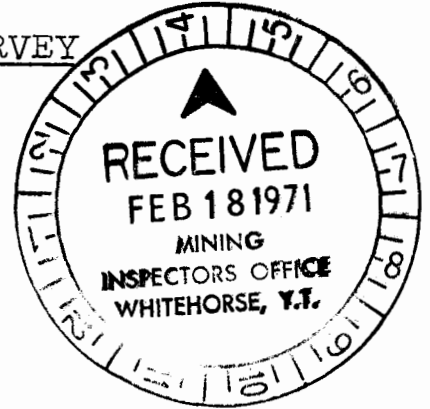


A REPORT

on

AN INDUCED POLARIZATION SURVEY

Faro Area
Yukon Territory



For

KANGAROO EXPLORATION CORPORATION LIMITED

Vancouver, British Columbia

This report has been examined by the Geological Exploration Unit and is recommended to be considered as valid for the amount of

\$13,000.00

D. B. Craig

Geological Exploration work under Section 24 of the Yukon Mining Act

By

PETER E. WALCOTT *[Signature]*

Commissioner of Yukon Territory

November 1970

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INTRODUCTION

Between September 17th and October 14th, 1970, Peter E. Walcott & Associates Limited carried out an induced polarization (I.P.) survey over part of a property, located in the Faro Area, Yukon Territory, optioned by Kangaroo Exploration Corporation Limited.

The survey was carried out over a handcut line grid, the lines of which were turned off at right angles from a N 50° W baseline, and chained and picketed at 100 foot intervals.

Measurements of apparent chargeability (the I.P. response parameter) were made over the entire linegrid using the "pole - dipole" method of surveying with electrode separations of 200, 400 and 800 feet respectively and a station interval of 200 feet. Simultaneous measurements of apparent resistivity were also made.

The data are presented in profile form on plan maps of the line grid, Maps W-120-2 to 5, that accompany this report.

PROPERTY, LOCATION AND ACCESS

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

ZAN	1 - 48
MX	1 - 13, 25 - 28, 30, 56 - 62, 119 - 122, 178 - 195, 186A, 187A
AC	67 - 72, 75 - 96, 111 - 112
KD	1 - 26
TIM	1 - 32
JET	1 - 16, 18, 20, 22, 24, 45, 47, 49 - 64, 93, 95, 97 - 104

The claims are situated along a west northwest trend about 8 miles north and northeast of the Faro ore deposit of Anvil Mining Corporation Ltd.

Access to the property can be obtained by means of helicopter from the nearby town of Faro or the settlement of Ross River.

PREVIOUS WORK

Previous work done on the claim group includes:

1. Helicopter magnetic and electromagnetic surveys in 1966.
2. Reconnaissance soil sampling and geological mapping in 1968.
3. A gravity survey carried out in February - April 1969.

The results of these surveys, with the exception of the airborne work, are documented in a report by Robert E. Chaplin, P.Eng. , dated June 1969.

PURPOSE

The purpose of the survey was

1. to investigate by the induced polarization technique the suggested presence of three possible sulphide occurrences on the ZAN, JET and TIM claims as inferred from three gravity highs obtained on the 1969 survey, and
2. to try and locate by this method the presence of any economic mineralization on the established grid system.

GEOLOGY

The reader is referred to a report by Robert E. Chaplin, P.Eng., dated June 1969.

Briefly; the claims cover the contact area between the intrusive Anvil Batholith and the Cambrian phyllites and schists, the latter of which host the Faro, Vangorda and Swim Lake ore deposits.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a pulse-type system manufactured by Hunttec 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 between C_1 and P_1 is kept constant for each traverse at a distance of roughly equal to the depth to be explored by that traverse, while that of $P_1 - P_2$ is kept constant at or some fraction of the former. 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 spacings, more precise estimates can be made of depth, width, thickness and percentage of sulphides of causative bodies located by the I.P. method.

The survey was conducted using electrode separations of 200, 400 and 800 feet respectively over the entire grid system.

DISCUSSION OF RESULTS

The results of the I.P. survey showed the property to be underlain by three zones of different chargeability background, Zones M₁, M₂ and M₃, as outlined on Maps W-120-2 and -4.

The high chargeability effects obtained in Zones M₂ and M₃, located on the valley sides, are believed to be attributable to sericite schist, while the lower effects of Zone M₁, located in the valley floor, could be caused by the intrusive, outcroppings of which occur to the south, or to schists, etc. buried beneath considerable depths of overburden.

No anomalous chargeability effects were observed over the three gravity anomalies, G₁, G₂ and G₃, the outlines of which are shown on Maps W-120-2 to -5.

The resistivity survey, Maps W-120-3 and -5, indicated overburden conductivity and thickness as higher resistivity values were obtained on the valley sides.

Resistivity highs were associated with gravity anomalies G₁ and G₂ suggesting their causative sources to be rises in bedrock topography. No resistivity high was associated with gravity anomaly G₃.

A zone of low resistivity and anomalous high chargeability effects were observed within the interpreted sericite schist, M₂, on the northwest side of the grid resulting in a decision to extend Line 112 W for 2000 feet.

Very few readings were obtained on this extension as the resistivity was too low to give measurable signals. However readings, where obtained, gave very high chargeability readings and very low resistivity readings leading the writer to conclude that they were due to a band of graphitic schist, the location of which approximately corresponds to a strong E.M. anomaly on the airborne survey.

A zone of high resistivity was noted, particularly on the 200 foot separation, in the northeast corner on the grid, Map W-120-5. This would appear to be caused by a sill or dyke offset by two faults, F₁ and F₂. However similarity exists with readings on the ends of Lines 60, 64 and 68 W where an outwash gravel deposit can be observed as a physical feature.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between September 17th and October 14th, 1970, Peter E. Walcott & Associates Limited carried out an induced polarization survey on part of a property optioned by Kangaroo Exploration Corporation Ltd.

The property is located in the Faro Area of the Yukon Territory some 8 miles north and northwest of the Faro ore deposit of Anvil Mining Corporation Ltd.

The I.P. survey showed the property to be underlain by three zones of chargeability, M_1 , M_2 and M_3 , the first of which is believed by the writer to correspond to intrusive or schist buried beneath considerable depth of overburden, while the latter two are attributable to sericite schist.

No anomalous chargeability effects were observed over the three gravity anomalies, but resistivity highs were associated with the two, G_1 and G_2 respectively.

Anomalous high chargeability readings and corresponding low resistivity (i.e. high conductivity) readings were obtained on the northwest side of the grid. On extending of Line 112 W some 2000 feet even higher chargeability and lower resistivity readings were obtained where possible due to the very high conductivity.

A zone of high resistivity was encountered on the northeast corner of the grid, apparently offset by two interpreted faults, F_1 and F_2 .

As a result the writer concludes that:

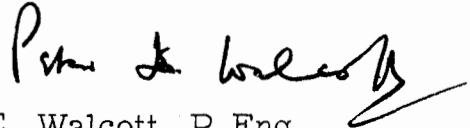
1. The gravity anomalies are not caused by sulphide mineralization, but are most probably caused by changes in bedrock topography.
2. The anomalous chargeability zone with its associated conductivity high on the northwest side of the area surveyed is most probably caused by graphitic schist, and not by sulphide mineralization as no corresponding gravity anomaly was obtained.
3. The resistivity high on the northeast corner of the grid is probably attributable to a sill or dyke offset by faulting, but could also be caused by a low conductivity gravel deposit similar to that observed on the south ends of Lines 60, 64 and 68 W respectively.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS cont'd

On the basis of the forementioned he therefore recommends that no further work be done on the property at this time.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

A handwritten signature in black ink, appearing to read "Peter E. Walcott", with a long horizontal flourish extending to the right.

Peter E. Walcott, P. Eng.
Geophysicist

Vancouver,
British Columbia

November 1970

A P P E N D I X

COST OF SURVEY

Peter E. Walcott & Associates Limited undertook the I.P. survey on a daily basis, and provided I.P. equipment, geophysicist, operator, three linemen, cook and camp and board. Mobilization and draughting costs were extra, so that the total cost of services provided was \$13,012.50.

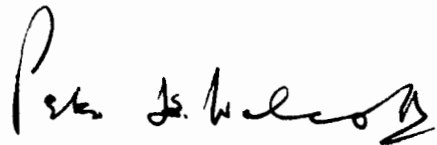
PERSONNEL EMPLOYED ON SURVEY

<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.	Sept. 17th - Oct. 14th, 70 Nov. 10th, 11th, 16th - 18th, 70
V.A. Pashniak	Geophysical Operator	" "	Sept. 17th - Oct. 14th, 1970 Nov. 10th - 17th, 1970
G. MacMillan	"	" "	Nov. 12th, 70
J. Walcott	Typing	" "	Nov. 23rd, 70
E. Scurvey	Helper	General Delivery Whitehorse, Y.T.	Sept. 17th - Oct. 14th, 1970
J. Kodwat	"	" "	"
P. Charlie	"	" "	"
P. Nieman	Cook	" "	"

CERTIFICATION

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

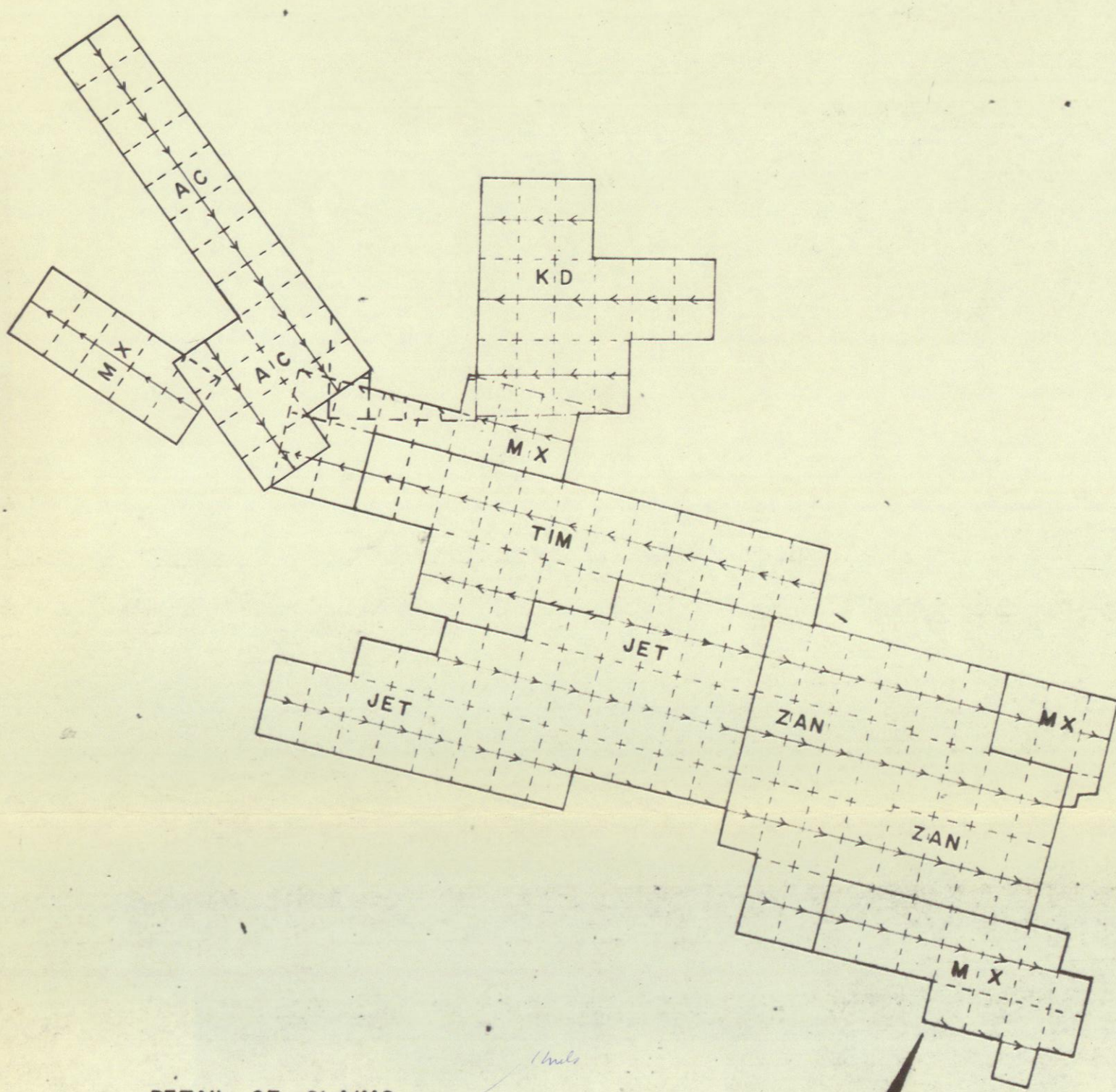
1. I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
2. I have been practising my profession for the last eight years.
3. I am a member of the Association of Professional Engineers of British Columbia, Ontario and the Yukon Territory.
4. I hold no interest, direct or indirect, in the securities or properties of Kangaroo Exploration Corporation Limited.



Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

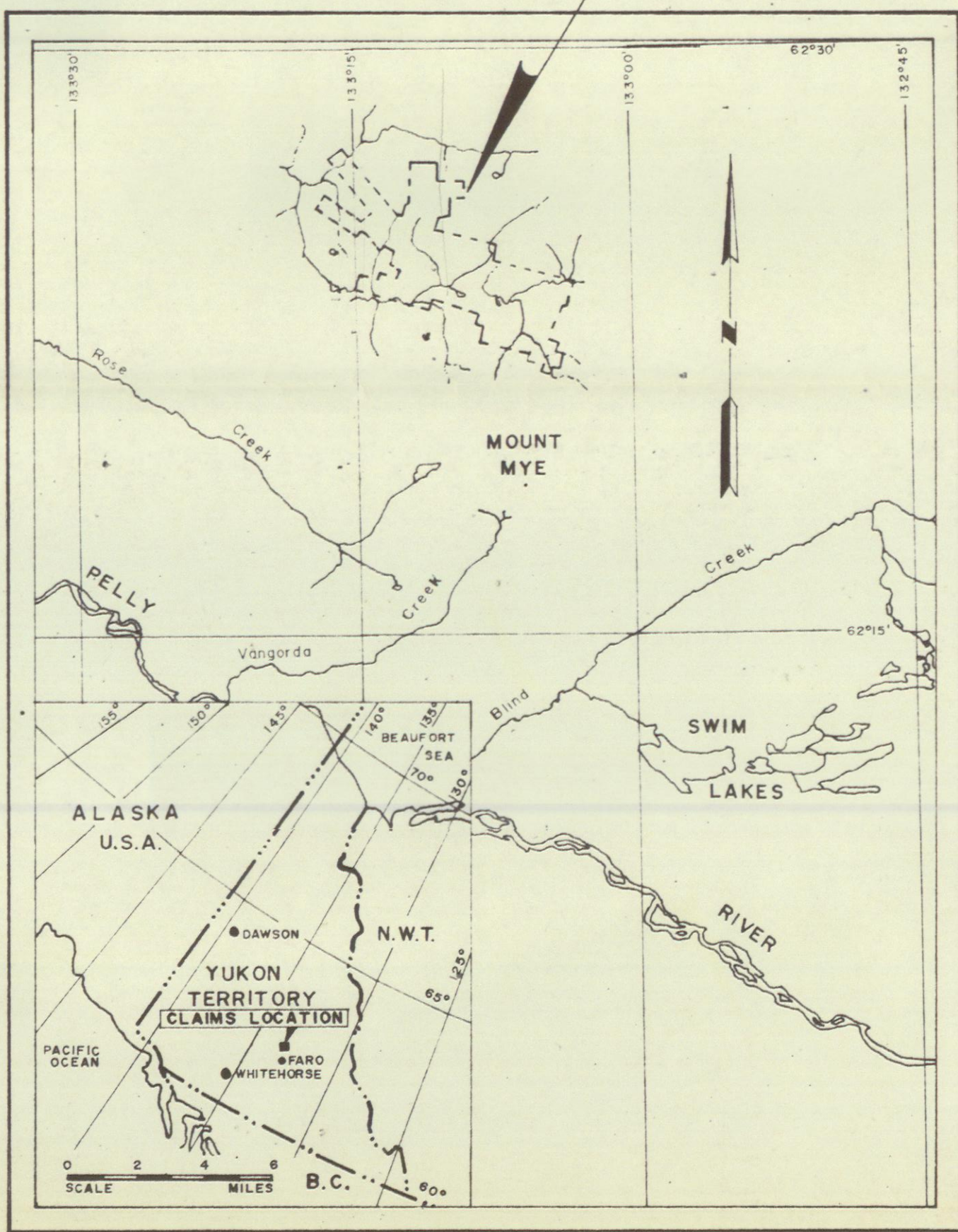
November 1970



DETAIL OF CLAIMS
SCALE: 1" = 4 MILE

1 mile
1/2 mile

135 10 25
62 25



KANGAROO EXPLOR. CORP. LTD.

ZAN, JET, TIM, MX, AC, & KD CLAIMS, WHITEHORSE M.D., YUKON TERRITORY

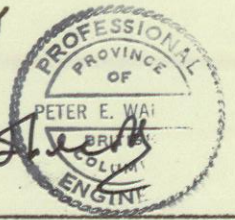
CLAIMS LOCATION MAP

MAP No. W-120-1

PETER E. WALCOTT & ASSOC. LTD.

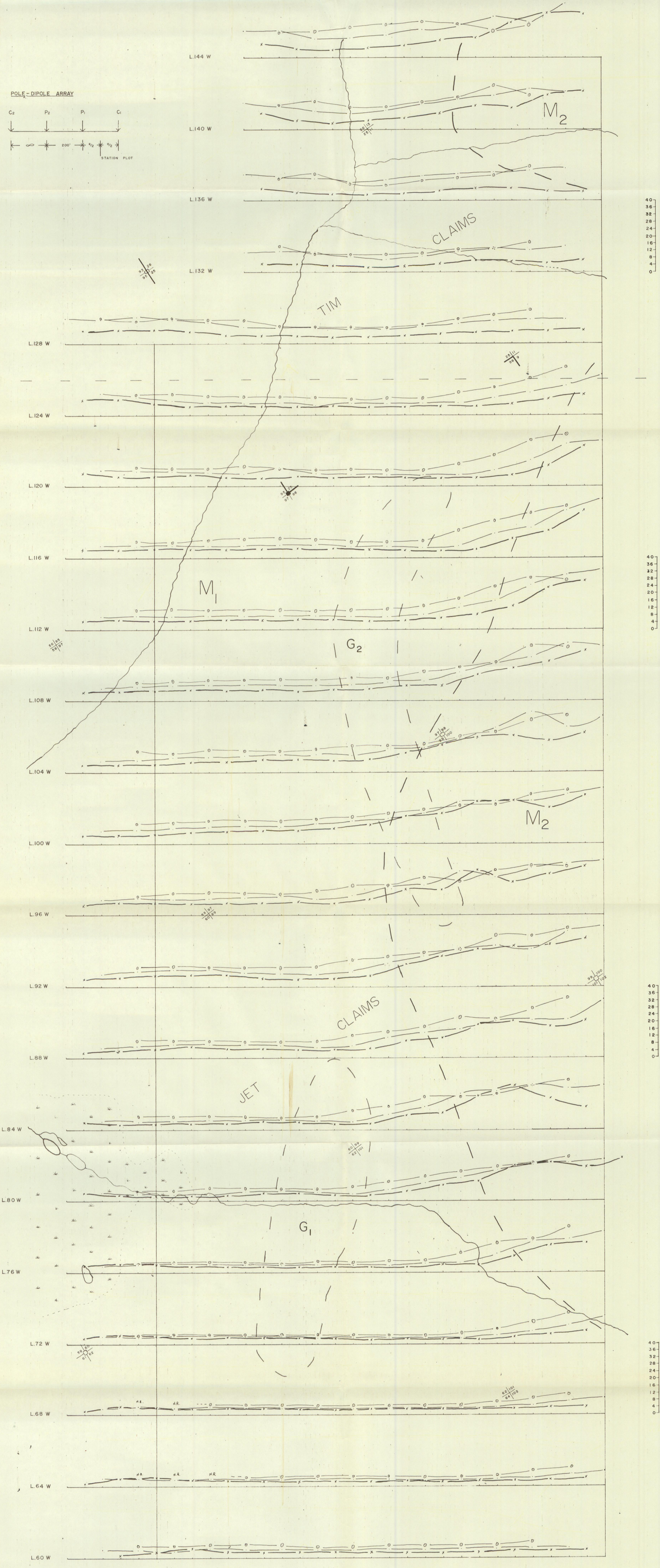
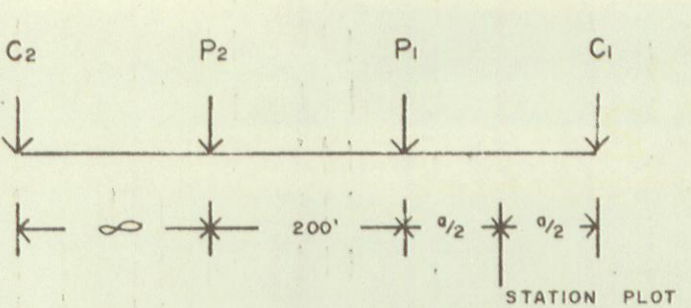
TO ACCOMPANY A REPORT BY
PETER E. WALCOTT P. Eng.
DATED - NOVEMBER 1970

SEPT.-OCT. 1970

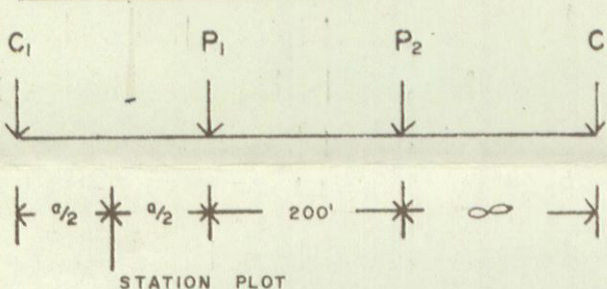


4S 2S 0 2N 4N 6N 8N 10N 12N 14N 16N 18N 20N 22N 24N

POLE-DIPOLE ARRAY



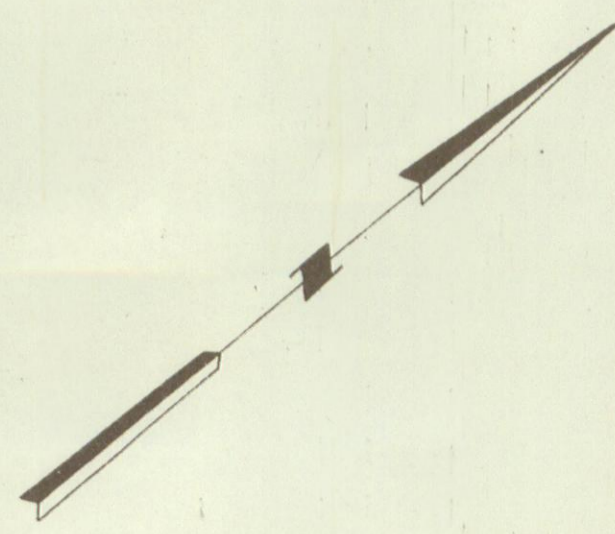
POLE-DIPOLE ARRAY



- x — x $\sigma = 200'$
- — — $\sigma = 400'$
- o — o $\sigma = 800'$

LEGEND

- (G) OUTLINE OF GRAVITY ANOMALY
- - - OUTLINE OF CHARGEABILITY ZONE
- ~ ~ ~ SWAMP
- ~ ~ ~ CREEK
- o o o LAKE



- CLAIM POST LOCATED
- CLAIM POST INFERRED

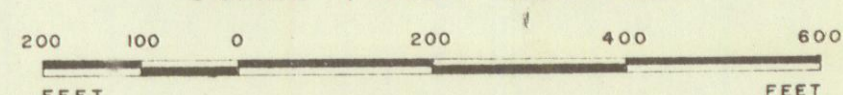
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ZAN, JET, & TIM CLAIMS, WHITEHORSE M.D., YUKON TERRITORY

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY
(in milliseconds)

SCALE - 1 INCH = 200 FEET



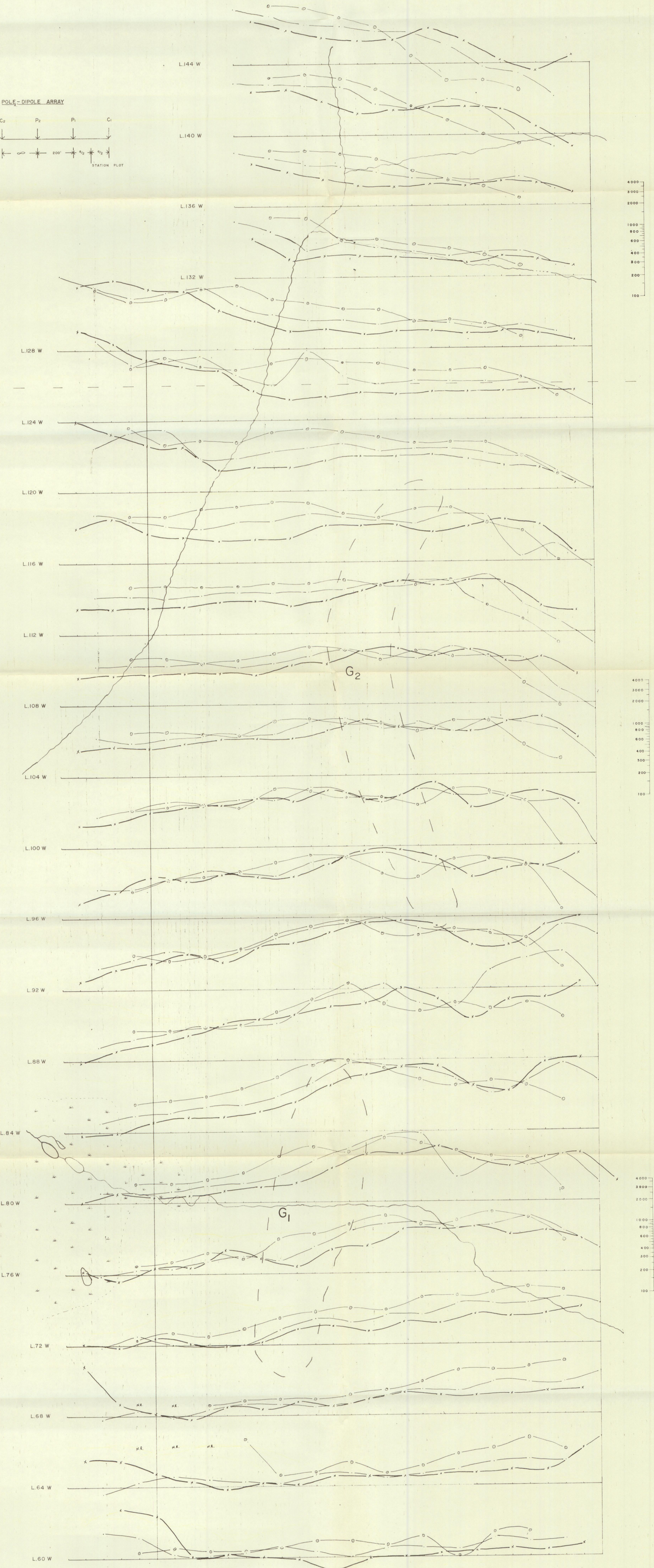
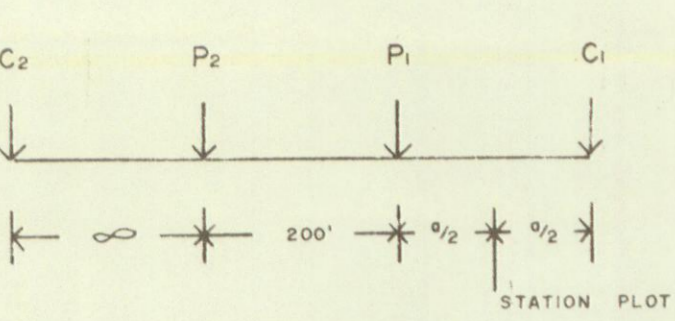
MAP NO. W-120-2
TO ACCOMPANY A REPORT
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SEPT.-OCT. 1970

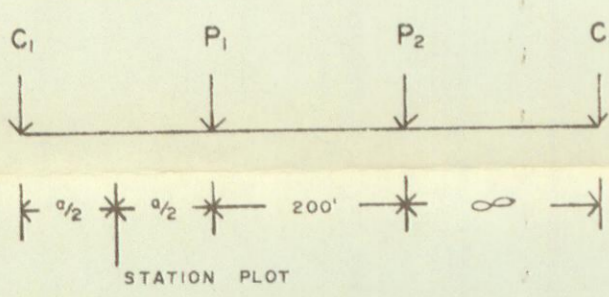


4S 2S 0 2N 4N 6N 8N 10N 12N 14N 16N 18N 20N 22N 24N

POLE-DIPOLE ARRAY



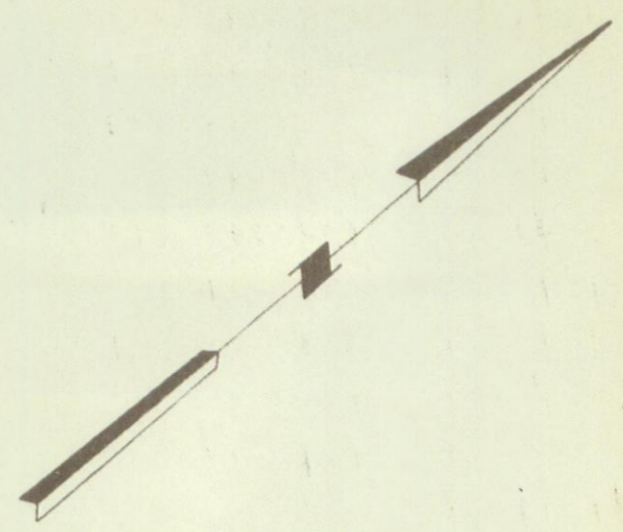
POLE-DIPOLE ARRAY



- x — x a = 200'
- — — a = 400'
- o — o a = 800'

LEGEND

- (G) OUTLINE OF GRAVITY ANOMALY
- SWAMP
- CREEK
- LAKE



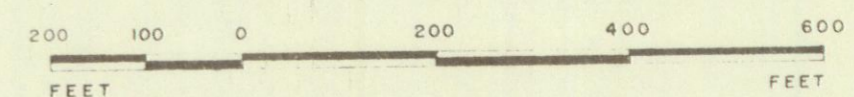
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INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT RESISTIVITY
(in ohm-metres)

SCALE - 1 INCH = 200 FEET



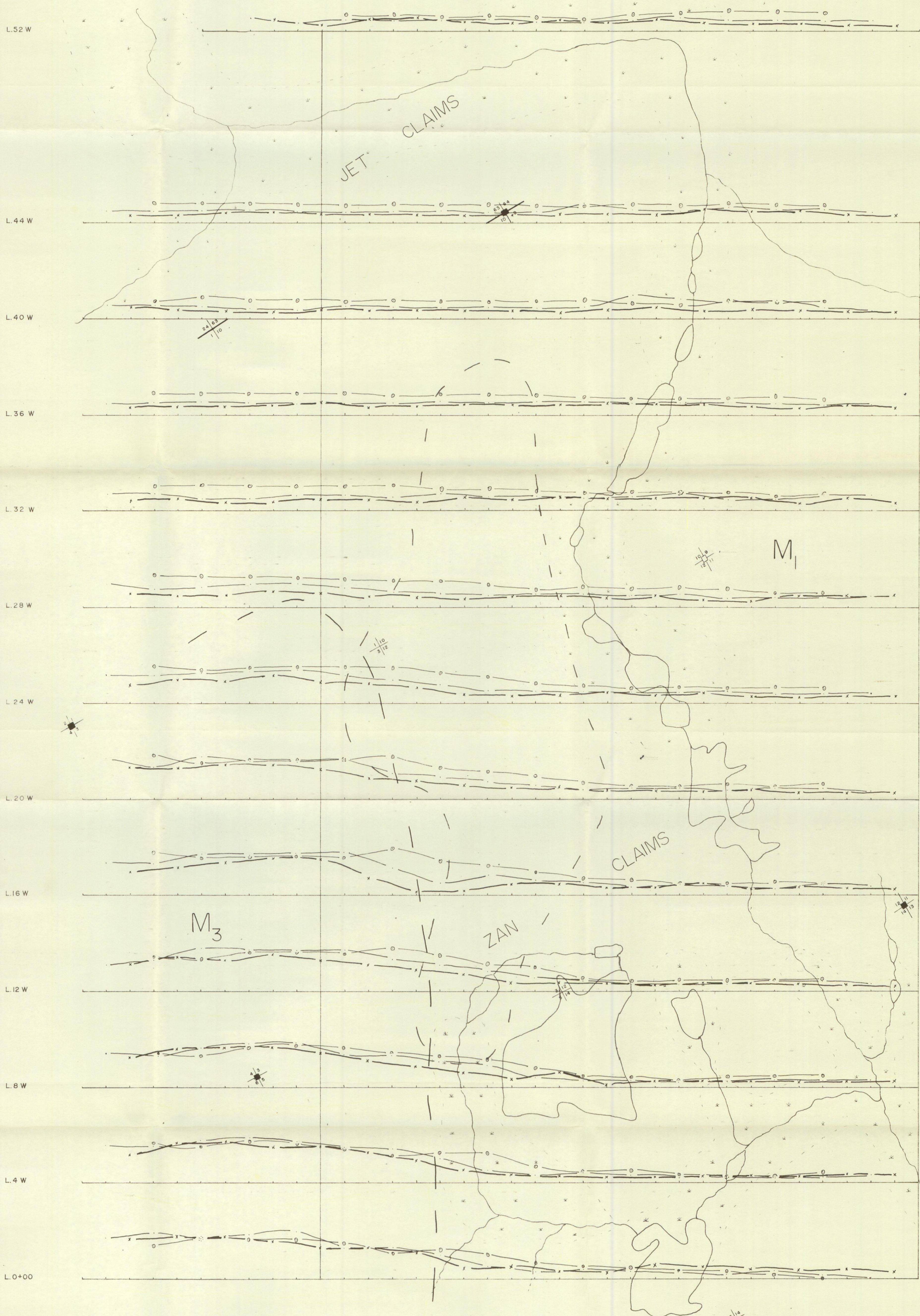
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TO ACCOMPANY A REPORT
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DATED - NOVEMBER 1960



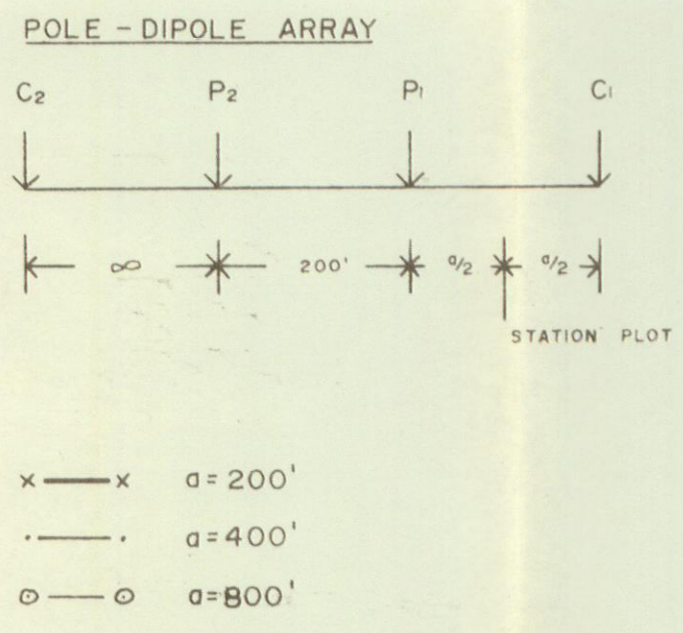
PETER E. WALCOTT & ASSOC. LTD.

SEPT.-OCT. 1970

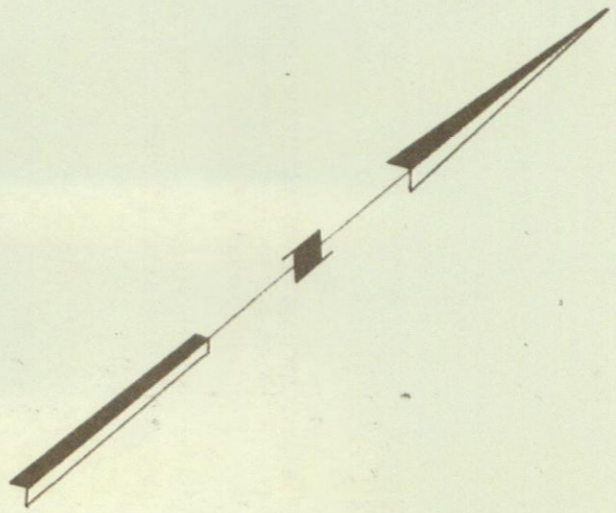


40
36
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0

40
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28
24
20
16
12
8
4
0



- LEGEND**
- (G) OUTLINE OF GRAVITY ANOMALY
 - - - OUTLINE OF CHARGEABILITY ZONE
 - SWAMP
 - CREEK
 - LAKE
 - CLAIM POST LOCATED
 - CLAIM POST INFERRED



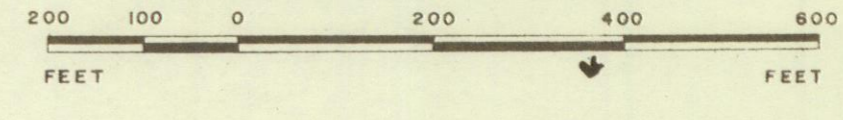
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ZAN, JET, & TIM CLAIMS; WHITEHORSE M.D., YUKON TERRITORY

INDUCED POLARIZATION SURVEY

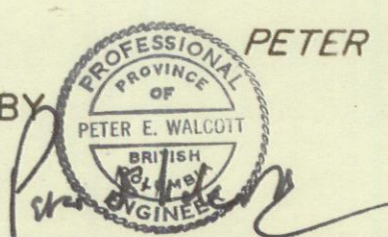
PROFILES OF APPARENT CHARGEABILITY
(in milliseconds)

SCALE - 1 INCH = 200 FEET

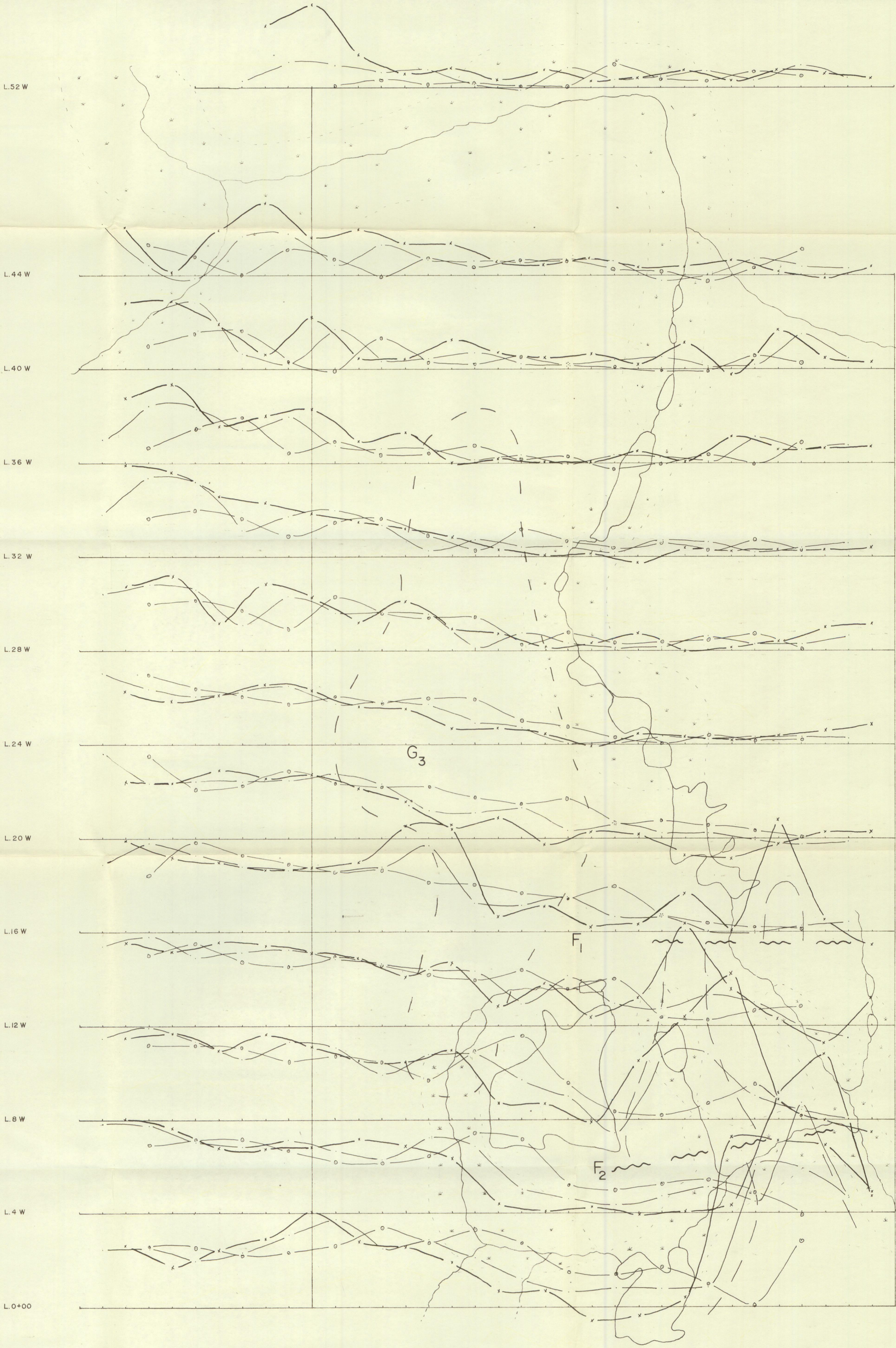


MAP NO. W-120-4
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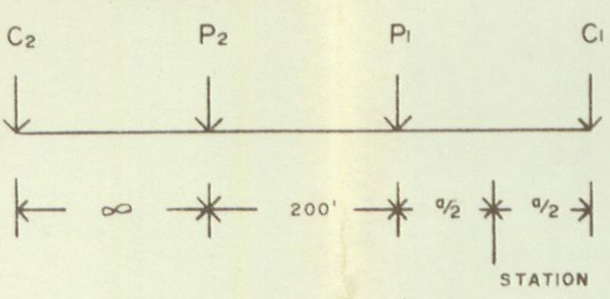
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SEPT. - OCT. 1970



10S 8S 6S 4S 2S 0 2 4N 6N 8N 10N 12N 14N 16N 18N 20N 22N 24N



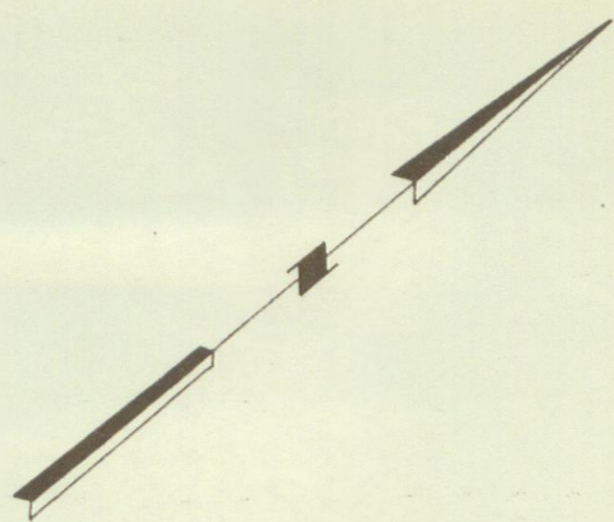
POLE-DIPOLE ARRAY



x-x a=200'
 o-o a=800'

LEGEND

- OUTLINE OF GRAVITY ANOMALY
- OUTLINE OF RESISTIVITY
- POSSIBLE FAULT
- SWAMP
- CREEK
- LAKE



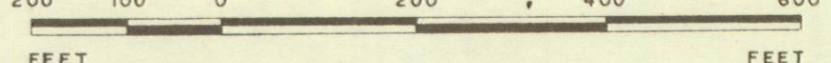
KANGAROO EXPLOR. CORP. LTD.

ZAN, JET, & TIM CLAIMS; WHITEHORSE M.D., YUKON TERRITORY

INDUCED POLARIZATION SURVEY

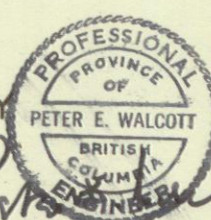
PROFILES OF APPARENT RESISTIVITY
 (in ohm-metres)

SCALE - 1 INCH = 200 FEET



MAP NO. W-120-5

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SEPT. - OCT. 1970