42A05NE8491 2.7565 BRISTOL

010

ASSESSMENT REPORT

ON

MAGNETIC AND VLF-EM SURVEYS

CONDUCTED ON CLAIMS

724587 - 724591

740864 - 740873

752195 - 752205

779457 - 779461

779509 - 779515

825436 - 825440

Located in the Bristol Township in the

Porcupine Mining District, Ontario

RECEIVED
DEC 14 1984
MINING LANDS SECTION

Submitted by:
P.A. DIORIO
December 10, 1984

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I INTRODUCTION

This report covers geophysical surveys carried out by UTAH MINES LTD., 1238 Riverside Drive, Timmins, Ontario, on two claim groups located in the Bristol Township within the Porcupine Mining District of Ontario. The property is currently under option by UML from Mr. Rolland Poirier, sole holder to the mining rights, who resides at 561 Birch St. North, Timmins, Ontario.

Two geophysical surveys (Magnetometer, and VLF-EM) were conducted as an aid to geologic mapping. The surveys commenced September 29th, 1984 and finished October 21st, 1984.

II LOCATION AND ACCESS:

The property, consisting of two claim groups, is located approximately 12 miles southwest of the Timmins City Centre in Bristol Township (Figure 1). Easy access is afforded to the larger claim group (38 claims) via highway 101 which crosses the southwest corner of the property. The smaller group (5 claims) is in the same vicinity and may be accessed by highway 144.

1" = 8300ft

8300 4150 0 8300

FIGURE 1

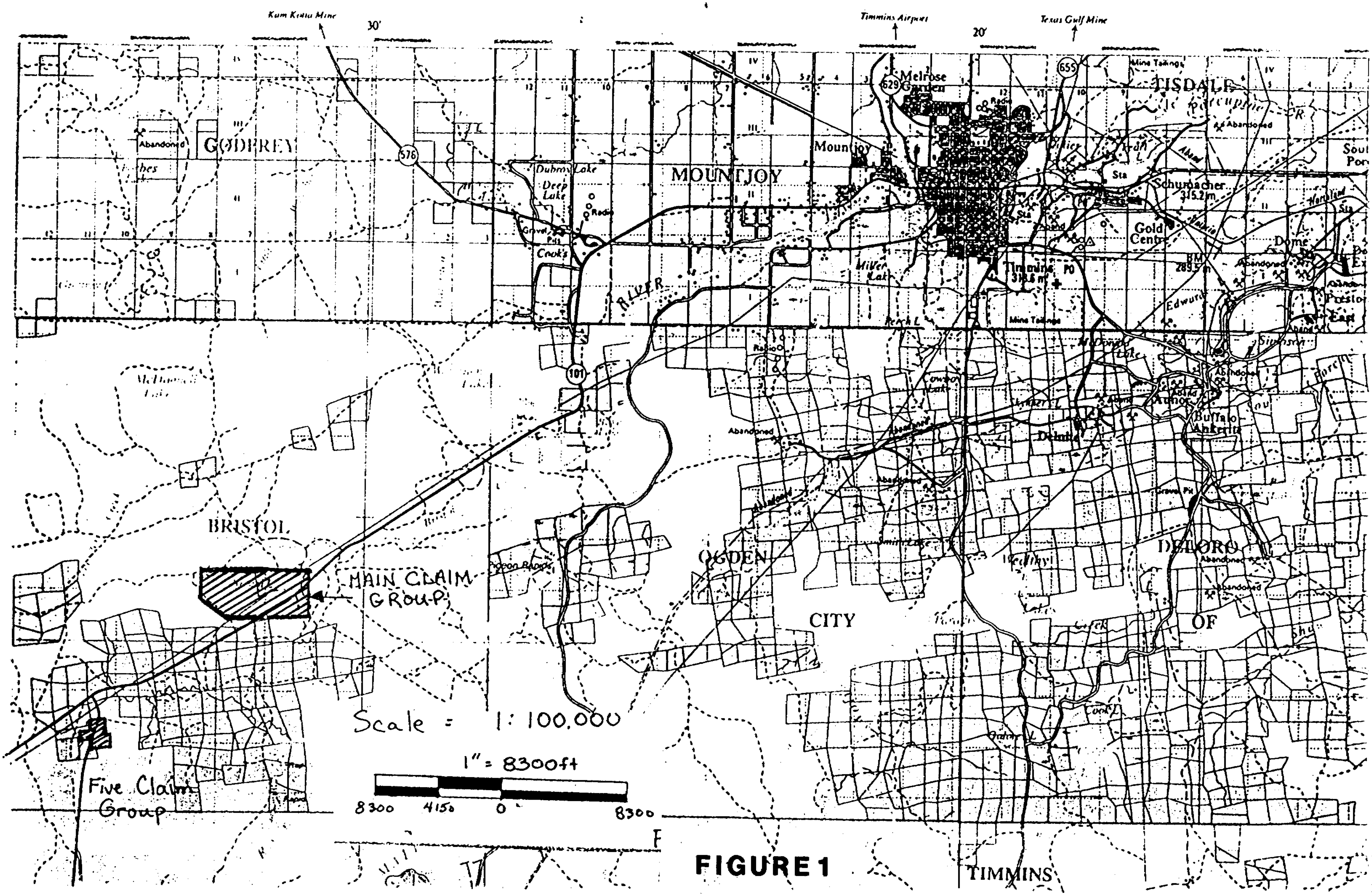


FIGURE 1

III GEOLOGY

The following information was obtained from Ferguson (1959). The entire "five claim group" is shown to be underlain by Kewatin andesite. The northwest half of the main claim group is mapped as Kewatin andesite with some rhyolite. The southeastern part of this claim group is mapped as greywacke and argillite intruded by quartz feldspar porphyry. All units are cut by Matachewan diabase dykes trending north and northwest.

IV PREVIOUS WORK

The following drill results are compiled from Ferguson (1959). DDH numbers are shown (where possible) on Figure 2.

D.D.H.	HOST ROCK	# OF FEET ASSAYED	GRADE AVERAGE
1	quartz veined graphitic slates	160	.02 to .06 oz/ton Au
	porphyry with quartz stringers	60	.02 to .04 oz/ton Au
2	graphitic slate	50	.02 to .08 oz/ton Au
3	porphyry with qtz-clct-tourmaline	20	.02 to .04 oz/ton Au
4	graphitic slate	1	.01 oz/ton Au
5	graphitic tuffs	50	.02 oz/ton Au
6	porphyry with quartz and arseno needles	421-433	.02 oz/ton Au
7	slate tuffs	781-874	.02 oz/ton Au
8			trace Au
9	agglomerates & tuffs	3 separate samples from 497-723	.02 to .04 oz/ton Au
	graphitic slates with quartz carbonate stringers	73	.02 oz/ton Au

No further drilling is recorded on the property in both the property in both the east and west sectors since 1945. Dome Mines optioned the Cortez ground in 1973, conducted Mag and Em surveys. No significant conductors were recorded and the property was subsequently dropped.

V SURVEY GRID

Survey grids were established with east-west base lines. Traverse lines were cut at 400' intervals using conventional compass and chain techniques. Pickets were established at 100' intervals along each line and marked with the appropriate line and station designation. Control lines were cut so as to intersect the ends of all traverse lines.

A total of 38.9 miles of grid were cut on the main claim group, of which 33.1 miles were surveys. An additional 3 miles of grid was cut and surveyed on the small claim group.

VI GEOPHYSICAL SURVEYS:

(1) Magnetometer;

Magnetometer used on the Bristol Property was a Scintrex MP-3 Proton Precession Magnetometer. This instrument is accurate to $\pm$ 0.1 of a gamma. Appendix I describes the general features of this instrument.

A base station magnetometer was set up in close proximity to the grids and programed to take readings every 15 seconds. While the base Mag was running, a field Mag was used to survey individual grid stations on the various traverse lines. At the end of each working day, the stationary (base) Mag was used to automatically correct the field Mag for diurnal drift. A total of 1762 readings were recorded and corrected in this manner.

(2) VLF - EM;

A Geonics EM-16 VLF receiver was used to conduct the survey. Details of the specifications and operating procedures for this instrument are shown in Appendix II.

The survey was conducted using a transmitter located at Cutler Maine, operating at a frequency of 24.0 KHz. A total of 1801 in phase and out of phase measurements were recorded.

VII RESULTS AND INTERPRETATION

The results of these surveys are shown on the accompanying plan maps at t scale of 1" = 400'.

The map data is dominated by north and northwest trending diabase dykes. Since these run sub-parallel to the survey grid, they are very poorly resolved and, hence, no attempt has been made to contour the data. Inferred geology is shown on the enclosed interpretation map.

VLF data was "Fraser filtered" and shown on the interpretation map along with conductor axes. These may correspond to conductive zones such as water filled shears, bedrock conductors, or discontinuities in the conductive overburden layers.

Both mag and VLF data are best used (in this case) as an aid to geologic mapping.

Peter A. Diorio B.Sc
Geophysicist

PAD/ak

REFERENCES

FERGUSON, S.A.; (1957) Geology of Bristol Township Sixty-Sixth Annual Report of the Ontario Department of Mines, Vol. LXVI, Part 7, 1957

APPENDIX I

SCINTREX MP3 MAGNETOMETER

1.0 Introduction

1.1 General Information

The MP-3 Proton Magnetometer is a high resolution microprocessor-based instrument whose flexibility permits it to function as a portable, mobile, or base station magnetometer. By varying the sensor configuration, the same console can be used to measure both total field and vertical magnetic gradients with a resolution of 0.1 nT.

Data is stored in the MP-3 in an expandable, solid state memory. Data processing is done in field by connecting the instrument to a printer, tape recorder, modem or microcomputer. Diurnal corrections are performed automatically by connecting a portable MP-3 to a base station unit and keying in suitable instructions.

The 32 character digital display uses full words in most cases, ensuring clear communication. Both present and previous data are displayed simultaneously, allowing comparisons to be made at a glance during a survey.

The MP-3 records header information, data values, station number, line number and the time of each observation in its internal memory. Data are first sorted by grid number, then in order of increasing line number and, within each line, by increasing station number. In this way, the data are organized logically regardless of the sequence in which they were taken. Ancillary data can also be manually entered and recorded at a given station, along with the magnetic parameters.

The MP-3 may appear complex because of the new microprocessor-based technology employed in its design. However, it does not perform any operation that is, in principle, unfamiliar to an experienced operator. Only the procedures have changed. For instance, recording data, normally performed by hand in a note-book, is executed in the MP-3 by a series of keystrokes and stored in the instrument's digital memory. Likewise, an error spotted in the records, which would be corrected or erased by hand, is now corrected by means of the Edit function which allows the error to be removed from memory, corrected, and then refiled, or erased altogether.

The MP-3 has been designed primarily for use in mineral and groundwater exploration or geological mapping; however, it can be equally useful in archeological searches or marine salvage operations.

1.2 Features

The features of the MP-3 are summarized below in point form. A more comprehensive description can be found in the MP-3 brochure, available from Scintrex.

- 0.1 gamma resolution over 20K to 100K gamma range
- Total field and vertical gradient measurements
- High gradient tolerance
- Same console for portable, base station or mobile survey applications
- Keyboard selectable automatic or manual tuning
- Automatic diurnal correction without a microcomputer
- Simple operation via keypad
- 32 character LCD display
- Alarm and warning messages ensure data quality
- 'Speaks' any language with Latin characters
- Solid-state memory expandable to hold several days' data
- Records actual coordinates
- Records time
- Records header information
- Records ancillary data
- Permits revision of data
- Outputs to commonly available printers, modems, tape recorders and microcomputers
- Prints data lists and plots profiles directly on a digital printer
- Organizes data by grid, line and station number, regardless of the order in which data were taken
- Several power supply options
- Wide operating temperature range

2.0 Instrument Description

2.1 *Introduction*

The following section provides a detailed description of the visible components of the console, both front and rear, and of the battery pack.

2.2 *Front Panel*

The front panel contains the LCD display, the keyboard for operating the instrument and the connector socket for the sensor.

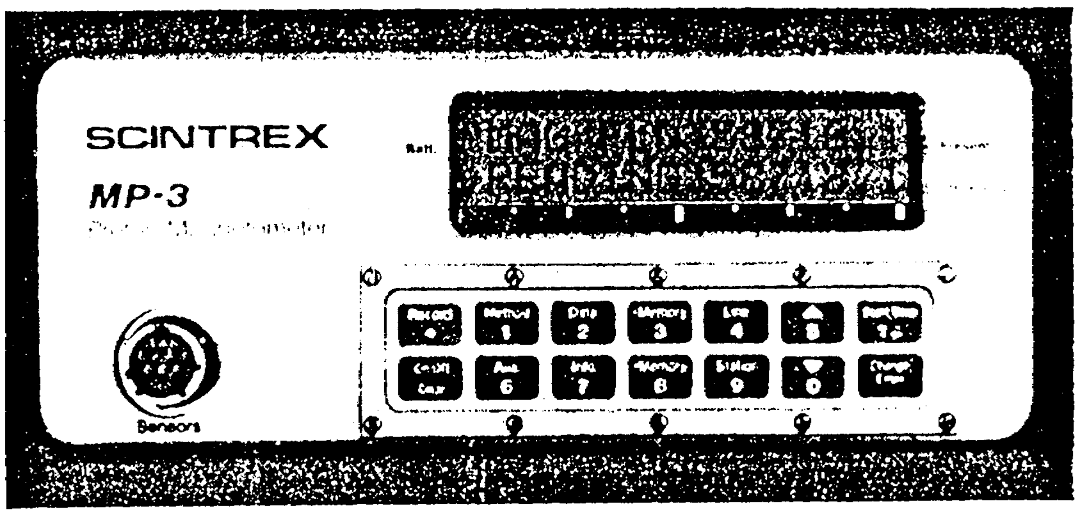


Figure 2

2.2.1 *Display*

The display has 32 characters. This means that full words are used in many cases so that the instrument can be understood easily, without referring to a list of codes.

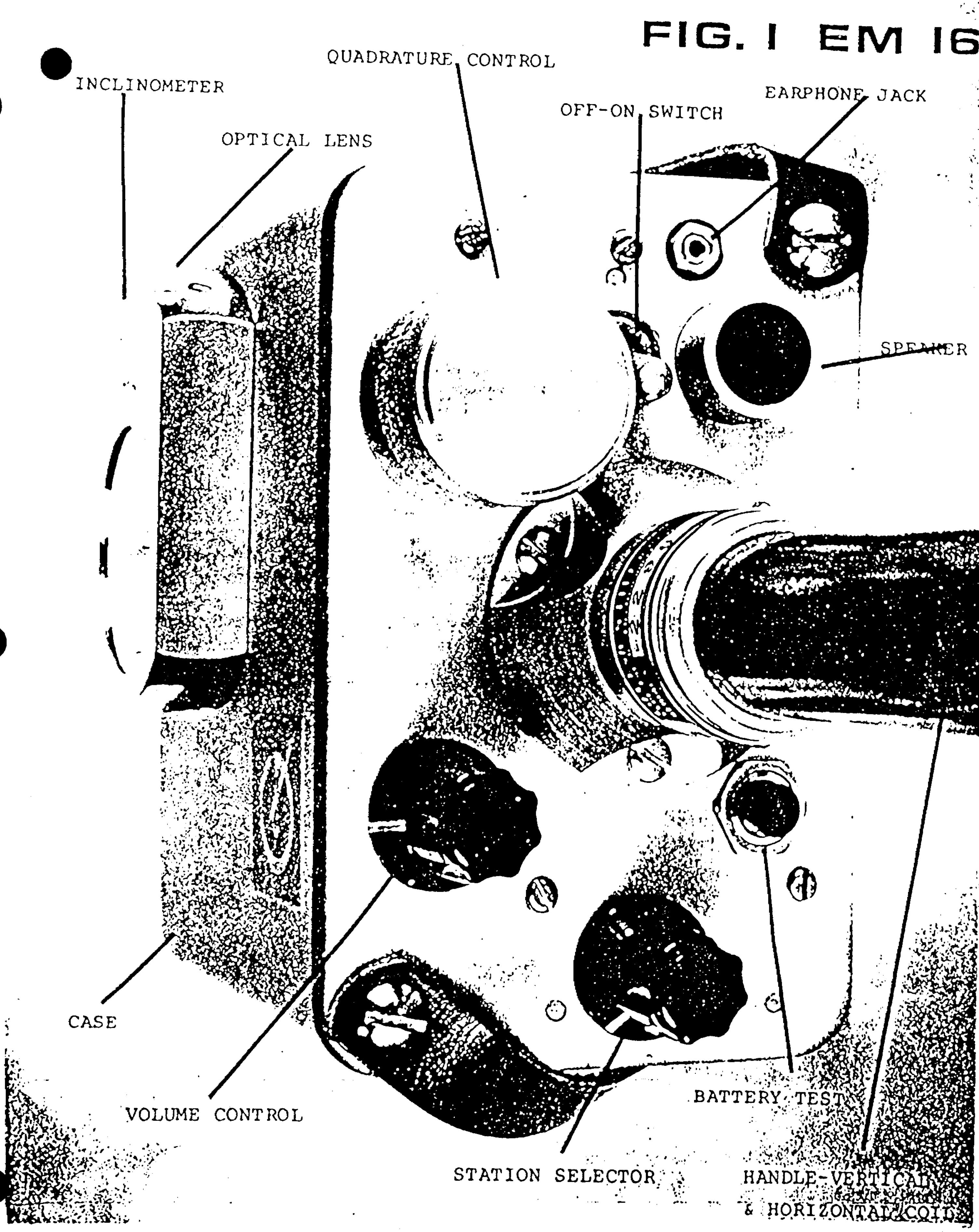
APPENDIX II

GEONICS EM-16

EM16 SPECIFICATIONS

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).
SENSITIVITY	In-phase : ±150% Quad-phase : ± 40%
RESOLUTION	±1%
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells.
DIMENSIONS	42 x 14 x 9cm
WEIGHT	Instrument: 1.6 kg Shipping : 4.5 kg

FIG. I EM 16


QUADRATURE CONTROL
INCLINOMETER
OFF-ON SWITCH
EARPHONE JACK
OPTICAL LENS
CASE
VOLUME CONTROL
STATION SELECTOR
BATTERY TEST
HANDLE-VERTICAL
& HORIZONTAL COILS

PRINCIPLES OF OPERATION

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The Antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. (See Figures 3 & 4). This equipment measures the vertical components of these secondary fields.

The EM16 is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by 90^{o}. This coil is normally parallel to the primary field,(See instrument Block Diagram - Figure 2).

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation $\pi/2$-signal from the horizontal coil is a measure of the quadrature vertical signal.

Some of the properties of the VLF radio wave in the ground are outlined by Figures 4 thru 9.

ACCOMPANYING NOTES FOR FIGURES 2 - 9

FIGURE 2 is the block diagram of the EM16. The diagram is self-explanatory. Both the coils (reference and signal coil) are housed in the lower part of the handle. The directions of the axis of the coils are as follows: The reference coil axis is basically horizontal and is kept more or less parallel to the primary field during measurement. The signal coil is at right angles to the reference coil and its axis is, of course, vertical.

The signal amplifier has the two inputs, one connected to the signal coil and one to the reference channel. By tilting the coils, the operator minimizes the signal from the signal (vertical axis) coil. Any remaining signal is reduced to zero by the quadrature control in the reference channel. The signal amplifier has zero output

FIGURE 2 Continued...

when both input signals are equal in amplitude and phase. Thus, the setting of the quadrature control for minimum output from the receiver indicates the relative amount of the quadrature signal of the vertical coil. The measured value does not depend on the absolute value of the signal, only the relative values are measured.

FIGURE 3 shows the proper planning of survey in relation to the direction of strike and primary field, direction of survey lines etc.

FIGURE 4 explains the time delay (phase lag) ø of travelling electromagnetic wave above and in the conductive ground. The amplitude of the wave in the ground is also attenuated.

FIGURE 5 shows on the left the physical direction of the primary (H_x) and secondary (H_z) field vectors in relation to conductive ground and target. The location of secondary current distribution in the target is shown schematically. We see that most current concentration is in the upper edge of the good conductor. The return secondary current is more spread due to the diminishing primary field in the conductive rock. On the right, the time vectors show the retarded phase of H_x in the target and the phase advance of the secondary field H_z compared to H_x. We must remember that the H_z will have additional phase lag when it penetrates back towards the surface.

This figure shows a positive real component of the H_z while the quadrature remains negative.

FIGURE 6 This graph shows the primary field attenuation in nepers, relative amplitude and phase lag in radians of the primary field as function of depth and conductivity of the ground. This graph is for 20 kHz.

FIGURE 7 shows the maximum obtainable amplitude H_z from a sphere or horizontal cylinder as a function of the radius-to-depth ratio. The schematic on the left shows the depth determination for the spherical or cylindrical target.

FIGURE 7 Continued...

The equation for the phase shift and attenuation of the primary field in conductive material, where $\sigma/\varepsilon\omega >> 1$ is as follows:

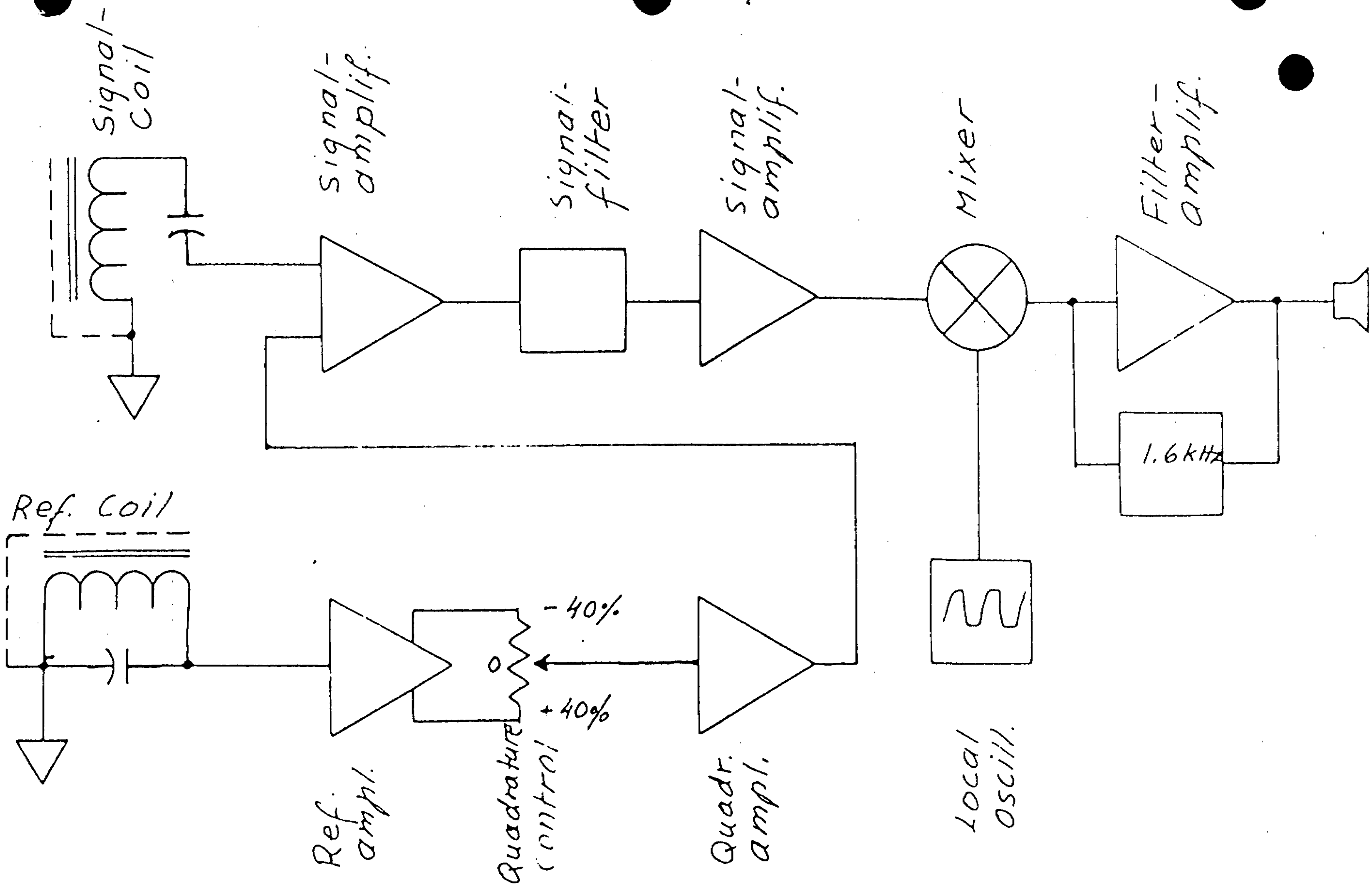
$$\alpha = \beta = \sqrt{\frac{\omega\mu\sigma}{2}}$$

where α = attenuation, nepers/m
β = phase lag, radian/m
$\omega = 2\pi f$
μ = magn. permeability $= 4\pi \times 10^{-7}$
σ = mhos/m

FIGURE 8 This graph gives the amplitude and phase shift of the field (in conductive media) as function of skin depth, $\delta = 1/\alpha$.

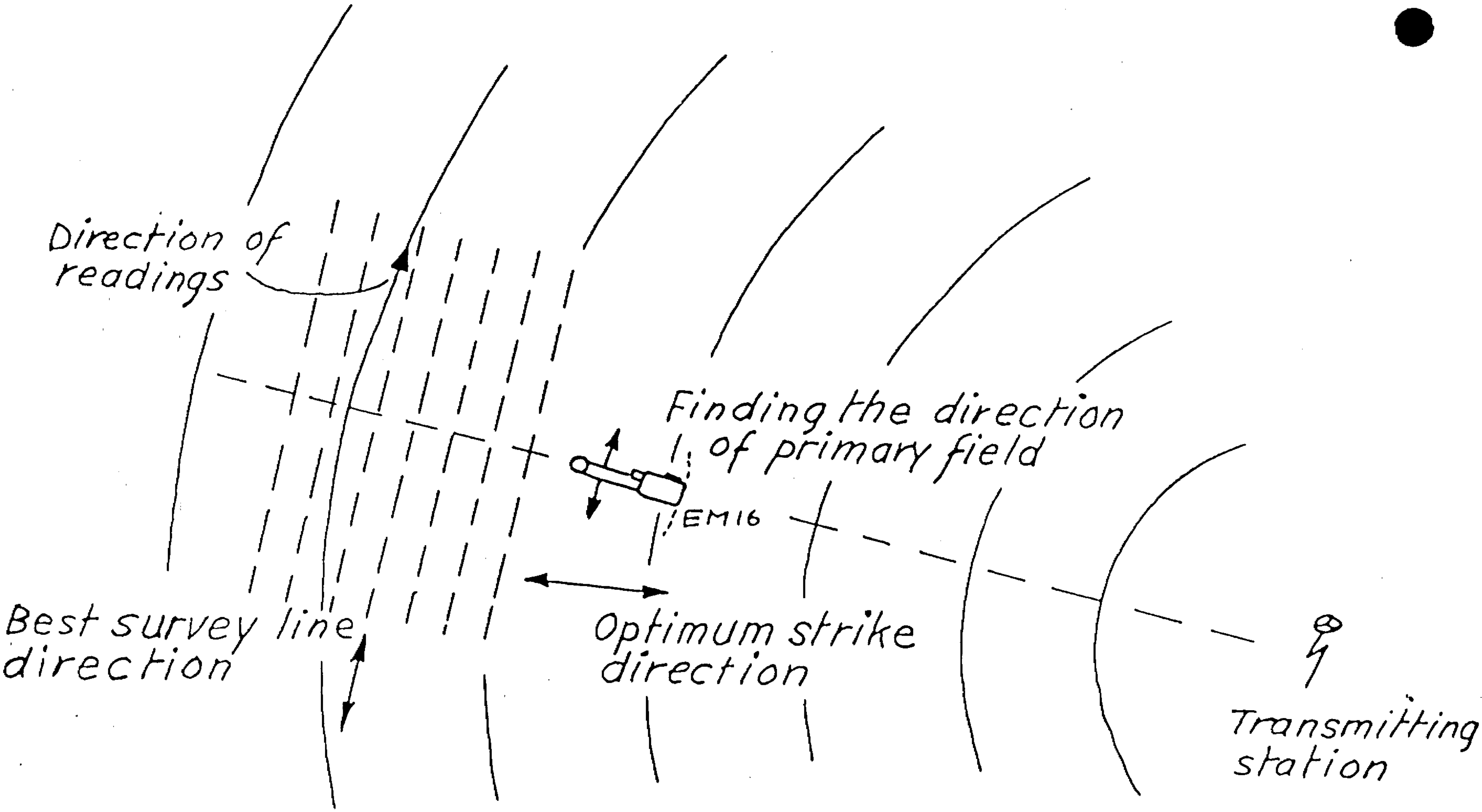
This equation gives the skin-depth in meters for certain conductivity and frequency. Normalize this to one, and the graph in Figure 8 gives the amplitude and phase shift of the wave at any relative depth.

FIGURE 9 The vertical field from a long wire source is plotted here. A vertical semi-infinite sheet target would be simulated this way. In practice it hardly works accurately due to the spread of the secondary current in the target because of the finite conductivity and the attenuation and phase shift of the primary field as function of depth.



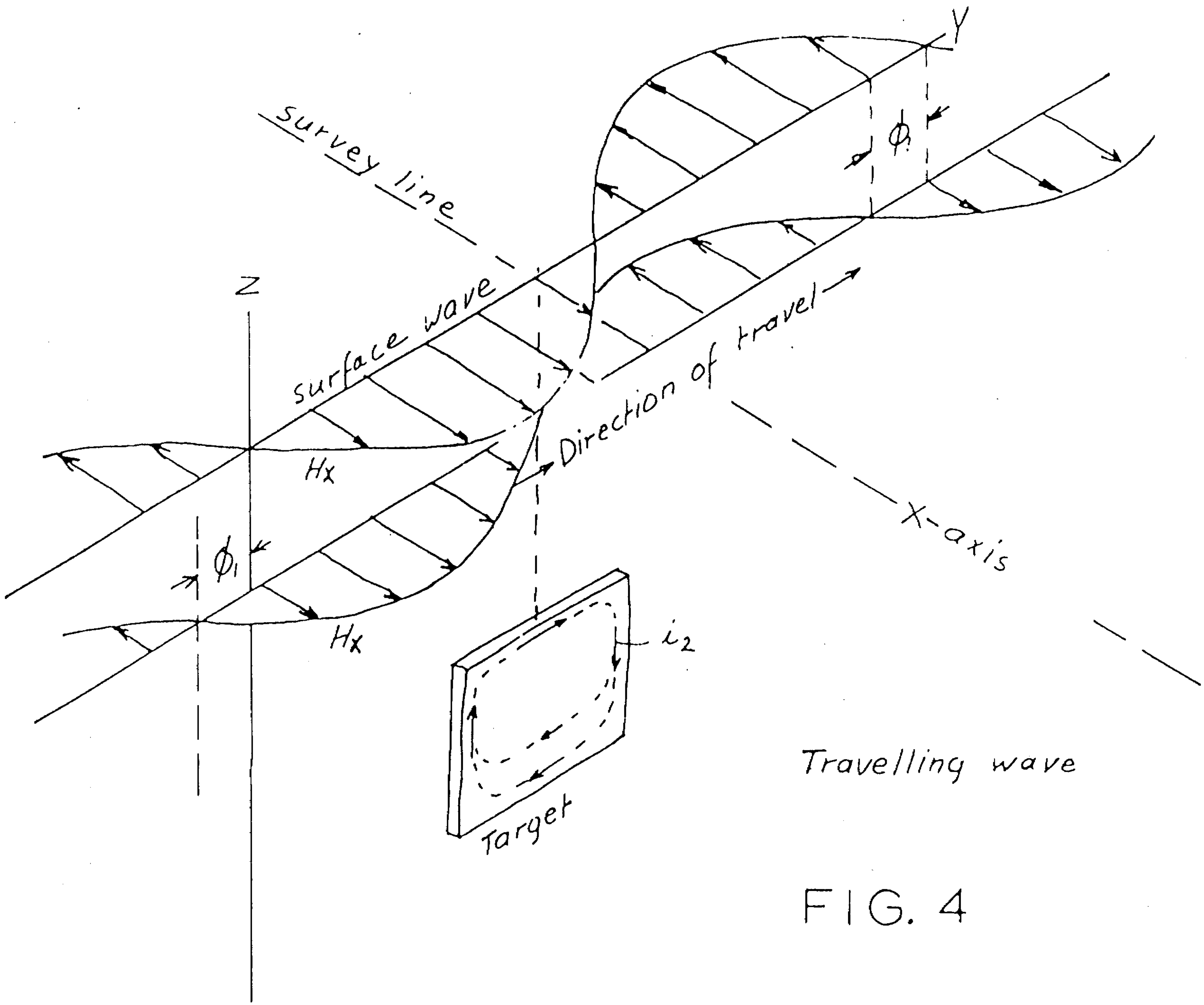
EM16 VLF-EM
Block Diagram
GEONICS LTD

FIG. 2



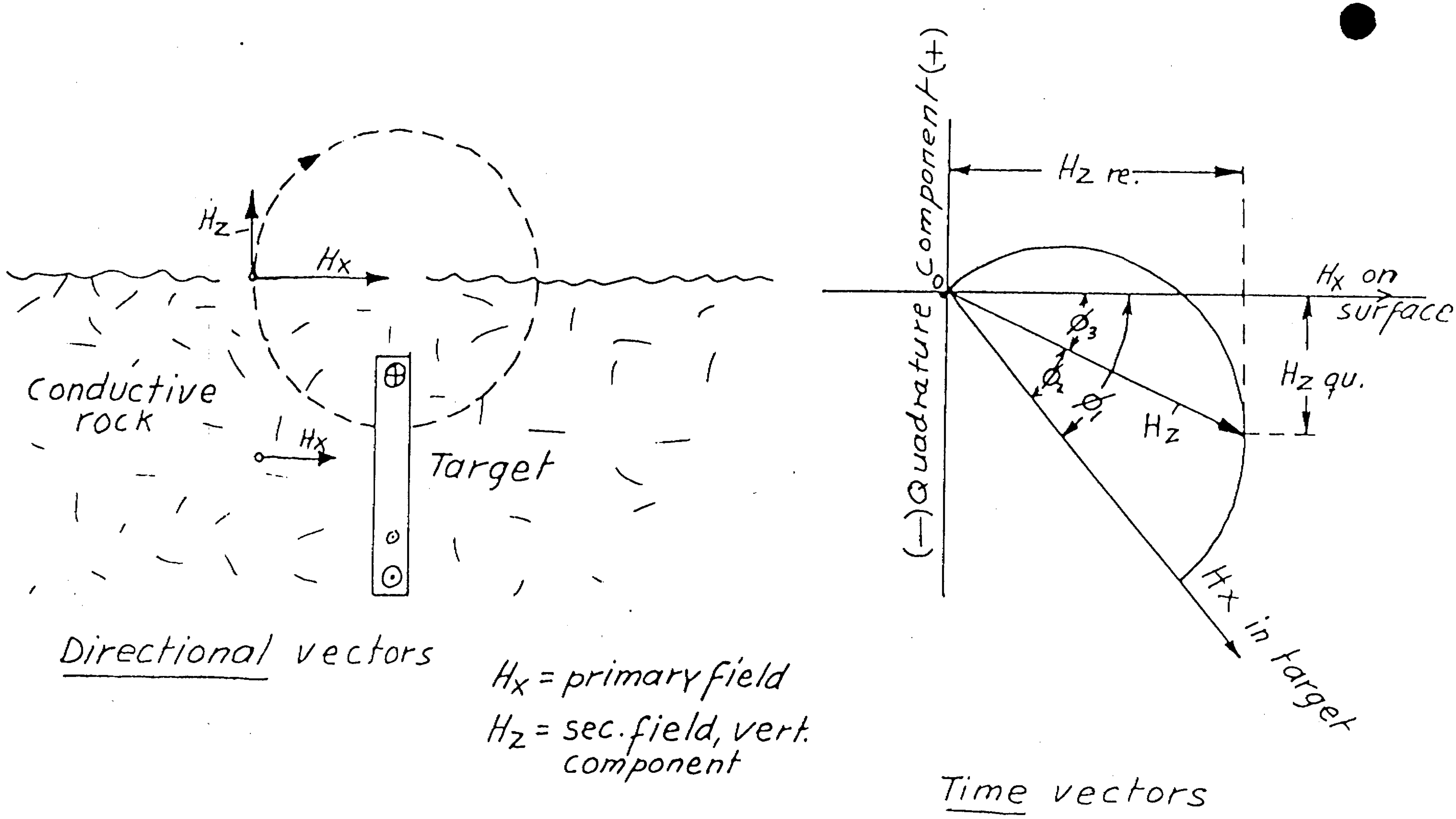
Planning of survey

FIG. 3



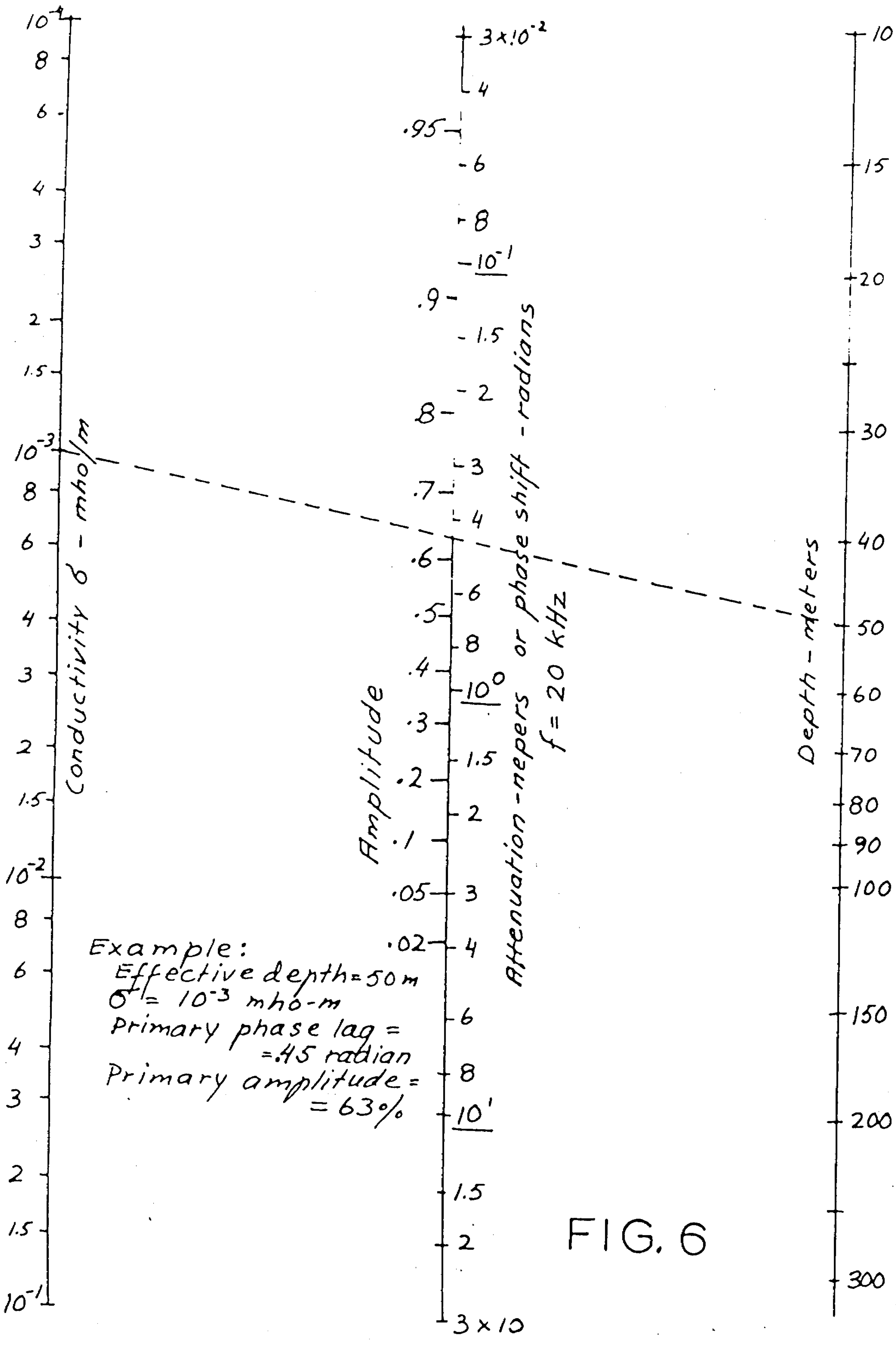
Travelling wave

FIG. 4



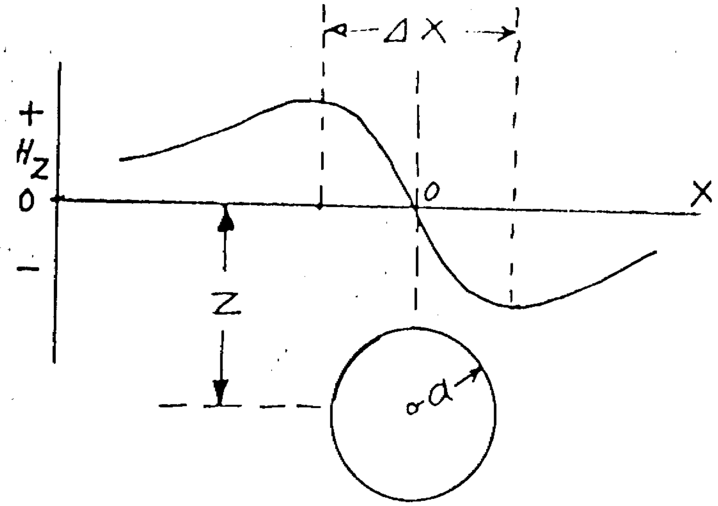
Conductive target in conductive medium

FIG. 5



Conductivity σ - mho/m
10^{-4}
8
6
4
3
2
1.5
10^{-3}
8
6
4
3
2
1.5
10^{-2}
8
6
4
3
2
1.5
10^{-1}
Amplitude
.95
.9
.8
.7
.6
.5
.4
.3
.2
.1
.05
.02
Attenuation - nepers or phase shift - radians
f = 20 kHz
3×10^{-2}
4
6
8
10^{-1}
1.5
2
3
4
6
8
10^{0}
1.5
2
3
4
6
8
10^{1}
1.5
2
3 x 10
Depth - meters
10
15
20
30
40
50
60
70
80
90
100
150
200
300
Example:
Effective depth = 50 m
σ = 10^{-3} mho-m
Primary phase lag = .45 radian
Primary amplitude = 63%

FIG. 6



Long cylinder or sphere in horizontal field $H_x = 1$

Depth $Z = 1.16\ \Delta X$ for cylinder,

$Z = \Delta X$ for sphere

$\sigma = \infty$

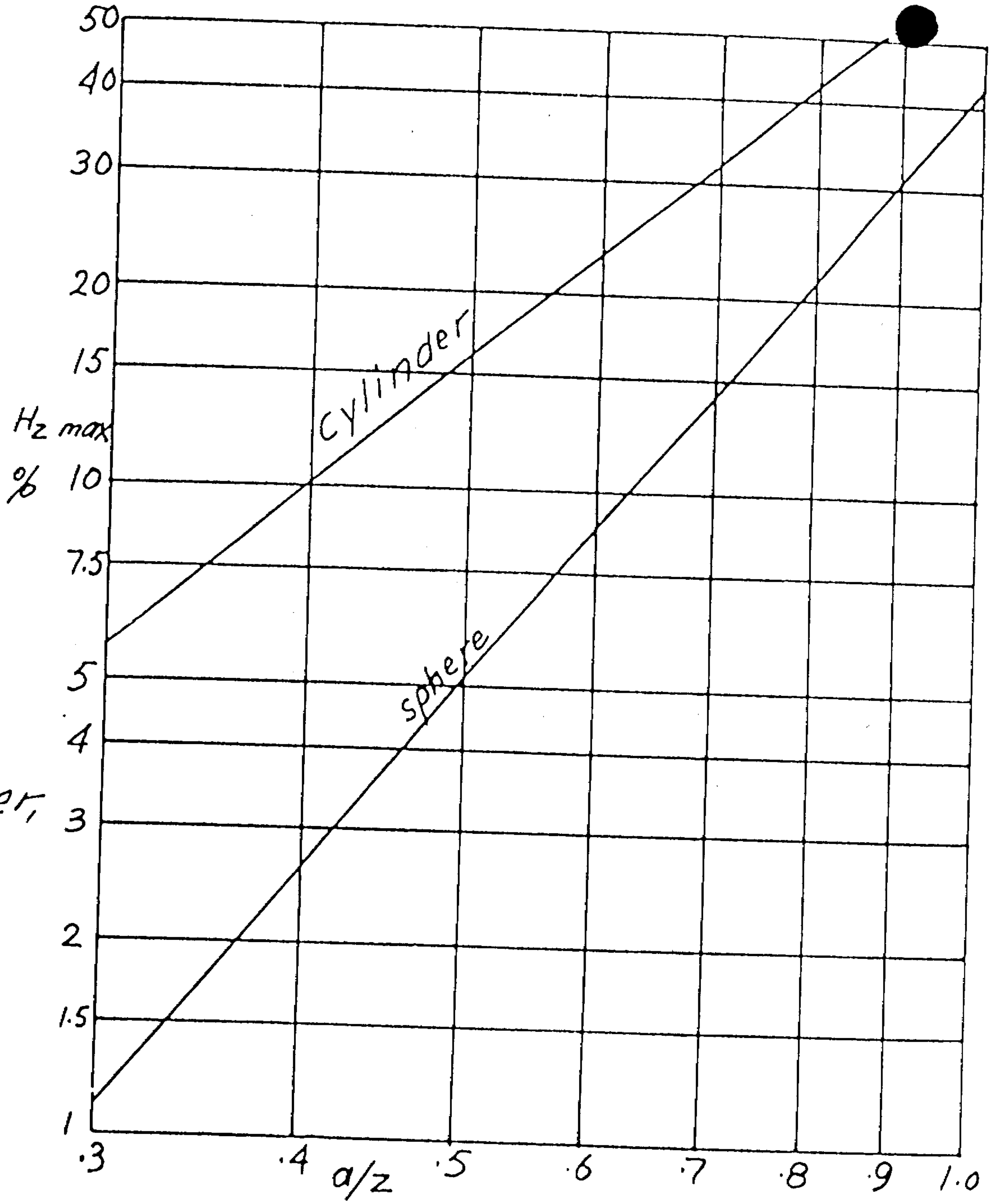
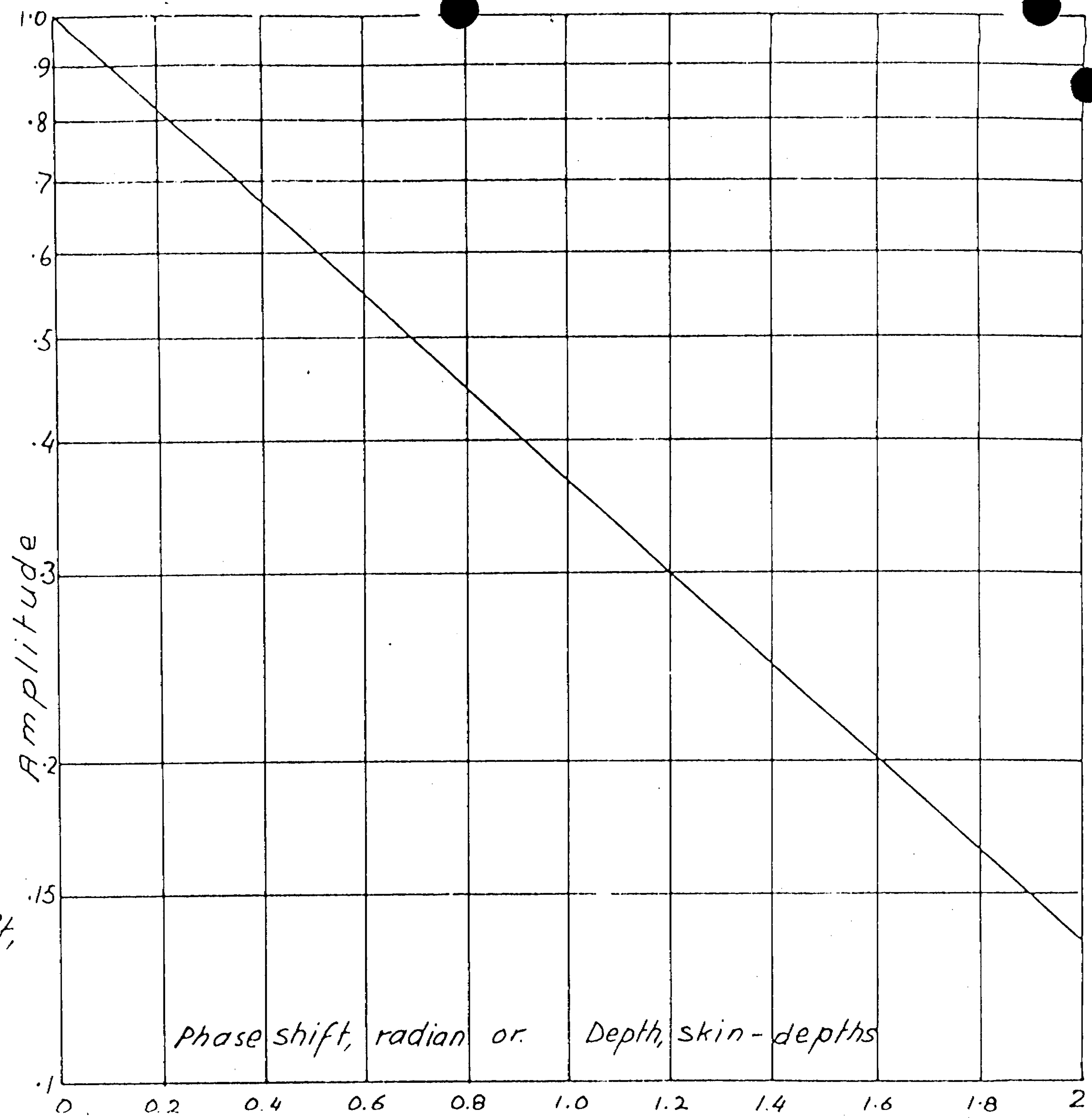


FIG. 7

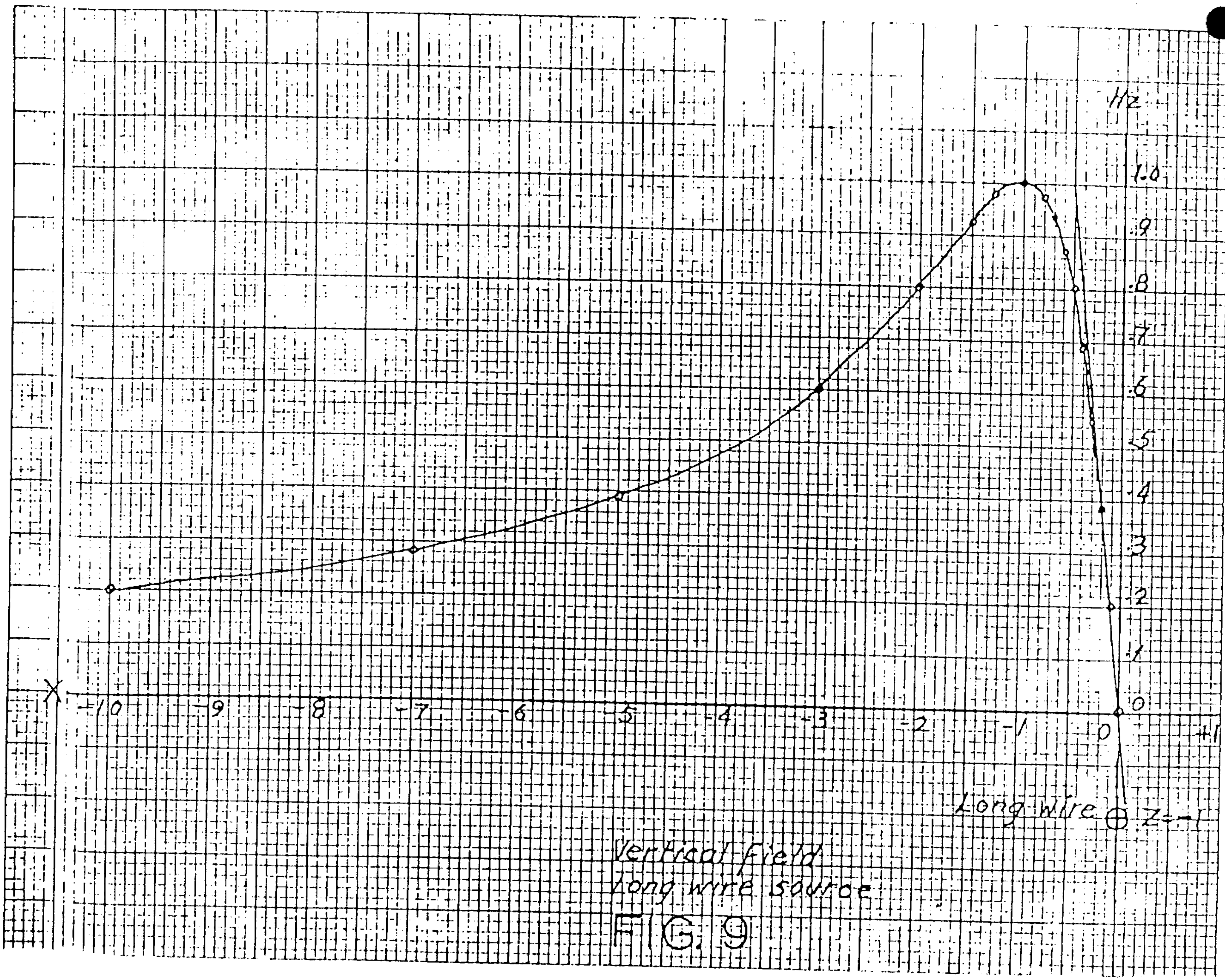
Maximum available anomaly from a sphere and cylinder



Primary field in conductive rock.

Depth, phase shift, amplitude

FIG. 8



Vertical Field
Long wire source

FIG. 9

SELECTION OF THE STATION

The magnetic field lines from the station are at right angles to the direction of the station. Always select a station which gives the field approximately at right angles to the main strike of the ore bodies or geological structure of the area you are presently working on. In other words, the strike of geology should point to the transmitter. (See Figure 3). Of course, $\pm 45^{\circ}$ variations are tolerable in practice.

Tuning of the EM16 to the proper transmitting station is done by means of plug-in units inside the receiver. The instrument takes two selector-units simultaneously. A switch is provided for quick switching between these two stations.

To change a plug-in unit, open the cover on top of the instrument, and insert the proper plug. (Figure 10) Close the cover and set the selector switch to the desired plug-in.

On the following pages is a variety of information on the most commonly used (i.e. reliable) VLF Transmitters including transmission frequency, geographical location and their scheduled maintenance periods.

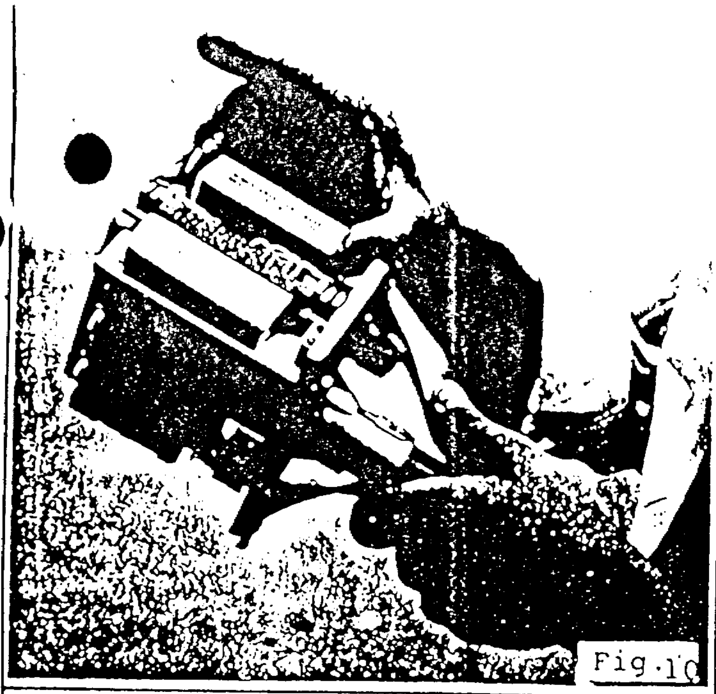


Fig.10

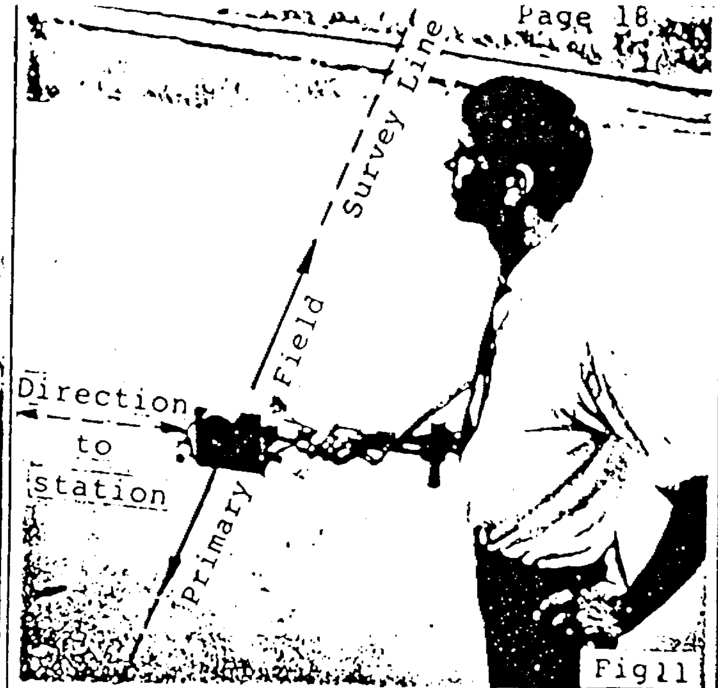


Fig11

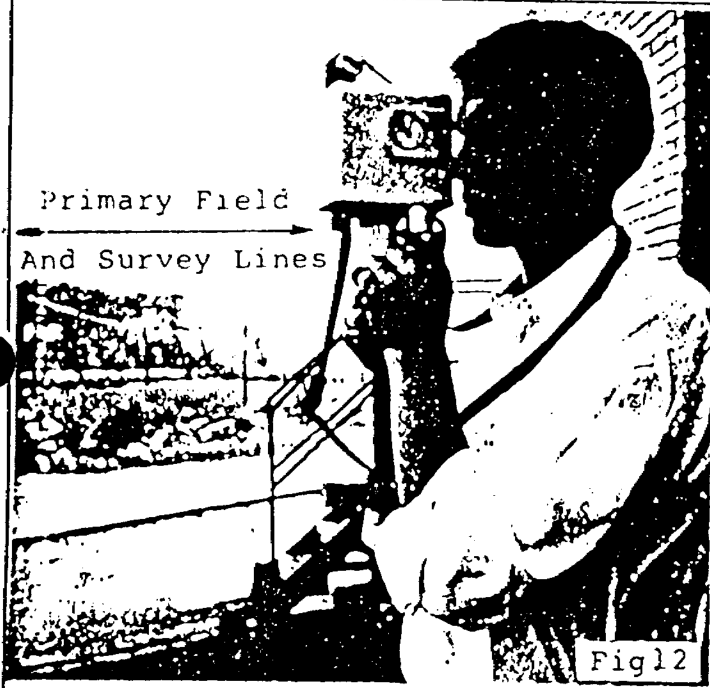


Fig12

Fig.13

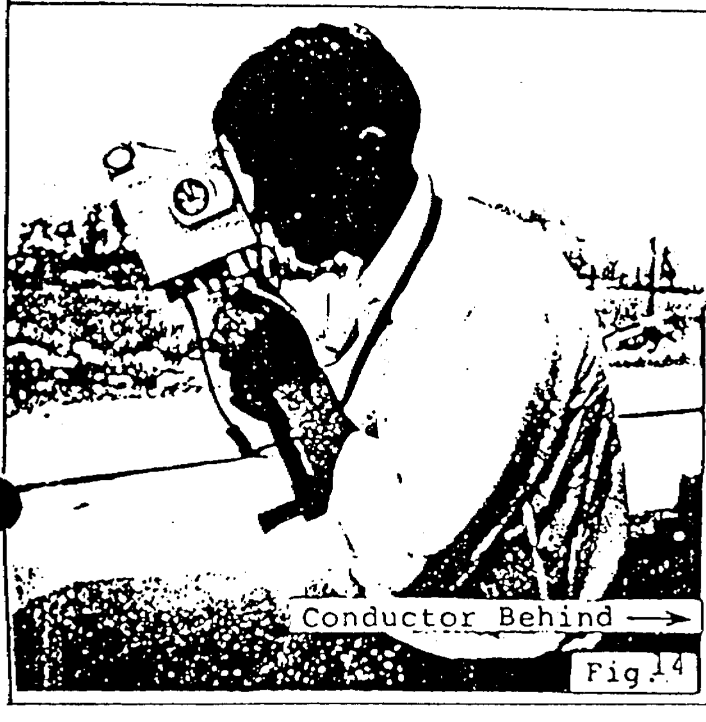


Fig.14

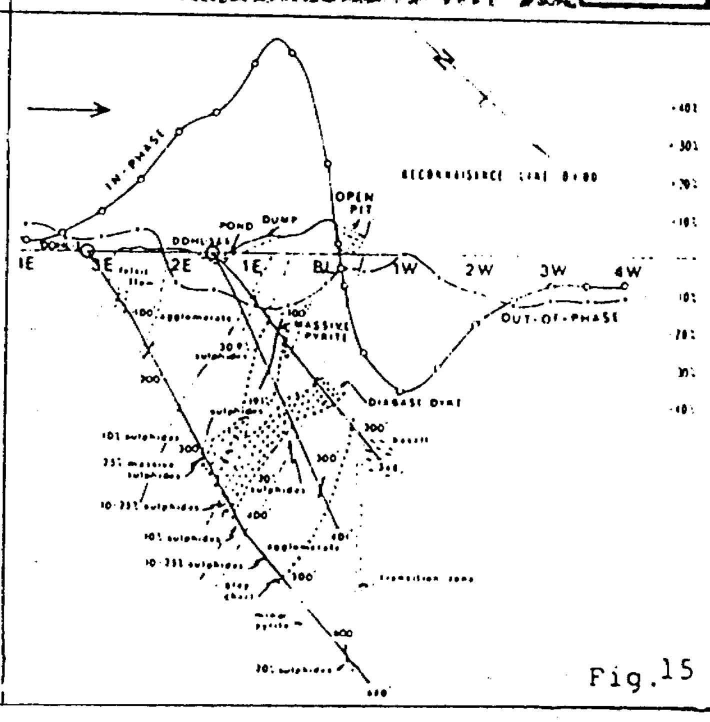


Fig.15

FIELD PROCEDURE

Orientation & Taking a Reading

The direction of the survey lines should be selected approximately along the lines of the primary magnetic field, at right angles to the direction to the station being used. Before starting the survey, the instrument can be used to orient oneself in that respect. By turning the instrument sideways, the signal is minimum when the instrument is pointing towards the station, thus indicating that the magnetic field is at right angles to the receiving coil inside the handle.(Fig.11).

To take a reading, first orient the reference coil (in the lower end of the handle) along the magnetic lines.(Fig.12) Swing the instrument back and forth for minimum sound intensity in the speaker. Use the volume control to set the sound level for comfortable listening. Then use your left hand to adjust the quadrature component dial on the front left corner of the instrument to further minimize the sound. After finding the minimum signal strength on both adjustments, read the inclinometer by looking into the small lens. Also, mark down the quadrature reading.

While travelling to the next location you can, if you wish, keep the instrument in operating position. If fast changes in the readings occur, you might take extra stations to pinpoint accurately the details of anomaly.

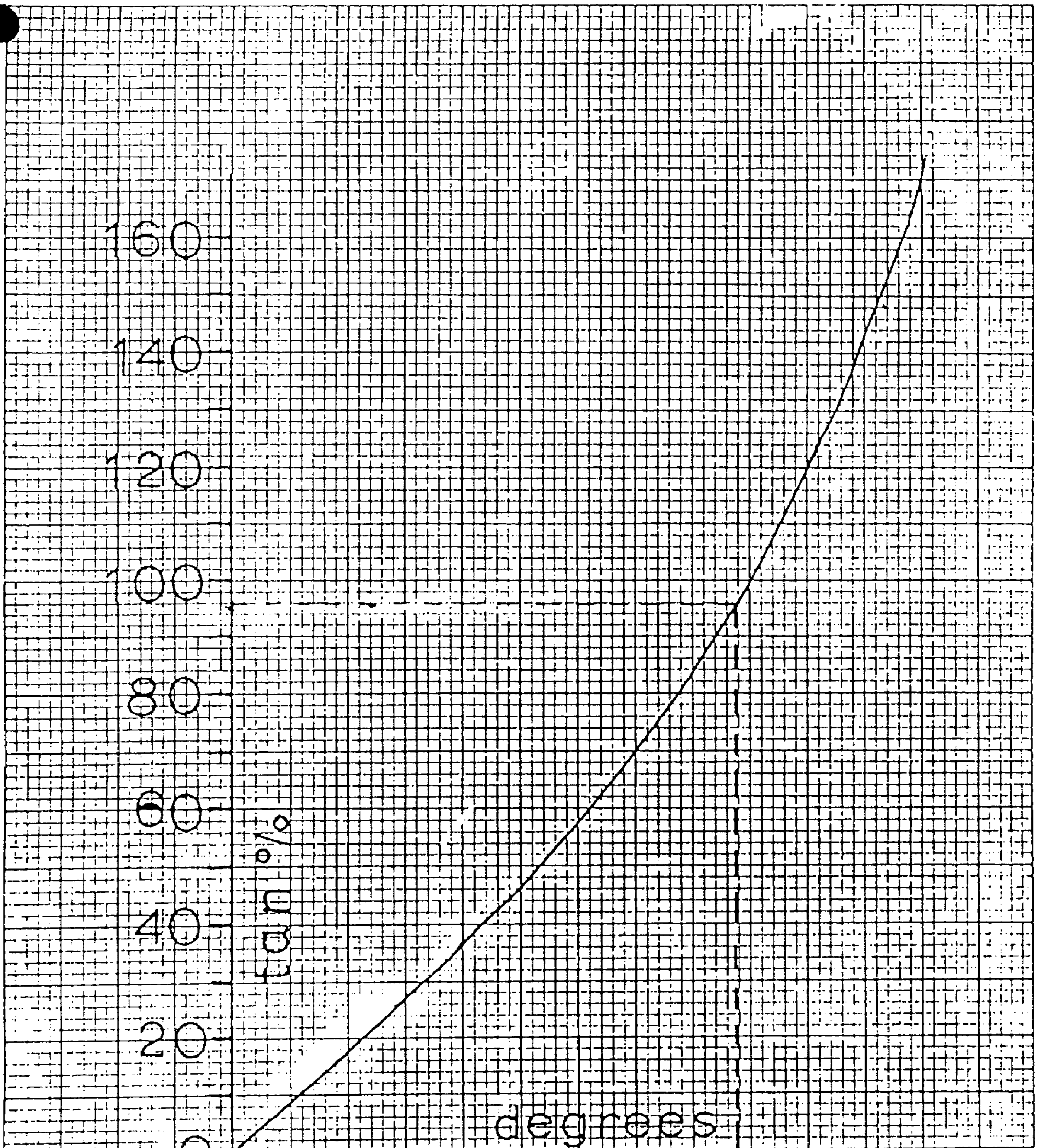
The dials inside the inclinometer are calibrated in positive and negative percentages. If the instrument is facing 180° from the original direction of travel, the polarities of the readings will be reversed. Therefore, in the same area take the readings always facing in the same direction even when travelling in opposite way along the lines.

The lower end of the handle, will as a rule, point towards the conductor. (Figs.13 & 14) The instrument is so calibrated that when approaching the conductor, the angles are positive in the in-phase component. Turn always in the same direction for readings and mark all this on your notes, maps, etc.

THE INCLINOMETER DIALS

The right-hand scale is the in-phase percentage(ie. Hs/Hp as a percentage). This percentage is in fact the tangent of the dip angle. To compute the dip angle simply take the arc-tangent of the percentage reading divided by 100. See the conversion graph on the following page.

The left-hand scale is the secant of the slope of the ground surface. You can use it to "calculate" your distance to the next station along the slope of the terrain.


160
140
120
100
80
60
40
20
0
tan %
degrees
0
20
40
60
example: 96% = 44°
EM16 in-phase, % to degrees.

(1) Open both eyes.

(2) Aim the hairline along the slope to the next station to about your eye level height above ground.

(3) Read on the left scale directly the distance necessary to measure along the slope to advance 100 (ft) horizontally.

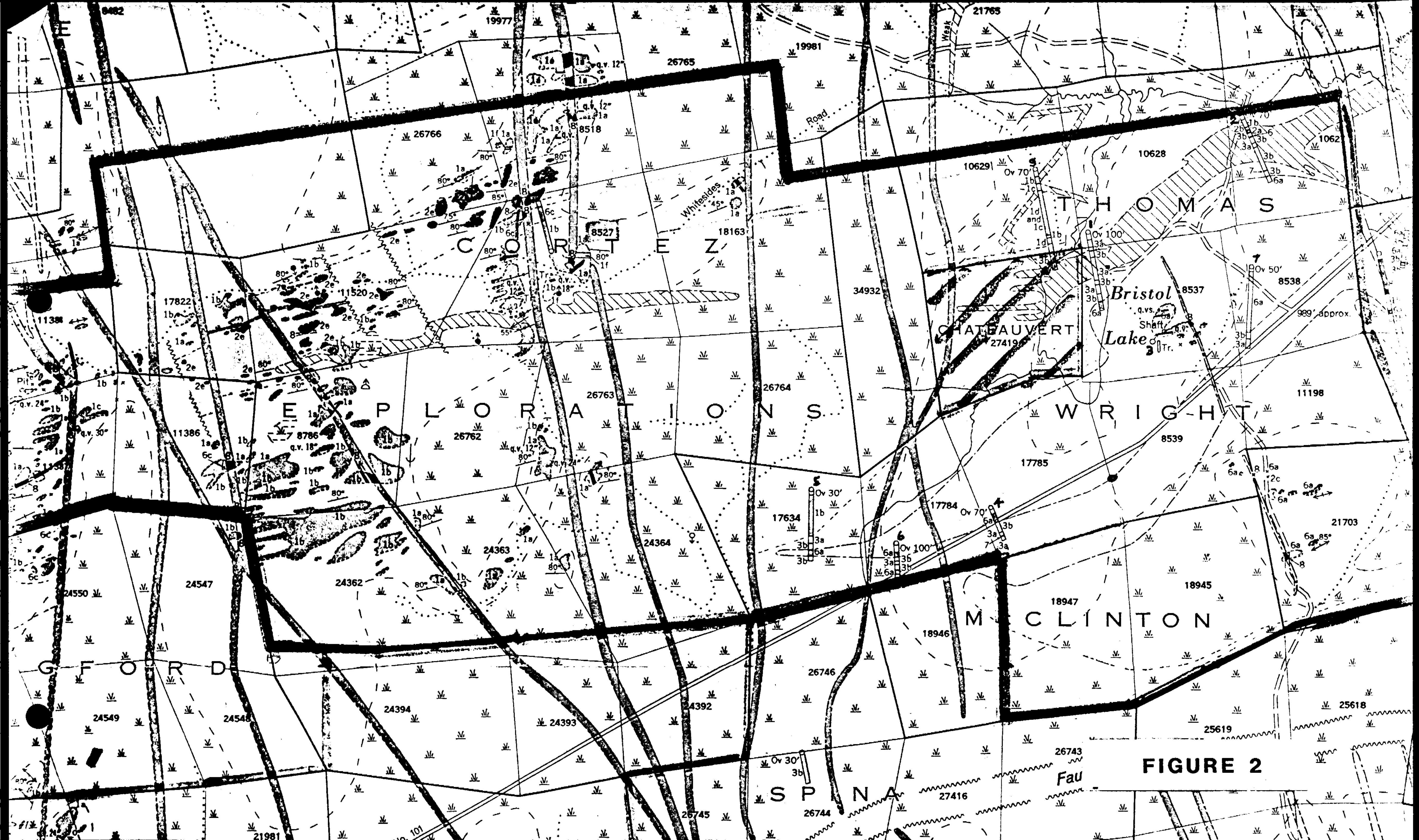
We feel that this will make your reconnaissance work easier. The outside scale on the inclinometer is calibrated in degrees just in case you have use for it.

PLOTTING THE RESULTS

For easy interpretation of the results, it is good practice to plot the actual curves directly on the survey line map using suitable scales for the percentage readings. (Fig.15) The horizontal scale should be the same as your other maps on the area for convenience.

A more convenient form of this data is easily achieved by transforming the zero-crossings into peaks by means of a simple numerical filtering technique. This technique is described by D.C. Fraser in his paper "Contouring of VLF-EM Data", Geophysics, Vol. 34, No. 6. (December 1969)pp958-967. A reprint of this paper is included in this manual for the convenience of the user.

This simple data manipulation procedure which can be implemented in the field produces VLF-EM data which can be contoured and as such provides a significant advantage in the evaluation of this data.


CORTEZ
EXPLORATIONS
THOMAS
WRIGHT
McCLINTON
SPINA
GFORD
CHATEAUVERT
Bristol
Lake
Shaft
Whitesides
Road
Weak
989' approx.
Fau
26765
26766
8518
8527
18163
19981
19977
21765
10628
10629
8537
8538
34932
11520
17822
11386
27419
26763
26764
26762
8786
11198
8539
17785
17784
17634
24363
24364
24362
24547
24550
24549
24548
24394
24393
24392
18947
18946
18945
21703
26746
26743
27416
26745
26744
25618
25619
21981
Ov 70'
Ov 100'
Ov 50'
Ov 30'
q.v. 12"
q.v. 18"
q.v. 24"
q.v. 30"
FIGURE 2

(Ministry of Natural Resources, Ontario)

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

4-7221 # 45 The Mi

42A05NE8491 2.7565 BRISTOL 900

Type of Survey(s)	Township or Area
Proton Preccession Magnetometer, VLF, EM	Bristol Twp

Claim Holder(s)	Prospector's Licence No.
UTAH MINES LTD	

Address: 1238 Riverside Drive, Timmins, Ontario, P4R 1A4

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
UTAH MINES LTD	29 09 84 (Day Mo. Yr.) – 19 10 84 (Day Mo. Yr.)	42

Name and Address of Author (of Geo-Technical report): G.L. TREADWELL, c/o UTAH MINES LTD, 1238 Riverside Drive, Timmins, Ont.

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	40
	- Magnetometer	20
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	~~1.41~~
	- Magnetometer	~~1.41~~ (not allowed accounted for through Special provisions)
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
P	724587		P	752203	60
	724588			752204	
	724589			752205	
	724590			779457	
	724591			779458	
	740864			779459	
	740865			779460	
	740866			779461	
	740867			779509	
	740868			779510	
	740869			779511	
	740870			779512	
	740871			779513	
	740872			779514	
	740873			779515	
	752195			825436	
	752196			825437	
	752197			825438	
	752198			825439	
	752199			825440	
	752200				
	752201				
	752202				

RECORDED OCT 23 1984

Receipt No.

Total number of mining claims covered by this report of work: 43

For Office Use Only		
Total Days Cr. Recorded: 2580	Date Recorded: Oct 23/84	Mining Recorder: (signature)
	Date Approved as Recorded: see revised statement	Branch Director

Date	Recorded Holder or Agent (Signature)
84/10/22	(signature) G.L. Treadwell

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

PORCUPINE MINING DIVISION RECEIVED OCT 23 1984 A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

Name and Postal Address of Person Certifying: G. Treadwell, 1238 Riverside Dr. Tim, Ont. 264-7221

Date Certified	Certified by (Signature)
84/10/22	(signature) G.L. Treadwell

1362 (81/9)

Ontario

File

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

**TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.**

Type of Survey(s) MAGNETOMETER, VLF EM

Township or Area BRISTOL TWP.

Claim Holder(s) UTAH MINES LTD.

Survey Company UTAH MINES LTD.

Author of Report P. DIORIO

Address of Author 1406-4 King Street, W. Toronto, Ont.

Covering Dates of Survey Sept. 08/84 to Oct. 21/84 (linecutting to office)

Total Miles of Line Cut 42

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ______ Electromagnetic ______ Radiometric ______
(enter days per claim)

DATE: 10 Dec 84 SIGNATURE: P. Diorio
Author of Report or Agent

OFFICE USE ONLY

Res. Geol. ______ Qualifications ______

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P	724587
P	724588
P	724589
P	724590
P	724591
P	740864
P	740865
P	740866
P	740867
P	740868
P	740869
P	740870
P	740871
P	740872
P	740873
P	752195
P	752196
P	752197
P	752198
P	752199
P	752200
P	752201

If space insufficient, attach list

TOTAL CLAIMS 43

837 (5/79)

Assessment Work Breakdown

Man Days are based on eight (8) hour Technical or Line-cutting days. Technical days include work performed by consultants, draftsmen, etc..

Type of Survey: MAGNETOMETER

Technical Days				Technical Days Credits		Line-cutting Days		Total Credits		No. of Claims		Days per Claim
7	X	7	=	49	+	22	=	61	÷	43	=	1.41

Type of Survey: VLF - EM

Technical Days				Technical Days Credits		Line-cutting Days		Total Credits		No. of Claims		Days per Claim
7	X	7	=	49	+	22	=	61	÷	43	=	1.41

Type of Survey:

Technical Days				Technical Days Credits		Line-cutting Days		Total Credits		No. of Claims		Days per Claim
	X	7	=		+		=		÷		=	

Type of Survey:

Technical Days				Technical Days Credits		Line-cutting Days		Total Credits		No. of Claims		Days per Claim
	X	7	=		+		=		÷		=	

RECEIVED
NOV 01 1984
MINING LANDS SECTION

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations VLF = 1801, MAG = 1762 Number of Readings VLF = 3602, MAG =1762

Station interval 100' Line spacing 400'

Profile scale As shown

Contour interval As shown

MAGNETIC

Instrument Scintrex MP-3

Accuracy – Scale constant +/- .1 gammas

Diurnal correction method Base Magnetometer

Base Station check-in interval (hours) ______

Base Station location and value 100' South east of base line at LOE

Value 59088

ELECTROMAGNETIC

Instrument ______

Coil configuration Fixed transmitter/Tilt angle

Coil separation ______

Accuracy ______

Method: ☒ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency 24.0 KHz - Cutler, Maine

(specify V.L.F. station)

Parameters measured ______

GRAVITY

Instrument ______

Scale constant ______

Corrections made ______

Base station value and location ______

Elevation accuracy ______

INDUCED POLARIZATION
RESISTIVITY

Instrument ______

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time ______ Frequency ______

– Off time ______ Range ______

– Delay time ______

– Integration time ______

Power ______

Electrode array ______

Electrode spacing ______

Type of electrode ______

SELF POTENTIAL

Instrument ______________________ Range ______________

Survey Method ______________________

____

Corrections made ______________________

____

RADIOMETRIC

Instrument ______________________

Values measured ______________________

Energy windows (levels) ______________________

Height of instrument ______________________ Background Count ______________

Size of detector ______________________

Overburden ______________________

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey ______________________

Instrument ______________________

Accuracy ______________________

Parameters measured ______________________

____

Additional information (for understanding results) ______________________

____

____

AIRBORNE SURVEYS

Type of survey(s) ______________________

Instrument(s) ______________________

(specify for each type of survey)

Accuracy ______________________

(specify for each type of survey)

Aircraft used ______________________

Sensor altitude ______________________

Navigation and flight path recovery method ______________________

____

Aircraft altitude ______________________ Line Spacing ______________

Miles flown over total area ______________________ Over claims only ______________

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ______

______

______

Total Number of Samples ______

Type of Sample ______
(Nature of Material)

Average Sample Weight ______

Method of Collection ______

______

Soil Horizon Sampled ______

Horizon Development ______

Sample Depth ______

Terrain ______

______

Drainage Development ______

Estimated Range of Overburden Thickness ______

______

______

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ______

______

______

______

General ______

______

______

______

______

______

______

______

______

______

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ______

Field Analysis (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Field Laboratory Analysis

No. (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Commercial Laboratory (______ tests)

Name of Laboratory ______

Extraction Method ______

Analytical Method ______

Reagents Used ______

General ______

______

______

______

______

______

______

______

______

______

(con't. from Page 1)

MINING CLAIMS TRAVERSED

PREFIX	NUMBER
P	752202
P	752203
P	752204
P	752205
P	779457
P	779458
P	779459
P	779460
P	779461
P	779509
P	779510
P	779511
P	779512
P	779513
P	779514
P	779515
P	825436
P	825437
P	825438
P	825439
P	825440

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File	2.7565
Date	1984 12 21
Mining Recorder's Report of Work No.	450/84

Recorded Holder	UTAH MINES LTD
Township or Area	BRISTOL TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	P 724587 to 591 inclusive
Electromagnetic 40 days	740864 to 873 inclusive
Magnetometer 20 days	752195 to 205 inclusive
Radiometric ______ days	779457 - 458
Induced polarization ______ days	779460 - 461
Other ______ days	779509 to 513 inclusive
Section 77 (19) See "Mining Claims Assessed" column	825436 to 439 inclusive
Geological ______ days	
Geochemical ______ days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☐ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

20 DAYS ELECTROMAGNETIC 10 DAYS MAGNETOMETER	10 DAYS ELECTROMAGNETIC 5 DAYS MAGNETOMETER
P 779459 779515 825440	P 779514

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ Insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19)—60;

828 (83/6)

Ministry of Natural Resources
Ontario

Jan 7/85

1984 12 21

Your File: 450/84
Our File: 2.7565

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

R.D. D. Isherwood:mc

Encls.

cc: Utah Mines Ltd
1238 Riverside Drive
Timmins, Ontario
P4R 1A4
Attention: G.L. Treadwell

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

845

Ministry of Natural Resources
Ontario

Notice of Intent
for Technical Reports

1984 12 21

2.7565/450/84

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

1985 01 14

Your File: 450/84
Our File: 2.7565

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

RE: Notice of Intent dated December 21, 1984
Geophysical (Electromagnetic and Magnetometer)
Survey on Mining Claims P 724587 et al
in Bristol Township

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

D. Isherwood:mc

cc: Utah Mines Ltd
1238 Riverside Drive
Timmins, Ontario
P4R 1A4
Attention: G.L. Treadwell

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

cc: Resident Geologist
Timmins, Ontario

Encl.

UTAH MINES LTD.

MINERAL EXPLORATION

1238 RIVERSIDE DR., TIMMINS, ONTARIO P4R 1A4

(705) 264-7221

October 23, 1984

Mining Recording Office
Whitney Block
Queen's Park
TORONTO, Ontairo
M7A 1W3

OCT ... 1984

Dear Sir;

Please find enclosed in duplicate geophysical technical data statements outlining geophysical surveys to be applied as assessment credit on the claims as listed in the statement in Bristol Township. A technical report of these surveys, including maps, interpretations, conclusions, etc, will follow within the allotted 60 day period.

Thankyou

Sincerely

J W Newsome.

J.W. Newsome
Geologist/Timmins

ENCL

UTAH MINES LTD.

MINERAL EXPLORATION

SUITE 1406, 4 KING STREET WEST, TORONTO, ONTARIO, CANADA M5H 1B6

(416) 368-3884

December 13, 1984.

Mr. J.C. Smith,
Supervisor,
Mining Land Section,
Ministry of Natural Resources,
Room 6451, Whitney Block,
99 Wellesley Street, West,
Toronto, Ontario
M5S 1C5

RECEIVED

DEC 14 1984

MINING LANDS SECTION

Dear Sir:

Please find enclosed 2 signed copies of a techical report, accompanying plan maps and "Technical Data Statement" concerning work performed on claims within Bristol Township (Work Report #450/84). The enclosed "Technical Data Statement" replaces the one inadvertently sent to you on October 21, 1984 when the Report of Work was filed with the Mining Recorder.

Respectfully submitted,

P Diorio

Peter A. Diorio
Geophysicist

PAD/ak

Encl.

Mining Lands Section

Control Sheet

File No 27565

TYPE OF SURVEY

✓ GEOPHYSICAL

___ GEOLOGICAL

___ GEOCHEMICAL

___ EXPENDITURE

MINING LANDS COMMENTS:

Sgd

LD

Doug

Signature of Assessor

17/12/84

Date

2.7565 [struck-through text]

	Em	mag		Em	mag		Em	mag
P 724587	√	√	752195	√	√	779509	√	√
588	√	√	196	√	√	510	√	√
589	√	√	197	√	√	511	√	√
590	√	√	198	√	√	512	√	√
591	√	√	199	√	√	513	√	√
740864	√	√	200	√	√	514	3/4	3/4
865	√	√	201	1/4	1/4	515	2/4	2/4
866	√	√	202	√	√	825436	√	√
867	√	√	203	√	√	437	√	√
868	√	√	204	√	√	438	√	√
869	√	√	205	√	√	439	√	√
870	√	√	779457	1/4	1/4	440	2/4	2/4
871	√	√	458	√	√			
872	√	√	459	2/4	3/4			
823	√	√	460	√	√			
			461	√	√			

UTAH MINES LTD
Exploration Dept.
Toronto ; CANADA.

BRISTOL TWP. PROPERTY
MAGNETOMETER SURVEY

TOTAL FIELD Profiled at 1000 Gammas/Inch
59000 Gamma Background
◆ MAG BASE STATION (59088 GAMMAS)

Date	Drawn	Checked	Revised	NTS	File	Map
Oct 84	HP7585	-	-	/	-	1

0 400 800 1200
Ft

2.7565

42A05NE8491 2.7565 BRISTOL

200

UTAH MINES LTD

Exploration Dept.

Toronto ; CANADA.

BRISTOL TWP. PROPERTY
VLF EM-16 SURVEY

In-Phase (Solid) & Out-of-Phase (dashed)

Profiled at 50 % per Inch

In-Phase values posted

Date	Drawn	Checked	Revised	NTS	File	Map
Oct 84	HP7585	-	-	/	-	1

0 400 800 1200

Ft

42A05NE8491 2.7565 BRISTOL

2.7565

210

P Dion

UTAH MINES LTD
Exploration Dept.
Toronto ; CANADA.

BRISTOL TWP. PROPERTY
VLF EM-16 SURVEY

In-Phase (Solid) & Out-of-Phase (dashed)
Profiled at 50 % per Inch

Out-of-Phase values posted

Date	Drawn	Checked	Revised	NTS	File	Map
Oct 84	HP7585	-	-	/	-	1

0 400 800 1200
Ft

42A05NE8491 2.7565 BRISTOL

2.7565

220

UTAH MINES LTD
Exploration Dept.
Toronto ; CANADA.

BRISTOL TWP. PROPERTY

INTERPRETATION MAP

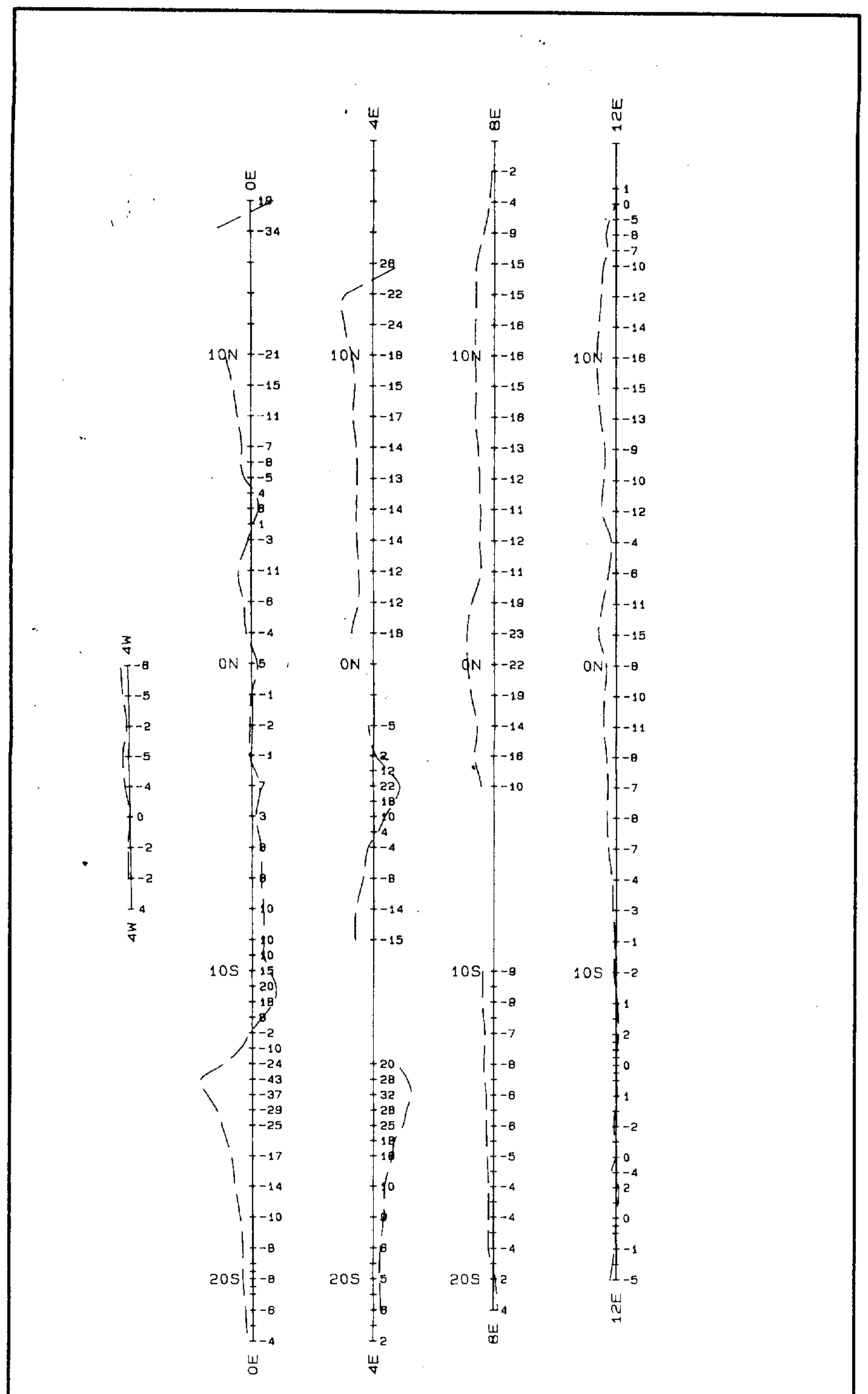
— — — Fraser Filtered VLF

Date	Drawn	Checked	Revised	NTS	File	Map
Oct 84	HP7585	-	-	-	-	

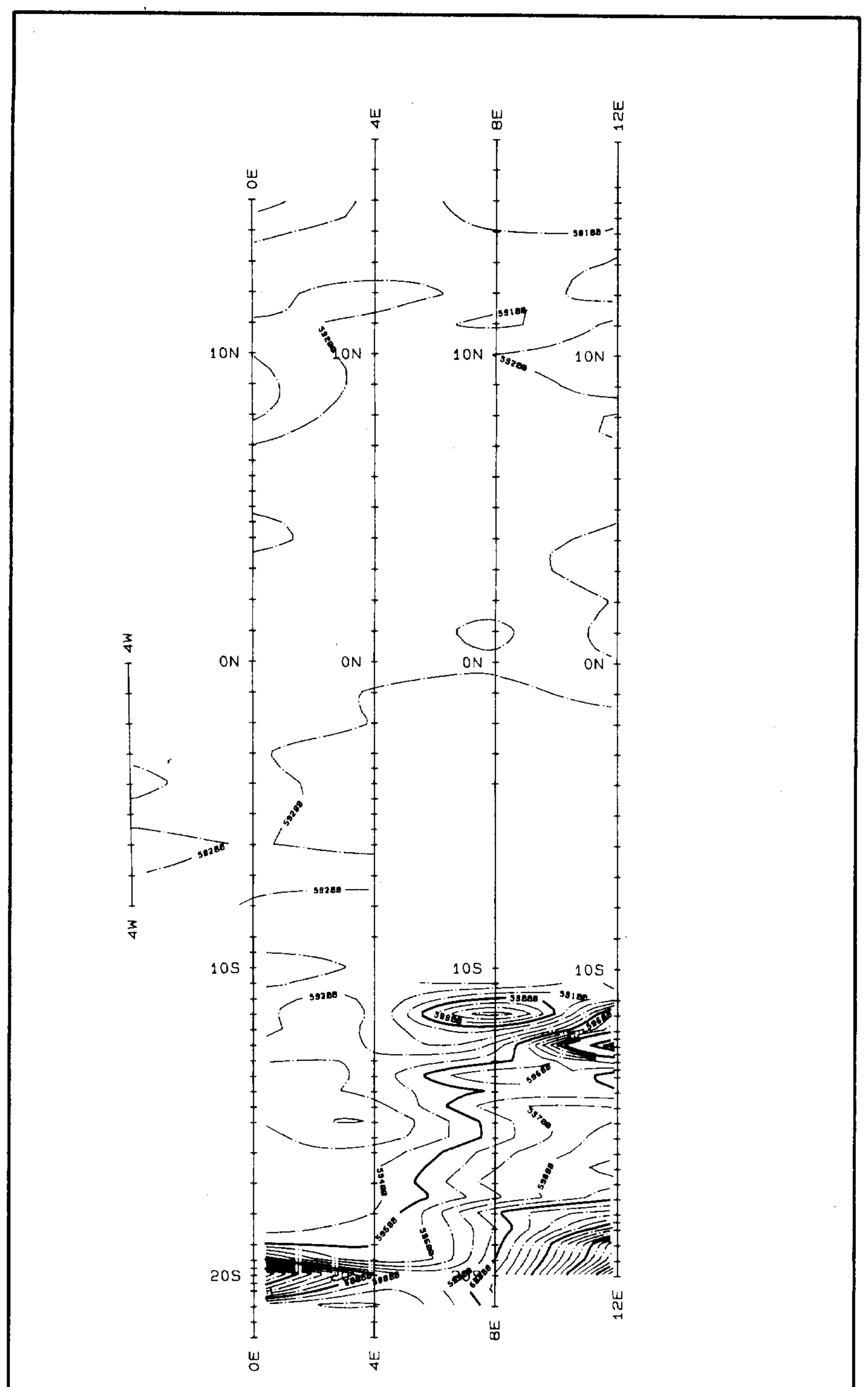
2.7565

42A05NE0491 2.7565 BRISTOL

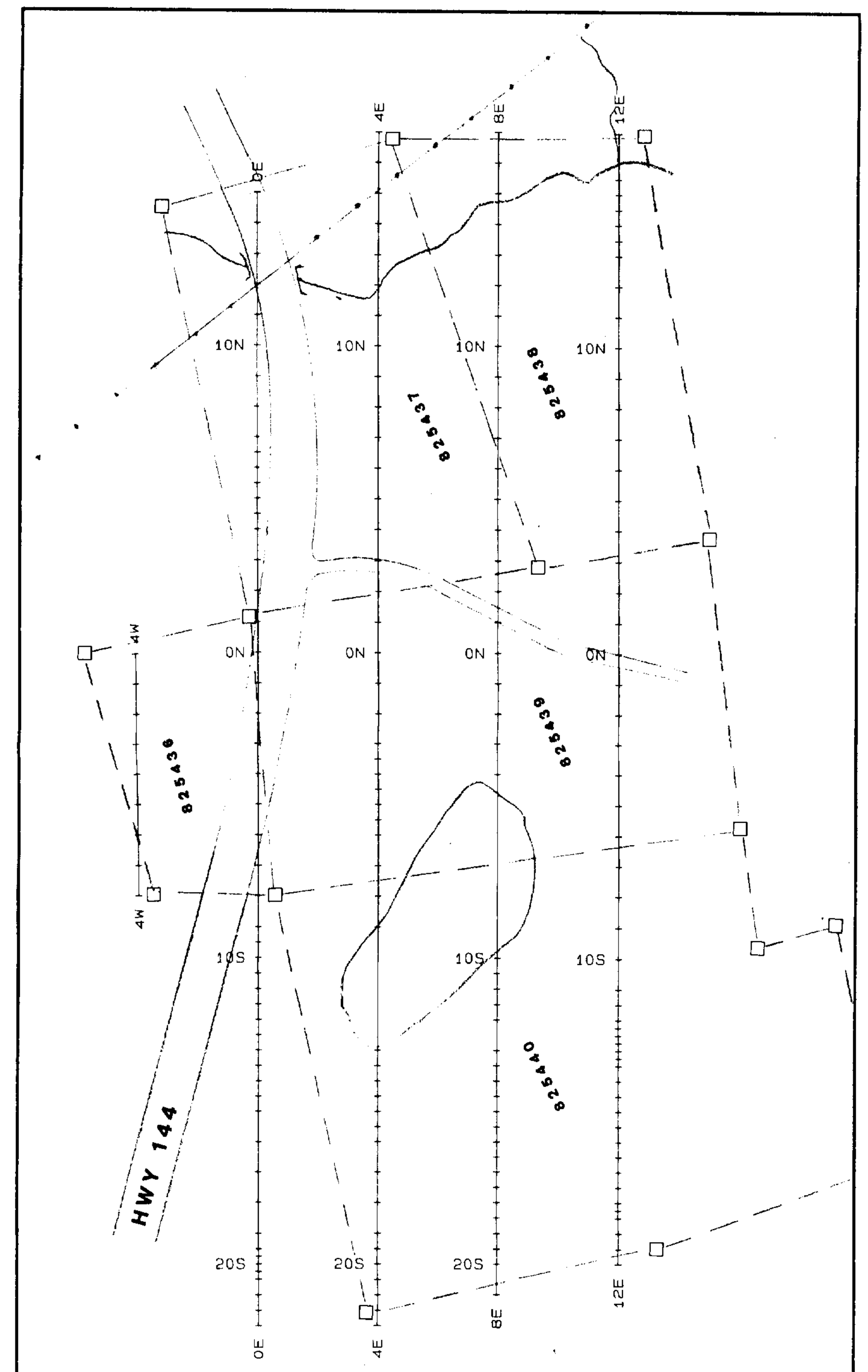
230



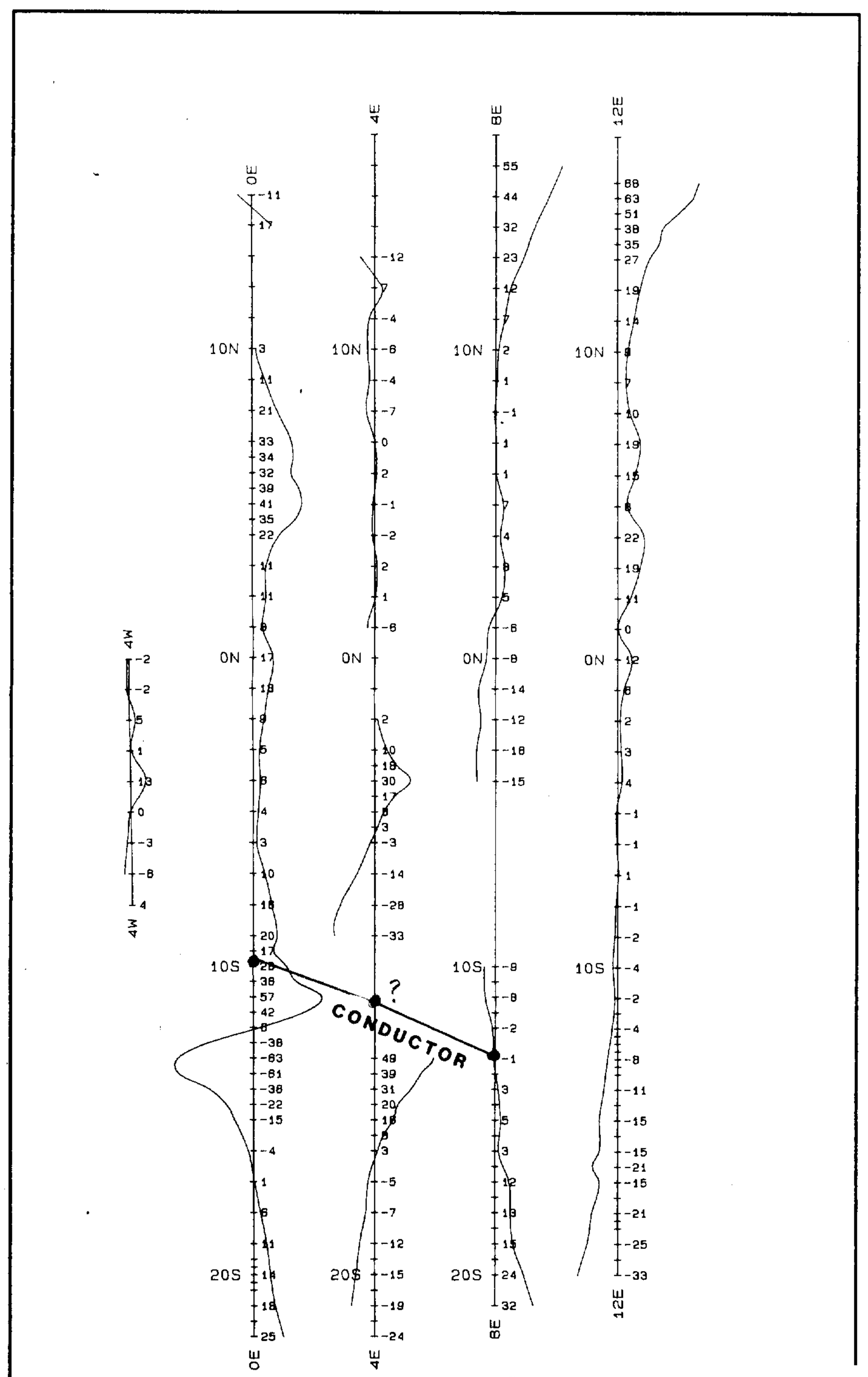
EM-16 OUT OF PHASE (100% per inch)



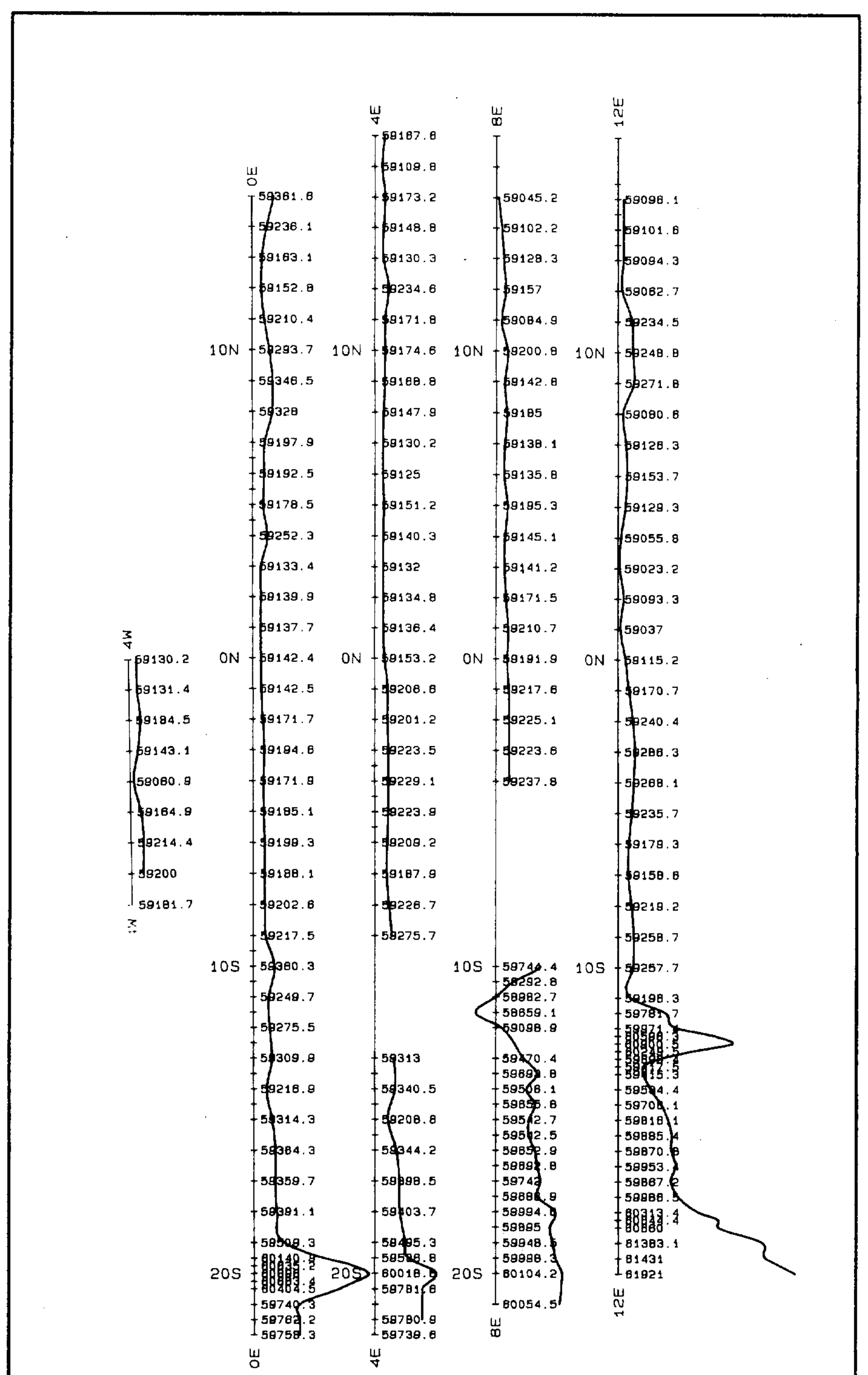
MAGNETIC FIELD (100 gamma contour interval)



BASE MAP



EM-16 IN PHASE (100% per inch)



MAGNETIC FIELD (2000 gammas per inch)

2.7565

UTAH MINES LTD

Exploration Dept.
Toronto ; CANADA.

BRISTOL TWP. 'B' Grid

MAG & EM-16 SURVEY

Date	Drawn	Checked	Revised	NTS	File	Map
Oct 84	HP7585					

42A05NE8491 2.7565 BRISTOL