CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the Walter E. Heinrichs, Jr. Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT HANNA ROSEMONT

LINE 1 HALF SE SP. 1 DATE 12/27

SEND	1 2	2 3	1 2	3 4	2 3	1 2	4 5	3 4	2 3	1 2
RECEIVE	0-5SE	5-10SE	→	10-15SE	→	→	15-20SE	→	→	→
RANGE										
VOLTAGE	360	270	360	210	270	360	360	210	270	350
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	20-25SE	→	→	→	25-30SE	→	→	→	4 5	
RANGE										
VOLTAGE	360	210	270	350	360	210	270	350	240	
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	2A	

FREQUENCIES .25 3

SENDER NO. 14672 S

OPERATOR DON

RECEIVER NO. 10651 R

OPERATOR RON

COMMENTS:

SE 1/2 2-3 use new cal.

PAGE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT HANNA ROSEMONT

LINE 1 HALF NW SP. 1 DATE 12/27

SEND	4 5	3 4	4 5	2 3	3 4	4 5	1 2	2 3	3 4	4 5
RECEIVE	0-5NW	5-10NW	→	10-15NW	→	→	15-20NW	→	→	→
RANGE										
VOLTAGE	350	210	350	270	200	340	340	270	200	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	20-25NW	→	→	→	25-30NW	→	→	→	1 2	
RANGE										
VOLTAGE	340	270	200	340	340	270	200	340	230	
CURRENT	3A	3A	3A	3A	3A	3A	3A	3A	2A	

FREQUENCIES .05 3

SENDER NO. 14672 S

OPERATOR DON

RECEIVER NO. 10661 R

OPERATOR RON

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Hanna - Rosemont

LINE 1 HALF SE SP. 1 DATE 12-27

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 SE	5-10	→	10-15		→	15-20			→
RANGE	300	300	30	300	100	30	300	30	30	10
DC 1	74.5	81.5	20.9	101.0	21.4	8.85	92.0	21.0	7.26	3.46
DC 2	72.0	86.0	20.15	106.0	23.6	8.50	93.0	21.0	7.22	3.24
DC 3	74.5	81.5	21.1	101.0	21.4	8.85	92.0	21.0	7.26	3.50
DC 4	72.0	86.0	19.95	106.0	23.6	8.50	93.0	21.0	7.22	3.26
DC 5			21.4							3.54
DC 6			19.65							3.26
DC 7										3.56
DC 8										3.24
DC AVG.	146.5	167.5	41.15	207.0	45.0	17.35	185	42.0	14.48	6.77
AC 1	72.0	84.0	20.45	103.5	22.2	8.65	90.0	20.5	7.03	3.34
AC 2	72.0	84.0	20.45	103.5	22.2	8.65	90.0	20.5	7.03	3.34
AC AVG.	144	168	40.9	207.0	44.4	17.3	180.0	41.0	14.06	6.68
S.P.	-12.4	+11.0		-2.8			-5.0			
AC NOISE	.04		.04	.04			.05			
POT RES.							X Power line		in 50'	

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PAGE

PROJECT Hanna - Rosemont
LINE 1 HALF NW SP. 1 DATE 12-27

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5	cal	
RECEIVE	20-25	→	→	→	25-30	→	→	→	1-2	
RANGE	30	10	10	3	30	30	10	10	300	
DC 1	12.8	5.58	3.26	2.37	13.4	7.20	5.06	3.57	207.5	
DC 2	11.6	5.58	3.98	2.10	12.0	7.30	5.36	3.60	207.5	
DC 3	12.8	5.64	3.26	2.45	13.4	7.20	5.00	3.48	207.5	
DC 4	11.6	5.57	4.00	2.08	12.0	7.30	5.42	3.74	207.5	
DC 5		5.66	3.22	2.46			4.88	3.34		
DC 6		5.46	4.04	2.13			5.62	3.80		
DC 7		5.76	3.20	2.42			4.78	3.26		
DC 8		5.40	4.04	2.16			5.78	3.96		
DC AVG.	24.4	11.19	7.24	4.54	25.4	14.5	10.42	7.14	415	
AC 1	12.05	5.50	3.56	2.20	12.55	7.10	5.04	3.46	209	
AC 2	12.05	5.50	3.56	2.20	12.55	7.10	5.04	3.46	209	
AC AVG.	24.1	11.0	7.12	4.40	25.1	14.2	10.08	6.92	418	
S.P.	-11.1				+5.1					
AC NOISE	.04				.04					
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Hanna - Rosemont
LINE 1 HALF NW SP. 1 DATE 12-27

PAGE

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	300	300	30	100	100	30	100	30	10	10
DC 1	85.5	77.0	21.6	69.8	22.4	10.45	38.2	12.6	6.43	2.84
DC 2	86.0	75.0	20.4	64.4	21.7	9.05	39.7	11.8	5.99	3.84
DC 3	85.5	77.0	21.6	69.8	22.4	10.45	38.2	12.6	6.50	2.82
DC 4	86.0	75.0	20.4	64.4	21.7	9.05	39.7	11.8	5.98	3.86
DC 5									6.57	2.74
DC 6									5.85	3.94
DC 7									6.57	2.65
DC 8									5.82	4.00
DC AVG.	171.5	152	42.0	134.2	44.1	19.5	77.9	24.4	12.45	6.65
AC 1	85.0	75.5	20.9	66.4	22.0	9.55	38.3	11.55	6.05	3.20
AC 2	85.0	75.5	20.9	66.4	22.0	9.55	38.3	11.55	6.05	3.20
AC AVG.	170	151	41.8	132.8	44.0	19.1	76.6	23.1	12.1	6.40
S.P.	-8.9	+21.4		-11.2			+5.6			
AC NOISE	.04	.05		.04			.04			
POT RES.										

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PAGE

PROJECT Hanna - Rosemont

LINE 1 HALF SE SP. 1 DATE 12-27

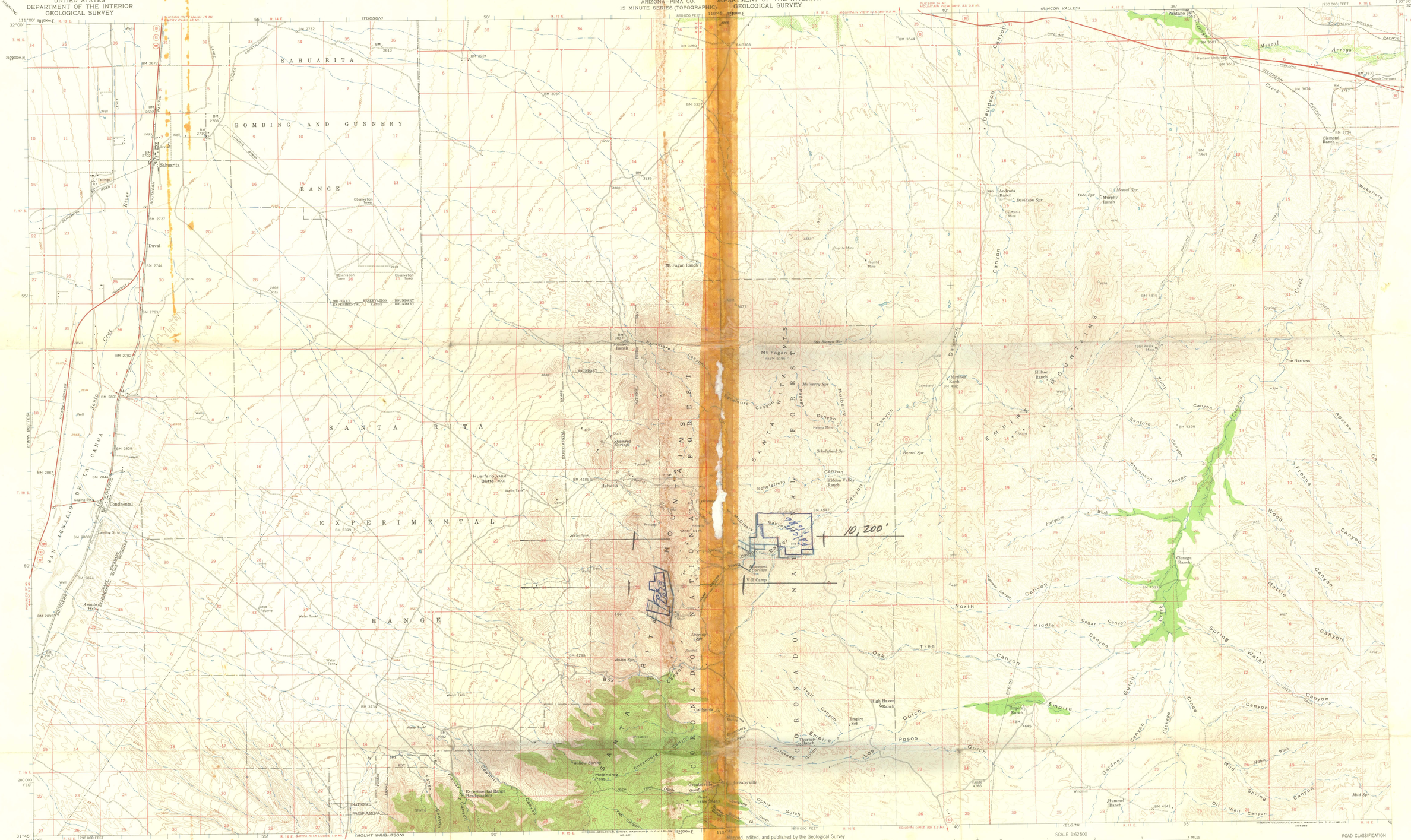
SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	Cal	
RECEIVE	20-25	→	→	→	25-30	→	→	→	4-5	
RANGE	100	30	10	10	30	10	10	3	300	
DC 1	26.5	9.65	4.00	2.58	11.45	5.02	2.46	1.71	209.5	
DC 2	26.6	9.45	4.63	2.26	11.80	5.42	2.82	1.73	209.0	
DC 3	26.5	9.65	3.96	2.60	11.45	5.03	2.42	1.62	209.5	
DC 4	26.6	9.45	4.64	2.26	11.70	5.47	2.84	1.75	209.0	
DC 5			3.96	2.62	11.45	4.90	2.36	1.58		
DC 6			4.66	2.22	11.60	5.55	2.84	1.85		
DC 7			4.00	2.60	11.50	4.76	2.28	1.60		
DC 8			4.64	2.22	11.65	5.70	2.88	1.85		
DC AVG.	53.1	19.1	8.62	4.85	23.16	10.43	5.21	3.40	418.5	
AC 1	26.3	9.50	4.26	2.39	11.4	5.17	2.58	1.605	210	
AC 2	26.3	9.50	4.26	2.39	11.4	5.17	2.58	1.605	210	
AC AVG.	52.6	19.0	8.52	4.78	22.8	10.34	5.16	3.21	420	
S.P.	-1.5				+4.8					
AC NOISE	.04				.05					
POT RES.										

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

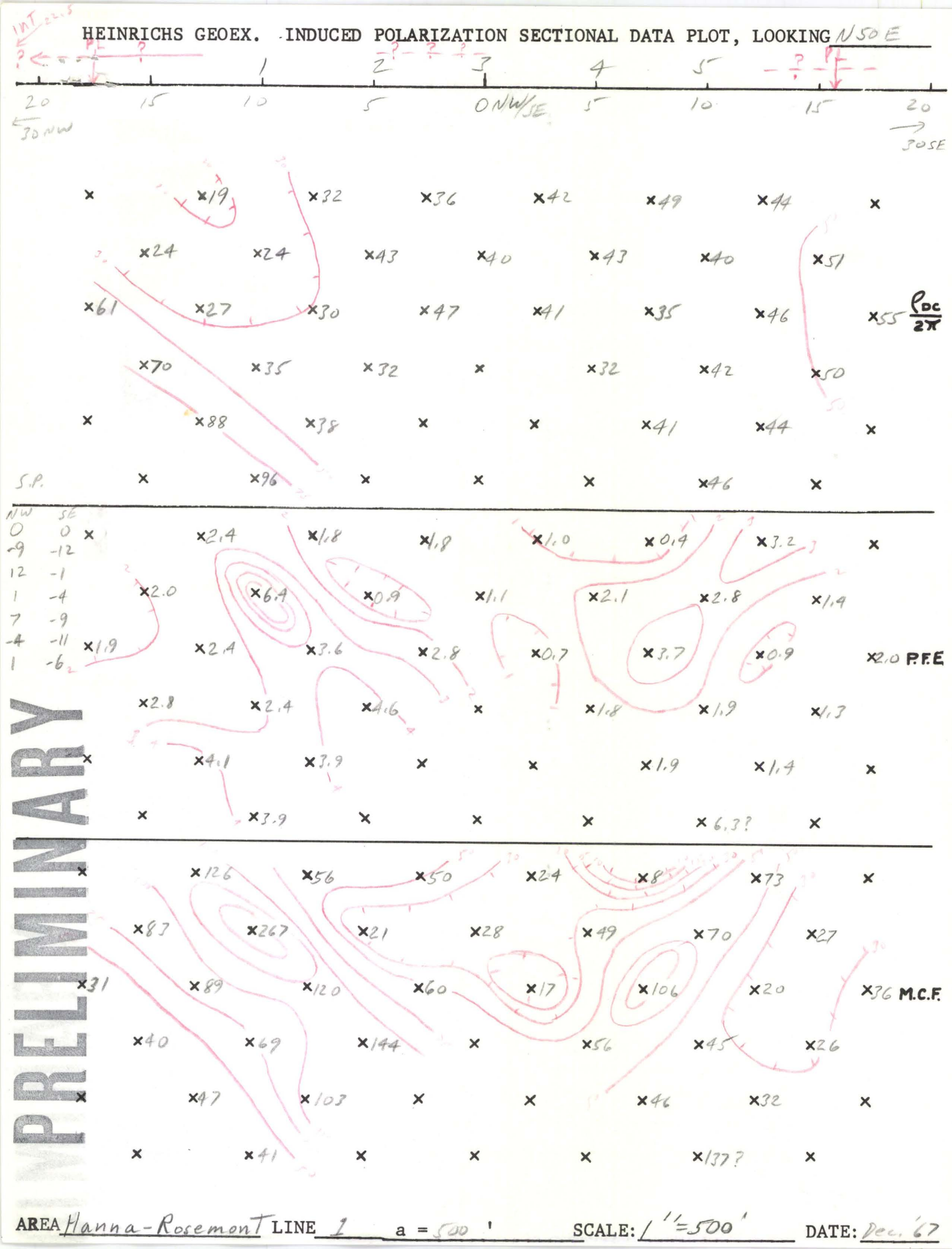
SAHUARITA QUADRANGLE
ARIZONA–PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

EMPIRE MOUNTAINS QUADRANGLE
ARIZONA–PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)



HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N50E



AREA Hanna-Rosemont LINE 1 a = 500' SCALE: 1" = 500' DATE: Dec. '67

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N50°E

PRELIMINARY

AREA Hanna-Rosemont LINE 2 a = 500' SCALE: 1" = 500' DATE: 12-28

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Hanna-Rosemont Line 2 SE½ SP1 Field date 12-28-67 Data page_____ Comp. date 12-28-67. Comp by RA

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-5	5-10 →		10-15	→		15-20	→				
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2A	→										
(E) Vdc (avg)	84.8	106.6	26.2	148.4	29.8	12.21	113.6	21.6	7.90	4.30		
(F) DCcal	.478											
(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	30	38	38	53	43	44	41	31	28	31		
(I) Vac Σ	84.4	104.8	26.0	144.6	29.4	12.02	112.4	21.3	7.88	4.26		
(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)	0.7	1.9	1.0	2.8	1.6	1.8	1.3	1.6	0.5	1.1		
(O) MCF=(M-1)(10^5)/H	23	50	26	53	37	41	32	52	18	35		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	20-25	→			25-30	→				4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2A	→								2A		
(E) Vdc (avg)	31.3	9.67	4.53	2.75	21.7	8.36	4.49	2.92		418		
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	45	35	32	35	78	60	56	59				
(I) Vac Σ	31.0	9.60	4.36	2.70	21.1	8.32	4.48	2.84		419		
(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)	1.2	0.9	4.1	-2.1	3.0	0.7	0.4	3.0				
(O) MCF=(M-1)(10^5)/H	27	26	128	-60	38	12	7	51				

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT Hanna-Rosemont

LINE 2 HALF SE SP. 1 DATE 12-28

PAGE

SEND	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2	cal	
RECEIVE	20-25	→	→	→	25-30	→	→	→	4-5	
RANGE	30	10	10	3	30	10	3	3	300	
DC 1	16.1	4.98	2.38	~~1.16~~ 1.00	10.9	3.96	2.37	1.44	209	
DC 2	15.2	4.76	2.24	1.41 1.59	10.8	4.24	2.05	1.51	209	
DC 3	16.1	4.86	2.45	1.11 1.21	10.9	4.12	2.49	1.49	209	
DC 4	15.2	4.86	2.14	1.49 1.54	10.8	4.36	2.00	1.37	209	
DC 5		4.86	2.38	1.00 1.21		4.02	2.51	1.52		
DC 6		4.82	2.02	1.53 1.53		4.34	2.06	1.43		
DC 7		4.80	2.44	1.06 1.21		4.02	2.40	1.40		
DC 8		4.82	1.97	1.49 1.52		4.34	2.06	1.53		
DC AVG.	31.3	9.67	4.53	2.95	21.7	8.36	4.49	2.92	418	
AC 1	15.5	4.80	2.18	1.35	10.55	4.16	2.24	1.42	209.5	
AC 2	15.5	4.80	2.18	1.35	10.55	4.16	2.24	1.42	209.5	
AC AVG.	31.0	9.60	4.36	2.70	21.1	8.32	4.48	2.84	419	
S.P.	+0.3					-4.0				
AC NOISE	.04					.05				
POT RES.										

FENCE NOT GR.

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PAGE

PROJECT HANNA ROSEMONT

LINE 2 HALF SE SP. 1 DATE 12/28

SEND	1 2	2 3	1 2	3 4	2 3	1 2	4 5	3 4	2 3	1 2
RECEIVE	0-5 SE	5-10 SE	→	10-15 SE	→	→	15-20 SE	→	→	→
RANGE										
VOLTAGE	180	260	180	280	260	180	330	280	260	180
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
SEND	4 5	3 4	2 3	1 2	4 5	3 4	2 3	1 2	CAL	
RECEIVE	20-25 SE	→	→	→	25-30 SE	→	→	→	4 5	
RANGE										
VOLTAGE	320	280	260	180	320	280	250	180	330	
CURRENT	2A	2A	2A	2A	2A	2A	2A	2A	2A	

FREQUENCIES .05 3

SENDER NO. 14672 S

OPERATOR DON

RECEIVER NO. 10661 R

OPERATOR RON

COMMENTS:

PAGE

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Hanna-Rosemont
LINE 2 HALF SE SP. 1 DATE 12-28

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-5	5-10 →	→	10-15	→	→	15-20	→	→	→
RANGE	100	100	30	100	30	10	100	30	10	3
DC 1	42.3	53.6	12.4	73.4	16.2	6.02	57.6	10.0	3.80	2.15
DC 2	42.6	53.0	13.8	75.0	13.6	6.20	56.0	11.6	4.02	2.14
DC 3	42.2	53.6	12.4	73.4	16.2	5.97	57.6	10.0	3.85	2.14
DC 4	42.6	53.0	13.8	75.0	13.6	6.20	56.0	11.6	4.00	2.15
DC 5						6.02			3.94	2.20
DC 6						6.18			4.00	2.10
DC 7						6.14			3.94	2.25
DC 8						6.06			3.98	2.00
DC AVG.	84.8	106.6	26.2	148.4	29.8	12.21	113.6	21.6	7.90	4.30
AC 1	42.2	52.4	13.0	72.3	14.7	6.01	56.2	10.65	3.94	2.13
AC 2	42.2	52.4	13.0	72.3	14.7	6.01	56.2	10.65	3.94	2.13
AC AVG.	84.4	104.8	26.0	144.6	29.4	12.02	112.4	21.3	7.88	4.26
S.P.	-4.3	+1.0		+4.5			+4.3			
AC NOISE	.05	.04		.04			.05			
POT RES.										

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Hanna-Rosemont Line 1 NW½ SP1 Field date 12-27-67 Data page_____ Comp. date 12-28-67. Comp by RP

(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	3A	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	171.5	152	42.0	134.2	44.1	19.5	77.9	24.4	12.45	6.65		
(F) DCcal	.482											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	41	37	40	32	43	47	19	24	30	32		
(I) Vac Σ	170	151	41.8	132.8	44.0	19.1	76.6	23.1	12.1	6.40		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.007											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	1.6	1.4	1.2	1.8	0.9	2.8	2.4	6.4	3.6	4.6		
(O) MCF=(M-1)(10^5)/H	39	38	30	56	21	60	126	267	120	144		

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	3A	→	→	→	→	→	→	→		2A		
(E) Vdc (avg)	24.4	11.19	7.24	4.54	25.4	14.5	10.42	7.14		415		
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	184				
(H) ρ dc=ExFxGx10^3/D	24	27	35	38	61	70	88	96				
(I) Vac Σ	24.1	11.0	7.12	4.40	25.1	14.2	10.08	6.92		418		
(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)	2.0	2.4	2.4	3.9	1.9	2.8	4.1	3.9				
(O) MCF=(M-1)(10^5)/H	83	89	69	103	31	40	47	41				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Hanna-Rosemont Line 1 SE½SP1 Field date 12-27-67 Data page_____ Comp. date 12-28-67. Comp by RP

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-5	5-10 →		10-15 →			15-20 →					
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	3A →											
(E) Vdc (avg)	146.5	167.5	41.15	207.0	45.0	17.35	185	420	14.48	6.77		
(F) DCcal	.478											
(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	35 36	43 42	39 40	49	43	41	44	40	35	32		
(I) Vac Σ	144	168	40.9	207.0	44.4	17.3	180.0	41.0	14.06	6.68		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.004											
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)	2.1 1.8	0.4 1.0	1.0 1.1	0.4	2.1	0.7	3.2	2.8	3.7	1.8		
(O) MCF=(M-1)(10^5)/H	60 50	9 24	26 28	8	49	17	73	70	106	56		

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
(B) Receive	20-25 →				25-30 →					4-5		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3A →									2A		
(E) Vdc (avg)	53.1	19.1	8.62	4.85	23.16	10.43	5.21	3.40		418.5		
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84				
(H) ρ dc=ExFxGx10^3/D	51	46	42	41	55	50	44	46				
(I) Vac Σ	52.6	19.0	8.52	4.78	22.8	10.34	5.16	3.21		420		
(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)	1.4	0.9	1.9	1.9	2.0	1.3	1.4	6.3				
(O) MCF=(M-1)(10^5)/H	27	20	45	46	36	26	32	137				

The Hanna Mining Company

100 ERIEVIEW PLAZA, CLEVELAND, OHIO 44114

December 21, 1967

DEC 1967 GEOEX

Mr. E. Grover Heinrichs, Vice President
Heinrichs Geoexploration Company
P. O. Box 5671
Tucson, Arizona 85703

Dear Mr. Heinrichs:

Proposed I.P. Survey, Rosemont Mining District, Arizona

Enclosed you will please find both copies of the proposed contract covering a short I.P. program at Rosemont, Arizona. I have signed for Hanna. Will you please add your signature to the original and return it to me.

Yours very truly,

E. L. Ohle

E. L. Ohle
Assistant Chief Geologist

Encl.

cc: Mr. J. J. Eidel

HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA, 85703. P.O. BOX 5671. PHONE: (AREA CODE 602) 623-0578

December 15, 1967

Mr. James Eidel
Hanna Mining Company
P. O. Box 12647
Tucson, Arizona 85711

Re: Proposed I.P. Survey, Rosemont Mining District, Arizona

Dear Jim:

Confirming our phone conversation with you on December 14, 1967, we herewith propose for our mutual understanding and agreement as follows:

Geoex will furnish a 3 man I.P. crew using our medium size equipment at locations designated by Hanna Mining Company.

Charges will be at the rate of $250.00 per day and we estimate the total cost will be approximately $700.00 for two 500 foot dipole-dipole set ups which will obtain detail information at subsurface over 3500 feet per single spread and some general subsurface information over 5000 feet per single spread. Vehicle charges will be $12.00 per day, plus 12¢ per mile per vehicle and one vehicle will be used. Directly related supplies, communications, living and other directly incidental charges at our cost. Final compilation interpretation and report is $125.00 per Tucson staff day.

Mobilization and demobilization, travel, excessive weather delay and standby charges are one-half the daily rate. Breakdown of our equipment in excess of one hour per day will be made up or not charged.

MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS. GEOPHYSICAL, GEOLOGICAL AND ECONOMIC APPRAISALS.

Others of our technical staff are involved as needed and/or are supplied as requested and mutually agreed upon.

All property permits, brushing and trespassing-liability and related costs incurred on behalf of client assumed by client. Charges for extra equipment and personnel employed if mutually desired, are extra.

Geoex will save client harmless from all Workmen's Compensation, public liability and property damage liability incurred by Geoex employees.

Preliminary reports or copies of rough field plotting sheets will be available as work progresses.

Payments due on presentation. Billings may be submitted periodically with final statement after completion of final report.

In order to mobilize and schedule a crew we will require an advance of $700.00. Crew availability will be around Wednesday December 20, 1967 although the excessive recent bad weather has delayed other projects and this could delay starting your project.

Indication of your understanding and approval of the above by executing as provided below on the attached copy of this letter and returning it to us, will be most appreciated.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

ACCEPTED BY: E. L. Ohle

TITLE: Asst. Chief Geologist

DATE: 12-21-67

EGH:jc
Enclosure: 1 cc

The Hanna Mining Company

POST OFFICE BOX 12647, TUCSON, ARIZONA 85711

19 December 1967

Mr. Grover Heinrichs
Heinrichs Geoexploration Company
P. O. Box 5671
Tucson, Arizona 85703

Dear Grover:

Please find attached check in the amount of $700.00 as a pre-payment for two days I.P. work, including a preliminary report.

This will cover a minimum of two dipole-dipole lines at a = 500' and hopefully another one-half line. One of our men will be available in the field.

Yours sincerely,

THE HANNA MINING COMPANY

J. James Eidel by: Don P. Broderick

J. James Eidel

JJE:ik

GEOEX DEC 1967