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CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION DIAMOND DRILLING OF THE GIL-LIG-LI-LG CLAIM GROUP Claim Sheet No. 82 E 4W, Lat.:49°07', Long:119°55'

Claims: GIL 11-12, 19-26: 31131-31132,31139-31146

LIG 1-18: 31103-31120 LI 1-20: 31 248 - 31 267 LG 1-3:

1-3 (Units 6, 6, 4) by: N. Saracoglu, M. Sc., P. Eng., Colin C. Macdonald, B.Sc. (Eng.)

Covering Work Completed During the Period June 29, 1978 to August 28, 1978

Toronto

January 10, 1979

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#### MINERALS DIVISION

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Claim Sheet No. 82 E 4W Lat.: 49 07' Long: 119 55'

### Claims:

GIL 11-12, 19-26: 31131-31132, 31139-31146

31103-31120 LIG 1-18: LI 1-20: 31248-31267

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> by: N. Saracoglu, M.Sc., P.Eng. Colin C. Macdonald, B.Sc. (Eng.)

Covering Work Completed During the Period June 29, 1978 to August 28, 1978

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### SUMMARY

The result of the 1977 drill programme in the Gil-Lig-Li-LG claim group suggests that the main source of the tungsten-molybdenum anomalies is situated to the north of Gillanders Creek.

After rebuilding the road north of Gillanders Creek where it was washed out, one drill was brought to the area.

A total of 12 km of road was rebuilt by G. Thompson of Oliver, B.C.

A drill hole (GIL 7-78) was collared at 42 + 60E:

14 + 50S and drilled at -80° on a bearing of 055°. The drill

hole aimed to intersect the inferred skarn horizon beneath a

Mo-W anomalous area some 290 m below the collar.

The programme was carried out between June 29 - August 28, 1978, by Herb Allen Drilling Ltd. of Merritt, B.C. A total of 162 m (531 ft.) of diamond drilling was completed during this period with an averaged daily progress of 2.8 m (9.2 ft.).

The formations traversed were extremely broken, causing loss of water circulation, jamming of the drill pipes and excessive wearing of the drill bits. Several fracture zones were sealed but all attempts to cement a 1.5 m fracture zone at 160 m failed and the hole was abandoned at the depth of 162 m without reaching its planned depth.

The overall core recovery was 73 percent.

The majority of the formations intersected consist of a breccia with chert, argillite and felsic intrusive fragments. Six narrow layers of skarn, ranging between

0.6 - 2.5 m in thickness, were intersected between the depths of 82 - 137.5 m. A section of feldspar porphyry was intersected between 144.5 - 147.5 m.

Fracturing and quartz veining range in thickness from hairline to 20 mm. They affect all rock types and are more abundant between 46 - 162 m, with locally a stockwork-like distribution.

Aided by intense fracturing, oxidization penetrated deeply. All core is weathered and fracture surfaces are coated with limonite.

Trace amount of fresh pyrite is found in most of the quartz veins. But the abundance of leached cavities and limonitic spots attest to the presence of oxidized sulphides.

Very minor euhedral crystals of scheelite were observed, occuring preferentially in narrower veins.

A total of 101 composite core-chip samples was collected. All samples were analyzed for copper, tungsten, molybdenum and zinc, for a total of 404 analyses. Eight of the samples were assayed for molybdenum.

Tungsten values ranged between 2-300 ppm with an average of 46 ppm. Two isolated sections with more than 200 ppm tungsten correspond to grains of visible scheelite.

Copper values ranged between 24 - 350 ppm with an average of 104 ppm. Only one isolated value of 2000 ppm was obtained. In all cases anomalous copper concentrations correspond to pyrite and/or limonite-rich sections.

Molybdenum values were strikingly high, ranging between 13 - 720 ppm and averaging 126 ppm. A direct proportionality was observed between the frequency and abundance of pyrite and limonite-bearing quartz veins and stockworks, and molybdenum concentrations.

All zinc values were low, ranging between 18 - 166 ppm and averaging 48 ppm.

The surface position of the main skarn horizon is only inferred in this area due to extensive loose talus so it is not possible to determine if the narrow skarn layers intersected in the hole correspond to this horizon. No scheelite was present in the skarn layers in the hole.

The typical chert-argillite succession was not present in the hole, nor was any evidence observed of an intrusive stock nearby.

Intensive fracturing and pervasive weathering appear to be responsible for the extent and intensify of the Mo-W soil anomalies in the area around the drill hole.

The position and nature of the main scheelitebearing skarn horizon would be better determined by starting any further drilling as close to the "Union Carbide showing" as the terrain conditions would permit and then drilling gradually along strike further from the showing.

### INTRODUCTION

The GIL (1-26) claims were staked in 1973 to investigate the cause of a Cu-Mo anomaly detected during the 1973 Princeton regional stream sediment programme. The original staking was carried out in November, 1973, and re-staking was done in August, 1974, all by employees of Canadian Occidental Petroleum Ltd.

A major soil anomaly for copper, molybdenum and tungsten was outlined in the northern part of the claim group. To more fully investigate the extent of this anomaly and a tungsten-bearing skarn unit found late in the 1974 survey, additional ground was acquired to the north. This consisted of claims Lig 1-18, Li 1-20, and LG 1-3. In August, 1973, a geological and geochemical survey was carried out on a 400-foot (122 m) grid covering the northern 3/4 of the property.

This survey showed the area to be underlain by a tightly folded succession of argillite, chert, greenstone, and thin limestone layers, much of which has been thermally metamorphosed to produce areas containing scheelite-bearing calc-silicate skarn. A major coincident soil anomaly for Cu, W, and Mo was outlined in a northwest-trending band roughly 3800 x 2000 feet (1159 x 610 m). Four diamond drill sites were selected using the geological and geochemical data. Two of these sites were abandoned due to difficult drilling in talus.

Three diamond drill holes were completed on the other two sites. Holes 75-3 and 75-4 intersected interbedded argillite

and chert, cut by frequent quartz-pyrite veins which occasionally contained scheelite. Hole 75-5 consisted of tectonic breccia cut by frequent wide quartz veins, again containing scattered scheelite crystals. The highest tungsten grade intersected was 0.59% WO<sub>4</sub> in hole 75-4, over five feet, 215-220'. However, the depth required to reach the projected skarn zone was not achieved.

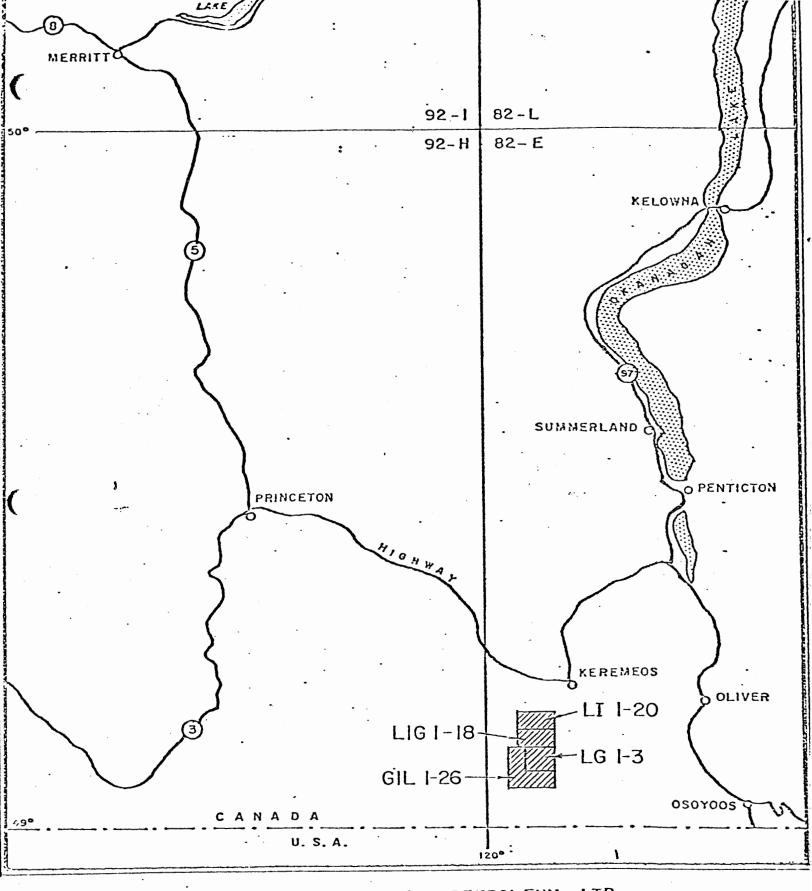
In October, 1977, hole 6-77 was drilled to intersect the projections of exposed skarn layers south of Gillanders Creek, the area previously drilled by Union Carbide. The hole intersected interbedded chert and argillite, with two major calc-silicate skarn zones.

Minor scheelite was present in quartz veins and associated with calc-silicate minerals, but tungsten values were low, with a maximum of 780 ppm W. This supported geochemical evidence that the main source of metals is to the north of Gillanders Creek. Hence, from June 29 to August 28, 1978, hole 7-78 was drilled to intersect the projected main skarn zone beneath the geochemically anomalous area. This report will describe the results of this diamond drilling.

#### LOCATION AND ACCESS

The Gil-Lig-Li-LG claim group is located on claim map 92 E/4W in the Osoyoos Mining Division, British Columbia.

The property is located about eleven kilometers (7 mi.) southwest of Keremeos, and adjoins the western boundary of Indian Range Reserve #13, (Fig. 1, 2). It is accessible by road from I.R. #13, a distance of 29 km (18 mi.) from Highway #3 south of Cawston.



CANADIAN OCCIDENTAL PETROLEUM LTD MINERALS DIVISION

Location of the GIL, LI, LIG & LG claims

FIGURE 1

SCALE: 1:600,000

### PREVIOUS WORK

Union Carbide Exploration Ltd. staked claims
PA 1-18 covering parts of the Gil-Lig-Li-LG property.

Information from assessment work summaries and company
communications indicate that Union Carbide were prospecting
for tungsten only, and carried out mapping at 1" = 800'
(1 cm = 96 m) over PA 1-18; detailed mapping at 1" - 50'
(1 cm - 6 m) over PA 1-6; a limited geochemical survey, and
13 diamond drill holes totalling 839 feet (251 m) on PA 1.

The Union Carbide claims cover most of the outcropping skarn
observed in the area. This property was also staked by
Kennco (Western) Exploration in 1960; no assessment records
have been located.

### WORK COMPLETED

### Bulldozing

The portion of the road north of the Gillanders Creek crossing was washed out and covered by talus slides, necessitating a large Cat to re-open the road. This was again done by George Thompson of Oliver, British Columbia, with a Caterpillar D-7.

Total operating hours spent was 32 hours, including preparation of a drill site.

A total of 12 km of road was rebuilt.

### Diamond Drilling

A total of 162 m (531 ft.) of wireline BQ diamond drilling was completed by Herb Allen Drilling Ltd., of Merritt, British Columbia, between June 29 and August 28, 1978. The

equipment used was a skid-mounted Longyear 38 with hydraulic head. The drill sub-contractor, owner, and foreman was Conrad Bergeron. Geological supervision was by C.C. Macdonald until August 15, then by N. Saracoglu until August 28, 1978, both of Canadian Occidental Petroleum Ltd.

Despite efforts to collar the hole as close as possible to outcrop, 7.3 m (24 feet) of loose talus was encountered. However, the main drilling problem was caused by the unusually thick zone of fractured rock. This zone has been present to some extent in all previous holes drilled on the property, but never to this extent.

Initial attempts with 'B' casing alone was stopped at 41 m (135 feet) for two reasons:

- 1) Friction on the casing made it very difficult to turn, risking breaking the string.
- 2) Replacing worn casing shoes was proving useless, as new shoes were being worn out penetrating cave in the hole before they had reached the bottom.

Additional 'N' casing was acquired after a slight delay, and this was reamed down to 39 m (128 feet) to free the 'B' casing. Also, 'H' casing was driven through the overburden to 8.5 m (28 ft.), to stop cave from this source. Cementing and special sealing compounds were only occasionally effective in stopping caving, apparently due to the very high permeability in the fracture zones. Water return was rarely present. This, along with the typically hard chert/argillite rocks traversed, resulted in the rapid shoe and bit wear.

After the 'B' casing was extended to solid ground at about 54 m (177 ft.) normal drilling continued, but at a slow rate. An intensely fractured zone between the depths of 160-162 m (526-531 ft.) caused continuous caving. All attempts to seal this zone failed and the hole had to be abandoned at the depth of 162 m (531 ft.).

Water was hauled by truck from Gillanders Creek, a distance of about 1525 m (5000 ft.).

### Logging and Sampling

The core was logged and split by N. Saracoglu and C.C. Macdonald, using the facilities at Canadian Occidental Petroleum's warehouse at 171 Estabrook Ave., Penticton, B.C. 1.5 m (5 ft.) sections of split core were sampled, and sent to Chemex Labs Ltd. in Vancouver for analysis for Cu, Zn, Mo, and W.

### Geochemical Analysis

The rock samples are crushed and pulverized to -200 mesh. 0.5 grams of this material is digested in 5 ml of a 3:2 mixture of 70% HClO<sub>4</sub> and concentrated HNO<sub>3</sub>, for 2.5 hours at 200°C. The final valume is adjusted to 25 ml with demineralized water. This solution is then analysed (for Cu, Zn, and Mo) using a Tectron Mk V-VI atomic absorption spectrometer.

For tungsten, a 5 gram sample of -200 mesh material is fused with pyrosulphate flux in a furnace. This fused material is leached with Hcl, and complexed with a zinc dithol reagent.

Analysis is done colourimetrically on a spectrophotometer.

After logging and sampling of the core, all boxes were labelled and stored at Canadian Occidental Petroleum's core racks

### REGIONAL GEOLOGY

The area was mapped regionally by Bostock\*, of the Geological Survey of Canada. The property is shown to be underlain by Triassic or older rocks of the Old Tom and Shoemaker Formations.

Further mapping, at 1" = 400 ft., was carried out by J. Schindler (1974) and R.H. Wallis, C.C. Macdonald, J.R. Hill, and J.C. Harrison in 1975, as part of surveys completed by Canadian Occidental Petroleum Ltd. The claims were found to be underlain by a tightly folded succession of interbedded argillite, chert, greenstone, and limestone. The rocks trend east-west to northwest-southeast and lie on the limbs of a north-plunging, reclined, closed fold, which itself has been folded around an antiform axis running roughly coincident with Gillanders Creek.

The regional metamorphic grade is upper greenschist-lower amphibolite, but superimposed on this is a thermal metamorphism related to an inferred intrusive at depth. This contact metamorphism has resulted in a hornfels texture, best exhibited by the argillites, and by the limestone layers which have recrystallized into a calc-silicate skarn.

<sup>\*</sup>Bostock, H.S. - G.S.C. Map 341A, 1940

Felsic dykes of varying ages and compositions are also present. A tectonic breccia, composed of fragments of chert, argillite, and intrusive rocks in an argillaceous matrix, may be either stratigraphically or structurally controlled, as it lies in a wide zone crudely parallel to regional foliation. Of the intrusive rocks, the more felsic varieties (quartz porphyry, quartz-feldspar porphyry) appear to be all pre-tectonic breccia, as fragments of these rocks appear in the breccia, and larger intrusive masses show evidence of deformation, shearing, and alteration presumably related to the breccia deformational event. In terms of volume of rock observed, these felsic rocks are also the most abundant of the intrusive types. The more intermediate intrusive rocks (feldspar porphyry, micro-diorite) appear very fresh and undeformed, and, though no conclusive exposures were seen, are likely to post-date the tectonic breccia.

Quartz veins of at least two different ages are present. The oldest set is post-felsic intrusives but pre-tectonic breccia. These are now found as deformed, often brecciated vein quartz fragments in the breccia, and as veins within felsic intrusive masses or fragments. The second set is post-tectonic breccia, and cuts across all rock units. This second set also seems to be the most likely host for molybdenite and scheelite mineralization.

Scheelite is also associated with the calc-silicate skarn, although the grades obtained from this unit vary considerably, reaching 5.18% WO<sub>3</sub> in the exposure south of Gillanders Creek. This particular horizon is inferred to strike northwest under an area which is completely talus-

covered, possibly accounting for the major coincident anomalies. As the most promising layer economically, it is also the target for the drilling described in this report.

### DRILLING RESULTS (Fig. 3)

### Hole Gil 7-78

Drill hole Gil 7-78 was collared at 42 +60E, 14+50S and was drilled at -80° on a bearing of 055°. The collar position of the hole was 14 m (46 ft.) north of the inferred position of the main skarn horizon in this area. The interpreted dip of the horizon is steeply to the north at this position. The immediate area around the drill site is characterized by an intensive zone of coincident molybdenum (+74 ppm) and tungsten (+160 ppm) anomalies. The drill hole was expected to intersect the main skarn horizon at a drill hole depth of approximately 290 m (950 ft.).

No core was recovered between 0-7.3 m (0-24 ft.) where the drill hole traversed a loose talus. The formations intersected between 7.3-163 m (24-53 ft.) consisted principally of a thick su cession of fractured and quartz veined breccia with a section of feldspar porphyry between 144.5 - 147.5 m (474 - 484.5 ft.) and six narrow sections of calc-silicate skarn between 82 - 82.6 m (269 - 271 ft.), 86 - 86.6 m (282.5 - 284.5 ft.), 123 - 124 m (405 - 406.5 ft.), 127 - 128.3 m (416.5 - 421 ft.), 131 - 133.5 m (429.5 - 423 ft.) and 136 - 137.5 m (447 - 451.5 ft.).

The breccia contains angular to subrounded fragments of chert, argillite and, occasionally, felsic intrusives.

Calc-silicate skarn is essentially massive, more or less, pure epidote.

Fracturing and quartz veining affect all rock types.

Quartz veins range in thickness from hair-line to 20 mm.

Fractures and veins are rare to the depth of about 46 m (150 ft.).

But from 46 m to the end of the hole random fractures and quartz veins are very abundant and occupy a larger portion of the volume of the core. In many sections of the core stockwork-type disposition of the veins is apparent.

Trace amount of pyrite is found in almost all quartz veins. In addition to the visible pyrite occurring as small cubes, leach cavities and limonite spots in quartz veins through the entire core suggest that more pyrite and other sulphide minerals were present in the veins.

The core is intensely oxidized along its entire length and all fractures are coated with limonite.

Intense fracturing and pervasive weathering observed in the hole could explain the size of the molybdenum-tungsten anomalous area around the drill hole and the magnitude of the anomalous values for these metals. Small euhedral crystals of scheelite were found in several veins. Scheelite crystals occur preferentially in very thin quartz veins. No scheelite was observed in various calc-silicate skarn horizons.

The overall core recovery was 73 percent. In intensely fractured zones this figure was as low as 20 to 22 percent. Only one foot of core was recovered in intensely fractured zone between 526 - 531 ft. All attempts to cement this zone failed and the hole was abandoned.

A total of 101 composite chip samples was collected.

All samples were analyzed for tungsten, copper, molybdenum and

zinc. A total of 404 analyses was completed. Eight samples

were assayed for molybdenum.

The distribution of the metal values in the core is illustrated in Figure 3.

Tungsten values ranged between 2 - 300 ppm with an average of 46 ppm. Tungsten values in excess of 200 ppm occur in two isolated 5-foot sections. Trace of visible scheelite is present in both sections. A slight increase in tungsten values is observed in the diagrams in sections containing very small crystals of scheelite.

Copper values ranged between 24 - 350 ppm and averaged 104 ppm. Only one isolated 5-ft. section between 515 - 520 ft. contained 2000 ppm Cu. In all cases of higher than the average copper values, pyrite or leach cavities are observed in quartz veins cutting the core.

Molybdenum values ranged between 13 - 720 ppm with an average of 126 ppm. Although no molybdenum concentration of any economic significance was obtained, the relative abundance of this metal in the core is the most striking result of the core geochemistry. A direct proportionality can be observed between the frequency and abundance of pyrite/limonite-bearing quartz veins or stockworks and molybdenum concentrations.

All zinc values were low, ranging between 18 - 166 ppm and averaging 48 ppm.

### CONCLUSIONS AND RECOMMENDATIONS

Due to the extremely broken nature of the formations traversed, numerous difficulties were encountered during the drilling causing a very slow drill progress (an average of only 2.8 m/day). All attempts to cement an extremely broken 5-ft. section between 526-531 ft. failed and the drill hole had to be abandoned without reaching the initially planned final depth of 300 m.

The surface position of the main skarn horizon is only inferred in this area which is heavily covered with loose talus and it is not possible to determine whether or not the narrow skarn horizons encountered in the drill hole between the depths of 123 - 138 m (405 - 451.5 ft.) correspond to the main skarn zone. No evidence of the proximity fo a felsic stock was observed in the hole. The succession of alternating chertargillite, which is typical in the area of the "Union Carbide showing" was not present in this hole.

The extremely fractured and deeply weathered nature of the immediate area around the drill hole explains the high Mo-W concentrations in soils in this area. Metal concentrations in rocks underlying such areas are not necessarily higher than in areas with little or no fracturing.

The nature and position of the main scheelite-bearing skarn horizon could be best determined by drilling along the strike extension of the "Union Carbide showing", starting in the immediate area of this showing to drill gradually further from the outcrop as this will allow more accurate projection of the position of the skarn horizon.

It is recommended that any future drilling be carried out in a site as close to the showing as terrain conditions permit.

Respectatully submitted,

N Sar

P.Eng.

TORONTO

January 10, 1979

### APPENDIX I

DRILL LOGS

### MINERALS DIVISION

Line 42+60E				
LOCATIONStation 14+50S	_DIRECTION	055°T	DIP80°	HOLE No7-78
N. Saracoglu	•			1
LOGGED BY_C.C.Macdonald	_CASING	0-28(H)	128'(N)-	SHEET No. 1
STARTED June 29, 1978	CORE SIZE	BQ	177(B) CORRECTED TES	TS
FINISHED August 28, 1978				

							~	
	•		_	$\overline{}$	~,	Y	12	
-	<i>(</i>	~	,	-		•	G.	

FINISHED	August	28, 1978
PROPERT	Y_GIL	
FROM	feet	DESCRIPTION
0	24.0	Cased overburden
24.0	269.5	Highly fractured tectonic breccia, with angular fragments of chert, argillite, and occasional felsic intrusive in a green argillaceous matrix. No measurable foliation or orientation of fragments. Occasional narrow quartz-filled fractures, some with minor Py. Poor recovery due to larger-scale fracturing.  29.5 - concentration of magnetite and quartz, about 3 cm. across. Minor scheelite. 1 mm x 2 mm crystal  58.0 - fragment of epidote-magnetite rich calc-silicate.  73' - very small crystal of scheelite in a thin, limonitic fracture with quartz.
		fracture with quartz.  103.0-105.0 - highly altered quartz-feldspar porphyry intrusive material, with very poor recovery (10%). Limonitic stain throughout.  124'-127'- large 2 cm. quartz vein wandering randomly through core, with rusty weathered vugs.  157' - very thin, hair-like veinlet of quartz cutting the core at 20°. Traces of pyrite crystals.  163.5' - fragments (up to 3 cm. large) of calc-silicate (epidote) and concentration of magnetite in a 6 cm. wide zone. Limonite stains along fractures.
		Minor scheelite in a vuggy, limonitic quartz vein, about 5 mm. wide.  167.3' - a sharp contact at 60° between a more argillaceous and a mafic tuff-like rock types.  167.7' - minor scheelite in a very thin quartz-filled fracture with some pyrite cutting the core at 37°.  168.5'- broken ground, narrow quartz vein with vugs.  176' - 2.5 mm. wide quartz veinlet. Cuts the core at 40°. Contains limonite coated leach cavities.  177' - fragment of felsic intrusive, 2,5 cm. wide.  177'-182.5' - strongly weathered zone with abundant limonite and manganese coating on joint and fracture surfaces. Minor scheelite in a fracture at 178'.  182' - broken quartz vein with stress fractures. About 3 cm. wide. Also vugs with quartz crystals.  185' - quartz veins, 7 mm. wide, cuts the core at 28°. Contains cubes of pyrite and leach cavities after pyrite. Limonite stains in fractures near the quartz vein.  186.5' - small epidotized fragments.  187.3' - 6 cm. fragment of feldspar porphyry.  189'-190' - feldspar porphyry fragments.

LOCATION	1	·	DIRECTION	DIP	HOLE No. 7-78
LOGGED	BY		CASING		SHEET No2
			CORE SIZE		EST <b>S</b>
FINISHED	GII				
PROPERT	YG11				
FROM	то			DESCRIPTION	
FROM	ТО		193.5' -	ith abundant felds 7 mm. wide quartz 90%) cheelite (one small 1 cm. wide quartz ritz veinlets and vis. 7 mm. wide quartz rite. Cuts across at about 20°. 99' - 5 mm. wide quartz rite. Cuts across at about 20°. he core at 40°. ch cavities. heelite as very sm also present as also present as also present as cutting across value vein with cub across value vein with cub across value vein across value vein across value vein vein vein vein vein vein vein vei	vein cutting the core as ugs between the above  vein with pyrite and vein the feldspar porphyry  uartz veins (two)  Contain cubes of pyrite  all crystals (2 mm x 1 million dissemination between the sobserved immediately ry fragments. This is not some tungsten values. With pyrite and leach to 30 million dissemination between the some tungsten values. With pyrite and leach to 30 million dissemination dissemination dischedite (1 mm x 1 million dische
			rock with section is common 220'-222'- partial of	th abundant mafic metween 215.8'-217 on in the veinlets.epidotization. Mos	t obvious epidotization
			at 221.	enidote parallels	ng from more calcareous the foliation),5 cm.wid

LOCATION	_DIRECTION	DIP	HOLE No
LOGGED BY			SHEET No. 3
STARTED	_CORE SIZE	_CORRECTED TE	STS
FINISHED			
PROPERTYGIL			

FROM	то		DESCRIPTION
			222'-230', 235'-243' = hairline fractures, disseminated trace trace pyrite limonite-coated joint and fracture surfaces. In the latter section limonite tends to become more yellowish, almost like jarosite.  235' = a broken 1 cm wide quartz vein. Some euhedral, buff-coloured crystals might be scheelite. Hairline fractures with quartz are most abundant between 242'-2246'-250' = random hairline fractures with quartz filling.  Three larger (4-5 mm) quartz veinlets at 247', 247.5' and 248' cutting the core at random angles. Minor
			scheelite at 246.5'. A 5 cm section with epidote at 2 250.5'-263.5' = fragments are relatively rare.  265.5' = hairline quartz veinlet with pyrite cubes.
			Extensive limonite stains on joints and fractures throughout the core.
269.5'	271'	1.5'	CALC SILICATE (Skarn) - broken, very rare hairline quartz veinlets. Cut by a clay-filled fault gange. The actual length of the section is difficult to measure.  269.5' - a 2-5 mm quartz veinlet with pyrite and minor scheelite (as a 1 mm x 2 mm crystal), cuts the core at
271'	282.5'	11.5'	Breccia - as previously described. Hairline fractures with pyrit and quartz. Rare quartz veinlets (2-3 mm wide). One such veinlet at 275.5' contains one isolated small (1 mm x 1 mm) crystal of scheelite. The vein cuts the core at about 30°. Leach cavities in the quartz.
282.5'	284.5	2.0'	STRONGLY EPIDOTIZED ZONE. Partly pure epidote. Shows a faint banding.  282.9' = 6 mm wide quartz vein with isolated cubes of pyrite. Cuts the core at 35°.  284.5' = 6 mm quartz vein, irregular, cuts the epidote.
284.5'	289'	4.5'	BRECCIA, with narrow epidotized sections. Thin limonitic fractures and occasional thin quartz veinlets.
289 <b>'</b>	292.5'	3.5'	CHERT with limonitic fractures and hairline quartz veinlets with pyrite. Local epidote around fractures. A major, decomposed fracture at 291.5'.
292 <b>.</b> 5'	416.5'	124'	BRECCIA as previously described. Locally very little fragments.  292.5'-304.5' = frequent quartz veins, 5 cm to 20 cm apart, hairline to 15 mm wide. Pyrite occurs as blebs and dissemination in the veins. Also abundant leach cavities. Some very small euhedral, buff crystals (scheelite). Veinlets cut the core at varying angles Scanning with a U.V. Iamp indicates the presence of minor scheelite in quartz veins at 293.5', 296' and 29  309'-311' = four quartz veinlets, average 3 mm wide with rare crystals of pyrite. cut the core at varying angles.

LOCATION	DIRECTIONDIPHOLE No	78
•	CASINGSHEET No4	
STARTED	CORE SIZECORRECTED TESTS	-
PROPERTY		
FROM TO	DESCRIPTION	
	309'-311' (cont'd) Some alteration is visible around the ve at 309.2'.  314.' = quartz veinlet, 5 mm wide. Cuts the cor 315', 316.5' = 2 mm wide quartz veins.  317.5' = 5 mm wide quartz veinlet with rare pyrite cub and some euhedral minerals (U.V. lamp shows mine scheelite).  319', 320' = 5 mm wide quartz veinlets with rare pyrite cub the core at 25°. It is off-set over about 2 cm a fracture cutting the core at 60°.  330.5' = two narrow (7 mm, 12 mm) quartz veins. Very few fragments are present between 322'=338' Cherty interlayers are vislbly starting to break to form fragments. The making of a tectonic bre illustrated in this section.  342.3' = 1-2 mm wide quartz vein. Shattered. Cor pyrite and leach cavities. Penetrates into a the core (4 45°).  346.5' = 12 cm wide quartz vein. Shattered. Cor pyrite and leach cavities. Penetrates into a the core at Contains scattered fine pyrite. Pyrite is also present as dissemination in enclosing rocks.  347.5' = 5 mm wide quartz vein. Cuts the core at Contains scattered fine pyrite. Pyrite is also present as dissemination in enclosing rocks.  349.5', 350.5', 351.' = 3 mm wide quartz veinlet Cut the core at varying angles. Some very small buff=coloured euhedral crystals.  354'=375.5' = abundant hairline fractures.  366' = two parallel quartz veinlets, 2-3 mm wide withsome fine crystals of pyrite.  370' = small epidote fragments (2 cm wide) and a 7 mm wide, broken quartz veinlet. Cuts the core 35°. Some pyrite and leach cvavities.  389'=405' = abundant hairline fractures.  405'-406.5' = CALC SILICATE (epidote)  407.5'=410' = several 2-3 mm wide quartz veinlets with pyr: 412'=440' = the core is extremely broken. Poor core recovered.	te at 60° libes or libes. Cuts along libes and eccia is libes. Solutions libes are at libes a

LOCATION	DIRECTION	DIPHOLE No	
	CASING		_
STARTED	CORE SIZE	CORRECTED TESTS	
FINISHED			

416.5' 421' 422.5' 429.5' 438'	421' 422.5' 429.5'	4.5	CALC CITYCAME (shows) with summaris beinling frontings
422.5' 429.5'		•	CALC SILICATE (skarn) with numerous hairline fractures.
429.5'	429.5	1.5'	BRECCIA with numerous epidote fragments.
	1	7.0'	BRECCIA, extremely broken zone with broken quartz veinlets and some epidote between 426.5'-429.5'
438'	438'	8.5'	CALC SILICATE (skarn)
1	447'	9'	BRECCIA as previously described.  440' = 6" wide calc silicate skarn.
1			441' = 6" wide fragment of felsic intrusive.
			443'-445' = three thin (3-5 mm) quartz veinlets. Cut the core
			at various angles.
1			424'-446.5' = very broken core. Locally no recovery, just a few chips and mud.
447'	451.5'	4.5'	CALC SILICATE (skarn) - with a greenish-blue tint. All
}			these zones of skarns from 405' are typically greenish-blue
İ			and glassy. Not epidote, although some epidote is also
			present.
1			
1			Extremely broken up, rubbly. Some thin, hairline fractures.
1		}	Testing with a U.V. lamp between 438'- 451.5' did
		}	not reveal any scheelite.
451.5'	474	22.5'	BRECCIA as previously described. Fragments generally chert. Matrix greenstone-like. Numerous hairline fractures.
			Intensive limonite coating on joint and fracture
			surfaces. Intensively broken at 453' (15 cm zone), 457'(15 cm zone), 464' (45 cm zone), 466' (15 cm zone).
			455'-462' = seven 3-4 mm wide quartz veinlets. Cut the core
			at varying angles. Average 30 cm apart.
			466.5' = fragments of medium grained granite.
			3 cm in diameter.
			471' = fragment of microdiorite. 10 cm in diameter.
			Pyrite in several fractures and as dissemination in the rocks.
, , , ,	101 51	10.51	Also visible in some granitic fragments.
474'	484.5	10.5'	•
1		1	porphyry with narrow mafic zones. Feldspar porphyry is mostly
		1	typically felsic but in several zones it has a difuse, cloudy
			texture with abundant mafic minerals in the matrix and feldspar
Į			porphyroblasts
	l		Some hairline fractures with pyrite.  479' = very broken for 15 cm.
[			482'-485' = core very broken. Poor recovery.

### CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

LOCATION			DIRECTION		DIP	HOLE No. 7-78
LOGGED BY			CASING			SHEET No6
STARTED			CORE SIZ	Έ	CORRECTED T	ESTS
FINISHED	)					
PROPERT	YGIL					
FROM	то				DESCRIPTION	
484.5	531'		488 489 Abu 489'-496' = nu gen oth Buf 498'-500' = ve 502 502.5'-507' = 510'-515' = ve 507'-513' = fr tra 515.5',516.5', 524 Ext 515 rec The All limonite all t	.5' = 12 cm ' = narrow ' = 5 cm fra ndant hairla merous 1 mm erations of er. Pyrite f-coloured ry broken co .5' = fragm very broken ry broken co equent 1 mm ces of pyri 517' = fine ' - " remely broke '-515.5', an overed in th cement is joint and he way to th attempts to caving bet	fragment of mic (3 cm) section wagment of feldspaine fractures.  -4 mm wide quart veinlets are vious in and around the cuhedral tiny created of microdior core. Very poor ent of microdior core, very poor respectively.  fractures with men, very poor cond 526'-531'. One last zone which are the end of the house of the conduction of the co	ith epidote.  ar poprhyry.  z veinlets. Three sible cutting each he veinlets. Some ystals could be scheelite core recovery. ite 5 cm in diameter. r core recovery. ecovery. nlets containing quartz and pyrite. " " re recovery between nly one foot of core ch is the zone of caving. his zone.  s are coated with le.

### APPENDIX II

### NAMES OF PERSONNEL

### Canadian Occidental Petroleum Ltd.

C. C. Macdonald (June 29 - August 15, 1978)

N. Saracoglu (August 15 - August 29, 1978)

### Herb Allen Drilling Ltd., - Merritt, B.C.

Conrad Bergeron

Foreman

Keith Jume

Runner

Jack Akien

Tom Knight

Helper

Hector Fountain

### APPENDIX III

### STATISTICAL DATA

Total footage drilled Drilling period (June 29 - August 25, 1978) All inclusive average footage per day No. of composite core-chip samples No. of analyses No. of assays	162 m (531 ft.) 58 days 2.8 m (9.2 ft.) 101 404 8
Drill core geochemistry (ppm)	
Copper Range Average	24-2000 104
Molybdenum Range Average	13-720 126
Tungsten Range Average	2-300 46
Zinc Range Average	18-166 48

### APPENDIX IV

### CERTIFICATES OF ANALYSIS



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1 TELEPHONE: 985-0648

AREA CODE: 604

IL EX:

043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO.

45352

Canadian Occidental Petroleum Ltd. TO:

INVESSE NO.

RECEIVED

27811 Aug. 22/78

Minerals Division 311 - 215 Carlingview Drive

GIL 7-78

Aug. 30/78 ANALYSED

Rexdale, Ontario ATTN:

ATTN:	Mare, Ontario		DDIII COD	DOGE C	2000	ANALYSED	Aug. 30/78
ALIN.			DRILL COR				
SAMPLE NO		PPM	PPM	PPM	PPM		
SAIVIFLE NO	Depths	Cu	Mo	Zn	W		
44726	25'- 30	148	26	34	85		
44727	- 35	140	32	42	20		
44728	- 40	80	30	30	8		
44729	- 45	56	49	34	18		
44730	- 50	64	35	28	12	· ·	
44731	- 55	80	53	30	26		
44732	- 60	74	58	24	24		
44733	- 65	56	30	32	6		
44734	- 70	74	105	24	75		
44735	- 75	62	80	56	28 •		
44736	- 80	32	21	38	28		
4473 <b>7</b>	- 85	24	14	20	8		
44738	- 90	26	13	20	20		
44739	- 95	60	195	34	18		
44740	- 100	38	90	34			
44741	- 105	36	125	32	25		
44742	- 110	34	· 33	26	50		
44743	- 115	33	17	18	10		
44744	- 120	64	13	30	18		
44745	- 125	56	78	36	18		
44746	- 130	70	> 250+	76	36		
44747	- 135	86	36	40	22		
44748	- 140	44	21	32	10		
44749	- 1-5	38	26	24	50		
44750	- 150	38	16	28	16		
44751	- 155	46	16	44	10		
44752	- 160	66	37	46	18		
44753	- 161	62	44	42	28		
44754	- 170	54	25	38	28		
44755	- 175	130	70	40	54		
44756	- 180,	215	110	52	210		
44757	- 185	128	140	66	48		
44758	- 140	130	150	96	80		
44759	- 195	142	150	64	34		
44760	- 200	58	140	24	120		
44751	- 205	186	145	66	300		<del></del>
44762	- 210	174	56	78	80		
44763	- 215	124	135	46	40		
44764	- 220	34	195	28	60		
44765	220' - 225	46	190	66	85 85		
STD.		70	5	160	2		
-			-		4		

CERTIFIED BY: HEAL-Biell



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1 TELEPHONE: 985-0648 AREA CODE: 604 043-52597 TELEX:

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

GIL 7-78

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45353

Canadian Occidental Petroleum Ltd., TO:

27811

Minerals Divsion

INVOICE NO.

RECEIVED

311 - 215 Carlingview Drive

Aug. 22/78

ATTN: Rexdale, Ontario

	ROCK GE	OCHEMS		ANALYSED	Aug.	30/78
_	PPM	PPM	PPM	3	,	
	Mo	Zn	W			
	80	52	20			

SAMPLE NO.         Deptos         Cu         Mo         Zn         W           44766         225'-235'         62         80         52         20           44767         -235'         44         250 +         38         90           44768         -245'         88         130         58         40           44769         -246'         68         45         68         12           44770         -250'         190         80         66         90	
44767     - 235     44     250 + 38     90       44768     - 240     88     130     58     40       44769     - 240     68     45     68     12       44770     - 250     190     80     66     90	
44768     -243     88     130     58     40       44769     -247     68     45     68     12       44770     -259     190     80     66     90	
44769 - 24° 68 45 68 12 44770 - 25° 190 80 66 90	
44769 - 24C 68 45 68 12 44770 - 250 190 80 66 90	
44770 - 250 190 80 66 90	
44771 - 255 60 70 50 12	
44772 - 260 74 35 36 32	i
44773 -265 62 60 62 40	
44774 - 273 245 140 74 150	
44775 - 275 70 65 42 110	
44776 -280 82 45 44 52	,
44777 -285 134 80 92 60	
44778 -292 94 90 76 14	
44779 -29° 84 190 166 14	
44780 -300 72 250 + 54 48	
44781 - 307 90 190 76 40	
44782 -310 106 90 62 170	
44783 -315 80 100 52 14	
44784 -323 52 90 32 90	
44785 - 325 42 65 32 12	
44786 -330 40 130 30 4	
44787 -335 44 90 26 2	
44788 -349 46 80 28 28	
44789 - 245 70 125 40 140	
44790 -353 78 70 58 10	
44791 -355 76 150 58 8	
44792 - 360 40 50 42 80	
44793 -335 54 60 40 10	
44794 -370 78 70 44 54	
44795 -375 72 80 24 48	
44796 -389 74 140 30 34	
44797 -385 74 120 38 100	
44798 - 390 198 135 30 74	
44799 -395 96 195 34 38	
44800 -430 220 120 32 33	
44001 -406 255 110 30 34	
44802 -410 136 190 54 95	
44803 -415 154 250 + 42 38	
44804 -420 160 35 90 30	
44805 425 74 220 60 60	
STD. 76 5 160 2	

CERTIFIED BY: WTW Bille



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1 985-0648 TELEPHONE: AREA CODE: 604

TELEX:

043-52597

· ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO.

45354

TO:

ATTN:

Canadian Occidental Petroleum Ltd.

INVOICE NO.

27811

Minerals Division

311 - 215 Carlingview Drive GIL 7-78

RECEIVED

Aug. 22/78

Rexdale, Ontario

ROCK

ANALYSED

Aug. 30/78

			210 011			
		PPM	PPM	PPM	PPM	
SAMPLE NO.	Depths 1	Cu	Mo	Zn	W	
44806	425' - 430'	68	210	54	75	
44807	- 435'	56	20	36	40	
4480 <b>8</b>	- 440'	88	50	40	42	
44809	- 445'	40	45	44	26	
44810	- 450'	38	110	96	70	

CANADIAN TESTING ASSOCIATION

70

STD?

5

160

2



212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648

AREA CODE: TELEX: 604 043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO.

45622

TO:

Canadian Occidental Petroleum Ltd.,

INVOICE NO.

28063

311 - 215 Carlingview Drive Rexdale, Ontario

ROCKS

RECEIVED

Sept. 5, 1978

M9W 5X8

PROJECT GIL 7 - 78

-ANALYSED Sep

Sept. 14, 1978

		PPM	PPM	PPM	PPM	
SAMPLE NO.	sepths	Cu	Мо	Zn	WW	
	50'- 455'	72	140	118	38	
44812	-460	74	205	66	10	
44813	-465	68	< 250 +	78	26	
44814	- 470	124	250 -	52	75	
44815	-475	94	230	54	85	
44816	- 480	68	250 ·	20	30	
44817	- 485	80	250 ·	34	22	
44318	- 490	58	< 250 +	44	52	
44819	-495	62	< 250 +	56	10	
44820	- 500	80	< 250 +.	52	48	
44821	- 505	72	190	68	46	
44822	-510	56	170	54	10	•
44823	-515	96	125	52	38	
44824	-520	2000	160	80	28	
44825	-525	178	145	52	2	
44826 5	25'-531'	68	65	56	2	

CERTIFIED BY:



212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648

TELEPHONE: AREA CODE:

604

TELEX:

043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO.

34315

TO:

Canadian Occidental Petroleum Ltd.,

INVOICE NO.

28074

311 - 215 Carlingview Drive

RECEIVED

Sept. 6, 1978

Rexdale, Ontario

M9W 5X8

PROJECT GTL 7-78 ANALYSED

Sept. 14, 1978

ATTN: M9W 5X8		PROJECT GIL	1-18 ANALYSED	Sept. 14, 19
SAMPLE NO. :	% Molybdenum			
44746   125'-130'   44767   230'-235'   44780   295'-300'   44803   410'-415'	0.032 0.032			
,				
		•		
		,		
•			$\hat{k}$	



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

TELEPHONE: AREA CODE:

985-0648 604

TELEX:

043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 34447

TO:

Canadian Occidental Petroleum Ltd.,

INVOICE NO.

28303

Minerals Division

RECEIVED

Sept. 25/78

Sto. 311 - 215 Carlingview Dr., GIL 7-78 Rexdale, Ontario

ANALYSED

Rexdale, Onta	irio		ANALYSED	Sept. 27/78
SAMPLE NO. :   Destus	<b>Z</b> No			
44313 460'-465' 44813 485'-490' 44819 490'-495' 44820 495'-500'	0.072 0.042		<del>.</del>	
<u> </u>				
	·	•		
. •				

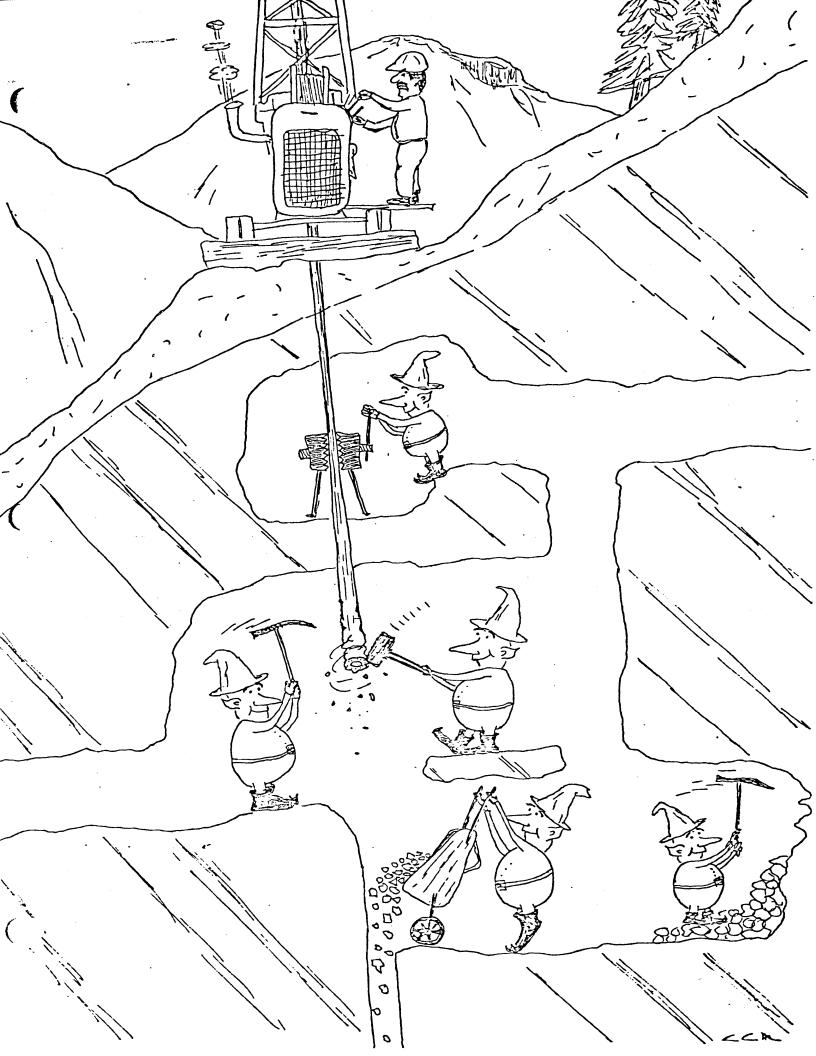


REGISTERED ASSAYER, PROVINCE OF ERITISH COLUMBIA

### APPENDIX V

"A Revised Cross-Section"

by C.C. Macdonald



### GIL (PA) - Tungsten-Copper-Molybdenum Prospect

### Keremeos, Southern British Columbia

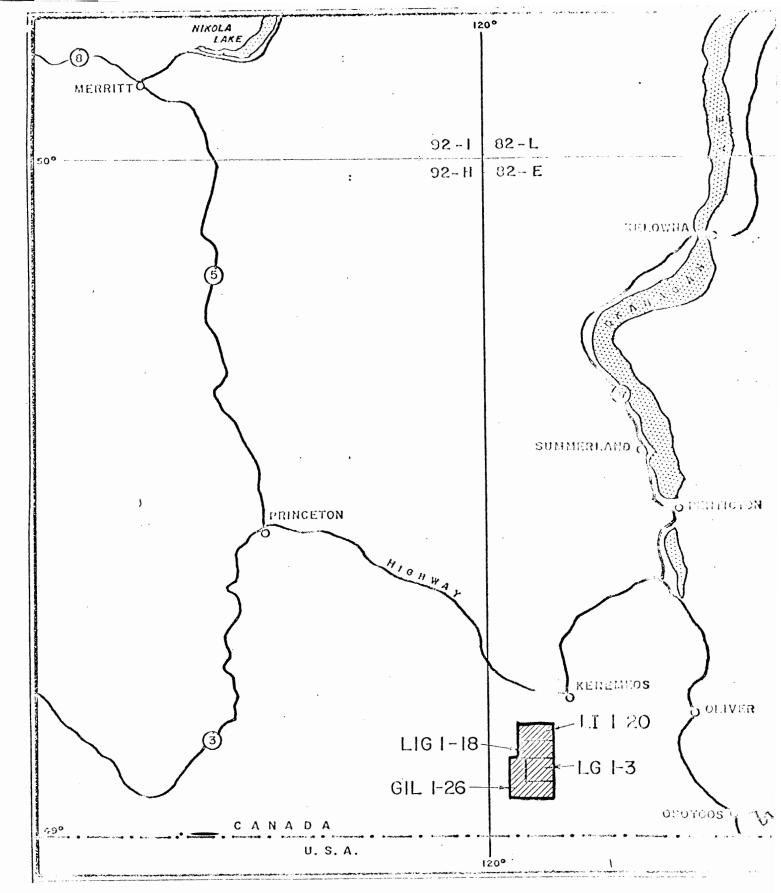
The GIL (PA) property was first located by Union Carbide Exploration by panning heavy mineral separates from stream sediments in Gillanders Creek, a tributary of the Ashnola River, near Keremeos, southern B.C. Union Carbide staked the PA claims and carried out limited AX drilling on one major scheelite skarn outcrop.

Independently CanadianOxy carried out stream sediment Cu-Mo exploration in Gillanders Creek and staked the GIL property. Detailed soil surveys have delineated a large, 4000 x 2000 feet co-incident W-Cu-Mo, soil anomaly.

This soil anomaly occurs within a thermally hornfelsed assemblage of marbles, argillites and cherts of the "Cache Creek" assemblage cut by numerous dykes and stocks of quartz-feldspar porphyry.

Drilling to date, by CanadianOxy, shows that a stockwork of quartz-pyrite-molybdenite-scheelite veins exists within the major soil anomaly. The present deep drill program, 300 meters plus, is to test the hypothesis that a major skarn horizon and porphyry-type Cu-Mo-W mineralization exists at depth.

Details of all CanadianOxy's work on the GIL property has been lodged in the B.C. Dept. of Mines and Petroleum Resources Assessment Files.



CANADIAN OCCIDENTAL PETROLEUM LTD MINERALS DIVISION

Location of the GIL, LI, LIG & LG claims

