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BAGDAD COPPER CORPORATION
BAGDAD, ARIZONA 86321
633-2241

May 3, 1967

MAY 1967
GEOEX

Mr. Chris Ludwick
Hiendrichs Geoexploration Co.
808 West Grant Road
P.O. Box 5671
Tucson, Arizona

Dear Chris:

The enclosed map and assay log should help you in your interpretation of the I.P. survey. Would you please return them on completion. If any further information is needed, please let me know.

Sincerely,

BAGDAD COPPER CORPORATION

M. E. Gillo

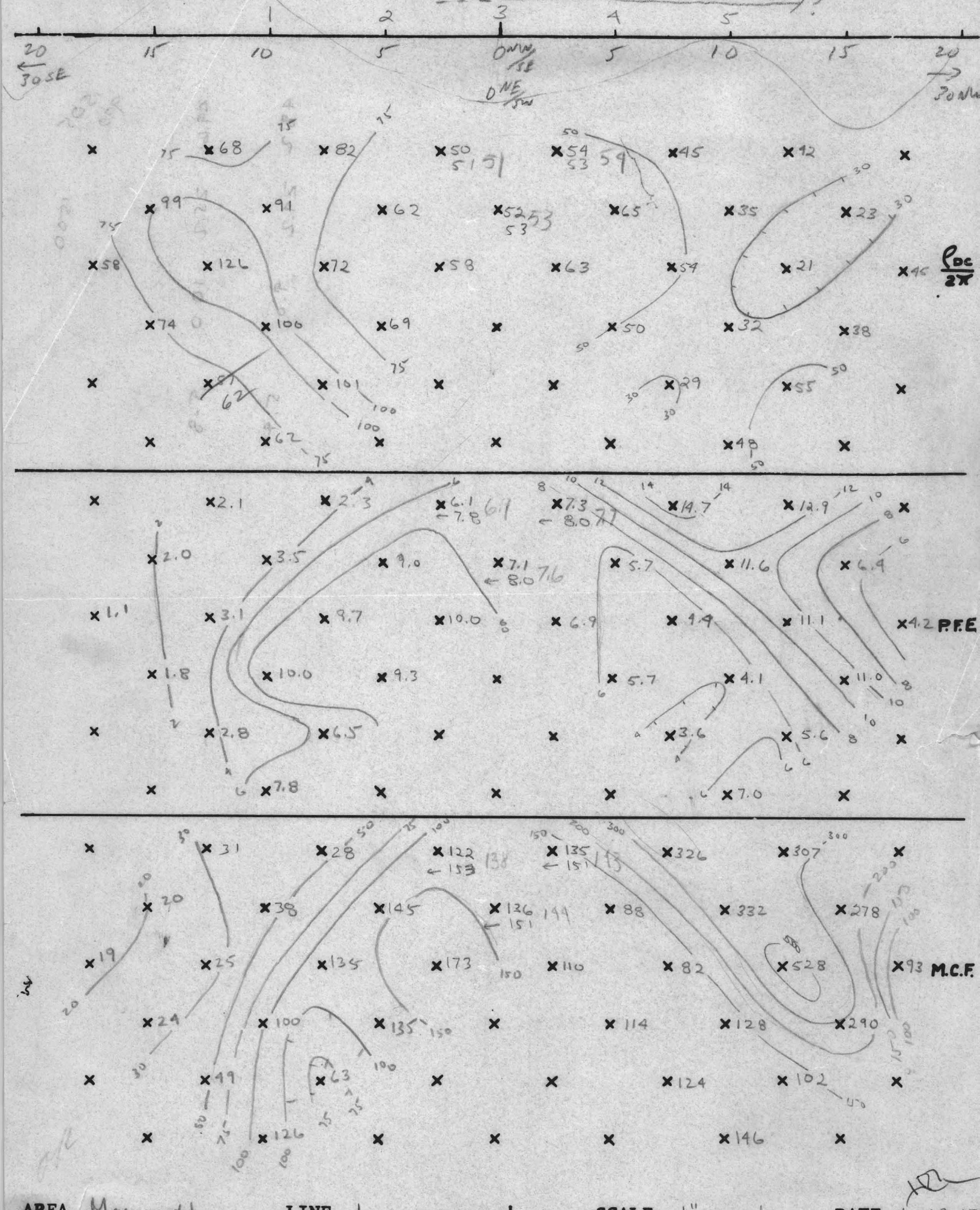
M. E. Gillo

MEG:mm

Enc.

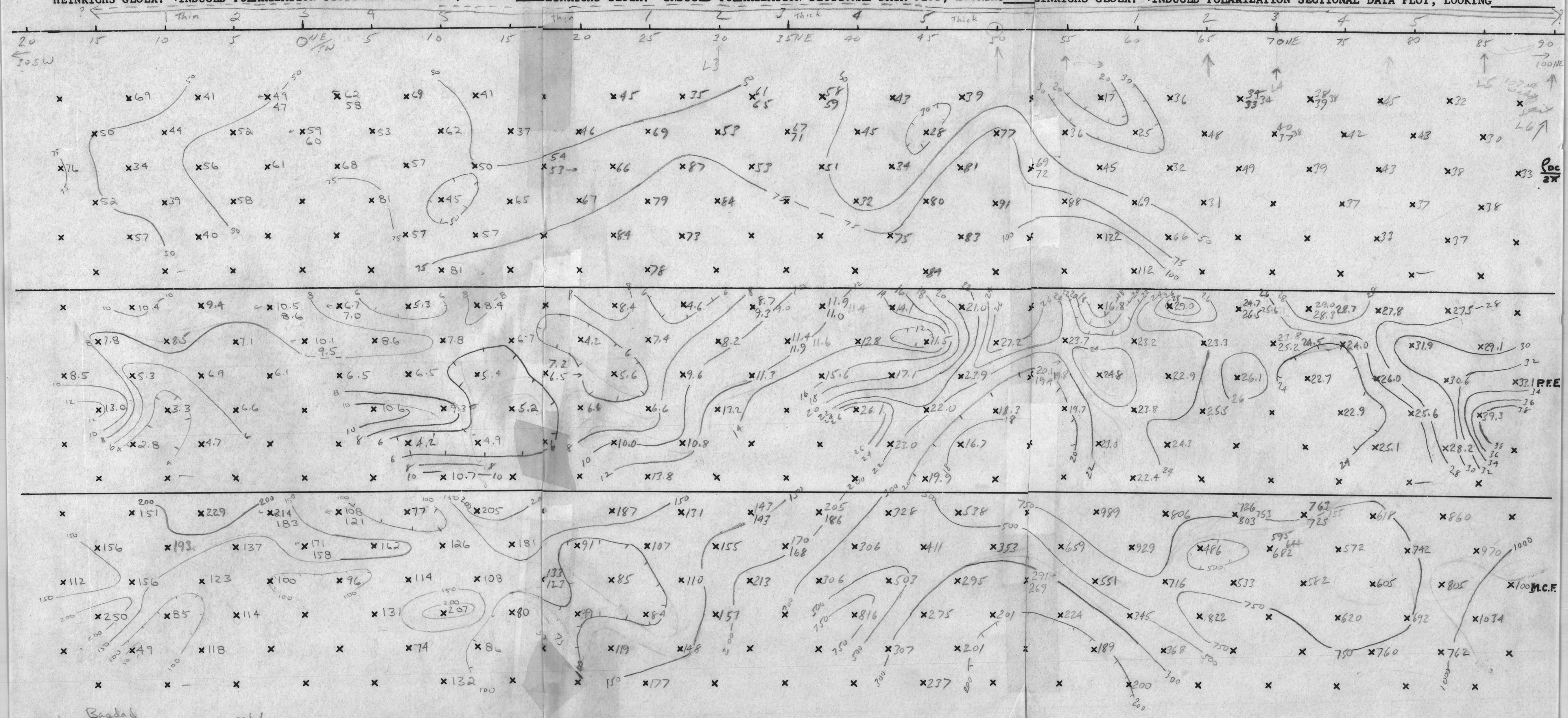
P.S. Please note, this is strictly confidential material.

1 HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SWly



AREA Mammoth LINE 1 a = 500' SCALE: 1" = 500' DATE: 4-29-67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N

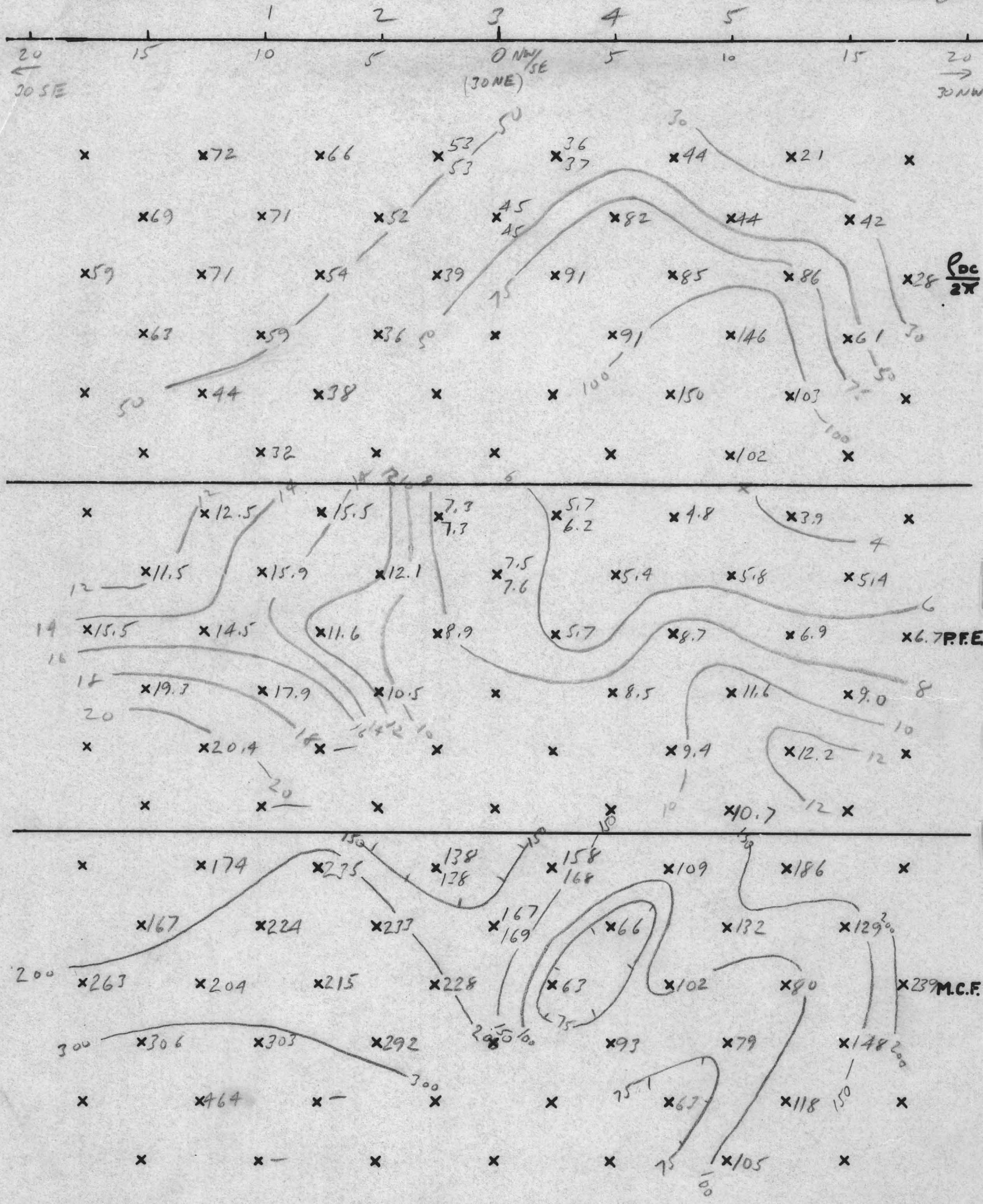


AREA Mammoth (Baghdad) LINE 2 (spd 1) a = 500' SCALE: 1"=500 DATE:

LINE 52 a = ' SCALE: DATE:

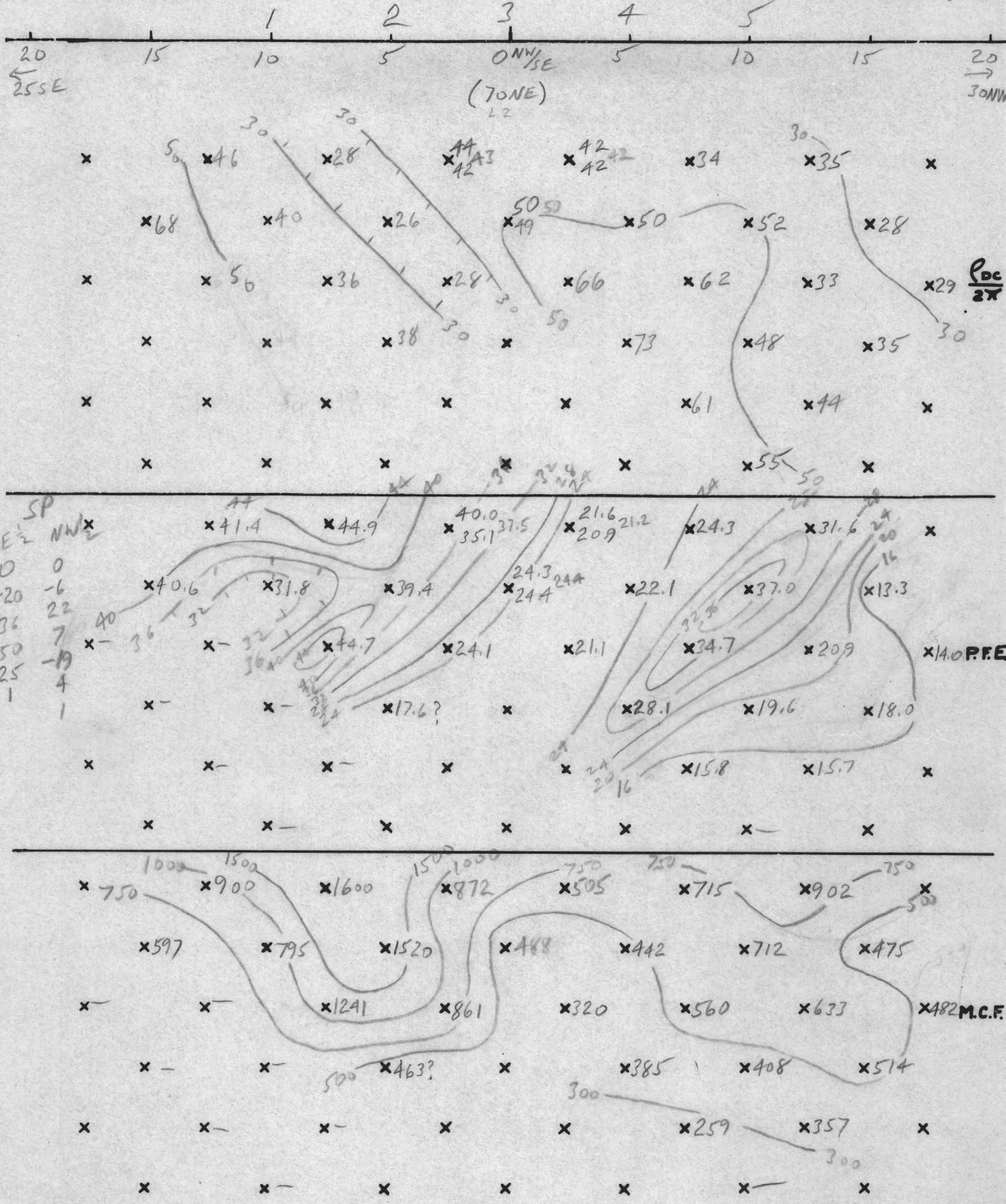
LINE a = ' SCALE: DATE:

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SWly



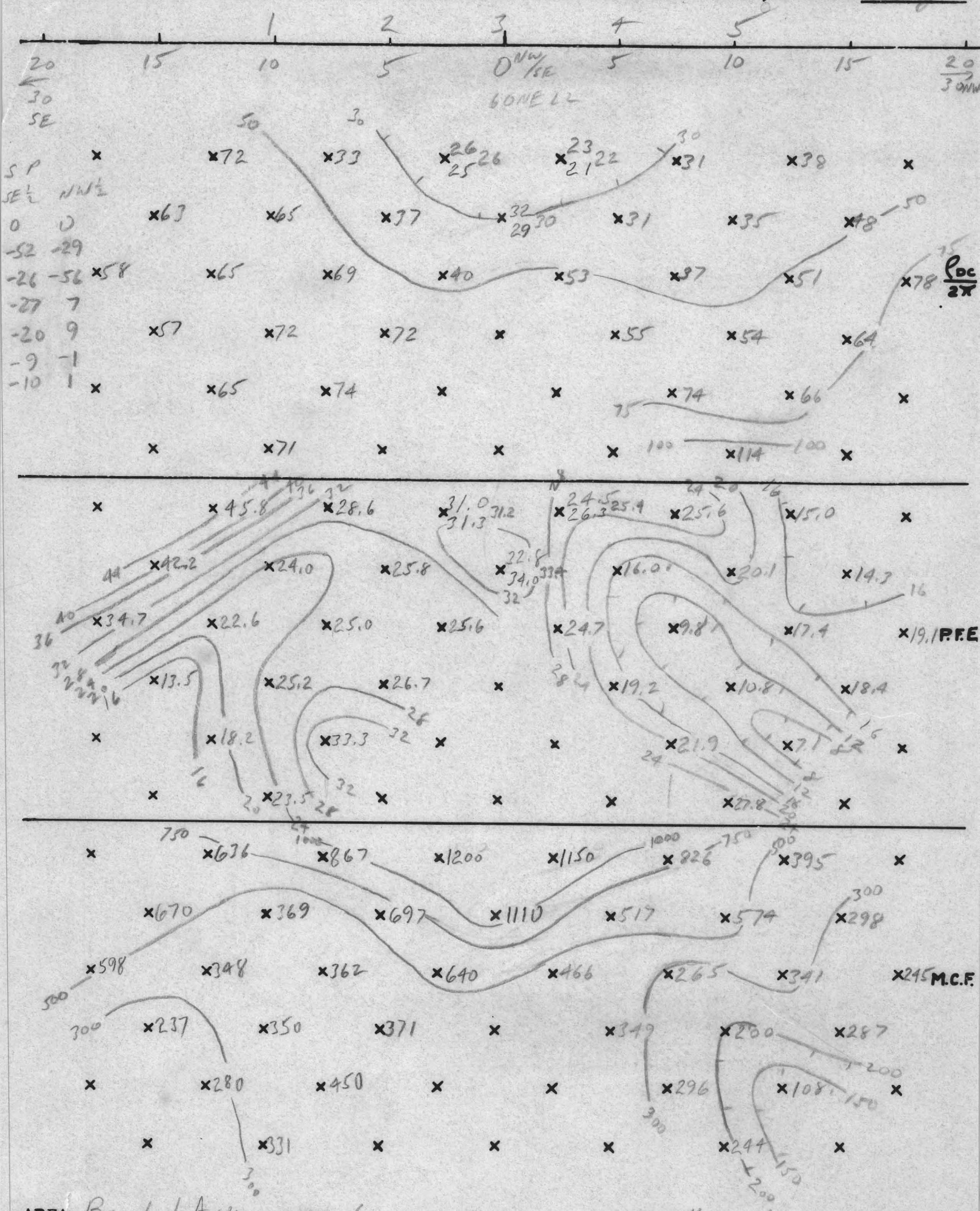
AREA Baghdad LINE 3 a = 500' SCALE: 1" = 500' DATE: May 67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SWly



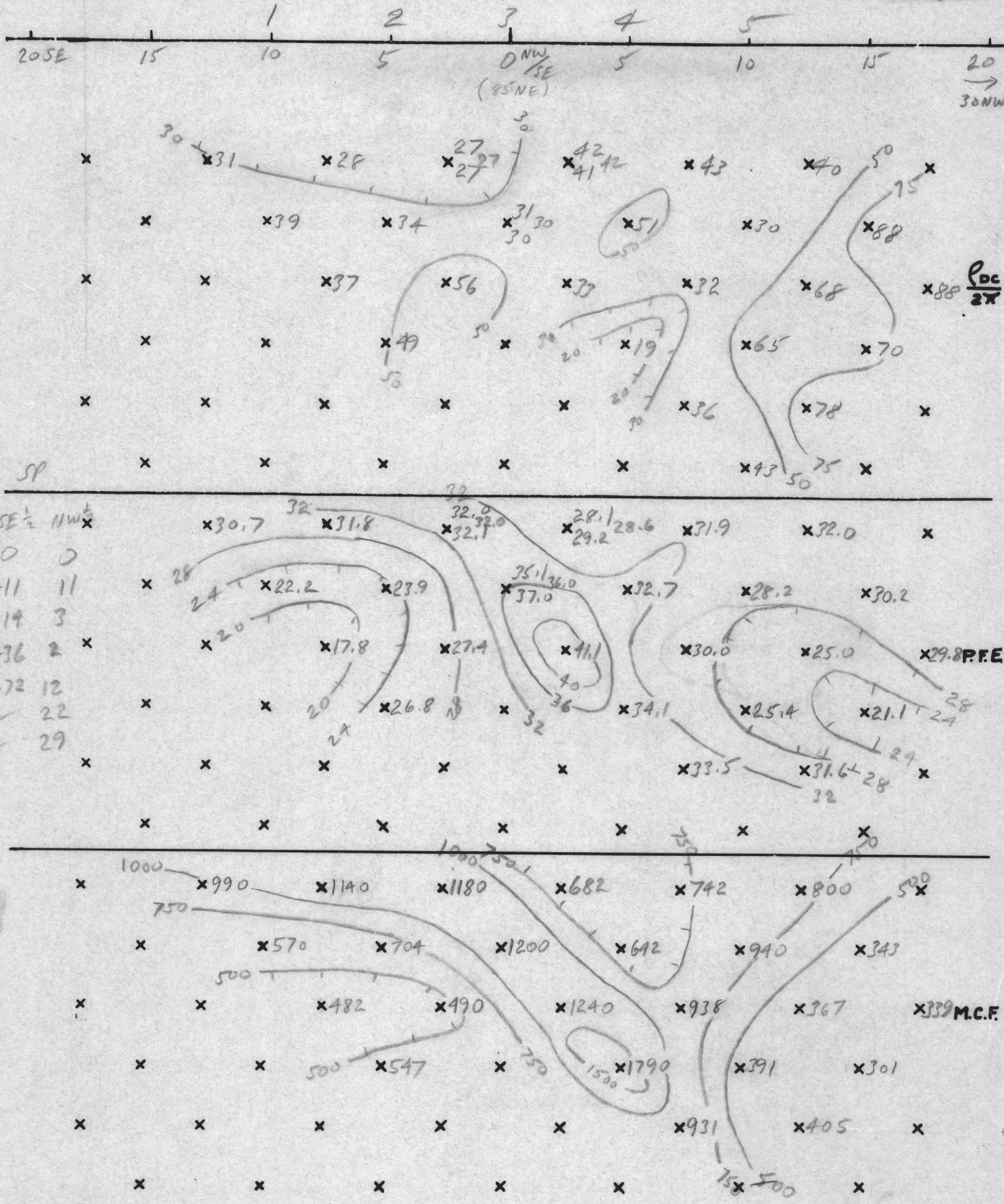
AREA Bagdad LINE 4 a = 500' SCALE: 1" = 500' DATE: May 67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SW by



AREA Bagdad Area LINE 6 a = 500' SCALE: 1" = 500' DATE: May 67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SW by



AREA Bagdad LINE 5 a = 500' SCALE: 1" = 500' DATE: May, 67

N 30 E

PAGE 1

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER

LINE 1 HALF N SP. 1 DATE 4-28

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→
RANGE	HI	HI	HI	HI	HI	HI	HI			
VOLTAGE	180	178	180	190	178	180	180	190	178	180
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25N	→	→	→	25-30N	→	→	→		CAL
RANGE										
VOLTAGE	180	190	178	180	180	190	178	180		110
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		1A

FREQUENCIES 0.5 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 1 HALF W SP. 1 DATE 4-28

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50	50-100		100-150		→	150-200			→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	67.2/67.2	71.5/72.2	17.2/17.2	60/60.5	21.7/21.9	8.45/8.45	56.5/57.7	11/12	7.1/7.25	3.23/3.41
DC 2	67.2/67.2	71.5/72.2	17.2/17.2	60/60.5	21.7/21.9	8.45/8.45	56/57	11/12	7.1/7.25	3.23/3.41
DC 3	67.2/67.2	71.5/72.2	17.2/17.2	60/60.5	21.7/21.9	8.45/8.45	55.9/57.1	11/12	7.1/7.25	3.23/3.41
DC 4	67.2	72.2	17.2		21.9	8.45	55.9/57.1	12	7.10	3.41
DC 5							57.1			
DC 6										
DC 7										
DC 8										
DC AVG.	134.4	143.7	34.4	120.5	43.6	16.90	113.0	23.0	14.35	6.64
AC 1	62.5	66.3	15.9	52	20.4	7.83	50.1	10.2	6.8	3.12
AC 2	62.5	66.3	15.9	52	20.4	7.83	50.1	10.2	6.8	3.10
AC AVG.	125.0	132.6	31.8	104	40.8	15.66	100.2	20.4	13.6	6.22
S.P.	-29	+43		+6			-5			
AC NOISE	.04	.03		.02			.04			
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 1 HALF N SP. 1 DATE 4-28

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal
RECEIVE	200 -	250	→	→	250	- 300	→	→		4-5
RANGE	10	10	3	3	10	10	3	3		300
DC 1	2.8/2.6	2.8/2.7	2.12/2.17	1.13/1.06	6.0/6.0	2.45/2.55	2.1/2.13	1.14/1.15		100/100
DC 2	2.8/2.6	2.8/2.7	2.1/2.18	1.13/1.04	6.0/6.0	2.45/2.55	2.05/2.17	1.14/1.15		100/100
DC 3	2.8/2.6	2.8/2.7	2.1/2.17	1.13/1.06	6.0/6.0	2.45/2.55	2.05/2.15	1.14/1.15		100/100
DC 4	16	27	2.1/2.15	1.14/1.1		2.55	2.1/2.1	1.15/1.14		
DC 5			2.1/2.18	1.12/1.1			2.1/2.15	1.17/1.13		
DC 6			2.08/2.21	1.07/1.11			2.07/2.15	1.13/1.1		
DC 7			2.1/2.16	1.09/1.09			2.09/2.14	1.15/1.15		
DC 8			2.1/2.17	1.07/1.1			2.1/2.15	1.17/1.14		
DC AVG.	15.4	5.5	4.27	2.19	12.0	5.00	4.22	2.29		200
AC 1	2.16	2.45	2.03	1.05	5.7	2.23	1.98	1.06		99
AC 2	2.16	2.45	2.03	1.04	5.7	2.23	1.97	1.06		99
AC AVG.	14.32	4.90	4.06	2.09	11.4	4.46	3.95	2.12		198
S.P.	+2				+4					
AC NOISE	.04				.03					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER

LINE 1 HALF S 1/2 SP. 1 DATE 4-28

PAGE 2

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5s	5-10s	→	10-15s	→	→	15-20s	→	→	→
RANGE	HI	—								
VOLTAGE	180	190	180	178	190	180	180	178	190	180
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25s	→	→	→	25-30s	→	→	→		CAL
RANGE	—									
VOLTAGE	120	120	140	120	120	120	140	120		
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A		1A

FREQUENCIES .05 3.0

SENDER NO. MK 7-106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 1 HALF S SP. 1 DATE 7-28

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-50	50-100		100-150		→	150-200			→
RANGE	100	100	30	300	30	10	100	100	10	10
DC 1	70.5/69.5	68/67	17.6/17.3	100/107	20.3/20.6	7.4/7.8	89.5/90.1	31/29	9.45/9.6	4.65/4.45
DC 2	70.5/69.5	68/67	17.6/17.3	110/107	20.3/20.6	7.4/7.8	89.5/90.1	31/29	9.45/9.6	4.65/4.45
DC 3	70.5/69.5	68/67	17.6/17.3	110/107	20.3/20.6	7.4/7.8	89.5/90.1	31/29	9.45/9.6	4.65/4.45
DC 4						7.8 / 15.2	90.1		9.45	4.45
DC 5							179.6		19.05	9.10
DC 6										
DC 7										
DC 8										
DC AVG.	140.0	135	34.9	217	40.9	15.2	179.6	60	19.05	9.10
AC 1	64.2	62	16	105	18.6	6.84	87	28.7	8.6	4.12
AC 2	64.2	62	16	105	18.6	6.84	87		8.6	4.12
AC AVG.	128.4	124	32	210	37.2	13.68	174	57.4	17.2	8.24
S.P.	+12	-3		-3			+3			
AC NOISE	.04	.04		.03			.06			
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 1 HALF S SP. 1 DATE 4-28

	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	200	250	→	→	250	300	→	→		1-2
RANGE	30	10	10	100	10	10	3	3		300
DC 1	12.3/13	5.2/4.8	2.5/2.5	25.5/24.1	5.8/5.8	3.7/3.65	1.85/1.65	1.15/1.07		99/99
DC 2	12.5/12.7	5.2/4.8	2.5/2.5	25.5/24.1	5.8/5.8	3.7/3.65	1.74/1.8	1.12/1.12		99/99
DC 3	12.5/12.7	5.2/4.8	2.5/2.5	25.5/24.1	5.8/5.8	3.7/3.65	1.68/1.86	1.06/1.17		99/99
DC 4	12.5/12.5	4.8	2.5			3.65	1.62/1.9	1.2/1.98		
DC 5	12.7		2.5				1.56/1.90	1.15/1.05		
DC 6	25.2						1.7/1.82	1.12/1.12		
DC 7							1.68/1.84			
DC 8							1.56/1.59			
DC AVG.	25.2	10.0	5.8	49.6	11.6	7.35	3.50	2.15		198
AC 1	12.1	4.5	2.7	24.1	5.68	3.57	1.58	1.01		98
AC 2	12.1	4.5	2.7	24.1	5.68	3.57	1.58	1.01		98
AC AVG.	24.2	~~4.5~~ 9.0	5.4	48.2	11.36	7.14	3.16	2.02		196
S.P.	+6				-2					
AC NOISE	.04				.02					
POT RES.										✓

.033 1500 33 3 12 30 60 45 .009 15000 .006

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page ____

Project Bagdad Cu Line 1 N½ Field date 4-29 Data page _____ Comp. date _____. Comp by JPN

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-500	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation												
(D) I	2000	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	134.4	143.7	34.4	~~192.0~~ 126.5	43.6	16.90	113.0	23.0	14.35	6.64		
(F) DCcal	.5	→	→	→	→	→	→	→	→	→		
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	50	54	52	45	65	63	42	35.0	54	50		
(I) Vac Σ	125.0	132.6	31.8	104	40.8	15.66	100.2	20.4	13.6	6.22		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990	→	→	→	→	→	→	→	→	→		
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	6.1	7.3	7.1	14.7	5.7	6.9	12.9	11.6	4.4	5.7		
(O) MCF=(M-1)(10^5)/H	122	135	136	326	88	110	307	332	82	114		

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

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		CAL		
(B) Receive	20-25	→	→	→	25-30	→	→	→				
(C) n separation												
(D) I	2000	→	→	→	→	→	→	→		1000		
(E) Vdc (avg)	15.4	5.5	4.27	2.19	12.0	5.00	4.22	2.29		200		
(F) DCcal	.5	→	→	→	→	→	→	→				
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	14.32	4.90	4.06	2.09	11.4	4.46	3.95	2.12				
(I) Vac Σ	23	21	32	29	45	38	55	48		198		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990	→	→	→	→	→	→	→	→	→		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	6.4	11.1	4.1	3.6	4.2	11.0	5.6	7.0				
(O) MCF=(M-1)(10^5)/H	278	528	128	124	93	290	102	146				

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HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mammoth Line 1 S½ Field date 8.6 Data page_____ Comp. date 8.6 . Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation												
(D) I	2000	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	140.0	135.0	34.9	217	40.9	15.2	179.6	600	19.05	9.10		
(F) DCcal	~~1.01~~ .505	→	→	→	→	→	→	→	→	→		
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	53	51	53	82	62	58	68	91	72	69		
(I) Vac Σ	128.4	124.0	32.0	210	37.2	13.68	174	257.4	17.2	8.24		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990	→	→	→	→	→	→	→	→	→		
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	8.0	7.8	8.0	2.3	9.0	10.0	2.1	3.5	9.7	9.3		
(O) MCF=(M-1)(10^5)/H	151	153	151	28	145	173	31	38	135			

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		UAL		
(B) Receive	20-25	→	→	→	25-30	→	→	→				
(C) n separation												
(D) I	1500	→	→	→	→	→	→	→				
(E) Vdc (avg)	49.6	25.2	10.0	5.18	11.6	7.35	3.50	2.215		198		
(F) DCcal	~~1.01~~ .505	→	→	→	→	→	→	→				
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	100	127	101	103	59	74	62	63				
(I) Vac Σ	48.2	24.2	9.0	5.4	11.36	7.14	3.16	2.02		196		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990	→	→	→	→	→	→	→				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	1.9	3.1	10.1	6.3	1.2	1.9	9.6	8.5				
(O) MCF=(M-1)(10^5)/H	19	24	100	61	20	26	155	135				

568W

PAGE 3

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER CO.

LINE 2 HALF S SP. 1 DATE 4-29

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 S	5-10 S	→	10-15 S	→	→	15-20 S	→	→	→
RANGE										
VOLTAGE	100	100	100	160	100	100	140	160	100	100
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25	S →	→	→	25-30	S →	→	→		CAL
RANGE										
VOLTAGE	140	160	100	100	140	160	100	100		110
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A		1A

FREQUENCIES .05 3.0

SENDER NO. MK-7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER CO
LINE 2 HALF S SP. 1 DATE 4-29

SEND	4-5	3-4	4 5	2-3	3-4	4-5	1-2	2 3	3-4	4-5
RECEIVE	0-5s	5-10s	→	10-15s	→	→	15-20s	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	60.5/60	47.9/47	14.3/14.4	35.9/35.9	12.5/12.6	5.55/5.8	67.5/67	10.9/10.8	5.4/5.4	2.8/2.8
DC 2	60.5/60	47.5/47	14.3/14.4	35.9/35.9	12.5/12.6	5.55/5.8	67.5/67	10.9/10.8	5.4/5.4	2.8/2.8
DC 3	60.5/60	47.9/47	14.3/14.4	35.9/29.9	12.5/12.6	5.55/5.8	67.5/67	10.9/10.8	5.4/5.4	2.8/2.8
DC 4							67	10.8		
DC 5							34.5			
DC 6										
DC 7										
DC 8				79.8				21.7		
DC AVG.	120.5	94.9	28.7	~~72.9~~	25.1	11.75	134.5	~~21.6~~	10.8	5.6
AC 1	55.9	42.5	12.9	36.1	11.6	5.48	60.3	9.9	5.0	2.6
AC 2	55.9	42.5	12.9	36.1	11.6	5.48	60.3	9.9	5.0	2.6
AC AVG.	111.8	85.0	25.8	72.2	23.2	10.96	120.6	19.8	10.0	5.2
S.P.	+12	-10		+3			+4			
AC NOISE	.05	.04		.03			.03			
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER CO
LINE 2 HALF N SP. 1 DATE 4-29

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25	8 →	→	→	25-30	→	→	→		CAL
RANGE	30	10	3	3	10	10	3	1		300
DC 1	12.2/12.2	3.25/3.35	1.56/1.5	1.15/1.05	7.25/7.6	2.58/2.5	1.59/1.59	To Much Noise		97/97
DC 2	12.2/12.2	3.25/3.35	1.58/1.87	1.15/1.03	7.25/7.6	2.58/2.5	1.59/1.59			97/97
DC 3	12.2/12.2	3.25/3.35	2.01/1.82	1.17/1.04	7.25/7.6	2.58/2.5	1.59/1.59			97/97
DC 4			1.88/2.0	1.18/1.04			1.59			
DC 5			1.85/1.57	1.15/1.05			3.18			
DC 6			1.88/1.95	1.17/1.04						
DC 7			1.85/1.58	1.19/1.1						
DC 8			1.85/1.97	1.19/1.08						
DC AVG.	24.4	6.6	3.82	2.22	14.85	5.08	3.18			194
AC 1	11.2	3.1	1.83	1.05	6.77	2.23	1.53	.94		96
AC 2	11.2	3.1	1.83	1.05	6.78	2.22	1.53			96
AC AVG.	22.4	6.2	3.66	2.10	13.55	4.45	3.06			192
S.P.	-8				42					
AC NOISE	.06				.08					
POT RES.										

N 68E

PAGE 4

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD Copper Co

LINE 2 HALF N SP. 1 DATE 4-29

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→
RANGE										
VOLTAGE	180	160	180	100	160	180	100	100	160	180
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25N	→	→	→	25-30N	→	→	→		CAL
RANGE										
VOLTAGE	100	100	160	180	160	100	160	180		60
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A		1A

FREQUENCIES .05 3.0

SENDER NO. MK-7-10635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER CO
LINE 2 HALF N SP. 1 DATE 4-29

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	46.5/45	58/55	14.6/14.6	66.5/68	12.6/13.5	6.65/6.75	39.5/40	16/16	5.7/5.53	4.23/3.75
DC 2	46.5/45	58/55	14.6/14.6	66.5/68	12.6/13.5	6.65/6.75	39.5/40	16/16	5.7/5.53	4.23/3.25
DC 3	46.5/45	58/55	14.6/14.6	66.5/68	12.6/13.5	6.65/6.75	39.5/40	16/16	5.7/5.53	4.23/3.25
DC 4				68						
DC 5				134.5						
DC 6										
DC 7										
DC 8				134.5						
DC AVG.	91.5	113.0	29.2	~~133.3~~	26.1	13.40	79.5	32.0	11.23	7.98
AC 1	41.7	52.3	13.2	63.2	11.9	6.23	36.3	14.7	5.22	3.57
AC 2	41.7	52.3	13.2	63.2	11.9	6.23	36.3	14.7	5.22	3.57
AC AVG.	83.4	104.6	26.4	126.4	23.8	12.46	72.6	29.4	10.44	7.14
S.P.	+4	+11			+19			-5		
AC NOISE	.04	.04			.04			.04		
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER CO
LINE 2 HALF N SP. 1 DATE 4-29

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25N				25-30N					CAL
RANGE	30	10	3	3	10	10	3	3		300
DC 1	8.7/9.4	4.58/4.8	2.2/2.1	1.58/1.63	5.2/5.3	3.2/3.2	1.73/1.55	1.3/1.51		98/98
DC 2	8.7/9.4	4.58/4.8	2.15/2.25	1.5/1.7	5.2/5.3	3.2/3.2	1.6/1.63	1.3/1.52		98/98
DC 3	8.7/9.4	4.58/4.8	2.13/2.28	1.53/1.68	5.2/5.3	3.2/3.2	1.62/1.6	1.4/1.46		98/98
DC 4			2.2/2.1	1.5/1.69			1.7/1.5	1.4/1.45		
DC 5			2.13/2.27	1.55/1.65			1.73/1.53	1.42/1.43		
DC 6			2.15/2.24	1.55/1.67			1.6/1.61	1.4/1.45		
DC 7			2.15/2.25	1.5/1.68			1.6/1.63	1.38/1.48		
DC 8		9.78	2.13/2.29	1.5/1.72			1.7/1.52	1.36/1.5		
DC AVG.	18.1	~~9.88~~	4.37	~~3.08~~ 3.20	10.5	6.4	3.22	2.84		196
AC 1	8.4	4.6	1.98	1.52	4.85	3.01	1.52	1.27		97
AC 2	8.4	4.59	1.98	1.52	4.85	3.01	1.52	1.27		97
AC AVG.	16.8	9.19	3.96	3.04	9.70	6.02	3.04	2.54		194
S.P.	+4				+5					
AC NOISE	.02				.06					✓
POT RES.										

.030 45

NE½

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mammoth Line 2 opl #1 Field date 4-29 Data page_____ Comp. date 5-1-67. Comp by JPM

(A) Send												
(B) Receive												
(C) n separation												
(D) I	1.5			~~134.5~~								
(E) Vdc (avg)	91.5	113	29.2	~~133.3~~	26.1	13.4	79.5	32.0	11.23	7.98		
(F) DCcal	.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	47	58	60	~~68~~ 69	53	68	41	62	57	81		
(I) Vac Σ	83.4	104.6	26.4	126.4	23.8	12.46	72.6	29.4	10.44	7.14		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	8.6	7.0	9.5	~~4.4~~ 6.3	8.6	6.5	8.4	7.8	6.5	10.6		
(O) MCF=(M-1)(10^5)/H	183	127	158	~~65~~ 77	162	96	205	126	114	131		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send											CAL	
(B) Receive												
(C) n separation												
(D) I	1.5	~~9.78~~		~~3.20~~								
(E) Vdc (avg)	18.1	~~9.88~~	4.37	~~3.08~~	10.5	6.4	3.22	2.84			196	
(F) DCcal	.51											
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	37	50	45	~~55~~ 57	54	65	57	81				
(I) Vac Σ	16.8	9.19	3.96	3.04	9.70	~~6.2~~ 6.02	3.04	2.54			194	
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990											
(M) ρdc/ρac =ExL/K		5.4		4.2		~~5.2~~						
(N) PFE=(M-1)(10^2)	6.7	~~6.4~~	9.3	~~0.3~~	7.2	~~2.2~~	4.9	10.7				
(O) MCF=(M-1)(10^5)/H	181	~~128~~ 108	207	~~5~~ 74	133	~~34~~ 80	86	132				

1500 3
6000 12
15000 30
30,000 60
52,500
84

SW½

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mammoth Line 2 spd #1 Field date 4-28-67 Data page_____ Comp. date 5-1-67. Comp by JPM

(A) Send												
(B) Receive												
(C) n separation												
(D) I	1.5											
(E) Vdc (avg)	120.5	94.9	28.7	79.8 ~~78.9~~	25.1	11.75	134.5	21.7 ~~21.6~~	10.8	5.6		
(F) DCcal	.515											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	62	49	59	41	52	60.5	69	44	56	58		
(I) Vac Σ	111.8	85.0	25.8	72.2	23.2	10.96	120.6	19.8	10.0	5.2		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.990											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	6.7	10.5	10.1	9.4 ~~8.1~~	7.1	6.1	10.4	8.5 ~~8.0~~	6.9	6.6		
(O) MCF=(M-1)(10^5)/H	108	214	171	229 ~~198~~	137	100	151	193 ~~182~~	123	114		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send											CAL	
(B) Receive												
(C) n separation												
(D) I	1.5											
(E) Vdc (avg)	24.4	6.6	3.82	2.22	14.85	5.08	3.18				194	
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	50	34	39	40	76	52	57					
(I) Vac Σ	22.4	6.2	3.66	2.10	13.55	4.45	3.06	0.94			192	
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	7.8	5.3	3.3	4.7	8.5	13.0?	2.8					
(O) MCF=(M-1)(10^5)/H	156	156	85	118	112	250	49					

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAG DAD COPPER

LINE 2 HALF 4 SP. 2 DATE 4-29

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	35-40 N	40-45 N	→	45-50 N	→	→	50-55 N	→	→	→
RANGE										
VOLTAGE	120	80	120	100	80	120	140	100	80	120
CURRENT	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	55-60	N →	→	→	60-65	N →	→	→		CAL
RANGE										
VOLTAGE	140	100	80	120	140	100	80	120		80
CURRENT	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A		1A

FREQUENCIES .05 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baqdad
LINE 2 HALF N SP. 2 DATE 5-1

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-6	2-3	1-2
RECEIVE	35-40	40-45	→	45-50	→		50-55	→		
RANGE	300	300	100	100	30	10	100	30	10	10
DC 1	100/98	95/95	29.5/25	69.5/70	18.5/18.3	7.99/8.55	63/63.9	11.9/13	5.35/5.8	2.45/2.75
DC 2	100/98	55/55	25.5/25	69.5/70	18.5/18.3	7.99/8.55	63/63.9	11.9/13	5.35/5.8	2.45/2.75
DC 3	100/98	55/95	29.5/25	69.5/70	18.5/18.3	7.55/8.55	63/63.9	11.9/13	5.35/5.8	2.45/2.75
DC 4										275
DC 5										520
DC 6										
DC 7										
DC 8										
DC AVG.	198	190	54.6	139.5	36.8	16.54	126.9	23.2	11.15	5.20
AC 1	90	84	24.2	60.5	16	7.08	51.9	10.3	4.7	2.05
AC 2	90	84	24.2	60.5	16	7.08	51.9	10.3	4.72	2.03
AC AVG.	180	168	48.4	121.0	32	14.16	103.8	20.6	9.42	4.08
S.P.	+9	+14		+8			-3			
AC NOISE	.18	.09		.05			.04			
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bradwd
LINE 2 HALF N SP. 2 DATE 5-1

PAGE 10

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		0-1
RECEIVE	5.5-	6.0 →			6.0-	6.5- →				4.5-
RANGE	100	30	10	10	30	10	10	3		300
DC 1	31/32	12.5/13.8	6.4/6.6	3.75/3.26	12.3/11.1	7.0/7.9	3.81/3.9	2.57/2.36		97/97
DC 2	31/32	12.5/13.8	6.4/6.6	3.75/3.26	12.3/11.1	7.01/7.9	3.81/3.9	2.5/2.4		97/97
DC 3	31/32	12.5/13.8	6.4/6.6	3.75/3.26	12.3/11.1	7.0/7.9	3.81/3.9	2.53/2.38		97/97
DC 4							39	2.5/2.4		
DC 5							7.71	2.5/2.4		
DC 6								2.5/2.4		
DC 7								2.5/2.4		
DC 8										
DC AVG.	63	26.3	13.0	7.01	23.4	14.9	7.71	4.905		19 4
AC 1	24.5	10.5	5.27	2.82	9.7	6.23	3.27	2.02		96
AC 2	24.5	10.5	5.27	2.82	9.7	6.23	3.27	2.03		98
AC AVG.	49.0	21.0	10.54	5.64	19.4	12.46	6.54	4.05		19 2
S.P.	+4				-9					
AC NOISE	.05				.04					
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 2 HALF SW SP. 2 DATE 5-1

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	30-35 N	25-30 N	→	20-25 N	→	→	15-20 N	→	→	→
RANGE										
VOLTAGE	100	90	100	60	90	100	100	60	90	100
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	10-15 N	→	→	→	5-10 N	→	→	→		CA 2
RANGE										
VOLTAGE	100	60	100	140	120	80	100	140		60
CURRENT	2A	2A	2.5A	2.5A	2.5A	2.5A	2.5A	2.5A		1A

FREQUENCIES .05 3.0
SENDER NO. MK 2-1066 35
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS: POWER LINE 100' NORTH OF CENTER

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baodad
LINE 2 HALF S SP. 2 DATE 5-1

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	35-30	30-	25	25-	20 →		20-	15 →		
RANGE	100	100	30	100	30	10	100	30	30	10
DC 1	77.8/77	84.5/84.2	23.3/22.8	46.1/46	17/17.4	7.1/6.75	60.5/58.3	22/23.1	11.1/11.7	5.63/5.64
DC 2	77.8/77	84.5/84.2	23.3/22.8	46.1/46	17/17.4	7.1/6.75	60.5/58.3	22/23.1	11.1/11.7	5.63/5.64
DC 3	77.8/77	84.5/84.2	23.3/22.8	46.1/46	17/17.4	7.1/6.75	60.5/58.3	22/23.1	11.1/11.7	5.63/5.64
DC 4										11.03
DC 5										
DC 6										
DC 7										
DC 8										11.03
DC AVG.	154.8	168.7	46.1	92.1	34.4	13.85	118.8	45.1	22.8	~~11.27~~
AC 1	69.7	77.2	20.6	44	15.9	6.22	54.8	21	10.4	4.87
AC 2	69.7	77.2	20.6	44	15.9	6.22	54.8	21	10.4	4.87
AC AVG.	139.4	154.4	41.2	88	31.8	12.44	109.6	42	20.8	9.74
S.P.	+4	+4		+6			+9			
AC NOISE	.165	.04		.03			.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 2 HALF S SP. 2 DATE 5-1

PAGE 12

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	15-	10 →			10-	5- →				1-2
RANGE	30	10	10	10	10	10	10	3		300
DC 1	14.7/15.3	8.7/8.58	6.4/6.5	3.25/3.6	8.85/8.6	5.39/5.63	3.82/3.99	2.1/2.39		58/58
DC 2	14.7/15.3	8.7/8.58	6.4/6.5	3.25/3.6	8.85/8.6	5.39/5.63	3.82/3.99	2.3/2.14		58/58
DC 3	14.7/15.3	8.7/8.58	6.4/6.5	3.25/3.6	8.85/8.6	5.39/5.63	3.82/3.99	2.24/2.2		58/58
DC 4					86	563	399	2.29/2.29		
DC 5								2.29/2.29		
DC 6								2.29/2.29		
DC 7								2.29/2.29		
DC 8										196
DC AVG.	30.0	17.28	12.9	6.85	17.45	11.02	7.81	4.530	2.458	98
AC 1	14.4	8.19	6.05	3.09	8.19	5.17	3.55	1.99		98
AC 2	14.4	8.18	6.05	3.09	8.19	5.17	3.55	1.99		196
AC AVG.	28.8	16.37	12.10	6.18	16.38	10.34	7.10	3.98		
S.P.	+4				-3					
AC NOISE	.04				.03					
POT RES.										✓

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Bagdad-Mammoth Line 2 sod 2 5W1/2 Field date 5/1/67 Data page_____ Comp. date 5/2/67. Comp by H.D.

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	3000-3500	3500-4000	→	4000-4500	→	→	5000-5500	→	→	→		
(C) n separation												
(D) I	2.0	2.0	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	154.8	168.7	46.1	92.1	34.4	13.85	18.8	45.1	22.8	~~11.27~~ 11.03		
(F) DCcal	50020	→	→	→	→	→	→	→	→	→		
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	59	65	71	35	53	53	45	69	87	~~86~~ 84		
(I) Vac Σ	139.4	154.4	41.2	88.0	31.8	12.44	109.6	42.0	20.8	9.74		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000	→	→	→	→	→	→	→	→	→		
(M) ρ dc/ρac=ExL/K										13.2		
(N) PFE=(M-1)(10^2)	11.0	9.3	11.9	4.6	8.2	11.3	8.4	7.4	9.6	~~15.7~~		
(O) MCF=(M-1)(10^5)/H	186	143	168	131	155	213	187	107	110	~~183~~ 151		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal		
(B) Receive	5500-6000	→	→	→	~~6000-6500~~ 10-5 ME	→	→	→				
(C) n separation												
(D) I	2.0	2.0	2.5	2.5	→	→	→	→		1.000		
(E) Vdc (avg)	30.0	17.28	12.9	6.85	17.45	~~11.2~~ 11.02	7.81	4.53		196		
(F) DCcal	→	→	→	→	→	→	→	→				
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	46	66	79	73	53	~~69~~ 67	84	78				
(I) Vac Σ	28.8	16.37	12.1	6.18	16.38	10.34	7.1	3.98		196		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000	→	→	→	→	→	→	→				
(M) ρdc/ρac =ExL/K							10.0					
(N) PFE=(M-1)(10^2)	4.2	5.6	6.6	16.8	6.5	~~8.3~~ 6.6	~~16.0~~	13.8				
(O) MCF=(M-1)(10^5)/H	91	85	84	148	123	~~120~~ 99	~~190~~ 119	177				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Eagle - Mammoth Line 2 spd 2 NE 1/2 Field date 5/1/67 Data page_____ Comp. date 5/2/67. Comp by H.R

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive												
(C) n separation												
(D) I	2.5	→										
(E) Vdc (avg)	198	190	54.5	139.5	36.8	16.54	126.9	23.2	11.15	5.2		
(F) DCcal	.51546	→										
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	61	58	67	43	45	51	39	28	34	32		
(I) Vac Σ	180	168	48.4	121	32.0	14.16	103.8	20.6	9.42	408		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.98969	→										
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	8.7	11.9	11.4	14.1	13.8	15.6	21	11.5	17.1	26.1		
(O) MCF=(M-1)(10^5)/H	143	205	170	328	306	306	538	411	503	816		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal		
(B) Receive												
(C) n separation												
(D) I	2.5	→								1.000		
(E) Vdc (avg)	63.0	26.3	13.0	7.61	23.4	14.9	7.71	4.905		194		
(F) DCcal	→											
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	77	81	80	75	72	91	83	84				
(I) Vac Σ	49	21	10.54	5.64	19.4	12.46	6.54	4.05		192		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→											
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	27.2	23.9	22.0	23.0	19.4	18.3	16.7	19.9				
(O) MCF=(M-1)(10^5)/H	353	295	275	307	269	201	201	237				

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER CO

LINE 2 HALF SW½ SP. 3 DATE 5-2

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	65-70N	60-65N	→	55-60N	→	→	50-60N	→	→	→
RANGE										
VOLTAGE	340	260	340	150	260	340	200	220	320	375
CURRENT	2A	2A	2A	2A	2A	2A	3A	3A	2.5A	2.25A
SEND	4-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	45-50N	→	→	→	40-45N	→	→	→		CAL
RANGE										
VOLTAGE	200	220	320	375	200	220	320	375		100
CURRENT	3A	3A	2.5A	2.25A	3A	3A	2.5A	2.25A		1A

FREQUENCIES .05 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BARDAD COPPER
LINE 2 HALF S SP. 3 DATE 5-2

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	70-60	65-60		60-65	→		65-	60	→	
RANGE	100	100	30	100	30	10	100	30	10	3
DC 1	51.9/50	44.1/44.1	12.3/12	47.6/47	17.4/14	6.5/6.5	33/33	12.4/12.5	5.5/5.2	2.16/2.38
DC 2	51.9/50	44.1/44.1	12.3/12	47.6/47	17.4/14	6.5/6.5	33/33	12.4/12.5	5.5/5.2	2.16/2.38
DC 3	51.9/50	44.1/44.1	12.3/12	47.6/47	17.4/14	6.5/6.5	33/33	12.4/12.5	5.5/5.2	2.16/2.38
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										4.54
DC AVG.	101.9	88.2	24.3	94.6	31.4	13.0	66.0	24.9	10.7	~~4.48~~
AC 1	35.3	34.5	9.6	36.3	12.6	5.1	27.5	10	4.31	1.79
AC 2	35.3	34.5	9.6	36.3	12.6	5.1	27.5	10	4.31	1.79
AC AVG.	78.6	69.0	19.2	72.6	25.2	10.2	55.0	20.0	8.62	3.58
S.P.	-28	+13		+8			+10			
AC NOISE	.05	.03		.03			.03			
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad Copper
LINE 2 HALF S SP. 3 DATE 5-2

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	50 - 45			→	45 -	40		→		1-2
RANGE	30	10	10	10	30	10	10	10		300
DC 1	18.3/17.4	9.2/8.8	5.73/5.65	2.56/2.92	13/14.2	8.6/8.83	5.68/5.8	3.19/2.75		55/99
DC 2	18.3/17.4	9.2/8.8	5.73/5.65	2.56/2.98	13/14.2	8.6/8.83	5.68/5.8	3.19/2.75		55/99
DC 3	18.3/17.4	9.2/8.8	5.73/5.65	2.56/2.98	13/14.2	8.6/8.83	5.68/5.8	3.19/2.75		55/99
DC 4										
DC 5										
DC 6										
DC 7										
DC 8		18.0					11.48			
DC AVG.	35.7	~~18.5~~	11.38	5.56	27.2	17.43	~~11.18~~	5.94		198
AC 1	14.3	7.14	4.55	2.21	11.2	7.21	4.62	2.4		98
AC 2	14.3	7.14	4.55	2.21	11.2	7.21	4.62	2.4		98
AC AVG.	28.6	14.28	9.10	4.42	22.4	14.42	9.24	4.8		196
S.P.	-1				-10					
AC NOISE	.04				.07					✓
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER CO

LINE 2 HALF NE' SP. 3 DATE 5-2

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	70-75N	75-80N	→	80-85N	→	→	85-90N	→	→	→
RANGE										
VOLTAGE	200	220	200	320	220	200	375	320	220	200
CURRENT	3A	3A	3A	2.5	3A	3A	2.25A	2.5A	3A	3A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	90-95N	→	→	→	95-100N	→	→	→		CAL
RANGE										
VOLTAGE	375	320	220	200	375	320	220	200		250
CURRENT	2.25A	2.5A	3A	3A	2.25A	2.5A	3A	3A		1A

FREQUENCIES .05 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 2 HALF N SP. 3 DATE 5-2

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	70-75	75	-80	80-85	→	→	85-90	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	63/67.2	74.5/74.5	18.7/15.8	73.5/71.5	20.4/20.7	7.43/7.56	45.5/46.5	16.8/18.1	7.9/8.6	3.5/3.7
DC 2	63/67.2	74.5/74.5	18.7/15.8	73.5/71.5	20.4/20.7	7.43/7.56	45.5/46.5	16.8/18.1	7.9/8.6	3.5/3.7
DC 3	63/67.2	74.5/74.5	18.7/15.8	73.5/71.5	20.4/20.7	7.43/7.56	45.5/46.5	16.8/18.1	7.9/8.6	3.5/3.7
DC 4										
DC 5										
DC 6	138.2	149.0	38.5	145.0	41.1	14.99	9.20	35.9	16.5	7.2
DC 7								34.9		
DC 8										
DC AVG.									12.96	
AC 1	103.4	114.3	30.8	112.2	32.8	12.10	71.4	26.2	13.96	5.8
AC 2	51.7	57.1	15.4	56.1	16.4	6.05	35.7	13.1	6.48	2.9
AC AVG.	51.7	57.2	15.4	56.1	16.4	6.05	35.7	13.1	6.48	2.9
S.P.	-43	+15		-1			-140			
AC NOISE	.08	.08		.04			.05			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 2 HALF N SP. 3 DATE 5-2

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal
RECEIVE	90-95 →				95-	100 →				4-5
RANGE	30	10	10	3	10	10	3	1		300
DC 1	11.1/10.8	6.6/5.8	3.97/3.21	5.4/6.3	4.45/5.15	2.85/3.2	2.11/1.91			97/97
DC 2	11.1/10.8	6.6/5.8	3.97/3.21	5.4/6.3	4.54/5.15	2.85/3.2	2.25/1.84			97/97
DC 3	11.1/10.8	6.6/5.8	3.97/3.21	5.4/6.3	4.54/5.15	2.85/3.2	2.04/2.07			
DC 4				5.45/6.35			1.94/2.13			
DC 5				5.4/6.3			2.17/1.99			
DC 6							2.15/1.92			
DC 7							2.2/1.88			
DC 8							2.15/1.92			
DC AVG.	21.9	12.4	7.18	11.7	9.69	6.19	4.07			194
AC 1	8.4	4.7	2.83	4.63	3.6	2.2	1.37	.8		96
AC 2	8.4	4.7	2.83	4.63	3.6	2.2	1.57			96
AC AVG.	16.8	9.4	5.66	9.26	7.2	4.4	3.14			192
S.P.	+22				-82					
AC NOISE	105				.05					
POT RES.										✓

4-5 2.25
3-4 2.5
2-3 3.0
1-2 3.0

6.27 + T 19 min

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line N/E ½ 2-S Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive												
(C) n separation												
(D) I	3	3	3	2.5	3	3	2.25	2.5	3	3	2.25	2.5
(E) Vdc (avg)	~~138.4~~ 302	149.0	38.5	145.0	41.1	14.99	92.0	~~35.9~~ 34.9	16.5	7.2	21.9	12.4
(F) DCcal USED	0.515											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρdc=ExFxGx10^3/D	~~35~~ 34	38	40	45	42	39	32	~~44~~ 43	43	37	30	38
(I) Vac Σ	103.4	114.3	30.8	112.2	32.8	12.1	71.4	26.2	~~13.96~~ 12.96	5.8	16.8	~~8.4~~ 9.4
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.990											
(M) ρdc/ρac=ExL/K	24.7							31.9	26.0			30.6
(N) PFE=(M-1)(10^2)	~~32.3~~	29.0	23.8	27.8	24.0	22.7	27.5	~~35.8~~	~~17.0~~	22.9	29.1	~~46.7~~
(O) MCF=(M-1)(10^5)/H	~~922~~ 726	763	595	618	572	582	860	~~802~~ 742	~~395~~ 605	620	970	~~1215~~ 805

Project_____ Line 1-2 Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3											
(B) Receive												
(C) n separation		2.25	2.5	3.0	3.0							
(D) I	3	3	2.25	2.5	3	3		1000				
(E) Vdc (avg)	7.18	~~11.7~~ 150	9.69	6.19	4.07			97 194				
(F) DCcal		15	30	~~52.5~~	~~84~~			.515				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρdc=ExFxGx10^3/D	37	~~40~~ 33	~~60~~ 33	~~56~~ 38	~~54~~ 37							
(I) Vac Σ	5.66	9.26	7.20	4.40	3.14	.81.6		96 192				
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								0.990				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	25.6	25.1	33.1	39.3	28.2							
(O) MCF=(M-1)(10^5)/H	692	~~627~~ 760	552 1003	702 1034	478 762							

L-3 at Elect 2 ≈ 1 Tr 2 Porous pot SW½

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project 53 Line 2-53 Field date_____ Data page_____ Comp. date_____. Comp by_____

		500'										
(A) Send	4-5	3-4	4-5	~~2-3~~	~~3-4~~	~~4-5~~	~~1-2~~	~~2-3~~	~~3-4~~	~~4-5~~	~~1-2~~	~~2-3~~
(B) Receive												
(C) n separation												
(D) I	2	2	2	2	2	2	3	3	2.5	2.25	3	3 18.0
(E) Vdc (avg) X2	101.9	~~22~~ ~~88.2~~	24.3	94.6	31.4	13.0	66.0	24.9	10.7	~~4.48~~ 4.54	35.7	~~18.5~~
(F) DCcal USED	0.505											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	39	~~21~~ 33	37	36	48	49	17	25	32	~~30~~ 31	36	~~47~~ 45
(I) Vac Σ	78.6	69.0	19.2	72.6	25.2	10.2	55.0	20.0	8.62	3.58	28.6	14.28
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.990											
(M) ρ dc/ρac=ExL/K		26.5										24.8
(N) PFE=(M-1)(10^2)	28.3	~~18.0~~	25.2	29.0	23.3	26.1	16.8	23.2	22.9	~~23.9~~ 25.5	23.7	~~28.2~~
(O) MCF=(M-1)(10^5)/H	610	~~511~~ 803	652	806	486	533	989	929	716	~~797~~ 822	659	~~600~~ 551

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	~~3-4~~	~~4-5~~	~~1-2~~	~~2-3~~	~~3-4~~	~~4-5~~						
(B) Receive												
(C) n separation												
(D) I	2.5	2.25	3	3	2.5	2.25		1.000				
(E) Vdc (avg)	11.38	5.56	27.2	17.43	~~11.18~~ 11.48	5.94		198				
(F) DCcal								0.505				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρ dc=ExFxGx10^3/D	69	66	69	88	~~118~~ 122	112						
(I) Vac Σ	9.10	4.42	22.4	14.42	9.24	4.80		196				
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								0.990				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	23.8	24.3	20.1	19.7	~~19.9~~ 23.9	22.4						
(O) MCF=(M-1)(10^5)/H	345	368	291	224	~~169~~ 189	200						

S 68 E

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER CO

LINE 3 HALF SE SP. 1 DATE 5-3

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 SE	5-10 SE	→	10-15 SE	→	→	15-20	SE	→	→
RANGE										
VOLTAGE	200	180	180	140	180	200	220	140	180	200
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25 SE	→	→	→	25:30	SE	→	→		CAL
RANGE										
VOLTAGE	220	140	180	200	220	140	180	200		110
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A		1A

FREQUENCIES .05 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 3 HALF S SP. 1 DATE 5-3

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-500	500-1000		1000-1500		→	1500-2000			→
RANGE	100	300	100	300	100	10	300	100	30	10
DC 1	73/74	103/105	22/21.7	131/128	24.5/26	7.55/7.5	141/143	33.5/36.5	10.4/10.6	3.3/3.81
DC 2	73/74	103/105	22/21.7	131/128	24.5/26	7.55/7.5	141/143	33.5/36.5	10.6/10.6	3.3/3.81
DC 3	73.74	103/105	22/21.7	131/128	24.5/26	7.55/7.5	141/143	33.5/36.5	10.6/10.6	3.3/3.81
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	147	208	43.7	259	50.5	15.45	284	70.0	21.2	7.1.1
AC 1	68.5	96	20.1	111	22.3	7.02	125	29.9	9.4	3.19
AC 2	68.5	96	20.1	111	22.3	7.02	125	29.9	9.4	3.18
AC AVG.	137.0	192.	40.2	222	44.6	14.04	250	59.8	18.8	6.37
S.P.	-16	-5		-2			-1			
AC NOISE	.12	.16		.19			.17			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bradnd
LINE 3 HALF S SP. 1 DATE 5-3

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	2000-2500		→		2500-3000		→			1-2
RANGE	100	30	10	3	30	10	10	3		300
DC 1	33.8/33.8	14/14	5.65/5.83		12.9/10.2	5.83/6.58	2.38/2.57	10.6/10.9		68/58
DC 2	33.8/33.8	14/14	5.65/5.83	Power lines Interference	12.9/10.2	5.83/6.58	2.38/2.57			68/58
DC 3	33.8/33.8	14/14	5.65/5.83		12.9/10.2	5.83/6.58	2.38/2.57			58/58
DC 4								Too much noise		
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	67.6	28.0	11.48		23.1	12.41	5.35			196
AC 1	30	12.1	4.82	1.79	9.9	5.15	2.2	.92		97
AC 2	30	12.1	4.82		9.9	5.15	2.2			97
AC AVG.	60.0	24.2	9.64	3.58	19.8	10.30	4.4	1.84		194
S.P.	-26				13					
AC NOISE	.35				.35					
POT RES.										

N 68 W

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER CO

LINE 3 HALF NW SP. 1 DATE 5-3

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5 NW	5-10 NW	→	10-15 NW	→	→	15-20 NW	→	→	→
RANGE										
VOLTAGE	220	140	220	180	140	220	200	180	140	220
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25	NW	→	→	25-30	NW	→	→		CAL
RANGE										
VOLTAGE	200	180	140	140	200	180	140	200		80
CURRENT	3A	3A	3A	1.75A	3A	3A	3A	2.75A		1A

FREQUENCIES .05 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 3 HALF N SP. 1 DATE 5-3

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-500	500-1000		1000-1500		→	1500-2000			→
RANGE	300	100	100	100	100	30	100	100	30	10
DC 1	103/105	75.2/74.1	22.1/22	87.5/86.1	40.1/40.1	17.5/18.1	40.5/40.5	21.2/22.2	17.1/16.4	8.77/8.99
DC 2	103/105	75.2/74.1	22.1/22	87.5/86.1	40.1/40.1	17.5/18.1	40.5/40.5	21.2/22.2	17.1/16.4	8.77/8.99
DC 3	103/105	75.2/74.1	22.1/22	87.5/86.1	40.1/40.1	17.5/18.1	40.5/40.5	21.2/22.2	17.1/16.4	8.77/8.99
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	208	149.3	44.1	173.6	80.2	35.6	81.0	43.4	33.5	17.76
AC 1	95	69.2	20.1	81.2	37.3	16.5	38.2	20.1	15.1	8.02
AC 2	95	69.2	20.1	81.2	37.3	16.5	38.2	20.1	15.1	8.02
AC AVG.	190	138.4	40.2	162.4	74.6	33.0	76.4	40.2	30.2	16.04
S.P.	-5	0		-11			-17			
AC NOISE	.04	.04		.1			.05			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT [illegible]
LINE 3 HALF N SP. 1 DATE 5-3

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal
RECEIVE	2000-2500		→		2500-3000		→			4-5
RANGE	30	30	30	10	10	10	10	10		300
DC 1	20.4/209	16.5/17.1	13.8/14.9	5.0/4.8	5.5/5.3	5.85/6.19	5.81/5.75	3.05/3.5		98/98
DC 2	20.4/209	16.5/17.1	13.8/14.9	5.0/4.8	5.5/5.3	5.85/6.19	5.81/5.75	3.05/3.5		98/98
DC 3	20.4/209	16.5/17.1	13.8/14.9	5.0/4.8	5.5/5.3	5.85/6.19	5.81/5.75	3.05/3.5		98/98
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	41.3	33.6	28.7	9.8	10.8	12.04	11.56	6.55		196
AC 1	19.2	15.4	12.6	4.39	4.96	5.41	5.05	2.9		96
AC 2	19.2	15.4	12.6	4.39	4.96	5.41	5.05	2.9		96
AC AVG.	38.4	30.8	25.2	8.78	9.92	10.82	10.10	5.8		192
S.P.	-11					-13				
AC NOISE	.045					.04				
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Bayland Line 3 SE½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	4.5											
(B) Receive												
(C) n separation												
(D) I	3											
(E) Vdc (avg)	147	208	43.7	259	50.5	15.45	284	70.0	21.2	7.11	67.6	28.0
(F) DCcal USED	0.51											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	11237	15953	13445	19866	15552	11839	21772	21471	16254	10936	20769	21471
(I) Vac Σ	137	192	40.2	222	44.6	14.04	250	59.8	18.8	6.37	60.0	24.2
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.990											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	6.2	7.3	7.6	15.5	12.1	8.9	12.5	15.9	11.6	10.5	11.5	14.5
(O) MCF=(M-1)(10^5)/H	168	138	169	235	233	228	174	224	215	292	167	204

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send		4.5	1.2			4.5		CAL				
(B) Receive												
(C) n separation												
(D) I								1000				
(E) Vdc (avg)	11.48	~	23.1	12.41	5.35	~		196				
(F) DCcal								.510				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρ dc=ExFxGx10^3/D	17659	~38?	17759	19063	14344	~32?						
(I) Vac Σ	9.64	~~1.79~~	19.8	10.30	4.40	.92 1.84		194				
(J) AC noise x 2		3.58										
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								.990				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	17.9	—	15.5	19.3	20.4	—						
(O) MCF=(M-1)(10^5)/H	303	—	263	306	464	—						

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Bagdad Line 3 NW2 Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2											
(B) Receive												
(C) n separation												
(D) I	3											
(E) Vdc (avg)	208	149.3	44.1	173.6	80.2	35.6	81.0	43.4	33.5	17.76	41.3	33.6
(F) DCcal	.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	53	36	45	44	82	91	21	44	85	91	42	86
(I) Vac Σ	190	138.4	40.2	162.4	74.6	33.0	76.4	40.2	30.2	16.04	38.4	30.8
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.980											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	7.3	5.7	7.5	4.8	5.4	5.7	3.9	5.8	8.7	8.5	5.4	6.9
(O) MCF=(M-1)(10^5)/H	138	158	167	109	66	63	186	132	102	93	129	80

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send								CAL				
(B) Receive												
(C) n separation												
(D) I	→	1.75	3	3	3	2.75		1000				
(E) Vdc (avg)	28.7	9.80	10.8	12.04	11.56	6.5		196				
(F) DCcal								.510				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρ dc=ExFxGx10^3/D	146	150	28	61	103	102						
(I) Vac Σ	25.2	8.78	9.92	10.82	10.10	5.80		192				
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								.980				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	11.6	9.4	6.7	9.0	12.2	10.7						
(O) MCF=(M-1)(10^5)/H	79	63	239	148	118	105						

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 4 HALF NW SP. 1 DATE 5-8

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5 NW	5-10 NW →		10-15 NW →			15-20 NW →			
RANGE										
VOLTAGE	320	280	320	180	280	320	220	180	280	320
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25 NW		→		25-30 NW	→				CAL
RANGE										
VOLTAGE	220	180	280	320	220	180	280	320		
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A		1A

FREQUENCIES 0.5 3.0
SENDER NO. MK7 106635
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 4 HALF SE SP. 1 DATE 5.8

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 SE	5-10 SE	→	10-15 SE	→	→	15-20 SE	→	→	→
RANGE										
VOLTAGE	220	180	220	280	180	220	320	280	180	220
CURRENT	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25	SE	→	→	25-30	SE	→	→		CAL
RANGE										
VOLTAGE	320	280								220
CURRENT	1.5A	1.5A								1A

FREQUENCIES 0.5 3.5
SENDER NO. MK7 106635
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 4 HALF NW SP. 1 DATE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5	5-10	→	10-—	15 →		15-20			→
RANGE	100	100	80	100	30	10	100	30	10	10
DC 1	43.3/43	41.7/41.3	12.2/12.3	34.2/32	12.1/12.3	6.3/6.61	35.5/33.7	13.1/12.5	5.85/6.25	3.81/3.35
DC 2	43.3/43	41.7/41.3	12.2/12.3	34.2/32	12.1/12.3	6.3/6.61	35.5/33.7	13.1/12.5	5.85/6.25	3.81/3.35
DC 3	43.3/43	41.7/41.3	12.2/12.3	34.2/32	12.1/12.3	6.3/6.61	35.5/33.7	13.1/12.5	5.85/6.25	3.81/3.35
DC 4										
DC 5										
DC 6										
DC 7										
DC 8					24.4					
DC AVG.	86.3	83.0	24.5	66.2	24.3	12.91	69.2	25.6	12.10	7.16
AC 1	30.3	33.6	9.7	26.2	9.8	5.25	25.9	9.2	4.43	2.75
AC 2	30.3	33.6	9.7	26.2	9.8	5.25	25.9	9.2	4.43	2.75
AC AVG.	60.6	67.2	19.4	52.4	19.6	10.5	51.8	18.4	8.86	5.50
S.P.	-80	-46		-89			-100			
AC NOISE	.08	.055		.05			.045			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagend
LINE 4 HALF NW SP. 1 DATE 5-8

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		del
RECEIVE	20-2	5 →			25-30 →					4-5
RANGE	10	10	3	3	10	3	3	1		300
DC 1	6.95/6.65	3.15/2.27	2.32/2.23	1.66/1.76	2.70/2.98	1.7/1.98	1.31/1.12			98/98
DC 2	6.65/6.65	3.15/2.28	2.37/2.17	1.65/1.77	2.65/3.04	1.67/1.83	1.43/1.09			98/98
DC 3	6.85/6.65	3.15/3.27	2.41/2.22	1.63/1.8	2.65/3.04	1.7/1.68	1.16/1.23			98/98
DC 4			2.24/2.32	1.64/1.78	2.80/2.91	1.9/1.43	1.24/1.27			
DC 5			2.13/2.29	1.66/1.76	2.70/2.98	1.66/1.86	1.29/1.21			
DC 6			2.27/2.28			1.63/1.54	1.3/1.21			
DC 7			2.26/2.3			1.82/1.58	1.36/1.12			
DC 8			4.56			1.64/1.76	1.16/1.37			
DC AVG.	13.6	6.46	~~4.69~~	3.42	5.65	3.45	2.49			196
AC 1	5.91	2.63	1.93	1.45	2.4	1.44	1.06	.845		97
AC 2	5.91	2.63	1.93	1.46	2.4	1.44	1.06			96
AC AVG.	11.82	5.26	3.86	2.91	4.88	2.88	2.12	1.69		193
S.P.	-57				-77					
AC NOISE	.04				.08					
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 4 HALF SE SP. 1 DATE 5-8

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5	5-10	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	30	30	10	10	100	10	10	3
DC 1	42.7/40.5	35/42.5	12/12	26.7/28	6.35/6.4	2.82/2.7	42/48	9.6/9.75	3.25/3.8	1.77/1.97
DC 2	42.7/40.5	35/42.5	12/12	26.7/28	6.35/6.4	2.82/2.7	42/48	9.6/9.75	3.25/3.8	1.9/1.8
DC 3	42.7/40.5	35/42.5	12/12	26.7/28	6.35/6.4	2.82/2.7	42/48	9.6/9.75	3.25/3.8	1.76/2.0
DC 4										1.9/1.8
DC 5										1.7/2.05
DC 6										1.73/2.1
DC 7										
DC 8										
DC AVG.	83.2	81.5	24	54.7	12.25	5.52	90	19.35	7.05	3.75
AC 1	33.9	29.7	9.5	18.6	4.50	2.19	31.3	7.24	2.40	1.57
AC 2	33.9	29.7	9.0	18.6	4.5	2.19	31.3	7.24	2.40	1.57
AC AVG.	67.8	59.4	19.0	37.2	9.0	4.38	62.6	14.48	4.80	3.14
S.P.	-146	-70		∈	+12		-151			
AC NOISE	.07	.04			.05		.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 4 HALF SE SP. 1 DATE 5-8

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	20-25 →				25-30 →					1-2
RANGE	30									30
DC 1	15.5/12.5									300
DC 2	15.5/12.5									98/98
DC 3	15.5/12.5									98/98
DC 4										98/98
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	33.4									196
AC 1	11.7	.85	.36	.17						95
AC 2	11.7	1.70	.72	.34						95
AC AVG.	23.4									190
S.P.	-150									
AC NOISE	.12									
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line 4 NW½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2											
(B) Receive												
(C) n separation	—	—	—	—	—	—	—	—	—	—	—	—
(D) I	1.5											
(E) Vdc (avg)	86.3	83.0	27.5	66.2	24.3	12.91	69.2	25.6	12.1	7.16	13.6	6.46
(F) DCcal	.510	—	—	—	—	—	—	—	—	—	—	—
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	44	42	50	34	50	66	35	52	62	73	28	33
(I) Vac Σ	60.6	67.2	19.4	52.4	19.6	10.5	51.8	18.4	8.86	5.5	~~11.2~~ 11.8	5.26
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.985	—	—	—	—	—	—	—	—	—	—	—
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	40.0	21.6	24.3	24.3	22.1	21.1	31.6	37.0	34.7	28.1	~~19.6~~ 13.3	20.9
(O) MCF=(M-1)(10^5)/H	910	514	487	715	442	320	902	712	560	385	~~700~~	633
	-80	-46	rod	-89			-100				-51 475	

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation	—	—	—	—	—	—						
(D) I	4.56							1000				
(E) Vdc (avg)	~~4.69~~	3.42	5.65	3.45	2.49	~.955?		.86				
(F) DCcal	—	—	—	—	→	1.91		.510				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	~~84~~						
(H) ρ dc=ExFxGx10^3/D	~~48~~ 47	61	29	35	44	55?						
(I) Vac Σ	3.86	2.91	4.88	2.88	2.12	0.845		193				
(J) AC noise x 2						x2 1.69						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	—	—	—	—	→			.985				
(M) ρdc/ρac =ExL/K	16.4											
(N) PFE=(M-1)(10^2)	~~19.6~~	15.8	14.0	18.0	15.7	—						
(O) MCF=(M-1)(10^5)/H	~~408~~	259	482	514	357	—						
	349		-77									

7000NE N68°W S68°E

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line 4-SE½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	45											
(B) Receive												
(C) n separation	—	—	—	—	—	—	—	—	—	—		
(D) I	1.5										15.9 12.5	
(E) Vdc (avg)	83.2	81.5	24	54.7	12.75	5.52	90	19.35	7.05	3.75	37.4	≈ ~~1.15~~ 2.2
(F) DCcal	0.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρdc=ExFxGx10^3/D	42	42	49	28	26	28	46	40	36	38	68	~~59~~ ?11
(I) Vac Σ	67.8	59.4	19	37.2	9.0	4.38	62.6	14.48	4.8	3.14	23.4	.85
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	.985											
(L) AC-DC cal.	~~.970~~											
(M) ρdc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	20.9	35.1	24.4	44.9	39.4	24.1	41.4	31.8	44.7	17.6 ?	40.6	
(O) MCF=(M-1)(10^5)/H	498	836	498	1600	1520	861	900	795	1241	463 ?	597	
	-146	-70		-112				-151				

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send								111				
(B) Receive												
(C) n separation												
(D) I								1000				
(E) Vdc (avg)	≈ .47	≈ .21						196				
(F) DCcal								.510				
(G) Kn x 10^{-3}	30	52.5										
(H) ρdc=ExFxGx10^3/D	48 ?	37 ?										
(I) Vac Σ	.36	.17						190				
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								~~.970~~	used	0.985		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	-150											

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 5 HALF NW SP. 1 DATE 5-9

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5 NW	5-10 NW →		10-15 NW →			15-20 NW →			
RANGE										
VOLTAGE	320	300	320	210	300	320	240	210	300	320
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25 NW →				25-30 NW →					CAL
RANGE										
VOLTAGE	240	210	300	320	240	210	300	320		110
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		1A

FREQUENCIES .25 3.0
SENDER NO. MK7 106635
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 5 HALF SE SP. 1 DATE 5-9

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 SE	5-10 SE	→	10-15 SE	→	→	15-20 SE	→	→	→
RANGE										
VOLTAGE	240	210	240	320	210	240	320	320	210	240
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25 SE	→	→	→	25-30 SE	→	→	→		CAL
RANGE										
VOLTAGE										160
CURRENT										1A

FREQUENCIES .05 3.5
SENDER NO. MK 7 106635
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 5 HALF 10W SP. 1 DATE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5	5-10	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	3
DC 1	36.2/35.3	54/56	10.1/10.1	57/57	17.1/16.4	45/4.7	55/53	10.3/9.4	4.45/4.05	1.21/1.46
DC 2	36.2/35.3	54/56	10.1/10.1	57/57	17.1/16.4	4.0/4.6	55/53	10.3/9.4	4.57/3.55	1.01/1.58
DC 3	36.2/35.3	54/56	10.1/10.1	57/57	17.1/16.4	4.1/4.8	55/53	10.3/9.4	4.8/3.8	1.35/1.22
DC 4						3.85/4.7			4.6/4.0	1.35/1.20
DC 5						3.45/4.6			4.6/4.0	1.28/1.13
DC 6						3.9/4.85				1.29/1.25
DC 7						3.8/4.8				1.30/1.19
DC 8						3.85/5.0			8.51	1.00/1.4
DC AVG.	71.5	110	20.2	114	33.5	8.65	108	19.7	~~8.17~~	2.52
AC 1	26.8	42.5	7.4	43	12.5	3.03	40.5	7.6	3.24	.93
AC 2	26.8	42.5	7.4	42.5	12.5	3.03	40.5	7.6	3.24	.93
AC AVG.	53.6	85.0	14.8	85.5	25.0	6.06	81.0	15.2	6.48	1.86
S.P.	+11	-8		-1			+10			
AC NOISE	.03	.05		.05			.06			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 5 HALF NW SP. 1 DATE

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		dal
RECEIVE	20-25	→		→	25-30	→		→		4-5
RANGE	100	10	10	3	30	10	10	1		300
DC 1	29.9/28.5	8.62/9.2	4.1/4.25	1.38/1.33	11.7/11.6	4.7/4.6	3.0/2.85			99/99
DC 2	29.9/28.5	8.55/9.22	4.2/4.2	1.25/1.38	11.7/11.6	4.7/4.6	3.0/2.85			99/99
DC 3	29.5/28.5	8.42/9.4	4.45/4.02	1.36/1.4	11.7/11.6	4.7/4.6	3.0/2.85			99/99
DC 4		8.65/9.35	4.43/4.01	1.27/1.36						
DC 5		8.6/9.85	4.65/4.1	1.26/1.43						
DC 6		8.68/9.55	4.8/3.95	1.29/1.5						
DC 7		8.2/9.6	4.5/3.8	1.32/1.45						
DC 8	58.4	17.93	~~8.79~~	2.71	23.3	9.3	5.85			
DC AVG.	22.2	7.1	3.39	1.0	8.9	3.8	2.2	.75		198
AC 1	22.2	7.1	3.39	1.01	8.9	3.8	2.2			98
AC 2	44.4	14.2	6.74	2.01	17.8	7.6	4.4	1.51		98
AC AVG.										196
S.P.	+10				+7					
AC NOISE	+0.3				.08					
POT RES.										✓

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Bagdad
LINE 5 HALF SE SP. 1 DATE

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5	5-10	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	52.3/54.5	36.1/33.5	9.2/10.1	37.2/36	10.8/11.7	7.1/7.5	38/42	13/12.7	4.7/5.1	3.05/3.4
DC 2	52.3/54.5	36.1/33.5	9.2/10.1	37.2/36	10.8/11.7	7.1/7.5	38/42	13/12.7	4.7/5.1	3.05/3.4
DC 3	52.3/54.5	36.1/33.5	9.2/10.1	37.2/36	10.8/11.7	7.1/7.5	38/42	13/12.7	4.7/5.1	3.05/3.4
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	106.8	69.6	19.3	73.2	22.5	14.6	86.0	25.7	9.8	6.45
AC 1	40.5	25.8	6.9	27.2	8.9	5.61	30	10.3	4.08	2.5
AC 2	40.5	25.8	6.9	27.2	8.9	5.61	30	10.3	4.08	2.49
AC AVG.	81.0	51.6	13.8	54.4	17.8	11.22	60.0	20.6	8.16	4.98
S.P.	-11	-3			-22		-36			
AC NOISE	.13	.05			.06		.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Baghdad

LINE 5 HALF SE SP. 1 DATE

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SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal
RECEIVE	20-25 →				25-30 →					1-2
RANGE										300
DC 1										98/98
DC 2										98/98
DC 3										98/98
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.										196
AC 1										96
AC 2										96
AC AVG.										192
S.P.										
AC NOISE										
POT RES.										

electrode # 1 Spr 3

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line 5 NW½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2											
(B) Receive												
(C) n separation	—	—	—	—	—	—	—				100	
(D) I	2								8.51			
(E) Vdc (avg)	71.5	110	20.2	114	33.5	86.5	108	19.7	~~8.17~~	2.52	58.4	17.93
(F) DCcal	0.505											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	27	42	31	43	51	33	40	30	~~31~~ 32	19	88	68
(I) Vac Σ	53.6	85	14.8	85.5	25.0	6.06	81	15.2	6.48	1.86	44.4	14.2
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	0.990											
(M) ρ dc/ρac=ExL/K									30.0			
(N) PFE=(M-1)(10^2)	32.0	28.1	35.1	31.9	32.7	41.1	32.0	28.2	~~24.9~~	34.1	30.2	25.0
(O) MCF=(M-1)(10^5)/H	1190	669	1130	742	642	1240	800	940	~~804~~ 938	1790	343	367

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation	—	—	—	—	—	—						
(D) I	~~8.54~~							1000				
(E) Vdc (avg)	~~8.79~~	2.71	23.3	9.3	5.85			198				
(F) DCcal								0.505				
(G) Kn x 10^{-3}	30	52.5	15	30	52.8	84						
(H) ρ dc=ExFxGx10^3/D	~~67~~ 65	36	88	70	78	43?						
(I) Vac Σ	6.74	2.01	17.8	7.6	4.4	0.755		196				
(J) AC noise x 2						1.51						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								.990				
(M) ρdc/ρac =ExL/K	25.4											
(N) PFE=(M-1)(10^2)	~~28.9~~	33.5	29.8	21.1	31.6	—						
(O) MCF=(M-1)(10^5)/H	~~432~~ 391	931	339	301	405	—						

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HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line 5 SE½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I	2											1000
(E) Vdc (avg)	106.8	69.6	19.3	73.2	22.5	14.6	8.0	25.7	9.8	6.45		196
(F) DCcal	0.510											0.510
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	41	27	30	28	34	56	31	39	37.	49		
(I) Vac Σ	81.0	51.6	13.8	54.4	17.8	11.22	60	20.6	8.16	4.98		192
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												0.980
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	29.2	32.1	37.0	31.8	23.9	27.4	30.7	22.2	17.8	26.8		
(O) MCF=(M-1)(10^5)/H	722	1190	1230	1140	704	490	990	570	482	547		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER

LINE 6 HALF NW SP. 1 DATE 5-10

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5 NW	5-10 NW →		10-15	NW →		15-20	NW →		
RANGE										
VOLTAGE	240	160	240	200	160	240	200	200	160	240
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		4-5
RECEIVE	20-25	NW →			25-30	NW →				CAL
RANGE										
VOLTAGE	200	200	160	240	260	200	160	300		120
CURRENT	2A	2A	2A	2A	2.5A	2A	2A	2.5A		1A

FREQUENCIES 0.5 3.0

SENDER NO. MK7 106635

OPERATOR MONTIERTH

RECEIVER NO.

OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT BAGDAD COPPER
LINE 6 HALF SE SP. 1 DATE 5-11

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 SE	5-10 SE	→	10-15	SE	→	15-20	SE	→	→
RANGE										
VOLTAGE	220	200	220	180	200	220	270	180	200	220
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		1-2
RECEIVE	20-25	SE	→	→	25-30	SE	→	→		CAL
RANGE										
VOLTAGE	270	180	200	220	310	220	200	220		160
CURRENT	2A	2A	2A	2A	2.5A	2.5A	2A	2A		1A

FREQUENCIES 0.5 3.0
SENDER NO. MK7 106635
OPERATOR MONTIERTH
RECEIVER NO.
OPERATOR HURLEY

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER
LINE 6 HALF SE SP. 1 DATE 5-11

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5 SE	5-10 SE	→	10-15 SE	→	→	15-20 SE	→	→	→
RANGE	100	100	30	100	30	10	100	30	30	10
DC 1	28.2/28.4	35/32.5	9.3/10.0	44/44.2	13.1/11.3	5.0/5.55	99/94	21.6/21.8	8.5/10.0	4.25/5.33
DC 2	28.2/28.4	35/32.5	9.3/10.0	44/44.2	13.1/11.3	5.0/5.55	99/94	21.6/21.8	8.5/10.0	4.25/5.33
DC 3	28.2/28.4	35/32.5	9.3/10.0	44/44.2	13.1/11.3	5.0/5.55	99/94	21.6/21.8	8.5/10.0	4.25/5.33
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	56.6	67.5	19.3	88.2	24.4	10.55	193	43.4	18.5	9.58
AC 1	28.4	25.7	7.2	34.3	9.7	4.2	66.2	17.5	7.4	3.78
AC 2	22.4	25.7	7.2	34.3	9.7	4.2	66.2	17.5	7.4	3.78
AC AVG.	44.8	51.4	14.4	68.6	19.4	8.4	132.4	35.0	14.8	7.56
S.P.	-52	+26		-1			+7			
AC NOISE	.04	.04		.02			.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT BAGDAD COPPER
LINE 6 HALF SE SP. 1 DATE 5-11

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Rad
RECEIVE	20-25 SE	→			25-30 SE	→				1-2
RANGE	30	10	10	10	30	10	10	3		300
DC 1	20.7/21.4	8.61/8.6	5.07/4.52	2.45/3.15	9.0/10.4	4.58/4.54	2.5/2.44	1.68/1.68		100/100
DC 2	20.7/21.4	8.61/8.6	5.07/4.52	2.45/3.15	9.0/10.4	4.58/4.54	2.5/2.44	1.68/1.68		100/100
DC 3	20.7/21.4	8.61/8.6	5.07/4.52	2.45/3.15	9.0/10.4	4.58/4.54	2.5/2.44	1.68/1.68		100/100
DC 4								1.68/1.68		
DC 5								1.68/1.68		
DC 6										
DC 7										
DC 8										
DC AVG.	42.1	17.21	9.59	5.60	19.4	9.52	4.94	3.36		200
AC 1	14.8	7.02	3.83	2.1	7.2	4.2	2.09	1.36		100
AC 2	14.8	7.02	3.83	2.1	7.2	4.19	2.09	1.36		100
AC AVG.	29.6	14.04	7.66	4.2	14.4	8.39	4.18	2.72		200
S.P.	+11				−1					
AC NOISE	.023				.02					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Baghdad

LINE 6 HALF NW SP. 1 DATE 5-10

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5	5-10	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	10
DC 1	33.5/33.9	30.5/29	10.7/9.9	41.2/35.9	10.4/10.2	6.8/6.86	49.9/48.5	11.1/11.7	4.81/4.82	3.6/3.65
DC 2	33.5/33.9	30.5/29	10.7/9.9	41.2/35.9	10.4/10.2	6.8/6.86	49.9/48.5	11.1/11.7	4.81/4.82	3.6/3.65
DC 3	33.5/33.9	30.5/29	10.7/9.9	41.2/35.9	10.4/10.2	6.8/6.86	49.9/48.5	11.1/11.7	4.81/4.82	3.6/3.65
DC 4										
DC 5										
DC 6										
DC 7										
DC 8			20.6							
DC AVG.	67.4	59.5	~~19.7~~	81.1	20.6	13.86	98.4	22.8	9.63	7.25
AC 1	25.2	23.4	7.6	31.6	8.7	5.45	41.9	9.3	4.3	2.98
AC 2	25.2	23.4	7.6	31.6	8.7	5.45	41.9	9.3	4.3	2.98
AC AVG.	50.4	46.8	15.2	63.2	17.4	10.90	83.8	18.6	8.6	5.96
S.P.	-29	-27		+63			+2			
AC NOISE	33	103		103			103			
POT RES.	-22									

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Baghdad
LINE 6 HALF NW SP. 1 DATE 5-70

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SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal
RECEIVE	20-25 →				25-30 →					4-8
RANGE	30	10	10	10	30	10	10	10		300
DC 1	16/15.5	6.7/6.62	3.4/3.61	2.72/2.8	9.5/10.9	4.05/4.25	2.42/2.5	3.1/2.25		99/99
DC 2	16/15.5	6.7/6.62	3.4/3.61	2.72/2.8	9.5/10.9	4.05/4.25	2.42/2.5	3.1/2.25		99/99
DC 3	16/15.5	6.7/6.62	3.4/3.61	2.72/2.8	9.5/10.9	4.05/4.25	2.42/2.5	3.1/2.25		99/99
DC 4	16/15.5									
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	31.5	13.32	7.01	5.52	20.4	8.30	4.92	5.35		198
AC 1	13.5	5.56	3.1	2.22	8.4	3.43	2.25	2.05		98
AC 2	13.5	5.56	3.1	2.22	8.4	3.43	2.25	2.05		98
AC AVG.	27.0	11.12	6.2	4.44	16.8	6.86	4.5	4.1		196
S.P.	-10				+2					
AC NOISE	.05				.04					
POT RES.										✓

4-5 . Rest set 2.5
3-4 2
2-3 2
1-2 2.5

2

Bagdad

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line NW L6 Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	1-2	2-3	1-2	2-4	2-3	1-2						
(B) Receive												
(C) n separation												
(D) I	2											
(E) Vdc (avg)	67.4	59.5	~~77.7~~ 30.6	81.1	20.6	13.86	98.4	22.8	9.63	7.25	31.5	13.32
(F) DCcal	0.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	26	23	~~30~~ 32	31	31	53	38	35	37	55	48	51
(I) Vac Σ	50.4	46.8	15.2	63.2	17.4	10.90	83.8	18.6	8.60	5.96	27.0	11.12
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	0.980											
(M) ρ dc/ρac=ExL/K			32.8									
(N) PFE=(M-1)(10^2)	31.0	24.5	~~27.0~~	25.6	16.0	24.7	15.0	20.1	9.8	19.2	14.3	17.4
(O) MCF=(M-1)(10^5)/H	1190	1060	~~900~~ 1025	826	517	466	395	574	265	349	298	341

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I	→	→	2.5	2	2	2.5		1000				
(E) Vdc (avg)	7.01	5.52	20.4	8.30	4.92	5.35		98196				
(F) DCcal	→					→		0.510				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρ dc=ExFxGx10^3/D	54	74	78	64	66	114						
(I) Vac Σ	6.20	4.44	16.8	6.86	4.50	4.1		96192				
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→					→		0.980				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	10.8	21.9	19.1	18.4	7.1	27.8						
(O) MCF=(M-1)(10^5)/H	200	296	245	287	108	244						

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Bagdad Line 6 - SE Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send												
(B) Receive												
(C) n separation	—	—	—	—	—	—	—	—	—	—	—	—
(D) I	2	—	—	—	—	—	—	—	—	—	—	—
(E) Vdc (avg)	56.6	67.5	19.3	88.2	24.4	10.55	193	43.4	18.5	9.58	42.1	17.21
(F) DCcal	0.500	—	—	—	—	—	—	—	—	—	—	—
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	21	25	29	33	37	40	72	65	69	72	63	65
(I) Vac Σ	44.8	51.4	14.4	68.6	19.4	8.4	132.4	35.0	14.8	7.56	29.6	14.04
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000	—	—	—	—	—	—	—	—	—	—	—
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	26.3	31.3	34.0	28.6	25.8	25.6	45.8	24.0	25.0	26.7	42.2	22.6
(O) MCF=(M-1)(10^5)/H	1250	1250	1170	867	697	640	636	369	362	371	670	348

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation	—	—	—	—	—	—						
(D) I	—	—	2.5	2.5	2	2		1000				
(E) Vdc (avg)	9.59	5.60	19.4	9.52	4.94	3.36		200				
(F) DCcal	→	→	→	→	→	→		0.500				
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84						
(H) ρ dc=ExFxGx10^3/D	72	74	58	57	65	71						
(I) Vac Σ	7.66	4.20	14.4	8.39	4.18	2.72		200				
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→	→	→	→	→	→		1.000				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	25.2	33.3	34.7	13.5	18.2	23.5						
(O) MCF=(M-1)(10^5)/H	350	450	598	237	280	331						

Finish long line tomorrow

Rex will call here or Phil tomorrow.

LINE 2 Spd 2 N68°E

500'

SW½ - N30° - 3500

4-5

DC	154.8	168.7	46.1	92.1	34.4	13.85	108.8
AC	139.4	154.4	41.2	88.0	31.8	12.44	109.6

45.1	22.8	11.27	30.0	17.28	12.9	6.85
42.0	20.8	9.74	28.8	16.37	12.1	6.18

figures are double

				Cal
17.45	11.2	7.81	4.53	196
16.38	10.34	7.1	3.98	196

12 stations 2.0

4-5 ~~to~~ 3-4 2.5

whole last

NE½

1-2

DC	198	190	54.5	139.5	36.8	16.54	126.9	23.2
AC	180	168	48.4	121.0	32.0	14.16	103.8	20.6

11.15	5.20	63.0	26.3	13.0	7.01	23.4
9.42	4.08	49.0	21.0	10.54	5.64	19.4

				Cal
14.9	7.71	4.905	~~97~~	194
12.46	6.54	4.05	~~96~~	192

90¢/day

2.5 all stations

NE/SW

2.5%

1500

8 spro

Bagdad 5/3/67

North side

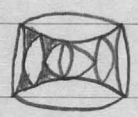
Talked to Bonnie — O.K. on about 3 additional spds (X long line)

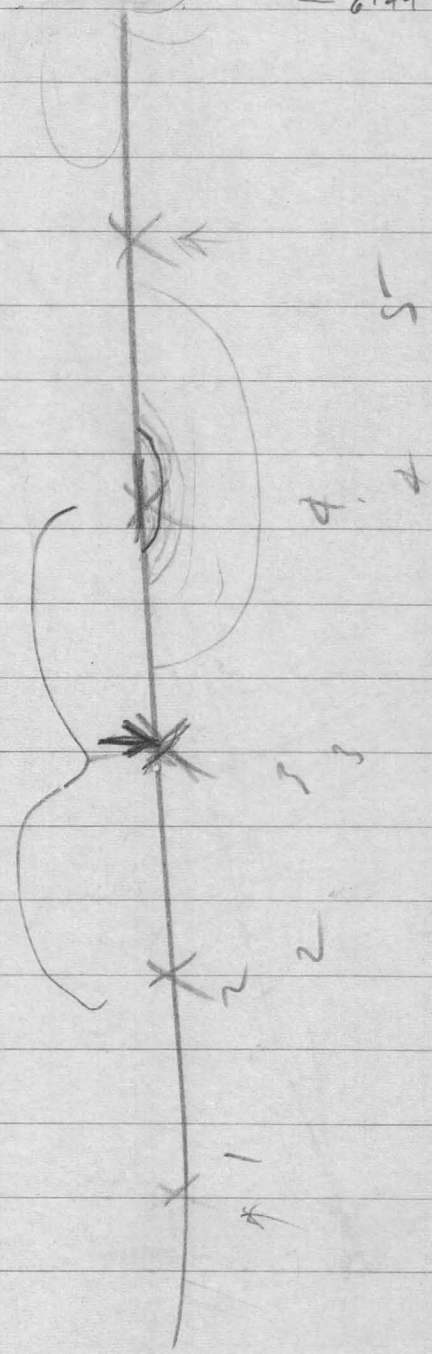
6.32 708
2.50 250
2.82 458

1200 / 89

15

MCF	9.5" B.W.	9.5" B.W	9.5" B.W − 2.5% FeS_2	÷ 3 for % Cu
			% $CuFeS_2$	
200	1.58	3.16	0.66	0.22
400	2.24	4.48	1.98	0.66
600	2.74	5.48	2.98	0.99
800	3.16	6.32	3.82	1.24
1000	3.54	7.08	4.58	1.56
1200	3.87	7.74	5.24	1.75
1400	4.18	8.36	5.86	1.95
1600	4.47	8.94	6.44	2.15





Bagdad

13,000'

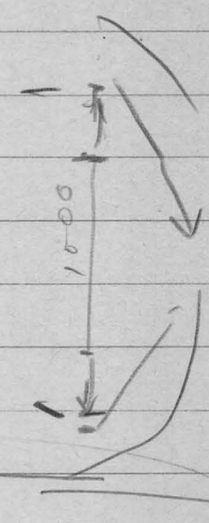
750' 1000'

2250

500

150' — 750'

3500'



13,000

7 yards 1 day

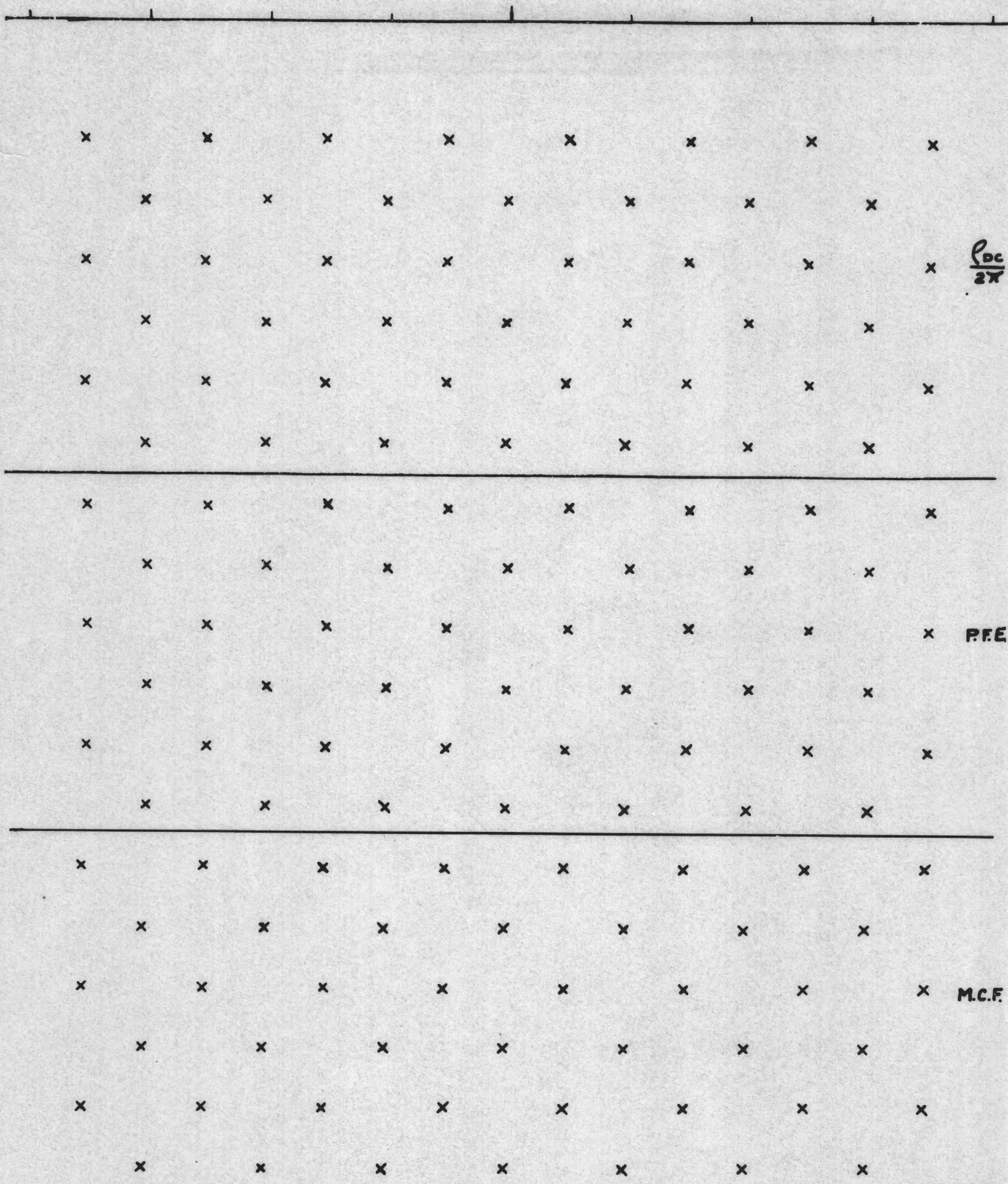
A250

$2500 approx

WPON - 1961

1-04
Plan IV
Cariboux
ox
ox
3480 Copper Creek dump
3180 Dump
Waste dump
3080

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING_____



AREA_____ LINE_____ a = ' _____ SCALE:_____ DATE:_____

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

5/3/67

Rex Monteith

call Francis Rhynes

Call 793 0893

neighbors phone

important

INDUCED POLARIZATION SURVEY

BAGDAD - MAMMOTH AREA

YAVAPAI COUNTY, ARIZONA

For

Bagdad Copper Corporation

April - May, 1967

By

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona 85703
Phone: 623-0578 Area Code: 602

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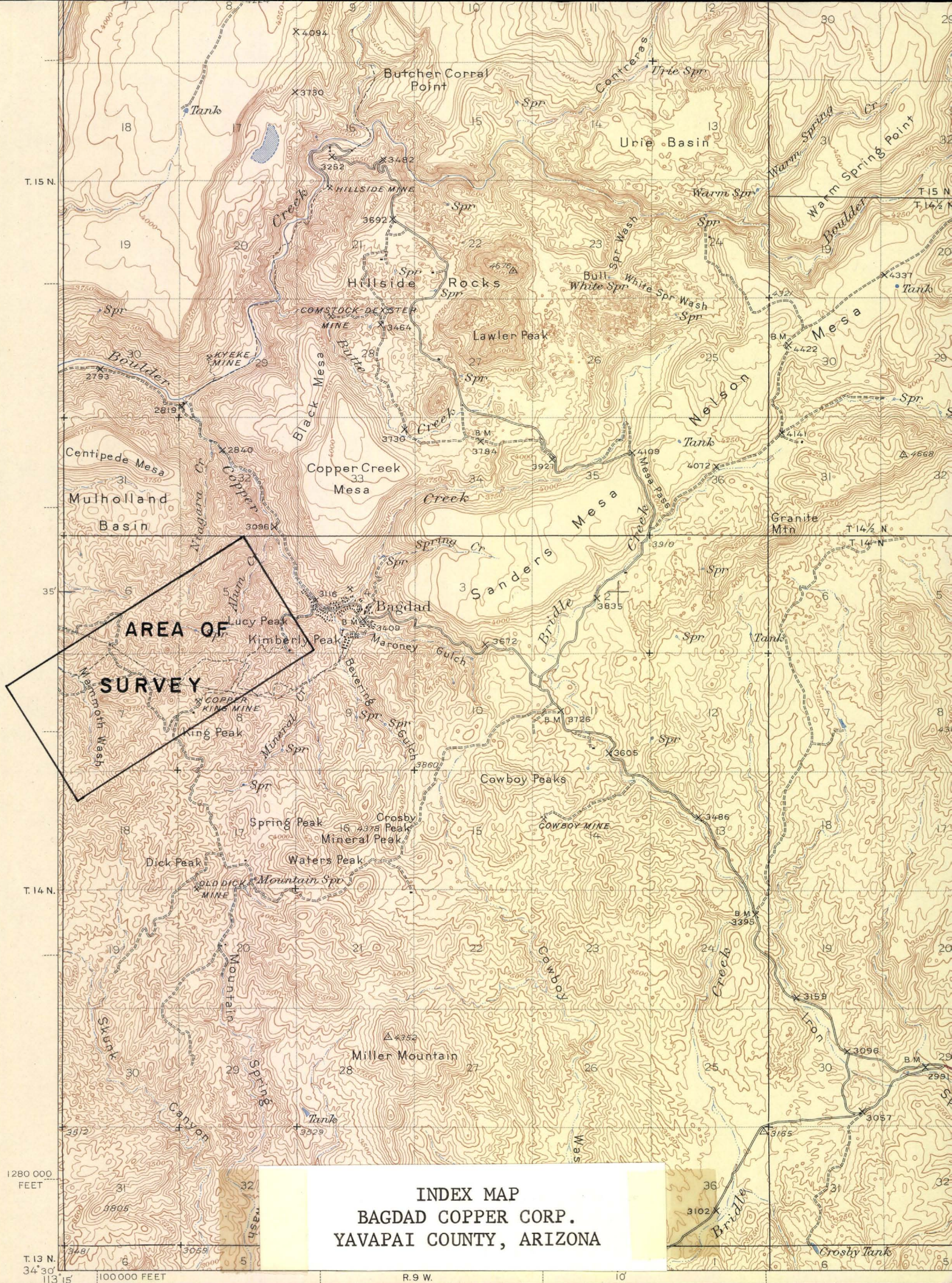
INDEX MAP	
INTRODUCTION	1
CONCLUSIONS AND RECOMMENDATIONS	2
INTERPRETATION	4
BASIS OF INDUCED POLARIZATION METHOD	1a

IN MAP POCKET: (Total: 7 pieces)

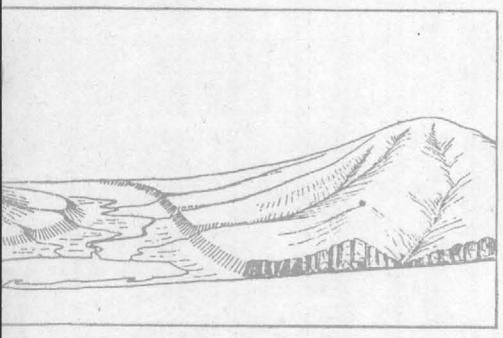
Induced Polarization Location and Interpretation Plan

Sectional Data Sheets
- Line 1
- Line 2 (Spreads 1, 2, & 3)
- Line 3
- Line 4
- Line 5
- Line 6



INDEX MAP
BAGDAD COPPER CORP.
YAVAPAI COUNTY, ARIZONA

contour lines express altitude, form,
e figure below.



a river valley that lies between two
l is the sea, with a bay that is partly
nd bar. On each side of the valley is
all streams have cut narrow gullies.
s a rounded summit and gently slop-

rangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the country and its mineral products. Two hundred twenty-five folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 percent is allowed on an order amounting to $5 or more at the retail price. The discount is allowed on an order for maps alone, either of one kind or in any assortment, or for maps together with geologic folios. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

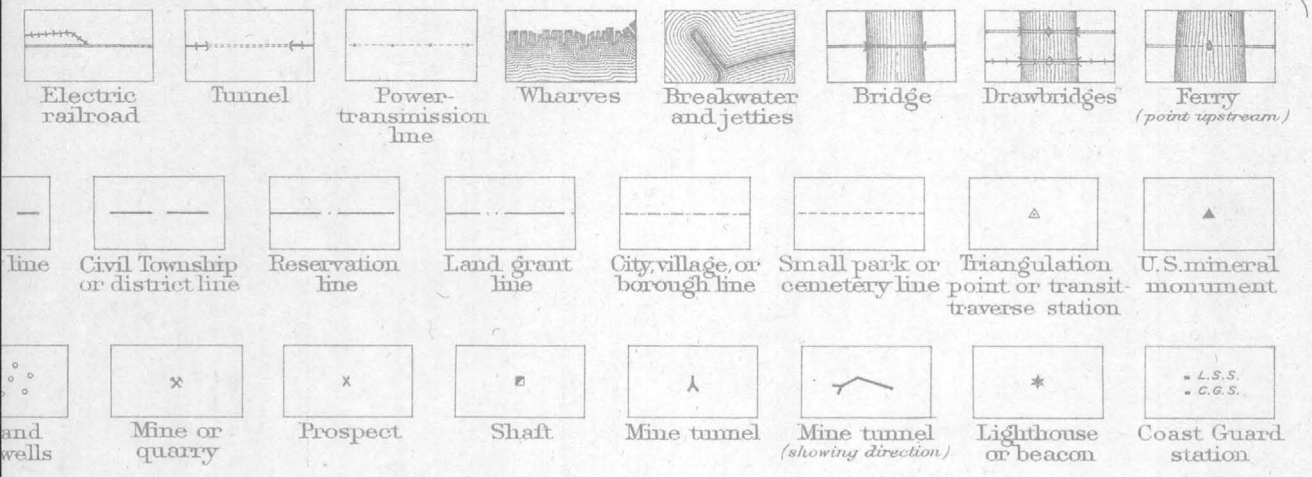
THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November 1937.

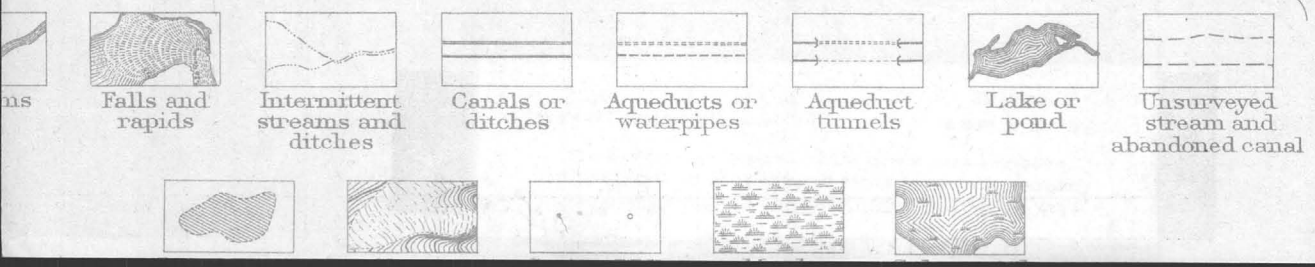
NOTE:—Effective on and after October 1, 1946, the price of standard topographic quadrangle maps will be 20 cents each, with a discount of 20 percent on orders amounting to $10 or more at the retail rate.

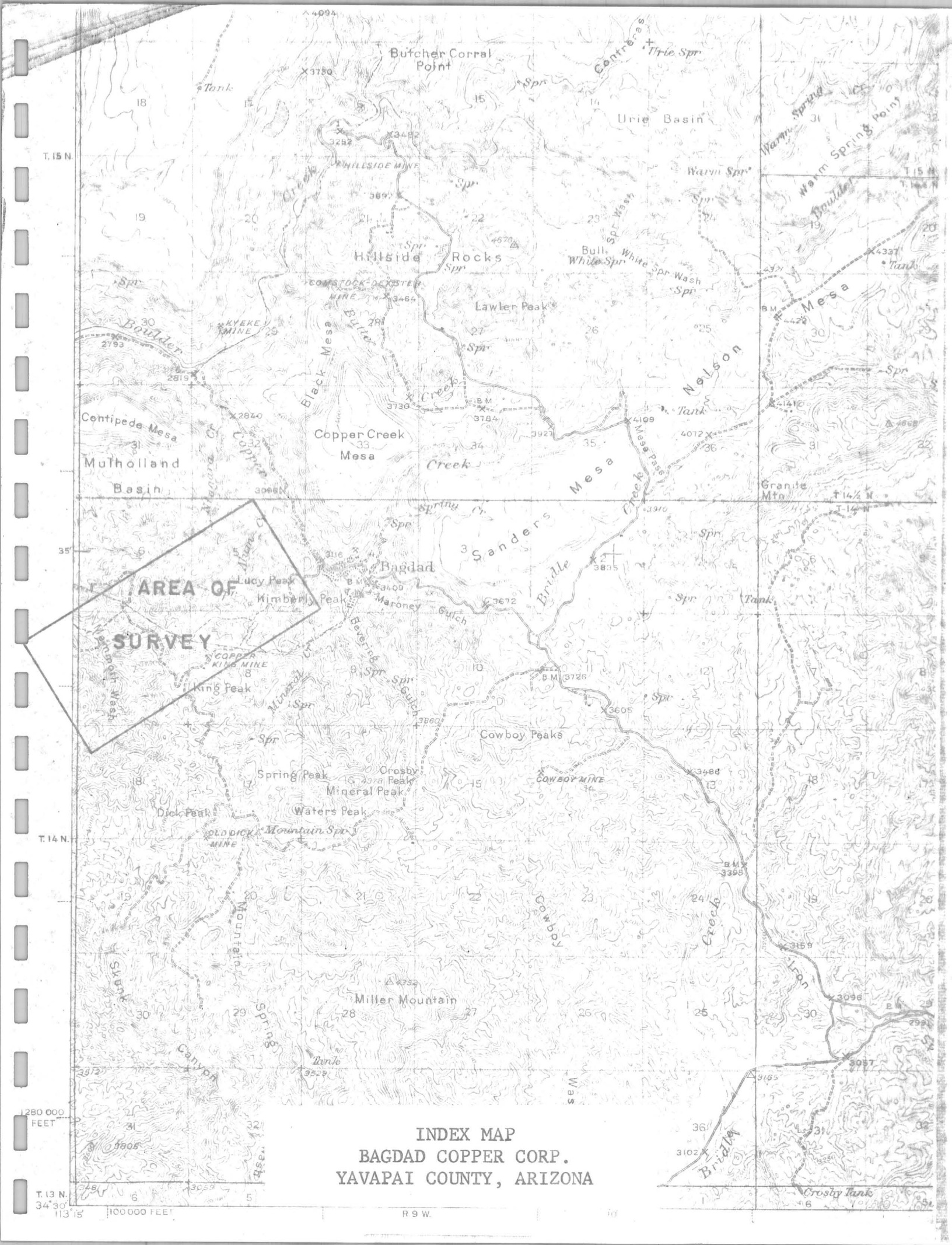
DARD SYMBOLS

CULTURE
(printed in black)



WATER
(printed in blue)





INDEX MAP
BAGDAD COPPER CORP.
YAVAPAI COUNTY, ARIZONA

INTRODUCTION

At the request of Mr. R. J. Bonnis and Mr. P. K. Medhi of the Bagdad Copper Corporation, Heinrichs Geoexploration Company conducted and completed a reconnaissance induced polarization survey over a portion of the Bagdad-Mammoth Area, Yavapai County, Arizona during the interim April 27 to May 10, 1967.

Six lines were run, all on a 500 foot dipole spacing giving a total surface coverage of 41,500 feet of which 27,250 feet is subsurface plotted data. Line 2 consists of three spreads and was run from the Mammoth Mine Area to the west periphery of the Bagdad Mine on an approximate bearing of N58^{o}E. Lines 1, 3, 4, 5, and 6 were run at approximate right angles to Line 2 at Stations 0 NE/SW, 30 NE, 70 NE, 85 NE and 60 NE, respectively. For details of location, see the Induced Polarization Location and Interpretation Plan.

The I.P. work utilized the colinear dipole-dipole electrode array with the dual frequency system employing sending frequencies of 0.05 and 3.0 cycles per second. With a dipole spacing of 500 feet, resolvable penetration would be mainly within the zone between 150 feet to 600 feet below surface.

The purpose of this survey was to determine the correlation existing between drill hole and induced polarization information in this area and to delineate the sulfide zone on a reconnaissance basis, along the quartz monzonite outcrops extending west from the Bagdad Mine.

Data are presented on Sectional Data Sheets, one for each line, with resistivity, percent frequency effect (PFE) and metallic conduction factor (MCF) contoured in section and self potential (SP) in profile form. For further details on plotting conventions, interpretation and theory, see the Basis of Induced Polarization Method appended to the report.

Geoex personnel involved in the field work were R. Montierth, geophysical crew chief, W. Hurley and S. Miller, technical assistants. Report, computation, compilation and interpretation are by the Geoex staff in Tucson under the supervision of Chris S. Ludwig, Senior Geophysicist. The assistance and hospitality of the Bagdad staff was most gratefully appreciated.

CONCLUSIONS AND RECOMMENDATIONS

All of the lines show definite sulfide anomalism of varying intensity. Much of the anomalism is very strong and indicates a total sulfide concentration by volume of from 2% to 7% (about 4% to 14% by weight). Because of the correlation with drilling and the proximity to, if not actual continuity with the Bagdad Mine mineralization, this anomalism is probably of economic significance and should definitely be followed up by additional drilling.

If the initial I.P.-based drilling recommended below proves additional ore and can narrow down the geologic targets, a major detailed induced polarization program is recommended. This detailed work should determine the extent of the open-ended anomalism found on the work to date, as well as giving more reconnaissance information in outlying areas.

Much of the anomalism seen shows nearer surface stronger anomalism overlying somewhat weaker indications. This is probably representing supergene enriched zones overlying primary unoxidized lower sulfide content material.

Line 1, centered near DDH M-6D, shows moderate anomalism over the drill hole and indicates perhaps 1.5% to 3.5% total sulfides by volume. This anomaly is sharply terminated about 300 feet southeast of the drill hole going into the only zone of background response seen on this survey. However, to the northwest the anomaly extends another 1,000 or 1,500 feet at about the same strength. Therefore, a 500 foot or deeper drill hole is recommended at Station 10NW which should intersect sulfides of approximately the same concentration as DDH M-6D and hopefully similar copper values.

Drill holes 2-63 and 6-63 were also crossed with I.P. and both show a decrease in anomalism with depth, but indicate 2% to 4% sulfides by volume in the nearer surface zones. In the vicinity of these two holes, several stronger sulfide zones are indicated on which drilling is recommended. A 750 foot or deeper hole near 7.5SE, Line 4 should intersect sulfides perhaps half again as strong as in DDH 2-63; 750 foot holes at 60NE and 52.5NE on Line 2, should intersect sulfides of about the same or slightly stronger than DDH 2-63.

A pronounced enriched-zone-type anomaly appears on the southeast half of Line 5 and a 750 foot drill hole is recommended at 7.5SE to test its economic potential.

The northeast end of Line 2 is very strongly anomalous and with better depth extent than usual. A 1,000 foot hole is suggested at 87.5NE.

The exact locations of these recommended drill sites are not critical and drilling within several hundred feet of suggested sites would probably give similar results. This is mainly because of the gradational character of anomalism. The only sharp discontinuities seen have been at the center of Line 1, as discussed before, and at about 45NE, Line 2, separating mostly strong anomalism to the northeast from weaker effects to the southwest. In fact, drilling anywhere within the zones interpreted as moderate and strong should intersect sulfides concentrated enough to be of economic importance, at least from a leaching standpoint, providing the copper-iron ratio is favorable.

Geophysically, the present priority order from best target to poorest target considering the recommended drill sites are: 87.5NE, Line 2; 7.5SE, Line 4; 60 NE, Line 2 (0-Line 6); 7.5SE, Line 5; 52.5NE, Line 2 and 10 NW, Line 1. Depending on drill results, this priority could change somewhat and it is recommended that we be kept informed, so that you may have the maximum benefit of the effort already expended as well

as any refinements or alternative possibilities. Too often this most important "feed-back" aspect of geophysics is neglected, ignored, or forgotten, and desirable opportunities lost as a result. After all, our mutual objective is to find ore and not just anomalies.

Resistivities show only rather minor changes indicating relatively uniform alteration and similar rock types. In general, the strongest anomalism is associated with lower resistivities due to increased electrical conduction through sulfides and increased electrolyte content and alteration.

Self potentials show some correlation with the I.P. effects, but are quite low in amplitude. The reason for this low amplitude may be due to the relatively uniform distribution of sulfides and fair depth of burial. The strongest anomaly is on the northeast end of Line 2 and is probably due more to increased oxidation caused by the leaching operation than an actual increase in sulfide content; perhaps sulfides also become somewhat shallower in this direction.

INTERPRETATION

Line 1

The most evident feature on this line is the sharp cutoff of anomalism southeast of center having the appearance of a steeply dipping interface. To the southeast of this cutoff, the response becomes background and typical of unmineralized material and the resistivity increases.

The anomalism is moderate in strength and extends from 0 NW/SE to about 17.5NW, past which it gradually attenuates to very weak response at the end of the line. This moderate anomalism has the appearance of an enriched blanket, and may

be controlled in part by the structure causing the electrical interface.

There is a minor self potential low at 5NW correlating with the I.P. anomalism.

Line 2

This line is three spreads long and is anomalous to some degree along its entire length. The anomalism along this line can be divided into two zones by an electrical discontinuity at about 45NE. To the southwest of this change, the indicated sulfide strength at depth is from about 1% to 2% by volume with probable enriched blankets strongest between 20NE and 10NE and southwest of 2.5SW to the end of the line and perhaps past. Strength of sulfides in the enriched zones may be around 2% to 3% by volume. To the northeast of the 45NE change, sulfides at depth are probably 2% to 4% by volume with the enriched zones perhaps 3% to 6% by volume. On the extreme northeast end of the line, the sulfides apparently are quite uniformly strong with depth. Also on this end of the line, the self potential shows a several hundred millivolt low indicating actively oxidizing sulfides within several hundred feet of the surface and is possibly caused by the leaching operation. The I.P. suggests sulfides within 200 feet on all lines, everywhere there is anomalism, but this self potential anomaly is the only strong one seen on the survey. Resistivities are relatively uniform on the line except for a buried high resistivity zone near 50NE possibly related to the 45NE sulfide change.

The other five lines crossed Line 2 normally and correlated very well at the crossing points. This shows a lack of anisotropism in conductivity and polarization effects and indicates a rather uniformly mineralized rock and no preferred "grain".

Line 3

Shows the only definite increase in sulfide with depth below several hundred feet particularly in the moderately anomalous zone on the southeast end of the line. On the northwest end of the line, there is a questionable increase in anomalism. Between these anomalous zones, only weak effects were seen.

At about 7.5NW a buried resistivity high was seen. No self potential anomalism was noted.

Line 4

Well defined, enriched blanket type of anomalism is seen across the entire line and varies between quite strong to moderate polarization effects. A drill hole was recommended at 7.5SE on a particularly strong zone which is related to a minor resistivity low. Other than the low, the resistivities are uniform. Self potentials show some relief but are not significant.

Open ended moderate anomalism occurs on both ends of the line.

Line 5

Mostly strong anomalism on this line except for a change to moderate at about 17.5NW which is related to a resistivity increase to the northwest at the same place.

The southeast half of the line shows a pronounced blanket type anomaly and is open ended to the southeast. The line was stopped two stations short of the usual length because of a dump and associated interferring culture.

The self potentials show a minor decrease on the southeast end and are probably related to the strong low on the northeast end of Line 2.