CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the Walter E. Heinrichs, Jr. Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

HEINRICHS GEOEXPLORATION COMPANY

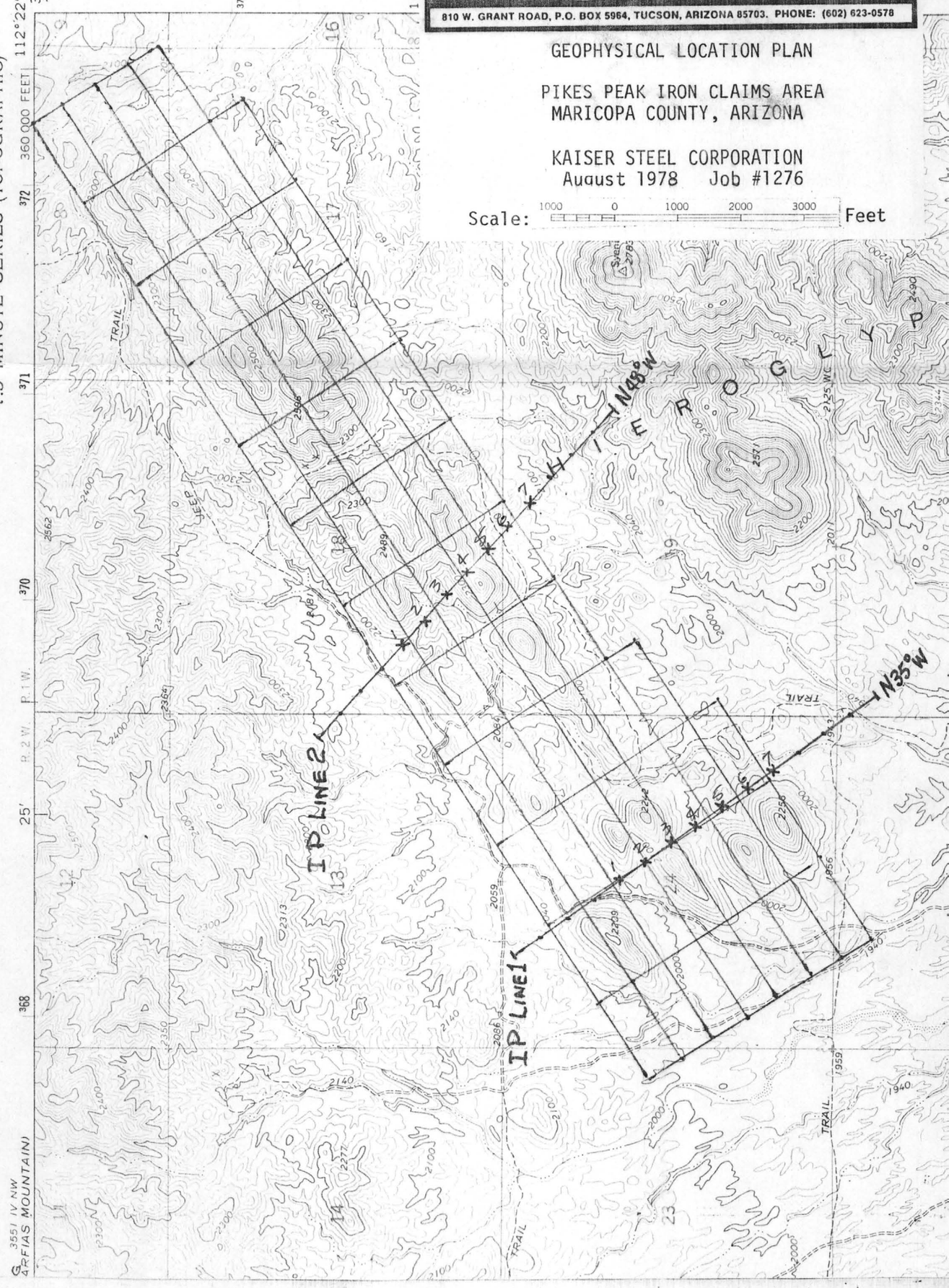
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

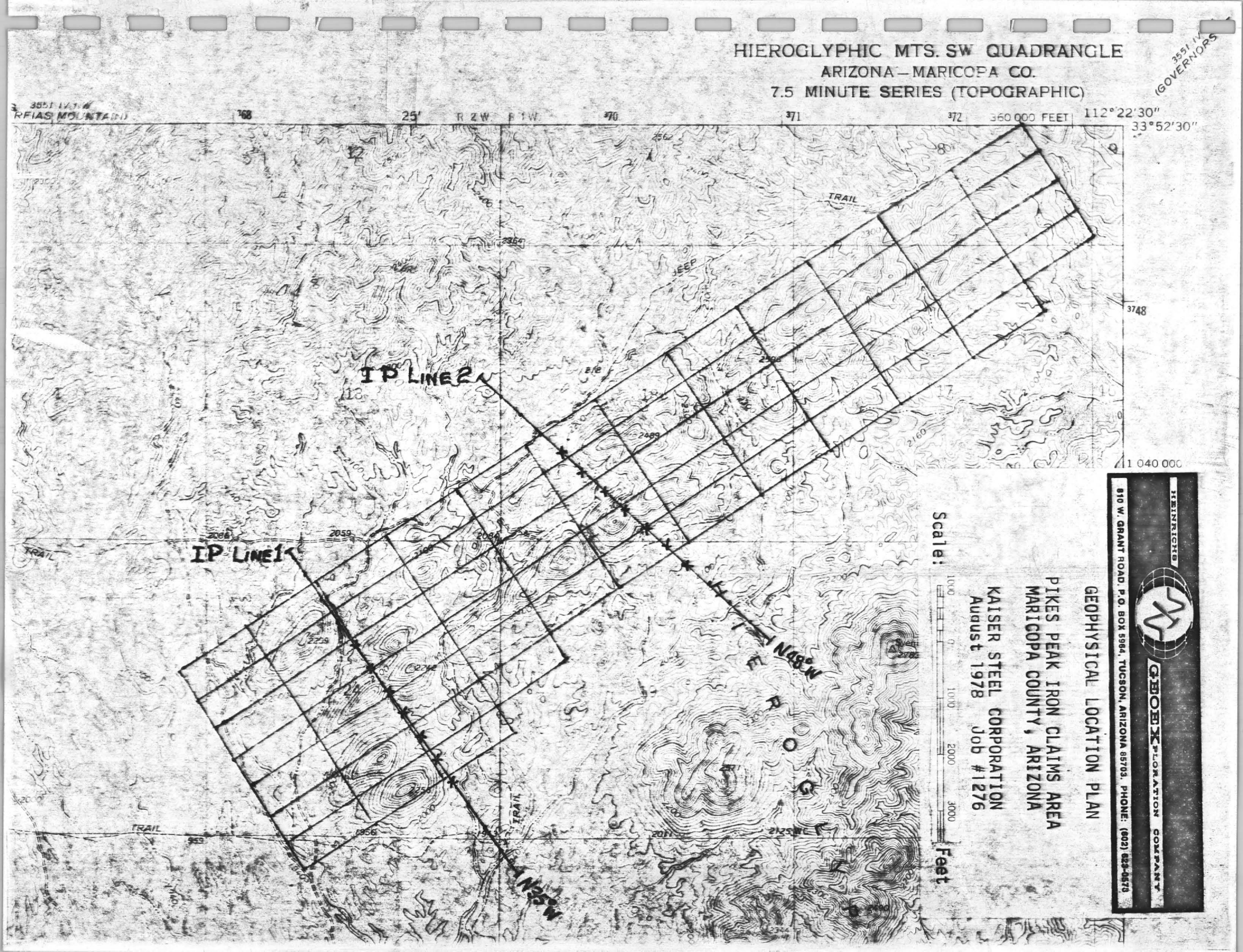
GEOPHYSICAL LOCATION PLAN

PIKES PEAK IRON CLAIMS AREA
MARICOPA COUNTY, ARIZONA

KAISER STEEL CORPORATION
August 1978 Job #1276

Scale: 1000 0 1000 2000 3000 Feet




HIEROGLYPHIC MTS. SW QUADRANGLE
ARIZONA—MARICOPA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
112°22'30"
33°52'30"
360 000 FEET
IP LINE 2
IP LINE 1
TRAIL
JEEP
N48°W
N35°W
Scale:
Feet
GEOPHYSICAL LOCATION PLAN
PIKES PEAK IRON CLAIMS AREA
MARICOPA COUNTY, ARIZONA
KAISER STEEL CORPORATION
August 1978 Job #1276
HEINRICHS
GEOEX EXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0673

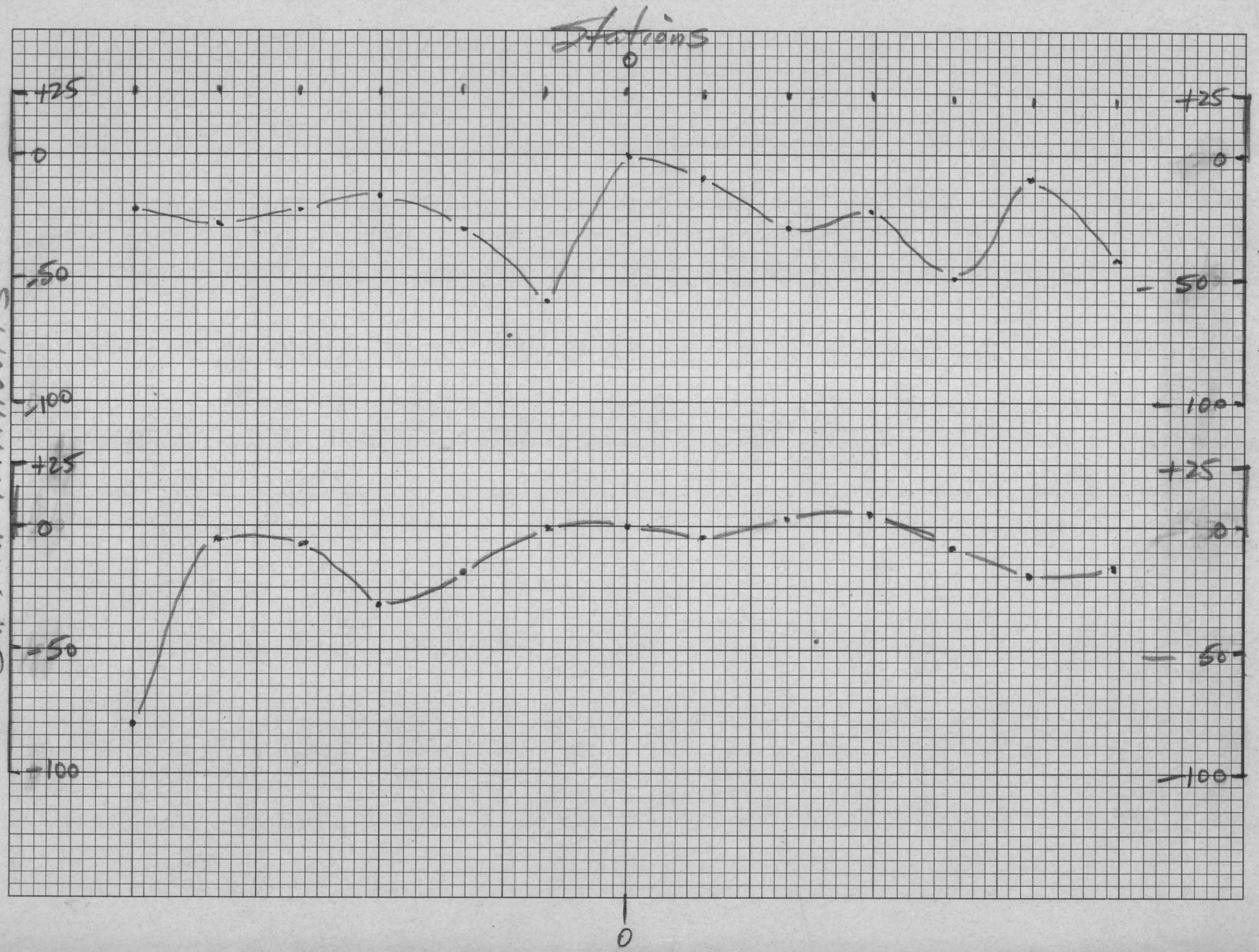
HIEROGLYPHIC MTS. SW QUADRANGLE

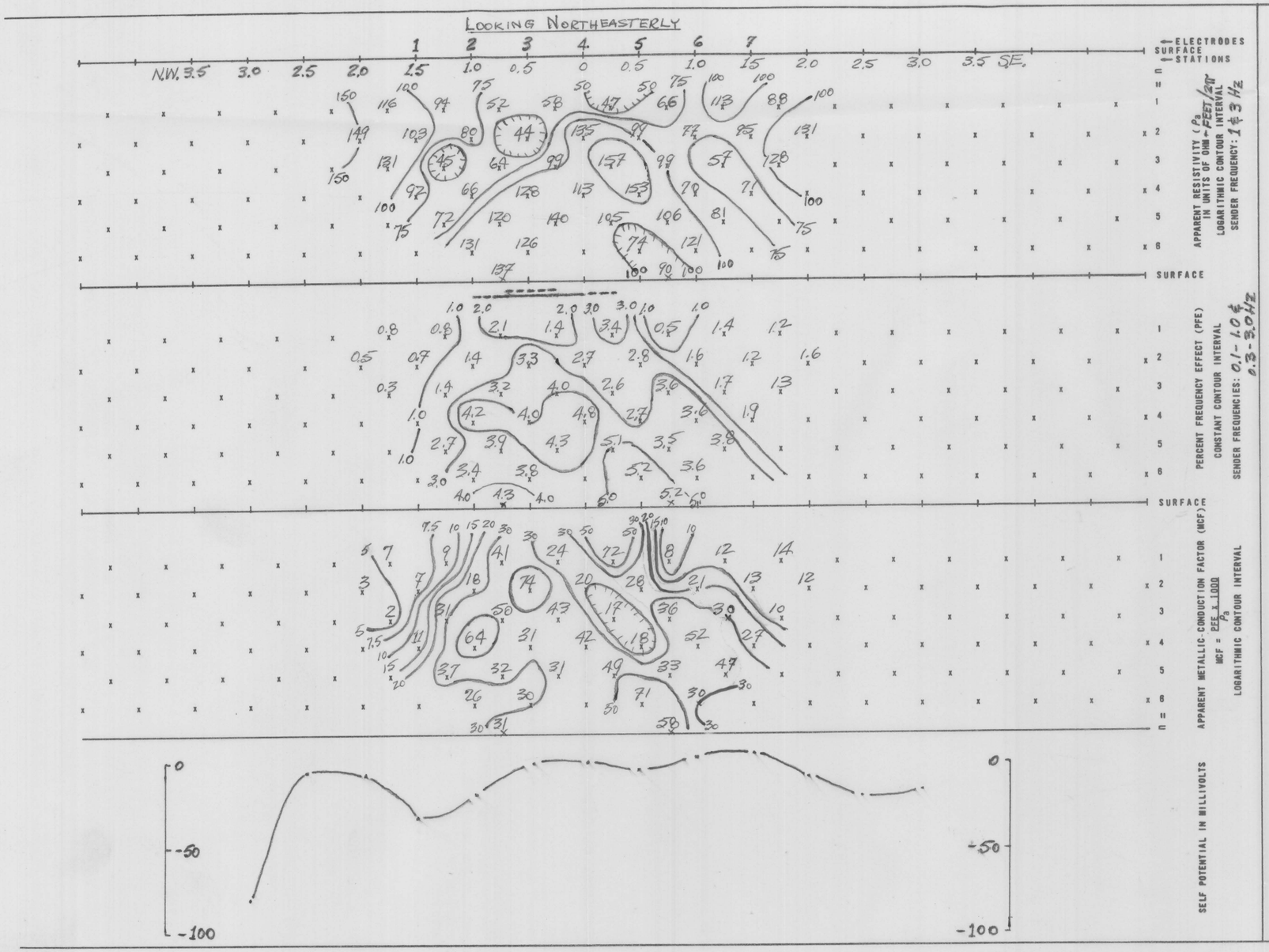
ARIZONA – MARICOPA CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.





LINE NO. 2

SPREAD(S) 1

BEARING N48°W

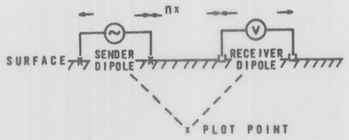
INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of PIKES PEAK IRON CLAIMS AREA

MARICOPA COUNTY, ARIZONA

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



FOR

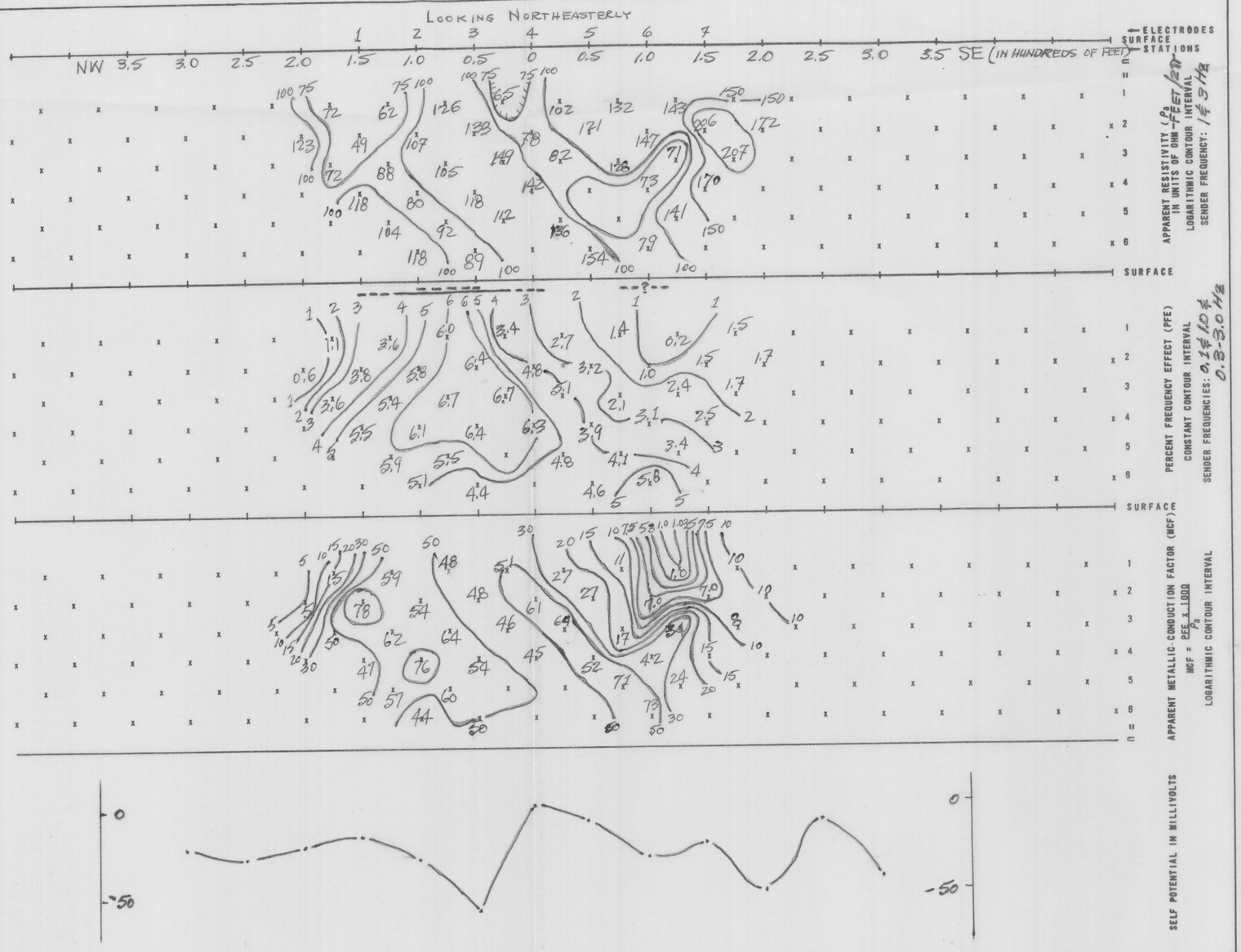
KAISER STEEL CORPORATION

DATE

AUGUST 1978

HEINRICHS GEOEXPLORATION COMPANY

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



LINE NO. 1

SPREAD(S) 1

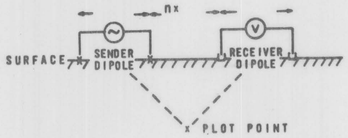
BEARING N 35° W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of PIKES PEAK IRON CLAIMS AREA MARICOPA COUNTY, ARIZONA

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



FOR KAISER STEEL CORPORATION

DATE

August 1978

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

HEINRICHS GEOEXPLORATION COMPANY

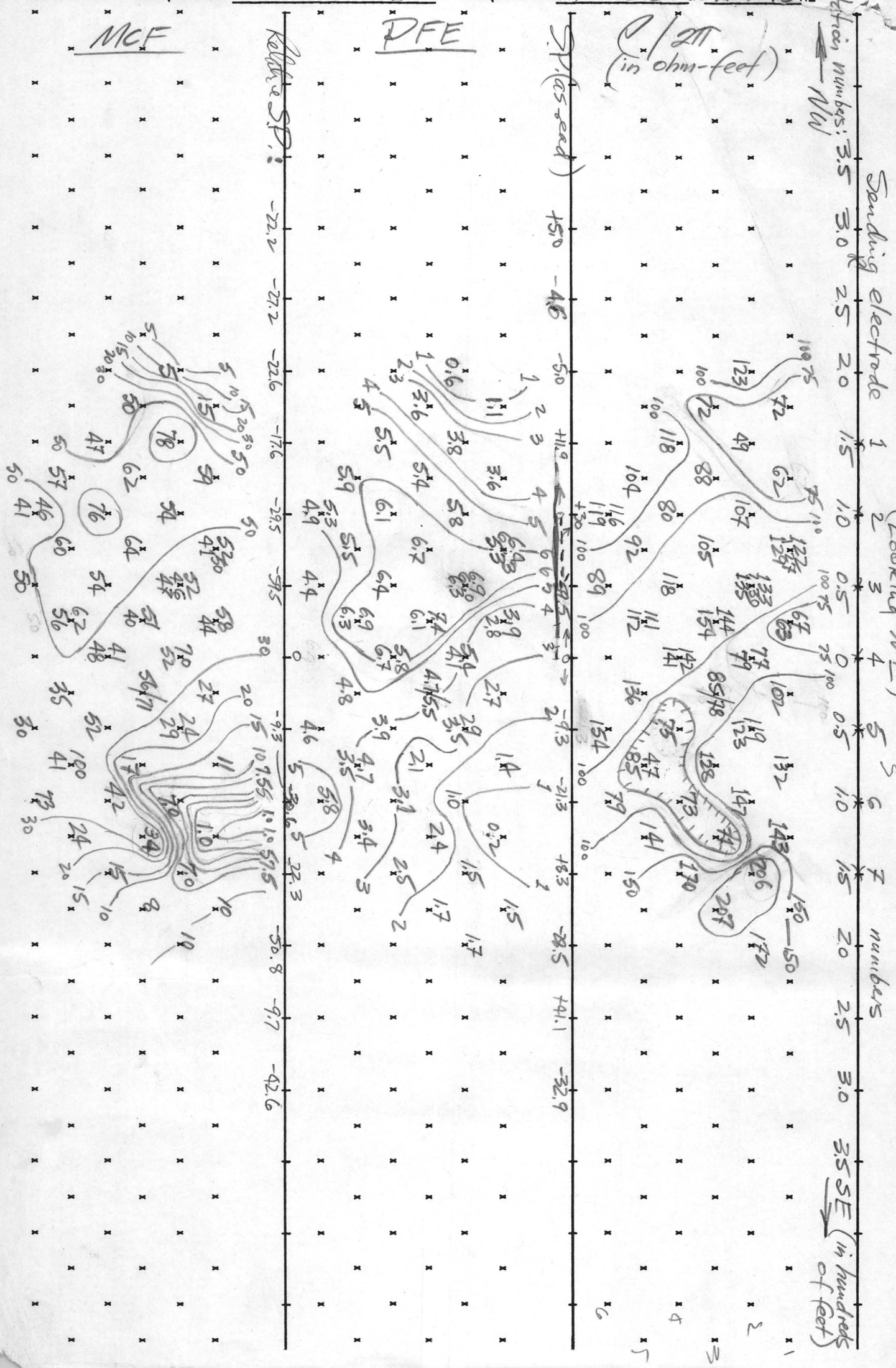
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1276 CLIENT Kaiser Steel

DATE 8/10-11/78 AREA Pikes Peak

LINE# 1 SP 1 a= 500' BEARING N 35° W

RESISTIVITY FREQUENCIES 1.0 or 3.0 Hz FREQUENCIES 1.0 or 3.0 & 0.1 or 0.3 Hz



I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1&2, HALF #SE NW " 1, SP. 1, a = 500', BEARING N 35°E

SENDER STA. 0-NW-SE = ELECTRODE No. 4, DATE 8/9/10 78 78 → LINE 1-SP → 1-NW 1/2

PAGE 6 of 12

HEINRICHS GEOEX

SEND	Cal →	→	→	→	Cal →	→	3-4 →	→	4-5 →	→
RECEIVE	6-7 →	→ Rot.	→	→	2-3 →	→	1.0-1.5NW →	→	→	→
MULTIPLIER	10.0	10.0	10.0	→	10.0	→	10	10	1.0	→
PFE	-0.6	-0.8	3.0Hz -1.2	1.0Hz	+0.6	+0.3	+7.0	+5.8	+6.7	+7.2
CUR. (AMPS)	2.0	2.0	→	→	→	→	→	→	→	→
POINT No.										
SEP. (n)	—	—	—	—	—	—	1	1	2	2
H. F. MV	198	198	198	199	191	191	163	172	44.85	44.3
DRIFT	+0.2	-0.1	-0.0	-0.4	Lost PWR.	-0.3	0.0	-0.1	0.0	0.0
1.0 PFE K_n/1000	—	—	—	—	—	—	1.5	1.5	6.0	6.0
0.3 PFE ρ_{CAL}	1.01	1.01	1.01	1.005	1.047	1.047				
0.1 PFE PFE_c	-0.8	(-0.7)	-1.2	-0.6	+0.6	+0.6	+6.4	+5.3	+6.3	+6.9
3.0 MV $\rho/2\pi$	—	(used)	—	—	—	—	122	129	135	133
DRIFT MCF							52.4	41.1	46.8	51.9
S. P.			←	MK75	MK45 →		+11.9			
NOISE			←	Sender	Sender					
POT RES.							10K?			
CULT & CMTS			←	19692R	20693R →		20693R	19693R →		20693R
				VS 0.3Hz	VS 0.1Hz	(20693R)				

I. P. RECEIVER NOTES, JOB NO. 276, AREA Rios Pear

LINE 62, HALF #3, SP. 1, a = 500, BEARING N 35° E

SENDER STA. NW-5 = ELECTRODE NO. 4, DATE 8/9/78

PAGE 6 of 12

HEINRICHS GEOEX

SEND											
RECEIVE											
MULTIPLIER											
PFE											
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE K_n/1000											
0.3 PFE ρ_{CAL}	1.01	1.01	1.01		1.047	1.047					
0.1 PFE PFE_c											
3.0 MV $\rho/2\pi$											
DRIFT MCF											
S. P.											
NOISE											
POT RES.											
CULT & CMTS											

(6644-5)

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak MK4S

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. 0-NWSE = ELECTRODE No. 4, DATE 8/10/78

HEINRICHS GEOEX

SEND		5-6	6-7	Cal	2-3	3-4	4-5	5-6	6-7	→	1-2
RECEIVE		1.0-1.5NW	→	2-3	1.5-2.0NW				→	→	2.0-2.5NW
MULTIPLIER		1.0	0.1	10.0	1.0	1.0	→	0.1	0.1	0.1	1.0
PFE		+7.6	+6.7	±0.1	+3.5	+5.7	+6.6	+6.3	+6.2	+6.8	+1.0
CUR. (AMPS)		2.0	1.0	2.0	2.0	→	→	→	1.0	→	2.0
POINT No.											
SEP. (n)		3	4	—	1	2	3	4	5	5	1
H. F. MV		19.2	4.69	195	82.0	35.7	14.0	7.87	2.14	2.11	95.7
DRIFT		−0.1	0.0	+0.2	−0.1	0.0	→	−0.1	0.0	±0.3	0.0
1.0 PFE	K_n/1000	15.0	30.0	—	1.5	6.0	15.0	30.0	52.5	52.5	1.5
0.3 PFE	ρ_{CAL}			1.026							
0.1 PFE	PFE_c	+7.4−	+6.7±1	−0.1	+3.6	+5.8	+6.7	+6.4	+6.3	+6.9	+1.1
3.0 MV	$\rho/2\pi$	144	141	—	62	107	105	118	112	111	72
DRIFT	MCF	51.4	47.6	—	58.5	54.2	63.8	54.4	56.1	62.3	15.3
S. P.					−5.0						−4.6
NOISE									±0.05	±0.2	
POT RES.					66KΩ						9AK
CULT & CMTS		20693R/19692-R	→		→	→	→	→	→	20693R	19693R

MK4-S →

(6644-5)

I. P. RECEIVER NOTES, JOB NO. 1276, AREA Tikos Peak (MK4-5)

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. 0-NW5E = ELECTRODE NO. 4, DATE 8/10/78

PAGE 2 of 12

HEINRICHS GEOEX

SEND		5-6	6-7	Cal	2-3	3-4	4-5	5-6	6-7	→	1-2
RECEIVE		1.0-1.5MV	→	2-3	1.3-2.0MV	→	→	→	→	→	2.0-2.5MV
MULTIPLIER		1.0	0.1	10.0	1.0	1.0	→	0.1	0.1	0.1	1.0
PFE		+7.6	+6.7	+0.1	-5.5	+5.7	+5.6	+4.3	-6.2	-6.9	+1.0
CUR. (AMPS)		2.0	1.0	2.0	2.0	→	→	→	1.0	→	2.0
POINT NO.											
SEP. (n)		3	4	—	1	2	3	4	5	5	1
H. F. MV		1.2	4.0	195	82.0	5.7	14.0	2.33	2.0	2.1	3.2
DRIFT		-0.1	0.0	+0.2	-0.1	0.0	→	-0.1	0.0	±0.3	0.0
1.0 PFE	K_n/1000	15.0	30.0	—	1.5	6.0	15.0	30.0	52.5	52.5	1.5
0.3 PFE	ρ_{CAL}			1.026							
0.1 PFE	PFE_c	+7.4	+6.7+1	-0.1	+3.6	+5.8	+6.7	+6.4	+6.3	+6.9	+1.1
3.0 MV	$\rho/2\pi$	144	141		62	103	105	114	112	111	12
DRIFT	MCF	51.4	47.6	—	58.5	54.2	63.8	54.4	50.1	62.3	15.3
S. P.					-5.0						-4.6
NOISE									±0.05	±0.2	
POT RES.					66KΩ						44K
CULT & CMTS		20693B	19693B	→	→	→	→	→	→	20693B	19693B

MK4-5

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N 35° W

SENDER STA. 0 NW-SE = ELECTRODE No. 4, DATE 8/10/78

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	2.0-2.5 NW	→	→	→	→	2.5-3.0 NW	→	→	→	→
MULTIPLIER	1.0	1.0	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1
PFE	+3.6	+5.2	+5.9	+5.3	+4.2	+0.3	+3.3	+5.2	+5.6	+4.6
CUR. (AMPS)	2.0	→	→	1.5	1.25	2.0	2.0	2.0	2.0	1.5
POINT No.										
SEP. (n)	2	3	4	5	6	2	3	4	5	6
H. F. MV	16.2	11.7	5.35	2.64	1.32	41.1	9.62	7.85	3.98	2.12
DRIFT	(?)	0.0	-0.2	+0.1	0.0	0.0	0.0	0.0	0.0	-0.1
1.0 PFE / K_n/1000	6.0	15.0	30.0	52.5	84.0	6.0	15.0	30.0	52.5	84.0
0.3 PFE / ρ_{CAL}										
0.1 PFE / PFE_c	+3.8	+5.4	+6.1	+5.5	+4.4	+0.6	+3.6	+5.5	+5.9	+4.9
3.0 MV / $\rho/2\pi$	49	88	80	92	89	123	72	118	104	119
DRIFT / MCF	78.2	61.5	76	59.5	49.6	4.9	49.9	46.7	56.5	41.3
S. P.	← MK4	MK7 →				+5.0				→
NOISE	Sended →				yes ±0.5					
POT RES.	No-					72 K				
CULT & CMTS	Switch 19693R →									1.0-0.1 Hz

I. P. RECEIVER NOTES, JOB No. 276, AREA Pikes Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N 35 W

SENDER STA. 2 NW-SE = ELECTRODE No. 4, DATE 8/10/73

PAGE 8 of 12

HEINRICHS GEOEX

SEND		2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE		2.0-2.5NW	→	→	→	→	2.5-3.0NW	→	→	→	→
MULTIPLIER		1.0	1.0	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1
PFE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CUR. (AMPS)		2.0	→	[illegible]	1.5	1.25	2.0	2.0	2.0	2.0	1.5
POINT No.											
SEP. (n)		2	3	4	5	6	2	3	4	5	6
H. F. Mv		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT		(?)	0.0	-0.2	+0.1	0.0	0.0	0.0	0.0	0.0	-0.1
1.0 PFE	$K_n/1000$	6.0	16.0	30.0	52.5	84.0	6.0	15.0	30.0	52.5	84.0
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	+3.8	+5.0	+6.1	+5.5	+4.4	+0.6	+3.6	+5.5	+5.9	+4.9
3.0 MV	$\rho/2\pi$	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT	MCF	78.2	61.5	76	54.5	49.6	47.7	49.9	46.7	56.5	41.3
S. P.		← MK4	MK7 →	→	→	→	+5.0	→	→	→	→
NOISE		Sender	→			90±0.5					
POT RES.		No-					12 K				
CULT & CMTS		Switch									1.0-0.1Hz

196.93R

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. ONW-SE = SE→, ELECTRODE No. 4, DATE 8/10/78

PAGE 9 of 12

HEINRICHS GEOEX

Receiver #N 19693-R

SEND		5-6	1-2	2-3	1-2	2-3	3-4	1-2	2-3	3-4	4-5
RECEIVE		2.8-3.0 NW	0-0.5SE →		0.5-1.05SE	→		1.0-1.55SE	→		
MULTIPLIER		0.1	1.0	1.0	1.0	1.0	10.0	0.1	0.1	1.0	10.0
PFE		+4.9	+5.6	+2.4	+5.7	+3.7	+2.2	+5.3	+4.2	+2.4	+0.9
CUR. (AMPS)		1.5	2.0	→							
POINT No.											
SEP. (n)		6	2	1	3	2	1	4	3	2	1
H. F. MV		2.08	43.4	84.0	20.5	26.2	136	9.49	11.3	39.7	176
DRIFT		0.0	0.0	0.0	-0.1	0.0	+0.1	0.0	+0.2	0.0	0.0
1.0 PFE	$K_n/1000$	84.0	6.0	1.5	15.0	6.0	1.5	30.0	15.0	6.0	1.5
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	+5.3	+6.0	+2.8	+6.1	+4.1	+2.7	+5.8	+4.7	+2.9	+1.4
3.0 MV	$\rho/2\pi$	116	130	63	154	79	102	142	85	119	132
DRIFT	MCF	45.5	46.1	44.4	39.7	52.2	26.5	40.7	50.5	24.3	10.6
S. P.			-9.3	-21.3 →				+9.3			
NOISE											
POT RES.			67K	62K →				62K			
CULT & CMTS		3.0-0.34 z	1.-0.1			filter switch.	17 C.W.				

I. P. RECEIVER NOTES, JOB NO. 1276, AREA Rios Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. PNWSE = ELECTRODE NO. 4, DATE 8/10/78

PAGE 9 of 12

HEINRICHS GEOEX

SEND		5-6	4-5	2-3	1-2	2-3	3-4	1-2	2-3	3-4	4-5
RECEIVE		1.5-3.0	1.0-0.5E	→	0.5-1.0E	→	→	1.0-1.5E	→	→	→
MULTIPLIER		0.1	1.0	1.0	1.0	1.0	10.0	0.1	0.1	1.0	10.0
PFE		+4.9	+5.6	+2.4	+5.7	+3.7	+2.2	+0.3	+4.2	+2.4	[illegible]
CUR. (AMPS)		1.5	2.0	→	→	→	→	→	→	→	→
POINT NO.											
SEP. (n)		6	2	1	3	2	1	4	3	2	1
H. F. MV		[illegible]	[illegible]	84.0	40.5	20.2	36	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT		0.0	0.0	0.0	-0.1	0.0	+0.1	0.0	+0.2	0.0	0.0
1.0 PFE	K_n/1000	84.0	6.0	1.5	15.0	6.0	1.5	30.0	15.0	6.0	1.5
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	+5.3	+6.0	+2.8	+6.1	+4.1	+2.7	+5.8	+4.7	+2.9	+1.4
3.0 MV	$\rho/2\pi$	11	130	63	150	77	102	142	55	119	132
DRIFT	MCF	455	46.1	44.4	39.7	52.2	26.5	40.7	52.5	24.3	10.6
S. P.			-9.3	-21.3	→			+0.3			
NOISE											
POT RES.			67K	62K	→			62K			
CULT & CMTS		3.0-0.3	1.0-1			HF 10 C.W. Switch					

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF SE, SP. 1, a = 500', BEARING N 35° W

SENDER STA. ONWSE = ELECTRODE No. 4, DATE 4/10/78 Receiver S/N 19693-R

HEINRICHS GEOEX

SEND		1-2	2-3	3-4	4-5	5-6	1-2	2-3	2-3	3-4	4-5
RECEIVE		1.5-2.0SE	→			→	2.0-2.5SE →				→
MULTIPLIER		~~0.0~~ 0.1	0.1	1.0	1.0	10.0	0.1	0.1	0.1	0.1	1.0
PFE		+4.2	+3.3	+1.5	+0.4	−0.4	+3.9	+2.8?	3.0-5.0	+2.4	+1.7
CUR. (AMPS)		2.0 →								→	→
~~POINT No.~~			5.01								(23.8)
~~SER. No.~~		5	4	3	2	1	6	5	4	3	2
H. F. MV		5.19	~~5.10~~	17.0	48.9	190	3.66	3.22	3.15	9.79	23.8
DRIFT		±0.4	0.0	0.0	0.0	0.0	0.0?	0.0?	±0.2	±0.2	±0.1
1.0 PFE	K_n/1000	52.5	30.0	15.0	6.0	1.5	84.0	52.5	30.0	15.0	6.0
0.3 PFE	ρ_{CAL}	+36									
0.1 PFE	PFE_c	+4.8	+3.9	+2.1	+1.0	+0.2	+4.6	+3.5	+4.7	+3.1	+2.4
3.0 MV	$\rho/2\pi$	136	75	128	147	143	154	85	47	73.4	71
DRIFT	MCF	35.2	51.9	16.5	6.8	1.4	299	41.4	99.5	42.2	33.6
S. P.		−28.5					+41.1				
NOISE		±0.4					±0.4 PFE				
POT RES.		65K					55K				
CULT & CMTS						←	0.1-1.0 Hz →		3.0-0.3 Hz →		→

I. P. RECEIVER NOTES, JOB No. 1236, AREA Pikes Peak

LINE 1, HALF SP, SP. 1, a = 500', BEARING N 35° W

SENDER STA. ONWSE = ELECTRODE No. 4, DATE 2/10/72

PAGE 10 of 17

HEINRICHS GEOEX

RECEIVER 1969B-R

SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6
RECEIVE	1.5-2.05E				→	2.0-2.55E				→
MULTIPLIER	0.001	0.1	1.0	10.0	10.0	0.1	0.1	0.1	0.1	
PFE	+4.2	+3.3	+1.5	+0.4	-0.4	-3.9	-7.2	-8.0	-8.0	-1.0
CUR. (AMPS)	2.0								→	→
POINT No.		5.01								23.81
SEP. (n)	5	~~3~~ 4	3	2	1	6	5	4	3	2
H. F. MV	[illegible]	[illegible]	17.0	40.9	19.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT	±0.4	0.0	0.0	0.0	0.0	0.0	±0.2	±0.2	±0.2	±0.1
1.0 PFE / K_n/1000	22.5	30.0	15.0	6.0	1.5	34.0	52.5	30.0	15.0	12.0
0.3 PFE / ρ_{CAL}	[illegible]									
0.1 PFE / PFE_c	+4.2	+3.9	+2.1	+1.0	+0.2	+4.6	+3.5	+1.3	+3.1	+2.4
3.0 MV / $\rho/2\pi$	[illegible]	[illegible]	[illegible]	[illegible]	143	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT / MCF	352	519	16.5	6.8	1.4	29.9	414	995	422	33.6
S. P.	-28.5					+4.1				
NOISE	±0.4					±0.4 PFE				
POT RES.	65K					56K				
CULT & CMTS					←	0.1-1.0 Hz	→	30-0.3 Hz	→	→

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF SE, SP. 1, a = 500', BEARING N35° W

SENDER STA. ONWSE = ELECTRODE No. 4, DATE 8/10/78 Receiver S/N 19693-R

HEINRICHS GEOEX

SEND		5-6	6-7	2-3	3-4	4-5	5-6	6-7	6-7	2-3	1-2
RECEIVE		2.0-2.5SE →		2.5-3.0SE			→		0.0-0.5NW	→	
MULTIPLIER		1.0	1.5	0.1	→	1.0	1.0	1.0	1.0	X0.0	0.1
PFE		+0.7	+0.7	+5.0±	+2.6	+1.7	~~-0.4~~	+0.9	+2.7	+2.3	+5.4
CUR. (AMPS)		2.0	1.5	2.0	→	→	→	1.5	1.5	0.1	→
~~POINT No.~~							+0.9PFE				
SEP. (n)		2	1	6	5	4	(3) 27.6 (3)	2	2	NG!	1
H. F. MV		68.8	150	1.88	5.36	11.3	~~29.0~~	43.1	30.8	867	8.45
DRIFT		0.0	0.0	±0.2	±0.3	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE	K_n/1000	6.0	1.5	84.0	52.5	30.0	15.0	6.0	6.0	—	1.5
0.3 PFE	ρ_{CAL}	~~206~~	~~150~~	~~79~~	~~141~~	~~170~~	~~207~~	~~172~~	~~123~~	NG!	~~127~~
0.1 PFE	PFE_c	+1.5	+1.5	+5.8	+3.4	+2.5	+1.7	+1.7	+3.5		+6.3
3.0 MV	$\rho/2\pi$	206	150	79	141	170	207	172	123		127
DRIFT	MCF	7.3	100	734	24.1	14.7	8.2	9.9	28.5	—	49.6
S. P.				-32.9					-59.5		-53.2
NOISE				±0.5PFE							
POT RES.				63K					60K		50K
CULT & CMTS		0.3-3.0 Hz	→				→				→

I. P. RECEIVER NOTES, JOB NO. 1276, AREA Pikes Peak

LINE 1, HALF SE, SP. 1, a = 500', BEARING N 35° W

SENDER STA. ONWSE = ELECTRODE NO. 4, DATE 8/10/78 Receiver S/N 19693-R

PAGE 11 of 12

HEINRICHS GEOEX

SEND		5-6	6-7	2-3	3-4	4-5	5-6	6-7	6-7	2-3	1-2
RECEIVE		2.0-2.5 SE →		2.5-3.0 SE					0.0-0.5 NW		→
MULTIPLIER		1.0	1.5	0.1 →		1.0	1.0	1.0	1.0	X0.1	0.1
PFE		[illegible]	+0.1	+5.0	+1.6	+1.7	[illegible]	[illegible]	+2.3	+1.6	[illegible]
CUR. (AMPS)		2.0	1.5	2.0 →		→	→	1.5	1.5	0.N	→
POINT NO.							+0.9PFE				
SEP. (n)		2	1	6	5	4 (367.6 ft)		2	2	ONG	1
H. F. MV		[illegible]	140	[illegible]	53.6	113	[illegible]	121	30.8	90.8	[illegible]
DRIFT		0.0	0.0	+0.2	+0.5	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE	K_n/1000	6.0	1.5	54.0	52.5	30.0	15.0	6.0	6.0		1.5
0.3 PFE	ρ_{CAL}	[illegible]	150	39	41	190	209	192	123		129
0.1 PFE	PFE_C	+1.5	+1.3	+5.8	+3.4	+2.5	+1.3	+1.7	+3.5		+6.3
3.0 MV	$\rho/2\pi$	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
DRIFT	MCF	7.3	100	73.4	24.1	14.7	6.2	99	285		496
S. P.				-32.9					-59.5		-53.2
NOISE				±0.5PFE							
POT RES.				63K					60K		30K
CULT & CMTS		2.3-3.0 →									

HZ

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. 0-NW/SE ELECTRODE No. 4, DATE 6/10/78

HEINRICHS GEOEX

SEND		Cal. →	→	→	→	4-5	5-6	6-7	Cal.	Cal.
RECEIVE		4-5 →	→	→	→	0.5-1.0NW	→	→	3-4	→
MULTIPLIER		10.0 →	→	→	1.0	1.0	1.0	0.1	10.0	10.0
PFE		-0.7	-0.9	-0.7	-1.7	+2.9	+4.4	+4.5	-1.3	-0.6
CUR. (AMPS)		2.0 →		2.0	1.0	2.0	→	1.5	2.0	→
~~POINT No.~~		Sep.(n)	→	→	→	1	2	3	—	—
~~SEP. (m)~~		3.0-0.3Hz	→	→	1.0-0.1Hz	3.0-0.3Hz	→	→	→	→
H. F. MV		197	→	→	98.3	89.3	25.7	7.80	194	191
DRIFT		+0.2	Wont hold	+0.1	0.0	0.0	0.0	±0.1	0.0	+0.1
1.0 PFE	K_n/1000	—	—	—	—	1.5	6.0	15.0	—	—
0.3 PFE	P_{CAL}	1.015	→	1.015	1.017				1.03	1.047
0.1 PFE	PFE_c	-0.9	—	-0.8	-1.7	+3.9±0.3	+5.4±0.3	+5.5±0.3	-1.3	-0.7
3.0 MV	$\rho/2\pi$	—	—	—	—	67	77	78	—	—
DRIFT	MCF					58.2	70.1	70.5		
S. P.						+30.0				
NOISE						?				
POT RES.										
CULT & CMTS		← Receiver S/N #19693R / 20693R →							MK4-5 / MK4S	

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 1, HALF NW, SP. 1, a = 500', BEARING N35°W

SENDER STA. 2-NW5E = ELECTRODE No. 4, DATE 8/10/78

PAGE 12 of 12

HEINRICHS GEOEX

SEND		Cal.	→	→	→	4-5	5-6	6-7	Cal.	Cal.	
RECEIVE		4-5	→	→	→	25-10Hz	→	→	3.0	→	
MULTIPLIER		10.0	→	→	1.0	1.0	1.0	0.1	10.0	10.0	
PFE		-0.3	→	-0.7	-1.7	+2.1	+4.4	+4.5	-1.3	-0.7	
CUR. (AMPS)		2.0	→	2.0	1.0	2.0	→	1.5	2.0	→	
POINT No.		500.(n)	→	→	→	1	2	3	→	→	
SEP. (n)		3.0-0.3Hz	→	→	1.0-0.1Hz	3.0-0.3Hz	→	→	→	→	
H. F. MV											
DRIFT		+0.9	Unstable	+0.1	0.0	0.0	0.0	±0.1	0.0	±0.2	
1.0 PFE	K_n/1000					1.5	6.0	15.0			
0.3 PFE	ρ_{CAL}	1.015	→	1.015	1.017				1.03	1.047	
0.1 PFE	PFE_c	-0.9	→	-0.8	-1.7	+3.9±0.3	+5.4±0.3	+5.5±0.3	-1.3	-0.7	
3.0 MV	$\rho/2\pi$					67					
DRIFT	MCF					582	701	705			
S. P.						+30.0					
NOISE											
POT RES.											
CULT & CMTS		← Cal.	→	Sh. 1/2	1968R	2068R	→	→	→	→	

MK1-5/MK4S

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/10/78

PAGE 1 of 5

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	
RECEIVE NW	1.0 1.5	NW			1.5-2.0	NW				
RANGE	Hi	LO	LO	LO	Hi	Hi	LO	LO	LO	
VOLTAGE	330	540	860	615	265	330	535	855	610	
CURRENT	2A	2A	2A	1A	2A	2A	2A	2A	1A	
SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	2.0-2.5	NW	*				2.5-3.0	NW		
RANGE	Hi	Hi	B4	B2	B2	B2	B4	B4	B4	B2
VOLTAGE	340	265	335	540	640	750	350	275	335	535
CURRENT	2A	2A	2A	2A	1.5A	1.25A	2A	2A	2A	2A

FREQUENCIES 0.1 – 1.0 HZ

SENDER No. 6644-S | POWER UNIT ID

OPERATOR 56

RECEIVER No. | HOURS RUN

OPERATOR WEH

COMMENTS: CAL 2-3 265V 2A HiCUR 0.1 HZ 1.0 HZ

2ND CAL 2-3 265V 2A Hi C 0.1 1.0 HZ

NOTE 1 AMP 6-7

* CHANGED TO 18701-S (MK7)

I. P. SENDER NOTES

JOB No. 276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/10/78

PAGE 1/5

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	(
RECEIVE	NW 1.0 1.5	NW	→		1.5-2.0	NW			→	(
RANGE	HI	LO	LO	LO	HI	HI	LO	LO	LO	(
VOLTAGE	330	540	860	615	265	330	535	855	610	(
CURRENT	2A	2A	2A	1A	2A	2A	2A	2A	1A	
SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	2.0-2.5	NW	*			→	2.5-3.0	NW		→
RANGE	HI	HI	B4	B2	B2	B2	B4	B4	B4	B2
VOLTAGE	340	265	335	540	640	750	350	275	335	535
CURRENT	2A	2A	2A	2A	1.5A	1.5A	2A	2A	2A	2A

FREQUENCIES	0.1 – 1.0 HZ	COMMENTS: CAL 2-3 265V 2A HIGH 0.1 HZ 1.0 HZ	NOTE 1 AMP 2-7
SENDER No.	6644-5	POWER UNIT ID	
OPERATOR	EG		
RECEIVER No.		HOURS RUN	
OPERATOR	WEH		

2ND CAL 2-3 265V 2A HIGH 0.1 1.0 HZ

* SHORTED TO 1872 L.S. (NK7)

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/10/78

PAGE 2 of 5

HEINRICHS GEOEX

SEND	5**-6	6-7								
RECEIVE	2.5-3.0	NW								
RANGE	B 2									
VOLTAGE	630									
CURRENT	1.5 A									
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 0.1 - 1.0 HZ

SENDER No. 18701-S POWER UNIT ID

OPERATOR 56

RECEIVER No. HOURS RUN

OPERATOR WEH

COMMENTS: ** ALSO SENT 3.0 HZ 0.3 HZ

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/16/75

PAGE 2 of 5

HEINRICHS GEOEX

SEND	5**6	6-7								
RECEIVE	2.5-3.0	NW								
RANGE	B 2									
VOLTAGE	630									
CURRENT	1.59									
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	0.1-1.0 HZ
SENDER No.	18701-C
POWER UNIT ID	
OPERATOR	56
RECEIVER No.	
HOURS RUN	
OPERATOR	WEH

COMMENTS: ** ALSO SENT 3.0 HZ 0.3 HZ

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF SE, SP. 1, DATE 8/10/78

PAGE 3 of 5

HEINRICHS GEOEX

SEND	1-2	2-3	1-2	2-3	3-4	1-2 *	2-3 *	3-4	4-5	1-2 *
RECEIVE SE	0.0 0.5	SE →	0.5-1.0	SE →		1.0-1.5	SE →			1.5-2.0 SE
RANGE	B 4	B 4	B 4	B 4	B 4	B 4	B 4	B 4	B 2	B 4
VOLTAGE	345	275	345	275	330	345	275	330	525	340
CURRENT	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
SEND	2-3 *	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6	6-7
RECEIVE SE	→			→	2.0-2.5	** SE	**	***	***	*** →
RANGE	B 4	B 4	B 2	B 2	B 4	B 4	B 4	B 2	B 2	B 2
VOLTAGE	275	325	520	655	335	270	325	520	645	730
CURRENT	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	1.5 A

FREQUENCIES 0.1 - 1.0 Hz

SENDER No. 18701-S	POWER UNIT ID
OPERATOR 56	
RECEIVER No.	HOURS RUN
OPERATOR WEH	

COMMENTS: * SENT TWICE SAME V-I
** 3.0 HZ 0.3 HZ ALSO
*** " " ONLY

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF SE, SP. 1, DATE 8/10/78

PAGE 3/5

HEINRICHS GEOEX

SEND	1-2	2-3	1-2	2-3	3-4	1-2	2-3	3-4	4-5	1-2
RECEIVE	SE 0.0 0.5	SE →	0.5-1.0	SE	→	1.0-1.5	SE		→	1.5-2.0
RANGE	B4	B4	B4	B4	B4	B4	B4	B4	B2	B4
VOLTAGE	245	275	345	275	330	345	275	330	525	340
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6	6-7
RECEIVE	SE →				2.0-2.5	SE	**	***	***	*** →
RANGE	B4	B4	B2	B2	B4	B4	B4	B2	B2	B2
VOLTAGE	275	325	520	655	335	270	325	520	645	730
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	1.5A

FREQUENCIES	0.1-1.0 Hz	COMMENTS: * = TWICE SAME V-I	
SENDER No.	18701-S	POWER UNIT ID	** 3.0 Hz 0.3 Hz ALSO
OPERATOR	EC		*** ONLY
RECEIVER No.		HOURS RUN	
OPERATOR	WEH		

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF SE, SP. 1, DATE 8/10/78

PAGE 4-65

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7					
RECEIVE	2.5-3.0	SE →								
RANGE	B4	B4	B2	B2	B2					
VOLTAGE	270	315	510	640	735					
CURRENT	2 A	2 A	2 A	2 A	1.5 A					
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	3.0 HZ - 0.3 HZ		COMMENTS:
SENDER No.	18701-5	POWER UNIT ID	
OPERATOR	56	Briggs-GE	
RECEIVER No.		HOURS RUN	
OPERATOR	WEH	5.5	

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF SE, SP. 1, DATE 8/10/78

PAGE 4 of 6

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7					
RECEIVE	2.5-3.0	SE →								
RANGE	B4	B4	B2	B2	B2					
VOLTAGE	270	315	510	640	735					
CURRENT	2A	2A	2A	2A	1.5A					
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	3.0 HZ - 0.3 HZ
SENDER No.	8701-5
OPERATOR	56
RECEIVER No.	
OPERATOR	JEH

POWER UNIT ID	Biggs-GE
HOURS RUN	6.5

COMMENTS:

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/10/78

PAGE 5 of 5

HEINRICHS GEOEX

SEND	6-7	2-3	1-2	4-5	5-6	6-7				
RECEIVE NW	0.0 0.5	→	→	0.5-1.0	→	→				
RANGE	B 2	B 4	B 4	B 2	B 2	B 2				
VOLTAGE	725	20V	20V	505	630	720				
CURRENT	1.5 A	100MA	100 MA	2 A	2 A	1.5				
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 3.0 - 0.3 HZ

SENDER No. 18701-S

POWER UNIT ID: Briggs GE

OPERATOR 56

RECEIVER No.

HOURS RUN: 6.5

OPERATOR WEH

COMMENTS: CAL 4-5 505V 2A
RANGE C2 3.0HZ 0.3HZ
RANGE C2 CAL 4-5 255V 1A 1.0HZ 0.1HZ
CAL 3-4 320V 2A B4 3.0-0.3HZ
CAL ON 3-4-6644-S 300V 2A HI 3.0 0.3HZ

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 1, HALF NW, SP. 1, DATE 8/10/78

PAGE 5 of 5

HEINRICHS GEOEX

SEND	6-7	2-3	1-2	4-5	5-6	6-7				
RECEIVE	NW 0.0 0.5	→	→	0.5-1.0	→	→				
RANGE	B2	B4	B4	B2	B2	B2				
VOLTAGE	725	20V	20V	505	630	720				
CURRENT	1.5A	100MA	1.5A	2.0	2.0A	1.5				
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	3.0 - 0.3 HZ	COMMENTS:	CAL 4-5 505V 2A
SENDER No.	18701-5	POWER UNIT ID	RANGE C2 3.0 HZ 0.3 HZ
OPERATOR	56	BRIGGS & E	RANGE C2 CAL 4-5 255V 1A 1.0 HZ 0.1 HZ
RECEIVER No.		HOURS RUN	CAL 3-4 320V 2A B4 3.0-0.3 HZ
OPERATOR	WEH	6.5	CAL 4-6 4-5 300V 2A HI 3.0 0.3 HZ

HEINRICHS GEOEXPLORATION COMPANY

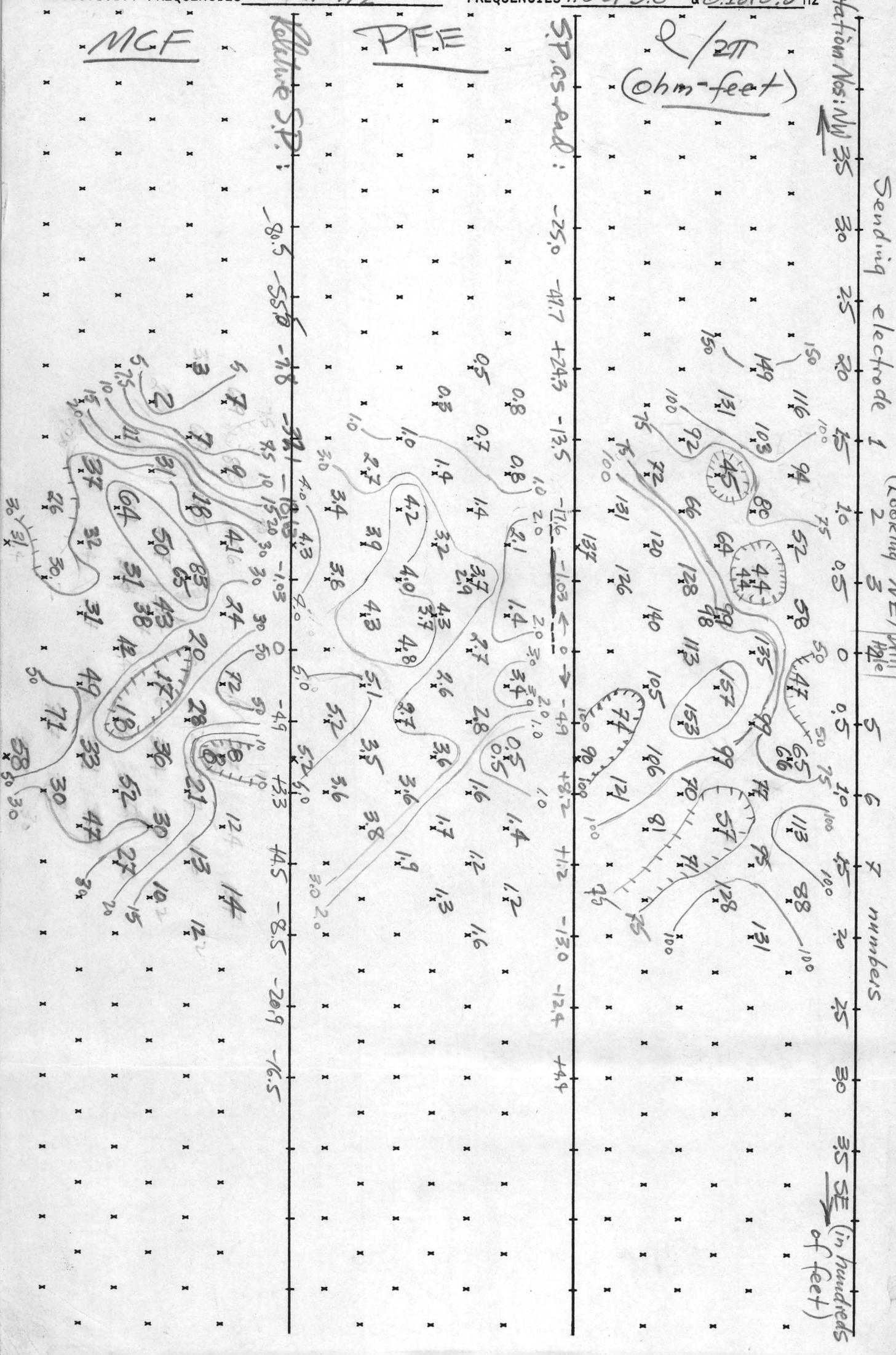
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1276 CLIENT KAISER STEEL

DATE 8/10-11/78 AREA PIKES PEAK

LINE# 2 SP 1 a= 500' BEARING N48°W

RESISTIVITY FREQUENCIES 1.0 or 3.0 Hz FREQUENCIES 1.0 or 3.0 & 0.1 or 0.3 Hz



HEINRICHS GEOEXPLORATION COMPANY

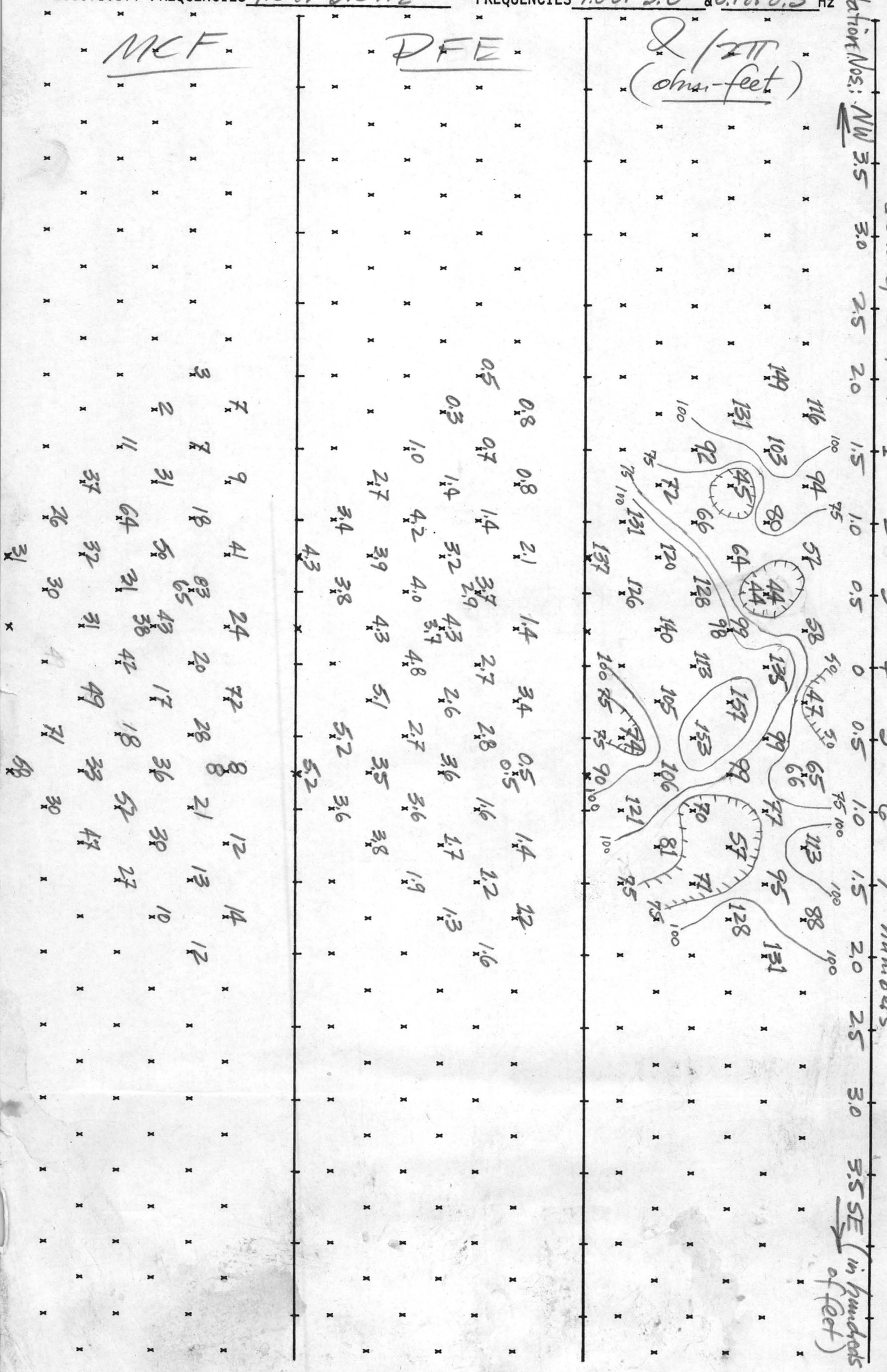
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1276 CLIENT KAISER STEEL

DATE 8/8-9/78 AREA PIKES PEAK

LINE# 2 SP 1 a= 500' BEARING N48°W

RESISTIVITY FREQUENCIES 1.0 or 3.0 Hz FREQUENCIES 1.0 or 3.0 & 0.1 or 0.3 Hz



I. P. RECEIVER NOTES; JOB No. 1276, AREA Pikes Peak

LINE 2, HALF NW, SP. 1, a = 500', BEARING N 48° W

SENDER STA. _____ = ELECTRODE No. _____, DATE 8/8/78

HEINRICHS GEOEX

SEND	CAL	6-7	5-6	4-5	3-4	6-7	5-6	4-5	3-4	2-3
RECEIVE	1-1.5NW	1.0-1.5NW	→	→	→	1.5-2.0	→	→	→	→
MULTIPLIER	(0.1)10	0.1-10.0	1.0	1.0	1.0	0.1	0.1	0.1	1.0	10.0
PFE	-0.4	+4.4	+3.9	+3.3	+1.7	+3.9	+3.6	+2.8	+1.0	+0.4
CUR. (AMPS)	2.0	→	→	→	→	→	→	→	→	→
POINT NO.	—									
SEP. (n)	—	→ 7.5	(4)	3	2	1	5	4	3	2	1
H. F. MV	201	7.56	13.2	14.8	69.0	5.33	8.51	8.59	26.6	125
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	—	30.0	15.0	6.0	1.5	52.5	30.0	15.0	6.0	1.5
0.3 PFE ρ_{CAL}	0.995									
0.1 PFE PFE_c	-0.4	+4.8	+4.3	+3.7	+2.1	+4.3	+4.0	+3.2	+1.4	+0.8
3.0 MV $\rho/2\pi$	—	113	99	44	52	140	128	64	80	94
DRIFT MCF	—	42.4	43.4	83.3	40.6	30.7	31.3	49.7	17.5	8.5
S. P.	-13.5					+24.3				
NOISE	Nil									
POT RES.	3000Ω					23000Ω				
CULT & CMTS	—									

I. P. RECEIVER NOTES, JOB NO. 276, AREA Dires Rex

LINE 2, HALF NW, SP. 11, a = 500, BEARING 48° W

SENDER STA. _____ = ELECTRODE NO. _____, DATE 8/8/78

PAGE 1 of 11

HEINRICHS GEOEX

SEND		CAL	6-7	5-6	4-5	3-4	0-7	0-6	4-5	3-4	2-3
RECEIVE		1-1.5NW	1.0-15NW			→	1.5-20				→
MULTIPLIER		(0.1)1/2	0.1-10.0	1.0	1.0	1.0	0.1	0.1	0.1	1.0	10.0
PFE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CUR. (AMPS)		2.0	→	→	→	→	→	→	→	→	→
POINT NO.		—									
SEP. (n)		—	1 2 (4)	3	2	1	5	4	3	2	1
H. F. MV		201	[illegible]	132	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	[illegible]	30.0	16.0	6.0	1.5	52.5	30.0	15.0	6.0	1.5
0.3 PFE	ρ_{CAL}	0.995									
0.1 PFE	PFE_C	-0.4	+4.8	+4.3	+3.7	+2.1	+4.3	+4.0	+3.2	+1.4	+0.8
3.0 MV	$\rho/2\pi$	—	113	99	84	52	140	128	64	30	14
DRIFT	MCF	—	42.4	43.4	93.3	40.6	30.7	31.3	49.7	17.5	8.5
S. P.		-13.5					+24.3				
NOISE		4/11									
POT RES.		300002					300002				
CULT & CMTS		—									

I. P. RECEIVER NOTES, JOB NO. 1276, AREA Pikes Peak

LINE 2, HALF NW, SP. 1, a = 500, BEARING N 48° W

SENDER STA. OE-W = ELECTRODE NO. 4, DATE 8/8/78

HEINRICHS GEOEX

SEND		6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE		2.0-2.5	→	→	→	→	→	2.5-3.0	→	→	→
MULTIPLIER		0.1	→	→	→	1.0	10.0	0.1	0.1	0.1	0.1
PFE		+3.5	+3.6	+3.9	+1.1	+0.4	+0.5	+3.0	+3.1	+2.4	+0.7
CUR. (AMPS)		2.0	→	→	→	→	→	→	→	→	→
POINT NO.											
SEP. (n)		6	5	4	3	2	1	7	6	5	4
H. F. MV		3.00	4.585	4.38	60	34.2	154	2.17	3.11	2.76	6.1
DRIFT		0.0	0.0	0.0	0.0	0.0	0.0	−1.0	0.0	0.0	0.0
1.0 PFE	K_n/1000	84.0	52.5	30.0	15.0	6.0	1.5	126.0	84.0	52.5	30.0
0.3 PFE	ρ_{CAL}	+3.8									
0.1 PFE	PFE_C	−0.3	+3.8	+3.9	+4.2	+1.4	+0.7	+0.8	+3.3+1	+3.4	+2.7	+1.0
3.0 MV	$\rho/2\pi$	126	120	66	45	103	116	137	131	72	92
DRIFT	MCF	30.2	32.4	63.9	31.1	6.8	6.9	31.4	26	37.3	10.9
S. P.		−47.7			(31.2)			−25.0			
NOISE											
POT RES.		48000Ω						41000Ω			
CULT & CMTS								+0.26			

I. P. RECEIVER NOTES, JOB NO. 1276, AREA Pikes Peak

LINE 2, HALF NW, SP. 1, a = 500, BEARING N 48° W

SENDER STA. DE-W = ELECTRODE NO. 4, DATE 8/8/78

PAGE 2 of 12

HEINRICHS GEOEX

SEND		6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE		2.0-2.5	→	→	→	→	→	2.5-3.0	→	→	→
MULTIPLIER		0.1	→	→	→	1.0	10.0	0.1	0.1	0.1	0.1
PFE		+3.3	+3.0	+3.9	+4.1	+4.4	+4.5	+3.0	+3.1	+2.4	+0.7
CUR. (AMPS)		2.0	→	→	→	→	→	→	→	→	→
POINT NO.											
SEP. (n)		6	5	4	3	2	1	7	6	5	4
H. F. MV		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT		0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
1.0 PFE	$K_n/1000$	84.0	32.5	39.0	15.0	6.0	1.5	126.0	84.0	32.5	30.0
0.3 PFE	ρ_{CAL}	+38.8									
0.1 PFE	PFE_c	-0.3	38	139	142	+1.4	+0.7	+0.8	+3.3	+3.4	+2.7	+1.0
3.0 MV	$\rho/2\pi$	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT	MCF	30.2	32.4	63.9	38	6.8	6.9	31.4	26	37.3	10.9
S. P.		-47.7			31.1			-25.0			
NOISE											
POT RES.		[illegible]						4.00			
CULT & CMTS								+6.26			

~~½SE 1/2~~

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 2, HALF NW, SP. 1, a = 500', BEARING N48°W

SENDER STA. 0EW = ELECTRODE No. 4, DATE 8/5/78

HEINRICHS GEOEX

SEND	2-3	1-2	6-7	5-6	4-5	6-7	5-6	6-7	1-2	1-2
RECEIVE	2.5-3.0W	→	0.5-1.0	NW	→	0-0.5	NW	0.0-0.5	SE →	0.5-1.0SE
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	+0.1	+0.3	+2.3	+2.5	+1.2	+2.5	+3.2	+0.3	+2.7	+3.5
CUR. (AMPS)	2.0	→	→	→	→	→	→	→	→	→
POINT NO.										
SEP. (n)	3	2	3	2	1	2	1	1	2	3
H. F. MV	17.4	49.8	20.9	45.0	77.0	33.1	63.0	46.8	14.8	13.1
DRIFT	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000	15.0	6.0	15.0	6.0	1.5	6.0	1.5	1.5	6.0	15.0
0.3 PFE ρ_{CAL}	0.3									
0.1 PFE PFE_c	(-0.2)	+0.3	+0.5	+2.6	+2.7	+1.4	+2.8	+3.4	+0.5	+2.9	+3.7
3.0 MV $\rho/2\pi$	131	149	157	135	58	99	47	65	44	98
DRIFT MCF	2.3	3.3	16.6	20	24	28.2	(720) 72.0	7.7	65.3	37.7
S. P.			-17.6	~~-1.03~~		-1.03		-4.9		+8.2
NOISE	Mult = 0.1 =		-1.76	?						
POT RES.			77,000Ω	~~1000Ω~~		100000Ω		30000Ω		75KΩ
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 276, AREA Pires Point

LINE 2, HALF NW, SP. 1, a = 500', BEARING N 48° W

SENDER STA. 0 FW = ELECTRODE NO. 4, DATE 8/6/79

PAGE 3 of 12

HEINRICHS GEOEX

SEND	2-3	1-2	6-7	3-6	4-5	6-7	3-6	6-7	1-2	1-2
RECEIVE	2.5-3.0 W →		0.5-1.0	NW →		0-0.5 NW		0.5-0.6 SE →		0.5-1.0 S
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	-0.1	+0.3	+1.3	+2.0	+1.2	+2.5	+3.2	+0.3	+2.1	+3.5
CUR. (AMPS)	2.0	→	→	→	→	→	→	→	→	→
POINT NO.										
SEP. (n)	3	2	3	2	1	2	1	1	2	3
H. F. MV	17.4	49.6	30.1	45.0	77.0	34.1	63.0	96.3	14.8	19.1
DRIFT	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000	15.0	6.0	15.0	6.0	1.5	6.0	1.5	1.5	6.0	15.0
0.3 PFE ρ_{CAL}	0.3									
0.1 PFE PFE_c	-0.1 2) +0.3	+0.5	+2.6	+2.7	+1.4	+2.8	+3.4	+0.5	+2.9	+3.7
3.0 MV $\rho/2\pi$	131	109	107	133	58	99	47	66	44	96
DRIFT MCF	2.3	3.3	16.6	20	24	28.2	(72.0)	7.7	65.3	37.7
S. P.			-17.6	-1.03		+1.03	(72.0)	-4.9		+8.2
NOISE	0.1 + 0.1 = -1.76									
POT RES.			79 kΩ	100 kΩ		100 kΩ		300 kΩ		15 kΩ
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 2, HALF SE 1/2, SP. 1, a = 500', BEARING N48°W

SENDER STA. NW-SE = ELECTRODE No. 4, DATE 8/8/78 8/9/78

HEINRICHS GEOEX

SEND	4-5	CAL	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	1.0-1.5SE	6-7	1.0-1.5SE	1.5-2.0SE	→	→	→	→	2.0-2.5SE	→
MULTIPLIER	0.01	10.0	1.0	0.1	1.0	1.0	1.0	10.0	0.1	0.1
PFE	+100?	-0.1	+0.3	+4.9	+2.5	+3.4	+1.3	+1.1	+4.9	+3.2
CUR. (AMPS)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
POINT No.										
SEP. (n)	1	—	1	5	4	3	2	1	6	5
H. F. MV	0.362	200	88.5	4.00	10.20	13.2	25.8	151	1.75	4.03
DRIFT	0.0	+0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE K_n/1000		—	1.5	52.5	30.0	15.0	6.0	1.5	84.0	52.5
0.3 PFE ρ_{CAL}	NG!	1,000								
0.1 PFE PFE_c		(-0.2)	+0.5	+5.1	+2.7	+3.6 (0.3)	17.6	+1.4	+5.2	+3.5
3.0 MV $\rho/2\pi$		—	66	105	153	99	77	113	74	106
DRIFT MCF		—	7.5	48.6	17.6	36.4	20.7	12.4	70.7	33.1
S. P.	±0.00		+1.2	-13.0					-12.4	
NOISE	Impossible!		Nil							
POT RES.	80KΩ		790000Ω	48KΩ					63KΩ	
CULT & CMTS	Rough!		Steep							

I. P. RECEIVER NOTES, JOB NO. 176, AREA Pies Peak

LINE 2, HALF SE½, SP. 1, a = 500', BEARING N 48° W

SENDER STA. NW-SE = ELECTRODE NO. 4, DATE 8/8/78

PAGE 4 of 12

HEINRICHS GEOEX

SEND		4-5	5-6	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE		1.0-1.5SE	6-7	1.0-1.5SE	1.5-2.0SE				→	1.0-2.5SE	→
MULTIPLIER		0.01	10.0	1.0	0.1	1.0	1.0	1.0	10.0	0.1	0.1
PFE			+0.8	+0.3	+4.9	+2.5	+3.4	+1.3	+1.1	+4.9	+3.5
CUR. (AMPS)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
POINT NO.											
SEP. (n)		1	—	1	5	4	3	2	1	6	5
H. F. MV				18.5	4.00	10.00	18.2	27.3	15.1	17.5	4.00
DRIFT		0.0	+0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0 PFE	K_n/1000		—	1.5	52.5	36.0	15.0	6.0	1.5	84.0	52.5
0.3 PFE	ρ_{CAL}		1,000								
0.1 PFE	PFE_c		-0.2	+0.5	+5.1	+2.7	+3.6	+1.6	+1.4	+5.2	+3.5
3.0 MV	$\rho/2\pi$		—	66	105	168	91	77	114	76	106
DRIFT	MCF		—	7.5	48.6	17.6	36.4	20.7	12.4	70.7	33.1
S. P.				+1.2	-18.0					-12.4	
NOISE				Nil							
POT RES.				190000-48KΩ						63KΩ	
CULT & CMTS				Steep							

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 2, HALF SE, SP. 1, a = 5001, BEARING N48°W

SENDER STA. ONE SW ELECTRODE No. 4, DATE 8/9/78

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7
RECEIVE	2.0-2.5SE	→	→	→	2.5-3.0SE	→	→	→	→	→
MULTIPLIER	0.1	0.1	1.0	10.0	0.1	0.1	0.1	0.1	1.0	1.0
PFE	+3.2	+1.3	+0.7	+0.9	+4.7	+3.1	+3.2	+1.3	+0.6	+0.9
CUR. (AMPS)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
POINT NO.										
SEP. (n)	4	3	2	1	7	6	5	4	3	2
H. F. MV	4.64	7.62	31.8	117	1.43	2.89	3.09	4.72	17.0	43.7
DRIFT	0.0	0.0	-0.1	+0.1	±0.1	±0.1	0.0	0.0	-0.1-0	0.0
1.0 PFE K_n/1000	30.0	15.0	6.0	1.5	126.0	84.0	52.5	30.0	15.0	6.0
0.3 PFE ρ_{CAL}	+3.6 ←									
0.1 PFE PFE_C	-0.4 +3.6	+1.7	+1.2	+1.2 (0.5)	+5.2	+3.6 (0.0)	+3.8	+1.9 (-0.7)	+1.3	+1.6
3.0 MV $\rho/2\pi$	70 ←	57	95	88	90	121	81	71	128	131
DRIFT MCF	51.7	29.7	12.6	13.7	57.7	29.7	46.8	26.8	10.2	12.2
S. P.					+4.4					
NOISE	±0.1				±0.1					±0.5
POT RES.					70KΩ					
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1276, AREA Pikes Peak

LINE 2, HALF SE, SP. 1, a = 50m, BEARING N 48° W

SENDER STA. ONE = ELECTRODE No. 4, DATE 8/9/75

PAGE 5 of 11

HEINRICHS GEOEX

SEND		3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7
RECEIVE		1.0-2.5SE			→	2.5-3.05E					→
MULTIPLIER		0.0	0.1	1.0	10.0	0.1	0.1	0.1	0.1	1.0	1.0
PFE											
CUR. (AMPS)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
POINT No.											
SEP. (n)		4	3	2	1	7	6	5	4	3	2
H. F. MV											
DRIFT		0.0	0.0	-0.1	+0.1	+0.1	+0.1	0.0	0.0	-0.1	0.0
1.0 PFE	$K_n/1000$	30.0	15.0	6.0	1.5	126.0	94.0	52.5	30.0	15.0	6.0
0.3 PFE	ρ_{CAL}	+3.6									
0.1 PFE	PFE_c	-0.4	6 1.7	1.2	1.2	5.2	+3.6	+3.8	+1.9	1.3	1.6
3.0 MV	$\rho/2\pi$	70									
DRIFT	MCF	5.7	8.7	12.6	13.7	57.7	29.7	46.8	26.8	10.2	12.2
S. P.						+4.4					
NOISE		+0.1				+0.1					+0.5
POT RES.						70KΩ					
CULT & CMTS											

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF NW, SP. 1, DATE 8/8/78

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5	3-4	2-3	6-7
RECEIVE	1.0-1.5NW				1.5-2.0NW					2.0-2.5NW
RANGE	B4	B4	B4	B2	B4	B4	B4	B2	B2	B4
VOLTAGE	325	280	205	590	325	280	205	590	640	325
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	2.0-2.5NW					2.5-3.0NW				
RANGE	B4	B4	B2	B2	B4	B4	B4	B4	B2	B2
VOLTAGE	280	205	580	635	200	325	280	200	590	630
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A

FREQUENCIES 0.1 – 1.0 HZ

SENDER No. 18701 S | POWER UNIT ID

OPERATOR 56

RECEIVER No 19692 R | HOURS RUN

OPERATOR WEH

COMMENTS: CAL 1-2 REC 1.0 NW 1.5 NW
2 A 200V 1.0 HZ 0.1 HZ

I. P. SENDER NOTES

PAGE 1.6

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF NW, SP. 1, DATE 8/8/76

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5	3-4	2-3	6-7
RECEIVE	1.0-1.5NW	→			1.5-2.0NW	→				2.0-2.5NW
RANGE	B4	B4	B4	B2	B4	B4	B4	B2	B2	B4
VOLTAGE	325	280	205	590	325	280	205	590	640	325
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3
RECEIVE	2.0-2.5NW	→				2.5-3.0NW	→			→
RANGE	B4	B4	B2	B2	B4	B4	B4	B4	B2	B2
VOLTAGE	280	205	580	635	200	325	280	200	590	630
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A

FREQUENCIES	0.1 - 1.0 HZ	COMMENTS:	CAL 1-2 REC 1.0 NW 1.5 NW 2 A 200V 1.0 HZ 0.1 HZ
SENDER No.	18701	POWER UNIT ID	
OPERATOR	56		
RECEIVER No.	2473	HOURS RUN	
OPERATOR	WEH		

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF NW, SP. 1, DATE 8/8/78

PAGE 2 of 4

HEINRICHS GEOEX

SEND	1-2		*	6-7	5-6	4-5	6-7	5-6		
RECEIVE	2.5-3.0NW			0.5-1.0 NW →			0-0.5NW →			
RANGE	B4			B4	B4	B4	B4	B4		
VOLTAGE	200			325	280	200	325	280		
CURRENT	2A			2A	2A	2A	2A	2A		
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 0.1 1.0 HZ

SENDER No. 18701S POWER UNIT ID

OPERATOR 56

RECEIVER No. 19672R HOURS RUN

OPERATOR WEH

COMMENTS: * 1ST 2 STA'S WEST

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF NW, SP. 1, DATE 8/8/78

PAGE 284

HEINRICHS GEOEX

SEND	1-2		*	6-7	5-6	4-5	6-7	5-6		
RECEIVE	2.5-3.0 NW			0.5-1.0 NW →			0-0.5 NW →			
RANGE	B4			B4	B4	B4	B4	B4		
VOLTAGE	200			325	280	200	325	280		
CURRENT	2A			2A	2A	2A	2A	2A		
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	0.1 1.0 HZ
SENDER No.	18701S
POWER UNIT ID	
OPERATOR	SG
RECEIVER No.	19692R
HOURS RUN	
OPERATOR	WEH

COMMENTS: * 1ST 2 STAS WEST

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF SE, SP. 1, DATE 8/8/78

PAGE 3 of 4

HEINRICHS GEOEX

SEND	6-7	1-2	6-7	1-2	4-5					
RECEIVE	0-0.55E	→	(AS ONLY)	0.5-1.05E	→					
RANGE	B 4	B 4	B 4	B 4	B 4					
VOLTAGE	325	195	325	195	195					
CURRENT	2 A	2 A	2 A	2 A	2 A					
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 0.1 1.0 HZ

SENDER No. 18701 S

POWER UNIT ID

OPERATOR 56

Briggs-GE

RECEIVER No. 19692 R

HOURS RUN

OPERATOR WH

4.0

COMMENTS: Extreme noise, radio static, cumulus build up to North - too close &/or too active! 2:30 PM±

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF SE, SP. 1, DATE 8/8/75

PAGE 3/4

HEINRICHS GEOEX

SEND	6-7	1-2	6-7	1-2	4-5					
RECEIVE	0-0.5SE	→	→	0.5-1.0SE	→					
RANGE	B 4	B 4	B 4	B 4	B4M					
VOLTAGE	325	195	325	195	195					
CURRENT	2A	2A	2A	2A	2A					
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	0.1 1.0 HZ	COMMENTS: Extreme noise, radio static cumulus build up to North - too close &/or too active! 2:30 PMT	
SENDER No.	870L5	POWER UNIT ID	
OPERATOR	56	Briggs-GE	
RECEIVER No.	7612	HOURS RUN	
OPERATOR	WH	4.0	

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF SE, SP. 1, DATE 8/9/78

PAGE 4 of 4

HEINRICHS GEOEX

SEND	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	1.0 - 1.5 SE	1.5 - 20 SE					20-25 SE			
RANGE	B4	B4	B2	B2	B4	B4	B4	B2	B2	B-4
VOLTAGE	190	200	620	550	190	280	200	615	550	190
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7		
RECEIVE		25-30 SE								
RANGE	B4	B4	B4	B2	B2	B4	B4	B4		
VOLTAGE	280	325	200	615	545	190	280	325		
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		

FREQUENCIES 0.1 1

SENDER No. 18701 S — POWER UNIT ID

OPERATOR 56

RECEIVER No. 19692 R — HOURS RUN

OPERATOR WEH

COMMENTS: CAL 6-7
325V 2A
0.1 1.0 HZ
RANGE B4

#2 CAL
6-7
325V 2A
0.1 1.0 HZ
RANGE B4

I. P. SENDER NOTES

JOB No. 1276 AREA PIKES PEAK

LINE 2, HALF SE, SP. 1, DATE 8/19/78

PAGE 4 of 4

HEINRICHS GEOEX

SEND	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	1.0-1.5 SE	1.5-2.0	SE	→			20-25 SE			→
RANGE	B4	B4	B2	B2	B4	B4	B4	B2	B2	B-4
VOLTAGE	190	200	620	550	190	280	200	615	550	190
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7		
RECEIVE	→	25-30 SE						→		
RANGE	B4	B4	B4	B2	B2	B4	B4	B4		
VOLTAGE	280	325	200	615	545	190	280	325		
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		

FREQUENCIES	0.1 1		
SENDER No.	18701 S	POWER UNIT ID	
OPERATOR	56		
RECEIVER No.	19692 R	HOURS RUN	
OPERATOR	WEH		

COMMENTS: CAL 6-7 325V 2A 0.1 1.0HZ RANGE B4 / #2 CAL 6-7 325V 2A 0.1 1.0HZ RANGE B4

GEOEX

Heinrichs GEOEXploration Company has found and aided development of economic metallic and nonmetallic minerals, water, geothermal wells, and fossil fuels since 1958. We have successfully initiated and concluded complete exploration programs for large mining and petroleum companies. We have also assisted government agencies, estates, trusts, small mine groups, and individuals.

GEOEX's mineral exploration programs are fully integrated, scientifically sound, and efficiently complete.

HEINRICHS GEOEXPLORATION COMPANY

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

HEINRICHS GEOE

$500 \times 7(7+1)(7+2)/2000$

$3500(8) \times 9)$

$\frac{72 \times 3500}{2000}$

T_1 —

$+2$

T_0

$\frac{500 \times 6(\overset{7}{6+1})(\overset{8}{6+2})}{2000}$

-7

-0.2

-0.7

0.9

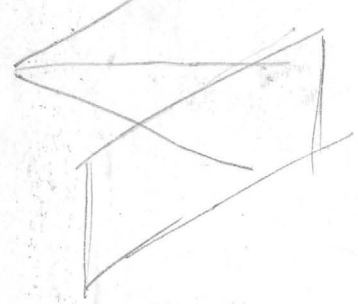
$\frac{3000 \times 56}{2000}$

353

~~-0.8~~

-0.7

~~-0.6~~



39000

-0.8 -0.7

$\frac{1000 \times 2}{2000}$

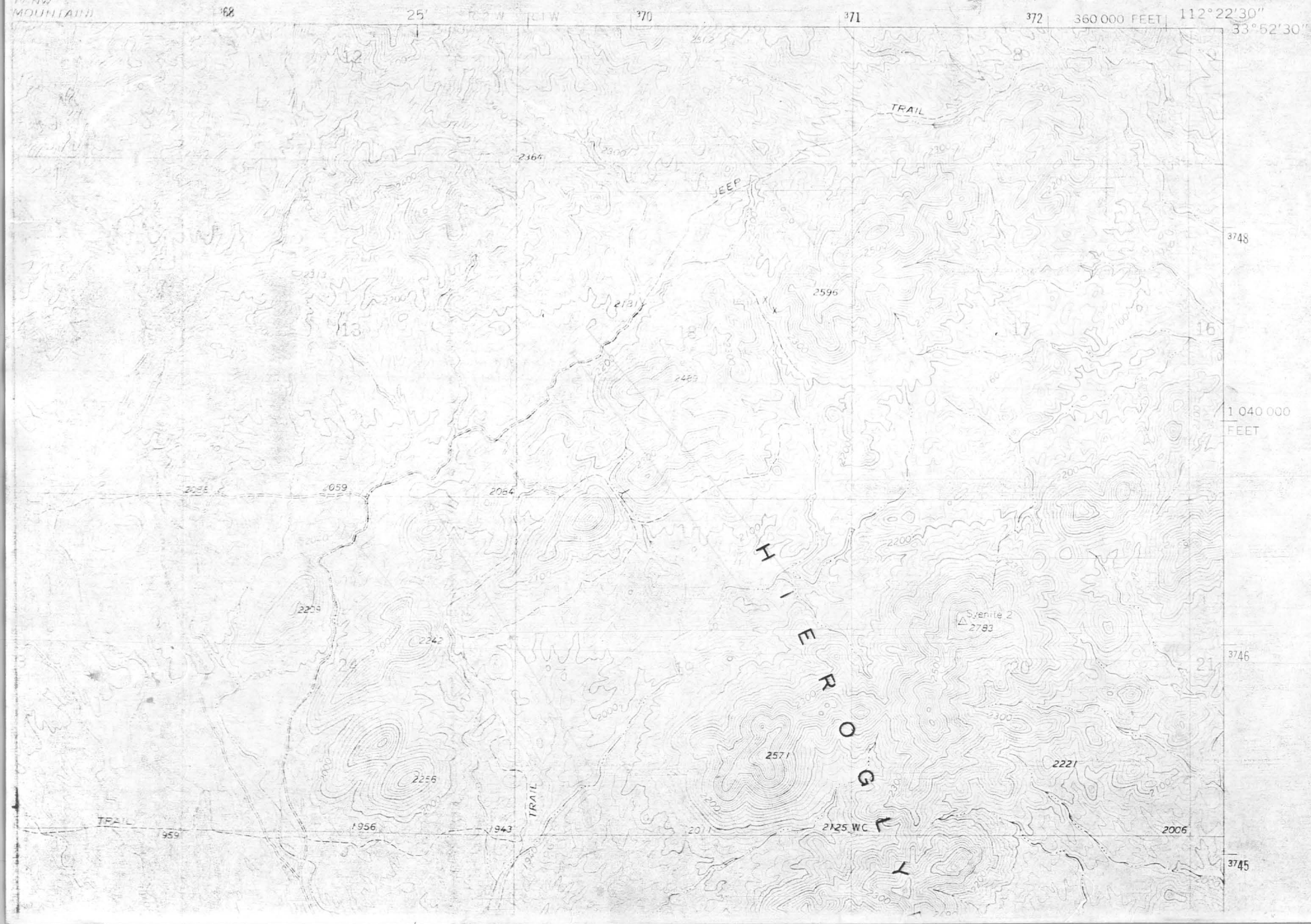
-0.2 $1.01+1$ 1.01

-1

HIEROGLYPHIC MTS. SW QUADRANGLE

ARIZONA – MARICOPA CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)



HEINRICHS GEOEXPLORATION COMPANY

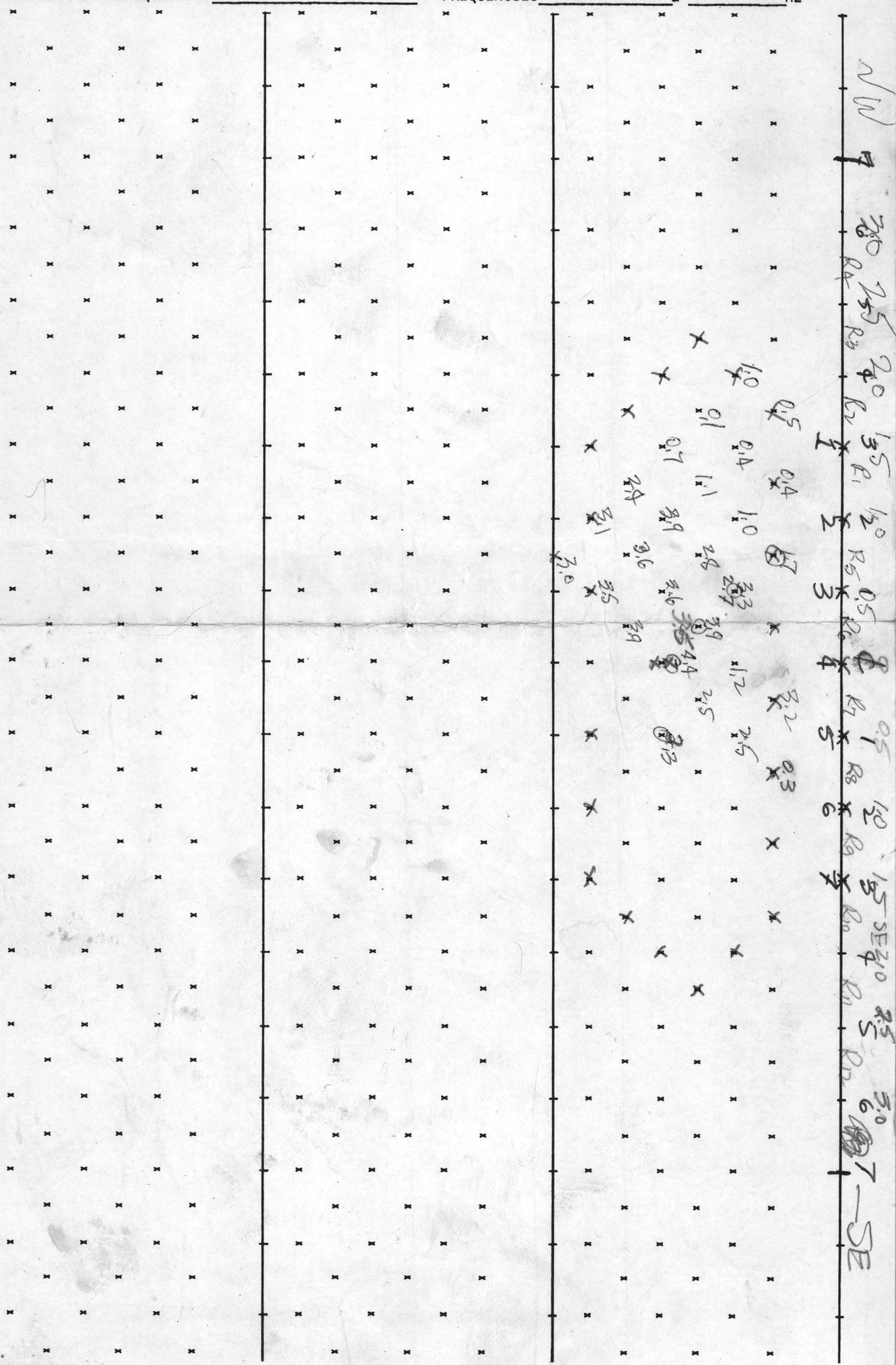
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

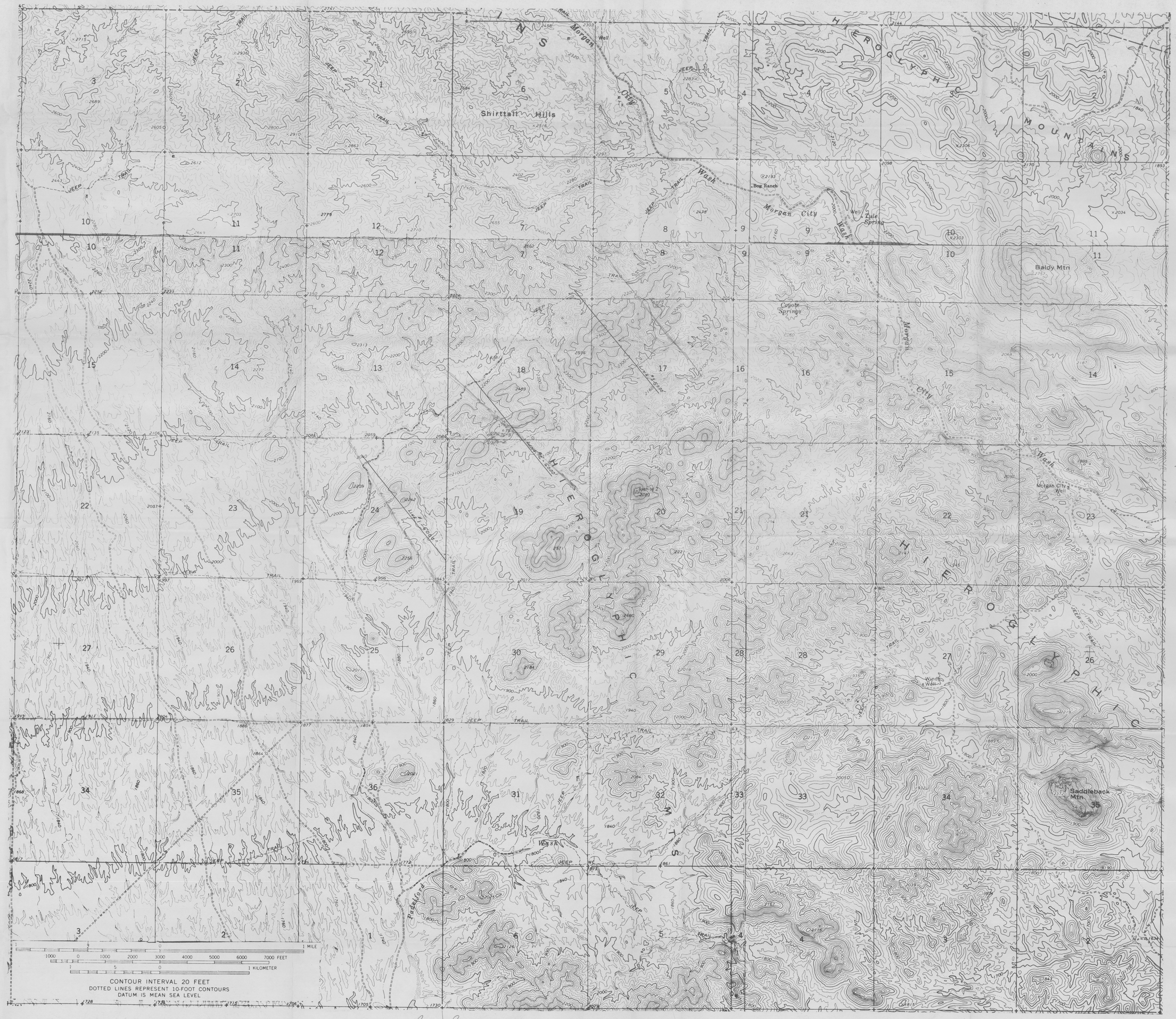
JOB # _____ CLIENT _____

DATE _____ AREA _____

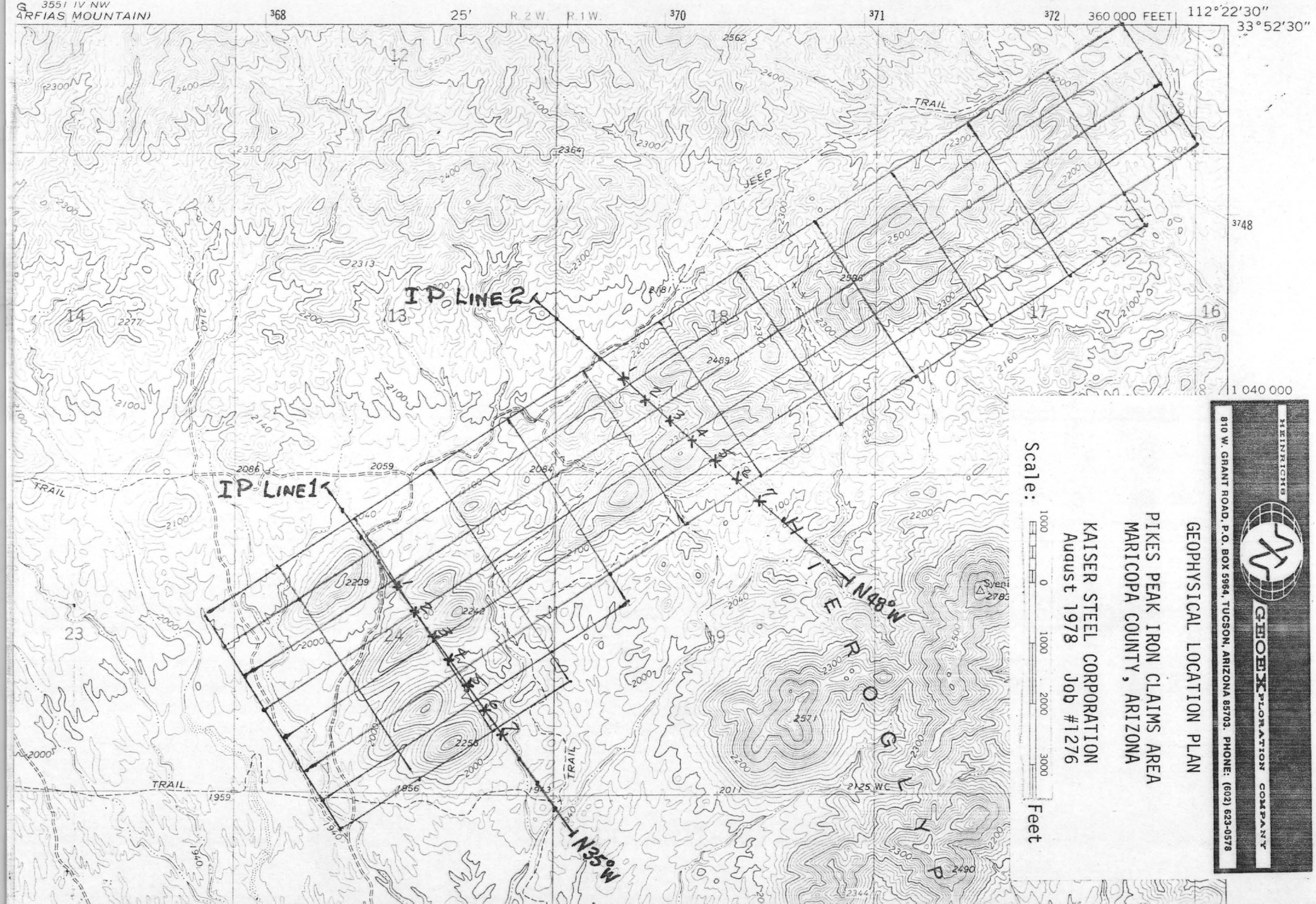
LINE# _____ SP _____ a= _____ BEARING _____

RESISTIVITY FREQUENCIES _____ FREQUENCIES _____ & _____ Hz




Shirttail Hills
Morgan Wash
Morgan City Wash
Bog Ranch
Tule Spring
Baldy Mtn
Coyote Springs
Morgan City Wash
Morgan City Well
Wind Well
Saddleback Mtn
Padelford
HIEROGLYPHIC MOUNTAINS
HIEROGLYPHIC MOUNTAINS
JEEP TRAIL
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
T6N
R2W R1W

HIEROGLYPHIC MTS. SW QUADRANGLE
ARIZONA – MARICOPA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

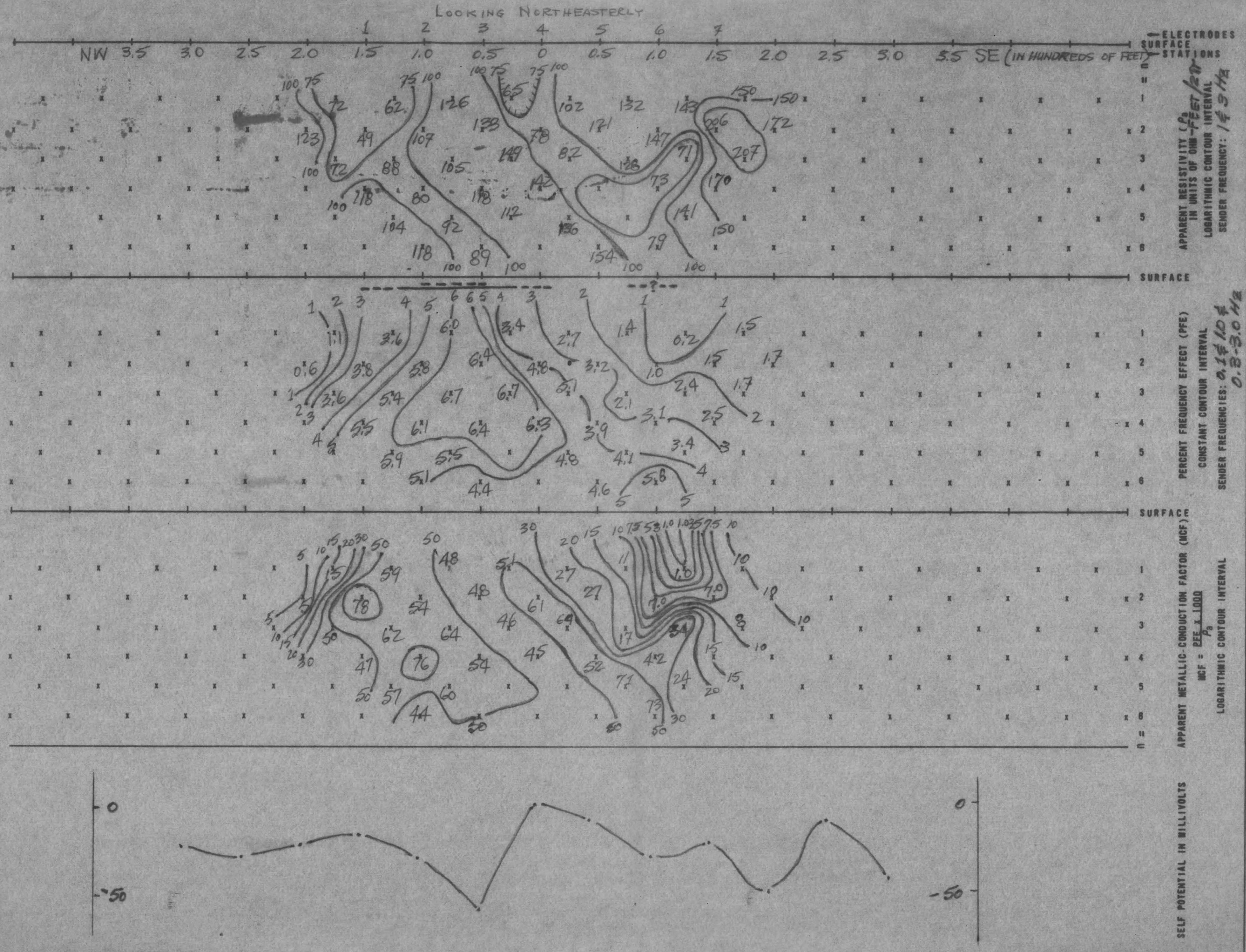


GEOPHYSICAL LOCATION PLAN

PIKES PEAK IRON CLAIMS AREA
MARICOPA COUNTY, ARIZONA

KAISER STEEL CORPORATION
August 1978 Job #1276

HEINRICHS GEOEXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578



LINE NO. 1

SPREAD(S) 1

BEARING N 35° W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

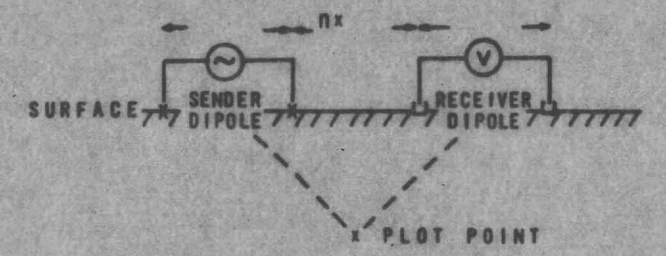
PIKES PEAK IRON CLAIMS AREA

MARICOPA COUNTY, ARIZONA

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



FOR

KAISER STEEL CORPORATION

DATE

AUGUST 1978

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

INDUCED POLARIZATION - RESISTIVITY SURVEY

Pikes Peak Area

Maricopa County, Arizona

For

KAISER STEEL CORPORATION

August 1978

by
Heinrichs GEOEXploration Company (Inc.)
P. O. Box 5964 Tucson, AZ 85703

GEOEX Job #1276

CONTENTS

	Page
Introduction	1
Results and Conclusions	2
Comments	3
Procedures	3
Acknowledgement	3

Appended:

Geophysical Location Plan

Drilling of IP Targets

Basis of IP Method

INTRODUCTION

Initial inquiry regarding the work covered by this report was made by Mr. H. S. Scott, Project Geologist in a phone call on 30 May 1978. This was followed up by a letter from Mr. Scott dated 31 May 1978. Included with that letter was a 1" = 1,000 foot scale blue line enlargement of the U.S.G.S. seven and one-half minute quadrangles of the area showing profiles of possible interest crossing the strike trend of the mining claims and the main geologic structure. GEOEX responded with a brief letter and cost estimate dated 13 June 1978. Subsequently Kaiser Steel purchase order #GO-16669, dated July 7, 1978, was issued.

Scheduling was set to initiate field operations on 7 August 1978. Field work ended on 11 August 1978. GEOEX personnel were Walter E. Heinrichs, Jr., registered Arizona professional engineer, 1940 graduate Geological Engineer and Geophysicist of Colorado School of Mines; assisted by David Swanson, electronic technician, and Harold Gabitzsch, geophysical field assistant.

Objective of the survey was to principally investigate the electrical polarization response of the main hematitic zone of interest with increasing depth and to a total depth of at least 500 to 1,000 feet. Oxidation was initially estimated to be roughly 500 feet deep. Possibility of increasing polarization with depth as being indicative of increasing magnetite content with depth was considered.

Outcrop consists of very steeply or vertical dipping siliceous metamorphics mainly strongly foliated schists or mostly thin bedded slates and chert, interbedded with shales and thicker members including some quartzite beds and/or dikes or lenses of white bull quartz. The richer-grade banded iron formation appears as fairly prominent, massive-looking black exposures which form erosion resistant ridges with sharp slopes and which in turn are disected by narrow gullies representative of high angle cross faults perpendicular to the major N 50° E strike. Generally, terrain is rough and deceptively steep except along the flanks of the main ridge trend. Most of the wash-banks are quite abrupt.

As completed and covered by this report, an expenditure of at least $2,600.00 in geophysical work of benefit to the claims as a group, was made. This consisted of Line 1 oriented N 35° W and Line 2 N 48° W. Line 2 was centered about 700 feet N 39° W of the S 1/4 corner of Sec. 18, T. 6 N., R. 1 W. at an old drill hole near the middle of the claim group and was run first. Line 1 was centered on the main access road which follows the southeastern flank of the central ridge (Hill 2242) which strikes northwest near the center of Sec. 24, T. 6 N., R. 2 W. Both lines location and position with respect to the claims and topography are shown on the accompanying sketch map (Geophysical Location Plan).

RESULTS AND CONCLUSIONS

In spite of occasional sparse soil cover and in some cases barren siliceous outcrops, ground electrical contacts were generally good. All receiver porous pot resistances were under 80,000 ohms and sender stake resistance under 1,000 ohms. Prevalent soil and clay alteration and recent heavy rains helped to improve contacts, but considerable electrode water was still necessary to maximize signal strength in the face of strong thunder-head buildup and associated high noise conditions during the late morning and afternoon.

Transmitted currents were usually 2 amperes, with 1.5 and 1.0 amperes in a few cases and 0.1 ampere in one case. General data quality is satisfactory. Resistivities varied from a high of over 650 ohm-feet near the southeast end of Line 1, to lows of below 150 ohm-feet which are apparently closely associated with the iron formation located near the center of Line 2. PFEs varied from 0.2 at one of the shallowest data points near the southeast end of Line 1, to a high of 7.4 at the 3n separation near the center of Line 1. This latter PFE and its associated group of PFEs in the range of 5 to 6 PFE, seem to definitely relate to the known iron formation.

A similar pattern of higher PFEs, but in a somewhat lower range of 4 to 5 PFE, were observed near the center of Line 2. These also appear to definitely correlate with the known iron formation. Quantitative significance, if any, of this definite 1 to 3 PFE difference between Lines 1 and 2 is uncertain. Line 2 indicates a slightly more or thicker zone of surface oxidation or alteration than Line 1. Perhaps this is because the iron formation on Line 2 is not as thick as at Line 1 and is more prominently exposed with steep slopes on both flanks. Or maybe the precise spread layout geometry couples better with the iron zone geometry on Line 1 than occurred at Line 2. Conceivably drilling, sampling and geologic information or laboratory electrical physical property testing of representative hand samples of the various rocks will help to further explain this difference and whether it is due to identifiable elemental or physical factors exclusively within the iron formation itself and/or to other mitigating factors.

Data do not indicate a definite increase in polarization response with depth (except for the shallower effects already noted on Line 2). More indicative is that the polarization response is constant with depth - at least within the iron formation itself.

Resistivity data tend to indicate that the iron formation is a better electrical conductor generally than most of the other associated formations. Also the resistivity distribution pattern fits a general situation of steep or vertical beds of varying thicknesses and resistivities. In more detail however, there are a few complicated pattern suggestions which could be partly due to such factors as faulting, dikes, cross bedding, lensing, etc., but these cannot be interpreted precisely.

Water table effects are very doubtful. If indicated at all they would have to be associated with the very weak increase in resistivity possibly suggested between the 1n and 2n separation data, i.e., roughly 100 to 300 feet deep.

Self potential data indicate the possibility of weak but active oxidation centered at stations 0.5 NW and 2.0 SE on Line 1, both showing negatives of about 50 millivolts each. Station 0.5 NW is also the approximate center of the presumed iron rich zone. Conceivably these could also be indicative of weak but actively oxidizing sulfide not very deep (probably less than 100 feet) below surface. The same can be said regarding the 80 millivolt negative noted at Station 3.0 NW on Line 2.

COMMENTS

Question regarding magnetic response is raised and whether or not any surface magnetometer work has been done in the area. If not already done this should add further to information regarding the magnetite associations and distribution in the area.

Relative to IP data interpretive resolution, plus or minus one-half dipole length (in this case, plus or minus 250 feet) is about the best that can be expected. For added details please refer to "Drilling of IP Targets" and "Basis of IP Method" both of which are herewith appended.

PROCEDURES

Equipment employed was GEOEX Mark 4 and 7 Multifrequency equipment operated at 1.0 versus 0.1 Hertz or 3.0 versus 0.3 Hertz - depending on noise conditions. Some PFE tie variations were noted in the original field readings. Usually these are due to spurious coupling effects picked up from the sending electrode wires and/or owing to the coupling inherently proportional to combinations of higher frequencies and lower rock resistivities. Normalization or correction of any of these effects were not instituted and simple averages are shown on the final data plots.

Lines were oriented by Brunton compass and distances established by measured electrode wire on an uncorrected slope basis. Orientation adjustments to accommodate the topography as encountered in the field account for the final orientations as observed and shown on the map.

ACKNOWLEDGEMENT

Assistance of Mr. H. R. Scott during the full tenure of the project in the field was most gratefully appreciated.

Respectfully submitted:

Heinrichs GEOEXploration Company, Inc.

Walter E. Heinrichs, Jr.
Geological Engineer & Geophysicist
P.E. & C.P.G.S. #688

Job #1276
17 August 1978
P.O. Box 5964
Tucson, AZ 85703

KAISER STEEL

KAISER STEEL CORPORATION
GENERAL OFFICES ■ KAISER CENTER
300 LAKESIDE DRIVE ■ OAKLAND, CALIFORNIA 94666
AREA CODE 415 271-2211 ■ CABLE ADDRESS: KAISTEEL ■ TELEX: 33-5311

May 31, 1978

GEOEX
Cable: GEOEX
RECD JUN 5 1978 RECD
BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Mr. Walter E. Heinrichs, Jr.
President, Heinrichs Geoex
P. O. Box 5964
Tucson, Arizona 85703

Dear Mr. Heinrichs:

Pursuant to our telephone conversation yesterday, I am sending you the attached map with three traverse lines of 5000 feet each on it. This area is located about 35 miles northwest of Phoenix and is easily accessible by vehicle.

Please estimate the cost of running IP and resistivity on these three lines and giving us an interpretation of the data. Pertinent facts are:

1. Banded cherty iron formation standing nearby vertical. The iron rich portions form resistant ridges.

2. Suspected depth of oxidation is about 500 feet.

3. Several high angle faults cross these beds nearly perpendicular to the strike. These faults form gullies through the ridges.

Should we decide to proceed with this project, I would like to be present during the field work. The field work would have to be completed between July 10 and August 11, 1978. The report will be needed by September 1, 1978.

If you have any questions, please call me.

Very truly yours,

KAISER STEEL CORPORATION

H. S. Scott

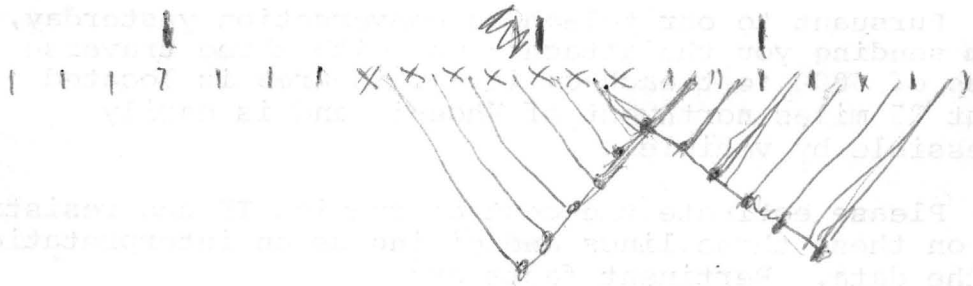
H. S. Scott
Project Geologist

Steel

HSS/bj
Enclosure

65

125
35
160



Kaiser 5/30/78

~~Kaiser~~

Harrison Bill

Scott. Jones

(Bob Wilson)

Pikes Peak Prop.

G.P. (Annual Labor I.P. Res.)

N.W Plex.

Chaty Fe

Yavapai formation.

Vert standing?

Some pat some unpat

3 1/2 mi X

3600' area of claims

Valley floor to

peaks - 500' relief

3 lines 1 Mile long

(1/3 1/3 1/3 coverage)

Several holes

drilled

Sharp change

Hematite to

Mag. in some pyrite

~~Steep~~ dip.

very narrow.

Phyllites