

5984 Part
2

MERRITT, B. C.

SEP 23 1976

MINING RECORDER

A REPORT

ON

AN INDUCED POLARIZATION SURVEY

Merritt Area, British Columbia

FOR

CANADIAN OCCIDENTAL PETROLEUM LTD.

Toronto, Ontario

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

JULY 1976

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP _____

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ACCOMPANYING MAPS - Scale 1" = 400'

	<u>MAP POCKET</u>
#1 CONTOURS OF APPARENT RESISTIVITY a = 200 n = 1	W-219-1
# 2 " " " " a = 200 n = 2	W-219-2
# 3 " " " CHARGEABILITY a = 200 n = 1	W-219-3
# 4 " " " " a = 200 n = 2	W-219-4
# 5 CONTOURS OF RELATIVE VERTICAL INTENSITY	W-219-5

INTRODUCTION

Between May 23rd and June 10th, 1976 Peter E. Walcott & Associates Limited carried out a limited induced polarization (I.P.) survey and a ground magnetometer survey over a property, located in the Merritt area of British Columbia, held by Canadian Occidental Petroleum Ltd.

The surveys were carried out over picket (in grasslands) and/or poorly flagged (in wooded areas) approximately east-west lines.

On the magnetic survey readings of the relative vertical intensity of the earth's magnetic field were taken every 100 feet along the lines using a Sharpe MF-1 and/or a McPhar M-700 fluxgate magnetometer.

First and second separation measurements of apparent chargeability (the I.P. response parameter) and resistivity were made using the "pole-dipole" method of surveying with a 200 foot dipole and 200 foot station intervals on the I.P. survey.

The data are presented in contour form on Maps W-219-1 to 5 that accompany this report.

The progress of the survey was severely hampered by the steepness of the terrain in places, the poor condition of the lines in places, and lack of co-operation from the field crew.

PROPERTY, LOCATION AND ACCESS

The property, known as the Quil property, is located in the Nicola Mining Division of British Columbia and consists of the following claims:

<u>Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
QUIL 1 - 6	60152-57	Nov. 8, 1976
" 7 - 8	60158-59	" 8, 1977
" 9 - 16	60160-67	" 8, 1976
" 17 - 19	31-33	Sept. 8, 1976

The claims are situated straddling Quilchena Creek some 13 miles southeast of the town of Merritt, B.C.

Access is obtained by means of two wheel drive vehicle via the Douglas Lake Cattle Co. access road, the turnoff for which is 5 miles south of Merritt on Highway No. 5.

PURPOSE

The purpose of the survey was to try and outline and possibly extend the area of known sulphide mineralization using the I.P. technique.

PREVIOUS WORK

Previous work on the property consisted of geological mapping, geochemical soil sampling, induced polarization and magnetometer surveying, trenching and diamond drilling.

Unfortunately most of the data for the above was never filed for assessment so only scattered fragments of the old data can be pieced together, and as such are known to the staff of Canadian Occidental Petroleum Ltd.

GEOLOGY

The reader is referred to the previously mentioned reports and those by the staff of Canadian Occidental Petroleum Ltd.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a pulse-type system manufactured by Huntco Limited of Toronto, Ontario. Measurements with this system are made in the time domain.

The system consists basically of three units: a receiver, a transmitter and a motor-generator. The transmitter, which provides a maximum of 7.5 kw d.c. to the ground, obtains its power from the 7.5 kw 400 cycle, three phase generator driven by a gasoline engine. The cycling rate of the transmitter is 1.5 seconds "current-on" and 0.5 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes C_1 and C_2 , the primary voltage (V) appearing between the two potential electrodes, P_1 and P_2 , during the "current-on" part of the cycle, and a secondary or overvoltage (V_s) appearing between P_1 and P_2 during the "current-off" part of the cycle.

The apparent chargeability (M_a) is calculated by dividing the secondary voltage by the primary voltage and multiplying by 400, which is the sampling time in milliseconds of the receiver unit. The apparent resistivity (P_a) in ohm-meters is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity obtained are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "pole-dipole" method of surveying. In this method the current electrode C_1 and the two potential electrodes, P_1 and P_2 , are moved in unison along the survey lines. The spacing "na" (n an integer) between C_1 and P_1 is kept constant for each traverse at a distance roughly equal to the depth to be explored by that traverse, while that of $P_1 - P_2$ (the dipole) is kept constant at "a". The second current electrode C_2 is kept fixed at "infinity".

Thus, on a "pole-dipole array" traverse with an electrode spacing of 200 feet, a body lying at a depth of 100 feet will produce a strong response, whereas the same body lying at a depth of 200 feet will only just be detected. By running subsequent traverses at different electrode separations, more precise estimates can be made of depth, width, thickness and percentage of sulphides of causative bodies located by the I.P. method.

SURVEY SPECIFICATIONS cont'd

The survey was carried out using a 200 foot dipole and obtaining first and second separation readings.

The survey was supposed to have been carried out using a more modern Newmont type receiver but this instrument was unfortunately rendered inoperable when it fell off the seat of the vehicle negotiating a steep incline at the beginning of the survey.

The magnetic survey was carried out using a Sharpe MF-1 and/or a McPhar M-700 fluxgate magnetometer. These instruments measure variations in the vertical component of the earth's magnetic field to an accuracy of ± 10 gammas. Corrections for diurnal variations were made by tying-in to previously established base stations at intervals not exceeding two hours.

DISCUSSION OF RESULTS

Although the writer is not in possession of the geological and geochemical data at this time it is obvious from the magnetic data (Map W-219-5) that the area surveyed is underlain by two magnetically different rock units, units M₁ and M₂, interpreted by the writer to correspond to the Nicola volcanics and the Quilchena Pluton.

The contact between the two is somewhat ill defined as expected and could be offset to the east by a fault in the vicinity of Line O. However more magnetic data would be needed to verify this. The contact appears to roughly follow the creek on the southern part of the grid.

The resistivity survey results, though somewhat inaccurate on the steeper slopes due to horizontal chainage, confirm the above contact and show lower resistivities to be associated with the interpreted volcanics - the writer expects the overburden cover on the west side to be relatively thin as indicated by the fairly sharp magnetic gradients.

The induced polarization survey indicated the whole area surveyed to exhibit a fairly low chargeability background above which two anomalous zones are clearly discernible in the underlying Pluton.

These zones strike approximately north-east - roughly paralleling the long axis of the Pluton - and exhibit similar responses on both the first and second separations. Both correspond exceedingly well to areas of mapped sulphide occurrences and the larger and more westerly one coincides with that of the copper soil anomaly, and does not appear to extend either downhill and/or under the volcanics to the west.

A possibility exists that these zones could be one and the same offset by the previously implied northwesterly trending fault. However the lack of any geochemical expression of the smaller zone to the east seems to negate this possibility. Again more geophysical work would be needed in an effort to properly substantiate or negate the above.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between May 23rd and June 10th, 1976, Peter E. Walcott & Associates Limited carried out a ground magnetic and a limited I.P. survey over part of a property for Canadian Occidental Petroleum Ltd.

The property, the Quil Claims, is located in the Merritt area of British Columbia.

The progress of the survey was severely hampered in places by the steepness of the terrain and by the non-existent lines.

The magnetic survey appeared to delineate the contact between the Nicola Volcanics and the Quilchena Pluton.

The resistivity survey corroborated this contact and for the rest mostly indicated overburden thickness and conductivity.

The I.P. survey defined two anomalous zones in the underlying Pluton corresponding to known sulphide mineralization, and in the case of the larger to the geochemical expression of the mineralization.

It also showed that the mineralization did not apparently extend downhill to the west under the volcanic cover unless at considerable depth.

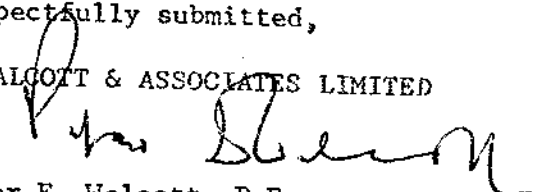
As a result the writer concludes that

- (1) the smaller I.P. anomaly is most probably mostly due to pyrite due to the lack of a geochemical expression and
- (2) although the larger anomaly is undefined in both directions, due to the excellent correlation with geology and geochemistry it would be more economic to properly define it out by the latter and by drilling than by further geophysics.

As a result he recommends that the anomaly be tested by borehole investigation - the results of previous diamond drilling and the geology being taken into consideration as to its economic potential before drilling - and should favourable results be obtained then further work consist of more of the same.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED


Peter E. Walcott, P.Eng.
Geophysicist

Vancouver, B.C.

July 1976

COST OF SURVEY

Peter E. Walcott & Associates Limited provided the crew for the I.P. survey on a daily basis and undertook the magnetic survey on a mileage basis. Mobilization and draughting costs were extra so that the total cost of services provided was \$7,805.16.

A P P E N D I X

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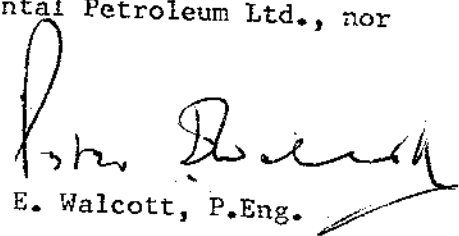
PERSONNEL EMPLOYED ON SURVEY

<u>Name</u>	<u>Occupation</u>	<u>Address</u>	<u>Date</u>
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C.	May 23 - 25th, June 1-8, 12-15 & July 9th, 1976
C. Broomfield	Geophysical Operator	"	May 23rd - June 10, 1976
P. Charlie	"	"	"
J. Walcott	Typing	"	July 31st, 76
J. Winfield	Draughting	Altair Drafting Services Vancouver, B.C.	June 23rd, July 10th - 11th 1976
J. R. Hill	Geologist	Canadian Occidental Petrol.) Toronto, Ontario	Pool labour
G. Tanton	Helper		June 1 - 8
R. Smith	"		1976
G. Smith	"		
P. Bresec	"		

CERTIFICATION

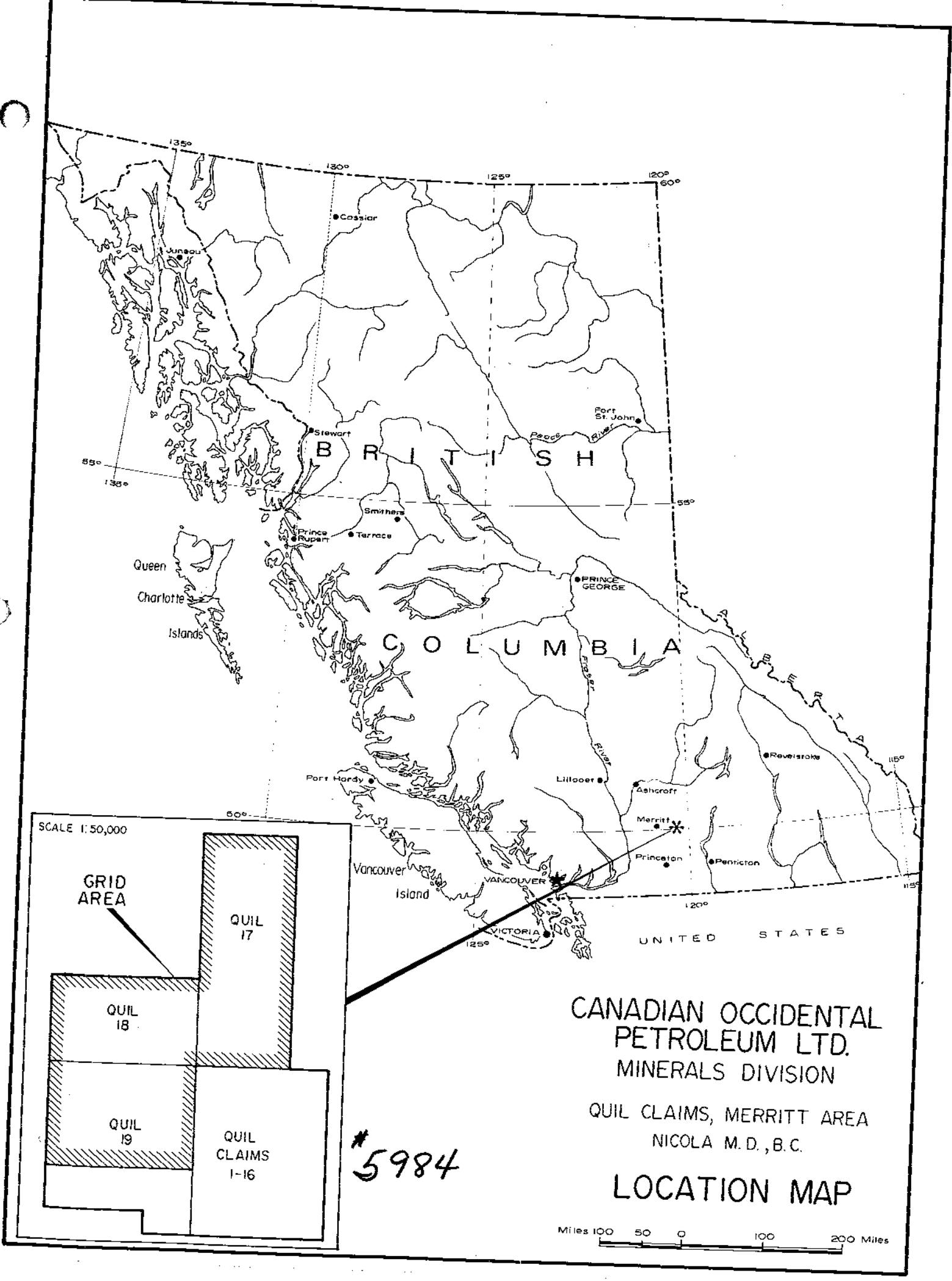
I, Peter E. Walcott, of the Municipality of Coquitlam, British Columbia, hereby certify that:

1. I am a graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
2. I have been practising my profession for the last fourteen years.
3. I am a member of the Association of Professional Engineers of British Columbia, Ontario and the Yukon Territory.
4. I hold no interest, direct or indirect, in the securities or properties of Canadian Occidental Petroleum Ltd., nor do I expect to receive any.

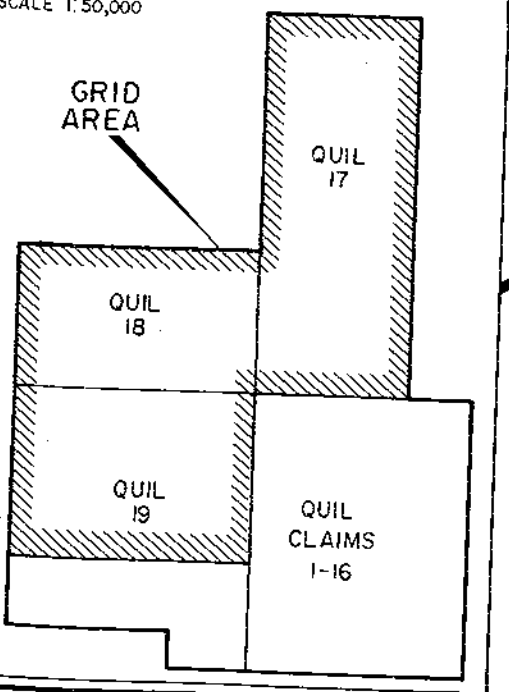

Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

July 1976



SCALE 1:50,000



#5984

CANADIAN OCCIDENTAL
PETROLEUM LTD.
MINERALS DIVISION

QUIL CLAIMS, MERRITT AREA
NICOLA M.D., B.C.

LOCATION MAP



Statement of Expenditures

QUIL Claims

1) Salaries: J.R. Hill, Kirk Beacom, Mike Blais Peter Bresee, Wayne Holmstead, Bob Smith, Gary Smith, Gord Tanton, R.H. Wallis, A.A. Seaman	\$ 9,828.26
434 man days 22.65/man day	
2) Contract Geophysics (I.P. Survey)	7,665.16
3) Geochem - 906 samples - 1812 elements	1,860.83
4) Reproduction - reporting, drafting	1,211.20
5) Camp Costs (food & accommodation included)	4,328.74
6) Consultant - C.F. Gleeson & Assoc.	1,050.00
7) Communications	84.47
8) Vehicle usage - 4-wheel drive auto	350.00
Total	<u>\$26,378.66</u>

PETER E. WALCOTT & ASSOC. LTD.

605 RUTLAND COURT, COQUITLAM, B.C. V3J 3T8 • TEL. 939-0383

INVOICE

NO. 1284

Date: June 16th, 1976

Terms: NET 10 DAYS

To: Canadian Occidental Petroleum Ltd.,
Minerals Division,
801 - 161 Eglinton Ave. E.,
Toronto, Ontario
M4P 1J5

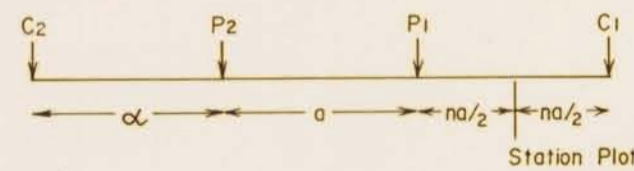
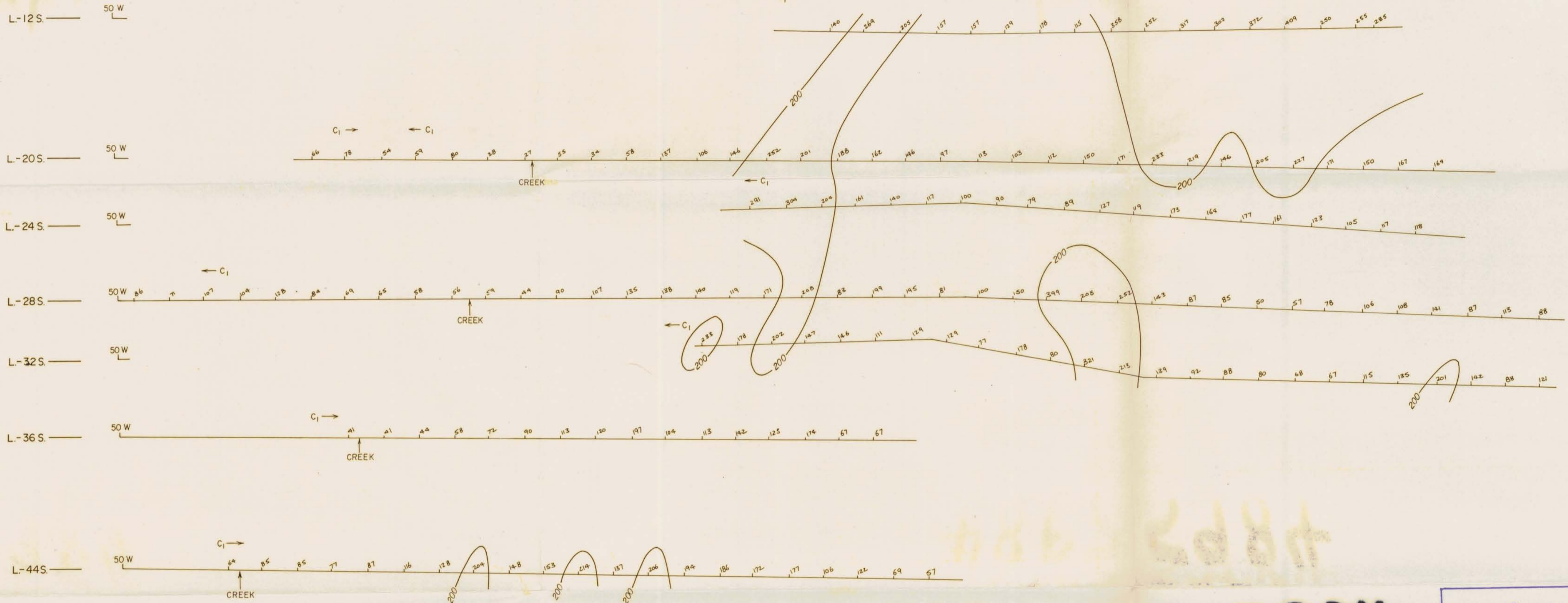
Re: I.P. Survey, Quil property

1.	Travel time: 2 days Vancouver - Merritt - Vancouver	\$490.00
2.	Extra travel Walcott - 1 Day	150.00
3.	Standby day - May 24th	260.00
4.	Operator & helper - May 25th	125.00
5.	I.P. Survey - 7 days + 1 1/2 days overtime at \$365.00 per day	\$3,102.50
6.	Helper for above at \$45.00 per day	382.50
7.	35 Miles of mag surveying at \$60.00 per mile (True mileage on final invoice)	2,100.00
8.	Room and board in transit and on job	197.44
9.	Taxi and plane fare	48.20
10.	Truck rental \$674.47 - gasoline 135.05 (truck used by Occidental personnel for trips to Merritt, Penticton & Kamloops)	809.52
		<hr/>
		\$7,665.16
	Less 20% to be billed on final invoice	<u>1,533.03</u>
		\$6,132.13
		<hr/>

PROJECT W-219

INVOICE NO. 1284

N.B. All chainage measured from 50 W.



5984
Part 2

Map 1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP #1

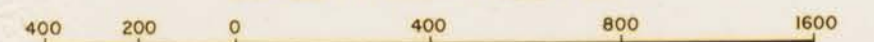
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

QUIL CLAIMS, NICOLA M.D., B.C.

INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT RESISTIVITY
(OHM METRES)

$a = 200'$, $n = 1$

SCALE: 1 INCH = 400 FEET



MAP NO. W-219-1

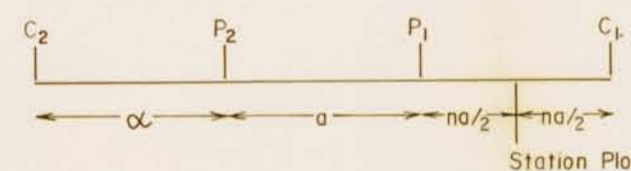
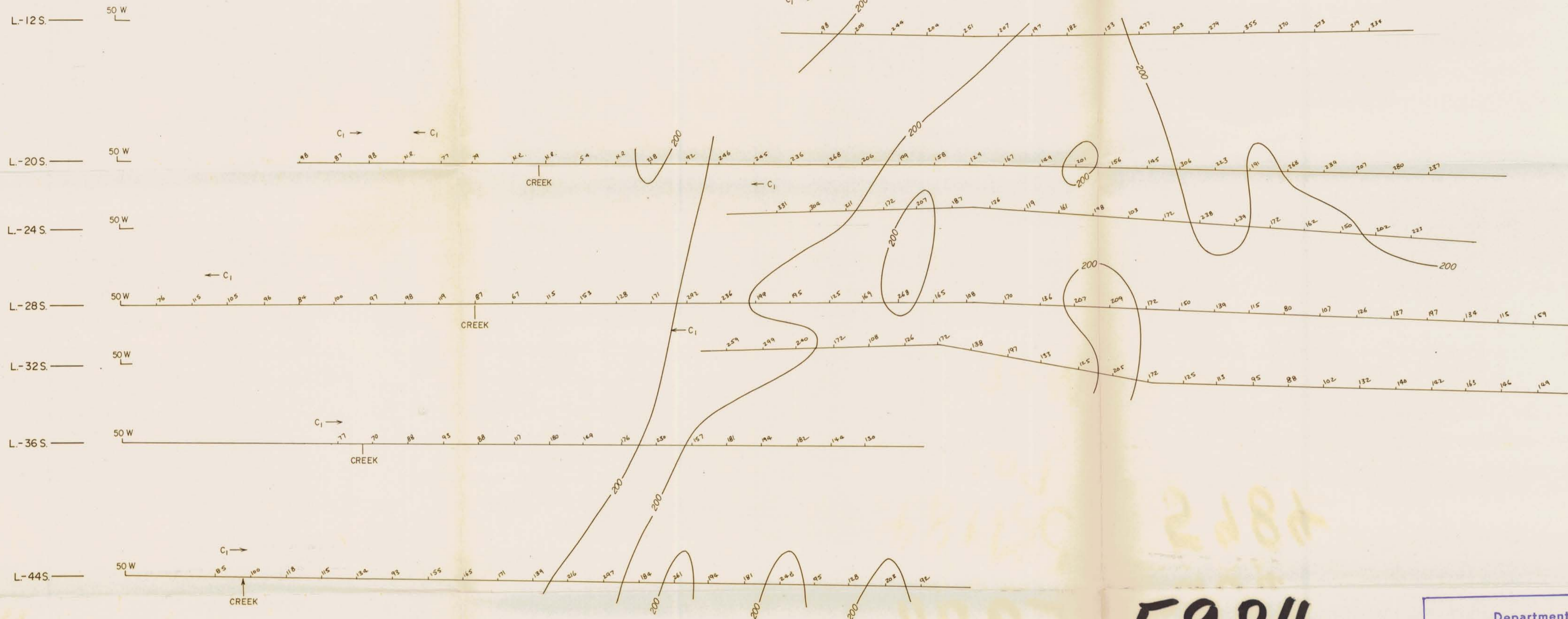
TO ACCOMPANY A REPORT BY

PETER E WALCOTT P.Eng., DATED JUNE-1976

PETER E WALCOTT & ASSOC LTD.

MAY-JUNE 1976

N.B. All chainage measured from 50 W



5984
Part 2
Map 2

Peter Walcott

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP #2

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
QUIL CLAIMS, NICOLA M.D., B.C.

INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT RESISTIVITY
(OHM METRES)

$a = 200'$, $n = 2$

SCALE: 1 INCH = 400 FEET



MAP NO. W-219-2

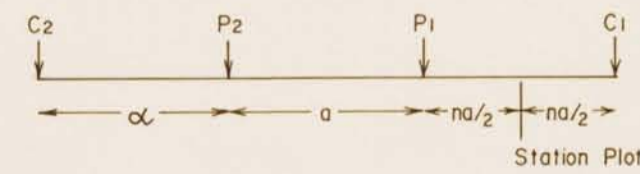
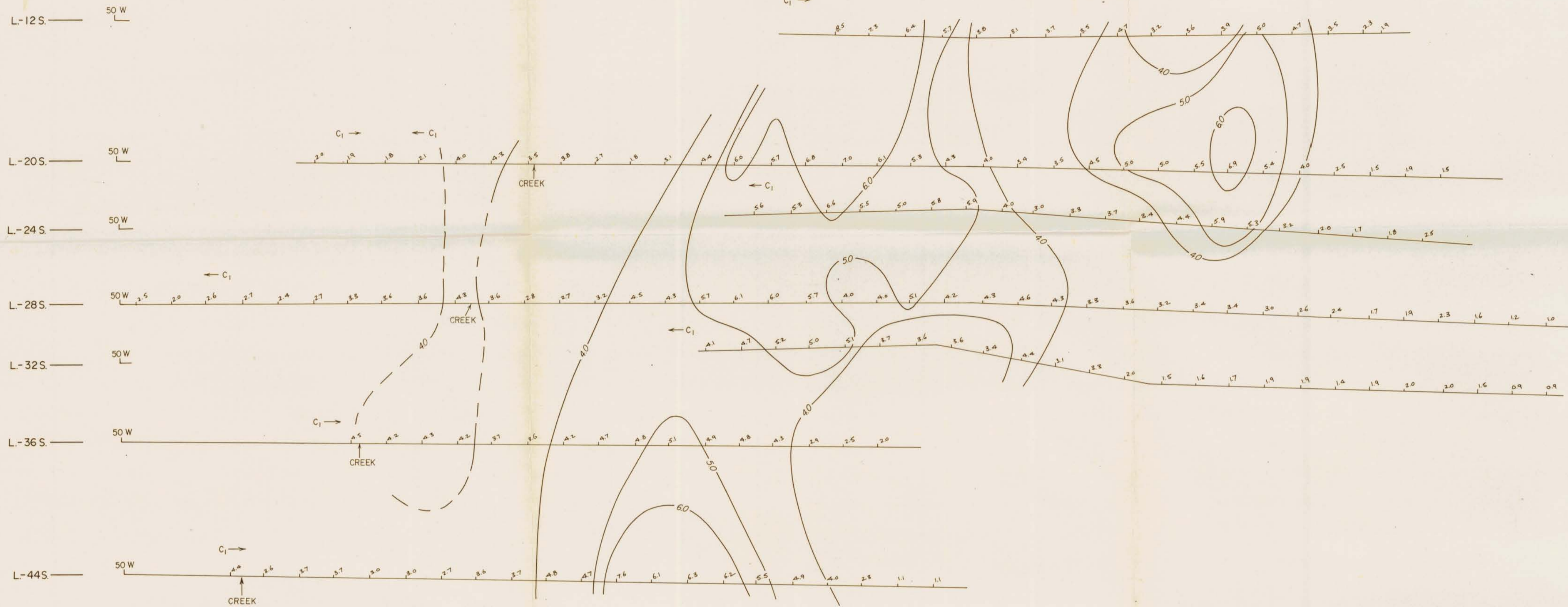
TO ACCOMPANY A REPORT BY

PETER E. WALCOTT P.Eng., DATED JUNE-1976

PETER E. WALCOTT & ASSOC. LTD.

MAY-JUNE 1976

N.B. All chainage measured from 50 W



5984
Part 2
Map 3

Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP #3

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

QUIL CLAIMS, NICOLA M.D., B.C.

INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT CHARGEABILITY
(MILLISECONDS)

$a = 200'$, $n = 1$

SCALE: 1 INCH = 400 FEET



MAP NO. W-219-3

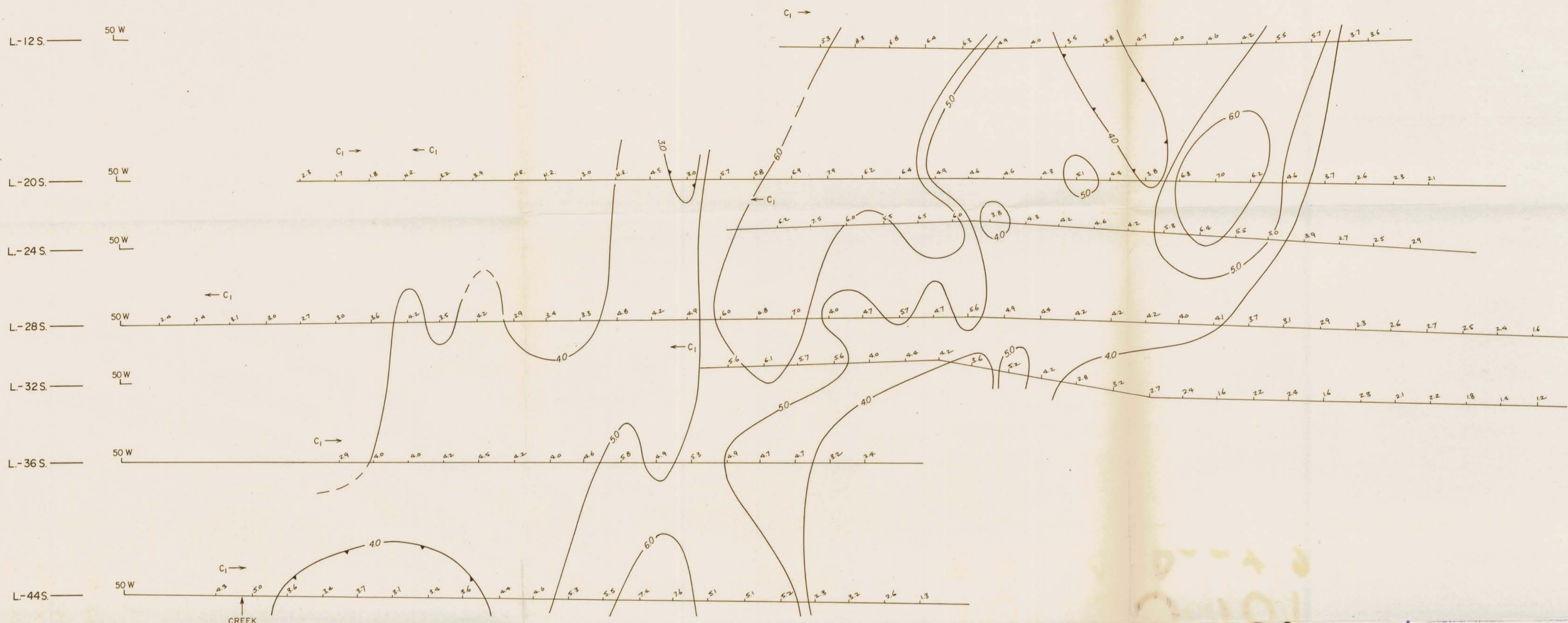
TO ACCOMPANY A REPORT BY

PETER E. WALCOTT P.Eng, DATED JUNE-1976

PETER E. WALCOTT & ASSOC. LTD.

MAY-JUNE 1976

N.B. All chainage measured from 50 W



5984
Part 2
map 4

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP # 4

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
QUIL CLAIMS, NICOLA M.D., B.C.

INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT CHARGEABILITY
(MILLISECONDS)

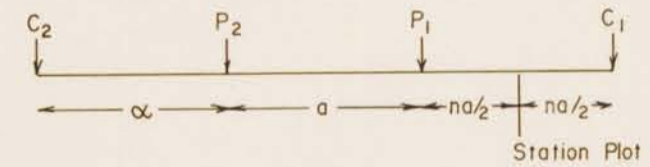
a = 200', n = 2

SCALE: 1 INCH = 400 FEET

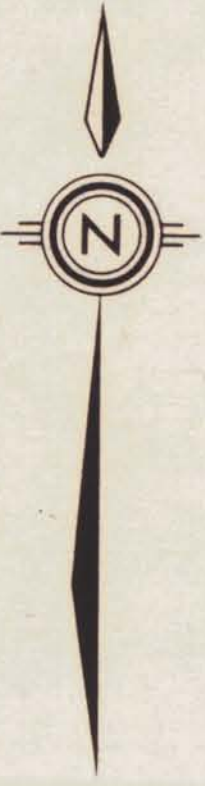


MAP NO. W-219-4
TO ACCOMPANY A REPORT BY
PETER E. WALCOTT P. Eng., DATED JUNE-1976

PETER E. WALCOTT & ASSOC. LTD.
MAY-JUNE 1976



Peter Walcott



B.L.0

All chainage from 0 to 48N starts here

L-48N
L-44N
L-40N
L-36N
L-32N
L-38N
L-20N
L-16N
L-12N
L-8N
L-4N

B.L.50W
Most chainage from 0 to 68S starts here

M₁

L-0
L-4S
L-8S
L-12S
L-16S
L-20S
L-24S
L-28S
L-32S
L-36S
L-40S
L-44S
L-48S
L-52S
L-56S
L-60S
L-64S
L-68S

M₂

M₂

Interpreted magnetic unit

Magnetic contact

5984
Part 2
Map 5

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5984 MAP #5

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
QUIL CLAIMS, NICOLA M.D., B.C.

MAGNETOMETER SURVEY
CONTOURS OF RELATIVE VERTICAL INTENSITY
(gammas)

SCALE: 1 INCH = 400 FEET
400 200 0 400 800 1200

MAP NO. W-219-5
TO ACCOMPANY A REPORT BY PETER E. WALCOTT & ASSOC.
MAY - JUNE 1976
PETER E. WALCOTT P.Eng., DATED JUNE-1976

Peter Walcott