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# INDUCED POLARIZATION, RESISTIVITY AND SELF POTENTIAL ELECTRICAL GEOPHYSICAL SURVEY HARQUAHALA AREA, YUMA COUNTY, ARIZONA

For

C. F. & I. Steel Corporation

May 1968

By

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

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| CONCLUSIONS AND RECOMMENDATIONS | 2 |
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| BASIS OF THE INDUCED POLARIZATION METHOD | 1a |

IN MAP POCKET: (Total: 8 pieces)

Induced Polarization Location and Interpretation Plan

Sectional Data Sheets
- Open Pit Special (a=100')
- Baseline, Spreads 1, 2, 3, 4, & 5 (a=500')
- Line A, Spreads 1 & 2 (a=400')
- Line B, Spreads 1, 2, & 3 (a=400')
- Line C, Spreads 1 & 2 (a=400')
- Line D, Spreads 1, 2, & 3 (a=400')
- Line E, Spreads 1 & 2 (a=400')

## INTRODUCTION

At the request of Mr. James Brooks of C. F. & I. Steel Corporation, Heinrichs Geoexploration Company conducted and completed a reconnaissance combined induced polarization, resistivity and self potential survey over parts of the Harquahala Area, Yuma County, Arizona. The field work was done in the interim April 15 to May 2, 1968.

Seven lines were run composed of a total of 18 spreads. This gives a total of 64,800 feet of surface coverage of which 51,800 feet is "subsurface" plotted data. Lines A, B, C, D, and E had a 400 foot dipole spacing and were all oriented N55W-S55E off a common baseline. In addition, data were obtained along the baseline utilizing dipole spreads with a 500 foot spacing. A 100 foot dipole line (Open Pit Special) oriented N62E and centered near an exposed copper-iron sulfide showing, was also run. For details of line location relating to the claims, roads and abandoned workings, see the attached plan.

The induced polarization work was done with the dual frequency techniques utilizing sending frequencies of 0.05 and 3.0 Hz. The electrode configuration used was the collinear dipole-dipole array which on a 400 foot spacing typically gives resolvable penetration within the zone from about 120 feet to 500 or 600 feet below surface. The 500 and 100 foot spacings would, respectively, give proportionally greater or less penetration, but reduced or increased resolution.

The purpose of this survey was to outline, in a reconnaissance fashion, any possibly economically related sulfide zones. The area has numerous oxidized copper showings and some surface copper-iron sulfide exposures that may relate to a larger buried sulfide zone at depth.

The 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 (SP) in profile form. The Induced Polarization Location and Interpretation Plan shows the surface projected anomalism and areas of interest and several recommended drill holes as an overlay to a 1"=500' enlargement of a preliminary U.S.G.S. 7½ minute topographic quadrangle. For additional details as to presentation, theory and interpretation, see the Basis of the Induced Polarization Method appended to the report.

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

## CONCLUSIONS AND RECOMMENDATIONS

All the lines show anomalism, generally weak to very weak in strength, but possibly important because of the relatively weak response over known interesting sulfide mineralization.

Muhh of this anomalism appears to be caused by a depth limited source in that the anomalism decreases with depth in many places. It is possible that this limited depth response is caused by an obscure structural or stratigraphic interface, a minor enriched layer, or possibly by near surface weathering rendering the existing weak sulfide material more responsive to I.P.

The 100 foot dipole line run over the "X" shaped cut on Line D shows definite moderate strength sulfide response. However, the anomalism suggests that the source is about 100 feet wide, comes to within about 30 feet of the surface and doesn't go much deeper than 100 feet. There is a northeast dip indicated though, making the body deeper in that direction.

A detailed grid of I.P. in this area is recommended if it is desired to extend and delineate this body.

Line D crosses, with a 400 foot dipole, the same cut, but only shows weak response and no well defined discrete body, likely because of an adverse ratio of the relatively large geophysical electrode spacing compared to body size. Since the mineralization in the open cut is of definite interest, and the 400 foot dipole response is weak, it is believed that any anomalism as strong or stronger than that seen over the cut, even though still weak on an absolute basis, should be further investigated. Two main zones of interest which have been interpreted on this basis, are schematically outlined, with suggested drill holes on the attached illustrations. The northern and larger and slightly stronger of the two zones includes the open cut mineralization and a considerable area to the west, north, and south of the cut. The southern zone is centered roughly on the intersection of Baseline and Line A. These zones of interest do not have sharp boundaries, but rather they grade into broad-weaker fringes. These fringe areas could also be important.

Several drill holes are proposed in these areas to determine the significance of the weak I.P. response. Of highest geophysical priority are recommended sites at Stations 12W and 24W, Line D, where the strongest and best depth extent response was seen. These two holes should go to 750 feet depth to see the entire section of anomalism although sulfides (or other polarizable material) should be intersected within several hundred feet of the surface.

If this initial drilling proves interesting, additional drilling at 18W Line E and 107.5N Baseline should be considered. A drill hole in the southern zone of interest is also suggested near 52.5N Baseline.

It should be noted that most of the anomalism occurs in topographically low areas and may be related to a weathering or erosional phenomenon. Also, very little anomalism was seen in the sedimentary rock to the east of the granitic intrusive even though most of the old workings are in the sediments. This is likely due to the narrow vein-like nature of these deposits.

The self potentials show some minor correlation on the 100 foot dipole line with the induced polarization results, but not to the degree it could be used to advantage as a separate technique. The apparent resistivities show relative contrasts on either side of the sedimentary-intrusive contacts, with the sediments usually being quite resistive.

Because of the weak nature of the I.P. response on this survey, all of the anomalism may not be due to sulfides. Various iron and manganese oxides, graphite and certain clays can also cause anomalous response. If it is assumed that sulfides are the sole cause of anomalism and that the mineralization is typical of southwestern U.S.A. porphyries, then only 0.5 to 1.0% total sulfide by volume is indicated over the stronger zones in the areas of interest. The moderate anomalism over the cut suggests as much as 2% by volume over about 100 feet, however.

On the other hand, there are conditions which can limit the response of a given percentage of sulfide. Among these are conditions such as geometry, electrolyte salinity and degree of sulfide grain insulation by encasing nonconducting silicates or oxides. Therefore, the anomalism should be tested, particularly if there is any supporting geological or geochemical evidence. It is possible to have a high ratio of economic metal sulfides present (such as copper or molybdenum, etc.) versus non-economic sulfides (such as pyrite).

If after initial drilling, it is seen that the I.P. is mapping economically significant zones, then more work is recommended to better define the anomalism. This could most simply be done by lines in between the existing northwest-southeast lines, perhaps at a reduced dipole spacing if depth penetration is not a problem and more resolution desired.

It is recommended that we be kept informed on the drilling results and that representative core samples be sent to us for laboratory confirmation of the field results. To refine the interpretation, it would be helpful to compare the known geology with the geophysics since no map was available for consideration in the preparation of this report.

## INTERPRETATION

### Open Pit Special (a=100')

This line was run to gain correlation information with the known sulfide zone exposed in the open cut. A moderate anomaly was found between Stations 0.5NE and 1.5NE grading to weaker response on either side. The anomaly appears to be a narrow, possibly gently northeast dipping zone although dip is very difficult to estimate with I.P. The response is very weak from about 0 NE/SW to 2.5SW and increases southwest of 2.5SW to the end of the line.

This same zone was crossed (at a different angle) by Line D but the anomaly was integrated into a rather uniformly weak response because of the four times larger dipole spacing.

The percentage of total sulfide across the moderate strength anomalism is estimated to be from 1 to 2% by volume (2 to 4% by weight) although it may be higher if the sulfides are concentrated in a zone less than 100 feet in width.

The resistivity shows a complicated pattern, perhaps reflecting varying degrees of alteration and/or weathering. The I.P. anomaly appears to be associated with a slight resistivity high which suggests that the mineralization is not interconnected and perhaps resides in a silicified zone. There is a broad 40 millivolt self potential low correlating with the I.P. anomaly, also.

Baseline (a=500')

The Baseline shows induced polarization response over much of its length with the strongest zones between 40N and 60N and between 87.5N and 115N with weaker ill-defined fringes.

The northern-most of these stronger zones show good depth extent, in fact, there may even be a slight increase in sulfide content below about 600 feet and has therefore been recommended for drilling (107.5N). The source of this response has no well defined shape and is probably just gradationally better than the surrounding weaker anomalous areas.

The southern stronger anomaly is definitely depth limited and may bottom within 500 feet of the surface. However, the response is definitely anomalous near-surface, particularly near 52.5N and has been suggested for drilling.

Near Station 22.5N there is a suggestion of anomalism at depth that may relate to the lateral response of mineralization in the sediments to the east, or perhaps the intrusive-sediment contact which is noted in the resistivity near 30N. South of about 20N, the I.P. response attenuates to low background effects.

To the north of 115N, the response very gradually decreases to high background effects on the north end of the line.

The resistivity is fairly uniform over most of the granitic material except for a minor low near 95N. Also, near the sediment contact, the resistivity becomes more erratic. The self potentials show very little significant variation and no definite correlation with the I.P.

Line A (a=400')

Line A shows its strongest polarization effects from about 12W to 14E and like the results obtained along the Baseline in this same vicinity, a pronounced decrease in strength with depth is indicated. East of 14E, the anomalism persists somewhat weaker and apparently deeper. East of about 10E there is a surface veneer of high resistivity material, possibly the sediments, capping the anomalous source and becoming thicker to the east.

From 12W to at least the west end of the line, very weak polarization response persists still showing a decrease with depth.

The resistivities are quite uniform except to the east where the high resistivity capping occurs. Self potentials are background except for a level change near 26E likely due to a change in the sediments.

Line B (a=400')

This line shows only background to very weak I.P. effects except for a questionable weak anomaly at depth, or laterally near 50E near the sediment-intrusive contact. Where the very weak response is seen (16W to 14E) it exhibits a pronounced decrease in strength with depth.

The resistivity shows what may be the intrusive-sediment contact near 50E, at depth, coming nearer surface at about 58E.

The rest of the line is relatively uniform in resistivity except for slightly conductive zones near 20E and 28E which do not relate to significant I.P. anomalism. The self potentials show only background variations.

Line C (a=400')

Mostly background induced polarization response is seen on this line except for a zone of very weak effects from 8W to 8E showing the decrease in strength with depth like on the other lines. The area west of 8W shows perhaps the lowest intrusive polarization response noted on the survey.

The resistivity is generally higher east of about 8E and may reflect the sediments. Self potentials show only minor typical background variations over the line.

Line D (a=400')

Line D shows a relatively well defined weak anomaly from about 28W to 0 E/W. Several areas within this weak zone are somewhat stronger than usual and have been recommended for drilling; 12W and 24W. Also, this zone has better depth extent than usual.

As mentioned before, the exposed sulfides in the open cut near 4W do not give a discrete anomaly, only an integrated weak response. If the rest of this weak anomaly were surveyed with 100 foot dipole traverses, it is possible that other narrow, stronger zones would be resolved.

South of 28W, the response weakens to about 38W where it is considered only high background to the west end of the line.

Near 6E, a questionable minor anomaly is noted that may relate to a narrow zone of mineralization on or near the

sediment-intrusive contact. This contact shows as a very sharp resistivity change near 8E, east of which there is only background IP effects. There are no significant self potential variations along this line.

Line E (a=400')

Line E has weak but definite anomalous polarization from about 16W to 22W showing good depth extent and has been suggested as a secondary drill target. This anomaly fringes weaker to the west off the end of the line and to the east to Station 4E. Much of the response attenuates with depth.

From about 14E to the east, there are very weak near surface anomalous effects to the east end of the line. There is a hint of slightly stronger response on the very end of the line that requires more coverage to be able to interpret it in detail and determine its significance.

The sediments may show as a narrow near surface high resistivity zone from 8E to 12E. The self potential again shows only minor background variations.

Respectfully submitted,

HEINRICHS GEOEXPLORATION COMPANY

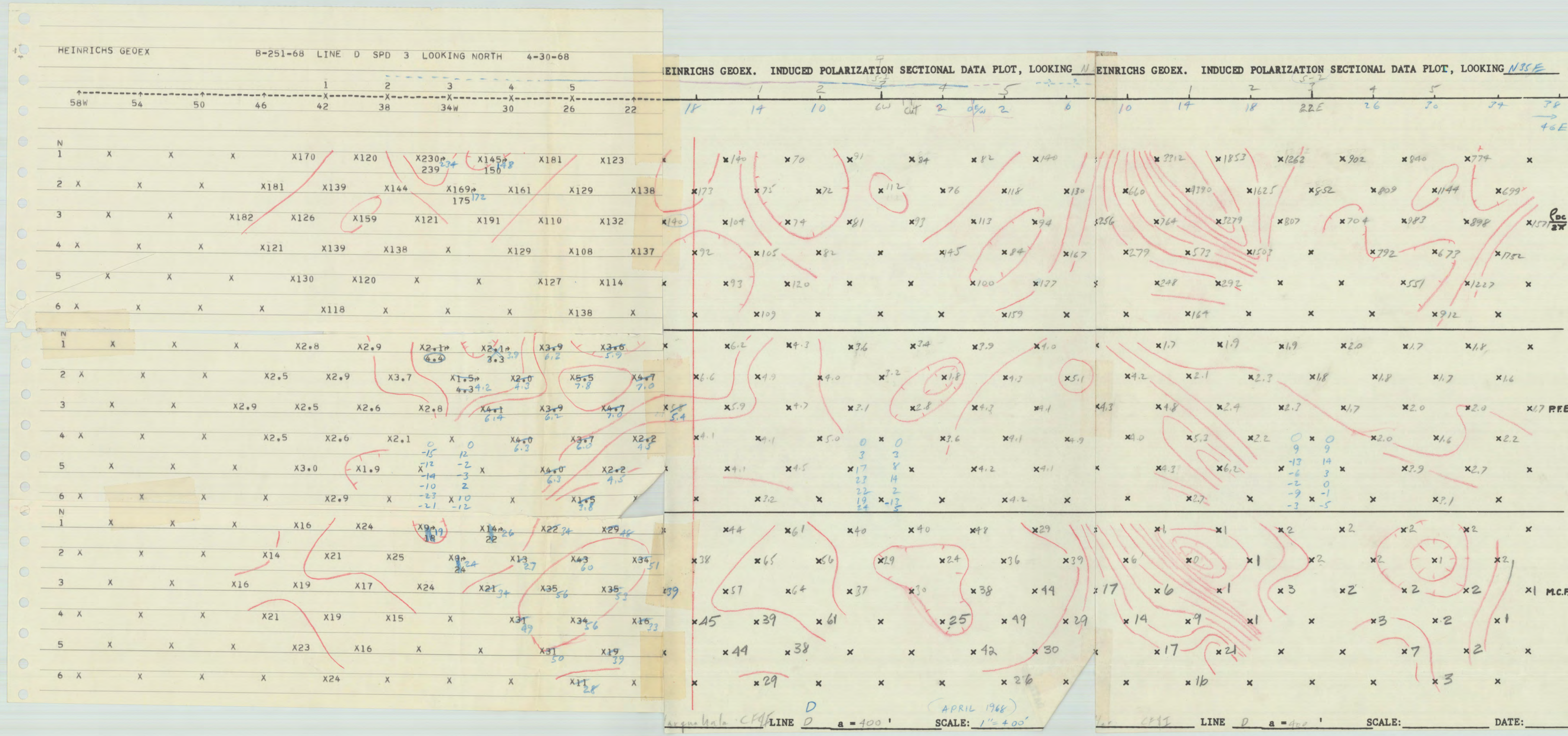
Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

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

May 15, 1968
Tucson, Arizona

HEINRICHS GEOEX B-251-68 LINE D SPD 3 LOOKING NORTH 4-30-68



3.0 & .05 400' a Starting 0 at 6+00W

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PAGE

PROJECT CF & I - Salome

LINE D HALF W SP. 1 DATE 4-16

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 6-10W | 10-14W | → | 14-18W | → | → | 18-22W | → | → | → |
| RANGE | 300 | 1000 | 300 | 300 | 100 | 100 | 1000 | 100 | 30 | 30 |
| DC 1 | 281 | 304 | 95.0 | 234 | 60.2 | 27.8 | 470 | 64.3 | 25.1 | 14.4 |
| DC 2 | 282 | 304 | 92.0 | 234 | 59.9 | 26.2 | 468 | 61.0 | 24.3 | 13.1 |
| DC 3 | 281 | 304 | 95.0 | 234 | 60.2 | 27.8 | 470 | 64.3 | 25.1 | 14.4 |
| DC 4 | 282 | 304 | 92.0 | 234 | 59.9 | 26.2 | 468 | 61.0 | 24.3 | 13.1 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 564 | 608 | 187 | 468 | 120.1 | 54.0 | 938 | 125.3 | 49.4 | 27.5 |
| AC 1 | 272 | 295 | 90.5 | 224 | 57.8 | 26.2 | 441 | 59.7 | 23.6 | 13.1 |
| AC 2 | 272 | 295 | 90.5 | 224 | 57.8 | 26.2 | 441 | 59.7 | 23.6 | 13.1 |
| AC AVG. | 544 | 590 | 181 | 448 | 115.6 | 52.4 | 882 | 119.4 | 47.2 | 26.2 |
| S.P. | +3.2 | +13.9 | | +5.9 | | | -0.8 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
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I.P. RECEIVER NOTES

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PROJECT CF&I - Solano
LINE D HALF W SP. 1 DATE 4-16

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|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 22-26W | → | | → | 26-30W | → | | → | 1-2 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 145 | 35.7 | 16.8 | 12.5 | 46.4 | 14.6 | 8.90 | 6.60 | 201 | |
| DC 2 | 145 | 33.8 | 18.5 | 10.6 | 47.4 | 16.1 | 8.90 | 6.58 | 201 | |
| DC 3 | 145 | 35.7 | 16.8 | 12.5 | 46.4 | 14.6 | 8.90 | 6.38 | 201 | |
| DC 4 | 145 | 33.8 | 18.5 | 10.6 | 47.4 | 16.1 | 8.90 | 6.62 | 201 | |
| DC 5 | | | | | | | | 6.48 | | |
| DC 6 | | | | | | | | 6.58 | | |
| DC 7 | | | | | | | | 6.42 | | |
| DC 8 | | | | | | | | 6.56 | | |
| DC AVG. | 290 | 69.5 | 35.3 | 23.1 | 93.8 | 30.7 | 17.8 | 13.04 | 402 | |
| AC 1 | 136 | 32.8 | 16.95 | 11.05 | 44.3 | 14.95 | 8.55 | 6.32 | 201 | |
| AC 2 | 136 | 32.8 | 16.95 | 11.05 | 44.3 | 14.75 | 8.55 | 6.32 | 201 | |
| AC AVG. | 272 | 65.6 | 33.9 | 22.1 | 88.6 | 29.5 | 17.1 | 12.64 | 402 | |
| S.P. | -3.4 | | | | +4.9 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I - Solomo
LINE D HALF W SP. L DATE 4-16

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|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 600-1000 | 1000-1400 | | 1400-1800 | | | 1800-2200 | | | |
| RANGE | Lo | Hi | Lo | Hi | Hi | Lo | Lo | Hi | Hi | Lo |
| VOLTAGE | 840 | 450 | 840 | 330 | 450 | 830 | 770 | 330 | 450 | 830 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 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 27 |
| RECEIVE | 2200-2600 | | | | 2600-3000 | | | | | 1-2 |
| RANGE | Lo | Hi | Hi | Lo | Lo | Hi | Hi | Lo | | Hi |
| VOLTAGE | 760 | 330 | 450 | 820 | 760 | 330 | 450 | 820 | | 390 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 2.0 |

FREQUENCIES .05 3.0
SENDER NO. 15673S.
OPERATOR Hix
RECEIVER NO. 3641R
OPERATOR PALMER

COMMENTS: 1-2 Lo ×10 - 100 - 300 - 4.
2-3 Hi " " " 4
3-4 Hi " " " 4
4-5 Lo " " " 4

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE D HALF E SP. 1 DATE 4-16

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| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 6-2W | 2W-2E | → | 2E-6E | → | → | 6E-10E | → | → | → |
| RANGE | 1000 | 300 | 300 | 300 | 100 | 100 | 1000 | 300 | 100 | 30 |
| DC 1 | 299 | 279 | 94.5 | 273 | 63.7 | 30.2 | 464 | 98.5 | 37.8 | 23.7 |
| DC 2 | 302 | 280 | 91.5 | 273 | 62.6 | 31.5 | 464 | 98.0 | 37.4 | 24.6 |
| DC 3 | 299 | 279 | 94.5 | 273 | 63.7 | 30.2 | 464 | 98.5 | 37.8 | 23.7 |
| DC 4 | 302 | 280 | 91.5 | 273 | 62.6 | 31.5 | 464 | 98.0 | 37.4 | 24.6 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 601 | 559 | 186 | 546 | 126.3 | 61.7 | 928 | 196.5 | 75.2 | 48.3 |
| AC 1 | 287 | 268.5 | 89.5 | 261.5 | 61.6 | 29.8 | 443 | 93.5 | 35.8 | 23.15 |
| AC 2 | 287 | 268.5 | 89.5 | 261.5 | 61.6 | 29.8 | 443 | 93.5 | 35.8 | 23.15 |
| AC AVG. | 574 | 537 | 179 | 523 | 123.2 | 59.6 | 886 | 187 | 71.6 | 46.3 |
| S.P. | +3.0 | +4.7 | | +6.4 | | | -12.1 | | | |
| AC NOISE | .05 | .06 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

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I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE D HALF E SP. 1 DATE 4-16

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| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 10-14E | → | → | → | 14-18E | → | → | → | 4-5 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 30 | 30 | 30 | 300 | |
| DC 1 | 107 | 32.3 | 13.65 | 10.2 | 86.4 | 28.7 | 12.4 | 9.00 | 199.5 | |
| DC 2 | 109 | 30.0 | 14.15 | 8.9 | 85.4 | 26.6 | 13.6 | 9.90 | 199.5 | |
| DC 3 | 107 | 32.3 | 13.65 | 10.2 | 86.4 | 28.7 | 12.4 | 9.00 | 199.5 | |
| DC 4 | 109 | 30.0 | 14.15 | 8.9 | 85.4 | 26.6 | 13.6 | 9.90 | 199.5 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 216 | 62.3 | 27.8 | 19.1 | 171.8 | 55.3 | 26.0 | 18.9 | 399 | |
| AC 1 | 102 | 29.7 | 13.25 | 9.10 | 81.4 | 26.2 | 12.4 | 9.00 | 198 | |
| AC 2 | 102 | 29.7 | 13.25 | 9.10 | 81.4 | 26.2 | 12.4 | 9.00 | 198 | |
| AC AVG. | 204 | 59.4 | 26.5 | 18.2 | 162.8 | 52.4 | 24.8 | 18.0 | 396 | |
| S.P. | -14.6 | | | | +18.2 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CFEI - Salomé

LINE D HALF 1 SP. 1 DATE 4-16

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|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 400-600 W | 200-400 W | → | 200E-200W | | → | 200-600E | → | → | → |
| RANGE | LO | HI | LO | HI | HI | LO | LO | HI | HI | LO |
| VOLTAGE | 750 | 320 | 740 | 440 | 320 | 740 | 800 | 440 | 320 | 740 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL 22 |
| RECEIVE | 600-1000E | → | → | → | 1000-1400E | → | → | → | | 4-E |
| RANGE | LO | HI | HI | LO | LO | HI | HI | LO | | HI |
| VOLTAGE | 800 | 440 | 320 | 740 | 800 | 440 | 320 | 740 | | 400 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641 R

OPERATOR PALMER

COMMENTS: 1-2 LO 710 - 100 - 300 4
2-3 HI
3-4 HI 4
4-5 LO 4
4

3.0 & .05 Hz
400 @

# HEINRICHS GEOEXPLORATION COMPANY
## INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project CF&I - Salome Line D Sp1 W½ Field date 4-16-68 Data page_____ Comp. date 4-16-68. Comp by RP.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) Send | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | |
| (B) Receive | 6-10 W | 10-14W | → | 14-18W | → | → | 18-22W | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 4A | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 564 | 608 | 187 | 468 | 120.1 | 54.0 | 938 | 125.3 | 49.4 | 27.5 | | |
| (F) DCcal | .498 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 1.2 | 4.8 | 1.2 | 4.8 | 12.0 | 1.2 | 4.8 | 12.0 | 24.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 84 | 91 | 112 | 70 | 72 | 81 | 140 | 75 | 74 | 82 | | |
| (I) Vac $\Sigma$ | 544 | 590 | 181 | 448 | 115.6 | 52.4 | 882 | 119.4 | 47.2 | 26.2 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | 1.000 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.7 | 3.1 | 3.2 | 4.3 | 4.0 | 3.1 | 6.2 | 4.9 | 4.7 | 5.0 | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 22-26W | → | → | → | 26-30W | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 4A | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 290 | 69.5 | 35.3 | 23.1 | 93.8 | 30.7 | 17.8 | 13.04 | | 402 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 4.8 | 12.0 | 24.0 | 42.0 | 12.0 | 24.0 | 42.0 | 69.2 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | ~~104~~ 173 | 104 | 105 | 120 | 140 | 92 | 93 | 109 | | | | |
| (I) Vac $\Sigma$ | 272 | 65.6 | 33.9 | 22.1 | 88.6 | 29.5 | 17.1 | 12.64 | | 402 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 6.6 | 5.9 | 4.1 | 4.5 | 5.8 | 4.1 | 4.1 | 3.2 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project CF&I - Salome Line D Sp1 E½ Field date 4-16-68 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 | 6W-2W | 2W-2E | → | 2E-6E | → | → | 6-10E | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 4A | | | | | | | | | | | |
| (E) Vdc (avg) | 601 | 559 | 186 | 546 | 126.3 | 61.7 | 928 | 196.5 | 75.2 | 48.3 | | |
| (F) DCcal | .501 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 1.2 | 4.8 | 1.2 | 4.8 | 12.0 | 1.2 | 4.8 | 12.0 | 24.0 | | |
| (H) ρ dc=ExFxGx$10^3$/D | 91 | 84 | 112 | 82 | 76 | 93 | 140 | 118 | 113 | 145 | | |
| (I) Vac Σ | 574 | 537 | 179 | 523 | ~~59.6~~ | ~~88.6~~ | ~~187~~ | ~~71.6~~ | 71.6 | 46.3 | | |
| (J) AC noise x 2 | | | | | 123.2 | 59.6 | 886 | 187 | | | | |
| (K) Vac(corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | .993 | | | | | | | | | | | |
| (M) ρ dc/ρac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 4.1 | 3.2 | 3.2 | 3.9 | 1.8 | 2.8 | 4.0 | 4.3 | 4.3 | 3.6 | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 10-14E | → | → | → | 14-18E | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 4A | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 216 | 62.3 | 27.8 | 19.1 | 171.8 | 55.3 | 26.0 | 18.9 | | 399 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 4.8 | 12.0 | 24.0 | 42.0 | 12.0 | 24.0 | 42.0 | 67.2 | | | | |
| (H) ρ dc=ExFxGx$10^3$/D | 130 | 94 | 84 | 100 | 259 | 167 | 137 | 159 | | | | |
| (I) Vac Σ | 204 | 59.4 | 26.5 | 18.2 | 162.8 | 52.4 | 24.8 | 18.0 | | 396 | | |
| (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)($10^2$) | 5.1 | 4.1 | 4.1 | 4.2 | 4.9 | 4.9 | 4.1 | 4.2 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE "D" HALF W SP. 2 DATE 4-17

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 22-18E | 18-14E | → | 14-10E | → | → | 10-6E | → | → | → |
| RANGE | 300 | 1000 | 100 | 1000 | 300 | 30 | 1000 | 300 | 300 | 30 |
| DC 1 | 220 | 315 | 52.2 | 461 | 101 | 20.0 | 824 | 278 | 80.0 | 18.7 |
| DC 2 | 229 | 317 | 54.0 | 466 | 102 | 20.4 | 834 | 271 | 84.0 | 18.9 |
| DC 3 | 220 | 315 | 52.2 | 461 | 101 | 20.0 | 824 | 278 | 80.0 | 18.7 |
| DC 4 | 229 | 317 | 54.0 | 466 | 102 | 20.4 | 834 | 271 | 84.0 | 18.9 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 449 | 632 | 106.2 | 927 | 203 | 40.4 | 1658 | 549 | 164 | 37.6 |
| AC 1 | 221 | 310 | 52.4 | 456 | 99.5 | 19.8 | 817 | 269.5 | 80.2 | 18.45 |
| AC 2 | 221 | 310 | 52.4 | 456 | 99.5 | 19.8 | 817 | 269.5 | 80.2 | 18.45 |
| AC AVG. | 442 | 620 | 104.8 | 912 | 199 | 39.6 | 1634 | 539 | 160.4 | 36.9 |
| S.P. | +8.5 | -22.3 | | +7.1 | | | +4.1 | | | |
| AC NOISE | .06 | .07 | | .05 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFE I - Salome
LINE "D" HALF W SP. 2 DATE 4-17

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 6-2E | → | → | → | 2E-2W | → | → | → | 1-2 | |
| RANGE | 100 | 30 | 10 | 3 | 10 | 10 | 3 | 1 | 30 | |
| DC 1 | 40.2 | 20.1 | 7.16 | 1.96 | 702 | 326 | 2.14 | .694 | 20.1 | |
| DC 2 | 42.3 | 18.1 | 7.17 | 2.30 | 566 | 384 | 1.44 | .842 | 20.0 | |
| DC 3 | 40.2 | 20.1 | 7.08 | 1.90 | 706 | 328 | 1.68 | .722 | 20.1 | |
| DC 4 | 42.3 | 18.1 | 7.18 | 2.21 | 562 | 362 | 1.92 | .684 | 20.0 | |
| DC 5 | | | 7.17 | 1.96 | 723 | 326 | 1.56 | .797 | | |
| DC 6 | | | 7.18 | 2.26 | 5.54 | 362 | | .566 | | |
| DC 7 | | | 7.20 | 1.96 | 7.34 | 340 | | | | |
| DC 8 | | | 7.16 | 2.21 | 5.24 | 356 | | | | |
| DC AVG. | 82.5 | 38.2 | 14.33 | 4.19 | 12.59 | 6.98 | 3.44 | 1.470 | 40.1 | |
| AC 1 | 39.7 | 18.3 | 6.83 | 1.97 | 6.16 | 3.37 | 1.71 | ~~0.69~~ | 20.0 | |
| AC 2 | 39.7 | 18.3 | 6.82 | 1.98 | 6.16 | 3.37 | 1.71 | 0.718<br>0.720 | 20.1 | |
| AC AVG. | 79.4 | 36.6 | 13.65 | 3.95 | 12.32 | 6.74 | 3.42 | 1.438 | 40.2 | |
| S.P. | -6.5 | | | | +6.3 | | | | | |
| AC NOISE | .07 | | | | .07 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CFEI Salome

LINE P HALF W SP. 2 DATE 4-17

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 220-180E | 180-140E | → | 140-100 | → | → | 100-60 | → | → | → |
| RANGE | LO | LO | LO | LO | LO | LO | HI | LO | LO | LO |
| VOLTAGE | 620 | 840 | 620 | 520 | 830 | 620 | 220 | 510 | 830 | 620 |
| CURRENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL-.02 |
| RECEIVE | 60-20E | → | → | → | 20E-20W | → | → | → | | 1-2 |
| RANGE | HI | LO | LO | LO | HI | LO | LO | LO | | HI |
| VOLTAGE | 220 | 510 | 820 | 620 | 220 | 500 | 820 | 620 | | 150 |
| CURRENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | | 0.2 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR Hix

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS: 1-2 HI - X30-00.0-100-
2-3 LO -
3-4 LO -
4-5 LO -

3.0 E .05 1.2
400' @

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "D" HALF E SP. 2 DATE 4-17

| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 22-26E | 26-30E | → | 30-34E | → | → | 34-38E | → | → | → |
| RANGE | 1000 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 319 | 233 | 54.0 | 211 | 51.9 | 17.95 | 193 | 72.0 | 25.0 | 10.1 |
| DC 2 | 318 | 224 | 53.8 | 213 | 50.2 | 17.60 | 198 | 72.5 | 24.6 | 9.9 |
| DC 3 | 319 | 233 | 54.0 | 211 | 51.9 | 17.95 | 193 | 72.0 | 25.0 | 10.1 |
| DC 4 | 318 | 224 | 53.8 | 213 | 50.2 | 17.60 | 198 | 72.5 | 24.6 | 9.9 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 637 | 457 | 107.8 | 424 | 102.1 | 35.55 | 391 | 144.5 | 49.6 | 20.0 |
| AC 1 | 317 | 226 | 53.5 | 210.5 | 50.7 | 17.65 | 194 | 71.8 | 24.6 | 9.90 |
| AC 2 | 317 | 226 | 53.5 | 210.5 | 50.7 | 17.65 | 194 | 71.7 | 24.6 | 9.90 |
| AC AVG. | 634 | 452 | 107.0 | 421 | 101.4 | 35.3 | 388 | 143.5 | 49.2 | 19.8 |
| S.P. | +8.9 | +5.2 | | -10.9 | | | -2.5 | | | |
| AC NOISE | .05 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE "D" HALF E SP. 2 DATE 4-17

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 38-42E | → | → | → | 42-46E | → | → | → | 4-5 | |
| RANGE | 100 | 30 | 30 | 10 | 100 | 30 | 30 | 10 | 30 | |
| DC 1 | 44.5 | 22.6 | 8.40 | 4.04 | 39.2 | 22.0 | 9.20 | 4.14 | 20.4 | |
| DC 2 | 43.8 | 22.7 | 8.60 | 3.92 | 40.2 | 22.3 | 8.50 | 4.14 | 20.0 | |
| DC 3 | 44.5 | 22.6 | 8.40 | 4.00 | 39.2 | 22.0 | 9.20 | 4.08 | 20.4 | |
| DC 4 | 43.8 | 22.7 | 8.60 | 3.96 | 40.2 | 22.3 | 8.50 | 4.08 | 20.0 | |
| DC 5 | | | | 4.02 | | | | 4.16 | | |
| DC 6 | | | | 3.94 | | | | 4.06 | | |
| DC 7 | | | | 3.96 | | | | 4.25 | | |
| DC 8 | | | | 3.98 | | | | 3.90 | | |
| DC AVG. | 88.3 | 45.3 | 17.0 | 7.95 | 79.4 | 44.3 | 17.7 | 8.21 | 40.4 | |
| AC 1 | 43.9 | 22.4 | 8.45 | 3.86 | 39.4 | 21.9 | 8.70 | 4.02 | 20.4 | |
| AC 2 | 43.9 | 22.4 | 8.45 | 3.86 | 39.4 | 21.9 | 8.70 | 4.02 | 20.4 | |
| AC AVG. | 87.8 | 44.8 | 16.9 | 7.72 | 78.8 | 43.8 | 17.4 | 8.04 | 40.8 | |
| S.P. | -0.9 | | | | -3.7 | | | | | |
| AC NOISE | .05 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

**PROJECT** CF & I - Solomon

LINE D HALF E SP. 2 DATE 4-17

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 220-260E | 260-300 | → | 300-340E | → | → | 340-380 | → | → | → |
| RANGE | Lo | Lo | Hi | Lo | Lo | Hi | Lo | Lo | Lo | Hi |
| VOLTAGE | 220 | 530 | 230 | 840 | 530 | 230 | 620 | 840 | 520 | 230 |
| CURRENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL 23 |
| RECEIVE | 380-420 | → | → | → | 420-460 | → | → | → | | 4-5 |
| RANGE | Lo | Lo | Lo | Hi | Lo | Lo | Lo | Hi | | Lo |
| VOLTAGE | 620 | 840 | 520 | 230 | 620 | 830 | 520 | 230 | | 420 |
| CURRENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | | .2 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HCX

RECEIVER NO. 364 IR

OPERATOR DALMER

COMMENTS: 1-2 - Hi X3 - 00.0 - 100 - X1 - 00 - 200
2-3 - Lo
3-4 - Lo
4-5 - Lo

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

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Project CF&I - Salome Line "D" Sp2 w/2 Field date 4-17-68 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 | 22E-18E | 18-14E | → | 14-10E | → | → | 10-6E | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 300 MA | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 449 | 632 | 106.2 | 927 | 203 | 40.4 | 1658 | 549 | 164 | 37.6 | | |
| (F) DCcal | .498 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 1.2 | 4.8 | 1.2 | 4.8 | 12.0 | 1.2 | 4.8 | 12.0 | 24.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 897 | 1263 | 850 | 1853 | 1625 | 807 | 3312 | 4390 | 3279 | 1503 | | |
| (I) Vac $\Sigma$ | 442 | 620 | 104.8 | 912 | 199 | 39.6 | 1634 | 539 | 160.4 | 36.9 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | 1.003 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 1.8 | 2.3 | 1.8 | 1.9 | 2.3 | 2.3 | 1.7 | 2.1 | 2.4 | 2.2 | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 6E-2E | → | → | → | 2E-2W | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 300 MA | → | → | → | → | → | → | → | | 200 MA | | |
| (E) Vdc (avg) | 82.5 | 38.2 | 14.33 | 4.19 | 12.74 | 6.98 | 3.56 | 1.47 | | 40.1 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 4.8 | 12.0 | 24.0 | 42.0 | 12.0 | 24.0 | 42.0 | 67.2 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 660 | 764 | 573 | 292 | 254 | 279 | 248 | 164 | | | | |
| (I) Vac $\Sigma$ | 79.4 | 36.6 | 13.65 | 3.95 | 12.32 | 6.74 | 3.42 | 1.438 | | 40.2 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | 4.3 | | | | | |
| (N) PFE=(M-1)($10^2$) | 4.2 | 4.8 | 5.3 | 6.2 | 3.7 | 4.0 | 0.9 ? | 2.7 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

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Project CF&I - Salome Line "D" Sp2 E½ Field date 4-18-68 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 | 22-26E | 26-30E | → | 30-34E | → | → | 34-38E | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 300 MA | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 637 | 457 | 107.8 | 424 | 102.1 | 35.55 | 391 | 144.5 | 49.6 | 20.0 | | |
| (F) DCcal | .495 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 1.2 | 4.8 | 1.2 | 4.8 | 12.0 | 1.2 | 4.8 | 12.0 | 24.0 | | |
| (H) ρ dc=ExFxGx$10^3$/D | 1261 | 906 | ~~956~~ 853 | 840 | 809 | 704 | 774 | 1144 | 983 | 792 | | |
| (I) Vac Σ | 634 | 452 | 107.0 | 421 | 101.4 | 35.3 | 388 | 143.5 | 49.2 | 19.8 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) = $\sqrt{I^2 - J^2}$ | 1.010 | | | | | | | | | | | |
| (L) AC-DC cal. | ~~.990~~ | | | | | | | | | | | |
| (M) ρ dc/ρac=ExL/K | 1.5 | 2.1 | 1.7 | 1.7 | 1.8 | 1.7 | 1.8 | 1.7 | 2.0 | 2.0 | | |
| (N) PFE=(M-1)($10^2$) | ~~-0.4~~ | ~~0.2~~ | ~~-0.5~~ | ~~-0.3~~ | ~~-0.2~~ | ~~-0.3~~ | ~~-0.2~~ | ~~-0.3~~ | ~~0~~ | ~~0~~ | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 38-42E | → | → | → | 42-46E | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 300 MA | → | → | → | → | → | → | → | | 200 MA | | |
| (E) Vdc (avg) | 88.3 | 45.3 | 17.0 | 7.95 | 79.4 | 44.3 | 17.7 | 8.21 | | 40.4 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 4.8 | 12.0 | 24.0 | 42.0 | 12.0 | 24.0 | 42.0 | 67.2 | | | | |
| (H) ρ dc=ExFxGx$10^3$/D | 699 | 898 | 673 | 551 | 1571 | 1752 | 1227 | 912 | | | | |
| (I) Vac Σ | 87.8 | 44.8 | 16.9 | 7.72 | 78.8 | 43.8 | 17.4 | 8.04 | | 40.8 | | |
| (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)($10^2$) | 1.6 | 2.0 | 1.6 | 3.9 | 1.7 | 2.2 | 2.7 | 3.1 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

2 UE (+) LOOKING N35E W/E

PAGE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CFET - Salome

LINE "A" HALF W SP. 2 DATE 4-18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 20-16E | 16-12E → | | 12-8E | → | | 8-4E → | | | |
| RANGE | 1000 | 300 | 100 | 1000 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 343 | 283 | 59.2 | 507 | 59.6 | 21.4 | 262 | 56.2 | 16.0 | 8.10 |
| DC 2 | 343 | 281.5 | 59.0 | 507 | 59.8 | 21.9 | 259 | 55.8 | 15.6 | 8.40 |
| DC 3 | 343 | 283. | 59.2 | 507 | 59.6 | 21.4 | 262 | 56.2 | 16.0 | 8.10 |
| DC 4 | 343 | 281.5 | 59.0 | 507 | 59.8 | 21.9 | 259 | 55.8 | 15.6 | 8.40 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 335 | 273.5 | 57.0 | 490 | 57.2 | 20.9 | 246.5 | 53.5 | 15.1 | 8.10 |
| AC 2 | 335 | 273.5 | 57.0 | 490 | 57.2 | 20.9 | 246.5 | 53.5 | 15.1 | 8.10 |
| AC AVG. | | | | | | | | | | |
| S.P. | +9.4 | -6.6 | | -12.4 | | | +11.4 | | | |
| AC NOISE | .06 | .05 | | .07 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "A" HALF W SP. 2 DATE 4-18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 4E-0 → | | | | 0-4W → | | | | 1-2 | |
| RANGE | 100 | 30 | 10 | 10 | 30 | 30 | 10 | 10 | 300 | |
| DC 1 | 42.1 | 14.45 | 5.10 | 3.74 | 19.7 | 8.20 | 3.83 | 2.40 2.85 | 99 | |
| DC 2 | 41.6 | 15.35 | 5.74 | 2.96 | 19.3 | 8.80 | 3.76 | 2.45 2.36 | 99 | |
| DC 3 | 42.1 | 14.85 | 4.96 | 3.68 | 19.7 | 8.20 | 3.58 | 2.74 2.75 | 99 | |
| DC 4 | 41.6 | 15.35 | 5.64 | 3.14 | 19.3 | 8.80 | 3.74 | 2.20 2.46 | 99 | |
| DC 5 | | 14.55 | 5.20 | 3.66 | | | 4.00 | 2.58 | | |
| DC 6 | | 15.40 | 5.66 | 3.14 | | | 3.59 | 2.78 | | |
| DC 7 | | 14.55 | 5.16 | 3.74 | | | 4.02 | 2.74 | | |
| DC 8 | | 15.40 | 5.70 | 3.06 | | | 3.56 | 2.56 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 39.8 | 14.45 | 5.35 | 3.35 | 18.6 | 8.25 | 3.72 | 2.57 | 99.5 | |
| AC 2 | 39.8 | 14.45 | 5.35 | 3.35 | 18.6 | 8.25 | 3.72 | 2.57 | 99.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -4.7 | | | | +7.6 | | | | | |
| AC NOISE | .05 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

# INDUCED POLARIZATION SENDER NOTES

project: CF&I Line: A - W½ SP2 Date: 4-18-68

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Send | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | |
| Receive | 20-16E | 16-12 → | | 12-8 → | | | 8-4E → | | | | | |
| ~~Time~~ MODE | HI | LO | Hi | Hi | LO | Hi | LO | Hi | LO | Hi | | |
| ~~Range~~ VOLT | 460 | 580 | 460 | 470 | 570 | 460 | 680 | 470 | 570 | 450 | | |
| Current | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | |
| Send | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | | CA2 | |
| Receive | 0-0E → | | | | 0-4W → | | | | | | 1-2 | |
| ~~Time~~ MODE | LO | Hi | LO | Hi | LO | Hi | LO | Hi | | | LO | |
| ~~Range~~ VOLT | 680 | 470 | 570 | 450 | 680 | 470 | 560 | 440 | | | 690 | |
| Current | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | | 1.0 | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "A" HALF E SP. 2 DATE 4-18

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 20-24E | 24-28E | → | 28E-32E | → | → | 32-36E | → | → | → |
| RANGE | 300 | 1000 | 100 | 1000 | 100 | 30 | 3000 | 300 | 100 | 30 |
| DC 1 | 289 | 341 | 60.0 | 800 | 69.6 | 21.0 | 1648 | 250 | 29.0 | 12.1 |
| DC 2 | 287 | 339 | 58.4 | 802 | 67.8 | 21.9 | 1650 | 252 | 26.0 | 10.5 |
| DC 3 | 289 | 341 | 61.0 | 800 | 69.6 | 21.0 | 1648 | 250 | 29.0 | 12.1 |
| DC 4 | 287 | 339 | 58.2 | 802 | 67.8 | 21.9 | 1650 | 252 | 26.0 | 10.5 |
| DC 5 | | | 61.5 | | | | | | | |
| DC 6 | | | 57.4 | | | | | | | |
| DC 7 | | | 62.3 | | | | | | | |
| DC 8 | | | 56.4 | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 279 | 336 | 57.8 | 785 | 67.6 | 20.9 | 1640 | 245 | 27.0 | 11.0 |
| AC 2 | 279 | 336 | 57.8 | 785 | 67.6 | 20.9 | 1640 | 245 | 27.0 | 11.0 |
| AC AVG. | | | | | | | | | | |
| S.P. | -2.2 | -52.7 | | +17.2 | | | +8.4 | | | |
| AC NOISE | .05 | .06 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "A" HALF E SP. 2 DATE 4-18

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 36-40E | → | | → | 40-44E | → | | → | 4-5 | |
| RANGE | 1000 | 100 | 30 | 10 | 100 | 30 | 10 | 10 | 300 | |
| DC 1 | 306 | 57.4 | 11.5 | 6.40 | 57.6 | 15.3 | 4.39 | 3.43 | 96.5 | |
| DC 2 | 306 | 56.0 | 10.3 | 5.98 | 56.6 | 14.7 | 4.58 | 3.18 | 96.5 | |
| DC 3 | 306 | 57.4 | 11.5 | 6.95 | 57.6 | 15.3 | 4.24 | 3.76 | 96.5 | |
| DC 4 | 306 | 56.0 | 10.3 | 5.86 | 56.6 | 14.7 | 4.98 | 2.66 | 96.5 | |
| DC 5 | | | | 6.46 | | | 4.52 | 3.84 | | |
| DC 6 | | | | 5.82 | | | 4.50 | 2.81 | | |
| DC 7 | | | | 6.38 | | | 4.24 | 3.57 | | |
| DC 8 | | | | 6.50 | | | 4.83 | 2.50 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 298 | 54.1 | 10.5 | 6.10 | 55.5 | 14.3 | 4.43 | 3.18 | 97.5 | |
| AC 2 | 298 | 54.1 | 10.5 | 6.10 | 55.5 | 14.3 | 4.43 | 3.18 | 97.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +12.3 | | | | +2.2 | | | | | |
| AC NOISE | .07 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

.05 - 3.0 ③

# INDUCED POLARIZATION SENDER NOTES

Project: CF&I Line: A E½ SP2 Date: 4-18-68

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Send | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | |
| Receive | 20-24E | 24-28E | → | 28E-32 | → | → | 32-36E | → | → | → | | |
| MODE ~~Time~~ | LO | LO | LO | LO | LO | LO | LO | LO | LO | LO | | |
| VOLT ~~Range~~ | 720 | 500 | 720 | 610 | 500 | 710 | 480 | 610 | 490 | 710 | | |
| Current | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | |
| Send | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | | CAL 1 Z | |
| Receive | 36-40 | E → | → | → | 40-44E | → | → | → | | | 4-5 | |
| MODE ~~Time~~ | HI | LO | LO | LO | HI | LO | LO | LO | | | LO | |
| VOLT ~~Range~~ | 480 | 600 | 490 | 700 | 470 | 590 | 490 | 700 | | | 490 | |
| Current | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | | 1.0 | |

HEINRICHS GEOEX B-251-68 LINEA SPD 2 LOOKING N35E 4-18-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | | |
| 343 | 2830 | 592 | 507 | 596 | 214 | 262 | 562 | 160 | 81 | DC | 421 | 1445 | 510 | 374 | 197 | 820 | 383 | 240 | 99 | LEFT | |
| 343 | 2815 | 590 | 507 | 598 | 219 | 259 | 558 | 156 | 84 | | 416 | 1535 | 574 | 296 | 193 | 880 | 376 | 245 | 99 | SIDE | |
| 343 | 2830 | 592 | 507 | 596 | 214 | 262 | 562 | 160 | 81 | | 421 | 1485 | 496 | 368 | 197 | 820 | 358 | 274 | 99 | | |
| 343 | 2815 | 590 | 507 | 598 | 219 | 259 | 558 | 156 | 84 | | 416 | 1535 | 564 | 314 | 193 | 880 | 374 | 220 | 99 | | |
| | | | | | | | | | | | | 1455 | 520 | 366 | | | 400 | 258 | | | |
| | | | | | | | | | | | | 1540 | 566 | 314 | | | 359 | 278 | | | |
| | | | | | | | | | | | | 1455 | 516 | 374 | | | 402 | 274 | | | |
| | | | | | | | | | | | | 1540 | 570 | 306 | | | 356 | 256 | | | |
| | | | | | | | | | | | | | | | | | | 285 | | | |
| | | | | | | | | | | | | | | | | | | 236 | | | |
| | | | | | | | | | | | | | | | | | | 275 | | | |
| | | | | | | | | | | | | | | | | | | 246 | | | |
| 343.0 | 282.2 | 59.10 | 507.0 | 59.70 | 21.65 | 260.5 | 56.00 | 15.80 | 8.250 | DCA | 41.85 | 15.00 | 5.394 | 3.389 | 19.50 | 8.500 | 3.769 | 2.585 | 99.00 | | |
| 335.0 | 273.5 | 57.00 | 490.0 | 57.20 | 20.90 | 246.5 | 53.50 | 15.10 | 8.100 | AC1 | 39.80 | 14.45 | 5.350 | 3.350 | 18.60 | 8.250 | 3.720 | 2.570 | 99.50 | | |
| 335.0 | 273.5 | 57.00 | 490.0 | 57.20 | 20.90 | 246.5 | 53.50 | 15.10 | 8.100 | AC2 | 39.80 | 14.45 | 5.350 | 3.350 | 18.60 | 8.250 | 3.720 | 2.570 | 99.50 | | |
| 335.0 | 273.5 | 57.00 | 490.0 | 57.20 | 20.90 | 246.5 | 53.50 | 15.10 | 8.100 | ACA | 39.80 | 14.45 | 5.350 | 3.350 | 18.60 | 8.250 | 3.720 | 2.570 | 99.50 | | |
| 415.8 | 342.1 | 286.5 | 614.5 | 289.5 | 262.4 | 315.8 | 271.5 | 191.5 | 200.0 | RHO | 202.9 | 181.8 | 130.8 | 143.8 | 236.4 | 206.1 | 159.9 | 175.5 | 1.010 | DC CAL | |
| 2.9 | 3.7 | 4.2 | 4.0 | 4.9 | 4.1 | 6.2 | 5.2 | 5.2 | 2.4 | PFE | 5.7 | 4.3 | 1.3 | 1.7 | 5.4 | 3.6 | 1.8 | 1.1 | 1.005 | AC CAL | |
| 7 | 11 | 15 | 6 | 17 | 16 | 20 | 19 | 27 | 12 | MCF | 28 | 24 | 10 | 12 | 23 | 17 | 11 | 6 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | | |
| 289 | 341 | 600 | 800 | 696 | 210 | 1648 | 250 | 29 | 121 | DC | 306 | 574 | 115 | 640 | 576 | 153 | 439 | 343 | 965 | RIGHT | |
| 287 | 339 | 584 | 802 | 678 | 219 | 1650 | 252 | 26 | 105 | | 306 | 560 | 103 | 598 | 566 | 147 | 458 | 318 | 965 | SIDE | |
| 289 | 341 | 610 | | | | | | | | | | | | 695 | | | 424 | 376 | 965 | | |
| 287 | 339 | 582 | | | | | | | | | | | | 586 | | | 498 | 266 | 965 | | |
| | | 615 | | | | | | | | | | | | 646 | | | 452 | 384 | | | |
| | | 574 | | | | | | | | | | | | 582 | | | 450 | 281 | | | |
| | | 623 | | | | | | | | | | | | 638 | | | 424 | 357 | | | |
| | | 564 | | | | | | | | | | | | 650 | | | 483 | 280 | | | |
| 288.0 | 340.0 | 59.57 | 801.0 | 68.70 | 21.45 | 1649.0 | 251.0 | 27.50 | 11.30 | DCA | 306.0 | 56.70 | 10.90 | 6.271 | 57.10 | 15.00 | 4.524 | 3.276 | 96.50 | | |
| 279.0 | 336.0 | 57.80 | 785.0 | 67.60 | 20.90 | 1640.0 | 245.0 | 27.00 | 11.00 | AC1 | 298.0 | 54.10 | 10.50 | 6.100 | 55.50 | 14.30 | 4.430 | 3.180 | 97.50 | | |
| 279.0 | 336.0 | 57.80 | 785.0 | 67.60 | 20.90 | 1640.0 | 245.0 | 27.00 | 11.00 | AC2 | 298.0 | 54.10 | 10.50 | 6.100 | 55.50 | 14.30 | 4.430 | 3.180 | 97.50 | | |
| 279.0 | 336.0 | 57.80 | 785.0 | 67.60 | 20.90 | 1640.0 | 245.0 | 27.00 | 11.00 | ACA | 298.0 | 54.10 | 10.50 | 6.100 | 55.50 | 14.30 | 4.430 | 3.180 | 97.50 | | |
| 358.1 | 422.8 | 296.3 | 996.1 | 341.7 | 266.7 | 2050.6 | 1248.5 | 342.0 | 281.0 | RHO | 1522.1 | 705.1 | 271.1 | 273.0 | 710.1 | 373.1 | 196.9 | 228.2 | 1.036 | DC CAL | |
| 4.3 | 2.2 | 4.1 | 3.1 | 2.7 | 3.7 | 1.6 | 3.5 | 2.9 | 3.8 | PFE | 3.7 | 5.9 | 4.9 | 3.9 | 3.9 | 6.0 | 3.2 | 4.1 | 1.010 | AC CAL | |
| 12 | 5 | 14 | 3 | 8 | 14 | 1 | 3 | 9 | 13 | MCF | 2 | 8 | 18 | 14 | 6 | 16 | 16 | 18 | | | |

OPEN PIT SPECIAL
100' @ 3.0 & 0.5 HZ

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE O.P. SP. HALF N62°E SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 0-INE | 1-2 → | | 2-3 → | | | 3-4 → | | | |
| RANGE | 300 | 300 | 100 | 1000 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 186 | 135 | 52.0 | 395 | 54.2 | 30.5 | 246 | 57.3 | 23.6 | 15.3 |
| DC 2 | 190 | 133 | 50.0 | 394 | 53.4 | 30.5 | 245 | 55.6 | 21.8 | 15.1 |
| DC 3 | 186 | 135 | 52.0 | 395 | 54.2 | 30.5 | 246 | 57.3 | 23.6 | 15.3 |
| DC 4 | 190 | 133 | 50.0 | 394 | 53.4 | 30.5 | 245 | 55.6 | 21.8 | 15.1 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 376 | 268 | 102 | 789 | 107.6 | 61.0 | 491 | 112.9 | 45.4 | 30.4 |
| AC 1 | 181.2 | 127.5 | 48.2 | 365 | 52.0 | 29.7 | 236 | 54.0 | 22.4 | 14.95 |
| AC 2 | 181.2 | 127.5 | 48.2 | 365 | 52.0 | 29.7 | 236 | 54.0 | 22.4 | 14.95 |
| AC AVG. | 362.4 | 255 | 96.4 | 730 | 104 | 59.4 | 476 | 108 | 44.8 | 29.9 |
| S.P. | -0.9 | +11.7 | | +13.4 | | | +4.8 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE OP SP. HALF NE SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | Cal | |
| RECEIVE | 4-5 → | | | | 5-6 → | | | | 4-5 | |
| RANGE | 300 | 300 | 30 | 30 | 300 | 100 | 30 | 30 | 300 | |
| DC 1 | 240 | 83.0 | 22.0 | 16.5 | 103.5 | 40.7 | 12.0 | 9.70 | 100 | |
| DC 2 | 238 | 81.0 | 21.65 | 16.2 | 102.5 | 40.5 | 12.6 | 10.50 | 100 | |
| DC 3 | 240 | 83.0 | 22.0 | 16.5 | 103.5 | 40.7 | 12.0 | 9.70 | 100 | |
| DC 4 | 238 | 81.0 | 21.65 | 16.2 | 102.5 | 40.5 | 12.6 | 10.50 | 100 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 478 | 164 | 43.65 | 32.7 | 206 | 81.2 | 24.6 | 20.2 | 200 | |
| AC 1 | 227 | 79.0 | 21.55 | 16.0 | 98.5 | 39.5 | 12.1 | 9.90 | 100 | |
| AC 2 | 227 | 79.0 | 21.55 | 16.0 | 98.5 | 39.5 | 12.1 | 9.90 | 100 | |
| AC AVG. | 454 | 158 | 43.1 | 32.0 | 197 | 79.0 | 24.2 | 19.8 | 200 | |
| S.P. | -6.0 | | | | +6.5 | | | | | |
| AC NOISE | .05 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

100'

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT O.P., SPECIAL CF & I - SALOME

LINE OP. SP. HALF N62°E SP. 1 DATE 4-19-6

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 0-INE | 1-2 → | → | 2-3 → | → | → | 3-4 | → | → | → |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi |
| VOLTAGE | 140 | 90 | 140 | 170 | 80 | 130 | 220 | 170 | 170 | 260 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL. |
| RECEIVE | 4-5 → | → | → | → | 5-6 → | → | → | → | | 4-5 |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | | Hi |
| VOLTAGE | 440 | 330 | 170 | 260 | 440 | 320 | 160 | 260 | | 220 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 15673 S.

OPERATOR HIX

RECEIVER NO. 3641 R

OPERATOR PALMER.

COMMENTS:

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFSI - Salome
LINE OP SP HALF SW SP. 1 DATE 4-19

| SEND | ~~4-5~~ SW | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 0-1 SW | 1-2 → | | 2-3 → | | | 3-4 → | | | |
| RANGE | 300 | 300 | 100 | 300 | 300 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 129 | 188 | 49.5 | 280 | 79.0 | 31.2 | 145.5 | 34.2 | 17.0 | 9.50 |
| DC 2 | 129 | 188 | 48.5 | 279 | 80.0 | 29.7 | 145.0 | 33.8 | 17.8 | 8.20 |
| DC 3 | 129 | 188 | 49.8 | 280 | 79.0 | 31.2 | 145.5 | 34.2 | 17.0 | 9.50 |
| DC 4 | 129 | 188 | 48.5 | 279 | 80.0 | 29.7 | 145.0 | 33.8 | 17.8 | 8.20 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 258 | 376 | 98.3 | 559 | 159 | 60.9 | 290.5 | 68.0 | 34.8 | 17.7 |
| AC 1 | 121.5 | 180.5 | 46.2 | 270.5 | 76.5 | 28.4 | 140.2 | 33.0 | 16.95 | 8.45 |
| AC 2 | 121.5 | 180.5 | 46.2 | 270.5 | 76.5 | 28.4 | 140.2 | 33.0 | 16.95 | 8.45 |
| AC AVG. | 243 | 361 | 92.4 | 541 | 153 | 56.8 | 280.4 | 66.0 | 33.9 | 16.9 |
| S.P. | +4.5 | +9.8 | | +24.4 | | | -13.9 | | | |
| AC NOISE | .05 | .06 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF & I - Salome
LINE OP SP HALF SW SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 4-5 → | | | | 5-6 | | | | 1-2 | |
| RANGE | 100 | 30 | 30 | 30 | 100 | 30 | 30 | 30 | 300 | |
| DC 1 | 36.4 | 12.1 | 16.1 | 8.60 | 48.8 | 21.1 | 14.1 | 8.40 | 99.5 | |
| DC 2 | 36.6 | 13.1 | 14.7 | 8.80 | 49.8 | 21.3 | 15.0 | 10.00 | 99.5 | |
| DC 3 | 36.4 | 12.1 | 16.1 | 8.60 | 48.8 | 21.1 | 14.1 | 8.40 | 99.5 | |
| DC 4 | 36.6 | 13.1 | 14.7 | 8.80 | 49.8 | 21.3 | 15.0 | 10.00 | 99.5 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 73.0 | 25.2 | 30.8 | 17.4 | 98.6 | 42.4 | 29.1 | 18.4 | 199 | |
| AC 1 | 35.4 | 12.25 | 15.0 | 8.25 | 47.2 | 20.48 | 14.1 | 8.65 | 99.5 | |
| AC 2 | 35.4 | 12.25 | 15.0 | 8.25 | 47.2 | 20.48 | 14.1 | 8.65 | 99.5 | |
| AC AVG. | 70.8 | 24.5 | 30.0 | 16.5 | 94.4 | 40.96 | 28.2 | 17.3 | 199 | |
| S.P. | -8.8 | | | | -4.3 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 6

PROJECT CF & I SALOME

LINE QP.SP HALF S62°W SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 0-1SW | 1-2 → | | 2-3 → | | | 3-4 → | | | |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi |
| VOLTAGE | 220 | 160 | 220 | 80 | 160 | 220 | 130 | 80 | 160 | 220 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL |
| RECEIVE | 4-5 → | | | | 5-6 → | | | | | 1-2 |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | | Hi |
| VOLTAGE | 130 | 80 | 320 | 430 | 250 | 160 | 320 | 430 | | 130 |
| CURRENT | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HLY

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

OPEN PIT SPECIAL
100'@ 3.0. & 0.5 HZ

# HEINRICHS GEOEXPLORATION COMPANY
## INDUCED POLARIZATION SURVEY COMPUTATION SHEET

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Project CF&I - Salome Line OP-SP. NE½ Field date 4-19-68 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 | 0-1 | 1-2 | → | 2-3 | → | → | 3-4 | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 1.0 A | → | → | → | → | → | → | → | 2.0 A | 2.0 A | | |
| (E) Vdc (avg) | 376 | 268 | 102 | 789 | 107.6 | 61.0 | 491 | 112.9 | 45.4 | 30.4 | | |
| (F) DCcal | .500 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | .3 | .3 | 1.2 | .3 | 1.2 | 3.0 | .3 | 1.2 | 3.0 | 6.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 56 | 40 | 61 | 118 | 65 | 92 | 74 | 68 | 34 | 46 | | |
| (I) Vac $\Sigma$ | 362.4 | 255 | 96.4 | 730 | 104 | 59.4 | 476 | 108 | 44.8 | 29.9 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | 1.000 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.8 | 5.1 | 5.8 | 8.1 | 3.5 | 2.7 | 3.2 | 4.5 | 1.3 | 1.7 | | |
| (O) MCF=(M-1)($10^5$)/H | 68 | 127 | 95 | 69 | 54 | 29 | 43 | 66 | 38 | 37 | | |

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 | 4-5 | → | → | → | 5-6 | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 2.0 A | → | → | → | → | → | → | → | | 1 A | | |
| (E) Vdc (avg) | 478 | 164 | 43.65 | 32.7 | 206 | 81.2 | 24.6 | 20.0 | | 200 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 3.0 | 6.0 | 10.5 | 3.0 | 6.0 | 10.5 | 16.8 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 143 | 123 | 65 | 86 | 155 | 120 | 65 | 85 | | | | |
| (I) Vac $\Sigma$ | 454 | 158 | 43.1 | 32.0 | 197 | 79.0 | 24.2 | 19.8 | | 200 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 5.3 | 3.8 | 1.3 | 2.2 | 4.6 | 2.8 | 1.7 | 2.0 | | | | |
| (O) MCF=(M-1)($10^5$)/H | 37 | 31 | 20 | 26 | 30 | 23 | 26 | 24 | | | | |

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

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Project CFEI-Salome Line OP-SP Sol/2 Field date 4-19-68 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 | 0-1 | 1-2 | → | 2-3 | → | → | 3-4 | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 1A | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 258 | 376 | 98.3 | 559 | 159 | 60.9 | 290.5 | 68.0 | 34.8 | 17.9 | | |
| (F) DCcal | .503 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | .3 | .3 | 1.2 | .3 | 1.2 | 3.0 | .3 | 1.2 | 3.0 | 6.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 39 | 57 | 59 | 84 | 96 | 92 | 44 | 41 | 53 | 53 | | |
| (I) Vac $\Sigma$ | 243 | 361 | 92.4 | 541 | 153 | 56.8 | 280.4 | 66.0 | 33.9 | 16.9 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | 1.000 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 6.2 | 4.2 | 6.4 | 3.3 | 3.9 | 7.2 | 3.6 | 3.0 | 2.7 | 4.7 | | |
| (O) MCF=(M-1)($10^5$)/H | 159 | 74 | 108 | 39 | 41 | 78 | 82 | 73 | 51 | 89 | | |

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 | 4-5 | → | → | → | 5-6 | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 1A | → | 2A | → | → | → | → | → | | 1A | | |
| (E) Vdc (avg) | 73.0 | 25.2 | 30.8 | 17.4 | 98.6 | 42.4 | 29.1 | 18.4 | | 199 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.2 | 3.0 | 6.0 | 10.5 | 3.0 | 6.0 | 10.5 | 16.8 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 44 | 38 | 46 | 46 | 74 | 64 | 77 | 78 | | | | |
| (I) Vac $\Sigma$ | 70.8 | 24.5 | 30.0 | 16.5 | 94.4 | 40.96 | 28.2 | 17.3 | | 199 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.1 | 2.9 | 2.7 | 5.5 | 4.4 | 3.5 | 3.2 | 6.4 | | | | |
| (O) MCF=(M-1)($10^5$)/H | 70 | 76 | 59 | 120 | 59 | 55 | 42 | 82 | | | | |

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

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Project CF&I - Salome Line Base Sp 3 N1/2 Field date 4-23-68 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 | 50-55N | 55-60N | → | 60-65N | → | → | 65-70N | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 2A | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 357 | 399 | 135.8 | 439 | 86.3 | 48.4 | 440.5 | 117.5 | 36.7 | 27.1 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 343 | 381 | 130.8 | 419 | 83.6 | 47.6 | 425 | 114 | 35.8 | 26.8 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 70-75N | → | → | → | 75-80N | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 2A | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 114.6 | 44.5 | 18.1 | 15.77 | 58.3 | 27.6 | 13.06 | 12.24 | | 401 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 112.2 | 43.6 | 17.9 | 15.2 | 56.8 | 27.1 | 13.08 | 12.1 | | 403 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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Project CF&I - Salome Line Base Sp3 S½ Field date 4-23-68 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 | 50-45N | 45-40N | → | 40-35N | → | → | 35-30N | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 2A | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 373 | 353 | 134 | 252.5 | 94.2 | 50.0 | 318.5 | 45.2 | 23.5 | 14.7 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | | 341 | 128.6 | 246 | 91.8 | 48.6 | 309 | 44.2 | 23.2 | 14.4 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 30-25N | → | → | → | 25-20N | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 2A | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 170.5 | 40.1 | 26.8 | 19.5 | 53.8 | 17.8 | 13.56 | 10.83 | | 402 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84.0 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 163 | 38.8 | 26.1 | 19.0 | 52.4 | 17.3 | 13.3 | 10.56 | | 404 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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Project CF&I - Salome Line Base Sp4 N1/2 Field date 4-23-68 Data page_____ Comp. date_____. Comp by_____

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) Send | 4-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | |
| (B) Receive | 15-20 N | 20-25N | → | 25-30N | → | → | 30-35N | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 2A | 1A | 2A | 2A | 1A | 2A | 2A | 2A | 1A | 2A | | |
| (E) Vdc (avg) | 1905 | 644 | 240 | 1138 | 160.2 | 96.9 | 360.5 | 102 | 21.2 | 17.2 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 1840 | 612 | 229 | 1086 | 152.4 | 92.6 | 351 | 100.2 | 20.8 | 16.9 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 35-40 N | → | → | → | 40-45N | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 2A | 1A | 2A | 2A | 2A | 2A | 1A | 2A | | 1A | | |
| (E) Vdc (avg) | 137.6 | 60.0 | 16.1 | 15.35 | 54.7 | 30.6 | 9.79 | 10.43 | | 197 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84.0 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 133.0 | 58.8 | 15.6 | 15.1 | 52.2 | 29.6 | 9.32 | 9.94 | | 194 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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Project CF&I - Salome Line Base Sp4 S1/2 Field date 4-23-68 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 | 15-10N | 10-5N | → | 5N-0N/S | → | → | 0N/S-5S | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 2A | → | → | 1A | 2A | → | → | 1A | 2A | → | | |
| (E) Vdc (avg) | 1320 | 1899 | 243.5 | 1176 | 539 | 122.4 | 13.29 | 379 | 209.5 | 56.2 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 1268 | 1846 | 233 | 1152 | 520 | 116.2 | 1310 | 368 | 202 | 52.8 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 5-10S | → | → | → | 10-15S | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 2A | 1A | 2A | → | → | 1A | 2A | → | | 1A | | |
| (E) Vdc (avg) | 299 | 102.1 | 65.7 | 21.5 | 66.5 | 25.0 | 18.0 | 6.98 | | 199 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84.0 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | | | | | | | | | | | | |
| (I) Vac $\Sigma$ | 292 | 99.4 | 63.4 | 20.3 | 65.0 | 24.2 | 17.2 | 6.68 | | 198 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | | | | | | | | | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project CF & I - Salome Line Base Sp 2N½ Field date 4-22-68 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 | 85-90N | 90-95N | → | 95-100N | → | → | 100-105N | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 3A | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 666 | 352 | 109.8 | 283 | 128.1 | 58.4 | 258 | 80.6 | 52.7 | 30.0 | | |
| (F) DCcal | .501 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 167 | 88 | 110 | 81 | 129 | 146 | 65 | 81 | 132 | 150 | | |
| (I) Vac $\Sigma$ | 640 | 342 | 107.2 | 274 | 124.6 | 56.8 | 250 | 78.8 | 51.6 | 29.1 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | .998 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.9 | 2.7 | 2.0 | 3.0 | 2.7 | 2.6 | 2.9 | 2.1 | 1.9 | 2.9 | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 105-110N | → | → | → | 110-115N | → | → | → | | 4-5 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 3A | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 62.1 | 39.7 | 30.5 | 18.5 | 28.0 | 22.9 | 18.9 | 12.48 | | 399 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84.0 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 62 | 100 | 153 | 162 | 70 | 115 | 166 | 175 | | | | |
| (I) Vac $\Sigma$ | 59.8 | 38.4 | 29.4 | 17.9 | 26.8 | 22.0 | 18.2 | 11.94 | | 398 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) = $\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.7 | 3.1 | 3.5 | 3.1 | ~~3.9~~ 4.3 | 3.9 | 3.7 | 4.1 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project CF&I - Salome Line Base Sp 2 5½ Field date 4-22-68 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 | 85-80 N | 80-75N | → | 75-70N | → | → | 70-65N | → | → | → | | |
| (C) n separation | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| (D) I | 3.0 | → | → | → | → | → | → | → | → | → | | |
| (E) Vdc (avg) | 355 | 676 | 111 | 666 | 152.8 | 43.3 | 795 | 204 | 73.5 | 27.3 | | |
| (F) DCcal | .497 | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 1.5 | 1.5 | 6.0 | 1.5 | 6.0 | 15.0 | 1.5 | 6.0 | 15.0 | 30.0 | | |
| (H) $\rho$dc=ExFxGx$10^3$/D | 88 | 168 | 111 | 166 | 152 | 108 | 198 | 203 | 183 | 136 | | |
| (I) Vac $\Sigma$ | 346 | 654 | 109 | 646 | 148.8 | 42.8 | 768 | 199.6 | 71.6 | 26.8 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac(corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | 1.000 | | | | | | | | | | | |
| (M) $\rho$ dc/$\rho$ac=ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 2.6 | 3.4 | 1.8 | 3.0 | 2.7 | 1.2 | 3.5 | 2.2 | 2.6 | 1.9 | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

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 | 65-60N | → | → | → | 60-55N | → | → | → | | 1-2 | | |
| (C) n separation | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 6 | | | | |
| (D) I | 3.0 | → | → | → | → | → | → | → | | 2A | | |
| (E) Vdc (avg) | 196 | 81.1 | 36.5 | 15.45 | 87.0 | 46.6 | 23.8 | 11.35 | | 402 | | |
| (F) DCcal | | | | | | | | | | | | |
| (G) Kn x $10^{-3}$ | 6.0 | 15.0 | 30.0 | 52.5 | 15.0 | 30.0 | 52.5 | 84.0 | | | | |
| (H) $\rho$ dc=ExFxGx$10^3$/D | 195 | 202 | 182 | 135 | 216 | 232 | 207 | 123 | | | | |
| (I) Vac $\Sigma$ | 189 | 79.0 | 35.4 | 14.9 | 84.4 | 45.3 | 23.2 | 11.0 | | 402 | | |
| (J) AC noise x 2 | | | | | | | | | | | | |
| (K) Vac (corr) $=\sqrt{I^2 - J^2}$ | | | | | | | | | | | | |
| (L) AC-DC cal. | | | | | | | | | | | | |
| (M) $\rho$dc/$\rho$ac =ExL/K | | | | | | | | | | | | |
| (N) PFE=(M-1)($10^2$) | 3.7 | 2.7 | 3.1 | 3.7 | 3.1 | 2.9 | 2.5 | 3.2 | | | | |
| (O) MCF=(M-1)($10^5$)/H | | | | | | | | | | | | |

+120 N N/N L-6 N15 W 251

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF & I - Salome
LINE Base HALF SW SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 2-3 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 120-115 | 115-110 | → | 110-105 | → | → | 105-100 | → | → | → |
| RANGE | 1000 | 300 | 300 | 300 | 100 | 100 | 300 | 100 | 100 | 30 |
| DC 1 | 483 | 296 | 79.0 | 250 | 69.4 | 30.3 | 283 | 60.2 | 25.6 | 14.1 |
| DC 2 | 481 | 294 | 76.0 | 250 | 69.8 | 28.8 | 274 | 52.0 | 25.4 | 13.7 |
| DC 3 | 483 | 296 | 79.0 | 250 | 69.4 | 30.3 | 283 | 60.2 | 25.6 | 14.1 |
| DC 4 | 481 | 294 | 76.0 | 250 | 69.8 | 28.8 | 274 | 52.0 | 25.4 | 13.7 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 462 | 281.5 | 74.0 | 238.5 | 66.3 | 28.4 | 26.4 | 53.8 | 24.3 | 13.4 |
| AC 2 | 462 | 281.5 | 74.0 | 238.5 | 66.3 | 28.4 | 264. | 53.8 | 24.3 | 13.4 |
| AC AVG. | | | | | | | | | | |
| S.P. | +11.5 | -10.7 | | +2.1 | | | -3.4 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE Base HALF SW SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 100-95 | → | → | → | 95-90 | → | → | → | 1-2 | |
| RANGE | 100 | 30 | 30 | 30 | 30 | 30 | 30 | 10 | 300 | |
| DC 1 | 56.1 | 22.3 | 13.1 | 9.20 | 19.0 | 10.5 | 7.00 | 5.42 | 199.5 | |
| DC 2 | 56.2 | 22.1 | 13.6 | 8.00 | 17.6 | 10.3 | 7.90 | 5.78 | 199.5 | |
| DC 3 | 56.1 | 22.3 | 13.1 | 9.20 | 19.0 | 10.5 | 7.00 | 5.42 | 199.5 | |
| DC 4 | 56.2 | 22.1 | 13.6 | 8.00 | 17.6 | 10.3 | 7.90 | 5.78 | 199.5 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 53.6 | 21.15 | 12.7 | 8.10 | 17.4 | 9.93 | 7.05 | 5.26 | 197 | |
| AC 2 | 53.6 | 21.15 | 12.7 | 8.10 | 17.4 | 9.93 | 7.05 | 5.26 | 197 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +15.6 | | | | +8.4 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

0=12,000

PAGE 8

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF & I-Salome

LINE BASE HALF SW SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 120-115 | 115-110 → | | 110-105 | | → | 105-100 → | | | |
| RANGE | Lo | Lo | Lo | Hi | Lo | Lo | Lo | Hi | Lo | Lo |
| VOLTAGE | 820 | 840 | 820 | 240 | 830 | 810 | 700 | 240 | 820 | 810 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 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. |
| RECEIVE | 100-95 → | | | | 95-90 → | | | | | 1-2 |
| RANGE | Lo | Hi | Lo | Lo | Lo | Hi | Lo | Lo. | | Hi |
| VOLTAGE | 700 | 240 | 820 | 800 | 700 | 240 | 820 | 800 | | 360 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HV

RECEIVER NO. 36411R

OPERATOR PMMER

COMMENTS: 1-2 Lo – 4.0
2-3 Hi – 4.0
3-4 Lo – 4.0
4-5 Lo – 4.0

Baseline
500' @ 3.0 & 0.5 Hz  Starting at 12000' NE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome

LINE Base HALF NE SP. 1 DATE 4-19

| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 120-125 | 125-130 | → | 130-135 | → | → | 135-140 | → | → | → |
| RANGE | 300 | 1000 | 300 | 1000 | 300 | 100 | 1000 | 300 | 100 | 30 |
| DC 1 | 295 | 483 | 79.0 | 333 | 94.0 | 29.0 | 322 | 105.5 | 45.9 | 18.45 |
| DC 2 | 295 | 482 | 77.0 | 334 | 95.0 | 26.3 | 323 | 106.0 | 44.6 | 17.30 |
| DC 3 | 295 | 483 | 79.0 | 333 | 94.0 | 29.0 | 322 | 105.5 | 45.9 | 18.45 |
| DC 4 | 295 | 482 | 77.0 | 334 | 95.0 | 26.3 | 323 | 106.0 | 44.6 | 17.30 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 284 | 464 | 75.0 | 321 | 90.5 | 26.5 | 315 | 102 | 43.7 | 17.1 |
| AC 2 | 284 | 464 | 75.0 | 321 | 90.5 | 26.5 | 315 | 102 | 43.7 | 17.1 |
| AC AVG. | | | | | | | | | | |
| S.P. | +16.9 | +8.6 | | -20.8 | | | +14.1 | | | |
| AC NOISE | .04 | | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome

LINE Base HALF NE SP. 1 DATE 4-19

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | Cal. | |
| RECEIVE | 140-145 | → | | → | 145-150 | → | | → | 4-5 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 100 | 30 | 30 | 300 | |
| DC 1 | 89.0 | 42.4 | 24.3 | 10.8 | 45.8 | 27.8 | 15.65 | 8.30 | 200 | |
| DC 2 | 90.0 | 44.6 | 21.4 | 9.95 | 47.0 | 25.8 | 15.6 | 7.80 | 200 | |
| DC 3 | 89.0 | 42.4 | 24.3 | 10.8 | 45.8 | 27.8 | 15.65 | 8.30 | 200 | |
| DC 4 | 90.0 | 44.6 | 21.4 | 9.95 | 47.0 | 25.8 | 15.6 | 7.80 | 200 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 86.5 | 41.8 | 21.85 | 9.90 | 44.4 | 25.7 | 14.85 | 7.55 | 199 | |
| AC 2 | 86.5 | 41.8 | 21.85 | 9.90 | 44.4 | 25.7 | 14.85 | 7.55 | 199 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +12.5 | | | | -1.9 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

0 = 12,000 NE
00 BASE

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I - Salome

LINE BASE HALF NE SP. 1 DATE 4-19-

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 120-125 | 125-130 | → | 130-135 | → | → | 135-140 | → | → | → |
| RANGE | LO | HI | LO | LO | HI | LO | LO | LO | HI | LO |
| VOLTAGE | 760 | 250 | 750 | 870 | 250 | 740 | 840 | 860 | 250 | 720 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL. |
| RECEIVE | 140-145 | → | → | → | 145-150 | → | → | → | | 4-5 |
| RANGE | LO | LO | HI | LO | LO | LO | HI | LO | | HI |
| VOLTAGE | 830 | 860 | 250 | 730 | 820 | 850 | 250 | 720 | | 420 |
| CURRENT | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 15673 S.

OPERATOR HIX

RECEIVER NO. 3641 R

OPERATOR PALMER

COMMENTS: 1-2 LO
2-3 HI
3-4 LO
4-5 LO

4A

HEINRICHS GEOEX B-251-68 LINE BASE SPD 1 4-19-68 LOOKING N55W A= 500 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | I | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 2.000 | | |
| 483 | 296 | 79 | 250 | 694 | 303 | 283 | 602 | 256 | 141 | DC | 561 | 223 | 131 | 92 | 190 | 105 | 70 | 542 | 1995 | LEFT | |
| 481 | 294 | 76 | 250 | 698 | 288 | 274 | 520 | 254 | 137 | | 562 | 221 | 136 | 80 | 176 | 103 | 79 | 578 | 1995 | SIDE | |
| | | | | | | | | | | | | | | | | | | | 1995 | | |
| | | | | | | | | | | | | | | | | | | | 1995 | | |
| 482.0 | 295.0 | 77.50 | 250.0 | 69.60 | 29.55 | 278.5 | 56.10 | 25.50 | 13.90 | DCA | 56.15 | 22.20 | 13.35 | 8.600 | 18.30 | 10.400 | 7.450 | 5.600 | 199.5 | | |
| 462.0 | 281.5 | 74.00 | 238.5 | 66.30 | 28.40 | 264.0 | 53.80 | 24.30 | 13.40 | AC1 | 53.60 | 21.15 | 12.70 | 8.100 | 17.40 | 9.930 | 7.050 | 5.260 | 197.0 | | |
| 462.0 | 281.5 | 74.00 | 238.5 | 66.30 | 28.40 | 264.0 | 53.80 | 24.30 | 13.40 | AC2 | 53.60 | 21.15 | 12.70 | 8.100 | 17.40 | 9.930 | 7.050 | 5.260 | 197.0 | | |
| 462.0 | 281.5 | 74.00 | 238.5 | 66.30 | 28.40 | 264.0 | 53.80 | 24.30 | 13.40 | ACA | 53.60 | 21.15 | 12.70 | 8.100 | 17.40 | 9.930 | 7.050 | 5.260 | 197.0 | | |
| 181.2 | 110.9 | 116.5 | 93.98 | 104.7 | 111.1 | 104.7 | 84.36 | 95.86 | 104.5 | RHO | 84.44 | 83.46 | 100.4 | 113.2 | 68.80 | 78.20 | 98.03 | 117.9 | 1.003 | DC CAL | |
| 3.0 | 3.5 | 3.4 | 3.5 | 3.7 | 2.7 | 4.2 | 3.0 | 3.6 | 2.4 | PFE | 3.4 | 3.6 | 3.8 | 4.8 | 3.9 | 3.4 | 4.3 | 5.1 | .987 | AC CAL | |
| 17 | 31 | 29 | 37 | 35 | 25 | 40 | 35 | 38 | 23 | MCF | 41 | 44 | 38 | 43 | 56 | 44 | 44 | 44 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | I | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 2.000 | | |
| 295 | 483 | 79 | 333 | 94 | 290 | 322 | 1055 | 459 | 1845 | DC | 89 | 424 | 243 | 1080 | 458 | 278 | 1565 | 830 | 200 | RIGHT | |
| 295 | 482 | 77 | 334 | 95 | 263 | 323 | 1060 | 446 | 1730 | | 90 | 446 | 214 | 995 | 470 | 258 | 1560 | 780 | 200 | SIDE | |
| | | | | | | | | | | | | | | | | | | | 200 | | |
| | | | | | | | | | | | | | | | | | | | 200 | | |
| 295.0 | 482.5 | 78.00 | 333.5 | 94.50 | 27.65 | 322.5 | 105.7 | 45.25 | 17.87 | DCA | 89.50 | 43.50 | 22.85 | 10.375 | 46.40 | 26.80 | 15.62 | 8.050 | 200.0 | | |
| 284.0 | 464.0 | 75.00 | 321.0 | 90.50 | 26.50 | 315.0 | 102.0 | 43.70 | 17.10 | AC1 | 86.50 | 41.80 | 21.85 | 9.900 | 44.40 | 25.70 | 14.85 | 7.550 | 199.0 | | |
| 284.0 | 464.0 | 75.00 | 321.0 | 90.50 | 26.50 | 315.0 | 102.0 | 43.70 | 17.10 | AC2 | 86.50 | 41.80 | 21.85 | 9.900 | 44.40 | 25.70 | 14.85 | 7.550 | 199.0 | | |
| 284.0 | 464.0 | 75.00 | 321.0 | 90.50 | 26.50 | 315.0 | 102.0 | 43.70 | 17.10 | ACA | 86.50 | 41.80 | 21.85 | 9.900 | 44.40 | 25.70 | 14.85 | 7.550 | 199.0 | | |
| 110.6 | 180.9 | 117.0 | 125.1 | 141.7 | 103.7 | 120.9 | 158.6 | 169.7 | 134.1 | RHO | 134.2 | 163.1 | 171.4 | 136.2 | 174.0 | 201.0 | 205.1 | 169.0 | 1.000 | DC CAL | |
| 3.4 | 3.5 | 3.5 | 3.4 | 3.9 | 3.8 | 1.9 | 3.2 | 3.0 | 4.0 | PFE | 3.0 | 3.5 | 4.1 | 4.3 | 4.0 | 3.8 | 4.7 | 6.1 | .995 | AC CAL | |
| 30 | 19 | 30 | 27 | 27 | 37 | 15 | 20 | 18 | 30 | MCF | 22 | 22 | 24 | 31 | 23 | 19 | 23 | 36 | | | |

4972585

Looking N55W  a=50'  Center +85N  N1N  Line Base SP 2  f=3.0  8251-68

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE Base HALF S SP. 2 DATE 4-22

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 85-80N | 80-75N | → | 75-70N | → | → | 70-65N | → | → | → |
| RANGE | 300 | 1000 | 100 | 1000 | 100 | 30 | 1000 | 300 | 100 | 30 |
| DC 1 | 177 | 339 | 54.5 | 332 | 75.6 | 23.2 | 398 | 101 | 37.9 | 13.3 |
| DC 2 | 178 | 337 | 56.5 | 334 | 77.2 | 20.1 | 397 | 103 | 35.6 | 14.0 |
| DC 3 | 177 | 339 | 54.5 | 332 | 75.6 | 23.2 | 398 | 101 | 37.9 | 13.3 |
| DC 4 | 178 | 337 | 56.5 | 334 | 77.2 | 20.1 | 397 | 103 | 35.6 | 14.0 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 355 | 676 | 111.0 | 666 | 152.8 | 43.3 | 795 | 204 | 73.5 | 27.3 |
| AC 1 | 173 | 327 | 54.5 | 323 | 74.4 | 21.4 | 384 | 99.8 | 35.8 | 13.4 |
| AC 2 | 173 | 327 | 54.5 | 323 | 74.4 | 21.4 | 384 | 99.8 | 35.8 | 13.4 |
| AC AVG. | 346 | 654 | 109.0 | 646 | 148.8 | 42.8 | 768 | 199.6 | 71.6 | 26.8 |
| S.P. | +23.6 | +22.3 | | −12.6 | | | −15.5 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI- Salome
LINE Base HALF S SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 65-60N | → | → | → | 60-55N | → | → | → | 1-2 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 96.0 | 41.8 | 17.4 | 7.45 | 43.6 | 23.7 | 12.1 | 5.62 | 201 | |
| DC 2 | 100.0 | 39.3 | 19.1 | 8.00 | 43.4 | 22.9 | 11.7 | 5.80 | 201 | |
| DC 3 | 96.0 | 41.8 | 17.4 | 7.45 | 43.6 | 23.7 | 12.1 | 5.55 | 201 | |
| DC 4 | 100.0 | 39.3 | 19.1 | 8.00 | 43.4 | 22.9 | 11.7 | 5.92 | 201 | |
| DC 5 | | | | | | | | 5.37 | | |
| DC 6 | | | | | | | | 6.00 | | |
| DC 7 | | | | | | | | 5.30 | | |
| DC 8 | | | | | | | | 6.02 | | |
| DC AVG. | 196 | 81.1 | 36.5 | 15.45 | 87.8 | 46.6 | 23.8 | 11.35 | 402 | |
| AC 1 | 94.5 | 39.5 | 17.7 | 7.45 | 42.2 | 22.65 | 11.6 | 5.50 | 201 | |
| AC 2 | 94.5 | 39.5 | 17.7 | 7.45 | 42.2 | 22.65 | 11.6 | 5.50 | 201 | |
| AC AVG. | 189.0 | 79.0 | 35.4 | 14.9 | 84.4 | 45.3 | 23.2 | 11.0 | 402 | |
| S.P. | +11.6 | | | | +15.9 | | | | | |
| AC NOISE | .00 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 1

PROJECT CF&I

LINE Base HALF S SP. 2 DATE 4-22

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 0-5s | 5-10s | → | 10-15s | → | → | 15-20 | → | → | → |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| VOLTAGE | 810 | 680 | 810 | 670 | 670 | 800 | 700 | 670 | 660 | 790 |
| CURRENT | 3.0 | 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 | | OHL |
| RECEIVE | 20-25s | → | → | → | 25-30 | → | → | → | | 1-2 |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | Hi |
| VOLTAGE | 700 | 660 | 660 | 780 | 690 | 660 | 650 | 770 | | 480 |
| CURRENT | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR H.Y

RECEIVER NO. 3011 D

OPERATOR PALMER

COMMENTS: 3.0 - 20 1-5

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CEEI - Salome
LINE Base HALF N SP. 2 DATE 4-22

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 85-90N | 90-95N | → | 95-100N | → | → | 100-105N | → | → | → |
| RANGE | 1000 | 300 | 100 | 300 | 100 | 100 | 300 | 100 | 100 | 30 |
| DC 1 | 332 | 176 | 55.5 | 139 | 61.7 | 28.4 | 131 | 37.0 | 26.2 | 14.7 |
| DC 2 | 334 | 176 | 54.3 | 144 | 67.4 | 30.0 | 127 | 43.6 | 26.5 | 15.3 |
| DC 3 | 332 | 176 | 55.5 | 139 | 61.7 | 28.4 | 131 | 37.0 | 26.2 | 14.7 |
| DC 4 | 334 | 176 | 54.3 | 144 | 67.4 | 30.0 | 127 | 43.6 | 26.5 | 15.3 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | ~~666~~ | ~~352~~ | 109.8 | 283 | 128.1 | 58.4 | 258 | 80.6 | 52.7 | 30.0 |
| AC 1 | 320 | 171 | 53.6 | 137 | 62.3 | 28.4 | 125 | 39.4 | 25.8 | 14.55 |
| AC 2 | 320 | 171 | 53.6 | 137 | 62.3 | 28.4 | 125 | 39.4 | 25.8 | 14.55 |
| AC AVG. | ~~640~~ | ~~342~~ | 107.2 | 274 | 124.6 | 56.8 | 250 | 78.8 | 51.6 | 29.1 |
| S.P. | +35.0 | -0.3 | | -10.5 | | | +21.7 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE Base HALF N SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | Cal | |
| RECEIVE | 105-110N | → | → | → | 110-115N | → | → | → | 4-5 | |
| RANGE | 100 | 30 | 30 | 30 | 30 | 30 | 30 | 10 | 300 | |
| DC 1 | 31.5 | 20.1 | 15.2 | 9.40 | 13.6 | 11.3 | 9.10 | 6.14 | 199.5 | |
| DC 2 | 30.6 | 19.6 | 15.3 | 9.10 | 14.4 | 11.6 | 9.80 | 6.43 | 199.5 | |
| DC 3 | 31.5 | 20.1 | 15.2 | 9.40 | 13.6 | 11.3 | 9.10 | 6.02 | 199.5 | |
| DC 4 | 30.6 | 19.6 | 15.3 | 9.10 | 14.4 | 11.6 | 9.80 | 6.36 | 199.5 | |
| DC 5 | | | | | | | | 6.36 | | |
| DC 6 | | | | | | | | 6.04 | | |
| DC 7 | | | | | | | | 6.34 | | |
| DC 8 | | | | | | | | 6.14 | | |
| DC AVG. | 62.1 | 39.7 | 30.5 | 18.5 | 28.0 | 22.9 | 18.9 | 12.48 | 399 | |
| AC 1 | 29.9 | 19.2 | 14.7 | 8.95 | 13.4 | 11.0 | 9.10 | 5.97 | 199 | |
| AC 2 | 29.9 | 19.2 | 14.7 | 8.95 | 13.4 | 11.0 | 9.10 | 5.97 | 199 | |
| AC AVG. | 59.8 | 38.4 | 29.4 | 17.9 | 26.4 | 22.0 | 18.2 | 11.94 | 398 | |
| S.P. | -21.5 | | | | +8.1 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 2

PROJECT CF&I - Solomon

LINE Base HALF N SP. 2 DATE 4-22

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 85-90N | 90-95N | → | 95-100 | → | → | 100-105 | → | → | → |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| VOLTAGE | 680 | 650 | 680 | 640 | 650 | 670 | 740 | 630 | 640 | 660 |
| 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 | | CHI. |
| RECEIVE | 105-110 | → | → | → | 110-115 | → | → | → | | 4-5 |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | 20 |
| VOLTAGE | 740 | 630 | 640 | 660 | 740 | 620 | 640 | 660 | | 500 |
| CURRENT | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR H/X

RECEIVER NO. 3641A

OPERATOR POWER

COMMENTS:

HEINRICHS GEOEX B251-68 LINE BASE SPD 2 LOOKING N55W 4-22-68 A= 500 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | I | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 2.000 | | |
| 177 | 339 | 545 | 332 | 756 | 232 | 398 | 101 | 379 | 133 | DC | 96 | 418 | 174 | 745 | 436 | 237 | 121 | 562 | 201 | LEFT | |
| 178 | 337 | 565 | 334 | 772 | 201 | 397 | 103 | 356 | 140 | | 100 | 393 | 191 | 800 | 434 | 229 | 117 | 580 | 201 | SIDE | |
| | | | | | | | | | | | | | | | | | | 555 | 201 | | |
| | | | | | | | | | | | | | | | | | | 592 | 201 | | |
| | | | | | | | | | | | | | | | | | | 537 | | | |
| | | | | | | | | | | | | | | | | | | 600 | | | |
| | | | | | | | | | | | | | | | | | | 530 | | | |
| | | | | | | | | | | | | | | | | | | 602 | | | |
| 177.5 | 338.0 | 55.50 | 333.0 | 76.40 | 21.65 | 397.5 | 102.00 | 36.75 | 13.65 | DCA | 98.00 | 40.55 | 18.25 | 7.725 | 43.50 | 23.30 | 11.90 | 5.680 | 201.0 | | |
| 173.0 | 327.0 | 54.50 | 323.0 | 74.40 | 21.40 | 384.0 | 99.80 | 35.80 | 13.40 | AC1 | 94.50 | 39.50 | 17.70 | 7.450 | 42.20 | 22.65 | 11.60 | 5.500 | 201.0 | | |
| 173.0 | 327.0 | 54.50 | 323.0 | 74.40 | 21.40 | 384.0 | 99.80 | 35.80 | 13.40 | AC2 | 94.50 | 39.50 | 17.70 | 7.450 | 42.20 | 22.65 | 11.60 | 5.500 | 201.0 | | |
| 173.0 | 327.0 | 54.50 | 323.0 | 74.40 | 21.40 | 384.0 | 99.80 | 35.80 | 13.40 | ACA | 94.50 | 39.50 | 17.70 | 7.450 | 42.20 | 22.65 | 11.60 | 5.500 | 201.0 | | |
| 88.31 | 168.2 | 110.4 | 165.7 | 152.0 | 107.7 | 197.8 | 203.0 | 182.8 | 135.8 | RHO | 195.0 | 201.7 | 181.6 | 134.5 | 216.4 | 231.8 | 207.2 | 158.2 | .995 | DC CAL | |
| 2.6 | 3.4 | 1.8 | 3.1 | 2.7 | 1.2 | 3.5 | 2.2 | 2.7 | 1.9 | PFE | 3.7 | 2.7 | 3.1 | 3.7 | 3.1 | 2.9 | 2.6 | 3.3 | 1.000 | AC CAL | |
| 29 | 20 | 17 | 19 | 18 | 11 | 18 | 11 | 15 | 14 | MCF | 19 | 13 | 17 | 27 | 14 | 12 | 12 | 21 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | I | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 2.000 | | |
| 332 | 176 | 555 | 139 | 617 | 284 | 131 | 370 | 262 | 147 | DC | 315 | 201 | 152 | 940 | 136 | 113 | 91 | 614 | 1995 | RIGHT | |
| 334 | 176 | 543 | 144 | 674 | 300 | 127 | 436 | 265 | 153 | | 306 | 196 | 153 | 910 | 144 | 116 | 98 | 643 | 1995 | SIDE | |
| | | | | | | | | | | | | | | | | | | 602 | 1995 | | |
| | | | | | | | | | | | | | | | | | | 636 | 1995 | | |
| | | | | | | | | | | | | | | | | | | 636 | | | |
| | | | | | | | | | | | | | | | | | | 604 | | | |
| | | | | | | | | | | | | | | | | | | 634 | | | |
| | | | | | | | | | | | | | | | | | | 614 | | | |
| 333.0 | 176.0 | 54.90 | 141.5 | 64.55 | 29.20 | 129.0 | 40.30 | 26.35 | 15.00 | DCA | 31.05 | 19.85 | 15.25 | 9.250 | 14.00 | 11.45 | 9.450 | 6.241 | 199.5 | | |
| 320.0 | 171.0 | 53.60 | 137.0 | 62.30 | 28.40 | 125.0 | 39.40 | 25.80 | 14.55 | AC1 | 29.90 | 19.20 | 14.70 | 8.950 | 13.40 | 11.00 | 9.100 | 5.970 | 199.0 | | |
| 320.0 | 171.0 | 53.60 | 137.0 | 62.30 | 28.40 | 125.0 | 39.40 | 25.80 | 14.55 | AC2 | 29.90 | 19.20 | 14.70 | 8.950 | 13.40 | 11.00 | 9.100 | 5.970 | 199.0 | | |
| 320.0 | 171.0 | 53.60 | 137.0 | 62.30 | 28.40 | 125.0 | 39.40 | 25.80 | 14.55 | ACA | 29.90 | 19.20 | 14.70 | 8.950 | 13.40 | 11.00 | 9.100 | 5.970 | 199.0 | | |
| 166.9 | 88.22 | 110.1 | 70.93 | 129.4 | 146.4 | 64.66 | 80.80 | 132.1 | 150.4 | RHO | 62.26 | 99.50 | 152.9 | 162.3 | 70.18 | 114.8 | 165.8 | 175.2 | 1.003 | DC CAL | |
| 3.8 | 2.7 | 2.2 | 3.0 | 3.4 | 2.6 | 2.9 | 2.0 | 1.9 | 2.8 | PFE | 3.6 | 3.1 | 3.5 | 3.1 | 4.2 | 3.8 | 3.6 | 4.3 | .997 | AC CAL | |
| 23 | 30 | 20 | 43 | 26 | 17 | 45 | 25 | 14 | 19 | MCF | 58 | 31 | 23 | 19 | 60 | 33 | 22 | 24 | | | |

A2 5054

a = 500' Center +50N 1-2,3

Looking N55W N/N Line Base SP 3 B251.68

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HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE Base HALF S SP. 3 DATE 4-23

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 50-45N | 45-40 | → | 40-35N | → | → | 35-30 | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 100 | 300 | 30 | 30 | 30 |
| DC 1 | 186 | 176 | 67.0 | 127 | 46.4 | 24.4 | 160.0 | 22.9 | 11.8 | 7.60 |
| DC 2 | 187 | 177 | 67.0 | 125.5 | 47.8 | 25.6 | 158.5 | 22.3 | 11.9 | 7.10 |
| DC 3 | 186 | 176 | 67.0 | 127.0 | 46.4 | 24.4 | 160.0 | 22.9 | 11.8 | 7.60 |
| DC 4 | 187 | 177 | 67.0 | 125.5 | 47.8 | 25.6 | 158.5 | 22.3 | 11.7 | 7.10 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 373 | 353 | 134 | 252.5 | 94.2 | 50.0 | 318.5 | 45.2 | 23.5 | 14.7 |
| AC 1 | 187 | 170.5 | 64.3 | 123 | 45.9 | 24.3 | 154.5 | 22.1 | 11.6 | 7.20 |
| AC 2 | 187 | 170.5 | 64.3 | 123 | 45.9 | 24.3 | 154.5 | 22.1 | 11.6 | 7.20 |
| AC AVG. | 374 | 341 | 128.6 | 246 | 91.8 | 48.6 | 309 | 44.2 | 23.2 | 14.4 |
| S.P. | +5.6 | -21.6 | | +12.9 | | | -37.0 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

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PROJECT CFEI - Salome
LINE Base HALF S SP. 3 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 30-25N | → | → | → | 25-20N | → | → | → | 1-2 | |
| RANGE | 300 | 30 | 30 | 30 | 100 | 30 | 10 | 10 | 300 | |
| DC 1 | 85.5 | 19.9 | 13.5 | 9.90 | 27.6 | 10.0 | 6.80 | 6.18 | 201 | |
| DC 2 | 85.0 | 20.2 | 13.3 | 9.60 | 26.2 | 7.80 | 6.42 | 4.82 | 201 | |
| DC 3 | 85.5 | 19.9 | 13.5 | 9.90 | 27.6 | 10.0 | 7.18 | 5.86 | 201 | |
| DC 4 | 85.0 | 20.2 | 13.3 | 9.60 | 26.2 | 7.80 | 6.44 | 4.92 | 201 | |
| DC 5 | | | | | | | 7.18 | 5.82 | | |
| DC 6 | | | | | | | 6.54 | 5.10 | | |
| DC 7 | | | | | | | 7.12 | 5.80 | | |
| DC 8 | | | | | | | 6.38 | 5.02 | | |
| DC AVG. | 170.5 | 40.1 | 26.8 | 19.5 | 52.8 | 17.8 | 13.56 | 10.83 | 402 | |
| AC 1 | 81.5 | 19.4 | 13.05 | 9.50 | 26.2 | 8.65 | 6.65 | 5.28 | 202 | |
| AC 2 | 81.5 | 19.4 | 13.05 | 9.50 | 26.2 | 8.65 | 6.65 | 5.28 | 202 | |
| AC AVG. | 163 | 38.8 | 26.1 | 19.0 | 52.4 | 17.3 | 13.3 | 10.56 | 404 | |
| S.P. | +37.2 | | | | -11.6 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

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PROJECT CF&I - Salome

LINE Base HALF S SP. 3 DATE 4-23

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 50-45 | 45-40 → | | 40-35 → | | | 35-30 → | | | |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | LO | LO |
| VOLTAGE | 760 | 610 | 750 | 520 | 610 | 750 | 740 | 520 | 600 | 740 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |

| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL. |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 30-25 → | | | | 25-20 → | | | | | 1-2 |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | | LO |
| VOLTAGE | 740 | 520 | 600 | 740 | 730 | 520 | 600 | 740 | | 740 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HLV

RECEIVER NO. 3641R

OPERATOR PA. MEA.

COMMENTS: 3 5000

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

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PROJECT CF&I - Salome
LINE Base HALF N SP. 3 DATE 4-23

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 50-55N | 55-60N | → | 60-65N | → | → | 65-70N | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 178 | 200 | 67.6 | 219 | 42.7 | 24.6 | 220.5 | 59.8 | 19.3 | 12.4 |
| DC 2 | 179 | 199 | 68.2 | 220 | 43.6 | 23.8 | 220.0 | 57.7 | 17.4 | 14.7 |
| DC 3 | 178 | 200 | 67.6 | 219 | 42.7 | 24.6 | 220.5 | 59.8 | 19.3 | 12.4 |
| DC 4 | 179 | 199 | 68.2 | 220 | 43.6 | 23.8 | 220.0 | 57.7 | 17.4 | 14.7 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 357 | 399 | 135.8 | 439 | 86.3 | 48.4 | 440.5 | 117.5 | 36.7 | 27.1 |
| AC 1 | 171.5 | 190.5 | 65.4 | 209.5 | 41.8 | 23.8 | 212.5 | 57.0 | 17.9 | 13.4 |
| AC 2 | 171.5 | 190.5 | 65.4 | 209.5 | 41.8 | 23.8 | 212.5 | 57.0 | 17.9 | 13.4 |
| AC AVG. | 343 | 381 | 130.8 | 419 | 83.6 | 47.6 | 425 | 114 | 35.8 | 26.8 |
| S.P. | -1.4 | -13.1 | | +8.6 | | | -10.2 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFSI - Salome
LINE Base HALF N SP. 3 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 70-75N | → | → | → | 75-80N | → | → | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 30 | 10 | 10 | 300 | |
| DC 1 | 58.2 | 24.6 | 8.90 | 8.10 | 28.6 | 12.8 | 770 | 6.34 | 200.5 | |
| DC 2 | 56.4 | 19.9 | 9.20 | 7.50 | 29.7 | 15.4 | 538 | 6.02 | 200.5 | |
| DC 3 | 58.2 | 24.6 | 8.90 | 8.40 | 28.6 | 12.1 | 706 | 6.26 | 200.5 | |
| DC 4 | 56.4 | 19.9 | 9.20 | 7.30 | 29.7 | 15.3 | 617 | 5.96 | 200.5 | |
| DC 5 | | | | 8.80 | | 12.4 | 677 | 6.34 | | |
| DC 6 | | | | 7.10 | | 15.3 | 640 | 5.77 | | |
| DC 7 | | | | 8.30 | | 11.9 | 636 | 6.56 | | |
| DC 8 | | | | 7.50 | | 15.6 | 742 | 6.50 | | |
| DC AVG. | 114.6 | 44.5 | 18.1 | 15.77 | 58.3 | 27.6 | 13.06 | 12.24 | 401 | |
| AC 1 | 56.1 | 24.8 | 8.95 | 7.60 | 28.4 | 13.55 | 6.54 | 6.05 | 201.5 | |
| AC 2 | 56.1 | 21.8 | 8.95 | 7.60 | 28.4 | 13.55 | 6.54 | 6.05 | 201.5 | |
| AC AVG. | 112.2 | 43.6 | 17.9 | 15.2 | 56.8 | 27.1 | 13.08 | 12.1 | 403 | |
| S.P. | -27.4 | | | | +28.3 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I-Salome

LINE Base HALF N SP. 3 DATE 4-23

PAGE 3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 50-55N | 55-60 → | | 60-65 → | | | 65-70N → | | | |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | LO | LO |
| VOLTAGE | 810 | 550 | 800 | 630 | 540 | 800 | 780 | 630 | 540 | 780 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL |
| RECEIVE | 70-75N | → | | | 75-80N → | | | | | 4-5 |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | | LO |
| VOLTAGE | 780 | 620 | 540 | 780 | 770 | 620 | 540 | 770 | | 780 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES 1.05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX  8251-68 LINE BASE SPD 3 LOOKING N55W 4-23-68  A= 500 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | | |
| 186 | 176 | 67 | 1270 | 46494 | 244 | 1600 | 229 | 118 | 76 | DC | 855 | 199 | 135 | 99 | 276 | 100 | 680 | 618 | 201 | LEFT | |
| 187 | 177 | 67 | 1255 | 78 | 256 | 1585 | 223 | 119 | 71 | | 850 | 202 | 133 | 96 | 262 | 78 | 642 | 482 | 201 | SIDE | |
| | | | | 1464-4128 | | | | | | | | | | | | | 718 | 586 | 201 | | |
| | | | | | | | | | | | | | | | | | 644 | 492 | 201 | | |
| | | | | | | | | | | | | | | | | | 718 | 582 | | | |
| | | | | | | | | | | | | | | | | | 654 | 510 | | | |
| | | | | | | | | | | | | | | | | | 712 | 580 | | | |
| | | | | | | | | | | | | | | | | | 638 | 502 | | | |
| 186.5 | 176.5 | 67.00 | 126.2 | 23.29 | 25.00 | 159.2 | 22.60 | 11.85 | 7.350 | DCA | 85.25 | 20.05 | 13.40 | 9.750 | 26.90 | 8.900 | 6.781 | 5.417 | 201.0 | | |
| 187.0 | 170.5 | 64.30 | 123.0 | 45.90 | 24.30 | 154.5 | 22.10 | 11.60 | 7.200 | AC1 | 81.50 | 19.40 | 13.05 | 9.500 | 26.20 | 8.650 | 6.650 | 5.280 | 202.0 | | |
| 187.0 | 170.5 | 64.30 | 123.0 | 45.90 | 24.30 | 154.5 | 22.10 | 11.60 | 7.200 | AC2 | 81.50 | 19.40 | 13.05 | 9.500 | 26.20 | 8.650 | 6.650 | 5.280 | 202.0 | | |
| 187.0 | 170.5 | 64.30 | 123.0 | 45.90 | 24.30 | 154.5 | 22.10 | 11.60 | 7.200 | ACA | 81.50 | 19.40 | 13.05 | 9.500 | 26.20 | 8.650 | 6.650 | 5.280 | 202.0 | | |
| 139.2 | 131.7 | 200.0 | 94.22 | ~~69.51~~ 140 | 186.6 | 118.8 | 67.46 | 88.43 | 109.7 | RHO | 254.5 | 149.6 | 200.0 | 254.7 | 200.7 | 132.8 | 177.1 | 226.4 | .995 | DC CAL | |
| .2 | 4.0 | 4.7 | 3.2 | ~~-49.0~~ 31 | 3.4 | 3.6 | 2.8 | 2.7 | 2.6 | PFE | 5.1 | 3.9 | 3.2 | 3.1 | 3.2 | 3.4 | ~~-21.2~~ | 3.1 | 1.005 | AC CAL | |
| .2 | 31 | 24 | 33 | ~~-705~~ 22 | 18 | 30 | 41 | 30 | 24 | MCF | 20 | 26 | 16 | 12 | 16 | 26 | ~~-120~~ 14 | 14 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | | |
| 178 | 200 | 676 | 219 | 427 | 246 | 2205 | 598 | 193 | 124 | DC | 582 | 246 | 890 | 810 | 286 | 128 | 770 | 634 | 2005 | RIGHT | |
| 179 | 199 | 682 | 220 | 436 | 238 | 2200 | 577 | 174 | 147 | | 564 | 199 | 920 | 750 | 297 | 154 | 538 | 602 | 2005 | SIDE | |
| | | | | | | | | | | | | | | 840 | | 121 | 706 | 626 | 2005 | | |
| | | | | | | | | | | | | | | 730 | | 153 | 617 | 596 | 2005 | | |
| | | | | | | | | | | | | | | 880 | | 124 | 677 | 634 | | | |
| | | | | | | | | | | | | | | 710 | | 153 | 640 | 577 | | | |
| | | | | | | | | | | | | | | 830 | | 119 | 636 | 656 | | | |
| | | | | | | | | | | | | | | 750 | | 156 | 742 | 550 | | | |
| 178.5 | 199.5 | 67.90 | 219.5 | 43.15 | 24.20 | 220.2 | 58.75 | 18.35 | 13.55 | DCA | 57.30 | 22.25 | 9.050 | 7.886 | 29.15 | 13.80 | 6.529 | 6.119 | 200.5 | | |
| 171.5 | 190.5 | 65.40 | 209.5 | 41.80 | 23.80 | 212.5 | 57.00 | 17.90 | 13.40 | AC1 | 56.10 | 21.80 | 8.950 | 7.600 | 28.40 | 13.55 | 6.540 | 6.050 | 201.5 | | |
| 171.5 | 190.5 | 65.40 | 209.5 | 41.80 | 23.80 | 212.5 | 57.00 | 17.90 | 13.40 | AC2 | 56.10 | 21.80 | 8.950 | 7.600 | 28.40 | 13.55 | 6.540 | 6.050 | 201.5 | | |
| 171.5 | 190.5 | 65.40 | 209.5 | 41.80 | 23.80 | 212.5 | 57.00 | 17.90 | 13.40 | ACA | 56.10 | 21.80 | 8.950 | 7.600 | 28.40 | 13.55 | 6.540 | 6.050 | 201.5 | | |
| 133.5 | 149.3 | 203.2 | 164.2 | 129.1 | 181.0 | 164.8 | 175.8 | 137.3 | 202.7 | RHO | 171.5 | 166.5 | 135.4 | 206.5 | 218.1 | 206.5 | 170.9 | 256.3 | .998 | DC CAL | |
| 4.6 | 5.2 | 4.3 | 5.3 | 3.7 | 2.2 | 4.2 | 3.6 | 3.0 | 1.6 | PFE | 2.6 | 2.6 | 1.6 | 4.3 | 3.2 | 2.4 | .3 | 1.6 | 1.005 | AC CAL | |
| 34 | 35 | 21 | 32 | 29 | 12 | 25 | 20 | 22 | 8 | MCF | 15 | 15 | 12 | 21 | 14 | 11 | 2 | 6 | | | |

Looking N55W  5 = 3.0  Center 15N  n = 500'  5/N  Line Base SP 4  B251-68

PAGE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE Base HALF SW SP. 4 DATE 4-23

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 15-10N | 10-5N → | → | 5N-0N/S | → | → | 0N/S-5S | → | → | → |
| RANGE | 1000 | 3000 | 300 | 1000 | 300 | 100 | 1000 | 300 | 300 | 100 |
| DC 1 | 660 | 949 | 124.5 | 590 | 268 | 59.2 | 664 | 189 | 106.5 | 26.8 |
| DC 2 | 660 | 950 | 119.0 | 586 | 271 | 63.2 | 665 | 190 | 103.0 | 29.4 |
| DC 3 | 660 | 949 | 124.5 | 590 | 268 | 59.2 | 664 | 189 | 106.5 | 26.8 |
| DC 4 | 660 | 950 | 119.0 | 586 | 271 | 63.2 | 665 | 190 | 103.0 | 29.4 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 1320 | 1899 | 243.5 | 1176 | 539 | 122.4 | 1329 | 379 | 209.5 | 56.2 |
| AC 1 | 634 | 924 | 116.5 | 576 | 260 | 58.1 | 655 | 184 | 101 | 26.4 |
| AC 2 | 634 | 922 | 116.5 | 576 | 260 | 58.1 | 6.55 | 184 | 101 | 26.4 |
| AC AVG. | 1268 | 1846 | 233 | 1152 | 520 | 116.2 | 1310 | 368 | 202 | 52.8 |
| S.P. | -4.2 | +18.1 | | +1.5 | | | +6.8 | | | |
| AC NOISE | .05 | .06 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE Base HALF S SP. 4 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 5-105 | → | → | → | 10-155 | → | → | → | 1-2 | |
| RANGE | 300 | 100 | 100 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 149 | 50.8 | 33.4 | 10.5 | 32.5 | 11.9 | 9.50 | 3.10 | 99.5 | |
| DC 2 | 150 | 51.3 | 32.3 | 11.0 | 34.0 | 13.1 | 8.50 | 3.82 | 99.5 | |
| DC 3 | 149 | 50.8 | 33.4 | 10.5 | 32.5 | 11.9 | 9.50 | 3.14 | 99.5 | |
| DC 4 | 150 | 51.3 | 32.3 | 11.0 | 34.0 | 13.1 | 8.50 | 3.78 | 99.5 | |
| DC 5 | | | | | | | | 3.12 | | |
| DC 6 | | | | | | | | 3.95 | | |
| DC 7 | | | | | | | | 3.24 | | |
| DC 8 | | | | | | | | 3.66 | | |
| DC AVG. | 299 | 102.1 | 65.7 | 21.5 | 66.5 | 25.0 | 18.0 | 6.98 | 199 | |
| AC 1 | 146 | 49.7 | 31.7 | 10.15 | 32.5 | 12.1 | 8.60 | 3.34 | 99.0 | |
| AC 2 | 146 | 49.7 | 31.7 | 10.15 | 32.5 | 12.1 | 8.60 | 3.34 | 99.0 | |
| AC AVG. | 292 | 99.4 | 63.4 | 20.3 | 65.0 | 24.2 | 17.2 | 6.68 | 198 | |
| S.P. | +8.5 | | | | -18.2 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 5

PROJECT OF & I-Salome

LINE Base HALF S SP. 4 DATE 4-22

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 15-10 | 10-05 | → | 5-0 | → | → | 0-5S | → | → | → |
| RANGE | Lo | Lo | Lo | Lo | Lo | Lo | Lo | Lo | Lo | Lo |
| VOLTAGE | 590 | 780 | 590 | 570 | 780 | 590 | 680 | 560 | 770 | 580 |
| CURRENT | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 |

| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | Cal |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 5-10S | → | → | → | 10-15 | → | → | → | | 1-2 |
| RANGE | Lo | Lo | Lo | Lo | Lo | Lo | Lo | Lo | | Lo |
| VOLTAGE | 680 | 560 | 770 | 580 | 670 | 560 | 760 | 580 | | 340 |
| CURRENT | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR Hix

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS: 1-2 - 2A
2-3 - 1A
3-4 - 2A
4-5 - 2A

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HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE Base HALF N SP. 4 DATE 4-23

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 15-20N | 20-25N | → | 25-30N | → | → | 30-35N | → | → | → |
| RANGE | 3000 | 1000 | 300 | 1000 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 952 | 322 | 120 | 570 | 80.2 | 47.9 | 180.5 | 51.7 | 10.6 | 8.90 |
| DC 2 | 953 | 322 | 120 | 568 | 80.0 | 49.0 | 180.0 | 50.3 | 10.6 | 8.30 |
| DC 3 | 952 | 322 | 120 | 570 | 80.2 | 47.9 | 180.5 | 51.7 | 10.6 | 8.90 |
| DC 4 | 953 | 322 | 120 | 568 | 80.0 | 49.0 | 180.0 | 50.3 | 10.6 | 8.30 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 1905 | 644 | 240 | 1138 | 160.2 | 96.9 | 360.5 | 102.0 | 21.2 | 17.2 |
| AC 1 | 920 | 306 | 114.5 | 543 | 76.2 | 46.3 | 175.5 | 50.2 | 10.4 | 8.45 |
| AC 2 | 920 | 306 | 114.5 | 543 | 76.2 | 46.3 | 175.5 | 50.1 | 10.4 | 8.45 |
| AC AVG. | 1840 | 612 | 229 | 1086 | 152.4 | 92.6 | 351 | 100.2 | 20.8 | 16.9 |
| S.P. | +10.6 | +12.8 | | +29.0 | | | −22.0 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE Base HALF N SP. 4 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 35-40N | → | | → | 40-45N | → | | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 30 | 10 | 10 | 300 | |
| DC 1 | 68.4 | 30.3 | 8.10 | 7.70 | 27.2 | 15.4 | 4.46 | 5.58 | 98.5 | |
| DC 2 | 69.2 | 29.7 | 8.00 | 7.65 | 27.5 | 15.2 | 5.40 | 4.98 | 98.5 | |
| DC 3 | 68.4 | 30.3 | 8.10 | 7.70 | 27.2 | 15.4 | 4.52 | 5.48 | 98.5 | |
| DC 4 | 69.2 | 29.7 | 8.00 | 7.65 | 27.5 | 15.2 | 5.20 | 4.98 | 98.5 | |
| DC 5 | | | | | | | 4.44 | 5.26 | | |
| DC 6 | | | | | | | 5.10 | 4.98 | | |
| DC 7 | | | | | | | 4.66 | 5.37 | | |
| DC 8 | | | | | | | 5.34 | 5.32 | | |
| DC AVG. | 137.6 | 60.0 | 16.1 | 15.35 | 54.7 | 30.6 | 9.79 | 10.43 | 197 | |
| AC 1 | 66.5 | 29.4 | 7.80 | 7.55 | 26.1 | 14.8 | 4.66 | 4.97 | 97.0 | |
| AC 2 | 66.5 | 29.4 | 7.80 | 7.55 | 26.1 | 14.8 | 4.66 | 4.97 | 97.0 | |
| AC AVG. | 133.0 | 58.8 | 15.6 | 15.1 | 52.2 | 29.6 | 9.32 | 9.94 | 194 | |
| S.P. | -32.1 | | | | +30.4 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I-Salome

LINE Base HALF N SP. 4 DATE 4-22

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 15-20N | 20-25 | → | 25-30 | → | → | 30-35 | → | → | → |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| VOLTAGE | 660 | 540 | 650 | 750 | 540 | 650 | 560 | 750 | 540 | 640 |
| CURRENT | 2.0 | 1.6 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CHL |
| RECEIVE | 35-40 | → | → | → | 40-45 | → | → | → | | 4-5 |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | 20 |
| VOLTAGE | 560 | 740 | 530 | 640 | 560 | 740 | 530 | 640 | | 280 |
| CURRENT | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX  B251-68  LINE BASE  SPD 4  LOOKING N55W  4-23-68  A= 500 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | I | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 1.000 | |
| 660 | 949 | 1245 | 590 | 268 | 592 | 664 | 189 | 1065 | 268 | DC | 149 | 508 | 334 | 105 | 325 | 119 | 95 | 310 | 995 | LEFT |
| 660 | 950 | 1190 | 586 | 271 | 632 | 665 | 190 | 1030 | 294 | | 150 | 513 | 323 | 110 | 340 | 131 | 85 | 382 | 995 | SIDE |
| | | | | | | | | | | | | | | | | | | 314 | 995 | |
| | | | | | | | | | | | | | | | | | | 378 | 995 | |
| | | | | | | | | | | | | | | | | | | 312 | | |
| | | | | | | | | | | | | | | | | | | 395 | | |
| | | | | | | | | | | | | | | | | | | 324 | | |
| | | | | | | | | | | | | | | | | | | 366 | | |
| 660.0 | 949.5 | 121.7 | 588.0 | 269.5 | 61.20 | 664.5 | 189.5 | 104.7 | 28.10 | DCA | 149.5 | 51.05 | 32.85 | 10.75 | 33.25 | 12.50 | 9.000 | 3.490 | 99.50 | |
| 634.0 | 924.0 | 116.5 | 576.0 | 260.0 | 58.10 | 655.0 | 184.0 | 101.0 | 26.40 | AC1 | 146.0 | 49.70 | 31.70 | 10.15 | 32.50 | 12.10 | 8.600 | 3.340 | 99.00 | |
| 634.0 | 922.0 | 116.5 | 576.0 | 260.0 | 58.10 | 655.0 | 184.0 | 101.0 | 26.40 | AC2 | 146.0 | 49.70 | 31.70 | 10.15 | 32.50 | 12.10 | 8.600 | 3.340 | 99.00 | |
| 634.0 | 923.0 | 116.5 | 576.0 | 260.0 | 58.10 | 655.0 | 184.0 | 101.0 | 26.40 | ACA | 146.0 | 49.70 | 31.70 | 10.15 | 32.50 | 12.10 | 8.600 | 3.340 | 99.00 | |
| 497.5 | 715.7 | 367.1 | 886.4 | 812.6 | 461.3 | 500.9 | 1142.7 | 789.6 | 423.6 | RHO | 450.8 | 769.6 | 495.2 | 283.6 | 250.6 | 376.9 | 237.4 | 147.3 | 1.005 | DC CAL |
| 3.6 | 2.4 | 4.0 | 1.6 | 3.1 | 4.8 | .9 | 2.5 | 3.2 | 5.9 | PFE | 1.9 | 2.2 | 3.1 | 5.4 | 1.8 | 2.8 | 4.1 | 4.0 | .995 | AC CAL |
| 7 | 3 | 11 | 2 | 4 | 10 | 2 | 2 | 4 | 14 | MCF | 4 | 3 | 6 | 19 | 7 | 7 | 17 | 27 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 1.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | I | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 1.000 | |
| 952 | 322 | 12 | 570 | 802 | 479 | 1805 | 517 | 106 | 89 | DC | 684 | 303 | 81 | 770 | 272 | 154 | 446 | 558 | 985 | RIGHT |
| 953 | 322 | 12 | 568 | 800 | 490 | 1800 | 503 | 106 | 83 | | 692 | 297 | 80 | 765 | 275 | 152 | 540 | 498 | 985 | SIDE |
| | | | | | | | | | | | | | | | | | 452 | 548 | 985 | |
| | | | | | | | | | | | | | | | | | 520 | 498 | 985 | |
| | | | | | | | | | | | | | | | | | 444 | 526 | | |
| | | | | | | | | | | | | | | | | | 510 | 498 | | |
| | | | | | | | | | | | | | | | | | 466 | 537 | | |
| | | | | | | | | | | | | | | | | | 534 | 532 | | |
| 952.5 | 322.0 | 120.0 | 569.0 | 80.10 | 48.45 | 180.2 | 51.00 | 10.60 | 8.600 | DCA | 68.80 | 30.00 | 8.050 | 7.675 | 27.35 | 15.30 | 4.889 | 5.214 | 98.50 | |
| 920.0 | 306.0 | 114.5 | 543.0 | 76.20 | 46.30 | 175.5 | 50.20 | 10.40 | 8.450 | AC1 | 66.50 | 29.40 | 7.800 | 7.550 | 26.10 | 14.80 | 4.660 | 4.970 | 97.00 | |
| 920.0 | 306.0 | 114.5 | 543.0 | 76.20 | 46.30 | 175.5 | 50.10 | 10.40 | 8.450 | AC2 | 66.50 | 29.40 | 7.800 | 7.550 | 26.10 | 14.80 | 4.660 | 4.970 | 97.00 | |
| 920.0 | 306.0 | 114.5 | 543.0 | 76.20 | 46.30 | 175.5 | 50.15 | 10.40 | 8.450 | ACA | 66.50 | 29.40 | 7.800 | 7.550 | 26.10 | 14.80 | 4.660 | 4.970 | 97.00 | |
| 725.3 | 490.4 | 365.5 | 433.2 | 487.9 | 368.9 | 137.2 | 155.3 | 161.4 | 131.0 | RHO | 209.5 | 456.9 | 122.6 | 204.5 | 208.2 | 233.0 | 260.6 | 222.3 | 1.015 | DC CAL |
| 2.0 | 3.6 | 3.2 | 3.2 | 3.5 | 3.1 | 1.1 | .1 | .4 | .2 | PFE | 1.9 | .5 | 1.6 | .1 | 3.2 | 1.8 | 3.3 | 3.3 | .985 | AC CAL |
| 3 | 7 | 9 | 7 | 7 | 8 | 8 | 1 | 2 | 2 | MCF | 9 | 1 | 13 | 1 | 15 | 8 | 13 | 15 | | |

MOORE BUSINESS FORMS, INC. 3171

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE Base HALF SW SP. 5 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 155-150 | 150-145 | → | 145-140 | → | → | 140-135 | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 191 | 205 | 499 | 149 | 435 | 158 | 203 | 454 | 211 | 1010 |
| DC 2 | 190 | 204 | 502 | 146 | 413 | 170 | 202 | 466 | 196 | 940 |
| DC 3 | 191 | 205 | 499 | 149 | 435 | 158 | 203 | 454 | 211 | 1010 |
| DC 4 | 190 | 204 | 502 | 146 | 413 | 170 | 202 | 466 | 196 | 940 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 181 | 193. | 47.6 | 139.9 | 40.0 | 15.9 | 191.5 | 43.9 | 19.4 | 9.20 |
| AC 2 | 181 | 193 | 47.6 | 139.9 | 40.0 | 15.9 | 191.5 | 43.9 | 19.4 | 9.20 |
| AC AVG. | | | | | | | | | | |
| S.P. | +3.9 | -4.2 | | +3.0 | | | +4.9 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE Base HALF SW SP. 5 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 135-130 | → | → | → | 130-125 | → | → | → | 1-2 | |
| RANGE | 100 | 30 | 30 | 10 | 30 | 30 | 10 | 10 | 300 | |
| DC 1 | 39.8 | 1495 | 785 | 485 | 235 | 110 | 648 | 436 | 200 | |
| DC 2 | 39.5 | 1640 | 850 | 427 | 234 | 114 | 684 | 352 | 200 | |
| DC 3 | 39.8 | 1495 | 785 | 502 | 235 | 110 | 650 | 426 | 200 | |
| DC 4 | 39.5 | 1640 | 850 | 428 | 234 | 114 | 682 | 338 | 200 | |
| DC 5 | | | | 492 | | | 652 | 448 | | |
| DC 6 | | | | 424 | | | 682 | 356 | | |
| DC 7 | | | | 518 | | | 656 | 425 | | |
| DC 8 | | | | 418 | | | 678 | 326 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 37.7 | 14.9 | 7.80 | 4.38 | 22.2 | 10.6 | 6.26 | 3.75 | 195.5 | |
| AC 2 | 37.7 | 14.9 | 7.80 | 4.38 | 22.2 | 10.6 | 6.26 | 3.75 | 195.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -11.1 | | | | +11.8 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 8

PROJECT CF & I - Salom -

LINE Base HALF SW SP. 5 DATE 5-2

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 155-150 | 150-145 | → | 145-140 | → | → | 140-135 | → | → | → |
| RANGE | LO | LO | LO | Hi | LO | LO | LO | Hi | LO | LO |
| VOLTAGE | 890 | 650 | 890 | 420 | 650 | 890 | 510 | 420 | 650 | 890 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |

| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 135-130 | → | → | → | 130-125 | → | → | → | | 1-2 |
| RANGE | LO | Hi | LO | LO | LO | Hi | LO | LO | | LO |
| VOLTAGE | 510 | 420 | 650 | 890 | 510 | 420 | 650 | 890 | | 510 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 2.0

SENDER NO. 15673 S.

OPERATOR HIV

RECEIVER NO. 3641 R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CFEI - Salome
LINE Base HALF NE SP. 5 DATE 5-2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 155-160 | 160-165 | → | 165-170 | → | → | 170-175 | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 100 | 30 |
| DC 1 | 2005 | 197 | 492 | 225 | 500 | 224 | 240 | 710 | 306 | 167 |
| DC 2 | 2000 | 195 | 522 | 225 | 500 | 214 | 235 | 674 | 260 | 164 |
| DC 3 | 2005 | 197 | 492 | 225 | 500 | 224 | 240 | 710 | 306 | 167 |
| DC 4 | 2000 | 195 | 522 | 225 | 500 | 214 | 235 | 674 | 260 | 164 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 193.5 | 189.5 | 48.5 | 215 | 47.8 | 21.0 | 229.5 | 66.2 | 27.2 | 15.95 |
| AC 2 | 193.5 | 189.5 | 48.5 | 215 | 47.8 | 21.0 | 229.5 | 66.2 | 27.2 | 15.95 |
| AC AVG. | | | | | | | | | | |
| S.P. | +2.7 | +1.0 | | -0.2 | | | 0 | | | |
| AC NOISE | .05 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE Base HALF NE SP. 5 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 175-180 | → | | → | 180-185 | → | | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 30 | 30 | 30 | 10 | 300 | |
| DC 1 | 534 | 284 | 166 | 100 | 200 | 137 | 910 | 678 | 1995 | |
| DC 2 | 517 | 260 | 151 | 114 | 200 | 139 | 890 | 670 | 1995 | |
| DC 3 | 534 | 284 | 166 | 100 | 200 | 137 | 910 | 680 | 1995 | |
| DC 4 | 517 | 260 | 151 | 114 | 200 | 139 | 890 | 682 | 1995 | |
| DC 5 | | | | | | | | 656 | | |
| DC 6 | | | | | | | | 682 | | |
| DC 7 | | | | | | | | 622 | | |
| DC 8 | | | | | | | | 704 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 50.5 | 26.6 | 15.45 | 10.3 | 19.5 | 13.3 | 8.75 | 6.40 | 197 | |
| AC 2 | 50.5 | 26.6 | 15.45 | 10.3 | 19.5 | 13.3 | 8.75 | 6.40 | 197 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +1.8 | | | | +1.7 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 7

PROJECT CF&I - Salome

LINE Base HALF NE SP. 5 DATE 5-2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 155-160 | 160-165 | → | 165-170 | → | → | 170-175 | → | → | → |
| RANGE | LO | HI | LO | LO | HI | LO | LO | LO | HI | LO |
| VOLTAGE | 520 | 420 | 520 | 660 | 420 | 520 | 900 | 660 | 420 | 520 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CHL |
| RECEIVE | 175-180 | → | → | → | 180-185 | → | → | → | | 4-5 |
| RANGE | LO | LO | HI | LO | LO | LO | HI | LO | | LO |
| VOLTAGE | 900 | 660 | 420 | 520 | 900 | 660 | 420 | 520 | | 900 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 15673 S.

OPERATOR HLY

RECEIVER NO. 3611 R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX 8-251-68 LINE BASE SPD 5 LOOKING NW 5-2-68 A= 500 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | | |
| 191 | 205 | 499 | 149 | 435 | 158 | 203 | 454 | 211 | 1010 | DC | 398 | 1495 | 785 | 485 | 235 | 110 | 648 | 436 | 200 | LEFT | |
| 190 | 204 | 502 | 146 | 413 | 170 | 202 | 466 | 196 | 940 | | 395 | 1640 | 850 | 427 | 234 | 114 | 684 | 352 | 200 | SIDE | |
| 191 | 205 | 499 | 149 | 435 | 158 | 203 | 454 | 211 | 1010 | | 398 | 1495 | 785 | 502 | 235 | 110 | 650 | 426 | 200 | | |
| 190 | 204 | 502 | 146 | 413 | 170 | 202 | 466 | 196 | 940 | | 395 | 1640 | 850 | 428 | 234 | 114 | 682 | 338 | 200 | | |
| | | | | | | | | | | | | | | 492 | | | 652 | 448 | | | |
| | | | | | | | | | | | | | | 424 | | | 682 | 356 | | | |
| | | | | | | | | | | | | | | 518 | | | 656 | 425 | | | |
| | | | | | | | | | | | | | | 418 | | | 678 | 326 | | | |
| 190.5 | 204.5 | 50.05 | 147.5 | 42.40 | 16.40 | 202.5 | 46.00 | 20.35 | 9.750 | DCA | 39.65 | 15.68 | 8.175 | 4.632 | 23.45 | 11.20 | 6.670 | 3.894 | 200.0 | | |
| 181.0 | 193.0 | 47.60 | 139.9 | 40.00 | 15.90 | 191.5 | 43.90 | 19.40 | 9.200 | AC1 | 37.70 | 14.90 | 7.800 | 4.380 | 22.20 | 10.60 | 6.260 | 3.750 | 195.5 | | |
| 181.0 | 193.0 | 47.60 | 139.9 | 40.00 | 15.90 | 191.5 | 43.90 | 19.40 | 9.200 | AC2 | 37.70 | 14.90 | 7.800 | 4.380 | 22.20 | 10.60 | 6.260 | 3.750 | 195.5 | | |
| 181.0 | 193.0 | 47.60 | 139.9 | 40.00 | 15.90 | 191.5 | 43.90 | 19.40 | 9.200 | ACA | 37.70 | 14.90 | 7.800 | 4.380 | 22.20 | 10.60 | 6.260 | 3.750 | 195.5 | | |
| 142.9 | 153.4 | 150.1 | 110.6 | 127.2 | 123.0 | 151.9 | 138.0 | 152.6 | 146.2 | RHO | 118.9 | 117.6 | 122.6 | 121.6 | 175.9 | 168.0 | 175.1 | 163.6 | 1.000 | DC CAL | |
| 2.9 | 3.6 | 2.8 | 3.1 | 3.9 | .8 | 3.4 | 2.4 | 2.5 | 3.6 | PFE | 2.8 | 2.8 | 2.4 | 3.4 | 3.3 | 3.3 | 4.2 | 1.5 | .977 | AC CAL | |
| 20 | 23 | 19 | 28 | 26 | 7 | 22 | 18 | 17 | 25 | MCF | 24 | 24 | 20 | 28 | 19 | 20 | 24 | 9 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | | |
| 2005 | 197 | 492 | 225 | 500 | 224 | 240 | 710 | 306 | 167 | DC | 534 | 284 | 166 | 100 | 200 | 137 | 910 | 678 | 1995 | RIGHT | |
| 2000 | 195 | 522 | 225 | 500 | 214 | 235 | 674 | 260 | 164 | | 517 | 260 | 151 | 114 | 200 | 139 | 890 | 670 | 1995 | SIDE | |
| 2005 | 197 | 492 | 225 | 500 | 224 | 240 | 710 | 306 | 167 | | 534 | 284 | 166 | 100 | 200 | 137 | 910 | 680 | 1995 | | |
| 2000 | 195 | 522 | 225 | 500 | 214 | 235 | 674 | 260 | 164 | | 517 | 260 | 151 | 114 | 200 | 139 | 890 | 682 | 1995 | | |
| | | | | | | | | | | | | | | | | | | 656 | | | |
| | | | | | | | | | | | | | | | | | | 682 | | | |
| | | | | | | | | | | | | | | | | | | 622 | | | |
| | | | | | | | | | | | | | | | | | | 704 | | | |
| 200.2 | 196.0 | 50.70 | 225.0 | 50.00 | 21.90 | 237.5 | 69.20 | 28.30 | 16.55 | DCA | 52.55 | 27.20 | 15.85 | 10.70 | 20.00 | 13.80 | 9.000 | 6.690 | 199.5 | | |
| 193.5 | 189.5 | 48.50 | 215.0 | 47.80 | 21.00 | 229.5 | 66.20 | 27.20 | 15.95 | AC1 | 50.50 | 26.60 | 15.45 | 10.30 | 19.50 | 13.30 | 8.750 | 6.400 | 197.0 | | |
| 193.5 | 189.5 | 48.50 | 215.0 | 47.80 | 21.00 | 229.5 | 66.20 | 27.20 | 15.95 | AC2 | 50.50 | 26.60 | 15.45 | 10.30 | 19.50 | 13.30 | 8.750 | 6.400 | 197.0 | | |
| 193.5 | 189.5 | 48.50 | 215.0 | 47.80 | 21.00 | 229.5 | 66.20 | 27.20 | 15.95 | ACA | 50.50 | 26.60 | 15.45 | 10.30 | 19.50 | 13.30 | 8.750 | 6.400 | 197.0 | | |
| 150.6 | 147.4 | 152.5 | 169.2 | 150.4 | 164.7 | 178.6 | 208.1 | 212.8 | 248.9 | RHO | 158.0 | 204.5 | 238.3 | 281.6 | 150.4 | 207.5 | 236.8 | 281.7 | 1.003 | DC CAL | |
| 2.2 | 2.1 | 3.2 | 3.3 | 3.3 | 3.0 | 2.2 | 3.2 | 2.7 | 2.5 | PFE | 2.8 | 1.0 | 1.3 | 2.6 | 1.3 | 2.5 | 1.6 | 3.2 | .987 | AC CAL | |
| 15 | 14 | 21 | 20 | 22 | 18 | 12 | 15 | 13 | 10 | MCF | 17 | 5 | 5 | 9 | 9 | 12 | 7 | 11 | | | |

MOORE BUSINESS FORMS, INC.
1413
5687503

-8W

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome

LINE "A" HALF W SP. 1 DATE 4-18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 8-12W | 12-18W | → | 18-20W | | → | 20-24W | | | → |
| RANGE | 300 | 1000 | 100 | 300 | 300 | 30 | 300 | 300 | 100 | 30 |
| DC 1 | 179.0 | 334 | 50.3 | 254 | 93.5 | 23.0 | 264 | 85.0 | 44.3 | 14.4 |
| DC 2 | 179.5 | 334 | 50.0 | 253 | 91.0 | 25.0 | 264 | 81.5 | 41.5 | 12.6 |
| DC 3 | 179.0 | 334 | 50.3 | 254 | 93.5 | 23.0 | 264 | 85.0 | 44.3 | 14.4 |
| DC 4 | 179.5 | 334 | 50.0 | 253 | 91.0 | 25.0 | 264 | 81.5 | 41.5 | 12.6 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | 358.5 | 668 | 100.3 | 507 | 184.5 | 48.0 | 528 | 166.5 | 85.8 | 27.0 |
| AC 1 | 174 | 322 | 48.8 | 250 | 90.5 | 23.75 | 261 | 82.0 | 42.3 | 13.4 |
| AC 2 | 174 | 322 | 48.8 | 250 | 90.5 | 23.75 | 261 | 82.0 | 42.3 | 13.4 |
| AC AVG. | 348 | 644 | 97.6 | 500 | 181 | 47.5 | 522 | 164 | 84.6 | 26.8 |
| S.P. | +2.2 | +1.6 | | +2.5 | | | +4.6 | | | |
| AC NOISE | .05 | .06 | | .05 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "A" HALF W SP. 1 DATE 4-18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 24-28 W | → | → | → | 28-32 W | → | → | → | 1-2 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 75.7 | 36.0 | 22.05 | 8.05 | 25.6 | 14.5 | 10.4 | 4.19 | 201 | |
| DC 2 | 76.0 | 34.0 | 22.10 | 8.05 | 25.8 | 14.5 | 10.2 | 4.24 | 201 | |
| DC 3 | 75.7 | 36.0 | 22.05 | 8.05 | 25.6 | 14.5 | 10.4 | 4.04 | 201 | |
| DC 4 | 76.0 | 34.0 | 22.10 | 8.05 | 25.8 | 14.5 | 10.2 | 4.39 | 201 | |
| DC 5 | | | | | | | | 4.18 | | |
| DC 6 | | | | | | | | 4.08 | | |
| DC 7 | | | | | | | | 4.24 | | |
| DC 8 | | | | | | | | 4.30 | | |
| DC AVG. | 151.7 | 70.0 | 44.15 | 16.1 | 51.4 | 29.0 | 20.6 | | 402 | |
| AC 1 | 74.7 | 34.5 | 21.8 | 7.95 | 25.6 | 14.3 | 10.15 | 4.17 | 203.5 | |
| AC 2 | 74.7 | 34.5 | 21.8 | 7.95 | 25.6 | 14.3 | 10.15 | 4.17 | 203.5 | |
| AC AVG. | 149.4 | 69.0 | 43.6 | 15.9 | 51.2 | 28.6 | 20.3 | 8.34 | 407 | |
| S.P. | +4.6 | | | | -4.6 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

.05 - 3.0

# INDUCED POLARIZATION SENDER NOTES

①

Project: CE & I Line: A - W½ Sp 1 Date: 4-18-68

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Send | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | |
| Receive | 8-12W | 12-16W | → | 16-20W | → | → | 20-24W | → | → | → | | |
| MODE ~~Time~~ | Lo | Lo | Lo | Hi | Lo | Lo | Hi | Hi | Lo | Lo | | |
| VOLTAG ~~Range~~ | 910 | 800 | 910 | 360 | 790 | 900 | 500 | 360 | 790 | 900 | | |
| Current | 2.0 | 3.0 | 2.0 | 3.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | 2.0 | | |
| Send | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | | CAL 2Z | |
| Receive | 24-28W | → | → | → | 28-32W | → | → | → | | | 1-2 | |
| MODE ~~Time~~ | Hi | Hi | Lo | Lo | Hi | Hi | Lo | Lo | | | Hi | |
| VOLT. ~~Range~~ | 500 | 360 | 780 | 900 | 500 | 360 | 780 | 900 | | | 330 | |
| Current | 3.0 | 3.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | 2.0 | | | 2.0 | |

1-2 Hi-3A 2-3 Hi 3A 3-4 Lo 3A 4-5 Lo 2A

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "A" HALF E SP. 1 DATE 4-18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 8-4W | 4W-0 | → | 0-4E | → | → | 4-8E | → | → | → |
| RANGE | 1000 | 300 | 100 | 300 | 100 | 30 | 300 | 300 | 100 | 30 |
| DC 1 | 333 | 269.5 | 75.7 | 216.0 | 45.8 | 23.5 | 201.5 | 99.0 | 32.4 | 21.2 |
| DC 2 | 333 | 269.0 | 75.7 | 220.5 | 46.0 | 23.3 | 203.5 | 96.0 | 36.0 | 20.1 |
| DC 3 | 333 | 269.5 | 75.7 | 216.0 | 45.8 | 23.5 | 201.5 | 99.0 | 32.4 | 21.2 |
| DC 4 | 333 | 269.0 | 75.7 | 220.5 | 46.0 | 23.3 | 203.5 | 96.0 | 36.0 | 20.1 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 327 | 261 | 73.7 | 211.5 | 45.5 | 23.1 | 195.5 | 94.0 | 33.5 | 20.05 |
| AC 2 | 321 | 261 | 73.7 | 211.5 | 45.5 | 23.1 | 195.5 | 94.0 | 35.5 | 20.05 |
| AC AVG. | | | | | | | | | | |
| S.P. | +20.9 | −20.0 | | +15.7 | | | 0 | | | |
| AC NOISE | .04 | | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE "A" HALF E SP. 1 DATE 4-18

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 8-12 E | → | → | → | 12-16E | → | → | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 100 | 30 | 30 | 300 | |
| DC 1 | 65.0 | 44.2 | 17.5 | 11.3 | 40.2 | 32.1 | 14.5 | 9.50 | 200.5 | |
| DC 2 | 63.6 | 41.7 | 17.5 | 10.8 | 38.5 | 29.2 | 13.4 | 9.20 | 200.5 | |
| DC 3 | 65.0 | 44.2 | 17.5 | 11.3 | 40.2 | 32.1 | 14.5 | 9.50 | 200.5 | |
| DC 4 | 63.6 | 41.7 | 17.5 | 10.8 | 38.5 | 29.2 | 13.4 | 9.20 | 200.5 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 62.1 | 41.4 | 17.15 | 10.8 | 37.9 | 29.6 | 13.5 | 9.10 | 201.5 | |
| AC 2 | 62.1 | 41.4 | 17.15 | 10.8 | 37.9 | 29.6 | 13.5 | 9.10 | 201.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +17.5 | | | | 0 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

.05 3.0

(2)

# INDUCED POLARIZATION SENDER NOTES

Project: CF&I Line: AE's Sp1 Date: 4-18-6F

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Send | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | |
| Receive | 8-4W | 4-0W | → | 0W-4OE | → | | 4-8E | → | | | | |
| MODE Time | Hi | Hi | Hi | LO | Hi | Hi | LO | LO | Hi | Hi | | |
| VOLTS Range | 500 | 350 | 500 | 780 | 350 | 500 | 890 | 780 | 350 | 500 | | |
| Current | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | | |
| Send | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | | CAL 22 | |
| Receive | 8-12E | → | | | 12-16E | → | | | | | 4-5 | |
| MODE Time | LO | LO | Hi | Hi | LO | LO | Hi | Hi | | | LO. | |
| VOLTS Range | 880 | 780 | 350 | 500 | 880 | 770 | 350 | 500 | | | 890 | |
| Current | 2.0 | 3.0 | 3.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | | | 2.0 | |

(1-2)-H-3A (2-3) Hi-3A (34) Lo-3.0A (45) Lo.-2.0A

HEINRICHS GEOEX B-251-68 LINE A SPD 1 LOOKING N35E 4-19-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 3.000 | 2.000 | 3.000 | 3.000 | 2.000 | 3.000 | 3.000 | 3.000 | 2.000 | I | 3.000 | 3.000 | 3.000 | 2.000 | 3.000 | 3.000 | 3.000 | 2.000 | 2.000 | | |
| 1790 | 334 | 503 | 254 | 935 | 230 | 264 | 850 | 443 | 144 | DC | 757 | 36 | 2205 | 805 | 256 | 145 | 104 | 419 | 201 | LEFT | |
| 1795 | 334 | 500 | 253 | 910 | 250 | 264 | 815 | 415 | 126 | | 760 | 34 | 2210 | 805 | 258 | 145 | 102 | 424 | 201 | SIDE | |
| 1790 | 334 | 503 | 254 | 935 | 230 | 264 | 850 | 443 | 144 | | 757 | 36 | 2205 | 805 | 256 | 145 | 104 | 404 | 201 | | |
| 1795 | 334 | 500 | 253 | 910 | 250 | 264 | 815 | 415 | 126 | | 760 | 34 | 2210 | 805 | 258 | 145 | 102 | 439 | 201 | | |
| | | | | | | | | | | | | | | | | | | 418 | | | |
| | | | | | | | | | | | | | | | | | | 408 | | | |
| | | | | | | | | | | | | | | | | | | 424 | | | |
| | | | | | | | | | | | | | | | | | | 430 | | | |
| 179.2 | 334.0 | 50.15 | 253.5 | 92.25 | 24.00 | 264.0 | 83.25 | 42.90 | 13.50 | DCA | 75.85 | 35.00 | 22.07 | 8.050 | 25.70 | 14.50 | 10.30 | 4.202 | 201.0 | | |
| 174.0 | 322.0 | 48.80 | 250.0 | 90.50 | 23.75 | 261.0 | 82.00 | 42.30 | 13.40 | AC1 | 74.70 | 34.50 | 21.80 | 7.950 | 25.60 | 14.30 | 10.15 | 4.170 | 203.5 | | |
| 174.0 | 322.0 | 48.80 | 250.0 | 90.50 | 23.75 | 261.0 | 82.00 | 42.30 | 13.40 | AC2 | 74.70 | 34.50 | 21.80 | 7.950 | 25.60 | 14.30 | 10.15 | 4.170 | 203.5 | | |
| 174.0 | 322.0 | 48.80 | 250.0 | 90.50 | 23.75 | 261.0 | 82.00 | 42.30 | 13.40 | ACA | 74.70 | 34.50 | 21.80 | 7.950 | 25.60 | 14.30 | 10.15 | 4.170 | 203.5 | | |
| 107.0 | 132.9 | 119.8 | 100.9 | 146.9 | 143.3 | 105.1 | 132.5 | 170.7 | 161.2 | RHO | 120.8 | 139.3 | 175.7 | 168.2 | 102.3 | 115.4 | 143.5 | 140.5 | .995 | DC CAL | |
| 4.3 | 5.0 | 4.0 | 2.7 | 3.2 | 2.3 | 2.4 | 2.8 | 2.7 | 2.0 | PFE | 2.8 | 2.7 | 2.5 | 2.5 | 1.6 | 2.7 | 2.7 | 2.0 | 1.012 | AC CAL | |
| 40 | 38 | 34 | 26 | 22 | 16 | 23 | 21 | 16 | 12 | MCF | 23 | 19 | 14 | 15 | 16 | 23 | 19 | 14 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 2.000 | 3.000 | 3.000 | 3.000 | I | 2.000 | 3.000 | 3.000 | 3.000 | 2.000 | 3.000 | 3.000 | 3.000 | 2.000 | | |
| 333 | 2695 | 757 | 2160 | 458 | 235 | 2015 | 99 | 324 | 212 | DC | 650 | 442 | 175 | 113 | 402 | 321 | 145 | 95 | 2005 | RIGHT | |
| 333 | 2690 | 757 | 2205 | 460 | 233 | 2035 | 96 | 360 | 201 | | 636 | 417 | 175 | 108 | 385 | 292 | 134 | 92 | 2005 | SIDE | |
| 333 | 2695 | 757 | 2160 | 458 | 235 | 2015 | 99 | 324 | 212 | | 650 | 442 | 175 | 113 | 402 | 321 | 145 | 95 | 2005 | | |
| 333 | 2690 | 757 | 2205 | 460 | 233 | 2035 | 96 | 360 | 201 | | 636 | 417 | 175 | 108 | 385 | 292 | 134 | 92 | 2005 | | |
| 333.0 | 269.2 | 75.70 | 218.2 | 45.90 | 23.40 | 202.5 | 97.50 | 34.20 | 20.65 | DCA | 64.30 | 42.95 | 17.50 | 11.05 | 39.35 | 30.65 | 13.95 | 9.350 | 200.5 | | |
| 321.0 | 261.0 | 73.70 | 211.5 | 45.50 | 23.10 | 195.5 | 94.00 | 35.50 | 20.05 | AC1 | 62.10 | 41.40 | 17.15 | 10.80 | 37.90 | 29.60 | 13.50 | 9.100 | 201.5 | | |
| 321.0 | 261.0 | 73.70 | 211.5 | 45.50 | 23.10 | 195.5 | 94.00 | 35.50 | 20.05 | AC2 | 62.10 | 41.40 | 17.15 | 10.80 | 37.90 | 29.60 | 13.50 | 9.100 | 201.5 | | |
| 321.0 | 261.0 | 73.70 | 211.5 | 45.50 | 23.10 | 195.5 | 94.00 | 35.50 | 20.05 | ACA | 62.10 | 41.40 | 17.15 | 10.80 | 37.90 | 29.60 | 13.50 | 9.100 | 201.5 | | |
| 132.9 | 107.4 | 120.8 | 87.08 | 73.26 | 93.37 | 121.2 | 155.6 | 136.5 | 164.8 | RHO | 153.9 | 171.4 | 139.7 | 154.3 | 235.5 | 244.6 | 194.8 | 208.9 | .998 | DC CAL | |
| 4.3 | 3.7 | 3.2 | 3.7 | 1.4 | 1.8 | 4.1 | 4.2 | ~~-3.2~~ | 3.5 | PFE | 4.1 | 4.3 | 2.5 | 2.8 | 4.3 | 4.1 | 3.8 | 3.3 | 1.005 | AC CAL | |
| 32 | 34 | 27 | 43 | 19 | 19 | 34 | 27 | ~~-23~~ 19 | 21 | MCF | 26 | 25 | 18 | 18 | 18 | 17 | 20 | 16 | | | |

Looking N35[illegible] Center -8W W/E Line B SP 1 A=4[illegible] B=[illegible] f=3[illegible]

PAGE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE "B" HALF W SP. 1 DATE 4-24

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 8-12W | 12-16W | → | 16-20W | → | → | 20-24W | → | → | → |
| RANGE | 300 | 1000 | 100 | 1000 | 300 | 100 | 300 | 300 | 100 | 30 |
| DC 1 | 275.5 | 332 | 66.0 | 418 | 99.5 | 31.7 | 257 | 120 | 46.3 | 17.3 |
| DC 2 | 274.5 | 327 | 65.5 | 418 | 100 | 31.7 | 255 | 116.5 | 43.2 | 17.2 |
| DC 3 | 275.5 | 332 | 66.0 | 418 | 99.5 | 31.7 | 257 | 120 | 46.3 | 17.3 |
| DC 4 | 274.5 | 327 | 65.5 | 418 | 100 | 31.7 | 255 | 116.5 | 43.2 | 17.2 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 266 | 316 | 63.6 | 405 | 98.0 | 31.4 | 250.2 | 116 | 44.1 | 17.1 |
| AC 2 | 266 | 316 | 63.6 | 405 | 98.0 | 31.4 | 250.2 | 116 | 44.1 | 17.1 |
| AC AVG. | | | | | | | | | | |
| S.P. | +16.4 | -14.1 | | -15.5 | | | +20.2 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE "B" HALF W SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 24-28W | → | | → | 28-32W | → | | → | 1-2 | |
| RANGE | 100 | 100 | 30 | 30 | 30 | 30 | 30 | 10 | 300 | |
| DC 1 | 71.9 | 49.5 | 22.2 | 9.70 | 24.1 | 19.5 | 10.2 | 4.48 | 200 | |
| DC 2 | 73.4 | 47.4 | 21.5 | 8.70 | 23.1 | 19.2 | 9.3 | 4.92 | 200 | |
| DC 3 | 71.9 | 49.5 | 22.2 | 9.70 | 24.1 | 19.5 | 10.2 | 4.39 | 200 | |
| DC 4 | 73.4 | 47.4 | 21.5 | 8.70 | 23.1 | 19.2 | 9.3 | 5.01 | 200 | |
| DC 5 | | | | | | | | 4.34 | | |
| DC 6 | | | | | | | | 5.04 | | |
| DC 7 | | | | | | | | 4.32 | | |
| DC 8 | | | | | | | | 5.14 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 70.4 | 47.3 | 21.45 | 9.10 | 23.05 | 18.9 | 9.60 | 4.62 | 200 | |
| AC 2 | 70.4 | 47.3 | 21.45 | 9.10 | 23.05 | 18.9 | 9.60 | 4.62 | 200 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -0.2 | | | | +3.3 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

PAGE 1

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CFGJ-Salome

LINE 8 HALF W SP. 1 DATE 4-24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 8-12 W | 12-16 W | → | 16-20 W | → | → | 20-24 | → | → | → |
| RANGE | LO | LO | LO | HI | LO | LO | LO | HI | LO | LO |
| VOLTAGE | 840 | 690 | 840 | 460 | 680 | 840 | 780 | 460 | 680 | 840 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CWL |
| RECEIVE | 24-28 W | | | → | 28-32 W | → | → | → | | 1-2 |
| RANGE | LO | HI | LO | LO | LO | HI | LO | LO | | LO |
| VOLTAGE | 760 | 460 | 680 | 820 | 760 | 460 | 670 | 810 | | 780 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR Hix

RECEIVER NO. 3641K

OPERATOR PALMER

COMMENTS: LO 1-2
HI 3-4

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE "B" HALF E SP. 1 DATE 4-24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 8-4W | 4W-0 | → | 0-4E | → | → | 4-8E | → | → | → |
| RANGE | 1000 | 300 | 100 | 1000 | 300 | 100 | 300 | 300 | 100 | 30 |
| DC 1 | 332 | 270.0 | 65.8 | 339 | 95.5 | 33.6 | 228 | 78.5 | 39.8 | 17.1 |
| DC 2 | 328 | 270.5 | 65.6 | 338 | 96.0 | 35.0 | 228 | 79.0 | 39.3 | 16.8 |
| DC 3 | 332 | 270.0 | 65.8 | 339 | 95.5 | 33.6 | 228 | 78.5 | 39.8 | 17.1 |
| DC 4 | 328 | 270.5 | 65.6 | 338 | 96.0 | 35.0 | 228 | 79.0 | 39.3 | 16.8 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 312 | 260 | 63.2 | 323 | 91.0 | 32.6 | 219.5 | 75.5 | 37.8 | 16.3 |
| AC 2 | 312 | 260 | 63.2 | 323 | 91.0 | 32.6 | 219.5 | 75.5 | 37.8 | 16.3 |
| AC AVG. | | | | | | | | | | |
| S.P. | +18.2 | -2.0 | | -2.8 | | | -2.0 | | | |
| AC NOISE | .05 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I-Salome

LINE "B" HALF E SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 8-12E | → | | → | 12-16E | → | | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 30 | 30 | 30 | 10 | 300 | |
| DC 1 | 64.0 | 33.6 | 20.8 | 10.2 | 18.7 | 13.5 | 8.60 | 4.76 | 198 | |
| DC 2 | 63.4 | 34.8 | 22.2 | 9.60 | 19.3 | 12.5 | 10.05 | 4.74 | 198 | |
| DC 3 | 64.0 | 33.6 | 20.8 | 10.2 | 18.7 | 13.5 | 8.60 | 4.66 | 198 | |
| DC 4 | 63.4 | 34.8 | 22.2 | 9.60 | 19.3 | 12.5 | 10.05 | 4.82 | 198 | |
| DC 5 | | | | | | | | 4.76 | | |
| DC 6 | | | | | | | | 4.76 | | |
| DC 7 | | | | | | | | 4.77 | | |
| DC 8 | | | | | | | | 4.68 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 62.0 | 33.4 | 20.9 | 9.75 | 18.55 | 12.55 | 9.03 | 4.60 | 197 | |
| AC 2 | 62.0 | 33.4 | 20.9 | 9.75 | 18.55 | 12.55 | 9.03 | 4.60 | 197 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -4.5 | | | | -10.1 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 2

PROJECT CF&I - SALOME

LINE B HALF E SP. 1 DATE 4-24

| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 8-4W | 4W-0 → | → | 0-4E → | → | → | 4-8E → | → | → | → |
| RANGE | LO | HI | LO | LO | HI | LO | LO | LO | HI | LO |
| VOLTAGE | 750 | 460 | 730 | 660 | 460 | 730 | 800 | 660 | 460 | 720 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |

| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | OAL |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 8-12E → | → | → | → | 12-16 → | → | → | → | | 4-5 |
| RANGE | LO | LO | HI | LO | LO | LO | HI | LO | | LO |
| VOLTAGE | 790 | 650 | 450 | 720 | 780 | 650 | 450 | 710 | | 800 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX B251-68 LINE B SPD 1 LOOKING N35E 4-24-68 A= 400 FEET

570279

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 2755 | 332 | 660 | 418 | 995 | 317 | 257 | 1200 | 463 | 173 | DC | 719 | 495 | 222 | 97 | 241 | 195 | 102 | 448 | 200 | LEFT |
| 2745 | 327 | 655 | 418 | 1000 | 317 | 255 | 1165 | 432 | 172 | | 734 | 474 | 215 | 87 | 231 | 192 | 93 | 492 | 200 | SIDE |
| | | | | | | | | | | | | | | | | | | 439 | 200 | |
| | | | | | | | | | | | | | | | | | | 501 | 200 | |
| | | | | | | | | | | | | | | | | | | 434 | | |
| | | | | | | | | | | | | | | | | | | 504 | | |
| | | | | | | | | | | | | | | | | | | 432 | | |
| | | | | | | | | | | | | | | | | | | 514 | | |
| 275.0 | 329.5 | 65.75 | 418.0 | 99.75 | 31.70 | 256.0 | 118.2 | 44.75 | 17.25 | DCA | 72.65 | 48.45 | 21.85 | 9.200 | 23.60 | 19.35 | 9.750 | 4.690 | 200.0 | |
| 266.0 | 316.0 | 63.60 | 405.0 | 98.00 | 31.40 | 250.2 | 116.0 | 44.10 | 17.10 | AC1 | 70.40 | 47.30 | 21.45 | 9.100 | 23.05 | 18.90 | 9.600 | 4.620 | 200.0 | |
| 266.0 | 316.0 | 63.60 | 405.0 | 98.00 | 31.40 | 250.2 | 116.0 | 44.10 | 17.10 | AC2 | 70.40 | 47.30 | 21.45 | 9.100 | 23.05 | 18.90 | 9.600 | 4.620 | 200.0 | |
| 266.0 | 316.0 | 63.60 | 405.0 | 98.00 | 31.40 | 250.2 | 116.0 | 44.10 | 17.10 | ACA | 70.40 | 47.30 | 21.45 | 9.100 | 23.05 | 18.90 | 9.600 | 4.620 | 200.0 | |
| 165.0 | 197.7 | 157.8 | 250.8 | 239.4 | 190.2 | 153.6 | 283.8 | 268.5 | 207.0 | RHO | 174.4 | 290.7 | 262.2 | 193.2 | 141.6 | 232.2 | 204.7 | 157.6 | 1.000 | DC CAL |
| 3.4 | 4.3 | 3.4 | 3.2 | 1.8 | 1.0 | 2.3 | 1.9 | 1.5 | .9 | PFE | 3.2 | 6.4 | 1.9 | 1.1 | 2.4 | 2.4 | 1.6 | 1.5 | 1.000 | AC CAL |
| 21 | 22 | 21 | 13 | 7 | 5 | 15 | 7 | 5 | 4 | MCF | 18 | 8 | 7 | 6 | 17 | 10 | 8 | 10 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 332 | 2700 | 658 | 339 | 955 | 336 | 228 | 785 | 398 | 171 | DC | 640 | 336 | 206 | 102 | 187 | 135 | 860 | 476 | 198 | RIGHT |
| 328 | 2705 | 656 | 338 | 960 | 350 | 228 | 790 | 393 | 168 | | 634 | 346 | 222 | 96 | 193 | 125 | 1005 | 474 | 198 | SIDE |
| | | | | | | | | | | | | | | | | | | 466 | 198 | |
| | | | | | | | | | | | | | | | | | | 482 | 198 | |
| | | | | | | | | | | | | | | | | | | 476 | | |
| | | | | | | | | | | | | | | | | | | 476 | | |
| | | | | | | | | | | | | | | | | | | 477 | | |
| | | | | | | | | | | | | | | | | | | 468 | | |
| 330.0 | 270.2 | 65.70 | 338.5 | 95.75 | 34.30 | 228.0 | 78.75 | 39.55 | 16.95 | DCA | 63.70 | 34.10 | 21.40 | 9.900 | 19.00 | 13.00 | 9.325 | 4.747 | 198.0 | |
| 312.0 | 260.0 | 63.20 | 323.0 | 91.00 | 32.60 | 219.5 | 75.50 | 37.80 | 16.30 | AC1 | 62.00 | 33.40 | 20.90 | 9.750 | 18.55 | 12.55 | 9.030 | 4.600 | 197.0 | |
| 312.0 | 260.0 | 63.20 | 323.0 | 91.00 | 32.60 | 219.5 | 75.50 | 37.80 | 16.30 | AC2 | 62.00 | 33.40 | 20.90 | 9.750 | 18.55 | 12.55 | 9.030 | 4.600 | 197.0 | |
| 312.0 | 260.0 | 63.20 | 323.0 | 91.00 | 32.60 | 219.5 | 75.50 | 37.80 | 16.30 | ACA | 62.00 | 33.40 | 20.90 | 9.750 | 18.55 | 12.55 | 9.030 | 4.600 | 197.0 | |
| 200.0 | 163.8 | 159.3 | 205.2 | 232.1 | 207.9 | 138.2 | 190.9 | 239.7 | 205.5 | RHO | 154.4 | 206.7 | 259.4 | 210.0 | 115.2 | 157.6 | 197.8 | 161.1 | 1.010 | DC CAL |
| 5.2 | 3.4 | 3.4 | 4.3 | 4.7 | 4.7 | 3.3 | 3.8 | 4.1 | 3.5 | PFE | 2.2 | 1.6 | 1.9 | 1.0 | 1.9 | 3.1 | 2.7 | 2.7 | .995 | AC CAL |
| 26 | 21 | 22 | 21 | 20 | 23 | 24 | 20 | 17 | 17 | MCF | 14 | 8 | 7 | 5 | 17 | 19 | 14 | 17 | | |

Looking N35E

Center + 20E W/E

a = 400' n = 3.0

8251-68 Line B SP 2

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT CFGI - Salome

LINE "B" HALF W SP. 2 DATE 4-24

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 20-16E | 16-12E | → | 12-8E | → | → | 8-4E | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 192 | 91.0 | 55.8 | 182 | 38.0 | 32.4 | 105 | 52.6 | 16.50 | 17.9 |
| DC 2 | 191 | 91.0 | 55.8 | 183 | 38.2 | 32.6 | 105 | 53.9 | 17.75 | 16.6 |
| DC 3 | 192 | 91.0 | 55.8 | 182 | 38.0 | 32.4 | 105 | 52.6 | 16.50 | 17.9 |
| DC 4 | 191 | 91.0 | 55.8 | 183 | 38.2 | 32.6 | 105 | 53.9 | 17.75 | 16.6 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 184 | 88.0 | 53.7 | 174.5 | 36.8 | 31.6 | 100 | 50.5 | 16.48 | 16.53 |
| AC 2 | 184 | 88.0 | 53.7 | 174.5 | 36.8 | 31.6 | 100 | 50.5 | 16.48 | 16.53 |
| AC AVG. | | | | | | | | | | |
| S.P. | +12.5 | +0.9 | | +2.8 | | | +24.0 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFEI - Salome
LINE "B" HALF W SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 4E-0 | → | | → | 0-4W | → | | → | 1-2 | |
| RANGE | 100 | 30 | 30 | 30 | 30 | 30 | 10 | 10 | 300 | |
| DC 1 | 30.4 | 24.5 | 9.85 | 11.5 | 9.40 | 9.10 | 4.20 | 5.06 | 98.0 | |
| DC 2 | 31.4 | 22.1 | 8.70 | 9.5 | 9.55 | 9.05 | 4.37 | 5.44 | 98.0 | |
| DC 3 | 30.4 | 24.5 | 9.85 | 11.5 | 9.40 | 9.10 | 4.18 | 5.06 | 98.0 | |
| DC 4 | 31.4 | 22.1 | 8.70 | 9.5 | 9.55 | 9.05 | 4.42 | 5.42 | 98.0 | |
| DC 5 | | | | | | | 4.18 | 5.00 | | |
| DC 6 | | | | | | | 4.40 | 5.56 | | |
| DC 7 | | | | | | | | 4.90 | | |
| DC 8 | | | | | | | | 5.58 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 29.5 | 22.1 | 8.75 | 10.0 | 9.05 | 8.85 | 4.18 | 5.06 | 96.5 | |
| AC 2 | 29.5 | 22.1 | 8.75 | 10.0 | 9.05 | 8.85 | 4.18 | 5.06 | 96.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -10.9 | | | | -5.5 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 3

PROJECT CF & I-Salome

LINE B HALF W SP. 2 DATE 4-24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 20-16E | 16-12 | → | 12-8 | → | → | 8-4E | → | → | → |
| RANGE | Lo | Hi | Lo | Hi | Hi | Lo | Lo | Hi | Hi | Lo |
| VOLTAGE | 770 | 460 | 760 | 420 | 460 | 760 | 560 | 410 | 450 | 750 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | Cal |
| RECEIVE | 4-0E | → | → | → | 0-4W | → | → | → | | 1-2 |
| RANGE | Lo | Hi | Hi | Lo | Lo | Hi | Hi | Lo | | Lo |
| VOLTAGE | 550 | 410 | 450 | 740 | 540 | 400 | 440 | 740 | | 560 |
| CURRENT | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR 3641R

RECEIVER NO. Hix

OPERATOR Palmer

COMMENTS: 1-2 = Lo 1A - 1.5A
2-3 = Hi - 2A
3-4 = Hi - 2A
4-5 = Lo - 2A

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE "B" HALF E SP. 2 DATE

PAGE

| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 20-24E | 24-28E | → | 28-32E | → | → | 32-36E | → | → | → |
| RANGE | 100 | 300 | 100 | 300 | 100 | 10 | 300 | 30 | 30 | 10 |
| DC 1 | 44.4 | 189 | 28.0 | 90.0 | 30.5 | 6.82 | 130 | 20.2 | 11.0 | 3.25 |
| DC 2 | 45.4 | 189.5 | 26.3 | 89.8 | 29.8 | 6.77 | 130 | 20.8 | 11.6 | 3.12 |
| DC 3 | 44.4 | 189 | 28.0 | 90.0 | 30.5 | 6.72 | 130 | 20.2 | 11.0 | 3.38 |
| DC 4 | 45.4 | 189.5 | 26.3 | 89.8 | 29.8 | 6.77 | 130 | 20.8 | 11.6 | 3.06 |
| DC 5 | | | | | | 6.62 | | | | 3.43 |
| DC 6 | | | | | | 6.82 | | | | 2.98 |
| DC 7 | | | | | | 6.60 | | | | 3.37 |
| DC 8 | | | | | | 6.84 | | | | 2.97 |
| DC AVG. | | | | | | | | | | |
| AC 1 | 43.5 | 180.5 | 26.0 | 86.3 | 29.3 | 6.46 | 124.5 | 19.9 | 10.9 | 3.06 |
| AC 2 | 43.5 | 180.5 | 26.0 | 86.3 | 29.3 | 6.46 | 124.5 | 19.9 | 10.9 | 3.06 |
| AC AVG. | | | | | | | | | | |
| S.P. | +16.9 | -0.7 | | +24.0 | | | -8.3 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "B" HALF E SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 36-40E | → | → | → | 40-44E | → | → | → | 4-5 | |
| RANGE | 100 | 30 | 10 | 10 | 30 | 30 | 10 | 3 | 300 | |
| DC 1 | 43.5 | 10.6 | 7.21 | 2.38 | 27.6 | 8.25 | 6.44 | 2.32 | 99.0 | |
| DC 2 | 43.6 | 10.5 | 7.36 | 2.34 | 28.1 | 8.15 | 6.46 | 2.15 | 99.0 | |
| DC 3 | 43.5 | 10.6 | 7.22 | 2.32 | 27.6 | 8.25 | 6.54 | 2.40 | 99.0 | |
| DC 4 | 43.6 | 10.5 | 7.23 | 2.28 | 28.1 | 8.15 | 6.44 | 2.05 | 99.0 | |
| DC 5 | | | 7.37 | 2.26 | | | 6.52 | 2.36 | | |
| DC 6 | | | 7.32 | 2.39 | | | 6.28 | 2.07 | | |
| DC 7 | | | 7.30 | 2.38 | | | 6.42 | 2.50 | | |
| DC 8 | | | 7.24 | 2.30 | | | 6.38 | 2.09 | | |
| DC AVG. | | | | | 55.7 | | | | | |
| AC 1 | 41.8 | 10.2 | 7.03 | 2.22 | 26.9 | 8.00 | 6.23 | 2.16 | 96.5 | |
| AC 2 | 41.8 | 10.2 | 7.03 | 2.22 | 26.9 | 8.00 | 6.23 | 2.16 | 96.5 | |
| AC AVG. | | | | | 53.8 | | | | | |
| S.P. | -10.0 | | | | -0.4 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I - Salem

LINE B HALF E SP. 2 DATE 4-24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 20-24E | 24-28 | → | 28-32E | → | → | 32-36 | → | → | → |
| RANGE | LO | Hi | LO | Hi | Hi | LO | LO | Hi | Hi | LO |
| VOLTAGE | 530 | 390 | 530 | 420 | 380 | 520 | 710 | 420 | 380 | 520 |
| CURRENT | 1.0 | 2.0 | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL |
| RECEIVE | 36-40E | → | → | → | 40-44 | → | → | → | | 4-5 |
| RANGE | LO | Hi | Hi | LO | LO | Hi | Hi | LO | | Hi |
| VOLTAGE | 700 | 420 | 380 | 510 | 700 | 420 | 380 | 500 | | 360 |
| CURRENT | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR Hix

RECEIVER NO. 36411 D

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX B251-68 LINE B SPD 2 LOOKING N35E 4-24-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | I | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | | |
| 192 | 91 | 558 | 182 | 380 | 324 | 105 | 526 | 1650 | 179 | DC | 304 | 245 | 985 | 115 | 940 | 910 | 420 | 506 | 98 | LEFT | |
| 191 | 91 | 558 | 183 | 382 | 326 | 105 | 539 | 1775 | 166 | | 314 | 221 | 870 | 95 | 955 | 905 | 437 | 544 | 98 | SIDE | |
| | | | | | | | | | | | | | | | | | 418 | 506 | 98 | | |
| | | | | | | | | | | | | | | | | | 442 | 542 | 98 | | |
| | | | | | | | | | | | | | | | | | 418 | 500 | | | |
| | | | | | | | | | | | | | | | | | 440 | 556 | | | |
| | | | | | | | | | | | | | | | | | | 490 | | | |
| | | | | | | | | | | | | | | | | | | 558 | | | |
| 191.5 | 91.00 | 55.80 | 182.5 | 38.10 | 32.50 | 105.0 | 53.25 | 17.12 | 17.25 | DCA | 30.90 | 23.30 | 9.275 | 10.50 | 9.475 | 90.75 | 4.290 | 5.243 | 98.00 | | |
| 184.0 | 88.00 | 53.70 | 174.5 | 36.80 | 31.60 | 100.0 | 50.50 | 16.48 | 16.53 | AC1 | 29.50 | 22.10 | 8.950 | 10.00 | 9.050 | 88.50 | 4.180 | 5.060 | 96.50 | | |
| 184.0 | 88.00 | 53.70 | 174.5 | 36.80 | 31.60 | 100.0 | 50.50 | 16.48 | 16.53 | AC2 | 29.50 | 22.10 | 8.950 | 10.00 | 9.050 | 88.50 | 4.180 | 5.060 | 96.50 | | |
| 184.0 | 88.00 | 53.70 | 174.5 | 36.80 | 31.60 | 100.0 | 50.50 | 16.48 | 16.53 | ACA | 29.50 | 22.10 | 8.950 | 10.00 | 9.050 | 88.50 | 4.180 | 5.060 | 96.50 | | |
| 117.2 | 55.71 | 136.7 | 111.7 | 93.31 | 199.0 | 128.6 | 130.4 | 104.8 | 211.2 | RHO | 151.3 | 142.7 | 113.6 | 225.0 | 116.0 | 111.2 | 91.93 | 179.8 | 1.020 | DC CAL | |
| 2.5 | 1.8 | 2.3 | 3.0 | 1.9 | 1.3 | 3.4 | 3.8 | 2.3 | 2.8 | PFE | 3.1 | 3.8 | 2.0 | 3.4 | 3.1 | 1.0 | 1.1 | 2.0 | .985 | AC CAL | |
| 21 | 33 | 17 | 27 | 21 | 6 | 26 | 29 | 22 | 13 | MCF | 21 | 27 | 18 | 15 | 27 | 1 | 12 | 11 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 2.000 | 1.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | I | 2.000 | 2.000 | 2.000 | 1.000 | 2.000 | 2.000 | 2.000 | 1.000 | 1.000 | | |
| 444 | 1890 | 280 | 900 | 305 | 682 | 13 | 202 | 110 | 325 | DC | 435 | 106 | 721 | 238 | 276 | 825 | 644 | 232 | 99 | RIGHT | |
| 454 | 1895 | 263 | 898 | 298 | 677 | 13 | 208 | 116 | 312 | | 436 | 105 | 736 | 234 | 281 | 815 | 646 | 215 | 99 | SIDE | |
| | | | | | 672 | | | | 338 | | | | 722 | 232 | | | 654 | 240 | 99 | | |
| | | | | | 677 | | | | 306 | | | | 723 | 228 | | | 644 | 205 | 99 | | |
| | | | | | 662 | | | | 343 | | | | 737 | 226 | | | 652 | 236 | | | |
| | | | | | 682 | | | | 298 | | | | 732 | 239 | | | 628 | 207 | | | |
| | | | | | 660 | | | | 337 | | | | 736 | 238 | | | 642 | 250 | | | |
| | | | | | 684 | | | | 297 | | | | 724 | 230 | | | 638 | 209 | | | |
| 44.90 | 189.2 | 27.15 | 89.90 | 30.15 | 6.733 | 130.0 | 20.50 | 11.30 | 3.207 | DCA | 43.55 | 10.55 | 7.298 | 2.330 | 27.85 | 8.200 | 6.439 | 2.248 | 99.00 | | |
| 43.50 | 180.5 | 26.00 | 86.30 | 29.30 | 6.460 | 124.5 | 19.90 | 10.90 | 3.060 | AC1 | 41.80 | 10.20 | 7.030 | 2.220 | 26.90 | 8.000 | 6.230 | 2.160 | 96.50 | | |
| 43.50 | 180.5 | 26.00 | 86.30 | 29.30 | 6.460 | 124.5 | 19.90 | 10.90 | 3.060 | AC2 | 41.80 | 10.20 | 7.030 | 2.220 | 26.90 | 8.000 | 6.230 | 2.160 | 96.50 | | |
| 43.50 | 180.5 | 26.00 | 86.30 | 29.30 | 6.460 | 124.5 | 19.90 | 10.90 | 3.060 | ACA | 41.80 | 10.20 | 7.030 | 2.220 | 26.90 | 8.000 | 6.230 | 2.160 | 96.50 | | |
| 54.42 | 114.7 | 131.6 | 54.48 | 73.07 | 81.61 | 78.79 | 49.70 | 68.48 | 77.75 | RHO | 105.6 | 63.94 | 88.46 | 98.85 | 168.8 | 99.39 | 136.6 | 152.6 | 1.010 | DC CAL | |
| .6 | 2.2 | 1.8 | 1.5 | .3 | 1.6 | 1.8 | .4 | 1.1 | 2.2 | PFE | 1.6 | .8 | 1.2 | 2.3 | .9 | -.1 | .7 | 1.4 | .975 | AC CAL | |
| 11 | 19 | 14 | 28 | 4 | 20 | 23 | 8 | 15 | 28 | MCF | 15 | 13 | 13 | 23 | 5 | -1 | 5 | 9 | | | |

a = 400' Center +48E f = 2.0
Looking N 35E E/E Line B SP 3 P 251-67

PAGE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CFEI - Salome

LINE "B" HALF W SP. 3 DATE 4-25

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 48-44E | 44-40E | → | 40-36E | | → | 36-32E | | | → |
| RANGE | 100 | 300 | 100 | 300 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 51.5 | 125 | 54.5 | 151.5 | 54.3 | 25.5 | 190 | 50.4 | 24.4 | 13.4 |
| DC 2 | 50.5 | 124 | 51.8 | 158.5 | 52.1 | 27.8 | 191 | 51.8 | 23.5 | 12.3 |
| DC 3 | 51.5 | 125 | 54.5 | 151.5 | 54.3 | 25.5 | 190 | 50.4 | 24.4 | 13.4 |
| DC 4 | 50.5 | 124 | 51.8 | 158.5 | 52.1 | 27.8 | 191 | 51.8 | 23.5 | 12.3 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 49.7 | 120.2 | 49.8 | 152 | 51.7 | 25.7 | 184 | 49.8 | 22.9 | 12.35 |
| AC 2 | 49.7 | 120.2 | 49.8 | 152 | 51.7 | 25.7 | 184 | 49.8 | 22.9 | 12.35 |
| AC AVG. | | | | | | | | | | |
| S.P. | -4.1 | +2.8 | | +6.5 | | | +8.8 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CCCI - Salome
LINE "B" HALF W SP. 3 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 32-28E | → | | → | 28-24E | → | | → | 1-2 | |
| RANGE | 100 | 30 | 30 | 10 | 100 | 30 | 10 | 10 | 100 | |
| DC 1 | 61.2 | 22.2 | 11.0 | 6.62 | 27.7 | 10.6 | 6.97 | 4.44 | 51.2 | |
| DC 2 | 60.2 | 22.8 | 11.6 | 6.66 | 27.4 | 12.6 | 6.22 | 4.26 | 50.6 | |
| DC 3 | 61.2 | 22.2 | 11.0 | 6.55 | 27.7 | 10.6 | 6.92 | 4.64 | 51.2 | |
| DC 4 | 60.2 | 22.8 | 11.6 | 6.77 | 27.4 | 12.6 | 6.22 | 4.08 | 50.6 | |
| DC 5 | | | | 6.42 | | | 6.98 | 4.60 | | |
| DC 6 | | | | 6.82 | | | 6.16 | 4.18 | | |
| DC 7 | | | | 6.48 | | | 6.66 | 4.65 | | |
| DC 8 | | | | 6.82 | | | 6.23 | 4.23 | | |
| DC AVG. | | | | | 55.1 | | | | 101.8 | |
| AC 1 | 58.3 | 21.65 | 10.86 | 6.37 | 26.3 | 11.2 | 6.27 | 4.18 | 50.2 | |
| AC 2 | 58.3 | 21.65 | 10.86 | 6.37 | 26.3 | 11.2 | 6.27 | 4.18 | 50.2 | |
| AC AVG. | | | | | 52.6 | | | | 100.4 | |
| S.P. | -9.6 | | | | +1.8 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF & I - Salome

LINE B HALF W SP. 3 DATE 4-25

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 48-44 | 44-40 | → | 40-36 | → | → | 36-32 | → | → | → |
| RANGE | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| VOLTAGE | 840 | 800 | 840 | 540 | 790 | 840 | 620 | 540 | 780 | 830 |
| CURRENT | .75 | 1.75 | .75 | 2.0 | 1.75 | .75 | 2.0 | 2.0 | 1.75 | .75 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL. |
| RECEIVE | 32-28 | → | → | → | 28-24 | → | → | → | | 1-2 |
| RANGE | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | | 40 |
| VOLTAGE | 620 | 530 | 770 | 820 | 620 | 520 | 760 | 820 | | 160 |
| CURRENT | 2.0 | 2.0 | 1.75 | .75 | 2.0 | 2.0 | 1.75 | .75 | | .50 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR T/X

RECEIVER NO. 3641A

OPERATOR PACKER

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE B HALF E SP. 3 DATE 4-25

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 48-52E | 52-56E | → | 56-60E | → | → | 60-64E | → | → | → |
| RANGE | 300 | 300 | 300 | 1000 | 300 | 300 | 1000 | 100 | 30 | 100 |
| DC 1 | 143 | 136.5 | 141 | 30.6 | 99.0 | 129.6 | 739 | 42.4 | 22.2 | 34.3 |
| DC 2 | 143 | 139.0 | 144 | 305 | 98.0 | 127.6 | 737 | 43.3 | 22.4 | 34.2 |
| DC 3 | 143 | 136.5 | 141 | 306 | 99.0 | 129.6 | 739 | 42.4 | 22.2 | 34.3 |
| DC 4 | 143 | 139.0 | 144 | 305 | 98.0 | 127.6 | 737 | 43.3 | 22.4 | 34.2 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 141 | 136 | 141 | 300 | 96.3 | 127 | 736 | 42.4 | 24.13 | 34.2 |
| AC 2 | 141 | 136 | 141 | 300 | 96.3 | 127 | 736 | 42.4 | 24.13 | 34.2 |
| AC AVG. | | | | | | | | | | |
| S.P. | +0.2 | -1.3 | | +13.0 | | | +8.2 | | | |
| AC NOISE | .06 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "B" HALF E SP. 3 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 64-68E | → | | → | 68-72E | → | | → | 4-5 | |
| RANGE | 30 | 10 | 10 | 10 | 10 | 3 | 3 | 10 | 100 | |
| DC 1 | 14.3 | 3.37 | 3.18 | 4.98 | 300 | 1.83 | 1.95 | 3.30 | 50.6 | |
| DC 2 | 14.5 | 3.38 | 2.86 | 4.59 | 304 | 1.91 | 1.79 | 2.75 | 50.1 | |
| DC 3 | 14.3 | 3.40 | 3.16 | 5.04 | 336 | 1.75 | 2.12 | 3.22 | 50.6 | |
| DC 4 | 14.5 | 3.37 | 2.96 | 4.54 | 300 | 2.09 | 1.66 | 2.66 | 50.1 | |
| DC 5 | | 3.47 | 3.14 | 5.08 | 318 | 1.60 | 2.01 | 3.18 | | |
| DC 6 | | 3.36 | 3.00 | 4.44 | 319 | 2.14 | 1.65 | 2.76 | | |
| DC 7 | | 3.43 | 3.08 | 5.24 | 317 | 1.52 | 2.21 | 3.22 | | |
| DC 8 | | 3.26 | 3.05 | 4.32 | 318 | 2.32 | 1.70 | 2.80 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 14.35 | 3.34 | 3.01 | 4.77 | 3.14 | 1.81 | 1.855 | 2.98 | 50.4 | |
| AC 2 | 14.35 | 3.34 | 3.01 | 4.77 | 3.14 | 1.81 | 1.855 | 2.98 | 50.4 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -20.0 | | | | -9.2 | | | | | |
| AC NOISE | .06 | | | | .08 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

**PROJECT** CF & I - Salome

LINE B HALF E SP. 3 DATE 4-25

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 48-52 | 52-56 | → | 56-60 | → | → | 60-64 | → | → | → |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| VOLTAGE | 680 | 600 | 680 | 860 | 600 | 670 | 860 | 840 | 580 | 660 |
| CURRENT | 2.0 | 2.0 | 2.0 | 1.75 | 2.0 | 2.0 | .75 | 1.75 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL |
| RECEIVE | 64-68 | → | → | → | 68-72E | → | | → | | 4-5 |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | 20 |
| VOLTAGE | 850 | 830 | 580 | 660 | 850 | 820 | 560 | 650 | | 580 |
| CURRENT | .75 | 1.75 | 2.0 | 2.0 | .75 | 1.75 | 2.0 | 2.0 | | .50 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS: 1-2 – x10 – 000 – 2. – 2.0
2-3 – x10 – 000 – 2 – 2.0
3-4 – x10 – 750 – 1.00 – 1.75
4-5 – x10 – 75.0 – 0. – .75

HEINRICHS GEOEX B251-68 LINE B SPO 3 LOOKING N35E 4-25-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .750 | 1.750 | .750 | 2.000 | 1.750 | .750 | 2.000 | 2.000 | 1.750 | .750 | I | 2.000 | 2.000 | 1.750 | .750 | 2.000 | 2.000 | 1.750 | .750 | .500 | |
| 515 | 125 | 545 | 1515 | 543 | 255 | 190 | 504 | 244 | 134 | DC | 612 | 222 | 110 | 662 | 277 | 106 | 697 | 444 | 512 | LEFT |
| 505 | 124 | 518 | 1585 | 521 | 278 | 191 | 518 | 235 | 123 | | 602 | 228 | 116 | 666 | 274 | 126 | 622 | 426 | 506 | SIDE |
| | | | | | | | | | | | | | | 655 | | | 692 | 464 | 512 | |
| | | | | | | | | | | | | | | 677 | | | 622 | 408 | 506 | |
| | | | | | | | | | | | | | | 642 | | | 698 | 460 | | |
| | | | | | | | | | | | | | | 682 | | | 616 | 418 | | |
| | | | | | | | | | | | | | | 648 | | | 666 | 465 | | |
| | | | | | | | | | | | | | | 682 | | | 623 | 423 | | |
| 51.00 | 124.5 | 53.15 | 155.0 | 53.20 | 26.65 | 190.5 | 51.10 | 23.95 | 12.85 | DCA | 60.70 | 22.50 | 11.30 | 6.631 | 27.55 | 11.60 | 6.537 | 4.392 | 50.90 | |
| 49.70 | 120.2 | 49.80 | 152.0 | 51.70 | 25.70 | 184.0 | 49.80 | 22.90 | 12.35 | AC1 | 58.30 | 21.65 | 10.86 | 6.370 | 26.30 | 11.20 | 6.270 | 4.180 | 50.20 | |
| 49.70 | 120.2 | 49.80 | 152.0 | 51.70 | 25.70 | 184.0 | 49.80 | 22.90 | 12.35 | AC2 | 58.30 | 21.65 | 10.86 | 6.370 | 26.30 | 11.20 | 6.270 | 4.180 | 50.20 | |
| 49.70 | 120.2 | 49.80 | 152.0 | 51.70 | 25.70 | 184.0 | 49.80 | 22.90 | 12.35 | ACA | 58.30 | 21.65 | 10.86 | 6.370 | 26.30 | 11.20 | 6.270 | 4.180 | 50.20 | |
| 80.16 | 83.86 | 334.1 | 91.36 | 143.3 | 418.9 | 112.3 | 120.5 | 161.3 | 403.9 | RHO | 143.1 | 132.6 | 152.2 | 364.8 | 162.4 | 136.7 | 154.1 | 386.6 | .982 | DC CAL |
| 1.2 | 2.2 | 5.3 | .6 | 1.5 | 2.3 | 2.1 | 1.2 | 3.1 | 2.6 | PFE | 2.7 | 2.5 | 2.6 | 2.7 | 3.3 | 2.1 | 2.8 | 3.6 | .986 | AC CAL |
| 15 | 26 | 16 | 6 | 10 | 5 | 19 | 10 | 20 | 6 | MCF | 19 | 19 | 17 | 7 | 20 | 16 | 18 | 9 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 1.750 | 2.000 | 2.000 | .750 | 1.750 | 2.000 | 2.000 | I | .750 | 1.750 | 2.000 | 2.000 | .750 | 1.750 | 2.000 | 2.000 | .500 | |
| 143 | 1365 | 141 | 306 | 99 | 1296 | 739 | 424 | 222 | 343 | DC | 143 | 337 | 318 | 498 | 300 | 183 | 195 | 330 | 506 | RIGHT |
| 143 | 1390 | 144 | 305 | 98 | 1276 | 737 | 433 | 224 | 342 | | 145 | 338 | 286 | 459 | 304 | 191 | 179 | 275 | 501 | SIDE |
| | | | | | | | | | | | | 340 | 316 | 504 | 336 | 175 | 212 | 322 | 506 | |
| | | | | | | | | | | | | 337 | 296 | 454 | 300 | 209 | 166 | 266 | 501 | |
| | | | | | | | | | | | | 347 | 314 | 508 | 318 | 160 | 201 | 318 | | |
| | | | | | | | | | | | | 336 | 300 | 444 | 319 | 214 | 165 | 276 | | |
| | | | | | | | | | | | | 343 | 308 | 524 | 317 | 152 | 221 | 322 | | |
| | | | | | | | | | | | | 326 | 305 | 432 | 318 | 232 | 170 | 280 | | |
| 143.0 | 137.7 | 142.5 | 305.5 | 98.50 | 128.6 | 738.0 | 42.85 | 22.30 | 34.25 | DCA | 14.40 | 3.389 | 3.045 | 4.797 | 3.147 | 1.869 | 1.895 | 2.977 | 50.35 | |
| 141.0 | 136.0 | 141.0 | 300.0 | 96.30 | 127.0 | 736.0 | 42.40 | 24.13 | 34.20 | AC1 | 14.35 | 3.340 | 3.010 | 4.770 | 3.140 | 1.810 | 1.855 | 2.980 | 50.40 | |
| 141.0 | 136.0 | 141.0 | 300.0 | 96.30 | 127.0 | 736.0 | 42.40 | 24.13 | 34.20 | AC2 | 14.35 | 3.340 | 3.010 | 4.770 | 3.140 | 1.810 | 1.855 | 2.980 | 50.40 | |
| 141.0 | 136.0 | 141.0 | 300.0 | 96.30 | 127.0 | 736.0 | 42.40 | 24.13 | 34.20 | ACA | 14.35 | 3.340 | 3.010 | 4.770 | 3.140 | 1.810 | 1.855 | 2.980 | 50.40 | |
| 85.20 | 82.08 | 339.6 | 208.0 | 234.8 | 766.2 | 1172.6 | 116.7 | 132.9 | 408.1 | RHO | 91.52 | 23.08 | 36.29 | 100.0 | 50.00 | 25.46 | 39.52 | 99.34 | .993 | DC CAL |
| 1.5 | 1.4 | 1.2 | 1.9 | 2.4 | 1.4 | .4 | 1.2 | -7.5 | .2 | PFE | .4 | 1.6 | 1.3 | .7 | .3 | 3.4 | 2.3 | .0 | 1.001 | AC CAL |
| 18 | 17 | 3 | 9 | 10 | 2 | 0 | 10 | -56 | 1 | MCF | 5 | 68 | 35 | 7 | 7 | 133 | 57 | 0 | | |

Looking N35E  Center-16W W/E  a=400' f=8.0  Line C SP 1 B251-68

PAGE

HEINRICHS GEOEXPLORATION CO.

# I.P. RECEIVER NOTES

PROJECT CF&I - Salome

LINE "C" HALF W SP. 1 DATE 4-26

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 16-20W | 20-24W | → | 24-28W | → | → | 28-32W | → | → | → |
| RANGE | 300 | 300 | 100 | 1000 | 300 | 100 | 1000 | 300 | 100 | 100 |
| DC 1 | 216 | 224 | 65.4 | 339 | 85.0 | 39.7 | 319 | 91.0 | 38.2 | 21.8 |
| DC 2 | 214 | 229 | 70.3 | 341 | 82.0 | 43.7 | 320 | 90.5 | 37.4 | 23.4 |
| DC 3 | 216 | 224 | 65.4 | 339 | 85.0 | 39.7 | 319 | 91.0 | 38.2 | 21.8 |
| DC 4 | 214 | 229 | 70.3 | 341 | 82.0 | 43.7 | 320 | 90.5 | 37.4 | 23.4 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 213 | 224.5 | 67.0 | 339 | 83.0 | 41.0 | 318 | 90.0 | 37.4 | 22.2 |
| AC 2 | 213 | 224.5 | 67.0 | 339 | 83.0 | 41.0 | 318 | 90.0 | 37.4 | 22.2 |
| AC AVG. | | | | | | | | | | |
| S.P. | +14.9 | +1.7 | | -28.5 | | | +12.1 | | | |
| AC NOISE | .05 | .05 | | .05 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFI - Salome
LINE "C" HALF W SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 32-36W | → | | → | 36-40W | → | | → | 1-2 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 94.0 | 43.9 | 21.9 | 14.6 | 29.8 | 16.9 | 9.90 | 7.14 | 201 | |
| DC 2 | 96.0 | 40.2 | 21.1 | 14.6 | 29.8 | 17.1 | 10.40 | 7.78 | 201 | |
| DC 3 | 94.0 | 43.9 | 21.9 | 14.6 | 29.8 | 16.9 | 9.90 | 7.12 | 201 | |
| DC 4 | 96.0 | 40.2 | 21.1 | 14.6 | 29.8 | 17.1 | 10.40 | 7.62 | 201 | |
| DC 5 | | | | | | | | 7.22 | | |
| DC 6 | | | | | | | | 7.90 | | |
| DC 7 | | | | | | | | 7.20 | | |
| DC 8 | | | | | | | | 7.84 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 94.0 | 41.7 | 21.3 | 14.4 | 29.6 | 16.9 | 10.03 | 7.35 | 201.5 | |
| AC 2 | 94.0 | 41.7 | 21.3 | 14.4 | 29.6 | 16.9 | 10.03 | 7.35 | 201.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +8.2 | | | | -3.1 | | | | | |
| AC NOISE | .06 | | | | .05 | | | | | |
| POT RES. | | | | | | | | | | |

PAGE 5

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I-Salome

LINE C HALF W SP. C DATE 4-26

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 16-20W | 20-24W | → | 24-28W | → | → | 28-32 | → | → | → |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | LO | LO |
| VOLTAGE | 570 | 600 | 570 | 740 | 600 | 570 | 620 | 740 | 600 | 570 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL |
| RECEIVE | 32-36W | → | → | → | 36-40W | → | → | → | | 1-2 |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | | LO |
| VOLTAGE | 620 | 740 | 600 | 570 | 620 | 730 | 600 | 570 | | 620 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641 R.

OPERATOR PALMER.

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "C" HALF E SP. 1 DATE 4-26

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 16-12W | 12-8W | → | 8-4W | → | → | 4W-0 | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 100 | 300 | 100 | 30 | 30 |
| DC 1 | 226 | 212 | 69.3 | 226 | 56.2 | 21.9 | 149 | 50.4 | 18.0 | 10.1 |
| DC 2 | 226 | 210 | 66.2 | 227 | 58.6 | 25.6 | 149 | 49.4 | 20.3 | 8.90 |
| DC 3 | 226 | 212 | 69.3 | 226 | 56.2 | 21.9 | 149 | 50.4 | 18.0 | 10.1 |
| DC 4 | 226 | 210 | 66.2 | 227 | 58.6 | 25.6 | 149 | 49.4 | 20.3 | 8.90 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 222 | 206 | 66.1 | 220.5 | 56.0 | 23.3 | 144.5 | 48.8 | 18.8 | 9.40 |
| AC 2 | 222 | 206 | 66.1 | 220.5 | 56.0 | 23.3 | 144.5 | 48.8 | 18.8 | 9.40 |
| AC AVG. | | | | | | | | | | |
| S.P. | +4.8 | -6.8 | | -15.0 | | | +21.7 | | | |
| AC NOISE | .05 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE "C" HALF E SP. 1 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | Cal | |
| RECEIVE | 0-4E | → | → | → | 4E-8E | → | → | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 64.4 | 25.7 | 12.8 | 7.90 | 29.2 | 14.4 | 8.40 | 5.24 | 201 | |
| DC 2 | 62.2 | 29.0 | 13.1 | 7.10 | 26.6 | 14.1 | 7.60 | 5.24 | 201 | |
| DC 3 | 64.4 | 25.7 | 12.8 | 7.90 | 29.2 | 14.4 | 8.40 | 5.20 | 201 | |
| DC 4 | 62.2 | 29.0 | 13.1 | 7.10 | 26.6 | 14.1 | 7.60 | 5.12 | 201 | |
| DC 5 | | | | | | | | 5.14 | | |
| DC 6 | | | | | | | | 5.00 | | |
| DC 7 | | | | | | | | 5.20 | | |
| DC 8 | | | | | | | | 5.00 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 61.5 | 26.3 | 12.55 | 7.85 | 26.7 | 14.0 | 7.80 | 4.96 | 200 | |
| AC 2 | 61.5 | 26.3 | 12.55 | 7.85 | 26.7 | 14.0 | 7.80 | 4.96 | 200 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -1.4 | | | | +8.3 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I Salomon
LINE C HALF E SP. 1 DATE 4-26

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 16-12W | 12-8W | → | 8-4W | → | → | 4W-0 | → | → | → |
| RANGE | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| VOLTAGE | 620 | 730 | 620 | 590 | 730 | 620 | 560 | 590 | 730 | 620 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | OAL |
| RECEIVE | 0-4E | → | → | → | 4-8-E | → | → | → | | 4-5 |
| RANGE | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | | 40 |
| VOLTAGE | 560 | 590 | 730 | 620 | 560 | 590 | 730 | 620 | | 560 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0
SENDER NO. 15673 S.
OPERATOR HIX
RECEIVER NO. 3641R
OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX 8251-68 LINE C SPD 1 LOOKING N35E 4-26-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 216 | 224 | 654 | 339 | 85 | 397 | 319 | 910 | 382 | 218 | DC | 94 | 439 | 219 | 146 | 298 | 169 | 99 | 714 | 201 | LEFT |
| 214 | 229 | 703 | 341 | 82 | 437 | 320 | 905 | 374 | 234 | | 96 | 402 | 211 | 146 | 298 | 171 | 104 | 778 | 201 | SIDE |
| 216 | | | | | | | | | | | | | | | | | | 712 | 201 | |
| 214 | | | | | | | | | | | | | | | | | | 762 | 201 | |
| | | | | | | | | | | | | | | | | | | 722 | | |
| | | | | | | | | | | | | | | | | | | 790 | | |
| | | | | | | | | | | | | | | | | | | 720 | | |
| | | | | | | | | | | | | | | | | | | 784 | | |
| 215.0 | 226.5 | 67.85 | 340.0 | 83.50 | 41.70 | 319.5 | 90.75 | 37.80 | 22.60 | DCA | 95.00 | 42.05 | 21.50 | 14.60 | 29.80 | 17.00 | 10.15 | 7.476 | 201.0 | |
| 213.0 | 224.5 | 67.00 | 339.0 | 83.00 | 41.00 | 318.0 | 90.00 | 37.40 | 22.20 | AC1 | 94.00 | 41.70 | 21.30 | 14.40 | 29.60 | 16.90 | 10.03 | 7.350 | 201.5 | |
| 213.0 | 224.5 | 67.00 | 339.0 | 83.00 | 41.00 | 318.0 | 90.00 | 37.40 | 22.20 | AC2 | 94.00 | 41.70 | 21.30 | 14.40 | 29.60 | 16.90 | 10.03 | 7.350 | 201.5 | |
| 213.0 | 224.5 | 67.00 | 339.0 | 83.00 | 41.00 | 318.0 | 90.00 | 37.40 | 22.20 | ACA | 94.00 | 41.70 | 21.30 | 14.40 | 29.60 | 16.90 | 10.03 | 7.350 | 201.5 | |
| 128.4 | 135.2 | 162.0 | 209.0 | 199.4 | 249.0 | 190.7 | 216.7 | 225.7 | 269.9 | RHO | 226.9 | 251.0 | 256.7 | 305.1 | 177.9 | 203.0 | 212.1 | 249.9 | .995 | DC CAL |
| 1.2 | 1.1 | 1.5 | .5 | .9 | 2.0 | .7 | 1.1 | 1.3 | 2.1 | PFE | 1.3 | 1.1 | 1.2 | 1.6 | .9 | .8 | 1.4 | 2.0 | 1.002 | AC CAL |
| 9 | 8 | 9 | 3 | 4 | 8 | 4 | 5 | 6 | 8 | MCF | 6 | 4 | 5 | 5 | 5 | 4 | 7 | 8 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 226 | 212 | 693 | 226 | 562 | 219 | 149 | 504 | 180 | 101 | DC | 644 | 257 | 128 | 790 | 292 | 144 | 84 | 524 | 201 | RIGHT |
| 226 | 210 | 662 | 227 | 586 | 256 | 149 | 494 | 203 | 89 | | 622 | 290 | 131 | 710 | 266 | 141 | 76 | 524 | 201 | SIDE |
| | | | | | | | | | | | | | | | | | | 520 | 201 | |
| | | | | | | | | | | | | | | | | | | 512 | 201 | |
| | | | | | | | | | | | | | | | | | | 514 | | |
| | | | | | | | | | | | | | | | | | | 500 | | |
| | | | | | | | | | | | | | | | | | | 520 | | |
| | | | | | | | | | | | | | | | | | | 500 | | |
| 226.0 | 211.0 | 67.75 | 226.5 | 57.40 | 23.75 | 149.0 | 49.90 | 19.15 | 9.500 | DCA | 63.30 | 27.35 | 12.95 | 7.500 | 27.90 | 14.25 | 8.000 | 5.146 | 201.0 | |
| 222.0 | 206.0 | 66.10 | 220.5 | 56.00 | 23.30 | 144.5 | 48.80 | 18.80 | 9.400 | AC1 | 61.50 | 26.30 | 12.55 | 7.150 | 26.70 | 14.00 | 7.800 | 4.960 | 200.0 | |
| 222.0 | 206.0 | 66.10 | 220.5 | 56.00 | 23.30 | 144.5 | 48.80 | 18.80 | 9.400 | AC2 | 61.50 | 26.30 | 12.55 | 7.150 | 26.70 | 14.00 | 7.800 | 4.960 | 200.0 | |
| 222.0 | 206.0 | 66.10 | 220.5 | 56.00 | 23.30 | 144.5 | 48.80 | 18.80 | 9.400 | ACA | 61.50 | 26.30 | 12.55 | 7.150 | 26.70 | 14.00 | 7.800 | 4.960 | 200.0 | |
| 134.9 | 126.0 | 161.8 | 135.2 | 137.1 | 141.8 | 88.96 | 119.2 | 114.3 | 113.4 | RHO | 151.2 | 163.3 | 154.6 | 156.7 | 166.6 | 170.1 | 167.2 | 172.0 | .995 | DC CAL |
| 1.3 | 1.9 | 2.0 | 2.2 | 2.0 | 1.4 | 2.6 | 1.7 | 1.4 | .6 | PFE | 2.4 | 3.5 | 2.7 | 4.4 | 4.0 | 1.3 | 2.1 | 3.2 | .995 | AC CAL |
| 10 | 15 | 12 | 16 | 15 | 10 | 29 | 15 | 12 | 5 | MCF | 16 | 21 | 17 | 28 | 24 | 8 | 12 | 19 | | |

Looking N35E  Center +12E W/E  a=400 f=3.0  B251-64  Line C SP 2

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT CFEI - Salome

LINE "C" HALF W SP. 2 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 12-8E | 8-4E → | | 4E-0 | → | | 0-4W → | | | |
| RANGE | 300 | 1000 | 100 | 300 | 100 | 30 | 100 | 30 | 30 | 10 |
| DC 1 | 231.5 | 434 | 60.0 | 98.0 | 36.3 | 12.60 | 73.5 | 19.3 | 11.8 | 5.14 |
| DC 2 | 231.0 | 435 | 63.0 | 99.0 | 34.2 | 12.45 | 72.5 | 20.1 | 11.0 | 5.00 |
| DC 3 | 231.5 | 434 | 60.0 | 98.0 | 36.3 | 12.60 | 73.5 | 19.3 | 11.8 | 5.14 |
| DC 4 | 231.0 | 435 | 63.0 | 99.0 | 34.2 | 12.45 | 72.5 | 20.1 | 11.0 | 4.98 |
| DC 5 | | | | | | | | | | 5.12 |
| DC 6 | | | | | | | | | | 5.02 |
| DC 7 | | | | | | | | | | 5.16 |
| DC 8 | | | | | | | | | | 500 |
| DC AVG. | | | | | | | | | | |
| AC 1 | 221 | 407 | 58.2 | 92.0 | 33.7 | 11.9 | 69.0 | 18.7 | 10.95 | 4.83 |
| AC 2 | 221 | 407 | 58.2 | 92.0 | 33.7 | 11.9 | 69.0 | 18.7 | 10.95 | 4.83 |
| AC AVG. | | | | | | | | | | |
| S.P. | +3.1 | +14.2 | | -12.0 | | | -20.2 | | | |
| AC NOISE | | .06 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "C" HALF W SP. 2 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 4-8W | → | | → | 8-12W | → | | → | 1-2 | |
| RANGE | 30 | 30 | 10 | 10 | 30 | 10 | 10 | 10 | 100 | |
| DC 1 | 19.4 | 7.80 | 6.16 | 2.96 | 13.15 | 6.60 | 5.58 | 3.05 | 98.5 | |
| DC 2 | 19.3 | 7.60 | 6.35 | 3.44 | 14.40 | 6.77 | 6.34 | 3.06 | 98.5 | |
| DC 3 | 19.4 | 7.80 | 6.18 | 2.80 | 13.15 | 6.36 | 5.62 | 3.08 | 98.5 | |
| DC 4 | 19.3 | 7.60 | 6.25 | 3.35 | 14.40 | 6.88 | 6.16 | 2.97 | 98.5 | |
| DC 5 | | | 6.25 | 2.64 | | 6.36 | 5.82 | 3.23 | | |
| DC 6 | | | 6.00 | 3.42 | | 6.76 | 6.22 | 2.94 | | |
| DC 7 | | | 6.46 | 2.56 | | 6.36 | 5.63 | 3.58 | | |
| DC 8 | | | 6.02 | 3.54 | | 6.72 | 6.06 | 2.74 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 18.1 | 7.35 | 5.93 | 2.95 | 12.95 | 6.25 | 5.59 | 2.95 | 95.2 | |
| AC 2 | 18.1 | 7.35 | 5.93 | 2.95 | 12.95 | 6.25 | 5.59 | 2.95 | 95.2 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +14.9 | | | | +0.6 | | | | | |
| AC NOISE | .05 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE

PROJECT CF&I Salome

LINE C HALF W SP. 2 DATE 4-26

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 12-8E | 8-4E | → | 4-0E | → | → | 0-4W | → | → | → |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi |
| VOLTAGE | 260 | 250 | 260 | 480 | 250 | 260 | 450 | 480 | 240 | 260 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAC |
| RECEIVE | 4-8W | → | → | → | 8-12W | → | → | → | | 1-2 |
| RANGE | Hi | Hi | Hi | Hi | Hi | Hi | Hi | Hi | | Hi |
| VOLTAGE | 450 | 480 | 240 | 260 | 450 | 480 | 240 | 260 | | 450 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 56735

OPERATOR HLK

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I - Salome
LINE "C" HALF E SP. 2 DATE 4-26

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 12-16E | 16-20E | → | 20-24E | → | → | 24-28E | → | → | → |
| RANGE | 1000 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 428 | 235 | 61.5 | 207 | 47.5 | 20.7 | 115 | 57.4 | 17.5 | 8.30 |
| DC 2 | 426 | 236 | 60.6 | 211 | 52.2 | 19.1 | 116 | 57.8 | 18.1 | 7.40 |
| DC 3 | 428 | 235 | 61.5 | 207 | 47.5 | 20.7 | 115 | 57.4 | 17.5 | 8.30 |
| DC 4 | 426 | 236 | 61.6 | 211 | 52.2 | 19.1 | 116 | 57.8 | 18.1 | 7.40 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 422 | 227 | 58.3 | 203 | 48.1 | 19.02 | 111.5 | 55.6 | 17.1 | 7.48 |
| AC 2 | 412 | 227 | 58.3 | 203 | 48.1 | 19.02 | 111.5 | 55.6 | 17.1 | 7.48 |
| AC AVG. | | | | | | | | | | |
| S.P. | -2.0 | -5.0 | | -6.4 | | | +0.4 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "C" HALF E SP. 2 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 28-32E | → | → | → | 32-36E | → | → | → | 4-5 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 100 | 30 | 30 | 300 | |
| DC 1 | 89.0 | 50.3 | 15.9 | 7.50 | 70.0 | 41.6 | 14.0 | 7.40 | 100 | |
| DC 2 | 88.0 | 49.8 | 17.2 | 7.60 | 71.6 | 43.6 | 15.8 | 7.10 | 100 | |
| DC 3 | 89.0 | 50.3 | 15.9 | 7.50 | 70.0 | 41.6 | 14.0 | 7.40 | 100 | |
| DC 4 | 88.0 | 49.8 | 17.2 | 7.60 | 71.6 | 43.6 | 15.8 | 7.10 | 100 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 85.5 | 48.3 | 15.9 | 7.17 | 67.8 | 40.8 | 14.35 | 6.90 | 99.0 | |
| AC 2 | 85.5 | 48.3 | 15.9 | 7.17 | 67.8 | 40.8 | 14.35 | 6.90 | 99.0 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -2.7 | | | | -20.7 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT C F & I Salome
LINE C HALF E SP. 2 DATE 4-26

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 12-16E | 16-20 → | | 20-24 → | | | 24-28 → | | | |
| RANGE | LO | LO | LO | HI | HI | HI | HI | HI | HI | HI |
| VOLTAGE | 480 | 500 | 470 | 260 | 500 | 470 | 280 | 260 | 500 | 460 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL |
| RECEIVE | 28-32 → | | | | 32-36 → | | | | | 4-5 |
| RANGE | HI | HI | HI | HI | HI | HI | HI | HI | | HI |
| VOLTAGE | 270 | 260 | 500 | 460 | 270 | 250 | 490 | 460 | | 280 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 |

FREQUENCIES .05 3.0
SENDER NO. 156735
OPERATOR HOX
RECEIVER NO. 364IR
OPERATOR TALWER

COMMENTS:

HEINRICHS GEOEX 8251-68 LINE C SPD 2 LOOKING N35E 4-26-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | |
| 2315 | 434 | 60 | 98 | 363 | 1260 | 735 | 193 | 118 | 514 | DC | 194 | 78 | 616 | 296 | 1315 | 660 | 558 | 305 | 985 | LEFT |
| 2310 | 435 | 63 | 99 | 342 | 1245 | 725 | 201 | 110 | 500 | | 193 | 76 | 635 | 344 | 1440 | 677 | 634 | 306 | 985 | SIDE |
| | | | | | | | | | 514 | | | | 618 | 280 | | 636 | 562 | 308 | 985 | |
| | | | | | | | | | 498 | | | | 625 | 335 | | 688 | 616 | 297 | 985 | |
| | | | | | | | | | 512 | | | | 625 | 264 | | 636 | 582 | 323 | | |
| | | | | | | | | | 502 | | | | 600 | 342 | | 676 | 622 | 294 | | |
| | | | | | | | | | 516 | | | | 646 | 256 | | 636 | 563 | 358 | | |
| | | | | | | | | | 500 | | | | 602 | 354 | | 672 | 606 | 274 | | |
| 231.2 | 434.5 | 61.50 | 98.50 | 35.25 | 12.52 | 73.00 | 19.70 | 11.40 | 5.070 | DCA | 19.35 | 7.700 | 6.226 | 3.066 | 13.77 | 6.593 | 5.944 | 3.108 | 98.50 | |
| 221.0 | 407.0 | 58.20 | 92.00 | 33.70 | 11.90 | 69.00 | 18.70 | 10.95 | 4.830 | AC1 | 18.10 | 7.350 | 5.930 | 2.950 | 12.95 | 6.250 | 5.590 | 2.950 | 95.20 | |
| 221.0 | 407.0 | 58.20 | 92.00 | 33.70 | 11.90 | 69.00 | 18.70 | 10.95 | 4.830 | AC2 | 18.10 | 7.350 | 5.930 | 2.950 | 12.95 | 6.250 | 5.590 | 2.950 | 95.20 | |
| 221.0 | 407.0 | 58.20 | 92.00 | 33.70 | 11.90 | 69.00 | 18.70 | 10.95 | 4.830 | ACA | 18.10 | 7.350 | 5.930 | 2.950 | 12.95 | 6.250 | 5.590 | 2.950 | 95.20 | |
| 281.7 | 529.3 | 299.7 | 120.0 | 171.8 | 152.6 | 88.93 | 96.00 | 138.9 | 123.5 | RHO | 94.29 | 93.81 | 151.7 | 130.7 | 167.8 | 160.6 | 253.5 | 212.0 | 1.015 | DC CAL |
| 1.1 | 3.2 | 2.1 | 3.5 | 1.1 | 1.7 | 2.3 | 1.8 | .6 | 1.5 | PFE | 3.3 | 1.3 | 1.5 | .4 | 2.8 | 2.0 | 2.8 | 1.8 | .966 | AC CAL |
| 4 | 6 | 7 | 29 | 6 | 11 | 25 | 19 | 4 | 12 | MCF | 35 | 13 | 10 | 3 | 17 | 12 | 11 | 9 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | |
| 428 | 235 | 615 | 207 | 475 | 207 | 115 | 574 | 175 | 830 | DC | 89 | 503 | 159 | 75 | 700 | 416 | 140 | 74 | 100 | RIGHT |
| 426 | 236 | 606 | 211 | 522 | 191 | 116 | 578 | 181 | 740 | | 88 | 498 | 172 | 76 | 716 | 436 | 158 | 71 | 100 | SIDE |
| | | 615 | | | | | | | | | | | | | | | | | 100 | |
| | | 616 | | | | | | | | | | | | | | | | | 100 | |
| 427.0 | 235.5 | 61.22 | 209.0 | 49.85 | 19.90 | 115.5 | 57.60 | 17.80 | 7.850 | DCA | 88.60 | 50.05 | 16.55 | 7.550 | 70.80 | 42.60 | 14.90 | 7.250 | 100.00 | |
| 412.0 | 227.0 | 58.30 | 203.0 | 48.10 | 19.02 | 111.5 | 55.60 | 17.10 | 7.480 | AC1 | 85.50 | 48.30 | 15.90 | 7.170 | 67.80 | 40.80 | 14.35 | 6.900 | 99.00 | |
| 412.0 | 227.0 | 58.30 | 203.0 | 48.10 | 19.02 | 111.5 | 55.60 | 17.10 | 7.480 | AC2 | 85.50 | 48.30 | 15.90 | 7.170 | 67.80 | 40.80 | 14.35 | 6.900 | 99.00 | |
| 412.0 | 227.0 | 58.30 | 203.0 | 48.10 | 19.02 | 111.5 | 55.60 | 17.10 | 7.480 | ACA | 85.50 | 48.30 | 15.90 | 7.170 | 67.80 | 40.80 | 14.35 | 6.900 | 99.00 | |
| 512.4 | 282.6 | 293.8 | 250.8 | 239.3 | 238.8 | 138.6 | 276.5 | 213.6 | 188.4 | RHO | 424.8 | 600.6 | 397.2 | 317.1 | 849.6 | 1022.4 | 625.8 | 487.2 | 1.000 | DC CAL |
| 2.6 | 2.7 | 4.0 | 1.9 | 2.6 | 3.6 | 2.6 | 2.6 | 3.1 | 3.9 | PFE | 2.5 | 2.6 | 3.0 | 4.2 | 3.4 | 3.4 | 2.8 | 4.0 | .990 | AC CAL |
| 5 | 10 | 13 | 8 | 11 | 15 | 18 | 9 | 14 | 21 | MCF | 6 | 4 | 8 | 13 | 4 | 3 | 4 | 8 | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I-Salome
LINE "D" HALF W SP. 3 DATE 4-30

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 34-38W | 38-42W | → | 42-46W | → | → | 46-50W | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 10 |
| DC 1 | 125 | 199.0 | 379 | 980 | 282 | ~~[illegible]~~ | 1395 | 276 | 130 | 578 |
| DC 2 | 122 | 195.5 | 341 | 995 | 314 | 995 | 1405 | 299 | 132 | 558 |
| DC 3 | 125 | 1990 | 379 | 980 | 282 | 1000 | 1395 | 276 | 130 | 590 |
| DC 4 | 122 | 1995 | 341 | 995 | 314 | 995 | 1405 | 299 | 132 | 566 |
| DC 5 | | | | | | 1000 | | | | 584 |
| DC 6 | | | | | | | | | | 538 |
| DC 7 | | | | | | | | | | 586 |
| DC 8 | | | | | | | | | | 562 |
| DC AVG. | | | 72.0 | | | | | | | |
| AC 1 | 119 | 188 | 34.4 | 95.5 | 28.6 | 9.65 | 135.5 | 27.8 | 12.7 | 5.56 |
| AC 2 | 119 | 188 | 34.4 | 95.5 | 28.6 | 9.65 | 135.5 | 27.8 | 12.7 | 5.56 |
| AC AVG. | | | 68.8 | | | | | | | |
| S.P. | −14.6 | +2.8 | | −1.5 | | | +4.0 | | | |
| AC NOISE | .06 | .06 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "D" HALF W/2 SP. 3 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | Cal | |
| RECEIVE | 50-54W | → | → | → | 54-58W | → | → | → | 1-2 | |
| RANGE | 100 | 30 | 10 | 10 | 30 | 10 | 10 | 3 | 300 | |
| DC 1 | 365 | 107 | 616 | 284 | 140 | 514 | 312 | 179 | 990 | |
| DC 2 | 381 | 101 | 536 | 280 | 160 | 490 | 296 | 160 | 990 | |
| DC 3 | 365 | 107 | 624 | 298 | 140 | 512 | 338 | 186 | 990 | |
| DC 4 | 381 | 101 | 520 | 260 | 160 | 498 | 277 | 173 | 990 | |
| DC 5 | | | 626 | 302 | | 486 | 322 | 179 | | |
| DC 6 | | | 504 | 270 | | 500 | 264 | 183 | | |
| DC 7 | | | 637 | 294 | | 496 | 358 | 164 | | |
| DC 8 | | | 516 | 266 | | 520 | 254 | 170 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 36.2 | 10.1 | 5.56 | 2.76 | 14.5 | 4.85 | 2.95 | 1.68 | 98.5 | |
| AC 2 | 36.2 | 10.1 | 5.56 | 2.76 | 14.5 | 4.85 | 2.95 | 1.69 | 98.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -13.1 | | | | +1.7 | | | | | |
| AC NOISE | .06 | | | | .07 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF & I - Salome

LINE D HALF W SP. 3 DATE 4-30.

PAGE 1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 34-38W | 38-42W | → | 42-46 | → | → | 46-50W | → | → | → |
| RANGE | LO | LO | LO | LO | LO | LO | HI | LO | LO | LO |
| VOLTAGE | 580 | 730 | 580 | 490 | 720 | 570 | 260 | 480 | 720 | 560 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | CAL. |
| RECEIVE | 50-54W | → | → | → | 54-58W | → | → | → | | 1-2 |
| RANGE | HI | LO | LO | LO | HI | LO | LO | LO | | HI |
| VOLTAGE | 260 | 480 | 710 | 560 | 260 | 470 | 710 | 560 | | 260 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 |

FREQUENCIES .05 3.0

SENDER NO. 15673 S

OPERATOR HIN

RECEIVER NO. 3641 R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "D" HALF E SP. 3 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 34-30W | 30-26W | → | 26-22W | → | → | 22-18W | → | → | → |
| RANGE | 300 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 10 |
| DC 1 | 189 | 119 | 365 | 148 | 303 | 1495 | 101 | 277 | 950 | 490 |
| DC 2 | 190 | 120 | 334 | 151 | 360 | 1650 | 102 | 254 | 860 | 576 |
| DC 3 | 189 | 119 | 365 | 148 | 303 | 1495 | 101 | 277 | 950 | 482 |
| DC 4 | 190 | 120 | 334 | 151 | 360 | 1650 | 102 | 254 | 860 | 582 |
| DC 5 | | | | | | | | | | 475 |
| DC 6 | | | | | | | | | | 590 |
| DC 7 | | | | | | | | | | 468 |
| DC 8 | | | | | | | | | | 595 |
| DC AVG. | | | 129 | | | | | | | |
| AC 1 | 180 | 113.5 | 33.4 | 139.5 | 31.5 | 14.65 | 95.0 | 24.4 | 8.45 | 4.95 |
| AC 2 | 180 | 113.5 | 33.4 | 139.5 | 31.5 | 14.65 | 95.0 | 24.4 | 8.45 | 4.95 |
| AC AVG. | | | 66.8 | | | | | | | |
| S.P. | +11.5 | −14.0 | | −0.8 | | | +4.7 | | | |
| AC NOISE | .06 | .05 | | .06 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT CF&I-Salome
LINE "D" HALF E SP. 3 DATE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 18-14u | → | → | → | 14-10W | → | → | → | 4-5 | |
| RANGE | 100 | 30 | 10 | 10 | 30 | 10 | 10 | 3 | 300 | |
| DC 1 | 285 | 114 | 426 | 290 | 113 | 548 | 258 | 200 | 990 | |
| DC 2 | 285 | 104 | 472 | 316 | 120 | 578 | 282 | 206 | 990 | |
| DC 3 | 285 | 114 | 415 | 275 | 113 | 556 | 260 | 201 | 990 | |
| DC 4 | 285 | 104 | 484 | 334 | 120 | 574 | 276 | 208 | 990 | |
| DC 5 | | | 396 | 256 | | 561 | 264 | 199 | | |
| DC 6 | | | 500 | 346 | | 570 | 272 | 201 | | |
| DC 7 | | | 382 | 242 | | 562 | 268 | 207 | | |
| DC 8 | | | 577 | 360 | | 574 | 274 | 200 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 26.4 | 10.1 | 4.17 | 2.79 | 11.0 | 5.37 | 2.56 | 1.94 | 96.0 | |
| AC 2 | 26.4 | 10.1 | 4.17 | 2.79 | 11.0 | 5.37 | 2.56 | 1.94 | 96.0 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +8.0 | | | | -22.3 | | | | | |
| AC NOISE | .06 | | | | .08 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I-Salomon
LINE D HALF E SP. 3 DATE 4-30

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 34-30W | 30-26W | → | 26-22 | → | → | 22-18 | → | → | → |
| RANGE | Hi | Hi | Hi | Lo | Hi | Hi | Lo | Lo | Hi | Hi |
| VOLTAGE | 260 | 460 | 260 | 690 | 460 | 260 | 540 | 680 | 460 | 260 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | C4C |
| RECEIVE | 18-14 | → | | → | 14-10 | → | → | → | | 4-5 |
| RANGE | Lo | Lo | Hi | Hi | Lo | Lo | Hi | Hi | | Lo |
| VOLTAGE | 540 | 680 | 460 | 260 | 540 | 680 | 460 | 260 | | 540 |
| CURRENT | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 |

FREQUENCIES .05 3.0
SENDER NO. 15673 S.
OPERATOR Hix
RECEIVER NO. 3641R
OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX B-251-68 LINE D SPD 3 LOOKING NORTH 4-30-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | | |
| 125 | 1990 | 379 | 980 | 282 | 995 | 1395 | 276 | 130 | 578 | DC | 365 | 107 | 616 | 284 | 140 | 514 | 312 | 179 | 990 | LEFT | |
| 122 | 1955 | 342 | 995 | 314 | 1000 | 1405 | 299 | 132 | 558 | | 381 | 101 | 536 | 280 | 160 | 490 | 296 | 160 | 990 | SIDE | |
| | | | | | | | | | 590 | | | | 624 | 298 | | 512 | 338 | 186 | 990 | | |
| | | | | | | | | | 566 | | | | 520 | 260 | | 498 | 277 | 173 | 990 | | |
| | | | | | | | | | 584 | | | | 626 | 302 | | 486 | 322 | 179 | | | |
| | | | | | | | | | 538 | | | | 504 | 270 | | 500 | 264 | 183 | | | |
| | | | | | | | | | 586 | | | | 637 | 294 | | 496 | 358 | 164 | | | |
| | | | | | | | | | 562 | | | | 516 | 266 | | 520 | 254 | 170 | | | |
| 123.5 | 197.2 | 36.05 | 98.75 | 29.80 | 9.975 | 140.0 | 28.75 | 13.10 | 5.703 | DCA | 37.30 | 10.40 | 5.733 | 2.827 | 15.00 | 4.999 | 3.054 | 1.742 | 99.00 | | |
| 119.0 | 188.0 | 34.40 | 95.50 | 28.60 | 9.650 | 135.5 | 27.80 | 12.70 | 5.560 | AC1 | 36.20 | 10.10 | 5.560 | 2.760 | 14.50 | 4.850 | 2.950 | 1.680 | 98.50 | | |
| 119.0 | 188.0 | 34.40 | 95.50 | 28.60 | 9.650 | 135.5 | 27.80 | 12.70 | 5.560 | AC2 | 36.20 | 10.10 | 5.560 | 2.760 | 14.50 | 4.850 | 2.950 | 1.690 | 98.50 | | |
| 119.0 | 188.0 | 34.40 | 95.50 | 28.60 | 9.650 | 135.5 | 27.80 | 12.70 | 5.560 | ACA | 36.20 | 10.10 | 5.560 | 2.760 | 14.50 | 4.850 | 2.950 | 1.685 | 98.50 | | |
| 149.7 | 239.1 | 174.8 | 119.7 | 144.5 | 120.9 | 169.7 | 139.4 | 158.8 | 138.3 | RHO | 180.8 | 126.1 | 139.0 | 119.9 | 181.8 | 121.2 | 129.6 | 118.3 | 1.010 | DC CAL | |
| 3.3 | 4.4 | 4.3 | 2.9 | 3.7 | 2.8 | 2.8 | 2.9 | 2.6 | 2.1 | PFE | 2.5 | 2.5 | 2.6 | 1.9 | 2.9 | 2.5 | 3.0 | 2.9 | .995 | AC CAL | |
| 22 | 18 | 24 | 24 | 25 | 24 | 16 | 21 | 17 | 15 | MCF | 14 | 19 | 19 | 16 | 16 | 21 | 23 | 24 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | I | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | | |
| 189 | 119 | 365 | 148 | 303 | 1495 | 101 | 277 | 950 | 490 | DC | 285 | 114 | 426 | 290 | 113 | 548 | 258 | 200 | 990 | RIGHT | |
| 190 | 120 | 334 | 151 | 360 | 1650 | 102 | 254 | 860 | 576 | | 285 | 104 | 472 | 316 | 120 | 578 | 282 | 206 | 990 | SIDE | |
| | | | | | | | | | 482 | | | | 415 | 275 | | 556 | 260 | 201 | 990 | | |
| | | | | | | | | | 582 | | | | 484 | 334 | | 574 | 276 | 208 | 990 | | |
| | | | | | | | | | 475 | | | | 396 | 256 | | 561 | 264 | 199 | | | |
| | | | | | | | | | 590 | | | | 500 | 346 | | 570 | 272 | 201 | | | |
| | | | | | | | | | 468 | | | | 382 | 242 | | 562 | 268 | 207 | | | |
| | | | | | | | | | 595 | | | | 517 | 360 | | 574 | 274 | 200 | | | |
| 189.5 | 119.5 | 34.95 | 149.5 | 33.15 | 15.72 | 101.50 | 26.55 | 9.050 | 5.308 | DCA | 28.50 | 10.90 | 4.458 | 2.991 | 11.65 | 5.660 | 2.697 | 2.031 | 99.00 | | |
| 180.0 | 113.5 | 33.40 | 139.5 | 31.50 | 14.65 | 95.00 | 24.40 | 8.450 | 4.950 | AC1 | 26.40 | 10.10 | 4.170 | 2.790 | 11.00 | 5.370 | 2.560 | 1.940 | 96.00 | | |
| 180.0 | 113.5 | 33.40 | 139.5 | 31.50 | 14.65 | 95.00 | 24.40 | 8.450 | 4.950 | AC2 | 26.40 | 10.10 | 4.170 | 2.790 | 11.00 | 5.370 | 2.560 | 1.940 | 96.00 | | |
| 180.0 | 113.5 | 33.40 | 139.5 | 31.50 | 14.65 | 95.00 | 24.40 | 8.450 | 4.950 | ACA | 26.40 | 10.10 | 4.170 | 2.790 | 11.00 | 5.370 | 2.560 | 1.940 | 96.00 | | |
| 229.7 | 144.8 | 169.5 | 181.2 | 160.7 | 190.6 | 123.0 | 128.7 | 109.7 | 128.7 | RHO | 138.2 | 132.1 | 108.1 | 126.9 | 141.2 | 137.2 | 114.4 | 137.9 | 1.010 | DC CAL | |
| 2.1 | 2.1 | 1.5 | 3.9 | 2.0 | 4.1 | 3.6 | 5.5 | 3.9 | 4.0 | PFE | 4.7 | 4.7 | 3.7 | 4.0 | 2.7 | 2.2 | 2.2 | 1.5 | .970 | AC CAL | |
| 9 | 14 | 9 | 22 | 13 | 21 | 29 | 43 | 35 | 31 | MCF | 34 | 35 | 34 | 31 | 19 | 16 | 19 | 11 | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF W½ SP. 1 DATE 8-1

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 16-20W | 20-24W | → | 24-28W | → | → | 28-32W | → | → | → |
| RANGE | 1000 | 1000 | 300 | 1000 | 300 | 100 | 1000 | 300 | 100 | 30 |
| DC 1 | 414 | 298 | 795 | 496 | 990 | 380 | 362 | 119 | 383 | 1715 |
| DC 2 | 408 | 299 | 810 | 496 | 995 | 395 | 360 | 121 | 363 | 1950 |
| DC 3 | 414 | 298 | 795 | 496 | 990 | 380 | 362 | 119 | 383 | 1715 |
| DC 4 | 408 | 299 | 810 | 496 | 995 | 395 | 360 | 121 | 363 | 1950 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 394 | 283 | 76.0 | 472 | 95.0 | 37.4 | 344 | 114 | 35.8 | 17.55 |
| AC 2 | 394 | 283 | 76.0 | 472 | 95.0 | 37.4 | 344 | 114 | 35.8 | 17.55 |
| AC AVG. | | | | | | | | | | |
| S.P. | +13.8 | +4.9 | | -10.7 | | | +4.2 | | | |
| AC NOISE | .05 | .05 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF W SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 32-36W | → | → | → | 36-40W | → | → | → | 1-2 | |
| RANGE | 300 | 100 | 30 | 30 | 100 | 100 | 30 | 10 | 300 | |
| DC 1 | 980 | 458 | 181 | 1025 | 43.8 | 241 | 1115 | 656 | 202 | |
| DC 2 | 965 | 479 | 182 | 995 | 42.4 | 258 | 1120 | 726 | 202 | |
| DC 3 | 980 | 458 | 181 | 1025 | 438 | 241 | 1115 | 641 | 202 | |
| DC 4 | 965 | 479 | 182 | 995 | 424 | 258 | 1120 | 726 | 202 | |
| DC 5 | | | | | | | | 626 | | |
| DC 6 | | | | | | | | 745 | | |
| DC 7 | | | | | | | | 624 | | |
| DC 8 | | | | | | | | 742 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 93.7 | 44.3 | 17.47 | 9.70 | 41.7 | 23.8 | 10.85 | 6.59 | 201 | |
| AC 2 | 93.7 | 44.3 | 17.47 | 9.70 | 41.7 | 23.8 | 10.85 | 6.59 | 201 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -6.1 | | | | +0.7 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 3

PROJECT CF&I-Solome

LINE E HALF W SP. 1 DATE 5-1

| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 16-20W | 20-24 | → | 24-28 | → | → | 28-32 | → | → | → |
| RANGE | LO | Hi | LO | LO | Hi | LO | LO | LO | Hi | LO |
| VOLTAGE | 850 | 180 | 850 | 570 | 180 | 850 | 900 | 570 | 180 | 850 |
| CURRENT | 3.0 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 32-36 | → | → | → | 36-40 | → | → | → | | 1-2 |
| RANGE | LO | LO | Hi | LO | LO | LO | Hi | LO | | LO |
| VOLTAGE | 900 | 560 | 180 | 840 | 900 | 560 | 180 | 840 | | 600 |
| CURRENT | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641 A

OPERATOR PALMER

COMMENTS: 1-2 LO
2-3 LO
3-4 HI
4-5 LO

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF E SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 16-12W | 12-8W | → | 8-4W | → | → | 4W-0 | → | → | → |
| RANGE | 1000 | 1000 | 300 | 1000 | 300 | 100 | 300 | 100 | 100 | 30 |
| DC 1 | 299 | 412 | 790 | 461 | 144 | 474 | 259 | 784 | 370 | 161 |
| DC 2 | 298 | 402 | 805 | 458 | 148 | 500 | 259 | 772 | 375 | 159 |
| DC 3 | 299 | 412 | 790 | 461 | 144 | 474 | 259 | 784 | 370 | 161 |
| DC 4 | 298 | 402 | 805 | 458 | 148 | 500 | 259 | 772 | 375 | 159 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 281 | 385 | 75.5 | 437 | 138 | 45.9 | 246 | 74.2 | 35.6 | 15.2 |
| AC 2 | 281 | 385 | 75.5 | 437 | 138 | 45.9 | 246 | 74.2 | 35.6 | 15.2 |
| AC AVG. | | | | | | | | | | |
| S.P. | +6.7 | +16.1 | | +6.1 | | | -2.7 | | | |
| AC NOISE | .06 | .06 | | .06 | | | .05 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF E SP. 1 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 0-4E | → | → | → | 4E-8E | → | → | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 100 | 30 | 30 | 10 | 300 | |
| DC 1 | 688 | 292 | 187 | 930 | 354 | 185 | 138 | 705 | 200 | |
| DC 2 | 676 | 317 | 184 | 865 | 343 | 204 | 124 | 703 | 200 | |
| DC 3 | 688 | 292 | 187 | 930 | 354 | 185 | 138 | 724 | 200 | |
| DC 4 | 676 | 317 | 184 | 865 | 343 | 204 | 124 | 704 | 200 | |
| DC 5 | | | | | | | | 720 | | |
| DC 6 | | | | | | | | 694 | | |
| DC 7 | | | | | | | | 722 | | |
| DC 8 | | | | | | | | 698 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 65.7 | 29.4 | 17.7 | 8.60 | 33.7 | 18.7 | 12.5 | 6.82 | 199.5 | |
| AC 2 | 65.7 | 29.4 | 17.7 | 8.65 | 33.7 | 18.9 | 12.5 | 6.82 | 199.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | -13.8 | | | | +1.0 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I Salome
LINE E HALF E SP. 1 DATE 5-1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 16-12W | 12-8W | → | 8-4W | → | → | 4W-0 | → | → | → |
| RANGE | LO | LO | LO | HI | LO | LO | LO | HI | LO | LO |
| VOLTAGE | 900 | 560 | 890 | 180 | 560 | 880 | 840 | 180 | 560 | 880 |
| 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 | | CAL |
| RECEIVE | 0-4E | → | → | → | 4E-8E | → | → | → | | 4-5 |
| RANGE | LO | HI | LO | LO | LO | HI | LO | LO | | LO |
| VOLTAGE | 840 | 180 | 560 | 880 | 840 | 180 | 560 | 880 | | 560 |
| CURRENT | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 2.0 |

FREQUENCIES .05 3.0
SENDER NO. 15673S
OPERATOR HIX
RECEIVER NO. 3641R
OPERATOR PALMER

COMMENTS: LO
LO
HI
LO

HEINRICHS GEOEX B-251-68 LINE E SPD 1 LOOKING NORTH 5-1-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | I | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 2.000 | |
| 414 | 298 | 795 | 496 | 990 | 380 | 362 | 119 | 383 | 1715 | DC | 980 | 458 | 181 | 1025 | 4398 | 241 | 1115 | 656 | 202 | LEFT |
| 408 | 299 | 810 | 496 | 995 | 395 | 360 | 121 | 363 | 1950 | | 965 | 479 | 182 | 995 | 4924 | 258 | 1120 | 726 | 202 | SIDE |
| 414 | 298 | | | 990 | 380 | 362 | 119 | 383 | 1715 | | 980 | 458 | 181 | 1025 | 438 | 241 | 1115 | 641 | 202 | |
| 408 | 299 | | | 995 | 395 | 360 | 121 | 363 | 1950 | | 965 | 479 | 182 | 995 | 424 | 258 | 1120 | 726 | 202 | |
| | | | | | | | | | | | | | | | | | | 626 | | |
| | | | | | | | | | | | | | | | | | | 745 | | |
| | | | | | | | | | | | | | | | | | | 624 | | |
| | | | | | | | | | | | | | | | | | | 742 | | |
| 411.0 | 298.5 | 80.25 | 496.0 | 99.25 | 38.75 | 361.0 | 120.0 | 37.30 | 18.32 | DCA | 97.25 | 46.85 | 18.15 | 10.100 | 25.91 | 24.95 | 11.17 | 6.839 | 202.0 | |
| 394.0 | 283.0 | 76.00 | 472.0 | 95.00 | 37.40 | 344.0 | 114.0 | 35.80 | 17.55 | AC1 | 93.70 | 44.30 | 17.47 | 9.700 | 41.70 | 23.80 | 10.85 | 6.590 | 201.0 | |
| 394.0 | 283.0 | 76.00 | 472.0 | 95.00 | 37.40 | 344.0 | 114.0 | 35.80 | 17.55 | AC2 | 93.70 | 44.30 | 17.47 | 9.700 | 41.70 | 23.80 | 10.85 | 6.590 | 201.0 | |
| 394.0 | 283.0 | 76.00 | 472.0 | 95.00 | 37.40 | 344.0 | 114.0 | 35.80 | 17.55 | ACA | 93.70 | 44.30 | 17.47 | 9.700 | 41.70 | 23.80 | 10.85 | 6.590 | 201.0 | |
| 162.8 | 118.2 | 127.1 | 196.4 | 157.2 | 153.5 | 143.0 | 190.1 | 147.7 | 145.1 | RHO | 154.1 | 185.5 | 143.8 | 140.0 | ~~102.6~~ | 197.6 | 154.9 | 151.7 | .990 | DC CAL |
| 3.8 | 5.0 | 5.1 | 4.6 | 4.0 | 3.1 | 4.4 | 4.7 | 3.7 | 3.9 | PFE | 3.3 | 5.2 | 3.4 | 3.6 | ~~-38.2~~ | 4.3 | 2.5 | 3.3 | .995 | AC CAL |
| 23 | 42 | 40 | 23 | 25 | 20 | 31 | 25 | 25 | 27 | MCF | 21 | 28 | 23 | 26 | ~~-372~~ | 22 | 16 | 21 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | I | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 2.000 | |
| 299 | 412 | 790 | 461 | 144 | 474 | 259 | 784 | 370 | 161 | DC | 688 | 292 | 187 | 930 | 354 | 185 | 138 | 705 | 200 | RIGHT |
| 298 | 402 | 805 | 458 | 148 | 500 | 259 | 772 | 375 | 159 | | 676 | 317 | 184 | 865 | 343 | 204 | 124 | 703 | 200 | SIDE |
| 299 | 412 | 790 | | | | | 784 | | | | | | | 930 | | | | 724 | 200 | |
| 298 | 402 | 805 | | | | | 772 | | | | | | | 865 | | | | 704 | 200 | |
| | | | | | | | | | | | | | | | | | | 720 | | |
| | | | | | | | | | | | | | | | | | | 694 | | |
| | | | | | | | | | | | | | | | | | | 722 | | |
| | | | | | | | | | | | | | | | | | | 698 | | |
| 298.5 | 407.0 | 79.75 | 459.5 | 146.0 | 48.70 | 259.0 | 77.80 | 37.25 | 16.00 | DCA | 68.20 | 30.45 | 18.55 | 8.975 | 34.85 | 19.45 | 13.10 | 7.098 | 200.0 | |
| 281.0 | 385.0 | 75.50 | 437.0 | 138.0 | 45.90 | 246.0 | 74.20 | 35.60 | 15.20 | AC1 | 65.70 | 29.40 | 17.70 | 8.600 | 33.70 | 18.70 | 12.50 | 6.820 | 199.5 | |
| 281.0 | 385.0 | 75.50 | 437.0 | 138.0 | 45.90 | 246.0 | 74.20 | 35.60 | 15.20 | AC2 | 65.70 | 29.40 | 17.70 | 8.650 | 33.70 | 18.70 | 12.50 | 6.820 | 199.5 | |
| 281.0 | 385.0 | 75.50 | 437.0 | 138.0 | 45.90 | 246.0 | 74.20 | 35.60 | 15.20 | ACA | 65.70 | 29.40 | 17.70 | 8.625 | 33.70 | 18.70 | 12.50 | 6.820 | 199.5 | |
| 119.4 | 162.8 | 127.6 | 183.8 | 233.6 | 194.8 | 103.6 | 124.5 | 149.0 | 128.0 | RHO | 109.1 | 121.8 | 148.4 | 125.6 | 139.4 | 155.6 | 183.4 | 159.0 | 1.000 | DC CAL |
| 6.0 | 5.4 | 5.4 | 4.9 | 5.5 | 5.8 | 5.0 | 4.6 | 4.4 | 5.0 | PFE | 3.5 | 3.3 | 4.5 | 3.8 | 3.2 | 3.8 | 4.5 | 3.8 | .997 | AC CAL |
| 50 | 33 | 42 | 27 | 24 | 30 | 48 | 37 | 29 | 39 | MCF | 32 | 27 | 31 | 30 | 23 | 24 | 25 | 24 | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF & I - Salome
LINE "E" HALF W SP. 2 DATE 5-1

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 12-8E | 8-4E | → | 4E-0 | → | → | 0-4W | → | → | → |
| RANGE | 300 | 1000 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 226 | 400 | 628 | 1565 | 701 | 177 | 1645 | 334 | 235 | 860 |
| DC 2 | 226 | 400 | 637 | 1550 | 683 | 182 | 1640 | 339 | 251 | 800 |
| DC 3 | 226 | 400 | 628 | 1565 | 701 | 177 | 1645 | 334 | 235 | 860 |
| DC 4 | 226 | 400 | 637 | 1550 | 683 | 182 | 1640 | 339 | 251 | 800 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 214.5 | 382 | 60.5 | 149.9 | 65.9 | 17.4 | 156 | 32.2 | 23.0 | 7.95 |
| AC 2 | 214.5 | 382 | 60.5 | 149.9 | 65.9 | 17.4 | 156 | 32.2 | 23.0 | 7.95 |
| AC AVG. | | | | | | | | | | |
| S.P. | +2.2 | +4.3 | | +18.0 | | | 0 | | | |
| AC NOISE | .06 | .06 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF W SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | cal | |
| RECEIVE | 4-8W | → | | → | 8-12W | | | → | 1-2 | |
| RANGE | 100 | 100 | 30 | 30 | 300 | 30 | 30 | 10 | 300 | |
| DC 1 | 732 | 257 | 224 | 850 | 23.3 | 1100 | 910 | 383 | 200 | |
| DC 2 | 725 | 254 | 222 | 855 | 23.0 | 900 | 980 | 385 | 200 | |
| DC 3 | 732 | 257 | 224 | 850 | 233 | 1100 | 910 | 400 | 200 | |
| DC 4 | 725 | 254 | 222 | 855 | 230 | 900 | 980 | 363 | 200 | |
| DC 5 | | | | | | | | 423 | | |
| DC 6 | | | | | | | | 345 | | |
| DC 7 | | | | | | | | 444 | | |
| DC 8 | | | | | | | | 328 | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 69.5 | 24.2 | 20.9 | 8.05 | 22.0 | 9.55 | 8.90 | 3.66 | 196 | |
| AC 2 | 69.5 | 24.2 | 20.9 | 8.05 | 22.0 | 9.55 | 8.90 | 3.66 | 196 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +1.0 | | | | -14.4 | | | | | |
| AC NOISE | .05 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PAGE 5

PROJECT CF&I - Salome

LINE E HALF W SP. 2 DATE 5-1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 4-5 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 |
| RECEIVE | 12-8E | 8-4E | → | 4E-0 | → | → | 0-4W | → | → | → |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| VOLTAGE | 930 | 560 | 930 | 720 | 560 | 920 | 920 | 720 | 560 | 920 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 1-2 | 2-3 | 3-4 | 4-5 | 1-2 | 2-3 | 3-4 | 4-5 | | OAC |
| RECEIVE | 4-8W | → | → | → | 8-12W | → | → | → | | 1-2 |
| RANGE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | 20 |
| VOLTAGE | 920 | 720 | 550 | 920 | 920 | 720 | 550 | 920 | | 920 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 3641R

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CFGI - Salome
LINE "E" HALF E SP. 2 DATE

PAGE

| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| RECEIVE | 12-16E | 16-20E | → | 20-24E | → | → | 24-28E | → | → | → |
| RANGE | 1000 | 300 | 100 | 300 | 100 | 30 | 300 | 100 | 30 | 30 |
| DC 1 | 399 | 230 | 645 | 228 | 474 | 213 | 167 | 562 | 187 | 106 |
| DC 2 | 399 | 230 | 618 | 228 | 472 | 209 | 167 | 559 | 176 | 104 |
| DC 3 | 399 | 230 | 645 | 228 | 474 | 213 | 167 | 562 | 187 | 106 |
| DC 4 | 399 | 230 | 618 | 228 | 472 | 209 | 167 | 559 | 176 | 104 |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 378 | 215.5 | 60.2 | 212 | 44.4 | 20.0 | 158 | 52.4 | 17.2 | 10.03 |
| AC 2 | 378 | 215.5 | 60.2 | 212 | 44.4 | 20.0 | 158 | 52.4 | 17.2 | 10.03 |
| AC AVG. | | | | | | | | | | |
| S.P. | +27.6 | -7.5 | | +0.4 | | | -15.6 | | | |
| AC NOISE | .06 | .06 | | .05 | | | .06 | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CF&I - Salome
LINE "E" HALF E SP. 2 DATE

PAGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | cal | |
| RECEIVE | 28-32E | → | | → | 32-36E | → | | → | 4-5 | |
| RANGE | 100 | 100 | 30 | 30 | 30 | 30 | 30 | 30 | 300 | |
| DC 1 | 399 | 266 | 103 | 720 | 256 | 219 | 1015 | 780 | 200 | |
| DC 2 | 380 | 225 | 102 | 730 | 256 | 216 | 995 | 790 | 200 | |
| DC 3 | 399 | 266 | 103 | 720 | 256 | 219 | 1015 | 780 | 200 | |
| DC 4 | 380 | 225 | 102 | 730 | 256 | 216 | 995 | 790 | 200 | |
| DC 5 | | | | | | | | | | |
| DC 6 | | | | | | | | | | |
| DC 7 | | | | | | | | | | |
| DC 8 | | | | | | | | | | |
| DC AVG. | | | | | | | | | | |
| AC 1 | 36.8 | 23.4 | 9.70 | 6.95 | 23.60 | 20.2 | 9.48 | 7.40 | 194.5 | |
| AC 2 | 36.8 | 23.4 | 9.70 | 6.95 | 23.60 | 20.2 | 9.48 | 7.40 | 194.5 | |
| AC AVG. | | | | | | | | | | |
| S.P. | +1.7 | | | | +11.8 | | | | | |
| AC NOISE | .06 | | | | .06 | | | | | |
| POT RES. | | | | | | | | | | |

HEINRICHS GEOEXPLORATION CO.

# I. P. SENDER NOTES

PROJECT CF&I - Salome

LINE E HALF E SP. 2 DATE 5-1

PAGE 6

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SEND | 1-2 | 2-3 | 1-2 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 |
| RECEIVE | 12-16E | 16-20E | → | 20-24E | → | → | 24-28E | → | → | → |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | LO | LO |
| VOLTAGE | 910 | 710 | 910 | 540 | 710 | 910 | 910 | 540 | 710 | 910 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| SEND | 4-5 | 3-4 | 2-3 | 1-2 | 4-5 | 3-4 | 2-3 | 1-2 | | CAL |
| RECEIVE | 28-32E | → | → | → | 32-36E | → | → | → | | 4-5 |
| RANGE | LO | LO | LO | LO | LO | LO | LO | LO | | LO |
| VOLTAGE | 910 | 540 | 710 | 910 | 900 | 540 | 710 | 900 | | 910 |
| CURRENT | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 |

FREQUENCIES .05 3.0

SENDER NO. 156735

OPERATOR HIX

RECEIVER NO. 36418

OPERATOR PALMER

COMMENTS:

HEINRICHS GEOEX B-251- LINE E SPD 2 LOOKING NORTH 5-1-68 A= 400 FEET

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 226 | 400 | 628 | 1565 | 701 | 177 | 1645 | 334 | 235 | 860 | DC | 732 | 257 | 224 | 850 | 233 | 1100 | 910 | 383 | 200 | LEFT |
| 226 | 400 | 637 | 1550 | 683 | 182 | 1640 | 339 | 251 | 800 | | 725 | 254 | 222 | 855 | 230 | 900 | 980 | 385 | 200 | SIDE |
| 226 | 400 | 628 | 1565 | 701 | 177 | 1645 | 334 | 235 | 860 | | 732 | 257 | 224 | 850 | 233 | 1100 | 910 | 400 | 200 | |
| 226 | 400 | 637 | 1550 | 683 | 182 | 1640 | 339 | 251 | 800 | | 725 | 254 | 222 | 855 | 230 | 900 | 980 | 363 | 200 | |
| | | | | | | | | | | | | | | | | | | 423 | | |
| | | | | | | | | | | | | | | | | | | 345 | | |
| | | | | | | | | | | | | | | | | | | 444 | | |
| | | | | | | | | | | | | | | | | | | 328 | | |
| 226.0 | 400.0 | 63.25 | 155.7 | 69.20 | 17.95 | 164.2 | 33.65 | 24.30 | 8.300 | DCA | 72.85 | 25.55 | 22.30 | 8.525 | 23.15 | 10.000 | 9.450 | 3.879 | 200.0 | |
| 214.5 | 382.0 | 60.50 | 149.9 | 65.90 | 17.40 | 156.0 | 32.20 | 23.00 | 7.950 | AC1 | 69.50 | 24.20 | 20.90 | 8.050 | 22.00 | 9.550 | 8.900 | 3.660 | 196.0 | |
| 214.5 | 382.0 | 60.50 | 149.9 | 65.90 | 17.40 | 156.0 | 32.20 | 23.00 | 7.950 | AC2 | 69.50 | 24.20 | 20.90 | 8.050 | 22.00 | 9.550 | 8.900 | 3.660 | 196.0 | |
| 214.5 | 382.0 | 60.50 | 149.9 | 65.90 | 17.40 | 156.0 | 32.20 | 23.00 | 7.950 | ACA | 69.50 | 24.20 | 20.90 | 8.050 | 22.00 | 9.550 | 8.900 | 3.660 | 196.0 | |
| 135.6 | 240.0 | 151.8 | 93.45 | 166.1 | 107.7 | 98.55 | 80.76 | 145.8 | 99.60 | RHO | 174.8 | 153.3 | 267.6 | 179.0 | 138.9 | 120.0 | 198.4 | 130.3 | 1.000 | DC CAL |
| 3.3 | 2.6 | 2.5 | 1.8 | 2.9 | 1.1 | 3.2 | 2.4 | 3.5 | 2.3 | PFE | 2.7 | 3.5 | 4.6 | 3.8 | 3.1 | 2.6 | 4.1 | 3.9 | .980 | AC CAL |
| 24 | 11 | 16 | 20 | 18 | 10 | 32 | 30 | 24 | 23 | MCF | 16 | 23 | 17 | 21 | 22 | 22 | 20 | 30 | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | I | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | |
| 399 | 230 | 645 | 228 | 474 | 213 | 167 | 562 | 187 | 106 | DC | 399 | 266 | 103 | 720 | 256 | 219 | 1015 | 780 | 200 | RIGHT |
| 399 | 230 | 618 | 228 | 472 | 209 | 167 | 559 | 176 | 104 | | 380 | 225 | 102 | 730 | 256 | 216 | 995 | 790 | 200 | SIDE |
| 399 | 230 | 645 | 228 | 474 | 213 | 167 | 562 | 187 | 106 | | 399 | 266 | 103 | 720 | 256 | 219 | 1015 | 780 | 200 | |
| 399 | 230 | 618 | 228 | 472 | 209 | 167 | 559 | 176 | 104 | | 380 | 225 | 102 | 730 | 256 | 216 | 995 | 790 | 200 | |
| 399.0 | 230.0 | 63.15 | 228.0 | 47.30 | 21.10 | 167.0 | 56.05 | 18.15 | 10.50 | DCA | 38.95 | 24.55 | 10.250 | 7.250 | 25.60 | 21.75 | 10.050 | 7.850 | 200.0 | |
| 378.0 | 215.5 | 60.20 | 212.0 | 44.40 | 20.00 | 158.0 | 52.40 | 17.20 | 10.03 | AC1 | 36.80 | 23.40 | 9.700 | 6.950 | 23.60 | 20.20 | 9.480 | 7.400 | 194.5 | |
| 378.0 | 215.5 | 60.20 | 212.0 | 44.40 | 20.00 | 158.0 | 52.40 | 17.20 | 10.03 | AC2 | 36.80 | 23.40 | 9.700 | 6.950 | 23.60 | 20.20 | 9.480 | 7.400 | 194.5 | |
| 378.0 | 215.5 | 60.20 | 212.0 | 44.40 | 20.00 | 158.0 | 52.40 | 17.20 | 10.03 | ACA | 36.80 | 23.40 | 9.700 | 6.950 | 23.60 | 20.20 | 9.480 | 7.400 | 194.5 | |
| 239.4 | 138.0 | 151.6 | 136.8 | 113.5 | 126.6 | 100.2 | 134.5 | 108.9 | 126.0 | RHO | 93.48 | 147.3 | 123.0 | 152.2 | 153.6 | 261.0 | 211.0 | 263.8 | 1.000 | DC CAL |
| 2.7 | 3.8 | 2.0 | 4.6 | 3.6 | 2.6 | 2.8 | 4.0 | 2.6 | 1.8 | PFE | 2.9 | 2.0 | 2.8 | 1.4 | 5.5 | 4.7 | 3.1 | 3.2 | .972 | AC CAL |
| 11 | 27 | 13 | 34 | 32 | 21 | 28 | 30 | 24 | 14 | MCF | 31 | 14 | 22 | 10 | 36 | 18 | 15 | 12 | | |

HEINRICHS GEOEX B-251-68 LINE E SPD 1 LOOKING NORTH 5-1-68

| | 40E | 36 | 32 | 28 | 24 | 20 | 16E | 12 | 8 | 4 | 24 | 20 | 16 | 12W | 8 | 4 | 0W/E | 4 | 8 | 12E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | | | | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| 1 | X | X | X | X143 | X196 | X119 118 | X163 163 | X184 | X104 | X | X99 | X93 | X239 240 | X138 136 | X137 | X100 | X | X | X | X |
| 2 | X | X | X | X154 | X190 | X157 | X128 127 | X234 | X124 | X109 | X175 | X81 | X166 | X152 152 | X114 | X135 | X93 | X | X | X |
| 3 | X | X | X | X~~103~~ 171 | X186 | X148 | X153 | X195 | X149 | X122 | X139 | X153 | X146 | X108 | X127 | X109 | X147 | X154 | X | X | X |
| 4 | X | X | X | X198 | X144 | X145 | X | X128 | X148 | X156 | X120 | X268 | X100 | X | X126 | X123 | X261 | X | X | X |
| 5 | X | X | X | X155 | X140 | X | X | X126 | X183 | X | X198 | X179 | X | X | X152 | X211 | X | X | X | X |
| 6 | X | X | X | X | X152 | X | X | X | X159 | X | X | X130 | X | X | X | X264 | X | X | X | X |

B-251- LINE E SPD 2 LOOKING NORTH 5-1-68 A= 400 FEET

SURFACE

0E/W 4 8 12E 16 20 24 28 32 36

RHO/2PI

| | 40E | 36 | 32 | 28 | 24 | 20 | 16E | 12 | 8 | 4 | 24 | 20 | 16 | 12W | 8 | 4 | 0W/E | 4 | 8 | 12E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | | | | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| 1 | X | X | X | X4.4 | X4.6 | X6.0 5.0 5.5 | X5.4 3.8 4.6 | X4.9 | X5.0 | X | X3.2 | X1.8 | X2.7 2.6 | X3.8 3.3 3.6 | X4.6 | X2.8 | X | X | X | X |
| 2 | X | X | X | X3.3 | X4.7 | X4.0 | X5.4 5.1 5.2 | X5.5 | X4.6 | X3.5 | X2.7 | X2.4 | X2.9 | X2.0 2.5 2.2 | X3.6 | X4.0 | X2.9 | X | X | X |
| 3 | X | X | X | X~~38.2~~ 2.8 | X5.2 | X3.7 | X3.1 | X5.8 | X4.4 | X3.3 | X3.2 | X3.5 | X3.5 | X1.1 | X2.6 | X2.6 | X2.0 | X5.5 | X | X |
| 4 | X | X | X | X4.3 | X3.4 | X3.9 | X | X5.0 | X4.5 | X3.8 | X2.6 | X4.6 | X2.3 | X | X1.8 | X2.8 | X4.7 | X | X | X |
| 5 | X | X | X | X2.5 | X3.6 | X | X | X3.8 | X4.5 | X | X4.1 | X3.8 | X | X | X1.4 | X3.1 | X | X | X | X |
| 6 | X | X | X | X | X3.3 | X | 0 19 19 8 12 6 7 X 0 7 23 29 26 12 13 | X | X3.8 | X | X | X3.9 | X | 0 2 6 24 29 25 11 X 0 28 20 20 4 6 18 | X | X3.2 | X | X | X | X |

PFE

B-251- LINE E SPD 2 LOOKING NORTH 5-1-68

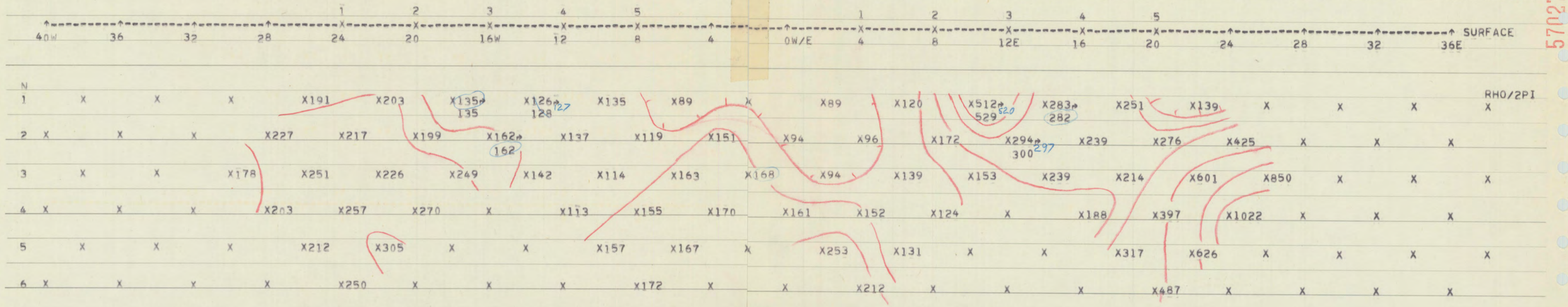
SURFACE

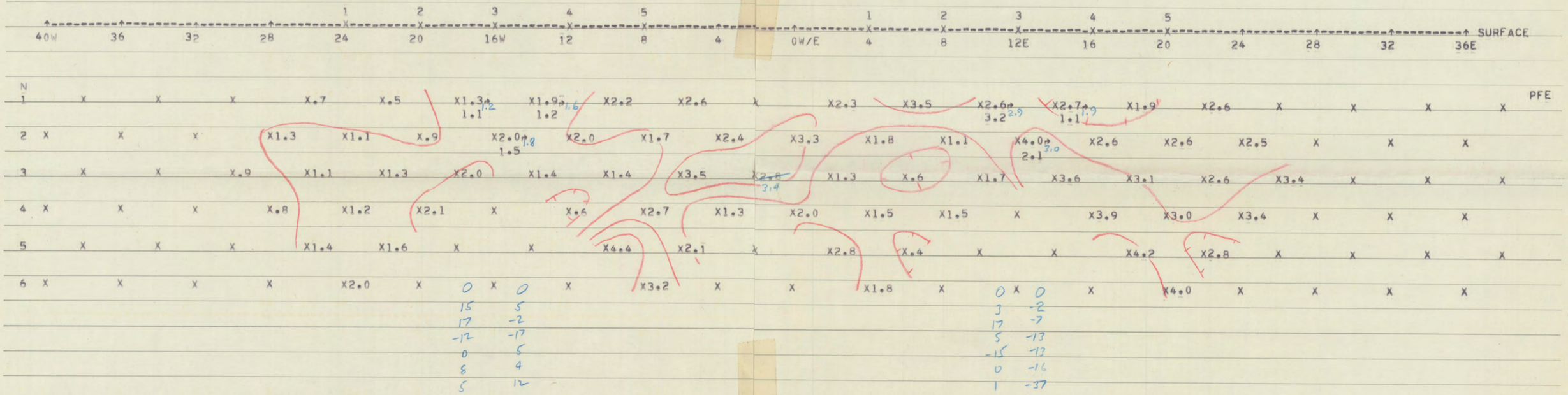
| | 40E | 36 | 32 | 28 | 24 | 20 | 16E | 12 | 8 | 4 | 24 | 20 | 16 | 12W | 8 | 4 | 0W/E | 4 | 8 | 12E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | | | | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| 1 | X | X | X | X31 | X23 | X50 42 47 | X33 23 28 | X27 | X48 | X | X32 | X20 | X11 11 | X27 24 26 | X34 | X28 | X | X | X | X |
| 2 | X | X | X | X21 | X25 | X25 | X42 40 41 | X24 | X37 | X32 | X16 | X30 | X18 | X13 16 14 | X32 | X30 | X31 | X | X | X |
| 3 | X | X | X | X~~372~~ 16 | X28 | X25 | X20 | X30 | X29 | X27 | X23 | X23 | X24 | X10 | X21 | X24 | X14 | X36 | X | X |
| 4 | X | X | X | X22 | X23 | X27 | X | X39 | X31 | X24 | X22 | X17 | X23 | X | X14 | X22 | X18 | X | X | X |
| 5 | X | X | X | X16 | X26 | X | X | X30 | X25 | X | X20 | X21 | X | X | X10 | X15 | X | X | X | X |
| 6 | X | X | X | X | X21 | X | X | X | X24 | X | X | X30 | X | X | X | X12 | X | X | X | X |

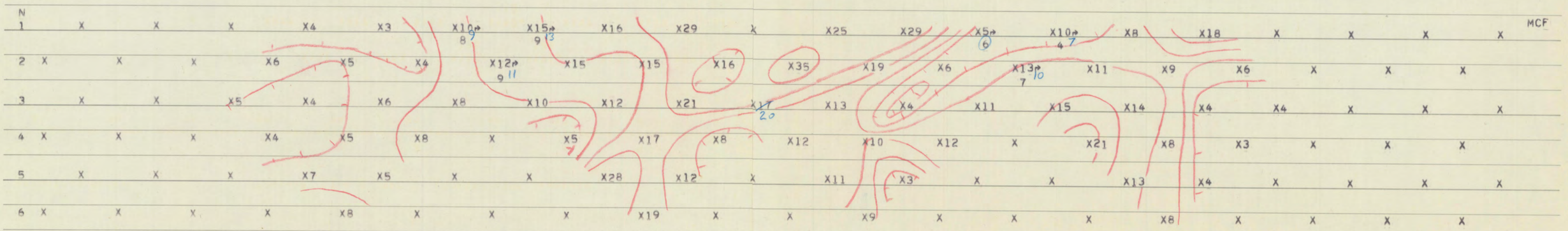
MCF

HEINRICHS GEOEX B251-68 LINE C SPD 1 LOOKING N35E 4-26-68

B251-68 LINE C SPD 2 LOOKING N35E 4-26-68 A= 400 FEET



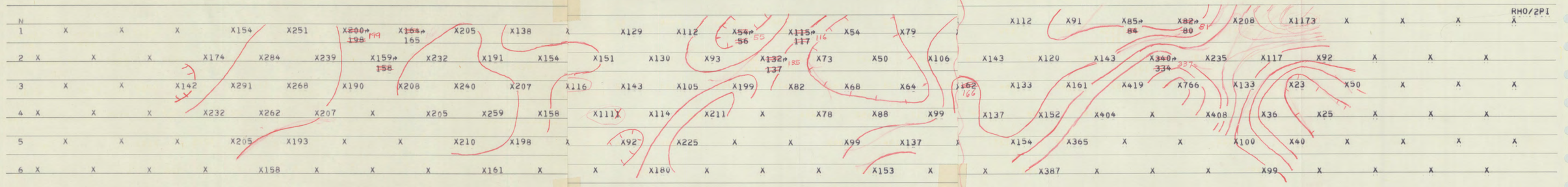



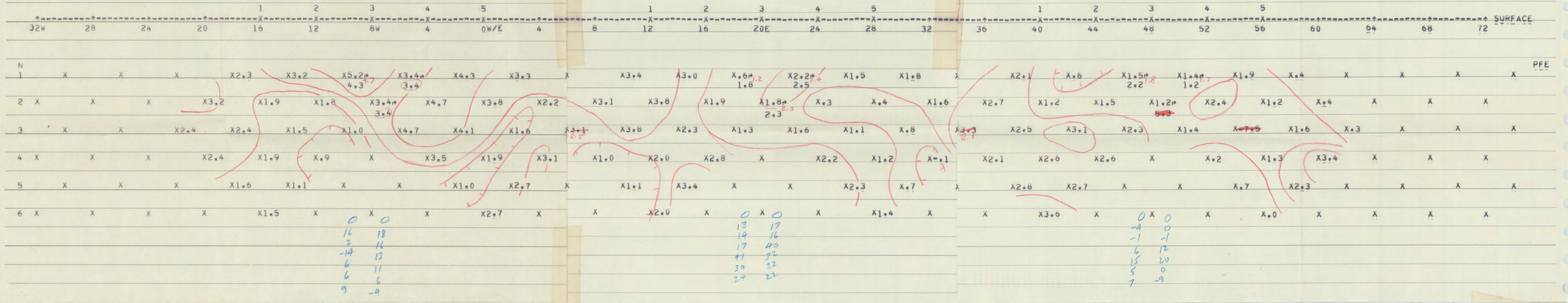



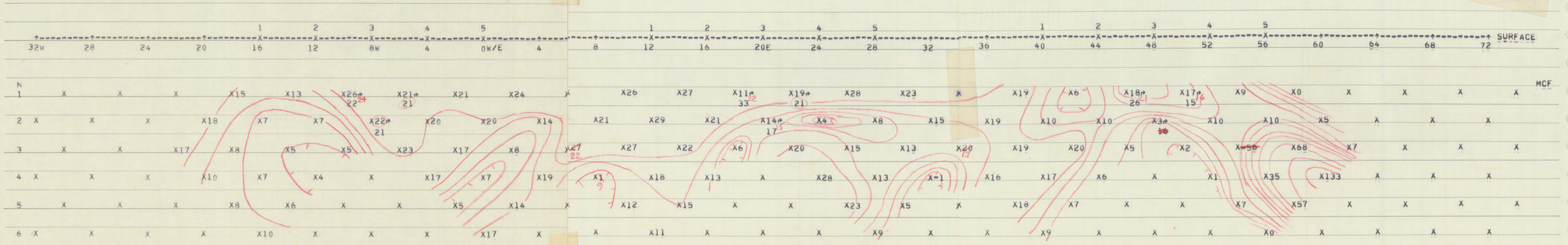
HEINRICHS GEOEX B251-68 LINE B SPD 1 LOOKING N35E 4-24-68

B251-68 LINE B SPD 2 LOOKING N35E 4-24-68

B251-68 LINE B SPD 3 LOOKING N35E 4-25-68 A= 400 FEET



HEINRICHS GEOEX B-251-68 LINE A SPD 1 LOOKING N35E 4-19-68 A= B-251-68 LINEA SPD 2 LOOKING N35E 4-18-68 A= 400 FEET

S-1 S-2

| N | 32W | 28 | 24 | 20 | 16 | 12 | 8W | 4 | 0W/E | 4 | 8 | 12 | 16 | 20E | 24 | 28 | 32 | 36 | 40 | 44E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | | | 1 | 2 | 3 | 4 | 5 | | | | |
| 1 | X | X | X | X105 | X101 | X133→ 133 | X107→ 107 | X87 | X121 | X | X316 | X615 | X358→ 342 350 | X423→ 416 420 | X996 | X2051 | X | X | X | X |
| 2 | X | X | X | X121 | X133 | X147 | X121→ 120 | X73 | X156 | X154 | X203 | X272 | X289 | X296→ 287 292 | X342 | X1248 | X1522 | X | X | X |
| 3 | X | X | X102 | X139 | X171 | X143 | X93 | X136 | X171 | X236 | X182 | X192 | X262 | X267 | X342 | X705 | X710 | X | X | X |
| 4 | X | X | X | X115 | X176 | X161 | X | X165 | X140 | X245 | X206 | X131 | X200 | X | X281 | X271 | X373 | X | X | X |
| 5 | X | X | X | X143 | X168 | X | X | X154 | X195 | X | X160 | X144 | X | X | X273 | X197 | X | X | X | X |
| 6 | X | X | X | X | X140 | X | X | X | X209 | X | X | X175 | X | X | X | X228 | X | X | X | X |

RHO/2PI

| N | 32W | 28 | 24 | 20 | 16 | 12 | 8W | 4 | 0W/E | 4 | 8 | 12 | 16 | 20E | 24 | 28 | 32 | 36 | 40 | 44E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | | | 1 | 2 | 3 | 4 | 5 | | | | |
| 1 | X | X | X | X2.4 | X2.7 | X4.3→ 5.0 4.6 | X3.7→ 4.3 4.0 | X3.7 | X4.1 | X | X6.2 | X4.0 | X4.3→ 3.7 4.0 | X2.2→ 2.9 2.6 | X3.1 | X1.6 | X | X | X | X |
| 2 | X | X | X | X2.8 | X2.8 | X3.2 | X3.2→ 4.0 3.6 | X1.4 | X4.2 | X4.1 | X5.7 | X5.2 | X4.9 | X4.1→ 4.2 | X2.7 | X3.5 | X3.7 | X | X | X |
| 3 | X | X | X1.6 | X2.7 | X2.7 | X2.3 | X1.8 | X-3.2 2.6 | X4.3 | X5.4 4.8 | X4.3 | X5.2 | X4.1 | X3.7 | X2.9 | X5.9 | X3.9 | X | X | X |
| 4 | X | X | X | X2.7 | X2.5 | X2.0 | X | X3.5 | X2.5 | X4.1 | X3.6 | X1.3 | X2.4 | X | X3.8 | X4.9 | X6.0 | X | X | X |
| 5 | X | X | X | X2.7 | X2.5 | X | X | X2.8 | X3.8 | X | X1.8 | X1.7 | X | X | X3.9 | X3.2 | X | X | X | X |
| 6 | X | X | X | X | X2.0 | X | X | X | X3.3 | X | X | X1.1 | X | X | X | X4.1 | X | X | X | X |

PFE

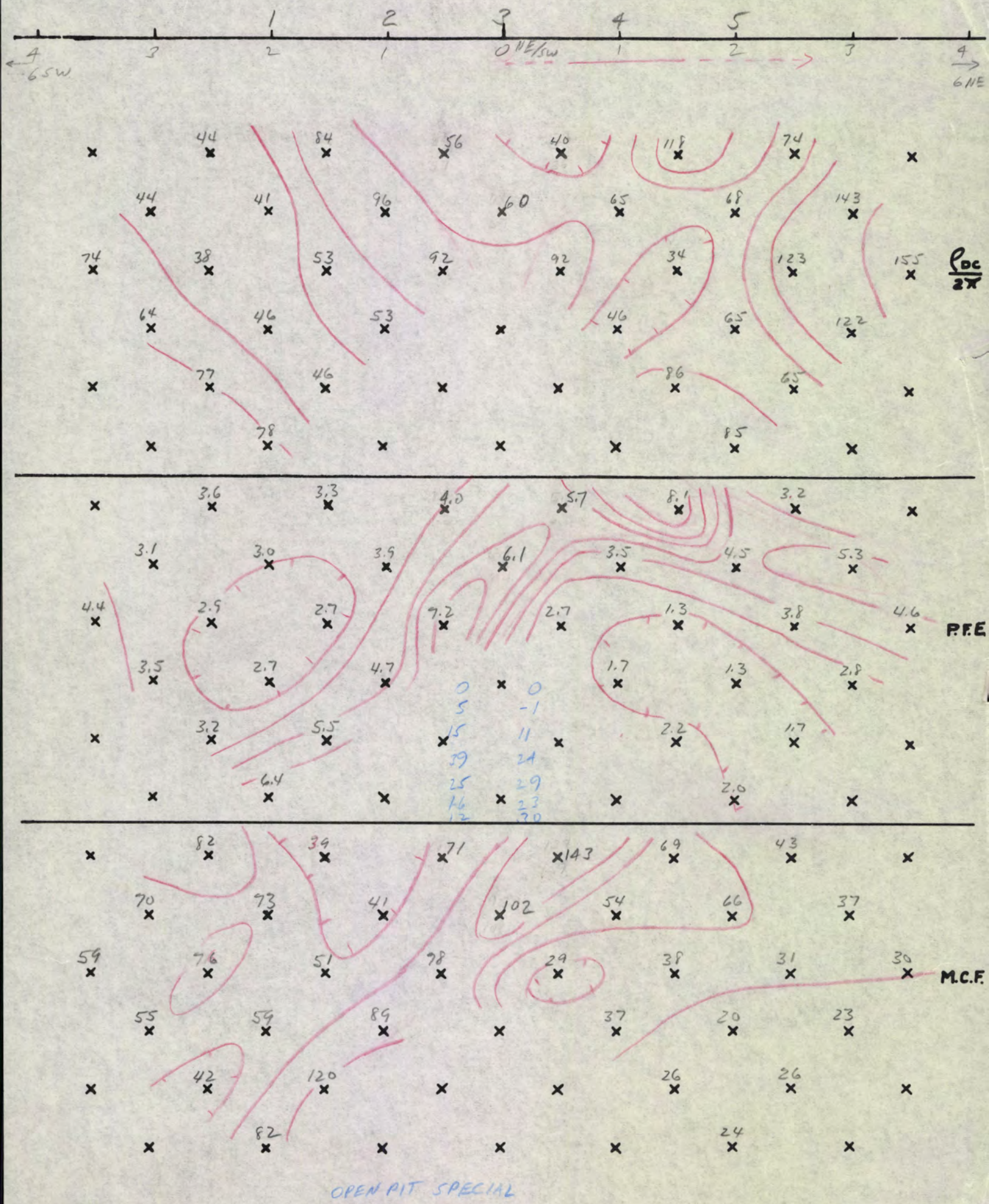
| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | | | | | | | | | 0 | 0 | | | | | | | | |
| | 2 | 21 | | | | | | | | | 9 | -2 | | | | | | | | |
| | 4 | 1 | | | | | | | | | 2 | -55 | | | | | | | | |
| | 7 | 17 | | | | | | | | | -10 | -38 | | | | | | | | |
| | 12 | 17 | | | | | | | | | 1 | -30 | | | | | | | | |
| | 17 | 35 | | | | | | | | | -4 | -18 | | | | | | | | |
| | 12 | 35 | | | | | | | | | 4 | -16 | | | | | | | | |

| N | 32W | 28 | 24 | 20 | 16 | 12 | 8W | 4 | 0W/E | 4 | 8 | 12 | 16 | 20E | 24 | 28 | 32 | 36 | 40 | 44E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | | | 1 | 2 | 3 | 4 | 5 | | | | |
| 1 | X | X | X | X23 | X26 | X32→ 38 35 | X34→ 40 37 | X43 | X34 | X | X20 | X6 | X12→ 11 | X5→ 7 6 | X3 | X1 | X | X | X | X |
| 2 | X | X | X | X23 | X21 | X22 | X27→ 34 30 | X19 | X27 | X26 | X28 | X19 | X17 | X14→ 15 | X8 | X3 | X2 | X | X | X |
| 3 | X | X | X16 | X19 | X16 | X16 | X19 | X-23 19 | X25 | X23 20 | X24 | X27 | X16 | X14 | X9 | X8 | X6 | X | X | X |
| 4 | X | X | X | X23 | X14 | X12 | X | X21 | X18 | X17 | X17 | X10 | X12 | X | X13 | X18 | X16 | X | X | X |
| 5 | X | X | X | X19 | X15 | X | X | X18 | X20 | X | X11 | X12 | X | X | X14 | X16 | X | X | X | X |
| 6 | X | X | X | X | X14 | X | X | X | X16 | X | X | X6 | X | X | X | X18 | X | X | X | X |

MCF

0867012

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N28°W




OPEN PIT SPECIAL

AREA CF&I - Salome LINE OP-SP a = 100 ' SCALE: 1" = 100' DATE: 4-20-68

HARQUAHALA AREA
YUMA CO., ARIZONA
1" = 500'  Contour Int 40'
Enlarged from USGS 7½ min prelim. topog. of 1961
2-28-68

OPEN PIT CLAIMS

CF&I Steel Corp.
PUEBLO, COLORADO
APR 8 1968
MAILED
ENGINEERING DEPARTMENT

CF&I Steel Corp.
PUEBLO, COLORADO
FEB 28 1968
MAILED
ENGINEERING DEPARTMENT

HARQUAHALA AREA
YUMA CO., ARIZONA
1" = 500' Contour Int 40'
Enlarged from USGS 7½ min prelim. topog. of 1961
2-28-68

OPEN PIT CLAIMS

HEINRICHS GEOEX B251-68 LINE BASE SPD 4 LOOKING N55W 4-23-68

B251-68 LINE BASE SPD 3 LOOKING N55W 4-23-68

B251-68 LINE BASE SPD 2 LOOKING N55W 4-22-68

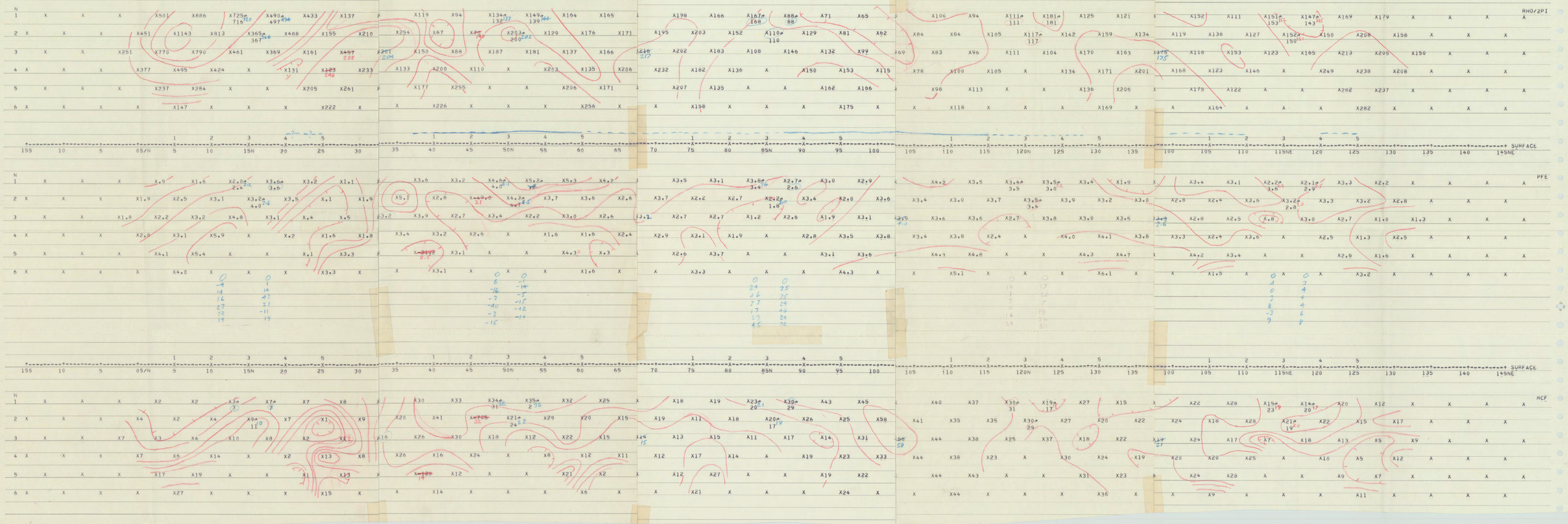
B-251-68 LINE BASE SPD 1 4-19-68 LOOKING N55W

B-251-68 LINE BASE SPD 5 LOOKING NW 5-2-68 A= 500 FEET

RHO/2PI

PFE

MCF



C.7. & I
Harquahala

# INDUCED POLARIZATION, RESISTIVITY AND SELF POTENTIAL ELECTRICAL GEOPHYSICAL SURVEY HARQUAHALA AREA, YUMA COUNTY, ARIZONA

For

C. F. & I. Steel Corporation

May 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 |
| CONCLUSIONS AND RECOMMENDATIONS | 2 |
| INTERPRETATION | 5 |
| BASIS OF THE INDUCED POLARIZATION METHOD | 1a |

IN MAP POCKET: (Total: 8 pieces)

Induced Polarization Location and Interpretation Plan

Sectional Data Sheets
- Open Pit Special (a=100')
- Baseline, Spreads 1, 2, 3, 4, & 5 (a=500')
- Line A, Spreads 1 & 2 (a=400')
- Line B, Spreads 1, 2, & 3 (a=400')
- Line C, Spreads 1 & 2 (a=400')
- Line D, Spreads 1, 2, & 3 (a=400')
- Line E, Spreads 1 & 2 (a=400')

# GENERAL LOCATION OF
## HARQUAHALA AREA
## for
## C F & I STEEL CORPORATION
## 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. James Brooks of C. F. & I. Steel Corporation, Heinrichs Geoexploration Company conducted and completed a reconnaissance combined induced polarization, resistivity and self potential survey over parts of the Harquahala Area, Yuma County, Arizona. The field work was done in the interim April 15 to May 2, 1968.

Seven lines were run composed of a total of 18 spreads. This gives a total of 64,800 feet of surface coverage of which 51,800 feet is "subsurface" plotted data. Lines A, B, C, D, and E had a 400 foot dipole spacing and were all oriented N55W-S55E off a common baseline. In addition, data were obtained along the baseline utilizing dipole spreads with a 500 foot spacing. A 100 foot dipole line (Open Pit Special) oriented N62E and centered near an exposed copper-iron sulfide showing, was also run. For details of line location relating to the claims, roads and abandoned workings, see the attached plan.

The induced polarization work was done with the dual frequency techniques utilizing sending frequencies of 0.05 and 3.0 Hz. The electrode configuration used was the collinear dipole-dipole array which on a 400 foot spacing typically gives resolvable penetration within the zone from about 120 feet to 500 or 600 feet below surface. The 500 and 100 foot spacings would, respectively, give proportionally greater or less penetration, but reduced or increased resolution.

The purpose of this survey was to outline, in a reconnaissance fashion, any possibly economically related sulfide zones. The area has numerous oxidized copper showings and some surface copper-iron sulfide exposures that may relate to a larger buried sulfide zone at depth.

The 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 (SP) in profile form. The Induced Polarization Location and Interpretation Plan shows the surface projected anomalism and areas of interest and several recommended drill holes as an overlay to a 1"=500' enlargement of a preliminary U.S.G.S. 7½ minute topographic quadrangle. For additional details as to presentation, theory and interpretation, see the Basis of the Induced Polarization Method appended to the report.

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

## CONCLUSIONS AND RECOMMENDATIONS

All the lines show anomalism, generally weak to very weak in strength, but possibly important because of the relatively weak response over known interesting sulfide mineralization.

Much of this anomalism appears to be caused by a depth limited source in that the anomalism decreases with depth in many places. It is possible that this limited depth response is caused by an obscure structural or stratigraphic interface, a minor enriched layer, or possibly by near surface weathering rendering the existing weak sulfide material more responsive to I.P.

The 100 foot dipole line run over the "X" shaped cut on Line D shows definite moderate strength sulfide response. However, the anomalism suggests that the source is about 100 feet wide, comes to within about 30 feet of the surface and doesn't go much deeper than 100 feet. There is a northeast dip indicated though, making the body deeper in that direction.

A detailed grid of I.P. in this area is recommended if it is desired to extend and delineate this body.

Line D crosses, with a 400 foot dipole, the same cut, but only shows weak response and no well defined discrete body, likely because of an adverse ratio of the relatively large geophysical electrode spacing compared to body size. Since the mineralization in the open cut is of definite interest, and the 400 foot dipole response is weak, it is believed that any anomalism as strong or stronger than that seen over the cut, even though still weak on an absolute basis, should be further investigated. Two main zones of interest which have been interpreted on this basis, are schematically outlined, with suggested drill holes on the attached illustrations. The northern and larger and slightly stronger of the two zones includes the open cut mineralization and a considerable area to the west, north, and south of the cut. The southern zone is centered roughly on the intersection of Baseline and Line A. These zones of interest do not have sharp boundaries, but rather they grade into broad-weaker fringes. These fringe areas could also be important.

Several drill holes are proposed in these areas to determine the significance of the weak I.P. response. Of highest geophysical priority are recommended sites at Stations 12W and 24W, Line D, where the strongest and best depth extent response was seen. These two holes should go to 750 feet depth to see the entire section of anomalism although sulfides (or other polarizable material) should be intersected within several hundred feet of the surface.

If this initial drilling proves interesting, additional drilling at 18W Line E and 107.5N Baseline should be considered. A drill hole in the southern zone of interest is also suggested near 52.5N Baseline.

It should be noted that most of the anomalism occurs in topographically low areas and may be related to a weathering or erosional phenomenon. Also, very little anomalism was seen in the sedimentary rock to the east of the granitic intrusive even though most of the old workings are in the sediments. This is likely due to the narrow vein-like nature of these deposits.

The self potentials show some minor correlation on the 100 foot dipole line with the induced polarization results, but not to the degree it could be used to advantage as a separate technique. The apparent resistivities show relative contrasts on either side of the sedimentary-intrusive contacts, with the sediments usually being quite resistive.

Because of the weak nature of the I.P. response on this survey, all of the anomalism may not be due to sulfides. Various iron and manganese oxides, graphite and certain clays can also cause anomalous response. If it is assumed that sulfides are the sole cause of anomalism and that the mineralization is typical of southwestern U.S.A. porphyries, then only 0.5 to 1.0% total sulfide by volume is indicated over the stronger zones in the areas of interest. The moderate anomalism over the cut suggests as much as 2% by volume over about 100 feet, however.

On the other hand, there are conditions which can limit the response of a given percentage of sulfide. Among these are conditions such as geometry, electrolyte salinity and degree of sulfide grain insulation by encasing nonconducting silicates or oxides. Therefore, the anomalism should be tested, particularly if there is any supporting geological or geochemical evidence. It is possible to have a high ratio of economic metal sulfides present (such as copper or molybdenum, etc.) versus non-economic sulfides (such as pyrite).

If after initial drilling, it is seen that the I.P. is mapping economically significant zones, then more work is recommended to better define the anomalism. This could most simply be done by lines in between the existing northwest-southeast lines, perhaps at a reduced dipole spacing if depth penetration is not a problem and more resolution desired.

It is recommended that we be kept informed on the drilling results and that representative core samples be sent to us for laboratory confirmation of the field results. To refine the interpretation, it would be helpful to compare the known geology with the geophysics since no map was available for consideration in the preparation of this report.

## INTERPRETATION

### Open Pit Special (a-100')

This line was run to gain correlation information with the known sulfide zone exposed in the open cut. A moderate anomaly was found between Stations 0.5NE and 1.5NE grading to weaker response on either side. The anomaly appears to be a narrow, possibly gently northeast dipping zone although dip is very difficult to estimate with I.P. The response is very weak from about 0 NE/SW to 2.5SW and increases southwest of 2.5SW to the end of the line.

This same zone was crossed (at a different angle) by Line D but the anomaly was integrated into a rather uniformly weak response because of the four times larger dipole spacing.

The percentage of total sulfide across the moderate strength anomalism is estimated to be from 1 to 2% by volume (2 to 4% by weight) although it may be higher if the sulfides are concentrated in a zone less than 100 feet in width.

The resistivity shows a complicated pattern, perhaps reflecting varying degrees of alteration and/or weathering. The I.P. anomaly appears to be associated with a slight resistivity high which suggests that the mineralization is not interconnected and perhaps resides in a silicified zone. There is a broad 40 millivolt self potential low correlating with the I.P. anomaly, also.

Baseline (a=500')

The Baseline shows induced polarization response over much of its length with the strongest zones between 40N and 60N and between 87.5N and 115N with weaker ill-defined fringes.

The northern-most of these stronger zones show good depth extent, in fact, there may even be a slight increase in sulfide content below about 600 feet and has therefore been recommended for drilling (107.5N). The source of this response has no well defined shape and is probably just gradationally better than the surrounding weaker anomalous areas.

The southern stronger anomaly is definitely depth limited and may bottom within 500 feet of the surface. However, the response is definitely anomalous near-surface, particularly near 52.5N and has been suggested for drilling.

Near Station 22.5N there is a suggestion of anomalism at depth that may relate to the lateral response of mineralization in the sediments to the east, or perhaps the intrusive-sediment contact which is noted in the resistivity near 30N. South of about 20N, the I.P. response attenuates to low background effects.

To the north of 115N, the response very gradually decreases to high background effects on the north end of the line.

The resistivity is fairly uniform over most of the granitic material except for a minor low near 95N. Also, near the sediment contact, the resistivity becomes more erratic. The self potentials show very little significant variation and no definite correlation with the I.P.

Line A (a=400')

Line A shows its strongest polarization effects from about 12W to 14E and like the results obtained along the Baseline in this same vicinity, a pronounced decrease in strength with depth is indicated. East of 14E, the anomalism persists somewhat weaker and apparently deeper. East of about 10E there is a surface veneer of high resistivity material, possibly the sediments, capping the anomalous source and becoming thicker to the east.

From 12W to at least the west end of the line, very weak polarization response persists still showing a decrease with depth.

The resistivities are quite uniform except to the east where the high resistivity capping occurs. Self potentials are background except for a level change near 26E likely due to a change in the sediments.

Line B (a=400')

This line shows only background to very weak I.P. effects except for a questionable weak anomaly at depth, or laterally near 50E near the sediment-intrusive contact. Where the very weak response is seen (16W to 14E) it exhibits a pronounced decrease in strength with depth.

The resistivity shows what may be the intrusive-sediment contact near 50E, at depth, coming nearer surface at about 58E.

The rest of the line is relatively uniform in resistivity except for slightly conductive zones near 20E and 28E which do not relate to significant I.P. anomalism. The self potentials show only background variations.

Line C (a=400')

Mostly background induced polarization response is seen on this line except for a zone of very weak effects from 8W to 8E showing the decrease in strength with depth like on the other lines. The area west of 8W shows perhaps the lowest intrusive polarization response noted on the survey.

The resistivity is generally higher east of about 8E and may reflect the sediments. Self potentials show only minor typical background variations over the line.

Line D (a=400')

Line D shows a relatively well defined weak anomaly from about 28W to 0 E/W. Several areas within this weak zone are somewhat stronger than usual and have been recommended for drilling; 12W and 24W. Also, this zone has better depth extent than usual.

As mentioned before, the exposed sulfides in the open cut near 4W do not give a discrete anomaly, only an integrated weak response. If the rest of this weak anomaly were surveyed with 100 foot dipole traverses, it is possible that other narrow, stronger zones would be resolved.

South of 28W, the response weakens to about 38W where it is considered only high background to the west end of the line.

Near 6E, a questionable minor anomaly is noted that may relate to a narrow zone of mineralization on or near the

sediment-intrusive contact. This contact shows as a very sharp resistivity change near 8E, east of which there is only background IP effects. There are no significant self potential variations along this line.

Line E (a=400')

Line E has weak but definite anomalous polarization from about 16W to 22W showing good depth extent and has been suggested as a secondary drill target. This anomaly fringes weaker to the west off the end of the line and to the east to Station 4E. Much of the response attenuates with depth.

From about 14E to the east, there are very weak near surface anomalous effects to the east end of the line. There is a hint of slightly stronger response on the very end of the line that requires more coverage to be able to interpret it in detail and determine its significance.

The sediments may show as a narrow near surface high resistivity zone from 8E to 12E. The self potential again shows only minor background variations.

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

May 15, 1968
Tucson, Arizona

File

HEINRICHS
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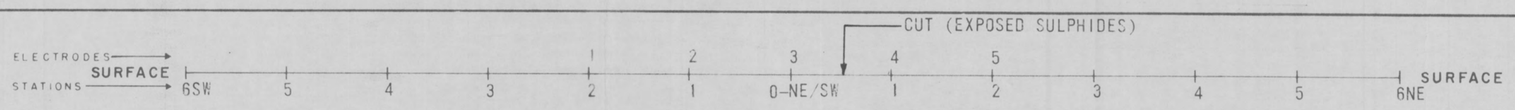
Phone: 602/623-0578 Cable: GEOEX, Tucson
vancouver sydney
geophysical engineers

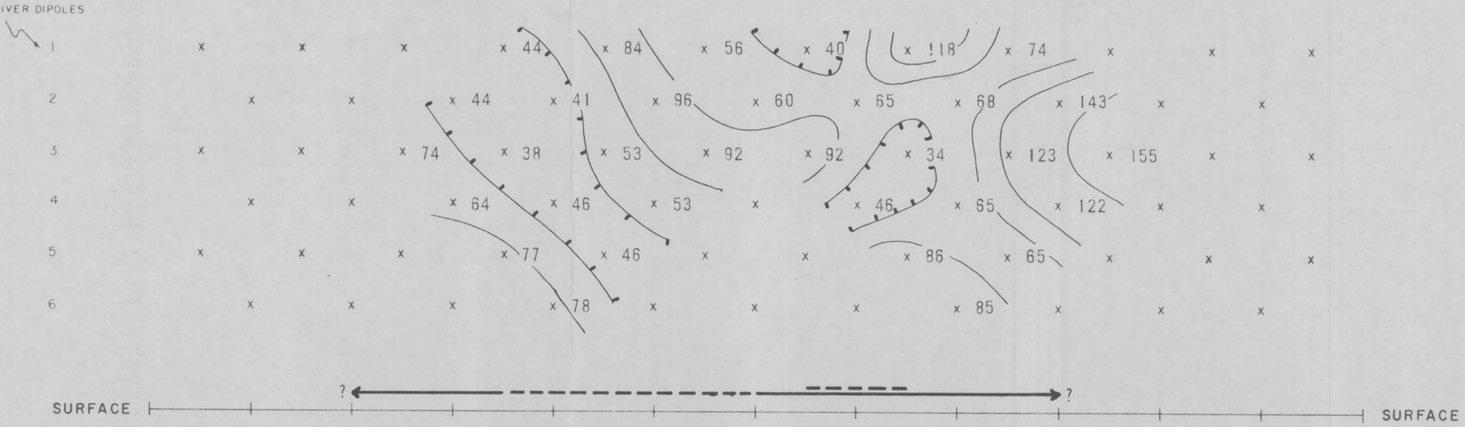
INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN
HARQUAHALA AREA
YUMA COUNTY, ARIZONA

FOR

CF&I STEEL CORPORATION

SCALE: 1" = 500' | DRAWN BY: JAY DOWNS | DATE: MAY 1968




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

CONTOUR INTERVAL LOGARITHMIC
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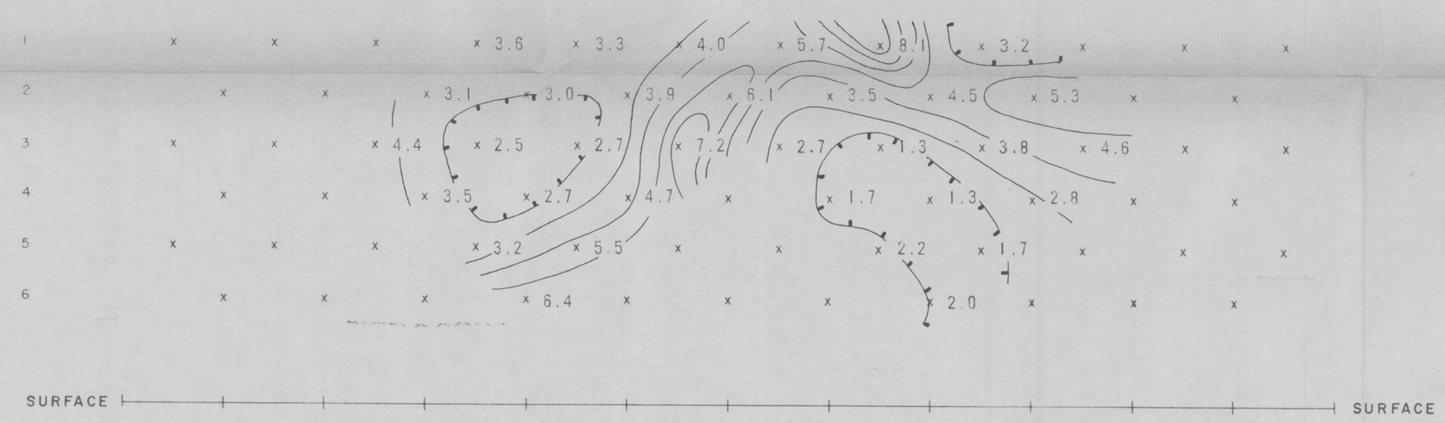


PERCENT FREQUENCY EFFECT (PFE)
CONTOUR INTERVAL CONSTANT
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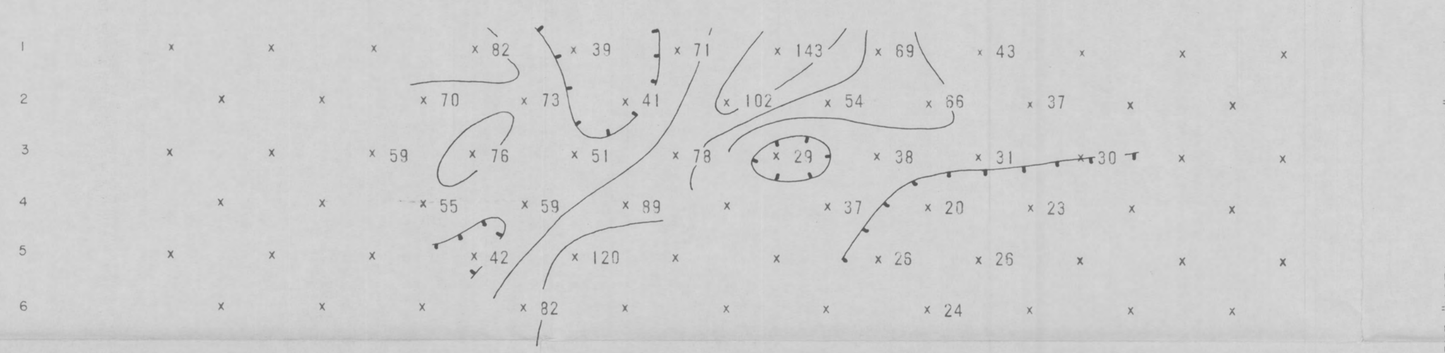
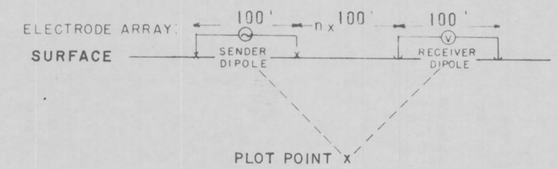
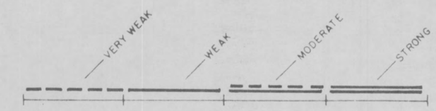



APPARENT "METALLIC CONDUCTION" FACTOR (MCF)
$\left(MCF = \frac{PFE \times 1000}{\rho_{DC}/2\pi}\right)$
CONTOUR INTERVAL LOGARITHMIC

## EXPLANATION




RELATIVE ANOMALY STRENGTH




LOOKING N 28° W

HARQUAHALA AREA

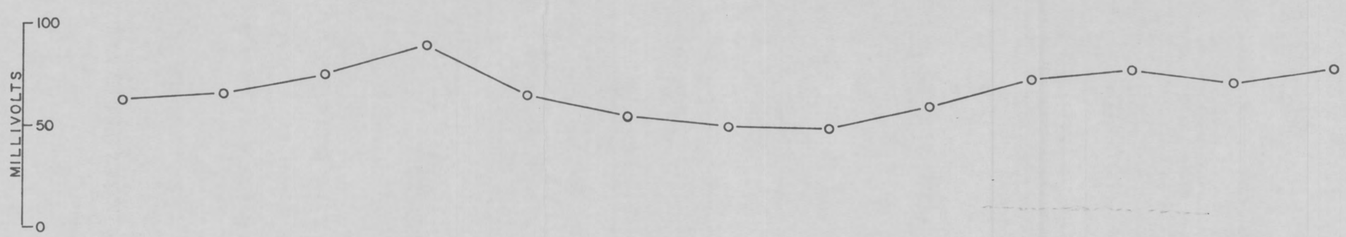
SECTIONAL DATA SHEET
LINE NO. OPEN PIT SPECIAL
INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1" = 100' DATE: APR 1968

FOR

C F & I STEEL CORPORATION

SELF POTENTIAL

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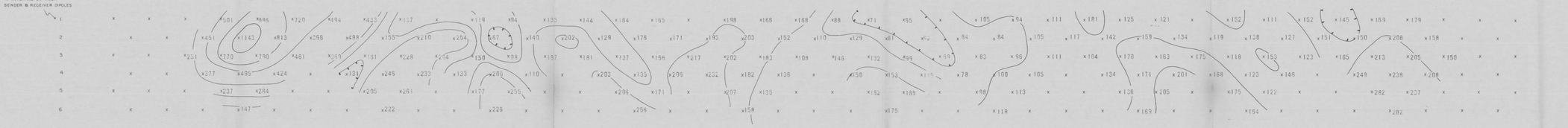
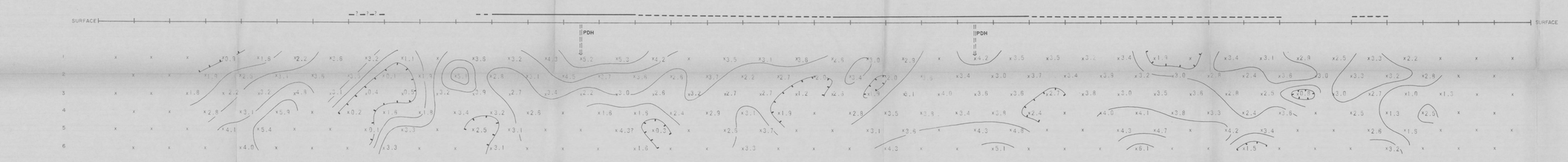
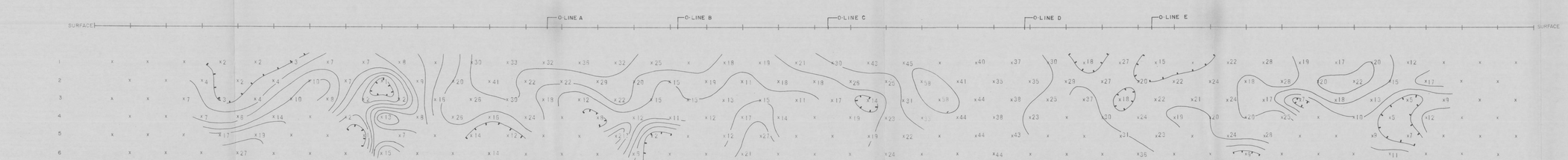
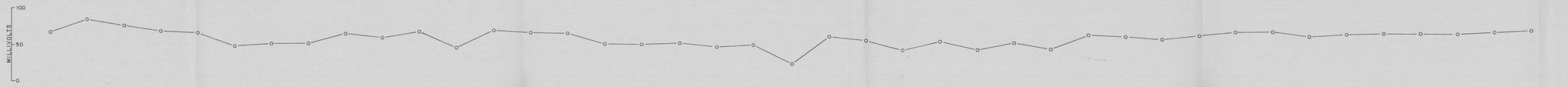
sydney



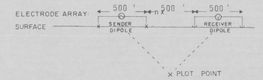



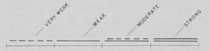




SELF POTENTIAL

## EXPLANATION




RELATIVE ANOMALY STRENGTH




LOOKING N 55° W

HARQUAHALA AREA

# SECTIONAL DATA SHEET

LINE NO. BASE LINE (SPR 1,2,3,4 & 5)

## INDUCED POLARIZATION TRAVERSE

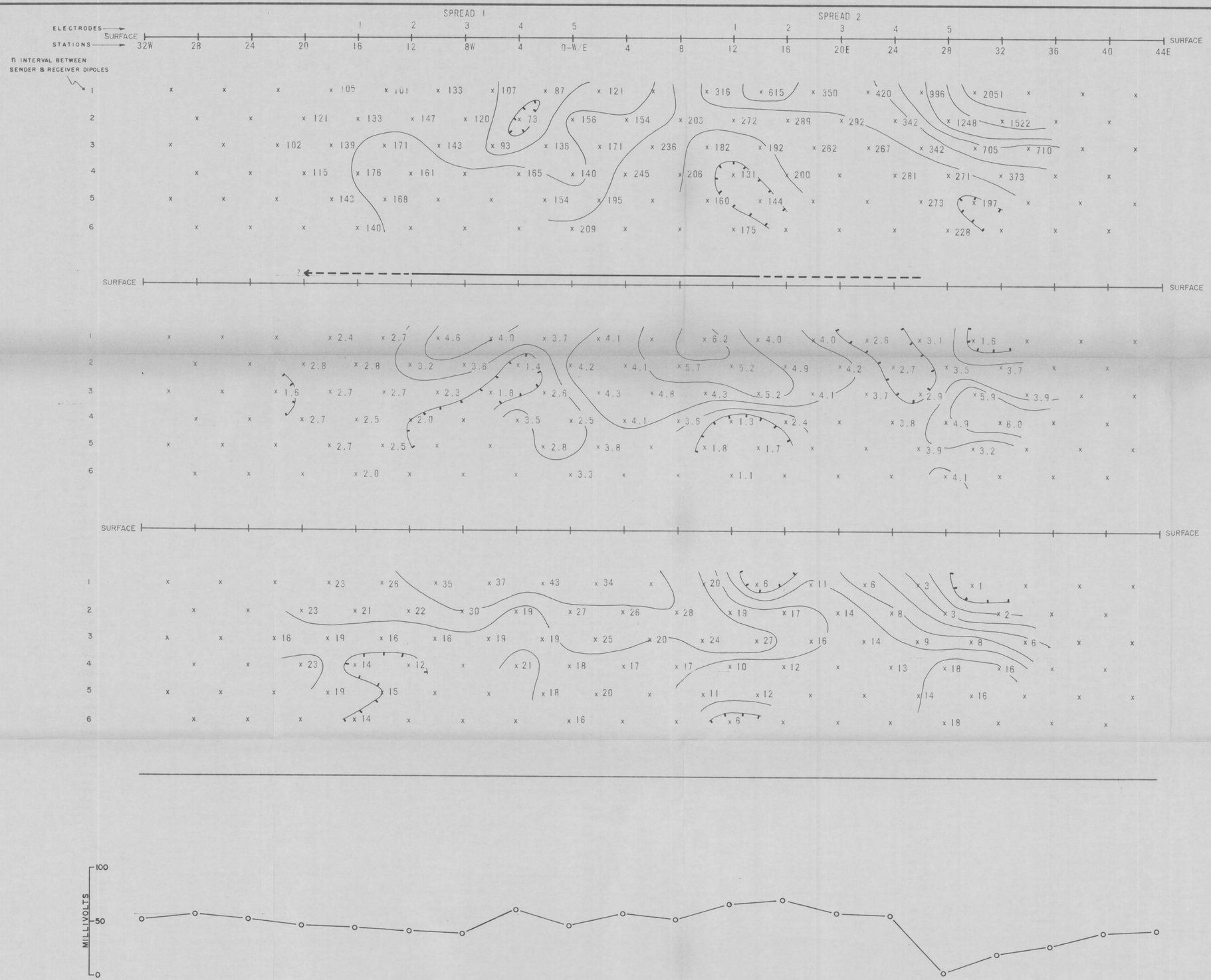
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: APR. MAY 1968

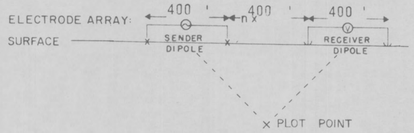
FOR

C F & I STEEL CORPORATION

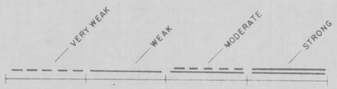

HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671 TUCSON, ARIZONA
Phone 602/112-2578 Cable: GEOEX, Tucson
GEOPHYSICAL SURVEY




## EXPLANATION




RELATIVE ANOMALY STRENGTH




LOOKING N 35° E

HARQUAHALA AREA

SECTIONAL DATA SHEET

LINE NO. A (SPREADS 1 & 2)

INDUCED POLARIZATION TRAVERSE

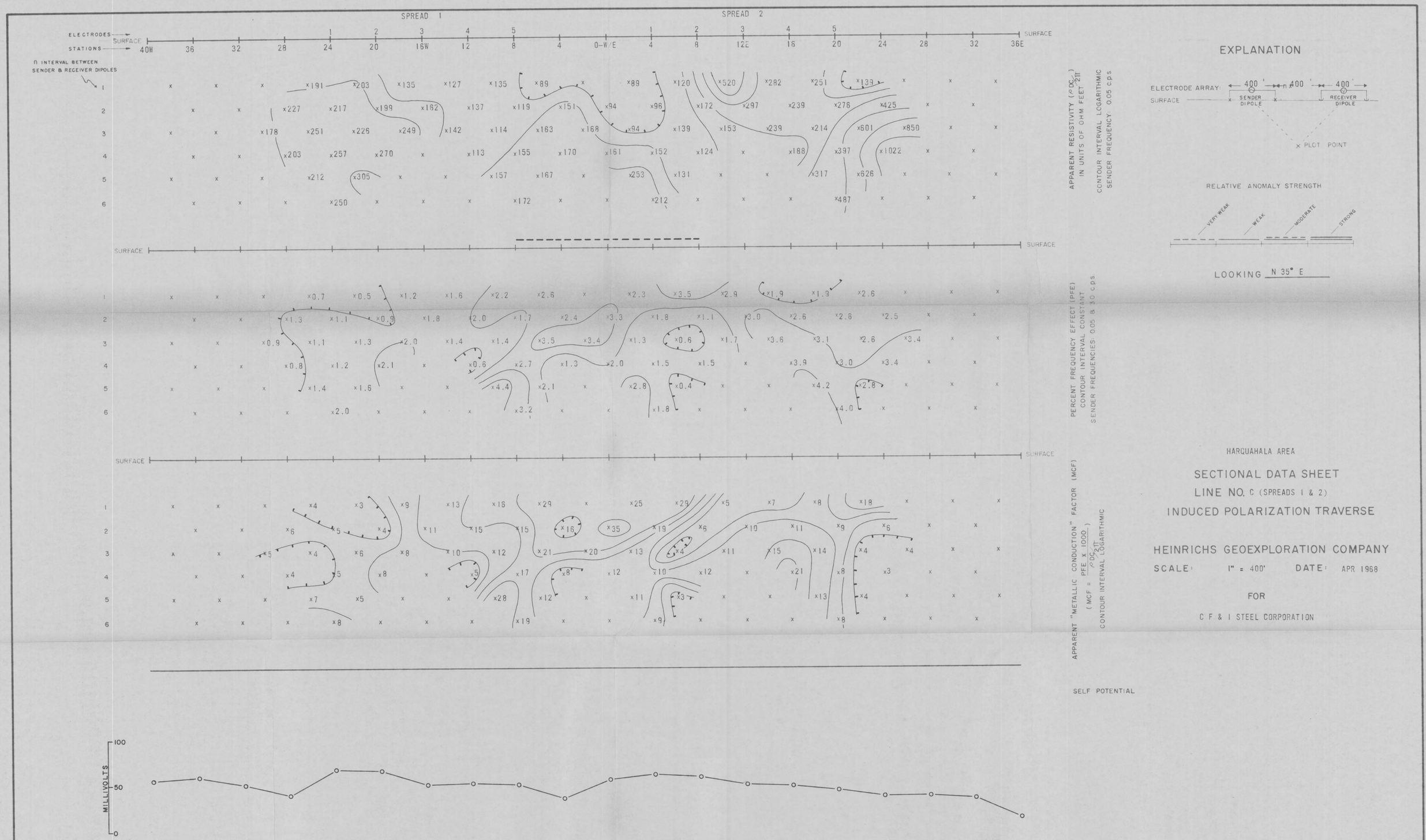
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 400' DATE: APR 1968

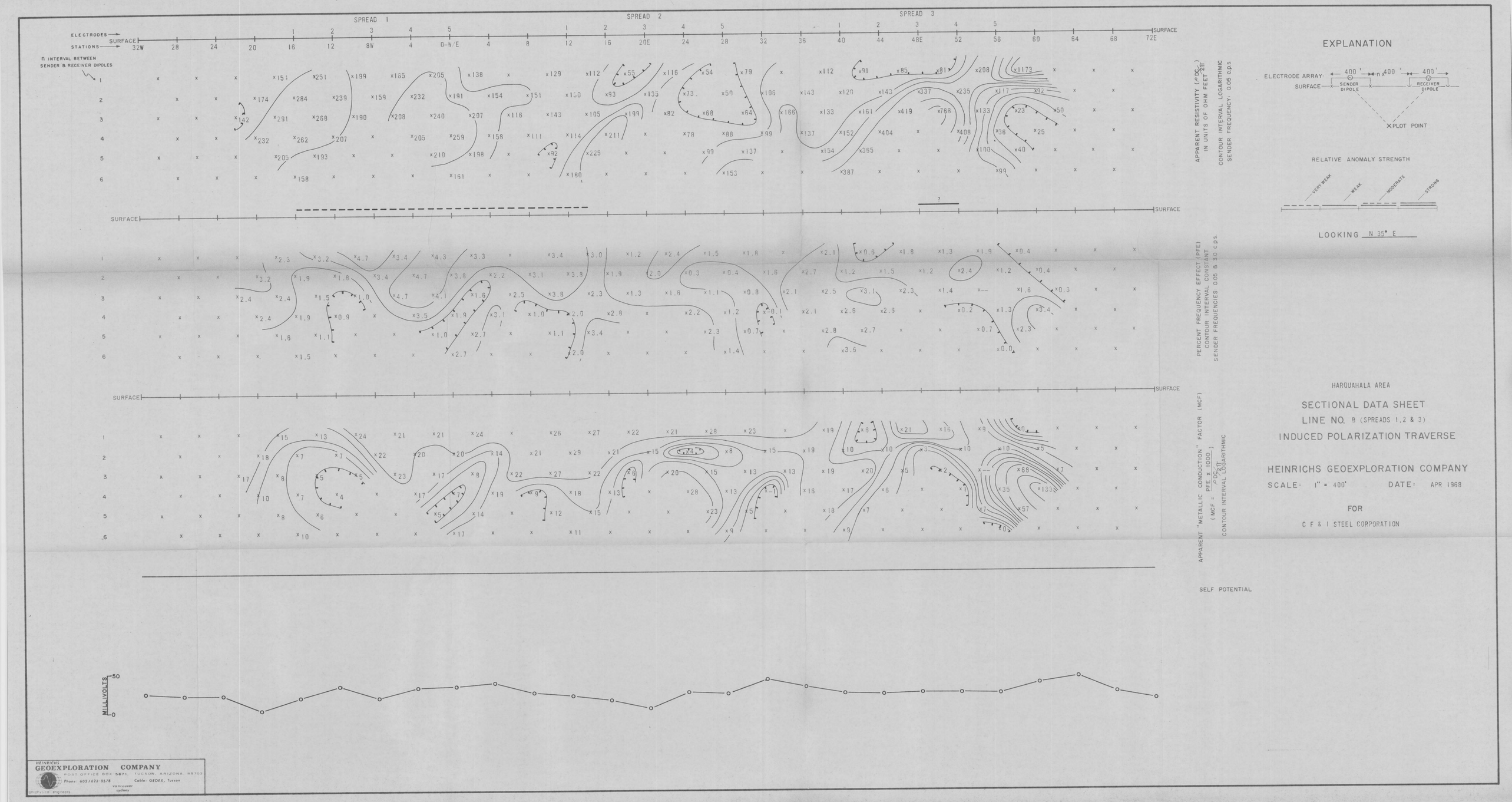
FOR

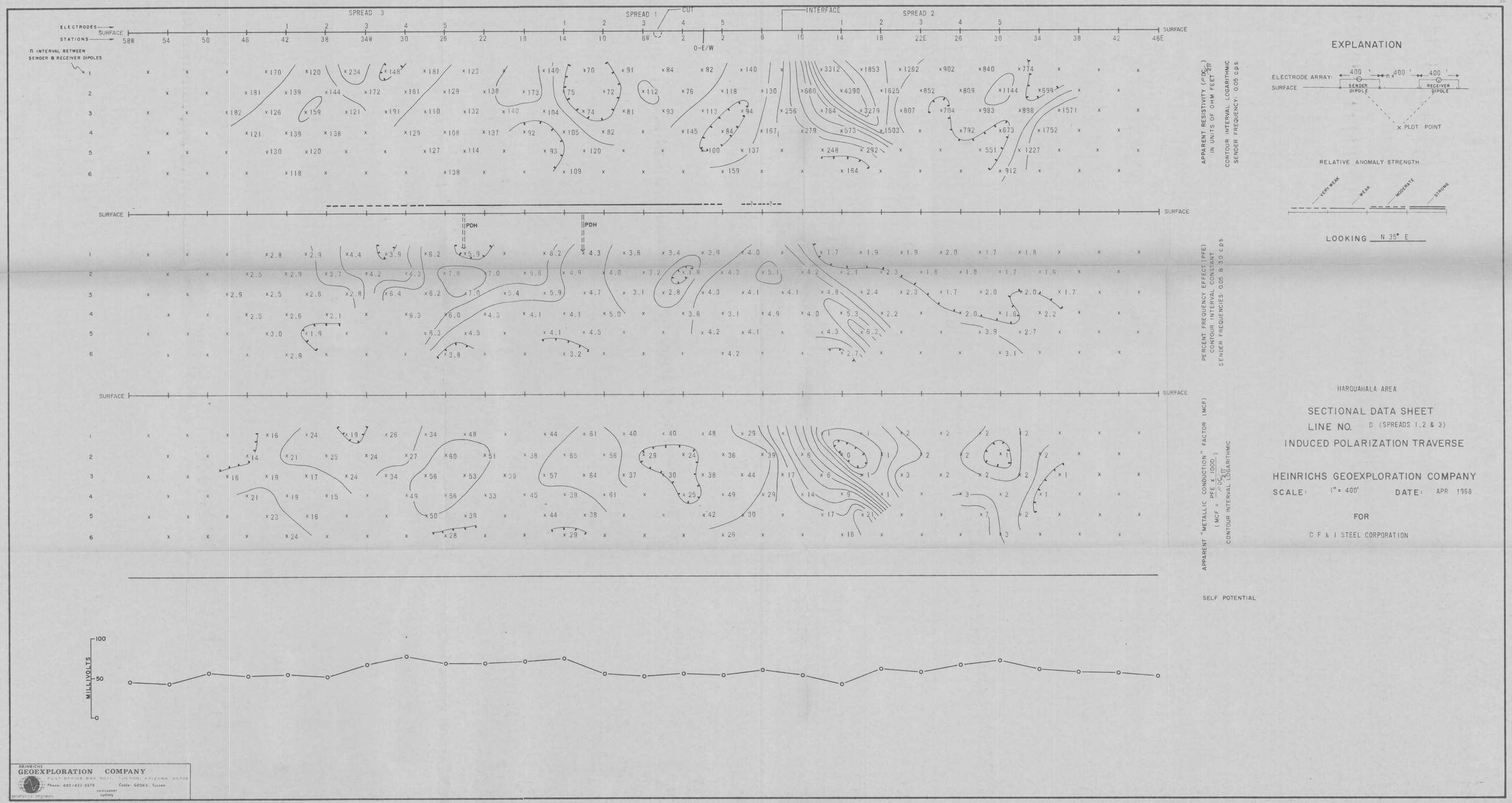
C F & I STEEL CORPORATION

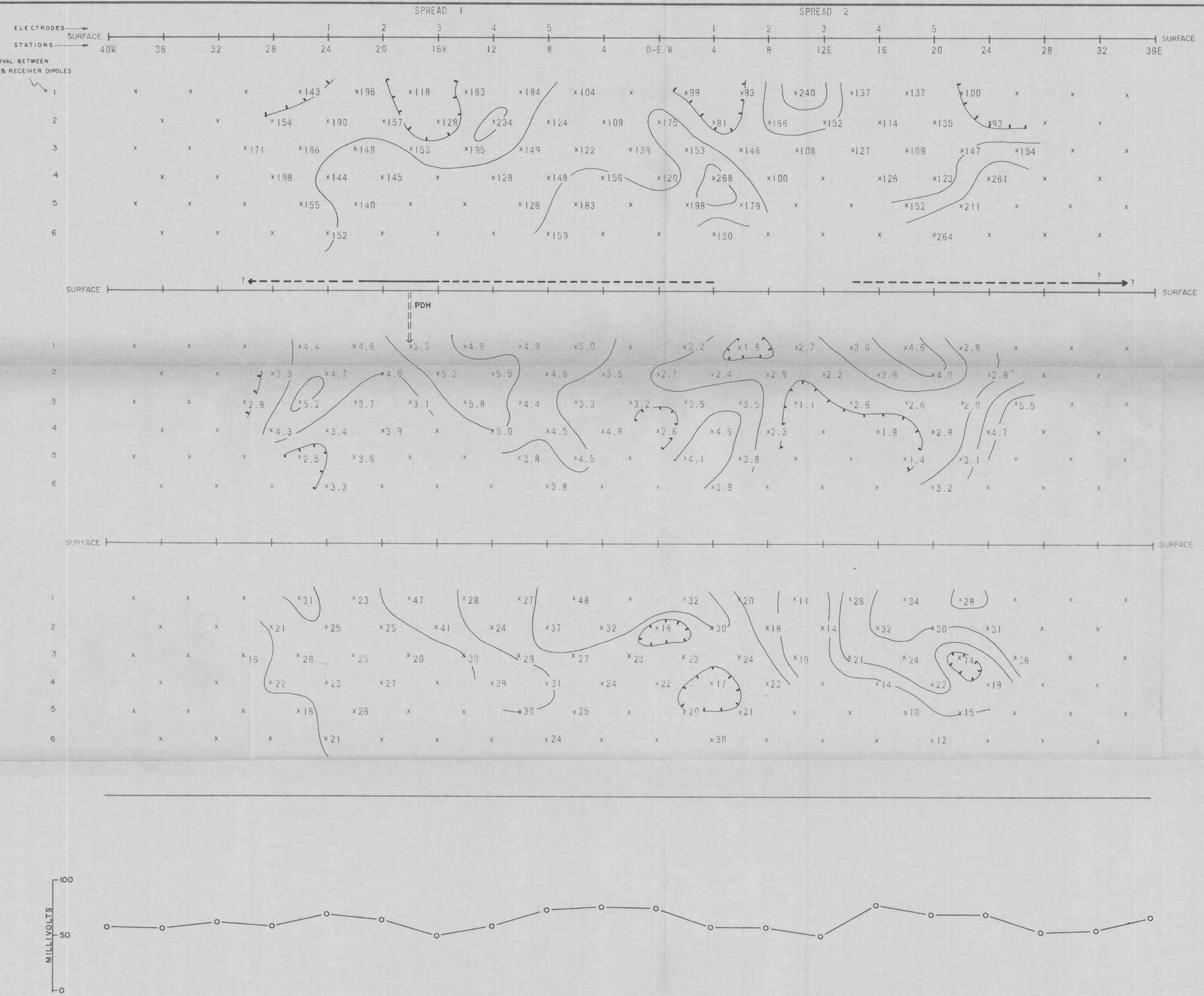
HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671, TUCSON, ARIZONA 85703
Phone: 602/623-0578 Cable: GEOEX, Tucson
geophysical engineers
vancouver
sydney



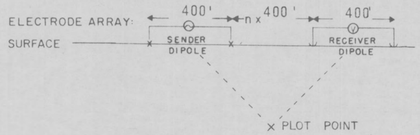

HEINRICHS GEOEXPLORATION COMPANY
POST OFFICE BOX 5617 TUCSON, ARIZONA 85703
Phone 602/623-0578 Cable GEOEX Tucson
vancouver sydney
geophysical engineers


SPREAD 1
SPREAD 2
SPREAD 3
ELECTRODES
STATIONS
SURFACE
32W 28 24 20 16 12 8W 4 0-W/E 4 8 12 16 20E 24 28 32 36 40 44 48E 52 56 60 64 68 72E
n INTERVAL BETWEEN SENDER & RECEIVER DIPOLES
APPARENT RESISTIVITY (ρDC) IN UNITS OF OHM FEET
CONTOUR INTERVAL LOGARITHMIC
SENDER FREQUENCY: 0.05 c.p.s
PERCENT FREQUENCY EFFECT (PFE)
CONTOUR INTERVAL CONSTANT
SENDER FREQUENCIES 0.05 & 3.0 c.p.s.
APPARENT "METALLIC CONDUCTION" FACTOR (MCF)
(MCF = PFE x 1000 / ρDC)
CONTOUR INTERVAL LOGARITHMIC
SELF POTENTIAL
MILLIVOLTS
50
0
EXPLANATION
ELECTRODE ARRAY:
400' n x 400' 400'
SURFACE
SENDER DIPOLE
RECEIVER DIPOLE
PLOT POINT
RELATIVE ANOMALY STRENGTH
VERY WEAK
WEAK
MODERATE
STRONG
LOOKING N 35° E
HARQUAHALA AREA
SECTIONAL DATA SHEET
LINE NO. B (SPREADS 1,2 & 3)
INDUCED POLARIZATION TRAVERSE
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1" = 400'
DATE: APR 1968
FOR
C F & I STEEL CORPORATION
HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671, TUCSON, ARIZONA 85703
Phone 602/623-0578
Cable: GEOFX, Tucson
vancouver
sydney
geophysical engineers

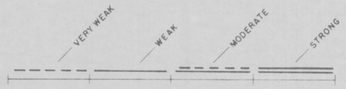

SPREAD 3
SPREAD 1
CUT
INTERFACE
SPREAD 2
ELECTRODES
STATIONS
SURFACE
58W 54 50 46 42 38 34W 30 26 22 18 14 10 6W 2 2 6 10 14 18 22E 26 30 34 38 42 46E
0-E/W
n INTERVAL BETWEEN SENDER & RECEIVER DIPOLES
APPARENT RESISTIVITY (ρDC) IN UNITS OF OHM FEET
CONTOUR INTERVAL LOGARITHMIC
SENDER FREQUENCY: 0.05 c.p.s.
PDH
PERCENT FREQUENCY EFFECT (PFE)
CONTOUR INTERVAL CONSTANT
SENDER FREQUENCIES 0.05 & 3.0 c.p.s.
APPARENT "METALLIC CONDUCTION" FACTOR (MCF)
(MCF = PFE x 1000 / ρDC)
CONTOUR INTERVAL LOGARITHMIC
SELF POTENTIAL
MILLIVOLTS
100
50
0
EXPLANATION
ELECTRODE ARRAY
400 ' n x 400 ' 400 '
SENDER DIPOLE
RECEIVER DIPOLE
PLOT POINT
RELATIVE ANOMALY STRENGTH
VERY WEAK
WEAK
MODERATE
STRONG
LOOKING N 35° E
HARQUAHALA AREA
SECTIONAL DATA SHEET
LINE NO. D (SPREADS 1, 2 & 3)
INDUCED POLARIZATION TRAVERSE
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1" = 400'
DATE: APR 1968
FOR
C F & I STEEL CORPORATION
HEINRICHS
GEOEXPLORATION COMPANY
POST OFFICE BOX 5671, TUCSON, ARIZONA 85703
Phone: 602/623 0378
Cable: GEOEX, Tucson
vancouver
sydney
geophysical engineers




## EXPLANATION




RELATIVE ANOMALY STRENGTH




LOOKING N 35 E

HARQUAHALA AREA

# SECTIONAL DATA SHEET

LINE NO. E (SPR 1 & 2)

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 400' DATE: MAY 1968

FOR

C F & I STEEL CORPORATION

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