A REPORT

ON

GROUND MAGNETIC AND INDUCED POLARIZATION SURVEYS

Pelly - Yukon River Area,

Yukon Territory

FOR

OCCIDENTAL MINERALS CORPORATION OF CANADA

Toronto, Ontario

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $12,092.28

J B Craig

Resident Geologist or ~~Resident Mining Engineer~~

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

Commissioner of Yukon Territory

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

OCTOBER 1971

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INTRODUCTION

Between October 2nd and 23rd, 1971, Peter E. Walcott & Associates Limited carried out ground magnetic and induced polarization (I.P.) surveys over part of a property, located in the Pelly - Yukon River Area of the Yukon Territory, held by Occidental Minerals Corporation of Canada.

The survey was carried out over part of a handcut line grid, the lines of which were turned off at right angles from a N 60° W baseline, and were chained and picketed at 100 foot intervals.

This grid was beset by many chainage errors with a result that stations on Lines 24 E - 60 E are tied to B.L. 70 N, whereas stations on Lines 64 E - 92 E are tied to B.L. 0.

Readings of relative vertical intensity of the earth's field were taken every 100 feet along the picket lines using a fluxgate magnetometer with additional closer spaced readings in areas of steep magnetic gradients.

Measurements (first and second separation) of apparent chargeability (the I.P. response parameter) were made using the "pole-dipole" method of surveying with a 300 foot dipole. Simultaneous measurements of apparent resistivity were also made.

The chargeability and resistivity data are presented in profile form on Maps W-143-3 and -4, that accompany this report, whereas the magnetic data as well as the chargeability data are presented in contour form on Maps W-143-1, -2 and -5.

Progress on the survey was hampered by (1) the uneven lengths of the lines due to the diamond shaped area of the grid required to be surveyed and (2) the slippery snow covered approaches to the plateau.

PROPERTY, LOCATION AND ACCESS

The property is located in the Whitehorse Mining Division of the Yukon Territory and consists of the following claims:

DARY 1 - 20

PELLY 1 - 68, 70, 72, 74 - 104

The claims are situated on the south side of the Pelly River some 5 miles east of the abandoned settlement of Fort Selkirk near the junction of the Pelly and Yukon Rivers.

Access can be obtained from Whitehorse by a 150 mile drive to the abandoned settlement of Minto along the Klondike Highway, and thence by a 25 mile bush road, passable to 2 wheel drive traffic, to the property.

PREVIOUS WORK

Previous work done on the property includes:

1. Geological mapping

2. Geochemical sampling.

The results of these are documented in a report by the staff of Occidental Minerals Corporation of Canada.

PURPOSE

The purpose of the survey was to

(1) investigate the cause of two of the copper soil anomalies.

(2) attempt to locate the possible presence of disseminated sulphide occurrences as indicated by the favourable geology.

GEOLOGY

The reader is referred to a report by the staff of Occidental Minerals Corporation of Canada.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a pulse-type system manufactured by Huntec 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 contid

The survey was carried out using a 300 foot dipole and obtained first and second separation measurements over the area surveyed.

The magnetic survey was carried out using a McPhar M-700 fluxgate magnetometer. This instrument measures 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

It should be noted here that the writer only had access to the maps and not to the geological report, and consequently did not know what reference point was used when tying the geology and geochemistry to the grid. He therefore assumed that everything was tied to 0 + 00 N. Thus any correlation between the geophysics on the one hand and the geology and geochemistry on the other can only be approximate, as the grid is beset by many chainage errors, e.g. the distance between 0 + 00 N and 70 + 00 N is variant and is of the order of 6800 feet.

The magnetic survey (Map W-143-5) showed the area surveyed to be underlain by two magnetically different rock types namely a centre portion having a background of around 1000 gammas flanked on both the north and south sides by areas of lower background of around 700 gammas, and failed to distinguish between the mapped intrusives and Mt. Nansen volcanics.

The centre portion covers all of the overburden covered topographic plateau and extends down the slope to the south, whereas the lower magnetic response is obtained mostly over the mapped intrusive rocks on the approaches to the plateau.

Several narrow near surface magnetic features occur particularly in the south part of the area surveyed and are attributed by the writer to Tertiary basic dykes (it should be noted here that the mapped basic dykes occur in areas of no magnetic relief). Although most of these occur as singular magnetic highs on a line they could in all probability be joined to strike in a similar direction to those mapped were it not for the contour bias.

Evidence of faulting parallel to the lines is suggested by the offset of the highs between lines 80 and 88 E.

The I.P. survey indicated the centre of the area surveyed to exhibit a low flat chargeability background flanked by two broad anomalous zones on the north and south ends (Maps W-143-1, -2 and -3).

These zones, Zones 1 and 2, as outlined (maximum possible extent) by the 4 millisecond contour on the 600 foot spacing (a = 300', n = 2) lie for the most within mapped intrusive rocks on the approaches to the centre plateau, and correspond very well with the areas of lower magnetic relief (Maps W-143-2 and -5).

DISCUSSION OF RESULTS cont'd

Zone 1 exhibits good response on both the 300 and 600 foot spacing, is open at both ends, and has a very pronounced core of high chargeability and low resistivity values i.e. of good conductivity.

The strongest portion of the anomaly on Lines 52 - 64 E is not associated with any geochemical anomaly, but the narrower and less intense portion between Lines 24 E to 48 E fits the geochemical expression very well.

Zone 2 is a large broad low intensity (maximum response 4 times background) anomaly with a suggested deep seated (as compared with Zone 1) causative source as can be seen from the practical lack of response on the 300 foot spacing (Map W-143-1). It is open on three sides, has no corresponding resistivity low, and could be interpreted as indicative of a rock change were it not for its good geochemical correlation.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between October 2nd and 23rd, 1971, Peter E. Walcott & Associates Limited carried out ground magnetic and induced polarization surveys on a property held by Occidental Minerals Corporation of Canada.

The property, i.e. the Dary and Pelly claims, is situated on the south side of the Pelly River some 5 miles east of the abandoned settlement of Fort Selkirk, Yukon Territory.

The magnetic survey showed the property to be underlain by two magnetically different rock units, a centre portion corresponding for the most to the central plateau flanked by two areas of lower magnetic relief. It however failed to distinguish between the mapped intrusive and volcanic rocks.

Several narrow near surface basic dykes were outlined by the magnetics, and some evidence of faulting was suggested by their offsets from line to line.

The I.P. survey showed the central plateau to have a low chargeability response, and indicated two broad undefined anomalous zones to occur on the approaches to the plateau corresponding with the areas of lower magnetic relief.

The northerly zone, Zone 1, has an indicated shallow causative source, and a core of good conductivity. Its western half corresponds with a geochemical anomaly but the stronger and broader eastern portion has no apparent association with any geochemical expression.

The southerly zone, Zone 2, exhibits a lower response, and has a deeper causative source. It has no resistivity expression but corresponds very well with a geochemical anomaly.

As a result of the above surveys the writer concludes that:

(1) the chargeability response of Zone 1 is most probably attributable to pyrite and/or graphite with associated copper mineralization.

(2) the chargeability response of Zone 2 is most probably attributable to pyrite and/or chalcopyrite.

(3) some ambiguity exists as to the meaning of the magnetic results that might be resolved by extending the coverage, namely that either (a) the centre plateau could be a different phase of the mapped intrusive or (b) the intrusive could

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS cont'd

have the same magnetic intensity throughout with the magnetic lows associated with the interpreted mineralization.

He also recommends that drilling be undertaken to investigate the causative sources of the I.P. anomalies. Vertical holes should be spotted based on the combined results of geology, geochemistry and geophysics, bearing in mind the uphill displacement of the anomalies due to the slopes, and drilled to depths of some 600 feet.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.
Geophysicist

Vancouver,
British Columbia

October 1971

APPENDIX

COST OF SURVEY

Peter E. Walcott & Associates Limited undertook the I.P. survey on a daily basis and the magnetic survey on a mileage basis. Mobilization costs were extra so that the total cost of services provided was $10,729.45.

PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Date
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C.	Oct. 29th & 30th 1971
G. MacMillan	Geophysical Operator	" "	Oct. 2nd - 23rd, 1971
V. Pashniak	"	" "	Oct. 2nd - 23rd, 1971
G. Gordon	Helper	" "	Oct. 2nd - 21st, 71
S. Scurvy	"	" "	Oct. 4th - 19th, 71
P. Johnny	"	" "	Oct. 4th - 19th, 71
P. Charlie	"	" "	Oct. 4th - 8th, 71
A. Washpan	"	" "	Oct. 9th - 19th, 71
P. Nieman	Cook	" "	Oct. 2nd - 19th, 71
J. Walcott	Typing	" "	Oct. 30th, 1971

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 nine years.

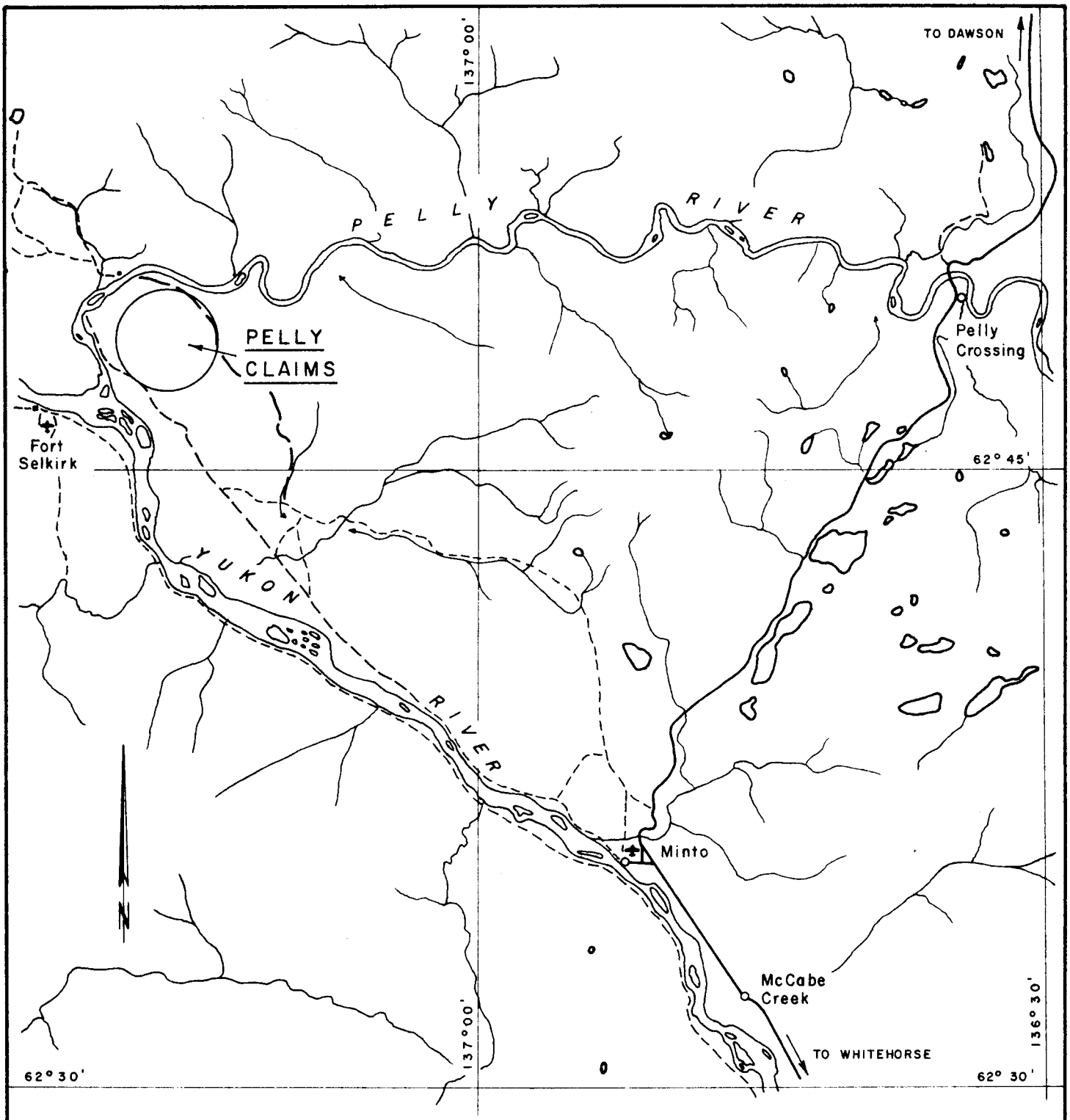
3. I am a member of the Association of Professional Engineers of British Columbia, Ontario and the Yukon Territory.

4. I hold no interests, direct or indirect, in the securities or properties of Occidental Minerals Corporation of Canada nor do I expect to receive any.

Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

October 1971



OCCIDENTAL MINERALS CORP. OF CANADA

PELLY CLAIMS, YUKON TERRITORY

LOCATION MAP

SCALE : 1 INCH = 4 MILES

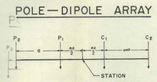
PETER E. WALCOTT & ASSOC.

OCTOBER 1971

40-S 36-S 32-S 28-S 24-S 20-S 16-S 12-S 8-S 4-S 0+00 4-N 8-N 12-N 16-N 20-N 24-N 28-N 32-N 36-N 40-N 44-N 48-N 52-N 56-N 60-N 64-N 68-N

L.24-E
L.28-E
L.32-E
L.36-E
L.40-E
L.44-E
L.48-E
L.52-E
L.56-E
L.60-E
L.64-E
L.68-E
L.72-E
L.76-E
L.80-E
L.88-E
L.92-E

POLE—DIPOLE ARRAY



5.0 MILLI-SEC. CONTOUR
1.0 MILLI-SEC. CONTOUR

OCCIDENTAL MINERALS CORPORATION OF CANADA

PELLY CLAIMS ; PELLY RIVER AREA , YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT CHARGEABILITY
(IN MILLI-SECONDS)
a = 300', n = 1

SCALE- INCH = 200 FEET

200 100 0 200 400 600
FEET FEET

MAP No. W-143-I
TO ACCOMPANY A REPORT BY
PETER E. WALCOTT, P. Eng.
DATED-OCTOBER 1971

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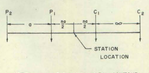
40-S 36-S 32-S 28-S 24-S 20-S 16-S 12-S 8-S 4-S 0+00 4-N 8-N 12-N 16-N 20-N 24-N 28-N 32-N 36-N 40-N 44-N 48-N 52-N 56-N 60-N 64-N 68-N

L.24-E
L.28-E
L.32-E
L.36-E
L.40-E
L.44-E
L.48-E
L.52-E
L.56-E
L.60-E
L. 64-E
L. 68-E
L. 72-E
L. 76-E
L.80-E
L. 88-E
L. 92-E

ZONE 1

ZONE 2

POLE—DIPOLE ARRAY



5.0 MILLI-SEC. CONTOUR

1.0 MILLI-SEC. CONTOUR

OCCIDENTAL MINERALS CORPORATION OF CANADA

PELLY CLAIMS ; PELLY RIVER AREA , YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT CHARGEABILITY

(IN MILLI-SECONDS)

a = 300', n = 2

SCALE - 1 INCH = 200 FEET

200 100 0 200 400 800
FEET FEET

MAP No. W-143-2
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DATED - OCTOBER 1971

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40-S 36-S 32-S 28-S 24-S 20-S 16-S 12-S 8-S 4-S 0+00 4-N 8-N 12-N 16-N 20-N 24-N 28-N 32-N 36-N 40-N 44-N 48-N 52-N 56-N 60-N 64-N 68-N

L.24-E
L.28-E
L.32-E.
L.36-E
L.40-E
L.44-E
L.48-E
L.52-E
L.56-E
L.60-E
L.64-E
L.68-E
L.72-E
L.76-E
L.80-E
L.88-E
L.92-E

PELLY 24
DARY 9
DARY 10
PELLY 26
DARY 7
PELLY 47
DARY 8
PELLY 48
DARY 5
PELLY 28
DARY 18
DARY 6
PELLY 49
PELLY 50
DARY 3
DARY 4
DARY 17
PELLY 91
PELLY 70
PELLY 92
PELLY 52
PELLY 51
PELLY 93
DARY 16
PELLY 72
PELLY 94
PELLY 53
PELLY 54
DARY 19

POLE - DIPOLE ARRAY

STATION LOCATION

a = 300 FEET n=1

a = 300 FEET n=2

OCCIDENTAL MINERALS CORPORATION OF CANADA

PELLY CLAIMS ; PELLY RIVER AREA , YUKON TERRITORY

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY
(IN MILLI-SECONDS)

SCALE-1 INCH=200 FEET

200 100 0 200 400 600 FEET

MAP No. W-143-3
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DATED - OCTOBER 1971

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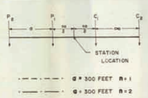
40-S 36-S 32-S 28-S 24-S 20-S 16-S 12-S 8-S 4-S 0+00 4-N 8-N 12-N 16-N 20-N 24-N 28-N 32-N 36-N 40-N 44-N 48-N 52-N 56-N 60-N 64-N 68-N

L.24-E
L.28-E
L.32-E
L.36-E
L.40-E
L.44-E
L.48-E
L.52-E
L.56-E
L.60-E
L.64-E
L.68-E
L.72-E
L.76-E
L.80-E
L.88-E
L.92-E

PELLY 24
DARY 9
DARY 10
PELLY 24
DARY 7
PELLY 47
DARY 8
PELLY 48
DARY 3
DARY 18
PELLY 48
PELLY 26
DARY 6
PELLY 49
PELLY 50
DARY 5
DARY 4
DARY 17
PELLY 71
PELLY 70
PELLY 93
PELLY 52
PELLY 51
DARY 14
PELLY 93
PELLY 72
PELLY 53
PELLY 94
PELLY 54
DARY 19

APPARENT RESISTIVITY - N OHM - METERS
10,000 7,000 5,000 4,000 3,000 2,000 1,000 800 600 500 400 300 200 100 80 70 60 50 40 30

POLE-DIPOLE ARRAY



OCCIDENTAL MINERALS CORPORATION OF CANADA

PELLY CLAIMS ; PELLY RIVER AREA , YUKON TERRITORY

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT RESISTIVITY
(IN OHM-METERS)

SCALE-1 INCH=200 FEET

200 100 0 200 400 600
FEET FEET

MAP No. W-143-4
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DATED-OCTOBER 1971

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OCTOBER 1971

L.24-E. L.28-E. L.32-E. L.36-E. L.40-E. L.44-E. L.48-E. L.52-E. L.56-E. L.60-E. L.64-E. L.68-E. L.72-E. L.76-E. L.80-E. L.88-E. L.92-E

68-N 66-N 64-N 62-N 60-N 58-N 56-N 54-N 52-N 50-N 48-N 46-N 44-N 42-N 40-N 38-N 36-N 34-N 32-N 30-N 28-N 26-N 24-N 22-N 20-N 18-N 16-N 14-N 12-N 10-N 8-N 6-N 4-N 2-N 0+00 2-S 4-S 6-S 8-S 10-S 12-S 14-S 16-S 18-S 20-S 22-S 24-S 26-S 28-S 30-S 32-S 34-S 36-S 38-S

PELLY 28 PELLY 26 PELLY 24 PELLY 47 PELLY 48 PELLY 68 PELLY 70 PELLY 91 PELLY 92 PELLY 93 PELLY 94 PELLY 72 PELLY 51 PELLY 53 PELLY 49 PELLY 50 PELLY 52 PELLY 54

DARY 3 DARY 4 DARY 5 DARY 6 DARY 7 DARY 8 DARY 9 DARY 10 DARY 16 DARY 17 DARY 18 DARY 19

OCCIDENTAL MINERALS CORPORATION OF CANADA

PELLY CLAIMS ; PELLY RIVER AREA , YUKON TERRITORY

MAGNETOMETER SURVEY

CONTOURS OF RELATIVE VERTICAL INTENSITY
(IN GAMMAS)

SCALE-1 INCH=200 FEET

200 100 0 200 400 600
FEET FEET

MAP No. W-143-5
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DATED-OCTOBER 1971

PETER E. WALCOTT & ASSOC. LTD.

OCTOBER 1971