EXPLORATION PROPOSAL

IRON, RUST, I.P. AND HAT CLAIMS

HALLORAN SPRINGS AREA

SAN BERNARDINO COUNTY, CALIFORNIA

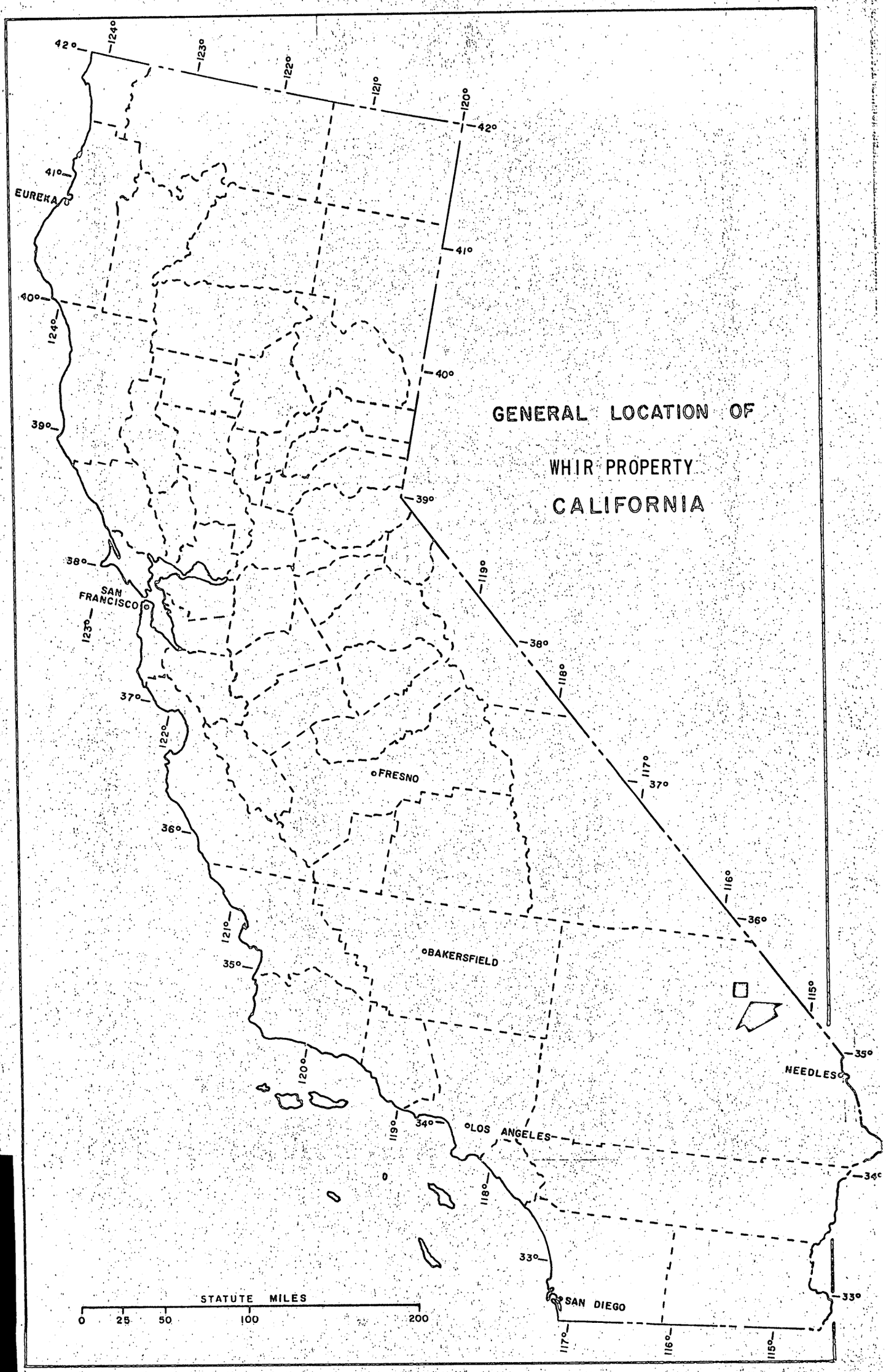
For

Mr. and Mrs. R. D. Huff
Mountain Pass Mine
Nipton, California

November 1967

by

HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona


GENERAL LOCATION OF
WHIR PROPERTY
CALIFORNIA
EUREKA
SAN FRANCISCO
FRESNO
BAKERSFIELD
LOS ANGELES
SAN DIEGO
NEEDLES
STATUTE MILES
0 25 50 100 200

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1966 GEOEX Report (copy)

Location Plan)
Four Sectional Data Sheets) In Pocket

Geologic Map of Area

"Basis of I. P. Method"

MAP POCKET

Claim Location Map with Summary of 1966 Data

1966 I. P. Survey Plan

Four 1966 Sectional Data Sheets

INTRODUCTION

During July 1966, Heinrichs Geoexploration Company conducted an induced polarization and resistivity reconnaissance survey of the Iron and Rust Claims. (See enclosed report copy.) This preliminary survey consisted of four north-south lines which indicated a continuity of anomalism at both ends of each line. The strength of the anomalism suggests a possible one half percent to one and one half percent by volume total sulfides. As a result of this survey, the additional claims were staked in order that the anomalism could be better defined at a future date.

On the basis of this I. P. anomalism, some possibly anomalous geochemical results, the available geology and reports of intrusive stocks in the area, additional exploration seems advisable to select the best possible drill hole locations necessary to sample the mineralization at depth.

EXPLORATION PROCEDURES

In order to sample the induced polarization anomalies as they are now known, the following drill holes are recommended:

Line 2 - 1,500 south 200 ft. deep - vertical

Line 2 - 1,400 north 300 ft. deep - vertical

Line 3 - 1,400 north 200 ft. deep - angle north 45°

Line 4 - 1,450 south 200 ft. deep - angle south 45°

These are minimum depths unless the anomaly producing material is located. However, it is felt that the following

exploration proposal will assure a better choice of placement for the necessary drill holes to properly explore the potential.

Previous I. P. work shows open ended anomalism near the northern borders of the Iron Claims and near the southern borders of the Rust Claims. Lines 1 and 3 of the previous survey should be extended north with centers 500 ft. north of the boundary between the Iron and I. P. Claims, and south with a center 500 ft. south of the Rust and Hat common boundaries. Additional lines with a 500 ft. dipole spacing should be run along the claim boundaries with centers located along the Hat-Rust common claim boundary and along the Iron-I.P. common claim boundary. The enclosed sketch map shows proposed work to be done, but changes may be necessary as data are accumulated during the progress of the project. Based on present knowledge, this additional work should further delineate the previously noted anomalous zones with respect to the claims and give a better chance to evaluate the potential economic and physical character of these zones. The westward extension of the I.P. survey may locate possible mineralization at a fault junction indicated on the Kingman sheet geologic map published by the Department of Natural Resources of California. This program should also satisfy the assessment work on the additional claims.

Preliminary geologic reconnaissance mapping of the property should be carried out during or prior to the I. P. so that the geologic, geophysical and geochemical aspects may be considered together for maximum integrated interpretation benefits. Sufficient samples of rock should be taken and assayed during the

geologic mapping, so as to constitute a broad reconnaissance geochemical survey.

Dependent upon the geologic, geochemical and I. P. survey results, a minimum of four holes should be drilled to test any encouraging results which are thought to be significant. The four best sites should be selected by using the geology and I. P. and no more than three should be in one of the two zones of possible mineralization. Drilling should be considered only if the I. P. and geology are favorable as it is possible that the I. P. effects are regional or formational, or otherwise not related to ore. Nevertheless, the potential definitely warrants testing.

A breakdown of the estimated costs of this integrated program is as follows:

a.	I. P. - 12 lines	$6,000.00	1 month)	) Concurrent
b.	Geology and assays	$3,000.00	1 month)	
c.	Drilling - 4 holes 300 - 500 ft. each	$10,000.00	2 months, partly concurrent or not.	
	TOTAL:	$19,000.00		

This program should give a good evaluation of the economic potential of your claims at a minimum estimated cost.

Respectfully submitted,

Donald B Cooley

Donald B. Cooley, Geologist

Approved:

W. E. Heinrichs, Jr.
President

November 13, 1967
P. O. Box 5671
Tucson, Arizona 85703

INDUCED POLARIZATION SURVEY

IRON AND RUST CLAIM GROUPS

NEAR HALLORAN SPRINGS,

SAN BERNARDINO COUNTY, ARIZONA

FOR

Mr. & Mrs. R. D. Huff
Mountain Pass Mine
Nipton, California

August 1966

BY

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona
Phone: 623-0578 Area Code: 602

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INTRODUCTION

From July 22, 1966 through July 27, 1966, Heinrichs Geoexploration Company at the request of, and for, Mr. and Mrs. R. D. Muff, conducted an induced polarization and resistivity survey of the Iron and Rust Claims.

These 14 claims consist of a contiguous group located in a portion of Sections one and two, R10E, T15N, and in a portion of Sections 34 and 35, R10E, T16N, near Halloran Springs, San Bernardino County, California.

Four I.P. lines were run on the claims giving a total subsurface coverage of 14,000'. These data were obtained using the dual frequency induced polarization method, employing a dipole-dipole electrode configuration. Frequencies used were 0.05 cps and 3.0 cps.

The location of the induced polarization lines in relation to points of discovery and boundaries of the claims is shown on a plan map of the area identified as "Induced Polarization Location Plan". Data are plotted on sectional data sheets showing resistivity, frequency effect, and metallic conduction factor.

The cost of the geophysical work done on this group of claims was in excess of two thousand dollars ($2,000.00).

All of this geophysical work was done under the direction of Mr. W. E. Heinrichs, Jr., President and General Manager of Heinrichs Geoexploration Company, Tucson, Arizona. Personnel on this project in addition to Mr. Heinrichs were David M. Godfrey, Peter Berryman, Gary Heusler, and John P. Matthews, Jr.

Mr. W. E. Heinrichs, Jr. is a registered professional mining engineer, No. 2447, State of Arizona, with many years experience in conducting geophysical surveys, and all of the other persons performing the above work are either graduate engineers, students, technicians, or helpers.

INTERPRETATION AND CONCLUSIONS

Line 1

Anomalous frequency effects are located from approximately 1000' to 1500' south and approximately 1500' north of the centerpoint.

These effects appear to be restricted to a fairly narrow zone at shallow depth. Total sulfides may run from 1/2 to 1 1/2% by volume. Resistivities increase with depth on the southern end indicating a shallower depth to bedrock.

Line 2

Weak frequency effects at 1200' to 1500' south of the centerpoint indicate a narrow zone of sulfide mineralization which is at or very near surface. The weak anomaly at 1200' to 1500' north of the centerpoint is probably caused by another sulfide zone at somewhat greater depth, probably less than 200'.

Line 3

The anomalies noted on Lines 1 and 2 continues on and is seen at 1000' to 1500' south and 1000' north of the centerpoint. Mineralization on the north is probably at or near surface, while that to the south is at somewhat greater depth.

Line 4

This line further extends the sulfide mineralization to the west as shown at 1500' north and south of centerpoint. Both anomalies are due to sulfides at or very near the surface.

In summary, the survey delineates two, possibly steeply dipping, east-west trending zones of mineralization. Total average integrated volume sulfides in the zones may run from 1 to 2% overall, but on a very localized basis, such as in small lenses, pods, thin veins, or stringers, the sulfide percentage might vary from 0 to 10% or more. The zones are relatively narrow and appear to be at, or near surface. The mineralization is open ended to both the east and west, and further work is necessary to fully determine total lateral extent of mineralization.

Respectfully submitted,
HEINRICHS GEOEXPLORATION COMPANY

John P. Matthews, Jr.
Geophysicist

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES DEC. 31, 19
WALTER F. HEINRICHS, JR.
ARIZONA, U.S.A.

APPROVED
Walter F. Heinrichs, Jr.

August 30, 1966
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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: $PFE = [\rho_{dc}/\rho_{ac} - 1]\ 100$

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.

$$\rho = 2\pi VK_n/I$$

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: $\rho/2\pi$

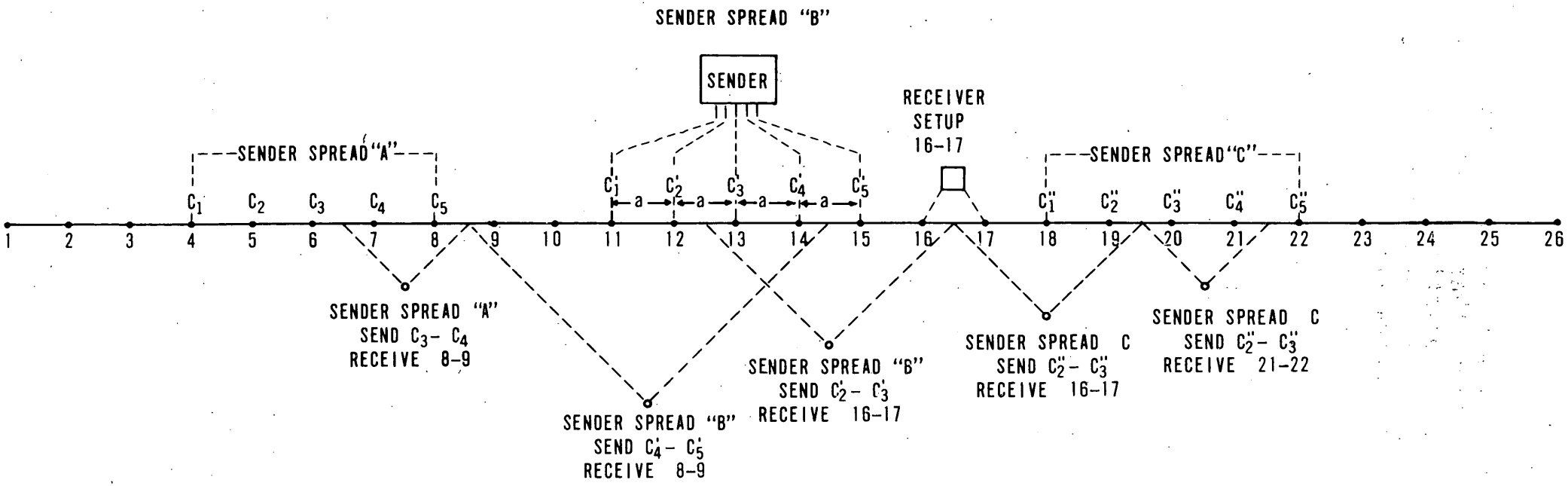
$$\rho/2\pi = VK_n/I = [V/I][\tfrac{1}{2}an\ (n+1)(n+2)]$$

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

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

(DATA POINTS OBTAINED FROM THE THREE SPREADS OF FIGURE 1)

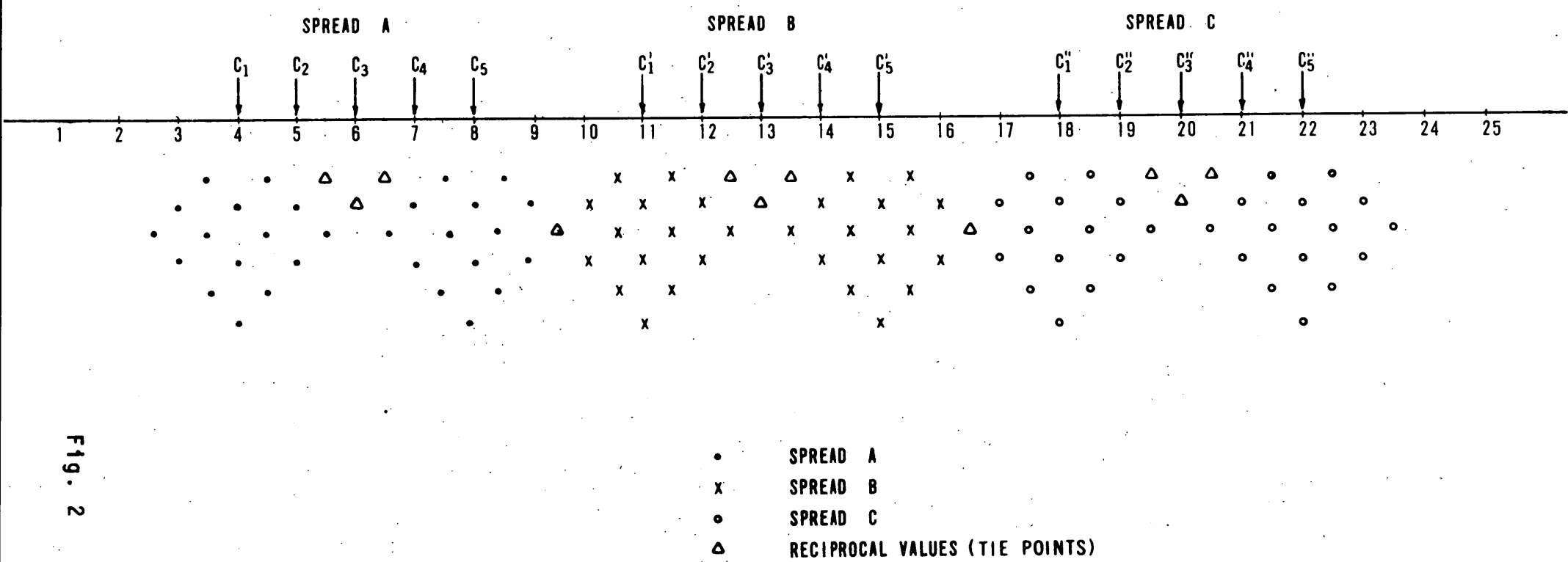
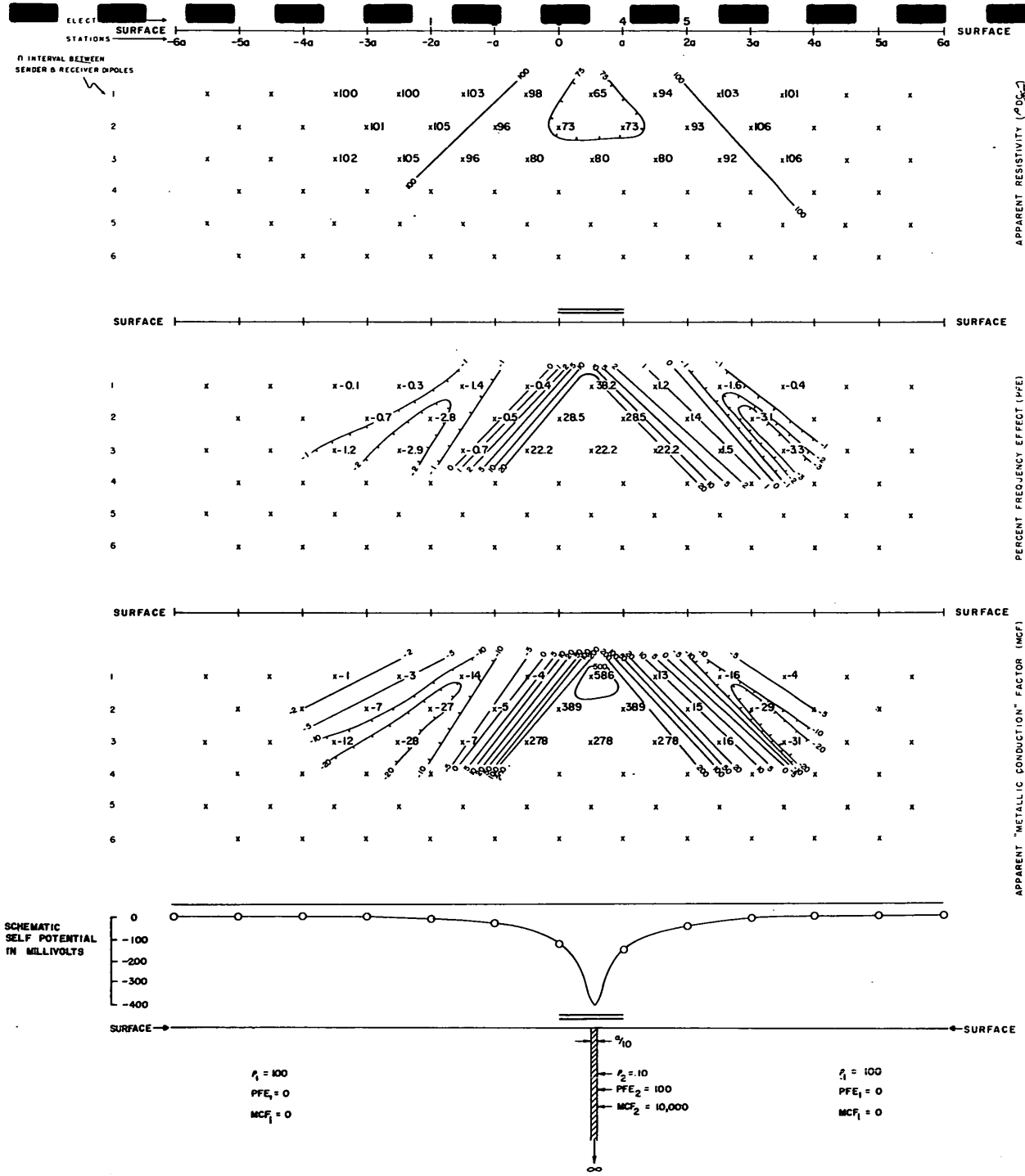


Fig. 2



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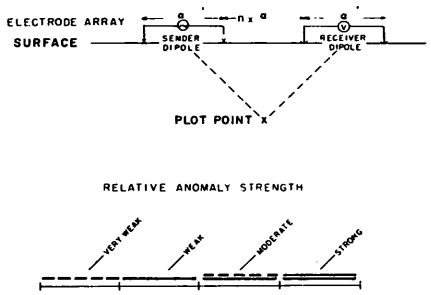

LOOKING NORMAL TO STRIKE

VERTICAL
TABULAR BODY

SECTIONAL DATA SHEET
LINE NO. ——
INDUCED POLARIZATION TRAVERSE

SCALE: 1" = a DATE: ——

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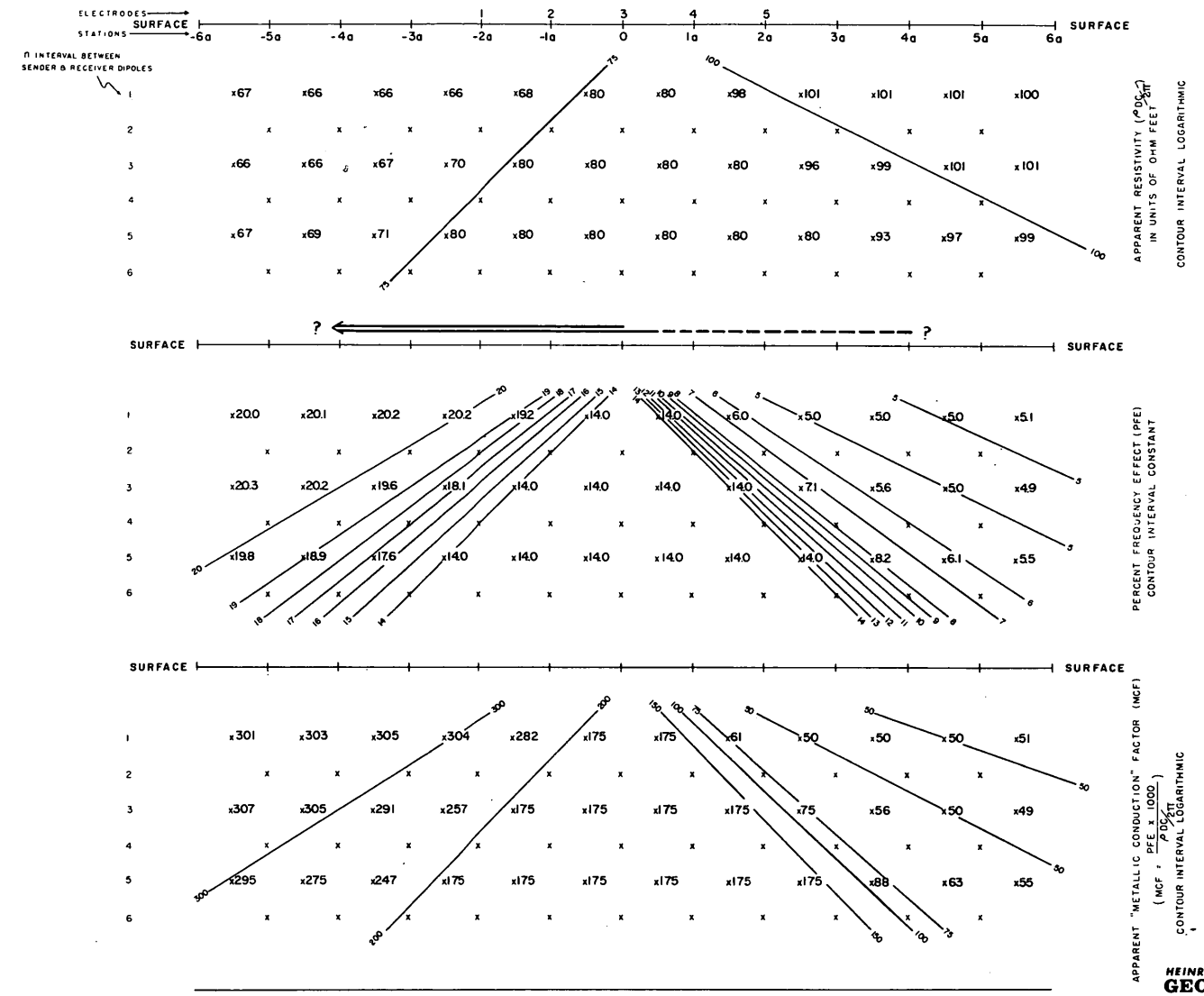
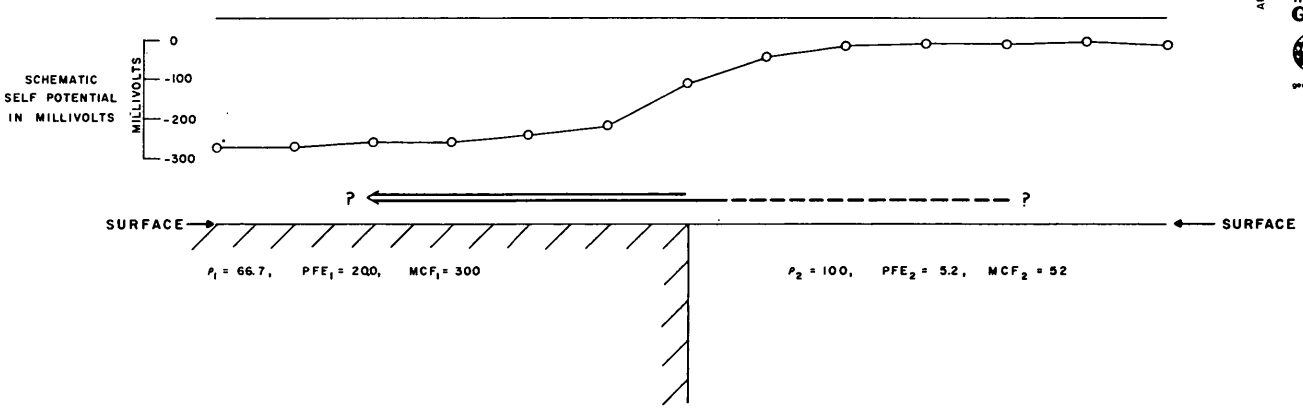
THEORETICAL DIPOLE-DIPOLE INDUCED POLARIZATION RESPONSE OVER A CONDUCTIVE VERTICAL TABULAR SULFIDE BODY CROSSED NORMAL TO THE STRIKE [HAVING A THICKNESS OF 1/10 THE ELECTRODE SPACING (a), A RESISTIVITY CONTRAST OF 10:1, A BACKGROUND RESISTIVITY (ρ_1) OF 100, A BACKGROUND PFE$_1$ OF 0, AND A PFE$_2$ OF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





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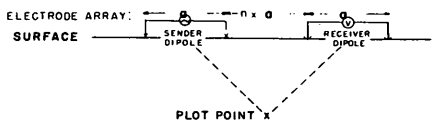
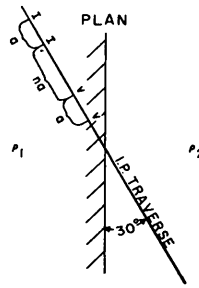


RELATIVE ANOMALY STRENGTH

LOOKING 60° FROM STRIKE OF INTERFACE



VERTICAL INTERFACE

SECTIONAL DATA SHEET

LINE NO. ——

INDUCED POLARIZATION TRAVERSE

SCALE: 1" = a DATE: ——

FOR

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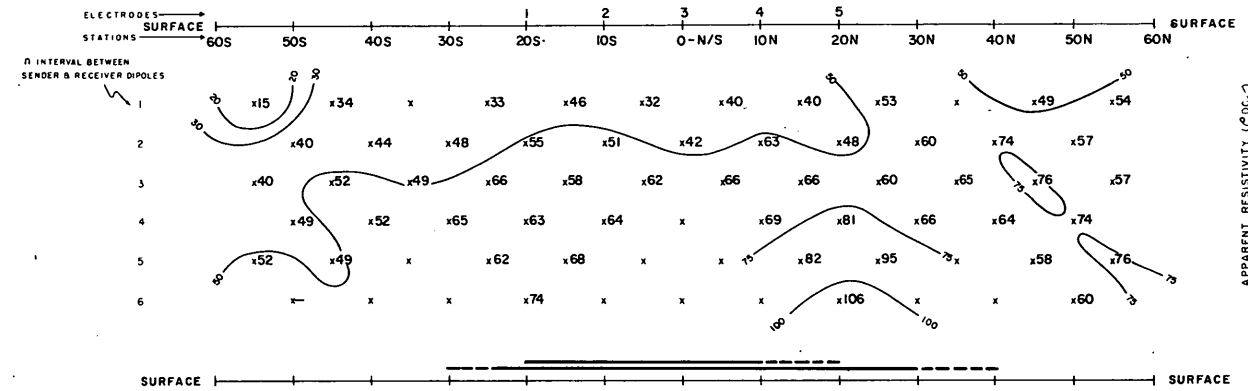
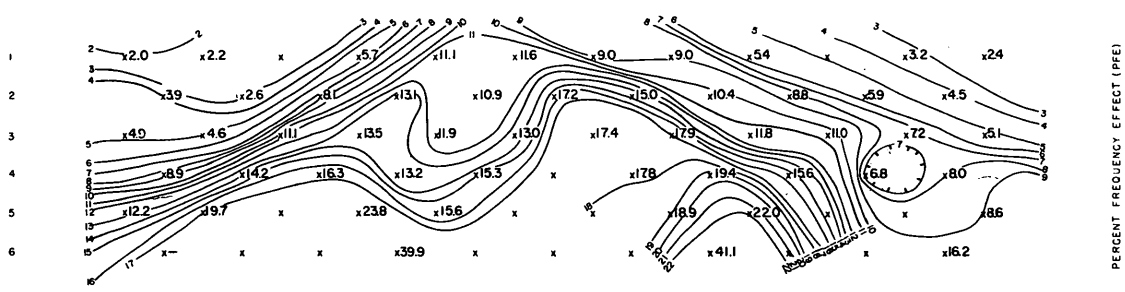
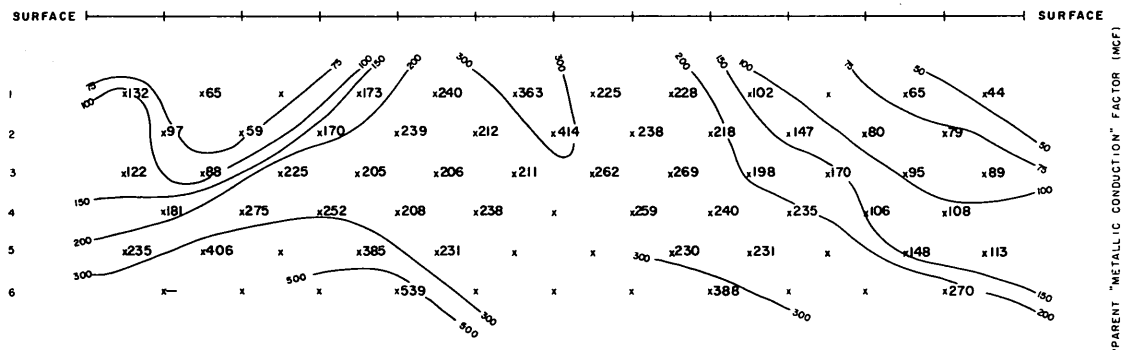
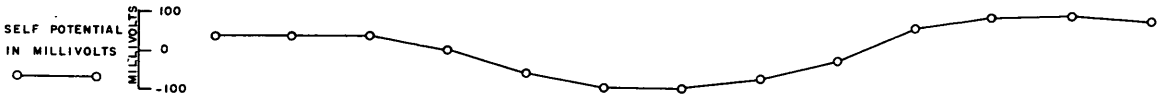
THEORETICAL INDUCED POLARIZATION TRAVERSE ACROSS A VERTICAL INTERFACE AT 30° – DIPOLE-DIPOLE ELECTRODE ARRAY.

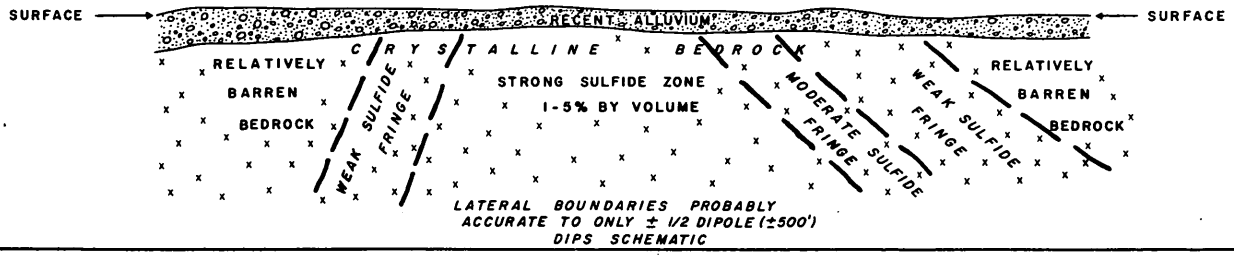




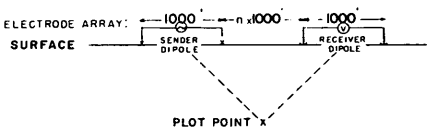




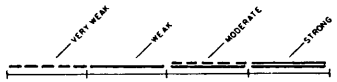
SCHEMATIC INTERPRETATION SECTION



EXPLANATION



RELATIVE ANOMALY STRENGTH



LOOKING WEST

PIMA MINING DISTRICT
PIMA COUNTY, ARIZONA

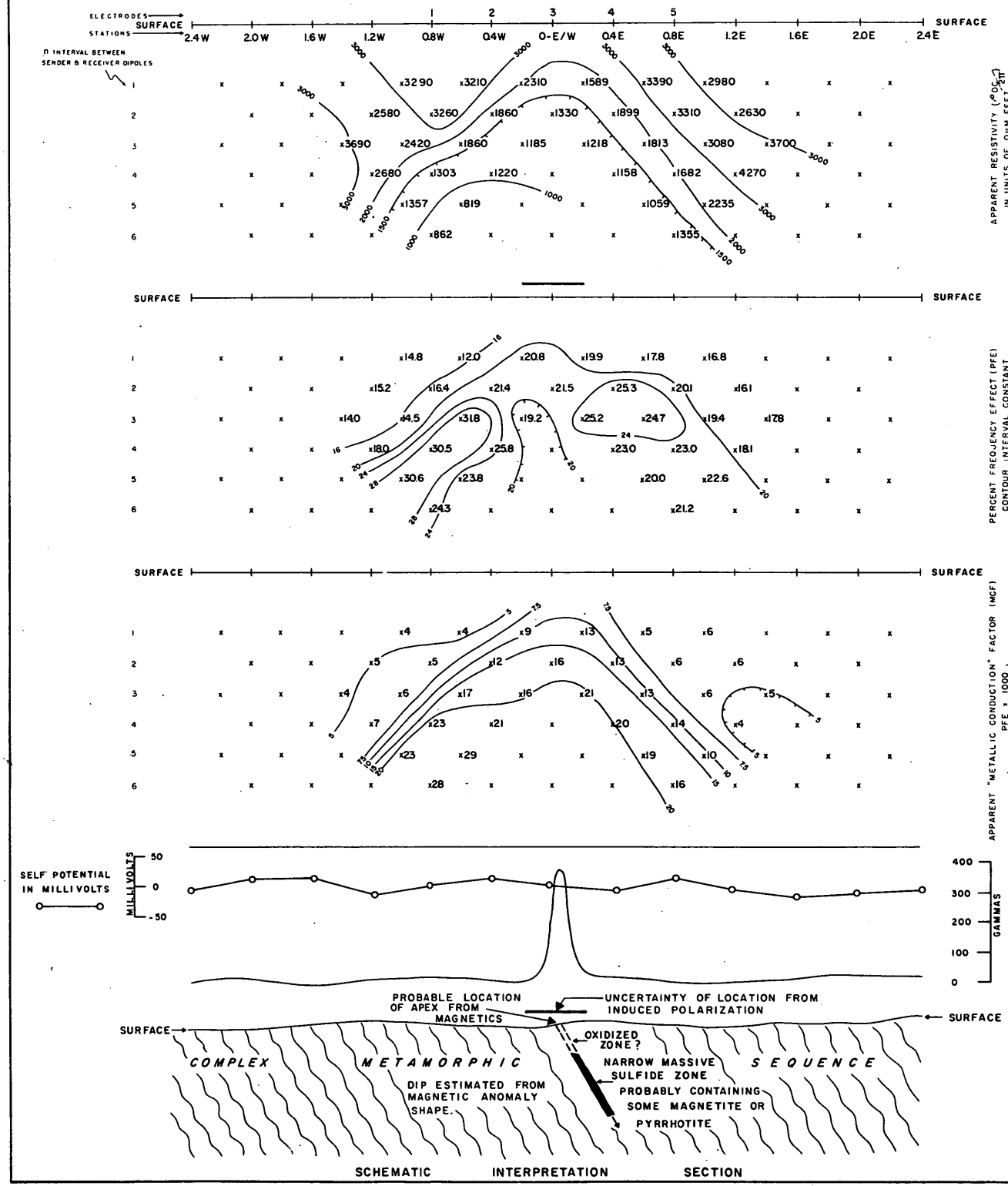
SECTIONAL DATA SHEET
LINE NO. —
INDUCED POLARIZATION TRAVERSE

SCALE: 1" = 1000' DATE: —

FOR

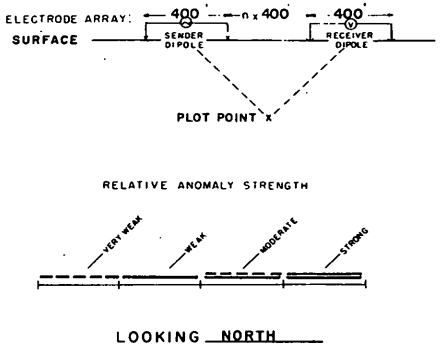
HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703
Phone: 602/623-0578 Cable: GEOEX, Tucson
geophysical engineers
vancouver
sydney

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



SCHEMATIC INTERPRETATION SECTION

EXPLANATION



LOOKING NORTH

MASSIVE SULFIDE VEIN
APPALACHIAN SULFIDE DISTRICT

SECTIONAL DATA SHEET
LINE NO. —
INDUCED POLARIZATION TRAVERSE

SCALE: 1" = 400' DATE: —

FOR

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

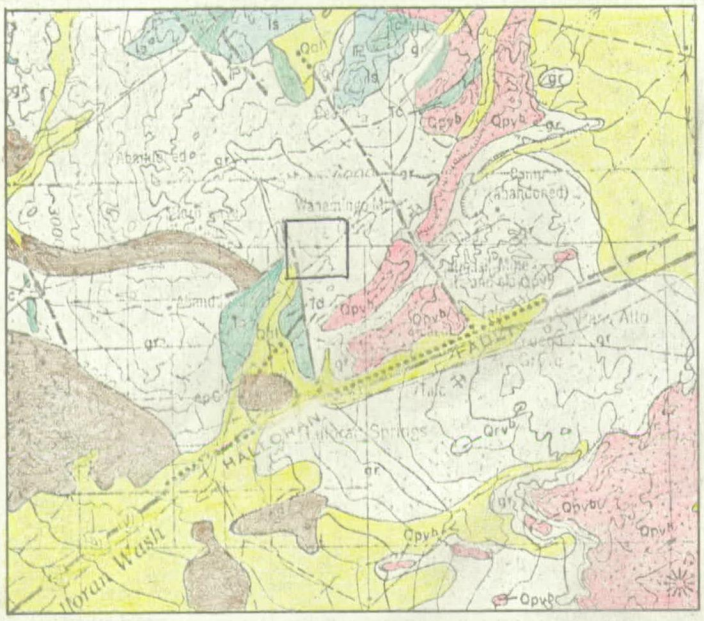
ACTUAL FIELD EXAMPLE OF COMBINED INDUCED POLARIZATION, RESISTIVITY, MAGNETIC AND SELF POTENTIAL SURVEY ACROSS A NARROW-STEEPLY DIPPING MASSIVE SULFIDE VEIN.

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.

GENERAL GEOLOGIC MAP
WHIR PROPERTY & VICINITY

T 16 N

T 15 N



R 10 E | R 11 E

- Qal — Recent alluvium
- Qpvb — Pleistocene basalt
- Tc — Tertiary nonmarine
- gr — Mesozoic Marine
- p€g — Undivided Precambrian
- ℙ Is — Paleozoic Marine
- ep€ — Earlier Precambrian metamorphic rocks

Adapted from:

KINGMAN SHEET

Geologic Map of California

Scale: 1:250,000

INDUCED POLARIZATION SURVEY

IRON AND RUST CLAIM GROUPS

NEAR HALLORAN SPRINGS,

SAN BERNARDINO COUNTY, ARIZONA

OFFICIAL
COPY
O. N. E.
RECEIVED
APR 22 68
INITIALS CODE

FOR

Mr. & Mrs. R. D. Huff
Mountain Pass Mine
Nipton, California

August 1966

BY

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona
Phone:623-0578 Area Code: 602

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IN MAP POCKET:	
I. P. Location Plan	
Four Sectional Data Sheets	

HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

BASIS OF THE INDUCED POLARIZATION METHOD

The induced polarization method is based on the electrical properties exhibited by electronic or metallic conductors imbedded 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 the flow 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 mode as a guide. These capacitive-like properties are normally measured by three different techniques.

In the time domain (pulse) method, a steady direct current is imposed across the block for a few seconds and abruptly terminated so that the capacitive-like 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. The more area determined, the more capacitance or polarization the block exhibits.

In the frequency domain method, the percentage difference between the impedance (AC resistance) offered to a lower and a 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 across the block. This phase delay also increases as polarization increases.

Almost all metallic lustered sulfides such as for example; pyrite, chalcopyrite, chalcocite, bornite and molybdenite are electronic conductors and the rocks and ground water, with which they permeate or are permeated, are ionic conductors, therefore if an electric current is made to flow through a sulfide deposit, it will polarize and can be detected by the three methods described above.

This induced polarization property is not entirely unique with sulfides since magnetite, graphite 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 types of problems.

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 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 individual application and the geophysicist's discretion.

The two frequencies we most commonly use are 0.05 and 3.0 cycles per second, respectively or so called "D.C." and "A.C." modes. 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 (earth) currents and

electrode polarization. The upper limit is determined by electro-magnetic coupling effects which increase rapidly with increasing frequency.

In our standard reconnaissance field practice, five equally spaced co-linear current electrodes are placed in the ground by burying aluminum foil in pits wetted with brine. Observations are made in accordance with a symmetrical dipole-dipole configuration where the distance between the receiver or potential electrodes is kept equal to the distance between adjacent 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 are 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 proportional to PFE and inversely proportional 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 Figure 3.

Selection of electrode spacings is determined by the objectives to be reached in a given survey. This spacing will range from very small (50 feet or less) for very detailed and shallow surveys, up to 1,000 feet, or occasionally more, for broad and 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 such size, shape and position factors as 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. A rule of thumb used in practice is that, with a good contrast of electrical properties, using the symmetrical - co-linear dipole-dipole system, and having data from 1 through 6 in "n" separations, two times the dipole length is the maximum depth of detectable penetration, and 0.2 times the dipole length is about the minimum 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 will not likely be detectable. 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 feet for the following: An overburden of more than 2,000 feet 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 feet of the surface generally would not be detected. A spherical or elongated cylindrical body whose top is more than about 1,000 feet below surface and whose diameter is much less than 1,000 feet would be just out of the range of detectability. A Dike-like or sill-like zone whose width is less than 100 feet 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 to 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 more 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 zone's width. Because of these factors, we usually use 500 to 1,000 foot dipole spacings in prospecting for porphyry-type deposits.

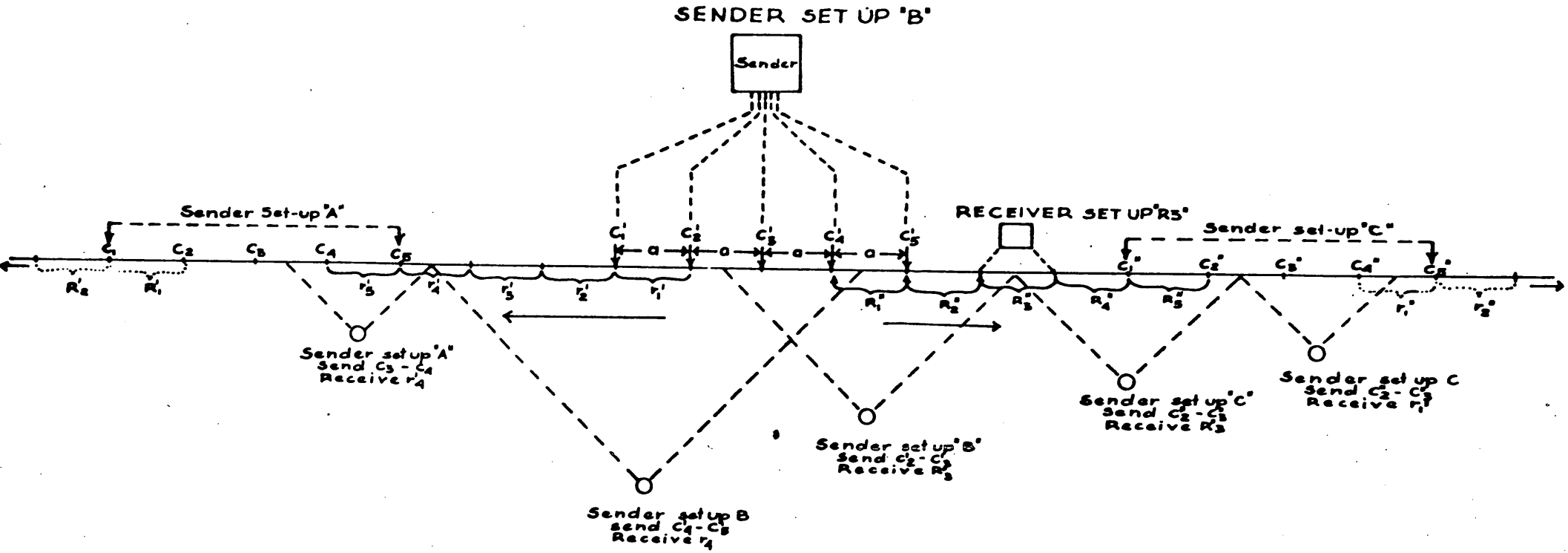
The field data are interpreted after plotting the PFE, MCF and resistivity as in Figures 1 and 2. These values are then contoured, the resistivity and metallic conduction factor logarithmically (because of the usual large variations in magnitude) and the percent frequency effect on a constant interval. This two dimensional method of plotting gives an additional leverage 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.

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 to this interpretational technique is that only a few simple geometric cases related to a relatively few number of layers have been theoretically developed. However, extremely valuable information can still be derived in alluvial and lake bed applications for depth to bedrock and ground water purposes, etc.

In interpreting PFE's, values of 0 to 4 percent 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 frequency effects but tends to amplify the electro-magnetic frequency effects making a correction imperative.

Figure 1



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 setup "B" when the receiver is receiving at R_1 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 at R_5'; $C_5' - C_4'$, $C_4' - C_3'$, $C_3' - C_2'$, and $C_1' - C_2'$ are sent and data is obtained for 3, 4, 5 and 6 dipole separations respectively. Each sender setup provides 33 data points.

Figure 2

(Data obtained from the three setups of Figure 1)

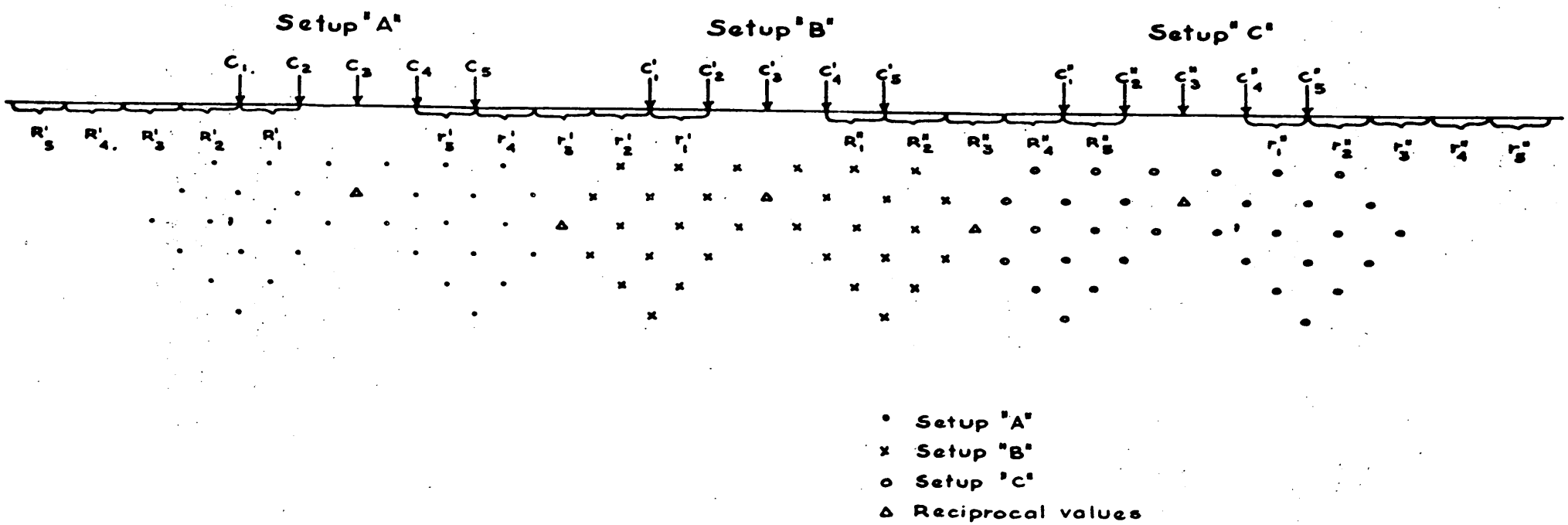


FIGURE 3

$$PFE = \left(\frac{\rho_{dc}}{\rho_{ac}} - 1\right) 100$$

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.

$$\rho = \frac{2\pi V}{I} K_n$$

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:

$$K_n = \frac{an(n+1)(n+2)}{2}$$

(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:

$$\rho = \frac{2\pi V}{I} \left(\frac{an(n+1)(n+2)}{2}\right)$$

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

$$\frac{\rho}{2\pi} = \frac{V}{I} K_n = \frac{V}{I} \left(\frac{an(n+1)(n+2)}{2}\right)$$

$$MCF = \frac{PFE}{\rho_{dc}/2\pi} \times 1000$$

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

INDUCTIVE COUPLING INTERFERENCE

If $a(n+1)\sqrt{\frac{f}{\rho/2\pi}}$ is less than 1000 then the inductive coupling false frequency effect will be less than 2.5%. Likewise if less than 1500 the false effect will be less than 5%, and if less than 2000, the false effect will be less than 10%. Frequency f is in cycles per second.

INTRODUCTION

From July 22, 1966 through July 27, 1966, Heinrichs Geoexploration Company at the request of, and for, Mr. and Mrs. R. D. Huff, conducted an induced polarization and resistivity survey of the Iron and Rust Claims.

These 14 claims consist of a contiguous group located in a portion of Sections one and two, R10E, T15N, and in a portion of Sections 34 and 35, R10E, T16N, near Halloran Springs, San Bernardino County, California.

Four I.P. lines were run on the claims giving a total subsurface coverage of 14,000'. These data were obtained using the dual frequency induced polarization method, employing a dipole-dipole electrode configuration. Frequencies used were 0.05 cps and 3.0 cps.

The location of the induced polarization lines in relation to points of discovery and boundaries of the claims is shown on a plan map of the area identified as "Induced Polarization Location Plan". Data are plotted on sectional data sheets showing resistivity, frequency effect, and metallic conduction factor.

The cost of the geophysical work done on this group of claims was in excess of two thousand dollars ($2,000.00).

All of this geophysical work was done under the direction of Mr. W. E. Heinrichs, Jr., President and General Manager of Heinrichs Geoexploration Company, Tucson, Arizona. Personnel on this project in addition to Mr. Heinrichs were David M. Godfrey, Peter Berryman, Gary Hausler, and John P. Matthews, Jr.

Mr. W. E. Heinrichs, Jr. is a registered professional mining engineer, No. 2447, State of Arizona, with many years experience in conducting geophysical surveys, and all of the other persons performing the above work are either graduate engineers, students, technicians, or helpers.

INTERPRETATION AND CONCLUSIONS

Line 1

Anomalous frequency effects are located from approximately 1000' to 1500' south and approximately 1500' north of the centerpoint.

These effects appear to be restricted to a fairly narrow zone at shallow depth. Total sulfides may run from 1/2 to 1 1/2% by volume. Resistivities increase with depth on the southern end indicating a shallower depth to bedrock.

Line 2

Weak frequency effects at 1200' to 1500' south of the centerpoint indicate a narrow zone of sulfide mineralization which is at or very near surface. The weak anomaly at 1200' to 1500' north of the centerpoint is probably caused by another sulfide zone at somewhat greater depth, probably less than 200'.

Line 3

The anomalism noted on Lines 1 and 2 continues on and is seen at 1000' to 1500' south and 1000' north of the centerpoint. Mineralization on the north is probably at or near surface, while that to the south is at somewhat greater depth.

Line 4

This line further extends the sulfide mineralization to the west as shown at 1500' north and south of centerpoint. Both anomalies are due to sulfides at or very near the surface.

In summary, the survey delineates two, possibly steeply dipping, east-west trending zones of mineralization. Total average integrated volume sulfides in the zones may run from 1 to 2% overall, but on a very localized basis, such as in small lenses, pods, thin veins, or stringers, the sulfide percentage might vary from 0 to 10% or more. The zones are relatively narrow and appear to be at, or near surface. The mineralization is open ended to both the east and west, and further work is necessary to fully determine total lateral extent of mineralization.

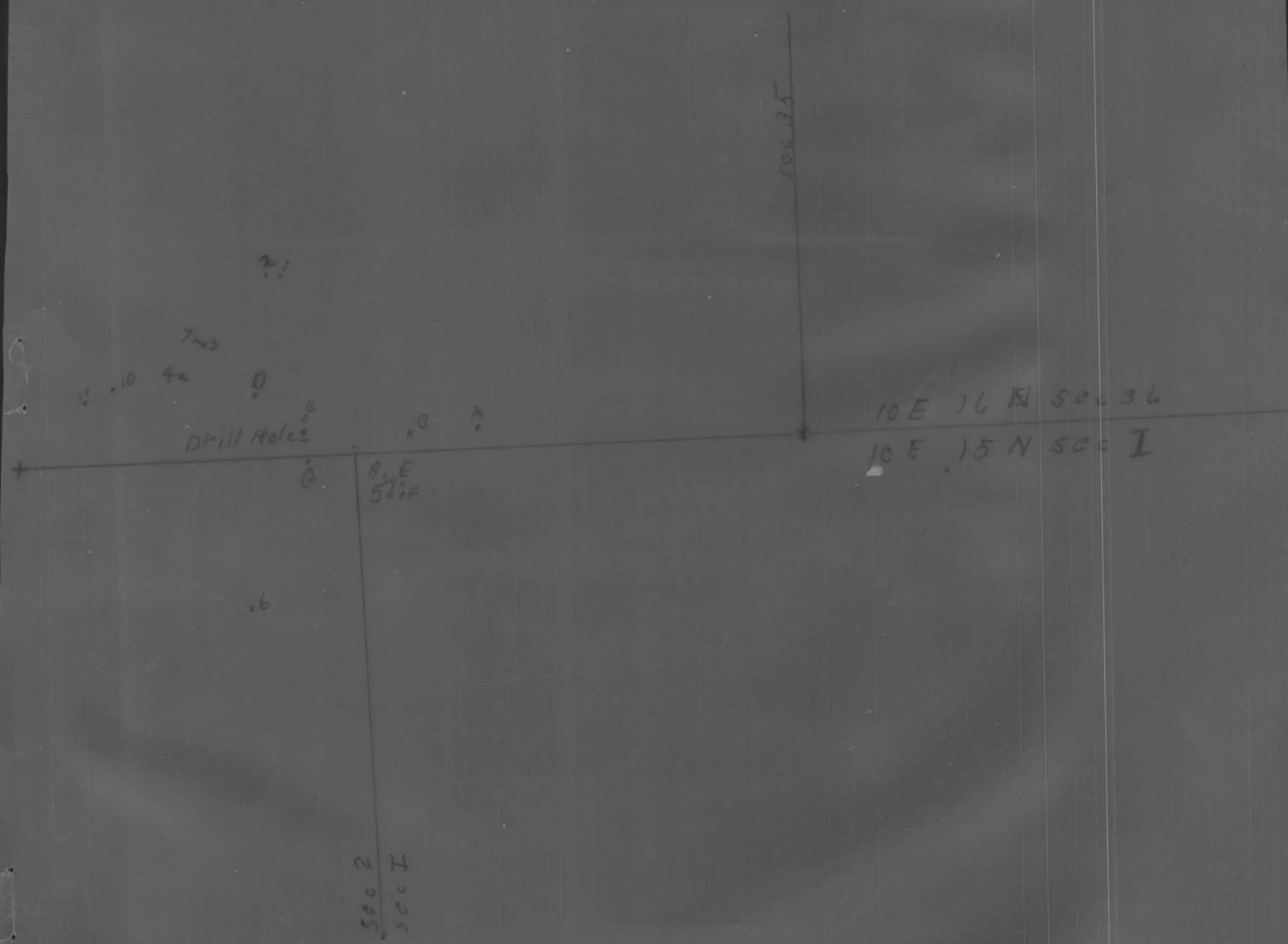
Respectfully submitted,
HEINRICHS GEOEXPLORATION COMPANY

John P. Matthews, Jr.
Geophysicist

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 19
ARIZONA, U.S.

APPROVED
Walter E. Heinrichs, Jr.

August 30, 1966
P. O. Box 5671
Tucson, Arizona


sec 35
10 E 16 N sec 36
10 E 15 N sec I
Drill Holes
C
B
A
G
8 E
5 F
sec 2
sec 7

Pink Granite
cube iron + Garnet
(red)

Q.m.

Q.m.

Q.m.

Gneiss

Gneiss

Granite

Qtz monzonite
+ pegGneiss

Red to yellow
iron stain on
Q.m. Altered
+ pegmatite

Quartz
monzonite

Q.
Lactite
mon.

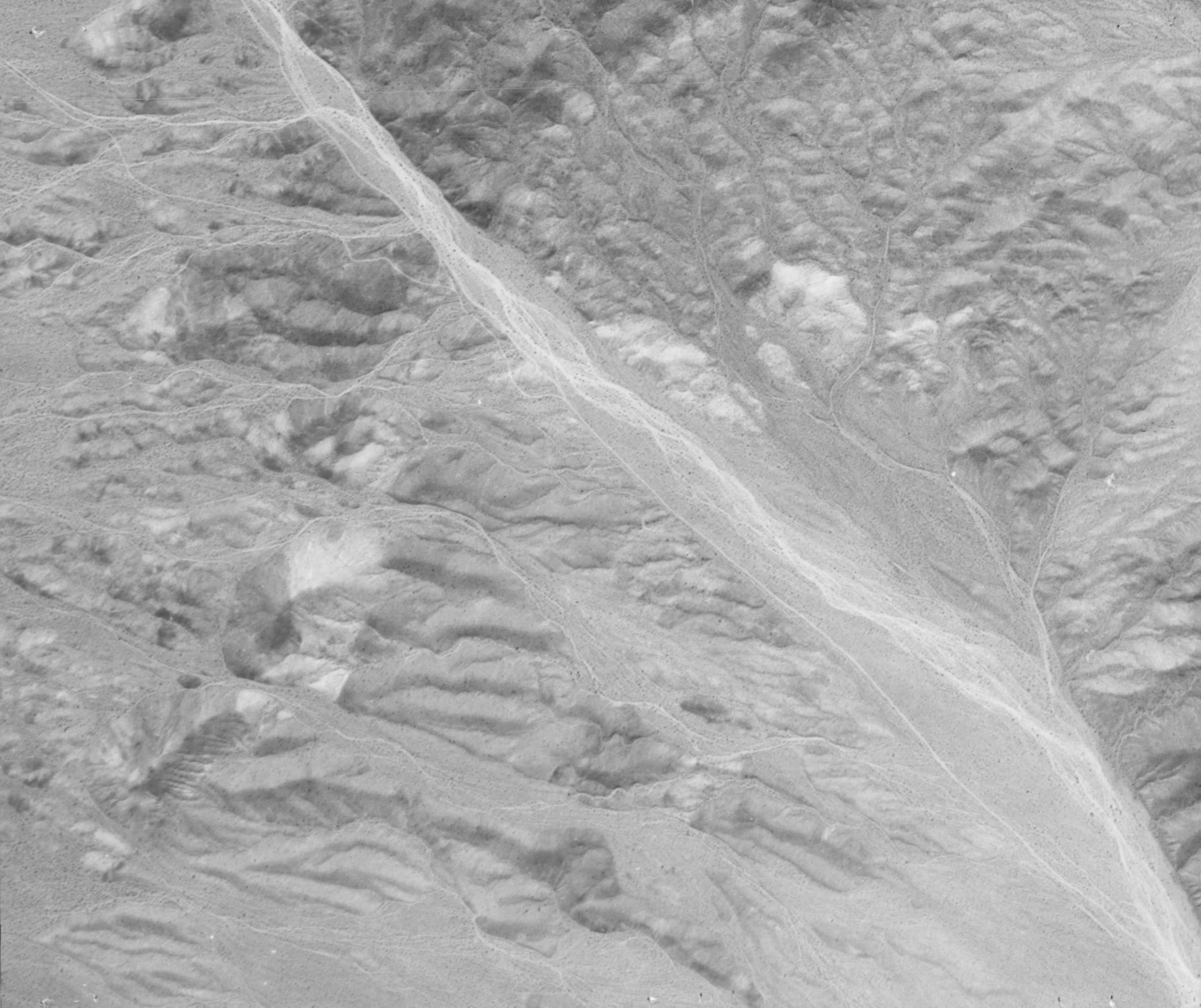
Q.m.

cube Fe
+ Garnet

Q.
m.

Not
Altered or
stained

Fill 200 Feet thick±



NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Hat #1 *Lode Mining Claim. Said claim is situated in the* Halloran Spring *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25th *day of* March, *19*68, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This claim is bounded on the North by Rust #1 and on the east by An #1 and on the West by hat #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section 1, Twp 15 N. Range 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

To Whom it May Concern: *Please take notice that:*

1. *The name of this claim is the* Hat #2 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25th *day of* March, *19* 68, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

Commencing at _____ in a _____ *erly direction from the discovery monument,* _____ *feet therefrom,* This claim is bounded on the North by Rust #2 and on the East by Hat #1 and on the West by Hat #3.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* Section #1 Twp 15 North Range 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino, California. country

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Hat #3 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25th *day of* March, *19* 68, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the North by Rust #3 and on the East by Hat #2 and on the West by Hat #4

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section #2 15 North Range 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County

San Bernardino, California.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Hat #4 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25th *day of* March, 1958, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Un known *and* ~~Northerly~~ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the North by Rust #4; on the East by Hat #3 and on the West by Hat #5

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* Located in section 2, 15 N. Range 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino County, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Hat #5 *Lode Mining Claim. Said claim is situated in the* Halloran Spring *Mining District, County of* San Bernardino *State of* Calif *Located this* 25 *day of* March, 19 68 *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This claim is bounded on the North by Rust #5 and on the East by Hat #4 and on the West by Hat #6

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Located in Section 2, 15 N. Range 10 East.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

~~San Bernardino, County, Calif.~~

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Hat #6 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25 *day of* March, *19* 68, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 100 *feet;* Southerly 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* Easterly *side is* 300 *feet; that the width on the* Westerly *side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This claim is bounded on the north by Rust #6, and on the East by Hat #5 and on the West by Hat #7

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

~~Section #2, 15N, Range 10 East, Section #2~~

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino, California county.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Rust

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

To Whom it may Concern: *Please take notice that:*

1. *The name of this claim is the* Hat #7 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 25 *day of* March, *19* 68, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 250 *feet;* South *erly* 1300 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

Commencing at A monument ~~250x~~ in a North *erly direction from the discovery monument,* 250 *feet therefrom,* Thence 300' easterly; Thence 1500 Feet southerly; thence 300 feet westerly; Thence 300 feet westerly; thence 1500' northerly; thence 300' easterly to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* This claim is contiguous with Hat #7 on its south end and is the center of Sec 2, Twp 15 N, Range 10E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino, County, California.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Richard Hall

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 460 PAGE 452

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* An #1 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District,* 4 *County of* San Bernardino, *State of* Calif *Located this* 4 *day of* November, *19*66, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 200 *feet;* South *erly* 1300 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* _____ *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the North

By An #2 on the West by Hat #1

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section #1 - Twp 15 N.
Range 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County

~~San Bernardino California~~

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Andrew E. Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 74962

BOOK 460 PAGE 454

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Zn #2 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 4 *day of* November, *19*66*, when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 750 *feet;* South*erly* 750 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,* This Claim is bounded on the North by Section 35 or the Twp Line on the West By Rust #1 - ~~xxxxxxxxxx~~

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* Section #1 - Twp 15 N. and Range 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino Country Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Hoff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 460 PAGE 460

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* An #5 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 4th *day of* November, *19* 66 *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 200 *feet;* South *erly* 1300 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the North by Section 35 and the Twp Line and on the West by An - #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section ~~35~~ 1 and Twp 15 N. and Range 10 E

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

~~San Bernardino, Calif~~

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 460 PAGE 462

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* An #6 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 4 *day of* November, *19* 66, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 500 *feet;* Southerly 1000 *feet; that the total length does not exceed 1500 feet. That the width on the* Easterly *side is* 300 *feet; that the width on the* Westerly *side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the North by An 5 - on the West by An 1

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section 1 - Twp 15 N. Range 10E

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino County - California.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

To Whom it may Concern: *Please take notice that:*

1. *The name of this claim is the* Iron #1 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 24 *day of* February, *19*64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Southerly 100 *feet;* North*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown ~~erly and~~ XXXXXXX*erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

Commencing *at* point ~~in a~~ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ~~erly direction from the discovery monument,~~ 900 *feet* ~~therefrom,~~ XXXXXX Easterly from the N. W. Corner of Section #1, Twnp 15 N. Range 10 east and located in Twnship 16 North Range 10 East Section 35

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* As above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Huff   Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313. within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 447 PAGE 767

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Iron #2 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* ~~San Bernardino~~ *State of* Calif *Located this* 24 *day of* February, 19 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Southerly 100 *feet;* Northerly 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* east*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* ____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* point ~~xxxxxxxxerly direction from the discovery monument~~, 300 *feet* ~~therefrom~~ xxxxx Easterly from N. W. Corner
~~of Section #1, Twnp 15 N. Range 10 E.~~
~~and located in Twnp 16 North Range 10 East~~
Section 35

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* as above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

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BOOK 447 PAGE 769

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Iron #3 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Berdoo, *State of* Calif *Located this* 24 *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* South *erly* 100 *feet;* North *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* ~~east~~ *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown XXXX *erly and* XXXX *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point XXXX XXXX ~~erly direction from the discovery monument,~~ 300 *feet* ~~therefrom,~~ XXXXXX westerly from the N. W. corner of section #1 Twnp 15 N. Range 10 E. and located in Twnp 16 North Range 10 East.

Section 35

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* as above.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 74962

BOOK 447 PAGE 771

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

To WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Iron #4 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 2d *day of* February, 19 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* South *erly* 100 *feet;* North *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING at a point in a ~~x/erly direction from the discovery monument;~~ 900 ~~feet,~~ Westerly from the N. W. Corner of ~~Section 35 Twnp 15 N. Range 10 East and Located in Twnp 15 N. Range 10 E.~~

Section 35

4. *That the claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* As above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bertrice E. Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE § 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 74962

5106

BOOK 447 PAGE 773

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Iron #5 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* ~~San Bernardino~~, *State of* Calif *Located this* 24 *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* South *erly* 100 *feet;* North *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point *in a/x/x/erly direction from the discovery monument,* 1500 *feet therefrom,* ~~xxxx~~ Westerly from the N. W. Corner ~~of Section1 Twnp 15 N. Range 10 E. and located in Twnp 16 N. Range 10 E.~~ Section 35

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* SeeAbove

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bernice E. Hupp — J. Richard Hupp

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 74962

BOOK 117 PAGE 775

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Iron #6 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* ~~San Bernardino~~ *State of* Calif *Located this* 24 *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* South*erly* 100 *feet;* North*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* XXXXX *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point *in a* XXXXXXXXXX/X/X/X/X/X/X/X/X/X/X *erly direction from the discovery monument,* 2100 *feet therefrom,* XXXXXX Westerly from the N. W. Corner of Sec 1 Twnp 15 N. Range 10 E. and located in Twnp 15 N. Range 10 E.
Section 35

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* ~~As Above~~

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

74952

BOOK 447 PAGE 777

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. The name of this claim is the Iron #7 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino*, State of* Calif *Located this* 24 *day of* February*, 19*64*, when discovery was made and copy of the original notice posted.*

2. That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.

3. That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is South*erly* 100 *feet;* North*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and ______ erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point xx/x/x/x/x/x/x/x/x/x/x/x/x/x *erly direction from the discovery monument,* 2700 *feet therefrom,* xxxx Westerly from the N. West Corner of Sec 1 Twnp 15 N. Range 10 E. and located in Twnp 16 N. Range 10 E. Section 35

4. That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit: As above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bernice E. Huff

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 74962

BOOK 460 PAGE 456

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* An #3 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 4 *day of* November, *19* 66, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 1400 *feet;* South*erly* 100 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____*erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the south by Section 1 - and the Twp Line
On the West By - Iron #1

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

Section 35, Twp 16 N. and 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino California

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Hall

WITNESSES

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The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 460 PAGE 458

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* An #4 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 4 *day of* November, *19* 66, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 1300 *feet;* South *erly* 200 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* _____ *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,*

This Claim is bounded on the south by Section 1 and Twp Line and on the west by An #3

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* Section 35 and Twp 16 N. and R 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. Sanbernardino, Califoria. C

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 4094 PAGE 216

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 1 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 7 *day of* June, *19*67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 1400 *feet;* South*erly* 100' *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* west*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown*erly and* ______*erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point 100' South *in a* ______*erly* XXXX *direction from the discovery monument,* XXX unknown, ~~and on the North End of xxx An 4~~

Thence 300' Easterly; thence 1500' northerly;
Thence 300' westerly; thence 300' westerly;
Thence 1500' Southerly; thence 300' easterly
to the point of the beginning

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 2100' Easterly and 1600' northerly from the monument at the N.W. Corn of section 1, twp 15 N. 10 east.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.
San Bernardino, County, Calif

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 2 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 7 *day of* June, *19* 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 1400 *feet;* South *erly* 100' *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300' *feet; that the width on the* West *erly side is* 300' *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point ~~15~~ 100' South ~~XXXXXX~~ *in a* _____ *erly direction from the discovery monument,* ~~XXXXXXXXXX~~ on the north end of An # 3

Thence 300' Easterly; thence 1500' Northerly; thence 300' westerly; thence 300' Westerly; Thence 1500' Southerly; thence 300' Easterly to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 1500' east, and 1600' north of the N.W. section Corner section 1, 15 N. 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County San Bernardino, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bernice E Wolff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip # 3 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 7 *day of* June, *19*67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 1400 *feet;* South *erly* 100' *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300' *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* point 100' South *in a* _____ *erly direction from the discovery monument,* ~~feet thereof,~~ on the North end of Iron #1
Thence 300' Easterly;, ~~thence 1500' Northerly~~
Thence 300' Westerly; thence 300' Westerly;
Thence 1500' Southerly; thence 300' Easterly
to the point of the beginning

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 900' East and 1600' North of the N. W. Section Corner; Section 1, 15 N. 10 East.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernadino, Calif

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Heff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 4 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 7 *day of* June, 19 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 1400 *feet;* southerly 100' *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300' *feet; that the width on the* West *erly side is* 300' *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* A point 100' South *from the discovery monument,* xx/x/x/x/x/x/x/x/x/x/ On the North end of Iron #2 ~~Thence 300' Easterly; thence 1500' Northerly~~ Thence 300' Westerly; Thence 300' Westerly; Thence 1500' Soutnerly;, thence 300' Easterly to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 300' East and 1000' north of the N.W. Section Corner; Section 1, 15 N. 10 East

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 484 PAGE 620

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 5 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 7th *day of* June, *19* 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 1400 *feet;* South erly 100' *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300' *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point 100' *in a* South *direction from the discovery monument, feet thereon,* xxxxxxxxxxx on the North end of Iron 3
Thence 300' Easterly; thence 1500' Northerly;
Thence 300' Westerly; Thence 300' Westerly
Thence 1500' Southerly; thence 300' Easterly
to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 300' West and 1600' North of of the N. W. corner Section 1, 15 N. 10 East.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.
San Bernardino, California.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 86281

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 6 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 7th *day of* June, *19* 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 1400 *feet;* South *erly* 100 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING at a point 100' South *erly direction from the discovery monument,* ~~feet therefrom~~, on the North end of Iron 4 Thence 300' Easterly; thence 1500' Northerly; thence 300' Westerly; thence 300' Westerly Thence 1500' Southerly; thence 300' ~~Westerly~~ Easterly, to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 900' West and 1600' North of the N.W. Corner Section 1, 15 N. 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 464 PAGE 624

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 7 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 7th *day of* June, *19* 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 1400 *feet;* South *erly* 100 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point 100' South xxx *in a* _____ *erly direction from the discovery monument,* xxxxxxx *feet therefrom,* North end of Iron 5

Thenc 300' Easterly ; thence 1500' Northerly;
Thenee 300' Westerly; thence 300' Westerly;
Thenee 1500' Southerly; thence 300' Easterly
to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 1500' West and 1600' North of the N. W. Corner Section 1. Twp 15 N. Range 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino, Calif.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Yelff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58 86281

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* √Ip 8 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 7th *day of* June, *19* 67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 1400 *feet;* South*erly* 100 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____*erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point 100' South *in a* _____*erly direction from the discovery monument,*

~~xxxxxxxxxxxxxxxxxx~~ North End of Iron #6
Thence 300' Easterly; thence 1500' Northerly
Thence 300' Westerly; thence 300' Westerly
Thenee 1500' Southerly; thence 300' Easterly
to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 2100' West and 1600' North of the N. W. ~~Northeast~~ Corner section, 1 Twp 15; N. Range 10 E.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

~~San Bernardino, Calif.~~

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Ishiff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 164 PAGE 628

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Ip 9 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernadino, *State of* Calif *Located this* 7th *day of* June, *19*67, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 1400 *feet;* South *erly* 100 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point 100' south *in a* _____ *erly direction from the discovery monument,* ~~XXXXXXXXX~~, At the North end of Iron 7

Thence 300' Easterly; thence 1500' Northerly
Thence 300' Westerly, thence 300' Westerly
Thence 1500' Southerly; thence 300' Easterly
to the point of the beginning.

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* 2700' West and 1600' north of the N. W. Corner Section 1, Twp 15; N. Range 10 East.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County ~~San Bernardino, Calif~~

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Hoff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 447 PAGE 797

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #1 *Lode Mining Claim. Said claim is situated in the* Halloran Spring *Mining District, County of* San Bernardino, *State of* Calif *Located this* 24 *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northerly 100 *feet;* Southerly 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* Easterly *side is* 300 *feet; that the width on the* Westerly *side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* _____ *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* point *in a* _____ *erly direction from the discovery monument,* _____ *feet therefrom,* ~~900 Feet easterly from the N.W.~~ ~~west Corner Section #1 Twnship 15 N. Range 10 E located in section #1~~

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* See Above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Huff — Richard P. Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 147 PAGE 799

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. The name of this claim is the Rust No Two *Lode Mining Claim. Said claim is situated in the* SHalloran Spring *Mining District, County of* San Bernardino, *State of* Calif *Located this* 24 *day of* February, *19*64, *when discovery was made and copy of the original notice posted.*

2. That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.

3. That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is Northerly 100 *feet;* South*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* unknown *and ____erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* point *in a ____erly direction from the discovery monument, ____ feet therefrom,* ~~Northerly 100 Feet Southerly 1400 Feet~~ 300 FeetEasterly from the N. W. corner of Section #1 Twnship 15 N. Range 10 [illegible] east located in Section #1

4. That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit: SeeAbove

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bessie E Huff   Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 447 PAGE 861

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #3 *Lode Mining Claim. Said claim is situated in the* Halloran Spring *Mining District, County of* San Bernardino *State of* Calif *Located this* 24 *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* XXXXXXXXXXXX *direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point XXXXXXXXX *in a* XXXXXXXXXXXXXXXXXXXXXXXXXX *erly direction from the discovery monument,* 300 *feet therefrom;* XXXXX Westerly from the N. W. Corn Section #1 Twnship 15 North Range 10 East. located in Section #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* SeeAbove

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Bedivia E. Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 447 PAGE 803

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #4 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Berdoo, *State of* Calif *Located this* 24 th *day of* February, *19* 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North *erly* 100 *feet;* South *erly* 1500 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown ~~erly and~~ XXXXXX *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ~~erly direction from the discovery monument,~~ 900 *feet* ~~therefrom,~~ XXXXXX Westerly from the N.W. Corner Section #1 Twnship 15, North Range 10 East.

Located in Section #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* See Above.

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Hall

Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

LOCATION NOTICE—LODE—WOLCOTTS FORM 1133—REVISED 3-58

BOOK 447 PAGE 805

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #5 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino, *State of* Calif *Located this* 24 *day of* February, 19 64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 100 *feet;* South*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *and* XXXXXX *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* ~~a point~~ *in a* ~~erly direction from the discovery monument~~, 1500 *feet* ~~thence~~ westerly from the N. W. Corner ~~Section 1 Twnship 15 North Range 10 East.~~

located in Section #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* See Above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County San Bernardino

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E. Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

117 917

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #6 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* San Bernardino *State of* Calif *Located this* 24 *day of* ______, 19___, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* North*erly* 100 *feet;* South*erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East*erly side is* 300 *feet; that the width on the* West*erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in* Unknown ~~*erly and*~~ XXXXXXXX*erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point ~~*in a* XXXXXXX*erly direction from the discovery monument,*~~ 2100 *feet* ~~*therefrom,*~~ XXXXX Westerly from the N. W. Corner Section 1, Twnship 15 North range 10 east

Located in Section #2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:*

See Above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County.

San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff | Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

BOOK 447 PAGE 303

NOTICE OF LOCATION

(SECTS. 2301 TO 2324, PUBLIC RESOURCES CODE)

TO WHOM IT MAY CONCERN: *Please take notice that:*

1. *The name of this claim is the* Rust #7 *Lode Mining Claim. Said claim is situated in the* Halloran Springs *Mining District, County of* Sn Bernardino, *State of* Calif *Located this* 24 *day of* February, *19*64, *when discovery was made and copy of the original notice posted.*

2. *That the undersigned locators are citizens of the United States or have declared their intention to become such, and have discovered mineral bearing rock in place thereon and do locate and claim same for mining purposes.*

3. *That the number of linear feet in length along the course of the vein each way from the point of discovery whereon we have erected a monument, is* Northly 100 *feet;* South *erly* 1400 *feet; that the total length does not exceed 1500 feet. That the width on the* East *erly side is* 300 *feet; that the width on the* West *erly side is* 300 *feet; that the total width does not exceed 600 feet, that the end lines are parallel; that the general course of the vein or lode as near as may be, is in a* Unknown *erly and* XXXXX *erly direction; that the boundaries of this claim may be readily traced, and are defined as follows, to-wit:*

COMMENCING *at* a point *in a* XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX *erly direction from the discovery monument,* 2700 *feet thereon* Westerly from the N. W. corner Section #1, Twnship 15 North Range 10 east.

located in Section#2

4. *That this claim can be identified by its proximity to the following natural object or permanent monument, to-wit:* See Above

This notice is intended as an original notice of location and is posted on this claim and a true copy thereof is to be recorded with the County Recorder of this County. San Bernardino.

That all the dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the law of this State or of the United States are hereby claimed.

LOCATORS

Beatrice E Huff — Richard Huff

WITNESSES

The exterior boundaries of a Lode Claim cannot be limited by any local mining regulation to less than 25x1500 feet, measuring from the center of vein on either side.

PUB. RES. CODE 2313, within ninety days after the posting of this notice of location upon a lode mining claim, placer claim, tunnel right or location, or mill site claim or location, the locator shall record a true copy of the notice together with a statement of the markings of the boundaries as required in this chapter, and of the performance of the required discovery work, in the office of the County Recorder of the County in which such claim is situated.

GEONICS INCORPORATED

PROPOSAL FOR THE DEVELOPMENT
OF THE HUFF PROPERTY

Halloran Springs Quadrangle
San Bernardino County
California

OFFICIAL
COPY
O. M. E.
RECEIVED
APR 22 1968
INITIALS | CODE

This document is a proposal to explore the described property owned by Mr. and Mrs. R. D. Huff, Nipton, California to the point where the extent and value of the suspected ore body can be determined.

D. P. Williams
President

INTRODUCTION

The property under consideration consists of 36 mining claims located in townships 15N and 16N, R10E, San Bernardino County, California (Figure I and Halloran Springs quadrangle map in map pocket) approximately 12 miles NE of Baker. Discovery work and subsequent geochemical and geophysical work performed on the property shows widespread mineralization containing significant quantities of silver, copper, and molybdenum. Based on this earlier work the conclusion is reached that there is a good probability for a significant ore body at depth and further investigation is warranted to prove the extent of the suspected ore deposit.

GEOCHEMISTRY AND GEOPHYSICAL RESULTS

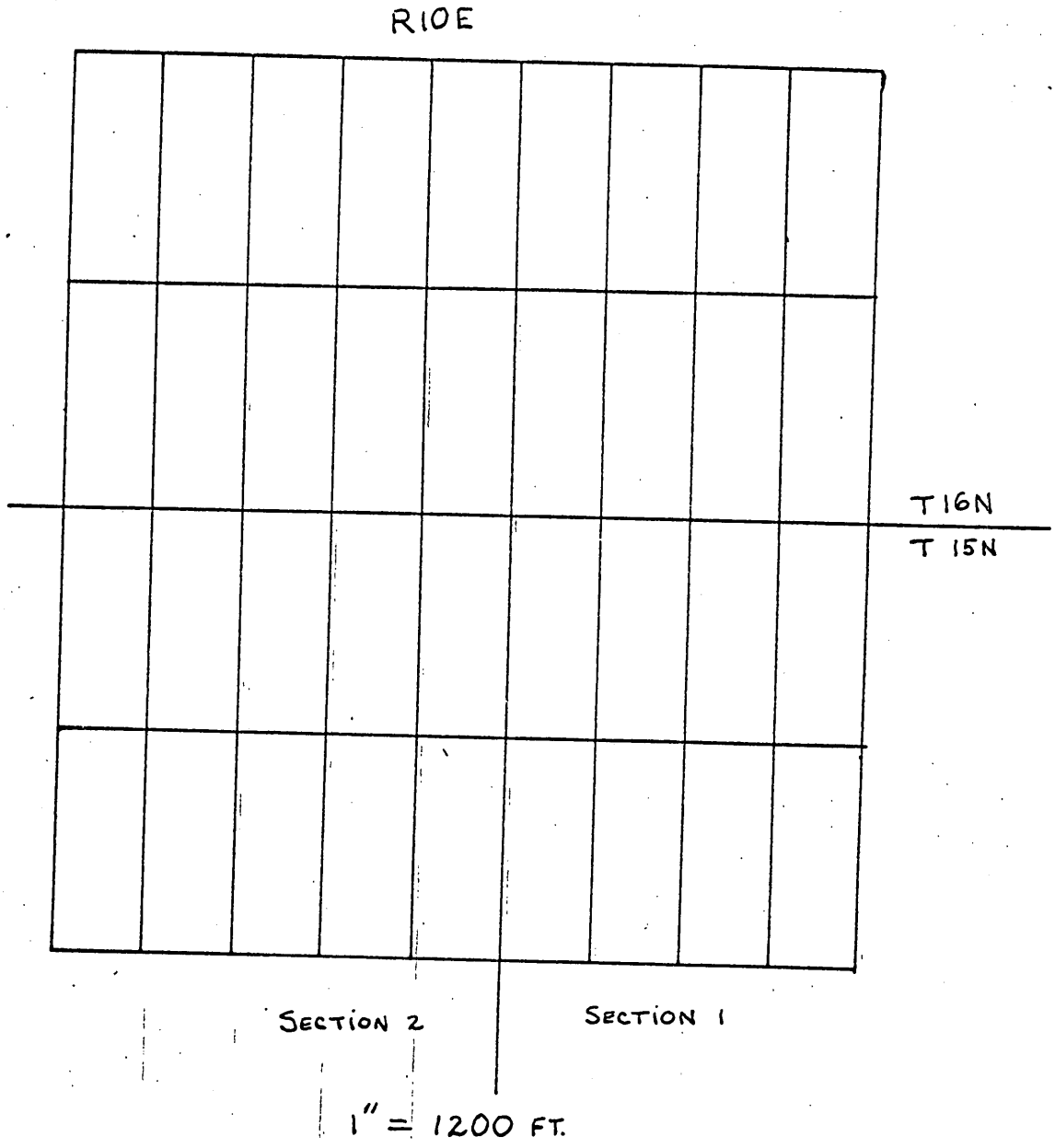
A significant number of samples have been collected on the property and assayed by atomic absorption methods. The samples were collected from bulldozer cuts and other diggings at depths from 1 to 6 feet. The area sampled covers a large portion of the claims. These samples generally show anomalous concentrations of silver, copper and molybdenum, in some cases approaching ore grade. For silver the values ranged from somewhat less than 0.1 to 0.8 parts per million. Molybdenum values ranged from about 25 to 250 parts per million and the values for copper ranged from 250 parts per million to 2.8%.

These high geochemical values from the near surface, highly leached zone indicate that at depth, ore grade material should exist.

A reconnaissance induced polarization survey was run on the property in 1966 by Heinrich GeoExploration Co. using wide-spaced electrodes. The results of this survey indicate that substantial mineralization occurs at depth. During the survey metal conduction factors of up to 400 were obtained. These values are highly indicative of good mineralization. The higher metal conduction factors were obtained with electrode spacings that indicate mineralization at depth to 500 feet and greater.

SUMMARY OF POTENTIAL

Based on the favorable geologic setting, the mineralization on the claims and the numerous prospects and old mines in the region, the potential of finding a substantial ore body in the region is good. This coupled with the very positive geochemical and geophysical results obtained on the property would indicate that a program should be initiated to determine the extent and values of the mineralization underlying the property.



PLAT MAP
HUFF CLAIMS
HALLORAN SPRINGS QUAD.
SAN BERNARDINO COUNTY
CALIFORNIA

FIGURE 1 : LOCATION MAP OF HUFF CLAIMS

PROPOSED EXPLORATION PROGRAM

The proposed exploration program is a two phase program. Phase one consists of a geophysical survey to pinpoint the best drilling site locations and phase two is a drilling program to determine the extent and value of the subsurface deposits.

Since IP has been used on the property and has proven successful it will be used as the principal survey technique. In addition a magnetic survey will be run to attempt to determine the depth and form of the unaltered basement rock and thus delineate the probable maximum depth of mineralization and drill holes. Self potential profiles of the proposed lines will also be obtained while conducting the IP survey, since minimum effort is required to obtain these while performing the IP survey.

Work Statement

The proposed program will consist of the following tasks:

1. Ten IP lines each 6000 feet in length will be run north and south on the claim boundaries.

2. Self potential profiles will be obtained on the same lines.

3. Magnetic profiles will be surveyed along each IP line.

4. Data will be analyzed, plotted and interpreted.

5. A drilling program consisting of a total of 1500 feet of drilling will be performed.

6. Drill cuttings will be logged and assayed.

7. A complete report will be written.

Detailed Task Description

The IP survey will be performed using a pole-dipole array (see appendix for description). Potential electrodes will be spaced 200 feet apart and the near current electrodes moved 600 feet each setup. This electrode spacing will allow sufficient detail to delineate any ore body of the size expected in the area. The IP lines will be located on the claim boundaries in a north-south direction. A total of 10 lines will be surveyed including a resurvey of those performed earlier to provide additional interpretational detail.

Plots of the IP data will be made including percent frequency effect, metal conduction factor and resistivity and presented in an electrical cross-section as outlined in the appendix.

Self potential data will be obtained while the IP data is being taken. Generally it is not expected that significant self potential anomalies will be associated with the suspected ore body as major SP anomalies are usually expected from massive oxidizing sulfide bodies. However, since the data is easily acquired and may provide significant results it will be obtained. The data will be presented as profiles with the IP data.

Magnetic data will be obtained along each IP line. Measurements will be made using a proton precession magnetometer with readings taken every 50 feet along the traverses. The sensitivity of the instrument is better than one gamma. With such sensitivity it should be possible to outline the altered zone and calculate depth to the basement or unaltered formations. The magnetic data will be presented as profiles along with the IP data.

Upon completion of the geophysical survey the data will be carefully analyzed, plotted and interpreted. Based upon the results of the geophysical survey the initial drill holes will be located. At this time the results of the geophysical survey and the proposed drilling program will be presented to the property owners for their approval.

Upon approval of the drilling program the drilling phase will be initiated. The first step in the program will be to spot the drill holes and prepare the necessary roads and drill sites. Rotary or down-the-hole-hammer drilling will be used rather than diamond drilling since a large ore body is expected and detailed subsurface structure is not required. This type drilling has the advantages of larger sample area and lower cost. Based upon earlier geophysical work it is anticipated that the first drill hole will penetrate to a depth of at least 500 feet to ensure that deep mineralization will be located if present. Additional holes will be drilled to depths deemed necessary as a result of a study of the first hole log. All holes will be drilled to a minimum depth of 200 feet.

During the drilling phase of the program a geologist will be present at the site during all cirtical phases of the drilling. This will ensure continual sample collection and proper logging of the subsurface formations. It will also allow a

quick decision to be made as to the proper depth for the drill holes. Selected samples will be chosen by the geologist for assaying. Atomic absorption assaying will be used in low grade areas and for trace analysis while conventional assaying will be used in higher grade deposits.

Upon completion of the field work a complete detailed report containing all geophysical, drilling and assay results will be prepared and six copies of this report furnished to the property owner.

SCHEDULE

The geophysical survey will be completed approximately one month from the time GEONICS is notified of acceptance of the program. It is anticipated that one additional month will be required to complete the drill site preparation and drilling. The final report will be submitted two weeks after the completion of the drilling program.

APPENDIX

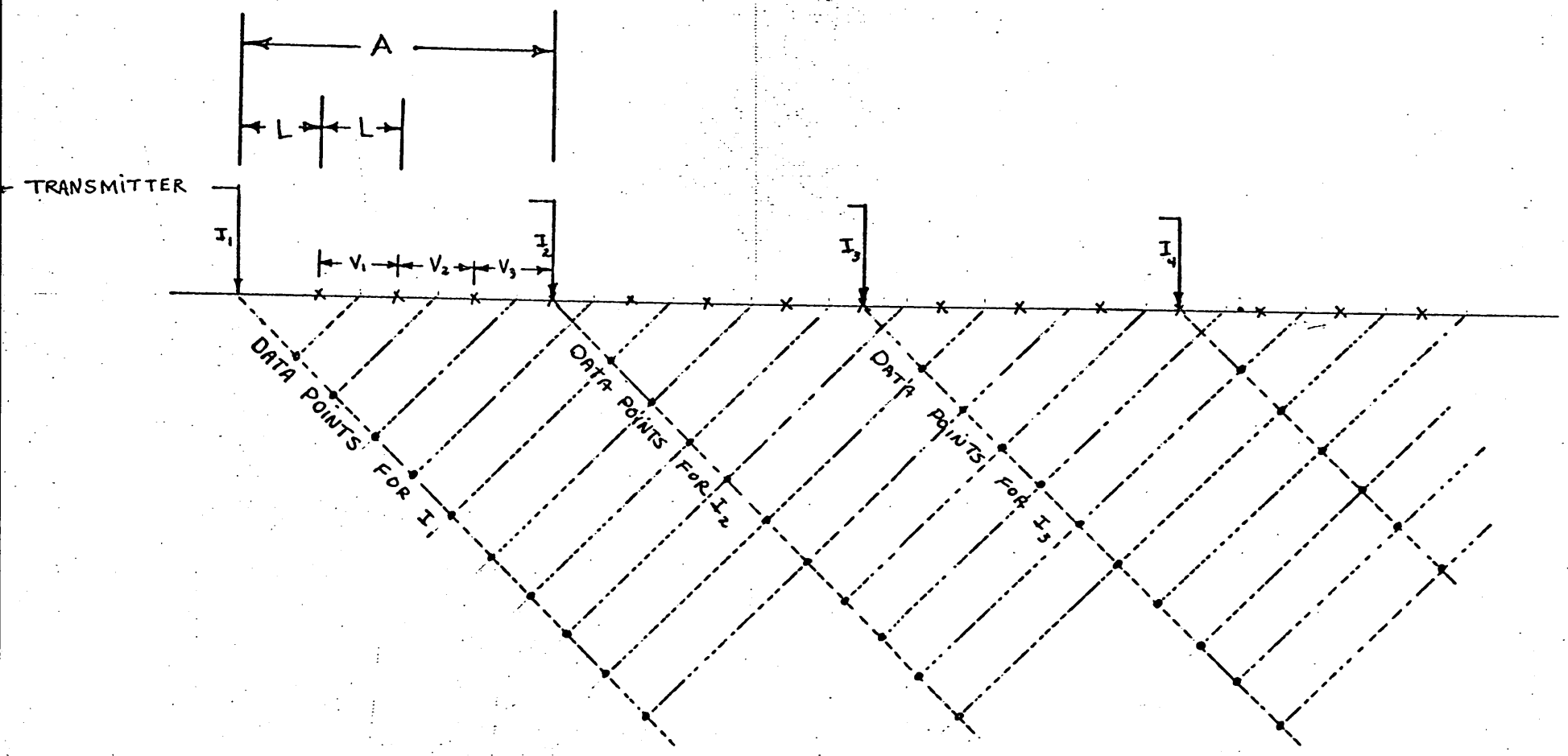
Induced polarization surveys are typically conducted using either a dipole-dipole or pole-dipole electrode configuration since these two geometries lend themselves to relatively simple calculation for resistivity and metal conduction factors. Other geometries are possible and are sometimes used in special applications.

From a theoretical aspect any electrode configuration may be used and shown from a mathematical viewpoint to be equivalent. Field studies have been conducted in numerous cases using different electrode geometries and have substantiated the theoretical conclusions that the various electrode configurations are equivalent.

GEONICS normally conducts surveys using a pole-dipole array. The details of such an array are shown in the following figure. In practice the first setup on a line is made with the current flowing into the ground at I_1 and the second current electrode placed very distant to the near current electrode; from a theoretical viewpoint it is assumed to be at infinity. The potential electrodes are placed in line with the current electrodes beginning a distance L from the near current electrode and separated a distance L. Normally the distance L will be 100 or 200 feet, depending on the detail desired.

Measurements of the potentials V_1, V_2, V_3, etc., are obtained at the desired frequencies and the results plotted as indicated in the figure. Under most conditions measurements can be made out to a distance e ual to 8 L or 10 L from the near current electrode. The near current electrode is then moved a distance A and the process repeated until the entire line is surveyed. Under normal conditions A will be from 200 to 800 feet. Under normal conditions measurements are made at 3 and 0.1 cycles per second to obtain the percent frequency effect. The voltage at 3 cycles is also recorded so that the resistivity at this frequency can be calculated. In addition the metal conduction factor is normally calculated.

After the field data has been obtained and the resistivity and metal conduction factors calculated the results are plotted and contoured in an apparent electrical corss-section.



POLE - DIPOLE IP ARRAY
GEOMETRY AND DATA POINTS
↓ NEAR CURRENT ELECTRODE
× POTENTIAL ELECTRODES

PERSONNEL

DONALD P. WILLIAMS, Chief Geophysist

Mr. Williams, who has ten years experience as a geophysist, will be responsible for the overall collection and interpretation of the geophysical data. For the past several years he has been engaged in conducting geophysical surveys and interpreting the results of field data. In addition Mr. Williams has conducted theoretical and laboratory investigations regarding the electrical and magnetic properties of rocks and minerals. He has also designed and developed several geophysical instruments, a number of which have patents pending.

Prior to joining GEONICS he spent several years in the aerospace industry as responsible engineer studying the theoretical aspects and equipment design for experiments proposed for lunar and planetary exploration and earth resources remote sensing applications. He has written several papers and has published in the Journal of Geophysical Research. Earlier pertinent experience included work as a miner for the Anaconda Co. in Butte, Montana.

Mr. Williams attended school at Montana School of Mines, and New Mexico Institute of Mining and Technology where he received his B. S. degree in Geophysics. In addition to the B. S. degree he has completed over 40 semester hours of graduate level studies in geophysics.

JAMES D. SHEPARD, Chief Geologist

Mr. Shepard will be responsible for the geologic requirements in the proposal including the supervision of the drilling program. As a recent employee of North American Rockwell Corporation, Mr. Shepard was involved in on-site sampling and evaluation of tin placer deposits off the coast of Thailand. Mr. Shepard has provided geologic inputs for proposals on the "Study of One Atmosphere Manned Undersea Habitats" and in-the-rock concepts of manned undersea habitation.

Previously as a member of the Strategic Resources Development Group Mr. Shepard served in a technical and administrative capacity while directing the work of geological, geochemical, and geophysical survey crews operating in California and western Nevada. He has been responsible for the planning and execution of geologic reconnaissance surveys for mineral deposits, including the analysis and interpretation of field data.

Mr. Shepard attended the University of Minnesota where he received a B. S. degree in Geological Engineering (a five year curriculum).

HENRY W. SCHASSE, Geologist, Party Chief

Mr. Schasse has had several years experience as a geologist during which time he has conducted geophysical and geochemical surveys in California and Nevada. He will serve as party chief in charge of managing the geophysical field crew and field data collection for the proposed exploration program.

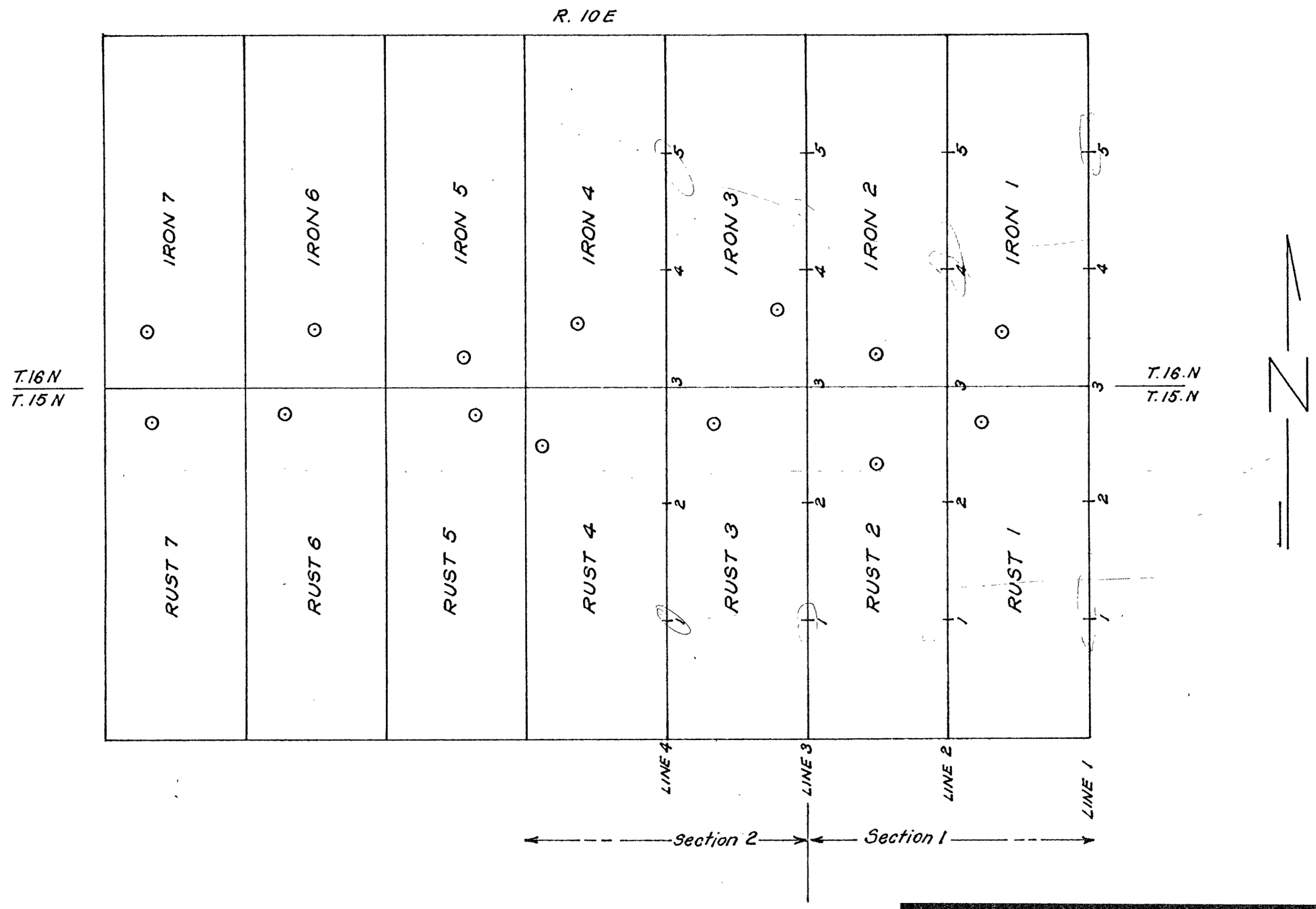
Prior to joining GEONICS Mr. Schasse spent over two years with North American Rockwell Corporation where he worked in the field of marine geology with Ocean Systems Operations group, and in the fields of exploration geology and geophysics with the Strategic Resources Development Group.

As a member of the Strategic Resources Development Group, he was involved in a major exploration program for mineral deposits. In this program he served as crew cheif for an Induced Polariaztion crew where he was responsible for the planning, performance and data interpretation of IP surveys in several mining districts in the Basin and Range province of California and Nevada. He was also resopnsible for the planning, performance and interpretation of geochemical reconnaissance surveys in western Nevada. He utilized his experience as a surveyor in this program by performing land surveys for mineral claims and geochemical sampling grids.

Mr. Schasse received his B. S. degree in Geology from the University of Wisconsin. His university education also included four years of Mechanical Engineering.

COSTS

Induced Polarization/ Self Potential/ Magnetometer	
Ten lines, north-south @ $650.00/ Mi.	$7,150.00
Dozer Work D-8	
Drill site preparation, roads 20 hours @ $30.00/Hour, $200.00 Move in fee	$800.00
Assays	
50 Atomic absorption spectrophotometer Cu, Ag, Au, Mo @$6.00/group	$300.00
25 assays @ $9.00/group	$225.00
Core logging, drilling, supervision	$1,000.00
Drilling	
1,500 feet @ $5.00/ft.	$7,500.00
Plus move-in charge of $1.00/Mi. (assume 400 MI.)	400.00
	$17,375.00



⊙ DISCOVERY LOCATIONS.

2 3 I. P. ELECTRODES.

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703
GEOPHYSICAL ENGINEERS

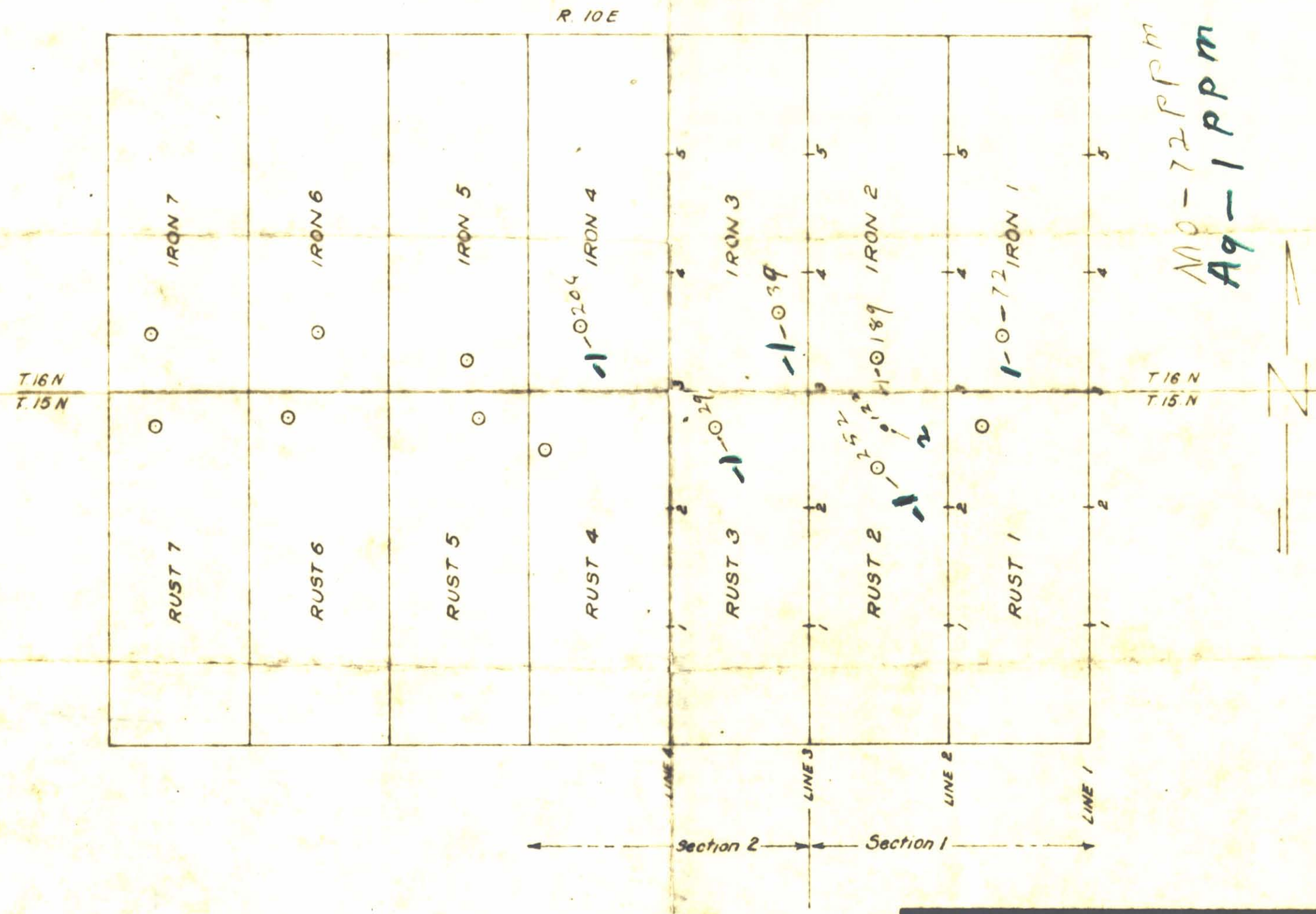
INDUCED POLARIZATION LOCATION PLAN

HOLLORAN SPRING, SAN BERNARDINO CO.
CALIFORNIA

FOR

R. D. HUFF

Scale 1" = 500' a = 500' | Date JULY 1966



DISCOVERY LOCATIONS

I.P. ELECTRODES

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5571, TUCSON, ARIZONA 85703

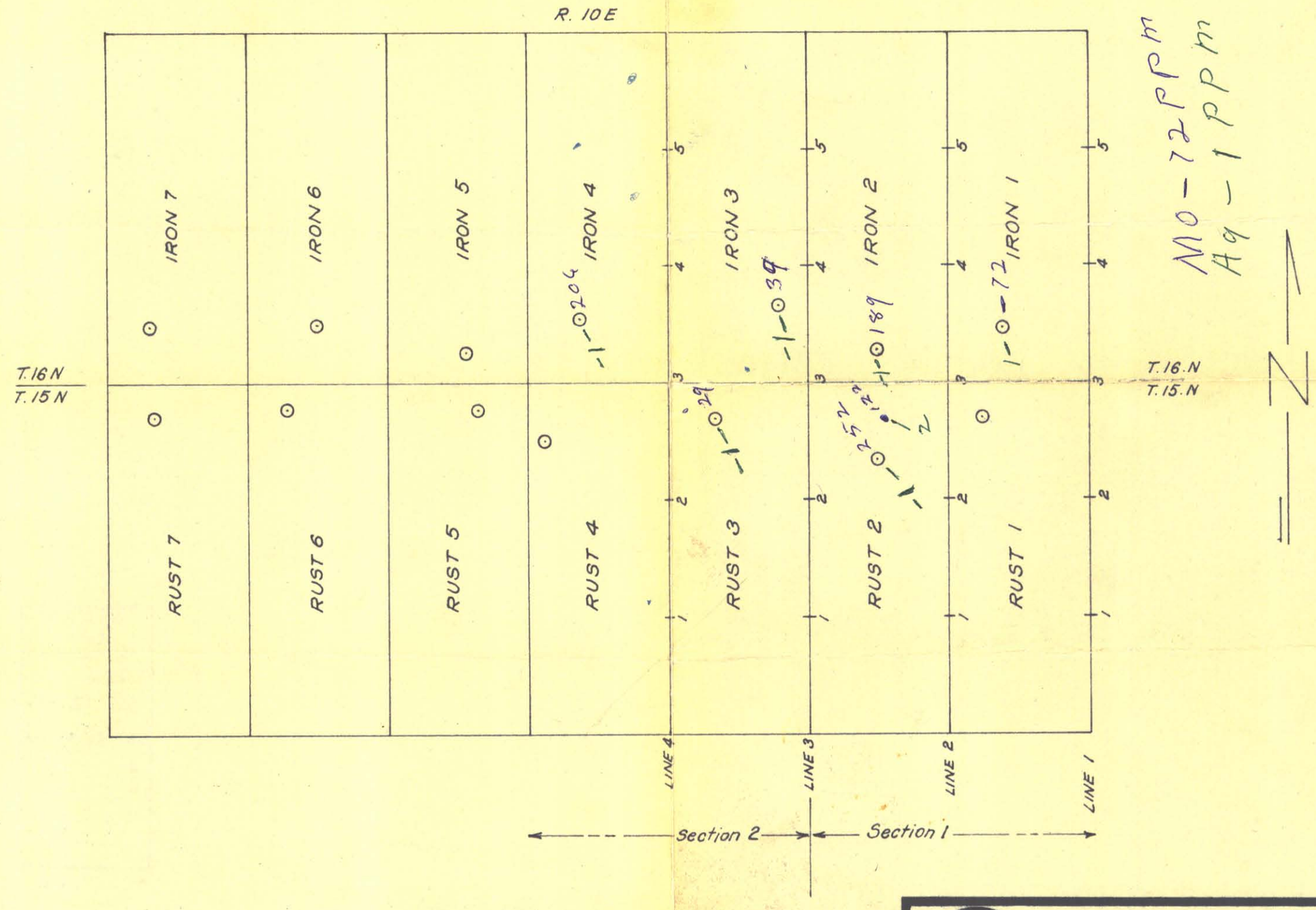
INDUCED POLARIZATION LOCATION PLAN

HOLLORAN SPRING, SAN BERNARDINO CO.
CALIFORNIA

FOR

R. D. HUFF

Scale 1" = 500' a = 500' | Date JULY 1968



⊙ DISCOVERY LOCATIONS.

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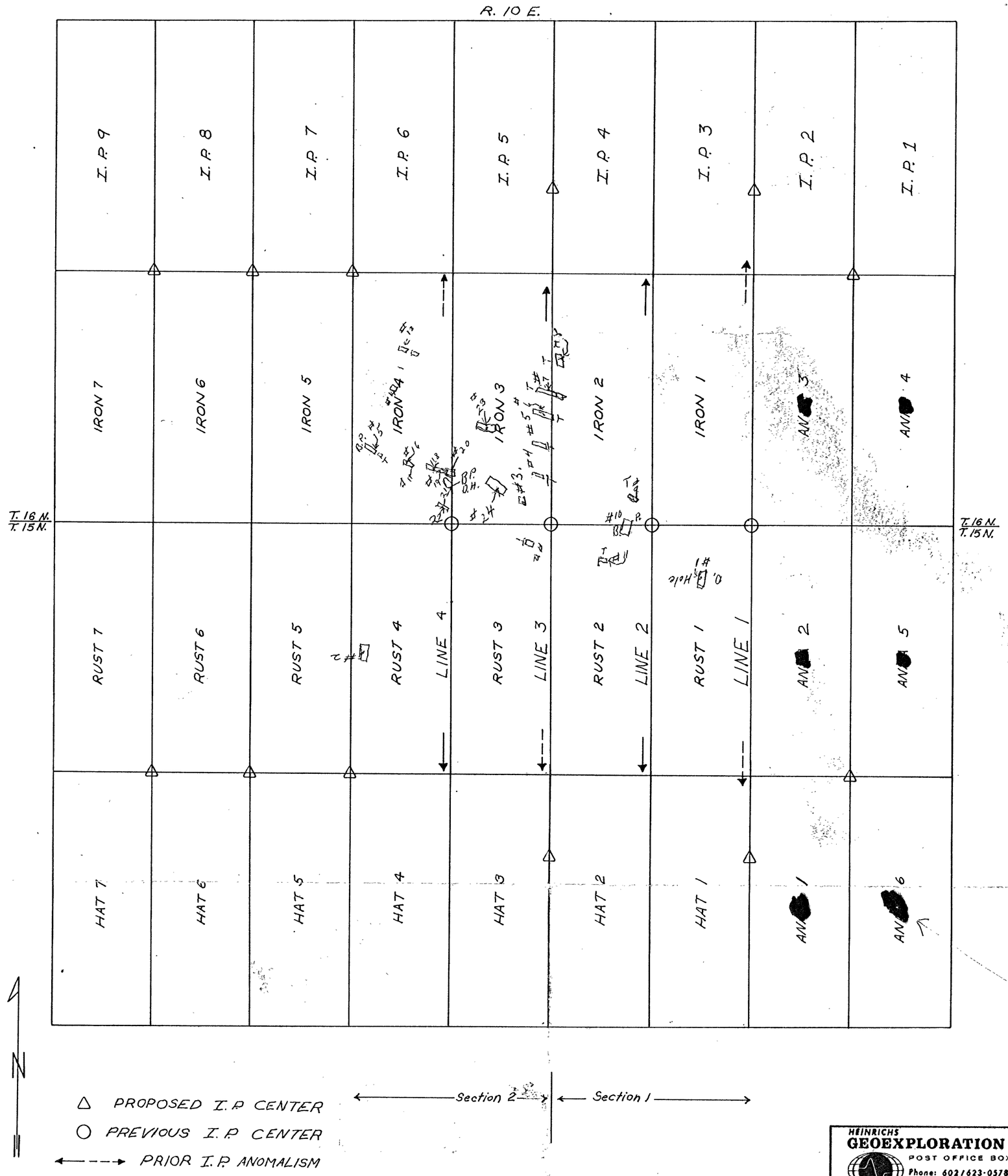

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vancouver sydney

PROPOSED I. P. SURVEY
WHIR PROPERTY
IRON, RUST, I. P., & HAT CLAIMS
HALLORAN SPRINGS AREA
SAN BERNARDINO CO., CALIFORNIA

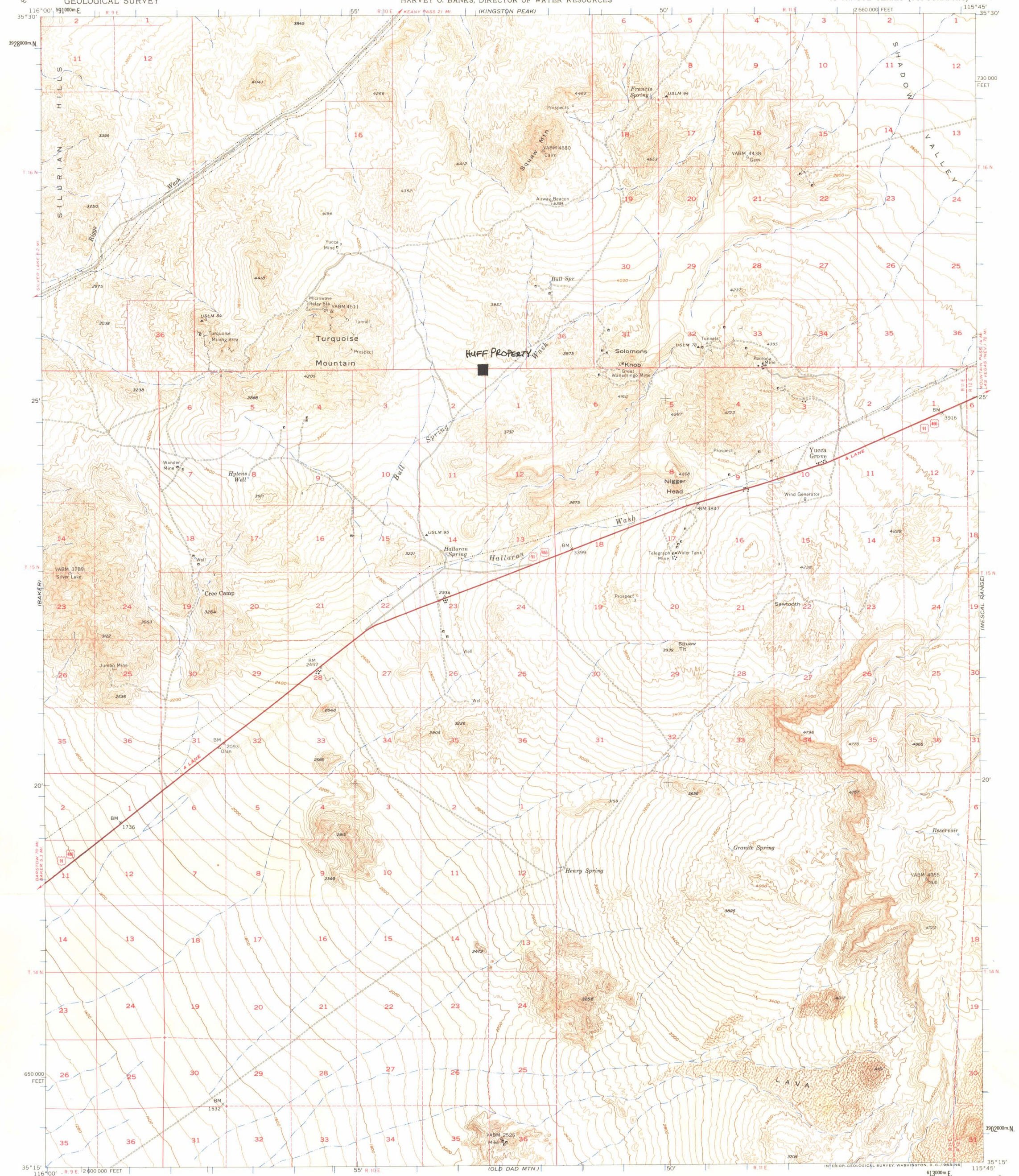
FOR
MR. & MRS. R. D. HUFF

SCALE 1" = 500' | DRAWN BY BLG | DATE NOV. 1967

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF CALIFORNIA
GOODWIN J. KNIGHT, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES

HALLORAN SPRING QUADRANGLE
CALIFORNIA—SAN BERNARDINO CO.
15 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods and by planetable surveys 1956. Aerial photographs taken 1953

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 5

Dashed land lines indicate approximate locations

Land lines are omited in T. 14 N.–R. 11 E. because of insufficient data

1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue

TRUE NORTH
MAGNETIC NORTH
15½°
APPROXIMATE MEAN DECLINATION, 1956

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

CALIF.
QUADRANGLE LOCATION

ROAD CLASSIFICATION
1963

Heavy-duty — Light-duty

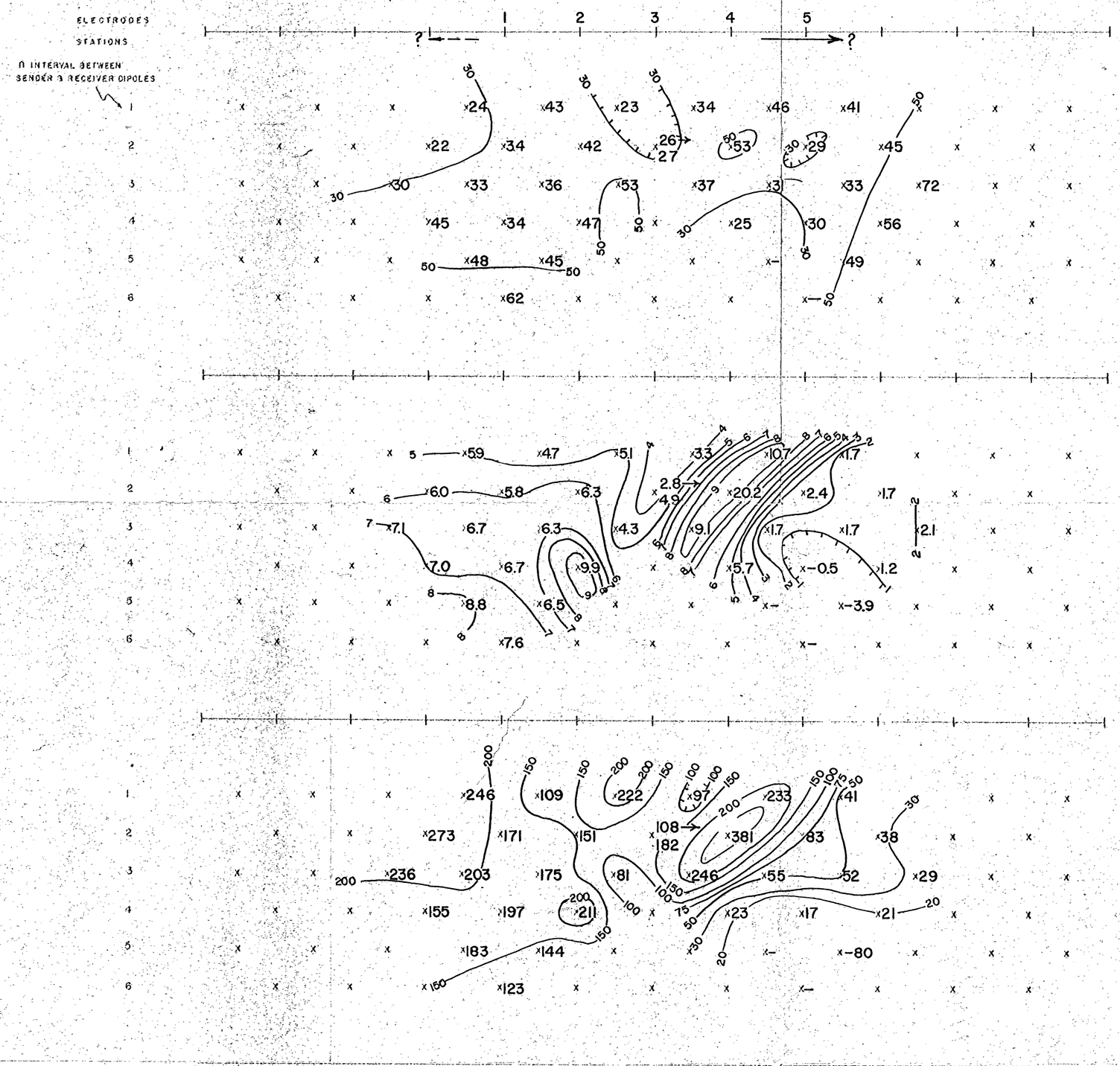
Unimproved dirt

U. S. Route

HALLORAN SPRING, CALIF.
N3515—W11545/15

1956

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



EXPLANATION

ELECTRODE ARRAY: 500' — n x 500' — 500'

SENDER DIPOLE — RECEIVER DIPOLE

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

LOOKING WEST

SECTIONAL DATA SHEET
LINE NO. 3
INDUCED POLARIZATION TRAVERSE

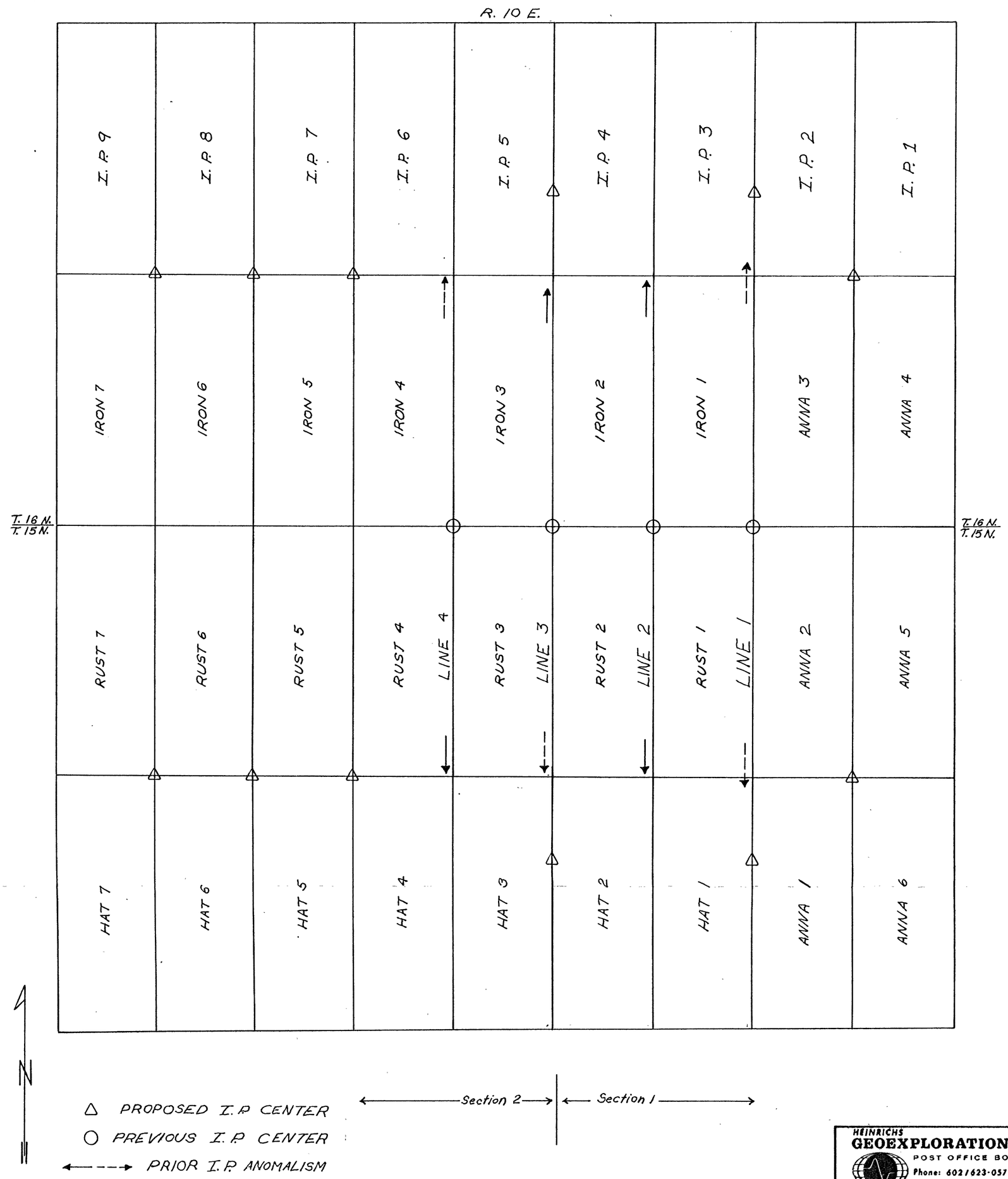
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: AUGUST 4, 1966

FOR

MR. & MRS. HUFF

SELF POTENTIAL
SURFACE PROFILE
GEOLOGY, ETC.



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PROPOSED I. P. SURVEY
WHIR PROPERTY
IRON, RUST, I. P., & HAT CLAIMS
HALLORAN SPRINGS AREA
SAN BERNARDINO CO., CALIFORNIA

FOR
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SCALE 1" = 500' | DRAWN BY BLG | DATE NOV. 1967