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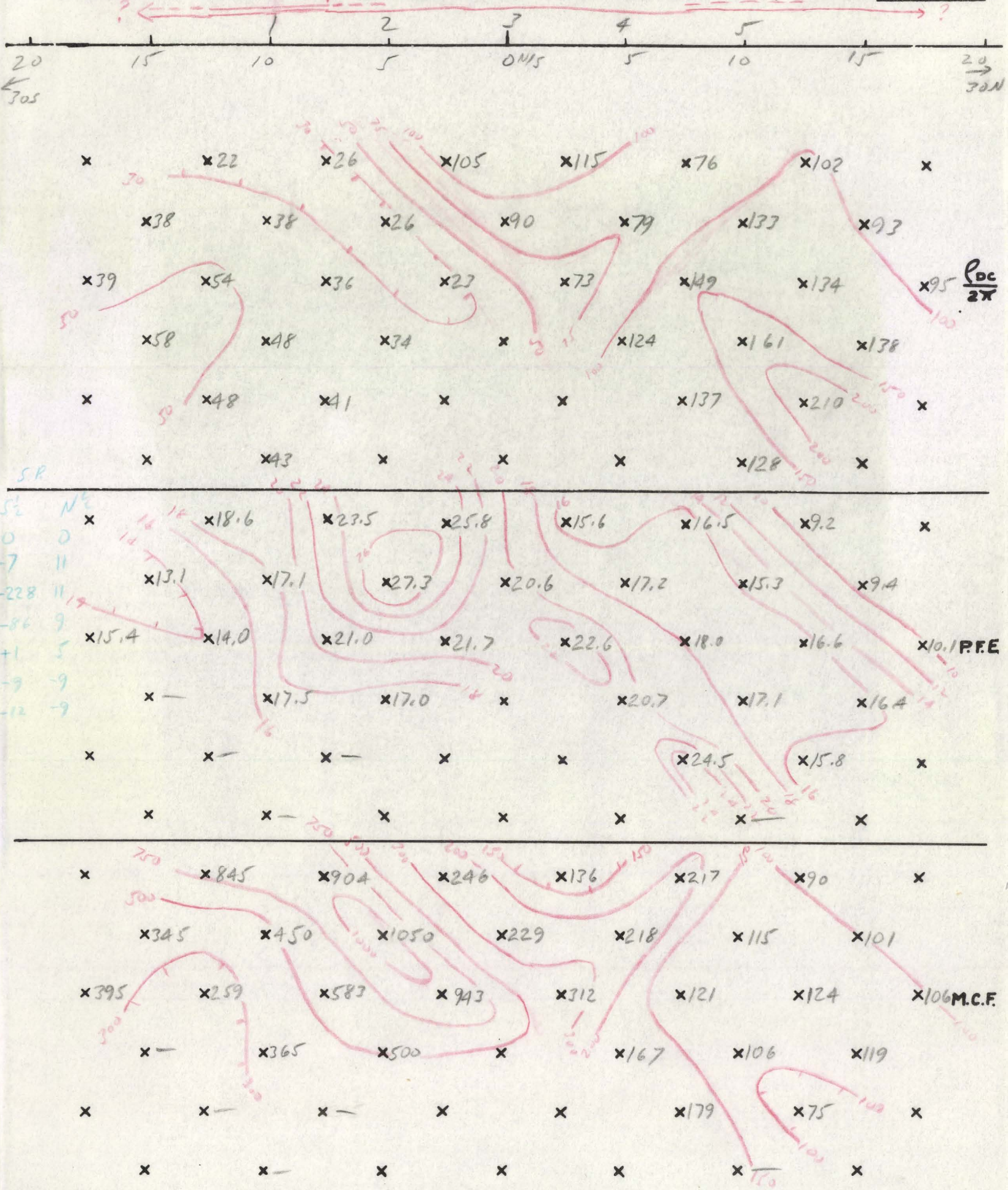
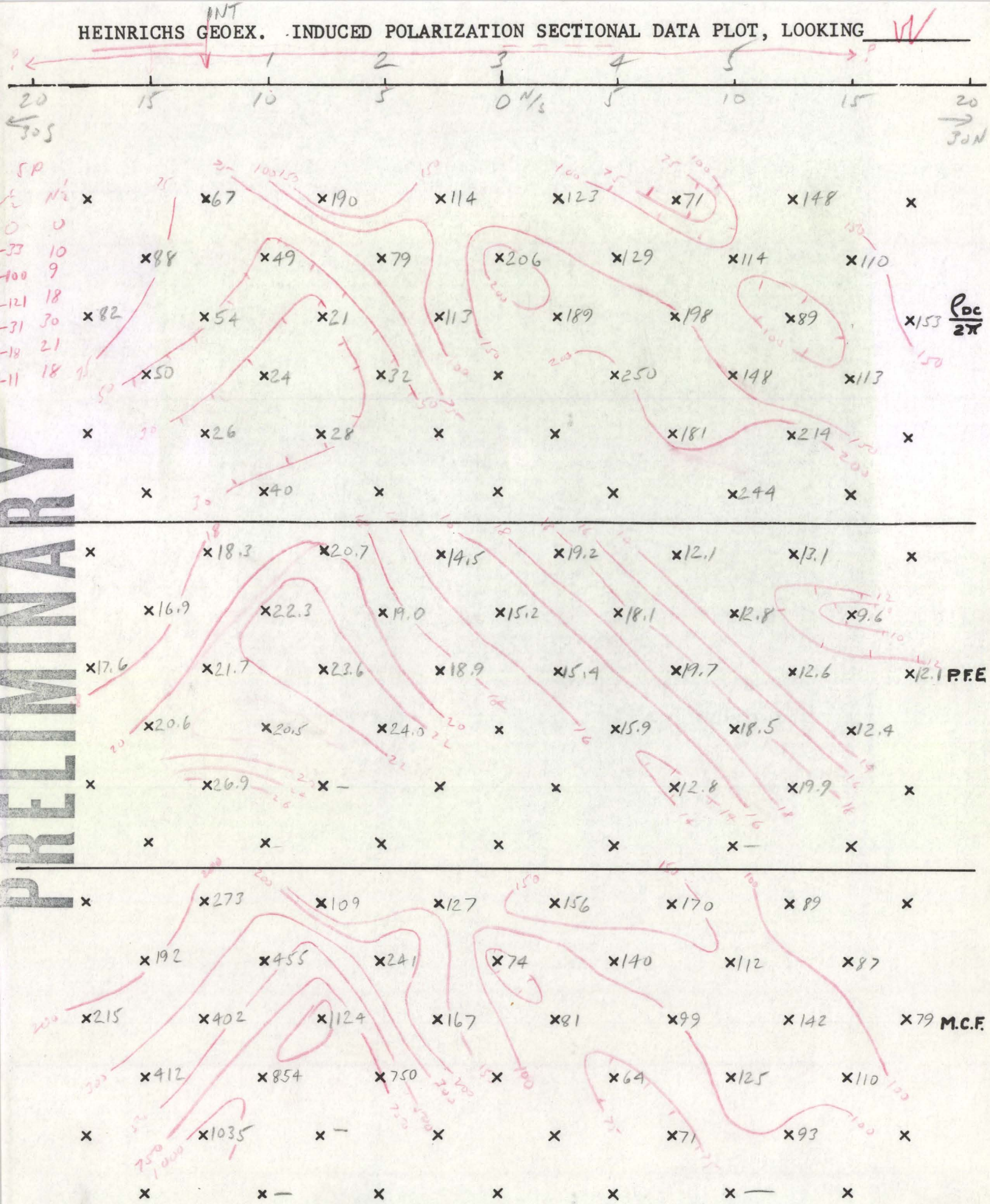
HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING West



AREA Cordero - Pumline LINE 3 a = 500' SCALE: 1" = 500' DATE: Dec. '67

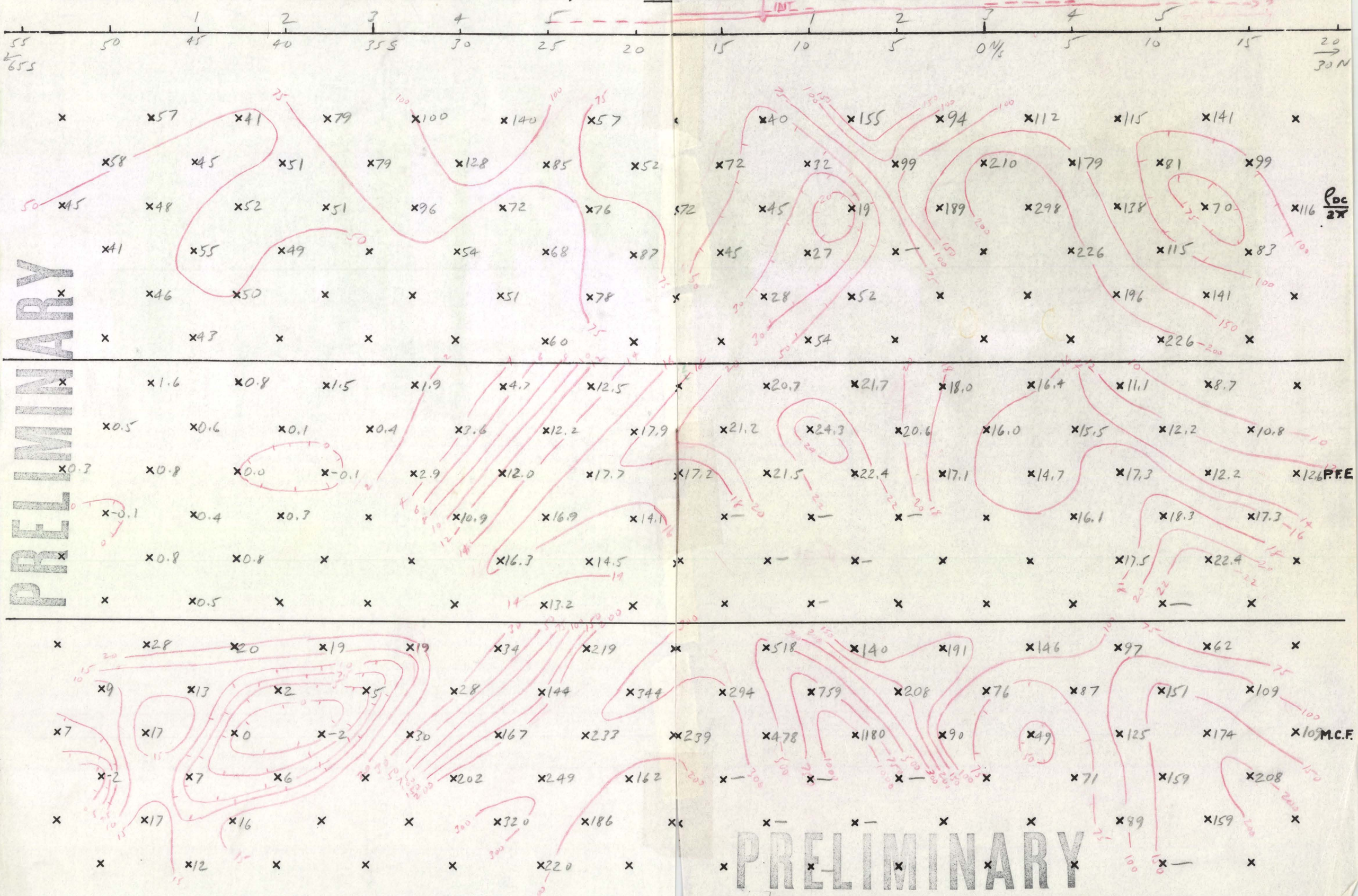
HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING W



AREA Cordero - Pauline LINE 2 a = 500 ' SCALE: 1" = 500' DATE: Dec. 1967

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SPREAD 2

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING W SPREAD 1



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

Baseline - Cordero LINE 1 a = 500' SCALE: 1" = 500' DATE: Dec.

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B24-67

LINE 1 HALF N SP. 2 DATE 12/11

PAGE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE										
RANGE	H									
VOLTAGE	260	170	260	160	170	260	160	160	170	260
CURRENT	3.5									
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE										
RANGE	H									
VOLTAGE	160	160	170	260	160	160	170	260	60	
CURRENT	3.5								1	

FREQUENCIES 3.0 0.5

SENDER NO. 14672-5

OPERATOR RAE

RECEIVER NO.

OPERATOR

COMMENTS:

```
      239
72 / 17200
     144
     ---
      280
      216
      ---
       640
         8
```

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT B-211-67

LINE 1 HALF N SP. 2 DATE 12-11

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	3500-3000		2500			2000				1500
RANGE	300	300	100	1000	100	30	300	100	30	10
DC 1	181 180	226 226	450 435	320 320	737 738	222 216	130 130	490 490	173 157	610 617
DC 2	181 180	226 226	454 435	320 320	730 738	222 216	130 130	485 493	166 163	612 620
DC 3			453 432		730 738			483 492	167 163	615 616
DC 4			447 436					483 494	167 163	623 610
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	361	452	88.6	640	146.8	43.8	260	97.7	32.9	12.32
AC 1	179	224	44.7	308	71.5	21.5	116	43.9	14.8	5.60
AC 2	179	224	44.5	308	71.3	21.4	117	43.9	14.8	5.60
AC AVG.	358	448	89.2	616	142.8	42.9	233	87.8	29.6	11.20
S.P.	0	-17 →		0 →			-90 →			
AC NOISE	1.2	.08 →		.08 →			.16 →			
POT RES.										

101
102 203
204
102 203
101
103 207
100 202
102
101 203
102

100 220
120 220
100 220
220 240
100
120 220
100 220
120 220
100

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF N SP. 2 DATE 12-11

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	1500			1000				500	4-5	
RANGE	100	30	10	10	30	30	10	10	300	
DC 1	303 290	175 174	810 730	317 350	162 147	106 95	490 535	245 250	98	
DC 2	305 286	174 174	760 800	320 345	153 157	101 97	515 500	245 245	98	
DC 3	304 285	173 176	770 780	330 330	152 158	102 99	510 505	255 245	98	
DC 4			775 780	340 335	153 157	101 98	510 515	235 260	98	
DC 5			785 770	335 330		102 98		220 270		
DC 6								230 265		
DC 7							?	225 270		
DC 8								225 280		
DC AVG.	59.2	34.8	15.49	6.69	30.8	19.93	10.22	4.94	196	
AC 1	25.3	14.9	6.68	2.93	13.6	8.8	4.50	2.20	98	
AC 2	25.3	14.9	6.68	2.9	13.6	8.8	4.50	2.20	98	
AC AVG.	50.6	29.8	13.36	5.8	27.2	17.60	9.00	4.40	196	
S.P.	-1				+56					
AC NOISE	.16				.25		.60		1.0	
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B211-67

LINE 1 HALF 5 SP. 2 DATE 12-11

PAGE

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE										
RANGE	H									
VOLTAGE	160	160	160	170	160	160	260	170	160	160
CURRENT	3.5									
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE										
RANGE	H									
VOLTAGE	260	170	160	160	260	170	160	160	115	
CURRENT	3.5								1	

FREQUENCIES 3.0 0.5

SENDER NO.

OPERATOR DAE

RECEIVER NO.

OPERATOR

COMMENTS:

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT B- 211-67

LINE 1 HALF S SP. 2 DATE 12-11

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	3500-4000	→	4500	→	→	5000	→	→	→	5500
RANGE	300	300	100	300	100	30	300	100	30	10
DC 1	232 231	182 180	468 458	95 94	292 296	117 116	132 130	260 256	121 116	557 568
DC 2	232 231	182 180	470 456	95 94	293 295	114 117	132 130	258 258	121 115	543 577
DC 3			474 454		292 296	115 118		256 260	122 114	536 586
DC 4			474 455			114 119			120 116	523 604
DC 5						113 119				
DC 6										
DC 7										
DC 8										
DC AVG.	463	362	92.8	189	58.8	23.2	262	51.5	23.6	11.18
AC 1	228	180	46.5	95	29.6	11.7	130	25.8	11.9	5.62
AC 2	229	180	46.5	94	29.6	11.7	130	25.8	11.9	5.62
AC AVG.	457	360	93.0	189	59.2	23.4	260	51.6	23.8	11.24
S.P.	-10	+19	→	-11	→	→	+8			
AC NOISE	.08	.12	→	.06	→	→	.06	→	.18	→
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF S SP. 2 DATE 12-11

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	5500			6000				6500	1-2	
RANGE	100	30	10	10	30	10	10	3	300	
DC 1	337 323	111 108	640 625	320 332	104 103	463 462	308 308	180 177	94	
DC 2	336 324	110 109	646 625	316 336	104 102	476 457	293 319	172 183	94	
DC 3	336 324	109 110	652 620	308 337	103 103	482 448	280 332	167 190	98	
DC 4			655 604	308 342		493 442	268 337	158 197	98	
DC 5			665 604			476 450	262 351			
DC 6			664 600			486 447				
DC 7										
DC 8										
DC AVG.	66.0	21.9	12.69	6.48	20.6	9.32	6.06	3.53	196	
AC 1	33.2	11.0	6.37	3.24	10.4	4.70	3.03	1.77	98	
AC 2	33.0	10.9	6.37	3.24	10.3	4.70	3.03	1.77	98	
AC AVG.	66.2	21.9	12.74	6.48	20.7	9.40	6.06	3.54	196	
S.P.	-7				+6					
AC NOISE	.06				.08					
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 1 - S.2 500' N½ Field date_____ Data page_____ Comp. date_____. Comp by Cal.L.

(A) Send	1-2	2-3	1-2	3 4	2 3	1 2	4 5	3 4	2 3	1 2		
(B) Receive	35-305	30-255	→	25-205	→	→	20-155	→	→	→		
(C) n separation												
(D) I	3.5											
(E) Vdc (avg)	361	452	88.6	640	146.8	43.8	260	97.7	32.9	12.32		
(F) DCcal	.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	79 79	99 100	77 79	140	128	96	57	85	72	54		
(I) Vac Σ	358	448	89.2	616	142.8	42.9	233	87.8	29.6	11.20		
(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)	1.6 1.5	1.7 1.9	0.10A	4.7	3.6	2.9	12.5	12.2	12.0	10.9		
(O) MCF=(M-1)(10^5)/H	19	19	5	34	28	30	219	144	167	202		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	45	34	23	12	45	34	23	12		CAL		
(B) Receive	15-105	→	→	→	10-55	→	→	→				
(C) n separation												
(D) I								→		1000		
(E) Vdc (avg)	59.2	34.8	15.49	6.69	30.8	19.93	10.22	4.94		196		
(F) DCcal								→		.510		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	52	76	68	51	67	87	78	60				
(I) Vac Σ	50.6	29.8	13.36	5.8	27.2	17.60	9.00	4.40		196		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										USE 1.008 LAB		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	17.9	17.7	16.9	16.3	14.1	14.1	14.5	13.2				
(O) MCF=(M-1)(10^5)/H	344	233	249	320	210	162	186	220				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 1-S2-n=5 (5½) Field date_____ Data page_____ Comp. date_____. Comp by G.S.L.

(A) Send	45	34	45	23	34	45	12	23	34	45		
(B) Receive	35-40S	40-45S	→	45-50S	→	→	50-55S	→	→	→		
(C) n separation												
(D) I	3.5											
(E) Vdc (avg)	463	362	92.8	189	58.8	23.2	262	51.5	23.6	11.18		
(F) DCcal	.510											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	101	79	81	41	51	51	57	45	52	49		
(I) Vac Σ	457	360	93.0	189	59.2	23.4	260	51.6	23.8	11.24		
(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)	2.1	1.4	0.6	0.8	0.1	-0.1	1.6	0.6	0.0	0.3		
(O) MCF=(M-1)(10^5)/H				20	2	-2	28	13	0	6		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	12	23	34	45	12	23	34	45		CAL		
(B) Receive	55-60S	→	→	→	60-65S	→	→	→				
(C) n separation												
(D) I								→		1000		
(E) Vdc (avg)	66.0	21.9	12.69	6.48	20.6	9.32	6.06	3.53		96		
(F) DCcal								→		.510		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	58	48	55	50	45	41	46	43				
(I) Vac Σ	66.2	21.9	12.74	6.48	20.7	9.40	6.06	3.54		96		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										WE 1.008 Lat		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	0.5	0.8	0.4	0.8	0.3	-0.1	0.8	0.5				
(O) MCF=(M-1)(10^5)/H	9	17	7	16	7	-2	17	12				

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B-211-67

LINE 2 HALF N SP. 1 DATE 12/19/67

SEND	1 2	2 3	1 2	3 4	2 3	1 2	4 5	3 4	2 3	1 2
RECEIVE	0-5 N	5-10 N	→	10-15 N	→	→	15-20 N	→	→	→
RANGE										
VOLTAGE	440	370	440	320	370	440	500	320	370	440
CURRENT	2A	2A	2A	3A	2A	2A	2A	3A	2A	2A
SEND	4 5	3 4	2 3	1 2	4 5	3 4	2 3	1 2		CAL
RECEIVE	20-25 N	→	→	→	25-30 N	→	→	→		4 5
RANGE										
VOLTAGE	500	320	370	440	500	320	360	440		500
CURRENT	2A	3A	2A	2A	2A	3A	2A	2A		2A

FREQUENCIES .05 3

SENDER NO. 146725

OPERATOR DON

RECEIVER NO. 10661 R

OPERATOR BOB

COMMENTS:

1 2 2 33 44 5

25-305 ——

440	360	310	490
2A	2A	3A	2A

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 2 HALF N SP. 1 DATE 12-13

PAGE

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50		100			150				200
RANGE	300	300	100	300	100	30	300	100	30	30
DC 1	157 156	167 169	700 703	146 145	456 427	260 257	204 200	548 564	270 270	165 175
DC 2	154 155	167 169	704 702	146 145	437 442	258 253	203 200	596 566	268 274	167 170
DC 3	154 156		696 705		437 442	263 254	202 200	584 578	266 276	166 181
DC 4						261 254	203 [illegible]	584 578	262 284	[illegible]
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	310	336	140.3	291	87.7	51.5	403	116.0	54.0	34.0
AC 1	147?	141	61.0	130	37.2	22.4	179	51.5	22.6	14.7
AC 2	147?	142	61.0	130	37.2	22.3	178	51.5	22.6	14.7
AC AVG.	294	283	122.0	260	74.4	44.7	357	103.0	45.2	29.4
S.P.	+10	-1	→	+9	→	→	+12			
AC NOISE	.22	.24	→	.32	→	→	.22			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 2 HALF N SP. 1 DATE 12-13

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	200			250				300	4-5	
RANGE	100	30	30	10	30	30	10	10	300	
DC 1	378 370	185 176	94 107	700 708	209 204	131 99	805 870	745	204	
DC 2	380 368	189 174	98 100	736 705	212 206	117 120	820 800		204	
DC 3	380 366	185 175	103 96	710 670	208 212	109 118	900 785		201	
DC 4		188 172	104 98	764 670	2[illegible]	116 120	890 805		201	
DC 5				675 695		105 128	835 810			
DC 6				715 670		112 114	825 900			
DC 7						119 114	740 830			
DC 8							845 835			
DC AVG.	74.8	36.2	20.1	14.06	41.6	23.1	16.63	14.9(?)	408	
AC 1	34.2	16.1	8.5	6.24?	18.6	10.3	6.95?	5.2	204	
AC 2	34.2	16.1	8.5	6.25?	18.6	10.3	6.95?		205	
AC AVG.	68.4	32.2	17.0	12.49	37.2	20.6	13.90	10.4	409	
S.P.	-9				-3					
AC NOISE	.45				.4					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B-211-67
LINE 2 HALF S SP. 1 DATE 12-17

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-50		100			150				200
RANGE	L								H	L
VOLTAGE	480	220	480	380	220	480	440	380	330	480
CURRENT	2								3	2
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	200			250				300	1-2	
RANGE	L	L	H	H						
VOLTAGE	440	380	330	480					440	
CURRENT	2	2	3	2					2	

FREQUENCIES .05 3

SENDER NO.

OPERATOR RAE

RECEIVER NO.

OPERATOR

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 2 HALF S SP. 1 DATE 12-12

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0—50		100			150				200
RANGE	300	300	100	300	~~100~~ 30	30	300	30	10	3
DC 1	167 165	152 152	690 696	257 256	265 267	156 152	91 89	185 147	398 455	206 227
DC 2	166 165	152 152	690 696	257 256	265 267	153 152	91 88	162 168	427 424	210 220
DC 3	166 166					153 153	91 88	163 167	427 425	209 223
DC 4	165 166					153 150		163 167	417 430	206 230
DC 5									415 434	209 226
DC 6										
DC 7										
DC 8										
DC AVG.	331	304	138.6	513	53.2	30.5	179.4	32.7	8.51	4.33
AC 1	139	133	60.3	213	22.4	12.8	76	13.4	3.45	1.75
AC 2	139	133	60.3	213	22.4	12.9	76	13.4	3.45	1.75
AC AVG.	278	266	120.6	426	44.8	25.7	152	26.8	6.90	3.50
S.P.	-33	-67	→	-21	→	→	+90	→	→	→
AC NOISE	.22	.16	→	.14	→	→	.10	→	→	→
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 2 HALF 5 SP. 1 DATE 12-12

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	200			250				300	1-2	
RANGE	38100	10	3	3					300	
DC 1	296 298	710 733	250 216						202	
DC 2	299 297	726 737	247 22						202	
DC 3	298 297	712 743	215 215						202	
DC 4	296 297	707 745	[illegible]		481				202	
DC 5			230 251		87					
DC 6			236 258		94					
DC 7			230 252		86 83					
DC 8					432					
DC AVG.	59.5	145.3	4.36		86				404	
AC 1	[illegible]	59.8	2.02	.90?					202.5	
AC 2	25.5	59.8	2.02						202.5	
AC AVG.	51.0	119.6	4.04	1.80?					405	
S.P.	+13				+7					
AC NOISE	.12				.18		.24			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT _____

LINE ____ HALF ____ SP. ____ DATE ____

SEND	1-2	2-3	3-4	4-5						
RECEIVE	250			300						
RANGE	~~10030~~	10	3	3						
DC 1	122/103	360 330	142/156							
DC 2	114/109	375 290	170/134							
DC 3	114 112	370 326	148/161							
DC 4	112 110	400 275								
DC 5	114 107	375 300								
DC 6		355 310								
DC 7		375 360								
DC 8		320 345								
DC AVG.	22.3	6.81	3.04							
AC 1 9.5	9.5	2.83	1.2?	.76						
AC 2 9.5	9.5	2.83								
AC AVG.	19.0	5.66	2.4	1.52						
S.P.	+6									
AC NOISE	.1	.4								
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 2 - N½ (5-1) Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	12	23	12	34	23	12	45	34	23	12		
(B) Receive	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→		
(C) n separation												
(D) I	2	2	2	3	2	2	2	3	2	2		
(E) Vdc (avg)	310	336	140.3	291	87.7	51.5	403	116.0	54.0	340		
(F) DCcal												
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	114	123	206	71	129	189	148	114	198	250		
(I) Vac Σ	294?	283	122.0	260	74.4	44.7	357	103.0	45.2	29.4		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K	~~13.1~~ 14.5											
(N) PFE=(M-1)(10^2)	~~?~~	19.0 19.3	15.2	12.1	18.1	15.4	13.1	12.8	19.7	15.9		
(O) MCF=(M-1)(10^5)/H	127	156	74	170	140	81	89	112	99	64		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	45	34	23	12	45	34	23	12		CAL		
(B) Receive	20-25N	→	→	→	25-30N	→	→	→				
(C) n separation												
(D) I	2	3	2	2	2	3	2	2		2000		
(E) Vdc (avg)	74.8	36.2	20.1	14.06	41.6	23.1	16.63	~~14.9~~		408		
(F) DCcal										490		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	110	89	148	181	153	113	214	244				
(I) Vac Σ	68.4	32.2	17.0	12.49	37.2	20.6	13.90	10.4		409		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										1.002		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	9.6	12.6	18.5	12.8	12.1	12.4	19.9					
(O) MCF=(M-1)(10^5)/H	87	142	125	71	79	110	93					

5-1

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 2 - 5½ Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	45	34	45	23	34	45	12	23	34	45		
(B) Receive												
(C) n separation												
(D) I	2	—	—	—	—	—	—	—	3	2		
(E) Vdc (avg)	331	304	138.6	513	53.2	30.5	179.4	32.7	8.51	4.33		
(F) DCcal	.495	—	—	—	—	—	—	—	—	—		
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	123	113	206	190	79	113	67	49	21	32		
(I) Vac Σ	278	266	120.6	426	44.8	25.7	152	26.8	6.90	3.50		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.002	—	—	—	—	—	—	—	—	—		
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	19.3	14.5	15.2	20.7	19.0	18.9	18.3	22.3	23.6	24.0		
(O) MCF=(M-1)(10^5)/H				109	241	167	273	455	1124	750		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	12	23	34	45	12	23	34	45		C+L		
(B) Receive												
(C) n separation												
(D) I	2	2	3	2	2	2	3	2		2000		
(E) Vdc (avg)	59.5	14.53	4.86	—	22.3	6.81	3.04	—		404		
(F) DCcal	→	→	→	→	.490	→	→	→		.495		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	88	54	24	28?	82	50	26	40?				
(I) Vac Σ	51.0	11.96	4.04	1.80?	19.0	5.66	2.4?	1.52?		405		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→	→	→	→	→	→	→	→		1.002		
(M) ρdc/ρac =ExL/K			20.5									
(N) PFE=(M-1)(10^2)	16.9	21.7	~~18.1~~	X	17.6	20.6	26.9?	X				
(O) MCF=(M-1)(10^5)/H	192	402	854		215	412	1035					

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B-211-67

LINE 3 HALF S SP. 1 DATE 12-22

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-50	—	100	—	—	150	—	—	—	200
RANGE										
VOLTAGE	360	360	360	240	360	340	370	240	360	340
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	200	—	—	250	—	—	—	300	1 2	
RANGE										
VOLTAGE	370	240	360	340	370	240	360	340	250	
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	2A	

FREQUENCIES .05 3

SENDER NO. 14672 S

OPERATOR DON

RECEIVER NO. 10661 R

OPERATOR BOB

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 3 HALF S SP. 1 DATE 12-22

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-50	—	100	—	—	150	—	—	—	200
RANGE	300	300	100	100	30	10	100	30	10	10
DC 1	~~235 233~~	213 213	467 430	536 530	134 128	~~602~~	448 446	175	736 720	316 355
DC 2	233 233	212 215	467 434	533 530	134 127	524 462	457 443	199 189	727 783	330 353
DC 3	234 232	212 210	470 432	532 532	133 128	500 465	458 436	194 191	736 760	398 246
DC 4		213 214				478 456	456 436	197 190	717 777	—
DC 5						476 450		203 188		~~360 224~~
DC 6						503 462				
DC 7										
DC 8										
DC AVG.	466	425	90.0	106.4	26.1	9.52	89.7	38.8	14.86	6.87
AC 1	203	172	37.9	43.3	10.3	3.93	38.0	16.6	6.17	2.95
AC 2	203	172	38.0	43.3	10.3	3.93	38.0	16.7	6.17	2.95
AC AVG.	406	344	75.9	86.6	20.6	7.86	76.0	33.3	12.34	5.90
S.P.	-7	-221	→	+142	→	→	+87	→	→	
AC NOISE	.2-.5	.10	→	.08	→	→	.14	↓	.3	
POT RES.			241	239						

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 3 HALF 5 SP. 1 DATE 12-22

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CPL	
RECEIVE	200			250				300	1-2	
RANGE	30	30	10 ?	10	30	10	3	3		
DC 1	192 197	116 102	487 426	~~274~~	80 69				204	
DC 2	192 194	114 110	484 496	237 250	82 76				204	
DC 3	191 196	108 114	~~570~~ 453	206 260	~~88~~ 75				204	
DC 4		~~112~~ ~~117~~	464 417	250 230	91 74				204	
DC 5			454 562	230 290	93 68					
DC 6			517 582		92 73					
DC 7			523 518							
DC 8			542 461							
DC AVG.	38.7	22.0	9.89	4.83	16.08				408	
AC 1	17.2	9.7	4.23	2.24	7.0	5.12	2.43	1.38	205	
AC 2	17.2	9.7	4.23	2.24	7.0				205	
AC AVG.	34.4	19.4	8.46	4.48	14.00	10.24	4.86	2.76	410	
S.P.	-10				-3					
AC NOISE	.16				.1	.56				
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero-Paul Line 3 - 5½ Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	45	34	45	23	34	45	12	23	34	45		
(B) Receive	0-55	5-105	→	10-155	→	→	15-205	→	→	→		
(C) n separation												
(D) I	3.0	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	466	425	90.0	106.4	26.1	9.52	89.7	38.8	14.86	6.87		
(F) DCcal												
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	114	104	88	26	26	23	22	38	36	34		
(I) Vac Σ	406	344	75.9	86.6	20.6	7.86	76.0	33.3	12.34	5.90		
(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)	15.4	24.2	19.2	23.5	27.3	21.7	18.6	17.1	21.0	17.0		
(O) MCF=(M-1)(10^5)/H				904	1050	943	845	450	583	500		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	12	23	34	45	12	23	34	45		CAL		
(B) Receive	20-255	→	→	→	25-305	→	→	→				
(C) n separation												
(D) I	→	→	→	→	→	→	→	→		2000		
(E) Vdc (avg)	38.7	22.0	9.89	4.83	16.08	~~11.78~~	~~5.59~~	~~3.13~~		408		
(F) DCcal										.490		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	38	54	48	41	39	58?	48?	43?				
(I) Vac Σ	34.4	19.4	8.46	4.48	14.00	10.24	4.86	2.76		410		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										1.005		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	13.1	14.0	17.5	~~8.4~~	15.4	X	X	X				
(O) MCF=(M-1)(10^5)/H	345	259	365	~~205~~	395							

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT B-211-67

LINE 3 HALF N SP. 1 DATE 12-22

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50		100			150				200
RANGE										
VOLTAGE	370	230	360	350	230	370	340	350	230	370
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	200			250				300	4-5	
RANGE										
VOLTAGE	340	350	230	360	340	350	300	360	220	
CURRENT	3A	3A	3A	3A	3A	3A	4A	3A	2A	

FREQUENCIES .05 3

SENDER NO. 14672 S

OPERATOR DON

RECEIVER NO. 10661 R

OPERATOR BOB

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE N3 HALF N SP. 1 DATE 12-22

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50		100			150				200
RANGE	300	300	100	300	100	30	300	100	100	30
DC 1	214 215	234 236	472 456	156 153	382 420	150 147	208 207	662 683	280 313	122 127
DC 2	216 215	234 236	470 462	156 153	386 422	151 145	208 208	662 687	292 316	121 132
DC 3	215 215		465 465		380 417	153 144	207 208	662 685	287 318	124 124
DC 4					380 418	159 141			287 316	125 127
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.	430	470	92.9	309	80.1	29.8	415	134.7	60.3	25.1
AC 1	170	205	38.4	134	34.5	12.2	192	59.0	25.8	10.5
AC 2	171	205	38.5	134	34.5	12.3	192	59.0	25.8	10.5
AC AVG.	341	410	76.9	268	69.0	24.5	384	118.0	51.6	21.0
S.P.	+11	0	→	-2	→	→	-4	→	→	→
AC NOISE	.2	.15-.2	→	.20	→	→	.18	→	→	→
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 3 HALF N SP. 1 DATE 12-22

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	200			250				300	4-5	
RANGE	100	106	30	10 ?	30	30	30	10		
DC 1	476 472	286 264	152 164	720 788	195 194	157 138	114 133		203	
DC 2	470 473	276 265	150 160	786 903	200 195	146 137	114 129		203	
DC 3	467 470	278 264	165 177	665	192 188	136 135	104 130		203	
DC 4		283 272	152 177		181 203	132 141	123 127		203	
DC 5			153 192		191 205	137 138	112 131			
DC 6			157 178			149 146				
DC 7			133 184			142 134				
DC 8										
DC AVG.	94.2	54.5	32.7	15.85?	38.6	28.0	24.3		406	
AC 1	43.5	23.6	14.1	6.43	17.7	12.2	10.6	4.03?	205	
AC 2	43.5	23.6	14.1	6.43	17.7	12.1	10.6		205	
AC AVG.	87.0	47.2	28.2	12.86	35.4	24.3	21.2	8.06?	410	
S.P.	-14									
AC NOISE	.46		.6?							
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Pauline Line 3 - N½ Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	1-2	2-3	1-2	3-4	2-3	12	45	34	23	12		
(B) Receive	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→		
(C) n separation												
(D) I	3.0	—	—	—	—	—	—	—	—	—		
(E) Vdc (avg)	430	470	92.9	309	80.1	29.8	415	134.7	60.3	25.1		
(F) DCcal												
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	106 105	116 115	92 90	76	79	73	102	133	149	124		
(I) Vac Σ	341	410	76.9	268	69.0	24.5	384	118.0	51.6	21.0		
(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)	27.4 25.8	15.8 15.4	22.0 20.6	16.5	17.2	22.8	9.2	15.3	18.0	20.7		
(O) MCF=(M-1)(10^5)/H	246	136	229	217	218	312	90	115	121	167		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	45	34	23	12	45	34	23	12		CAL		
(B) Receive	20-25N	→	→	→	25-30N	→	→	→				
(C) n separation												
(D) I	—	—	—	—	—	—	—	→		2000		
(E) Vdc (avg)	94.2	54.5	32.7	15.85?	38.6	28.0	29.3	—		406		
(F) DCcal										.493		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	93	134	161	137?	95	138	210	128?				
(I) Vac Σ	87.0	47.2	28.2	12.86	35.4	24.3	21.2	8.06?		410		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										1.010		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	9.4	16.6	17.1	24.5?	10.1	16.4	15.8	X				
(O) MCF=(M-1)(10^5)/H	101	124	106	179?	106	119	75	X				

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B 211-67
LINE 1 HALF N SP. 1 DATE 8-5

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	2	3	2	3	3	2	3	3	3	2
RANGE	440	320	440	220	320	440	340	220	320	440
DC 1										
DC 2										
DC 3										
DC 4	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	4-5
DC 5	3	3	3	2	3	3	3	2	1	
DC 6	340	220	320	440	340	220	320	440	120	
DC 7										
DC 8										
DC AVG.										
AC 1										
AC 2										
AC AVG.										
S.P.										
AC NOISE										
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF II SP. 1 DATE 12-5

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-500		1000			1500				2000
RANGE	300	300	100	300	300	100	1000	100	30	30
DC 1	118 121	223 224	710 676	225 226	87 89	392 394	278 275	403 395	272 275	146 149
DC 2	119 121	223 225	695 686	226 226	87 88	381 396	277 276	403 400	267 272	150 145
DC 3	120 121	223 224	693 674	226 225	88 87	388 395	276 276	401 397	266 279	153 143
DC 4	119 121		684 694			386 390		402 396	267 277	151 141
DC 5			693 687					403 400	268 263	154 142
DC 6								396 402	275 270	149 146
DC 7										
DC 8										
DC AVG.	240	447	137.6	452	175.6	78.0	552	79.9	54.2	29.5
AC 1	102	192	59.3	204	76	34.0	254	35.6	23.1	12.7
AC 2	102	192	59.3	203	76	34.0	254	35.6	23.1	12.7
AC AVG.	204	384	118.6	407	152	68.0	508	71.2	46.2	25.4
S.P.	-4.1	+11	→	+5	→	→	-1			
AC NOISE	.06	.18	→	.42	→	→	.12			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF N SP. 1 DATE 11-12

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	2000			2500				3000	45	
RANGE	100	30	30	10	30	30	10	10	300	
DC 1	476 483	142 143	104 117	713 772	220 234	76 97	700 815		98	
DC 2	495 490	126 148	111 118	737 750	223 232	68 78	850 756		98	
DC 3	483 498	136 142	113 109	688 770	223 234	73 104	723 840		98	
DC 4	484 486	135 135	114 110	707 742	219 244	—	732 910		98	
DC 5	482 496	126 153	121 103	696 742		80 83				
DC 6			120 107			77 89				
DC 7						77 85				
DC 8						78 86				
DC AVG.	97.5	27.5	22.6	14.64	45.6	16.3	15.77		196	
AC 1	44.0	12.2	9.5	6.23	20.3	6.9	6.44	4.4?	98	
AC 2	44.0	12.3	9.6	6.23	20.2	7.0			98	
AC AVG.	88.0	24.5	19.1	12.46	40.5	13.9	12.88	8.8?	196	
S.P.	-3			→	+6					
AC NOISE	.16			→	.2	.25				
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT B-211-67

LINE 1 HALF S SP. 1 DATE 12-6

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-500		1000			1500				2000
RANGE										
VOLTAGE	370	230	370	330	230	370	460	340	230	370
CURRENT	3	3	3	3	3	3	2	3	3	3
SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	2000			2500				3000	1-2	
RANGE										
VOLTAGE	450	340	230	360	450	340	230	360	230	
CURRENT	2	3	3	3	2	2	3	3	1	

FREQUENCIES 8 .05

SENDER NO.

OPERATOR

RECEIVER NO.

OPERATOR

COMMENTS:

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF S SP. 1 DATE 12-6

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0—500		~1000			1500				2000
RANGE	300	300	300	1000	100	100	100	30	10	3
DC 1	215 219	184 190	100 105	300 303	515 464	350 372	537 508	157 168	376 390	
DC 2	213 221	183 187	98 105	304 303	508 464	364 385	535 508	148 166	346 407	
DC 3	213 219	182 189	99 107	305 302	500 465	374 385	534 514	148 172	415 343	
DC 4	213 220	182 191	97 106	305 301	506 463	350 380	530 507	151 164	347 383	
DC 5								151 166	377 430	
DC 6								146 173	325 396	
DC 7									352 403	
DC 8										
DC AVG.	433	372	204.0	606	97.0	74.1	104.3	31.7	7.54	
AC 1	186	157	88	250	40.2	31.7	43.2	12.7	3.12	
AC 2	186	157	88	248	40.2	31.6	43.2	12.8	3.04	?
AC AVG.	372	314	176	498	80.4	63.3	86.4	25.5	6.16	
S.P.	−64	−53	→	−6	→	→	+87			
AC NOISE	.10	.08	→	.06	→	→	.16			
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 11 HALF S SP. 1 DATE 12-6

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	C.A.2	
RECEIVE	2000			2500				3000	1-2	
RANGE	30	30	3	3	30	10	3		300	
DC 1	224 240	87 95			98 112				98	
DC 2	238 229	94 80			89 104	X			98	
DC 3	220 222	74 69			95 109				98	
DC 4	250 247	79 106			88 121				98	
DC 5	238 230	77 102			90 114					
DC 6	231 236	81 84			74 104					
DC 7					86 112					
DC 8					93 132					
DC AVG.	46.8	17.50			20.2				196	
AC 1	19.3	7.2	2.14	2.35	8.6	3.54	1.26	1.50	98	
AC 2	19.3	7.2			8.2				98	
AC AVG.	38.6	14.4	4.28	4.70	16.8	7.08	2.52	3.00	196	
S.P.	+5				+10					
AC NOISE	.04									
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 1 - 500' = a N½ Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	1-2	23	12	34	23	1-2	45	34	23	1-2		
(B) Receive	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	→		
(C) n separation												
(D) I	2	3	2	3	3	2	3	3	3	2		
(E) Vdc (avg)	240	447	137.6	452	175.6	78.0	552	79.9	54.2	29.5		
(F) DCcal												
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	92 94	114 112	211 210	115	179	298	141	81	138	226		
(I) Vac Σ	204	384	118.6	407	152	68.0	508	71.2	46.2	25.4		
(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)	17.6 18.0	16.4	16.0 16.0	11.1	15.5	14.7	8.7	12.2	17.3	16.1		
(O) MCF=(M-1)(10^5)/H	191	146	76	97	87	49	62	151	125	71		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	45	34	23	12	45	34	23	12		C+L		
(B) Receive	20-25N	→	→	→	25-30N	→	→	→		45		
(C) n separation												
(D) I	3	3	3	2	3	3	3	2		1000		
(E) Vdc (avg)	97.5	27.5	22.6	14.64	45.6	16.3	15.77	—		796		
(F) DCcal	99	70	115							0.5/10		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	99	70	115	196	116	83	141	226 ?				
(I) Vac Σ	88.0	24.5	19.1	12.46	40.5	13.9	12.88	8.8		796		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										1.000		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	10.8	12.2	18.3	17.5	12.6	17.3	22.4					
(O) MCF=(M-1)(10^5)/H	109	174	159	89	109	208	159					

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Cordero Line 1 - 500'=a 5½ Field date_____ Data page_____ Comp. date_____. Comp by C.S.L.

(A) Send	0-5S	5-10S	→	10-15S	→	→	15-20S	→	→	→		
(B) Receive	4-5	3-4	4-5	2-3	2-4	4-5	1-2	2-3	3-4	4-5		
(C) n separation												
(D) I	3	3	3	3	3	3	2	3	3	3		
(E) Vdc (avg)	433	372	204.0	606	97.0	74.1	104.3	31.7	7.54	—		
(F) DCcal												
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	110	95	208	155	99	189	40	32	19			
(I) Vac Σ	372	314	176	498	80.4	63.3	86.4	25.5	6.16	—		
(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)	16.4	18.5	15.9	21.7	20.6	17.1	20.7	24.3	22.4			
(O) MCF=(M-1)(10^5)/H				140	208	90	518	759	1180			

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	20-25S	→	→	→	25-30S	→	→	→		CAL		
(B) Receive	12	2-3	3-4	4-5	12	2-3	3-4	4-5		1-2		
(C) n separation												
(D) I	2	3	3	3	2	3	3	3		1000		
(E) Vdc (avg)	46.8	17.50	5.55	5.88	20.2	8.85				196		
(F) DCcal										.510		
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	72	45	27	52	77	45	28	54				
(I) Vac Σ	38.6	14.4	4.28	4.70	16.8	7.08	2.52	3.00		196		
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.										1.000		
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)	21.2	21.5	—	—	20.2	—	—	—				
(O) MCF=(M-1)(10^5)/H	294	478	—	—	262	—	—	—				

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT B 211-67

LINE 1 HALF N SP. 2 DATE 12-6

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE										
RANGE										
VOLTAGE	420	370	420	320	370	410				
CURRENT	3	3	3	3	3	3				
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES _____ _____

SENDER NO.

OPERATOR

RECEIVER NO.

OPERATOR

COMMENTS:

187 AC

189.5 DC

.987

.51 DCW 3 amp

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT B-211-67
LINE 1 HALF N SP. 2 DATE 12-6

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0 — 1000		— 2000			— 3000				— 4000
RANGE	300	300	100	300	100	30				
DC 1	104 94	198 195	417 396	89 93	362 345					
DC 2	103 96	197 196	396 380	89 95	374 373					
DC 3	103 96	196 197	394 380	85 94	395 393					
DC 4			415 358	89 97	404 363					
DC 5	3	3	12	3	384 335	30				
DC 6 e	101	200	160	93	153					
DC 7 PFE	20.2	17.7	20.0	13.2	21.9					
DC 8 mcf	200	89	125	142	143	118				
DC AVG.	198.4	393	785	182.3	75.1	23.2?				
AC 1	83	167	32.7	81	30.8	9.3				
AC 2	82	167	32.7	80	30.8					
AC AVG.	165	334	65.4	161	61.6	18.6				
S.P.	0	+4 —	→	0						
AC NOISE	.16	.18 —	→							
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

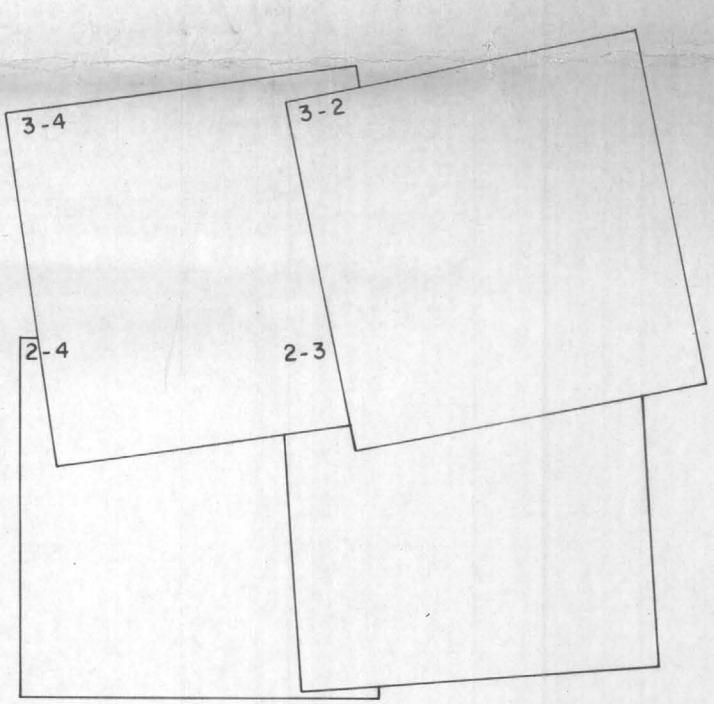
PROJECT B-211-67
LINE 1 HALF N SP. 2 DATE 12-6

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	15000			15000				6000	4-5	
RANGE										
DC 1										
DC 2										
DC 3										
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.										
AC 1										
AC 2										
AC AVG.										
S.P.										
AC NOISE										
POT RES.										

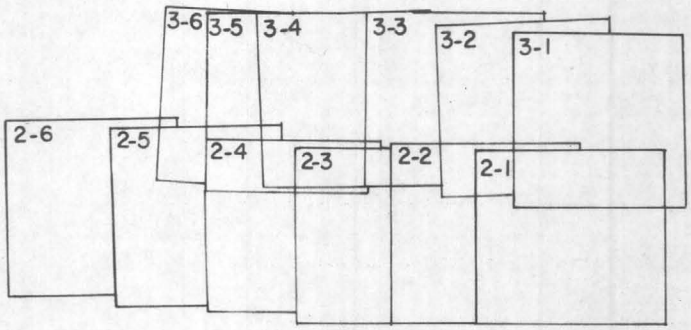
PHOTO INDEX DIAGRAM

for

CORDERO MINING COMPANY



18 1/2" x 18 1/2" PHOTOS
DATED OCT. 20 & 23, 1967
SCALE: 1" = 520' APPROX.



9" x 9" PHOTOS
DATED OCT. 20, 1967
SCALE: 1" = 1130' APPROX.

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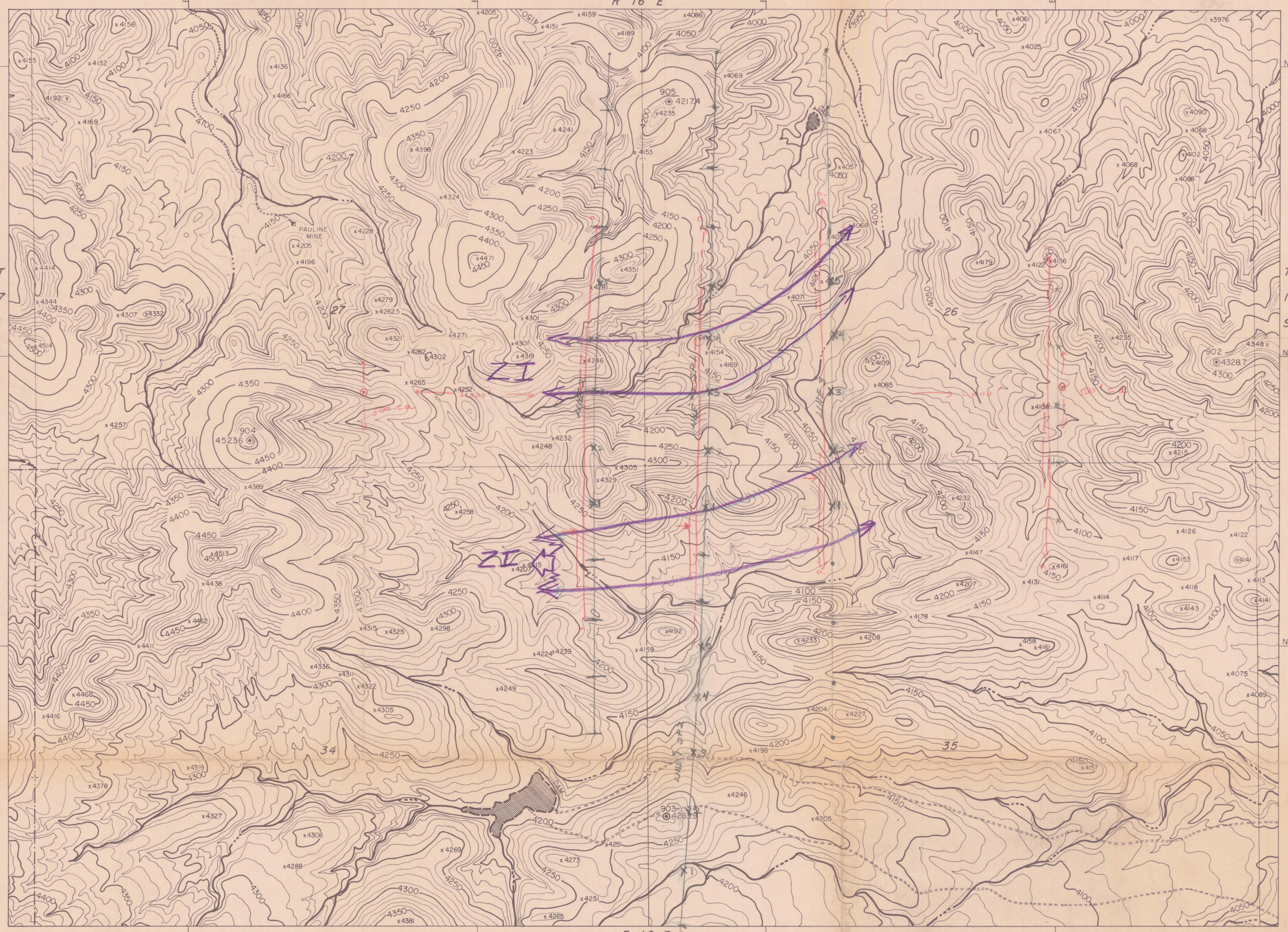
PAULINE MINE AREA
PIMA COUNTY, ARIZONA



13°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1958

+	SECTION CORNER
⊹	1/4 CORNER
904 45236 ⊙	CONTROL STATION & ELEVATION
4389 x	STEREO-PLOTTED ELEVATION
×	PROSPECT
Y	TUNNEL
—·—·—	NATIONAL FOREST BOUNDARY

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967
CONTOUR INTERVAL = 10 FEET

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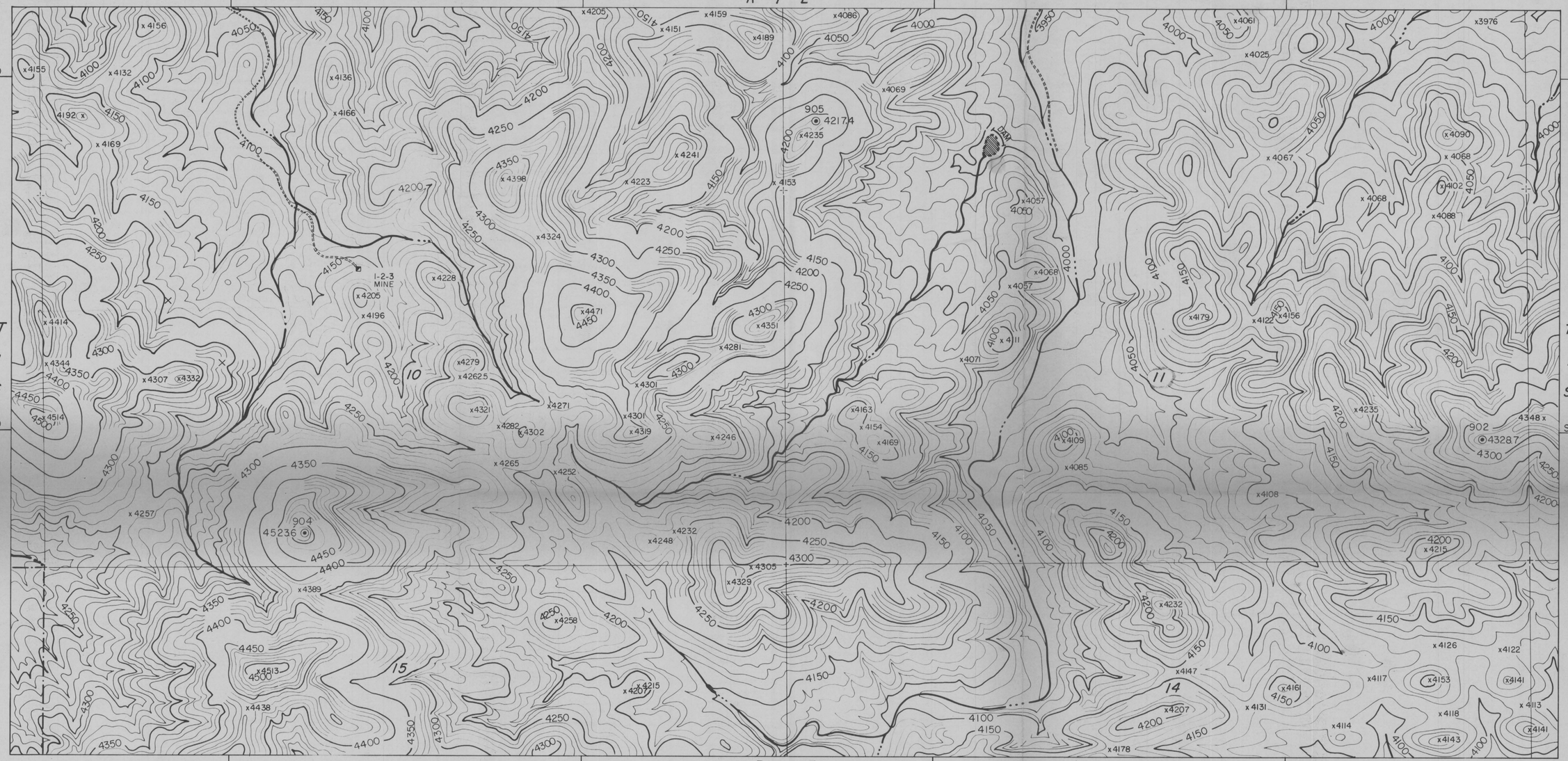
TOPOGRAPHY
PAULINE MINE AREA
PIMA COUNTY, ARIZONA

FOR

CORDERO MINING COMPANY

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE REVISED DEC. 1967



TRUE NORTH
1°
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

+	SECTION CORNER
⊹	1/4 CORNER
904 4523.6 ⊙	CONTROL STATION & ELEVATION
4389 x	STEREO-PLOTTED ELEVATION
×	PROSPECT
Y	TUNNEL
—·—·—	NATIONAL FOREST BOUNDARY

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967
CONTOUR INTERVAL = 10 FEET

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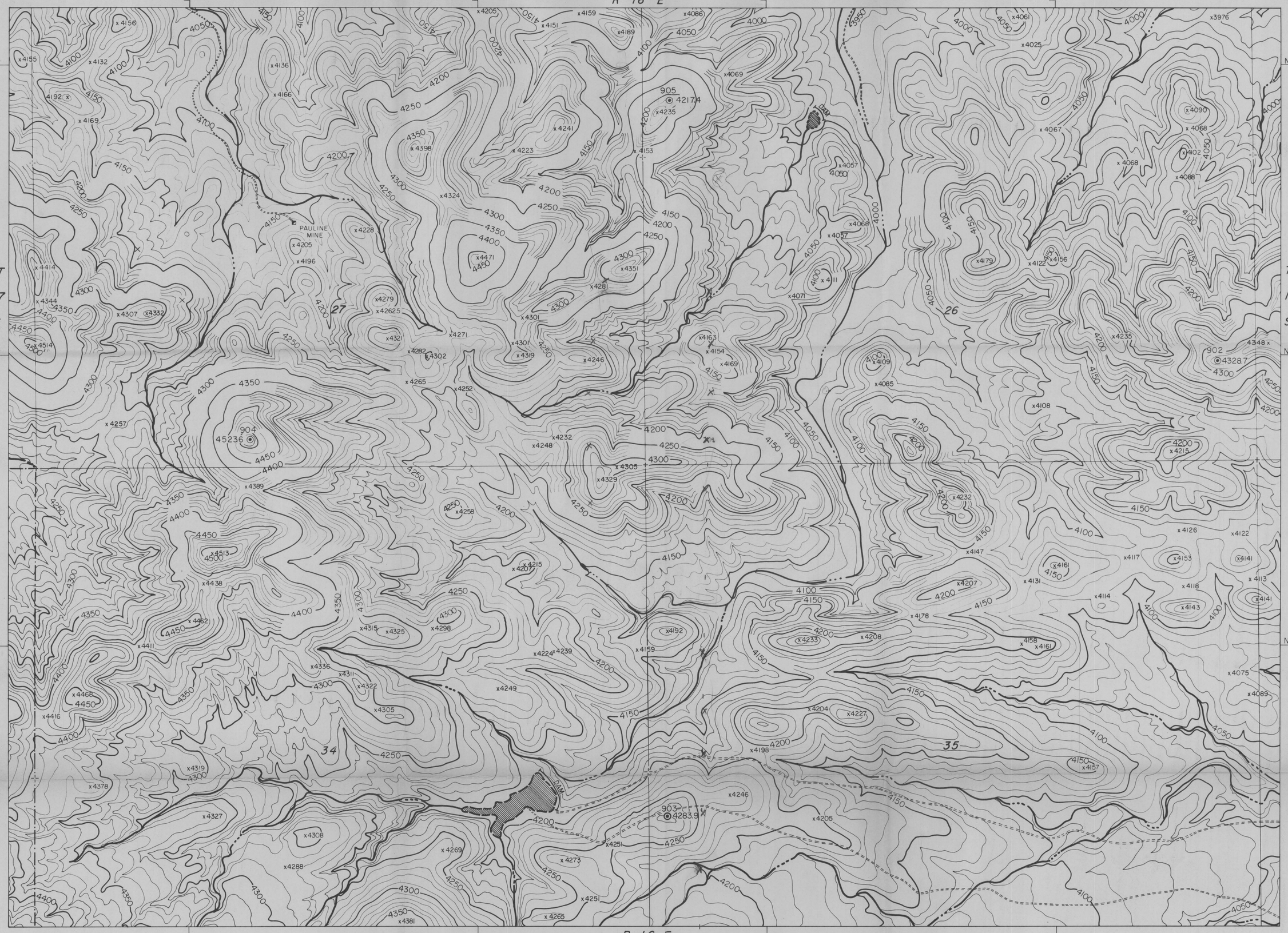
TOPOGRAPHY
1-2-3 MINE AREA
NO COUNTY, ARIZONA

FOR

BLANK MINING CORP.

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE NOV. 1967



13°
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

+ SECTION CORNER
+ 1/4 CORNER
904 / 4523.6 ⊙ CONTROL STATION & ELEVATION
4389 x STEREO-PLOTTED ELEVATION
× PROSPECT
Y TUNNEL
—·—·— NATIONAL FOREST BOUNDARY

x Electrode station

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967
CONTOUR INTERVAL = 10 FEET

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TOPOGRAPHY
PAULINE MINE AREA
PIMA COUNTY, ARIZONA

FOR

CORDERO MINING COMPANY

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE REVISED DEC. 1967

13°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1958

+ SECTION CORNER
1/4 CORNER
904 4523.6 ⊙ CONTROL STATION & ELEVATION
4389 x STEREO-PLOTTED ELEVATION
× PROSPECT
Y TUNNEL
NATIONAL FOREST BOUNDARY

Ron Karkinen
Flamingo Mile 1
674-5571 ext. 226

500 a ¢
1000' a

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA
DATUM PLANE: MEAN SEA LEVEL DATUM
MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT 21, 1967
CONTOUR INTERVAL = 10 FEET

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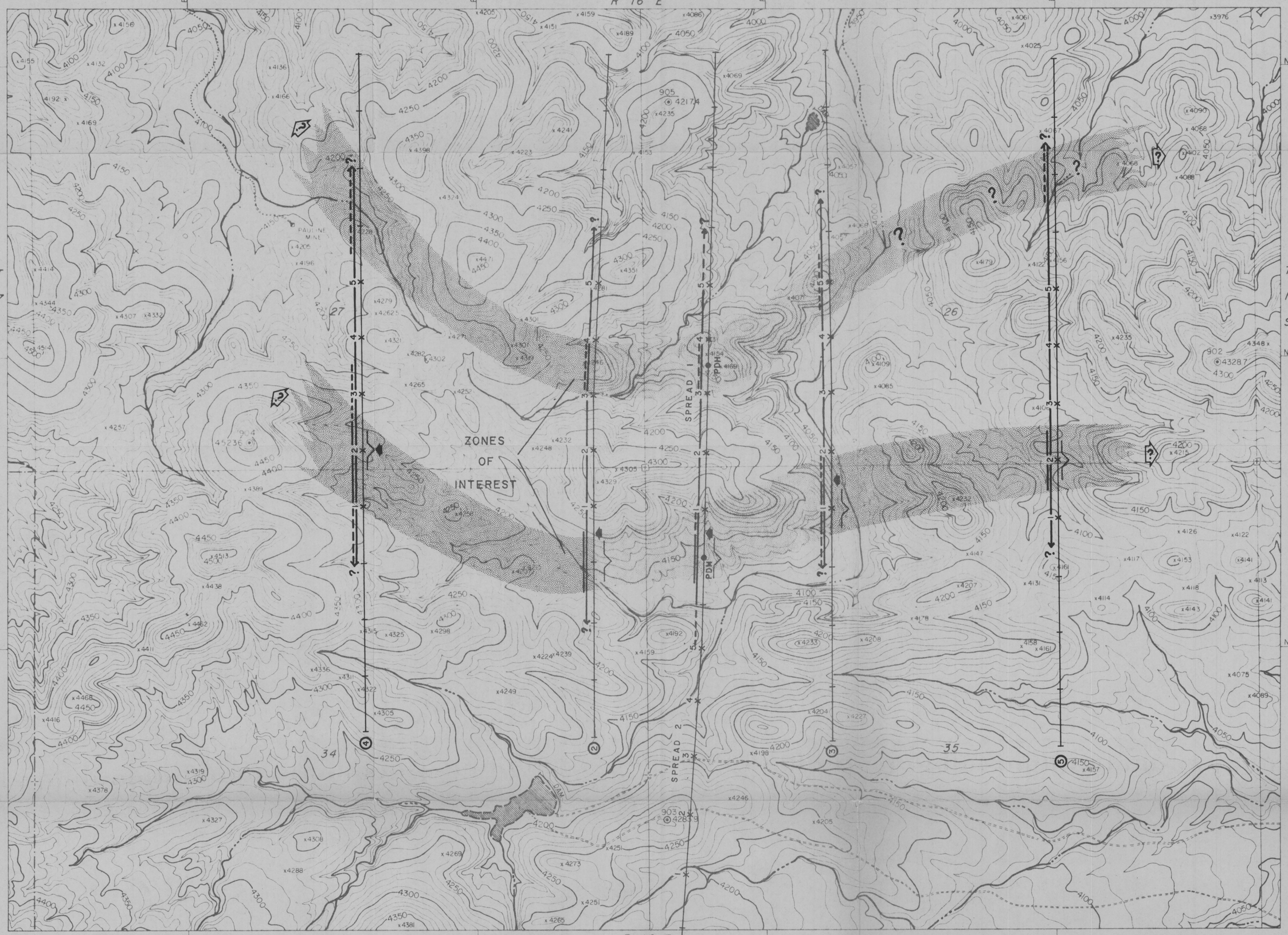
PAULINE MINE AREA
PIMA COUNTY, ARIZONA

FOR
CORDERO MINING COMPANY

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE NOV. 1967



RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

I.P. LINE NO. → 2

STATIONS — INTERFACE — ELECTRODES — PROPOSED DRILL HOLE — SELF POTENTIAL LOW

13° TRUE NORTH / MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

+ SECTION CORNER

+ 1/4 CORNER

904 / 4523.6 ⊙ CONTROL STATION & ELEVATION

4389 x STEREO-PLOTTED ELEVATION

× PROSPECT

Y TUNNEL

—·—·— NATIONAL FOREST BOUNDARY

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967

CONTOUR INTERVAL = 10 FEET

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INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN

PAULINE MINE AREA
PHASE II
PIMA COUNTY, ARIZONA

FOR

CORDERO MINING COMPANY

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE REVISED DEC 1967

REVISED FEB 1968

LEFT HALF

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Cordera ~=500'
LINE 4 HALF S 1/2 SP. 1 DATE 2-16

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-5	5-10	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	10	30	10	3	100	10	3	3
DC 1	60.6	47.9	9.34	17.9	5.58	1.50	45.7	3.77	2.64	1.06
DC 2	59.4	40.6	8.96	14.4	4.74	1.78	47.6	4.65	2.26	1.12
DC 3	61.9	47.9	8.44	17.1	6.02	1.21	45.0	3.52	2.76	0.92
DC 4	57.8	41.6	9.84	14.9	3.98	2.14	48.0	4.80	2.20	1.24
DC 5	62.2	48.0	8.80	16.6	6.82	0.97	44.4	3.77	2.75	0.92
DC 6	57.6	42.0	9.84	15.4	3.36	2.56	48.2	4.56	2.46	1.19
DC 7	62.6	47.4	8.44	16.2	7.02	1.93	44.2	3.98	2.78	0.89
DC 8	56.6	42.3	9.84	16.1	3.04	1.21	48.3	4.37	2.36	1.25
DC AVG.	~~120.03~~	~~89.31~~	~~18.26~~	~~31.89~~	~~10.36~~	~~3.41~~	~~92.69~~	~~8.39~~	~~5.06~~	~~2.12~~
AC 1	49.7	38.2	7.84	12.65	4.38	1.37	38.5	3.22	2.19	0.87
AC 2	49.7	38.2	7.84	12.65	4.40	1.37	38.5	3.22	2.19	0.86
AC AVG.	99.4	76.4	15.68	25.3	8.78	2.74	77.0	6.44	4.38	1.73
S.P.	+52.7	+142.0		+82.4			-80.9			
AC NOISE	.42	.05		.02			.06			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Cordera
LINE 4 HALF 5 1/2 SP. 1 DATE 2-16

PAGE

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	20-25	→	→	→	25-30	→	→	→	1-2	
RANGE	10	3	3	1	10	3	3	1	500	
DC 1	6.80	1.40	1.38	.438	3.14	0.93	0.96	.584	98.5	
DC 2	6.82	1.26	1.00	.772	3.78	0.99	0.79	.560	98.5	
DC 3	6.77	1.32	1.28	.436	3.03	0.89	1.17	.438		
DC 4	7.06	1.22	0.76	.678	3.22	1.27	0.89	.550		
DC 5	6.26	1.56	1.29	.340	3.36	0.95	0.89	.470		
DC 6	7.40	0.99	0.79	.846	3.38	0.96	0.71	.670		
DC 7	6.28	1.66	1.60	.154	2.75	0.81	1.31	.354		
DC 8	7.63	0.87	0.56	1.40	3.84	1.12	0.89	.786		
DC AVG.	~~13.66~~	~~2.61~~	~~2.21~~	~~1.18~~	~~6.57~~	~~1.97~~	~~1.91~~	~~1.06~~	197	
AC 1	5.63	1.09	0.91	.446	2.80	0.79	0.81	.428	99.0	
AC 2	5.63	1.09	0.91	.442	2.80	0.79	0.81	.424	99.0	
AC AVG.	11.26	2.18	1.82	.888	5.60	1.58	1.62	.852	198	
S.P.	.07				.06					
AC NOISE	+38.0				+69.7					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT CORDERA

LINE 4 HALF S SP. 1 DATE 2/16/88

SEND	4 5	3 4	4 5	2 3	3 4	4 5	1 2	2 3	3 4	4 5
RECEIVE	0-5 S	5-10 S	→	10-15 S	→	→	15-20 S	→	→	→
RANGE										
VOLTAGE	200	165	200	150	165	200	130	145	160	200
CURRENT	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
SEND	1 2	2 3	3 4	4 5	1 2	2 3	3 4	4 5		CAL
RECEIVE	20-25 S	→	→	→	25-30 S	→	→	→		1 2
RANGE										
VOLTAGE	140	145	160	200	160	170	190	225		90
CURRENT	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4		1A

FREQUENCIES .05 3

SENDER NO. 3641T

OPERATOR DON

RECEIVER NO. 3641R

OPERATOR RON

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

Right HALF a=500?

PAGE

PROJECT CORDERO
LINE 4 HALF N SP. 1 DATE 2/18

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50	—	100	—	—	150	—	—	—	200
RANGE	100	100	30	300	30	10	100	30	10	3
DC 1	477 458	603 580	96 90	117 116	184 176	406 413	586 582	177 170	503 490	146 166
DC 2	476 458	597 582	99 90	117 116	182 174	408 440	588 584	174 174	477 462	120 132
DC 3	476 457	599 587	97 91		183 175	384 444	587 586	173 175	465 512	/
DC 4		603 582				377 440	590 585		496 564	132 196
DC 5									451 463	133 183
DC 6										
DC 7										
DC 8										
DC AVG.										
AC 1	39.4	48.5	7.8	97	14.6	3.43	49.5	14.7	4.06	1.17 ?
AC 2	39.6	48.7	7.9	97	14.6	3.43	49.9	14.8	4.07	1.18 ?
AC AVG.										
S.P.	+81	+37 →		+18 →			+2 →			
AC NOISE	.08	.08 →		.08 →			.06 →			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT CORDERO

LINE 4 HALF N SP. 1 DATE 2/19

PAGE

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	200			250				300	4-5	
RANGE	30	30	10	3	30	10	3	1	300	
DC 1	187 194	118 104	370 396	120 97	90 94	~~698~~	255 246	680 835	93	
DC 2	186 196	117 95	362 375	161 83	86 97	632 658	253 234	644 850	94	
DC 3	184 197	116 97	386 384	134 104	85 97	636 654	246 252	717 850	93	
DC 4	183 197	117 95	370 386	135 97	83 98	623 666	243 227	675 830	94	
DC 5			395 378	152 91		645 636	262 245	~~655~~		
DC 6				147 75			248 229	743 660		
DC 7										
DC 8										
DC AVG.										
AC 1	16.1	9.1	3.16	.98 x	7.7	5.53	2.04	.65?	94	
AC 2	16.2	9.1	3.16	.98 x	7.7	5.53	2.03	.65	95	
AC AVG.										
S.P.	-2				-16					
AC NOISE	.08	?			.06	?				
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT CORDARO

LINE 4 HALF N SP. 1 DATE 2/19/68

SEND	1 2	2 3	1 2	3 4	2 3	1 2	4 5	3 4	2 3	1 2
RECEIVE	0-5N	5-10N	→	10-15N	→	→	15-20N	→	→	
RANGE										
VOLTAGE	140	150	140	165	150	140	200	165	150	140
CURRENT	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A
SEND	4 5	3 4	2 3	1 2	4 5	3 4	2 3	1 2		CAL
RECEIVE	20-25N	→	→	→	25-30N	→	→	→		4 5
RANGE										
VOLTAGE	200	165	150	140	200	165	150	140		145
CURRENT	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A	1.4A		1A

FREQUENCIES .05 3

SENDER NO. 3641 T

OPERATOR DON

RECEIVER NO. 3641 R

OPERATOR BOB

COMMENTS:

HEINRICHS GEOEX CORDERA LINE 4 SPD 1 LOOKING W A= 500 FEET

1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	I	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.000	
606	479	934	179	558	150	457	377	264	106	DC	680	140	138	438	314	93	96	584	985	LEFT
594	406	896	144	474	178	476	465	226	112		682	126	100	772	378	99	79	560	985	SIDE
619	479	844	171	602	121	450	352	276	92		677	132	128	436	303	89	117	438		
578	416	984	149	398	214	480	480	220	124		706	122	76	678	322	127	89	550		
622	480	880	166	682	97	444	377	275	92		626	156	129	340	336	95	89	470		
576	420	984	154	336	256	482	456	246	119		740	99	79	846	338	96	71	670		
626	474	844	162	702	193	442	398	278	89		628	166	160	~~154~~	275	81	131	354		
566	423	984	161	304	121	483	437	236	125		763	87	56	~~140~~	384	112	89	786		
60.0	44.7	9.13	15.9	5.18	1.71	46.3	4.19	2.53	1.06	DCA	6.83	1.31	1.10	.50 8.96	3.29	.98	.95	.53	98.5	
49.7	38.2	7.84	12.6	4.38	1.37	38.5	3.22	2.19	.87	AC1	5.63	1.09	.91	.45	2.80	.79	.81	.43	99.0	
49.7	38.2	7.84	12.6	4.40	1.37	38.5	3.22	2.19	.86	AC2	5.63	1.09	.91	.44	2.80	.79	.81	.42	99.0	
49.7	38.2	7.84	12.6	4.39	1.37	38.5	3.22	2.19	.86	ACA	5.63	1.09	.91	.44	2.80	.79	.81	.43	99.0	
65.3	48.6	39.7	17.3	22.5	18.6	50.4	18.2	27.5	23.1	RHO	29.7	14.2	23.9	19.1	35.8	21.4	36.4	32.4	1.015	
21.4	17.5	17.0	26.7	18.6	25.2	21.0	30.9	16.1	23.4	PFE	21.9	20.5	21.3	~~13.7~~ 29.5	18.0	25.3	18.5	25.6	1.005	
327	360	429	1538	824	1357	416	1692	585	1013	MCF	738	1440	893	715	503	1181	509	790		

1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	I	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.000	
477	603	96	117	184	406	586	177	503	146	DC	187	118	370	120	90	632	255	680	93	RIGHT
458	580	90	116	176	413	582	170	490	166		194	104	396	97	94	658	246	835	94	SIDE
476	597	99	117	182	408	588	174	477	120		186	117	362	116	86	636	253	644	93	
458	582	90	116	174	440	584	174	462	132		196	95	375	83	97	654	234	850	94	
476	599	97		183	384	587	173	465	R		184	116	386	134	85	623	246	717		
457	587	91		175	444	586	175	512	132		197	97	384	104	97	666	252	850		
	603				377	590		496	196		183	117	370	135	83	645	243	675		
	582				440	585		564	133		197	95	386	97	98	636	227	830		
								451	183				395	152			262	R		
								463					378	91			245	743		
														147			248	660		
														75			229			
46.7	59.1	9.39	116.5	17.9	4.13	58.6	17.3	4.89	1.52	DCA	19.0	10.75	3.81	1.14	9.09	6.45	2.45	.75	93.5	
39.4	48.5	7.80	97.0	14.6	3.43	49.5	14.7	4.06	1.17	AC1	16.1	9.10	3.16	.98	7.70	5.53	2.04	.65	94.0	
39.6	48.7	7.90	97.0	14.6	3.43	49.9	14.8	4.07	1.18	AC2	16.2	9.10	3.16	.98	7.70	5.53	2.03	.65	95.0	
39.5	48.6	7.85	97.0	14.6	3.43	49.7	14.7	4.06	1.17	ACA	16.1	9.10	3.16	.98	7.70	5.53	2.03	.65	94.5	
53.5	67.8	43.0	133	82.0	47.3	67.2	79.5	56.0	34.8	RHO	87.2	123	87.3	45.7	104	148	98.4	48.3	1.070	DC CAL
19.5	23.0	20.9	21.4	23.8	21.6	19.2	18.8	21.6	30.7	PFE	19.1	19.4	21.8	17.5	19.3	17.9	21.8	17.2	1.011	AC CAL
364	339	486	160	291	457	286	237	385	881	MCF	219	157	250	383	185	121	222	355		

FORM 6413

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CORDERO
LINE 5 HALF S SP. 1 DATE 2/20

SEND	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5
RECEIVE	0-50	—	100	—	—	150	—	—	—	200
RANGE	300	100	30	100	10	10	100	10	10	3
DC 1	153/150	478/450	127/133	285/295	917/814	423/423	687/716	750/846	379/412	247/245
DC 2	152/151	488/443	123/144	284/298	865/855	497/405	687/718	683/933	366/406	248/246
DC 3	154/151	494/455	103/150	287/292	858/917	464/462	687/718	/	383/420	241/261
DC 4	153/151		111/157		782/920	412/503		857/780	344/427	205/274
DC 5								800/816		
DC 6								838/804		
DC 7										
DC 8										
DC AVG.										
AC 1	132	37.7	10.8	25.2	7.15	3.87	63.7	7.26	3.40	2.22
AC 2	134	37.7	10.9	25.4	7.15	3.87	64.0	7.28	3.38	2.23
AC AVG.										
S.P.	-19	+65 →		+16 →			+2 →			
AC NOISE	.08	.08	?		?		.06			
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CORDERO
LINE 5 HALF S SP. 1 DATE 2/20

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	CAL	
RECEIVE	200 —	—	—	250	—	—	—	300	1-2	
RANGE	100	10	10	3	30	10	3	3	300	
DC 1	289 260	552 530	320 383	223 247	124 121	335 335	~~288~~		196	
DC 2	285 259	513 550	290 370	204 280	113 128	286 382	~~288~~		196	
DC 3	286 260	498 566	302 365	204 292	116 127	266 404			196	
DC 4			300 390	/		227 396.			196	
DC 5				226 270						
DC 6				232 237						
DC 7										
DC 8										
DC AVG.										
AC 1	24.7	4.75	2.87	2.16?	10.8	2.78	2.10	1.76	195	
AC 2	24.7	4.75	2.87	2.16	10.9	2.78	2.10		195	
AC AVG.										
S.P.	-14 —	—	? →	→	+12 —	—	—	→		
AC NOISE	.08 —	—	? →	→	.10 —	—	? —	→		
POT RES.										

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT CORDERO

LINE 5 HALF S SP. 1 DATE 2/20/68

SEND	4 5	3 4	4 5	2 3	3 4	4 5	1 2	2 3	3 4	4 5
RECEIVE	0-5 S	5-10 S	→	10-15 S	→	→	15-20 S	→	→	→
RANGE										
VOLTAGE	190	255	190	260	255	185	210	260	255	185
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	1 2	2 3	3 4	4 5	1 2	2 3	3 4	4 5		CAL
RECEIVE	20-25 S	→	→	→	25-30 S	→	→	→		1 2
RANGE										
VOLTAGE	210	260	255	185	210	260	255	185		215
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		2A

FREQUENCIES .05 3

SENDER NO. 3641 T

OPERATOR DON

RECEIVER NO. 3641 R

OPERATOR BOB

COMMENTS:

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CORDERO
LINE 5 HALF N SP. 1 DATE 2/20

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-50		100			150				200
RANGE	300	100	30	300	30	10	300	100	30	10
DC 1	93 82	860 886	130 136	178 172	239 263	~~88~~	197 197	570 540	118 112	490 460
DC 2	91 81	877 862	120 121	176 173	231 265	710 536	199 196	543 528	126 104	345 490
DC 3	92 82	885 868	133 136	176 174	241 274	760 865	199 197	534 553	148 113	355 445
DC 4			136 114		252 247	577 870		552 534	125 121	435 435
DC 5										510 495
DC 6						645 770				485 475
DC 7						760 800				400 505
DC 8						590 860				485 415
DC AVG.										
AC 1	76	~~30.6~~	10.7	143	20.8	5.86	179	45.7	10.0	3.86
AC 2	75	13.4 73.4	10.7	144	21.0	5.84	180	45.7	10.0	3.86
AC AVG.										
S.P.	+60	+7 →		+2 →	? →		-5 →		? →	
AC NOISE	.04	.06 →		.06 →			.08 →	~.5	→	
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT CORDERO
LINE 5 HALF N SP. 1 DATE 2/20

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	CAL	
RECEIVE	200			250				300	4-5	
RANGE	100	30	10	10	30	30	10	3	300	
DC 1	540 563	228 213	593 662	~~328~~	198 217	98 99	~~584~~		196	
DC 2	568 570	234 215	643 628	315 370	198 218	86 100			196	
DC 3	560 555	223 215	677 626	287 297	188 206	85 107	X		197	
DC 4	564 580	223 227	652 639	308 336	183 226	82 106			196	
DC 5				307 325					197	
DC 6				303 322					196	
DC 7										
DC 8										
DC AVG.										
AC 1	47.0	17.4	5.05	2.52	17.2	7.6	2.67	1.65	199	
AC 2	47.4	17.4	5.05	2.52	17.3	7.6	2.67		200	
AC AVG.										
S.P.	+11				-3					
AC NOISE	.05		.4		.04					
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT CORDERO

LINE 5 HALF S SP. 1 DATE 2/20/68

PAGE

SEND	1 2	2 3	1 2	3 4	2 3	1 2	4 5	3 4	2 3	1 2
RECEIVE	0-5 N	5-10 N	→	10-15 N	→	→	15-20 N	→	→	→
RANGE										
VOLTAGE	275	300	270	290	290	260	210	275	280	235
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	4 5	3 4	2 3	1 2	4 5	3 4	2 3	1 2		CAL
RECEIVE	20-25 N	→	→	→	25-30 N	→	→	→		4 5
RANGE										
VOLTAGE	200	270	275	230	195	265	270	220		215
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A		2A

FREQUENCIES .05 3

SENDER NO. 3641 T

OPERATOR DON

RECEIVER NO. 3641 R

OPERATOR BOB

COMMENTS:

HEINRICHS GEOEX CORDERO LINE 5 SPD 1 LOOKING W A= 500 FEET

2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	I	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000		
153	478	127	285	917	423	687	750	379	247	DC	284	552	320	223	124	335			196	LEFT	
150	450	133	295	814	423	716	846	412	245		260	530	383	247	121	335			196	SIDE	
152	488	123	284	855	497	687	683	366	248		285	513	290	204	113	286			196		
151	443	144	298	855	405	718	933	406	246		259	550	370	280	128	382			196		
154	494	103	287	858	464	687	R	383	241		286	498	302	204	116	266					
151	455	150	292	917	462	718	857	420	261		260	566	365	292	127	404					
153		111		782	412		780	344	205				300	//		227					
151		157		920	503		800	427	274				390	226		396					
							816							270							
							838							232							
							804							237							
152	46.8	12.9	29.0	8.57	4.47	70.2	8.04	3.91	2.44	DCA	27.2	5.30	3.38	2.41	12.1	3.24	323.64	323.64	196		
132	37.7	10.8	25.2	7.15	3.87	63.7	7.26	3.40	2.22	AC1	24.7	4.75	2.87	2.16	10.8	2.78	2.10	0.00	195		
134	37.7	10.9	25.4	7.15	3.87	64.0	7.28	3.38	2.23	AC2	24.7	4.75	2.87	2.16	10.9	2.78	2.10	0.00	195		
133	37.7	10.8	25.3	7.15	3.87	63.8	7.27	3.39	2.22	ACA	24.7	4.75	2.87	2.16	10.8	2.78	2.10	0.00	195		
116	35.8	39.6	22.2	26.2	34.2	53.7	24.6	29.9	37.3	RHO	83.4	40.6	51.7	64.5	92.4	49.5	*00000	*00000	1.020		
13.6	23.6	18.7	14.2	19.3	14.8	9.4	10.1	14.6	9.0	PFE	9.7	11.0	17.1	10.9	10.7	15.8	*000.0	*000.0	.995		
117	658	471	640	734	433	175	409	489	241	MCF	117	271	331	169	116	319	*00000	*00000			

2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	I	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000		
93	860	130	178	239	710	197	570	118	490	DC	540	228	593	315	198	98			196	RIGHT	
82	886	136	172	263	536	197	540	112	460		563	213	662	370	217	99			196	SIDE	
91	877	120	176	231	760	199	543	126	345		568	234	643	287	198	86			197		
81	862	121	173	265	865	196	528	104	490		570	215	628	297	218	100			196		
92	885	133	176	241	577	199	534	148	355		560	223	677	308	188	85			197		
82	868	136	174	274	870	197	553	113	445		555	215	626	336	206	107			196		
		136		252	R		552	125	435		564	223	652	307	183	82					
		114		247	645		534	121	435		580	227	639	325	226	106					
					770				510					303							
					760				495					322							
					800				485												
					590				475												
					860				400												
									505												
									485												
									415												
86.7	87.5	12.9	175	25.3	7.20	198	54.3	12.1	4.51	DCA	56.3	22.1	6.43	3.17	20.3	9.44	94.43	94.43	196		
76.0	73.4	10.7	143	20.8	5.86	179	45.7	10.0	3.86	AC1	47.0	17.4	5.05	2.52	17.2	7.60	0.00	0.00	199		
75.0	73.4	10.7	144	21.0	5.84	180	45.7	10.0	3.86	AC2	47.4	17.4	5.05	2.52	17.3	7.60	0.00	0.00	200		
75.5	73.4	10.7	143	20.9	5.85	179	45.7	10.0	3.86	ACA	47.2	17.4	5.05	2.52	17.2	7.60	0.00	0.00	199		
66.2	66.8	39.5	133	77.2	55.0	151	166	92.5	69.0	RHO	172	169	98.3	84.7	155	144	*00000	*00000	1.018		
16.6	21.1	22.6	23.6	22.8	25.0	11.8	20.7	23.0	18.8	PFE	21.1	29.3	29.4	27.7	19.6	26.2	*000.0	*000.0	1.016		
251	315	573	177	296	455	78	125	249	273	MCF	123	173	299	327	126	182	*00000	*00000			

HEINRICHS GEOEX CORDERO LINE 4 SPD 1 LOOKING W A= 500 FEET

Pauline

1 2 3 4 5

SURFACE

30 25 20 15 10 5 0 M/S 5 10 15 20 25 30 M

RHO/2PI

N														
1	X	X	X	X50	X17	X54→ 49	X68→ 65	X133	X67	X	X	X	X
2	X	X	X	X30	X18	X23	X43→ 40	X82	X79	X87	X	X	X
3	X	X	X36	X14	X28	X19	X47	X56	X123	X104	X	X	X
4	X	X	X	X21	X24	X23	X	X35	X87	X148	X	X	X
5	X	X	X	X36	X19	X	X	X46	X98	X	X	X	X
6	X	X	X	X	X32	X	X	X	X48	X	X	X	X

1 2 3 4 5

SURFACE

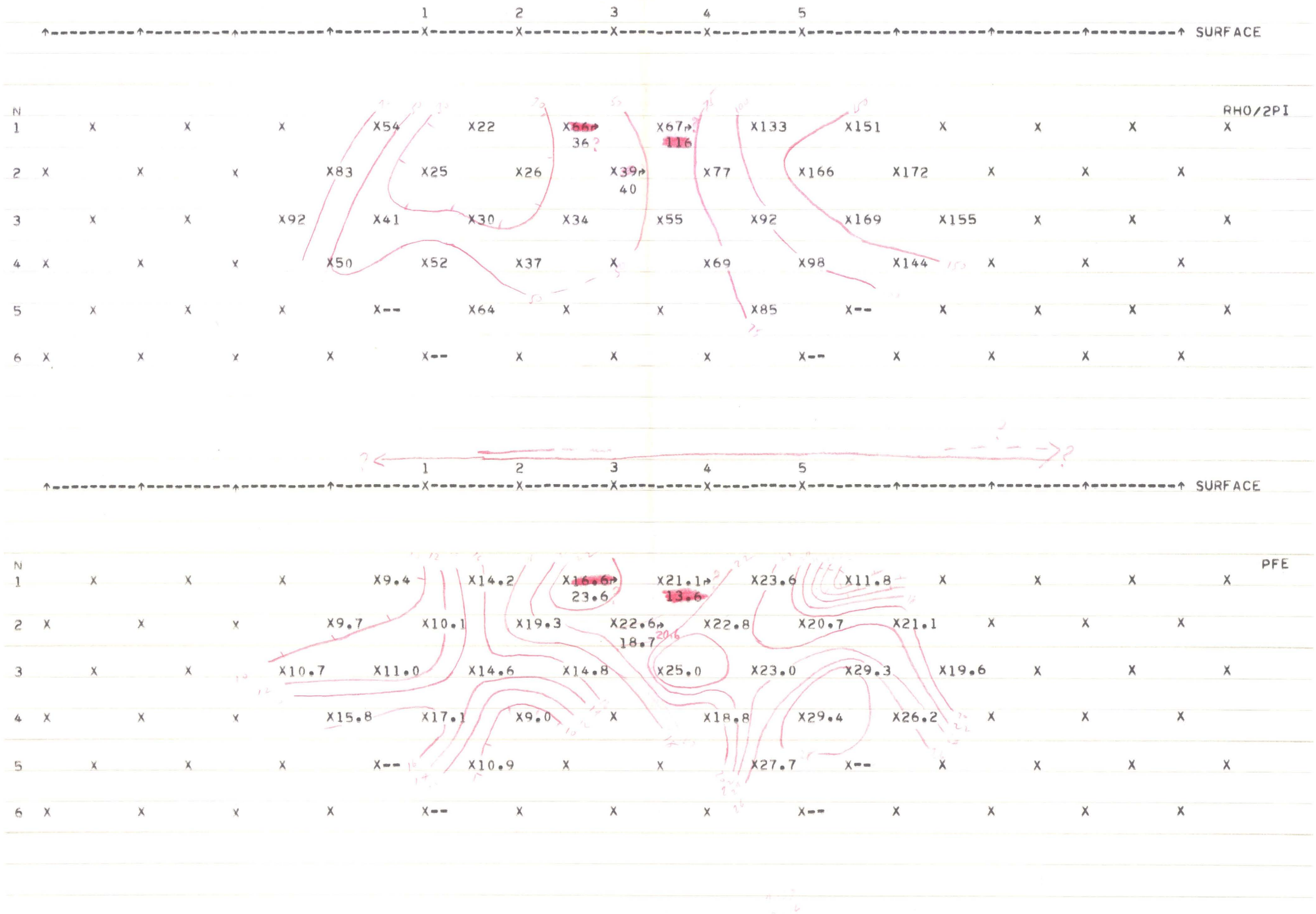
PFE

N														
1	X	X	X	X21.0	X26.7	X19.5→ 17.5	X23.0→ 21.4	X21.4	X19.2	X	X	X	X
2	X	X	X	X21.9	X30.9	X18.6	X20.9→ 17.0	X23.8	X18.8	X19.1	X	X	X
3	X	X	X18.0	X20.5	X16.1	X25.2	X21.6	X21.6	X19.4	X19.3	X	X	X
4	X	X	X	X25.3	X21.3	X23.4	X	X30.7	X21.8	X17.9	X	X	X
5	X	X	X	X18.5	X13.7	X	X	X17.5	X21.8	X	X	X	X
6	X	X	X	X	X25.6	X	X	X	X17.2	X	X	X	X

N					1	2	3	4	5							SURFACE
1	X	X	X	X416	X1538	X364→ 360 356	X339→ 327 331	X160	X286	X	X	X	X			MCF
2	X	X	X	X738	X1692	X824	X486→ 429 452	X291	X237	X219	X	X	X			
3	X	X	X	X503	X1440	X585	X1357	X457	X385	X157	X185	X	X	X		
4	X	X	X	X1181	X893	X1013	X	X881	X250	X121	X	X	X			
5	X	X	X	X	X509	X~~715~~ 1353	X	X	X383	X222	X	X	X	X		
6	X	X	X	X	X790	X	X	X	X355	X	X	X	X	X		

SP	S_2	N_2
	0	0
	53	81
	195	118
	277	136
	196	138
	234	136
	304	120

HEINRICHS GEOEX CORDERO LINE 5 SPD 1 LOOKING W A= 500 FEET

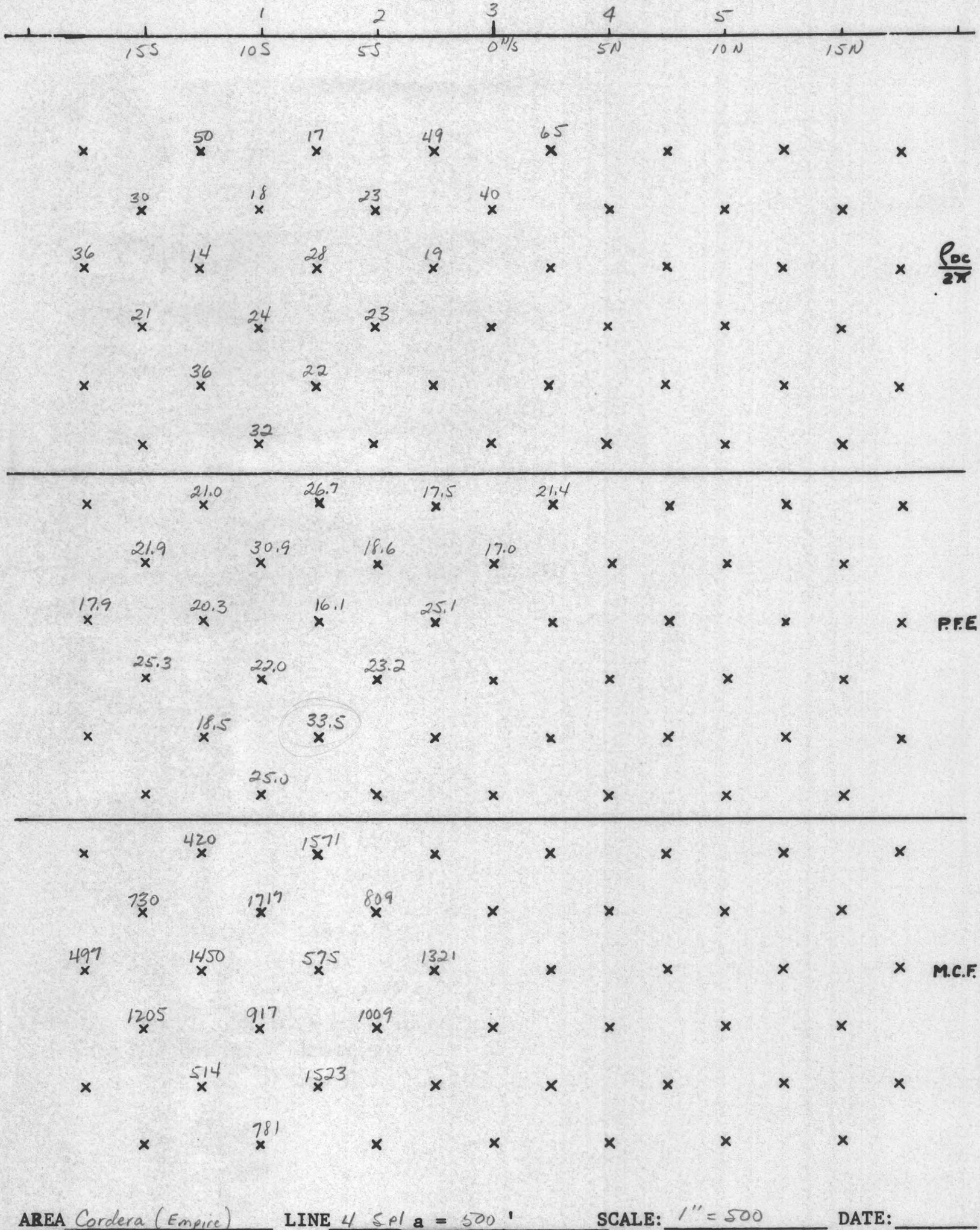


						1		2		3		4		5			SURFACE
N																	MCF
1		X		X		X		X175		X640		X251 658		X315 117		X177	X78	X	X	X	X
2	X		X		X		X117		X409		X734		X573 471		X296		X125	X123	X	X	X
3		X		X		X116		X271		X489		X433		X455		X249	X173	X126	X	X	X
4	X		X		X		X319		X331		X241		X		X273		X299	X182	X	X	X
5		X		X		X		X--		X169		X		X		X327	X--	X	X	X	X
6	X		X		X		X		X--		X		X		X		X--	X	X	X	X

Noted

SP	
S_i	N_i
0	0
-19	60
46	67
62	69
64	64
50	75
62	72

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING West



AREA Cordera (Empire) LINE 4 Spl a = 500' SCALE: 1" = 500 DATE: _____

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

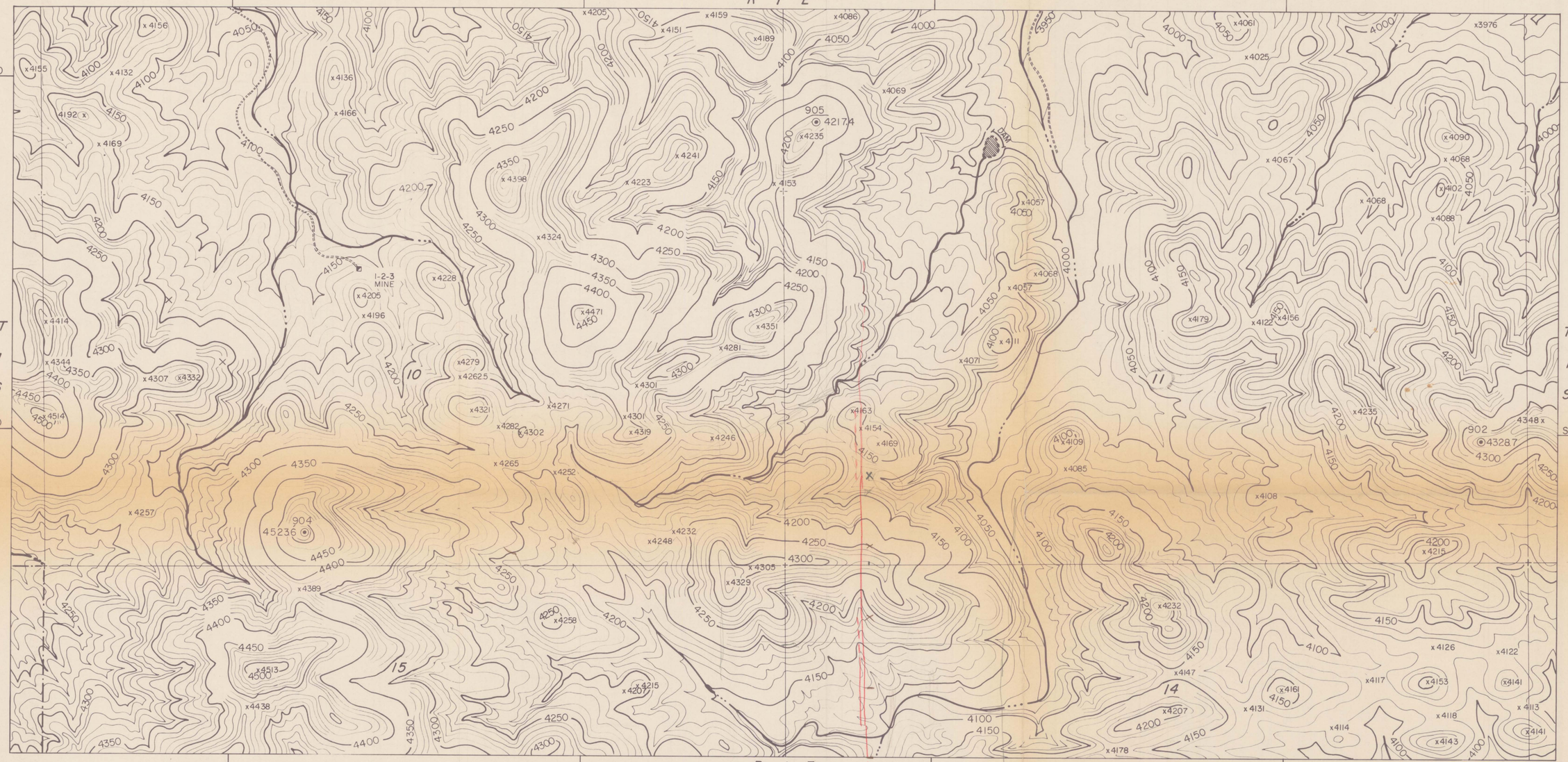
Page_____

Project Cordera Line 4 Sp1 5½ Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	1.4 A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	120.03	89.31	18.26	31.89	10.36	3.41	92.69	8.39	5.06	2.12		
(F) DCcal	.508											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	65	49	40	17	23	19	50	18	28	23		
(I) Vac Σ	99.4	76.4	15.68	25.3	8.78	2.74	77.0	6.44	4.38	1.73		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.005											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	21.4	17.5	17.0	26.7	18.6	25.1	21.0	30.9	16.1	23.2		
(O) MCF=(M-1)(10^5)/H				1571	809	1321	420	1717	575	1009		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	20-25	→	→	→	25-30	→	→	→		1-2		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	1.4 A	→	→	→	→	→	→	→				
(E) Vdc (avg)	13.66	2.61	2.21	1.18	6.57	1.97	1.91	1.06		197		
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	30	14	24	22	36	21	36	32				
(I) Vac Σ	11.26	2.18	1.82	.888	5.60	1.58	1.62	.852		198		
(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)	21.9	20.3	22.0	33.5	17.9	25.3	18.5	25.0				
(O) MCF=(M-1)(10^5)/H	730	1450	917	1523	497	1205	514	781				



1°
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

+	SECTION CORNER
÷	1/4 CORNER
904 4523.6 ⊙	CONTROL STATION & ELEVATION
4389 x	STEREO-PLOTTED ELEVATION
X	PROSPECT
Y	TUNNEL
—·—·—	NATIONAL FOREST BOUNDARY

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967
CONTOUR INTERVAL = 10 FEET

HEINRICHS
GEOEXPLORATION COMPANY
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vancouver
sydney

TOPOGRAPHY
1-2-3 MINE AREA
NO COUNTY, ARIZONA

FOR

BLANK MINING CORP.

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE NOV. 1967

Phase I

INDUCED POLARIZATION SURVEY

PAULINE MINE AREA

PIMA COUNTY, ARIZONA

For

Cordero Mining Company

December 1967

By

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

TABLE OF CONTENTS

	PAGE
GENERAL LOCATION	
INTRODUCTION	1
CONCLUSIONS, RECOMMENDATIONS AND INTERPRETATION	2
BASIS OF THE INDUCED POLARIZATION METHOD	1a

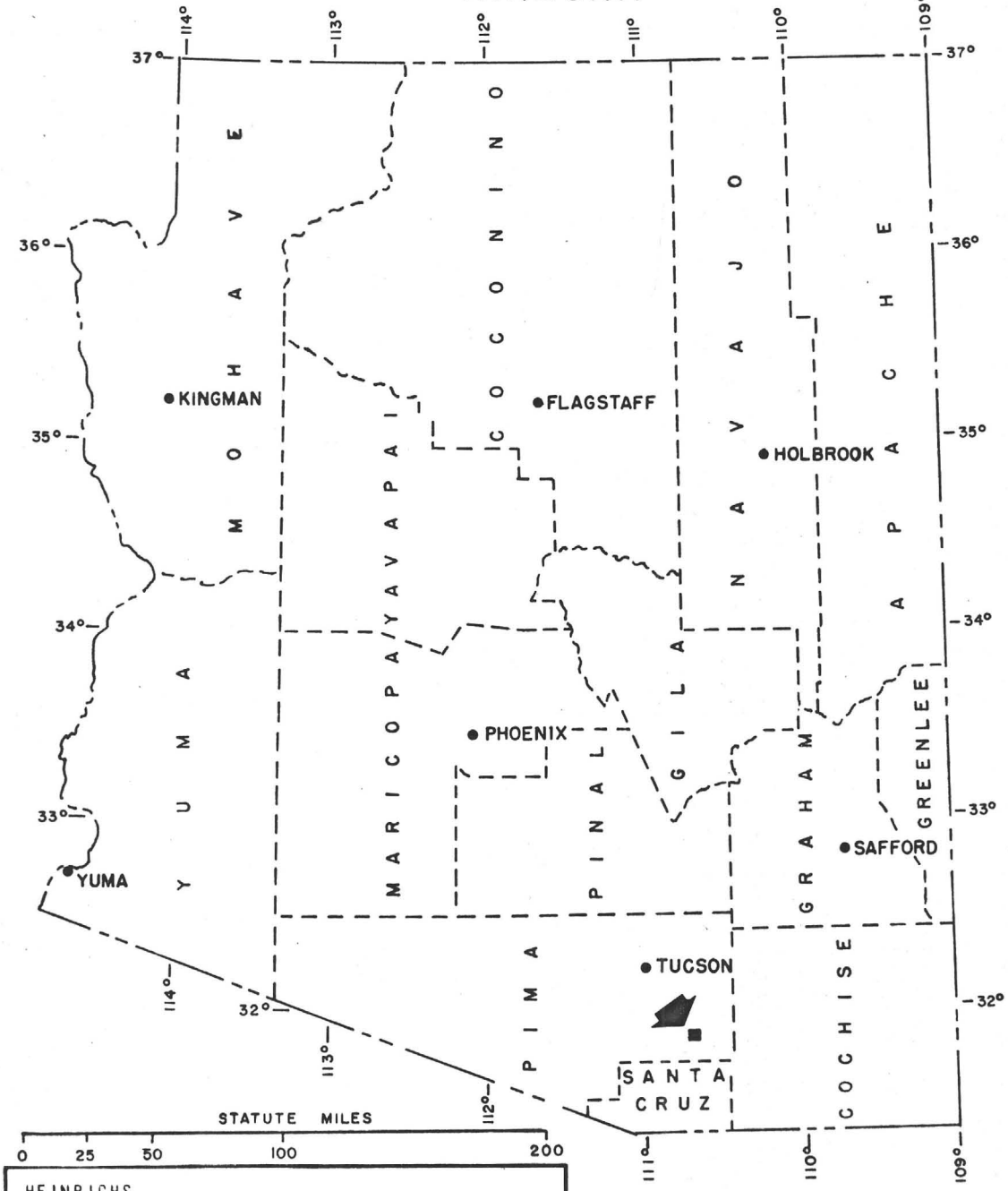
IN MAP POCKET: (Total: 4 pieces)

Induced Polarization Location and Interpretation Plan

Sectional Data Sheets:

Line 1 (a=500', Spreads 1 & 2)
Line 2 (a=500')
Line 3 (a=500')

GENERAL LOCATION OF
PAULINE MINE AREA
for
CORDERO MINING CO.
ARIZONA



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SYDNEY VANCOUVER

INTRODUCTION

At the request of Mr. D. Jennings of Cordero Mining Company, Heinrichs Geoexploration Company conducted an initial reconnaissance induced polarization (I.P.) survey of a portion of the Pauline Mine Area, Pima County, Arizona. The field work was done during the interim December 4 to December 13, 1967.

Four spreads of induced polarization data were surveyed, all on a 500 foot electrode spacing. All three lines were oriented N-S having a common baseline and separated 1,000 feet. The total surface coverage was 21,500 feet of which 14,000 feet was "subsurface" plotted data. A 1,000 foot dipole line was attempted but could not be completed because of extreme telluric noise interference.

The I.P. system used was the dual frequency technique utilizing sending frequencies of 0.05 and 3.0 Hz. The electrode configuration used was the conventional collinear dipole-dipole array which on a dipole spacing of 500 feet should give resolvable penetration within the zone from 150 feet to 600+ feet below surface.

The purpose of this survey was to determine if a geochemical copper-molybdenum anomaly located by Cordero has a sulfide source and to help position drilling targets.

The data are presented on Sectional Data Sheets, one for each line with resistivity, percent frequency effect (PFE) and metallic conduction factor (MCF) contoured in section with self potential (SP) in profile form. An "Induced Polarization Location and Interpretation Plan" is also included using the topographic base map (1"=500') of the area previously compiled by us for Cordero as a base. For additional details concerning theory, presentation and interpretation, see the "Basis of the Induced Polarization Method" appended to the report.

Heinrichs personnel involved in the field work were R. Fedelchak, geophysical crew chief, D. Berglind, Craig Herold, and R. Elliott, technical assistants. Report and interpretation by Chris S. Ludwig, Senior Geophysicist, assisted by the Geoex staff.

CONCLUSIONS, RECOMMENDATIONS AND INTERPRETATION

Two zones of probable sulfide mineralization were discovered, roughly parallel, trending ENE and about 1,500 feet apart on all three lines. These anomalies are indicated on the plan as "zones of interest".

The northern zone lies within the geochemical high whereas no geochemical data is available for the southern polarization anomaly.

The southern anomaly is quite strong, likely due to a source within 200 feet of the surface and having from 1 to 3% total sulfide by volume (2 to 6% by weight) across the stronger portion of the anomaly. The source is possibly 500 feet wide and fringing out gradually to the north and south. No dip can be estimated although it may be conformable to the sediments.

There is a pronounced resistivity low associated with this anomaly indicating some interconnectivity of sulfides. Also, a strong self potential low correlates with the strong I.P. anomaly suggesting oxidizing sulfides within several hundred feet of the surface - in agreement with the I.P. interpretation. A sharp rock type change (indicated as an "interface" on the plots) is likely related to the north boundary of strong polarization response.

The northern anomaly is not as strong or as well defined as the southern zone and has no associated self potential low. However, since it correlates with the geochemical anomaly, it is of definite interest. The source could be considerably more narrow than 500 feet and suboutcrop within 500 feet of the surface. Because of its narrowness, the sulfide percentage is difficult to estimate.

Actually, these two "zones of interest" lie within a larger, but weaker sulfide zone. The southern limit to this broad sulfide zone was definitely seen on Line 1 and is near station 25S. South of 25S, the background response is very low. The north boundary was not definitely seen but the response does appear to decrease towards the north end of the lines.

Because of the similarity in response on the three lines, it is expected that the south cutoff will also occur similarly on Lines 2 and 3 if they had been extended south.

It is recommended that both of these "zones of interest" be drilled. If the dip of the sediments is known and if it is expected that the mineralization is somewhat conformable to the bedding, then vertical or inclined drill holes down-dip of the anomaly such as to intersect the projected anomaly at about 300 or 400 feet is recommended. Otherwise, two preliminary vertical holes are recommended, one at 15S, Line 1 and one at 2.5N, Line 1. Both holes should go to at least 500 feet depth.

Based on the results of this preliminary drilling, additional similar sites can be spotted on Lines 2 and 3. Also, if the drill results are encouraging, additional traverses are recommended, particularly east and west of the existing coverage to determine the lateral extent of the mineralization. It may also be worthwhile to obtain magnetic coverage over the area since there may be associated magnetite if the mineralization is of contact metamorphic type.

Respectfully submitted,

HEINRICHS GEOEXPLORATION COMPANY

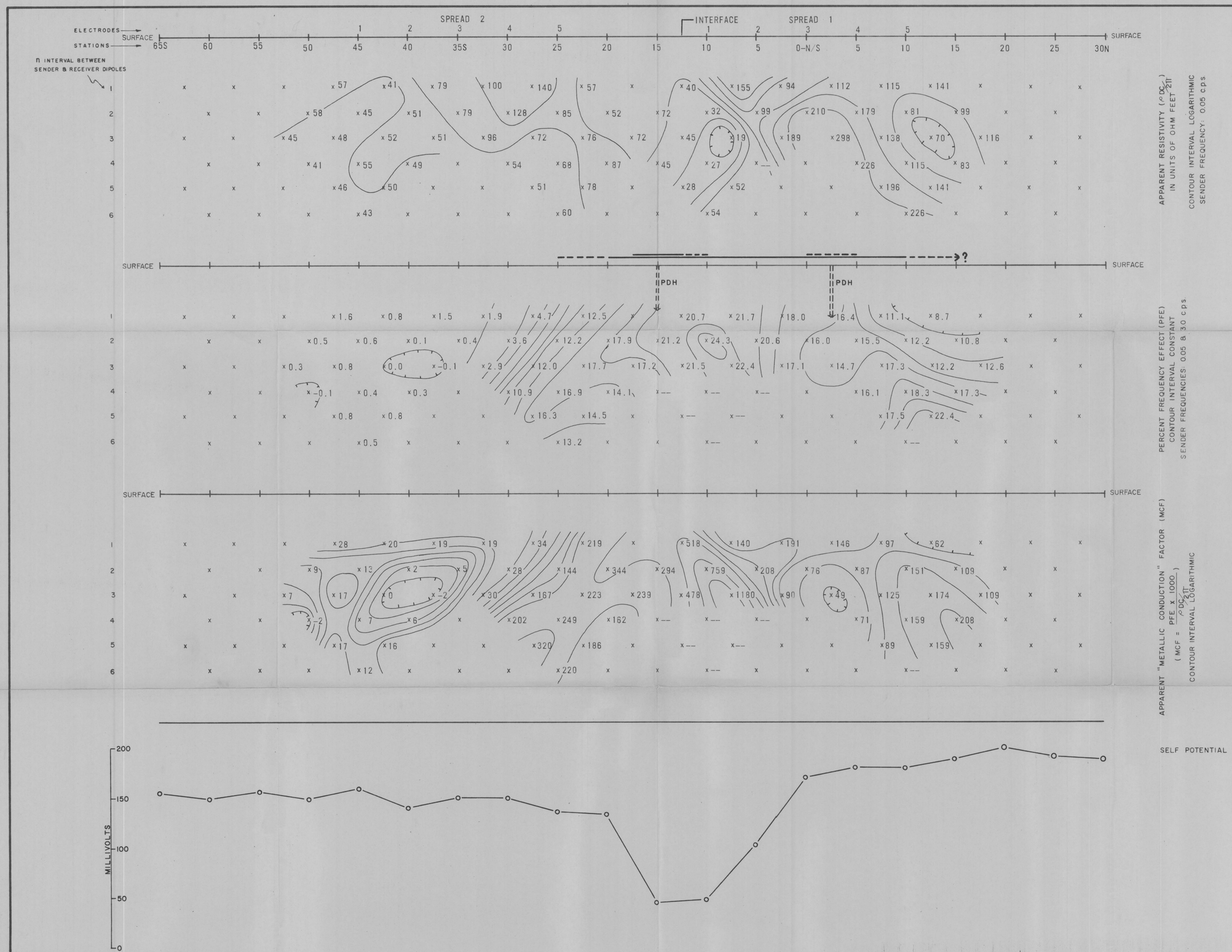
Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

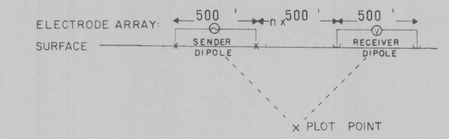
APPROVED: E. Grover Heinrichs

E. Grover Heinrichs
Vice President

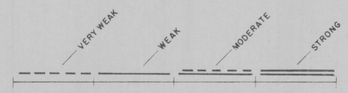
January 2, 1968
Tucson, Arizona



EXPLANATION



RELATIVE ANOMALY STRENGTH



LOOKING WEST

PAULINE MINE AREA

SECTIONAL DATA SHEET

LINE NO. 1

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: DEC 1967

FOR

CORDERO MINING COMPANY

HEINRICHS
GEOEXPLORATION COMPANY
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geophysical engineers
vancouver
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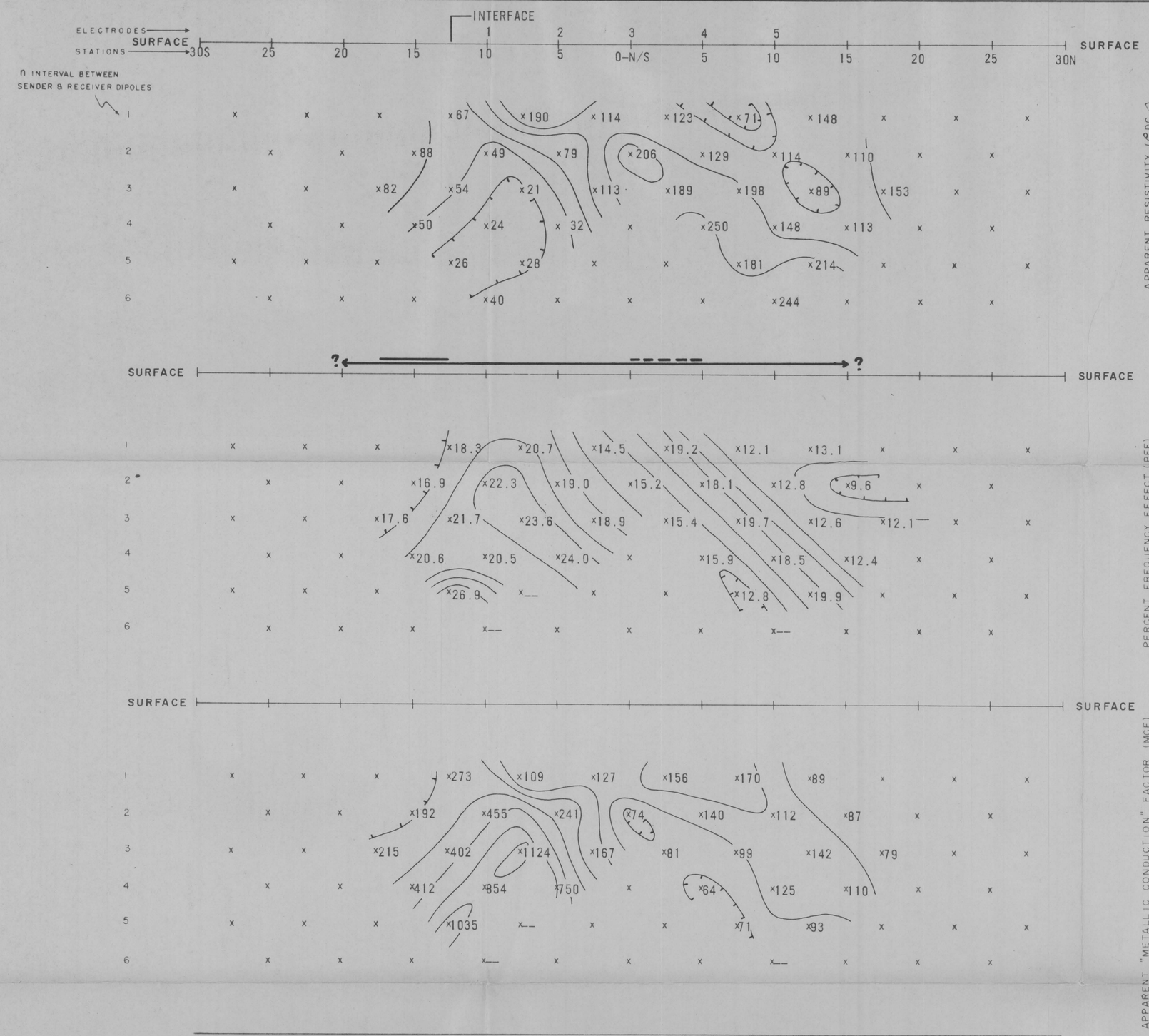
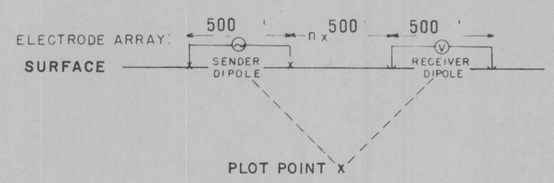
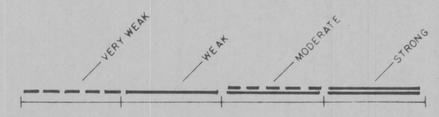


EXPLANATION



RELATIVE ANOMALY STRENGTH



LOOKING WEST

PAULINE MINE AREA

SECTIONAL DATA SHEET

LINE NO. 2

INDUCED POLARIZATION TRAVERSE

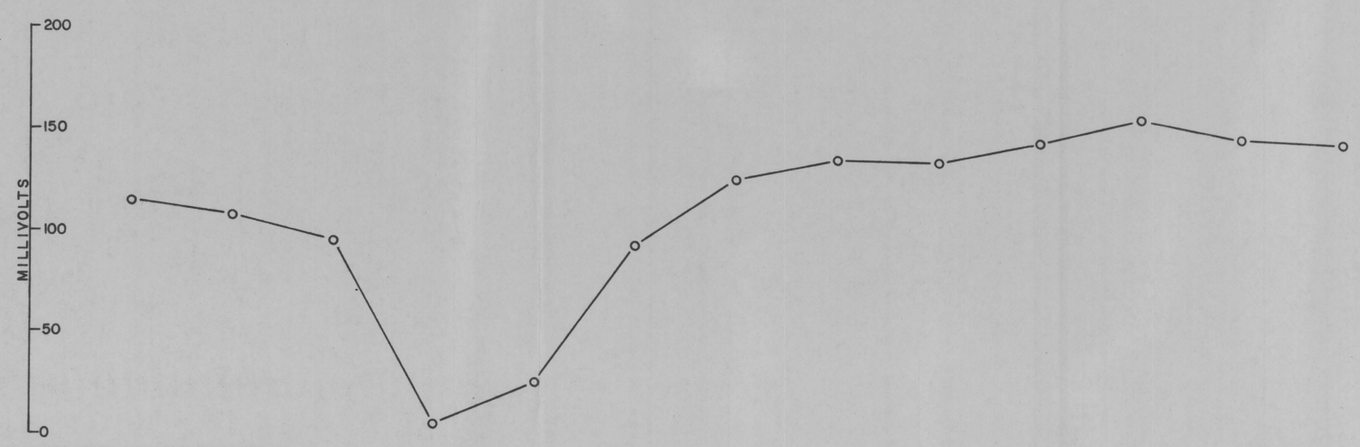
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: DEC 1967

FOR

CORDERO MINING COMPANY

SELF POTENTIAL



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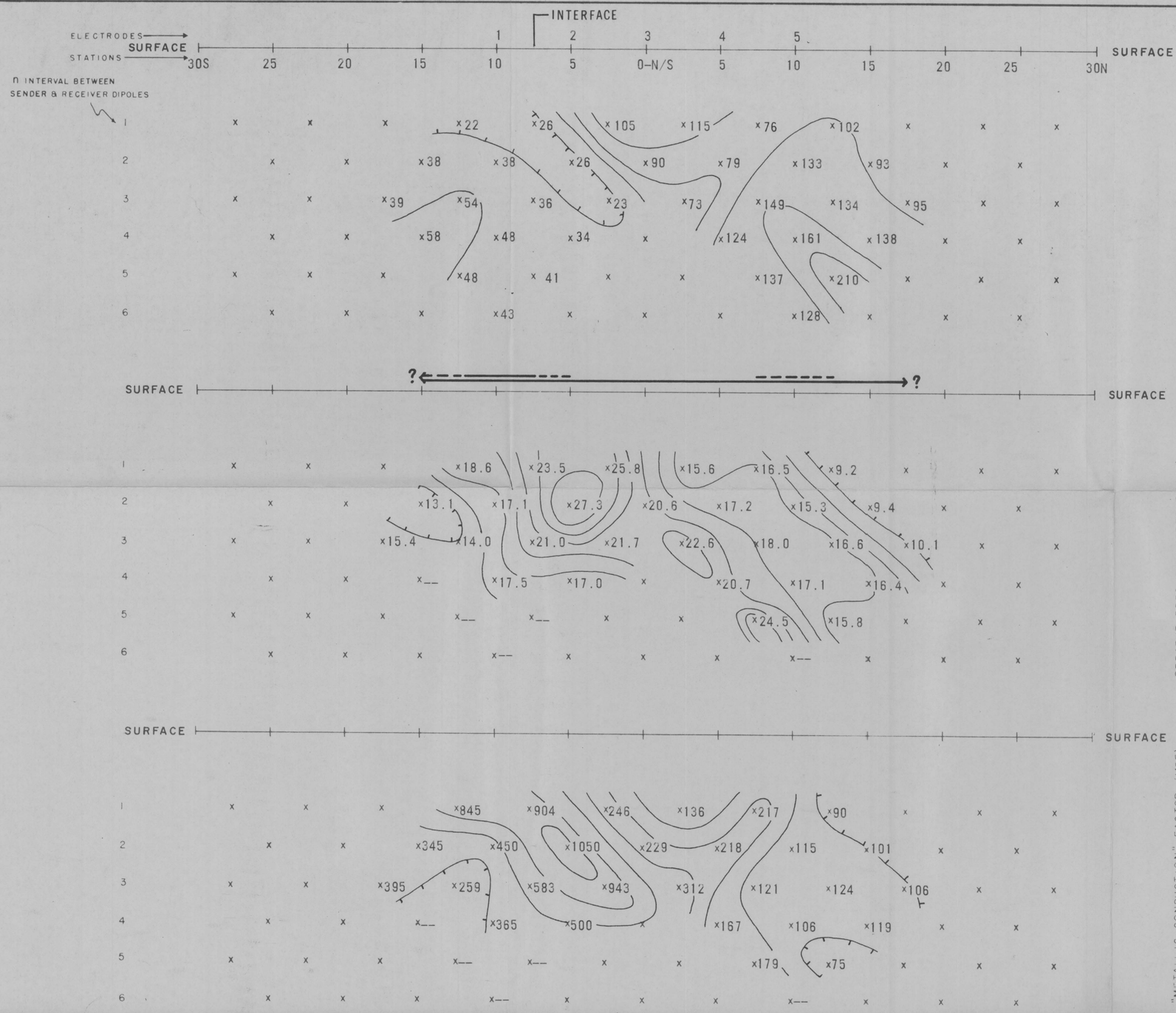

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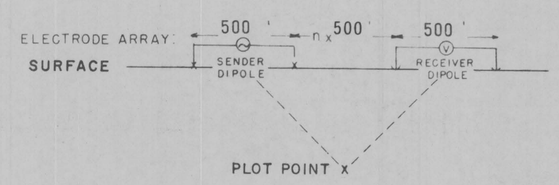

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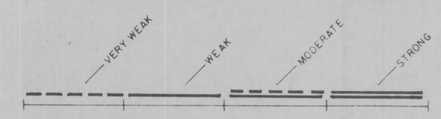

LOOKING WEST

File

PAULINE MINE AREA

SECTIONAL DATA SHEET

LINE NO. 3

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: DEC 1967

FOR

CORDERO MINING COMPANY

HEINRICHS GEOEXPLORATION COMPANY
POST OFFICE BOX 5871, TUCSON, ARIZONA, 85703
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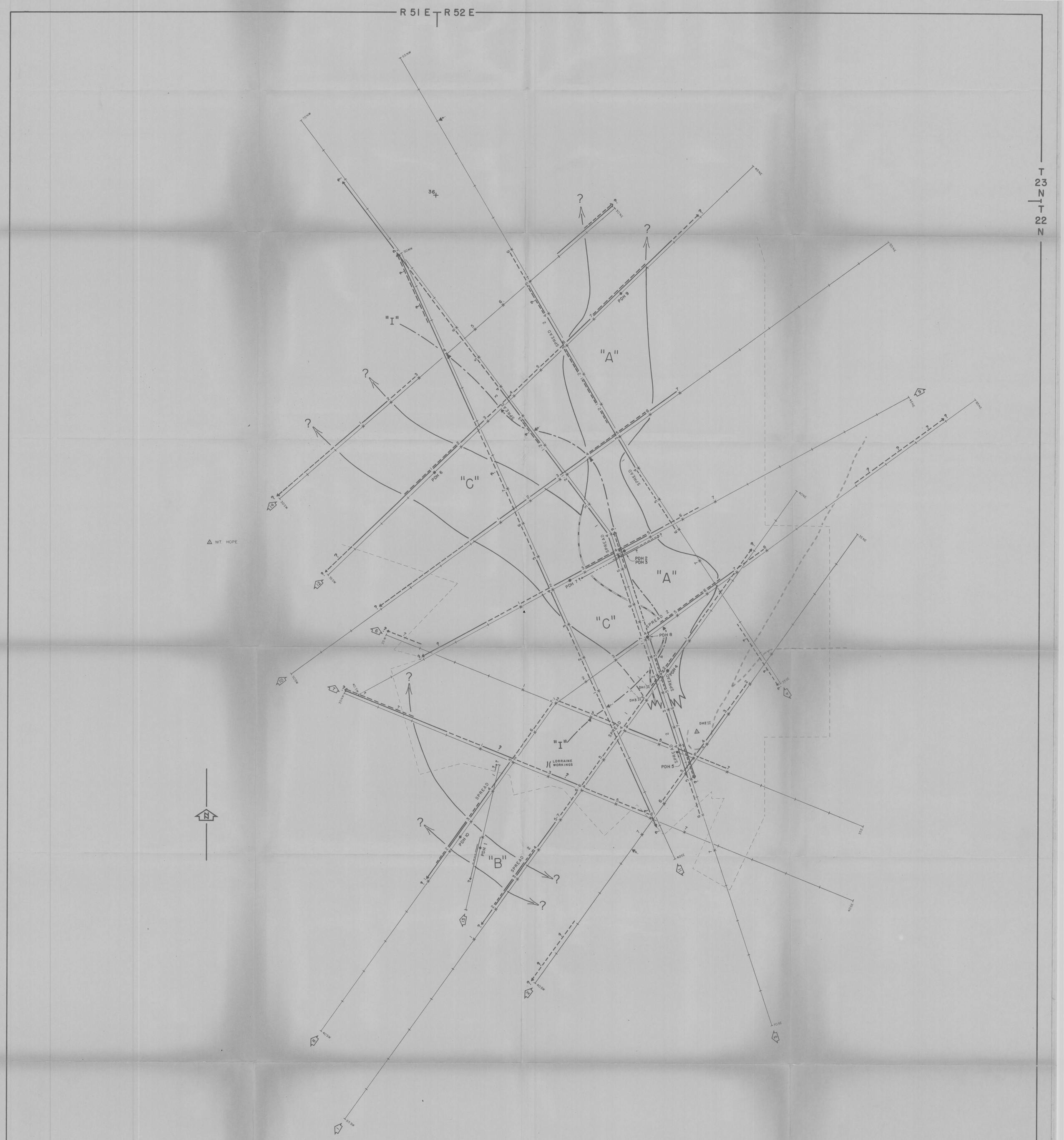

RELATIVE ANOMALY STRENGTH

LINE NUMBER AND LOOKING DIRECTION → 8

VERY WEAK | WEAK | MODERATE | STRONG

STATIONS — ELECTRODES

INTERFACE

NOTE: THIS SHEET OVERLAYS OLYMPUS AERIAL SURVEYS "MT. HOPE MINES TOPOGRAPHIC MAP" (1" = 400')

EXPLANATION

"A"	ZONE OF INDUCED POLARIZATION ANOMALISM
	CLAIM BOUNDARY
"I"	RESISTIVITY INTERFACE
	DIRT ROAD
DH 2	EXISTING DRILL HOLE
PDH	PROPOSED DRILL HOLE
△	SURVEY CONTROL POINT
36	SECTION CORNER

HEINRICHS
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vancouver sydney

INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN
of
MT. HOPE AREA

FOR
PHILLIPS PETROLEUM CO.
RENO, NEVADA

SCALE: 1" = 400' | DRAWN BY: JAY DOWNS | DATE: NOV. 1970

Phase II

INDUCED POLARIZATION SURVEY
PHASE II
PAULINE MINE AREA
PIMA COUNTY, ARIZONA

For

Cordero Mining Company

February 1968

By

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

TABLE OF CONTENTS

	Page
INTRODUCTION	1
CONCLUSIONS, RECOMMENDATIONS AND INTERPRETATION	1

IN MAP POCKET: (Total 3 pieces)

Induced Polarization Location and Interpretation Plan - Phase II

Sectional Data Sheets:

Line 4 (a=500')
Line 5 (a=500')

INTRODUCTION

At the request of Mr. Donald Jennings of Cordero Mining Company, Heinrichs Geoexploration Company extended the coverage of a previous induced polarization survey done in December 1967, in a portion of the Pauline Mine Area, Pima County, Arizona. This additional coverage was done in the interim February 16 to February 20, 1968.

Two new spreads were centered on the same grid as before, 2,000 feet west (Line 4) and 2,000 feet east (Line 5) of the previous work. The same dipole spacing (500 feet) and frequencies (0.05 and 3.0 Hz) were used so as to tie in with Lines 1, 2, and 3.

The purpose of this second phase work was to determine the extent and location of several open-ended anomalous zones in the 1967 work.

The data are presented on sectional data sheets as before and the plan map was modified to show all coverage to date.

Heinrichs' crew chiefs on this job were R. Palmer and R. Fedelchak. Report and interpretation by Chris S. Ludwig, Senior Geophysicist, assisted by the Geoex staff.

CONCLUSIONS, RECOMMENDATIONS AND INTERPRETATION

Both lines are anomalous in varying degrees over their entire length and show the two "zones of interest" to probably extend at least 2,000 feet either side of the previously known zones.

Line 4 shows the southern anomaly to be strongest between 2.5S and 10S and is somewhat stronger and more shallow than the same anomaly on Line 2 to the east. Again, this anomaly is associated with a definite resistivity low and a strong self potential low.

The south cut-off of the southern zone was not seen on Line 4, only a slight decrease so the total extent of anomalism is not known in this direction. To the north, there is a decrease in strength and then a slight increase interpreted as the west extension of the northern anomaly. No cut-off is seen to the north so the total extent in this direction is also not known. No self potential anomalism is associated with the north zone, however, there is a slight resistivity low similar to lows seen on Lines 1, 2, and 3 in the same relative position.

Line 5 indicates the southern anomaly near Station 5S, again with quite gradational boundaries. The anomaly is considered strong but is weaker than on the other four lines. The source is still shallow and has an associated resistivity low plus a self potential low although weaker than on the other lines.

The northern anomaly may not continue through to Line 5. There is a minor increase in anomalism near 20N which could be the zone but more data or coverage would be needed to be certain. Therefore, the northern "zone of interest" has been questioned in this vicinity on the plan.

In plan, the two zones are still fairly parallel and take a rather sharp bend to the northwest from Line 2 to Line 4. There seems to be some correlation

between the topography and the anomalism, likely because of the sulfides occurring in particular sedimentary horizons.

If either or both of these zones are still of interest after the preliminary drilling being done now, additional electrical work is recommended to better define their extent. Also, the overall anomalism is quite extensive and considerable sulfide response has been seen between or outside the two "zones of interest" (which delineate the two strongest zones only). If there is interesting geology or geochemical anomalism correlating with this I.P. anomalism, whether strong or weak, it may be a legitimate target, and warrant further investigation and testing.

Respectfully submitted,

HEINRICHS GEOEXPLORATION COMPANY

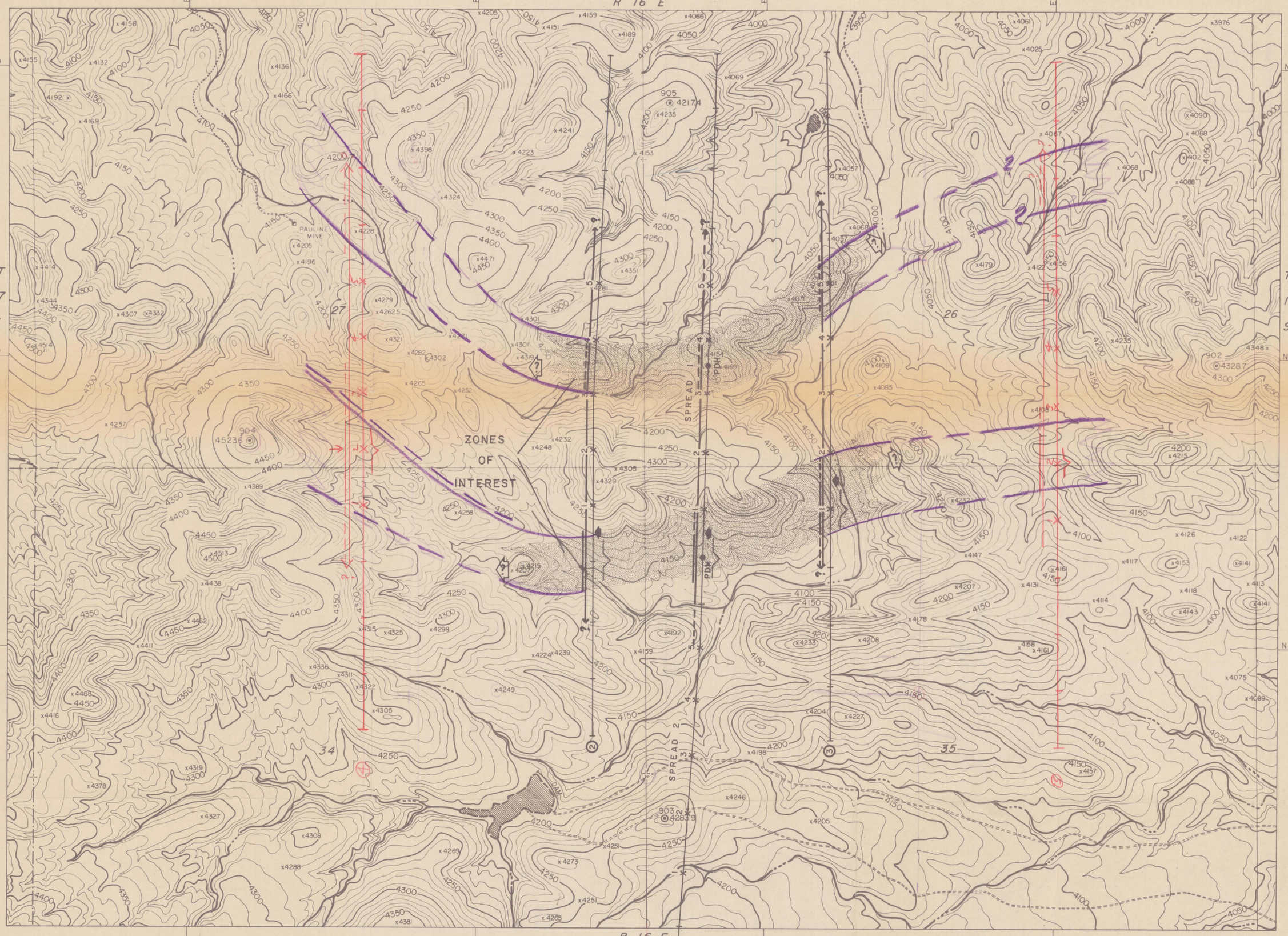
Chris S. Ludwig

Chris S. Ludwig
Senior Geophysicist

APPROVED: W. E. Heinrichs

Walter E. Heinrichs, Jr.
President & General Manager

March 1, 1968
Tucson, Arizona



RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

I.P. LINE NO. → 2

STATIONS — INTERFACE — ELECTRODES — PROPOSED DRILL HOLE — SELF POTENTIAL LOW

13° TRUE NORTH / MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

+ SECTION CORNER

+ 1/4 CORNER

904 / 45236 ⊙ CONTROL STATION & ELEVATION

4389 x STEREO-PLOTTED ELEVATION

× PROSPECT

Y TUNNEL

—·—·— NATIONAL FOREST BOUNDARY

GRID SYSTEM: STATE COORDINATE SYSTEM, CENTRAL ZONE, ARIZONA

DATUM PLANE: MEAN SEA LEVEL DATUM

MAP COMPILED BY PHOTOGRAMMETRIC METHODS USING KELSH STEREO-PLOTTER FROM PHOTOGRAPHY DATED OCT. 20, 1967

CONTOUR INTERVAL = 10 FEET

File

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POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703
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geophysical engineers — vancouver sydney

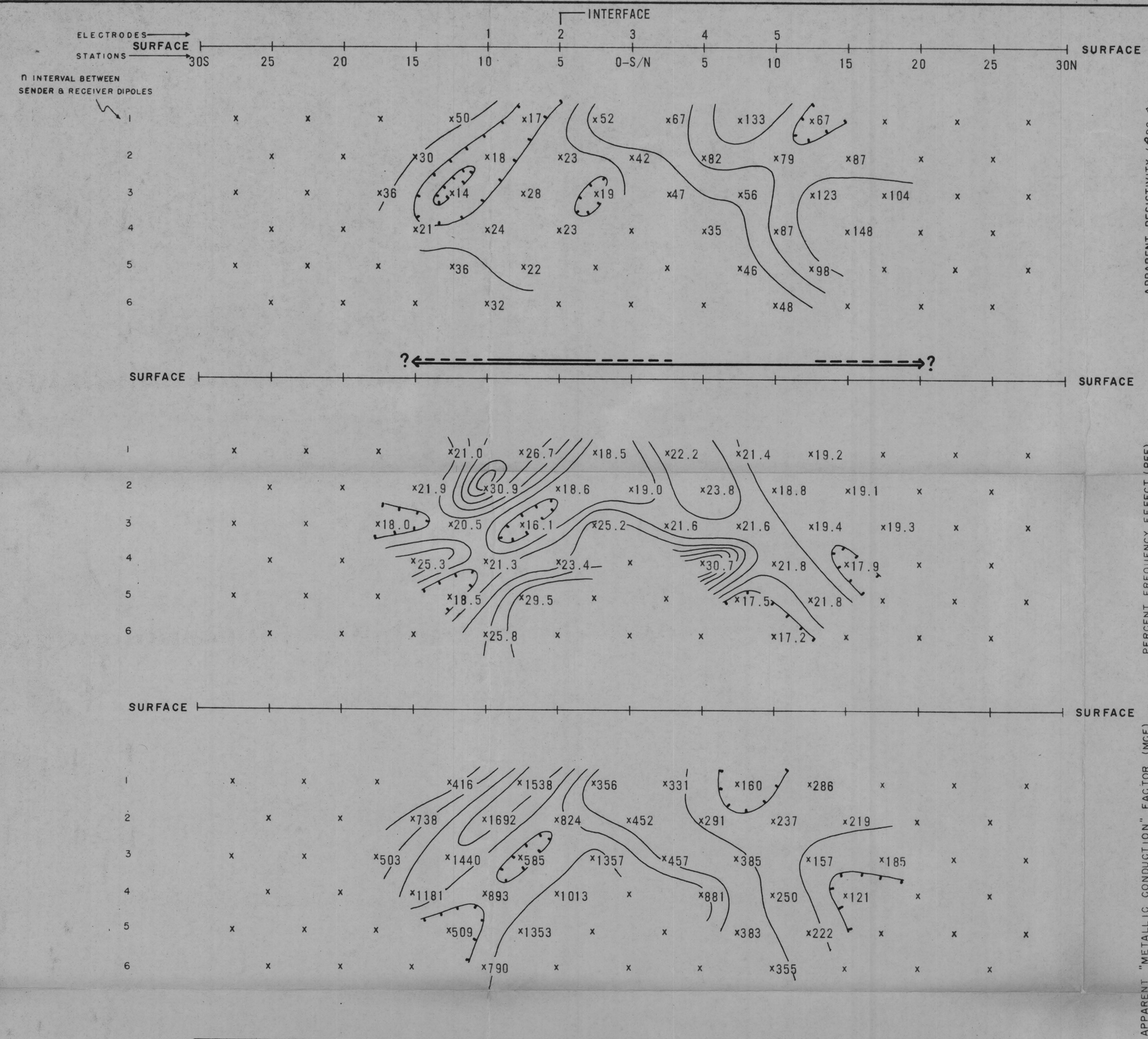
INDUCED POLARIZATION LOCATION AND INTERPRETATION PLAN
PAULINE MINE AREA
PHASE II
PIMA COUNTY, ARIZONA
Red = Phase II Modification Feb. 1968

FOR

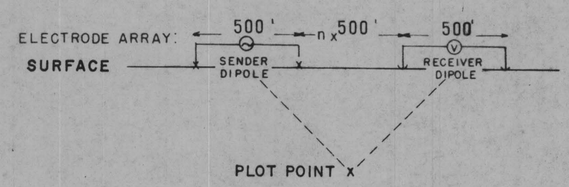
CORDERO MINING COMPANY

SCALE 1" = 500' | DRAWN BY H.R.M. | DATE REVISED DEC. 1967

REVISED Feb 1968



EXPLANATION



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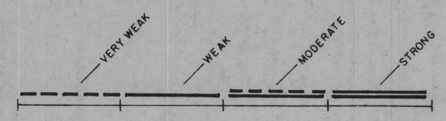


LOOKING WEST

FILE COPY

PAULINE MINE AREA

SECTIONAL DATA SHEET

LINE NO. 4

INDUCED POLARIZATION TRAVERSE

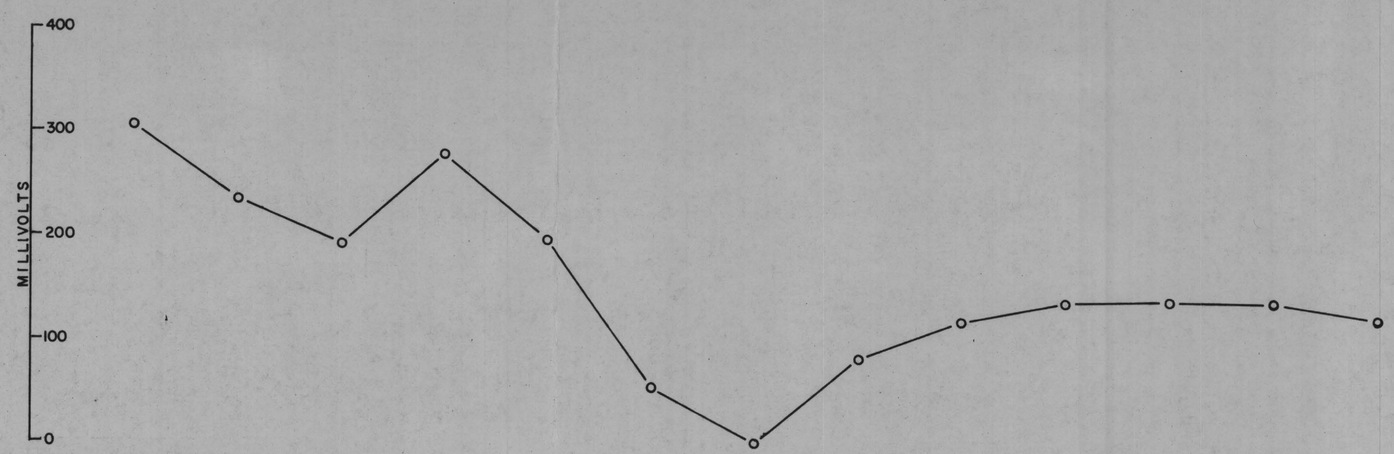
HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: FEB 1968

FOR

CORDERO MINING COMPANY

SELF POTENTIAL



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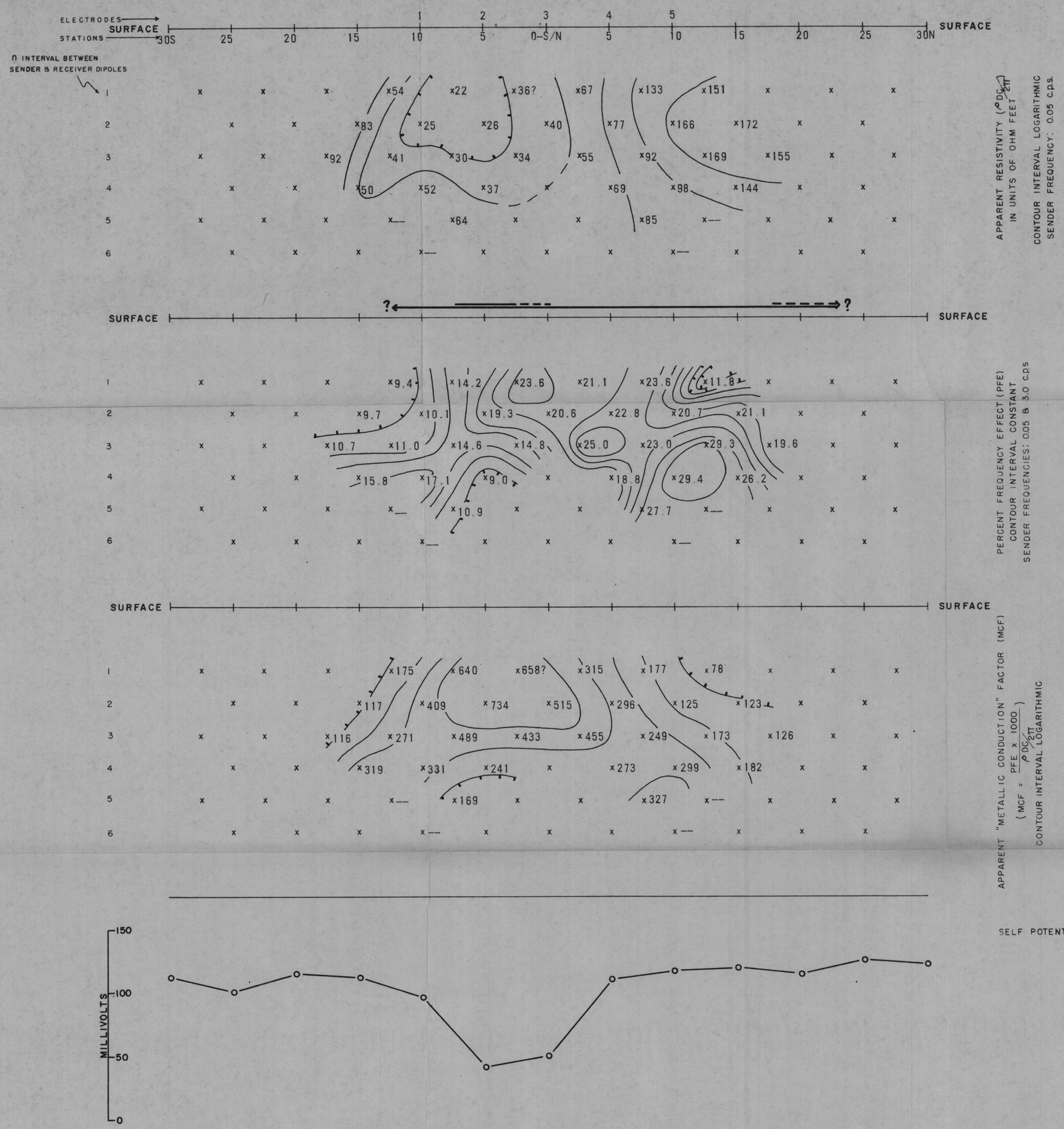

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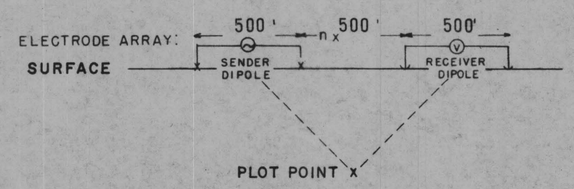

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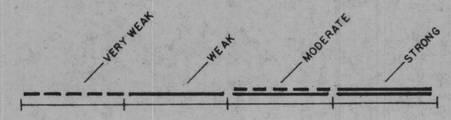

LOOKING WEST

FILE COPY

PAULINE MINE AREA

SECTIONAL DATA SHEET

LINE NO. 5

INDUCED POLARIZATION TRAVERSE

HEINRICHS GEOEXPLORATION COMPANY

SCALE: 1" = 500' DATE: FEB 1968

FOR

CORDERO MINING COMPANY

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