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March 13, 1967

Mr. Oliver Kilroy
Stanford Inn
P. O. Box 115
Salome, Arizona 85348

Dear Ollie:

Thank you for your letter received March 13. I still feel it is one your interest to get one of our personnel and Mac together to evaluate on what basis he has condemned the I.P. Regardless of whether the core looks good or not, we would be happy in looking at it if at all possible. This will help determine the cause of the I.P. anomaly. Such follow-up is essential to a successful exploration effort. Good luck, and good hunting in your drilling.

Sincerely,

HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

EGH:jc

Kilroy - Bouse

Stanford Inn

P. O. BOX 115
SALOME, ARIZONA 85348
DIAL 602/859-3452

MEMBER THE BEST Western MOTELS

MEMBER THE BEST Eastern MOTELS

Mr. E. Crosser Heinrichs
Heinrichs Geoexploration Co.
806 W. Grant Rd.
Tucson, Arizona

MAR 1967 GEOEX

Dear Crosser,

Much Obliged for your cooperation in getting the reports in the mail to me.

I am enclosing my check to cover the statement of March 8th which I also received.

With regard to my plans and my need for exploration advice, I am moving a drilling rig on your line one high location at the moment, and will have a Longyear rig doing location work approximately 3000 feet north westerly of the limited high of line 2.

FREE RESERVATIONS — COAST TO COAST

(over)

March 8, 1967

Mr. Oliver B. Kilroy
Stanford Inn
Room 31
Salome, Arizona

Dear Ollie:

I have reviewed the two enclosed reports and sense that you have real need for some more comprehensive exploration advice.

The Vicksburg prospect may still have the ingredients of something significant. The drawbacks have been well stated by Chris, but your odds are being narrowed downward.

What do you now plan to do? In our opinion, it may well be worth the time and expense to let one of our senior staff men review F. MacKenzie's geologic report on the area and spend a day or two in the field with you and "Mac" to try and correlate the geology and geophysics.

Any comments you may have on the above will be appreciated, negative or otherwise.

We are ore finders and not just doodlebuggers, geophysics is only a tool and we would like you to find a mine.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

EGH:jh
Enclosures

February 22, 1967

HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA, 85703. P.O. BOX 5671. PHONE: (AREA CODE 602) 623-0578

Mr. Oliver B. Kilroy
2239 LaMirada
Tucson, Arizona

Re: Proposed I. P. Survey
Bouse, Arizona

Dear Ollie:

We are pleased to submit the following proposal for your consideration:

Geoex will furnish a three man I. P. crew with equipment at the following rate:

$275.00 per operating day
$125.00 per travel and stand-by day
$100.00 per staff interpretation and compilation of data.

Expenses: $39.00 per crew day;living expenses. If project is expanded, crew living expenses will be prorated.
Vehicle: $10.00 per day plus $0.12 per mile
Miscellaneous expenses such as reproductions, flagging, etc. at our cost.

The job is estimated to be for three days. If the work is expanded, billings will be on a bi-monthly basis.

The client will be responsible for any costs relative to liability for trespass for our crew and/or equipment when working in areas as designated by the client.

An advance on account of $500.00 is requested with the balance due upon completion of work and submittal of our report.

A working day is ten hours total office to field and return and will be charged and prorated accordingly. If less than eight crew hours or more than ten crew hours are worked on a given day, the living expenses will be prorated accordingly.

If the above meets with your approval, please so indicate by signing, dating and returning the enclosed carbon copy as provided.

The crew is scheduled to commence opperations on Monday, February 27, 1967.

Sincerely yours,
HEINRICHS GEOEXPLORATION CO.

E. Grover Heinrichs

E. Grover Heinrichs, ~~Jr.~~ by Chris S. Ludwig
Vice President

EGH:jh

Accepted: Oliver B. Kilroy

Date: February 27, 1966

Extra cc: encl.

Induced Polarization Survey
Salome Area
Yuma County, Arizona

for
O.B. Kilroy

INDUCED POLARIZATION SURVEY

SALOME AREA

YUMA COUNTY, ARIZONA

For

Mr. Oliver Kilroy

February - March 1968

By

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona 85703
Phone: 623-0578 Area Code: 602

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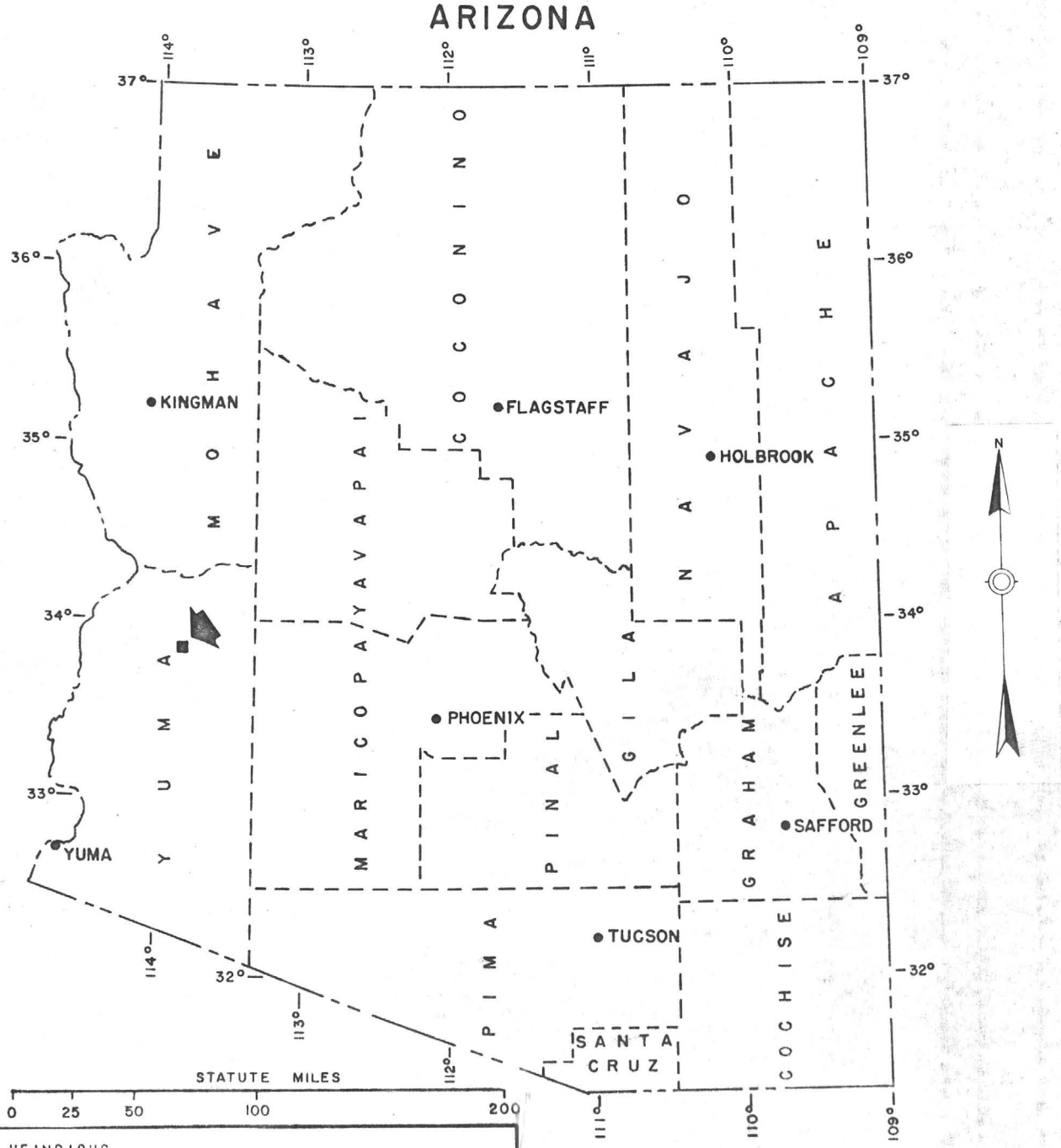
BASIS OF THE INDUCED POLARIZATION METHOD	1a
INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN OVERLAY	
IN MAP POCKET: (Total: 8 pieces)	

Sectional Data Sheets (a = 1,000')
- Line 1 (Spreads 1, 2, and 3)
- Line 2
- Line 3
- Line 4
- Line 5
- Line 6
- Line 7
- Line 8 (Spreads 1 and 2)

GENERAL LOCATION OF

SALOME AREA, YUMA COUNTY, ARIZONA
for
MR. OLIVER KILROY

ARIZONA



HEINRICHS
GEOEXPLORATION COMPANY
GEOPHYSICAL ENGINEERS

BOX 5671 TUCSON, ARIZONA 85703
PH: 602/623-0578 CABLE: GEOEX, TUCSON

SYDNEY VANCOUVER

INTRODUCTION

At the request of Mr. Oliver Kilroy, Heinrichs Geoexploration Company conducted and completed a continuation of an induced polarization reconnaissance survey in the Salome Area, Yuma County, Arizona. The new field work was done in the interim February 20 to March 2, 1968. The initial phases were done in December 1966 and February 1967.

The new work consists of Lines 3 through 8 and Spread 3 of Line 1. This amounts to 58,000 feet of surface coverage of which 27,000 feet is "subsurface" plotted data. All work has been done on a dipole spacing of 1,000 feet. For line orientation and approximate position with respect to the land net see the Induced Polarization Location and Interpretation Plan Overlay.

The induced polarization technique used was the dual frequency system utilizing sending frequencies of 0.05 and 1.0 Hz. The electrode configuration used was the conventional collinear dipole-dipole array which on a 1,000 foot spacing typically gives resolvable penetration within the zone from 300 feet to 1,200 or 1,500 feet below surface.

The purpose of the survey was to discover and delineate any sulfide zones in the area having any possible economic potential.

Data are presented on sectional data sheets, one for each line, showing resistivity, percent frequency effect (PFE) and metallic conduction factor (MCF) contoured in section, with self potential in profile form. Also, the plan map shows the interpretation in plan projection including the Vicksburg data just to the southwest of the Salome Area.

Heinrichs personnel involved in the field work were R. Palmer, geophysical crew chief, G. Hix and D. Erickson, technical assistants. Report and interpretation by Chris S. Ludwig, Senior Geophysicist with the assistance of the Geoex staff.

INTERPRETATION

All eight lines show anomalous response of probable sulfide character outlining a complexly shaped sulfide zone of varying strength and depth.

On an overall basis, the anomalism becomes stronger and/or shallower from Line 8 to the southwest where it is strongest on Line 1 of the Vicksburg Area. The anomalism can be categorized into several areas having a particular character.

Lines 2, 3, 8 and the east half of Line 1 all show weak to moderate strength anomalism of similar character becoming quite deep on Lines 3 and 8. In general, this area shows the I.P. response being related to relatively high resistivity material and shows no S.P. anomalism. The strongest zone seen was on Line 2 near 10E where several percent by volume sulfides are indicated within 500 feet of the surface. This could be a potential drill target if the geology in this area is of interest. This Line 2 anomaly near 10E may correlate with the weak anomaly near 10E on Line 1 just east of the Calcite Mine. Another characteristic this area has is that it is separated from the stronger anomalism to the southwest by the major aerial photograph lineament (see plan). This could be a major structural break and be separating two possibly non-related zones of

mineralization. However, not enough detailed coverage is available on the near northeast side of the lineament to be certain of this interpretation.

Lines 3 and 8 in this same area show the highest resistivity I.P. anomalism and although weak could be of interest. However, the source of anomalism appears to be becoming shallower to the northwest down the lines and therefore, it is possible that if the lines were extended northwest, a more shallow drill target could be located that would test the same material. Deepening the existing drill hole near Line 3 may intersect the source of anomalism, however, extreme depths may be necessary (1,500').

Just southwest of the lineament but northeast of Line 7 is the next area of characteristic anomalism. The response is moderate to strong and indicates roughly 1 to 5% by volume sulfide. This zone shows no S.P. response and is generally low to intermediate in resistivity. The strongest response in this general zone is seen on Line 4 particularly where the resistivity is lowest (20W to 30W).

Line 6 has the weakest response but is still definitely mineralized and shows a banded pattern of high and low resistivity material. Line 5 shows a uniformly strong response decreasing only on the east end.

Line 1 shows a very gradual increase from 40W to the west until possibly the extreme west end of the line where it may decrease. This increase could be the effect of going updip to the west or perhaps the effect of increased sulfides to the west or both. Drilling is recommended to test this zone. However, the existing drill hole near 70W, Line 1 that is now 180 feet deep would do so if deep enough, say 500 to 750 feet or so. The existing hole at 40W Line 1 which has been drilled to 644 feet may need to go to 1,000

feet or more to intersect the indicated sulfides if it would intersect at all since it is on the fringe of anomalism. An alternate site that would test the strongest response would be a 750 foot hole near 25W, Line 4.

More data is needed near the major lineament to determine if any of this low resistivity I.P. anomalism relates to the eastern Line 1 anomalism. It is possible that an easterly anomalous trend as suggested by Mr. Kilroy does exist say from Line 4 on to the east past the lineament, however, more information is necessary to verify this.

The third area of characteristic anomalism is from Line 7 on to the southwest possibly including the Vicksburg Area. The distinguishing feature of this zone is the strong, related self potential anomalism. The associated resistivity is low to intermediate. However, data is lacking for this area being mostly end of line effects.

Except for the Vicksburg Area, this S.P. anomalism relates to a topographic high, apparently a volcanic rock type. A test drill hole is recommended in this area in the possibility that the anomalism is distinct from the black shale anomalism intersected in the Vicksburg Area. A 500 foot plus drill hole near 10NW or 20NW, Line 7 would test the strong I.P. anomalism as well as the S.P. low. The S.P. low suggests that significant quantities of oxidizing sulfides will be intersected within several hundred feet of the surface.

Lines 1, 4, 5, and 6 all need to be extended further west to further outline the zone if still of interest.

CONCLUSIONS AND RECOMMENDATIONS

All the lines show anomalism in varying degrees outlining an extensive and complicated zone of probable sulfide mineralization.

Drill holes have been suggested and additional induced polarization recommended to further test and explore areas of interest as described in the Interpretation.

The main problem here is that a very large area of sulfide mineralization has been located (several square miles in area with many open-ended indications) making it difficult to pinpoint targets. An attempt has been made to categorize the anomalism into groups and drill holes recommended (or additional I.P.) to test each group separately.

Geology and geochemistry integrated with the geophysical results could be quite useful in further localizing targets say in areas with good surface trace copper anomalism or interesting geological intersections or zones of weakness correlating with I.P. effects.

Regionally the limits of sulfide mineralization have not been delineated and therefore a reconnaissance I.P. program could prove fruitful particularly if coupled with regional geochemical sampling and/or magnetics, and of course geology.

Respectfully submitted

HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

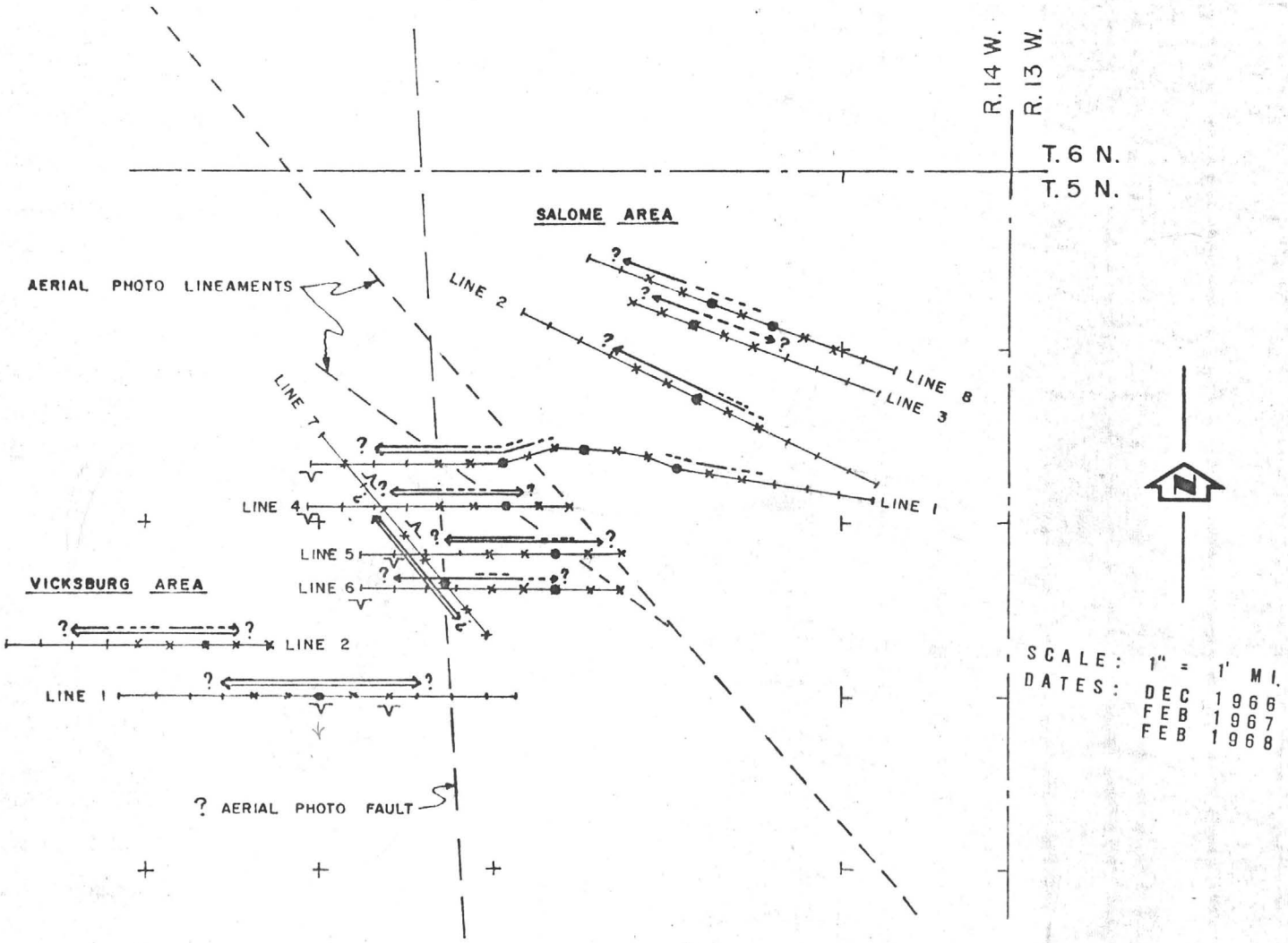
APPROVED: Walter E. Heinrichs, Jr.

Walter E. Heinrichs, Jr.
President & General Manager

March 19, 1968
Tucson, Arizona

HEINRICHS
GEOEXPLORATION COMPANY
BOX 5671 TUCSON, ARIZONA 85703
PH: 602/623-0578 CABLE: GEOEX, TUCSON
GEOPHYSICAL ENGINEERS SYDNEY VANCOUVER

INDUCED POLARIZATION LOCATION & INTERPRETATION PLAN OVERLAY
SALOME AREA
YUMA COUNTY, ARIZONA
for
MR. OLIVER KILROY



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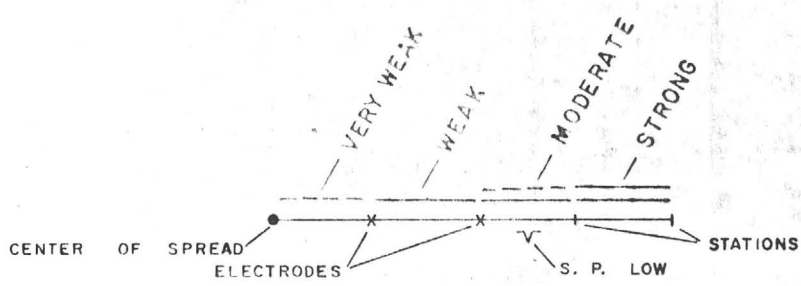
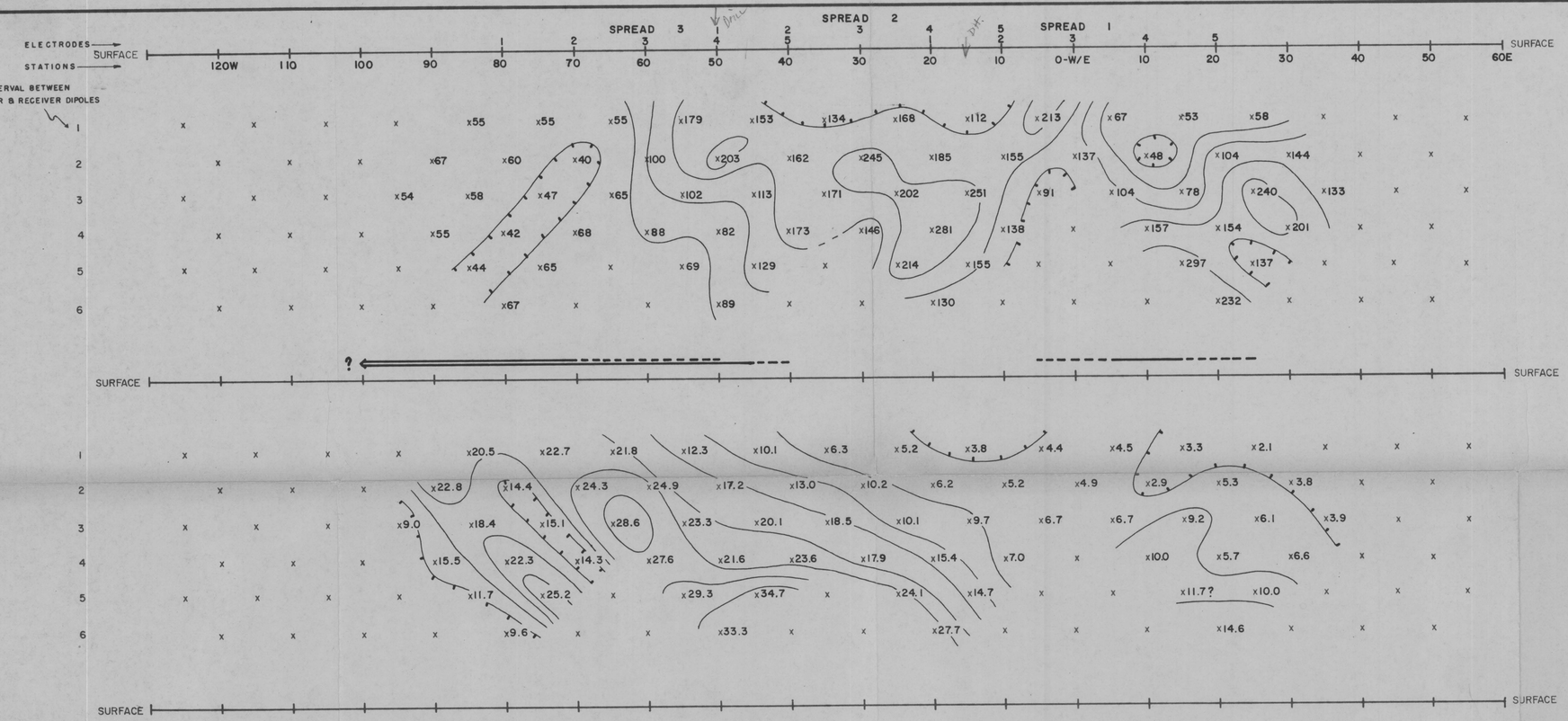
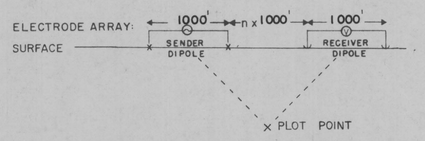


BASE MAP FROM USGS SALOME QUADRANGLE



EXPLANATION



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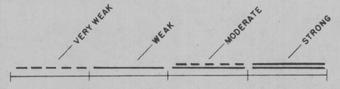


LOOKING NORTH

SALOME AREA

SECTIONAL DATA SHEET
LINE NO. 1
INDUCED POLARIZATION TRAVERSE

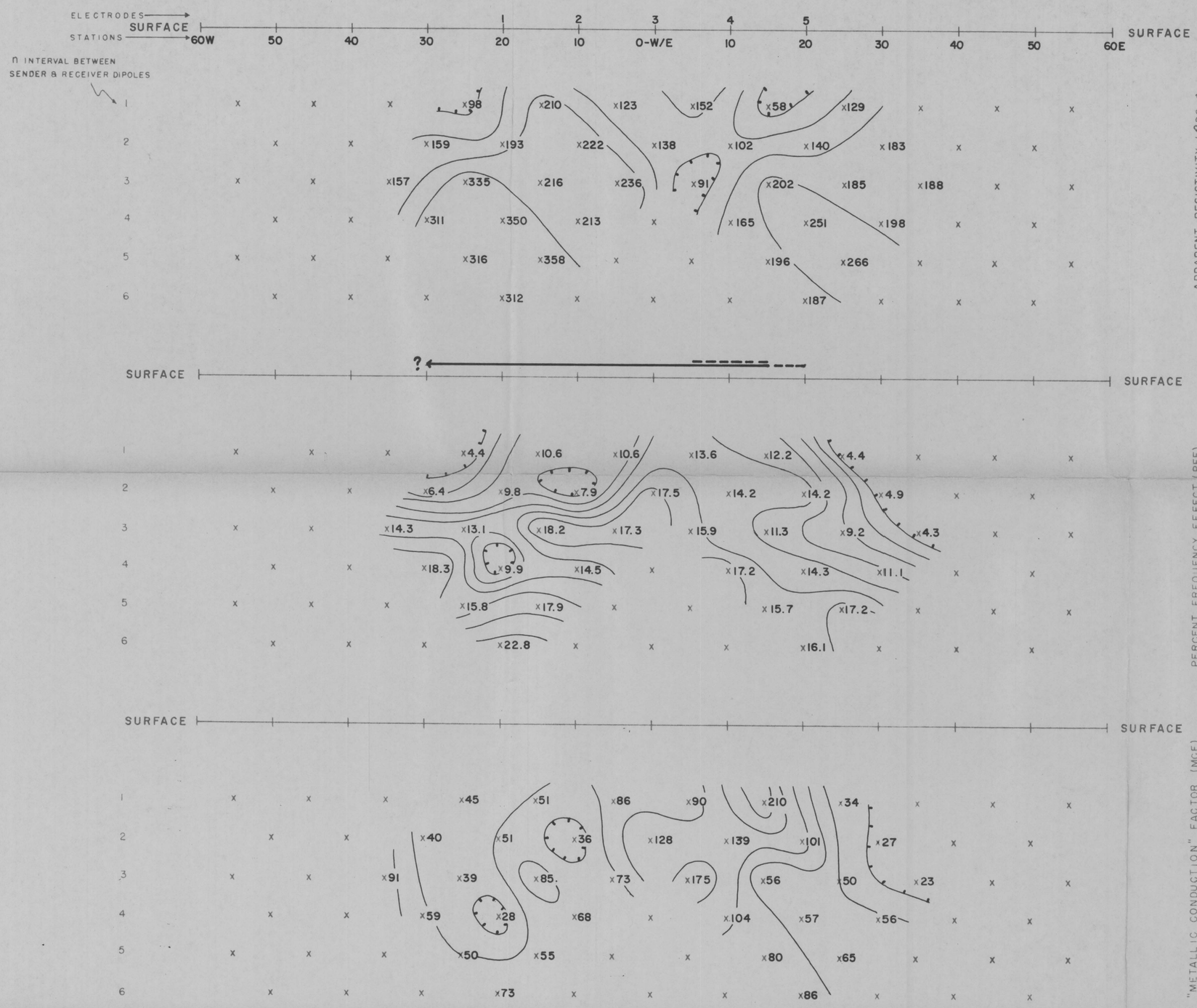
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: DEC. 1966 & FEB. 1968

FOR

MR. OLIVER KILROY

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



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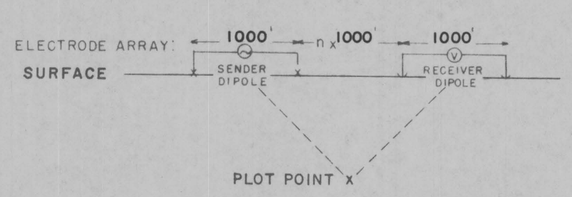

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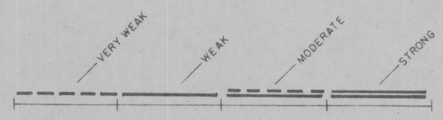


LOOKING NORTHERLY

SALOME AREA

SECTIONAL DATA SHEET

LINE NO. 2

INDUCED POLARIZATION TRAVERSE

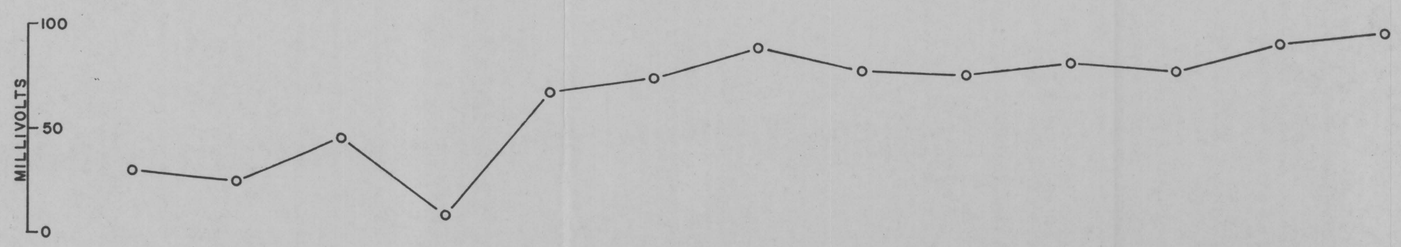
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: DEC. 1966

FOR

MR. OLIVER KILROY

SELF POTENTIAL



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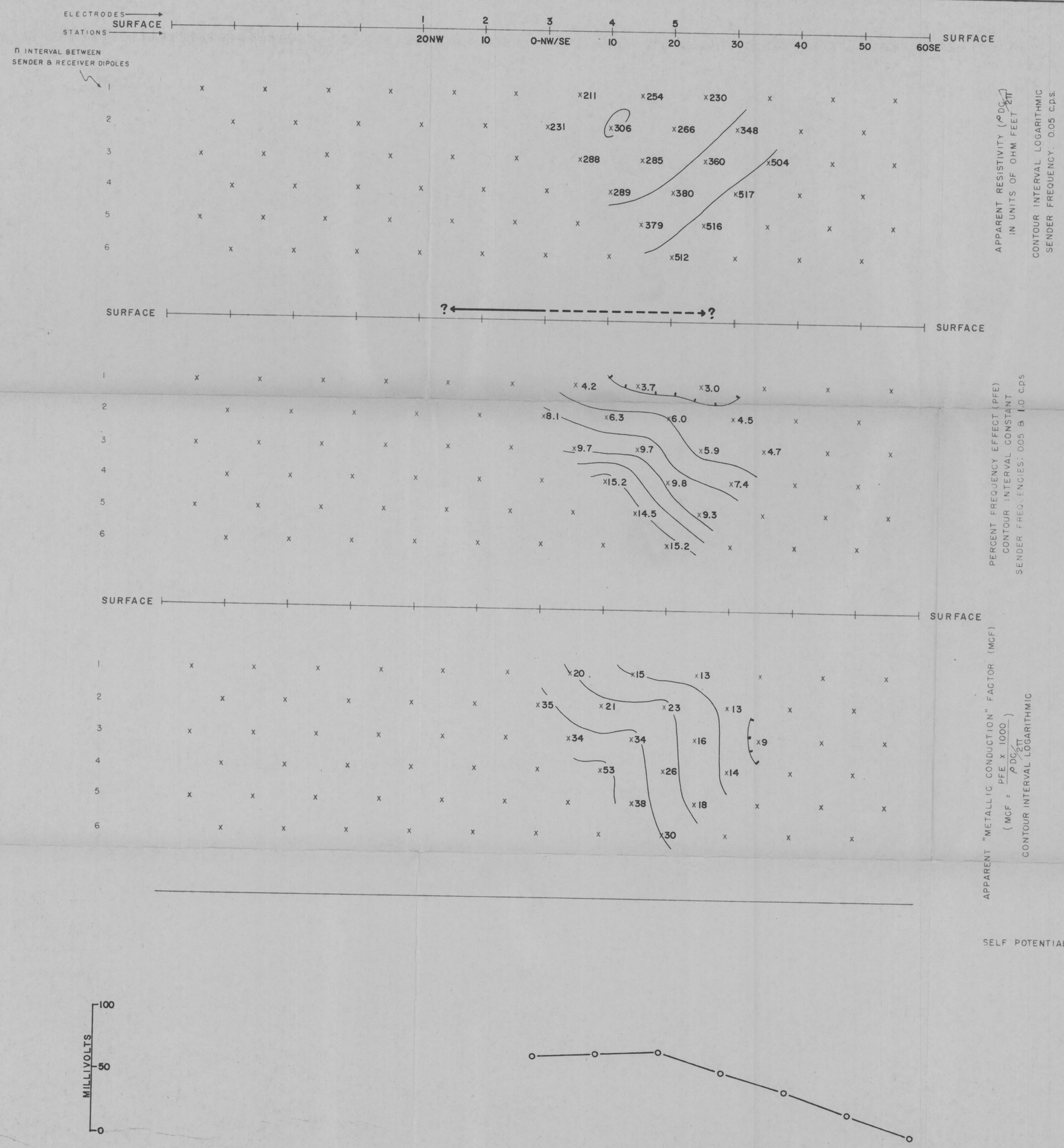

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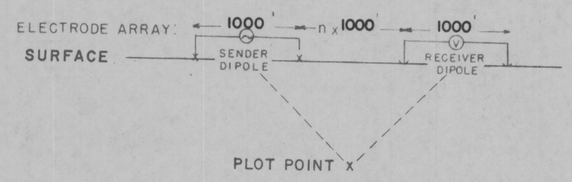

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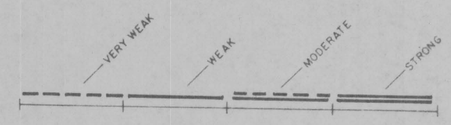

LOOKING N. 22° E.

SALOME AREA

SECTIONAL DATA SHEET
LINE NO. 3
INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: FEB. 1968

FOR

MR. OLIVER KILROY

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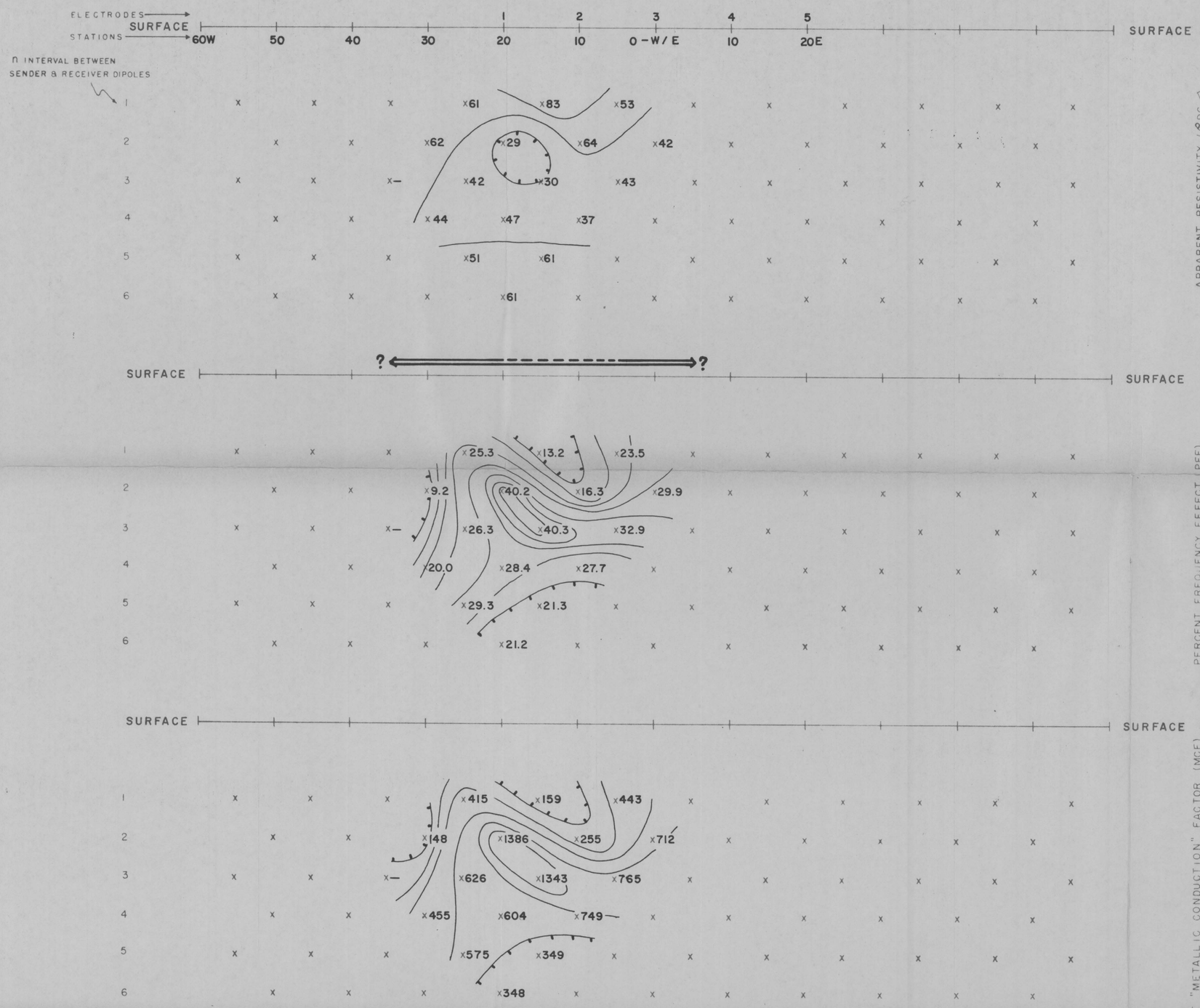
geophysical engineers
vancouver
sydney



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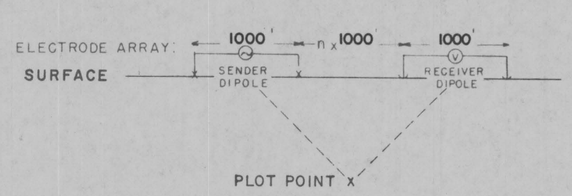

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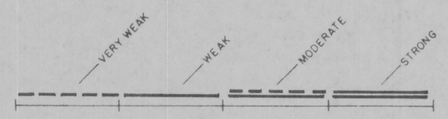

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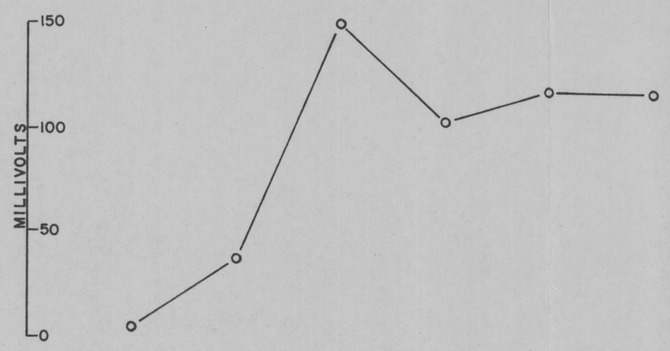

SELF POTENTIAL

SALOME AREA

SECTIONAL DATA SHEET

LINE NO. 4

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: FEB 1968

FOR

MR. OLIVER KILROY

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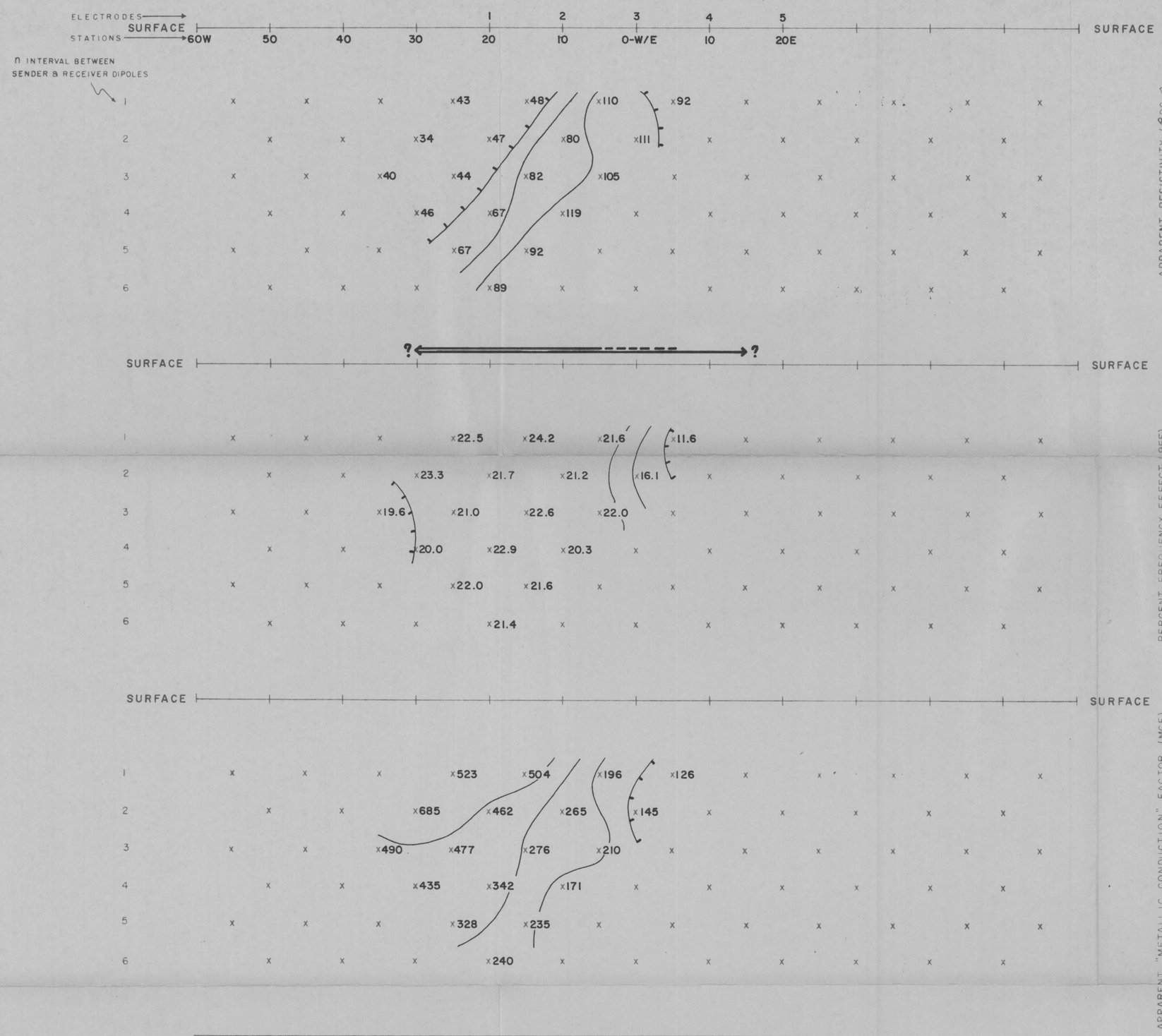
sydney



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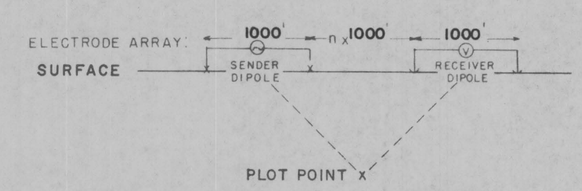

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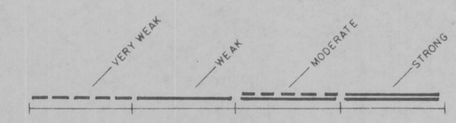


LOOKING NORTH

SALOME AREA

SECTIONAL DATA SHEET
LINE NO. 5

INDUCED POLARIZATION TRAVERSE

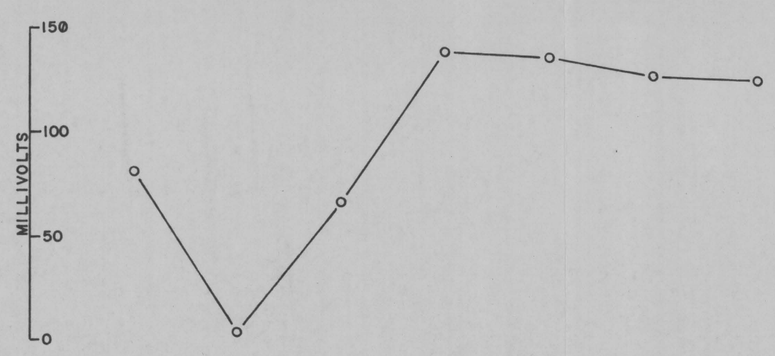
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: FEB. 1968

FOR

MR. OLIVER KILROY

SELF POTENTIAL



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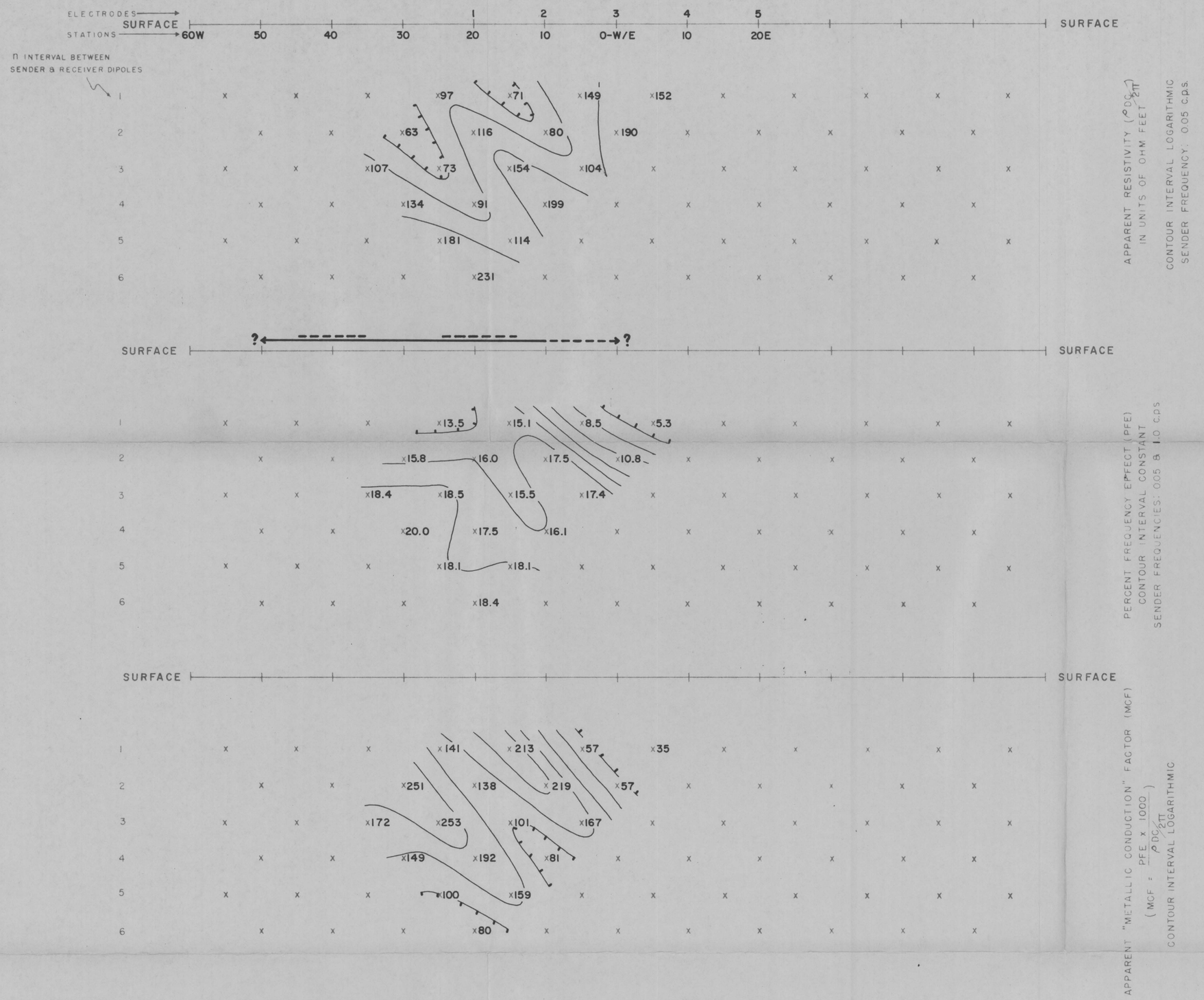

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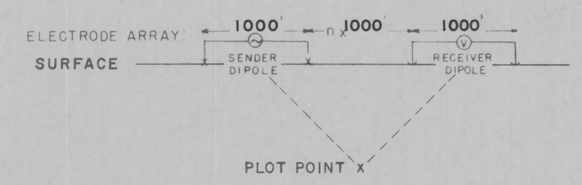

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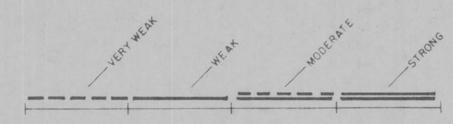


LOOKING NORTH

SALOME AREA

SECTIONAL DATA SHEET

LINE NO. 6

INDUCED POLARIZATION TRAVERSE

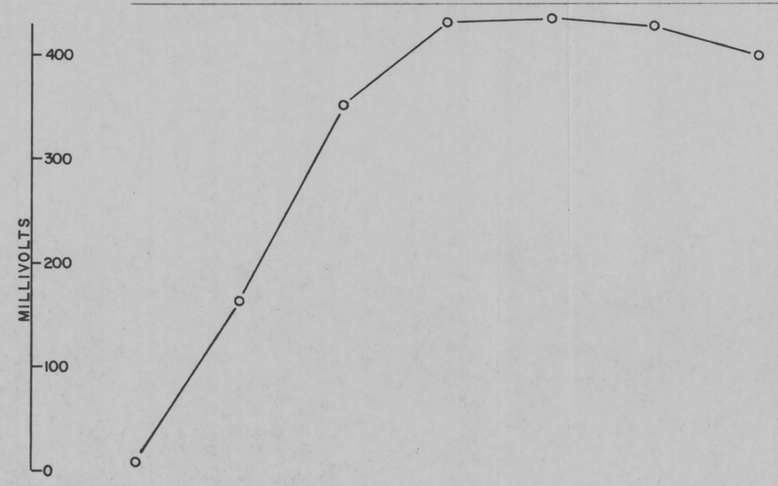
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: MAR. 1968

FOR

MR. OLIVER KILROY

SELF POTENTIAL



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geophysical engineers
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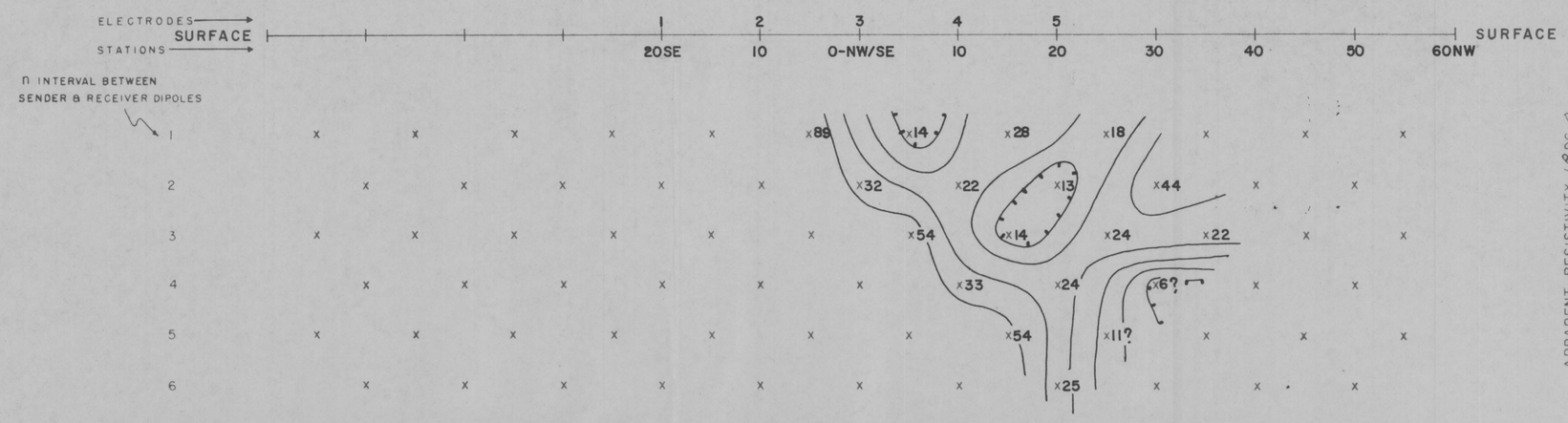
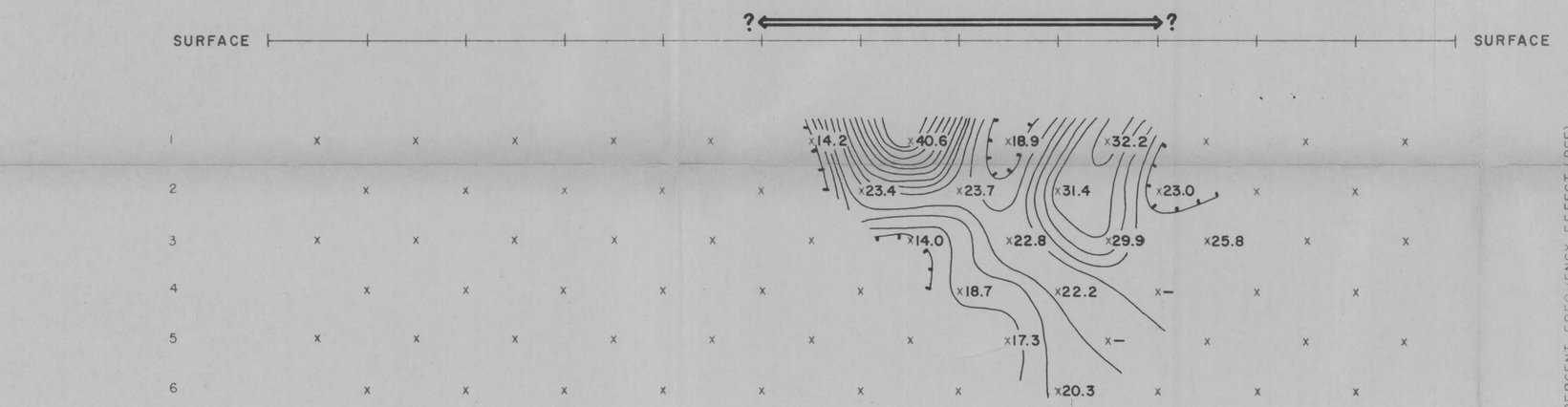
vancouver
sydney



APPARENT RESISTIVITY ($\rho_{DC}/2\pi$) IN UNITS OF OHM FEET

CONTOUR INTERVAL LOGARITHMIC
SENDER FREQUENCY: 0.05 c.p.s.

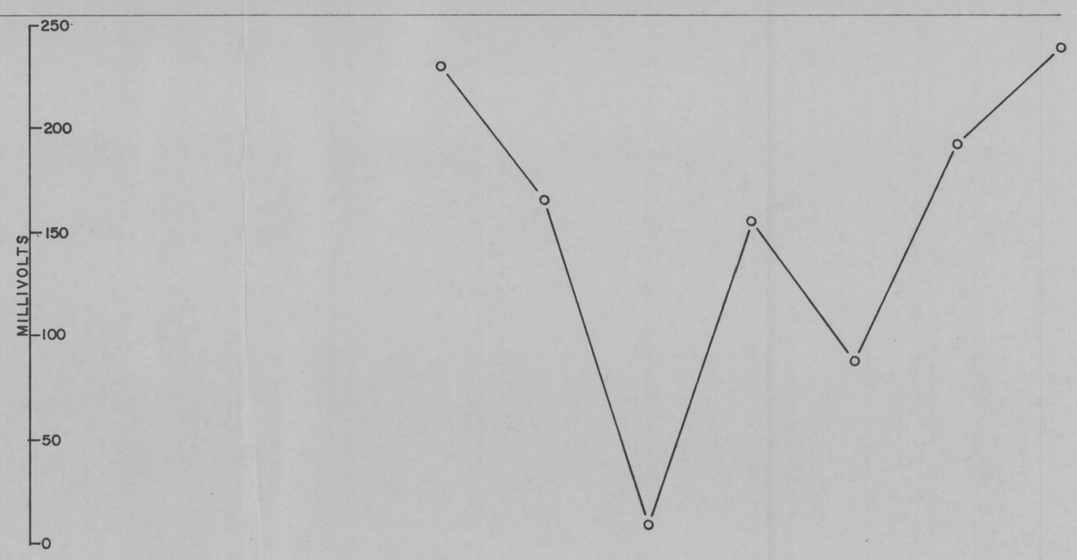


PERCENT FREQUENCY EFFECT (PFE)
CONTOUR INTERVAL CONSTANT
SENDER FREQUENCIES: .005 & 1.0 c.p.s

APPARENT "METALLIC CONDUCTION" FACTOR (MCF)

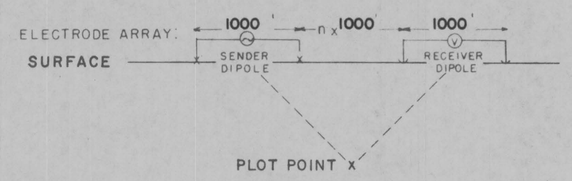
$$\left(MCF = \frac{PFE \times 1000}{\rho_{DC}/2\pi}\right)$$

CONTOUR INTERVAL LOGARITHMIC

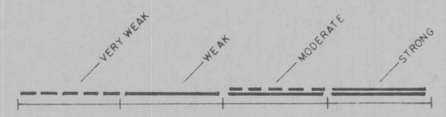


SELF POTENTIAL

EXPLANATION



RELATIVE ANOMALY STRENGTH



LOOKING S 50° W

SALOME AREA

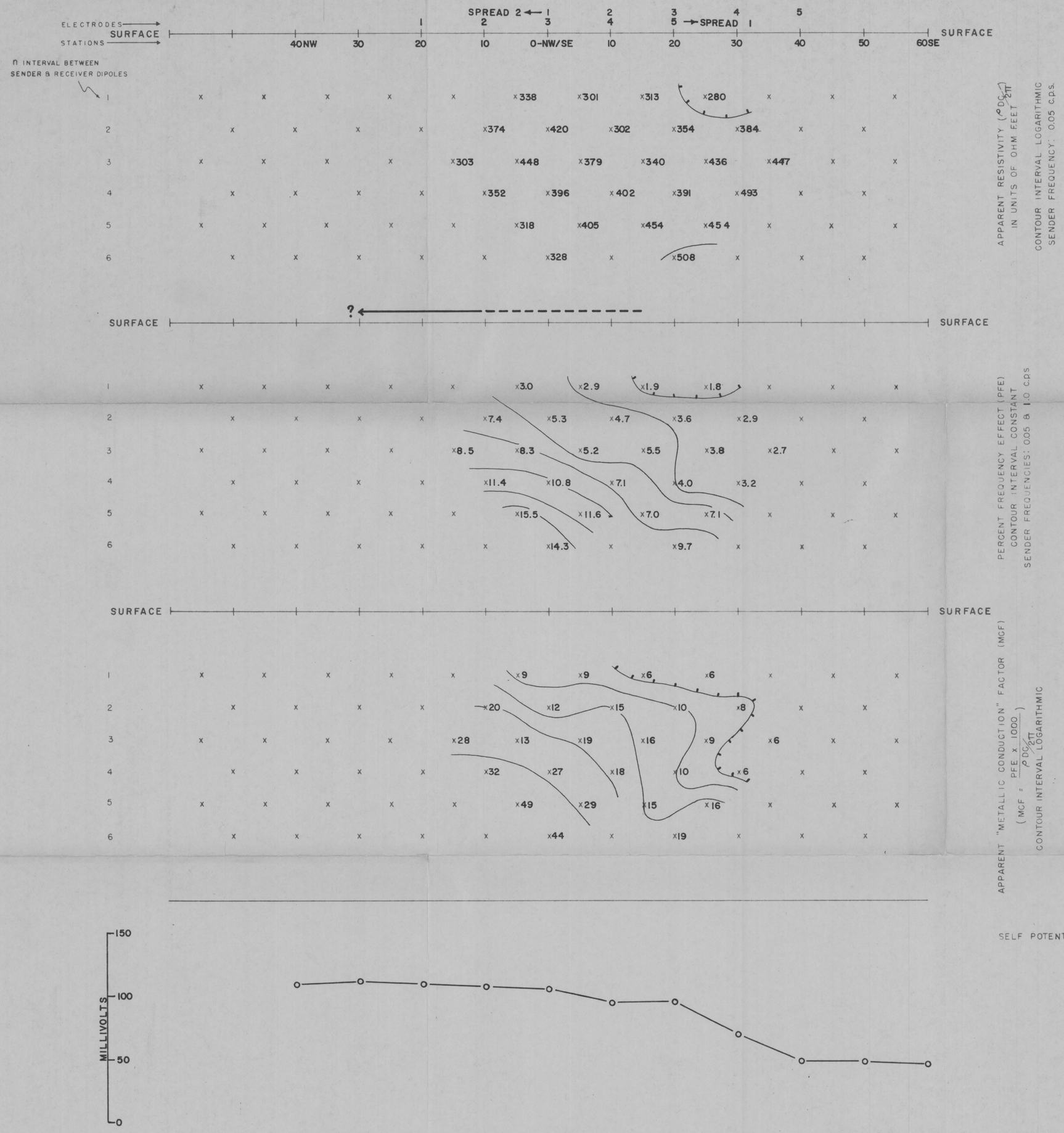
SECTIONAL DATA SHEET
LINE NO. 7
INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

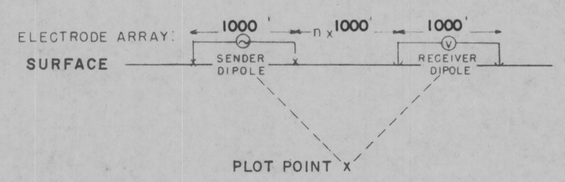
SCALE: 1" = 1000' DATE: FEB 1968

FOR
MR. OLIVER KILROY

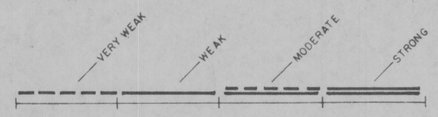
HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5871, TUCSON, ARIZONA, 85703
Phone: 602/623-0578 Cable: GEOEX, Tucson
geophysical engineers
vancouver
sydney



EXPLANATION



RELATIVE ANOMALY STRENGTH



LOOKING N 22° E

SALOME AREA

SECTIONAL DATA SHEET

LINE NO. 8 (SPREADS 1 & 2)

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: FEB. 1968

FOR

MR. OLIVER KILROY

HEINRICHS
GEOEXPLORATION COMPANY
geophysical engineers
POST OFFICE BOX 5871, TUCSON, ARIZONA 85703
Phone: 602/623-0578 Cable: GEOEX, Tucson
vancouver
sydney

INDUCED POLARIZATION SURVEY

SALOME AREA

YUMA COUNTY, ARIZONA

For

Mr. Oliver Kilroy

February - March 1968

By

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona 85703
Phone: 623-0578 Area Code: 602

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GENERAL LOCATION	
INTRODUCTION	1
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CONCLUSIONS AND RECOMMENDATIONS	5
BASIS OF THE INDUCED POLARIZATION METHOD	1a
INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN OVERLAY	
IN MAP POCKET: (Total: 8 pieces)	

Sectional Data Sheets (a = 1,000')
- Line 1 (Spreads 1, 2, and 3)
- Line 2
- Line 3
- Line 4
- Line 5
- Line 6
- Line 7
- Line 8 (Spreads 1 and 2)

INTRODUCTION

At the request of Mr. Oliver Kilroy, Heinrichs Geoexploration Company conducted and completed a continuation of an induced polarization reconnaissance survey in the Salome Area, Yuma County, Arizona. The new field work was done in the interim February 20 to March 2, 1968. The initial phases were done in December 1966 and February 1967.

The new work consists of Lines 3 through 8 and Spread 3 of Line 1. This amounts to 58,000 feet of surface coverage of which 27,000 feet is "subsurface" plotted data. All work has been done on a dipole spacing of 1,000 feet. For line orientation and approximate position with respect to the land net see the Induced Polarization Location and Interpretation Plan Overlay.

The induced polarization technique used was the dual frequency system utilizing sending frequencies of 0.05 and 1.0 Hz. The electrode configuration used was the conventional collinear dipole-dipole array which on a 1,000 foot spacing typically gives resolvable penetration within the zone from 300 feet to 1,200 or 1,500 feet below surface.

The purpose of the survey was to discover and delineate any sulfide zones in the area having any possible economic potential.

Data are presented on sectional data sheets, one for each lines showing resistivity, percent frequency effect (PFE) and metallic conduction factor (MCF) contoured in section, with self potential in profile form. Also, the plan map shows the interpretation in plan projection including the Vicksburg data just to the southwest of the Salome Area.

Heinrichs personnel involved in the field work were R. Palmer, geophysical crew chief, G. Hix and D. Erickson, technical assistants. Report and interpretation by Chris S. Ludwig, Senior Geophysicist with the assistance of the Geoex staff.

INTERPRETATION

All eight lines show anomalous response of probable sulfide character outlining a complexly shaped sulfide zone of varying strength and depth.

On an overall basis, the anomalism becomes stronger and/or shallower from Line 8 to the southwest where it is strongest on Line 1 of the Vicksburg Area. The anomalism can be categorized into several areas having a particular character.

Lines 2, 3, 8 and the east half of Line 1 all show weak to moderate strength anomalism of similar character becoming quite deep on Lines 3 and 8. In general, this area shows the I.P. response being related to relatively high resistivity material and shows no S.P. anomalism. The strongest zone seen was on Line 2 near 10E where several percent by volume sulfides are indicated within 500 feet of the surface. This could be a potential drill target if the geology in this area is of interest. This Line 2 anomaly near 10E may correlate with the weak anomaly near 10E on Line 1 just east of the Calcite Mine. Another characteristic this area has is that it is separated from the stronger anomalism to the southwest by the major aerial photograph lineament (see plan). This could be a major structural break and be separating two possibly non-related zones of

mineralization. However, not enough detailed coverage is available on the near northeast side of the lineament to be certain of this interpretation.

Lines 3 and 8 in this same area show the highest resistivity I.P. anomalism and although weak could be of interest. However, the source of anomalism appears to be becoming shallower to the northwest down the lines and therefore,it is possible that if the lines were extended northwest, a more shallow drill target could be located that would test the same material. Deepening the existing drill hole near Line 3 may intersect the source of anomalism, however, extreme depths may be necessary (1,500').

Just southwest of the lineament but northeast of Line 7 is the next area of characteristic anomalism. The response is moderate to strong and indicates roughly 1 to 5% by volume sulfide. This zone shows no S.P. response and is generally low to intermediate in resistivity. The strongest response in this general zone is seen on Line 4 particularly where the resistivity is lowest (20W to 30W).

Line 6 has the weakest response but is still definitely mineralized and shows a banded pattern of high and low resistivity material. Line 5 shows a uniformly strong response decreasing only on the east end.

Line 1 shows a very gradual increase from 40W to the west until possibly the extreme west end of the line where it may decrease. This increase could be the effect of going updip to the west or perhaps the effect of increased sulfides to the west or both. Drilling is recommended to test this zone. However, the existing drill hole near 70W, Line 1 that is now 180 feet deep would do so if deep enough, say 500 to 750 feet or so. The existing hole at 40W Line 1 which has been drilled to 644 feet may need to go to 1,000

feet or more to intersect the indicated sulfides if it would intersect at all since it is on the fringe of anomalism. An alternate site that would test the strongest response would be a 750 foot hole near 25W, Line 4.

More data is needed near the major lineament to determine if any of this low resistivity I.P. anomalism relates to the eastern Line 1 anomalism. It is possible that an easterly anomalous trend as suggested by Mr. Kilroy does exist say from Line 4 on to the east past the lineament, however, more information is necessary to verify this.

The third area of characteristic anomalism is from Line 7 on to the southwest possibly including the Vicksburg Area. The distinguishing feature of this zone is the strong, related self potential anomalism. The associated resistivity is low to intermediate. However, data is lacking for this area being mostly end of line effects.

Except for the Vicksburg Area, this S.P. anomalism relates to a topographic high, apparently a volcanic rock type. A test drill hole is recommended in this area in the possibility that the anomalism is distinct from the black shale anomalism intersected in the Vicksburg Area. A 500 foot plus drill hole near 10NW or 20NW, Line 7 would test the strong I.P. anomalism as well as the S.P. low. The S.P. low suggests that significant quantities of oxidizing sulfides will be intersected within several hundred feet of the surface.

Lines 1, 4, 5, and 6 all need to be extended further west to further outline the zone if still of interest.

CONCLUSIONS AND RECOMMENDATIONS

All the lines show anomalism in varying degrees outlining an extensive and complicated zone of probable sulfide mineralization.

Drill holes have been suggested and additional induced polarization recommended to further test and explore areas of interest as described in the Interpretation.

The main problem here is that a very large area of sulfide mineralization has been located (several square miles in area with many open-ended indications) making it difficult to pinpoint targets. An attempt has been made to categorize the anomalism into groups and drill holes recommended (or additional I.P.) to test each group separately.

Geology and geochemistry integrated with the geophysical results could be quite useful in further localizing targets say in areas with good surface trace copper anomalism or interesting geological intersections or zones of weakness correlating with I.P. effects.

Regionally the limits of sulfide mineralization have not been delineated and therefore a reconnaissance I.P. program could prove fruitful particularly if coupled with regional geochemical sampling and/or magnetics, and of course geology.

Respectfully submitted

HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig
Senior Geophysicist

APPROVED: _____
Walter E. Heinrichs, Jr.
President & General Manager

March 19, 1968
Tucson, Arizona

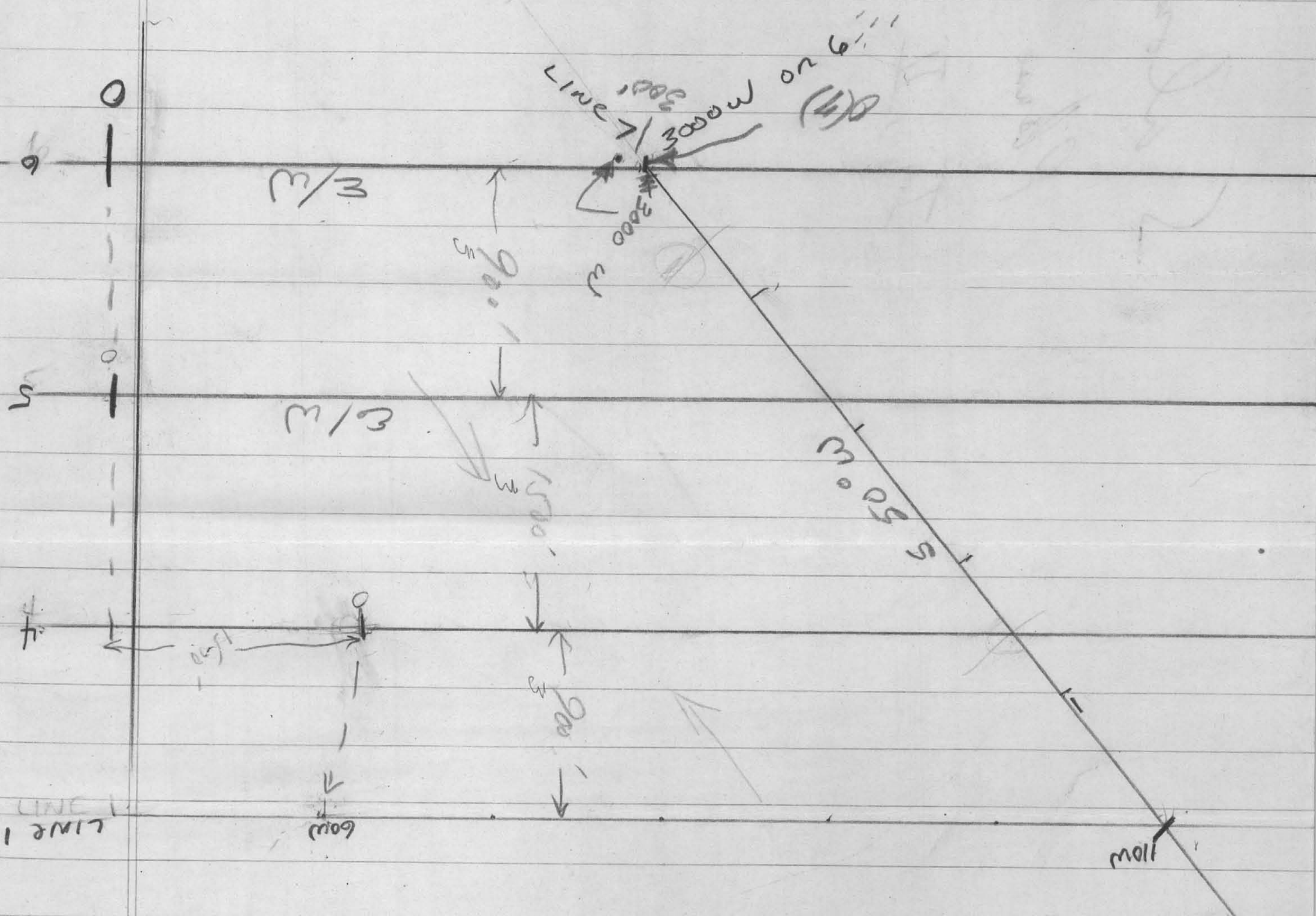
Salome

Please

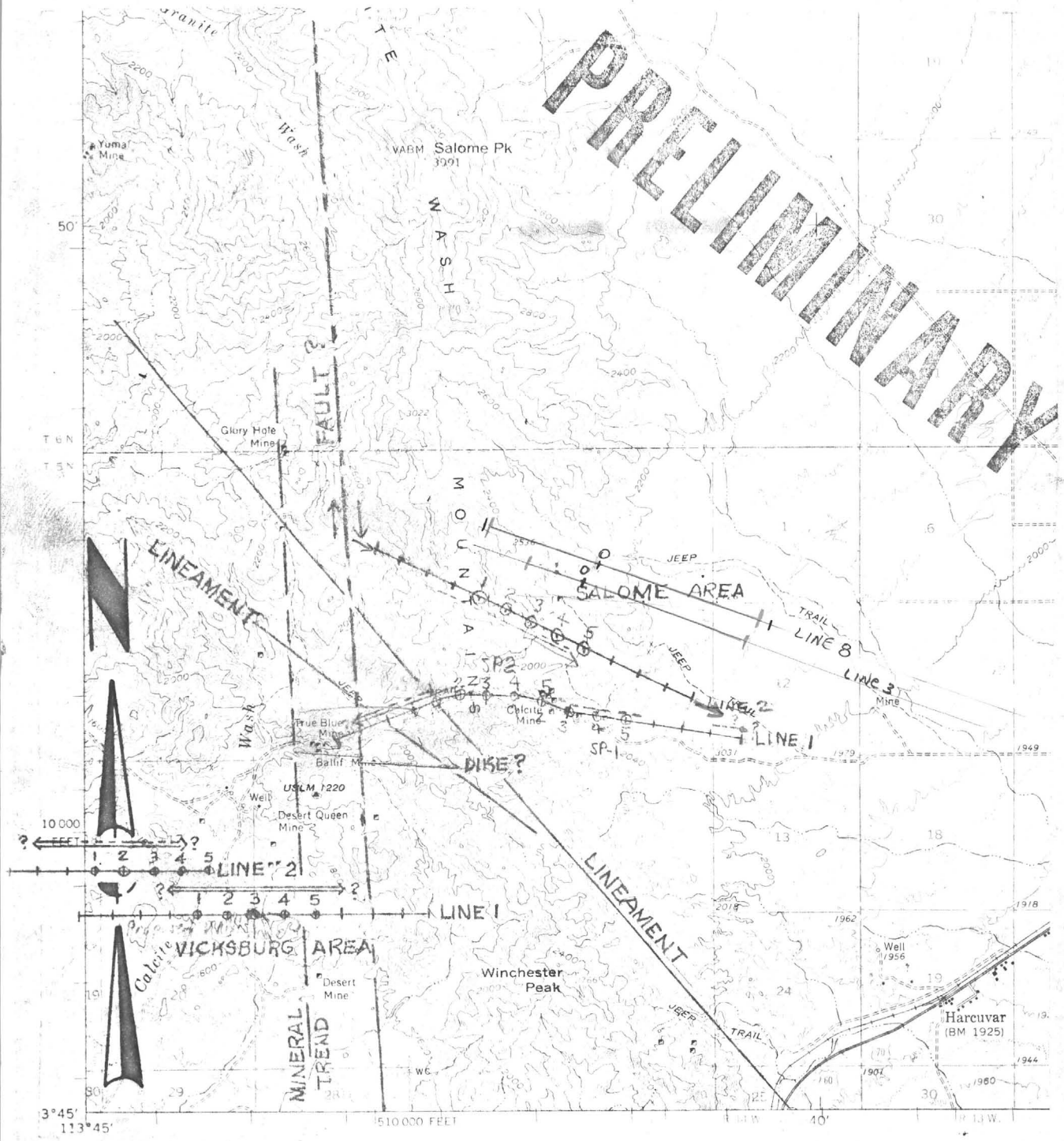
I, II & III

A 600 Rpt

N T Ex Total



Shift line 2 2000' SE



PRELIMINARY
INDUCED POLARIZATION LOCATION
AND INTERPRETATION PLAN
SALOME AREA
Vicksburg Area Phase 2
FOR

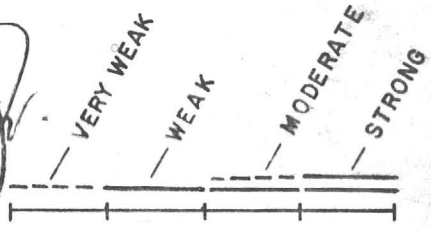
MR. OLIVER KILROY

Scale: 1"=1 mile Date: Dec. 1966
Feb. 1967

DATA FROM SALOME 15' QUADRANGLE
YUMA COUNTY, ARIZONA

Registered Professional Engineer
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 1966
ARIZONA, U.S.A.

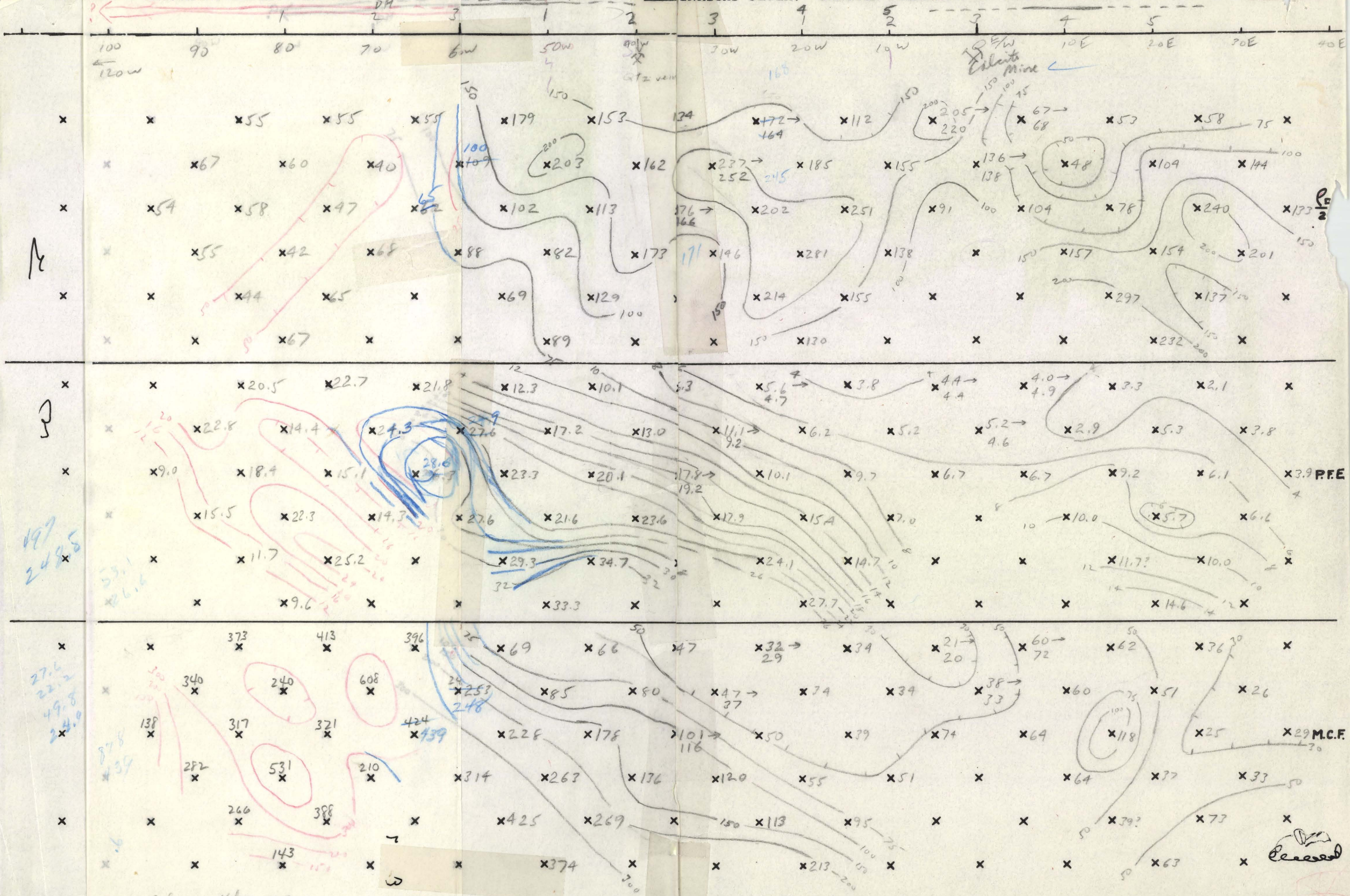
RELATIVE ANOMALY STRENGTH



HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) [illegible]

HEINRICHS GEOEX. INDUCED POLARIZATION DATA PLOT, LOOKING

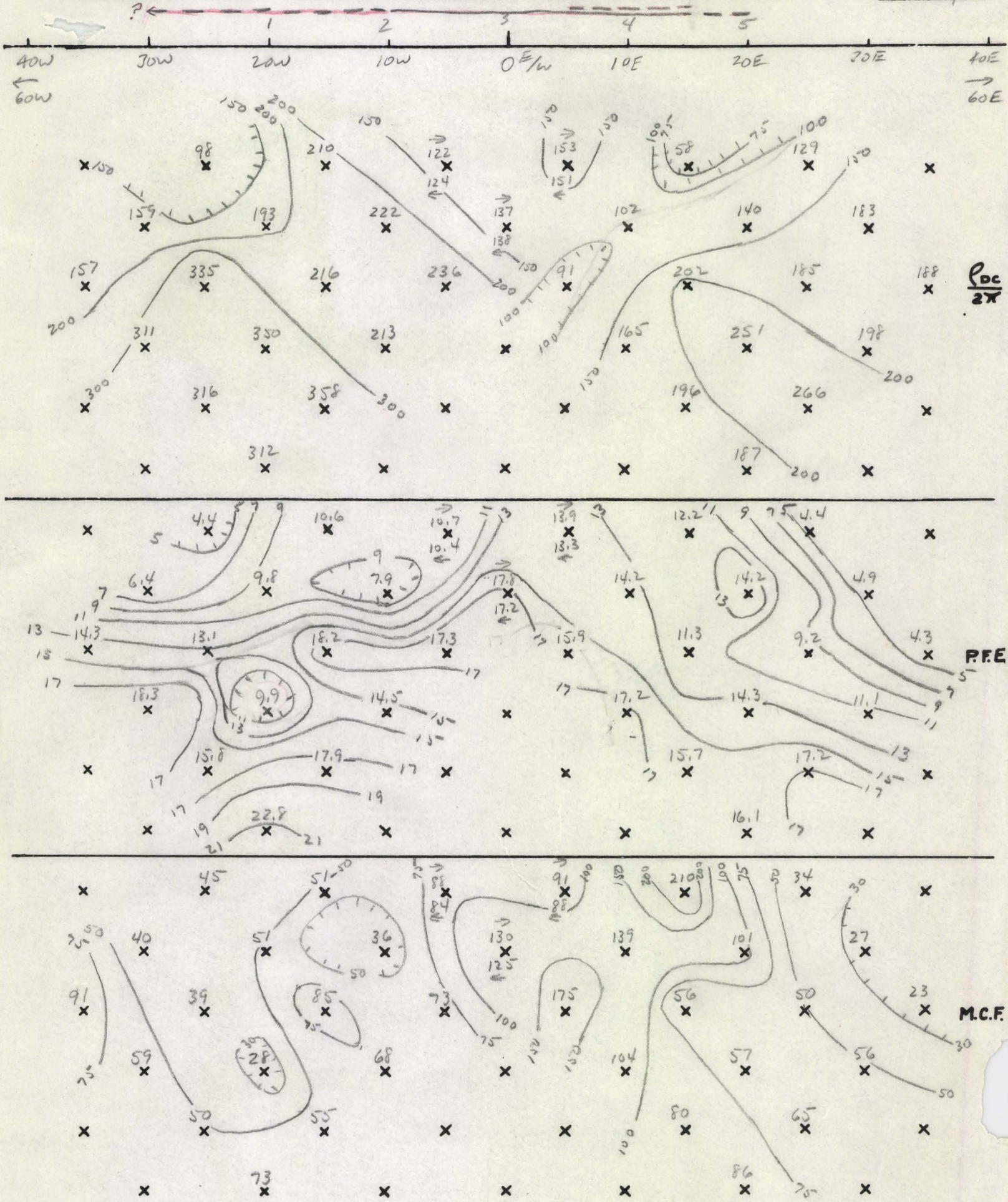
HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING



AREA Salome - Kilroy Sp. 3 LINE a = 1000' SCALE: DATE: Kilroy Salome

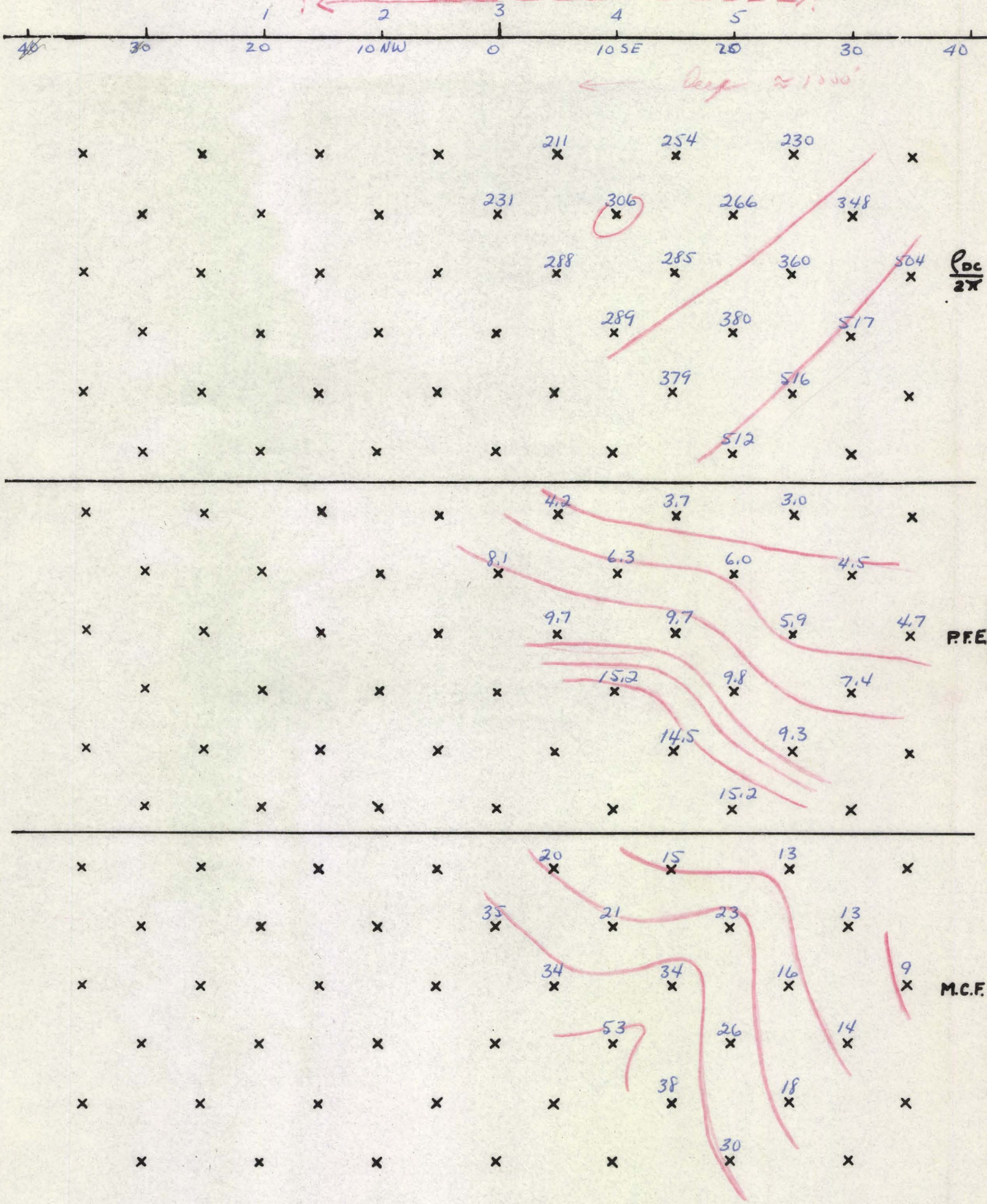
AREA Line 1 Section LINE 1 a = 1000.' SCALE: 1" = 1000' DATE: Dec. 66

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Northerly



AREA Kilroy (Salome) LINE 2 a = 1000' SCALE: 1" = 1000' DATE: 12-6-66

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N 22° E



AREA Kilroy - Salome LINE 3 Spl a = 1000 ' SCALE: 1" = 1000' DATE: 2-21-68

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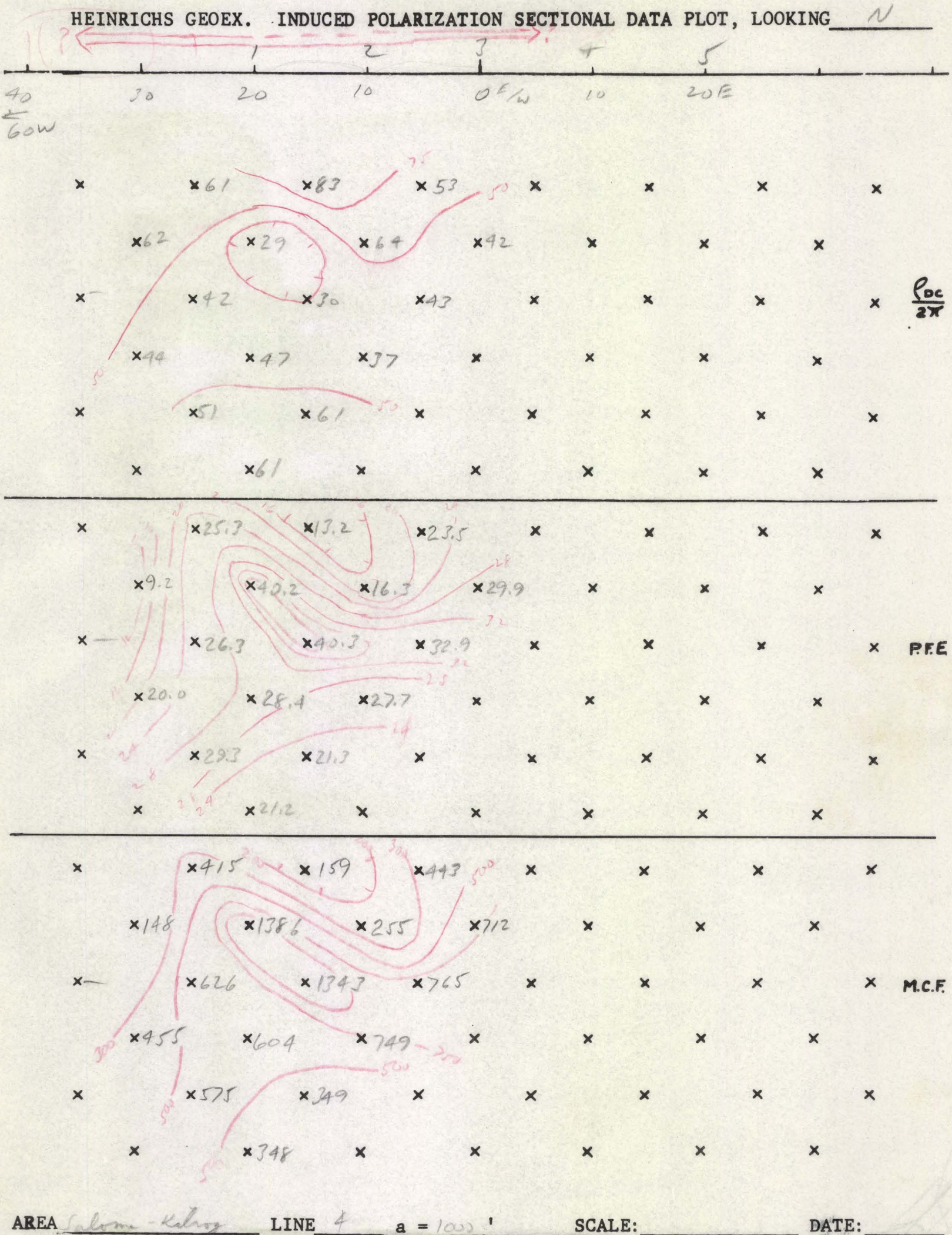

AREA Salome-Kelvy LINE 4 a = 1000' SCALE: DATE:

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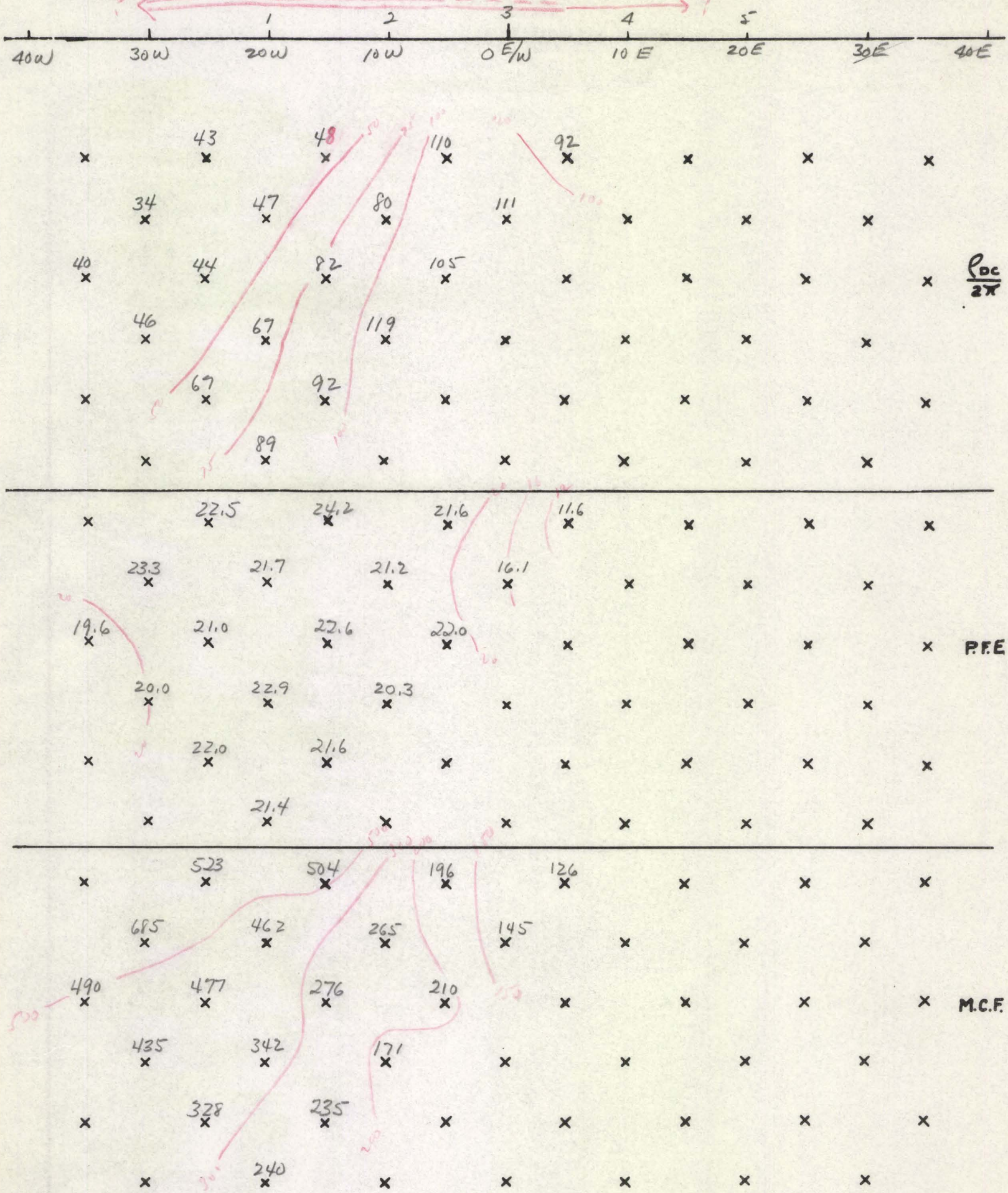

AREA Kilroy – Salome LINE 5 Sp' a = 1000 ' SCALE: 1" = 1000 ' DATE: _____

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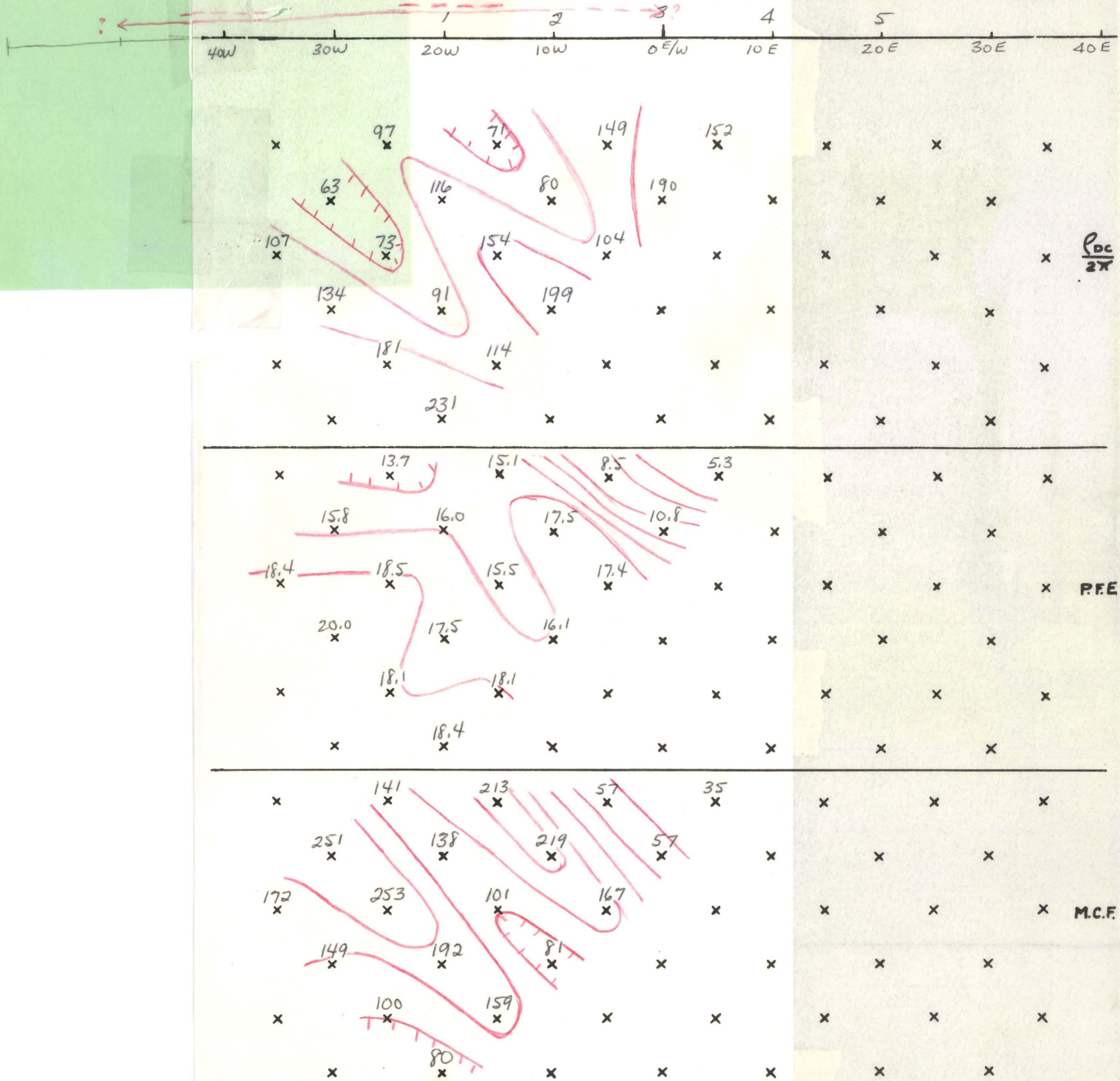
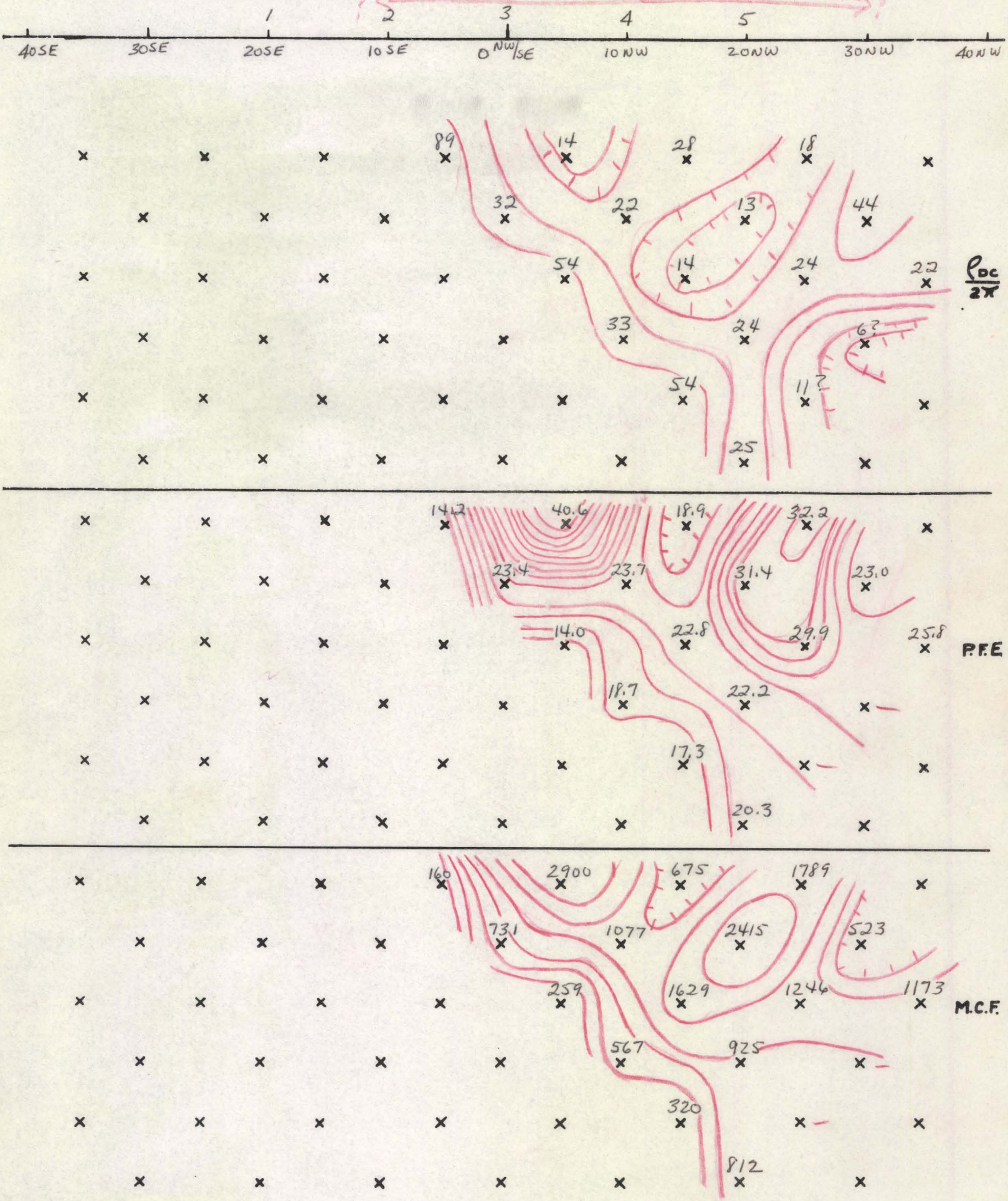


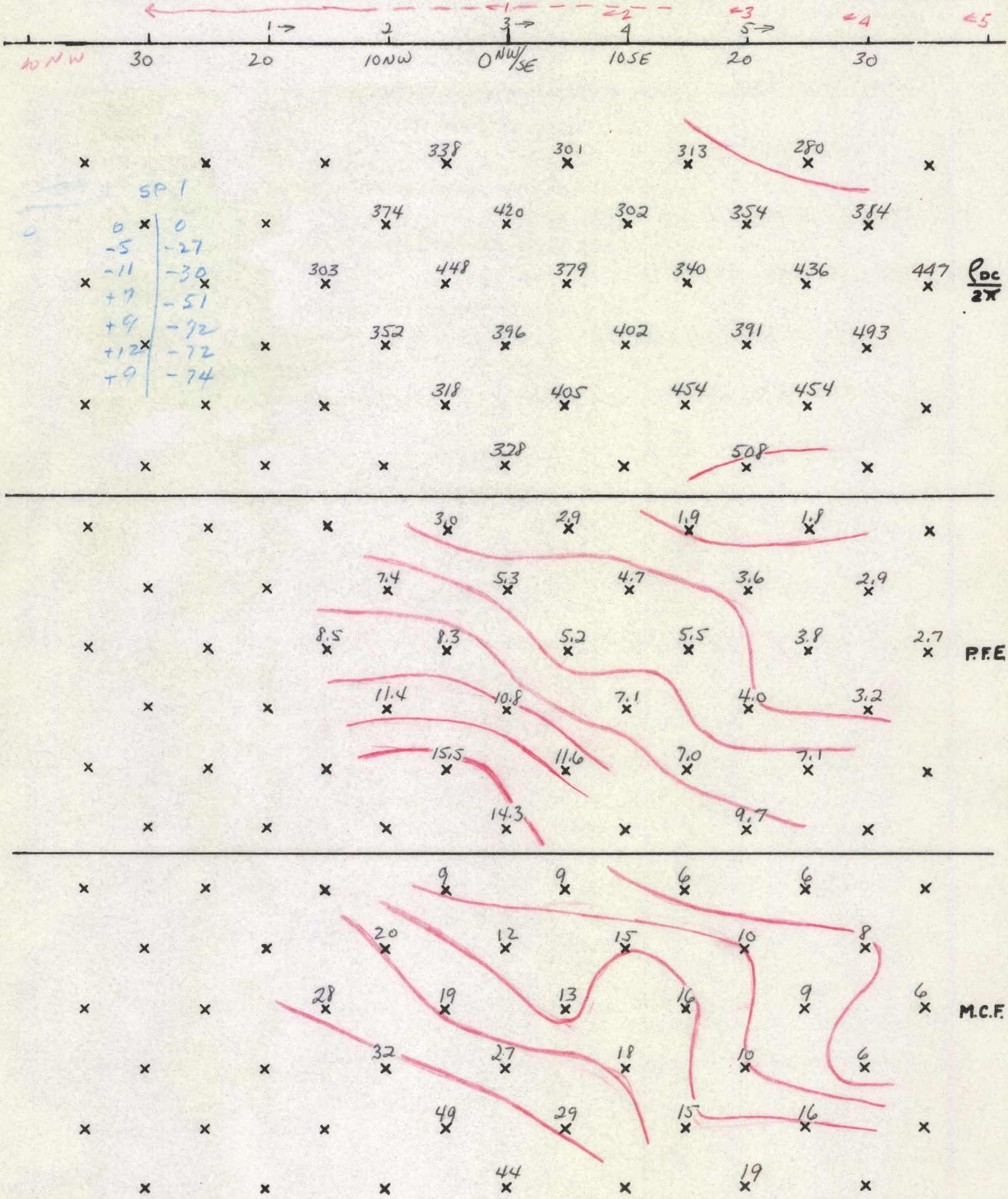
AREA Kilroy - Salome LINE 6 Sp' a = 1000' SCALE: 1" = 1000 DATE: 3-4-68

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING S 50°W



AREA Kilroy - Salome LINE 7 Sp1 a = 1000 ' SCALE: 1" = 1000 ' DATE:

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N 22° E



AREA Kilroy - Salome LINE 8 Sp1 a = 1000 ' SCALE: 1" = 1000 ' DATE: _____

INDUCED POLARIZATION SENDER NOTES

Project: Kilroy-Salome Line: #1 W ½ Spread 2 Date: 12-9-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive	5-1000	1000-2000		2000-3000		→	3000-4000			→	4000-5000	
Time	✓	✓	✓									
Range	380V	220V	✓	260V	✓	✓	300V	✓	✓	✓	✓	✓
Current	1.5A	2.0A	✓	2.0	2.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0
Send	3-4	4-5	1-2	2-3	3-4	4-5					CAL 3-4	
Receive	→		5000-6000		→							
Time												
Range	✓	✓	200V	200V	160V	✓					160V	
Current	2.0	1.5	1.5	1.5	1.5	1.5					1A	

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Salome) Line: 1 Sp2 W½ Int.Cal _____ Date: _____

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
Rec.	40-50	→	→	→	50-60	→	→	→		0-10		
Time	30	30	10	3	10	3	3	3		300		
DC-1	13.1 12.1	6.9 6.0	2.46 2.78	1.70 1.82	3.70 3.18 3.00 3.20	2.20 1.96 2.11 2.17	.97 .66 .94 1.23	1.00 1.09 1.16 .82		94.5 94.5		
DC-2	13.4 11.9	6.9 6.0	2.26 2.94	1.80 1.63	3.40 2.98	2.10 1.92 2.10 2.30	.84 .71 1.10 1.10	.91 1.21 .99 .76		94.5 94.5		
Σ												
DC-3	13.4 11.9	6.9 6.1	2.40 2.72	1.76 1.75	3.44 3.12	1.92 1.74 2.20 2.40	.68 .82 1.20 1.01	1.05 1.37 .99 .54				
Dc-4	13.3 12.0	6.7 6.3	2.40 2.78	1.66 1.81	3.24 3.24	1.96 1.82 2.26 2.42	.49 .76 1.35 1.15	.89 1.25 1.12 .66				
Σ												
DC-AV	25.3	12.9	5.18	3.48	6.46	4.17	1.86	2.00		189.0		
AC-1	10.05	5.3	2.16	1.31	2.50	1.66	0.73	0.76		96.0		
AC-2	10.05	5.3	2.16	1.31	2.50	1.66	0.73	0.76		96.0		
Σ	20.1	10.6	4.32	2.62	5.00	3.32	1.46	1.52		192		
S. P.	-5.9				+5.0							
AC-N	.06				.04							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilray (Salome) Line: 1 Sp 2 W 1/2 Int.Cal _____ Date: 12-9

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	30-40	10-20	→	20-30	→	→	30-40	→	→	→		
Time	300	300	100	300	30	30	300	100	10	10		
DC-1	79.0 76.0	85.0 85.0	28.4 30.2	98.0 96.0	18.5 19.2	8.5 7.2	114 112	23.2 24.0	6.60 7.76	4.22 4.04		
DC-2	79.0 76.0	85.0 85.0	28.4 30.0	97.0 96.0	18.6 19.1	8.6 7.1	114 112	23.2 24.0	6.66 7.68	4.12 4.14		
Σ												
DC-3	79.0 76.0	85.0 85.0	28.4 30.2	97.0 96.0	18.6 19.5	8.7 6.9	114 112	23.6 23.8	6.66 7.72	4.00 4.24		
Dc-4			28.6 30.0		18.2 19.3	9.3 6.3			6.62 7.82	3.68 4.54		
Σ												
DC-AV	155.0	170.0	58.6	193.2	37.7	15.77	226	47.3	14.39	8.19		
AC-1	75.0	81.0	27.2	89.0	16.9	6.7	102	20.4	6.08	3.36		
AC-2	75.0	81.0	27.2	89.0	16.9	6.7	102	20.4	6.08	3.36		
Σ	150.0	162.0	54.4	178.0	33.8	13.4	204	40.8	12.16	6.72		
S. P.	-18.4	-8.0		-12.3			+22.0					
AC-N	.09	.05		.07			.07					
Pot. Res												

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

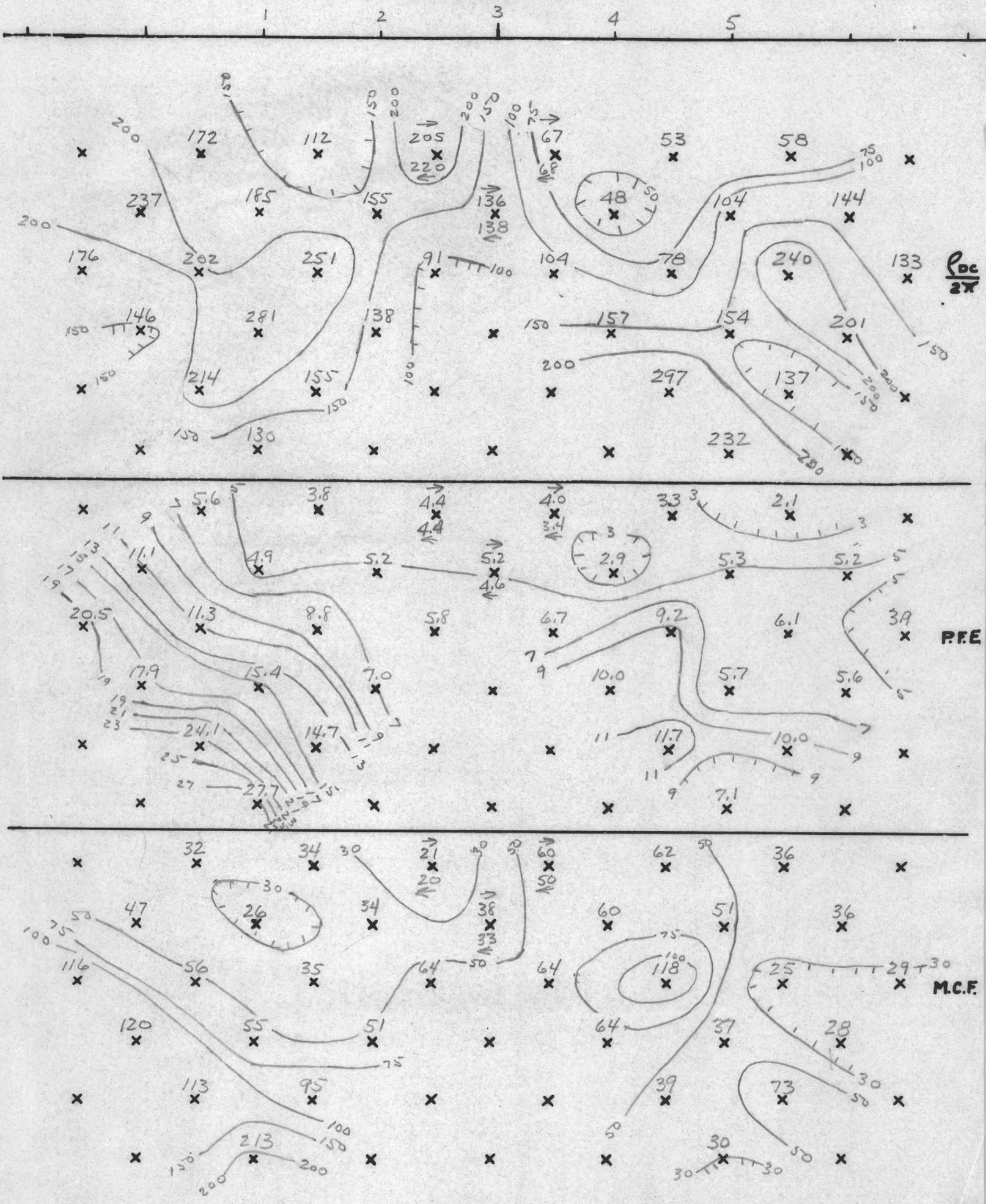
Project Kilroy (Salome) Line 1 Sp2 W1/2 Field date 12-9-66 Data page_____ Comp. date_____. Comp by RA

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	30-40	40-50	→	50-60	→	→	60-70	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	1.5	2	1.5	2	2	1.5	2	2	2	1.5		
(E) Vdc (avg)	155	170	58.6	193.2	37.7	15.77	226	47.3	14.39	8.19		
(F) DCcal	.528											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	164	134	252	153	162	166	179	203	113	173		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	150	162	54.4	178	33.8	13.4	204	40.8	12.16	6.72		
(L) AC-DC cal.	1.014											
(M) ρ dc/ρac=ExL/K	1.047	1.063	1.092	1.101	1.130	1.192	1.123	1.172	1.201	1.236		
(N) PFE=(M-1)(10^2)	4.7	6.3	9.2	10.1	13.0	19.2	12.3	17.2	20.1	23.6		
(O) MCF=(M-1)(10^5)/H	29	47	37	66	80	116	69	85	178	136		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

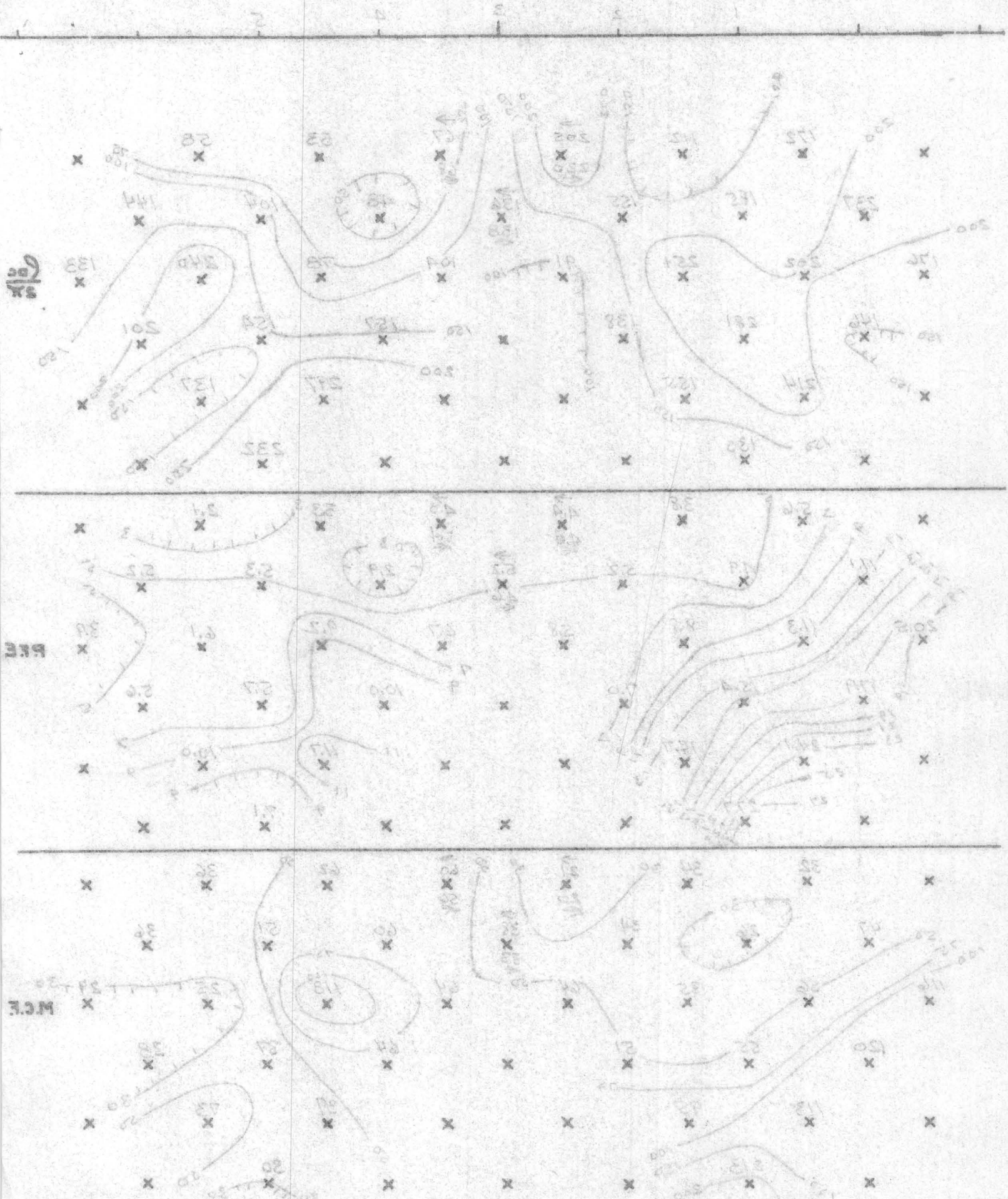
(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	70-80	→	→	→	80-90	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	2	2	1.5	1.5	1.5	1.5	1.5				
(E) Vdc (avg)	25.3	12.9	5.18	3.48	6.46	4.17	1.86	2.00		189		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	109	102	82	129	68	88	69	89				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	20.1	10.6	4.32	2.62	5.00	3.32	1.46	1.52		192		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.276	1.233	1.216	1.347	1.309	1.276	1.293	1.333				
(N) PFE=(M-1)(10^2)	27.6	23.3	21.6	34.7	30.9	27.6	29.3	33.3				
(O) MCF=(M-1)(10^5)/H	253	228	263	269	454	314	425	374				

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Northerly



AREA Kilroy (Salome) LINE 1 a = 1000' SCALE: 1" = 1000' DATE: 12-1-66

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING



AREA Allen (Salmon) LINE B = 1000' SCALE: DATE: 12-1-69

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Salome) Line: 1 E½ Int.Cal _____ Date: _____

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	100	30	30	100	10	10	100	100	10	10		
DC-1	64.2 64.2	20.2 20.9	12.38.4 9.7 12.3	49.0 48.8	3.75 3.56 3.55 3.88	3.00 2.95 3.66 3.56	52.5 54.4	24.0 24.4	2.20 2.33 2.82 2.42	2.58 2.36 2.58 2.44		
DC-2	65.0 64.0	19.4 22.0	11.69.0 9.4 11.9	49.4 48.6	3.80 3.62	2.94 2.82 3.58 3.80	52.6 54.4	24.1 24.4	2.28 2.28 2.40 2.44	2.30 2.14 2.56 2.82		
Σ												
DC-3	64.4 64.4	19.5 22.1	12.4 7.9	49.6 48.4	3.88 4.16	2.76 2.68 3.82 3.86	52.6 54.4	24.1 24.4	2.20 2.90 2.60 1.86	2.32 2.12 2.64 2.60		
Dc-4	65.4 63.8	19.5 22.6	11.9 10.3	49.8 48.4	3.32 3.96	2.64 2.80 3.62 3.72	52.6 54.4	24.1 24.4	2.04 2.92 2.54 2.12	1.98 2.30 2.78 2.46		
Σ												
DC-AV	129.0	41.4	21.0	98.1	7.39	6.47	107.0	4.85	4.83	4.86		
AC-1	61.8	19.9	9.95	47.5	3.60	3.03	52.4	23.0	2.21	2.21		
AC-2	61.8	19.9	9.95	47.5	3.59	3.03	52.4	23.0	2.21	2.21		
Σ	123.6	39.8	19.90	95.0	7.19	6.06	104.8	46.0	4.42	4.42		
S. P.	+26.7	-11.8		+6.1			+10.2					
AC-N	.07	.05	.04	.04			.06					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Salome) Line: 1 E½ ???? Int.Cal _____ Date: _____

Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal.		
Rec.	40-50	→	→	→	50-60	→	→	→		0-10		
Time	100	30	3	3?	30	30	3	3		300		
DC-1	32.2 34.0	21.8 22.8	2.11 2.10 2.48 2.50	2.37 1.85 2.58 332	12.5 12.3	9.8 9.0	1.04 1.10 1.37 1.26	1.26 1.41 1.39 1.31		93.0 93.0		
DC-2	32.2 33.8	21.7 22.6	2.5 2.31 2.05 2.34	2.94 1.70 2.54 3.53	12.5 12.2	9.9 9.1	1.07 1.14 1.30 1.51	1.40 1.36 1.36 1.42		93.0 93.0		
Σ	66.2 66.0											
DC-3	32.0 65.0 34.0 66.0 65.6	21.7 23.1	2.92 2.55 1.84 2.11	3.14 1.55 2.43 3.44	12.5 12.2	9.8 9.0	1.11 083 1.34 1.50	1.36 1.14 1.46 1.26				
Dc-4	31.6 66.2 34.6	21.4 23.1	2.49 2.95 2.46 2.01	2.52 1.72 3.32 3.28	12.5 12.2	9.8 9.0	1.05 094 1.31 1.58	1.30 1.48 1.37 1.30				
Σ								2.75				
DC-AV	66.0 67.0	44.5	4.76	5.25	24.74	18.7 19.80	2.42	2.57		186.0		
AC-1	31.8	21.0	2.25	2.35	11.9	8.85	1.10	1.20		930		
AC-2	31.8	21.0	2.25	2.35	11.9	8.85	1.10	1.20		930		
Σ	63.6	42.0	4.50	4.70	23.8	17.70	2.20	2.40		186.0		
S. P.	+12.0				-2.8							
AC-N	.05				.03							
Pot. Res												

7.30		
7.35	65	117
7.42	52	~~329~~
7.10	112	9)353
7.64	80	27
7.48	44	83
7.28		
7.52		
7.49		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Salome) Line: 1 W 1/2 Int.Cal _____ Date: _____

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	.1	.3	.1	.1	.1	.03	.1	.03	.03	.03		
DC-1	63.5 / 62.8	206 / 204	31.4 / 33.5	36.2 / 36.0	37.6 / 36.2	8.7 / 10.5	49.0 / 58.8	16.1 / 13.6	25.4 / 23.3	6.1 / 5.9		
DC-2	64.2 / 64.0	208 / 203	31.0 / 33.9	36.2 / 33.4	36.6 / 34.8	5.9 / 9.1	50.8 / 56.4	16.0 / 11.8	25.1 / 23.7	6.1 / 9.8		
Σ												
DC-3	64.0 / 63.5	206 / 205	30.1 / 33.8	36.6 / 35.2	37.8 / 36.8	9.3 / 10.9	49.0 / 60.2	17.9 / 13.6	22.1 / 22.8	5.1 / 8.8		
Dc-4	64.2 / 62.2	206 / 206	30.8 / 34.0	34.6 / 34.0	37.2 / 33.2	5.5 / 8.6	47.8 / 58.6	14.9 / 13.6	24.9 / 22.5	3.4 / 10.5		
Σ						17.10		29.3.3	47.4			
DC-AV	24.7 / 126.8	411	64.5	70.2	72.7	16.95	107.7	28.95	47.04	12.9		
AC-1	62.0	199	31.2	34.2	35.0	8.1	51.5	13.9	21.8	6.1		
AC-2	62.0	199	31.2	34.2	35.0	8.1	51.6	14.0	21.9	6.1		
Σ	124.0	398	62.4	68.4	70.0	16.2	103.1	27.9	43.7	12.2		
S. P.	+15.3	-4.9		+6.0			+7.3					
AC-N												
Pot. Res	.05	.06	.04	.04			.08					

64.0	38.0	7.8	47.0	13.2	22.4	2.1
62.2	35.8	11.1	61.2	17.6	22.4	10.4
65.4	37.4	6.6	48.2	12.4	26.3	
62.6	33.4	7.6	59.6	15.9	21.0	
64.2	37.8	11.8		12.0		
62.0	37.8	8.9		16.6		
64.2	34.4	7.6		13.6		
62.2	34.0	9.4		17.2		
	38.4	9.6		12.0		
	35.8	5.2		16.5		
	36.8	10.4		12.1		
	36.6	7.9		17.9		
		9.5				
		6.8				

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Salome) Line: 1 W1/2 Int.Cal _____ Date: 1-12-66

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal.		
Rec.	40-50	→		→	50-60	→		→		0-10		
Time	.03	.01	.03	.01	.01	.003	.01	.003		300		
DC-1	18.4 / 19.0	6.52 / 6.32	14.3 / 11.6	4.42 / 3.60	6.30 / 5.04	2.42 / 2.07	5.60 / 5.52	2.38 / 1.65		93.5 93.5		
DC-2	18.5 / 18.4	5.30 / 7.94	14.6 / 12.1	4.38 / 4.50	5.18 / 5.16	2.56 / 1.99	5.04 / 6.18	2.45 / 2.14		93.5 93.5		
Σ												
DC-3	18.6 / 17.9	5.98 / 6.94	15.6 / 10.8	4.24 / 3.96	6.16 / 4.22	2.58 / 1.40	5.70 / 6.24	2.33 / 1.58				
Dc-4	18.8 / 18.4	5.44 / 6.44	15.9 / 10.2	3.68 / 4.78	6.64 / 5.26	3.04 / 2.26	4.86 / 6.88	2.40 / 2.51				
Σ		(12.63)			(10.91)							
DC-AV	37.03	12.77	26.5	8.32	11.02	4.57	11.43	4.34		187.0		
AC-1	16.8	5.80	11.6	3.66	4.62	1.96	4.66	1.72		94.5		
AC-2	16.9	5.80	11.6	3.68	4.64	1.96	4.68	1.72		94.5		
Σ	33.7	11.6	23.2	7.34	9.26	3.92	9.34	3.44		189.0		
S. P.	-38.7				+16.0							
AC-N												
Pot. Res	.04				.05							

7.58
6.42

6.34
4.56

7.16
6.24

8.18
3.70

3.08
5.84

2.00
7.00

6.02
4.98

6.28
4.58

6.47
4.82

5.60
5.24

5.02
6.38

1.64
2.46

INDUCED POLARIZATION SENDER NOTES

Project: Kilroy - Salomé Line: 1-E 1/2 Date: 2 Dec. 66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-1000	1000	2000	2000		3000	3000			4000		
Time	"	"	"	"	–	–	–	–	–	–		
Range	300V	250V	"	90V	"	"	90V	✓	✓	✓	"	
Current	1A	1A	"	3A	"	"	3A				CAL	
Send	4-5	3-4	2-3	1-2		4-5	3-4	2-3	1-2		2-3	
Receive	4000			5000		5000			6000			
Time	–	–	–	–	–	–	–	–	–			
Range	✓	✓	✓	✓							300V	
Current											1A	

INDUCED POLARIZATION SENDER NOTES

project: Kickoy Salome Line: 1 - W 1/2 Date: 1 Dec. 66.

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-1000	1000 - 2000		2000 — 3000			3000 — 4000					
Time	—	—	—	—	—	—	—	—	—	—		
Range	110 V	90 V	"	260 V	"	"	310 V					
Current	3A	3A	"	1 A	"	"	1 A				CAL	
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5.		3-4	
Receive	4000 —		5000			5000 —			6000			
Time	—	—	—	—		—	—	—	—			
Range V			82 V NORMAL	110 V 100 MORA				"	"		80 V	
Current											1 A	

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy (Salome) Line 1 w 1/2 Field date 12-1-66 Data page_____ Comp. date_____. Comp by R.P.

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	3	3	3	1	3	3	1	1	3	3		
(E) Vdc (avg)	~~126.8~~ 128.7	41.1	64.5	70.2	72.7	~~16.95~~ 17.10	107.7	~~28.95~~ 29.3	~~47.04~~ 47.4	12.9		
(F) DCcal	.534											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	68	220	138	112	155	91	172	185	251	138		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	124.0	398	62.4	68.4	70.0	16.2	103.1	27.9	43.9	12.2		
(L) AC-DC cal.	1.011											
(M) ρ dc/ρac=ExL/K	1.034	1.044	1.046	1.038	1.052	1.058	1.056	1.049	1.088	1.070		
(N) PFE=(M-1)(10^2)	3.4 4.9	4.4	4.6	3.8	5.2	~~5.8~~ 6.7	5.6	~~4.9~~ 6.2	~~8.8~~ 9.7	7.0		
(O) MCF=(M-1)(10^5)/H	50 72	20	33	34	34	~~64~~ 74	32	~~26~~ 34	35 39	51		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	1	1	3	3	1	1	3	3		1		
(E) Vdc (avg)	37.03	~~12.77~~ 12.63	26.5	8.32	~~11.02~~ 10.91	4.57	11.43	4.34		18.7.0		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	237	202	281	155	176	146	214	130				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	33.7	11.6	23.2	7.34	9.26	3.92	9.34	3.44		189.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.111	1.113	1.154	1.147	1.205	1.179	1.24.1	1.27.7				
(N) PFE=(M-1)(10^2)	11.1	~~11.3~~ 10.1	15.4	14.7	~~20.5~~ 17.8	17.9	24.1	27.7				
(O) MCF=(M-1)(10^5)/H	47	~~56~~ 50	55	95	~~110~~ 101	120	113	213				

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 1

Project Kilroy (Salome) Line 1 E1/2 Field date 12-1-66 Data page 1 Comp. date _____. Comp by R.P.

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	1	1	1	3	1	1	3	3	1	1		
(E) Vdc (avg)	129.0	41.4	~~51.0~~	98.1	7.39	6.47	107.0	48.5	4.83	4.86		
(F) DCcal	.537											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	205	67	136	53	48	104	58	104	78	157		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	123.6	39.8	19.9	95.0	7.19	6.06	104.8	46.0	4.42	4.42		
(L) AC-DC cal.	1.000											
(M) ρ dc/ρac=ExL/K	1.044	1.040	1.052	1.033	1.029	1.067	1.021	1.053	1.092	1.100		
(N) PFE=(M-1)(10^2)	4.4	4.0	5.2	3.3	2.9	6.7	2.1	5.3	9.2	10.0		
(O) MCF=(M-1)(10^5)/H	21	60	38	62	60	64	36	51	118	64		

Project _____ Line _____ Field date _____ Data page _____ Comp. date _____ Comp by _____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6		"		
(D) I	3	3	1	1	3	3	1	1		1		
(E) Vdc (avg)	~~67.0~~ 66.0	47.5	4.76	5.25	24.74	~~18.7~~ 18.86	2.42	~~2.57~~ 2.75		186.0		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	144	240	154	297	133	201	137	232				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	63.6	42.0	4.50	4.70	23.8	17.70	2.20	2.40		186.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.052	1.061	1.057	1.117	1.039	1.056	1.100	1.071				
(N) PFE=(M-1)(10^2)	~~5.2~~ 3.8	6.1	5.7	11.7?	3.9	~~5.6~~ 6.6	10.0	~~7.1~~ 14.6				
(O) MCF=(M-1)(10^5)/H	~~36~~ 26	25	37	39 ?	29	28 33	73	30 63				

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT Kilroy - Salome
LINE 1 Ex HALF W SP. 3 DATE 2-22

SEND	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	
RECEIVE	70-80W	→	89-90	→	→	90-100W	→	→	→	
RANGE	100	30	100	30	10	100	30	10	10	
DC 1	56.2	25.0	58.0	9.00	6.14	58.0	15.6	5.16	3.64	
DC 2	56.2	21.5	54.5	11.6	6.58	54.6	15.1	4.14	3.48	
DC 3	55.4	24.4	57.8	8.90	6.18	57.8	15.5	5.44	3.62	
DC 4	56.2	22.1	54.3	11.4	6.52	54.6	15.3	4.20	3.44	
DC 5	55.6	24.7	57.8	8.90	6.22	57.6	15.5	5.44	3.42	
DC 6	55.7	22.1	54.3	11.4	6.42	54.6	15.2	4.12	3.48	
DC 7	56.2	24.6	57.7	8.80	6.32	57.8	15.3	5.56	3.50	
DC 8	55.6	22.1	54.3	11.6	6.32	54.4	15.3	4.02	3.72	
DC AVG.	111.6	46.6	112.2	20.4	12.71	112.3	30.7	9.57	7.03	
AC 1	45.8	19.1	45.8	8.20	5.26	46.6	13.4	4.16	3.06	
AC 2	45.8	19.1	45.8	8.20	5.26	46.6	13.4	4.16	3.06	
AC AVG.	91.6	38.2	91.6	16.4	10.54	93.2	26.8	8.32	6.12	
S.P.	+15		+23			0				
AC NOISE	.05		.06			.06				
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Salome

LINE 1Ex HALF W SP. 3 DATE 2-22

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	100-110	→	→	→	110-120	→	→	→	1-2	
RANGE	30	10	3	3	10	10	3	3	300	
DC 1	17.8	5.68	2.44	1.83	5.42	2.22	111 097	123	204	
DC 2	16.5	6.16	1.92	1.91	5.62	3.18	152 169	100	204	
DC 3	17.8	5.60	2.36	1.75	5.58	2.56	106	186	204	
DC 4	16.4	6.38	1.91	2.01	5.42	3.18	136	096	204	
DC 5	17.7	5.60	2.35	1.94	5.38	2.62	106	124		
DC 6	16.5	6.18	1.95	1.95	5.54	2.96	144	062		
DC 7	17.8	5.74	2.35	1.80	5.24	2.46	098	201		
DC 8	16.4	6.06	1.96	1.91	5.72	3.02	169	~~164~~		
DC AVG.	34.3	11.9	4.29	3.78	10.95	5.59	255	243.3	408	
AC 1	13.95	5.02	1.75	1.51	5.02	2.42	1.14	1.11	204	
AC 2	13.95	5.02	1.75	1.51	5.02	2.42	1.14	1.11	204	
AC AVG.	27.90	10.04	3.50	3.02	10.04	4.84	2.28	2.22	408	
S.P.	-50				-59					
AC NOISE	.04				.05					
POT RES.										

1000'

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Kilroy - Salome

LINE/EXT. HALF W SP. 3 DATE 2-22-68

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	60-70W	70-80W	→	80-90W	→		90-100W	→		
RANGE		Lo	—	Lo	Lo	Lo	Lo	Hi	Lo	Lo
VOLTAGE		580	760	440	570	750	700	440	570	740
CURRENT		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL.	1-2-2A
RECEIVE	100-110W	→			110-120W	→				
RANGE	Lo	Hi	Lo	Lo	Lo	Hi	Lo	Lo	Hi	Hi
VOLTAGE	680	430	560	730	680	440	550	730	460	460
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0

FREQUENCIES .05 HZ 1.0 HZ

SENDER NO. 15673 S

OPERATOR McCoy

RECEIVER NO. 5644 R

OPERATOR PALMER

COMMENTS: NO EAST HALF.

12:39 2:00

~~1:18~~

~~1:23~~

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy - Salome Line 1 Ex Sp3W Field date 2-22-68 Data page_____ Comp. date_____. Comp by R.P.

(A) Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5			
(B) Receive	70-80W	→	80-90	→	→	90-100	→	→	→			
(C) n separation	1	2	1	2	3	1	2	3	4			
(D) I	3 A	→	→	→	→	→	→	→	→			
(E) Vdc (avg)	111.6	46.6	112.2	20.4	12.71	112.3	30.7	9.57	7.03			
(F) DCcal	490											
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60			
(H) ρ dc=ExFxGx10^3/D	55	91	55	40	62	55	60	47	68			
(I) Vac Σ	91.6	38.2	91.6	16.4	10.54	93.2	26.8	8.32	6.12			
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	21.8	22.2	22.7	24.3	26.3	20.5	14.4	15.1	14.3			
(O) MCF=(M-1)(10^5)/H	396	244	413	608	424	373	240	321	210			

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	100-110	→	→	→	110-120	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3 A	→	→	→	→	→	→	→		2 A		
(E) Vdc (avg)	34.3	11.9	4.29	3.78	10.95	5.59	2.55	2.43		408		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	67	58	42	65	54	55	44	67				
(I) Vac Σ	27.9	10.04	3.50	3.02	10.04	4.84	2.28	2.22		408		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	22.8	18.4	22.3	25.2	9.0	15.5	11.7	9.6				
(O) MCF=(M-1)(10^5)/H	340	317	531	388	138	282	266	143				

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy (Salome) Line 2 E½ Field date 12/5-6/66 Data page_____ Comp. date_____. Comp by R.P.

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	155	193.7	41.3	72.9	32.3	11.48	163.0	44.03	25.52	10.45		
(F) DCcal	.528											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	122	153	137	58	102	91	129	140	202	165		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	140.0	170.0	35.0	65.2	28.3	9.9	156.0	40.4	22.9	8.92		
(L) AC-DC cal.	1.000											
(M) ρ dc/ρac=ExL/K	1.107	1.139	1.178	1.12.2	1.14.2	1.159	1.044	1.142	1.113	1.172		
(N) PFE=(M-1)(10^2)	10.7	13.9	17.8	12.2	14.2	15.9	4.4	14.2	11.3	17.2		
(O) MCF=(M-1)(10^5)/H	88	91	130	210	139	175	34	101	56	104		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	→	→	→	→	→	→	→		1		
(E) Vdc (avg)	57.64	23.38	15.9	7.09	23.8	12.53	9.61	4.23		189.0		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	183	185	251	196	188	198	266	187				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	55.0	21.4	13.9	6.12	22.8	11.28	8.2	3.64		189.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.049	1.092	1.143	1.157	1.043	1.111	1.172	1.161				
(N) PFE=(M-1)(10^2)	4.9	9.2	14.3	15.7	4.3	11.1	17.2	16.1				
(O) MCF=(M-1)(10^5)/H	27	50	57	80	23	56	65	86				

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy (Salome) Line 2 w 1/2 Field date_____ Data page_____ Comp. date_____. Comp by R.P.

(A) Send	45	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	191.5	157.0	43.8	265.5	70.1	29.8	125.8	61.5	27.75	13.62		
(F) DCcal	.528						.521					
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	151	124	138	210	222	236	198	193	216	213		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	169.0	142.0	37.4	240	65.0	25.4	120.4	56.0	25.8	11.8		
(L) AC-DC cal.	1.000											
(M) ρ dc/ρac=ExL/K	1.133	1.104	1.172	1.106	1.079	1.173	1.044	1.098	1.182	1.145		
(N) PFE=(M-1)(10^2)	13.3	10.4	17.2	10.6	7.9	17.3	4.4	9.8	18.2	14.5		
(O) MCF=(M-1)(10^5)/H	88	84	125	51	36	73	45	51	85	68		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal.	cal.	
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10	0-10	
(C) n separation	2	3	4	5	3	4	5	6		1st 3	2nd 3	
(D) I	2	→	→	→	→	→	→	→		1	1	
(E) Vdc (avg)	50.6	42.97	22.4	13.07	20.1	19.9	11.58	7.12		189	192	
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	159	335	350	358	157	311	316	312				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	47.6	38.0	20.4	11.08	17.6	16.8	10.00	5.80		189	192	
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.064	1.131	1.099	1.179	1.143	1.18.3	1.158	122.8				
(N) PFE=(M-1)(10^2)	6.4	13.1	9.9	17.9	14.3	18.3	15.8	22.8				
(O) MCF=(M-1)(10^5)/H	40	39	28	55	91	59	50	73				

INDUCED POLARIZATION SENDER NOTES

Project: Kilroy - Salome Line: 2- W 1/2 Date: 12/5/6

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-1	1-2000		2000	—	3000	3000	—	4000			
Time	✓	✓	✓	✓								
Range	180 V	340 V	✓	280V	✓	✓	200V	✓	✓	✓		
Current	2 A	"	"	"	"	"	"	"	"	"	CAL	
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	45		3-4	
Receive	4000	—	—	5000		5000	—	—	6000			
Time												
Range	200 V	✓	✓	✓		220V	✓	✓	✓		250V	
Current	2A	"	"	"	"	"	"	"	"		1A	

INDUCED POLARIZATION SENDER NOTES

project: Kilroy-Sykome Line: #2 E ½ Date: 12-5-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive	0-1000	1000-2000		2000-3000	→		3000-4000	→			4000-5000	
Time	200V	260V	200V	300V	260V	200V	160V	→				
Range												
Current	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Send	2-3	1-2	4-5	3-4	2-3	1-2		OAC 2-3				
Receive	→		5000-6000	→								
Time	→											
Range												
Current	2000	2000	2000	2000	2000	2000		1000				

1 AMP - X10 — 0 — 100

1 1/2 "

2 "

2 1/2 "

3 "

3 1/2 "

4 "

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Salome) Line: 2 E½ Int.Cal _____ Date: _____

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-10	10-20	→	20-30		→	30-40			→		
Time	300	300	100	100	30	10	300	100	30	10		
DC-1	80.0 75.0	98.0 96.0	22.0 20.0	36.4 36.4	17.1 15.4	6.06 6.36 5.58 5.04	82 81	23.0 24.0 21.6 20.6	14.0 13.1 12.5 11.9	5.56 5.58 5.24 4.88		
DC-2	80.0 75.0	97.0 97.0	21.0 20.0	36.6 36.4	16.4 15.8	6.12 6.34 5.04 5.50	83 80	24.0 23.2 20.8 22.0	12.5 13.3 12.8 12.5	5.24 5.42 5.58 4.64		
Σ												
DC-3	80.0 85.0	98.0 96.0	21.5 20.0	36.4 36.4	16.7 15.7	5.90 6.00 5.48 5.44	82 81	21.8 20.6 20.0 21.0	13.5 13.5 12.2 11.8	4.84 4.50 5.82 5.30		
Dc-4	80.0 75.0	97.0 96.0	21.0 20.2	36.6 36.4	16.7 15.5	6.28 5.44 5.52 6.00	83 80	23.5 22.8 21.8 22.0	13.3 13.4 12.1 12.0	5.40 5.42 4.96 5.64		
Σ												
DC-AV	155.0	193.7	41.3	72.9	32.3	11.48	163.0	44.03	25.52	10.45		
AC-1	70.0	85.0	17.5	32.6	14.15	4.95	78.0	20.2	11.45	4.46		
AC-2	70.0	85.0	17.5	32.6	14.15	4.95	78.0	20.2	11.45	4.46		
Σ	140.0	170.0	35.0	65.2	28.3	9.9	156.0	40.4	22.9	8.92		
S. P.	-11.1	-1.4		+5.5			-3.4					
C-N	.17	.11		.15			.15					
.Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Salome) Line: 2 E½ Int.Cal _____ Date: 12-6

Send	~~1-2~~	3-4	2-3	1-2	4-5	3-4	2-3	1-2			4-5	
Rec.	40-50	↓		→	50-60			→		cal.		
Time	30	30	30	10	30	10	10			0-10	100	
DC-1	11.4 11.9 11.5 11.6	10.1 13.2	7.5 8.0 8.6 8.0	3.60 3.64 3.60 2.84	11.4 13.4 12.1 11.4	6.46 6.36 5.82 5.62	3.82 3.48 6.24 5.76	2.30 1.88 2.08 2.10		94.5 94.5	28.0 28.8	28.4 30.0
DC-2	12.6 12.3 11.2 11.1	10.7 11.5	6.7 7.4 8.6 8.4	3.78 4.42 2.90 3.78	13.0 12.6 11.1 11.7	6.90 6.60 6.20 6.62	4.22 4.74 5.34 5.36	1.84 2.36 2.10 2.12		94.5 94.5	28.0 29.8	27.8 29.0
Σ												
DC-3	11.4 12.1 11.8 10.6	10.4 13.7	8.1 7.9 8.5 8.5	3.62 3.24 3.34 3.26	12.9 12.8 11.6 11.7	6.72 6.04 5.62 6.24	3.54 4.12 5.82 5.18	2.00 2.44 2.36 1.28			28.0 30.2	28.2 29.8
Dc-4	12.5 13.1 11.1 11.1	11.0 12.4	7.0 7.4 8.3 8.0	3.94 4.26 3.04 3.52	12.6 12.1 11.1 11.8	5.36 5.30 7.18 8.18	4.62 3.54 5.00 5.86	1.64 3.02 2.62 1.42			27.8 29.8	27.6 30.2
Σ												
DC-AV	23.38		15.9	7.09	23.8	12.53	9.61	4.23		189.0	57.64	
AC-1	10.7	10.7	6.95	3.06	11.4	5.64	4.10	1.82		94.5	27.5	
AC-2	10.7		6.95	3.06	11.4	5.64	4.10	1.82		94.5	27.5	
Σ	21.4		13.9	6.12	22.8	11.28	8.2	3.64		189.0	55.0	
S. P.	+12.8				+6.1							
AC-N	.17				.14							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Salome) Line: 2 w 1/2 Int.Cal _____ Date: _____

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal	cal	
Rec.	40-50	→	→	→	50-60	→	→	→		0-10	0-10	
Time	100	100	30	10	30	30	10	10		300	300	
DC-1	25.0 25.6	21.6 21.6	10.8 11.4	6.56 7.04 6.40 5.86	10.9 9.1	9.1 10.9	5.66 5.60 5.84 6.00	3.44 3.60 3.52 3.30		94.5 94.5	96.0 96.0	
DC-2	25.2 25.4	21.8 21.4	10.8 11.1	6.84 7.28 6.16 5.82	11.0 9.2	9.0 11.0	5.74 5.68 5.88 6.04	3.72 3.80 3.42 3.42		94.5 94.5	96.0 96.0	
Σ												
DC-3	25.2 25.4	20.8 21.8	11.3 11.4	7.02 7.24 6.02 5.76	11.0 9.0	9.0 10.9	5.66 5.60 5.92 5.88	3.74 3.64 3.40 3.44				
Dc-4	25.2 25.4	21.2 22.0	11.4 11.2	6.98 7.12 6.22 5.90	11.0 9.0	8.9 10.9	5.74 5.40 5.98 6.12	3.66 3.70 3.52 3.58				
Σ												
DC-AV	50.6	42.97	22.4	13.07	20.1	19.9	11.58	7.12		189.0	192.0	
AC-1	23.8	19.0	10.2	5.54	8.8	8.4	5.00	2.90		94.5	96.0	
AC-2	23.8	19.0	10.2	5.54	8.8	8.4	5.00	2.90		94.5	96.0	
Σ	47.6	38.0	20.4	11.08	17.6	16.8	10.00	5.80		189.	192.0	
S. P.	-10.6				+5.3							
AC-N	.07				.14							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Salome) Line: 2 W 1/2 Int.Cal _____ Date: 12-5-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	300	300	30	300	100	30	100	100	30	30		
DC-1	96.0 96.5	80.0 77.0	21.9 21.9	133 133	34.2 36.2 33.6 34.2	14.1 15.1 15.6 15.6	63.4 62.4	31.5 30.0	13.4 13.3 14.3 14.6	6.3 7.0 7.0 6.7		
DC-2	95.0 96.5	80.0 77.0	22.0 21.9	132 134	36.2 33.8	14.1 14.9 17.0 15.3	63.4 62.4	31.5 30.0	13.3 13.6 14.3 14.2	6.4 6.5 7.4 7.0		
Σ												
DC-3	95.0 96.0	80.0 77.0	21.9 21.8	130 135	36.8 34.2	13.1 15.1 16.5 15.8	63.4 62.4	31.5 30.0	13.5 13.1 15.0 14.7	6.6 6.9 7.1 6.9		
Dc-4	95.0 96.5	80.0 77.0	21.9 21.9	129 136	36.2 34.2	13.7 14.6 17.0 16.0	63.4 62.4	31.5 30.0	13.0 13.2 14.0 14.6	6.3 6.5 7.2 7.0		
Σ												
DC-AV	191.5	157.0	43.8	265.5	70.1	29.8	125.8	61.5	27.75	13.62		
AC-1	84.5	71.0	18.7	120	32.5	12.7	60.2	28.0	12.9	5.9		
AC-2	84.5	71.0	18.7	120	32.5	12.7	60.2	28.0	12.9	5.9		
Σ	169.0	142.0	37.4	240	65.0	25.4	120.4	56.0	25.8	11.8		
S. P.	-15.3	-6.5		-58.5			+27.3					
AC-N	.06	.04		.07			.14					
Pot. Res												

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Kilroy - Salome 2-21-68

LINE 3 HALF E SP. 1 DATE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	34	2-3	1-2
RECEIVE	0-1000 E	1000-2000 E	—	2-3 E	—	—	3-4 E	—	—	—
RANGE	Lo	Hi	Lo	Hi	Hi	Lo	Lo	Hi	Hi	Lo
VOLTAGE	580	500	580	430	500	560	800	430	500	580
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
RECEIVE	4-5 E	—	—	—	5-6 E	—	—	—	CAL.	4-5 2A
RANGE	Lo	Hi	—	Lo	Lo	Hi	Hi	Lo	Lo	
VOLTAGE	800	430	500	560	800	440	500	560	540	
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	

FREQUENCIES .05 HZ 1.0 HZ.

SENDER NO. 15673-S

OPERATOR McCoy

RECEIVER NO. 5694 R

OPERATOR PALMER

COMMENTS:

1:183

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 3 HALF 568E SP. 1 DATE 2-21

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	300	300	100	300	100	100	300	100	100	30
DC 1		219 219	56.3 557	267 266	92.6 724	29.6 32.3	244 243	64.3 67.5	28.0 27.4	15.6 11.0
DC 2		220 215	62.3 638	256 258	87.2 896	29.5 247	235 233	68.2 73.4	30.2 30.4	16.6 17.2
DC 3		212 219	52.0 54.2	265 272	73.6 698	30.2 342	242 239	66.8 68.2	27.6 26.3	13.7 10.8
DC 4		223 221	63.7 64.2	255 264	86.8 838	28.8 270	234 240	73.0 70.6	29.8 30.2	16.9 15.6
DC 5		217 224	57.7 55.6	265 268	68.6 730	30.4 334	245 240	66.4 66.6	28.2 32.3	11.9 12.0
DC 6		222 217	63.6 63.7	259 259	86.6 862	28.2 248	235 240	71.0 73.6	29.8 29.4	21.4 19.9
DC 7		222 216	55.6 54.2	272 266	72.6 754	33.4 31.7	242 236	66.6 66.0	27.4	8.4 11.0
DC 8		223 223	63.8 64.8	261 261	89.4 834	27.6 278	236 239	70.2 70.0	29.0	20.9 20.7
DC AVG.		438.8	120.1	526.7	159.1	59.91	477.53	138.03	59.2	30.06
AC 1	175	212	56.0	256	75.4	27.6	233	65.7	27.2	13.1
AC 2		212	56.0	256	75.4	27.4	234	65.7	27.2	13.1
AC AVG.		424	112	512	150.8	55.0	467	131.4	54.4	26.2
S.P.	+2	+2		-16			-14			
AC NOISE		06		04			.08			
POT RES.										

Line 4

Gener

1500' One N of

Gen on Line 5

1500' One West

795 5505

n = 2

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilray - Salome
LINE 3 HALF S68E SP. 1 DATE 2-21

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	4-5	
RANGE	300	100	30	30	100	30	30	30	300	
DC 1	91.0 91.0	40.2 37.4	19.1 20.4	8.60 8.90	52.8 54.2	27.2 23.8	13.8 14.6	6.50 5.00	208	
DC 2	91.0 86.0	35.0 34.2	20.0 18.0	12.3 15.7	51.4 52.0	26.9 29.4	15.5 16.0	13.1 14.1	208	
DC 3	92.0 98.0	36.3 40.4	20.6 20.5	7.60 10.5	53.0 53.6	25.3 25.5	14.9 13.9	6.40 9.4	208	
DC 4	88.0 85.0	37.7 36.4	17.5 18.9	13.8 10.5	51.8 50.3	28.2 28.9	16.6 17.4	10.6 9.4	208	
DC 5	90.0 94.0	40.2 39.6	21.4 21.2	10.3 11.1	53.8 53.7	24.2 23.4	13.5 13.8	6.80 9.1		
DC 6	89.0 85.0	36.0 34.0	19.8 19.6	14.4	50.4 51.2	29.0 30.8	16.3 16.4	11.2 11.5		
DC 7	94.0 96.0	38.6 40.6	19.4 19.1	8.9	53.8 55.0	26.0 23.4	13.6	7.50 8.5		
DC 8	86.0 86.0	36.4 34.8	19.1 21.7	12.9	50.4 50.0	28.3 30.4	17.6	11.2 10.5		
DC AVG.	180.5	74.7	39.5	22.5	104.8	53.6	30.6	19.0	416	
AC 1	87.0	35.6	18.1	9.90	50.4	25.1	14.1	8.30	210	
AC 2	87.0	35.4	18.1	9.90	50.4	25.1	14.1	8.30	210	
AC AVG.	174	71.0	36.2	19.8	100.8	50.2	28.2	16.6	420	
S.P.	-18					-17				
AC NOISE	.09					.14				
POT RES.										

1.0 & .05 CPS
1000' @

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy-Salome Line 3 Sp1 S68E½ Field date 2-21-68 Data page_____ Comp. date 2-21-68. Comp by R.P.

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	3A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)		438.8	120.1	526.7	159.1	59.91	477.53	138.03	59.2	30.06		
(F) DCcal	.481											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D		211	231	254	306	288	230	266	285	289		
(I) Vac Σ		424.0	112.0	512.0	150.8	55.0	467.0	131.4	54.4	26.2		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.008											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)		4.2	8.1	3.7	6.3	9.7	3.0	6.0	9.7	15.2		
(O) MCF=(M-1)(10^5)/H		20	35	15	21	34	13	23	34	53		
S.P.	+2	+2		-16			-14					

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	180.5	74.7	39.5	22.5	104.8	53.6	30.6	19.0		416		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	348	360	380	379	504	517	516	512				
(I) Vac Σ	174	71.0	36.2	19.8	100.8	50.2	28.2	16.6		420		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	4.5	5.9	9.8	14.5	4.7	7.4	9.3	15.2				
(O) MCF=(M-1)(10^5)/H	13	16	26	38	9	14	18	30				

March 7, 1967

Mr. Oliver B. Kilroy
Stanford Inn
Room 31
Salome, Arizona

Dear Mr. Kilroy:

As you requested last week, here is a brief preliminary note on the Bouse Area-second phase Induced Polarization survey done March 1, 1967. This new work consisted of an additional spread tied onto Line 3 to the south, extending the subsurface data another 7000 feet southerly and is shown on the first phase Preliminary Induced Polarization Location and Interpretation Plan.

The weak anomaly on Bouse, Line 3 was found to extend another mile south without increasing substantially in strength. The strength of the anomalism is such to make this area of marginal interest. If any interesting geology, mineralization or trend intersections can be found here, then additional cross spreads of I.P. are suggested. No drilling is recommended at this stage.

Enclosed are two copies each of the Plan and extended Sectional Data Plot.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

APPROVED: _____
Walter E. Heinrichs, Jr.
President & General Manager

Enclosures: 3
CSL:jc

PRELIMINARY
INDUCED POLARIZATION LOCATION
AND INTERPRETATION PLAN
BOUSE AREA
Phase 2
FOR

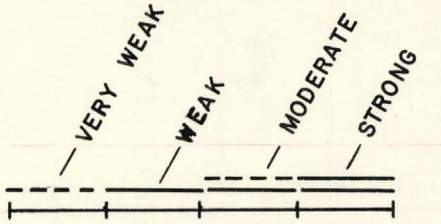
MR. OLIVER KILROY

Scale: 1"=1 mile Date: Dec. 1966
Feb. 1967

DATA FROM SALOME 15' QUADRANGLE
YUMA COUNTY, ARIZONA

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 1966
ARIZONA, U.S.A.

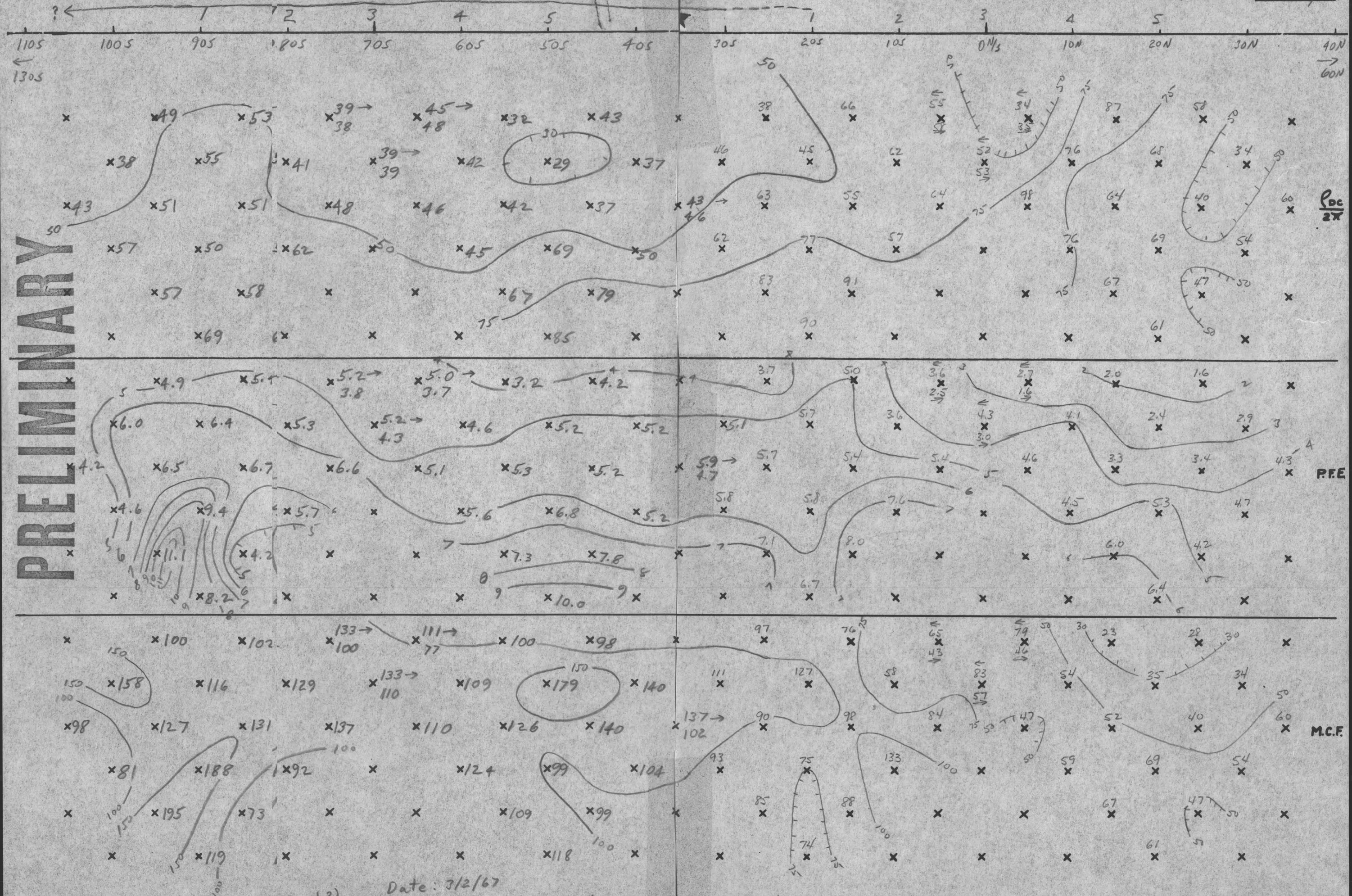
RELATIVE ANOMALY STRENGTH



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

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING W

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Westerly



Date: 3/2/67

AREA Kilroy (Bouse) LINE 3 (Spread 2) a = 1000' SCALE: 1" = 1000' DATE: Kilroy (Bouse) LINE 3 a = 1000' SCALE: 1" = 1000' DATE: 12-8-66

S T A T E M E N T

March 19, 1968

Mr. Oliver Kilroy
45 West Pennington
Tucson, Arizona 85701

Re: I.P. Survey
Salome, Arizona Area
Job No. 238-68
Final billing

Compilation, report and reproductions		$600.00
	Total	$600.00

(301) 651

S T A T E M E N T

Mr. Oliver Kilroy
45 West Pwnnington , Room 401
Tucson, Arizona 85701

Re: I. P. Survey
Salome, Arizona Area
Job #238-68
Final Billing

Compilation,report & reproductions $ 600.00

(301) 651

BILLING

CLIENT Kilroy - 23-68 BILLING NO.

AREA TYPE OF WORK

DATE	CHARGE	AMOUNT
3/9 Chris - 4 hrs		60.00
Bar - 9 hrs.		135.00
3/16 - Dayers - 22 hrs.		220.00
Chris - 22 hrs.		330.00

VEHICLE RENTAL:

MILEAGE:

EXPENSES: LIVING & TRAVEL

MAPS

MISC. 13.60 13.60 68' sepia, 136 ft. 27.20

PHONE

REPORT:

TOTAL HOURS:

REMARKS, ETC:

TOTAL

March 19, 1968

Mr. Oliver Kilroy
Room 401
45 West Pennington
Tucson, Arizona 85701

Dear Mr. Kilroy:

Enclosed is an original and two copies of our report titled "Induced Polarization Survey, Salome Area, Yuma County, Arizona, February - March 1968". Reproducible sepias will be delivered shortly.

The single line run in the Plomosa Mountains that we called Ranegras Line 1 has been included herewith (3 copies). Only slightly higher than background effects were noted on this line with no metal factor indicative of important sulfides. The strongest background effects occur near the center of the line. Also, there is a hint of an increase in response to the southeast end of the spread that could be persued if the geology is interesting in that direction.

If you have any questions, please let us know.

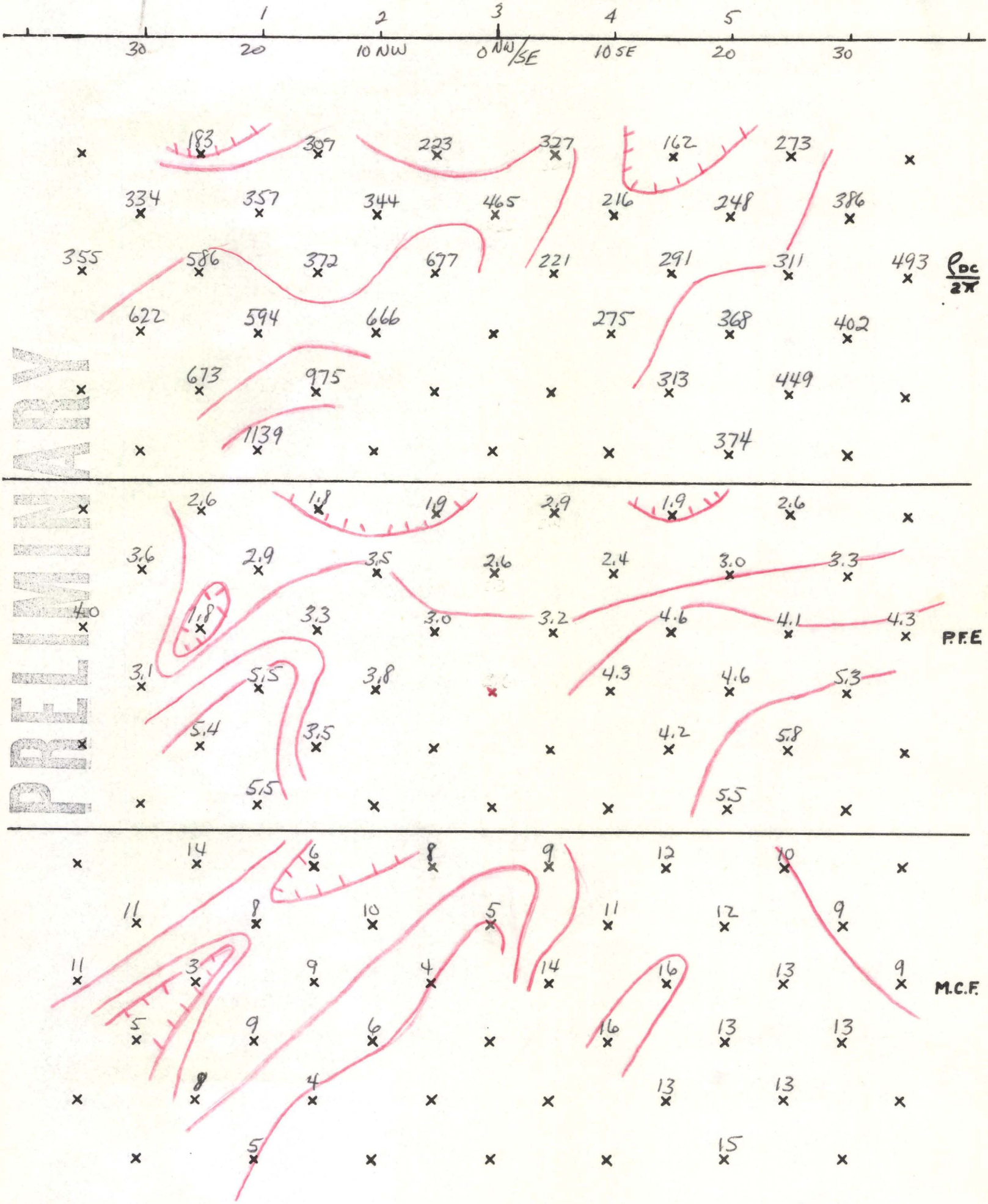
Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

CSL:jc
Enclosure

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N 20° E



PRELIMINARY

AREA Kilroy - Ranegras LINE 1 Sp1 a = 1000' SCALE: 1" = 1000' DATE: Mar. '68

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Ranegras
LINE 1 HALF NW SP. 1 DATE 3-1

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE	300	100	100	100	100	100	30	30	300	
DC 1	88.5	60.5	32.0	30.4	37.6	33.6	21.4	21.6	207	
DC 2	84.5	62.8	29.5	27.3	35.8	30.8	18.4	20.5	207	
DC 3	88.5	60.5	32.0	30.4	37.6	33.6	21.4	21.6	207	
DC 4	84.5	60.8	29.5	27.3	35.8	30.8	18.4	20.5	207	
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	173	121.3	61.5	57.7	73.4	64.4	39.8	42.1	414	
AC 1	84.5	60.3	29.5	28.2	35.7	31.6	19.1	20.2	209.5	
AC 2	84.5	60.3	29.5	28.2	35.7	31.6	19.1	20.2	209.5	
AC AVG.	169	120.6	59.0	56.4	71.4	63.2	38.2	40.4	419	
S.P.	-1				-11					
AC NOISE	.05				.06					
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Ranegras

LINE 1 HALF N70W SP. 1 DATE 3-1

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	1000	300	300	1000	300	100	300	300	100	100
DC 1	342	230	120.0	318	89.0	71.8	189	93.0	39.2	33.6
DC 2	340	230	120.5	318	89.0	68.3	190	92.0	37.8	35.3
DC 3	342	230	120.0	318	89.0	71.8	189	93.0	39.2	33.6
DC 4	340	230	120.5	318	89.0	68.3	190	92.0	37.8	35.3
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	682	460	240.5	636	178	140.1	379	185	77.0	68.9
AC 1	337	228	119	316	87.0	68.8	187	91.0	37.7	33.6
AC 2	337	228	119	316	87.0	68.8	187	91.0	37.7	33.6
AC AVG.	674	456	238	632	174	137.6	374	182	75.4	67.2
S.P.	+7	-2		+2			-9			
AC NOISE	.08	.06		.05			.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Ranegras

LINE 1 HALF SE SP. 1 DATE 3-1

PAGE

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	Cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	4-5	
RANGE	300	100	30	30	100	30	30	10	300	
DC 1	100	30.2	18.1	9.30	50.5	20.8	13.8	6.82	205	
DC 2	98	33.6	19.6	9.00	50.5	20.4	12.5	6.76	205	
DC 3	100	30.2	18.1	9.30	50.5	20.8	13.8	6.70	205	
DC 4	98	33.6	19.6	9.00	50.5	20.4	12.5	7.10	205	
DC 5								6.84		
DC 6								6.80		
DC 7								6.92		
DC 8								6.74		
DC AVG.	198	63.8	37.7	18.3	101	41.2	26.3	13.69	410	
AC 1	96.0	30.7	18.05	8.80	48.5	19.6	12.45	6.50	205.5	
AC 2	96.0	30.7	18.05	8.80	48.5	19.6	12.45	6.50	205.5	
AC AVG.	192	61.4	36.1	17.6	97.0	39.2	24.9	13.0	411	
S.P.	+1				-27					
AC NOISE	.06				.06					
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Rancgras
LINE 1 HALF 570E SP. 1 DATE 3-1

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	300	1000	300	300	100	100	300	100	100	30
DC 1	229	333	120.5	166	56.2	23.8	279	64.5	31.7	13.8
DC 2	229	334	118.0	165.5	54.2	21.5	280	62.5	28.0	14.4
DC 3	229	333	120.5	166	56.2	23.8	279	64.5	31.7	13.8
DC 4	229	334	118.0	165.5	54.2	21.5	280	62.5	28.0	14.4
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	458	667	238.5	331.5	110.4	45.3	559	127.0	59.7	28.2
AC 1	225.5	323	116	163	54.0	22.0	273	61.8	28.6	13.55
AC 2	225.5	323	116	163	54.0	22.0	273	61.8	28.6	13.55
AC AVG.	451.0	646	232	326	108	44.0	546	123.6	57.2	27.1
S.P.	0	+5		-3			+7			
AC NOISE	.07	.05		.04			.05			
POT RES.										

.05 - 1.0

INDUCED POLARIZATION SENDER NOTES

Project: KILROY-RANEGRAS Line: 1 (W 1/2) Date: 1 MAR 68

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-10W	10-20W →		20-30W →			30-40W →					
Time Volt	870	930	860	800	920	850	720	800	900	830		
Range	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO		
Current	3.0	3.0	3.0	3.0	3.0	5.0	3.0	3.0	3.0	3.0		
Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5			CAL	1-2
Receive	40-50W →				50-60W →						1-2	
Time Volt.	710	800	890	820	720	790	870	800			480	
Range	LO	LO	LO	LO	LO	LO	LO	LO			Hi	
Current	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			2.0	

Rec: 5644 R
Send: 15673-S

LOVE

.05 – 1.0

INDUCED POLARIZATION SENDER NOTES

Project: KILROY-RANCGRAS Line: 1 E½ Date: 1MAR68

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-10E	10-20	E →	20-30	E →		30-40	E →				
Time VOLT	720	770	720	840	770	720	760	830	760	720		
Range	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO		
Current	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2			CP2	4-5
Receive	40-50	E →			50-60	E →						
Time VOLT.	760	830	760	720	760	820	760	720			520	
Range	LO	LO	LO	LO	LO	LO	LO	LO			Hi	
Current	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			2.0	

1-2		2-3		1-2	
AC	DC	AC	DC	AC	DC
89	93	199	207	27.4	28.2
	91				
89	93	199	206	27.4	28.8
	91		207		28.2
			206		28.8
178	184 6	398	413 15	54.8	57. 2.2

cal.
100.5 102
100.5 102

E = IR
2 200

196	204	88	94	27.0	25.8
196	204		90		30.2
	204		94		25.8
	204		90		30.2
	204				
392	408	176	184	54	56

1-2 = 1.6 = 100
2-3 = 2.1 = 150
3-4
4-5

16 8 2

84
30 54
54 21
33

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy-Ranegras Line 1 Sp1 SE½ Field date 3-1-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	3A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	458	669	238.5	331.5	110.4	45.3	559	127	59.7	28.2		
(F) DCcal	.488											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	224	325	466	162	216	221	273	248	291	275		
(I) Vac Σ	451	646	232	326	108	44.0	546	123.6	57.2	27.1		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.002											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	1.8	3.5	3.0	1.9	2.4	3.2	2.6	3.0	4.6	4.3		
(O) MCF=(M-1)(10^5)/H	8	11	6	12	11	14	10	12	16	16		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	198	63.8	37.7	18.3	101	41.2	26.3	13.69		410		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	386	311	368	313	493	402	449	374				
(I) Vac Σ	192	61.4	36.1	17.6	97	39.2	24.9	13.0		411		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	3.3	4.1	4.6	4.2	4.3	5.3	5.8	5.5				
(O) MCF=(M-1)(10^5)/H	9	13	13	13	9	13	13	15				

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

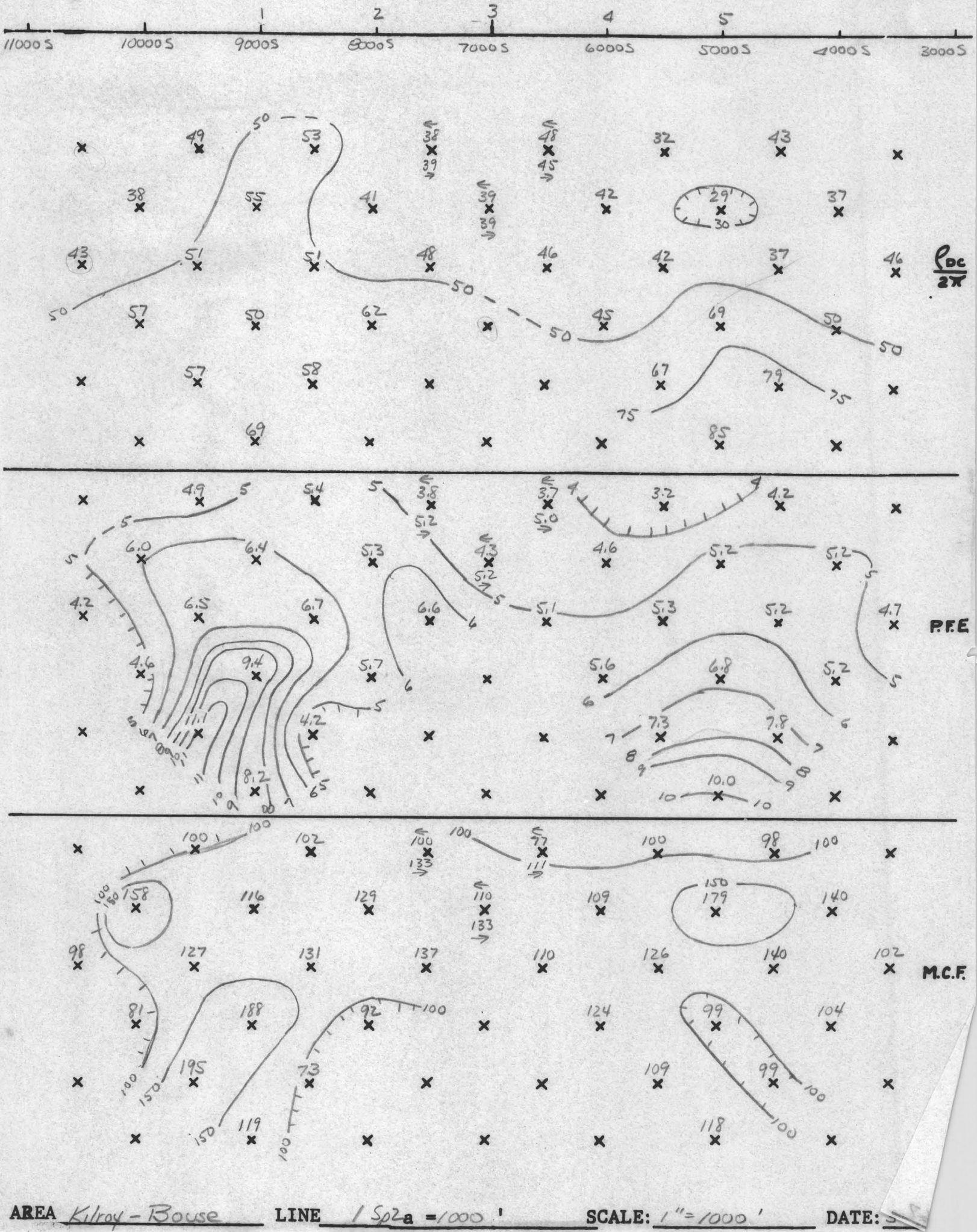
Project Kilroy - Ranegras Line 1 Sp1 N70W½ Field date 3-1-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	3A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	682	460	240.5	636	178	140.1	379	185	77.0	68.9		
(F) DCcal	.483											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	329	222	465	307	344	677	183	357	372	666		
(I) Vac Σ	674	456	238	632	174	137.6	374	182	75.4	67.2		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.012											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	2.4	2.1	2.3	1.8	3.5	3.0	2.6	2.9	3.3	3.8		
(O) MCF=(M-1)(10^5)/H	7	9	5	6	10	4	14	8	9	6		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	173	121.3	61.5	57.7	73.4	64.4	39.8	42.1		414		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	334	586	594	975	355	622	673	1139				
(I) Vac Σ	169	120.6	59.0	56.4	71.4	63.2	38.2	40.4		419		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	3.6	1.8	5.5	3.5	4.0	3.1	5.4	5.5				
(O) MCF=(M-1)(10^5)/H	11	3	9	4	11	5	8	5				

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Westerly



AREA Kilroy - Bouse LINE 1 Sp2a = 1000' SCALE: 1" = 1000' DATE:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Killroy / Rouse
LINE 7 HALF 1/2 SP. 2 DATE 3/1/62

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-1000	1000 —	2000	2000 —	3000	→	3000 —	4000	→	→
RANGE	10	—	—	—	—	—	—	—	—	→
VOLTAGE	160	220	160	220	220	220	230	215	220	220
CURRENT	1.5	1.5	1.5	1.0	1.5	2.5	1.5	1.0	1.5	2.5
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL LAMP	
RECEIVE	4000 —	5000	→	→	5000 —	6000	→	→		
RANGE	10	—	—	—	—	—	—	→		
VOLTAGE	220	215	220	220	220	215	220	220		
CURRENT	1.5	1	1.5	2.5	1.5	1.0	1.5	2.5		

FREQUENCIES .05 3.0
SENDER NO. MK. 7 106635
OPERATOR M. FRAKER
RECEIVER NO. 1066IR
OPERATOR R. PALMER

COMMENTS:

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Bouse

LINE 1 HALF 5 1/2 SP. 2 DATE 3-1-67

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	70-80S	80-90S	→	90-100S	→		100-110S	→		→
RANGE	100	30	10	30	10	10	100	10	10	10
DC 1	24.6	20.7	4.92	18.6	5.54	4.24	24.5	5.00	2.80	2.80
DC 2	25.2	18.5	5.08	18.1	4.84	4.02	25.9	4.45	2.56	2.44
DC 3	24.6	20.7	4.88	18.7	5.60	4.10	24.5	5.12	2.76	2.82
DC 4	25.2	18.5	5.14	18.1	4.96	4.16	25.9	4.34	2.62	2.55
DC 5			4.82	18.6	5.28	4.08		5.20	2.60	2.76
DC 6			5.12	18.3	5.02	4.48		4.26	2.76	2.58
DC 7			4.86	18.7	5.58	4.04		5.25	2.46	2.80
DC 8			5.10	18.0	5.04	4.16		4.20	2.84	2.56
DC AVG.	49.8	39.2	9.97	36.8	10.45	8.31	50.4	9.49	5.31	5.32
AC 1	23.6	18.6	4.70	17.2	4.88	3.84	23.6	4.38	2.45	2.48
AC 2	23.6	18.6	4.70	17.2	4.88	3.84	23.6	4.38	2.45	2.48
AC AVG.	47.2	37.2	9.40	34.4	9.76	7.68	47.2	8.76	4.90	4.96
S.P.	-2.5	-26.0		+6.3			-8.4			
AC NOISE	.05	.03		.03			.05			
POT RES.										

PAG

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Bouse

LINE ~~XX~~ HALF S/2 SP. 2 DATE 3-1-67

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal.	
RECEIVE	110-120S			→ 120-130S				→	1-2	
RANGE	10	3	3	3	10	3	3	3	300	
DC 1	5.02	1.80	1.24 1.49	1.49	2.08	0.85	0.89	1.09	103	
DC 2	4.94	1.73	1.14 1.10	1.48	2.42	1.05	0.76	0.96	103	
DC 3	4.90	1.70	1.40 1.45	1.46	1.96	0.82	0.92	1.24	103	
DC 4	5.06	1.79	1.29 1.13	1.53	2.46	1.18	0.71	0.68	103	
DC 5	4.76	1.70	1.35 1.41	1.29	1.84	0.73	0.98	1.37		
DC 6	5.20	1.92	1.16 1.12	1.37	2.62	1.19	0.60	0.90		
DC 7	4.58	1.64	1.48 1.49	1.40	2.10	0.71	0.83	1.34		
DC 8	5.18	1.81	1.28 0.87	1.46	2.22	1.31	0.79	0.69		
DC AVG.	9.87	3.51	2.58	2.86	4.44	1.93	1.68	2.11	206	
AC 1	4.58	1.62	1.16	1.35	2.02	0.91	0.74	0.96	101.5	
AC 2	4.58	1.62	1.16	1.35	2.02	0.91	0.75	0.96	101.5	
AC AVG.	9.16	3.24	2.32	2.70	4.04	1.82	1.49	1.92	203.0	
S.P.	-1.9									
AC NOISE	.05									
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Killroy / Bouse

LINE #2 HALF D½ SP. 2 DATE 3/4/82

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-1000	1000 - 2000		2000 - 3000	→		3000 - 4000		→	
RANGE	10	→								
VOLTAGE	220	220	220	200	195	200	200	200	195	200
CURRENT	1.5	1.0	1.5	1.5	1.0	1.5	2.5	1.5	1.0	1.5
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	4000 - 5000		→		5000 - 6000		→		1 AMP 4-5	
RANGE	10	→								
VOLTAGE	200	200	190	200	200	200	190	200		
CURRENT	2.5	1.5	1.0	1.5	2.5	1.5	1.0	1.5		

FREQUENCIES .05 3.0

SENDER NO. MK 2 106635

OPERATOR M. Fraker

RECEIVER NO. 10661R

OPERATOR Ron Palmer

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilray - Bouse

LINE 21 HALF N1/2 SP. 2 DATE 3-4-67

PAGE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	70-60S	60-50S	→	50-40S	→	→	40-30S	→	→	→
RANGE	30	30	10	30	10	10	100	10	3	3
DC 1	19.9	16.0	4.85	16.3	3.42	2.12	35.4	3.66	1.36	~~1.56~~ 1.11
DC 2	19.7	16.1	5.12	16.2	3.64	2.42	38.2	3.80	1.45	1.14
DC 3	19.9	16.0	4.78	16.3	3.40	2.18	34.8	3.54	1.30	1.10
DC 4	19.7	16.1	5.16	16.2	3.66	2.52	38.4	3.98	1.54	1.18
DC 5			4.78		3.46	2.22	34.6	3.37	1.30	1.05
DC 6			5.12		3.58	2.38	38.6	4.00	1.49	1.24
DC 7			4.74		3.40	2.20	34.6	3.28	1.33	1.00
DC 8			5.16		3.62	2.42	38.6	4.00	1.42	1.25
DC AVG.	39.6	32.15	9.93	32.5	7.05	4.63	73.2	7.37	2.80	2.25
AC 1	18.55	15.05	4.65	15.5	3.32	2.17	34.6	3.45	1.31	1.05
AC 2	18.55	15.05	4.65	15.5	3.32	2.17	34.6	3.45	1.31	1.05
AC AVG.	37.10	30.10	9.30	31.0	6.64	4.34	69.2	6.90	2.62	2.10
S.P.	-23.2	+13.3		-15.4			-1.9			
AC NOISE	.03	.06		.03			.05			
POT RES.							X			

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Bouse

LINE X L HALF N½ SP. 2 DATE 3-1-67

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	Cal	
RECEIVE	30-205	→	→	→	20-105	→	→	→	4-5	
RANGE	30	3	3	3	10	3	3	3	300	
DC 1	6.90	1.87	1.05	0.86	3.48	1.29	0.69	0.77	100	
DC 2	8.60	1.83	0.86	1.07	4.24	1.21	0.78	0.81	101	
DC 3	6.90	1.86	1.06	0.82	3.46	1.30	0.73	0.73	101	
DC 4	8.60	1.83	0.89	1.09	4.24	1.19	0.85	0.81	101	
DC 5	6.90	1.88	1.06	0.84	3.48	1.36	0.64	0.67		
DC 6	8.60	1.80	0.88	1.10	4.18	1.16	0.88	0.94		
DC 7		1.91	1.06	0.83	3.52	1.34	0.61	0.60		
DC 8		1.83	0.88	1.11	4.18	1.18	0.90	0.91		
DC AVG.	15.5	3.70	1.94	1.92	7.70	2.51	1.51	1.54	202	
AC 1	7.25	1.73	0.895	0.88	3.62	1.17	0.69	0.69	100.5	
AC 2	7.25	1.73	0.895	0.88	3.62	1.17	0.69	0.69	100.5	
AC AVG.	14.5	3.46	1.79	1.76	7.24	2.34	1.38	1.38	201.	
S.P.	+7.5									
AC NOISE	.04		X	X	X					
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 1

Project Killroy-Bouse Line #1 sp. 2 3 S½ Field date 3/1/67 Data page 1 Comp. date 3/1/67 . Comp by

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	0-1000	1000-2000		2000-3000	→		3000-4000		→		4000-5000	
(C) n separation	1	1	2	1	2	3	1	2	3	4	2	3
(D) I	1.5	1.5	1.5	1.0	1.5	2.5	1.5	1.0	1.5	2.5	1.5	1.0
(E) Vdc (avg)	49.8	39.2	9.97	36.8	10.45	8.31	50.4	9.49	5.31	5.32	9.87	3.51
(F) DCcal	.485											
(G) Kn x 10^{-3}	3.0	3.0	12.0	3.0	12.0	30.0	3.0	12.0	30.0	60.0	12.0	30.0
(H) ρ dc=ExFxGx10^3/D	48	38	39	53	41	48	49	55	51	62	38	51
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	47.2	37.2	9.40	34.4	9.76	7.68	47.2	8.76	4.90	4.96	9.16	3.24
(L) AC-DC cal.	.985											
(M) ρ dc/ρac=ExL/K	1.037	1.038	1.043	1.054	1.053	1.066	1.049	1.064	1.067	1.057	1.060	1.065
(N) PFE=(M-1)(10^2)	3.7	3.8	4.3	5.4	5.3	6.6	4.9	6.4	6.7	5.7	6.0	6.5
(O) MCF=(M-1)(10^5)/H	77	100	110	102	129	137	100	116	131	92	158	127

Project Line Field date Data page Comp. date Comp by

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5			col			
(B) Receive	→	→	5000-6000		→				1-2			
(C) n separation	4	5	3	4	5	6						
(D) I	1.5	2.5	1.5	1.0	1.5	2.5			1000			
(E) Vdc (avg)	2.58	2.86	4.44	1.93	1.68	2.11			206			
(F) DCcal												
(G) Kn x 10^{-3}	60.0	105.0	30.0	60.0	105.0	168.0						
(H) ρ dc=ExFxGx10^3/D	50	58	43	57	57	69						
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	2.32	2.79	4.04	1.82	1.49	1.92			203			
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.094	1.042	1.042	1.046	1.111	1.082						
(N) PFE=(M-1)(10^2)	9.4	4.2	4.2	4.6	11.1	8.2						
(O) MCF=(M-1)(10^5)/H	188	73	98	81	195	119						

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 2

Project Killroy-Boose Line #1 SP2 n½ Field date 3/1/67 Data page 2 Comp. date 3/1/67. Comp by

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	0-1000	1000-2000		2000-3000	→		3000-4000		→		4000-5000	
(C) n separation	1	1	2	1	2	3	1	2	3	4	2	3
(D) I	1.5	1.0	1.5	1.5	1.0	1.5	2.5	1.5	1.0	1.5	2.5	1.5
(E) Vdc (avg)	39.6	32.1	9.93	32.5	7.05	4.63	73.2	7.37	2.80	2.25	15.5	3.70
(F) DCcal	.495											
(G) Kn x 10^{-3}	3.0	3.0	12.0	3.0	12.0	30.0	3.0	12.0	30.0	60.0	12.0	30.0
(H) ρ dc=ExFxGx10^3/D	39	45	39	32	42	46	43	29	42	45	37	37
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	37.1	30.1	9.3	31.0	6.64	4.34	69.2	6.90	2.62	2.10	14.5	3.46
(L) AC-DC cal.	995	→										
(M) ρ dc/ρac=ExL/K	1.052	1.050	1.052	1.032	1.046	1.051	1.042	1.052	1.053	1.056	1.052	1.052
(N) PFE=(M-1)(10^2)	5.2	5.0	5.2	3.2	4.6	5.1	4.2	5.2	5.3	5.6	5.2	5.2
(O) MCF=(M-1)(10^5)/H	133	111	133	100	109	110	98	179	126	124	140	140

Project Line Field date Data page Comp. date Comp by

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2			cal.			
(B) Receive	→	→	5000-6000		→	→			4-5			
(C) n separation	4	5	3	4	5	6						
(D) I	1.0	1.5	2.5	1.5	1.0	1.5			1000			
(E) Vdc (avg)	1.94	1.92	7.70	2.51	1.51	1.54			202	206	used old AC/DC cal	
(F) DCcal												
(G) Kn x 10^{-3}	60.0	105.0	30.0	60.0	105.0	168.0						
(H) ρ dc=ExFxGx10^3/D	69	67	46	50	79	85						
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.79	1.76	7.24	2.34	1.38	1.38			201	203		
(L) AC-DC cal.	995	→				→						
(M) ρdc/ρac =ExL/K	1.068	1.073	1.047	1.052	1.078	1.100						
(N) PFE=(M-1)(10^2)	6.8	7.3	4.7	5.2	7.8	10.0						
(O) MCF=(M-1)(10^5)/H	99	109	102	104	99	118						

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy (Bouse) Line 3 N 1/2 Field date_____ Data page_____ Comp. date_____. Comp by R.P.

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	1	2	1.5	2	2	1.5	2A	2	2	1.5		
(E) Vdc (avg)	36.32	43.6	12.47	108.8	23.77	9.18	72.4	21.37	8.01	3.58		
(F) DCcal	.532											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	58	35	53	87	76	98	58	68	64	76		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	36.0	43.6	12.3	108.4	23.2	8.92	72.4	21.2	7.88	3.48		
(L) AC-DC cal.	1.016											
(M) ρ dc/ρac=ExL/K	1.025	1.016	1.030	1.020	1.041	1.046	1.016	1.024	1.033	1.045		
(N) PFE=(M-1)(10^2)	2.5	1.6	3.0	2.0	4.1	4.6	1.6	2.4	3.3	4.5		
(O) MCF=(M-1)(10^5)/H	43	46	57	23	54	47	28	35	52	59		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal.		
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	2	2	1.5	2	2	2	1.5		1		
(E) Vdc (avg)	26.53	10.79	4.85	2.40	9.08	5.48	3.18	1.76		189.0		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	85	86	77	89	72	87	89	105				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	26.2	10.6	4.68	2.3	8.84	5.32	3.10	1.68		191.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.029	1.034	1.053	1.060	1.043	1.047	1.042	1.064				
(N) PFE=(M-1)(10^2)	2.9	3.4	5.3	6.0	4.3	4.7	4.2	6.4				
(O) MCF=(M-1)(10^5)/H	34	40	69	67	60	54	47	61				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy (Bouse) Line 3 5 1/2 Field date_____ Data page_____ Comp. date_____. Comp by R.P.

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	2	2	2	2	2	1.5	2	2	2		
(E) Vdc (avg)	43.64	71.08	16.88	85.56	20.0	8.34	36.8	14.53	7.11	3.69		
(F) DCcal	.515											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	34	55	52	66	62	64	38	45	55	57		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	43.6	70.4	16.6	83.6	19.8	8.12	36.4	14.1	6.92	3.52		
(L) AC-DC cal.	1.026											
(M) ρ dc/ρac=ExL/K	1.027	1.036	1.043	1.050	1.036	1.054	1.037	1.057	1.054	1.076		
(N) PFE=(M-1)(10^2)	2.7	3.6	4.3	5.0	3.6	5.4	3.7	5.7	5.4	7.6		
(O) MCF=(M-1)(10^5)/H	79	65	83	76	58	84	97	127	98	133		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal.		
(B) Receive	40-50	→	→	→	50-60	→	→	→		0-10		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	1.5	2	2	2	1.5	2	2	2		1		
(E) Vdc (avg)	11.07	8.16	4.99	3.35	4.13	4.02	3.09	2.08		194.0		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	46	63	77	91	43	62	83	90				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	10.80	7.92	4.84	3.18	4.00	3.90	2.96	2.00		189.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.051	1.057	1.058	1.080	1.059	1.058	1.071	1.067				
(N) PFE=(M-1)(10^2)	5.1	5.7	5.8	8.0	5.9	5.8	7.1	6.7				
(O) MCF=(M-1)(10^5)/H	111	90	75	88	137	93	85	74				

INDUCED POLARIZATION SENDER NOTES

project: Kinroy-Bross Line: 3- 5 1/2 Date: Dec-8-6

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-1000	1000-	2000	2	3000		3		4000			
Time												
Range	140V	90V	✓	✓	✓	✓	✓	✓	✓	✓		
Current	2A	2A	✓	✓	✓	✓	1.5				Cal.	
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5		3-4.	
Receive	4		5000			5000		6000				
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓		50V	
Current	1.5	✓	✓	✓		1.5	✓	✓	✓		1A	

INDUCED POLARIZATION SENDER NOTES

project: Kilroy-Bouse Line: 3- N 1/2 Date: Dec-8-6

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-1000	1 —	2000	2-3000	—	1	3000 —		4000			
Time												
Range	280V	230V	400V	80V			140V					
Current	1A	2A	1.5A 1300	2A	2A	1.5A	2A				COL	
Send	4-5	3-4	2-3	1-2		4-5	3-4	2-3	1-2		3-4	
Receive	4 —		5000			5000 —			6000			
Time												
Range											50V	
Current	2A	2A	2A	1.5A		2A	2A	2A	1.5A		1A	

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Bouse) Line: 3 S1/2 Int.Cal ↓ Date: _____

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
Rec.	40-50	→	→	→	50-60	→	→	→		0-10		
Time	10	10	10	3	10	10	3	3		300		
DC-1	3.60 5.40	3.58 4.58	2.24 2.74	1.54 1.85	2.06 2.14	1.99 1.58 2.02 2.22	1.64 1.36	~~0.75~~ 1.14		92.0 92.0		
DC-2	5.48 5.66	3.46 4.58	2.18 2.82	1.49 1.94	1.92 2.08	1.98 1.50 2.02 2.58	1.44 1.74	0.84 1.17		92.0 92.0		
Σ								1.08				
DC-3	5.60 5.54	3.68 4.72	2.24 2.72	1.47 2.01	2.20 1.98	2.00 1.58 2.16 2.52	1.43 1.72	0.90 1.12				
Dc-4	5.44 5.68	3.38 4.72	2.22 2.82	0.89 2.60	2.12 1.98	1.98 1.40 2.22 2.76	1.41 1.81	1.04 1.12				
Σ												
DC-AV	11.07	8.16	4.99	3.35	4.13	4.02	3.09	2.08		194.0		
AC-1	5.40	3.96	2.42	1.59	2.00	1.95	1.48	1.00		94.5		
AC-2	5.40	3.96	2.42	1.59	2.00	1.95	1.48	1.00		94.5		
Σ	10.80	7.92	4.84	3.18	4.00	3.90	2.96	2.00		189.0		
S. P.	-11.8				-4.0							
AC-N	.13				.07							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kilroy (Bouse) Line: 3 5 1/2 Int.Cal _____ Date: 7-8

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	100	100	30	100	30	10	100	30	10	3		
DC-1	22.0 21.6	35.0 36.0	8.5 8.4	43.0 42.6	9.9 10.1	4.36 4.82 3.66 3.68	18.4 18.4	7.1 7.4	3.16 3.92	1.76 1.34 1.99 2.40		
DC-2	22.2 21.4	35.2 36.0	8.4 8.5	43.0 42.6	9.9 10.1	4.58 4.64 3.88 3.44	18.4 18.4	7.1 7.6	3.20 3.86	1.65 1.51 2.00 1.94		
Σ												
DC-3	22.2 21.4	35.0 36.0	8.4 8.5	42.8 42.8	9.9 10.1	4.66 4.82 3.68 3.60	18.4 18.4	6.9 7.5	3.06 4.02	1.58 1.60 2.11 2.11		
Dc-4						4.62 4.86 3.72 3.42		7.0 7.6	3.20 4.08	1.39 1.66 2.51 1.96		
Σ												
DC-AV	43.64	71.08	16.88	85.56	20.0	8.34	36.8	14.53	7.11	3.69		
AC-1	21.8	35.2	8.3	41.8	9.9	4.06	18.2	7.05	3.46	1.76		
AC-2	21.8	35.2	8.3	41.8	9.9	4.06	18.2	7.05	3.46	1.76		
Σ	43.6	70.4	16.6	83.6	19.8	8.12	36.4	14.1	6.92	3.52		
S. P.	+35.9	+17.2		-24.9			-7.8					
AC-N	.09	.08		.07			.07					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Bouse) Line: 3 N1/2 Int.Cal _____ Date: _____

Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
Rec.	40-50	→		→	50-60	→		→		0-10		
Time	30	10	10	3	10	10	3	3		300		
DC-1	13.4 13.1	5.34 5.44	2.26 2.58	1.29 0.84 1.19 1.32	4.88 5.02 4.30 4.24	2.42 2.12	1.48 1.54 1.61 1.66	0.86 1.09 0.81 0.76		94.0 94.0		
DC-2	13.5 13.0	5.34 5.42	2.24 2.60	1.11 0.95 1.44 1.47	4.72 4.72 4.16 4.24	2.36 3.00	1.51 1.44 1.78 1.71	1.11 0.86 0.80 0.65		94.0 94.0		
Σ												
DC-3	13.6 12.9	5.42 5.40	2.24 2.68	1.06 0.82 1.40 1.48	4.86 4.28	2.62 2.80	1.77 1.53 1.79 1.60	0.46 0.94 0.67 0.82				
Dc-4	13.6 12.9	5.38 5.40	2.14 2.70	1.09 0.72 1.49 1.73	5.02 4.04	2.60 2.96	1.51 1.57 1.49 1.69	1.07 1.10 0.81 0.57				
Σ												
DC-AV	26.53	10.79	4.85	2.40	9.08	5.48	3.18	1.76		188.0		
AC-1	13.1	5.30	2.34	1.15	4.42	2.66	1.55	0.84		95.5		
AC-2	13.1	5.30	2.34	1.15	4.42	2.66	1.55	0.84		95.5		
Σ	26.2	10.6	4.68	2.3	8.84	5.32	3.10	1.68		191.0		
S. P.	-4.0				+42.3							
AC-N	.05				.07							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kilroy (Bouse) Line: 3 N 1/2 Int.Cal _____ Date: _____

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	30	100	30	100	30	10	100	30	10	3		
DC-1	18.8 18.5 17.7 17.7	22.2 21.4	5.5 7.0	54.2 54.6	12.6 11.3	4.40 4.76	36.2 36.2	10.6 10.8	4.02 4.00	1.76 1.65 1.84 1.94		
DC-2	18.6 18.6 17.9 17.7	22.2 21.4	5.5 7.0	54.2 54.6	12.6 11.2	4.44 4.72	36.2 36.2	10.5 10.9	4.04 3.96	1.71 1.64 1.84 1.95		
Σ												
DC-3	18.6 17.5	22.2 21.4	5.5 7.1	54.2 54.6	12.4 11.3	4.54 4.58	36.2 36.2	10.4 11.0	4.08 3.94	1.71 1.91		
Dc-4	18.5 17.9		5.3 7.0		12.5 11.2	4.62 4.54		10.4 11.0	4.10 3.92	1.66 1.91		
Σ												
DC-AV	36.32	43.6	12.47	108.8	23.77	9.18	72.4	21.37	8.01	3.58		
AC-1	18.0	21.8	6.15	54.2	11.6	4.46	36.2	10.6	3.94	1.74		
AC-2	18.0	21.8	6.15	54.2	11.6	4.46	36.2	10.6	3.94	1.74		
Σ	36.0	43.6	12.3	108.4	23.2	8.92	72.4	21.2	7.88	3.48		
S. P.	+10.5	-3.1		+3.8			-9.7					
AC-N	.05	.05		.06			.15					
Pot. Res												

2

1.1 - 3.3

2 - 7 %

Kilroy 3 memos each of (includes plan sketch)

Salome Area

House

2 copies each of prelim sections

4.6

$\sqrt{\frac{[illegible]}{[illegible]}} = \sqrt{[illegible]} = 2.3$

$\sqrt{\frac{[illegible]}{[illegible]}} = \sqrt{3}$ 1.7

0.8

1 - 5 %

March 7, 1967

Mr. Oliver B. Kilroy
Stanford Inn
Room 31
Salome, Arizona

Dear Mr. Kilroy:

As you requested last week, here is a brief memorandum on the second phase of induced polarization reconnaissance over the Salome Area done February 27 and 28, 1967. This work consists of one spread on Line 1 and one-half spread on Line 2, and are considered to be in the Vicksburg Area as distinct from Salome. This additional coverage has been added to the first phase Preliminary Induced Polarization and Interpretation Plan.

The Vicksburg work found an extremely strong anomaly, particularly on Line 1. This anomaly is at least 6,000 feet long and indicates from 5% to 20% total sulfide (and possibly graphite) by volume which is roughly 10% to 40% total sulfide by weight along at least the 4,000' from Station 10W to 30E on Line 1. Line 2 also shows some strong anomalism but more limited in extent. The best zone being a narrow anomaly between 0 and 10W.

Both lines suggest sulfides within about 300 feet of the surface and having depth extent to at least 1000 feet below surface. Also, Line 1 shows a strong (up to 370 millivolts) self potential low (see plot) between 10W and 30E, further suggesting oxidizing sulfides in significant quantities within several hundred feet of the surface.

Because of the size and strength, this is a very interesting anomaly and should definitely be further pursued by geophysics and drilling. The surface rock type correlating with this anomaly is apparently a black phyllite or slate. Several samples

of this material were tested in the laboratory and did not show any significant polarization, although a sample of what appears to be the same rock-type taken a mile or so north shows considerable pyrite. This pyritic material, if also occurring in the area of the anomaly, could be the cause of the anomaly and not necessarily be of much economic interest. In fact, anomalies of this size and continuity are often formational rock-type anomalies resulting from syngemetic pyrite or graphite and not generally of much economic importance. However, an anomaly this strong should definitely be tested unless a non-economic cause is obvious from surface geology.

A 500± foot vertical drill hole at or near 0 E-W on Vicksburg, Line 1 would likely intersect sulfides and explain the anomaly and determine its economic significance. It is suggested that representative drill samples be sent to us for laboratory testing to be certain of verifying the anomaly and procuring maximum feedback.

There is possibly some relation between the Line 1, Salome Area anomaly and the Vicksburg anomaly and further work may even show them to be parts of the same anomaly.

Enclosed are two copies each of the Plan, Sectional Data Plots for Line 1 and 2, and a self potential plot. If we can be of further service, please let us know.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig
Senior Geophysicist

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OFFICIAL BUSINESS

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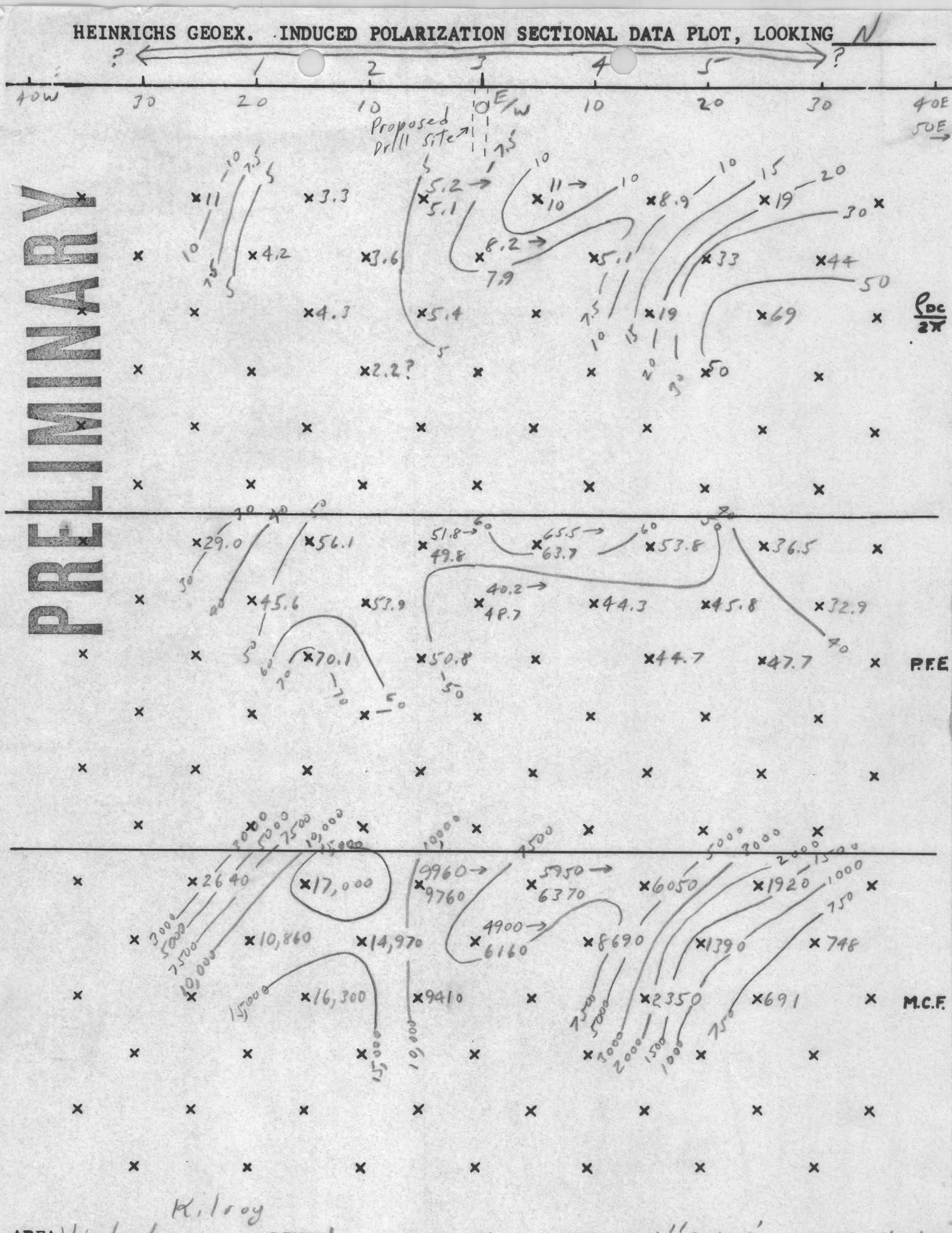
POD Form 3811 Jan. 1965 c55—16—71548-7

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N

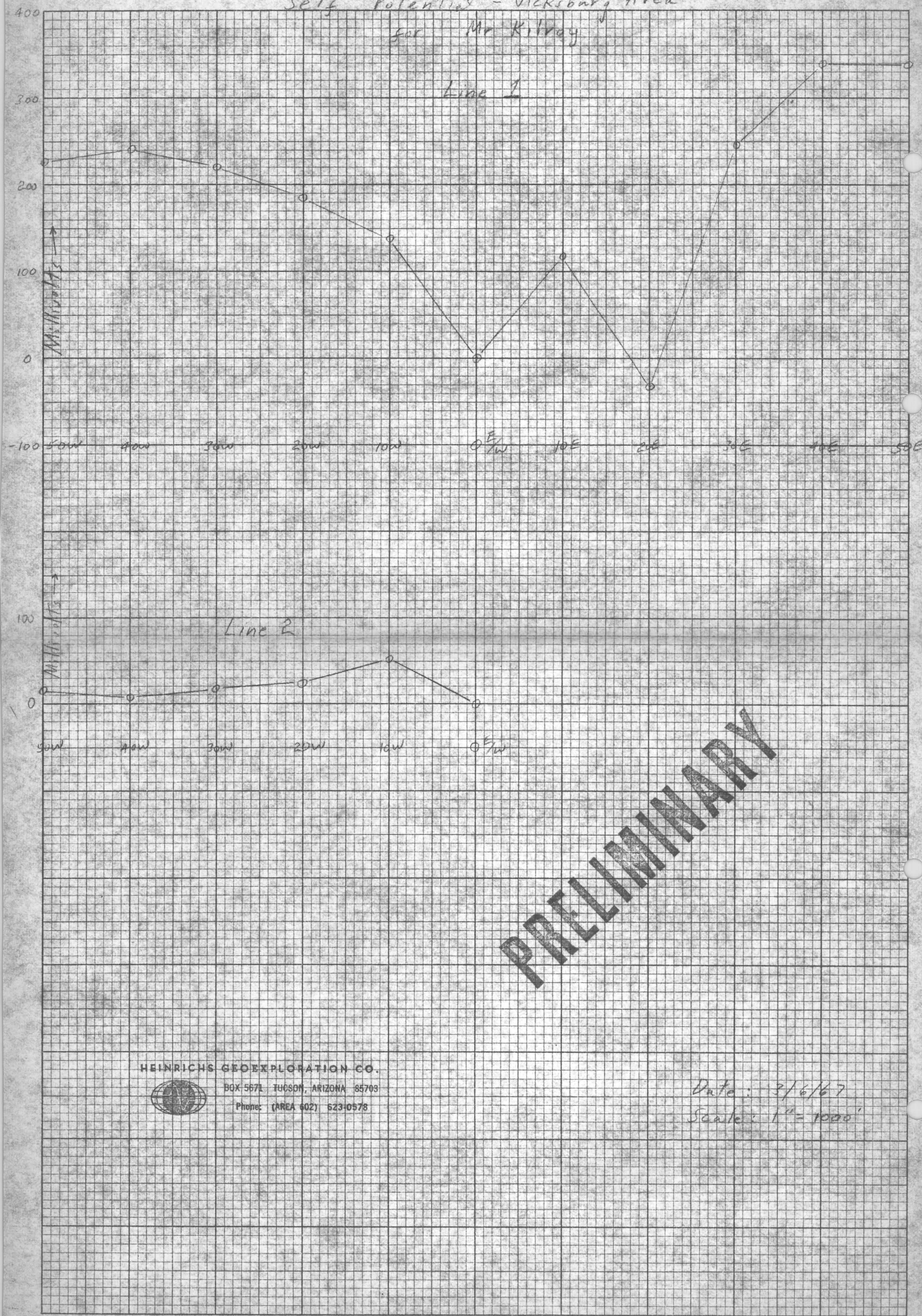


AREA Vicksburg LINE 1 a = 1000' SCALE: 1" = 1000' DATE: 3/2/67

Kilroy

K+E 10 X 10 TO THE INCH 359-5DLG
KEUFFEL & ESSER CO. MADE IN U.S.A.

Self Potential - Vicksburg Area for Mr Kilroy

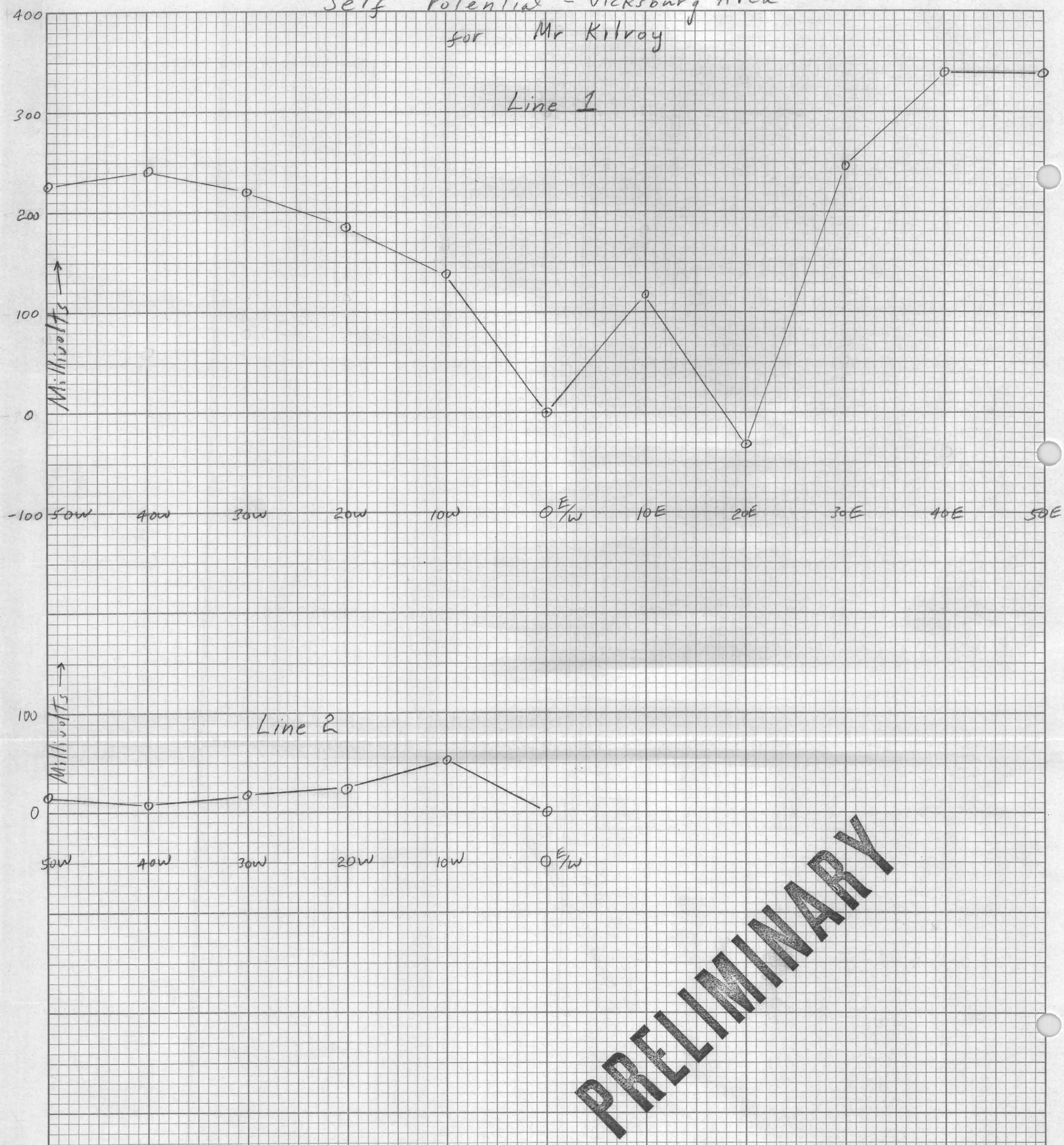


HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Date: 3/6/67
Scale: 1" = 1000'

K+E 10 X 10 TO THE INCH 359-5DLG
KEUFFEL & ESSER CO. MADE IN U.S.A.

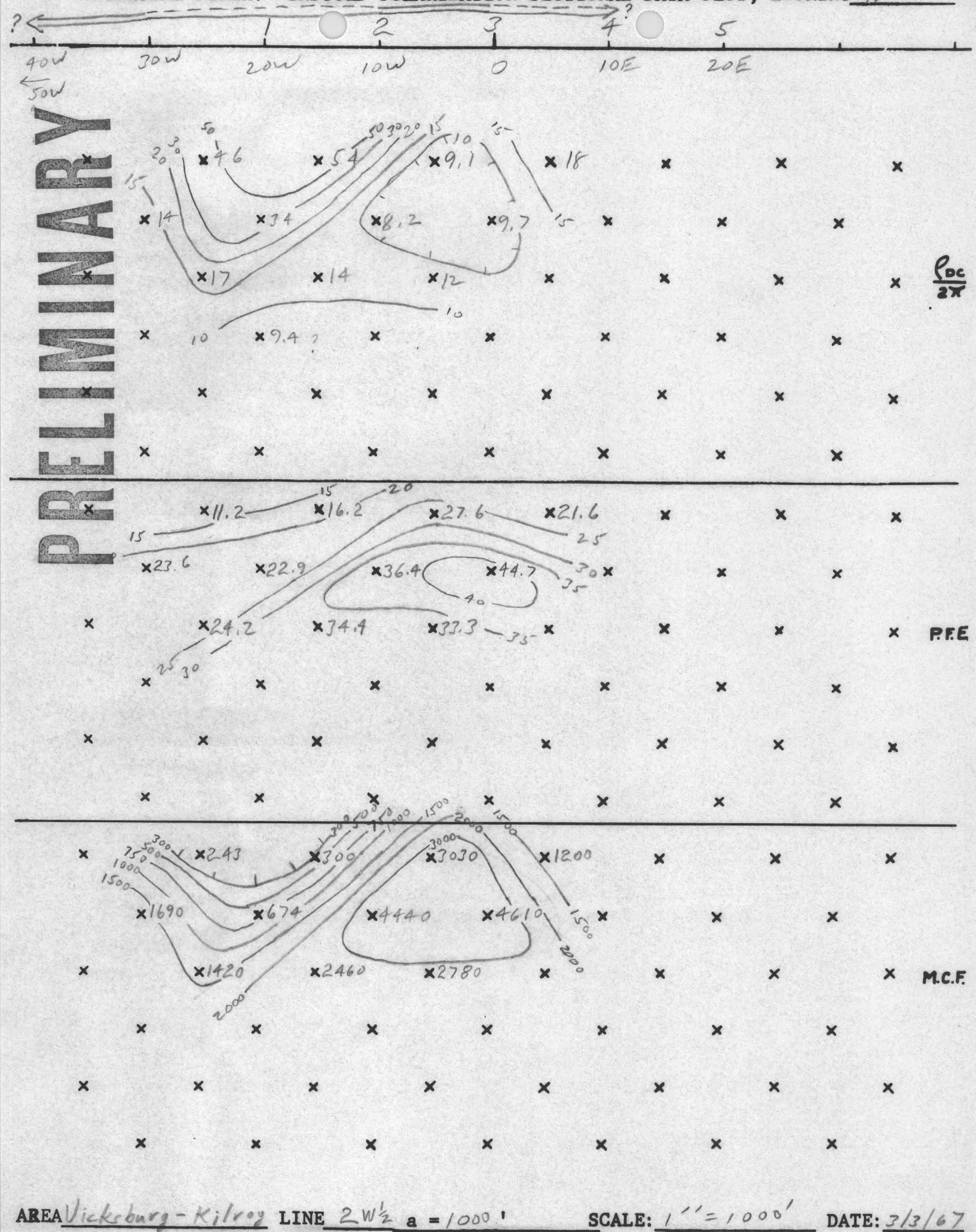
Self Potential - Vicksburg Area for Mr Kilroy



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

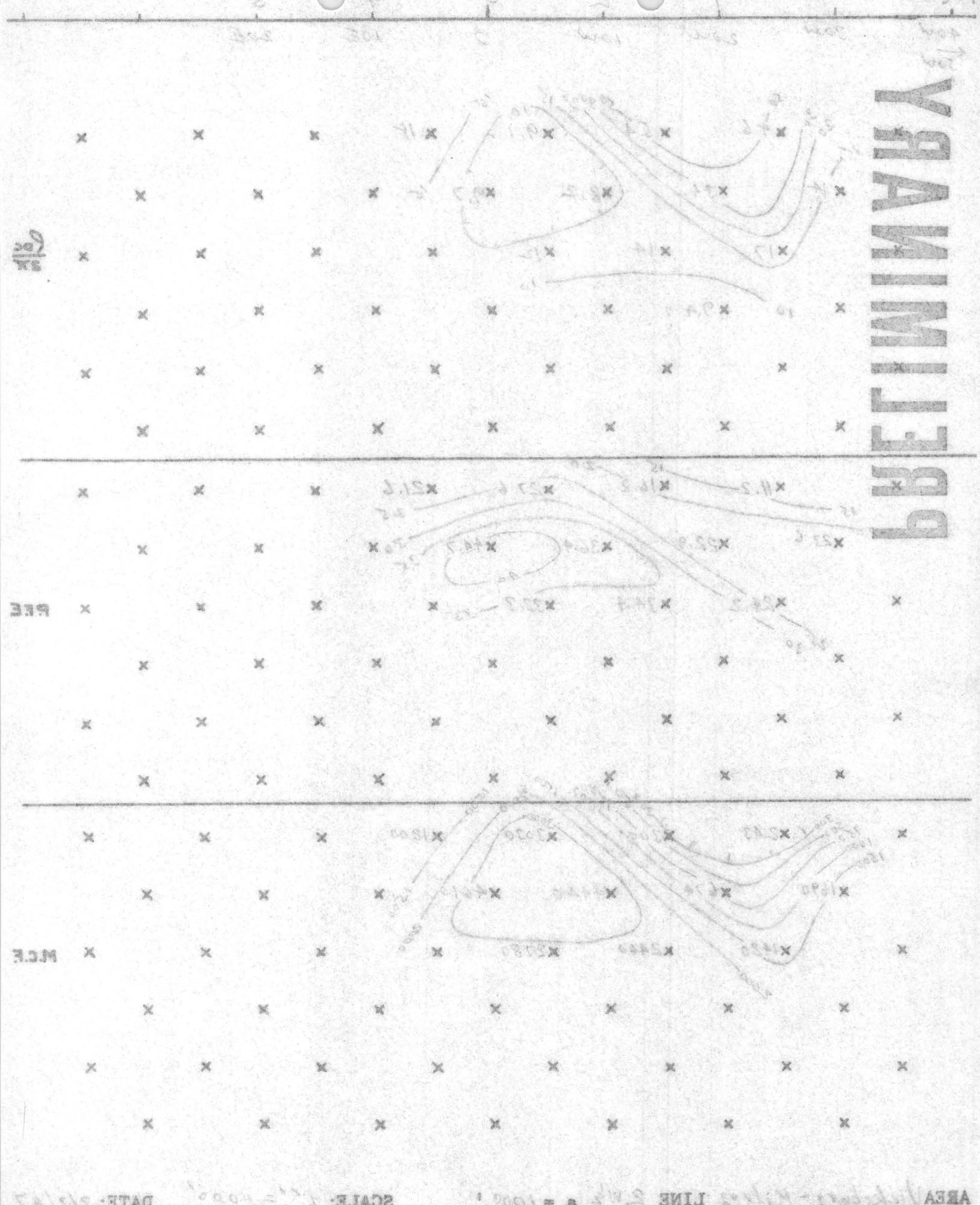
Date: 3/6/67
Scale: 1" = 1000'

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N



AREA Vicksburg-Kilroy LINE 2W½ a = 1000' SCALE: 1" = 1000' DATE: 3/3/67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING _____



AREA _____ LINE _____ SCALE: _____ DATE: _____

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Kilroy - Vicksburg
LINE 1 HALF W½ SP. 1 DATE 2-27-6

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	10	→	→	→	→	→	→	→	→	→
VOLTAGE	280	280	250	250	240	260	160	250	230	→ VOID
CURRENT	2.0	2.0	2.0	1.5	2.0	2.0	.5	1.5	2.0	
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal.	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE	10	→	→	→	→	→	→	→		
VOLTAGE									250	
CURRENT									.5	

FREQUENCIES .05 3.0

SENDER NO. Mk 7

OPERATOR M. Fraker

RECEIVER NO. 106615

OPERATOR R. Palmer

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy – Vicksburg
LINE 1 HALF W/2 SP. 1 DATE 2-27-67

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	10	10	3	3	1	1	3	1	1	
DC 1	6.84	3.18	1.55	1.61	.640	.238	1.87	.590	0.150	
DC 2	7.18	4.02	1.22	1.78	.626	.498	1.98	.510	.420	
DC 3	6.98	3.06	1.57	1.65	.642	.360	1.81	.668	.100	
DC 4	7.06	4.12	1.17	1.74	.622	3.40	2.04	.436	.484	
DC 5	7.06	3.02	1.61	1.70	.648	.358	1.74	.738	.326	
DC 6	6.94	4.16	1.12	1.69	.604	.402	2.10	.378	.264	
DC 7	7.18	2.96	1.65	1.74	.682	.318	1.68	.504	.274	
DC 8	6.80	4.20	1.08	1.65	.578	.440	2.18	.626	.320	
DC AVG.	7.03	3.58	1.379	1.70	.633	.374	1.911	.549	.300	
AC 1	4.26	2.37	0.92	1.08	0.408	.246	1.47	.374	.175	.50
AC 2	4.26	2.37	0.92	1.08	0.408	.246	1.47	.374	.175	
AC AVG.	4.26	2.37	.92	1.08	.408	.246	1.47	.374	.175	.05
S.P.	-133.7	-51.7		-35.4			-19.8			
AC NOISE	.03	.04		.04			.03			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Vicksburg

LINE 1 HALF W/2 SP. 1 DATE 2-27-67

PAGE 2

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal.	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE									100	
DC 1									52.2	
DC 2									52.2	
DC 3									52.2	
DC 4									52.2	
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.										
AC 1									51.8	
AC 2									51.8	
AC AVG.										
S.P.	+14.6									
AC NOISE	.04									
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Killroy - Vicksburg

LINE #1 HALF EAST SP. 1 DATE 7/28/76

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-1000	1000 -	2000	2000 -	3000	→	3000 -	4000	→	→
RANGE	10	→	→	→	→	→	→	→	→	→
VOLTAGE	2	165	150	220	165	—	240	220	160	—
CURRENT	1.0	1.0	.5	2.0	1.0	—	2.0	2.0	1.0	—
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL LAMP	
RECEIVE	4000 -	5000	→	→					4-5	
RANGE	10	→	→	→	→	→	→	→		
VOLTAGE	240	220	165	—						
CURRENT	2.0	2.0	1.0	—						

FREQUENCIES .05 3.0

SENDER NO. MK 7

OPERATOR M. Franker

RECEIVER NO. 10661R

OPERATOR R. Palmer

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Vicksburg
LINE 1 HALF E/2 SP. 1 DATE 2-27-67

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	3	10	1	10	1	—	30	10	1	
DC 1	1.60	3.92	.486	5.42	.648	—	12.0	5.88	6.02	
DC 2	1.95	3.38	.242	6.58	.082		14.0	5.18	8.02	
DC 3	1.63	3.76	.494	5.48	.442		12.0	6.00	.510	
DC 4	1.82	3.44	.200	6.62	.602		14.0	4.82	.784	
DC 5	1.76	3.78	.412	5.38	.244		11.7	6.46	.516	
DC 6	1.74	3.42	.368	6.84	.692		14.3	4.58	.780	
DC 7	1.86	3.58	.350	5.18	.268		11.6	6.60	.498	
DC 8	1.62	3.64	.224	6.82	.682		14.4	4.82	.784	
DC AVG.	1.767	3.59	.346	6.03	4.28		12.97	5.57	.655	
AC 1	1.17	2.18	.248	3.94	.298	—	9.55	3.84	.455	—
AC 2	1.17	2.18	.248	3.94	.298	—	9.55	3.84	.455	—
AC AVG.	1.17									
S.P.	-118.0	+149.9		-279.7			-92.1			
AC NOISE	.03	.03		.04						
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Vicksburg

LINE 1 HALF E/2 SP. 1 DATE 2-27-67

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	Cal.	
RECEIVE	40-50	→		→	50-60	→		→	4-5	
RANGE	10	10							300	
DC 1	8.22	4.94							101.5	
DC 2	6.90	4.30							101.5	
DC 3	7.88	4.78							101.5	
DC 4	6.84	4.44							101.5	
DC 5	8.18	4.84								
DC 6	6.48	4.54								
DC 7	8.28	4.88								
DC 8	6.64	4.68								
DC AVG.	7.43	4.66								
AC 1	5.62	3.17							102.0	
AC 2	5.62	3.17							102.0	
AC AVG.										
S.P.	+1.3									
AC NOISE	.03									
POT RES.										

GEOEXPLORATION COMPANY
BOX 5671, TUCSON, ARIZONA, 85703.
PHONE: (AREA CODE 602) 623-0878
Cable: GEOEX

I. P. COMPUTING FORM

PROJECT Vicksburg

CLIENT Kilroy "a" SPACING 1000' DATE 2/27/0

LINE 1 SPREAD 1 BEARING E-W

ALF W½																		
SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5				
RECEIVE	0-10	10-20	→	20-30	→		30-40	→			40-50	→						
CURRENT IN AMPS: I	2	2	2	1.5	2	2	.5	1.5	2	2?								
V(DC AVG.) MILLIVOLTS	7.03	3.58	1.379	1.70	.633	.374	1.911	.549	.300	.075?								
K_n / 1000	3	3	12	3	12	30	3	12	30	60								
ρ_c /2π =(2)(3)(DC CAL)/(1)	10	5.1	7.9	3.3	3.6	5.4	11	4.2	4.3	2.2?								
V(AC AVG.) MILLIVOLTS	4.26	2.37	.92	1.08	.408	.246	1.47	.374	.175	.05								
AC NOISE MILLIVOLTS																		
V(AC CORR) MILLIVOLTS																		
FE=[(2)(AC/DC CAL)/(6)-1]100	63.7	49.8	48.7	56.1	53.9	50.8	29.0	45.6	70.1									
CF = 1000PFE/ρ_{DC}/2π	6370	9764	6165	17,000	14,970	9407	2636	10,857	16,300									
P IN MILLIVOLTS																		

CALIBRATION	HALF	W½						
END		1-2	4-5					
RECEIVE		2	4					
CURRENT IN MILLIAMPS: I CAL		500	1000					
V CAL (DC AVG.) MILLIVOLTS		52.2	101.5					
C CAL = (1)/10 (2)		.958	.985					
V CAL (AC AVG.) MILLIVOLTS		51.8	102.0					
C/DC CAL = (3)/(2)		.992	1.005					

COMPUTED BY: C.S.L.

CHECKED BY: JWM

RECEIVER OPERATOR R.E.P.

FORMULAS:

$K_n = \frac{an(n+1)(n+2)}{2}$ (a is in feet)

$V(AC\ CORR) = (6) = \sqrt{(4)^2 - (5)^2}$

USE ONLY IF AC NOISE x 10 IS GREATER THAN V(AC AVG.) OTHERWISE USE (4)

HALF E																		
SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4						
RECEIVE	0-10	10-20	→	20-30	→		30-40	→		→	40-50	→						
CURRENT IN AMPS: I	1	1	.5	2	1	—	2	2	1	—	2	2	1					
V(DC AVG.) MILLIVOLTS	1.767	3.59	.346	6.03	4.28		12.97	5.57	.655		7.43	4.66						
K_n /1000	3	3	12	3	12	30	3	12	30	60	12	30						
ρ_c / 2π =(2)(3)(DC CAL) /(1)	5.2	11	8.2	8.9	5.1		19	33	19		44	69						
V(AC AVG.) MILLIVOLTS	1.17	2.18	.248	3.94	.298		9.55	3.84	.455		5.62	3.17						
AC NOISE MILLIVOLTS																		
V(AC CORR) MILLIVOLTS																		
FE=[(2)(AC/DC CAL)/(6)-1]100	51.8	65.5	40.2	53.8	44.3		36.5	45.8	44.7		32.9	47.7						
CF = 1000PFE/ρ_{DC}/2π	9960	5950	4900	6050	8690		1920	1390	2350		748	691						
P IN MILLIVOLTS																		

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT Killroy - Vicksburg
LINE #2 HALF W½ SP. 1 DATE 2/28/6

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-1000	1000 - 2000		2000 - 3000	→		3000 - 4000		→	
RANGE										
VOLTAGE	355	265	190	260	265	190	255	260	260	120
CURRENT	1.0	1.0	.5	1.0	1.0	.5	1.0	1.0	1.0	.5
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL .5	
RECEIVE	4000 - 5000		→		5000 - 6000		→		1-2	
RANGE	10	→								
VOLTAGE	255	260								
CURRENT	1.0	1.0								

FREQUENCIES .05 3.0
SENDER NO. MK.7
OPERATOR M. Zraker
RECEIVER NO. 10661R
OPERATOR R. Palmer

COMMENTS:

0	0
52	52
-27	25
-7	18
-10	8
8	16

60
44

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PAGE

PROJECT Kilroy - Vicksburg

LINE 2 HALF W/2 SP. 1 DATE 2-28-67

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	10	10	1	30	1	1	30	10	1	1
DC 1	6.68	2.98	3.28	18.8	.758	.258	16.5	2.68	5.16	
DC 2	6.06	3.38	5.18	18.8	.688	.164	15.4	3.42	4.38	
DC 3	6.82	2.94	2.18	18.8	.798	.298	16.5	2.54	.542	
DC 4	5.90	3.48	6.38	18.8	.642	.120	15.4	3.48	418	
DC 5	7.02	2.82	2.96		.844			2.46	.546	
DC 6	5.76	3.56	5.38		.596			3.52	.416	
DC 7	7.08	2.74	3.38		.738			2.46	.540	
DC 8	5.74	3.66	4.78		.700			3.54	.400	
DC AVG.	6.41	3.18	4.21	18.8	.719	.217	15.95	3.00	.480	
AC 1	5.18	2.45	.286	15.9	.518	.160	14.1	2.40	.354	.180
AC 2	5.18	2.45	2.86	15.9	.518		14.1	2.40	.348	
AC AVG.									.351	
S.P.	-51.8	+26.5		+7.4			+10.2			
AC NOISE	.03	.04		.02			.02			
POT RES.	52	-27		-7			-10			

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PAGE

PROJECT Kilroy - Vicksburg

LINE 2 HALF W/2 SP. 1 DATE 2-28-67

SEND	1-2	2-3	3-4	4-5					cal.	
RECEIVE	40-50	→		→					1-2	
RANGE	3	1							100	
DC 1	1.24	.582							52.3	
DC 2	1.16	.618							52.3	
DC 3	1.27	.524							52.3	
DC 4	1.15	.678							52.3	
DC 5	1.24	.570								
DC 6	1.16	.602								
DC 7	1.27	.628								
DC 8	1.16	.578								
DC AVG.	1.207	.600								
AC 1	0.96	.475	.125						51.4	
AC 2	0.96	.475							51.4	
AC AVG.										
S.P.	-7.6								.983	
AC NOISE	.02									
POT RES.	8									

GEOEXPLORATION COMPANY
BOX 5871. TUCSON, ARIZONA, 85703.
PHONE: (AREA CODE 602) 623-0578
Cable: GEOEX

I. P. COMPUTING FORM

PROJECT Vicksburg

CLIENT Kilroy "a" SPACING 1000' DATE 3/3/67

LINE 2 SPREAD 1 BEARING E-W

HALF W														
SEND	4-5	3-0	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4	
RECEIVE	0-10	10-20	W →	20-30	W →		30-40	W →		→	40-50	W →		
1) CURRENT IN AMPS: I	1	1	.5	1	1	.5	1	1	1	.5	1	1	1?	
2) V(DC AVG.) MILLIVOLTS	6.41	3.18	.421	18.8	.719	.217	15.95	3.00	.480	.225	1.207	.600	.156	
3) K_n / 1000	3	3	12	3	12	30	3	12	30	60	12	30	60	
$\rho_{DC}/2\pi$ =(2)(3)(DC CAL)/(1)	18	9.1	9.7	54	8.2	12	46	34	14	27?	14	17	9.4?	
4) V(AC AVG.) MILLIVOLTS	5.18	2.45	.286	15.9	.518	.160	14.1	2.40	.351	.180	.96	.475	.125	
5) AC NOISE MILLIVOLTS														
6) V(AC CORR) MILLIVOLTS														
PFE=[(2)(AC/DC CAL)/(6)-1]100	21.6	27.6	44.7	16.2	36.4	33.3	11.2	22.9	34.4	—	23.6	24.2	—	
MCF=1000PFE/ρ_{DC}/2π	1200	3030	4610	300	4440	2780	243	674	2460	—	1690	1420	—	
SP IN MILLIVOLTS														

CALIBRATION	HALF W
SEND	1-2
RECEIVE	2?
1) CURRENT IN MILLIAMPS: I CAL	500
2) V CAL (DC AVG.) MILLIVOLTS	52.3
DC CAL = (1)/10 (2)	.956
3) V CAL (AC AVG.) MILLIVOLTS	51.4
AC/DC CAL = (3)/(2)	.983

COMPUTED BY: C. S. L.

CHECKED BY:

RECEIVER OPERATOR R. E. P.

FORMULAS:

$K_n = \frac{an(n+1)(n+2)}{2}$ (a is in feet)

V(AC CORR) = (6) = $\sqrt{(4)^2 - (5)^2}$

USE ONLY IF AC NOISE x 10 IS GREATER THAN V(AC AVG.) OTHERWISE USE (4)

HALF														
SEND														
RECEIVE														
1) CURRENT IN AMPS: I														
2) V(DC AVG.) MILLIVOLTS														
3) K_n / 1000														
ρ_{DC} / 2π =(2)(3)(DC CAL) / (1)														
4) V(AC AVG.) MILLIVOLTS														
5) AC NOISE MILLIVOLTS														
6) V(AC CORR) MILLIVOLTS														
PFE=[(2)(AC/DC CAL)/(6)-1]100														
MCF=1000PFE/ρ_{DC}/2π														
SP IN MILLIVOLTS														

Centered at
EC 60-66

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 4 HALF W 1/2 SP. 1 DATE 2-23

SEND	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	
RECEIVE	10-20	→	20-30	→	→	30-40	→	→	→	
RANGE	100	30	300	30	10	100	10	18	3	
DC 1	56.4	12.0	89.0	15.1	442	63.4	7.50	2.78	1.85 170	
DC 2	53.7	10.0	84.0	17.4	456	62.8	7.34	3.42	2.08 210	
DC 3	55.8	11.5	88.0	15.5	444	63.6	7.44	2.68	1.73	
DC 4	54.0	10.5	84.0	17.8	460	62.6	7.38	3.56	2.10	
DC 5	55.6	11.3	87.0	15.0	440	63.6	7.38	2.60	1.70	
DC 6	54.2	10.6	85.0	17.9	466	62.4	7.44	3.56	2.14	
DC 7	55.6	11.2	87.0	15.0	417	63.9	7.34	2.57	1.68	
DC 8	54.0	10.9	85.0	17.9	482	62.4	7.58	3.64	1.20	
DC AVG.	109.7	21.8	172	32.9	898.6	126.2	14.76	6.17	3.86	
AC 1	44.4	8.40	76.0	14.15	3.38	50.4	5.25	2.20	1.51	
AC 2	44.4	8.40	76.0	14.15	3.38	50.4	5.25	2.20	1.51	
AC AVG.	88.8	16.80	152.0	28.30	6.76	100.8	10.50	4.40	3.02	
S.P.	+1		-14			+42			?	
AC NOISE	.06		.05			.05		old mine		
POT RES.									↑	

EC 60-66

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Salome

LINE 4 HALF W SP. 1 DATE 2-23

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE	300	10	3	3	3	3	3		300	
DC 1	16.0	4.56	2.27 271	159 168	221	1.55 1.91	083 0.94		206	
DC 2	16.1	4.08	2.64 226	197 198	241	1.11 1.39	1.41 1.25		206	
DC 3	15.5	4.62	2.19	169	208	1.94	0.91		206	
DC 4	16.4	4.12	2.84	209	261	1.53	1.33		206	
DC 5	15.6	4.48	2.26	154	216	1.54	0.94			
DC 6	16.5	4.52	2.29	197	230	0.86	1.27			
DC 7	15.3	4.00	2.45	179	211	1.76	0.95			
DC 8	16.1	4.56	2.31	160		1.38	1.24			
DC AVG.	31.8	8.68	4.88	358	457	3.0	2.23		412	
AC 1	14.55	3.44	1.89	1.48	191	1.16	0.92		206	
AC 2	14.55	3.44	1.91	1.47	1.90	1.16	0.92		206	
AC AVG.	29.10	6.88	3.80	2.95	3.81	2.32	1.89		412	
S.P.	-107				-34					
AC NOISE	.06				.06					
POT RES.					missed reading					

1000'

10:06

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT KILROY-SALOME

LINE 4 HALF W SP. 1 DATE 23 Jun 68

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10 W	10-20 W →		20-30 W	→		30-40 W		→	
RANGE		Hi	Lo	Lo	Hi	Lo	Lo	Lo	Hi	Lo
VOLTAGE		320	590	610	320	590	730	610	320	580
CURRENT		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2
RECEIVE	40-50 W	→			50-60 W	→				
RANGE	Lo	Lo	Hi	Lo	Lo	Lo	Hi *	Lo	Lo	Lo
VOLTAGE	720	610	320	580	720	600	320	580	500	500
CURRENT	3.0	3.0	3.0	3.0	3.0	3.00	3.0	3.0	2.0	2.0

FREQUENCIES .05 1.0

SENDER NO. ~~HIX~~ 156735

OPERATOR HIX

RECEIVER NO. 5644R

OPERATOR PALMER

COMMENTS: No AC 2½ 3/4 ✓

No AC 2½ 3/4 *

10

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy - Salome Line 4 Sp1 W1/2 Field date 2-23-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5			
(B) Receive	10-20	→	20-30	→	→	30-40	→	→	→			
(C) n separation	1	2	1	2	3	1	2	3	4			
(D) I	3A	→	→	→	→	→	→	→	→			
(E) Vdc (avg)	109.7	21.8	172	32.9	8.99	126.2	14.76	6.17	3.86			
(F) DCcal	.485											
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60			
(H) ρ dc=ExFxGx10^3/D	53	42	83	64	43	61	29	30	37			
(I) Vac Σ	88.8	16.8	152	28.3	6.76	100.8	10.5	4.40	3.02			
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	23.5	29.9	13.2	16.3	32.9	25.3	40.2	40.3	27.7			
(O) MCF=(M-1)(10^5)/H	443	712	159	255	765	415	1386	1343	749			

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	31.8	8.68	4.88	3.58		4.57	3.00	2.23		412		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	62	42	47	61		44	51	61				
(I) Vac Σ	29.1	6.88	3.80	2.95	3	3.81	2.32	1.84		412		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	9.2	26.3	28.4	21.3	2	20.0	29.3	21.2				
(O) MCF=(M-1)(10^5)/H	148	626	609	349		455	575	348				

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT KILROY - SALOME

LINE 5 HALF W½ SP. ____ DATE 24 7/

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10W	10-20W	→	20-30W	→	→	30-40W	→	→	→
RANGE	Lo	Lo	Hi	Lo	Lo	Hi	Lo	Lo	Lo	Hi
VOLTAGE	480	880	480	730	860	480	780	720	850	470
CURRENT	4.0	4.0	4.0	4.0	4.6	4.6	4.0	4.0	4.0	4.0
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2
RECEIVE	40-50W	→	→	→	50-60W	→	→	→		
RANGE	Lo	Lo	Lo	Hi	Lo	Lo	Lo	Hi		Hi
VOLTAGE	780	720	850	470	780	720	830	460	2.0	400
CURRENT	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		2.0

FREQUENCIES .05 1.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 5644 R

OPERATOR PALMER

COMMENTS: 15 min. move Time 10 cy

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Salome

LINE 5 HALF W 1/2 SP. 1 DATE 2-24

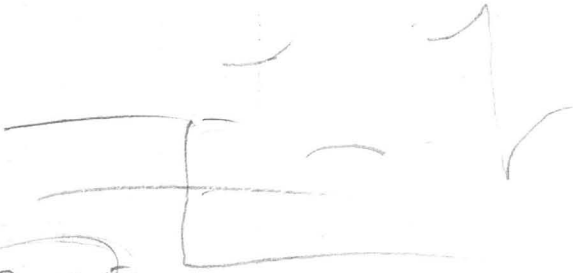
SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	300	300	100	100	100	30	100	30	30	10
DC 1	126	153	38.8	64.5	23.6	13.6	58.8	14.6	10.6	8.38 8.28
DC 2	125	147	36.4	65.4	28.6	14.9	57.4	17.6	11.6	7.77 7.88
DC 3	126	153	38.4	64.4	23.4	13.7	59.2	14.6	10.5	8.26
DC 4	125	147	37.0	66.0	29.0	15.4	57.4	17.6	11.65	7.82
DC 5			38.0	63.0	22.4	13.4	59.4		10.65	8.20
DC 6			37.6	66.2	29.6	15.5	57.0		11.65	7.64
DC 7			37.8	63.0	23.0	12.9	59.4		10.5	8.44
DC 8			38.0	66.2	30.0	15.3	57.2		11.75	8.32
DC AVG.	251	300	75.31	129.53	52.23	28.64	116.51	32.2	22.21	16.19
AC 1	113	124	32.6	52.4	21.7	11.8	47.8	13.3	9.10	6.76
AC 2	113	124	32.6	52.4	21.6	11.8	47.8	13.3	9.10	6.76
AC AVG.	226	248	65.2	104.8	43.3	23.6	95.6	26.6	18.2	13.52
S.P.	+2	+9		+2			-72			
AC NOISE	.05	.04		.05			.05			
POT RES.				Old mine						

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 5 HALF W SP. 1 DATE 2-24

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	Cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE	30	10	10	10	10	10	3	3	300	
DC 1	10.7	5.54	4.00	3.63	5.64	3.02	2.44	2.01	203.5	
DC 2	12.2	6.60	5.24	3.52	4.94	3.26	2.76	2.27	203.5	
DC 3	10.9	5.32	4.00	3.60	5.96	2.96	2.49	2.00	203.5	
DC 4	12.1	6.70	5.02	3.56	4.74	3.37	2.67	2.33	203.5	
DC 5	10.9	5.42	4.04	3.54	6.20	2.88	2.55	1.89		
DC 6	12.3	6.46	5.02	3.70	4.50	3.38	2.69	2.46		
DC 7	10.9	5.48	3.94	3.46	6.34	2.88	2.61	1.84		
DC 8	12.2	6.46	5.16	3.58	4.34	3.44	2.64	2.49		
DC AVG.	23.07	11.99	9.10	7.14	10.76	6.27	5.23	4.30	407	
AC 1	9.40	4.98	3.72	2.95	4.52	2.63	2.16	1.78	204.5	
AC 2	9.40	4.98	3.72	2.95	4.52	2.63	2.15	1.78	204.5	
AC AVG.	18.8	9.96	7.44	5.90	9.04	5.26	4.31	3.56	409	
S.P.	-63				+78					
AC NOISE	.06				.05					
POT RES.										



0.025

0.001

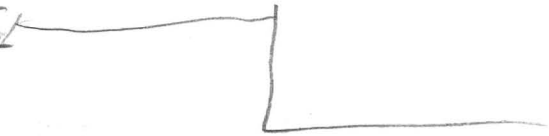
U_0

0.025CPS

V_p

$\left(\frac{nV}{U}\right) \propto \theta$

I



V

$\frac{V_s}{V_p}(t)$

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy - Salome Line 5 Sp/ W½ Field date 2-24 Data page_____ Comp. date_____. Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	4 A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	251	300	75.31	129.53	52.23	28.64	116.51	32.2	22.21	16.19		
(F) DCcal	.491											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	92	110	111	48	80	105	43	47	82	119		
(I) Vac Σ	226	248	65.2	104.8	43.3	23.6	95.6	26.6	18.2	13.52		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.005	1										
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	11.6	21.6	16.1	24.2	21.2	22.0	22.5	21.7	22.6	20.3		
(O) MCF=(M-1)(10^5)/H	126	196	145	504	265	210	523	462	276	171		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	4A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	23.07	11.99	9.10	7.14	10.76	6.27	5.23	4.30		407		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	34	44	69	92	40	46	67	89				
(I) Vac Σ	18.8	9.96	7.44	5.90	9.04	5.26	4.31	3.56		409		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	23.3	21.0	22.9	21.6	19.6	20.0	22.0	21.4				
(O) MCF=(M-1)(10^5)/H	685	477	342	235	490	435	328	240				

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 6 HALF W SP. 1 DATE 2-27

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	1-2	
RANGE	30	30	10	10	30	30	10	10	300	
DC 1	27.4	12.8	7.94	5.84	18.1	10.7	8.58	7.44	208	
DC 2	27.5	12.6	7.92	5.54	18.7	11.6	9.28	6.98	208	
DC 3	27.3	12.3	7.66	5.66	18.4	11.8	8.40	7.06	208	
DC 4	26.9	12.7	8.28	5.64	18.8	11.8	9.82	7.22	208	
DC 5	27.9	12.3	7.56	5.62	18.4	11.5	8.60	7.22		
DC 6	26.8	13.1	8.06	5.74	18.5	11.4	9.18	7.14		
DC 7	27.8	13.2	7.92	5.74	18.1	12.1	8.80	7.16		
DC 8	26.5	11.5	8.18	5.62	19.0	10.9	8.96	7.24		
DC AVG.	54.61	25.24	15.85	11.33	36.99	23.29	17.96	14.32	416	
AC 1	23.7	10.7	6.78	4.82	15.7	9.80	7.64	6.08	209	
AC 2	23.7	10.7	6.78	4.82	15.7	9.70	7.64	6.08	209	
AC AVG.	47.4	21.4	13.56	9.64	31.4	19.5	15.28	12.16	418	
S.P.	-189				-153					
AC NOISE	.05				.05					
POT RES.										

28

35

31

-49

-238

-391

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy-Salome

LINE 6 HALF W SP. 1 DATE 2-27

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	300	300	100	300	100	30	300	100	30	30
DC 1	265	259	82.2	122	35.9	18.9	169	51.5	27.6	16.9
DC 2	262	259	82.8	123	33.8	17.3	168	48.7	26.1	17.6
DC 3	265	259	82.0	122	35.9	18.6	169	51.5	27.4	16.6
DC 4	262	259	83.2	123	33.8	17.4	168	48.7	26.3	17.9
DC 5			82.0			18.4			27.3	16.6
DC 6			82.6			17.5			26.0	17.6
DC 7			81.8			18.7			27.5	17.0
DC 8			83.8			17.1			26.1	17.5
DC AVG.	527	518	164.97	245	69.7	35.97	337	100.2	53.56	34.43
AC 1	251.5	240.0	74.8	107	29.8	15.4	149	43.4	23.3	14.9
AC 2	251.5	240.0	74.8	107	29.8	15.4	149	43.4	23.3	14.9
AC AVG.	503.0	480.0	149.6	214	59.6	30.8	298	86.8	46.6	29.8
S.P.	+28	+7		-4			-80			
AC NOISE	.04	.04		.05			.05			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT KILROY - SALOME

LINE 6 HALF W SP. ____ DATE 27 Feb 68

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-10W	10-20 W →		20-30 W →			30-40W			
RANGE	Lo	Hi	Lo	Lo	Hi	Lo	Lo	Lo	Hi	Lo
VOLTAGE	720	480	720	550	480	710	670	550	470	710
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2-2
RECEIVE	40-50 W →				50-60 W →					
RANGE	Lo	Lo	Hi	Lo	Lo	Lo	Hi	Lo	Hi	
VOLTAGE	660	540	470	700	660	540 ✓	470	700	280	
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2 A	

FREQUENCIES .05 1.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 5644 R

OPERATOR PALMER

COMMENTS:

12 cy.

✓ Low input voltage

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy - Salome Line 6 Sp1 W1/2 Field date 2-27-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	5A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	527	518	164.97	245	69.7	35.97	337	100.2	53.56	34.43		
(F) DCcal	.481											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	152	149	190	71	80	104	97	116	154	199		
(I) Vac Σ	503	480	149.6	214	59.6	30.8	298	86.8	46.6	29.8		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.005											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	5.3	8.5	10.8	15.1	17.5	17.4	13.7	16.0	15.5	16.1		
(O) MCF=(M-1)(10^5)/H	35	57	57	213	219	167	141	138	101	81		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	5A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	54.61	25.24	15.85	11.33	36.99	23.29	17.96	14.32		416		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	63	73	91	114	107	134	181	231				
(I) Vac Σ	47.4	21.4	13.56	9.64	31.4	19.5	15.28	12.16		418		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	15.8	18.5	17.5	18.1	18.4	20.0	18.1	18.4				
(O) MCF=(M-1)(10^5)/H	251	253	192	159	172	149	100	80				

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 7 HALF N40°W SP. 1 DATE 2-28

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	300	30	30	30	30	10	30	3	3	3
DC 1	123.5	25.4	10.6	20.3	10.3	7.20	11.4	1.91 195	249 224	211 211
DC 2	115.0	23.5	10.9	18.6	8.9	7.60	12.1	2.86 260	269 249	245 230
DC 3	128.5	26.1	10.5	20.2	10.2	7.02	11.5	2.05	202	197 225
DC 4	111.0	23.4	11.0	18.5	9.0	7.18	12.5	2.26	304	249 219
DC 5	131.0	26.4	10.6	19.6	10.1	7.26	11.4	2.45	214	190
DC 6	114.0	22.7	10.9	18.9	8.9	7.54	12.6	2.25	281	240
DC 7	130.0	26.0	10.5	19.9	10.1	7.22	11.3	1.86	204	216
DC 8	112.0	23.4	11.1	18.9	9.0	7.56	12.6	2.30	260	249
DC AVG.	242.07	49.29	21.5	38.6	19.1	14.63	23.83	4.50	4.68	4.49
AC 1	107	17.7	8.80	16.4	7.80	6.48	9.10	1.73	1.92	1.91
AC 2	107	17.7	8.80	16.4	7.80	6.48	9.10	1.73	1.93	1.91
AC AVG.	214	35.4	17.6	32.8	15.6	12.96	18.2	3.46	3.85	3.82
S.P.	-64	-158		+147			-67			
AC NOISE	.08	.06		.07						
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Kilroy - Salome
LINE 7 HALF N.W SP. 1 DATE 2-28

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	4-5	
RANGE	10	3	3	3	3	1	1	3	300	
DC 1	717 736	133 201	193 136	1.91 1.78	150		.456	.86 .25	204	
DC 2	750 744	179 155	203 296	2.24 2.50	156		285	.81 1.01	204	
DC 3	686 786	159 160	186	1.86	1.39		630	.42 .27	204	
DC 4	758 734	240	230	2.21	1.64		.570	1.10 .91	204	
DC 5	748	107	162	1.86	1.28			.27		
DC 6	764	251	259	2.40	1.82			.66		
DC 7	757	086	154	1.80	1.04			.39		
DC 8	746	096	266	2.39	1.99			.75		
DC AVG.	14.91	3.24	4.09	4.17	2.99			1.239	408	
AC 1	6.12	1.26	1.69	1.80	1.20	.170	.446	.520	206	
AC 2	6.12	1.26	1.69	1.79	1.20	42	.442	.520	206	
AC AVG.	12.24	2.52	3.38	3.59	2.40	.340	.888	1.04	412	
S.P.	+104				+47					
AC NOISE	.06				.05					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT KILROY - SALOME

LINE 7 HALF NW SP. ____ DATE 28 Feb 68

PAGE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10N	10-20N →		20-30N		→	30-40N			→
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO
VOLTAGE	920	760	920	990	760	910	1000	1000	760	910
CURRENT	4.0	5.0	4.0	2.0	5.0	4.0	2.0	2.0	5.0	4.0
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	2-3 HI
RECEIVE	40-50N		→		50-60N		→			
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	HI	
VOLTAGE	1000	1000	760	900	1000	1000	740	890	320	
CURRENT	2.0	2.0	5.0	4.0	2.0	2.0	5.0	4.0	2.0	

FREQUENCIES .05 1.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 5644R

OPERATOR PALMER

COMMENTS:

1-2 = 4 AMP X30 - 33.3 + 100 LO

2-3 = 5 AMP X30 - 667 + 100 LO

3-4 = 2 AMP X30 - 667 + 0 LO

4-5 = 2 AMP X30 - 667 + 0 LO

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy-Salome Line 7 Sp/ N40°W/2 Field date 2-28-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	4A	5A	4A	2.A	5A	4A	2A	2A	5A	4A		
(E) Vdc (avg)	242.07	49.29	21.5	38.6	19.1	14.63	23.83	4.50	4.68	4.49		
(F) DCcal	.490											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	89	14	32	28	22	54	18	13	14	33		
(I) Vac Σ												
(J) AC noise x 2	214	35.4	17.6	32.8	15.6	12.96	18.2	3.46	3.85	3.82		
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.010											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	14.2	40.6	23.4	18.9	23.7	14.0	32.2	31.4	22.8	18.7		
(O) MCF=(M-1)(10^5)/H	160	2900	731	675	1077	259	1789	2415	1629	567		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2A	2A	5A	4A	2A	2A	5A	4A		2A		
(E) Vdc (avg)	14.91	3.24	4.09	4.17	2.99	—	—	1.239		408		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	44	24	24	54	22	6 ?	11 ?	25				
(I) Vac Σ	12.24	2.52	3.38	3.59	2.40	.340	.888	1.04		412		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	23.0	29.9	22.2	17.3	25.8	—	—	20.3				
(O) MCF=(M-1)(10^5)/H	523	1246	925	320	1173			812				

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Salome

LINE 8 HALF NW SP. 1 DATE 2-29

PAGE

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	20-10 SE	10-0 →		0-10 NW →			10-20 →			
RANGE	1000	1000	300	1000	300	100	1000	300	100	100
DC 1	483	542	155	523	133	56.6	587	183	70.3	32.3
DC 2	481	541	151	515	128	60.0	590	180	62.3	36.5
DC 3	483	542	155	523	133	56.6	587	183	70.3	32.3
DC 4	481	541	151	515	128	60.0	590	180	60.3	36.5
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	964	1083	306	1038	261	116.6	1177	363	130.6	68.8
AC 1	480	537	149	507	125.5	55.9	577	174	63.3	32.6
AC 2	480	537	149	507	125.5	55.9	577	174	63.3	32.6
AC AVG.	960	1074	298	1014	251	111.8	1154	348	126.6	65.2
S.P.	-5	-6		+18			+2			
AC NOISE	.07	.06		.05			.05			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy - Salome

LINE 8 HALF NW SP. 1 DATE

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	20-30	→	→	→	30-40	→	→	→	1-2	
RANGE	300	100	100	30	100	100	30	30	300	
DC 1	160	78.0	34.6	21.0	50.4	31.7	16.0	8.50	206	
DC 2	161	75.8	33.4	18.8	52.6	35.2	14.1	11.9	206	
DC 3	160	78.0	34.6	21.1	49.2	31.2	17.2	9.50	206	
DC 4	161	75.8	33.4	18.6	53.8	26.5	14.4	10.8	206	
DC 5				21.1	51.5	31.4	18.5	9.60		
DC 6				18.7	53.7	26.5	14.1	9.50		
DC 7				21.0	51.2	31.8	16.0	10.0		
DC 8				18.8	53.4	26.2	14.0	9.90		
DC AVG.	321	153.8	68.0	39.77	103.97	60.44	31.23	20.14		
AC 1	151	71.7	31.0	18.0	48.4	27.4	13.65	8.90	208	
AC 2	151	71.7	31.0	18.0	48.4	27.4	13.65	8.90	208	
AC AVG.	302	143.4	62.0	36.0	96.8	54.8	27.3	17.8	416	
S.P.	+3				-3					
AC NOISE	.06				.07					
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT Kilroy - Salome
LINE 8 HALF SE SP. 1 DATE 2-28

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	cal	
RECEIVE	40-50	→	→	→	50-60	→	→	→	4-5	
RANGE	300	100	100	30	100	100	30	30	300	
DC 1	160	72.2	32.0	22.5	76.5	42.6	22.1	15.6	201.5	
DC 2	163	74.2	33.7	20.6	73.8	40.2	21.5	14.9	201.5	
DC 3	160	72.2	32.0	22.6	76.5	42.6	22.1	15.6		
DC 4	163	74.2	33.7	21.2	73.8	40.2	21.5	14.9		
DC 5				22.4						
DC 6				22.5						
DC 7				21.1						
DC 8				21.6						
DC AVG.	323	146.4	65.7	43.56	150.3	82.8	43.6	30.5	403	
AC 1	158	71.0	31.8	20.5	73.7	40.4	20.5	14.0	203	
AC 2	158	71.0	31.8	20.5	73.7	40.4	20.5	14.0	203	
AC AVG.	316	142	63.6	41.0	147.4	80.8	41.0	28.0	406	
S.P.	0				-2					
AC NOISE	.06				.06					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Kilroy Salome

LINE 8 HALF SE SP. 1 DATE 2-28

PAGE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10	10-20	→	20-30	→	→	30-40	→	→	→
RANGE	1000	1000	300	1000	300	100	1000	300	100	100
DC 1	557	502	171	526	124	66.6	475	149	58.0	35.8
DC 2	561	510	179	522	129	60.2	466	147	56.5	32.2
DC 3	557	502	171	526	124	67.4	475	149	58.0	35.8
DC 4	561	510	179	522	129	60.2	466	147	56.5	32.2
DC 5						67.4				
DC 6						60.6				
DC 7						66.6				
DC 8						60.0				
DC AVG.	1118	1012	350	1048	253	127.34	941	296	114.5	68.0
AC 1	546	497	168	517	122	60.4	463	144	54.5	31.8
AC 2	546	497	167	517	122	60.4	463	144	54.5	31.8
AC AVG.	1092	994	335	1034	244	120.8	926	288	109	63.6
S.P.	-27	-3		-21			-21			
AC NOISE	.07	.06		.07			.06			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT KILROY-SALOME

LINE 8 HALF NW SP. 1 DATE 29 Feb 68

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	20-10SE	10-0 →		0-10 NW	→		10-20	NW →		
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO
VOLTAGE	850	650	840	850	650	840	780	850	650	830
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2
RECEIVE	20-30	NW →			30-40	NW →				
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	HI	
VOLTAGE	770	860	640	820	770	850	640	820	320	
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	

FREQUENCIES .05 1.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 5644 R

OPERATOR PALMER

COMMENTS: 5 Amp LO. 10:15 am

X30 - 66.7 - 100.

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT KILROY - SALOME

LINE 8 HALF SE SP. ____ DATE ____

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-10SE	10-20SE →		20-30SE →			30-40 SE →			
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO
VOLTAGE	730	710	710	770	710	720	930	780	700	720
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5
RECEIVE	40-50SE →				50-60 SE →					
RANGE	LO	LO	LO	LO	LO	LO	LO	LO	HI	
VOLTAGE	920	760	700	710	920	750	690	710	380	
CURRENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	

FREQUENCIES .05 1.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO.

OPERATOR PALMER

COMMENTS: 5. Amp LO.

X30 - 66.7 - 100

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kilroy - Salome Line 8 Sp1 SE½ Field date 2-28-68 Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	5A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	1118	1012	350	1048	253	127.34	941	296	114.5	68.0		
(F) DCcal	.496											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	333	301	417	312	301	379	280	352	341	405		
(I) Vac Σ	1092	994	335	1034	244	120.8	926	288	109.0	63.6		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.007											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	3.1	2.5	5.2	2.1	4.4	6.2	2.3	3.5	5.8	7.7		
(O) MCF=(M-1)(10^5)/H	9	8	12	7	15	16	8	10	17	19		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	40-50	→	→	→	50-60	→	→	→		4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	5A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	323	146.4	65.7	43.56	150.3	82.8	43.6	30.5		403		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	384	436	391	454	447	493	454	508				
(I) Vac Σ	316	142	63.6	41.0	147.4	80.8	41.0	28.0		406		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	2.9	3.8	4.0	7.0	2.7	3.2	7.1	9.7				
(O) MCF=(M-1)(10^5)/H	8	9	10	15	6.0	6	16	19				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

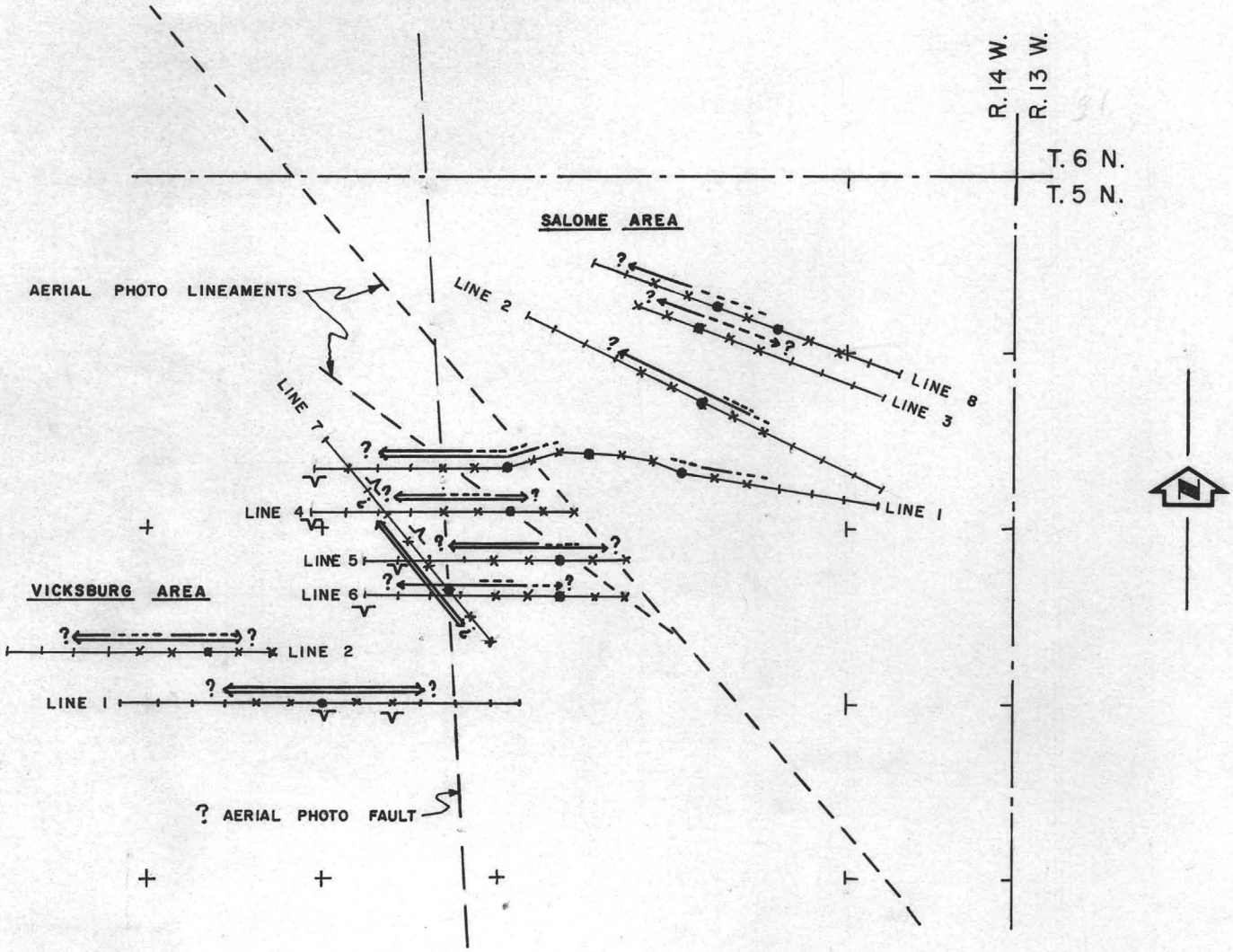
Page_____

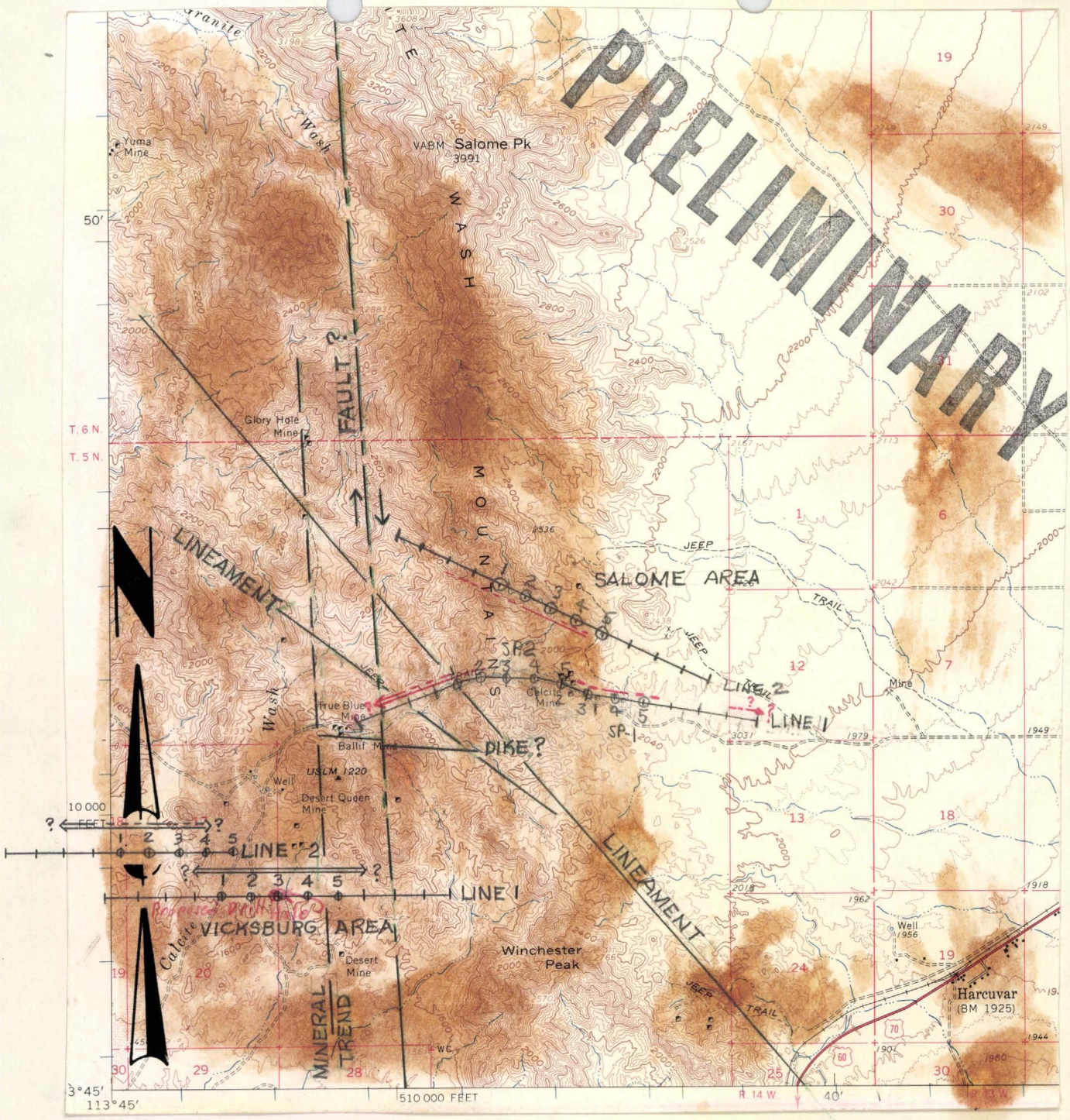
Project Kilroy - Salome Line 8 Sp1 NW1/2 Field date 2-29 Data page_____ Comp. date_____. Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	20-10SE	10-0	→	30-40	→	→	20-30	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	5A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	964	1083	306	1038	261	116.6	1177	363	130.6	68.8		
(F) DCcal	.485											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	281	315	356	302	304	339	343	423	380	400		
(I) Vac Σ	960	1074	298	1014	251	111.8	1154	348	126.6	65.2		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.010											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	1.4	1.8	3.7	3.4	5.0	5.3	3.0	5.4	4.2	6.6		
(O) MCF=(M-1)(10^5)/H	5	6	10	11	16	16	9	13	11	17		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal		
(B) Receive	20-30	→	→	→	30-40	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	5A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	321	153.8	68.0	39.77	103.97	60.44	31.23	20.14		4/2		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	374	448	396	405	303	352	318	328				
(I) Vac Σ	302	143.4	62.0	36.0	96.8	54.8	27.3	17.8		416		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	7.4	8.3	10.8	11.6	8.5	11.4	15.5	14.3				
(O) MCF=(M-1)(10^5)/H	20	19	27	29	28	32	49	44				


R. 14 W.
R. 13 W.
T. 6 N.
T. 5 N.
SALOME AREA
AERIAL PHOTO LINEAMENTS
LINE 2
LINE 8
LINE 3
LINE 7
LINE 1
LINE 4
LINE 5
LINE 6
VICKSBURG AREA
LINE 2
LINE 1
? AERIAL PHOTO FAULT



PRELIMINARY
INDUCED POLARIZATION LOCATION
AND INTERPRETATION PLAN
SALOME AREA
Vicksburg Area Phase 2
FOR

MR. OLIVER KILROY

Scale: 1"=1 mile Date: Dec. 1966
Feb. 1967

DATA FROM SALOME 15' QUADRANGLE
YUMA COUNTY, ARIZONA

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 1966
ARIZONA, U.S.A.

RELATIVE ANOMALY STRENGTH

VERY WEAK
WEAK
MODERATE
STRONG

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

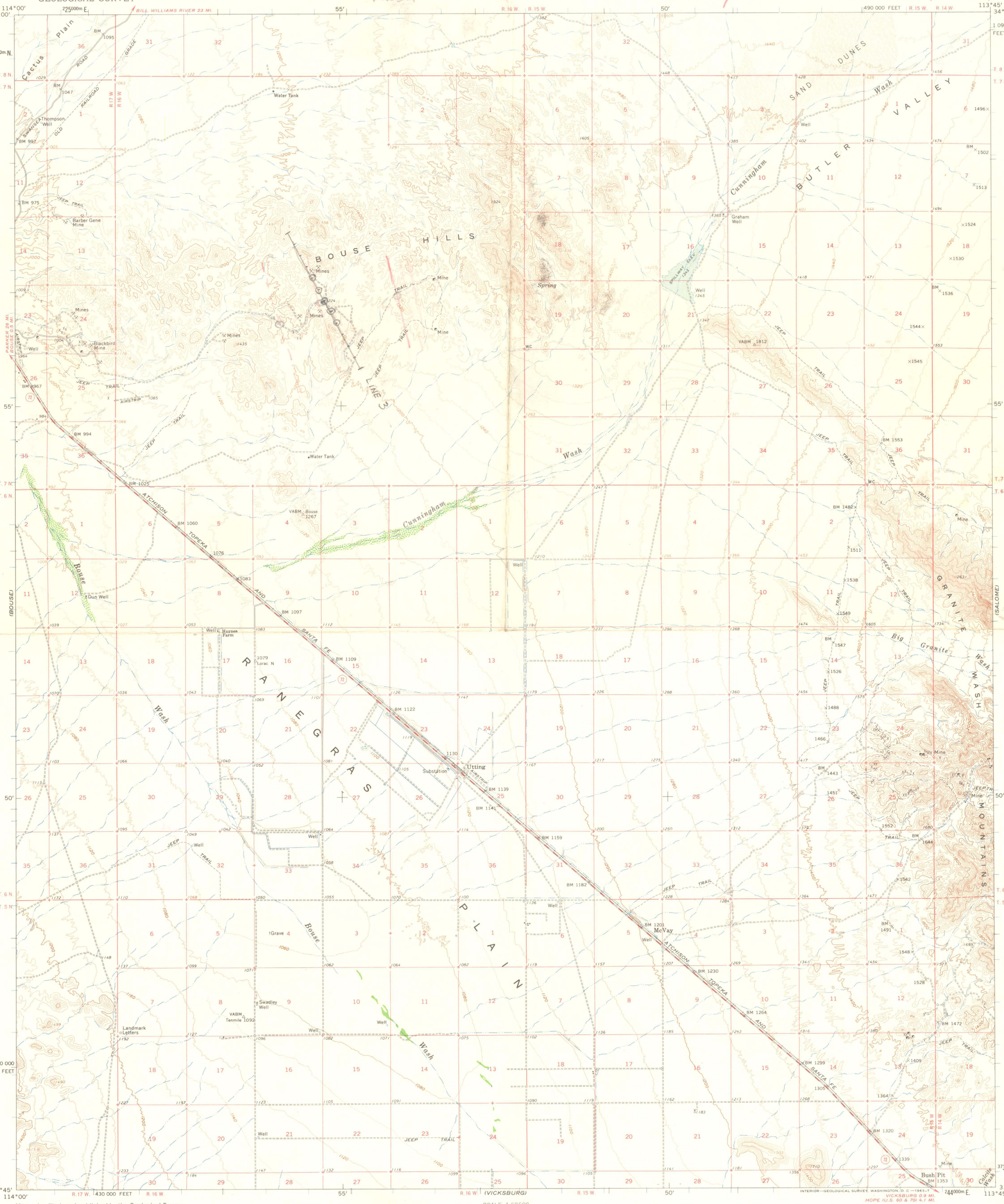
Bouse Hills AREA

2 lines

— Proposed I.P. 1000' lipts
D. Kilroy

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UTTING QUADRANGLE
ARIZONA–YUMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)



INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1963-T

VICKSBURG 0.9 MI.
HOPE (U.S. 60 & 70) 4.1 MI.

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1951 and 1960. Field checked 1962

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Where omitted, land lines have not been established

TRUE NORTH
MAGNETIC NORTH
14½°
APPROXIMATE MEAN DECLINATION, 1962

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
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Medium-duty — Light-duty

Unimproved dirt

State Route

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

UTTING, ARIZ.
N3345—W11345/15

1962

December 13, 1966

Mr. Oliver Kilroy
2239 La Mirada
Tucson, Arizona

Dear Mr. Kilroy:

As you requested yesterday, here is a brief preliminary memorandum on the preliminary reconnaissance induced polarization traverse results (Line 3) we ran over your Bouse Prospect from December 6 to December 8, 1966. See the enclosed plan for details of location and interpretation. The data was taken on 1000 foot dipoles and should indicate any significant sulfide zone crossed from 200 to 1200 feet below surface.

A weak induced polarization anomaly is indicated south of Electrode 1, increasing somewhat off the south end of the line. The line should be extended further south to better define this open ended anomaly.

The character and strength of this anomaly suggests sulfide of from about 0.5 to 1.5% by volume (1-3% by weight) and therefore, could possibly have some economic significance. The anomaly could also be due to magnetite, manganese oxides or graphite or an unusually high background unmineralized response. Some manganese mineralization was crossed on the north end of the line with no observed anomalism probably reducing the probability that manganese is causing the anomaly to the south.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig
Chris S. Ludwig
Senior Geophysicist

APPROVED:
Walter E. Heinrichs, Jr.
President & General Manager

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

CSL:jc
Enclosure

December 13, 1966

Mr. Oliver Kilroy
2239 La Mirada
Tucson, Arizona

Dear Mr. Kilroy:

As per your request of December 12, 1966, this is a brief preliminary letter on the results of the initial preliminary reconnaissance induced polarization survey on your Salome Prospect, Yuma County, Arizona, we conducted during the interim December 1 to December 9, 1966.

Two lines were run, both on 1000 foot dipoles which should reveal any significant sulfide concentrations from about 200 to 1200 feet below surface. See attached plan interpretation sketch for location and orientation of these lines.

A moderate to strong polarization anomaly was found on the west end of Line 1 becoming stronger to the west. The eastern edge of this anomaly is approximately at Electrode 1, Spread 2, however, there is perhaps a 1000 foot fringe, particularly at depth, further east.

In the strongest part of the anomaly (about 2,500 feet west of Electrode 1, Spread 2), a total sulfide concentration by volume of from 1 to 4% (2 to 8% by weight) is indicated. If these sulfides are partially copper or molybdenum, then this anomaly is of definite economic interest. Magnetite, manganese oxides and graphite can also cause I.P. anomalism and manganese is reported in the district, therefore, it is possible this is a non-sulfide anomaly. Preliminary surface indications, however, suggest a sulfide source

probably related to an intrusive rock or contact zone between sediments and intrusive material. Depth to sulfide is probably within 500 feet of the surface becoming more shallow to the west. Depth extent is good; mineralization probably extends to more than 1200' below surface without diminishing in strength.

More I.P. work is definitely needed on this anomaly to define its shape and extent. There is a good chance we haven't yet crossed the strongest zone since the anomaly is still increasing at the very west end of the line.

Several other minor possible sulfide zones were crossed on Line 1; one centered at about Electrode 4, Spread 1, and another on the extreme east end of the line. Both of these zones are probably less than 1% by volume sulfide unless in zones considerably more narrow than 500 feet.

Line 2 about 1/2 mile north of Line 1, also shows some anomalism, the strongest of which is centered near Electrode 4. Sulfide content indicated is from about 0.5 to 3% by volume and likely occurs within 400 feet of the surface. This anomaly gradually diminishes to the west and abruptly to the east.

There isn't enough data to tell how the Line 1 and 2 anomalism relates to each other but it is probable that the equivalent to the strong Line 1 zone has not yet been crossed on Line 2 to the west.

If you have any questions, please let us know.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 1966
ARIZONA, U.S.A.

APPROVED: _____
Walter E. Heinrichs, Jr.
President & General Manager

November 29, 1966

Mr. Oliver B. Kilroy
2239 La Mirada
Tucson, Arizona

Re: Proposed I.P. Survey Bouse and Salome Areas, Arizona

Dear Ollie:

Based on our conversations of yesterday and today the following is my understanding of the conditions that will prevail, and we are pleased to submit the following proposal:

Scope of the survey is planned to be four 1000' dipole I.P. lines of which two lines will be located in the Salome Area and two lines will be located in the Bouse Area of Arizona.

The Geoex crew will consist of three experienced I.P. personnel. In addition up to two trainees will be on the job at no extra cost to the client as to living expenses or daily charge rate is concerned.

Charges will be as follows:

3 man crew and necessary heavy duty deep penetration equipment	$275.00/day
Travel and standby at	125.00/day
Report, Compilation and computation, interpretation	100.00/st.day

Expenses

3 man crew living expenses @ $39.00/day, Vehicle @ $10.00/day plus 10¢/mile.

Miscellaneous expenses such as flagging, reproductions, communications at our cost.

If the job should be expanded for any reason billings will be submitted on a bimonthly basis.

Client will be responsible for any costs relative to liability for trespass for our crew and/or equipment when working in areas as designated by client.

Total estimated job will be no greater than $3,000.00 and if necessary because of unforseen circumstances such as rough terrain etc. the job may be terminated prior to completion of the four proposed lines.

It is understood that no formal report will be submitted,only a letter report - interpretation with the accompanying sectional data sheets and location map.

Crew will commence operations November 30, 1966. Normal crew work week is considered 50 hours including travel to and from motel to the field.

An advance of $1,500.00 has been received today and the balance is due upon submittal of the letter report.

If the foregoing meets with your approval, please so indicate by signing, dating and returning the enclosed carbon copy as provided.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

ACCEPTED:_____

DATE:_____

EGH:jc
Enclosures: 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

— proposed I.P.
1000' dipole O. Kilroy

SALOME QUADRANGLE
ARIZONA–YUMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1951 and 1960. . Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Where omitted, land lines have not been established

TRUE NORTH
MAGNETIC NORTH
14½°
APPROXIMATE MEAN DECLINATION, 1961

SCALE 1:62500

1 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
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Unimproved dirt
U. S. Route

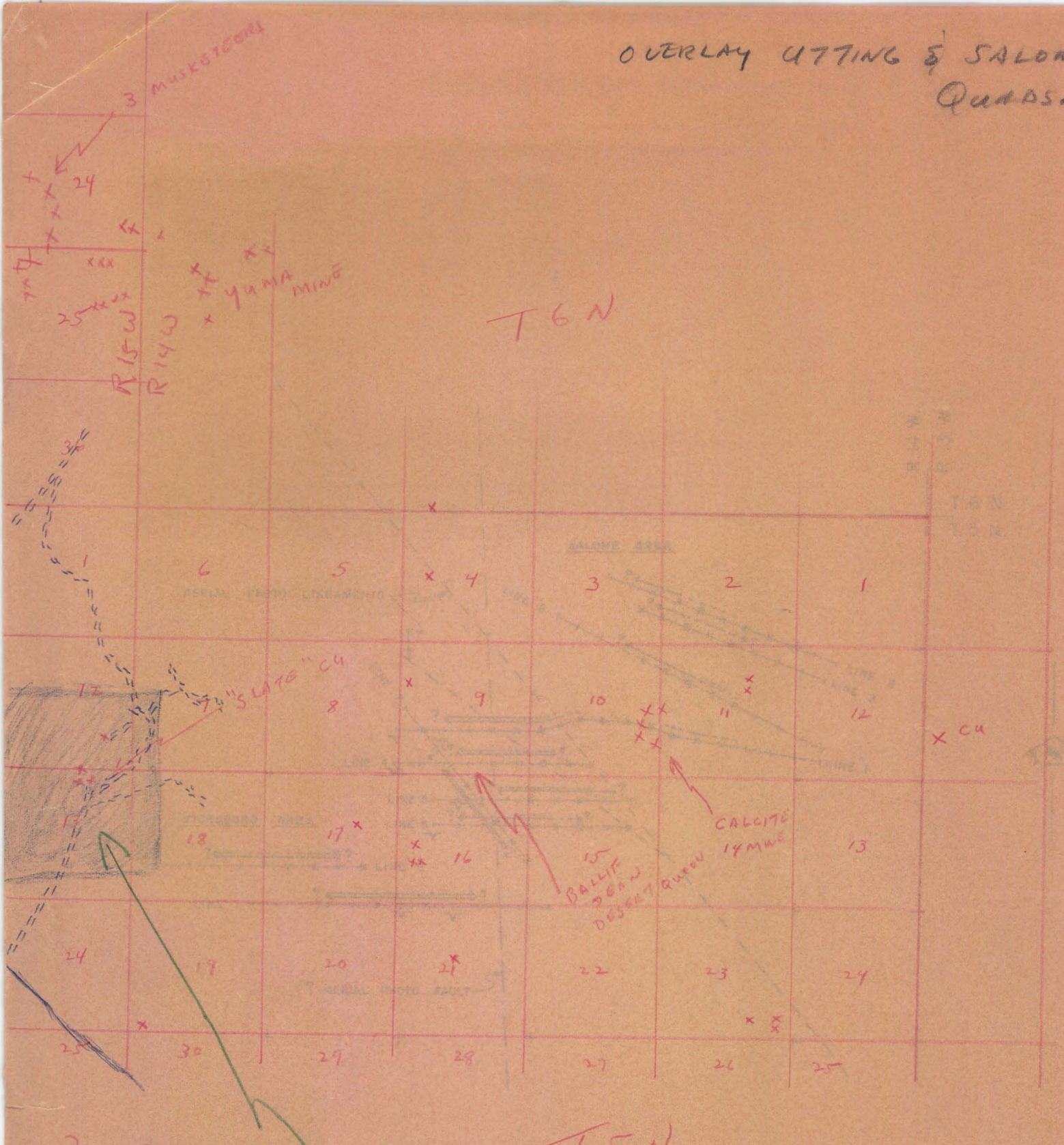
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1962-T
MR 4513

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

SALOME, ARIZ.
N3345—W11330/15

1961

OVERLAY UTTING & SALOME QUADS.



PROPOSED RECON. I.P. FOR THE AREA OF INTEREST:

4 EAST-WEST LINES OF 500'a/dipole SPACING
2 EAST-WEST LINES OF 150'a OVER Cu PROSPECTS
1 FOLLOW-UP LINE OF 1000'a OVER BEST DEEP ANOMALY FOUND

5/7/73
Jim

R.14 W.
R.13 W.
T.6 N.
T.5 N.
SALOME AREA
LINE 1
LINE 2
LINE 3
LINE 8
LINE 7
LINE 4
LINE 5
LINE 6
AERIAL PHOTO LINEAMENTS
VICKSBURG AREA
LINE 1
LINE 2
? AERIAL PHOTO FAULT