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IP SURVEY

ORO BLANCO, ARIZONA

for

Nuclear Dynamics, Inc.

September, 1973

GEOEX Job# 840

STRATHMORE ONION SKIN
25% COTTON FIBER USA

HEINRICHS GEOEXPLORATION COMPANY

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

September 13, 1973

Mr. Francis X. Cannaday
Manager, Base & Precious Metals
Nuclear Dynamics, Inc.
2871 Sky Harbor Blvd.
Phoenix, Arizona 85036

Re: I.P. Survey
Oro Blanco, Arizona
GEOEX Job #840

Dear Mr. Cannaday:

This letter is to serve as the final report on the initial I.P. reconnaissance GEOEX recently completed for Nuclear Dynamics, Inc. in the Oro Blanco Area, Santa Cruz County, Arizona.

The field work was done between August 20 and August 30, 1973, with our Mr. Russell Jolliffe, Geophysical Supervisor, and our Mr. Gary Hix, Crew Chief, in charge, closely coordinating with you. Data reduction, interpretation and report are by Mr. Chris S. Ludwig, Chief Geophysicist.

Three I.P. lines were completed, Lines 1, 2, and 5. Line 1 consists of two end-on spreads of 500 foot dipole coverage, oriented N10°E, using seven sending electrodes. Line 2 is a single seven sending electrode spread using 1000 foot dipoles oriented E-W. Line 5 is a single five sending electrode spread of 1500 foot dipoles run along and centered on Line 1 at 20N.

A GEOEX MK-4 multi-frequency I.P. system was used to obtain the data on frequencies of 0.1, 0.3 and 1.0 hz. PFEs were read for 0.1 vs 0.3 hz and also 0.3 vs 1.0 hz for inductive coupling monitoring purposes. These two PFEs were added together to give the 0.1 vs 1.0 hz PFE. No significant inductive coupling was noted, due to the rather high resistivity encountered over most of the area surveyed.

These data are presented on "Sectional Data Sheets", two for each line and dipole spacing. The first sheet, from top to bottom, shows the apparent resistivity, the PFE at 0.1 vs 1.0 hz and the metallic conduction

STRATHMORE ONION SKIN
25% COTTON FIBER USA

factor (MCF) at 0.1 vs 1.0 hz, all contoured in "sectional" form, and the self potential (SP) in profile form at the bottom of the sheet. The second sheet shows an uncontoured sectional plot of the PFE at 0.3 vs 1.0 hz times 1.912, on top, and the PFE at 0.1 vs 0.3 hz times 2.096, directly below. The 1.912 and 2.096 factors normalize their respective PFEs to a decade frequency spread assuming a logarithmic frequency PFE dependency.

An "Induced Polarization Location and Interpretation Plan", at a scale of 1"=1000', shows the line locations and surface projected interpretation relative to the land net and roads.

The objective of this survey was to delineate any significant sulfide distribution at depth in a structurally complex area showing scattered, shallow, copper oxide and gold workings.

Several zones of very weak to weak strength I.P. response were delineated. In several cases, the anomalism is related to areas of rather high resistivity, suggesting that the I.P. may be reflecting zones of silification containing small amounts of associated metallic lustered sulfide or other I.P. responsive minerals such as iron or manganese oxides or possibly clay. No broad zones of response typical of porphyry-type copper mineralization were noted on this coverage.

On Line 1, anomalism was delineated near 7.5S, 2.5N, 17.5N, 40N and 63N. The 7.5S anomaly is very weak, appears to be caused by a steeply dipping relatively high resistivity source less than 500 feet wide, and correlates with a sandstone ridge.

The 2.5N anomaly is a very weak, poorly defined feature, likely depth limited to not much deeper than 250 feet, correlates with a resistivity low and may be reflecting the Old Glory Mine mineralization.

The 17.5N anomaly is quite similar in appearance to the 7.5S anomaly and likely has a similar source although it appears to correlate with a ridge of intrusive rock and a small prospect.

Near 40N, a poorly defined, very weak anomaly seems to correlate with the Margarita Mine mineralization. It may have a depth limited source and is associated with intermediate level resistivities.

The 63N anomaly has a source likely two dipoles wide (about 1000 feet) and is weak in strength, though it has the strongest response seen on this survey. It correlates with a high resistivity feature in an area mapped mainly as intrusive. This anomaly is the only feature large enough and strong enough to also be detected on Line 5 with its three times larger dipole spacing. No other anomalism of note was seen on Line 5.

All of the Line 1 anomalism indicates sources that come to within 150 feet, or so, of the surface and none show any significant improvement in strength with increased depth.

One very weak anomaly was noted on Line 2, east of 45E which may be between one and two dipoles in width (1000 to 2000 feet wide) and is associated with a high resistivity zone. It is quite similar to the weak anomaly near 63N on Line 1 and may reflect the same feature, thereby implying a NW strike, which is reasonable, in that there is a strong regional NW strike in the area.

The resistivity shows a rather pronounced general increase with depth on the 1000 and 1500 foot dipole deeper coverage. The more resistive material causing this increase appears to be on the order of 1500 feet deep south of 20N on Line 5, but rapidly becomes shallower to the north.

The self potentials show some variation along the lines but there is little correlation with the I.P. Likely the SP is reflecting the topography and rock type changes.

In view of the quite weak I.P. response and lack of improvement in strength with depth, no drilling of the I.P. anomalies is recommended, based on the existing coverage, unless to test correlating geologic target areas mainly on their own merit. Some geologic attention should be given to the Line 1, 63N anomaly to determine its cause and possible economic significance, and if interesting, follow-up detail I.P. coverage may be warranted.

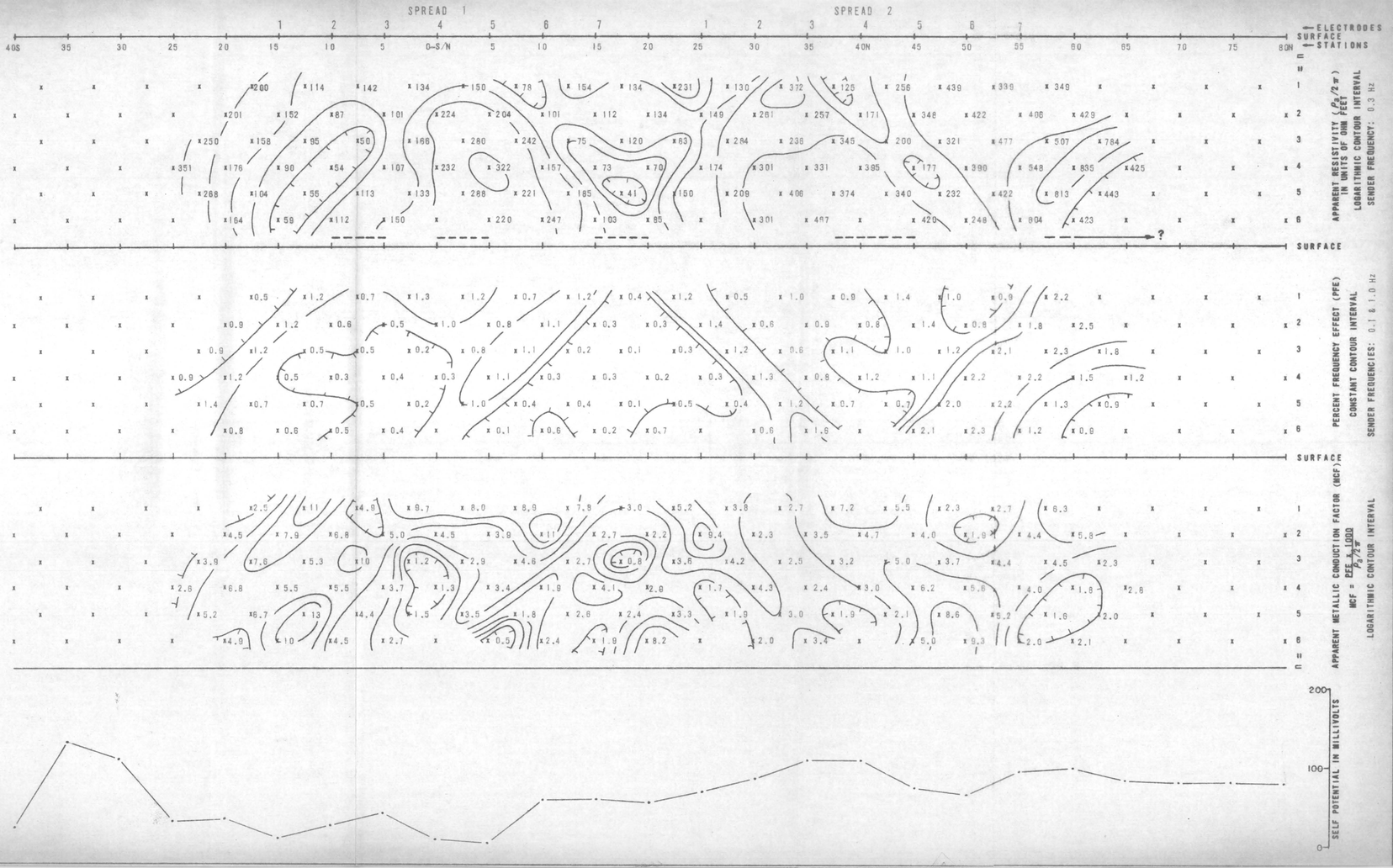
Respectfully submitted,

Heinrichs GEOEXploration Co.

Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

CSL:mt



840-73

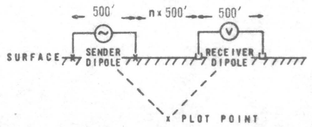
LINE NO.
1 SHEET 1
SPREAD(S)
1 & 2
BEARING
N 10° E

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
of
ORO BLANCO AREA, ARIZONA
for
NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH

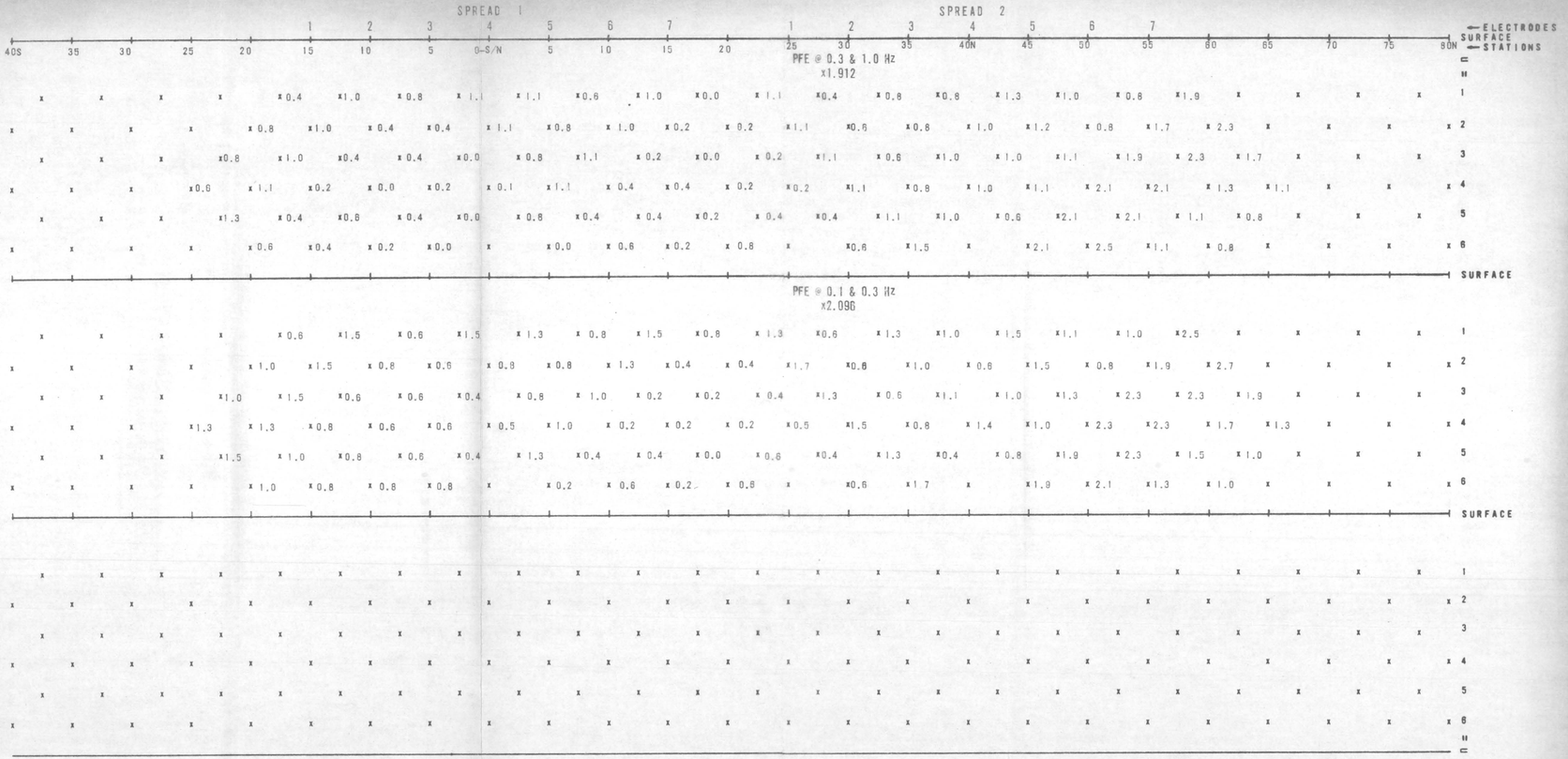
VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



DATE
AUGUST 1973

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



840-73

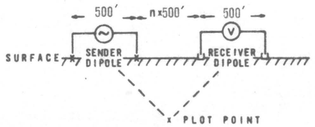
LINE NO.
1 SHEET 2
SPREAD(S)
1 & 2
BEARING
N 10° E

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
of
ORO BLANCO AREA, ARIZONA
for
NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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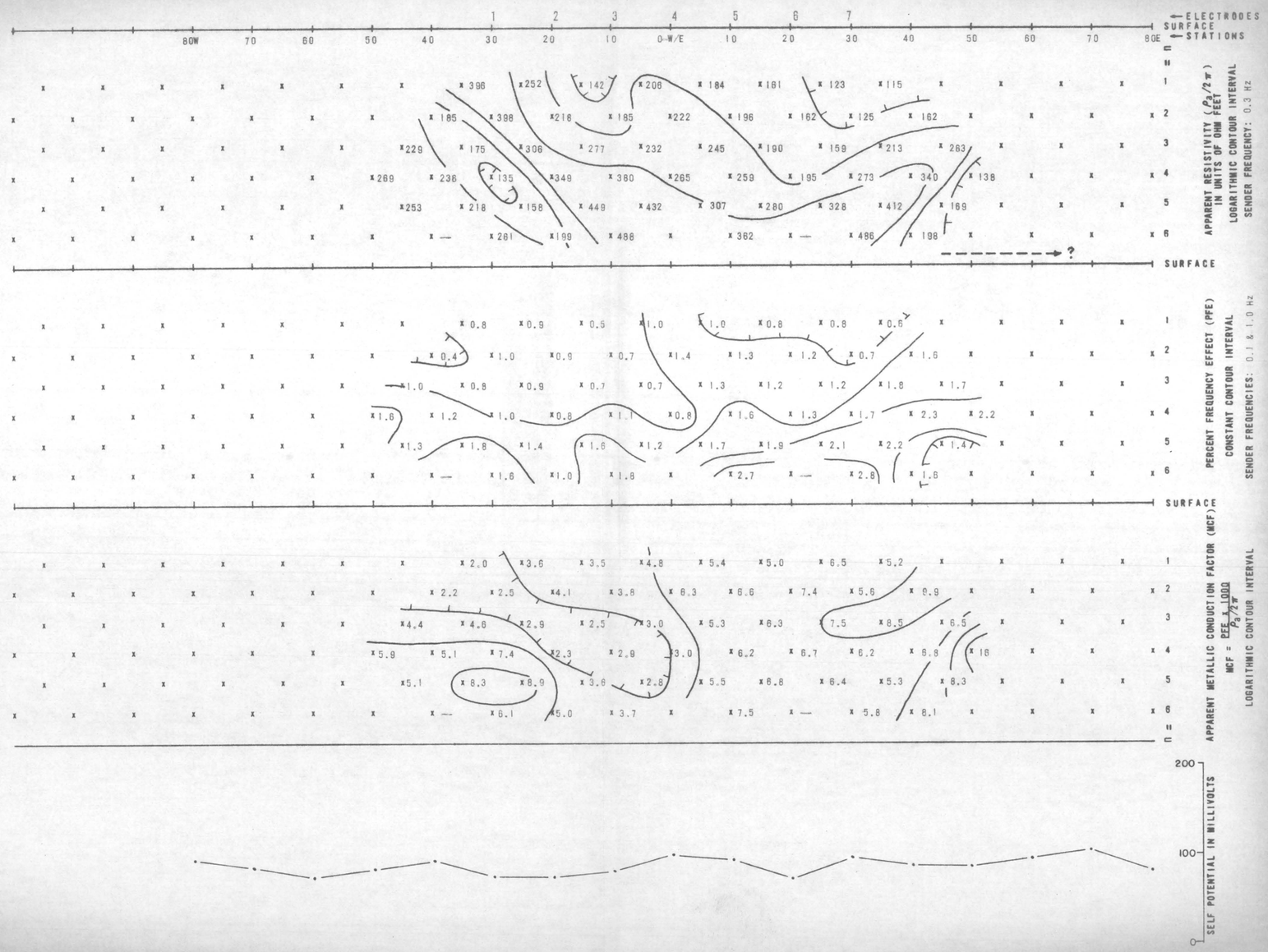


840-73

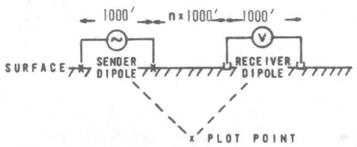
LINE NO.
2 SHEET 1
SPREAD(S)
1
BEARING
EAST-WEST

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of ORO BLANCO AREA, ARIZONA for NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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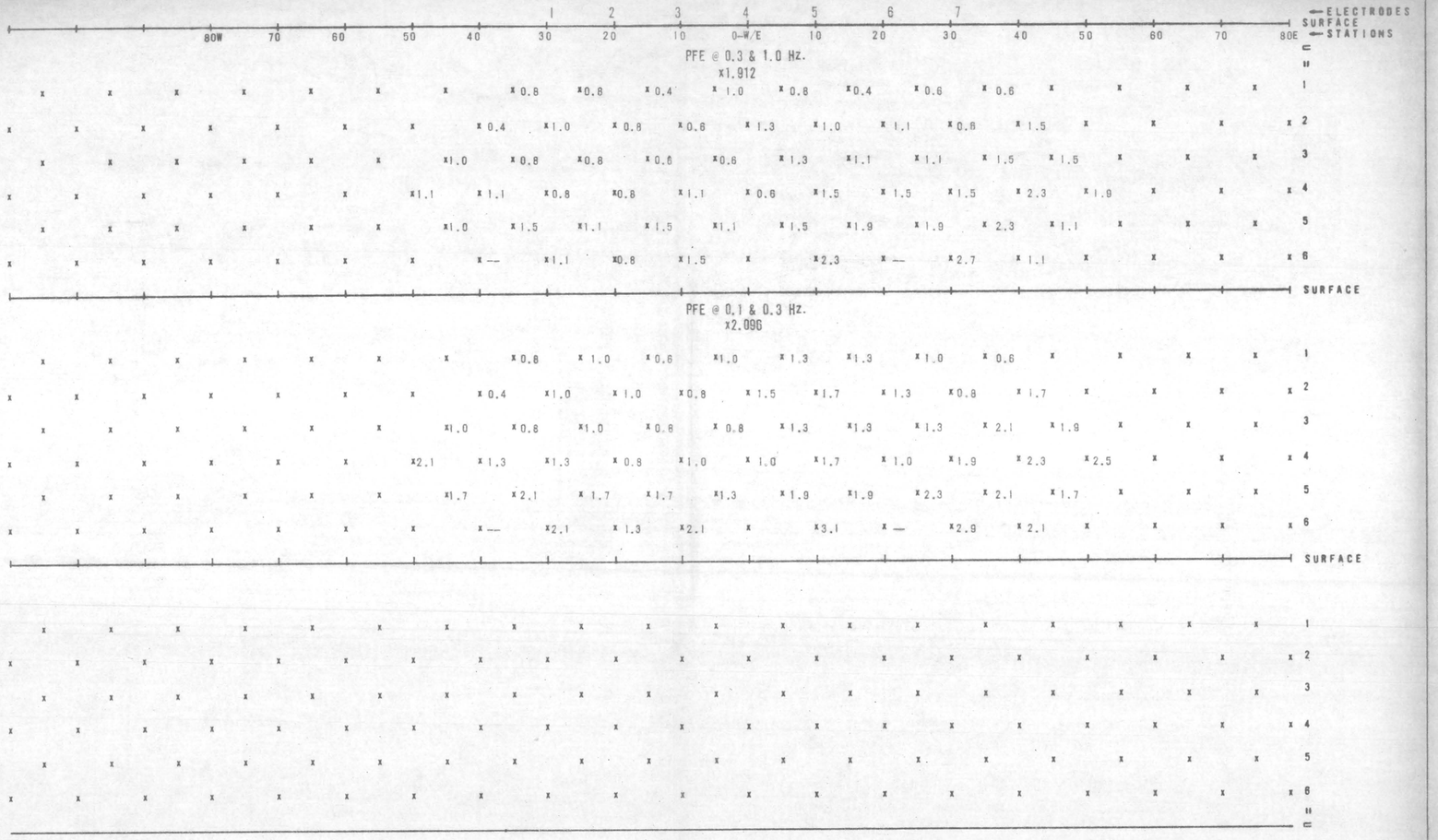
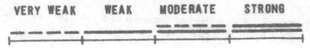


840-73

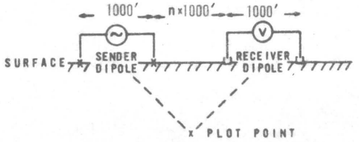
LINE NO.
2 SHEET 2
SPREAD(S)
1
BEARING
EAST-WEST

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
of
ORO BLANCO AREA, ARIZONA
for
NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH



DIPOLE-DIPOLE ELECTRODE ARRAY



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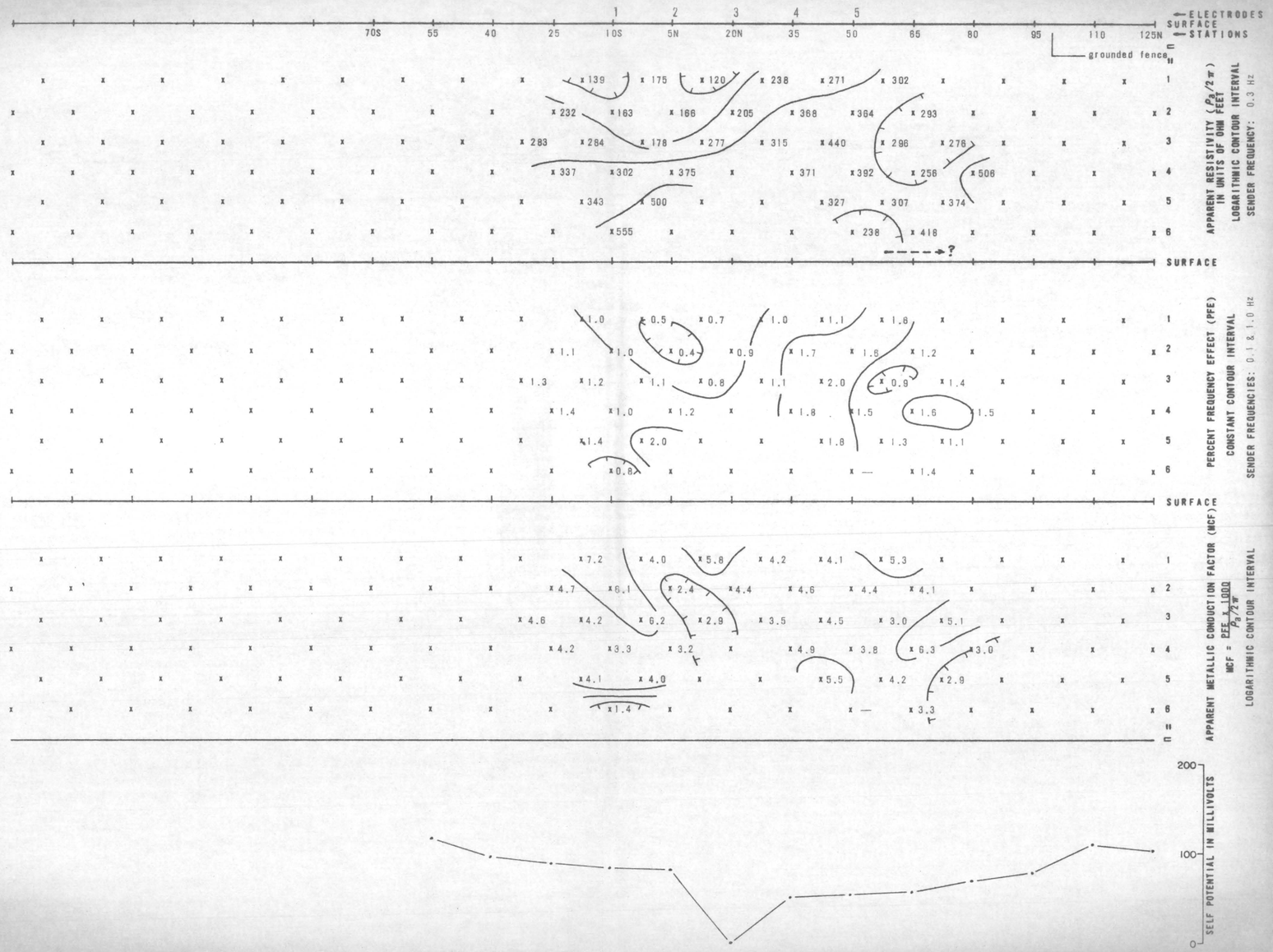


840-73

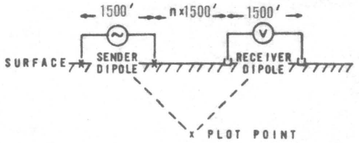
LINE NO.
5 SHEET 1
SPREAD(S)
1
BEARING
N 10° E

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
of
ORO BLANCO AREA, ARIZONA
for
NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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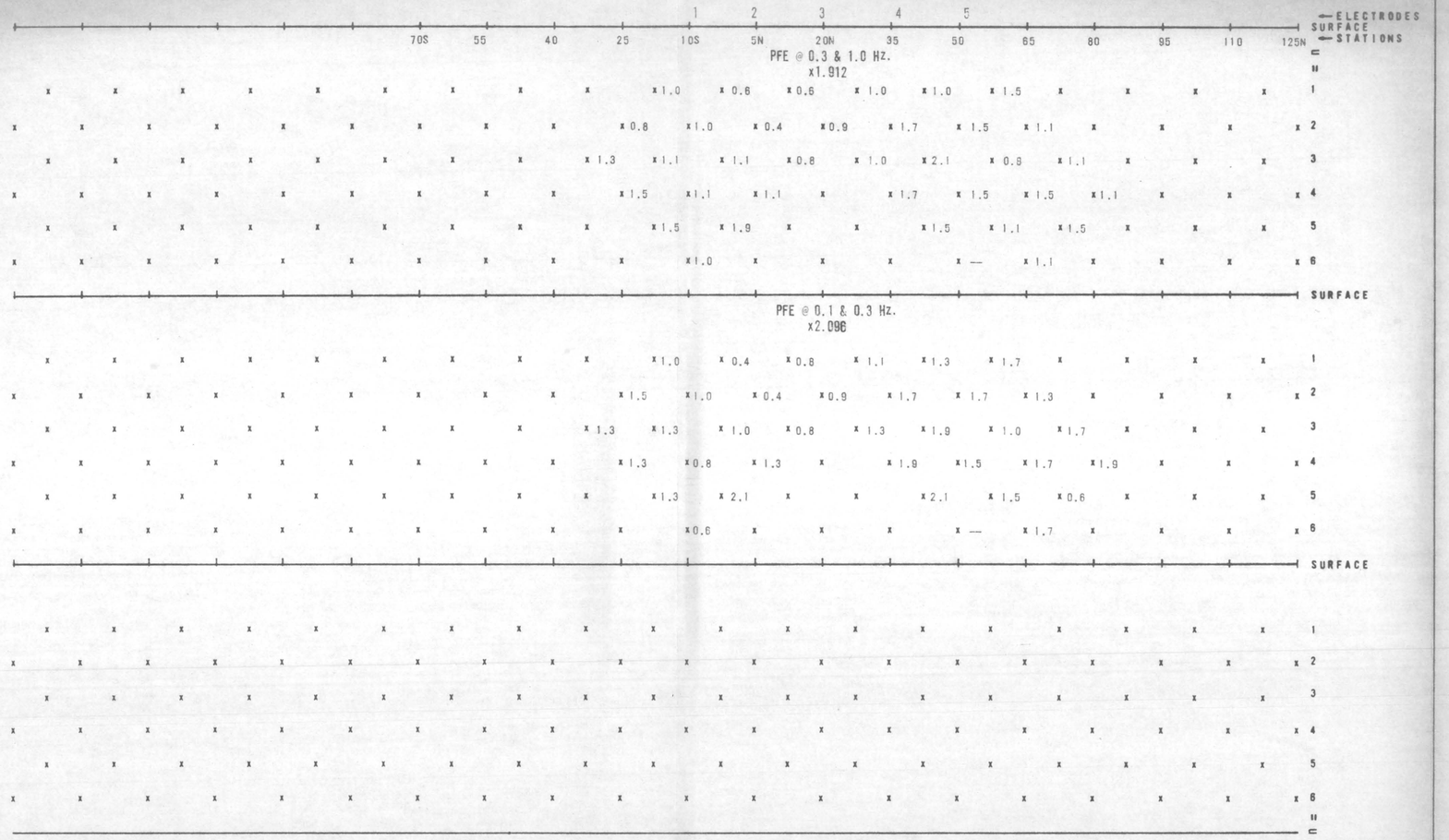
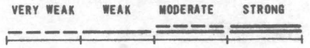


840-73

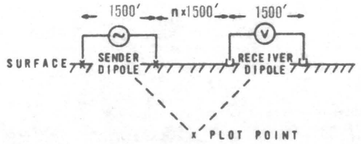
LINE NO.
5 SHEET 2
SPREAD(S)
I
BEARING
N 10° E

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of ORO BLANCO AREA, ARIZONA for NUCLEAR DYNAMICS, INC.

RELATIVE ANOMALY STRENGTH



DIPOLE-DIPOLE ELECTRODE ARRAY



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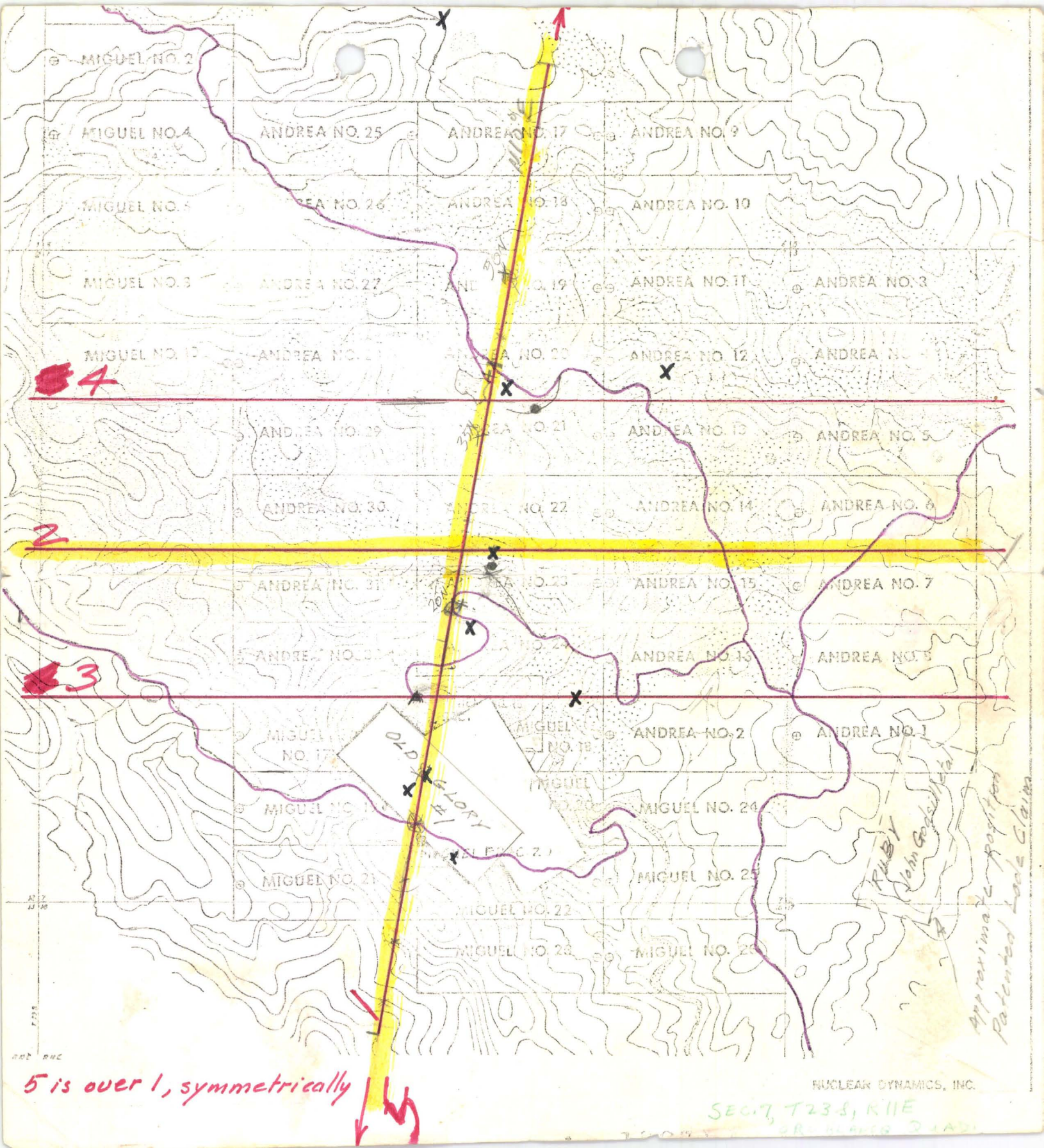
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MIGUEL NO. 4
ANDREA NO. 25
ANDREA NO. 17
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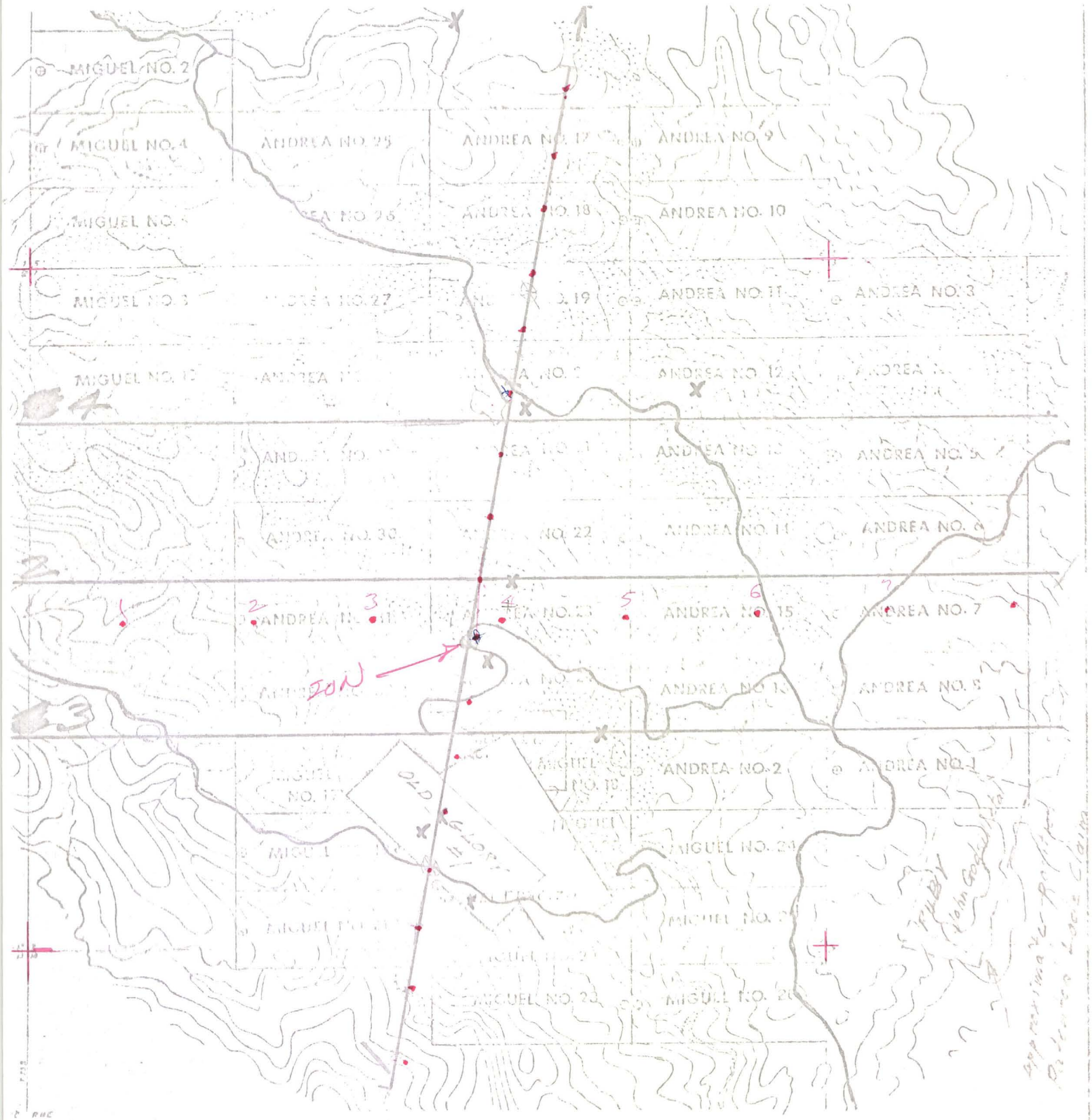
ANDREA NO. 18
ANDREA NO. 10
MIGUEL NO. 8
ANDREA NO. 27
ANDREA NO. 19
ANDREA NO. 11
ANDREA NO. 3
MIGUEL NO. 10
ANDREA NO. 20
ANDREA NO. 12
4
ANDREA NO. 29
ANDREA NO. 21
ANDREA NO. 13
ANDREA NO. 5
ANDREA NO. 30
ANDREA NO. 22
ANDREA NO. 14
ANDREA NO. 6
2
ANDREA NO. 31
ANDREA NO. 23
ANDREA NO. 15
ANDREA NO. 7
ANDREA NO. 24
ANDREA NO. 16
ANDREA NO. 8
3
MIGUEL NO. 17
MIGUEL NO. 18
ANDREA NO. 2
ANDREA NO. 1
OLD GLORY #1
MIGUEL NO. 19
MIGUEL NO. 20
MIGUEL NO. 24
MIGUEL NO. 21
MIGUEL NO. 25
MIGUEL NO. 22
MIGUEL NO. 26
MIGUEL NO. 23
MIGUEL NO. 27
RUBY
John Godwal
Approximate position of Patented Lode Claims
5 is over 1, symmetrically
NUCLEAR DYNAMICS, INC.
SEC 17, T23S, R11E



5 is over 1, symmetrically

NUCLEAR DYNAMICS, INC.

I. P. RECEIVER NOTES, JOB NO. 840 AREA Oro Blanco

LINE 1, HALF S, SP. 1, a = 500', BEARING S 10° W

SENDER STA. 00 = ELECTRODE NO. 4, DATE 21 Aug 73

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	0	5S	5S		10S	10S			15S	6-7
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.1	1.0	10
PFE	1.2	.8	1.3	1.0	.8	.7	.5	.2	.3	
CUR. (AMPS)	.3	3.0	.3	.3	3.0	.3	.3	.3	3.0	
POINT NO. K_n	1.5	6	1.5	6	15	1.5	6	15	30	
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	30.6	105.7	27.3	11.4	58.4	28.9	5.13	3.39	23.9	204
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0±.2	0.0±.4	0.0±.1	0.0
1.0 PFE K_n/1000	-0.6	-0.4	-0.6	-0.6	-0.4	-0.4	-0.2	0.0	0.0	0.0
0.3 PFE ρ_{CAL}	.98									
0.1 PFE PFE_c	0.6	0.4	0.7	0.4	0.4	0.3	0.3	0.2	0.3	0.0
3.0 MV $\rho/2\pi$	150	207	134	224	286	142	101	166	234	
DRIFT MCF	8	3.9	9.7	4.5	2.8	4.9	5.0	1.2	1.3	
S. P.	+32.0		-13.0			-18.0				
NOISE −	1.1	.8	1.1	1.1	.8	.8	.4	0	0	0
POT. RES. +	1.3	.8	1.5	.8	.8	.6	.6	.4	.6	
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF S, SP. 1, a = 500', BEARING S 10° W

SENDER STA. 00 = ELECTRODE No. 4, DATE 21 Aug 73

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	15S				20S	20S				→
MULTIPLIER	10	1.0	0.1	1.0	0.1	10	1.0	1.0	0.1	0.1
PFE	1.2	.6	.5	.4	.2	.5	1.2	.5	.3	.5
CUR. (AMPS)	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
POINT ~~No.~~ n	1.5	6	15	30	52.5	1.5	6	15	30	52.5
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	232.0	44.3	9.98	10.9	7.73	408.0	77.6	19.3	5.55	6.56
DRIFT	0.0	0.0	0.0±.2	0.0±.2	0.0±.2	0.0	0.0	0.0	0.0±.3	0.0±.2
1.0 PFE K_n/1000	-0.5	-0.2	-0.2	-0.1	0.0	-0.2	-0.5	-0.2	0.0	0.0-0.4
0.3 PFE P_{CAL}										
0.1 PFE PFE_c	0.7	0.4	0.3	0.3	0.2	0.13	0.7	0.3	0.3-0.4	0.2-0.5
3.0 MV $P/2\pi$	114	87	50	107	133	200	152	95	54	113
DRIFT MCF	11	6.8	10.	3.7	1.5	2.5	7.9	5.3	5.5	4.4
S. P.	+27.0					-5.0				
~~NOISE~~ —	1.0	.4	.4	.2	0	.4	1.0	.4	0	.4
~~POT RES.~~ +	1.5	.8	.6	.6	.4	.6	1.5	.6	.6	.6
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF S, SP. 1, a = 500', BEARING S 10° W

SENDER STA. 00 = ELECTRODE No. 4, DATE 21 Aug 73

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		255	255				305	305			
MULTIPLIER		1.0	1.0	1.0	0.1						
PFE		.4	.9	1.2	.5	.7	.5				
CUR. (AMPS)		3	3	3	3	3	3				
~~POINT~~ No. K_n		84	6	15	30	52.5	84				
SEP. (n)		6	2	3	4	5	6				
H. F. Mv		5.45	102.5	32.2	9.21	3.22	4.07				
DRIFT		0.0	0.0	0.0	0.0	0.0±.4	0.0±.4				
1.0 PFE	K_n/1000	0.0	−0.4	−0.5	−0.1	−0.3	−0.1				
0.3 PFE	ρ_{CAL}					.4					
0.1 PFE	PFE_c	0.4	0.5	0.7	0.4	0.3-0.6	0.3-0.5				
3.0 MV	$\rho/2\pi$	150	201	158	90	55	116				
DRIFT	MCF	2.7	4.5	7.6	5.5	13	4.5				
S. P.			+78.0								
~~NOISE~~ —		0	.8	1.0	.2	.6	.2				
~~POT~~ RES. +		.8	1.0	1.5	.8	.8	.8				
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF S, SP. 1, a = 500', BEARING S10°W

SENDER STA. 0.0 = ELECTRODE No. 4, DATE 21 Aug 73

PAGE 4

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4			
RECEIVE	30S —	—	—	35S	35S —	—	40S			
MULTIPLIER	1.0	1.0	0.1	0.1	1.0	1.0	0.1			
PFE	.9	1.2	.7	.6	.9	1.4	.8			
CUR. (AMPS)	3	3	3	3	3	3	3			
~~POINT No~~ Kn	15	30	52.5	84	30	52.5	84			
SEP. (n)	3	4	5	6	4	5	6			
H. F. Mv	47.0	18.0	6.08	2.14	35.9	15.6	5.98			
DRIFT	+0.2	0.0	00±.4	0.0±.8	+0.2	0.0±.2	0.0±.2			
1.0 PFE Kn/1000	−0.4	−0.6	−0.2	−0.4±0.0	−0.3	−0.7	−0.3			
0.3 PFE PCAL			~~0.5~~ 100 Mo134							
0.1 PFE PFEc	0.5	0.6		0.0±0.8	0.7	0.7	0.5			
3.0 MV P/2π	250	176	104	59	351	268	164			
DRIFT MCF	3.9	6.8	6.7	10	2.6	5.2	4.9			
S. P.	+23.0				−108.0					
NOISE —	.8	1.1	.4	.4	.6	1.3	~~1.0~~ 0.6			
~~POT RES.~~ +	1.0	1.3	1.0	.8	1.3	1.5	1.0			
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF N, SP. 1, a = 500', BEARING N10°E

SENDER STA. 00 = ELECTRODE No. 4, DATE 21 Aug 73

PAGE 5

HEINRICHS GEOEX

SEND	—	—	4-5	3-4	2-3	1-2		CAL		
RECEIVE	0-5N	5N-10N	10N			15N				
MULTIPLIER			10	1.0	1.0	1.0		10		
PFE			.7	.8	.8	.3				
CUR. (AMPS)			3	3	3	3				
POINT No.			1.5	6	15	30				
SEP. (n)			1	2	3	4				
H. F. MV			160.0	103.2	55.6	23.4		204		
DRIFT			0.0	0.0	0.0	0.0		0.0		
1.0 PFE K_n/1000			-0.3	-0.4	-0.4	-0.1		0.0		
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c			0.4	0.4	0.4	0.2		0.0		
3.0 MV $\rho/2\pi$			78	207	273	229				
DRIFT MCF			8.9	4.0	2.9	1.3				
S. P.	-5.0	+35.0	+10.0							
~~NOISE~~ —			.6	.8	.8	.2				
~~POT RES.~~ +			.8	.8	.8	.4				
CULT & CMTS										

Old Glory 0-5N

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF N, SP. 1, a = 500', BEARING N 10° E

SENDER STA. 00 = ELECTRODE No. 4, DATE 22 Aug 73

PAGE 6

HEINRICHS GEOEX

SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	15N				20N	20N				
MULTIPLIER	10	1.0	1.0	1.0	1.0	10.0	1.0	1.0	1.0	1.0
PFE	1.2	1.1	1.1	1.1	1.0	.4	.3	.2	.3	.4
CUR. (AMPS)	3	3	3	3	4	3	3	3	3	3
~~POINT No.~~	1.5	6	15	30	52.5	1.5	6	15	30	62.5
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	315.0	51.3	49.3	32.8	22.4	275.0	57.3	15.2	16.0	12.9
DRIFT	+0.2	0.0	0.0	0.0±.3	0.0±.2	0.0	0.0	0.0	0.0±.2	0.0
1.0 PFE K_n/1000	-0.5	-0.5	-0.6	-0.6	-0.4	0.0	-0.1	-0.1	-0.2	-0.2
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.8	0.6	0.5	0.5	0.6	0.4	0.2	+0.1	0.1	0.2
3.0 MV $\rho/2\pi$	154	101	242	322	288	134	112	75	157	221
DRIFT MCF	7.8	11	4.6	3.4	3.5	3.0	2.7	2.7	1.9	1.8
S. P.	-4.0					+30.0				
NOISE	1.0	1.0	1.1	1.1	.8	0	.2	.2	.4	.4
POT RES.	1.5	1.3	1.0	1.0	1.3	.8	.4	.2	.2	.4
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 840 AREA Ovo Blanco

LINE 1, HALF N, SP. 1, a = 500', BEARING N10°E

SENDER STA. 00 = ELECTRODE No. 4, DATE 22 Aug 73

PAGE 7

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	4-5	3-4	2-3				
RECEIVE	25N	25N				30N				
MULTIPLIER	1.0	1.0	1.0	0.1	0.1	1.0				
PFE	.1	.3	.1	.3	.4	.6				
CUR. (AMPS)	4	3	3	3	3	4.0				
POINT No.	84	6	15	30	52.5	84				
SEP. (n)	6	2	3	4	5	6				
H. F. MV	10.7	68.5	24.4	7.47	10.81	12.0				
DRIFT	0.0	+0.1	0.0±.3	0.0±4	0.0±.2	0.0±.2				
1.0 PFE K_n/1000	0.0	-0.1	0.0	0.0±.2	-0.2	-0.3				
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.1	0.2	-0.2 – 0.8 0.1	-0.2 – 1.0 0.1	0.2	0.3				
3.0 MV $\rho/2\pi$	220	134	120	73	185	247				
DRIFT MCF	.5	2.2	.8	4.1	2.2	2.4				
S. P.		+25.0								
NOISE –	0	.2	0	.4	.4	.6				
POT RES. +	.2	.4	.2	.2	.4	.6				
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 840 AREA Oro Blanco

LINE 1, HALF N, SR 1, a = 500', BEARING N10°E

SENDER STA. 00 = ELECTRODE No. 4, DATE 21 Aug 73

PAGE 8

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5			
RECEIVE	30N			35N	35N		40N			
MULTIPLIER	1.0	0.1	0.1	0.1	1.0	1.0	0.1			
PFE	.3	.4	.1	.2	.3	.5	.7			
CUR. (AMPS)	3	3	4	3.3	4	4	4			
~~POINT No~~ K_n	15	30	52.5	84	30	52.5	84			
SEP. (n)	3	4	5	6	4	5	6			
H. F. MV	16.95	7.15	3.23	4.12	23.5	11.7	4.13			
DRIFT	~~+0.0~~	0.0	0.0-0.1	0.0	+0.1	0.0±.2	0.0±.2			
1.0 PFE K_n/1000	-0.1	-0.1	00-0.4 -0.1	-0.1	0.0	-0.2	0.4--0.4			
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.2	0.1	0.0	0.1	0.3	0.3	0.2-0.8 0.3?			
3.0 MV $\rho/2\pi$	83	70	41	103	173	150	85			
DRIFT MCF	3.6	5.7	2.4	1.9	1.7	3.3	8.2			
S. P.	+21.0				+7.0					
NOISE −	.2	.2	.2	.2	0	.4	.8			
POT RES. +	.4	.2	0	.2	.6	.6	.6			
CULT & CMTS										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT 840 Oro Blanco

LINE 1 HALF S SP. 1 DATE 21 Aug.

PAGE 1

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	CAL
RECEIVE	0	5S	5S		10S	10S			15S	
RANGE	3x 100.0	10x 300.0	3x 100.0	3x 100.0	30x 100.0	3x 100.0	3x 100.0	3x 100.0	30x 100.0	
VOLTAGE	150	520	160	140	520	160	160	150	510	
CURRENT	0.3	3.0	0.3	0.3	3.0	0.3	0.3	0.3	3.0	2.0
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15S				20S	20S				→
RANGE	10x 300.0	10x 300.0	10x 300.0	10x 300.0	10x 300.0					
VOLTAGE	720	890	470	290	520	580	700	870	470	280
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

FREQUENCIES 0.3 1.0 & 0.1

SENDER NO. 6644-S

OPERATOR JEB

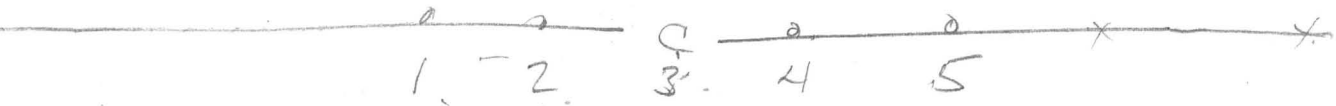
RECEIVER NO.

OPERATOR RJ

COMMENTS:

Hi MODE ON 5-6

LO MODE ON REST



Z — 8

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT 840 Oro Blanco

LINE 1 HALF 5 SP. 1 DATE 21 Aug

PAGE 2

SEND	6-7	1-2	2-3	3-4	4-5	5-6				
RECEIVE	25S	25S	—	—	—	30S				
RANGE	10X 300.0	—	—	—	—	—				
VOLTAGE	520	580	700	860	465	280				
CURRENT	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			
RECEIVE	30S	—	—	35S	35S	—	40S			
RANGE	10X 300.0	—	—	—	—	—	→			
VOLTAGE	580	690	860	465	570	690	860			
CURRENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0			

FREQUENCIES 0.3 10 & 0.1

SENDER NO. 6644-S

OPERATOR BIGLER

RECEIVER NO.

OPERATOR RS

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT 840 Ovo Blanco

LINE 1 HALF N SP. 1 DATE 21 Aug

PAGE 3

SEND	4-5	3-4	2-3	1-2						
RECEIVE	10N			15N						
RANGE	30 × 100.0									
VOLTAGE	445	820	670	560						
CURRENT	3.0	3.0	3.0	3.0						
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	15N				20N	20N				
RANGE	10 × 300.0	10 × 300.0								
VOLTAGE	300	475	830	690	770	510	300	490	860	700
CURRENT	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0

FREQUENCIES 0.3 2.0 & 0.1

SENDER NO. 6644-5

OPERATOR BIGLER

RECEIVER NO. DD

OPERATOR RJ

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE 4

PROJECT 840 Oro Blanco

LINE 1 HALF N SP. 1 DATE 21 Aug

SEND	1-2	6-7	5-6	4-5	3-4	2-3				
RECEIVE	25N	25N	—	—	—	30N				
RANGE	10 X 300.0	—	—	—	—	—				
VOLTAGE	790	530	300	480	860	940				
CURRENT	4.0	3.0	3.0	3.0	3	4				
SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5			
RECEIVE	30N	—	—	35N	35N	—	40N			
RANGE	10 X 300	—	—	—	—	—	—			
VOLTAGE	525	300	650	1000	720	400	640			
CURRENT	3.0	3.0	4.0	3.3	4.0	4.0	4.0			

FREQUENCIES 0.3 1.0 & 0.1

SENDER NO. 6644-5

OPERATOR BIGLER

RECEIVER NO. DD

OPERATOR RJ

COMMENTS:

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF 3, SP. 2, a = 500', BEARING S10° W

SENDER STA. 40N = ELECTRODE No. 4, DATE 23 Aug 73

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	40N — 35N		35N —		30N	30N —			25N	
MULTIPLIER	10	10	10	1.0	1.0	10.0	10.0	1.0	1.0	
PFE										
CUR. (AMPS)	3 —								→	2
POINT NO.										
SEP. (n) K_n	1.5	6	1.5	6	15	1.5	6	15	30	
H. F. MV	52.2	174.0	255.0	87.2	39.0	758.0	131.0	70.3	39.2	204
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	−0.7	−0.7	−0.4	−0.5	−0.5	−0.4	−0.4	−0.5	−0.5	0.0
0.3 PFE P_{CAL}										0.980
0.1 PFE PFE_c	0.7	0.7	0.5	0.3	0.5	0.6	0.5	0.6	−0.2 − 1.0 0.6?	0.0
3.0 MV P/2	1.3	1.3	.8	1.0	1.0	.8	.8	1.0	1.0	
DRIFT MCF	1.5	1.5	1.0	.6	1.0	1.3	1.0	1.3	1.3	
S. P.	+7.0		−25.0			−9.0				
NOISE PFE	1.4	1.4	0.9	0.8	1.0	1.0	0.9	1.1	1.1	
POT RES. %	256	341	125	171	191	372	257	345	384	
CULT & CMTS	5.5	4.1	7.2	4.7	5.2	2.7	3.5	3.2	2.9	

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF S, SP. 2, a = 500', BEARING S10°W

SENDER STA. 40N = ELECTRODE No. 4, DATE 2 Aug 73

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	25N				20N	20N				
MULTIPLIER	10.0	10.0	1.0	1.0	1.0	10	1.0	1.0	1.0	1.0
PFE										
CUR. (AMPS)	3	3	3	3.9	3.8	3	3	3.9	3.9	3.9
POINT No.										
SEP. (n)	1.5	6	15	30	52.5	1.5	6	15	30	52.5
H. F. MV	266.0	133.0	48.1	43.9	27.6	472.0	76.0	75.2	39.9	30.8
DRIFT	0.0	0.0	0.0	0.0	0.0±.2	0.0	0.0	0.0±.2	0.0±.2	0.0±.4
1.0 PFE K_n/1000	-0.2	-0.3	-0.3	-0.4	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.~~4~~3	0.3	0.3	0.0-0.8	0.2	0.6	0.6-1.2	0.2-1.0	0.5-1.5 0.7?	0.4-0.8
3.0 MV $\rho_{+2\pi}$	.4	.6	.6	.8	1.0	1.1	1.1	1.1	1.1	1.1
DRIFT MCF+	.6	.6	.6	.8	.4	1.3	1.7	1.3	1.6	1.3
S. P.	+4.0					+20				
NOISE PFE	0.5	0.6	0.6	0.8	0.7	1.2	1.4	1.2	1.3	1.2
POT RES.	130	261	236	331	374	231	149	284	301	406
CULT & CMTS	3.8	2.3	2.5	2.4	1.9	5.2	9.4	4.2	4.3	3.0

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF 5, SP. 2, a = 500', BEARING S 10° W

SENDER STA. 40N = ELECTRODE No. 4, DATE 2 Aug 73

PAGE 3

HEINRICHS GEOEX

SEND		6-7	3-4	4-5	5-6	3-4	4-5				
RECEIVE		15N	15N		10N	10N	5N				
MULTIPLIER		1.0	1.0	1.0	1.0						
PFE											
CUR. (AMPS)		3.9	3.8	3.8	3.8						
POINT No.											
SEP. (n)		84	30	52.5	84						
H. F. Mv		22.1	22.6	15.4	13.9						
DRIFT		0.0±.2	0.0±.2	0.0±.4	0.0±.6						
1.0 PFE	K_n/1000	-0.8	-0.2	-0.2	-0.3						
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	0.8	0.2±0.2	0.2	±290						
3.0 MV	~~P/2π~~	1.5	.4	.4	.6						
DRIFT	~~MCF~~	1.7	.4	.4	.6						
S. P.			-12.0								
NOISE	PFE	1.6	0.4	0.4	0.6						
POT RES.		467	175	209	301						
CULT & CMTS		3.4	2.3	1.9	2.0						

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF N, SP. 2, a = _____, BEARING N 10°E

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 4

HEINRICHS GEOEX

SEND	—	—	4-5	3-4	2-3	1-2				CAL
RECEIVE	40N-45N	45N-50N	50N	→	→	55N				
MULTIPLIER			10	10.	1-0					
PFE										
CUR. (AMPS)			3	→	→	→				
POINT NO.										
SEP. (n)			1.5	6	15	30				
H. F. MV			896.0	181.0	42.5	41.4				
DRIFT			0.0	0.0	0.0	0.0				
1.0 PFE K_n/1000			−0.5	−0.6	−0.5	−0.6				
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c			0.5	0.7	? 0.1	0.7				
3.0 MV ~~$\rho/2\pi$~~			1.0	1.1	1.0	1.1				
DRIFT ~~MGP~~			1.1	1.5	.2	1.5				
S. P.	−17.0	−6.0	+28.0							
NOISE PFE			1.0	1.3	0.6?	1.3				
POT RES.			439	355	208	406				
CULT & CMTS			2.3	3.7	2.9?	3.2				

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF N, SP. 2, a = 500, BEARING

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 5

HEINRICHS GEOEX

SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	55N				60N	60N				
MULTIPLIER	10.0	10.0	1.0	1.0	1.0	10	10	1.0	1.0	1.0
PFE										
CUR. (AMPS)	3								3.8	3.8
POINT NO.										
SEP. (n)	1.5	6	15	30	52.5	1.5	6	15	30	52.5
H. F. MV	691.0	215.0	65.5	18.1	19.8	711.0	207.0	97.4	50.4	17.0 17.1
DRIFT	0.0	+0.2	0.0	0.0±.2	0.0±.4	+0.2	0.0	0.0	0.0±.4	0.0±.4
1.0 PFE K_n/1000	-0.4	-0.4	-0.6	-0.6	-0.3	-1.0	-0.9	-1.0	-1.1	-1.2 -1.1
0.3 PFE ρ_{CAL}				~~1.0-1.5~~	~~0.2-1.2~~					
0.1 PFE PFE_c	0.5	0.5 0.4	0.6	0.5	0.4	1.2	0.9	0.8-1.9 1.1	0.6-1.2 1.1	-1.2 -2.2 0.9
3.0 MV ~~ρ_{CAL}~~	.8	.8	1.1	1.1	.6	1.9	1.7	1.9	2.1	2.1
DRIFT ~~MOP~~	1.0	.8	1.3	1.0	.8	2.5	1.9	2.3	2.3	1.9
S. P.	+5.0					-15				
NOISE PFE	0.9	0.8	1.2	1.1	0.7	2.2	1.8	2.1	2.2	2.0
POT RES.	339	422	321	177	340	349	406	477	390	232
CULT & CMTS	2.7	1.9	3.7	6.2	2.1	6.3	4.4	4.4	5.6	8.6

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF N, SP. 2, a = 500, BEARING

SENDER STA. _____ = ELECTRODE No. _____, DATE

PAGE 6

HEINRICHS GEOEX

SEND		1-2	6-7	5-6	4-5	3-4	2-3				
RECEIVE		65N	65N				70N				
MULTIPLIER		1.0	10.0	1.0	1.0	1.0	0.1				
PFE											
CUR. (AMPS)		4	3								
POINT No.											
SEP. (n)		84	6	15	30	52.5	84				
H. F. MV		20.3	219.0	103.5	55.9	24.6	9.03				
DRIFT		0.0±.5	0.0	0.0	0.0	0.0±.2	0.0 ±.4				
1.0 PFE	K_n/1000	-0.9 - -1.4	-1.2	-1.2	-1.1	-1.1	-1.3				
0.3 PFE	ρ_{CAL}	-1.1 / 1.8?									
0.1 PFE	PFE_c	0.2 - 2.0	1.3	1.1	1.1	0.8 - 1.4 / 1.1	0.2 - 1.2 / 1.0?				
3.0 MV	~~P/2π~~	2.1	2.3	2.3	2.1	2.1	2.5				
DRIFT	~~MGF~~	1.9	2.7	2.3	2.3	2.3	2.1				
S. P.			-4.0								
NOISE		2.1	2.5	2.3	2.2	2.2	2.3				
POT RES.		420	429	507	548	422	248				
CULT & CMTS		5.0	5.8	4.5	4.0	5.2	9.3				

I. P. RECEIVER NOTES, JOB No. 840, AREA Oro Blanco

LINE 1, HALF N, SP. 2, a = 500, BEARING N 10° E

SENDER STA. _____ = ELECTRODE No. _____, DATE 24 Aug 73

PAGE 7

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5			
RECEIVE	70N			75N	75N		80N			
MULTIPLIER	10	1.0	1.0	1.0	1.0	1.0	1.0			
PFE										
CUR. (AMPS)	3									
POINT No.										
SEP. (n)	15	30	52.5	84	30	52.5	84			
H. F. Mv	160.0	85.2	47.4	22.0	43.3	25.8	15.4			
DRIFT	0.0	0.0	0.0	0.0±.4	0.0±.2	0.0±.2	0.0±.3			
1.0 PFE K_n/1000	−0.9	−0.7	−0.6	−0.6	−0.6	−0.4	−0.4			
0.3 PFE P_{CAL}										
0.1 PFE PFE_c	0.9	0.8	0.7	0.6	0.6	0.2 − 1.0 0.5	0.4 − 0.8 0.5			
3.0 MV ~~P/2π~~	1.7	1.3	1.1	1.1	1.1	1.8	1.8			
DRIFT MGF†	1.9	1.7	1.5	1.3	1.3	1.0	1.0			
S. P.	±0.0				±0.0					
NOISE	to 3mV				to 5mV.					
POT RES.	1.8	1.5	1.3	1.2	1.2	0.9	0.9			
CULT & CMTS	784	835	813	604	425	443	423			
MGF	2.3	1.8	1.6	2.0	2.8	2.0	2.1			

L P. SENDER NOTES

JOB No. 840 AREA Oro Blanco

LINE 1, HALF S, SP. 2, DATE 23 Aug 73

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	40N	35N	35N		30N	30N			25N	
RANGE	10×300		10×300.0							
VOLTAGE			430	650	630	420	420	670	640	420
CURRENT	3	3	3	3	3	3	3	3	3	2
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	25N				20N	20N				→
RANGE	10×300									
VOLTAGE	560	430	410	910	890	670	590	580	580	910
CURRENT	3	3	3	3.9	3.8	3	3	3.9	3.9	3.9

FREQUENCIES 1.0, 0.3 & 0.1

SENDER No. 6644-5

OPERATOR BIGLER

RECEIVER No. DD

OPERATOR RJ

COMMENTS:

I. P. SENDER NOTES

JOB No. 840 AREA Oro Blanco

LINE 1, HALF 5, SP. 2, DATE 23 Aug 73

PAGE 2

HEINRICHS GEOEX

SEND	6-7	3-4	4-5	5-6	3-4	4-5				
RECEIVE	15N	15N	—	10N	10N	— 5N				
RANGE	10×300									
VOLTAGE	900	570	550	920						
CURRENT	3.9	3.8	3.8	3.8						
SEND										
RECEIVE	50N	—	—							
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	1.0, 0.3, 0.1
SENDER No.	6644-S
OPERATOR	BIGLER
RECEIVER No.	DD
OPERATOR	RJ

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT 840 Oro Blanco

LINE 1 HALF N SP. 2 DATE

SEND	4-5	3-4	2-3	1-2						
RECEIVE	50N			55N						
RANGE	10x300									
VOLTAGE	420	400	540	660						
CURRENT	3	3	3	3						
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	55N				60N	60N				→
RANGE	10x300									
VOLTAGE	680	430	410	540	660	660	710	430	530	700
CURRENT	3	3	3	3	3	3	3	3	3.8	3.8

FREQUENCIES 1.0 0.3 0.1

SENDER NO. 6644-5

OPERATOR BIGLER

RECEIVER NO. DD

OPERATOR RJ

COMMENTS:

I.P. SENDER NOTES

JOB No. 840 AREA Oro Blanco

LINE 1, HALF N, SP. 2, DATE

PAGE 4

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	4-5	3-4	2-3				
RECEIVE	65N	65N				70N				
RANGE	10 x 300									
VOLTAGE	850	630	680	440	410	530				
CURRENT	4	3	3	3	3	3				
SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5			
RECEIVE	70N			75N	75N		80N			
RANGE	10 x 300									
VOLTAGE	620	660	420	390	640	670	420			
CURRENT	3	3	3	3	3	3	3			

FREQUENCIES 1.0, 0.3, 0.1

SENDER No. 6644-S

OPERATOR BIGLER

RECEIVER No. DD

OPERATOR RJ

COMMENTS:

I. P. RECEIVER NOTES, JOB NO. ~~836~~ 840, AREA ORO B

LINE 2, HALF E, SP. 1, a = 1000', BEARING d E

SENDER STA. 0.0 = ELECTRODE NO. 4, DATE 8-27-73

PAGE 1

HEINRICHS GEOEX

SEND		OAC	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE		B-4	0-10.E	→	10-20	→	→	20-30	→	→	→
MULTIPLIER		10.	10.	1.0	10.	1.0	1.0	10.	1.0	1.0	1.0
PFE			1.0	0.7	1.0	1.4	0.7	0.8	1.3	1.3	0.8
CUR. (AMPS)		2	5	4	6	5	5	5	5	5	5
POINT NO.											
SEP. (n) K_n			3	12	3	12	30	3	12	30	60
H. F. MV		204	351	63.0	376	94.2	39.5	278	83.2	41.6	22.5
DRIFT		0.0	0.0	0.0	0.0	0.0	0.0	+0.4	-0.0	0.0 ±0.2	+0.6
1.0 PFE	K_n/1000	0.0	-0.5	-0.3	-0.4	-0.7	-0.3	-0.2	-0.5	-0.7	-0.3
0.3 PFE	ρ_{CAL}	0.980								0.	
0.1 PFE	PFE_c	0.0	0.5	0.4	0.6	0.7	0.4	0.8 0.6	0.8	0.6	0.8 0.5
3.0 MV	$\rho/2\pi$		206	185	184	222	232	161	196	245	265
DRIFT	MCF		4.8	3.8	5.4	6.3	3.0	5.0	6.6	5.3	3.0
S. P.			-6.4		-21.1			+24.4			
NOISE											
POT RES.			6K		8K			4K			
CULT ~~a~~ CMTS			1.0	.6	.8	1.3	.6	.4	1.0	1.3	.6
	+		1.0	.8	1.3	1.5	.8	1.3	1.1	1.3	1.0

I. P. RECEIVER NOTES, JOB NO. ~~836~~ 840, AREA ORO BLANCO

LINE 2, HALF E, SP. 1, a = 1000', BEARING dE

SENDER STA. 0.0 = ELECTRODE NO. 21, DATE 8-27-73

PAGE 2

HEINRICHS GEOEX

SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	30-40E	→	→	→	→	40-50				
MULTIPLIER	10.	1.0	1.0	1.0	1.0	10.	1.0	1.0	1.0	1.0
PFE	0.8	1.2	1.2	1.6	1.7	0.6	0.7	1.2	1.3	1.9
CUR. (AMPS)	5	6	6	5	5	5	5	6	6	5
POINT NO.										
SEP. (n)	3	12	30	60	105	3	12	30	60	105
H. F. Mv	209.	82.7	38.8	22.0	14.9	196.	53.0	32.5	19.9	13.6
DRIFT	0.0	0.0	0.0±.2	0.0±.2	0.0±.2	0.0	0.0	0.0±	-0.2±	0.0±.2
1.0 PFE K_n/1000	-0.3	-0.6	-0.6	-0.8	-0.8	-0.3	-0.3	-0.6	-0.8	-1.0
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.5	0.6	0.6	0.8	0.9	0.3	0.4	0.6	0.4 0.5	0.9
3.0 MV $\rho/2\pi$	123	162	190	259	307	115	125	159	195	280
DRIFT MCF	6.5	7.4	6.3	6.2	5.5	5.2	5.6	7.5	6.7	6.8
S. P.	-8.2					-1.5				
NOISE										
~~Pot~~ RES.	.6	1.1	1.1	1.5	1.5	.6	.6	1.1	1.5	1.9
~~CULT~~ CMT	1.0	1.3	1.3	1.7	1.9	.6	.8	1.3	1.0	1.9

I. P. RECEIVER NOTES, JOB NO. 840, AREA ORO BLANCO

LINE 2, HALF E, SP. 1, a = 1000', BEARING d E

SENDER STA. 0.0 = ELECTRODE NO. 21, DATE 8-27-73

PAGE 3

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4
RECEIVE	40-50E	50-60E					60-70			
MULTIPLIER	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0
PFE	2.7	1.6	1.8	1.7	2.1	—	1.7	2.3	2.2	2.8
CUR. (AMPS)	5	5	5	6	6	—	5	5	6	6
POINT NO.										
SEP. (n)	168	12	30	60	105	—	30	60	105	168
H. F. MV	11.0	68.7	36.2	27.8	19.1		44.7	28.9	24.0	17.7
DRIFT	+0.2 ±	0.8 ~~68.7~~	0.0	+0.2 ± .2	+0.2 ± .2		+0.2	-0.2 ± .2	± 0.2	~~17.7~~
1.0 PFE K_n/1000	-1.2	-0.8	-0.8	0.8	-1.0		-0.8	-1.2	-1.2	-1.4
0.3 PFE ρ_{CAL}										± 0.2
0.1 PFE PFE_C	1.6 1.5	0.8	1.0	1.0 0.9	1.2 1.1		1.0 0.9	1.0 1.1	1.0	1.4
3.0 MV $\rho/2\pi$	362	162	213	273	328		263	340	412	486
DRIFT MCF	7.5	9.9	8.5	6.2	6.4		6.5	6.8	5.8	5.8
S. P.		+8.2					+9.2			
NOISE										
POT ~~RES.~~ —	2.3	1.5	1.5	1.5	1.9		1.5	2.3	2.3	2.7
CULT ~~Ω~~ CM~~S~~	3.1	1.7	2.1	1.9	2.3		1.9	2.3	2.1	2.9

I. P. RECEIVER NOTES, JOB NO. ~~836~~ 840, AREA Oro Blanco

LINE 2, HALF E, SP. 1, a = 1000', BEARING 0 E

SENDER STA. 0.0 = ELECTRODE NO. 4, DATE 8-27-75

PAGE 4

HEINRICHS GEOEX

SEND	6-7	5-6	4-5							
RECEIVE	70-80	→	→							
MULTIPLIER	1.0	0.1								
PFE	2.2	1.4	1.6							
CUR. (AMPS)	5	5	5							
POINT NO.										
SEP. (n)	60	105	168							
H. F. MV	11.7	8.23 ±1	6.01 ±1							
DRIFT	±0.0	±0.2	±0.2							
1.0 PFE K_n/1000	-1.0	-0.6	-0.6							
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.2	0.8	1.0							
3.0 MV $\rho/2\pi$	138	169	198							
DRIFT MCF	16	8.3	-1.4 → 2.8							
S. P.	-23.6		8.1							
NOISE										
~~POT. RES.~~	1.9	1.1	1.1							
~~CULT & CMTS~~	2.5	1.7	2.1							

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO BLANCO

LINE 2, HALF W, SP. 1, a = 1000', BEARING 1 W

SENDER STA. 0.0 = ELECTRODE No. 4, DATE 8-28

PAGE 5

HEINRICHS GEOEX

SEND	Col.	S-P	S-P	3-4	2-3	3-4	4-5	5-6	6-7	
RECEIVE	4-5	0-10W	10-20W	20-30W	30-40W					
MULTIPLIER	10.			10.	10.	10.	1.0	1.0	1.0	
PFE				0.9	0.5	0.9	0.7	1.1	1.2	
CUR. (AMPS)	2			5	6	6	6	5	5	
POINT No.										
SEP. (n)				3	3	12	30	60	105	
H. F. MV	204.			428.	290.	111.	56.6	32.3	21.0	
DRIFT	0.0			0.0	0.0	0.0	0.0	0.0	±0.2	
1.0 PFE K_n/1000	0.0			-0.4	-0.2	-0.4	-0.3	-0.6	-0.6	
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	+0.2 use 0.0			0.5	0.3	0.5	0.4	0.5	0.6	
3.0 MV $\rho/2\pi$				252	142	218	277	380	432	
DRIFT MCF				3.6	3.5	4.1	2.5	2.9	2.8	
S. P.		-18.8	-6.0	+0.8	+17.9					
NOISE										
POT RES.				.8	.4	.8	.6	1.1	1.1	
~~CULT a CMTS~~				1.0	.6	1.0	.8	1.0	1.3	

P.FE's & MV. switched

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO Blanco

LINE 2, HALF W, SP. 1, a = 1000', BEARING d w

SENDER STA. 0.0 = ELECTRODE No. 1, DATE 8-28-77

PAGE 6

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	40-50	w					50-60			
MULTIPLIER	10.	10.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.1
PFE	0.8	1.0	0.9	0.8	1.6	1.8	0.4	0.8	1.0	1.4
CUR. (AMPS)	5	5	6	6	5	5	5	5	6	6
POINT NO.										
SEP. (n)	3	12	30	60	105	168	12	30	60	105
H. F. MV	674.	169.	62.5	35.6	21.8	14.8	78.5	29.7	13.8	9.19
DRIFT	0.0	0.0	0.0	+0.2	+0.2	0.0 ±.1	0.0	0.0	±0.2	±0.2
1.0 PFE $K_n/1000$	-0.4	-0.5	-0.4	-0.4	-0.8	-0.8	-0.2	-0.4	-0.4	-0.6
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.4	0.5	0.5	0.5	0.9	1.0	0.2	0.4	0.6	0.8
3.0 MV $\rho/2\pi$	396	398	306	349	449	488	185	175	135	158
DRIFT MCF	2.0	2.5	2.9	2.3	3.6	3.7	2.2	4.6	7.4	8.9
S. P.	-9.7						-9.2			
NOISE										
POT RES.	.8	1.0	.8	.8	1.5	1.5	.4	.8	.8	1.1
CULT & CMTS	.8	1.0	1.0	.8	1.7	2.1	.4	.8	1.3	-1.0 → 1.6

1.7

I. P. RECEIVER NOTES, JOB NO. 840, AREA Oro Blanco

LINE 2, HALF W, SP. 1, a = 100', BEARING SW

SENDER STA. OW = ELECTRODE NO. 4, DATE 28-Aug

PAGE 7

HEINRICHS GEOEX

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		
RECEIVE	50-60	60-70	→		→	70-80	→			
MULTIPLIER	0.1	1.0	1.0	1.0	0.1	1.0	1.0			
PFE	1.0	1.0	1.2	1.8	1.6	1.6	1.3	—		
CUR. (AMPS)	5	5	5	6	6	5	5	Pt was out		
POINT NO.										
SEP. (n)	168	30	60	105	168	60	105			
H. F. MV	6.05	38.9	20.1	12.7	9.51	22.9	12.3			
DRIFT	±0.4	0.0	0.0	±0.2	±0.2	±0.2	+0.4 ±2			
1.0 PFE K_n/1000	-0.4	-0.5	-0.6	-0.8	-0.6	-0.6	-0.5			
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.6	0.5	0.6	1.0	1.0	1.0	1.0 0.8			
3.0 MV $\rho/2\pi$	199	229	236	218	261	269	253			
DRIFT MCF	5.0	4.4	5.1	8.3	6.1	5.9	5.1			
S. P.		+12.3				+7.3				
NOISE	-0.4↔3.4			-0.2↔2.4	-2.0↔4.2		-2.0↔4.4			
POT RES.	.8	1.0	1.1	1.5	1.1	1.1	1.0			
CULT & CMTS	Doub dump	1.0	1.3	2.1	2.1	2.1	1.7			

1.3 35-80 Long rolling noise

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 2, HALF E, SP. 1, DATE 27 Aug

PAGE 1

HEINRICHS GEOEX

SEND	CAL	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	3-4	0-	10E	10E	—	20E	20E	—	—	30E
RANGE	10x200	30x100	30x100	—	—	—	—	—	—	—
VOLTAGE		550	530	530	540	640	420	440	550	630
CURRENT	2	5	4	6	5	5	5	5	5	5
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	30E	—	—	—	40E	40E	—	—	—	—
RANGE	30x100	—	—	—	—	—	—	—	—	—
VOLTAGE	700	500	530	540	640	680	680	510	530	540
CURRENT	5	6	6	5	5	5	5	6	6	5

FREQUENCIES 1.0, 0.3, 0.1

SENDER No. 6644-S

OPERATOR BIGLER

RECEIVER No. 20693 DD

OPERATOR G H 64

COMMENTS:

1-2 LOW 5A

2-3 LOW 5A

3-4 Hi 6A

4-5 Hi 6A

5-6 LOW 5A

6-7 LOW 5A

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 2, HALF E, SP. 1, DATE 27 Aug

PAGE 2

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4
RECEIVE	50E	50E	—	—	—	60E	60E	—	—	70E
RANGE	30X/100	—	—	—	—	—	—	—	—	—
VOLTAGE	640	680	700	510	530	*	660	700	500	530
CURRENT	5	5	5	6	6		5	5	6	6
SEND	6-7	5-6	4-5							
RECEIVE	70E	—	80E							
RANGE	30X/100	—	—							
VOLTAGE	660	700	420							
CURRENT	5	5	5							

FREQUENCIES 1.0 0.3 0.1

SENDER No. 6644-S

OPERATOR BIGLER

RECEIVER No. R0693 DD

OPERATOR 64

COMMENTS:

1-2 LOW 5A

2-3 LOW 5A

3-4 HI 6A

4-5 HI 6A

5-6 LOW 5A

6-7 LOW 5A

* WIRE OUT

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 2, HALF W, SP. 1, DATE 28 Aug

PAGE 3

HEINRICHS GEOEX

SEND	CAL	3-4	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4
RECEIVE	4-5	20-30W	30W				40W	40W		
RANGE	30x/100									
VOLTAGE	170	540	550	540	510	690	690	640	550	550
CURRENT	2	6	5	6	6	5	5	5	5	6
SEND	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE			50W	50W				60W	60W	
RANGE	30x/100									
VOLTAGE	510	700	690	640	550	550	520	700	640	550
CURRENT	6	5	5	5	5	6	6	5	5	5

FREQUENCIES 1.0 0.3 0.1

SENDER No. 6644-5

OPERATOR BigLER

RECEIVER No. DD

OPERATOR 64 GH

COMMENTS:

1-2 LOW 5A

2-3 LOW 5A

3-4 HI 6A

4-5 HI 6A

5-6 LOW 5A

6-7 LOW 5A

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 2, HALF W, SP. 1, DATE 28 Aug

PAGE 4

HEINRICHS GEOEX

SEND	3-4	4-5	1-2	2-3	3-4					
RECEIVE	60W	70W	70W	—	80W					
RANGE	30X100	—	—	—	—					
VOLTAGE	550	510	650	540	*					
CURRENT	6	6	5	5						
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	1.0 0.3 0.1
SENDER No.	6644
OPERATOR	BIGLER
RECEIVER No.	DD
OPERATOR	64 GH

COMMENTS:

1-2 LOW 5A

2-3 LOW 5A

3-4 HI 6A

4-5 HI 6A

*WIRE OUT

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO BLANCO

LINE 5, HALF 5, SP. 2, a = 1500', BEARING S 15° W

SENDER STA. 20N = ELECTRODE No. 3, DATE 8-29

PAGE 1

HEINRICHS GEOEX

SEND	CAL	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4
RECEIVE	3-4	20-5N.	5N-10S →		10S-25S →			25-40S		
MULTIPLIER	10.	10.	1.0	1.0	10.	1.0	1.0	1.0	1.0	1.0
PFE	10	.9	.9	.7	.5	.4	.8	1.0	1.0	1.1
CUR. (AMPS)		3	3	4.5	3	3	4.5	3	3	4.5
~~POINT NO~~ K_n		4.5	4.5	18	4.5	18	45	4.5	18	45
SEP. (n)		1	1	2	1	2	3	1	2	3
H. F. MV	204.	128.	83.0	39.0	119.	28.3	21.1	94.7	27.8	18.2
DRIFT	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	-0.2
1.0 PFE K_n/1000	0.0	-0.4	-0.4	-0.4	-0.3	-0.2	-0.4	-0.5	-0.5	0.6
0.3 PFE ρ_{CAL}	.98									
0.1 PFE PFE_c	0.2	0.5	0.5	0.2	0.2	0.2	0.4	0.5	0.5	0.45
3.0 MV $\rho/2\pi$		188	122	153	175	166	207	139	163	178
DRIFT MCF		4.8	7.4	4.6	4	2.4	3.9	7.2	6.1	6.2
S. P.		+80.7	+1.5		+5.8			-7.1		
~~NOISE~~ K_n correction		5.45		23.3			60.3			
~~POT RES.~~	$\rho/2\pi$	228		198			277			
~~CULT & CMTS~~	MCF	4.0		3.6			2.9			
−		.8	.8	.8	.6	.4	.8	1.0	1.0	1.1
+		1.0	1.0	.6	.4	.4	.8	1.0	1.0	1.0

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO BLANCO

LINE 5, HALF 5, SP. 2, a = 1500', BEARING S 15° W

SENDER STA. 200 = ELECTRODE No. 3, DATE 8-29-

PAGE 2

HEINRICHS GEOEX

SEND	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	
RECEIVE	25.405	40-55	←		→	55-705			→	
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	10x	1.0	1.0	0.1	
PFE	1.2	1.1	1.2	1.0	2.0	1.3	1.4	1.4	.8	
CUR. (AMPS)	4.5	3	3	4.5	4.5	6	6	4.5	4.5	
POINT ~~No.~~ K_m	90	18	45	90	157.5	45	90	157.5	252	
SEP. (n)	4	2	3	4	5	3	4	5	6	
H. F. MV	11.6	39.5	19.3	15.4	10.5	38.5	22.9	10.0	72.2	
DRIFT	± 0.2	+0.2	0.0	± 0.2	± 0.2	0.0 ±	± 0.2	± 0.2	— ±	
1.0 PFE K_n/1000	-0.2 ↔ 0.8 -0.6	-0.4	-0.6	-0.6	-1.0	-0.7	-1.2 ↔ 0.8 -5.8	0.0 -0.8 -4.0 ↔ +2.0	-0.8 ↔ +.8 -0.5	
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	0.6	0.81	0.6	0.4	1.0	0.6	0.2 ↔ 0.8 0.6	-0.2 + 2.4 0.6	↔ 0.3	
3.0 MV $\rho/2\pi$	227	232	284	302	360	383	337	343	396	
DRIFT MCF	5.3	4.7	4.2	3.3	5.6	4.6	4.2	4.1	2.0	
S. P.		+21.2								
NOISE					0.4 ↔ 1.6					
~~POT RES.~~ K_{ρ}	148.7				218.6				353.4	
CULT & CMTS	375				500	Lightning = 1-2 mv.			555	
MCFT ±	3.2 1.1 1.3	.8 1.5	1.1 1.3	1.1 .8	4.2 1.9 1.3	1.3 miles away	1.5 1.3	1.5 1.3	1.0 .6	1.4 * 35 & 80

PM

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 5 CAL, HALF 5, SP. 2, DATE 29 Aug

PAGE 1

HEINRICHS GEOEX

SEND	3-4	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4
RECEIVE		20-5N	5N	— 10S	10S	—	25S	25S	—	—
RANGE	10X/200	30X/100	—	30X/150	30X/100	—	30X/150	30X/100	—	30X/150
VOLTAGE	220	390	320	600	260	320	600	260	260	480
CURRENT	2	3	3	4.5	3	3	4.5	3	3	4.5
SEND	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2
RECEIVE	40S	40S	—	—	55S	55S	—	—	70S	70S
RANGE	30X/150	30X/100	—	30X/150	—	30X/200	—	30X/150	—	
VOLTAGE	600	250	260	480	600	520	540	480	600	
CURRENT	4.5	3	3	4.5	4.5	6	6	4.5	4.5	

FREQUENCIES 1.0 0.3 0.1

SENDER No. 6644-S

OPERATOR BIGLER

RECEIVER No. DD

OPERATOR 64 GH

COMMENTS:

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 5, HALF S, SP. 2, DATE 29 Aug

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4								
RECEIVE		855								
RANGE										
VOLTAGE										
CURRENT										
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	1.0 0.3 0.1
SENDER No.	6644-S
OPERATOR	BISLER
RECEIVER No.	DD
OPERATOR	64 G H

COMMENTS:

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO BLANCO

LINE 5, HALF N, SR 2, a = 1500', BEARING N 15° E

SENDER STA. 20 N = ELECTRODE No. 3, DATE 8-30

PAGE 4

HEINRICHS GEOEX

SEND	CAL	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3
RECEIVE	2-3	20-35N	35-50N →		50-65N		→	65-80N		
MULTIPLIER	10.	10.	10.	1.0	10.	1.0	1.0	10.	1.0	1.0
PFE		.5	1.2	1.1	1.1	1.7	1.1	1.6	1.6	2.0
CUR. (AMPS)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5
POINT No. Kn		4.5	4.5	18	4.5	18	45	4.5	18	45
SEP. (n)		1	1	2	1	2	3	1	2	3
H. F. MV	204	120.	253.	54.2	276.	94.0	32.1	255.	92.9	49.9
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0 ±0.2	0.0	0.0	-0.2
1.0 PFE Kn/1000	0.0	-0.2	-0.6	-0.5	-0.5	-0.9	-0.5	-0.8	-0.8	-1.1
0.3 PFE PCAL	.98									
0.1 PFE PFEc	0.2	0.3	0.6	0.6	0.6	0.8	0.6	0.8	0.8	0.89
3.0 MV P/2π		118	248	213	271	368	315	250	364	440
DRIFT MCF		4.3	4.8	5.2	4.1	4.6	3.5	6.4	4.4	4.5
S. P.		+50.9	+9.2		+2.6			+12.6		
NOISE Kn corr								3.45		
POT RES. 1/nπ								302		
CULT & CMTS	MCF							53		
∓		.4	1.1	1.0	1.0	1.7	1.0	1.5	1.5	2.1
+		.6	1.3	1.3	1.3	1.7	1.3	1.7	1.7	1.9

I. P. RECEIVER NOTES, JOB No. 840, AREA ORO BLANCO

LINE 5, HALF N, SP. 2, a = 1500', BEARING N15°E

SENDER STA. 20N = ELECTRODE No. 4, DATE 8-30

PAGE 5

HEINRICHS GEOEX

SEND	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	
RECEIVE	65-80N	80-95N				95-110N				
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.1	
PFE	1.8	1.2	.9	1.5	1.8	1.4	1.6	1.3		
CUR. (AMPS)	5	4.5	5	5	5	4.5	5	5	5	
POINT No.	90	18	45	90	157.5	45	90	157.5	252	
SEP. (n)	4	2	3	4	5	3	4	5	6	
H. F. MV	21.0	57.8	33.6	22.2	10.6	21.0	14.5	9.93	4.92	
DRIFT	0.0	0.0	+0.2	-0.2	±0.2	6.0	±0.2	±0.2	4.82	
1.0 PFE K_n/1000	-0.9	-0.6	-0.4	0.8	+0.2 → -1.2 -0.8	-0.6	-0.4 → -1.4 6.8	0.6		
0.3 PFE ρ_{CAL}									cont.	
0.1 PFE PFE_c	0.9	0.6	0.65	0.67	1.0	0.8	0.8	0.7	null.	
3.0 MV $\rho/2\pi$	371	227	296	392	327	206	236	307	238	
DRIFT MCF	4.9	5.3	3.0	3.8	5.5	6.8	6.3	4.2		
S. P.		+9.1				+30.4				
~~NOISE~~ Knoor		23.3				60.3				
POT ~~RES.~~ CRT.		293				276				
CULT ~~&~~ CMTS	MCF	4.1				4 wire	Gr. Fence ≈ 99N			
−	1.7	1.1	.8	1.5	1.5	5.1	1.1 1.5	1.1		
+	1.9	1.3	1.0	1.5	2.1		1.7 95 1.7	1.5		(35 & 80)

I. P. RECEIVER NOTES, JOB NO. 840, AREA ORO BLANCO

LINE 5, HALF N, SP. 2, a = 1500', BEARING N15°E

SENDER STA. 20L = ELECTRODE NO. 3, DATE

PAGE 6

HEINRICHS GEOEX

SEND	4-5	3-4	2-3								
RECEIVE	110-125N	→									
MULTIPLIER	1.0	1.0	0.1								
PFE	1.5	1.1	1.4								
CUR. (AMPS)	4.5	5	5								
~~POINT NO~~ K_n	90	157.5	252								
SEP. (n)	4	5	6								
H. F. MV	15.6	12.1	8.46								
DRIFT	±0.2	±0.2	±								
1.0 PFE K_n/1000	−0.6	−0.2 ↔ −1.6 −0.8	← −0.8								
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	−0.2 ↔ +1.6 0.9	0.3	0.8								
3.0 MV $\rho/2\pi$	306	374	418								
DRIFT MCF	4.9	2.9	3.3								
S. P.	−8.0										
~~NOISE~~ R_{NCO}	148.7			← 1:00 pm							
~~POT RES.~~ Z_{TT}	506										
CULT & CMTS	Light	nois	3-4	meters							
MCF	3.0	1.1	1.5	1.1							
	3.35	1.80	.6	1.7							

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 5, HALF N, SP. 2, DATE 8-30

PAGE 1

HEINRICHS GEOEX

SEND	CAL	1-2	2-3	1-2	3-4	2-5	1-2	4-5	3-4	2-3
RECEIVE	2-3	20-35N	35-50N →		50-65 →			65-80N →		
RANGE	10X200	30X150	30X150	—	—	—	—	—	—	30X166
VOLTAGE	350	380	400	390	480	400	400	590	480	450
CURRENT	2	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5
SEND	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5
RECEIVE	65-80N	80-95	→		→	95-110	→		→	110N
RANGE	30X166	30X150	30X166	—	—	30X150	30X166	—	—	30X150
VOLTAGE	440	590	540	450	440	590	530	450	410	590
CURRENT	5	4.5	5	5	5	4.5	5	5	5	4.5

FREQUENCIES	1.0 0.3 0.1
SENDER No.	6644-5
OPERATOR	BIGLER
RECEIVER No.	DD
OPERATOR	64 GH

COMMENTS:

I. P. SENDER NOTES

JOB No. 840 AREA ORO BLANCO

LINE 5, HALF N, SP. 2, DATE 8-30

PAGE 2

HEINRICHS GEOEX

SEND	3-4	2-3								
RECEIVE	110N	125N								
RANGE	30X166	—								
VOLTAGE	540	440								
CURRENT	5	5								
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	1.0 0.3 0.1
SENDER No.	6644-5
OPERATOR	Bigler
RECEIVER No.	DD
OPERATOR	64 GH

COMMENTS:

I. P. RECEIVER NOTES, JOB NO. 840, AREA _____

LINE _____, HALF _____, SR. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 57

HEINRICHS GEOEX

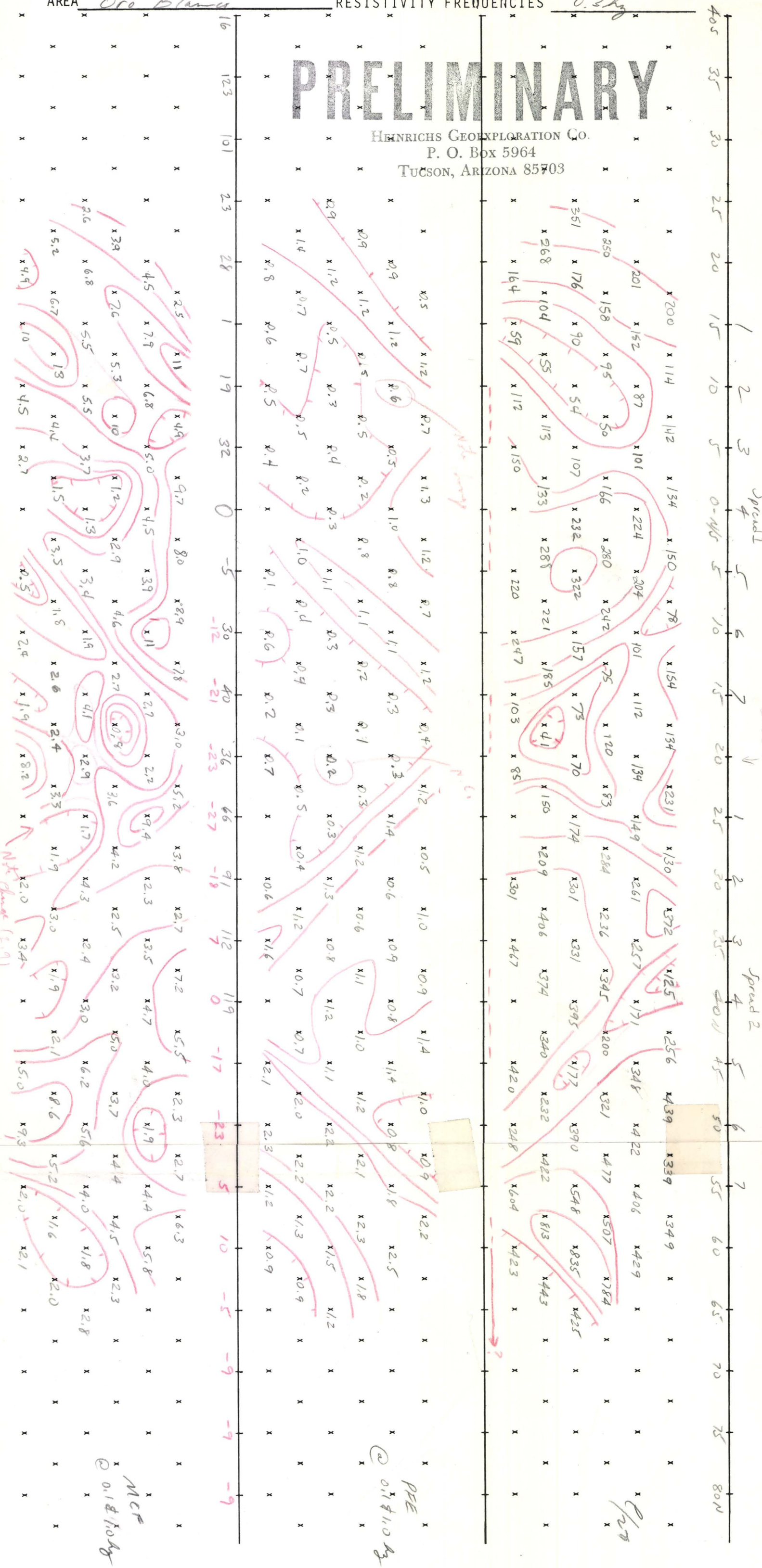
SEND										
RECEIVE					2.077 amps					
MULTIPLIER										
PFE										
CUR. (AMPS)	Strange cal readings - Receiver box hot.									
POINT NO.										
SEP. (n)	mv. on 2 Amp dropped from 204 to ≈193.									
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$	Switched leads in Resistor come back to 204									
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_C	Electrode #5 Found at 45N instead of 50.									
3.0 MV $\rho/2\pi$										
DRIFT MCF										
S. P.										
NOISE										
POT RES.										
CULT & CMTS										

1 2 3 4 5 6

JOB# 840 LINE# 1 SP 1 & 2 a = 500' BEARING N10°E

CLIENT N. D. I. DATE August, 1973 FREQUENCIES 0.1 & 0.3 & 1.0 Hz

AREA Oro Blanco RESISTIVITY FREQUENCIES 0.3 hz



JOB# 840 LINE# 2 SP 1 a = 1000' BEARING E-W

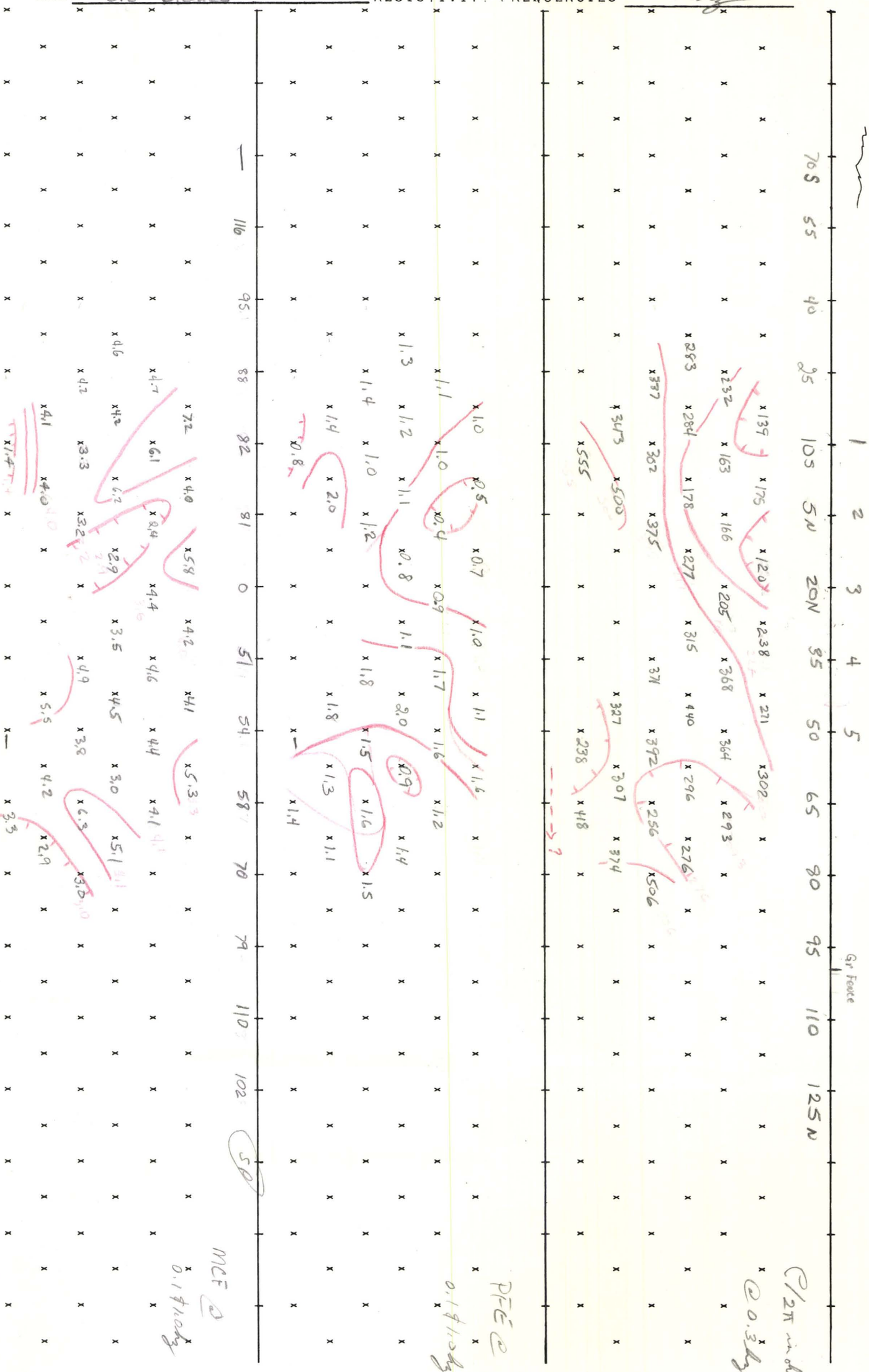
CLIENT N.D.I. DATE Aug. 1973 FREQUENCIES 0.1 & 0.3 & 1.0 Hz

AREA Oro Blanco RESISTIVITY FREQUENCIES 0.3

JOB# 840 LINE# 5 SP 1 a = 1500' BEARING S 15° W (N 15° E)

CLIENT N.D.E. DATE Aug. 3 1972 FREQUENCIES 0.1 & 0.3 Hz

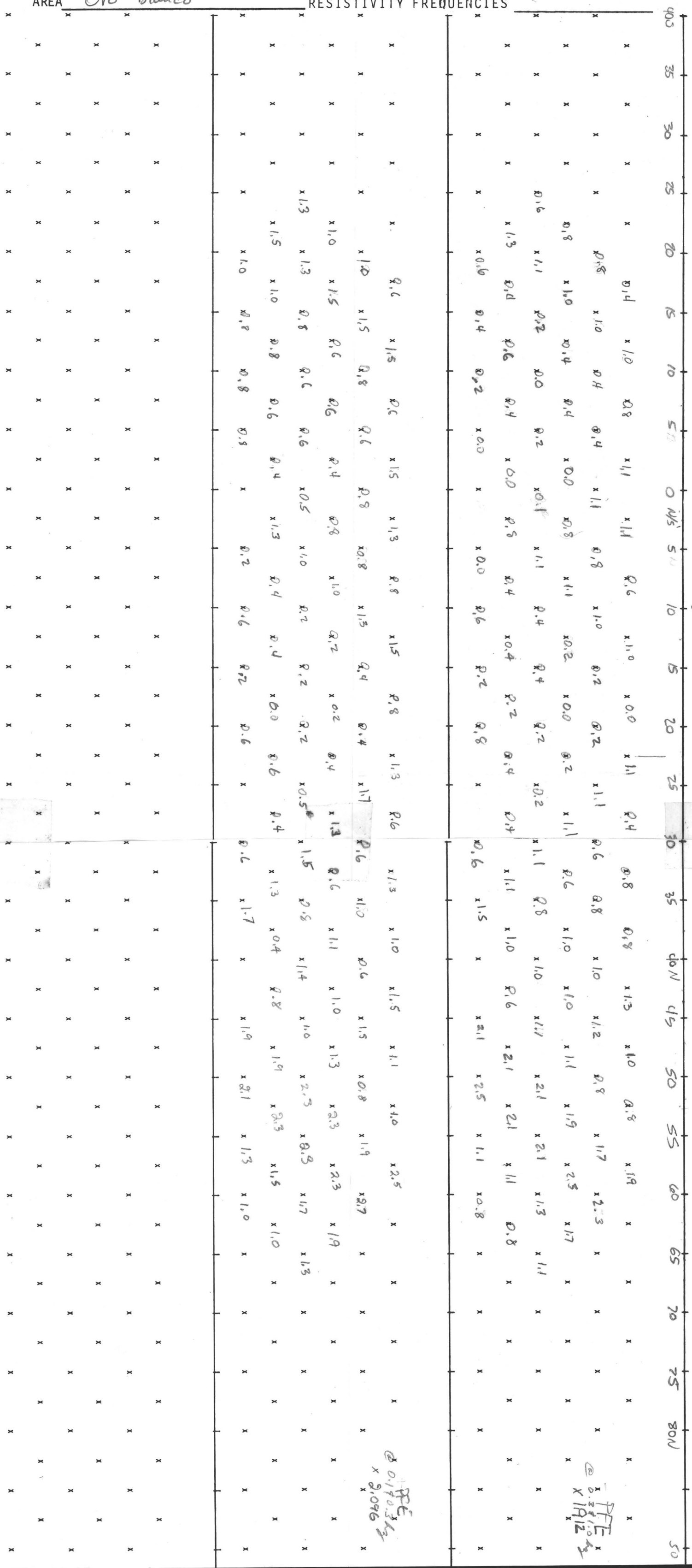
AREA Oro Blanco RESISTIVITY FREQUENCIES 0.3 Hz



JOB# 840 LINE# 1 SP 1 & 2 a = 500' BEARING N10°E S10°W

CLIENT N.D.I. DATE Aug 73 FREQUENCIES & Hz

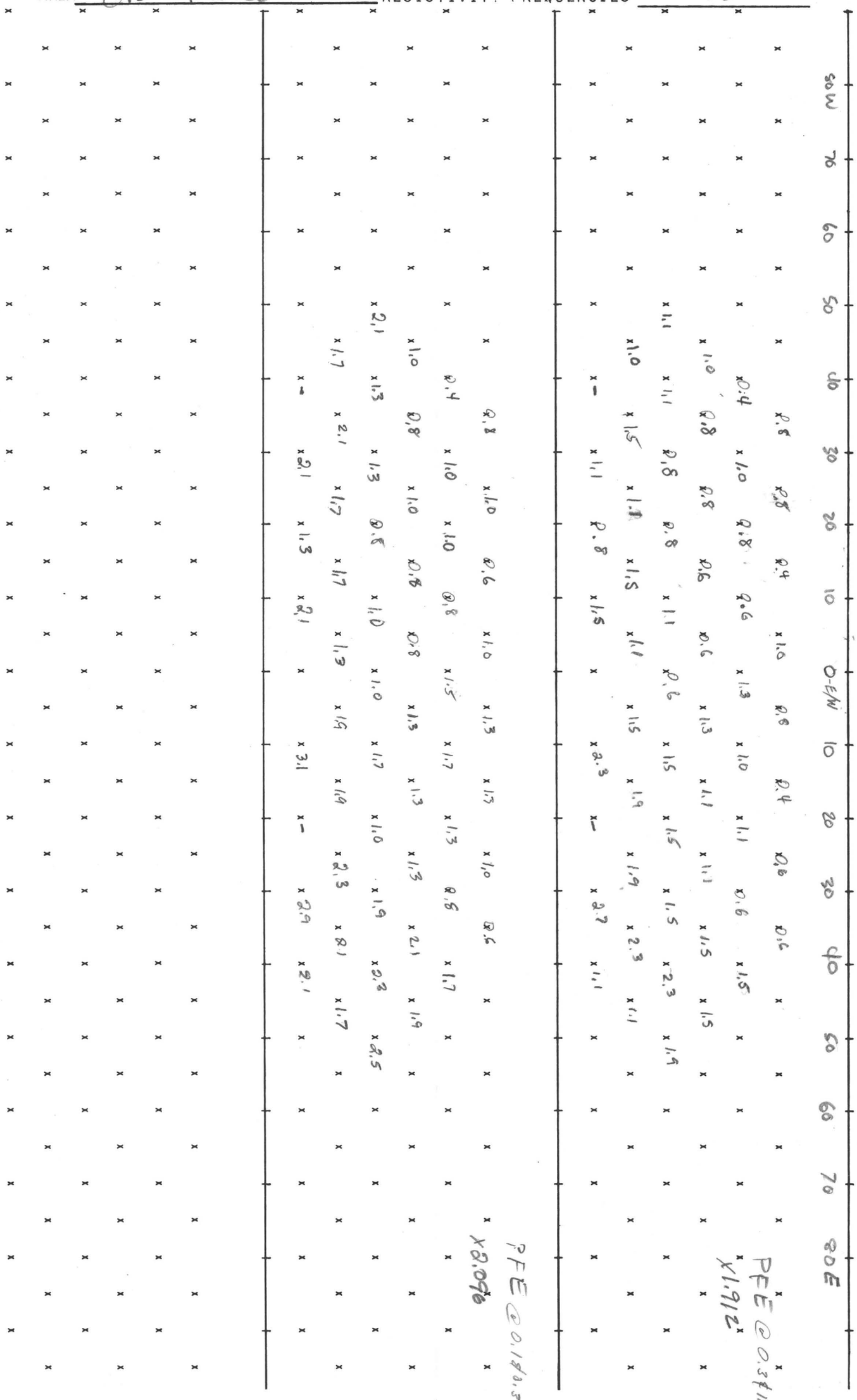
AREA Oro Blanco RESISTIVITY FREQUENCIES



JOB# 840 LINE# 2[redacted] SP 1 a = 1000' [redacted]EARING E-W

CLIENT NDI DATE Aug. 1973 FREQUENCIES .1 & .3+1.0Hz

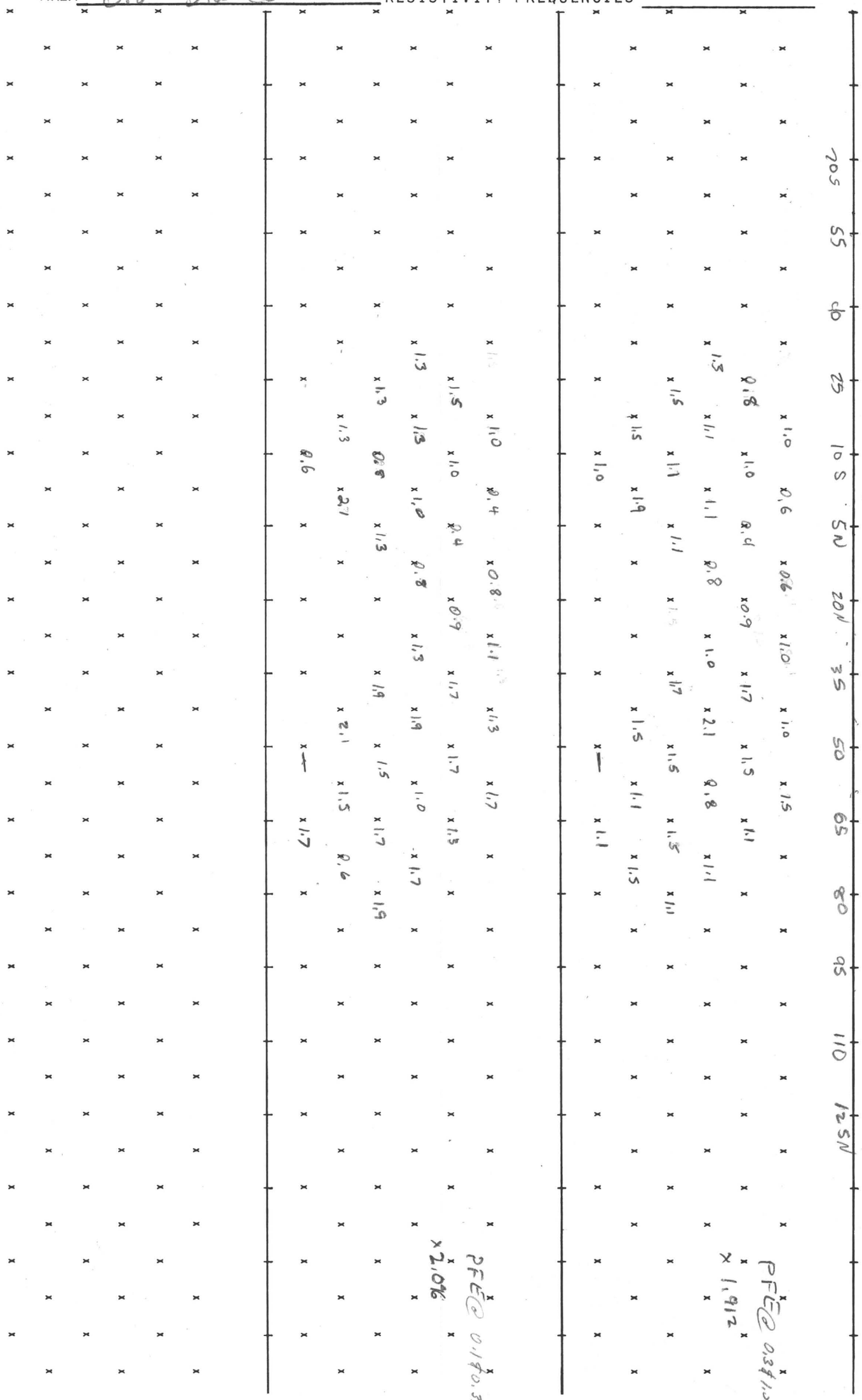
AREA Oro Blanco RESISTIVITY FREQUENCIES .3



JOB# 840 LINE# 5 SP 1 a = 1500' BEARING S 15° W (N 15° E)

CLIENT N.D.I. DATE Aug. 21, 1973 FREQUENCIES & Hz

AREA Oro Blanco RESISTIVITY FREQUENCIES



REPLY

Phoenix

Francis X. Cannaday
Manager, Base & Precious Metals

July 25, 1973

GEOEX
Cable: GEOEX
REC'D JUL 26 1973 REC'D
BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Mr. Chris S. Ludwig
Heinrichs Geoexploration Company
P. O. Box 5964
Tucson, Arizona 85703

Dear Chris:

In accordance with our conversation when you were here and over the telephone, I am summarizing the various items discussed as follows:

A. Nuclear Dynamics Tyrone Project. IP Survey

1. Equipment
   Transmitter: MK 4-S, 5 KW
   Receiver: Mod. 4-CR.

2. Frequencies
   Readings on 1.0 Hz
   0.3 Hz
   0.1 Hz

3. Array and spacing
   Dipole-Dipole, colinear
   Spacing a = 1200 feet
   n = not less than 5

4. Profiles
   Five to six profiles, numbered 1, 2, 3, 4, 5 and 6, parallel to one another, oriented N-S, to be run in orderly sequence as numbered. Location of profiles as shown on map enclosed.

   Length of each profile approximately 10,000 feet (subsurface data) one spread each.

   Some adjusting of profiles may be done depending on results obtained as work progresses.

5. The work will be applied toward annual assessment work for the year ending August 31st, 1973, and should be started as soon as practicable.

6. The planned expenditure for the IP Survey is $6,500 more or less.

7. The results are to be reported to Nuclear Dynamics, Inc. in the usual standard form, which includes a summary description and interpretation, profile plan map, and schematic profiles showing data on Resistivity, P.F.E. and Metal Factor for two frequency combinations and SP.

B. Nuclear Dynamics Oro Blanco Project, IP Survey

1. Equipment
Transmitter: Mark 4-S should be used preferably. A lighter model may be used for line 1 (a = 500 feet) to start with, provided full, useful data is obtainable.
Receiver: Mod. 4-CR.

2. Frequencies
Readings on 1.0 Hz
0.3 Hz
0.1 Hz

3. Array
Dipole-Dipole, colinear.

4. Profiles
Four to five profiles numbered 1, 2, 3, 4, and 5 located and oriented as shown on enclosed map, to be run in orderly sequence as numbered.

Profile 1: Approximately N. 10° E; spacing, a = 500 feet; n = 5 or 6; two spreads; length of subsurface data approximately 8000 feet.

Profile 2, 3, 4: E-W along common sideline of claims as shown on map; spacing a = 1000 feet; n = 5 or 6; one spread; length of subsurface data approximately 8,000 feet.

Profile 5: coincident with Profile 1; spacing a = 1500 feet; n = 5; one spread; length of subsurface data approximately 12,000 feet.

This profile may be changed to a = 1000 feet or otherwise adjusted or deleted, being subject to previous findings of the survey.

5. The work will be applied toward annual assessment work for the year ending August 31st, 1973, and should be started as soon as practicable.

6. Planned expenditure for the IP survey is $4500 more or less.

7. Results are to be reported to Nuclear Dynamics, Inc. in the usual standard form which includes a summary description and interpretation, profile plan map, and schematic profiles showing data on Resistivity, P.F.E. and Metal Factor for two frequency combinations and S.P.

Contact will be maintained between the field crews and the undersigned throughout the work on both projects.

I'll be expecting to receive from you a proposal-contract (along the lines submitted by you for the Canon City Project) including the above specifications.

Very truly yours,

Francis X. Cannaday

Francis X. Cannaday
Manager, Base & Precious Metals

FXC:sem

Enclosures: 2

CC: Kelsey L. Boltz

REPLY
Phoenix

Francis X. Cannaday
Manager, Base & Precious Metals

August 2, 1973

HEINRICHS
GEOEX
Cable: GEOEX

REC'D AUG 3 1973 REC'D

BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Mr. C. S. Ludwig
Chief Geophysicist
Heinrichs GEOEXploration Company
P. O. Box 5964
Tucson, Arizona 85703

Dear Chris:

I have enclosed signed copies each of the Tyrone and Oro Blanco agreements.

I called for you yesterday and talked to Walt, since you were out. I asked about an ambiguity in the Oro Blanco project agreement about operating from Tucson and charging expenses for living away from Tucson. I understand that a clarification is forthcoming.

I expect you'll be calling me to confirm movements of the crew. I intend to be on hand in the field the first day, which I expect will be Tuesday.

Sincerely,

Francis X. Cannaday

Francis X. Cannaday
Manager, Base & Precious Metals

FXC:sem

Enc.

CC: Mr. Boltz

HEINRICHS GEOEXPLORATION COMPANY

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

HEINRICHS GEOEX
Cable: GEOEX

July 27, 1973

Mr. Francis X. Cannaday
Manager, Base & Precious Metals
Nuclear Dynamics, Inc.
2871 Sky Harbor Blvd.
Phoenix, AZ 85036

REC'D AUG 3 1973 REC'D

BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Re: Proposed I. P. Survey
Oro Blanco Project, Ariz.
GEOEX Job # 840

Dear Mr. Cannaday:

We herewith submit this proposal - contract letter for your understanding and agreement for GEOEX to conduct an induced polarization IP. survey in your Oro Blanco Project Area, Arizona.

We understand that you wish four to five profiles numbered 1, 2, 3, 4 and 5 located and oriented as shown on a map furnished to GEOEX and to be run in orderly sequence as numbered.

Profile 1: Approximately N. 10° E; spacing, a = 500 Feet; n = 5 or 6; two spreads; length of subsurface data approximately 8000 feet.

Profile 2, 3, 4: E-W along common sideline of claims as shown on map; spacing a = 1,000 feet; n = 5 or 6; one spread; length of subsurface data approximately 8,000 feet.

Profile 5: coincident with Profile 1; spacing a = 1,500 feet; n = 5; one spread; length of subsurface data approximately 12,000 feet. This profile may be changed to a = 1,000 feet or otherwise adjusted or deleted, being subject to previous findings of the survey.

The equipment used will include a MK 4S, 5KW transmitter if possible. The receiver will be a Model 4-CR. Frequencies to be read will be 1.0 Hz, 0.3 Hz and 0.1 Hz. Data will be gathered on a collinear, dipole-dipole array.

The work will be applied toward annual assessment work for the year ending August 31, 1973 and will be started on or about the week of 13 August 1973.

Planned expenditure by Nuclear Dynamics, Inc. for the I.P. survey is $4,500 more or less.

Results are to be reported to Nuclear Dynamics, Inc. in the usual standard form which includes a summary description and interpretation, profile plan map, and schematic profiles showing data on Resistivity, P.F.E. and Metal Factor for two frequency combinations and S.P.

A three man crew plus necessary equipment to obtain this coverage would be charged at $250.00 per work day plus expenses. Expenses include $15.00 per day plus $0.15 per mile for a four-wheel-drive vehicle and $48.00 per day total living expenses for the crew. Travel time from Tucson to Oro Blanco and return is charged at $125.00 per day plus expenses as above. Other direct job related expenses are billed at our cost plus 15%.

Our normal work schedule is based on a five day week and an eight hour work day. Travel time up to one hour each way between the crew base and the job site will not be charged. Overtime in excess of this schedule will be charged at $37.50 per hour for the three man crew plus expenses as above.

Standby time due to inclement weather or client request will be charged at half the daily rate plus expenses as above.

Final data compilation, computation and drafting will be charged at $10.00 per hour. Final interpretationand report is at $18.75 per hour. Rough field plots and preliminary field interpretations will be available during the project as needed.

GEOEX will save the client harmless from all personal injury liability, public liability and property damage liability incurred by GEOEX employees. All property permits, brushing and trespass liability and related costs which are incurred on behalf of the client will be chargeable to the client at GEOEX cost plus 15%. All special insurance premiums, bonds, fees, duties, licenses, taxes, trespass permits and related special fees, if any will be billed to the client at GEOEX cost plus 15%.

Payments are due on presentation. Billings may be submitted weekly with final payment due on presentation of final report.

Your understanding and approval of the above may be indicated by signing as provided below on one of the two enclosed extra copies of this letter and returning that copy to us.

Sincerely yours,
Heinrichs GEOEXploration Company

C. S. Ludwig

C. S. Ludwig, Chief Geophysicist
HEINRICHS GEOEXPLORATION COMPANY

CSL:jh

DATE: August 2, 1973

Accepted by: Francis X. Cannaday

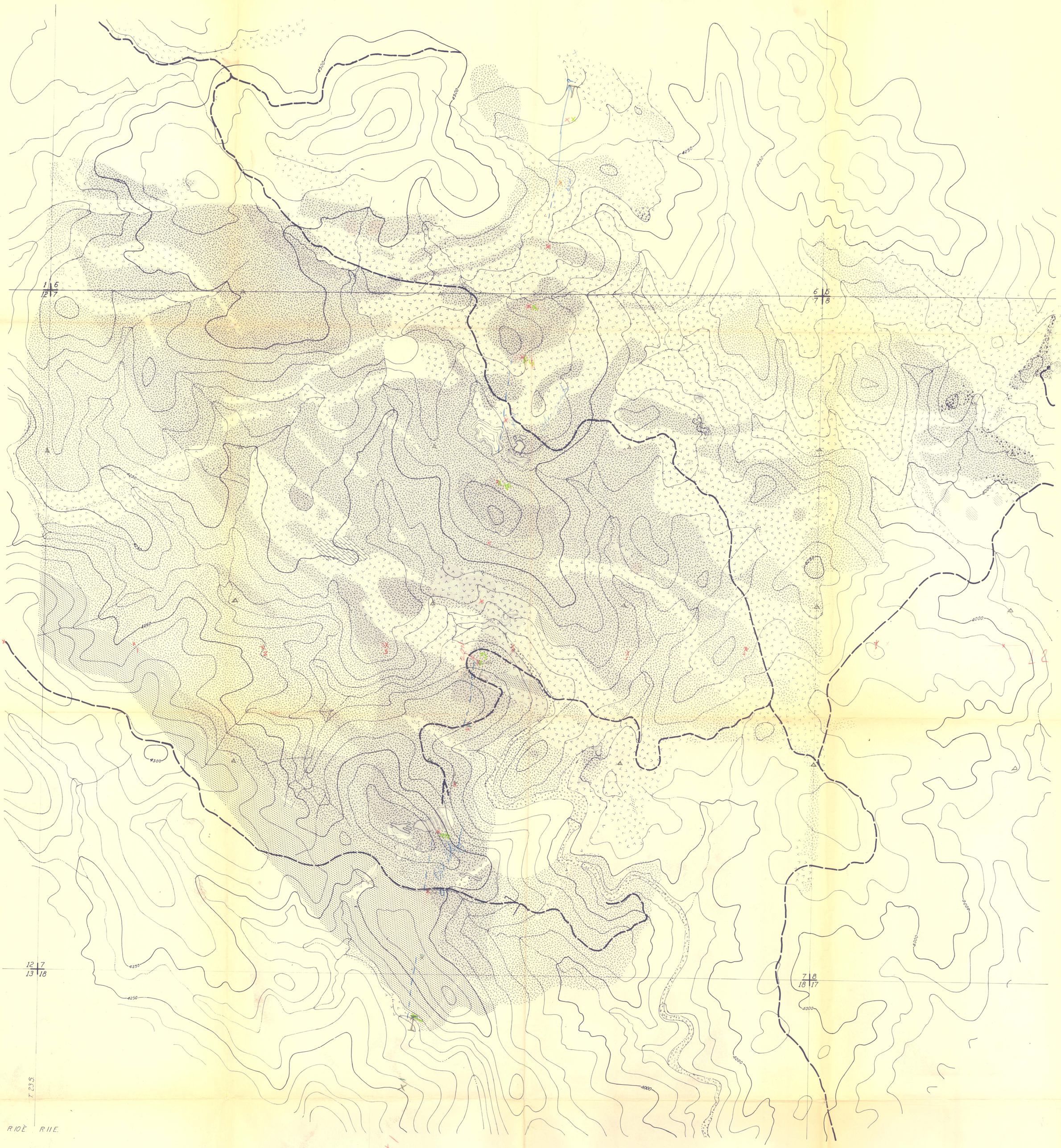
Title: Manager, Base & Precious Metals.

Encl: 2 extra cc

cc: GEOEX Job 840 file.

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION LOCATION
AND INTERPRETATION PLAN
of
ORO BLANCO AREA
SANTA CRUZ COUNTY, ARIZONA
for
NUCLEAR DYNAMICS, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 840-73 August 1973



ROCK TYPES

- ALLUVIUM
- QUARTZ LATITE - QUARTZ MONZONITE (UNDIFFERENTIATED)
- DIORITE - QUARTZ DIORITE (UNDIFFERENTIATED)
- SANDSTONE
- LIMESTONE
- SHALE
- BRECCIA

ALTERATION

- SERICITIC (INTENSE - MEGASCOPIC)
- SERICITIC (MODERATE - THIN SECTION)
- SILICIC

STRUCTURAL

- FAULTS
- CONTACTS

CULTURAL

- DUMPS
- OPEN CUTS
- SHAFTS
- ROADS

NUCLEAR DYNAMICS, INC.

ORO BLANCO PROJECT

OLD GLORY - MARGARITA AREA

SECTIONS 6, 7, & 8 T.23 S. R.11 E.

SANTACRUZ COUNTY, ARIZONA

SURFACE GEOLOGY

1" = 300'

0 500 1000 1500'

CONTOUR INTERVAL 50 FEET