

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY, GEOCHEMISTRY
AND
GROUND MAGNETOMETER SURVEY
OF THE

GIL CLAIM GROUP

Claim Sheet No. 82E-4W½

Lat. : 49°07'
Long.: 119°55'

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. <u>5573</u>	MAP

Claims:
GIL 1-26

by:
J.N. Schindler, B.Sc.

Covering Work Completed During the Period
August 24th to September 4th, 1974

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SUMMARY

A widespread limonite alteration zone (about 2 miles in diameter) has been located in upper Gillanders Creek. Associated with this alteration zone is a very strong stream silt geochemical anomaly in Cu, Mo and W. In the centrally located area is an extensive, differentiated suite of granitic, felsic porphyry and quartz veins which cut hornfelsed rocks and which are accompanied by extensive sericitization. Molybdenite and rare chalcopyrite is associated with these felsic veins and scheelite has been found in skarn.

Soil geochemical anomalies for Cu and Mo occur on the GIL claims.

INTRODUCTION

The GIL (1-26) Claims were staked as a result of a regional stream sediment program completed during the summer of 1973. The staking was carried out on November 24th, 1973, by Canadian Occidental Petroleum Ltd., Minerals Division personnel and recorded at Penticton on November 24, 1973.

On August 22, 1974, the claims were relinquished with a seven-day allowance to be re-staked. Re-staking was carried out by M.P. Henrick on August 25 and 26, 1974.

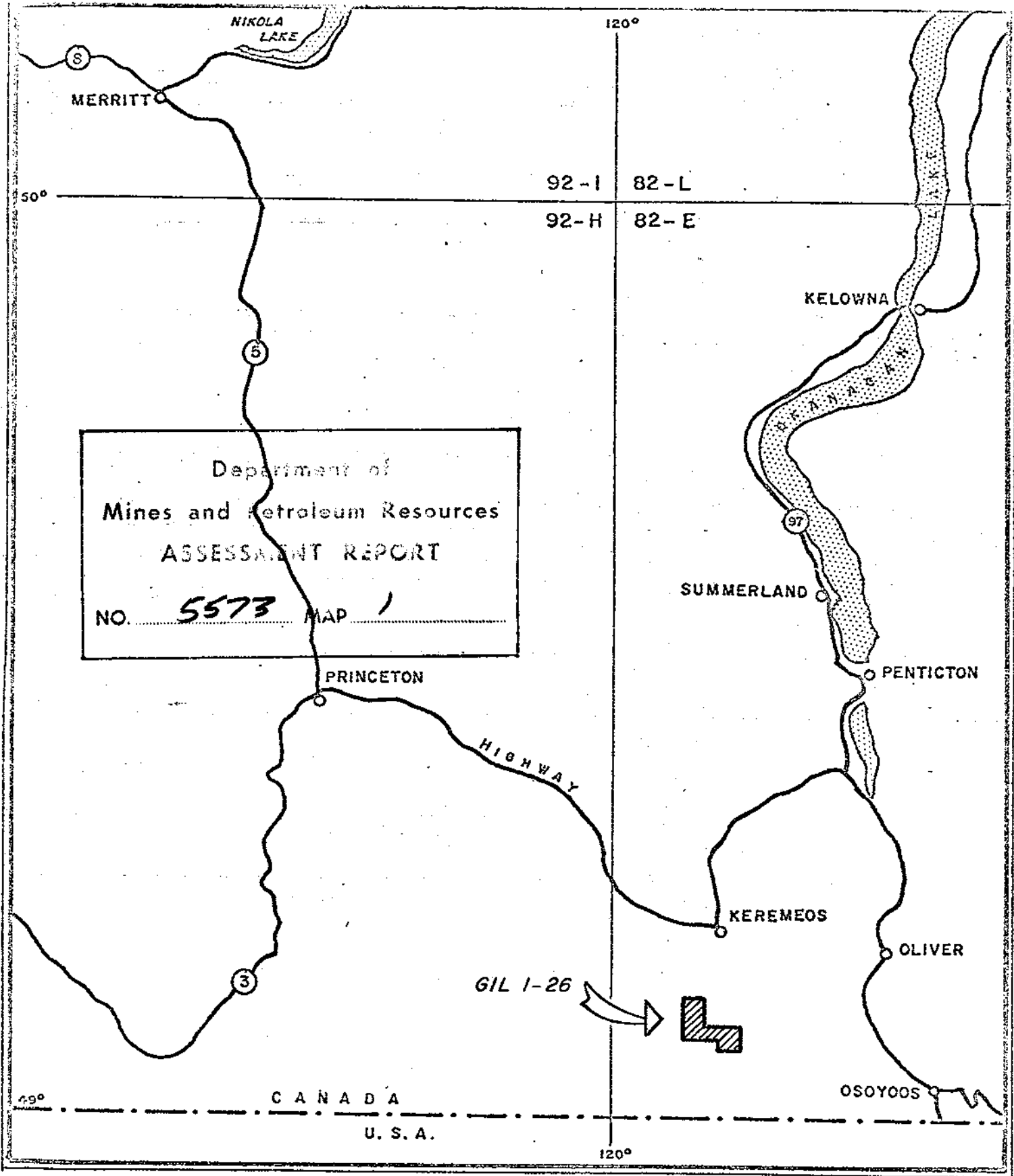
The report includes a description of the geology of the claims and the surrounding area and the results of geochemical and geophysical surveys completed by Canadian Occidental Petroleum Ltd., the holder of the claims.

LOCATION AND ACCESS

The GIL claim group is recorded on claim map 82-E-4W in the Osoyoos Mining District. The claim group is located about 7 miles SW of Keremeos and adjoins the western boundary of Indian Reserve No. 13.

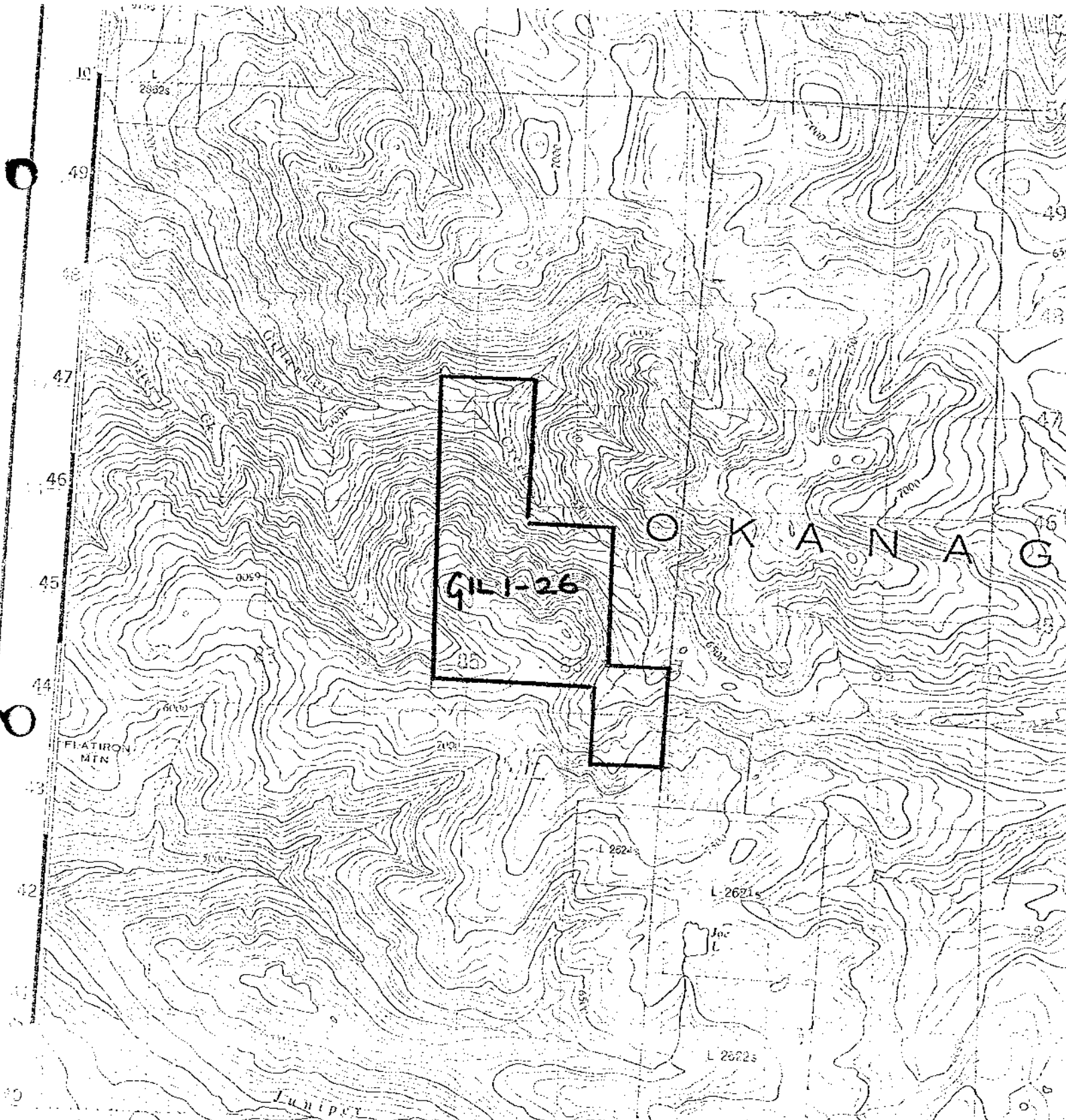
The only easy access is by helicopter, though cow trails lead into the area up Gillanders Creek and the northern tributary of Susap Creek.

The property is located at an elevation between 4200 feet and 7900 feet, but south facing slopes are snow free by the beginning of July.



CANADIAN OCCIDENTAL - PETROLEUM LTD
MINERALS DIVISION

LOCATION OF GIL CLAIMS



GIL-26

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5573 p. 1a

R A N G E
N T S
82 E 4 W 1/2
1:50,000

VEGETATION

The tree line is situated at about 7000 ft. Above the treeline the vegetation consists of open, alpine grasslands, lichen and moss covered felsenmeer slopes. Below 7000 ft. steep, south facing slopes consist mainly of bare talus, small crags and rare, stunted trees. Elsewhere below 7000 feet on ridges and north facing slopes spruce trees rapidly develop to full size, and below 6000 feet a mature, open spruce forest dominates the area.

PHYSIOGRAPHY

The GIL claims lie within the Okanagan Range of the Cascade Mountains. The arbitrary eastern and northern boundary of the Okanagan Range is the Similkameen Valley lying 5 miles north of the property. In the interior of southern British Columbia the dominant physiographic feature is the Interior Plateau. In this area the local equivalent, the Fraser Plateau, reaches up to a height of 7500 ft., with mountains rising above this to culminate at 8,507 feet at Snowy Mountain. Heads of creeks are near to the level of the Plateau surface but within a very short distance they descend to the Ashnola or Similkameen valleys and the relief is over 6000 ft. in this area south of Keremeos.

The GIL claims lie 5 miles north of Snowy Mountain, the highest point of the Okanagan Range, and the property

ranges in height from 4200 feet at the junction of the main branches of Gillanders Creek to 7900 ft. at the SW corner of Indian Reserve #13.

Copious outcrop occurs along the headwall of north facing nivation hollows at about the 7000+ feet level, and much float is found on the arid south facing slopes. The valley bottoms are reasonably well covered by morainic till, and below the 7000 ft. level on north facing slopes by rock glaciers and deep talus slopes.

PREVIOUS WORK

There are no assessment files of previous work being done in this area; however, a very old camp is located at the junction of the two main tributaries of Gillanders Creek. However, there is no direct evidence to connect this to mineral exploration.

An old tag and claim post in the name of Kennco was staked by R. Stevenson in 1960.

Union Carbide have the adjacent 18 PA claims in good standing.

WORK COMPLETED

1) Line Cutting:

Line cutting was done by Martinson Linecutting and Staking Ltd., of Powell River, B.C. An interval of 800 feet between lines was used.

a) The line cutting crew was comprised of four line cutters and a cook was on the property from July 1st to 7th inclusive.

b) Footage cut during this period was as follows:

Lines: 18.6 line miles

Baseline and tie lines: 3.4 line miles

c) Average footage lcut was 0.79 line miles/man/day

or 4170 line feet/man/day

2) Geological Mapping:

Geological mapping was done by:

G. Rhodes: Aug. 25-September 4, 1974

J.N. Schindler: Aug.24-Sept. 4, 1974

3) Geochemical Survey:

Information concerning the geochemical survey is tabulated below:

<u>Sampler</u>	<u>Dates</u>	<u>Type of Samples Collected</u>
G. Argenti	Aug. 25-Sept. 4	Soil,silt,rock chip
I. Howat	"	"
M. Lacina	"	"
J. Morgan		"
Dr. C.F. Gleeson	Aug. 26, 1974	Consulting

4) Magnetometer Survey:

C. Bangsboll - August 25th-Sept. 4th

GEOLOGY

1) Introduction:

The Gillanders Creek property lies in an area of southern British Columbia in which mining has been carried out since gold was discovered east of Keremeos in the 1890's. Since that time, and until fairly recently, mining activity was concerned with gold, silver and copper lode deposits. More recently the exploration emphasis has been directed towards the search for porphyry copper and molybdenum deposits.

Regionally, the property is situated in an area underlain predominantly by Palaeozoic rocks comprised of the Shoemaker and Old Tom Formations. Both these units are ascribed an age of Triassic or older by Bostock (1930) and by Little (1958 and 1959); their most likely age is Permian to Pennsylvanian.

The Shoemaker Formation is the main rock unit in the area and underlies the Old Tom Formation. It is described by Little (op.cit.) as being comprised of chert, some tuff and greenstone. The Old Tom Formation is described by him as being composed of greenstone, basalt flows, sills, bosses and some diorite and is shown by him as occurring in this area in the form of small lenses and thin, irregular masses.

The property lies about four miles north of the Juniper Creek-Snehumption Creek batholith, which has been classified by Little (1959) as being a Nelson Plutonic rock. Syenitic Bodies associated with the margins of this batholith have long been known for their associated copper, molybdenum and silver veins.

2) General Geology:

The gross geological features of the area as determined by Little (1959) and earlier workers remain essentially unchanged. In detail, however, considerable revision of the geology is necessary of which this report represents but the first step.

Some of the more obvious features of the geology not previously known include the presence of a wide variety of dykes and their association with molybdenum and copper mineralization (which was also previously unreported), the widespread distribution of hornfels and the presence of a thick lens of conglomerate in the claim group.

3) Table of Formations

<u>Age</u>	<u>Formation</u>	<u>Rock Types</u>
		viii) Seriate granite porphyry
		vii) Porphyritic leucogranite
		vi) Rhyolite porphyry
		v) Latite porphyry
	Dyke rocks	iv) Porphyritic granite
		iii) Porphyritic quartz diorite
		ii) Felsic Dykes
		i) Syenite
Unconformity		Conglomerate

	Old Tom Formation:	Andesite flows, tuffs; basalt flows; diorite sills(?)
Triassic or Older	Shoemaker Formation:	Cherts, argillaceous tuffs, argillites, andesite tuffs.

4) Description of Rock Units:

1) Shoemaker Formation:

a) General Statement: The following units have been included in the Shoemaker Formation: cherts, argillaceous tuffs, argillites and andesitic tuffs. It has not been possible to map these as distinct units in the field because considerable compositional overlap exists between them and because of their complex field relations.

b) Cherts: The cherts have a wide variety of colours ranging from white to pale buff, as well as pale green and

black. They are typically cryptocrystalline with a conchoidal fracture. Not uncommonly the cherts are impure and contain argillite or thin andesite beds or partings. Commonly pyrite is present in small amounts (<0.5%) on fracture planes in the chert; this accounts for the occasional limonite staining on the weathered surface of the rocks. Moderate hornfelsing of the argillaceous component of the impure cherts is also common. Fine quartz veins occur in some areas (24E/17N) and they are attributed to hairline fracture-filling by "sweat out" quartz.

The cherts are widely distributed and predominate along the eastern margin of the area in Indian Reserve 13, along the lines of the extension grid, and south of the Reserve along the ridge SE of the camp (Figure 15).

Another large area of cherts is exposed in the southwest of the Gil claims centered about the base line from 00E to 36E.

c) Argillaceous Tuffs and Argillite: The fresh surface of these rocks is black. They are composed essentially of argillaceous material and minor amounts (2 to 5%) of greenish cherty material which occurs in small lenses up to 1/8" long, and which is interpreted as being of pyroclastic origin. Schistosity is generally moderately to well developed in these rocks. Their small pyrite content frequently ensures the development of a limonitic weathered surface.

The absence of the small cherty lenses is the basis for distinguishing between the argillaceous tuffs and the argillites, or black argillites, as they have sometimes been called.

The argillaceous tuffs and argillites have been hornfelsed to varying degrees ranging from weak to strong.

The black argillites and argillaceous tuffs are found mainly in the western part of the area south of Gillanders Creek to the southern limit of the Gil property. Lesser quantities of these rocks occur in the centre of the

d) Andesitic Tuffs: This unit is comprised of andesitic siltstone or agglomerate. It is generally weakly to moderately schistose and it is locally sheared. Some small areas comprising up to 5% of the rock contain small lenses which are silica-rich and generally massive.

Andesitic tuffs assigned to the Shoemaker Formation appear to be restricted to a thin lens at the west side of the Gil grid and centered on 08E from 28N to 38N. Minor quantities of brown felsic tuff occur at the north end of line 64E.

2) Old Tom Formation:

a) Andesite tuffs and flows: The andesitic rocks of this unit are generally massive and rather featureless. Pillows were noted at the extreme eastern margin of the map area. In the central and western areas they have been obliterated by fracturing, shearing and/or folding. No vesicular amygdaloidal andesites were seen. The andesites on the northern edge of the claim group have been pervasively silicified and

they are bleached along the margins of quartz veins. Here they are host to molybdenite mineralization on dry fractures, chloritized fractures and in quartz veins. Generally though, the pyrite content of these rocks is lower than 1% and results in their having a characteristic rusty weathered surface.

The andesite tuffs and flows assigned to this unit occur as two thin bands one of which trends NE and the other of which is arcuate and concave to the west. The NE trending band of andesitic volcanics extends from the south tie line of the Gil property to 48E/27N on the grid. The crescent-shaped band of volcanics extends from the southern boundary of the Gil grid along the eastern margins of the Gil claims and appears to terminate in the vicinity of 40E/78N on the Gil grid.

b) Basaltic Flows: Basaltic flows occur in two areas of restricted extent (46E/00 to 12N and 48E/31S). These rocks are massive and on fresh surfaces are very dark green to greenish black in colour.

d) Diorite Sills(?): A porphyritic rock of dioritic composition outcrops at 72E/22S. The fresh surface is mottled white and dark grey. The rock is massive and it is cut by widely spaced fractures. The porphyritic texture of this rock is produced by medium grained phenocrysts composed of pale greenish-grey plagioclase which are phenocrysts or

amygdules or "shards". Set in fine grained matrix of chloritized ferromagnesian and/or biotite. Ferromagnesian-rich matrix is brownish when viewed with hand lens and this is probably due to biotite, very minor ($\ll 1/10\%$) disseminated pyrrhotite and some minor pyrite altered to limonite on fracture planes.

This rock is considered to be either a sill or the centre of a large flow.

3) Conglomerate:

A polymictic conglomerate is exposed in the northeast of the claim group over an area of 4200 feet long by about 600 to 800 feet wide.

No contacts between the conglomerate and any other rock units were seen. The conglomerate is composed of subrounded to well rounded elliptical fragments of chert, diorite, andesite and argillite which are generally about 6 inches long, but which locally attain lengths of three or four feet. The matrix of the conglomerate is essentially a finer grained version of the pebbles and boulders which it encloses, and is generally sand size. At 64E.17.8N, however, it is much coarser grained.

4) Dyke Rocks:

a) General Statement: A wide variety of dykes occur in the map area. Most of them are localized north of the Gil claim group between Gillanders Creek and its first tributary to the north and by lines 24E and 72E.

Several of the rock types designated as dykes have been found only as talus fragments, generally in well developed talus fans.

The felsic dykes and porphyritic quartz diorite dykes are the most widely distributed members of this group. Minor amounts of iron and copper sulphide are associated with the porphyritic quartz diorite dykes. The porphyritic and porphyry dykes in the PA Claim group are more restricted in their distribution and are further characterized by their association with molybdenite mineralization.

The mutualage relations of the dykes is not yet known. However, two main trends for the dykes were noted. These are 345°T and 040°T to 070°T .

b) Descriptions:

i) Syenite Dykes: A syenite dyke occurs at 40E/34N and it is limited in distribution to this occurrence. The rock is medium grained, massive and is composed of light gray plagioclase (72%) and chloritized hornblende (20%) and about 8% quartz. The rock is cut by narrow quartz, 1/8" glassy quartz veins and by chloritized fractures.

Oxidation of small, isolated grains of pyrrhotite gives rise to small limonitic stains.

The rock is sheared and is altered to a light purplish colour on the sheared surface and irregularly along other fracture surfaces.

ii) Felsic Dykes: Dykes of this group are among the most widespread in the area. Dykes of this type appear to be restricted to the east and north-central parts of the map area. None were observed in an area in the Gil claims between the south tie line and Gillanders Creek and bounded by 00E and 48E. In the remaining map area the rocks comprising this group are leucocratic, are composed essentially of fine grained feldspar and are generally quartz deficient. Generally, they have a small content (~1%) of fine grained pyrite and hence weather with a limonitic surface. Small amounts of manganese oxides are also commonly associated with these dykes. Where there is a slight increase in the SiO_2 content of these rocks a porphyritic texture is produced as a result of the development of quartz eyes. The ratio of phenocrysts to matrix in these rocks is always low (about 1:10).

iii) Porphyritic Quartz Diorite: Next to felsic dykes, the porphyritic quartz diorite dykes are the most abundant. They are, however, more evenly distributed through the map area than the felsic dykes and have been noted in virtually all the areas covered by this work.

In general, this rock is composed of 30% phenocrysts and 70% matrix, though in some dykes of this group phenocrysts may constitute as much as 40% to 50% of the rock.

The phenocrysts are comprised of light grey medium-grained plagioclase (some of which show oscillatory zoning) and which make up from 30% to 50% of the rock by volume. The matrix is finer grained and it is made up of approximately equal amounts of ferromagnesian (hornblende and biotite) quartz and plagioclase. In general the hornblende is weakly chloritized. The rock is characterized by 1% to 2% fine grained disseminated pyrite which is localized in the matrix and generally replaces the chloritized hornblende. The pyrite has been altered to limonite.

iv) Porphyritic Granite: The texture of this rock results from medium grained quartz eyes set in a fine grained matrix. The ratio is ; $\frac{\text{phenocrysts}}{\text{matrix}} = \frac{1}{10}$. The matrix is composed of feldspar 65% and quartz 30%. The rock contains about 3 to 5% fine grained sericite, along fractures associated with quartz veins and as disseminations.

The rock is cut by narrow, 1/16 to 1/8 inch, quartz veins in a very "open stockwork" structure. The best development of this "stockwork" contains 3 veins per inch. Some of these veins are drusy. The rock generally exhibits a miarolitic texture and this is accentuated on weathered surfaces. Weathered surfaces are generally stained by reddish-brown limonite. A few grains of fine grained pyrite were seen, but no molybdenite.

Rocks of this type are restricted in distribution to float on line 24E from between 1200 and 1400 feet north of Gillanders Creek.

ivb) A second variety of granite which is weakly porphyritic outcrops under a bank on Gillanders Creek about 40 feet upstream from its junction with an east-flowing tributary near line 56E. A similar rock type is exposed as talus or frost heaved boulders at the northern end of line 16E. This granite is medium grained, equigranular with a porphyritic tendency due to the presence of quartz eyes and coarse grained potash feldspar. The plagioclase feldspars are weakly saussuritized and the biotite is weakly chloritized. Minor disseminated pyrite occurs as small clots about 1/2 inch in size.

va) Latite and Quartz Latite Porphyry: Latite porphyry associated with molybdenite and ferromolybdenite occurs as float at 24E/72.3N. The ratio of phenocrysts to matrix in this rock is 1:3. The phenocrysts, comprised of medium grained quartz eyes (30%) and feldspar (70%), are set in a pale brown siliceous matrix containing minor fine-grained biotite.

The rock is cut by a 1" wide drusy quartz vein with well developed concentrations of fine grained powdery molybdenite along both selvages. The molybdenite is partly altered to ferromolybdenite. A trace of fine grained molybdenite also occurs disseminated through the rock.

The molybdenite content of the rock results in the development of reddish-brown limonite on some weathered surfaces. The latite porphyry occurs as float on line 24E about 1250 feet north of Gillanders Creek.

vb) Quartz Latite Porphyry: occurs at 27E/72.8N. The texture of this rock results from medium grained quartz and feldspar phenocrysts set in an aphanitic to very fine grained matrix. The ratio of phenocrysts to matrix is 1:2. The phenocrysts are composed of feldspar (very kaolinized and saussuritized) 80% and quartz eyes 20%. The matrix is pale grey. The rock also contains about 3% biotite most of which is very fine grained, but a few books are as much as 1/8" wide and have ragged margins.

Very fine grained disseminated molybdenite occurs as isolated but easily recognizable grains through the rock. The weathered surface is weakly limonitic.

The quartz latite porphyry occurs as a dyke about 200 feet wide at surface and which trends about 070°T . A high grade quartz molybdenite vein in the dyke has a strike of about 070°T and dips 85°N .

vi) Rhyolite Porphyry (Quartz Latite Porphyry?):

Rhyolite porphyry occurs 36E/57N. The fresh surface of the rock is mottled white and grey with lesser black. The porphyry is composed of medium grained feldspar phenocrysts set in a very fine grained to aphanitic groundmass. The ratio of phenocrysts to matrix is 1:3. The feldspar phenocrysts are white, pinkish or very pale green. Biotite constitutes about 3% of the rock by volume and it is either fine grained or to a lesser extent medium grained. Some of the larger biotite books have ragged edges. The groundmass is light grey and with the aid of a hand lens is seen to be highly siliceous. The rock is very similar to the quartz latite porphyry, except that its matrix appears to be far more siliceous. No molybdenite was seen in this rock.

A rock classified as rhyolite porphyry is exposed in the east part of the property. The rock is composed almost entirely of quartz and contains only minor feldspars. The feldspars appear to have been partially resorbed. The rock is massive and has a slight porphyritic tendency due to the presence of a few larger grained isolated quartz grains. The rock is generally well fractured and these fractures are cemented by a black silicate mineral (probably black quartz).

vii) Porphyritic Leucogranite:

Porphyritic leucogranite occurs as talus on line 36E, 200 feet north of Gillanders Creek. This is a

highly siliceous rock with reddish brown limonite on the weathered surface. It is composed of medium grained phenocrysts of quartz and feldspar set in a slightly finer grained matrix. The total quartz content of the rock is estimated at 55 to 60%. Feldspars are white or pink but the latter colour may be due to iron staining. One small mafic inclusion ($\frac{1}{4}$ " x $\frac{1}{2}$ ") indicative of contamination by country rock was observed. The leucogranite also contains very minor fine grained disseminated molybdenite.

viii) Seriate Granite Porphyry:

A seriate granite porphyry occurs as talus at 32E/67N. The following description is based on a weathered specimen.

30% to 40% of the rock is made up of phenocrysts which range in size from medium to fine grained, and they are set in an aphanitic light grey groundmass. The medium grained phenocrysts are 80% quartz and 20% K-feldspar. The grain size of the quartz phenocrysts is generally gradational from the largest down to the smallest, and this results in the seriate texture of the rock.

The groundmass is aphanitic, light grey and it appears under a lens to be fairly siliceous. The rock also contains about 3% chloritized and generally fine grained hornblende. Several hairline fractures cut the specimen and one of these is stained with red-brown limonite.

A few isolated grains of fine grained molybdenite are disseminated through the rock, as is slightly less than

1% fine grained euhedral pyrite. Seriate granite porphyry also occurs in a narrow dyke on line 56E, 1050 feet south of the line.

5) Structure:

The general trend of the rocks in the area is northerly. Dips are generally to the west. The schistosity, which is generally moderately developed in the argillites and tuffs, also has a northerly trend although there is a tendency for considerable variation in its orientation.

At least two main directions of fracturing are present. This is shown by the felsic dykes which trend at about 340° and by a variety of features such as dykes, faults and quartz veins which strike from between 040° and 070° .

The conglomerate located to the northeast of the claims between Gillanders Creek and the first northwest-flowing creek ("Stakers" Creek) is of tectonic significance, and probably reflects the presence of a small graben block delimited by Gillanders and "Stakers" Creeks.

Fracturing is best developed in a NW trending belt which extends from the SE margin of the area south of Indian Reserve 13 to the area of the junction between the Gil and Lig claims.

6) Metamorphism:

Regional metamorphism is generally of the lower amphibolite grade. In one area, O/C #28, however, small garnets associated with hornblende are indicative of the upper amphibolite grade of regional metamorphism.

7) Alteration:

The most conspicuous alteration features are the limonite zones. The main zone encloses the area of most important economic interest, it is roughly circular with a diameter of about 10,500 feet. The intensity of limonite development is weak to moderate.

The development of hornfels in the argillites, argillaceous tuffs and the argillaceous partings in the cherts is widespread in the Gil claims. Hornfelsing has been noted adjacent to small dykes, but also where no intrusives are exposed at surface. The intensity of hornfels development is generally moderate to weak.

Well developed sericitization (3 to 5% fine grained sericite) occurs in porphyritic float carrying molybdenite at 24E/72.3N and associated with an open quartz vein stockwork in the same rock type at 24E/72N.

Silicification is manifest by numerous quartz veins found in a wide variety of rock types in the limonite zone. Bleaching of the country rock often occurs when the quartz veins on hairline fractures are localized in the andesites. Weak pervasive silicification of the andesites is widespread.

An example of weak saussuratization of plagioclase feldspar occurs in the porphyritic granite on Gillanders Creek near line 56E.

ECONOMIC GEOLOGY

a) General Statement:

The Gil claim area lies between the porphyry copper deposit of Similkameen Mining Corporation near Princeton and that of Brenda Mines Ltd. near Peachland. In spite of this, however, and despite the fact that it is associated with a conspicuous limonite zone five miles from a main highway, there is no record of any work having been done on the property. An old claim post found on line 16E/45.5N indicates that at least part of the Gil claims were previously staked by Kennco Explorations in 1960. There is no record in the assessment files of any work done on the property at that time.

The proximity of the map area to the Juniper Creek-Snehumption Creek Batholith has resulted in prospecting in the surrounding area over a long period and the occurrence of copper prospects associated with syenitic intrusives localized at the margins of the Juniper Creek-Snehumption Creek Batholith is reported by Bostock (1930).

b) Mineralization:

i) Molybdenum:

The main area of molybdenum mineralization lies north of Gillanders Creek and between 24E/67N and 52E/57N. Much of the molybdenite found to date is in talus either in fans or boulders which have been frost heaved and subsequently crept down the steep slopes. The highest grade molybdenite found is in a 6" wide quartz vein which is localized in a quartz latite porphyry dyke at 28E/66N. The molybdenite is very fine grained and it is disseminated through the glassy quartz vein so as to colour it grey. The quartz vein is drusy in part and, as a result of the oxidation of small amounts of pyrite in the vein, the molybdenite has locally been altered to ferromolybdite. The average molybdenite content in this outcrop of quartz latite porphyry, however, is very low. Very fine grained disseminated molybdenite occurs as isolated but easily recognizable grains in the dyke rock.

Several talus fragments vertically below, but across slope from, the quartz latite porphyry dyke contain molybdenite which is of greater significance. In one

fragment of talus float (located at 24E/72.3N on the grid)

altered porphyritic granite is cut by at least two generations of glassy quartz veins, one of which is at least 1" wide and the other being at least $\frac{1}{2}$ " wide. One of the quartz veins contains molybdenite on a fracture plane, the other is barren. The two large quartz veins cut narrow $\frac{1}{4}$ " glassy quartz veins which carry molybdenite. The molybdenite is fine grained and occurs as well developed selvages marginal to the quartz veins and as isolated grains within the quartz veins. Molybdenite also occurs as hairline fractures in the altered porphyritic granite and it is associated with moderate sericitization and kaolinization. Fine grained molybdenite is also disseminated through the rock in very minor quantities and it is localized in particular near the margins of the quartz eyes. The porphyritic granite is moderately kaolinized and sericitized and has a microlitic texture.

Fine grained molybdenite also occurs in latite porphyry float at 24E/72.3N on the grid). In this case the molybdenite occurs along the selvages of a 1" drusy and glassy

quartz vein . The molybdenite is partly altered to ferromolybdenite in the vein. There is also a trace of disseminated molybdenite in the latite porphyry and some fracture surfaces are coloured by reddish-brown limonite.

Fine grained, disseminated molybdenite also occurs in trace amounts in porphyritic leucogranite found as talus at line 32E/67N and in the seriate granite porphyry found as float at the same location.

Also of considerable significance is the molybdenite which occurs in andesitic rocks and to a much lesser degree the molybdenite localized in hornfelsed argillites south of Gillanders Creek. Weakly silicified andesite carrying molybdenite occurs at 52E/58N (on the map) and as float at 48E/61N (on the grid). The andesite is cut by narrow (less than 1/8") quartz veins. One of these veins carries large euhedral grains of pyrite and trace amounts of fine grained molybdenite.

The most significant feature of this occurrence is the nature and amount of molybdenite in it. The molybdenite is very fine grained, almost "dusty". and it is abundant on one face and clearly visible on at least two other faces on the weathered surface. The limonite coating on the weathered surfaces is of a dark-red brown colour.

The molybdenite which occurs on line 40E at 850 feet south of Gillanders Creek occurs as isolated fine grained rosettes and is of extremely low tenor.

Molybdenite in andesite talus occurs near the intersection of the original Gil 16 claim and the original PA 4 claim. This molybdenite is fine grained and it is concentrated in clots along the selvages of a narrow (1/8" inch) glassy quartz vein. Molybdenite of a similar nature also occurs at 50E/75N (on the map).

ii) Copper:

Considerably less copper mineralization was found than molybdenum mineralization. Copper was found to be most frequently associated with the porphyritic quartz diorite dykes. It is localized near the contacts of these dykes as very fine grained chalcopyrite (for example, at 1500 feet SE of 72E/00N). On line 24E, 550 feet north of Gillanders Creek trace amounts of chalcopyrite were found along a fracture plane in epidotized andesitic float.

In spite of the degree of oxidation in the area and the apparent availability of low pH surface and groundwaters, no malachite or azurite was seen on the property. Some of the black oxides in the northern area which were mapped as manganese oxides may in fact be secondary copper oxides such as "neotocite".

It is also worth noting that a sample of altered andesite from 48E/64N (on the grid) cut by 1/4" quartz veins

SUMMARY OF GEOLOGY AND MINERALIZATION

Fine grained molybdenite occurs in narrow glassy quartz veins over a large area north of Gillanders Creek.

The molybdenite is associated with small amounts of widespread copper which is generally localized near the contacts of porphyritic quartz diorite dykes. Trace amounts of native copper occur in andesite flows at the south end of the property, and one sample in the central part of the area, has a content of 800 ppm tungsten.

The molybdenite is associated with a large number of silica to very silic intrusives, some of which are exposed as narrow dykes. In addition to being the products of strong differentiation, these intrusives have been emplaced at a high level as indicated both by their overall porphyritic nature and by the presence of miarolitic textures. Taken as a group, the intrusive rocks are well altered and in general are characterized by the presence of very small quantities of fine grained disseminated molybdenite. Quartz veining is widespread north of Gillanders Creek and hornfelsing is common.

The presence of a polymictic conglomerate in the northereastern area containing chert, andesite and argillite fragments suggests that the level of erosion in the mineralized zone is not as great as in the adjacent areas and enhances the

potential of the area. Such a situation would prevail if the mineralized area occupied a small graben bounded by Gilllanders and "Stakers" Creeks.

SOIL GEOCHEMISTRY

Introduction

The GIL property lies in area of considerable glacial action. Glacial deposits are extensive but appear to have a local origin.

Soil horizons are fairly well developed with horizons A₀, A₁, A₂ and B being distinguishable. The soil geochemistry seems to be fairly reliable since geological and geochemical anomalies coincide quite well.

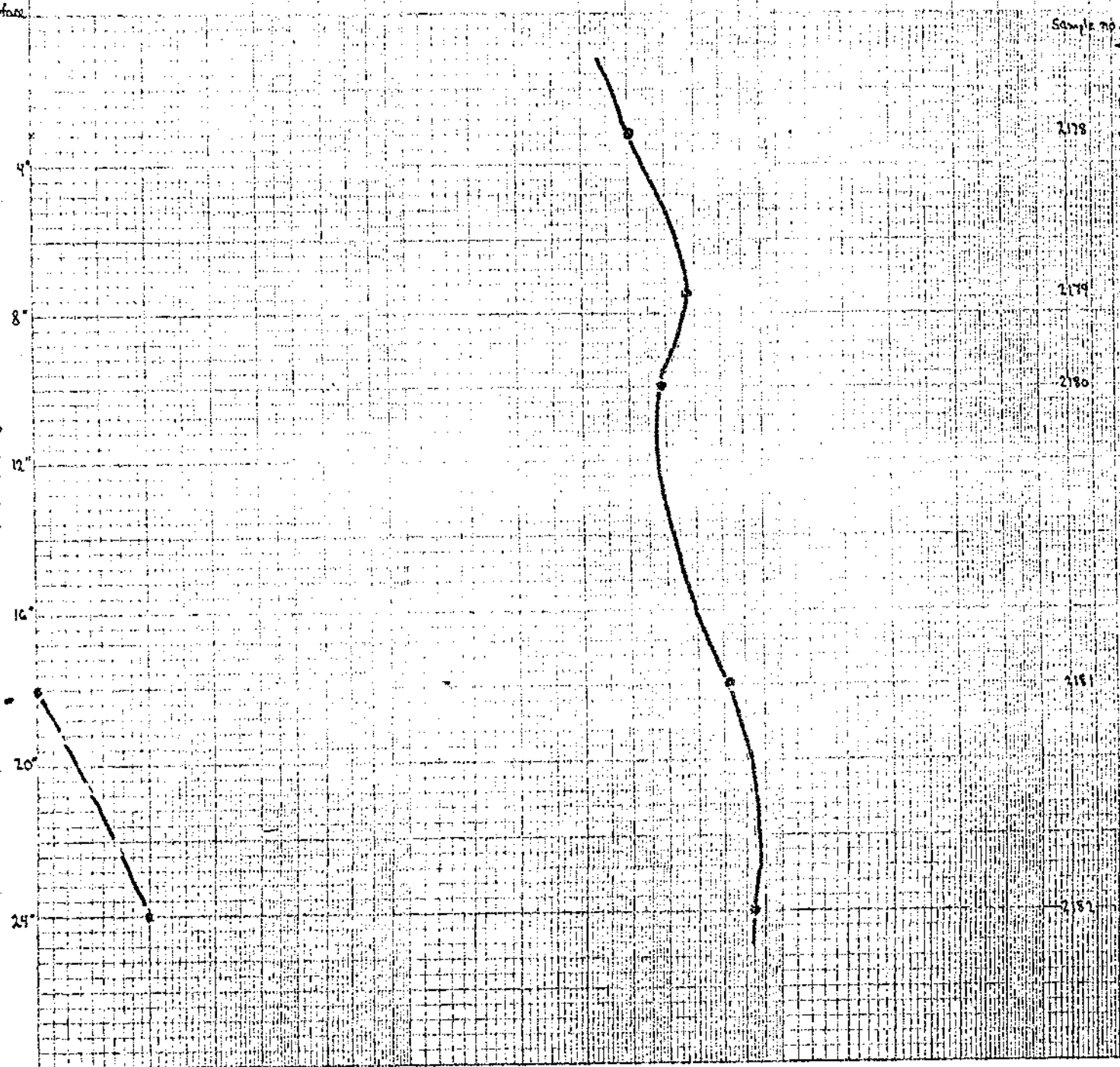
Soil Profile

Three soil profiles were examined at L24E/13S(Pit 1), L32E/10N(Pit 2) and L71H0E-0.45S(Pit 3). The results as shown in Figs. 2, 3 and 4 show that no great variations occur with depth in the relatively immature soils; however, Fig. 4, profile 3 shows considerable leaching in the upper 6 inches, lower A zone, hence this difference reflects the significance of sampling the same horizon consistently. In the Gil soil survey - the "B" horizon was sampled. It was usually reached

Pit I
L24E/13S
Glacial drift

surface

Depth (inches)



Sample no. — organic rich layer
medium brown
Sandy loam 15%

2178 — brown sandy loam
25% small pebbles
still in root zone
no leached horizon

2179 — brown and light yellow brown
black brown pebble till
sandy loam, root zone
pebbles 15%

2180 — greyish yellow brown pebble till
small pebbles 15-25%
more clayey but still fairly
sandy loam

2181 — pebble size increases up to
cobbles 20-40%

2182

Value (ppm)

— Cu
--- Mo • plot at 1 ppm above 16"

Fig. 2

Glacial drift

surface

Depth (inches)

Sample no.

old burn, talus, grass

2183

organic rich, dark brown
sandy loam

2184

yellowish brown, sand + pebble loam
pebbles 40-60%

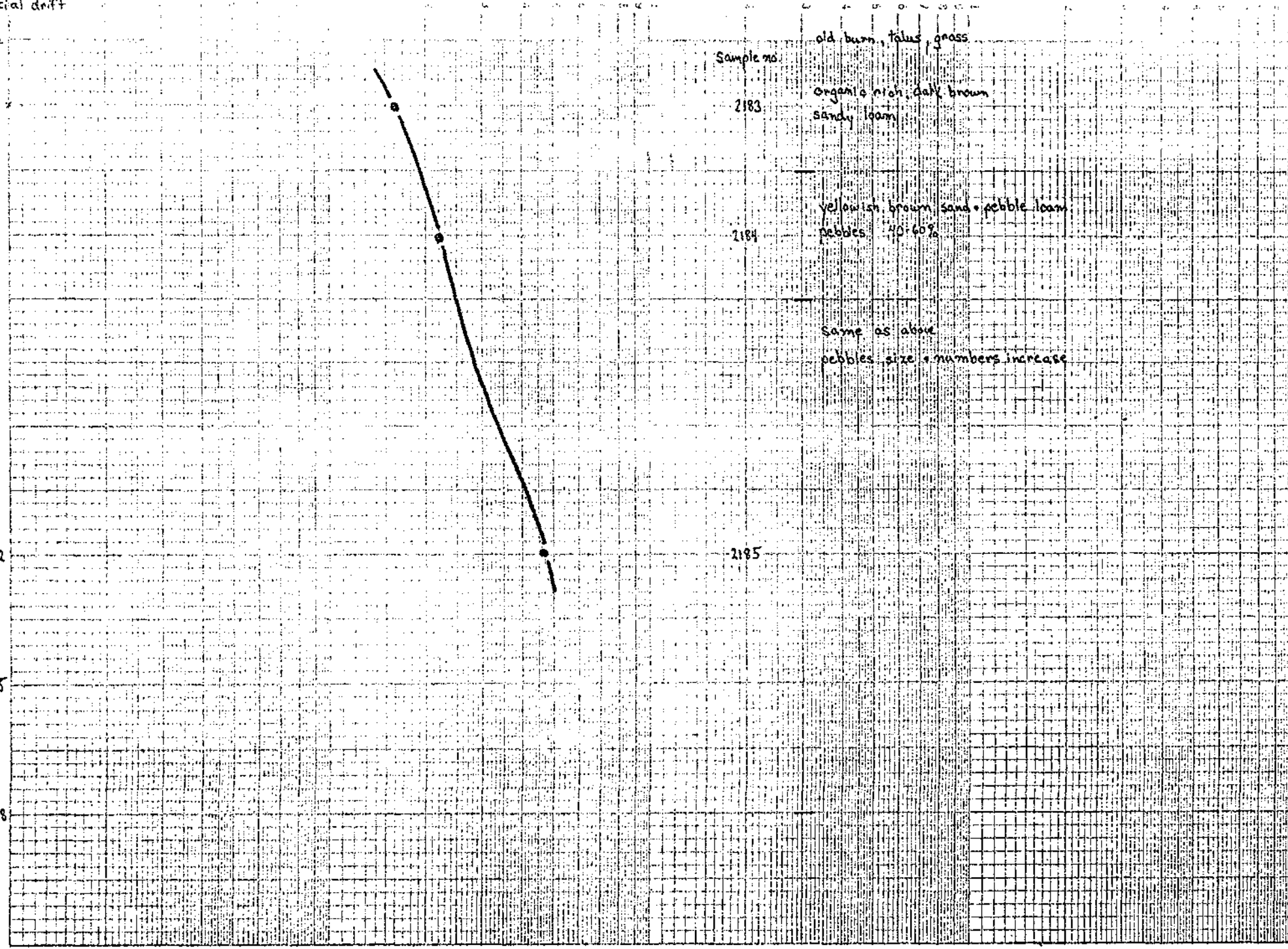
2185

Same as above
pebbles size + numbers increase

Value (ppm)

— Cu

Fig. 3



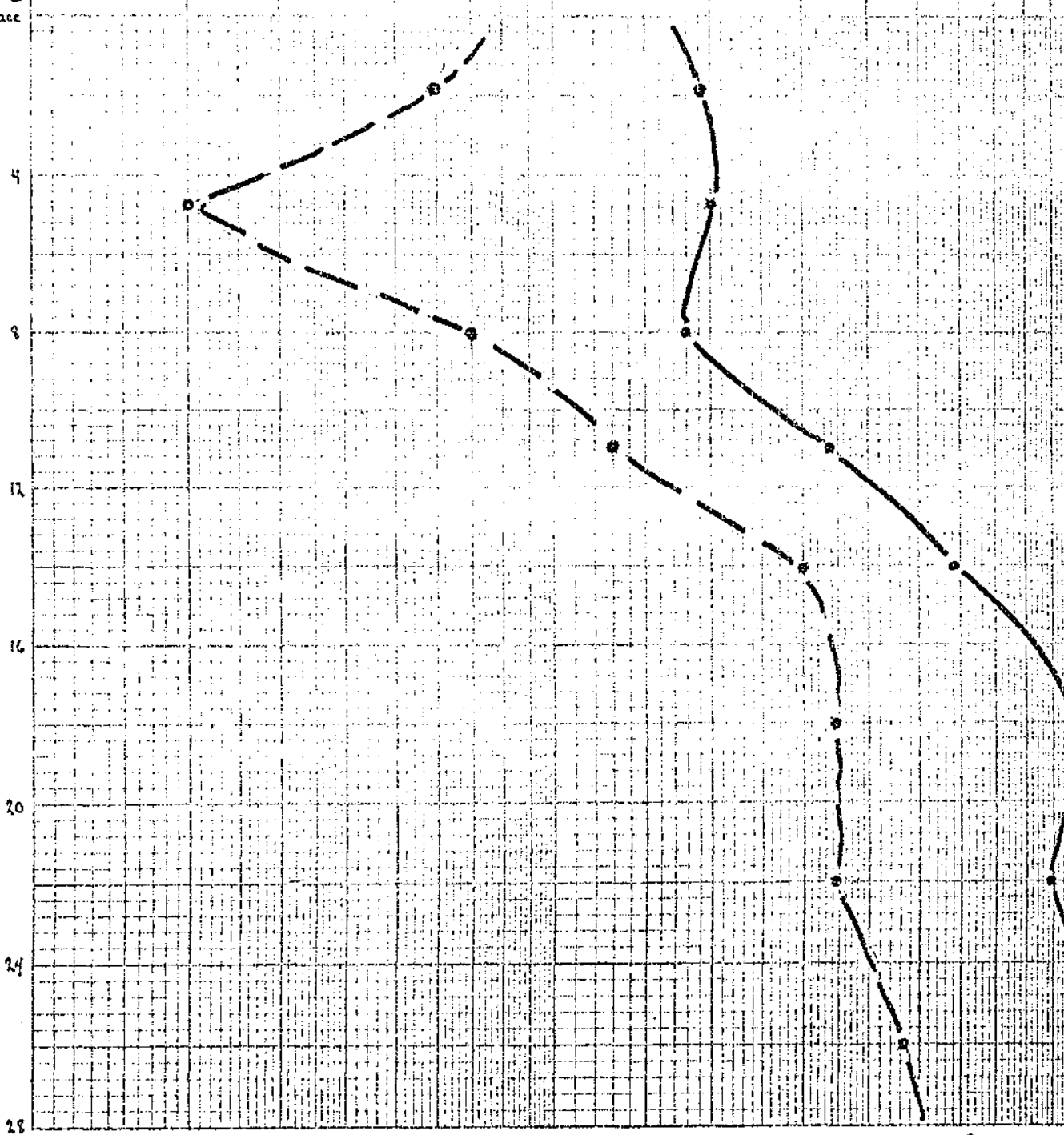
PIT 3

L7140E/0.55S

Bog

surface

Depth (inches)



sample no.

- 8326 humus layer
- 8327 dark brown almost black clayey with high organic content no humus still in root zone
- 8328 leached zone (incomplete) clayey
- 8329 boulders present, small B horizon orange brown, slightly sandy clay
- 8330 C horizon - orange greenstone & chert fragments & argillite clay fill
- 8331
- 8335 blue clay argillite
- 2093

- Cu

water

Value (ppm)

Fig. 4

- 32 -

at a depth of less than 1 foot so horizon consistency was not a problem. Generally the A_0 horizon was only a few centimetres thick, the A_1 horizon was a few inches thick and the A_2 horizon was less than an inch.

Sampling Procedures

The grid consisted of 10 lines, at 800 foot spacings. All lines were cut by Martinson Staking & Linecutting personnel. The cut lines were chained using a topofil and pickets placed at 100 foot intervals. Samplers were assigned lines and took soil samples every 200 feet, rock chip samples at every 800 feet or every outcrop, whichever was greater and stream samples whenever possible. All the soil and stream samples were placed in special heavy-duty high wet-strength kraft envelopes, semi-dried in the field and then sent to the Bondar-Clegg and Company Ltd. laboratory in North Vancouver, B.C., for analysis.

Laboratory Procedures

Samples were dried and sieved to minus eighty mesh. This fraction was analysed for copper and molybdenum using atomic absorption spectrometry after extraction with a hot solution of HCl and HNO_3 .

Standard Samples

To check the reproducibility and quality of the analytical work, a total of 33 standard samples were placed into the sequence of soil and stream silt samples at intervals of approximately 35. The standard sample material was

prepared by R.H. Wallis from stream sediment taken from McBride Creek near the Ashnola River. The standard sample data is shown in Table 2.. All of the standard samples were well within acceptable limits. The percent deviation from the mean never exceeded 4.5% for Cu, 6.3% for Zn and 8.3% for Mo. The reliability of the analytical data therefore is considered excellent.

Statistical Treatment of Results

To determine background and anomalous values, the geochemical values obtained from the laboratory (Appendix 3) were grouped into fixed ranges. The total number of values in each group are shown as histograms in Figures 5 and 7. The cumulative frequency and cumulative percentages of each group were calculated taking into account only the normal population as shown by histograms. The anomalous values excluded for this calculation were 160 ppm and over for copper and 11 ppm and over for molybdenum. The cumulative percentages thus obtained are plotted as ordinates and the corresponding intervals (or groups) in ppm as abscissae, for copper and molybdenum in Figures 6 and 8. The value that occurs at the fifty percent level of the symmetrical distribution represents the mean of the normal population. Therefore, this value is selected as the background value of the normal population. Thus, background values in this case for copper and molybdenum are 33 and 2 ppm respectively. The frequency distribution for copper and molybdenum are unimodal but not

symmetrical about their averages. For this reason all values excluded in the cumulative percentage calculations, that is, 160 ppm and over for Cu and 11 ppm and over for Mo, were considered anomalous and the values occurring between the 97th and 100th percentage on the cumulative percentage graph, that is 126-160 ppm for Cu and 8-11 ppm for Mo, were considered slightly anomalous. These values are shown on Table 3.

Results of Soil Sample Survey

All results and sample numbers were plotted on the geochemical map at a scale of 1" equals 400 feet. For each sample location the appropriate quadrants in the location circle were half shaded in for slightly anomalous values or completely shaded in for anomalous values. Contour maps were drawn on separate maps for copper and molybdenum using suitable contour intervals.

Table 4

Standard Sample Data

No. of the Standard	Copper		Zinc		Molybdenum	
	ppm	% diff. from the mean	ppm	% diff. from the mean	ppm	% diff. from the mean
1	188	3			4	
	188	3			5	25
	202	5			4	
	206	7			4	
	208	8			5	25
	208	8			5	25
	194	6			4	
	186	4			4	
	208	8			5	25
	184	5			4	
	202	5			4	
	178	8			4	
	190	2			4	
	189	2			5	25
	188	3			5	25
	195	1			4	
	190	2			5	25
	200	4			5	25
	188	3			4	
	185	4			4	
	184	5			4	
	188	3			4	
	190	2			4	
	190	2			4	
	191	1			4	
	180	7			4	
	188	3			4	
	188	3			3	25
	190	2			4	
	190	2			3	25
	225	17	137	9	4	
	210	9	130	1	4	
	190	2	116	9	4	
mean	193		128		3	25
					4	
average of % diff. from mean		4.5		6.3		8.3

Table 3

Statistically Derived Soil Sample Categories

<u>Element</u>	<u>Background (ppm)</u>	<u>Slightly Anomalous (ppm)</u>	<u>Anomalous (ppm)</u>
Cu	33	126-160	>160
Mo	2	8-11	>11

Gil - Soils Cu

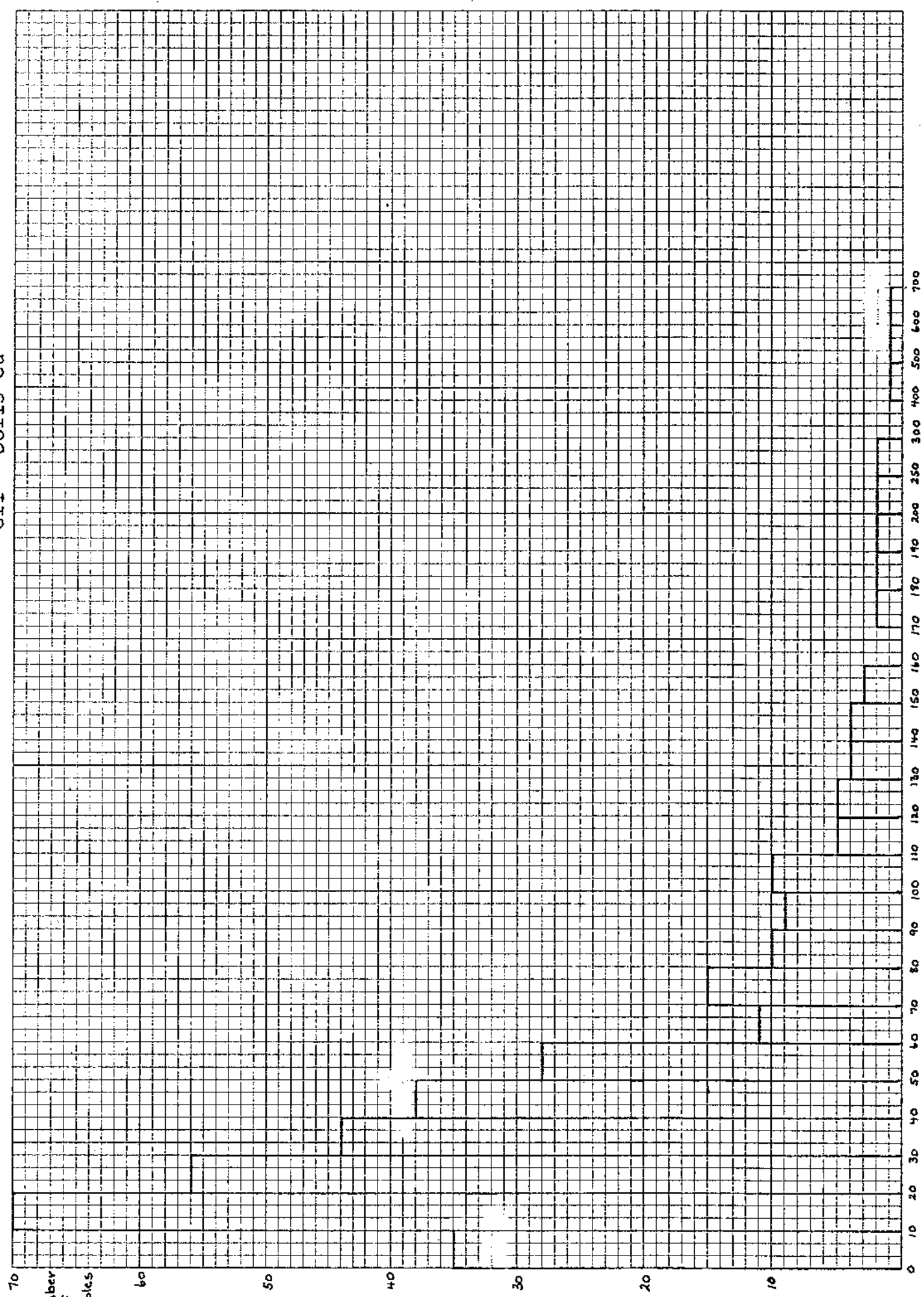


Fig. 5

ppm

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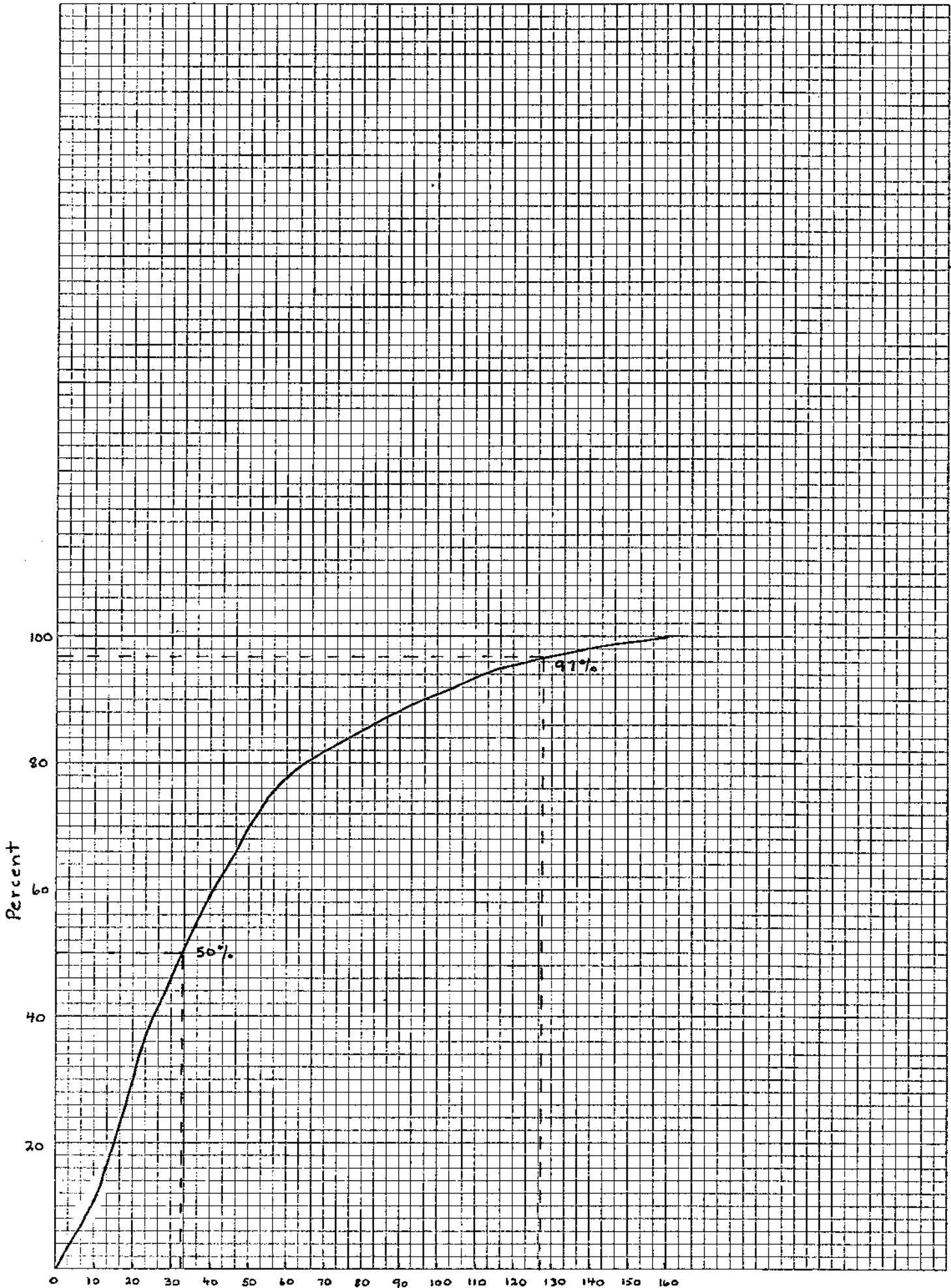


Fig. 6

Gil Soils Mo

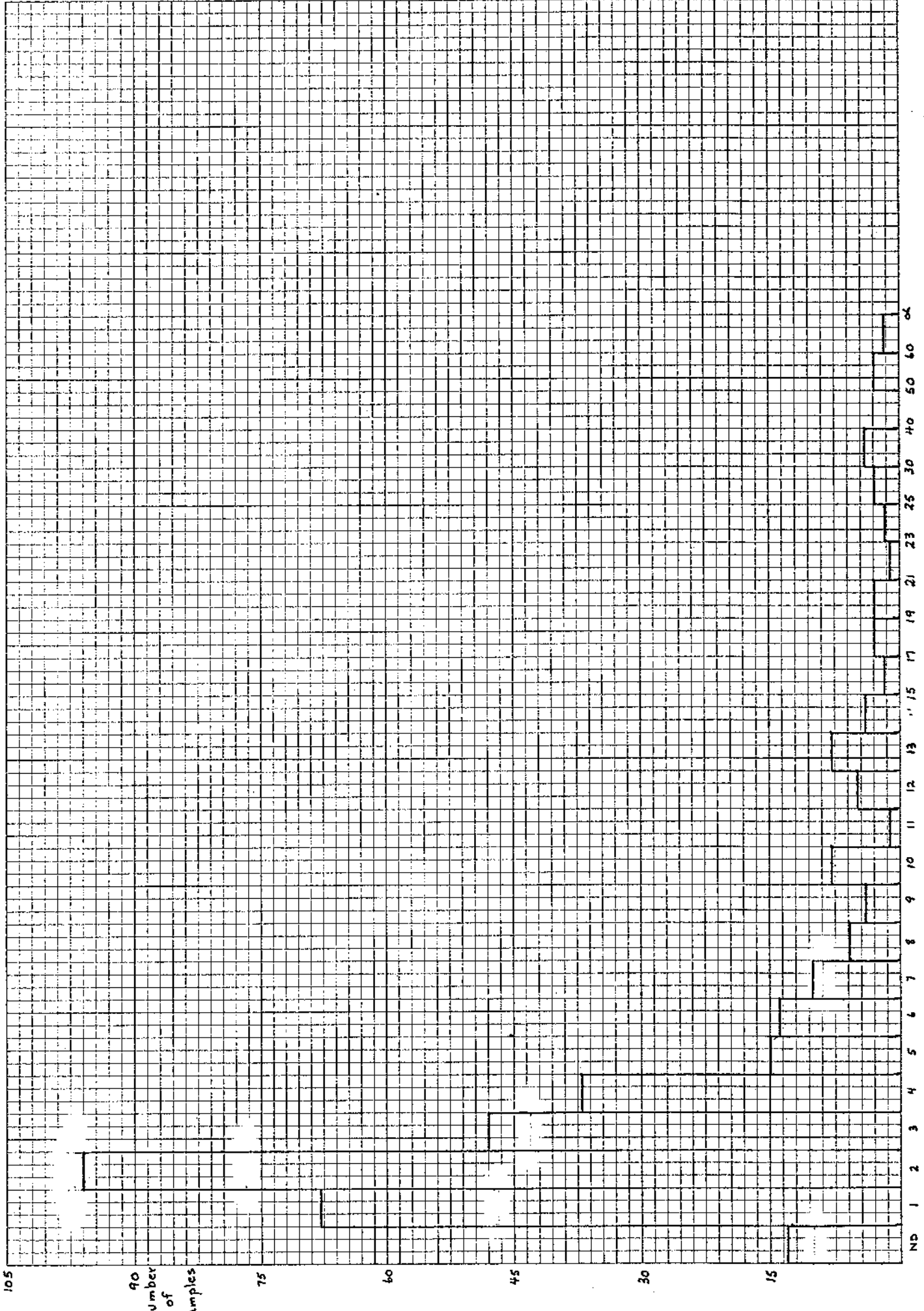


Fig. 7

ppm

1 40 1

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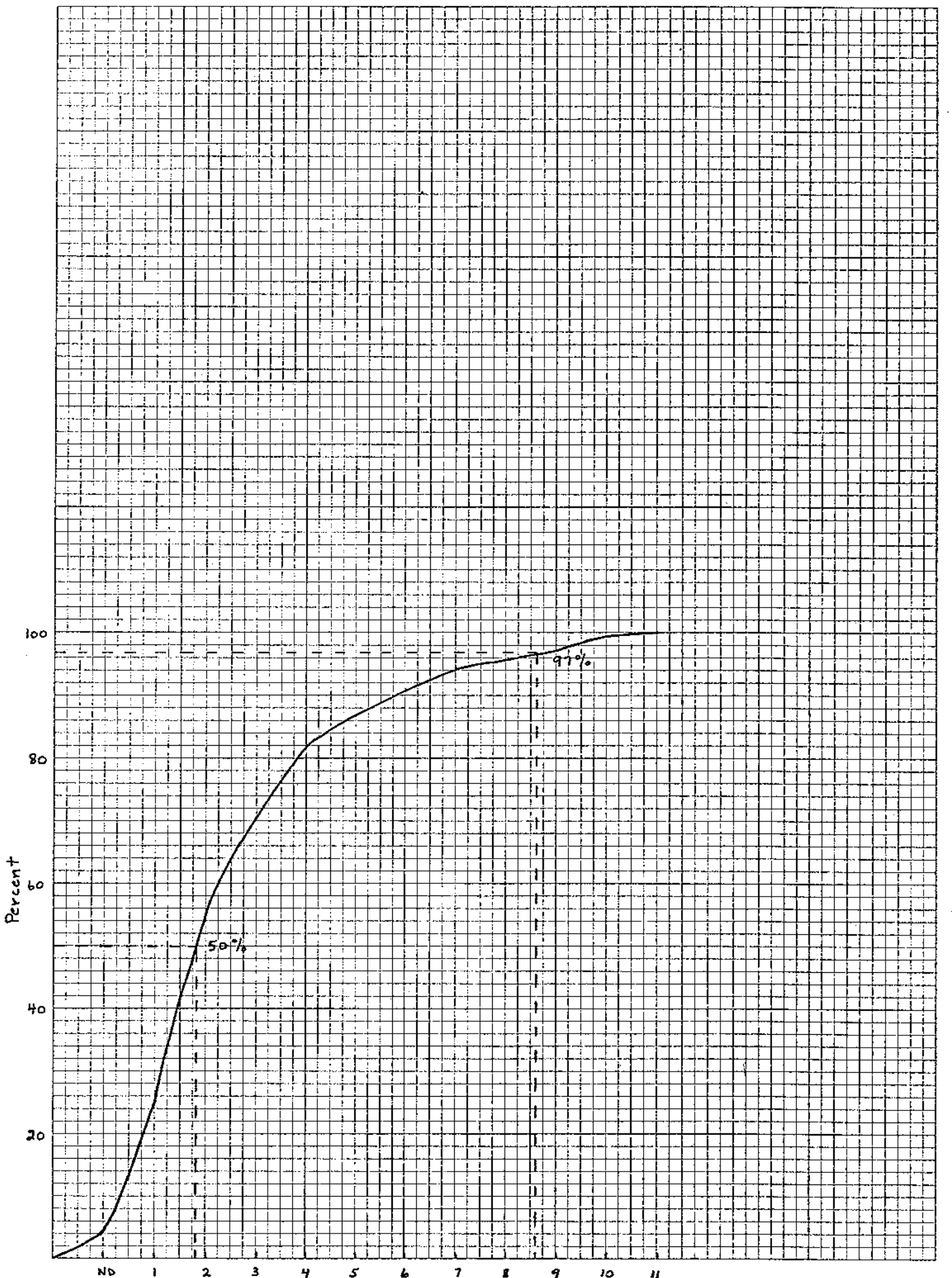


Fig 8

Anomaly #3 - Cu

- 1) Location: L64E/32S
- 2) Trend: circular
- 3) Range of values: Cu (ppm) Mo (ppm)
 370-392 1-2
- 4) Dimensions: ~350' diameter
- 5) Bedrock geology and rock geochemistry:
 - andesite
 - rock geochemistry - Cu - 76 ppm, Mo - 1 ppm
- 6) Coincident or noncoincident anomalies:
 - low Mo values
 - cut by steep magnetic gradient: 56800-57800 gammas
- 7) Anomaly intensity:

Anomaly #4 - Cu

- 1) Location: L32E/17N
- 2) Trend: NW-SE
- 3) Range of values: Cu (ppm) Mo (ppm)
 510 13
- 4) Dimensions: 1300' x 300'
- 5) Bedrock geology and rock geochemistry:
 - black argillaceous tuff - Cu - ~33-194 ppm
and argillite Mo ~ND-6 ppm
- 6) Coincident or noncoincident anomalies:
 - low Mo values
 - in area of low magnetic gradient 57400 gammas

Anomaly #7 - Cu

- 1) Location: L24E/63N
- 2) Trend: Circular
- 3) Range of values:

Cu (ppm)	Mo (ppm)
204	90
- 4) Dimensions: ~150' diameter
- 5) Bedrock geology and rock geochemistry:
 - FD4a + Mo.Fm
 - FD5a
 - no rock geochem
- 6) Coincident or noncoincident anomalies:
 - low magnetic gradient: ~ 57200 gammas

Anomaly #8. - Cu

- 1) Location: L20E/L78E ~above 50N
- 2) Trend: NW-SE
- 3) Range of values

Cu (ppm)	Mo (ppm)
204-1100	6-345
- 4) Dimensions: 6500' x 1600'
- 5) Bedrock geology and rock geochemistry:

NW andesite, argillite, andesite tuff chert + pyrrhotite and quartz	Cu- 10-720 ppm
SE andesite, conglomerate, dacite, chert + Mo, D ₃ , pyrrhotite and quartz	Mo- 1-120 ppm
- 6) Coincident or noncoincident anomalies:
 - NW half - low magnetic gradient 57300-57900 gammas
 - SE half - offset 1600' to the W from a high magnetic gradient 57600-58700 gammas

Anomaly #9 - Cu

- 1) Location: L48E/45N
- 2) Trend: circular
- 3) Range of values:

Cu (ppm)	Mo (ppm)
430	120
- 4) Dimensions: ~300' diameter.
- 5) Bedrock geology and rock geochemistry:
 - no bedrock geology
 - no rock geochem
- 6) Coincident or noncoincident anomalies:
 - coincident with Anomaly #2 - Mo
 - low magnetic gradient 57500-57400 gammas

Anomaly #10 - Cu

- 1) Location: L48E/32N
- 2) Trend: E-W
- 3) Range of values:

Cu (ppm)	Mo (ppm)
276-640	8-33
- 4) Dimensions: 800' x 300'
- 5) Bedrock geology and rock geochemistry:
 - andesite?
 - Cu- 30 ppm
 - Mo- 2 "
- 6) Coincident or noncoincident anomalies:
 - close proximity to N end of Anomaly #1 - Mo
 - low magnetic gradient: ~57500 gammas

Anomaly #11 - Cu

- 1) Location: L48E/25N
- 2) Trend: circular
- 3) Range of values: Cu (ppm) Mo (ppm)
 210 12
- 4) Dimensions: ~100' diameter
- 5) Bedrock geology and rock geochemistry:
- andesite Cu - 45 ppm
 Mo - 4 "
- 6) Coincident or noncoincident anomalies
- close proximity to E side of Anomaly #1 - Mo
- low magnetic gradient: 57700 gammas

Anomaly #12 - Cu

- 1) Location: L48E/17N
- 2) Trend: E-W
- 3) Range of values: Cu (ppm) Mo (ppm)
 276 32
- 4) Dimensions: 100' x 300'
- 5) Bedrock geology and rock geochemistry:
- chert Cu - 130 ppm
 Mo - 3 "
- 6) Coincident or noncoincident anomalies:
- close to S end of Anomaly #1 - Mo
- low magnetic gradient: 57400-57500 gammas

ROCK GEOCHEMISTRY

Since the cause of the soil anomalies may be due to an abnormally high background of certain rock units in the underlying bedrock and not to sulfide mineralization at all, representative samples of the major rock units were collected over the claim area and analysed by atomic absorption spectrometry for copper and molybdenum. The samplers took rock chip samples every 800 feet along every line or at every outcrop whichever was greater. Details of rock chip sample analyses are shown in Table 4.

Table 4

Summary of Rock Geochemistry

<u>Rock Type</u>	<u>No. of Samples</u>	<u>Average Values</u>	
		<u>Copper (ppm)</u>	<u>Molybdenum (ppm)</u>
Chert	54	40	4.8
Argillite	22	55	4
andesitic volcanics	43	82	28
Dacitic volcanics	2	49	18
Argillaceous tuff	8	56	4
Conglomerate	3	29	71
Dyke Rocks (D ₁) syenite			
2 Felsic dykes		4	4
3 Porphyritic quartz diorite	25	26	18
4a Porphyritic granite	1		
b Weakly porphyritic granite	1	36	38
5a Latite porphyry (visible MoS ₂)	1	310	510
b Quartz latite porphyry		37	23
6 Rhyolite porphyry			
7 Porphyritic leucogranite disseminated MoS ₂			
8 Seriate granite porphyry	"	"	

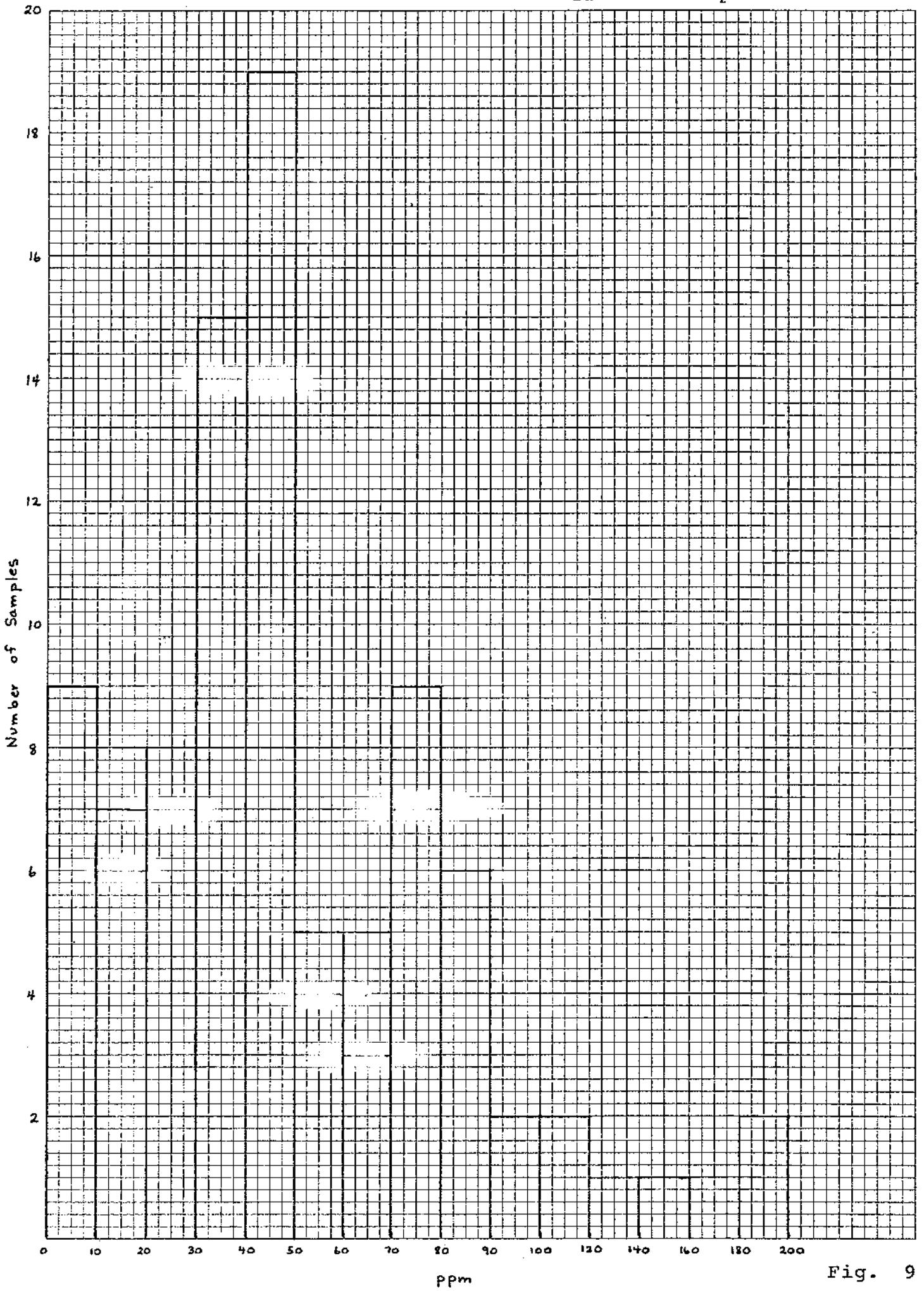


Fig. 9

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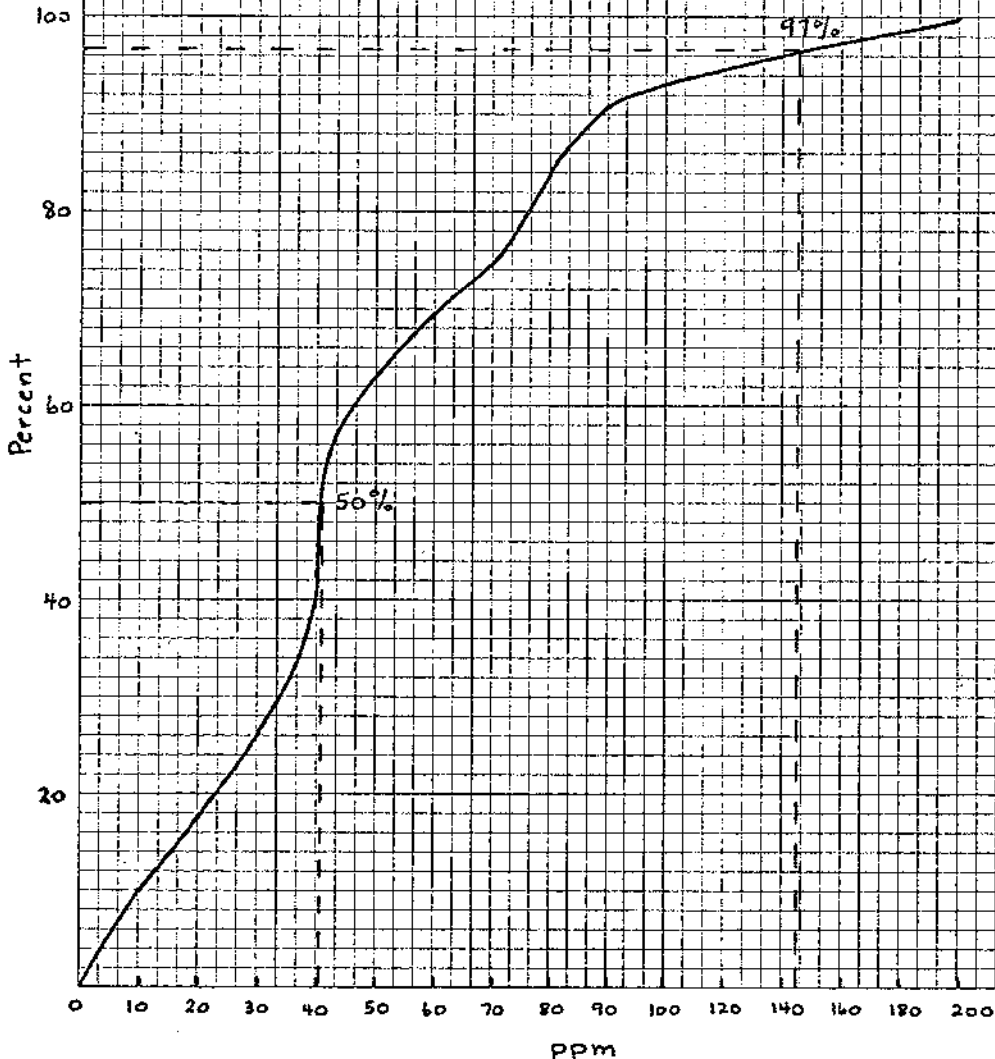


Fig.10

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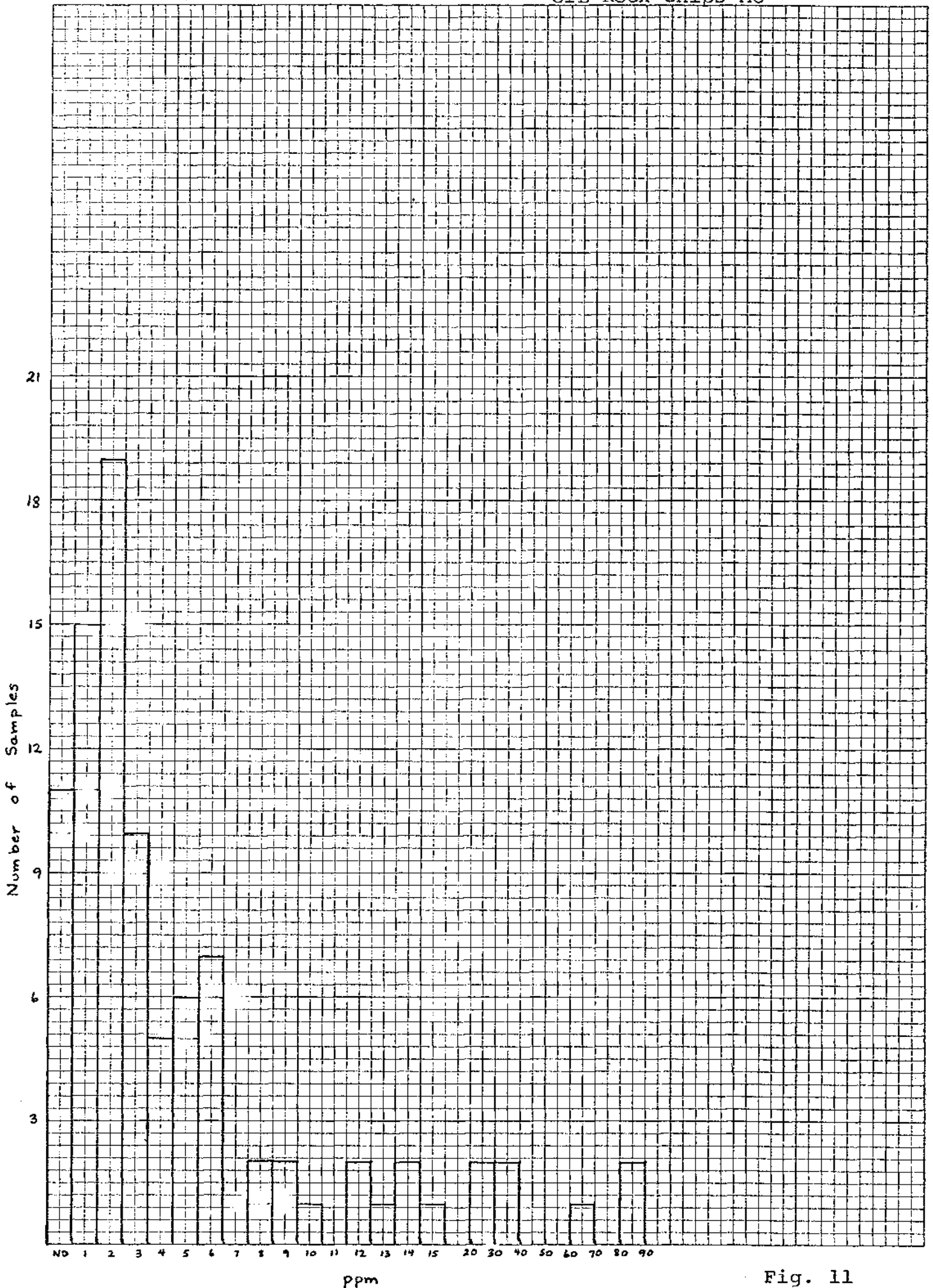


Fig. 11

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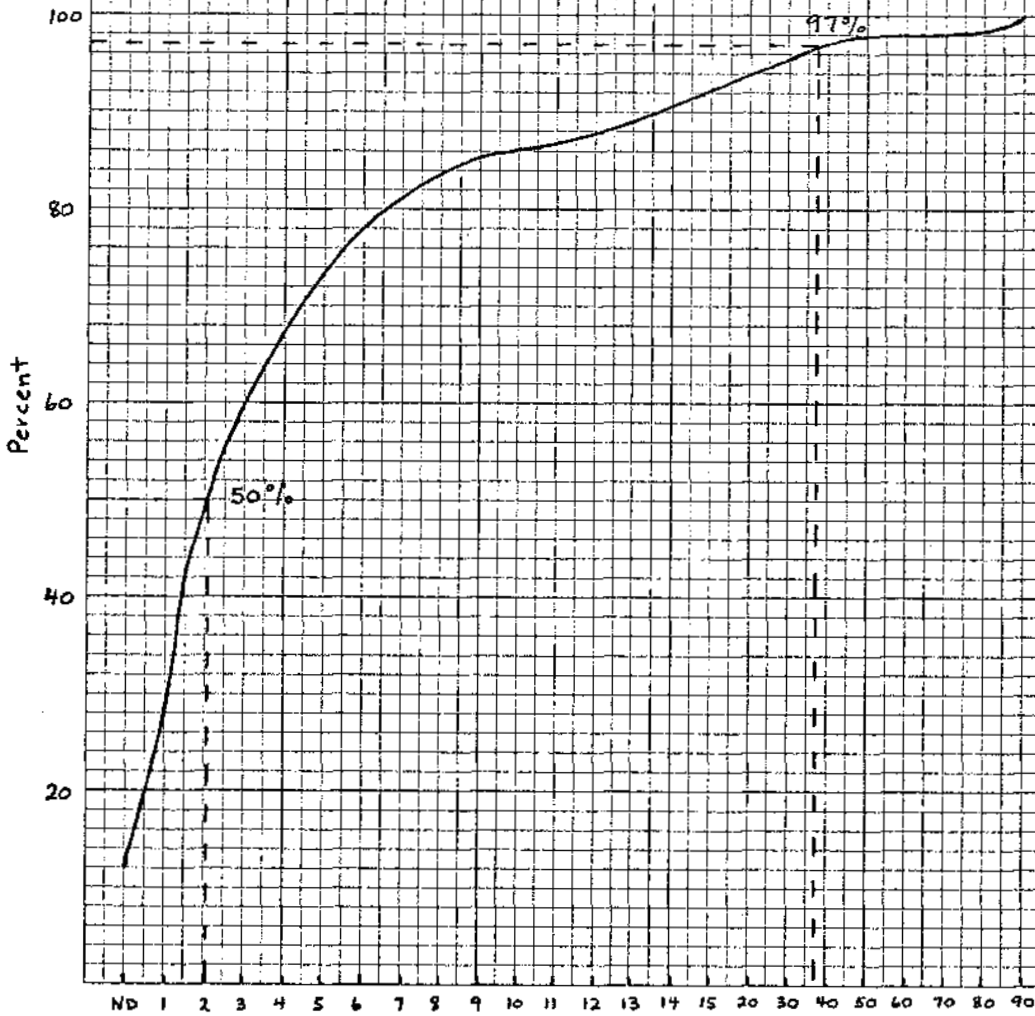
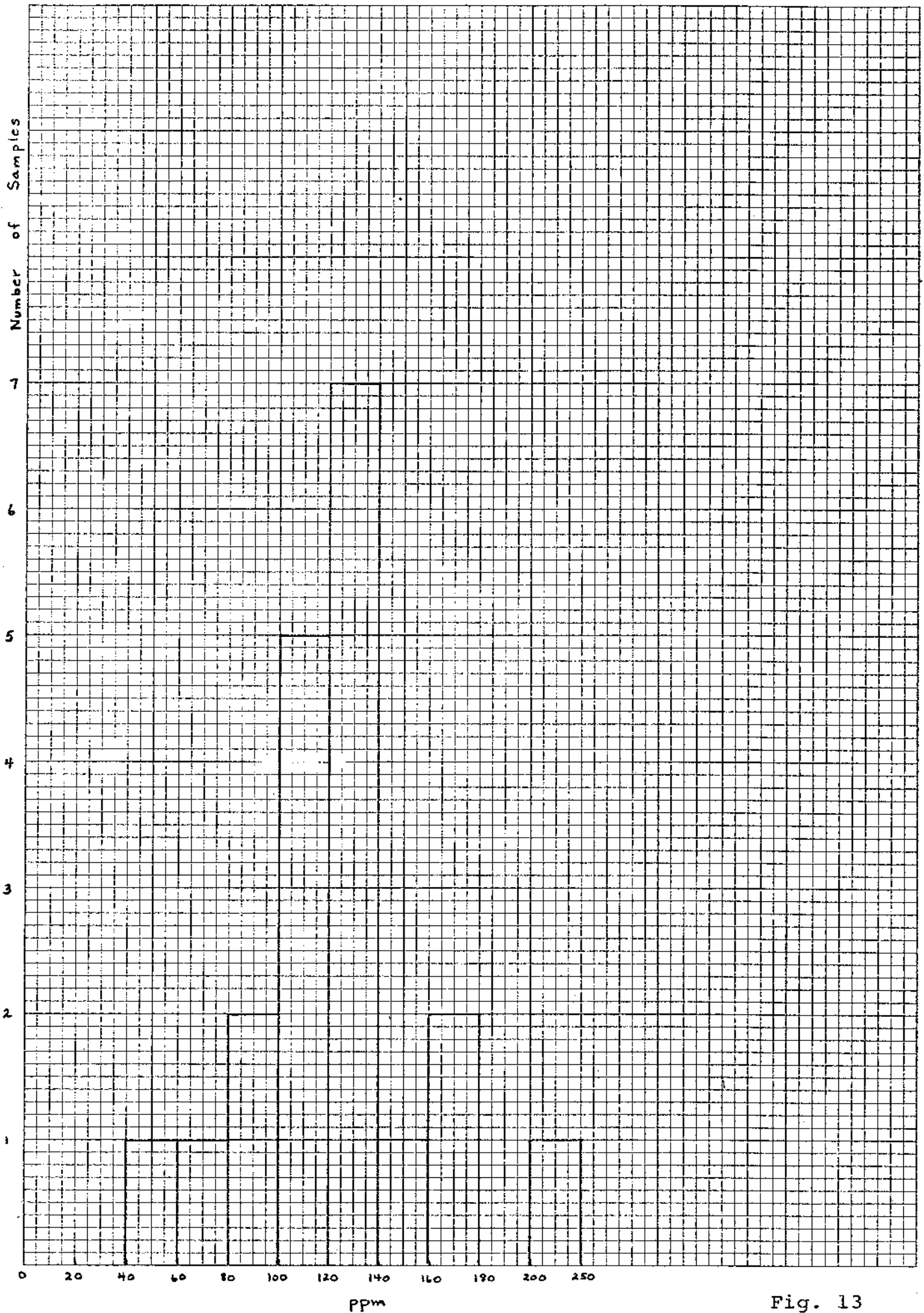


Fig. 12

STREAM SILT GEOCHEMISTRY

The GIL group was originally staked as a result of stream silt samples taken during the 1973 reconnaissance program on streams draining the area. One sample taken near the confluence of the two main Gillanders creeks had values of: Cu 230, Mo 55 (ppm) and the next tributary north had values of: Cu - 250, Mo - 83 (ppm), both distinctly anomalous.

1974 property work on the GIL group included a detailed stream sampling program. As samplers walked each line, they sampled every stream and recorded silt and stream data. In general the results from these samples correspond well with the occurrence of metallic mineralization.



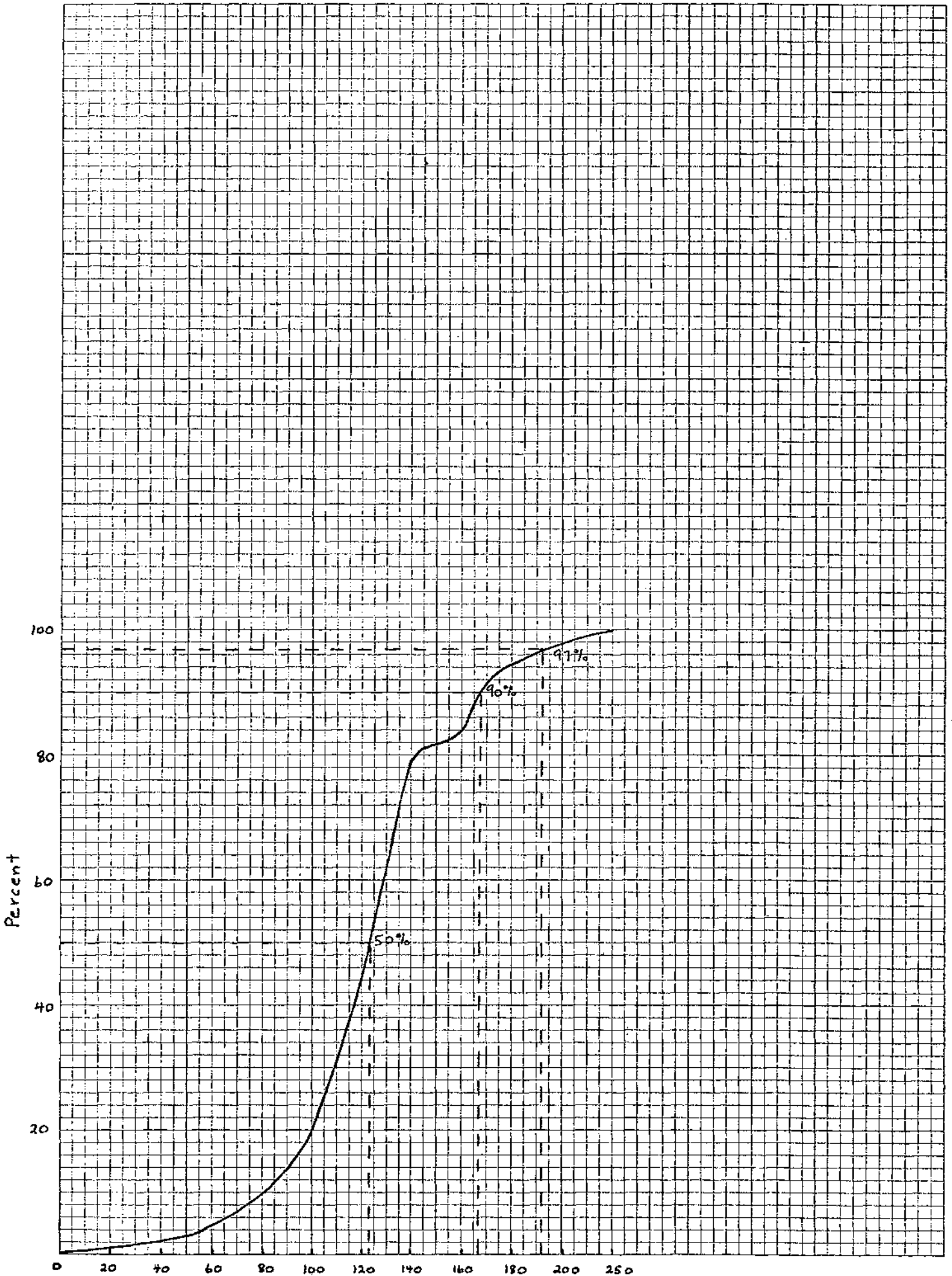
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Fig. 13

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Number of Samples

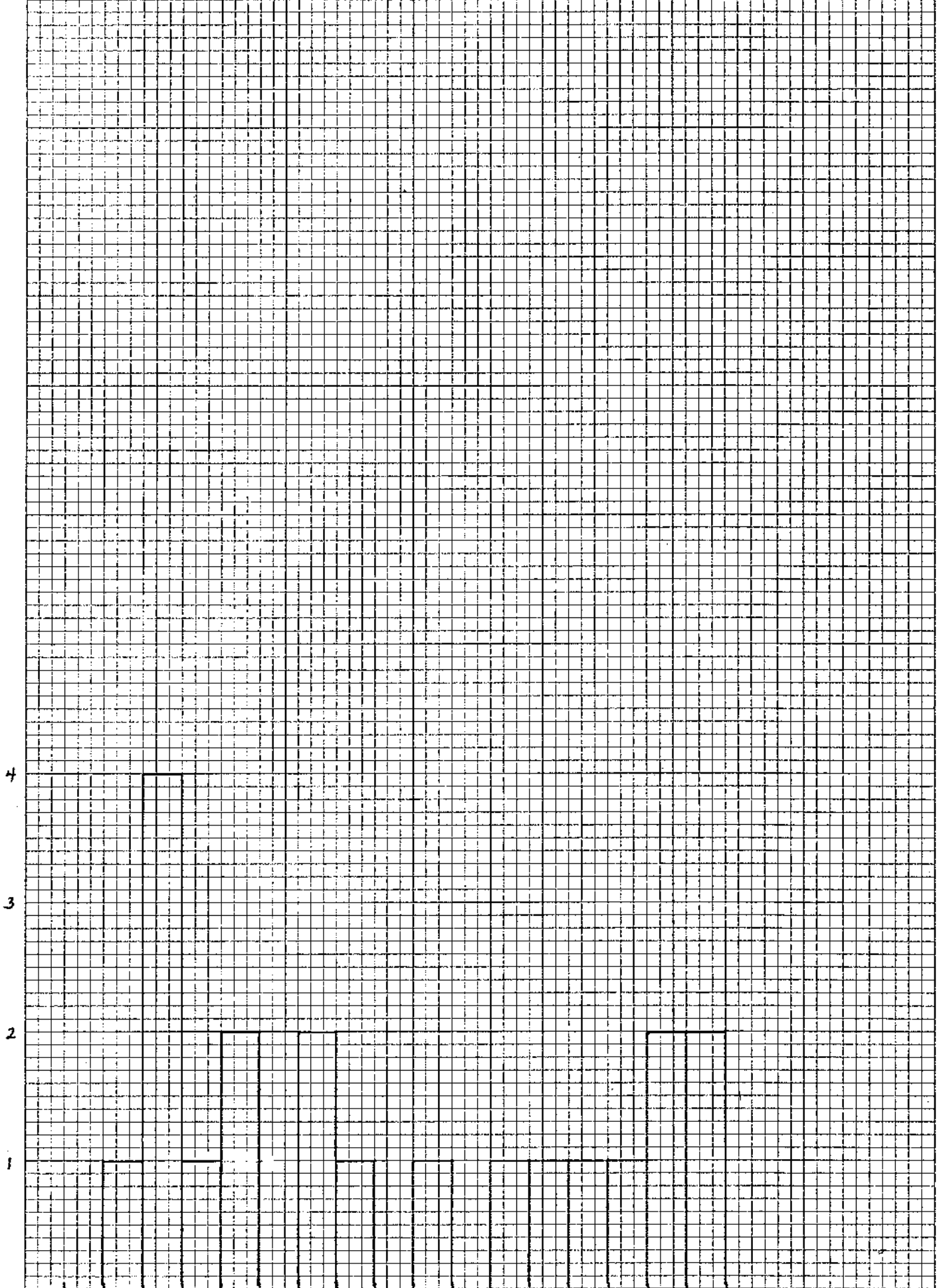
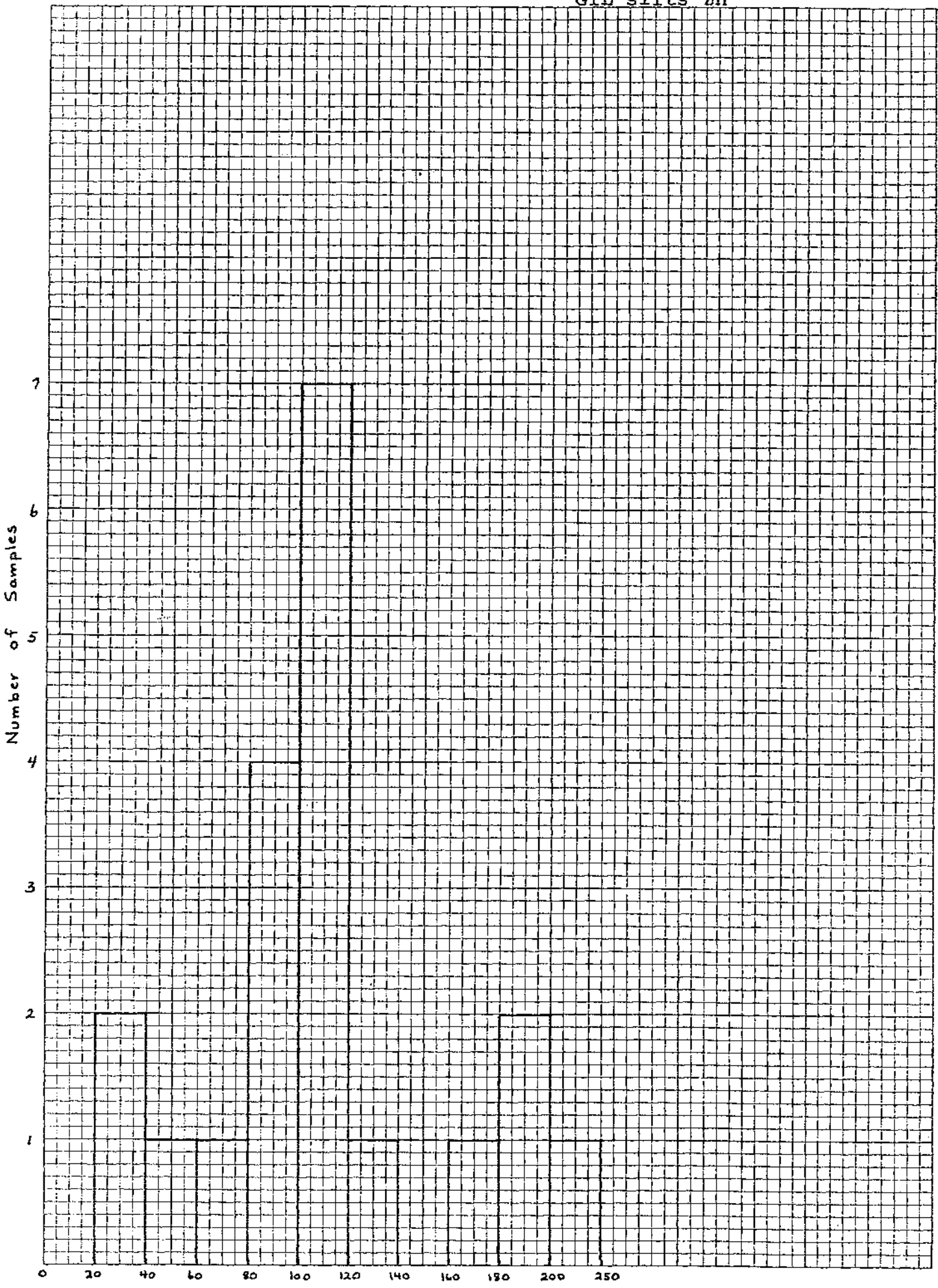


Fig.15

GIL silts Zn



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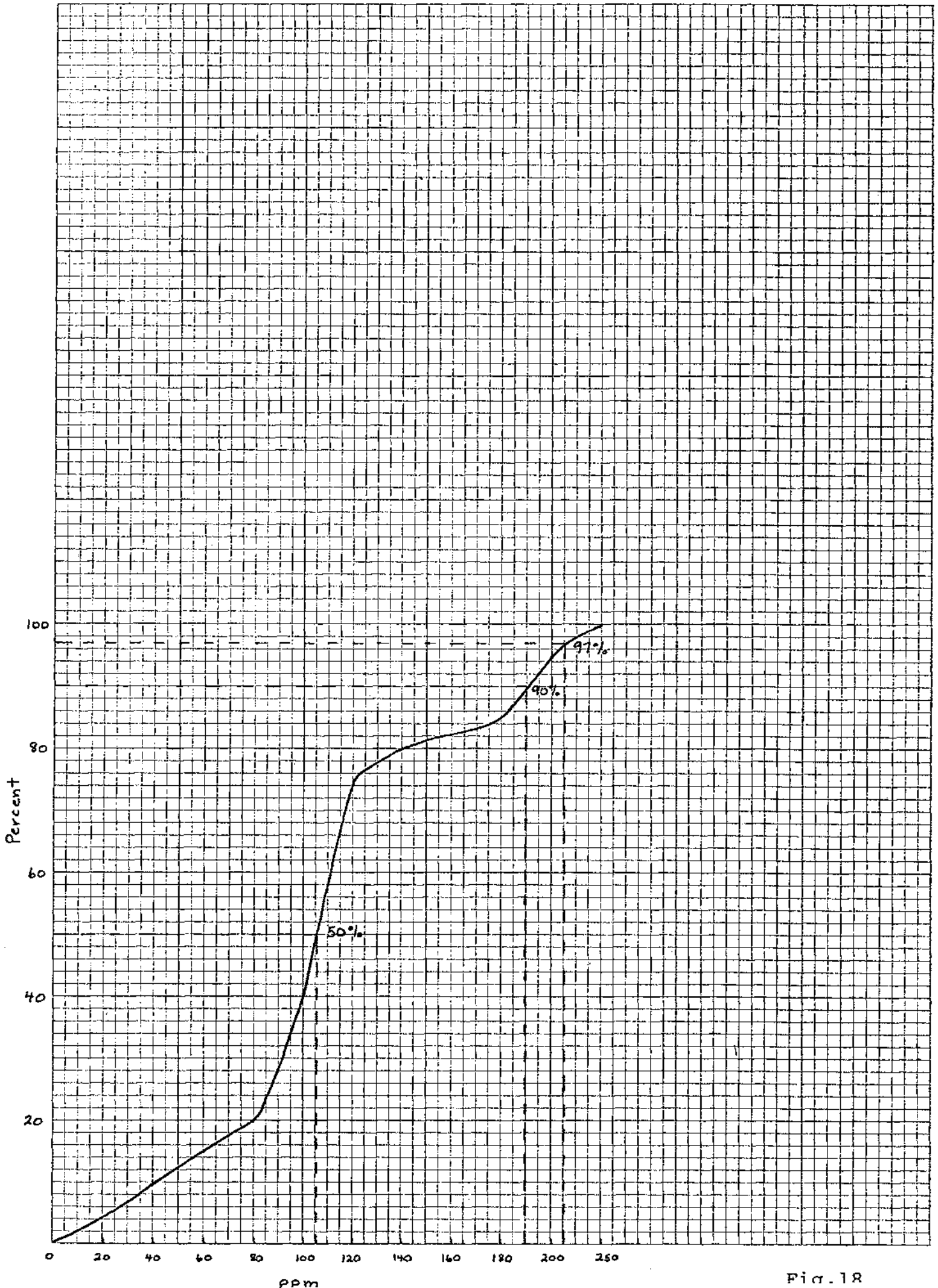


Fig. 18

GROUND MAGNETOMETER SURVEY

Aim:

A magnetometer survey was conducted along all lines cut on the property. The aim of the survey was to assist in the geological interpretation of the area by utilizing variations in the magnetic susceptibility of major rock units or mineralized areas.

Instrument:

A portable proton precession magnetometer (Geometrics Model GM-816) was used for the survey. The instrument gives a total field digital readout and has a sensitivity of one gamma.

Procedures:

The survey was conducted using a staff. Base stations were established along the base line at 100 foot intervals. The survey was conducted at 100 foot intervals along cut lines 400 feet apart. Diurnal variation was corrected for by running looped traverses. Each looped traverse started at a base line station and closed at the same station. The time of each field station reading was recorded. The times for the start and finish of the traverse were noted; and the diurnal variation for the elapsed time interval was apportioned to each field reading.

Discussion of Results:

The results of the survey have been plotted and contoured using a contour interval of 1 gamma. Magnetic disturbances were noted during the survey and have influenced the results.

The ground magnetic survey shows that there is a wide range of values from 56000 gammas to 60000 gammas. However, most of the high amplitude anomalies are restricted to the southeast and eastern part of the grid; elsewhere the range is only 700 gammas - from 57200 gammas to 57900 gammas.

The high amplitude anomalies have a very distinct east-west trend, crossing 2 or more lines, i.e. 800 to 3000 feet in length. Hence, they are quite prominent features. They are not expected on geological grounds as the regional strike is north-south. However, the strike of the soil geochemical anomalies is more or less east-west and it is possible that the magnetic source is in some way connected with the mineralization episode. Certainly the ground magnetic data does not help to delineate rock units.

CONCLUSIONS

A widespread limonite alteration zone (2 miles in diameter) has been located in upper Gillanders Creek. Associated with this alteration zone are very strong stream silt geochemical anomalies for Cu, Mo and W. In the centrally located area is an extensive suite of porphyry, granitic and quartz veins which are associated with sericitic and hornfels alteration. Molybdenite is quite widespread, chalcopyrite has been encountered and scheelite found in skarn. This

central area has soil geochemical anomalies in Cu and Mo.
Some of the smaller of these anomalies lie on the GIL claims.

RECOMMENDATIONS

- 1) The soil anomalies on GIL 1-26 should be carefully prospected.
- 2) Prospect the LIG and LI claims in the northern half of the major limonite zone.

Respectfully submitted,

J.N. Schindler, B.Sc.

February 26th, 1975

TORONTO

Appendix I

Details of Rock Chip Samples and Results

Sample No.	Location	Rock Type and Remarks	Cu (ppm)	Mo (ppm)	Zn (ppm)
27058			174	32	
27076	80E/49N	Porphyritic quartz diorite	3	2	
27077	36E/6S	Quartz vein in volcanics	40	42	
27078	O/C#28 (SW end I.R. #13)	andesite	65	4	
27079	20E/57N	Quartz-feldspar-biotite porphyry - talus	42	ND	
27080	300'E of 24E/72.8N	Quartz-feldspar-biotite porphyry - kaolinized	37	23	
27081	300'E of 24E/72.8N	Weathered quartz-feldspar-biotite porphyry - fractured, kaolinized feldspar, limonite	17	23	
27082	52E/36N	Porphyritic granite quartz and very large K feldspar	36	38	
27083	300'E of 24E/72.8N	MoS ₂ in quartz vein	<u>310</u>	<u>510</u>	
27084	48E/68N	Altered andesite flows, cut by ¼" quartz veins, pyrite ~2%	<u>720</u>	<u>120</u>	tungsten <u>800</u>
27085	48E/58N	Porphyritic quartz feldspar diorite - talus	28	42	
27086	Outcrop #28 SW end IR13	Andesitic volcanics	15	9	
27087	56E/41N	Porphyritic quartz diorite	15	ND	
27088		"felsic" dyke - very fine grained with 1-2% quartz eyes - matrix is quartz poor- Mn stained	4	4	
27089	O/C #2 1700 ft. NE camp. IR 13	Green chert	<u>75</u>	<u>12</u>	
27090	72E/52N	feldspar diorite porphyry limonite	40	3	
27066	8E/46N	Quartz diorite	<u>90</u>	<u>26</u>	
27067	97E/16.5N on extension grid(IR 13)	Andesite porphyry	<u>20</u>	<u>3</u>	
27068	8E/59N	Sheared hornfelsed argillite	9	9	
27069	80E/36N	Felsic porphyry	8	3	
27070	24E/57N	Sheared andesite flow	20	4	
27071	124.5E/25N extension grid on IR 13	Gabbro	<u>92</u>	2	
27072	8E/46N	Quartz diorite dyke	76	40	

Sample No.	Location	Rock Type and Remarks	Cu (ppm)	Mo (ppm)	Zn (ppm)
27073		Quartz diorite dyke	16	2	
27074	00E/18S	black argillaceous tuff	43	3	
27075	24E/55N	Andesite - talus	<u>147</u>	<u>65</u>	
		Pyrite - quartz			
8001	24E/17S	Frost heaved andesite-float	74	ND	
8002	24E/8S	Andesite - float	<u>21</u>	1	
8003	24E/00S	Chert - float	50	1	
8004	24E/6N	Chert-float	<u>79</u>	<u>15</u>	
8005	24E/13N	Chert	<u>18</u>	<u>2</u>	
8006	24E/13N	Chert	48	1	
8007	24E/21N	Minor limonite and silicification moderately hornfelsed - argillite	<u>190</u>	3	
8008	00E/18S	Black argillite	49	2	
8009	00E/10S	Chert - float	41	2	
8010	00E/3S	Chert - float	<u>73</u>	1	
8011	00E/5N	Black argillaceous tuff-talus	<u>45</u>	2	
8012	00E/15N	Frost heaved black argillite - talus	33	ND	
8013	16E/00S	Chert-float	<u>119</u>	<u>33</u>	
8014	16E/9S	Black argillaceous tuff-float	<u>80</u>	<u>5</u>	
8015	16E/17S	Black argillaceous tuff	<u>38</u>	5	
8016	40E/11S	Andesite - float + chert	66	8	
8017	40E/4S	Andesite - float	39	2	
8018	40E/4N	Andesite - float	44	3	
8019	40E/11N	Andesite	55	2	
8020	40E/19N	Andesite tuff and chert	<u>78</u>	3	
8021	64E/50N	Brown felsic tuff	<u>25</u>	2	
8022	64E/52N	Dacite tuff	60	<u>17</u>	
8023	64E/45N	Andesite - talus	34	<u>9</u>	
8024	64E/37N	Andesite	28	<u>7</u>	
8025	64E/18N	Conglomerate	24	9	
8126	32E/20S	Chert with argillaceous partings-moderately hornfelsed	49	1	
8127	32E/12S	Argillite	69	1	
8128	32E/5S	Argillite - float	<u>82</u>	2	
8129	32E/12.5N	Chert - float	<u>33</u>	1	
8130	32E/20N	Black argillaceous tuff - minor silicification	<u>94</u>	6	
8131	32E/29N	Black argillite - float	<u>98</u>	2	
8132	8E/17S	Argillite	<u>50</u>	1	
8133	8E/9S	Argillite	85	ND	
8134	8E/1S	Chert - float	55	ND	
8135	8E/7N	Black argillaceous tuff-float	50	1	
8136	8E/15N	Chert with argillaceous partings	40	2	
8137	16E/20N	Black argillite - float	49	<u>14</u>	
8138	16E/11N	Chert with argillaceous partings -float	46	<u>2</u>	
8139	16E/3N	Chert - float	53	5	
8140	48E/21S	Andesite - float	47	2	
8141	48E/29S	Andesite	21	2	

Sample No.	Location	Rock Type and Remarks	Cu (ppm)	Mo (ppm)	Zn (ppm)
8142	48E/37S	Andesite - float	20	6	
8143	36E/19S	Chert	74	2	
8144	36E/11S	Chert - float	60	1	
8145	36E/3S	Andesite - float	31	8	
8146	72E/56N	Chert	102	6	
8147	72E/49N	Andesite	20	2	
8148	72E/40N	Andesite tuff	27	6	
8149	72E/31N	Andesite	33	3	
8150	72E/23N	Chert	32	4	
8177	56E/49N	Porphyry - quartz vein	10	19	
8178	56E/57N	Andesite	89	19	
8179	72E/19S	Andesite - talus	14	3	
8180	72E/11.5S	Andesite	40	1	
8181	72E/33S	Andesite - pyrite	19	1	
8182	72E/39S	Andesite - pyrite	25	1	
8183	24E/29N	Argillite - minor silicification - iron stain	82	3	
8184	24E/38.1N	Argillite - iron stain	72	4	
8185	24E/55N	Andesite - talus iron stain, pyrite, quartz veins	87	37	
8186	24E/77N	Quartz-feldspar-biotite porphyry - float	52	57	
8187	24E/80.9N	Quartz-feldspar-biotite porphyry - float, iron stain	6	24	
8188	8E/31N	Porphyritic quartz diorite limonite and silicification - minor	33	4	
8189	8E/38.5N	Argillite, limonite and silicification - minor	10	6	
8190	8E/39.5N	Quartz diorite	35	14	
8191	8E/60N	Chert with argillaceous partings	30	4	
8192	48E/7N	Andesite - float	88	2	
8193	48E/15N	Chert	130	3	
8194	48E/23N	Andesite - minor silification and epidote	45	4	
8195	48E/31N	Andesite - talus	30	2	
8196	48E/56N	Andesite talus, pyrite, chalcopryrite?	63	23	
8197	48E/70N	Andesite - talus	56	9	
8198	49E/83N	Andesite	380	80	
8199	96E/59N	Chert - float	80	1	
8200	96E/58N	Chert - float	1	ND	
8201	36E/5S	Andesite	75	ND	
8202	40E/8S	Chert	12	2	
8203	40E/9N	Andesite	88	ND	
8204	40E/34N	Argillite	36	25	
8205	52E/34N	Andesite - float	25	3	
8206	64E/35N	Conglomerate	36	5	
8207	64E/35.5N	Conglomerate	27	200	
8208	64E/45N	Andesite - talus	60	6	
8209	64E/50N	Andesite	18	6	
8210	64E/53N	Dacite tuff	37	9	

Sample No.	Location	Rock Type and Remarks	Cu (ppm)	Mo (ppm)	Zn (ppm)
8211	72E/22S	Andesite - talus	6	73	
8212	80E/11N	Quartz diorite	46	<u>1</u>	
8213	80E/28.25N	Porphyritic quartz diorite	8	ND	
8214	80E/37N	Quartzite	4	1	
8215	80E/49N	Porphyritic quartz diorite	5	ND	
8216	80E/57N	Chert with argillaceous partings - moderate limonite	20	8	
8217	80E/67N	Chert - epidote	7	5	
8218	48E/75N?	Mo vein in andesite talus	<u>100</u>	<u>2600</u>	
8219	8E/46N	Quartz diorite (porphyritic, limonite, quartz veins)	1	82	
8220	G13?		16	<u>43</u>	
8221	G21?		2	<u>13</u>	
8222	150'S of Gillanders Creek 10E	Granite	2	<u>7</u>	
8223	112E/4N	Chert	35	5	
8224	In IR 13 3700 F+SSE B/L/72E	andesite	24	3	
8225	In IR 13 2650 F+SE B/L/72E	Andesite, outcrop contains minor chalcopyrite, native copper and molybdenite and pyrite	<u>115</u>	9	
8226	64E/39S	Andesite	50	1	
8227	64E/35S	Andesite - float	76	1	
8228	64E/23S	Andesite - float	<u>21</u>	2	
8229	64E/17S	Argillite - limonite	194	ND	
8230	64E/8S	Chert	9	1	
8231	00E/43N	Quartz diorite	35	9	
8232	00E/51N	Black argillite	10	3	
8233	00E/58N	Andesitic tuff or argillaceous tuff	20	3	
8234	00E/69N	Argillaceous tuff	32	6	
8235	00E/81N	Granite	12	4	
8236	40E/27N	Argillite - float	50	<u>10</u>	
8237	40E/34N	Chert with argillaceous partings	24	<u>12</u>	
8238	40E/41N	Argillite	10	6	
8239	40E/51N	Hornfelsed argillite	36	6	
8240	40E/67N	Frost-heaved tuff	50	<u>58</u>	
8241	96E/51N	Chert - float	22	<u>3</u>	
8242	96E/27N	Grey chert	12	3	
8243	96E/12.4N	Andesite	30	<u>31</u>	
8244	96E/8.4N	Chert	35	<u>1</u>	
8245	02W/45N	Quartz diorite	16	1	
8246	05E/21N	Chert with argillaceous partings	30	2	
8247	08E/27N	Andesite tuff	48	6	
8248	06E/24N	Argillite	30	ND	
8249	27E/14N	Chert	31	ND	
8250	32E/71N	Andesite tuff	6	1	
8626	56E/39S	Chert	5	2	

Sample No.	Location	Rock Type and Remarks	Cu (ppm)	Mo (ppm)	Zn (ppm)
8627	56E/23S	Chert - talus	40	3	
8628	56E/15S	Argillite - float	113	2	
8629	56E/01S	Chert - float	67	5	
8630	16E/29N	Chert or andesitic tuff	56	12	
8631	16E/37N	Black argillite	42	5	
8632	16E/61N	Chert	46	5	
8633	32E/53N	Chert - float	70	82	
8634	32E/65N	Andesite - talus	60	255	
8635	32E/73N	Frost heaved porphry	72	82	
8636	32E/81N	Andesite tuff	36	145	
8637	40E/81N	Andesite - float	92	81	
8638	40E/73N	Andesite	102	29	
8639	88E/67N	Chert - float	10	ND	
8640	88E/50N	Chert - float	2	ND	
8641	88E/51N	Chert - float	1	ND	
8642	88E/46.2N	Chert - float	6	8	
8643	88E/37N	Grey Chert 0 float	57	1	
8644	88E/19N	Quartz diorite	42	4	
8645	120E/8N	Buff green chert	16	ND	
8646	104E/27N	Chert - float	16	ND	
8647	104E/35.5N	" "	46	1	
8648	103E/46.5N	" "	18	ND	
8649	BL 01E	Black argillaceous tuff	66	1	
8650	00E/43.5N	Black argillite	6	ND	
8591	112/20N	Chert - float	8	ND	
8592	112E/23N	Black chert	69	1	
8593	112E/39N	Chert	10	1	
8594	112E/49N	Chert	16	ND	
8595	112E/66N	Chert	40	ND	
8596	120E/1N	Andesite flow	420	110	
8597	120E/23N	Chert	22	5	
8598	120E/51N	Chert	48	2	
8599	120E/60N	Chert	18	1	
8600	120E/68N	Chert	32	2	

APPENDIX II

GEOCHEMICAL DATA



BONDAR-CLEGG & CO. COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEEX: 04-54554

Geochemical Lab Report

AUG 19 1974

Extraction Hot Aqua Regia
Method Atomic Absorption
Fraction Used -80 mesh

Report No. 24 - 517 J. J. B. PROJECT: 5494
From Canadian Occidental Petroleum Ltd.
Date Aug. 14, 19 74

SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2001	272	5			2031	35	12		
2002	36	7			2032	74	2		
2003	120	12			2033	20	1		
2004	296	18			2034	14	1		
2005	480	31			2035	103	1		
2006	1070	57			2036	76	1		
2007	460	30			2037	13	1		
2008	560	36			2038	16	2		
2009	288	57			2039	12	2		
2010	272	14			2040	3	1		
2011	348	28			2041	141	3		
2012	135	17			2042	4	1		
2013	21	2			2043	4	1		
2014	400	8			2044	4	1		
2015	36	1			2045	20	2		
2016	370	5			2046	15	2		
2017	156	8			2047	35	2		
2018	65	6			2048	12	2		
2019	136	19			2049	3	2		
2020	31	8			2050	4	3		
2021	24	1			2051	28	12		
2022	41	1			2103	124	13		
2023	39	12			2104	304	5		
2024	52	29			2105	690	180		
2025	8	6			2106	480	96		
2026	90	28			2107	304	48		
2027	12	5			2108	380	76		
2028	2	1			2109	380	44		
2029	28	20			2110	324	26		
2030	19	10			2111	276	22		

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2112	112	25			2147	98	2		
2113	64	16			2148	16	ND		
2114	23	34			2149	96	3		
2115	29	19			2150	9	3		
2116	26	17			2151	92	10		
2117	66	26			2152	14	6		
2118	35	23			2153	52	11		
2119	46	11			2154	58	18		
2120	10	8			2206	232	42		
2121	20	7			2207	890	202		
2122	61	9			2208	820	272		
2123	16	7			2209	990	230		
2124	90	13			2210	480	142		
2125	15	8			2211	126	64		
2126	20	9			2212	120	58		
2127	20	20			2213	70	35		
2128	12	9			2214	56	14		
2129	8	8			2215	43	12		
2130	25	10			2216	12	4		
2131	39	12			2217	117	13		
2132	19	14			2218	20	16		
2133	298	4			2219	19	13		
2134	24	8			2220	48	14		
2135	135	2			2221	43	18		
2136	82	1			2222	12	23		
2137	93	1			2223	300	5		
2138	370	1			2224	26	8		
2139	392	2			2225	267	21		
2140	180	1			2226	190	10		
2141	24	1			2227	295	12		
2142	60	2			2228	82	4		
2143	14	2			2229	10	4		
2144	45	2			2230	30	8		
2145	10	2			2231	23	2		
2146	5	1			2232	81	4		

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm			
2498	20	2			8145	31	8			
2499	44	2			8146	102	6			
2500	19	2			8147	20	2			
2501	34	2			8148	27	6			
2502	34	2			8149	33	3			
2503	32	3			8150	32	4			
2504	13	2			8176	10	1			
2760	46	3			8177	10	19			
2761	28	2			8178	89	19			
2762	35	2			8179	14	3			
2774	10	1			8180	40	1			
2775	7	1			8181	19	1			
2776	21	1			8182	25	1			
2777	19	ND			8226	50	1			
2778	18	3			8227	76	1			
2779	20	2			8228	21	2			
2780	4	ND			8229	194	ND			
8013	119	33			8230	9	1			
8014	80	5			8626	5	2			
8015	38	5			8627	40	3			
8016	66	8			8628	113	2			
8017	39	2			8629	67	5			
8018	44	3								
8019	55	2								
8020	78	3			ND denotes 'not detected'					
8021	25	2			cc Mr. R. Wallis					
8022	60	17								
8023	34	9								
8024	28	7								
8025	24	9								
8140	47	2								
8141	21	2								
8142	20	6								
8143	74	2								
8144	60	1								



BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEEX: 04-54554

RECEIVED
AUG 16 1974

Geochemical Lab Report

J. I. B.

Extraction Hot Aqua Regia Report No. 24 - 526 PROJECT: 5494
 Method Atomic Absorption From Canadian Occidental Petroleum Ltd.
 Fraction Used -80 mesh Date Aug. 13 19 74

SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm		SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm	
NIL 5022	435	116	30		NIL 5193	10	40	5	
5023	136	48	12		5194	38	73	4	
5024	450	68	19		5195	38	81	12	
5025	65	427	2		5196	52	72	8	
5026	21	108	2		5197	31	77	8	
5027	44	85	3		5198	26	68	14	
5161	26	100	6		5199	94	180	4	
5162	26	66	1		5200	130	172	5	
5163	33	143	1		5201	70	148	3	
5164	31	100	1		5202	140	136	5	
5165	32	63	8		5203	116	176	5	
5166	62	140	2		5204	123	156	5	
5167	56	56	12		5205	34	89	5	
5168	114	66	10		5206	70	146	2	
5169	122	146	9		5207	75	141	4	
5170	65	110	5		5208	62	112	4	
5171	90	164	5		5209	80	112	5	
5172	100	121	4		5210	40	52	27	
5173	152	110	8		5211	40	94	4	
5174	130	175	6		5212	48	102	3	
5175	133	164	8		5213	45	100	4	
5176	134	196	5		5214	70	47	10	
5185	84	104	5		5215	57	100	6	
5186	84	110	6		5216	24	30	6	
5187	70	108	7		5217	60	95	4	
5188	94	103	14		5218	102	128	5	
5189	150	50	13		5219	74	160	7	
5190	340	104	31		5220	69	164	5	
5191	34	50	28		5221	46	47	3	
5192	31	68	8		5222	27	26	18	

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SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm		SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm	
NIL 5223	280	160	6		NIL 5258	23	94	1	
5224	45	104	10		5259	30	48	ND	
5225	124	58	6		5260	32	108	1	
5226	30	79	2		5261	46	146	2	
5227	116	80	2		5262	76	117	4	
5228	64	38	3		5263	69	109	4	
5229	50	80	2		5264	63	119	12	
5230	62	106	5		5265	140	100	4	
5231	204	110	5		5266	163	108	3	
5232	64	110	4		5267	96	56	1	
5233	46	94	1		5268	172	56	2	
5234	240	60	2		5269	140	76	2	
5235	68	119	4		5270	110	63	1	
5236	76	108	2		5271	72	162	4	
5237	76	100	9		5272	76	147	5	
5238	76	104	2		5273	72	115	3	
5239	78	103	3		5274	103	128	7	
5240	78	81	12		5275	92	130	4	
5241	56	68	8		5276	76	116	4	
5242	22	33	13		5277	76	121	4	
5243	19	38	12		5278	84	124	3	
5244	20	50	13		5279	86	121	4	
5245	26	56	16		5280	68	55	2	
5246	30	29	28		5281	60	53	2	
5247	26	40	15		5282	84	64	2	
5248	27	36	11		5283	71	71	2	
5249	28	35	12		5284	65	57	1	
5250	25	31	10		5285	73	68	1	
5251	42	29	17		5286	60	72	1	
5252	44	38	1		5287	52	64	1	
5253	93	37	2		5288	58	56	1	
5254	62	74	2		5289	36	56	1	
5255	245	142	5		5290	58	72	2	
5256	78	104	7		5291	208	113	2	
5257	18	42	2		5292	74	78	2	

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SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm		SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm	
NIL 5293	54	64	1		NIL 5335	65	53	5	
5294	69	68	3		5376	23	49	105	
5295	270	148	5		5377	132	140	10	
5296	134	168	4		5378	36	44	65	
5297	76	59	15		5379	260	104	35	
5298	50	51	5		5380	430	70	51	
5299	48	52	3		5381	220	71	34	
5307	76	188	11		5382	194	80	40	
5308	83	190	7		5383	165	80	32	
5309	72	176	4		5384	104	60	22	
5310	94	180	4		5385	156	48	10	
5311	206	91	4		5386	100	44	3	
5312	88	170	4		5387	92	60	5	
5313	32	53	3		5388	176	33	5	
5314	20	45	4		5389	77	60	6	
5315	25	122	8		5390	65	58	5	
5316	5	29	3		5391	50	220	3	
5317	32	33	22		5392	80	63	4	
5318	20	41	7		5393	119	16	5	
5319	20	62	9		5394	58	65	19	
5320	9	52	5		5395	64	60	3	
5321	26	57	2		5396	103	56	8	
5322	9	36	4						
5323	23	29	5						
5324	24	30	9						
5325	53	60	6		ND denotes 'not detected'				
5326	23	38	6		cc Dr. R. Wallis				
5327	260	144	5						
5328	34	43	8						
5329	22	37	3						
5330	35	46	5						
5331	62	56	7						
5332	56	61	5						
5333	61	60	3						
5334	67	63	5						



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1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-54554

Geochemical Lab Report

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SEP 23 1974
PROJECT: 5494

Extraction Hot Aqua Regia

Report No. 24 - 627

Method Atomic Absorption

From Canadian Occidental Petroleum Ltd.

Fraction Used -80 mesh

Date Sept. 17 19 74

SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2093	128	38			2278	93	6		
2178	40	1			2279	16	3		
2179	58	1			2280	129	13		
2180	48	1			2281	390	32		
2181	72	1			2282	215	11		
2182	82	2			2283	50	4		
2183	16	1			2284	86	6		
2184	22	1			2285	108	18		
2185	46	1			2286	38	8		
2257	69	3			2287	103	11		
2258	255	5			2288	60	14		
2259	76	4			2289	45	13		
2260	21	1			2290	73	17		
2261	22	2			2291	260	5		
2262	22	2			2292	31	11		
2263	93	3			2293	25	2		
2264	100	4			2294	29	1		
2265	115	5			2295	31	3		
2266	148	5			2296	33	2		
2267	92	3			2297	130	2		
2268	92	3			2298	68	1		
2269	110	2			2299	45	1		
2270	152	2			2300	52	4		
2271	165	8			2301	38	3		
2272	180	11			2302	36	2		
2273	93	5			2303	15	1		
2274	43	10			2304	14	1		
2275	113	8			2305	12	1		
2276	74	5			2306	46	2		
2277	120	4			2307	14	2		

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2506	96	2			2541	4	ND		
2507	28	17			2542	55	2		
2508	38	23			2543	20	1		
2509	25	2			2544	25	1		
2510	32	1			2545	60	2		
2511	35	2			2600	36	2		
2512	40	3			2601	11	ND		
2513	55	3			2602	19	1		
2514	42	2			2603	21	1		
2515	36	2			2604	80	1		
2516	43	2			2605	63	2		
2517	31	2			2606	44	2		
2518	10	1			2607	40	1		
2519	26	2			2608	10	1		
2520	32	2			2609	56	2		
2521	34	4			2610	46	1		
2522	36	4			2611	40	2		
2523	32	3			2612	43	1		
2524	11	2			2613	58	2		
2525	22	3			2614	50	3		
2526	42	4			2615	45	3		
2527	48	5			2616	9	ND		
2528	44	3			2617	66	5		
2529	49	3			2618	57	5		
2530	22	2			2619	50	2		
2531	103	5			2620	74	5		
2532	108	5			2621	250	5		
2533	88	5			2622	52	4		
2534	72	4			2623	34	2		
2535	31	1			2624	10	2		
2536	29	1			2625	91	4		
2537	18	1			2626	66	6		
2538	10	5			2627	87	3		
2539	13	3			2628	66	3		
2540	31	3			2629	148	7		

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm	Zn ppm		SAMPLE NO.	Cu ppm	Mo ppm	Zn ppm	
2630	92	5	-		5398	43	5	44	
2631	65	3	-		5399	4	3	16	
2632	30	2	-		5531	124	3	168	
2633	40	2	-		5532	116	7	195	
2634	42	3	-		5540	228	4	134	
2635	46	3	-		5541	35	5	43	
2636	22	1	-		5542	54	8	55	
2637	54	4	-		5543	42	6	45	
2638	48	4	-		5544	28	4	37	
2639	46	3	-		5545	43	6	49	
2640	56	3	-		5546	46	6	49	
2641	44	4	-		5547	43	3	45	
2642	53	3	-		5548	42	5	48	
2643	49	3	-		5561	248	4	136	
2644	69	3	-		5562	58	1	37	
2645	93	4	-		5563	47	1	66	
2646	11	1	-		5564	26	ND	44	
2647	252	4	-		5565	34	ND	34	
2648	62	5	-		5566	41	ND	30	
2649	108	13	-		5567	28	ND	30	
5362	110	1	190		5568	62	2	74	
5363	260	5	145		5569	58	ND	79	
5364	125	1	203		5570	72	1	73	
5365	122	2	182		5571	70	2	75	
5366	120	1	260		5572	74	2	70	
5367	117	1	250		5573	44	ND	62	
5368	102	1	180		5574	77	2	80	
5369	106	ND	223		5575	46	3	48	
5370	60	4	53		5576	37	3	46	
5371	46	4	44		5577	43	4	54	
5372	69	5	53		5578	20	2	40	
5373	50	5	52		~ 8326	19	6	-	
5374	50	7	49		~ 8327	20	2	-	
5375	60	8	55		~ 8328	18	7	-	
5397	51	7	53		~ 8329	34	13	-	

Geochemical Lab Report

Report No. 24 - 627

Page No. 5

SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
8330	59	30			8246	30	2		
8331	98	34			8247	48	6		
8335	90	42			8248	30	ND		
8199	80	1			8249	31	ND		
8200	1	ND			8250	6	1		
8201	75	ND			8591	8	ND		
8202	12	2			8592	69	1		
8203	88	ND			8593	10	1		
8204	36	25			8594	16	ND		
8205	25	3			8595	40	ND		
8206	36	5			8596	420	110		
8207	27	200			8597	22	5		
8208	60	6			8598	48	2		
8209	18	6			8599	18	1		
8210	37	9			8600	32	2		
8211	6	73			8639	10	ND		
8212	46	1			8640	2	ND		
8213	8	ND			8641	1	ND		
8214	4	1			8642	6	8		
8215	5	ND			8643	57	1		
8216	20	8			8644	42	4		
8217	7	5			8645	16	ND		
8218	100	2600			8646	16	ND		
8219	1	82			8647	46	1		
8220	16	43			8648	18	ND		
8221	2	13			8649	66	1		
8222	2	7			8650	6	ND		
8223	35	5							
8224	24	3							
8225	115	9							
8241	22	3							
8242	12	3							
8243	30	31							
8244	35	1							
8245	16	1							

ND denotes 'not detected'

cc Dr. R. Wallis



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Geochemical Lab Report

J. J. B.

Extraction Hot Aqua Regia Report No. 24 - 488 PROJECT: 5494
 Method Atomic Absorption From Canadian Occidental Petroleum
 Fraction Used _____ Date August 13 19 74

SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2546	290	6			2576	62	15		
2547	24	1			2577	17	2		
2548	54	1			2578	10	8		
2549	78	2			2579	88	30		
2550	70	2			2580	76	12		
2551	54	2			2581	35	4		
2552	35	2			2582	11	4		
2553	16	2			2583	2	3		
2554	14	1			2653	12	1		
2555	38	4			2654	11	1		
2556	14	3			2655	28	3		
2557	21	3			2656	46	1		
2558	28	2			2657	30	2		
2559	43	2			2658	56	4		
2560	27	2			2659	41	3		
2561	30	2			2660	34	3		
2562	21	2			2661	43	3		
2563	22	2			2662	40	2		
2564	150	2			2663	45	3		
2565	126	5			2664	10	2		
2566	510	13			2665	40	2		
2567	173	8			2666	19	2		
2568	290	5			2667	32	2		
2569	38	4			2668	33	2		
2570	33	1			2669	44	4		
2571	134	7			2670	14	1		
2572	114	7			2671	16	1		
2573	73	8			2672	17	1		
2574	8	ND			2673	122	4		
2575	17	ND			2763	51	3		

Geochemical Lab Report

Report No. 24 - 488

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2764	20	3			2974	31	ND		
2765	42	2			2975	22	1		
2766	41	4			2976	17	1		
2767	50	4			2977	9	1		
2768	38	2			2978	39	1		
2769	26	2			2979	33	2		
2770	60	2			2980	47	2		
2771	18	1			2981	58	4		
2772	16	2			2982	88	3		
2773	26	1			2983	65	4		
2866	17	1			2984	35	ND		
2867	22	1			2985	51	1		
2868	14	1			2986	81	2		
2869	300	5			2987	105	2		
2870	11	2			2988	53	1		
2871	25	1			2989	18	1		
2872	24	3			2990	38	2		
2873	11	1			2991	71	1		
2874	15	1			2992	90	2		
2875	47	3			2993	38	ND		
2876	60	4			2994	9	1		
2877	23	2			2995	15	1		
2878	32	2			2996	26	4		
2879	49	3			2997	52	4		
2880	12	2			2998	15	1		
2881	18	2			2999	12	1		
2882	28	2			3000	4	1		
2883	25	1			8001	74	ND		
2884	34	2			8002	21	1		
2885	31	3			8003	50	1		
2886	15	2			8004	79	15		
2887	30	2			8005	18	2		
2888	30	3			8006	48	1		
2972	290	7			8007	190	3		
2973	48	2			8008	49	2		



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Geochemical Lab Report

SEP 9 1974

Extraction Hot Aqua Regia

Report No. 24 - 578 J. J. PROJECT: 5494

Method Atomic Absorption

From Canadian Occidental Petroleum Ltd.

Fraction Used _____

Date Sept. 4 19 74

SAMPLE NO.	Cu ppm	Mo ppm		SAMPLE NO.	Cu ppm	Mo ppm	
A 2052	144	7		A 2082	19	1	
2053	179	16		2083	13	1	
2054	57	ND		2084	198	2	
2055	110	2		2085	350	3	
2056	120	5		2086	92	2	
2057	108	4		2087	470	8	
2058	1085	4		2088	490	15	
2059	94	2		2089	390	9	
2060	240	3		2090	30	4	
2061	185	5		2091	320	30	
2062	115	4		2092	52	4	
2063	65	2		2101	23	30	
2064	36	2		2102	263	6	
2065	78	3		2155	67	17	
2066	120	3		2156	270	6	
2067	92	10		2157	60	7	
2068	115	ND		2158	56	8	
2069	490	96		2159	57	10	
2070	350	31		2160	53	4	
2071	1020	19		2161	46	5	
2072	520	26		2162	99	13	
2073	810	19		2163	36	5	
2074	124	11		2164	24	ND	
2075	400	11		2165	22	2	
2076	166	7		2166	30	3	
2077	640	10		2167	6	1	
2078	318	11		2168	24	1	
2079	152	2		2169	72	8	
2080	224	5		2170	21	ND	
2081	155	2		2171	47	5	

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
A 2172	366	66			A 2361	130	42		
2173	150	23			2362	245	55		
2174	160	28			2363	326	45		
2175	350	25			2364	298	40		
2176	175	8			2365	1100	345		
2177	380	100			2366	96	20		
2330	52	4			2367	290	110		
2331	42	2			2368	190	85		
2332	92	6			2369	103	55		
2333	158	7			2370	52	35		
2334	148	7			2371	60	21		
2335	195	13			2372	70	22		
2336	93	5			2373	43	7		
2337	68	1			2374	348	43		
2338	276	32			2462	136	85		
2339	44	57			2463	75	54		
2340	80	15			2464	19	17		
2341	92	18			2465	60	40		
2342	210	13			2466	450	350		
2343	136	15			2467	800	300		
2344	193	13			2468	270	6		
2345	276	33			2469	680	470		
2346	640	8			2470	173	21		
2347	15	3			2471	185	70		
2348	103	55			2472	25	10		
2349	38	26			2473	132	59		
2350	15	22			2474	15	25		
2351	108	12			2475	148	31		
2352	430	120			2476	15	10		
2353	109	20			2477	15	10		
2356	268	5			2478	60	13		
2357	640	105			2479	6	4		
2358	940	200			2480	7	12		
2359	360	118			2481	14	4		
2360	620	43			2482	136	24		

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2483	63	15			2682	40	5		
2484	124	34			2683	67	10		
2485	102	21			2684	24	3		
2486	120	18			2685	52	6		
2487	41	15			2686	85	6		
2488	110	31			2687	22	4		
2489	64	24			2688	35	4		
2490	16	7			2689	26	4		
2491	107	46			2690	191	39		
2492	242	75			2691	490	59		
2493	285	123			2692	115	6		
2584	102	15			2693	288	5		
2585	108	28			2694	76	12		
2586	100	31			2695	204	90		
2587	46	15			2696	127	26		
2588	28	15			2697	192	16		
2589	97	51			2698	308	150		
2590	106	82			2699	228	39		
2591	144	130			2700	490	72		
2592	32	82			2701	290	43		
2593	175	125			2702	950	148		
2594	282	51			2703	222	78		
2595	280	68			2704	206	36		
2596	135	33			2705	21	10		
2597	28	18			2781	30	4		
2598	25	14			2782	29	4		
2599	50	24			2783	76	6		
2674	38	3			2784	67	6		
2675	10	1			2785	105	6		
2676	16	1			2786	70	5		
2677	48	2			2787	46	6		
2678	58	4			2788	42	7		
2679	21	ND			2789	184	5		
2680	28	2			2790	46	5		
2681	68	6			2791	43	3		

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm			SAMPLE NO.	Cu ppm	Mo ppm		
2792	96	10			2903	10	1		
2793	17	2			2904	61	4		
2794	25	1			2905	56	6		
2795	23	4			2906	12	2		
2796	20	3			2907	72	9		
2797	43	4			2908	111	13		
2798	49	7			2909	97	10		
2799	34	4			2910	80	13		
2800	32	2			2911	18	3		
2801	115	16			2912	40	6		
2802	216	16			2913	259	6		
2803	56	10			2914	106	27		
2804	41	7			2915	40	19		
2805	43	2			2916	46	13		
2806	135	47			2917	14	4		
2807	36	5			2918	21	4		
2808	41	5			2919	20	4		
2809	14	4			8183	82	3		
2810	282	6			8184	72	4		
2811	23	4			8185	87	37		
2812	30	3			8186	52	57		
2889	8	1			8187	6	24		
2890	80	5			8188	33	4		
2891	60	4			8189	10	6		
2892	80	5			8190	35	14		
2893	125	7			8191	30	4		
2894	153	9			8192	88	2		
2895	60	8			8193	130	3		
2896	32	4			8194	45	4		
2897	122	6			8195	30	2		
2898	83	5			8196	63	23		
2899	88	5			8197	56	9		
2900	41	6			8198	380	80		
2901	46	5			8231	35	9		
2902	39	2			8232	10	3		

Geochemical Lab Report

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SAMPLE NO.	Cu ppm	Mo ppm		SAMPLE NO.				
8233	20	3						
8234	32	6						
8235	12	4						
8236	50	10						
8237	24	12						
8238	10	6						
8239	36	6						
8240	50	58						
8630	56	12						
8631	42	5						
8632	46	5						
8633	70	82						
8634	60	255						
8635	72	82						
8636	36	145						
8637	92	81						
8638	102	29						

ND denotes 'not detected'

cc Dr. R. Wallis



BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEEX: 04-54554

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Geochemical Lab Report

Extraction Hot Aqua Regia Report No. 24 - 579 PROJECT: J. I. B. 5494
 Method Atomic Absorption From Canadian Occidental Petroleum Ltd.
 Fraction Used -80 mesh Date Aug. 28 19 74

SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm		SAMPLE NO.	Cu ppm	Zn ppm	Mo ppm	
4940	125	108	19		5160	106	66	5	
4941	130	120	31		5177	129	102	42	
4942	92	85	14		5178	138	112	34	
4943	170	146	16		5179	112	104	33	
5133	25	60	1		5180	137	122	21	
5134	11	62	1		5181	115	114	16	
5135	6	46	1		5182	93	86	11	
5136	33	53	3		5183	98	76	14	
5137	21	68	3		5184	100	82	14	
5138	44	71	1		5300	53	84	3	
5139	26	48	2		5301	67	96	4	
5140	16	22	ND		5302	258	130	6	
5141	60	133	3		5303	60	90	3	
5142	78	148	3		5304	49	79	3	
5143	58	115	2		5305	60	84	3	
5144	40	66	2		5306	53	78	3	
5145	26	85	1		5336	57	83	3	
5146	80	100	1		5337	44	68	3	
5147	17	78	ND		5338	64	92	2	
5148	32	128	3		5339	53	73	3	
5149	70	123	4		5340	63	78	3	
5150	41	151	4		5343	73	70	4	
5151	13	144	2		5344	66	31	1	
5152	10	100	ND		5345	51	78	3	
5153	13	106	1		5346	78	133	4	
5155	20	144	3		5347	62	116	3	
5156	165	245	11		5348	90	170	3	
5157	98	102	3		5349	65	92	4	
5158	57	86	3		5350	50	113	3	
5159	83	28	4		5351	56	145	2	

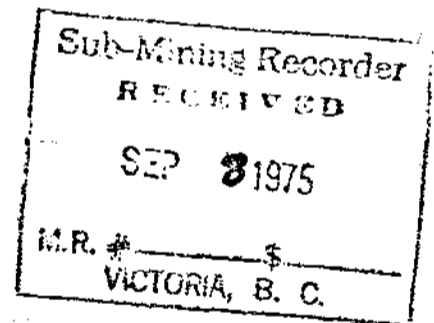
STATEMENT OF EXPENDITURES

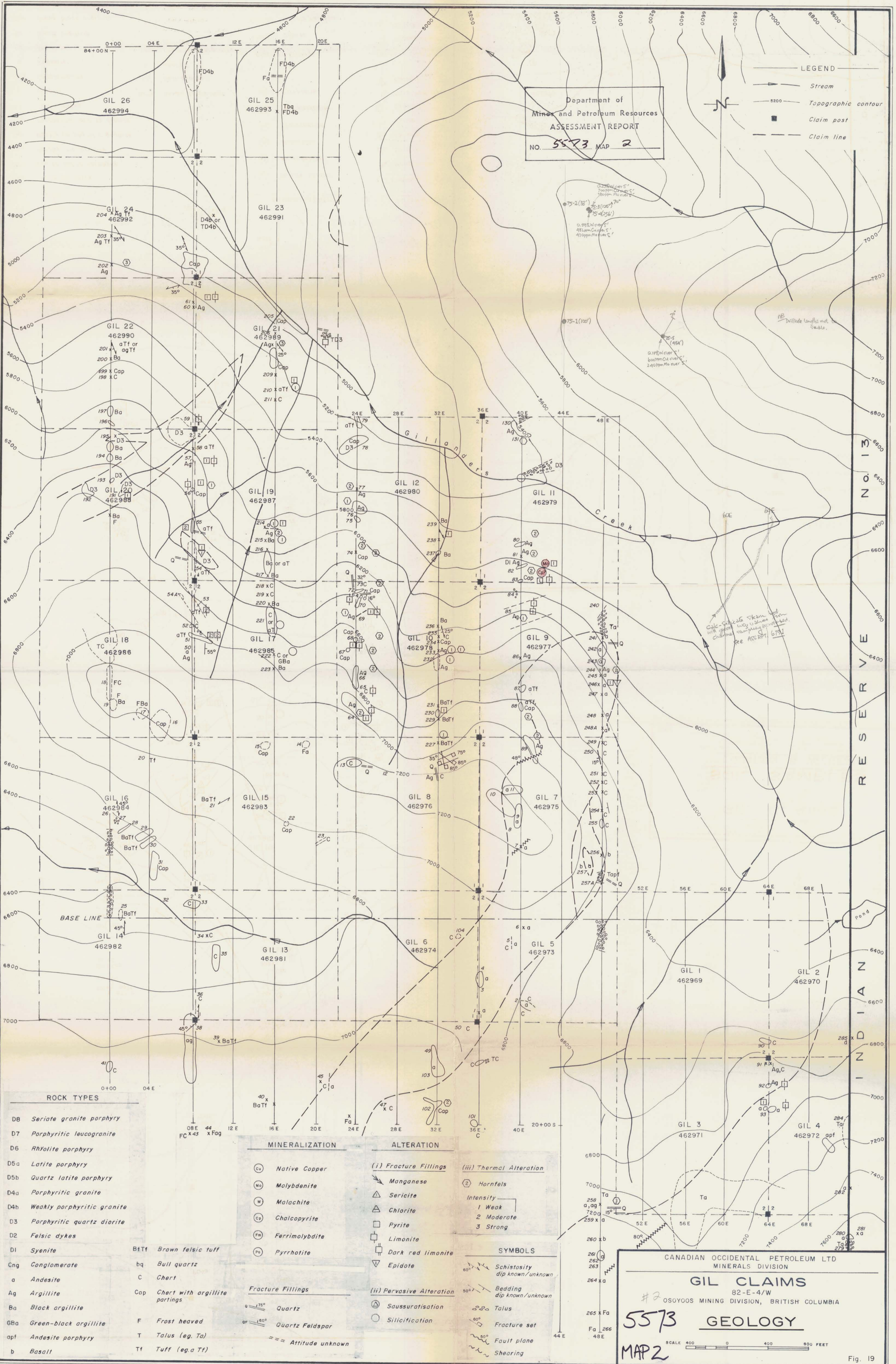
GIL 1-26 Claims, 82-E-4W $\frac{1}{2}$

1) Salaries: J.Schindler, G.Rhodes, G.Argenti M.Lacina, J.Morgan, I.Howat, C. Bangsboll 78 man days @ \$20.61 per man-day	\$ 1,607.65
2) Food & Accommodation	884.50
3) Transportation - Helicopter	5,524.58
4) Geochemical Analyses	3,017.67
5) Report Preparation - draftsman & reproductions	543.70
6) Other costs - C.F. Gleeson - 1 day Camp Supplies & Equipment	262.84 <u>1,309.49</u>
Total	<u>\$13,150.43</u>

Bruce Cook
Bruce Cook
Canadian Occidental Petroleum Ltd.

Sept. 5, 1975





Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5573 MAP 2

LEGEND
 Stream
 Topographic contour
 Claim post
 Claim line

- ROCK TYPES**
- D8 Seriate granite porphyry
 - D7 Porphyritic leucogranite
 - D6 Rhyolite porphyry
 - D5a Latite porphyry
 - D5b Quartz latite porphyry
 - D4a Porphyritic granite
 - D4b Weakly porphyritic granite
 - D3 Porphyritic quartz diorite
 - D2 Felsic dykes
 - D1 Syenite
 - Cng Conglomerate
 - a Andesite
 - Ag Argillite
 - Ba Black argillite
 - GBa Green-black argillite
 - apf Andesite porphyry
 - b Basalt

- BtTf Brown felsic tuff
- bq Bull quartz
- C Chert
- Cop Chert with argillite partings
- F Frost heaved
- T Talus (eg. Ta)
- Tf Tuff (eg. a Tf)

- MINERALIZATION**
- (Cu) Native Copper
 - (Mo) Molybdenite
 - (M) Malachite
 - (Cp) Chalcopyrite
 - (Fm) Ferrimolybdate
 - (Pb) Pyrrhotite
- Fracture Fillings**
- Quartz
 - Quartz Feldspar
 - Attitude unknown

- ALTERATION**
- (i) Fracture Fillings
- Manganese
 - Sericite
 - Chlorite
 - Pyrite
 - Limonite
 - Dark red limonite
 - Epidote
- (ii) Pervasive Alteration
- Saundersisation
 - Silicification

- (iii) Thermal Alteration
- (2) Hornfels
- Intensity
- 1 Weak
 - 2 Moderate
 - 3 Strong

- SYMBOLS**
- Schistosity dip known/unknown
 - Bedding dip known/unknown
 - Talus
 - Fracture set
 - Fault plane
 - Shearing

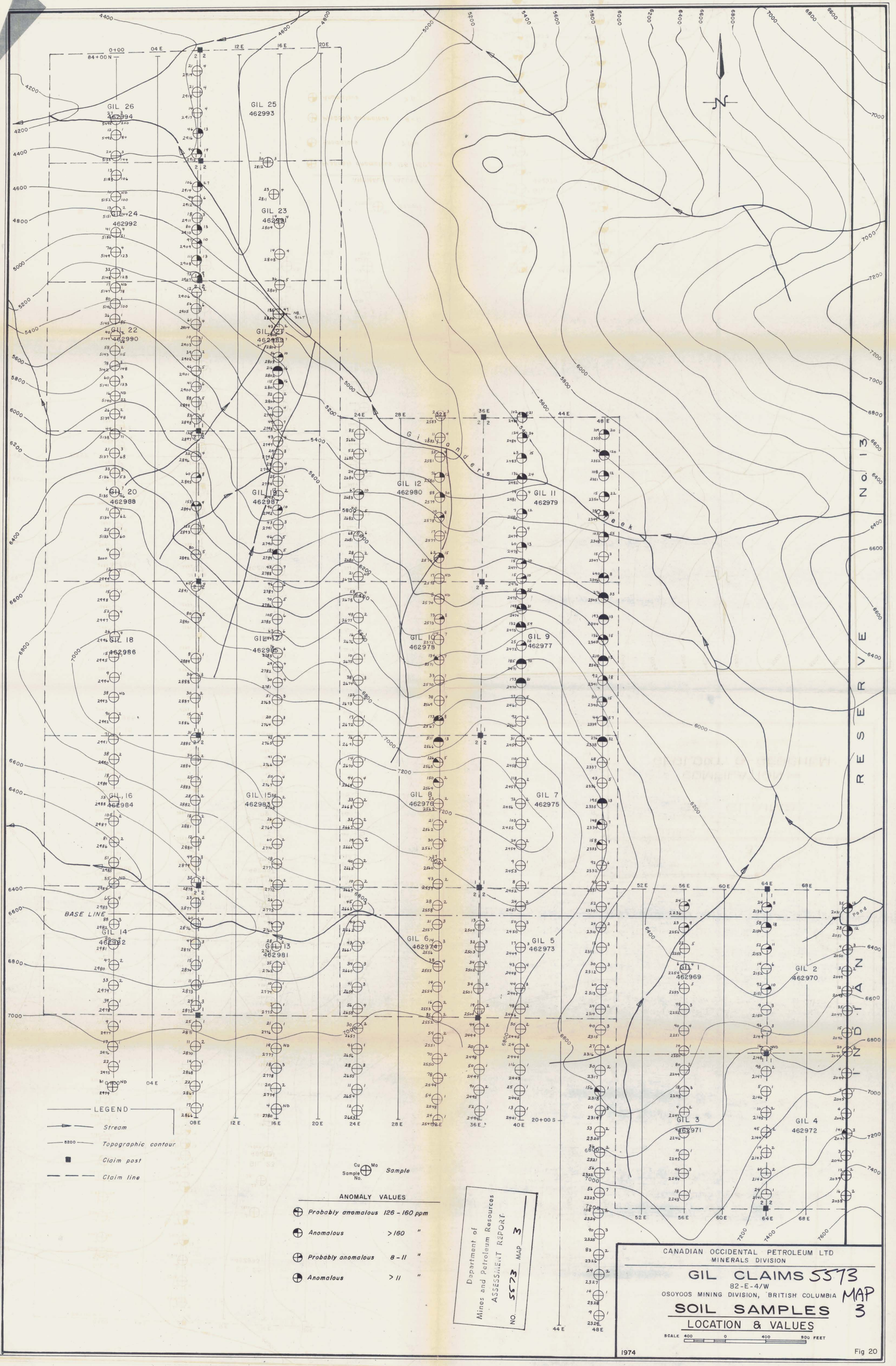
CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

GIL CLAIMS
82-E-4/W
#2 OSOYOOS MINING DIVISION, BRITISH COLUMBIA

5573 GEOLOGY

MAP 2

SCALE 400 0 400 800 FEET



LEGEND

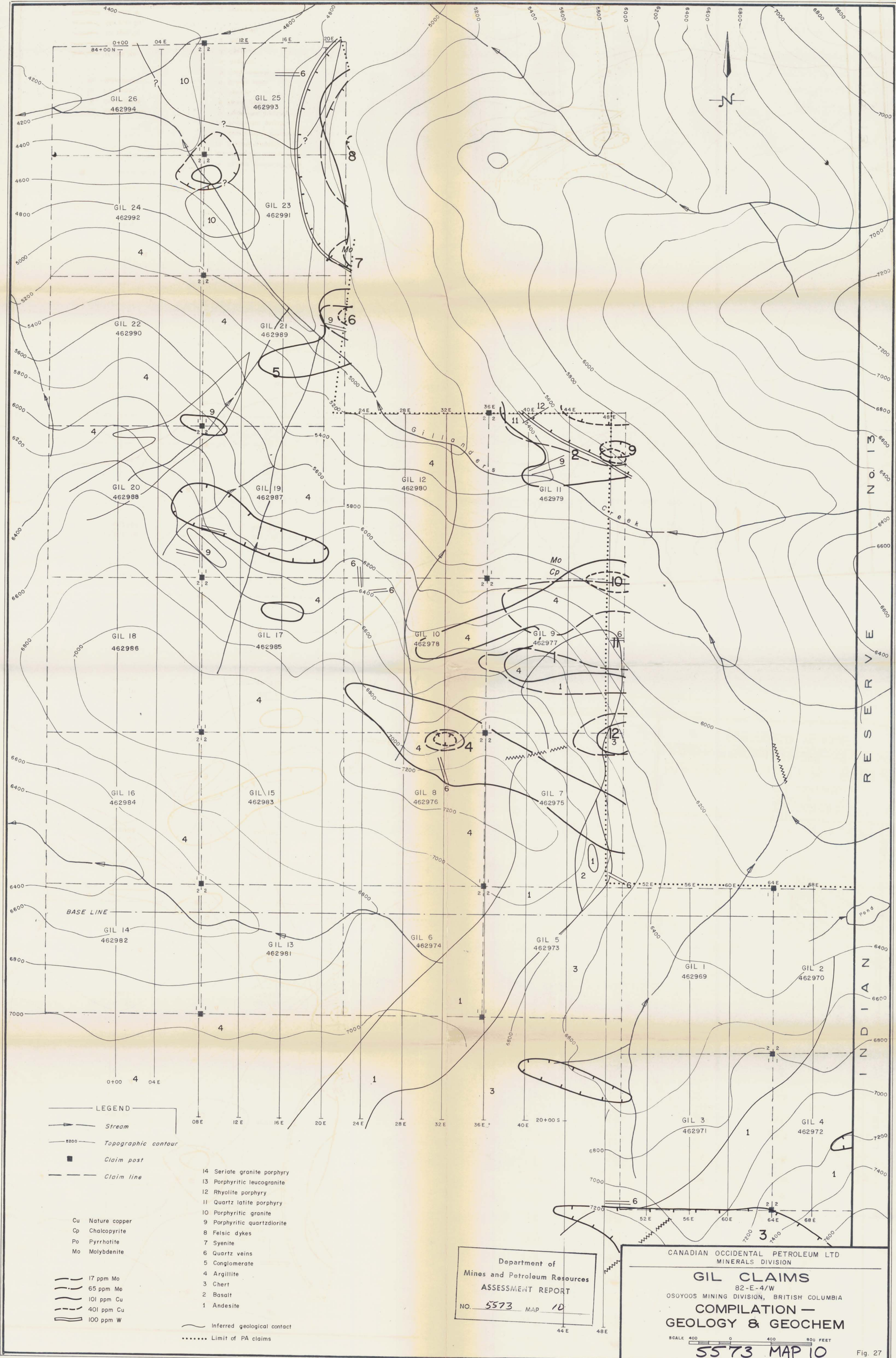
- Stream
- Topographic contour
- Claim post
- Claim line

ANOMALY VALUES

- Probably anomalous 126 - 160 ppm
- Anomalous > 160 "
- Probably anomalous 8 - 11 "
- Anomalous > 11 "

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 ASSESSMENT REPORT
 NO. 5573 MAP 3

CANADIAN OCCIDENTAL PETROLEUM LTD
 MINERALS DIVISION
GIL CLAIMS 5573
 82-E-4/W
 OSOYOOS MINING DIVISION, BRITISH COLUMBIA
SOIL SAMPLES 3
 LOCATION & VALUES
 SCALE 400 0 400 800 FEET



MINING RESERVE

CANADIAN

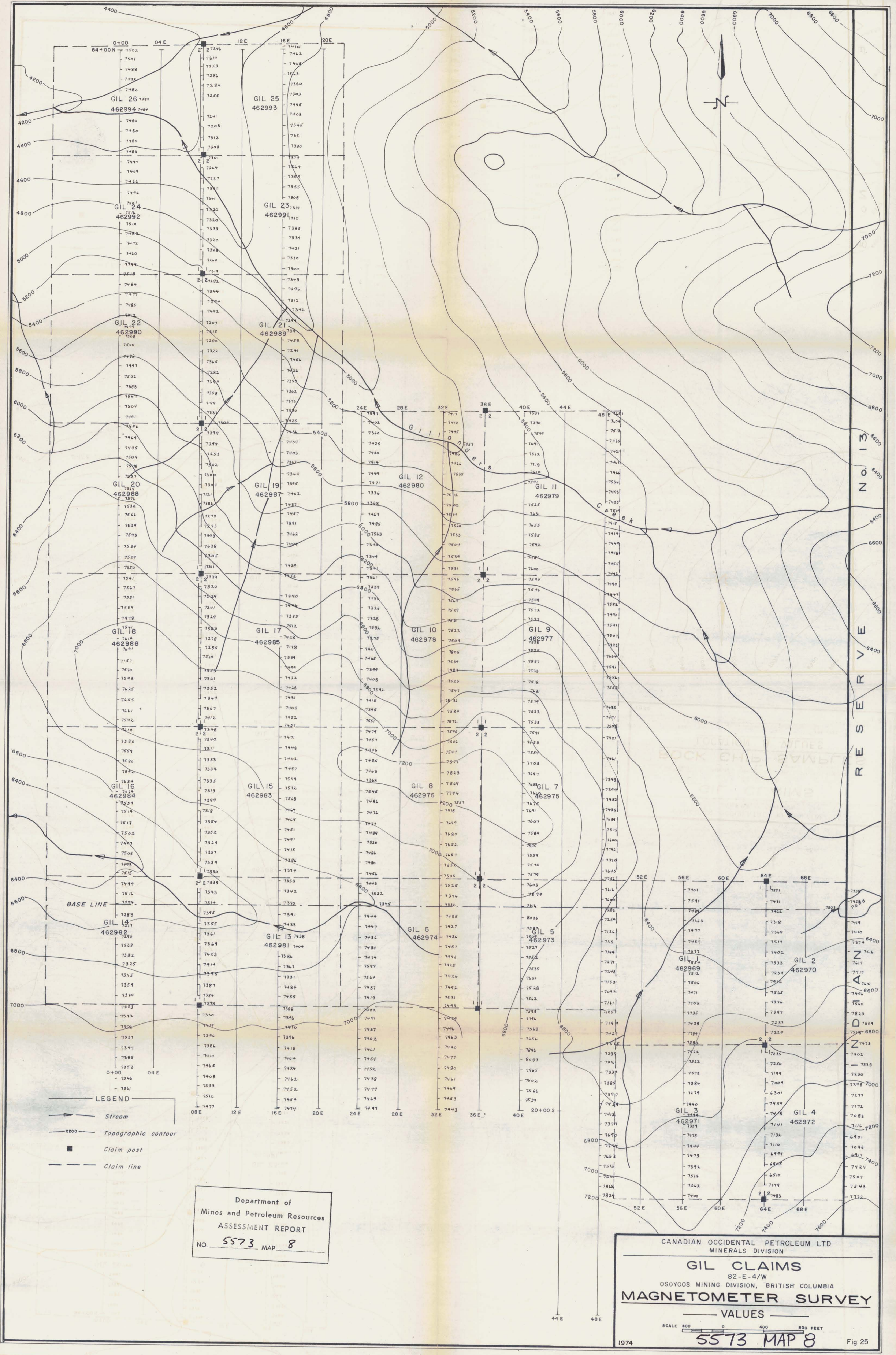
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5573 MAP 10

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA
**COMPILATION —
GEOLOGY & GEOCHEM**
SCALE 400 0 400 800 FEET
5573 MAP 10



Department of
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ASSESSMENT REPORT
NO. 5573 MAP 9

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA
MAGNETOMETER SURVEY
CONTOURED VALUES
SCALE 400 0 400 800 FEET
5573 MAP 9



- LEGEND**
- Stream
 - Topographic contour
 - Claim post
 - Claim line

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5573 MAP 8

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

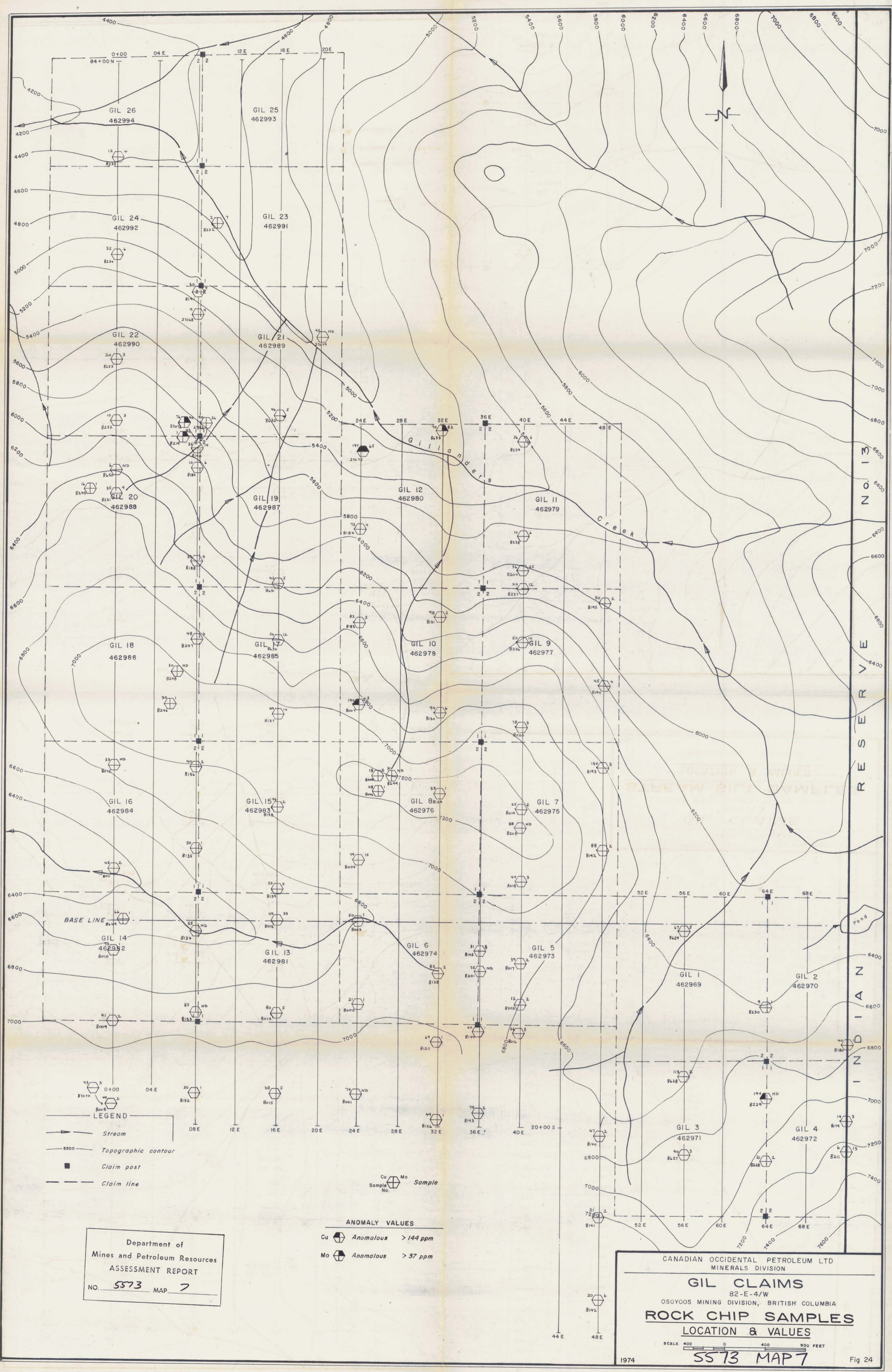
GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA

MAGNETOMETER SURVEY

VALUES

SCALE 400 0 400 800 FEET

5573 MAP 8

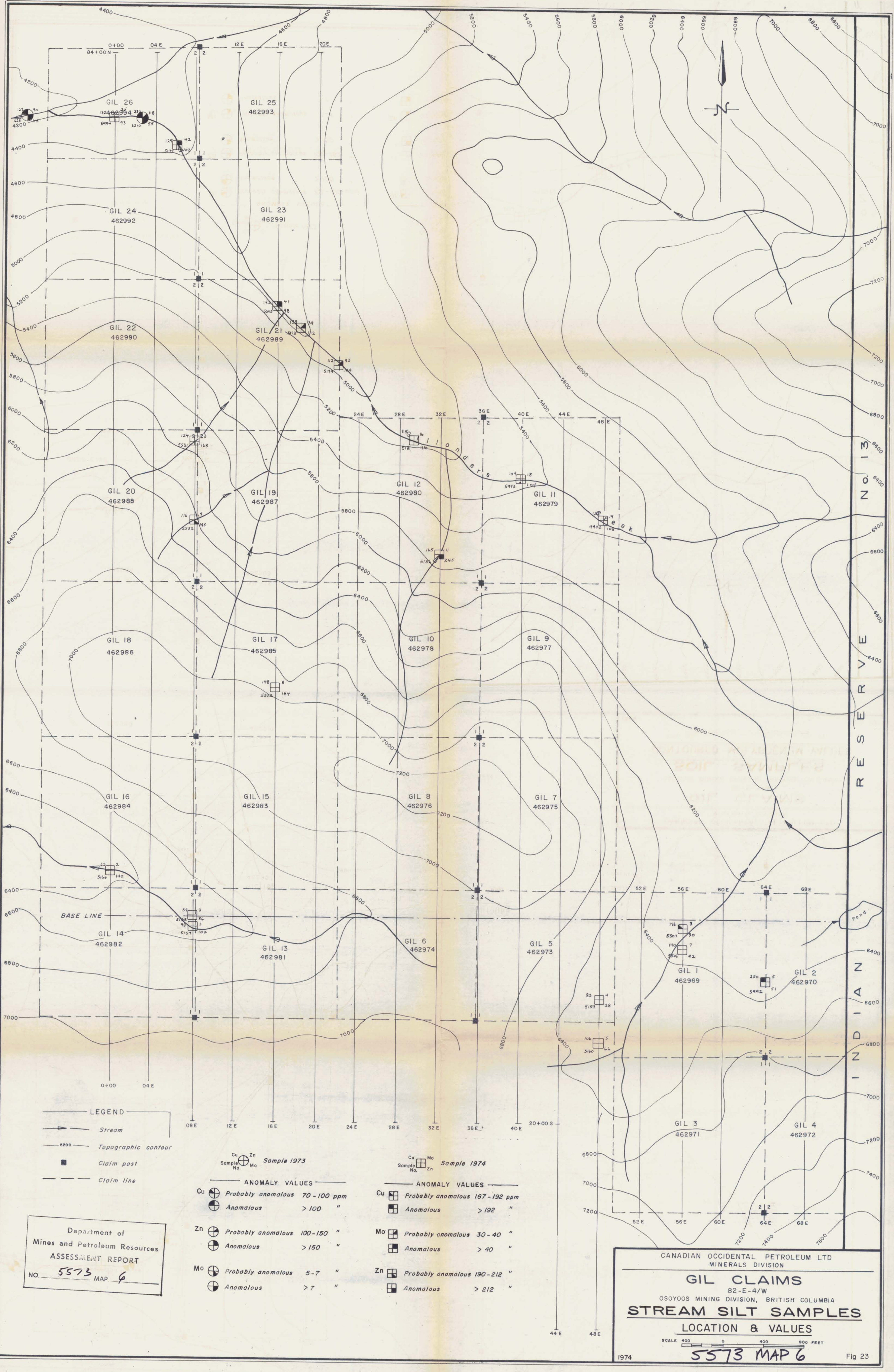


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ASSESSMENT REPORT
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ANOMALY VALUES

Cu	Anomalous	> 144 ppm
Mo	Anomalous	> 37 ppm

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA
ROCK CHIP SAMPLES
LOCATION & VALUES
SCALE 400 0 400 800 FEET
5573 MAP 7
1974 Fig 24



LEGEND

- Stream
- Topographic contour
- Claim post
- Claim line

ANOMALY VALUES

Cu **Sample 1973**

- Probably anomalous 70-100 ppm
- Anomalous > 100 "

Zn Probably anomalous 100-150 "

- Anomalous > 150 "

Mo Probably anomalous 5-7 "

- Anomalous > 7 "

ANOMALY VALUES

Cu **Sample 1974**

- Probably anomalous 167-192 ppm
- Anomalous > 192 "

Mo Probably anomalous 30-40 "

- Anomalous > 40 "

Zn Probably anomalous 190-212 "

- Anomalous > 212 "

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ASSESSMENT REPORT
NO. **5573** MAP **6**

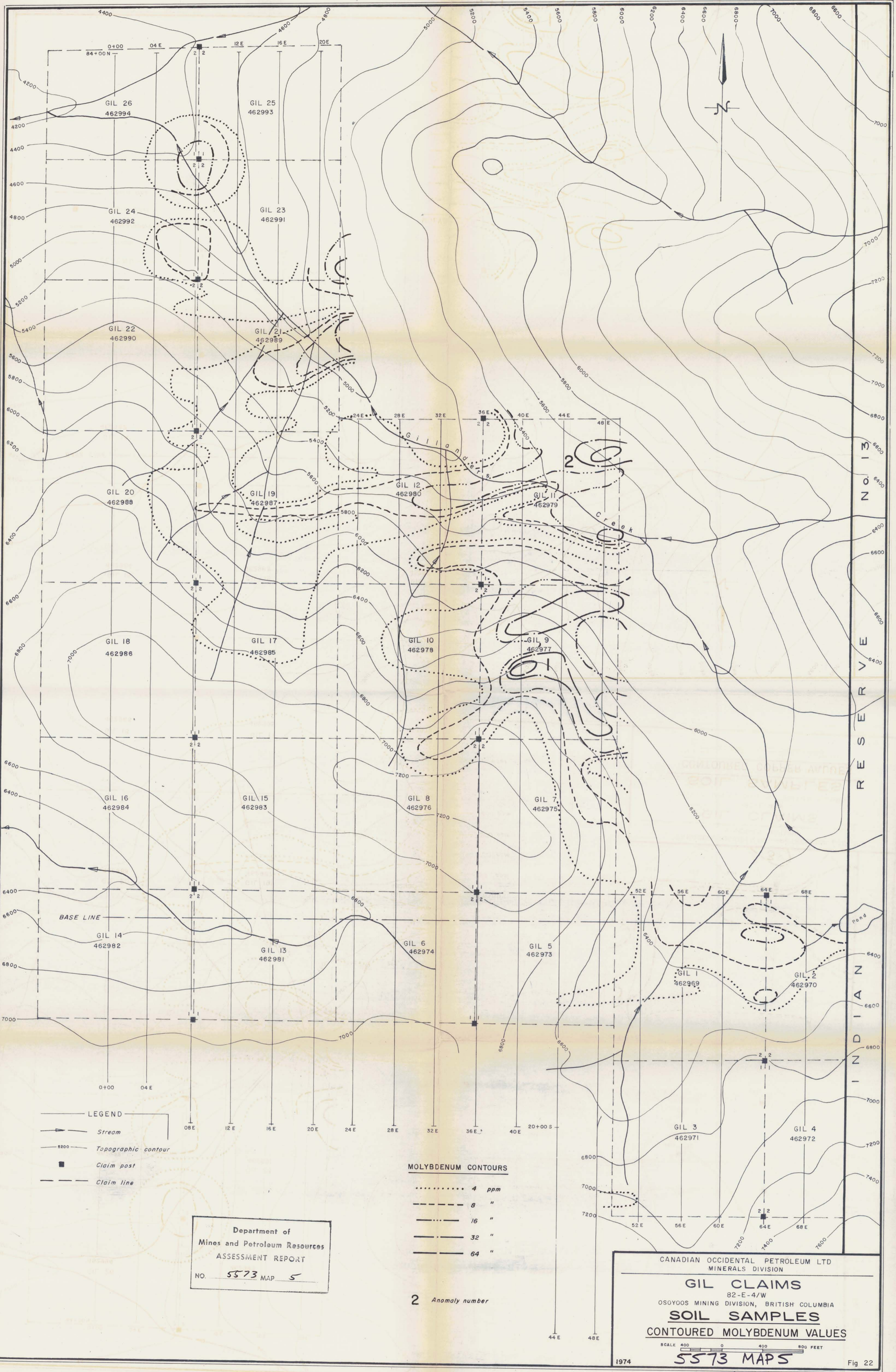
CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA

STREAM SILT SAMPLES
LOCATION & VALUES

SCALE 400 0 400 800 FEET

5573 MAP 6



- LEGEND
- Stream
 - Topographic contour
 - Claim post
 - - - Claim line

- MOLYBDENUM CONTOURS
- 4 ppm
 - - - 8 "
 - - - 16 "
 - - - 32 "
 - - - 64 "

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ASSESSMENT REPORT
NO. 5573 MAP 5

2 Anomaly number

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA

SOIL SAMPLES
CONTOURED MOLYBDENUM VALUES

SCALE 400 0 400 800 FEET

5573 MAPS

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5573 MAP 4



INDIAN RESERVE

- LEGEND
- Stream
 - Topographic contour
 - Claim post
 - Claim line

- COPPER CONTOURS
- 50 ppm
 - 100 ppm
 - 200 ppm
 - 400 ppm

4 Anomaly number

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

GIL CLAIMS
82-E-4/W
OSOYOOS MINING DIVISION, BRITISH COLUMBIA

SOIL SAMPLES
CONTOURED COPPER VALUES

SCALE 400 0 400 800 FEET

5573 MAP 4