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I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 1, HALF NW, SR. 1, a = 300, BEARING N75W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-84

HEINRICHS GEOEX

SEND		5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal
RECEIVE		0-3 NW	—	3-6 NW	—	—	6-9 NW	—	—	—	
MULTIPLIER		10	1.0	10	1.0	1.0	10	1.0	1.0	1.0	1.0
PFE		0.7 | 0.7	1.2 | 1.2	0.7	1.5	1.7	0.8	1.3	1.9	2.1 | 2.0	0.1 | 0.0
CUR. (AMPS)		2									1.0
POINT NO.											
SEP. (n)		1	2	1	2	3	1	2	3	4	
H. F. MV		200	90.0	326	72.9	54.4	172	71.4	33.2	29.4	97.9 | 98.0
DRIFT		0 - 0	0 - 0	0	0	0	0	0	0	0	0
1.0 PFE	K_n/1000										
0.3 PFE	P_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	P/2π	90 90.0	162	146.7	131	245	77.4	129	149	265	
DRIFT	MCF	7.78	7.41	4.8	11.4	6.9	10.3	10.1	12.7	7.9	
S. P.		+10.2		+2.0			+3.0				+3.7
NOISE											6.0
POT RES.											
CULT & CMTS											

@-3NW ~ 225°

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 1, HALF NW, SR. 1, a = 300, BEARING N75W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12 NW					12-15 NW				
MULTIPLIER	10	1.0	1.0	1.0	1.0	10	1.0	1.0	1.0	0.1
PFE	0.7	1.3	1.7	2.2	2.2	0.8	0.8	1.3	1.7	2.3
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	250	43.5	26.1	16.5	15.9	288	47.5	14.7	11.6	7.08
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	113	78.3	120	149	250	130	85.5	66.2	104	112
DRIFT MCF	6.2	16.6	14.1	14.8	8.8	6.2	9.4	19.7	16.3	20.6
S. P.	-18.6					+30.0				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 681, AREA Liberty Mine

LINE 1, HALF NW, SR. 1, a = 300, BEARING N75W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	12-15 NW	15-18NW					18-21 NW			
MULTIPLIER	0.1	1.0	1.0	0.1	0.1	0.1	1.0	1.0	0.1	0.1
PFE	2.2|2.0	0.8	0.9	1.4	1.8	2.3	0.9	1.1	1.5	1.9
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	6	2	3	4	5	6	3	4	5	6
H. F. MV	7.91	68.9	21.7	8.22	7.37	47.0	34.5	15.1	6.34	6.20
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	199	124	92.7	74.0	116	118	155	136	99.9	156
DRIFT MCF	11.0	6.5	9.2	18.9	15.5	19.4	5.8	8.1	15.0	12.2
S. P.		+9.7					-1.1			
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 1, HALF SE, SP. 1, a = 300, BEARING N75W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-83

HEINRICHS GEOEX

SEND	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3SR	3-6SR	6-9SR	9-12SR					12-15SR	
MULTIPLIER	1.0	10	10	1.0	1.0	1.0	1.0	10	0.1	1.0
PFE	1.3	0.7	1.0	2.1	1.8	1.6	1.7	1.2	2.0	1.7
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	2	1	1	5	4	3	2	1	6	5
H. F. MV	70.6	194	254	19.4	32.0	45.4	93.9	206	7.47	11.6
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	127	87.3	114	306	288	204	169	92.7	188	183
DRIFT MCF	10.2	8.0	8.7	6.9	6.3	7.8	10.1	12.9	10.6	9.3
S. P.	+6.5	-3.7	+3.2	-3.3					-0.4	
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 1, HALF SE, SR. 1, a = 300, BEARING N 75 W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15 SE				15-18 SE					18-21 SE
MULTIPLIER	1.0	1.0	1.0	10	0.1	0.1	1.0	1.0	10	0.1
PFE	1.4	1.6	1.4	1.1	1.8	1.5	1.7	1.4	1.4	1.6
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	14.2	25.6	39.6	228	9.22	10.8	18.5	25.9	106	6.33
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	128	115	71.3	103	232	170	167	117	191	160
DRIFT MCF	11	13.9	19.6	10.7	7.7	8.8	10.2	12	7.3	10.0
S. P.					+10.1					+3.6
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 1, HALF SE, SR. 1, a = 300, BEARING N75W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

HEINRICHS GEOEX

SEND	4-5	5-6	6-7		CAL						
RECEIVE	13-21SR	—	—								
MULTIPLIER	0.1	1.0	1.0		1.0						
PFE	1.7	1.8	1.5		0.1						
CUR. (AMPS)	2	—	—								
POINT NO.											
SEP. (n)	5	4	3								
H. F. MV	10.47	13.0	44.5		97.3						
DRIFT	0	0	0								
1.0 PFE K_n/1000											
0.3 PFE P_{CAL}											
0.1 PFE PFE_c											
3.0 MV $P/2\pi$	165	117	200								
DRIFT MCF	10.3	15.4	7.5								
S. P.					-1.2						
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 2, HALF NW, SR. 1, a = 300, BEARING N80W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	
RECEIVE	0-3NW	—	3-6NW	—	—	6-9NW	—	—	—	CAL
MULTIPLIER	10	1.0	10	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	1.0	1.0	0.7	1.1	1.1	0.7	0.8	1.4	1.4	0.0
CUR. (AMPS)	2									1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	168	53.7	159	39.5	20.3	137	38.7	15.1	0.93	97.6
DRIFT	0	0	0	0	0	0	0	-0.05	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	75.6	96.7	71.6	71.1	91.4	61.7	69.7	68.0	80.4	
DRIFT MCF	13.2	10.3	9.8	15.5	12.0	11.4	11.5	20.6	17.4	
S. P.	-7.1		-4.4			-7.3				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 681, AREA Liberty Mine

LINE 2, HALF NW, SR. 1, a = 300, BEARING N00W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12NW					12-15NW				
MULTIPLIER	10	1.0	1.0	1.0	0.1	10	1.0	1.0	1.0	0.1
PFE	0.6	0.9	0.8	1.2	1.5	0.7	0.7	0.9	1.0	1.6
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	213	49.5	23.2	11.1	7.16	152	46.4	21.2	11.6	6.22
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV P/2π	95.9	89.1	104	99.9	113	68.4	83.5	95.4	104	98
DRIFT MCF	6.3	10.1	7.7	12.0	13.3	10.2	8.4	9.4	9.6	16.3
S. P.	-3.3					-7.3				
NOISE		Some								
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF NW, SR. 1, a = 300, BEARING N80W

SENDER STA. D = ELECTRODE NO. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	6-7	7-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	12-15NW	15-18NW					18-21NW			
MULTIPLIER	0.1	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1
PFE	1.8	0.9	0.9	1.1	1.1	1.7	1.0	1.0	1.3	1.4
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	6	7	3	4	5	6	3	4	5	6
H. F. MV	4.57	57.2	27.6	15.3	8.86	5.21	25.8	17.1	11.3	7.16
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	115	103	124	138	140	131	116	154	178	180
DRIFT MCF	15.6	8.7	7.2	8.0	7.9	12.9	8.6	6.5	7.3	7.8
S. P.		-2.9					+14.7			
NOISE										
POT RES.										
CULT & CMTS										

-2.9

I. P. RECEIVER NOTES, JOB No. 681, AREA Liberty Mine

LINE 2, HALF SE, SR. 1, a = 300, BEARING N80°E

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-26-84

PAGE 4

HEINRICHS GEOEX

SEND		1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE		0-3 SE	2-6 SE	6-9 SE	9-12 SE					12-15 SE	
MULTIPLIER		1.0	10	10	0.1	1.0	1.0	1.0	10	0.1	1.0
PFE		1.0	0.9	0.8	1.9	1.8	1.8	1.4	1.1	1.9 | 2.0	1.8
CUR. (AMPS)		2									
POINT No.											
SEP. (n)		2	1	1	5	4	3	2	1	6	5
H. F. MV		32.2	133	172	9.04	18.8	34.0	77.5	243	bp.8	12.0
DRIFT		0	0	0	0	0	0	0	0	0	0
1.0 PFE	K_n/1000										
0.3 PFE	P_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	P/2π	58	59.9	77.4	142	169	153	140	109	153	189
DRIFT	MCF	17.3	15	10.3	13.3	10.6	11.8	10	10.1	12.4	9.5
S. P.		-7.6	-15.2	+1.5	+8.5					+0.5	
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 169, AREA Liberty Mine

LINE 2, HALF SE, SR. 1, a = 300, BEARING N80E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15SE				15-18SE					18-21SE
MULTIPLIER	1.0	1.0	1.0	10	0.1	1.0	1.0	1.0	1.0	0.1
PFE	1.5	1.3	1.2	1.1	1.7	1.5	1.3	1.2	1.2	1.7
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	19.9	37.9	76.8	244	8.83	14.1	21.4	40.6	90.2	6.84
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	179	171	138	110	223	222	193	183	162	172
DRIFT MCF	8.4	7.6	8.7	10.0	7.6	6.8	6.7	6.6	7.4	9.9
S. P.					-6.7					-1.1
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 2, HALF SE, SR 1, a = 300, BEARING N80W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	4-5	5-6	6-7								
RECEIVE	18-21 SE	—	—								
MULTIPLIER	1.0	1.0	1.0	CAL							
PFE	1.5	1.4	1.3	0.1							
CUR. (AMPS)	2	—	—	1.0							
POINT NO.											
SEP. (n)	5	4	3								
H. F. MV	11.0	16.2	30.2	97.5							
DRIFT	0	0	0	0							
1.0 PFE K_n/1000											
0.3 PFE P_{CAL}											
0.1 PFE PFE_c											
3.0 MV $\rho/2\pi$	173	146	136								
DRIFT MCF	8.7	9.6	9.6								
S. P.				-2.4							
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 681, AREA Liberty Mine

LINE 3, HALF NW, SR. 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-27-84

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	CAL
RECEIVE	0-5 NW	—	5-10 NW	—	—	10-15 NW	—	—	—	
MULTIPLIER	10	1.0	10.0	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	0.8 | 0.8	1.0 | 0.8	0.7	0.7	0.9	0.8	0.8	1.0	1.3	0.1 | 0
CUR. (AMPS)	2	—	—	—	—	—	—	—	—	1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	110 | 110	25.8 | 25.9	155	38.8	14.0	110	38.3	16.5	7.75	925 | 11
DRIFT	0 | 0	0 0	0	0	0	0	0	0	0	0 0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV P/2π	85.5	77.7	116	116	105	82.5	115	124	116	
DRIFT MCF	9.7	10.3	6.0	6.0	8.6	9.7	7.0	8.1	11.2	
S. P.	±5.0		-11.9			+3.2				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 3, HALF NW, SR 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-26-84

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-20NW					20-25NW				
MULTIPLIER	10	1.0	1.0	0.1	0.1	10	1.0	1.0	1.0	0.1
PFE	0.8	0.9	1.0	1.0	1.3	0.9	0.9	1.3	1.2	1.3
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	169	29.6	17.7	9.30	5.27	172	47.3	14.7	11.9	7.09
DRIFT	0	0	0	0.03	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	127	88.8	133	140	138	129	142	110	179	186
DRIFT MCF	6.3	10.1	7.5	7.2	9.4	7.0	6.3	11.8	6.7	7.0
S. P.	+21.8					-43.0				
NOISE										
POT RES.										
CULT & CMTS										

At Road & #1

1/28/84 CAL - 97.4 PFE — 0.0

I. P. RECEIVER NOTES, JOB NO. _____, AREA Liberty Mine

LINE 3, HALF NW, SR. 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-27-84

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	20-25NW	25-30NW					30-35NW			
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	1.4	0.5	1.0	1.1	1.4	1.5?	0.8	1.2	4.4	—
CUR. (AMPS)	2	2	2	2	2	2	2	2	2.5	—
POINT NO.										
SEP. (n)	6	2	3	4	5	6	3	4	5	6
H. F. MV	4.52	9.44	4.17	1.70	1.50	1.00	4.53	2.33	1.36	1.30
DRIFT	0	0	0	0	-0.03	—	—	—	0	—
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	190	28.9	31.3	25.5	39.4	42.0	34.0	35.0	28.6	43.7
DRIFT MCF	7.4	17.3	32.0	43.1	35.6	35.7	23.5	34.3	49.0	—
S. P.		-14.2					+35.2			
NOISE					± 10mV		Yes	± 5mV	± 5mV	Too much
POT RES.										
CULT & CMTS										

CAL 97.4 PFE — 0 drift 0 pots + 1.9

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 3, HALF SE, SR 1, a = 500, BEARING N83E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-28-84

HEINRICHS GEOEX

SEND	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-5S	5-10S	10-15S	15-20S	—	—	—	—	20-25S	—
MULTIPLIER	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1	0.1
PFE	0.8	0.9	0.9	1.6	1.5	0.7	0.8	0.9	1.5	1.4
CUR. (AMPS)	2	—	—	—	—	—	—	—	2.5	2.5
POINT NO.										
SEP. (n)	2	1	1	5	4	3	2	1	6	5
H. F. MV	38.7	113	133	5.47	8.25	12.1	32.8	128	6.58	9.35
DRIFT	0	0	0	0	0	0	0	0	0	
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV / $P/2\pi$	116	84.8	99.8	144	124	90.8	98.4	96.0	221	196
DRIFT / MCF	6.9	10.0	9.0	11.1	12.1	7.7	8.1	9.4	6.8	7.1
S. P.	-0.5	+8.9	-4.5	+6.7					+168	
NOISE				Yes					Yes	
POT RES.										
CULT & CMTS										

250 MA 2B (800 MU)

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 3, HALF SE, SR. 1, a = 500, BEARING N83E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-28-84

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	20-25SE				25-30SE					30-35SE
MULTIPLIER	1.0	1.0	1.0	10	0.1	0.1	1.0	1.0	1.0	0.1
PFE	1.2	0.8	0.9	0.9	1.6	1.3	1.2	0.8	0.7	1.6
CUR. (AMPS)	2.5				2.5					
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	11.8	27.8	62.1	228	5.82	6.49	13.5	22.3	45.8	5.48
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_C										
3.0 MV P/2π	142	167	149	137	196	136	162	134	110	184
DRIFT MCF	8.5	4.8	6.0	6.6	8.2	9.5	7.4	6.0	6.4	8.7
S. P.					-1.3					-0.2
NOISE	Some	ok	ok							Yes
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 3, HALF SE, SR. 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-28-84

HEINRICHS GEOEX

SEND	4-5	5-6	6-7							
RECEIVE	30-35SE	"	"		Cal		Cal			
MULTIPLIER	0.1	1.0	1.0		1.0		1.0			
PFE	1.4	1.1	1.0		0.0		0.0			
CUR. (AMPS)	2.5	2.5	2.5		1.0		1.0			
POINT NO.										
SEP. (n)	5	4	3							
H. F. MV	10.3	14.8	23.0				98.1			
DRIFT	0	0	0		0		0			
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	216	178	138							
DRIFT MCF	6.5	6.2	7.2							
S. P.							-2.5			
NOISE	Some									
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1691, AREA Liberty Mine

LINE 1, HALF NW, SP. 1, a = 100, BEARING N 75 W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-84

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	6-1
RECEIVE	0-3 NW	—	2-1 NW	—	—	6-9 NW	—	—	—	—
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	0.7 / 0.7	0.7 / 0.7	0.7	1.5	1.5	0.9	1.3	1.9	2.1 / 2.2	0.1 / 0.0
CUR. (AMPS)	2									1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	200	90.0	27.6	72.4	54.4	17.7	71.4	33.7	29.4	12.9 / 10.0
DRIFT	0.0	0.0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	90.0	18.2	46.3	13.1	24.5	72.4	17.9	14.9	26.9	
DRIFT MCF	2.78	2.41	4.8	11.4	6.9	10.3	22.1	12.7	7.9	
S. P.	+10.2		+2.0			+3.0				+3.7
NOISE										+2
POT RES.										
CULT & CMTS										

Q-3 NW ~ 275

I. P. RECEIVER NOTES, JOB NO. 1681, AREA [illegible]

LINE 1, HALF [illegible], SP. 1, a = [illegible], BEARING [illegible]

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-84

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-4	4-5	5-6
RECEIVE	[illegible]					[illegible]				
MULTIPLIER	10	10	10	10	10	10	10	10	10	0.1
PFE	0.7	1.3	1.7	2.2	2.3	0.0	0.0	1.3	1.7	2.3
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	250	425	365	165	159	289	435	147	166	308
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRIFT MCF	[illegible]	16.6	[illegible]	14.8	8.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S. P.	-18.6					+30.0				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 1, HALF N-W, SP. 1, a = 300, BEARING 475N

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

PAGE 2

HEINRICHS GEOEX

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	2-1T NW	15-1A NW					18-21 NW			
MULTIPLIER	0.1	1.0	1.0	0.1	0.1	0.1	1.0	1.0	0.1	0.1
PFE	2.2120	0.9	0.9	1.4	1.8	2.3	0.9	1.1	1.5	1.9
CUR. (AMPS)	2									
POINT No.										
SEP. (n)	6	2	3	4	5	6	2	4	5	6
H. F. MV	7.91	68.9	21.7	8.77	7.37	42.0	4.5	15.1	6.34	6.20
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE P_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	199	124	92.7	74.0	116	18	155	136	99.7	156
DRIFT MCF	14.0	6.5	9.2	18.9	15.5	19.4	5.8	9.1	15.0	12.2
S. P.		+9.7					-1.1			
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 1, HALF SE, SP. 1, a = 800, BEARING N 75 W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-83

PAGE 4

HEINRICHS GEOEX

SEND	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3.5S	3-6.5S	6-9.5S	9-12.5S					2-15.5S	
MULTIPLIER	1.0	10	10	1.0	1.0	1.0	1.0	10	0.1	1.0
PFE	1.3	0.7	1.0	2.1	1.6	1.6	1.7	1.2	2.0	1.7
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	2	1	1	5	4	3	2	1	6	5
H. F. MV	70.6	19.4	25.4	19.4	32.0	45.4	92.9	20.6	2.47	11.6
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	127	27.3	114	30.4	28.8	20.4	11.9	92.1	18.8	18.3
DRIFT MCF	10.2	8.0	8.7	6.9	6.3	7.8	10.1	13.9	10.0	9.3
S. P.	+6.5	-3.7	+3.2	-3.3					-0.4	
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 1681, AREA Liberty Mine

LINE 1, HALF SE, SR 1, a = 300', BEARING N 75 W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-25-84

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HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	2-4
RECEIVE	12-13 SE				15-18 SE					14-21 SE
MULTIPLIER	1.0	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1
PFE	1.4	1.6	1.4	1.4	1.8	1.5	1.7	1.4	1.4	1.6
CUR. (AMPS)	7									
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	14.2	25.6	39.6	27.8	1.72	10.2	12.5	25.9	10.6	6.33
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	128	115	71.3	103	232	170	167	127	131	120
DRIFT MCF	11	13.9	10.6	10.8	7.7	8.8	10.5	12	7.2	6.0
S. P.					+10.1					2.6
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 1, HALF SE, SP. 1, a = 300, BEARING 375V

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-25-84

PAGE 6

HEINRICHS GEOEX

SEND	4-5	5-6	6-7		CAL					
RECEIVE	18-21SE	—	—							
MULTIPLIER	0.1	1.0	1.0		1.0					
PFE	1.7	1.8	1.5		0.1					
CUR. (AMPS)	2	—	—							
POINT NO.										
SEP. (n)	5	4	3							
H. F. MV	10.47	13.0	44.5		92.3					
DRIFT	0	0	0							
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	165	117	200							
DRIFT MCF	10.3	15.4	7.5							
S. P.					-1.2					
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF NW, SP. 1, a = 300, BEARING N80W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	
RECEIVE	0-3NW	—	3-4-NW	—	—	6-9NW	—	—	—	6-1
MULTIPLIER	10	1.0	10	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	1.0	1.0	0.7	1.1	1.1	0.7	0.8	1.4	1.4	0.0
CUR. (AMPS)	2									1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	168	23.7	159	39.5	20.3	137	38.7	15.1	0.93	22
DRIFT	0	0	0	0	0	0	0	-0.05	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	75.0	96.7	71.6	71.0	31.4	61.7	69.7	68.0	84.4	
DRIFT MCF	13.2	10.3	9.8	15.5	12.0	11.4	11.5	20.6	17.4	
S. P.	-7.1		-4.4			-7.3				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF NW, SP. 1, a = 300, BEARING N 80 W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

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	9-12NW					12-15NW				
MULTIPLIER	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	0.1
PFE	0.6	0.9	0.8	1.2	1.5	0.7	0.7	0.9	1.0	1.6
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	21.3	44.5	23.2	11.1	7.16	15.2	46.4	21.2	11.6	6.22
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	95.9	89.1	104	99.9	113	86.4	87.5	95.4	104	98
DRIFT MCF	6.3	10.1	2.7	12.0	12.3	10.2	8.4	9.4	9.6	10.2
S. P.	-3.3					-2.3				
NOISE		Same								
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 164, AREA Libby Mine

LINE 2, HALF ____, SR. 1, a = 200, BEARING N80W

SENDER STA. 0 = ELECTRODE No. 4, DATE 1-26-84

PAGE 3

HEINRICHS GEOEX

SEND		2-7	3-7	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE		12-13N	13-14N					14-15N			
MULTIPLIER		0.1	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1
PFE		1.8	3.0	2.9	3.1	1.1	1.7	3.0	3.0	1.3	1.4
CUR. (AMPS)		2									
POINT No.											
SEP. (n)		1	2	3	4	5	6	3	4	5	6
H. F. MV		9.57	57.6	17.6	15.3	9.86	5.21	25.8	12.1	16.3	8.16
DRIFT		0	0	0	0	0	0	0	0	0	0
1.0 PFE	K_n/1000										
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	113	103	124	138	140	131	116	154	170	154
DRIFT	MCF	15.6	8.7	22	8.0	7.9	12.9	9.6	6.5	7.3	7.2
S. P.			-4					+14.7			
NOISE											
POT RES.											
CULT & CMTS											

-2.9

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF SB, SP. 1, a = 300, BEARING N80E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

PAGE 4

HEINRICHS GEOEX

SEND	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3 SB	2-6 SB	6-9 SB	2-12 SB	—	—	—	—	2-15 SB	—
MULTIPLIER	1.0	10	10	0.1	1.0	1.0	1.0	10	0.1	1.1
PFE	1.0	0.9	0.8	1.9	1.8	1.8	1.4	1.1	1.9	1.4
CUR. (AMPS)	2	—	—	—	—	—	—	—	—	—
POINT NO.										
SEP. (n)	2	1	1	5	4	3	2	1	6	5
H. F. MV	32.2	13.3	17.2	9.04	18.8	24.0	22.5	24.3	60.8	12.4
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	58	59.9	77.4	143	11.9	15.3	14.0	10.9	15.3	10.9
DRIFT MCF	12.3	15	10.3	13.3	10.6	11.8	10	10.1	12.4	9.5
S. P.	7.6	-15.2	+1.5	+8.5					+0.5	
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1684, AREA Liberty Mine

LINE 2, HALF SE, SP. 1, a = 300, BEARING N80E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

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HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	7-8
RECEIVE	12-15 SE				15-18 SE					18-21 SE
MULTIPLIER	1.0	1.0	1.0	10	0.1	1.0	1.0	1.0	1.0	0.1
PFE	1.5	1.3	1.2	1.1	1.7	1.5	1.3	1.2	1.2	1.2
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	19.9	27.9	76.8	244	8.83	14.1	21.4	40.6	90.2	6.34
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	179	171	138	110	223	232	193	183	162	172
DRIFT MCF	8.4	7.6	8.7	10.0	7.6	6.8	6.7	6.6	7.4	9.9
S. P.					-6.7					-11
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF SE, SR. 1, a = 2n, BEARING N80E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

HEINRICHS GEOEX

PAGE 6

SEND		4-5	5-6	6-7							
RECEIVE		10 TIME									
MULTIPLIER		1.0	1.0	1.0	CAL						
PFE		1.5	1.4	1.2	0.1						
CUR. (AMPS)		2			1.0						
POINT NO.											
SEP. (n)		5	4	3							
H. F. MV		11.0	16.2	36.2	97.8						
DRIFT		0	0	0	0						
1.0 PFE	K_n/1000										
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	173	146	136							
DRIFT	MCF	9.7	9.6	9.6							
S. P.					-2.4						
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 2, HALF NW, SP. 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-27-84

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	2-1
RECEIVE	0-5 NW	—	5-10 NW	—	—	10-15 NW	—	—	—	
MULTIPLIER	10	1.0	10.0	1.0	1.0	10	1.0	1.0	0.1	1.0
PFE	0.8/0.8	1.0/0.8	0.7	0.7	0.9	0.8	0.8	1.0	1.3	1.1/0
CUR. (AMPS)	2	—	—	—	—	—	—	—	—	1.0
POINT NO.										
SEP. (n)	1	2	1	2	3	1	2	3	4	
H. F. MV	110/110	25.8/25.9	155	38.8	14.0	110	38.3	16.5	7.75	125/11
DRIFT	0/0	0 0	0	0	0	0	0	0	0	0 0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	85.5	77.7	116	116	105	82.5	115	124	116	
DRIFT MCF	9.7	10.3	6.0	6.0	8.6	9.7	2.0	8.1	16.2	
S. P.	+5.0		-11.9			+3.2				
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Li boot, Line

LINE 3, HALF NW, SP. 1, a = 500, BEARING N83W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-26-84

PAGE 2

HEINRICHS GEOEX

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-20NW					20-25NW				
MULTIPLIER	10	1.0	1.0	0.1	0.1	10	1.0	1.0	1.0	0.1
PFE	0.8	0.9	1.0	1.10	1.3	0.9	0.9	1.3	1.7	1.3
CUR. (AMPS)	2									
POINT NO.										
SEP. (n)	1	2	3	4	5	1	2	3	4	5
H. F. MV	16.9	29.6	17.7	9.30	5.27	172	47.3	14.7	21.9	209
DRIFT	0	0	0	0.03	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	127	88.8	133	140	138	129	142	110	179	126
DRIFT MCF	6.3	10.1	7.5	7.2	9.4	7.0	6.3	11.8	6.7	7.0
S. P.	+21.8					-43.0				
NOISE										
POT RES.										
CULT & CMTS										

at Road 5 #1

[illegible] cal = 97.4 PFE — 0.0

I. P. RECEIVER NOTES, JOB NO. _____, AREA Liberty Mine

LINE 7, HALF NW, SP. 1, a = 400, BEARING N83W

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-27-84

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	20-25 NW	25-30 NW	—	—	—	—	30-35 NW	—	—	—
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	1.4	0.5	1.0	1.4	1.4	1.52	0.8	1.2	1.4	—
CUR. (AMPS)	2	2	2	2	2	2	2	2	2.5	—
POINT NO.										
SEP. (n)	6	2	3	4	5	6	3	4	5	6
H. F. MV	4.52	9.14	4.17	1.70	1.50	1.00	4.53	2.33	1.36	1.30
DRIFT	0	0	0	0	-0.03	—	—	—	0	—
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	190	28.9	31.2	25.5	39.4	42.0	34.0	35.0	26.6	42.7
DRIFT MCF	7.4	17.3	32.0	43.1	35.6	35.7	23.5	24.3	49.0	—
S. P.		-14.2					+35.2			
NOISE					+10		40	+5 ✓	+3 ✓	[illegible]
POT RES.										
CULT & CMTS										

cal 97.4 PFE — 0 drift — 0 [illegible] +1.7

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 3, HALF 5B, SP. 1, a = 50, BEARING N 83 E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-28-84

PAGE 4

HEINRICHS GEOEX

SEND		1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE		0-5GS	5-10GS	10-15GS	15-20GS	—	—	—	—	20-25GS	—
MULTIPLIER		1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1	0.1
PFE		0.8	0.9	0.9	1.6	1.5	0.7	0.8	0.9	1.5	1.4
CUR. (AMPS)		3	—	—	—	—	—	—	—	2.5	2.5
POINT NO.											
SEP. (n)		2	1	1	5	4	3	2	1	6	5
H. F. MV		38.7	113	133	54.7	8.25	12.1	32.8	12.8	6.58	8.25
DRIFT		0	0	0	0	0	0	0	0	0	
1.0 PFE	$K_n/1000$										
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	86	84.8	39.4	144	124	90.6	94.4	86.0	221	136
DRIFT	MCF	6.9	10.0	9.0	11.1	12.1	7.7	8.1	9.4	6.8	8.1
S. P.		-12.5	+8.9	-4.5	+6.7					+16.8	
NOISE					Yes					Yes	
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 1631, AREA Liberty Mine

LINE 3, HALF SE, SP. 1, a = 500, BEARING N83E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-28-84

PAGE 5

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	2-4
RECEIVE	20-25SE	—	—	—	25-30SE	—	—	—	—	30-35SE
MULTIPLIER	1.0	1.0	1.0	1.0	0.1	0.1	1.0	1.0	1.0	0.1
PFE	1.2	0.8	0.9	0.9	1.6	1.3	1.2	0.8	0.7	1.6
CUR. (AMPS)	2.5	—	—	—	2.5	—	—	—	—	—
POINT NO.										
SEP. (n)	4	3	2	1	6	5	4	3	2	6
H. F. MV	11.8	27.8	62.1	228	5.82	6.49	13.5	22.3	45.8	64.8
DRIFT	0	0	0	0	0	0	0	0	0	0
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	165	167	149	137	176	136	162	134	110	[illegible]
DRIFT MCF	8.5	4.8	6.0	6.6	8.2	9.5	7.4	6.0	6.4	[illegible]
S. P.	[illegible]				-1.3					-0.7
NOISE	Same	ok	ok							Vac
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 1681, AREA Liberty Mine

LINE 3, HALF 5E, SR. 1, a = 500, BEARING N83E

SENDER STA. 0 = ELECTRODE NO. 4, DATE 1-28-84

HEINRICHS GEOEX

SEND	4-5	5-6	6-7							
RECEIVE	30-32SE				Cal		Cal			
MULTIPLIER	0.1	1.0	1.0		1.0		1.0			
PFE	1.4	1.1	1.0		0.0		0.0			
CUR. (AMPS)	2.5	2.5	2.5		1.0		1.0			
POINT NO.										
SEP. (n)	5	4	3							
H. F. MV	10.3	14.8	23.0				38.1			
DRIFT	0	0	0		0		0			
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	216	128	128							
DRIFT MCF	6.5	6.2	7.2							
S. P.							-2.5			
NOISE										
POT RES.										
CULT & CMTS										

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF NW, SP. 1, DATE 1/25/84

PAGE 1

HEINRICHS GEOEX

11:45 AM

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal.
RECEIVE	0-3NW	—	3-6NW	—	—	6-9NW	—	—	—	"
RANGE	10X200	—	—	—	—	—	—	—	—	10X1
VOLTAGE	590	475	700	615	480	450	700	615	480	220
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12NW	—	—	—	—	12-15NW				
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	335	450	700	610	440	410	335	445	700	605
CURRENT	2	2	2	2	2	2	2	2	2	

FREQUENCIES 3.0 - 0.3 & 1.0 - 0.1

SENDER No. 9602-S — POWER UNIT ID

OPERATOR W.E.H. — Grey

RECEIVER No. — HOURS RUN

OPERATOR Anders

COMMENTS: W.C.H. & R.L. Free to Laramide Int. 18-21NW

	1-2	2-3	3-4	4-5	5-6	6-7	
DC 200-2	78	24	18	64	45	180	OHMS
Volts	415	330	440	685	600	480	

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF NW, SP. 1', DATE 1/25/84

PAGE 1

HEINRICHS GEOEX

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal. 11:45 AM
RECEIVE	0-3NW	—	3-6NW	—	—	6-9NW	—	—	—	"
RANGE	10X200	—	—	—	—	—	—	—	—	10X1
VOLTAGE	590	475	700	615	480	450	6800	615	485	220
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12NW	—	—	—	—	12-15NW				
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	335	450	700	610	490	410	335	445	700	605
CURRENT	2	2	2	2	2	2	2	2	2	

FREQUENCIES 3.0 - 0.3 & 1.0 - 0.1

SENDER No. 9602-5 POWER UNIT ID

OPERATOR WEH, AJ Grey

RECEIVER No. HOURS RUN

OPERATOR Andy

COMMENTS: W.C.H. & R.L., Tie E to Laramide Int's 8-21 NW

	1-2	2-3	3-4	4-5	5-6	6-7	
Ω 200Ω	78	24	18	64	45	180	OHMS
Volts	415	330	440	685	600	480	

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF NW, SP. 1, DATE 1/25/64

PAGE 2

HEINRICHS GEOEX

2:15

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	12-15NW	15-18NW	—	—	—	—	18-21NW	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	470	415	330	440	685	600	410	330	435	680
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND 3:PM	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3SE	3-6SE	6-9SE	9-12SE	—	—	—	—	12-15SE	—
RANGE	2X10	—	—	—	—	—	—	—	—	—
VOLTAGE	400	435	670	400	325	430	665	580	400	325
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES

SENDER No. Same	POWER UNIT ID
OPERATOR	Greg
RECEIVER No. NJ	HOURS RUN
OPERATOR	2.5-0.5=2

COMMENTS: WCH & RBL

	1-2	2-3	3-4	4-5	5-6	6-7
2K Ω DC	0.4	0.25	0.25	0.3	0.465	0.5
200 " "	11.2	6.5	5.2	4.0	2.5	20.0
20 " "	11.5	5.8	5.2	3.5	2.32	19.2

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF NW, SP. 11, DATE 1/25/84

HEINRICHS GEOEX

2:15

SEND	6-8?	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	17-15NW	15-18NW	—	—	—	—	18-21NW	—	—	—
RANGE	10X20	—	—	—	—	—	—	—	—	—
VOLTAGE	470	415	330	440	685	600	410	330	435	680
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND 3-8NW	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3SE	3-6SE	6-9SE	9-12SE	—	—	—	—	12-15SE	—
RANGE	2X10	—	—	—	—	—	—	—	—	—
VOLTAGE	400	435	670	400	325	430	665	580	400	325
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES

SENDER No.	POWER UNIT ID
OPERATOR	Grey
RECEIVER No.	HOURS RUN
OPERATOR	2.5 - 0.5 = 2

COMMENTS: WCH & KBZ.

	1-2	2-3	3-4	4-5	5-6	6-7
2K-Ω DC	0.4	0.25	0.25	0.3	0.[illegible]	0.5
200 " "	16.2	6.5	5.2	4.0	3.2	20.0
20 " "	15.5	5.8	5.2	3.5	3.39	19.2

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF SE, SP. 1, DATE 1/26/84

PAGE 3

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15SE	—	—	—	15-18SE	—	—	—	—	18-21SE
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	360	390	365	460	480	360	390	365	460	360
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND	4-5	5-6	6-7	Cal.	4:45 PM					
RECEIVE	18-21SE	—	—	"						
RANGE	10X200	—	—	10X100						
VOLTAGE	390	365	460	—						
CURRENT	2	2	2	1						

FREQUENCIES	
SENDER No. Same as	POWER UNIT ID
OPERATOR	Grey
RECEIVER No. Page 1	HOURS RUN
OPERATOR	1:45-45=1

COMMENTS:

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF SE, SP. 1, DATE 1/26/84

PAGE 3

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15SE	—	—	—	15-18SE	—	—	—	—	18-21SE
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	360	390	365	460	480	360	390	365	460	360
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND	4-5	5-6	6-7	Cal.	4:45 PM					
RECEIVE	18-21SE	—	—	"						
RANGE	100X200	—	—	10X100						
VOLTAGE	390	365	460	[illegible]	480	360	390			
CURRENT	2	2	2	2	2	2	2			

FREQUENCIES	
SENDER No. Same as	POWER UNIT ID
OPERATOR	Grey
RECEIVER No. Page 1	HOURS RUN
OPERATOR	1:45-45=1

COMMENTS:

I. P. SENDER NOTES
JOB No. 1681 AREA Liberty Mine
LINE 1, HALF SE, SP. 1, DATE 1/25/44

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15SE	—	—	—	15-18SE	—	—	—	—	18-21SE
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	430	665	375	455	325	430	660	575	455	435
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND	4-5	5-6	6-7	Cal	4:15					
RECEIVE	18-21SE	—	—	"						
RANGE	10X200	—	—	10X100						
VOLTAGE	660 ~~430~~	575	455	330						
CURRENT	2	2	2	1						

FREQUENCIES

SENDER No. Stmd 05	POWER UNIT ID Grey
OPERATOR	
RECEIVER No. Page 1	HOURS RUN 1.25
OPERATOR	

COMMENTS: Pits improved with age

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 1, HALF SE, SP. 1, DATE 1/25/84

PAGE 3

HEINRICHS GEOEX

SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	12-15SE	—	—	—	15-18SE	—	—	—	—	18-21SE
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	430	665	375	455	325	430	660	575	455	435
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND	4-5	5-6	6-7	Cal	4:15					
RECEIVE	18-21SE	—	—	"						
RANGE	10X200	—	—	10X100						
VOLTAGE	660 ~~[illegible]~~	575	455	330						
CURRENT	2	2	2	1						

FREQUENCIES	
SENDER No.	POWER UNIT ID
OPERATOR Same as	Grey
RECEIVER No.	HOURS RUN
OPERATOR Page	1.25

COMMENTS: Pits improved with age

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 2, HALF NW, SP. 1, DATE 1/26/84

PAGE 1

HEINRICHS GEOEX

11:30A

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal
RECEIVE	0-3NW	—	3-6NW	—	—	6-9NW	—	—	—	
RANGE	10X200	—	—	—	—	—	—	—	—	2X100
VOLTAGE	485	475	420	395	475	380	415	385	475	250±
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12NW	—	—	—	—	12-15NW	—	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	495	375	410	380	475	505	490	375	410	390
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES 0.3-3.0 & 1.0-0.1

SENDER No. 9662-5 POWER UNIT ID

OPERATOR W.E.H. Grey

RECEIVER No. 25705R HOURS RUN

OPERATOR Anders

COMMENTS: W.C.H. - R.B.L.

1-2	2-3	3-4	4-5	5-6	6-7	
49.6	41.5	82	5.5	27	23.5	OHMS

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 2, HALF NW, SP. 1, DATE 1/26/84

PAGE 1

HEINRICHS GEOEX

11130A

SEND	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal
RECEIVE	0-3NW	—	3-6NW	—	—	6-9NW	—	—	—	
RANGE	10X200	—	—	—	—	—	—	—	—	2X100
VOLTAGE	485	475	420	345	475	380	415	375	475	250±
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	9-12NW	—	—	—	—	12-15NW	—	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	495	375	410	380	475	505	490	375	410	390
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES 0.3-3.0 & 1.0-0.1

SENDER No. 9662-5 POWER UNIT ID Grey

OPERATOR W.E.H.

RECEIVER No. 2570SR HOURS RUN

OPERATOR Anders

COMMENTS: W.G.H. - R.B.L.

1-2	2-3	3-4	4-5	5-6	6-7	
49.6	41.5	82	5.5	27	23.5	OHMS

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 2, HALF NW & NE, SP. 1, DATE 1/26/84

PAGE 2

HEINRICHS GEOEX

1:40PM

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	12-15NW	15-18NW	—	—	—	—	18-21NW	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	470	505	490	375	410	390	500	490	375	400
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND 3PM	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3SE	3-6SE	6-9SE	9-12SE	—	—	—	—	12-15SE	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	500	360	390	500	480	360	390	370	500	490
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES	
SENDER No.	POWER UNIT ID
OPERATOR Same as page 1	Grey
RECEIVER No.	HOURS RUN
OPERATOR	2-1=1

COMMENTS: Rugged & steep West end.

I. P. SENDER NOTES

JOB No. 16881 AREA Liberty Maine

LINE 2, HALF NWE/NE, SP. 1", DATE 1/1/26/84

PAGE 2

HEINRICHS GEOEX

1:40PM

SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	12-15NW	15-18NW	—	—	—	—	18-21NW	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	470	505	490	375	410	390	500	490	375	400
CURRENT	2	2	2	2	2	2	2	2	2	2
SEND 3PM	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-3SE	3-6SE	6-9SE	9-12SE	—	15	—	—	12-15SE	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	500	360	390	500	480	360	390	370	500	490
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES	
SENDER No.	POWER UNIT ID
OPERATOR Same as	Grey
RECEIVER No.	HOURS RUN
OPERATOR	2-1=1

COMMENTS: Rugged in steep West end.

125-161
122 158

I. P. SENDER NOTES
JOB No. 1681 AREA Liberty Mine
LINE 3, HALF NW, SP. 1, DATE 1/27/84

HEINRICHS GEOEX

SEND 3:30P	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal.
RECEIVE	0-5NW	—	5-10NW	—	—	10-15NW	—	—	—	"
RANGE	10X200	—	—	—	—	—	—	—	—	10X100
VOLTAGE	320	305	435	320	305	425	430	410?	300?	220
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-20NW	—	—	—	—	20-25NW	—	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	480	505	505	410	355	380	360	390	395	345
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES 0.1-1.0 & 3.0-0.3
SENDER No. 96062-5 POWER UNIT ID
OPERATOR W.E.H. Grey
RECEIVER No. 25705-R HOURS RUN
OPERATOR Anders

COMMENTS:	1-2	2-3	3-4	4-5	5-6	6-7
Stake-2	23	34	23	143	~~40~~	27
opposite	23	56	3	2	73	17
Ave.	23	45	13	73	73	17
Repeat	125	160	123	87	115	71

124 - 161
122 158

I. P. SENDER NOTES
JOB No. 1681 AREA Liberty Mine
LINE 3, HALF NW, SP. 1, DATE 1/27/84

HEINRICHS GEOEX

SEND 3:30P	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7	Cal.
RECEIVE	0-5NW	—	5-10NW	—	—	10-15NW	—	—	—	"
RANGE	10X200	—	—	—	—	—	—	—	—	10X100
VOLTAGE	320	305	435	320	305	425	430	410?	300?	220
CURRENT	2	2	2	2	2	2	2	2	2	1
SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	15-20NW	—	—	—	—	20-25NW	—	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	480	505	505	410	355	380	360	390	395	345
CURRENT	2	2	2	2	2	2	2	2	2	2

FREQUENCIES 0.1-1.0 & 3.0-0.3
SENDER No. 9606 2-5 | POWER UNIT ID
OPERATOR W.E.H. | Grey
RECEIVER No. 2570S-R | HOURS RUN
OPERATOR Anders |

COMMENTS:	1-2	2-3	3-4	4-5	5-6	6-7
Stake-Q	23	34	23	143	~~80~~	27
opposite	23	56	3	2	73	17
Ave.	23	45	13	73	73	17
Repeat	125	160	123	87	115	71

I. P. SENDER NOTES 1/28/84 Repeats

JOB No. 1681 AREA Liberty Mine

LINE 3, HALF NW, SP. 1, DATE 1/27/84

PAGE 2

HEINRICHS GEOEX

		400	340	420	425	320				
SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	20-25NW	25 30NW	—	—	—	—	30-35NW	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	340	390	365	410	415	320	400	340	510	520
CURRENT	2	2	2	2	2	2	2	2	2.5	2.5
SEND 6:15	Cal	Hi Noise - Low signal				10AM cal.				
RECEIVE	4 " 5	" Wind				4-5				
RANGE	10X100					10X100				
VOLTAGE	260					235	400			
CURRENT	1					1				

FREQUENCIES 1.0 - 0.1 &

SENDER No. POWER UNIT ID

OPERATOR Same as Grey

RECEIVER No. HOURS RUN

OPERATOR Jag 1.5

COMMENTS: 1.0-0.1

1-28-84

WCH

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine 1/28/84 Repeats

LINE 3, HALF NW, SP. 1, DATE 1/27/84

PAGE 2

HEINRICHS GEOEX

		400	340	420	425	320				
SEND	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	20-25NW	25 30NW	—	—	—	—	30-35NW	—	—	—
RANGE	10X200	—	—	—	—	—	—	—	—	—
VOLTAGE	340	390	365	410	415	320	400	340	510	520
CURRENT	2	2	2	2	2	2	2	2	2.5	2.5
SEND 6/15	Cal	Hi Noise - Low signal				10AM cal.				
RECEIVE	4 " 5	" Wind				4-5				
RANGE	10X100					10X100				
VOLTAGE	260					235	400			
CURRENT	1					1				

FREQUENCIES 1.0 - 0.1 &

SENDER No.	POWER UNIT ID
OPERATOR Same as Grey	
RECEIVER No.	HOURS RUN
OPERATOR	1.5

COMMENTS: 1.0-0.1

1-28-84

WCH

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine, Mohave Co., Ariz.

LINE 3, HALF SE, SP. 1, DATE 1-28-84

SEND NOON	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-5SE	5-10SE	10-15SE	15-20SE	—	—	—	—	20-25SE	—
RANGE	10X200	—	—	—	—	—	—	—	10X250	—
VOLTAGE	400	420	420	405	340	415	470	320	490	415
CURRENT	2	2	2	2	2	2	2	2	2.5	2.5
SEND	3-4	45E	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	20-25SE	—	—	—	25-30SE	—	—	—	—	30-35SE
RANGE	10X250	—	—	—	—	—	—	—	—	—
VOLTAGE	500	515	390	375	410	500	510	390	375	500
CURRENT	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

FREQUENCIES

SENDER No. 9662-S	POWER UNIT ID
OPERATOR WCH	Grey
RECEIVER No. 25705R	HOURS RUN
OPERATOR Anders	

COMMENTS: Extremely windy

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine, Mohave Co., Ariz.

LINE 3, HALF SE, SP. 1, DATE 1-28-84

PAGE #3 1

HEINRICHS GEOEX

SEND NOON	1-2	3-4	4-5	1-2	2-3	3-4	4-5	5-6	1-2	2-3
RECEIVE	0-55E	5-10SE	10-15SE	15-20SE	—	—	—	—	20-25SE	—
RANGE	10X200	—	—	—	—	—	—	—	10X250	—
VOLTAGE	400	420	420	405	340	415	470	320	490	415
CURRENT	2	2	2	2	2	2	2	2	2.5	2.5
SEND	3-4	4-5	5-6	6-7	2-3	3-4	4-5	5-6	6-7	3-4
RECEIVE	20-25SE	—	—	—	25-30SE	—	—	—	—	30-35SE
RANGE	10X250	—	—	—	—	—	—	—	—	—
VOLTAGE	500	515	390	375	410	500	510	390	375	500
CURRENT	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

FREQUENCIES	
SENDER No. 9662-S	POWER UNIT ID
OPERATOR WCH	Grey
RECEIVER No. 25705R	HOURS RUN
OPERATOR Anders	

COMMENTS: Extremely windy

I. P. SENDER NOTES
JOB No. 1681 AREA Liberty Mine
LINE 3, HALF 2E, SP. 1; DATE 1/28/84

PAGE 2

HEINRICHS GEOEX

SEND	4-5	5-6	6-7	Cal.						
RECEIVE	30-355E	—	—	—						
RANGE	10X250	—	—							
VOLTAGE	505	385	370							
CURRENT	2.5	2.5	2.5							
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES

SENDER No.	POWER UNIT ID
OPERATOR Jim M	Grey
RECEIVER No. Judge 1	HOURS RUN
OPERATOR	

COMMENTS:

I. P. SENDER NOTES

JOB No. 1681 AREA Liberty Mine

LINE 3, HALF SE, SP. 1, DATE 1/26/84

PAGE 2

HEINRICHS GEOEX

SEND	A-5	5-6	6-7	Cal.						
RECEIVE	30-355E	—	—	—						
RANGE	10X250	—	—							
VOLTAGE	505	385	370							
CURRENT	2.5	2.5	2.5							
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

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

SERVICES AGREEMENT

THIS AGREEMENT, made and entered into as of January 24, 1984, by and between FREEPORT EXPLORATION COMPANY, a division of Freeport Minerals Company, with an office at 50 West Liberty Street, Reno, Nevada 89505 (hereinafter called "Freeport") and HEINRICHS GEOEXPLORATION COMPANY, with an office at 806 West Grant Road, Tucson, Arizona 85703 (hereinafter called "Contractor").

W I T N E S S E T H :

WHEREAS, Freeport desires that Contractor perform certain services for Freeport as described below on lands situated north of Kingman in Mohave County, Arizona; and

WHEREAS, Contractor is willing to undertake and perform such services for Freeport on such lands;

NOW, THEREFORE, in consideration of the terms and conditions hereinafter set forth, to be kept and performed by the parties hereto, the parties hereby agree as follows:

SECTION 1: PROJECT AND PROJECT SITES

Contractor shall perform the services and provide the equipment (hereinafter called the "Project") described in Annex A to this Agreement, on such parts of the above-described lands as Freeport may designate from time to time during the term of this Agreement (hereinafter called the "Project Sites").

Contractor is familiar with the lands on which the Project Sites will be located, the nature and location of the Project, the terrain and working conditions and the type of equipment and facilities necessary to complete performance of the Project.

SECTION 2: TERM

Contractor will begin its performance hereunder on or before Januay 24, 1984, and shall proceed diligently with the Project until it has been completed to Freeport's satisfaction, or until the expiration or termination of this Agreement, whichever first occurs. This Agreement shall terminate without further notice, and performance by the parties hereunder shall be completed on December 30, 1984, unless the Project is earlier completed, or unless this Agreement is terminated by Freeport prior thereto.

SECTION 3: DESCRIPTION OF PROJECT AND INVOICING

Contractor will furnish, except as otherwise specifically provided, at Contractor's expense, all labor, supervision, materials, supplies, tools, equipment, and incidentals required to begin and complete the Project on Project Sites according to the specifications and in consideration of the charges set forth in Annex A hereto, together with all other requirements and obligations to be performed by Contractor under the terms of this Agreement.

On or before the fifth day of each month while this Agreement remains in effect, Contractor shall submit to Freeport an invoice adequately describing Contractor's charges for work performed hereunder according to the terms of this Agreement during the preceding calendar month. Upon receipt of said invoice, and subject to acceptance by Freeport, Freeport

shall make payment in full to Contractor for the work described in the invoice within one (1) month after receipt of invoice. In the event payment is not made within said one (1) month period, a late charge in an amount equal to 1% per month or the maximum amount permitted by law, whichever is less, will be paid by Freeport computed from the date due to the day payment is made.

SECTION 4: CONDUCT OF OPERATIONS

(A) Contractor shall conduct all its operations and performance of the Project hereunder in such manner as will result in the greatest degree of efficiency consistent with good engineering and mining practice, and shall employ modern work methods and equipment, and skilled and experienced crews.

(B) All of Contractor's operations on or about the Project Sites shall be conducted in a careful, safe, and workmanlike manner, in accordance with customary engineering and mining standards and procedures, and Contractor shall maintain the Project Sites in a clean, safe, and orderly condition.

(C) Freeport, and its authorized agents or representatives, shall have the right, at all times, to enter upon the Project Sites and to inspect the same, and the equipment and operations of Contractor thereon.

(D) Contractor is, and shall be deemed and treated as, an independent contractor while engaged in the performance of this Agreement. Contractor shall comply with all reasonable requests and directions of Freeport's authorized representatives concerning the time and place of performing the Project as herein set forth. Upon request by Freeport's representatives at any time and from time to time, Contractor shall cease or

delay work on the Project at any part of the Project Sites, and, if requested by Freeport, shall move or relocate Contractor's equipment and operations to other parts of the Project Sites.

SECTION 5: CONFIDENTIAL INFORMATION

(A) Contractor agrees that it will not, either during the existence of this Agreement or thereafter, directly or indirectly, use for itself or for others, or disclose to any third party, any secret or confidential information, knowledge or data regarding any discovery, deposit, process, formula or mining method at any time used, developed or investigated by Freeport or any of its affiliated companies of which Contractor may become aware during the term of this Agreement.

(B) It is agreed that any mineral discoveries or deposits, whether or not commercial, which Contractor may make (either alone or in communication with others) arising directly or indirectly from the performance of this Agreement shall be the sole and exclusive property of Freeport. Contractor agrees that it will execute any instruments necessary to transfer to Freeport any such discoveries or deposits to which Freeport may become entitled under this Agreement.

SECTION 6: INDEMNITY, PROPERTY DAMAGE, INSURANCE

(A) Indemnity. Contractor agrees to protect, defend, indemnify and hold Freeport and its employees free and harmless from and against any and all losses, claims, liens, demands and causes of action of every kind and character including the amount of judgments, penalties, interest, court costs and legal fees incurred by Freeport in defense of same, arising in favor of any party, including governmental agencies or bodies, on account of taxes, claims, liens, debts, personal injuries (including employees of

Freeport), death or damages to property (including property of Freeport), and without limitation by enumeration, all other claims or demands of every character occurring or in anywise incident to, in connection with or arising directly or indirectly out of the work to be performed by Contractor hereunder, except only claims arising out of accidents resulting from the sole negligence of Freeport. Contractor further agrees to investigate, handle, respond to, provide defense for, and defend any such claim, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if such claim, demand or cause of action, etc., is groundless, false or fraudulent.

(B) Insurance. Contractor will obtain and continue in force, during the term of this Agreement, at its own expense and at a minimum, all insurance specified below. Contractor will not commence work nor allow any subcontractor to commence work until all insurance has been approved and accepted by Freeport.

The insurance to be obtained and continued in force by Contractor is the following:

(1) Workmen's Compensation and Occupational Disease Disability insurance as required by the laws of the state in which the Project is to be performed.

(2) Employer's Liability insurance in the amount of $1,000,000.

(3) Comprehensive Automobile Liability insurance covering owned, non-owned and hired vehicles with Bodily Injury limits of $1,000,000 each accident and Property Damage with a limit of $500,000 each accident.

(4) Comprehensive General Liability insurance including broad contractual liability with Bodily Injury limits of $1,000,000 each occurrence and Property Damage limits of $500,000 each occurrence.

All such insurance shall name Freeport as an additional insured. Certificates of insurance shall be furnished to Freeport and shall include the following statements:

(1) At least ten (10) days prior to the effective date of any material change or cancellation, written notice thereof will be sent by registered mail to Freeport at its address first set forth above.

(2) The Comprehensive General Liability insurance coverage covers (a) damage to underground property, (b) collapse of structures, and (c) damage resulting from explosion or blasting.

(C) Damage to Property. Contractor will, at its own expense, repair any damage which may result from Contractor's operations under this Agreement to all property of whatever kind or character, whether publicly or privately owned, including the property of Freeport.

SECTION 7: TAXES, LIENS, PUBLIC AUTHORITY

(A) Taxes. Contractor shall pay all taxes, including sales, use and privilege taxes, which may be assessed or levied on, or which may be attributable to Contractor's property or operations hereunder, and shall make all contributions required by law, ordinance and regulation with respect to employment in performing this Agreement.

(B) Liens. Contractor shall keep the Project Sites, and all buildings, equipment, machinery, improvements and other property on or about the Project Sites, free and clear of any and all liens and encumbran-

ces arising in any manner from Contractor's operations hereunder.

(C) Public Authority. Contractor shall comply with all applicable laws, ordinances and regulations of governmental authorities having jurisdiction in the premises, and shall obtain, at its own expense, all permits and licenses and equipment required by such authorities. Contractor shall indemnify and save Freeport harmless from and against all claims, damage and liability which may result from Contractor's failure to comply with this Section. Without limiting the generality of the foregoing, Contractor shall fully comply with the provisions of the Resource Conservation and Recovery Act of 1976, 42 U.S.C. §3251 et seq. and the regulations promulgated pursuant thereto. In this regard, Contractor shall neither transport upon or across the Project Sites nor use in connection with any Project any "Hazardous Waste" as that term is defined in 40 C.F.R. §261.3, unless Contractor shall give written notice to Freeport not less than two weeks prior to Contractor's intended transportation or use of such Hazardous Waste.

SECTION 8: TERMINATION, ASSIGNMENT, DEFAULT

(A) Termination

(1) After this Agreement has been in effect for ten (10) days, Freeport shall have the right to terminate this Agreement in its entirety at any time, upon written notice to Contractor. Freeport shall have the further right, at any time and from time to time, by written notice to terminate the Project or any portion thereof on all or any part of the Project Sites as designated by Freeport's representatives.

(2) This Agreement may be terminated by Contractor due to an

extended period of force majeure, in the manner described in Section 9.

(3) Upon any termination of this Agreement prior to completion of the Project, Freeport shall pay Contractor for that part of the Project completed satisfactorily to the date of such termination at the rates set forth in Annex A hereto.

(4) Upon termination of this Agreement for any reason, whether by completion of performance or by act of either party, as set forth above, Contractor forthwith shall remove its property and equipment from the Project Sites, and shall place the Project Sites in a clean, safe and orderly condition.

(B) Assignment. Contractor shall not assign its rights hereunder without prior written consent of Freeport. Subject to the foregoing, all of the terms, covenants and conditions of this Agreement shall be binding upon the successors and assigns of the parties hereto.

(C) Waiver. Failure by Freeport or Contractor at any time, or from time to time, to enforce or to require strict observance of any of the terms, conditions or provisions of this Agreement shall not constitute a waiver of, nor limit or impair, such terms, conditions or provisions; any such failure shall not affect the right of either party to avail itself at any time of such remedies as it may have for any default hereunder by the other party hereto.

(D) Amendments. Any amendments or changes in the terms of this Agreement will be valid only if contained in a written instrument executed by both parties.

SECTION 9: FORCE MAJEURE

Neither party shall be liable to the other for failure to perform its obligations hereunder if and to the extent that such failure to perform results from causes beyond such party's reasonable control, all of which causes hereinafter are called "force majeure" including, but without being limited to, strikes, lockouts, riots, fires, floods, abnormal weather conditions, acts of God, acts of the public enemy, compliance with any regulation, order or requirement of any duly authorized governmental body or agency, or inability to obtain transportation or necessary materials in the open market. The party unable to perform as a result of force majeure promptly shall notify the other of the beginning and ending of each period, and Freeport shall compensate Contractor, at the rates set forth in Annex A, for all work performed by Contractor hereunder up to the date of the beginning of such period. If any period of force majeure continues for one (1) month or more, Contractor shall have the right to terminate this Agreement upon ten (10) days prior written notice to Freeport, mailed or delivered during such period of force majeure.

SECTION 10: NOTICES

All notices to be given hereunder shall be in writing, except as otherwise expressly provided herein, and shall be effective upon mailing or delivering the same to the party to be notified, at the following address:

If the notice is to Contractor:

HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5964
Tucson, Arizona 85703

If the notice is to Freeport:

FREEPORT EXPLORATION COMPANY
P. O. Box 1911
Reno, Nevada 89505

with a copy to:

FREEPORT EXPLORATION COMPANY
Headquarters Office
P.O. Box 1911
Reno, Nevada 89505
Attention: President

SECTION 11: GOVERNING LAW

This Agreement shall in all respects be interpreted and governed by the laws of the State of Arizona.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be properly executed, all as of the day and year first above written.

HEINRICHS GEOEXPLORATION COMPANY

FREEPORT EXPLORATION COMPANY,
a division of Freeport Minerals Company

ANNEX A

Contractor to provide personnel, standard equipment and vehicles for the purpose of conducting a geophysical survey of the project area consisting of but not limited to three lines of Induced Polarization/Resistivity. Said lines will be two 7-electrode, 300-foot "a" spacing, dipole-dipole arrays; and one 7-electrode, 500-foot "a" spacing array. Services provided will consist of field work to perform and collect the geophysical data and the preparation, interpretation and presentation of such data in a report form. Contractor will work approximately 10 hours per day and about 60 hours per week from Sunday through Saturday.

	Charges	
Field Crew	40 Hours Per Week Regular Time	Over 40 Hours Per Week Overtime
Rate charges include standard geophysical and nominal surveying equipment.		
One man (professional or supervisor)	$32.50	39.50
Two men (one pro and one tech)	$45.00	59.00
Three men (one pro, one tech and one or two helpers)	$60.00	74.25
Four men (Two pros and two helpers) or (One pro, two techs and one helper) or (One pro, one tech and two helpers)	$75.00	98.50
Mobilization, demobilization, stand-by (at Freeport's request) and weathered out work days which cannot be made up. (Note: Travel time from crew domicile to job site and return is to be considered part of the normal crew work day.	One-half regular per-hour rates up to a maximum of 10 hours per day.	
Per Diem	$40/man/day (or contractor documented cost, whichever is greater)	

ANNEX A
continued

Vehicles	$40/day plus $0.40/mile
Data Compilation Includes report and office supervision.	$25/professional man hour plus expenses
Expendable supplies, outside equipment or labor, sub-contracting, communications, reproductions, etc. (directly incidental to job)	115% of contractor documemted cost (usually 3% of total job charges)

Preliminary Reconnaissance

IP, Resistivity and SP Geophysical Survey

LIBERTY MINE PROJECT

Sections 31, 32, 33, T. 27 N., R. 21 W.
Mohave County, Arizona
Jan. - Feb. 1984

for

FREEPORT EXPLORATION COMPANY
P. O. Box 1911
Reno, Nevada 89505

by

Heinrichs GEOEXploration Company, (Inc.)
810 West Grant Road P. O. Box 5964
Tucson, Arizona 85703
(602) 623-0578

GEOEX #1681

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- Line 2
- Line 3

Location Plan Map

Comments on Drilling IP Targets)
) Appended
Basis of the Induced Polarization Method)

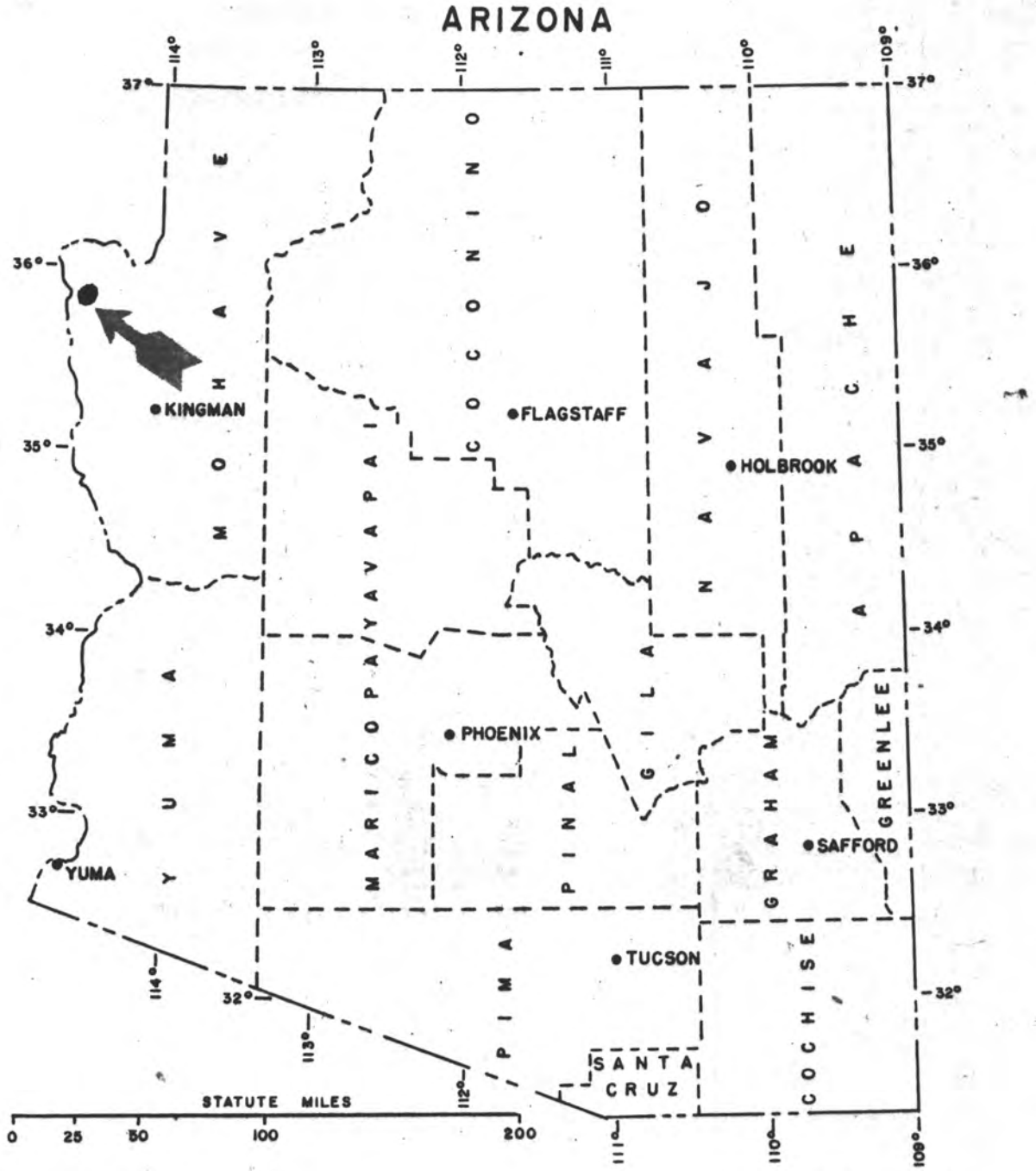
for

FREEPORT EXPLORATION COMPANY

GENERAL LOCATION OF

LIBERTY MINE PROJECT

Mohavé County, Arizona



GEOEX #1681

HEINRICHS GEOEXPLORATION COMPANY

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

INTRODUCTION

At the request of Mr. Allan V. Moran, Senior Geologist for Freeport Exploration Company, Heinrichs GEOEXploration Company conducted a three line preliminary induced polarization (IP), resistivity and self potential (SP), survey over portions of Sections 31, 32 and 33 of T. 27 N., R. 21 W. and Sections 4, 5 and 6 of T. 26N., R. 21 W., Mohave County, Arizona as mapped on the 15 minute Mt. Perkins Quadrangle, approximately 50 miles northwest of the town of Kingman, Arizona.

The area elevation ranges from2,800 to over 3,542 feet, with fairly rugged terrain. Soil development is good and conditions were dry. Floral cover was moderate and consisted mostly of small trees, sage brush and cactus. Four wheel drive access is fair to poor. See plan map appended to this report.

Field work was done during the interim January 25 through January 29, 1984 with Walter E. Heinrichs, Jr., Geological Engineer-Geophysicist, P. E. & C.P.G.S. as crew chief, assisted by Mark E. Anders, Geophysicist - Geologist, William C. Hirt, Metallurgist-Geological Engineer and Richard B. Leisure Exploration Geologist. A four man field crew was utilized in order to maximize over all production efficiency in the field.

Objective of the work was to search for and map sulfide anomalism or at least some indications of possible vein type structures or disseminated ore targets to help plan and guide future exploration and drilling on the property. Usually, IP together with resistivity and SP, will delineate certain subsurface geological characteristics and IP is commonly used for delineating the existence, strength, character and distribution of metallic lustered minerals such as sulfides and especially so when they are disseminated.

PROCEDURES

GEOEX multiple frequency IP equipment involving a 4 ampere Mark 7 transmitter S/N 96625 and Mark 4-C receiver S/N 25075-R was employed. Transmitter was powered by a 8 HP Briggs gasoline engine, driving a 400 Hz-120V, 3 KVA GE alternator. A transmitting frequency pair(in Hz) of 3.0 and 0.3 was primarily employed on the a = 300 foot spreads. However, because of the low resistivities encountered and results of spectral frequency tests (utilizing a lower frequency pair, i.e. 1.0 Hz and 0.1) done at the beginning of the survey and occasionally during the survey, indicated that adverse spurious EM coupling effects would be encountered, the lower frequency pair was used in order to decrease the coupling effects on the a = 500' spread.

The collinear dipole-dipole electrode array was used with "spreads" of seven transmitting electrode each and dipole lengths of 300' on two of the lines and 500' dipole lengths on the third line. Each spread was expanded out to six dipole increments or to 6n as customarily designated on the attached "sectional data sheets", and consisted of over fifty data points extending out to 1,200 feet in each direction from the center of the spread on the two 300' dipole lines and out to 2,000' on the spread utilizing the 500' a spacings. Actually, the distance from the center of the spread to the farthest distant potential electrode was 2,100 feet and 3,500 feet respectively for the 300' and 500' dipole spreads.

Data results from each dipole-dipole line or spread are presented on a "sectional data sheet", showing successively from top to bottom: the apparent resistivity (rho-in units of ohm-feet over two pi), the percent frequency effect (PFE) (dimensionless) and the metal conduction factor (MCF) - all contoured in "sectional" form. It should be stated that these sectional presentations are conventional electrical parameter diagramatic representations and are not true geometric cross sections as such. For this reason, they are sometimes called pseudosections. Indirectly, of course, they do relate to the subsurface geometry and geology, but the relationships are complex and not always intuitive. (See Basis of IP Method appended to this report).

Self potential (SP) readings, taken in conjunction with the IP work are presented at the bottom of the sectional data sheets in profile form.

INTERPRETATION

All of the three lines run show definite resistivity interfaces and contrasts. These are indicative of interformational changes and/or geologic structure effects such as contacts and faults.

Line 1. (300'a) shows a resistivity high that is centered under station 1.5SE and is centered at a depth of approximately 300' below the surface. It may get shallower toward the east and deeper toward the west which is suggestive of a westerly dip. A resistivity low starts at the center of the line and continues to the northwest, until near the end of the data where the resistivities begin to increase again. A similar variation is noted on the easterly portion of the data.

Line 2. (300'a) is similar to Line 1 except that the resistivity high (perhaps the same geologic feature ?) is centered under station 7.5SE and at a mean estimated depth of about 400 ft. Coverage is inadequate to determine if this material might outcrop in vicinity of station 16.5SE or not. A resistivity low is located between stations 9NW and 7.5 SE and is relatively shallow

from at or near the surface, down to roughly about 200 ft. deep. Resistivities increase on the west end of the data and decrease again on the extreme easterly end of the data.

Line 3. (500'a) A very pronounced apparent resistivity low occurs on the northwestern end of the line starting at station 22.5NW, and continuing on the end of the coverage. This appears to represent the contact between the Precambrian complex to the southeast and younger less dense volcanic rocks and/or alluvium to the northwest. The resistivities appear to get higher with depth over most of the eastern part of the line with the shallower middle 3,500 to 4,000' block indicating a median apparent resistivity range.

The PFE's generally show minor contrast on all three lines. The general PFE background is also fairly low 1.1 which generally indicates with one possible exception on each of the three lines, very small and/or weak concentrations of sulfides, if any, and/or low or nil sulfide content over all, at least down to a depth of 800' on the a = 500' dipoles and 500' on the a = 300' dipoles.

A table of approximate average results obtained are as follows:

	High (rho)	Low (rho)	PFE	MCF
Line 1	280 $\frac{\text{ohm-ft.}}{2\ \text{pi}}$	80 $\frac{\text{ohm-ft}}{2\ \text{pi}}$	1.4	12
Line 2	200 "	75 "	1.2	10
Line 3	180 "	35 "	1.1	9.0

Note: An approximate factor for converting ohm-ft/2 pi to ohm meters simply multiply ohm-ft/2 pi values by two.

PFE's on Line 1 while still relatively weak are slightly higher than the other two lines. This weak anomalism occurs from stations 4.5 NW to 1.5 SE and at a depth from 250 ft. on to maybe 550 ft. in depth. These PFE's roughly correlate with the resistivity high at depth. Line 2 PFE's are not quite as strong as Line 1, but they do indicate some weak anomalism at depth between stations 4.5 SE to 10.5 SE. The PFE's as on Line 1, are still increasing with depth over the entire line. On Line 3 the PFE's are increasing with depth, and show no definite anomalism except possibly very weakly on the eastern half of the spread at a maximum detected depth.

Conceivably most or even all of this PFE increase is due to spurious coupling effects.

Line 1 showed a definite 40 millivolt SP low just west of the

topographic saddle at station 12 NW, and three minor (?) lows at stations zero NW-SE, 6 SE and 15 SE. Line 2 indicated two broad lows, one at station 18 NW and the other at station 6 SE.

Line 3 indicated a definite 60 millivolt low centered at station 30 NW and more minor lows at stations 10 NE, 5 SE and 15 SE respectively. Obviously, the SP effects on the western extremity of Line 3 are associated with the pronounced apparent resistivity interface in the same area. Also noted here is a change in the topographic character. Very likely a fairly major fault striking more or less North-South is involved here. The other SP lows may partly correlate with structure and/or very weak oxidizing sulfide effects or other causes such as topography. In any event, additional detail coverage would be necessary to definitely determine their economic significance if any.

CONCLUSIONS

Resistivity data on Lines 1 and 2 are quite similar in that they both have a zone of high resistivities at depth and a shallow resistivity low. These resistivity effects are shifted about 600 ft. apart between the lines, indicating that the same source is present on both lines, and striking approximately N. 40° W and perhaps on through the ridge near the NE corner of Section 32.

The PFE's on Lines 1 and 2 show weak anomalism and, as with the resistivities, the anomalous effects are shifted about 600 ft. apart on the ground. Line 1 has the slightly higher PFE's. That may be due to slightly less alteration on Line 1 than on Line 2, perhaps owing to the differences in elevation but, this is purely speculative and, of course, there could be a number of other reasons as well.

The SP data do not indicate an actively oxidizing - strong sulfide environment. However, some narrow veins or veinlets of sulfide cannot be ruled out completely by any of the geophysical results obtained herein.

The associated weak PFE - high resistivity anomalies on both lines, suggests a N. 40° W striking zone of weak disseminated sulfide perhaps containing slightly more silica than the adjacent rocks on either side of the zone. If more geophysics were to be used to check out this zone further, obviously, on IP line run N. 50° E and centered at station 7.5 SE on Line 2 would be helpful. Such a line should probably utilize 400 ft. dipoles.

The strong resistivity interface and associated SP anomaly on the western extremity of Line 3 data are indicative of evident faulting - probably the younger volcanics and/or alluvium down-faulted on the west relative to the generally more dense and crystalline Precambrian rocks on the east. The very weak PFE anomalism registered on the east half of Line 3, if real, may be simply indicative of a slightly higher sulfide background in the Precambrian rocks which underly the

major eastern portion of the line and especially at the greater depths.

In reference to follow up drilling considerations to test any of the IP anomalism mentioned in this report please refer to the appended sheet titled: On Drilling of IP Anomalies.

Respectfully submitted,
Heinrichs GEOEXploration Company (Inc.)

Mark E. Anders, Geophysicist

Approved:

By: Walter E. Heinrichs, Jr., President
Geol. Engr. & Geophysicist, P.E. & C.P.G.S.

(602) 623-0578
810 West Grant Road
P. O. Box 5964
Tucson, AZ 85703

Job # 1681

HEINRICHS GEOEXPLORATION COMPANY

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

February 15, 1984

Mr. Allan V. Moran, Senior Geologist
Freeport Exploration Company
P. O. Box 1911
Reno, Nevada 89505

Re: Liberty Mine Project
Mohave County, AZ
GEOEX #1681

Dear Allan:

Here is your Liberty Mine Project report in triplicate. Trust this will be enough copies for right now. Also enclosed is our final statement.

I don't want to make too much of it, but we did conclude a tiny bit more of possible sulfide than I had originally indicated to you over the phone as seen in the uncompiled raw data. I don't know if this is the sort of thing you may have wanted to test for or not and, will be interested to learn if you are aware of any coinciding or parallel geology. I do not recall noting anything prominently evident on the (surface) ground but the topo could be vaguely supportive. At least there are a couple of ravines to the NE that are somewhat parallel. Anyway we hope you are able to make worthwhile use of the results.

Naturally, we welcome any questions you may have at any time and I hope your project progresses well. Please let us know whenever we might be able to be of further assistance.

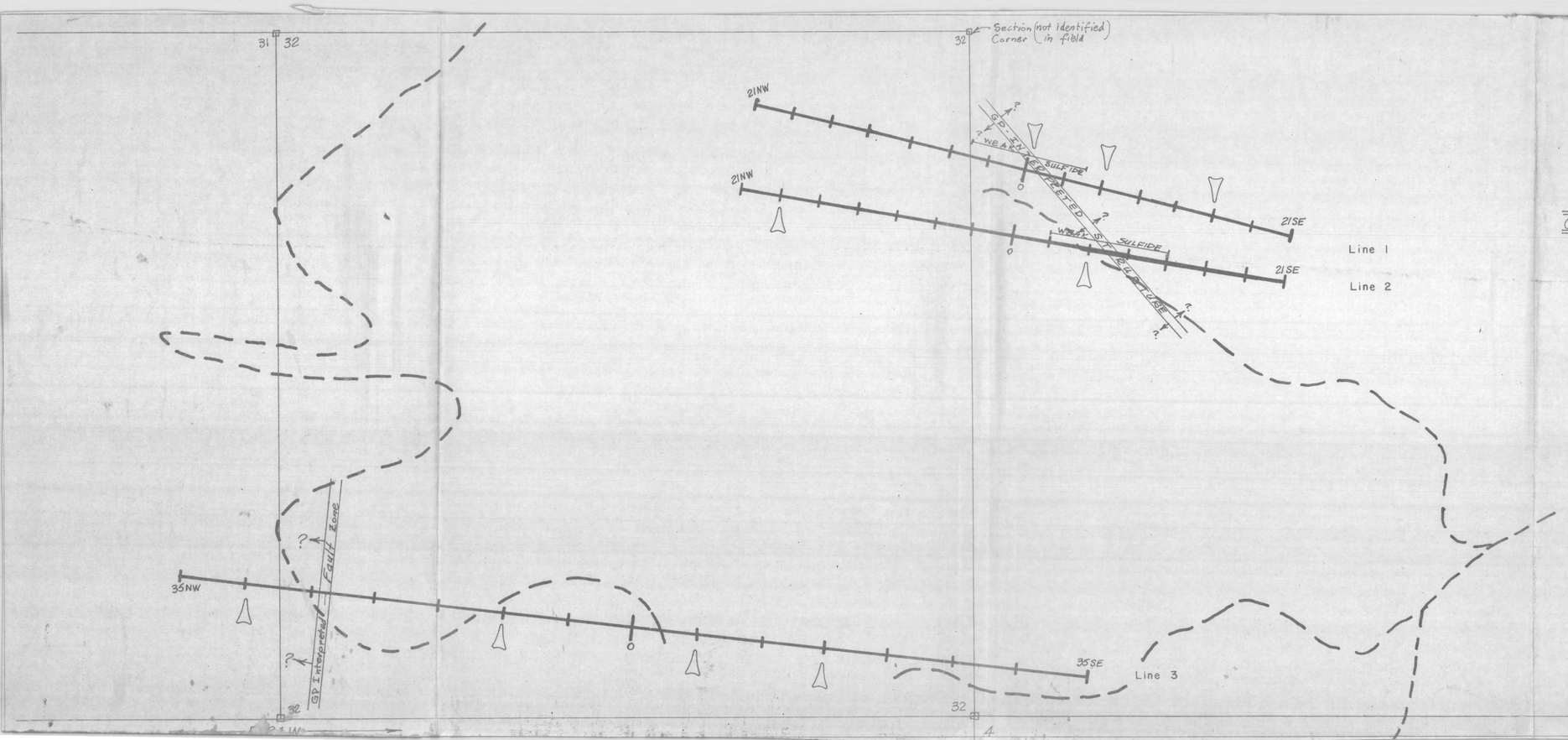
Sorry we missed you in the field and trust the family are all recouperating well by now.

Regards,
Heinrichs GEOEXploration Co.

Walter E. Heinrichs, Jr.

WEH/jh

Enclosures: As listed.



GEOPHYSICAL LOCATION & INTERPRETATION PLAN

Liberty Mine Project
Mohave Co., Ariz.
for
Freeport Exploration Co.

P.O. Box 1911
RENO, NEVADA 89505

JAN.-FEB 1984

by

HEINRICHS GEOEXPLORATION CO.
P.O. Box 5964
TUCSON, ARIZONA 85703
GEOEX #1681

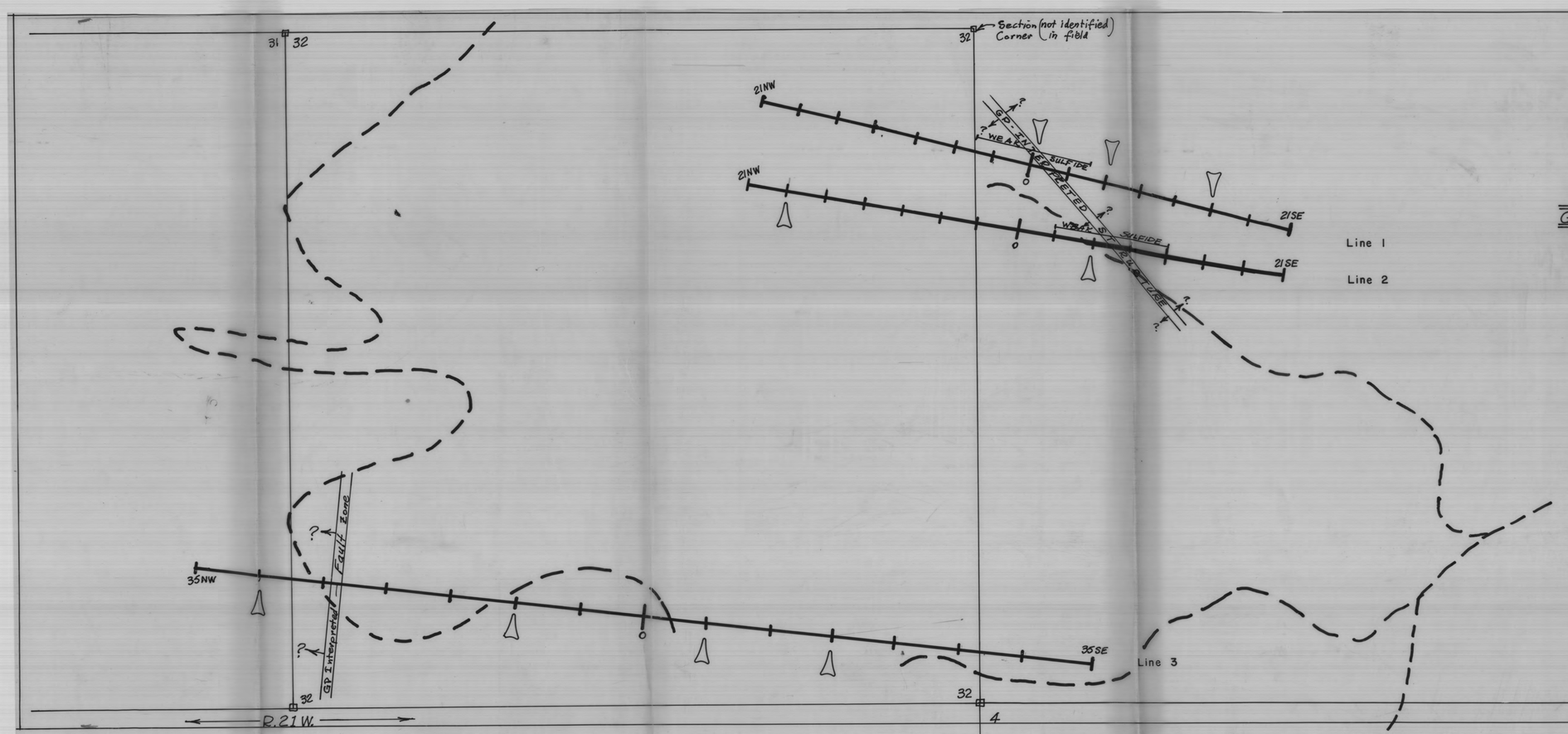
- Access Roads
- Self Potential Lows

0 500' 1000' 1500'

N

Note: Base map provided by Freeport

T.27N.
T.26N.
R.21W



GEOPHYSICAL LOCATION & INTERPRETATION PLAN

Liberty Mine Project
Mohave Co., Ariz.
for
Freeport Exploration Co.

P.O. Box 1911
RENO, NEVADA 89505

JAN.-FEB 1984

by

HEINRICHS GEOEXPLORATION CO.
P.O. Box 5964
TUCSON, ARIZONA 85703
GEOEX #1681

- Access Roads
- Self Potential Lows

0 500' 1000' 1500'

N

Note: Base map provided by Freeport

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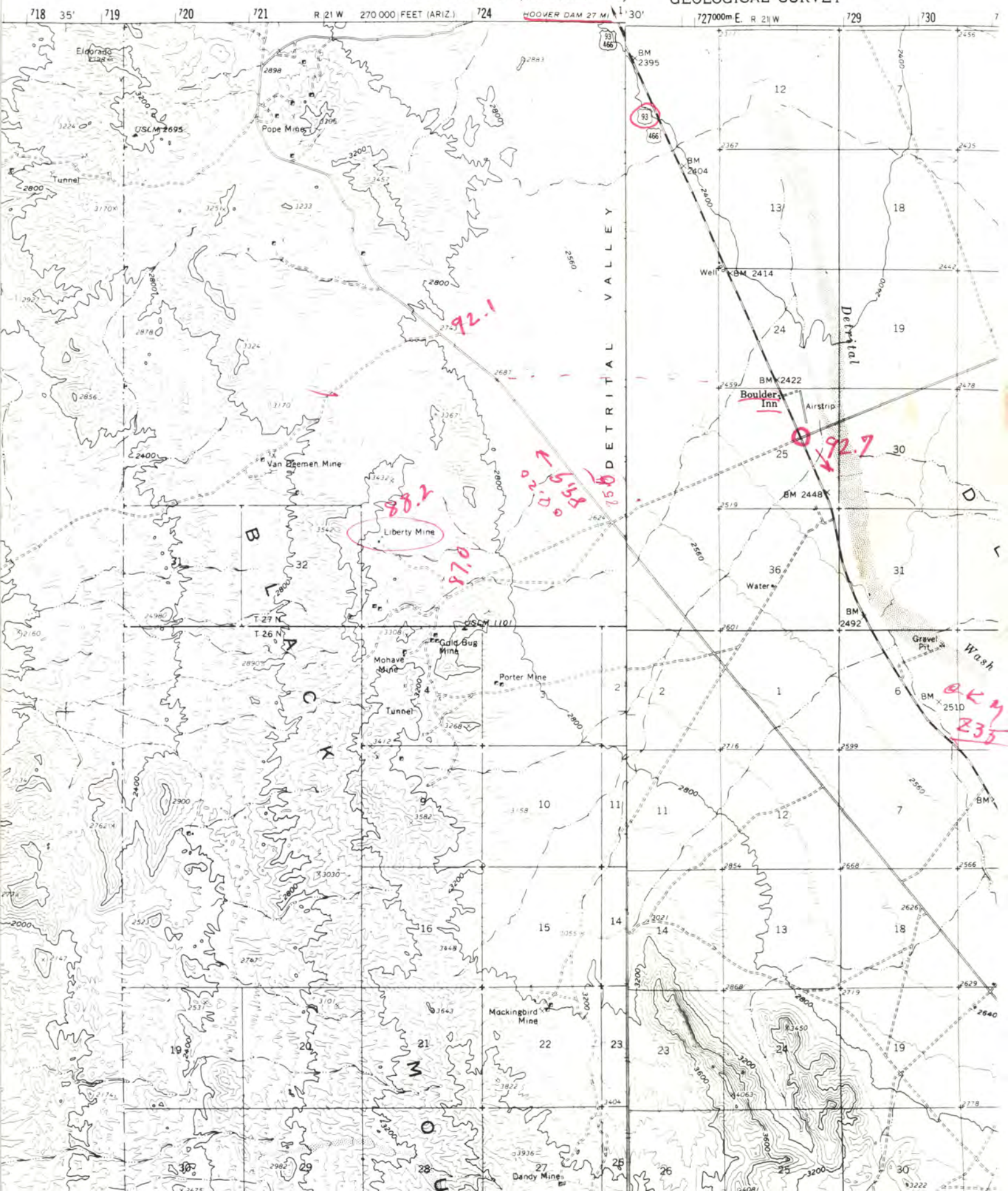
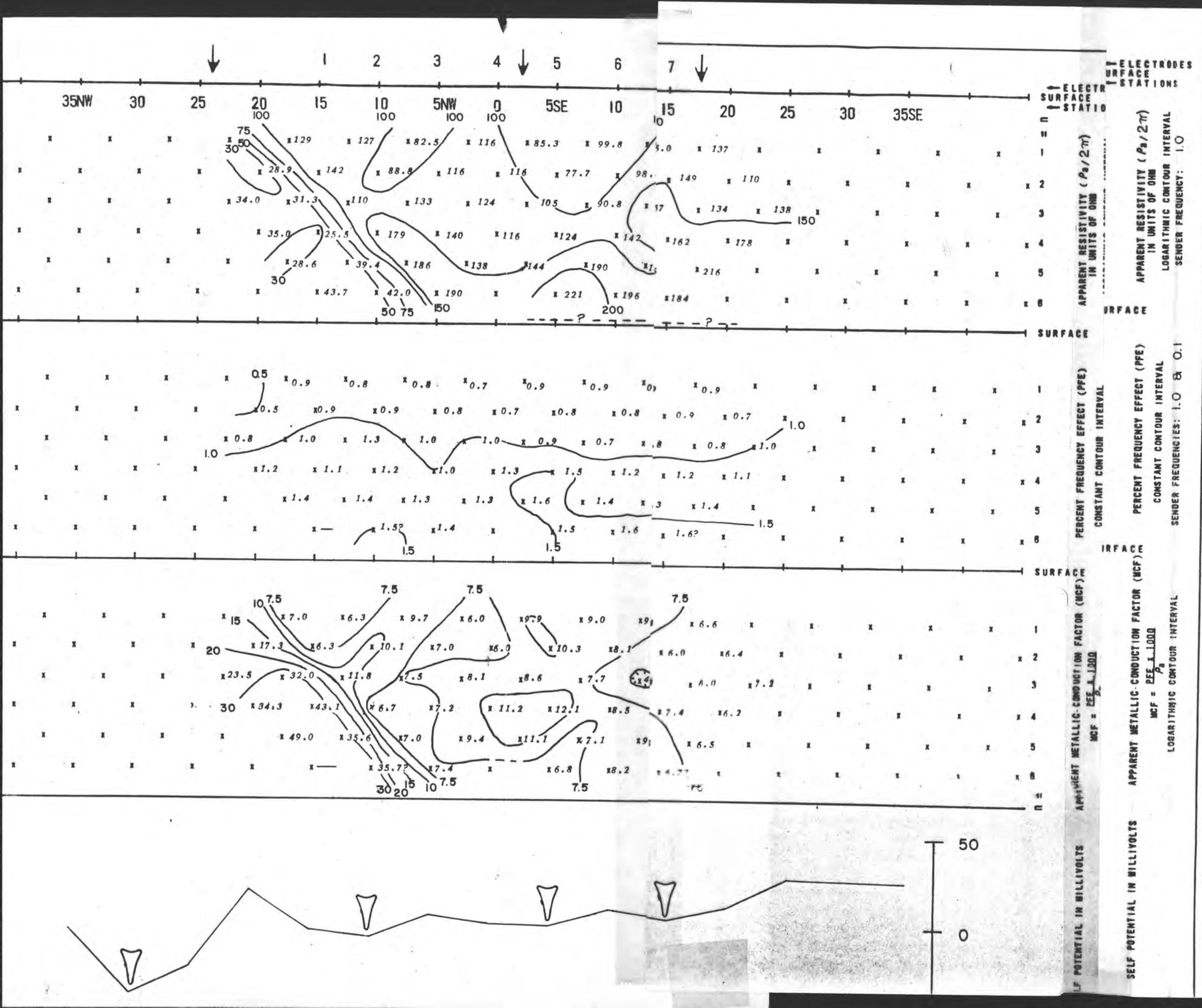
MT. PERKINS QUADRANGLE
ARIZONA–NEVADA
15 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY





INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

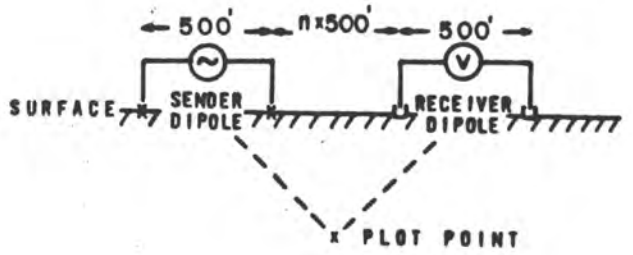
Section 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



for

Freeport Exploration Co.

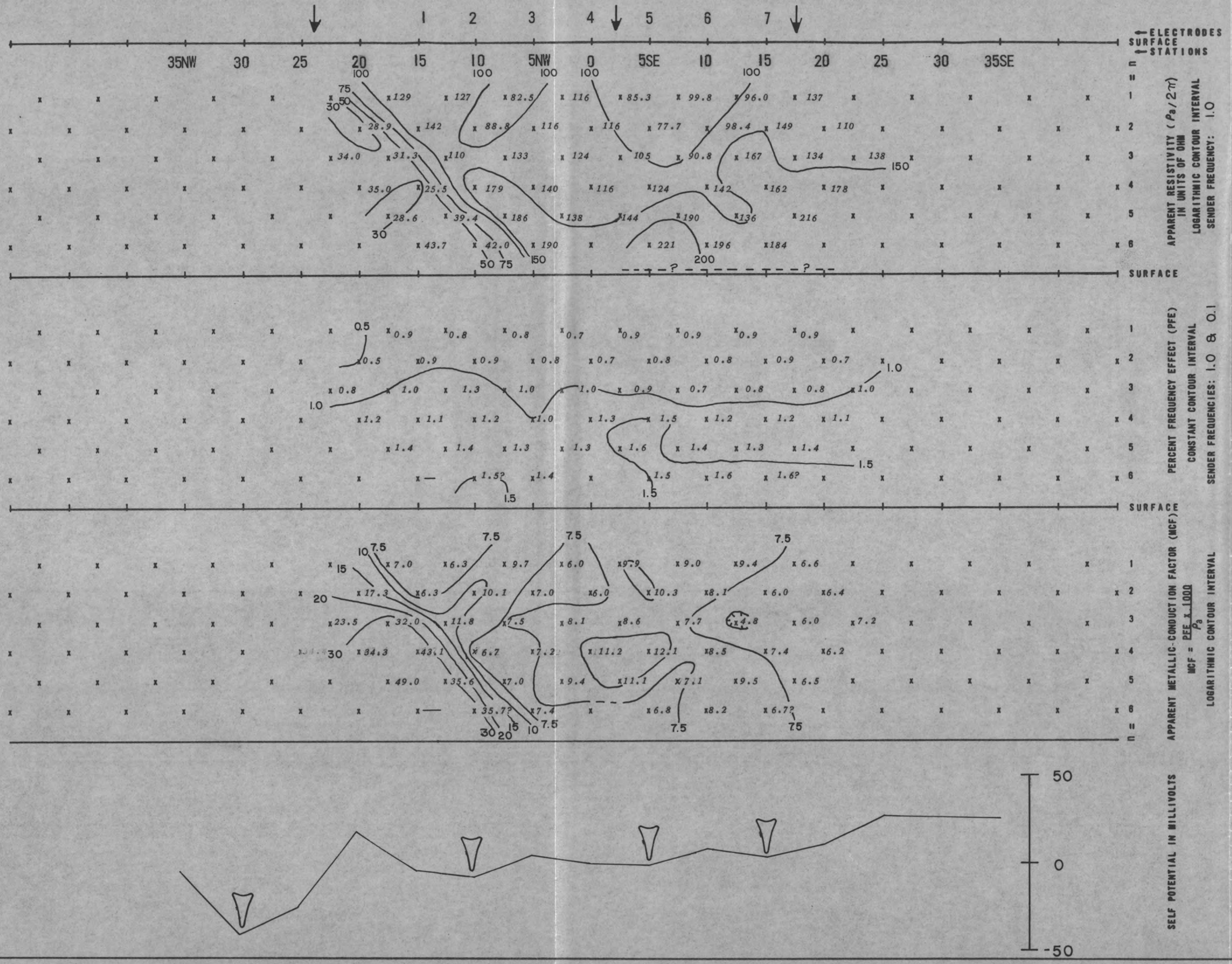
SP Low
Resistivity interface

DATE

February 1984

Job # 1681

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



LINE NO. 3
SPREAD(S) I
BEARING N83W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

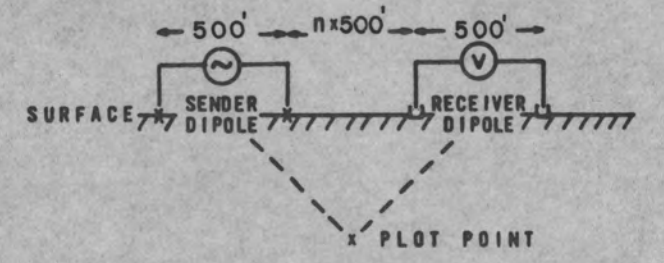
Section 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



for

Freeport Exploration Co.

SP Low
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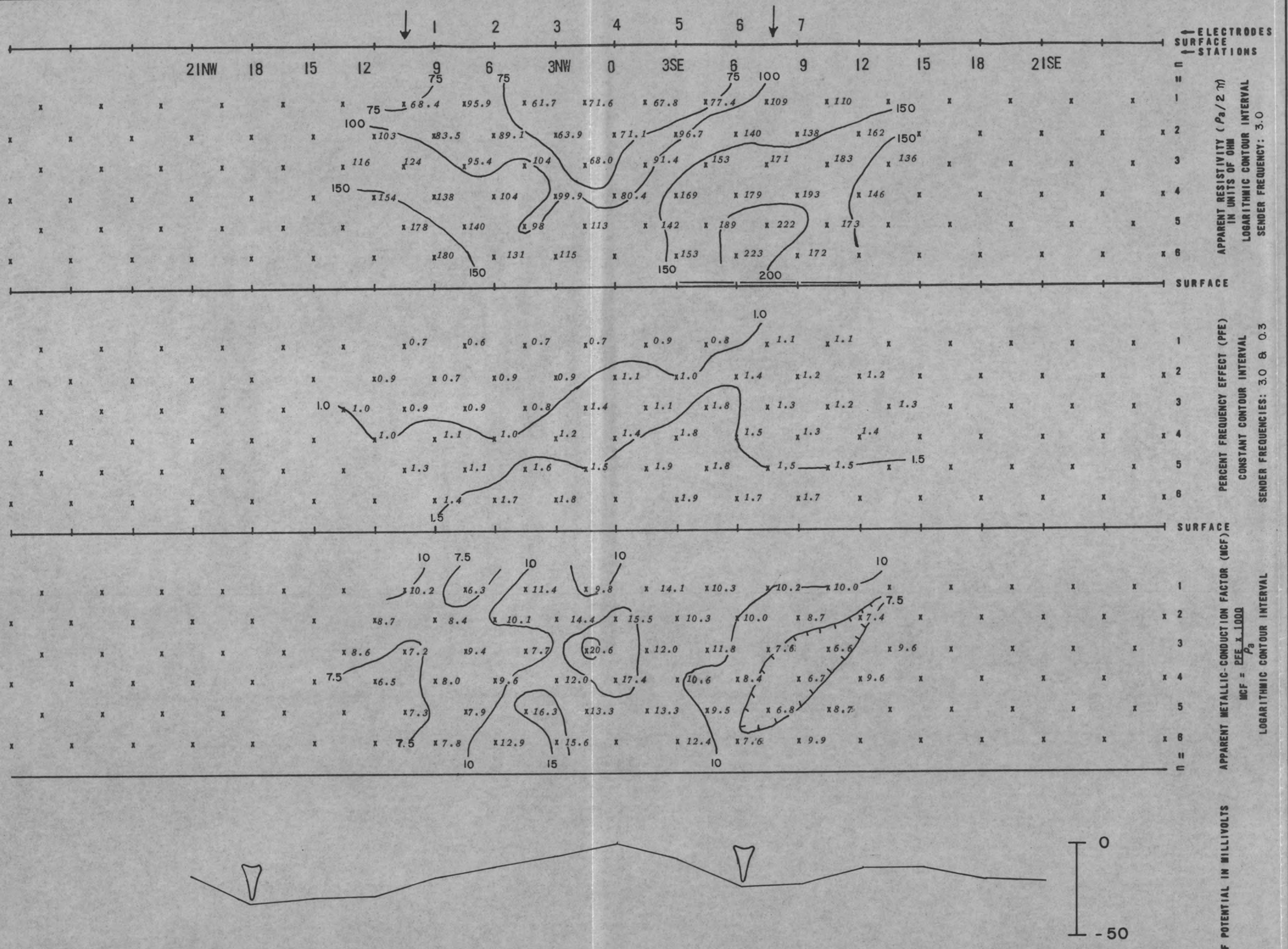


LINE NO.
2
SPREAD(S)
I
BEARING
N80W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

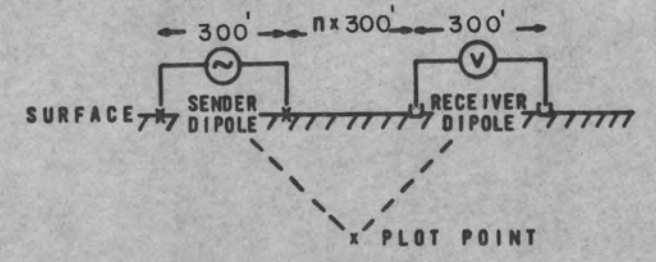
Section 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



for

Freeport Exploration Co.

SP Low

Resistivity interface

DATE

February 1984

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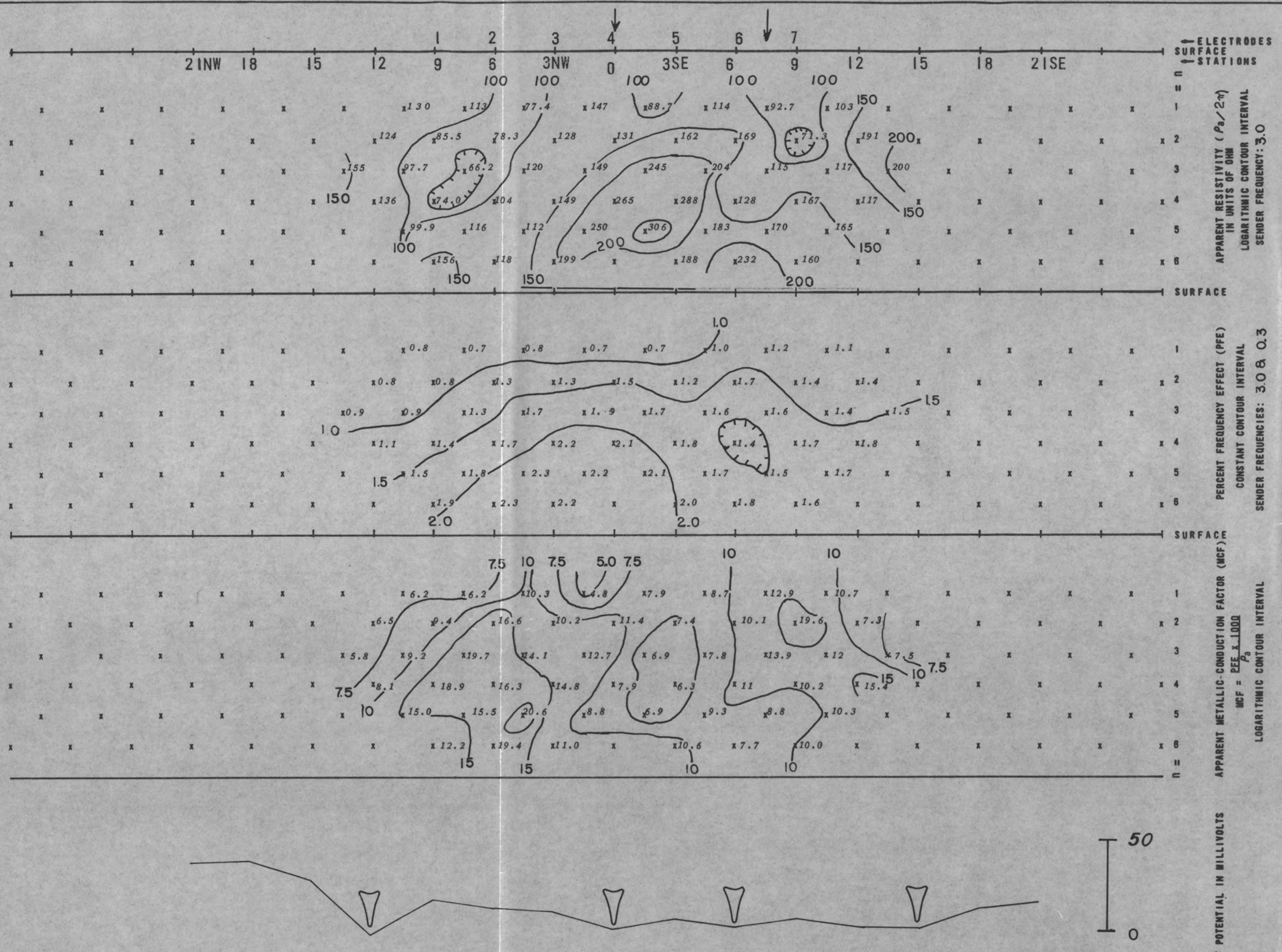


LINE NO.
|
SPREAD(S)
|
BEARING
N75W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

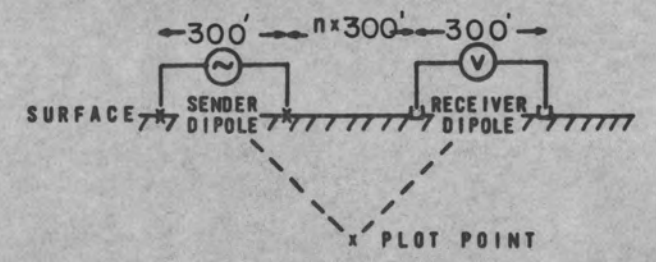
Sections 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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SP Low

Resistivity interface

DATE

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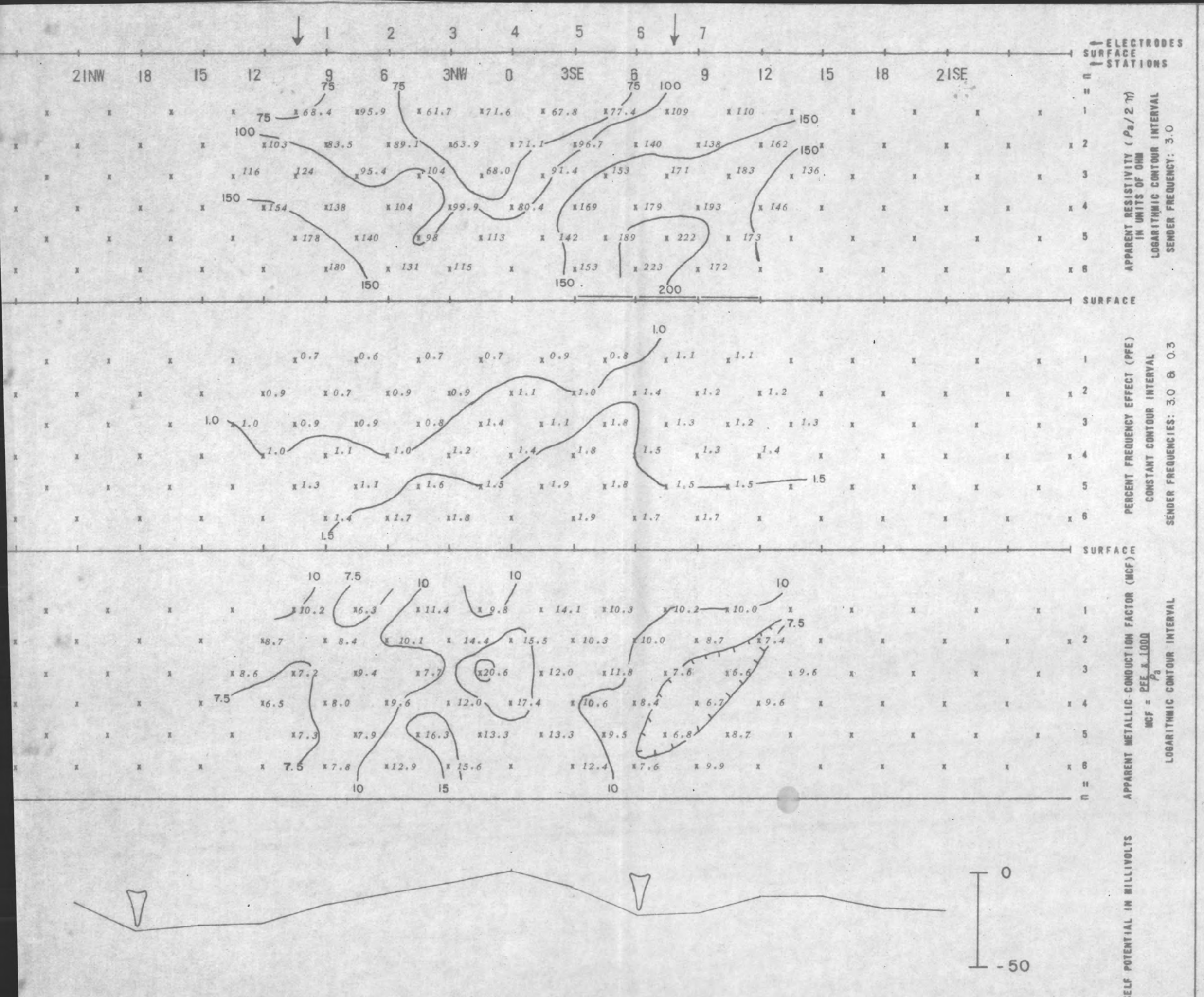


LINE NO.
2
SPREAD(S)
I
BEARING
N80W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

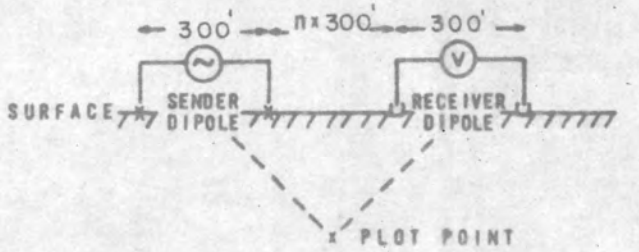
Section 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



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SP Low

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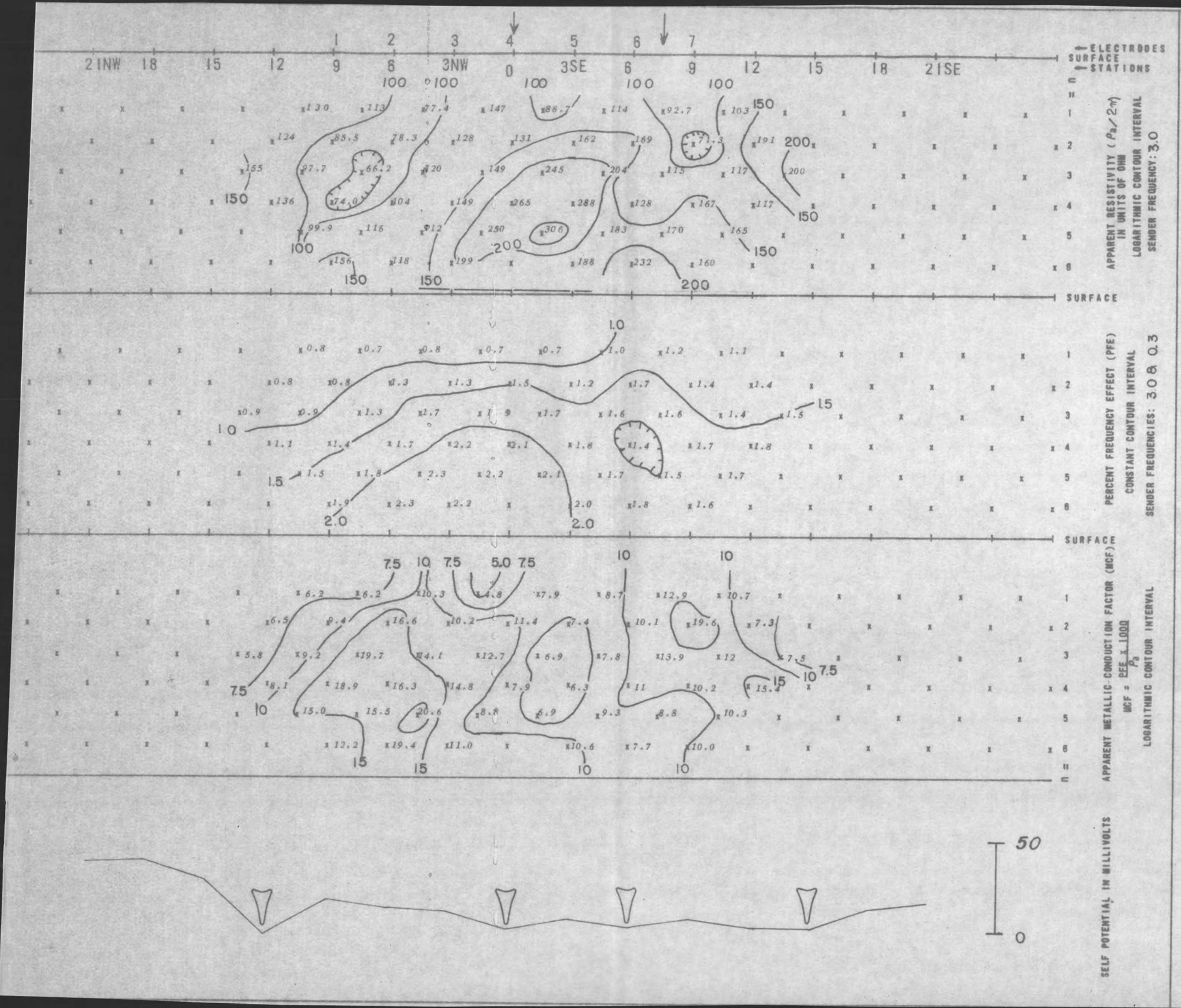


LINE NO.
I
SPREAD(S)
I
BEARING
N75W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

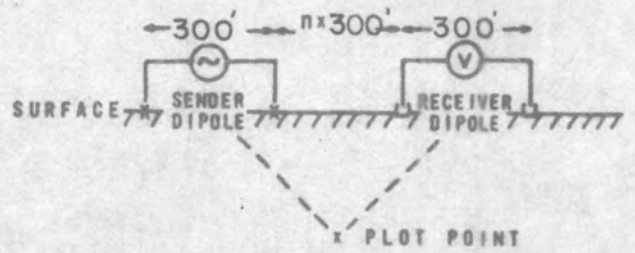
Sections 31,32,33 of T.27N. and R.21W.

Mohave County, Arizona

RELATIVE ANOMALY STRENGTH

VERY WEAK | WEAK | MODERATE | STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



for

Freeport Exploration Co.

SP Low

Resistivity interface

DATE

February 1984

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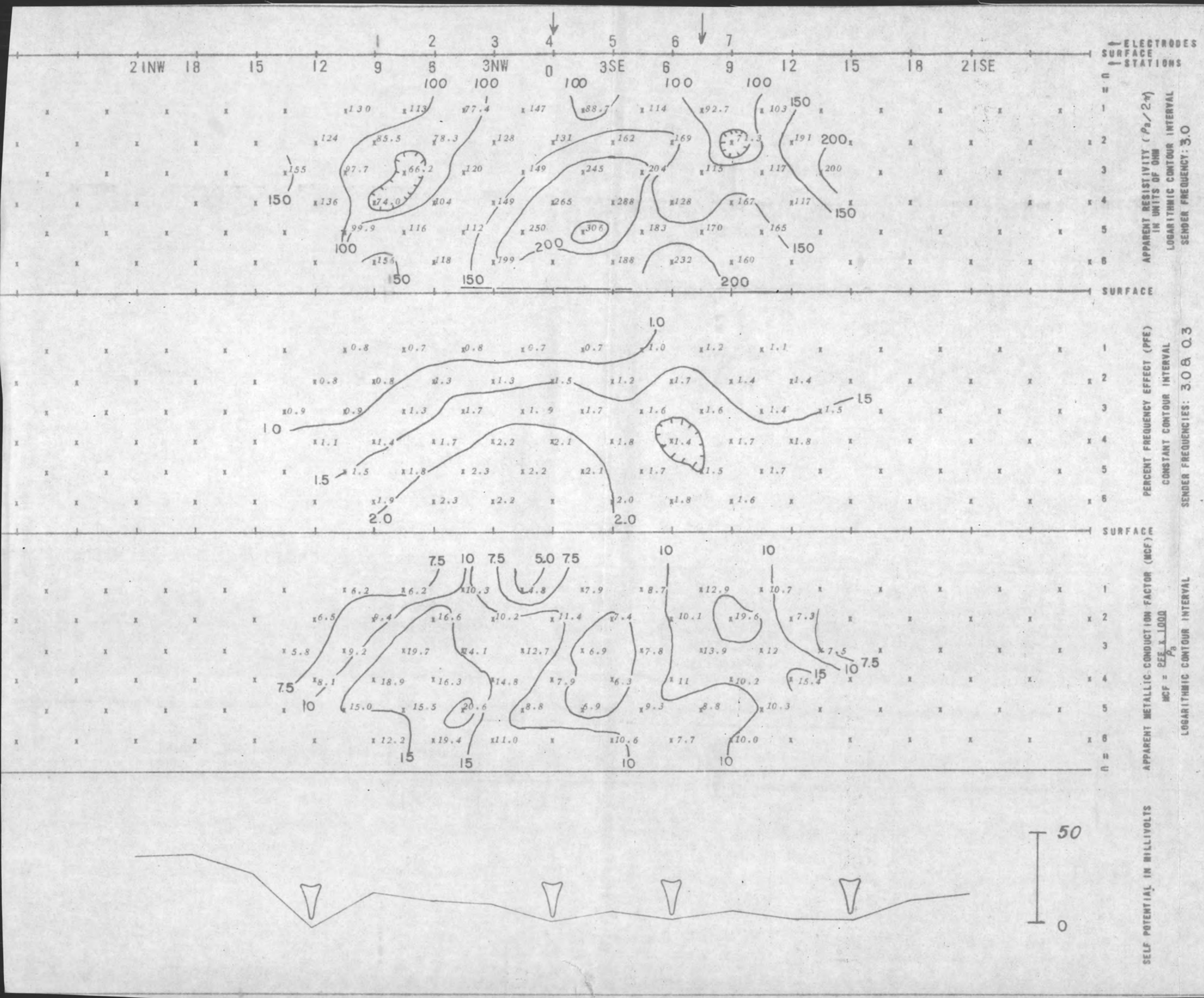


INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of

LIBERTY MINE AREA

Sections 31, 32, 33 of T.27N. and R.21W. -

Mohave County, Arizona

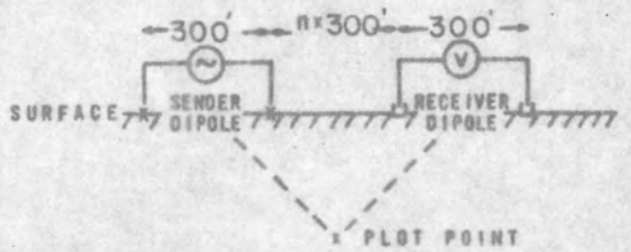
SPREAD FIVE 1 BEARING N75W

LINE 1

RELATIVE ANOMALY STRENGTH

VERY WEAK WEAK MODERATE STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



for

Freeport Exploration Co.

SP Low

Resistivity interface

DATE

February 1984

Job # 1681

HEINRICHS GEOEXPLORATION COMPANY

806 W. GRANT ROAD, POST OFFICE BOX 5984, TUCSON, ARIZ., 85703. PHONE: (602)623-9578

HEINRICHS GEOEXPLORATION COMPANY

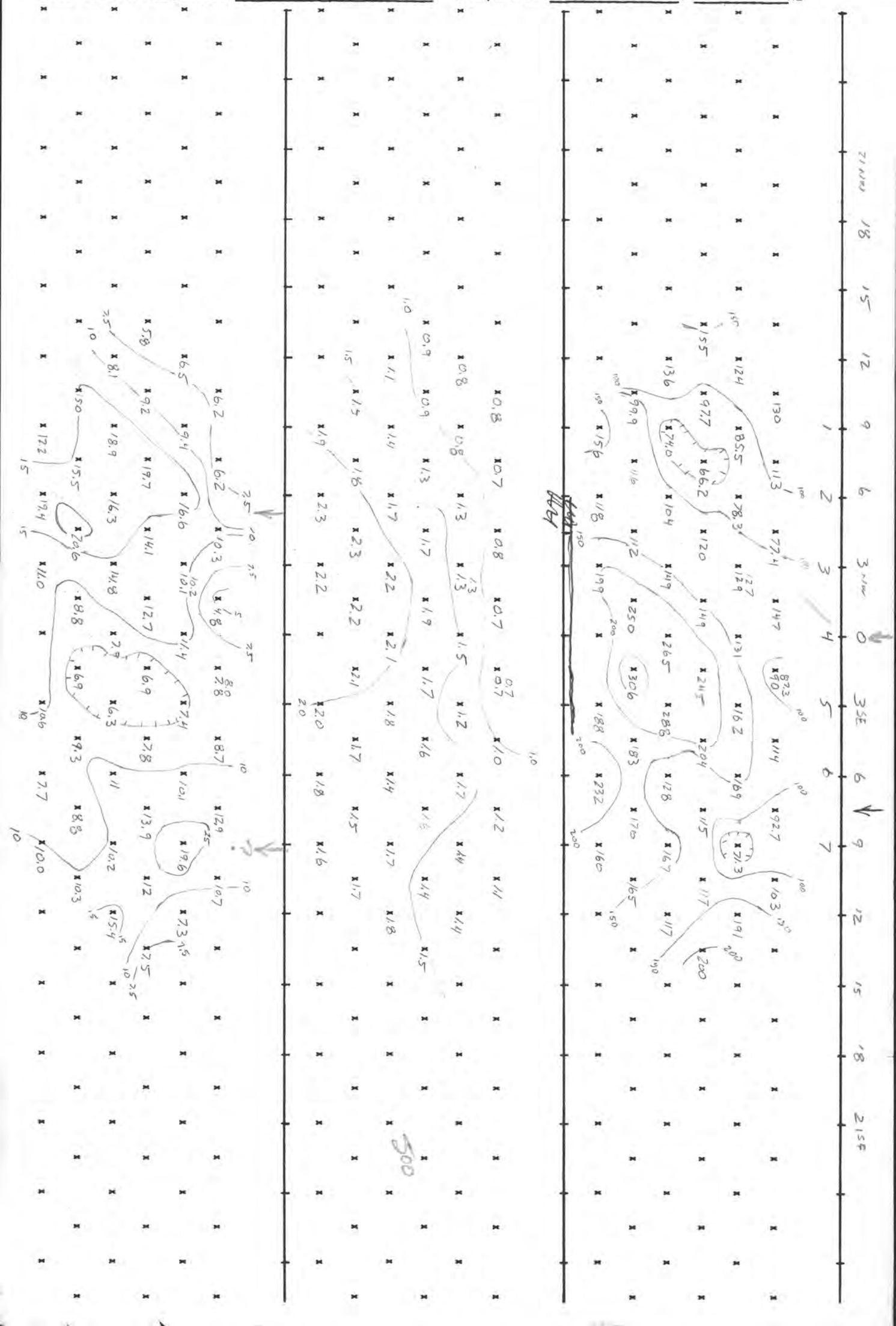
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

JOB # 1681 CLIENT Freeport

DATE 1/26/84 AREA Liberty Mine

LINE# 1 SP 1 a= 300' BEARING N 75 E

RESISTIVITY FREQUENCIES 3.0 FREQUENCIES 3.0 & 0.3 Hz



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

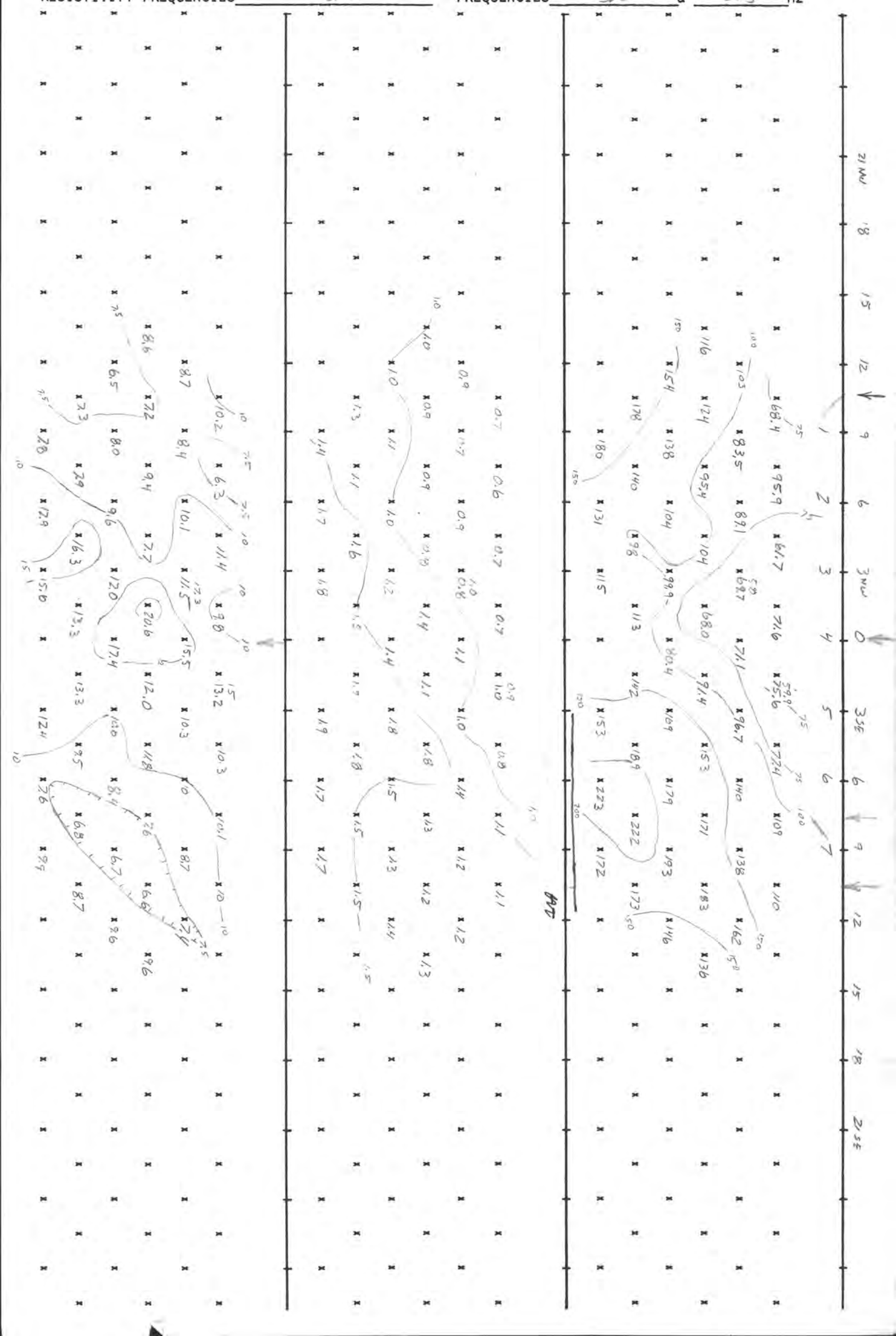
JOB # 1681 CLIENT Freeport

DATE 1-27-84 AREA Liberty Mine

LINE# 2 SP 1 a= 300' BEARING N80W

RESISTIVITY FREQUENCIES 3.0

FREQUENCIES 3.0 & 0.3 Hz



HEINRICHS GEOEXPLORATION COMPANY

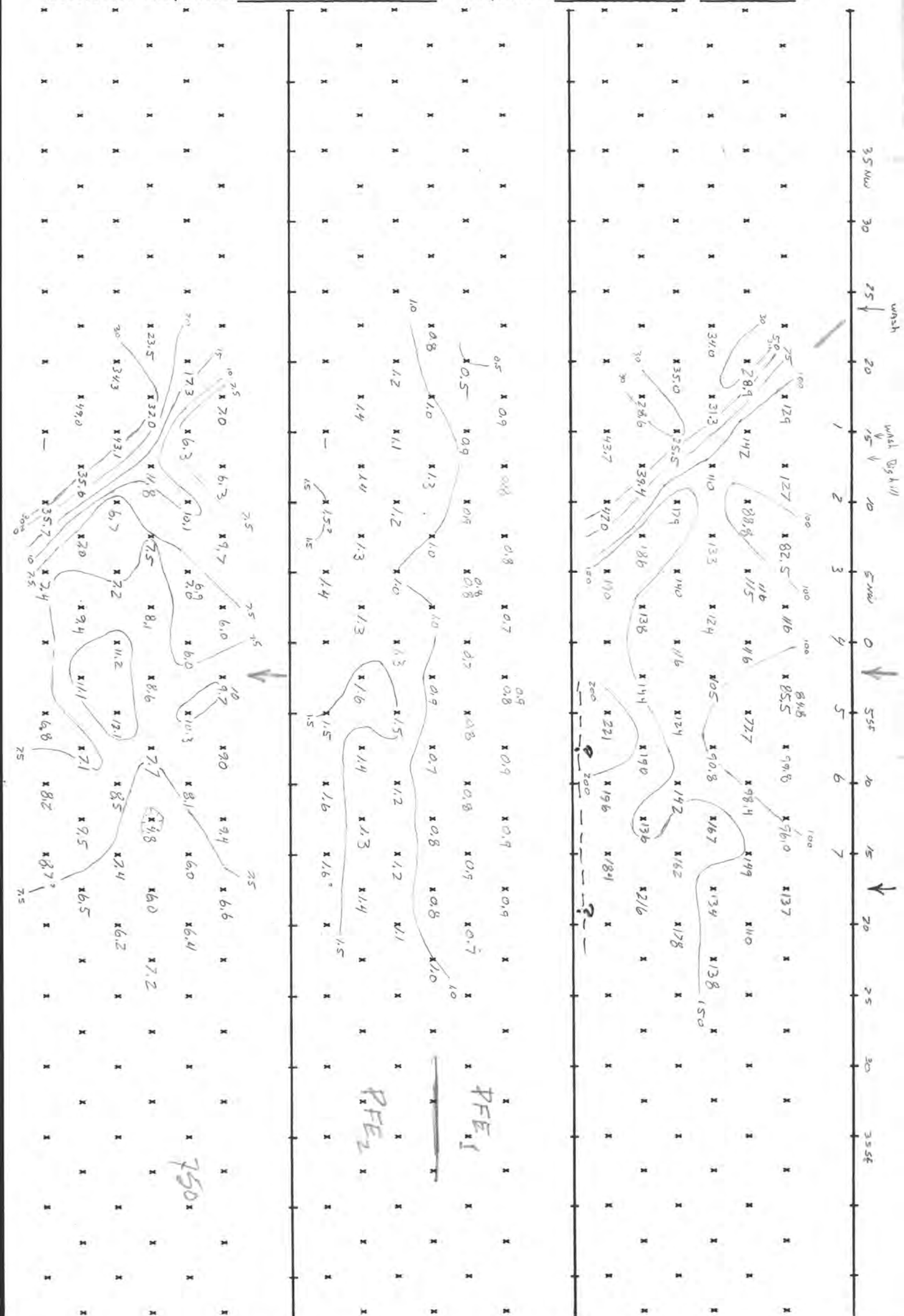
806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

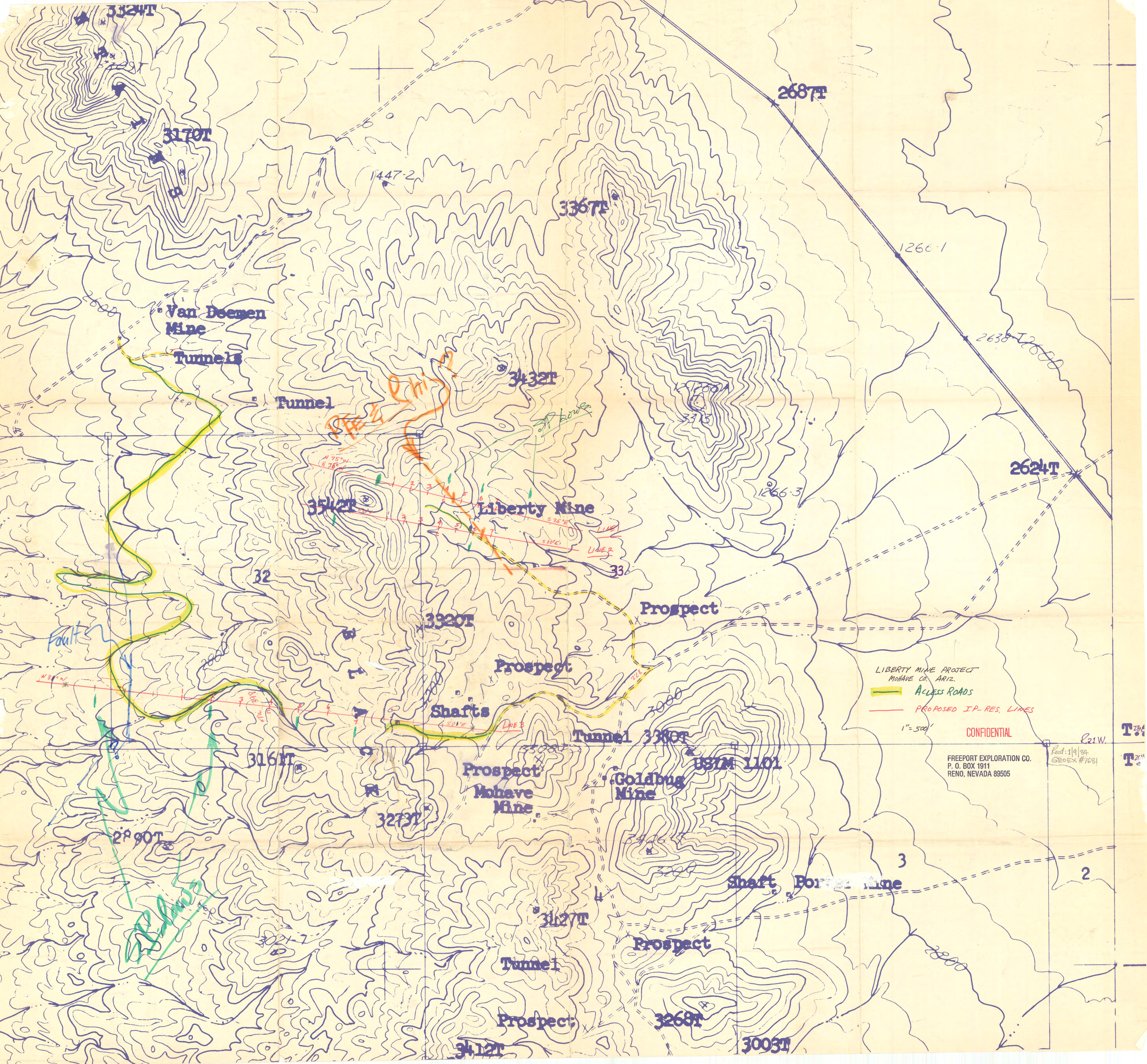
JOB # 1681 CLIENT Freeport

DATE 1/28/84 AREA Liberty Mine

LINE# 3 SP 1 a= 500' BEARING N83W

RESISTIVITY FREQUENCIES 1.0 FREQUENCIES 1.0 & 0.1 Hz



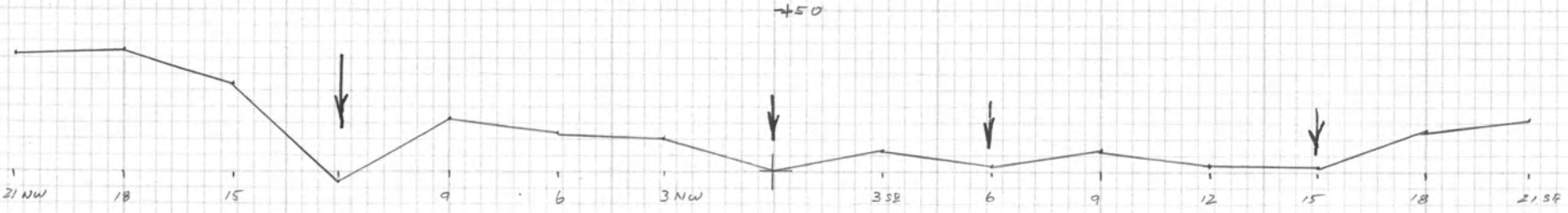


3324T
3170T
1447-2
3367T
2687T
1266-1
2638-T
Van Doemen Mine
Tunnels
Tunnel
3432T
3542T
Liberty Mine
1266-3
2624T
32
33
Prospect
3320T
Prospect
Shafts
Tunnel 3380T
USLM 1101
3161T
Prospect
Mohave Mine
Goldbug Mine
3273T
2890T
Shaft Porter Mine
3427T
Prospect
Tunnel
Prospect
3268T
3412T
3003T
Fault
LIBERTY MINE PROJECT
MOHAVE CO. ARIZ.
ACLESS ROADS
PROPOSED IP-RES. LINES
1"=500'
CONFIDENTIAL
FREEPORT EXPLORATION CO.
P. O. BOX 1911
RENO, NEVADA 89505
Recd: 1/9/84
GEOEX #1681
R.21 W.

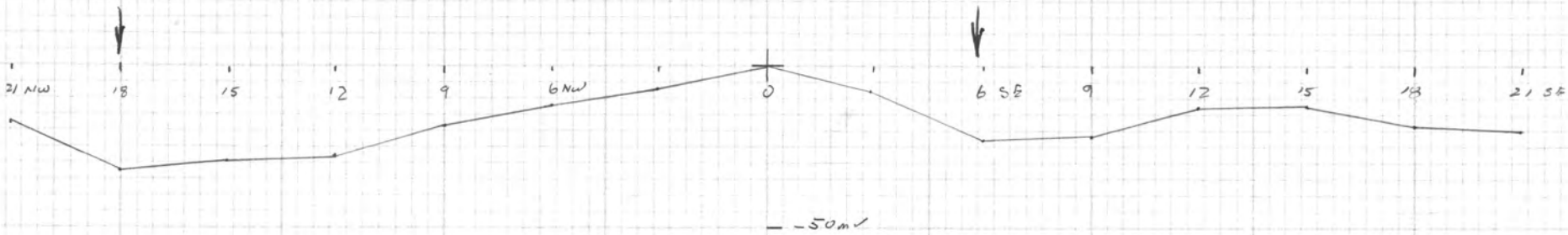
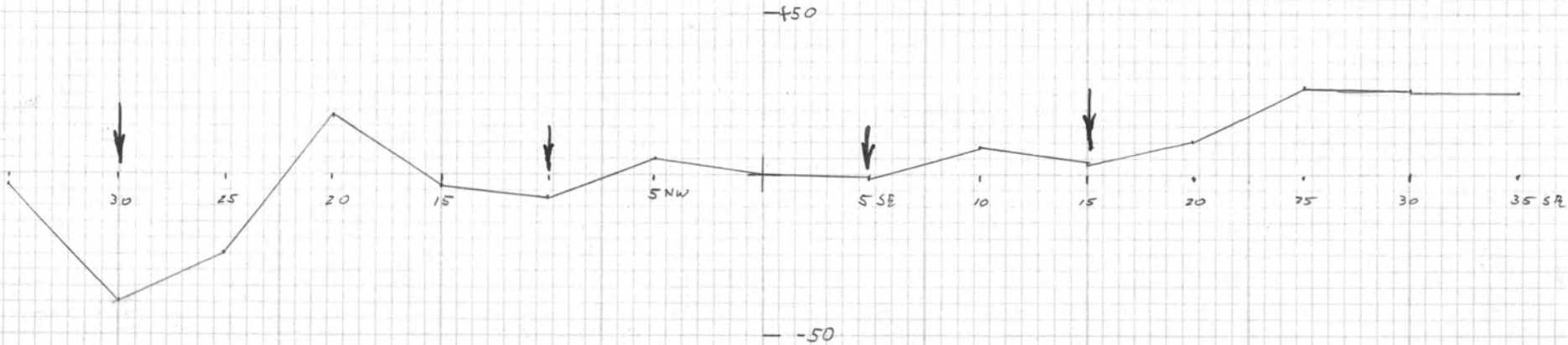
Liberty Mine

1681

Line 1 a = 300



Line 2 a = 300



Line 3 a = 500