INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 2 Spr. 4 SE Int.Cal Date: 4/11/62

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
Rec.												
Time	14:05	14:08	14:32	14:36	14:39	14:55	14:58	15:02	15:06	15:24	15:27	15:31
DC-1	5.20 5.20	1.40 1.40	5.3 5.3	1.45 1.46	.61 .61	5.95 5.95	1.46 1.49	.62 .60	.32 .32	1.40 1.39	.59 .68	.36 .35
DC-2	5.39 5.40	1.40 1.40	5.2 5.2	1.36 1.35	.59 .59	5.85 5.85	1.46 1.43	.62 .65	.36 .37	1.51 1.52	.68 .59	.33 .34
Σ	10.59 10.60	2.80 2.80	10.5 10.5	2.81 2.81	1.20 1.20	11.80 11.80	2.92 2.92	1.24 1.25	.68 .69	2.91 2.91	1.27 1.27	.69 .69
DC-3	5.20 5.20	1.40 1.42	5.2 5.2	1.42 1.42	.61 .62	5.99 6.02	1.49 1.52	.62 .65	.30 .29	1.40 1.40	.68 .70	.36 .36
Dc-4	5.40 5.40	1.38 1.37	5.3 5.3	1.38 1.38	.59 .58	5.80 5.78	1.43 1.39	.62 .58	.38 .38	1.52 1.52	.59 .58	.33 .33
Σ	10.60 10.60	2.79 2.79	10.5 10.5	2.80 2.80	1.20 1.20	11.79 11.80	2.92 2.91	1.24 1.23	.68 .67	2.92 2.92	1.27 1.28	.69 .69
DC-AV	10,60	2.79	10.5	2.81	1.20	11.80	2.92	1.24	.68	2.92	1.27	.69
AC-1	5.18	1.38	5.10	1.39	.59	5.78	1.46	.63	.32	1.43	.62	.32
AC-2	5.18	1.38	5.10	1.39	.60	5.78	1.46	.62	.33	1.44	.62	.32
Σ	10.36	2.76	10.20	2.78	1.19	11.56	2.92	1.25	.65	2.87	1.24	.64
S. P.		-1.6			-2.0				-2.9			
AC-N		.06			.08				.09			

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunzone Line: 2 Spr. 4 SE ½ Int.Cal Date: 4/11/62

Send	1-2	4-5	3-4	2-3	1-2		CAL	1-2	NW & SE ½'s			
Rec.												
Time	15:34	15:42	15:51	15:53	15:57		16:09	16:15	16:19			
DC-1	.20 .22	.65 .69	.32 .30	.20 .20	.19 .18		33.5	71.0	88.0			
DC-2	.20 .19	.67 .63	.37 .39	.23 .24	.13 .13		33.2	70.8	88.0			
Σ	.40 .41	1.32 1.32	.69 .69	.43 .44	.32 .31		66.7	141.8	176.0			
DC-3	.20 .20	.70 .70	.31 .30	.19 .18	.19 .20		33.5	71.0	88.0			
Dc-4	.22 .20	.62 .62	.39 .40	.24 .26	.12 .11		33.2	70.8	88.0			
Σ	.42 .40	1.32 1.32	.70 .70	.43 .44	.31 .31		66.7	141.8	176.0			
DC-AV	.41	1.32	.695	.435	.31		66.7	141.8	176.0			
AC-1	.20	.65	.36	.21	.13		?	69.9	90.0			
AC-2	.20	.65	.36	.21	.13		?	69.9	90.0			
Σ	.40	1.30	.72	.42	.26		No Survey	139.8	180.0			
S. P.	+3.0				-8.1							
AC-N	.08				.08							

INDUCED POLARIZATION SENDER NOTES

Project: Sanizona Line: 2 Spred #4 SE 1/2 Date: 4/11/62

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive												
Time		1405	1408	1432	1436	1439	1455	1458	1502	1506	1524	1527
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1700 1700	1705 1705	1720 1720	1705 1700	1705 1705	1685 1685	1680 1680	1680 1675	1670 1670	1685 1680	1685 1685
Send	2-3	1-2	1-5	3-4	2-3	1-2	Cal	1-2				
Receive												
Time	1531	1534	1547	1551	1553	1557	1609	1616	1619			
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0			
Current	1680 1680	1680 1680	1665 1665	1675 1675	1670 1665	1675 1670	640	1355 1350	1680 1690			

4 NW 1/2

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

Project Sunizona Line 2 spr. 4 NW¼ Field date 4/11/62 Data page _____ Comp. date 4/12/62 Comp by N.R.N

(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												
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I -	1735	1705	1775	1755	1745	1730	1720	1715	1705	1700	1695	1690
(E) Vdc (avg) -	11.85	3.10	11.90	3.07	1.32	10.62	2.63	1.14	.62	2.62	1.07	.595
(F) DCcal .932 used												→
(G) Kn x 10^{-3} -	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	9.57	10.15	9.37	9.81	10.58	8.59	8.53	9.30	9.92	8.61	8.85	9.86
(I) Vac Σ AC corrected in transmitter from data	9.5	10.1	9.3	9.7	10.5	8.6	8.5	9.3	10.1	8.6	8.8	9.8
(J) AC noise x 2	.14	.14	.14	.14	.14	.12	.12	.12	.12	.14	.14	.14
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	11.50	3.02	11.50	3.00	1.27	10.36	2.60	1.16	.59	2.60	1.03	.58
(L) AC-DC cal.	1.0											→
(M) ρ dc/ρac=ExL/K	1.031	1.028	1.034	1.022	1.040	1.028	1.011	.985	1.050	1.009	1.039	1.028
(N) PFE=(M-1)(10^2)	3	3	3	2	4	3	1	−2	5	1	4	3
(O) MCF=(M-1)(10^5)/H	326	277	366	227	371	326	130	(−161)	495	105	443	286

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

(A) Send	4-5	1-2	2-3	3-4	4-5		Calc 1-2					
(B) Receive												
(C) n separation	5	3	4	5	6							
(D) I	1680	1685	1690	1680	1665		660	1450	1730	640	1355	1685
(E) Vdc (avg)	11.38	1.08	.59	.385	.128		1.3	155.8	198.0	66.7	141.8	176.0
(F) DCcal 9.32 used					→		9.23	9.31	8.73	9.61	9.51	9.58
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0		.926	9.31		9.60	9.56	9.57
(H) ρ dc=ExFxGx10^3/D	11.06	8.95	9.74	11.20	13.16		~	.929		~	.958	
(I) Vac Σ	11.0	8.9	9.7	11.1	13.1							
(J) AC noise x 2	.14	.12	.12	.12	.12							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	1.33	1.03	.57	.36	.24		71.8	151.6	198.0	?	139.8	180.0
(L) AC-DC cal.	1.0				→		1.008	.975	1.000		.986	1.021
(M) ρdc/ρac =ExL/K	1.150	1049	1.035	1.070	1.167					.998 av.		
(N) PFE=(M-1)(10^2)	15	5	4	7	17							
(O) MCF=(M-1)(10^5)/H	1360	550	361	631	1275				Use 1.0			

4SE1/2

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sunizona Line 2 spread 4 SE1/2 Field date 4/11/62 Data page_____ Comp. date 4/12/62. Comp by N.R.N

(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												
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1700	1705	1720	1705	1705	1685	1680	1680	1670	1685	1685	1680
(E) Vdc (avg)	10.60	2.79	10.5	2.81	1.20	11.80	2.92	1.24	.68	2.92	1.27	.69
(F) DCcal .958 9.32 used												
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	8.75	9.15	8.53	9.22	9.85	9.78	9.71	10.32	11.38	9.68	10.52	11.48
(I) Vac Σ	9.0 .936	9.4	8.8	9.5	10.1	10.1	10.0	10.6	11.7	10.0	10.8	11.8
(J) AC noise x 2 (corrected in transposition)	.12	.12	.16	.16	.16	.18	.18	.18	.18	.16	.16	.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	10.36	2.76	10.20	2.78	1.18	11.56	0.92	1.24	.62	2.87	1.23	.62
(L) AC-DC cal.	1.0											
(M) ρ dc/ρac=ExL/K	1.021	1.010	1.030	1.010	1.017	1.021	1.000	1.000	1.096	1.018	1.031	1.111
(N) PFE=(M-1)(10^2)	2	1	3	1	2	2	0	0	10	2	3	11
(O) MCF=(M-1)(10^5)/H	234	107	341	105	168	208	0	0	820	180	287	942

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2			cal 1-2				
(B) Receive												
(C) n separation	5	3	4	5	6							
(D) I	1680	1665	1675	1670	1675		660	1450	1730	640	1355	1685
(E) Vdc (avg)	.41	1.32	.695	.435	.31		71.3	155.8	198.0	66.7	141.8	176.0
(F) DCcal 9.32 used						→	9.23	9.31	8.73	9.61	9.51	9.58
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0			.929			.958	
(H) ρ dc=ExFxGx10^3/D	11.85	11.05	11.53	12.75	14.55							
(I) Vac Σ	11.9	11.4	11.9	13.1	14.9							
(J) AC noise x 2	.16	.16	.16	.16	.16							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.36	1.29	.70	.39	.20		71.6	151.6	198.0		139.8	180.0
(L) AC-DC cal.	1.0						1.008	.975	1.000	—	.986	1.021
(M) ρdc/ρac =ExL/K	1.838	1.023	1.000	1.116	1.550							
(N) PFE=(M-1)(10^2)	14	2	0	12	55				.998 av			
(O) MCF=(M-1)(10^5)/H	1160	202	0	885	3690				use 1.0			

D POLARIZATION - RECEIVER NOTES PAGE ①

Project: Sunizona Line: 1 Spread #1 w/ Int.Cal 52.5 Date: 4-5-62

Computed 500a

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.	.5-1.0 →		1.0 -	1.5 W →		1.5 -	2.0	W →		2.0 -	2.5	W →
Time	16:24	16:28	16:42	16:46	16:50	17:09	17:25	17:29	17:34	17:45	17:48	1758
DC-1	7.1 7.1	1.95 1.95	6.40 6.41	2.03 2.05	.87 .78	5.65 5.65	1.71 1.70	.82 .82	.45 .45	1.65 1.62	.75 .77	.49 .50
DC-2	7.1 7.1	1.99 1.98	6.30 6.28	1.99 1.98	.79 .90	5.62 5.62	1.72 1.74	.85 .85	.40 .39	1.74 1.78	.81 .77	.45 .43
Σ	14.2 14.2	3.94 3.93	12.70 12.69	4.02 4.03	1.66 1.68	11.27 11.27	3.43 3.44	1.67 1.67	.83 .84	3.39 3.40	1.56 1.54	.94 .93
DC-3	7.05 7.05	1.96 1.94	6.50 6.50	2.10 2.10	.84 .81	5.65 5.65	1.68 1.69	.85 .85	.45 .45	1.72 1.75	.75 .75	.50 .51
Dc-4	7.15 7.15	2.01 1.99	6.20 6.20	1.95 1.95	.84 .87	5.62 5.62	1.77 1.76	.84 .82	.40 .40	1.62 1.62	.82 .82	.43 .42
Σ	14.20 14.20	3.97 3.93	12.70 12.70	4.05 4.05	1.68 1.68	11.27 11.27	3.45 3.45	1.69 1.67	.85 .85	3.34 3.37	1.57 1.57	.93 .93
DC-AV	14.2	3.94	12.7	4.04	1.68	11.27	3.45	1.67	.85	3.37	1.56	.93
AC-1	6.8	1.92	6.10	1.95	.82	5.50	1.67	.82	.42	1.64	.78	.48
AC-2	6.8	1.92	6.10	1.95	.82	5.50	1.67	.82	.42	1.64	.78	.48
Σ	13.6	3.84	12.20	3.90	1.64	11.00	3.34	1.64	.84	3.28	1.56	.96
P.		-4.6			+7.4				-6.7			
		.08			.08				.08			

trode NE corner of Chiricahua & Ash Creek Rd. @ 1/4 Cor 6/7

INDUCED POLARIZATION - RECEIVER NOTES PAGE (2)

Project: Sumizona Line: / spread #1 w/ Int. Cal Date: 4/5/62

Send	4-5	1-2	2-3	3-4	4-5		CAL	1-2				
Rec.	2.	2.5	— 3.0 W	→								
Time	18:01	18:13	18:17	18:22	18:25		16:07	16:11	16:15	18:34	18:37	18:40
DC-1	.25 .22	.80 .75	.50 .50	.32 .32	.20 .20		35.0	76.2	97.0	35.0	74.5	92.0
DC-2	.28 .32	.93 .88	.42 .42	.30 .30	.18 .18		35.0	76.2	97.0	35.0	74.5	92.0
Σ	.53 .54	1.73 1.63	.92 .92	.62 .62	.38 .38		70.0	152.4	194.0	70.0	149.0	184.0
DC-3	.26 .29	.78 .75	.48 .48	.33 .32	.20 .20		35.0	76.2	97.0	35.0	74.5	92.0
Dc-4	.25 .22	.85 .88	.44 .44	.29 .30	.17 .17		35.0	76.2	97.0	35.0	74.5	92.0
Σ	.51 .51	1.63 1.63	.92 .92	.62 .62	.37 .37		70.0	152.4	194.0	70.0	149.0	184.0
DC-AV	.522	1.63	.92	.62	.375		70.0	152.4	194.0	70.0	149.0	184.0
AC-1	.27	.80	.44	.30	.18		35.2	75.8	97.0	35.0	72.5	93.0
AC-2	.27	.79	.44	.30	.18		35.2	75.5	97.0	35.0	72.5	93.0
Σ	.54	1.59	.88	.60	.36		70.4	151.3	194.0	70.0	145.0	186.0
S. P.	+4.1				-1.3							
C-N	.08				.09							

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____ (3)

(3) Project: Sunizona Line: 1 spread 1 E 1/2 Int.Cal 53.2 A.M. 500 a 52.5 P.M. Date: 1/6/62

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.	.5 -	1.0 E	1.0 -	1.5 E	→	1.5	- 2.0 E		→	2.0	- 2.5	E
Time	10:37	10:47	11:04	11:08	11:11	11:26	11:30	11:34	11:40	12:01	12:22	12:30
DC-1	7.0 7.1	2.0 2.05	6.50 6.50	1.90 1.92	0.92 0.92	6.40 6.35	1.98 1.99	.88 .85	.48 .52	1.88 1.90	.85 .85	.50 .60
DC-2	7.2 7.1	2.05 2.05	6.58 6.58	1.95 1.95	0.80 0.80	6.45 6.50	1.90 1.90	.90 .92	.49 .46	1.88 1.88	.95 1.0	.48 .40
Σ	14.2 14.2	4.05 4.10	13.08 13.08	3.85 3.87	1.72 1.72	12.85 12.85	3.88 3.89	1.78 1.77	.97 .98	3.76 3.78	1.80 1.85	.98 1.0
DC-3	7.1 7.1	2.05 2.05	6.58 6.58	1.95 1.92	0.95 0.95	6.40 6.35	2.02 2.04	.88 .88	.48 .50	1.80 1.80	.80 .95	.44 .44
Dc-4	7.2 7.15	2.03 2.03	6.50 6.50	1.92 1.95	0.78 0.78	6.45 6.50	1.88 1.85	.90 .90	.50 .48	1.99 1.99	.95 .90	.55 .56
Σ	14.3 14.25	4.08 4.08	13.00 13.00	3.87 3.87	17.3 17.3	12.85 12.85	3.90 3.89	1.78 1.78	.98 .98	3.79 3.79	1.75 1.85	.99 1.0
DC-AV	14.25	4.08	13.02	3.87	1.725	12.85	3.89	1.78	.98	3.78	?1.81	.99
AC-1	6.7	1.93	6.2	1.87	.84	6.1	1.88	.89	.48	1.82	.89	.49
AC-2	6.7	1.93	6.2	1.87	.83	6.1	1.88	.89	.48	1.81	.89	.50
Σ	13.4	3.86	12.4	3.74	1.67	12.2	3.76	1.78	.96	3.63	1.78	.99
S. P.		+2.6			-15.3				+1.4			
AC-N		.08			0.10				.10			

(4) INDUCED POLARIZATION - RECEIVER NOTES PAGE _____ (4)

Project: Sunizona Line: 1 Spread 1 E 1/2 Int.Cal 53.2 52.5 P.M. Date: 4/6/62

Send	1-2	4-5	3-4	2-3	1-2		CAL	4-5				
Rec.	→	2.5 - 3.0		E →	→							
Time	12:37	12:49	12:53	12:59	13:02		10:19	10:21	10:23	13:11	13:13	13:17
DC-1	.30 .35	.85 .85	.50 .58	.32 .35	.20 .25		35.5	55.9	76.5	34.0	53.5	72.0
DC-2	.30 .30	.72 .72	.44 .33	.28 .24	.25 .20		35.5	55.9	76.5	34.0	53.5	72.0
Σ	.60 .65	1.57 1.57	.94 .91	.60 .59	.45 .45		71.0	111.8	153.0	68.0	107.0	144.0
DC-3	.35 .35	.82 .85	.56 .58	.32 .32	.22 .22		35.5	55.9	76.5	34.0	53.5	72.0
Dc-4	.25 .22	.72 .72	.43 .35	.31 .30	.22 .21		35.5	55.9	76.5	34.0	53.5	72.0
Σ	.60 .57	1.54 1.57	.93 .93	.63 .62	.44 .43		71.0	111.8	153.0	68.0	107.0	144.0
DC-AV	.605	1.56	.93	.610	.442		71.0	111.8	153.0	68.0	107.0	144.0
AC-1	.30	.80	.48	.30	.21		35.2	55.8	73.8	34.2	53.8	70.0
AC-2	.30	.80	.48	.30	.22		35.2	55.8	73.8	34.2	53.8	70.0
Σ	.60	1.60	.96	.60	.43		70.4	111.6	147.6	68.4	107.6	140.0
S. P.	-3.9				-2.9							
AC-N	.10				.10							
					-							

INDUCED POLARIZATION SENDER NOTES

Nettyremble

Project: Sunazona Line: 1 Spread 1 W-end Date: 4/5/82

Send		3-4	1-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive		5-1 w	→	1=1.5 w	→	→	1.5 →	2.0 w	→	→	2.0 -	2.5 w
Time		1624	1628	1642	1646	1650	1709	1725	1729	1734	1745	1750
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1830 1825	1810 1805	1810 1810	1800 1800	1785 1780	1795 1795	1790 1790	1775 1770	1755 1750	1760 1765	1765 1770
Send	3-4	4-5	1-2	2-3	3-4	4-5	cal	1-2				
Receive	→	→	2.5	- 3.0	→	→						
Time	1758	1801	1813	1817	1822	1827	1607	1611	1615	1635	1837	1840
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0	.75	1.5	2.0
Current	1750 1750	1745 1740	1750 1750	1770 1770	1760 1750	1745 1735	660 660	1450 1450	1830 1830	660 655	1405 1405	1745 1745

Ω / 1-2 = 110 / 2-3 = 190 / 3-4 = 115 / 4-5 = 150

INDUCED POLARIZATION SENDER NOTES

Nuttycombe

Project: Sunerzona Line: 1 Spread 1 E 1/2 end Date: 4/6/62

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive		5-1.0	→	1.0-1.5	→		1.5-2.0	→			2.0-	2.5
Time		1037	1047	1104	1108	1111	1126	1130	1134	1140	1201	1222
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1840 1840	1820 1810	1795 1795	1800 1795	1780 1780	1760 1760	1760 1760	1760 1760	1750 1745	1710 1705	1705 1700
Send	2-3	1-2	4-5	3-4	2-3	1-2	cal	4-5				
Receive	→	→	2.5-3.0	→	→	→	.7	1.0				
Time	1232	1237	1249	1253	1158	1303	1019	1021	1023	1311	1313	1317
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	1.0	.75	1.5	1.0
Current	1705 1700	1680 1680	1675 1675	1685 1685	1690 1695	1700 1690	670 665	1045 1045	1440 1430	630 630	985 995	1340 1335

Ω = 1-2 = 110 / 2-3 = 90 / 3-4 = 120 / 45 = 160

INDI... POLA... ZATION - RECEIVE... NOTES PAGE (5)

Project: Sunizona Line: 1 Spar 2 W/2 Int.Cal 52.5 Date: 4/9/62

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.	.5-1.0 W →		1.0-W	1.5 W →		1.5 W	- 2.0 W →			2.0 - 2.5 W →		
Time	12:05	12:08	12:22	12.25	12.32	13:28	13:34	13:33	13:36	13:49	13:54	13:58
DC-1	5.33 5.33	1.60 1.60	6.60 6.60	1.60 1.58	.72 .70	1.53 1.54	.45 .45	.21 .21	.12 .11	1.28 1.28	.66 .70	.38 .39
DC-2	5.29 5.29	1.62 1.62	6.60 5.59	1.56 1.59	.77 .76	1.49 1.48	.45 .45	.20 .20	.11 .12	1.35 1.35	.63 .60	.39 .38
Σ	10.62 10.62	3.22 3.22	11.20 11.19	3.16 3.17	1.49 1.46	3.02 3.02	.90 .90	.41 .41	.23 .23	2.63 2.63	1.29 1.30	.77 .77
DC-3	5.33 5.33	1.60 1.58	5.60 5.59	1.56 1.56	.70 .68	1.54 1.54	.45 .45	.21 .20	.11 .12	1.33 1.35	.72 .75	.39 .40
Dc-4	5.29 5.29	1.63 1.65	5.59 5.59	1.58 1.58	.76 .78	1.48 1.48	.45 .45	.21 .20	.12 .12	1.28 1.30	.58 .56	.38 .39
Σ	10.62 10.62	3.23 3.23	11.19 11.18	3.14 3.14	1.46 1.46	3.02 3.02	.90 .90	.42 .40	.23 .24	2.61 2.65	1.30 1.31	.77 .77
DC-AV	10.62	3.23	11.185	3.15	1.47	3.02	.90	.41	.23	2.63	1.30	.77
AC-1	5.08	1.58	5.42	1.53	.73	1.49	.44	.21	.12	1.30	.65	.38
AC-2	5.08	1.58	5.42	1.54	.72	1.49	.44	.21	.12	1.30	.65	.38
Σ	10.36	3.16	10.84	3.07	1.45	2.98	.88	.42	.24	2.60	1.30	.76
S. P.		-4.7			+1.5				+7.4			
AC-N		0.06			.05				.02			

Scale ?

INDUC D POLA IZATION - RECEIVER NOTES PAGE 6

Project: Sunitona Line: 1 SP 2 W1/2 Int.Cal Date: 4/9/62

Send	4-5	1-2	2-3	3-4	4-5		CAL	1-2	W1/2	& E1/2		
Rec.	→	2.5W	3.0	W	→							
Time	14:00	14:12	14:15	14:19	14:22		11:20	11.24	11:28			
DC-1	.26 .28	.59 .58	.35 .39	.25 .26	.19 .19		35.3	76.0	95.55			
DC-2	.23 .21	.64 .66	.38 .34	.23 .23	.16 .15		35.3	76.0	95.55			
Σ	.49 .49	1.23 1.24	.73 .73	.48 .49	.35 .34		70.6	152.0	191.10			
DC-3	.29 .30	.59 .58	.40 .41	.26 .28	.19 .19		35.3	76.0	95.55			
Dc-4	.21 .20	.65 .65	.33 .32	.22 .21	.16 .16		35.3	76.0	95.55			
Σ	.50 .50	1.24 1.23	.73 .73	.48 .49	.35 .35		70.6	152.0	191.10			
DC-AV	.495	1.235	.73	.485	.35		70.6	152.0	191.10			
AC-1	.23	.61	.36	.22	.16		35.5	74.5	95.15			
AC-2	.23	.60	.36	.22	.16		35.5	74.5	95.15			
Σ	.46	1.21	.72	.44	.32		71.0	149.0	191.30			
S. P.	-1.8				+.63							
AC-N	0.05				.06							

INDUCED POLARIZATION - RECEIVER NOTES PAGE 3 (T)

Project: Sunrona Line: 1Spn 2 E½ 5100 Int.Cal Date: 4/4/62

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
Rec.												
Time	14:47	14:57	15:02	15:09	15:13	15:23	15:29	15:36	15:38	15:50	15:56	16:00
DC-1	5.80 5.80	1.52 1.55	6.21 6.22	1.78 1.78	.67 .67	6.0 5.99	1.80 1.78	.72 .71	.38 .35	1.80 1.76	.82 .82	.35 .36
DC-2	5.80 5.80	1.49 1.47	6.19 6.19	1.82 1.82	.68 .67	5.98 5.99	1.75 1.77	.76 .78	.34 .35	1.82 1.88	.73 .73	.42 .43
Σ	11.60 11.60	3.01 3.02	12.40 12.41	3.60 3.60	1.35 1.34	11.98 11.98	3.55 3.55	1.48 1.49	.72 .70	3.62 3.64	1.55 1.55	.77 .79
DC-3	5.84 5.90	1.56 1.58	6.22 6.22	1.78 1.82	.67 .67	6.01 6.0	1.79 1.77	.75 .75	.35 .35	1.69 1.68	.77 .76	.37 .37
Dc-4	5.75 5.72	1.45 1.43	6.19 6.19	1.82 1.76	.67 .67	5.98 5.99	1.77 1.79	.75 .75	.35 .35	1.92 1.93	.80 .82	.40 .41
Σ	11.48 11.62	3.01 3.01	12.41 12.41	3.60 3.58	1.34 1.34	11.99 11.99	3.56 3.56	1.50 1.50	.70 .70	3.61 3.61	1.57 1.57	.77 .78
DC-AV	11.61	3.01	12.41	3.60	1.34	11.985	3.555	1.49	.705	3.62	1.56	.78
AC-1	5.80	1.49	6.0	1.76	.67	5.8	1.73	.74	.34	1.76	.77	.38
AC-2	5.80	1.49	6.0	1.76	.67	5.8	1.73	.74	.34	1.76	.77	.38
Σ	11.60	2.98	12.0	3.52	1.34	11.6	3.46	1.48	.68	3.52	1.54	.76
S. P.		+5.9			+0.4				+6.5			
AC-N		.06			.06				.07			

INDUCED POLARIZATION - RECEIVER NOTES PAGE 10

Project: Sunzone Line: 19N E 1/2 Int.Cal 52.5 Date: 4/9/82

Send	1-2	4-5	3-4	2-3	1-2		CAL	1-2	W 1/2	E	E 1/2	
Rec.												
Time	16:02	16:17	16:20	16:23	16:26		16:36	16:39	16:45			
DC-1	.22 .22	.78 .76	.43 .46	.29 .29	.15 .15		34.2	73.5	92.0			
DC-2	.22 .22	.82 .86	.43 .40	.20 .20	.15 .15		34.2	73.5	92.0			
Σ	.44 .44	1.60 1.62	.86 .86	.49 .49	.30 .30		68.4	147.0	184.0			
DC-3	.22 .23	.78 .76	.43 .45	.24 .24	.16 .16		34.2	73.5	92.0			
Dc-4	.20 .20	.82 .86	.43 .42	.26 .26	.16 .15		34.2	73.5	92.0			
Σ	.42 .43	1.60 1.62	.86 .87	.50 .50	.32 .31		68.4	147.0	184.0			
DC-AV	.43	1.61	.86	.495	.31		68.4	147.0	184.0			
AC-1	.21	.78	.42	.23	.14		34.5	72.0	92.0			
AC-2	.21	.78	.42	.23	.14		34.5	72.0	92.0			
Σ	.42	1.56	.84	.46	.28		69.0	144.0	184.0			
S. P.	-6.5				+3.3							
AC-N	.08				.06							

(9)

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: I. Spread 2 west - W 1/2 Date: 4/9/62

Send		3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive		.5-1.0	→	1.0-	1.5	→	1.5	- 2.0		→	2.0	- 2.5
Time		1205	1208	1222	1225	1232	1328	1331	1333	1336	1349	1354
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1785 1785	1785 1785	1785 1780	1775 1770	1755 1755	1700 1700	1700 1695	1695 1690	1690 1690	1685 1680	1680 1675
Send	3-4	4-5	1-2	2-3	3-4	4-5	Cal	1-2	for	W 1/2	& E	1/2
Receive	→	→	2.5	- 3.0	→	→						
Time	1358	1400	1412	1415	1419	1422	11:20	11:24	11:28	1636	1639	1645
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0	.75	1.5	2.0
Current	1680 1675	1665 1670	1670 1665	1665 1665	1655 1655	1655 1655	655 655	1420 1415	1790 1790	645 635	1355 1350	1690 1690

Ω | 1-2 = ~~80~~ 600 | 2-3 = 95 | 3-4 = 110 | 4-5 = 100 |

(10)

INDUCED POLARIZATION SENDER NOTES

Project: Sanizona Line: 1 Spread 2 west - E ½ Date: 4/9/62

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive		0.5-1.0s →		1.0 →	1.5s →		1.5 →	2.0	s →		2.0 →	2.5
Time		1447	1451	1502	1509	1513	1523	1529	1536	1538	1550	1556
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1680 1680	1675 1675	1670 1670	1670 1670	1665 1665	1670 1670	1665 1665	1675 1670	1665 1665	1665 1665	1660 1660

Send	2-3	1-2	4-5	3-4	2-3	1-2	Cut on 1-2					
Receive	→	→	2.5-3.0s →									
Time	1600	1602	1617	1620	1623	1626	.75	1.5	2.0			
Range	2.0	2.0	2.0	2.0	2.0	2.0		Same as West ½				
Current	1675 1675	1660 1660	1670 1670	1670 1670	1680 1680	1675 1675		of line #1 Spread 2 west				

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1 (11)

Project: Sunizona Line: 1 Spr. 3 W½ Int.Cal 53.0 cm Date: 4/10/62

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
Rec.	.5-1.0	W →	1.0-	1.5W	→	1.5-	2.0W	→	→	2.0-	2.5W	→
Time	10:45	10:50	11:06	11:11	11:19	11:31	11:35	11:40	11:45	12:02	12:09	12:13
DC-1	6.0 6.2	1.65 1.65	5.70 5.70	1.66 1.68	.72 .72	5.39 5.40	1.58 1.57	.80 .78	.38 .38	1.53 1.55	.80 .80	.42 .42
DC-2	5.9 5.7	1.62 1.62	5.68 5.70	1.70 1.68	.72 .71	5.30 5.28	1.59 1.61	.70 .72	.42 .43	1.53 1.52	.65 .63	.36 .36
Σ	11.9 11.9	3.27 3.27	11.38 11.40	3.36 3.36	1.44 1.43	10.69 10.68	3.17 3.18	1.50 1.50	.80 .81	3.06 3.07	1.45 1.43	.78 .78
DC-3	6.0 6.0	1.64 1.65	5.70 5.70	1.68 1.66	.72 .73	5.40 5.40	1.56 1.58	.70 .72	.36 .36	1.54 1.54	.80 .78	.44 .40
Dc-4	5.9 5.9	1.62 1.61	5.68 5.68	1.68 1.69	.73 .72	5.28 5.28	1.61 1.59	.78 .78	.42 .42	1.52 1.54	.65 .68	.32 .38
Σ	11.9 11.9	3.26 3.26	11.38 11.38	3.36 3.35	1.45 1.45	10.68 10.68	3.17 3.17	1.48 1.50	.78 .78	3.06 3.08	1.45 1.46	.76 .78
DC-AV	11.9	3.265	11.38	3.36	1.44	10.68	3.17	1.495	.79	3.07	1.45	.78
AC-1	5.78	1.58	5.45	1.61	.71	5.18	1.53	.72	.38	1.51	.70	.38
AC-2	5.78	1.58	5.45	1.61	.72	5.18	1.54	.72	.38	1.52	.70	.38
Σ	11.56	3.16	10.90	3.22	1.43	10.36	3.07	1.44	.76	3.03	1.40	.76
S. P.		+4.0			-23.0				-5.5	↙Rd	↙P on	E of Rd
AC-N		0.07			.06				.07	→ N-S	fence	on W of
										130' E	to ℄ Rd & ↑	

INDUCED POLARIZATION - RECEIVER NOTES PAGE (12)

Project: Sunizona Line: 1 Sar. 3 W½ Int.Cal 53.0 Date: 4/10/62

Send	4-5	1-2	2-3	3-4	4-5		CAL.	1-2				
Rec.	→	2.5	3.0	W	→							
Time	12:19	12:29	12:38	12:43	12:47		10:30	10:34	10:36	16:08	16:11	16:13
DC-1	.24 .22	0.68 0.72	.40 .36	.11 .10	.12 .12		36.0	77.5	98.0	34.5	73.3	89.0
DC-2	.26 .28	0.72 0.67	.42 .48	.39 .38	.18 .19		36.0	77.5	98.0	34.3	73.5	89.0
Σ	.50 .50	1.40 1.39	.82 .84	.50 .48	.30 .31		72.0	155.0	196.0	68.8	146.8	178.0
DC-3	.24 .22	.70 .77	.44 .49	.12 .12	.10 .12		36.0	77.5	98.0	34.5	73.3	89.0
Dc-4	.29 .29	.68 .62	.38 .32	.35 .35	.20 .18		36.0	77.5	98.0	34.3	73.5	89.0
Σ	.53 .51	1.38 1.39	.82 .81	.47 .47	.30 .30		72.0	155.0	196.0	68.8	146.8	178.0
DC-AV	.51	1.39	.82	.48	.30		72.0	155.0	196.0	68.8	146.8	178.0
AC-1	.22	.68	.38	.23	.15		35.8	75.0	97.0	34.5	71.0	90.0
AC-2	.22	.68	.38	.23	.14		35.8	75.0	97.0	34.5	71.0	90.0
Σ	.44	1.36	.76	.46	.29		71.6	150.0	194.0	69.0	142.0	180.0
S. P.	-7.4				-8.0							
AC-N	.08				.07							

INDUCED POLARIZATION - RECEIVER NOTES

Project: Sunizona Line: 1 Spr. 3 E/2 Ir Date: 9/10/62

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
Rec.												
Time	14:10	14:16	14:31	14:35	14:39	14:53	15:08	15:12	15:14	15:24	15:27	15:31
DC-1	5.22 5.22	1.57 1.57	5.35 5.35	1.40 1.38	.70 .68	4.80 4.80	1.32 1.30	.62 .64	.35 .35	1.40 1.42	.70 .73	.36 .34
DC-2	5.22 5.22	1.52 1.52	5.25 5.25	1.45 1.46	.72 .74	4.85 4.85	1.38 1.38	.60 .58	.34 .35	1.42 1.38	.63 .60	.38 .40
Σ	10.44 10.44	3.09 3.09	10.60 10.60	2.85 2.84	1.42 1.42	9.65 9.65	2.70 2.68	1.22 1.22	.69 .70	2.82 2.80	1.33 1.33	.74 .74
DC-3	5.22 5.22	1.45 1.45	5.25 5.25	1.35 1.30	.72 .70	4.82 4.82	1.28 1.29	.68 .69	.36 .34	1.48 1.52	.74 .74	.32 .30
Dc-4	5.22 5.22	1.62 1.62	5.35 5.35	1.50 1.55	.68 .72	4.85 4.85	1.40 1.40	.55 .55	.34 .36	1.35 1.31	.59 .58	.40 .42
Σ	10.44 10.44	3.07 3.07	10.69 10.60	2.85 2.85	1.40 1.42	9.67 9.67	2.69 2.69	1.23 1.24	.70 .70	2.83 2.83	1.33 1.32	.72 .72
DC-AV	10.44	3.08	10.60	2.85	1.42	9.66	2.69	1.23	.70	2.82	1.33	.73
AC-1	5.10	1.51	5.20	1.40	.69	4.70	1.32	.61	.35	1.49	.66	.36
AC-2	5.10	1.51	5.20	1.40	.69	4.70	1.32	.61	.35	1.49	.65	.36
Σ	10.20	3.02	10.40	2.80	1.38	9.40	2.64	1.22	.70	2.98	1.31	.72
S. P.		-9.0			-7.2				+0.7			
AC-N		.09			0.08				.08			

INDUCED POLARIZATION - RECEIVER NOTES PAGE (14)

Project: Sahuarita Line: 1 Spr. 3 E 1/2 Int.Cal ____ Date: 4/10/67

Send	1-2	4-5	3-4	2-3	1-2			CAL	1-2			
Rec.												
Time	15:34	15:46	15:49	15:55	15:55							
DC-1	.24 .26	.73 .73	.38 .39	.26 .22	.26 .19							
DC-2	.22 .20	.64 .64	.42 .43	.24 .28	.18 .19							
Σ	.46 .46	1.37 1.37	.80 .82	.50 .50	.38 .38							
DC-3	.28 .28	.75 .76	.44 .42	.25 .20	.17 .20							
Dc-4	.19 .20	.62 .62	.38 .40	.26 .28	.22 .18							
Σ	.47 .48	1.37 1.38	.82 .82	.51 .48	.39 .38							
DC-AV	.47	1.37	.82	.50	.38							
AC-1	.22	.67	.38	.23	.17							
AC-2	.22	.67	.38	.23	.17							
Σ	.44	1.34	.76	.46	.34							
S. P.	-1.7				-6.2							
AC-N	0.6				.05							

(15)

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: L Spread 3 W½ Date: 4/10/62

Send		3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive		.5-1.0 →		1.0 →	1.5 →		1.5-2.0 →				2.0 →	2.5
Time		1045	1050	1106	1111	1119	1131	1135	1140	1145	1202	1209
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1850 1850	1835 1830	1795 1785	1775 1770	1750 1745	1710 1701	1725 1720	1715 1715	1705 1700	1665 1660	1670 1665
Send	3-4	4-5	1-2	2-3	3-4	4-5	cal	1-2				
Receive	→	→	→	2.5 →	3.0 →							
Time	1213	1219	1229	1235	1243	1247	1030	1034	1036			
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0			
Current	1660 1660	1655 1655	1650 1650	1660 1660	1650 1650	1645 1645	675 670	1450 1450	1815 1820			

SA 1-2 = 150 / 2-3 = 95 / 3-4 = 110 / 4-5 = 120

(16)

INDUCED POLARIZATION SENDER NOTES

Project: Sanizona Line: L spread 3 E 1/2 Date: 9/10/62

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive		.5-1.0	→	1.0-1.5	→		1.5-2.0	→	→		2.0	-2.5
Time		1410	1416	1431	1435	1439	1453	1508	1512	1514	1524	1527
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1730 1730	1700 1700	1700 1700	1700 1695	1675 1675	1695 1695	1680 1680	1675 1675	1655 1655	1675 1670	1670 1675
Send	2-3	1-2	4-5	3-4	2-3	1-2	cal	1-2				
Receive	→	→	2.5-3.0		→	→						
Time	1531	1534	1542	1549	1555	1558	1608	1611	1613			
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0			
Current	1670 1670	1655 1655	1665 1660	1660 1665	1660 1660	1650 1650	630 630	1330 1330	1635 1645			

1-2=130/130 / 2-3=70 / 3-4=90 / 4-5=150

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page ①

Project Sunizona Line 1 Spr. 1 W 1/2 Field date 4/5/62 Data page 1 thru 2 Comp. date 4/9/62. Comp by E.G.H. N.R.N.

(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	.5-1.0 W →		1.0-1.5 W →			1.5 →	2.0 W →			2.0-2.5 W →		
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1830	1810	1810	1800	1785	1795	1790	1775	1755	1765	1770	1750
(E) Vdc (avg)	14.2	3.94	12.7	4.04	1.68	11.27	3.45	1.67	.85	3.37	1.56	.93
(F) DCcal used .945 500Ω	→											→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30
(H) ρdc=ExFxGx10^3/D	11.0	12.4	~~9.4~~	12.7	~~13.2~~	~~8.8~~	10.9	13.3	~~13.8~~	10.8	~~12.3~~	15.1
(I) Vac Σ			9.9		13.4	8.9			13.7		12.5	
(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												

Project ____ Line 1 Spr 1 W 1/2 Field date ____ Data page ____ Comp. date ____ Comp by ____

(A) Send	4-5	1-2	2-3	3-4	4-5		CAL.	1-2				
(B) Receive	→	2.5	3.0 W →									
(C) n separation	5	3	4	5	6							
(D) I	1745	1750	1770	1760	1745		660	1450	1830	660	1405	1745
(E) Vdc (avg)	.522	1.63	.92	.62	.375		70.0	152.4	194.0	70.0	149.0	184.0
(F) DCcal	→											
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0		.943	.951	.943	.943	.943	.948
(H) ρdc=ExFxGx10^3/D	14.8	13.2	14.7	17.4	17.0							
(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												

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Project Sunizona Line 1 Spr. 1 E½ Field date _____ Data page _____ Comp. date 4/9/62. Comp by E.G.H. N.N.

(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	.5-1.0	E →	1.0-1.5	E →	→	1.5-	2.0 E	→	→	2.0-	2.5 E	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1840	1820	1795	1800	1780	1760	1760	1760	1750	1710	1705	1705
(E) Vdc (avg)	14.25	4.08	13.02	3.87	1.725	12.85	3.89	1.78	.98	3.78	1.81	.99
(F) DCcal .934 used	~~1.5~~	~~6.0~~	~~1.5~~	~~6.0~~	~~15.0~~	~~1.5~~	~~6.0~~	~~15.0~~	~~30.0~~	~~6.0~~	~~15.0~~	→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρdc=ExFxGx10^3/D	10.9	12.6	~~10.5~~	12.1	13.6	10.2	12.4	14.2	15.8	12.4	14.9	~~16.4~~
(I) Vac Σ		12.5	10.2									16.3
(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												

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

(A) Send	1-2	4-5	3-4	2-3	1-2		CAL	4-5				
(B) Receive	→	2.5	3.0 E	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1680	1675	1685	1695	1700		670	1045	1435	630	990	1340
(E) Vdc (avg)	.605	1.56	.93	.61	.442		71.0	111.8	153.0	68.0	107.0	144.0
(F) DCcal .934	→	→	→	→	→		.945	.937	.937	.926	.926	.932
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρdc=ExFxGx10^3/D	17.6	13.1	15.4	17.6	20.4							
(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												

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 3

Project Sunizona Line 1 Spr. 2 W 1/2 Field date 4/9/62 Data page 5 Comp. date 4/10/62. Comp by E.G.H. N.R.N.

(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	.5-1.0W →		1.0 —	1.5W	→	1.5W	2.0W	→		2.0	— 2.5	W
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1785	1785	1785	1775	1755	1700	1700	1695	1690	1685	1680	1680
(E) Vdc (avg)	10.162	3.23	11.185	3.15	1.47	3.02	.90	.41	.123	2.63	1.30	.77
(F) DCcal .929 used						9.70	9.85	1.30	.78			→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρdc=ExFxGx10^3/D	8.27	10.20	8.72	9.91	?11.7	? 2.47	2.95	3.38	3.81	8.69	10.8	12.8
(I) Vac Σ	8.3	10.1	8.7	9.9	11.7	8.0 ?	9.3 ?	10.7 ?	12.4	8.7	10.8	12.8
(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												

Project _____ Line 1 Spr. 2 Field date _____ Data page _____ Comp. date _____ Comp by _____

(A) Send	4-5	1-2	2-3	3-4	4-5	CAL.	1-2	for W 1/2 & E 1/2			
(B) Receive	→	2.5 — 3.0W			→						
(C) n separation	5	3	4	5	6						
(D) I	1670	1670	1665	1655	1655	655	1420	1790	640	1355	1690
(E) Vdc (avg)	.495	1.235	.73	.485	.135	70.6	152	191.1	68.4	147.0	184
(F) DCcal .929 used					→	.928	.934	.937	.936	.922	.918
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0						
(H) ρdc=ExFxGx10^3/D	1445	1025	122	1425	1650						
(I) Vac Σ	14.4	10.3	12.2	14.3	16.5						
(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											

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Page 4

Project Sanizona Line 1 Spread #2 E/W Field date 4/9/62 Data page 4/11/62 Comp. date 4/11/62 Comp by NRN

(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												
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1680	1675	1676	1670	1665	1670	1665	1675	1665	1665	1660	1675
(E) Vdc (avg)	11.61	3.01	12.41	3.60	1.34	11.99	3.56	1.49	.705	3.62	1.56	.78
(F) DCcal 929 used												
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	~~11~~	~~16~~	10.4	12.0	11.2	~~13.4~~	11.9	12.4	11.8	12.1	13.1	13.0
(I) Vac Σ	9.6	10.1	10.4	12.0	11.2	10.0	11.9	12.4	11.8	12.1	13.1	13.0
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

Project Line Field date Data page Comp. date Comp by

(A) Send	1-2	4-5	3-4	2-3	1-2		cal 1-2					
(B) Receive												
(C) n separation	5	3	4	5	6							
(D) I	1660	1670	1670	1680	1675		655	1420	1790	645	1355	1690
(E) Vdc (avg)	.43	1.61	.86	.195	.31		70.6	152.0	191.0	68.4	147.0	184.0
(F) DCcal 929							.928	.934	.937	.936	.922	.918
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρ dc=ExFxGx10^3/D	12.6	13.4	14.4	14.3	14.4							
(I) Vac Σ	12.6	13.4	14.4	14.3	14.4							
(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												

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 2

Project Sunizona Line 1 Spr. 3 W 1/2 Field date 4/6/62 Data page [illegible] Comp. date 4/9/62. Comp by E.G.H. N.R.N.

(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	.5-1.0	W →	1.0 —	1.5 W	→	1.5 —	2.0 W	—	→	2.0	— 2.5 W	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1850	1835	1790	1775	1750	1710	1725	1715	1705	1665	1670	1660
(E) Vdc (avg)	11.9	3.265	11.38	3.36	1.44	10.68	3.17	1.495	.79	3.07	1.45	.78
(F) DCcal used .924	—											→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30
(H) ρ dc=ExFxGx10^3/D	8.9	9.9	8.8	10.5	11.40	8.7	10.2	12.1	12.84	10.2	12.0	13.0
(I) Vac Σ	8.9	9.9	8.8	10.5	11.4	8.7	10.2	12.1	12.8	10.2	12.0	13.0
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

Project [illegible] Line 1 Spr. 3 W 1/2 Field date 4/6/62 Data page [illegible] Comp. date 4/9/6 Comp by [illegible]

(A) Send	4-5	1-2	2-3	3-4	4-5		CAL.	1-2	A.M. &	P.M.	whole Spread	
(B) Receive	→	2.5 —	3.0	W	→							
(C) n separation	5	3	4	5	6							
(D) I	1655	1650	1660	1650	1645		675	1450	1820	630	1330	1640
(E) Vdc (avg)	.51	1.39	.82	.48	.30		72.0	155.0	196.0	68.8	146.8	178.0
(F) DCcal .924 used	—				→		.938	.935	.929	.916	.906	.921
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρ dc=ExFxGx10^3/D	15.0	~~14.5~~	13.7	14.1	14.1							
(I) Vac Σ	14.9	11.7	13.7	14.1	14.1							
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

Project Sonizona Line 1 Spr. 3 E½ Field date 4/10/62 Data page _____ Comp. date 4/16/62. Comp by N.R.N. E.G.H.

(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	.5-1.0 w →		1.0-1.5 w →			1.5-2.0 w →				2.0-2.5 w →		
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1730	1700	1700	1700	1675	1695	1680	1675	1655	1675	1675	1670
(E) Vdc (avg)	10.44	3.08	10.60	2.85	1.42	9.66	2.69	1.23	.70	2.82	1.33	.73
(F) DCcal 92.9 used	→											
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	8.43	10.1	8.69	9.43	11.8	7.97	8.92	10.22	11.8	9.38	11.08	12.2
(I) Vac Σ	8.4	10.1	8.7	9.4	11.8	7.9	8.9	10.2	11.8	9.4	11.1	12.2
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

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

(A) Send	1-2	1-5	3-4	2-5	1-2		cal-1					
(B) Receive	→	2.5-3.0 w →										
(C) n separation	5	3	4	5	6							
(D) I	1655	1665	1665	1660	1650		675	1450	1820	630	1330	1640
(E) Vdc (avg)	.47	1.37	.82	.50	.38		72.0	155.0	196.0	68.8	146.8	178.0
(F) DCcal 92.9 used	→						93.8	93.8	92.9	91.7	90.6	92.1
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρ dc=ExFxGx10^3/D	13.85	11.45	13.72	14.65	17.95							
(I) Vac Σ	13.9	11.5	13.7	14.7	18.0							
(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												

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HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sunizona Line 3 spr 5 N 1/2 Field date 4/12/62 Data page_____ Comp. date 4/16/62 Comp by N.R.N E.G.H

(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	.5-1.0N →		1.0N-	1.5N-	→	1.5-	2.0N	→		2.0	-2.5	N-
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	~~1750~~	~~1750~~	~~1710~~	~~1580~~	~~1690~~	~~1680~~	1765	1750	1755	1815	1800	1800
(E) Vdc (avg)	10.0	2.49	9.34	2.30	1.092	9.50	2.345	.98	.52	2.43	.97	.50
(F) DCcal .988 used												
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρdc=ExFxGx10^3/D	~~9.47~~	8.42	8.10	~~8.05~~	~~9.58~~	~~8.38~~	7.88	8.30	~~7.50~~	7.94	8.00	8.21
(I) Vac Σ	~~8.0~~?	8.0?	7.6?	7.6?	~~8.4~~?	7.9	8.0	8.3	8.8	7.9	8.0	8.2
(J) AC noise x 2	9.6 .14	2.38 .14	9.1 .10	2.29 .10	1.00 .10	9.24 .24	2.30 .24	.98 .24	.56 .24	2.40 .12	.99 .12	.54 .12
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	9.6	2.38	9.10	2.27	.955	9.24	2.29	.95	.515	2.40	.983	.527
(L) AC-DC cal. 1.000 used	1.000											
(M) ρdc/ρac=ExL/K	1.041	1.048	1.027	1.013	1.069	1.030	1.023	1.030	1.010	1.012	0.988	0.949
(N) PFE=(M-1)(10^2)	4	5	3	1	7	3	2	3	1	1	-1	-5
(O) MCF=(M-1)(10^5)/H	514	600	355	171	822	380	288	362	114	152	-150	-622

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	1-2	2-3	3-4	4-5		Cal 1-2					
(B) Receive	-	2.5-	3.0N	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1785	1790	1775	1760	1780		650	1400	1745	665	1400	1760
(E) Vdc (avg)	.365	1.04	.53	.34	.24		67.0	143.9	180.0	64.7	142.0	176.0
(F) DCcal .988 used					→		97.1	98.4	97.1	10.28	98.8	10.00
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	94.0							
(H) ρdc=ExFxGx10^3/D	10.6	8.61	8.75	~~11.0~~	11.2							
(I) Vac Σ	10.6	8.6	8.9	10.0	11.2		67.0	141.0	180.0	65.0	139.6	178.0
(J) AC noise x 2	.36 .12	1.04 .14	.55 .14	.34 .14	.24 .14							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.34	1.03	.532	.31	.195							
(L) AC-DC cal.							1.000	.980	1.000	1.006	.984	1.010
(M) ρdc/ρac =ExL/K	1.074	1.010	0.996	1.098	1.230					1.000		
(N) PFE=(M-1)(10^2)	7	1	0	10	23							
(O) MCF=(M-1)(10^5)/H	699	116	-45	980	2053							

INDUCED POLARIZATION - RECEIV[illegible]IES PAGE _____

Project: Sunizona Line: 3 Spread 5 N½ Int.Cal 50.0 am Date: 4/12/62

Soog North

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.	.5 -	1.0 →	1.0 N	1.5	N →	1.5 -	2.0	N	→	2.0	- 2.5	N
Time	10:03	10:10	10:23	10:32	10:39	12:13	12:28	12:32	12:45	13:51	13:56	14:03
DC-1	5.0 4.98	1.20 1.14	4.65 4.65	1.20 1.22	.40 .38	4.70 4.70	1.19 1.28	.50 .45	.32 .32	1.20 1.20	.50 .65	.10 .10
DC-2	5.0 5.02	1.29 1.36	4.70 4.68	1.10 1.08	.62 .63	4.80 4.80	1.15 1.06	.50 .53	.20 .18	1.22 1.23	.48 .42	.40 .40
Σ	10.0 10.00	2.49 2.50	9.35 9.33	2.30 2.30	1.02 1.01	9.50 9.50	2.34 2.34	1.00 .98	.52 .50	2.44 2.43	.98 .97	.50 .50
DC-3	4.95 4.90	1.10 1.10	4.62 4.62	1.20 1.15	.52 .57	4.80 4.90	1.20 1.15	.50 .50	.30 .32	1.23 1.27	.52 .62	.35 .40
Dc-4	5.05 5.1	1.40 1.38	4.72 4.72	1.10 1.16	.50 .46	4.70 4.60	1.15 1.20	.48 .48	.22 .20	1.19 1.15	.45 .35	.15 .10
Σ	10.00 10.00	2.50 2.48	9.34 9.34	2.30 2.31	1.02 1.03	9.50 9.50	2.35 2.35	.98 .98	.52 .52	2.42 2.42	.97 .97	.50 .50
DC-AV	10.0	2.49	9.34	2.30	1.02	9.5	2.345	0.98	.52	2.43	0.97	.50
AC-1	4.8	1.19	4.55	1.15	.50	4.62	1.15	.49	.28	1.20	.49	.28
AC-2	4.8	1.19	4.55	1.14	.50	4.62	1.15	.49	.28	1.20	.50	.27
Σ	9.6	2.38	9.10	2.29	1.00	9.24	2.30	.98	.56	2.40	.99	.54
S. P.		-9.0			-18.1				+1.9			
AC-N		.07			.15				.12			
					brust - .50				brusts - .4			

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 3 Spr. 5N½ Int.Cal 50.5 P.M. Date: 4/12/62

Send	4-5	1-2	2-3	3-4	4-5		CAL	1-2				
Rec.	→	2.5	N —	3.0	N →							
Time	14:20	14:31	14:34	14:38	14:41		9:49	9:52	9:54	15:01	15:04	15:06
DC-1	.25 .22	.50 .45	.26 .29	.20 .19	.12 .14		33.5	72.0	90.0	32.2	71.0	88.0
DC-2	.17 .14	.55 .58	.28 .24	.14 .15	.11 .10		33.5	71.9	90.0	32.5	71.0	88.0
Σ	.37 .36	1.05 1.03	.54 .53	.34 .34	.23 .24		67.0	143.9	180.0			
DC-3	.18 .14	.40 .50	.29 .30	.22 .24	.16 .15		33.5	72.0	90.0	32.2	71.0	88.0
Dc-4	.19 .22	.65 .53	.24 .22	.12 .10	.08 .10		33.5	71.9	90.0	32.5	71.0	88.0
Σ	.37 .36	1.05 1.03	.53 .52	.34 .34	.24 .25		67.0	143.9	180.0	64.7	142.0	176.0
DC-AV	.365	1.04	.53	.34	.24							
AC-1	.18	.52	.27	.17	.12		33.5	70.5	90.0	32.5	69.8	89.0
AC-2	.18	.52	.28	.17	.12		33.5	70.5	90.0	32.5	69.8	89.0
Σ	.36	1.04	.55	.34	.24		67.0	141.0	180.0	65.0	139.6	178.0
S. P.	+.2				+5.7							
AC-N	.06				.07							
	brushes full scale											

N-2

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 3 Spread 5 N/2 Date: 4/12/62

Send		3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive												
Time		1003	1010	1023	1032	1039	1243	1228	1241	1245	1351	1356
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1750 1750	1750 1745	1710 1710	1700 1695	1690 1690	1780 1780	1765 1765	1750 1750	1755 1755	1815 1815	1800 1800
Send	3-4	4-5	1-2	2-3	3-4	4-5	cal	1-2				
Receive												
Time	1403	1420	1431	1434	1438	1441	949	952	951	1501	1504	1506
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0	.75	1.5	2.0
Current	1800 1800	1785 1780	1795 1780	1775 1775	1760 1760	1780 1775	650 650	1400 1395	1745 1745	665 660	1400 1400	1755 1760

Ω | 1-2 = 130 | 2-3 = 150 | 3-4 = 120 | 4-5 = 100

3-14685
4-2937

5S

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sunizona Line 3 Spr. 5 (500a S1/2) Field date 4/13/62 Data page_____ Comp. date 4/16/62 Comp by E.G.H. N.N.

(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	.5-1.0 So.		1.0 -	1.5 So. →		1.5 -	2.0 South →			2.0	- 2.5	South
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1875	1875	1845	1845	1845	1840	1820	1800	1800	1800	1790	1755
(E) Vdc (avg)	10.4	2.51	9.8	2.41	1.04	11.00	2.43	1.02	.57	2.69	1.06	.54
(F) DCcal used .979												→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	10.0	2.46	9.50	2.37	1.03	10.10	2.40	1.00	0.58	2.64	1.04	0.57
(I) Vac Σ	8.2	7.9	7.8	7.7	8.3	8.8	7.8	8.3	9.3	8.8	8.7	9.0
(J) AC noise x 2	0.12	0.12	0.16	0.16	0.16	0.14	0.14	0.14	0.14	0.14	0.14	0.14
(K) Vac(corr) =$\sqrt{I^2 - J^2}$	10.0	2.46	9.50	2.37	1.015	10.10	2.40	0.993	0.561	2.64	0.982	0.551
(L) AC-DC cal. used	0.995											
(M) ρ dc/ρac=ExL/K	1.035	1.015	1.028	1.011	1.020	1.022	1.009	1.021	1.028	1.013	1.074	0.975
(N) PFE=(M-1)(10^2)	4	2	3	1	2	2	1	2	3	1	7	-25
(O) MCF=(M-1)(10^5)/H	426	190	359	143	241	250	115	253	301	148	851	-278

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2		CAL.	4-5				
(B) Receive	→	2.5-	3.0 South →									
(C) n separation	5	3	4	5	6							
(D) I	1765	1765	1750	1735	1745		690	1495	1900	650	1385	1745
(E) Vdc (avg)	.38	1.20	.59	.38	.29		67.6	146.3	185.0	66.2	142.5	178.0
(F) DCcal					→		.980	.979	.979	.982	.972	.980
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρ dc=ExFxGx10^3/D	0.36	1.18	0.58	0.37	0.26							
(I) Vac Σ	11.0	10.0	9.9	11.2	13.6		68.0	144.0	186.0		139.8	178
(J) AC noise x 2	0.14	0.10	0.10	0.10	0.10							
(K) Vac (corr) =$\sqrt{I^2 - J^2}$	0.343	1.18	0.572	0.357	0.258							
(L) AC-DC cal.							1.006	0.984	1.000		0.981	1.000
(M) ρdc/ρac =ExL/K	1.101	1.012	1.028	1.060	1.119							
(N) PFE=(M-1)(10^2)	10	1	7	6	12							
(O) MCF=(M-1)(10^5)/H	918	120	283	535	876							

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 3 Spr. 5 1/2 Int.Cal 49.9 Date: 4/13/82

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.												
Time	8:46	8:49	9:09	9:13	9:16	9:31	9:36	9:39	9:43	9:54	9:57	10:02
DC-1	5.20 5.20	1.28 1.31	4.90 4.90	1.20 1.18	.54 .55	5.40 5.35	1.22 1.29	.52 .55	.27 .25	1.31 1.28	.58 .59	.32 .35
DC-2	5.20 5.20	1.25 1.20	4.90 4.90	1.20 1.23	.50 .50	5.60 5.65	1.20 1.13	.50 .48	.31 .32	1.39 1.40	.48 .47	.22 .19
Σ	10.40 10.40	2.53 2.51	9.80 9.80	2.40 2.41	1.04 1.05	11.00 11.00	2.42 2.42	1.02 1.03	.58 .57	2.70 2.68	1.06 1.06	.54 .54
DC-3	5.20 5.15	1.32 1.32	4.95 4.95	1.18 1.15	.53 .53	5.50 5.40	1.12 1.09	.56 .59	.28 .28	1.39 1.42	.60 .60	.30 .32
Dc-4	5.20 5.25	1.19 1.19	4.85 4.85	1.23 1.26	.51 .51	5.50 5.60	1.32 1.35	.46 .43	.29 .29	1.30 1.27	.46 .45	.24 .22
Σ	10.40 10.40	2.51 2.51	9.80 9.80	2.41 2.41	1.04 1.04	11.00 11.00	2.44 2.44	1.02 1.02	.56 .56	2.69 2.69	1.06 1.05	.54 .54
DC-AV	10.40	2.51	9.80	2.41	1.04	11.00	2.43	1.02	.57	2.69	1.06	.54
AC-1	5.0	1.23	4.75	1.18	.51	5.35	1.20	.50	.29	1.32	.52	.28
AC-2	5.0	1.23	4.75	1.19	.52	5.35	1.26	.50	.29	1.32	.52	.29
Σ	10.0	2.46	9.50	2.37	1.03	10.70	2.40	1.00	.58	2.64	1.04	.57
S. P.		+.3			-2.0				-9.1			
AC-N		.06			.08				.07			

Sta. 1 5 S. is 55 ft So. of Electrode 1 on Line 2 Spr. 4

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Sunizona Line: 3 Spr. 5 S½ Int.Cal 50.0 Date: 4/13/62

Send	1-2	4-5	3-4	2-3	1-2		Cal.	4-5				
Rec.												
Time	10:05	10:17	10:20	10:23	10:26		8:13	8:15	8:18	10:37	10:42	10:45
DC-1	.24 .20	.60 .57	.30 .31	.21 .21	.15 .15		33.8	73.3	93.0	33.0	71.0	89.0
DC-2	.12 .18	.60 .63	.29 .28	.17 .17	.13 .13		33.8	73.0	93.0	33.2	71.5	89.0
Σ	.36 .38	1.20 1.20	.59 .59	.38 .38	.28 .28		67.6	146.3	186.0	66.2	142.5	178.0
DC-3	.20 .21	.55 .59	.32 .32	.20 .20	.18 .19		33.8	73.3	93.0	33.0	71.0	89.0
Dc-4	.18 .17	.66 .61	.27 .26	.18 .18	.11 .10		33.8	73.0	93.0	33.2	71.5	89.0
Σ	.38 .38	1.21 1.20	.59 .58	.38 .38	.29 .29		67.6	146.3	186.0	66.2	142.5	178.0
DC-AV	.38	1.20	.59	.38	.29		67.6	146.3	186.0	66.2	142.5	178.0
AC-1	.18	.59	.29	.18	.13		34.0	72.0	93.0		69.9	89.0
AC-2	.18	.59	.29	.19	.13		34.0	72.0	93.0		69.9	89.0
Σ	.36	1.18	.58	.37	.26		68.0	144.0	186.0		139.8	178
S. P.	+4.2				-.9							
AC-N	.07				.05							

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 3 spread 5 5'7 Date: 4/13/67

Send		2-3	1-2	3-4	2-3	1-2	1-5	3-4	2-3	1-2	1-5	3-4
Receive												
Time		846	849	909	913	916	931	936	939	943	954	957
Range		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current		1875 1870	1875 1870	1845 1845	1845 1845	1845 1845	1840 1835	1820 1815	1800 1800	1800 1800	1800 1795	1780 1795
Send	2-3	1-2	4-5	3-4	2-3	1-2	cal	on 4	-5			
Receive												
Time	1002	1005	1017	1020	1023	1026	813	815	818	1037	1042	1045
Range	2.0	2.0	2.0	2.0	2.0	2.0	.75	1.5	2.0	.75	1.5	2.0
Current	1755 1755	1765 1765	1765 1765	1745 1760	1735 1735	1745 1740	690 685	1495 1495	1895 1900	650	1390 1380	1740 1745

Ω 1-2=120, 2-3=150, 3-4=120, 4-5=95

INDUCED POLARIZATION - RECEIVER NO[illegible] PAGE ____

Project: Sunizona Line: 3 Spr. 6N 1/2 Int.Cal 50.0 P.M. Date: 4/13/62

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.												
Time	14:10	14:15	14:29	14:32	14:36	14:46	14:50	14:53	14:56	15:06	15:09	15:11
DC-1	5.02 5.10	1.29 1.30	5.70 5.70	1.25 1.28	.53 .55	5.00 5.00	1.20 1.20	.45 .45	.25 .26	1.15 1.10	.54 .50	.25 .30
DC-2	4.98 4.90	1.15 1.15	5.75 5.75	1.28 1.25	.53 .52	5.20 5.20	1.20 1.20	.52 .52	.31 .30	1.18 1.22	.46 .50	.30 .25
Σ	10.00 10.00	2.44 2.45	11.45 11.45	2.53 2.53	1.06 1.07	10.20 10.20	2.40 2.41	.97 .97	.56 .56	2.33 2.32	1.00 1.00	.55 .55
DC-3	5.10 5.00	1.22 1.22	5.72 5.72	1.23 1.29	.55 .56	5.10 5.05	1.18 1.18	.49 .50	.28 .28	1.07 1.14	.46 .50	.31 .32
Dc-4	5.90 5.00	1.22 1.23	5.72 5.72	1.29 1.22	.51 .50	5.10 5.15	1.22 1.22	.49 .48	.28 .29	1.26 1.19	.54 .51	.24 .23
Σ	10.00 10.00	2.44 2.45	11.44 11.44	2.57 2.51	1.06 1.06	10.20 10.20	2.40 2.40	.98 .98	.56 .56	2.33 2.33	1.00 1.01	.55 .55
DC-AV	10.00	2.45	11.45	2.52	1.06	10.20	2.40	.98	.56	2.33	1.00	.55
AC-1	4.92	1.20	5.60	1.26	.52	5.00	1.19	.49	.28	1.15	.49	.26
AC-2	4.92	1.21	5.60	1.25	.53	5.00	1.20	.49	.28	1.14	.48	.26
Σ	9.84	2.41	11.20	2.51	1.05	10.00	2.39	.98	.56	2.29	.97	.52
S. P.		-10,1			-2.4				-2.9			
AC-N		.06			.06				.06			
									breast			

INDUCED POLARIZATION - RECEIVER NO[illegible] PAGE ____

Project: Sunizona Line: ____ Int.Cal ____ Date: 4/13/62

Send	4-5	1-2	2-3	3-4	4-5		Cal.	1-2				
Rec.												
Time	15:13	15:22	15:25	15:29	15:34		14:02	14:04	14:06			
DC-1	.20 .20	.49 .50	.28 .26	.20 .22	.10 .10		33.5	72.2	90.0			
DC-2	.17 .17	.46 .45	.30 .32	.14 .12	.19 .20		33.5	72.5	90.0			
Σ	.37 .37	.95 .95	.58 .58	.34 .34	.30 .29		67.0	144.7	180.0			
DC-3	.20 .21	.50 .51	.22 .20	.22 .21	.10 .10		33.5	72.2	90.0			
Dc-4	.17 .16	.45 .45	.36 .37	.12 .13	.19 .20		33.5	72.5	90.0			
Σ	.37 .37	.95 .96	.57 .57	.34 .34	.29 .30		67.0	144.7	180.0			
DC-AV	.37	.95	.58	.34	.295		67.0	144.7	180.0			
AC-1	.17	.48	.27	.16	.12		34.0	71.5	97.0			
AC-2	.18	.49	.26	.15	.13		34.0	71.5	97.0			
Σ	.35	.97	.53	.31	.25		68.0	143.0	184.0			
S. P.	+1.8								-5.5			
AC-N	.05								.06			

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 3 spr #6 N/2 Date: 4/13/62

Send		3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3
Receive												
Time		1410	1415	1429	1432	1436	1446	1450	1453	1456	1506	1509
Range		2.0	—	—	—	—	—	—	—	—	—	→
Current		1805 R10	1825 1820	1800 1800	1790 1785	1800 1800	1775 1770	1760 1760	1750 1750	1770 1765	1745 1740	1745 1745
Send	3-4	4-5	1-2	2-3	3-4	4-5	cal	1-2				
Receive												
Time	1511	1513	1522	1525	1529	1534	1402	1404	1406			
Range	2.0	—	—	—	—	→	75	1.5	2.0			
Current	1735 1735	1750 1745	1730 1725	1725 1725	1715 1710	1725 1720	665 665	1440 1435	1800 1800			

Ω | 1-2 = 110 | 2-3 = 170 | 3-4 = 130 | 4-5 = 85

Turkey Creek Wash
430' South of 1.5 South Line 3 Spr. 6
& 70' North of 1.5 North Line 3 Spr. 5

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

Project Sunizona Line 3 spr. 6N ½ Field date 4/13/62 Data page _____ Comp. date 4/16/62 Comp by N.R.N. E.G.H.

(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	.5-1.0 N	→	1.0-1.5 N	→	→	1.5-2.0 N	→	→	→	2.0-2.5 N	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1810.	1825.	1800.	1790	1800	1775	1760	1750	1770	1745	1745	1735
(E) Vdc (avg)	10.00	2.45	11.45	2.52	1.06	10.20	2.40	.98	.56	2.33	1.00	.55
(F) DCcal .988 used	→	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3} 500 a	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30
(H) ρdc=ExFxGx10^3/D	8.22	7.96	9.41	8.38	8.81	8.52	8.08	8.31	9.40	7.91	8.45	9.40
(I) Vac Σ	8.2	7.9	9.4	8.3	8.7	8.5	8.1	8.3	9.4	7.9	8.5	9.4
(J) AC noise x 2	9.84 .12	2.41 .12	11.2 .12	2.51 .12	1.05 .12	10.0 .12	2.39 .12	.98 .12	.56 .12	2.29 .10	.97 .10	.52 .10
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	9.84	2.41	11.2	2.51	1.047	10.0	2.39	.973	.547	2.29	.965	.51
(L) AC-DC cal. USED	1.010											
(M) ρdc/ρac=ExL/K	1.028	1.028	1.032	1.014	1.023	1.030	1.014	1.017	1.033	1.029	1.047	1.089
(N) PFE=(M-1)(10^2)	3	3	3	1	2	3	1	2	3	3	5	9
(O) MCF=(M-1)(10^5)/H	342	354	340	169	264	353	173	205	352	367	554	947

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

(A) Send	4-5	1-2	2-3	3-4	4-5	cal	1-2					
(B) Receive	→	2.5-3.0 N	→	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1750	1730	1725	1715	1725		665	1440	1880	655	1375	1705
(E) Vdc (avg)	.37	.95	.58	.34	.295		6.70	144.7	180.0	66.0	140.7	178.0
(F) DCcal .988 used	→	→	→	→	→	→	.992	.995	1.000	.991	.981	.959
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	84.0							
(H) ρdc=ExFxGx10^3/D	10.95	8.14	13.45	10.29	14.20							
(I) Vac Σ	10.9	8.0	9.9	10.3	14.2		68.0	143.0	184.0			
(J) AC noise x 2	.35 .10	.97 .10	.53 .10	.31 .10	.25 .10							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.335	.965	.52	.294	.229							
(L) AC-DC cal.							1.015	.989	1.021	—	—	—
(M) ρdc/ρac =ExL/K	1.116	0.995	1.128	1.169	1.300							
(N) PFE=(M-1)(10^2)	12	0	13	17	30				~	1.010		
(O) MCF=(M-1)(10^5)/H	1064	-63	1292	1640	2112							

INDUCED POLARIZATION - RECEIVE[illegible]TES PAGE ____

Project: Sunizona Line: 3 Spr. 6 S 1/2 Int.Cal 49.8 Date: 4/13/67

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.												
Time	16:07	16:24	16:37	16:40	16:42	16:53	16:56	16:58	17:00	17:13	17:16	17:20
DC-1	4.90 4.90	1.19 1.19	4.70 4.70	1.18 1.18	.51 .50	4.90 4.85	1.12 1.11	.49 .50	.31 .28	1.21 1.23	.48 .52	.26 .28
DC-2	4.60 4.60	1.18 1.19	4.70 4.70	1.18 1.18	.49 .49	4.95 4.99	1.16 1.17	.41 .50	.27 .30	1.20 1.18	.51 .48	.30 .28
Σ	9.50 9.50	2.37 2.38	9.40 9.40	2.36 2.36	1.00 .99	9.85 9.84	2.28 2.28	1.00 1.00	.58 .58	2.41 2.41	.99 1.00	.56 .56
DC-3	4.70 4.65	1.18 1.17	4.70 4.70	1.18 1.19	.51 .53	4.85 4.90	1.07 1.06	.49 .51	.28 .30	1.22 1.23	.50 .47	.29 .30
Dc-4	4.80 4.85	1.19 1.20	4.70 4.70	1.18 1.17	.49 .47	4.99 4.95	1.20 1.21	.51 .49	.29 .26	1.20 1.18	.50 .52	.29 .28
Σ	9.50 9.50	2.37 2.37	9.40 9.40	2.36 2.36	1.00 1.00	9.84 9.85	2.27 2.27	1.00 1.00	.57 .56	2.42 2.41	1.00 .99	.58 .58
DC-AV	9.50	2.37	9.40	2.36	1.00	9.85	2.28	1.00	.575	2.41	.995	.57
AC-1	4.70	1.19	4.65	1.19	.50	4.85	1.13	.50	.28	1.22	.50	.28
AC-2	4.70	1.19	4.65	1.19	.50	4.85	1.12	.50	.28	1.22	.50	.27
Σ	9.40	2.38	9.30	2.38	1.00	9.70	2.25	1.00	.56	2.44	1.00	.55
S. P.		-3.6			-4.2				-9.7			
AC-N		.06			.07				.07			

INDUCED POLARIZATION - RECEIVE[illegible]TES PAGE _____

Project: Sanizon 17 Line: 3 Spread 6S½ Int.Cal 49.8 Date: 4/13/65

Send	1-2	4-5	3-4	2-3	1-2		Cal.	1-2	N½ & S½			
Rec.												
Time	17:23	17:37	17:40	17:42	17:45		18:05	18:07	18:11			
DC-1	.26 .25	.48 .45	.25 .22	.13 .12	.18 .18		33.0	70.5	89.0			
DC-2	.12 .12	.52 .55	.30 .33	.22 .24	.10 .10		33.0	70.2	89.0			
Σ	.38 .37	1.00 1.06	.55 .55	.35 .35	.28 .28		66.0	140.7	178.0			
DC-3	.20 .20	.45 .50	.23 .21	.10 .14	.13 .10		33.0	70.5	89.0			
Dc-4	.18 .18	.55 .50	.32 .33	.26 .21	.15 .18		33.0	70.2	89.0			
Σ	.38 .38	1.00 1.00	.54 .54	.36 .35	.28 .28		66.0	140.7	178.0			
DC-AV	.38	1.00	.545	.35	.28		66.0	140.7	178.0			
AC-1	.18	.50	.26	.17	.11		33.5	70.0	90.0			
AC-2	.18	.50	.26	.18	.12		33.5	70.0	90.0			
Σ	.36	1.00	.52	.35	.23		67.0	140.0	180.0			
S. P.	+10.0											
AC-N	.08											
	brust -.30											

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 3 Spread 5½ Date: 4/13/67

Send		2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Receive												
Time		1607	1624	1637	1640	1642	1653	1656	1658	1700	1713	1716
Range		2.0	←								→	
Current		1735 1700	1745 1745	1750 1745	1750 1750	1750 1750	1760 1755	1745 1745	1740 1740	1745 1740	1750 1750	1725 1725
Send	2-3	1-2	4-5	3-4	2-3	1-2	Cal	1-2				
Receive												
Time	1720	1723	1737	1746	1742	1745	1805	1807	1811			
Range	2.0	←				→	.75	1.5	2.0			
Current	1725 1725	1725 1720	1735 1730	1700 1705	1705 1705	1705 1705	655 650	1375 1370	1705 1705			

Spr. 6 S

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Sunizona Line 3 Spr. 6 So. 1/2 Field date 4/13/62 Data page_____ Comp. date 4/16/62. Comp by E.G.H. N.N.

(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	.5-1.0 South		1.0-1.5 South		→	1.5-2.0 South			→	2.0-2.5 South		
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1740	1745	1750	1750	1750	1760	1745	1740	1745	1750	1725	1725
(E) Vdc (avg)	9.50	2.37	9.40	2.36	1.00	9.85	2.28	1.00	.575	2.41	.995	5.7
(F) DCcal .995 used												→
(G) Kn x 10^{-3}	1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0	30.0
(H) ρ dc=ExFxGx10^3/D	9.40	2.38	9.30	2.38	1.00	9.70	2.25	1.00	0.56	2.44	1.00	0.55
(I) Vac Σ	8.1	8.1	8.0	8.1	8.5	8.4	7.8	8.6	9.8	8.2	8.6	9.9
(J) AC noise x 2	0.12	0.12	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.16	0.16	0.16
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	9.40	2.38	9.30	2.38	0.99	9.70	2.25	0.99	0.543	2.44	0.987	0.525
(L) AC-DC cal. USED 1.010												
(M) ρ dc/ρac=ExL/K	1.020	1.006	1.021	1.002	1.020	1.026	1.024	1.020	1.070	0.998	1.019	1.096
(N) PFE=(M-1)(10^2)	2	1	2	0	2	3	2	2	7	0	2	10
(O) MCF=(M-1)(10^5)/H	247	74	265	25	235	310	308	233	715	-24	221	970

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2		CAL.	1-2	N 1/2 & South	1/2		
(B) Receive	→	2.5-	3.0	South	→							
(C) n separation	5	3	4	5	6							
(D) I	1725	1735	1705	1705	1705		665	1490	1800	655	1375	1705
(E) Vdc (avg)	.38	1.00	.545	.35	.29		67.0	144.7	180.0	66.0	140.7	178.0
(F) DCcal .995 used					→		.994	.995	1.00	.991	.980	.948
(G) Kn x 10^{-3}	52.5	15.0	30.0	52.5	89.0							
(H) ρ dc=ExFxGx10^3/D	0.36	1.00	0.52	0.35	0.23							
(I) Vac Σ	14.5	8.6	9.5	10.7	13.7					67.0	140.0	180.0
(J) AC noise x 2	0.16	0.10	0.10	0.10	0.10							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	0.322	.995	0.51	0.318	0.207							
(L) AC-DC cal.	1.190	1.016	1.080	1.111	1.368			USE	1.010	1.015	0.995	1.011
(M) ρdc/ρac =ExL/K	19	2	8	11	37							
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H	1651	186	842	1036	2684							

...DUCED POLARIZATION - RECEIVER NOTES PAGE .

Project: Sunizona Line: 4 Spr. 7 S½ Int.Cal _____ Date: 4/19/62

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
Rec.	.5-1.0 S→											
Time	12:20	12:27	13:09	13:15	13:22	13.42	13.45	13.55	13.59	14.50	14.55	14.59
DC-1	6.25 6.30	2.10 2.20	6.40 6.50	2.10 2.10	.85 .80	5.50 5.50	1.80 1.80	.80 .81	.48 .44	1.58 1.60	.75 .75	.46 .46
DC-2	6.20 6.15	2.0 1.9	6.30 6.20	1.90 1.88	.96 1.00	5.4 5.38	1.88 1.88	.81 .80	.50 .52	1.61 1.60	.84 .84	.47 .47
Σ	12.45 12.45	4.10 4.10	12.70 12.70	4.0 3.98	1.81 1.80	10.90 10.88	3.68 3.68	16.1 16.1	.98 .96	3.19 3.20	15.9 15.9	.93 .93
DC-3	6.35 6.40	2.05 2.05	6.30 6.40	2.2 2.2	.95 .93	5.50 5.50	1.80 1.78	.80 .78	.58 .62	1.62 1.60	.73 .73	.48 .48
Dc-4	6.10 6.05	2.08 2.08	6.40 6.30	1.8 1.8	.85 .83	5.38 5.38	1.89 1.89	.81 .81	.40 .36	1.60 1.61	.86 .86	.44 .45
Σ	12.45 12.45	4.13 4.13	12.70 12.70	4.0 4.0	1.80 1.81	10.88 10.88	3.69 3.67	16.1 15.9	.98 .98	3.22 3.21	15.9 15.9	.92 .93
DC-AV	12.45	4.12	12.70	4.00	1.805	10.88	3.68	16.1	.978	3.20	15.9	.928
AC-1	5.8	1.92	5.9	1.85	.83	5.1	1.73	.77	.46	1.53	.75	4.4
AC-2	5.8	1.93	5.9	1.83	.83	5.1	1.73	.75	.46	1.52	.75	4.4
Σ	11.60	3.85	11.8	3.68	1.66	10.2	3.46	1.52	.92	3.05	1.50	8.8
S. P.		+4.7			+.4				-3.4			
AC-N		.04			.05				.06			
Burr Brown Meter					brasts -3.0							

#5 Electrode Located at Well #5
#1 North of #5

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 4 Spr. 7 s/2 Int. Cal 45.5 Date: 4/19/62

Send	11-12	4-5	3-4	2-3	1-2		CAL	445				
Rec.												
Time	15:02	15:21	15:25	15:30	15:37		11:17	11:24	11:30	15:51	15:54	15:57
DC-1	.32 .33	.68 .68	.44 .46	.26 .27	.14 .14		29.5	69.5	80.0	28.0	65.5	74.0
DC-2	.27 .26	.60 .60	.44 .42	.26 .26	.24 .24		29.5	69.3	81.0	28.0	65.5	74.0
Σ	.59 .59	1.28 1.28	.88 .88	.52 .53	.38 .38		59.0	138.8	161.0	56.0	131.0	148.0
DC-3	.33 .33	.67 .66	.48 .49	.27 .28	.20 .22		29.5	69.5	80.0	28.0	65.5	74.0
Dc-4	.26 .26	.62 .63	.40 .37	.26 .25	.16 .16		29.5	69.3	81.0	28.0	65.5	74.0
Σ	.59 .59	1.29 1.29	.88 .86	.53 .53	.36 .38		59.0	138.8	161.0	56.0	131.0	148.0
DC-AV	.59	1.285	.878	.528	.375		59.0	138.8	161.0	56.0	131.0	148.0
AC-1	.27	.60	.41	.26	.17		26.0	66.0	77.0	27.5	63.0	70.0
AC-2	.27	.60	.41	.26	.17		26.0	66.0	77.0	27.5	63.0	70.0
Σ	.54	1.20	.82	.50	.34		52.0	132.0	154.0	55.	126.0	140.0
S. P.	+6.8				-17.4							
AC-N	.05				.05							

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 4 Spr. 7 S 1/2 Date: 4/19/62

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	.5-1.0 S		1.0-1.5 S	→		1.5-2.0 S	→		→	2.0	→	→
Time	12:20	12:27	13:09	13:15	13:22	13:42	13:45	13:55	13:59	1450	1455	1459
Range Volt.	2.0 180	2.0 220	2.0 180	2.0 180	2.0 220	2.0 200	2.0 200	2.0 180	2.0 200	2.0 200	2.0 200	2.0 180
Current AC	1770	1750	1750	1760	1730	1725	1725	1720	1720	1730	1740	1730
→ DC	1775	1770	1760	1770	1760	1730	1745	1720	1720	1750	1760	1750
Send	1-2	4-5	3-4	2-3	1-2		CAL 4-5					
Receive	2.5S	2.5	5-3.0 S	→								
Time	15:02	15:21	15:25	15:30	15:37		11:17	11:24	11:30	15:51	15:54	15:57
Range Volt.	2.0 220	2.0 240	2.0 240	2.0 220	2.0 220		1.5 200	1.5 200	2.0 220	.175 180	1.5 240	2.0 240
Current AC	1730	1740	1725	1720	1710		1650?	M50	1820	440	1350	0475
DC	1740	1730	1740	1730	1720		1750?	1460	1825	440	1375	M90

Ω 1-2 110, 2-3 90, 3-4 130, 4-5 160,

4-5 cal

.75 AC 500-700 DC 425→675

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 4 Spr. 7N½ Int.Cal .44.0 Date: 4/19/62 PM.

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.	.5-1.0	→ N	1.0 -	1.5	→	1.5	-2.0	—	→	2.0	2.5	→
Time	16.47	16.52	17.08	17.13	17.14	17.50	17.55	17.58	18.03	18.18	1821	1825
DC-1	7.2 7.2	2.0 2.0	6.12 6.2	2.08 2.08	.76 .75	6.7 6.7	1.86 1.80	.90 .90	.46 .48	1.82 1.82	.80 .79	.51 .51
DC-2	7.3 7.3	2.0 2.0	6.2 6.18	2.02 2.01	.83 .85	6.8 6.8	1.86 1.86	.86 .86	.46 .43	1.82 1.82	.79 .79	.50 .50
Σ	14.50 14.50	4.0 4.0	12.4 12.38	4.10 4.09	1.59 1.60	13.5 13.5	3.66 3.66	1.76 1.76	.91 .91	3.64 3.64	1.59 1.58	1.01 1.01
DC-3	7.19 7.20	2.04 2.02	6.22 6.20	2.09 2.09	.76 .74	6.6 6.6	1.88 1.85	.90 .92	.46 .46	1.82 1.82	.80 .80	.50 .52
Dc-4	7.32 7.3	1.98 1.98	6.18 6.20	2.00 2.00	.83 .85	6.9 6.9	1.79 1.78	.87 .84	.45 .48	1.82 1.82	.80 .80	.50 .49
Σ	14.59 14.60	4.02 4.00	12.40 12.4	4.09 4.09	1.59 1.59	13.5 13.5	3.68 3.63	1.77 1.76	.91 .94	3.64 3.64	1.60 1.60	1.00 1.01
→ DC-AV	14.50	4.00	12.40	4.09	1.59	13.5	3.65	1.76	.92	3.64	1.59	1.01
AC-1	6.95	1.90	5.8	1.91	.73	6.3	1.70	.81	.42	1.72	.74	.46
AC-2	6.95	1.90	5.8	1.91	.73	6.3	1.70	.81	.42	1.72	.75	.47
Σ	13.90	3.80	11.6	3.82	1.46	12.6	3.4	1.62	.84	3.44	1.49	.93
S. P.					+34.1				+32.4			
AC-N					.05				.06			

Burr-Brown Meter → Turkey Creek Wash (sandy setting) @ 1.5N

INDUCED POLARIZATION - RECEIVER NOTES PAGE

Project: Sunizona Line: 4 Spr. 7N½ Int.Cal 44.5 Date: 4/19/62

Send	4-5	1-2	2-3	3-4	4-5		CAL	1-2				
Rec.												
Time	1827	1851	1854	1857	1839		16.28	16.30	16.33	19:21	19:24	
DC-1	.30 .30	.72 .68	.46 .46	.24 .26	.20 .20		28.5	66.2	77.0	78.0	67.2	29.5
DC-2	.26 .25	.78 .82	.42 .41	.34 .32	.18 .18		28.5	66.2	77.0	78.0	67.0	29.5
Σ	.64 .55	1.50 1.50	.88 .81	.60 .60	.38 .38		57.0	132.4	154.0	156.0	134.2	59.0
DC-3	.30 .31	.72 .70	4.8 .42	.24 .24	.20 .20		28.5	66.2	77.0	78.0	67.2	29.5
Dc-4	.26 .25	.78 .80	.40 .46	.34 .37	.18 .18		28.5	66.2	77.0	78.0	67.0	29.5
Σ	.56 .56	1.50 1.50	.88 .88	.61 .61	.38 .38		57.0	132.4	154.0	156.0	134.2	59.0
→DC-AV	.56	1.50	.88	.605	.38		57.0	132.4	154.0	156.0	134.2	59.0
AC-1	.25	.70	.40	.24	.18		27.5	64.0	72.0	73.0	64.0	28.0
AC-2	.24	.70	.40	.24	.14		27.5	64.0	72.0	73.0	64.0	28.0
Σ	.49	1.40	.80	.52	.32		55.0	128.0	144.0	146.0	128.0	56.0
S. P.	±2.3				-5.7							
AC-N	.05				03							

INDUCED POLARIZATION SENDER NOTES

Project: Sunizona Line: 4 Spr. T N'/2 Date: 4/1962

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	16:47	16:52	17:08	17:13	17:16	17:50	17:55	1758	18:03	1818	1821	1825
Range V	2.0 200	2.0 200	2.0 200	2.0 220	2.0 220	2.0 200	2.0 180	2.0 180	2.0 200	2.0 180	2.0 180	2.0 180
Current AC → DC	1750 1750	1740 1755	1775 1760	1750 1770	1730 1760	1770 1770	1770 1775	1750 1770	1740 1760	1740 1740	1750 1760	1730 1750

Send	4-5	1-2	2-3	3-4	4-5		CAL	1-2				
Receive												
Time	18:27	18:41	18:54	18:57	18:59		1628	1630	1633	1921	1924	1927
Range	2.0 200	2.0 200	2.0 200	2.0 200	2.0 200		.75 120	1.5 180	2.0 220	2.0 220	1.5 220	.75 140
Current AC DC	1725 1730	1750 1750	1760 1770	1740 1760	1730 1750		650 660	1380 1390	1725 1730	1730 1750	1390 1420	650 670

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

Project Sunizona Line 4 - Spr 7N½ Field date 4/19/62 Data page _____ Comp. date 4/21/62 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	.5-1.0N	→	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		1750	1755	1760	1770	1760	1770	1775	1770	1760	1740	1760
(E) Vdc (avg)		14.50	4.00	12.90	4.09	1.59	13.50	3.65	1.76	.92	3.64	1.59
(F) DCcal USED	1.110											
(G) Kn x 10^{-3}		1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0
(H) ρdc=ExFxGx10^3/D		13.8	15.2	11.7	15.4	15.1	12.7	13.7	16.6	17.4	13.9	15.1
(I) Vac Σ		13.90	3.80	11.6	3.82	1.46	12.6	3.40	1.62	6.84	3.44	1.49
(J) AC noise x 2		.10	.10	.10	.10	.10	.12	.12	.12	.12	.10	.10
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		13.90	3.80	11.6	3.82	1.46	12.6	3.40	1.62	.833	3.44	1.49
(L) AC-DC cal. USED	0.950											
(M) ρ dc/ρac=ExL/K		0.992	1.000	1.016	1.018	1.035	1.019	1.020	1.032	1.049	1.006	1.015
(N) PFE=(M-1)(10^2)		-1	0	2	2	4	2	2	3	5	1	2
(O) MCF=(M-1)(10^5)/H		-58	0	137	117	232	150	146	193	282	43	99

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	→	→	2.5-3.0N	→	→	→	1-2	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1750	1730	1750	1770	1760	1750	660	1390	1730	1750	1420	670
(E) Vdc (avg)	1.01	.56	1.50	.88	.605	.38	57.0	132.4	154.0	156.0	134.2	59.0
(F) DCcal						→	1.159	1.049	1.123	1.121	1.058	1.135
(G) Kn x 10^{-3}	30.0	52.5	15.0	30.0	52.5	84.0			~1.108	~1.11		
(H) ρ dc=ExFxGx10^3/D	19.2	18.9	14.3	16.6	20.0	20.3						
(I) Vac Σ	0.93	0.49	1.40	0.80	0.52	0.32	55.0	128.0	144.0	146.0	128.0	56.0
(J) AC noise x 2	.10	.10	.10	.10	.10	.10						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.925	.48	1.40	.794	.51	.304						
(L) AC-DC cal.						→	0.965	0.966	0.935	0.936	0.955	0.950
(M) ρdc/ρac =ExL/K	1.038	1.109	1.018	1.053	1.128	1.189			≈.950			
(N) PFE=(M-1)(10^2)	4	11	2	5	13	19						
(O) MCF=(M-1)(10^5)/H	199	577	126	319	640	931						

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

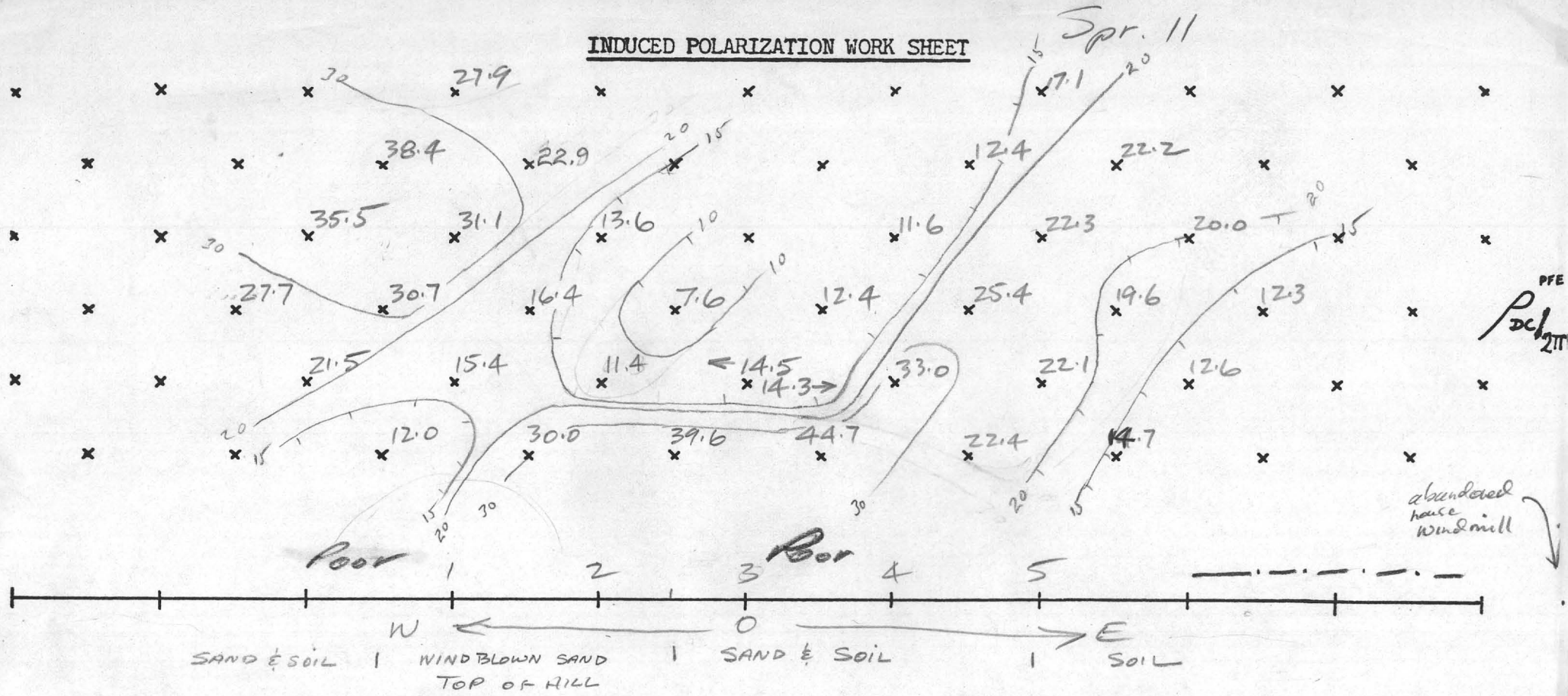
Project Sunizona Line 4-Spr 75½ Field date 4/19/82 Data page _____ Comp. date 4/21/82 Comp by C.S.L.

(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	C+2	.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		1775	1770	1760	1770	1760	1730	1745	1720	1720	1750	1760
(E) Vdc (avg)		12.45	4.12	12.70	4.00	1.805	10.88	3.68	1.61	.978	3.20	1.59
(F) DCcal used	1.11											
(G) Kn x 10^{-3}		1.5	6.0	1.5	6.0	15.0	1.5	6.0	15.0	30.0	6.0	15.0
(H) ρ dc=ExFxGx10^3/D		11.7	15.5	12.0	15.1	17.1	10.5	14.0	15.6	18.9	12.2	15.0
(I) Vac Σ		11.60	3.85	11.80	3.68	1.66	10.20	3.46	1.52	0.92	3.05	1.50
(J) AC noise x 2		.08	.08	.10	.10	.10	.12	.12	.12	.12	.10	.10
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		11.60	3.85	11.80	3.68	1.66	10.20	3.46	1.52	.914	3.05	1.50
(L) AC-DC cal. USED	2.60											
(M) ρ dc/ρac=ExL/K		1.030	1.029	1.033	1.043	1.044	1.024	1.021	1.018	1.029	1.009	1.019
(N) PFE=(M-1)(10^2)		3	3	3	4	4	2	2	2	3	1	2
(O) MCF=(M-1)(10^5)/H		256	187	275	285	257	228	150	115	153	74	127

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

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2	C+2	→	→	→	→	→
(B) Receive	→	→	2.5-3.05	→	→	→	4-5	→	→	→	→	→
(C) n separation	4	5	3	4	5	6						
(D) I	1750	1740	1730	1740	1730	1720	~~60~~	1460	1825	660	1375	1690
(E) Vdc (avg)	.928	.59	1.285	.878	.528	.375	~~5.0~~	138.8	161.0	56.0	131.0	148.0
(F) DCcal						→		1.052	1.133	1.179	1.050	1.141
(G) Kn x 10^{-3}	30.0	52.5	15.0	30.0	52.5	89.0			~1.11			
(H) ρ dc=ExFxGx10^3/D	17.7	19.7	12.4	16.8	17.8	20.3						
(I) Vac Σ	.880	0.54	1.20	0.82	0.50	0.34	~~2.0~~	132.0	159.0	55.0	126.0	140.0
(J) AC noise x 2	.10	.10	.10	.10	.10	.10						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.88	.53	1.20	.813	.49	.325						
(L) AC-DC cal.								0.952	0.955	0.982	0.962	0.946
(M) ρdc/ρac =ExL/K	1.012	1.069	1.028	1.037	1.035	1.109			~.960			
(N) PFE=(M-1)(10^2)	1	7	3	4	4	11						
(O) MCF=(M-1)(10^5)/H	68	350	226	220	197	538						

INDUCED POLARIZATION WORK SHEET

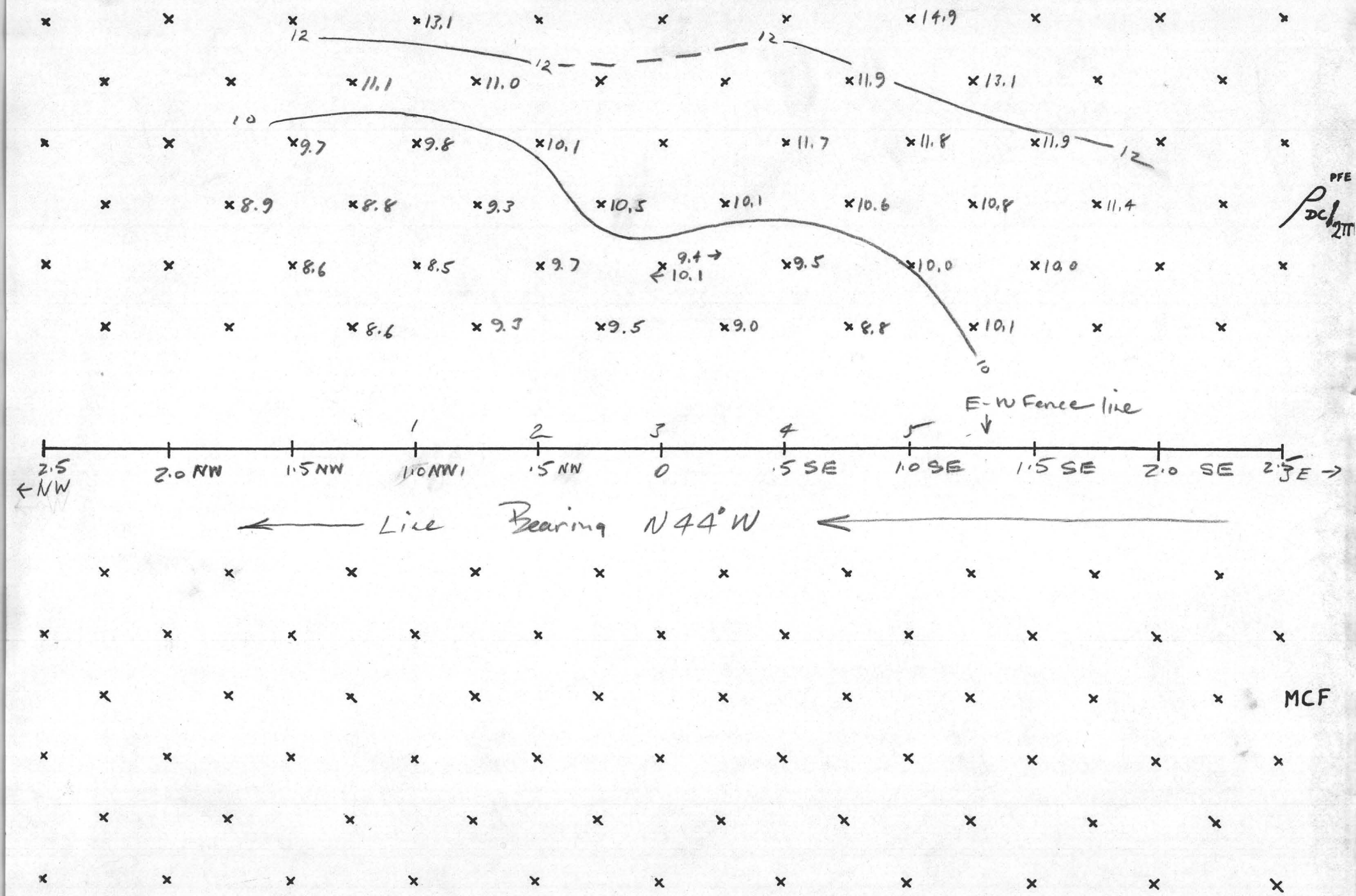


Line 6

Area Sunizona Spr 11 Scale 1"=500' Date 5/1/62

Spr. 4

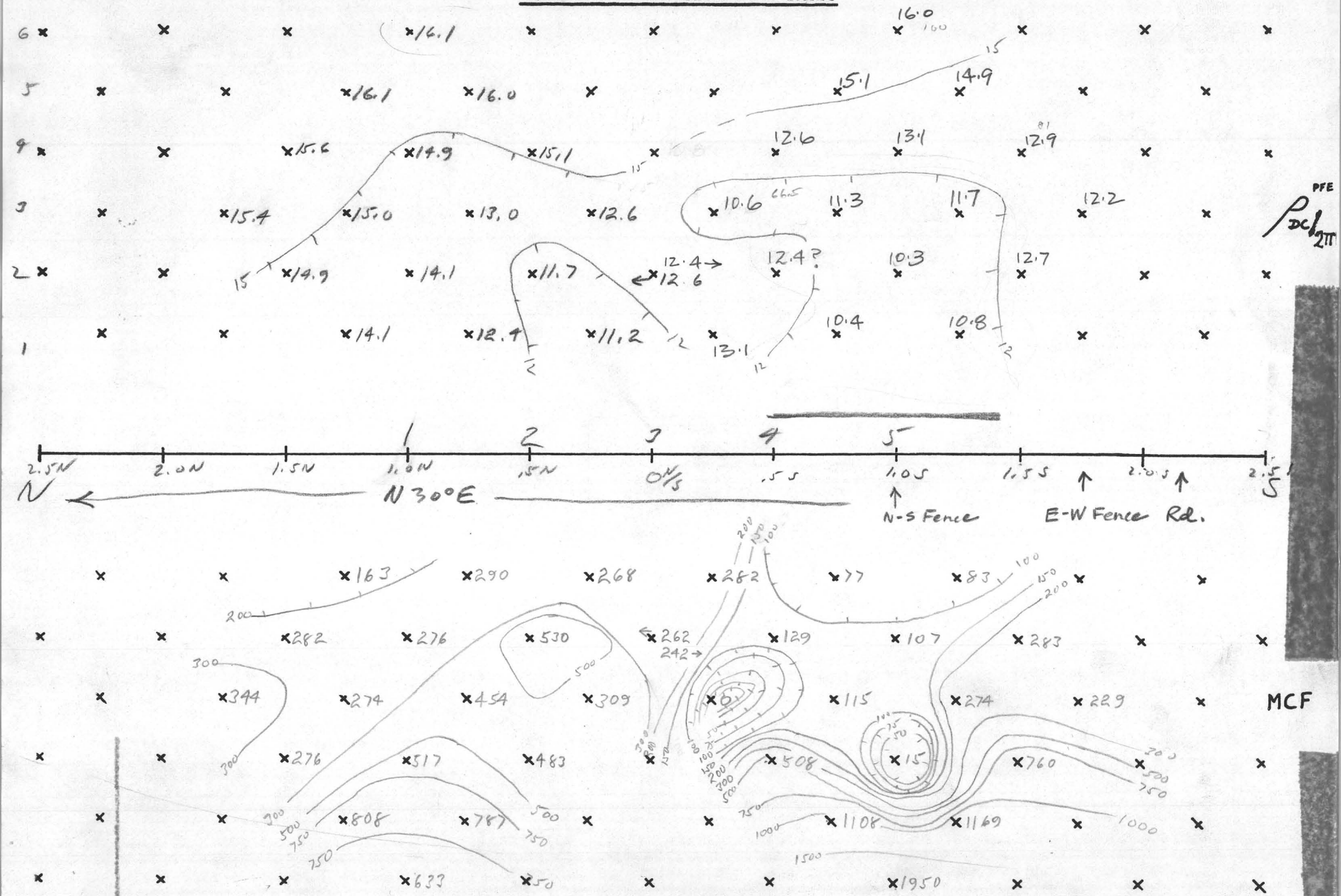
INDUCED POLARIZATION WORK SHEET



Area Sunizona - Line 2 Spr 4 NW¼ SE¼ Scale 1" = 500' Date 4/16/62

Spr. 9

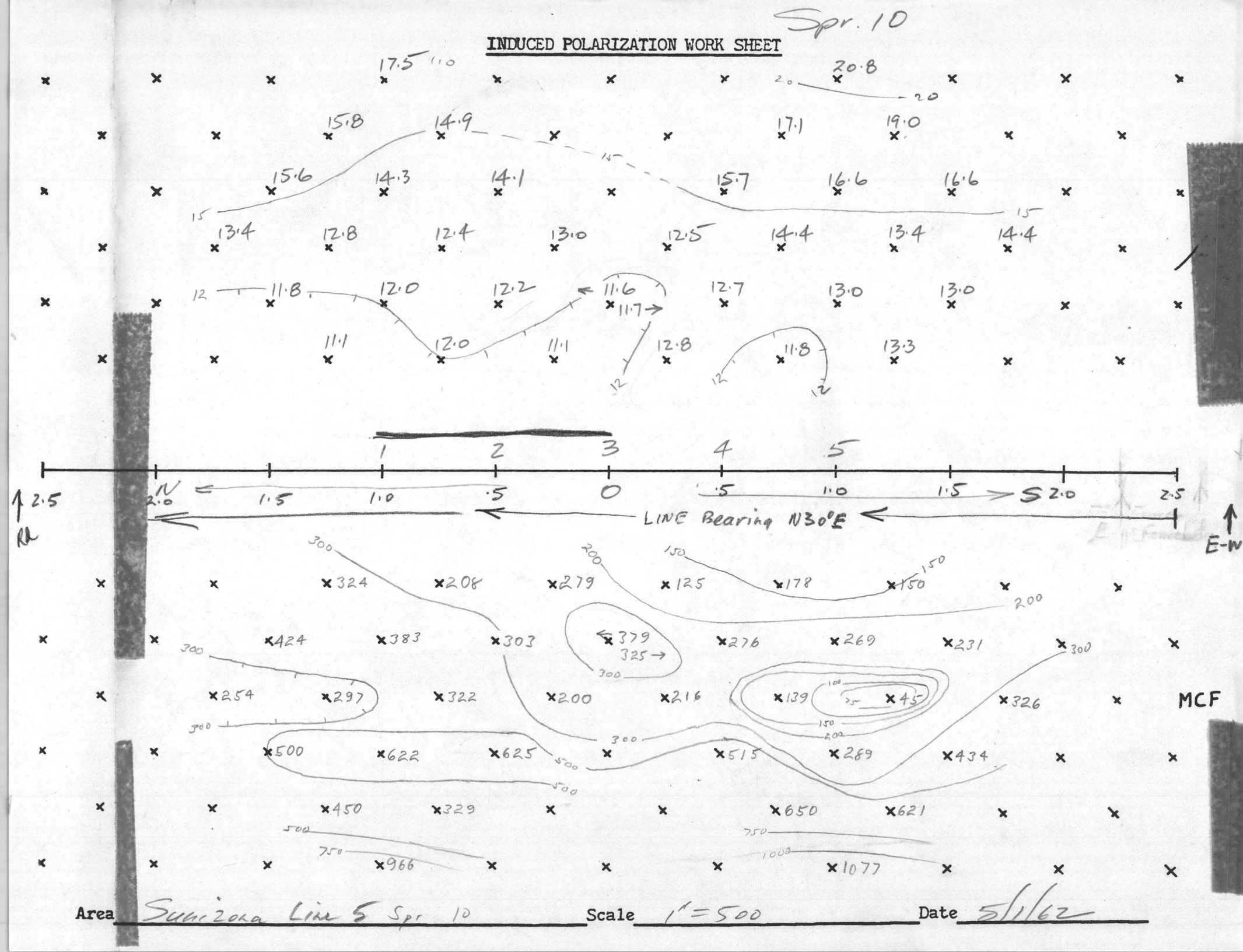
INDUCED POLARIZATION WORK SHEET



Area Sunizona - Line 5 - JOH 9 N½ Scale 1" = 500' Date 4/21/62

Spr. 10

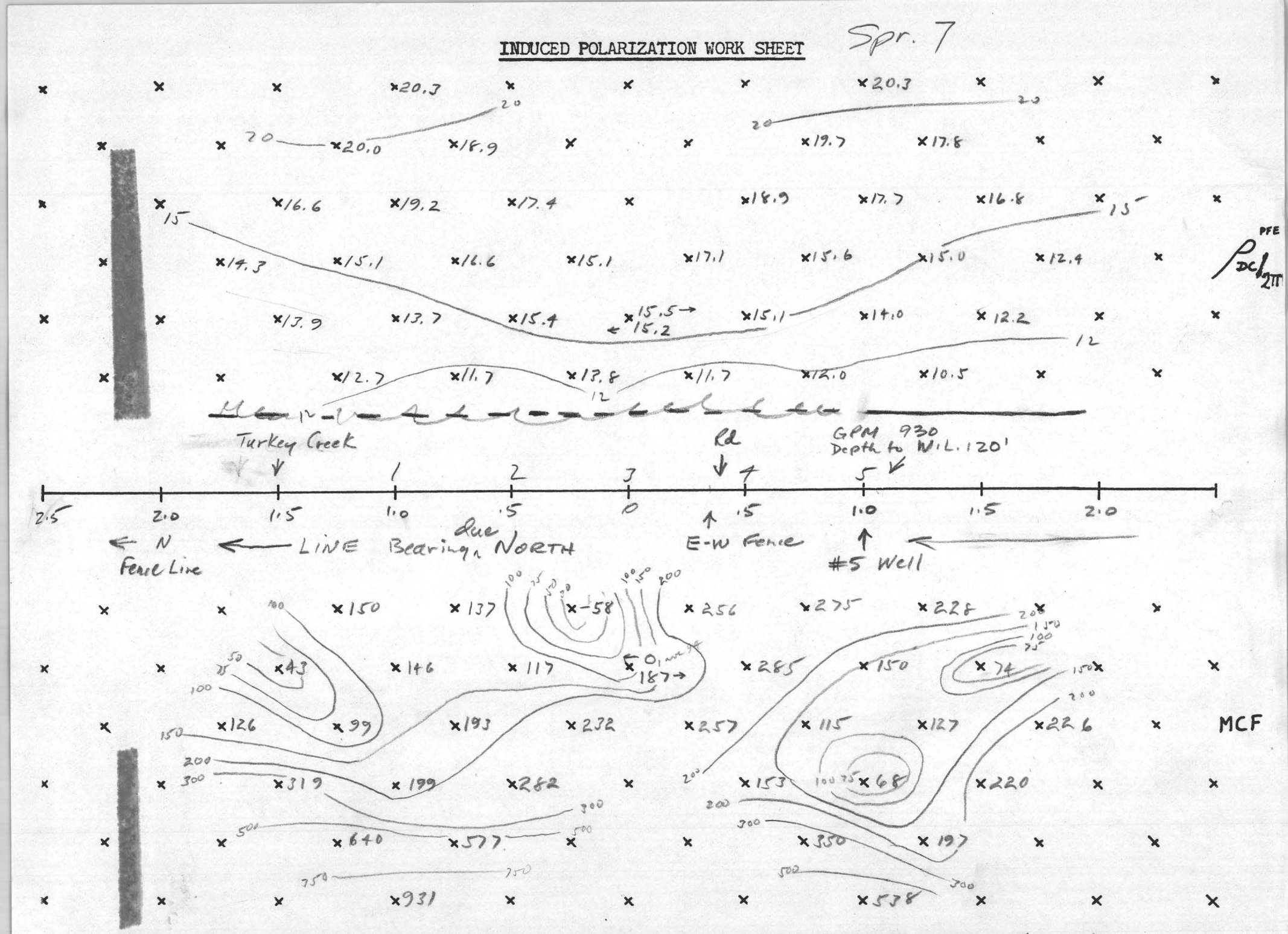
INDUCED POLARIZATION WORK SHEET



Area Sunizona Line 5 Spr 10 Scale 1"=500 Date 5/1/62

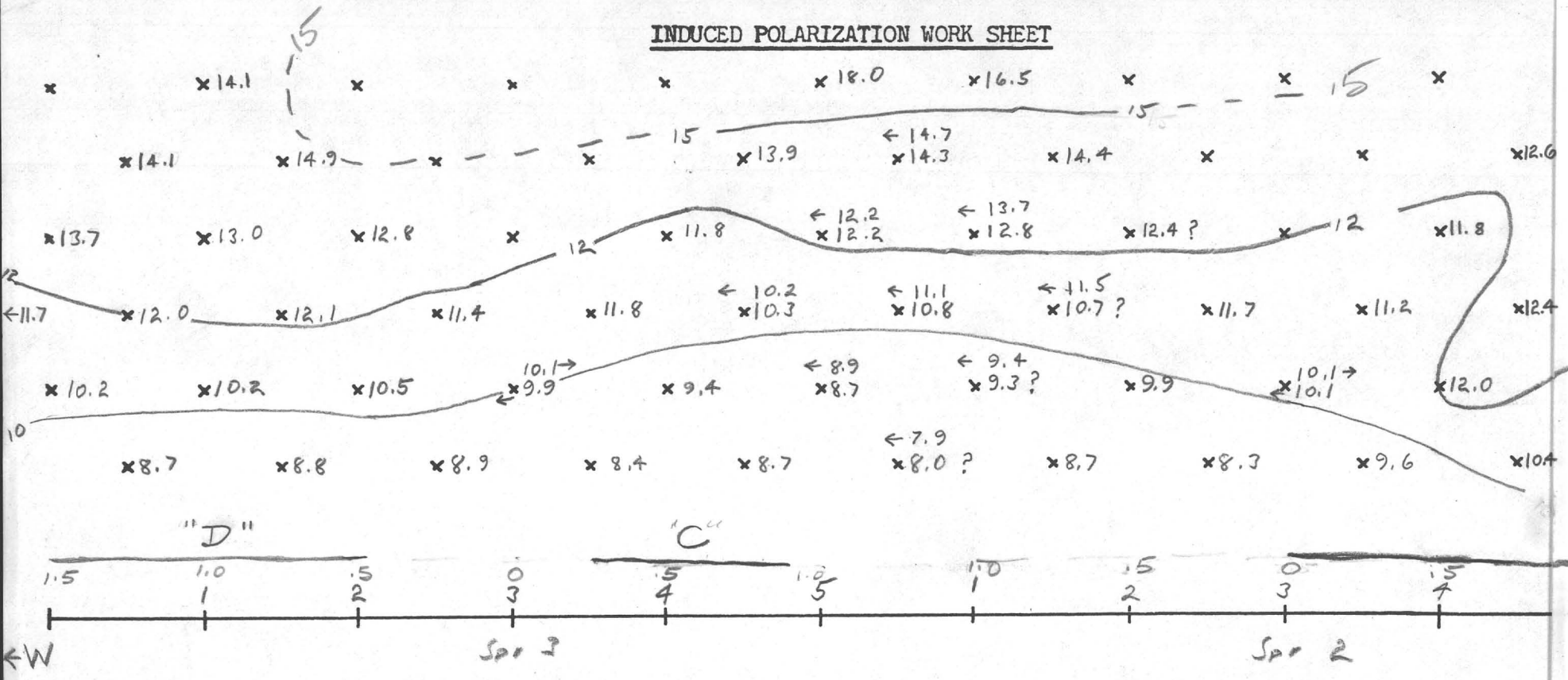
INDUCED POLARIZATION WORK SHEET

Spr. 7



Area Sunizona - Line 4 - Spr. 7 N ½ S ½ Scale 1" = 500' Date 4/21/82

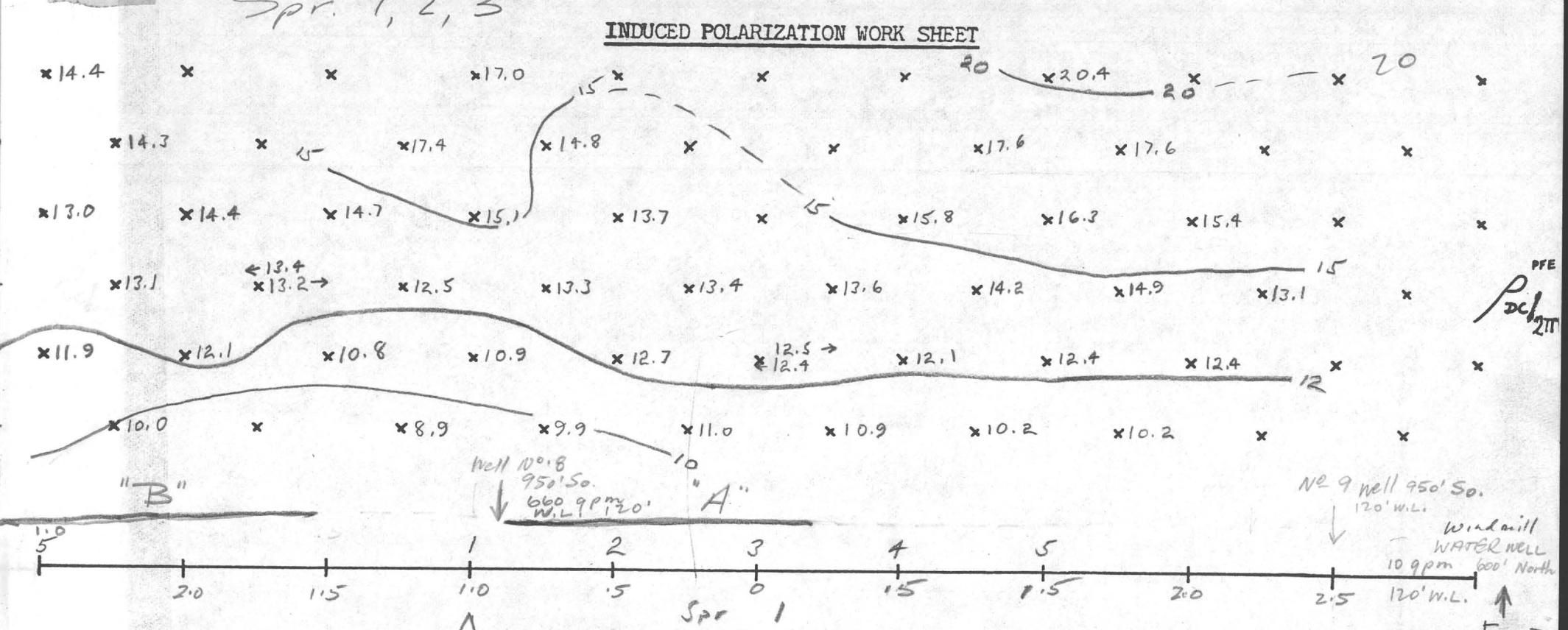
INDUCED POLARIZATION WORK SHEET



Area Line 1 ; Spr 2 & 3 Scale _____ Date _____

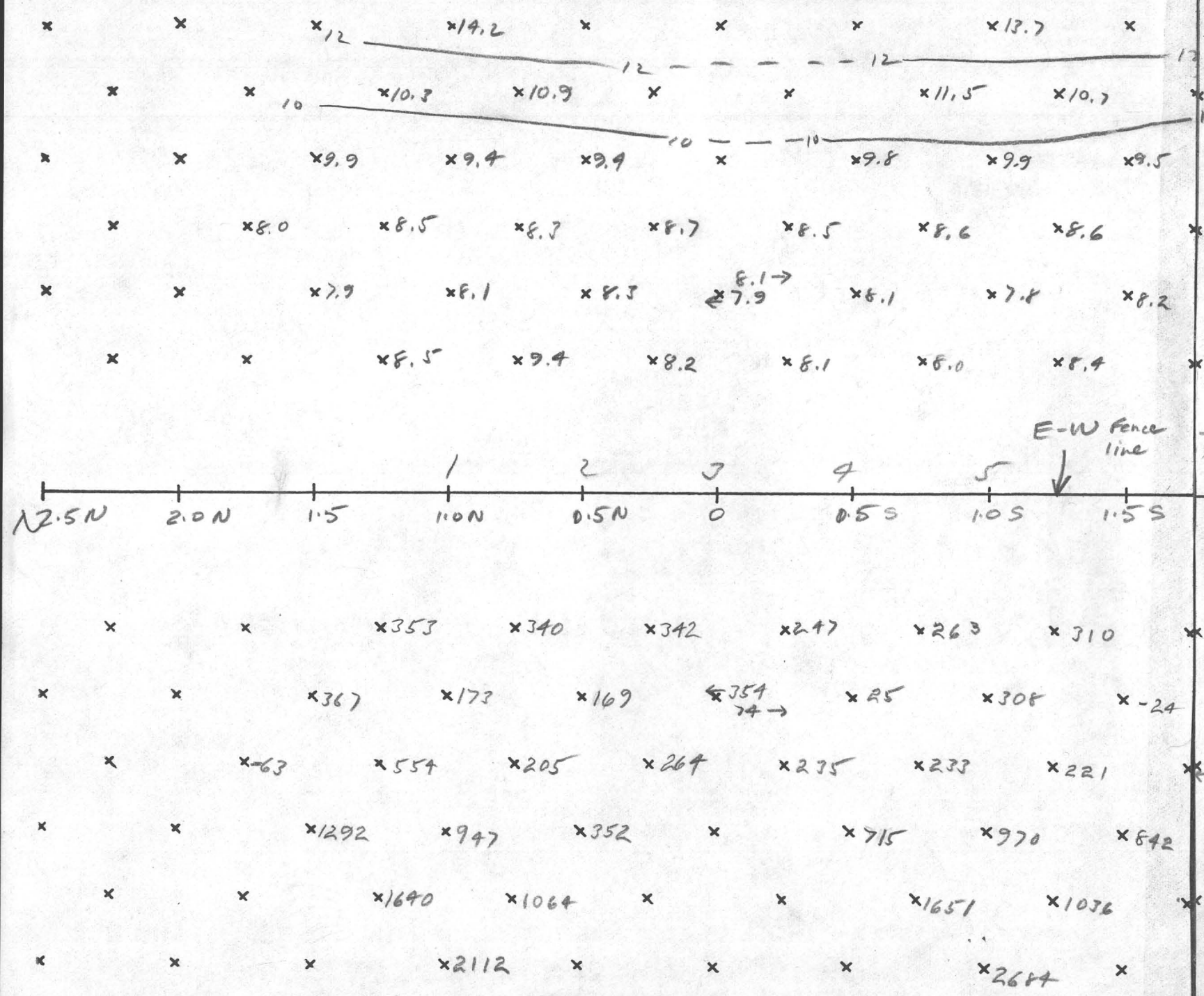
Spr. 1, 2, 3

INDUCED POLARIZATION WORK SHEET



Area Sunizona Line 1 Spr. 1 E&W's Scale 1" = 500' Date 4/17/62

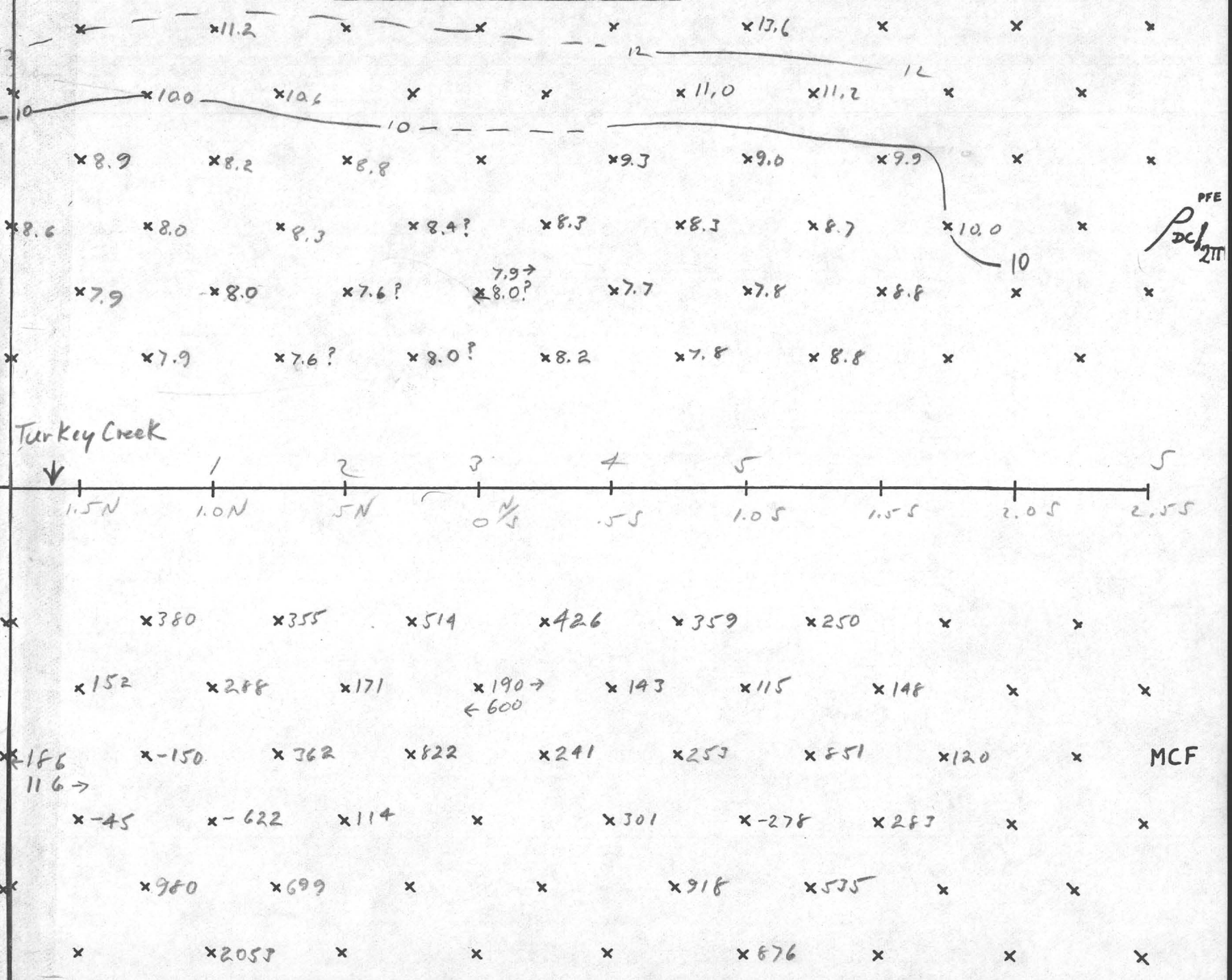
INDUCED POLARIZATION WORK SHEET



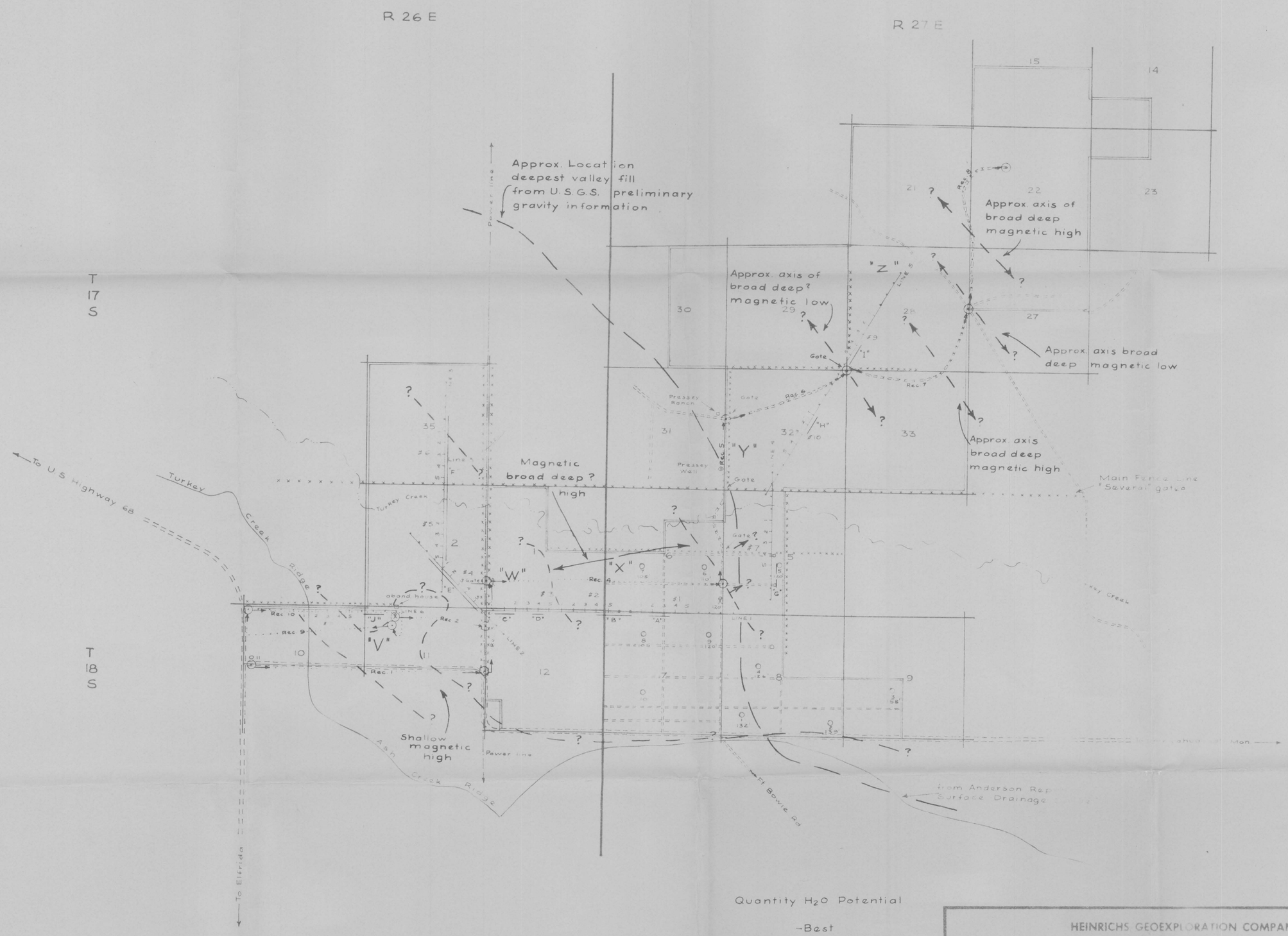
Area Sunizona : Line 3 Spr 6 N45½ Scale 1" = 500' Date 9/

Spr. 5 & 6

INDUCED POLARIZATION WORK SHEET



Area Sunizona - Line 3 - Spr 5 N45½ Scale 1" = 500' Date 4/16/62



Quantity H_2O Potential

- Best
- Good
- Questionable
- Poor

Horizontal control by brunton compass & chain on geophysical work

LEGEND

- Power Line
- Fence Line
- Windmill
- Well
- Road
- Mobile Magnetometer Traverse begin, end &/or tie and direction
- I.P resistivity survey location indicates I.P resistivity interpretation
- Magnetic interpretation

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

RECONNAISANCE
INDUCED POLARIZATION
ELECTRICAL RESISTIVITY &
MOBILE MAGNETOMETER SURVEY
FOR
WILLEN CORPORATION

SUNIZONA ACRES PROJECT
Cochise County, Arizona

SCALE: 1" = 3000'	CONTOUR INTERVAL:	REVISIONS
	DATA BY: E. G. H. + W. E. H.	
DATE: APRIL 1962	SHEET OF	
DRAWN BY: I. B.	DRAWING NO.:	FILE:

Southwestern Geophysics, Inc.

PHOENIX, ARIZONA

Standard Electric Log (Water)

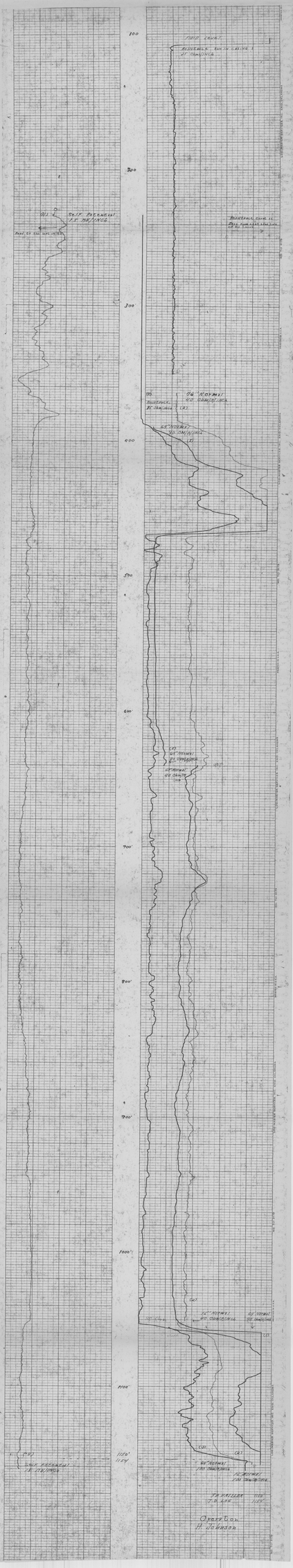
TYPE OF SURVEY

Well	No. 2
Field	Sunszone Acres
Company	Miller Corporation
Location	NE¼ Sec. 29 T17S R27E
County	Cochise
State	Arizona

Depth Datum	Top of Rotary Table	Elev.	
Bottom Depth: Log	1154'	Driller	1155'
Size Hole	15"		
Mud: Kind	Bentonite	Weight	89
Viscosity		Resistivity	0.1 ohm °F.
Casing Data	334'	Bottom Hole Temp.	90 F

Remarks:
Curve #1 - 64" Normal
Curve #2 - 16" Normal
Curve #3 - Resistance
Curve #4 - Self Potential

Date August 31, 1965 Observer H. Johnson



Southwestern Geophysics, Inc.

PHOENIX, ARIZONA

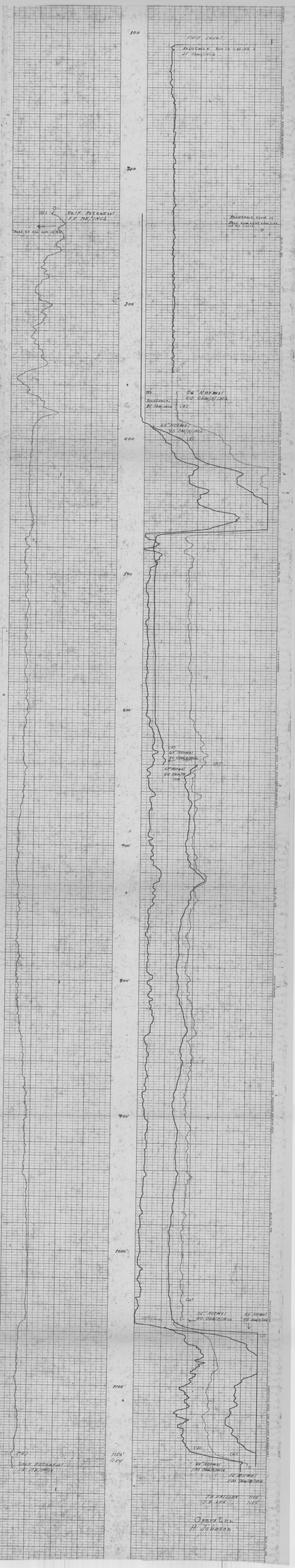
TYPE OF SURVEY: Standard Electric Log (Water)

Well	No. 2
Field	Sunszona Acres
Company	Miller Corporation
Location	NE¼ Sec. 29 T17S R27E
County	Chochise
State	Arizona

Depth Datum	Top of Rotary Table	Elev.	
Bottom Depth: Log	1154'	Driller	1155'
Size Hole	15"		
Mud: Kind	Bentonite	Weight	89
Viscosity		Resistivity	0.1 ohm °F.
Casing Data	13¾'	Bottom Hole Temp.	90 F

Remarks:
Curve #1 - 64" Normal
Curve #2 - 16" Normal
Curve #3 - Resistance
Curve #4 - Self Potential

Date August 31, 1965 Observer H. Johnson



R 26 E

R 27 E

T 17 S

T 18 S

To U.S. Highway 68

To Elfrida

To Chiricahua Nat'l. Mon.

Turkey Creek Ridge

Ash Creek Ridge

Turkey Creek

Power line

Line 1

Line 2

Line 3

Line 4

Line 5

Gate

Main Fence Line
"Several" gates

from Anderson Report
Surface Drainige Divide?

LEGEND

- Power Line
- Fence Line
- Windmill
- Well
- Road

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

RECONNAISANCE
INDUCED POLARIZATION
ELECTRICAL RESISTIVITY SURVEY
FOR
WILLEN CORPORATION

SUNIZONA ACRES PROJECT
Cochise County, Arizona

SCALE: 1" = 3000'	CONTOUR INTERVAL:	REVISIONS
	DATA BY: E. G. H.	
DATE: APRIL 1962	SHEET OF	
DRAWN BY: I. B.	DRAWING NO.:	FILE:

R-26-E

R-27-E

Pat Hills
2 Miles

T-17-S

T-17-S

T-18-S

T-18-S

WILCOX BASIN

SULPHUR SPRING VALLEY

DOUGLAS BASIN

Square Top Hills

Ft. Bowie Rd

R-26-E

R-27-E

Well

BM 4369

BM 4309

BM 4479

Light Cemetery

Approximate Location of Deepest Valley Fill From Preliminary Gravity Anomaly Map

Cemetery

Light (Site)

MAIN FENCE LINE "Several" gates.

West Wells

Turkey Creek

Turkey Creek Ridge

Surface and Probable Underground Drainage Divide

Windmill

CROSS SECTION LINE

SALES OFFICE

Well #11

Probable Shallowest Bedrock in Sunizona Acres and Basin Division

Ash Creek School

Ash Creek Ridge

Ash Creek

APPROX. DEPTH TO WATER CONTOURS

Surface Drainage Divide ?

Gears Ranch

Turkey Creek

Chiricahua

WAT. Mbr

from Anderson Report

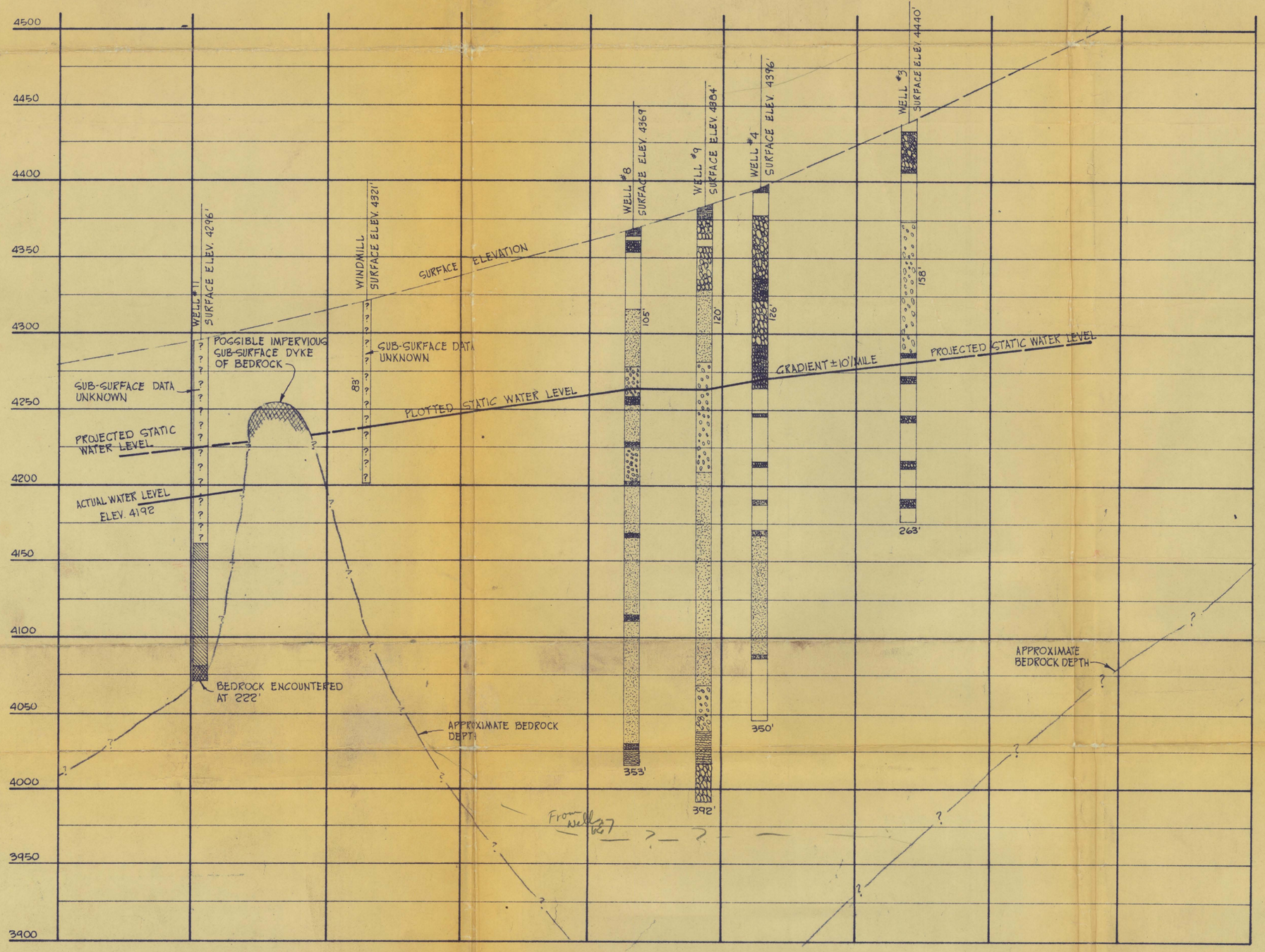
SCALE: 1"=3000'

Prepared by:
GENE E. ANDERSON
REG. CIVIL ENGINEER
REG. LAND SURVEYOR
2549 E. BROADWAY
TUCSON, ARIZONA
November 17, 1961

Reconnaissance
Induced Polarization
Electrical Resistivity Survey
for
Willen Corporation

Powerline

Fenceline



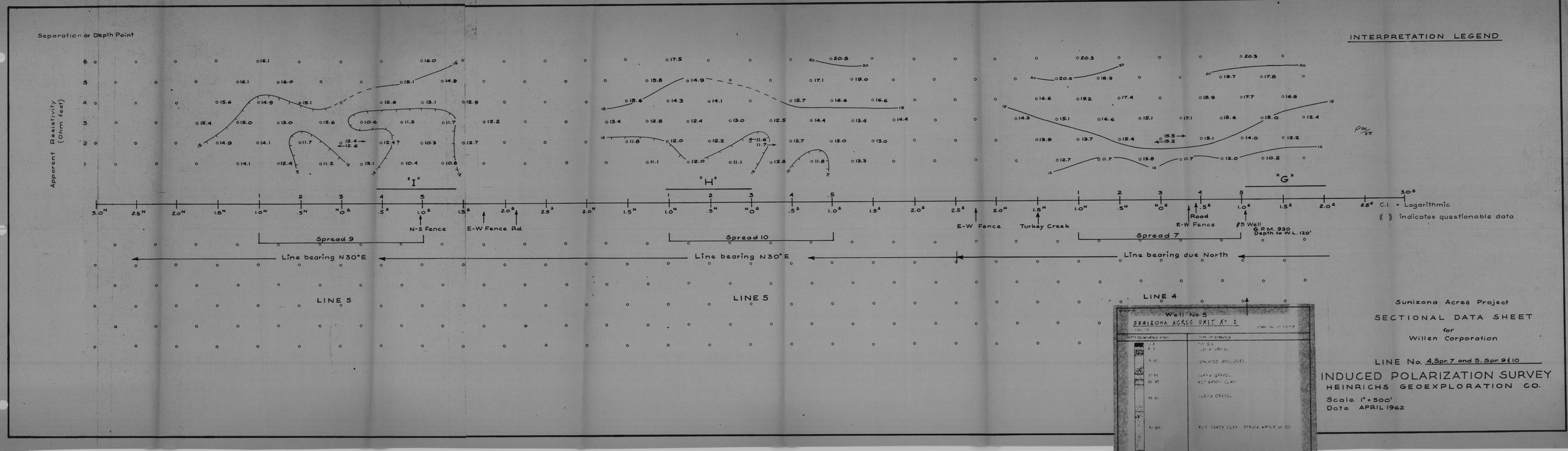
LEGEND:

- INDICATES TOP SOIL
- " CLAY
- " GRAVEL
- " SANDY CLAY
- " GRAVELY CLAY
- " SANDY GRAVEL
- " BLACK CLAY - SHALE
- " CONGLOMERATE (CEMENTED) ROCK
- " BED ROCK
- " BOULDERS

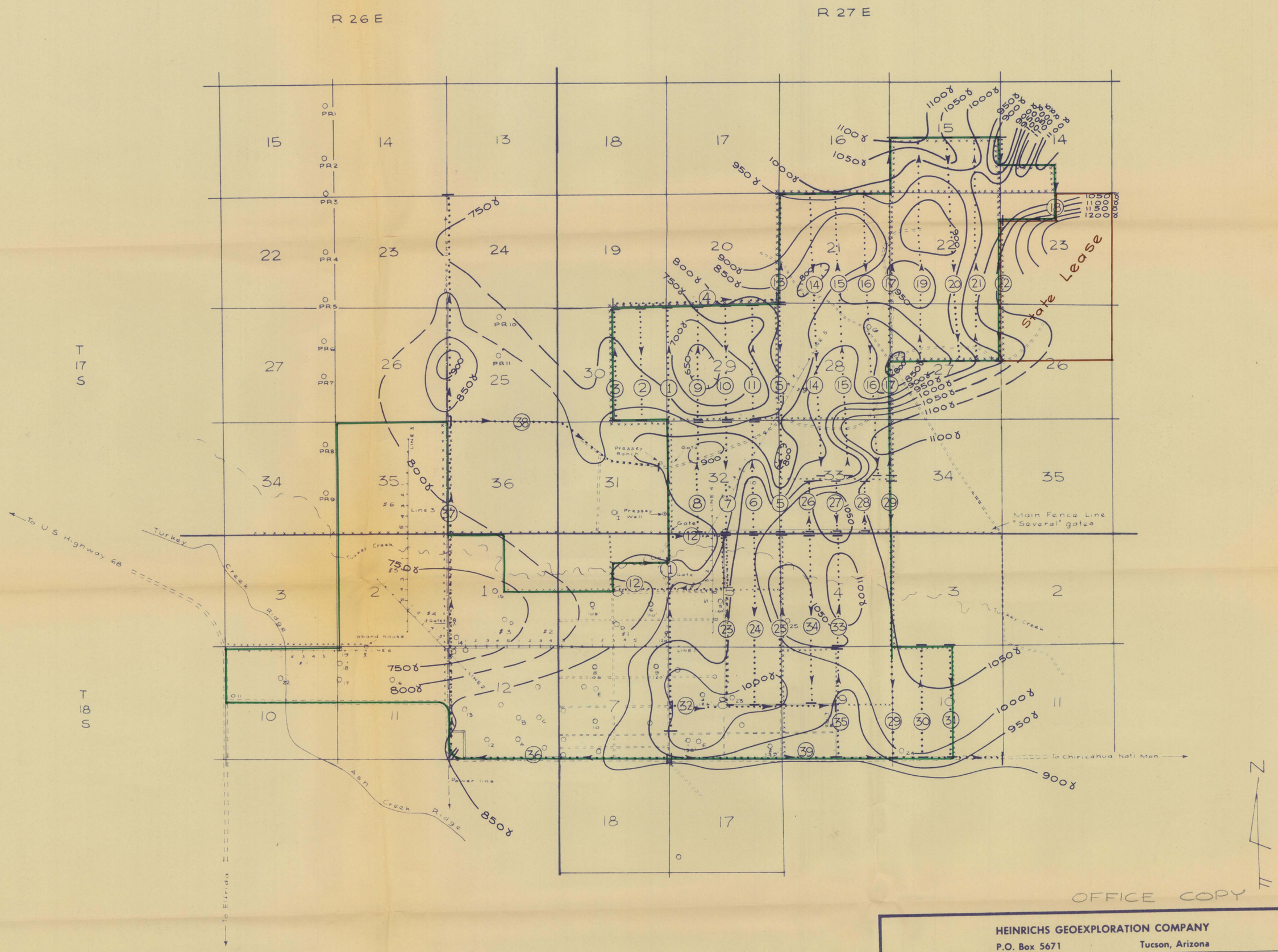
SCALE:
VERTICAL = 1"=50'
HORIZONTAL = 1"=3,000'

SUNIZONA ACRES
MAP OF WELL LOCATIONS
PLOT OF STATIC WATER LEVEL

JOB Nº 884 pnl



Separation or Depth Point
Apparent Resistivity (Ohm feet)
INTERPRETATION LEGEND
"I"
"H"
"G"
N-S Fence
E-W Fence Rd.
E-W Fence
Turkey Creek
Road
E-W Fence
#5 Well
G.P.M. 930
Depth to W.L. 120'
C.I. = Logarithmic
(( )) indicates questionable data
Spread 9
Spread 10
Spread 7
Line bearing N30°E
Line bearing N30°E
Line bearing due North
LINE 5
LINE 5
LINE 4
Well No. 5
SUNIZONA ACRES UNIT No. 2
CLAY & GRAVEL
CEMENTED BOULDERS
CLAY & GRAVEL
RED SANDY CLAY
CLAY & GRAVEL
RED SANDY CLAY - STRUCK WATER at 120
FINE SAND - LITTLE CLAY
RED SANDY CLAY
SANDY GRAVEL - LITTLE CLAY
YELLOW SANDSTONE
NOTES
Sunizona Acres Project
SECTIONAL DATA SHEET
for
Willen Corporation
LINE No. 4, Spr. 7 and 5, Spr. 9 & 10
INDUCED POLARIZATION SURVEY
HEINRICHS GEOEXPLORATION CO.
Scale 1" = 500'
Date APRIL 1962



OFFICE COPY

LEGEND

- Power Line
- Fence Line
- Windmill
- Well (PR = Paul Riggs)
- Road
- Momag Traverse, Rec. Number & Direction
- Magnetic Survey by Mobile Magnetometer (Total Intensity).
- Horizontal control by brunton compass & chain on geophysical work.
- Willen Corp. Sunizona Acres Boundary

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

RECONNAISANCE
MAGNETIC SURVEY
ELECTRICAL RESISTIVITY SURVEY
FOR
WILLEN CORPORATION

SUNIZONA ACRES PROJECT
Cochise County, Arizona

SCALE: 1" = 3000'	CONTOUR INTERVAL: 50 γ	REVISIONS
	DATA BY: E. G. H.	7-10-65
DATE: APRIL 1962	SHEET OF	
DRAWN BY: I B	DRAWING NO.:	FILE: