(223)

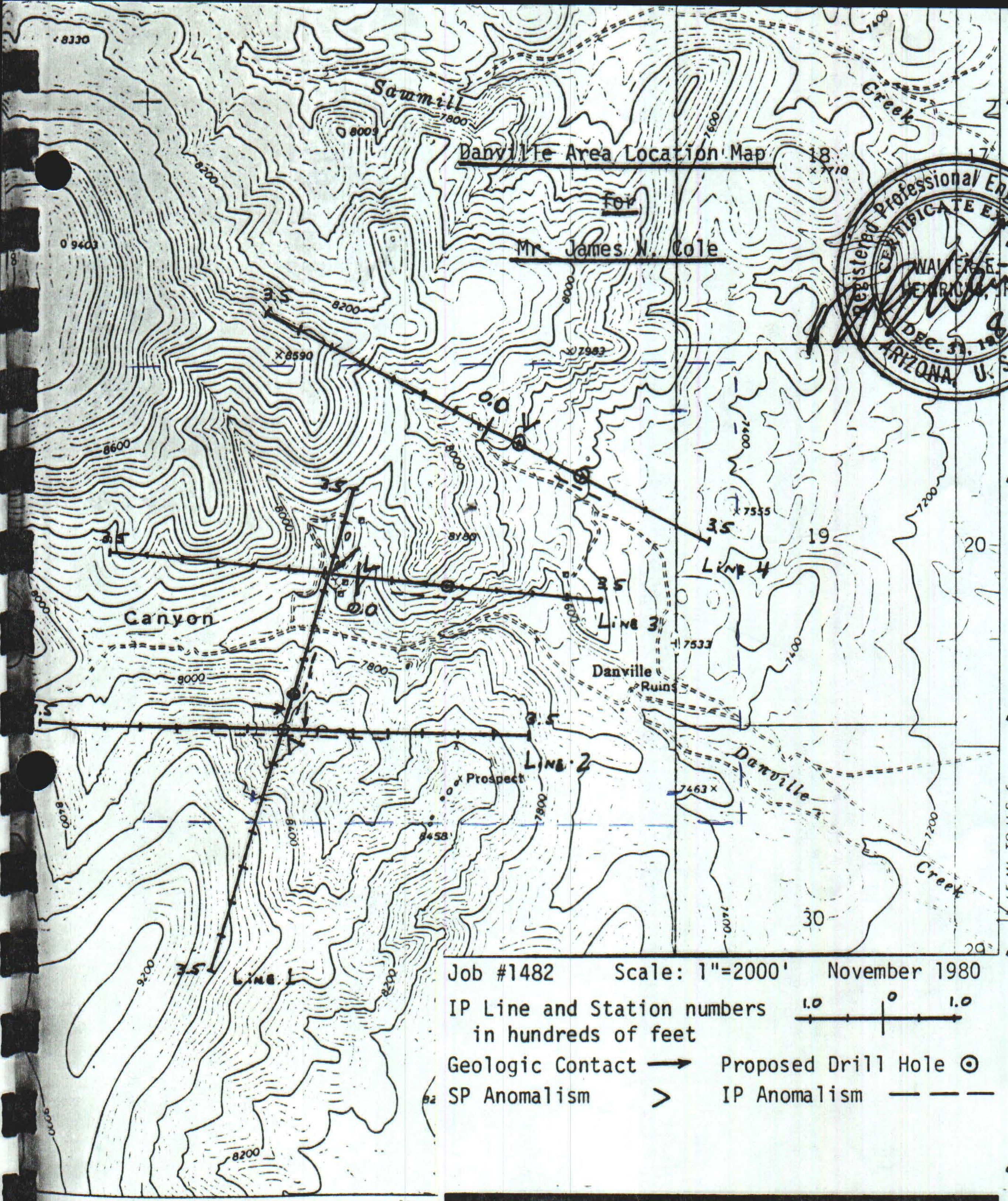
Item 11

Danville Area Location Map

for

Mr. James N. Cole

WALTER E. HEINRICHS, JR.
Certificate Expires Dec. 31, 1980



Job #1482 Scale: 1"=2000' November 1980

IP Line and Station numbers
in hundreds of feet

1.0 0 1.0

Geologic Contact → Proposed Drill Hole ⊙

SP Anomalism > IP Anomalism — — —

HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

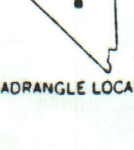
1 MILE

FEET

Secondary highway, hard surface ——— Unimproved road ======

Interstate Route U. S. Route State Route

(UPPER FISH LAKE
2761 III NW)



QUADRANGLE LOCATION

IA 22092

DANVILLE, NEV.
N3845—W11630/7.5

1971

AMS 2661 I SE SERIES V896

Preliminary Reconnaissance
IP, Resistivity
and
Self Potential Geophysical Survey
of
Danville Area

U.S.G.S. Danville 7 1/2' Quadrangle
Nye County, Nevada

November 1980

for

Mr. James W. Cole
Metallurgical Consultant
628 Northridge Drive
Boulder City, NV 89005

by

Heinrichs GEOEXploration Company, (Inc.)
P.O. Box 5964
Tucson, AZ 85703

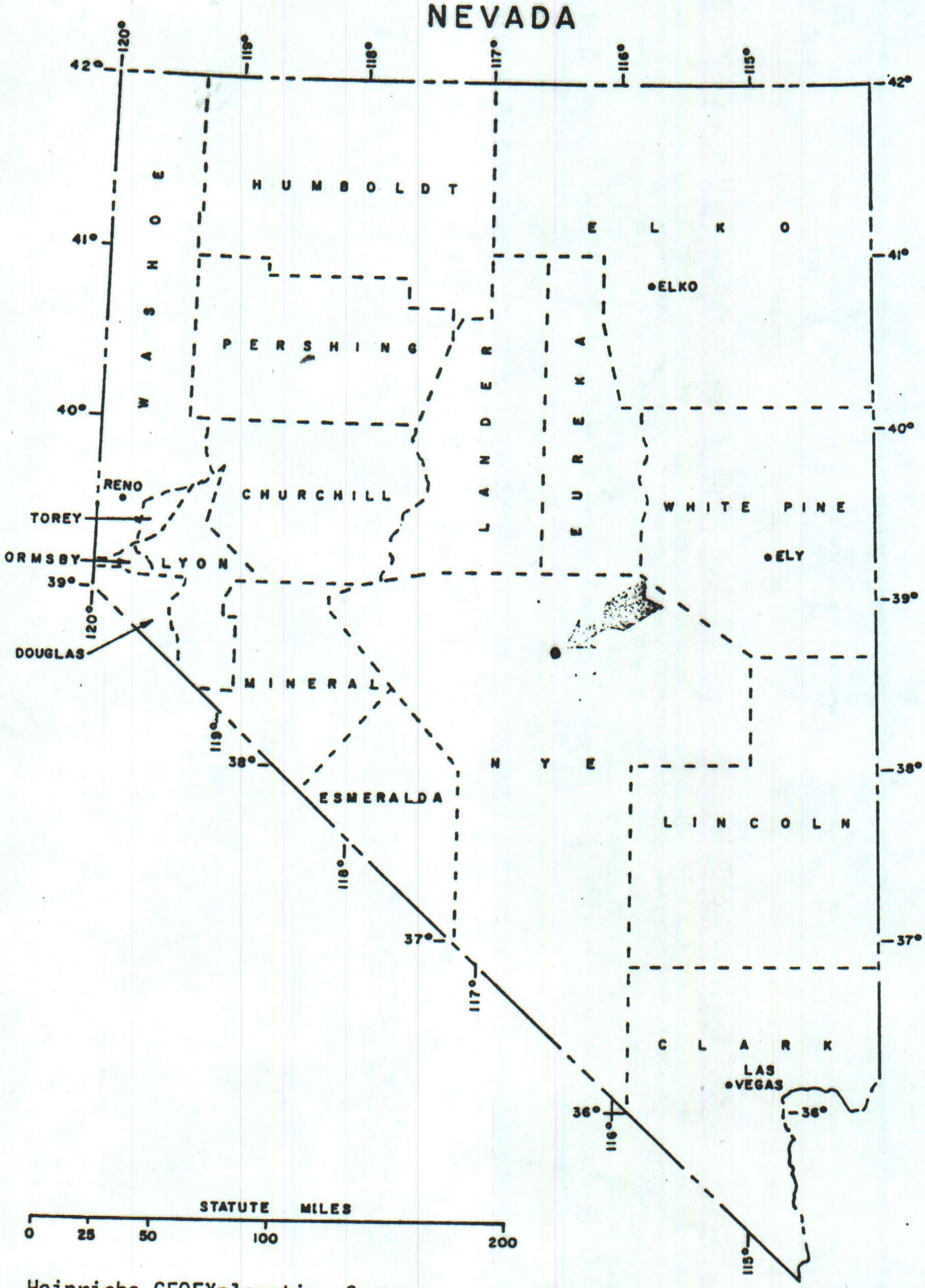
Job #1482

CONTENTS

GENERAL LOCATION OF

DANVILLE

NEVADA



Heinrichs GEOEXploration Company
Job #1482 - November 1980

Introduction

At the request of Mr. James W. Cole, Metallurgical Consultant, of Boulder City, Nevada, Heinrichs GEOExploration Company conducted a four-line preliminary reconnaissance induced polarization (IP) survey of property in the SE corner of Danville 7 1/2' U.S.G.S. Quadrangle, Nye County, Nevada, about 80 miles NE of Tonopah, Nevada, at 8000 feet elevation. Floral cover is mostly composed of pine trees. Four wheel drive access is generally good as long as roads are followed in this area of rugged terrain.

Field work was done during the interim October 31 through November 5, 1980 with Mark E. Anders, Geophysicist-Geologist as party leader, assisted by David Swanson, Electronics Technician, Pat Zeller, Geophysical Technician, and Janet Burner, Field Helper.

Purpose of the work was to delineate subsurface geology, with particular emphasis on evaluation at depth, to identify existence, strength and distribution of any possible sulfides.

Procedures

GEOEX multiple frequency IP equipment involving MARK 4, 10 ampere transmitter S/N 6644 and MARK 4-C receiver S/N 19692. Transmitter was powered by a 18HP Onan gasoline engine, driving a 400 Hz - 120v, 8 KVA Bendix aircraft alternator and a 8 HP Briggs and Stratton gasoline engine, driving a 400 Hz - 120v, 3 KVA GE alternator. A transmitting frequency pair of 3.0 and 0.3 Hz was ultimately employed. Spectral frequency tests (utilizing a lower frequency pair, i.e.: 1.0 and 0.1 Hz) done at the beginning of the survey indicated insufficient adverse coupling effects present so that the higher frequency pair was deemed preferable for routine coverage. The collinear dipole-dipole electrode array was used with "spreads" of five transmitting electrodes each and dipole lengths of 500 feet.

A total of four lines was run. Lines 1 through 4 were oriented N20E, E-W, E-W, and N63W respectively, with lines 1 and 2 crossing each other at their respective centers.

Data results are presented on "sectional" data sheets, one for each line, showing successively from top to bottom: the apparent resistivity in units of ohm-feet, the percent frequency effect (PFE) (dimensionless) and the metal conduction factor (MCF) - all contoured in "sectional" form. It should be stated that these sectional presentations are conventional diagramatic representations of the electrical parameter distributions and must not be considered geologic cross sections as such. For this reason, they are sometimes called pseudosections. Indirectly, of course, they do relate to the subsurface geometry and geology, but the relationships are complex and not always intuitive, (See Basis of IP Method examples appended to this report).

Self potential (SP) readings, taken in conjunction with the IP data are presented at the bottom of the sheets in profile form.

A "Location and Interpretation Plan" at a scale of 1"=2000' is included and shows the plan projected interpretation. The base for this plan was furnished by Wayne Cole and represents of portion of the U.S.G.S. 7 1/2' quadrangle of the area.

Interpretation

Resistivities on Lines 1, 2, and 3 show definite contrast, indicating formational contacts.

Line 1 has low resistivities on its SW end with a contact being located about 0.25 NE. This contact appears to be between silicated limestones to the NE with metamorphic and rhyolitic rocks to the SW.

Line 2 has high resistivities to the east with lower resistivities near surface to the west and higher resistivities at depth. A geologic contact appears to be located at Station 0.25E. A unit of lower resistivities appears to be dipping eastward and this could possibly indicate a mineralized zone.

Line 3 shows a definite zone of high resistivities with lower resistivities at the western end. A contact at Station 0.4W appears to be the contact between rhyolite to the west and limestone to the east.

Line 4, unlike the other 3 lines, has no definite resistivity change. A small resistivity change appears to be happening at depth approximately under Station 1.5SE.

In contrast to the resistivities the PFEs show very little or no contrast on all four lines.

The general PFE background is also very low (1.4-1.6) which indicates low or nil sulfide content, at least down to a depth of 1000 feet or so. Line 1 shows a very weak PFE anomaly centered at Station 0.75NE and appears to possibly be related to a lowering of PFE resistivities at depth. Line 2 has a weak PFE anomaly at depth, centered about Station 1E. This anomaly appears to be related to the zone of resistivities dipping to the east indicating possible sulfides. Lines 3 and 4 show little or no PFE contrast. What is seen is as likely to be due to artificial or spurious coupling effects caused by the system and technique used, as it is to actual increasing sulfide with depth. PFE correlation versus resistivity is nil or obscure. Interpretation of lines 1 and 2 show possible sulfide structure while data collected on lines 3 and 4 give little indication of sulfides.

SP data shows lows centered at Station 0 on lines 1,2,&3. On line 4 the low is centered at Station 0.5S.E. Line 3 also shows a low at Station 1.5E. SP lows can relate to actively oxidizing sulfides which have a weak potential or "battery" effect in the subsurface - usually across a conducting and interconnected zone of oxide and sulfide lying respectively both above and below the water table. The SP phenomenon is well-documented in connection with massive sulfide deposits but, hardly documented at all in connection with other geologic causes. SP data on line 3 shows some correlation with low resistivities that occur at depth beneath Station 1.5E. If valid, this would tend to reinforce the very weak possible sulfide indications noted in the polarization and resistivity data.

Conclusions and Recommendations

Resistivity contrasts were noted on lines 1, 2, & 3. With lines 1 and 2 crossing each other, they each tend to reinforce the interpretation of the other's results, especially near to where they cross at Station 0. Line 1 shows a low resistivity zone centered between Station 0 and 1.0 N.E. while line 2 has a low resistivity zone centered at Station 0. Both of these lows correlate with minor PFE anomalies located at the same positions. SP results correlated with both the resistivities and PFEs, with lows being located at Station 0 on both lines. These combined effects appear to enhance the possibility of a smaller thin zone of sulfides located near the center station. A vertical drill hole in this area (see plan map) on line 1 would need to be initially programmed to go about 700 feet deep. A vertical drill hole at center on line 2 is recommended (see plan map). This hole should be initially programmed to go about 600 feet.

Low resistivities show up on the far western edge of line 3, with a zone of high resistivities located at about Station 0.5E. Also there are two readings of low resistivity located at depth under the high resistivities. While PFEs are very weak and indicate sparse sulfide mineralization, there is a very weak anomaly located at depth associated with the low resistivities. This also correlates with a SP low at station 1.5E. A recommended drill hole to test this zone would be located between Station 1.5 and Station 2.0E and would need to be initially programmed to be able to go to a depth of almost 1000 feet (see plan map).

Resistivity contrasts on line 4 are not as great as the previous 3 lines. A small resistivity high located at about 1.5SE, has some correlation with a very weak PFE anomaly. But these PFEs are marginal to nil as far as sulfides are concerned, and could be just due to increased coupling at depth. A small SP low is located at Station 0.5SE; this does correlate with a minor resistivity low. Drill holes located at 1.5SE and 0.5SE are a possibility and should be programmed to 700 and 500 feet respectively.

In retrospect, shorter dipoles of say 200 or 250 feet long might have been adequate for penetration, i.e.: 400 to 500 feet deep and thus would have been preferable to the 500 foot dipoles used from the standpoint of improved resolution and perhaps sulfide discrimination. Anomalous SP results and PFEs with very weak anomalism, suggest the possibility that the 500 foot dipoles may have been too coarse to respond to thin zones. With the possibility of sulfide zones being about 10 feet thick or less, shorter dipoles would have had a better chance of focusing on such zones. However, the 500 footers gave us much more coverage and depth of penetration, i.e.: 1000 feet. If any drill results show encouragement, then additional IP work might be recommended to more finely delineate the sulfide zones and to better guide any additional drilling.

Acknowledgements

We wish to thank Wayne Cole for his complete cooperation and assistance both in providing us with the necessary base maps and with accommodations in Tonopah. Our warmest appreciation goes out to Bob Craig for his assistance for guiding us around, field flagging and helping us lay out the IP lines. His assistance, we are sure, saved us a full day in the field. All of this not only helped to expedite our efforts, but also allowed them to be more complete and comprehensive, and therefore we trust more useful.

Respectfully submitted,

Heinrichs GEOEXploration Co.

Mark E. Anders

By:Mark E. Anders
Geophysicist-Geologist

WALTER E.
HEINRICHS, JR.
DEC. 31, 1980

Approved:Walter E. Heinrichs, Jr.
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BASIS OF THE INDUCED POLARIZATION METHOD

The induced polarization method is based on the electrical properties exhibited by electronic or metallic conductors embedded in an ionic or electrolytic conducting matrix. These properties are noticed in that the potential across a block of this dual conduction mode material will increase with time, approaching a constant value, when a constant current is made to flow through the block. This phenomenon occurs because at the boundaries between the two conductor types, electrolytic ions have to give up or take on electrons thereby requiring an additional force (overvoltage) over that which would be needed with only one mode of conduction; showing up as a building of potential across the block with time as more ions are backed up. This potential approaches a constant value when an equilibrium is established between the ions backed up at the boundaries and those flowing across the boundaries. Therefore, from the preceeding discussion, it is seen that the gross effect is quite similar to the charging of a leaky capacitor and for most applications, it is proper to use this model as a guide. These capacitive-like properties are normally measured by one of three different field techniques.

In the time domain (pulse) method, a steady direct current is imposed in the ground for a few seconds and abruptly terminated so that the resulting capacitive-like voltage decay (discharge) curve can be measured or recorded. Usually, the voltage decay curve is integrated with respect to time to give the area under the decay curve in units of volt-seconds. This value is then normalized by the primary voltage measured while the steady current is on. The more area determined, the more capacitance or polarization the ground exhibits.

In the frequency domain (dual frequency) method, the percentage difference between the impedance (AC resistance) offered to a lower and higher frequency is measured. A capacitor offers a lower impedance to a higher frequency than it does to a lower frequency, therefore, the percentage difference between the impedances will increase with increased polarization.

A third technique is to measure the phase angle or delay between an introduced current wave-form and the received voltage wave. This phase delay also increases as polarization increases.

Almost all metallic lustered minerals, including most sulfides, for example: pyrite, chalcopyrite, chalcocite, bornite, and molybdenite are electrical conductors. The rocks and groundwater, with which they permeate or are permeated, are also ionic conductors; therefore, if an electrical current is made to flow through a sulfide deposit, it will polarize and often can be detected by the three methods described above.

The induced polarization property is not entirely unique with sulfides since magnetite, graphite (which are both metallic lustered) and some clays will exhibit it; however, with sufficient geological and geophysical data, effects due to sulfides can generally be interpreted apart from non-sulfide anomalism. The type of sulfide however, say pyrite, as distinct from chalcopyrite, cannot yet be distinguished with present induced polarization techniques since all types give quite similar response.

The I.P. technique was developed primarily for porphyry type deposits and is perhaps the only reliable means of detecting hidden disseminated sulfides. However, the I.P. method works just as well or perhaps better on semi-massive to massive sulfides, contrary to some of the earlier thinking, for it generally gives increased response with increased volume percentage of sulfide.

FIELD TECHNIQUES AND INTERPRETATION

For routine exploration, we prefer and use the dual frequency system because of its greater simplicity of instrumentation, operation, and greater accuracy as well as simplicity of interpretation. However, all three methods give basically the same results and the choice is either a matter of opinion or highly technical reasons and therefore should be left to the particular application and the geophysicist's discretion.

The two frequencies we most commonly use are 0.05 and 3.0 cycles per second, or so called "D.C." and "A.C." modes respectively. Other frequencies are available with our equipment and are occasionally used when desired. The usual frequency range used is from about 0.01 cps to 10 cps. The lower frequency limit is due to naturally existing, time-varying, telluric (natural earth) currents, and electrode polarization. The upper limit is determined by electromagnetic coupling effects which increase rapidly with increasing frequency.

In our standard reconnaissance field practice, five equally spaced collinear current electrodes are placed in the ground by burying aluminum foil in pits wetted with brine to insure good electrical contact. Observations are made using a symmetrical dipole-dipole electrode configuration where the distance (a) between adjacent receiver (potential) electrode pairs (or dipoles) is kept equal to the distance between adjacent sender (or current) electrode pairs. Generally the receiving dipole is separated by one to six dipole units ("n" separation) from the sending dipole. Figures 1 and 2 indicate this configuration and resulting data plotting positions. A precisely controlled square wave current is sent through a sending dipole at 0.05 and 3.0 cycles per second from which, at the receiving dipole, a "D.C." and an "A.C." voltage is measured respectively. By knowing the geometry involved (the dipole length or spacing and the separation distance between the two receiving-sending dipole pairs), along with the two voltages, an apparent "D.C." and an "A.C." resistivity can be calculated. From these apparent resistivities, their percentage difference is determined, thus giving the Percent Frequency Effect (PFE). A third quantity porportional to PFE and inversely porportional to "D.C." resistivity, called Metallic Conduction Factor (MCF) is computed in order to somewhat normalize PFE for variations in ground conductivity purely as a technical interpretational aid. Formulas for these various quantities are given on page 5.

Selection of electrode spacings [(a) in Fig. 1] is determined by the objectives to be reached in a given survey. This spacing will range from very small (50 ft. or less) for very detailed and shallow surveys, up to 1,000 ft., or occasionally more, for broad, deep reconnaissance work. Other factors involved in the selection of spacing are concerned with the anticipated physical geometry of any possibly existing mineral occurrence. This includes consideration of expected depth of burial to the top of the deposit, the dimensions of the deposit itself, its orientation, strike and dip, etc., as well as its expected electrical properties.

In general, the greater the dipole spacing and "n" separation, the greater the depth penetration and the less the resolution. An average rule of thumb, with a good contrast of electrical properties, using the symmetrical co-linear dipole-dipole system, and having data from 1 through 4 in "n" separations, is that two times the dipole length is the maximum depth of detectable penetration for a body having two or three of its dimensions large in relation to the dipole spacing. However, a body having two or three of its dimensions less than the dipole spacing, and buried more than one spacing probably will not be detectable. A zone, regardless of orientation, having a dimension less than 0.1 the dipole spacing likely will not be detected. Also, zones differing by less than about 30% in electrical conductivity will not be very easily resolved by resistivity measurements, but may still be detected if a polarization contrast exists.

To illustrate the above in more concrete terms, consider a dipole spacing of 1,000 ft. for the following: An overburden of more than 2,000 ft. would likely not allow enough current penetration into bedrock to detect even a large and highly mineralized zone in the bedrock. Also, a sulfide zone lying completely within 200 ft. of the surface generally would not be detected. A spherical or elongated cylindrical body whose diameter is much less than 1,000 ft. would be just out of the range of detectability. A dike-like or sill-like zone whose width is less than

100 ft. probably would not be detected regardless of how it lies relative to the spread.

So far, only the maximum and minimum limits of detection and resolution relative to the various geological and geometrical configurations have been discussed, thus omitting optimum conditions. Generally, we attempt to make the dipole spacing one or two times the expected depth to the target in order to obtain a good electrical response. Of course, where it is suspected that the zone has a good depth extent, say two or three dipole spacings, as is typical of most porphyry type copper deposits, a spacing considerably more than two times the expected depth to sub-outcrop can be used to obtain broader and more rapid coverage, as long as we do not exceed the width. Because of these factors, we usually use 500 to 1,000 ft. dipole spacings in prospecting for porphyry-type deposits.

The field data are interpreted after plotting the PFE, MCF and resistivity as in Figures 1 and 2. These values are then contoured in sections, the resistivity and metallic conduction factor logarithmically (because of the usual large variations in magnitude) and the percent frequency effect on a constant interval. This two dimensional method of plotting gives an additional advantage over the standard profile methods in that easily recognizable patterns are associated with various subsurface geometrical configurations and that lateral variations can be separated from vertical effects. See the four appended examples of plotted field and theoretical sectional data sheets.

It should be realized that there is no definite relation between the vertical scale on these plots and actual subsurface depth. The data point values are a complexly weighted average of the electrical contrast distribution in the vicinity of the sending-receiving dipole pair and contain depth as well as lateral information. About all that can be said is that by increasing the dipole length and the dipole separation ("n" separation) more volume of ground is being affected and therefore more depth penetration.

There are cases where the depth to a subsurface feature can be determined fairly precisely as in the two horizontal layer situation. The field data is compared with theoretical type curves for various resistivity contrasts between the top and bottom layer and various thickness of the top layer until a close match is found. This enables the depth to the bottom layer in the field to be determined as well as the true resistivity of both layers. A major limitation of this interpretational technique is that only a few simple geometric cases related to a relatively few numbers of layers have been theorectically developed. However, extremely valuable information can still be derived in alluvial and lake bed applications for depth to bedrock and groundwater purposes, etc.

In interpreting PFE's, values of 0 to 4% are usually considered background, 4 to 8% marginally anomalous, and 8 to 40% plus definitely anomalous, but they must be considered in light of the associated resistivity. Very low resistivities give an increased background frequency effect due to an electromagnetic inductive coupling interference phenomenon that must be corrected for. The MCF tends to correct any high resistivity increased background effects, but tends to amplify the electromagnetic frequency effects making a correction imperative.

FORMULAS: $\mathrm{PFE} = [\rho_{dc}/\rho_{ac}-1]\ 100$

Where PFE is Percent Frequency Effect, ρ_{dc} is the apparent resistivity at the lower frequency and ρ_{ac} is the higher frequency apparent resistivity.

$$\rho = 2\pi V K_n / I$$

Where ρ is either ρ_{dc} or ρ_{ac} depending on frequency of the current I which is measured in amperes. The potential V, arising from I, is measured in volts. K_n is the geometric factor given by:

$$K_n = \tfrac{1}{2} an(n+1)(n+2) \quad \text{(Only for dipole-dipole arrays.)}$$

Where "a" is the dipole spacing in feet and "n" is the number of dipoles separating the sending and receiving dipoles; this gives, for apparent resistivity:

$$\rho = [2\pi V/I][\tfrac{1}{2}an(n+1)(n+2)]$$

from which we see that ρ is in units of ohm-feet. However, the apparent resistivity usually is plotted: $\rho/2\pi$

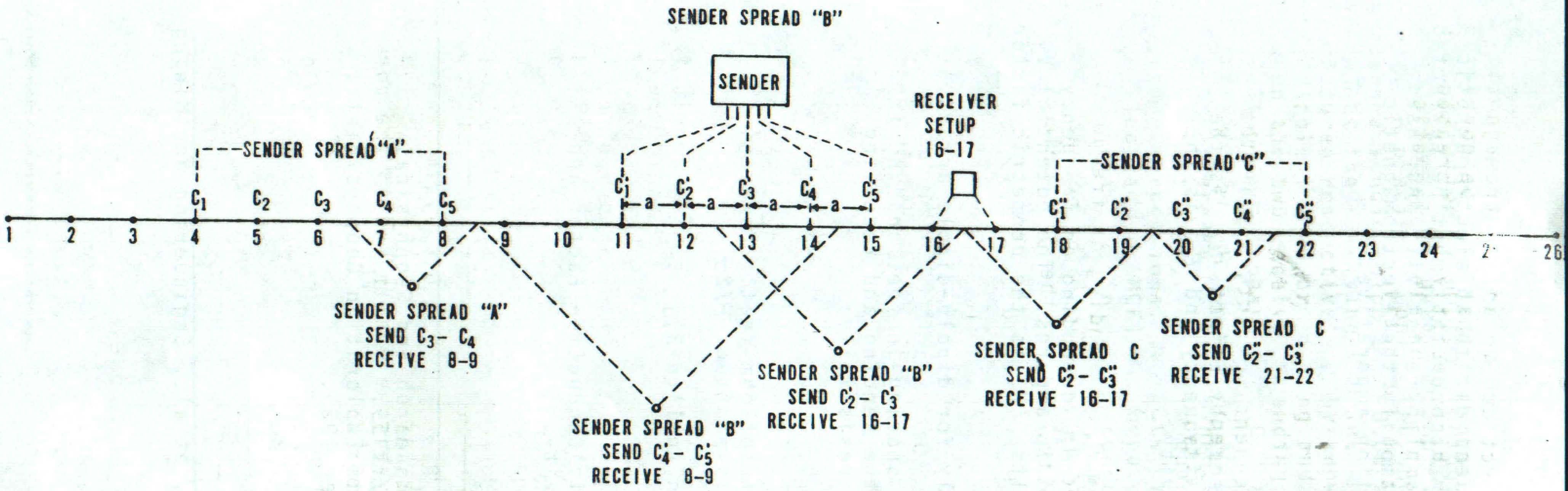
$$\rho/2\pi = VK_n/I = [V/I][\tfrac{1}{2}an\ (n+1)(n+2)]$$

$$\mathrm{MCF} = 1000 \times \mathrm{PFE}/[\rho_{dc}/2\pi]$$

Where MCF is the Metallic Conduction Factor and $\rho_{dc}/2\pi$ is apparent "D.C." resistivity.

References:
1. Wait, James R., "Overvoltage Research and Geophysical Applications", Pergamon Press, 1959.
2. "Mining Geophysics", Society of Exploration Geophysicists, Vol. I, Case Histories, October 1966.

Published by W. E. Heinrichs, Jr., et al., Engineering and Mining Journal, September 1967.



SCHEMATIC DIAGRAM ILLUSTRATING THE METHOD OF OBTAINING AND PLOTTING DIPOLE-DIPOLE I.P. DATA

Diagram shows three separate current electrode spreads along a traverse line. In normal procedure, there are three dipole separations between current electrode spreads. The receiver setups are moved outwards from the ends of each current electrode spread usually until three dipole spacings separate the potential electrode setup from the near end of the spread. Current is "sent" to each possible pair of electrodes for each receiver setup. For instance, in Sender Spread "B" when the receiver setup is between 14 and 15 only $C_3' - C_2'$ and $C_2' - C_1'$ can be "sent" so that data at 1 and 2 dipole separations is obtained respectively When the receiver is setup between 16 and 17; $C_5' - C_4'$, $C_4' - C_3'$, $C_3' - C_2'$ and $C_1' - C_2'$ are sent and data is obtained for 3, 4, 5 and 6 dipole separations respectively. Each sender spread provides 33 data points.

Fig. 1

COMMENTS ON DRILLING I.P. TARGETS

To maximize the probability that a recommended drill hole will intersect the source of an induced polarization anomaly, the following points should be considered:

1. The anomaly has been caused by some physical property, hopefully a polarizable body containing economically interesting metallic mineralization, and this property should be determined before abandoning the anomaly.

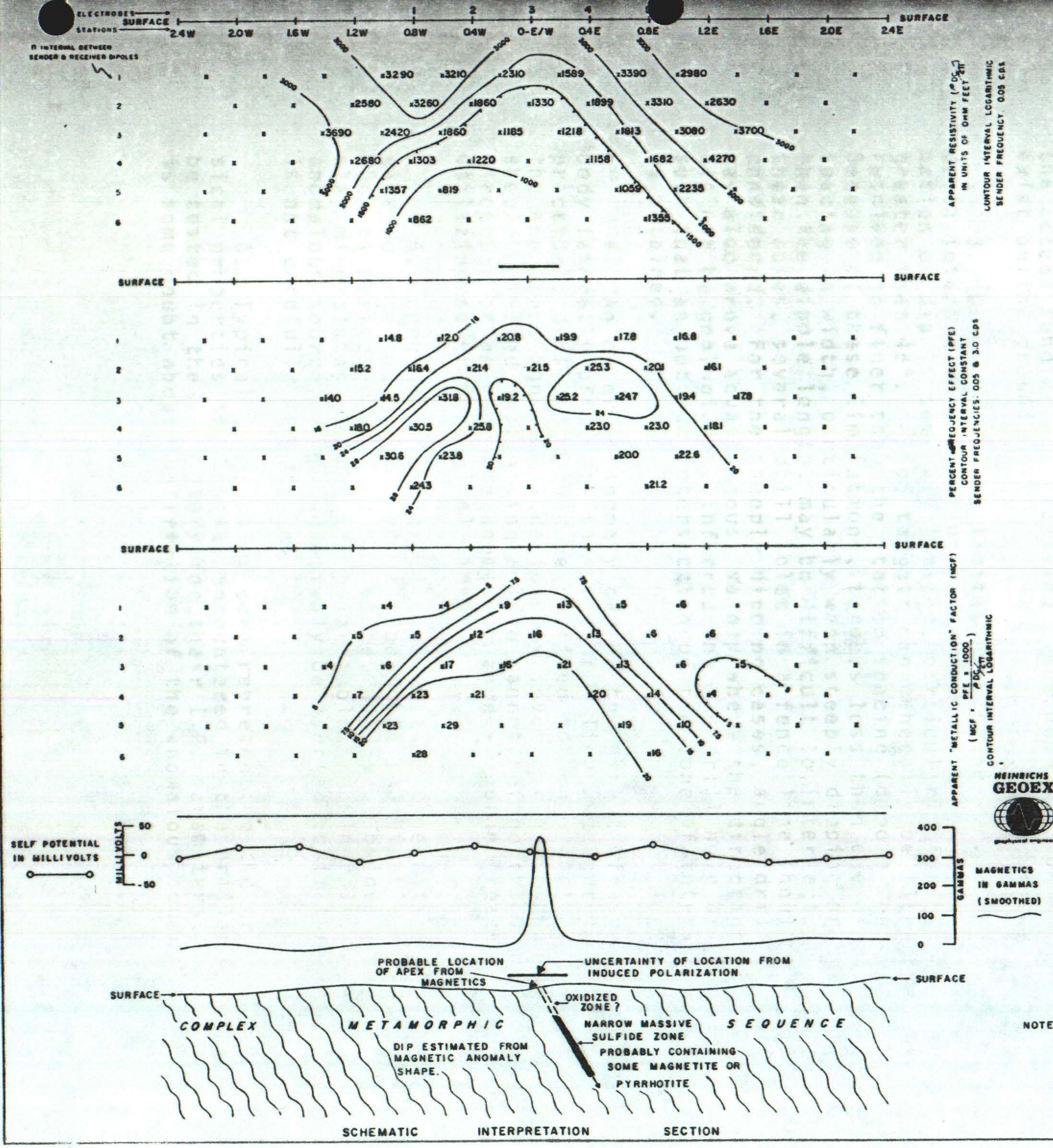
2. Location of drill holes should be made relative to the actual sending and receiving electrode positions as they exist on the ground.

3. Due to inherent limitations in the I.P. method, depth interpretations are only approximate and the determination of dip is severely limited, particularly for angles greater than 45°. Also, targets can generally be laterally resolved no finer than the station spacing (dipole length). Because of these limitations, targets less than one dipole spacing in width, particularly when steeply dipping or deeper than the dipole length, may be difficult to intersect. In these cases, several drill holes in a fence line should be considered. For the steeply dipping cases, angle drilling may also prove advantageous, mainly where the direction of dip can be geologically inferred and the drill hole oriented such that an optimum intersection of the zone of interest is obtained.

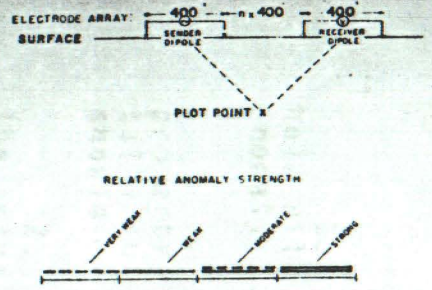
4. An observed anomaly can be the effect of a polarizable body laterally offset to the side of a line and therefore, if practical, drilling should be confined to those portions of the anomalous zones well defined by several lines. Also, it should be noted that a single line cannot define the strike direction of an elongate anomalous zone - another reason for utilizing several parallel lines.

5. Logging of the drill core must be done with special care to note the quantity of all possible polarizable material such as pyrite, graphite, magnetite, manganese oxides and clay minerals as well as the polarizable ore minerals. The anomalous source could conceivably be overlooked if the core is not carefully logged.

6. Typical sections of core representing the gross physical properties of material encountered in the drilling should be tested in the laboratory for their I.P. parameters, if there is some doubt about confirmation of the anomalous source.



EXPLANATION



LOOKING NORTH

MASSIVE SULFIDE VEIN

APPALACHIAN SULFIDE DISTRICT

SECTIONAL DATA SHEET

LINE NO. —

INDUCED POLARIZATION TRAVERSE

~~SCALE: 1" = 400'~~ DATE: —

FOR ____________

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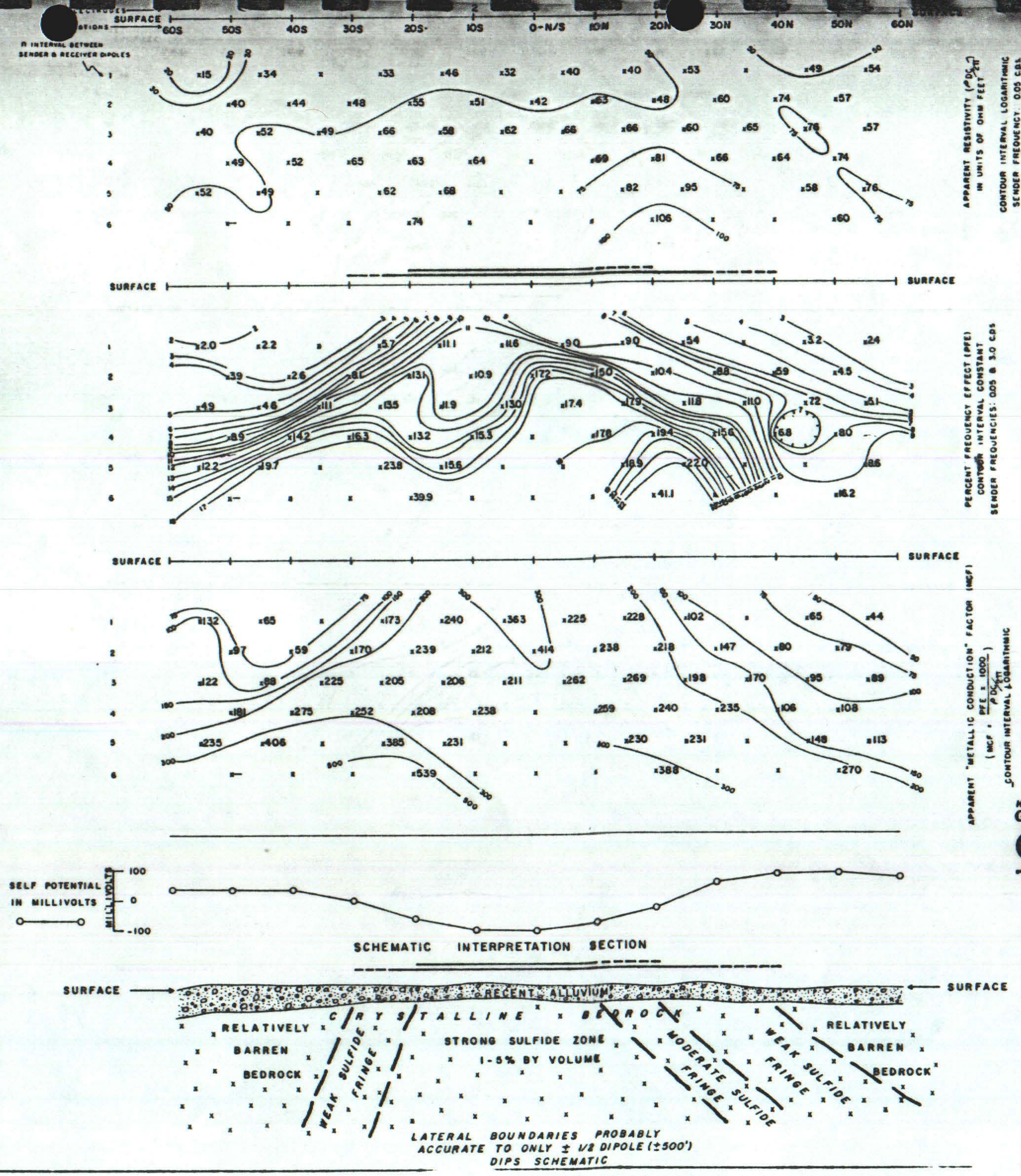
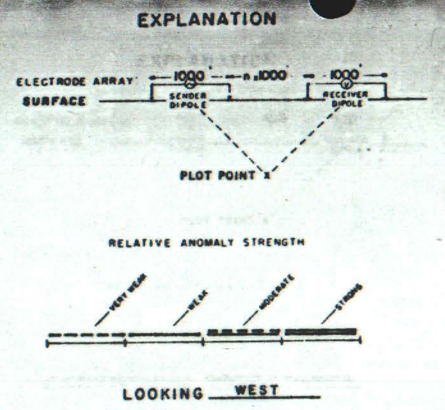
ACTUAL FIELD EXAMPLE OF COMBINED INDUCED POLARIZATION, RESISTIVITY, MAGNETIC AND SELF POTENTIAL SURVEY ACROSS A NARROW- STEEPLY DIPPING MASSIVE SULFIDE VEIN.

NOTE: INDUCED POLARIZATION ANOMALY ONLY INDICATES A STEEP BUT UNKNOWN DIP. DEPTH TO SULFIDES PROBABLY BETWEEN 200 AND 400 FEET BASED ON ROUNDED APPEARANCE OF INDUCED POLARIZATION ANOMALY AND LACK OF SELF POTENTIAL RESPONSE.





LOOKING WEST

PIMA MINING DISTRICT
PIMA COUNTY, ARIZONA

SECTIONAL DATA SHEET

LINE NO. —

INDUCED POLARIZATION TRAVERSE

~~SCALE: 1"=1000'~~ DATE: —

FOR ____________

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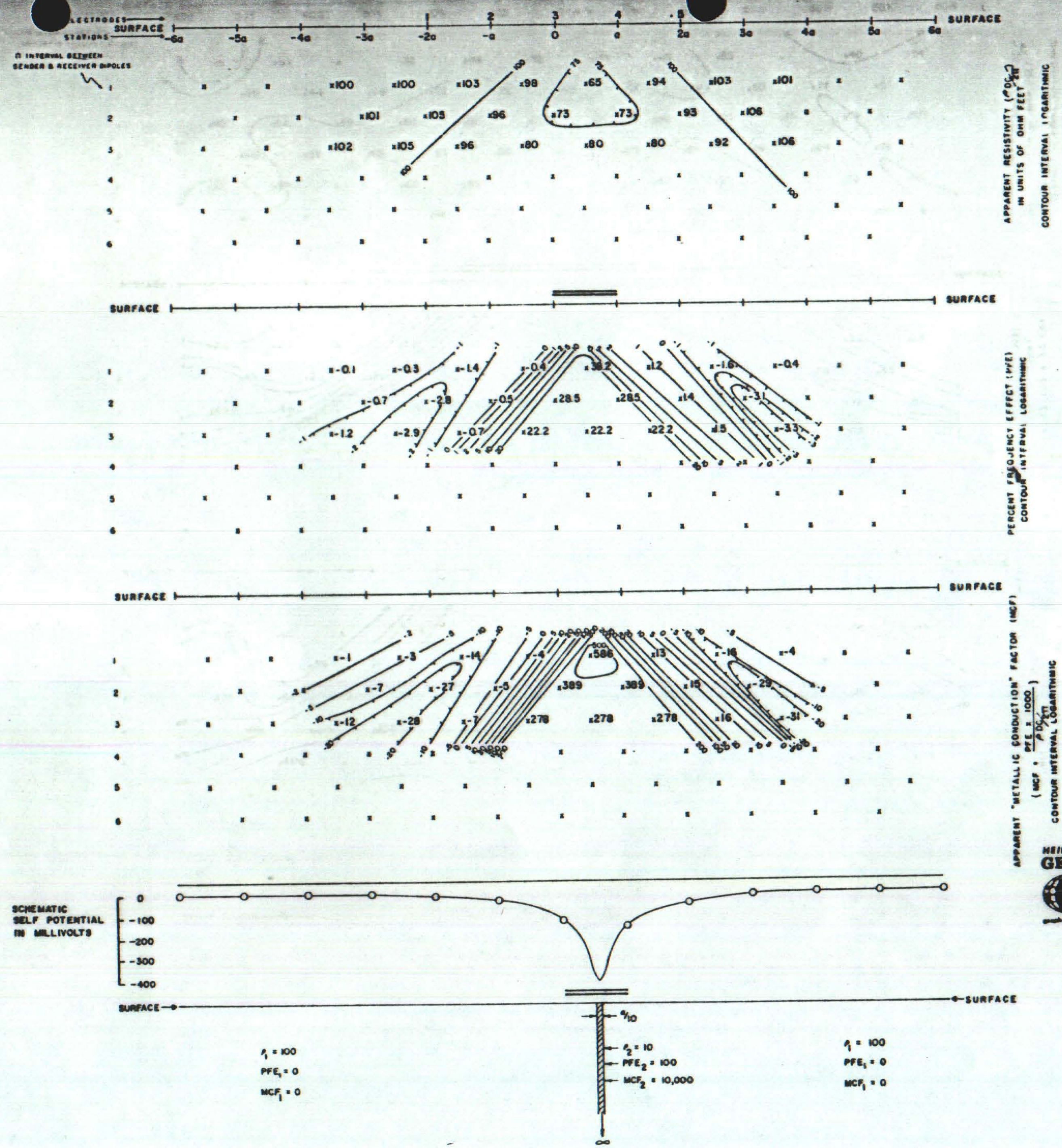
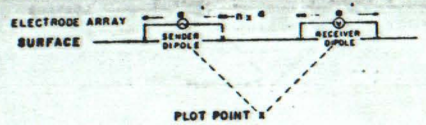
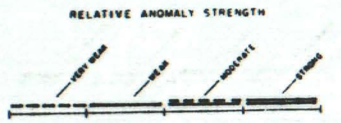
ACTUAL FIELD EXAMPLE OF INDUCED POLARIZATION TRAVERSE OVER DISSEMINATED PORPHYRY TYPE SULFIDE MINERALIZATION



EXPLANATION





LOOKING NORMAL TO STRIKE

VERTICAL
TABULAR BODY

SECTIONAL DATA SHEET

LINE NO. ——

INDUCED POLARIZATION TRAVERSE

~~SCALE:~~ DATE: ——

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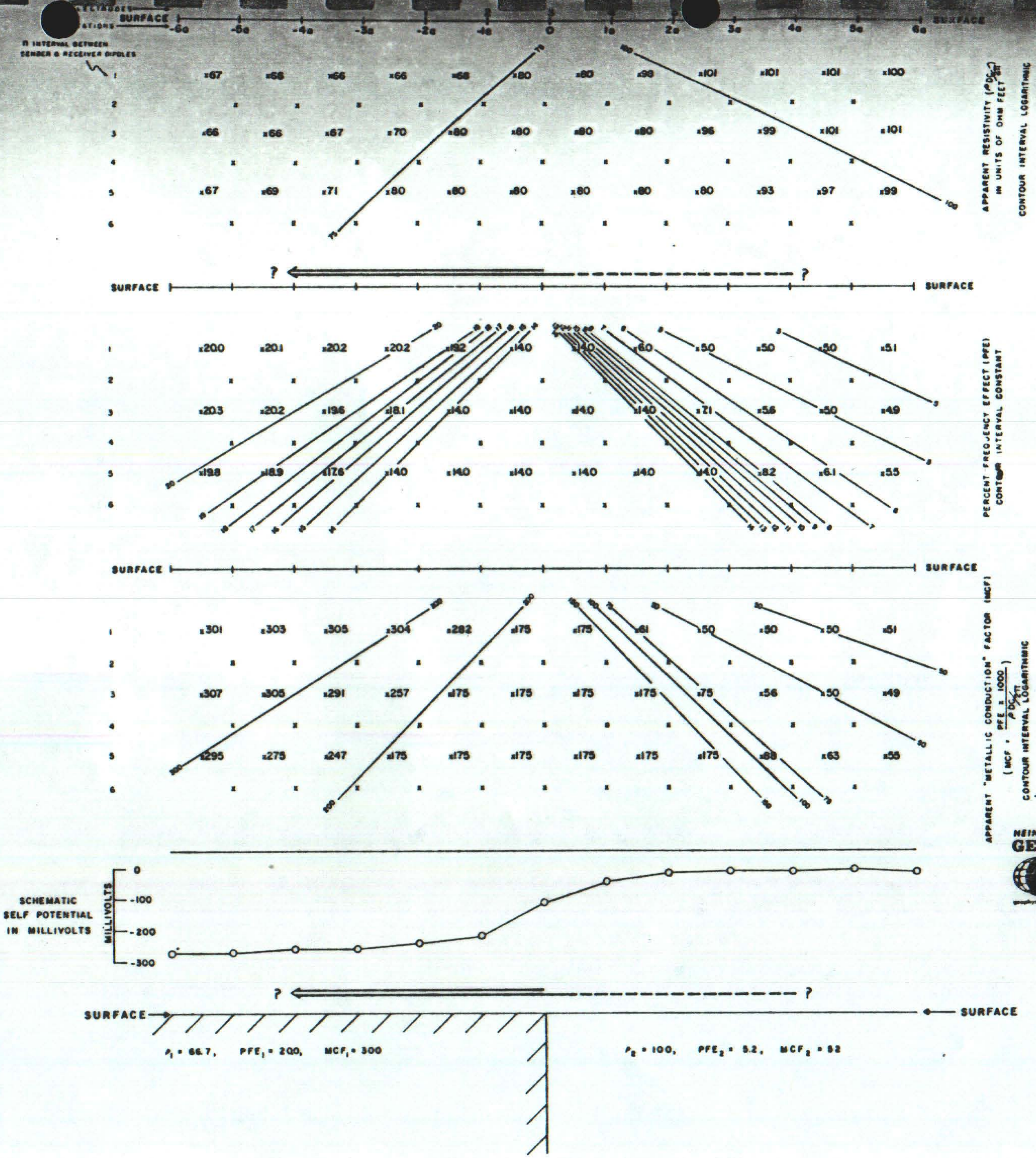
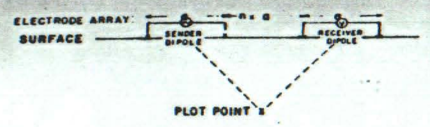
sydney

THEORETICAL DIPOLE-DIPOLE INDUCED POLARIZATION RESPONSE OVER A CONDUCTIVE VERTICAL TABULAR SULFIDE BODY CROSSED NORMAL TO THE STRIKE [HAVING A THICKNESS OF 1/10 THE ELECTRODE SPACING (a), A RESISTIVITY CONTRAST OF 10:1, A BACKGROUND RESISTIVITY (ρ_1) OF 100, A BACKGROUND PFE$_1$ OF 0, AND A PFE$_2$ OF 100 IN THE SULFIDE ZONE]

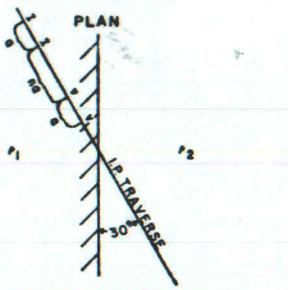


EXPLANATION



RELATIVE ANOMALY STRENGTH

LOOKING 60° FROM STRIKE OF INTERFACE



VERTICAL INTERFACE

SECTIONAL DATA SHEET

LINE NO. ——

INDUCED POLARIZATION TRAVERSE

~~SCALE:~~ DATE: ——

FOR

——

HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703
Phone: 602/623-0578 Cable: GEOEX, Tucson
geophysical engineers
vancouver
sydney

THEORETICAL INDUCED POLARIZATION TRAVERSE ACROSS A VERTICAL INTERFACE AT 30° - DIPOLE-DIPOLE ELECTRODE ARRAY.

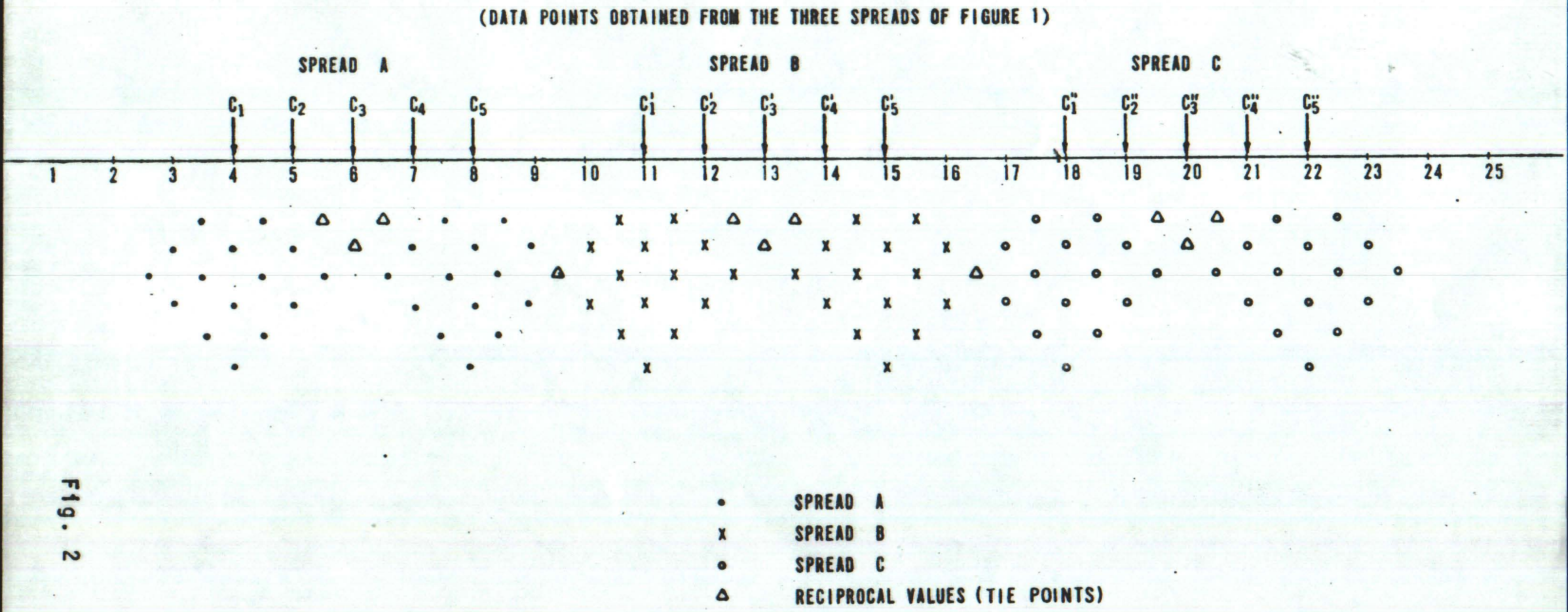
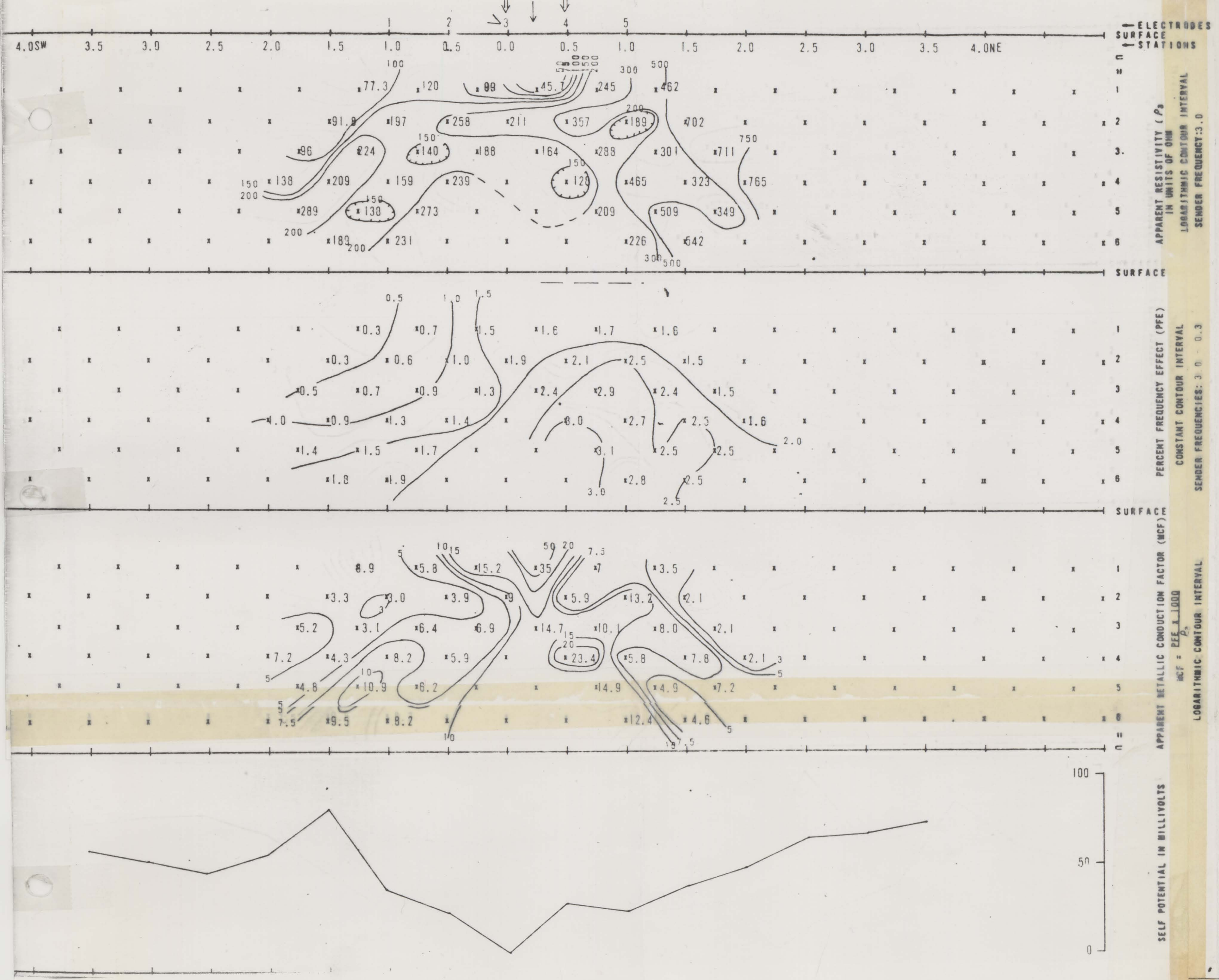

(DATA POINTS OBTAINED FROM THE THREE SPREADS OF FIGURE 1)
SPREAD A
SPREAD B
SPREAD C
C_1 C_2 C_3 C_4 C_5
C_1' C_2' C_3' C_4' C_5'
C_1'' C_2'' C_3'' C_4'' C_5''
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
• SPREAD A
x SPREAD B
○ SPREAD C
△ RECIPROCAL VALUES (TIE POINTS)

Fig. 2



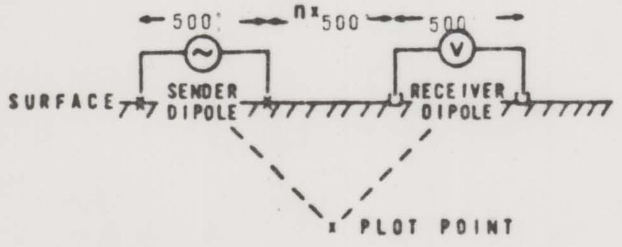
LINE NO.
1
SPREAD(S)
1
BEARING
S20W

INDUCED POLARIZATION TRAVERSE
SECTIONAL DATA SHEET
of
DANVILLE AREA
FOR
MR. JAMES W. COLE

RELATIVE ANOMALY STRENGTH

VERY WEAK WEAK MODERATE STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



↓ Contact

∨ Self Potential

⇓ Drill Hole

DATE

NOVEMBER 1980

DEC. 31, 19

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Job #1482

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1340 0011

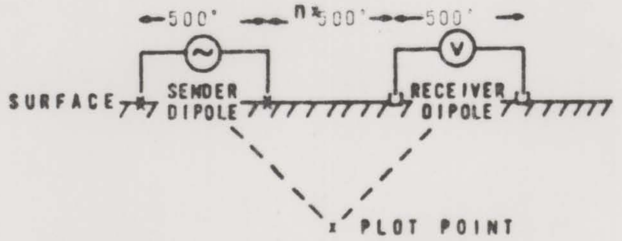
LINE NO.
2
SPREAD(S)
1
BEARING
E-W

INDUCED POLARIZATION TRAVERSE
SECTIONAL DATA SHEET
of
DANVILLE AREA
FOR
MR. JAMES W. COLE

RELATIVE ANOMALY STRENGTH

VERY WEAK	WEAK	MODERATE	STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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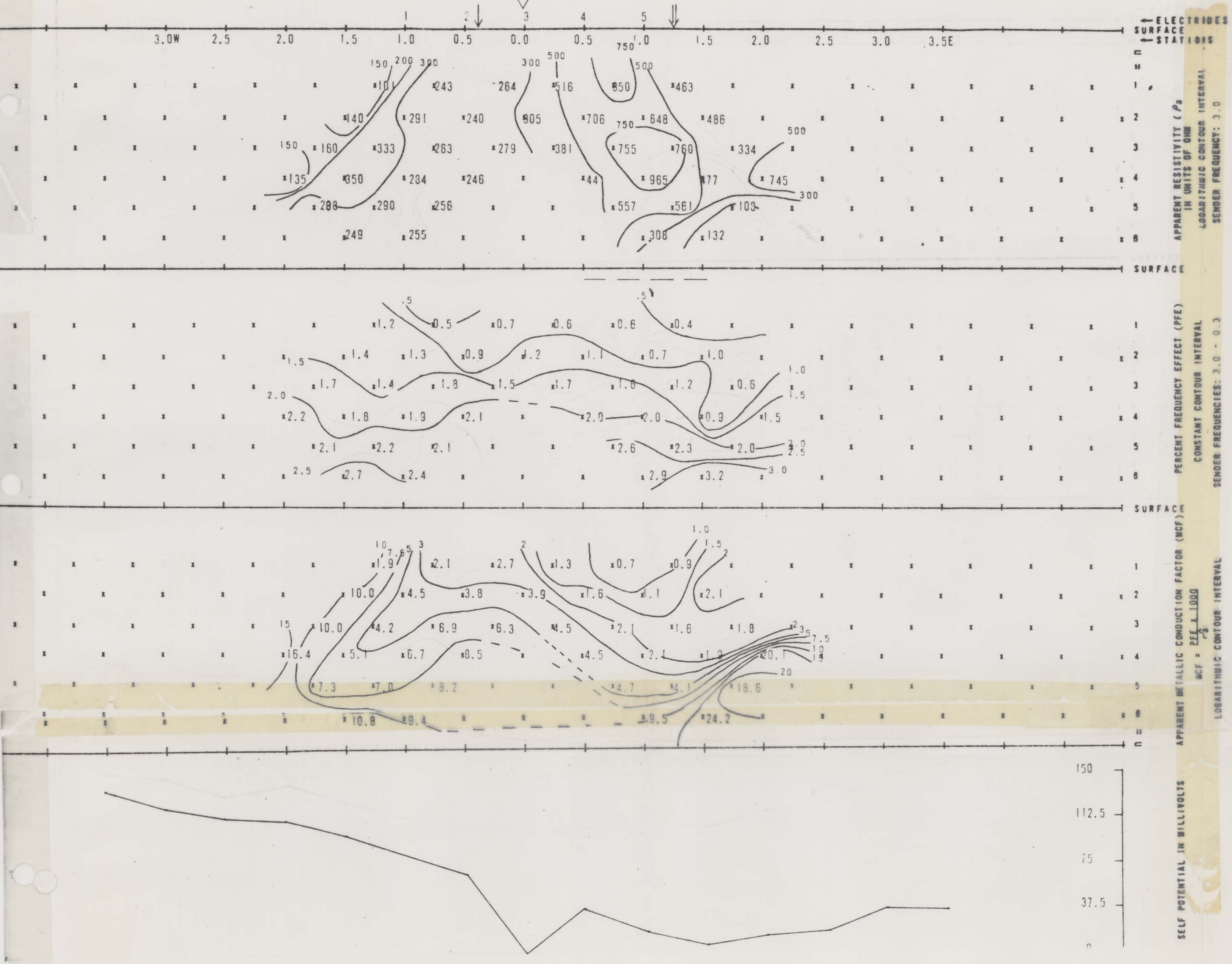


LINE NO.
3
SPREAD(S)
1
BEARING
E-W

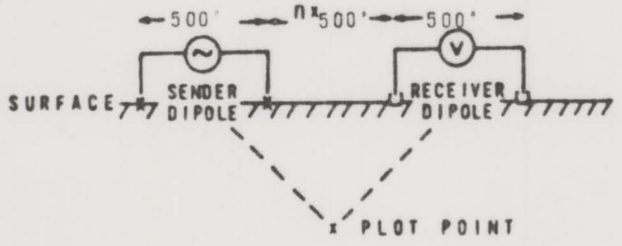
INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of DANVILLE AREA

FOR
MR. JAMES W. COLE

RELATIVE ANOMALY STRENGTH

VERY WEAK	WEAK	MODERATE	STRONG
- - - -	——	═ ═ ═	══════

DIPOLE-DIPOLE ELECTRODE ARRAY



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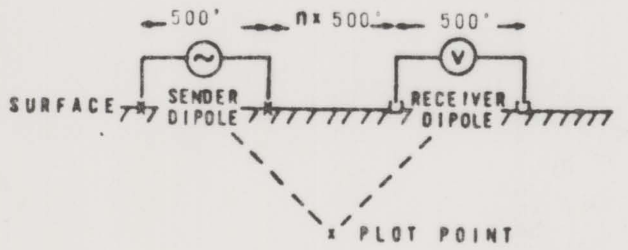
INDUCED POLARIZATION TRAVERSE
SECTIONAL DATA SHEET
of
DANVILLE AREA
FOR
MR. JAMES W. COLE

LINE NO.
4
SPREAD(S)
1
BEARING
S63E

RELATIVE ANOMALY STRENGTH

VERY WEAK	WEAK	MODERATE	STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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∨ Self Potential

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