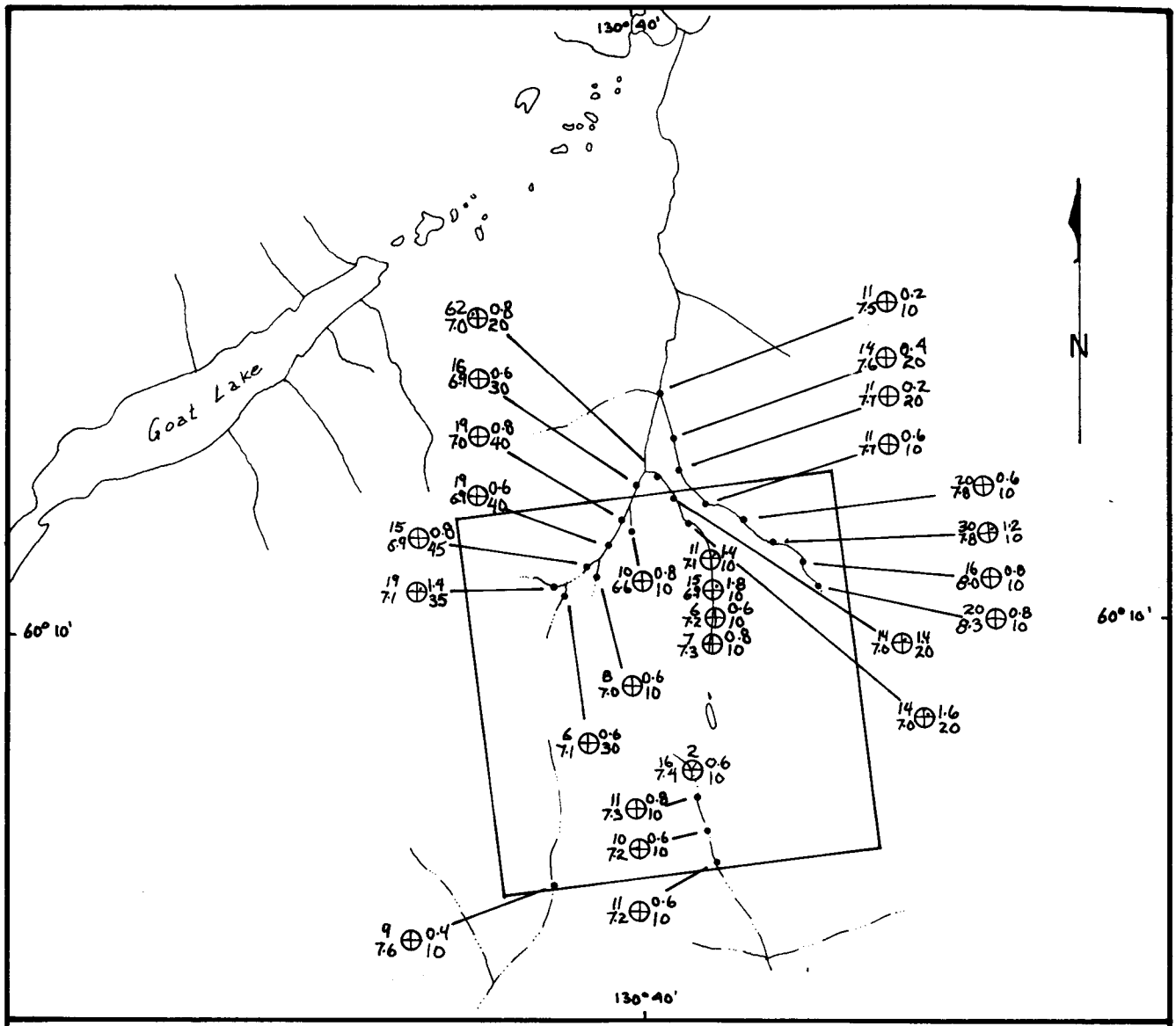
STREAM SEDIMENT GEOCHEMISTRY

W - Sn

PLAN 8

Scale 1:50,000

September, 1979



LEGEND

S.C. / pH ⊕ ppb U / ppb F (As < 2ppb)

ppb As
S.C. / pH ⊗ ppb U / ppb F

	U	F	As	S.C.
Prob. Anomalous	2.5	210	-	100
Poss. Anomalous	.9	100	-	46

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS
YUKON TERRITORY

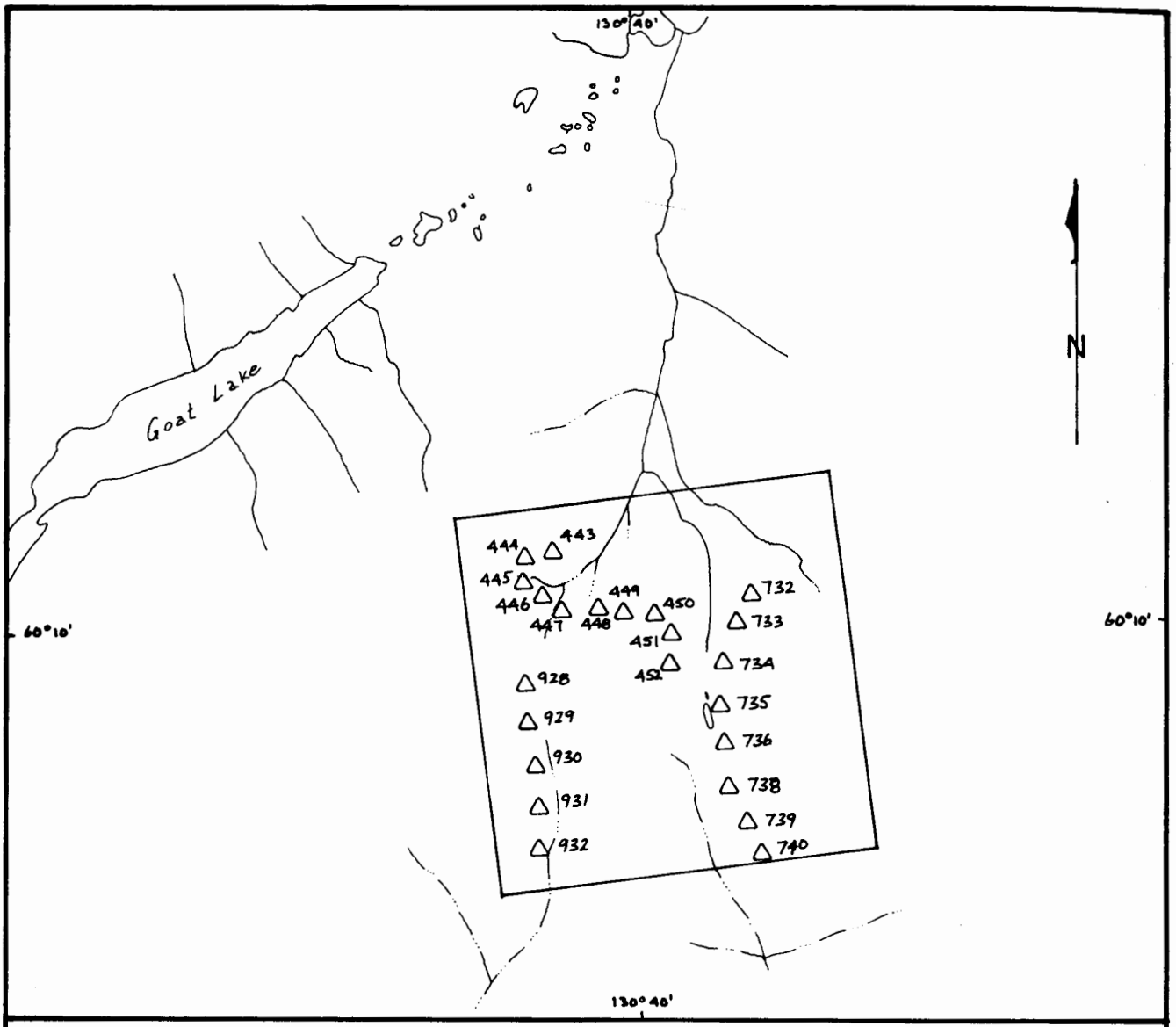
STREAM WATER GEOCHEMISTRY

U - F - pH - SC - As

Scale 1:50,000

PLAN 9

September, 1979



CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

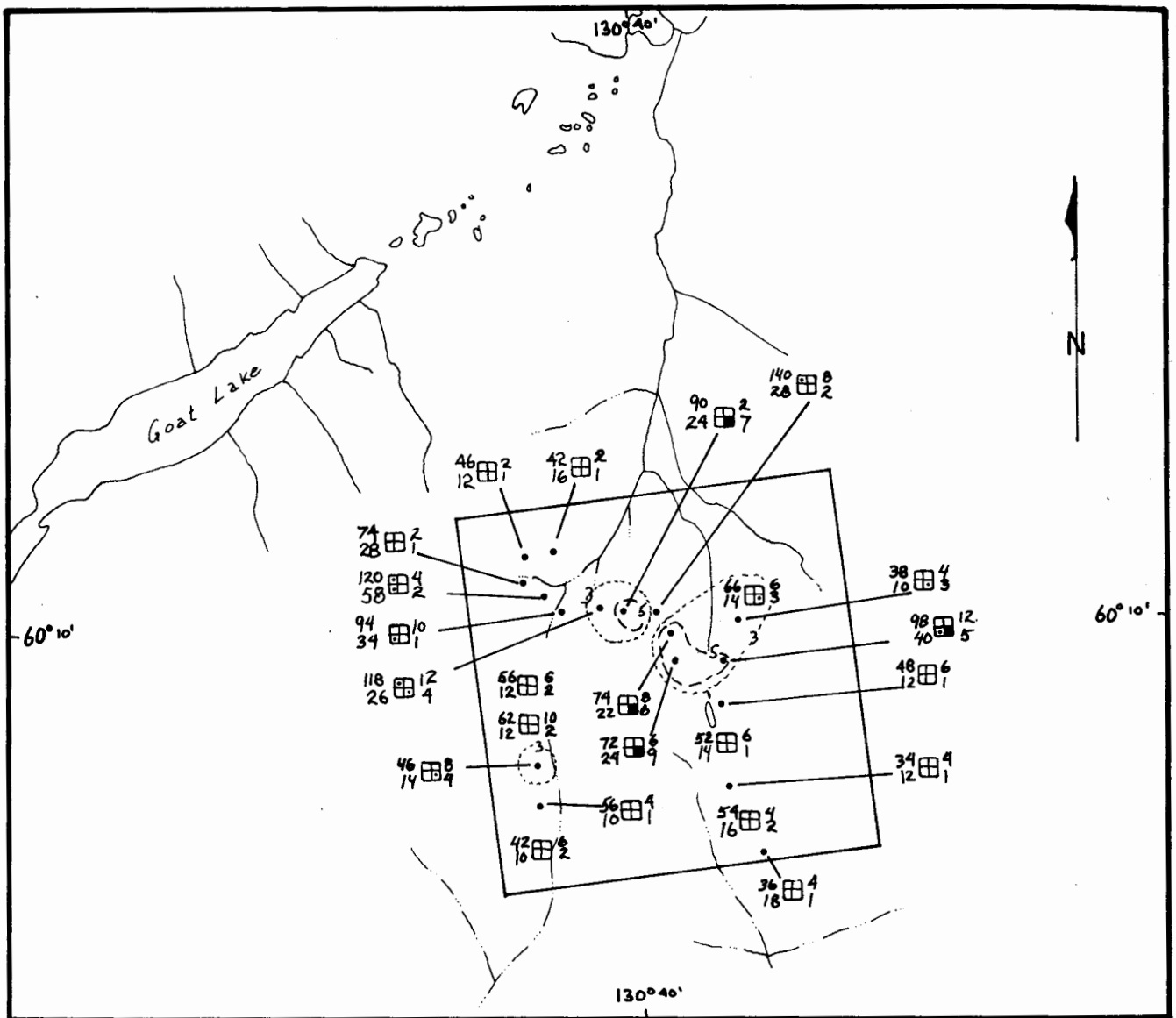
SOIL GEOCHEMISTRY

SAMPLE LOCATIONS

Scale: 1:50,000

PLAN 10

September, 1979



LEGEND

ppm Zn / ppm Pb — ppm Cu / ppm Mo

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

— — — 5 ppm Mo

..... 3 ppm Mo

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

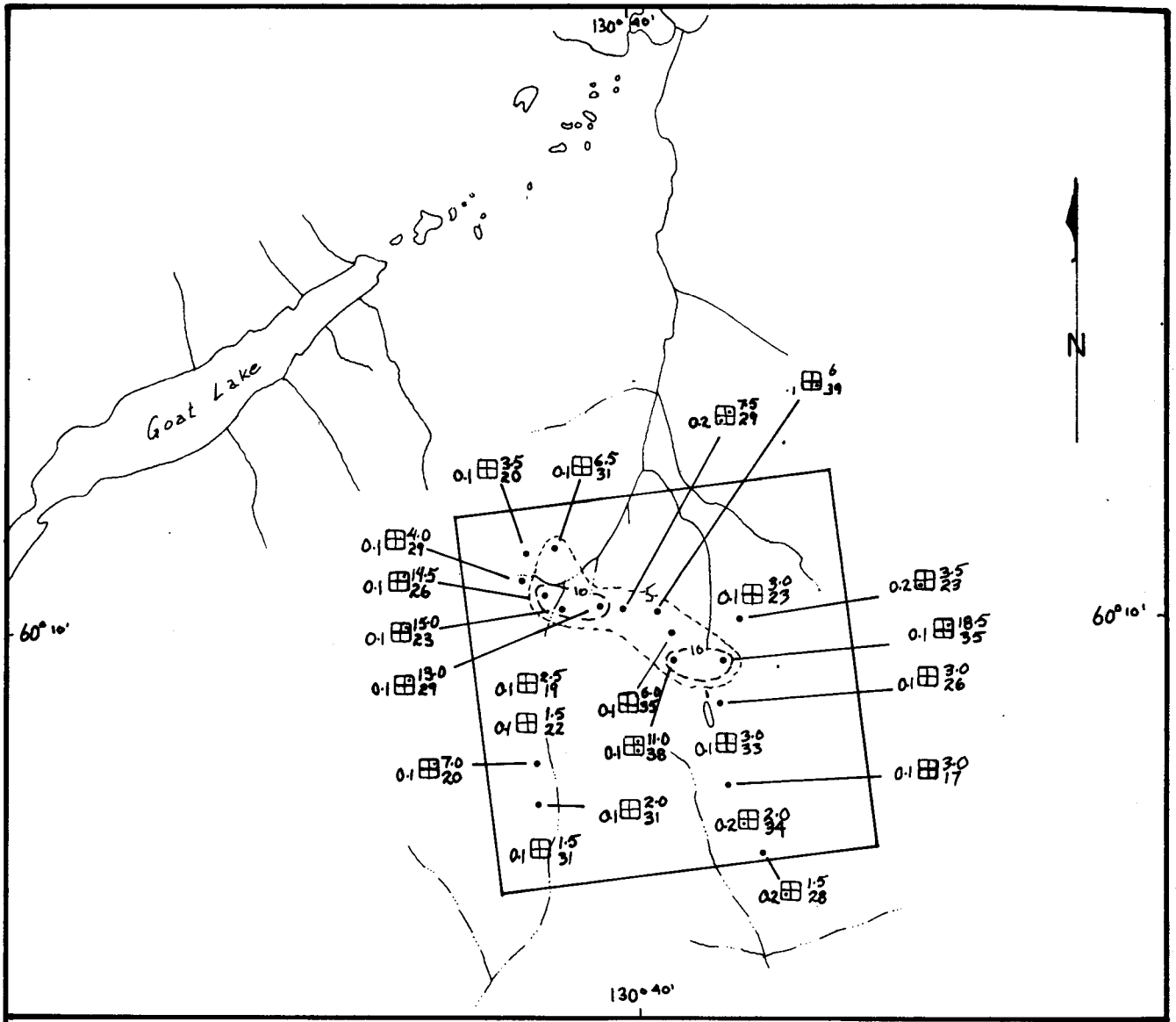
SOILS GEOCHEMISTRY

Cu - Mo - Pb - Zn

Scale 1:50,000

PLAN II

September, 1979



LEGEND

ppm Ag ⊞ ppm U / ppm Th

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

—— 10 ppm U

----- 5 ppm U

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

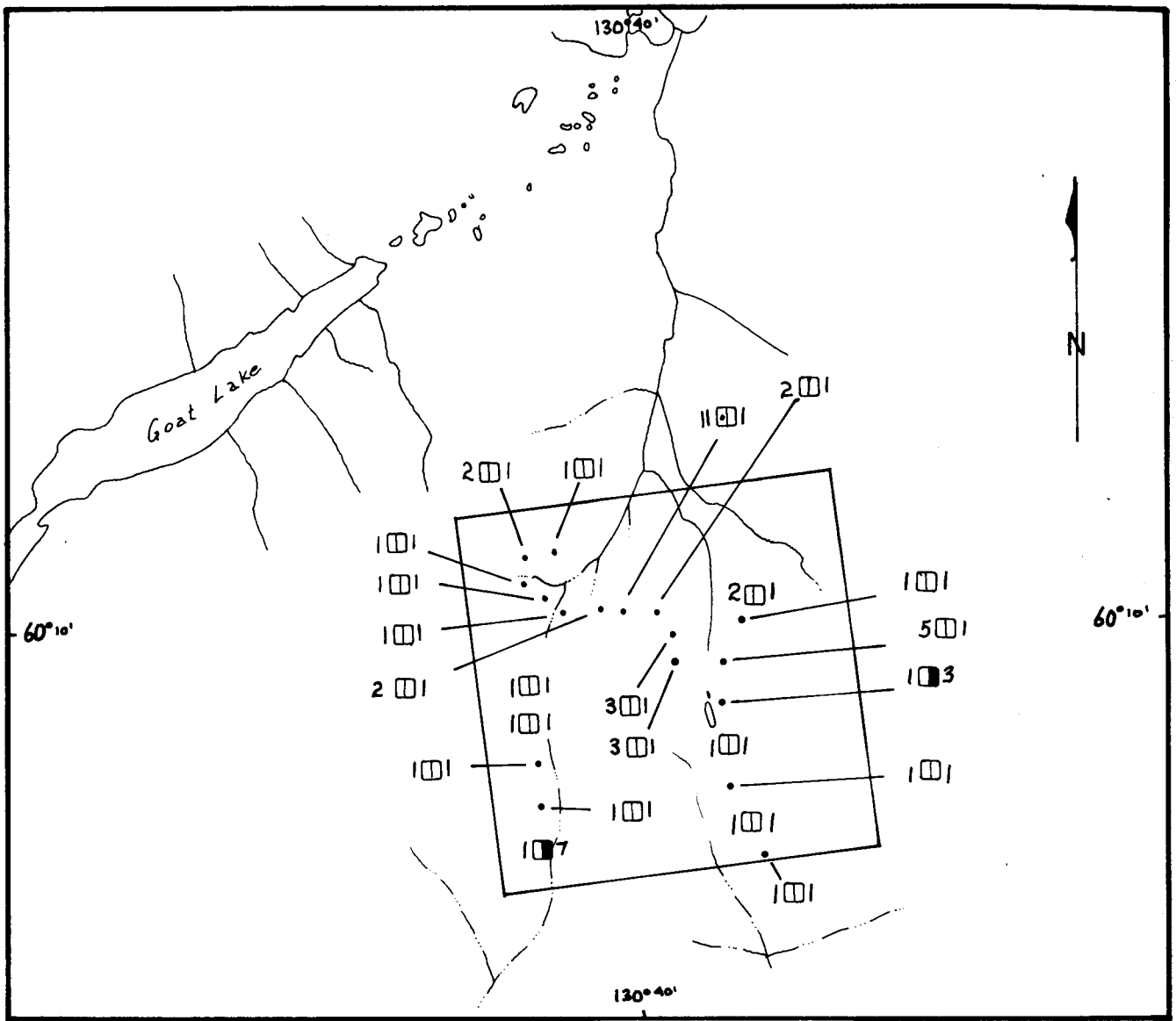
SOILS GEOCHEMISTRY

U - Th - Ag

PLAN 12

Scale: 1: 50,000

September, 1979



LEGEND

ppm W ▯ ppm Sn

	W	Sn
Prob. Anomalous	40	2
Poss. Anomalous	75	1

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

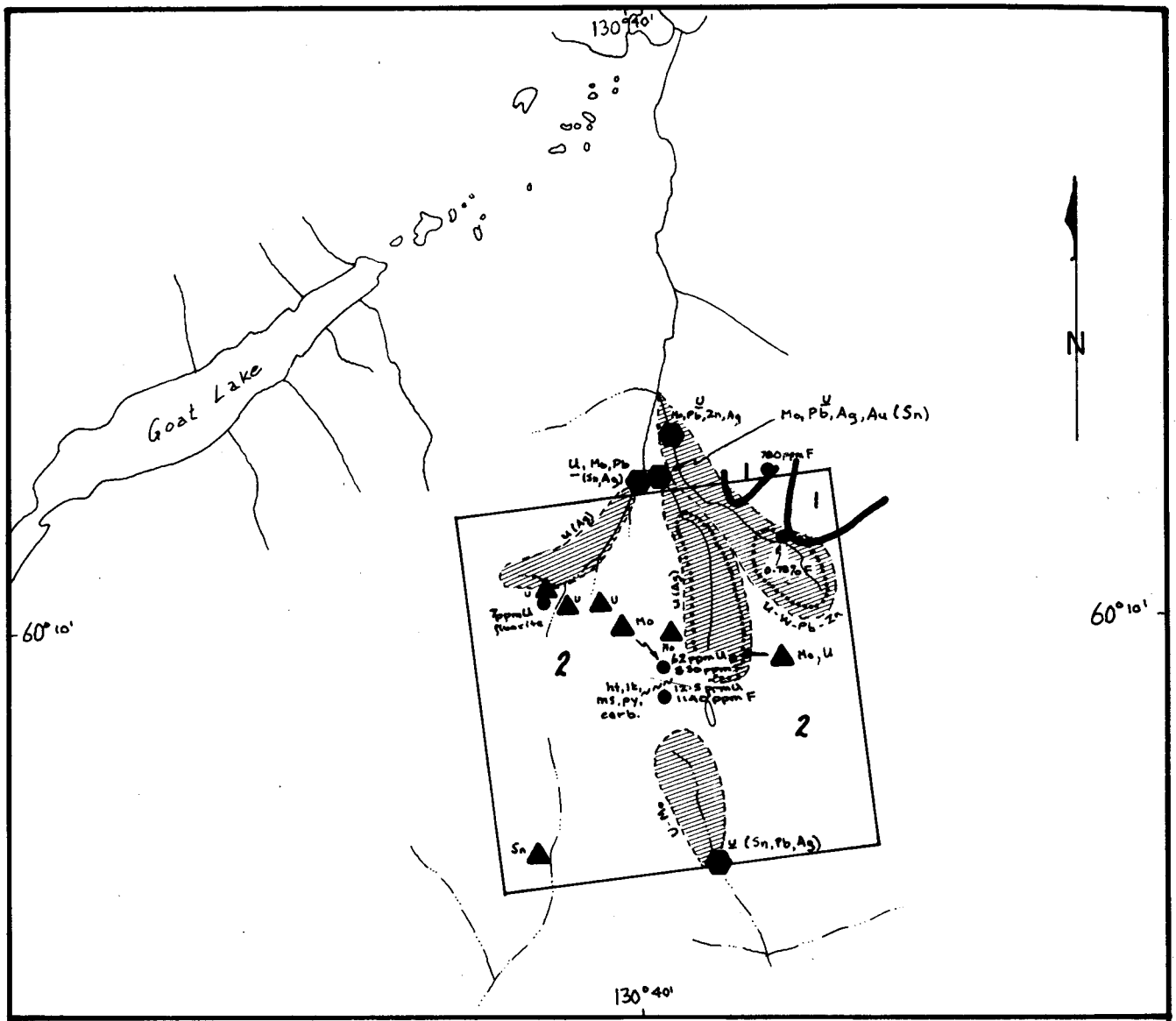
SOILS GEOCHEMISTRY

Sn-W

Scale 1:50,000

PLAN 13

September, 1979



LEGEND

Geology

2 - Biotite - muscovite quartz monzonite

1 - Bi-fsp schist + gneiss, marble

Rock Geochemistry

Soil Geochemistry

▲ Anomalous : Mo > 5ppm ; Sn > 2ppm ; U > 13ppm

Heavy Mineral

⬢ Anomalous: U > 120 ppm; Mo > 9 ppm; Pb > 280ppm; Ag > 1ppm; Au 280ppb ; Sn > 38ppm

Stream Sediment Anomaly

: U > 38ppm ; Mo > 11ppm ; Ag > 1ppm ; Pb > 57ppm ; Zn > 320ppm ; W > 16ppm

Stream Water Anomaly

: U > 0.9 ppb

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU

GOAT CLAIMS

YUKON TERRITORY

COMPILATION OF GEOLOGY AND GEOCHEMISTRY

Scale: 1:50,000 PLAN 14 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 geolgist 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 GOAT 1-36

Record Numbers YA 44599 - YA 44634

		Pro-rated[1] Costs
Salaries and Benefits		$1,620.74
Travel and Accommodation		987.91
Drafting and Reproduction		347.08
Consultant		487.01
Camp costs and Supplies		1,112.51
Rental of Equipment		185.41
Other Work		474.07
	Sub-total	$5,214.73
Helicopter 2.3 hr. at $340/hr.	$ 782.00 [2]	
Geochemical 807 analyses	1,266.48 [3]	$2,048.48
	Total	$7,263.21

Notes

[1] Pro-rated on basis of 5.5 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 J

BC CLAIM GROUPS	TOTAL NO. OF MAN DAYS	PRO-RATED COSTS							SUB-TOTAL "A"	REAL COSTS				SUB-TOTAL "B"	TOTAL "A" + "B"
		SALARIES & BENEFITS	TRAVEL & ACCOMMODATION	DRAFTING & REPRODUCTION	CONSULTANTS	CAMP COSTS & SUPPLIES	EQUIPMENT RENTAL	OTHER WORK		HELICOPTER at $310/hr	HELICOPTER hrs.	GEOCHEMISTRY cost	GEOCHEMISTRY # 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 GOAT CLAIM GROUP

GEOCHEMICAL COST BREAKDOWN

INVOICE #[1]	# OF SAMPLES	DESCRIPTION	COST[2]
31253	3	F, U	$ 24.00
32113	51	Th	255.00
31614	22	U, F	166.00
33600	1	F	12.00
31990	6	U, Cu, Mo, Pb, Zn, Ag, Au, W, Sn	174.60
32448	6	Th	30.00
31310	50	Cu, Mo, Pb, Zn, Ag, Sn, W, U	652.50
34078	1	$\%U_3O_8$ assay	10.00
31613	28	U, F, As	259.00
		SUB-TOTAL	$1583.10
		less 20%	
		TOTAL	$1266.48

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

Department of Indian Affairs and Northern Development

YUKON QUARTZ MINING ACT

FORM "C" - APPLICATION FOR A CERTIFICATE OF WORK

(This form required in duplicate with sketch showing location of work.)

RECEIVED
30 JUN 1980
MINING RECORDER
WATSON LAKE, Y.T.
I.A. & N.D.

OFFICE DATE STAMP

I (Name) Roger H. Wallis Occupation Chief Geologist

(Postal Address) 311 - 215 Carlingview Dr., Rexdale, Ont. M9W5X8

MAKE OATH AND SAY, THAT:-

1. I am the ~~XXXXXX~~ agent of the owner, of the mineral claim(s) to which reference is made herein.

2. I have done, or caused to be done, wotk on the following mineral claim(s):
(Here list claims on which work was actually done by number and name)

GOAT 1-36

YA 44599-YA 44634

situated at 60°10'N 130°40'W Claim Sheet No. 105B/2E

in the Watson Lake Mining District, to the value of at least 7,263.21

dollars, since the 11th day of July 19 79,

to represent the following mineral claims under the authority of Grouping Certificate No. _____
(Here list claims to be renewed in numerical order, by grant number and claim name, showing renewal period requested).

YA 44599-YA 44634 GOAT 1-36 Each claim to be renewed for a period of 2 years.

3. The following is a detailed statement of such work: (Set out full particulars of the work done indicating dates work commenced and ended in the twelve months in which such work is required to be done as shown by Section 53.)

Geological survey, geochemical surveys.

See report by E.J. Sacks referring to the claim group.

See accompanying Statement of Expenditures and cost breakdowns.

Sworn before me at Toronto

this 18 day of JUNE 1980

R. H. Wallis

Applicant.

Notary Public

ROBERT J. EVANS
Notary Public, Province of Ontario, for
Canadian Occidental Petroleum Ltd
Expires February 7, 1