INTERPRETATION OF GROUND MAGNETICS FOR CLERGUE TOWNSHIP CLAIMS

INTRODUCTION:

The property consists of an irregular block of fifty claims, roughly 3 miles east of Frederick House Lake, in the Porcupine Area. A ground magnetometer survey was carried out to outline the geologic structure since few outcrops are exposed. The survey was carried out along picket lines running north-south, 400 feet apart, with readings taken at 100 foot intervals. Maps showing the contoured basic data and final interpretation accompany this report.

Few outcrops are exposed in the claim group. The rocks as indicated by mapping key outcrops outside the claim group, consist of a folded series of Keewatin acidic to intermediate flows with interbanded sills of gabbro, pyroxenite and serpentinized peridotite. (Geological Map of Clergue Township Claims, T.Parks, August 21, 1950). Diabase dikes of Matachewan age occur east of the claim group. The structure as indicated by T. Parks consists of an anticlinal axis plunging west and trending roughly N 30° E, through the claim group. Synclinal axes north and south of the claim group are indicated. The basic sills are thought to be pre-folding, and possibly of late Keewatin age.

SUMMARY:

An anticline striking N 30° E (approximately) and plunging west, has been interpreted geologically by T. Parks. The two main anomalous bands trending roughly northeast through the claim group have been interpreted as basic intrusive sills, forming the two limbs of the anticline. The magnetic lows surrounding the anomalous bands, probably represent acidic to intermediate flows. Numerous cross-faults of unknown age have been interpreted. The most important feature indicated in the interpretation, is the possible location of a cross drag-fold axis striking north-south just west of the Clergue-Dundonald border. This would form an important structural control for later mineralizing solutions.

INTERPRETATION:

The basic data were contoured to 500 gamma intervals. This was considered sufficient to outline all important structures. On the interpretation overlay, contacts and faults are indicated as well as fold axes. Anomalies have been numbered for ease in reference.

The main magnetic feature consists of two roughly parallel, highly magnetic bands, trending north-east through the property. A broad magnetic low about 4000 feet wide lies between the bands at the north end. South of the southern band, another broad magnetic low occurs.

Of the two main anomalous bands described above, the southern band is best exposed. The main band is actually composed of two and sometimes three parallel, highly magnetic bands. These bands trend southwest from claim L-54127, with some interruptions, to claims L-55567-68. At this

point a definite change in strike occurs with a swing to about N 60° W. Numerous offsets and interruptions occur along strike indicating probable cross-faults. The northern anomalous band indicates three parallel, highly magnetic bands trending roughly northeast.

The two main anomalous bands have been interpreted as the limbs of an anticline which trends N 30° E through the property. The individual highly magnetic bands within the main bands are interpreted as basic intrusive sills ranging from gabbro to pyroxenite and peridotite in composition, with the low magnetic masses representing the series of acidic to intermediate flows. No separation of gabbro, pyroxenite or peridotite is possible on the strength of the magnetic data. A possible cross-fold or drag-fold has been interpreted, partially from geological and partially from geophysical data. A flexure is indicated in the formations at the Alexo Mine. The flexure in the southern anomalous band agrees remarkably well with the Alexo Mine flexure. Ground magnetic data on the northern band are not available but a slight change in strike is indicated by Anomaly 3. This type of deformation may be caused by a large drag fold rather than an ordinary corss-fold. If later mineralization has occurred it would form an important structural control for mineralizing solutions. Its presence at the Alexo Mine suggests that it exerted some control on ore deposition. Thus the intersection of the drag-fold with the series of basic sills or any major break would be of considerable interest.

Numerous faults have been interpreted on the strength of interruptions or offsets in the anomalous bands. Two faults have been interpreted trending west of north, one west of Anomalies 21 and 22 and the other east of Anomalies 20 and 36. A fault indicating approximately 600 feet displacement has been interpreted between Anomalies 7 and 19 and west of Anomalies 20 and 36. The west side has moved south. Westward, a fault has been interpreted terminating Anomalies 33, 32, 44 and 45. Faintly suggestive movement is west side south. Another possible fault is shown trending northwest, west of Anomalies 28, 29, 31 and 32. A fault with indefinite limits is indicated between Anomalies 30 and 41 with possible movement, west side south. Between 59 and 53 and east of Anomalies 51 and 52, another fault with indefinite limits has been interpreted. Another possible fault is shown west of Anomalies 25, 47, 51, 52 and 58. Indefinite limits are indicated as a fault between Anomaly 54 and Anomalies 55, 60 and 61. This fault or fault zone may be a continuation of two faults indicated geologically to the north. A 4 foot shear zone occurs south of Anomaly 52, but it does not fit the magnetics. The magnetics indicate a peak of 12,148 gamma, 30 feet north of a low of 196 gamma. At present there is insufficient information to explain the phenomena. It may be caused by a band of magnetite a few feet in width, at surface. The anomalous band to the north indicates three individual highly magnetic bands, with a slight change in strike at the southwest of Anomaly 3. East of Anomaly 3 occurs a zone of gradational magnetic gradient. This type of occurrence is characterized by a wide zone of more or less evenly spaced contours. It may indicate one of: 1. Alteration zone. 2. Gradational magnetite content. 3. East sloping contact. In this case, the dip is probably west as indicated by the anticline plunging southwest. Therefore it can be explained as an alteration zone.

Numerous depth of overburden estimates have been made. Depths

63.176

vary from 0 to 150' ± 20%, although the average is probably close to 100' ±. Diamond drilling results gave reasonable checks on a number of estimates.

CONCLUSIONS:

The important economic feature as interpreted, is the proposed cross drag-fold. If there has been mineralization in post-folding time, this would be an important structural control for mineralizing solutions. Therefore attention is drawn to the flexure occurring in claims L-55566-67-68-70 and L-54157. The corresponding location on the northern anomalous band should be equally interesting. This is borne out by the location of the Alexo Mine on the flexure on the northern band. The numerous cross-faults interpreted are of unknown age, except that they cut the basic intrusives. These would be of economic interest if they are pre-mineralization.

Respectfully submitted,

H. Reimer

lj (s) H. Reimer.

REPORT ON THE GEOELECTRICAL SURVEY OF THE EASTERN CLERGUE PROPERTY

Report No. 95A - CLERGUE TOWNSHIP

SUMMARY

An electrical survey was conducted on the Dominion Gulf claims in Clergue Township. The purpose of this survey was to provide information concerning possible mineralization and to serve as a guide to further work on the property. No indication of mineralization was found. No further work is recommended on these claims, at least until electrical surveys planned for claims to the west have been completed.

INDEX TO FIGURES AND MAPS

INTRODUCTION

An electrical survey was conducted on claims 54120, 54121, 54122, 54127, 54128, 54129 in Clergue Township, Larder Lake mining division, concerning possible sulphide mineralization and to serve as a guide for further work on the property. The work was carried on between January 4 and March 5, 1949. The double line electrode configuration was used.

LOCATION AND ACCESS

Station 0+00 is located 4038 feet due west of the northeast corner of Lat 7, Con. II, in Clergue Township. It can be reached by means of a road south from Kelso on the Ferguson Highway (Highway No. 11).

CHARACTER OF THE REGION

Local relief is very low, the bedrock being entirely covered by a mantle of glacial lake deposits, mostly clay. Most of the claims are swamp land in early summer.

GENERAL GEOLOGY

No rock exposures were noted on the claims and outcrops are reported to be scarce in the surrounding area. Most of the published geological information concerns the Alexo Nickel Mine which lies two miles to the northwest. The rock there consists of pillow lava intruded by a large mass of serpentinized peridotite. Studies of the ore suggest that the sulphides may have segregated near the contact between the peridotite and the lavas. The area investigated electrically lies close to the intrusive and similar conditions may obtain.

GEOPHYSICAL SURVEY

Electrical energy was supplied by a 110 volt, 60 cycle,

alternator coupled to a small gasoline engine, and the output of this motor generator set fed to iron stakes driven into the ground. An A. C. ammeter was connected in series with the above circuit, and read at convenient intervals, to obtain an average galue of the current introduced into the ground. Potential differences were measured with a vacuum-tube voltmeter designed by Mining Geophysics Corporation limited. The instrument's portability and its high impedance input eliminate difficulties in the field of unequal contact resistances, and provide for facility and rapid measurement.

The Double Line electrode method employed two line electrodes spaced 3000 feet apart and connected to the poles of the A. C. generator. The theoretical concept of a line source was approximated by colinear point sources connected together 200 feet apart. Since the survey was planned to determine resistivity the picket lines were run in the direction of current flow.

CONCLUSIONS

A study of the resistivity profiles reveals no anomalies which can be attributed to near-surface conductive bodies, such as might be encountered over a heavily mineralized zone. The anomalous values obtained are within the probable range of error. The magnitude of the resistivity suggests principally overburden effect being of the order of 2-3 x 10^4 ohms - cms.

RECOMMENDATIONS

No further work is recommended on these claims, at least until the results of extended electrical surveys of claims to the west have been completed.

Respectfully submitted,

MINING GEOPHYSICS CORPORATION LIMITED

J. E. Noakes

N. B. Keevil

W. R. Bergey

D. F. Brennan

Toronto,
May 3, 1949.

RPT ON GEOELECTRICAL SURVEY OF PART OF PORCUPINE-KIRKLAND AREA

RPT No 112 - CLERGUE TWP CL.

Sept. /1949

CONTENTS

INDEX TO FIGURES AND MAPS

MAPS UNDER SEPARATE COVER

REPORT ON GEOELECTRICAL SURVEY OF

Part of

Porcupine-Kirkland Area

Report No. 112 - CLERGUE TOWNSHIP CLAIMS

SUMMARY

The interpretation of the geoelectrical survey shows a band of serpentinized peridotite striking in a northeasterly direction across the claims and in contact with greenstone at least on its southern edge. The greenstone-serpentine contact is considered favourable for ore deposition since the ore at the Alexo Nickel Mine occurs at this contact.

Areas of low resistivities coincide with areas of high magnetic intensities near the western boundary of the surveyed area. The resistivity values are low enough to be caused by pyrrhotite mineralization.

Gravimetric and electrical resistivity tests at selected portions of the property have been recommended.

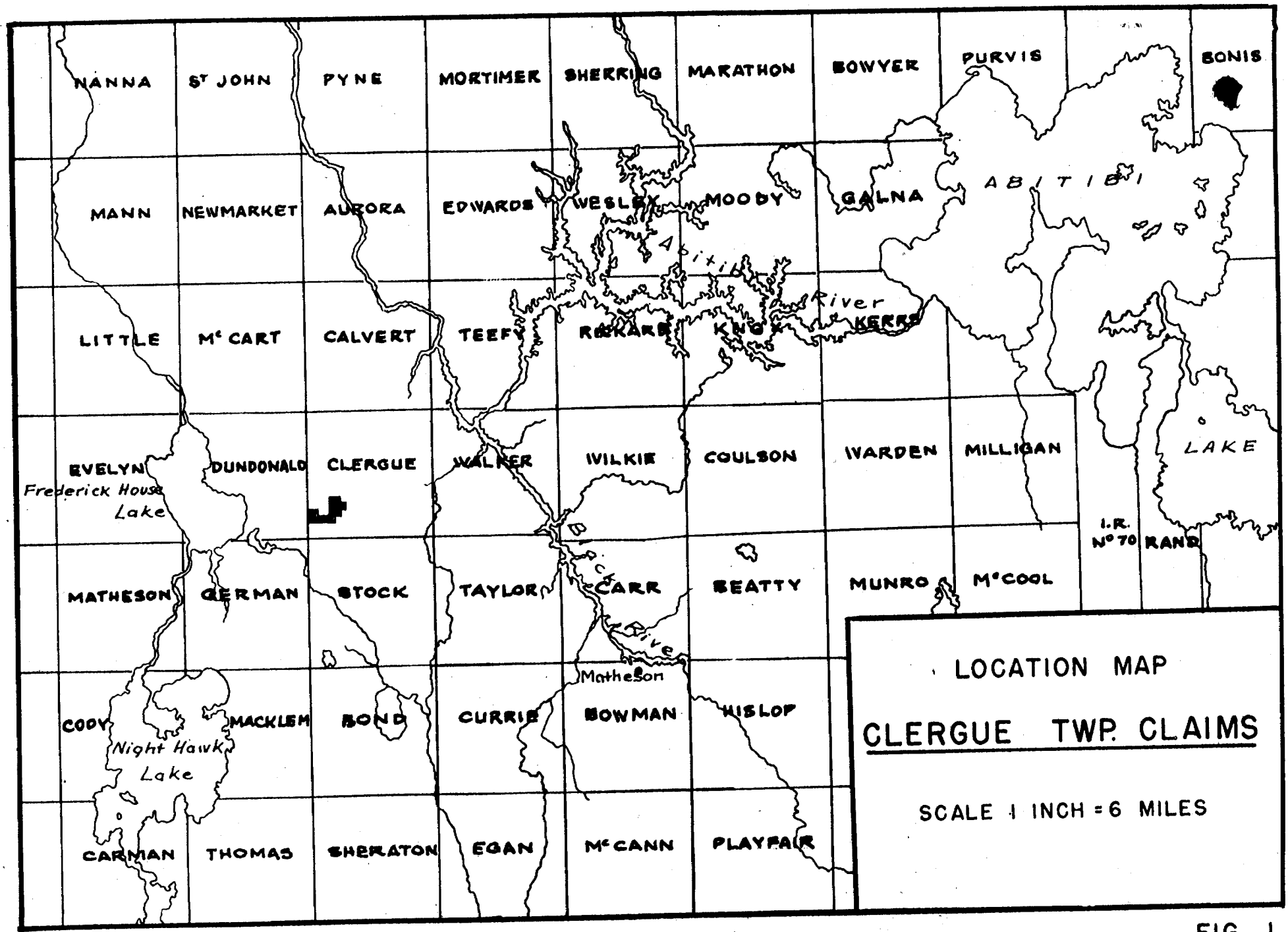
NANNA
ST JOHN
PYNE
MORTIMER
SHERRING
MARATHON
BOWYER
PURVIS
BONIS
MANN
NEWMARKET
AURORA
EDWARDS
WESLEY
MOODY
GALNA
ABITIBI
Abitibi River
LITTLE
Mc CART
CALVERT
TEEFY
REKARD
KING
KERR
EVELYN
Frederick House Lake
DUNDONALD
CLERGUE
WALKER
WILKIE
COULSON
IVARDEN
MILLIGAN
LAKE
I.R. No 70
RAND
MATHESON
GERMAN
STOCK
TAYLOR
CARR
BEATTY
MUNRO
McCOOL
Matheson
CODY
Night Hawk Lake
MACKLEM
BOND
CURRIE
BOWMAN
HISLOP
CARMAN
THOMAS
SHERATON
EGAN
McCANN
PLAYFAIR
LOCATION MAP
CLERGUE TWP. CLAIMS
SCALE 1 INCH = 6 MILES

FIG. 1

INTRODUCTION

The aeromagnetics of the Dundonald-Milligan section of the Porcupine area revealed an area of high magnetic intensity in Concessions I, II, and III Clergue and Dundonald Townships.

A known nickel-bearing sulphide deposit (Alexo Nickel Mine) existed within the northwest boundary of the anomaly, its position being marked by an irregularity of the magnetic contours.

One and a half miles to the southeast of the mine a magnetic anomaly occurred off the edge of the main high magnetic values. This anomalous area appeared to be important and was accordingly staked, and part of the claims tested by ground geoelectrical methods following geological mapping and reconnaissance of the claim area and the surrounding region.

LOCATION AND ACCESS

The Clergue claims lie in Clergue Township, Ontario, and consist of parts of Lots 9, 10, 11, and 12 in Ranges I, II, and III. Several bush roads which leave the main Porquis Junction-Timmins highway about six miles from Porquis Junction make the property very easy of access by truck. Parts of these roads are not passable by car.

CHARACTER OF THE REGION

The whole area is covered by low sandy hills or spruce swamp. The topographic relief is slight, sandy hills rising only 40 to 50 feet above the surrounding swamp. Jackpine, birch, and poplar cover the higher ground while spruce and small alders occur in the swamps. Several abandoned farms are situated within the claim block.

PREVIOUS WORK

Since the claims are entirely covered with overburden little previous work has been done. The area was flown by Dominion Gulf Company, and a preliminary interpretation made (M.G.C. Report No. 59). Additional flight lines have been added and an interpretation of the whole area around the claims is nearing completion.

In the winter of 1948-49 electrical tests were carried out to determine the most suitable geoelectrical methods for the area, the findings are embodied in M. G. C. Report No. 95.

The Ontario Bureau of Mines published a report in 1917 on the Alexo Nickel Mine which lies one and a half miles to the northwest of the property.

Bibliography:

Baker, M. B., Alexo Nickel Mine, Timiskaming District, 26th Annual Report, Ont. Bur. Mines, 1917. Vol. XXVI, pp. 258-274.

Dominion Gulf Company, Field Reports Clergue Township, 1949.

Mining Geophysics Corporation Ltd., Report No. 59 - Evelyn-Beatty Area. and Map No. 6.

Report No. 95 - Clergue Township

GENERAL GEOLOGY

Despite a detailed survey of the claims no rock exposures were discovered to furnish a clue concerning the underlying geological formations. The preliminary aeromagnetic interpretation indicated the geology to be similar to that at the Alexo Nickel Mines where serpentinized peridotite was in contact with basic flows or gabbro. All ore occurrences at the mine and at isolated spots to the southwest are at the contact between the serpentine and the greenstone[1]. No reports have

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1. Baker, M. B., Alexo Nickel Mine, Timiskaming District, 26th Ann. Rept. Ont. Bur. Mines, 1917, Vol. XXVI, pp. 258-274.

been made of massive sulphides at the gabbro peridotite contact.

Table of Formations:

Pleistocene		Stratified clays, sand, and gravel
Precambrian		
	Keweenawan	Diabase and gabbro
		Intrusive Contact
	Pre-Algoman	Peridotite altered to serpentine
		Intrusive Contact
	Keewatin	Pillow lava, andesite.

GEOPHYSICAL SURVEY

Three types of ground geophysical surveys were used:

(a) Magnetometer
(b) Applied Potential
(c) Self Potential

The magnetometer was used to accurately fix the position of the aeromagnetic anomaly relative to the claim boundaries. Profiles were taken along lines 36 + 00 W, 0 + 00 E and 12 + 00 E over the anomaly. A short profile was run at right angles to the assumed strike of the geological formations, southeast and northwest from a point 16 + 60 N on line 4 + 00 E.

Applied potential methods were chiefly used on the property. The area was surveyed in three parts, the southeast section, the larger northwest section, and a smaller section joining the two.

The southeast section was surveyed by placing one electrode 750 feet from each corner of the block along the extension of its diagonals.

The two easterly electrodes were made one polarity, while the westerly electrodes were of opposite polarity. The potential differences

between points 100 feet apart along North-South lines were measured by a sensitive vacuum tube voltmeter and three probe electrodes. These values were used to draw up the equipotential lines between the electrode system. Some doubt arose concerning the accuracy of the readings since it was found difficult to effect closures in completed loops. In the final results the potential differences were used to calculate apparent average resistivities since errors for this method were not additive. The calculated resistivities were used in the final interpretation.

Both the northeast and central parts were surveyed using single current electrodes set well beyond the areas to the north and south. Potential differences at 100 foot intervals along North-South lines were obtained as before. The values were used to calculate earth resistivities.

A modified central point electrode set up was employed at seven points to obtain overburden depths. The results from such set ups were also used to obtain information concerning rock resistivities immediately below the centre point of each set up.

A self potential profile was run north and south from the base line along 28 + OOW.

A long narrow region of lower resistivities, shown by the preliminary survey to extend diagonally across the claim block was investigated by placing single current electrodes on the projected extension of the anomalous resistivities beyond the claim block. The potential values along the original North-South lines were taken at 50 foot intervals and the apparent resistivities calculated.

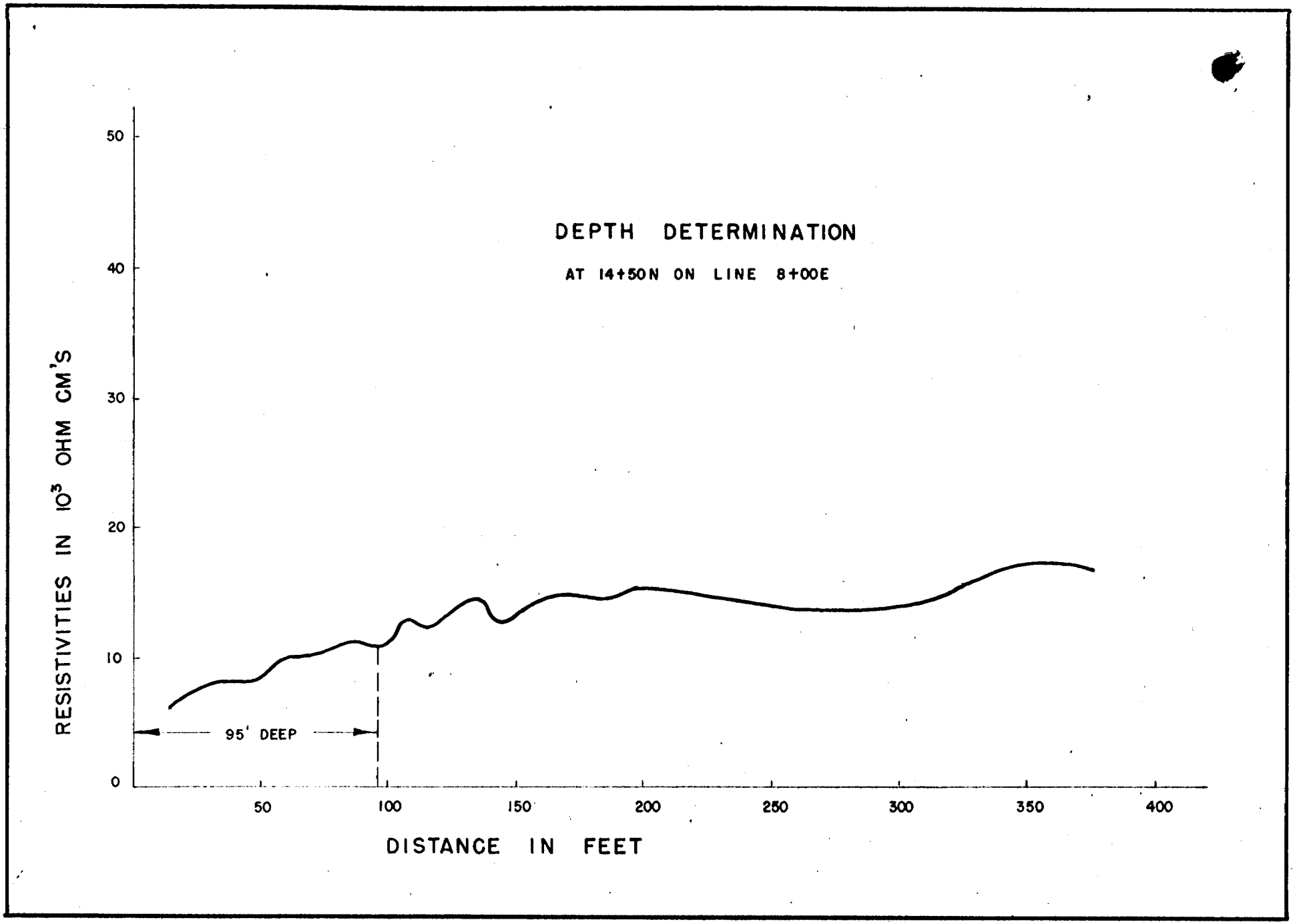
DEPTH DETERMINATION
AT 14+50N ON LINE 8+00E
RESISTIVITIES IN 10^3 OHM CM'S
50
40
30
20
10
0
95' DEEP
50
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 2

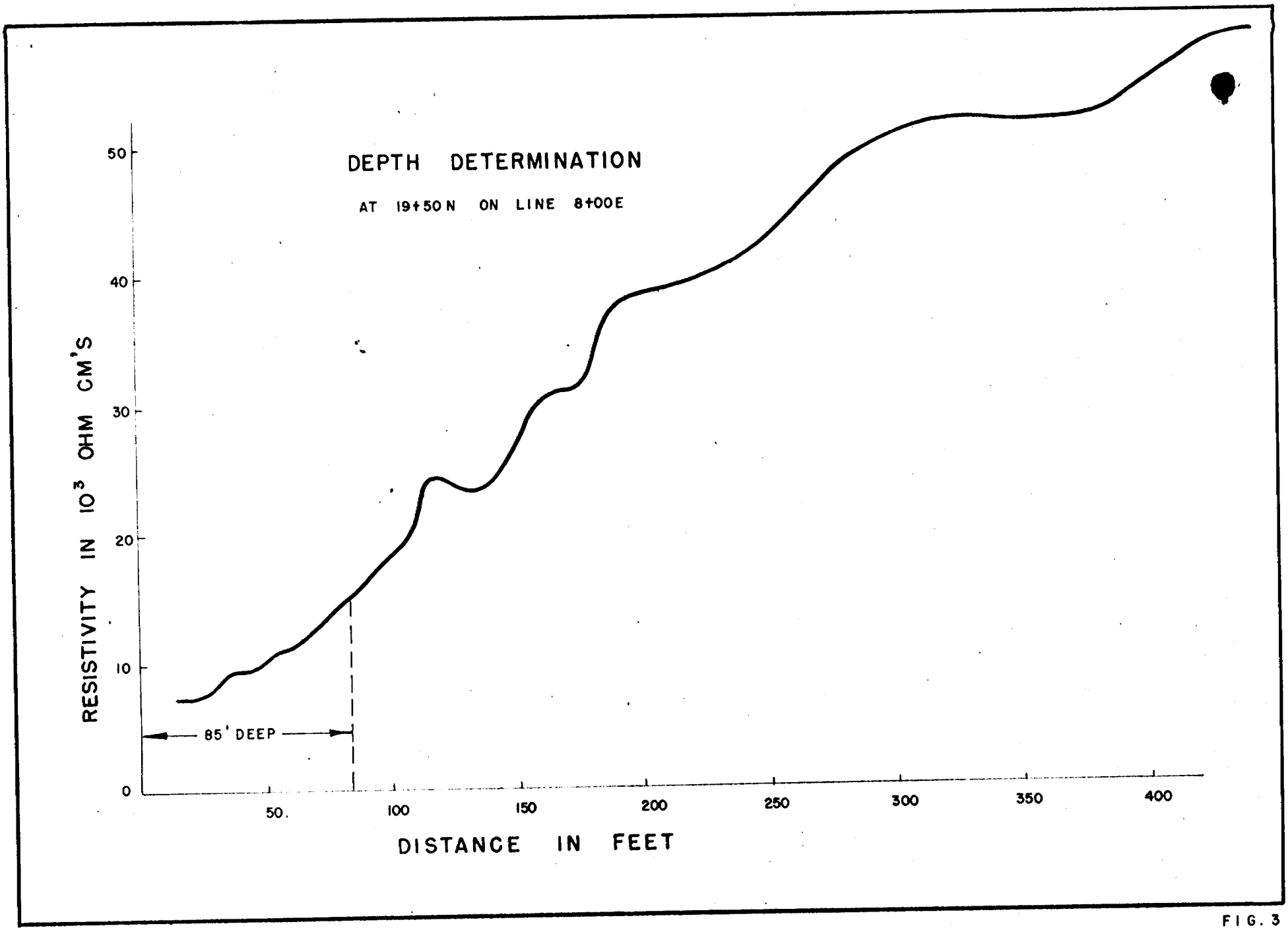
DEPTH DETERMINATION
AT 19+50 N ON LINE 8+00E
RESISTIVITY IN 10^3 OHM CM'S
50
40
30
20
10
0
85' DEEP
50.
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 3

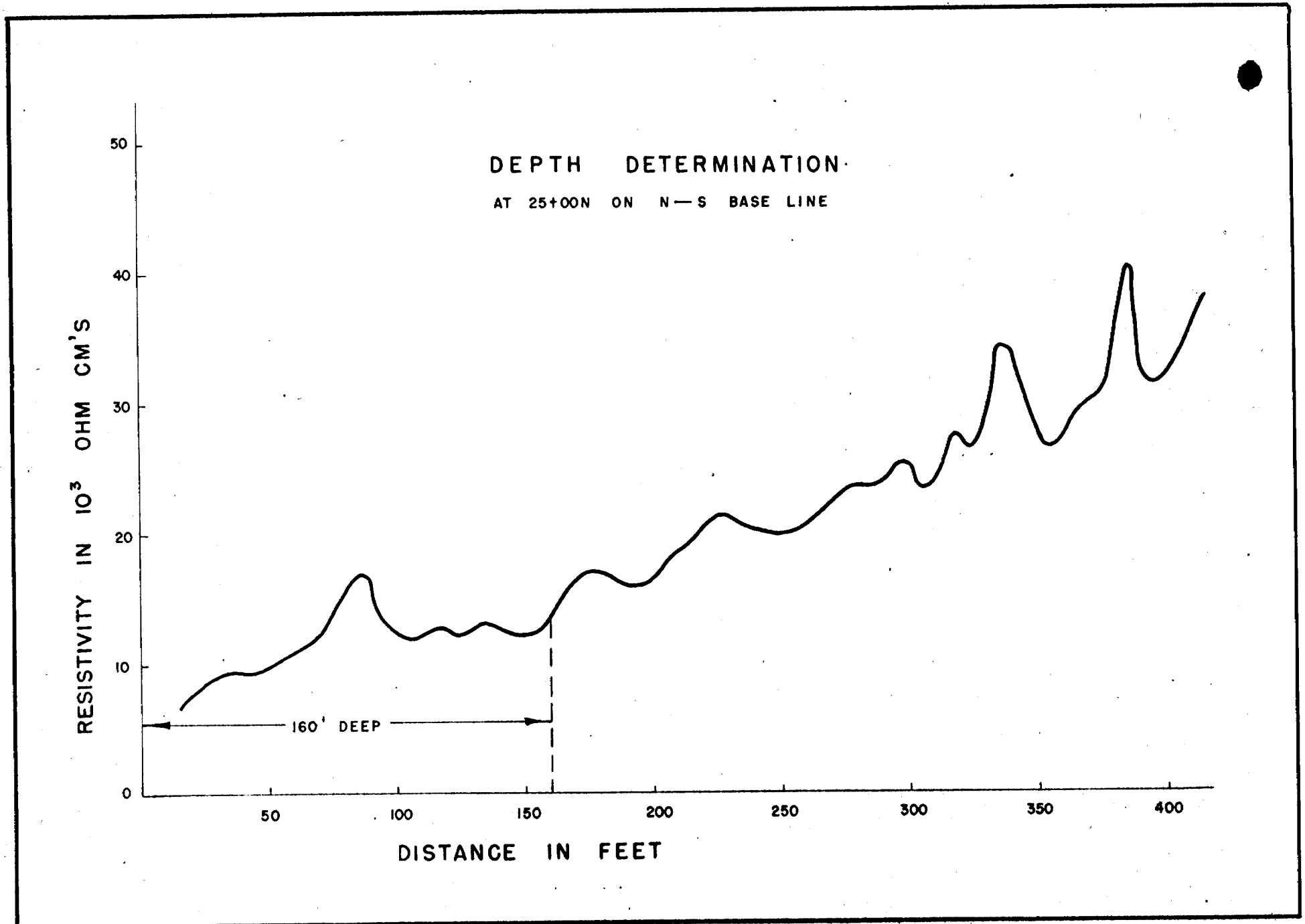
DEPTH DETERMINATION
AT 25+00N ON N—S BASE LINE
RESISTIVITY IN 10^3 OHM CM'S
0
10
20
30
40
50
160' DEEP
50
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 4

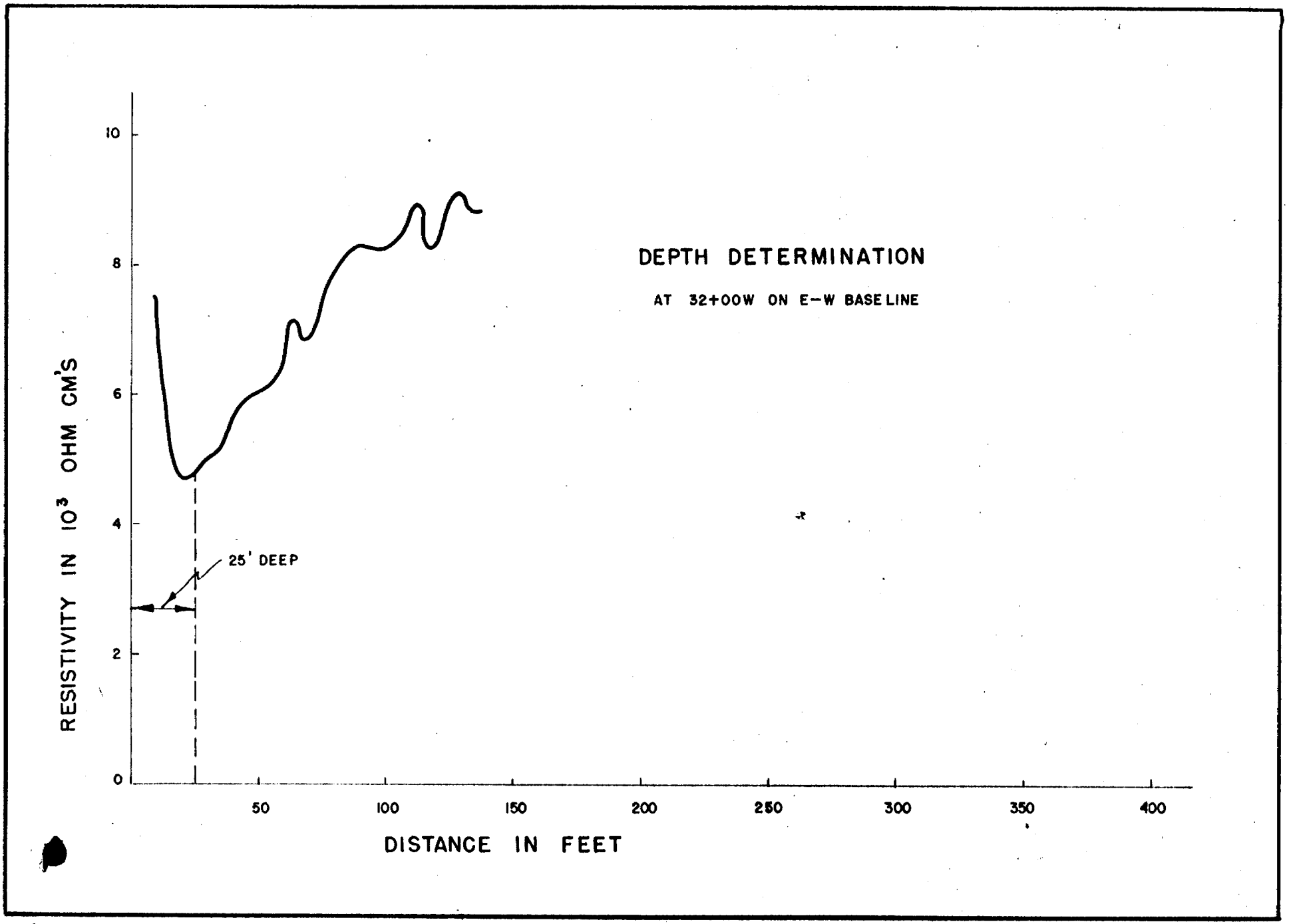
DEPTH DETERMINATION
AT 32+00W ON E-W BASE LINE
RESISTIVITY IN 10^3 OHM CM'S
10
8
6
4
2
0
25' DEEP
50
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 5

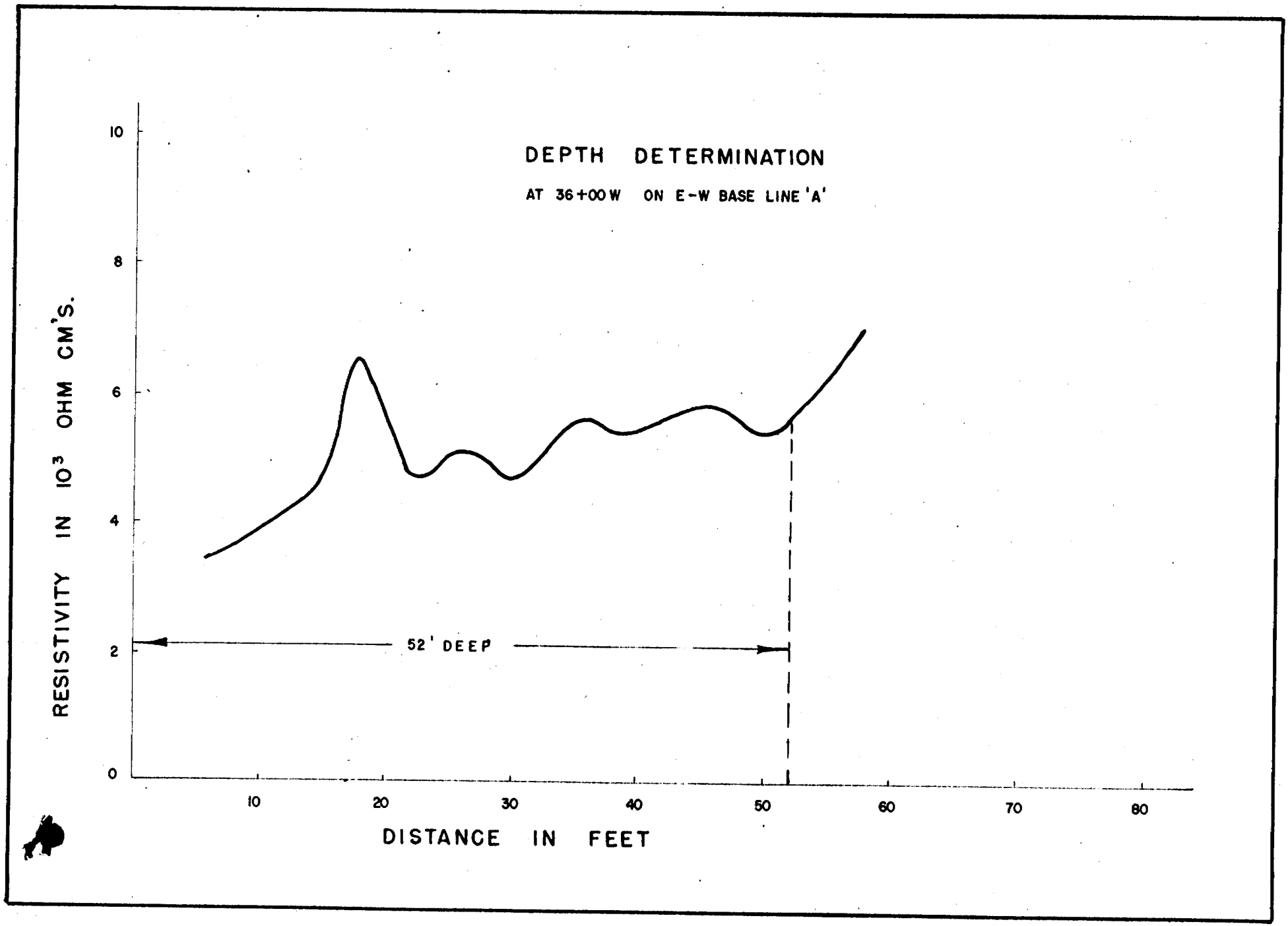
DEPTH DETERMINATION
AT 36+00W ON E-W BASE LINE 'A'
RESISTIVITY IN 10^3 OHM CM'S.
10
8
6
4
2
0
52' DEEP
10
20
30
40
50
60
70
80
DISTANCE IN FEET

FIG. 6

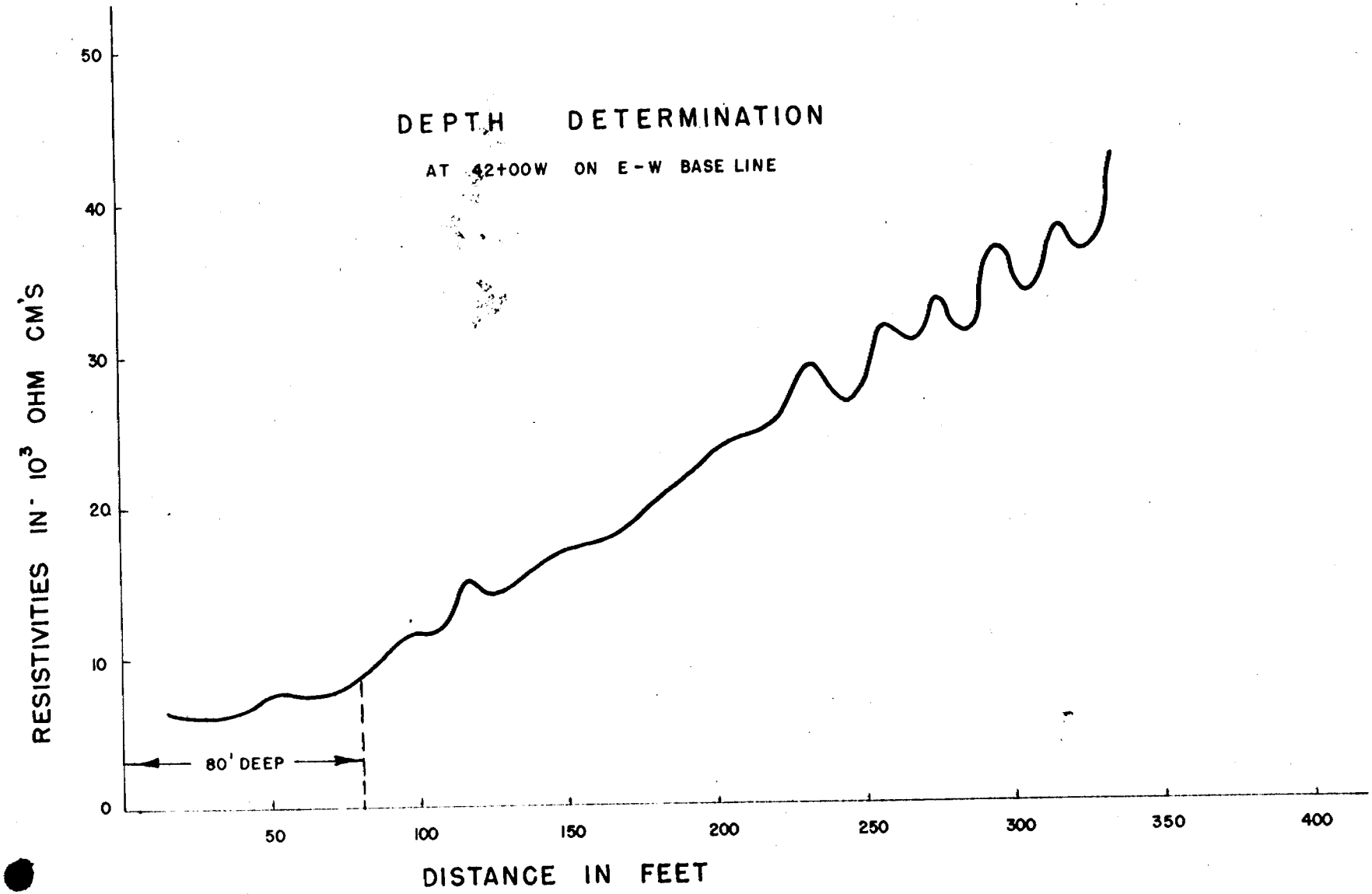
DEPTH DETERMINATION
AT 42+00W ON E-W BASE LINE
RESISTIVITIES IN 10^3 OHM CM'S
50
40
30
20
10
0
80' DEEP
50
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 7

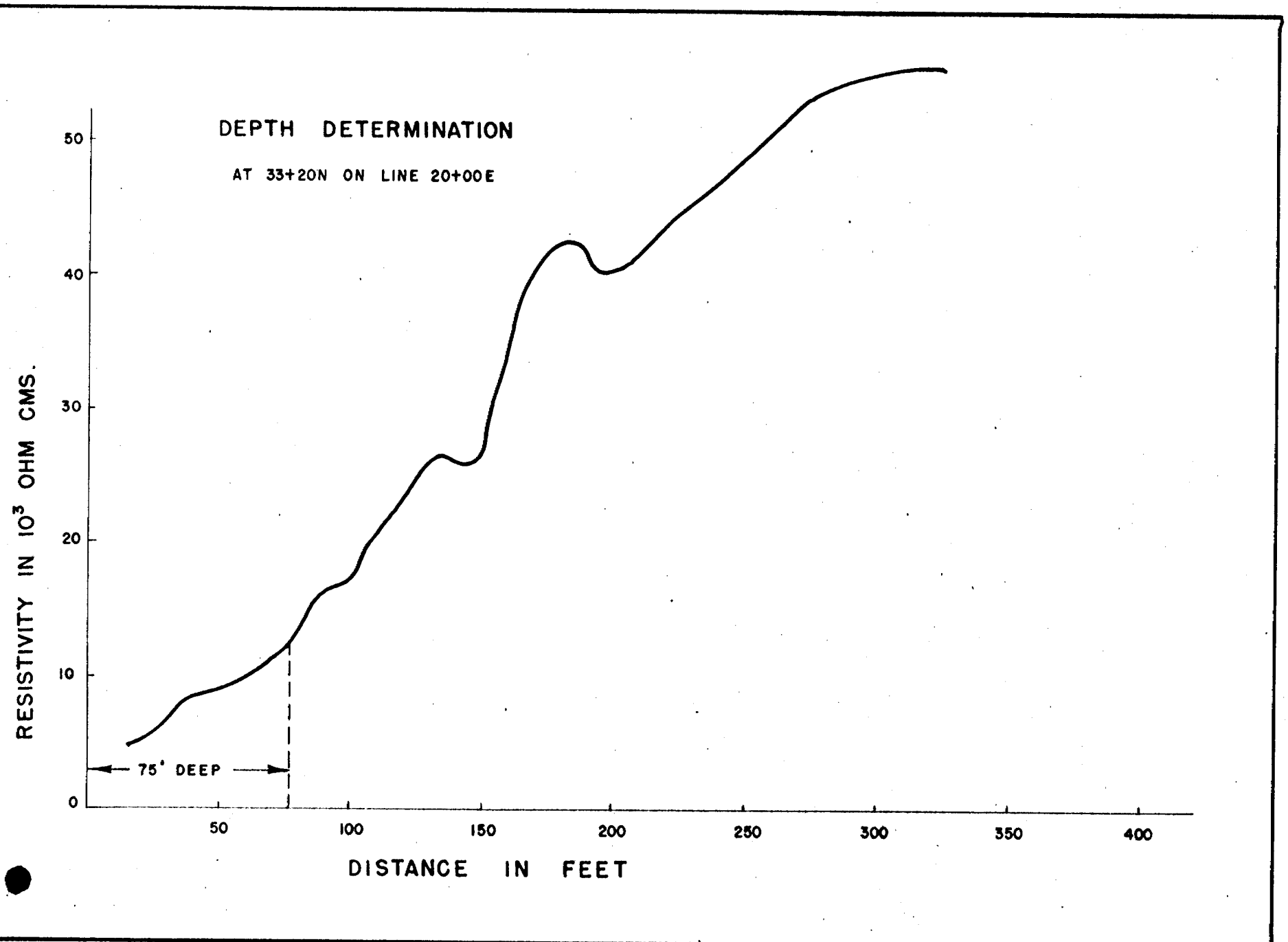
DEPTH DETERMINATION
AT 33+20N ON LINE 20+00E
RESISTIVITY IN 10^3 OHM CMS.
0
10
20
30
40
50
75' DEEP
50
100
150
200
250
300
350
400
DISTANCE IN FEET

FIG. 8

A potential ratio survey using one moving current electrode and three probe electrodes was conducted along line 4 + 00 E from 8 + 00 N to 23 + 00 N and from 23 + 00 N to 8 + 00 N on the same line. The distance from the current electrode to the central potential electrode was 350 feet.

A sample of the serpentinized peridotite from the Alexo Nickel Mine proved to have a resistivity of 3.5×10^4 ohm-cms. Under a glass the specimen was seen to contain a great deal of visible magnetite but no sulphides.

GENERAL INTERPRETATION

Field measurements of resistivity produce average values which are effected by the nature of the overburden and by the rock material around and below the point of observation, the result being that the apparent average resistivity of poor conductors like gabbro appear lower than they are (2.0 to 9.0×10^5 ohm-cms), while the resistivity of good conductors such as sulphides appear higher (0.01 to 0.6×10^5 ohm-cms). Greenstones vary widely in their resistivity, the more common values falling between 1.0×10^5 and 2.0×10^5 ohm-cms.

The preliminary survey shows that a continuous band of low values extends from the southwest corner of the surveyed area in a northeasterly direction across the area investigated. The lowest resistivities in this band appear on lines 36 + 00 W to 52 + 00 W, to the south of "A" base line (Map No. 2). To the east of line 36 + 00 W the low divides, part striking west and part to the southwest. The ground magnetic profile along 36 + 00 W shows that marked magnetic anomalies coincide with the position of the low resistivities (Figure 9), the anomaly to the south being caused by a body of lower susceptibility and

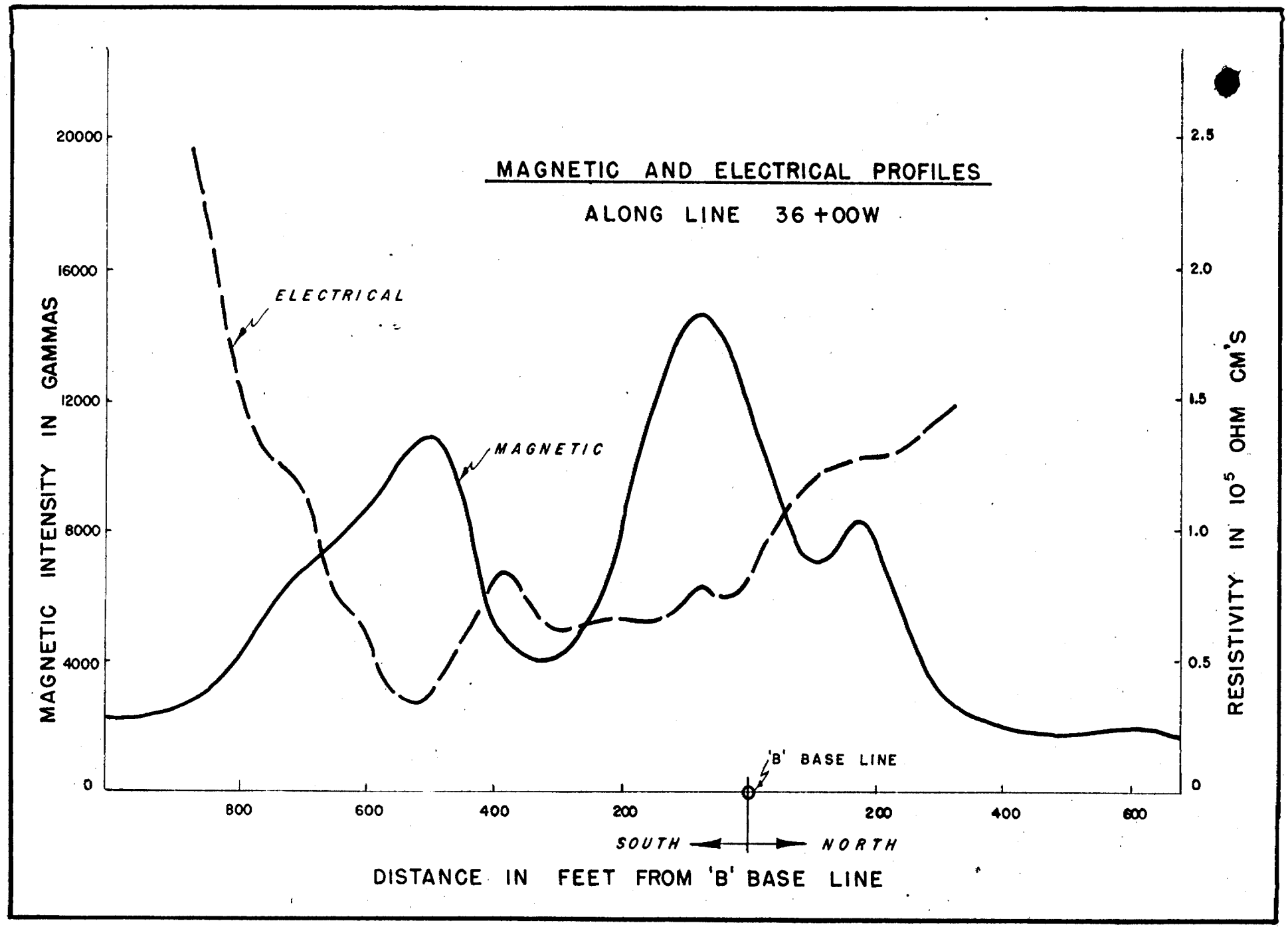
MAGNETIC AND ELECTRICAL PROFILES
ALONG LINE 36 +00W
ELECTRICAL
MAGNETIC
MAGNETIC INTENSITY IN GAMMAS
RESISTIVITY IN 10^5 OHM CM'S
20000
16000
12000
8000
4000
0
2.5
2.0
1.5
1.0
0.5
0
800
600
400
200
'B' BASE LINE
200
400
600
SOUTH
NORTH
DISTANCE IN FEET FROM 'B' BASE LINE

FIG. 9

resistivity than that causing the anomaly 550 feet further north. An analyses of the two peaks show the northerly one to be caused by a body 182 feet wide with a susceptibility of 78,800 under 100 feet of overburden, and the southerly peak to be caused by a body 146 feet wide, susceptibility 42,700 under 51 feet of overburden.

No further ground magnetic profiles are available on the southwest block, but the resistivity profiles indicate that the most southerly conductor extends at least 400 feet to the southwest (from Line 36 + 00 W) and that at least as good a conductor exists on Lines 44 + 00 W and 48 + 00 W, 400 feet south of the base line.

The good conducting zone outlined on the western group becomes less conducting to the east and there is much poorer correlation between areas of high permeability and low resistivity (Figures 10 and 11).

The peaks of magnetic intensity are from 1/3 to 1/5, the values farther to the west and the lower resistivity values lie to the south of the magnetic highs. The lower resistivity values at 200 N and 200S (Figure 9) probably lie at the contact of the peridotite and the greenstone. Baker[2] mentions that tuffs have been observed in contact with the peridotite, resistivities of the order of magnitude encountered at 200 N and S on Line 12 + 00 E could be caused by banded tuffs.

The potential ratio survey along line 4 + 00 E (Figure 12) indicates that the zone of better conductivity is made up of varying bands of poor and fair conductivity. No other areas of sufficiently low resistivities to be of interest exist on the eastern group.

Depth of Overburden:

The determinations of overburden depths show it to be

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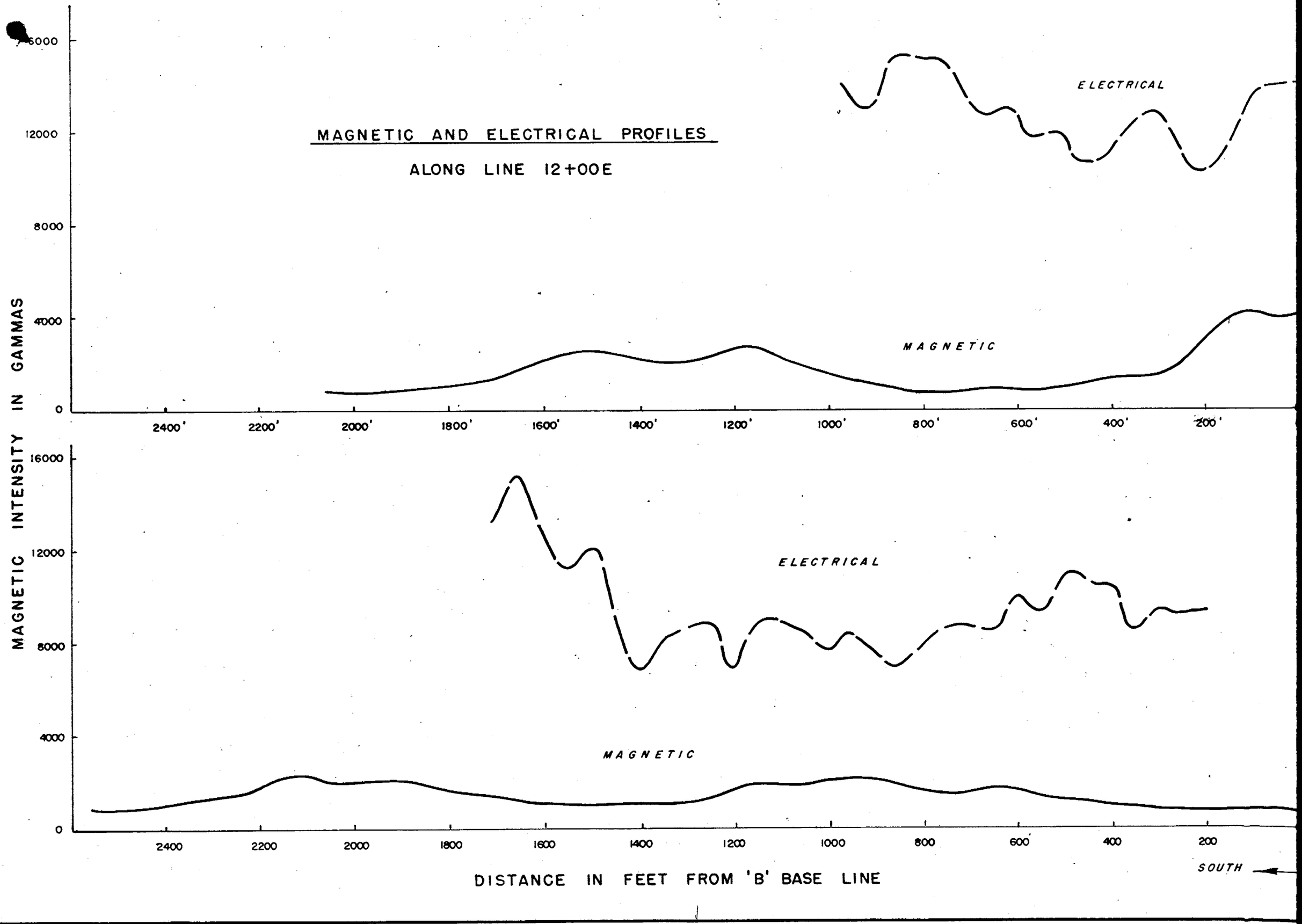
2. Baker, M. B., Op. Cit.

MAGNETIC AND ELECTRICAL PROFILES

ALONG LINE 12+00E



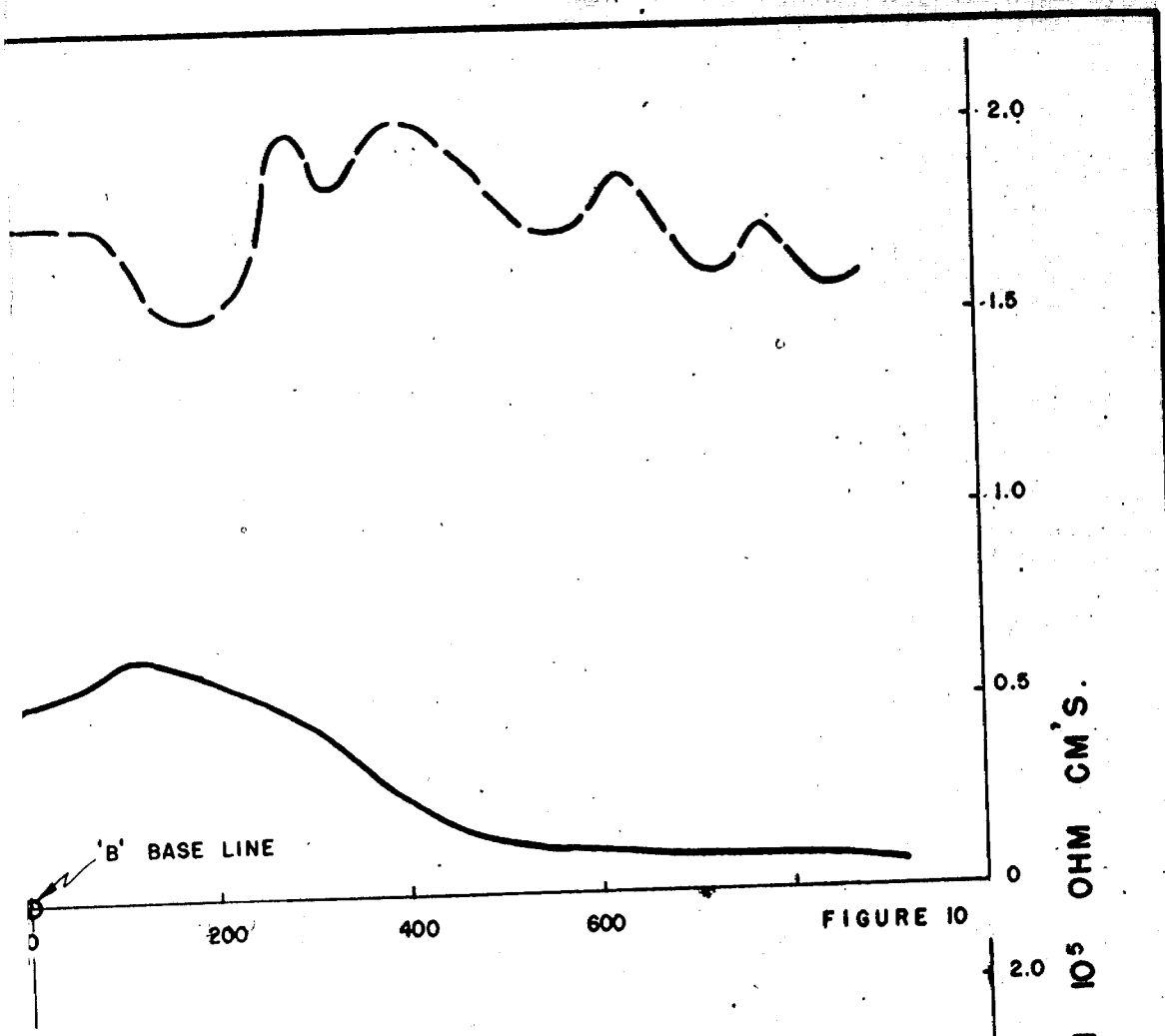


FIGURE 10

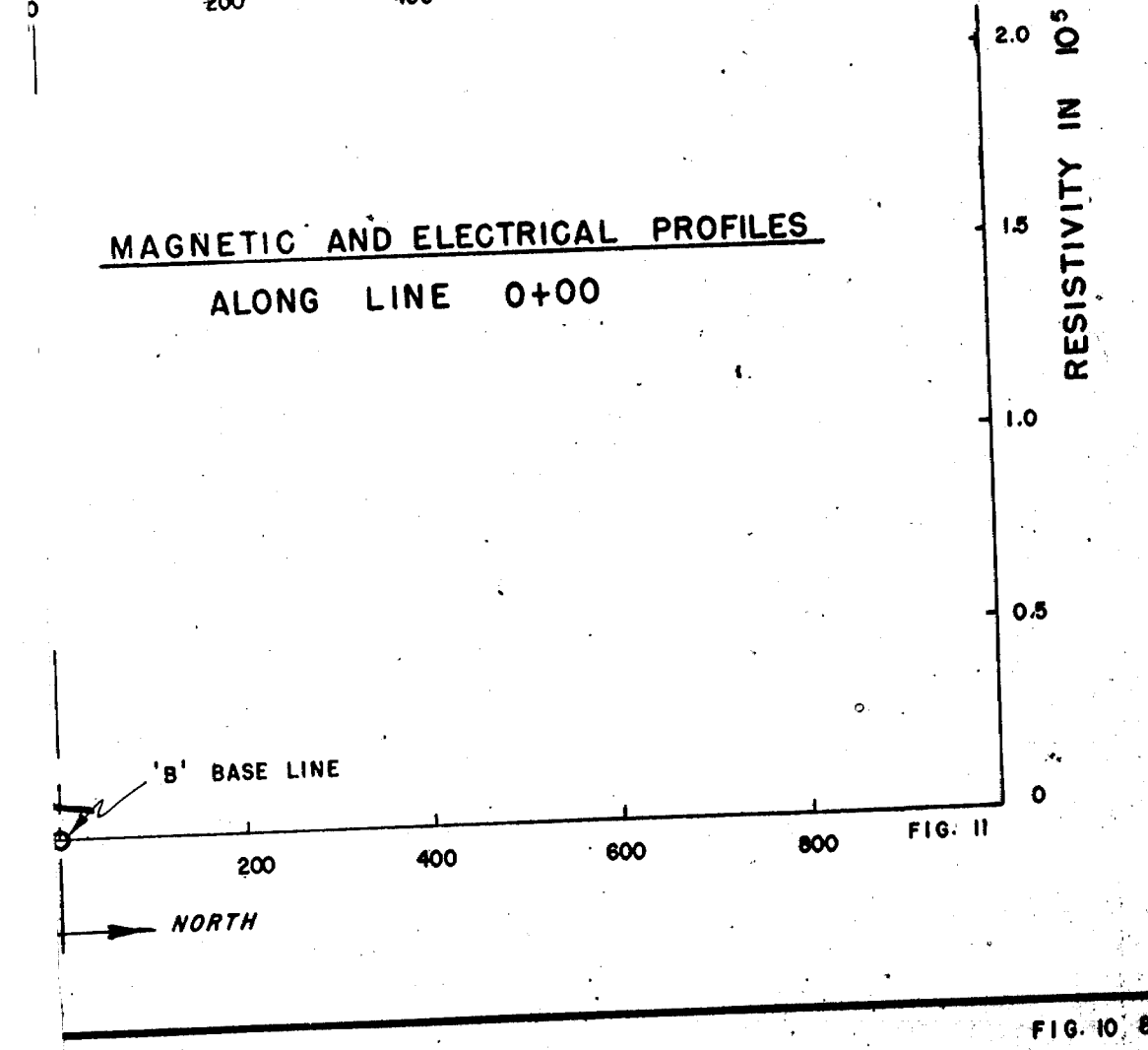


FIG. 11

MAGNETIC AND ELECTRICAL PROFILES

ALONG LINE 0+00

FIG. 10 & 11

deep at most points tested. The curves from which the depths were deduced are shown in Figure 2 to Figure 8. The depths have been chosen from the points where the general slope of the curve increases. The deduced depths are shown by circled numbers on Map No. 2.

The determinations at 14 + 50 N and 19 + 50 N on Line 8 + 00 E (Figures 3 and 4) are at points of lower resistivity. Had these lowered resistivities been caused by sulphides below the overburden the resistivity curves obtained would not have had increasing values as greater depths were explored. All the depth determinations show that no good conductors exist below the points at which the depth determinations were made.

Potential Ratio Tests:

Further evidence that the conductor on Line 4 + 00 E is not sufficiently good to be a sulphide body is produced by the profile showing the differences in potential ratios between a profile to the north and a profile to the south along 4 + 00 E. The curve has been drawn in such a manner that positive values indicate better conductors (Figure 12). An inspection of the curve shows the conducting areas below the overburden to be narrow and erratic, and neither wide enough or of sufficient conductivity to be of interest.

Self Potential Values:

The self potential profile north and south from the base line along 28 + 00 E gave only erratic values. The overburden at 32 + 00 E is comparatively shallow (Figure 5) and may be of the same order at line 28 + 00 E, it is highly improbable that Line 28 + 00 E crosses a sulphide body.

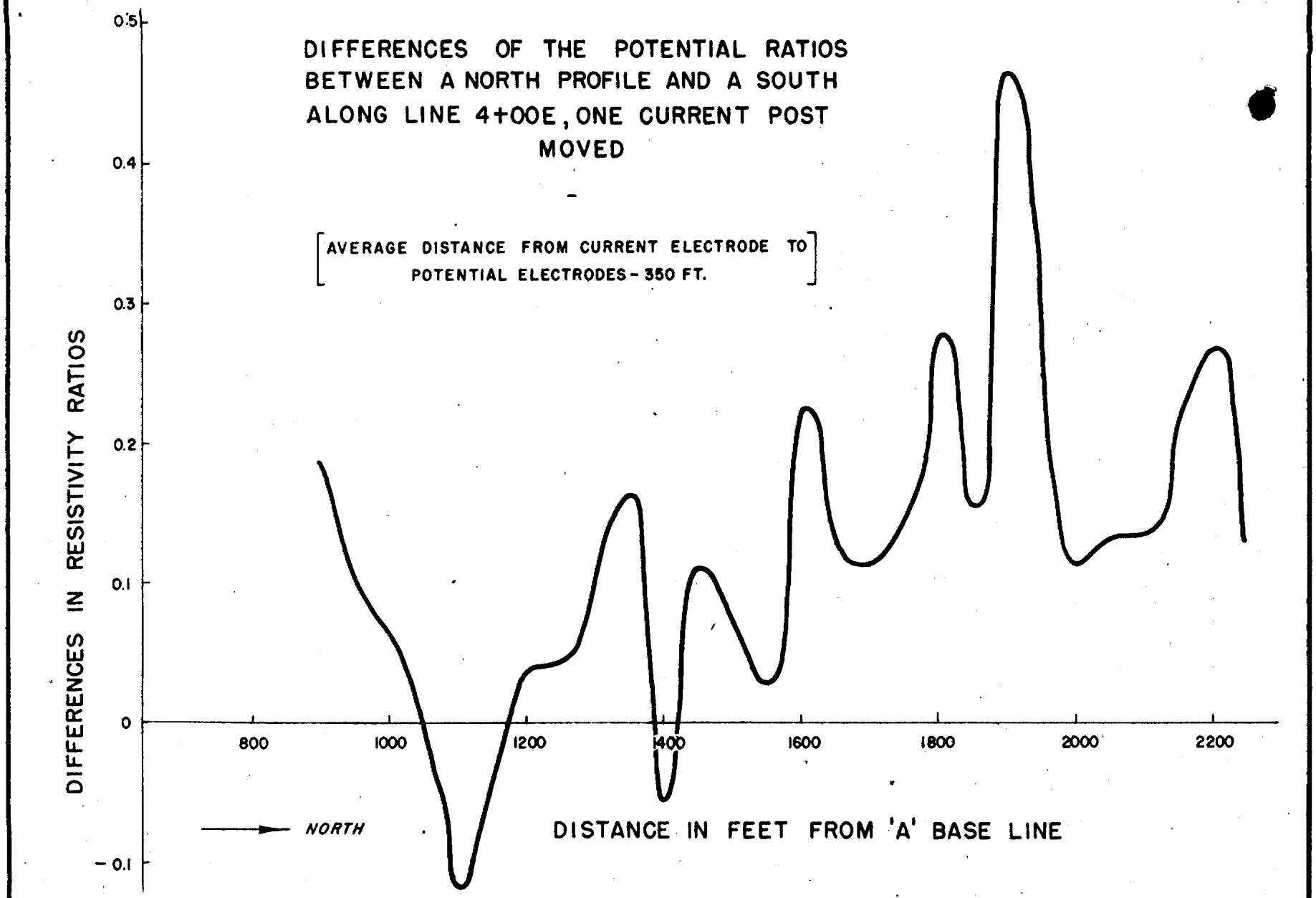

DIFFERENCES OF THE POTENTIAL RATIOS BETWEEN A NORTH PROFILE AND A SOUTH ALONG LINE 4+00E, ONE CURRENT POST MOVED
[AVERAGE DISTANCE FROM CURRENT ELECTRODE TO POTENTIAL ELECTRODES - 350 FT.]
DIFFERENCES IN RESISTIVITY RATIOS
0.5
0.4
0.3
0.2
0.1
0
-0.1
800
1000
1200
1400
1600
1800
2000
2200
NORTH
DISTANCE IN FEET FROM 'A' BASE LINE

FIG. 12

STRUCTURE

Because of the overburden cover little was previously known of the geology. The magnetic and electrical survey has indicated that a band of peridotite strikes Northeast across the surveyed area. The peridotite has been altered to serpentine with varying amounts of magnetite, and is in contact with greenstone on the south, and greenstone with intrusions of gabbro to the north. No marked folding or faulting of the peridotite is apparent.

ECONOMIC GEOLOGY

Nickel bearing sulphides are known to exist at the contact of the peridotite and greenstone at the Alexo Nickel Mines. The contact of the serpentine and greenstone on the surveyed area is then the logical location for further ore. Sulphide ores are good conductors, hence only those areas of low resistivity which may be close to a peridotite greenstone contact are of interest. Two such resistivity anomalies occur, Anomaly A and Anomaly B, Map 2, both being south of the base line on Lines 36 + 00 W to 52 + 00 W.

Anomaly A has a calculated susceptibility sufficiently low to be caused by pyrrhotite and is long and narrow in shape as would be expected from the type of ore bodies encountered at the Alexo Nickel Mines.

Anomaly B could also be due to pyrrhotite. It is shorter and wider than Anomaly A. No ground magnetic profile crosses the main part of the anomaly, hence the permeability cannot be calculated. The permeability obtained from a profile across its easterly end on Line 36 + 00 W shows the susceptibility at this point to be higher than that of the body under Anomaly A.

CONCLUSIONS

A serpentinized peridotite intrusive is in contact with greenstone on the south and possibly to the north. Two favourable resistivity anomalies which may be due to sulphide ore bodies exist on the western part of the area. The anomalies are of sufficient interest to warrant further work.

RECOMMENDATIONS

A gravimeter survey along the following lines is suggested -

Line 32 + 00 W from 0 to 6 + 00 S
" 36 + 00 W " 0 to 8 + 00 S
" 40 + 00 W " 0 to 10+ 00 S
" 44 + 00 W " 0 to 10+ 00 S
" 48 + 00 W " 0 to 7 + 00 S
" 52 + 00 W " 0 to 7 + 00 S

In addition resistivity tests using the central point method should be conducted at the following points -

5 + 25 S on 36 + 00 W
8 + 00 S on 40 + 00 W
3 + 75 S and 8 + 25 S on 44 + 00 W
3 + 50 S on 48 + 00 W

If either or both methods give favourable results the area should be further tested by diamond drilling.

Respectfully submitted,

MINING GEOPHYSICS CORPORATION LIMITED

A. R. Clark

N. B. Keevil

Toronto, September 7, 1949.

October 13, 1950

Mr. H. C. Rickaby,
Deputy Minister of Mines,
Department of Mines,
Toronto, Ontario.

Dear Mr. Rickaby:

Enclosed with this letter I am forwarding to you a report in duplicate covering geophysical work performed on 29 claims numbered L-54116 to L-54119, inclusive, L-54126, L-54132 to L-54135 inclusive, L-54141 to L-54143 inclusive, L-54150 to L-54155 inclusive, L-54157, L-55566 to L-55570 inclusive, and L-55840 to L-55844 inclusive situated in Clergue and Dundonald Townships.

These claims are part of a block containing 50 claims held by Dominion Gulf Company. In December, 1948 a block of 42 claims was staked and recorded. An additional 5 claims were added in October, 1949 and another five claims were added in December of 1949. Assessment work reports have been submitted covering the first year's work on the claims in the original group with the exception of 2 claims which were dropped making a total of 50 claims now in good standing.

Geophysical assessment work credit has already been recorded on 12 of the claims covered by the geophysical report attached hereto. This previous credit was derived from an electrical survey report submitted to your office on December 6, 1949. Consequently the work credit we are requesting on the basis of the attached geophysical report only applies to those claims covered in the survey on which geophysical work has not been recorded as of this date. The numbers of these claims appear in a subsequent paragraph of this letter.

Linecutting was done in 1949 in connection with the electrical survey referred to previously in this letter. Additional linecutting of 13.2 miles was required for the survey reported herein and it is submitted as part of the work credit applied for herein.

The geophysical work now being reported consisted of a ground magnetometer survey conducted with Askania magnetometers having a scale constant varying from 22.21 to 25.04 gammas per division. This survey was performed during the period December, 1949 to July, 1950. During this time 2,006 stations were established. The report referred to in the first paragraph of this letter covers the interpretation of this survey and it was written by Mr. Henry Reimer, of our interpretation staff. Associated maps are attached to each copy of the report.

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A breakdown of the man-days required for the geophysical work with their assessment credit values is shown in the following schedule:

	Actual Man-days	Assessment Factor	Assessment Credit In Man-days
A. Linecutters (D. Sirola and R. Hodgins, Chiefs)	59	4	236
B. Instrument Operators and Assistants (D. Sirola and R. Hodgins, Chiefs)	238	4	952
C. Interpretation of Data (J. Affleck and H. Reimer, Chiefs)	39	4	156
Total			1,344

The above geophysical work credit divided equally over the 29 claims covered by the survey would result in a per claim credit of 46.3 days. However, in compliance with Subsection 5 of Section 78a of the Mining Act as amended, we are applying for the maximum of 40 days per claim allowed for geophysical surveys to be credited to the 13 claims numbered as follows: L-54141 to L-54143 inclusive, L-55566 to L-55570 inclusive, and L-55840 to L-55844 inclusive.

The Forms 14, Report of Work, covering the above geophysical credit and 2 diamond drill holes are being mailed today to the Mining Recorder of the Larder Lake Mining Division. A copy of the transmittal letter showing the distribution of the diamond drill assessment work credit has been directed to your office.

Very truly yours,

E. W. Westrick

E. W. Westrick.

RSF/WIZ

Attachments follow in this order:

1. Ground magnetometer report by Mr. Henry Reimer.
2. Contoured map of ground magnetometer field data, scale 400' to the inch.
3. Interpretation overlay of ground magnetometer data, scale 400' to the inch.