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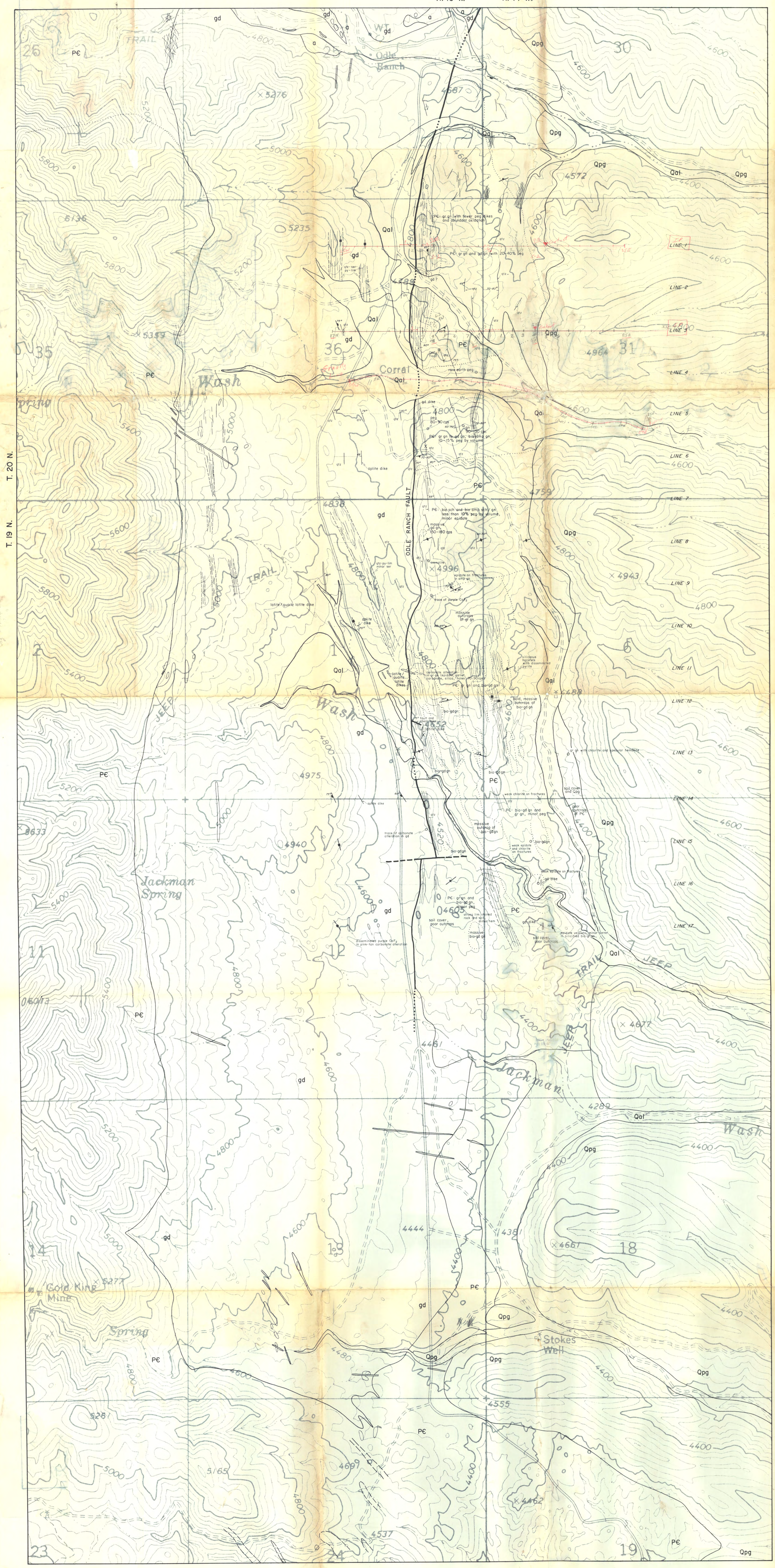

QUATERNARY	Qal	ALLUVIUM
	Qpg	PEDIMENT GRAVELS
	gd	GRANODIORITE
PRECAMBRIAN	PЄ	METAMORPHIC COMPLEX: PEGMATITE (peg), GRANITE GNEISS (gr gn), GRANODIORITE GNEISS (gd gn) BIOTITE GRANITE to GRANODIORITE GNEISS (bio-gd gn) BIOTITE to AMPHIBOLITE SCHIST (bio-amp sch)
	a	ALASKITE

CONTACT

GRADATIONAL CONTACT BETWEEN DOMINANT METAMORPHIC ROCK TYPES AND, WHERE NOTED, TOPOGRAPHIC EXPRESSION OF CHANGE IN FRACTURE DENSITY (LIMITS OF MASSIVE OUTCROPS)

FAULT

QUARTZ VEIN

FRACTURE ZONES WITH LIMONITE-HEMATITE, OXIDATION AFTER SULFIDES

BOUNDARY OF QUARTZ-SERICITE-PYRITE-LIMONITE ALTERATION IN GRANODIORITE

CARBONATE ALTERATION

STRIKE and DIP of PARALLEL JOINTING

STRIKE and DIP of FOLIATION

Z Gravity
Location Plan
Odle Ranch Area
Mohave County, Arizona
for
Kerr McGee Corporation
August-July 1977
by
Geotex Job # 1161

GEOLOGY
HUALPAI MTS. PROSPECT
E/2 SHEETS 2 and 3

MOHAVE COUNTY, ARIZONA

1" = 500'

A. MORAN — DECEMBER, 1976

CURRENT TO _____

Original + 1 copy

Report on

Job # 1181

Induced Polarization - Gravity Survey

in the

Odle Ranch Area

Mohave County, Arizona

for

Kerr-McGee Corporation

Tucson, Arizona

August 1977

by

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

GEOEX Job #1181

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Sectional Data Sheets (200' dipoles)
Line 1, Spreads 1 & 2
Line 3, Spreads 1 & 2

Induced Polarization & Gravity Location Plan

Gravity Profiles and Interpretation

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Field work took place during the interim July 21 through July 30, 1977 with Victor Sargeant as GEOEX Geophysical Crew Chief.

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CONCLUSIONS AND RECOMMENDATIONS

The IP data shows only very weak and questionable response over the Odle Ranch Fault shear zone. Somewhat more definite but still very weak response is noted near 1.5E on both IP lines, apparently correlating with minor sulfide mineralization observed in and near a series of quartz veins. In that the geochemical uranium anomalism reportedly is also somewhat stronger over the 1.5E zone compared with the Odle Ranch Fault shear zone, the 1.5E IP-geochemical anomaly is suggested as the preferred initial drill target.

Based solely on the IP results, a drill hole collared near 4E on Line 3, angled about 45° to the west is suggested in order to intersect the anomalous area at 200 to 300 feet in depth. A 500 foot minimum drilling length should be programmed. Of course, weight should be given to all pertinent geochemical and geological factors before drill site selection, particularly considering the very weak nature of the IP anomaly. This anomaly may be reflecting a zone having less than 1% by volume polarizable sulfide or even a non-sulfide polarizer such as magnetite or clay.

The gravity data shows a minor low in the vicinity of the Odle Ranch Fault and adjacent shear zone perhaps due to increased weathering. There is so little density contrast between the granodiorite and metamorphics that no really interpretable gravity response is present over the contact zone and no dip estimates can be made.

The metamorphic-pediment gravel contact did respond well to gravity, however. A shallow thickness of gravel, likely less than 300 feet even as

far east as 54E is suggested and the metamorphic-gravel contact is probably not a major basin fault scarp or pediment break. Therefore, the geochemical uranium anomaly reportedly present near the bedrock-gravel interface is a reasonable target and likely only shallow drilling will be necessary to penetrate to bedrock.

The two IP lines, however, also cross this interface and indicate a rather steep dip. This steep dip can probably be rationalized by the large gravel hill crossed directly east of the interface which increases the apparent dip and depth to any buried bedrock east of the contact. A somewhat negative factor is that no IP anomalism is present near this contact although somewhat lower metamorphic resistivities are seen adjacent to the contact that may indicate increased fracturing or alteration possibly tying with the source of the uranium anomalism.

INTERPRETATION

Induced Polarization

The main shear zone at the granodiorite-metamorphic contact does not give a very pronounced response with IP-resistivity or, for that matter, gravity. Only very weak IP response of questionable significance is seen on both lines over the shear zone. Also, the resistivity shows no definitive level change across the contact - implying both rock types are electrically similar. However, a shallow zone of lower resistivity is noted on both lines approximately correlating with the shear zone; the decreased resistivity likely being due to increased clay and water filled fractures and associated increased local weathering.

The very weak IP response correlating with the shear zone may represent minor polarizable sulfide mineralization such as pyrite or chalcopyrite. However, response this weak could also be due to magnetite or manganese oxides or conceivably even clay in the shear zone.

Another very weak but somewhat more definite appearing IP anomaly is seen near 1.5E on both lines in a zone about 300 feet wide. This anomaly has the appearance of being caused by a steeply dipping tabular zone, about 200 to 300 feet wide, buried about 100 to 150 feet below surface. It appears to correlate with a series of north trending, mineralized, narrow quartz veins. The quartz vein sulfides probably are responsible for a portion of the anomalous response, the remainder resulting from reported surrounding disseminated sulfides in the metamorphics near the veins.

The strongest IP response seen on the project is believed most likely artificially caused. It is represented by a weak but quite well defined feature on Line 1 confined mainly between stations 12W and 15W. A natural, steeply dipping tabular polarizable body, buried less than 50 feet below surface and less than 200 feet wide could also cause this response. However, a well grounded fence crossed near 14W is considered to be the more likely source - particularly considering the negative geological and geochemical indications over this feature.

The resistivity on both IP lines shows the metamorphic-pediment gravel contact as an abrupt level change with the gravels being about 1/10 as resistive as the average metamorphics. The shape of the response on Line 1 suggests a rather steep interface near 11E, probably dipping between 45° and 90°, likely but not conclusively to the east. Line 3 suggests a contact near 9E with an east dip of roughly 30° to 45°. In both cases the interpreted dip is likely steeper than the actual contact dip due to the steep west slope of the gravel hill directly east of the contact. As is typical, the IP background response decreases over the gravels toward the east, relative to the crystalline rocks lying to the west.

Both lines show a zone about half as resistive as typical for the metamorphics directly west of the gravel contact. On Line 1 this zone extends west of the contact to about 2E and on Line 3 to about 3E. This zone of lower resistivity could possibly be reflecting a reported zone of increased fracturing west of the gravel contact.

The self potential data obtained during the course of the IP survey shows only insignificant background variations typical for the terrain and rock types involved. No strong lows as often seen over strong interconnected sulfide mineralization were noted or were expected in this environment.

Gravity

The Bouguer gravity along the single gravity traverse presents a rather simple, smooth profile. The overall profile, using a 2.65 grams per cubic centimeter (g/cc) Bouguer density, suggest about a 0.7 milligal per mile regional gradient, decreasing to the east. Residual gravity from this regional appears mainly to be lows due to increased thicknesses of lower density gravels and terrain effects.

A thin wedge of alluvium thickening to the east is interpreted to start near station 29E increasing to about 50 feet total thickness near station 38E. East of 38E, the wedge is interpreted to steepen somewhat, correlating with the projected metamorphic-pediment gravel contact as mapped. East of about 40E, the gravel wedge may become less steeply dipping and a total thickness of gravel of about 300 feet is expected near 54E at the end of the line.

This interpretation assumes a gravel-bedrock density contrast of 0.65 g/cc. Lower or higher assumed contrasts would proportionately increase or decrease the wedge thickness interpretation, respectively. The interpreted gravel thickness may tend to be somewhat high due to increased terrain effects (which reduce the gravity values) east of about station 36E due to the traverse entering a rather narrow canyon that continues past the east end of the line. It is not expected that the interpreted bedrock depths would be reduced by more than 100 feet were terrain corrections made. Regardless, it appears that, at least where crossed by the gravity traverse, the metamorphic-gravel contact is not a major pediment edge or fault scarp and is well within reach of shallow drilling efforts. This shallow buried situation may well persist north to the two IP lines even though the resistivity east of the contact does not indicate bedrock at depth. The lack of bedrock resis-

tivity response east of the contact can be explained by the steep gravel hill directly east of the contact. This hill adds about 100 to 200 feet of extra gravel to the 150 to 300 feet of gravel based on the gravity interpretation yielding an overall thickness (250 to 500 feet) which is somewhat greater than the useful penetration depth of the 200 foot dipole spacing used. Of course, it is also possible but considered unlikely that this contact changes to the north and the pediment does drop off more sharply and with more throw; more data and/or drilling would be necessary to unequivocally resolve the situation.

Elsewhere on the line, a broad gravity low of 0.3 to 0.4 milligals present between stations 16E and 26E is likely largely the result of terrain effects where the traverse goes through a narrow portion of the canyon flanked by 200 foot hills. The series of quartz veins near station 24E is within this broad gravity low but there is no discrete anomalism correlating with the veins.

A 0.1 milligal low between stations 12E and 13E could be involved with the Odle Ranch Fault which projects to about station 12.5E from the map. Possibly deeper weathering due to increased fracturing could cause a minor density reduction. However, a locally thicker zone of alluvium of only 15 feet could cause this amplitude low. It is also possible that the east flank of this minor low, near station 13.5E, is actually a minor gravity level change suggesting that the unsheared metamorphics east of 13.5E are slightly more dense than the sheared metamorphics and granodiorite west of 13.5E. No interpretable dip information on the fault or shear zone can reasonably be made from the gravity due to the very minor density contrasts involved.

PROCEDURES

GEOEX Mark 7 multi-frequency IP equipment was used to obtain the IP-resistivity coverage discussed herein, utilizing transmitting frequencies of 0.3 and 3.0Hz. The standard collinear dipole-dipole electrode array was used with "spreads" of seven transmitting electrodes each and 200 foot dipole lengths.

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Respectfully submitted,

Heinrichs GEOEXploration Co., Inc.

Chris S. Ludwig
Chief Geophysicist

24 August 1977
Box 5964
Tucson, AZ 85703
Job #1181

Induced Polarization - Gravity Survey

in the

Odle Ranch Area

Mohave County, Arizona

for

Kerr-McGee Corporation

Tucson, Arizona

August 1977

by

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

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Heinrichs GEOEXploration Co., Inc.

Chris S. Ludwig
Chief Geophysicist

24 August 1977
Box 5964
Tucson, AZ 85703
Job #1181

COMMENTS ON DRILLING I.P. TARGETS

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

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

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

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

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

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

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

Induced Polarization – Gravity Survey in the Odle Ranch Area Mohave County, Arizona

for

Kerr-McGee Corporation
Tucson, Arizona

August 1977

by

GEOEX

GEOEX Job# 1181

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in the

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The purpose of the survey was to obtain geophysical information on a major north-south trending shear zone and a pediment gravel-bedrock contact, both exhibiting geochemical uranium anomalism. The IP coverage was designed to search for polarizable sulfide mineralization down to about 300 feet below surface. The gravity data and resistivity data of the IP survey were expected to give information on the gravel-bedrock interface and perhaps also on the shear zone, providing that sufficient density or conductivity contrasts do exist.

CONCLUSIONS AND RECOMMENDATIONS

The IP data shows only very weak and questionable response over the Odle Ranch Fault shear zone. Somewhat more definite but still very weak response is noted near 1.5E on both IP lines, apparently correlating with minor sulfide mineralization observed in and near a series of quartz veins. In that the geochemical uranium anomalism reportedly is also somewhat stronger over the 1.5E zone compared with the Odle Ranch Fault shear zone, the 1.5E IP-geochemical anomaly is suggested as the preferred initial drill target.

Based solely on the IP results, a drill hole collared near 4E on Line 3, angled about 45° to the west is suggested in order to intersect the anomalous area at 200 to 300 feet in depth. A 500 foot minimum drilling length should be programmed. Of course, weight should be given to all pertinent geochemical and geological factors before drill site selection, particularly considering the very weak nature of the IP anomaly. This anomaly may be reflecting a zone having less than 1% by volume polarizable sulfide or even a non-sulfide polarizer such as magnetite or clay.

The gravity data shows a minor low in the vicinity of the Odle Ranch Fault and adjacent shear zone perhaps due to increased weathering. There is so little density contrast between the granodiorite and metamorphics that no really interpretable gravity response is present over the contact zone and no dip estimates can be made.

The metamorphic-pediment gravel contact did respond well to gravity, however. A shallow thickness of gravel, likely less than 300 feet even as

far east as 54E is suggested and the metamorphic-gravel contact is probably not a major basin fault scarp or pediment break. Therefore, the geochemical uranium anomaly reportedly present near the bedrock-gravel interface is a reasonable target and likely only shallow drilling will be necessary to penetrate to bedrock.

The two IP lines, however, also cross this interface and indicate a rather steep dip. This steep dip can probably be rationalized by the large gravel hill crossed directly east of the interface which increases the apparent dip and depth to any buried bedrock east of the contact. A somewhat negative factor is that no IP anomalism is present near this contact although somewhat lower metamorphic resistivities are seen adjacent to the contact that may indicate increased fracturing or alteration possibly tying with the source of the uranium anomalism.

INTERPRETATION

Induced Polarization

The main shear zone at the granodiorite-metamorphic contact does not give a very pronounced response with IP-resistivity or, for that matter, gravity. Only very weak IP response of questionable significance is seen on both lines over the shear zone. Also, the resistivity shows no definitive level change across the contact - implying both rock types are electrically similar. However, a shallow zone of lower resistivity is noted on both lines approximately correlating with the shear zone; the decreased resistivity likely being due to increased clay and water filled fractures and associated increased local weathering.

The very weak IP response correlating with the shear zone may represent minor polarizable sulfide mineralization such as pyrite or chalcopyrite. However, response this weak could also be due to magnetite or manganese oxides or conceivably even clay in the shear zone.

Another very weak but somewhat more definite appearing IP anomaly is seen near 1.5E on both lines in a zone about 300 feet wide. This anomaly has the appearance of being caused by a steeply dipping tabular zone, about 200 to 300 feet wide, buried about 100 to 150 feet below surface. It appears to correlate with a series of north trending, mineralized, narrow quartz veins. The quartz vein sulfides probably are responsible for a portion of the anomalous response, the remainder resulting from reported surrounding disseminated sulfides in the metamorphics near the veins.

The strongest IP response seen on the project is believed most likely artificially caused. It is represented by a weak but quite well defined feature on Line 1 confined mainly between stations 12W and 15W. A natural, steeply dipping tabular polarizable body, buried less than 50 feet below surface and less than 200 feet wide could also cause this response. However, a well grounded fence crossed near 14W is considered to be the more likely source - particularly considering the negative geological and geochemical indications over this feature.

The resistivity on both IP lines shows the metamorphic-pediment gravel contact as an abrupt level change with the gravels being about 1/10 as resistive as the average metamorphics. The shape of the response on Line 1 suggests a rather steep interface near 11E, probably dipping between 45° and 90°, likely but not conclusively to the east. Line 3 suggests a contact near 9E with an east dip of roughly 30° to 45°. In both cases the interpreted dip is likely steeper than the actual contact dip due to the steep west slope of the gravel hill directly east of the contact. As is typical, the IP background response decreases over the gravels toward the east, relative to the crystalline rocks lying to the west.

Both lines show a zone about half as resistive as typical for the metamorphics directly west of the gravel contact. On Line 1 this zone extends west of the contact to about 2E and on Line 3 to about 3E. This zone of lower resistivity could possibly be reflecting a reported zone of increased fracturing west of the gravel contact.

The self potential data obtained during the course of the IP survey shows only insignificant background variations typical for the terrain and rock types involved. No strong lows as often seen over strong interconnected sulfide mineralization were noted or were expected in this environment.

Gravity

The Bouguer gravity along the single gravity traverse presents a rather simple, smooth profile. The overall profile, using a 2.65 grams per cubic centimeter (g/cc) Bouguer density, suggest about a 0.7 milligal per mile regional gradient, decreasing to the east. Residual gravity from this regional appears mainly to be lows due to increased thicknesses of lower density gravels and terrain effects.

A thin wedge of alluvium thickening to the east is interpreted to start near station 29E increasing to about 50 feet total thickness near station 38E. East of 38E, the wedge is interpreted to steepen somewhat, correlating with the projected metamorphic-pediment gravel contact as mapped. East of about 40E, the gravel wedge may become less steeply dipping and a total thickness of gravel of about 300 feet is expected near 54E at the end of the line.

This interpretation assumes a gravel-bedrock density contrast of 0.65 g/cc. Lower or higher assumed contrasts would proportionately increase or decrease the wedge thickness interpretation, respectively. The interpreted gravel thickness may tend to be somewhat high due to increased terrain effects (which reduce the gravity values) east of about station 36E due to the traverse entering a rather narrow canyon that continues past the east end of the line. It is not expected that the interpreted bedrock depths would be reduced by more than 100 feet were terrain corrections made. Regardless, it appears that, at least where crossed by the gravity traverse, the metamorphic-gravel contact is not a major pediment edge or fault scarp and is well within reach of shallow drilling efforts. This shallow buried situation may well persist north to the two IP lines even though the resistivity east of the contact does not indicate bedrock at depth. The lack of bedrock resis-

tivity response east of the contact can be explained by the steep gravel hill directly east of the contact. This hill adds about 100 to 200 feet of extra gravel to the 150 to 300 feet of gravel based on the gravity interpretation yielding an overall thickness (250 to 500 feet) which is somewhat greater than the useful penetration depth of the 200 foot dipole spacing used. Of course, it is also possible but considered unlikely that this contact changes to the north and the pediment does drop off more sharply and with more throw; more data and/or drilling would be necessary to unequivocally resolve the situation.

Elsewhere on the line, a broad gravity low of 0.3 to 0.4 milligals present between stations 16E and 26E is likely largely the result of terrain effects where the traverse goes through a narrow portion of the canyon flanked by 200 foot hills. The series of quartz veins near station 24E is within this broad gravity low but there is no discrete anomalism correlating with the veins.

A 0.1 milligal low between stations 12E and 13E could be involved with the Odle Ranch Fault which projects to about station 12.5E from the map. Possibly deeper weathering due to increased fracturing could cause a minor density reduction. However, a locally thicker zone of alluvium of only 15 feet could cause this amplitude low. It is also possible that the east flank of this minor low, near station 13.5E, is actually a minor gravity level change suggesting that the unsheared metamorphics east of 13.5E are slightly more dense than the sheared metamorphics and granodiorite west of 13.5E. No interpretable dip information on the fault or shear zone can reasonably be made from the gravity due to the very minor density contrasts involved.

PROCEDURES

GEOEX Mark 7 multi-frequency IP equipment was used to obtain the IP-resistivity coverage discussed herein, utilizing transmitting frequencies of 0.3 and 3.0Hz. The standard collinear dipole-dipole electrode array was used with "spreads" of seven transmitting electrodes each and 200 foot dipole lengths.

Two east-west IP lines, each consisting of two "spreads" linked end-on, were completed. These two lines, Line 1 and Line 3, are separated 1500 feet, with Line 1 to the north. The Kerr-McGee magnetometer-geochemical stations and grid designations were used with section line 36/31 approximately being the 0-E/W baseline.

Transmitting-receiving dipole separations range from 1 to 6 dipole lengths and typically, for 200 foot dipoles, this yields a resolvable penetration depth within the zone from about 60 feet to about 300 feet below surface.

The IP data are presented on "sectional" data sheets, one for each line, showing successively from top to bottom: the resistivity, the percent frequency effect (PFE) and the metallic conduction factor (MCF) all contoured in "sectional" form. Self potential readings are shown at the bottom of each sheet in profile form.

The gravity data was obtained with a LaCoste & Romberg "Model G" gravity meter (#219). A base station (40E) was occupied about every hour in order to make tidal and meter drift corrections.

Station elevations were obtained with a Filotecnica self leveling level and all survey loops were closed to within 0.3 feet.

The field data were corrected for latitude variation, free air elevation effect and Bouguer elevation effect at assumed densities of 2.00 and 2.65 g/cc. No terrain corrections were made.

The gravity traverse was located along or near a major easterly drainage ranging from 800 to 1700 feet south of IP Line 3. The stations are designated in hundreds of feet east of a 0-E/W origin which is located at the intersection of the main north-south access road with the corral spur road about 1000 feet SSW of 20W on Line 3.

The gravity data are presented as two profiles for the two different Bouguer densities. Only the 2.65 g/cc curve was interpreted as it showed the least overall correlation with topography. A geologic and interpretational section is presented below the profiles. This section shows major geologic features abstracted from the Kerr-McGee geology map and the geophysically interpreted bedrock depths in the alluvial and gravel covered areas on the east half of the line.

A plan map is also included showing the location of the IP and gravity traverses and pertinent geology abstracted from the Kerr-McGee geology map.

Respectfully submitted,

Heinrichs GEOEXploration Co., Inc.

Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

24 August 1977
Box 5964
Tucson, AZ 85703
Job #1181

COMMENTS ON DRILLING I.P. TARGETS

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

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

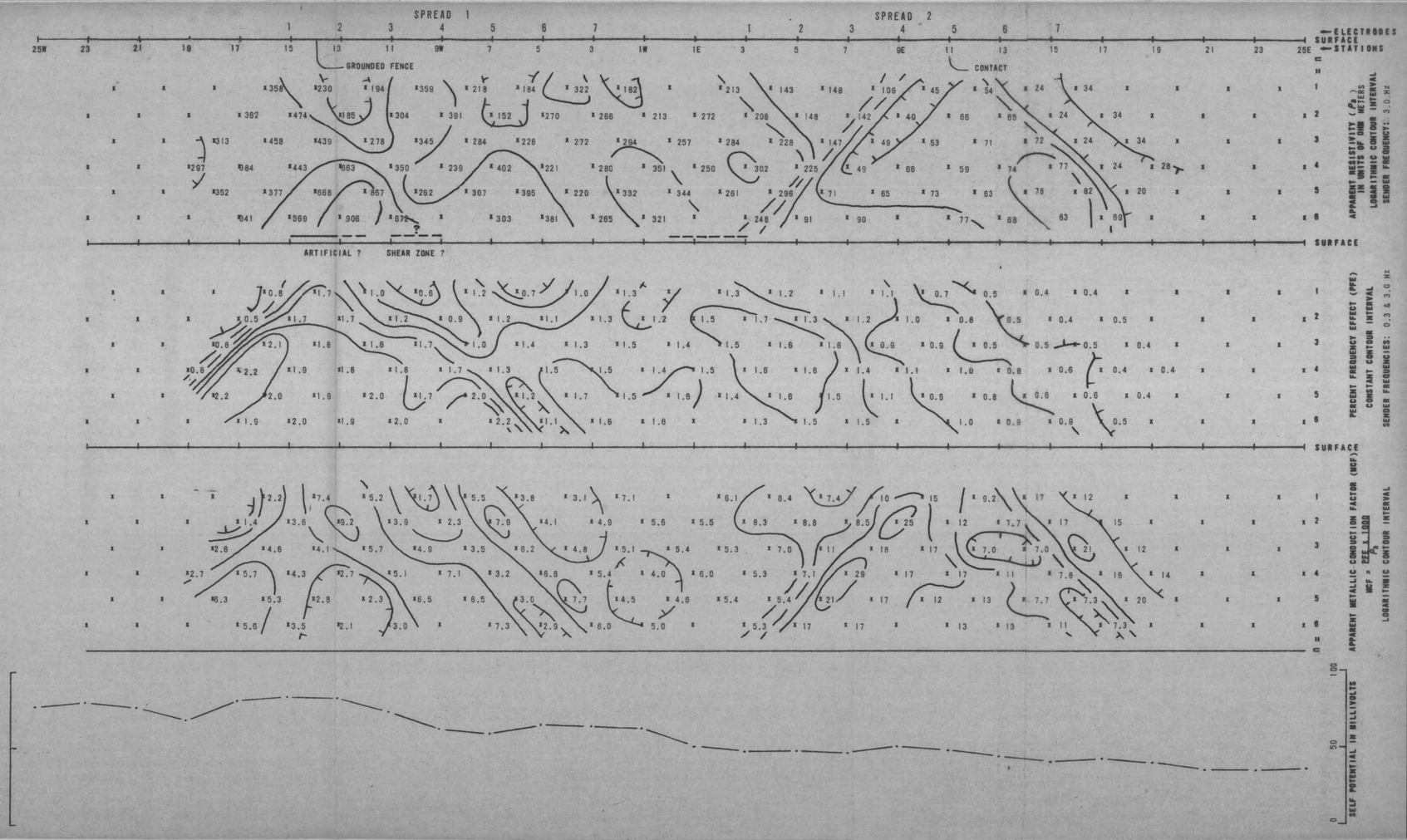
2. Location of drill holes should be made relative to the actual sending and receiving electrode positions as they exist on the ground.

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

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

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

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



1181-77

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

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET

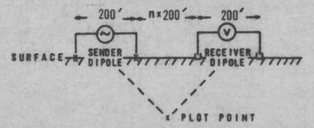
of

ODLE RANCH AREA
MOHAVE COUNTY, ARIZONA
for
Kerr-McGee Corporation

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

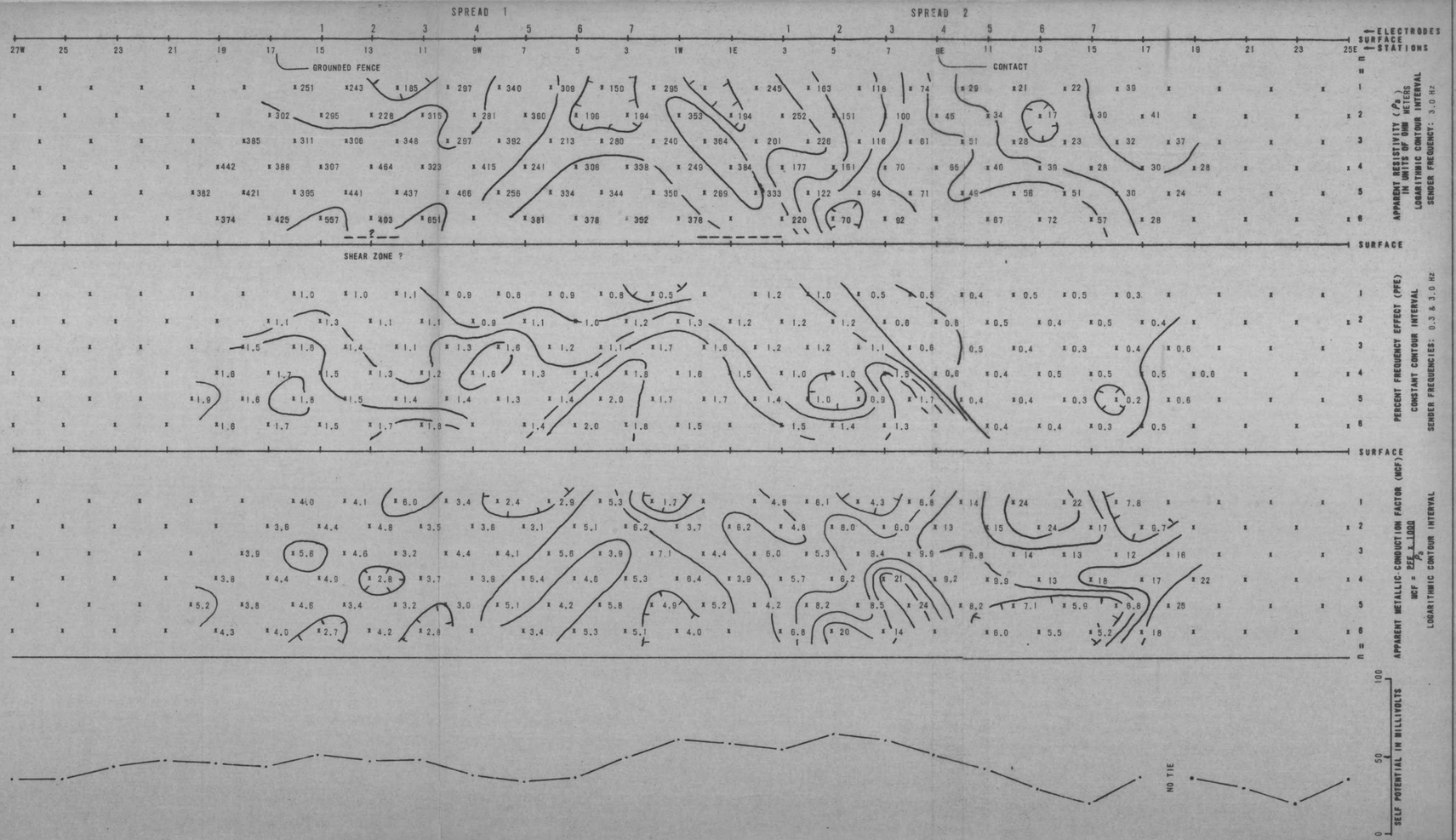
DIPOLE-DIPOLE ELECTRODE ARRAY



DATE

JULY 1977

HEINRICHS GEOEXPLORATION COMPANY
808 W. GRANT ROAD, POST OFFICE BOX 5964, TUCSON, ARIZ., 85703, PHONE: (602)623-0578



1181

LINE NO.
3
SPREAD(S)
1 & 2
BEARING
E—W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET

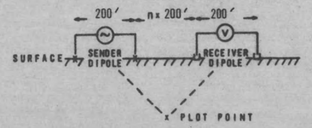
of

ODLE RANCH AREA
MOHAVE COUNTY, ARIZONA
for
Kerr-McGee Corporation

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



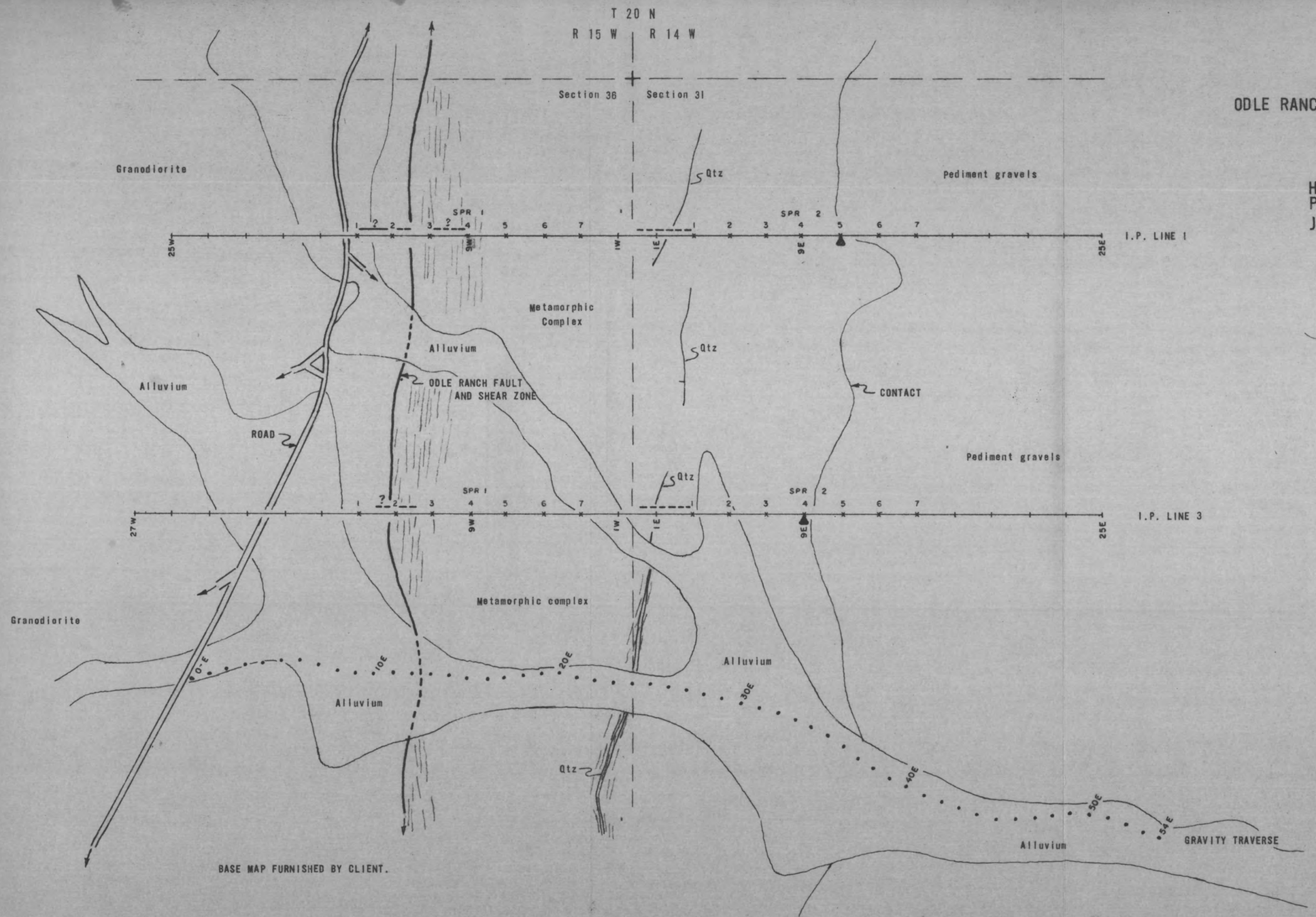
DATE

JULY 1977

GEOEX EXPLORATION COMPANY
806 W. GRANT ROAD, POST OFFICE BOX 5964, TUCSON, ARIZ., 85703. PHONE: (602)623-0578

INDUCED POLARIZATION AND
GRAVITY TRAVERSE LOCATION PLAN
of
ODLE RANCH AREA – MOHAVE COUNTY, ARIZONA
for
Kerr-McGee Corporation
by
HEINRICHS GEOEXPLORATION COMPANY
P.O. BOX 5964, TUCSON, AZ. 85703
Job number 1181 August 1977

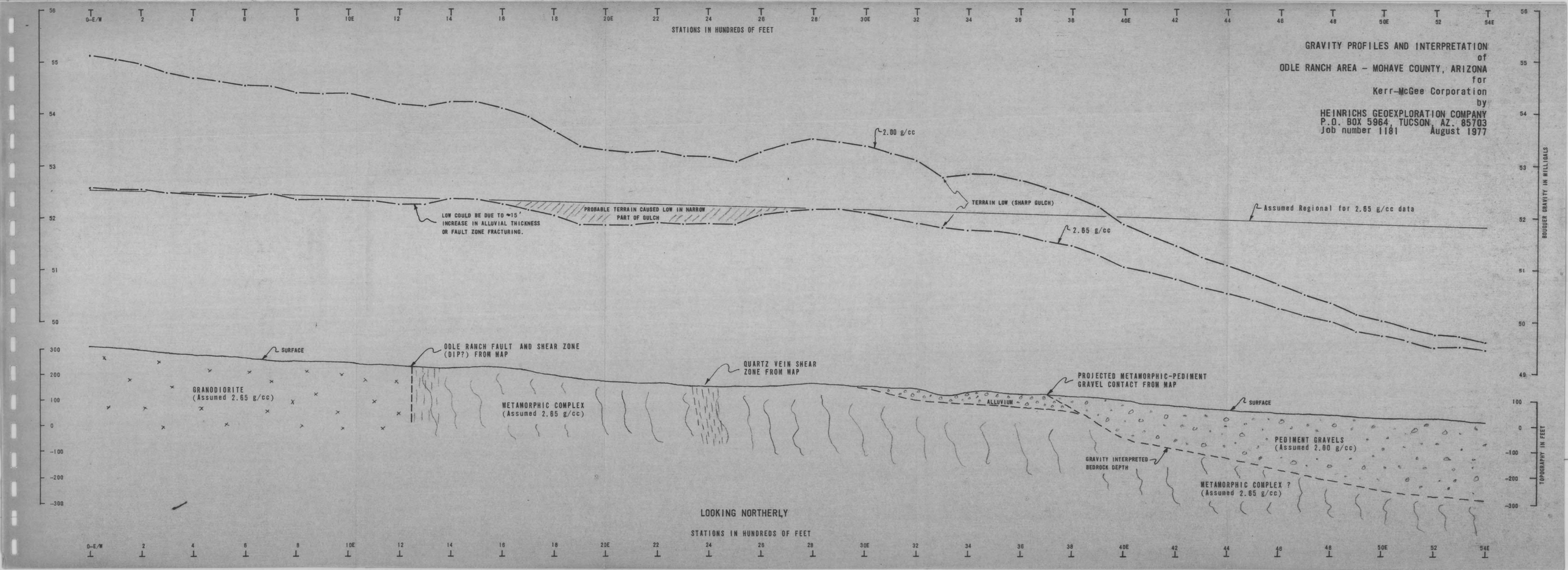
File



I.P. ELECTRODE
I.P. STATION
CONTACT (I.P. LINES)
VERY WEAK } RELATIVE ANOMALY STRENGTH
WEAK
GRAVITY STATIONS

NORTH

SCALE: 1" = 500'


GRAVITY PROFILES AND INTERPRETATION
of
ODLE RANCH AREA - MOHAVE COUNTY, ARIZONA
for
Kerr-McGee Corporation
by
HEINRICHS GEOEXPLORATION COMPANY
P.O. BOX 5964, TUCSON, AZ. 85703
Job number 1181 August 1977
STATIONS IN HUNDREDS OF FEET
0-E/W 2 4 6 8 10E 12 14 16 18 20E 22 24 26 28 30E 32 34 36 38 40E 42 44 46 48 50E 52 54E
BOUGUER GRAVITY IN MILLIGALS
56 55 54 53 52 51 50 49
2.00 g/cc
TERRAIN LOW (SHARP GULCH)
Assumed Regional for 2.65 g/cc data
2.65 g/cc
PROBABLE TERRAIN CAUSED LOW IN NARROW PART OF GULCH
LOW COULD BE DUE TO ≈15' INCREASE IN ALLUVIAL THICKNESS OR FAULT ZONE FRACTURING.
TOPOGRAPHY IN FEET
300 200 100 0 -100 -200 -300
SURFACE
ODLE RANCH FAULT AND SHEAR ZONE (DIP?) FROM MAP
QUARTZ VEIN SHEAR ZONE FROM MAP
PROJECTED METAMORPHIC-PEDIMENT GRAVEL CONTACT FROM MAP
GRANODIORITE (Assumed 2.65 g/cc)
METAMORPHIC COMPLEX (Assumed 2.65 g/cc)
ALLUVIUM
SURFACE
PEDIMENT GRAVELS (Assumed 2.00 g/cc)
GRAVITY INTERPRETED BEDROCK DEPTH
METAMORPHIC COMPLEX ? (Assumed 2.65 g/cc)
LOOKING NORTHERLY
STATIONS IN HUNDREDS OF FEET
0-E/W 2 4 6 8 10E 12 14 16 18 20E 22 24 26 28 30E 32 34 36 38 40E 42 44 46 48 50E 52 54E

Gravity Profiles and Interpretation
Odle Ranch Area
Mohave County, Arizona
for
Kerr-McGee Corporation
August 1977
by
H G Ex Co

GEOEX Job # 1181

HEINRICHS GEOEXPLORATION COMPANY

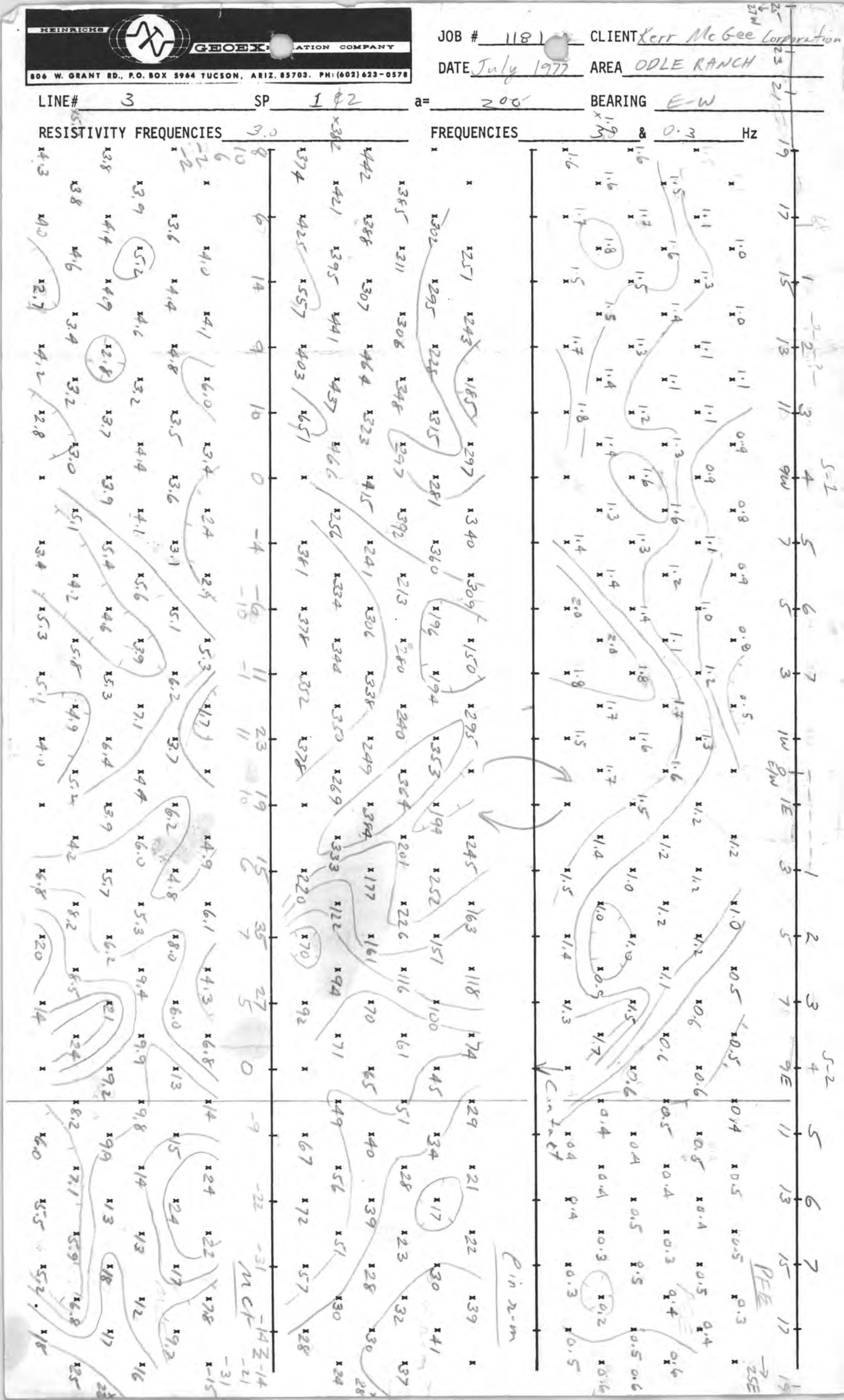
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1181 CLIENT Kerr McGee Corporation

DATE July 1977 AREA ODLE RANCH

LINE# 3 SP 1 & 2 a= 200' BEARING E-W

RESISTIVITY FREQUENCIES 3.0 FREQUENCIES 1.9 & 0.3 Hz



HEINRICHS GEOEXPLORATION COMPANY

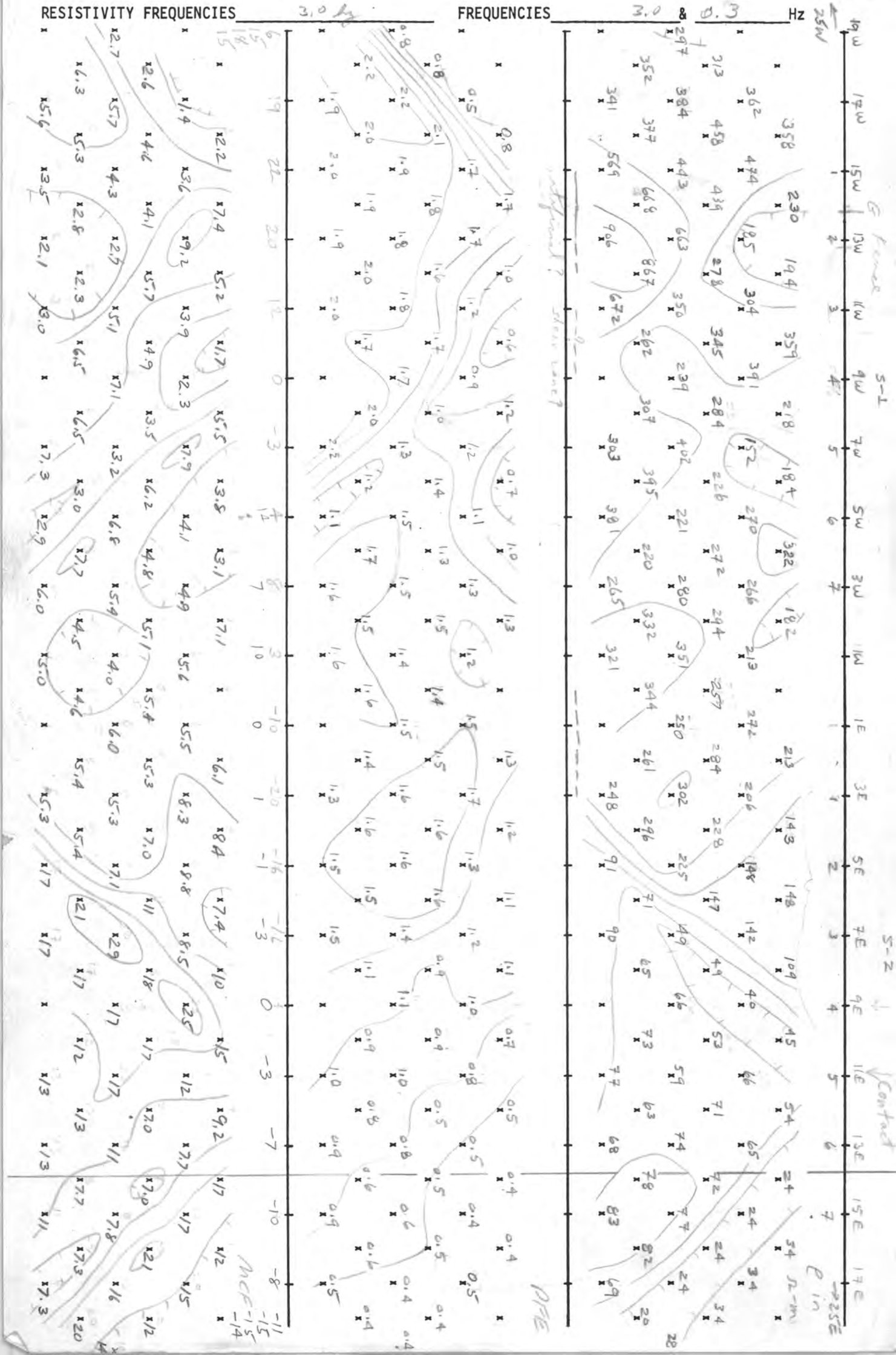
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1181 CLIENT Kerr McGee Corporation

DATE July 1977 AREA ODLE RANCH Mohave County, Arizona

LINE# 1 SP 1-2 a= 200' BEARING E-W

RESISTIVITY FREQUENCIES 3.0 hz FREQUENCIES 3.0 & 0.3 Hz



41	4328	8498	1.50	45.822	51.65	50.94
42	4357	7770	1.54	46.136	51.46	50.82
43	4380	7096	1.57	46.385	51.25	50.66
44	4403	6502	1.59	46.631	51.09	50.55
45E	4426	5885	1.61	46.877	50.91	50.42
46	4440	5375	1.62	47.027	50.71	50.27
47	4455	4886	1.62	47.184	50.53	50.13
48	4472	4403	1.62	47.361	50.38	50.01
49	4483	3690	1.60	47.474	50.14	49.82
50E	4501	3454	1.60	47.663	50.03	49.74
51	4516	3015	1.62	47.825	49.89	49.64
52	4514	2843	1.65	47.811	49.76	49.52
53	4539	2423	1.69	48.083	49.74	49.54
54E	4565	1843	1.72	48.364	49.62	49.47

LINE G — ODLE RANCH AREA — Kerr Mc Gee

Job# 1181 — Mohave County, Arizona

35.08° N latitude

STATION	A Drift Corr Reading	B Elevation in feet	C ΔFT S of Line 3	D A × 1.05067	② C × 0.2328 mgal/ft	③ D + ②	ρ = 2.00 g/cc B × 0.06854 + ③	ρ = 2.65 g/cc B × 0.06025 + ③
0E/W	3230	306.14	.85			34.135	55.12	52.58
1	3252	301.59	.85			34.366	55.04	52.54
2	3317	290.32	.83			35.044	54.94	52.54
3	3376	279.18	.80			35.657	54.79	52.48
4	3426	269.98	.79			36.180	54.68	52.45
5E	3441	266.81	.78			36.335	54.62	52.41
6	3480	259.51	.78			36.745	54.53	52.38
7	3546	249.15	.80			37.443	54.52	52.45
8	3537	248.45	.83			37.376	54.40	52.35
9	3564	244.08	.84			37.641	54.37	52.35
10E	3556	245.39	.85			37.560	54.38	52.34
11	3600	237.29	.85			38.022	54.29	52.32
12	3627	231.61	.85			38.306	54.18	52.26
13	3658	226.20	.85			38.631	54.13	52.26
14	3683	223.67	.86			38.896	54.23	52.37
15E	3660	227.04	.87			38.657	54.22	52.34
16	3670	223.81	.87			38.762	54.10	52.25
17	3710	215.15	.87			39.182	53.93	52.14
18	3813	195.40	.86			40.262	53.65	52.03
19	3878	181.20	.85			40.943	53.36	51.86
20E	3929	172.31	.85			41.479	53.29	51.86
21	3966	165.69	.86			41.870	53.23	51.85
22	3964	166.74	.88			41.853	53.28	51.90
23	4023	155.99	.90			42.478	53.17	51.88
24	4036	153.83	.90			42.115	53.16	51.88
25E	4079	145.87	.91			43.069	53.07	51.86
26	4085	147.59	.93			43.136	53.25	52.03
27	4032	157.93	.95			42.584	53.41	52.10
28	4011	162.39	.96			42.366	53.50	52.15
29	4037	157.65	.99			42.646	53.45	52.19
30E	4058	153.15	1.01			42.871	53.37	52.10
31	4078	147.79	1.04			43.088	53.22	51.99
32	4090	144.92	1.07			43.221	53.09	51.89
33	4236	116.87	1.10			44.762	52.77	51.80
34	4173	127.08	1.13			44.108	52.82	51.76
35E	4147	130.90	1.18			43.846	52.82	51.73
36	4174	124.91	1.24			44.144	52.71	51.67
37	4167	123.72	1.29			44.082	52.56	51.54
38	4218	113.57	1.35			44.632	52.42	51.47
39	4209	111.64	1.40			44.549	52.21	51.29
40E	4253	100.00	1.44			45.020	51.87	51.05

JOB No. 1181 LINE No. G PAGE 1
AREA ODLE RANCH DATE 7/22/77
INSTRUMENT L&R # 6-219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	MOTEL BASE, KINGMAN, HOLIDAY INN						
2		0:52	3036.65			RM	156
Base 3	40 E	13:25	2942.53	42.53		+0.00	42.53
4			2942.53				
5	41E	13:35	43.28	43.28			43.28
6			43.28				
7	42E	13:42	43.58	43.57			43.57
8			43.57				
9			43.57				
10	43E	13:46	43.80	43.80			43.80
11			43.80				
12	44E	13:50	44.03	44.03			44.03
13			44.03				
14	45E	13:56	44.25	44.25		+0.01	44.26
15			44.25				
16	46E	13:59	44.39	44.39			44.40
17			44.39				
18	47E	14:05	44.54	(S)44.54			44.55
19			44.54				
20	48E	14:10	44.71	44.71			44.72
21			44.71				
22	49E	14:23	44.82	44.82			44.83
23			44.82				
24	50E	14:28	44.98	44.99		-0.02	45.01
25			44.99				
26			44.99				
27	51E	14:32	45.14	45.14			45.16
28			45.14				
29	52E	14:35	45.12	45.12			45.14
30			45.12				

JOB No. 1181 LINE No. G PAGE 2
AREA ODLE RANCH DATE 7/22/77
INSTRUMENT LCR #G-219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	53E	14:39	45.37	45.37			45.39
2			45.37				
3	54E	14:43	45.63	45.63			45.65
4			45.63				
5	BASE 40E	14:53	42.51	42.51		40.02	42.53
6			42.51				
7	39E	15:03	42.07	42.07			42.09
8			42.07				
9	38E	15:09	42.16	42.16			42.18
10			42.16				
11	37E	15:13	41.65	41.65			41.67
12		29	41.65				
13	36E	15:19	41.72	41.72			41.74
14			41.72				
15	35E	15:23	41.45	41.45			41.47
16			41.45				
17	34E	15:28	41.70				41.73
18			41.71				
19			41.71				
20	33E	15:34	42.34				42.36
21			42.34				
22	32E	15:42	40.88				40.90
23			40.89				
24			40.88				
25	31E	15:50	40.76				40.78
26			40.76				
27	30E	15:54	40.56				40.58
28			40.56				
29	29E	15:58	40.35				40.37
30			40.35				

JOB No. 1181 LINE No. G PAGE 1
AREA ODLE RANCH DATE 7/22/77
INSTRUMENT LEVEL

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	40E		100.00				
2		+0.93	100.93				
3	TO	-12.88	88.05				
4		+0.01	88.06				
5	41E	-3.08	84.98				
6	42E	-10.36	77.70				
7		+0.67	78.37				
8	43E	-7.41	70.96				
9	TO	-13.18	65.19				
10		+0.57	65.76				
11	44E	-0.74	65.02				
12	45E	-6.91	58.85				
13	46E	-12.01	53.75				
14		+1.23	54.98				
15	47E	-6.10	48.88				
16	48E	-10.95	44.03				
17		+0.97	45.00				
18	49E	-6.10	38.90				
19	50E	-10.46	34.54				
20		+1.40	35.94				
21	51E	-5.79	30.15				
22	52E	-7.51	28.43				
23		+2.55	30.98				
24	53E	-6.75	24.23				
25	54E	-12.55	18.43				
26	TO	-2.42	28.55				
27		+11.02	39.58				
28		-2.22	37.36				
29		+11.44	48.80				
30		-0.60	48.20				

JOB No. _____ LINE No. _____ PAGE _____
AREA: _____ DATE _____
INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1		+11.59	59.79				
2	45E	-0.95	58.84			-0.01	
3		+12.75	71.59				
4		-0.51	71.08				
5		+13.17	84.25				
6		-1.44	82.81				
7		+13.13	95.94				
8		-0.48	95.46				
9		+12.99	108.45				
10	40E	-8.37	100.08	100.00		+0.08	
11	TO	-0.10	108.27				
12		+10.22	118.49				
13	39E	-6.65	111.84				
14	38E	-4.92	113.57				
15	TO	-1.44	117.05				
16		+12.47	129.52				
17	37E	-5.80	123.72				
18	36E	-4.61	124.91				
19		+9.99	134.90				
20	35E	-4.00	130.90				
21	34E	-7.82	127.08				
22		+0.49	127.57				
23	33E	-10.70	116.87				
24	TO	-0.36	127.21				
25		+12.00	139.21				
26	TO	-0.43	138.78				
27		+10.04	148.82				
28	32E	-4.90	143.92				
29	TO	-1.31	147.51				
30		+10.57	158.08				

JOB NO. _____ LINE NO. _____ PAGE _____
AREA _____ DATE _____
INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	31E	-10.29	147.79				
2	30E	-4.93	153.15				
3	TO	-2.56	155.52				
4		+7.61	163.13				
5	29E	-5.48	157.65				
6	28E	-0.74	162.39				
7	TO	-12.66	150.47				
8		+2.62	153.09				
9	TO	-12.72	140.37				
10		+0.74	141.11				
11	TO	-13.33	127.78				
12		+0.78	128.56				
13	TO	-13.24	115.32				
14		+0.15	115.47				
15	TO	-12.88	102.59				
16		+7.85	110.44				
17	40E	-10.53	99.91			-0.09	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

$ 10.61 — Customs City order

Inland

10.61

[illegible] draft correct →

JOB No. 1181 LINE No. 9 PAGE 4
AREA ODLE RANCH DATE 7/24
INSTRUMENT # 9-219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
65E 1	40E	8:10	2942.55	42.53	0	0	42.53
2			42.56				
3			42.56				
4	22E	8:26	39.67	39.64	16		39.64
5			39.67				
6	21E	8:32	39.70				
7			39.69	39.66	22		39.66
8			39.69				
9	20E	8:37	39.32	39.29	27		39.29
10			39.32				
11	19E	:46	38.80	38.77	38	-1	38.76
12			38.80	38.77		+	38.78
13	18E	:53	38.15	38.12	46		38.11
14			38.15	38.12			38.13
15	17E	58	37.12	37.09	51		37.08
16			37.12				37.10
17	16E	9:05	36.72	36.69	58		36.68
18			36.72				36.70
19	40E	9:20	42.52	42.52	113	-2	42.50
20			42.55	42.52		+	42.53
21			42.55				
22	16E	9:38	36.72	36.69	131	+1	36.68
23			36.72				36.70
24	15E	9:43	36.62	36.59	136	+1	36.57
25			36.62				36.60
26	14E	:48	36.86	36.82	141	-3	36.79
27			36.85		16		36.83
28			36.85				
29	13E	10:04	36.61	36.58	157	0	36.58
30			36.61				36.58

JOB No. 1181 LINE No. 9 PAGE 5
AREA ODLE RANCH DATE 7/24
INSTRUMENT

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	12 E	10:08	36.30			-3	
2			36.31	36.27	161		36.24
3			36.30				36.27
4	11 E	10:14	36.04		167	-1	36.00
5			36.04	36.01			35.53
6	10 E	10:19	35.60	36.57	172	-1	36.54
7			35.60	3557			35.56
8	9E	10:24	35.68	35.65	177	-1	35.62
9			35.68				35.64
10	8E	10:29	35.44	35.41	182	-4	35.37
11			35.44				35.39
12	7E	10:37	35.51	35.48	190	-2	35.44
13	7E	10:37	35.51				35.46
14	6E	10:44	34.86	34.83	197	-3	34.79
15			34.87				34.80
16			34.86				
17	16E	10:55	36.76	36.76	208	-3	36.72
18			36.76	36.73			36.70
19	6E	11:04	34.87	34.84	217	-4	34.80
20			34.87				
21	5E	11:14	34.47	34.45	227		34.41
22			34.48				
23			34.48				
24	4E	11:18	34.34	34.31	231	-5	34.26
25			34.34				
26	3E	11:23	33.84	33.81	236		33.76
27			33.84				
28	2E	11:28	33.25	33.22	241		33.17
29			33.24				
30			33.25				

JOB No. 1181 LINE No. 5 PAGE 6
AREA ODLE RANGE DATE 7/24
INSTRUMENT #G-219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	1E	11:34	32.60	32.57	247	-5	32.52
2	~~0E~~		32.60				
3	0 E/W	11:38	32.38	32.35	251		32.30
4			32.38				
5	6E	11:45	34.87	34.84	258	-6	34.78
6			34.87		17		
7	40E	12:02	42.62	42.59	275	-6	42.53
8			42.62				
9					-6	-6	
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 1181 LINE No. 9 PAGE 1
AREA ODLE RANCH DATE 7/25
INSTRUMENT

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	28E	~~162.39~~	162.39	162.39			
2		+ B.S	7.78				
3	27E	- FS	12.27	157.90			
4		+	.36				
5		- FS	12.26				
6		+	9.25				
7	26E	-	4.89	150.26		150.36	
8		+	6.99				
9	25E	-	11.67	145.58		145.68	
10		+	8.71				
11	24E	-	.70	153.59		153.69	
12		+	8.46				
13	23E	-	6.72	155.73		155.83	
14		+	11.29				
15	22E	-	.59	166.43		166.53	
16	TB	-	9.87	156.56			
17		+	5.27				
18	TB	-	2.40	159.43		160.12	
19		+	8.89				
20	28E	-	5.95	162.37		.02	163.26
21						99.70.67!	
22	22E		166.43				
23		+	4.57				
24	21E	-	5.24	165.76			
25		+	5.32				
26		-	2.64	168.44			
27		+	9.29				
28	20E	-	5.30	172.43			
29		-	.132	177.41			
30		+	12.26				

JOB No. 1181 LINE No. 9 PAGE 2
AREA ODLE DATE 7/25
INSTRUMENT G # 219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2	19E	-	8.04	173.36		181.63	
3							
4		-	2.56	187.11			
5		+	12.47	[illegible]			
6	18E	-	3.47	196.51		196.61	
7		+	7.05				
8		-	.79	207.72			
9		+	9.60				
10	17E	-	2.20	210.17			
11		+	9.59				
12		+	.89				
13	16E	-	7.69	196.00			
14		+	4.47				
15	15E	-	7.85	192.62			
16	14E	-	12.39	188.08			
17	TO	-	3.08	197.39			
18		+	11.62				
19	TO	-	.50	208.51			
20		+	2.56				
21	TO	-	10.84	200.23			
22		+	.36				
23	TO	-	11.20	189.39			
24		+	1.82				
25	TO	-	10.44	180.77			
26		+	2.46				
27		-	9.84	173.39			
28		+	4.59				
29	22E	-	11.42	166.56		.11	
30						-.29	

JOB NO. _____ LINE NO. _____ PAGE 3
AREA _____ DATE _____
INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2	14E		188.08	188.08			
3		+BS	7.26				
4	13E	-FS	4.85	190.49			
5		+ BS	8.88				
6	12E	-	3.36	196.01			
7		+BS	9.11				
8	11E	- FS	3.43	201.69			
9		+BS	8.04				
10	—	- FS	1.57	208.16			
11		+	8.25				
12	10E	-	6.65	209.76			
13	9E	-	7.94	208.47			
14	8E	-	3.61	212.80			
15	TO	- FS	11.16	205.25			
16		+ BS	1.13				
17	TO	-	12.99	193.39			
18		+ BS	2.48				
19	14E	-	7.75	188.12		(+.04)	
20							
21	8E			212.80			
22		+ BS	4.45				
23	7E	-	3.69	213.56			
24		+	11.11				
25	6E	-	.79	223.88			
26		+ BS	9.97				
27	5E		2.72	231.13			
28		+BS	12.72				
29	4E	-	6.59	237.26			
30							

JOB No. _____ LINE No. _____ PAGE 4

AREA _____ DATE _____

INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2	3E	-	.41	243.44			
3		+ BS	12.22				
4	2E	-	1.07	254.59			
5		+	10.70				
6		-	1.16	264.13			
7		+	8.88	265.89			
8	1E	-	7.12	258.77		(265.89)	
9	0E	-	2.58	263.31			
10	T0	-	13.07	252.82			
11		+	3.41				
12	T0	-	12.38	243.85			
13		+	.07				
14	T0	-	12.15	231.77			
15		+	2.67				
16	T0	-	9.08	225.36			
17		+	5.87				
18		-	10.78	220.45			
19		+	2.68				
20	8E	-	10.49	212.64		(+.16)	219.76
21							
22						72	
23						1	
24						(6.96)	
25							
26							
27							
28							
29							
30							

JOB No. 1181 LINE No. PAGE 1
AREA ODLE RANCH DATE 7/30
INSTRUMENT # 219

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2	28E			162.39			
3		+	7.02				
4	27E	−	11.48	157.93			
5		+	.56				
6	26E	−	10.90	147.59			
7		+	10.26				
8	25E	−	11.98	145.87			
9		+	7.98				
10	~~24E~~	−	3.06	150.79			
11		+	6.99				
12	24E	−	3.95	153.83			
13	23E	−	1.79	155.99			
14		+	11.56				
15	22E	−	.81	166.74			
16	TO	−	11.06	156.49			
17		+	1.04				
18	TO	−	10.34	147.19			
19		+	10.14	157.33			
20		−	.66	156.67			
21		+	12.13			30	
22	28E	−	6.37	162.43	−	.04	
23							
24	22E			166.74			
25		+	4.71	171.45			
26	21E	−	5.76	165.69			
27		−	5.84	165.61			
28		+	9.68				
29	20E	−	2.98	172.31			
30							

JOB NO. 1181 LINE NO. 4 PAGE 2
AREA OLE RANCH DATE 7/30
INSTRUMENT G #

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2		+	8.98				
3	19E	−	.09	181.20			
4		+	12.59				
5		−	4.24	189.55			
6		+	13.33	202.88			
7	18E	−	7.48	195.40			
8		−	.75	202.13			
9		+	12.52				
10		−	.68	214.19			
11		+	11.71				
12	17E	−	10.75	215.15			
13	16E	−	2.09	223.81			
14		+	6.53	234.34			
15	15 E	−	3.30	227.04			
16	14 E	−	6.67	223.67			
17	TO	−	11.68	218.36	?	218.66	
18		+	.72				
19		−	12.55	206.53			
20		+	.16				
21		−	12.67	194.02			
22		+	1.07				
23		−	13.08	182.01			
24		+	1.44				
25		−	12.75	170.70			
26		+	2.29				
27	22E	−	6.29	166.70	+ .04	−0.26	
28							
29							
30							

JOB No. 1181 LINE No. _____ PAGE 3
AREA ODLE RANCH DATE 11/7/80
INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1							
2	14E			223.67			
3		+	+7.30				
4	13E	−	−4.77	226.20			
5		−	−0.29				
6		+	+10.60				
7	12E	−	9.67	231.61			
8	11E	−	3.99	237.29			
9		−	0.85				
10		+	9.83				
11	10E	−	4.87	245.39			
12	9E	−	6.18	244.08			
13		−	2.77	247.49			
14		+	6.67				
15	8E	−	5.71	248.45			
16	7E	−	5.01	249.15			
17		+	11.55				
18	6E	−	1.19	259.51			
19		+	10.06				
20	5E	−	2.76	266.81			
21		+	12.28				
22	4E	−	9.11	269.98			
23		−	1.59				
24		+	12.30				
25	3E	−	10.62	279.18			
26		−	0.62				
27		+	12.12				
28	2E	−	10.98	290.32			
29							
30							

JOB No. 1181 LINE No. _____ PAGE 4
AREA ODLE RANCH DATE 7/30
INSTRUMENT _____

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1		−	0.63				
2		+	8.87				
3	1E	−	7.95	301.59			
4	0F/W	−	3.40	306.14			
5							
6	TO	−	12.60	296.19			
7		+	0.02				
8	TO	−	12.73	284.23			
9		+	.23				
10		−	11.58	272.88			
11		+	0.75				
12		−	13.04	260.59			
13		+	2.87				
14		−	11.91	251.55			
15		+	0.47				
16		−	11.90	240.12			
17		+	0.85				
18		−	12.77	228.20			
19		+	3.58			(+.20)	
20	14E	−	7.97	223.87			
21				223.81		(+0.14)	
22							
23							
24							
25							
26							
27							
28							
29							
30							

I. P. RECEIVER NOTES, JOB NO. 1181, [illegible]A ODDLE RANCH

LINE 1, HALF W, SP. 1, a = 200, BEARING W

SENDER STA. 9W = ELECTRODE NO. 4, DATE 7/24

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	CAC
RECEIVE	9-11 W	—	11-13 W	—	—	13-15 W	—	—	—	1-2
MULTIPLIER	10	1.0	10	10	1.0	10	10	1.0	1.0	1.0
PFE	+1.0	+1.3	+0.6	+0.9	+1.0	+1.1	+1.2	+1.6	+1.8	0.0
CUR. (AMPS)	2	2	2	2	2	2	2	2	2	1
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	390	68	643	175	51.0	347	136	61.7	21.4	102.9
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}	+1.2	+1.3	+0.6	+0.9	+1.0	+1.0	+1.2	+1.7	+1.8	
0.1 PFE PFE_c								345		
3.0 MV $\rho/2\pi$	218	152	359	391	284	194	304	~~304~~	239	
DRIFT MCF	65.5	98.6	21.7	22.3	43.5	55.2	43.9	44.9	87.5	
S. P.	-6.7		-10.5			-15.7				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1181, AREA GDLE

LINE 1, HALF W, SP. 1, a = 200, BEARING W

SENDER STA. 9W = ELECTRODE No. 4, DATE 7/24

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-17 W					17-19 W				
MULTIPLIER	10	1.0	1.0	1.0	1.0	10	10	1.0	1.0	1.0
PFE	+1.8	+1.7	+1.6	+1.8	+1.7	+0.8	+1.7	+1.8	+1.8	+2.0
CUR. (AMPS)	2	2	2	2	2	2	2	2	2	2
POINT No.	1	2	3	4	5	1	2	3	4	5
SEP. (n)										
H. F. MV	413	82.8	49.8	31.3	13.4	6.40	212	78.5	59.3	44.4
DRIFT	+0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE / K_n/1000										
0.3 PFE / ρ_{CAL}	+1.7	+1.7	+1.6	+1.8	+1.7	+0.8	+1.7	+1.8	+1.8	+2.0
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$	230	185	278	350	262	358	474	439	663	867
DRIFT / MCF	77.4	99.2	65.7	55.1	66.5	22.2	43.6	44.1	32.7	22.3
S. P.	-21.5					-31.1				
NOISE										
POT RES.										
CULT & CMTS		13W + 80F = FENCE ?		G?						

J. P. RECEIVER NOTES, JOB No. 1181 A ODLE RANCH

LINE 1, HALF W, SP. 1, a = 200, BEARING W

SENDER STA. 9W = ELECTRODE No. 4, DATE 7/24

PAGE 3

HEINRICHS GEOEX

SEND	67	1-2	2-3	3-4	4-5	5 6	1-2	2-3	3-4	4-5
RECEIVE	~~10~~	19-21					21-23			
MULTIPLIER	1.0	10	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	+2.0	+0.5	+2.1	+1.9	+1.9	+1.9	+0.9	+2.2	+2.0	+2.1
CUR. (AMPS)	2.0	20	2.0	2.0	2	2	2	2	2	2
POINT No.	6	2	3	4	5	6	3	4	5	6
SEP. (n)										
H. F. MV	21.5	162	82.0	39.6	34.2	29.0	56.1	34.4	19.3	18.2
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0	0.0	+0.2
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}	+2.0	+0.5	+2.1	+1.9	+1.9	+1.9	~~+0.9~~ 0.8	+2.2	+2.0	+2.0
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$	672	362	458	443	668	906	313	384	377	569
DRIFT / MCF	33.0	-91.9	54.6	44.3	32.8	22.1	-32.6	55.7	55.3	43.5
S. P.		-9.9					-15.5			
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1188, A ODLE RANCH

LINE I, HALF W, SP. 1, a = 200, BEARING W

SENDER STA. 9W = ELECTRODE No. 4, DATE 7/24

PAGE 4

HEINRICHS GEOEX

SEND	1-2	2-3	3-4							
RECEIVE	23-25									
MULTIPLIER	1.0	1.0	1.0							
PFE	+0.8	+2.2	+1.9							
CUR. (AMPS)	2	2	2							
POINT NO.										
SEP. (n)	4	5	6							
H. F. MV	26.6	18.0	10.9							
DRIFT	0.0	0.0	0.0							
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}	+0.8	+2.2	+1.9							
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	297	352	341							
DRIFT MCF	32.7	66.3	65.6							
S. P.	-20.6									
NOISE										
POT RES.										
CULT & CMTS										

J. P. RECEIVER NOTES, JOB NO. 1181, [illegible]A ODLE RANCH

LINE _____, HALF E, SP. 1, a = 200, BEARING E

SENDER STA. 9W = ELECTRODE NO. 4, DATE 7/24

PAGE 5

HEINRICHS GEOEX

SEND		S P	S P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE		9-7W	7-5W	5-3W				3-1W			
MULTIPLIER				10	1.0	1.0	1.0	10	10	1.0	1.0
PFE				+0.7	+1.2	+1.0	+1.5	+1.0	+1.1	+1.4	+1.3
CUR. (AMPS)				2	2	2	2	2	2	2	2
POINT NO.				1	2	3	4	1	2	3	4
SEP. (n)											
H. F. MV				327	67.9	51.4	21.3	572	120	40.0	35.7
DRIFT				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE	$K_n/1000$										
0.3 PFE	ρ_{CAL}			+0.7	+1.2	+1.0	+1.5	+1.0	+1.1	+1.4	+1.3
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$			184	153	289	240	322	270	226	402
DRIFT	MCF			43.8	87.9	33.5	66.3	33.1	44.1	66.2	33.2
S. P.		-21.7	-10.9	-14.5				-23.6			
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 1181, AREA ODLE RANCH

LINE 1, HALF E, SP. 1, a = 200, BEARING E

SENDER STA. 94 = ELECTRODE No. 4, DATE 7/24

PAGE 6

HEINRICHS GEOEX

SEND	1-2	6-7	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6
RECEIVE		CAL	1W-1E						1E-8E	
MULTIPLIER	1.0	1.0	10	10	1.0	1.0	1.0	0.1	1.0	1.0
PFE	42.0	0.0	+1.3	+1.3	+1.3	+1.5	+1.2	+2.3	+1.2	+1.5
CUR. (AMPS)	3	1.0	2	2	2	2	2	2	2	2
POINT No.	5		1	2	3	4	5	6	2	3
SEP. (n)										
H. F. MV	23.4	102.2	324	118	48.4	19.6	20.1	9.62	94.5	52.3
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0	0.0
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}	+2.0	–	+1.3	+1.3	+1.3	+1.5	+1.2	+2.2	+1.2	+1.5
0.1 PFE / PFE_c										
3.0 MV / $P/2\pi$	307		182	266	272	221	395	303	213	294
DRIFT / MCF	76.5		77.1	54.9	54.8	76.8	33.0	77.3	65.6	55.1
S. P.			-31.1						-29.6	
NOISE										
POT RES.										
CULT & CMTS										

J. P. RECEIVER NOTES, JOB No. 1181, AREA ODLE RANCH

LINE 1, HALF E, SP. 1, a = 200, BEARING E

SENDER STA. 9W = ELECTRODE No. 24, DATE 7/24

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HEINRICHS GEOEX

SEND	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
RECEIVE	1-3E	—	—	3-5E	—	—	—	5-7E	—	—
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	+1.5	+1.7	+1.1	+1.4	+1.4	+1.5	+1.6	+1.6	+1.6	+1.6
CUR. (AMPS)	2	2	2	2	2	2	2	2	2	2
POINT No.	4	5	6	3	4	5	6	4	5	6
SEP. (n)										
H. F. MV	24.9	11.2	12.1	44.9	31.2	16.4	8.41	21.9	17.5	10.2
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}	+1.5	+1.7	+1.1	+1.4	+1.4	+1.5	+1.6	+1.6	+1.6	+1.6
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	280	220	381	253	351	332	265	246	344	321
DRIFT MCF	55.4	87.7	32.9	65.5	44.0	54.5	66.0	66.5	54.6	55.0
S. P.				-14.1				-17.9		
NOISE										
POT RES.										
CULT & CMTS										

I. P. SENDER NOTES

JOB No. 1121 AREA ODLE RANCH

LINE 1, HALF E, SP. 1, DATE 7/23

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	1-2
RECEIVE	9-11 W	—	11-13 W	—	—	13-15 W	—	—	—	CAL
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X100
VOLTAGE	300	340	270	290	340	300	270	290	340	100
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-17 W	—	—	—	—	17-19 W	—	—	—	—
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200
VOLTAGE	260	300	270	300	340	200	260	300	270	290
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

FREQUENCIES 3.0 0.3

SENDER No. 9662-S

POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No.

HOURS RUN

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA UDLE RANCH

LINE 1, HALF W, SP. 1, DATE 7/23

PAGE 2

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	—	19-21	W	—	—	—	21-23W		—	—
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200
VOLTAGE	340	200	260	300	270	290	200	260	300	270
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							
RECEIVE	23-25W									
RANGE	10X200	10X200	10X200							
VOLTAGE	200	260	300							
CURRENT	2.0	2.0	2.0							

FREQUENCIES 3.0 0.3

SENDER No. 9662-5 POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No. HOURS RUN

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA ODLE RANCH

LINE 1, HALF E, SP. 1, DATE 7-24-77

PAGE 3

HEINRICHS GEOEX

SEND	S. P	S. P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-7W	7-5W	5-3W	—	—	—	3-1W	—		
RANGE			10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200
VOLTAGE			270	300	260	200	300	270	300	260
CURRENT	CAL		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SEND	1-2	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5
RECEIVE	—	1W-NE	—	—	—	—	—	1E-3E	—	
RANGE	10X300	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200
VOLTAGE	280	340	300	270	300	260	200	340	300	270
CURRENT	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

FREQUENCIES 3.0 0.3

SENDER No. 9662-5 POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No. HOURS RUN

OPERATOR

COMMENTS: CAL
DIPOLE 6-7
RANGE-10X100
V- 100
I - 1.0

I. P. SENDER NOTES

JOB No. 1181 AREA COLE RANCH

LINE 1, HALF E, SP. 1, DATE 7-24-77

PAGE 4

HEINRICHS GEOEX

SEND	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5	
RECEIVE	—	—	3-5	E	—	—	5-7	E	—	
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	
VOLTAGE	300	260	340	300	270	300	340	300	270	
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 3.0 0.3

SENDER No. 9662-S

POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No.

HOURS RUN

OPERATOR

COMMENTS:

I.P. RECEIVER NOTES, JOB No. 1181, AREA KINGMAN

LINE 1, HALF W, SR. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/23

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	1-2
RECEIVE	9-7E	—	7-5E	—	—	5-3E	—	—	—	CAL
MULTIPLIER	10	1.0	10	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	+0.7	+0.9	+1.1	+1.0	+0.9	+1.1	+1.2	+0.9	+1.2	0.0
CUR. (AMPS)	3	3	3	3	3	3	3	3	3	1.0
POINT No.	1	2	1	2	3	1	2	3	4	
SEP. (n)										
H. F. MV	121	43.8	291	26.5	14.1	395	94.5	13.1	8.83	102.4
DRIFT	0.0	+0.2	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}	+0.7	+0.8	+1.1	+1.0	+0.9	+1.1	+1.2	+0.9	+1.2	0.0
0.1 PFE PFE_c									1.1	
3.0 MV $\rho/2\pi$	45	66	109	40	53	148	142	49	66	
DRIFT MCF	15.	12	10	25	17	77.4	88.5	18	18.7	
S.P.	-11.0		+6.5		-5.5					
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1181, AREA KINGMAN

LINE 1, HALF W, SP. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE No. F, DATE 7/23

PAGE 2

HEINRICHS GEOEX

SEND		2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE		3-1E	—	—	—	—	1E-1W	—	—	—	—
MULTIPLIER		10	1.0	1.0	0.1	0.1	10	10	1.0	1.0	0.1
PFE		+1.2	+1.3	+1.6	+1.4	+1.1	+1.3	+1.7	+1.6	+1.6	+1.5
CUR. (AMPS)		3	3	3	3	3	2	3	3	3	3
POINT No.		1	2	3	4	5	1	2	3	4	5
SEP. (n)											
H. F. MV		383	99.0	39.4	6.54	4.93	379	137	60.8	30.0	5.45
DRIFT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE	$K_n/1000$										
0.3 PFE	ρ_{CAL}	+1.2	+1.3	+1.6	+1.4	+1.1	+1.3	+1.7	+1.6	+1.6	+1.5
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	144 143	150 148	148 147	147 149	65	213	206	228	225	71
DRIFT	MCF	8 8.4	9 8.8	11	10 29	17	6 6.1	8 8.3	7 7.0	7 7.1	21
S. P.		-9.2					+13.1				
NOISE							+1.1?				
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 1181, AREA KINGMAN

LINE 1, HALF W, SP. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE No. 7, DATE 7/23

PAGE 3

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	—	1W-3W	—	—	—	—	3W-5W	—	—	—
MULTIPLIER	0.1	10	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0
PFE	+1.5	+1.5	+1.4	+1.6	+1.7	+1.5	+1.5	+1.5	+1.4	+1.3
CUR. (AMPS)	3	2	3	3	3	3	2	3	3	3
POINT No.	6	2	3	4	5	6	3	4	5	6
SEP. (n)										
H. F. MV	4.28	121	75.7	40.3	22.6	4.33	46.4	33.8	19.9	11.8
DRIFT	0.0	0.0	-0.2	0.0	+0.2	0.0	0.0	0.0	0.0	0.0
1.0 PFE / K_n/1000										
0.3 PFE / ρ_{CAL}	+1.5	+1.5	+1.5	+1.6	+1.6	+1.5	+1.5	+1.5	+1.4	+1.3
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$	90	272	284	302	296	91	261	254	261	248
DRIFT / MCF	17	56	55.3	55.3	55.4	17	45.7	65.9	55.4	55.3
S. P.		-10.4					-0.9			
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1181, AREA KINGMAN

LINE 1, HALF E, SR. 2, a = 200, BEARING E

SENDER STA. 9E = ELECTRODE NO. 4, DATE 7/23

PAGE 4

HEINRICHS GEOEX

SEND	S.P	S.P.	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-11 E	11-13 E	13-15 E	—	—	—	15-17 E	—	—	
MULTIPLIER			10	1.0	1.0	0.1	1.0	1.0	1.0	0.1
PFE			+0.5	+0.7	+0.9	+1.0	+0.4	+0.5	+0.5	+1.0
CUR. (AMPS)			3	3	3	2	3	3	3	3
POINT NO.			1	2	3	4	1	2	3	4
SEP. (n)			1	2	3	4	1	2	3	
H. F. MV			145	43.3	14.0	5.83	64.3	43.5	19.0	7.81
DRIFT			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}			+0.5	+0.7	+0.9	+1.0	+0.4	+0.5	+0.5	+1.0
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$			54	65	53	66	24	65	71	59
DRIFT / MCF			99.2	11	17	15	17	8.77	77.0	2017
S. P.	-11.1	-12.3	-10.5				-6.6			
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 181, AREA KINGMAN

LINE 1, HALF E, SP. 2, a = 200, BEARING E

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/23

PAGE 5

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	4-5	3-4	2-3	1-2	~~6-7~~	6-7	5-6
RECEIVE		17-19	E					CAL	19-21	E
MULTIPLIER	0.1	1.0	1.0	1.0	0.1	0.1	0.1	+0	1.0	0.1
PFE	+0.9	+0.4	+0.4	+0.5	+0.8	+0.8	+1.0		+0.6	+0.5
CUR. (AMPS)	2	3	3	3	3	3	2	LO	3	3
POINT No.	5	1	2	3	4	5	6	NU	2	3
SEP. (n)										
H. F. MV	3.71	90.6	16.1	19.1	9.87	4.77	2.45		22.8	6.42
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0		+0.2	0.0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}	+0.9	+0.4	+0.4	+0.5	+0.8	+0.8	+1.0		~~+0.7~~ 0.5	+0.5
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	73	34	24	72	74	63	77		34	24
DRIFT MCF	12	12	17	77.0	11	13	13		20 15	21
S. P.		-11.2							-11.7	
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1181, AREA KINGMAN

LINE 1, HALF E, SP. 2, a = 200, BEARING E

SENDER STA. 9E = ELECTRODE NO. 4, DATE 7/23

PAGE 6

HEINRICHS GEOEX

SEND	4-5	3-4	23	6-7	5-6	4-5	3-4	6-7	5-6	4-5
RECEIVE				21-23 E				23-25 E		
MULTIPLIER	~~0.1~~ 0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	+0.6	+0.6	+0.9	+0.4	+0.4	+0.6	+0.9	+0.4	+0.3	+0.5
CUR. (AMPS)	3	3	3	3	3	3	3	3	3	3
POINT NO.	4	5	6	3	4	5	6	4	5	6
SEP. (n)										
H. F. MV	10.24	5.98	3.25	9.15	3.25	6.24	3.96	3.73	1.54	3.29
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}	+0.6	+0.6	+0.9	+0.4	+0.4	+0.6	+0.9	+0.4	+0.4	+0.5
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	77	78	68	34	24	82	83	28	20	69
DRIFT MCF	87.8	87.7	13	12	16	77.3	11	14	20	77.3
S. P.				-8.4				-7.7		
NOISE										
POT RES.										
CULT & CMTS										

I. P. SENDER NOTES

JOB No. 1181 AREA Kingman

LINE 1, HALF W, SP. 2, DATE 7/23

PAGE I

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	4-5
RECEIVE	9-7E	—	7-5E	—	—	5-3E	—	—	—	CAL
RANGE	10x300	10x300	10x300	10x300	10x300	10x300	10x300	10x300	10x300	10x100
VOLTAGE	140	140	120	140	140	180	120	160	140	100
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	3-1E	—	—	—	—	1E-1W	—	—	—	
RANGE	10x300	10x300	10x300	10x300	10x300	10x200	10x300	10x300	10x300	10x300
VOLTAGE	250	180	120	150	140	220	250	180	120	150
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

FREQUENCIES 3.0 0.2

SENDER No. 9662-5 POWER UNIT ID

OPERATOR McGaire

RECEIVER No. HOURS RUN

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA KINGMAN

LINE 1, HALF W, SP. 2, DATE 7-23-77

PAGE 2

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	[illegible]
RECEIVE		1-3W					3-5W			
RANGE	10X300	10X200	10X300	10X300	10X300	10X300	10X200	10X300	10X300	10X300
VOLTAGE	140	220	250	180	120	140	220	240	180	[illegible]
CURRENT	3.0	2.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	[illegible]
SEND	4-5									
RECEIVE										
RANGE	10X300									
VOLTAGE	120									
CURRENT	3.0									

FREQUENCIES

SENDER No. 9662-5 POWER UNIT ID

OPERATOR McGOURE

RECEIVER No. HOURS RUN

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA Kingman

LINE 1, HALF E, SP. 2, DATE 7-23-77

PAGE 3

HEINRICHS GEOEX

SEND	S-P	S-P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-11E	11-13E	13-15E				15-17E			
RANGE			10x300	10x300	10x300	10x200	10x300	10x300	10x300	10x300
VOLTAGE			120	180	250	220	150	120	180	250
CURRENT			3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0
SEND	1-2	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5
RECEIVE		17-19E						19-21E		
RANGE	10x200	10x300	10x300	10x300	10x300	10x300	10x200	10x300	10x300	10x300
VOLTAGE	220	140	150	120	180	250	220	140	150	120
CURRENT	2.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0

FREQUENCIES 3.0 0.3

SENDER No. 9662-5	POWER UNIT ID
OPERATOR McGUIRE	
RECEIVER No.	HOURS RUN
OPERATOR	

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA KINGMAN

LINE 1, HALF E, SP. 2, DATE 7-23-77

PAGE 4

HEINRICHS GEOEX

SEND	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5	
RECEIVE			21-23E				23-25E			
RANGE	10x300	10x300	10x300	10x300	10x300	10x300	10x300	10x300	10x300	
VOLTAGE	180	250	140	150	120	180	140	150	120	
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 3.0 0.3

SENDER No. 9662-S POWER UNIT ID

OPERATOR MS. GUIRE

RECEIVER No. HOURS RUN

OPERATOR

COMMENTS:

I.P. RECEIVER NOTES, JOB NO. 1181, AREA _____

LINE 3, HALF E, SR. 1, a = 200, BEARING W

SENDER STA. 9W = ELECTRODE NO. 4, DATE 7/21

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	CAL
RECEIVE	9-11 W	—	11-13 W	—	—	13-15 W	—	—	—	1-2
MULTIPLIER	10	10	10	10	1.0	10	10	1.0	1.0	1.0
PFE	+0.8	+1.0	+1.0	+1.0	+1.6	+1.1	+1.1	+1.3	+1.6	+0.1
CUR. (AMPS)	2									1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	605	160	528	125	65.5	328	140	52.8	36.9	102.2
DRIFT	0.0	0.0	+0.1	+0.1	0.0	+0.1	+0.1	0.0	0.0	0.0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										0.98
0.1 PFE PFE_c	0.8	1.0	1.0	1.0	1.6	1.1	1.1	1.3	1.6	
3.0 MV $\rho/2\pi$	340	360	297	251	369	185	315	297	415	
DRIFT MCF	2.4	2.8	3.4	3.6	4.3	6.0	3.5	4.4	3.9	
S. P.	+4.3		-6.1			-0.7				
NOISE	LOW									
...T RES.	LOW									
...a CMTS										

0 10 9 14

I.P. RECEIVER NOTES, JOB NO. 1181, AREA

LINE 3, HALF W, SP., a = 200, BEARING W

SENDER STA. 9W = ELECTRODE NO. 4, DATE 7/21

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-17W					17-19W				
MULTIPLIER	10	1.0	1.0	1.0	1.0	10	10	1.0	1.0	1.0
PFE	+1.0	+1.1	+1.1	+1.3	+1.5	+1.1	+1.3	+1.4	+1.4	+1.4
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H.F. MV	432	101.5	61.9	28.7	23.7	446	131	54.4	41.2	22.2
DRIFT	0.0	0.0	0.0	+0.1	+0.1	+0.1	0.0	0.0	+0.1	0.0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.0	1.1	1.1	1.2	1.4	1.0	1.3	1.4	1.3	1.4
3.0 MV $\rho/2\pi$	243	228	348	323	466	251	295	306	464	437
DRIFT MCF	4.1	4.8	3.2	3.7	3.0	4.0	4.4	4.6	2.8	3.2
S.P.	-14.1					-3.9				
NOISE										
POT RES.										
CULT & CMTS						G.F.	17W-20' ⊥			

I.-P. RECEIVER NOTES, JOB No. 1191, AREA

LINE, HALF, SP. W, a = 200, BEARING W

SENDER STA. = ELECTRODE No. 4, DATE 7/21

PAGE 3

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	17-19W	19-21	W				21-23	W		
MULTIPLIER	1.0	10	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	+1.8	+1.1	+1.6	+1.5	+1.5	+1.7	+1.5	+1.7	+1.7	+1.5
CUR. (AMPS)	2									
POINT No.										
SEP. (n)	6	2	3	4	5	6	3	4	5	6
H. F. MV	20.7	134	55.2	27.3	22.4	12.8	68.4	34.5	20.1	17.7
DRIFT	0.0	0.0	0.0	+0.1	0.0	0.0	0.0	0.0	-0.1	0.0
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}										
0.1 PFE / PFE_c	1.8	1.1	1.6	1.5	1.5	1.7	1.5	1.7	1.8	1.5
3.0 MV / $P/2\pi$	651	302	311	307	441	403	385	388	395	557
DRIFT / MCF	2.8	3.6	5.2	4.9	3.4	4.2	3.9	4.4	4.6	2.7
S. P.		-3.4					-9.4			
NOISE										
POT RES.										
CULT & CMTS										

10 6

I.P. RECEIVER NOTES, JOB No. 1181, AREA _____

LINE 3, HALF W, SP. _____, a = 20, BEARING _____

SENDER STA. 9W = ELECTRODE No. 4, DATE _____

PAGE 4

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	1-2	2-3					
RECEIVE	23-25	W		25-27						
MULTIPLIER	1.0	1.0	1.0	1.0	1.0					
PFE	+1.6	+1.7	+1.7	+1.8	+1.5					
CUR. (AMPS)	2									
POINT No.										
SEP. (n)	4	5	6	5	6					
H. F. MV	37.7	21.4	13.5	19.4	11.9					
DRIFT	0.0	+0.1	+0.1	-0.1	-0.1					
1.0 PFE / K_n/1000										
0.3 PFE / ρ_{CAL}										
0.1 PFE / PFE_c	1.6	1.6	1.7	1.9	1.6					
3.0 MV / $\rho/2\pi$	424	421	425	382	374					
DRIFT / MCF	3.8	3.8	4.0	5.0	4.3					
S. P.	-13.9			-5.7						
NOISE										
POT RES.										
CULT & CMTS										

-2 -2

I.·P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE_____, HALF E, SP._____, a = 200, BEARING_____

SENDER STA. 9W = ELECTRODE NO._____, DATE_____

PAGE 5

HEINRICHS GEOEX

SEND	S.P	S.P.	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-7W	7-5W	5-3W				3W-1W			
MULTIPLIER			10	10	1.0	1.0	10	1.0	1.0	1.0
PFE			+1.0	+1.1	+1.5	+1.5	+0.8	+1.0	+1.3	+1.3
CUR. (AMPS)	2		2							
POINT NO.										
SEP. (n)			1	2	3	4	1	2	3	4
H. F. MV			549	160	73.5	37.0	266	87.0	37.8	21.4
DRIFT			+0.1	-0.1	0.0	-0.1	0.0	0.0	+0.1	0.0
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}										
0.1 PFE / PFE_c			0.9	1.2	1.5	1.6	0.8	1.0	1.2	1.3
3.0 MV / $P/2\pi$			309	360	414	416	150	196	213	241
DRIFT / MCF			2.9	3.3	3.6	3.8	5.3	5.1	5.6	5.4
S. P.	-9.8	-7.4	+11.4				+5.8			
NOISE										
POT RES.										
CULT & CMTS										

0 -4 -6 11 23

I.P. RECEIVER NOTES, JOB NO. 1181 AREA

LINE 3, HALF E, SP. , a = 200, BEARING E

SENDER STA. 9W = ELECTRODE NO. 4, DATE 7/21

PAGE 6

HEINRICHS GEOEX

SEND	1-2	6-7	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6
RECEIVE		CALE	1W-1E						1E-3E	—
MULTIPLIER	1.0	1.0	10	1.0	1.0	1.0	1.0	1.0	10	1.0
PFE	+1.2	-0.1	+0.5	+1.2	+1.1	+1.5	+1.3	+1.2	+1.3	+1.7
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	5		1	2	3	4	5	6	2	3
H.F. MV	13.0	102.3	525	86.4	49.8	27.2	17.0	12.1	157	42.7
DRIFT	-0.1	0.0	0.0	0.0	0.0	+0.1	-0.1	-0.2	0.0	0.0
1.0 PFE / K_n/1000										
0.3 PFE / P_{CAL}										
0.1 PFE / PFE_c	1.3		0.5	1.2	1.1	1.4	1.4	1.3	1.3	1.7
3.0 MV / $P/2\pi$	256		295	194	280	306	334	381	353	240
DRIFT / MCF	5.1		-1.7	6.2	3.9	4.6	4.2	3.4	3.7	7.1
S.P.			-8.7						-10.3	
NOISE										
POT RES.										
CULT & CMTS										

19 15

I.P. RECEIVER NOTES, JOB No. 1181, AREA _____

LINE 3, HALF E, SR. _____, a = 250, BEARING E

SENDER STA. _____ = ELECTRODE No. 4, DATE 7/21

PAGE 7

HEINRICHS GEOEX

SEND	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
RECEIVE	1E-13E	—		3-5E	—	—	—	5-7E	—	—
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	+1.8	+2.0	+1.9	+1.5	+1.6	+1.6	+1.9	+1.5	+1.5	1.5
CUR. (AMPS)	2 —									
POINT NO.										
SEP. (n)	4	5	6	3	4	5	6	4	5	6
H. F. MV	30.0	17.5	12.0	64.4	22.1	17.8	11.2	34.1	13.7	12.0
DRIFT	0.0	0.0	-0.1	+0.1	0.0	-0.1	+0.1	+0.1	+0.2	0.0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.8	2.0	2.0	1.5	1.6	1.7	1.8	1.5	1.4	1.5
3.0 MV $\rho/2\pi$	338	344	378	362	249	350	352	384	269	378
DRIFT MCF	5.3	5.8	5.3	4.1	6.4	4.9	5.1	3.9	5.2	4.0
S. P.				+14.2				-12.9		
NOISE										
POT RES.										
CULT & CMTS										

35 27

I.P. SENDER NOTES

JOB No. 1181 AREA KINGMAN

LINE 3, HALF W, SP. 1, DATE 7/21

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6 7	CAL
RECEIVE	9-11W	→	11-13W			13-15W				1-2
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X100
VOLTAGE	200	200	275	200	200	250	275	225	200	100
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-17 W					17-19				
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200
VOLTAGE	200	225	275	225	200	200	200	250	275	200
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

FREQUENCIES

SENDER No. 9662-S	POWER UNIT ID
OPERATOR McGUIRE	
RECEIVER No.	HOURS RUN
OPERATOR SARGANT	

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA Kingman

LINE _____, HALF W, SP. 1, DATE 7/21

PAGE 2

HEINRICHS GEOEX

SEND	6-7	2-3	3-4	4-5	5-6	1-2	3-4	4-5	1-2	2-3
RECEIVE	17-19	19-21	—	—	—		21-23	W	—	—
RANGE	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200
VOLTAGE	200	200	225	275	220	200	240	260	200	200
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SEND	3-4	1-2	2-3							
RECEIVE	23-25	W	—							
RANGE	10x200	10x200	10x200							
VOLTAGE	240	200	200							
CURRENT	2.0	2.0	2.0							

FREQUENCIES

SENDER No. 9662-S POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No. HOURS RUN

OPERATOR SARGANT

COMMENTS:

R 1-2	2-3 ↑
10x200	10x200
200	200
2.0	2.0

I.P. SENDER NOTES

JOB No. _____ AREA Kingman

LINE _____, HALF E, SP. 1, DATE 4/21

PAGE 3

HEINRICHS GEOEX

SEND	S.P	S.P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-7W	7-5W								
RANGE			10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200
VOLTAGE			260	240	200	200	220	260	240	200
CURRENT		CAL	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SEND	1-2	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5
RECEIVE	[redacted]									
RANGE	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200	10x200
VOLTAGE	200	200	220	260	240	200	200	200	220	260
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

FREQUENCIES

SENDER No. 9662-S — POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No. — HOURS RUN

OPERATOR SARGANT

COMMENTS: CAL
10x100
100
1.0

I. P. SENDER NOTES

JOB No. 1181 AREA ODLE RANCH

LINE 43, HALF _____, SP. 1, DATE 7/21

PAGE 4

HEINRICHS GEOEX

SEND	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5	6-7
RECEIVE										
RANGE	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	10X200	
VOLTAGE	240	200	200	220	260	250	200	220	260	
CURRENT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
SEND	5-6									
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	
SENDER No.	POWER UNIT ID
OPERATOR	
RECEIVER No.	HOURS RUN
OPERATOR	

COMMENTS:

1. P. RECEIVER NOTES, JOB No. 1181, AREA _____

LINE 3, HALF W, SP. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/22

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	1-2
RECEIVE	9-7E	→	7-5E	→	→	5E-3E				CAL
MULTIPLIER	1.0	1.0	10	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	+0.4	+0.4	+0.5	+0.6	+0.5	+0.5	+0.6	+0.6	+0.4	0.0
CUR. (AMPS)	2				3	2			3	1.0
POINT No.	1	2	1	2	3	1	2	3	4	
SEP. (n)			1							
H. F. MV	51.8	15.3	131	20	13.6	209	44.5	10.8	8.65	102.2
DRIFT	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0
1.0 PFE K_n/1000	1.15	4.60	1.15	4.6	11.5	1.15	4.6	11.5	23	
0.3 PFE P_{CAL}										
0.1 PFE PFE_c									0.5	
3.0 MV $\rho/2\pi$	29	34	74	45	51	118	100	61	65	
DRIFT MCF	+0.4	+0.4	+0.5	+0.6	+0.5	+0.5	+0.6	+0.6	+0.5	
S. P.	-1.0		-2.9			-7.2				
NOISE MCF	14	12	6.8	13	9.8	4.3	6.0	9.9	7.7	
POT RES.	Low									
CULT & CMTS										

0 5 7 6

I. P. RECEIVER NOTES, JOB NO. 1181, AREA _____

LINE 3, HALF W, SP. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE NO. 4, DATE 7/22

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	3E-1E					1E-1W				
MULTIPLIER	10	1.0	1.0	0.1	0.1	10	10	1.0	1.0	+0.9
PFE	+1.0	+1.2	+1.1	+1.6	+1.7	+1.2	+1.2	+1.2	+1.1	0.9
CUR. (AMPS)	2			3	3	2	2	2	3	3
POINT NO.	1	2	3	4	5	1	2	3	4	5
SEP. (n)										
H. F. MV	290	67.0	20.7	9.32	5.41	435	112	40.1	21.4	7.06
DRIFT	0.0	0.0	0.0	+0.2	-0.1	0.0	0.0	0.0	+0.2	+0.2
1.0 PFE K_n/1000	1.15	4.6	11.5	23	40.2	1.15	4.6	11.5	23	40.2
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c				1.5					1.0	0.8
3.0 MV $\rho/2\pi$	163	151	116	70	71	245	252	226	161	94
DRIFT MCF	+1.0	+1.2	+1.1	+1.5	+1.7	+1.24	+1.2	+1.2	+1.0	0.8
S. P.	-1.0					-5.4				
NOISE	6.1	8.0	9.4	21	24	4.9	4.8	5.3	6.2	5.5
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1181, AREA

LINE 3, HALF W, SP. 2, a = 200, BEARING W

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/22

PAGE 3

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	1E-1W	1W-3W					3W-5W			
MULTIPLIER	0.1	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	1.0
PFE	+1.3	+1.2	+1.2	+1.0	+1.0	+1.4	+1.7	+1.3	+1.5	+1.5
CUR. (AMPS)	3	2		2	3	3	2	2	3	3
POINT NO.	6	2	3	4	5	6				
SEP. (n)										
H. F. MV	4.41	86.0	35.8	15.7	9.30	3.33	65.2	34.2	25.4	10.5
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0
1.0 PFE $K_n/1000$	64.3	4.6	11.5	23	40.2	64.3	11.5	23	40.2	64.3
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	92	194	201	177	122	70	367	385	333	220
DRIFT MCF	+1.3	+1.2	+1.2	+1.0	+1.0	+1.4	+1.7	+1.3	+1.4	+1.5
S. P.		-16.9					-15.0			
NOISE	14	6.2	6.0	5.7	8.2	20	4.6	3.4	4.2	6.8
POT RES.										
CULT & CMTS										

-1

-10

I. P. RECEIVER NOTES, JOB No. 1181, AREA

LINE 3, HALF E, SP. 2, a = 200, BEARING E

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/22

PAGE 4

HEINRICHS GEOEX

SEND	S.P	S.P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-11E	11-13E	13-15E				15-17E			
MULTIPLIER			1.0	1.0	0.1	0.1	1.0	0.1	0.1	0.1
PFE			+0.5	+0.6	+0.5	+0.7	+0.5	+0.4	+0.4	+0.4
CUR. (AMPS)			2							
POINT No.										
SEP. (n)										
H. F. Mv			36.9	15.3	9.13	5.77	39.8	7.37	5.03	3.60
DRIFT			0.0	0.0	+0.2	0.0	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000			1.15	4.6	11.5	23	1.15	4.6	11.5	23
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$			21	34	51	65	22	17	28	40
DRIFT MCF	PFE		+0.5	+0.6	+0.4	+0.7	+0.5	+0.4	+0.4	+0.4
S. P.	-15.0	-18.1		-14.4			+11.2			
NOISE MCF			24	17	7.8	11	22	24	14	9.9
POT RES.										
CULT & CMTS										

0 -9 -22 -31 -14

I. P. RECEIVER NOTES, JOB NO. 1191, AREA _____

LINE 3, HALF E, SP. 2, a = 200', BEARING _____

SENDER STA. 9E = ELECTRODE NO. 4, DATE 7/22

PAGE 5

HEINRICHS GEOEX

SEND	1-2	6-7	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6
RECEIVE	15-17E	12AL	17-19	EC					19-21E	
MULTIPLIER	0.1	1.0	1.0	1.0	0.1	0.1	0.1	0.1	1.0	0.1
PFE	+0.4	+0.0	+0.3	+0.5	+0.3	+0.6	+0.4	+0.4	+0.4	+0.4
CUR. (AMPS)	2	1.0	3.0	3.0	3.0	3	3	3	3	3
POINT NO.										
SEP. (n)										
H. F. MV	2.49	102.3	103	19.8	6.03	5.27	4.29	3.18	27.4	8.59
DRIFT	0.0	0.0	0.0	0.0	0.0	+0.2	0.0	0.0	0.0	0.0
1.0 PFE / K_n/1000	40.2		1.15	4.6	11.5	23	40.2	64.3	4.6	11.5
0.3 PFE / ρ_{CAL}										
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$	49		39	30	23	39	56	67	41	32
DRIFT / MCF	+0.4	–	+0.3	+0.5	+0.3	+0.5	+0.4	+0.4	+0.4	+0.4
S. P.									-12.9	
NOISE	8.2		7.8	17	13	13	7.1	6.0	9.7	12
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1181, AREA

LINE 3, HALF E, SP. 2, a = 200, BEARING E

SENDER STA. 9E = ELECTRODE No. 4, DATE 7/22

PAGE 6

HEINRICHS GEOEX

SEND	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
RECEIVE	19-21E			21E-23E				23-25E		
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	+0.5	+0.3	+0.4	+0.6	+0.5	+0.2	+0.3	+0.6	+0.6	+0.5
CUR. (AMPS)	3	3	3	3	3	3	3	3	3	3
POINT No.										
SEP. (n)										
H. F. MV	3.75	3.90	3.46	9.95	3.98	2.26	2.73	3.71	1.92	1.33
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000	23	40.2	64.3	11.5	23	40.2	64.3	23	40.2	64.3
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	28	51	72	37	30	30	57	28	24	28
DRIFT MCF	+0.5	+0.3	+0.4	+0.6	+0.5	+0.2	+0.3	+0.6	+0.6	+0.5
S. P.				-16.0				+10.7		
NOISE	18	5.9	5.5	16	17	6.8	5.2	22	25	1.8
POT RES.										
CULT & CMTS										

-31 -15

I. P. SENDER NOTES

JOB No. 481 AREA Kingman

LINE 3, HALF W, SP. 2, DATE 7/22

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	1-2
RECEIVE	9-7E	—	7-5 E	—	—	5-3E	—	—	—	CAL
RANGE	10X200	—	—	—	10X300	10X200	—	—	10X300	10X100
VOLTAGE	120	120	100	140	180	100	100	140	180	80
CURRENT	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	3.0	1.0
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	3-1E	—	—	—	—	1E-1W	—	—	—	
RANGE										
VOLTAGE	100	100	100	200	180	140	120	100	160	200
CURRENT	2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0

FREQUENCIES

SENDER No. 9662-S

POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No.

HOURS RUN

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA Kingman

LINE 3, HALF W, SP. 200, DATE 7-22-77

PAGE 2

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	1W-3W	1W-3W	—	—	—	—	3W-5W	—	—	—
RANGE	10X300	10X200	—	—	10X300	—	10X200	—	10X300	—
VOLTAGE	180	140	100	100	160	200	140	100	140	160
CURRENT	3.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0	3.0	3.0
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES

SENDER No. 9662-S	POWER UNIT ID
OPERATOR McGUIRE	
RECEIVER No.	HOURS RUN
OPERATOR	

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA

LINE 3, HALF E, SP. 2, DATE 7/22

PAGE 3

HEINRICHS GEOEX

SEND	S.P.	S.P	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3
RECEIVE	9-11E	11-13E	13-15E	—	—	—	15-17E	—	—	—
RANGE			10X210	—	—	—	—	—	—	—
VOLTAGE		100	100	100	120	140	140	120	100	120
CURRENT			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SEND	120	6-7	2-3	2-3	3-4	4-5	5-6	6-7	6-7	5.6
RECEIVE		CAL	17-19E	—	—	—	—		19-21E	—
RANGE	10X210	10X10								
VOLTAGE	140	8.0.	10X310	—	—	—	—	—	—	—
CURRENT	2.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

FREQUENCIES	
SENDER No.	POWER UNIT ID
OPERATOR	
RECEIVER No.	HOURS RUN
OPERATOR	

COMMENTS:

I. P. SENDER NOTES

JOB No. 1181 AREA KINGMAN

LINE 3, HALF E, SP. 200, DATE 7-22-77

PAGE 4

HEINRICHS GEOEX

SEND	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
RECEIVE				21-23E				23-25E		
RANGE	10X306									
VOLTAGE	160	140	160	180	200	160	140	180	200	160
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES

SENDER No. 9662-S

POWER UNIT ID

OPERATOR McGUIRE

RECEIVER No.

HOURS RUN

OPERATOR

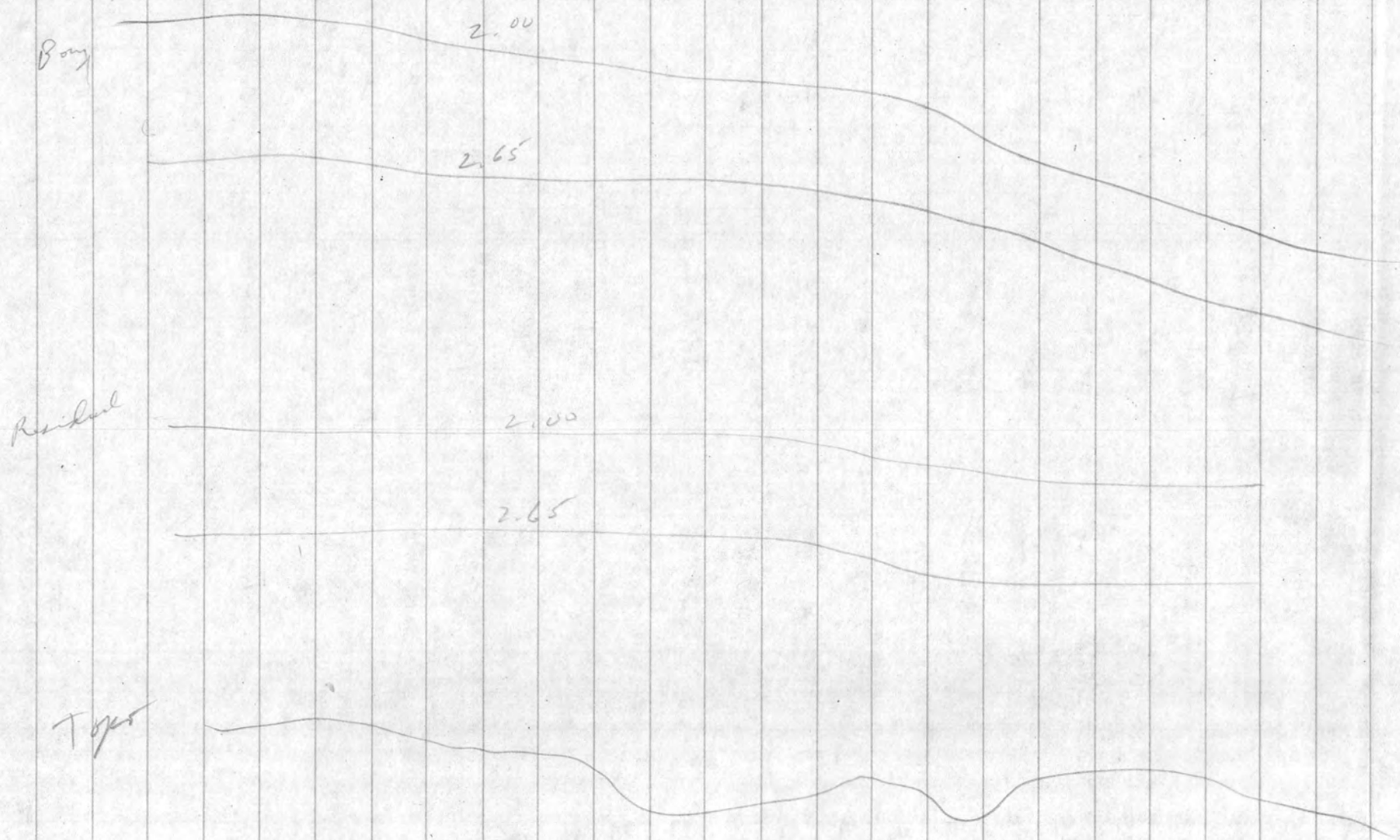
COMMENTS:

for Vic

Job # 1181

7/28/77

STA	READ	ELEV	Bouguer Gravity 2.00 g/cc (READX1.05+ELEVX0.06854)	2.65 g/cc (READX1.05+ELEVX0.06025)
28E	40.11	162.39	53.25	51.90
27E	40.32	157.93	53.16	52.21
26	40.85	147.59	53.01	52.24
25	40.79	145.87	52.83	51.95
24	40.36	153.83	52.92	51.95
23	40.23	155.99	52.93	52.09
22	39.64	166.74	53.05	52.04
21	39.66	165.69	53.00	52.00
20	39.29	172.31	53.06	52.02
19	38.76	181.20	53.12	52.02
18	38.11	195.40	53.41	52.23
17	37.08	215.15	53.68	52.38
16E	36.68	223.81	53.85	52.50
15	36.57	227.04	53.96	52.59
14	36.79	223.67	53.96	52.61
13	36.55	226.20	53.88	52.52
12	36.24	231.61	53.93	52.53
11	35.98	237.29	54.04	52.61
10	35.54	245.39	54.14	52.65
9	35.62	244.08	54.13	52.66
8	35.37	248.45	54.17	52.78
7	35.44	249.15	54.29	52.78
6	34.79	259.51	54.32	52.75
5	34.41	266.81	54.42	52.81
4	34.26	269.98	54.48	52.85
3	33.76	279.18	54.58	52.90
2	33.17	290.32	54.73	52.97
1	32.52	301.59	54.82	53.00
0-E/W	32.30	306.14	54.90	53.05


Bony
2.00
2.65
Residual
2.00
2.65
Topo

$0.5 = 12[illegible] \times 0.65\ \Delta T$

$0.09406 - 0.01276 \times 2.00$

.06025

STA	READ	ELEV	BOUGUER GRAVITY MGALS 2.00 g/cc	
	×1.05	×0.06854	2.00 g/cc	2.65 g/cc
40E	42.53	100.00	51.51	50.68
41	43.28	84.98	51.27	50.56
42	43.57	77.70	51.07	50.43
43	43.80	70.96	50.85	50.27
44	44.03	65.02	50.69	50.15
45	44.26	58.85	50.51	50.02
46	44.40	53.75	50.30	49.86
47	44.55	48.88	50.13	49.72
48	44.72	44.03	49.97	49.61
49	44.83	38.90	49.74	49.42
50	45.01	34.54	49.63	49.34
51	45.16	30.15	49.48	49.23
52	45.14	28.43	49.35	49.11
53	45.39	24.23	49.32	49.12
54E	45.65	18.43	49.20	49.04
39E	42.09	111.84	51.86	50.93
38	42.18	113.57	52.07	51.13
37	41.67	123.72	52.23	51.21
36	41.74	124.91	52.39	51.35
35	41.97	130.90	52.52	51.43
34	41.73	127.08	52.53	51.47
33	42.36	116.87	52.49	51.52
32	40.90	143.92	52.81	51.62
31	40.78	147.79	52.95	51.72
30	40.58	153.15	53.11	51.84
29	40.37	157.65	53.19	51.89
28E	40.11	162.39	53.25	51.90

STA	Rd ×1.05	ELE	B.G	MG.
27 E	40.32	157.90	53.16	51.85
26	40.85	150.26	53.19	51.95
25 ?	40.79	145.58	52.81 ←	51.60
24 not notes given	40.36	153.59	52.91	51.63
23	40.23	155.73	52.92	51.62
22	~~39.66~~ 39.64	166.43	~~53.05~~ 53.03	51.65
21	39.66	165.76	53.00	51.63
20	39.29	172.43	53.07	51.64
19	~~39.76~~ 38.76	~~173.36~~ 181.63	~~53.63~~ ~~52.58~~ 53.15 ←	51.64
18 E	~~39.11~~ 38.11	196.51	~~54.53~~ 53.48	51.86
17	37.08	210.17	53.34 ←	51.60
16	36.68	196.00	51.95	50.32
15	36.57	192.62	51.60	50.00
14	36.79	188.08	51.52	49.96
13	36.55	190.49	51.43	49.85
12 E	36.24	196.01	51.49	49.86
11	~~35.58~~ 35.98	201.69	~~51.18~~ 51.60	49.93
10	~~36.54~~ 35.54	209.76	~~52.74~~ 51.69	49.96
9	~~35.37~~ 35.62	208.47	51.69	49.96
8	35.44 35.37	212.80	51.72	49.96
7	34.79 35.44	213.56	51.85	50.08
6	36.72 34.79	223.98	51.87	50.02
5	34.80 34.41	231.13	51.97 50.06	50.06
4 E	34.41 34.26	237.26	52.23 50.27	50.27

$$\frac{.66}{8.69} \qquad 35.08^\circ N$$

$$1.307 \sin 2(35.08^\circ) \text{ mg/mile} \times \frac{1 \text{ mile}}{5.28 \text{ kft}} = 0.2328 \frac{\text{mgals}}{\text{kft}}$$

$$\Delta g = 12.77 \, \Delta\rho \, \Delta T$$

let $\Delta\rho = 0.65$ g/cc

then $\dfrac{\Delta g}{12.77 \times 0.65} = \Delta T = \dfrac{\Delta g}{8.3}$ kft

2.18
1.27
.98 mgals in 800'

1.225 mgals/kft

0.148 148'/1000'