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.

INDUCED POLARIZATION SENDER NOTES

Project: Big Jim Line: S 1/2 #1 (500) Date: 8-22-64

Send	2-3	1 2	3 4	2 3	1 2	4-5	3 4	2 3	1 2	4 5	3 4	2-3
Receive	→	→	→	→	→	→	→	→	→	→	→	●
Time												
Range	2X800	2X400	2X1000	2X800	2X400	2X1000	2X1000	2X800	2X400	2X1000	2X1000	2X800
Current	1600	800	2000	1600	800	2000	2000	1600	800	2000	2000	1600

Send	1 2	4 5	3 4	2 3	1 2			CAL				
Receive	→	→	→	→	→			2X10				
Time												
Range	2X400	2X1000	2X1000	2X800	2X400			3X100				
Current	800	2000	2000	1600	800			300				

INDUCED POLARIZATION SENDER NOTES

Project: Big Jim Line: N-1/2 #1 Date: 8-21-64

Send	3/4	4/5	2/3	3/4	4/5	1 2	2 3	3 4	4 5	1 2	2 3	3 4
Receive	N	→	N		→	N			→	N		
Time												
Range	2x800	2x800	2x800	2x800	2x800	2x400	2x800	2x1000	2x1000	2x400	2x800	2x1000
Current	1600	1600	1600	1600	1600	600	1600	2000	2000	800	1600	2000
Send	4-5	1 2	2 3	3 4	4 5			CAL	3x100			
Receive	→	N			→				300			
Time												
Range	2x1000	2x400	2x800	2x1000	2x1000							
Current	2000	800	1600	2000	2000							

4-5	3-4	2-3	1-2
2000	2000	1600	800

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Big Jim Insp. Line: 1 (500) N/2 Int.Cal Date: Aug 22 69

Send	3-4	4S	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Rec.	1-2N →		2-3N	→		3-4N	→			4-5N	→	
Time	100	30	100	30	10	100	30	30	10	30	10	10
DC-1	68.0 67.0	13.6	34.5	15.7	5.2 4.95	56.1 55.0	12.7 12.9	9.6 9.6	3.65 3.90	14.6	5.4 5.4	4.35 4.55
DC-2	67.5 67.0	13.3	35.0	16.4	5.1 5.0	56.1 55.0	12.8 13.0	9.5 9.6	3.75 3.90	14.9	5.4 5.3	4.50 4.45
Σ	134.5	26.9	69.5	32.1	10.15 10.1	111.1	25.6 25.8	19.2 19.1	7.55 7.65	29.5	10.8 10.7	8.90 8.95
DC-3	67.5	13.6	34.5	15.7	4.91 5.0	56.0 55.0	12.8	9.7	3.90 3.75	14.5	5.35 5.25	4.55 4.65
Dc-4	67.0	13.3	35.0	16.4	5.0 5.0	56.0 55.0	13.0	9.5	3.80 3.85	14.8	5.35 5.40	4.51 4.50
Σ	134.5	26.9	69.5	32.1	10.00 10.0	111.0	25.8	19.2	7.65 7.75	29.3	10.80 10.75	9.00 9.05
DC-AV	134.5	26.9	69.5	32.1	10.0	111.05	25.7	19.2	7.65	29.4	10.75	8.97
AC-1	61.0	12.1	32.0	14.3	4.6	51.0	11.4	8.5	3.4	12.9	4.65	3.90
AC-2	61.0	12.0	32.0	14.3	4.6	51.0	11.4	8.4	3.5	13.0	4.65	3.90
Σ	122.0	24.0	64.0	28.6	9.2	102.0	22.8	16.9	6.9	25.9	9.30	7.80
S. P.	12.7	-13.2	-25.7		-31.0	49.5			-44.0	-85.5		
AC-N	.061		.08		.08 sat .04 AV				.04	.04		
	56.0								55.5			

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: _____ Line: 1 (500) N½ Int.Cal _____ Date: _____

Send	4-5	1-2	2-3	3-4	4-5		CAL -					
Rec.	→	5-6N	→	→	→		2-3					
Time	3.0	3.0	3.0	3.0	1.0		30					
DC-1	1.97 2.06	2.98 2.93	1.42 1.48	1.30 1.38	.64 .67		15.4 15.3					
DC-2	2.0 2.03	2.95 2.96	1.43 1.52	1.40 1.37	.65 .65		15.3 15.3					
Σ	4.03 4.03	5.91 5.91	2.90 2.95	2.76 2.77	1.31 1.30							
DC-3	2.0 2.05	2.95 2.96	1.44 1.46	1.37 1.36	.65 .64		15.3 15.3					
Dc-4	1.94 2.15	2.93 2.98	1.46 1.43	1.40 1.36	.68 .63							
Σ	4.05 4.09	5.91 5.91	2.98 2.90	2.73 2.76	1.39 1.31							
DC-AV	4.06	5.91	2.97	2.75	1.30		30.6					
AC-1	1.77	2.6	1.25	1.16	.59		15.2					
AC-2	1.76	2.58	1.25	1.16	.59		15.2					
Σ	3.53	5.18	2.50	2.32	1.18		30.4					
S. P.	-79.7	-66.0			-67.0							
AC-N	.04-.04	.02			.02							
	55.0				55.0							

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Big Jim Line: 1 - 5 ½ (500') Int.Cal _____ Date: Apr 22

Send	3-2	2-1	4-3	3-2	2-1	5-4	4-3	3-2	2-1	5-4	4-3	3-2
Rec.	1.0s	→	2.3s	—	→	3-4s	—	—	→	4-5s	—	—
Time	100	10	100	30	10	100	30	10	3.0	30	10	3.0
DC-1	37.5	6.8 6.9	64.0	12.4 11.6	3.5 3.75	40.0 39.5	14.3 13.8	3.6 3.25	1.09 1.35	9.0 8.6	4.85 5.0	1.65 1.64
DC-2	37.5	6.4 6.4	64.0	12.4 11.6	3.35 3.75	40.0 39.8	14.3 13.8	3.6 3.25	1.07 1.36	9.1 8.6	4.9 5.0	1.64 1.65
Σ	75.0	13.7 13.3	128.0	24.0 24.0	3.35 3.0	79.5 79.3	28.1 28.1	6.85 6.75	2.44 2.43	17.6 17.7	9.85 9.9	3.29 3.29
DC-3	37.0	6.85 6.4	64.5	12.4	3.75	40.0 39.8	14.3 13.8	3.61 3.20	1.06 1.32	9.2 8.5	4.90 5.0	1.64
Dc-4	37.5	6.85 6.85	64.5	11.6	3.5	39.8 40.0	14.3 13.8	3.62 3.21	1.03 1.40	9.2 8.5	5.0 4.95	1.65
Σ	74.5	13.75 13.5	129.0	24.0	7.30	79.8		6.81 6.82	2.43 2.43	17.7 17.7	9.90 9.95	3.29
DC-AV	75.0	13.75	128.5	24.0	7.32	79.8	28.1	6.83	2.43	17.7	9.90	3.29
AC-1	33.5	6.15	58.5	10.7	3.3	37.0	12.7	3.15	1.14	8.3	4.55	1.54
AC-2	33.5	6.15	58.5	10.7	3.28	37.0	12.7	3.15	1.14	8.3	4.55	1.53
Σ	67.0	12.30	117.0	21.4	6.58	74.0	25.4	6.30	2.28	16.6	9.10	3.07
S. P.	-3.0	-1.6	-1.0		-.9				-2	.04		
AC-N	.2	.15	.06		-.15				0			
	55.5	55.5			55.0							

2.9	2.9
4.35	4.00
7.25	7.30

.48	1.04
.60	1.02
.42	1.02
.60	1.17
.57	1.13
.56	1.13
.57	1.11
.54	1.04

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: B.S. Line: 1 - 5½ (500') Int.Cal Date:

Send	2-1	5-4	4-3	3-2	2-1		CAL.					
Rec.	→	6-6s	→	→	→		30					
Time	1·0	10	10	3·0	1·0							
DC-1	6·9 6·6	3·25 3·50	2·90 2·60	1·20 1·07			15·3					
DC-2	7·2 6·3	3·25 3·45	2·95 2·55	1·15 1·16			15·3					
Σ	13·5 13·5	6·75 6·70	5·50 5·50	2·27 2·31			30·6					
DC-3	6·9 6·8	3·22 3·50	2·80 2·75	1·15 1·19			15·3					
Dc-4	7·2 6·6	3·20 3·50	2·80 2·25	1·20 1·13			15·3					
Σ	13·8 13·8	6·72 6·70	5·55 5·55	2·84 2·33			30·6					
DC-AV	13·7	6·72	5·52	2·31	1.04							
AC-1	6·65	3·20	2·65	1·11	·55		15·2					
AC-2	6·70	3·20	2·62	1·11	·55		15·2					
Σ	13·35	6·40	5·27	2·22	1·10	?	30·4					
S. P.	-23·5											
AC-N	-·07	·08	→	→	→							
	55·0											

Big Jim – Line #1

R	12 →		235 →			345 →				455 —
S	23	12	34	23	12	45	34	23	12	45
Range	2X1000	2x500	2x1000	2x000	2x500	2x1000	2x1000	2x1000	2x600	
I	2000	1000	2000	2000	1000	2000	2000	2000	1200	2000
K	→			565 →				Cal		
S	34	23	12	45	34	23	12	45		
K										
I	2000	2000	1200	2000	2000	2000				

50.1 46.2

$\rho_{dc} = \frac{Kn(V)}{I}$ 101.

$\frac{3600 \times 50.0}{200}$

$\frac{3}{2} \times 50$

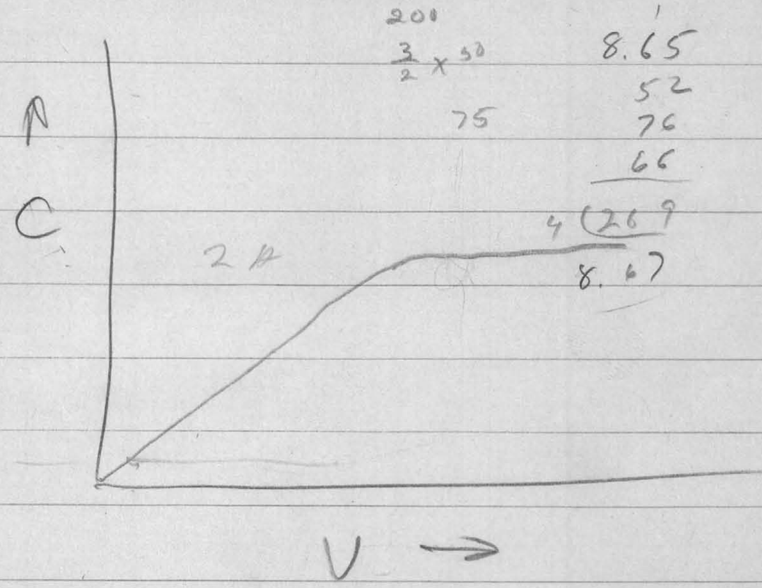
75

8.65
52
76
66
4(26 9
8.67

$\frac{128.1}{1000}$

1005

8.04



30.6 ρc
30.1 ρc
1.8 ρc

INDUCED POLARIZATION SENDER NOTES

Project: Big Lim Line: N½ #1 Date: 8-19-64

Send	34	45	23	34	45	12	23	34	45	12	23	34
Receive	12N →		23N →			34N →				45N →		
Time												
Range	2X1000	2X1000	2X1000	2X1000	2X1000	2X600	2X1000	2X1000	2X1000	2X600	2X1000	2X1000
Current	2000	2000	2000	2000	2000	1200	2000	2000	2000	1200	2000	2000
Send	45	12	23	34	45		CA(2-3					
Receive	→	56N →										
Time												
Range	2X1000	2X600					3X100					
Current	2000	1200	2000	2000	2000		300					

R-3 3 4 4 5

1600 2000 2000

1, N

400

1600

1600

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Big Jim Line 1 5½ Field date 8-18-64 Data page_____ Comp. date 8-8-64 . Comp by KH

(A) Send	23	12	34	23	12	45	34	23	12	45	34	23
(B) Receive	125 →		235 →			345 →				455 →		
(C) n separation	30	10	30	10	3	100	10	10	3	30	10	3
(D) I	2000	1000	2000 →		1000	2000 →			1200	2000 →		
(E) Vdc (avg)	50.1	8.67	36.1	8.95	2.14	73.25	14.95	5.25	2.00	18.6	5.37	2.56
(F) DCcal .983 →												
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρdc=ExFxGx10^3/D	73.2	102	53.1	52.7	63.1	108	88.0	78.6	94.3	110	79.0	75.5
(I) Vac Σ	46.2	8.04	33.6	8.36	2.05	70.40	13.90	4.98	1.91	17.4	5.00	2.38
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.985	.985 →				1.005	.985 →					
(M) ρ dc/ρac=ExL/K	1.068	1.063	1.060	1.056	1.030	1.045	1.060	1.059	1.031	1.052	1.058	1.060
(N) PFE=(M-1)(10^2)	6.8	6.3	6.0	5.6	3.0	4.5	6.0	5.9	3.1	5.2	5.8	6.0
(O) MCF=(M-1)(10^5)/H	92	62	113	106	48	42	68	75	32	47	73	80

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	12	45	34	23	12		C+2					
(B) Receive	→	565 →			→		4-5					
(C) n separation	1	10	3	3	1		10					
(D) I	1200	2000 →			1200		300					
(E) Vdc (avg)	1.025?	10.15	4.24	2.07	1.01?		30.55					
(F) DCcal					→		.983					
(G) Kn x 10^{-3}	105	30	60	105	168							
(H) ρ dc=ExFxGx10^3/D	88.1	150	125	107	135							
(I) Vac Σ	.960	9.42	3.91	1.89	1.01		30.1					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.095	.985 →			1.045		.985					
(M) ρdc/ρac =ExL/K	1.116?	1.061	1.070	1.079	1.045							
(N) PFE=(M-1)(10^2)	11.6?	6.1	7.0	7.9	4.5							
(O) MCF=(M-1)(10^5)/H	132?	41	56	74	32?							

100 K = +2% cal
1 K = +6% cal

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page ____

Project Big Jim Line 1 N½ Field date 8-19-64 Data page ____ Comp. date 8-20-64. Comp by KH+PB

(A) Send	34	45	23	34	45	12	23	34	45	12	23	34
(B) Receive	12N →	→	23N →	→	→	34N →	→	→	→	45N →	→	→
(C) n separation	100	30	100	10	10	30	10	10	3	3	3	1
(D) I	2000 →	→	→	→	→	1200 →	2000 →	→	→	1200 →	2000 →	→
(E) Vdc (avg)	58.5	17.35	72.0	19.1	8.06	53.1	19.15	10.15	5.67	2.95	2.05	1.10
(F) DCcal .980	→	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρ dc=ExFxGx10^3/D	86.0	102	106	112	118	130	112	149	167	289	308	323
(I) Vac Σ	53.5	16.0	66.0	17.35	7.5	46.7	16.6	9.1	5.11	2.57	1.84	1.03
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.007	.987	1.007	987	→	→	→	→	→	→	→	1.047
(M) ρ dc/ρac=ExL/K	1.100	1.070	1.100	1.087	1.060	1.120	1.139	1.099	1.095	1.132	1.096	1.115
(N) PFE=(M-1)(10^2)	10.0	7.0	10.0	8.7	6.0	12.0	13.9	9.9	9.5	13.2	9.6	11.5
(O) MCF=(M-1)(10^5)/H	116	68	94	73	51	93	116	66	58	457	312	356

Project ____ Line ____ Field date ____ Data page ____ Comp. date ____ Comp by ____

(A) Send	45	12	23	34	45		cal					
(B) Receive	→	56N	→	→	→		12					
(C) n separation	1	1	1	1	1		30					
(D) I	→	1200	2000 →	→	→							
(E) Vdc (avg)	.82	.62	.465	.57	.41		30.6					
(F) DCcal	→	→	→	→	→							
(G) Kn x 10^{-3}	105	30	60	105	118							
(H) ρ dc=ExFxGx10^3/D	42.2	15.2	13.6	29.3	33.7							
(I) Vac Σ	.81	.60	.47	.56	.38		30.2					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.047	→	→	→	→		.987					
(M) ρdc/ρac =ExL/K	1.059	1.082	1.035	1.064	1.128							
(N) PFE=(M-1)(10^2)	5.9	8.2	3.5	6.4	12.8							
(O) MCF=(M-1)(10^5)/H	140	537	257	214	392							

9.70

30, 10, 3 } .987

100 +2% = 1.007
1 +1% = 1.047

3rd 52.0

Rx	TY	RANGE	DC.	AC	N-AC	S.P.				DC. AV.
45 S	45	30	9.5 9.0 18.5 9.5 9.1 18.6	8.7 8.7 17.4	.04-.07	-4.6 9.4 9.2 18.6 9.4 9.2 18.6				18.6 (17.4)
	34	10	2.62 2.75 5.37 2.65 2.70 5.35	2.5 2.5 5.00		2.70 2.75 5.45 2.50 2.90 5.40	2.60 2.90 5.50 2.42 2.50 5.22	2.6 2.85 5.45 2.4 2.9 5.30	2.6 2.2 5.30 2.7 2.65 5.35	5.37 (5.00)
	23	3.0	1.27 1.24 2.52 1.40 1.20 2.60	1.18 1.20 2.38		1.21 1.30 2.55 1.30 1.30 2.60	1.24 1.31 2.59 1.28 1.34 2.62	1.25 1.27 2.52 1.30 1.22 2.52		2.56 (2.38)
	12	1.	.40 .60 1.00 .35 .70 1.05	.48 .48? .96						1.025 ? (.960) ?
				52.0	-.05-.1	-1.4				

Rx	Ty	Range	DC	Ac	N. Ac	S. P.	DC Ao.
565	45	10	5.20 4.95 10.15 5.15 4.90 10.05	4.70 4.72 E 9.42		92.2 5.20 | 4.95 5.0 | 5.30 10.20 | 10.25 10.05 | 10.20 4.95 | 4.90 5.10 | 5.30	10.15 (9.42)
	34	3.0	2.10 2.20 4.30 2.05 2.15 4.20	1.96 1.95 E 3.91		2.15 | 2.05 2.10 | 2.15 4.25 | 4.20 2.15 | 2.1 2.15 | 2.10 4.30 | 4.20	90.8 4.24 (3.91)
	23	3.0	1.0 1.15 2.15 .90 1.05 1.95	.95 .94 E 1.89		1.25 | 1.05 .85 | 1.05 2.10 | 2.10 1.25 | .95 .80 | 1.15 2.05 | 2.10	2.07 (1.89)
	12	1.0	.4 .5 .5 .55 .90 1.05 .45 .55 .5 .6 .95 1.15	.50 .51 1.01 E	.05 - .0 splice 1.5		91.0 1.01 ? (1.01)
			Bat 51.5				91.0

Tx 3-2 (BAT 54.5) L1 Big Jim S.P. -7.1

Rx	S	RANG	D.C.	A.C.	Noise A.C.	~~Noise~~ D.C.	A.C.	D.C. Av.
1-2 S	1	30	1 24.8 2 25.3	23.1		24.7 25.3	46.2	50.1
	2-3		T. 50.1	23.1		50.0		
			3 24.6 4 25.5			24.7 25.6		
			Total 50.1			50.3		
		10	1 4.30 2 4.35	4.02		4.35 4.41		
	1-2		T. 8.65	4.02		8.76	8.04	8.67
			3 4.22 4 4.30			4.25 4.41		
			T. 8.52			8.66		
2-3 S		30	1 18.3 2 17.7	1 16.80		17.7 18.4 / 18.2 18.0	S.P. -6.6	
	34		T 36.0	2 16.80		36.1 36.2	33.6	36.1
			3 17.6 4 18.3			17.6 18.3 18.4 17.9		
			Tot. 35.9			36.0 36.2		
		10	1 4.45 2 4.50	1 4.18		4.50 4.45 / 4.50 4.40	8.36	
	23		T 8.95	2 4.18		9.00 8.85		8.95
			3 4.50 4 4.50	8.36		4.55 4.65 4.41 4.25		
			T. 9.00			9.08 8.90		
		3.	1. 23 .90	1.03		1.10 1.10 / 1.15 1.12 1.90 1.15 / 1.05 1.03		
			2.13	1.02		2.00 2.25 / 2.10 2.15		
	12		1.35 .95	2.05		1.15 1.0 / 1.10 1.10 98 1.16 / 1.08 1.17		2.14
			2.10			2.13 2.16 / 2.18 2.27		
		CAL	15.3 15.2	15.1				
		30	30.5	15.0				30.55
			15.3 15.3	30.1				
			30.6					

BOT / 54.5 — 1.4

Rx	TY	RANK	D.C.	A.C.	N-A.C	S.P.	D.C. Ave
345	45	100	37.2 36.0 73.2 37.5 35.9 73.4	35.2 35.2 E70.4	.05	36.2 | 36.0 37.0 | 37.0 73.2 | 73.0 36.2 | 36.0 36.8 | 37.2 73.0 | 73.7	73.25
	34	10	7.3 7.4 14.70 7.55 7.50 15.5	6.95 6.95 13.90		7.50 | 7.58 | 7.45 7.45 | 7.65 | 7.55 14.56 | 15.26 | 15.00 7.50 | 7.20 | 7.50 7.45 | 7.70 | 7.45 14.95 | 14.90 | 14.95	14.95
	23	10	2.7 2.65 5.35 2.6 2.8 5.40	2.50 2.48 4.98		2.70 | 2.70 2.65 | 2.55 5.35 | 5.25 2.75 | 2.75 2.55 | 2.58 5.40 | 5.33	5.35
	12	3.0	.80 1.10 1.90 .85 1.15 2.00	.96 .95 1.91		.98 | 1.08 1.05 | .85 2.03 1.0 .98 1.84	.9 1.1 2.00 .98 1.15 2.10 — 2.00
				BAT. 52.0		-.5	

3 5 1.5
6 6
30 15
60 30
105 52.5
167 84

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Big Jim Line 1 (500) N½ Field date 8-21-64 Data page_____ Comp. date 8-21-64 Comp by HH

(A) Send	34	45	23	34	45	12	23	34	45	12	23	34
(B) Receive	12N →	→	23N →	→	→	34N	→	→	→	45N	→	→
(C) n separation	100	30	100	30	10	100	30	30	10	30	10	10
(D) I	1.00 →	→	→	→	→	800	1600	2000 →	→	800	1600	2000
(E) Vdc (avg)	134.5	26.9	69.5	32.1	10.8	111.05	25.2	19.2	7.65	29.4	10.75	8.97
(F) DCcal .980	→	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρ dc=ExFxGx10^3/D	128.0	98.7	63.8	118.0	92.0	204.	94.4	141	112	216	98.9	132
(I) Vac Σ	122.0	24.0	64.0	28.6	9.2	102.0	22.8	16.9	6.9	25.9	9.30	7.70
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.013	993	1.013	993	→	1.013	993	→	→	→	→	→
(M) ρ dc/ρac=ExL/K	1.159	1.112	1.101	1.113	1.079	1.102	1.120	1.122	1.101	1.129	1.148	1.142
(N) PFE=(M-1)(10^2)	15.9	11.2	10.1	11.3	7.9	10.2	12.0	12.2	10.1	12.9	14.8	14.2
(O) MCF=(M-1)(10^5)/H	124	114	158	95	85	50	127	87	99	60	149	108

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

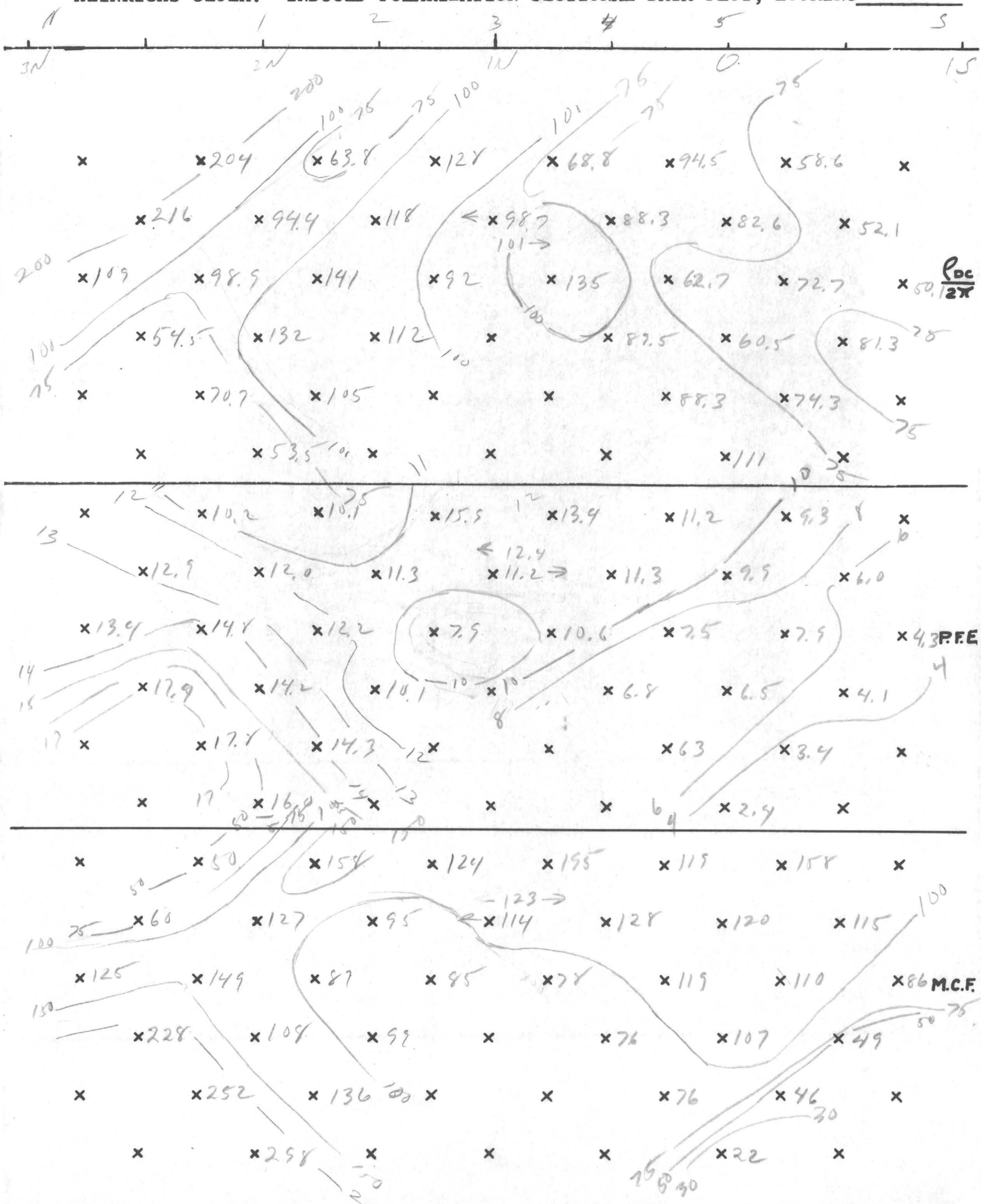
(A) Send	45	12	23	34	45		Cal					
(B) Receive	→	56N	→	→	→		12					
(C) n separation	3	3	3	3	1							
(D) I	→	800	1600	2000 →	→							
(E) Vdc (avg)	4.06	5.91	2.97	2.75	1.30		30.6					
(F) DCcal	→	→	→	→	→							
(G) Kn x 10^{-3}	52.5	15	30	52.5	84							
(H) ρ dc=ExFxGx10^3/D	105	109	54.5	70.7	53.5							
(I) Vac Σ	3.53	5.18	2.50	2.32	1.18		30.4					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→	→	→	→	1.053							
(M) ρdc/ρac =ExL/K	1.143	1.134	1.179	1.178	1.160		.793					
(N) PFE=(M-1)(10^2)	14.3	13.4	17.9	17.8	16.0							
(O) MCF=(M-1)(10^5)/H	136	125	228	252	298							

30, 10, 3 } 953

100 + 2 1.013

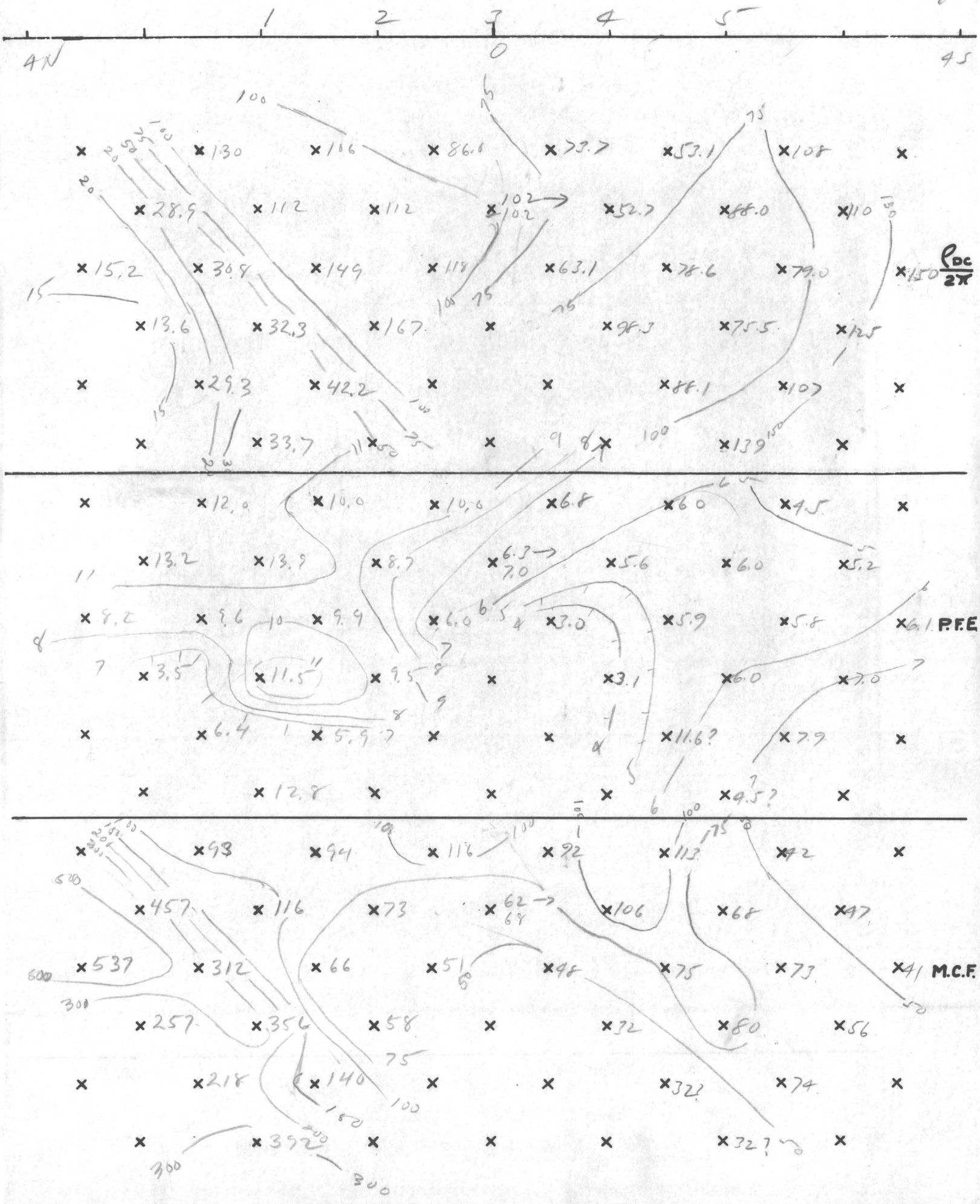
1 + 6 1.053

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING _____



AREA Big Jim LINE _____ a = 600 ' SCALE: 1" = 500' DATE: 8-21-64

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Northerly



AREA _____ LINE _____ a = ' SCALE: _____ DATE: _____

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Big Jim Line 1 (500)S Field date 8-22-64 Data page_____ Comp. date 8-22-64 Comp by K+PB

(A) Send	23	12	34	23	12	45	34	23	12	45	34	23
(B) Receive	125	→	235		→	345			→	455	→	
(C) n separation Range	100	10	100	80	10	100	30	10	3	30	10	3
(D) I	1600	800	2000	1601	800	2000	→	1600	800	2000	→	1600
(E) Vdc (avg)	75.0	13.75	127.5	24.0	7.32	79.8	28.1	6.83	2.43	17.7	9.90	3.29
(F) DCcal 980												→
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρ dc=ExFxGx10^3/D	68.8	101	94.5	88.3	135	58.6	82.6	62.7	89.5	52.1	72.7	60.5
(I) Vac Σ	67.0	12.30	117.0	21.4	6.58	74.0	25.4	6.30	2.28	16.6	9.10	3.07
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.013	.993	1.013	.993	→	1.013	.993					
(M) ρ dc/ρac=ExL/K	1.134	1.124	1.112	1.113	1.106	1.093	1.099	1.075	1.068	1.060	1.079	1.065
(N) PFE=(M-1)(10^2)	13.4	12.4	11.2	11.3	10.6	9.3	9.9	7.5	6.8	6.0	7.9	6.5
(O) MCF=(M-1)(10^5)/H	195	123	119	128	78	158	126	119	76	115	110	107

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	12	45	34	23	12		Cal					
(B) Receive	→	565	→	→	→							
(C) n separation	1	10	10	3	1							
(D) I	800	2000	→	1600	800							
(E) Vdc (avg)	13.7	6.72	5.52	2.31	1.08		30.6					
(F) DCcal												
(G) Kn x 10^{-3}	52.5	15	30	52.5	84							
(H) ρ dc=ExFxGx10^3/D	88.3	50.1	81.3	74.3	111							
(I) Vac Σ	13.35	6.40	5.27	2.22	1.10		30.4					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.043	.993	→	→	1.043							
(M) ρdc/ρac =ExL/K	1.063	1.043	1.041	1.034	1.024							
(N) PFE=(M-1)(10^2)	6.3	4.3	4.1	3.4	2.4							
(O) MCF=(M-1)(10^5)/H	76	86	49	46	22							

30
10
3 } .993

100 + 29% 1.013
1 + 6% 1.043

Inspiration Consolidated Copper Company

INSPIRATION, ARIZONA

September 23, 1964

Mr. Clyde W. Doran
Supervisor, Coronado National Forest
130 South Scott Street
Tucson, Arizona

Dear Sir:

This is to inform you of the results obtained from a geophysical survey made on the Big Jim Claim in the Harshaw Mining District, Santa Cruz County, Arizona, and owned by Miss Virginia Hay, Patagonia, Arizona.

Actually, we have conducted two geophysical surveys which have been extended across the Big Jim Claim workings. In November, 1962, the Heinrichs Geoexploration Company of Tucson conducted a Jalander Hand Magnetometer Survey which crossed the Big Jim workings in a N 75° E direction. On the mine dumps at the shaft of the Big Jim location, the magnetometer showed a sharp narrow high of 1442 gammas as compared to a gamma value of -190 gammas, about 200 feet S 75° W of it, and a gamma value of -440 gammas about 200 feet N 75° E of it. A portion of the high reading may be due to artificial objects such as pipe or old mine rails, but it is believed that most of the high reading was due to magnetite occurring in association with other minerals in a vein which has been somewhat prospected and mined. In addition to this a second magnetic high was disclosed about 600 feet N 75° E of the Big Jim shaft which has a value of 70 gammas as compared to a low -310 gammas, 100 feet S 75° W and a low -400 gammas, 350 feet N 75° E of the high. This is possibly showing an anomalous zone east of the mine dump which to date has not been prospected.

For the year September, 1963, to September, 1964, the Inspiration Consolidated Copper Company employed the Heinrichs Geoexploration Company of Tucson to conduct a geophysical survey by the induced potential method. A Report of Geophysical Survey will be filed in the Santa Cruz County Recorder's Office as annual assesment work on our claims and Miss Virginia Hay's claim in that vicinity. The induced potential geophysical survey revealed an area of fairly strong anomalism indicating from 0.8 to 2.4% sulfides by volume from about 100 to 400 feet below surface. This anomaly begins at a point near the middle of the American Camp Claim about 600 ft. south of Miss Hay's house and extends northwest across the Big Jim shaft and claim and on to the northwest to beyond the north side line of the OCCI Claim Group.

These are essentially the findings of the geophysical survey relative to the Big Jim Claim. If there are more questions pertaining to this matter, I advise you to contact Mr. Walter E. Heinrichs or Grover Heinrichs of the Heinrichs Geoexploration Company in Tucson as they are much better qualified to answer your questions.

Thank you for your consideration of this matter.

Very truly yours,

Hugh W. Olmstead

Hugh W. Olmstead
Mining Geologist

cc: Mr. E. F. Reed
Mr. W. E. Heinrichs
Miss Virginia Hay

COPY

HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA, 85703. P.O. BOX 5671. PHONE: (AREA CODE 602) 623-0578

September 12, 1964

Mr. E. F. Reed, Chief Geologist
Inspiration Consolidated Copper Co.
Inspiration, Arizona

Dear Bert:

Enclosed is an original and two copies (2 pages) of the affidavit of labor and report of geophysical survey (3 pages) submitted for your approval and addition of the docket and page numbers of the recorded claim notices. Under separate cover are the two sectional data sheets and plan location map. one mylar of each and five black line prints of each. You may wish to edit out some of the interpretational reference anomalism on material to be recorded.

The report of geophysical survey is quite brief and therefore we will mention certain points in this letter to clarify matters. The most interesting anomalism noted on this survey is from 3.5NW to the NW end of the line and perhaps further. The anomalism indicates from 1.5 to 4.0% sulfides by volume and could be economically significant. Since this anomalism is off the claim group, no specific mention was made in the report of geophysical survey. On your property, however, from 1.0SE to 3.5NW there is fairly strong anomalism indicating from 0.8 to 2.4% sulfides by volume from about 100 to 400 feet below surface. The sulfide percentage apparently diminishes rapidly below 400 ft. Also, no anomalism was found to be directly related to the Big Jim workings. The anomalism appears to be due to disseminated sulfides rather than discrete bodies and veins.

In our opinion, this area may deserve more detail and geology as well as further I. P. coverage of both detailed and reconnaissance nature in order to make a valid economic appraisal. Geochemical assaying may also prove useful in

outlining the more copper rich areas.

We trust you will find all in order.

Sincere regards,

HEINRICHS GEOEXPLORATION CO.

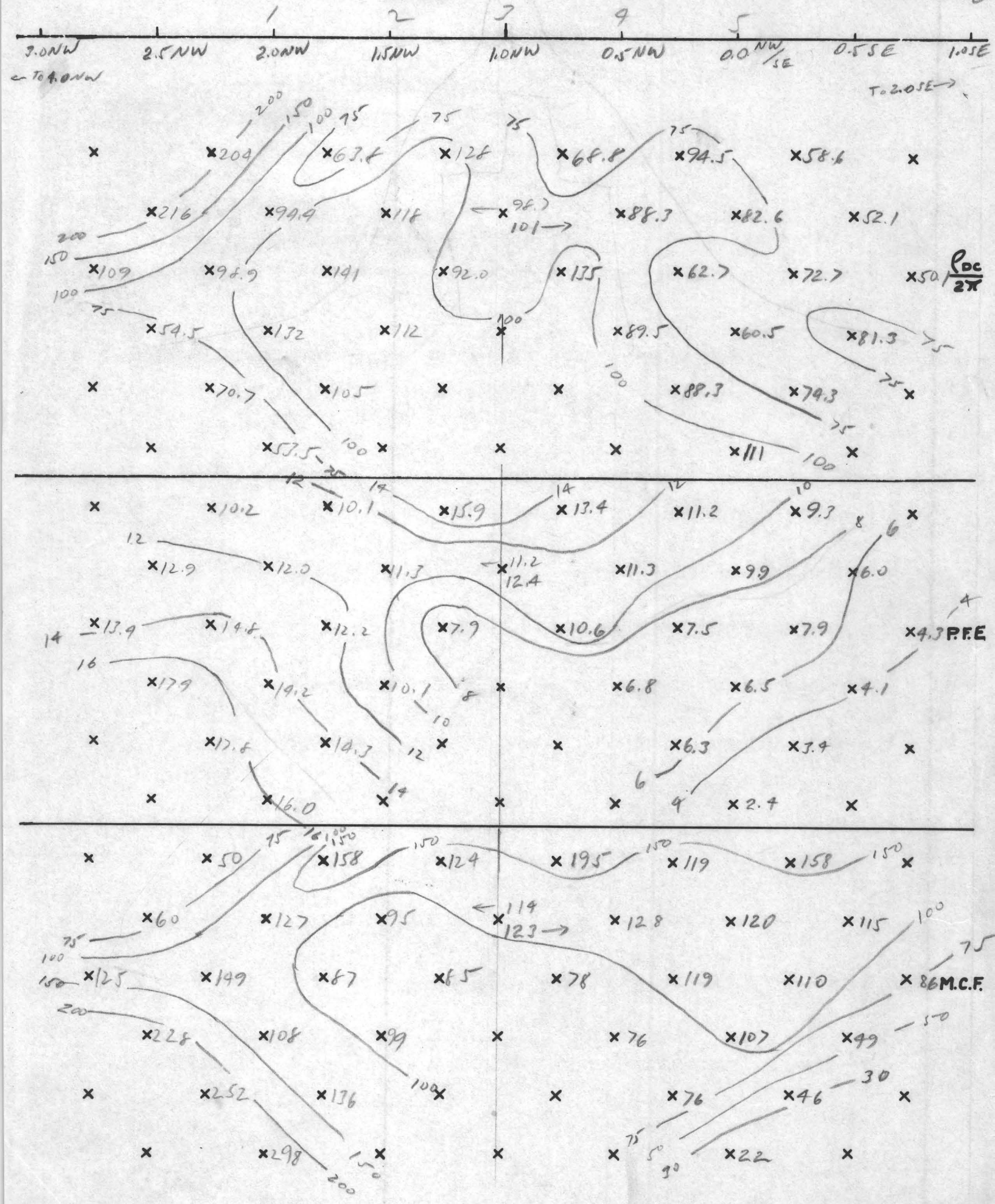
Chris S. Ludwig
Sr. Geophysicist

Walter E. Heinrichs, Jr.
President & General Manager

CSL/WEH/jh

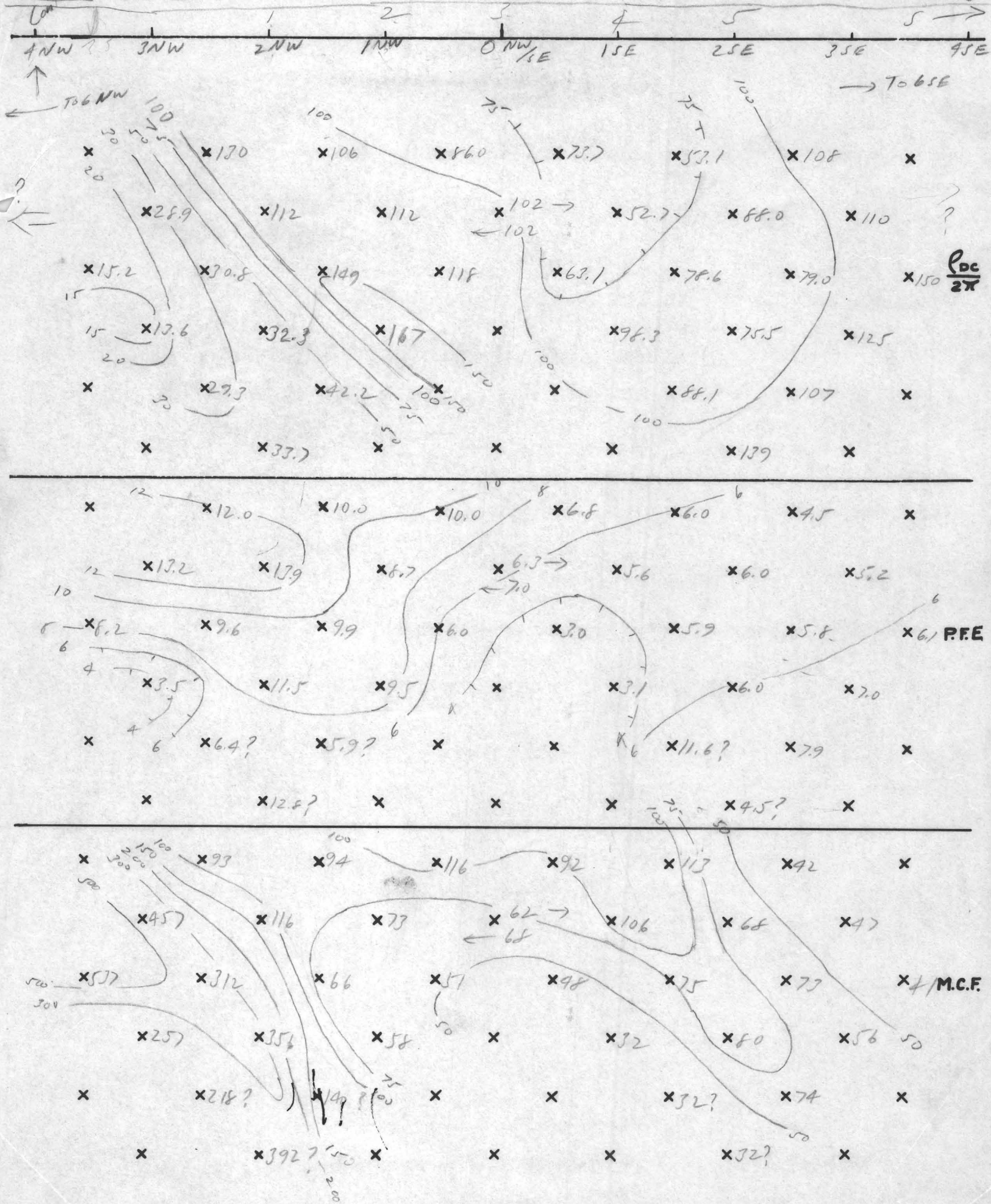
cc: Extra Encl.

HEINRICHS GEOEX. - INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Northeasterly



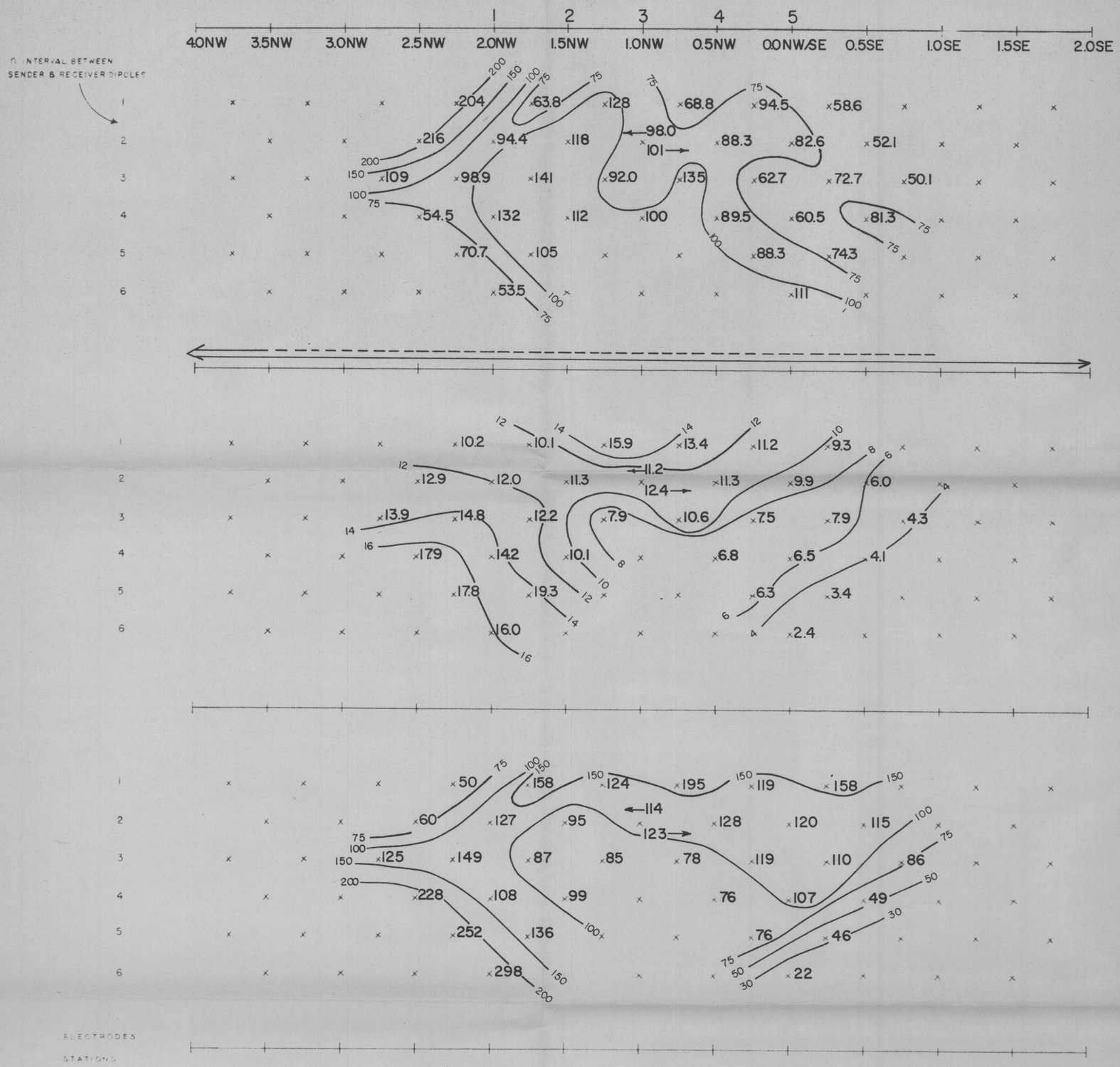
AREA Patagonia LINE 2 a = 500' SCALE: 1" = 500' DATE: 8/64

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING Northeasterly



AREA Patagonia Inspir. LINE 1 a = 1000' SCALE: 1" = 1000' DATE: 8-64


N
No. 11
No. 12
No. 17
No. 18
Disc. Bluebird
No. 10
No. 9
No. 16
No. 15
No. 13
No. 7
No. 8
No. 14
No. 1
OCCI
No. 19
No. 6
Hays' House
American Camp
No. 2
No. 3
No. 4
No. 5
4 NW
3 NW
2 NW
1 NW
1 SE
2 SE
To 6 SE
Duquesne
OCCI CLAIM GROUP
Harshaw Mining District
Santa Cruz Cnty Arizona
1" = 200'
Nov. 14, 1961



LOOKING NORTHEASTERLY

APPARENT RESISTIVITY (ρ_{DC})/2π IN UNITS OF OHM FEET

CONTOUR INTERVAL LOGARITHMIC

SENDER FREQUENCY: 0.05 c.p.s.

PERCENT FREQUENCY EFFECT (PFE)

CONTOUR INTERVAL CONSTANT

SENDER FREQUENCIES: 0.05 & 3.0 c.p.s.

APPARENT "METALLIC CONDUCTION" FACTOR (MCF)

$\left(MCF = \frac{PFE \times 1000}{\rho DC/2\pi}\right)$

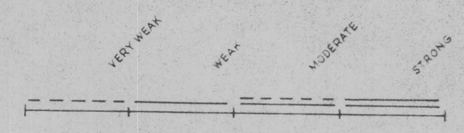
CONTOUR INTERVAL LOGARITHMIC

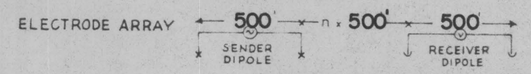
SELF POTENTIAL

SURFACE PROFILE

GEOLOGY, ETC.

RELATIVE ANOMALY STRENGTH





OCCI CLAIM GROUP
PATAGONIA,
SANTA CRUZ COUNTY,
ARIZONA

SECTIONAL DATA SHEET

LINE No. 2

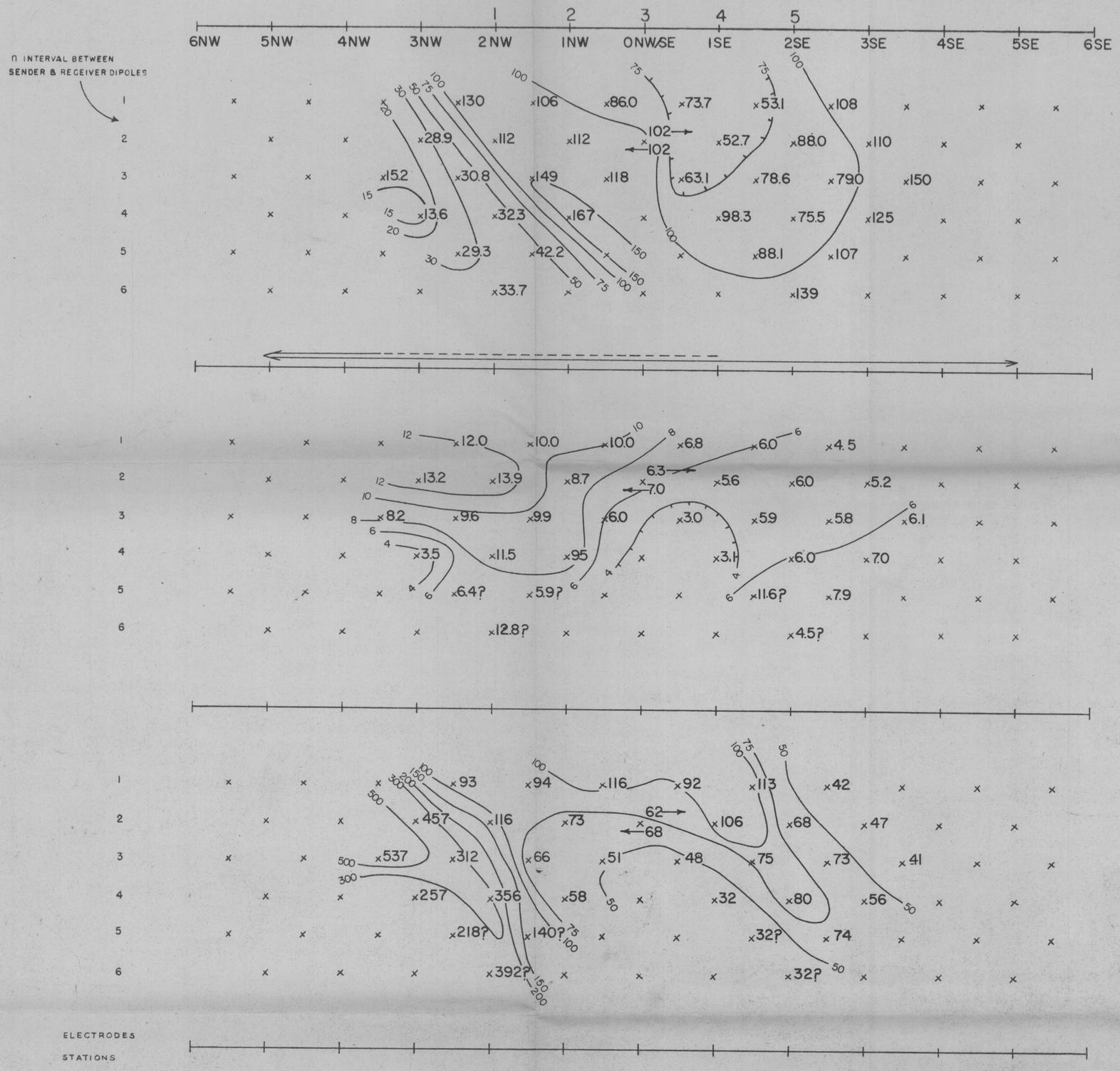
INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: AUG. 1964

FOR

INSPIRATION CON. COPPER CO.



LOOKING NORTHEASTERLY

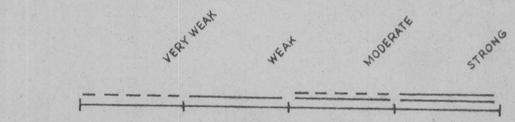
APPARENT RESISTIVITY (ρ_{DC}) IN UNITS OF OHM FEET
CONTOUR INTERVAL LOGARITHMIC
SENDER FREQUENCY: 0.05 c.p.s.

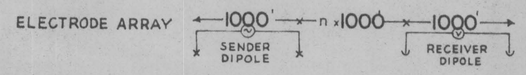
PERCENT FREQUENCY EFFECT (PFE)
CONTOUR INTERVAL CONSTANT
SENDER FREQUENCIES: 0.05 & 3.0 c.p.s.

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

SELF POTENTIAL
SURFACE PROFILE
GEOLOGY, ETC.

RELATIVE ANOMALY STRENGTH





OCCI CLAIM GROUP
PATAGONIA,
SANTA CRUZ COUNTY,
ARIZONA

SECTIONAL DATA SHEET

LINE No. 1

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 1000' DATE: AUG. 1964

FOR
INSPIRATION CON. COPPER CO.