

6145

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY
OF THE
PAT CLAIM GROUP

Claim Sheet 92-H-14/W

Lat. : 49°55'

Long.: 121°16'

Claims:
Pat 1: Units 1-4
Nicola Mining Division
British Columbia

by:
R.L. George

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
No. <u>6145</u>

Work Completed During the Period
August 16-19, 1976

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INTRODUCTION

R.L. George with I. Howat and T. Fuller spent 4 days (August 16-19) evaluating the PAT #1 Claim and surrounding area. Two days were spent in moving to and from the property and two days in collecting approximately 100 soil and stream samples and examining the outcrop on the property.

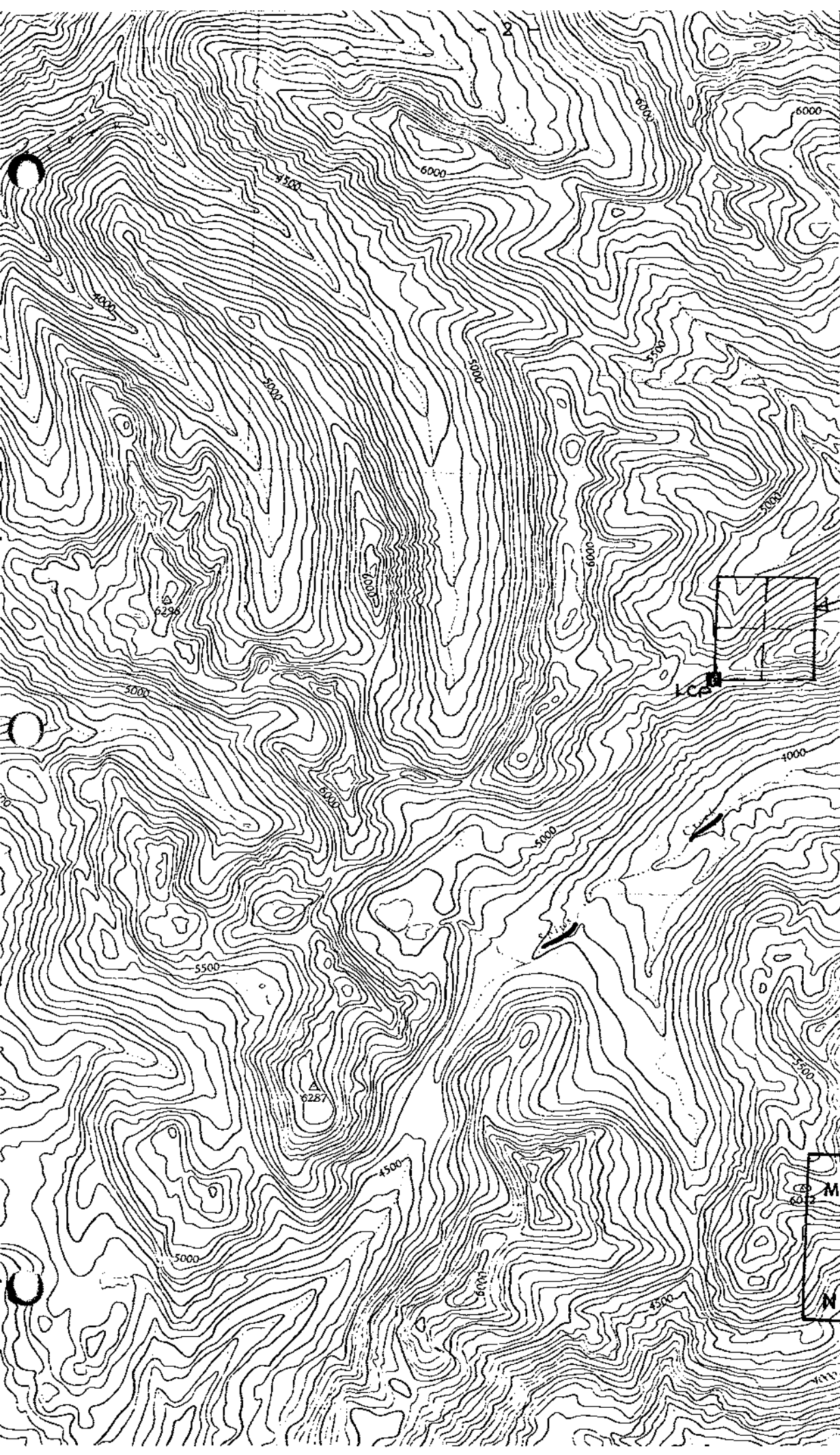
LOCATION AND ACCESS

The property is located at Lat. $49^{\circ}55'$, Long $121^{\circ}16'$ approximately 22 miles southwest of Merritt at the headwaters of Spius Creek. Access is by truck from Merritt via the Coldwater Road (14 miles), the Midday Valley Road (for 15 miles) and then the Spius Creek road for 10 miles.

PREVIOUS WORK

In the general area, the earliest work for which information is available is by Orequest Exploration in 1968. Work included a soil geochemical survey for copper and molybdenum, the results of which are known; apparently, an S.P. and E.M. survey was carried out, and 10 diamond drill holes and 11 percussion holes were drilled. The results of the geophysical surveys and the drilling are not available.

Arrow Inter-American worked the area in 1970 and conducted an I.P., magnetometer and soil geochemical survey and geologically mapped the area. In 1975 Brascan filed



NTS
92H14/W
1:50,000

PAT#1

55'

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LOCATION MAP
Figure 1

assessment credits for work done in the area.

PHYSIOGRAPHY

The PAT 1 claim lies on a steep ($>30^{\circ}$) southeast facing slope north of Spius Creek. The relief in the area is 2000' (from 4000' at Spius Creek to 6000' on the ridge crest to the north) in an even, continuous slope cut by one dendritic stream network on the west side of the main slope.

Vegetation consists primarily of very thick alders on the lower slopes, changing to mixed alders, spruce and short bush on the slopes above the drill road network.

GEOLOGY

The PAT claim is underlain by the Eagle Granodiorite, a major, 100-mile-long intrusive complex trending northwest through central British Columbia. The main rock types on the claim are foliated quartz diorite, granodiorite, feldspar porphyry and quartz-feldspar porphyry. These are intruded by a series of felsic dykes and pegmatite and quartz veins (some of which are mineralized). The area was mapped and described by B.Y. Kim for Arrow Inter-American Corp. in 1971. The present two-day mapping agrees with his findings, which are summarized below.

Description of Rock Units

The central part of the area (the best exposed area) is underlain by a strongly pyritic intrusive rock of variable composition and appearance (granodiorite, monzonite and aplitic granite (b), according to Kim). The most common of these appeared to be a strongly foliated biotite granodiorite or monzonite with strong pyrite (to 1%) on fractures and as disseminations. Muscovite and sericite occur both within the fabric of the rock and in quartz veins. To the north and west pyrite and sericite concentrations decrease (grading into a barren foliated granodiorite to the north and contacting a leucocratic granodiorite with a weak foliation to the west). The rocks of this central area were extremely kaolinized in all of the exposures examined, consisting of a completely friable rock containing spheroidal blocks showing very little alteration. This seems most likely to be due to extreme weathering, aided by the alteration of pyrite to produce strongly acidic ground water. All of the exposures were in trenches that penetrated the outcrop no more than 2 or 3 feet below the "C" soil horizon. It is not known whether there is any kaolinization of the rocks at depth due to hydrothermal activity. In the southern part of PAT 1 an intrusion of feldspar porphyry occurs. The rock is dark grey, very friable in exposure, unfoliated and contains approximately 20% euhedral, kaolinized plagioclase crystals to 1 cm in diameter. It was not specifically described by Kim although it appears on Brascan's 1974 work plan. It does not contain disseminated pyrite, although pyrite is abundant on fractures and in quartz

veins. Along the main access road on Spius Creek there are several exposures of quartz-feldspar porphyry, consisting of 15% plagioclase phenocrysts to 1 cm, 5%-10% quartz eye phenocrysts to 0.5 cm and >2% pyrite in perfect cubes to 2 cm containing inclusions of quartz-eye phenocrysts. It is not known whether the pyrite cubes are porphyroblasts or phenocrysts. Although they are not associated with fractures or veins, the former possibility seems to be more likely (?) due to their euhedral and poikilitic character. The rock is massive, very weakly jointed and altered. Quartz veins are very rare in the unit and sericite was not noted, although Kim reports that the feldspars are kaolinized. The unit is very competent.

Lamprophyre and felsic dykes intrude the older intrusions but are of minor importance in relation to any ore formation on the property.

Veins

Pegmatite and quartz veins are common in all of the major rock types except the quartz-feldspar porphyry. Veins follow several orientations, usually parallel to one of several fracture directions. The most common orientations were approximately 080° with sub-vertical dip or parallel to the foliation. Most of the quartz veins contain pyrite and muscovite and a few showed minor malachite staining. Two quartz veins near the stream just southwest of PAT 1 contained very fine-grained molybdenite. Vein densities varied from 1 per 20 feet to a maximum of 2 per foot; only a small proportion of those in any one area had visible copper or molybdenum

mineralization. In general only one set of fractures contained veins in any area, although late phase quartz, carbonate, pyrite stockwork veins with miarolitic cavities containing euhedral quartz and pyrite crystals were found at the contact of the feldspar porphyry and stained granodiorite units. The stockwork consists of a series of anastomosing, sub-horizontal veins with a density of ≈ 3 per foot. Rare malachite staining was found in one of the veins in the stockwork. The zone is approximately 15 feet wide and does not appear to be more than 10 feet thick.

Structure

The "stained granodiorite" in the central part of the area and the granodiorite to the north of it have a strong foliation at 160° - 200° with a dip of 70° - 90° to the west. The granodiorite to the west of the stream southwest of PAT 1 has a weak N-S foliation and other units on the property are unfoliated.

Fractures vary greatly over the property, both in orientation and density. In general, there is one strong set and one weak set, both sub-vertical, although a third sub-horizontal set occurs in some outcrops. The "stained granodiorite" has the highest fracture density - reaching 2/foot with three sets of fractures. The usual density over the area is approximately 1 per 3 feet-10 feet with one strong set and one weak set. The quartz-feldspar porphyry is very massive with densities rarely exceeding 1 per 6 feet. Generally only one fracture direction contains quartz veins. Fractures often contain pyrite and sericite but no copper or molybdenum was found except in quartz veins.

Economic Geology

Although a large number of veins were broken open and examined, only 5 veins showed any sign of copper mineralization (only malachite was found) and only one vein was found containing molybdenite. All of the quartz veins containing malachite were within the central area of "stained granodiorite" and contained sericite and pyrite in addition to malachite. Mineralized veins were found in the foliated granodiorite and the feldspar porphyry subunits. The one vein containing molybdenite was found just southwest of PAT 1 near the main stream within the foliated granodiorite.

Kim believed that the quartz-feldspar porphyry was the locus of mineralization in the area, but this seems doubtful. The unit never reaches more than 200 feet in thickness according to Brascan's 1974 work plan and it is conspicuously massive, unaltered and rarely veined. It seems quite unlikely that this unit is the source of mineralized fluids capable of widespread sericitization and quartz vein development. However, with the data available, it is not possible to specify an alternative locus for the mineralization.

GEOCHEMISTRY

The original Orequest soil geochemistry survey returned very high values - up to 7000 ppm Cu and 80 ppm Mo with anomalous values defined as being above 15 ppm for Mo. The Arrow Inter-American survey did not corroborate this

result as their highest Cu value was 567 ppm and most values were below 100 ppm. However, the evaluation survey carried out in 1976 seems to correspond quite well with Orequest's survey, returning values of up to 2,970 ppm Cu and 230 ppm Mo. Contouring of the values delineated an area of 2000' x 1500' of >500 ppm Cu in the central part of the grid, surrounding an area of 2000' x 400' of >1000 ppm Cu. The anomaly is open to the south and oriented NNW (up the slope of the hillside). One main molybdenum anomaly is roughly coincident to the northeast of the Cu anomaly and a second one (consisting of only 2 high value samples) occurs to the west of this and is coincident with a small copper anomaly. Both copper and molybdenum contour patterns show elongation to the northwest, possibly parallel to an airphoto lineation reported by Kim.

The copper and molybdenum contour maps both show major anomalies coincident with 1968 Orequest survey anomalies of similar values. These high values may be partially due to the weathering of high pyrite concentrations and the size of the anomalies may have been increased by groundwater dispersion of Cu and Mo downslope (both main anomalies have elongations at least sub-parallel to the dip of the slope). However, the replication of the high values of the 1968 survey certainly warrants further interest in the property.

Nine stream samples taken on the property returned values from 120 ppm to 3600 ppm Cu, with 5 values of >1000 ppm Cu. All samples were anomalous by regional stream standards (>100 ppm Cu).


CONCLUSIONS

Although no major economic mineralization or high density vein stockworks were found, the very low percentage of outcrop in the central part of the area does not rule out the occurrence of either. The occurrence of a large, high value Cu soil geochemical anomaly over an area of strong sericitization is good evidence for a hydrothermal Cu deposit on the property. Brascan drilled 7 diamond drill holes on the property in 1971 but only one of them was within the 500 ppm Cu anomaly outlined by Orequest; the rest were concentrated on the quartz-feldspar porphyry and the two I.P. anomalies outlined by the Arrow Inter-American Corp. 1970 survey. Orequest's 1968 diamond drill holes were also concentrated in the northern part of the property, within the main molybdenum anomaly (Brascan compilation - 1974). The main copper anomaly is coincident with a magnetic high outlined by Arrow Inter-American in 1971. This central part of the area has very strong pyrite concentrations, however, and must have had large amounts of sulphur available during hydrothermal alteration.

Further work should be concentrated in this area as relatively little work has been done in the area overlying the main Cu anomaly.

Respectfully submitted,

R. H. Wallis for R. George B.Sc.



R. H. WALLIS
George
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

TORONTO

September 2nd, 1976

Statement of Expenditures

PAT Claim Group

1) Salaries - R.L. George, I. Howat, T. Fuller	\$ 418.68
12 man days @ 34.89/manday	
2) Analysis - 200 elements analysed	370.00
3) Transportation - 4-wheel-drive vehicle	140.00
4) Food and Accommodation	176.54
5) Report Preparation - draftsman and reproduction	<u>109.60</u>
Total	<u>\$1,214.82</u>

MINERAL ACT - PROVINCE OF BRITISH COLUMBIA

Record of Mineral Claim

FORM G FEB 10 1976

67

MAP NO. 7 11/2 RECORDED AT Horvath J. J. B. THIS 26 DAY OF January 1976

MINING RECEIPT NO. 83194 B RECORDED AT Horvath J. J. B. THIS 26 DAY OF January 1976

DO NOT WRITE IN SHADED AREAS

L. P. LEAH MINING RECORDER

Anthony Nicola MINING DIVISION

Affidavit for Mineral Claim

NAME Michael P. Horvath AGENT FOR Michael P. Horvath

ADDRESS R.R. #1 (LAWSON) FALLS B.C. ADDRESS R.R. #1 (LAWSON) FALLS B.C.

VALID SUBSISTING F.M.C. NO. 1412 VALID SUBSISTING F.M.C. NO. 1412

MAKE OATH AND SAY: - I COMMENCED LOCATING THE 1412 MINERAL CLAIM

ON THE 1 DAY OF January 1976 AT 10:00 AM AND COMPLETED THE LOCATION

ON THE 1 DAY OF January 1976 AT 1:00 PM CONSISTING OF

2 UNIT LENGTHS 100m AND 2 UNIT LENGTHS 100m AND I HAVE IMPRESSED ALL THE REQUIRED INFORMATION

ON METAL TAGS NO. 117 WHICH HAS BEEN SECURELY FASTENED TO THE POSTS AS REQUIRED UNDER THE REGULATIONS.

IDENTIFICATION POST(S) NOT PLACED WERE _____

CHECK "X" APPLICABLE SQUARE THE LEGAL CORNER POST IS SITUATED: NO TAG
 THE WITNESS POST FOR THE LEGAL CORNER POST

PRECISELY DESCRIBE POSITION OF POST RELATIVE TO KNOWN TOPOGRAPHICAL OR SURVEYED FEATURES THAT RELATE TO FEATURES ON A MAP:
NEAR THE 1140000000 OF THE 1000000000

BEARING AND DISTANCE TO TRUE POSITION OF LEGAL CORNER POST FROM THE WITNESS POST _____

BEARING AND DISTANCE FROM IDENTIFICATION POST TO WITNESS POST _____

I HAVE COMPLIED WITH ALL THE TERMS OF THE MINERAL ACT AND REGULATIONS PERTAINING TO THE STAKING OF MINERAL CLAIMS AND HAVE ATTACHED A PLAN, ACCEPTABLE TO THE MINING RECORDER, OF THE LOCATION.

SWORN AND SUBSCRIBED TO AT Horvath

THIS 1st DAY OF January 1976 BEFORE ME

Michael P. Horvath
SIGNATURE

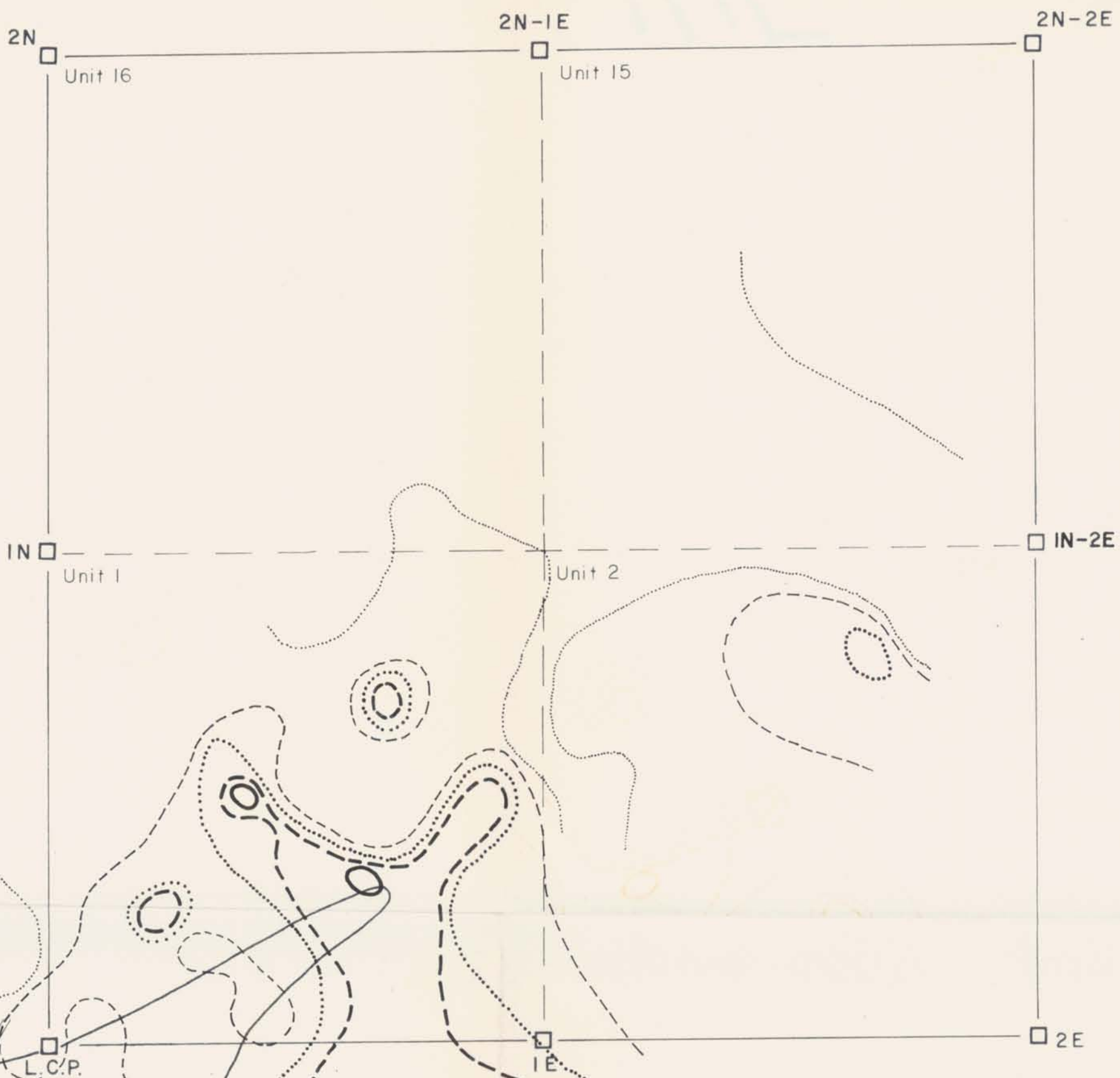
* THIS AFFIDAVIT MAY BE TAKEN BY A PERSON EMPOWERED TO TAKE AFFIDAVITS BY THE EVIDENCE ACT OF BRITISH COLUMBIA.

MR OR SMR STAMP

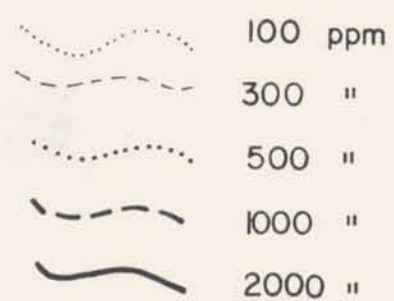
NO. OF UNITS 4 WORK REQUIREMENT \$ 800 PER YEAR RENTAL REQUIREMENT - \$10.00 PER \$200.00 WORK. \$20.00 PER \$200.00 C/L.

WORK NUMBERS	C/L IN \$	MINING RECEIPT AND DATE RECORDED	TYPE OF WORK	YEAR OF EXPIRY	CREDIT		TRANSFERS (B/S'S, ASSIGNMENTS, CONVEYANCES)
					WORK UNIT(S)	RENTAL IN \$'S	

OWNER



COPPER CONTOURS



MINERAL RESOURCES BRANCH
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NO. **6145**

MAP NO. **#3**

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PAT CLAIM

NICOLA MINING DIVISION, BRITISH COLUMBIA
N.T.S. 92 H 14 W

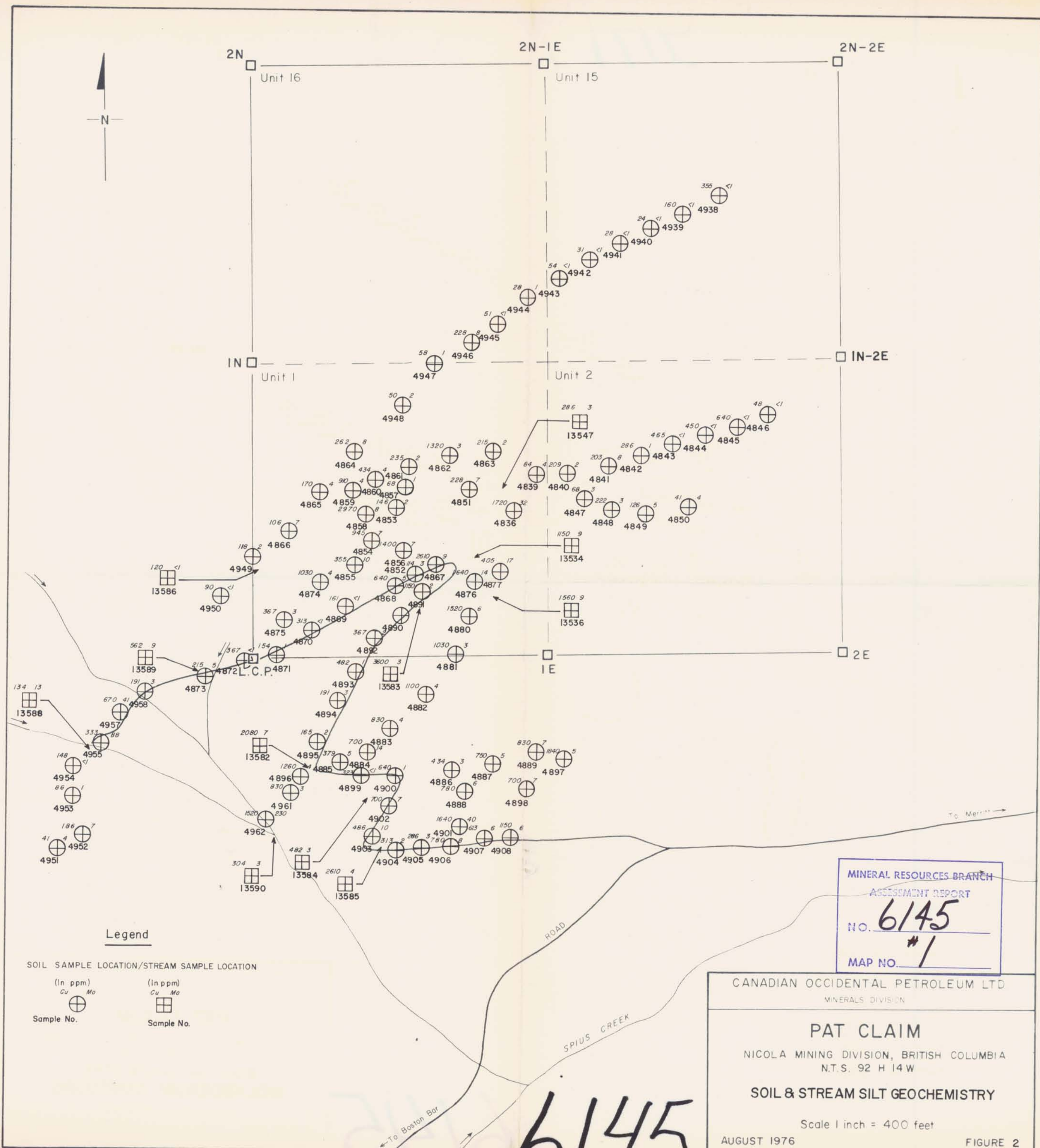
**SOIL GEOCHEMISTRY
COPPER CONTOURS**

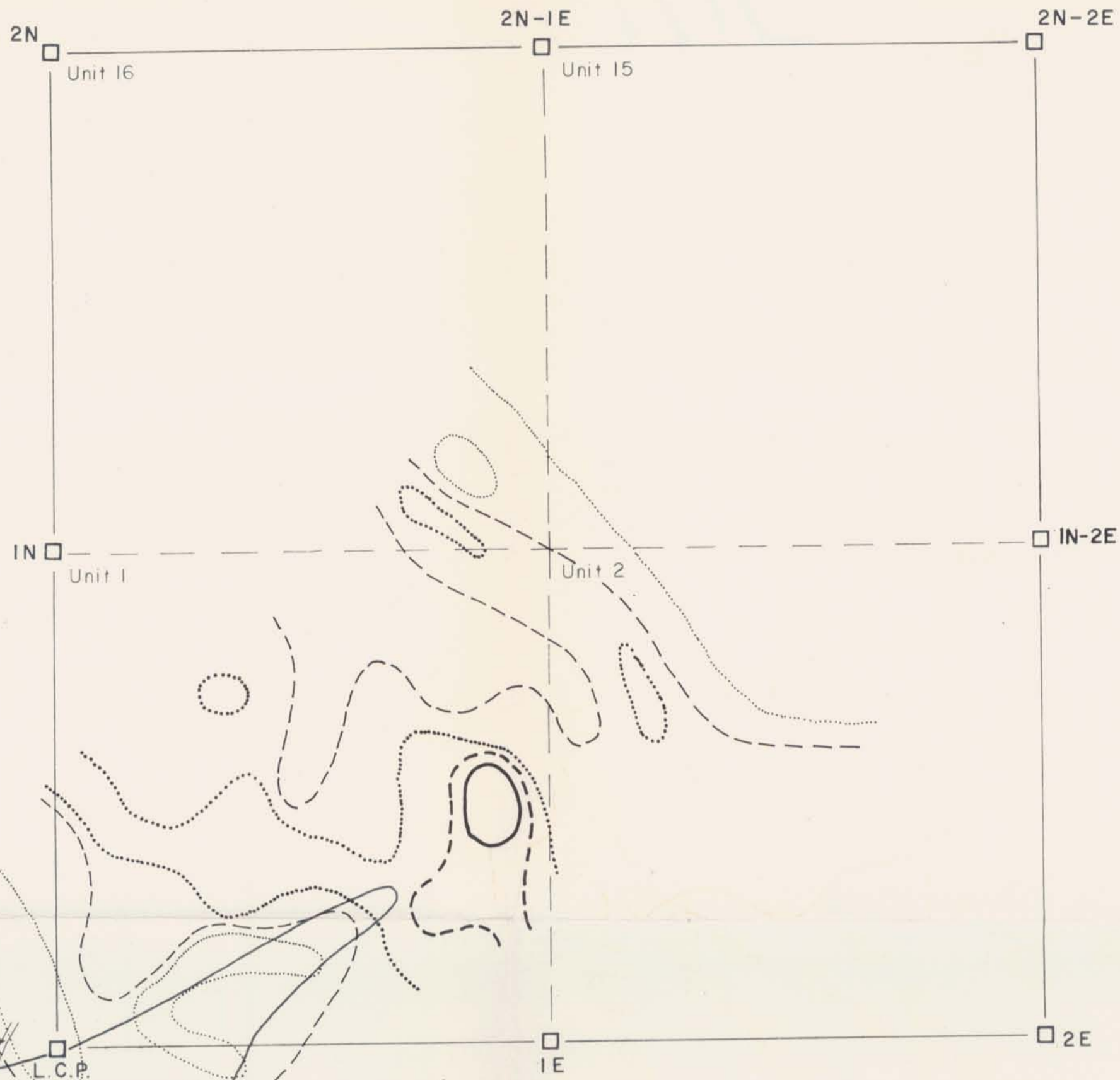
Scale 1 inch = 400 feet

AUGUST 1976

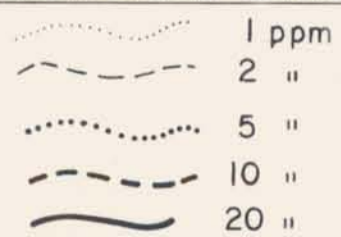
FIGURE 4

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MOLYBDENUM CONTOURS



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6145
#2
MAP NO.

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PAT CLAIM

NICOLA MINING DIVISION, BRITISH COLUMBIA
N.T.S. 92 H 14 W

SOIL GEOCHEMISTRY
MOLYBDENUM CONTOURS

Scale 1 inch = 400 feet

AUGUST 1976

FIGURE 3

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