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August 27, 1964

Mr. Richard D. Hagen
Globe, Arizona

Dear Mr. Hagen:

Enclosed is a sectional data sheet showing the results of a resistivity and induced polarization survey run over Scott Mountain on August 17, 18, 1964. The data is contoured in vertical section and includes the apparent resistivity, induced polarization and metallic conduction factor parameters. Also enclosed is a copy of "Basis of the I. P. Method".

As nearly as we can locate the center point of the traverse it is approximately 1,900 ft. west and 1,800 ft. south of the northeast corner of Section 7, range 14 east, township 3 south, Pinal County, Arizona. The line runs due north and south from the center point.

A total of 9,000 ft. of induced polarization and resistivity was run yielding 4,875 feet of subsurface information. These data were obtained using the 3.0 and 0.05 cps dual frequency induced polarization method employing a dipole-dipole electrode configuration. The dipole spacing used was 750 ft. This allowed a depth penetration of approximately 1,000 ft.

The resistivity data does not reveal any apparent horizontal layering to the depth tested. There is a slight resistivity increase to the north and a large resistivity increase to the south.

The induced polarization effects, although somewhat high for background do not indicate any great concentrations of sulfide mineralization, probably less than 1%, nor do they indicate any appreciable increase with depth. The I. P.

COPY

results are slightly higher to the north, but again not a great deal.

The I. P. and resistivity results are borne out quite well by the M.C.F. which for the most part is quite low and uninteresting along the total length of the line, although there is a slight increase to the north indicating a slightly greater sulfide content.

While the results of this survey are not particularly encouraging, there is a small hint of sulfides in the area. It is possible that larger dipole spacings, giving a greater depth of penetration might be useful and add more information to the picture.

If you have any questions concerning the Scott Mountain area, please feel free to call on us.

Our statement is enclosed.

Very truly yours,

HEINRICHS GEOEXPLORATION CO.

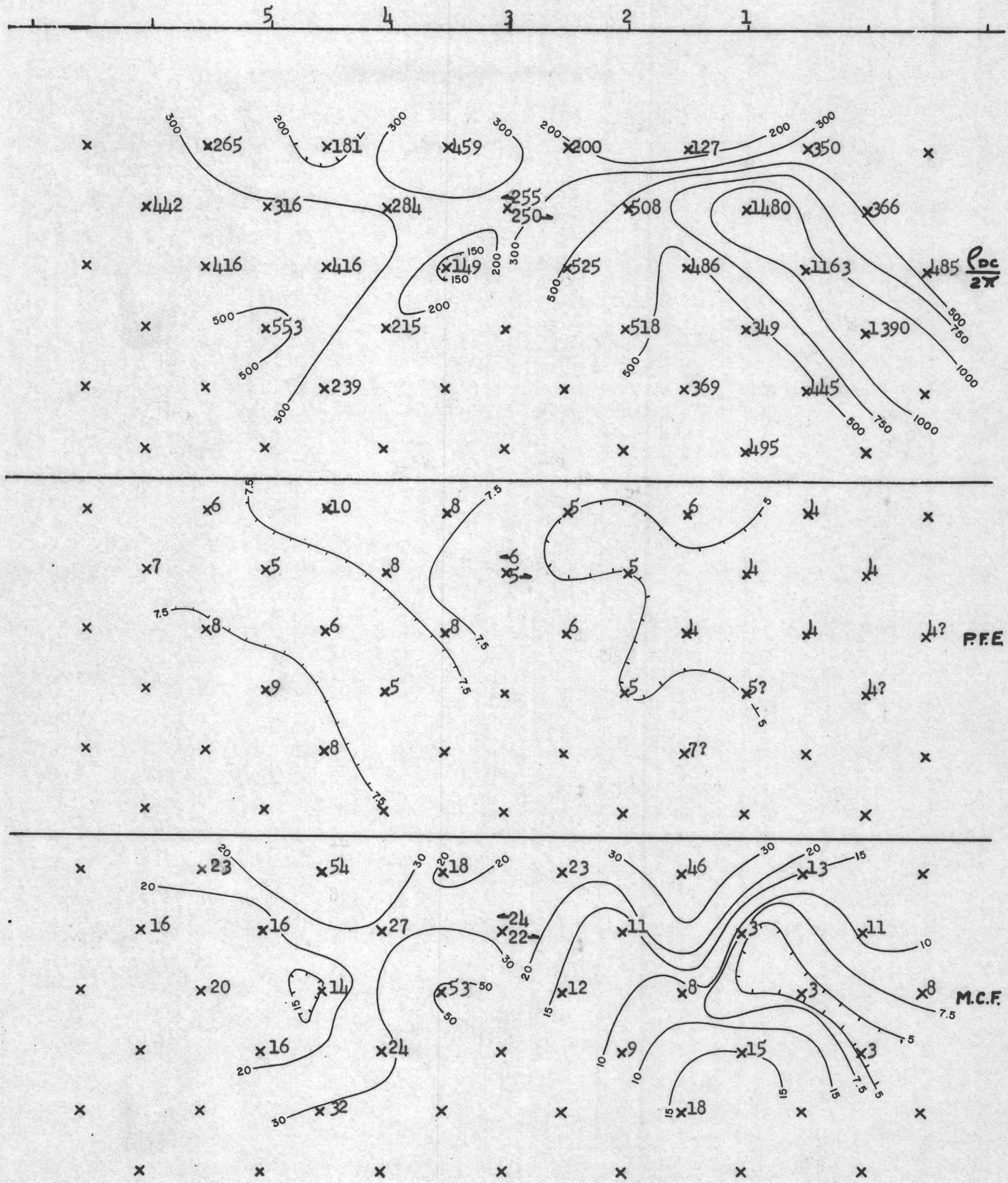
John P. Matthews, Jr.
Geophysicist

JPM:jh
Enclosures

Approved: _____
Walter E. Heinrichs, Jr.
President & General Manager

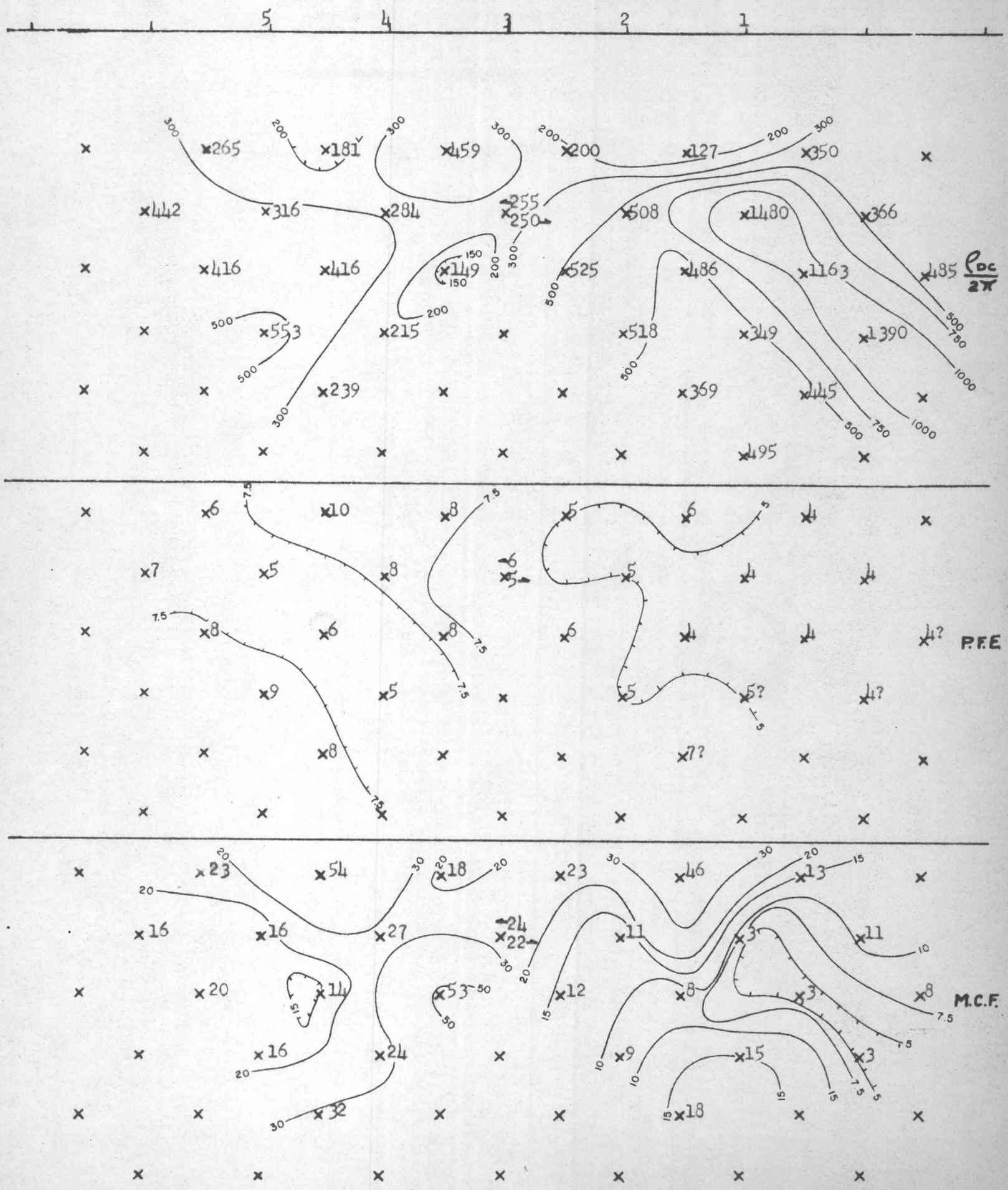
COPY

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING EAST



AREA SCOTT MOUNTAIN LINE 1 a = 750 ' SCALE: 1" = 750' DATE: 8-17-64

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING EAST



AREA SCOTT MOUNTAIN LINE 1 a = 750 ' SCALE: 1" = 750' DATE: 8-17-64

CREW EXPENSE STATEMENT
STATISTICAL REPORT

PROJECT: Scott mtn.
CLIENT: Hagen
AREA:

MONTH:
TYPE WORK:

DATE	CREW	HOURS MAN	HOURS CREW	VEHICLES	MILES	EXPENSES MOTEL	MEALS	OTHER	PHONE	REMARKS
Mon.								5/4	265	
Tues.										
Wed.										
Thurs.										
Fri.										
Sat.										
Sun.										

HEINRICHS GEOEXPLORATION COMPANY, P. O. BOX 5671, TUCSON, ARIZONA

PROJECT: Scott Mountain
CLIENT: Dick Hagen
AREA: Christmas Arizona

CREW EXPENSE STATEMENT
STATISTICAL REPORT

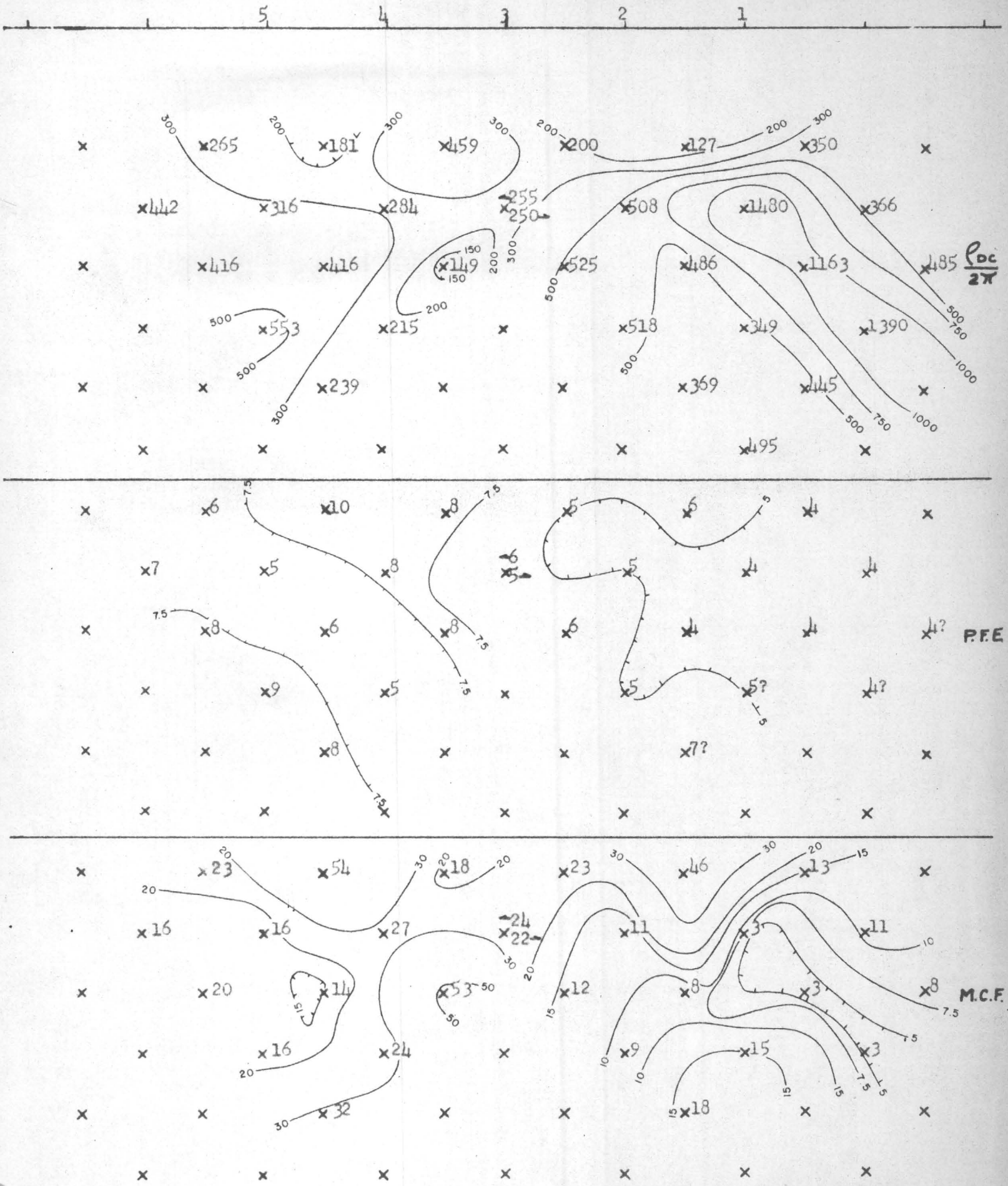
MONTH: August
TYPE WORK: I.P.

253-64-30

DATE	CREW	HOURS MAN	HOURS CREW	VEHICLES #6	MILES	EXPENSES MOTEL	MEALS	OTHER	PHONE	REMARKS
Sun.							200?			
Mon. 17	JPM DA DH	10 10 10	30		116					
Tues. 18	JPM DA DH	14 14 14	42		116					
Wed. 19	JPM	3	3*	CREDIT CARDS						*Computing
Thurs 8-26 8-27	JPM "	3 4				NONE	NONE			
Fri.										
Sat.										
TOTAL:			75	2	232					

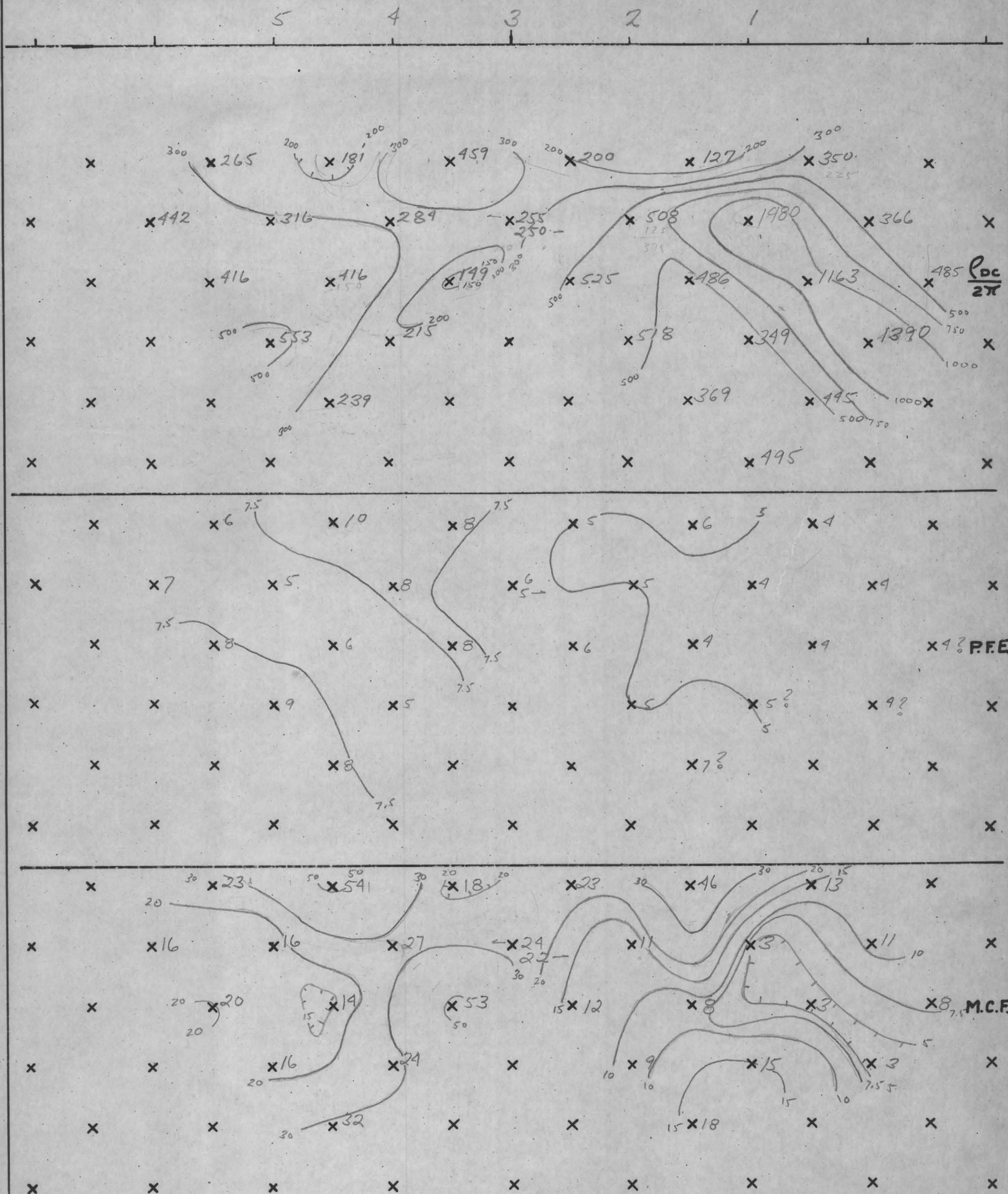
HEINRICHS GEOEXPLORATION COMPANY, P. O. BOX 5671, TUCSON, ARIZONA

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING EAST



A SCOTT MOUNTAIN LINE 1 a = 750 ' SCALE: 1" = 750' DATE: 8-17-64

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING E



AREA Scott Mtn LINE 1 a = 750 ' SCALE: 1" = 750' DATE: 8-17-64

750'

INDUCED POLARIZATION SENDER NOTES

Project: _____ Line: V Spr V N½ Date: 8-18-64

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	—	→	—	—	→	—	—	—	→	—	—	—
Time	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Range	2.0	—	—	—	—	—	—	—	—	—	—	—
Current	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Send	1-2	4-5	3-4	2-3	1-2							
Receive	→	—	—	—	→		Cal					
Time	2.11											
Range	2.0											
Current	2200											

↑.15 DC

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Scott Mtn Line: 1 N½ 750' Int.Cal _____ Date: 8-18-84

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.	7.5-15	→	15-22.5	→	→	22.5-30	→	→	→	30-37.5	→	→
Time												
DC-1	210 217	28 31.3	84 84	32 33.9	7.0 6.8	120 126	35.5 38.	20 22.7	48 52	50 52.5	19.0 19.6	13.0 12.7
DC-2	210 217	28 31.3	89 84	32 33.9	7.0 6.8	120 126	35.5 38.0	20.0 22.7	5.0 5.0	50.0 52.5	19.0 19.6	13.0 12.7
Σ	427	59.3				246						
DC-3	210 217	28 31.3	89 84	32 33.9	7.0 6.8	120 126	35.5 38.0	20 22.7	5.0 5.0	50. 52.5	19.0 19.6	13.0 12.7
Dc-4	427	28 31.3	84 84	32 33.9	7.0 6.8	120 126	35.5 38.0	20 22.7	5.0 5.0	500 52.5	19.0 19.6	13.0 12.7
Σ	427	59.3	168	65.9	13.8	246	73.5	42.7	10.0	102.5	38.6	25.7
DC-AV	427	59.3	168	65.9	13.8	24.6	73.5	42.7	10.0		38.6	25.7
AC-1	197	27.9	76.5	30.6	6.4	116	35.0	20.1	4.75	48.0	17.8	11.8
AC-2	197	28.0	76.5	30.6	6.4	116	35.0	20.2	4.75	48.0	17.8	11.8
Σ	394	55.9	153.0	61.2	12.8	232	70.0	40.3	9.50	96.0	35.6	23.6
S. P.	+10.4	→	+.6	→	→	+5.7	→	→	→	-6.9	→	→
AC-N	.15	→	.1	→	→	.1	→	→	→	.05	→	→
L.C	51.8	→	51.5	→	→	51.5	→	→	→	52	→	→

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Scott Mtn Line: 1 N½ 750' Int.Cal _____ Date: 8-18-64

Send	1-2	4-5	3-4	2-3	1-2		CAL					
Rec.	30-37.5	37.5-45	→		→		3-4					
Time												
DC-1	3.2 3.3						47.0 48.0					
DC-2	3.0 3.4						47.0 48.0					
Σ	6.5 6.4											
DC-3	3.0 3.3											
Dc-4	2.8 3.4											
Σ	6.3 6.2						95.0					
DC-AV												
AC-1	~~3.2~~ 2.95						47.5					
AC-2	2.95						47.5					
Σ	5.90						95					
S. P.	-6.4											
AC-N	.05											
	52											

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page V

Project Scott Mt Line V N½ 750 Field date 8-18-64 Data page _____ Comp. date 8-19-64 Comp by _____

(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	7.5-15	→	15-22.5		→	22.5-30			→	30-37.5		
(C) n separation	2.25	9.0	2.25	9.0	22.5	2.25	9.0	22.5	45.0	9.0	22.5	45.0
(D) I	2200											→
(E) Vdc (avg)	427	59.3	168	65.9	13.8	24.6	73.5	42.7	10.0	102.5	38.6	25.7
(F) DCcal	1.053											
(G) Kn x 10^{-3}												
(H) ρdc=ExFxGx10^3/D	459	255	181	284	149	265	316	416	215	442	416	553
(I) Vac Σ	394	55.9	153.0	61.2	12.8	23.2	70.0	40.3	9.50	96.0	35.6	23.6
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000											→
(M) ρ dc/ρac=ExL/K	1.082	1.061	1.098	1.077	1.079	1.060	1.050	1.057	1.052	1.070	1.089	1.089
(N) PFE=(M-1)(10^2)	8.2	6.1	9.8	7.7	7.9	6.0	5.0	5.7	5.2	7.0	8.9	8.9
(O) MCF=(M-1)(10^5)/H	18	24	54	27	53	23	16	19	24	16	20	16

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

(A) Send	1-2						3-4					
(B) Receive	→											
(C) n separation	78.75	45.0	78.75	126.0	180							
(D) I	2200											
(E) Vdc (avg)	6.35						95.0					
(F) DCcal	1.053											
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D	239											
(I) Vac Σ	5.9						95.0					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.000											
(M) ρdc/ρac =ExL/K	1.076											
(N) PFE=(M-1)(10^2)	7.6											
(O) MCF=(M-1)(10^5)/H	32											

22/2000

750'

INDUCED POLARIZATION SENDER NOTES

Project: _____ Line: N Spr N S½ Date: 8-18-64

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	—	→	—	—	→	—	—	—	.13 DC →	—	—	—
Time	2:11	11:52	2:11	2:11	12:19	2:11	2:11	2:11	2:11	2:11	2:11	2:11
Range	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200

Send	4-5	1-2	2-3	3-4	4-5							
Receive	→	—	—	—	→		CAL					
Time	2:11											
Range	D.C. .15											
Current	2200	2200	2200	2200								

↖.15 DC

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Scott Mtn Line: 1 S½ 750' Int.Cal _____ Date: 8-18-69

Send	3-4	4-5	5-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Rec.	7.5-15	→	15-22.5	→	→	22.5-30	→	→	→	30-37.5	→	→
Time												
DC-1	90 96	32 26	60 58	60 58	24 24.8	160 165	170 175	22 23.2	12.1 12.0	43 42	54.0 54.8	8.0 8.2
DC-2	90 96	32 26	60 58	60 58	24.0 24.7	160 165	170 175	22.0 22.2	12.1 12.0	43 42	54.0 54.8	8.0 8.2
Σ			118									
DC-3	90 96	32 26	60 58	60 58.0	24.0 24.7	160 165	170 175	22.0 23.2	12.1 12.0	43 42	54.0 54.8	8.0 8.2
Dc-4	90 96	32 26	60 58	60 58.	24.0 24.7	165 160	170 175	22.0 23.2	12.1 12.0	43.0 42.0	54.0 54.8	8.0 8.2
Σ	186	58	1180			325	345	45.2	24.1	85	108.8	16.2
DC-AV	186	58	118	118	48.725		345		24.1	85.0		
AC-1	89	27.5	557	56.0	23.2	156.0	166	21.8	11.5	40.8	52.0	7.72
AC-2	89	27.5	557	56.0	23.2	156.0	166	21.8	11.5	40.8	52.0	7.72
Σ	178	55.0	1114	112.0	46.4	312	332	43.6	23.0	81.6	104.0	15.4
S. P.	-3.8	→	-5.7	→	→	+9.7	→	→	→	+11.3	→	→
AC-N	.4	→	.4	→	→	.5	→	→	→	.6	→	→
	51.5	→	51.5	→	→	51	→	→	→	51	→	→

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Scott Mtn Line: 15½ 450' Int.Cal _____ Date: 8-18-69

Send	4-5	1-2	2-3	3-4	4-5		CAL					
Rec.	30-37.5	37.5-45	→	→	→		1-2					
Time												
DC-1	50 4.8	22 23.8	32 32.5	7.0 4.8	4.4 ? 3.6		47.0 48.0					
DC-2	4.9 4.9	22 23.7	32 32.5	7.0 4.8	3.7 ? 4.7		47.0 48.0					
Σ					8.4							
DC-3	4.9 4.9	22 23.7	32 32.5	7.0 4.8 ?								
Dc-4	4.8 5.0	22 23.7	32.0 32.5	7.0 4.8								
Σ	9.8	45.7										
DC-AV	9.8	45.7	64.5	11.8			95.0					
AC-1	4.6 ?	22.0	31.0	X	X		47.5					
AC-2	4.6 ?	22.0	31.0	X	X		47.5					
Σ	9.2	44.0 ?	62 ?				95.0					
S. P.	+11.3	+6.6	→	→	→	5						
AC-N	.6	1.0	→	→	→							
I.C	51.0	50.5										

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 2

Project Scott Mt. Line N 5½ 750' Field date 8-18-64 Data page _____ Comp. date 8-19-64 . Comp by _____

(A) Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
(B) Receive	7.5-15 →		15-22.5	→		22.5-30			→	30-37.5		
(C) n separation	2.25	9.0	2.25	9.0	22.5	2.25	9.0	22.5	45.0	9.0	22.5	45.0
(D) I	2200											→
(E) Vdc (avg)	186	58	118	118	48.725	325	345	45.2	24.1	85.0	108.8	16.2
(F) DCcal	1.053											
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D	200	250	127	508	525	350	1480	486	518	366	1163	349
(I) Vac Σ	178	55.0	111.4	112.0	46.4	31.2	332	43.6	23.0	81.6	104.0	15.4
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρ dc/ρac=ExL/K	1.045	1.059	1.059	1.054	1.062	1.041	1.039	1.037	1.048	1.041	1.039	1.052
(N) PFE=(M-1)(10^2)	4.5	5.4	5.9	5.4	6.2	4.1	3.9	3.7	4.8	4.1	3.9	5.2
(O) MCF=(M-1)(10^5)/H	23	22	46	11	12	13	3	8	9	11	3	15

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

(A) Send	4-5	1-2	2-3	3-4	4-5		1-2					
(B) Receive	→	37.5-45	→				CAL					
(C) n separation	78.75	22.5	45.0	78.75	126.0							
(D) I	2200	→										
(E) Vdc (avg)	9.8	45.7	64.5	11.8?	8.2?		95					
(F) DCcal	1.053											
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D	369	485	1390	445	495							
(I) Vac Σ	9.2	44.0?	62.0?				95					
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.066	1.038	1.010									
(N) PFE=(M-1)(10^2)	6.6	3.8	4.0									
(O) MCF=(M-1)(10^5)/H	18	8	3									