CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY OF THE GOAT 37-86 CLAIMS

CLAIM SHEET NO. 105-B-2E

Lat.: 60°10'N
Long.: 130°38'W

WATSON LAKE MINING DISTRICT

YUKON TERRITORY

090841

by:

R.M. Kuehnbaum, M.Sc.

Work Completed August 31, 1980

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 $ 14,400.00

R. Debicki A. Res. Geol

Resident Geologist or
Resident Mining Engineer

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

Commissioner of Yukon Territory

INDIAN and NORTHERN AFFAIRS

TRANSMITTAL FORM

M.R. File No. ______

S.M.R. File No. ______

Date Fwd. 29 JUNE 1981

FROM: Mining Recorder at ....WATSON LAKE............

TO: Supervising Mining Recorder at Whitehorse, Y.T.

Office of the Supervising Mining Recorder
JUL 9 1981
WHITEHORSE
Yukon Territory

FOR ACTION ARE:

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

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

[ ] AFFIDAVIT of EXPENDITURE on PLACER LEASE. Name: Lease No. ....

[ ] ASSIGNMENT of PLACER LEASE No. ....
From: To:

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

[ ] DIAMOND DRILL LOGS:
Claims: Claim sheet no.

[X] QUARTZ ASSESSMENT REPORT
Claims: GOAT 37-84 Claim sheet no. 105-B-2

Type of report: Geological + Geochemical

Submitted by: Canadian Occidental Petroleum

Cls. work performed on: Goat 37-84

$ Req. for ren. application: $14,400.00

Signature: [signature]

* Receipts held in Watson Office.

REPLY ACTION: Date Ret.

______
Signature

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (cont.)

LIST OF PLANS (In Folder)

SUMMARY

During the 1979 and 1980 CanadianOxy surveys of t GOAT 1-36 Claims, skarn float with scheelite was recognized to the northeast of the property. Consequently, the GOAT 37-84 Claim was staked to cover the main ridge believed to the source. During 1980, mapping and soil, stream sediment and rock geochemistry were carried out. The GOAT 85 and 86 Claims were added at season's end to cover a galena-sphalerite occurrence.

The property is underlain by a sequence of Cambria or (?) Earlier metasedimentary rocks - including micaceous quartzites and recrystallized limestones - which have been regionally metamorphosed and folded into a series of isoclinal folds with subvertical axial planes. These rocks were later intruded by a series of granitic rocks, principally quartz monzonitic in composition, of the Jurassic-Cretaceous Cassiar Batholith. The metasediments form septa and xenolithic screens within the intrusive rocks.

At the contact between carbonate rocks and graniti intrusive rocks, small bodies of calc-silicate skarn and sulphide-rich skarn have developed. None of the skarns is o remotely mineable dimensions (0.2-5 meters thick, 1-30 meter along contacts). The poor degree of skarnification is probably due to recrystallization and loss of permeability o the carbonate rocks during regional metamorphism, or the

relatively "dry" nature of the intruding magmas. Spotty mineralization consists of pyrrhotite, pyrite, molybdenite, chalcopyrite and scheelite. The skarns are locally enriched in molybdenum (up to 0.046%), copper (up to 0.89%), zinc (up to 1.54%), silver (up to 0.8 oz/ton) and tungsten (up to 0.39% WO_3). Although sizes and grades of mineralization of the skarns are uninteresting in outcrop, potential for economic-grade and sized mineralization may exist where structural channelways (fold hinges) existed at the time of intrusion of quartz monzonite. Vein and fracture-related Pb-Zn(-Ag) mineralization may be of significant potential. Pyrite-mineralized joints and fractures are geochemically anomalous in Pb, Zn (and Ag). One galena-sphalerite-pyrite-mineralized shear contains up to 1.31% Pb, 5.64% Zn and 1.94 oz/ton Ag. Sphalerite in association with Fe-carbonate, pyrite, galena, barite and intense manganoan alteration was found in float at buried quartz monzonite/metasediment contact zones; samples have returned assays of up to 0.53% Pb, 8.22% Zn and 4.94 oz/ton Ag.

Low-density soil sampling has outlined areas of known Pb-Zn±Ag mineralization as well as zones where mineralization has not yet been found due to lack of prospecting. Extensions of mineralized systems into talus and drift-covered areas is possible. Stream sediment sampling in 1980 has not outlined new areas of unknown mineralization, except possibly to the east of the present claim boundary.

It is recommended that known areas of Pb-Zn-Ag vein- or fracture-related mineralization be prospected and mapped in detail - including blasting and stripping of talus-covered areas - and that unprospected areas of Pb$\pm$Zn$\pm$Ag soil anomalies be examined. A detailed soil sampling grid should be laid out in the overburden-covered valleys in the northeast and southeast areas of the claims to test for vein- or fracture-related, and skarn mineralization. On this grid, a magnetometer survey could assist in locating possible buried pyrrhotitic skarn zones which may have developed along structural channelways such as fold hinges.

I. INTRODUCTION

On June 25th, 1979, CanadianOxy staked the GOAT 1-36 claims in order to cover the headwaters of streams with sediment bearing high values of uranium, which were detected in the Geological Survey of Canada's Uranium Reconnaissance Program of 1978 (data released June 15, 1979). Subsequently, CanadianOxy carried out a reconnaissance-scale mapping and sampling program (Sacks, 1979). In 1979 and the early part of the 1980 field season, scheelitiferous skarn float was noted just outside the northeast part of the property. On June 19, 1980 the GOAT 37-84 claims were staked to cover the potential source of mineralization (the GOAT 85 and 86 claims were added at the end of the season). During August, 1980, a detailed mapping/prospecting, stream sediment and soil sampling program was carried out over the claims. This report summarizes the results of that survey.

II. LOCATION AND ACCESS

The GOAT 37-86 Claims are located at approximately 60°10'N latitude, 130°38' longitude, within N.T.S. map sheet 105-B-2E, Watson Lake Mining District (Fig. 1). The claim group comprises 50 claims, covering an area roughly 2600 acres or 4.1 mi^2 (10.5 km^2).

The settlement of Rancheria is located approximately 8 km (5 mi) south 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 the Pine Lake airstrip, located 16.7 km (10 mi) south-southwest of the claims and 1.6 km (1 mi) north of mile 722.5 (km 1156) on the Alaska Highway.

A dirt road provides access from the Alaska Highway (4 km west of Rancheria) to a Northwest Tel repeater tower which is located 5 km southwest of the south edge of the property.

The GOAT 37-86 Claims are adjacent to the northwest part of CanadianOxy's GOAT 1-36 Claims.

III. PHYSIOGRAPHY AND VEGETATION

Relief over the claims is 2750 ft. (840 m). The main topographic feature is a roughly north-south ridge up the central part of the property (elevations as high as 6645 ft.), from which spurs and subsidiary ridges emanate. Slopes are generally steep, locally inaccessible off the main ridge in the central and southern part of the group, to moderate to gentle in the north part of the claims and in the cirque valleys. The elevation falls off to as low as 3900 ft. in the extreme northwest part of the claims.

Vegetation over the claims consists principally of alpine grasses and lichen down to elevations of approximately 5500 ft. below which buck brush appears. At less than 4500 ft., and only in the northwest and northeast areas, balsam forests fill the valleys.

IV. PREVIOUS WORK

The Wolf Lake map sheet (105B) was geologically mapped between 1951 and 1959 by the Geological Survey of Canada (Poole et al., 1960) at a scale of 1"= 4 mi. (1:250,000).

In 1978, the Geological Survey of Canada conducted a stream sediment and water sampling program of the Wolf Lake sheet as part of the Uranium Reconnaissance Project. Data was released on June 15th, 1979, as Open File 563. The GOAT 1-36 Claims were staked by CanadianOxy on June 25th, 1979, to cover the headwaters of a stream sediment uranium anomaly (174 ppm U). On July 11, 1979, CanadianOxy carried out a reconnaissance geology/geochemistry of these claims, the results of which have been presented by Sacks (1979). In

June 1980, CanadianOxy again carried out a survey of the GOAT 1-36 claims (see Hartley, 1980), after which it was decided to add on to the claim group in virtue of skarn potential outside of the property (GOAT 37-86).

On the property, evidence of previous work was found in the form of very old, unmarked claim posts situated on the central ridge. The work carried out is unknown but no evidence of physical work (trenching, drilling) was observed; the target, however, was probably skarn mineralization. Because of its proximity to the Alaska Highway, the area has undoubtedly been intensively prospected since World War II. Most recently, Cordilleran Engineering has been carrying out intense, systematic exploration of the Wolf Lake map sheet, with emphasis on tungsten. Evidence of recent prospecting (fresh, broken rock) on the GOAT 37-86 Claims is probably attributable to them. Claims have been recently staked to the east of GOAT 37-86 (Fig. 2).

V. CLAIM STATUS

The GOAT 37-84 Claims (Fig. 2) were staked on June 19, 1980 and recorded in Watson Lake on July 4, 1980. The GOAT 85 and 86 Claims were staked on August 31, 1980 and recorded in Watson Lake on September 3, 1980. No application for assessment credit has yet been submitted for work carried out in 1980.

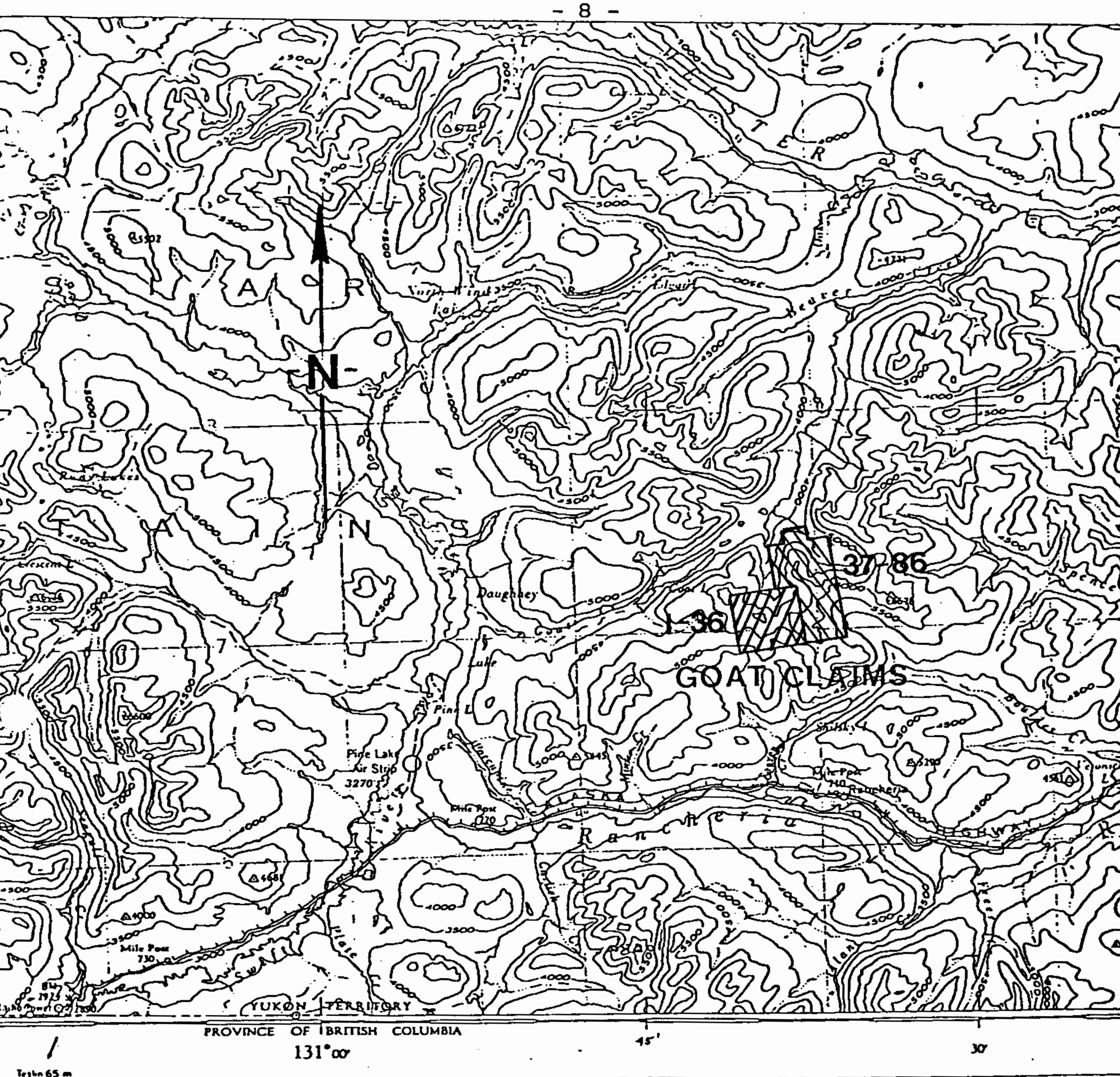


FIGURE 1

LOCATION AND ACCESS OF THE GOAT CLAIMS

Yukon Territory

NTS 105B/2E

Scale: 1:250,000

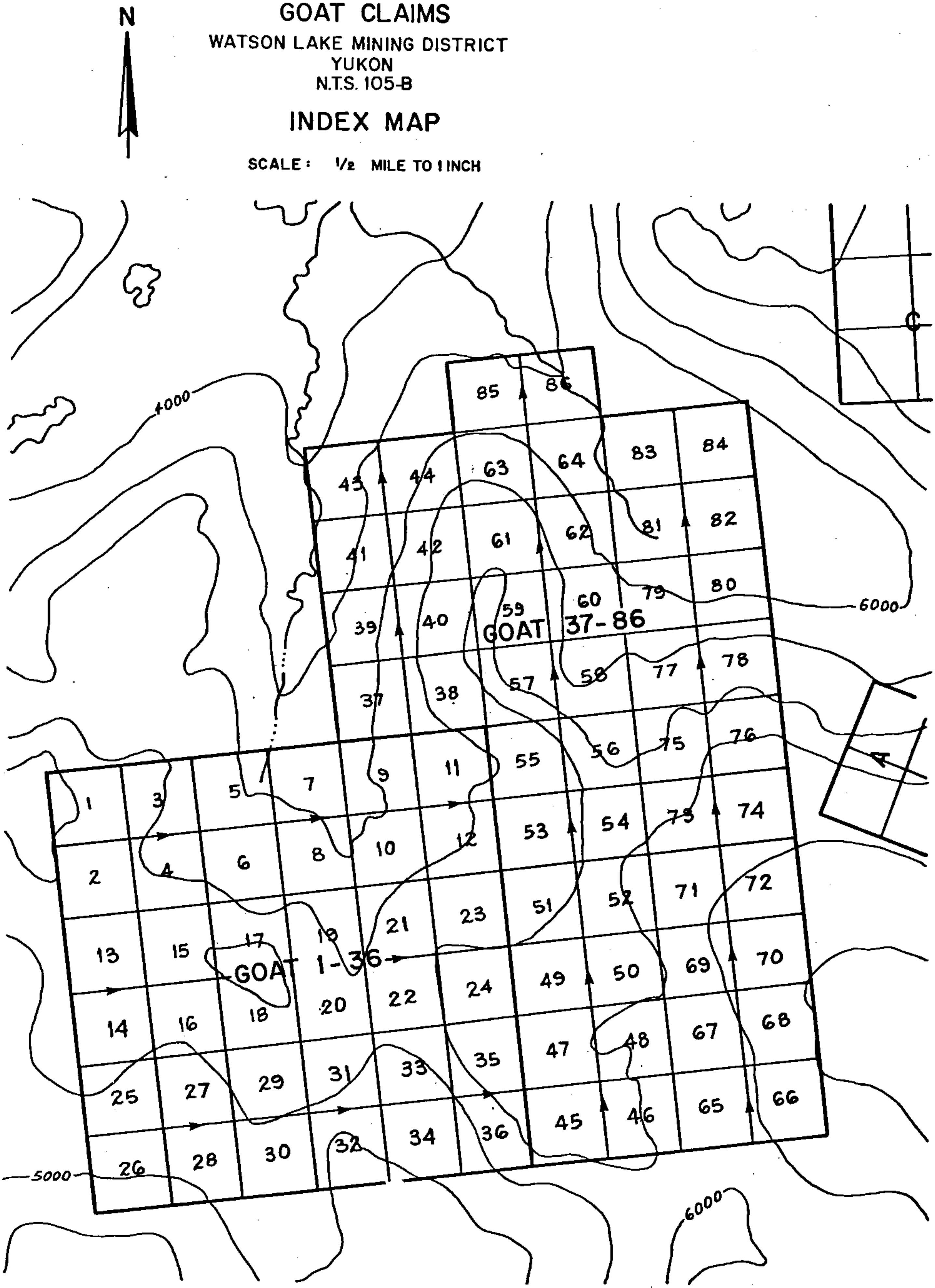
PROJECT WATSU
GOAT CLAIMS

WATSON LAKE MINING DISTRICT
YUKON
N.T.S. 105-B

FIG. 2

INDEX MAP

SCALE: 1/2 MILE TO 1 INCH



Claim	Tag Nos.	Date Staked	Date Recorded	Valid Until
GOAT 37-84	YA55443-90	June 19/80	July 4/80	July 4/81
GOAT 85-86	YA56495,96	Aug. 31/80	Sept. 3/80	Sept. 3/81

VI. WORK COMPLETED - 1980

6.1 Staking

After the completion of the survey on the adjacent GOAT 1-36 Claims (Hartley, 1980), it was decided to stake the ridge to the east in virtue of mineralized skarn float found just outside of the claims. The GOAT 37-84 Claims were located on June 11, 1980, by C.J. Richardson, M.J. Crandall, G. Tetu, T. Warner, C. Hartley and T. Burns, to cover any areas of possible skarn mineralization. The GOAT 85 and 86 Claims were located to the north by R.M. Kuehnbaum on August 31, 1980 in order to cover a small shear-hosted galena vein.

6.2 Tagging

All of the GOAT 37-84 claim posts were tagged by Warner and Hartley on August 24, 28, and 29, 1980.

6.3 Geological Mapping

On June 5, 1980, Wallis, Kuehnbaum, Tetu and Gleeson visited the area briefly on an inspection/prospecting tour; this work is not applicable to assessment credit since the GOAT 37-86 Claims were staked subsequently.

Another inspection visit was made by Kuehnbaum, Warner and Wallis on August 28, 1980. Geological mapping was carried out by Kuehnbaum and Richardson on July 5 and 6, 1980, and by Kuehnbaum, with assistance from Kryklywy, Tetu, and

Richardson during the period August 14 to 31, 1980. A total of 15.5 man days were spent on the property.

6.4 Geochemistry

A total of 95 rock, 9 heavy mineral, 27 stream sediment and 100 soil samples were collected over the claims, and sent to Chemex Labs Ltd., North Vancouver, B.C., for analysis. Analytical results are listed in Appendix I. Stream sediment and soil sampling was carried out by Mattiacci, McNeill, Hauseux and Scott during the period August 14 to 28, 1980. A total of 7 man days were spent.

6.5 Radiometrics

As soil and stream sediment samples were collected, scintillometer responses were recorded at each sample site. Readings were made on an URTEC UG-130 instrument, on Channel TC_1 at 10-second count intervals. Radiometric readings were not systematically taken during geological mapping.

6.6 Summary of Work Completed

Type of Work	Man Days	No. of Samples	No. of Analyses Mo	Cu	Pb	Zn	Ag	Sn	W	U	Th	Total
Geology and Rock Geochem	15.5	95	93	93	71	71	71	71	76	24	24	594
Geochemistry												
Soils	7.0	100	100	100	100	100	100		100			600
Stream Sed.		27	27	27	25	27	27		25	2		160
Heavy Min.		9	9	9	9	9	9	9	9	9	9	81
Rocks		95	94	93	71	71	71	71	73	24	24	592
Tagging	2.5											
TOTAL	25.0	326	323	322	276	278	278	151	283	59	57	2027

Helicopter Hours (Bell 206-B) 12.3 hours

6.7 Names and Addresses of Personnel

Dr. R.H. Wallis Canadian Occidental Petroleum Ltd. Ste. 311 - 215 Carlingview Drive Rexdale, Ontario M9W 5X8	Chief Geologist
R.M. Kuehnbaum Same address as above	Project Supervisor
G. Tetu Same address as above	Project Geologist
C. Hartley Same address as above	Project Geologist
T. Warner Same address as above	Geologist
K. Kryklywy Same address as above	Geologist
C.J. Richardson Same address as above	Senior Assistant
M. Mattiacci Same address as above	Junior Assistant
B. McNeill Same address as above	Junior Assistant
R. Hauseux Same address as above	Junior Assistant
C. Scott Same address as above	Junior Assistant
Dr. C.F. Gleeson C.F. Gleeson and Associates R.R.#1, Lakeshore Drive Iroquois, Ontario K0E 1K0	Consulting Geochemist

VII. GEOLOGY

7.1 General Geology

In order to differentiate between different types of granitic rocks, all samples of intrusive rocks were stained with the hydrofluoric acid - sodium cobaltinitrate method and classified by the tables of the Colorado School of Mines (Travis, 1955).

All rock samples referred to in the text and figures of this report have 80-WA-23000 series numbers, which refer specifically to Project Watsu and the GOAT 37-86 claims. The 80-WA prefix is normally not used.

Geologic mapping was carried out using 1:5000 contour base maps, prepared from expanding the 1:50,000 NTS topographic sheets (105-B-2E). Because the claims were staked after the beginning of the field season, 1:5000-scale air photograph blow-ups were available only for that portion of the claim group near the GOAT 1-36 claim block. Mapping control was by altimeter and compass.

Poole et al. (1960) show the area of the GOAT 37-86 Claims to be completely underlain by Jurassic-Cretaceous biotite-quartz monzonite and granodiorite of the Cassiar Batholith. Mapping by CanadianOxy in 1980 shows the claims in actual fact to be underlain by a variety of intrusive rocks, including biotite-muscovite quartz monzonite, biotite-quartz monzonite with megacrystic variants, and earlier bodies and xenolithic remnants of more basic intrusives (quartz diorite and granodiorite). Outcropping as small to very large (mega-) xenoliths and/or septa within and between the granitoid rocks is a sequence of clastic and carbonate metasedimentary rocks comprised of micaceous quartzites, quartzitic schists and many horizons of recrystallized limestone. The igneous and associated hydrothermal activity has produced a multitude of thermally metamorphosed marbles and metasomatic calc-silicate and sulphide skarns at the contacts of major intrusive bodies and small dykes, as well as abundant calc-silicate hornfels. Although not mapped by Poole et al. (1960), these metasedimentary rocks are probably part of their Unit 1, which are thought to be metamorphosed equivalents of Lower Cambrian and (?) earlier strata (Unit 2) mapped elsewhere on the Wolf Lake Sheet; it includes biotite schist and quartzite, as well as marble and skarn. Unit 1 of Poole et al. (1960) is in intrusive contact with the Cassiar Batholith approximately 4 km east of the GOAT 37-86 claims.

7.2 Table of Formations

TERTIARY

Unit	Description
7	Diabase, basalt (dyke)

JURASSIC AND/OR CRETACEOUS

Cassiar Batholith

Unit	Description
6	6a Biotite-muscovite quartz monzonite
	6b Biotite-quartz monzonite
	6c Pegmatite

5	5a	Biotite-hornblende diorite/monzonite
	5b	Biotite quartz diorite/granodiorite

LOWER CAMBRIAN AND (?) EARLIER

Metasedimentary Rocks

Unit	Description	
4	4a	Pyrrhotite-or pyrite-rich skarn
	4b	Calc-silicate skarn
3	Recrystallized limestone	
2	Calc-silicate hornfels	
1	1a	Micaceous quartzite
	1b	Biotite-porphyroblastic quartzitic schist
	1c	1a or 1b with calc-silicate laminae

7.3 Description of Rock Units (Plan 1)

7.3.1 Clastic Metasedimentary Rocks - Unit 1

In the metasedimentary sequence, micaceous quartzites (1a) predominate. These rocks are somewhat "gneissic" in nature, the quartz being principally confined, with minor feldspar, to thin (<cm-sized) layers (Sacks, 1979, referred to these rocks as "gneisses"). Biotite, the only mica observed, is mostly restricted to interlaminations, imparting a distinct schistosity to the rock. The quartz laminae are dark grey to black, probably due to contained fine-grained biotite and/or sulphides. The rock is friable (jointed, fractured) and normally weathers a red-brown colour, presumably due to the oxidation of biotite. Local intense limonitic stain is due to the presence of pyrrhotite ± pyrite ± rare chalcopyrite which are locally abundant

(up to 5%, samples 23294R, 23295R). Abundant sulphides appear to be restricted to certain horizons and their presence may indicate an original sedimentary enrichment as opposed to a later metasomatic event.

The biotite-porphyroblastic quartzitic schist (1b) is limited in occurrence and is probably completely gradational to 1a. The rock is composed principally of biotite, sericite, quartz and minor feldspar. The micas and quartz are segregated into compositional laminae (similar to 1a), but the quartz is relatively minor. The micas are fine-grained, imparting a phyllitic appearance. The biotite porphyroblasts (<3 mm) are composed of an aggregate of fine-grained mica (retrograde after another mineral?) and are somewhat resistant to weathering.

Unit 1c is not mappable, but is differentiated on Plan 1 to distinguish sections of 1b or 1a that contain minor, thin (generally <1 cm) calc-silicate-bearing laminae which are probably derived from original marly layers within the clastic rocks. When such laminae predominate, the rock is mapped as Unit 2.

<u>7.3.2 Calc-Silicate Hornfels - Unit 2</u>

This mapping unit indicates strata bearing abundant calc-silicate minerals that are interpreted to have <u>not</u> been derived from the metasomatic replacement of carbonate rocks (skarn, in this text). Two general types occur on the property, neither being very widespread nor of direct economic importance; they were not mapped separately because of uncertainties of origin.

The first type is similar to Unit 1c, but the calc-silicate laminae are preponderant over quartzite and schist, occasionally to their absence. The calc-silicate rocks are thinly laminated (1-3 cm), and are invariably very fine-grained, greenish in colour and contain diopside, quartz, epidote, calcite and minor tremolite and garnet. Thin, recrystallized limestone units may be present. The calc-silicate laminae of this type are generally soft and weather recessive. Because of the well-layered nature of this rock type, the present assemblage is probably the result of thermal and/or regional metamorphism of a sequence of thinly, cyclically interbedded limestone, pelitic sandstone/siltstone and carbonate-bearing pelites.

The second type of "calc-silcate rock" is characterized by its compact, very fine-grained, siliceous nature and greenish colour. It is often vaguely banded. Diopside and quartz are the predominant minerals, but epidote, amphibole or rare garnet also occur. Micaceous quartzites occur within the calc-silicate zones, but the beds are discontinuous to lenticular and often abruptly terminate laterally against the calc-silicate hornfels, and the bedding/schistosity of the quartzites can often be traced into the hornfels. This is a feature characteristic of many skarn deposits, in the Yukon and elsewhere, where carbonate rocks and pelitic rocks are interbedded; the resultant assemblage is skarn derived from limestone, and metasomatically altered metapelites. At GOAT 37-86, units of this type of calc-silicate hornfels are restricted to areas near major intrusive contacts or adjacent to large dykes and, often cannot be traced laterally (Plan 1); such features are well-explained by metasomatic processes.

7.3.3 Recrystallized Limestone - Unit 3

Carbonate rocks comprise a significant proportion of the metasedimentary package at GOAT 37-86. At least 24 individual beds have been mapped on surfaces, but there is some repetitiion of units due to folding (Plans 1 and 7) and the continuation of one carbonate horizon from one xenolithic body to another is often uncertain. Mapped carbonates vary in apparent thickness from approximately 4 meters to 75 meters. Other thinner, unmapped carbonate horizons (5 cm to 1 meter) outcrop, especially in some zones of "calc-silicate hornfels". Many of the carbonate units have been thickened to some extent by small-scale, tight, internal folding.

All carbonate rocks are recrystallized limestones and consist principally of medium-grained ($\pm$ 5 mm) calcite. Many of the beds contain no impurities and these are typically grey-weathering and white on the fresh surface. Bedding in these rocks is characterized by varying crystallinity of the calcite and/or subtle colouration differences.

Impure, recrystallized limestones, usually buff-weathering, are much more common. Impurities vary from very minor quartz "eyes" in a vague planar arrangement (defining original bedding); to thick, continuous cherty laminae with traces of pyrite impacting a rusty colouration on the weathered surface; to the presence of calc-silicate minerals. Coarse-grained garnet, diopside, epidote, and minor tremolite/actinolite, vesuvianite and tourmaline are locally abundant in the recrystallized limestones, especially near major intrusive contacts, but these are mostly restricted to knots and aggregates in a planar arrangement parallel to original bedding planes, and are interpreted as being the result of regional and thermal metamorphism of carbonate rocks containing impure (quartz and clay-bearing) layers. This type of calc-silicate rock is texturally different from skarn (see section 7.3.4 below) and never contains any economic minerals (sulphides, scheelite). The local presence of tourmaline suggests a minor degree of metasomatic alteration.

7.3.4 Skarns - Unit 4

In this text, skarn refers strictly to calc-silicate- and sulphide-bearing assemblages that are interpreted to be the result of the metasomatic alteration of carbonate rocks by granitoid magmas or hydrothermal fluids derived from them.

For the purposes of this discussion, skarns have been broadly divided into two types: those rich in calc-silicate minerals; and those rich in sulphides (normally pyrrhotite, but occasionally pyrite).

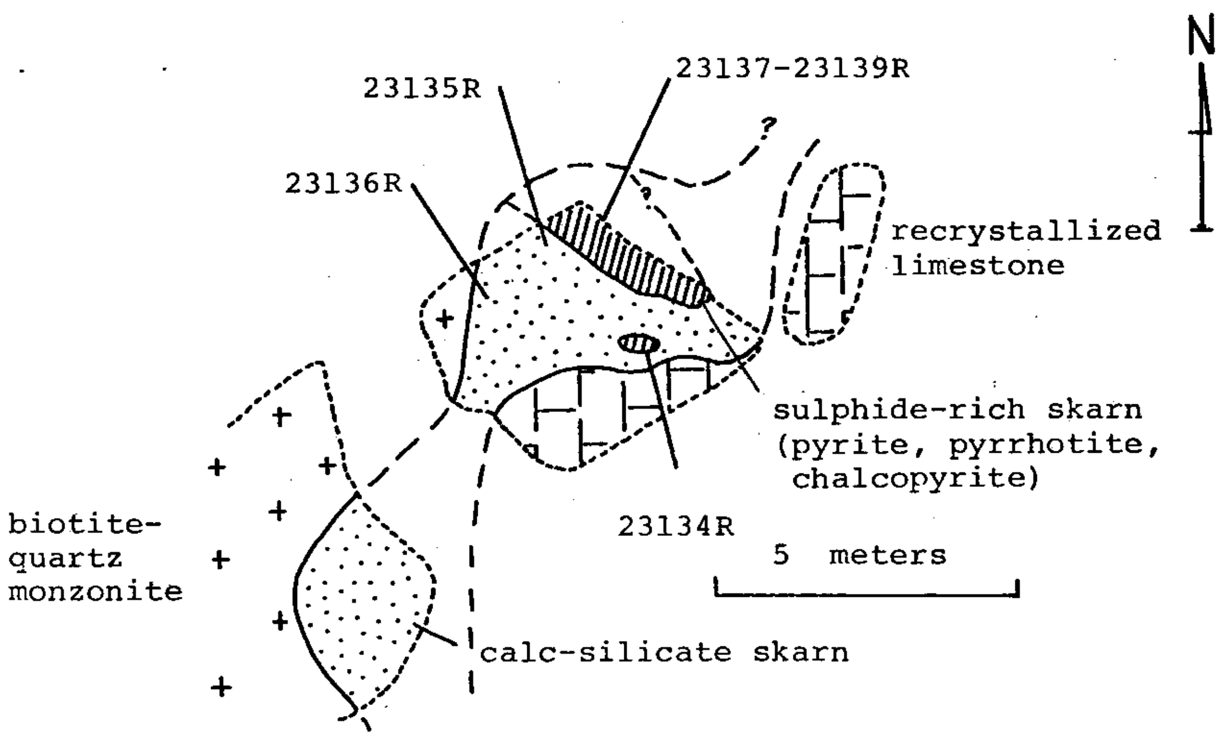
The calc-silicate skarns (4b) consist of varying combinations of red-brown, grossular garnet, diopside, quartz, calcite, epidote, tremolite/actinolite, vesuvianite and minor sulphide minerals. The predominant 4b skarn is an assemblage of coarse-grained garnet with minor, interstitial diopside, quartz and/or calcite, but many variations occur (see Rock Descriptions, Appendix II). The calc-silicate skarns can be readily distinguished from the calc-silicate layers in recrystallized limestones (section 7.3.3) by irregular, poddy and cross-cutting relationships to limestone bedding, the minor amount of calcite (generally <5%) and the compact, hard nature of the rocks.

Pyrrhotite-(or pyrite-) rich skarns are those sulphide-bearing skarns with more than approximately 10% sulphide minerals. They are normally extremely hard, massive, compact, and are coated with a brick-red limonite coating due to surface weathering. The principle constituents are medium to coarse-grained pyrrhotite (up to 90%) or pyrite, diopside, actinolite, quartz and minor garnet. Minor, but important local constituents are scheelite, chalcopyrite and molybdenite.

Bodies of sulphide-rich skarn almost invariably occur within calc-silicate skarns, immediately adjacent to intrusive contacts. Consequently, the sulphide skarns are a metamorphically "higher-grade" assemblage and are geochemically and economically more interesting than the calc-silicate skarns (section 8.2). Sketches of two skarn zones are presented in Figures 3 and 4.

Skarn bodies are erratically distributed over the GOAT 37-86 claim group, and presence or absence of skarn on any given carbonate/intrusive contact is unpredictable. In the area of the northeast trending ridge in the east-central part of the claim group (GOAT 73-76) recrystallized limestone often comes in contact with biotite-muscovite, quartz monzonite/granite dykes (see section 7.3.5), many of which cannot be shown on Plan 1 because of the scale of mapping. Carbonate rocks are usually, but not always skarnified at the contacts, with the thicker dykes (up to 10 meters). The skarns vary in thickness from 2 cm to rarely more than 50 cm, and are always of the calc-silicate variety (4b) and garnet-rich. Pyrrhotite, pyrite and scheelite are rarely present. Samples 80-WA-23263R, 23264R, 23268R to 23272R are typical of skarns in this paragenesis (see Rock Descriptions, Appendix II).

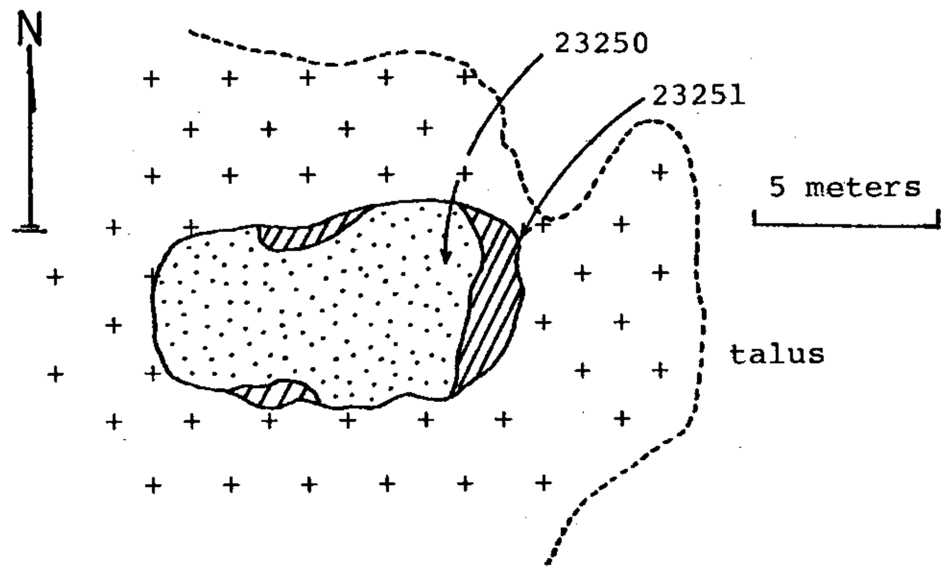
Skarn is better developed along contacts of recrystallized limestone contained in xenolithic bodies with the main quartz-monzonite intrusives where exposed along the main central ridge. They are, in most cases, too restricted in areal extent to be mappable but are designated by 4a or 4b (Plan 1). Descriptions of individual skarn bodies are summarized in Appendix II. These skarns, although often significantly mineralized are limited in all dimensions.



	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
23134	15	750	1	82	2	4	0.12% WO_3
23135	6	0.51%	8	530	10	5	55
23136	4	74	6	70	0.5	4	5
23137	3	0.89%	1	110	0.80 oz/t	1	0.12% WO_3
23138	2	2250	198	300	0.66 oz/t	1	200
23139	4	800	2	82	1.9	1	230

Figure 3.

Sketch of typical skarn zone on central ridge



quartz monzonite

garnet-diopside-quartz-pyrrhotite(20%)-chalcopyrite skarn

garnet-diopside-quartz skarn

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
23250	2	18	2	26	0.1	2	1
23251	2	670	2	180	0.1	1	0.12% WO_3

Figure 4.

Sketch of skarn xenolith,
east side of central ridge

Over twenty skarn locations were examined and sampled. Thickness varies from 20 cm to 5 meters, and length along the the contact varies from less than 1 meter to approximately 30 meters. Calc-silicate skarns (4b), principally garnet-rich, predominate and these rocks locally contain minor amounts of scheelite, pyrrhotite, pyrite, chalcopyrite and molybdenite. Sulphide-rich skarn (4a) form very small bodies, 0.2 to 1 meters width x 1 to 6 meters length, and occur either with or without calc-silicate skarns.

An intensely limonite-stained gossan completely surrounded by quartz monzonite was mapped at one locality. Although in an inaccessible location, talus float found immediately beneath the skarn indicates that the zone is an estimated 15 m x 5 m pyrrhotitic skarn (see samples 80-WA-23252-54R, Plan 1 and Appendix II.

The exposed skarn bodies at GOAT 37-86 are disappointingly small and nowhere reach potentially mineable dimensions. The metasedimentary package is thought to have undergone regional metamorphism prior to emplacement of the Cassiar Batholith (Poole at al., 1960), which is apparent from the folding and development of schistosity. Recrystallization of the limestones would have taken place at that time, with an accompanying reduction of porosity, permeability and water content. During subsequent intrusion of granitic magma(s), hydrothermal fluids would not have been able to find favourable channelways in the recrystallized carbonate rocks, accounting for the very restricted development of skarn only within a few meters of the contacts. In addition to the impermeabliity of host rocks, the intrusive rocks may have been relatively "dry". This, however, does not preclude the possibility of significant skarn development along structural channelways (e.g. fold hinges) which may have existed at the time of emplacement of magma.

7.3.5 Granitic Intrusive Rocks - Units 5 and 6

Unit 5 represents the earliest phase or phases of intrusive activity of the Cassiar Batholith within the area of the GOAT 37-86 claims. It outcrops principally on the very eastern part of the property on the northeasterly trending ridge where it roughly conformably contacts metasedimentary rocks. This unit was not mapped to the east and therefore the areal extent is not known. To the north, it terminates against later quartz-monzonite in a complex, somewhat hybridized contact zone. Elsewhere on the property, Unit 5 outcrops as large, mappable xenolithic remnants within the quartz-monzonite; in such an environment, the rock has probably been somewhat metasomatized and partially digested by the more felsic, later intrusive rocks. Two basic varieties were recognized: 5a, a fine-grained, massive biotite-hornblende diorite with approximately 50% biotite + hornblende, 50% plagioclase, and traces of K-feldspar and pyrite (samples 80-WA-23193R and -23231R); and 5b, a fine- to medium-grained, massive biotite granodiorite composed of

45-55% plagioclase, 10-20% K-feldspar, 10-30% biotite, and 5-10% quartz (samples 80-WA-23042R, -223143R, and -23231R). The relation between 5a and 5b is unclear.

Unit 6 represents the later and more felsic phases of intrusion of the Cassiar Batholith within the GOAT 37-86 claims.

Biotite-quartz monzonite (6b) is the principal intrusive rock on the property. It is generally massive, fine- to coarse-grained, equigranular and homogeneous, and is composed of 30-70% plagioclase, 10-45% K-feldspar, 10-30% quartz and 5-20% biotite. On the south end of the property, local megacrystic varieties (approximately 5% K-feldspar megacrysts) are exposed. In addition, the biotite quartz-monzonites in the south are generally somewhat more coarse-grained than in the central and northern areas; it is unknown, however, whether such variations reflect discrete intrusions or gradational variations within a single stock. Representative samples can be found by referring to Table 9 (Section 8.2) and Rock Descriptions in Appendix II.

An area of biotite-muscovite quartz-monzonite (6a) bearing 5-10% biotite and 1-5% muscovite was mapped in the south end of the property where abundant metasedimentary xenoliths are exposed. With the exception of the presence of muscovite, Unit 6a is compositionally and texturally similar to 6b.

Small dykes (20 cm to 10m) of biotite-muscovite quartz-monzonite cut the metasedimentary package in the east-central part of the property. Most have a vague northeasterly trend but are irregular and discontinuous. These have produced very small and spotty but widespread calc-silicate skarn bodies when in contact with recrystallized limestone. Similar dykes have also been located cutting the biotite quartz-monzonite. These dykes have been included in Unit 6a and are considered to be contemporaneous with the large biotite-muscovite quartz-monzonite body in the south of the claims, which is hence younger than the biotite quartz-monzonite. Samples 80-WA-23233, -23262, -23266 and -23267 are typical of these dykes.

Small pegmatitic dyklets are widespread and numerous within the main intrusive rocks, but only rarely do they form bodies of mappable dimensions (6c on Plan 1). They are principally thin (2-15 cm) and planar, and it is difficult to map their relative abundance and extent in areas of lichen growth or quartz-monzonite. The frequency of dykes, however, appears greatest in the central area of the claim group. The pegmatite are quartz monzonitic to granitic in composition and generally contain muscovite in the absence of biotite. Samples 80-WA-23292 and -23281 are representative.

Planar, thin (usually <5 cm) quartz veinlets are also widespread within the quartz-monzonites. In general, their greatest frequency is reached in the central part of the property. The veinlets consist only of white, fine-grained quartz, and have no alteration envelopes.

7.3.6 Basic Dykes - Unit 7

Very thin (± 1 meter) bodies of basic rocks (basalt or diabase) occur in two localities on the property: on the north end as sills between recrystallized limestone and micaceous quartzite; and, as dykes adjacent to, or within shear zones. The rock is very fine-grained, massive and black-coloured. These rocks are probably contemporaneous with Tertiary-Quaternary volcanism in the Wolf Lake area (see Poole et al., 1960).

7.4 Structure

The Lower Cambrian and (?)Earlier metasedimentary rocks have been folded about tight (isoclinal) axes, probably prior to Jurassic-Cretaceous intrusive activity. Schistosity of the micaceous quartzites and some, if not most, of the recrystallization of the carbonate rocks occurred at that time. An excellent example of the style of folding was mapped on the northeast-trending saddle in the east-central part of the property, where a southward- plunging antiformal hinge with roughly parallel limbs and minor folded hinges is marked by a single carbonate horizon. Just to the west, a major syncline or synform is made evident by another carbonate. The large number of recrystallized limestone units in the area, however, makes it difficult to establish the location of other fold axes, although a gross synformal structure is evident on the geologic cross-section

(Plan 7). Tight folding is also suggested in some of the thicker limestone units by the termination of quartzitic beds; this, however, may be due to boudinaging. The limestone shows a great deal of internal folding by the ubiquitous crumpling of beds into minor folds which reflect larger structures. The carbonate horizons have probably been locally substantially thickened by internal folding. Large scale, more open folding, especially in the north end of the claims, is probably the result of the emplacement of the various magmatic rocks.

In the south part of the property, the xenolithic remnants of metasedimentary rocks are obviously quite rotated. In the north, however, the main structural trend (roughly north-south strike, vertical dip) of the metasediments is quite uniform and, although they appear as discrete xenoliths in two-dimensional plan, they must be joined en echelon in the third dimension in order to have maintained the consistant attitude. The metasedimentary rocks consequently form subparallel screens within the quartz-monzonite stock or stocks.

Jointing and fracturing are well developed in both the metasedimentary and intrusive rocks. The quartzites tend to weather rubbly; and joints, consistent with the pattern in intrusive rocks, are occasionally present in the limestones. The attitudes of joints in quartz-monzonites are variable over the property. One consistent set, however has a north-northeasterly strike and dips 75°E to 75°W (generally vertical). Another prominent set strikes generally east-southeast and dips 65°S to 85°N. Another in the south end of the property can be resolved into a general attitude of an approximately northeast strike, northwest 50° to vertical dip. Other joint patterns are very local.

Jointing/fracturing in the quartz-monzonites in the central part of the property, where metasedimentary rocks are abundant, is much more prevalent than elsewhere. This is reflected in the craggy nature of the spires on the ridge crest. Some of the joints/fractures are mineralized with pyrite (see Section 7.7), and the quartz-monzonite is generally slightly more limonite-stained than in other areas.

Mappable shear or fault zones are uncommon but may be important hosts for potential Pb-Zn-Ag mineralization. In the extreme north (GOAT 85 and 86 claims), a north-easterly trending 10-meter deep gulley in quartz-monzonite is interpreted as a fault/shear zone. Cataclastic quartz-monzonite was mapped in northeasterly trending shear zones in the south part of the property. North-striking fracture/shear zones were mapped in the same areas. In the northern gulley, pyrite, galena and sphalerite were discovered in a partially quartz-carbonate-filled shear zone. Minor fracture/shear zones with pyrite occur in quartz-monzonite in the central part of the claims. An unexposed fault or shear was mapped on the northern main ridge crest, evidenced by fine rubble of kaolinized and limonitized quartz-monzonite.

7.5 Metamorphism

Prior to the emplacement of the granitic rocks, the metasedimentary rocks underwent regional metamorphism to at least the upper greenschist facies. The development of metamorphic fabric-including schistosity in the clastic metasedimentary rocks and some degree of recrystallization of the limestones - occurred at this time.

The degree of thermal overprinting by the intrusive rocks is probably minor since there is little or no hornfelsic texture in the quartzitic rocks; in addition, the grain size of calcite in the recrystallized limestone does not appear to increase near intrusive contacts. However, calc-silicate mineral bands in the recrystallized limestone - interpreted as a result of thermal metamorphism - are common only near contacts with quartz monzonite.

Pyrite and/or pyrrhotite, widespread in micaceous quartzites in trace amounts (rarely up to 5%), since they appear to be restricted to certain horizons, are thought to be an original sedimentary component of the clastic rocks rather than metasomatically introduced; some remobilization or recrystallization may have taken place during regional and/or thermal metamorphism.

Skarnification of carbonate rocks and a possible reason for its limited volumetric extent have been outlined above (7.3.4): the impermeability of limestone, due to prior regional metamorphic recrystallization, at the time of intrusion of the Cassiar Batholith. Pegmatite dykes and quartz veinlets, although widespread in the intrusive rocks, are narrow and volumetrically minor; they are discrete - rather than gradational into the host quartz monzonites - and there is no alteration envelope around either. These observations, plus the lack of pegmatitic segregations and miarolitic cavities in the intrusive rocks, imply relatively dry (H_2O - undersaturated) conditions of crystallization, except at the very late stages. This is substantiated by the probable mesozonal depths of emplacement of the Cassiar Batholith.

As discussed in Section 7.3.2, some calc-silicate hornfels rocks (Unit 2) have been derived by the metasomatic alteration of the micaceous quartzites. The process invokes the addition of Ca (and Mg) from carbonate rocks, and migration of Al, Si, Fe (and possibly Cu, Zn, W and S) from pelitic components of the clastic rocks into the carbonate rocks; intrusive rocks may have played a non-additive role to the exchange, merely providing the heat necessary for the required diffusion of cations.

Quartz monzonite adjacent to skarn zones has frequently been altered to a fine-grained assemblage of feldspar, green calc-silicate minerals (diopside, epidote?), quartz and Fe-sulphides. Sericitized quartz monzonite was also noted. Except for a few localities, the rock was principally observed in talus below outcrops of skarn. Pervasive limonite-staining is typical and the oxidation of pyrite or pyrrhotite has yielded porous, gossanous rock (the distinction from skarn, in such cases, is tenuous). Samples 23133R, 23245R, 23269R and 23276R are typical (Appendix III and Table 6).

7.6 Alteration

Surface-weathering is of minor importance, and is restricted to limonite-staining resulting from the oxidation/hydration of sulphide minerals in skarns, and vein-fracture mineralization, or the alteration of biotite in metasedimentary rocks.

Alteration associated with late shear/fracture zones and vein mineralization are locally significant and will be discussed in "Economic Geology" (7.7).

7.7 Economic Geology

Mineralization of economic interest can be broadly categorized with two basic types: 1) skarn mineralization, and 2) vein- or fracture-related mineralization. These two are temporally and geochemically distinct (Section VIII). The former is principally a Cu-W enrichment in carbonate rocks metasomatized during intrusion of the magma of the Cassiar Batholith; the latter is a structurally-controlled, hydrothermally-related Zn±Pb±Ag mineralization which took place after consolidation of the intrusive rocks.

7.7.1 Skarns

The separation of calc-silicate and sulphide-rich skarns is arbitrarily based on the sulphide mineral content (±10%). The calc-silicate skarns at quartz monzonite dyke contacts bear traces of disseminated pyrite or pyrrhotite but no economic minerals were observed. At the main quartz monzonite/carbonate rock contacts, normally trace to <5% pyrite or pyrrhotite is disseminated throught the rock, although some are barren; intensely and pervasively limonite-stained, sulphide-free samples have probably had pyrite or pyrrhotite oxidized. Occurrences of economic minerals are very local and minor in quantity: trace to 0.3% molybdenite in two localites; trace to 2% chalcopyrite, and trace to 0.1% disseminated scheelite (lamp estimate).

Sulphide-rich skarns contain 10%-90% pyrite or pyrrhotite (average approximately 45% in samples taken). The Fe-sulphides are usually evenly-disseminated and fine- to medium-grained where minor in content and medium- to coarse-grained where the major constituent. Disseminated, fine-grained scheelite was observed in only five localities (trace to 0.2%, lamp estimate). Judging from geochemical analyses (section 8.2), some wolframite is probably present. Chalcopyrite (±1%) was noted in two localities; no other economic minerals were observed. The skarns are, however, locally enriched in Zn, Ag and Pb (section 8.2). The dimensions of skarn bodies have already been discussed in 7.3.4.

The local alteration (hybridization) of quartz monzonites near skarn contacts has been discussed in section 7.6. These rocks are normally pervasively limonitized but locally contain trace to 10% disseminated pyrrhotite or pyrite; no economic minerals were observed.

7.7.2 Vein or Fracture-Related Mineralization

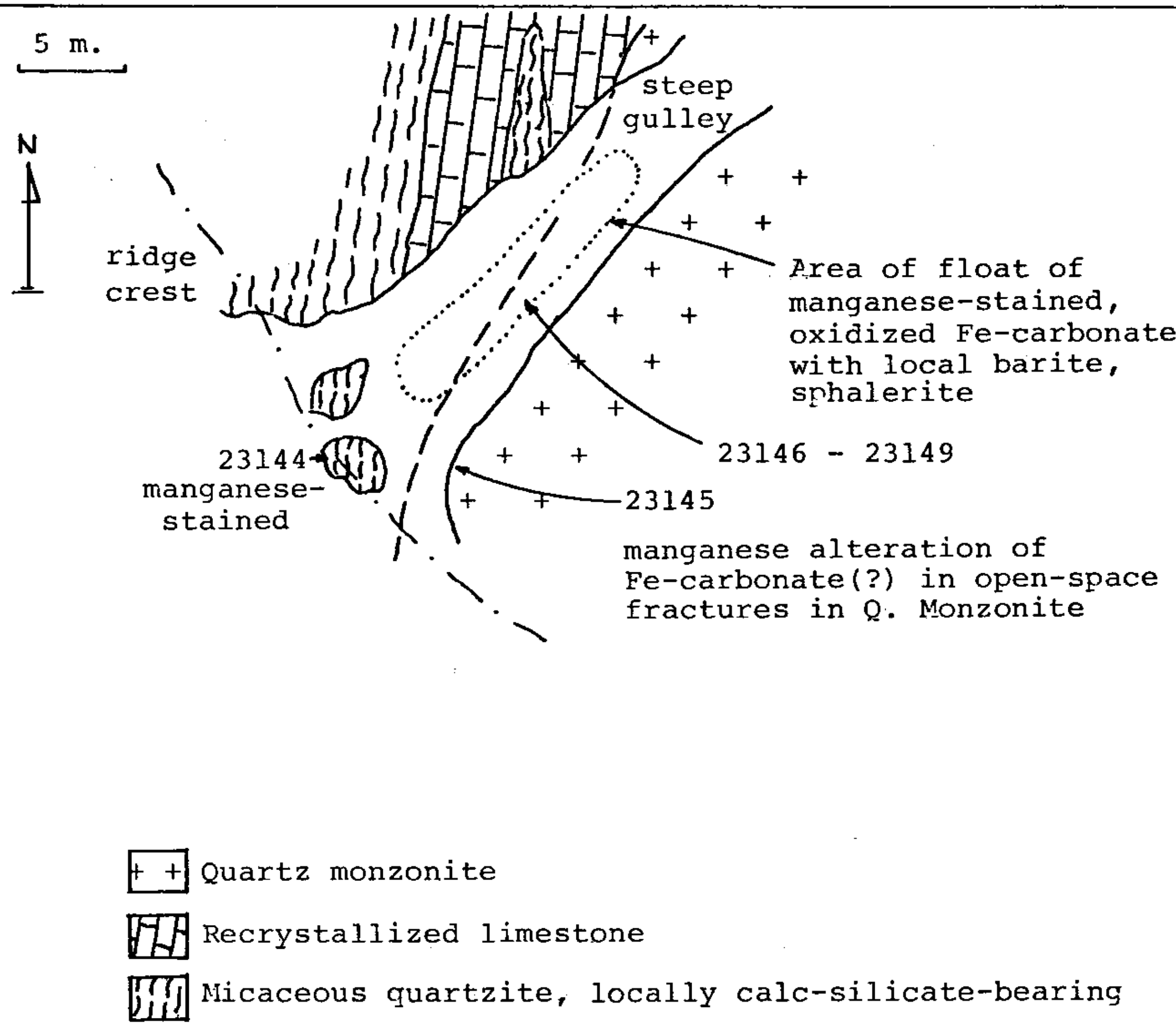
Structurally-controlled mineralization was mapped in five different locations, and this type is a very favourable target for future exploration. There are basically two types: a) pyritic fractures and b) sphalerite veins.

a) At the north end of the property, a north-northwest-striking, 6 cm-wide shear/fracture zone in quartz monzonite adjacent to a skarn body hosts minor, visible galena, sphalerite and pyrite in an open-space-filling quartz vein. The zone is intensely limonite-stained and dendritic manganese staining occupies some fractures. The shear zone is adjacent to a major north-east-trending depression, interpreted to be a fault or shear zone; the GOAT 85 and 86 Claims were staked to cover this area.

In the central part of the property three subparallel, roughly east-west striking, horizontal to shallow-dipping mineralized fracture zones occur in biotite-quartz monzonite. The three areas define a northeasterly-trending zone which may cross the entire ridge (see sample locations 23141R, 23249R and 23338R, Plan 1). The fracture zones are single or multiple, and are characterized by limonite $\pm$ manganese staining, sericitization and kaolinization of the quartz monzonite, and - in one locality - brecciation of the quartz monzonite with quartz veinlet in-filling. The pyritic zones (<1-2% euhedral pyrite) are narrow (3 cm to 2 meters in the multiple zone at 23249R). These zones contain anomalous amounts of Pb, Zn and Ag (section 8.2) and may define a mineralized area of fractures which needs detailed prospecting; the slopes between the three sample locations are, however, very steep.

At the south end of the property, in the area of large metasedimentary xenoliths, a thin vuggy quartz veinlet with euhedral pyrite cubes cuts phyllitic schists (sample 23040R). The veinlet and the phyllite are intensely manganese-stained and other local black-stained areas are widespread in this area. This veinlet carries anomalous amounts of Pb, Zn and Ag (section 8.1) and soils at the base of the ridge are also Pb-Zn-Ag anomalous, suggesting widespread mineralization of this type and a very favourable area for prospecting.

b) On the ridge crest in the central area of the claims, mineralized <u>in situ</u> float occurs in a 5-10 meter-wide gulley between biotite-quartz monzonite and metasedimentary rocks (Fig. 5). At the top of the gulley, intensely black-stained (manganoan?) quartzites and quartz monzonite define the contact zone. The black mineral occurs either as a stain or as coarse crystalline material (pyrolusite or stained Fe-carbonate?) in veinlets. Similar coarse crystalline to massive, earthy material occurs in float in the gulley, occasionally with sphalerite in barite-siderite rock. Black-brown sphalerite constitutes up to 15% of selected rare hand



	Mo	Cu	Pb	Zn	Ag	Sn	W
23144	1	38	28	1700	0.8	2	12
23145	1	22	6	2100	0.7	4	2
23146	1	24	210	4.57%	1.5	3	1
23147	1	124	86	4.19%	1.5	4	3
23148	1	8	1	1200	0.5	4	1
23149	1	8	108	430	0.5	6	2

Figure 5.

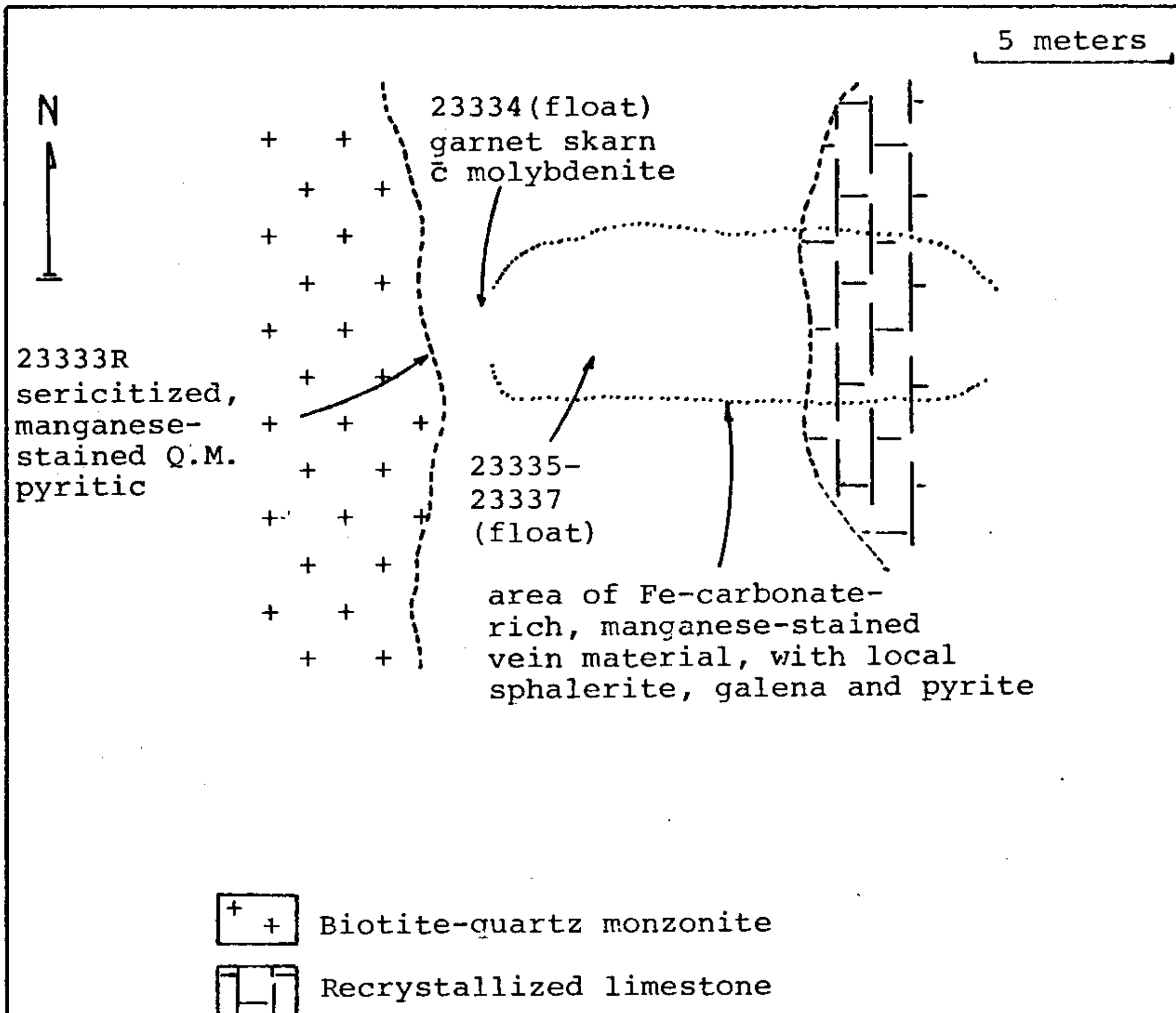
Sketch of area of sphalerite-mineralized float, central ridge specimens of this vein material which is interpreted to be a replacement product of recrystallized limestone. Samples 23144R to 23149R are representative of these types of mineralization.

In the south-central area of the property, similar mineralization was discovered around a buried contact between quartz monzonite and a xenolith of recrystallized limestone (see Figure 6, and description of samples 23333R to 23338R, Appendix II). Locally derived talus of this material is in a 5-meter wide strip of rubble between the lowermost outcrop of quartz monzonite and the upper carbonate outcrop, which are 10 meters apart. Minor calc-silicate skarn float is present, but much of the rubble consists of highly altered intrusive rock with limonitic and manganoan alteration, open-space (vuggy) quartz fillings, minor pyrite and rare galena. Rare float containing black-brown sphalerite (up to 30% with manganese-stained Fe-carbonate is interpreted as vein material from this contact zone. This area should be trenched to bedrock in future surveys.

VIII. GEOCHEMISTRY

8.1 Statistical Treatment of Results

From the 100 soil samples, splits were taken of four as control samples. The comparison of results is listed in Table 1. The generally accepted figure for reproducibility



	Mo	Cu	Pb	Zn	Ag	Sn	W	U	Th (ppm)
23333	2	84	475	1900	4.4	2	25	3.5	3
23334	250	56	138	160	6.2	1	5	1.0	3
23335	2	400	0.53%	2850	4.94oz/t	4	3	1.5	8
23336	48	74	240	1.54%	17	3	15	160	17
23337	6	156	0.42%	8.22%	1.24oz/t	1	1	-	-

Figure 6.

Sketch of area of mineralized float,
southern part of central ridge

of results is: 1-10 ppm, 30%; 10-50 ppm, 20%; +50 ppm, 10%. Those values that do not conform are marked with an asterisk in Table 1. The discrepancies are very close to the accepted limits and can be discounted by the split-taking procedure; the sample was not homogenized before extraction.

TABLE 1

Comparison of Values for Split Samples - Soils

Split	Original	Mo		Cu		Pb		Zn		Ag		W (ppm)	
80WA23000	23062	1	1	14	10	12	12	56	50	0.1	0.1	1	1
23001	23089	1	2*	42	36	60	56	230	200	0.1	0.1	3	4
23002	23115	1	2*	42	46	18	16	118	122	0.1	0.1	1	1
23003	23199	4	1*	36	40	6	8	100	104	0.1	0.1	1	1

For soil samples, all metal values were divided into class intervals, from which frequency distribution diagrams were constructed. A smooth freehand curve was drawn through the normal population. The intersection of the curve with the abscissa defines a value above which all values are arbitrarily considered anomalous. Subsequently, cumulative frequency curves were constructed from class intervals excluding anomalous values. From the curves, mean (50th percentile) and probably anomalous (97th percentile) values were calculated. Frequency distribution data (Tables 15-20), frequency distribution diagrams and cumulative frequency curves (Figs. 9-20) are presented in Appendix IV, and results are summarized in Table 2, below.

TABLE 2

Summary of Mean, Probably Anomalous, Anomalous Values and Range for Soils

	Mo	Cu	Pb	Zn	Ag	W (ppm)
Mean	1	15	20	88	0.1	1
Prob. Anom.	4-5	42-60	65-80	200-240	0.3-0.4	2-3
Anomalous	+5	+60	+80	+240	+0.4	+3
Range	1-16	4-82	4-455	20-1700	0.1-4.8	1-90

The populations for stream sediment and heavy mineral samples are of insufficient size for meaningful statistical treatment. Consequently, data from CanadianOxy's 1979 regional WATSU follow-up stream sediment sampling program were used. Details of the program can be obtained from Sacks (1980). Sacks compiled all stream sediment and heavy mineral values, constructed cumulative frequency diagrams for each metal and calculated mean (50th percentile), possibly anomalous (84th percentile) and probably anomalous (97th percentile) values. In this discussion, the probably anomalous levels are considered significant, and the corresponding data are compiled in Tables 3 and 4.

TABLE 3
Probably Anomalous Levels for Stream
Sediment Values, from Sacks (1979)
Range of 1980 Values

	Mo	Cu	Pb	Zn	Ag	W	U (ppm)
Prob. Anomalous (1979)	11	54	59	320	1	16	38
Range (1980)	1-7	10-52	14-200	92-880	0.1-1.1	1-20	3-17

TABLE 4
Probably Anomalous Levels for Heavy
Mineral Values, from Sacks (1979)
Range of 1980 Values

	Mo	Cu	Pb	Zn	Ag	W	Sn	U	Th (ppm)	Au (ppb)
Prob. Anomalous Sacks (1979)	8.5	165	280	440	0.95	160	300	120	1200	3150
Range (1980)	1-2	14-62	14-108	52-162	0.1-0.2	1-80	1-4	5.5-44	120-765	<10

Insufficient sample populations for rock types precludes detailed statistical treatment of results. For skarns and granitic rocks (all types), however, frequency distribution diagrams were constructed and approximate anomalous levels chosen (Tables 13 and 14, Figs. 7 and 8, Appendix IV). Results are summarized in Table 5.

TABLE 5

Summary of Anomalous Levels and Range of Values for Skarns and Granitic Rocks

Granitic Rocks

	Mo	Cu	U	Th (ppm)
Anomalous	none	+20	none	+30
Range	1-2	2-1100	1.5-9	2-46

Skarns

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
Anomalous	+10	+160	+16	+350	+1.4	+10	+6
Range	1 ppm-0.046%	36 ppm 0.89%	1-490	16 ppm-1.54%	0.1 ppm 0.8 oz/t	1.43	1 ppm-0.38% WO_3

8.2 Rock Geochemistry

Ninety-five (95) rock samples were collected and analyzed for varying combinations of Mo, Cu, Pb, Zn, Ag, Sn, W, U and Th (592 elemental analyses). For purposes of discussion, these have been divided into their constituent rock types: skarns, intrusive rocks, vein/fracture material, hybridized intrusive rocks, quartzites and a quartz vein. Sufficient populations are available for only the skarns and intrusive rocks for statistical treatment of results. Analytical results and rock descriptions are presented in Appendices I and III, respectively, and analytical results are tabulated by lithology in Tables 6 to 11.

Quartz Veins (Table 8)

Although quartz veinlets are abundantly distributed throughout the the intrusive rocks, they are always barren of visible mineralization. One sample returned low values of Mo, Cu, Pb, Zn, Ag, Sn and W.

Sulphide-Bearing Micaceous Quartzites (Table 7)

Three samples of pyrrhotite-bearing and limonite-stained quartzites were analyzed for Mo, Cu, Pb, Zn, Ag, Sn and W (Table 7). Sample 23294R contains a trace of chalcopyrite (184 ppm Cu) and another contains slightly elevated Mo (38 ppm). No other metals show significant, if any, enrichment. Elevated Cu and Mo suggest metasomatic alteration due to igneous intrusion.

Intrusive Rocks (Tables 9 and 13, Fig. 7)

Frequency distribution diagrams for all intrusive

TABLE 6

Geochemistry of Hybridized Intrusive Rocks

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
23133R	4	172	4	162	0.5	2	13
23245	54	3	24	16	1.4	1	2
23269	4	178	1	10	0.6	6	12
23276	3	550	1	46	0.6	3	0.07% WO_3
23252	1	200	6	20	0.1	1	3

TABLE 7

Geochemistry of Sulphide-Bearing Micaceous Quartzites

23294R	4	184	1	154	0.6	2	5
23295	38	18	6	44	0.6	7	5
23300	2	64	4	144	0.9	3	2

TABLE 8

Geochemistry of a Quartz Vein

23297R	2	28	10	44	0.8	6	3

TABLE 9

Geochemistry of Intrusive Rocks, by Lithology

		Mo	Cu	U	Th	W	U/Th		Mo	Cu	U	Th	W (ppm)	U/Th
Units 5 & 6 Diorite and Granodiorite	23042	1	8	4.5	15	-	0.3	23231	1	6	7	20	-	0.35
	23143	1	94*	8	46	-	0.17	23261	1	400	2	38	15	0.05
	23193	1	8	7.5	30	-	0.25							
Unit 6a Biotite-quartz monzonite	23043	1	14	3	9	-	0.33	23192	1	18	2	8	-	0.25
	23044	1	14	2.5	21	-	0.12	23232	1	4	2.5	7	-	0.36
	23045	1	14	3	15	-	0.2	23234	1	2	5.5	3	-	1.83
	23140	2	36	3.5	22	-	0.16	23244	1	4	4.5	10	-	0.45
	23152	1	1100	3.5	7	-	0.5	23280	2	20	1.5	17	5	0.09
Unit 6b Biotite-musconite quartz monzonite, with dykes	23041	1	6	3	5	-	0.6	23262	1	16	9	13	1	0.69
	23160	1	4	1.5	17	-	0.9	23266	1	16	2.5	5	1	0.5
	23233	1	2	2	2	-	1.0	23267	1	6	3.5	7	1	0.5
Unit 6c Pegmetite	23281	1	10	1.5	3	3	0.5	23292			3.5	13	5	0.27

Summary of Anomalous Levels

	Mo	Cu	U	Th (ppm)
Anomalous	-	+20	-	+30
Range	1-2	2-1100	1.5-9	2-46

* underscoring indicates anomalous values

rocks show that none are anomalous in Mo or U, four are anomalous in Cu (36-1100 ppm) and two in Th (38-46 ppm). Sample 23261R, with 400 ppm Cu, is an altered diorite containing traces of disseminated pyrite. Sample 23152R, a biotite-quartz monzonite or granite with 1100 ppm Cu, contains abnormally low K-feldspar (10%) and may be slightly hybridized. The highest Th values occur in the more basic, earliest phases of intrusion.

U/Th ratios vary from 0.05 to 1.83 (mean = 0.41 overall). The average U/Th ratios from the three major sub-units increase with degree of differentiation: 0.22 in units 5a and b; 0.43 in unit 6a; 0.56 in unit 6b.

Hybridized Intrusive Rocks (Table 6)

Although no statistics were done on the five samples of hybridized quartz monzonites, the geochemistry can be summarized as follows:

- slight to strong enrichment of Mo (1-54 ppm) over the fresh intrusive rocks (1-2 ppm).
- moderate enrichment of Cu (3-550 ppm) vs. fresh quartz monzonite (2-94 ppm, with highly anomalous values of 400 and 1100 ppm)
- no significant values of Pb, Zn, Ag or Sn
- local enrichment in W. Sample 23276R contains 0.07% WO_3 but no scheelite, indicating the presence of wolframite.

Vein and Fractured-Related Material (Table 10)

A statistical treatment of results was not carried out for vein and fracture-related mineralization because of the selective taking of visibly mineralized specimens and the small population (18 samples). From observation of Table 10, however, the following can be summarized:

- No significant enrichment of Mo, Sn or W
- only moderate enrichment of Cu (maximum 760 ppm in the northern galena-sphalerite-pyrite-mineralized fracture)
- enrichment in Pb±Zn±Ag in pyritic fractures/shears in quartz monzonite, including the galena-sphalerite-pyrite mineralized vein in the north (84 ppm - 1.31% Pb; 158 ppm - 5.64% Zn; 1.1 ppm - 1.94 oz/ton Ag)
- the manganese-stained, locally sphalerite-bearing vein material occurring as float in buried contact zones in two locations (Figs. 4 & 5) contains elevated zinc (430 ppm - 8.22%). Pb and Ag values are not necessarily anomalous in these rocks (as low as 1 and 0.5 ppm, respectively) but are elevated in the southern occurrence (405 ppm - 1.31% Pb, 1.0 ppm - 4.94 oz/ton Ag). The local enrichment in Pb is the factor most strongly indicating that the two occurrences are vein material rather than skarn; GOAT calc-silicate skarn samples do not contain more than 490 ppm Pb.
- The only high uranium value (160 ppm) found on the property is from a sample of sphalerite-bearing vein material from float at the southern occurrence. The U/Th ratio is 9.5/1.

TABLE 10

Geochemistry of Vein and Altered Fracture Material

		Mo	Cu	Pb	Zn	Ag	Sn	W	U	Th (ppm)
23040	F*	1	12	380	855	4.8	1	2		
23141	F	1	18	84	158	1.1	11	2		
144	V*	1	38	28	1700	0.8	2	12		
145	V	1	22	6	2100	0.7	4	2		
146	V	1	24	210	4.57%	1.5	3	1		
147	V	1	124	86	4.19%	1.5	4	3		
148	V	1	8	1	1200	0.5	4	1		
149	V	1	8	108	430	0.5	6	2		
168	F	1	235	0.86%	5.64%	0.86oz/t	1	13		
169	F	7	760	1.31%	1.63%	1.94oz/t	1	1		
249	F	1	20	880	460	1.6	1	3		
265	V?	1	46	172	1250	1.5	7	1		
296	F	2						4	5.5	37
333	V	2	84	475	1900	4.4	2	25	3.5	3
335	V	2	400	0.53%	2850	4.94 oz/t	4	3	1.5	8
336	V	48	74	240	1.54%	17	3	15	160	17
337	V	6	156	0.42%	8.22%	1.24 oz/t	1	1		
338	V	10	14	405	1750	1.0	1	2		
Range		1-48 ppm	8-760 ppm	1 ppm-1.31%	158 ppm-8.22%	0.5 ppm -4.94 oz.t	1-11 ppm	1-25 ppm		

*F - Altered Fracture Material
V - Vein Material

All other samples in the area have low U values (1.5 - 5.5 ppm) and the significance of one high value is uncertain.

Skarns (Tables 11 and 14, Fig. 8)

Frequency distribution diagrams for analytical data of GOAT 37-86 skarns (45 samples) show a bimodal distribution of metals analyzed (Mo, Cu, Pb, Zn, Ag, Sn, W). In the case of Cu, Mo (and perhaps W), this is partly due to a "high-grade" sampling effect, since rock samples bearing visible chalcopyrite, molybdenite (and scheelite) were preferentially taken over barren samples. For Pb, Zn, Ag, and Sn, however, the apparent bimodal distribution is real since no discrete minerals bearing these metals were observed in skarns.

Molybdenum is generally not very enriched in skarns, although one sample (23132R) contains 0.046% Mo. Calc-silicate skarns are somewhat more enriched than sulphide-rich skarns. Copper content is generally higher in the sulphide-rich skarns (maximum 0.89% Cu). The highest values of Mo and Cu are related to visible molybdenite and chalcopyrite.

Tungsten does not reach economically interesting values in any specimens. There is an abrupt increase in W content from the 1-10 ppm W range, to +0.10% WO_3, with only a few values between. Most of the highest assays (0.10%-0.38% WO_3) are not related to visible scheelite (UV lamp) and the presence of wolframite is suspected; despite the widespread

TABLE 11

Geochemistry of Skarn Rocks

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
Sulphide-Rich Skarns							
80WA23039R	10	104	205	144	0.8	1	0.16% WO_3
23131	4	100	490	1.54%	4.1	2	8
23134	15*	750	1	82	2	4	0.12% WO_3
23137	3	0.89%	1	110	0.80 oz/t	1	0.12% WO_3
23138	2	2250	198	300	0.66 oz/t	1	0.12% WO_3
23142	1	0.37%	14	100	3.8	10	+400
23246	2	430	2	20	0.2	1	1
23248	2	36	2	600	0.1	2	2
23251	2	670	2	180	0.1	1	0.12% WO_3
23253	18	1800	1	62	1.0	1	300
23254	2	655	1	32	1.2	1	1
23255	5	1000	8	28	1.6	1	0.20% WO_3
23273	5	650	6	58	0.7	4	0.10% WO_3
23277	2	800	1	16	0.6	3	5
23282	4	400	1	54	0.5	4	400
23286	1	500	1	22	0.7	4	1
23340	4	380	1	18	0.4	2	2
Anomalous	+10	+160	+16	+350	+1.4	+30	+6
Range	1-18 ppm	36 ppm-0.89%	1-490 ppm	16 ppm -1.54%	0.1 ppm-0.8 oz/t	1-10 ppm	1 ppm-0.20% WO_3

* underscoring indicates anomalous values

TABLE 11 CONTINUED

Geochemistry of Skarn Rocks

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
Calc-Silicate Skarns							
80-Wa23132R	.046%*	16	2	150	0.4	3	5
23135	6	0.51%	8	530	10	5	55
23136	4	74	6	70	0.5	4	5
23139	4	800	2	82	1.9	1	230
23150	1	550	8	134	1.3	8	2
23151	14	0.60%	8	300	10.0	16	40
23153	6	350	1	62	1.2	7	0.10% WO_3
23167	2	54	26	340	0.2	43	25
23247	16	1450	10	154	1.8	2	0.19% WO_3
23250	2	18	2	26	0.1	2	1
23263	4	32	6	450	0.2	7	1
23264	6	22	1	164	0.2	4	1
23268	2	10	1	34	0.3	3	3
23270	4	350	4	160	0.4	6	15
23271	5	14	1	62	0.1	3	1
23272	6	18	2	68	0.3	6	1
23274	4	26	1	52	0.4	6	8
23275	5	176	1	285	0.5	6	55
23278	6	350	1	54	0.5	3	0.38% WO_3
23279	220	300	1	136	0.6	3	0.34% WO_3
23283	18	168	1	106	0.5	3	0.09% WO_3
23284	2	350	1	646	0.7	4	2
23285	64	500	1	620	1.6	3	3

TABLE 11,CONTINUED

Geochemistry of Skarn Rocks

	Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
Calc-Silicate Skarns							
80Wa23293	6	10	1	116	0.8	3	30
23298	4	14	1	34	0.6	3	2
23299	8	26	12	230	0.8	4	2
23334	250	56	138	160	6.2	1	5
23339	65	172	1	78	0.1	4	1
Anomalous	+10	+160	+16	+350	+1.4	+10	+6
Range	1 ppm-0.046%	10 ppm -0.60%	1-38 ppm	26-646 ppm	0.1-10 ppm	1-43 ppm	1 ppm 0.38% WO_3

* underscoring indicates anomalous values

distribution of tungsten in the northern Cordillera, wolframite is quite rare and virtually unknown in skarns.

Tin is virtually not enriched in GOAT 37-86 skarns. All values but two are less than 10 ppm, the estimated threshold value.

Lead, zinc and silver are locally anomalous. Pb is the least enriched, with a threshold of only 16 ppm and only five anomalous values (26-490 ppm); the highest values are in sulphide skarn (up to 80% pyrrhotite). Six samples contain anomalous zinc (+350 ppm); all but one of these contain visible pyrite or pyrrhotite (1-15%). Sample 23131R contains 1.54% Zn and ± 15% pyrite but no visible sphalerite. Anomalous values in Ag (+1.4 ppm) occur in both calc-silicate and sulphide skarns but all samples contain some sulphide (trace pyrite or pyrrhotite, rarely chalcopyrite); the two highest values (0.80 and 0.66 oz/ton Ag) are from sulphide-rich skarns (15-80% pyrrhotite).

In summary, the calc-silicate skarns appear to be slightly more enriched in Sn, W and Mo than the sulphide skarns. Cu, Pb, Zn and Ag reach highest values in the sulphide skarns. This may reflect the relative temperatures of formation of the skarns. In no instance, because of the extremely limited dimensions of the exposed skarn bodies, do contents of any of the analyzed metals attain economic significance.

8.3 Soil Geochemistry (Plans 2, 3 and 6)

Soil sampling in 1980 consisted of running a traverse completely around the exposed ridge system in the central part of the property, and sampling at 125-meter intervals at either mid-slope or at top of talus. All samples were run for Mo, Cu, Pb, Zn, Ag and W; results are presented in Appendix I.

Areas of anomalous metals in soil samples are summarized on Plan 6. It should be noted that the anomalies have been closed for the convenience of data presentation, but only their horizontal dimensions are known.

Anomaly A, ±125 meters long, consists of two adjacent anomalies: one of overlapping Cu and W (54 ppm and 35 ppm, respectively, and one of Zn (330 ppm). Both are one-station anomalies. No mineralization was noted, but metasedimentary xenoliths, including recrystallized limestone and minor skarn, were mapped in the vicinity.

Anomaly B, four stations or 350 meters long, is comprised of a 3-station Cu anomaly (52-68 ppm), a 2-station Pb and Zn anomaly (74-128 and 280-445 ppm, respectively), a 1-station Ag anomaly (0.4 ppm), and a one-station W anomaly (90 ppm). Chalcopyrite and scheelite have been found in skarns in the general uphill direction, and the sphalerite vein occurrence at the ridge crest explains the Zn anomalies. Also up hill was found a pyritic sericitized shear zone in quartz monzonite which bears 880 ppm Pb, 460 ppm Zn and 1.6 ppm Ag. (Sample 80-WA-23249R). In summary it would appear that the geochemical soil anomalies are explained, but it is thought advisable to further prospect the general area for additional Pb-Zn-Ag- and/or Zn-bearing fractures or vein systems.

Anomaly C, consists of coincident 2-station Pb (110-455 ppm), Zn (630-665 ppm) and Ag (0.4-0.6 ppm) anomalies, a one-station W anomaly (35 ppm), and a 2-station Cu anomaly (46-52 ppm). Above this area, a sericitized and limonitized fracture-quartz veinlet system in quartz monzonite was found to carry elevated amounts of Pb, Zn and Ag (405, 1750 and 1.0 ppm, respectively; sample 80-WA-23338R). Although this single occurrence cannot account for the 3-station Pb-Zn-Ag soil anomaly, careful prospecting might reveal more extensive veinlet/fracture mineralization than noted in the brief 1980 examination. Interestingly, Anomaly C lies on the opposite side of the ridge from Anomaly B, and three mineralized alteration/fracture systems in intrusive rocks have been mapped between them. Consequently this is considered a good target for Pb-Zn-Ag (porphyry?) mineralization. The W and Cu soil anomalies are probably derived from skarns in the vicinity.

Anomaly D, which lies immediately south of Anomaly C at the base of outcrop is a 400-meter long, 4-station Zn anomaly (270-310 ppm), with two of the samples bearing anomalous W (4 and 5 pm). The Zn anomalies are unexplained but may be due to sphalerite vein mineralization of the type found at Anomaly F.

Anomaly E is a one station Mo (4 ppm)-Cu (44 ppm)-W (60 ppm)-Zn (435 ppm) anomaly which is situated on the opposite side of a ridge from a Zn-Pb-Ag vein and Mo skarn occurrence. The anomaly is probably derived from a xenolith of carbonate rock in the intrusive and the area should be prospected in detail.

Anomaly F, 450 meters long, is on the opposite side of the ridge from Anomaly E, and beneath the sphalerite-galena-molybdenite composite vein/skarn occurrence (Section 7.7.2). Rocks from this occurrence carry elevated amounts of Pb, Zn, Ag, Mo and minor W. The soil anomaly consists of a 4-station W anomaly (4-15 ppm), a 2-station Zn anomaly (240-325 ppm), and a one-station Mo and Pb anomaly (5 and 106 ppm, respectively). The Pb and Zn anomalies are displaced somewhat to the south of the occurrence which may reflect vein/fracture type mineralization as yet undiscovered. In addition, the W-anomalous zone is 450 meters long and probably reflects buried skarn. The area should be prospected in detail.

Anomaly G is the most extensive found on the property. It consists of several overlapping, multi-element anomalies and, treated as a whole, is over 1,000 meters (10 stations) long, near the top of talus. Consecutive anomalies can be broken down into:

Mo: 1 one-station and 1 seven-station (4-16 ppm)

Cu: 2 one-station (56-86 ppm)

Pb: 2 one-station, and 2 two-station (68-390 ppm)

Zn: 1 one-station; 1 two-station and 1 three-station (325-1700 ppm)

Ag: 1 one-station and 1 five-station (0.3-4.8 ppm).

This anomaly occurs at the base of an arcuate ridge system on which xenolithic remnants of metasedimentary rocks have been incorporated into quartz monzonite. Minor scheelite-bearing skarn occurs (not reflected in the soil geochemistry). The extensive Mo and lesser Cu soil anomalies occur only below the area of xenoliths and are likely derived from skarn mineralization.

The Pb, Zn and Ag values, on the other hand, persist to the west of the xenolith zone, and, due to the generally very low levels of Pb in skarn, probably reflect a different source. A quartz-pyrite-filled, manganese-stained fracture in phyllitic rocks on the ridge top was found to carry anomalous in Pb (380 ppm), Zn (855 ppm) and Ag (4.8 ppm) (sample 80-WA-23040R, see also Section 7.2.2). Only the ridge top and bottom were examined, the intervening ground being steep, but the vicinity should be prospected in detail for Pb-Zn-Ag vein-type mineralization.

Other small one- or two-station, one- or two-element soil anomalies occur elsewhere on the property, but these are generally insignificant and are not discussed here.

In summary, the seven main anomalous areas should be follow-up prospected in detail, primarily for potential of Pb-Zn-Ag vein mineralization.

8.4 Stream Sediment Geochemistry (Plans 4 and 6)

Of the 27 stream sediment samples taken in the northeast and west drainages of the property, very few are anomalous (as defined by Table 3, probably anomalous values from Sacks, 1979). Only one sample contains anomalous tungsten (20 ppm), reflecting the general low level of tungsten in skarns and their small size. All other anomalies are of Pb$\pm$Zn$\pm$Ag (60-200 ppm Pb, 340-880 ppm Zn, 1.0-1.1 ppm Ag). Both anomalous streams drain the general areas of soil anomalies B, C and D (Section 8.3). A 64-ppm Pb value was detected in the main drainage in the northeast area of the claims, suggesting possible mineralization in untested areas to the east of the property. The streams draining the southeast area should be sampled to detect possible unexposed Pb-Zn-Ag mineralization in that area.

8.5 Heavy Mineral Geochemistry (Plans 4 and 6)

From Table 4 (Section 8.1) it is apparent that geochemical values of heavy mineral samples do not reach "significant" levels as defined by Sacks' (1979) regional compilation. Tungsten does reach fairly high but not significant values (up to 80 ppm) reflecting the poorly mineralized and spotty nature of skarn bodies. Although tungsten is normally mechanically dispersed (scheelite and wolframite) stream sediments do contain locally significant values (Section 8.4) but heavy mineral concentrates do not; the reasons for this are obscure, but there may be minute grains of scheelite or wolframite incorporated in some other mineral.

The transport of Pb, Zn and Ag is primarily hydromorphic since no heavy mineral samples contain significant values, whereas stream sediment samples do.

The stream sediment and heavy mineral data further imply that Pb-Zn-Ag mineralization is a more important target than Cu-W-bearing skarns.

Th values do not reach Sacks' (1979) probably anomalous levels (1200 ppm) but are nonetheless high (120-765 ppm). Corresponding U values are low (5.5-44 ppm) and Th/U rations vary from 11.4 to 39.2. This indicates that resistate heavy minerals are thoriferous, not uraniferous.

IX. RADIOMETRICS (Plan 5)

Radiometric readings were taken at all soil sample and some stream sediment sample locations (119 readings). Anomalous readings were determined by constructin of a frequency distribution diagram, using methods explained in Section 8.1 for soil geochemistry (Fig. 21). Probably anomalous and mean values were calcualted from a cumulative frequency diagram constructed from the non-anomalous population (97th and 50th percentiles, respectively, Fig. 22). Data is summarized below:

TABLE 12

Summary of Statistical Results - Radiometric Readings

	cps
Mean	242
Probably Anomalous	320-360
Anomalous	+360
Range	143-385

Figure 21 demonstrates that there are two possible populations of radiometric response, the lower one (peaking at approximately 190 cps) reflecting readings over float and/or subcrop of metasedimentary rocks; the higher, larger population reflecting granitic terrain.

There are only four "probably anomalous" and two "anomalous" readings (Plan 5) which are mostly randomly distributed over the entire property; all were taken over talus or outcrop of granitic rocks. The two highest responses (373 and 385 cps) are located 125 meters apart at the northern end of the property, suggesting an anomalous zone in that area; present data are, however, too scanty to draw conclusions. Rock geochemical data (Section 8.2) suggest little enrichment in uranium on the property.

X. CONCLUSIONS

1. The GOAT 37-86 claims are partly underlain by a sequence of regionally metamorphosed Lower Cambrian and (?) earlier clastic and carbonate sedimentary rocks. The development of schistosity in the quartzitic rocks and recrystallization of the carbonate rocks probably occurred along with the development of isoclinal folds with subvertical axial planes, at the time of regional metamorphism. The folded sequence was subsequently intruded by at least three phases of

granitoid intrusive rocks of the Cassiar Batholith during Jurassic and/or Cretaceous times: diorite to granodiorite; biotite-quartz monzonite ; and biotite-muscovite-quartz monzonite. The metasedimentary rocks occur as large xenoliths, or septa within the intrusive mass. All rocks were subsequently fractured and sheared.

2. Metasomatic skarn bodies formed locally where recrystallized limestone contacts the Cassiar intrusive rocks. Calc-silicate skarns, composed principally of garnet, diopside, calcite and quartz, predominate. Bodies of sulphide-rich skarn (>10% sulphide, mostly pyrrhotite) almost invariably occur within the calc-silicate skarns, immediately adjacent to intrusive contacts. None of the skarns is remotely of potentially mineable dimensions (0.2-5 meters thick, 1-30 meters long). The poor degree of skarnification is thought to be due to either the relatively impermeable nature of the recrystallized limestones at the time of intrusion or the possible water-undersaturated nature of the granitic magmas. Potential targets for further exploration are where structural channelways (e.g. fold hinges) may have existed at the time of granitic intrusion. Due to the near-ubiquitous occurrence of pyrrhotite in "higher-grade" skarns, this could be tested by a magnetic survey in talus - and overburden covered areas where fold hinges are known to exist.

3. Skarns contain spotty mineralization which consists of - along with pyrrhotite or pyrite - molybdenite, chalcopyrite

and scheelite. Geochemically, skarns are locally enriched in Mo (up to 0.046%) Cu (up to 0.89%), Zn (up to 1.54%), Ag (up to 0.80 oz/ton), and W (up to 0.38% WO_3). Values of Pb and Sn are generally very low (maxima of 490 and 43 ppm, respectively). The presence of wolframite is suspected in some skarns due to the lack of scheelite in samples carrying substantial W.

4. The granitic rocks demonstrate virtually no enrichment in Mo, Cu, U or Th. Enrichment of Cu (400-1100 ppm) occurs near zones of contact with skarns. No visible molybdenite nor chalcopyrite was observed in thin quartz veinlets or pegmatitic stringers in the quartz monzonites. There are no anomalous uranium values (1.5-9 ppm) and U/Th ratios rarely exceed 0.5; there are very few radiometric anomalies on the property. Consequently the Cu-Mo porphyry and U potential is considered non-existent.

5. Vein- and fracture-related mineralization probably represents the most potential on the claims. Elevated values of Pb, Zn (and Ag) have been found in partially pyrite (-quartz)-filled fractures in quartz monzonites and metasedimentary rocks in several localities. Grab samples from one galena-sphalerite-mineralized shear/fracture returned values of up to 1.31% Pb, 5.64% Zn and 1.94 oz/ton Ag. Sphalerite associated with Fe-carbonate, intense manganese alteration, pyrite, galena and barite has been found in float at quartz monzonite-carbonate contact zones at

two localities. Samples have returned values of up to 0.53% Pb, 8.22% Zn, and 4.94 oz/ton Ag.

6. Soil sampling, consisting of a single contour around the main central ridge, located several anomalous areas in talus; only the lateral extent of the anomalies is known . Anomalous Pb-Zn-Ag values outline several areas where fracture- or vein-related mineralization are already known but which nonetheless deserve follow-up work. Several other Pb-Zn-Ag anomalies, including Anomaly G which extends for 1,000 meters at the base of outcrop, point to areas where mineralization has not yet been discovered due to insufficient prospecting, although metasedimentary xenoliths and favourable structure have been mapped. The valley to the south and southeast should be examined in detail. Anomalous areas of Cu, Mo and W tend to be related to skarns; values are not high, reflecting the spotty and poorly mineralized nature of the skarns as exposed in outcrop.

7. Stream sediment and heavy mineral geochemistry do not outline any unknown areas of mineralization and reflect values found in soil sampling. The only exception is a high Pb value, obtained in the northeast part of the property, which may indicate mineralization to the east. No heavy mineral values attained the "probably anomalous" levels of Sacks (1979).

XI. RECOMMENDATIONS

On the basis of results to date, the GOAT 37-86 Claims are thought to warrant follow-up examination in 1981. The following work is recommended:

1. Detailed grid-based soil sampling in the northeastern and southeastern cirques. This work would be designed to test for unexposed Mo-Cu-W skarn and Pb-Zn-Ag vein mineralization.
2. A magnetic survey over the same grid area to test for buried pyrrhotite skarn bodies in a favourable structural environment (fold hinges). A VLF-EM survey might locate structural targets (faults or shears) potentially favourable for Pb-Zn-Ag mineralization and a survey over the northern Pb-Zn-Ag occurrence could provide a useful test survey in addition to determining its lateral extent. The geophysical survey(s) should be run independently of soil results (if negative) since the rubble in the valleys is probably not locally derived.
3. Detailed prospecting and mapping in the vicinity of soil anomalies detected in 1980 - with particular attention paid to Pb-Zn-Ag fracture/vein related systems. Known occurrences of Zn±Pb±Ag mineralization, since mostly buried by rubble, should be hand-trenched, plugger-blasted, sampled and mapped. This would apply to any other ccurrence that might be located in 1981.
4. Remapping of the area or areas of most potential (i.e. the central half of the claims) on a scale of 1:2,000 or 1:2,500.

5. Prospecting and mapping to the east of the present claim boundary, since metasedimentary rocks are known to outcrop and one stream sediment anomalous in Pb indicates a source to the east.

6. Pending results of geochemical and geophysical surveys in the northeastern and southeastern valleys, and prospecting, mapping and trenching along the central ridge area, diamond drilling of a favourable target, or targets.

7. After a thorough assessment, a decision on which claims can be dropped.

Respectfully submitted,

R.M. Kuehnbaum, M.Sc.

Toronto, Ontario
January 1981

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Poole, W.H., Roddick, J.A., and Green, L.H., 1960 Geology, Wolf Lake, Yukon Territory, Geol. Surv. Canada, Preliminary Series Map 10-60.

Sacks, E.J., 1979 Geology and Geochemistry of the GOAT Claim Groups. Report for Canadian Occidental Petroleum Ltd. - Minerals Division, Toronto, Ontario.

Travis, R.B., 1955 Classification of Rocks; Quarterly of Colorado School of Mines, Vol. 50, No. 1.

APPENDIX I

ANALYTICAL RESULTS

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS •• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

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

CERT. # : A8011137-001-A
INVOICE # : 41021
DATE : 05-DEC-80
P.C. # : NONE

GOAT 37-86

Sample description	Prep code	Pb percent	Ag oz/t				
23335	214	0.53	4.76	--	--	--	--
23337	214	0.42	1.24	--	--	--	--

Registered Assayer, Province of British Columbia

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. A8010817-001
INVOICE NO. 40836
RECEIVED Oct. 21, 1980
ANALYSED Oct. 31, 1980

TO: CANADIAN OCCIDENTAL PETROLEUM LTD.
Minerals Division
Ste. 311 - 215 Carlingview Drive
Rexdale, Ontario
M9W 5X8

ATTN:

PROJECT WATSU-GOAT 37-84

SAMPLE NO. :	WO3 %	Ag Oz/Ton	
80 WA 23138 R		0.66	✓
80 WA 23142 R	0.12		✓

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

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

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CERTIFICATE OF ASSAY

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

CERT. # : A8011181-001-A
INVOICE # : 40691
DATE : 24-NOV-80
P.O. # : NONE
WATSU-GOAT 37-84

ORIGINALLY ON A8010687

Sample description	Prep code	Zn percent	As oz/t				
80 WA 23335 R	214	--	DELAYED	--	--	--	--
80 WA 23336 R	214	1.55	--	--	--	--	--

Registered Assayer, Province of British Columbia

MEMBER
CANADIAN TESTING
ASSOCIATION

CHEMEX LABS LTD.

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TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

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

CERT. # : A8011137-001-A
INVOICE # : 40622
DATE : 21-NOV-80
P.O. # : NONE

Sample description	Prep code	Pb percent	As oz/t				
23335	214	0.53	DELAYED	--	--	--	--
23337	214	0.42	DELAYED	--	--	--	--

Registered Assayer, Province of British Columbia

MEMBER CANADIAN TESTING ASSOCIATION

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CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

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

CERT. # : A8010813-001-A
INVOICE # : 40175
DATE : 03-NOV-80

WATSU-GOAT 37-84

Sample description	Prep code	WO3 percent					
80 WA 23273 R	214	0.09	--	--	--	--	--
80 WA 23276 R	214	0.06	--	--	--	--	--
80 WA 23278 R	214	0.38	--	--	--	--	--
80 WA 23279 R	214	0.32	--	--	--	--	--
80 WA 23283 R	214	0.10	--	--	--	--	--

B L Twaites

Registered Assayer, Province of British Columbia

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

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

CERT. # : A8011181-001-A
INVOICE # : 40771
DATE : 26-NOV-80
P.O. # : NONE
WATSU-GOAT 37-84

ORIGINALLY ON A8010687

Sample description	Prep code	Zn percent	Ag oz/t				
80 WA 23335 R	214	--	4.94	--	--	--	--
80 WA 23336 R	214	1.55	--	--	--	--	--

Registered Assayer, Province of British Columbia

CTA MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 70219
INVOICE NO. 40749
RECEIVED Sept. 22/80
ANALYSED Nov. 25/80

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

ATTN:

SAMPLE NO. :	oz/ton Silver	Re-assay
80WA 23169	2.12	

MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 70380
INVOICE NO. 40314
RECEIVED Oct. 8/80
ANALYSED Oct.30/80

TO: CANADIAN OCCIDENTAL PETROLEUM LTD.
Minerals Division
Ste. 311 - 215 Carlingview Drive
Rexdale, Ontario
ATTN: M9W 5X8 PROJECT WATSU GOAT 37-84 ROCKS

SAMPLE NO. :	Cu %	Mo %	Pb %	Zn %	Ag Oz/Ton	WO3 %	ORIGINALLY ON
							A8010351
80WA23168R			0.86	5.47	1.00		A8010167
23169R			1.36	1.54	(3.98)		A8010173
23039						0.16	
23047						0.20	
23251						0.12	
23255						0.19	
23131R				1.54			
23132R		0.046					
23135R	0.51						
23137R	0.89				0.80	0.12	
23142R	0.37						
23146B				4.57		<0.01	
23147B				4.19			
23151B	0.60						
80WA23134						0.12	
80WA23153						0.10	
23273R						0.10	
23276R						0.07	
23278R						0.38	
23279R						0.34	
23283R						0.09	
23336				1.54			
8WA23337				8.22			

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 70219
INVOICE NO. 39694
RECEIVED Spt.22/80
ANALYSED Oct.17/80

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

ATTN:

SAMPLE NO. :	% Lead	% Zinc	Oz/Ton Silver	% WO_3
80WA 23039R				0.16
23168	0.86	5.64	0.86	
23169	1.31	1.63	1.94	
23247				0.19
23251				0.12
80WA 23255				0.20

CTA MEMBER CANADIAN TESTING ASSOCIATION

[signature]
REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010687-001-A
INVOICE # : 40650
DATE : 21-NOV-80
P.O. # : NONE
PRJ.WATSU-GOAT37-84

ORIG ON A8010351.

Sample description	Prep code	Pb ppm	Zn ppm	As ppm	U ppm	W ppm	Sn ppm
80 WA 23333 R	214	465	2000	4.0	3.5	37	2
80 WA 23334 R	214	136	134	5.8	1.0	5	1
80 WA 23335 R	214	5000	3100	>20.0	1.5	7	4
80 WA 23336 R	214	260	>10000	12.0	160.0	35	5

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CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010687-001-B
INVOICE # : 40650
DATE : 21-NOV-80
P.O. # : NONE
PRJ.WATSU-GOAT37-84

ORIG ON A8010351.

Sample description	Prep code	Th (NAA) ppm					
80 WA 23333 R	214	3	--	--	--	--	--
80 WA 23334 R	214	3	--	--	--	--	--
80 WA 23335 R	214	8	--	--	--	--	--
80 WA 23336 R	214	17	--	--	--	--	--

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010687-001-A
INVOICE # : 40307
DATE : 11-NOV-80
P.O. # : NONE
PRJ.WATSU-GOAT37-84

ORIG ON A8010351.

Sample description	Prep code	Pb ppm	Zn ppm	Ag ppm	U ppm	W ppm	Sn ppm
80 WA 23333 R	214	465	2000	4.0	3.5	37	2
80 WA 23334 R	214	136	134	5.8	1.0	5	1
80 WA 23335 R	214	5000	3100	>20.0	1.5	7	4
80 WA 23336 R	214	260	>10000	12.0	160.0	35	5

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212 BROOKSBANK AVE.
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CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010687-001-8
INVOICE # : 40307
DATE : 11-NOV-80
P.O. # : NONE
PRJ.WATSU-GOAT37-84

ORIG ON A8010351.

Sample description	Prep code	Th (NAA) ppm					
80 WA 23333 R	214	DELAYED	--	--	--	--	--
80 WA 23334 R	214	DELAYED	--	--	--	--	--
80 WA 23335 R	214	DELAYED	--	--	--	--	--
80 WA 23336 R	214	DELAYED	--	--	--	--	--

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010553-001-A
INVOICE # : 39648
DATE : 17-OCT-80

WATSU-GOAT37-84ROCK

ORIGINALLY ON A8010351

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	W ppm
80WA 23333R	214	--	--	475	1900	4.4	25
80WA 23334R	214	56	250	138	160	6.2	5
80WA 23335R	214	--	--	>4000	2850	>20.0	3
80WA 23336R	214	--	--	240	>4000	17.0	15
80WA 23337R	214	--	--	3400	>4000	>20.0	1
80WA 23338R	214	--	--	405	1750	1.0	2

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010553-001-B
INVOICE # : 39648
DATE : 17-OCT-80

WATSU-GOAT37-84ROCK

ORIGINALLY ON A8010351

Sample description	Prep code	Sn ppm					
80WA 23333R	214	2	--	--	--	--	--
80WA 23334R	214	1	--	--	--	--	--
80WA 23335R	214	4	--	--	--	--	--
80WA 23336R	214	3	--	--	--	--	--
80WA 23337R	214	1	--	--	--	--	--
80WA 23338R	214	1	--	--	--	--	--

Certified by ......[signature]......

CTA
MEMBER
CANADIAN TESTING
ASSOCIATION

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010351-001-A
INVOICE NO. 39788
RECEIVED Sept. 6/80
ANALYSED Oct. 20/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8
ATTN: WATSU GOAT 37-84 ROCK

SAMPLE NO. :	PPM Th (NAA)
80WA 23041R	5
23042	15
23043	9
23044	21
23045	15
23160	17
23192	8
23193	30
23231	20
23232	7
23233	2
23234	3
80WA 23244R	10

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CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010351-001-A
INVOICE # : 38979
DATE : 19-SEP-80

WATSU GOAT37-84ROCK

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	U ppm
80WA 23039 R	205	104	10	205	144	0.8	--
80WA 23040 R	205	12	1	380	855	4.8	--
80WA 23041 R	205	6	1	--	--	--	3.0
80WA 23042 R	205	8	1	--	--	--	4.5
80WA 23043 R	205	14	1	--	--	--	3.0
80WA 23044 R	205	14	1	--	--	--	2.5
80WA 23045 R	205	16	1	--	--	--	3.0
80WA 23160 R	205	4	1	--	--	--	1.5
80WA 23167 R	205	54	2	26	340	0.2	--
80WA 23168 R	205	235	1	>4000	>4000	>20.0	--
80WA 23169 R	205	760	7	>4000	>4000	>20.0	--
80WA 23192 R	205	18	1	--	--	--	2.0
80WA 23193 R	205	8	1	--	--	--	7.5
80WA 23231 R	205	6	1	--	--	--	7.0
80WA 23232 R	205	4	1	--	--	--	2.5
80WA 23233 R	205	2	1	--	--	--	2.0
80WA 23234 R	205	2	1	--	--	--	5.5
80WA 23244 R	205	4	1	--	--	--	4.5
80WA 23245 R	205	54	3	24	16	1.4	--
80WA 23246 R	205	430	2	2	20	0.2	--
80WA 23247 R	205	1450	16	10	154	1.8	--
80WA 23248 R	205	36	2	2	600	0.1	--
80WA 23249 R	205	20	1	880	460	1.6	--
80WA 23250 R	205	18	2	2	26	0.1	--
80WA 23251 R	205	670	2	2	180	0.1	--
80WA 23252 R	205	200	1	6	20	0.1	--
80WA 23253 R	205	1800	18	1	62	1.0	--
80WA 23254 R	205	655	2	1	32	1.2	--
80WA 23255 R	205	1000	5	8	28	1.6	--
3347. 80WA 23333 R	205	84	2	--	--	--	--
80WA 23335 R	205	400	2	--	--	--	--
80WA 23336 R	205	74	48	--	--	--	--
80WA 23337 R	205	156	6	--	--	--	--
80WA 23338 R	205	14	10	--	--	--	--

Certified by .... Hart Bichler

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010351-001-B
INVOICE # : 38979
DATE : 19-SEP-80

WATSU GOAT37-84ROCK

Sample description	Prep code	W ppm	Sn ppm	Th (NAA) ppm			
80WA 23039 R	205	>400	1	--	--	--	--
80WA 23040 R	205	2	1	--	--	--	--
80WA 23041 R	205	--	--	DELAYED	--	--	--
80WA 23042 R	205	--	--	DELAYED	--	--	--
80WA 23043 R	205	--	--	DELAYED	--	--	--
80WA 23044 R	205	--	--	DELAYED	--	--	--
80WA 23045 R	205	--	--	DELAYED	--	--	--
80WA 23160 R	205	--	--	DELAYED	--	--	--
80WA 23167 R	205	25	43	--	--	--	--
80WA 23168 R	205	13	1	--	--	--	--
80WA 23169 R	205	1	1	--	--	--	--
80WA 23192 R	205	--	--	DELAYED	--	--	--
80WA 23193 R	205	--	--	DELAYED	--	--	--
80WA 23231 R	205	--	--	DELAYED	--	--	--
80WA 23232 R	205	--	--	DELAYED	--	--	--
80WA 23233 R	205	--	--	DELAYED	--	--	--
80WA 23234 R	205	--	--	DELAYED	--	--	--
80WA 23244 R	205	--	--	DELAYED	--	--	--
80WA 23245 R	205	2	1	--	--	--	--
80WA 23246 R	205	1	1	--	--	--	--
80WA 23247 R	205	>400	2	--	--	--	--
80WA 23248 R	205	2	2	--	--	--	--
80WA 23249 R	205	3	1	--	--	--	--
80WA 23250 R	205	1	2	--	--	--	--
80WA 23251 R	205	>400	1	--	--	--	--
80WA 23252 R	205	3	1	--	--	--	--
80WA 23253 R	205	300	1	--	--	--	--
80WA 23254 R	205	1	1	--	--	--	--
80WA 23255 R	205	>400	1	--	--	--	--
80WA 23333 R	205	--	--	--	--	--	--
80WA 23335 R	205	--	--	--	--	--	--
80WA 23336 R	205	--	--	--	--	--	--
80WA 23337 R	205	--	--	--	--	--	--
80WA 23338 R	205	--	--	--	--	--	--

Certified by .... [signature]

CTA MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010418-001-A
INVOICE # : 38987
DATE : 19-SEP-80

WATSU GOAT37-84ROCK

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	W ppm
80 WA 23339 R	205	172	65	1	78	0.1	1
80 WA 23340 R	205	380	4	1	18	0.4	2

Certified by [signature]

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010418-001-B
INVOICE # : 38987
DATE : 19-SEP-80

WATSU GOAT37-84ROCK

Sample description	Prep code	Sn ppm					
80 WA 23339 R	205	4	--	--	--	--	--
80 WA 23340 R	205	2	--	--	--	--	--

Certified by .... Hart Bichler

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010167-001-A
INVOICE NO. 39792
RECEIVED Aug. 26/80
ANALYSED Oct. 20/80

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

ATTN: WATSU GOAT 37-48 R.

SAMPLE NO. :	PPM Th (NAA)
80WA 23140R	22
80WA 23143R	46
80WA 23152R	7

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010167-001-A
INVOICE # : 38738
DATE : 12-SEP-80

WATSU GOAT 37-48 R

Sample description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23131R	100	4	490	>4000
OWA 23132R	16	>250	2	150
OWA 23133R	172	4	4	162
OWA 23134R	750	15	1	82
OWA 23135R	>4000	6	8	530
OWA 23136R	74	4	6	70
OWA 23137R	>4000	3	1	110
OWA 23138R	2250	2	198	300
OWA 23139R	800	4	2	82
OWA 23140R	36	2	--	--
OWA 23141R	18	1	84	158
OWA 23142R	>4000	1	14	100
OWA 23143R	94	1	--	--
OWA 23144R	38	1	28	1700
OWA 23145R	22	1	6	2100
OWA 23146R	24	1	210	>4000
OWA 23147R	124	1	86	>4000
OWA 23148R	8	1	1	1200
OWA 23149R	8	1	108	430
OWA 23150R	550	1	8	134
OWA 23151R	>4000	14	8	360
OWA 23152R	1100	1	--	--
OWA 23153R	350	6	1	62

Certified by ....Hart Bichler....................

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010167-001-B
INVOICE # : 38738
DATE : 12-SEP-80

WATSU GOAT 37-48 R

Sample description	Ag ppm	U ppm	W ppm	Sn ppm
OWA 23131R	4.1	--	8	2
OWA 23132R	0.4	--	5	3
OWA 23133R	0.5	--	13	2
OWA 23134R	2.0	--	>400	4
OWA 23135R	10.0	--	55	5
OWA 23136R	0.5	--	5	4
OWA 23137R	>20.0	--	>400	1
OWA 23138R	>20.0	--	200	1
OWA 23139R	1.9	--	230	1
OWA 23140R	--	3.5	--	--
OWA 23141R	1.1	--	2	11
OWA 23142R	3.8	--	>400	10
OWA 23143R	--	8.0	--	--
OWA 23144R	0.8	--	12	2
OWA 23145R	0.7	--	2	4
OWA 23146R	1.5	--	1	3
OWA 23147R	1.5	--	3	4
OWA 23148R	0.5	--	1	4
OWA 23149R	0.5	--	2	6
OWA 23150R	1.3	--	2	8
OWA 23151R	10.0	--	40	16
OWA 23152R	--	3.5	--	--
OWA 23153R	1.2	--	>400	7

Certified by .... Hart Bichler

MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8C10167-001-C
INVOICE # : 38738
DATE : 12-SEP-80

WATSU GOAT 37-48 R

Sample description	Th (NAA) ppm			
DWA 23131R	--	--	--	--
DWA 23132R	--	--	--	--
DWA 23133R	--	--	--	--
DWA 23134R	--	--	--	--
DWA 23135R	--	--	--	--
DWA 23136R	--	--	--	--
DWA 23137R	--	--	--	--
DWA 23138R	--	--	--	--
DWA 23139R	--	--	--	--
DWA 23140R	TO FOLLOW	--	--	--
DWA 23141R	--	--	--	--
DWA 23142R	--	--	--	--
DWA 23143R	TO FOLLOW	--	--	--
DWA 23144R	--	--	--	--
DWA 23145R	--	--	--	--
DWA 23146R	--	--	--	--
DWA 23147R	--	--	--	--
DWA 23148R	--	--	--	--
DWA 23149R	--	--	--	--
DWA 23150R	--	--	--	--
DWA 23151R	--	--	--	--
DWA 23152R	TO FOLLOW	--	--	--
DWA 23153R	--	--	--	--

Certified by ....Hart Bichler....

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010173-001-A

INVOICE NO. 39790

RECEIVED Aug. 26/80

ANALYSED Oct. 20/80

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

ATTN: WATSU GOAT 37-48R

SAMPLE NO. :	PPM Th (NAA)
80WA 23261R	38
23262	13
23266	5
23267	7
23280	17
80WA23281R	3

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichle

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010173-001-A
INVOICE # : 38740
DATE : 12-SEP-80

WATSU GOAT 37-48 R

Sample description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23261R	400	1	--	--
OWA 23262R	16	1	--	--
OWA 23263R	32	4	6	450
OWA 23264R	22	6	1	164
OWA 23265R	46	1	172	1250
OWA 23266R	16	1	--	--
OWA 23267R	6	1	--	--
OWA 23268R	10	2	1	34
OWA 23269R	178	4	1	10
OWA 23270R	350	4	4	160
OWA 23271R	14	5	1	62
OWA 23272R	18	6	2	68
OWA 23273R	650	5	6	58
OWA 23274R	26	4	1	52
OWA 23275R	176	5	1	285
OWA 23276R	550	3	1	46
OWA 23277R	800	2	1	16
OWA 23273R	350	6	1	54
OWA 23279R	300	220	1	136
OWA 23280R	20	2	--	--
OWA 23281R	10	1	--	--
OWA 23282R	400	8	1	54
OWA 23283R	168	18	1	106
OWA 23284R	350	2	1	646
OWA 23285R	500	64	1	20
OWA 23286R	500	1	1	22

Certified by .... Hart Bichler

CTA MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010173-001-B
INVOICE # : 38740
DATE : 12-SEP-80

WATSU GOAT 37-48 R

ample scription	Ag ppm	U ppm	W ppm	Sn ppm
WA 23261R	--	2.0	15	--
WA 23262R	--	9.0	1	--
WA 23263R	0.2	--	1	7
WA 23264R	0.2	--	1	4
WA 23265R	1.5	--	1	7
WA 23266R	--	2.5	1	--
WA 23267R	--	3.5	1	--
WA 23268R	0.3	--	3	3
WA 23269R	0.6	--	12	6
WA 23270R	0.4	--	15	6
WA 23271R	0.1	--	1	3
WA 23272R	0.3	--	1	6
WA 23273R	0.7	--	>400	4
WA 23274R	0.4	--	8	6
WA 23275R	0.5	--	55	6
WA 23276R	0.6	--	>400	3
WA 23277R	0.6	--	5	3
WA 23278R	0.5	--	>400	3
WA 23279R	0.6	--	>400	3
WA 23280R	--	1.5	15	--
WA 23281R	--	1.5	3	--
WA 23282R	0.5	--	400	4
WA 23283R	0.5	--	>400	3
WA 23284R	0.7	--	2	4
WA 23285R	1.6	--	3	3
WA 23286R	0.7	--	1	4

Certified by ....

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010173-001-C
INVOICE # : 38740
DATE : 12-SEP-80

WATSU GOAT 37-48 R

ample scription	Th (NAA) ppm			
WA 23261R	TO FOLLOW	--	--	--
WA 23262R	TO FOLLOW	--	--	--
WA 23263R	--	--	--	--
WA 23264R	--	--	--	--
WA 23265R	--	--	--	--
WA 23266R	TO FOLLOW	--	--	--
WA 23267R	TO FOLLOW	--	--	--
WA 23268R	--	--	--	--
WA 23269R	--	--	--	--
WA 23270R	--	--	--	--
WA 23271R	--	--	--	--
WA 23272R	--	--	--	--
WA 23273R	--	--	--	--
WA 23274R	--	--	--	--
WA 23275R	--	--	--	--
WA 23276R	--	--	--	--
WA 23277R	--	--	--	--
WA 23278R	--	--	--	--
WA 23279R	--	--	--	--
WA 23280R	TO FOLLOW	--	--	--
WA 23281R	TO FOLLOW	--	--	--
WA 23282R	--	--	--	--
WA 23283R	--	--	--	--
WA 23284R	--	--	--	--
WA 23285R	--	--	--	--
WA 23286R	--	--	--	--

Certified by .... Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

ATTN: WATSU GOAT 37-84 Rock

CERTIFICATE NO. A8010175-001-A
INVOICE NO. 39791
RECEIVED Aug. 26/80
ANALYSED Oct. 20/80

SAMPLE NO. :	PPM Th (NAA)
80WA 23292R	13
80WA 23296R	37

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: [signature]

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8C10175-001-A
INVOICE # : 38741
DATE : 12-SEP-80

WATSU-COAT37-84-ROCK

ample scription	Cu ppm	Mo ppm	Pb ppm	Zn ppm
-WA-23292R	--	--	--	--
-WA-23293R	10	6	1	116
-WA-23294R	184	4	1	154
-WA-23295R	18	38	6	44
-WA-23296R	--	2	--	--
-WA-23297R	28	2	10	44
-WA-23298R	14	4	1	34
-WA-23299R	26	8	12	23C
-WA-23300R	64	2	4	144

Certified by .... Hart Bichler

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8C10175-001-B
INVOICE # : 38741
DATE : 12-SEP-8C

WATSU-GOAT37-84-ROCK

ample escription	Ag ppm	U ppm	W ppm	Sn ppm
-WA-23292R	--	3.5	5	--
-WA-23293R	0.8	--	30	3
-WA-23294R	0.6	--	5	2
-WA-23295R	0.6	--	5	7
-WA-23296R	--	5.5	4	--
-WA-23297R	0.8	--	3	6
-WA-23298R	0.6	--	2	3
-WA-23299R	0.8	--	2	4
-WA-23300R	0.9	--	2	3

Certified by ....

CTA MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010175-001-C
INVOICE # : 38741
DATE : 12-SEP-80

WATSU-GOAT37-84-ROCK

Sample Description	Th (NAA) ppm			
0-WA-23292R	TO FOLLOW	--	--	--
0-WA-23293R	--	--	--	--
0-WA-23294R	--	--	--	--
0-WA-23295R	--	--	--	--
0-WA-23296R	TO FOLLOW	--	--	--
0-WA-23297R	--	--	--	--
0-WA-23298R	--	--	--	--
0-WA-23299R	--	--	--	--
0-WA-23300R	--	--	--	--

CTA MEMBER CANADIAN TESTING ASSOCIATION

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010312-001-A
INVOICE # : 40648
DATE : 21-NOV-80
P.O. # : NONE
WATSU-GOAT37-84 HM

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	As ppm	U ppm
80WA 23157HM	213	32	2	84	162	0.1	19.5
80WA 23183HM	213	14	1	14	66	0.2	5.5
80WA 23184HM	213	24	1	20	64	0.2	9.0
80WA 23185HM	213	18	1	18	54	0.1	13.5
80WA 23214HM	213	62	2	30	80	0.2	14.0

CTA MEMBER CANADIAN TESTING ASSOCIATION

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CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010312-001-B
INVOICE # : 40648
DATE : 21-NOV-80
P.O. # : NONE
WATSU-GOAT37-84 HM

Sample description	Prep code	Au -(AA) ppb	W ppm	Sn ppm	Th (NAA) ppm		
80WA 23157HM	213	<10	20	2	765	--	--
80WA 23183HM	213	<10	7	2	120	--	--
80WA 23184HM	213	<10	9	1	155	--	--
80WA 23185HM	213	<10	1	1	245	--	--
80WA 23214HM	213	<10	70	1	160	--	--

CTA
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CANADIAN TESTING
ASSOCIATION

Certified by ....

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010312-001-A
INVOICE # : 40305
DATE : 11-NOV-80
P.O. # : NONE
WATSU-GOAT37-84 HM

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	U ppm
80WA 23157HM	213	32	2	84	162	0.1	19.5
80WA 23183HM	213	14	1	14	66	0.2	5.5
80WA 23184HM	213	24	1	20	64	0.2	9.0
80WA 23185HM	213	18	1	18	54	0.1	13.5
80WA 23214HM	213	62	2	30	80	0.2	14.0

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CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010312-001-B
INVOICE # : 40305
DATE : 11-NOV-80
P.O. # : NONE
WATSU-GOAT37-84 HM

Sample description	Prep code	Au -(AA) ppb	W ppm	Sn ppm	Th (NAA) ppm		
80WA 23157HM	213	<10	20	2	DELAYED	--	--
80WA 23183HM	213	<10	7	2	DELAYED	--	--
80WA 23184HM	213	<10	9	1	DELAYED	--	--
80WA 23185HM	213	<10	1	1	DELAYED	--	--
80WA 23214HM	213	<10	70	1	DELAYED	--	--

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54846
INVOICE NO. 38968
RECEIVED July 22/80
ANALYSED Sept. 22/80

TO: CANADIAN OCCIDENTAL PETROLEUM LTD.
Minerals Division
Ste. 311 - 215 Carlingview Drive
Rexdale, Ontario
ATTN: M9W 5X8 PROJECT: WATSU GOAT 37-84 Heavy Minerals

SAMPLE NO. :	Th ppm
80WA20195	43
20196	24
20197	220
80WA20198	335

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54846

INVOICE NO. 38284

RECEIVED July 22/80

ANALYSED Aug. 27/80

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

ATTN: Project Watsu, GOAT 37-84 - Heavy Minerals

SAMPLE NO. :	PPM Mo	PPM Cu	PPM Pb	PPM Zn	PPM Ag	PPM W	PPM Sn	PPM U
80WA 20195	1	34	28	62	0.1	4	4	7.0
20196	1	24	44	94	0.1	60	4	5.5
20197	1	20	108	52	0.1	65	4	14.0
80WA 20198	1	14	30	76	0.2	80	4	44

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010304-001-A
INVOICE # : 38763
DATE : 15-SEP-80

WATSU-GOAT37-84S.S.

Sample Description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23157SS	10	1	14	92
OWA 23183SS	18	1	64	200
OWA 23184SS	16	1	54	166
OWA 23185SS	14	1	26	100
OWA 23186SS	16	1	32	124
OWA 23187SS	20	1	44	152
OWA 23207SS	52	1	72	370
OWA 23211SS	34	3	58	300
OWA 23212SS	22	1	60	285
OWA 23213SS	34	1	82	380
OWA 23214SS	28	1	66	310
OWA 23215SS	26	4	58	270
OWA 23216SS	18	1	48	160
OWA 23313SS	18	3	20	96
OWA 23314SS	16	3	18	96
OWA 23315SS	24	6	22	126
OWA 23316SS	20	4	22	114
OWA 23317SS	22	7	24	134
OWA 23318SS	24	6	22	132
OWA 23319SS	16	1	42	140
OWA 23320SS	20	1	64	200
OWA 23321SS	26	3	114	340
OWA 23322SS	24	3	112	290
OWA 23323SS	30	5	200	460
OWA 23324SS	32	4	104	360

Certified by ....

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010304-001-B
INVOICE # : 38763
DATE : 15-SEP-80

WATSU-GOAT37-84S.S.

ample scription	Ag ppm	W ppm		
WA 23157SS	0.1	9	--	--
WA 23183SS	0.1	1	--	--
WA 23184SS	0.1	1	--	--
WA 23185SS	0.1	1	--	--
WA 23186SS	0.3	1	--	--
WA 23187SS	0.1	5	--	--
WA 23207SS	0.1	1	--	--
WA 23211SS	0.1	1	--	--
WA 23212SS	0.1	1	--	--
WA 23213SS	0.1	1	--	--
WA 23214SS	0.1	20	--	--
WA 23215SS	0.3	1	--	--
WA 23216SS	0.1	1	--	--
WA 23313SS	0.1	2	--	--
WA 23314SS	0.1	1	--	--
WA 23315SS	0.6	1	--	--
WA 23316SS	0.4	1	--	--
WA 23317SS	0.4	1	--	--
WA 23318SS	0.1	1	--	--
WA 23319SS	0.6	1	--	--
WA 23320SS	0.1	1	--	--
WA 23321SS	0.4	1	--	--
WA 23322SS	0.4	1	--	--
WA 23323SS	1.1	1	--	--
WA 23324SS	0.5	2	--	--

Certified by ......Hart Bichler......

CTA
MEMBER
CANADIAN TESTING
ASSOCIATION

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54426

INVOICE NO. 37120

RECEIVED July 10/80

ANALYSED July 21/80

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

ATTN: WATSU - GOAT STREAM SED. CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Zn	PPM U	PPM Ag
80 WA 20195SS	20	1	86	3.0	0.2
80 WA 20196SS	48	4	880	17.0	1.0

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010262-001-A
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample Description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23000	14	1	12	56
OWA 23001	42	1	60	230
OWA 23002	42	1	18	118
OWA 23016	34	1	74	280
OWA 23017	10	1	20	60
OWA 23018	5	1	12	54
OWA 23019	14	1	18	76
OWA 23020	10	1	22	84
OWA 23021	36	1	14	90
OWA 23022	22	1	22	72
OWA 23023	24	1	22	74
OWA 23024	36	1	30	164
OWA 23025	18	1	36	76
OWA 23026	8	1	4	320
OWA 23027	54	3	8	180
OWA 23028	23	1	16	86
OWA 23029	8	1	6	34
OWA 23030	6	1	10	40
OWA 23031	8	1	10	52
OWA 23032	18	1	24	74
OWA 23033	10	1	16	68
OWA 23034	12	1	18	62
OWA 23035	10	1	12	46
OWA 23036	14	1	32	66
OWA 23037	8	1	18	240
OWA 23038	10	1	26	360
OWA 23057	10	1	22	66
OWA 23058	10	1	30	74
OWA 23059	8	1	16	62
OWA 23060	8	1	22	52
OWA 23061	14	1	20	72
OWA 23062	10	1	12	50
OWA 23063	8	1	12	54
OWA 23064	26	2	16	285
OWA 23065	8	1	48	124
OWA 23066	6	1	16	104
OWA 23067	28	1	74	200
OWA 23068	16	1	46	172
OWA 23069	26	2	32	72
OWA 23070	18	1	22	60

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MEMBER
CANADIAN TESTING
ASSOCIATION

CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8010262-001-B
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Ag ppm	W ppm		
OWA 23000	0.1	1	--	--
OWA 23001	0.1	3	--	--
OWA 23002	0.1	1	--	--
OWA 23016	0.1	1	--	--
OWA 23017	0.1	1	--	--
OWA 23018	0.1	5	--	--
OWA 23019	0.1	1	--	--
OWA 23020	0.1	1	--	--
OWA 23021	0.1	14	--	--
OWA 23022	0.1	1	--	--
OWA 23023	0.1	1	--	--
OWA 23024	0.1	1	--	--
OWA 23025	0.1	1	--	--
OWA 23026	0.1	1	--	--
OWA 23027	0.1	35	--	--
OWA 23028	0.1	1	--	--
OWA 23029	0.1	1	--	--
OWA 23030	0.1	1	--	--
OWA 23031	0.2	1	--	--
OWA 23032	0.1	1	--	--
OWA 23033	0.1	1	--	--
OWA 23034	0.1	1	--	--
OWA 23035	0.1	1	--	--
OWA 23036	0.1	1	--	--
OWA 23037	0.1	1	--	--
OWA 23038	0.1	1	--	--
OWA 23057	0.1	1	--	--
OWA 23058	0.1	1	--	--
OWA 23059	0.1	3	--	--
OWA 23060	0.3	1	--	--
OWA 23061	0.1	2	--	--
OWA 23062	0.1	1	--	--
OWA 23063	0.1	1	--	--
OWA 23064	0.1	5	--	--
OWA 23065	0.1	4	--	--
OWA 23066	0.1	1	--	--
OWA 23067	0.2	5	--	--
OWA 23068	0.2	13	--	--
OWA 23069	0.1	3	--	--
OWA 23070	0.1	2	--	--

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

CERT. # : A8010262-002-A
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23071	26	5	58	136
OWA 23072	6	1	10	34
OWA 23073	8	1	12	56
OWA 23074	16	1	40	124
OWA 23075	10	1	16	82
OWA 23076	16	1	58	200
OWA 23077	10	4	130	146
OWA 23078	8	1	70	325
OWA 23079	22	9	4	104
OWA 23080	24	8	68	350
OWA 23081	36	4	128	685
OWA 23082	18	7	34	122
OWA 23083	36	16	108	450
OWA 23084	30	12	52	340
OWA 23085	56	7	390	1700
OWA 23086	36	1	28	150
OWA 23087	62	1	26	240
OWA 23088	12	5	106	325
OWA 23089	36	2	56	200
OWA 23090	36	3	42	144
OWA 23091	28	1	44	116
OWA 23092	26	1	18	96
OWA 23093	24	1	14	90
OWA 23094	18	1	16	90
OWA 23095	16	1	8	70
OWA 23096	20	1	24	108
OWA 23097	18	1	16	102
OWA 23098	18	1	12	104
OWA 23099	18	1	14	104
OWA 23100	24	1	24	138
OWA 23101	18	1	8	72
OWA 23102	24	1	6	84
OWA 23103	16	1	12	66
OWA 23104	44	4	54	435
OWA 23105	20	1	32	162
OWA 23106	16	1	40	146
OWA 23107	10	2	36	370
OWA 23108	20	1	38	300
OWA 23109	14	1	40	270
OWA 23110	24	1	44	310

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Rexdale Ontario
M9W 5X8

CERT. # : A8010262-002-B
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Ag ppm	W ppm		
OWA 23071	0.1	1	--	--
OWA 23072	0.1	1	--	--
OWA 23073	0.1	1	--	--
OWA 23074	0.1	1	--	--
OWA 23075	0.2	1	--	--
OWA 23076	0.1	1	--	--
OWA 23077	2.5	1	--	--
OWA 23078	1.1	1	--	--
OWA 23079	0.3	1	--	--
OWA 23080	0.3	1	--	--
OWA 23081	1.5	1	--	--
OWA 23082	0.1	2	--	--
OWA 23083	0.1	2	--	--
OWA 23084	0.1	2	--	--
OWA 23085	4.3	1	--	--
OWA 23086	0.1	15	--	--
OWA 23087	0.2	15	--	--
OWA 23088	0.1	5	--	--
OWA 23089	0.1	4	--	--
OWA 23090	0.1	1	--	--
OWA 23091	0.1	1	--	--
OWA 23092	0.1	1	--	--
OWA 23093	0.1	5	--	--
OWA 23094	0.1	2	--	--
OWA 23095	0.1	1	--	--
OWA 23096	0.1	1	--	--
OWA 23097	0.1	1	--	--
OWA 23098	0.1	1	--	--
OWA 23099	0.1	1	--	--
OWA 23100	0.1	1	--	--
OWA 23101	0.1	1	--	--
OWA 23102	0.1	1	--	--
OWA 23103	0.1	1	--	--
OWA 23104	0.1	60	--	--
OWA 23105	0.2	1	--	--
OWA 23106	0.1	1	--	--
OWA 23107	0.1	1	--	--
OWA 23108	0.1	4	--	--
OWA 23109	0.1	1	--	--
OWA 23110	0.1	5	--	--

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010262-003-A
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

ample scription	Cu ppm	Mo ppm	Pb ppm	Zn ppm
WA 23111	52	1	42	194
WA 23112	46	1	110	630
WA 23113	18	1	455	665
WA 23114	24	1	60	118
WA 23115	46	2	16	122
WA 23116	22	1	16	80
WA 23117	18	1	6	66
WA 23118	14	1	24	88
WA 23119	16	1	28	82

Certified by ..[signature]..

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CANADA V7J 2C1
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CERTIFICATE OF ANALYSIS

: Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X3

CERT. # : A8010262-003-B
INVOICE # : 38753
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Ag ppm	W ppm		
OWA 23111	0.1	1	--	--
OWA 23112	0.4	35	--	--
OWA 23113	0.6	1	--	--
OWA 23114	0.1	1	--	--
OWA 23115	0.1	1	--	--
OWA 23116	0.1	13	--	--
OWA 23117	0.1	1	--	--
OWA 23118	0.1	1	--	--
OWA 23119	0.1	1	--	--

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8010303-001-A
INVOICE # : 38762
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Cu ppm	Mo ppm	Pb ppm	Zn ppm
OWA 23196	4	1	10	20
OWA 23197	76	1	28	118
OWA 23198	22	1	10	96
OWA 23199	40	1	8	104
OWA 23200	22	1	14	84
OWA 23201	12	1	8	76
OWA 23202	20	1	16	102
OWA 23203	40	1	14	114
OWA 23204	42	2	44	290
OWA 23205	14	3	8	66
OWA 23206	18	1	24	156
OWA 23208	68	1	26	166
OWA 23209	54	2	42	192
OWA 23210	52	2	128	445
OWA 23003	36	4	6	100

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Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010303-001-B
INVOICE # : 38762
DATE : 15-SEP-80

WATSU-GOAT37-84 SOIL

Sample description	Ag ppm	W ppm		
DWA 23195	0.1	2	--	--
DWA 23197	0.1	6	--	--
DWA 23198	0.1	1	--	--
DWA 23199	0.1	1	--	--
DWA 23200	0.1	1	--	--
DWA 23201	0.1	1	--	--
DWA 23202	0.1	1	--	--
DWA 23203	0.1	1	--	--
DWA 23204	0.1	1	--	--
DWA 23205	0.1	1	--	--
DWA 23205	0.1	1	--	--
DWA 23208	0.1	90	--	--
DWA 23209	0.4	1	--	--
DWA 23210	0.2	2	--	--
DWA 23003	0.1	1	--	--

Certified by ....

PROJECT WATSU

1980

Statement of Expenditures

Claims GOAT 37-84

Record Numbers YA55443-YA55490

RECEIVED
1981 JUN 25
MINING RECORDER
WATSON LAKE, Y.T.
I.A. & N.D.

1)	Salaries & Benefits	$ 6,550.00[1]
2)	Helicopter flying - 12.3 hours @ $315/hour	3,875.00[2]
3)	Scintillometer rentals (Urtec)	868.00[3]
4)	Geochemical Analyses - 326	2,537.84[4]
	Sub Total	13,830.84
5)	Administration @ 10%	1,383.08
	Total	$ 15,213.92

Notes:

[1]Pro-rated on basis of 25 man-days worked on claims conducting geological/geochemical/geophysical surveys out of a total of 511 man-days spent on Project Watsu surveys (see attached breakdown on following sheet), unit cost @ $262/man-day.

[2]Helicopter flying completed by Northern Mountain Helicopters Inc., Prince George, B.C., unit cost @ $315/hr.

[3]Pro-rated on basis of 25 man-days worked on claims conducting geophysical surveys out of a total of 461 man-days spent on Project Watsu surveys (see attached breakdown on following sheet), unit cost @ $34.70/man-day.

[4]Geochemical analyses completed by Chemex Labs of Vancouver, B.C. (see attached cost breakdown), unit cost @ $7.78 /sample.

PROJECT WATSU

Salaries & Benefits Costs - 1980

Claim Group	No. of Man-Days	@ $262/m.d.
B.C.		
ALLEN	9	$ 2,358
KAZ	10	2,620
NEED	37	9,694
PLATE 1-2	26.4	6,917
PLATE 3-4	16.2	4,245
RAN	48	12,576
SHAR 1-2	14	3,668
SHAR 10	4	1,048
SHAR 3, 4, 9, 11	9.7	2,541
SHAR 5-6	16	4,192
SHAR 7-8	37.7	9,877
##########		
YUKON		
GOAT 1-36	18.5	4,847
BORDER	5	1,310
BIG OX 1-72	54	14,148
CO	9	2,358
GOAT 37-84	25	6,550
ICE	13.1	3,432
LICK	27.7	7,257
MOX	33	8,646
OXY	10.8	2,830
PISA	13	3,406
SAL	19	4,978
TIER	16.8	4,401
WOX	26.8	7,022
NISU	12	3,144
BIG OX 73-76	2	524
TOTALS	511	$134,099

PROJECT WATSU

Scintillometer Rentals - 1980

Claim Group	No. of Man Days	@ $34.7/m.d.
B.C.		
ALLEN	9	$ 312
PLATE 1-2	26.4	916
PLATE 3-4	16.2	562
RAN	48	1,666
SHAR 1-2	14	486
SHAR 10	10	347
SHAR 5-6	16	555
SHAR 7-8	37.7	1,308

##########

Claim Group	No. of Man Days	@ $34.7/m.d.
YUKON		
GOAT 1-36	18.5	642
BORDER	5	174
BIG OX 1-72	54	1,874
CO	9	312
GOAT 37-84	25	868
ICE	13.1	455
LICK	27.7	961
MOX	33	1,145
OXY	10.8	375
PISA	13	451
SAL	19	659
TIER	16.8	584
WOX	26.8	930
NISU	12	416
TOTALS	461	$16,004

PROJECT WATSU

GOAT 37-84 CLAIMS

1980

Geochemical Cost Breakdown

Invoice #	Certificate #	Amount
41021	A8011137-001-A	
40836	A8010817-001	$ 12.80
40691	A8011181-001-A	4.40
40622	A8011137-001-A	9.60
40175	A8010818-001	36.00
40771	A8011181-001-A	5.60
40314	70380	150.60
39694	70219	58.40
40650	A8010687-001-A	16.00
	-B	
40307	A8010687-001-A	40.96
	-B	
39648	A8010553-001-A	49.36
	-B	
39788	A8010351-001-A	52.00
38979	A8010351-001-A	
	-B	263.40
38987	A8010418-001-A	21.52
	-B	
39792	A8010167-001-A	12.00
38738	"	
	" -B	
	" -C	232.24
39790	A8010173-001-A	24.00
38740	"	
	" -B	
	" -C	267.28
39791	A8010175-001-A	8.00
38741	" -B	
	" -C	90.24
40648	A8010312-001-A	20.00
	-B	

GOAT 37-84

(Fwd.)

Invoice #	Certificate #	Amount
40305	A8010312-001-A	$111.80
	-B	
38968	54846	65.20
38284		77.40
38763	A8010304-001-A	174.00
	-B	
37120	54426	11.20
38753	A8010262-001-A	
	-B	
	-002-A	
	-B	
	-003-A	
	-B	619.44
38762	A8010303-001-A	
	-B	104.00
	TOTALS	$2537.84

APPENDIX II

ROCK DESCRIPTIONS

80-WA-23039R

Fine-grained, dense quartz-amphibole-epidote-calcite skarn with 10% disseminated to aggregated pyrrhotite. ± 0.2% disseminated scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
10	104	205	144	0.8	1		0.16

80-WA-23040R

Black stained, dense rock from micaceous phyllite zone. Small quartz vein cutting through it; black-stained pyrite cubes - in vugs, mostly is soft, coarse crystalline, black or black-stained Fe-carbonate (?).

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	12	380	855	4.8	1	2	

80-WA-23041R

Biotite-muscovite quartz-monzonite, coarse-grained, hypidiomorphic.
Composition: K-spar (30%), plag (42%), biotite (6%)-muscovite (2%), quartz (20%).

Mo	Cu	U	Th	(ppm)
1	6	3	5	

80-WA-23042R

Biotite granodiorite, fine-grained, equigranular, hypidiomorphic.
Composition: K-spar (20%), plag (55%), quartz (15%), biotite (10%).

Mo	Cu	U	Th	(ppm)
1	8	4.5	15	

80-WA-23043R

Coarse-grained biotite quartz monzonite, slight cataclastic texture; crystalline, hypidiomorphic.
Composition: K-spar (30%), plag (40%), quartz (25%), biotite (5%).

Mo	Cu	U	Th	(ppm)
1	14	3	9	

80-WA-23044R

Biotite quartz monzonite-granodiorite: medium to fine-grained, crystalline, hypidiomorphic. Composition: K-spar (40%), plag (40%), quartz (10%), biotite (10%).

Mo	Cu	U	Th	(ppm)
1	14	2.5	21	

80-WA-23045R

Biotite quartz monzonite - crystalline, hypidiomorphic, coarse-grained. Composition: K-spar (40%), plag (40%), quartz (15%), biotite (5%).

Mo	Cu	U	Th	(ppm)
1	14	3	15	

Samples 80-WA-23131R-80-WA-23133R are from a 10-50 cm wide skarn zone at the main quartz monzonite contact. Length not estimated.

80-WA-23131R

Intensely limonite-manganese-stained skarn; 10-15% pyrite, from 10 cm wide zone at contact.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	100	490	1.54%	4.1	2	8	

80-WA-23132R

Limonite-stained garnet-quartz-epidote skarn with <1% oxidized pyrite and trace molybdenite; from 50 cm wide band.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
0.046%	16	2	150	0.4	3	5	

80-WA-23133R

Feldspathic skarn on hybridized quartz monzonite from 50 cm wide skarn on dyke/carbonate contact; 1-2% pyrite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	172	4	162	0.5	2	13	

Samples 80-WA-23134R to 23139R are from a poorly exposed calc-silicate and sulphide skarn zone at limestone/quartz monzonite contact. Exposed over 5 m x 5 m area, buried under talus at north end.

80-WA-23134R

Highly gossanized (porous) feldspar-amphibole-quartz-pyrite (10%) skarn; from small 10 x 20 cm zone in calc-silicate skarn.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
15	750	1	82	2	4		0.12

80-WA-23135R

Diopside-garnet-amphibole(?) skarn with disseminated chalcopyrite (1%) and pyrrhotite (<1%); from margin of sulphide-rich zone.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
6	0.51%	8	530	10	5	55	

80-WA-23136R

Coarse-grained garnet skarn with minor amphibole + calcite; trace pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	74	6	70	0.5	4	5	

80-WA-23137R

Slightly gossanized quartz-diopside skarn with 5-10% pyrrhotite and ±1% chalcopyrite; from sulphide zone.

Mo	Cu	Pb	Zn	Sn	(ppm)	Ag (oz/ton)	WO_3 (%)
3	0.89%	1	110	1		0.80	0.12

80-WA-23138R

Massive pyrrhotite (80%)-quartz (20%) skarn; from sulphide zone.

Mo	Cu	Pb	Zn	Sn	W	(ppm)	Ag (oz/ton)
2	2250	198	300	1	200		0.66

80-WA-23139R

Interlaminated siliceous, amphibolitic skarn; trace disseminated chalcopyrite and ±3% euhedral pyrrhotite; from sulphide zone.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	800	2	82	1.9	1	230	

80-WA-23140R

Fine to medium-grained biotite-quartz monzonite; 45% K-feldspar; 35% plagioclase; 15% quartz; 5% biotite.

Mo	Cu	U	Th	(ppm)
2	36	3.5	22	

80-WA-23141R

Limonite and manganese-stained, altered quartz monzonite - no mafic minerals; kaolinized K-feldspar and plagioclase; 1-2% pyrite; from 5-20 cm shear/joint in quartz monzonite; quartz in open-space fillings.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	18	84	158	1.1	11	2	

80-WA-23142R

Slightly gossanized, massive pyrite skarn with minor greenish calc-silicate mineral (diopside?). From 50 cm x 50 cm zone in 1-meter thick garnet-calcite-epidote skarn on margin of recrystallized limestone xenolith.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
1	0.37%	14	100	3.8	10		0.12

80-WA-23143R

Fine-grained, massive biotite granodiorite (?) with 65% plagioclase; 15-20% biotite; 10% K-feldspar; 5% quartz.

Mo	Cu	U	Th	(ppm)
1	94	8.0	46	

Samples 80-WA-23144R to -23149R are from the top part of a 5-10 meter-wide gulley (near ridge crest) between quartz monzonite and metasedimentary rocks. 23144R and 23145R are from outcrop at contact zone. 23146 to 23149 are float samples in the gulley (virtually in situ).

80-WA-23144R

Intensely black (manganese?)-stained calc-silicate - bearing micaceous quartzite. Black alteration/mineralization also occurs along micaceous laminae.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	38	28	1700	0.8	2	12	

80-WA-23145R

Black-stained quartz monzonite; limonitic open-space veinlets with irregular veinlets of black, well-crystallized mineral (siderite or pyrolusite?)

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	22	6	2100	0.7	4	2	

80-WA-23146R
(float)

Sphalerite (15%)-siderite(?) replacment veining transecting recrystallized limestone.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	24	210	4.57%	1.5	3	1	

80-WA-23147R
(float)

Black-stained sphalerite (10%) - brown carbonate (siderite?) rock.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	124	86	4.19% 4.85%	1.5	4	3	

80-WA-23148R
(float)

Massive, coarse-crystalline unidentified black mineral; 10% brown carbonate (siderite?).

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	8	1	1200	0.5	4	1	

80-WA-23149R
(float)

Sericitic rock (sericitized quartz monzonite?), with ±40% unidentified, dense, massive/earthy to well-crystallized black mineral (a manganese phase?).

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	8	108	430	0.5	6	2	

80-WA-23150R

Quartz-amphibole-diopside skarn with ±3% disseminated pyrite and trace scheelite; from 0.5 x 1 meter zone in unmineralized garnet skarn.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	550	8	134	1.3	8	2	

80-WA-23151R	Rusty-weathering, dense, siliceous quartz-diopside-amphibole-biotite skarn with 2% disseminated fine-grained chalcopyrite and 2% pyrrhotite; from 2 m thick x 10 m (?) skarn at recrystallized limestone/quartz monzonite contact.	

Mo	Pb	Zn	Ag	Sn	W	(ppm)	Cu (%)
14	8	300	10.0	16	40		0.60

80-WA-23152R

White to buff weathering, medium-grained, massive to vaguely foliated albite granite (?); 70% plagioclase, 15% quartz, 10% K-feldspar, 5% biotite.

Mo	Cu	U	Th	(ppm)
1	1100	3.5	7	

80-WA-23153R

Limonite-stained, fine-grained garnet-quartz-amphibole-diopside skarn with ±4% disseminated pyrrhotite and ±0.1% disseminated blue-fluorescing scheelite. From 1.0 m thick sulphidic skarn at margin of 5 m x 10 m limestone xenolith in quartz monzonite.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
6	350	1	62	1.2	7		0.10

80-WA-23160R

Megacrystic Biotite-Muscovite Quartz Monzonite

Coarse-grained biotite (10%), muscovite (5%), quartz (10%), monzonite with K-spar megacrysts (10%) up to 5 cm long.

Mo	Cu	U	Th	(ppm)
1	4	1.5	17	

Samples 80-WA-23167R to -23169R are from a sulphidic skarn and an adjacent galena-sphalerite-pyrite mineralized quartz-carbonate vein at extreme northern end of property.

80-WA-23167R

Pyritiferous Skarn

Very fine-grained, compact, amphibole-diopside-garnet-rich skarn with fine-grained pyrite disseminated throughout (±2-5%). Limonite-stained. Found adjacent to galena-rich shear zone.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	54	26	340	0.2	43	25	

80-WA-23168R

Galena bearing quartz-carbonate vein

Intensely rusted-altered carbonate-quartz vein with minor galena. Found in 6 cm shear/fracture zone.

Mo	Cu	Sn	W	(ppm)	Pb	Zn (%)	Ag (oz/ton)	
1	235	1	13		0.86	5.64	0.86	
					0.86	5.47	1.00	(replicate)

80-WA-23169R

Galena-sphalerite bearing sheared Quartz Monzonite

Intensely rusted-altered, fine-grained, sheared biotite quartz monzonite (skarn?), minor siderite?, dendritic manganese stain, trace galena and sphalerite and pyrite. Found in 6 cm shear/fracture zone.

Mo	Cu	Sn	W	(ppm)	Pb	Zn (%)	Ag (oz/ton)	
7	760	1	1		1.31	1.63	1.94	
					1.36	1.54	2.12	(replicate)

80-WA-23192R

Coarse-grained, crystalline, hypidiomorphic biotite-quartz monzonite; appears to be a pegmatitic stringer cutting through the rock. Composition: K-spar (40%), plagioclase (30%), quartz (10%), biotite (20%).

Mo	Cu	U	Th	(ppm)
1	18	2	8	

80-WA-23193R

Blackish fine-grained Diorite, from a dyke, crystalline, hypidiomorphic.

Mo	Cu	U	Th	(ppm)
1	8	7.5	30	

80-WA-23231R

Massive, medium-grained biotite granodiorite; 45%

plagioclase, 30% biotite, 15% K-feldspar, 10% quartz.

Mo	Cu	U	Th	(ppm)
1	6	7	20	

80-WA-23232R

Massive, medium-grained biotite quartz monzonite; 15% quartz, 10% biotite, 55% plagioclase, 20% K-feldspar.

Mo	Cu	U	Th	(ppm)
1	4	2.5	7	

80-WA-23233R

Dyke, massive, medium-grained, equigranular biotite-muscovite quartz-monzonite; 3% biotite, 2% muscovite, 20% quartz, 35% plagioclase, 40% K-feldspar.

Mo	Cu	U	Th	(ppm)
1	2	2	2	

80-WA-23234R

White, fine- to medium-grained, massive, equigranular biotite quartz-monzonite; 5% biotite, 25% K-feldspar, 50% plagioclase, 20% quartz.

Mo	Cu	U	Th	(ppm)
1	2	5.5	3	

80-WA-23244R

White, medium-grained equigranular, massive to vaguely foliated biotite-quartz monzonite; 45% plagioclase, 35% K-feldspar, 10% quartz, 10% biotite.

Mo	Cu	U	Th	(ppm)
1	4	4.5	10	

80-WA-23245R

Sericitic and limonitized quartz monzonite. Trace pyrite (?). Contact - altered intrusive.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
54	3	24	16	1.4	1	2	

80-WA-23246R

Limonite-stained, massive, siliceous skarn with minor garnet and amphibole; 10-15% subhedral pyrrhotite. From buried contact zone of quartz monzonite with calc-silicate hornfels and recrystallized limestone.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	430	2	20	0.2	1	1	

80-WA-23247R

Garnet-epidote-calcite-diopside skarn with trace disseminated pyrrhotite; 10 m x 2-3 m skarn at limestone/quartz monzonite contact.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
16	1450	10	154	1.8	2		0.19

80-WA-23248R

Massive diopside-quartz-garnet-amphibole skarn with 15% coarse pyrrhotite; from 0.3 x 1.0 m zone in above skarn.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	36	2	600	0.1	2	2	

80-Wa-23250R

Limonite-stained, whitish, altered (sericitized) quartz monzonite - no mafic minerals; ±1% disseminated euhedral pyrite; from 2m x 5 m sub-horizontal shear/fracture zone in quartz monzonite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	20	880	460	1.6	1	3	

Samples 80-Wa-23250R and 23251R are from the same skarn zone.

80-WA-23250R

Massive garnet-diopside-quartz skarn, 10m x 6m xenolith in quartz monzonite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	18	2	26	0.1	2	1	

80-WA-23251R

Garnet-diopside-quartz-pyrrhotite (15-20%) - chalcopyrite (<1%) skarn from 1 m x 6 m marginal zone of skarn above (see 80WA23250R); from one of several sulphide-bearing pods. Trace fine-grained disseminated scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
2	670	2	180	0.1	1	0.12	0.12
							0.12 (replicate)

Samples 80-WA-23252R to -23254R are from talus below an inaccessible 15m x 5m (?) bright orange gossanous skarn (?) zone in quartz monzonite.

80-WA-23252R (float)

Limonite-stained, silicified and sericitized quartz monzonite contact rock. 10% disseminated subhedral pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	200	6	20	0.1	1	3	

80-WA-23253R (float)

Intensely limonite-stained boulder of slightly gossanous (pitted) pyrrhotite skarn; 70% pyrrhotite with 30% unidentifiable (limonite-stained) calc-silicate minerals. Trace fine to coarse-grained scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
18	1800	1	62	1.0	1	300	

80-WA-23254R (float)

Limonite-stained, 0.6 x 0.6 x 0.9 m boulder of massive pyrrhotite skarn (90% pyrrhotite).

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	655	1	32	1.2	1	1	

80-WA-23255R (float)

Massive pyrrhotite skarn; 90% pyrrhotite, 10% quartz + amphibole; approximately 0.2% fine to medium-grained, disseminated scheelite (note, some molybdoscheelite in other specimens). From area of basically <u>in situ</u> skarn float around outcrop of recrystallized limestone; garnet-amphibole skarn also present.

Mo	Cu	Pb	Zn	Ag	Sn (ppm)	WO_3 (%)
5	1000	8	28	1.6	1	0.20
						0.19 replicate

80-WA-23261R

Hornblende-biotite diorite; massive to foliated, 50% plagioclase, 50% hornblende + biotite, in part chloritized. Trace disseminated pyrite. Local minor K-feldspar.

Mo	Cu	W	U	Th (ppm)
1	400	15	2.0	38

80-WA-23262R

Muscovite - biotite quartz-monzonite. White to slightly limonite-stained, massive, medium-grained, equigranular. 20% quartz, 40% K-feldspar, 35% plagioclase, 3% muscovite, 2% chloritized biotite. Dyke in above diorite.

Mo	Cu	W	U	Th (ppm)
1	16	1	9.0	13

80-WA-23263R

Compact, fine-grained diopside-garnet-amphibole-calcite skarn; from 0-40 cm skarn band at margin of 10 m thick quartz monzonite dyke.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
4	32	6	450	0.2	7	1

80-WA-23264R

Compact, medium-grained garnet-diopside-amphibole-calcite skarn; <1% disseminated euhedral pyrite. From 50 cm thick skarn pod at dyke contact.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
6	22	1	164	0.2	4	1

80-WA-23265R (Float)

Black, coarse-grained, well crystallized mineral (manganese-stained Fe-carbonate) intergrown with euhedral prismatic quartz. Vein material (?) from talus-covered area of quartz monzonite/limestone contact.

contact.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
1	46	172	1250	1.5	7	1	

80-WA-23266R

Same as 23262R; grey-weathering; K-feldspar slightly pinkish.

Mo	Cu	W	U	Th	(ppm)
1	16	1	2.5	5	

80-WA-23267R

Biotite-muscovite-quartz monzonite; white, fine to medium-grained, foliated, equigranular; 15% K-feldspar; 10% quartz; 65% plagioclase, 5% biotite, 5% muscovite.

Mo	Cu	W	U	Th	(ppm)
1	6	1	3.5	7	

80-WA-23268R

Garnet-diopside-calcite-actinolite skarn. From 1-meter thick skarn at limestone/dyke contact.

Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	10	1	34	0.3	3	3

Samples 80-Wa-23269R and -23270R are in situ loose fragments from the area of diorite contact.

80-WA-23269R (Float)

Gossanized altered intrusive rock or skarn.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	178	1	10	0.6	6	12	

80-WA-23270R (Float)

Gossanized pale coloured (diopside-quartz?) skarn

Gossanized pale coloured (diopside-quartz?) skarn with trace pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	350	4	160	0.4	6	15	

80-WA-23271R (float)

Garnet-diopside-calcite-quartz skarn.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
5	14	1	62	0.1	3	1	

80-WA-23272R (float)

Slightly gossanized garnet-quartz-calcite skarn with trace pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
6	18	2	68	0.3	6	1

Samples 80-WA-23273R to -23277R are talus fragments from the bottom of talus slope derived from the main north-south ridge system.

80-WA-23273R (float)

Quartz-actinolite-pyrrhotite skarn or hybridized granite.

Mo	Cu	Pb	Zn	Ag	Sn (ppm)	WO3 (%)
5	650	6	58	0.7	4	0.10

80-WA-23274R (float)

Compact, dense, garnet-amphibole-quartz skarn, trace pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
4	26	1	52	0.4	6	8

80-WA-23275R (float)

Garnet-quartz-amphibole-pyrrhotite (2%) skarn.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
5	176	1	285	0.5	6	55

80-WA-23276R (float)

Rusty-weathering, greenish-coloured hybridized granitic rock or skarn, very siliceous, muscovitic; local coarse pyrrhotite.

Mo	Cu	Pb	Zn	Ag	Sn (ppm)	WO3 (%)
3	550	1	46	0.6	3	0.07

80-WA-23277R (float)

Massive pyrrhotite skarn; 90% pyrrhotite, 10% quartz + amphibole (?).

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
2	800	1	16	0.6	3	5

Samples 80-WA-23278R and -23279R from 1.5 meter wide skarn adjacent to thin quartz monzonite dyke.

80-WA-23278R

Very gossanized (pitted) hybridized quartz monzonite or skarn; very siliceous. No visible sulphides.

Mo	Cu	Pb	Zn	Ag	Sn (ppm)	WO_3 (%)
6	350	1	54	0.5	3	0.38

80-WA-23279R

Typical massive garnet-amphibole-quartz (-diopside-calcite) skarn. <<1% finely disseminated molybdenite.

Mo	Cu	Pb	Zn	Ag	Sn	(ppm)	WO_3 (%)
220	300	1	136	0.6	3		0.34

80-WA-23280R

Biotite Quartz Monzonite

Grey, medium-grained, massive, equigranular, homogeneous biotite quartz monzonite.
Composition: K-spar 25%, plagioclase 35%, quartz 30%, biotite 10%.

Mo	Cu	W	U	Th	(ppm)
2	20	15	1.5	17	

80-WA-23281R

Muscovite-quartz Monzonite

Medium-grained, equigranular, homogeneous, massive muscovite-quartz monzonite.
Composition: K-spar 35%, plagioclase 30%, quartz 25%, muscovite 10%.

Mo	Cu	W	U	Th	(ppm)
1	10	3	1.5	3	

Samples 80-WA-23282R to -23286R are from rubble in area of limestone/quartz monzonite contact zone.

80-WA-23282R (float)

Rusted Skarn

Strongly rusted, limonitized, highly altered skarn rock. Quartz-garnet-amphibole skarn; minor yellow-blue fluorescing scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
8	400	1	54	0.5	4	400	

80-WA-23283R (float)

Skarn

Medium-grained, coarsely banded garnet - green amphibole-quartz-calcite-pyrrhotite rich (<1%)

skarn. Moderately limonitized on weathered surface; minor blue-fluorescent scheelite.

Mo	Cu	Pb	Zn	Ag	Sn (ppm)	WO_3 (%)
18	168	1	106	0.5	3	0.09

80-WA-23284R
(float)

Siliceous Skarn

Fine-grained garnet-amphibole-quartz-calcite - pyrrhotite (4%) skarn. Fine croscutting quartz veins.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
2	350	1	646	0.7	4	2

80-WA-23285R
(float)

Rusted Skarn

Highly rusted, limonitized, fine-grained, siliceous skarn. Quartz-garnet-amphibole-calcite rich, purple tarnish on weathered, fractured surfaces.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
64	500	1	620	1.6	3	3

80-WA-23286R
(float)

Pyrrhotite-rich Skarn

Green, medium to coarse-grained, massive amphibole-epidote-pyrrhotite (±20%). Minor Pyrite?. Pyrrhotite occurs in large blebs up to 1 cm diamter or as fracture filling.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
1	500	1	22	0.7	4	1

80-WA-23292R

Muscovite Pegmatite

Also includes sample of biotite quartz monzonite with 10% biotite, 10% K-feldspar, 20% quartz, 60% plagioclase, massive, medium-grained, equigranular.

W	U	Th (ppm)
5	3.5	13

80-WA-23293R

Garnet-diopside-quartz Skarn
Trace scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
6	10	1	116	0.8	3	30	

80-WA-23294R

Sample from gossanous zone. Quartz-sericite schist with 5-10% po, trace cp.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	184	1	154	0.6	2	5	

80-WA-23295R

Gossan zone, dark grey micaceous quartzite. Trace sulphide (pyrrhotite?).

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
38	18	6	44	0.6	7	5	

80-WA-23296R

Sheared altered biotite quartz monzonite. Minor sericitic alteration, strong purple (iron stain?) coating on fractures, adjacent possible shear (fault) zone

Mo	W	U	Th	(ppm)
2	4	5.5	37	

80-WA-23297R (float)

Large quartz vein subcropping in talus; projected contact between marble and quartz monzonite. Essentially milk-white quartz with red-purple hematite coating fractures.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	28	10	44	0.8	6	3	

80-WA-23298R (float)

Garnet-quartz-diopside skarn in talus.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
4	14	1	34	0.6	3	2	

80-WA-23299R

Garnet-diopside-quartz-tremolite skarn, 1-3% py.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
8	26	12	230	0.8	4	2	

80-WA-23300R

Gossan zone, contact between quartzite and fine crystalline quartz monzonite with garnet.

Mo	Cu	Pb	Zn	Ag	Sn	W	(ppm)
2	64	4	144	0.9	3	2	

Samples from skarn/vein (?) zone in float between granite outcrop and limestone outcrop (10 m separation). Zone about 5 meters wide (station K40-4).

80-WA-23333R

Altered quartz monzonite; sericitized and black stained (manganese?) and limonitized on surface, along cracks and throughout. <1% disseminated pyrite. From outcrop immediately above float.

Mo	Cu	Pb	Zn	Ag	Sn	W	U	Th	(ppm)
2	84	475	1900	4.4	2	25	3.5	3	

80-WA-23334R
(float)

Compact garnet-amphibole-calcite-epidote skarn. <1% disseminated pyrite and <1% molybdenite.

Mo	Cu	Pb	Zn	Ag	Sn	W	U	Th	(ppm)
250	56	138	160	6.2	1	5	1.0	3	

80-WA-23335R
(float)

Black-stained, porous (gossanized), highly altered intrusive rock(?) or vein material (?). Open-spaced filling of euhedral quartz. 3% disseminated pyrite and trace fine-grained galena. May be gradational to rock type 80Wa23333R.

Mo	Cu	Zn	Sn	W	U	Th	(ppm)	Pb (%)	Ag (oz/ton)	
2	400	2850	4	3	1.5	8		0.53	4.94	
									4.76	replicate

80-WA-23336R
(float)

Possible vein material in quartzite. Assemblage of quartz, sphalerite (20%), siderite and pyrite (15%). 'Sphalerite' is in large black-stained rhombs and is possibly siderite.

Mo	Cu	Pb	Ag	Sn	W	U	Th (ppm)	Zn (%)
48	74	240	17	3	15	160.0	17	1.54

80-WA-23337R
(float)

Vein mineralization (?). Sphalerite rock with ± 30% sphalerite and ±55% of a black-stained, semi-lustrous well crystallized mineral that is either, oxidized sphalerite or oxidized Fe-carbonate. Both are intergrown with 10% euhedral quartz. 5% pyrite in bands (separating sphalerite from black-stained mineral.

Mo	Cu	Sn	W (ppm)	Pb	Zn (%)	Ag (oz/ton)
6	156	1	1	0.42	8.22	1.24

80-WA-23338R

Limonitized and sericitized quartz monzonite cut by thin (2-3 mm) black quartzose vuggy veinlets. <1% disseminated pyrite in quartz monzonite. From 3 cm planar shear zone with brecciated quartz monzonite (30 cm) along margins.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
14	14	405	1750	1.0	1	2

80-WA-23339R

Coarse-grained garnet-diopside-quartz-skarn from 1-m wide skarn zone at recrystallized limestone/ hornblendic schist contact.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
65	172	1	78	0.1	4	1

80-WA-23340R

Massive pyrrhotite (90%) skarn from 0.7 x 2 meter pod in above garnetiferous skarn. Local trace malachite staining and trace disseminated scheelite.

Mo	Cu	Pb	Zn	Ag	Sn	W (ppm)
4	380	1	18	0.4	2	2

Appendix III - Sampling and Laboratory Procedures

I. SAMPLING PROCEDURES

A) Heavy Minerals

1. A sample site is selcted which exhibits maximum sorting of stream bed material. Active (below water) or previously active (dry now but previously below water) sites may be chosen. Leading edges or sides of gravel bars with large boulders are most attractive. In practice, the ideal case is rare and one chooses the best possible site.

2. Gravel and cobble material is shoveled into a large (18" to 24") gold pan into which 1/4" holes have been drilled. The material is vigourously shaken in still water so that - 1/4 in. material passes the screen into a second, matching pan. Enough -1/4 in. material is collected to fill an 18" x 24" poly bag (usually one large pan or two smaller ones). The -1/4" material is returned to camp.

3. The - 1/4 in. material is panned to achieve a concentrate of heavy minerals and aggregates containing heavy minerals. Approximately 80% of the original material (20 - 25 lbs) is discarded while a 1 - 2 lb. concentrate is obtained. The concentrate is sealed in a plastic or cloth bag (cloth is preferred as it allows

the sample to dry, thus reducing shipping weight) and then sent to the laboratory for geochemical analysis.

B) Stream Sediment

1. A presently or previously active stream site is selected which exhibits minimum sorting ie. quiet water, and accumulation of fine sandy and silty material. If the stream is too active, material can be obtained from bank-moss which acts as a trap, or by digging out the lee of large boulders.

2. Three to four handfuls of material is collected and after squeezing to remove excess water is placed in high wet-strength, heavy duty, prenumbered kraft envelopes. The samples are dried in the field and then sent to the laboratory for geochemical analysis.

C) Soil

1. 'B' horizon or talus fine material is sampled.

2. Three to four handfuls of material are collected into heavy duty, high wet-strength kraft envelopes which are dried in the field and then sent to the laboratory for analysis.

D) Sample Site Information Card

1. At each soil or stream sample site, an 80 column field data card is completed. The sampler records such information as sample number, location and type, depth of stream, sample composition, vegetation, drainage, etc. Separate cards are used for stream and soil samples in order to record pertinent information.

II. 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°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.

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°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 Na_2CO_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

APPENDIX IV

STATISTICAL TREATMENT OF ANALYTICAL RESULTS

Frequency Distribution Tables

Frequency Distribution Diagrams

Cumulative Frequency Diagrams

TABLE 13

FREQUENCY DISTRIBUTION - GRANITIC ROCKS

Copper

Interval (ppm)	Frequency
0-5	5
6-10	6
11-15	3
16-20	4
21-25	
+25	4
	22

Uranium

Interval (ppm)	Frequency
0-4	16
4.5-8	5
8.5-12	2
	23

Molybdenum

Interval (ppm)	Frequency
1	20
2	2
	22

Thorium

Interval (ppm)	Frequency
0-5	5
6-10	6
11-15	4
16-20	3
21-25	2
26-30	1
+35	2
	23

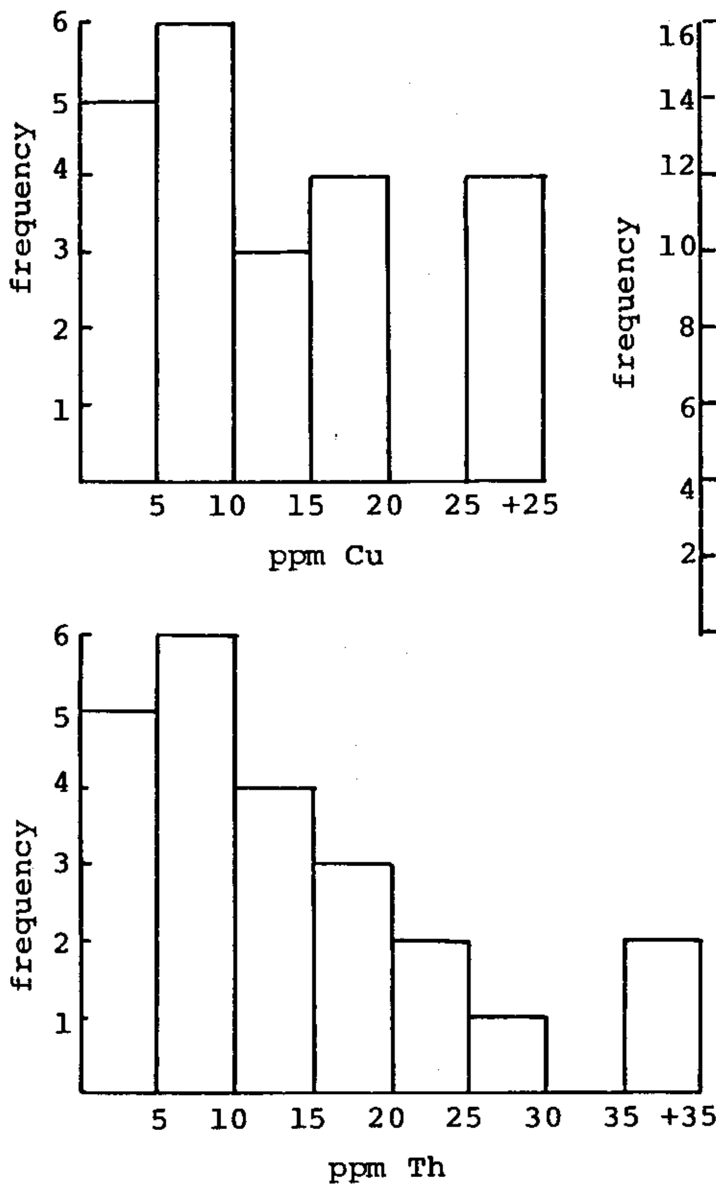


Figure 7

Frequency Distribution

Granitic Rocks

TABLE 14

FREQUENCY DISTRIBUTION - SKARNS

MOLYBDENUM

Interval (ppm)	Frequency
1-2	14
3-4	10
5-6	10
7-8	10
9-10	1
11-12	
13-14	1
15-16	2
17-18	2
19-20	
+20	5 / 46

COPPER

Interval (ppm)	Frequency
0-20	7
21-40	5
41-80	3
81-160	2
161-320	5
321-640	10
641-1280	7
1281-2560	3
+2560	4 / 46

LEAD

Interval (ppm)	Frequency
0-4	30
5-8	8
9-12	2
13-16	1
17-20	
21-24	
25-28	1
+28	4 / 46

ZINC

Interval (ppm)	Frequency
0-50	10
51-100	13
101-150	7
151-200	5
201-250	1
251-300	3
301-350	1
351-400	
+400	6 / 46

SILVER

Interval (ppm)	Frequency
0.0.2	10
0.3-0.4	6
0.5-0.6	8
0.7-0.8	6
0.9-1.0	1
1.1-1.2	2
1.3-1.4	1
1.5-1.6	2
1.7-1.8	1
1.9-2.0	2
+2.0	7 / 46

TIN

Interval (ppm)	Frequency
0-2	16
3-4	19
5-6	5
7-8	3
9-10	1
11-12	
+12	2 / 46

TUNGSTEN

Interval (ppm)	Frequency
0-3	18
4-6	4
7-12	2
13-25	2
26-50	2
51-100	2
101-200	1
201-400	3
+400	12 / 46

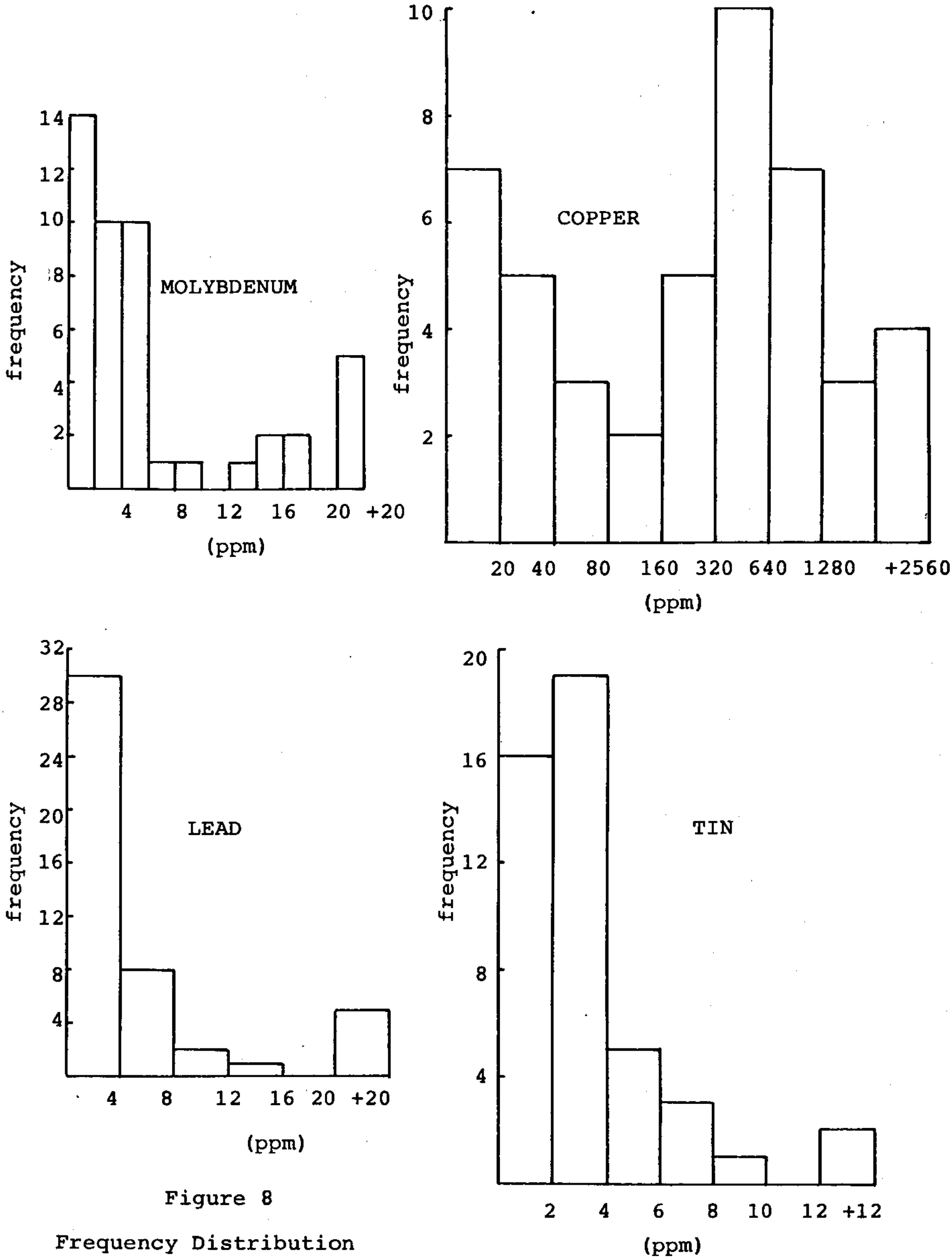
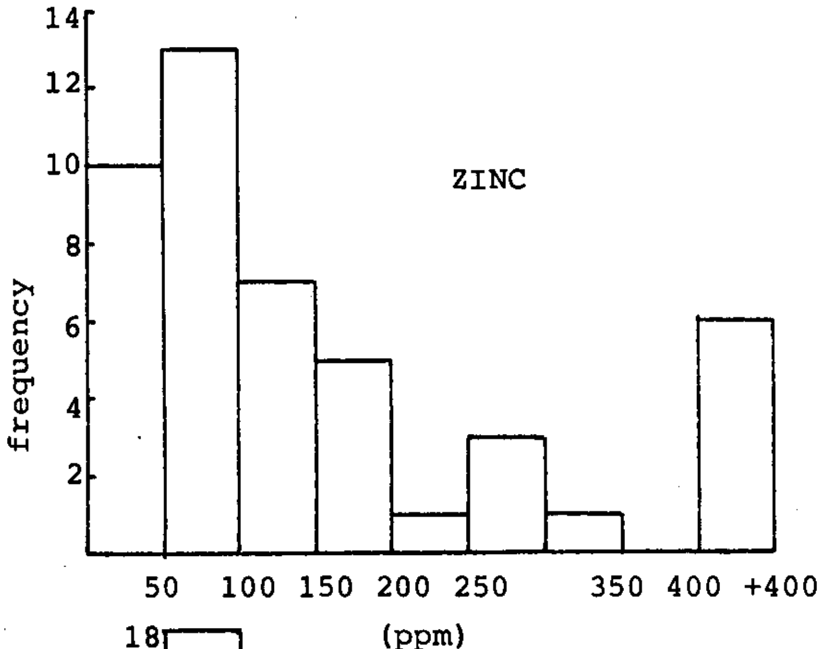
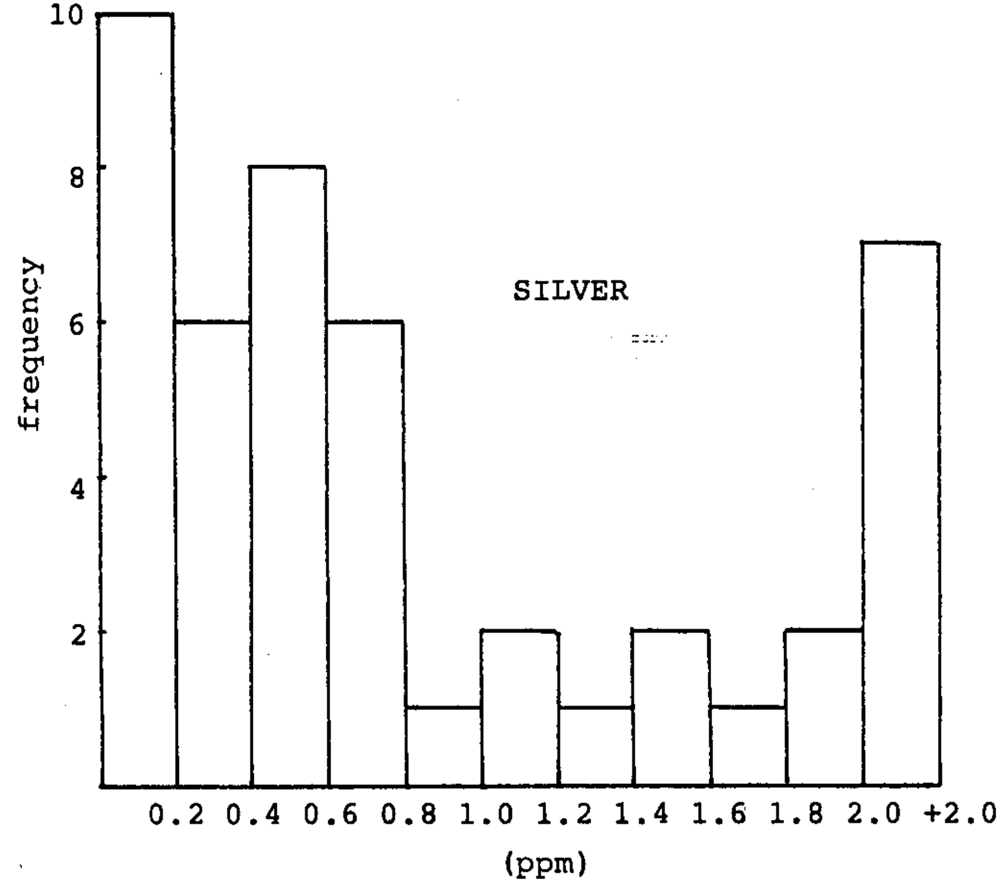


Figure 8

Frequency Distribution

Diagrams - Skarns





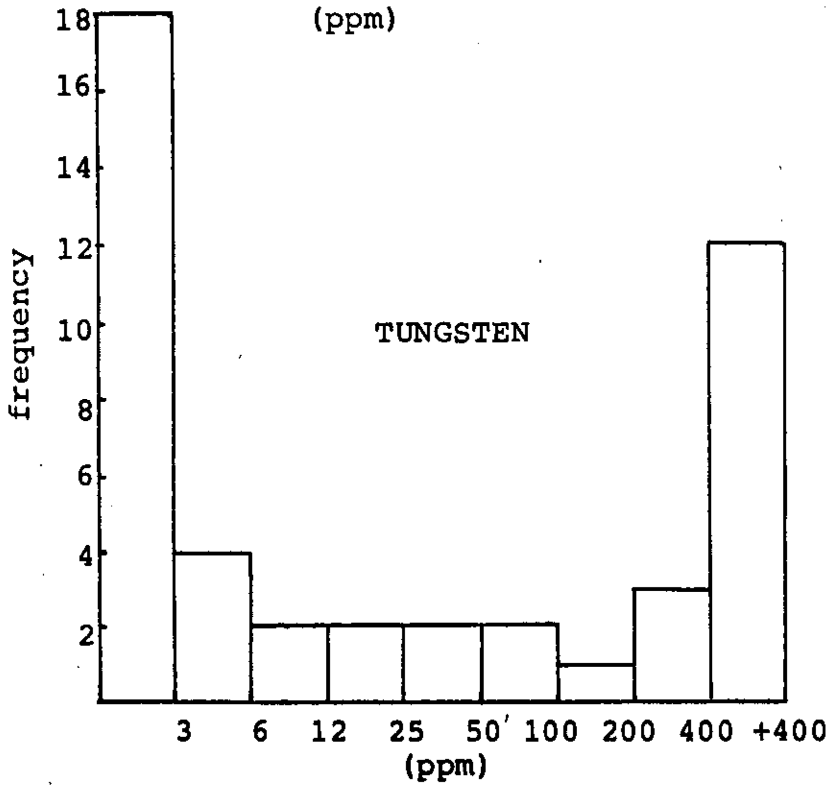


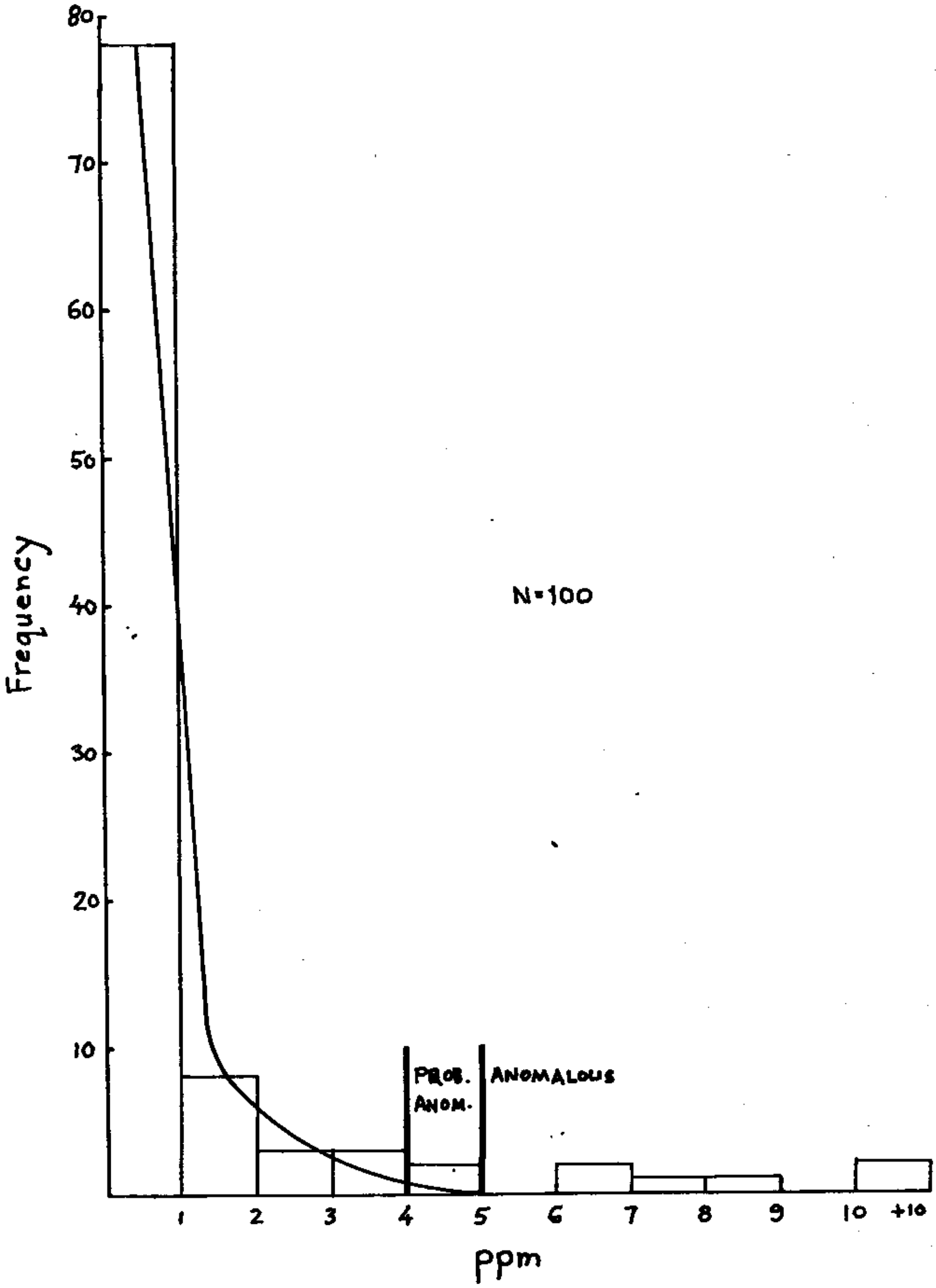
Figure 8 (cont'd)

Frequency Distribution Diagrams
Skarns

TABLE 15

FREQUENCY DISTRIBUTION FOR SOILS MOLYBDENUM

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
1	78	78	83.0
2	8	86	91.5
3	3	89	94.7
4	3	92	97.9
5	2	94	100.0
6			
7	2		
8	1		
9	1		
+9	2		
	100		



Frequency Distribution

MOLYBDENUM

Soils

FIGURE 9

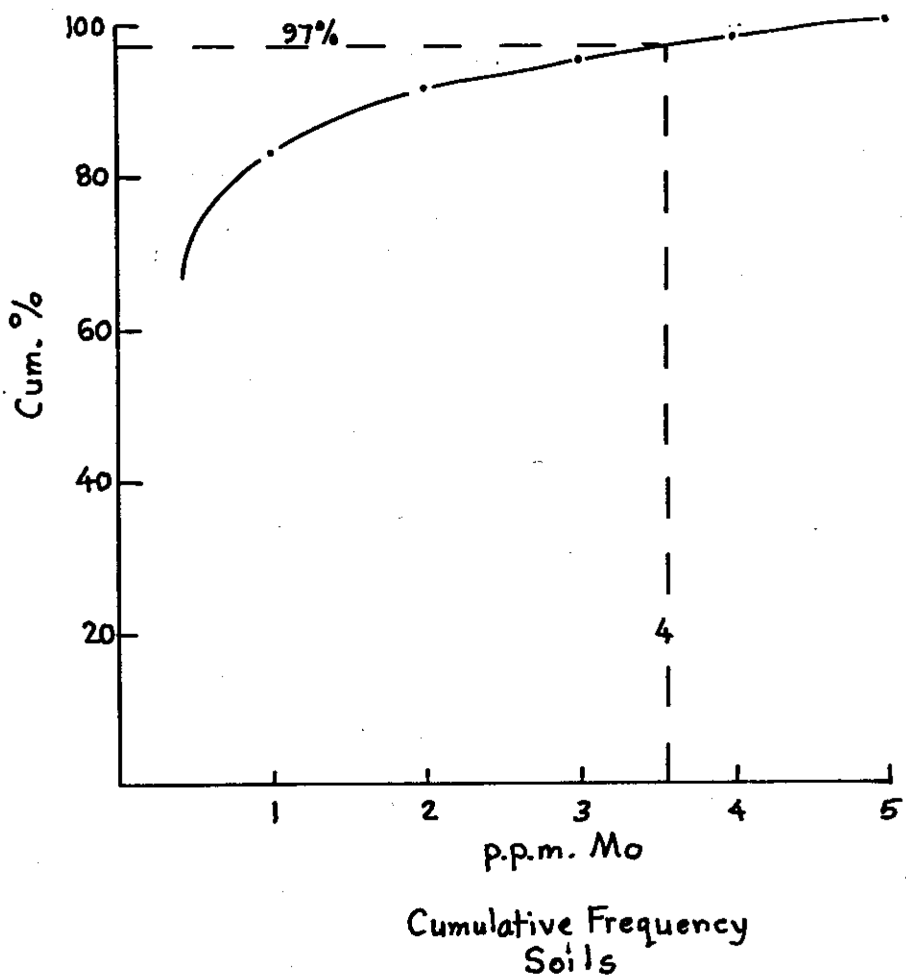

100
80
60
40
20
Cum. %
97%
4
1
2
3
4
5
p.p.m. Mo
Cumulative Frequency
Soils

FIGURE 10

TABLE 16

FREQUENCY DISTRIBUTION FOR SOILS

COPPER

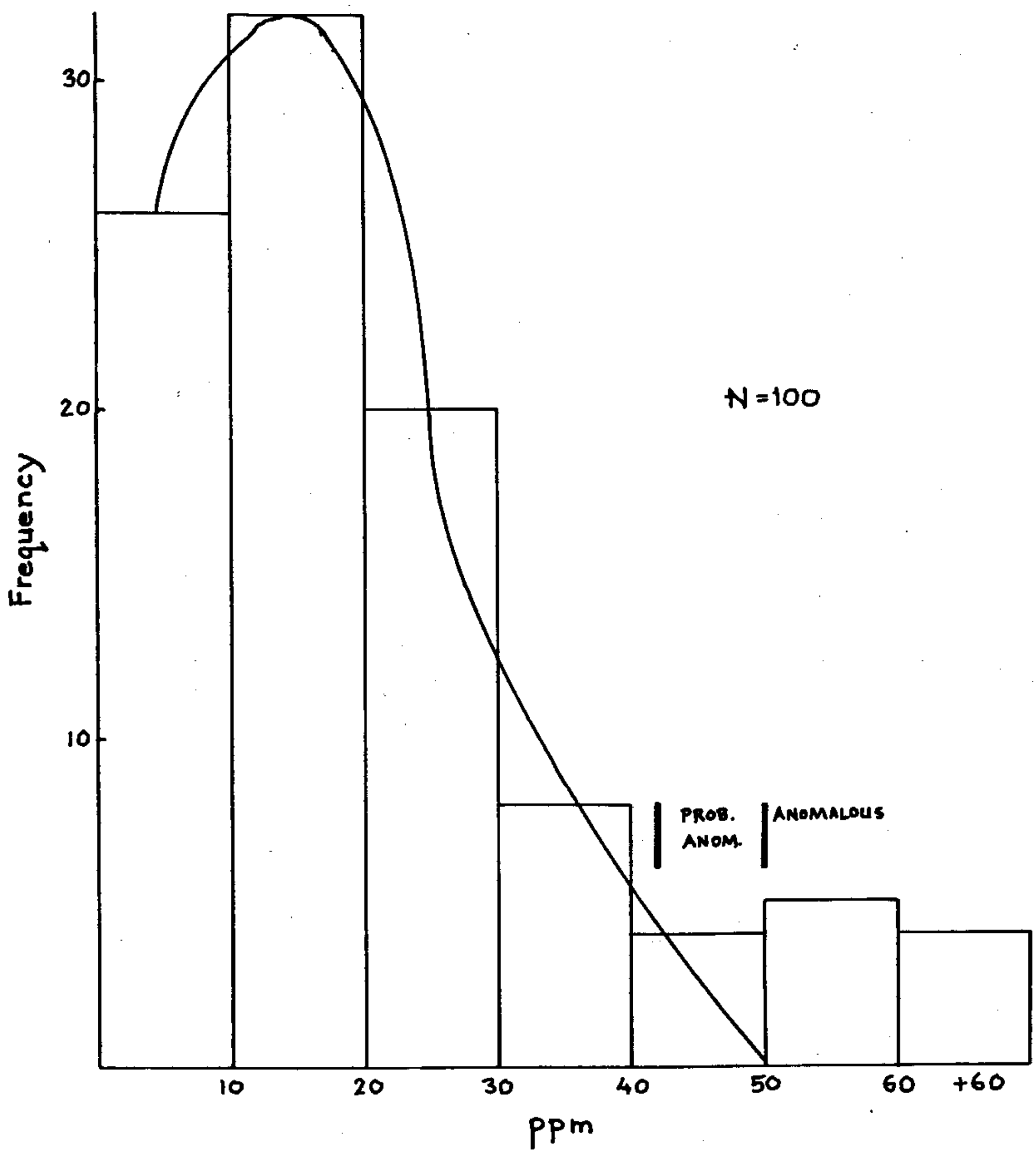
Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
0-10	26	26	28.6
11-20	32	58	63.7
21-30	20	78	85.7
31-40	9	87	95.6
41-50	4	91	100.0
51-60	5		
+60	4		
	100		

TABLE 17

FREQUENCY DISTRIBUTION FOR SOILS

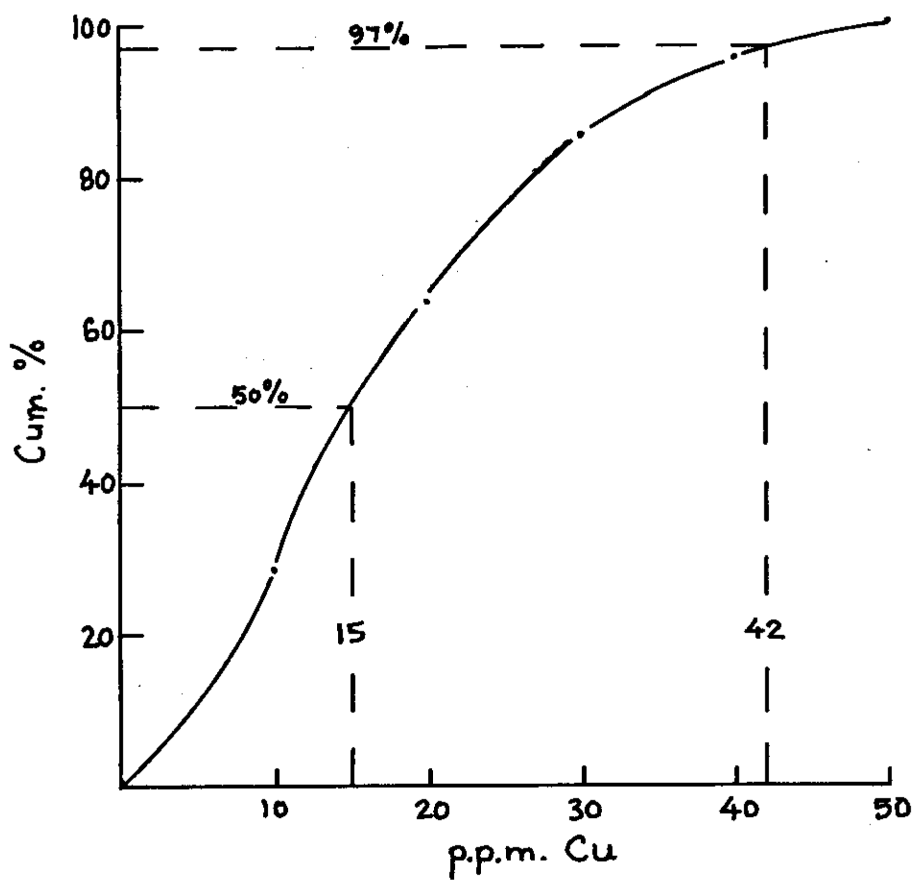
LEAD

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
0-10	16	16	17.4
11-20	29	45	48.9
21-30	19	64	69.6
31-40	10	74	80.4
41-50	8	82	89.1
51-60	6	88	95.7
61-70	2	90	97.8
71-80	2	92	100.0
81-100	0		
+100	8		



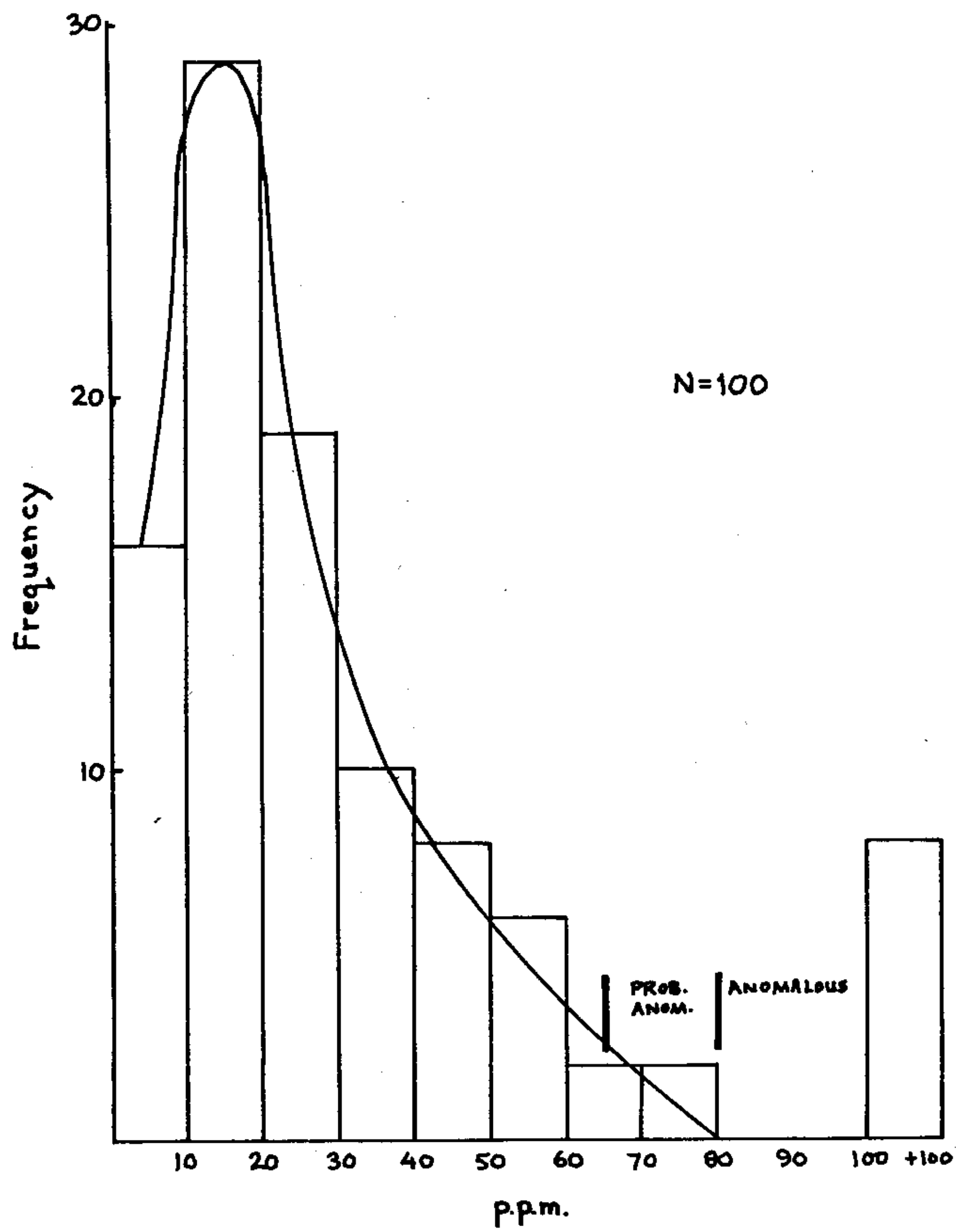
Frequency Distribution
COPPER
Soils

FIGURE 11



Cumulative Frequency
Soils

FIGURE 12



Frequency Distribution
LEAD
soils

Figure 13

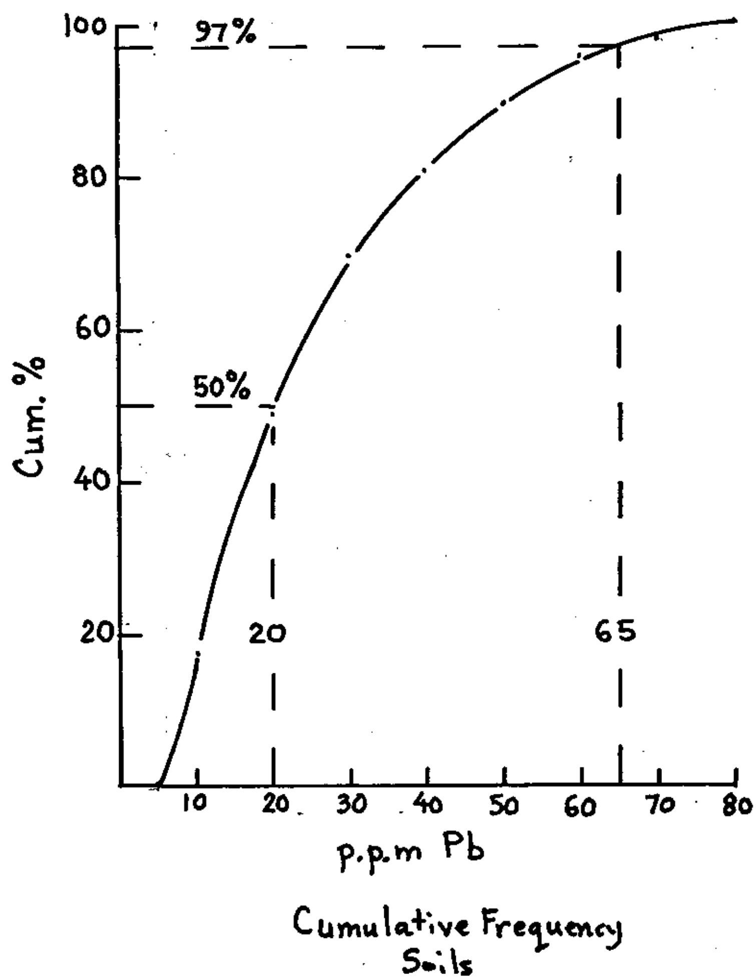

100
97%
80
60
50%
Cum. %
40
20
20
65
10
20
30
40
50
60
70
80
p.p.m Pb
Cumulative Frequency
Soils

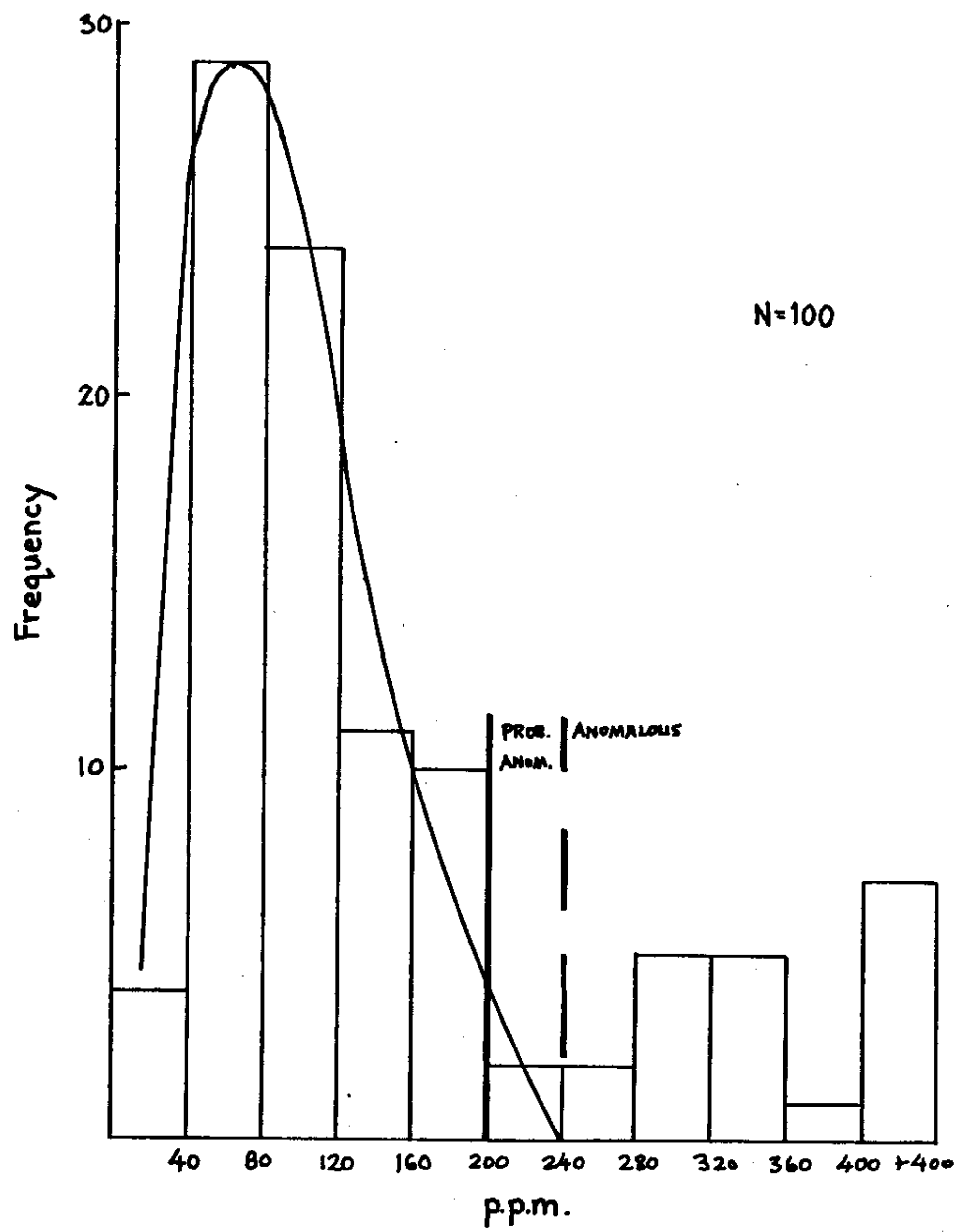
FIGURE 14

TABLE 18

FREQUENCY DISTRIBUTION FOR SOILS

ZINC

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
0-40	4	4	5.0
41-80	29	33	41.3
81-120	24	57	71.3
121-160	11	68	85.0
161-200	10	78	97.5
201-240	2	80	100.0
241-280	2		
281-320	5		
321-360	5		
361-400	1		
+400	7		
	100		



Frequency Distribution
ZINC
Soils

FIGURE 15

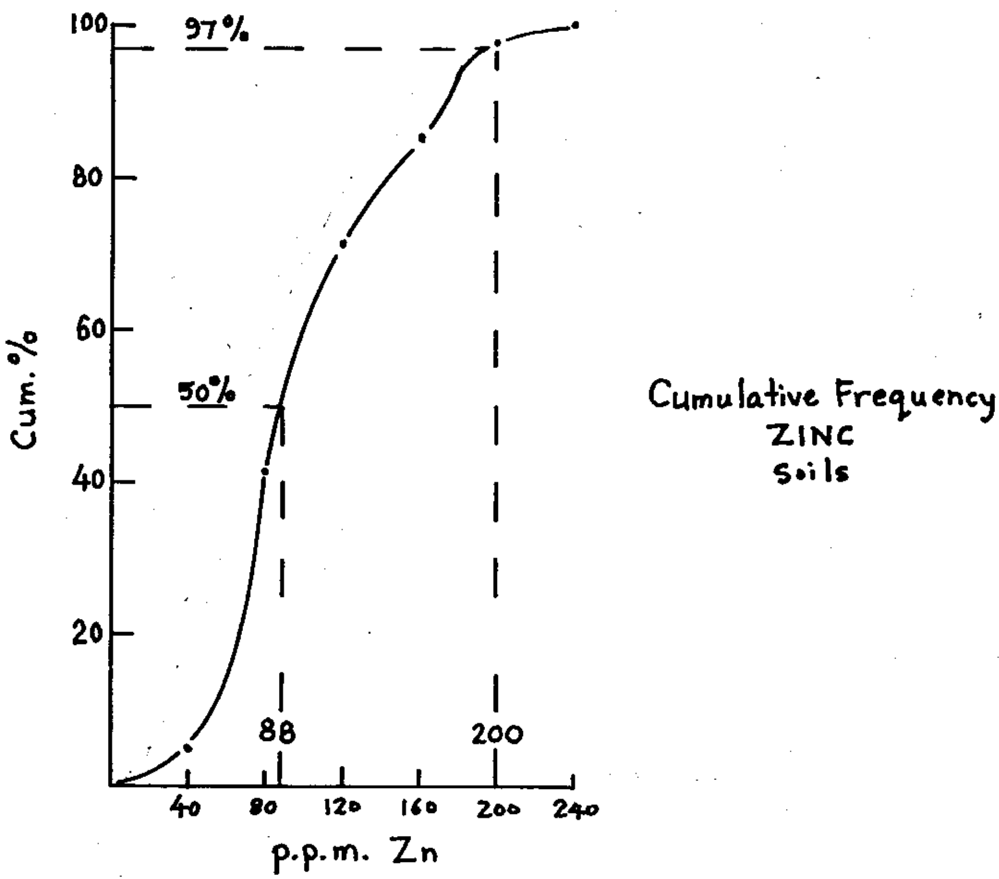

100
80
60
40
20
Cum. %
97%
50%
88
200
40
80
120
160
200
240
p.p.m. Zn
Cumulative Frequency
ZINC
Soils

FIGURE 16

TABLE 19

FREQUENCY DISTRIBUTION FOR SOILS

SILVER

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
0.1	83	83	89.2
0.2	7	90	94.7
0.3	3	93	97.9
0.4	2	95	100.0
0.5			
0.6	1		
0.7-1.0			
1.1	1		
1.2-1.4			
1.5	1		
+1.5	2		
	100		

TABLE 20

FREQUENCY DISTRIBUTION FOR SOILS

TUNGSTEN

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
1	71	71	87.7
2	8	79	97.5
3	2	81	100.0
4	3		
5	6		
6	1		
+12	9		

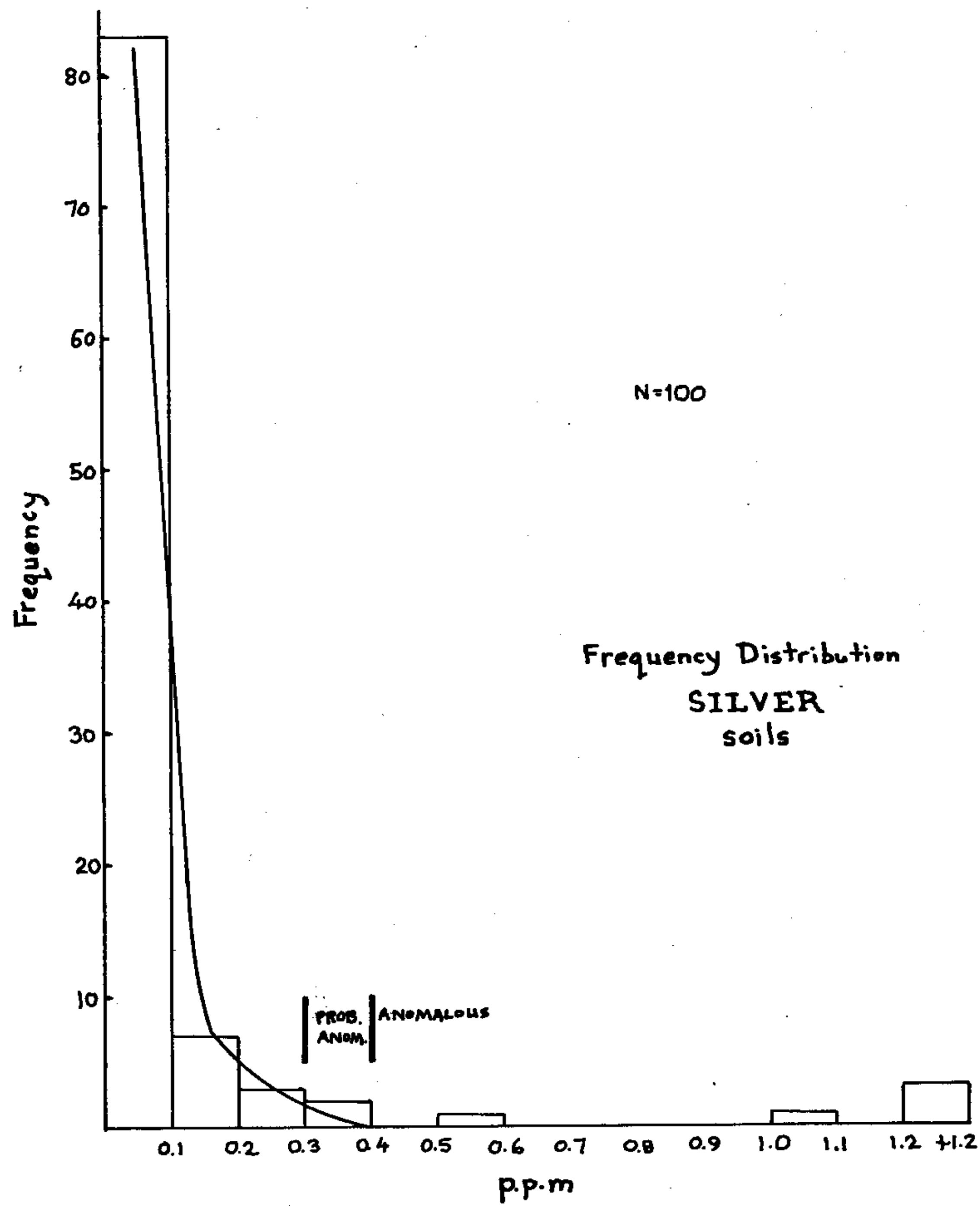
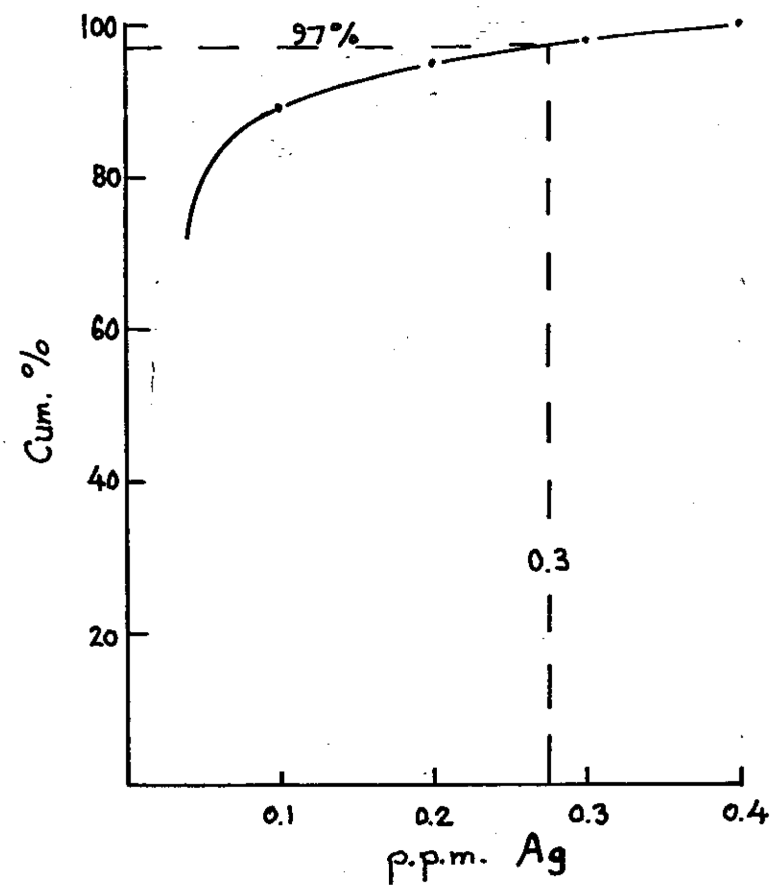

80
70
60
50
40
30
20
10
Frequency
N=100
Frequency Distribution
SILVER
soils
PROB. ANOM.
ANOMALOUS
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 +1.2
p.p.m

FIGURE 17



Cumulative Frequency
Soils

FIGURE 18

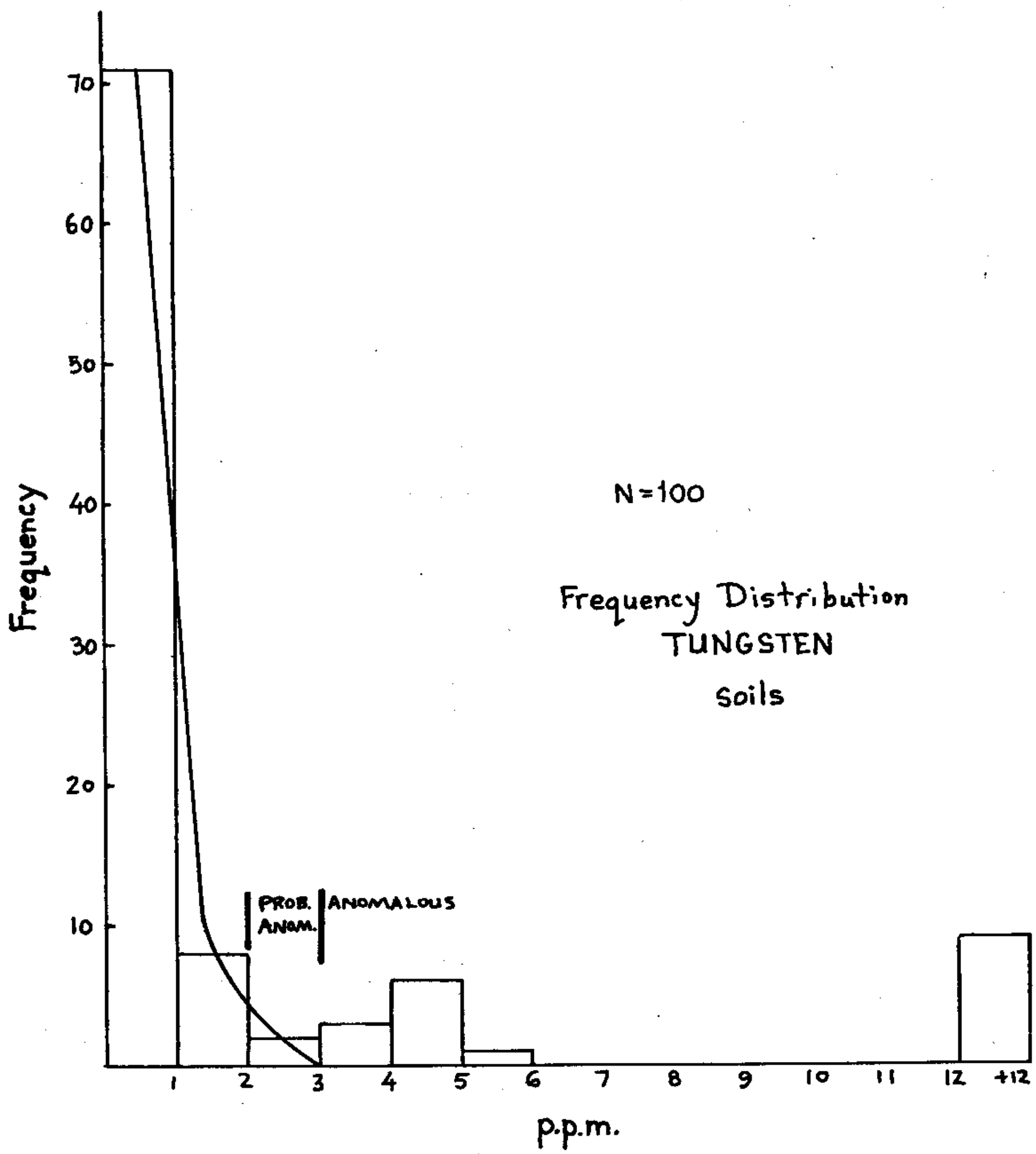
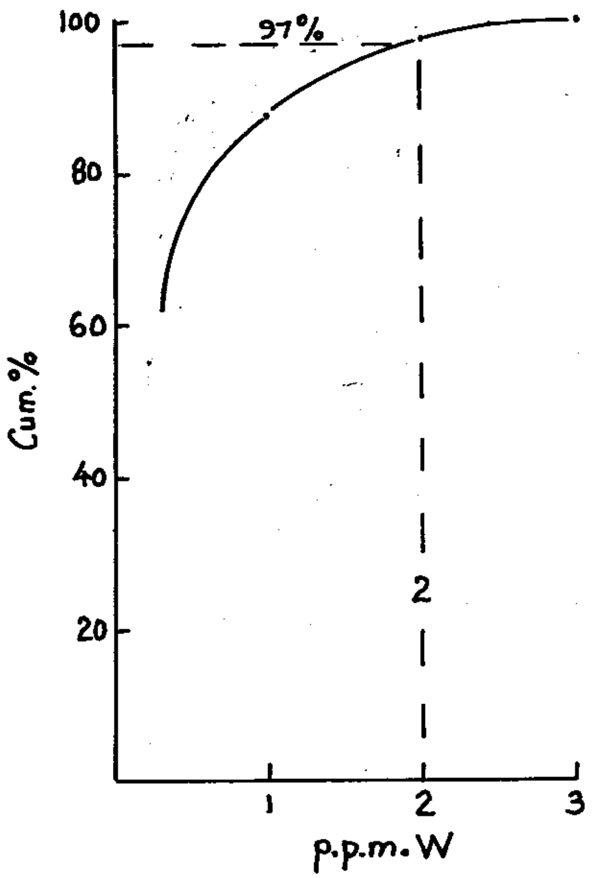

Frequency
70
60
50
40
30
20
10
PROB. ANOM.
ANOMALOUS
N=100
Frequency Distribution
TUNGSTEN
Soils
1
2
3
4
5
6
7
8
9
10
11
12
+12
p.p.m.

FIGURE 19



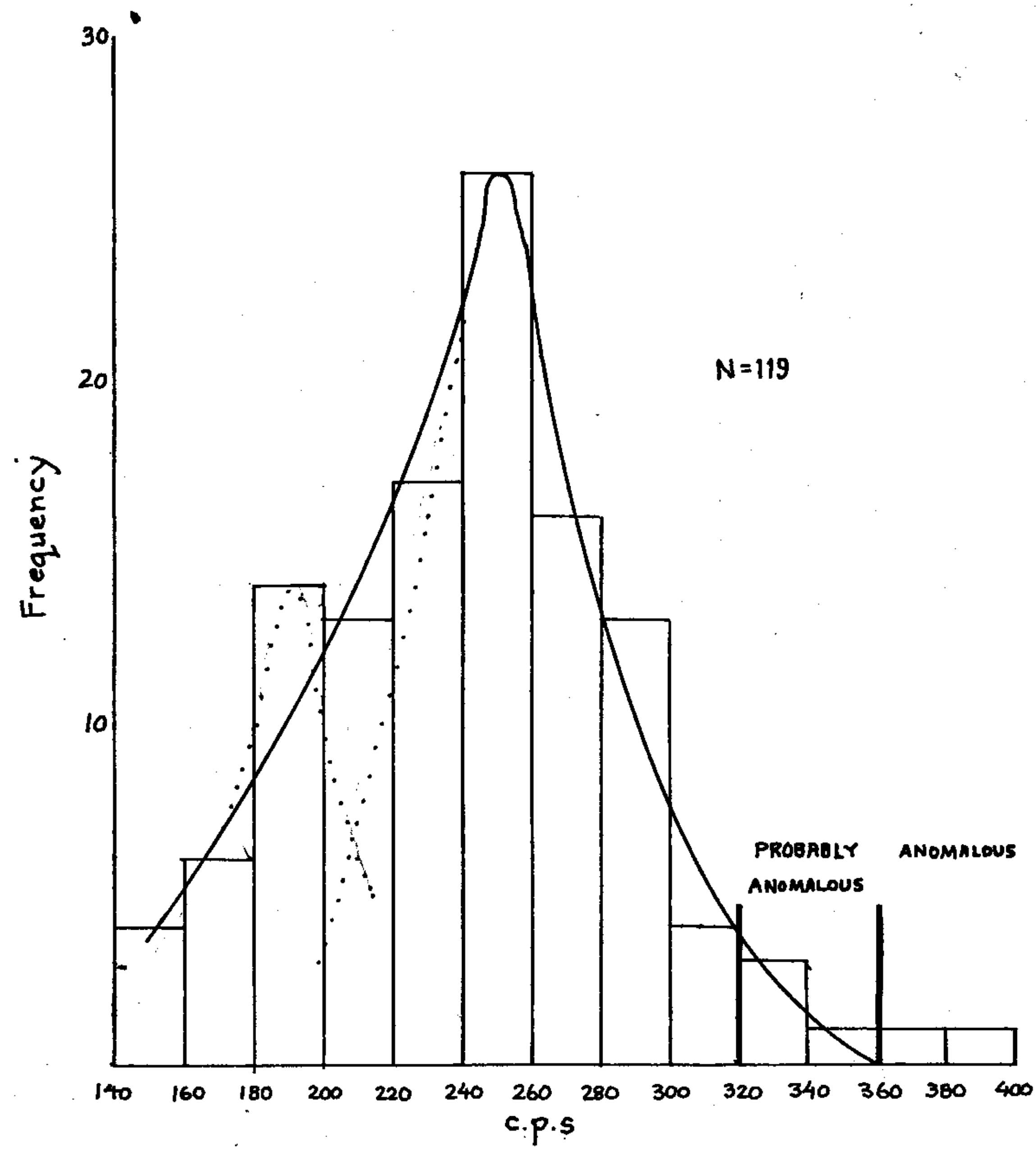
Cumulative Frequency
Soils

FIGURE 20

TABLE 21

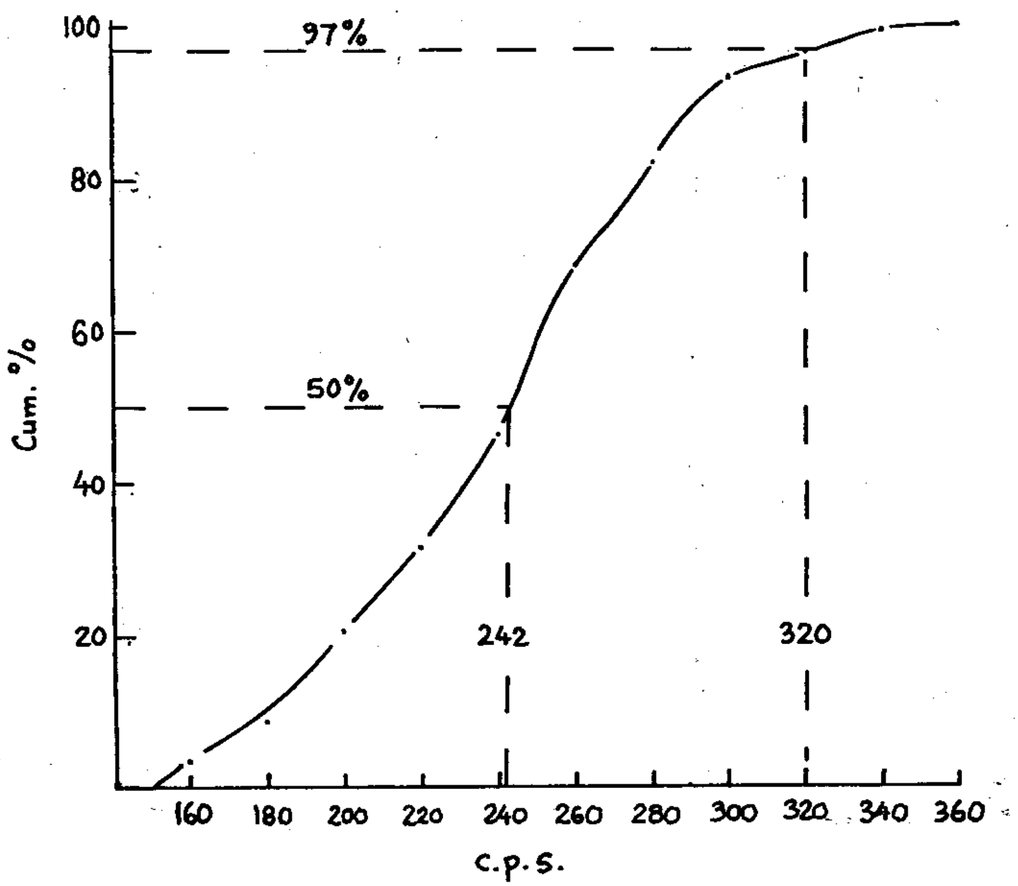
FREQUENCY DISTRIBUTION FOR RADIOMETRIC READINGS

Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percentage
141-160	4	4	3.4
161-180	6	10	8.5
181-200	14	24	20.5
201-220	13	37	31.6
221-240	17	54	46.2
241-260	26	80	68.4
261-280	16	96	82.1
281-300	13	109	93.2
301-320	4	113	96.6
321-340	3	116	99.1
341-360	1	117	100.0
361-380	1		
381-400	1		
	119		



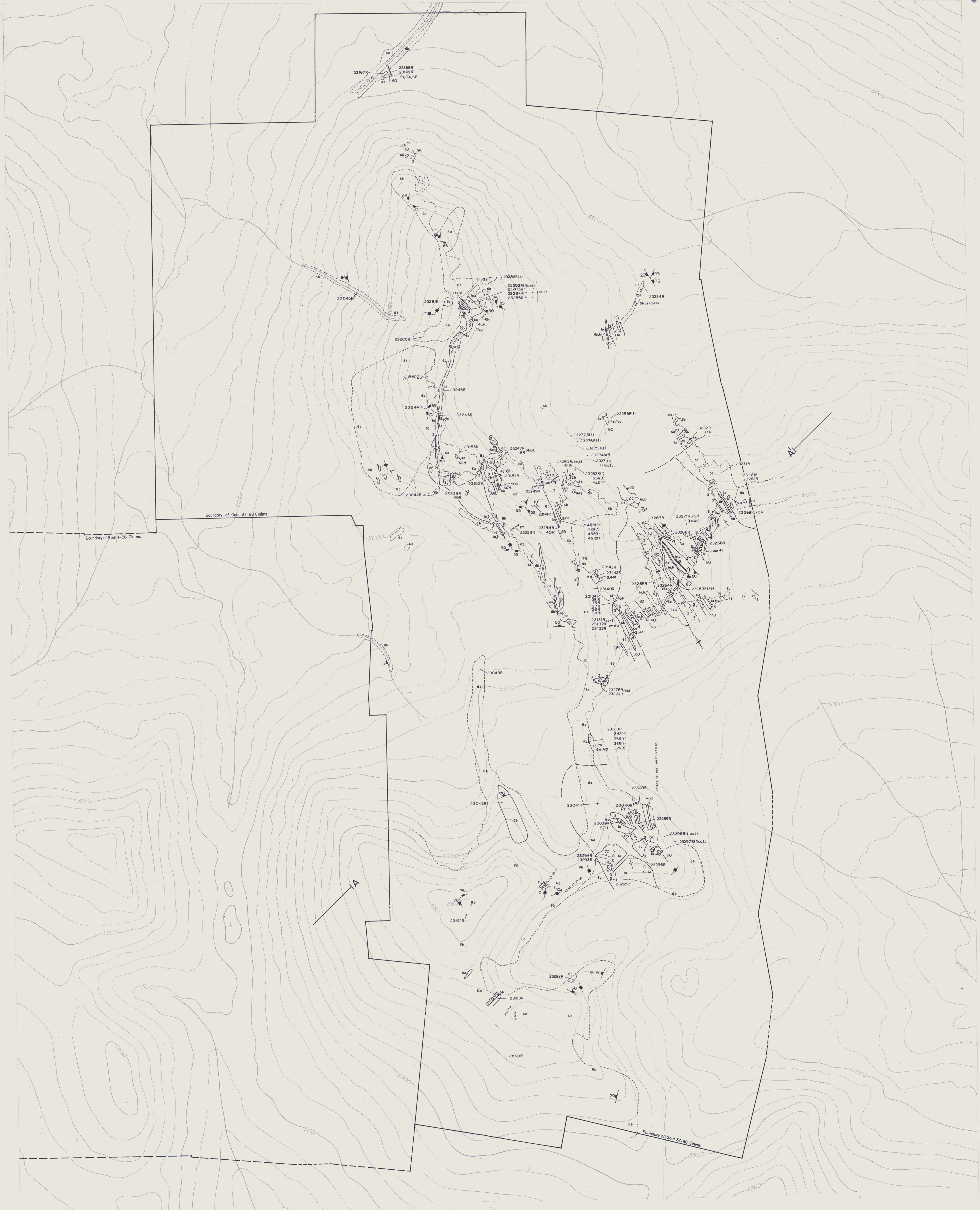
GOAT 37-86 CLAIMS
Frequency Distribution
RADIOMETRICS

FIGURE 21



Cumulative Frequency
Radiometrics

FIGURE 22



TERTIARY ?

7		Diabase

JURASSIC AND/OR CRETACEOUS

Cassiar Batholith

6	6	Undifferentiated quartz-monzonite
	6a	Biotite-muscovite quartz-monzonite and granite
	6b	Biotite-quartz monzonite
	6c	Pegmatite
5	5a	Hornblende-biotite diorite/monzonite
	5b	Biotite-quartz diorite/granodiorite

LOWER CAMBRIAN AND (?) EARLIER

Metasedimentary Rocks

4	4a	Pyrrhotite-rich skarn
	4b	Calc-silicate skarn
3		Recrystallized limestone, minor quartzite bands
2		Calc-silicate hornfels; hornfelsed interlaminated quartzitic and calcarous rocks; metasomatized clastic metasedimentary rocks
1	1	Undifferentiated clastic metasedimentary rocks
	1a	Micaceous quartzite
	1b	Biotite-porphyroblastic quartzitic schist
	1c	1a or 1b with calc-silicate laminae

claim post

claim boundary

A A' cross section

(80WA) 23298R (F) rock sample, talus or glacial float

(80WA) 23299R rock sample from outcrop

outcrop

geologic contact; observed; approximate

bedding attitude: inclined, vertical

joint attitude: inclined; vertical

foliation attitude: inclined; vertical

fracture/shear zone

fold axes: synformal, antiformal; with direction of plunge

PY	pyrite
MO	molybdenite
CP	chalcopyrite
GA	galena
SP	sphalerite
SCH	scheelite

TRUE

MAG.

N

31°

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION

WATSON LAKE MINING DISTRICT, YUKON

N.T.S. 105-B

GEOLOGY & ROCK GEOCHEMISTRY

SCALE IN METRES

100 50 0 100 200 300 400

R.K./d.t. Jan.81 **PLAN 1**

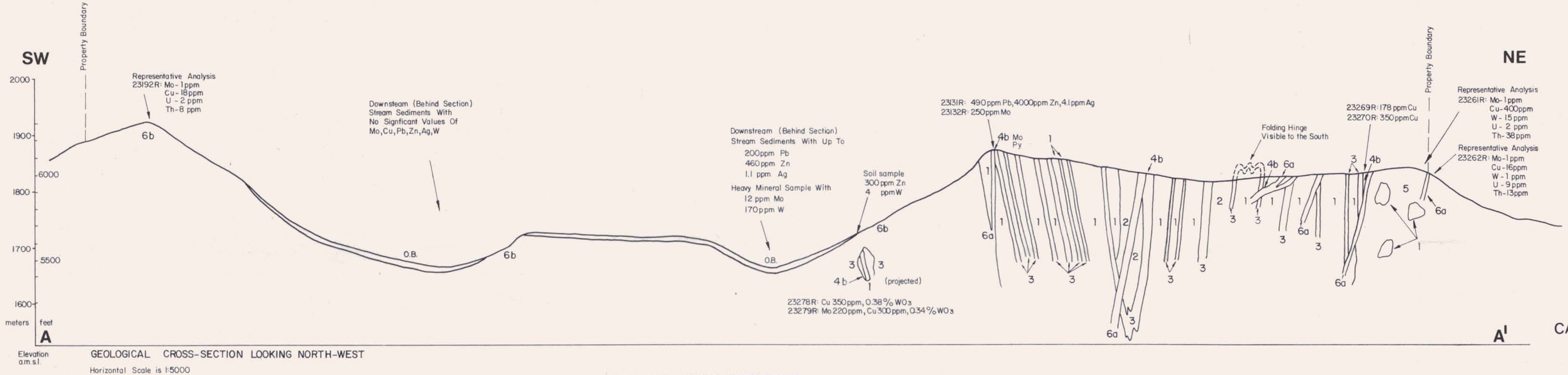

Pb, Zn, Ag
Boundary of Goat 37-86 Claims
Boundary of Goat 1-36 Claims
Cu
W
Zn
Mo, Zn
Cu, Ag, W
Zn, Ag, Mo
A
A'
LEGEND
Cu - visible mineral or high rock geochem occurrence (see plan 1)
All values in ppm
Zn Ag Pb 80 WA sample number
ANOMALOUS
>240 >0.4 >80
PROBABLY ANOMALOUS
200-240 0.3-0.4 80
claim boundary
—A A'— cross section location
TRUE
MAG.
N
31°
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION
WATSON LAKE MINING DISTRICT,
YUKON
N.T.S. 105-B
SOIL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE
Pb, Zn, Ag.
SCALE IN METRES
100 50 0 100 200 300 400
R.K./d.t. Jan. 81
PLAN 2

Pb, Zn, Ag
W
Cu
Pb, Zn, Ag
Zn
Mo, Zn
Cu, Ag, W
Zn, Ag, Mo
Boundary of Goat 37-86 Claims
Boundary of Goat 1-36 Claims
A
A'
LEGEND
Cu - visible mineral or high rock geochem occurrence (see plan 1 for detail)
Soil Geochemistry (values in ppm)
Cu
Mo
W
>50
>5
>3
anomalous
43-50
4-5
3
probably anomalous
claim boundary
A A' cross section location
TRUE
MAG.
N
31°
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION
WATSON LAKE MINING DISTRICT,
YUKON
N.T.S. 105-B
SOIL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE
Cu, W, Mo.
SCALE IN METRES
100 50 0 100 200 300 400
R.K./d.t. Jan. 81
PLAN 3


Pb, Zn, Ag
Boundary of Goat 37-86 Claims
Boundary of Goat 1-36 Claims
Cu
W
Zn
Mo, Zn
Cu, Ag, W
Zn, Ag, Mo
Pb, Zn, Ag
A
A'
LEGEND
visible mineral or high rock geochem occurrence (see plan 1 for detail)
STREAM SEDIMENTS - values in ppm
Sample No.
Probably Anomalous Can-Oxy 1979
HEAVY MINERALS - values in ppm
Probably Anomalous Can-Oxy 1979
Claim Boundary
Assumed
Cross Section Location
TRUE
MAG.
N
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION
WATSON LAKE MINING DISTRICT,
YUKON
N.T.S. 105-B
STREAM SEDIMENTS AND
HEAVY MINERALS GEOCHEMISTRY
SCALE IN METRES
R.K./d.t. Jan.81 PLAN 4


Boundary of Goat 37-86 Claims
Boundary of Goat 1-36 Claims
LEGEND
Reading TC 1, at 10 seconds
Probably anomalous (320-360 cps)
Anomalous (>360)
250 cps
300 cps
claim boundary
A A' location of cross section
TRUE
MAG.
N
31°
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION
WATSON LAKE MINING DISTRICT,
YUKON
N.T.S. 105-B
SCINTILLOMETER SURVEY
CONTOURED VALUES
SCALE IN METRES
100 50 0 100 200 300 400
R.K./d.t. Jan.81 PLAN 5


py, sp, ga
0.86-1.31% Pb
1.63-5.64% Zn
0.86-1.94 oz./ton Ag
A
B
C
D
E
F
G
FLOAT
0.04-0.09% WO3
0.10% WO3
0.19% WO3
cp, sph
FLOAT 0.10% WO3
0.12% WO3
0.18% Cu
0.04% WO3
0.60% Cu
380-880 ppm Pb
144-1750 ppm Zn
0.8-1.5 oz/ton Ag
sph
up to 4.85% Zn
VEIN
0.37% Cu
mo
1.54% Zn
0.046% Mo
cp
0.22-0.89% Cu
0.80 oz/ton Ag
0.12% WO3
0.34-0.38% WO3
VEIN up to 8.22% Zn
4.94 oz./ton Ag
sph, ga, mo
VEINLET
380 ppm Pb
855 ppm Zn
4.8 ppm Ag
0.16% WO3
sch
Boundary of Goat 37-86 Claims
Boundary of Goat 1-36 Claims
no sediment available
not sediment sampled
LEGEND
JURASSIC-CRETACEOUS
Cassiar Batholith
6 Quartz monzonite
5 Diorite, monzonite
LOWER CAMBRIAN AND (?) EARLIER
Metasedimentary Rocks
4 Skarn
3 Recrystallized limestone
2 Calc-silicate hornfels
1 Quartzite and Schist
fracture/shear
geologic boundary; observed, approximate
claim boundary
A A' location of cross-section
Cu 25 stream sediment sample location, only anomalous values given, in ppm (see plan 4 for anomalous levels)
heavy mineral sample location - no anomalous values
Note: contours closed on uphill and downhill sites for presentation purposes only
sph sphalerite
ga galena
mo molybdenite
py pyrite
cp chalcopyrite
sch scheelite
A geochemical soil anomaly discussed in text
Pb contour ≥ 60 ppm
Zn contour ≥ 200 ppm
Ag contour ≥ 0.3 ppm
Cu contour ≥ 43 ppm
Mo contour ≥ 4 ppm
W contour ≥ 3 ppm
0.37% Cu selected high rock values
TRUE
MAG.
N
31°
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT WATSU
GOAT CLAIMS
EASTERN PORTION
WATSON LAKE MINING DISTRICT,
YUKON
N.T.S. 105-B
GEOLOGY & GEOCHEMISTRY
COMPILATION MAP
SCALE IN METRES
100 50 0 100 200 300 400
R.K./d.t. Jan. 81
PLAN 6



GEOLOGICAL CROSS-SECTION LOOKING NORTH-WEST

Horizontal Scale is 1:5000

JURASSIC AND/OR CRETACEOUS

Cassiar Batholith

6	6a	Biotite-muscovite-quartz monzonite
	6b	Biotite-quartz monzonite
5		Hornblende - biotite diorite, monzonite

LOWER CAMBRIAN AND (?) EARLIER

Metasedimentary Rocks

4	4a	Pyrrhotite-rich skarns
	4b	Calc-silicate skarns
3		Recrystallized limestone
2		Calc-silicate hornfels
1		Micaceous quartzite, quartzitic schist

OB	overburden
Py	pyrite
Mo	molybdenite
———	geologic boundary
23219R	rock sample

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GEOLOGICAL PROFILE A—A'

SCALE IN METRES

100 50 0 100 200 300 400

R.K./d.t. Jan.81 PLAN 7