

82-230-10295

PETER E. WALCOTT & ASSOC. LTD.

A REPORT

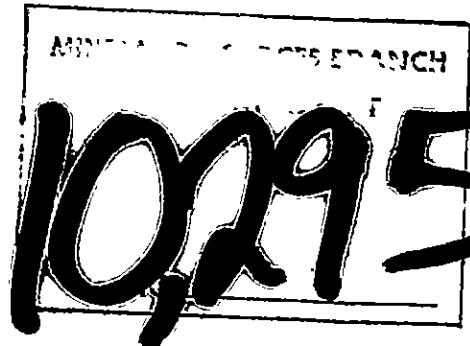
ON

AN INDUCED POLARIZATION SURVEY

Hag Claims, Cariboo M.D., B.C.

(52° 30' N, 122° 15' W)

FOR



GIBRALTAR MINES LIMITED

McLeese Lake, B.C.

BY

PETER E. WALCOTT AND ASSOCIATES LIMITED

Vancouver, British Columbia

FEBRUARY 1982

GEOPHYSICAL SERVICES

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ACCOMPANYING MAPS - Scale 1" = 1000'

MAP POCKET

CONTOURS OF APPARENT FREQUENCY EFFECT	W-310-1
a = 300' n = 2	
CONTOURS OF APPARENT RESISTIVITY	W-310-2
a = 300' n = 2	
ALEXANDRIA 93B/9E	W-310-3
SCALE: 1:50,000	
MAG I.P. GRID - CLAIM BOUNDARIES	W-310-4
SCALE: 1" = 1000'	

INTRODUCTION.

Between October 7th and November 9th, 1981, Peter E. Walcott & Associates Limited carried out an induced polarization survey over part of a property, located in the Cariboo Area of British Columbia, held by Gibraltar Mines Ltd.

The survey was carried out over N 45° lines that were turned off at right angles from a N 45° baseline.

Measurements (first to third separation) of apparent resistivity and frequency effect (the I.P. response parameter) were made using the "dipole-dipole" method of surveying with a 300 foot dipole and frequencies of 0.25 and 2.0 Hz.

The data are presented in contour form on pseudo-sections that are contained in this report, along with contoured plots of the second separation measurements.

PROPERTY, LOCATION & ACCESS.

The property is located in the Cariboo Mining District of British Columbia.

It is situated about 10 miles northeast of the settlement of McLeese Lake, B.C., and some 4 miles east of the Gibraltar Mine site.

Access was obtained from McLeese Lake using a 4 x 4 vehicle along bush roads branching off the mine road - a trip of 1 to 1 1/2 hours duration depending on the weather.

SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was carried out using a pulse type system, the principal components of which are manufactured by Hunttec Limited and Phoenix Geophysics Limited of Metropolitan Toronto, Ontario.

The system consists basically of three units: a receiver (Hunttec), a transmitter and a motor generator (Phoenix). The transmitter, which obtains its power from the 2.0 kw 400 cycle generator driven by a gasoline engine, injects current into the ground at two electrodes, C₁ and C₂, at two preselected frequencies, while the receiver, a digital receiver controlled by a microprocessor, makes measurements of observed voltages across the potential electrodes P₁ and P₂.

The data recorded in the field consists of careful measurements of the current (I) flowing through electrodes C₁ and C₂, the voltage (V) appearing between the potential electrodes P₁ and P₂ on the low frequency, and the "percentage apparent frequency effect" appearing between P₁ and P₂ (the receiver can be programmed to measure this directly).

$$\text{the \%age F.E.} = \frac{(P_a \text{ low} - P_a \text{ high})}{P_a \text{ low}} \times 100$$

The apparent resistivity (P_a) in ohm-feet is proportional to the ratio of the measured voltage and current, the proportionality factor depending on the geometry of the array used. In practise P_a is plotted.

$$\frac{2 \pi I}{\dots}$$

A third parameter termed the "metal factor" is also calculated by dividing the apparent frequency effect by P_a and multiplying by 1000.

$$\frac{2 \pi I}{\dots}$$

The survey was carried out using the "dipole-dipole" electrode array. This electrode configuration and the methods of presenting the results are illustrated in the appendix. Depth penetration with this array is increased or decreased by increasing or decreasing "a" and/or "n".

In practise, the equipment is set up at a particular station of the line to be surveyed: three transmitting dipoles are laid out to the rear, measurements are made for all possible combinations of

SURVEY SPECIFICATIONS cont'd

transmitting and receiving dipoles, the latter consisting of two porous pots filled with an electrolyte copper sulphate solution "a" feet apart, up to the fourth separation, i.e. $n = 4$; the equipment is then moved 3 "a" feet along the line to the next set-up.

A 300 foot dipole was used on the survey but only first to third separation measurements were made.

In all some 28.4 miles or 45.5 kilometres were covered using the above method.

DISCUSSION OF RESULTS.

Although theoretically after multiple stacking the results obtained with A/D converter microprocessor controlled instruments should be more accurate than those procured with analogue instruments and fine tuned filters, this does not appear to be the case here as the data is more noisy than that from the Sawmill group some 6 miles to the southwest. There could be numerous reasons for this which the writer will not discuss here but on occasional stations on the contour plot he has used interpolated values, based on surrounding and other separation measurements, to smooth the data.

On looking at this contoured data - Map W-310-1 - it can readily be seen that five anomalous zones are clearly discernible. These are referenced as Zone A through E respectively.

Zone "A", a zone of discontinuous closures, some 14000 feet in strike length and open at both ends is clearly the dominant feature.

It lies on and/or is associated with a large linear feature as interpreted from the resistivity data - Map No. W-310-2. The latter from a study of the topographic map, could possibly have a strike length of some 6 miles, and presumably the anomalous response is due to graphitic and/or sulphide causative sources associated with this large scale fault, etc.

Zone "B" is a smaller zone parallel to "A" with a maximum strike length of some 3000 feet. It is bounded on the west by a northerly trending resistivity low - Map W-310-2. It could be related to Zone "A" as it exhibits similar frequency effect and resistivity values as a finger of the latter to the north.

Zones C and D are located at and/or around the contact of the mine-hosting quartz diorite and volcanoclastic rocks. They are both undefined to the west.

Zone "E" is a smaller one line anomaly located near the above contact.

In addition there are a number of smaller and/or weaker anomalies located with the main body of purportedly underlying volcanics and/or volcanoclastics that are not, in the writer's opinion, of priority at this time.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

Between October 7th and November 9th, 1981, Peter E. Walcott & Associates Limited carried out an induced polarization survey for Gibraltar Mines Ltd. over their Mag property.

This property is located some 4 miles east of the minesite and some 10 miles northeast of the settlement of McLeese Lake on Highway 97.

The survey was carried out using the frequency method of I.P. surveying using a dipole-dipole array and a 300 foot dipole.

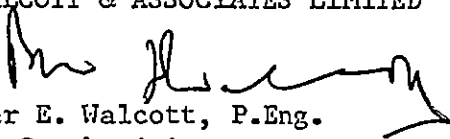
The data located the presence of 5 anomalous zones above a somewhat noisy low frequency background.

As a result the writer recommends that

- (1) further work be done to more properly understand the nature of Zone "A". Some V.L.F. and magnetic profiles could be run perpendicular to its strike along with further geological investigation to augment the data to date. In addition its relationship to Zone "B", if any, should be studied.
- (2) Zones C and D be better defined with intermediate lines 500 feet apart prior to investigation by borehole techniques.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED


Peter E. Walcott, P.Eng.
Geophysicist

Vancouver,
British Columbia

February 1982

A P P E N D I X

COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the survey on the Mag grid on a daily basis. Mobilization costs were extra so that the total cost of services provided was \$29,960.94.

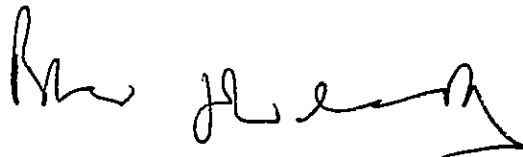
PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	Feb. 26th - 28th, 82
T. Kirby	Geophysical Operator	"	Oct. 7th - Nov. 9, 81
D. Greaves	"	"	"
M. Lemieux	Helper	"	Oct. 7th - Oct. 29th 1981
C. McNamee	"	"	Oct. 7th - Oct. 15th
D. Le Eaire	"	"	Oct. 7th - Oct. 15th
D. Charbonneau	"	"	Oct. 17th - Oct. 27th
R. Pickford	"	"	Oct. 21st - Nov. 9th
S. Gibbons	"	"	Oct. 31st - Nov. 8th
D. Dawson	"	"	" "
J. Walcott	Typing	"	Feb. 26th, 82
R. Rollings	Draughting	"	Feb. 25th - 28th, 82

CERTIFICATION.

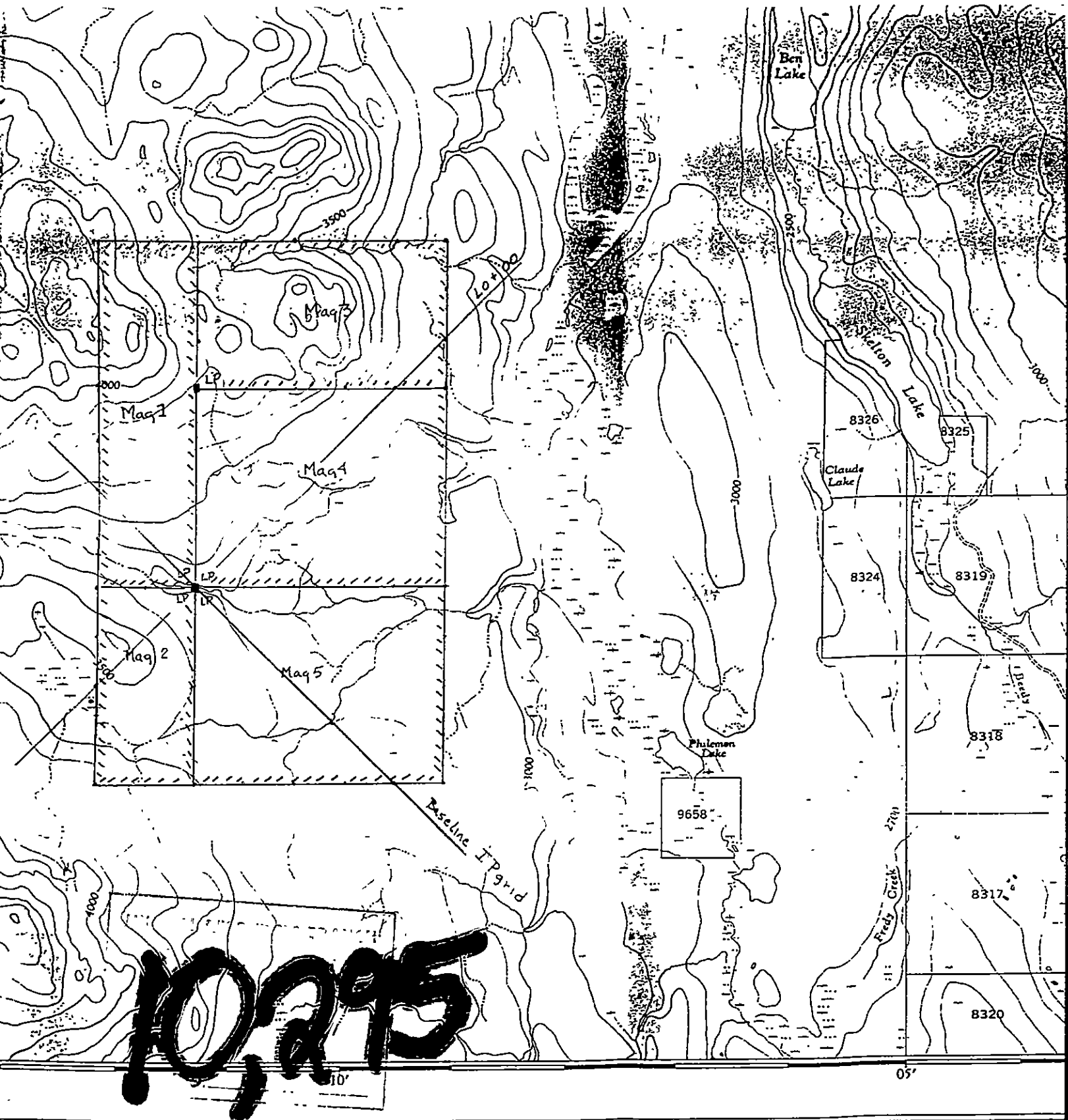
I, Peter E. Walcott, of the Municipality of Coquitlam, British Columbia, hereby certify that:


1. I am a Graduate of the University of Toronto with a B.A.Sc. in Engineering Physics, Geophysics Option, in 1962.
2. I have been practising my profession for the last 19 years.
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.
4. I hold no interest, direct or indirect, in the securities and/or properties of Gibraltar Mines Ltd., nor do I expect to receive any.



Peter E. Walcott, P.Eng.

Vancouver,
British Columbia
February 1982




 Legal Post and
 Boundary - Mineral Claim

ALEXANDRIA

KAMLOOPS DISTRICT
 BRITISH COLUMBIA

SCALE 1:50,000
 93 B/9 E

W-310-3

PETER E. WALCOTT & ASSOC. LTD.

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

I N V O I C E

NO. 1568

Date: November 25th, 1981

Terms: NET 30 DAYS

To: Gibraltar Mines Ltd.,
Box 130
McLeese Lake, B.C.
VCL 1P0

Re: I.P. Survey Mag group.

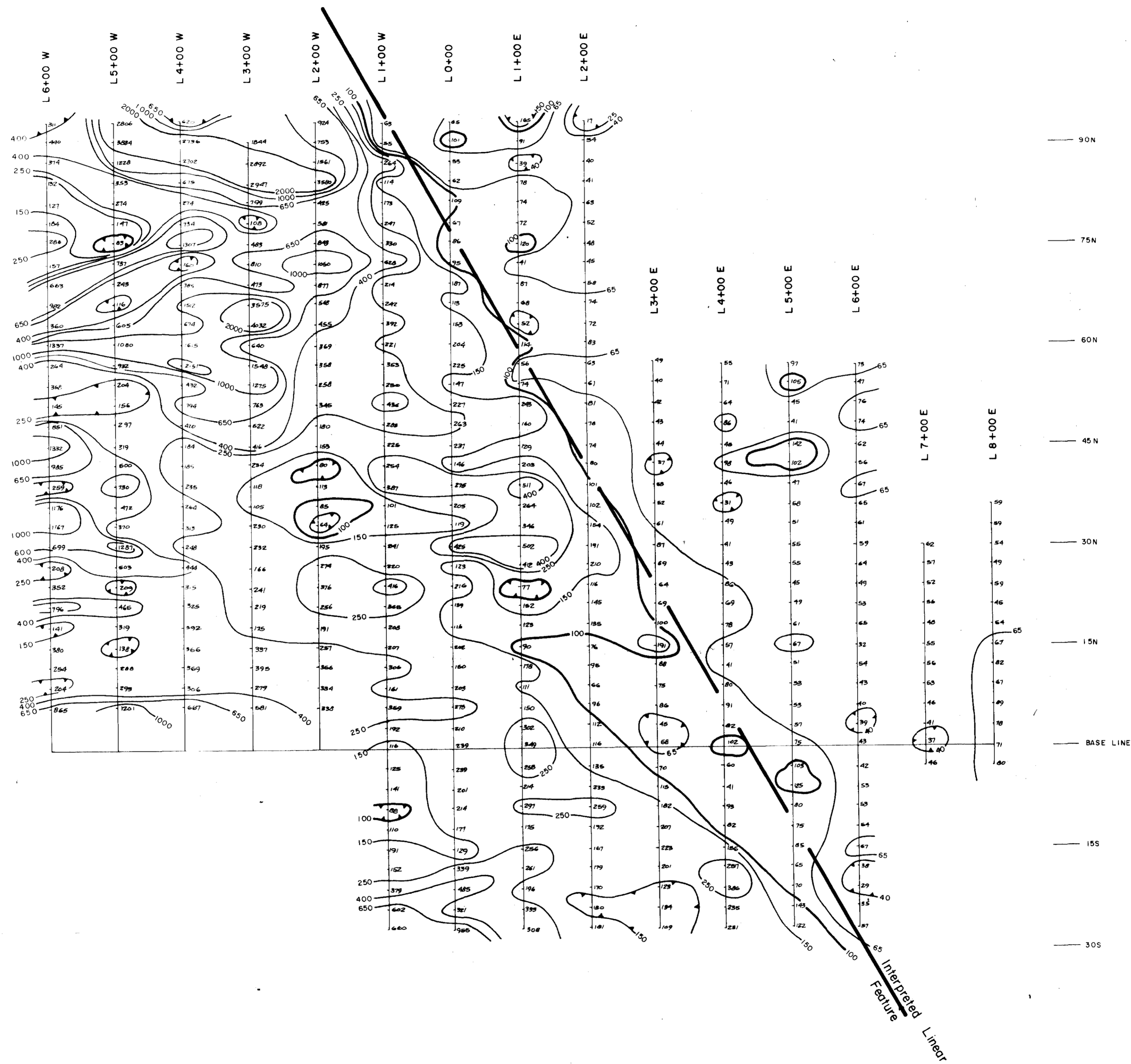
1.	Provision of two operators, I.P., 4 x 4 truck and 3 helpers period Oct. 7th - Nov. 8th = 29 days at \$785.00 per day	\$22,765.00
2.	Provision of above for standby day Oct. 9th	675.00
3.	Mobilization	1,700.00
4.	Room and board	<u>5,670.94</u>
		\$30,810.94
5.	Less 10 man days at \$85.00	<u>850.00</u>
		\$29,960.94
	Less 10% of items 1, 2 & 5 to be submitted on final invoice.	<u>2,259.00</u>
		\$27,701.94
		=====

INVOICE NO. 1568

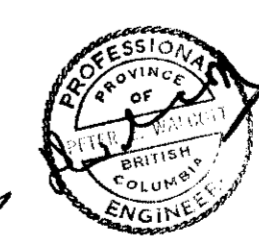
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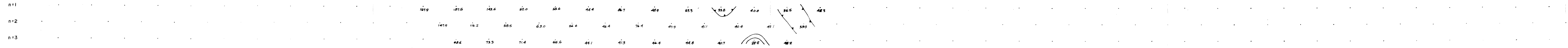
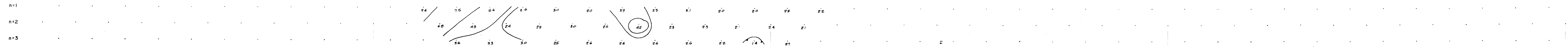
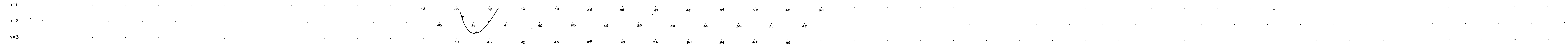
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CONTOUR INTERVAL = 25, 40, 65, 100, 150, 250, 400, 650, 1000 & 2000 ohm-metres

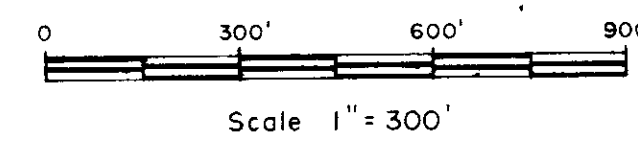
GIBRALTAR MINES LIMITED
 MAG GRID — CARIBOO M.D. - B.C.
 INDUCED POLARIZATION SURVEY
 CONTOURS OF APPARENT RESISTIVITY
 $a = 300'$ $n = 2$
 SCALE 1" = 1000'
 MAP No. W - 310-2
 To accompany a report by
 PETER E. WALCOTT, P.Eng.
 PETER E. WALCOTT & ASSOCIATES LTD.
 OCTOBER - NOVEMBER 1981

39-S 33-S 27-S 21-S 15-S 9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



GIBRALTAR MINES LIMITED
 MAG GROUP
 INDUCED POLARIZATION SURVEY
 L7+00 E

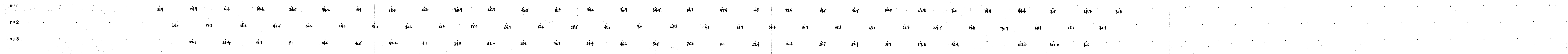
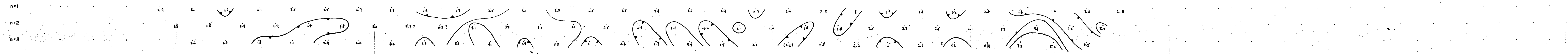
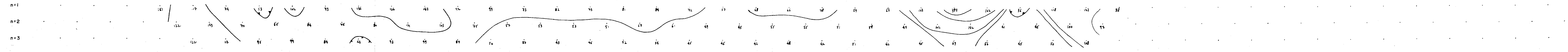
DIPOLE - DIPOLE ARRAY
 a = 300 FEET
 FREQUENCIES - 2.0 & 0.25Hz



M.F. OCT - NOV 1981

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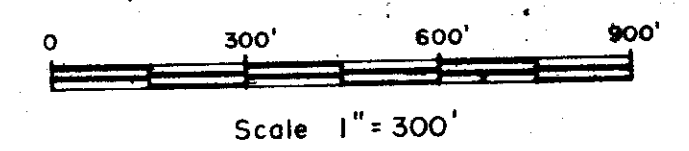
GIBRALTAR MINES LIMITED

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INDUCED POLARIZATION SURVEY

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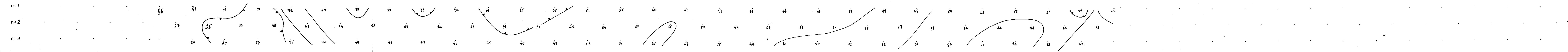
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 a = 300 FEET
 FREQUENCIES - 2.0 & 0.25Hz



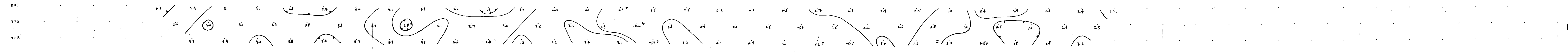
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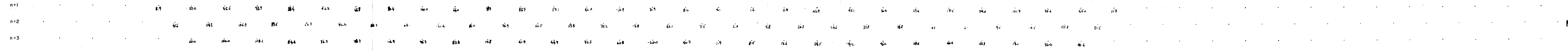
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Pa/2π



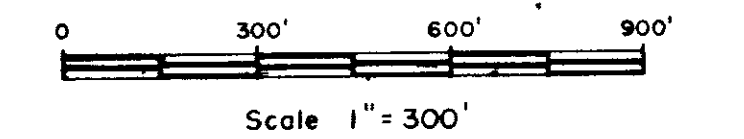
% F.E.



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MAG GROUP
INDUCED POLARIZATION SURVEY
L 6+00 E

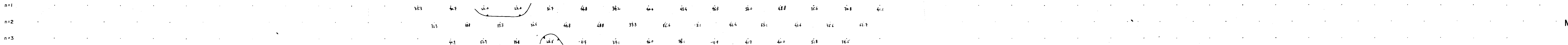
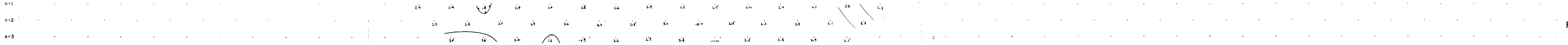
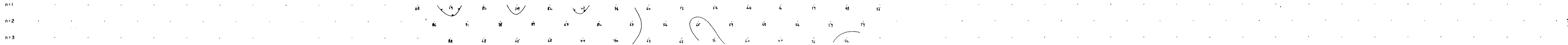
DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25 Hz



OCT. - NOV. 1981

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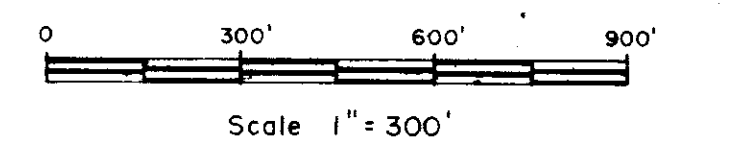
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MAG GROUP

INDUCED POLARIZATION SURVEY

L 8+00 E

DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25 Hz

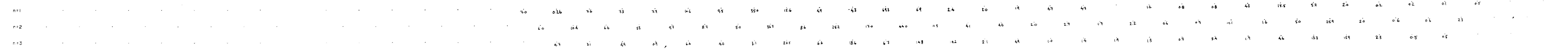
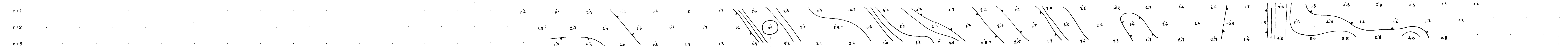
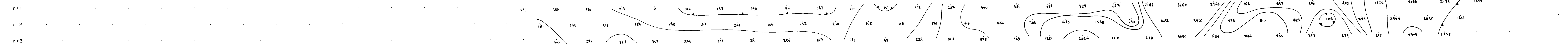


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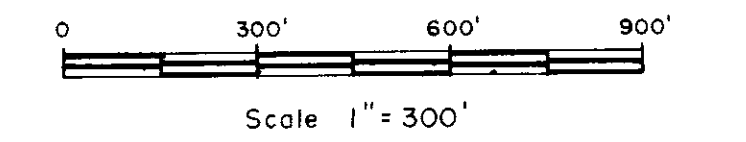
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GIBRALTAR MINES LIMITED
MAG GROUP

INDUCED POLARIZATION SURVEY
L 3+00W

DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



$Pg/2\pi$

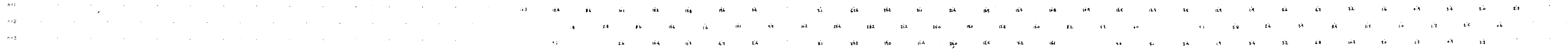
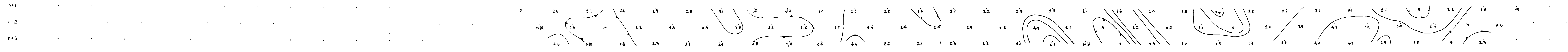
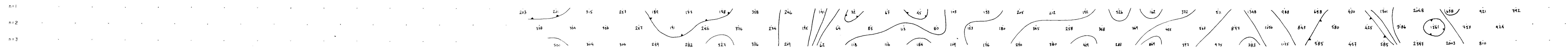
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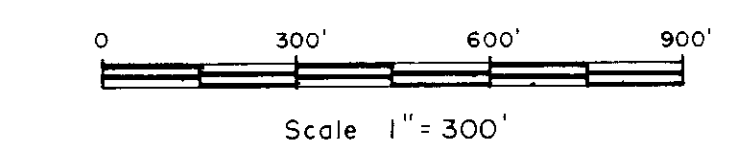
GIBALTAR MINES LIMITED

MAG GROUP

INDUCED POLARIZATION SURVEY

L2+00 W

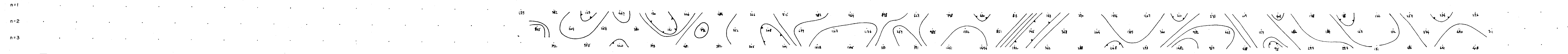
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a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



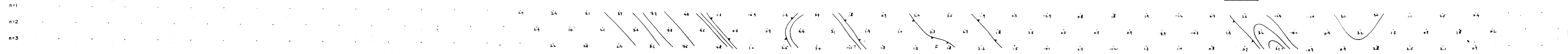
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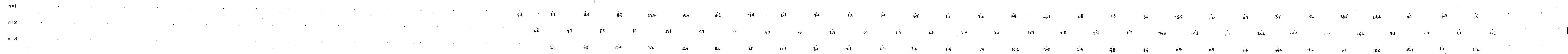
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$\frac{Pa}{2\pi}$



% F.E.

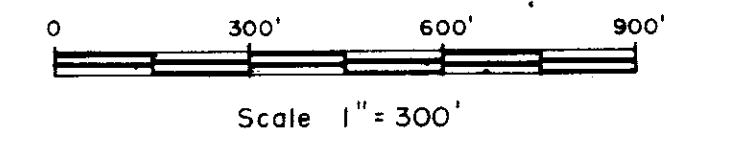


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GIBRALTAR MINES LIMITED
MAG GROUP

INDUCED POLARIZATION SURVEY
L6+00 W

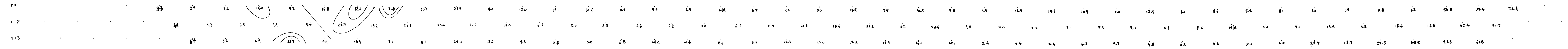
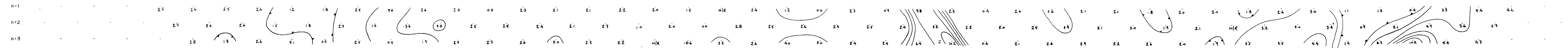
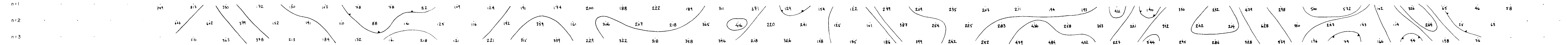
DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



OCT-NOV. 1981

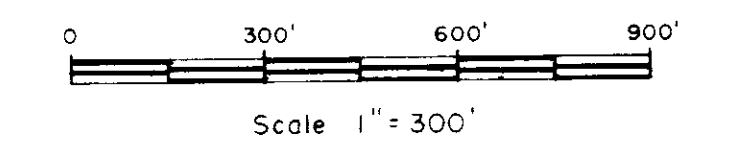
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GIBRALTAR MINES LIMITED
 MAG GROUP
 INDUCED POLARIZATION SURVEY
 L I+00 W

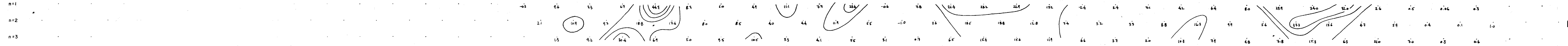
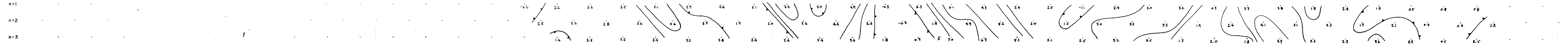
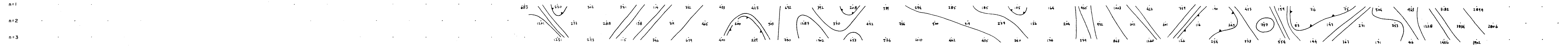
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 FREQUENCIES - 2.0 & 0.25 Hz



M.F. OCT. - NOV. 1981

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9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



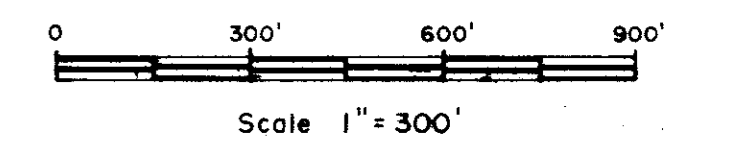
GIBRALTAR MINES LIMITED

MAG GROUP

INDUCED POLARIZATION SURVEY

L5+00 W

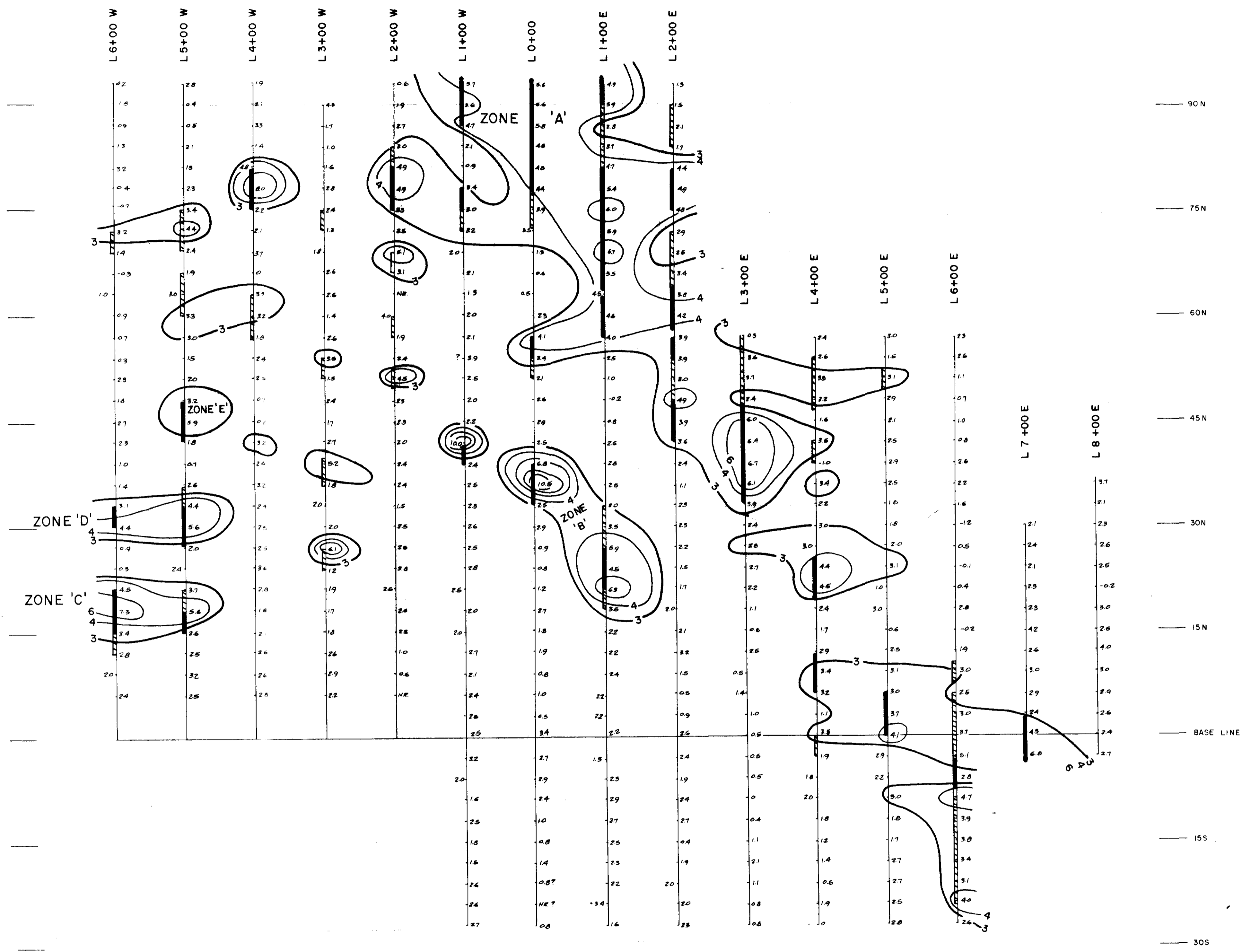
DIPOLE - DIPOLE ARRAY
 a = 300 FEET
 FREQUENCIES - 2.0 & 0.25Hz



M.F.

OCT.-NOV. 1981

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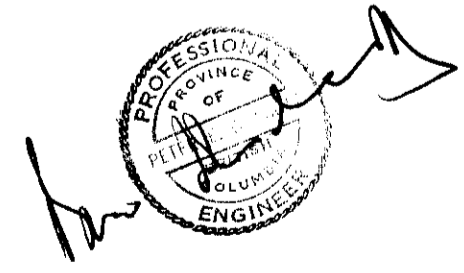
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DIPOLE-DIPOLE ARRAY

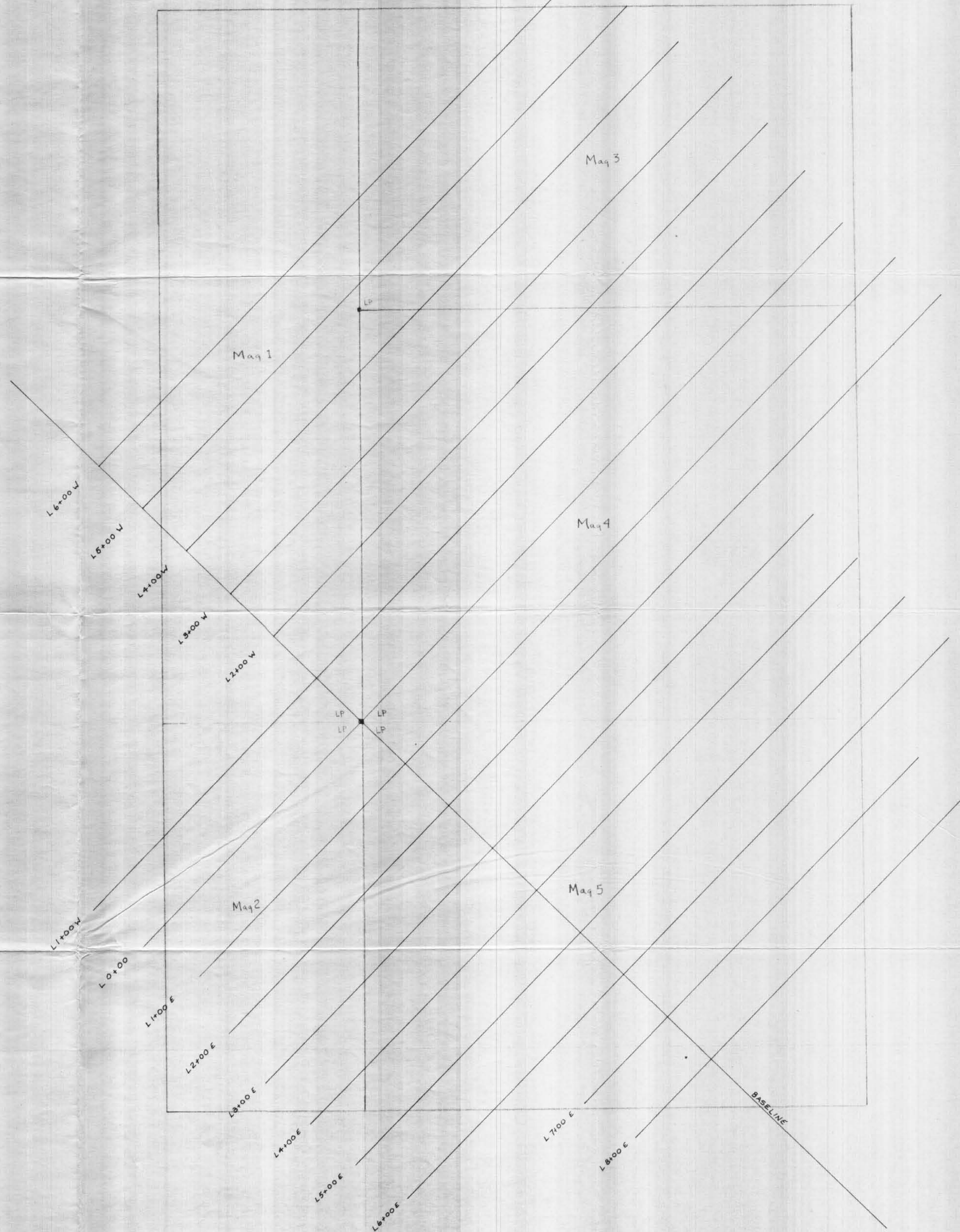


C₂ to South

- ANOMALOUS ZONE FROM PSEUDOSECTION PLOT
- - - POSSIBLE ANOMALOUS ZONE FROM PSEUDOSECTION PLOT
- INTERPOLATED VALUE



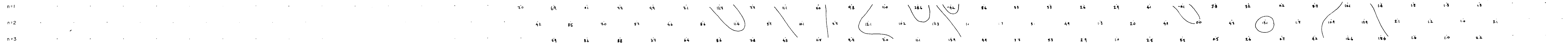
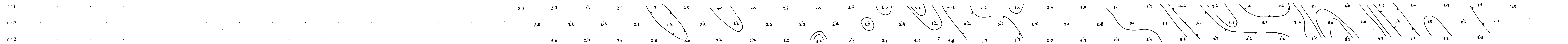
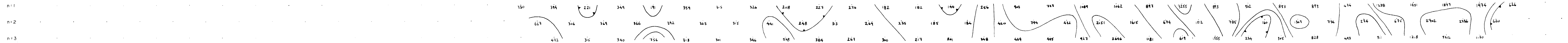
GIBRALTAR MINES LIMITED
 MAG GRID — CARIBOO M.D. - B.C.
 INDUCED POLARIZATION SURVEY
 CONTOURS OF APPARENT FREQUENCY EFFECT
 $\alpha = 300'$ $n = 2$
 SCALE 1" = 1000'
 MAP No. W - 310-1 PETER E. WALCOTT & ASSOCIATES LTD.
 To accompany a report by PETER E. WALCOTT, P.Eng. OCTOBER - NOVEMBER 1981



MAG IP GRID Claim Boundaries
 SCALE 1 in 1000 FT
 W-310-4
 To accompany Induced Polarization
 Survey on Mag Claims
 Oct 7th - Nov 9th 1981

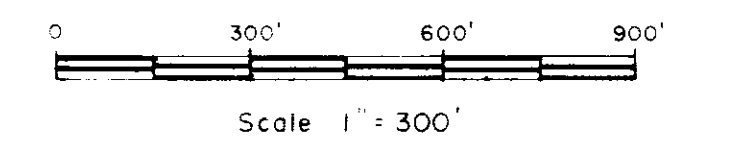
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39-S 33-S 27-S 21-S 15-S 9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



GIBRALTAR MINES LIMITED
MAG GROUP
INDUCED POLARIZATION SURVEY
L4+00 W

DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



$\frac{P_g}{2\pi}$

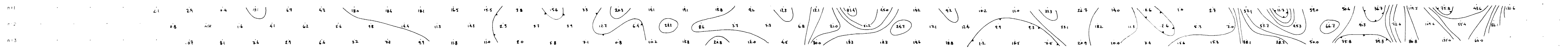
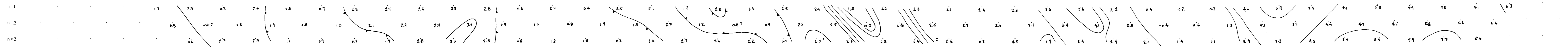
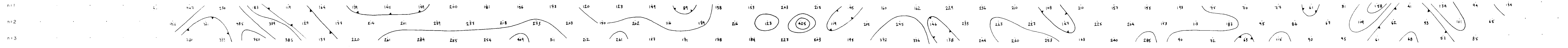
% F.E.

M.F.

OCT. - NOV. 1981

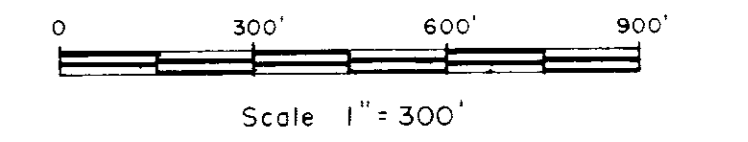
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INDUCED POLARIZATION SURVEY
L 0+00

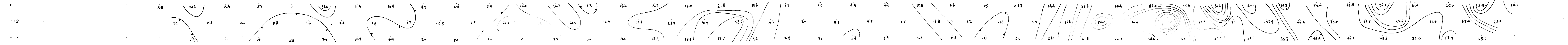
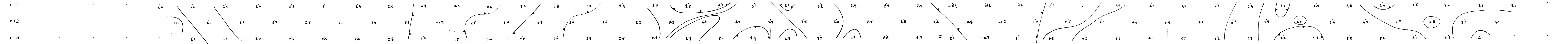
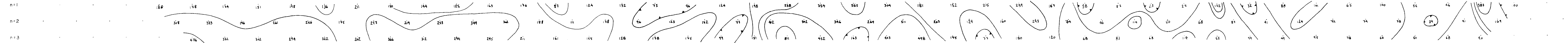
DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



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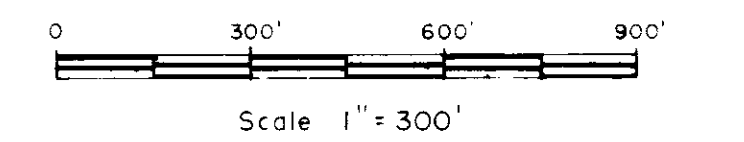
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39-S 33-S 27-S 21-S 15-S 9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



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MAG GROUP
INDUCED POLARIZATION SURVEY
LI+00E

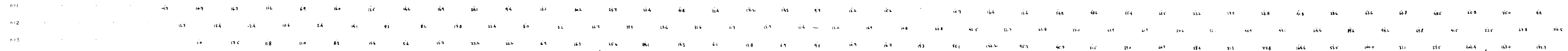
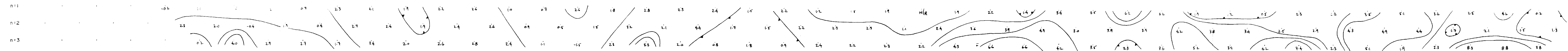
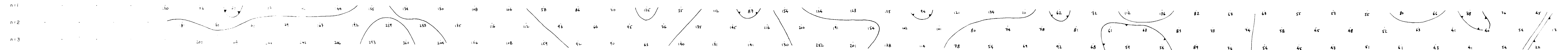
DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 25Hz



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39-S 33-S 27-S 21-S 15-S 9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



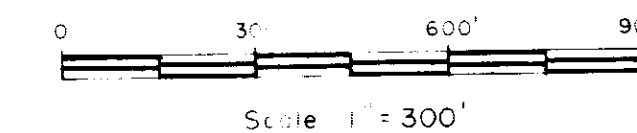
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INDUCED POLARIZATION SURVEY

L2+00 E

DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES 2.0 & 0.25 Hz



$\frac{Pa}{2\pi}$

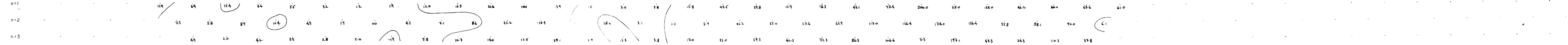
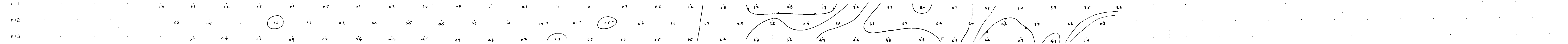
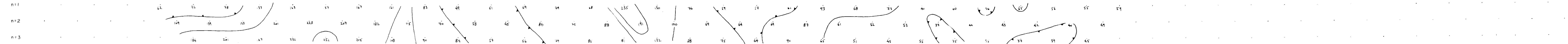
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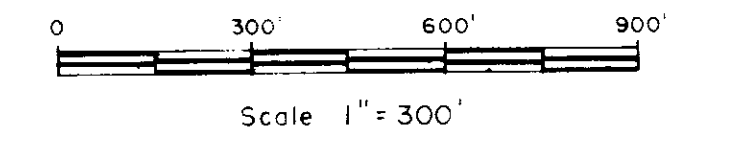
10,295

39-S 33-S 27-S 21-S 15-S 9-S 3-S 3-N 9-N 15-N 21-N 27-N 33-N 39-N 45-N 51-N 57-N 63-N 69-N 75-N 81-N 87-N 93-N 99-N



GIBRALTAR MINES LIMITED
MAG GROUP
INDUCED POLARIZATION SURVEY
L 3+00 E

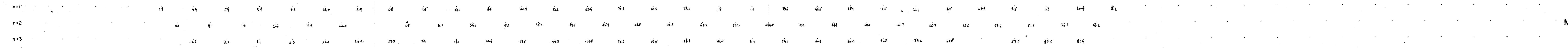
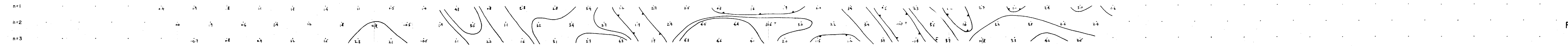
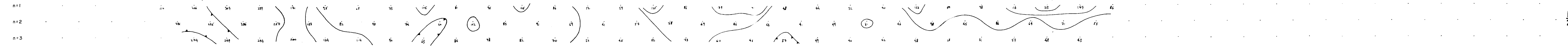
DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



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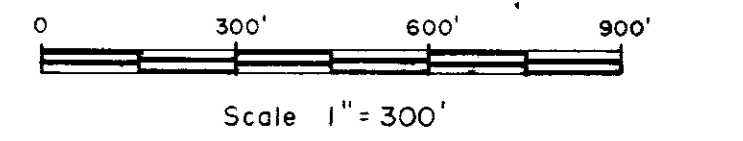
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GIBRALTAR MINES LIMITED
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INDUCED POLARIZATION SURVEY
L4+00 E

DIPOLE - DIPOLE ARRAY
a = 300 FEET
FREQUENCIES - 2.0 & 0.25Hz



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