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

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Aug. 20-21 1962

	Range	S.D.	
60E	1	68	700
59	"	67	690
58	"	69	711
57	"	66	680
56	"	65	670
55	"	65	670
54	"	64	659
53	"	63	649
52	"	63	649
51		65	670
50E		65	670
49		66	680
48		64	659
47		65	670
46		62	639
45		68	700
44		65	670
43		67	690
42		68	700
41		71	731
40E		69	711
39		72	742
38		70	721
37		71	731
36		71	731
35		73	752
34		72	742
33		75	773
32		72	742
31		73	752
30E		72	742

Mary Claim Group

Jalander Mag. Survey

at fence

On I.P. Line 2

Repeat, which is 100' East of origin Line 2

TR. MK. REG. U.S. PAT. OFF.
ORIGINAL COPR. 1910 BY J. C. PARKER
LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

19/Aug

Julander

Scale Mary Line 2 E 1/2

Repeat SD.

29E	1	72	742		
28	"	74	762		
27	"	76	783		
26	"	63	649		
25	"	77	793		
24	"	77	793		
23	"	77	793		
22	"	77	793		E
21E	"	79	814		E Edge Rd.
20	"	78	803		
19	"	78	803		
18	"	78	803		
17	"	77	793		
16	"	79	814		
15	"	78	803		
14	"	78	803		
13	"	83	855		
12	"	82	845		
11	"	82	845		
10E	"	82	845		
9	"	81	834		
8	"	94	968	Between wires — probably E.M. effects	mag. in CRK
7	"	87	896		
6	"	83	855		
5	"	82	845		
4	"	83	855		
3	"	84	865		
2	"	85	876		
1	"	84	865		
0E	"	85	876	72	0E is
~~1W~~		~~86~~			

I.P. Sender

ORIGINAL COPR. 1910 BY J. C. PARKER

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TR. MK. REG. U.S. PAT. OFF.

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TR. MK. REG. U.S. PAT. OFF.

	Range	S.D		T	
1W	1	86	886		
2W	"	85	876		
3W		85	876		
4W		87	896		
5W		91	937		
6W	"	92	948		
7W		93	958		
8W		94	968		
9W	"	92	948		
10W		92	948	79	
					8/21/62
10W	"	79	814	Time	
11W	"	81	834		
12W	"	84	865		
13W	"	87	896		
14W	"	84	865		
15W	"	83	855		
16W	"	86	886		
17W	"	89	917		
18W	"	93	958		
19W	"	96	989		
20W	"	97	999	1300	
21	"	94	968		
22	"	91	937		
23	"	89	917		
24	"	87	896		
25	"	86	886		
26	"	84	865		
27	"	84	865		BR
28	"	76	783		"
29	"	82	845		"
30W		81	834	1310	"

Level shift due to loose case on instrument

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ORIGINAL COPR. 1910 BY J. C. PARKER

TR. MK. REG. U.S. PAT.

Sta.	Range	SP.		Time		
31W	1	82	845			RR
32W	"	86	886			"
33W	"	86	886			"
34W	"	79	814			"
35W	"	90	927			Flash
36W	"	92	948			
37W	"	87	896			
38	"	84	865			
39	"	86	886			
40W	"	83	855	1316		
41	"	82	845			
42	"	84	865			
43	"	84	865			
44	"	84	865			
45	"	83	855			
46	"	85	876			
47	"	84	865		Banner	DDH130 RDH44
48	"	84	865			
49	"	86	886			
50W	"	83	855	1324		
51W	"	83	855			
52W	"	86	886			
53	"	85	876			
54		87	896			
55		84	865			
56		85	876			
57		84	865			
58		84	865			
59		85	876			
60M		83	855	1329		

Level shift due to loose case on instrument

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

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TR. MK. REG. U.S. PAT. OFF.

30w	1	92	948	Repeat w/ Cam repl.
29	"	97	999	
28	"	103	1061	
27	"	96	989	
26	"	96	989	
25	"	99	1020	
24	"	102	1050	
23	"	104	1071	
22	"	107	1102	
21	"	107	1102	
20w	"	110/107	1102	
19		104	1071	
18		107	1102	
17		104	1071	
16		99	1020	
15		98	1009	
14		94	968	
13		96	989	
12		95	979	
11		93	958	
10w		90	927	14.2
9w				

valid - Rerun of part of the line

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

ORIGINAL COPR. 1910 BY J. C. PARKER

S from Sta 0 Line 2 repeat.

TR. MK. REG. U.S. PAT. OFF.

	Range	SP			
10S					
1	1	88	906		
2	"	85	876		
3	"	83	855		
4	"	86	886		
5	"	83	855		
6	"	83	855		
7	"	81	834		
8	"	80	824		
9	"	81	834		
10S	"	79	814		
11S	"	79	814		Fence
12		78	803		
13		78	803		
14		77	793		
15S 0E		77	793		
E 2E		79	814		
4E		78	803		
6E		78	803		
8E		81	834		
15S-10E+		80	824		
14		82	845		
13		83	855		
12S		80	824		
11S		81	834		
10S		81	834		Fence
9S		80	824		
8S		80	824		
7S		81	834		
6S		83	855		
5S		84	865		
4S		80	824		

South

East

North

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

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TR. MK. REG. U.S. PAT. OFF.

	Range	S.D.	
3S-10E	1	81	834
2S		82	845
1S		85	876
10E 0S		83	855
ads 0S		82	845
0S-10E		82	845
1N		78	803
2N		78	803
3N		80	824
4N		77	793
5N		79	814
6N		77	793
7N		75	773
8N		76	783
9N		74	762
10N		74	762
West			
10N 8E		77	793
6E		80	824
4E		80	824
2E		83	855
0E 10N		85	876
9N		85	876
8N		86	886
7N		85	876
6N		90	927
5N		87	896
4N		86	886
3N		90	927
2N		87	896
1N		86	886
0E 0N		84	865

ads 0S 250'N

NORTH

WEST

South

1S - 85

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

all of I.P. 8/9/63

Everything SANDRA

1 orig + 3 - Client - 3

1 Sepia + 1 copy - U.S. 1

1 - Copy to file 1

1 - Client's copy 1

" Lawyer " 1

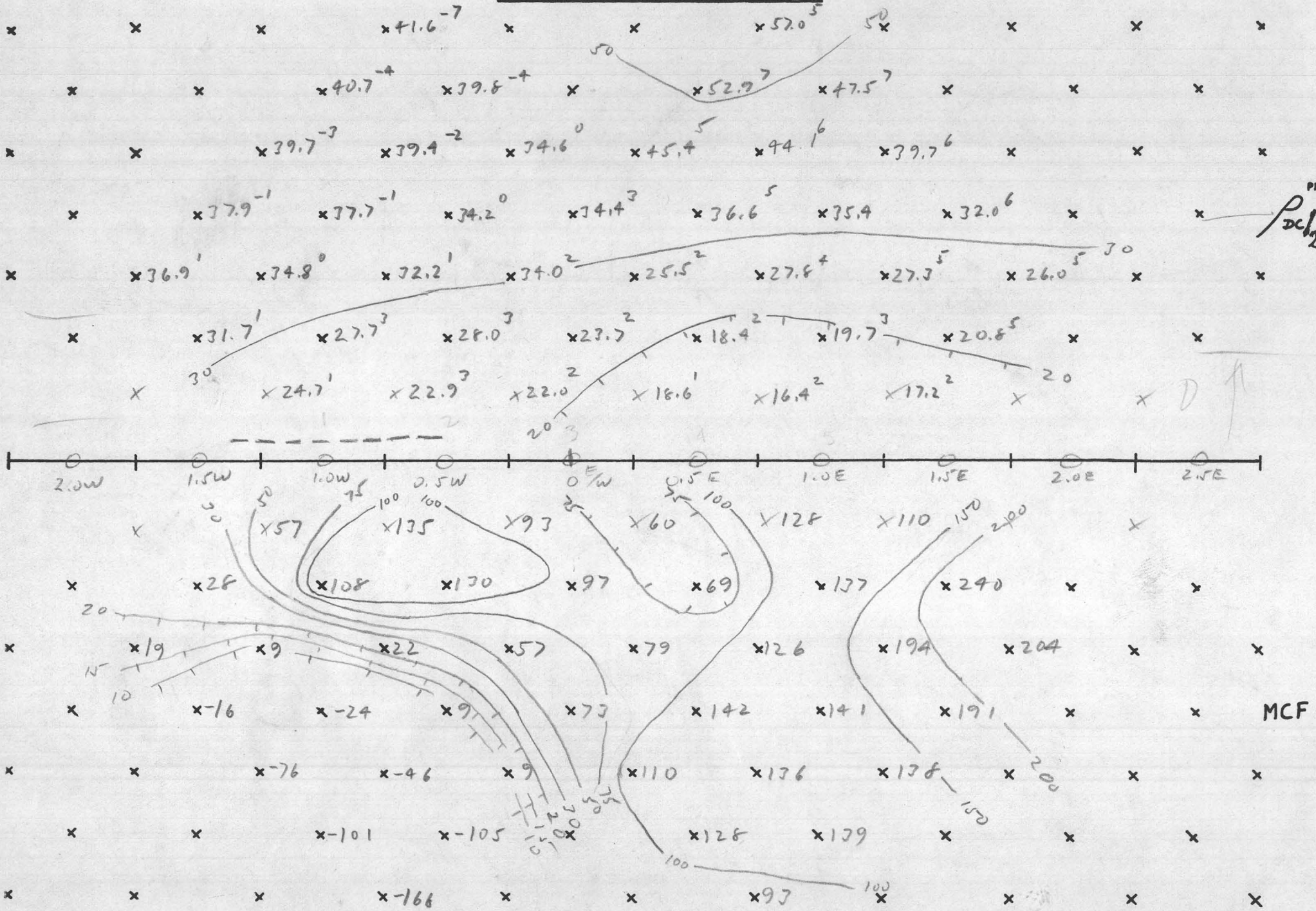
- our " 1

Owners " 1

Sandra I.P. 10

Pole - Dipole

INDUCED POLARIZATION WORK SHEET

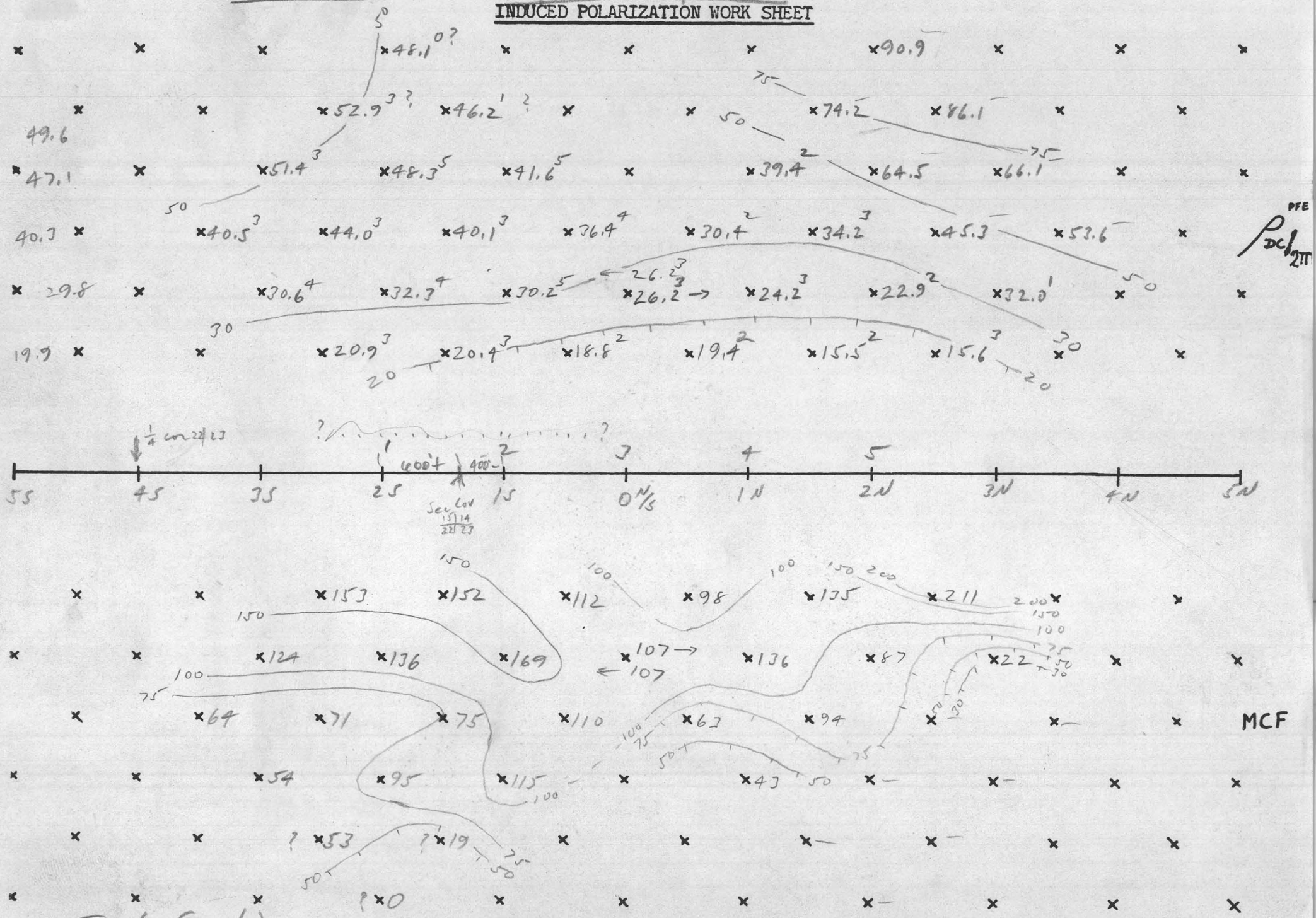


Area Sec. 14 \ Line 8 / Spr. 1 - E & W½ Scale 1" = 500' Date 7/20/60

Line 7

Dipole - Dipole

INDUCED POLARIZATION WORK SHEET



Area Sec. 14 - Spr. 1 - N½S½ (Sandra Group) (Mary Group)

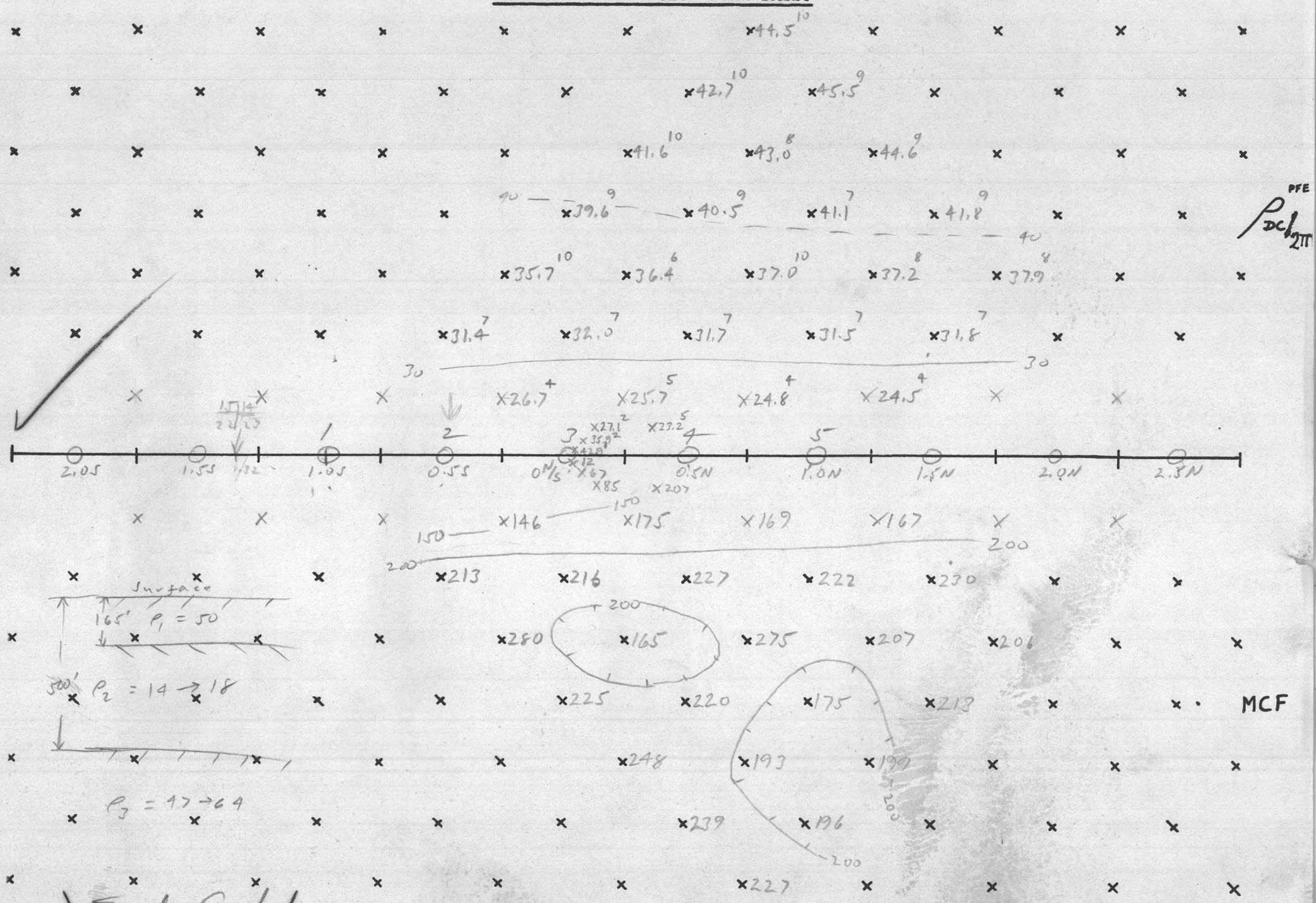
Scale 1" = 1000

Date 7/19/63

Line 7

Pole – Pole

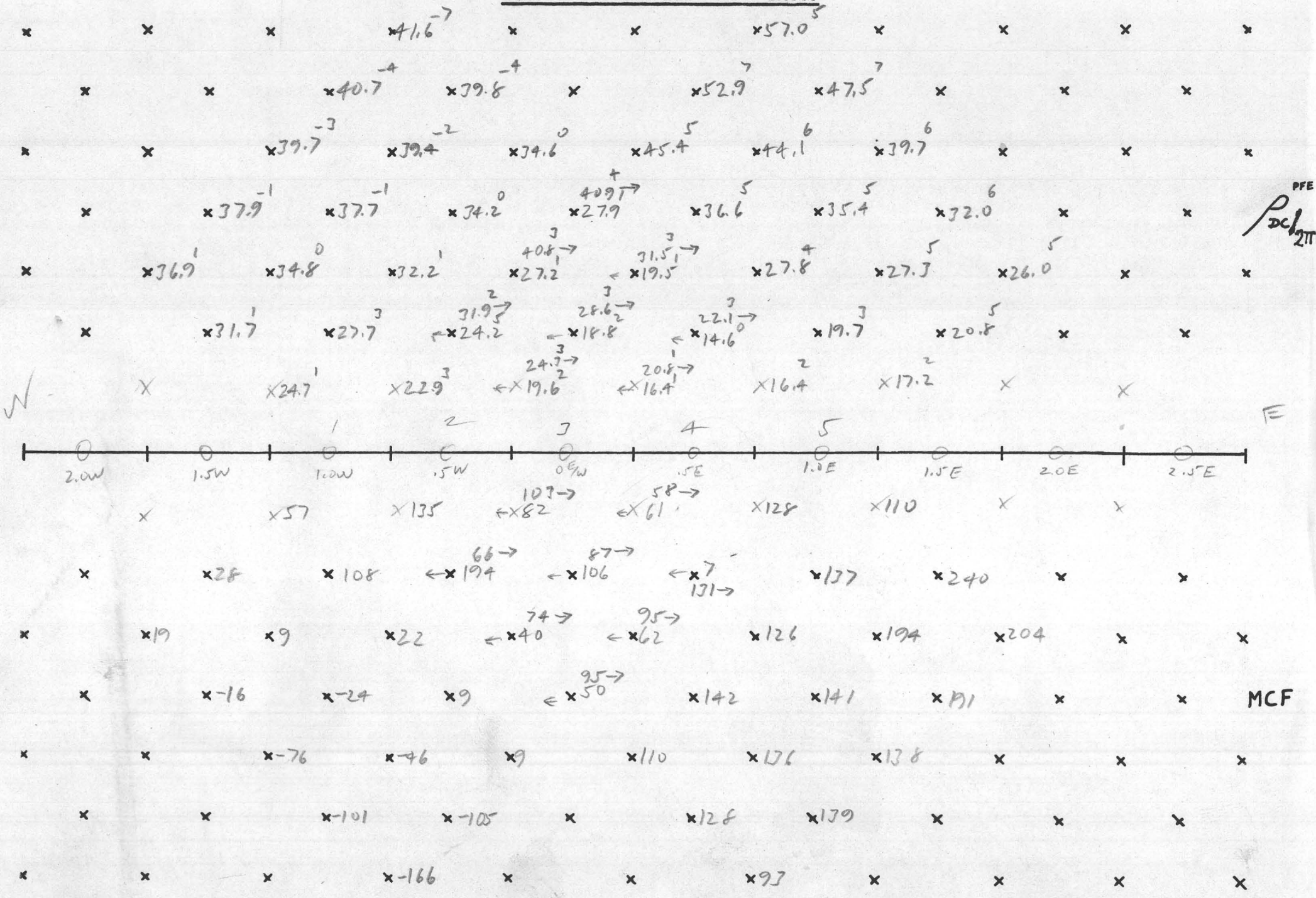
INDUCED POLARIZATION WORK SHEET



Sandra Group

Area (Mary Group) Line 7 – Spr. 1 – N½ Scale 1" = 500' Date 7/15/63

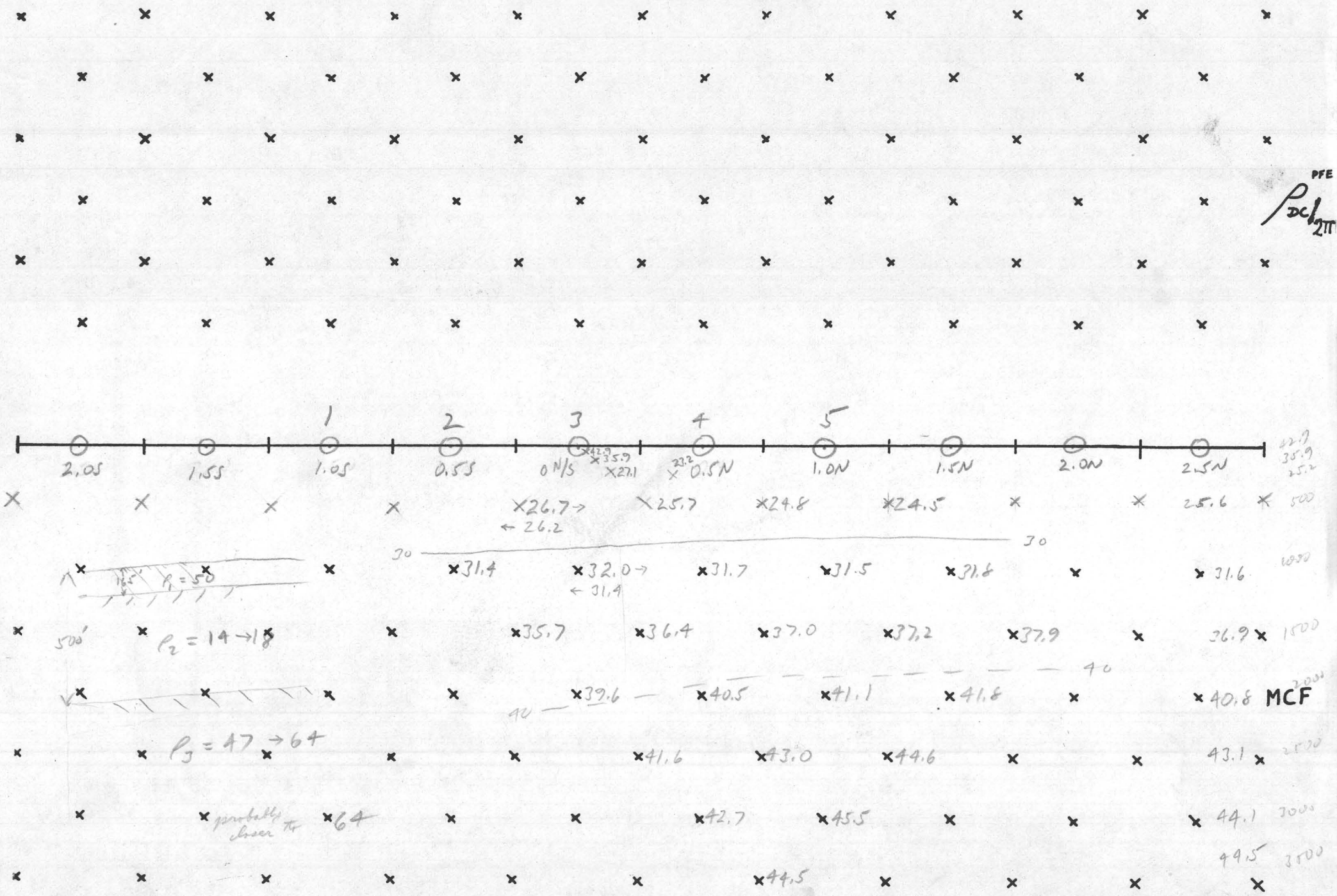
INDUCED POLARIZATION WORK SHEET



Area Sec 14 - Line 8 - Spn 1 - E & W Scale 1" = 500' Date 7/20/63

Pole – Pole

INDUCED POLARIZATION WORK SHEET

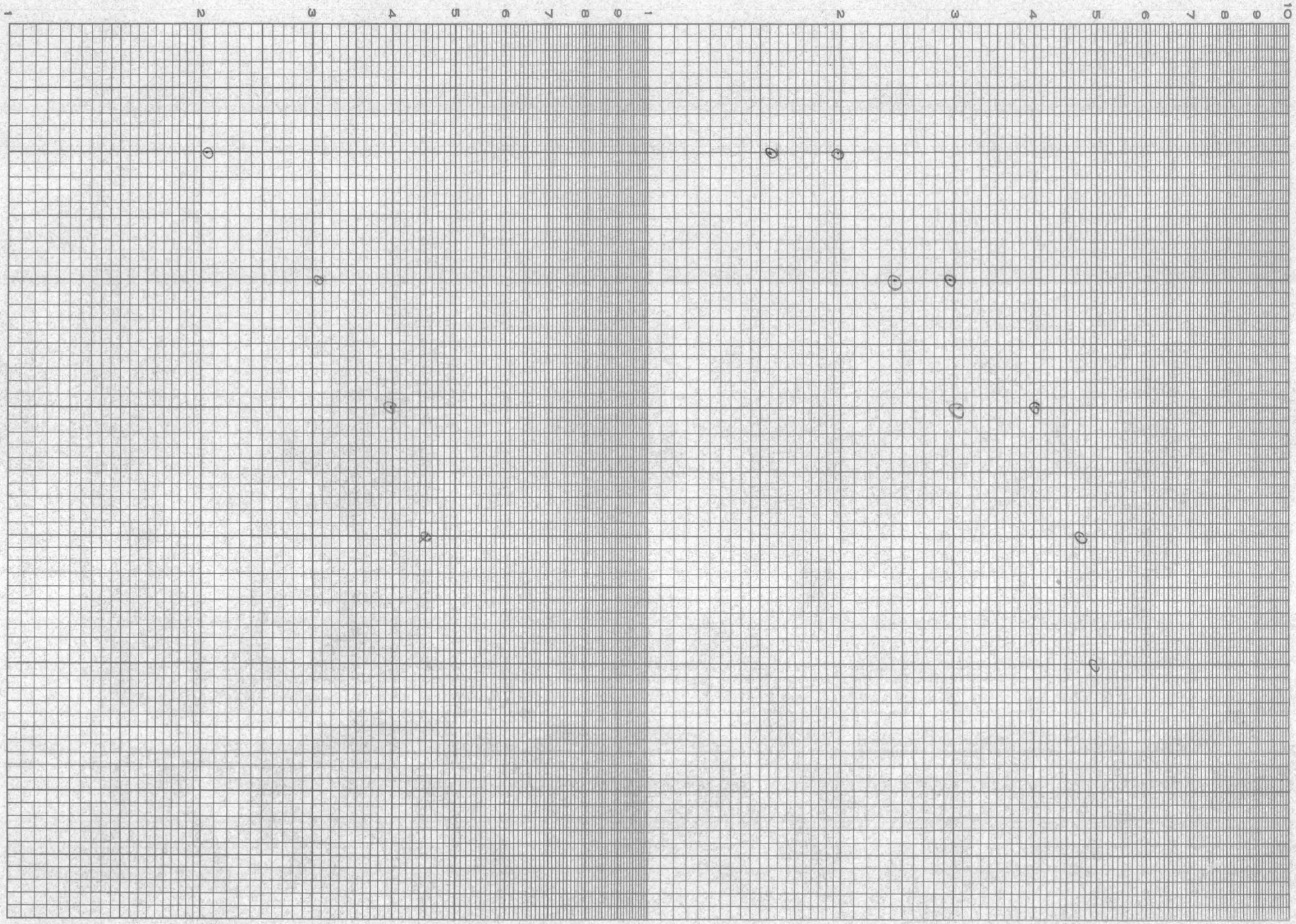


Area Mary Group - Line 1 - Sp. 1 - N½ Scale 1" = 500' Date 7/15/69

(12)

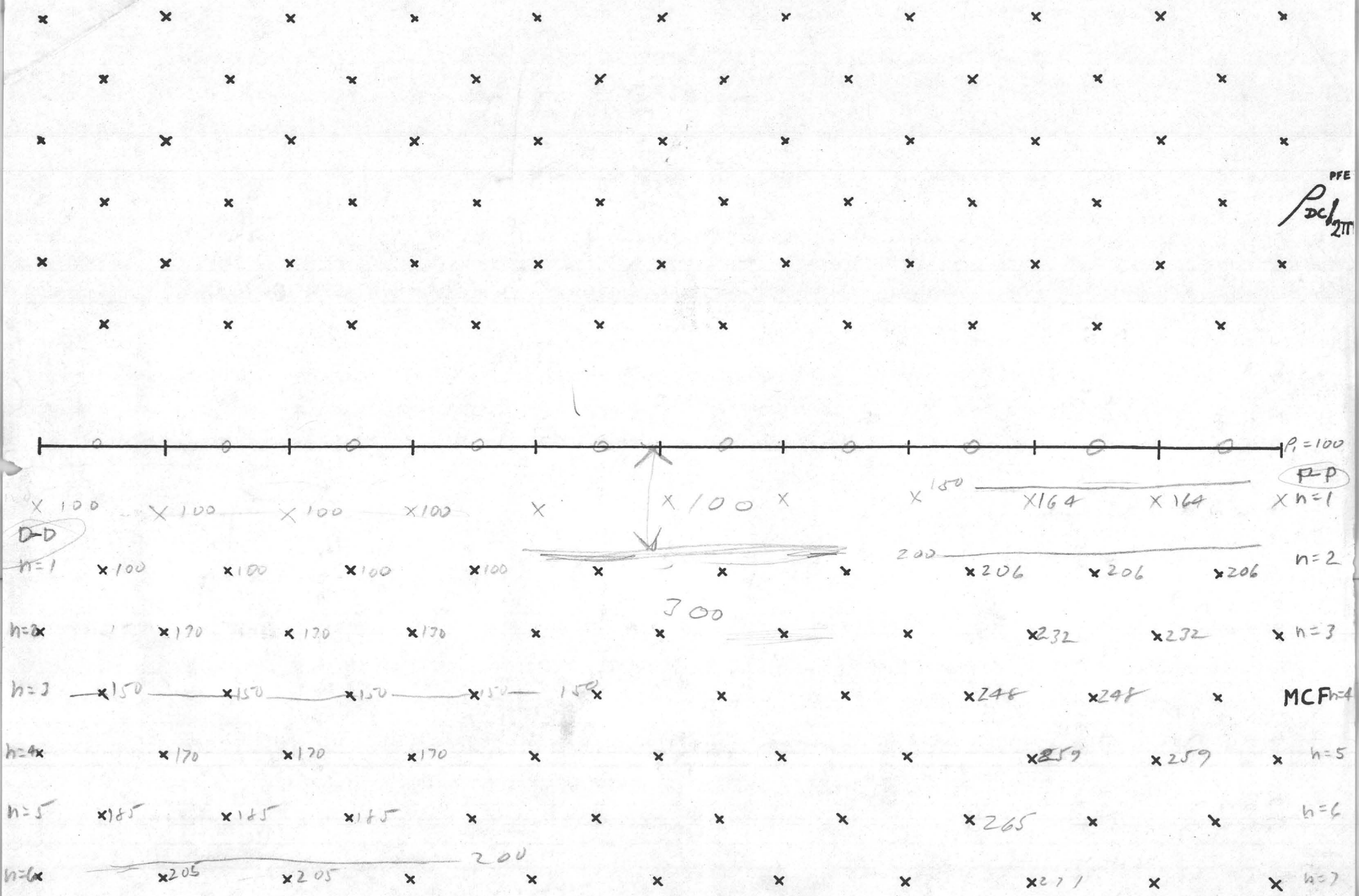
NO. 340R-L210 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
2 CYCLES X 10 DIVISIONS PER INCH

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



K+E 10 X 10 TO THE INCH 359-5DG
KEUFFEL & ESSER CO. MADE IN U.S.A.

INDUCED POLARIZATION WORK SHEET



Area _____ Scale _____ Date _____

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary P-D.P. Line: 1-Spiral - 5 1/2 Int.Cal _____ Date: 7/17/6

Send	3		3					CAL				
Rec.	.5-1.05		.5-1.05					A-3				
~~Range~~ Time	30		30					100	300	100	300	
DC-1	19.3		18.3					53.6	51	63.8	62.0	
DC-2	20.0		18.3					53.4	52	64.2	63	
Σ	39.3		36.6					107.0	103	128.0	125	
DC-3	20.0		18.3					53.4	52	64.2	62	
Dc-4	19.3		18.3					53.6	51	63.8	63	
Σ	39.3		36.6					107.0	103	128.0	125	
DC-AV	39.3		36.6					107.0	103	128.0	125	
AC-1	18.2		17.4					52.3	52.0	62.2	62.0	
AC-2	18.2		17.5					52.2	52.0	62.2	62.0	
Σ	36.4		34.9					104.5	104	124.4	124	
S. P.	+6.1		-6.4									
AC-N	.11		.12									

Line 8

POLARIZATION - RECEIVER NOTES PAGE 1

Line 8

t: Mary Line: 2 - Spr. 1 - E ½ Int.Cal Date: 7/17/63

Send	2	1	3	2	1	4	3	2	1	5	4	3
Rec.	0-.5E	→	.5-1.0E	→	→	1.0-1.5E	→	→	→	1.5-2.0E	→	→
Range	100	30	30	30	10	30	30	10	10	30	30	10
DC-1	23.6 22.6	10.0	19.9	9.2	6.40	15.2	7.1	4.99 5.03	3.84	16.2	6.2	4.42
DC-2	22.4 22.2	10.1	19.5	8.8	6.43	16.0	6.8	4.92 4.86	3.90	16.3	6.2	4.33
Σ	46.0 45.8	20.1	39.4	18.0	12.83	31.2	13.9	9.91 9.89	7.74	32.5	12.4	8.75
DC-3	22.7	10.1	19.4	8.8	6.43	16.0	6.8	4.92	3.90	16.3	6.2	4.33
Dc-4	23.6	10.0	20.0	9.2	6.40	15.0	7.1	5.03	3.84	11.2	6.2	4.42
Σ	46.3	20.1	39.4	18.0	12.83	31.0	13.9	9.95	7.74	32.5	12.4	8.75
DC-AV	46.0	20.1	39.4	18.0	12.83	31.1	13.9	9.92	7.74	32.5	12.4	8.75
AC-1	22.3	9.7	18.9	8.7	6.06	14.9	6.7	4.72	3.66	15.6	6.0	4.15
AC-2	22.3	9.7	18.9	8.7	6.08	14.9	6.7	4.72	3.68	15.6	6.0	4.15
Σ	44.6	19.4	37.8	17.4	12.14	29.8	13.4	9.44	7.34	31.2	12.0	8.30
S. P.	+16.6	→	+6.3	→	→	-10.9	→	→	→	+.5	→	→
AC-N	.07	→	.07	→	→	.07	→	→	→	.05	→	→
I.C.	52.6	→	→	→	→	→	→	→	→	→	→	→

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Mimy Line: 2 - E½ Int.Cal _____ Date: 7/17/63

Send	2	1	5	4	3	2	1	5	4	3	2	1
Rec.	→	→	2.0-2.5E	→	→	→	→	2.5-3.0E	→	→	→	→
~~Time~~ Range	10	10	30	10	10	10	10	10	10	10	10	3
DC-1	3.54 3.50	2.84 2.93	6.3	4.17	3.32	2.72	2.39	4.00	3.03	2.57	2.04	1.91
DC-2	3.40 3.40	2.84 2.81	6.8	4.43	3.37	2.85	2.39	4.18	3.02	2.43	2.23	1.94
Σ	6.94 6.90	5.68 5.74	13.1	8.60	6.69	5.57	4.78	8.18	6.05	5.00	4.27	3.85
DC-3	3.42	2.82 2.84	6.8	4.43	3.37	2.89	2.39	4.20	3.02	2.43	2.25	1.97
Dc-4	3.48	2.90 2.92	6.3	4.17	3.32	2.67	2.39	3.98	3.03	2.57	2.04	1.88
Σ	6.90	5.72 5.76	13.1	8.60	6.69	5.56	4.78	8.18	6.05	5.00	4.29	3.85
DC-AV	6.91	5.72	13.1	8.60	6.69	5.56	4.78	8.18	6.05	5.00	4.29	3.85
AC-1	3.24	2.70	6.20	4.00	3.15	2.60	2.22	3.81	2.82	2.36	2.00	1.78
AC-2	3.24	2.70	6.2	4.02	3.15	2.60	2.22	3.83	2.82	2.34	2.00	1.78
Σ	6.48	5.40	12.4	8.02	6.30	5.20	4.44	7.64	5.64	4.70	4.00	3.56
S. P.	→	→	-2.7	→	→	→	→	-6.1	→	→	→	→
AC-N	→	→	.06	→	→	→	→	.07	→	→	→	→
→	→	→	→	52.6	→	→	→	→	→	→	→	→

line 8

INDUCED POLARIZATION SENDER NOTES

Project: MARY Line: 2 spr 1 E½ Date: 7-17-63

Send	A2	A1	A3	A2	A1	A4	A3	A2	A1	A5	A4	A3
Receive	→		→			→			→			
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

Send	A2	A1	A5	A4	A3	A2	A1	A5	A4	A3	A2	A1
Receive	→		→				→		→			→
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

Pole — Dipole

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sec. 14 Line 8 - Spr. 1-E Field date 7/17/63 Data page_____ Comp. date 7/19/63 Comp by C.S.L.

(A) Send	2	1	3	2	1	4	3	2	1	5	4	3
(B) Receive	0.0-0.5E	→	.5-1.0E	→	→	1.0-1.5E	→	→	→	1.5-2.0E	→	→
(C) ~~n separation~~ % S.D.	22	32	63	26	61	50	22	47	37	52	20	42
(D) I	1800											
(E) Vdc (avg) 2	46.0	20.1	39.4	14.0	12.83	31.1	13.9	9.92	7.74	32.5	12.4	8.75
(F) DCcal USED	.951											
(G) Kn x 10^{-3}	1	3	1	3	6	1	3	6	10	1	3	6
(H) ρ dc=ExFxGx10^3/D	24.3	31.9	20.8	28.6	40.8	16.4	22.1	31.5	40.9	17.2	19.7	27.8
(I) Vac Σ 3	44.6	19.4	37.8	13.4	12.14	29.8	13.4	9.44	7.34	31.2	12.0	8.30
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. 1	.993	.988	.973	.991	.974	.979	.993	.981	.986	.978	.994	.983
(M) ρ dc/ρac=ExL/K ✓	1.025	1.021	1.012	1.025	1.030	1.021	1.029	1.030	1.039	1.019	1.027	1.035
(N) PFE=(M-1)(10^2)	3	2	1	3	3	2	3	3	4	2	3	4
(O) MCF=(M-1)(10^5)/H	103	66	58	87	74	128	131	95	95	110	137	126

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2	1	5	4	3	2	1	5	4	3	2	1
(B) Receive	→	→	2.0-2.5E	→	→	→	→	2.5-3.0E	→	→	→	→
(C) n separation	32	27	21	40	32	26	22	38	28	24	20	59
(D) I												
(E) Vdc (avg) 2	6.91	5.72	13.1	8.60	6.69	5.56	4.78	8.18	6.05	5.00	4.29	3.85
(F) DCcal												
(G) Kn x 10^{-3}	10	15	3	6	10	15	21	6	10	15	21	28
(H) ρ dc=ExFxGx10^3/D	36.6	45.4	20.8	27.3	35.4	44.1	52.9	26.0	32.0	39.7	47.5	57.0
(I) Vac Σ 3	6.48	5.40	12.4	8.02	6.30	5.20	4.44	7.64	5.64	4.70	4.00	3.56
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. 1	.988	.991	.994	.984	.988	.991	.993	.985	.990	.992	.994	.975
(M) ρdc/ρac =ExL/K	1.052	1.050	1.050	1.053	1.050	1.060	1.068	1.053	1.061	1.055	1.066	1.053
(N) PFE=(M-1)(10^2)	5	5	5	5	5	6	7	5	6	6	7	5
(O) MCF=(M-1)(10^5)/H	142	110	240	194	141	136	128	204	191	138	139	93

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Mary Line: 2, 1pr Pole - Dipole Line 8 Int.Cal _____ Date: 7/16/63

Send	4	5	3	4	5	2	3	4	5	1	2	3
Rec.	0-.5W →		.5-1.0W →			1.0-1.5W →				1.5-2.0W →		
Time	30	10	30	10	10	100	30	10	10	100	30	10
DC-1	15.8	4.80	18.8	6.00	3.20	21.7	7.6	4.36	2.55	23.9	9.1	5.03
DC-2	15.3	4.44	18.3	5.84	2.95	21.7	7.7	4.23	2.73	22.8	8.3	5.13
Σ	31.1	9.24	37.1	11.84	6.15	43.4	15.3	8.59	5.28	46.7	17.4	10.16
DC-3	15.3	4.44	18.8	5.84	2.95	21.7	7.7	4.23	2.73	22.8	8.3	5.13
Dc-4	15.8	4.80	18.3	6.00	3.22	21.7	7.6	4.36	2.55	23.9	9.3	5.05
Σ	31.1	9.24	37.1	11.84	6.17	43.4	15.3	8.59	5.28	46.7	17.6	10.18
DC-AV	31.1	9.24	37.1	11.84	6.16	43.4	15.3	8.59	5.28	46.7	17.5	10.17
AC-1	15.0	4.52	17.8	5.66	3.00	20.8	7.3	4.16	2.59	22.8	8.4	4.93
AC-2	15.1	4.54	17.8	5.66	3.02	21.0	7.2	4.18	2.56	22.9	8.4	4.96
Σ	30.1	9.06	35.6	11.32	6.02	41.8	14.5	8.34	5.15	45.7	16.8	9.89
S. P.	+21.6 →		+10.9 →			+6.8 →				+7.1 →		
AC-N	.10 →		.10 →			.10 →				.10 →		
I. C.	52.4 →											

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Pole - Dipole

Project: Mary Line: 2-Spr. 1-W½ Int.Cal Date: 7/16/67

← 7/11/67 → 7/17/67

Send	4	5	1	2	3	4	5	1	2	3	4	5
Rec.	→	→	2.0-2.5W	→	→	→	→	2.5-3.0W	→	→	→	→
Time	10	10	30	10	10	10	3	10	10	10	10	3
DC-1	3.27	2.05	9.8	5.45	3.46	2.56	1.79	5.80	3.70	2.58	1.86	1.38
DC-2	3.22	2.32	10.2	5.53	3.68	2.40	1.79	5.84	3.48	2.43	1.80	1.43
Σ	6.49	4.37	20.0	10.98	7.14	4.96	3.58	11.64	7.18	5.01	3.66	2.81
DC-3	3.22	2.32	10.2	5.53	3.68	2.42	1.80	5.84	3.48	2.43	1.80	1.43
Dc-4	3.25	2.05	9.8	5.45	3.46	2.56	1.78	5.80	3.70	2.58	1.86	1.38
Σ	6.47	4.37	20.0	10.98	7.14	4.98	3.58	11.64	7.18	5.01	3.66	2.81
DC-AV	6.48	4.37	20.0	10.98	7.14	4.97	3.58	11.64	7.18	5.01	3.66	2.81
AC-1	3.18	2.16	9.8	5.35	3.55	2.52	1.82	5.65	3.56	2.56	1.90	1.48
AC-2	3.20	2.16	9.8	5.35	3.55	2.50	1.82	5.65	3.56	2.56	1.90	1.48
Σ	6.78	4.32	19.6	10.70	7.10	5.02	3.64	11.30	7.12	5.12	3.80	2.96
S. P.	→	→	+4.0	→	→	→	→	-8.0	→	→	→	→
AC-N	→	→	.11	→	→	→	→	.12	→	→	→	→
	→	→	52.5	→	→	→	→	→	→	→	→	→

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: 2 spr 1 Date: 7-16-63

Send	A4	A5	A3	4	5	A2	3	4	5	A1	2	3
Receive												
Time	2x9											
Range	1.50											
Current	1800											
Send	4	5	A1	2	3	4	5					
Receive												
Time												
Range												
Current												

line 8

~2.1 P.F.E. average E & W

Pole - Dipole

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sec. 14 Line 7 - W½ Field date 7/17, 18/67 Data page_____ Comp. date 7/19/67 Comp by C.S.L.

(A) Send	4	5	3	4	5	2	3	4	5	1	2	3
(B) Receive	0-.5W →		.5-1.0W	→		1.0-1.5W	→			1.5-2.0W	→	
(C) ~~n separation~~ % S.D.	50	45	59	57	30	21	24	42	26	23	28	49
(D) I	1800											
(E) Vdc (avg)	31.1	9.24	37.1	11.84	6.16	43.4	15.3	8.59	5.28	46.7	17.5	10.17
(F) DCcal USED.	.951											
(G) Kn x 10^{-3}	1	3	1	3	6	1	3	6	10	1	3	6
(H) ρ dc=ExFxGx10^3/D	16.4	14.6	19.6	18.8	19.5	22.9	24.2	27.2	27.9	24.7	27.7	32.2
(I) Vac Σ	30.1	9.06	35.6	11.32	6.02	41.8	14.5	8.34	5.15	45.7	16.8	9.89
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.979	.982	.975	.976	.989	.994	.992	.983	.991	.993	.990	.980
(M) ρ dc/ρac=ExL/K	1.010	1.001	1.016	1.020	1.012	1.031	1.047	1.011	1.014	1.014	1.030	1.007
(N) PFE=(M-1)(10^2)	1	0	2	2	1	3	5	1	1	1	3	1
(O) MCF=(M-1)(10^5)/H	61	7	82	106	62	135	194	40	50	57	108	22

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4	5	1	2	3	4	5	1	2	3	4	5
(B) Receive	→		2.0-2.5W	→			→	2.5-3.0W	→			→
(C) n separation	32	22	33	54	36	25	61	57	36	26	19	49
(D) I												
(E) Vdc (avg)	6.48	4.37	20.0	10.98	7.14	4.97	3.58	11.64	7.18	5.01	3.66	2.81
(F) DCcal												
(G) Kn x 10^{-3}	10	15	3	6	10	15	21	6	10	15	21	28
(H) ρ dc=ExFxGx10^3/D	34.2	34.6	31.7	34.8	37.7	39.4	39.8	36.9	37.9	39.7	40.7	41.6
(I) Vac Σ	6.38	4.32	19.6	10.70	7.10	5.02	3.64	11.30	7.12	5.12	3.80	2.96
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.988	.993	.988	.977	.986	.992	.974	.976	.986	.991	.995	.980
(M) ρdc/ρac =ExL/K	1.003	1.003	1.009	1.003	.991	.982	.958	1.007	.994	.970	.959	.931
(N) PFE=(M-1)(10^2)	0	0	1	0	-1	-2	-4	1	-1	-3	-4	-7
(O) MCF=(M-1)(10^5)/H	9	9	28	9	-24	-46	-105	19	-16	-76	-101	-166

Pole - Dipole

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sec. 14 Line 7 & cal Field date 7/17/63 Data page_____ Comp. date 7/19/63. Comp by C.S.L.

(A) Send	3		3			CAL						
(B) Receive	.5-1.0S		.5-1.0N			A-3						
(C) ~~n separation~~ % S.D.	61		58			52	17	62	21			
(D) I	1800	→	→			1000	1000	1200	1200			
(E) Vdc (avg)	39.3		36.6			107.0	103	128.0	125			
(F) DCcal USED	.951	→	→			.935	.971	.939	.960			
(G) Kn x 10^{-3}	1		1				.951					
(H) ρ dc=ExFxGx10^3/D	20.8		19.4									
(I) Vac Σ	36.4		34.9			104.5	104	124.4	124			
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.974		.975			.978	1.010	.973	.993			
(M) ρ dc/ρac=ExL/K	1.050		1.022									
(N) PFE=(M-1)(10^2)	5		2									
(O) MCF=(M-1)(10^5)/H	240		113									

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												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Group Line: 3 - Spr. 1 - 5½ (D.P. - D.P.) Int.Cal _____ Date: 7/18/63

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
Rec.	1-25	→	2-35	→	→	3-45	→	→	→	4-55	→	→
Time Range	10	10	10	10	3	10	10	3	3	10	3	3
DC-1	5.85	2.08 2.10	6.48 6.40	2.35	1.17	6.58	2.50	1.33	.67	2.35	1.38	.79
DC-2	5.95	2.04 2.04	6.39 6.44	2.40	1.12	6.60	2.58	1.20	.64	2.46	1.39	.73
Σ	11.80	4.12 4.14	12.87 12.84	4.75	2.29	13.18	5.08	2.53	1.31	4.81	2.77	1.52
DC-3	5.95	2.04 2.04	6.42 6.50	2.42	1.12	6.60	2.58	1.20	.64	2.46	1.39	.72
Dc-4	5.85	2.08 2.04	6.42 6.40	2.33	1.17	6.58	2.50	1.33	.67	2.35	1.38	.80
Σ	11.80	4.12 4.10	12.84 12.90	4.75	2.29	13.18	5.08	2.53	1.31	4.81	2.77	1.52
DC-AV	11.80	4.12	12.86	4.75	2.29	13.18	5.08	2.53	1.31	4.81	2.77	1.52
AC-1	5.62	1.99	6.05	2.24	1.08	6.18	2.40	1.20	.62	2.30	1.32	.72
AC-2	5.62	1.99	6.05	2.24	1.09	6.20	2.41	1.21	.62	2.30	1.31	.72
Σ	11.24	3.98	12.10	4.48	2.17	12.38	4.81	2.41	1.24	4.60	2.63	1.44
S. P.	+4.6	→	+5.7	→	→	-12.5	→	→	→	+11.6	→	→
AC-N	.12	→	.09	→	→	.10	→	→	→	.12	→	→
K.G.	52.6	→				Power	line	3.25		4 = 1/4	22/23	

11.55

12.55

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Group Line: 3 - Spot - 5½ Int.Cal _____ Date: 7/18/67

Send	4-5	1-2	2-3	3-4	4-5			1-2				
Rec.	→	5-6.5	→		→			1-2				
~~Time~~ Range	3	3	3	3	3			100	300	100	300	
DC-1	.41	1.22 1.40	.83 .92	.50 .54	.23 .32			53.7	52.5	62.5	61	
DC-2	.42	1.37 1.12	.77 .22	.47 .37	.32 .22			53.7	52.0	62.5	62	
Σ	.83	2.59 2.52	1.60 1.64	.97 .85	.55 .50			107.4	104.5	124.7	123	
DC-3	.42	1.05 1.52	.76 .31	.42 .56	.31 .31			53.7	52.5	62.5	62	
Dc-4	.41	1.47 1.02	.54 .92	.52 .39	.23 .23			53.7	52.0	62.2	61	
Σ	.83	2.55 2.54	1.62 1.63	.95 .85	.54 .54			107.4	104.5	124.7	123	
DC-AV	.83	2.55	1.62	.95	.54			107.4	104.5	124.7	123	
AC-1	.41	1.22	.78	.46	.27			52.5	52.0	60.3	61.0	
AC-2	.41	1.22	.78	.46	.27			52.5	52.0	60.3	61	
Σ	.82	2.44	1.56	.92	.54			105.0	104.0	120.6	122	
S. P.	→	-11.6	→		→							
AC-N	→	.12	→		→							
F.G	→	52.6	→		→							

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Mary Line: 3 — 1 pm 1-W½ Int.Cal Date: 7/18/[illegible]

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
Rec.	1-2N	→	2-3N	→	→	3-4N	→	→	→	4-5N	→	→
~~Time~~ Range	10	10	10	10	3	10	3	3	3	10	3	3
DC-1	6.17	2.03	4.79	2.02	1.03 1.07	4.68	1.80	1.18 1.18	.62	2.50 2.45	1.38	1.02
DC-2	6.06	2.09	5.00	1.78	.90 .83	5.16	1.82	.94 .93	.62	2.55 2.58	1.48	1.00
Σ	12.23	4.12	9.79	3.80	1.93 1.90	9.84	3.62	2.12 2.11	1.24	5.05 5.03	2.86	2.02
DC-3	6.06	2.12	5.02	1.80	.83	5.17	1.82	.98	.63	2.47	1.48	1.02
Dc-4	6.17	2.00	4.77	2.00	1.09	4.67	1.78	1.18	.61	2.57	1.38	1.02
Σ	12.23	4.12	9.79	3.80	1.92	9.84	3.60	2.14	1.24	5.04	2.86	2.04
DC-AV	12.23	4.12	9.79	3.80	1.92	9.84	3.61	2.12	1.24	5.04	2.86	2.03
AC-1	5.80	1.99	4.68	1.84	.93	4.66	1.72	1.03	.61	2.48	~~1.33~~	
AC-2	5.82	1.99	4.70	1.81	.93	4.66	1.72	1.03	.60	2.48		
Σ	11.62	3.98	9.38	3.65	1.86	9.32	3.44	2.06	1.21	4.96		
S. P.	+4.5	→	-11.2	→	→	+7.5	→	→	→	+5.8	→	→
AC-N	.08	→	.20	→	→	.12	→	→	→	.60	→	→
I.C.						52.8						

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Many Line: 3-pr. 1-N½ Int.Cal _____ Date: 7/18/67

Send	1-2	4-5	3-4	2-3	1-2							
Rec.	→	5-6N	→	→	→							
Time Range	3	3	3	3	3							
DC-1	.65 .63	1.13	.83	.48	.38							
DC-2	.64 .66	1.22	.60	.60	.32							
Σ	1.29 1.29	2.35	1.43	1.08	.70							
DC-3	.67	1.22	.60	.60	.32							
Dc-4	.63	1.17	.87	.48	.40							
Σ	1.30	2.39	1.47	1.08	.72							
DC-AV	1.30	2.37	1.45	1.08	.71							
AC-1		3.39	2.08	1.55	1.02							
AC-2												
Σ												
S. P.	→	+5.0	→	→	→							
AC-N	→	~	~	~	~							
Fig.	→	52.6	→	→	→							

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: 3 sp x 1 S½ Date: 7-18-63

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	→		→			→				→		
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1800	1800	1900	1800	1800	1800	1800	1800	1800
Send	4-5	1-2	2-3	3-4	4-5		CAL					
Receive	→				→		1-2					
Time	2x9	2x9	2x9	2x9	2x9		2x5	2x6				
Range	1.50	1.50	1.50	1.50	1.50		1.0	1.0				
Current	1800	1900	1800	1800	1800		1000	1200				

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: 3 spr 2 N ½ Date: 7-18-63

Send	2-3	1-3	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	→			→				→				
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1900	1900	1800	1900	1800	1900	1800	1800	1800
Send	2-2	4-5	3-4	2-3	1-2							
Receive	→				→							
Time	2x9	2x9	2x9	2x9	2x9							
Range	1.50	1.50	1.50	1.50	1.50							
Current	1900	1800	1900	1800	1800							

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sec. 14 Line 3 Spn 1-5½ Field date 7/18/62 Data page_____ Comp. date 7/19/62. Comp by G.S.L.

(A) 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
(B) Receive	1-2 S	→	2-3 S	→	→	3-4 S	→	→	→	4-5 S	→	→
(C) n ~~separation~~ % S.D.	56	20	61	22	36	62	24	40	21	23	44	24
(D) I	1800	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	11.80	4.12	12.86	4.75	2.29	13.18	5.08	2.53	1.31	4.81	2.77	1.52
(F) DCcal USED	.954	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρ dc=ExFxGx10^3/D	18.8	26.2	20.4	30.2	36.4	20.9	32.3	40.1	41.6	30.6	44.0	48.3
(I) Vac Σ	11.24	3.98	12.10	4.48	2.17	12.38	4.81	2.41	1.24	4.60	2.63	1.44
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.974	.993	.971	.992	.985	.971	.991	.982	.993	.992	.980	.991
(M) ρ dc/ρac=ExL/K	1.021	1.028	1.031	1.051	1.040	1.032	1.044	1.030	1.048	1.038	1.031	1.046
(N) PFE=(M-1)(10^2)	2	3	3	5	4	3	4	3	5	4	3	5
(O) MCF=(M-1)(10^5)/H	112	107	152	169	110	153	136	75	115	124	71	95

Project_____ Line_____ Field date_____ Data page_____ Comp. date 53 17 60 20 Comp by_____

(A) Send	4-5	1-2	2-3	3-4	4-5			<4L	→	→	→	
(B) Receive	→	5-6 S	→	→	→			1-2	→	→	→	
(C) n ~~separation~~	14	41	26	15	9			1000	1000	1200	1200	
(D) I	→	→	→	→	→			102.4	104.5	124.7	123	
(E) Vdc (avg)	0.83	2.55	1.62	0.95	0.54			.930	.958	.953	.976	
(F) DCcal	→	→	→	→	→							
(G) Kn x 10^{-3}	105	30	60	105	168				.954			
(H) ρ dc=ExFxGx10^3/D	46.2	40.5	51.4	52.9	48.1							
(I) Vac Σ	0.82	2.44	1.56	0.92	0.54			105.0	104.0	120.6	122	
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.996	.982	.990	.996	1.000			.978	.996	.968	.992	
(M) ρdc/ρac =ExL/K	1.009	1.026	1.028	1.028	1.000							
(N) PFE=(M-1)(10^2)	1	3	3	3	0							
(O) MCF=(M-1)(10^5)/H	19	64	54	53	0							

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sec. 14 Line 3-Spr, 1-N Field date 7/18/63 Data page_____ Comp. date 7/19/63. Comp by C.S.L.

(A) 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
(B) Receive	1-2N	→	2-3N	→	→	3-4N	→	→	→	4-5N	—	—
(C) ~~n separation~~ % S.D	58	20	47	18	31	47	57	34	20	25	—	—
(D) I	1800	—	—	—	—	—	—	—	—	—	—	—
(E) Vdc (avg)	12.23	4.12	9.79	3.80	1.92	9.84	3.61	2.16	1.24	5.04	2.86	2.03
(F) DCcal USED.	99	—	—	—	—	—	—	—	—	—	—	—
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρ dc=ExFxGx10^3/D	19.4	26.2	15.5	24.2	30.4	15.6	22.9	34.2	39.4	32.0	45.3	64.5
(I) Vac Σ	11.69	3.98	9.38	3.65	1.86	9.32	3.44	2.06	1.21	4.96	—	—
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.973	.993	.979	.994	.987	.979	.973	.986	.993	.990	—	—
(M) ρ dc/ρac=ExL/K	1.019	1.028	1.021	1.033	1.019	1.033	1.020	1.032	1.017	1.007		
(N) PFE=(M-1)(10^2)	2	3	2	3	2	3	2	3	2	1		
(O) MCF=(M-1)(10^5)/H	98	107	135	136	63	211	87	94	43	22		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2							
(B) Receive	→	4-5N	→	→	→							
(C) n separation	—	—	—	—	—							
(D) I	—	—	—	—	—							
(E) Vdc (avg)	1.30	3.39	2.08	1.55	1.02							
(F) DCcal	—	—	—	—	—							
(G) Kn x 10^{-3}	105	30	60	105	168							
(H) ρ dc=ExFxGx10^3/D	72.2	53.6	66.1	86.1	90.9							
(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												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Mar Role - Pole Line: 1 - Spr. 1 - N½ Int.Cal Date: 7/13/63

Send	2	1	3	2	1	4	3	2	1	5	4	3
Rec.	0 →		.5N →			1.0N			→	1.5N		
~~Time~~ Range	100	100	100	100	100	100	100	100	30	100	100	100
DC-1	50.7 50.5	30.0 30.5	49.2 49.6	30.4	22.6 23.7	48.5	30.2 29.8	23.5	18.9	46.2	30.3 29.3	22.0 22.4
DC-2	51.2 51.7	30.5 29.7	49.0 48.3	30.7	22.5 23.0	46.5	31.5 30.4	22.8	18.9	45.0	29.7 31.0	23.5 24.0
Σ	101.9 102.2	60.5 60.2	98.2 97.9	61.1	45.1 45.7	95.0	60.6 61.3	46.3	37.8	94.2	60.0 60.3	47.5 46.4
DC-3	52.0 51.5	29.7 29.4	49.0	30.7	22.3 22.5	46.7	30.4	24.0 22.8	18.9	48.8	31.0	25.5 24.0
Dc-4	50.2 50.8	29.4 31.2	49.4	30.4	22.6 23.7	48.2	29.8	22.4 24.0	18.9	45.6	29.6	22.4 22.9
Σ	102.2 102.3	59.1 60.6	98.6	61.1	44.9 46.2	94.9	60.2	46.4 46.8	37.8	94.4	60.6	47.9 46.9
DC-AV	102.2	60.1	98.2	61.1	45.5	94.9	60.7	46.4	37.8	94.3	60.3	47.2
AC-1	47.8	27.7	45.7	28.0	20.4	44.3	27.8	21.6	16.5	44.0	27.7	21.2
AC-2	47.8	27.7	45.7	28.2	20.4	44.3	27.8	21.6	16.4	44.2	27.7	21.2
Σ	95.6	55.4	91.4	56.2	40.8	88.6	55.6	43.2	33.6	88.2	55.4	42.4
S. P.	-36.4	→	-38.4	→		-44.1	→		→	-31.4		
AC-N	.6	→	.4	→		.6	→		→	.3		
T. C.	52.6											

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Mary Line: 1 - Spiral Pole-Pole Int.Cal _____ Date: 7/17/83

Send	2	1	5	4	3	2	1	5	4	3	2	1
Rec.	→	→	2.0N	→	→	→	→	2.5N	→	→	→	→
Time	30	30	100	100	30	30	30	100	100	30	30	30
DC-1	18.2 18.8	15.8 15.0	31.8 30.5	22.4	19.0 18.4	16.6	14.3 14.9	24.0	19.8	16.1 17.8	14.2	12.0
DC-2	20.3 19.9	16.0 16.8	29.5 30.0	25.0	20.6 21.0	16.3	13.0 12.1	24.3	20.0	17.5 16.6	14.8	12.3
Σ	38.3 38.7	31.8 31.8	61.3 60.5	47.4	39.6 39.4	32.9	27.3 27.0	48.3	39.8	33.6 34.4	29.0	24.3
DC-3	20.3	16.0	29.5 30.0	25.0	20.6	16.3	12.8 12.0	24.3	20.0	17.3 17.1	14.8	12.3
Dc-4	18.7	15.8	30.5 31.6	22.4	18.4	16.6	14.7 15.0	24.0	20.0	17.3 16.8	14.2	12.0
Σ	39.0	31.8	60.0 61.6	47.4	39.0	32.9	27.5 27.0	48.3	40.0	34.6 33.9	29.0	24.3
DC-AV	38.7	31.8	60.9	47.4	39.3	32.9	27.2	48.3	39.9	34.1	29.0	24.3
AC-1	17.2	14.0	27.9	21.7	17.7	14.8	12.1	22.1	18.0	15.2	13.0	10.8
AC-2	17.2	14.0	27.9	21.7	17.7	14.7	12.0	22.1	18.2	15.2	13.0	10.8
Σ	34.4	28.0	55.8	43.4	35.4	29.5	24.1	44.2	36.2	30.4	26.0	21.6
S. P.	→	→	-35.9	→	→	→	→	-29.3	→	→	→	→
AC-N	→	→	.8	→	→	→	→	1.0	→	→	→	→
	→	→	→	→	→	→	→	→	→	→	→	→

INDUCED POLARIZATION - RECEIVER NOTES PAGE 9

Project: Mary Line: 1 Int.Cal Date: 7/18/07

Send	3	4	3	3		CAL						
Rec.	.25N	→	.125N	.0625N		2-3						
Time	300	300	1000	1000		100	300	100	300			
DC-1	102	87	282	660		53.7	52.5	64.4	63			
DC-2	105	90	268	650		53.7	52.5	64.2	63			
Σ	207	177	550	1310		107.4	105	128.6	126			
DC-3	105	90	268	650		53.7	52.5	64.2	63			
Dc-4	102	87	282	660		53.7	52.5	64.4	63			
Σ	207	177	550	1310		107.4	105	128.6	126			
DC-AV	207	177	550	1310		107.4	105	128.6	126			
AC-1	99.0	83.0	264	630		52.0	52.0	62.0	62.0			
AC-2	99.0	83.0	264	630		52.0	52.0	62.0	62			
Σ	198	166	528	1260		104.0	104	124.0	124			
S. P.	-24.6	→	-37.5									
AC-N	1.0	→	→									

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Line: _____ Int.Cal _____ Date: _____

Send	3	4	5	2	3	4	5	1	2	3	4	5
Rec.	.55	→	→	1.05	→	→	→	1.55	→	→	→	→
~~Time~~ Range	100	100										
DC-1	52.2 53.0	30.5										
DC-2	47.7 47.5	29.5										
Σ	99.9 100.5	60.0										
DC-3	47.8	30.0										
Dc-4	52.7	30.0										
Σ	100.5	60.0										
DC-AV	100.3	60.0										
AC-1	48.5	36.5										
AC-2	48.5	36.5										
Σ	97.0	73.0										
S. P.												
AC-N	very noisy											

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: 1 Spr 1 N½ D=500' Date: 7-13-63

Send	A2	A1	A3	A2	A1	A4	A3	A2	A1	A5	A4	A3
Receive	→		→		→	→			→		→	
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

Send	A2	A1	A5	A4	A3	A2	A1	A5	A4	A3	A2	A1
Receive	→		→				→	→				→
Time	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9	2x9
Range	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: 1 Sps 2 N½ Date: 7-13-63

Send	3	4	3	3								
Receive	→	→	→	→								
Time	2x9	2x9	2x9	2x9								
Range	1.50	1.50	1.50	1.50								
Current	1800	1800	1800	1800								
Send												
Receive												
Time												
Range												
Current												

INDUCED POLARIZATION SENDER NOTES

Project: _____ Line: _____ Date: _____

Send	A-3	A-4	A5	A 2	A-3	A-4	A-5	A-2	A-3	A-4	A-5	
Receive	→	→	→									
Time	2+9	2+9	2									
Range	1,50	1,50										
Current	1800	1800										
Send												
Receive												
Time												
Range												
Current												

Pole - Pole

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mary Group Line 1 - Spr. 1-N Field date 7/13/63 Data page_____ Comp. date 7/15/63. Comp by C. S. L.

(A) Send	2	1	3	2	1	4	3	2	1	5	4	3
(B) Receive	0.0N →		0.5N	→		1.0N	→			1.5N		
(C) ~~n separation~~ 9. S.D.	48	28	46	28	20	44	28	22	56	44	28	21
(D) I	1800											
(E) Vdc (avg)	102.2	60.1	98.2	61.1	45.5	94.9	60.3	46.4	37.8	94.3	60.3	47.2
(F) DCcal	.943											
(G) ~~Kn x 10-3~~ USED a x10-3	.5	1.0	.5	1.0	1.5	.5	1.0	1.5	2.0	.5	1.0	1.5
(H) ρ dc=ExFxGx10³/D	26.7	31.4	25.7	32.0	35.7	24.8	31.7	36.4	39.6	24.5	31.5	37.0
(I) Vac Σ	95.6	55.4	91.4	56.2	40.8	88.6	55.6	43.2	33.6	88.2	55.4	42.4
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.972	.983	.973	.983	.987	.974	.983	.986	.968	.974	.983	.986
(M) ρ dc/ρac=ExL/K	1.039	1.067	1.045	1.069	1.100	1.042	1.072	1.060	1.089	1.041	1.070	1.098
(N) PFE=(M-1)(10²)	4	7	5	7	10	4	7	6	9	4	7	10
(O) MCF=(M-1)(10⁵)/H	146	213	175	216	280	169	227	165	225	167	222	275

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2	1	5	4	3	2	1	5	4	3	2	1
(B) Receive	→	→	2.0N			→	→	2.5N				→
(C) n separation	57	47	28	22	59	49	40	22	18	51	43	36
(D) I												
(E) Vdc (avg)	38.7	31.8	60.9	47.4	39.3	32.9	27.2	48.3	39.9	34.1	29.0	24.3
(F) DCcal												
(G) Kn x 10-3	2.0	2.5	1.0	1.5	2.0	2.5	3.0	1.5	2.0	2.5	3.0	3.5
(H) ρ dc=ExFxGx10³/D	40.5	41.6	31.8	37.2	41.1	43.0	42.7	37.9	41.8	44.6	45.5	44.5
(I) Vac Σ	34.4	28.0	55.8	43.4	35.4	29.5	24.1	44.2	36.2	30.4	26.0	21.6
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.967	.972	.983	.986	.966	.971	.976	.986	.988	.970	.975	.979
(M) ρdc/ρac =ExL/K	1.089	1.103	1.073	1.077	1.072	1.083	1.102	1.078	1.089	1.089	1.089	1.101
(N) PFE=(M-1)(10²)	9	10	7	8	7	8	10	8	9	9	9	10
(O) MCF=(M-1)(10⁵)/H	220	248	230	207	175	193	239	206	213	199	196	227

Pole – Pole

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

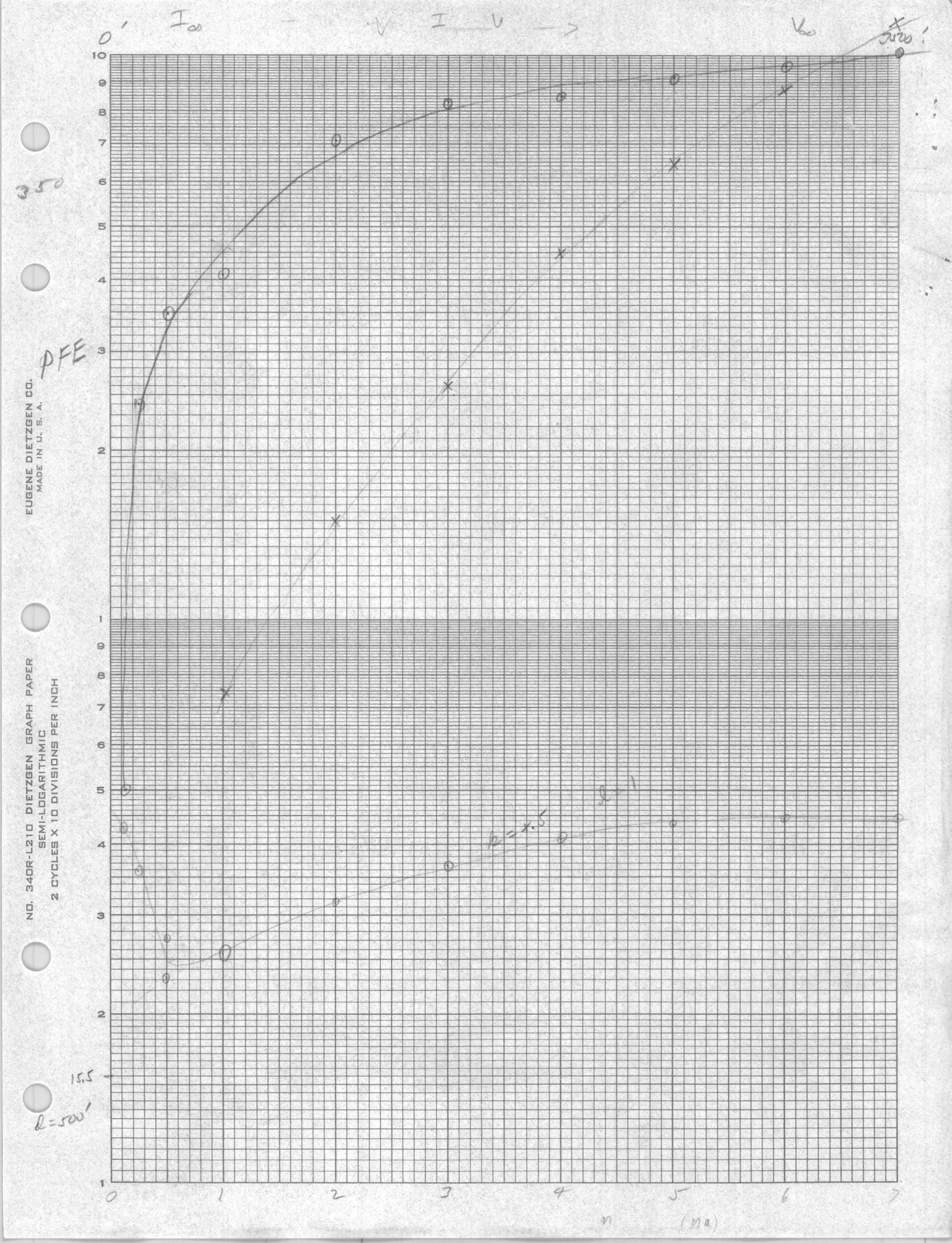
Project Mary Group Line 1 - Spr. 1 - N Field date 7/13/67 Data page_____ Comp. date 7/15/67 Comp by C.S.L.

(A) Send	3	4	3	3		3	4		CAL			
(B) Receive	.25N	→	.125N	.0625N		.55	→		2-3			
(C) n separation 2.S.A.	33	28	26	60		49	37		52	17	62	21
(D) I	1800						→		1000	1000	1200	1200
(E) Vdc (avg)	207	177	550	1310		100.3	60.0		107.4	105	128.6	126
(F) DCcal USED	.943						→		.932	.953	.934	.954
(G) ~~Kn x 10-3~~ a x 10-3	.25	.25	.125	.0625		.5	1.0		~	.943		
(H) ρ dc=ExFxGx10³/D	27.1	23.2	35.9	42.9		26.2	31.4					
(I) Vac Σ	198	166	528	1260		97.0	730 ? more		104.0	104	124.0	124
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.980	.983	.984	.966		.971	.978		.969	.990	.965	.985
(M) ρ dc/ρac=ExL/K	1.023	1.048	1.024	1.005		1.006	X		.970	.989	.965	.986
(N) PFE=(M-1)(10²)	2	5	2	1		1						
(O) MCF=(M-1)(10⁵)/H	85	207	67	12		23						

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=ExFxGx10³/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)(10²)												
(O) MCF=(M-1)(10⁵)/H												

85
85
173
43



0'
I_∞
V
I
V
V_∞
3500'
350
PFE
15.5
l=500'
l=1
k=+.5
0
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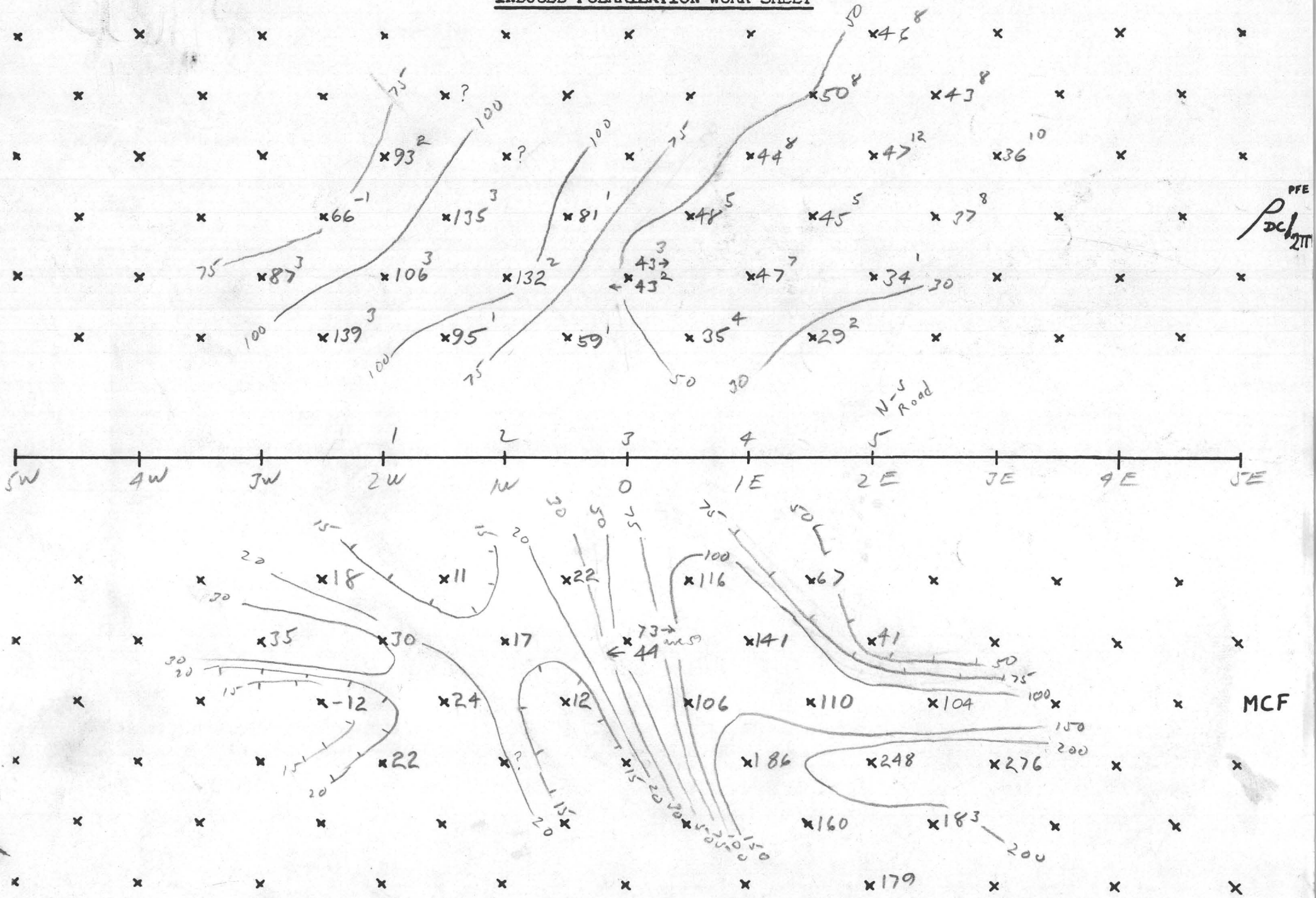
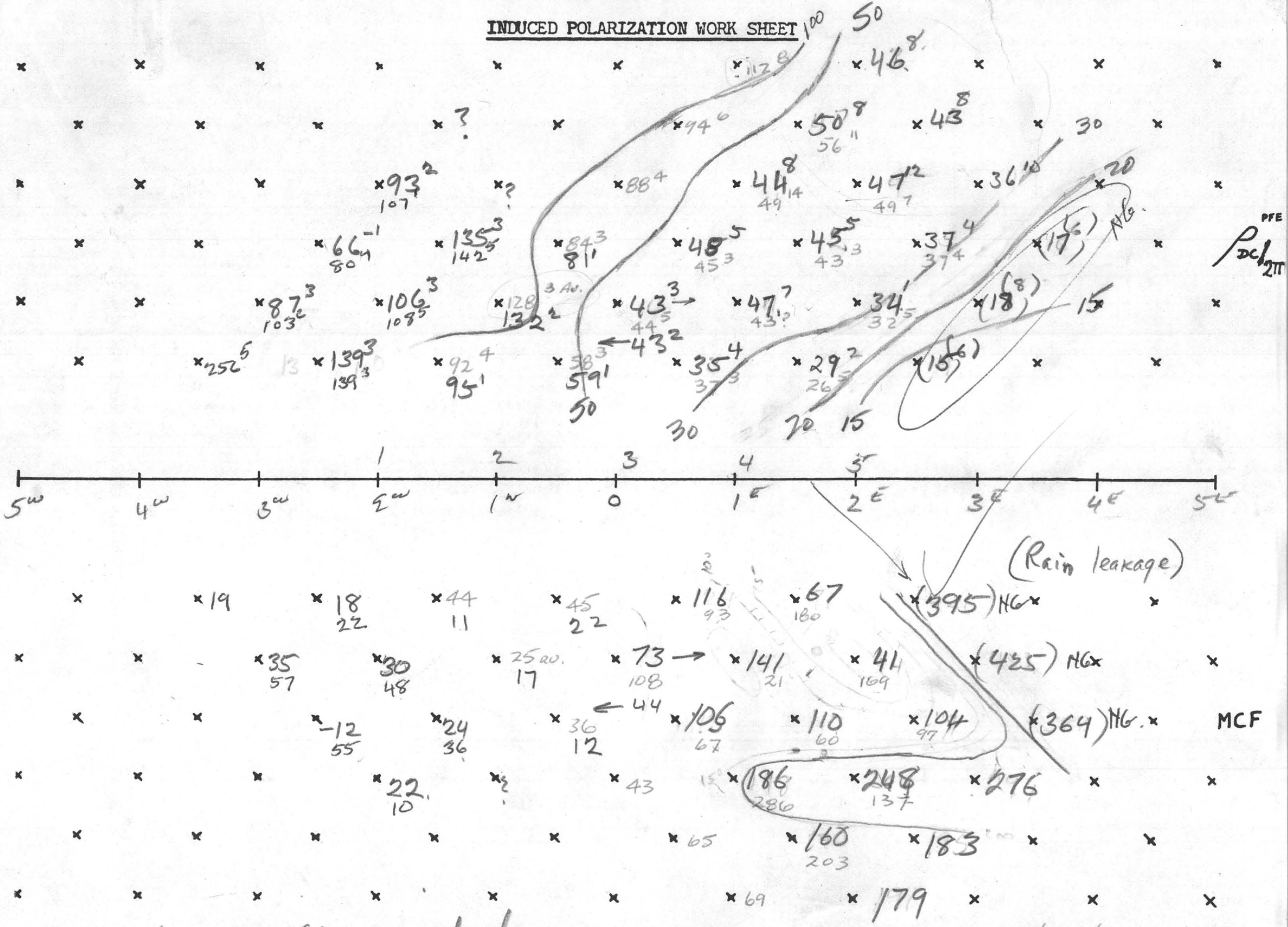
n (na)
EUGENE DIETZGEN CO.
MADE IN U. S. A.
NO. 340R-L210 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
2 CYCLES X 10 DIVISIONS PER INCH

INDUCED POLARIZATION WORK SHEET



Area Mary Line 2 Repeat Scale 1" = 1000' Date 8/23/62

INDUCED POLARIZATION WORK SHEET



Area MARY Line 2 repeat Scale 1" = 1000' Date 8/23/62

— indicates old data

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Mary Line: 2 - repeat W½ Int.Cal 49.2 Date: 8/21/62

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
Rec.	1-2W	→	2-3W	→	→	3-4W	→	→	→	4-5W	→	→
Time												
DC-1	15.1 15.2	2.88 2.77 2.90 2.78	24.8 24.8	8.2 8.30 8.2 8.45	2.30 1.92 2.18 2.03	36.0 36.0	6.8 6.8	3.4 3.4	TOO NOISY	4.9 4.95	1.62 1.55	1.2 1.2
DC-2	15.4 15.3	2.68 2.80 2.66 2.83	24.4 24.4	8.8 8.65 8.75 8.55	2.00 2.38 2.07 2.25	36.0 36.0	6.8 6.8	3.6 3.6		4.95 4.9	1.83 1.85	1.2 1.2
Σ	30.5 30.5	5.56 5.57 5.56 5.61	49.2 49.2	17.00 16.95 16.95 17.00	4.30 4.30 4.25 4.28	72.0 72.0	13.6 13.6	7.0 7.0		9.85 9.85	3.45 3.43	2.8
DC-3	15.1 15.1	2.93 2.75 2.80 2.80	24.8 25.1	8.25 8.40 8.40 8.40	2.21 2.20 2.10 2.20	36.0 36.0	6.8 6.8	3.2 3.1		4.9 5.0	1.90 1.52	1.2 1.2
Dc-4	15.4 15.4	2.66 2.80 2.82 2.73	24.4 24.1	8.70 8.65 8.60 8.55	2.10 2.05 2.25 2.08	36.0 36.0	6.8 6.8	3.8 3.9		4.95 4.85	1.48 1.92	1.2 1.2
Σ	30.5 30.5	5.59 5.55 5.62 5.53	49.2 49.2	16.95 17.05 17.00 16.95	4.31 4.25 4.35 4.28	72.0 72.0	13.6 13.6	7.0 7.0		9.85 9.85	3.38 3.44	2.8
DC-AV	30.5	5.58	49.2	16.98	4.29	72.0	13.6??	7.0??		9.85	3.43	2.4
AC-1	14.0	2.44	21.9	7.45	1.94	33.4	6.03	3.22		4.48	1.59	1.12
AC-2	14.0	2.45	21.8	7.45	1.93	33.2	6.01	3.20		4.52	1.60	1.10
Σ	28.0	4.89	43.7	14.90	3.87	66.6	12.04	6.42		9.00	3.19	2.22
S. P.	(+9.5	+4.7)	-4.5	AV4.1	-3.7	-0.4	AV-2.2	-4.0		-1.8	& noisy	
AC-N	Peg AV+1.0	0.10	storm noise		0.25		noise POOR	0.40+		very poor		0.3+
Scale Ω	750Ω 30	3	1600Ω 30	10	3	1300Ω 100	10	10	3	10	3	3

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Mary Line: 2 - Repeat W½ Int.Cal 49.2 Date: 8/21/82

Send	CAL					→	CAL					→
Rec.	1-2					→	1-2					
Time												
DC-1	20.0	19.2	50.0	48.0	29.2	29.2	19.8	18.5	29.1	29.0	49.9	47
DC-2	20.0	19.2	50.0	48.0	29.1	29.2	19.7	18.5	29.2	29.0	49.0	47
Σ	40.0	38.4	100.0	96.0	58.3	58.4	39.5	37.0	58.3	58.0	99.8	94
DC-3	20.0	19.2	50.0	48.0	29.2	29.2	19.8	18.5	29.1	29.0	49.9	47
Dc-4	20.0	19.2	50.0	48.0	29.1	29.2	19.7	18.5	29.2	29.0	49.9	47
Σ	40.0	38.4	100.0	96.0	58.3	58.4	39.5	37.0	58.3	58.0	99.8	94
DC-AV	40.0	38.4	100.0	96.0	58.3	58.4	39.5	37.0	58.3	58.0	99.8	94.0
AC-1	18.3	18.2	46.9	45.0	25.9	27.8	18.1	18.0	25.7	27.2	46.2	45
AC-2	18.3	18.2	46.7	45.0	25.9	27.8	18.1	18.0	25.7	27.2	46.2	44
Σ	36.6	36.4	93.6	90.0	51.8	55.6	36.2	36.0	51.4	54.4	92.4	89.0
S. P.												
AC-N												
Scale	30	100	100	300	30	100	30	100	30	100	100	300

INDUCED POLARIZATION SENDER NOTES

Project: MARIA GROUP Line: 2 W. REPEAT Date: 21 AUG 62

Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive	CAL	1-2 W.	→	2-3W.	→		3-4W.	→			4-5W.	→
Time												
Range X_2		800	800	→							100	→
Current		1600	1600								1400	→
Send	3-4	4-5	1-2	2-3	3-4	4-5	1-2	→				
Receive	→		5-6W.	→			CAL	→				
Time												
Range X_2			100				200	500	300			
Current			1400				400	1000	600			

400 600 1000

Cals.

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mary Line 2A E/2 Field date_____ Data page_____ Comp. date_____. Comp by_____

AM

(A) Send	4-5											
(B) Receive	Cal											
(C) ~~n separation~~ Range	30	100	100	300	100	300						
(D) I	400	400	1000	1000	1600	1600						
(E) Vdc (avg)	39.8	37.5	98.2	92.0	155.6	154.0						
(F) DCcal	1.006	1.076	1.020	1.087	1.029	1.039	USE 1.035					
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	36.5	35.9	92.2	87.0	142.0	144.0						
(L) AC-DC cal.	.910	.965	.939	.945	.914	.935						
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	60%	36%	46%	15%	71%	24%						

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

PM

(A) Send	4-5											
(B) Receive	Cal											
(C) n separation	30	100	100	300	100	300						
(D) I	400	400	1000	1000	1600	1600						
(E) Vdc (avg)	40.0	38.2	99.8	95.0	156.0	156.0						
(F) DCcal	1.000	1.049	1.001	1.053	1.026	1.026						
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	36.4	36.2	93.0	88.0	142.0	146.0						
(L) AC-DC cal.	.910	.948	.932	.927	.910	.937						
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	61%	36%	47%	15%	71%	24%						

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mary Line 2-A W 1/2 Field date 21/Aug AM Data page_____ Comp. date 22/Aug. Comp by_____

(A) Send	1-2											
(B) Receive	CAL											
(C) n separation	30	100	100	300	30	100						
(D) I	400	400	1000	1000	600	600						
(E) Vdc (avg)	40.0	38.4	100.0	96.0	58.3	58.4						
(F) DCcal	1.000	1.041	1.000	1.041	1.030	1.029		Use	1.030			
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ	36.6	36.4	93.6	90.0	51.8	55.6						
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.915	.948	.936	.938	.890	.953						
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	61%	18%	46%	15%	86%	28%						

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

(A) Send	1-2											
(B) Receive	CAL											
(C) n separation	30	100	30	100	100	300						
(D) I	400	400	600	600	1000	1000						
(E) Vdc (avg)	39.5	37.0	58.3	58.0	99.8	94.0						
(F) DCcal	1.012	1.081	1.029	1.035	1.001	1.062						
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ	36.2	36.0	51.4	54.4	92.4	89.0						
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.917	.974	.882	.938	.925	.947						
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	60%	18%	86%	27%	46%	15%						

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Line: #2-A-Repeat E1/2 Int.Cal 49.5 Date: 20 Aug 62

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
Rec.	1E-2E	→	2E-3E	→	→	3E-4E	→	→	→			
Time	1339	1343	1427	1430		1455	1458	1501		1518	1523	1527
DC-1	9.0 9.0	2.81 2.81	7.50 7.55	3.00 3.00	1.18 1.31	3.80 3.69	2.23 2.17	1.20 1.11	.58 .50	1.11 1.17	.98 1.03	.64 .64
DC-2	9.1 9.1	2.75 2.72	7.50 7.45	3.00 3.00	1.31 1.19	3.82 3.85	2.19 2.25	1.11 1.20	.63 .64	1.23 1.17	1.98 .91	.61 .62
Σ	18.1 18.1	5.56 5.53	15.00 15.00	6.00	2.49 2.50	7.62 7.54	4.42 4.42	2.31 2.31	1.11 1.14	2.34 2.34	1.96 1.94	1.25 1.26
DC-3	9.1 9.3	2.81 2.83	7.65 7.55	3.00 3.00	1.22 1.23	3.60 3.58	2.27 2.32	1.12 1.25	.67 .53	1.15 1.11	.91 1.93	.64 .63
Dc-4	9.0 8.8	2.72 2.71	7.40 7.55	3.00 3.00	1.24 1.20	3.98 4.02	2.18 2.19	1.18 1.09	.43 .60	1.24 1.21	1.01 1.00	.62 .63
Σ	18.1 18.2	5.52 5.53	15.05 15.10	6.00	2.43 2.46	7.58 7.60	4.31 4.45	2.30 2.34	1.10 1.13	2.39 2.32	1.92 1.93	1.26 1.26
DC-AV	18.1	5.54	15.04	6.00	2.47	7.59	4.45	2.32	1.12	2.35	1.94	1.26
AC-1	8.3	2.44	6.75	2.68	1.13??	3.41	2.00	1.06	0.51	1.03??	0.89?	0.55
AC-2	8.3	2.45	6.73	2.70	1.13??	3.39	2.00	1.04	0.49	1.04	0.89?	0.54
Σ	16.6	4.89	13.48	5.38	2.26	6.80	4.00	2.10	1.00	2.07	1.78	1.09
S. P.	+6.0	—	+6.0	Av.+7.3	+8.6	+9.2	Av+7.7		+6.3	+10.3	Av+	11.0
AC-N		.07 to Reg.			.10 to Reg		.05 to	Reg	.05			
	30 1200Ω	3 ~~3800~~	10 3800	10	×3	10 1100Ω	3	3	3	3 2000Ω	3	

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Line: #2 E 1/2 Int.Cal _____ Date: 8/10/62

							400		1000			
Send	1-2	4-5	3-4	2-3	1-2	0-1.0E	4-5	→				→
Rec.	4E-5E	← 5E-6E ? →					Cal					
Time	1530	1554	1558	1601		Base						
DC-1	.43 .33	.50 .41	.43 .51	.31 .33	.22 .23	Pot at	19.9	18.7	49.1	46.0	77.7	77.0
DC-2	.32 .43	.41 .50	.50 .41	.32 .30	.20 .18	0	19.9	18.5	49.1	46.0	77.9	77.0
Σ	.75 .76	.91 .91	.93 .92	.63 .63	.42 .41		39.8	37.2	98.2	92	155.6	154.0
DC-3	.45 .30	.50 .43	.40 .38	.32 .31	.23 .19		19.9	18.7	49.1	46.0	77.7	77.0
Dc-4	.29 .42	.42 .48	.53 .55	.31 .31	.19 .23		19.9	18.5	49.1	46.0	77.9	77.0
Σ	.74 .72	.92 .91	.93 .93	.63 .62	.42 .42		39.8	37.2	98.2	92.0	155.6	154.0
DC-AV	.74	.91	.93	.63	.42		39.8	37.2	98.2	92.0	155.6	154.0
AC-1	0.33	0.41	0.41	0.29	0.19		18.1	17.9	46.3	44.0	71.0	72.0
AC-2	0.33	0.42	0.41	0.28	0.19		18.1	18.0	45.9	43.0	71.0	72.0
Σ	0.66	0.83	0.82	0.57	0.38		36.2	35.9	92.2	87.0	142.0	144.0
S. P. →	+11.7	+5.6	Av. 6.0		+6.5	+5.7						
AC-N	0.05 to 0				.03							
		1900 Ω					30	100	100	300	100	300

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Mary Line: #2 E2 Int.Cal 49.4 Date: _____

Send												
Rec.												
Time												
DC-1	20.0	19.1	47.9	48.0	78	78						
DC-2	20.0	19.1	49.9	47.0	78	78						
Σ	40.0	38.2	99.8	95.0	156	156						
DC-3	20.0	19.1	49.9	48.0	78	78						
Dc-4	20.0	19.1	49.9	47.0	78	78						
Σ	40.0	38.2	99.8	95.0	156	156						
DC-AV	40.0	38.2	99.8	95.0	156.0	156.0						
AC-1	18.2	18.1	46.5	44.0	71.1	73.0						
AC-2	18.2	18.1	46.5	44.0	70.9	73.0						
Σ	36.4	36.2	93.0	88.0	142.0	146.0						
S. P.												
AC-N												
scale	30	100	100	300	100	300						

E 1/2

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mary Line #7-A Repeat Field date 26 Aug Data page_____ Comp. date 27 Aug. Comp by [illegible]

	28%	81%	67%	27%	38%	34%	66%	35%	17%	34%	30%	18%
(A) 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
(B) Receive	1E-2E	→	2E-3E	→	→	3E-4E	→	→	→	4E-5E	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1600	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	18.1	5.54	15.04	6.00	2.47	7.59	4.45	2.32	1.12	2.35	1.94	1.26
(F) DCcal	1.035	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρ dc=ExFxGx10^3/D	35	43	29	47	48	15	34	45	44	18	37	47
(I) Vac Σ	16.6	48.9	13.48	5.38	2.26	6.80	4.60	2.10	1.00	2.07	1.78	1.09
(J) AC noise x 2	.14	.14	.20	.20	.20	.10	.10	.10	.10	.10	.10	.10
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.954	.910	.910	.954	.944	.948	.910	.947	.965	.947	.952	.964
(M) ρ dc/ρac=ExL/K	1.041	1.031	1.019	1.066	1.051	1.059	1.014	1.049	1.081	1.077	1.039	1.116
(N) PFE=(M-1)(10^2)	4	3	2	7	5	6	1	5	8	8	4	12
(O) MCF=(M-1)(10^5)/H	116	73	67	141	106	395	41	110	186	425	104	248

Project_____ Line 11% 14% 14% Field date 9% 6% Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2							
(B) Receive	4E-5E	5E-6E	→	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1600	→	→	→	→							
(E) Vdc (avg)	.74	.91	.93	.63	.42							
(F) DCcal	1.035	→	→	→	→							
(G) Kn x 10^{-3}	105	30	60	105	168							
(H) ρ dc=ExFxGx10^3/D	50	17	36	43	46							
(I) Vac Σ	0.66	0.83	0.82	0.57	0.38							
(J) AC noise x 2	.10	.06	.06	.06	.06							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.971	.968	.968	.972	.977							
(M) ρdc/ρac =ExL/K	1.080	1.062	1.100	1.078	1.082							
(N) PFE=(M-1)(10^2)	8	6	10	8	8							
(O) MCF=(M-1)(10^5)/H	160	364	276	183	179							

Very noisy

W/2

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

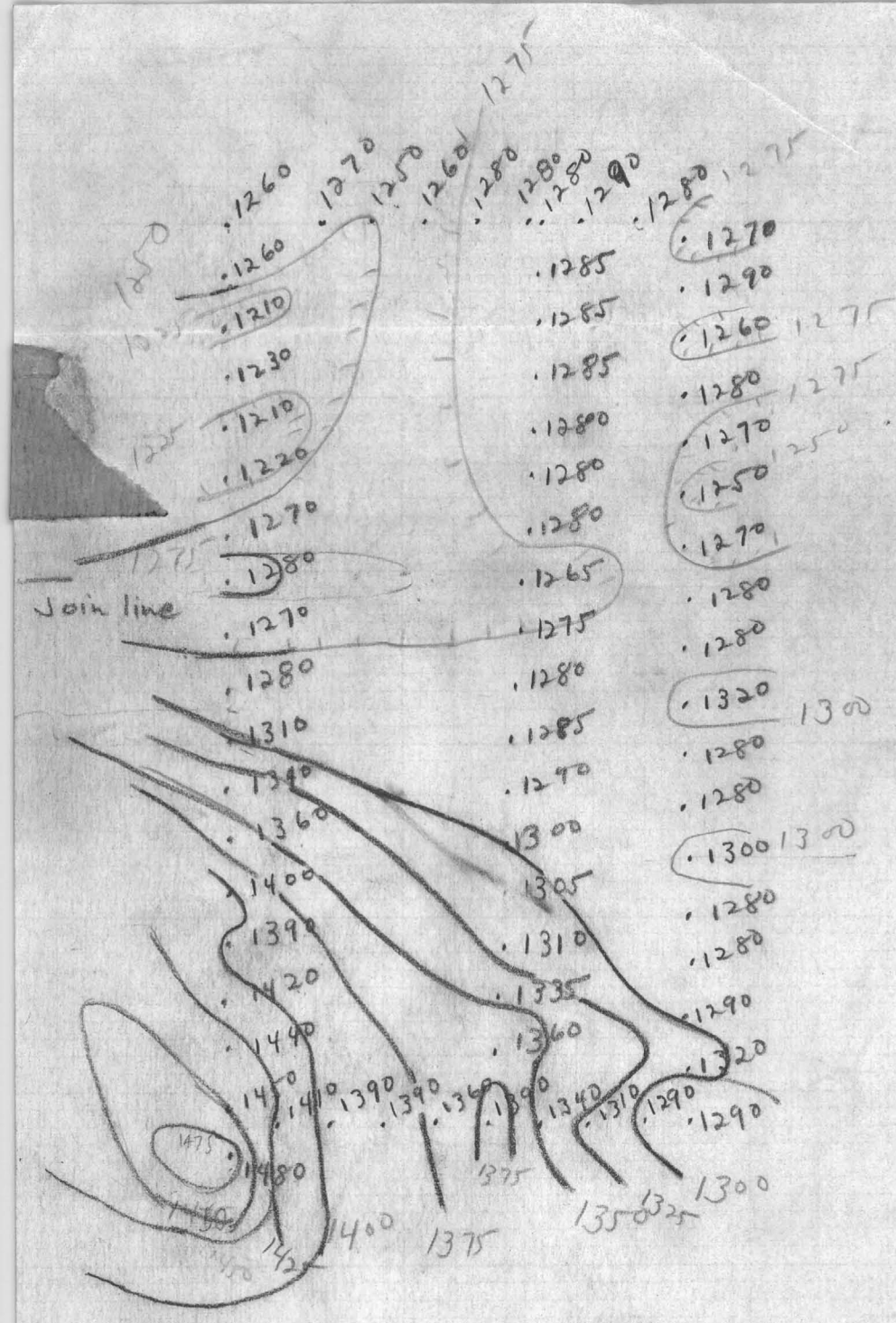
Page_____

Project Mary Line #2-A Repeat Field date 21/Aug Data page_____ Comp. date 22/Aug. Comp by_____

(A) 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
(B) Receive	1w-2w	→	2w-3w	→	→	3w-4w	→	→	→	4w-5w	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1600	1600	1600	→	→	→	→	→	→	1400	1600	1600
(E) Vdc (avg)	30.5	5.58	49.2	16.98	4.29	72.0	13.6	7.0		9.85	3.43	2.4
(F) DCcal	1.030	→	→	→	→	→	→	→		→	→	→
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30		12	30	60
(H) ρ dc=ExFxGx10^3/D	59	43	95	132	81	139	106	135		87	66	93
(I) Vac Σ	78.0	4.89	43.7	14.90	3.87	66.6	12.04	6.42		9.00	3.19	2.22
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.928	890	897	896	.909	.946	.914	.947		.931	.920	.941
(M) ρ dc/ρac=ExL/K	1.013	1.019	1.010	1.022	1.010	1.025	1.032	1.033		1.030	.992	1.020
(N) PFE=(M-1)(10^2)	1	2	1	2	1	3	3	3		3	-1	2
(O) MCF=(M-1)(10^5)/H	22	44	11	17	12	18	30	24		35	-12	22
	47%	81%	73%	75%	64%	33%	60%	32%		45%	55%	37%

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

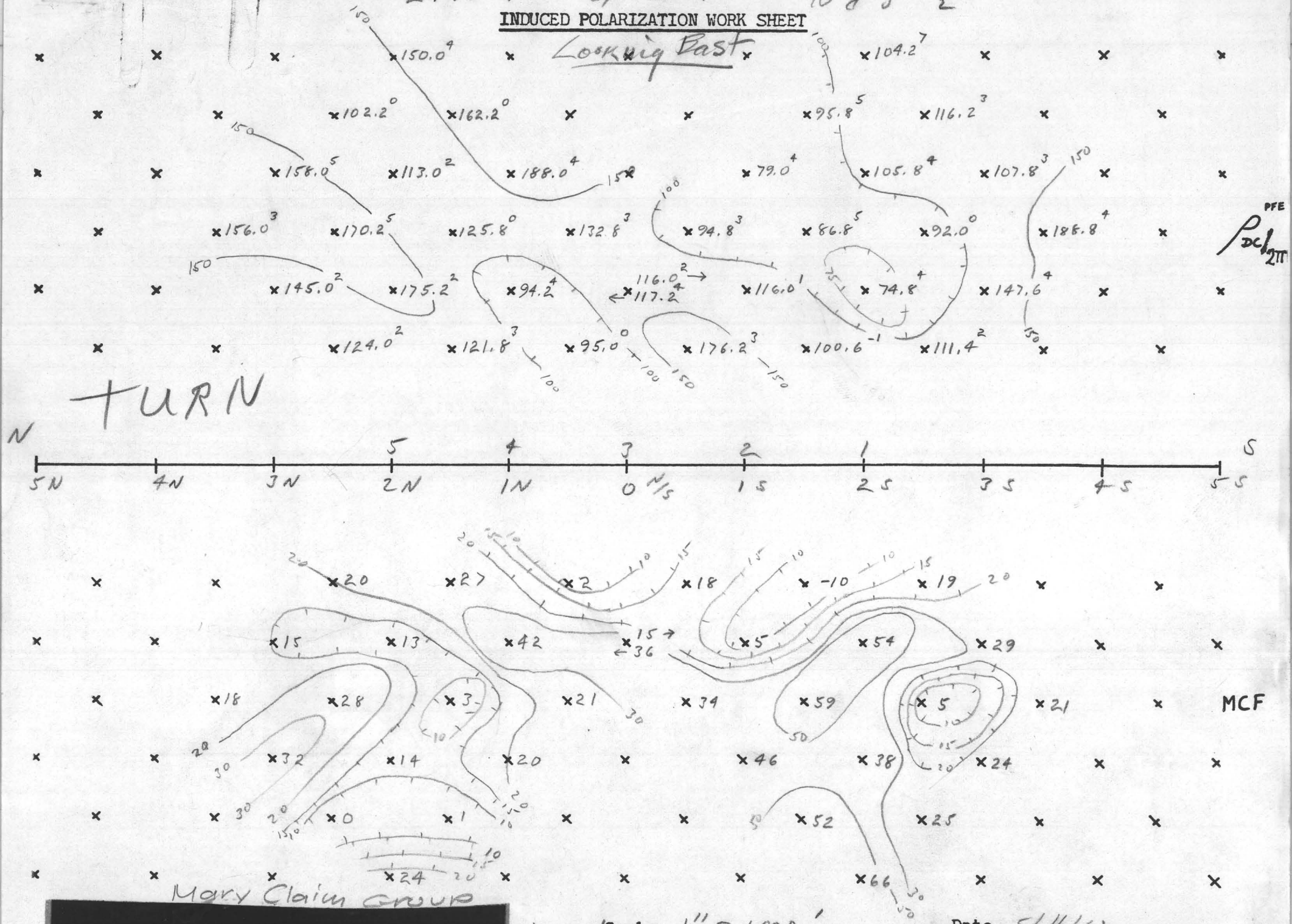
(A) Send	4-5											
(B) Receive												
(C) n separation	5											
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												


Join line
Join line

LINE 1 - Spread 1 - N & S ½

INDUCED POLARIZATION WORK SHEET

Looking East



Mary Claim Group

[redacted] 1 - Spr 1 Scale 1" = 1000' Date 5/11/62

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: ~~Helmet Peak~~ Grip Line: 1 Spr. 1 N 1/2 Int.Cal 51.0 AM Date: 5/4/62

1000 a 51.0 PM & Noisy

Send	—	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.	3-4N	1.0 -	2.0 N	2.0 -	3.0 N	→	3.0 -	4.0 N	→	→	4.0 -	5.0 N
Time		12:38	12:41	13:10	13:14	13:18	15:00	15:03	15:07	15:12	15:59	16:02
DC-1		23.5 23.5	7.10 7.15	29.8 29.8	5.7 5.7	3.15 3.15	30.0 30.0	10.6 10.6	3.0 3.0	2.2 2.2	8.8 8.8	4.0 4.0
DC-2		23.0 23.0	7.10 7.05	29.8 29.8	5.65 5.65	3.2 3.2	30.2 30.2	10.5 10.5	3.0 3.0	2.25 2.25	8.7 8.7	4.0 4.0
Σ		46.5 46.5	14.20 14.20	59.6 59.6	11.35 11.35	6.35 6.35	60.2 60.2	21.1 21.1	6.0 6.0	4.45 4.45	17.5 17.5	8.0 8.0
DC-3		23.0 23.0	7.2 7.2	29.8 29.8	5.6 5.6	3.15 3.12	30.0 30.0	10.6 10.6	2.98 2.98	2.2 2.2	8.8 8.8	4.0 4.0
Dc-4	0-1N	23.5 23.5	7.0 7.0	29.8 29.8	5.75 5.75	3.2 3.22	30.2 30.2	10.5 10.5	3.02 3.02	2.25 2.25	8.7 8.7	4.00 4.0
Σ		46.5 46.5	14.20 14.20	59.6 59.6	11.35 11.35	6.35 6.34	60.2 60.2	21.1 21.1	6.0 6.0	4.45 4.45	17.5 17.5	8.0 8.0
DC-AV		46.5	14.2	59.6	11.35	6.35	60.2	21.1	6.0	4.45	17.5	8.0
AC-1		22.5	6.6	28.0	5.3	3.0	28.5	10.0	2.9	2.08	8.3	3.8
AC-2		22.5	6.6	28.0	5.3	3.0	28.5	10.0	2.9	2.08	8.3	3.8
Σ		45.0	13.2	56.0	10.6	6.0	57.0	20.0	5.8	4.16	16.6	7.6
S. P.	-10.3		+7.1			-12.3				-8.5		
AC-N			.10			.10				.12		
						B-TO 20						

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: ~~Helmet Peak~~ Lysh Line: 1 Spr. 2 N½ Int.Cal _____ Date: 5/4/62

1000a

Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5				
Rec.	→	→	5.0 - 6.0 N		→	→						
Time	16:06	16:09	16:30	16:33	16:35	16:40	12:22	12:25	12:29	17:10	17:13	17:17
DC-1	1.38 1.36	1.08 1.08	3.8 3.8	1.82 1.80	.66 .65	.65 .66	14.6	34.0	73.0	13.2	34.0	72.5
DC-2	1.32 1.34	1.12 1.12	3.6 3.6	1.92 1.95	.72 .73	.62 .60	14.6	34.0	72.5	13.3	34.0	72.5
Σ	2.70 2.70	2.20 2.20	7.4 7.4	3.74 3.75	1.38 1.38	1.27 1.26				26.5		
DC-3	1.35 1.35	1.08 1.08	3.7 3.6	1.80 1.85	.63 .63	.66 .66	14.6	34.0	73.0	13.2	34.0	72.5
Dc-4	1.35 1.35	1.12 1.12	3.7 3.8	1.95 1.90	.75 .75	.60 .60	14.6	34.0	72.5	13.3	34.0	72.5
Σ	2.70 2.70	2.20 2.20	7.4 7.4	3.75 3.75	1.38 1.38	1.26 1.26				26.5		
DC-AV	2.70	2.20	7.4	3.75	1.38	1.26	29.2	68.0	145.5	26.5	68.0	145.0
AC-1	1.29	1.06	3.5	1.73	.68	.60	14.0	33.2	70.0	13.3	33.5	69.9
AC-2	1.29	1.07	3.5	1.73	.68	.61	14.0	33.2	70.0	13.3	33.5	70.0
Σ	2.58	2.13	7.0	3.46	1.36	1.21	28.0	66.4	140.0	26.6	67.0	139.9
S. P.		+6.0				-3.0						
AC-N		.10 ←				.12						
		Bursts To 1.0				E. To .30						

INDUCED POLARIZATION SENDER NOTES

Project: Sup. Line: 1 SPR-1 N½ Date: 5-4-62

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	12:38	12:41	13:10	13:14	13:18	15:00	15:03	15:07	15:10	15:59	16:02	16:06
Range	1.5 200	1.5 200	1.5 180	1.5 200	1.5 240	1.5 210	1.5 180	1.5 200	1.5 230	1.5 200	1.5 190	1.5 200
Current AC DC	1420 1430	1400 1410	1420 1430	1400 1400	1390 1390	1410 1420	1400 1400	1390 1390	1380 1380	1400 1410	1400 1400	1390 1390
Send	1-2	4-5	3-4	2-3	1-2		Cal	4-5				
Receive												
Time	16:09	16:30	16:33	16:35	16:40		12:22	12:25	12:29	17:10	17:13	17:17
Range	1.5 230	1.5 200	1.5 210	1.5 200	1.5 220		.30 80	.75 140	1.5 230	.30 60	.75 140	1.5 230
Current	1380 1380	1380 1380	1380 1380	1370 1380	1370 1370		290 290	660 670	1400 1410	280 280	650 650	1380 1390

1-2 150, 2-3 130, 3-4 110, 4-5 160

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 1 - Sec. 1 Field date 5/4/62 Data page_____ Comp. date 5/5/62. Comp by C.S.L.

(A) Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	CAL	1-2 N	→	2-3 N	→	→	3-4 N	→	→	→	4-5 N	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1425	1405	1425	1400	1390	1415	1400	1390	1380	1405	1400
(E) Vdc (avg)		46.5	14.2	59.6	11.35	6.35	60.2	21.1	6.00	4.45	17.5	8.20
(F) DCcal USED	0.970											
(G) Kn x 10^{-3}		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		95.0	117.2	121.8	94.2	132.8	124.0	175.2	125.8	188.0	145.0	170.2
(I) Vac Σ		45.0	13.2	56.0	10.60	6.00	57.0	20.0	5.80	4.16	16.6	7.60
(J) AC noise x 2		.20	.20	.20	.20	.20	.24	.24	.24	.24	.20	.20
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		45.0	13.2	56.0	10.60	6.00	57.0	20.0	5.80	4.16	16.6	7.60
(L) AC-DC cal. USED	0.970											
(M) ρ dc/ρac=ExL/K		1.002	1.042	1.033	1.039	1.028	1.024	1.023	1.004	1.038	1.022	1.047
(N) PFE=(M-1)(10^2)		0	4	3	4	3	2	2	0	4	2	5
(O) MCF=(M-1)(10^5)/H		2	36	27	42	21	20	13	3	20	15	28

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	→	→	→	→	→
(B) Receive	→	→	5-6 N	→	→	→	4-5	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1390	1380	1380	1360	1375	1370	290	665	1405	280	650	1385
(E) Vdc (avg)	2.70	2.20	7.40	3.75	1.38	1.26	29.2	68.0	145.5	26.5	68.0	145.0
(F) DCcal							.994	.979	.965	~~1.059~~	.956	.955
(G) Kn x 10^{-3}	60	105	30	60	105	168			~0.970			
(H) ρ dc=ExFxGx10^3/D	113.0	162.2	156.0	158.0	102.2	150.0						
(I) Vac Σ	2.58	2.13	7.00	3.46	1.36	1.21	28.0	66.4	140.0	26.6	67.0	139.3
(J) AC noise x 2	.20	.20	.24	.24	.24	.24						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	2.58	2.13	7.00	3.46	1.34	1.18						
(L) AC-DC cal.							.960	.976	.963	~~1.003~~	.985	.964
(M) ρdc/ρac =ExL/K	1.015	1.002	1.027	1.050	1.000	1.035						
(N) PFE=(M-1)(10^2)	2	0	3	5	0	4			~.970			
(O) MCF=(M-1)(10^5)/H	14	1	16	32	0	24						

1.85
1.46

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

H.P.

Project: Inspiration Line: 1 Spr 1 S½ Int.Cal 51.0 noisy Date: 5/3/62

51.0 ← 50.2 →

Send	CAL	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	1-2	1-2 S	→	2-3 S	→	→	3-4 S	→	→	→	4-5 S	→
Time		14:20	14:27	14:45	14:48	14.50	15:38	15:40	15:43	15:46	16:11	16:13
DC-1	S.P.	43.2 43.7	7.1 7.0	24.5 24.5	7.0 7.1	2.30 2.30	27.0 27.2	4.50 4.50	2.10 2.08	.92 .97	8.9 8.9	2.20 2.25
DC-2	0-15	43.2 43.7	7.0 7.1	24.5 24.5	7.1 7.0	2.28 2.28	27.2 27.0	4.50 4.50	2.08 2.10	.97 .92	8.9 8.9	2.25 2.20
Σ		86.4 86.4	14.1 14.1	49.0 49.0	14.1 14.1	4.58 4.58	54.2 54.2	9.00 9.00	4.18 4.18	1.89 1.89	17.8 17.8	4.45 4.45
DC-3		43.0 43.3	7.1 6.9	24.5 24.5	7.0 7.1	2.29 2.28	27.3 27.0	4.50 4.50	2.05 2.10	.95 .90	9.0 8.9	2.20 2.25
Dc-4		43.0 43.0	6.9 7.1	24.5 24.5	7.1 7.0	2.29 2.30	26.8 27.0	4.50 4.50	2.13 2.08	.94 .99	8.9 9.0	2.25 2.20
Σ		86.0 86.2	14.0 14.0	49.0 49.0	14.1 14.1	4.58 4.58	54.1 54.0	9.00 9.00	4.18 4.18	1.89 1.89	17.9 17.9	4.45 4.45
DC-AV		86.2	14.05	49.0	14.10	4.58	54.1	9.00	4.18	1.89	17.85	4.45
AC-1		40.5	6.70	24.0	6.8	2.15	25.7	4.20	1.93	.89	8.3	2.15
AC-2		40.5	6.70	24.0	6.8	2.15	25.7	4.20	1.93	.89	8.3	2.15
Σ		81.0	13.40	48.0	13.60	4.30	51.4	8.40	3.86	1.78	16.60	4.30
S. P.	-17.8	←	-11.1	←		+14.4	←			+9.3	←	
AC-N		←	0.13	←		0.13	←			0.11	←	

H.P.

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Inspiration Line: 1 - Sec 1 5½ Int.Cal 50.4 Date: 5/13/62

			50.4									
Send	3-4	4-5	1-2	2-3	3-4	4-5	1-2	→	→	→	→	→
Rec.	→	→	1-65	→	→	→	CAL	→	→	→	→	→
Time	16:16	16:19	16:42	16:45	16.48		13:43	13:47	13:49	17:42	17:45	17:47
DC-1	1.29 1.25	.65 .65	4.60 4.45	1.30 1.26	0.79 0.83	0.40 0.49	33.8	73.5	14.7	33.8	70.5	14.5
DC-2	1.26 1.28	.65 .65	4.45 4.60	1.26 1.30	0.80 0.74	0.48 0.39	33.8	73.5	14.7	33.8	70.5	14.5
Σ	2.55 2.56	1.30 1.30	9.05 9.05	2.56 2.56	1.59 1.57	.88 .88	67.6	147.0	29.4	67.6	141.0	29.0
DC-3	1.30 1.27	.65 .65	4.42 4.42	1.30 1.28	0.81 0.78	0.40 0.44	33.8	73.5	14.7	33.8	70.5	14.5
Dc-4	1.25 1.28	.65 .65	4.62 4.62	1.26 1.28	0.77 0.79	0.48 0.43	33.8	73.5	14.7	33.8	70.5	14.5
Σ	2.53 2.55	1.30 1.30	9.09 9.04	2.56 2.58	1.58 1.57	.88 .88	67.6	147.0	29.4	67.6	141.0	29.0
DC-AV	2.55	1.30	9.04	2.56	1.58	.88	67.6	147.0	29.9	67.6	141.0	29.0
AC-1	1.19	.61	4.22	1.21	0.75	0.41	38.0	80.5	16.1	33.0	68.0	14.0
AC-2	1.19	.61	4.22	1.21	0.75	0.41	38.0	80.5	16.1	33.0	68.0	14.0
Σ	2.38	1.22	8.44	2.42	1.50	.82	76.0	161.0	32.2	66.0	136.0	28.0
S. P.	—	-4.9	←	—	—	+2.3						
AC-N	—	0.11				0.09						

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Line: 1 SPR 1 5½ Date: 5-3-62

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												
Time	14:25	14:27	14:45	14:48	14:50	15:38	15:40	15:43	15:46	16:11	16:13	16:16
Range	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
V	170	200	190	180	200	220	200	200	220	220	220	200
Current Ad	1430	1420	1420	1420	1420	1410	1410	1410	1400	1410	1416	1410
Dd	1430	1420	1425	1420	1420	1430	1410	1410	1400	1420	1420	1410
Send	4-5	1-2	2-3	3-4	4-5		Cal	1-2				
Receive												
Time	16:19	16:42	16:45	16:48	16:53		13:45	13:47	13:49	17:42	17:45	17:47
Range	1.5	1.5	1.5	1.5	1.5		.75	1.5	.30	.75	1.5	.30
V	220	200	200	200	220		120	240	70	140	220	80
Current Ad	1390	1390	1390	1390	1380		650	1410	290	660	1370	290
Dd	1390	1410	1390	1390	1380		650	1420	290	660	1370	290

Ω 1-2 150, 2-3 130, 3-4 110, 4-5 150

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 1-Spr 1 S½ Field date 5/3/62 Data page_____ Comp. date 5/4/62. Comp by C.S.L.

(A) Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	CAL	1-2 S	→	2-3 S	→	→	3-4 S	→	→	→	4-5 S	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1430	1420	1423	1420	1415	1420	1410	1410	1400	1415	1415
(E) Vdc (avg)		86.2	14.05	49.0	14.10	4.58	54.1	9.00	4.18	1.89	17.85	4.45
(F) DCcal USED	0.975											
(G) Kn x 10^{-3}		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		176.2	116.0	100.6	116.0	94.8	111.4	74.8	86.8	79.0	147.6	92.0
(I) Vac Σ		81.0	13.40	48.0	13.60	4.30	51.4	8.40	3.86	1.78	16.60	4.30
(J) AC noise x 2		0.26	0.26	0.26	0.26	0.26	0.22	0.22	0.22	0.22	0.22	0.22
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		81.0	13.40	48.0	13.60	4.30	51.4	8.40	3.86	1.77	16.60	4.30
(L) AC-DC cal. USED	0.970											
(M) ρ dc/ρac=ExL/K		1.031	1.017	0.990	1.006	1.032	1.021	1.040	1.051	1.036	1.042	1.004
(N) PFE=(M-1)(10^2)		3	2	-1	1	3	2	4	5	4	4	0
(O) MCF=(M-1)(10^5)/H		18	15	-10	5	34	19	54	59	46	29	5

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
(B) Receive	→	→	5-6 S	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1410	1390	1400	1390	1390	1380	650	1415	290	660	1370	290
(E) Vdc (avg)	2.55	1.30	9.04	2.56	1.58	.88	67.6	147.0	29.4	67.6	141.0	29.0
(F) DCcal						→	0.961	0.963	0.986	0.976	0.971	1.000
(G) Kn x 10^{-3}	60	105	30	60	105	168			~0.975			
(H) ρ dc=ExFxGx10^3/D	105.8	95.8	188.8	107.8	116.2	104.2						
(I) Vac Σ	2.38	1.22	8.44	2.42	1.50	.82	76.0	161.0	32.2	66.0	136.0	28.0
(J) AC noise x 2	0.22	0.22	0.18	0.18	0.18	0.18						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	2.38	1.20	8.44	2.42	1.49	.80						
(L) AC-DC cal.						→	1.123	1.096	1.095	0.976	0.965	0.966
(M) ρdc/ρac =ExL/K	1.040	1.050	1.039	1.026	1.029	1.068						
(N) PFE=(M-1)(10^2)	4	5	4	3	3	7		?			~0.970	
(O) MCF=(M-1)(10^5)/H	38	52	21	24	25	66						

Repeat

II

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Line: 1 SPR 1 5½ Date: 5-4-62

Send	3-4	4-5										
Receive												
Time	11:02	11:06										
Range	1.5 180	1.5 220										
Current	1430 1430	1430 1430										
Send							C2	1-2				
Receive												
Time							10:44	10:48	10:51			
Range							.30 40	.75 140	1.5 230			
Current							280 280	670 670	1420 1420			

Repeat on date 5/3/62

UCED POLARIZATION - RECEIVER NOTES PAGE

Project: Helmet Peak Line: 1 Spr. 1 S½ Int.Cal 51.05 Date: 5/4/62

Send		3-4	4-5 Repeat 1000a					CAL	1-2 noisy	Repeat		
Rec.		1.0	2.0 South									
Time		11:02	11:06					10:44	10:48	10:51		
DC-1		43.0 43.0	7.2 7.2					14.5	34.5	73.0		
DC-2		44.0 44.0	7.2 7.2					14.6	34.5	73.0		
Σ		87.0 87.0	14.4 14.4					29.1				
DC-3		43.0 43.0	7.2 7.2					14.5	34.5	73.0		
Dc-4		44.0 44.0	7.2 7.2					14.6	34.5	73.0		
Σ		87.0 87.0	14.4 14.4					29.1	1			
DC-AV		87.0	14.4					29.1	69.0	146.0		
AC-1		41.0	6.9					13.9	33.5	70.0		
AC-2		41.5	6.9					13.9	33.5	70.0		
Σ		82.5	13.8					27.8	67.0	140.0		
S. P.			-16.8									
AC-N			.10									
	Bursts to		.3									

Repeat data 5/3/62

Repeat

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mang Group Line 1-Spr 1-5½ Field date 5/4/82 Data page_____ Comp. date 5/5/82. Comp by C.S.L.

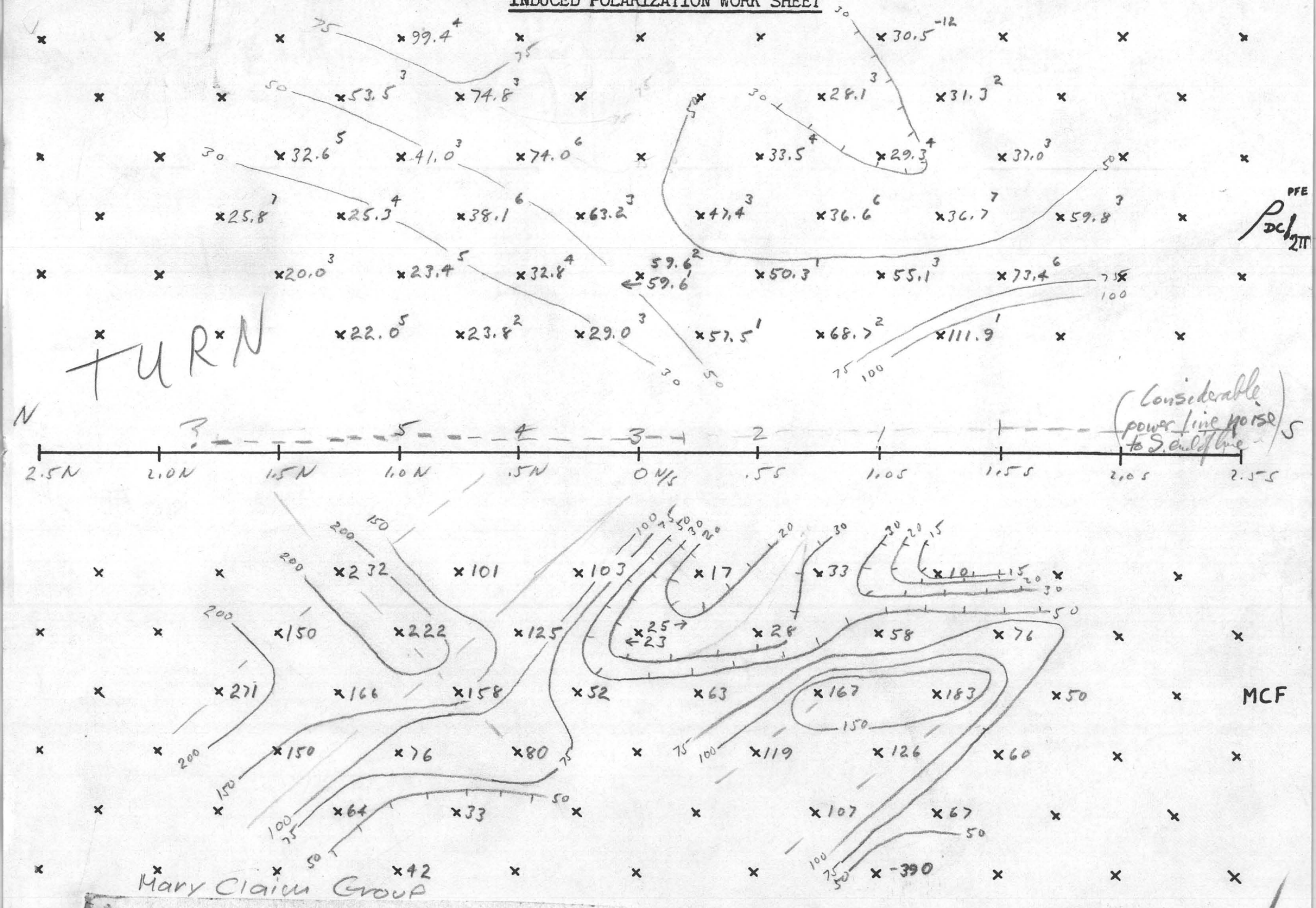
(A) Send	1-2	3-4	4-5			1-2	→	→				
(B) Receive	CAL	1-25	→			CAL	→	→				
(C) n separation		1	2									
(D) I		1430	1430			280	670	1420				
(E) Vdc (avg)		87.0	144			29.1	69.0	146.0				
(F) DCcal USED	0.969					.963	.971	.972				
(G) Kn x 10^{-3}		3	12				~ .969					
(H) ρ dc=ExFxGx10^3/D		176.8	116.8									
(I) Vac Σ		82.5	13.8			27.8	67.0	140.0				
(J) AC noise x 2		0.20	0.20									
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		82.5	13.8									
(L) AC-DC cal. USED	0.960					.955	.971	.960				
(M) ρ dc/ρac=ExL/K		1.012	1.001				~ .960					
(N) PFE=(M-1)(10^2)		1	0									
(O) MCF=(M-1)(10^5)/H		7	1									

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												

LINE 3 - Spread 3 - N & S ½

INDUCED POLARIZATION WORK SHEET



Mary Claim Group

Area

le 1" = 500'

Date 5/11/62

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Inspiration Line: 3 Spr 3 Int.Cal 500 A Date: 5/10/62

Mary Group N½ 49.5 P

Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.	CAL	.5-1.0N →		1.0-1.5N →			1.5-2.0N →				2.0-2.5N →	
Time		11:51	11:53	12:05	12:09	12:12	12:23	12:25	12:28	12:34	12:47	12:49
DC-1	S.P.	17.5 17.4	9.0 9.0	14.4 14.1	4.93 4.90	3.75 3.78	13.1 13.0	3.45 3.50	2.22 2.31	2.19 2.14	2.88 2.99	1.43 1.50
DC-2	3-4	17.4 17.5	9.0 9.0	14.1 14.5	4.90 4.93	3.78 3.75	12.9 13.1	3.50 3.45	2.28 2.19	2.14 2.19	2.92 2.80	1.50 1.43
Σ	0-.25N	34.9 34.9	18.0 18.0	28.5 28.6	9.83 9.83	7.53 7.53	26.0 26.1	6.95 6.95	4.50 4.50	4.33 4.33	5.80 5.79	2.93 2.93
DC-3		17.5 17.4	9.0 9.0	14.6 14.0	4.93 4.95	3.75 3.80	13.1 13.0	3.40 3.55	2.19 2.20	2.17 2.18	2.80 2.90	1.43 1.50
Dc-4		17.4 17.5	9.0 9.0	14.0 14.6	4.90 4.88	3.80 3.72	13.0 13.1	3.55 3.40	2.31 2.30	2.14 2.13	3.02 2.92	1.50 1.42
Σ		34.9 34.9	18.0 18.0	28.6 28.6	9.83 9.83	7.55 7.52	26.1 26.1	6.95 6.95	4.50 4.50	4.31 4.31	5.82 5.82	2.93 2.92
DC-AV		34.9	18.0	28.6	9.83	7.53	26.1	6.95	4.50	4.32	5.81	2.93
AC-1		16.5	8.6	13.6	4.60	3.55	12.1	3.22	2.07	1.99	2.75	1.37
AC-2		16.5	8.7	13.6	4.60	3.55	12.1	3.22	2.07	1.99	2.75	1.37
Σ		33.0	17.3	27.2	9.20	7.10	24.2	6.44	4.14	3.98	5.50	2.74
S. P.	+12.6		+2.7			-5.4				+0.4		
AC-N			.07			.08				0.10		

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Inspiration Mary Group Line: 3, Spr 3 N ½ Int.Cal Date: 5/10/82

Send	2-3	1-2	4-5	3-4	2-3	1-2	4-5	→	→	→	→	→
Rec.	→	→	2.5-3.0 N	→	→	→	CAL	→	→	→	→	→
Time	12:51	12:54	13:08	13:10	13:13	13:15	11:41	11:44	11:45			
DC-1	1.16 1.20	1.20 1.20	1.46 1.50	.96 .90	.87 .87	1.00 1.00	2.24	14.3	90.0			
DC-2	1.19 1.15	1.25 1.25	1.48 1.43	.90 .96	.86 .86	1.00 1.00	2.26	14.3	90.0			
Σ	2.35 2.35	2.45 2.45	2.94 2.93	1.86 1.86	1.73 1.73	2.00 2.00	4.50	28.6	180.0			
DC-3	1.15 1.20	1.25 1.20	1.42 1.47	.96 .91	.86 .88	1.00 .99	2.24	14.3	90.0			
Dc-4	1.20 1.15	1.20 1.25	1.52 1.47	.90 .95	.87 .85	0.99 1.01	2.26	14.3	90.0			
Σ	2.35 2.35	2.45 2.45	2.94 2.94	1.86 1.86	1.73 1.73	1.99 2.00	4.50	28.6	180.0			
DC-AV	2.35	2.45	2.94	1.86	1.73	2.00	4.50	28.6	180.0			
AC-1	1.11	1.16	1.34	.87	.81	.94	2.16	13.7	89.0			
AC-2	1.11	1.17	1.34	.86	.82	.93	2.16	13.7	89.0			
Σ	2.22	2.33	2.68	1.73	1.63	1.87	4.32	27.4	178.0			
S. P.		+6.6				-1.5						
AC-N	50' W. of Power Line	(.08) & noisy				0.07						

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Mar 1 Line: 3 SpR 3 N-2 Date: 5-10-62

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	1.5 —	1 N	1.0	— 1.5	N	1.5	—	2.0	N	2.0	—	2.5
Time	11:51	11:53	12:06	12:09	12:12	12:23	12:25	12:28	12:34	12:47	12:49	12:51
Range	2.0 — 210	220	220	220	220	220	220	220	220	200	200	200
Current AC	1810	1810	1810	1800	1785	1780	1780	1770	1740	1740	1735	1720
Current DC	1800	1810	1800	1800	1790	1770	1780	1770	1760	1740	1740	1720

Send	1-2	4-5	3-4	2-3	1-2		C_2	/	4-5			
Receive	— N	2.5	—	—	3.0 M							
Time	12:54	13:08	13:10	13:13	13:16		11:41	11:44	11:45			
Range	2.0 — 210	200	200	220	220		.05 30	.30 70	2.0 230			
Current AC	1720	1710	1710	1700	1690		60	290	1800			
Current DC	1720	1710	1710	1700	1690		60	290	1800			

1-2 110, 2-3 120, 3-4 110, 4-5 100.

Line 3 - N½
Spr 3

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 3 - Spr 3 N½ Field date 5/10/62 Data page_____ Comp. date 5/11/62 Comp by C.S.L.

(A) Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	CAL	.5-1.0N	→	1.0-1.5N	→	→	1.5-2.0N	→	→	→	2.0-2.5N	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1805	1810	1805	1800	1788	1775	1780	1770	1750	1740	1738
(E) Vdc (avg)		34.9	18.0	28.6	9.83	7.53	26.1	6.95	4.50	4.32	5.81	2.93
(F) DCcal USED	1.000											
(G) Kn x 10^{-3} a = 500'		1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	→	29.0	59.6	23.8	32.8	63.2	22.0	23.4	38.1	74.0	20.0	25.3
(I) Vac Σ		33.0	17.3	27.2	9.20	7.10	24.2	6.44	4.14	3.98	5.50	2.74
(J) AC noise x 2		.14	.14	.16	.16	.16	.20	.20	.20	.20	.16	.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.975											
(M) ρ dc/ρac=ExL/K		1.030	1.014	1.024	1.041	1.033	1.051	1.052	1.060	1.059	1.030	1.042
(N) PFE=(M-1)(10^2)	→	3	1	2	4	3	5	5	6	6	3	4
(O) MCF=(M-1)(10^5)/H	→	103	23	101	125	52	232	222	158	80	150	166

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	→	→	CAL	→	→
(B) Receive	→	→	2.5-3.0N	→	→	→	4-5	→	→	1-2	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1720	1720	1710	1710	1700	1690	~~40~~	290	1800	~~60~~	280	1695
(E) Vdc (avg)	2.35	2.45	2.94	1.86	1.73	2.00	~~4.50~~	28.6	180.0	~~4.42~~	28.0	172.0
(F) DCcal							1.333	1.014	1.000	1.358	1.000	.985
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84			~	1.000		
(H) ρ dc=ExFxGx10^3/D	41.0	74.8	25.8	32.6	53.5	99.4						
(I) Vac Σ	2.22	2.33	2.68	1.73	1.63	1.87	4.32	27.4	178.0	4.27	27.4	172.0
(J) AC noise x 2	.16	.16	.14	.14	.14	.14						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$							.960	.959	.989	.966	.979	1.000
(L) AC-DC cal.									~ .975			
(M) ρdc/ρac =ExL/K	1.031	1.025	1.070	1.049	1.034	1.042						
(N) PFE=(M-1)(10^2)	3	3	7	5	3	4						
(O) MCF=(M-1)(10^5)/H	76	33	271	150	64	42						

66 50 70% 30% 50%
22 15%

[redacted]UCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Inspir. Mary Claims Line: 3 Spr. 3 5½ Int.Cal 49.5A. 49.5P. Date: 5/10/62

500a

Send	—	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	0-.5	.5-1.0	→	1.0-	1.5	→	1.5 -	2.0 -	→	→	2.0-	2.5
Time		14:10	14:13	14:26	14:29	14:31	14:49	14:51	14:53	14:55	15:10	15:13
DC-1	S.P.	33.0 33.5	8.6 8.6	39.5 39.5	7.2 7.3	2.68 2.80	64.0 64.0	7.9 7.9	2.15 2.12	.99 .94	10.0 11.0	2.1 2.03
DC-2	↓	33.2 32.8	8.6 8.6	39.5 39.5	7.3 7.2	2.78 2.65	64.0 64.0	7.9 7.9	2.05 2.08	.93 .98	10.9 9.9	2.07 2.16
Σ		66.2 66.3	17.2 17.2	79.0 79.0	14.5 14.5	5.46 5.45	128.0 128.0	15.8 15.8	4.20 4.20	1.92 1.92	20.9 20.9	4.17 4.19
DC-3		32.8 33.5	8.5 8.8	39.5 39.5	7.2 7.3	2.70 2.80	64.0 64.0	7.9 7.9	2.07 2.12	.97 .97	10.0 11.0	2.1 2.07
Dc-4		33.5 32.8	8.7 8.4	39.5 39.5	7.3 7.2	2.75 2.68	64.0 64.0	7.9 7.9	2.12 2.07	.95 .95	10.9 9.9	2.07 2.1
Σ		66.3 66.3	17.2 17.2	79.0 79.0	14.5 14.5	5.45 5.48	128.0 128.0	15.8 15.8	4.19 4.19	1.92 1.92	20.9 20.9	4.17 4.17
DC-AV		66.3	17.2	79.0	14.5	5.46	128.0	15.8	4.195	1.92	20.9	4.18
AC-1		32.2	8.3	37.8	7.0	2.60	62.0	7.5	1.94	.92	9.7	1.92
AC-2		32.2	8.3	37.8	7.0	2.60	62.0	7.5	1.93	.92	9.7	1.92
Σ		64.4	16.6	75.6	14.0	5.20	124.0	15.0	3.87	1.84	19.4	3.84
S. P.	+7.1		+5.1			+1.8	↑			-12.0		
AC-N			.11	↑		.09	Rd.			.17		
				E-W Fence line 125'S.			100' So.			higher		

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Insp. Mary (Jaims) Line: 3 Spr. 3 S½ (500') Int.Cal 49.5 (end of day) Date: 5/10/62

Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2				
Rec.	→	→	2.5	-3.0	→	→						
Time	15:20	15:22	15:33	15:37	15:48	15:50	13:59	14:02	14:03	16:15	16:18	16:20
DC-1	.80 .80	.45 .46	3.3 3.4	1.01 1.07	.50 .50	.30 .31	2.21	14.0	86.0	2.19	14.0	86.0
DC-2	.86 .86	.46 .45	3.4 3.3	1.06 1.00	.50 .50	.31 .30	2.21	14.0	86.0	2.27	14.0	86.0
Σ	1.66 1.66	.91 .91	6.7 6.7	2.07 2.07	1.00 1.00	.61 .61	4.42	28.0	172.0	4.46	28.0	172.0
DC-3	.86 .80	.46 .45	3.3 3.4	1.00 1.00	.50 .50	.28 .33	2.21	14.0	86.0	2.19	14.0	86.0
Dc-4	.80 .86	.45 .46	3.4 3.3	1.07 1.07	.50 .50	.33 .28	2.21	14.0	86.0	2.27	14.0	86.0
Σ	1.66 1.66	.91 .91	6.7 6.7	2.07 2.07	1.00 1.00	.61 .61	4.42	28.0	172.0	4.46	28.0	172.0
DC-AV	1.66	.91	6.7	2.07	1.00	.61	4.42	28.0	172.0	4.46	28.0	172.0
AC-1	.79	.44	3.2	1.05	.57	.40	2.13	13.7	86.0	2.19	13.6	86.0
AC-2	.79	.44	3.2	1.04	.56	.41	2.14	13.7	86.0	2.18	13.6	86.0
Σ	1.58	.88	6.4	2.09	1.13	.81	4.27	27.4	172.0	4.37	27.2	172.0
S. P.		+9.3	↑→	350'		-11.5						
AC-N		.08	30'N	To E-W	P.L. .30	.22	525'					
			To E-W Fence		A.C.N .33	↑	to rd.					

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Mark Line: 3 SPR 3 5½ Date: 5-10-62

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												
Time	14:10	14:13	14:26	14:29	14:31	14:49	14:51	14:53	14:56	15:10	15:16	15:20
Range	2.0											
V	220	200	200	200	200	200	200	200	200	200	210	200
Current AC	1730	1730	1730	1730	1730	1720	1720	1720	1720	1710	1710	1700
Current DC	1730	1730	1720	1730	1730	1710	1720	1720	1706	1710	1710	1700
Send	4-5	1-2	2-3	3-4	4-5		Cal		1-2			
Receive												
Time	15:22	15:33	15:37	15:48	15:50		13:59	14:02	14:03	16:16	16:18	16:20
Range	2.0						.05	.30	2.0	.05	.30	2.0
	210	200	200	200	200		30	60	220	40	60	220
Current AC	1700	1680	1680	1680	1680		60	280	1700	60	280	1680
Current DC	1700	1680	1680	1675	1680		60	280	1690	55	280	1670

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 3 - Spr. 3 S½ Field date 5/10/62 Data page_____ Comp. date 5/11/62. Comp by C.S.L.

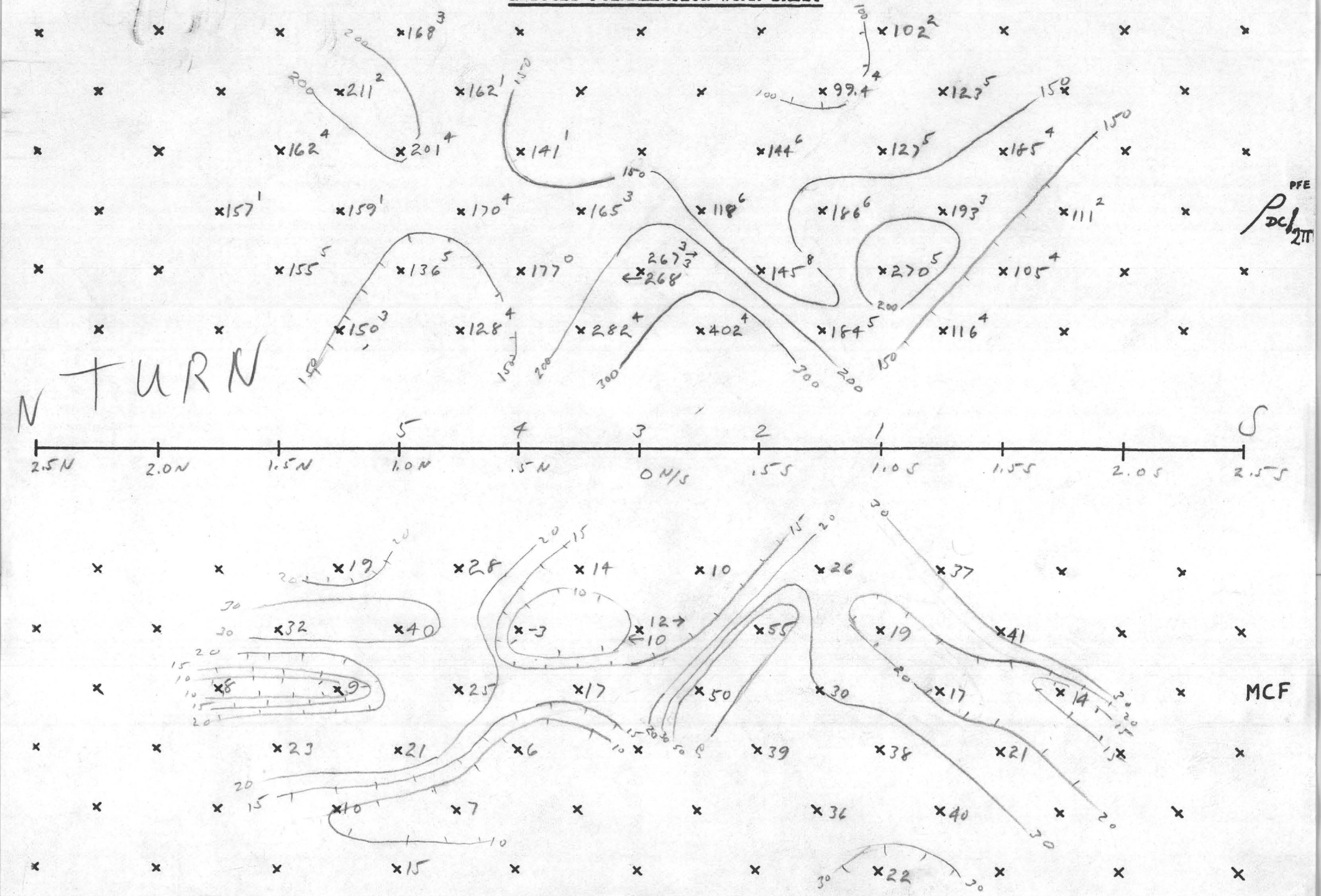
(A) Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	CAL	.5-1.05	→	1.0-1.55	→	→	1.5-2.05	→	→	→	2.0-2.55	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1730	1730	1725	1730	1730	1715	1720	1720	1720	1710	1710
(E) Vdc (avg)		66.3	17.2	79.0	14.5	5.46	128.0	15.8	4.195	1.92	20.9	4.18
(F) DCcal USED	1.000											
(G) Kn x 10^{-3} a = 500'		1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	→	57.5	59.6	68.7	50.3	47.4	111.9	55.1	36.6	33.5	73.4	36.7
(I) Vac Σ		64.4	16.6	75.6	14.0	5.20	124.0	15.0	3.87	1.84	19.4	3.84
(J) AC noise x 2		.22	.22	.18	.18	.18	.34	.34	.34	.34	.16	.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		64.4	16.6	75.6	14.0	5.20	124.0	15.0	3.87	1.81	19.4	3.84
(L) AC-DC cal. USED	0.980											
(M) ρ dc/ρac=ExL/K		1.010	1.015	1.023	1.014	1.030	1.011	1.032	1.061	1.040	1.056	1.067
(N) PFE=(M-1)(10^2)	→	1	2	2	1	3	1	3	6	4	6	7
(O) MCF=(M-1)(10^5)/H	→	17	25	33	28	63	10	58	167	119	76	183

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
(B) Receive	→	→	2.5-3.05	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1700	1700	1680	1680	1678	1680	~~40~~	280	1696	~~3725~~	280	1675
(E) Vdc (avg)	1.66	.91	6.70	2.07	1.00	.61	4.42	28.0	172.0	4.46	28.0	172.0
(F) DCcal						→		1.000	.986		1.000	.975
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84			~ 1.0			
(H) ρ dc=ExFxGx10^3/D	29.3	28.1	59.8	37.0	31.3	30.5						
(I) Vac Σ	1.58	.88	6.40	2.09	1.13	.81	4.27	27.4	172.0	4.37	27.2	172.0
(J) AC noise x 2	.16	.16	.66	.66	.60	.44			1.000			1.000
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.57	.865	6.38	1.982	.96	.68						
(L) AC-DC cal.							.966	.979	1.000	.979	.972	1.000
(M) ρdc/ρac =ExL/K	1.037	1.030	1.030	1.022	1.021	.880			~ 0.980			
(N) PFE=(M-1)(10^2)	4	3	3	2	2	-12						
(O) MCF=(M-1)(10^5)/H	126	107	50	60	67	-390						

Line 4 - Spread 4 - N ½

INDUCED POLARIZATION WORK SHEET



Mary Claim Group N ½

Scale 1" = 500'

Date 5/12/62

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Inspi Mary Claims Line: 4 Spr. 4 N½ Int.Cal 50.0 A 50.0 P. Date: 5/11/82

Send	~~0-.5~~	2-3	1-2	3-4	2-3	1-2	4-5	~~3-4~~	2-3	1-2	4-5	3-4
Rec.	0-.5	.5-1.0 →		1.0 —	1.5 →		1.5-2.0 —			→	2.0	2.5
Time		12:23	12:27	12:51	12:55	12:58	13:30	13:33	13:36	13:40	1353	13:57
DC-1	S.P.	169.0 169.0	39.5 39.5	74.5 74.5	26.0 26.0	9.7 9.7	87.0 87.0	19.7 19.7	9.9 9.9	4.1 4.1	22.2 22.2	9.2 9.2
DC-2	↓	168.0 168.0	40.0 40.0	75.5 75.5	26.3 26.3	9.8 9.8	87.0 87.0	19.7 19.7	9.9 9.9	4.1 4.1	22.3 22.3	9.0 9.0
Σ		337.0 337.0	79.5 79.5	150.0 150.0	52.3 52.3	19.5 19.5	174.0 174.0	39.4 39.4	19.8 19.8	8.20 8.20	44.5 44.5	18.2 18.2
DC-3		169.0 169.0	39.5 39.5	74.5 74.5	26.0 26.3	9.7 9.7	87.0 87.0	19.7 19.7	9.9 9.9	4.05 4.05	22.2 22.2	9.2 9.2
Dc-4		168.0 168.0	40.0 40.0	75.5 75.5	26.3 26.0	9.8 9.8	87.0 87.0	19.7 19.7	9.9 9.9	4.15 4.15	22.3 22.3	9.0 9.0
Σ		337.0 337.0	79.5 79.5	150.0 150.0	52.3 52.3	19.5 19.5	174.0 174.0	39.4 39.4	19.8 19.8	8.20 8.20	44.5 44.5	18.2 18.2
DC-AV		337.0	79.5	150.0	52.3	19.5	174.0	39.4	19.8	8.20	44.5	18.2
AC-1		159.0	38.0	71.0	25.8	9.3	83.0	18.3	9.3	3.99	20.8	8.8
AC-2		159.0	38.0	71.0	25.8	9.3	83.0	18.3	9.3	3.98	20.8	8.8
Σ		318.0	76.0	142.0	51.6	18.6	166.0	36.6	18.6	7.97	41.6	17.6
S. P.	+0.4		-16.9			+0.8				-3.2		
AC-N			.08			.10				.08		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claim Line: 4 Spr. 4 Int.Cal _____ Date: 5/11/62

Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5				
Rec.	→	→	2.5-	3.0	→	→						
Time	14:01	14:05	14:26	14:28	14:32	14:35	12:10	12:13	12:16	14:58	15:00	15:03
DC-1	5.7 5.7	2.65 2.65	9.0 8.9	4.5 4.4	3.35 3.35	1.72 1.72	2.27	14.0	89.0	2.32	14.5	89.0
DC-2	5.8 5.8	2.65 2.65	9.0 9.1	4.6 4.7	3.4 3.4	1.65 1.65	2.23	14.0	89.0	2.32	14.5	89.0
Σ	11.5 11.5	5.30 5.30	18.0 18.0	9.1 9.1	6.75 6.75	3.37 3.37	4.50	28.0	178.0	4.64	29.0	178.0
DC-3	5.75 5.75	2.62 2.60	8.9 8.8	4.4 4.4	3.35 3.35	1.72 1.72	2.27	14.0	89.0	2.32	14.5	89.0
Dc-4	5.75 5.75	2.68 2.70	9.1 9.2	4.7 4.7	3.4 3.4	1.65 1.65	2.23	14.0	89.0	2.32	14.5	89.0
Σ	11.5 11.5	5.30 5.30	18.0 18.0	9.1 9.1	6.75 6.75	3.33 3.33	4.50	28.0	178.0	4.64	29.0	178.0
DC-AV	11.5	5.30	18.0	9.10	6.75	3.37	4.50	28.0	178.0	4.64	29.0	178.0
AC-1	5.4	2.56	8.7	4.3	3.23	1.61	2.17	13.6	88.0	2.26	14.0	89.0
AC-2	5.4	2.57	8.7	4.3	3.23	1.61	2.17	13.7	88.0	2.26	14.0	89.0
Σ	10.8	5.13	17.4	8.60	6.46	3.22	4.34	27.3	176.0	4.52	28.0	178.0
S. P.		+0.5				+1.4						
AC-N		.08				.07						

INDUCED POLARIZATION SENDER NOTES

Project: _____ Line: 4 Spr 4 Date: 5-11-62

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	12:23	12:31	12:51	12:55	12:58	13:30	13:33	13:36	13:40	13:53	13:57	14:01
Range	2.0 220	2.0 240	2.0 240	2.0 240	2.0 220	2.0 240	2.0 240	2.0 240	2.0 240	2.0 220	2.0 240	2.0 240
Current AC DC	1790 1790	1780 1780	1760 1750	1770 1770	1770 1770	1750 1740	1740 1750	1750 1750	1740 1750	1725 1720	1720 1720	1720 1720

Send	1-2	4-5	3-4	2-3	1-2		Cal	4-5				
Receive												
Time	14:05	14:23	14:28	14:32	14:35		12:10	12:13	12:16	14:58	15:00	15:03
Range	2.0 220	2.0 240	2.0 240	2.0 220	2.0 220		.05 30	.30 60	2.0 240	.05 40	.30 60	2.0 220
Current AC DC	1710 1720	1720 1710	1690 1690	1680 1680	1680 1680		60 60	280 280	1770 1770	60 60	280 280	1680 1680

R 1-2 120, 2-3 130, 3-4 150, 4-5 150

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group - Line 4 - Spr. 4 N½ Field date 5/14/62 Data page_____ Comp. date 5/12/62. Comp by C.S.L.

(A) Send	CAL	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	4-5	.5-1.0N	→	1.0-1.5N	→	→	1.5-2.0N	→	→	→	2.0-2.5N	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1790	1780	1755	1770	1770	1745	1745	1750	1745	1723	1720
(E) Vdc (avg)		337.0	79.5	150.0	52.3	19.5	174.0	39.4	19.8	8.20	44.5	18.2
(F) DCcal USED	1.000											
(G) Kn x 10^{-3} a = 500'		7.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	→	282.0	268.0	128.2	177.3	165.1	149.7	135.5	169.9	141.0	155.0	158.9
(I) Vac Σ		318.0	76.0	142.0	51.6	18.6	166.0	36.6	18.6	7.97	41.6	17.6
(J) AC noise x 2		.16	.16	.20	.20	.20	.16	.16	.16	.16	.16	.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.980											
(M) ρ dc/ρac=ExL/K		1.039	1.026	1.036	.995	1.028	1.028	1.054	1.043	1.009	1.049	1.014
(N) PFE=(M-1)(10^2)	→	4	3	4	0	3	3	5	4	1	5	1
(O) MCF=(M-1)(10^5)/H	→	14	10	28	-3	17	19	40	25	6	32	9

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	4-5	→	→	→	→	→
(B) Receive	→	→	2.5-3.0N	→	→	→	CAL	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1720	1715	1715	1690	1680	1680	~~60~~	280	1770	60	~~280~~	1680
(E) Vdc (avg)	11.5	5.30	18.0	9.10	6.75	3.37	4.50	28.0	178.0	4.64	~~29.0~~	178.0
(F) DCcal						→						
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84		1.000	.995	.966 ?	.966	.944
(H) ρ dc=ExFxGx10^3/D	201.0	162.1	157.3	161.7	211.0	168.4			USED 1.000			
(I) Vac Σ	10.8	5.13	17.4	8.60	6.46	3.22	4.34	27.3	176.0	4.52	28.0	178.0
(J) AC noise x 2	.16	.16	.14	.14	.14	.14						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$						→						
(L) AC-DC cal.						→	.965	.975	.989	.975	.966	1.000
(M) ρdc/ρac =ExL/K	1.043	1.012	1.013	1.038	1.022	1.026			~.980			
(N) PFE=(M-1)(10^2)	4	1	1	4	2	3						
(O) MCF=(M-1)(10^5)/H	21	7	8	23	10	15						

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Inspiration Mary Group Line: 4 - Sp 4 - 5½ Int.Cal 49.5 Date: 5/12/62

Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	CAL	.5-1.05	→	1.0-1.55	→	→	1.5-2.05	→	→	→	2.0-2.55	→
Time	C.P.	13:20	13:22	13:37	13:40	13:42	13:53	13:55	13:57	14:00	14:15	14:18
DC-1	0-.55	238.0 238.0	40.1 40.1	109.0 109.0	21.5 21.5	7.0 7.0	69.0 69.0	39.7 39.7	11.0 11.0	4.25 4.25	15.1 15.1	11.2 11.2
DC-2	2-3	238.0 238.0	40.3 40.3	109.0 109.0	21.7 21.7	7.0 7.0	68.0 68.0	39.9 39.9	11.0 11.0	4.30 4.30	15.2 15.2	11.4 11.4
Σ		476.0 476.0	80.4 80.4	218.0 218.0	43.2 43.2	14.0 14.0	137.0 137.0	79.6 79.6	22.0 22.0	8.55 8.55	30.3 30.3	22.6 22.6
DC-3		238.0 238.0	40.3 40.3	109.0 109.0	21.7 21.7	7.0 7.0	68.0 68.0	39.9 39.9	11.0 11.0	4.30 4.30	15.1 15.1	11.2 11.2
Dc-4		238.0 238.0	40.1 40.1	109.0 109.0	21.5 21.5	7.0 7.0	69.0 69.0	39.7 39.7	11.0 11.0	4.25 4.25	15.2 15.2	11.4 11.4
Σ		476.0 476.0	80.4 80.4	218.0 218.0	43.2 43.2	14.0 14.0	137.0 137.0	79.6 79.6	22.0 22.0	8.55 8.55	30.3 30.3	22.6 22.6
DC-AV		476.0	80.4	218.0	43.2	14.0	137.0	79.6	22.0	8.55	30.3	22.6
AC-1		220.0	37.3	100.0	19.2	6.4	63.0	36.3	10.0	3.88	13.9	10.5
AC-2		220.0	37.3	100.0	19.2	6.3	63.0	36.3	10.0	3.88	14.0	10.5
Σ		440.0	74.6	200.0	38.4	12.7	126.0	72.6	20.0	7.76	27.9	21.0
S. P.	-9.5		+2.5			0.0				+6.3		
AC-N			.09			.03				.05		

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Inspiration Mary Gray Line: 4 - Spr 4 - 5½' Int.Cal 49.8 Date: 5/12/82

Send	3-4	4-5	1-2	2-3	3-4	4-5	1-2	→	→	→	→	→
Rec.	→	→	2.05-3.05	→	→	→	CAL	→	→	→	→	→
Time	14:22	14:27	14:37	14:40	14:45	14:49	13:10	13:11	13:13	15:15	15:17	15:20
DC-1	3.72 3.75	1.60 1.61	6.4 6.4	5.25 5.25	2.00 2.01	1.00 1.00	4.90	14.2	90.0	4.60	13.9	87.0
DC-2	3.70 3.68	1.67 1.68	6.3 6.3	5.40 5.40	2.00 1.99	1.07 1.07	4.78	14.3	90.0	4.72	13.7	87.0
Σ	7.42 7.43	3.27 3.29	12.7 12.7	10.65 10.65	4.00 4.00	2.07 2.07	9.68	28.5	180.0	9.32	27.6	174.0
DC-3	3.70 3.70	1.67 1.64	6.5 6.5	5.25 5.25	2.02 2.03	.99 1.00	4.90	14.2	90.0	4.60	13.9	87.0
Dc-4	3.72 3.71	1.63 1.63	6.2 6.2	5.40 5.40	1.98 1.97	1.07 1.06	4.78	14.3	90.0	4.72	13.7	87.0
Σ	7.42 7.41	3.30 3.27	12.7 12.7	10.65 10.65	4.00 3.00	2.06 2.06	9.68	28.5	180.0	9.32	27.6	174.0
DC-AV	7.42	3.28	12.7	10.65	4.00	2.065	9.68	28.5	180.0	9.32	27.6	174.0
AC-1	3.40	1.52	6.0	4.93	1.83	.97	4.62	13.7	89.0	4.48	13.2	86.0
AC-2	3.40	1.52	6.0	4.92	1.83	.97	4.62	13.7	89.0	4.48	13.2	86.0
Σ	6.80	3.04	12.0	9.85	3.66	1.94	9.24	27.4	178.0	8.96	26.4	172.0
S. P.		-6.7				-7.8						
AC-N		.10				.06						
		noisy O.C.		in work noisy O.C.								

INDUCED POLARIZATION SENDER NOTES

Project: ~~MARY CLAIMS~~ INSPIRATION Line: LINE 4 SPREAD 4 S Date: 12 MAY 62

Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive	CAL	.5-1.05	→	1.0-1.5S	→		1.5-2.0S	—	—	→	2.0-2.5S	—
Time		1320	1322	1337	1340	1342	1353	1355	1357	1400	1415	1418
Range		2.0	2.0	2.0	2.0	2.0	2.0	—	—	—	—	—
Current		1800	1825	1800	1800	1800	1790	1790	1790	1795	1750	1710
Send	3-4	4-5	1-2	2-3	3-4	4-5	1-2	—	—	—	—	→
Receive	—	→	2.5-3.0S	—	—	→	CAL.	—	—	—	—	→
Time	1422	1427	1437	1440	1445	1449	1310	1311	1313	1515	1517	1520
Range	—	—	—	—	—	→	.10	.30	2.0	.10	.30	2.0
Current	1765	1750	1735	1745	1720	1725	100	290	1800	<100 96	270	1710

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

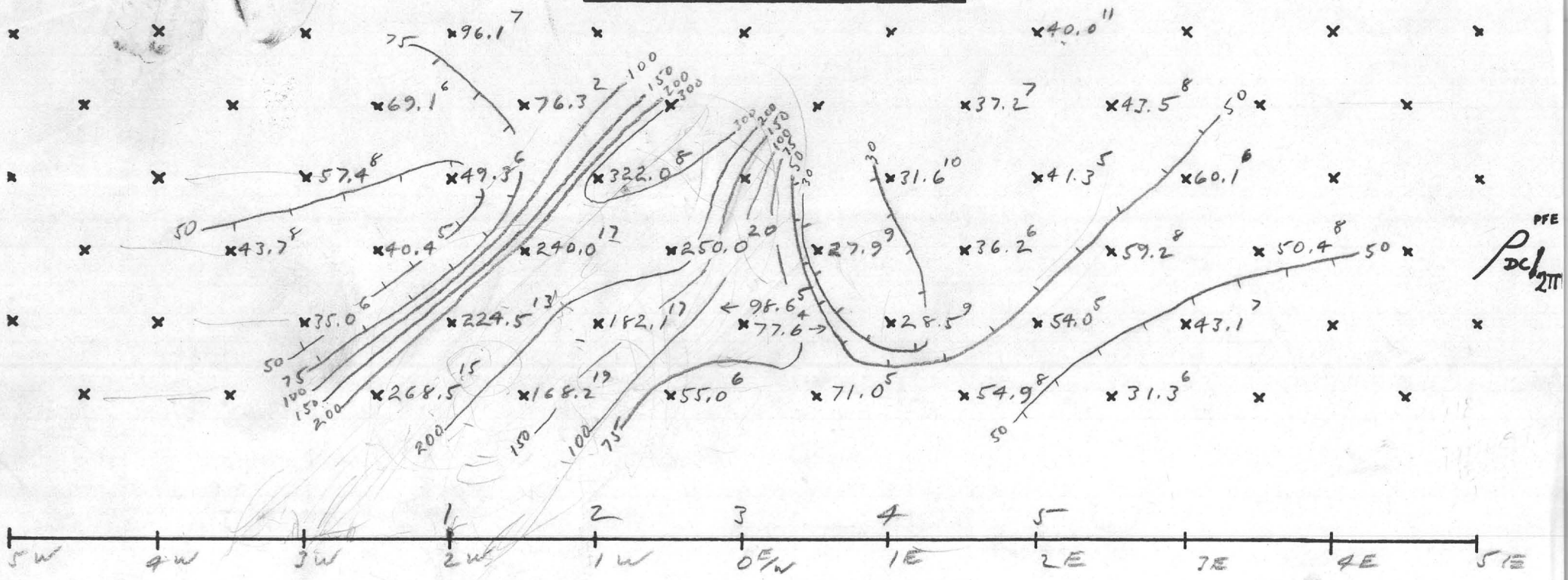
Project Inspiration Mary Group Line 4 - Spr 4 S½ Field date 5/12/62 Data page_____ Comp. date 5/14/62. Comp by C.S.L.

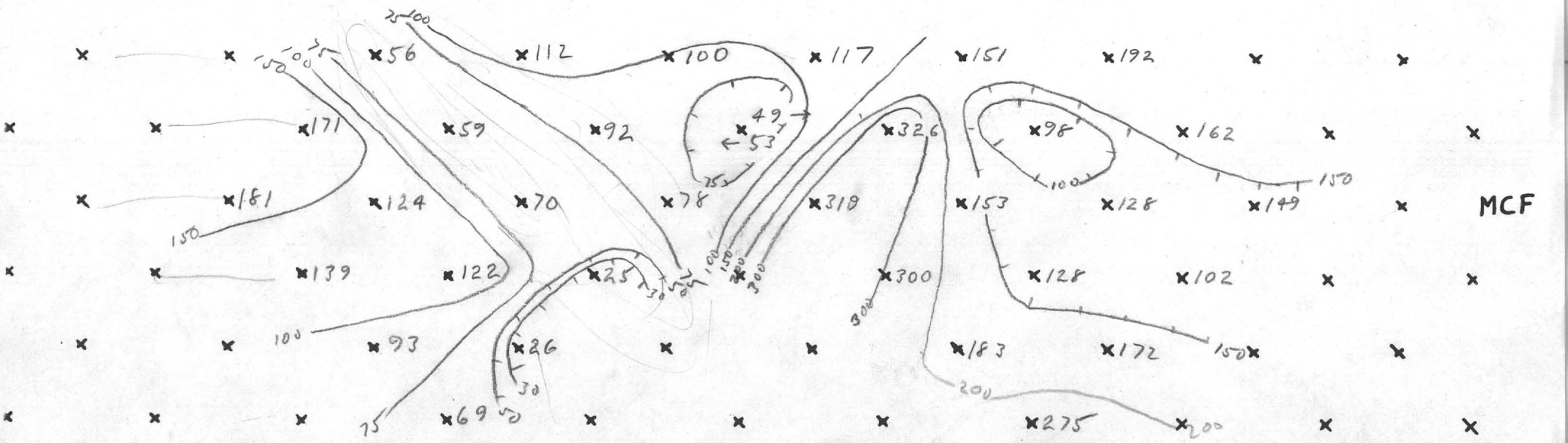
(A) Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	CAL	.5-1.05	→	1.0-1.55	→	→	1.5-2.05	→	→	→	2.0-2.55	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1800	1825	1800	1800	1800	1790	1790	1790	1795	1750	1770
(E) Vdc (avg)		476.0	80.4	218.0	43.2	14.0	137.0	79.6	22.0	8.55	30.3	22.6
(F) DCcal USED	1.010											
(G) Kn x 10^{-3} a = 500'		1.5	6	1.5	6	15	1.5	6	15	30	6	15
(H) ρ dc=ExFxGx10^3/D	→	402.0	267.0	183.7	145.1	117.9	116.0	269.9	186.4	144.3	105.0	193.4
(I) Vac Σ		440	74.6	200.0	38.4	12.7	126.0	72.6	20.0	7.76	27.9	21.0
(J) AC noise x 2		.18	.18	.06	.06	.06	.10	.10	.10	.10	.20	.20
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal. USED	0.960											
(M) ρ dc/ρac=ExL/K		1.040	1.031	1.047	1.080	1.059	1.043	1.052	1.056	1.057	1.043	1.033
(N) PFE=(M-1)(10^2)	→	4	3	5	8	6	4	5	6	6	4	3
(O) MCF=(M-1)(10^5)/H	→	10	12	26	55	50	37	19	30	39	41	17

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
(B) Receive	→	→	2.5-3.05	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1765	1750	1735	1745	1720	1725	100	290	1800	196	270	1720
(E) Vdc (avg)	7.42	3.28	12.7	10.65	4.00	2.065	9.64	28.5	180.0	9.32	27.6	174.0
(F) DCcal							1.033	1.019	1.000	1.030	.979	.989
(G) Kn x 10^{-3}	30	52.5	15	30	52.5	84			~1.010			
(H) ρ dc=ExFxGx10^3/D	127.4	99.4	111.0	185.0	123.3	101.8						
(I) Vac Σ	6.80	3.04	12.0	9.85	3.66	1.94	9.24	27.4	178.0	8.96	26.4	172.0
(J) AC noise x 2	.20	.20	.12	.12	.12	.12						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.							.955	.962	.989	.962	.957	.989
(M) ρdc/ρac =ExL/K	1.048	1.036	1.016	1.039	1.049	1.022						
(N) PFE=(M-1)(10^2)	5	4	2	4	5	2			~.960			
(O) MCF=(M-1)(10^5)/H	38	36	14	21	40	22						

INDUCED POLARIZATION WORK SHEET





Area Mary Group - Line 6 - Spr 1 E & W ½ Scale 1" = 1000' Date 6/20/62

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Mary Group Line: 6 - Spr. 1 W½ Int.Cal 50.0 Date: 6/19/62

Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	CAL	1-2W	→	2-3W	→	→	3-4W	→	→	→	4-5W	→
Time		11:16	11:18	1205	12:08	12:10	12:30	12:34	12:37	12:40	1312	1314
DC-1		16.5 16.3	7.3 7.4	50.0 50.1	13.3 13.7	7.3 7.4	79.0 78.0	16.7 17.3	7.0 7.0	4.85 4.40	2.55 2.50	1.17 1.19
DC-2		16.2 16.6	7.3 7.2	50.0 49.9	13.6 13.2	7.5 7.3	79.0 80.0	16.8 16.1	7.0 7.0	4.40 5.10	2.50 2.58	1.18 1.16
Σ		32.7 32.9	14.6 14.6	100.0 100.0	26.9 26.9	14.8 14.7	158.0 158.0	33.5 33.4	14.0 14.0	9.25 9.50	5.05 5.08	2.35 2.35
DC-3		16.7 16.1	7.3 7.4	50.0 50.0	13.4 13.6	7.4 7.4	79 80	16.1 16.7	7.1 6.9	4.8 4.8	2.60 2.45	1.18 1.17
Dc-4		16.1 16.8	7.3 7.2	50.0 50.0	13.5 13.3	7.3 7.3	79 78	17.4 16.9	6.9 7.1	4.5 4.7	2.48 2.62	1.17 1.19
Σ		32.8 32.9	14.6 14.6	100 100	26.9 26.9	14.7 14.7	158.0 158.0	33.5 33.6	14.0 14.0	9.30 9.50	5.08 5.07	2.35 2.36
DC-AV		32.8	14.6	100.0	26.9	14.72	158.0	33.5	14.0	9.39	5.07	2.35
AC-1		16.2	7.3	43.8	12.0	6.43	71.0	15.4	6.25	4.55	2.55	1.17
AC-2		16.3	7.2	44.2	12.1	6.45	72.5	15.5	6.30	4.55	2.45	1.17
Σ		32.5	14.5	88.0	24.1	12.88	143.5	30.9	12.55	9.10	5.00	2.34
S. P.			+0.6	+55.0	→	+51.1	-104.8	-98.1	→	-78.7	+18.0	+16.0
AC-N			.15			.30				.40		

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Mary Grove Line: 6 - Spr. 1 W½ Int.Cal 49.5 Date: 6/19/62

Send	3-4	4-5	1-2	2-3	3-4	4-5	C+L					
Rec.	→	→	5-6W	→	→	→	1-2					
Time			1337	1340	1342		11:06	11:08	11:10			
DC-1	.70 .74	.58 .61	1.23 1.30	.83 .84	.55 .58	.49 .47	32.8	70.0	89.0			
DC-2	.72 .69	.63 .59	1.28 1.22	.84 .82	.58 .55	.48 .50	32.8	70.0	89.0			
Σ	1.42 1.43	1.21 1.20	2.51 2.52	1.69 1.66	1.13 1.13	.97 .97	65.6	140.0	178.0			
DC-3	.72 .75	.58 .60	1.29 1.23	.80 .87	.53 .55	.50 .47	32.8	70.0	89.0			
Dc-4	.70 .67	.60 .58	1.23 1.26	.86 .83	.58 .57	.47 .49	32.8	70.0	89.0			
Σ	1.42 1.42	1.18 1.18	2.52 2.49	1.66 1.70	1.11 1.12	.97 .96	65.6	140.0	178.0			
DC-AV	1.42	1.19	2.51	1.67	1.12	.97	65.6	140.0	178.0			
AC-1	.71	.62	1.21	.81	.56	.49	34.5	74.0	92.0			
AC-2	.71	.62	1.22	.82	.56	.48	34.2	73.0	93.0			
Σ	1.42	1.24	2.43	1.63	1.12	.97	68.7	147.0	185.0			
S. P.	→	+15.2	+17.1	→	→	+12.4						
AC-N		.11				.10						

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: #6 W. 1/2 Date: 6-19-62

← .75 1.0 →

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	160	170	140	160	180	160	160	160	180	160	140	160
Time	11:16	11:18	12:05	12:08	12:10	12:30	12:34	12:37	12:40	13:13	13:15	13:18
Range AC-1	905.5	901.3	903.1	900.0	898.4	893.8	910.7	890.9	889.5	882.0	884.9	878.3
Range AC-2	907.6	901.3	904.8	900.0	898.5	893.8	910.7	890.9	886.4	884.9	884.9	878.3
	907.6	900.0	906.8	900.0	896.0	897.3	907.9	887.3	884.1	884.8	884.5	873.3
Current	1813.1	1801.3	1809.9	1800.0	1793.4	1791.1	1818.6	1778.2	1773.6	1766.9	1769.8	1751.6

Send	4-5	1-2	2-3	3-4	4-5		Cal	1-2				
Receive	180	160	180	160	180		.75	1.5	2.0			
Time	13:20	13:37	13:40	13:43	13:45		11:06	11:08				
	875.0	873.4	886.8	865.7	863.1		332.5	716.7	900.0			
Range	874.6	873.4	886.8	865.7	863.1		332.0	712.2	900.0			
	873.4	875.5	885.1	863.1	860.1		332.0	712.2	901.9			
Current	1748.4	1748.9	1771.9	1728.8	1723.2		665.5	1428.9	1801.9			

2 4-5 240, 3-4 240, 2-3 240, 1-2 240

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project *Mary Group* Line *6-Spr 1 W½* Field date *6/19/62* Data page_____ Comp. date *6/20/62*. Comp by *C.S.L.*

(A) Send	CAL	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	1-2	1-2W	→	2-3W	→	→	3-4W	→	→	→	4-5W	—
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1813	1801	1810	1800	1793	1791	1819	1778	1774	1767	1770
(E) Vdc (avg)		32.8	14.6	100.0	26.9	14.72	158.0	33.5	14.0	9.39	5.07	2.35
(F) DCcal	1.015											
(G) Kn x 10^{-3} a = 1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		55.0	98.6	166.2	182.1	250.0	268.5	224.5	240.0	322.0	35.0	40.4
(I) Vac Σ		32.5	14.5	88.0	24.1	12.88	143.5	30.9	12.55	9.10	5.00	2.34
(J) AC noise x 2		.30	.30	.60	.60	.60	.80	.80	.80	.80	.22	.22
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.045											
(M) ρ dc/ρac=ExL/K		1.055	1.052	1.189	1.167	1.196	1.150	1.132	1.167	1.079	1.060	1.050
(N) PFE=(M-1)(10^2)		6	5	19	17	20	15	13	17	8	6	5
(O) MCF=(M-1)(10^5)/H		100	53	112	92	78	56	59	70	25	171	124

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→			
(B) Receive	→	→	5-6W	→	→	→	1-2	→	→			
(C) n separation	4	5	3	4	5	6						
(D) I	1752	1748	1749	1722	1729	1723	666	1429	1802			
(E) Vdc (avg)	1.42	1.19	2.51	1.67	1.12	.97	65.6	140.0	178.0			
(F) DCcal							1.014	1.020	1.013			
(G) Kn x 10^{-3}	60	105	30	60	105	168	1.016 USED		1.015			
(H) ρ dc=ExFxGx10^3/D	49.3	76.3	43.7	57.4	69.1	96.1						
(I) Vac Σ	1.42	1.24	2.43	1.63	1.12	.97	68.3	147.0	185.0			
(J) AC noise x 2	.22	.22	.20	.20	.20	.20						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.40	1.22	—	1.618	1.10	.95						
(L) AC-DC cal.							1.047	1.050	1.040			
(M) ρdc/ρac =ExL/K	1.060	1.020	1.079	1.080	1.064	1.066		~1.045				
(N) PFE=(M-1)(10^2)	6	2	8	8	6	7						
(O) MCF=(M-1)(10^5)/H	122	26	181	139	93	69						

34% 4.5% 31%

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: Mary Group Line: 6 - Sec. 1 E½ Int.Cal 49.5 Date: 6/20/6

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
Rec.			2-3E	→		3-4E			→	4-5E		
Time	9:20	9:23	0944	0947		1001	1004	1006		1020	1024	
DC-1	21.0 21.6	6.0 5.8	16.2 16.3	2.21 2.11	.89 .83	9.3 9.3	4.00 4.00	1.05 1.12	.46 .51	3.15 3.25	1.79 1.68	.60 .69
DC-2	21.6 21.0	5.6 5.9	16.2 16.1	2.07 2.18	.82 .83	9.2 9.2	3.99 4.01	1.11 1.02	.49 .42	3.20 3.08	1.69 1.80	.64 .53
Σ	42.6 42.6	11.4 11.7	32.4 32.4	4.28 4.29	1.71 1.66	18.5 18.5	7.99 8.01	2.16 2.14	.95 .93	6.35 6.33	3.48 3.48	1.24 1.22
DC-3	21.0 21.6	6.0 5.7	16.2 16.3	2.20 2.07	.82 .88	9.2 9.4	4.05 3.95	1.00 1.16	.46 .49	3.05 3.30	1.80 1.70	.52 .65
Dc-4	21.6 21.0	5.6 5.9	16.2 16.1	2.05 2.19	.87 .79	9.3 9.1	3.95 4.05	1.15 .98	.47 .44	3.28 3.05	1.69 1.88	.67 .56
Σ	42.6 42.6	11.6 11.6	32.4 32.4	4.25 4.26	1.69 1.67	18.5 18.5	8.00 8.00	2.15 2.14	.93 .93	6.33 6.38	3.49 3.48	1.23 1.21
DC-AV	42.6	11.63	32.4	4.27	1.68	18.5	8.00	2.15	.935	6.34	3.48	1.225
AC-1	21.4	5.9	15.5	2.04	0.81	9.10	3.97	1.07	0.45	3.08	1.70	0.61
AC-2	21.2	5.9	15.9	2.06	0.81	9.20	4.00	1.07	0.46	3.14	1.70	0.62
Σ	42.6	11.8	31.4	4.10	1.62	18.3	7.97	2.14	.91	6.22	3.40	1.23
S. P.	-7.9	→	+29.5	+28.5	→	-1.7	-0.2	+0.5	.	+10.4	→	
AC-N	←	0.10			.07				.08			

...CED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Mary Group Line: 6-Spr'l. E½ Int.Cal 49.7 Date: 6/20/62

Send	1-2	4-5	3-4	2-3	1-2		CAL			NG	NG	NG
Rec.	→	5-6E	→	→	→		4-5	→	→			
Time		1041	1044	1047			9:10	9:12	9:14	1121		
DC-1	.31 .34	1.49 1.46	.84 .90	.39 .38	.27 .19		14.3 14.3	33.7 33.7	90.0 90.0	14.1 14.1	32.5	86.0
DC-2	.31 .29	1.44 1.46	.92 .86	.34 .35	.18 .21		14.4 14.4	33.5 33.5	90.0 90.0	14.1 14.1	32.5	86.0
Σ	.62 .63	2.93 2.92	1.76 1.76	.73 .73	.45 .40		28.7 28.7	67.2 67.2	180.0 180.0	28.2		
DC-3	.29 .38	1.49 1.41	.84 .91	.35 .40	.21 .20						32.5	86.0
Dc-4	.34 .24	1.43 1.52	.92 .85	.38 .34	.20 .22						32.5	86.0
Σ	.63 .62	2.92 2.93	1.76 1.76	.73 .74	.41 .42							
DC-AV	.625	2.93	1.76	.732	.42		28.7	67.2	180.0	28.2	65.0	172.0
AC-1	.32	1.42	0.87	0.36	.21		15.1	35.7	93.0	13.5	31.7	82.0
AC-2	.31	1.44	0.87	0.37	.21		14.9	35.2	94.0	13.4	31.5	82.0
Σ	.63	2.86	1.74	.73	.42		30.0	70.9	187.0	26.9	63.2	174.0
S. P.		+9.2	→	→	→							
AC-N	.07	.07	→	→	→							

INDUCED POLARIZATION SENDER NOTES

Project: Mary Line: #6 EAST 1/2 Date: 6-19-62

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	9:20	9:23	9:44	9:47	9:49	10:01	10:04	10:06	10:09	10:20	10:24	10:26
Range	1846.5	1849.4	1817.0	1846.8	1849.9	1817.6	1821.0	1828.8	1824.8	1810.3	1807.4	1821.6
Current	923.0 923.5 923.5	924.9 924.9 924.5	908.5 908.5 908.5	923.4 923.4 923.4	925.5 926.5 924.4	908.7 907.7 909.9	910.5 910.5 910.5	914.4 914.4 914.4	912.4 912.4 912.4	904.1 906.2 906.2	903.7 903.7 903.7	910.8 910.8 910.8
Send	1-2	4-5	3-4	2-3	1-2		Cal.	4-5				
Receive												
Time	10:	10:41	10:44	10:47	10:50		9:10	9:12	9:14	11:21	11:28	11:29
Range	1811.6	1787.2	1799.8	1810.2	1808.3		289.4	686.6	1751.3	286.8	675.6	1776.2
Current	905.8 905.8 905.8	891.8 895.4 895.4	899.9 899.9 899.9	905.1 905.1 905.1	905.6 905.6 902.7		144.8 144.8 144.6	343.3 343.3 343.3	875.5 875.5 875.8	144.0 144.0 142.8	338.8 337.8 337.8	888.1 888.1 888.1
	2.0 RANGE						.30	.75	2.0	.30	.75	2.0

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mary Group Line C- Spol E ½ Field date 6/20/82 Data page_____ Comp. date 6/20/82. Comp by C.S.L.

(A) Send	CAL	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	4-5	1-2E	→	2-3E	→	→	3-4E	→	→	→	4-5E	—
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1847	1849	1817	1847	1850	1818	1821	1829	1825	1810	1807
(E) Vdc (avg)		42.6	11.63	32.4	4.27	1.68	18.5	8.00	2.15	.935	6.34	3.48
(F) DCcal	1.025											
(G) Kn x 10^{-3}		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		71.0	77.6	54.9	28.5	27.9	31.3	54.0	36.2	31.6	43.1	59.2
(I) Vac Σ		42.6	11.8	31.4	4.10	1.62	18.3	7.97	2.14	.91	6.22	3.40
(J) AC noise x 2		.20	.20	.14	.14	.14	.16	.16	.16	.16	.14	.14
(K) Vac(corr) = $\sqrt{I^2 - J^2}$										.897		
(L) AC-DC cal.	1.050											
(M) ρ dc/ρac=ExL/K		1.050	1.038	1.083	1.093	1.089	1.060	1.053	1.055	1.095	1.070	1.076
(N) PFE=(M-1)(10^2)		5	4	8	9	9	6	5	6	10	7	8
(O) MCF=(M-1)(10^5)/H		117	49	151	326	319	192	98	153	300	162	128

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	→	→			
(B) Receive	→	→	5-6E	→	→	→	4-5	→	→			
(C) n separation	4	5	3	4	5	6						
(D) I	1822	1812	1787	1800	1810	1808	289	687	~~X751~~	287	476	1776
(E) Vdc (avg)	1.225	.625	2.93	1.76	.732	.42	28.7	67.2	~~150.0~~	28.2	65.0	172.0
(F) DCcal							1.007	1.021	~~.973~~	1.018	1.040	1.032
(G) Kn x 10^{-3}	60	105	30	60	105	165			~	1.025		
(H) ρ dc=ExFxGx10^3/D	41.3	37.2	50.4	60.1	43.5	40.0						
(I) Vac Σ	1.23	.63	2.86	1.74	.73	.42	30.0	70.9	187			
(J) AC noise x 2	.14	.14	.14	.14	.14	.14						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.22	.615			.715	.392						
(L) AC-DC cal.							1.046	1.055	1.040?			
(M) ρdc/ρac =ExL/K	1.053	1.068	1.075	1.061	1.075	1.110		1.047	USED	1.050		
(N) PFE=(M-1)(10^2)	5	7	8	6	8	11						
(O) MCF=(M-1)(10^5)/H	128	183	199	102	172	275						

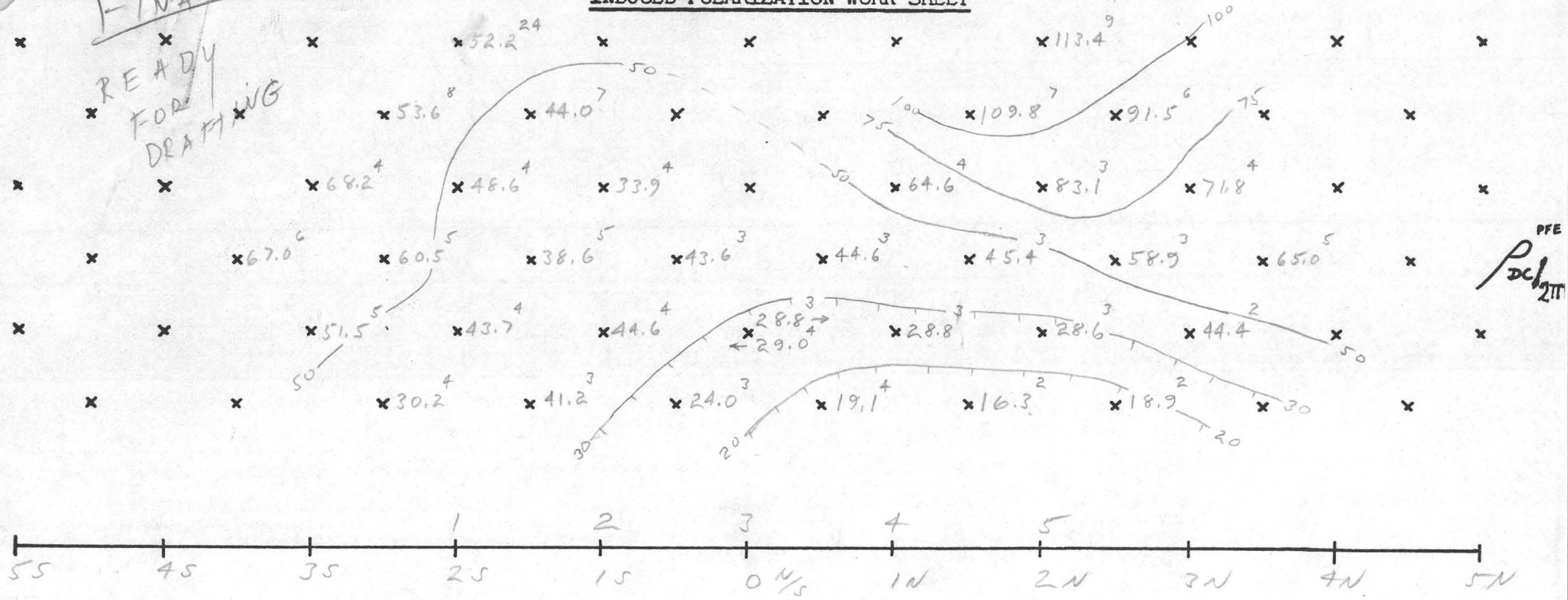
50% 35% 5%

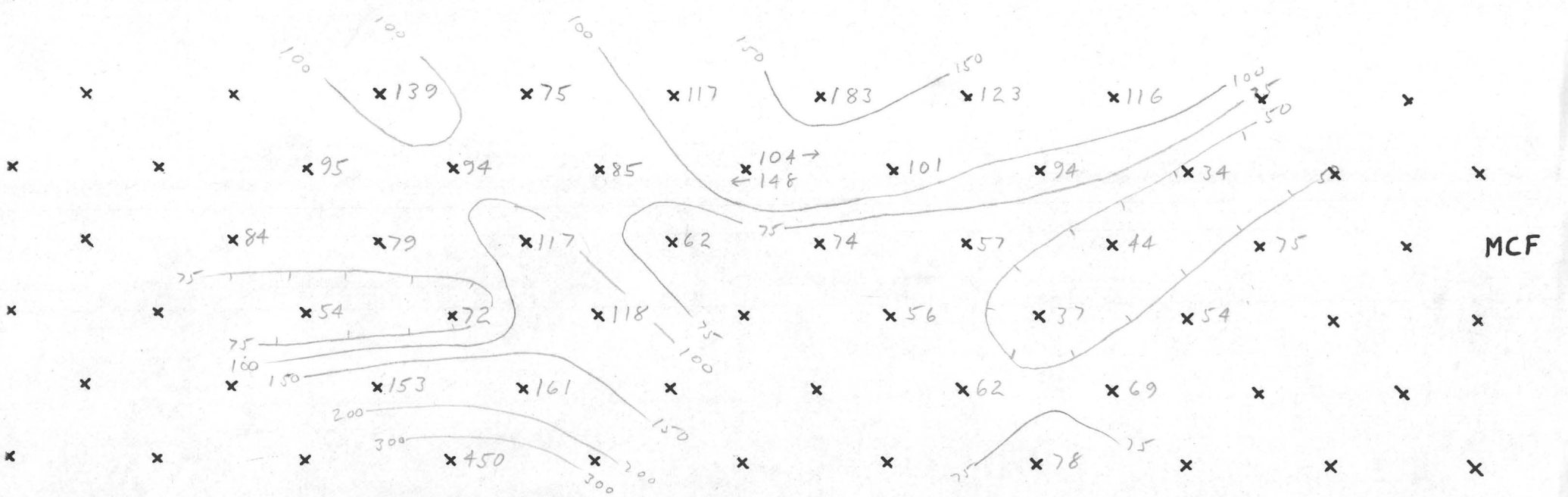
Line 5 - Spr 5 - N & S ½ Repeat

FINAL

READY FOR DRAFTING

INDUCED POLARIZATION WORK SHEET





Area Inspiration - Mary Group - Line 5 - Spr 5, N & S ½ Scale 1" = 1000' Date 5/19/62

ARIZATION - RECEIVER NOTES PAGE 1

Project: Inspiration Mary Group Line: 5 Spr. 5 5½ Int.Cal 51.3 Date: 5/17/62

Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	CAL	1-25	→	2-35	→	→	3-45	→	→	→	4-55	
Time												
DC-1		7.0 7.0	2.19 2.17	12.4 12.3	3.50 3.42	1.32 1.32	9.0 9.1	3.22 3.20	1.13 1.15	.50 .50	3.80 3.80	1.83 1.82
DC-2		7.2 7.2	2.23 2.25	12.1 12.4	3.24 3.30	1.30 1.30	9.0 8.9	3.38 3.40	1.17 1.15	.50 .50	3.90 3.90	1.80 1.81
Σ		14.7 14.7	4.42 4.42	24.5 24.7	6.74 6.72	2.62 2.62	18.0 18.0	6.60 6.60	2.30 2.30	1.00 1.00	7.70 7.70	3.63 3.63
DC-3		7.0 7.0	2.18 2.20	12.3 12.3	3.44 3.44	1.31 1.29	9.0 9.1	3.30 3.40	1.16 1.19	.52 .50	3.80 3.80	1.83 1.82
Dc-4		7.2 7.2	2.25 2.22	12.3 12.3	3.28 3.30	1.31 1.33	9.0 8.9	3.30 3.20	1.14 1.11	.48 .50	3.90 3.90	1.81 1.82
Σ		14.7 14.7	4.43 4.42	24.6 24.6	6.72 6.74	2.62 2.62	18.0 18.0	6.60 6.60	2.30 2.30	1.00 1.00	7.70 7.70	3.64 3.64
DC-AV		14.7	4.42	24.6	6.73	2.62	18.0	6.60	2.30	1.00	7.70	3.635
AC-1		7.20	2.13	12.0	3.26	1.29	8.7	3.19	1.11	.49	3.68	1.75
AC-2		7.20	2.13	12.0	3.28	1.28	8.7	3.19	1.11	.49	3.72	1.75
Σ		14.4	4.26	24.0	6.54	2.57	17.4	6.38	2.22	.98	7.40	3.50
S. P.			-6.4			+15.2				-11.9		
AC-N			.09			.09			.07	.07		.07

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Inspiration Line: 5 - Sp 5 - 5½ Int.Cal 5,2 Date: 5/17/62

Mary Group

Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
Rec.	→	→	5-6 5	→	→	→	1-2	→	→	→	→	→
Time												
DC-1	.75 .71	.40 .35	2.00 2.00	1.00 1.00	.46 .43	.23 .30	14.6	54.5	91.0	90.0	14.6 14.5	53.8
DC-2	.70 .74	.34 .38	1.97 1.97	1.03 1.03	.45 .49	.31 .25	14.5	54.5	91.0	90.0	14.6 14.5	53.8
Σ	1.45 1.45	.74 .73	3.97 3.97	2.03 2.03	.91 .92	.54 .55	29.1	109.0	182.0	180.0	29.1	107.6
DC-3	.70 .70	.40 .39	2.00 2.00	1.02 1.03	.45 .45	.30 .30	14.6	54.5	91.0	90.0	14.6 14.5	53.8
Dc-4	.70 .74	.34 .35	1.97 1.97	1.01 1.00	.46 .45	.25 .25	14.5	54.5	91.0	90.0	14.6 14.5	53.8
Σ	1.44 1.44	.74 .74	3.97 3.97	2.03 2.03	.91 .90	.55 .55	29.1	109.0	182.0	180.0	29.1	107.6
DC-AV	1.445	.738	3.97	2.03	.91	.548	29.1	109.0	182.0	180.0	29.1	107.6
AC-1	.71	.35	1.88	.99	.43	.23	14.7	54.9	91.5	91.0	14.7	54.2
AC-2	.71	.36	1.91	.99	.43	.23	14.6	54.9	91.5	91.0	14.8	54.4
Σ	1.42	.710	3.80	1.98	.86	.46	29.3	109.8	183.0	182.0	29.5	108.6
S. P.		+9.1				+5.1						
AC-N	.08	.07	.07	.06	.07	.05	290	1065	1800			

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Mary Line: 5 Spr. 5 Int. Cal 11:05 51.0 11:35-51.5 Date: 5/17/6

Current	2.0	0.50	0.30	0.50								
Send	4-5	→	→	→								
Rec.	Cal	→	→	→								
Time	11:10-	11:20-	11:25-	11:39-								
DC-1	92.0 92.0	26.2 26.3	14.7 14.7	26.4 26.5		CALIBRATION						
DC-2	92.0 92.0	26.1 26.2	14.6 14.6	26.3 26.3		CHECKS						
Σ	92.0	26.2		26.4								
DC-3	92.0 92.0	26.2 26.2		26.4✓ 26.4✓								
Dc-4	92.0 92.0	26.1 26.1		26.3✓ 26.3✓								
Σ	92.0	26.15		26.35								
DC-AV	92.0	26.175	14.65	26.375								
AC-1	92.5 93.0	26.9 26.5	14.8 14.6	~~27.35~~ 26.7								
AC-2	93.0 93.0	26.5 "	14.7 14.6	26.7 26.7								
Σ	92.9	26.6	14.7	26.7								
~~S. P.~~	1.060	1.031	1.007	1.000								
~~AC-N~~	18.40	540	295	527.5								
AC-DC, Cal	1.009	1.017	1.003	1.012								

INDUCED POLARIZATION SENDER NOTES

Easier to Start Switching by D.C. 1st

Sheet 1

Project: Mary Bill Keith Line: 5-Spread 5 WEN Date: 5/17/62

Send	Cal 45						1-2		Current was held	3-4		
Receive							Cal		steady by moving Variac	1-2		
Time	steady 11:08	drop 11:14	11:18	steady 11:19	11:33	11:36	1:10	1:15	1:20	1:35		
Range	2.0 220	.50 100	.50 100	.30 60	.50 140	.50 140	0.3@60 AC1 290	1.0@130 1050	2.0@160 1800	2.0@175 1800		
Current AC	1840	530	520	295	530	525 DC2	290	1060	1800	1800	drop	
AC	1840	540	520	295	530	525 DC3	290	1065	1800	1800	rise	
Send												
Receive												
Time												
Range												
Current												

Usually easier to start switching on D.C. first - but sometimes could also start on A.C. immediately with no delay or trouble - switching phase seems to play a part here.

Ω 1-2 130, 2-3 100, 3-4 120, 4-5 150

90 Volts
8-8.5 Amps } Input

INDUCED POLARIZATION SENDER NOTES

Sheet (2)

Project: May Line: 5-Spread 5 (0.5 lap.) Date: 5/17/62

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	1-2S	→	2-3S	→	→	3-4S		→	→	4-5S		
Time		1:40	2:10	2:15	2:20	Steady 2:40	2:43	2:48	2:53	3:23	3:28	3:33 3:50
Range	See Sheet 1 AC.	2.0@220 1800	2@150 1755	2@195± 1775	2@220± 1760	2@190S 1745	2@210S 1775	2@190S 1750	2@220S 1740	2@220S 1750	2@200S 1765	2@210± 1750
Current	DC2 AC3	1795 1790	" 1760	" "	1765 "	1755 1760	(1780) 1775 1775	" 1748	1737 1735	(1760) 1765 "	" "	" 1740 AC 1750 DC
Send	4-5	1-2	2-3	3-4	4-5		CAL	→	→	→		1750 AC
Receive	→	5-6S	→	→	→		1-2	→	→	→		
Time	3:52	4:10	4:15	4:20	4:23		4:50	4:55		5:00	drift up	
Range	2@220S AC 1730	2@200S AC 1740	2@220±200 AC 1750	2@220S AC 1745	2@220S AC 1725		2@200 AC 1747	0.3@60 AC 290	90	1.0@170 AC 1025	140	
Current	DC1 1730 DC2 1727 AC "	DC 1745 DC 1747 AC 1745	DC " DC " AC "	DC 1748 DC 1750 AC "	DC 1728 DC 1727 DC 1727		DC 1750 DC " AC 1755 DC "	DC 290 DC 285 AC 285 DC "		DC 1030 DC 1035 AC "	Steady	

(Watch about 5 min fast.)

Send current at 1750 AC until stable at 1750 AC

Return

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 5-Spr.5-5½ Field date 5/17/62 Data page_____ Comp. date 5/18/62. Comp by C.S.L.

(A) Send	1-2	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	CAL	1-2S	→	2-3S	→	→	3-4S	→	→	→	4-5S	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1800	1795	1758	1775	1763	1753	1776	1750	1777	1760	1765
(E) Vdc (avg)		14.7	4.42	24.6	6.73	2.62	18.0	6.60	2.30	1.00	7.70	3.635
(F) DCcal USED	.980											
(G) Kn x 10^{-3} a=1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		24.0	29.0	41.2	44.6	43.6	30.2	43.7	38.6	33.9	51.5	60.5
(I) Vac Σ		14.4	4.26	24.0	6.54	2.57	17.4	6.38	2.22	.98	7.40	3.50
(J) AC noise x 2		.18	.18	.18	.18	.18	.14	.14	.14	.14	.14	.14
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		14.4	4.26	24.0	6.54	2.57	17.4	6.38	2.22	.97	7.40	3.50
(L) AC-DC cal.		1.007	1.007	1.007	1.008	1.008	1.008	1.008	1.009	1.009	1.009	1.010
(M) ρ dc/ρac=ExL/K		1.028	1.043	1.031	1.038	1.027	1.042	1.041	1.045	1.040	1.049	1.048
(N) PFE=(M-1)(10^2)		3	4	3	4	3	4	4	5	4	5	5
(O) MCF=(M-1)(10^5)/H		117	148	75	85	62	139	94	117	118	95	79

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
(B) Receive	→	→	5-6S	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1745	1729	1744	1750	1748	1727	290	1065	1800	1750	287	1031
(E) Vdc (avg)	1.445	.738	3.97	2.03	.91	.548	29.1	109.0	182.0	180.0	29.1	107.6
(F) DCcal							.997	.978	.989	.973	.986	.960
(G) Kn x 10^{-3}	60	105	30	60	105	168			~	.980		
(H) ρ dc=ExFxGx10^3/D	48.6	44.0	67.0	68.2	53.6	52.2						
(I) Vac Σ	1.42	.710	3.80	1.98	.86	.46	29.3	109.8	183.0	182.0	29.5	108.6
(J) AC noise x 2	.16	.14	.14	.12	.14	.10						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.41	.695	3.80	1.98	.85	.449						
(L) AC-DC cal.	1.010	1.010	1.011	1.011	1.011	1.011	1.007	1.007	1.005	1.010	1.013	1.010
(M) ρdc/ρac =ExL/K	1.035	1.071	1.056	1.037	1.082	1.235						
(N) PFE=(M-1)(10^2)	4	7	6	4	8	24		1.007	1.009	1.011		
(O) MCF=(M-1)(10^5)/H	72	161	84	54	153	450						

POLARIZATION - RECEIVER NOTES PAGE

Project: Inspiration Line: 5 Spread 5 N 1/2 Int.Cal 51.5a Date: 5/18/62

MARY 10000a Repeat

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.		1.0 -	2.0	2.0 -	3.0 →							
Time		11:25	11:30	11:50	11:55	11:59	12:46	12:51	12:55	13:00	13:33	13:37
DC-1		5.8 5.75	2.23 2.23	4.98 4.99	2.18 2.20	1.33 1.33	5.70 5.70	2.13 2.13	1.35 1.35	.98 .97	3.4 3.7	1.72 1.70
DC-2		6.0 6.03	2.23 2.23	4.99 4.99	2.23 2.21	1.38 1.37	5.70 5.70	2.20 2.20	1.40 1.40	.95 .96	3.2 2.9	1.78 1.80
Σ		11.8 11.78	4.46 4.46	9.97 9.98	4.41 4.41	2.71 2.70	11.40 11.40	4.33 4.33	2.75 2.75	1.93 1.93	6.6 6.6	3.50 3.50
DC-3		5.9 5.95	2.20 2.19	4.90 4.90	2.16 2.18	1.35 1.35	5.70	2.13 2.13	1.35 1.35	.98 .98	4.0 4.0	1.70 1.70
Dc-4		5.9 5.85	2.23 2.25	5.03 5.03	2.24 2.22	1.35 1.35	5.70 5.65	2.20 2.20	1.40 1.40	.96 .96	2.6 2.6	1.80 1.80
Σ		11.8 11.8	4.43 4.44	9.93 9.93	4.40 4.40	2.70 2.70	5.70 5.75	4.33 4.33	2.75 2.75	1.94 1.94	6.6 6.6	3.50 3.50
DC-AV		11.80	4.45	9.95	4.405	2.70	11.40	4.33	2.75	1.935	6.60	3.50
AC-1		5.75	2.19	4.95	2.17	1.32	5.65	2.15	1.36	.97	3.3	1.72
AC-2		5.8	2.19	4.93	2.18	1.33	5.65	2.13	1.38	.95	3.3	1.74
Σ		11.55	4.38	9.88	4.35	2.65	11.30	4.28	2.74	1.920	6.60	3.46
S. P.			-8.8			-2.8				+3.0		
AC-N			0.10			0.10				.15		
										B.+0.3		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Line: 5 Spr. 5N½ Int.Cal 51.0 Date: 5/18/62

Repeat

Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL					
Rec.												
Time	13:42	13:46	14:19	14:23	14:27	14:33	10:57	11:00	11:07	15:01	15:05	15:08
DC-1	1.25 1.23	.87 .88	1.99 1.99	1.10 1.12	.77 .77	.60 .60	95.0	27.0	34.0	90.0	26.0	33.8
DC-2	1.23 1.25	.98 .98	1.86 1.85	1.05 1.02	.80 .80	.60 .60	95.0	27.0	34.0	90.0	26.0	33.8
Σ	2.48 2.48	1.85 1.86	3.85 3.84	2.15 2.14	1.57 1.57	1.20 1.20	190.0	54.0	68.0	180	52.0	67.6
DC-3	1.25 1.23	.90 .90	1.84 1.80	1.12 1.13	.75 .75	.60 .60	95.0	27.0	34.0	90.0	26.0	33.8
Dc-4	1.23 1.25	.95 .95	2.0 2.05	1.02 1.02	.81 .81	.60 .60	95.0	27.0	34.0	90.0	26.0	33.8
Σ	2.48 2.48	1.85 1.85	3.84 3.85	2.14 2.15	1.56 1.56	1.20 1.20	190.0	54.0	68.0	180	52.0	67.6
DC-AV	2.48	1.85	3.85	2.145	1.565	1.20	190.0	54.0	68.0	180.0	52.0	67.6
AC-1	1.22	.89	1.87	1.08	.78	.58	96.0	27.3	34.5	92	26.5	34.0
AC-2	1.24	.90	1.89	1.06	.787	.63	96.0	27.3	34.5	92	26.5	34.3
Σ	2.46	1.79	3.76	2.14	1.560	1.21	192.0	54.6	69.0	184.0	53.0	68.3
S. P.		-1.0				H.1						
AC-N		.18 .15				.20 .25	bursts to .70				ext A.C burst	
						bursts to 1.1	to .30					

INDUCED POLARIZATION SENDER NOTES

Project: Insp Mary gre Line: _____ Date: 5-18-62

Send	220 2-3	210 1-2	200 3-4	220 2-3	210 1-2	220 4-5	210 3-4	190 2-3	210 1-2	220 4-5	220 3-4	210 2-3
Receive												
Time	11:25	11:30	11:50	11:55	11:59	12:41	12:51	12:55	13:00	13:33	13:37	13:42
Range	2.0											
1 AC	1825	1825	1795	1805	1780	1775	1780	1775	1760	1740	1740	1740
2 DC	1830	1825	1795	1805	1780	1770	1780	1775	1760	1740	1740	1740
Current	1830	1825	1795	1805	1780	1775	1780	1775	1755	1740	1740	1740
3 AC		1820	1795	1805	1780	1775						
4 DC												

Send	220 1-2	230 4-5	230 3-4	200 2-3	220 1-2		220 (2)	120 4-5	120	230	100	140
Receive			9 amps									
Time	13:46	14:19	14:23	14:27	14:33		10:57	11:00	11:07	15:01	1505	1508
Range	2.0						2.0	.50	.75	2.0	.50	.75
1 AC	1720	1725	1740	1740	1720		1845	545	575	1720	510	660
2 DC	1720	1725	1740	1740	1720		1845	540	570	1720	505	655
Current	1720	1725	1740	1740	1720		1845	530	570	1720	505	650
3 AC								530	570			
4 DC												

Ω 1-2 130 2-3 100, 3-4 120, 4-5 150 ???

Rerun

Rerun

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 5-Sor5-N½ Field date 5/18/62 Data page_____ Comp. date 5/19/62 Comp by C.S.L.

(A) Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	CAL	1-2N	→	2-3N	→	→	3-4N	→	→	→	4-5N	—
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1829	1823	1795	1805	1780	1774	1780	1775	1758	1740	1740
(E) Vdc (avg)		11.80	4.45	9.95	4.405	2.70	11.40	4.33	2.75	1.935	6.60	3.50
(F) DCcal		.984	.983	.982	.981	.980	.979	.978	.977	.976	.975	.974
(G) Kn x 10^{-3} a=1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		19.1	26.8	16.3	28.8	44.6	18.9	28.6	45.4	64.6	44.4	58.9
(I) Vac Σ		11.55	4.38	9.88	4.35	2.65	11.30	4.28	2.74	1.920	6.60	3.46
(J) AC noise x 2		.20	.20	.20	.20	.20	.30	.30	.30	.30	.33	.33
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		11.55	4.38	9.88	4.35	2.65	11.30	4.28	2.72	1.895	6.60	3.46
(L) AC-DC cal.		1.012	1.012	1.012	1.013	1.013	1.013	1.014	1.014	1.014	1.015	1.015
(M) ρ dc/ρac=ExL/K		1.035	1.030	1.020	1.029	1.033	1.022	1.027	1.026	1.036	1.015	1.026
(N) PFE=(M-1)(10^2)		4	3	2	3	3	2	3	3	4	2	3
(O) MCF=(M-1)(10^5)/H		183	104	123	101	74	116	94	57	56	34	44

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

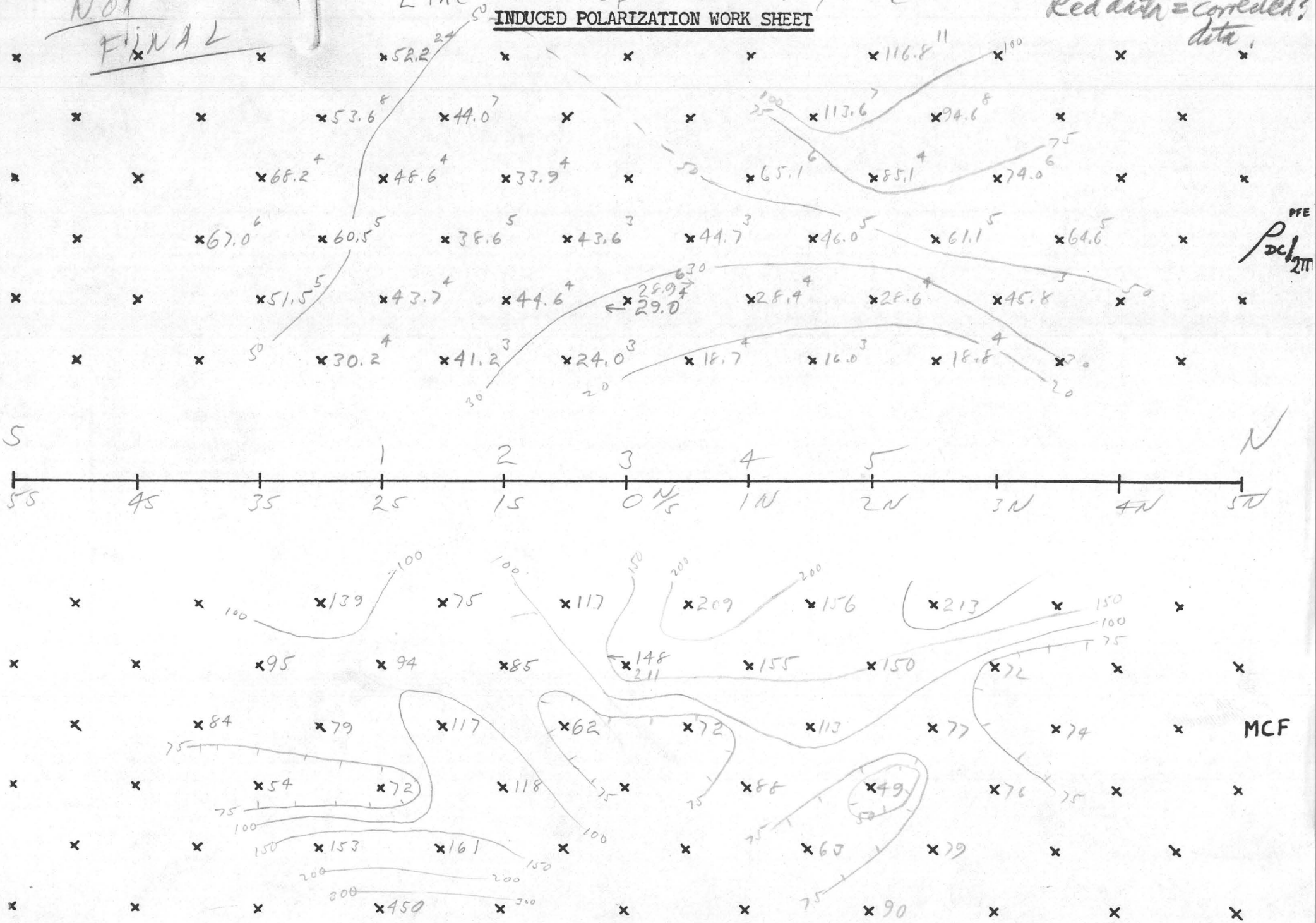
(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	—	—	—	—	→
(B) Receive	→	→	5-6N	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6			? (2)			
(D) I	1740	1720	1725	1740	1740	1720	1845	536	571	1720	507	655
(E) Vdc (avg)	2.48	1.85	3.85	2.145	1.565	1.20	190.0	54.0	68.0	180.0	52.0	67.6
(F) DCcal	.973	.972	.971	.970	.969	.968	.971	.994	.987(?)	.955	.976	.969
(G) Kn x 10^{-3}	60	105	30	60	105	168	—	.984	—	—	.967	—
(H) ρ dc=ExFxGx10^3/D	83.1	109.8	65.0	71.5	91.5	113.4						
(I) Vac Σ	2.46	1.79	3.76	2.14	1.560	1.21	192.0	54.6	69.0	184.0	53.0	68.3
(J) AC noise x 2	.33	.33	.45	.45	.45	.45						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	2.44	1.76	3.73	2.10	1.495	1.22						
(L) AC-DC cal.	1.015	1.016	1.016	1.016	1.017	1.017	1.010	1.011	1.014	1.022	1.020	1.010
(M) ρdc/ρac =ExL/K	1.031	1.068	1.049	1.039	1.063	1.088	—	1.012	—	—	1.017	—
(N) PFE=(M-1)(10^2)	3	7	5	4	6	9						
(O) MCF=(M-1)(10^5)/H	37	62	75	54	69	78						

Not FINAL

Line 5 - Spr 5 - N & S ½

Red data = corrected? data.

INDUCED POLARIZATION WORK SHEET

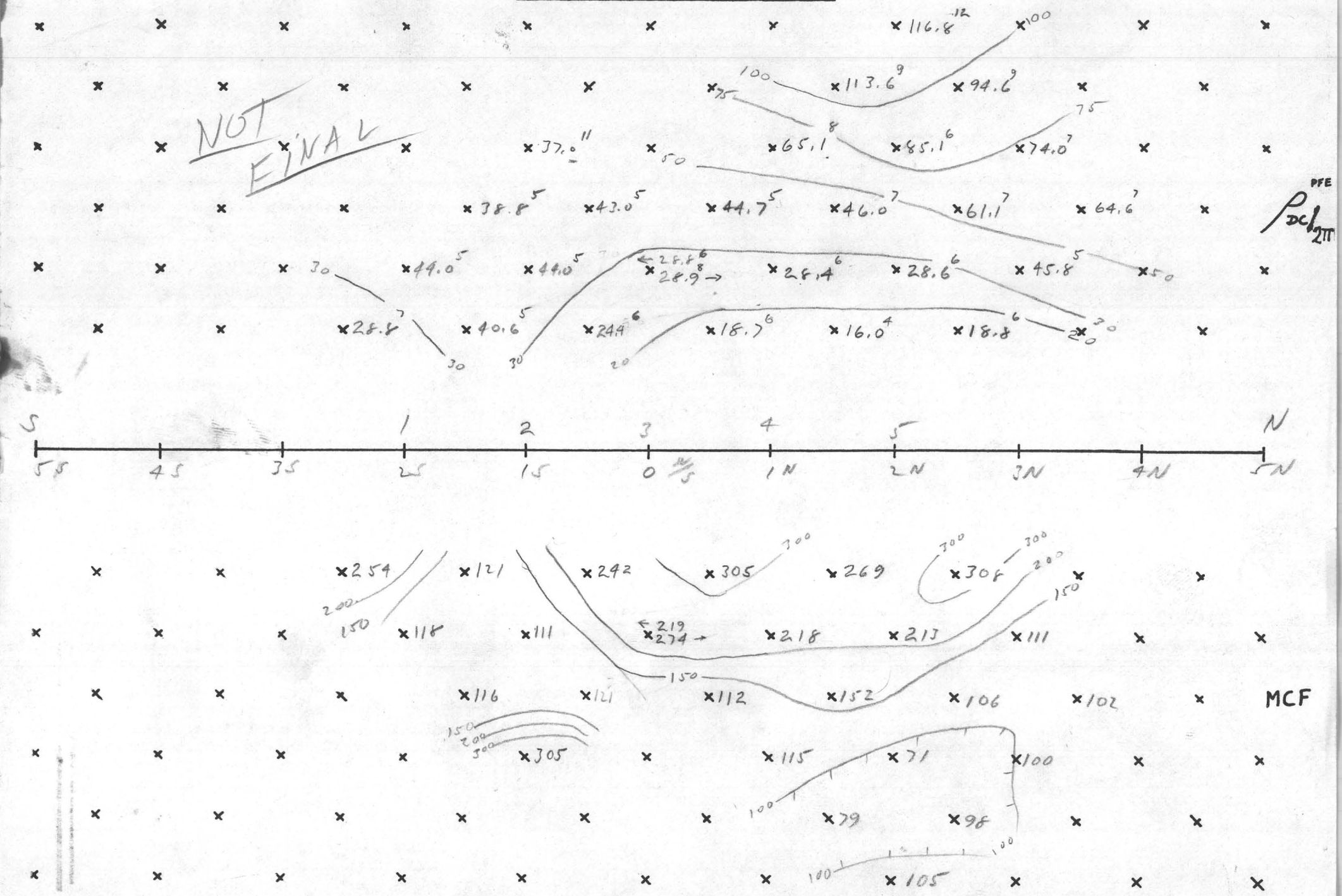


Area Inspiration Line 5 - Spr 5 - 5½ Scale 1" = 1000' Date 5/18/62

Mary Group

LINE 5 SPREAD 5 LOOKING WEST

INDUCED POLARIZATION WORK SHEET



Area INSPIRATION-MARY GROUP LINE 5 SPR 5 N & S ½ Scale 1" = 1000' Date 5/15/62

INDUCED POLARIZATION SENDER NOTES

F. Armstrong

Project: _____ Line: 5 SPR 5 5½ Date: 7-15-62

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												
Time	1353	1401	1429	1432	1435	1505	1509	1515	1519			
Range	200	220	205	220	220	220	220	210	230	230		
Current DC.	1800	1790	1790	1795	1770	1780	1800	1780	1750	1750		
Current AC.	1800	1790	1800	1800	1790	1800	1800	1780	1760			
Send	4-5	1-2	2-3	3-4	4-5		C21	1-2				
Receive												
Time							1340	1343	1347			
Range							.50 125	.75 170	2.0 225			
Current							520 520	690 680	1820 1800			

Bell Kathy

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Line: 5 SBR-5 N½ Date: 5-15-12

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	10:08	10:11	10:31	10:34	10:38	11:05	11:08	11:12	11:15	11:35	11:40	11:43
Range	2.0											
V	180	180	200	180	200	220	210	220	220	230	220	220
Current Pd	1850	1830	1830	1830	1820	1800	1810	1810	1800	1780	1780	1780
Pd	1830	1830	1810	1830	1830	1780	1810	1810	1800	1780	1780	1780

Send	1-2	4-5	3-4	2-3	1-2		C2 /	4-5		CAL	1-2	
Receive												
Time	11:46	11:59	12:03	12:05	12:08		10:00	9:52	9:58			
Range	2.0						.50	.75	0.0			
V	220	230	220	220	220		100	160	220			
Current AC Pd	1770	1760	1770	1770	1760		530	680	1850	520	680	1800
Pd	1770	1740	1770	1770	1760		530	680	1810	520	690	1820

Ω 1-2 130, 2-3 100, 3-4 130, 4-5 150

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claims 1000a Line: 5 Spr. 5 Int.Cal _____ Date: 5/15/62

Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5				
Rec.												
Time	1143	1146	1159	1203	1205	1208	10.00	952	9.58			
DC-1	1.25 1.23	.92 .94	1.80 1.82	1.08 1.08	.78 .78	.64 .64	26.2	33.5	90.5			
DC-2	1.25 1.26	.94 .95	1.92 1.90	1.08 1.08	.80 .81	.64 .58	26.3	33.5	90.0			
Σ	2.50 2.49	1.91 1.89	3.72 3.72	2.16 2.16	1.58 1.59	1.20 1.22	52.5	67.0	180.5			
DC-3	1.25 1.25	.93 .99	1.85 1.86	1.08 1.06	.78 .77	.60 .60	26.2	33.5	90.5			
Dc-4	1.25 1.25	.95 .91	1.88 1.87	1.08 1.00	.82 .81	.60 .62	26.3	33.5	90.0			
Σ	2.50 2.50	1.88 1.90	3.73 3.73	2.16 2.16	1.58 1.58	1.20 1.22	52.5	67.0	180.5			
DC-AV	2.50	1.89	3.73	2.16	1.58	1.21	52.5	67.0	180.5	52.6	67.0	180.0
AC-1	1.20	.90	1.77	1.02	.75	.58	25.2	33.5	88.0			
AC-2	1.20	.90	1.76	1.03	.74	.58	25.2	33.5	88.0			
Σ	2.40	1.80	3.53	2.05	1.51	1.16	50.4	67.0	176.0	52.6	67.0	180.0
S. P.		-1.7				+1.8						
AC-N		.23				.22						
			Under P.L.			13.3						

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Line: 5 Spr. 5 N½ Int.Cal 49.9a. Date: 5/15/62

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.	0-1.0											
Time		10.08	10.11	1031	1034	1038	1.05	1108	11.11	11.15	11.35	1140
DC-1	S.P.	5.6 5.4	2.15 2.10	4.82 4.82	2.10 2.10	1.35 1.34	5.60 5.70	2.18 2.18	1.37 1.38	.97 .90	3.4 3.35	1.85 1.85
DC-2	↓	5.75 5.75	2.21 2.27	4.82 4.82	2.19 2.18	1.35 1.32	5.50 5.40	2.10 2.10	1.38 1.38	.99 1.03	3.35 3.35	1.80 1.80
Σ		11.35 11.35	4.36 4.37	9.64 9.64	4.29 4.28	2.70 2.66	11.10 11.10	4.28 4.28	2.75 2.76	1.96 1.93	6.70 6.70	3.60 3.60
DC-3		5.55 5.6	2.05 2.0	4.82 4.82	2.10 2.11	1.38 1.40	5.70 5.70	2.17 2.17	1.34 1.33	.92 .93	3.40 3.50	1.85 1.78
Dc-4		5.8 5.75	2.32 2.38	4.82 4.82	2.26 2.19	1.31 1.30	5.40 5.40	2.10 2.11	1.41 1.41	1.02 1.02	3.35 3.20	1.78 1.80
Σ		11.35 11.35	4.37 4.38	9.64 9.64	4.30 4.30	2.69 2.70	11.10 11.10	4.27 4.28	2.75 2.74	1.94 1.95	6.75 6.70	3.58 3.58
DC-AV		11.35	4.37	9.64	4.29	2.69	11.10	4.28	2.75	1.945	6.73	3.59
AC-1		5.39	2.02	4.62	2.02	1.28	5.25	2.01	1.36	.92	3.20	1.70
AC-2		5.35	2.03	4.62	2.02	1.28	5.25	2.02	1.29	.92	3.20	1.70
Σ		10.74	4.05	9.24	4.04	2.56	10.50	4.03	2.59	1.84	6.40	3.40
S. P.	+8.9		-5.5			-1.1	Hemlock Oak & P.L. Rd. 156' No.			+5.5		
AC-N			.11			.12	Trail Rd. 830' So.			.16 B-2.0		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claims Line: 5 Spr. 5 5½ Int.Cal 49.9a Date: 5/15/62

Send		3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	0-1.0	1.0 -	2.0	2.0	3.0	→	3.0 -	4.0	→			
Time	SP	13:53	14:01	14:29	14:32	14:35	15.05	15.09	15:15	15:19		
DC-1	↓	7.3 7.3	2.1 2.08	12.1 12.1	3.3 3.3	1.30 1.35	8.8 8.8	3.3 3.3	1.13 1.18	.60 .60		
DC-2		7.3 7.3	2.18 2.22	12.2 12.2	3.3 3.3	1.27 1.20	8.5 8.5	3.25 3.22	1.13 1.08	.48 .48		
Σ		14.6 14.6	4.28 4.30	24.3 24.3	6.6 6.6	2.57 2.55	17.3 17.3	6.55 6.52	2.26 2.26	1.08 1.08		
DC-3		7.3 7.3	2.06 2.05	12.1 12.1	3.4 3.4	1.33 1.33	8.8 8.8	3.33 3.35	1.20 1.20	.58 .60		
Dc-4		7.3 7.3	2.24 2.25	12.2 12.2	3.2 3.2	1.25 1.25	8.5 8.5	3.20 3.18	1.06 1.08	.50 .48		
Σ		14.6 14.6	4.30 4.30	24.3 24.3	6.6 6.1	2.58 2.58	17.3 17.3	6.53 6.53	2.26 2.28	1.08 1.08		
DC-AV		14.6	4.30	24.3	6.60	2.57	17.3	6.53	2.265	1.08		
AC-1		6.9	2.03	11.6	3.15	1.22	.810	3.1	1.08	.50		
AC-2		6.9	2.02	11.6	3.15	1.22	.810	3.1	1.09	.49		
Σ		13.8	4.05	23.2	6.30	2.44	X. AC Noise 1.620	6.20	2.17	.99		
S. P.	+0.6		-0.2			17.1+				-12.4		
AC-N			0.13			0.1				.10		

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Insp. Mary Claim Line: 5 Spr. 5 S1/2 Int.Cal Date: 5/15/62

Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2				
Rec.												
Time							13:40	13:47	13:47			
DC-1							26.3	33.8	90.0			
DC-2							26.3	33.5	90.0			
Σ							52.6	67.3	180.0			
DC-3							26.3	33.8	90.0			
Dc-4							26.3	33.5	90.0			
Σ							52.6	67.3	180.0			
DC-AV							52.6	67.3	180.0			
AC-1							26.3	33.5	90.0			
AC-2							26.3	33.5	90.0			
Σ							52.6	67.0	180.0			
S. P.												
AC-N												

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Inspiration Mary Group Line 5 - Spr 5 N½ Field date 5/15/62 Data page_____ Comp. date 5/15/62. Comp by C.S.L.

(A) 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
(B) Receive	1-2N	→	2-3N	→	→	3-4N	→	→	→	4-5N	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1840	1830	1820	1830	1825	1790	1810	1810	1810	1780	1780	1780
(E) Vdc (avg)	11.35	4.37	9.64	4.29	2.69	11.10	4.28	2.75	1.945	6.73	3.59	2.50
(F) DCcal USED	1.010											
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρ dc=ExFxGx10^3/D	18.7	28.9	16.0	28.4	44.7	18.8	28.6	46.0	65.1	45.8	61.1	85.1
(I) Vac Σ	10.74	4.05	9.24	4.04	2.56	10.50	4.03	2.59	1.84	6.40	3.40	2.40
(J) AC noise x 2	.22	.22	.24	.24	.24	.32	.32	.32	.32	.46	.46	.46
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	10.74	4.05	9.24	4.04	2.56	10.50	4.03	2.57	1.81	6.40	3.37	2.36
(L) AC-DC cal. USED	1.000											
(M) ρ dc/ρac=ExL/K	1.057	1.079	1.043	1.062	1.050	1.058	1.061	1.070	1.075	1.051	1.065	1.060
(N) PFE=(M-1)(10^2)	6	8	4	6	5	6	6	7	8	5	7	6
(O) MCF=(M-1)(10^5)/H	305	274	269	218	112	308	213	152	115	111	106	71

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2		CAL	→	→	→	→	→
(B) Receive	→	5-6N	→	→	→		4-5	→	→	1-2	→	→
(C) n separation	5	3	4	5	6							
(D) I	1770	1750	1770	1770	1760		530	680	1855	520	685	1810
(E) Vdc (avg)	1.895	3.73	2.16	1.58	1.21		52.5	67.0	180.5	52.6	67.3	180.0
(F) DCcal							1.010	1.015	1.028	.988	1.019	1.005
(G) Kn x 10^{-3}	105	30	60	105	168			~	1.010			
(H) ρ dc=ExFxGx10^3/D	113.6	64.6	74.0	94.6	116.8							
(I) Vac Σ	1.80	3.53	2.05	1.51	1.16		50.4	67.0	176.0	52.6	67.0	180.0
(J) AC noise x 2	.46	.44	.49	.49	.44							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.74	3.50	2.01	1.445	1.078							
(L) AC-DC cal.							~~1.041~~ ?	1.000	~~1.015~~ ?	1.000	1.004	1.000
(M) ρdc/ρac =ExL/K	1.090	1.066	1.074	1.093	1.123				USED	1.000	???	
(N) PFE=(M-1)(10^2)	9	7	7	9	12							
(O) MCF=(M-1)(10^5)/H	79	102	100	98	105							

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

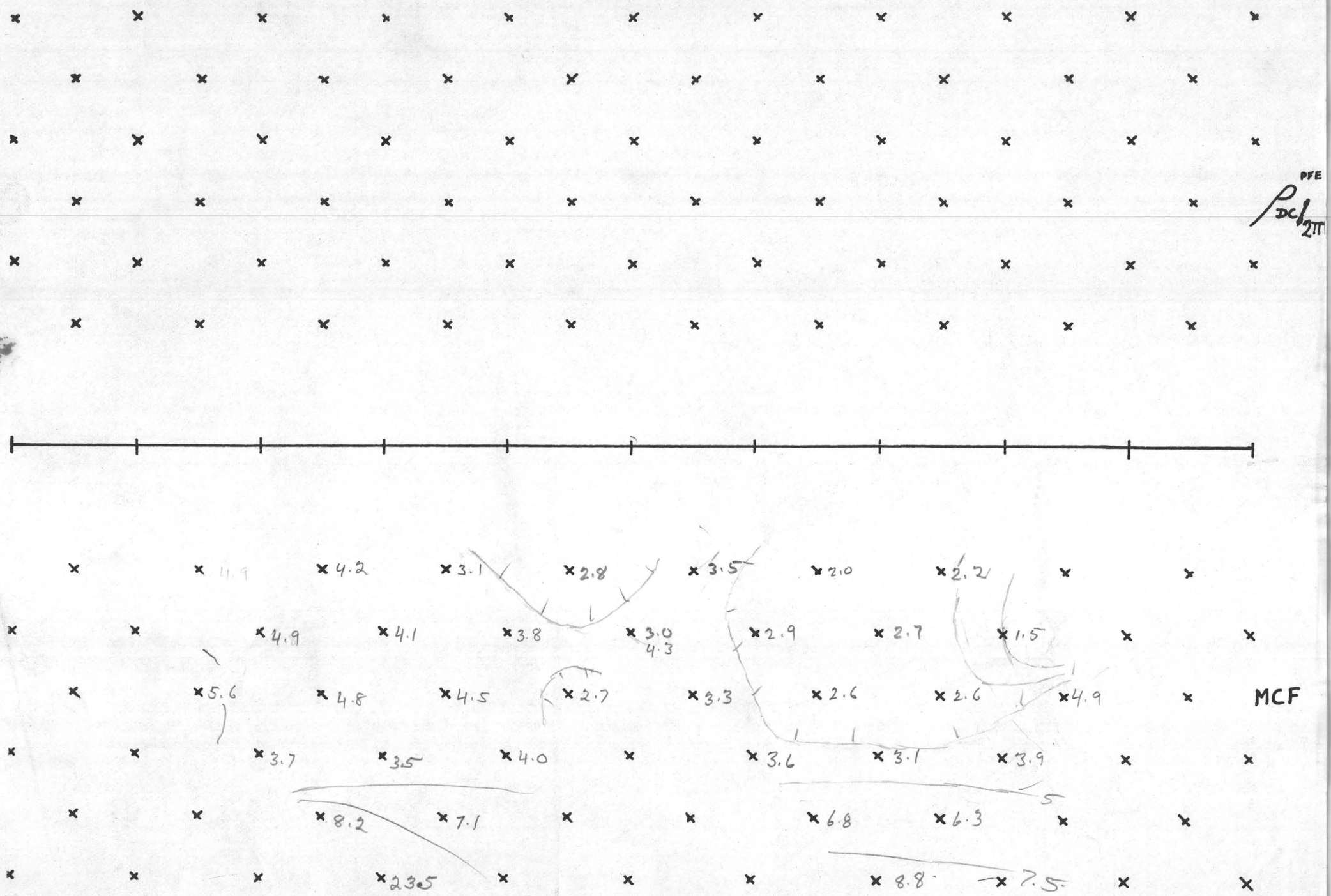
Project Inspiration Mary Group Line 5 - Spr 5 5½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	CAL	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	1-2	1-2.5	→	2-3.5	→	→	3-4.5	→	→	→	4-5.5	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1800	1790	1795	1798	1790	1800	1780	1755	1750		
(E) Vdc (avg)		14.6	4.30	24.3	6.60	2.57	17.3	6.53	2.265	1.08		
(F) DCcal USED	1.000											
(G) Kn x 10^{-3} a=1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		24.4	28.8	40.6	44.0	43.0	28.8	44.0	38.8	37.0		
(I) Vac Σ		17.8	4.05	23.2	6.30	2.44	1.620	6.20	2.17	.99		
(J) AC noise x 2		.26	.26	.20	.20	.20	.20	.20	.20	.20		
(K) Vac(corr) = $\sqrt{I^2 - J^2}$							1.61			.97		
(L) AC-DC cal. USED	1.000											
(M) ρ dc/ρac=ExL/K		1.059	1.063	1.049	1.049	1.052	1.073	1.052	1.045	1.113		
(N) PFE=(M-1)(10^2)		6	6	5	5	5	7	5	5	11		
(O) MCF=(M-1)(10^5)/H		242	219	121	111	121	254	118	116	305		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
(B) Receive	→	→	5-6.5	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}	60	105	30	60	105	168						
(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												

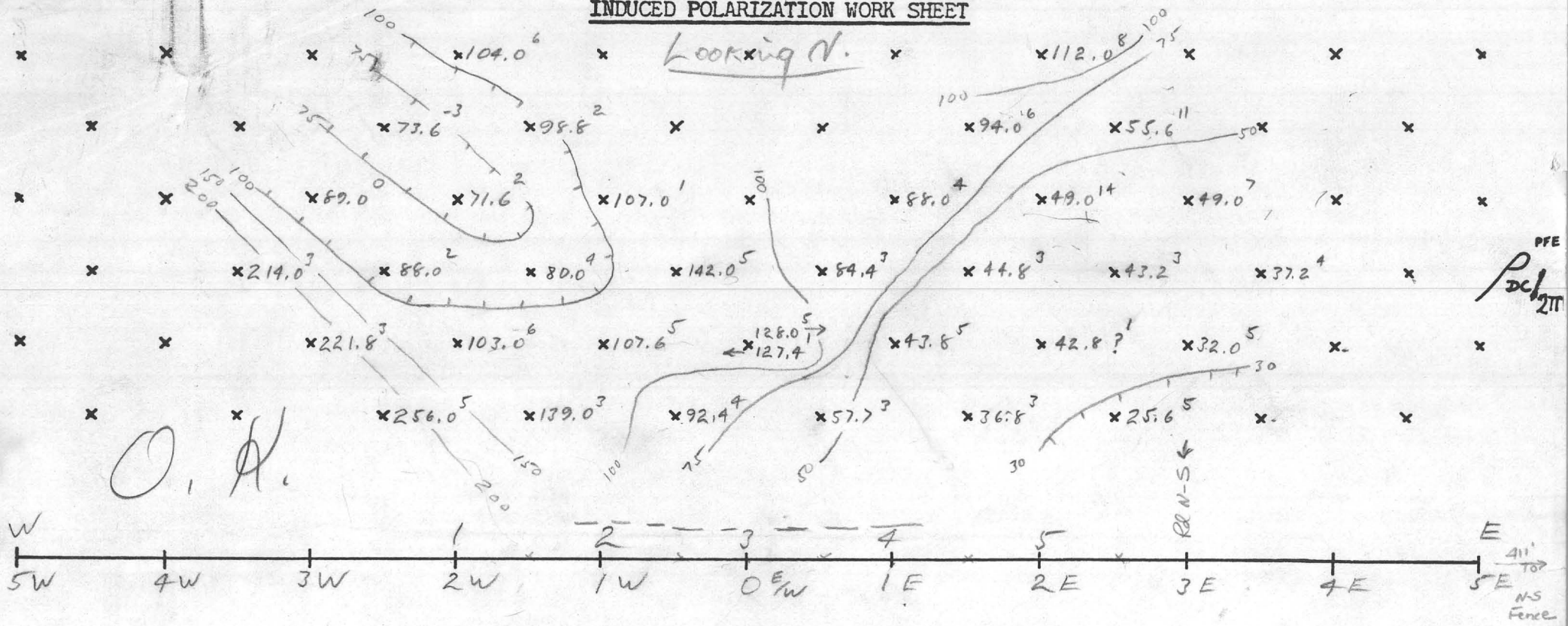
INDUCED POLARIZATION WORK SHEET

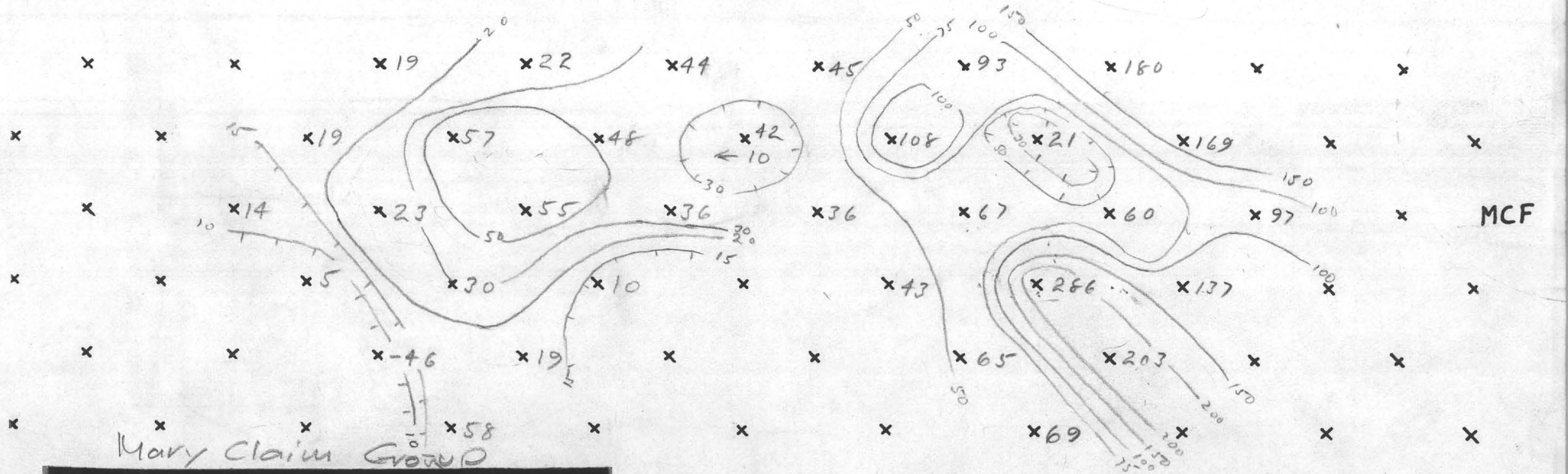


Area _____ Scale _____ Date _____

Line 2 - Spread 2 - E & W ½

INDUCED POLARIZATION WORK SHEET





Mary Claim Group

[redacted] Spr 2 Scale 1" = 1000' Date 5/11/62

E & W ½

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claire Line: 2 Spr. 2 E½ Int.Cal 49.0 Date: 5/9/82

& noisy A.M.

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.	0-1.0	1.0-2	.0 →	2.0 —	3.0 →		3.0 —	4.0 →			4-5	
Time		9:41	9:46	10:05	10:10	11:21	10:42	10:47	10:52	10:56	12:50	12:56
DC-1	S.P.	14.0 14.0	7.65 7.65	8.5 8.3	2.55 2.50	2.05 2.10	6.0 6.0	7.8 8.1	1.00 .98	1.02 1.04	1.85 1.75	0.90 0.90
DC-2		13.8 13.8	7.60 7.60	8.9 9.1	2.60 2.65	1.80 1.75	5.9 5.9	7.3 7.0	1.08 1.09	1.02 .98	1.90 1.98	1.10 1.08
Σ		27.8 27.8	15.25 15.25	17.4 17.4	5.15 5.15	3.85 3.85	11.9 11.9	15.1 15.1	2.08 2.07	2.04 2.02	3.75 3.73	2.00 1.98
DC-3		14.0 14.0	7.65 7.65	8.3 8.0	2.45 2.40	2.20 2.20	5.95 5.95	8.1 8.3	1.09 1.10	1.08 1.10	1.65 1.60	.90 .90
Dc-4		13.8 13.8	7.60 7.60	9.1 9.4	2.90 2.75	1.65 1.65	5.95 5.95	7.0 6.8	.98 .95	.94 .92	2.08 2.12	1.10 1.08
Σ		27.8 27.8	15.25 15.25	17.4 17.4	5.15 5.15	3.85 3.85	11.9 11.9	15.1 15.1	2.07 2.05	2.02 2.02	3.78 3.72	2.0 1.98
DC-AV		27.8	15.25	17.4	5.15	3.85	11.90	15.1	2.07	2.02	3.73	1.99
AC-1		13.2	7.05	8.2	2.4	1.82	5.55	7.3	.98	.95	1.73	.95
AC-2		13.2	7.05	8.2	2.4	1.82	5.55	7.3	.98	.95	1.72	.94
Σ		26.4	14.10	16.4	4.80	3.64	11.10	14.6	1.96	1.90	3.45	1.89
S. P.	-1.5		+1.2		+8.2	+8.2				+11.1		
AC-N			.12		.08	.08				.08		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mney Cbn Line: 2 Spr. 2 Int.Cal 49.0 & Steady Date: 5/9/82

Send	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5				
Rec.												
Time	13:00	13:08	13:30	13:33	13:38	13:44	9:21	9:23	9:27	14:20	14:22	14:25
DC-1	.61 .62	.62 .48	.82 .82	.60 .62	.35 .32	.40 .35	14.1	33.0	70.0	14.2	33.2	70.0
DC-2	.52 .51	.67 .73	.88 .87	.50 .49	.38 .38	.48 .55	14.1	33.0	70.0	14.2	33.0	69.5
Σ	1.13 1.13	1.24 1.20	1.70 1.69	1.10 1.11	.73 .70	.88 .90					66.2	139.5
DC-3	.42 .55	.66 .58	.82 .79	.53 .53	.35 .40	.25 .42	14.1	33.0	70.0	14.2	33.2	70.0
Dc-4	.68 .58	.55 .63	.87 .90	.58 .60	.38 .32	.45 .48	14.1	33.0	70.0	14.2	33.0	69.5
Σ	1.10 1.13	1.21 1.21	1.69 1.69	1.11 1.13	.73 .72	.90 .90					66.2	139.5
DC-AV	1.13	1.22	1.69	1.11	.72	.90	28.2	66.0	140.0	28.4	66.2	139.5
AC-1	.49	.56	.80	.51	.32	.41	13.8	32.2	68.0	13.8	32.5	68.0
AC-2	.49	.57	.80	.51	.33	.42	13.8	32.2	68.0	13.8	32.5	68.0
Σ	.98	1.13	1.60	1.02	.65	.83	27.6	64.4	136.0	27.6	65.0	136.0
S. P.		+3.5				+8.3						
AC-N		.08				.08						

INDUCED POLARIZATION SENDER NOTES

Project: Insp. Mary Cl. Line: 2 SPR 2 E½ Date: 5-9-62

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	1.0 -	2.0 E	2.0 -	3.0 E →		3.0 -	4.0	E →		4.0 -	5.0 E	→
Time	9:40	9:43	10:05	10:10	11:21	10:42	10:47	10:52	10:56	12:50	12:56	1300
Range	1.5 — 180	220	180	180	200	210	180	180	200	200	180	200
Current AC	1450	1440	1430	1420	1380	1400	1420	1400	1390	1410	1390	1400
Current DC	1470	1440	1430	1430	1380	1410	1430	1400	1390	1410	1395	1400

Send	1-2	4-5	3-4	2-3	1-2		CAL	4-5				
Receive	→	5.0 -	6.0	E →								
Time	13:08	13:30	13:33	13:38	13:44		9:21	9:23	9:27	14:20	14:22	14:24
Range	1.5 — 200	200	180	200	220		.30 100	.75 140	1.5 220	.30 80	.75 140	1.5 220
Current AC	1370	1380	1370	1370	1360		300	670	1440	280	650	1370
Current DC	1380	1380	1375	1380	1360		300	670	1440	280	650	1370

Ω 1-2 130, 2-3 95 3-4 130, 4-5 150,

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 2

Project INSPIRATION MARY CLAIMS Line 2 SPREAD E Field date 9 MAY 62 Data page 2 Comp. date 9 MAY 62. Comp by G.S.L.

(A) Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	CAL	1.0-2.0E	→	2.0-3.0	E →	→	3.0-4.0E	→	→	→	4.0-5.0E	→
(C) n separation												
(D) I		1460	1440	1430	1425	1380	1405	1425	1400	1390	1410	1393
(E) Vdc (avg)		27.8	15.25	17.4	5.15	3.85	11.90	~~15.1~~ 5.03	2.07	2.02	3.73	1.99
(F) DCcal USED	1.010											
(G) Kn x 10^{-3} a = 1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		57.7	128.0	36.8	43.8	84.4	25.6	42.8?	44.8	88.0	32.0	43.2
(I) Vac Σ		26.4	14.1	16.4	4.8	3.64	11.1	14.6	1.96	1.90	3.45	1.89
(J) AC noise x 2		.24	.24	.16	.16	.16	.16	.16	.16	.16	.16	.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		26.4	14.1	16.4	4.8	3.64	11.1	14.6	1.96	1.90	3.45	1.89
(L) AC-DC cal. USED	0.975											
(M) ρ dc/ρac=ExL/K		1.026	1.053	1.034	1.047	1.030	1.046	1.009	1.030	1.038	1.054	1.026
(N) PFE=(M-1)(10^2)		3	5	3	5	3	5	1	3	4	5	3
(O) MCF=(M-1)(10^5)/H		45	42	93	108	36	180	21	67	43	169	60

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

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	4-5	→	→	→	→	→
(B) Receive	→	→	5.0-6.0E	→	→	→	CAL	→	→	→	→	→
(C) n separation												
(D) I	1400	1375	1380	1373	1375	1360	300	670	1440	280	650	1370
(E) Vdc (avg)	1.13	1.22	1.69	1.11	0.72	0.90	28.2	66.0	140.0	28.4	66.2	139.5
(F) DCcal						→	1.064	1.014	1.029	0.986	0.982	0.982
(G) Kn x 10^{-3}	60	105	30	60	105	168			~1.010			
(H) ρ dc=ExFxGx10^3/D	49.0	94.0	37.2	49.0	55.6	112.0						
(I) Vac Σ	0.98	1.13	1.60	1.02	0.65	0.83	27.6	64.4	136.0	27.6	65.0	136.0
(J) AC noise x 2	.16	.16	.16	.16	.16	.16						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	0.967	1.12	1.59	1.014	0.63	0.815						
(L) AC-DC cal.						→	0.979	0.975	0.972	0.972	0.980	0.975
(M) ρdc/ρac =ExL/K	1.140	1.061	1.036	1.067	1.113	1.077						
(N) PFE=(M-1)(10^2)	14	6	4	7	11	8			0.975			
(O) MCF=(M-1)(10^5)/H	286	65	97	137	203	69						

46% 32% 68% 46 32 68%
24%? 24%

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claims Line: 2 Spr. 2 w/2 Int.Cal _____ Date: 5/8/82

Send	CAL.	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Rec.	0.0-1.0	1.0 -	2.0	3.0 -	3.0 →	H	3.0 -	4.0 →		→	4.0 -	5.0
Time		11:41	11:45	12:13	12:19	12:24	12:48	12:53	13:03	13:15	13:39	13:43
DC-1	S.P.	22.0 22.0	7.8 8.0	32.2 32.2	6.3 6.3	3.3 3.3	60.5 60.5	5.8 5.7	1.95 2.4	1.2 1.25	12.6 12.4	2.05 1.90
DC-2	↓	22.2 22.2	7.3 7.1	34.0 34.0	6.35 6.35	3.35 3.35	61.0 61.0	6.25 6.35	1.75 1.30	1.25 1.20	13.0 13.2	2.00 2.15
Σ		44.2 44.2	15.1 15.1	66.2 66.2	12.65 12.65	6.65 6.65	121.5 121.5	12.05 12.05	3.70 3.70	2.45 2.45	25.6 25.6	4.05 4.05
DC-3		21.9 21.9	8.0 8.2	32.2 32.2	6.2 6.2	3.1 3.1	60.0 60.0	5.8 5.65	1.60 1.65	1.45 1.50	12.2 12.0	2.10 2.15
Dc-4		22.3 22.3	7.1 6.9	34.0 34.0	6.42 6.42	3.55 3.55	61.5 61.5	6.25 6.40	2.10 2.08	1.00 .95	13.4 13.6	1.95 1.90
Σ		44.2 44.2	15.1 15.1	66.2 66.2	12.62 12.62	6.65 6.65	121.5 121.5	12.05 12.05	3.70 3.68	2.45 2.45	25.6 25.6	4.05 4.05
DC-AV		44.2	15.1	66.2	12.63	6.65	121.5	12.05	3.70	2.45	25.6	4.05
AC-1		20.5	7.2	31.0	5.8	3.05	56.0	5.5	1.71	1.17	12.0	1.91
AC-2		20.5	7.2	31.0	5.8	3.05	56.0	5.5	1.71	1.18	12.0	1.92
Σ		41.0	14.4	62.0	11.60	6.10	112.0	11.00	3.42	2.35	24.0	3.83
S. P.	+22.5		+17.4			-15.4				+3.2		
AC-N			.15			.15	near great Res. change	wash 5	So. S.P. DRIFT	.12		

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Insp. Mary Claim Line: 2 Spr. 2 W/2 Int.Cal 49.0 AM Date: 5/8/62
extremely steady 49.0 PM Steady

Send	3-4	4-5	1-2	2-3	3-4	4-5	CAL	1-2				
Rec.	←	→	5.0 - 6.0 West →									
Time	13.52	13.59	14:21	14:30	14:36	14:41	11:27	11:29	11:36	15:20	15:22	
DC-1	.82 .88	.72 .82	5.0 5.05	1.22 1.15	.52 .75	.42 .42	14.0	33.0	71.0	14.2	32.8	69.5
DC-2	.80 .75	.55 .45	4.8 4.75	.82 .90	.42 .20	.42 .42	14.0	33.0	70.7	14.1	32.8	69.2
Σ	1.62 1.63	1.27 1.27	9.80 9.80	2.04 2.05	.94 .95	.84 .84	28.0	66.0	141.7	28.3	65.6	138.7
DC-3	.80 .85	.50 .45	5.1 5.05	1.12 1.12	.60 .69	.45 .40	14.0	33.0	71.0	14.2	32.8	69.5
Dc-4	.82 .78	.75 .83	4.7 4.75	.90 .90	.35 .26	.38 .40	14.0	33.0	70.7	14.1	32.8	69.2
Σ	1.62 1.63	1.25 1.28	9.80 9.80	2.02 2.02	.95 .95	.83 .80	28.0	66.0	141.7	28.3	65.6	138.7
DC-AV	1.63	1.27	9.80	2.03	0.95	0.83	28.0	66.0	141.7	28.3	65.6	138.7
AC-1	.78	.61	4.6	.98	.48	.39	13.5	32.5	67.0	13.6	32.2	67.5
AC-2	.78	.62	4.6	.98	.49	.39	13.5	32.5	67.0	13.6	32.2	67.5
Σ	1.56	1.23	9.2	1.96	0.97	0.78	27.0	65.0	134.0	27.2	64.4	135.0
S. P.		+3.0					+13.1					
AC-N		.12	20/21	BANNER	Claims		.10					
			29/28	Area Sullinger								

INDUCED POLARIZATION SENDER NOTES

Project: Inspiration Line: 2 SPR 2 W 1/2 Date: 5/8/62

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	1.0-2.0		2.0	-3.0	→	3.0	-4.0		→	4.0	-5.0	→
Time	11:41	11:45	12:13	12:23	12:24	12:48	12:53	13:03	13:15	13:39	13:43	13:52
Range	1.5											
V	210	220	200	200	240	240	220	230	240	230	240	240
Current Ac	1430	1420	1430	1410	1400	1420	1400	1380	1370	1380	1380	1360
Current Dc	1440	1420	1430	1410	1410	1430	1410	1390	1375	1390	1380	1370

Send	4-5	1-2	2-3	3-4	4-5		Ca/	1-2				
Receive	→	5.0	-6.0	WOS →								
Time	13:59	14:21	14:30	14:36	16:41		11:27	11:29	11:33	15:20	15:22	15:25
Range	1.5						.30	.75	1.5	.30	.75	1.5
V	240	230	220	240	240		90	140	230	100	150	220
Current Ac	1350	1370	1365	1350	1340		290	670	1430	280	640	1360
Current Dc	1350	1380	1370	1355	1340		290	670	1430	280	650	1370

Ω 1-2 140, 2-3 110, 3-4 150 4-5 175

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

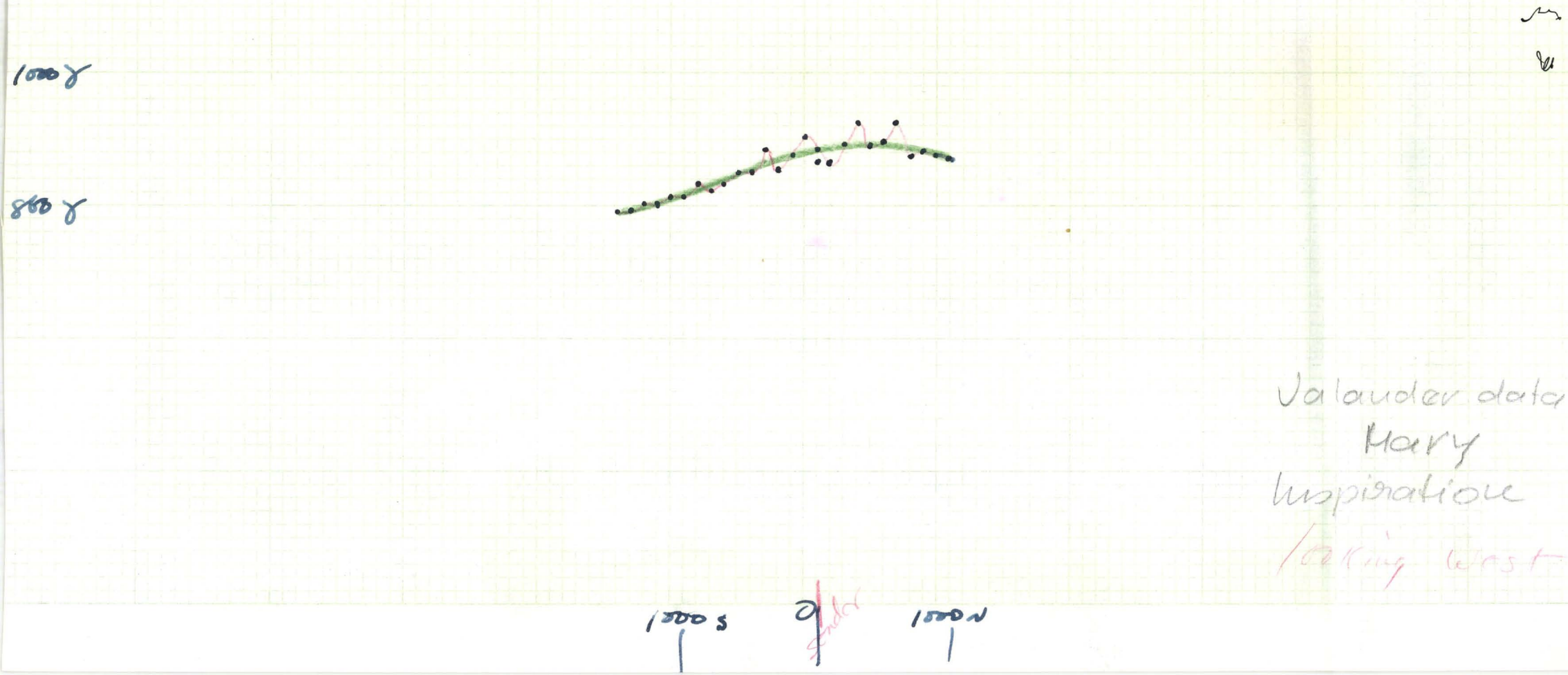
Page 1

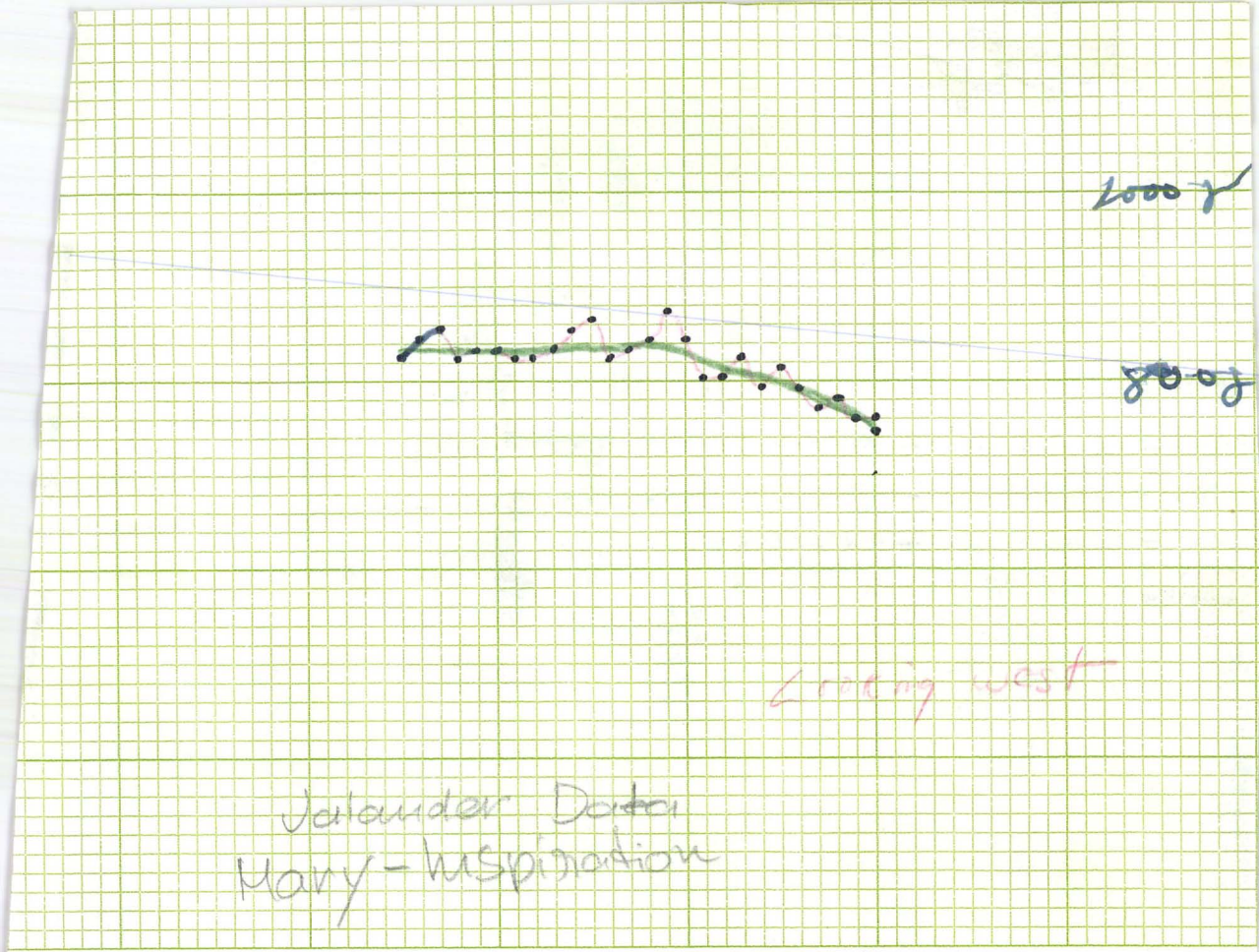
Project INSPIRATION MARY CLAIMS Line 2 SPREAD W Field date 5/8/62 Data page 1 Comp. date 5/9/62. Comp by C.S.L.

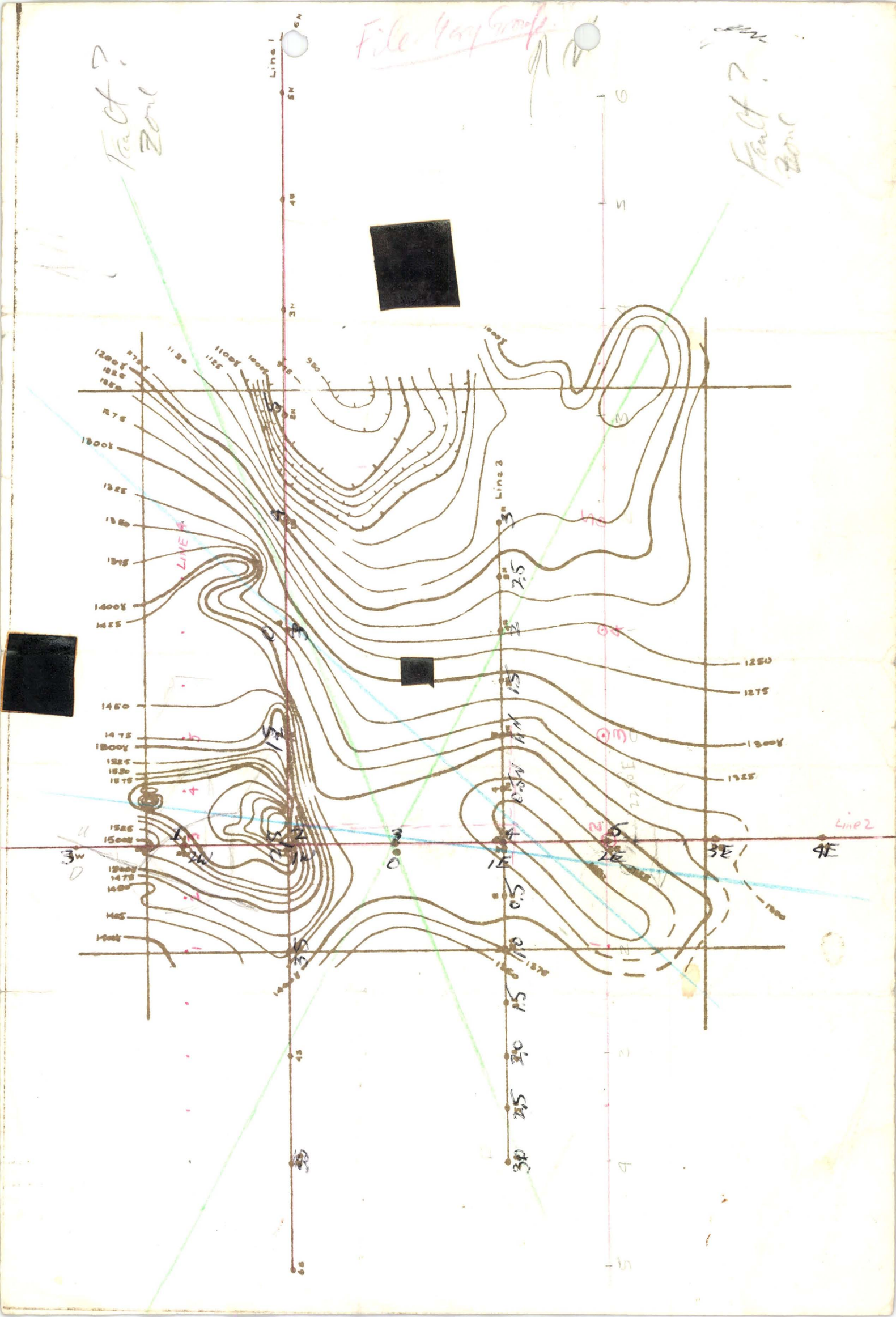
(A) Send	1-2	3-4	4-5	2-3	3-4	2-3	1-2	2-3	3-4	4-5	1-2	2-3
(B) Receive	EAL	1.0-2.0W	→	2.0-3.0W	→	→	3.0-4.0	W →	→	→	4.0-5.0W	→
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1435	1420	1430	1410	1405	1425	1405	1385	1373	1385	1380
(E) Vdc (avg)		44.2	15.1	66.2	12.63	6.65	121.5	12.05	3.70	2.45	25.6	4.05
(F) DCcal USED	1.000											
(G) Kn x 10^{-3} a = 1000'		3	12	30	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D		92.4	127.4	139.0	107.6	142.0	256.0	103.0	80.0	107.0	221.8	88.0
(I) Vac Σ		41.0	14.4	62.0	11.6	6.10	112.0	11.00	3.42	2.35	24.0	3.83
(J) AC noise x 2		.30	.30	.30	.30	.30	.24	.24	.24	.24	.24	.24
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		41.0	14.4	62.0	11.6	6.10	112.0	11.0	3.42	2.34	24.0	3.83
(L) AC-DC cal. USED	0.965											
(M) ρ dc/ρac=ExL/K		1.040	1.012	1.030	1.051	1.051	1.048	1.058	1.044	1.010	1.030	1.020
(N) PFE=(M-1)(10^2)		4	1	3	5	5	5	6	4	1	3	2
(O) MCF=(M-1)(10^5)/H		44	10	22	48	36	19	57	55	10	19	23

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	→	→	5.0-6.0 W	→	→	→	CAL.	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1365	1350	1375	1367	1353	1340	290	670	1430	280	645	1365
(E) Vdc (avg)	1.63	1.27	9.80	2.03	0.95	0.83	28.0	66.0	141.7	28.3	65.6	138.7
(F) DCcal							1.036	1.016	1.010	.990	.983	.985
(G) Kn x 10^{-3}	60	105	30	60	105	168			~1.000			
(H) ρ dc=ExFxGx10^3/D	71.6	98.8	214.0	89.0	73.6	104.0						
(I) Vac Σ	1.56	1.23	9.20	1.96	0.97	0.78	27.0	65.0	134.0	27.2	64.4	135.0
(J) AC noise x 2	.24	.24	.20	.20	.20	.20						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.54	1.203	9.20	1.95	.949	0.755						
(L) AC-DC cal.							.965	.985	.946	.962	.965	.974
(M) ρdc/ρac =ExL/K	1.021	1.019	1.029	1.004	0.966	1.060						
(N) PFE=(M-1)(10^2)	2	2	3	0	−3	6			~.965			
(O) MCF=(M-1)(10^5)/H	30	19	14	5	−46	58						


1000 γ
860 γ
1000 S
0
1000 N
Valander data
Mary
Inspiration
looking west


1000 γ
800 γ
Looking west
Jalander Data
Mary - Inspiration
1000 S
0
1000 N
1st Elec
to East on line 6


Line 1
Line 2
Line 3
3W
2W
1W
0
1E
2E
3E
4E
1250
1275
1300
1325
1350
1375
1400
1425
1450
1475
1500

JOB No. 1044 LINE No. 1 PAGE 1
AREA Prosperity Claims DATE 8/30/75
INSTRUMENT E-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	0=Base	9:33	49702				
2	.5S		49799				
3	1.0S		49851				
4	1.5S		49840				
5	.5		118	noisy at tower (50'N)			
6	under tower N/R						
7	3S		48875				
8		9:42	49545				
9	4S		49612				
10			49719				
11	5S		49838				
12			49990	wash			
13	6S		49958	"			
14			965				
15	7S		7506	6'N of fence X pit	7.25=		
16		9:52	779				
17	8S		888				
18			50041				
19	9S		50074				
20			49948				
21	10S	9:57	50129	10'N of fence E/W			
22							
23							
24							
25	use		49,008	Datum			
26							
27							
28							
29							
30							

JOB No. 1044 LINE No. 2 PAGE 2
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	10 S	10:08	49909				
2			789				
3	9 S		960				
4			50125				
5	8 S		50176				
6			49871				
7	7 S		49893				
8			49930				
9	6 S	10:14	795				
10			882				
11	5 S	10:15	935				
12			49841				
13	4 6 S	10:21	49838				
14			774				
15	3 7 S		745				
16			771				
17	2 8 S		832	X			
18			888				
19	9 S		871	Sedge McGeard			
20			884				
21	0 10 S	10:28	49837				
22	Base	10:30	49701				
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 1044 LINE No. 3 PAGE 3
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Base	10:51	49700				
2	0S	11:03	49693				
3			723				
4	1		696				
5			715				
6	2		854				
7			788				
8	3S		877				
9			844				
10	4S		823				
11			733				
12	5S		742				
13		11:12	770				
14	6S		~~786~~	778			
15			~~801~~	WASH 842			
16	7S		~~823~~	849			
17			~~884~~	921			
18	8S		~~897~~	913			
19			~~910~~	50028			
20	9S		~~50124~~	921 [illegible]			
21			~~49919~~	795			
22	10S	11:24	719			719 @ 11:43	
23							
24			off line	corrected			
25							
26							
27							
28							
29							
30							

JOB No. 1044 LINE No. 4 PAGE 4
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	10S	11:55	49830				
2			886				
3	9S		50224				
4			50509				
5	8S		49565				
6			49559				
7	7S	12:01	689				
8			790				
9	6S		780				
10			802				
11	5S	12:04	807				
12			811				
13	4S		854				
14			824				
15	3S		752				
16			700				
17	2S	12:17	637				
18			680				
19	1S		633				
20			736				
21	0	12:20	779				
22	Base	12:23	49704				
23	"	12:38	49705				
24							
25							
26							
27							
28							
29							
30							

JOB NO. 1044 LINE NO. 5 PAGE 5
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	0	12:53	49739				
2			742				
3	15		762				
4			753				
5	25		750				
6			702				
7	35		711				
8			654				
9	45		709				
10			961				
11	55	1:01	752				
12			759				
13	65		873				
14			877				
15	75		50051				
16			49789				
17	85		963				
18			797	X			
19	95		707				
20			760				
21	105	1:10	49804				
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 1044 LINE No. 6 PAGE 6
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	10S	1:19	49849				
2			839				
3	9S		742				
4			819				
5	8S		942				
6			856				
7	7S		886				
8			801	15' W of W +			
9	6S	1:24	872				
10			933				
11	5S		939				
12			800				
13	4S		796				
14			753				
15	3S		739				
16			659				
17	2S		733				
18		1:32	783				
19	1S		737				
20			815				
21	0	1:35	823				
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 1044 LINE No. 7 PAGE 7
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-811

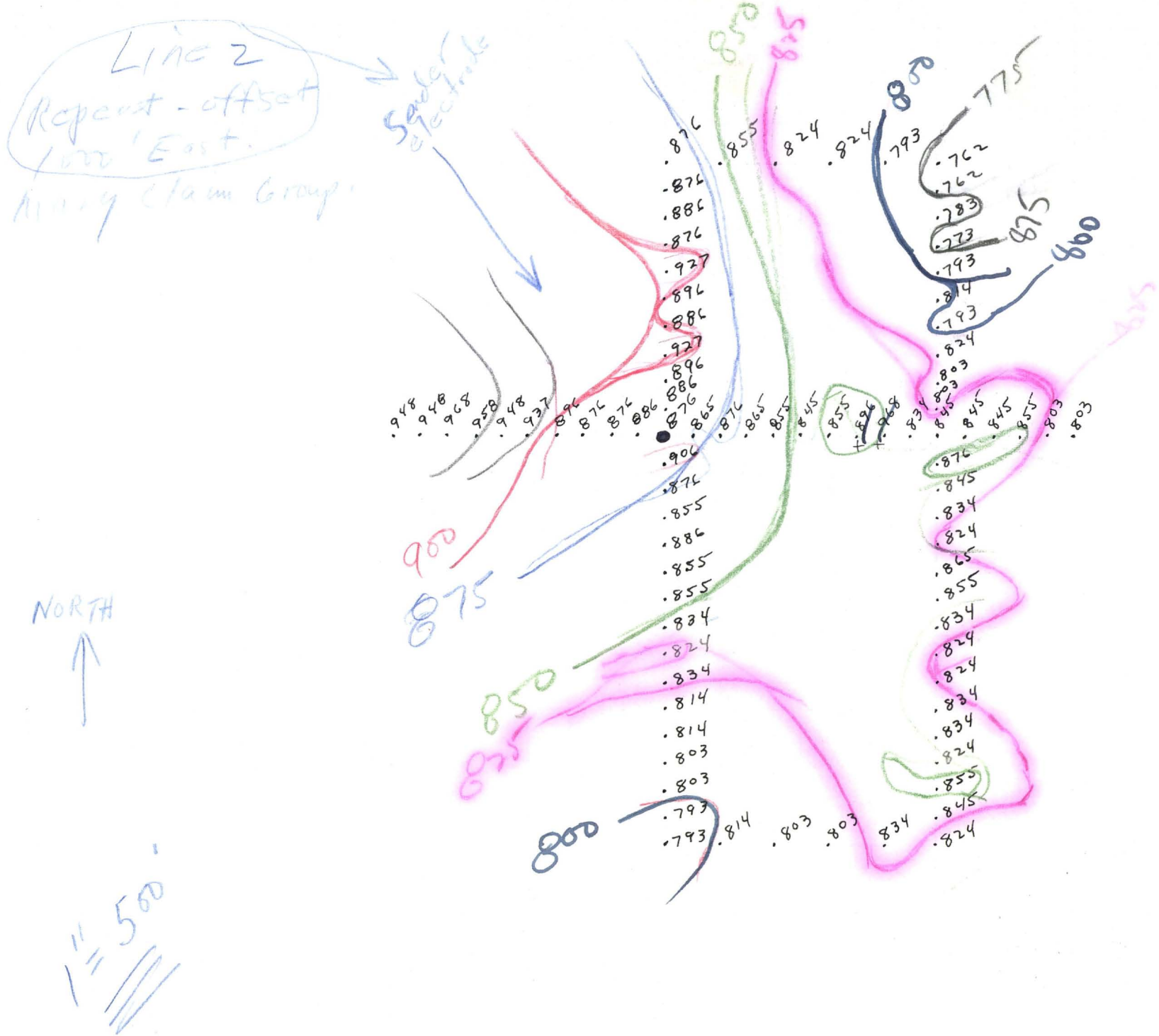
	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	0	1:50	49738				
2			701				
3	15		664				
4			750				
5	25		725				
6			769				
7	35		811				
8			948				
9	45		907				
10			846				
11	55	1:58	828				
12			819				
13	65		809				
14			793				
15	75		706				
16			789				
17	85		50016				
18		2:03	50311	DH			
19	95		49947				
20			798				
21	105	2:07	808				
22							
23							
24							
25							
26							
27							
28							
29							
30							

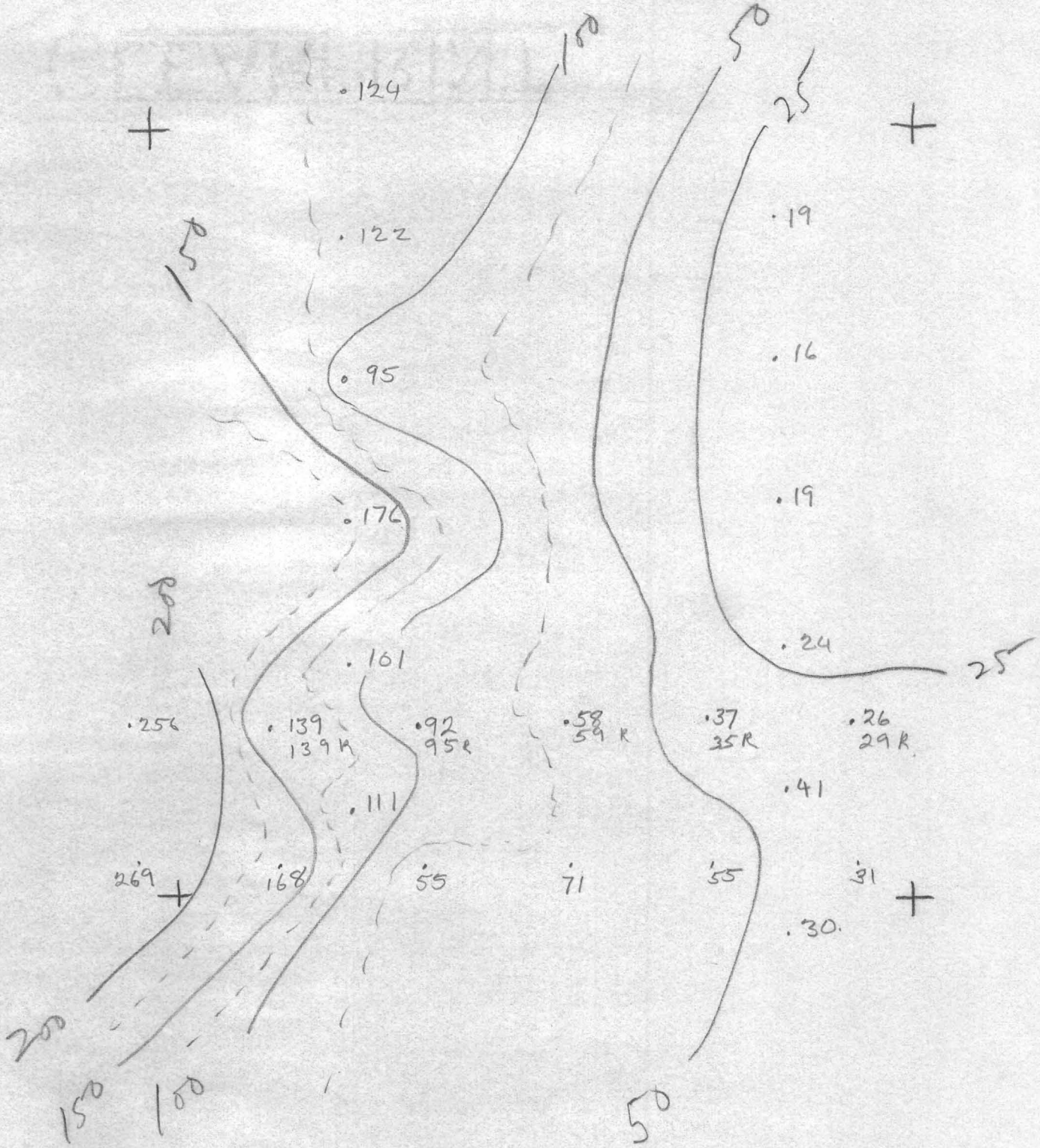
JOB No. 1094 LINE No. 8 PAGE 8
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	10S	2:11	49805				
2			889				
3	9S		953				
4			50070				
5	8S		49857				
6			964				
7	7S		972				
8			50059				
9	6S		49900				
10		2:19	675				
11	5S		672				
12			679				
13	4S		669				
14			685				
15	3S		590				
16			742				
17	2S		855				
18			932				
19	1S	2:27	816				
20			736				
21	0	2:29	755				
22	Base	2:30	49704				
23							
24							
25							
26							
27							
28							
29							
30							

JOB NO. 1044 LINE NO. 9 PAGE 9
AREA PROSPERITY DATE 8/30/75
INSTRUMENT G-816

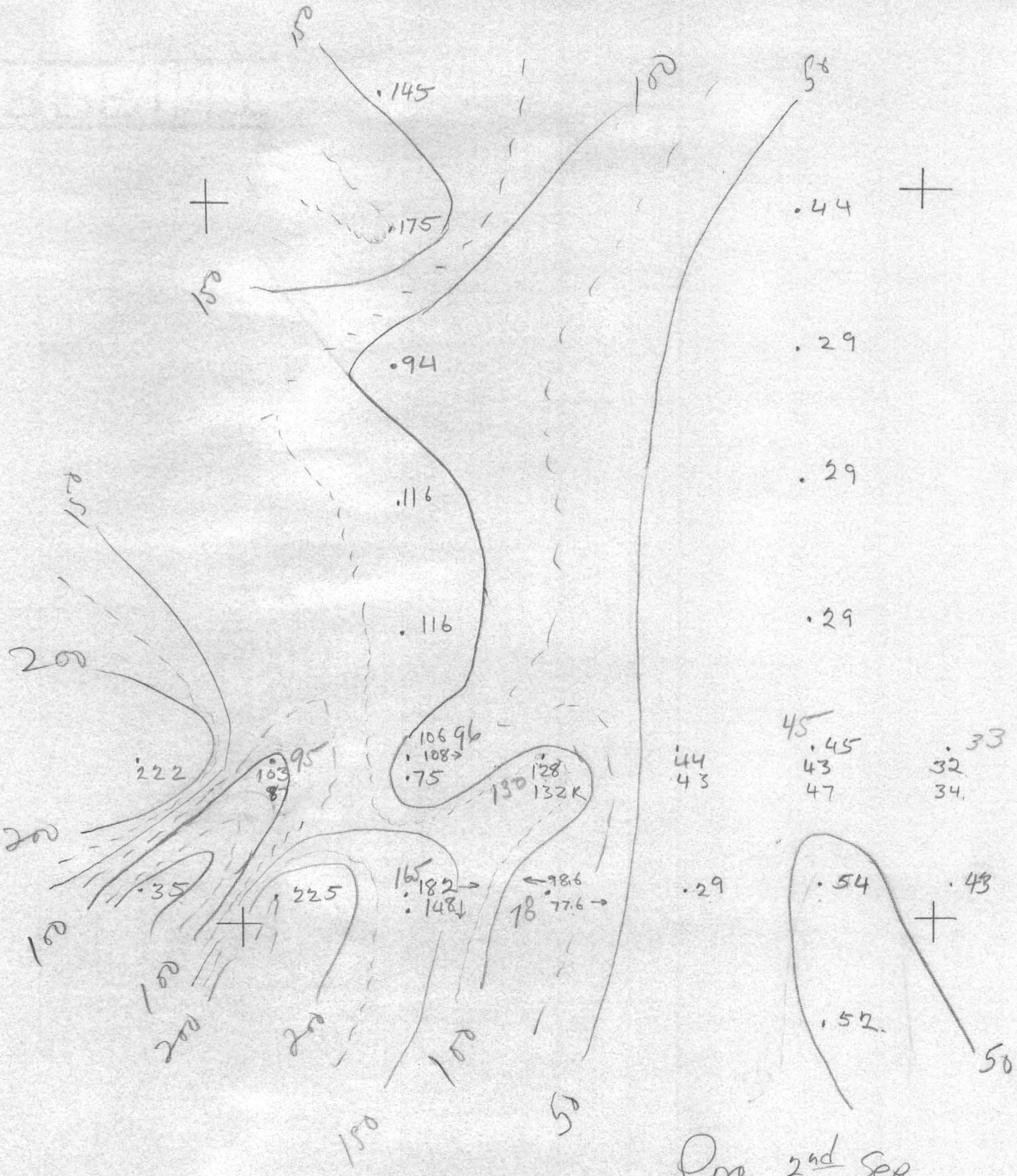
	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	0	2:31	49781				
2			843				
3	15		817				
4			956				
5	25		792				
6		2:36	594				
7	35		590				
8			610				
9	45	2:44	778				
10			885				
11	55		912				
12			908	910 avg			
13			910				
14	65		801				
15			936				
16	75	2:50	825				
17			873				
18	85		565				
19			50008				
20	95		49862				
21			954				
22	105	2:56	50049				
23	Base	3:04	49708				
24							
25							
26							
27							
28							
29							
30							


Line 2
Repeat - offset
1000' East.
Mining Claim Group
Sender electrode
NORTH
1" = 500'
850
875
800
775
875
800
900
875
850
875
800



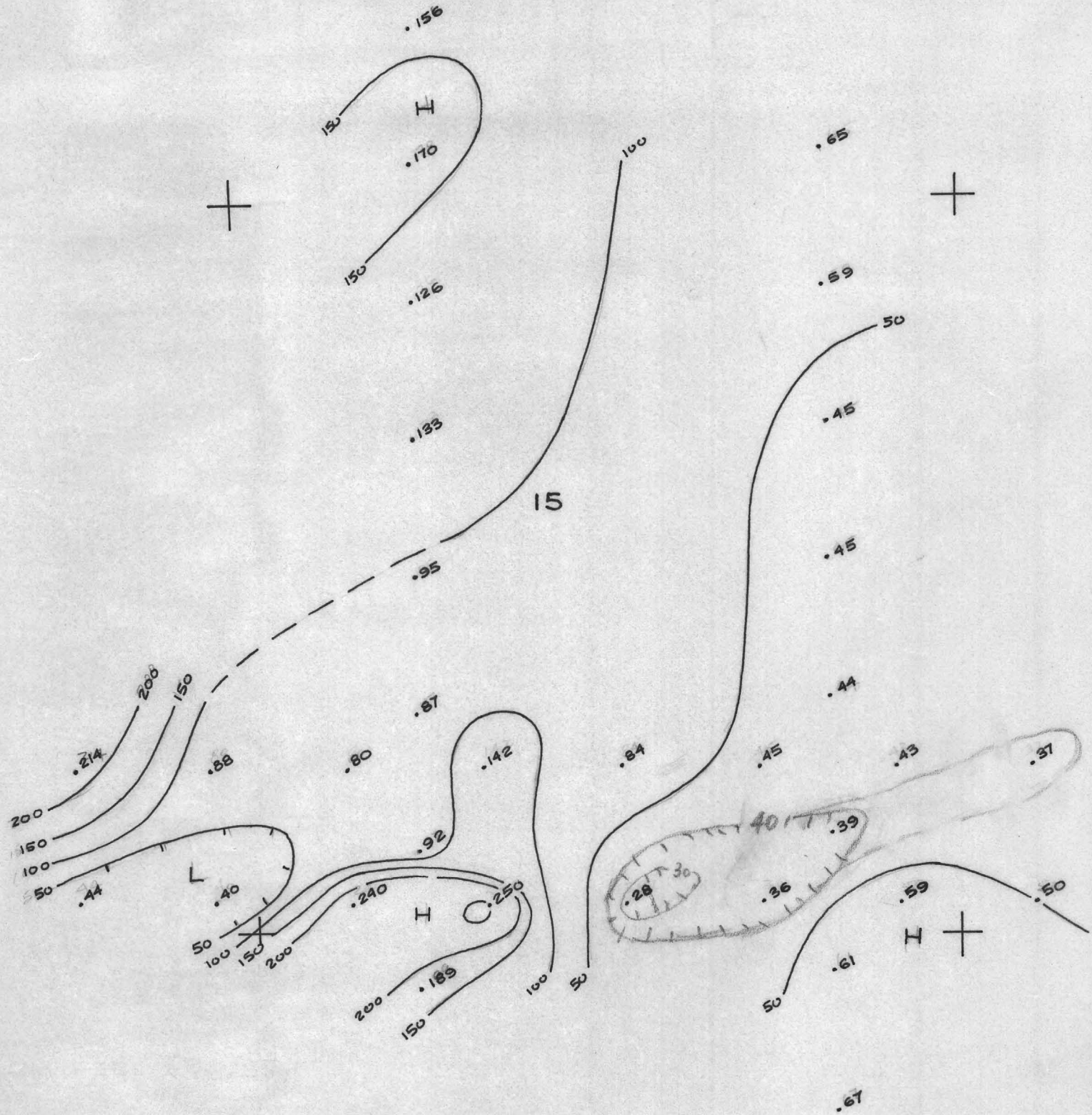
Qpe 1st Sep.

1" = 1000'

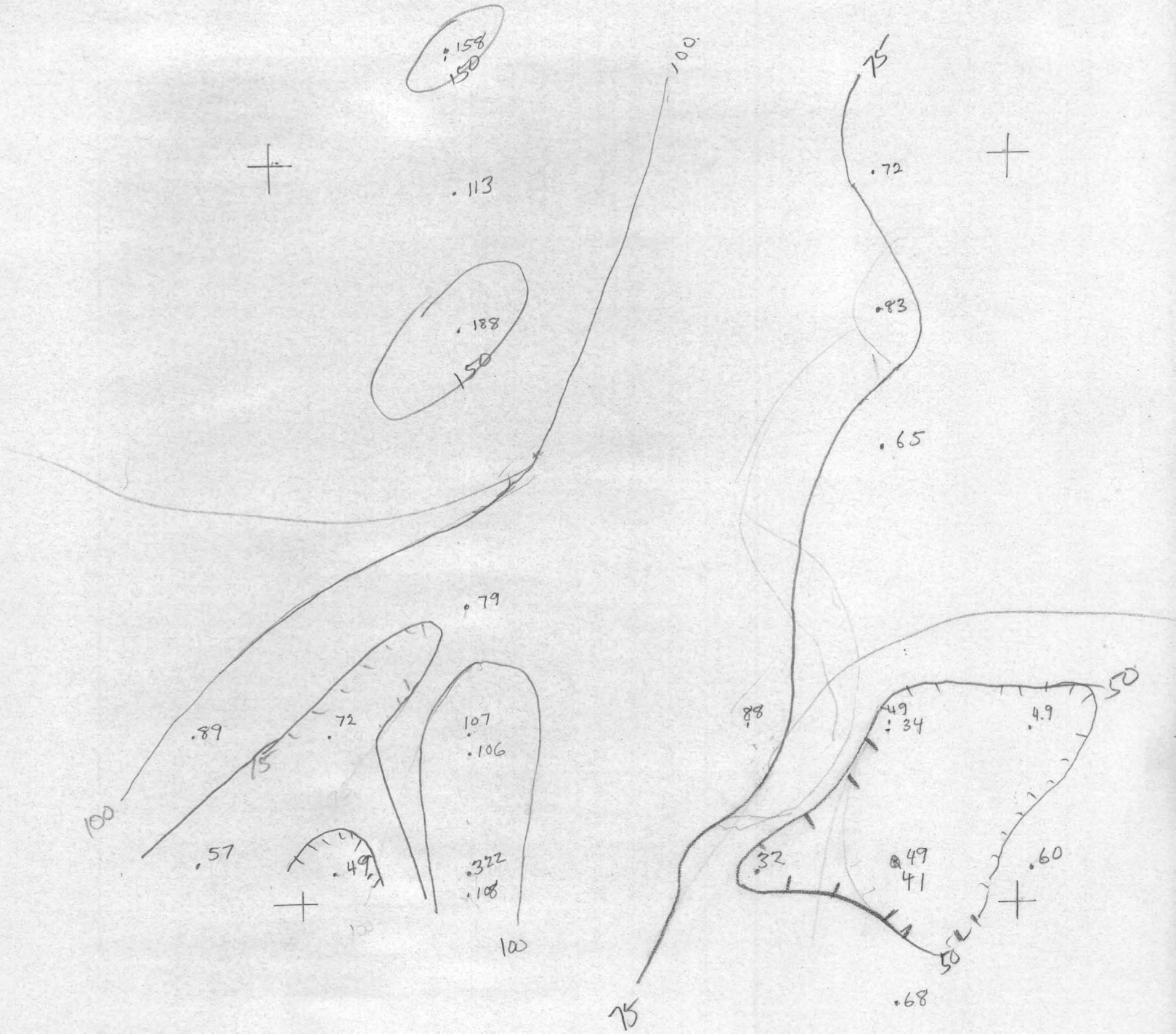


Qoc 2nd Sep

1" = 1000'

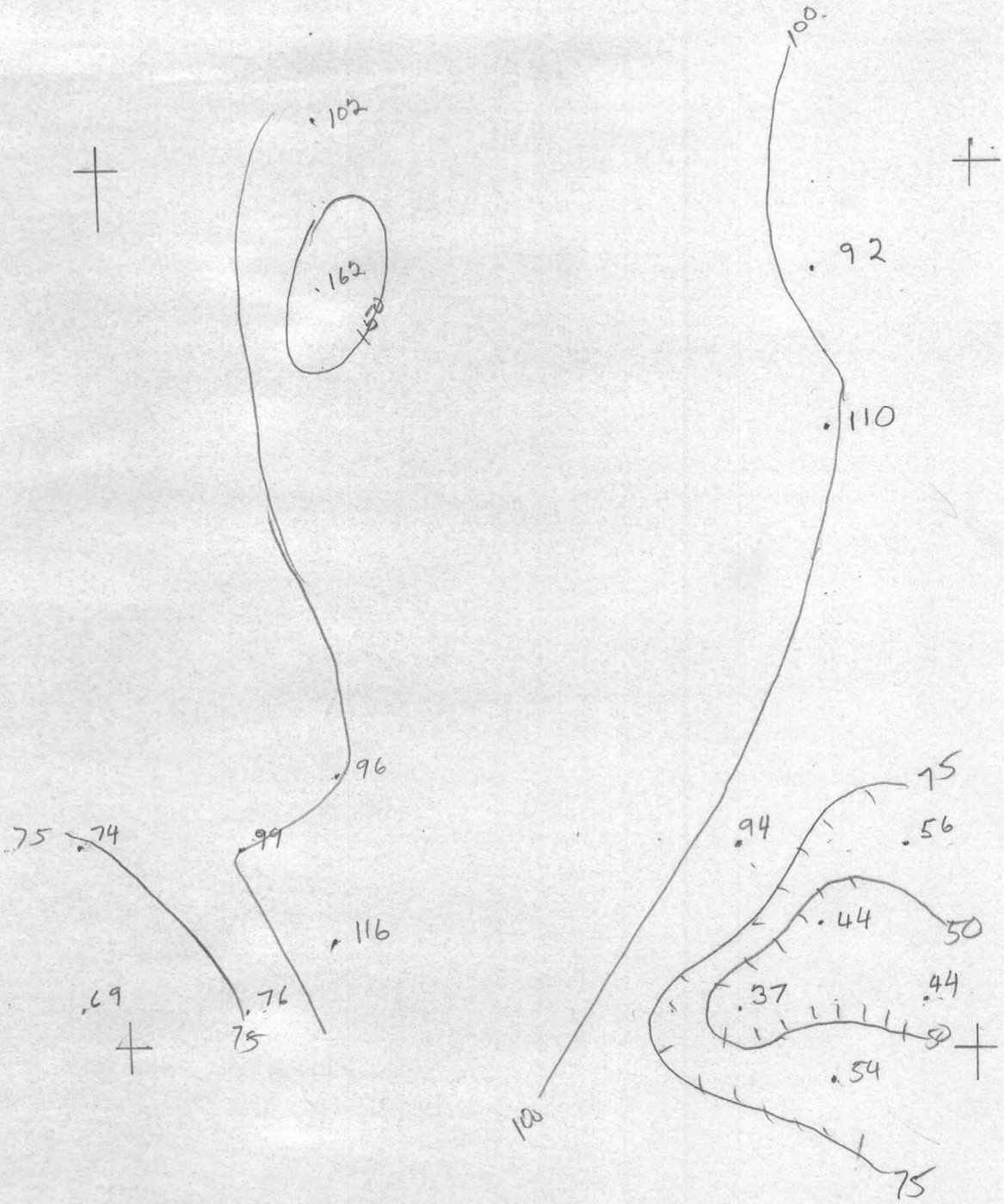


OHM FEET ρDC/2π
3rd Separation I.P. Contours
Mary Claim Group
Pima Co., Ariz. T.17S. - R.13E.
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
Scale: 1" = 1000' C.I. = 50 units
June 1962



Cpc/2π
4th Sep.
Mary

18/Aug/62

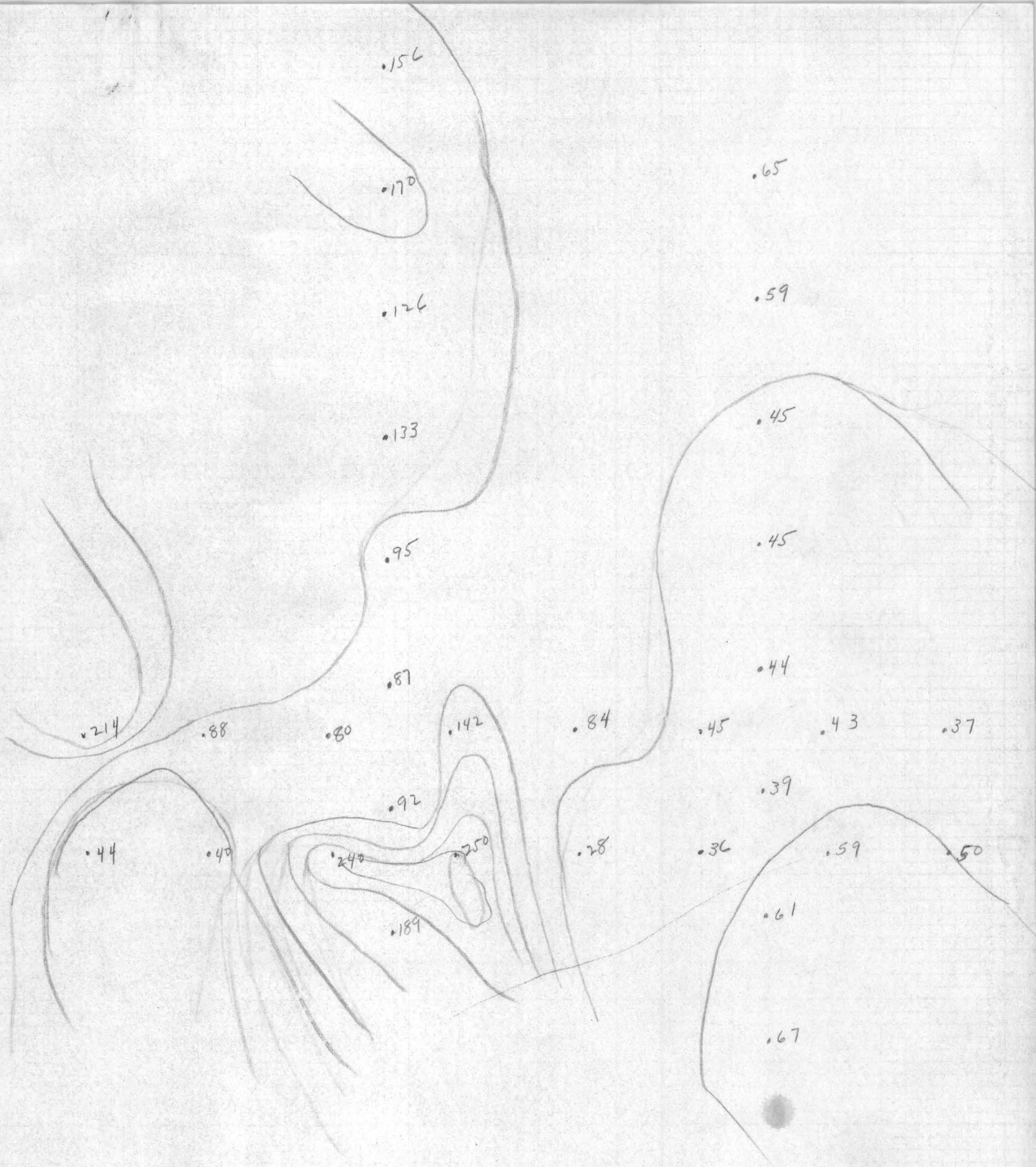


Proc/2π 18/Aug/62

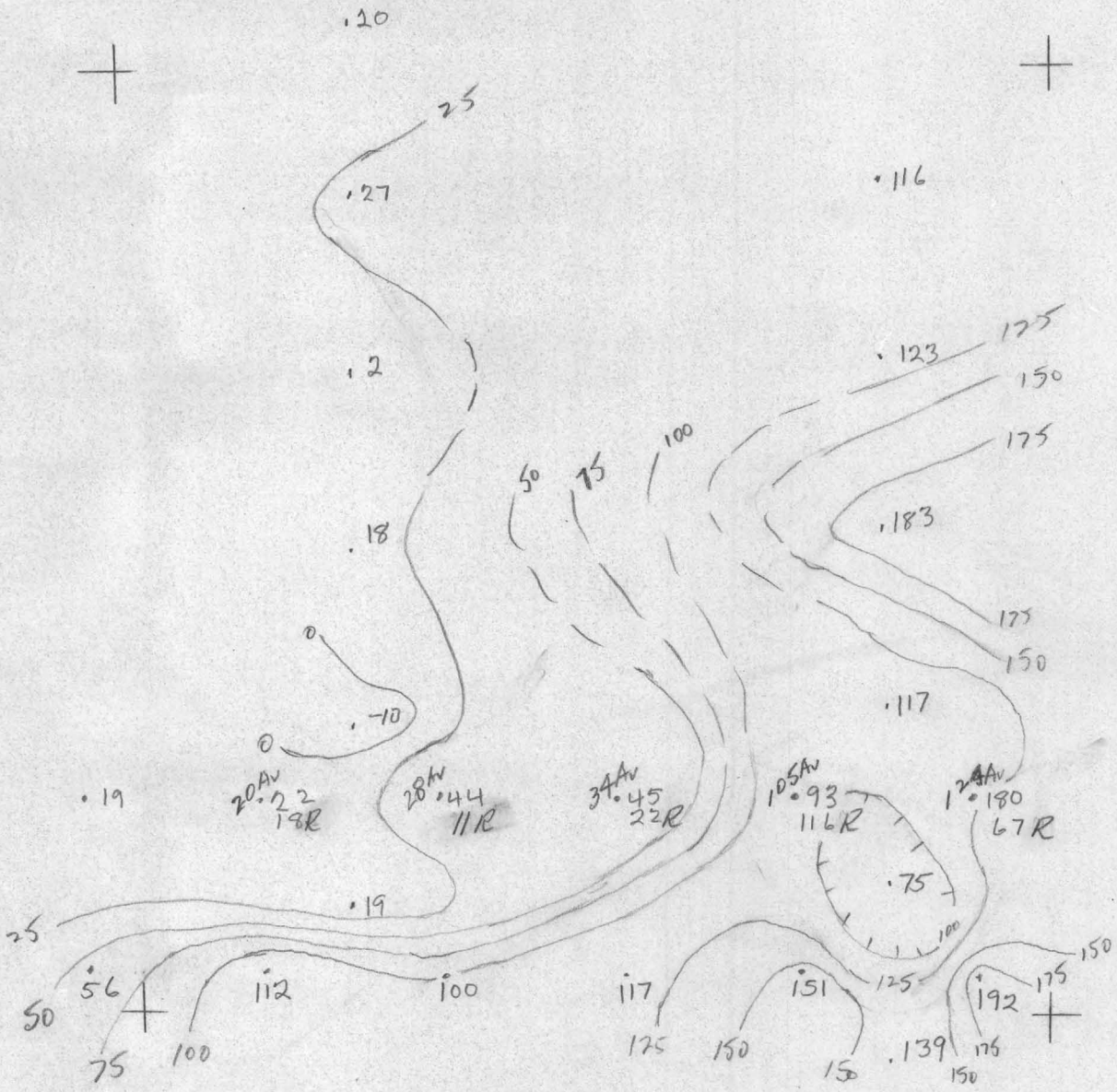
5th Sep.

Mary

1" = 1000'

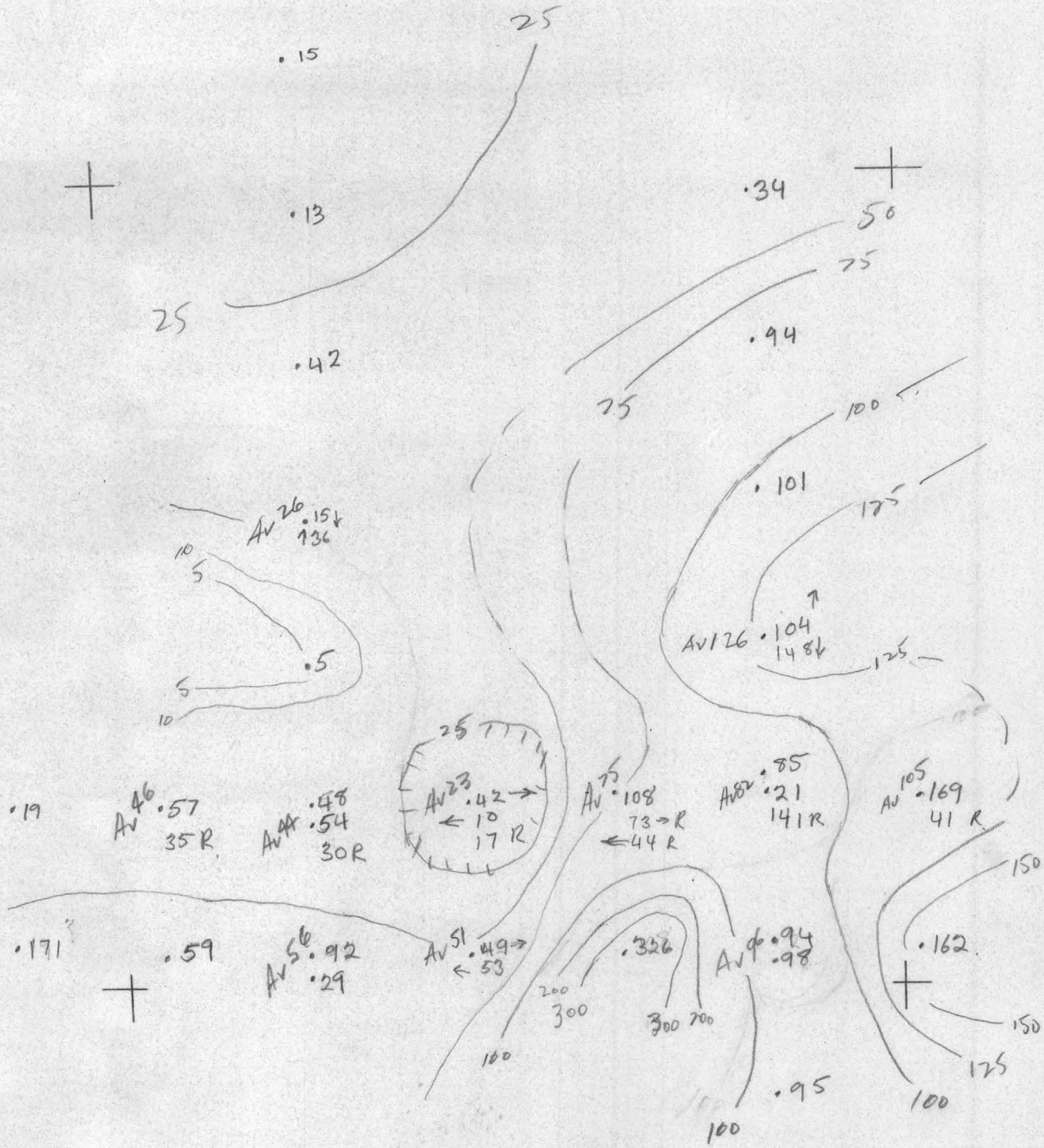


$\frac{C \text{ ohm feet.}}{2\pi}$ 3rd Separation Marg.

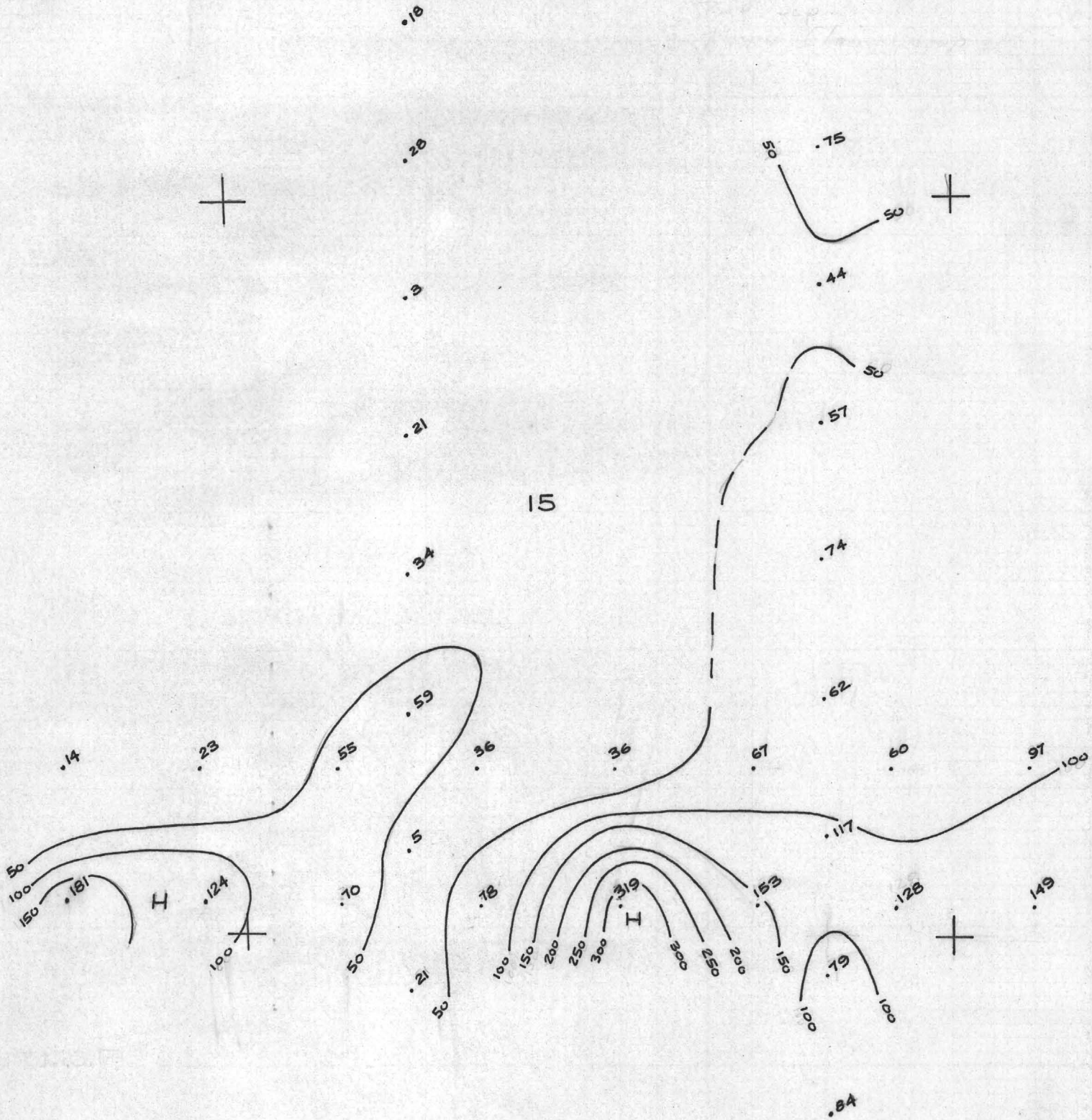


.20
25
.27
.116
.2
.123
125
150
175
100
50
75
.18
.183
175
150
0
.-10
0
.117
.19
20Av
22
18R
28Av
44
11R
34Av
45
22R
105Av
93
116R
124Av
180
67R
.75
.19
25
100
150
56
112
100
117
151
125
192
175
50
75
100
125
150
150
.139
175
150

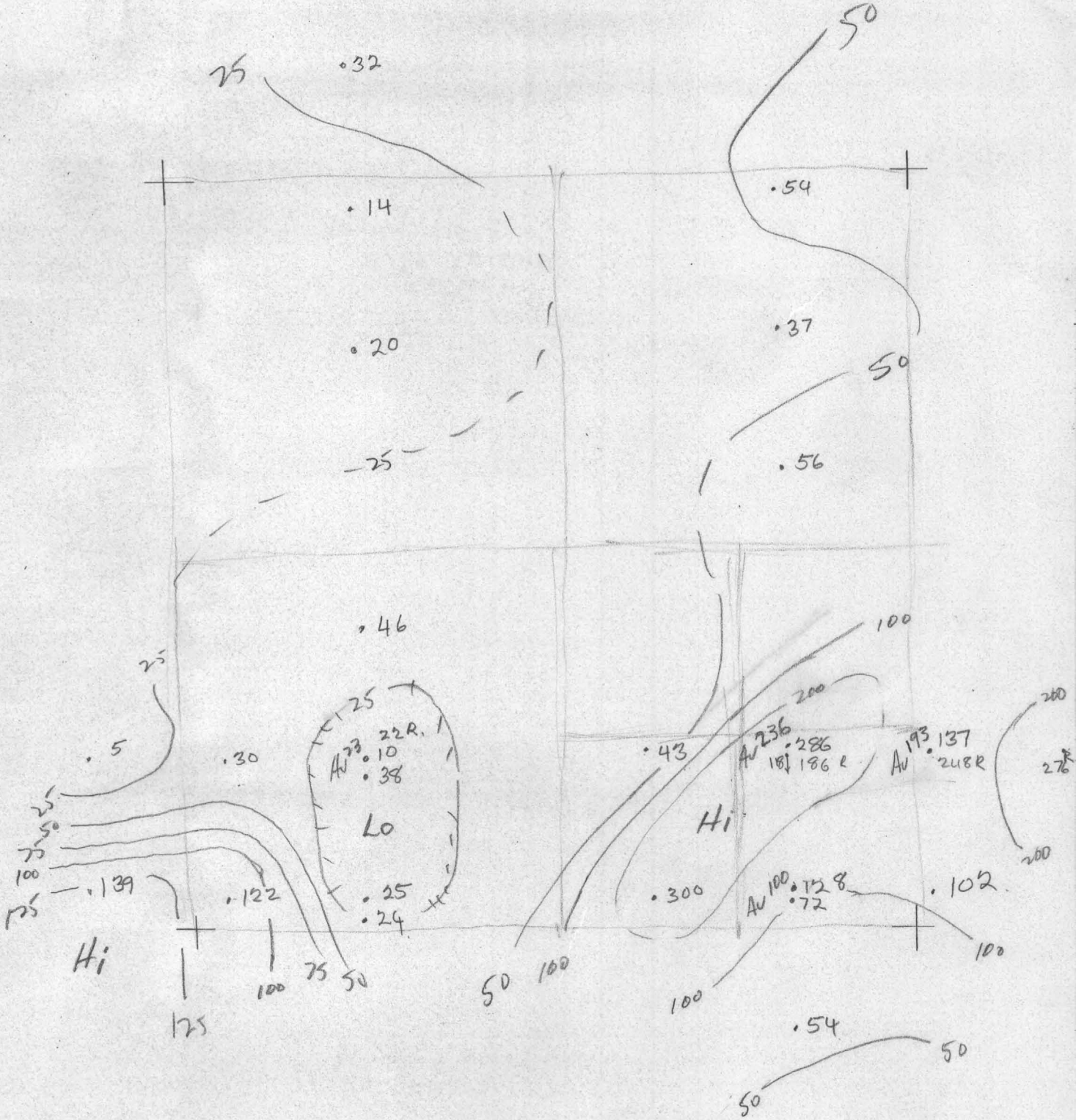
MCF 1st Sep


25
.15
.13
25
.42
.34
50
75
.94
75
100
.101
175
Av 26 .15
136
10
5
.5
5
10
Av 126 .104
148
125
25
Av 23 .42
10
17 R
Av 75 .108
73 R
44 R
Av 82 .85
.21
141 R
Av 105 .169
41 R
.19
Av 46 .57
35 R
Av 44 .48
.54
30 R
150
.171
.59
Av 56 .92
.29
Av 51 .49
53
.326
Av 9 .94
.98
.162
200
300
300
200
100
150
125
.95
100
100

MCF 2nd Sep.

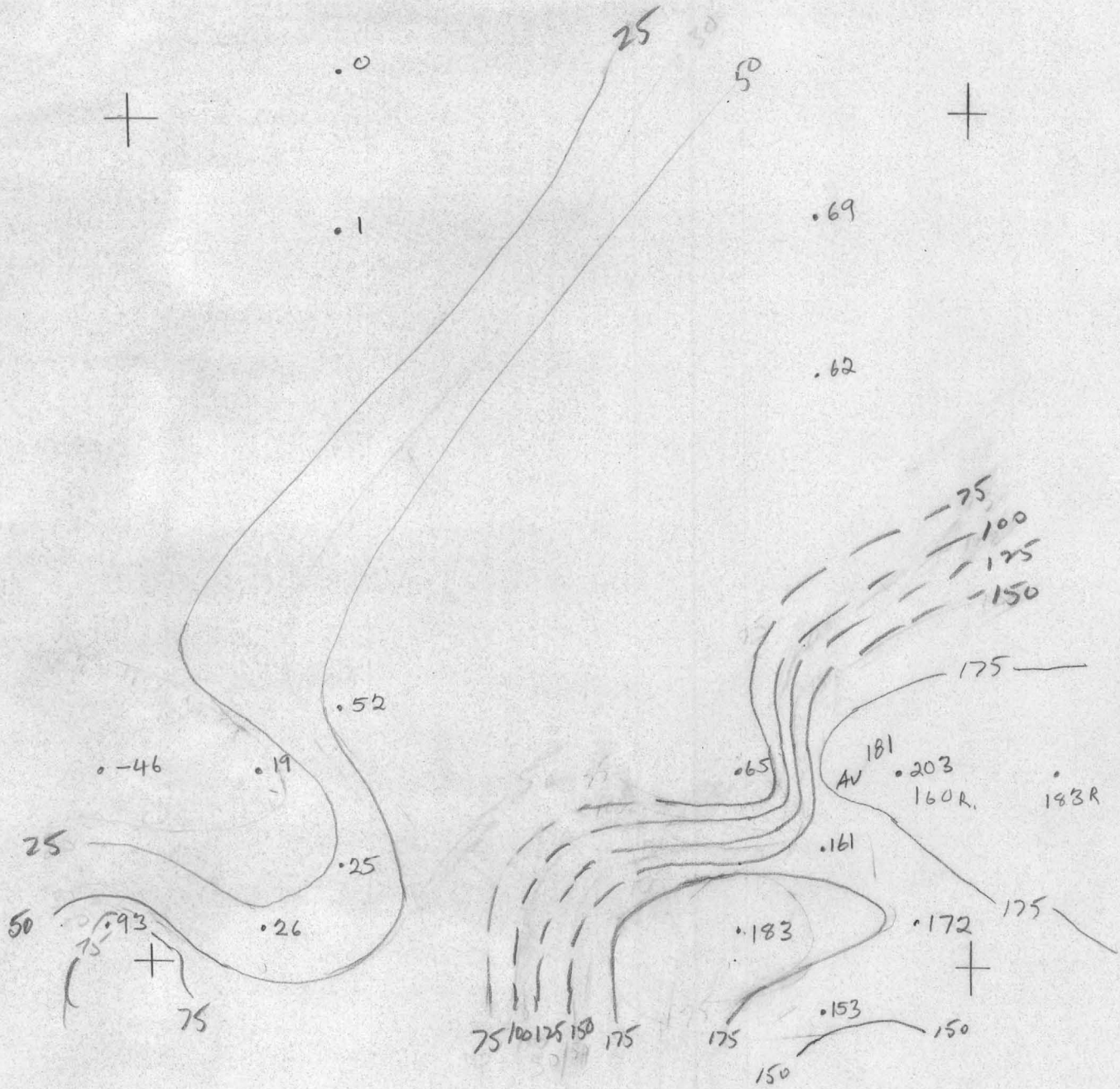


M. C. F.
3rd Separation I.P. Contours
Mary Claim Group
Pima Co., Ariz. T.17S. - R.13E.
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
Scale: 1" = 1000' C.I. = 50 units
June 1962

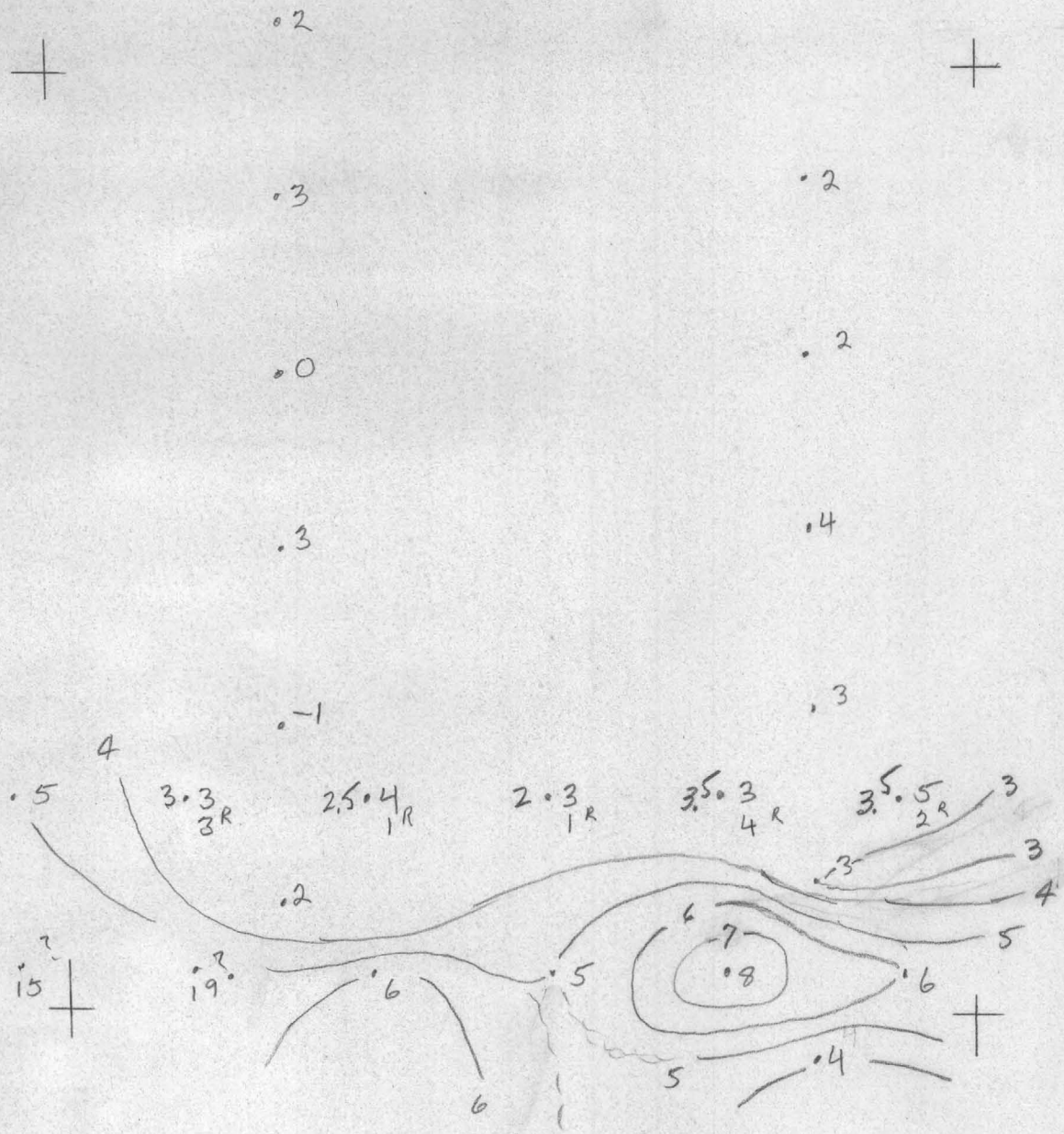


25
.32
50
.14
.54
.20
.37
50
25
.56
.46
100
25
25
200
.5
.30
22R.
Au 23 .10
.38
.43
Au 236 .286
18 186 R
Au 193 .137
248R
200
276R
25
50
75
100
125
.139
.122
Lo
Hi
.25
.24
.300
Au 100 .128
.72
.102
200
Hi
100
75
50
50
100
100
100
125
.54
50
50

MCF 4th

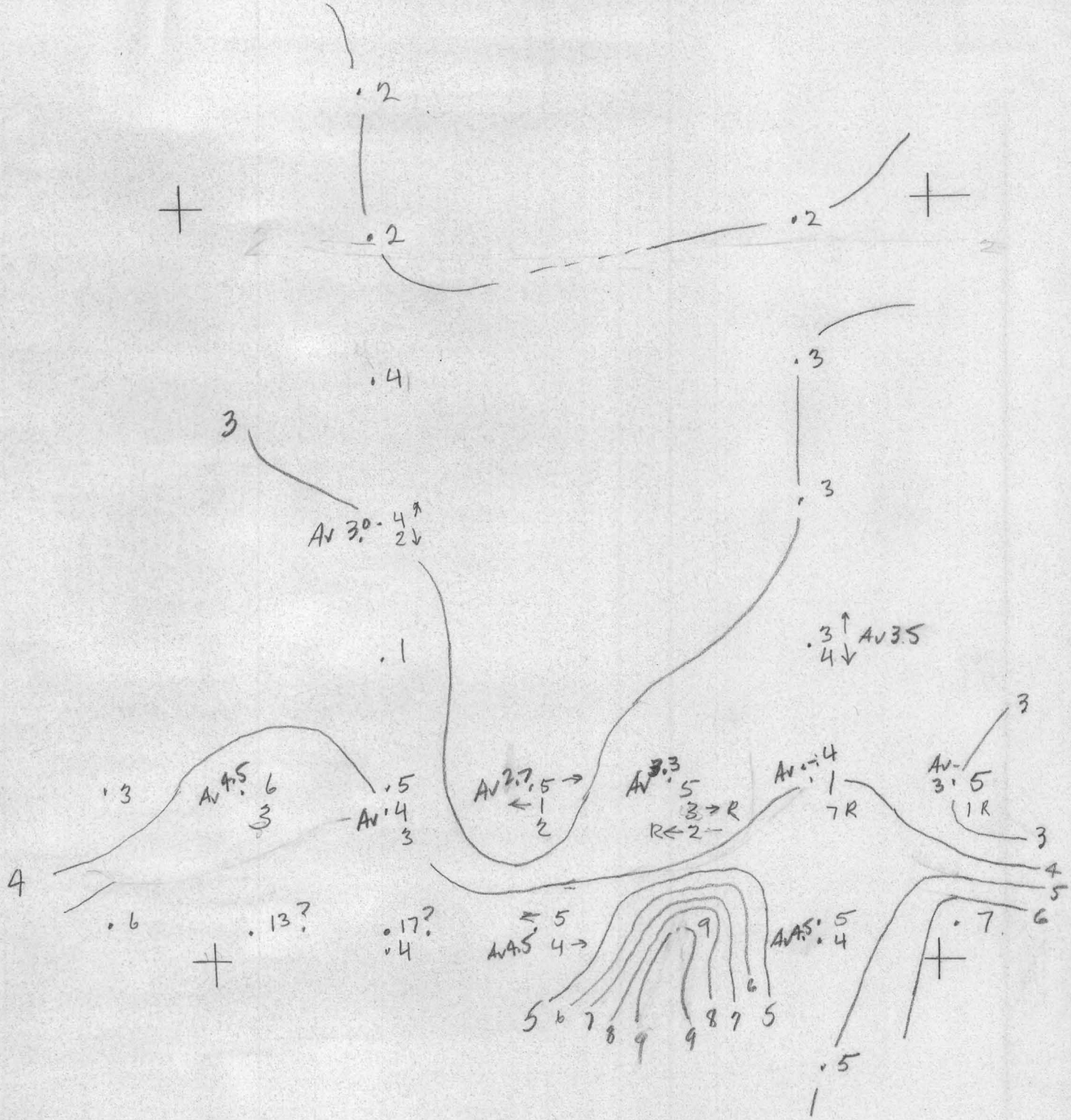

25
50
.0
.1
.69
.62
75
100
125
150
175
.52
-46
.19
.65
181
AV
.203
160R.
183R
25
.25
.161
50
.93
.26
.183
.172
175
75
75
75 100 125 150 175
175
.153
150
150

MCF 5th Sep.

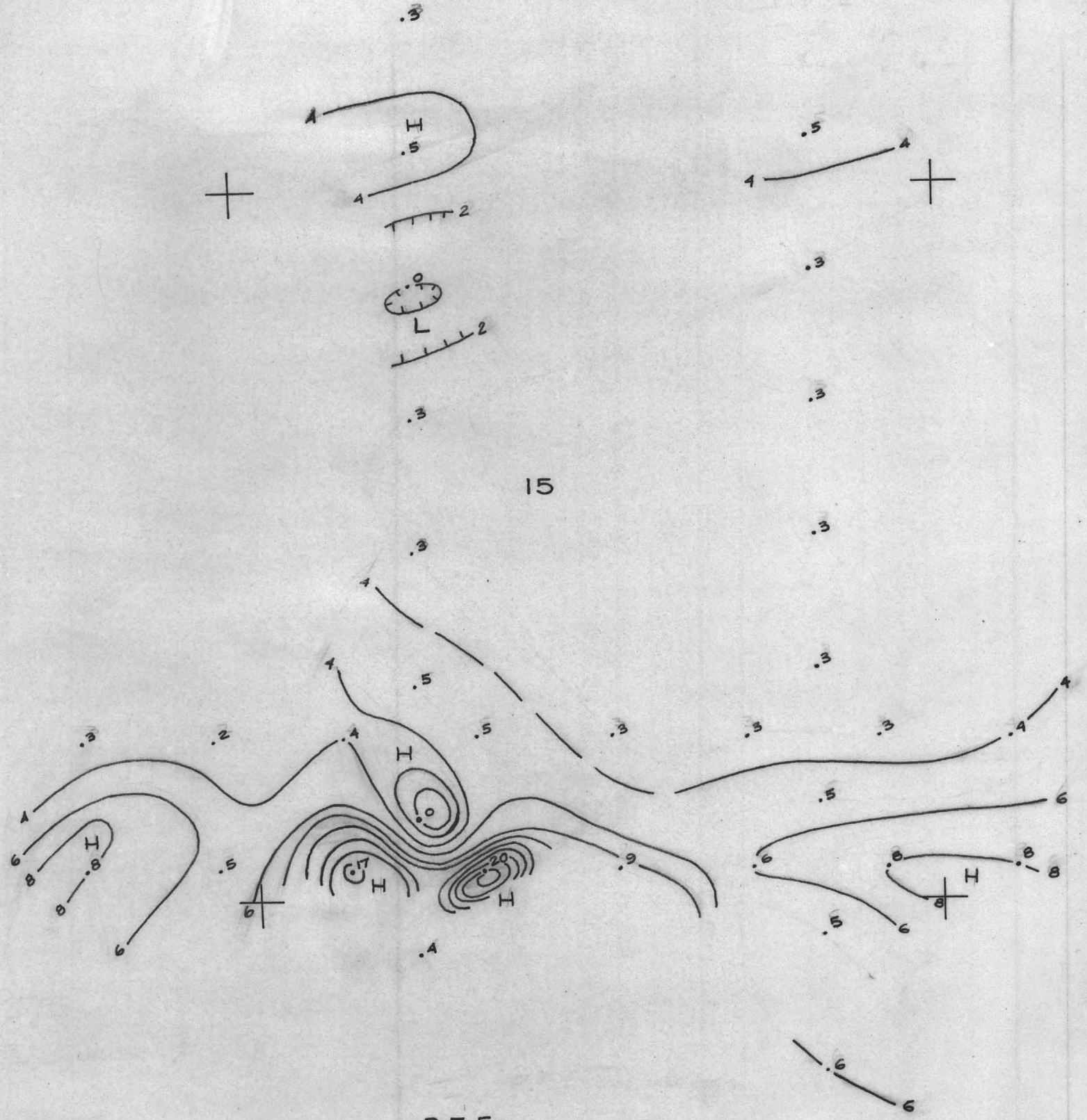


2
3
2
0
2
3
4
-1
3
4
5
3 3 3R
2.5 4 1R
2 3 1R
3.5 3 4R
3.5 5 2R
3
3
3
4
2
6
7
5
15
19
6
5
8
6
5
4
6

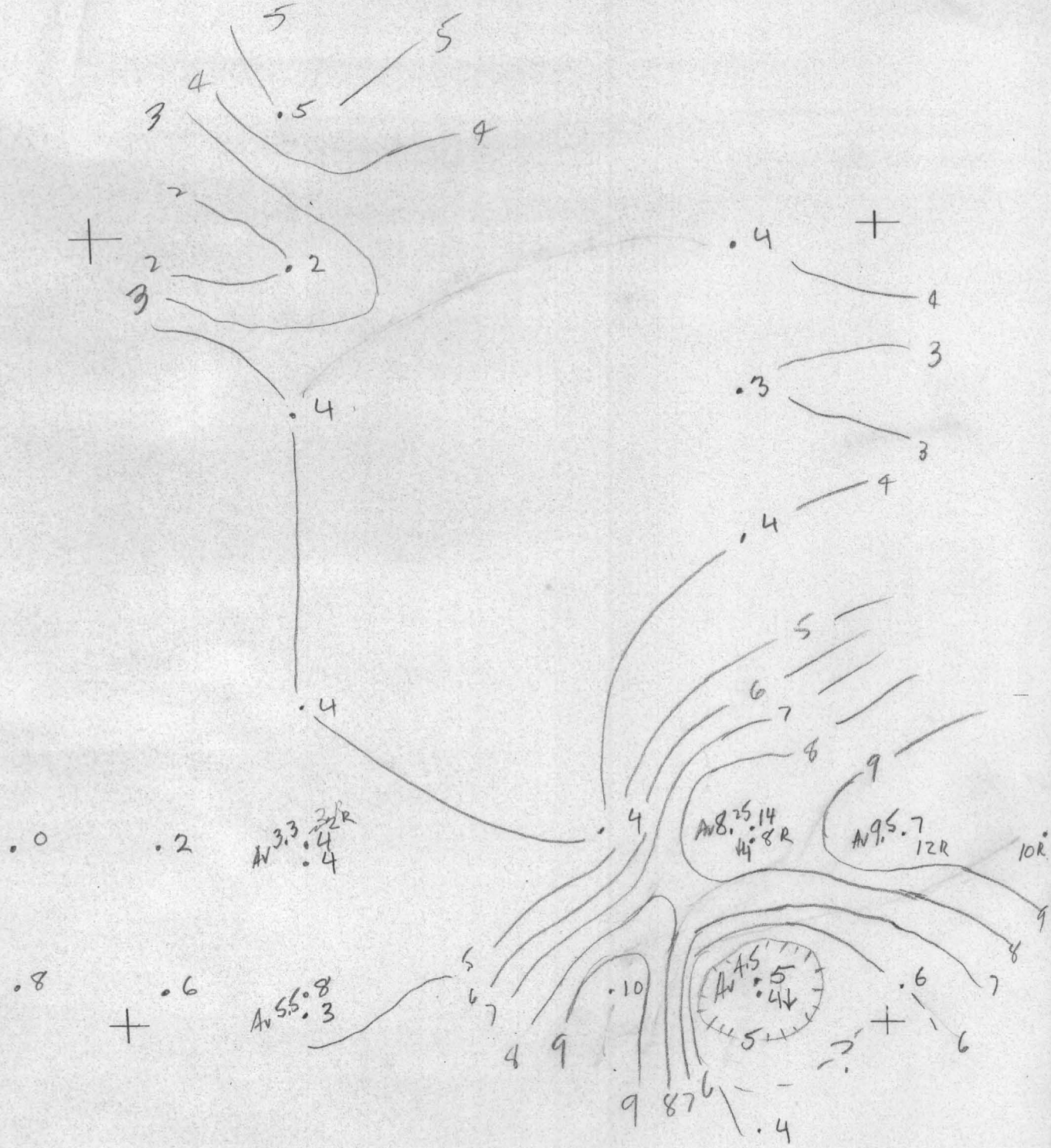
PFE 1st



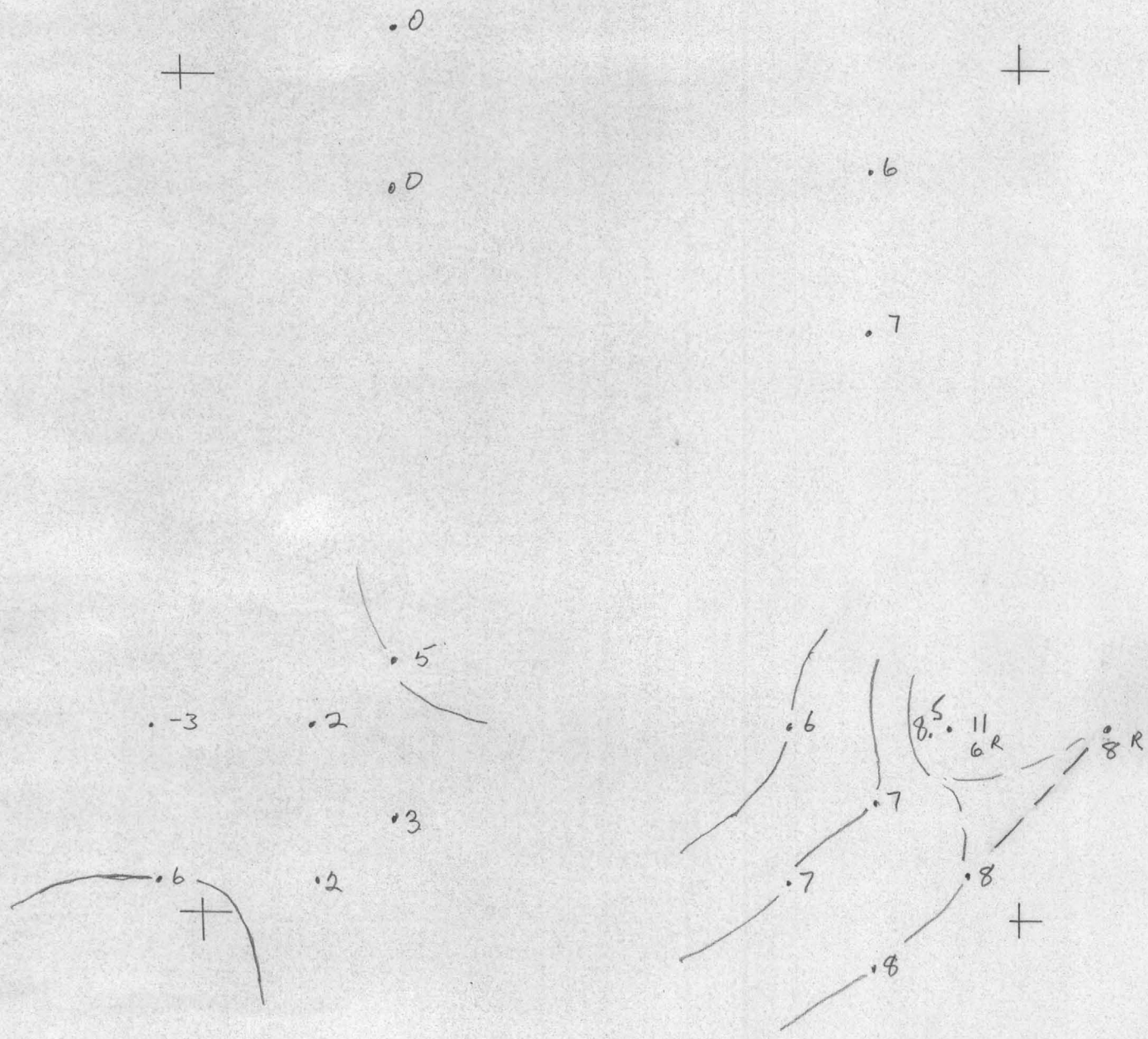
PFE 2nd Sep.



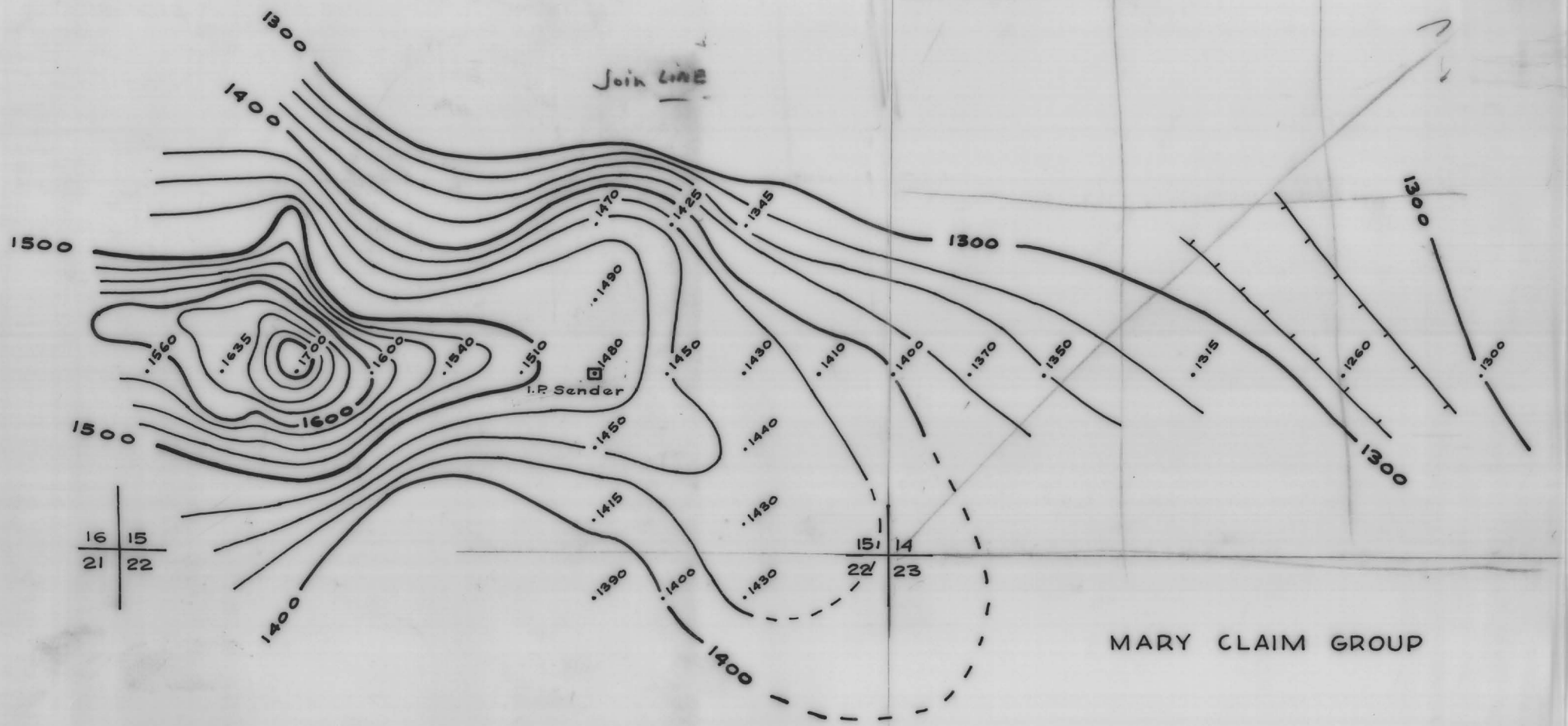
P. F. E.
3rd Separation I. P. Contours
Mary Claim Group
Pima Co., Ariz. T. 17 S. – R. 13 E.
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
Scale: 1" = 1000' C.I. = 2 units
June 1962



PFE - 4th.



PFE 5th



MARY CLAIM GROUP

All values raised 600 gammas
to conform to Momag values

Join
Line

Jalander Magnetic Coverage
in vicinity of sender on I.P. Line 2, Repeat
Pima County, Ariz. Sec. 15, T17S-R13E
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
1" = 1000 C.I. 25 gammas
Aug. 1962

MAGNETIC, GRAVITY
and
INDUCED POLARIZATION

GEOPHYSICS

Sandra Claim Group, Pima District
Sec. 14, T 17 S, R 13 E, Pima County
Arizona

for
INSPIRATION CONSOLIDATED COPPER COMPANY
Inspiration, Arizona

August 1963

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

TABLE OF CONTENTS

	Page
Introduction	1
Conclusions & Recommendations	1
Gravity Work	2
Magnetic Work	3
Induced Polarization	4

1---Magnetic Map

2---Two Gravity Profiles

3---Three Induced Polarization Sectional Data Sheets

INTRODUCTION

This work was done at Mr. E. F. Reed's request, for the purpose of compliance with the annual labor requirements for 1962-1963 on the 25 Sandra Claims by Inspiration, as agreed between the owners and Inspiration. Consistent with this, the work was also designed to simultaneously gain a maximum of additional information relative to the southeast part of Section 15 which adjoins the southwest part of the Sandra group and where previous work had been done.

CONCLUSIONS AND RECOMMENDATIONS

From the standpoint of water table, rock type differences, faulting and stratigraphy, all of the Sandra results correlate very well with the Sec. 15 data obtained previously. However, mineralization indications and correlations remain very weak and indefinite.

Under present conditions of information, no additional work, except a drill hole proposed in the SE part of Sec. 15 is recommended for now.

GRAVITY WORK

Approximately ten survey-man days were required to establish an elevation station network. This network and the gravity coverage consists of two N-S profiles with a station spacing of 500 feet. Profile A is located on the western border of claims 1, 2, 3, 4 and 22 or approximately 50 feet east of the boundary of Sections 14 and 15. Profile B is located 1800 feet east of Profile A and on the borders of claims 12-13, 11-14 and 10-15; both profiles are 5,000 feet in length.

Succeeding the level survey, one day was spent in the field with the gravity meter and a couple of days in the office compiling and plotting data.

Results were calculated on the basis of two density values; 2.65 gm/cc representing the density of proposed bedrock configuration and 2.20 gm/cc representing the density of the overburden material.

Weak deviations show up on both profiles with both densities. However, slightly greater relief is apparent with the 2.20 density plot. Both profiles reflect a slight change in subsurface material and/or bedrock slope from north to south and definite sloping to the east. There is some indication of possible faulting trending about NW-SE approximately across the SW part of the section and profile A has two faint "bumps". The most northerly bump correlates with a magnetic low, and most southerly one a

magnetic high, and the faulting, the boundary or trend in between the two.

Pending encouraging results from other work and continued interest in the area, additional gravity work in the vicinity may eventually be warranted.

MAGNETIC WORK

A half day was spent obtaining magnetic coverage over the west half of Section 14. Both mobile magnetometer (total intensity) and Jalander hand magnetometer (vertical intensity) profiles were made. Values read were adjusted to tie to each other by converting the mobile readings. Base level is tied to previous work.

A minor magnetic low shows in the northwest part of the section. A structural NW-SE trend is indicated in the southwest portion where a magnetic high exists. The cause of this is fairly deep and is deeper to the southeast. It probably is a fault contact with the northeast side relatively down.

Further magnetic work is only recommended for mainly outside this area and only if other encouraging factors justify holding and more accurate appraisal. This would be for the purpose of obtaining further broad reconnaissance coverage so as to see "the whole picture" and thus to better aid interpretation of data already on hand. Then, such work might or might not suggest a little more accurate or detailed coverage, however, such is not recommended now.

INDUCED POLARIZATION WORK

Three induced polarization lines were surveyed using three different electrode configurations in order to obtain data of varying depths and degrees of resolution. None of these lines showed any anomalism, at least any that could definitely be ascribed to mineralization.

The pole-pole technique showed increased PFE's with depth which are thought to be due to inductive coupling inherent in this technique rather than natural mineralization effects. The resistivity values give a three layer solution. The surface layer has a resistivity of 50 ohm ft/2pi and is 165 feet thick. The second layer extending from 165 feet to 500 feet below the surface has a resistivity from 14 to 18 ohm ft./2pi. The third layer starts at 500 feet beneath the surface and extends indefinitely downwards and has resistivities to 64 ohm ft/2pi. These three layers are interpreted respectively as unsaturated alluvium, water saturated alluvium and bedrock. This depth calculation was made in the vicinity of 0.5N on Line 7; but due to very minor lateral variations this depth applies approximately anywhere from 0.5S to 2.0N Line 7.

The pole-dipole configuration Line 8 was surveyed at right angles to Line 7 and centered on 0 N/S Line 7. This was done in an attempt to reduce inductive coupling effects which are sometimes a problem in areas of low resistivities such as this.

However, coupling effects were still noticed on Line 8, both positive and negative in value up to 7 percent. A very faint near surface anomaly aside from coupling appears around 1.0W. This anomaly is not(?) likely due to mineralization for it appears to be associated with the upper two layers, but it does correlate somewhat with the weakly anomalous data previously obtained in the SE part of Sec. 15.

From 0 E/W to 2.5E the same three layer condition exists as was noticed on Line 7, spread 1. West of 0 E/W to the end of the line, bedrock became progressively shallower, possibly as shallow as 200 feet near 2.5W.

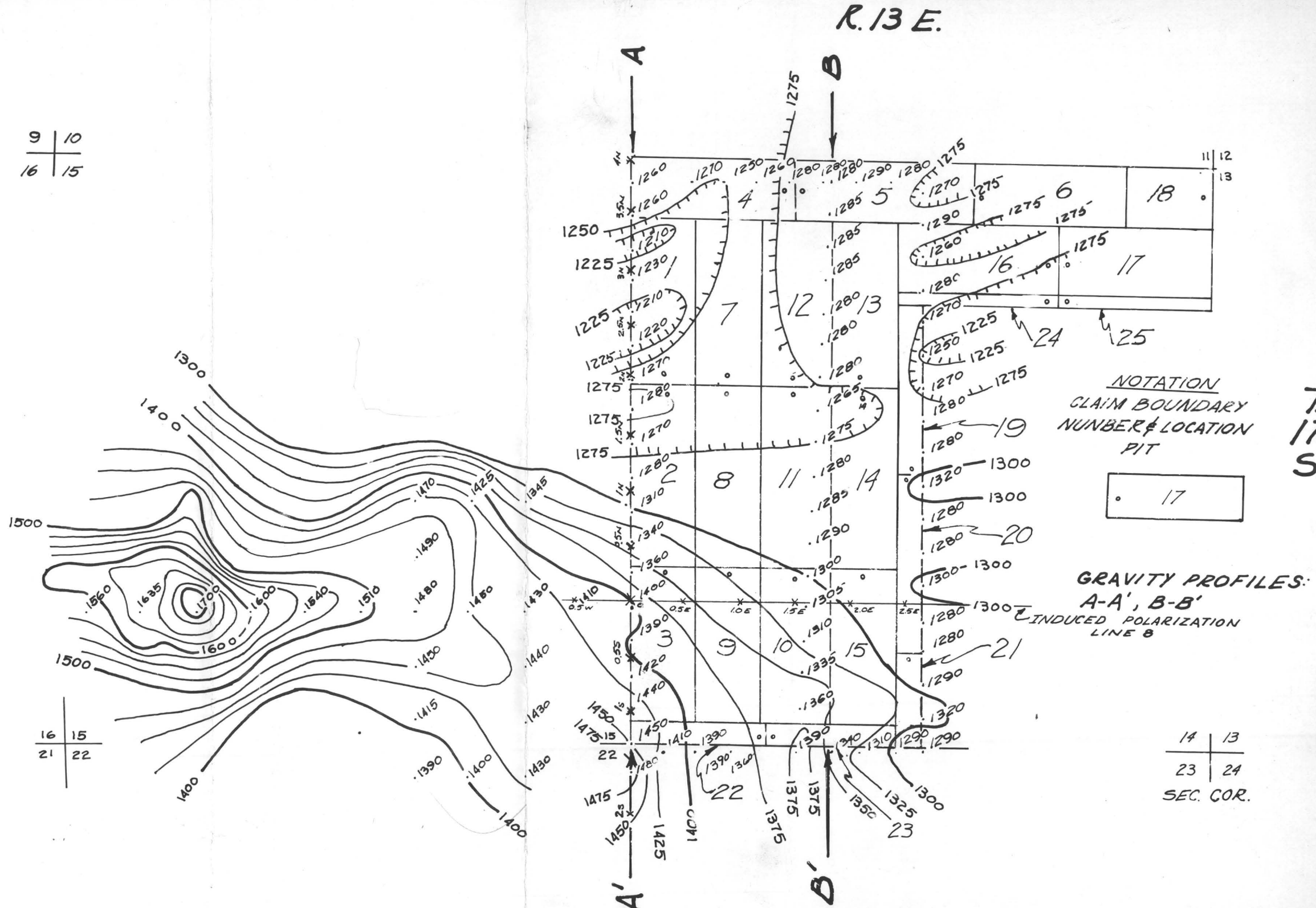
Line 7 was also run using a dipole-dipole configuration of 1,000 foot spacings. Again bedrock shows up at about 500 ft. below the surface. The water table was missed since 1,000 ft. dipoles were used. Some very questionable (twice background) I.P. anomalism appears from about 0.5S to 2.5S. Bedrock becomes shallower to the north and is of a much higher resistivity than the bedrock around 0 N/S, (perhaps 150 ohm ft/2pi) indicating a contact in the vicinity of 2.0N which probably correlates with the magnetic and gravity fault indications.

Respectfully submitted,

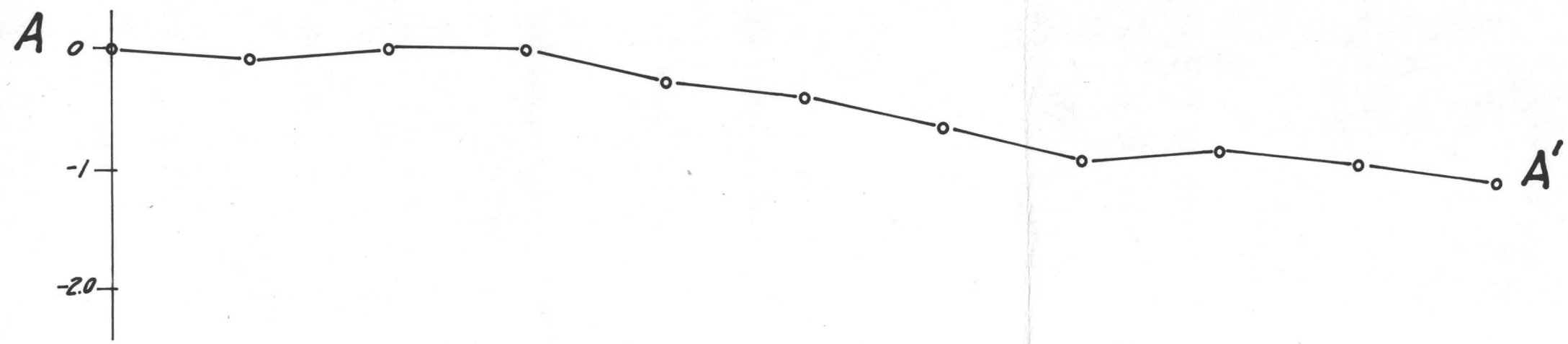
Walter E. Heinrichs, Jr.

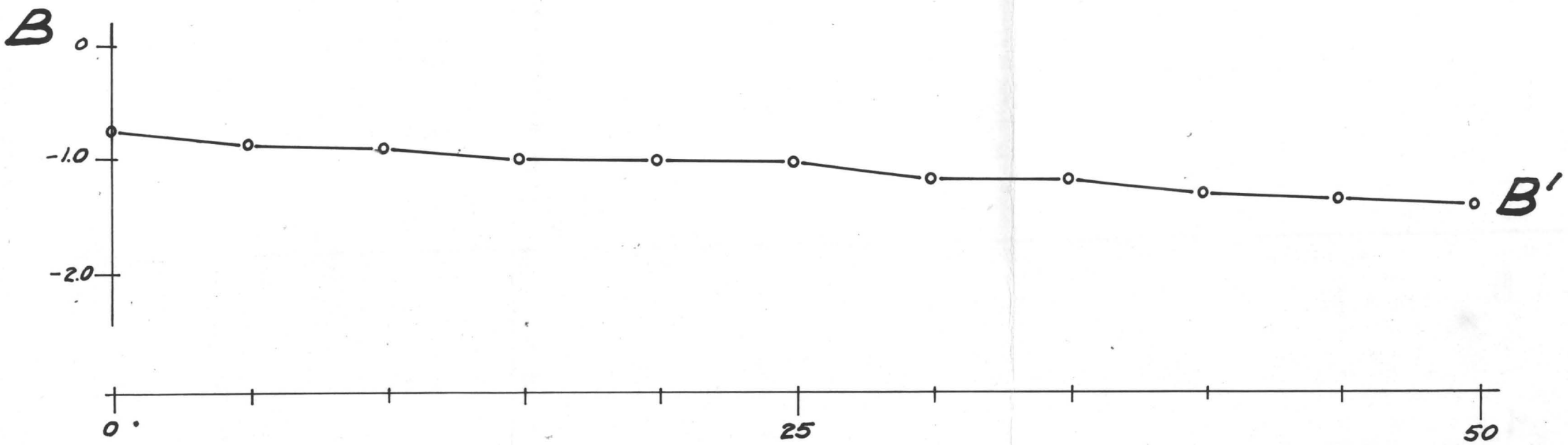
P.O.Box 5671
Tucson, Arizona

August 10, 1963



JALANDER VERTICAL COMPONENT OF
MAGNETIC INTENSITY IN GAMMAS
SANDRA CLAIM GROUP
SEC. 14 T. 17 S. - R. 13 E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
SCALE: 1" = 1000 C.I. 25 GAMMAS
JULY 1963

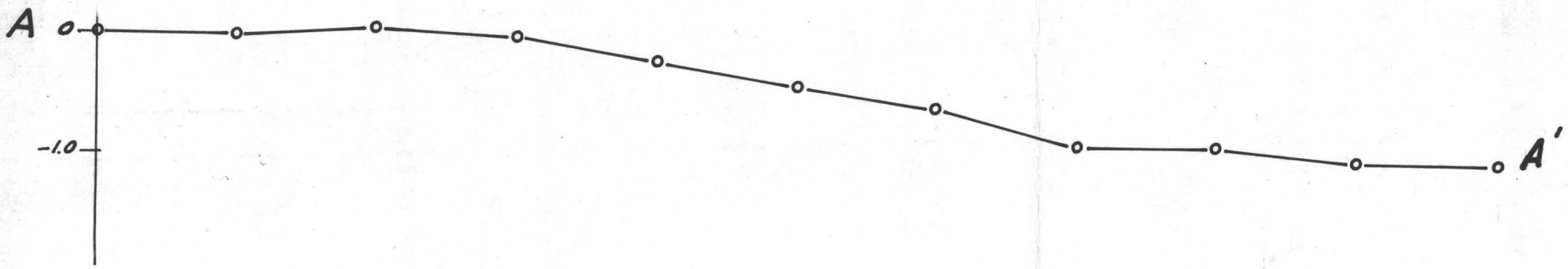


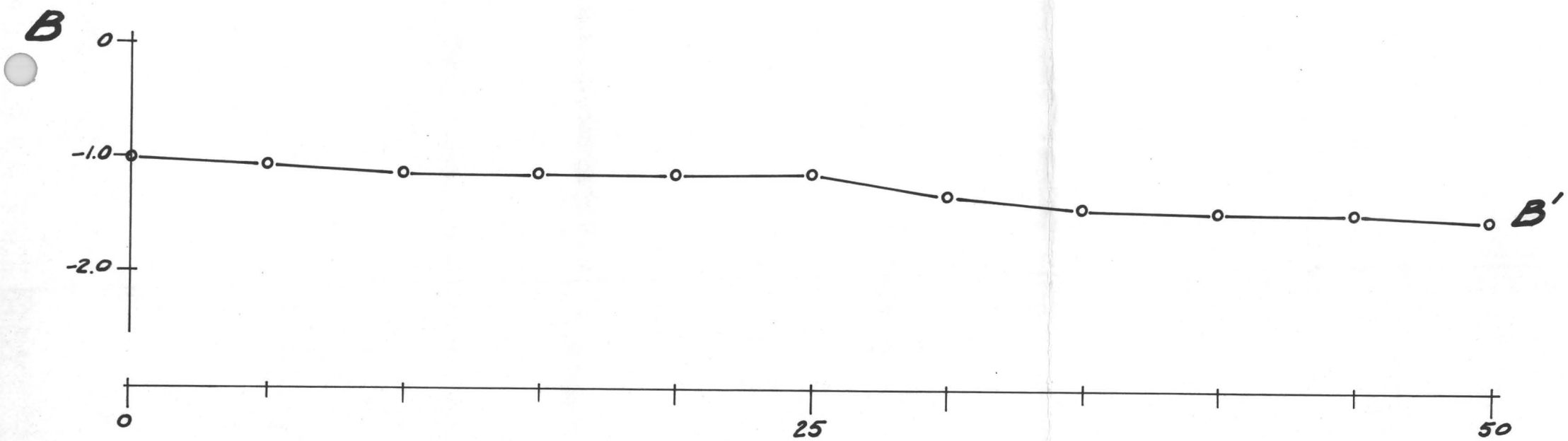


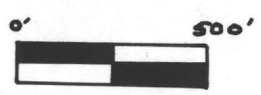
$\rho = 2.20$ gm/cc

HORIZONL SCALE: 1" = 500'
VERTICAL SCALE: 1" = 1.2 mgals
LOOKING EAST

GRAVITY SURVEY
SANDRA CLAIM GROUP
PIMA CO. ARIZ. T.17S.-R.13E.
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
JULY 1963

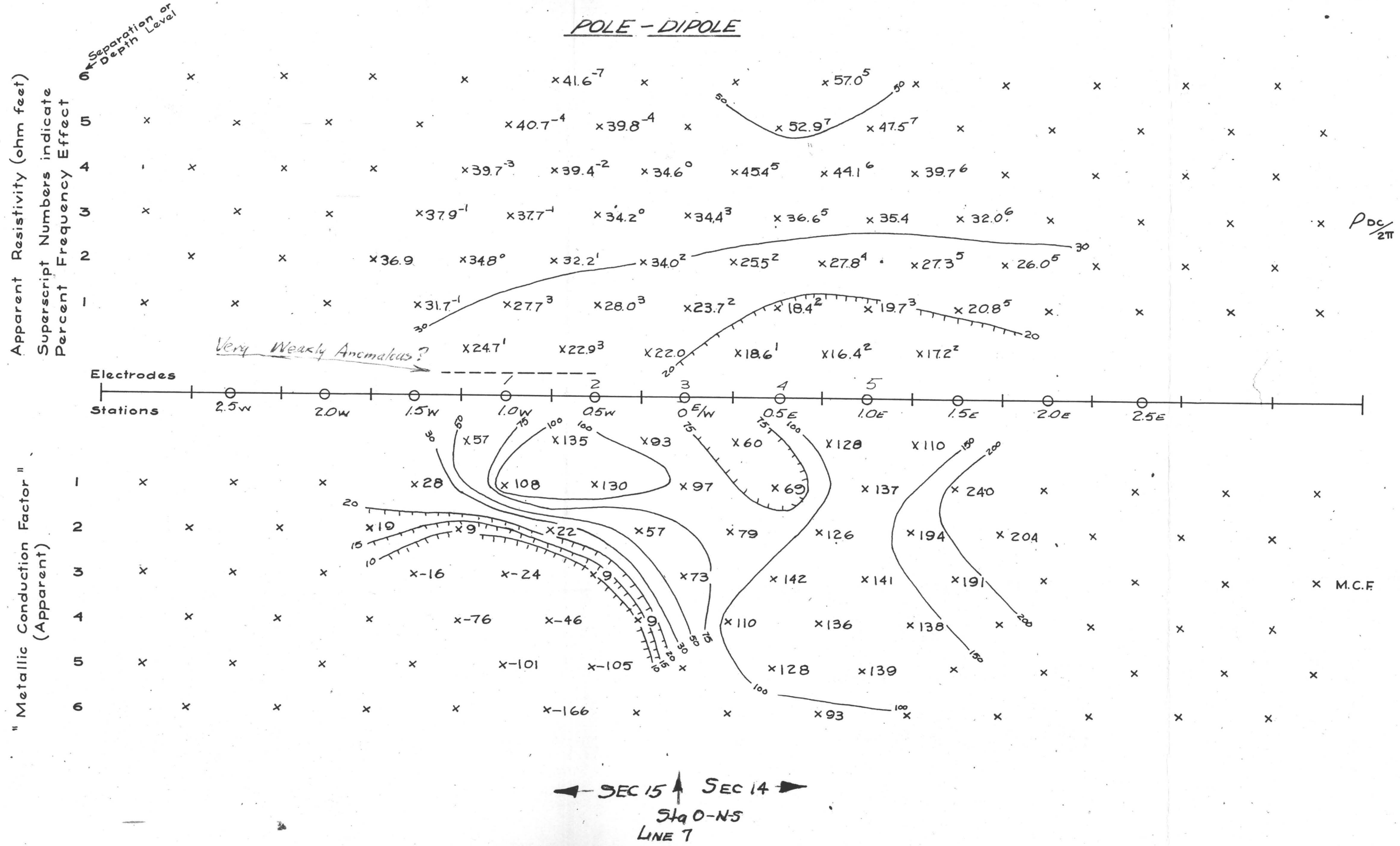






$\rho = 2.65$ gm/cc
HORIZONAL SCALE: 1" = 500'
VERTICAL SCALE: 1" = 1.2 mgals
LOOKING EAST

GRAVITY SURVEY
SANDRA CLAIM GROUP
PIMA CO. ARIZ. T.17S. - R.13E.
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
JULY 1963



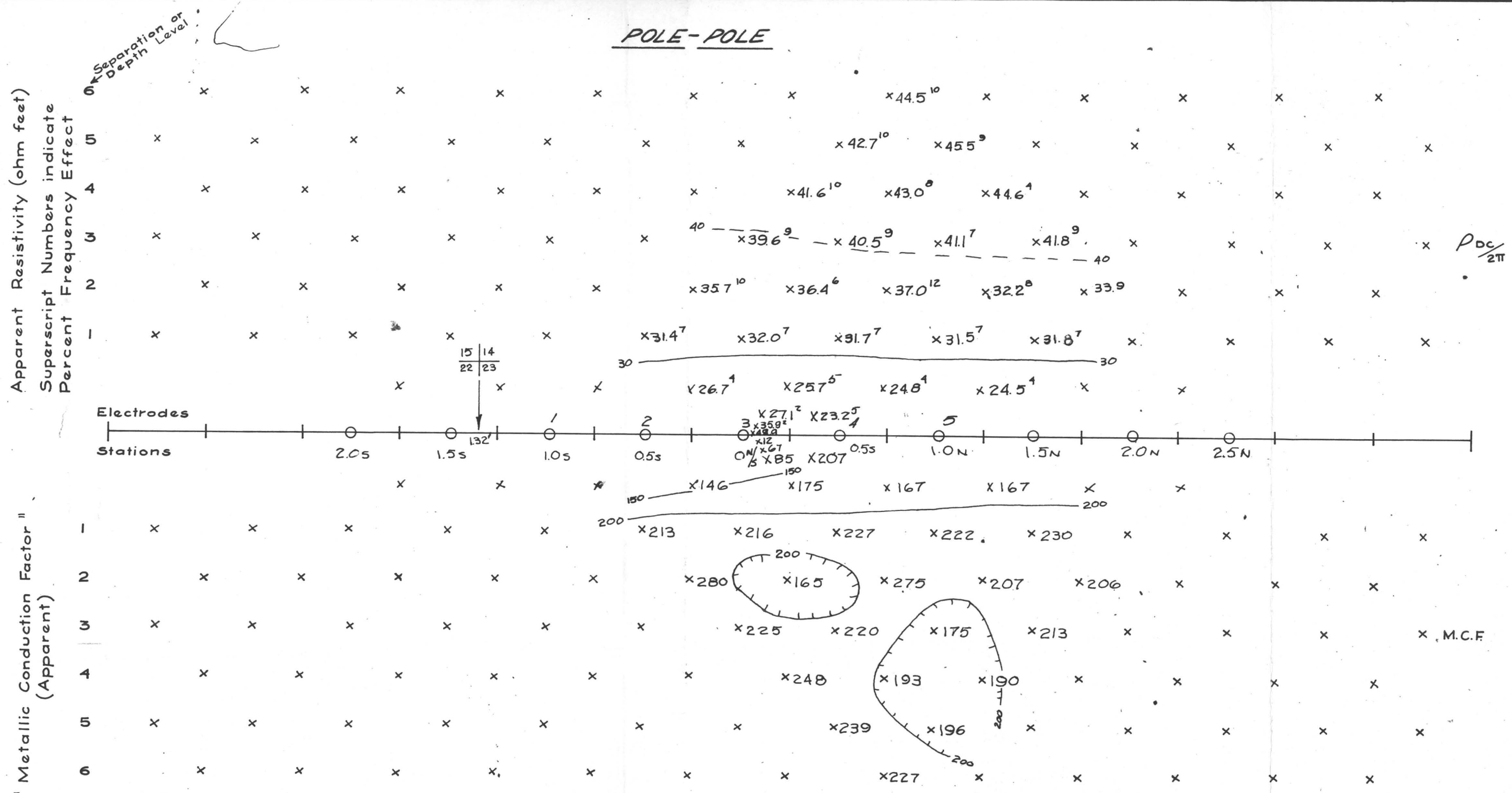
LEGEND

- End of Line
- Station
- No Anomaly
- Very Weak
- Weak
- Moderate
- Strong

Contour interval: Logarithmic
( ) indicates questionable data

SECTIONAL DATA SHEET
LINE No. 8 SPREAD 1
INDUCED POLARIZATION SURVEY
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1"=500' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T.17S.-R.13E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.



SECTIONAL DATA SHEET

LINE No. 7 SPREAD 1 N½

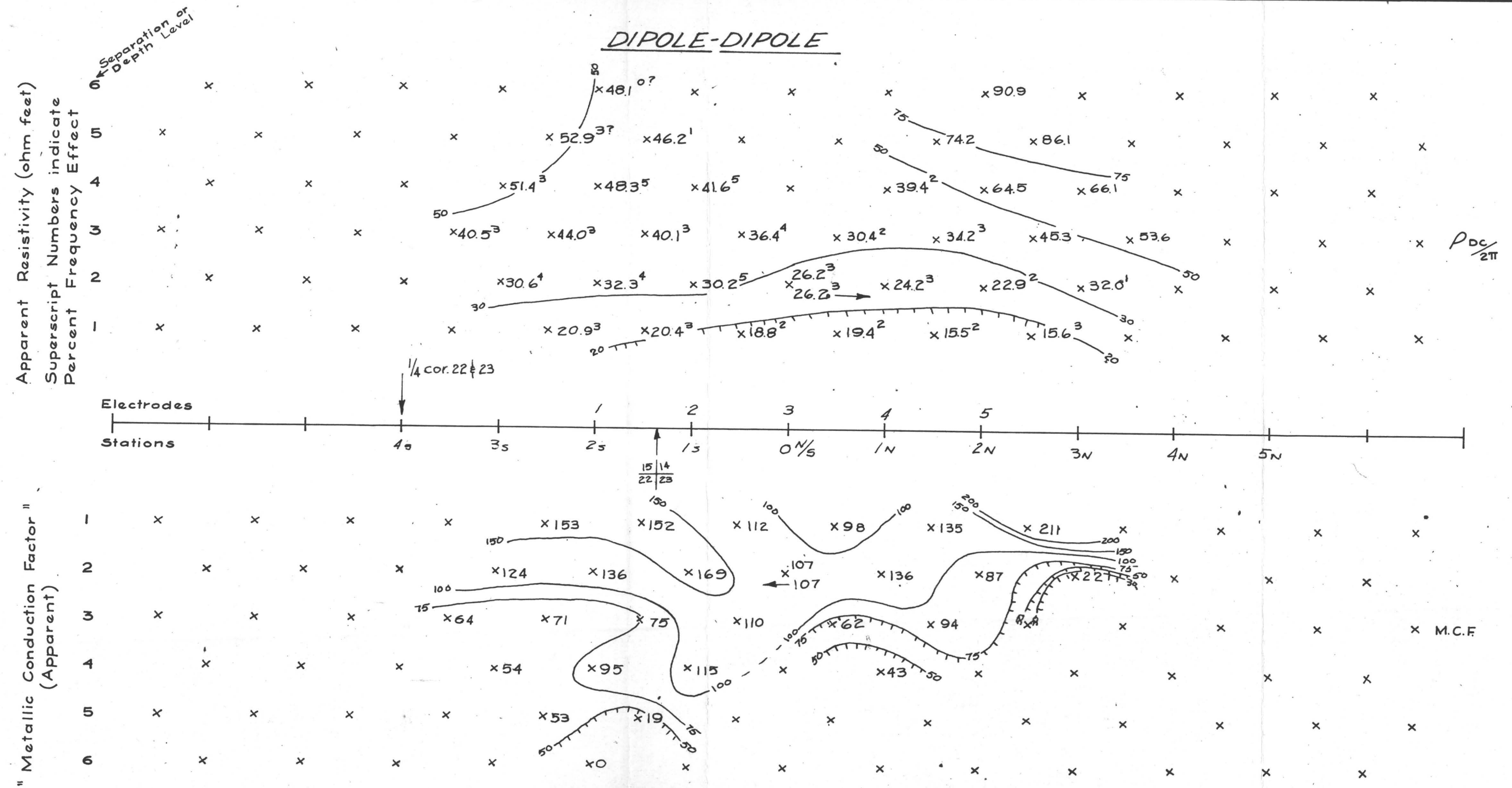
INDUCED POLARIZATION SURVEY

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1"=500' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T. 17 S. – R. 13 E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.

DIPOLE-DIPOLE



LEGEND

- End of Line
- Station
- No Anomaly
- Very Weak
- Weak
- Moderate
- Strong

Contour interval: Logarithmic
( ) indicates questionable data

SECTIONAL DATA SHEET

LINE No. 7 SPREAD / 5+N½

INDUCED POLARIZATION SURVEY

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1"=1000' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T.17S-R.13E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.

Sandra, H (Mary)

Mag

Note

Jalander Survey 7/25/63
IN. CON. COP. CO.
Sandra Area Sec. 14
LINE 1 - South along west sec. line

+1 Sta.	Read	Divr. & con.
0	103	10 30
3S	103	10 30
6S	98	9 80
9S	100	1 000
12S	98	9 80
15S	99	9 90
18S	104	10 40
21S	105	10 50
24S	104	10 40
27S	105	10 50
30S	108	10 80
33S	111	11 10
36S	113	11 30
39S	117	11 70
42S	116	11 60
45S	118	11 90
48S	120	12 10
51S	121	12 20
54S	124	12 50
	LINE 2 - East along So. Sec. line	
3E	117	11 80
6E	115	11 60
9E	115	11 60
12E	112	11 30
15E	115	11 60
18E	110	11 10
21E	107	10 80
24E	105	10 60
1/4 cor.	105	10 60

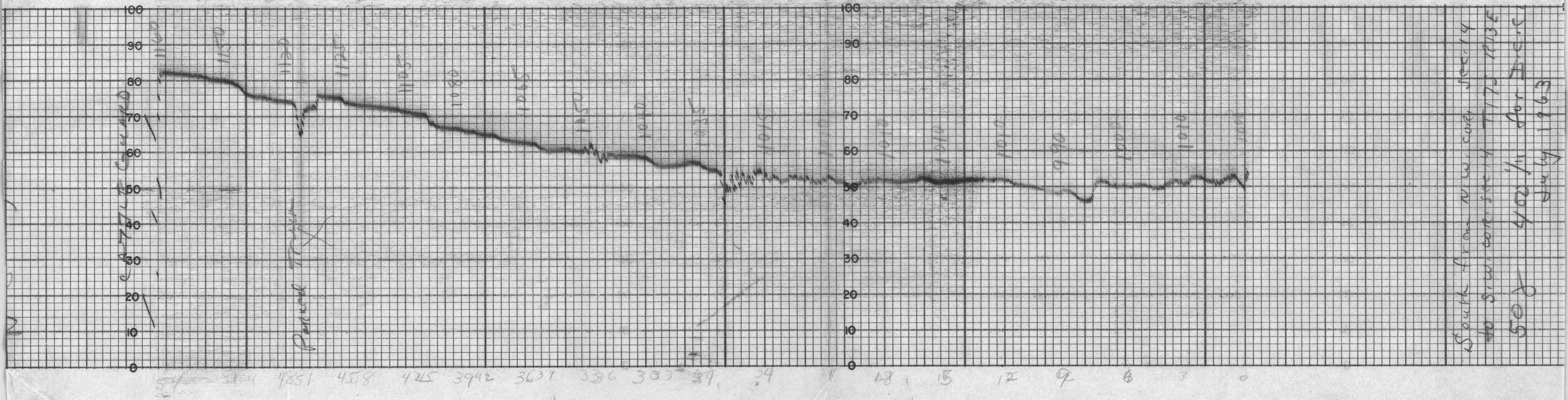
LINE 3 - North along 1/4 Mile

+1	3N	107	10	90
	6N	104	10	60
	9N	103	10	50
	12N	103	10	50
	15N	105	10	70
	18N	103	10	50
	21N	103	10	50
	24N	107	10	90
	27N	103	10	50
	30N	103	10	50
	33N	102	10	40
	36N	100	10	20
	39N	102	10	40
	42N	102	10	50
	45N	100	10	30
	48N	103	10	60
	51N	101	10	40
	Road	107	11	00

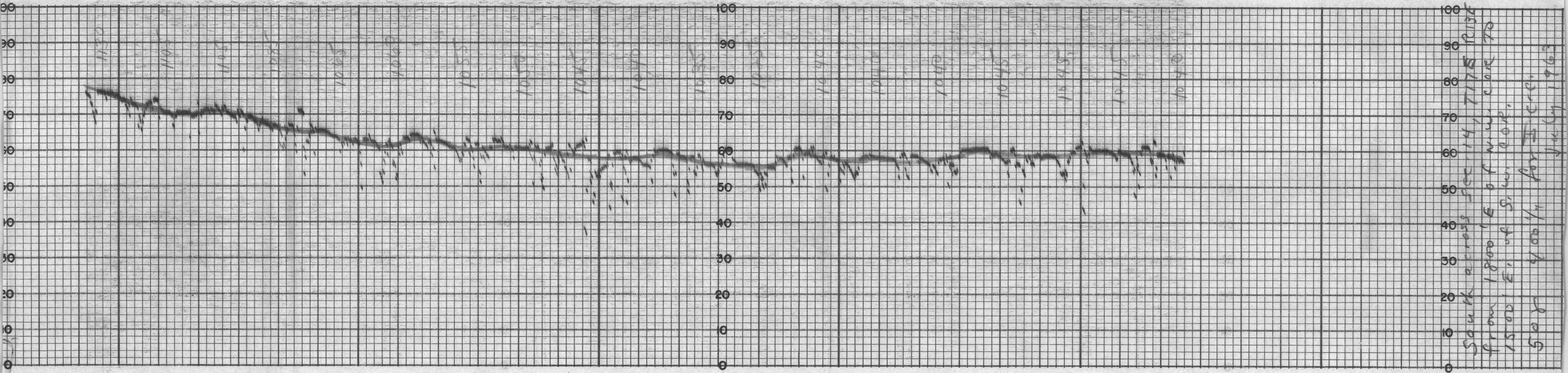
LINE 4 - West along No. Sec. line

3W	102	10	50
6W	103	10	60
9W	102	10	50
12W	102	10	50
15W	100	10	30
18W	99	10	20
21W	101	10	40
0	100	10	30

MADE IN U. S. A. THE ESTERLINE-ANGUS CO. INDIANAPOLIS, IND., U. S. A. E.S.



THE ESTERLINE-ANGUS CO. INDIANAPOLIS, IND., U. S. A. CHART NO. 17491X



Mary - Sandra
Area

Inspiration Copper

Gravity

WWC 8-6-63

TRI MK. REG. U.S. PAT. OFF.

Mary - Sandra
Claim Group

Gravity Note

Inst. - world-made #3

factor = .0 9792 mgal/Div

ORIGINAL COPR. 1910 BY J. O. PARKER

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

7-23-63
M.W.S.
Mary Sandra

TR. MK. REG. U.S. PAT. OFF.

③

Stat	Time	Read		
7-24-63		Mary - Sandra Net -		
BM A-115	10:00	395.3 395.5		
(PA-5 No 1)	10:22	744.5 744.7	(Area Base)	
BM A115	10:40	395.0 394.8		
7-25-63				
PA-5 No 1	8:15	745.4 745.6		

ORIGINAL COPR. 1910 BY J. O. PARKER

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

7-24-63

WWC

Mary-Sandra

TR. MK. REG. U.S. PAT. OFF.

ORIGINAL COPR. 1910 BY J. C. PARKER

(3)

Stat	Time	Read		
I-00	8:35	730.8	FH	730.8
		730.9	FH	.0
		730.7	RP	0
		730.9	RP	
I-05	8:50	727.0	FH	727.1
		727.1	FH	.0
		727.1	RP	0
		727.2	RP	
I-10	9:00	725.3	FH	725.3
		725.3	FH	.1
		725.2	RP	0
		725.3	RP	
I-15	9:15	722.5	RP	722.6
		722.6	RP	.2
		722.6	FH	0
		722.5	FH	
I-00	9:25	730.9	FH	730.5
		730.9	FH	+.3
		730.1	RP	0
		730.1	RP	
		730.6	WWC	
		730.5	WWC	
		730.4	FH	
	9:35	730.2	RP	

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

7-24-03
Mary Sanders

TR. MK. REG. U.S. PAT. OFF.

ORIGINAL COPR. 1910 BY J. O. PARKER

(6)

Shot	Time	Read		
I-15	9:40	722.3	R.P.	722.3
		722.3	R.P.	.0
				.5
I-20	9:50	717.6	R.P	717.6
		717.6	R.P.	.1
				.5
I-25	9:59	713.7	R.P.	713.7
		713.7	R.P.	.3
				.5
I-30	10:10	712.9	R.P.	712.9
		712.9	R.P.	.4
				.5
I-15	10:17	721.8	R.P.	721.8
		721.8	R.P.	.5
				.5
I-30	10.27	712.8	F.H	712.8
		712.9	F.H	0
				1
I-35	10.34	70.61	F.H	706.1
		706.1	F.H	.6
				1
I-40	10.42	705.1	F.H.	705.1
		705.1	F.H.	.9
				1
I-45	10.50	698.2	F.H.	698.2
		698.1	F.H	1.1
				1.

LEFAX PHILADELPHIA 7, PA., MADE IN U.S.A.

42

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7-25 C3
W.W. C.
Nazy

(5)

Stat	Time	Read		
I-30	10.58	711.4	F.H	711.4
		711.3	F.H	1.4
				1
I-45	11:11	698.7	RP	698.6
		698.5	RP	0
				1.7
I-50	11:25	693.7	RP	693.7
		693.7	RP	.4
				1.7
2-50	11:37	715.4	F.H.	715.5
		715.5	F.H.	.7
				1.7
I-45	11.50	697.7		697.7
		697.7		.9
				1.7
PA-5 No.1	12:03	~~741.1~~	FH	~~741.~~
		741.1	?	
		742.3	RP	742.3
		742.3	FH	3.2

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

F.E.	H
R.E.	P
Mary - Sandra	
7-26-63	

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(6)

Stat	Time	Read			
7-26-63					
PA-5 No. 1	07:48	735.8	F.H.	735.8	+9.7
		735.8	F.H.		
II-50	8:04	708.8	R.P.	708.8	
		708.8	R.P.	.0	
				0	
II-45	8:14	712.2	R.P.	712.2	
		712.2	R.P.	.1	
				0	
II-40	8:23	715.6	R.P.	715.6	
		715.6	R.P.	.2	
				0	
II-35	8:29	718.1	R.P.	718.1	
		718.1	R.P.	.2	
				0	
II-30	8:38	720.2	R.P.	720.2	
		720.1	R.P.	.4	
				0	
II 50	8:54	708.3	R.P.	708.3	
		708.3	R.P.	.5	
				0	
II 30	9:16	719.5	F.H.	719.6	
		719.6		.0	
				1.0	

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F.H.
R.P.
Mary-Sandra

(3) 26/7/63

Stat	Time	Read		
II 25+00	09:30	720.4	F.H.	720.5
		720.5	F.H.	.2
				1.0
II 20+00	09:41	726.4	F.H.	726.4
		726.4	F.H.	.3
				1.0
II 15+00	09.52	726.3	F.H.	726.2
		726.1	F.H.	.4
				1.0
II-30	10:04	720.1	F.H	720.1
		720.1	F.H.	-.5
				1.0
II-15	10:16	726.9	R.P	726.9
		726.9	R.P	0
				.7
II-10	10:25	7290	R.P.	729.0
		728.9	R.P.	0
				.7
II-5	10:35	733.3	R.P.	733.2
		7331	R.P.	0
				.7
II-00	10.43	735.6	R.P.	735.6
		735.6	R.P.	0
				.7
II-15	10:53	726.9	R.P.	726.9
		7269	R.P.	0
				.7
II-00	11:15	734.4	F.H.	734.4
		734.3	F.H.	

FH

Mary Sandra

TRI MK. REG. U.S. PAT. OFF.

26/7/63

Shot	Time	Read			
PA5 #1	11:22	734.6	F.H.	734.6	
		734.6	F.H.		

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Mary-Sandra

Level Notes

LINES I + II

(1)

24/7/63

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STA	+	HI	-	ELEV	B.M.
B.M			28	50.99	2850.99
II 0+00	7.48	58.47	5.82	52.65	PA 5 #1
	3.83	56.48	5.04	51.44	
5+00	7.50	58.94	4.29	54.65	
10+00	6.91	61.56	2.64	58.92	
	5.24	64.16	4.78	59.38	
15+00	4.86	64.24	5.43	58.81	
20+00	3.97	62.78	6.30	56.48	
25+00	12.34	68.82	3.65	65.17	
	5.65	70.82	5.19	65.63	
30+00	3.25	68.88	4.50	64.38	
	5.03	69.41	5.78	63.63	
35+00	5.30	68.93	3.72	65.21	
40+00	8.32	73.53	7.19	66.34	
45+00	8.09	74.43	5.92	68.51	
	9.21	77.72	3.47	74.25	
II 50+00	6.51	80.76	9.16	71.60	END #2
	11.91	83.51	0.07	83.44	LINE BETW.
	11.70	95.14	1.76	93.38	#2 + #1
	11.56	29 04.94	0.56	29 04.38	
I 50+00	12.56	16.94	3.58	13.36	BEGINNING #1
45+00	2.59	15.95	6.79	09.16	
40+00	1.81	10.97	7.35	03.62	
35+00	8.82	12.44	6.75	05.69	
30+00	4.31	10.00	8.97	01.03	
25+00	10.11	11.14	7.51	03.63	

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LEFAX; PHILADELPHIA 7, PA., PRICE IN U.S.A.

24/7/63

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(2)

STA	+	HI	−	ELEV	REMARKS
I				03.63	
20+00	8.38	12.01	9.90	02.11	
15+00	4.56	06.67	6.73	99.94	
10+00	4.95	04.89	5.33	99.56	
5+00	5.79	05.35	8.69	96.66	
0+00	3.82	00.48	7.63	92.85	END # I
	0.97	93.82	10.88	82.94	LINE BETW.
	1.10	84.04	10.71	73.33	I + II
	1.26	74.59	13.33	61.26	TO B.M.
	0.62	61.88	10.92	50.96	PA 5 # 1

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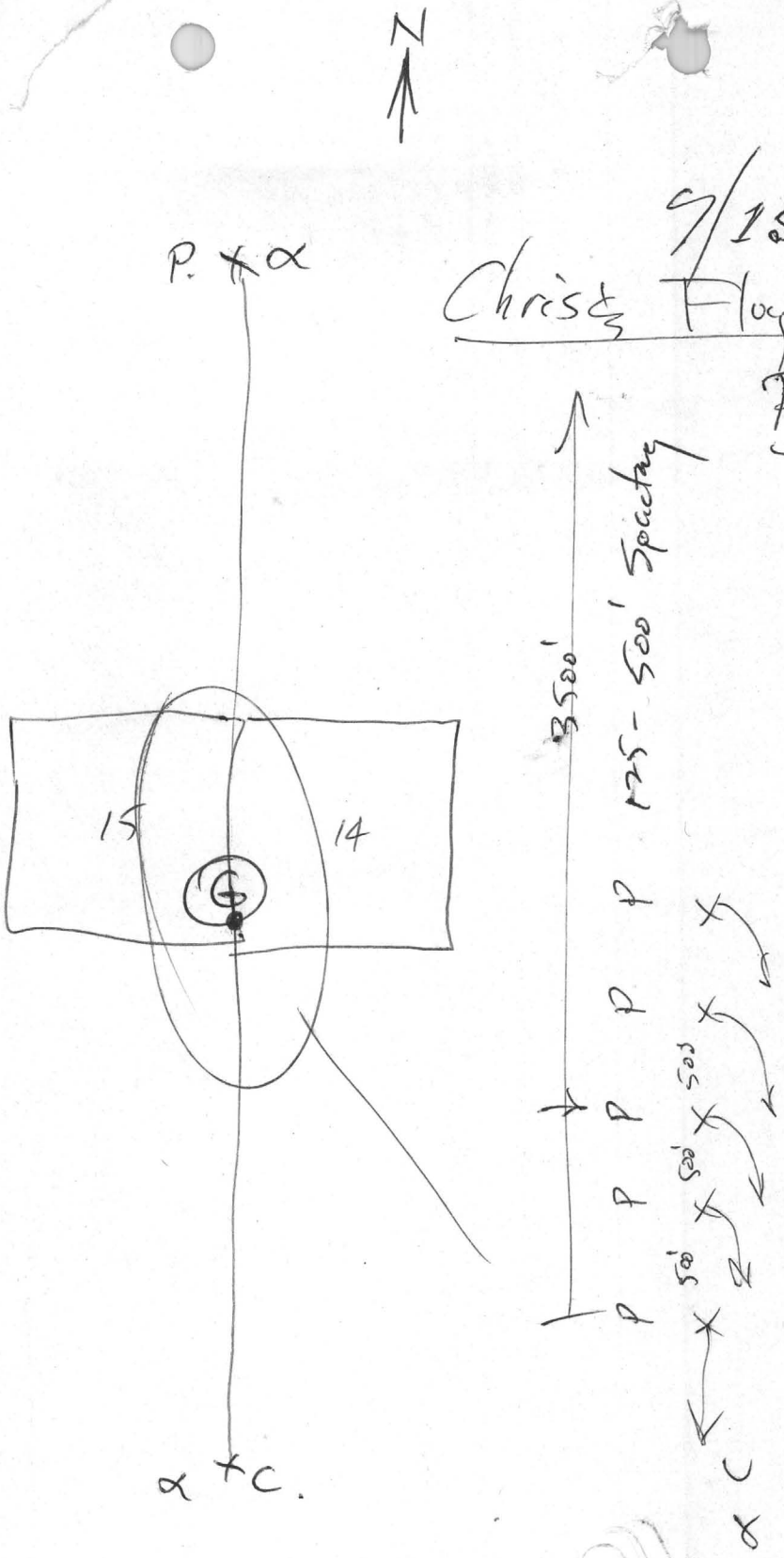
LEFAX PHILADELPHIA 7, PA. MADE IN U.S.A.

9/15/63

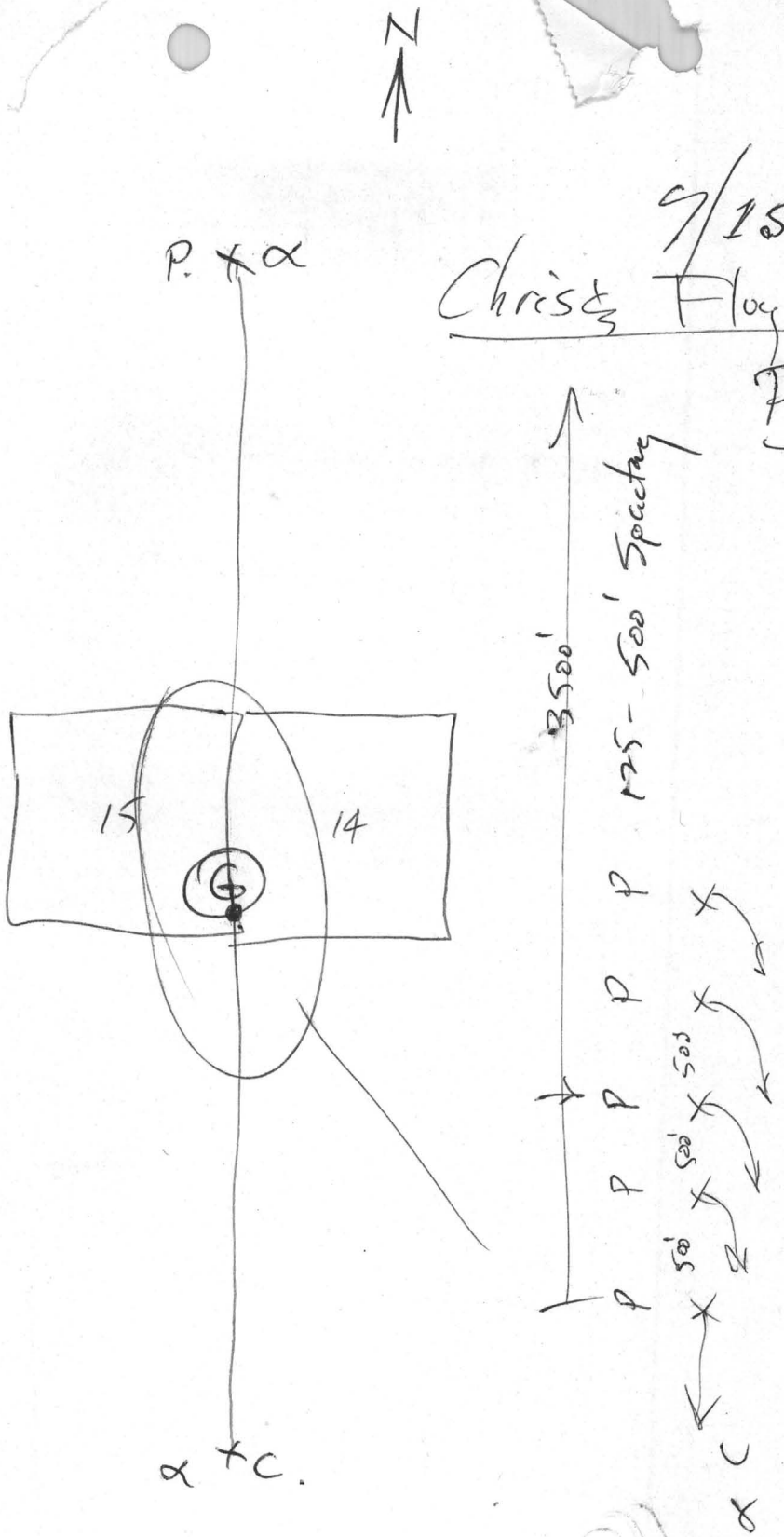
Chris & Floyd Pole-Pole Procedure.



Insp. Mary Sandra

9/15/63

Christ & Floyd Pole-Pole Procedure.



Insp. Mary Sandra

MAGNETIC, GRAVITY
and
INDUCED POLARIZATION

GEOPHYSICS

Sandra Claim Group, Pima District
Sec. 14, T 17 S, R 13 E, Pima County
Arizona

for
INSPIRATION CONSOLIDATED COPPER COMPANY
Inspiration, Arizona

August 1963

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

TABLE OF CONTENTS

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Conclusions & Recommendations	1
Gravity Work	2
Magnetic Work	3
Induced Polarization	4

1---Magnetic Map

2---Two Gravity Profiles

3---Three Induced Polarization Sectional Data Sheets

INTRODUCTION

This work was done at Mr. E. F. Reed's request, for the purpose of compliance with the annual labor requirements for 1962-1963 on the 25 Sandra Claims by Inspiration, as agreed between the owners and Inspiration. Consistent with this, the work was also designed to simultaneously gain a maximum of additional information relative to the southeast part of Section 15 which adjoins the southwest part of the Sandra group and where previous work had been done.

CONCLUSIONS AND RECOMMENDATIONS

From the standpoint of water table, rock type differences, faulting and stratigraphy, all of the Sandra results correlate very well with the Sec. 15 data obtained previously. However, mineralization indications and correlations remain very weak and indefinite.

Under present conditions of information, no additional work, except a drill hole proposed in the SE part of Sec. 15 is recommended for now.

GRAVITY WORK

Approximately ten survey-man days were required to establish an elevation station network. This network and the gravity coverage consists of two N-S profiles with a station spacing of 500 feet. Profile A is located on the western border of claims 1, 2, 3, 4 and 22 or approximately 50 feet east of the boundary of Sections 14 and 15. Profile B is located 1800 feet east of Profile A and on the borders of claims 12-13, 11-14 and 10-15; both profiles are 5,000 feet in length.

Succeeding the level survey, one day was spent in the field with the gravity meter and a couple of days in the office compiling and plotting data.

Results were calculated on the basis of two density values; 2.65 gm/cc representing the density of proposed bedrock configuration and 2.20 gm/cc representing the density of the overburden material.

Weak deviations show up on both profiles with both densities. However, slightly greater relief is apparent with the 2.20 density plot. Both profiles reflect a slight change in subsurface material and/or bedrock slope from north to south and definite sloping to the east. There is some indication of possible faulting trending about NW-SE approximately across the SW part of the section and profile A has two faint "bumps". The most northerly bump correlates with a magnetic low, and most southerly one a

magnetic high, and the faulting, the boundary or trend in between the two.

Pending encouraging results from other work and continued interest in the area, additional gravity work in the vicinity may eventually be warranted.

MAGNETIC WORK

A half day was spent obtaining magnetic coverage over the west half of Section 14. Both mobile magnetometer (total intensity) and Jalander hand magnetometer (vertical intensity) profiles were made. Values read were adjusted to tie to each other by converting the mobile readings. Base level is tied to previous work.

A minor magnetic low shows in the northwest part of the section. A structural NW-SE trend is indicated in the southwest portion where a magnetic high exists. The cause of this is fairly deep and is deeper to the southeast. It probably is a fault contact with the northeast side relatively down.

Further magnetic work is only recommended for mainly outside this area and only if other encouraging factors justify holding and more accurate appraisal. This would be for the purpose of obtaining further broad reconnaissance coverage so as to see "the whole picture" and thus to better aid interpretation of data already on hand. Then, such work might or might not suggest a little more accurate or detailed coverage, however, such is not recommended now.

INDUCED POLARIZATION WORK

Three induced polarization lines were surveyed using three different electrode configurations in order to obtain data of varying depths and degrees of resolution. None of these lines showed any anomalism, at least any that could definitely be ascribed to mineralization.

The pole-pole technique showed increased PFE's with depth which are thought to be due to inductive coupling inherent in this technique rather than natural mineralization effects. The resistivity values give a three layer solution. The surface layer has a resistivity of 50 ohm ft/2pi and is 165 feet thick. The second layer extending from 165 feet to 500 feet below the surface has a resistivity from 14 to 18 ohm ft./2pi. The third layer starts at 500 feet beneath the surface and extends indefinitely downwards and has resistivities to 64 ohm ft/2pi. These three layers are interpreted respectively as unsaturated alluvium, water saturated alluvium and bedrock. This depth calculation was made in the vicinity of 0.5N on Line 7; but due to very minor lateral variations this depth applies approximately anywhere from 0.5S to 2.0N Line 7.

The pole-dipole configuration Line 8 was surveyed at right angles to Line 7 and centered on 0 N/S Line 7. This was done in an attempt to reduce inductive coupling effects which are sometimes a problem in areas of low resistivities such as this.

However, coupling effects were still noticed on Line 8, both positive and negative in value up to 7 percent. A very faint near surface anomaly aside from coupling appears around 1.0W. This anomaly is not(?) likely due to mineralization for it appears to be associated with the upper two layers, but it does correlate somewhat with the weakly anomalous data previously obtained in the SE part of Sec. 15.

From 0 E/W to 2.5E the same three layer condition exists as was noticed on Line 7, spread 1. West of 0 E/W to the end of the line, bedrock became progressively shallower, possibly as shallow as 200 feet near 2.5W.

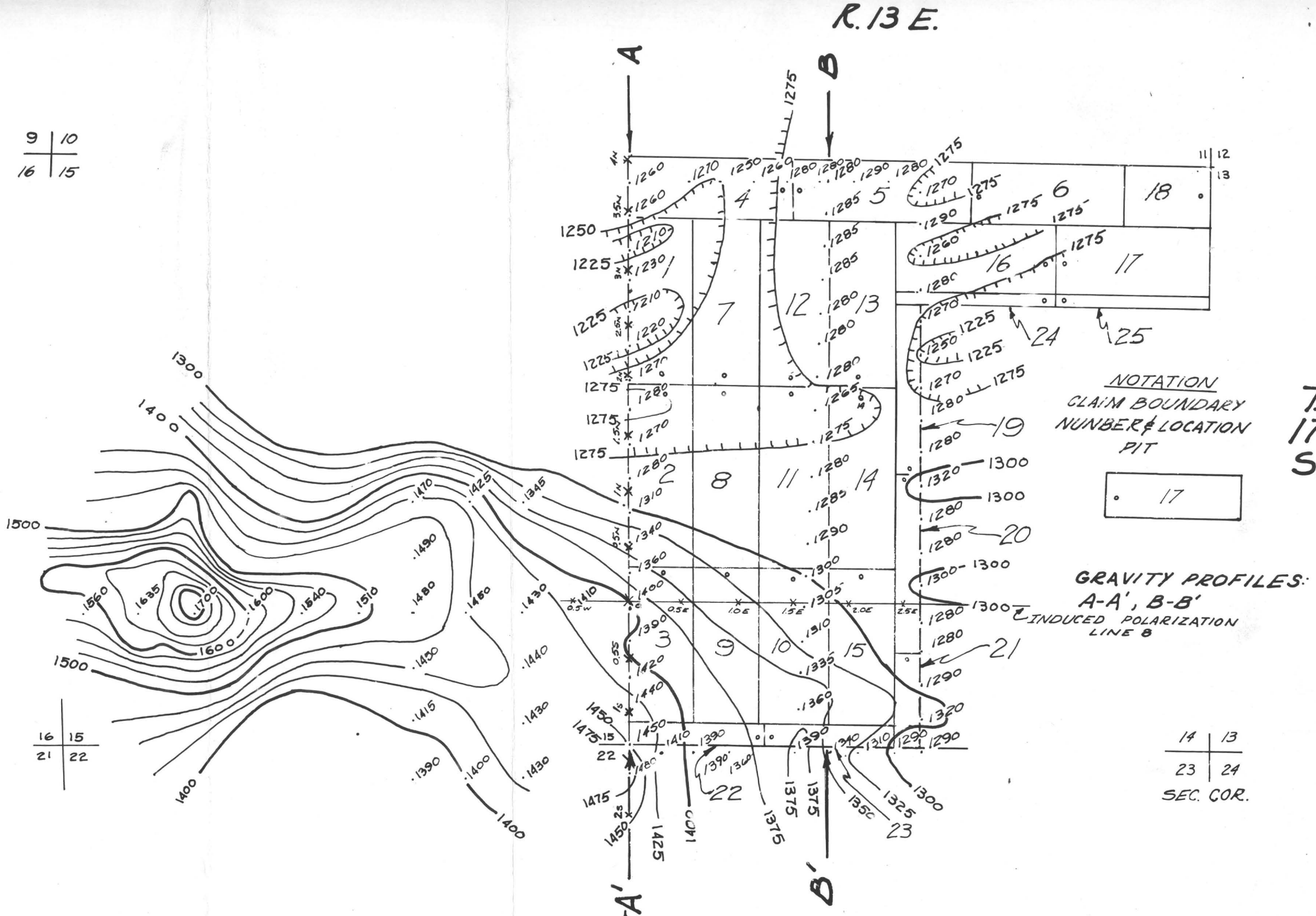
Line 7 was also run using a dipole-dipole configuration of 1,000 foot spacings. Again bedrock shows up at about 500 ft. below the surface. The water table was missed since 1,000 ft. dipoles were used. Some very questionable (twice background) I.P. anomalism appears from about 0.5S to 2.5S. Bedrock becomes shallower to the north and is of a much higher resistivity than the bedrock around 0 N/S, (perhaps 150 ohm ft/2pi) indicating a contact in the vicinity of 2.0N which probably correlates with the magnetic and gravity fault indications.

Respectfully submitted,

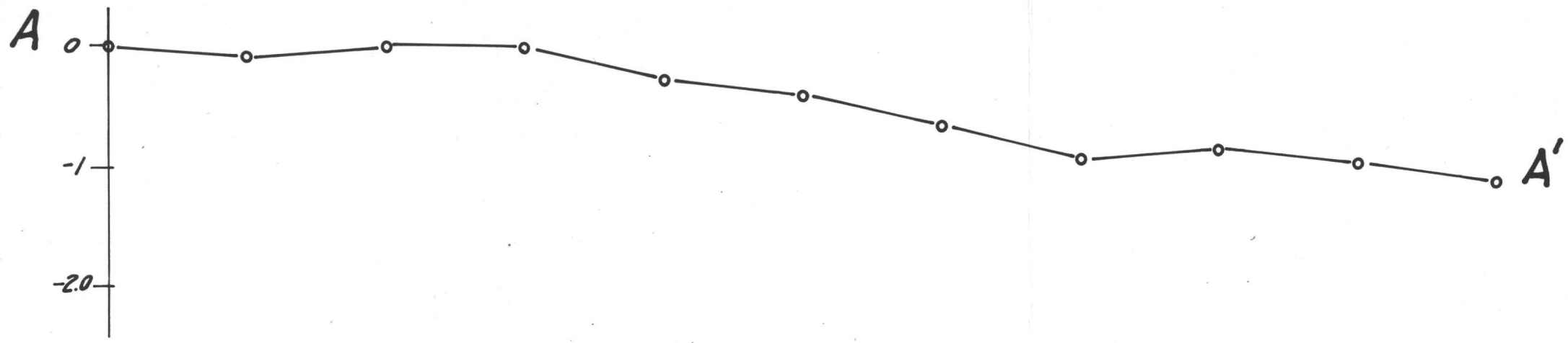
Walter E. Heinrichs, Jr.

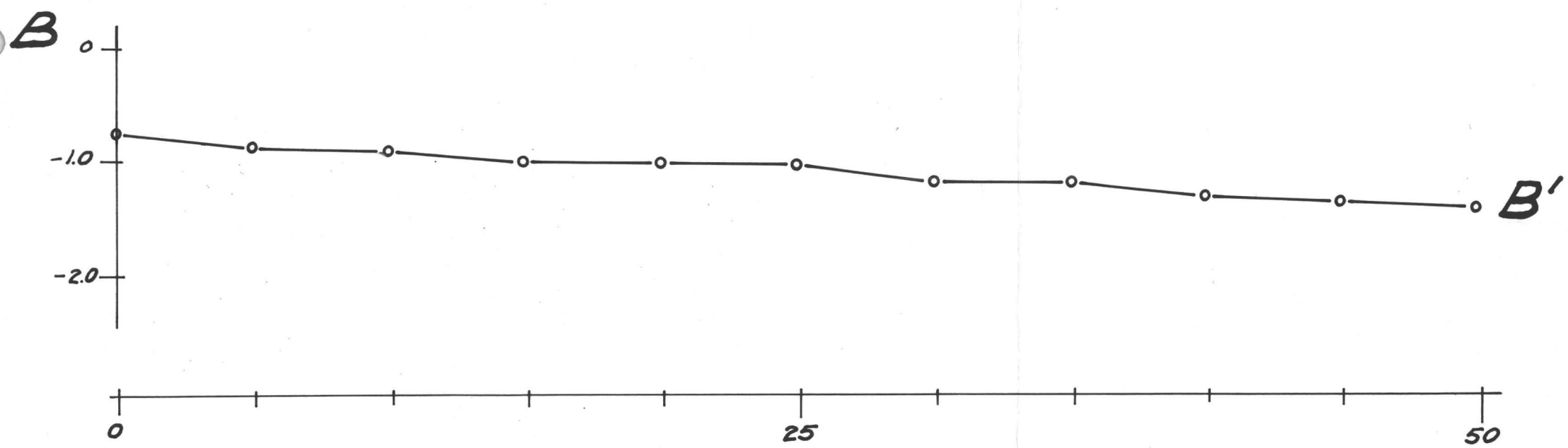
P.O.Box 5671
Tucson, Arizona

August 10, 1963



JALANDER VERTICAL COMPONENT OF
MAGNETIC INTENSITY IN GAMMAS
SANDRA CLAIM GROUP
SEC. 14 T. 17 S. - R. 13 E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
SCALE: 1" = 1000 C.I. 25 GAMMAS
JULY 1963

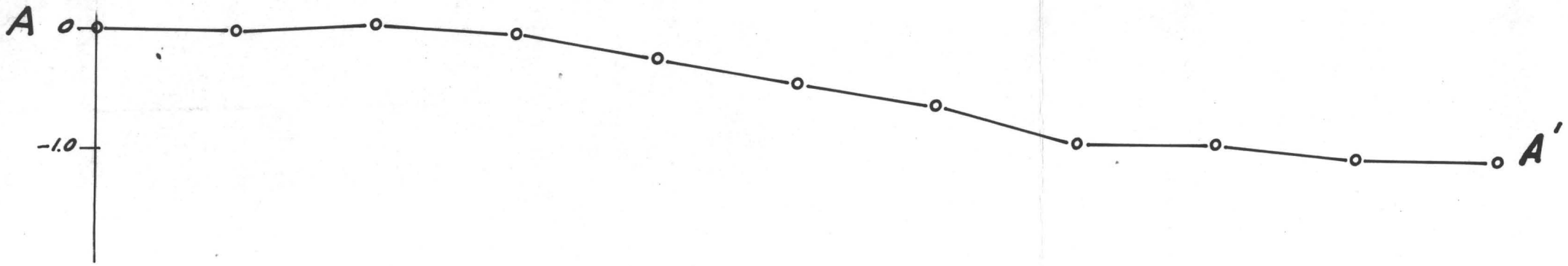


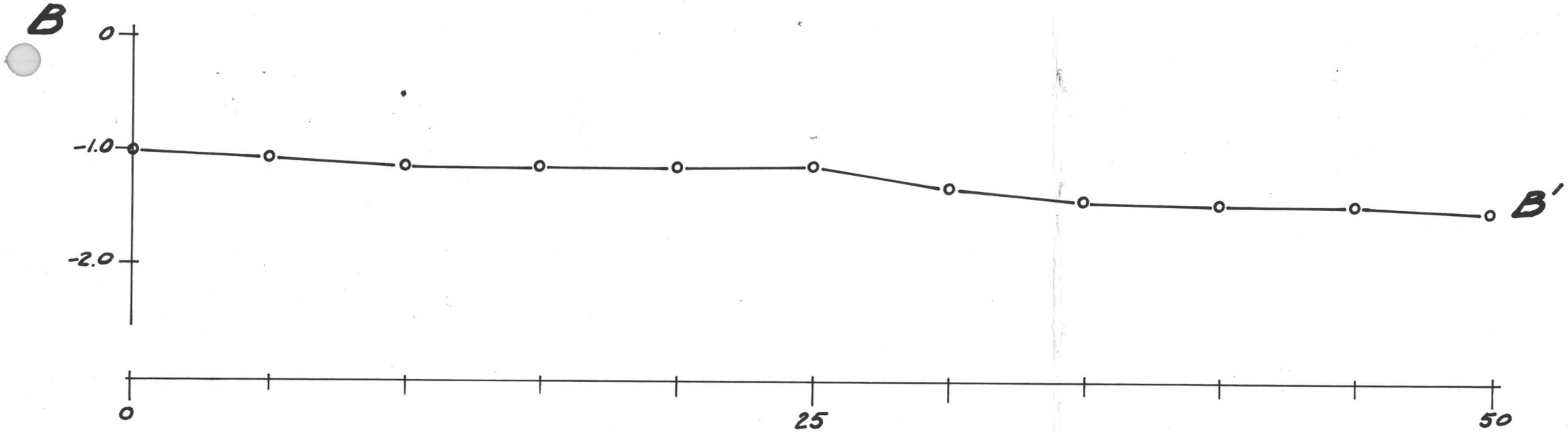


$\rho = 2.20$ gm/cc

HORIZONL SCALE: 1" = 500'
VERTICAL SCALE: 1" = 1.2 mgals
LOOKING EAST SEC. 14

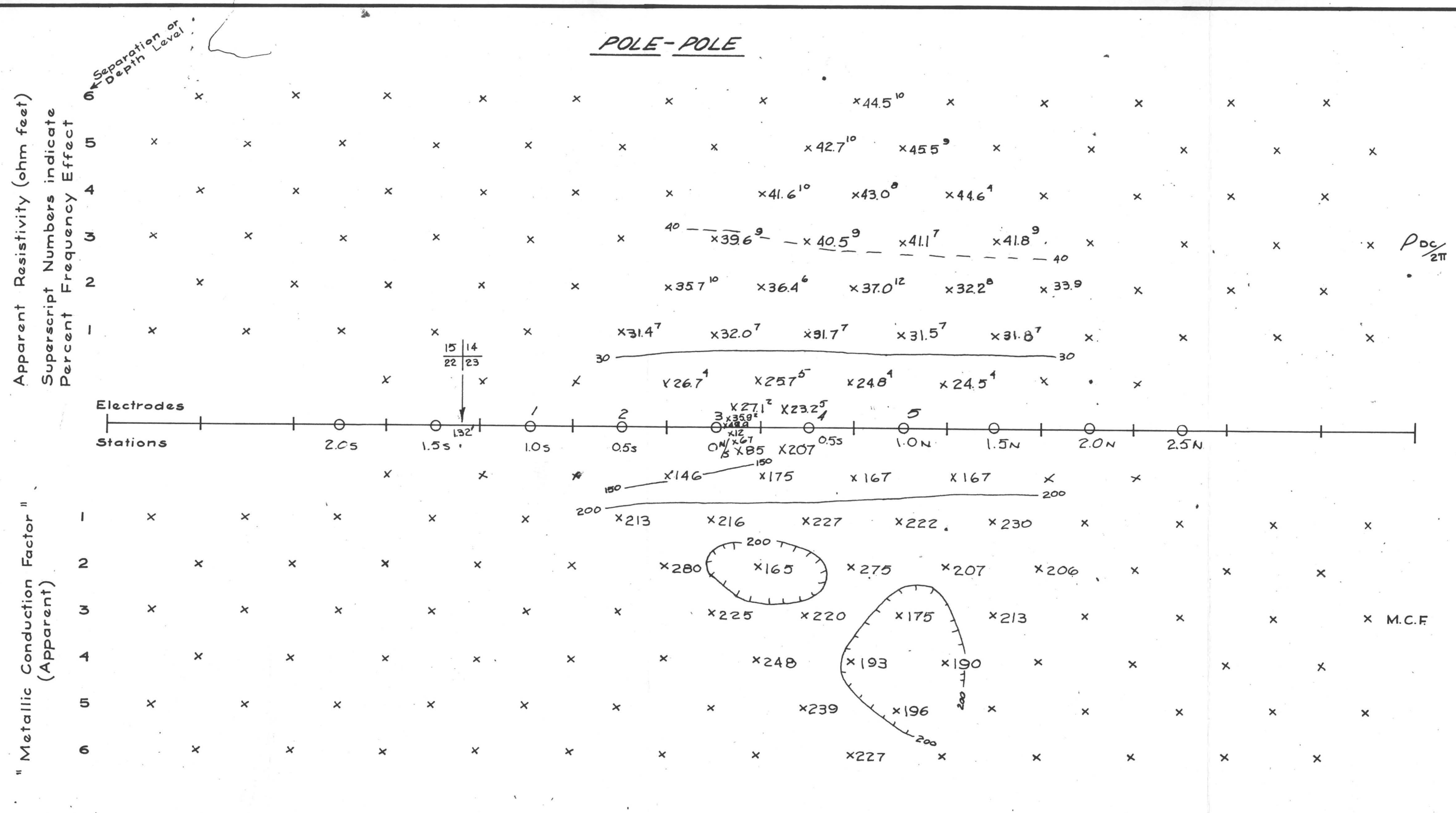
GRAVITY SURVEY
SANDRA CLAIM GROUP
PIMA CO. ARIZ. T.17S.-R.13E.
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
JULY 1963





$\rho = 2.65$ gm/cc
HORIZONAL SCALE: 1" = 500'
VERTICAL SCALE: 1" = 1.2 mgals
LOOKING EAST SEC. 14

GRAVITY SURVEY
SANDRA CLAIM GROUP
PIMA CO. ARIZ. T.17S. - R.13E.
FOR
INSPIRATION CON. COPPER CO.
BY
HEINRICHS GEOEXPLORATION CO.
JULY 1963



LEGEND

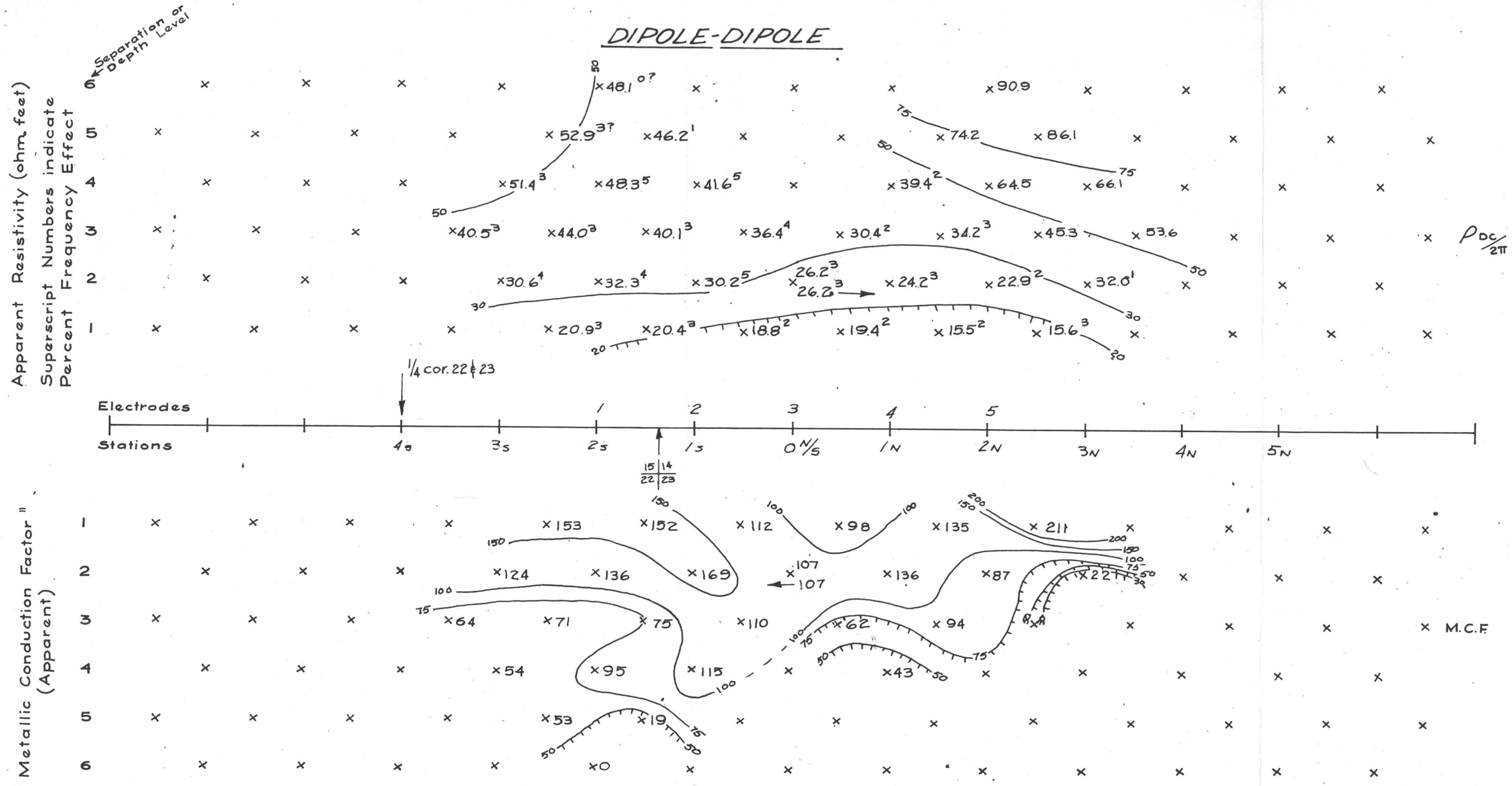
- End of Line
- Station
- No Anomaly
- Very Weak
- Weak
- Moderate
- Strong

Contour interval: Logarithmic
( ) indicates questionable data

SECTIONAL DATA SHEET
LINE No. 7 SPREAD 1 N½
INDUCED POLARIZATION SURVEY
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1"=500' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T. 17 S. – R. 13 E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.

DIPOLE-DIPOLE



LEGEND

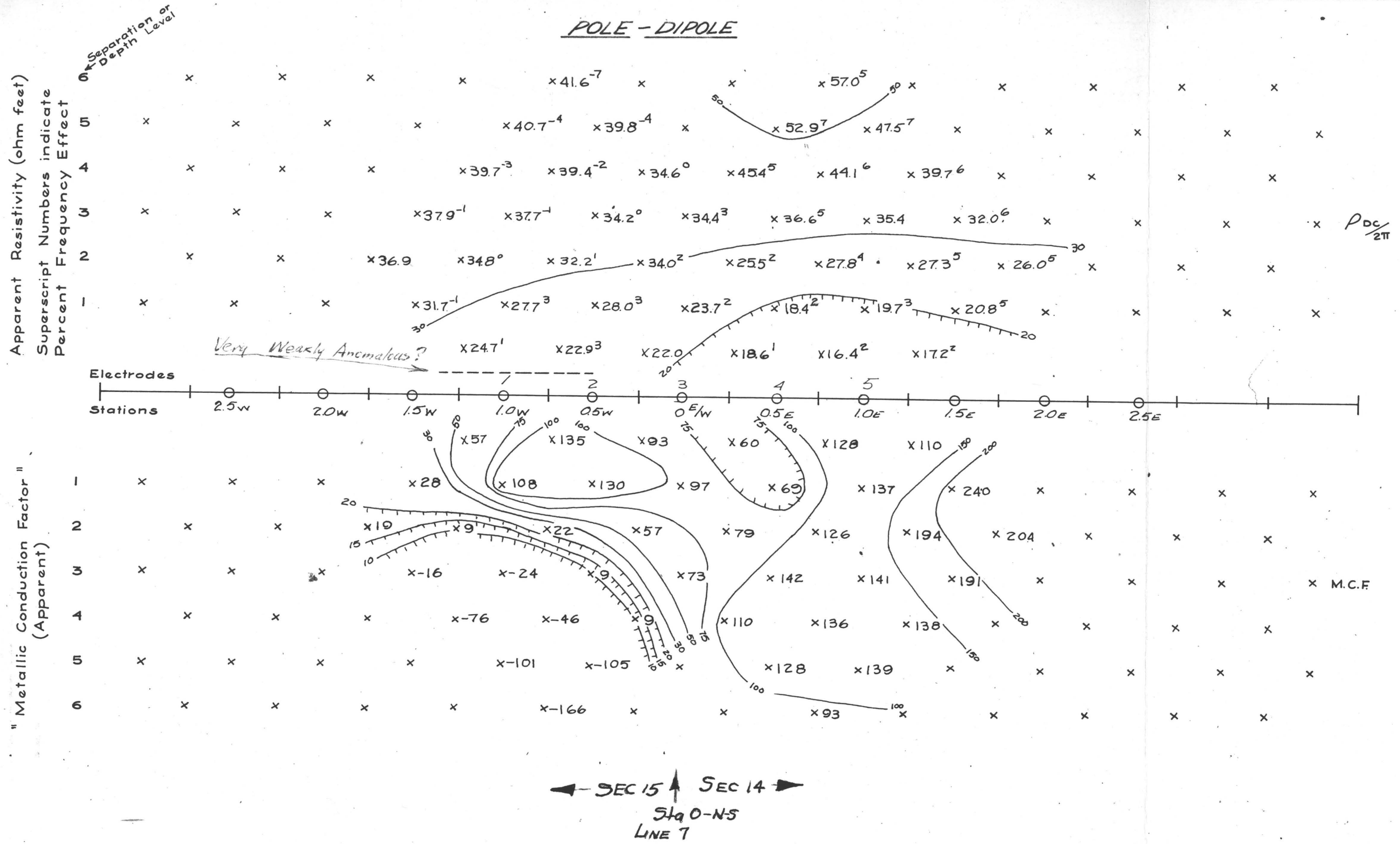
- End of Line
- Station
- No Anomaly
- Very Weak
- Weak
- Moderate
- Strong

Contour interval: Logarithmic
( ) indicates questionable data

SECTIONAL DATA SHEET
LINE No. 7 SPREAD / St N 1/2
INDUCED POLARIZATION SURVEY
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1" = 1000' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T.17S-R.13E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.

POLE - DIPOLE



LEGEND

- End of Line
- Station
- No Anomaly
- Very Weak
- Weak
- Moderate
- Strong

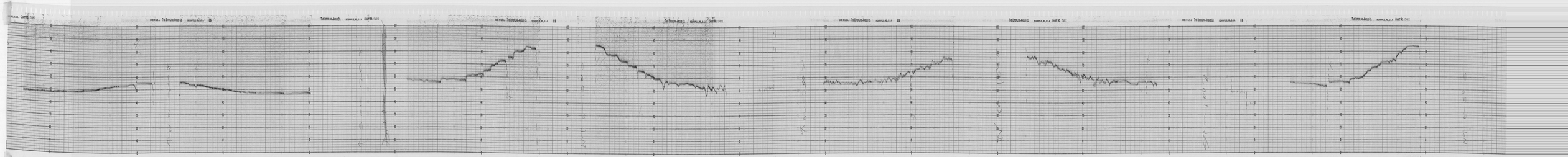
Contour interval: Logarithmic
( ) indicates questionable data

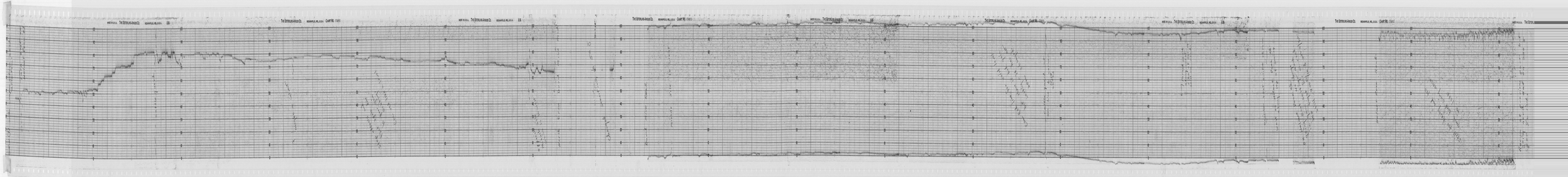
SECTIONAL DATA SHEET
LINE No. 8 SPREAD 1
INDUCED POLARIZATION SURVEY
HEINRICHS GEOEXPLORATION COMPANY
SCALE: 1" = 500' DATE: JULY 1963

SANDRA CLAIM GROUP
SEC. 14 T. 17 S. - R. 13 E.
PIMA COUNTY, ARIZONA
FOR
INSPIRATION CON. COPPER CO.

← SEC 15 ↑ SEC 14 →
Sta 0-N5
LINE 7

INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X
MADE IN U.S.A. THE ESTERLINE-ANGUS CO.
INDIANAPOLIS, IND., U.S.A. E.S.
THE ESTERLINE-ANGUS CO. INDIANAP
0 10 20 30 40 50 60 70 80 90 100





LEGEND

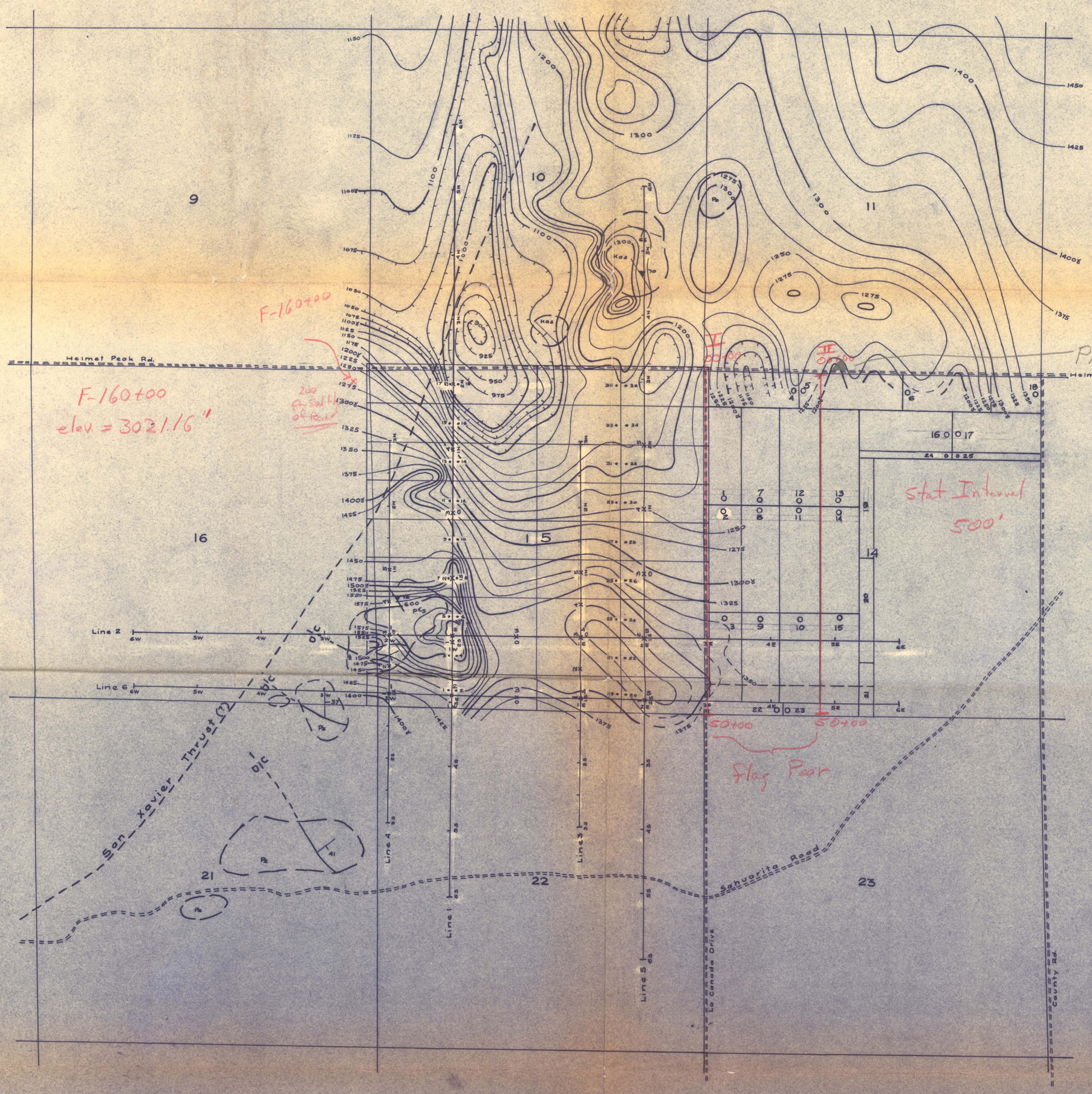
- Roads
- I. P. Line (Electrode No. 1 2 3; Station No. 3W 2W 1W 0 1E)
- Fault
- Strike & dip of beds
- Strike & dip of foliation
- Pz — Paleozoic sed. rocks
- pЄg — Granite
- Kas — Sedimentary-volcanic complex
- Mary Claim Number and Location
- Anomalous I.P.

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR
INSPIRATION CON. COPPER CO.

Mary Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25'	REVISIONS
	DATA BY: W. E. H. & E. G. H.	July, 1962
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:



LEGEND

- Roads
- 1 2 3 Electrode No. / 1 W 2 W 3 W 0 1 E Station No. — I. P Line
- Fault
- Strike & dip of beds
- Strike & dip of foliation
- Pz — Paleozoic sed. rocks
- pCg — Granite
- Kas — Sedimentary-volcanic complex
- 24 — Mary Claim Number and Location
- 12 / 0 — SANDRA CLAIM LOCATIONS & NUMBERS

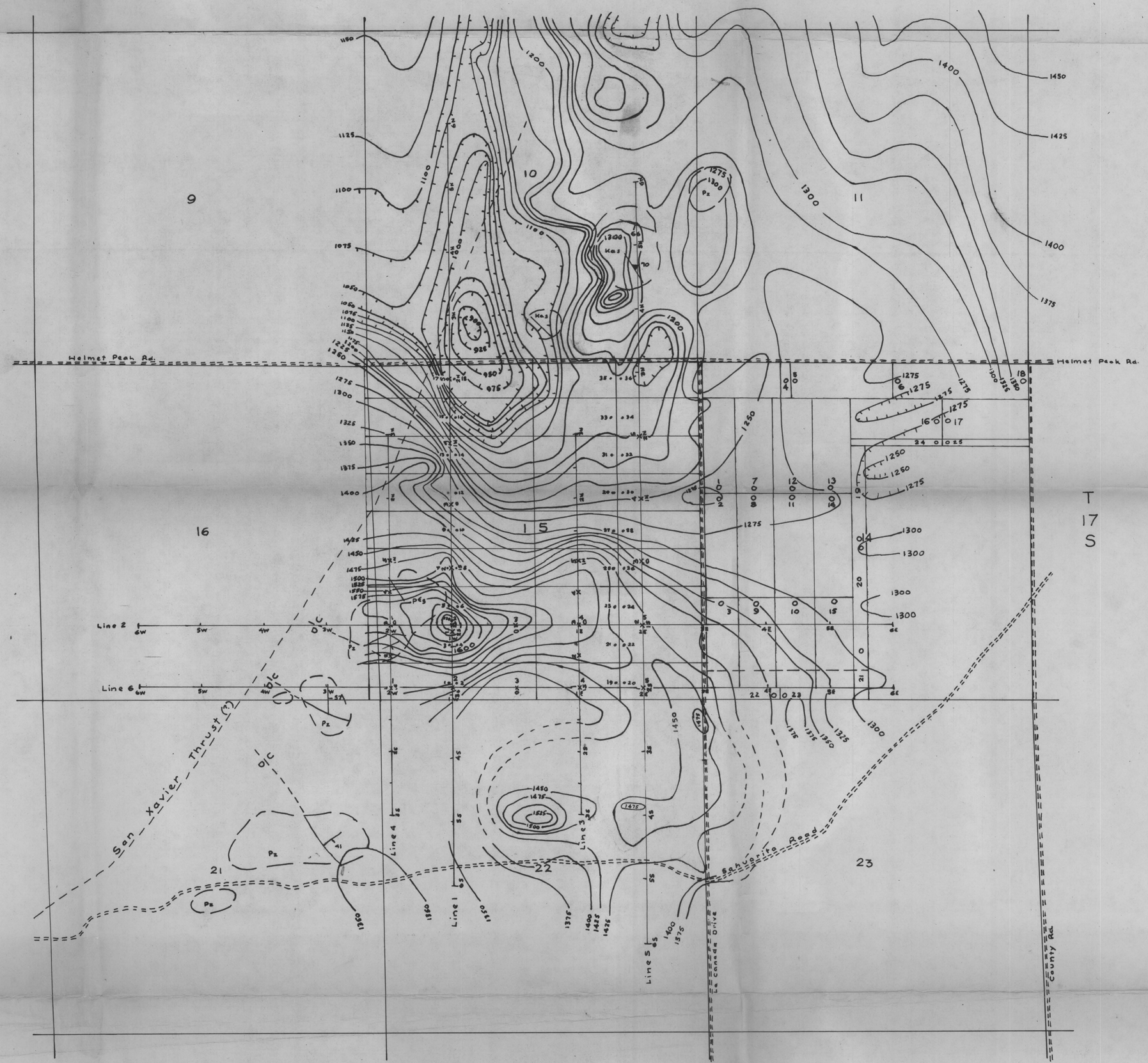
HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR
INSPIRATION CON. COPPER CO.

Mary Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25'	REVISIONS
	DATA BY: W.E.H. & E.G.H.	
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:

SANDRA



LEGEND

Roads

1 2 3 Electrode No.
3W 2W 1W 0 1E Station No. — I. P. Line

Fault

30 — Strike & dip of beds

72 — Strike & dip of foliation

Pz — Paleozoic sed. rocks

p€g — Granite

Kas — Sedimentary-volcanic complex

280 — Mary Claim Number and Location

12 — Sandra Claim
0 — number & location

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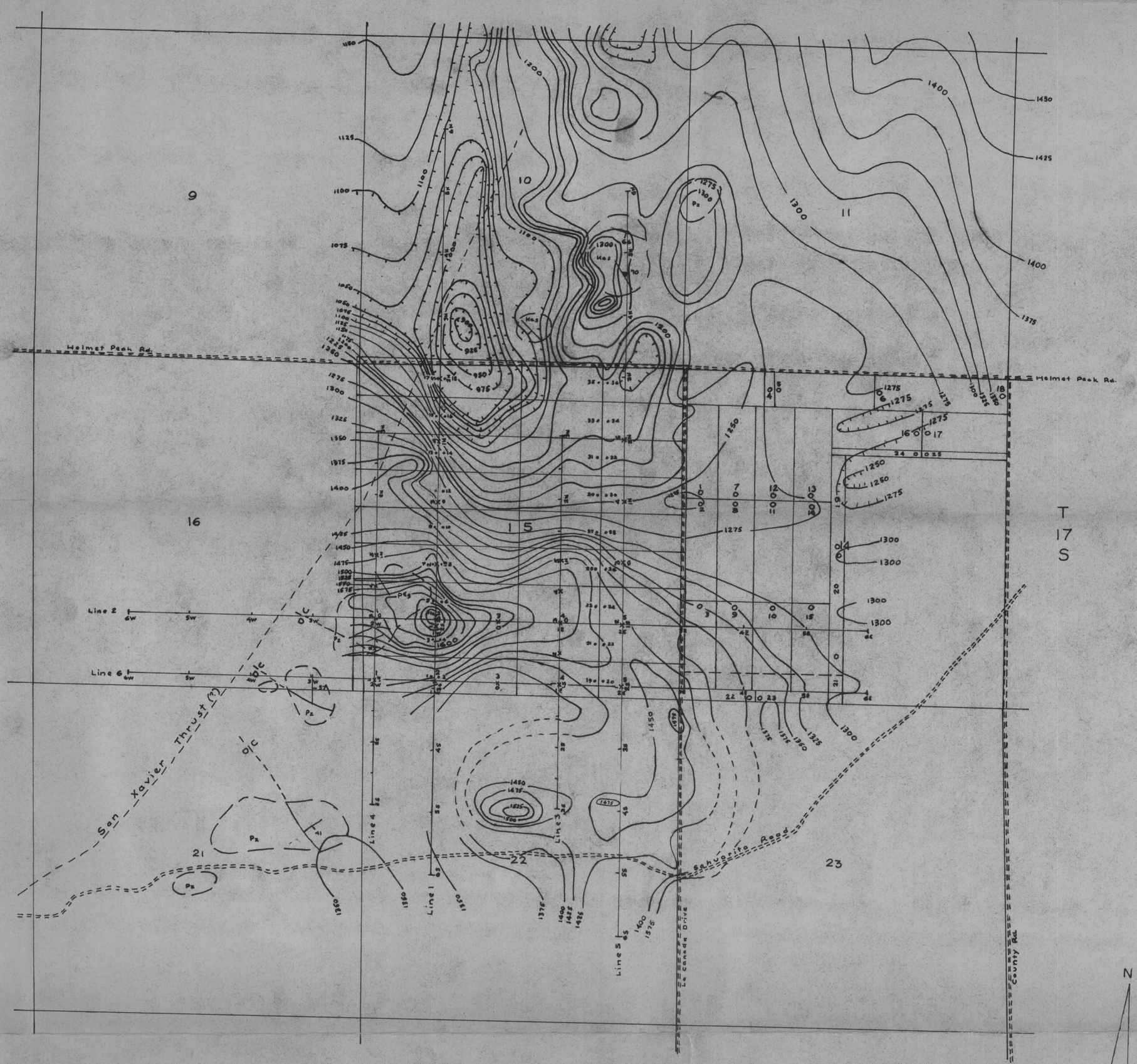
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX

FOR

Mary & Sandra Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25'	REVISIONS
	DATA BY: W.E.H., E.G.H. & J.W.M.	10-17-63
DATE:	SHEET OF	
DRAWN BY: R.P.	DRAWING NO.:	FILE:



LEGEND

Roads

1 2 3 Electrode No.
3W 2W 1W 0 1E Station No. — I. P. Line

Fault

30 — Strike & dip of beds

72 — Strike & dip of foliation

Pz — Paleozoic sed. rocks

pЄg — Granite

Kas — Sedimentary-volcanic complex

24o — Mary Claim Number and Location

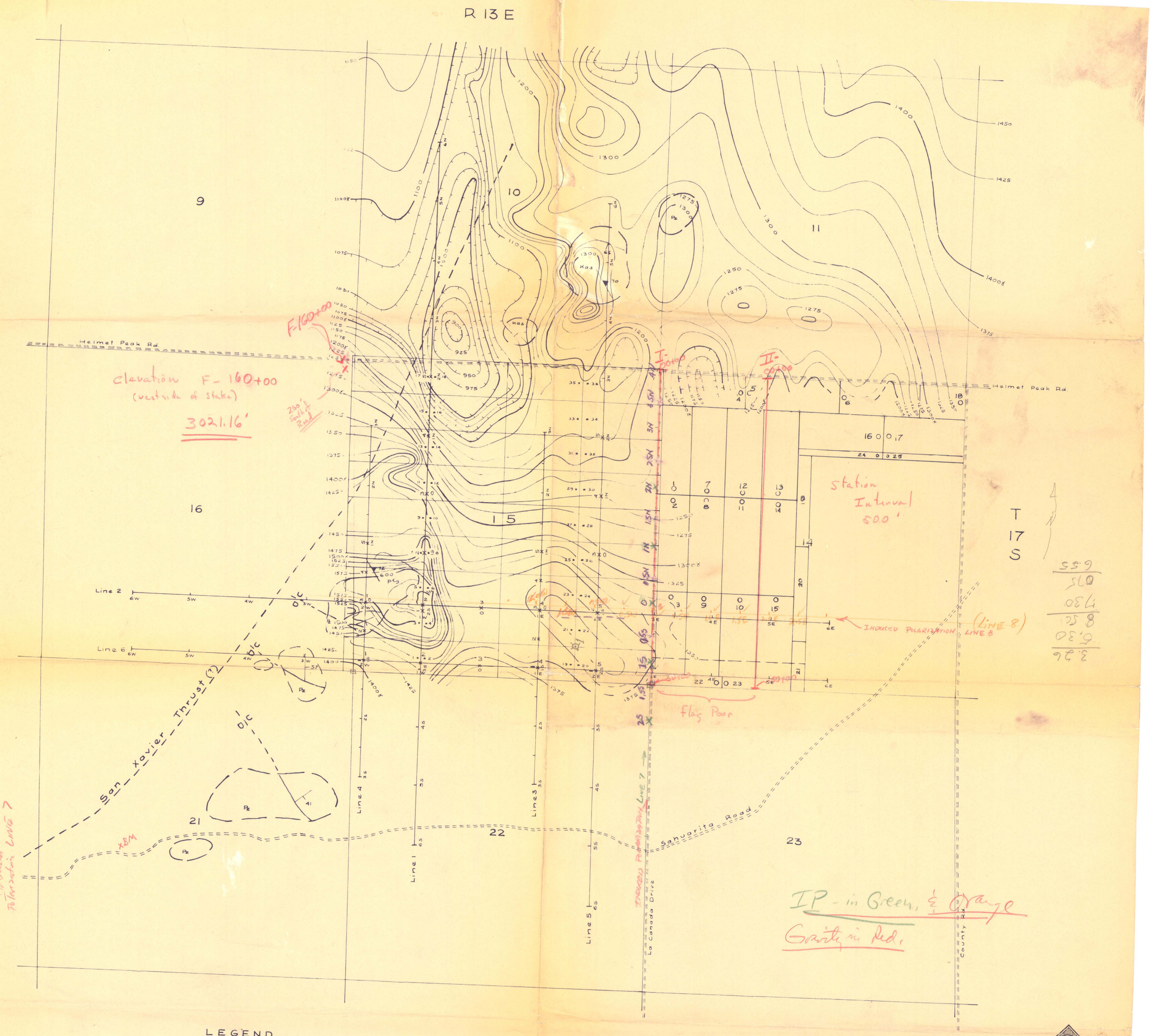
12 — Sandra Claim number & location

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR

Mary & Sandra Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25 ft	REVISIONS
	DATA BY: W.E.H., E.G.H. & J.W.M.	10-17-63
DATE:	SHEET OF	
DRAWN BY: R.P.	DRAWING NO.:	FILE:



LEGEND

Roads

I P Line — Electrode No. 1 2 3; Station No. 2W 1W 0 1E

Fault

Strike & dip of beds

Strike & dip of foliation

Pz — Paleozoic sed. rocks

pЄg — Granite

Kas — Sedimentary-volcanic complex

Mary Claim Number and Location

12 / 0 — SANDRA CLAIM LOCATIONS & NUMBERS

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

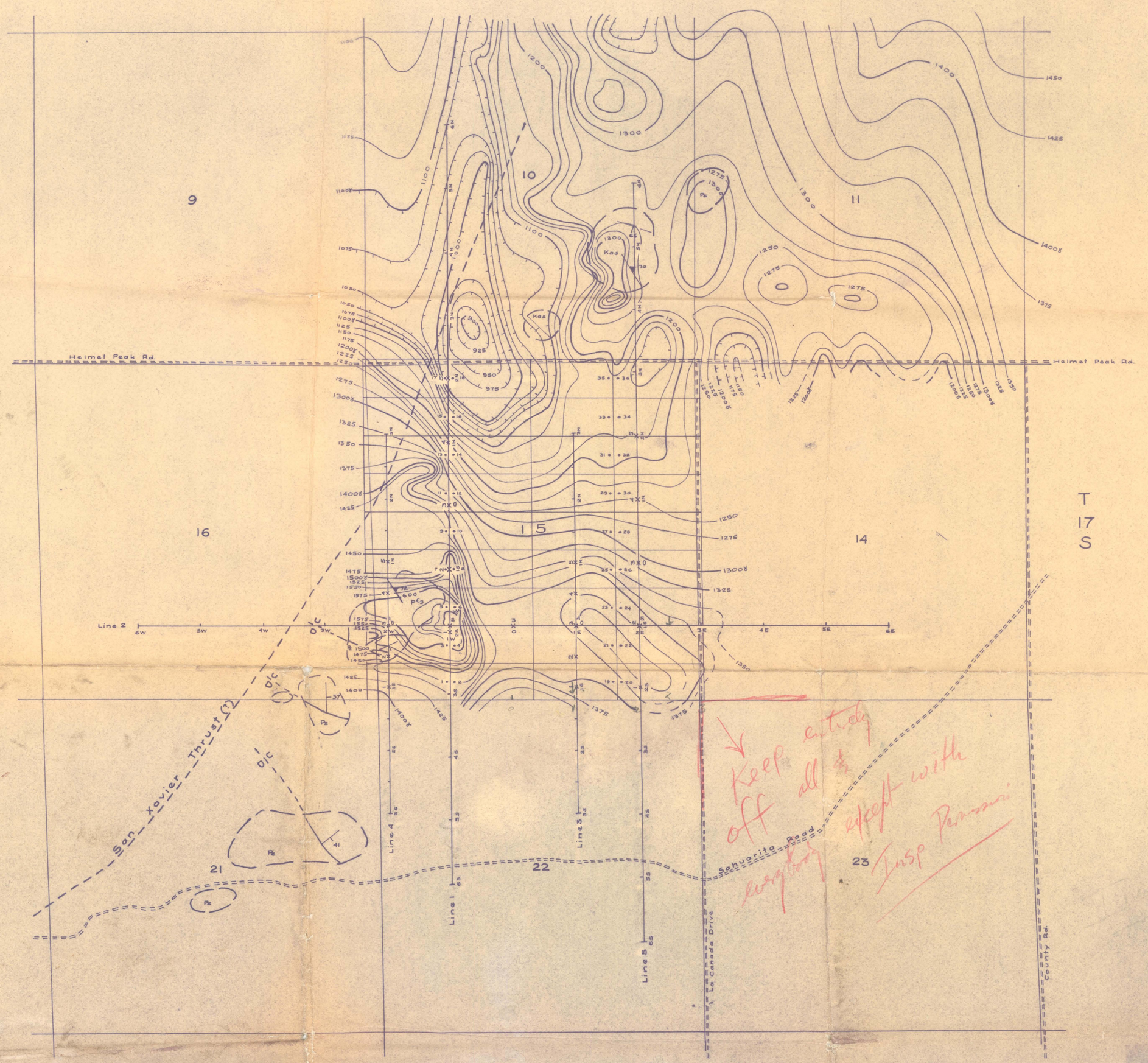
MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX

FOR

INSPIRATION CON. COPPER CO.

Mary & Sandra Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25'	REVISIONS
Aug 1963	DATA BY: W E H & E G H	
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:



LEGEND

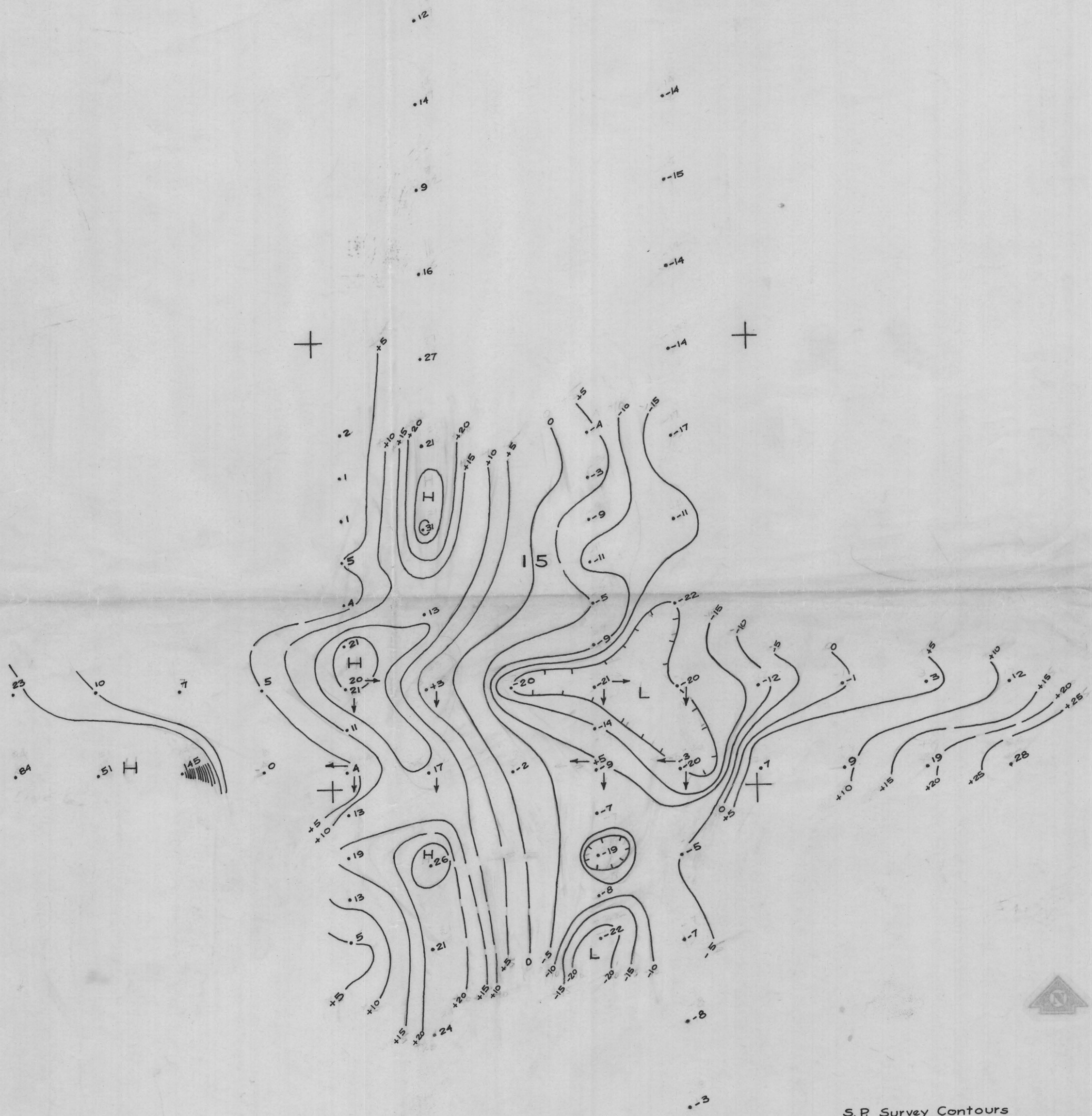
- Roads
- I. P. Line (Electrode No. 1 2 3; 5W 2W 1W 0 1E Station No.)
- Fault
- Strike & dip of beds
- Strike & dip of foliation
- Pz — Paleozoic sed. rocks
- pЄg — Granite
- Kas — Sedimentary-volcanic complex
- Mary Claim Number and Location

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR
INSPIRATION CON. COPPER CO.

Mary Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25 ft	REVISIONS
	DATA BY: W. E. H. & E. G. H.	
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:



S.P. Survey Contours
Mary Claim Group
Pima Co., Ariz. T.17S. - R.13E.
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
Scale: 1" = 1000' C.I. = 5 M/V
June 1962

LEGEND

Roads

1 2 3 Electrode No.
5W 2W 1W 0 1E Station No.
I. P. Line

12
0
SANDRA CLAIM LOCATIONS & NUMBERS

Fault

30
72
Strike & dip of beds
Strike & dip of foliation

Pz — Paleozoic sed. rocks

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Kas — Sedimentary-volcanic complex

24 — Mary Claim Number and Location

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR
INSPIRATION CON. COPPER CO.

Mary Claim Group Area
Pima Mining District
Pima County, Arizona

SCALE: 1" = 1000'	CONTOUR INTERVAL: 25γ	REVISIONS
	DATA BY: W.E.H. & E.G.H.	
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:

SANDRA

LEGEND

Roads

1 2 3 Electrode No.
3W 2W 1W 0 1E Station No.
I. P. Line

12
0
SANDRA CLAIM LOCATIONS & NUMBERS

Fault

30 Strike & dip of beds

75 Strike & dip of foliation

Pz Paleozoic sed. rocks

pCg Granite

Kas Sedimentary-volcanic complex

24 Mary Claim Number and Location

HEINRICHS GEOEXPLORATION COMPANY
P.O. Box 5671 Tucson, Arizona

MAGNETIC CONTOURS, — GEOLOGY, and INDUCED POLARIZATION INDEX
FOR
INSPIRATION CON. COPPER CO.

Mary Claim Group Area
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SCALE: 1" = 1000'	CONTOUR INTERVAL: 25γ	REVISIONS
	DATA BY: W. E. H. & E. G. H.	
DATE: May 1962	SHEET OF	
DRAWN BY: I.B.	DRAWING NO.:	FILE:

SANDRA

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5671 TUCSON, ARIZONA

GRAVITY COMPUTATIONS

AREA - SANDRA CLAIMS, SEC. 14, T17S, R13E, Pima Co. Average Density = 2.65 gm/cc

INSTRUMENT - WORLD-WIDE FACTOR = 0.09792 mgal/div. Datum Plan = Sea Level

Latitude Correction = 1.174 mgal./mile

Combined Bouguer + Free Air Correction = 0.06025 mgal./ft.

DATE	STATIONS & REMARKS	Reading	Drift Loop	Drift Line	Reading correct for Drift	Area Net correction Value	Reading correct for Area Net	Reading in mgals	Miles N. or S. of Base +N. -S.	Latitude correction Value	Reading correct for Latitude	Elevation in feet	Combined Bouguer + free air Corr.	Bouguer Value in mgals.	Terrain correction mgals (Bouguer corr. ρ=2.2)	Gravity values mgals. (Bouguer value)	Gravity Anomaly mgals	Gradient sta. - sta. (Gravity Anomaly at ρ=2.2)	Gravity values with respect to existing info.
7/26/63	PA5 No 1	745.5	0	0	745.5	0	745.5	72.999	0	0	72.999	2850.99	171.772	244.771	159.684	232.683	1.082	.904	
	II-00	735.6	0	.7	736.3	+9.1	745.4	72.989	0	0	72.989	2852.65	171.872	244.861	159.776	232.765	.992	.822	
	II-05	733.2	0	.7	733.9	+9.1	743.0	72.754	.0947	-.111	72.643	2854.65	171.992	244.635	159.888	232.531	1.218	1.056	
	II-10	729.0	0	.7	729.7	+9.1	738.8	72.343	.1894	-.222	72.121	2858.92	172.249	244.370	160.128	232.249	1.483	1.338	
	II-15	726.2	.4	1.0	727.6	+9.1	736.7	72.137	.2841	-.333	71.804	2858.81	172.243	244.047	160.121	231.925	1.806	1.662	
	II-20	726.4	.3	1.0	727.7	+9.1	736.8	72.147	.3788	-.444	71.703	2856.48	172.102	243.805	159.991	231.694	2.048	1.847	
	II-25	720.5	.2	1.0	721.7	+9.1	730.8	71.559	.4735	-.555	71.004	2865.17	172.626	243.630	160.478	231.482	2.223	2.105	
Line "B"	II-30	720.2	.4	0	720.6	+9.1	729.7	71.452	.5682	-.666	70.786	2864.38	172.578	243.364	160.433	231.219	2.489	2.368	
	II-35	718.1	.3	0	718.4	+9.1	727.5	71.236	.6629	-.777	70.459	2865.21	172.628	243.087	160.480	230.939	2.766	2.648	
	II-40	715.6	.2	0	715.8	+9.1	724.9	70.982	.7576	-.889	70.093	2866.34	172.696	242.789	160.543	230.636	3.064	2.951	
	II-45	712.2	.1	0	712.3	+9.1	721.4	70.639	.8523	-1.000	69.639	2868.51	172.827	242.466	160.665	230.304	3.387	3.283	
7/25/63	II-50	715.5	.7	1.7	717.9	0	717.9	70.296	.9470	-1.111	69.185	2871.60	173.013	242.198	160.838	230.023	3.655	3.564	
	I-50	693.7	.4	1.7	695.8	0	695.8	68.132	.9470	-1.111	67.021	2913.36	175.529	242.550	163.177	230.198	3.303	3.389	
	I-45	698.2	1.1	1.0	700.3	0	700.3	68.573	.8523	-1.000	67.573	2909.16	175.276	242.849	162.942	230.515	3.004	3.072	
	I-40	705.1	.9	1.0	707.0	0	707.0	69.229	.7576	-.889	68.340	2903.62	174.943	243.283	162.631	230.971	2.570	2.614	
	I-35	706.1	.6	1.0	707.7	0	707.7	69.297	.6629	-0.777	68.520	2905.69	175.067	243.587	162.747	231.267	2.266	2.320	
	I-30	712.9	.4	.5	713.8	0	713.8	69.895	.5682	-.666	69.229	2901.03	174.797	244.016	162.486	231.715	1.837	1.872	
Line "A"	I-25	713.7	.3	.5	714.5	0	714.5	69.963	.4735	-.555	69.408	2903.63	174.943	244.351	162.632	232.040	1.502	1.547	
	I-20	717.6	.1	.5	718.2	0	718.2	70.326	.3788	-.444	69.882	2902.11	174.852	244.734	162.547	232.429	1.119	1.158	
	I-15	722.6	.2	0	722.8	0	722.8	70.776	.2841	-.333	70.443	2899.74	174.721	245.164	162.425	232.868	.689	.719	
	I-10	725.3	.1	0	725.4	0	725.4	71.031	.1894	-.222	70.809	2899.56	174.698	245.507	162.404	233.213	.346	.374	
	I-05	727.1	0	0	727.1	0	727.1	71.197	.0947	-.111	71.086	2896.66	174.523	245.609	162.241	233.327	.244	.260	
	I-00	730.8	0	0	730.8	0	730.8	71.559	.000	-0	71.559	2892.85	174.254	245.853	162.028	233.587	0	0	
														ρ=2.65			ρ=2.65	ρ=2.20	
															ρ=2.20				