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Job 681, Line 1, Spread 1, W+E ½, 1/20/72 1000.

Dame Plume Pond

56 DP

~300' S of fence

I.P. RECEIVER NOTES

PAGE 1

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON NW 681

LINE 1 BEARING E-W HALF W SP. 1 DATE 1-20-72

SEND	CAL	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7
RECEIVE	3-4	1-2	→	→	→	2-3	→	→	3-4	→
MULT.	10	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	1.0
PFE		0.3	0.5	0.7	0.7	0.6	0.7	0.7	0.4	0.4
3	204									
1	0.0									
lin 0.3	-0.1	4	→	→	→	→	→	→	→	→
# 0.1	0.0	1	2	3	4	5	6	7	8	9
n		1	2	3	4	1	2	3	1	2
	—									
PFE Avg.										
AC		70.7	23.6	12.8	7.35	92.4	32.4	14.4	127.	38.2
DRIFT		—	—	—	—	—	—	—	—	—
S.P.										
AC NOISE										
POT RES.										

G.F. ⊥ @ 31.5 W

I.P. RECEIVER NOTES

S.P. switch is off During AC readings

PAGE 2

HEINRICHS GEOEXPLORATION CO.

PROJECT DRAGOON DW 681

LINE 1 BEARING E-W HALF W SP. 1 DATE 1-20-72

SEND	6-7	S.P.	S.P.	S.P.	2-3	3-4	4-5	5-6	6-7	1-2
RECEIVE	4-5	0-10W	10-20W	20-30W	30-40W	→	→	→	→	40-50W
MULT.	10				1.0	1.0	1.0	0.1	0.1	1.0
PFE	0.2				0.3	0.6	0.6	0.9	1.0	0.6
										~~10-40~~
							~~3 Hz~~	9.16	6.03	
							~~1 Hz~~	0.5	0.7	
							~~0.3 Hz~~	1.0	1.1	
							~~0.1 Hz~~	1.2	1.7	
Cur	4				4	→	→	→	→	→
#	10				11	12	13	14	15	16
n	1				1	2	3	4	5	1
PFE Avg.										
AC	136.				71.8	25.3	14.0	9.22	6.07	75.9
DRIFT	—				—	—	—	—	—	—
S.P.		-12.7	+7.0	-23.7	+13.7				-7.0	-7.0
AC NOISE										
POT RES.		4K	5K	4K	5K					5K

66.3 mv wat 19692

→ 1.4
← 0.8

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON NW 681

LINE 1 BEARING E-W HALF W SP. 1 DATE 1-20-72

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50	W	→	→	→	50-60	W	→	→	→
MULT.	1.0	1.0	0.1	0.1	0.1	1.0	1.0	1.0	0.1	0.1
PFE	0.5	0.8	1.1	1.1	1.4	0.7	0.7	1.0	1.3	1.3
				~~-0.2 1.4~~						
					~~-2.0 4.0~~					~~4.20~~
line	4	→	→	→	→	4	4	4.5	4	4
#	17	18	19	20	21	22	23	24	25	26
n	2	3	4	5	6	2	3	4	5	6
PFE Avg.										
AC	27.6	13.8	9.27	6.69	4.74	34.1	16.8	11.0	7.24	5.53
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.						+17.7				
AC NOISE										
POT RES.						4k				
	→ 3.2 ← 0.4	→ 2.0 ← -0.2	0	0.0 → 1.2 ← 0.0				→ 2.2 ← 0.0	→ 2.0 ← 0.0	→ 1.2 ← 0.0

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W 681

LINE 1 BEARING E-W HALF W SP. 1 DATE 1-20-72

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	20697		CAL
RECEIVE	60-70				70-80	W →		CAL		19692
MULT.	1.0	0.1	0.1	0.1	1.0	0.1	0.1			
PFE	0.8	0.9	1.0	1.1	0.8	0.6	1.0	204.	3 Hz	204.
								0.0	1 Hz	0.1
								-0.1	0.3 Hz	0.0
								0.0	0.1 Hz	0.5
Cur	4	4	4.5	4	4	4	4.5	—	Drift	0.0
#	27	28	29	30	31	32	33			
n	3	4	5	6	4	5	6			
PFE Avg.										
AC	16.5	9.33	6.70	4.72	11.2	6.86	5.26			
DRIFT	—	—	—	—	—	—	—			
S.P.	+14.5				+36.7					
AC NOISE										
POT RES.	8 K				2 K					
	→ 1.0 ← 0.8		→ 2.0 ← 0.8		→ 8.0 ← 0.2					

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 1 BEARING E HALF E SP. 1 DATE 1-20

SEND	S-P	S-P	S-P	5-6	4-5	3-4	2-3	1-2		CAL
RECEIVE	0-10E	10-20E	20-30E	30-40E	→	→	→	→		3-4
MULT.				10.	1.0	1.0	0.1	0.1		10
PFE										
				0.4	0.4	0.6	0.8	0.9		0.0
Ave				4	→	→	→	→		2
#				34	35	36	37	38		1
n				1	2	3	4	5		
PFE Avg.										
AC				137.	43.4	16.3	7.27	4.04		204.
DRIFT				0.0	—	—	—	—		—
S.P.	+18.5	+16.7	+17.9	+20.1						
AC NOISE										1.0
POT RES.	3K									0.1

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT 681

LINE 1 BEARING E HALF E SP. 1 DATE

SEND	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE	40-50 E →						50-60			
MULT.	1.0	1.0	1.0	0.1	0.1	0.1	1.0	1.0	0.1	0.1
PFE										
	0.3	0.5	0.6	0.8	1.0	1.0	0.6	0.7	0.8	0.9
Cur	4.5	4.5	4	5	4.5	4.5	4.5	4.5	4	5
#	39	40	41	42	43	44	45	46	47	48
n	1	2	3	4	5	6	2	3	4	5
PFE Avg.										
AC	152.	45.8	17.0	9.14	4.15	2.53	39.4	17.1	7.43	4.53
DRIFT	0.0	-0.2	0.0	0.0	—	—	0.0	0.0	0.0	—
S.P.	-1.0						+14.4			
AC NOISE	Grounded Fence ≈ 49.0									
POT RES.	× 4	× 5	× 6							

on Sec line

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT 681-71

LINE 1 BEARING E HALF 5 SP. 1 DATE 1-20

SEND	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5		
RECEIVE	50-60	60-70	→	→	→	70-80	→	→		
MULT.	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1		
PFE										
	1.2	0.8	1.0	1.2	1.2	1.0	1.0	1.2		
	0.4↔1.8			0.4↔1.8	→		0.6↔1.6	0.4→2.8		
lm	4.5	4.5	4.5	4	5	4.5	4.5	4.5		
#	49	50	51	52	53	54	55	56		
n	6	3	4	5	6	4	5	6		
PFE Avg.										
AC	2.21	13.6	7.16	3.47	2.31	6.30	3.66	2.27		
DRIFT	—?	0.0	—	—	—	0.0	—	—		
S.P.		+13.1				+36.2				
AC NOISE										
POT RES.										

EAST HALF

INDUCED POLARIZATION SENDER NOTES

project: DRAGOON NW 681 Line: 1 W Date: 1-20-72

Send	CAL	3-21	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7	
Receive	3-4	1-2				2-3	→		3-4	→	4-5	
Time (C.C.)	300 X10	400 X10	400 X10	400 X10	400 X10	400 X10	400 X100	400 X10	400 X10	400 X10	400 X10	
Range (VOLT)	250	440	505	640	460	505	640	450	640 ~~450~~	450	450	
Current	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Send	6-5	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2	
Receive	30-40 E	→				40-50 E	→					
Time	10 X 400	10 X 400	10 X 400	10 X 400	10 X 400	20 X 225	20 X 250	20 X 200	20 X [illegible]	20 X 225	20 X 225	
Range	630	500	430	470	470	490	690	495	250 500	510	510	ONLY 80% USEABLE
Current	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	5.0	4.5	4.5	
	13:52				14:03	14:09	↑ INPUT = 100 VOLTS				14:11	

INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: 1 W Date: 1-21-72

Send	CAL	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7
Receive	1-2	30-40 W	→	→	→	→	40-50 W	→	→	→	→	→
Time	200 X10	400 X10	400 X10	400 X10	400 X10	400 X10	400 X10	400 X10	→	→	→	→
Range	260	450	430	510	640	460	470	470	430	510	640	460
Current	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Send	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	50-60 W	→	→	→	→	60-70	→	→	→	70-80	→	→
Time	400 X10	400 X10	225 X20	200 X20	400 X10	400 X10	→	250 X20	400 X10	200 X20	200 X20	250 X20
Range	470	470	465	510	640	470	470	465	510	470	470	465
Current	4.0	4.0	4.5	4.0	4.0	4.0	4.0	4.5	4.0	4.0	4.0	4.5

INDUCED POLARIZATION SENDER NOTES

project: DRAGOON 681 Line: 1 - EAST HALF Date: 1-20-72

Send	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
Receive	50-60	E →			14:37	60-70	E →			70-80	E →	
Time	20 x 225	20 x 225	20 x 200	20 x 250	20 x 225	20 x 225	20 x 225	20 x 200	20 x 250	20 x 225	20 x 225	20 x 225
Range	480	690	490	500	510	490	680	490	490	480	680	540
Current	4.5	4.5	4.0	5.0	4.5	4.5	4.5	4.0	5.0	4.5	4.5	4.5
Send												15:06
Receive												
Time												
Range												
Current												

19692 I.P. RECEIVER NOTES G.F. @ 31.5W

PAGE

HEINRICHS GEOEXPLORATION CO. PROJECT Spooky PFE Differences

LINE ____ BEARING ____ HALF ____ SP. ____ DATE ____

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	30-40	—	→	→	→	40-50	—	→	→	→
MULT.	1.0	1.0	1.0	0.1		1.0	1.0	1.0	0.1	0.1
PFE	8.3	8.7	8.2	8.4		0.8	0.9	1.2	1.3	1.1
			3H2	9.04	5.95					
			1H2	-5.8	-7.3					
			0.3	1.0	1.0					
			0.1	2.2	2.3					
PFE Avg.										
AC	66.8	23.3	13.1	8.51		75.6	27.5	13.8	9.14	6.60
DRIFT		—	—			—	—	—	—	—
S.P.	+13.7									
AC NOISE										
POT RES.	5K									

I.P. RECEIVER NOTES

PAGE

HEINRICHS GEOEXPLORATION CO.

PROJECT Test Receiver

LINE 1 BEARING ____ HALF ____ SP. ____ DATE 1-21-72

SEND 6-7	20693	19692		19692 →	6-7					
RECEIVE	1-2	1-2		1-2	1-2					
MULT.				C 1 amp	4 amp					
PFE	DRIFT	DRIFT		by itself	by itself					
	-3 to +5	-1.2 to +4								
	~ 1.7	1.7		0.8	0.8					
				on 120						
		~~+0.3~~		sec Damping	Drift					
	I = 1 amp			Drift is	0.4-1.6					
				from 0.4						
				to 3.0 but						
PFE Avg.				stabilizing						
AC	1.85	1.84		at ~ 0.8						
DRIFT	+0.3	+0.3								
S.P.			1.0 Hz	~1.835	7.27					
AC NOISE	Both	receivers		—						
POT RES.	at same	time			7.22 — 3 Hz					

0.8 - 0.3 Hz

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT EXTRA NOTES

LINE 1 HALF ____ SP. ____ DATE ____

PAGE

SEND	6-7			3-4						
RECEIVE	40 50			70-80						
RANGE	0.1			0.1						
DC 1	1.3			1.6						
DC 2										
DC 3										
DC 4										
DC 5										
DC 6										
DC 7										
DC 8										
DC AVG.										
AC 1	4.68			5.20						
AC 2	—			—						
AC AVG.										
S.P.										
AC NOISE										
POT RES.										

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 1 SPREAD 1 W + E 1/2 1/20/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	0.00	204.000	0.00	1.00	.10	0.0000	.9804

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	52.14	.30	5.8	.30	5.8	0.00	**	.30	4.00	1	1	70.700	0.00
2	2	69.76	.50	7.2	.40	5.8	.10	**	.50	4.00	2	2	23.600	0.00
3	3	94.78	.70	7.4	.55	5.8	.15	**	.70	4.00	3	3	12.800	0.00
4	4	108.84	.70	6.4	.46	4.3	.24	**	.70	4.00	4	4	7.350	0.00
5	1	68.14	~~.30~~	~~4.4~~	.30	4.4	0.00	**	.30	4.00	5	1	92.400	0.00
6	2	95.96	.70	7.3	.70	7.3	0.00	**	.70	4.00	6	2	32.400	0.00
7	3	106.62	.70	6.6	.57	5.4	.13	**	.70	4.00	7	3	14.400	0.00
8	1	93.76	.40	4.3	.40	4.3	0.00	**	.40	4.00	8	1	127.000	0.00
9	2	112.80	.40	3.5	.40	3.5	0.00	**	.40	4.00	9	2	38.200	0.00
10	1	100.20	.20	2.0	.20	2.0	0.00	**	.20	4.00	10	1	136.000	0.00
11	1	52.95	.30	5.7	.30	5.7	0.00	**	.30	4.00	11	1	71.800	0.00
11	1	52.95	.30	5.7	.30	5.7	0.00	**	.30	4.00	11	1	71.800	0.00
12	2	74.86	.60	8.0	.51	6.8	.09	**	.60	4.00	12	2	25.300	0.00
13	3	103.56	.60	5.8	.47	4.5	.13	**	.60	4.00	13	3	14.000	0.00
14	4	136.81	.90	6.6	.73	5.3	.17	**	.90	4.00	14	4	9.220	0.00
15	5	157.78	1.00	6.3	.76	4.8	.24	**	1.00	4.00	15	5	6.070	0.00
16	1	56.14	.60	10.7	.60	10.7	0.00	**	.60	4.00	16	1	75.900	0.00
17	2	81.58	.50	6.1	.42	5.2	.08	**	.50	4.00	17	2	27.600	0.00
18	3	102.28	.80	7.8	.67	6.5	.13	**	.80	4.00	18	3	13.800	0.00
19	4	137.82	1.10	8.0	.93	6.8	.17	**	1.10	4.00	19	4	9.270	0.00
20	5	174.06	1.10	6.3	.89	5.1	.21	**	1.10	4.00	20	5	6.690	0.00
21	6	197.91	1.40	7.1	1.13	5.7	.27	**	1.40	4.00	21	6	4.740	0.00
22	2	101.00	.70	6.9	.70	6.9	0.00	**	.70	4.00	22	2	34.100	0.00
23	3	124.39	.70	5.6	.60	4.8	.10	**	.70	4.00	23	3	16.800	0.00
24	4	145.23	1.00	6.9	.84	5.8	.16	**	1.00	4.50	24	4	11.000	0.00
25	5	188.75	1.30	6.9	1.12	5.9	.18	**	1.30	4.00	25	5	7.240	0.00
26	6	230.67	1.30	5.6	1.08	4.7	.22	**	1.30	4.00	26	6	5.530	0.00
27	3	122.29	.80	6.5	.70	5.7	.10	**	.80	4.00	27	3	16.500	0.00
28	4	138.44	.90	6.5	.73	5.3	.17	**	.90	4.00	28	4	9.330	0.00
29	5	154.80	1.00	6.5	.76	4.9	.24	**	1.00	4.50	29	5	6.700	0.00
30	6	96.49	1.10	5.6	.83	4.2	.27	**	1.10	4.	30	6	4.720	0.00
31	4	166.02	.80	4.8	.67	4.0	.13	**	.80	4.00	31	4	11.200	0.00
32	5	177.60	.60	3.4	.40	2.3	.20	**	.60	4.00	32	5	6.860	0.00
33	6	194.45	1.00	5.1	.73	3.7	.27	**	1.00	4.50	33	6	5.260	0.00
34	1	101.14	.40	4.0	.40	4.0	0.00	**	.40	4.00	34	1	137.000	0.00
35	2	128.16	.40	3.1	.40	3.1	0.00	**	.40	4.00	35	2	43.400	0.00
36	3	120.57	.60	5.0	.49	4.1	.11	**	.60	4.00	36	3	16.300	0.00
37	4	107.77	.80	7.4	.56	5.2	.24	**	.80	4.00	37	4	7.270	0.00
38	5	104.91	.90	8.6	.49	4.6	.41	**	.90	4.00	38	5	4.040	0.00
38	5	104.91	.90	8.6	.49	4.6	.41	**	.90	4.00	38	5	4.040	0.00
39	1	99.64	.30	3.0	.30	3.0	0.00	**	.30	4.50	39	1	152.000	0.00
40	2	120.34	.60	5.0	.60	5.0	0.00	**	.50	4.50	40	2	45.800	-.20
41	3	125.75	.60	4.8	.50	4.0	.10	**	.60	4.00	41	3	17.000	0.00
42	4	108.39	.80	7.4	.56	5.2	.24	**	.80	5.00	42	4	9.140	0.00
43	5	95.88	1.00	10.4	.53	5.5	.47	**	1.00	4.50	43	5	4.150	0.00
44	6	93.53	1.00	10.7	.26	2.8	.74	**	1.00	4.50	44	6	2.530	0.00
45	2	103.62	.60	5.8	.60	5.8	0.00	**	.60	4.50	45	2	39.400	0.00
46	3	112.55	.70	6.2	.58	5.2	.12	**	.70	4.50	46	3	17.100	0.00
47	4	110.14	.80	7.3	.57	5.2	.23	**	.80	4.00	47	4	7.430	0.00
48	5	94.10	.90	9.6	.42	4.5	.48	**	.90	5.00	48	5	4.530	0.00
49	6	81.86	1.20	14.7	.32	3.8	.88	**	1.20	4.50	49	6	2.210	0.00
50	3	89.60	.80	8.9	.64	7.1	.16	**	.80	4.50	50	3	13.600	0.00
51	4	94.53	1.00	10.6	.71	7.6	.29	**	1.00	4.50	51	4	7.160	0.00
52	5	90.37	1.20	13.3	.69	7.7	.51	**	1.20	4.00	52	5	3.470	0.00
53	6	77.01	1.20	15.6	.24	3.1	.96	**	1.20	5.00	53	6	2.310	0.00
54	4	83.18	1.00	12.0	.66	7.9	.34	**	1.00	4.50	54	4	6.300	0.00
55	5	84.56	1.00	11.8	.44	5.3	.56	**	1.00	4.50	55	5	3.660	0.00
56	6	84.08	1.20	14.3	.35	4.1	.85	**	1.20	4.50	56	6	2.270	0.00

Moore Business Forms, Inc.

Job 681, LINE 3, Spread 1, NW+SE½, 1/18/72 1000.

56 DP

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO.

PROJECT DRAGOON N.W 6

LINE 3 BEARING ____ HALF — SP. 1 DATE 1-18-72

SEND	CAL	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7
RECEIVE	3-4	1-2	→	→	→	2-3	→	→	3-4	→
MULT.	10	1.0	1.0	0.1	0.1	1.0	1.0	0.1	1.0	1.0
PFE 3	203	0.4	0.7	0.9	0.9	0.9	0.9	1.0	0.5	0.7
1	0.0									
0.3	-0.1									
Per 0.1	0.1	4	4	4	3	4	4	3	4	3
#	—	1	2	3	4	5	6	7	8	9
n		1	2	3	4	1	2	3	1	2
PFE Avg.										
AC		64.1	17.6	8.24	3.48	69.8	19.4	6.73	77.3	16.8
DRIFT		—	—	—	—	—	—	—	—	—
S.P.										
AC NOISE										
POT RES.										

I.P. RECEIVER NOTES

PAGE 2

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W 68

LINE 3 BEARING N68°W HALF — SP. 1 DATE 1-18-72

SEND	6-7	CAL	S-P	S-P	S-P	2-3	3-4	4-5	5-6	6-7
RECEIVE	4-5	3-4	0-10 NW	10-20	20-30	30-40	→	→	→	→
MULT.	1.0	10.				1.0	1.0	0.1	0.1	0.1
PFE	0.7	1.0 = -0.1								
		0.3 = -0.2				0.6	0.6	0.9	0.7	0.9
		0.1 = -0.1								~~0.6~~ 1.2
Em.	3					4	4	4	3	3
#	10					11	12	13	14	15
n	1					1	2	3	4	5
PFE Avg.										
AC	73.0	203.				62.1	17.1	8.26	3.59	2.23
DRIFT	—	0.0				0.0	—	—	-0.2	—
S.P.			+5.1	-16.7	+3.5	+5.2				
AC NOISE	Grounded fence		≈ 0.7 NW							
POT RES.		00	10	20		13 K				

I.P. RECEIVER NOTES

PAGE 3

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72 DRAGOON NW

LINE 3 BEARING N 68°W HALF NW SP. 1 DATE 1-19-72

SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	40-50	—	—	—	—	→	50-60	—	—	—
MULT.	1.0	1.0	0.1	0.1	0.1	0.1	1.0	0.1	0.1	0.1
PFE										
	0.4	0.5	0.7	1.0	1.1	1.4	0.4	0.6	0.7	1.0
						~~0.0 ↔ 1.8~~				~~0.4 ↔ 1.2~~
Em	4	4	4	4	4	3	4	4	4	4
#	16	17	18	19	20	21	22	23	24	25
n	1	2	3	4	5	6	2	3	4	5
PFE Avg.										
AC	57.3	17.7	8.77	5.55	3.53	1.77	20.8	9.87	5.97	4.12
DRIFT	0.0	—	—	—	—	—?—	0.0	—	—	—
S.P.	−7.7						+7.6			
AC NOISE										
POT RES.	4K									

I.P. RECEIVER NOTES

PAGE 4

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 3 BEARING ____ HALF NW SP. 1 DATE 1-19

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		CAL
RECEIVE	50-60	60-70	→	→	→	70-80	→	→		3-4
MULT.	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1		10
PFE										
	1.0	0.7	0.8	0.8	1.0	0.4	0.6	0.9		0.0
		~~0.4↓>1.6~~	~~0.4↓>2.0~~	↔	↔					
Cm	3.5	4	4.5	4.5	4	4	4.5	4.5		2
#	26	27	28	29	30	31	32	33		1
n	6	3	4	5	6	4	5	6		
PFE Avg.										
AC	2.42	10.8	7.06	4.79	3.16	6.85	4.98	3.66		203.
DRIFT	0.0	0.0	—	—	—	—	0.0	0.0		0.0
S.P.		+10.5				-11.4				
AC NOISE						6.85				1.0
POT RES.						0.0				0.1

2.70 ?

STA. 40E OTHER SIDE OF WASH

I.P. RECEIVER NOTES

PAGE 5

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W. # 681

LINE 3 BEARING S50°E HALF SE SP. 1 DATE 6-17-77

SEND	S.P.	S.P.	S.P.	5-6	4-5	3-4	2-3	1-2	6-7	5-6
RECEIVE	0-10SE	10-20	20-30	30-40	→	→	→	→	40-50	→
MULT.				1.0	1.0	0.1	0.1	0.1	1.0	1.0
PFE				0.5	0.7	0.7	0.8	0.9	0.5	0.6
em				4	4	4	4	4	3	4
#				34	35	36	37	38	39	40
n				1	2	3	4	5	1	2
PFE Avg.										
AC				100.4	24.5	8.43	4.02	2.42	66.0	18.1
DRIFT				—	—	—	—	—	—	—
S.P.	+29.5	-10.7	+9.5	-2.0					-8.0	
AC NOISE										
POT RES.	4k	4k	4k	4k					3k	

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W. 681

LINE 3 BEARING S 50° E HALF SE SP. 1 DATE 1-19-72

SEND	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	6-7
RECEIVE	40-50	→	→	→	50-60	6 →	→	→	→	60-70
MULT.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	0.7	0.6	0.9	1.2	0.7	0.8	1.0	1.2	1.2	0.9
					~~1.3~~					
cm	4	4	4	4	3	4	4	4.5	4	3.5
#	41	42	43	44	45	46	47	48	49	50
n	3	4	5	6	2	3	4	5	6	3
PFE Avg.										
AC	6.94	3.29	1.95	1.38	8.82	4.62	2.72	1.95	1.22	3.68
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.					+2.5					-2.8
AC NOISE										
POT RES.					3K					3K

G.F. @ 69 4~30' I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON NW 681

LINE 3 BEARING S 50°E HALF SE SP. 1 DATE 1-19-72

SEND	5-6	4-5	3-4	6-7	5-6	4-5				
RECEIVE	60-70	→		70-80	→					
MULT.	0.1	0.1	0.1	0.1	0.1	0.1				
PFE	1.5	1.7	1.8	1.4	1.3	1.7				
	~~0.2-3.0~~									
	~~DRIFT!~~		~~0.9-3.6~~		~~1.6-1.8~~	~~-0.3-2.6~~				
				~~2.03~~						
ea	4	4	4.5	3.5	4	4				
#	51	52	53	54	55	56				
n	4	5	6	4	5	6				
PFE Avg.										
AC	2.42	1.82	1.67	2.30	1.77	1.44				
DRIFT	—	—	—	—	—	—				
S.P.				+29.0						
AC NOISE										
POT RES.				3K						

G. HIX ①
B. FREEMAN

681-71

INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON NW Line: 3 Date: 1-18-72

Send	CAL	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7	3-4
Receive	3-4	1-2	→	→	→	2-3	→	→	3-4	→	4-5	CAL
Time	200 X10	400 X10	400 X10	400 X10	300 X10	400 X10	400 X10	300 X10	400 X10	300 X10	→	20 x 200
Range	340	620	780	980	850	780	980	850	980	850	850	380
Current	2.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	2.0
Send	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7	1-2
Receive	30-40	→	→	→	→	40-50	→	→	→	→	→	50-60
Time	10:27	10 x 400	10 x 400	10 x 300	10 x 300	10 x 400	10 x 400	10 x 400	10 x 400	10 x 400	10 x 300	10 x 400
Range	10 x 400 720 V	640	820	820	870	940	710	640	810	1000	860	930
Current	4.0	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0

16:27 start → x SPLICE WIRE TO: 10:46 FINISH | 1051 TIME → 11:03 11:11

Job 681

LINE VOLTAGE @ 100

(2)

INDUCED POLARIZATION SENDER NOTES

project: DRAGOON N.W. Line: 3 Date: 1-19-72

Send	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4	
Receive	50-60	→	→	→ 11:23	11:28 60-70	→	→	→	11:48 70-80	→	→	
Time	10 × 400	10 × 400	20 × 200	10 × 350	10 × 400	20 × 250	20 × 250	20 × 200	20 × 200	20 × 250	20 × 250	
Range	710	630	800	920	930	790	690	790	930	780	680	
Current	4.0	4.0	4.0	3.5	4.0	4.5	4.5	4.0	4.0	4.5	4.5	
Send												
Receive												
Time												
Range												
Current												

INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: 3 SE½ Date: 1-19-72

Send	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2	
Receive	30-40 SE		→			40-50 SE	→					
Time	400 x 10	400 x10	400 x 10	400 x10	400 x10	300 x10	400 x10	→				
Range	1000	800	620	900	920	850	1000	800	620	700	920	
Current	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	
Send	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
Receive	50-60	→				60-70	→			70-80	→	
Time	300 x100	400 x10	400 x10	450 x10	400 x10	350 x10	400 x10	→	450 x10	350 x10	400 x10	400 x10
Range	850	1000	800	680	700	950	1000	800	680	950	1000	800
Current	3.0	4.0	4.0	4.5	4.0	3.5	4.0	4.0	4.5	3.5	4.0	4.0

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-2578

JOB 681 LINE 3 SPREAD 1 NW + SE 1/2 1/18/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	0.00	203.000	0.00	1.00	.10	0.0000	.9852

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	47.55	.40	8.4	.40	8.4	0.00	**	.40	4.00	1	1	64.100	0.00
2	2	5.24	.70	133.6	-2.47	-472.2	3.17	**	.70	4.00	2	2	1.760	0.00
3	3	61.43	.90	14.6	.63	10.2	.27	**	.90	4.00	3	3	8.240	0.00
4	4	69.19	.90	13.0	.46	6.7	.44	**	.90	3.00	4	4	3.480	0.00
5	1	52.04	.90	17.3	.90	17.3	0.00	**	.90	4.00	5	1	69.800	0.00
6	2	57.86	.90	15.6	.77	13.4	.13	**	.90	4.00	6	2	19.400	0.00
7	3	66.97	1.00	14.9	.76	11.3	.24	**	1.00	3.00	7	3	6.730	0.00
8	1	57.40	.50	8.7	.50	8.7	0.00	**	.50	4.00	8	1	77.300	0.00
9	2	66.67	.70	10.5	.60	8.9	.10	**	.70	3.00	9	2	16.800	0.00
10	1	72.42	.70	9.7	.70	9.7	0.00	**	.70	3.00	10	1	73.000	0.00
11	1	46.16	.60	13.0	.60	13.0	0.00	**	.60	4.00	11	1	62.100	0.00
12	2	50.85	.60	11.8	.45	8.8	.15	**	.60	4.00	12	2	17.100	0.00
13	3	61.58	.90	14.6	.63	10.2	.27	**	.90	4.00	13	3	8.260	0.00
14	4	71.23	.80	11.2	.38	5.3	.42	**	.70	3.00	14	4	3.590	-.20
15	5	77.59	.90	11.6	.28	3.6	.62	**	.90	3.00	15	5	2.230	0.00
16	1	42.51	.40	9.4	.40	9.4	0.00	**	.40	4.00	16	1	57.300	0.00
17	2	52.58	.50	9.5	.36	6.8	.14	**	.50	4.00	17	2	17.700	0.00
18	3	65.26	.70	10.7	.45	6.9	.25	**	.70	4.00	18	3	8.770	0.00
19	4	82.84	1.00	12.1	.66	7.9	.34	**	1.00	4.00	19	4	5.550	0.00
20	5	92.30	1.10	11.9	.61	6.6	.49	**	1.10	4.00	20	5	3.530	0.00
21	6	99.02	1.40	14.1	.71	7.2	.69	**	1.40	3.00	21	6	1.770	0.00
22	2	61.72	.40	6.5	.28	4.6	.12	**	.40	4.00	22	2	20.800	0.00
23	3	73.37	.60	8.2	.39	5.3	.21	**	.60	4.00	23	3	9.870	0.00
24	4	88.84	.70	7.9	.39	4.4	.31	**	.70	4.00	24	4	5.970	0.00
25	5	107.62	1.00	9.3	.60	5.6	.40	**	1.00	4.00	25	5	4.120	0.00
26	6	115.59	1.00	8.7	.44	3.8	.56	**	1.00	3.50	26	6	2.420	0.00
27	3	80.36	.70	8.7	.51	6.4	.19	**	.70	4.00	27	3	10.800	0.00
28	4	3.48	.80	8.6	.51	5.5	.29	**	.80	4.	28	4	7.060	0.00
29	5	111.00	.80	7.2	.42	3.8	.38	**	.80	4.50	29	5	4.790	0.00
30	6	132.07	1.00	7.6	.54	4.1	.46	**	1.00	4.00	30	6	3.160	0.00
31	4	1.64	.40	3.9	.14	1.4	.26	**	.40	4.	31	4	6.850	0.00
32	5	115.17	.60	5.2	.24	2.0	.36	**	.60	4.50	32	5	4.980	0.00
33	6	135.83	.90	6.6	.45	3.3	.45	**	.90	4.50	33	6	3.660	0.00
34	1	74.56	.50	6.7	.50	6.7	0.00	**	.50	4.00	34	1	100.400	0.00
35	2	72.92	.70	9.6	.61	8.3	.09	**	.70	4.00	35	2	24.500	0.00
36	3	62.73	.70	11.2	.43	6.9	.27	**	.70	4.00	36	3	8.430	0.00
37	4	59.88	.80	13.4	.27	4.4	.53	**	.80	4.00	37	4	4.020	0.00
38	5	63.15	.90	14.3	.08	1.2	.82	**	.90	4.00	38	5	2.420	0.00
39	1	65.35	.50	7.7	.50	7.7	0.00	**	.50	3.00	39	1	66.000	0.00
40	2	53.82	.60	11.1	.46	8.5	.14	**	.60	4.00	40	2	18.100	0.00
41	3	51.64	.70	13.6	.35	6.8	.35	**	.70	4.00	41	3	6.940	0.00
42	4	48.91	.60	12.3	-.10	-2.1	.70	**	.60	4.00	42	4	3.290	0.00
43	5	50.88	.90	17.7	-.20	-3.9	1.10	**	.90	4.00	43	5	1.950	0.00
44	6	57.79	1.20	20.8	-.20	-3.5	1.40	**	1.20	4.00	44	6	1.380	0.00
45	2	35.00	.70	20.0	.44	12.7	.26	**	.70	3.00	45	2	8.820	0.00
46	3	34.41	.80	23.2	.20	5.7	.60	**	.80	4.00	46	3	4.620	0.00
47	4	40.60	1.00	24.6	.10	2.4	.90	**	1.00	4.00	47	4	2.720	0.00
48	5	45.37	1.20	26.5	-.08	-1.7	1.28	**	1.20	4.50	48	5	1.950	0.00
49	6	51.09	1.20	23.5	-.45	-8.8	1.65	**	1.20	4.00	49	6	1.220	0.00
50	3	31.36	.90	28.7	.21	6.8	.69	**	.90	3.50	50	3	3.680	0.00
51	4	36.30	1.50	41.3	.45	12.5	1.05	**	1.50	4.00	51	4	2.420	0.00
52	5	47.87	1.70	35.5	.51	10.7	1.19	**	1.70	4.00	52	5	1.820	0.00
53	6	62.53	1.80	28.8	.54	8.6	1.26	**	1.80	4.50	53	6	1.670	0.00
54	4	39.39	1.40	35.5	.46	11.7	.94	**	1.40	3.50	54	4	2.300	0.00
55	5	46.37	1.30	28.0	.06	1.3	1.24	**	1.30	4.00	55	5	1.770	0.00
56	6	60.60	1.70	28.1	.38	6.3	1.32	**	1.70	4.00	56	6	1.440	0.00

Job 681, Line 4, Spread 1, W½, 1/24/72 1000.

DP 56

I.P. RECEIVER NOTES

PAGE 1

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 4 BEARING N 70°W HALF W SP. 1 DATE 1-24

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
MULT.	10.	1.0	0.1	0.1	10.	1.0	0.1	10.	1.0	10.
PFE										
	1.0	1.3	1.6	1.8	1.0	1.2	1.4	1.2	1.2	1.1
Em	3									
#	1	2	3	4	5	6	7	8	9	10
n	1	2	3	4	1	2	3	1	2	1
PFE Avg.										
AC	117.	24.4	6.49	2.67	119.	23.7	6.35	127.	23.7	128.
DRIFT	0.0	—	—	—	0.0	—	—	—	—	0.0
S.P.										
AC NOISE										
POT RES.										

I.P. RECEIVER NOTES

PAGE 2

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 4 BEARING ____ HALF W SP. 1 DATE 1-24

SEND	CAL	S-P	S-P	S-P	2-3	3-4	4-5	5-6	6-7	(CAL)
RECEIVE	3.11	0-10	10-20	20-30	30-40				7	3-4
MULT.	1.0.				10.	1.0	0.1	0.1	0.1	10.
PFE 1.0	+0.4									1.0+0.2
.3	+0.3				1.3	1.5	1.8	1.8	1.6	.3+0.1
.01	+1.0									.1+0.4
										(0.2)
Cur					4	3.55	3.5	3.5	3.5	2
#					11	12	13	14	15	1
n					1	2	3	4	5	
PFE Avg.										
AC 3.0	202.				135.	27.4	7.72	2.94	1.82	3.0 203.
DRIFT	+0.4				+0.2	0.0	0.0	0.0	0.0	0.0
S.P.		-52.7	+21.6	+8.5	-38.6					
AC NOISE		5K								1.0
POT RES.										0.

I.P. RECEIVER NOTES

PAGE 3

HEINRICHS GEOEXPLORATION CO. **PROJECT** 681-71 NW DRAGOON

LINE 4 BEARING ____ **HALF** W **SP.** 1 **DATE** 1-24 25

SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	40-50	—	—	—	—	→	50-60	—	—	—
MULT.	10.	1.0	0.1	0.1	0.1	.01	1.0	0.1	0.1	.01
PFE	1.2	~~0.8~~								
		~~0.8~~	1.4	1.4	5.0	6.0	1.6	2.0	2.0	1.8
		1.0			4.4→7.2	4.8 L→7.8				
		0.8 L→1.2								
Cur	4	3.5	2	3	2.5	2.5	3.5	2.8	2	2
#	16	17	18	19	20	21	22	23	24	25
n	1	2	3	4	5	6	2	3	4	5
PFE Avg.										
AC	127.	~~23.1~~	4.29	2.54	~~1.33~~	.837	23.2	5.88	1.80	.891
DRIFT	+0.2	22.9	0.0	—	1.06	— ?	0.0	—	—	—
S.P.	~~+40.1~~	0.0			— ?		-29.3			
AC NOISE	+31.5				80'S AC		120 sec	D.C.'s		
POT RES.							7K			

ST. NT 1

I.P. RECEIVER NOTES

PAGE 4

HEINRICHS GEOEXPLORATION CO. PROJECT 681-71

LINE 4 BEARING ____ HALF W SP. 1 DATE 1-25

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		3-4
RECEIVE	60	60-70	→	→	→	70-80	→	→		CHC
MULT.	.01	0.1	0.1	0.1	.01	0.1	0.1	.01		10.
PFE										100 = 0.0
	2.0	2.2	2.4	2.4	3.2	2.4	2.4	2.0		.3 = 0.0
										.1 = 0.4
line	2	3	3	2	2	3	3	2		
#	26	27	28	29	30	31	32	33		
n	6	3	4	5	6	4	5	6		
PFE Avg.										
AC	.540	7.10	2.96	1.00	.568	3.63	1.78	.660		3.0 = 202
DRIFT	—	+0.2	0.0	0.0	—	+0.2	—	—		0.0
S.P.		-13.9				-30.3				
AC NOISE										
POT RES.										

22705-S

#6 #681

INDUCED POLARIZATION SENDER NOTES

project: DRAGOON N.W Line: 4 Date: 1-24-72

Send	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7	Cal	CAL
Receive	1-2	→	→	→	2-3	→	→	3-4	→	4-5	3-4	3-4
Time	300 X10	300 X10	300 X10	300 X10	300 X10	300 X10	300 X10	300 X10	300 X10	300 X10	200 X10	200 X 10
Range	820	820	820	900	820	820	900	820	900	900	480	570
Current	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
Send	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7	
Receive	30-40	→	→	→	→	40-50	ω	→	→	→	→	
Time	10 X 400	10 X 355	10 X 350	10 X 350	10 X 350	10 X 400	10 X 350	10 X 200	10 X 300	10 X ~~300~~ 250	10 X 250	
Range	670	900	900	900	920	492	580	550	780	~~930~~ 650	680	
Current	4.0	3.55	3.5	3.5	3.5	4.0	3.5	2.0	3.0	~~3.0~~ 2.5	2.5	

2:20 2:25 2:3 ↓ LOST GENERATOR

LOW MODE ON SENDER DOESN'T WORK WELL BECAUSE OF VOLTAGE FLUCUATIONS GEN. OUTPUT UNDER LOAD

INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON NW Line: 4 Date: 1-24-72

Send	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	50-60	→	→	→	→	60-70	→	→	→	11:33 70-80	→	→
Time	10 × 350	10 × 280	10 × 200	10 × 200	10 × 200	10 × 300	10 × 300	10 × 200	10 × 200	10 × 300	10 × 300	10 × 200
Range	440	490	500+	500+	570	380	500+	500+	558	360	500+	500+
Current	3.5	2.8	2.0	2.0	2.0	3.0	3.0	2.0	2.0	3.0	3.0	2.0
Send												
Receive												
Time												
Range												
Current												

Job 681, 2 in 4, Spread 1, E½, 1/25/72 1000.

19692-K

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W 681

LINE 4 BEARING S 70°E HALF ESE SP. 1 DATE 1-25-72

SEND	S.P	S.P	S.P.	5-6	4-5	3-4	2-3	1-2	6-7	5-6
RECEIVE	0-10s	10-20s	20-30s	30-40s	→	→	→	→	40-50s	→
MULT.				1.0	1.0	0.1	0.1	0.1	1.0	1.0
PFE				1.2	1.2	1.4	1.4	1.6	0.5	1.3
Cup				3	3	3	3	4	2.5	3
#				1	2	3	4	5	6	7
#				1	2	3	4	5	1	2
PFE Avg.									93.7	
AC				102.0	20.3	5.79	2.46	2.12	~~112~~.	19.8
DRIFT				—	—	—	—	—	—	
S.P.	+11.0	+35.8	-13.2	+11.1					+1.2	
AC NOISE										
POT RES.	6K	5K	6K	5K					3K	

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGON

LINE 4 BEARING 570 E HALF ESE SP. 1 DATE 1-25-72

SEND	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	6-7
RECEIVE	40-50	→	→	→	50-60	→	→	→	→	60-70
MULT.	0.1	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1	0.1
PFE	1.3	1.3	1.5	1.4	1.4	1.6	1.7	1.6	1.7	1.4
			0 3.6				Noisy	→	→	
Gain	3	3	3	4	3	2.5	2.5	2.5	3	2.5
#	8	9	10	11	12	13	14	15	16	17
M	3	4	5	6	2	3	4	5	6	3
PFE Avg.										
AC	6.64	2.80	1.63	1.68	22.2	6.29	2.75	1.41	1.13	5.24
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.					-7.7					+2.7
AC NOISE										
POT RES.					3k					2k

G.F. @ 28E
UGF @ 75SE

I.P. RECEIVER NOTES

N.W.

PAGE 8

HEINRICHS GEOEXPLORATION CO.

PROJECT DRAGOON 681

LINE 4 BEARING S20E HALF SE SP. 1 DATE 1-25-72

SEND	5-6	4-5	3-4	6-7	5-6	4-5		CAL		
RECEIVE	60-70			70-80						
MULT.	0.1	0.1	0.01	0.1	0.1	0.01		10		
PFE	1.4	1.7	1.7	1.4	1.3	1.7		0.4		
			~~0 to 40~~			~~0-5~~				
Con	2.5	2.5	2.5	2.5	3	3		2		
#	18	19	20	21	22	23		2		
n	4	5	6	4	5	6				
			NOISY			NOISY				
PFE Avg.			(+,-)			(+)				
AC	2.18	1.07	0.605	2.38	1.31	0.682		202.		
DRIFT	—	—	—	—	—	—		—		
S.P.				+17.2						
AC NOISE								1.0		
POT RES.				2K				0.1		

I.P. RECEIVER NOTES

PAGE 5

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

Stnt. 1 LINE 4 BEARING _____ HALF W SP. 1 DATE 1-25

SEND	5-6									
RECEIVE										
MULT.	0.1									
PFE 1.0	= -4.0									
.3	= +1.2									
.01	= +3.2									
PFE Avg.										
AC 3.0	= 1.09									
DRIFT	+0.4									
S.P.										
AC NOISE										
POT RES.										

Z90V0859 Generator output Voltage Shakey.
Sender fan Runs slow
Crank very Difficult to Turn over Cold

INDUCED POLARIZATION SENDER NOTES

Project: GF1-72 Line: 4 E½ Date: 1-25-72

Send	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2	
Receive	30-40 →					40-50 →						
Time	300 X 10	300 X10	300 X10	300 X10	400 X10	160 X20	300X10	300X10	300X10	300X10	400X10	
Range	780	770	740	480	480	700	780	780	770	500	470	
Current	3.0	3.0	3.0	3.0	4.0	2.5	3.0	3.0	3.0	3.0	4.0	
Send	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
Receive	50-60 →					60-70 →				70-80 →		
Time	300 X10	120 X20	120X20	120 X 20	300 X10	120 X20	120X20	120X20	120X20	120X20	150X20	150X20
Range	780	660	640	620	500	660	640	620	640	680	800	780
Current	3.0	2.5	2.5	2.5	3.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0

Have To cut Power

Volt STEADY TO END. →

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 4 SPREAD 1 WEST 1/2 1/24/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	.20	203.000	0.00	1.00	.10	.2000	.9852

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	116.19	.80	6.9	.80	6.9	0.00	**	1.00	3.00	1	1	117.000	0.00
2	2	97.22	1.10	11.3	1.10	11.3	0.00	**	1.30	3.00	2	2	24.400	0.00
3	3	64.84	1.40	21.6	1.15	17.7	.25	**	1.60	3.00	3	3	6.490	0.00
4	4	53.45	1.60	29.9	.98	18.3	.62	**	1.80	3.00	4	4	2.670	0.00
5	1	118.18	.80	6.8	.80	6.8	0.00	**	1.00	3.00	5	1	119.000	0.00
6	2	94.33	1.00	10.6	1.00	10.6	0.00	**	1.20	3.00	6	2	23.700	0.00
7	3	63.31	1.20	19.0	.94	14.8	.26	**	1.40	3.00	7	3	6.350	0.00
8	1	126.37	1.00	7.9	1.00	7.9	0.00	**	1.20	3.00	8	1	127.000	0.00
9	2	94.33	1.00	10.6	1.00	10.6	0.00	**	1.20	3.00	9	2	23.700	0.00
10	1	127.24	.90	7.1	.90	7.1	0.00	**	1.10	3.00	10	1	128.000	0.00
11	1	100.85	1.00	9.9	1.00	9.9	0.00	**	1.30	4.00	11	1	135.000	.20
12	2	92.44	1.30	14.1	1.30	14.1	0.00	**	1.50	3.55	12	2	27.400	0.00
13	3	66.24	1.60	24.2	1.35	20.4	.25	**	1.80	3.50	13	3	7.720	0.00
14	4	50.45	1.60	31.7	.93	18.4	.67	**	1.80	3.50	14	4	2.940	0.00
15	5	54.55	1.40	25.7	.40	7.3	1.00	**	1.60	3.50	15	5	1.820	0.00
16	1	94.78	.90	9.5	.90	9.5	0.00	**	1.20	4.00	16	1	127.000	.20
17	2	77.97	.80	10.3	.72	9.2	.08	**	1.00	3.50	17	2	22.900	0.00
18	3	64.16	1.20	18.7	.94	14.7	.26	**	1.40	2.00	18	3	4.290	0.00
19	4	50.65	1.20	23.7	.53	10.5	.67	**	1.40	3.00	19	4	2.540	0.00
20	5	45.97	4.80	104.4	3.55	77.1	1.25	**	5.00	2.50	20	5	1.060	0.00
21	6	58.63	5.80	98.9	4.42	75.5	1.38	**	6.00	2.50	21	6	.837	0.00
22	2	79.46	1.40	17.6	1.32	16.6	.08	**	1.60	3.50	22	2	23.200	0.00
23	3	63.19	1.80	28.5	1.54	24.3	.26	**	2.00	2.80	23	3	5.880	0.00
24	4	54.16	1.80	33.2	1.19	21.9	.61	**	2.00	2.00	24	4	1.800	0.00
25	5	46.82	1.60	34.2	.38	8.0	1.22	**	1.80	2.00	25	5	.891	0.00
26	6	45.49	1.80	39.6	-.11	-2.5	1.91	**	2.00	2.00	26	6	.540	0.00
27	3	71.35	1.90	26.6	1.68	23.5	.22	**	2.20	3.00	27	3	7.100	.20
28	4	.61	2.20	36.9	66	27.9	.54	**	2.40	3.0	28	4	2.960	0.00
29	5	52.86	2.20	41.6	1.16	21.9	1.04	**	2.40	2.00	29	5	1.000	0.00
30	6	48.42	3.00	62.0	1.23	25.5	1.77	**	3.20	2.00	30	6	.568	0.00
31	4	.10	2.10	28.7	69	23.2	.41	**	2.40	3.0	31	4	3.630	.20
32	5	62.73	2.20	35.1	1.37	21.8	.83	**	2.40	3.00	32	5	1.780	0.00
33	6	55.60	1.80	32.4	.32	5.8	1.48	**	2.00	2.00	33	6	.660	0.00

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE4 SPREAD 1 EAST 1/2 1/24/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 2

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	.40	202.000	0.00	1.00	.10	.4000	.9901

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	101.80	.80	7.9	.80	7.9	0.00	**	1.20	3.00	1	1	102.000	0.00
2	2	81.04	.80	9.9	.72	8.9	.08	**	1.20	3.00	2	2	20.300	0.00
3	3	57.90	1.00	17.3	.70	12.1	.30	**	1.40	3.00	3	3	5.790	0.00
4	4	49.20	1.00	20.3	.30	6.2	.70	**	1.40	3.00	4	4	2.460	0.00
5	5	55.76	1.20	21.5	.23	4.1	.97	**	1.60	4.00	5	5	2.120	0.00
6	1	111.44	.10	.9	.10	.9	0.00	**	.50	2.50	6	1	93.700	0.00
7	2	79.12	.90	11.4	.82	10.3	.08	**	1.30	3.00	7	2	19.800	0.00
8	3	66.33	.90	13.6	.65	9.9	.25	**	1.30	3.00	8	3	6.640	0.00
9	4	55.94	.90	16.1	.31	5.6	.59	**	1.30	3.00	9	4	2.800	0.00
10	5	57.11	1.10	19.3	.16	2.8	.94	**	1.50	3.00	10	5	1.630	0.00
11	6	70.56	1.00	14.2	-.08	-1.1	1.08	**	1.40	4.00	11	6	1.680	0.00
12	2	88.80	1.00	11.3	1.00	11.3	0.00	**	1.40	3.00	12	2	22.200	0.00
13	3	75.63	1.20	15.9	1.00	13.2	.20	**	1.60	2.50	13	3	6.290	0.00
14	4	66.20	1.30	19.6	.83	12.6	.47	**	1.70	2.50	14	4	2.750	0.00
15	5	59.34	1.20	20.2	.31	5.1	.89	**	1.60	2.50	15	5	1.410	0.00
16	6	63.47	1.30	20.5	.06	.9	1.24	**	1.70	3.00	16	6	1.130	0.00
17	3	62.88	1.00	15.9	.74	11.7	.26	**	1.40	2.50	17	3	5.240	0.00
18	4	52.32	1.00	19.1	.36	6.8	.64	**	1.40	2.50	18	4	2.180	0.00
19	5	45.07	1.30	28.8	.01	.3	1.29	**	1.70	2.50	19	5	1.070	0.00
20	6	40.78	1.30	31.9	-.90	-22.2	2.20	**	1.70	2.50	20	6	.605	0.00
21	4	57.12	1.00	17.5	.43	7.5	.57	**	1.40	2.50	21	4	2.380	0.00
22	5	45.80	.90	19.6	-.36	-7.9	1.26	**	1.30	3.00	22	5	1.310	0.00
23	6	38.31	1.30	33.9	-1.09	-28.4	2.39	**	1.70	3.00	23	6	.682	0.00

Moore Business Forms Inc.

Job 681, Line 5th, Spread 1, NW+SE ½, 1/28/72 1000.

DP 53

BS

GN

I.P. RECEIVER NOTES

PAGE 1

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N-W 681

LINE 5 BEARING N 55° W HALF W SP. 1 DATE 1-28-72

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
MULT.	10	1.0	1.0	0.1	10	1.0	1.0	10	1.0	10
PFE	1.3	1.1	1.1	1.2	1.0	0.9	1.1	1.2	0.9	0.7
Pair	4	→	→	→	→	→	→	→	→	→
#	1	2	3	4	5	6	7	8	9	10
n	1	2	3	4	1	2	3	1	2	1
PFE Avg.										
AC	143.	32.5	15.4	9.36	165.	50.5	26.2	160.	56.6	160.
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.										
AC NOISE										
POT RES.										

G.F @ 19W

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W

LINE 5 BEARING N55°W HALF W SP. 1 DATE 1-28-72

SEND	CAL	S.P	S.P.	S.P.	2-3	3-4	4-5	5-6	6-7	1-2
RECEIVE	4-5	0-10W	10-20W	20-30W	30-40	→	→	→	→	40-50
MULT.					10	1.0	1.0	0.1	0.1	10
PFE					1.2	1.2	1.2	1.2	1.3	1.3
3 Hz	203.									
1 Hz	0.0									
Cm 0.3	-0.1				4	→	→	→	→	→
# 0.1	0.3				11	12	13	14	15	16
n					1	2	3	4	5	1
DRIFT	~~0.0~~									
Retake										
O.K.	as shown									
PFE Avg.										
AC					162.	37.9	12.3	6.91	4.62	124.
DRIFT										
S.P.		+29.3	+16.0	+3.7	-23.7					+14.7
AC NOISE										
POT RES.		6K	10K	10K						6K

UGF @ 35 W

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W. 681

LINE 5 BEARING N 55° W HALF W SP. 1 DATE 1-28-72

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50	→	→	→	→	50-60	→	→	→	→
MULT.	1.0	1.0	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1
PFE	1.2	1.4	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.4
Cur	4	→	→	→	→	→	→	→	→	→
#	17	18	19	20	21	22	23	24	25	26
n	2	3	4	5	6	2	3	4	5	6
PFE Avg.										
AC	31.8	10.6	4.23	3.02	2.20	26.3	9.40	4.11	2.05	1.74
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.						-17.6				
AC NOISE										
POT RES.						4K				

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON

LINE 5 BEARING N55°W HALF W SP. 1 DATE 1-4-72

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4		CAL	
RECEIVE	60-70	→	→	→	70-80W	→	→		4-5	
MULT.	0.1	0.1	0.1	0.1	0.1	0.1	0.1		10	
PFE	1.6	1.6	1.7	1.9	1.6	1.6	1.8		0.3	
line	4	→	→	→	→	→	→		2	
#	27	28	29	30	31	32	33		1	
n	3	4	5	6	4	5	6			
PFE Avg.										
AC	8.08	3.76	2.10	1.14	3.08	1.79	1.22		203.	
DRIFT	—	—	—	—	—	—	—		—	
S.P.	+2.4				+13.8				1.0	
AC NOISE									0.1	
POT RES.	5K				5K					

I.P. RECEIVER NOTES

PAGE 5

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72 DRAGOON

LINE 5 BEARING _____ HALF E SP. 1 DATE 1-28-72

SEND	S-P	S-P	S-P	5-6	4-5	3-4	2-3	1-2		
RECEIVE	0-10E	10-20E	20-30E	30-40E	→	→	→	→		
MULT.				10.	1.0	1.0	1.0	0.1		
PFE										
				1.3	1.2	1.2	1.0	1.4		
Ave				4	→	→	→	→		
#				34	35	36	37	38		
n				1	2	3	4	5		
PFE Avg.										
AC				192.	50.7	24.7	12.5	4.70		
DRIFT				+0.2	0.0	0.0	0.0	0.0		
S.P.	+3.1	+4.2	+9.3	+14.1						
AC NOISE										
POT RES.	5K	4K	4K	5K						

I.P. RECEIVER NOTES

PAGE 6

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE S BEARING ____ HALF E SP. 1 DATE 1-28

SEND	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE	40-50E					→	50-60E			
MULT.	10,	1.0	1.0	1.0	0.1	0.1	1.0	1.0	0.1	0.1
PFE										
	1.1	1.3	1.4	1.4	1.6	2.1	2.3	2.2	2.6	2.2
					~~0.4-5~~ 2.2	~~0.6-7~~ 3.8				
Cm.	4									→
#	39	40	41	42	43	44	45	46	47	48
n	1	2	3	4	5	6	2	3	4	5
PFE Avg.										
AC	170,	65.4	23.9	13.0	6.76	2.68	38.6	19.3	7.37	4.48
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0	0.0	0.0
S.P.	-37.0						-1.9			
AC NOISE							Started up Limestone hill			
POT RES.	7K						6K			

I.P. RECEIVER NOTES

PAGE 7

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 5 BEARING ____ HALF E SP. 1 DATE 1-28

SEND	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5		
RECEIVE	50-60E	60-70E	→	→	→	70-80E	→	→		
MULT.	0.1	1.0	0.1	0.1	0.1					
PFE										
	2.3	2.0	2.2	1.7	2.0					
Pair	4	→	→	→	→					
#	49	50	51	52	53					
n	6	3	4	5	6					
PFE Avg.										
AC	2.32	10.5	6.22	2.87	1.79					
DRIFT	0.0	+0.2	0.0	-0.2	0.0					
S.P.		+17.8								
AC NOISE										
POT RES.										

①

INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: 5 W/2 Date: 1-28-72

Send	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7	
Receive	30-40 W	→	→	→	→	40-50 W	→	→	→	→	→	
Time	400 X10	400 X10	→	→	→	400 X 10	→	→	→	→	→	
Range	640	500	860	740	700	640	640	500	840	740	700	
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Send	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	50-60 W	→	→	→	→	60-70 W	→	→	→	70-80 W	→	→
Time	400 X10	→	→	→	→	400 X10	→	→	→	400 X10	→	→
Range	640	630	500	840	730	640	620	500	840	640	630	500
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: 5 E1/2 Date: 1-28-72

Send	3-4	4-5	5-6	6-7	4-5	5-6	6-7	~~4-5~~	5-6	6-7	6-7	CAL
Receive	1-2	→	→	→	2-3	→	→		3-4	→	4-5	3-4
Time	400 X10	400 X100	→	→	400 X10	→	→		400 X10	→	400 X10	200 X10
Range	600	860	740	680	860	740	700		740	700	700	460
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	2.0
Send	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2	
Receive	30-40	E →	→	→	→	40-5	OE →	→	→	→	→	
Time	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	
Range	720	840	500	630	630	680	720	840	495	620	630	
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	

INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: S E½ Date: 1-28-72

Send	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4			
Receive	50-60 →					60-70 ←	→					
Time	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	10 × 400	20 × 200	20 × 200	20 × 200			
Range	670	710	825	495	610	670	710	820	495			
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Send												
Receive												
Time												
Range												
Current												

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 5 SPREAD 1 NW + SE 1/2 1/28/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	.30	203.000	0.00	1.00	.10	.3000	.9852

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	106.72	1.00	9.4	1.00	9.4	0.00	**	1.30	4.00	1	1	143.000	0.00
2	2	96.83	.80	8.3	.80	8.3	0.00	**	1.10	4.00	2	2	32.500	0.00
3	3	114.70	.80	7.0	.69	6.0	.11	**	1.10	4.00	3	3	15.400	0.00
4	4	139.57	.90	6.4	.73	5.3	.17	**	1.20	4.00	4	4	9.360	0.00
5	1	122.77	.70	5.7	.70	5.7	0.00	**	1.00	4.00	5	1	165.000	0.00
6	2	150.16	.60	4.0	.60	4.0	0.00	**	.90	4.00	6	2	50.500	0.00
7	3	135.14	.80	4.1	.80	4.1	0.00	**	1.10	4.00	7	3	26.200	0.00
8	1	119.29	.90	7.5	.90	7.5	0.00	**	1.20	4.00	8	1	160.000	0.00
9	2	168.29	.60	3.6	.60	3.6	0.00	**	.90	4.00	9	2	56.600	0.00
10	1	118.70	.40	3.4	.40	3.4	0.00	**	.70	4.00	10	1	160.000	0.00
11	1	120.78	.90	7.5	.90	7.5	0.00	**	1.20	4.00	11	1	162.000	0.00
12	2	113.03	.90	8.0	.90	8.0	0.00	**	1.20	4.00	12	2	37.900	0.00
13	3	91.70	.90	9.8	.74	8.1	.16	**	1.20	4.00	13	3	12.300	0.00
14	4	103.04	.90	8.7	.65	6.3	.25	**	1.20	4.00	14	4	6.910	0.00
15	5	120.68	1.00	8.3	.66	5.5	.34	**	1.30	4.00	15	5	4.620	0.00
16	1	92.54	1.00	10.8	1.00	10.8	0.00	**	1.30	4.00	16	1	124.000	0.00
17	2	94.84	.90	9.5	.90	9.5	0.00	**	1.20	4.00	17	2	31.800	0.00
18	3	79.19	1.10	13.9	.91	11.5	.19	**	1.40	4.00	18	3	10.600	0.00
19	4	63.26	1.20	19.0	.70	11.1	.50	**	1.50	4.00	19	4	4.230	0.00
20	5	79.04	1.20	15.2	.59	7.5	.61	**	1.50	4.00	20	5	3.020	0.00
21	6	92.22	1.30	14.1	.55	5.9	.75	**	1.60	4.00	21	6	2.200	0.00
22	2	78.67	1.20	15.3	1.12	14.2	.08	**	1.50	4.00	22	2	26.300	0.00
23	3	70.29	1.20	17.1	.97	13.8	.23	**	1.50	4.00	23	3	9.400	0.00
24	4	61.47	1.20	19.5	.68	11.1	.52	**	1.50	4.00	24	4	4.110	0.00
25	5	53.65	1.20	22.4	.18	3.3	1.02	**	1.50	4.00	25	5	2.050	0.00
26	6	72.79	1.10	15.1	.07	.9	1.03	**	1.40	4.00	26	6	1.740	0.00
27	3	60.48	1.30	21.5	1.02	16.9	.28	**	1.60	4.00	27	3	8.080	0.00
28	4	56.29	1.30	23.1	.72	12.8	.58	**	1.60	4.00	28	4	3.760	0.00
29	5	55.07	1.40	25.4	.41	7.5	.99	**	1.70	4.00	29	5	2.100	0.00
30	6	47.93	1.60	33.4	-.19	-4.0	1.79	**	1.90	4.00	30	6	1.140	0.00
31	4	46.11	1.30	28.2	.54	11.7	.76	**	1.60	4.00	31	4	3.080	0.00
32	5	46.89	1.30	27.7	.08	1.7	1.22	**	1.60	4.00	32	5	1.790	0.00
33	6	51.24	1.50	29.3	-.14	-2.8	1.64	**	1.80	4.00	33	6	1.220	0.00
34	1	143.29	.90	6.3	.90	6.3	0.00	**	1.30	4.00	34	1	192.000	.20
35	2	151.20	.90	6.0	.90	6.0	0.00	**	1.20	4.00	35	2	50.700	0.00
36	3	184.15	.90	4.9	.90	4.9	0.00	**	1.20	4.00	36	3	24.700	0.00
37	4	186.02	.70	3.8	.59	3.2	.11	**	1.00	4.00	37	4	12.500	0.00
38	5	122.89	1.10	9.0	.77	6.2	.33	**	1.40	4.00	38	5	4.700	0.00
39	1	126.62	.80	6.3	.80	6.3	0.00	**	1.10	4.00	39	1	170.000	0.00
40	2	195.23	1.00	5.1	1.00	5.1	0.00	**	1.30	4.00	40	2	65.400	0.00
41	3	178.54	1.10	6.2	1.10	6.2	0.00	**	1.40	4.00	41	3	23.900	0.00
42	4	194.23	1.10	5.7	1.00	5.1	.10	**	1.40	4.00	42	4	13.000	0.00
43	5	177.10	1.30	7.3	1.10	6.2	.20	**	1.60	4.00	43	5	6.760	0.00
44	6	112.89	1.80	15.9	1.23	10.9	.57	**	2.10	4.00	44	6	2.680	0.00
45	2	116.37	1.90	16.3	1.90	16.3	0.00	**	2.30	4.00	45	2	38.600	.20
46	3	145.32	1.90	13.1	1.82	12.5	.08	**	2.20	4.00	46	3	19.300	0.00
47	4	111.42	2.30	20.6	2.07	18.6	.23	**	2.60	4.00	47	4	7.370	0.00
48	5	118.06	1.90	16.1	1.55	13.1	.35	**	2.20	4.00	48	5	4.480	0.00
49	6	97.92	2.00	20.4	1.30	13.3	.70	**	2.30	4.00	49	6	2.320	0.00
50	3	78.91	1.60	20.3	1.41	17.8	.19	**	2.00	4.00	50	3	10.500	.20
51	4	93.67	1.90	20.3	1.61	17.2	.29	**	2.20	4.00	51	4	6.220	0.00
52	5	75.26	1.50	19.9	.85	11.3	.65	**	1.70	4.00	52	5	2.870	-.20
53	6	75.33	1.70	22.6	.71	9.4	.99	**	2.00	4.00	53	6	1.790	0.00

Job 681, Line 6 sp 1 S+N ½ 2/2/72

1000.

DP 56

BS
GN

1:45 - START

I.P. RECEIVER NOTES

PAGE 1

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W. 681

LINE 6 BEARING N-S HALF S SP. 1 DATE 2-1-78

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	↔	4-5
MULT.	10	1.0	1.0	1.0	1.0	1.6	1.0	1.0	1.0	10
PFE	0.5	0.4	0.7	1.3	1.8	2.1	2.3	1.1	1.2	1.1
CUR.	4.0	→	→	→						
#	1	2	3	4	5	6 3HZ	1.7) 7	8	9	10
%	1	2	3	4	1	2 0.7	2-3 3	1	2	1
PFE Avg.										
AC	146.	38.7	22.1	12.0	81.5	36.3	17.5	78.5	27.6	164.
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.										
AC NOISE										
POT RES.										

TIME: 2:45 @ CAL!

I.P. RECEIVER NOTES

G.F @ 35s ⊥

PAGE 2

STA. 40S ≅ 300'E. of sta 80S

HEINRICHS GEOEXPLORATION CO.

PROJECT DRAGOON N.W 681

LINE 6 BEARING N-S HALF S SP. ____ DATE ____

SEND	CAL	S.P.	S.P.	S.P.	2-3	3-4	4-5	5-6	6-7	1-2
RECEIVE	3-4	0-10s	10-20s	20-30s	30-40	→	→	→	→	40-50s
MULT.	10				10	1.0	1.0	1.0	0.1	10
PFE	0.4				2.2	1.2	1.3	1.6	2.3	1.7
CUR	2.0	4.0	→							
#	1				11	12	13	14	15	16
"					1	2	3	4	5	1
PFE Avg.										
AC	204.				250.	51.6	17.4	11.1	6.48	148.
DRIFT	0.0				—	—	—	—	—	—
S.P.	1.0	-21.4	-14.6	-20.0	-10.0					+23.7
AC NOISE	0.0									
POT RES.		4K	4K	3K	5K					4K

I.P. RECEIVER NOTES

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON N.W. 681

LINE 6 BEARING N-S HALF S SP. 1 DATE 2-1-72

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50	s →	→	→	→	50-60s	→	→	→	→
MULT.	1.0	1.0	0.1	0.1	0.1	1.0	1.0	1.0	0.1	0.1
PFE	1.7	1.0	1.9	1.8	1.9	1.7	1.9	1.1	2.4	2.5
CUR	→	→								
#	17	18	19	20	21	22	23	24	25	26
n	2	3	4	5	6	2	3	4	5	6
PFE Avg.										
AC	42.5	15.7	7.67	5.54	3.93	81.1	33.9	14.3	7.05	5.35
DRIFT	—	—	—	—	—	—	—	—	—	—
S.P.						+8.8				
AC NOISE										
POT RES.						5k				

I.P. RECEIVER NOTES

5:05 p.m.

HEINRICHS GEOEXPLORATION CO. PROJECT DRAGOON NW 681

LINE 6 BEARING N-S HALF S SP. 1 DATE 2-1-72

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4			
RECEIVE	60-70s	→	→	→	70-80s	→	→			
MULT.	1.0	1.0	0.1	0.1	1.0	1.0	0.1			
PFE	1.8	1.9	1.2	2.0	2.2	2.5	1.9			
CUR	→	→								
#	27	28	29	30	31	32	33			
n	3	4	5	6	4	5	6			
PFE Avg.										
AC	34.8	17.0	7.58	3.95	24.5	13.3	6.40			
DRIFT	—	—	—	—	—	—				
S.P.	−36.9				+20.1					
AC NOISE										
POT RES.	5K				10K					

I.P. RECEIVER NOTES

PAGE 5

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 6 BEARING N HALF N SP. 1 DATE 2-2-72

SEND	S-P	S-P	S-P	5-6	4-5	3-4	2-3	1-2		
RECEIVE	0-10	10-20	20-30	30-40	→	→	→	→		
MULT.				10.	1.0	0.1	0.1	0.1		
PFE										
				1.4	1.4	1.6	2.2	2.4		
CUR				5.0	4.0	→	→	→		
#				34	35	36	37	38		
3				1	2	3	4	5		
PFE Avg.										
AC				197.	30.1	8.08	6.28	5.08		
DRIFT				0.0	0.0	—	+0.2	0.0		
S.P.	+8.0	−1.3	+32.2	+8.9						
AC NOISE										
POT RES.	4K	8K	6K	6K						

I.P. RECEIVER NOTES

PAGE 6

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 6 BEARING _____ HALF A SP. 1 DATE 2-2

SEND	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE	40-50 →						50-60 →			
MULT.	10.	1.0	1.0	0.1	0.1	0.1	1.0	1.0	0.1	0.1
PFE										
	1.0	1.2	1.8	2.0	2.5	1.8	1.2	1.5	2.1	~~2.0~~
										2.1
CVR	→									
#	39	40	41	42	43	44	45	46	47	48
n	1	2	3	4	5	6	2	3	4	5
PFE Avg.										
AC	130.	31.2	10.2	4.29	3.76	33.2	36.~~41~~	13.7	6.17	~~3.34~~
DRIFT	0.0	0.0	0.0	0.0	0.0	0.0	+0.2	0.0	0.0	0.0
S.P.	+35.7						-2.0			3.32
AC NOISE										0.0
POT RES.	8K						10K			

I.P. RECEIVER NOTES

PAGE 7

HEINRICHS GEOEXPLORATION CO. PROJECT 681-72

LINE 6 BEARING _____ HALF N SP. 1 DATE 2-2-72

SEND	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5		
RECEIVE	50-60	60-70	→	→	→	70-80	→	→		
MULT.	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1		
PFE										
	2.8	1.7	1.8	2.6	2.9	2.1	2.3	3.0		
CUR	→	→								
#	49	50	51	52	53	54	55	56		
n	6	3	4	5	6	4	5	6		
PFE Avg.										
AC	3.17	18.5	8.83	4.92	3.03	7.63	4.24	2.62		
DRIFT	0.0	+0.2	0.0	0.0	0.0	+0.2	0.0	0.0		
S.P.		+13.9				+12.0				
AC NOISE										
POT RES.		7K				9K				

22705-S
19692-R 681

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INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON Line: 6 Date: 2-1-72

Send	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7		CAL
Receive	1-2	→	→	→	2-3	→	→	3-4	→	4-5		3-4
Time	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200	20 × 200		10 × 200
Range	480	460	520	520	470	530	530	530	530	530		280
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		2.0
Send	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7	
Receive	30-40	→	→	→	→	40-50	S	→	→	→	→	
Time	450	480	470	520	520	420	450	480	470	520	520	
Range	200 ×20	200 ×20	200 ×20	200 ×20	200 ×20	200 ×20	→	→	→	→	→	
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	

INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON Line: LINE 6 SE Date: 2/1/72

Send	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	50-60	→	→	→	→	60-	70s	→	→	70-80	→	→
Time	430	440	480	470	520	420	440	480	470	420	440	480
Range	200 X20	→	→	→	→	200 X20	→	→	→	200 X20	→	→
Current	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Send												
Receive												
Time												
Range												
Current												

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INDUCED POLARIZATION SENDER NOTES

Project: 681-72 Line: G N½ Date: 2-2-72

Send	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2	
Receive	30-40	→	→	→	→	40-50	→	→	→	→	→	
Time	620	460	470	440	420	520	520	460	470	440	420	
Range	250 X20	200 X20	200 X20	200 X20	200 X20	200 X20	200 X20	200 X20	200 X20	200 X20	200 X20	
Current	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Send	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5
Receive	50-60	→	→	→	→	60-70	→	→	→	70-80	→	→
Time	520	520	460	470	440	520	520	460	470	520	520	460
Range	200 X20	→	→	→	→	200 X20	→	→	→	200 X20	→	→
Current	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 6 SPREAD 1 S + N 1/2 2/2/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	.40	204.000	0.00	1.00	0.00	.4000	.9804

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	107.46	.10	.9	.10	.9	0.00	**	.50	4.00	1	1	146.000	0.00
2	2	113.82	0.00	0.0	0.00	0.0	0.00	**	.40	4.00	2	2	38.700	0.00
3	3	162.99	.30	1.8	.30	1.8	0.00	**	.70	4.00	3	3	22.100	0.00
4	4	178.06	.90	5.1	.78	4.4	.12	**	1.30	4.00	4	4	12.000	0.00
5	1	60.77	1.40	23.0	1.40	23.0	0.00	**	1.80	4.00	5	1	81.500	0.00
6	2	108.58	1.70	15.7	1.70	15.7	0.00	**	2.10	4.00	6	2	36.300	0.00
7	3	131.12	1.90	14.5	1.81	13.8	.09	**	2.30	4.00	7	3	17.500	0.00
8	1	58.12	.70	12.0	.70	12.0	0.00	**	1.10	4.00	8	1	78.500	0.00
9	2	81.83	.80	9.8	.72	8.8	.08	**	1.20	4.00	9	2	27.600	0.00
10	1	121.43	.70	5.8	.70	5.8	0.00	**	1.10	4.00	10	1	164.000	0.00
11	1	187.13	1.80	9.6	1.80	9.6	0.00	**	2.20	4.00	11	1	250.000	0.00
12	2	152.98	.80	5.2	.80	5.2	0.00	**	1.20	4.00	12	2	51.600	0.00
13	3	129.09	.90	7.0	.80	6.2	.10	**	1.30	4.00	13	3	17.400	0.00
14	4	165.19	1.20	7.3	1.07	6.5	.13	**	1.60	4.00	14	4	11.100	0.00
15	5	169.93	1.90	11.2	1.69	9.9	.21	**	2.30	4.00	15	5	6.480	0.00
16	1	110.24	1.30	11.8	1.30	11.8	0.00	**	1.70	4.00	16	1	148.000	0.00
17	2	126.62	1.30	10.3	1.30	10.3	0.00	**	1.70	4.00	17	2	42.500	0.00
18	3	116.13	.60	5.2	.49	4.2	.11	**	1.00	4.00	18	3	15.700	0.00
19	4	114.49	1.50	13.1	1.28	11.2	.22	**	1.90	4.00	19	4	7.670	0.00
20	5	144.57	1.40	9.7	1.13	7.8	.27	**	1.80	4.00	20	5	5.540	0.00
21	6	164.25	1.50	9.1	1.16	7.0	.34	**	1.90	4.00	21	6	3.930	0.00
22	2	241.63	1.30	5.4	1.30	5.4	0.00	**	1.70	4.00	22	2	81.100	0.00
23	3	253.00	1.50	5.9	1.50	5.9	0.00	**	1.90	4.00	23	3	33.900	0.00
24	4	211.77	.70	3.3	.61	2.9	.09	**	1.10	4.00	24	4	14.300	0.00
25	5	185.06	2.00	10.8	1.81	9.8	.19	**	2.40	4.00	25	5	7.050	0.00
26	6	224.92	2.10	9.3	1.88	8.3	.22	**	2.50	4.00	26	6	5.350	0.00
27	3	259.46	1.40	5.4	1.40	5.4	0.00	**	1.80	4.00	27	3	34.800	0.00
28	4	253.75	1.50	5.9	1.50	5.9	0.00	**	1.90	4.00	28	4	17.000	0.00
29	5	96.63	.80	4.1	.63	3.2	.17	**	1.20	4.00	29	5	7.580	0.00
30	6	165.25	1.60	9.7	1.26	7.6	.34	**	2.00	4.00	30	6	3.950	0.00
31	4	366.78	1.80	4.9	1.80	4.9	0.00	**	2.20	4.00	31	4	24.500	0.00
32	5	749.47	2.10	6.0	2.10	6.0	0.00	**	2.50	4.00	32	5	13.300	0.00
33	6	567.48	1.50	5.6	1.33	5.0	.17	**	1.90	4.00	33	6	6.400	0.00
34	1	117.04	1.00	8.5	1.00	8.5	0.00	**	1.40	5.00	34	1	197.000	0.00
35	2	89.41	1.00	11.2	1.00	11.2	0.00	**	1.40	4.00	35	2	30.100	0.00
36	3	60.12	1.20	20.0	.92	15.3	.28	**	1.60	4.00	36	3	8.080	0.00
37	4	94.02	1.70	18.1	1.41	15.0	.29	**	2.20	4.00	37	4	6.280	.20
38	5	133.35	2.00	15.0	1.70	12.8	.30	**	2.40	4.00	38	5	5.080	0.00
39	1	96.16	.60	6.2	.60	6.2	0.00	**	1.00	4.00	39	1	130.000	0.00
40	2	92.50	.80	8.6	.80	8.6	0.00	**	1.20	4.00	40	2	31.200	0.00
41	3	76.05	1.40	18.4	1.20	15.7	.20	**	1.80	4.00	41	3	10.200	0.00
42	4	64.10	1.60	25.0	1.11	17.4	.49	**	2.00	4.00	42	4	4.290	0.00
43	5	98.80	2.10	21.3	1.65	16.7	.45	**	2.50	4.00	43	5	3.760	0.00
44	6	1386.20	1.40	1.0	1.40	1.0	0.00	**	1.80	4.00	44	6	33.200	0.00
45	2	107.03	.70	6.5	.70	6.5	0.00	**	1.20	4.00	45	2	36.100	.20
46	3	101.84	1.10	10.8	.96	9.5	.14	**	1.50	4.00	46	3	13.700	0.00
47	4	92.28	1.70	18.4	1.40	15.2	.30	**	2.10	4.00	47	4	6.170	0.00
48	5	86.89	1.70	19.6	1.16	13.4	.54	**	2.10	4.00	48	5	3.320	0.00
49	6	133.66	2.40	18.0	1.94	14.5	.46	**	2.80	4.00	49	6	3.170	0.00
50	3	137.80	1.20	8.7	1.11	8.1	.09	**	1.70	4.00	50	3	18.500	.20
51	4	131.67	1.40	10.6	1.22	9.3	.18	**	1.80	4.00	51	4	8.830	0.00
52	5	129.40	2.20	17.0	1.89	14.6	.31	**	2.60	4.00	52	5	4.920	0.00
53	6	127.88	2.50	19.5	2.02	15.8	.48	**	2.90	4.00	53	6	3.030	0.00
54	4	114.12	1.60	14.0	1.38	12.1	.22	**	2.10	4.00	54	4	7.630	.20
55	5	111.19	1.90	17.1	1.52	13.6	.38	**	2.30	4.00	55	5	4.240	0.00
56	6	110.69	2.60	23.5	2.01	18.2	.59	**	3.00	4.00	56	6	2.620	0.00

Job: 681, Line 7, Sel, N½ 2/3/72

1000.

Note: 2 cal cards

G S

B N

DP 56

Power line @18N
Pipelines @ 21N, 18N
G.F. @ 250'N & 350'
R.R. @ 300'N

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT 681-72
LINE 7 HALF N SP. 1 DATE 2-3

PAGE 1

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
RANGE	10	10	1.0	0.1	10	10	1.0	10	1.0	10
DC 1	0.6	2.0	3.7	-4.7	1.0	2.5	-0.7	1.5	2.1	2.1
DC 2 / 1/2		1.4 @1	2.0@1	-4.7						
DC 3 0.1		3.0 @.1	6.1 @.1	-0.3						
DC 4										
DC 5 CUR	C5.0	8.0	2.7 6.	5.	8.	6.	5.	6.	5.	8.
DC 6 #	1	2	with 3	4	5	6	7	8	9	10
DC 7 η	1	2	1 & 0.13	4	1	2	3	1	2	1
DC 8										
DC AVG.										
AC 1	250.	116.	46.0	6.88	448.	126.	18.2	461.	53.7	292.
AC 2	—	—	—		—	—		—	—	—
AC AVG.										
S.P.										
AC NOISE										
POT RES.										

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 681-72
LINE 7 HALF N SP. 1 DATE 2-3

SEND	CAL	S-P	S-P	S-P	5-6	4-5	3-4	2-3	1-2	
RECEIVE	3-4	0-10N	10-20N	20-30N	30-40N	→	→	→	→	
RANGE					10	1.0	1.0	1.0	0.1	
DC 1					~~0.2~~	-0.2	-0.5	-2.0	-3.8	
DC 2 3	203.				1.1				-3.7	1.0 Hz
DC 3 1	0.0								-1.7	0.1 Hz
DC 4 0.3	-0.1									
DC 5 0.1	0.4									
DC 6 CUR	2.				6.	8.	6.	5.	5.	
DC 7 #	1				11	12	13	14	15	
DC 8 η					1	2	3	4	5	
DC AVG.										
AC 1	203				257.	59.2	31.3	13.8	6.74	
AC 2	0.0				—	—	—	—		
AC AVG.										
S.P.	3.0	-72.6	-63.3	+117.5	+91.1					
AC NOISE	.3									
POT RES.		2K	40K	5K	2K					

Switched to
1.0 & 0.1 @ 50-60

PAGE 3

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 681-72
LINE 7 HALF D SP. 1 DATE 2-7

SEND	6-7	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE	40-50	~~D-26~~				→	50-60 N			
RANGE	10	1.0	1.0	1.0	0.1	0.1	10	1.0	0.1	0.1
DC 1	0.0	-1.0	-4.2	-3.3	-4.8	-6.3	1.3	1.6	1.8	1.5
DC 2 1 Hz		-0.7	-3.0	-2.2	6.12 mv	3.24 mv				
DC 3 0.1		0.8	-1.1	-0.3	1.6	0.6				
DC 4							→ Cal #2			
DC 5										
DC 6 CUR	5.	6.	8.	6.	5.	5.	5.	6.	8.	6.
DC 7 #	16	17	18	19	20	21	22	23	24	25
DC 8 η	1	2	3	4	5	6	2	3	4	5
DC AVG.										
AC 1	377.	49.7	20.1	13.4	6.33	3.37	110.	18.5	9.01	7.19
AC 2	—	—	—	—	—	—	—	—	—	—
AC AVG.										
S.P.	+63.5						+39.2			
AC NOISE										
POT RES.	3K						5K			

WANKLE STOPPED ~~[illegible]~~ ! 3 TIMES!

{DRIFT IS BAD FROM A.C. to A.C.}

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT 681-72

LINE 7 HALF N SP. 1 DATE 2-3

SEND	2-3	6-7	5-6	4-5	3-4	6-7	5-6	4-5		CAL
RECEIVE	50-60	60-70	→	→	→	70-80 N	→	→		#2
RANGE	0.1	1.0	0.1	0.1	0.1	1.0	0.1	0.1		
DC 1	~~-0.7~~	1.5	1.9	2.0	2.0	1.5	1.9	2.1		
DC 2	1.8									.4
DC 3										2.
DC 4										2.
DC 5 CUR	5.0	5.	6.	8.	6.	5.	6.	8.		203
DC 6 #	26	27	28	29	30	31	32	33		0.
DC 7 η	6	3	4	5	6	4	5	6		1.0
DC 8										0.1
DC AVG.	3.62									
AC 1	3.70	49.0	8.14	4.78	4.38	27.4	4.15	2.89		
AC 2		—	—	—		—	—	—		
AC AVG.										
S.P.		+11.2				+55.2				
AC NOISE										
POT RES.		4k				3k				

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT DRAGOON N.W. 681

LINE 7 HALF N SP. 1 DATE 2-3-72

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
RANGE	20x250	20x400	20x300	20x250	20x400	20x300	20x250	20x300	20x250	20x400
VOLTAGE	450	350	480	450	350	480	500	480	430	350
CURRENT	5.0	8.0	6.0	5.0	8.0	6.0	5.0	6.0	5.0	8.0
SEND	CAL	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4
RECEIVE	3-4	30-40	N	→	→	→	40-50	N	→	→
RANGE	10x200	20x300	20x400	20x300	20x250	20x250	20x250	20x300	20x400	20x300
VOLTAGE	215	480	340	480	500	420	500	470	340	490
CURRENT	2.0	6.0	8.0	6.0	5.0	5.0	5.0	6.0	8.0	6.0

FREQUENCIES 3 0.3

SENDER NO. 22705-S

OPERATOR

RECEIVER NO. 19692-R

OPERATOR

COMMENTS:

WANKLE

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT DRAGOON N.W. 681

LINE 7 HALF N SP. 1 DATE 2-3-72

SEND	2-3	1-2	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5
RECEIVE	40-50	→	50-60	N	→	→	→	60-70	→	→
RANGE	20x250	20x250	20x250	20x300	20x400	20x300	20x250	20x250	20x300	20x400
VOLTAGE	500	440	500	470	340	490	500	500	470	340
CURRENT	5.0	5.0	5.0	6.0	8.0	6.0	5.0	5.0	6.0	8.0
SEND	3-4	6-7	5-6	4-5						
RECEIVE	→	70-80	→	→						
RANGE	20x300	20x250	20x300	20x400						
VOLTAGE	490	500	470	340						
CURRENT	6.0	5.0	6.0	8.0						

FREQUENCIES 3 0.3

SENDER NO. 22705-5

OPERATOR

RECEIVER NO. 19692-R

OPERATOR

COMMENTS:

Job 681, Line 7 Sq 1, N½ + S½, 2/9/72

1000.

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 681-72
LINE 1 HALF S SP. 1 DATE 2-4

PAGE 5

SEND	S-P	S-P	S-P	2-3	3-4	4-5	5-6	6-7		CAL
RECEIVE	5-10 S	10-20	20-30	30-40	→					4-5
RANGE				10.	1.0	1.0	1.0	0.1		10
DC 1										0.4
DC 2				0.8	1.3	2.0	3.7	~~-4.0~~		
DC 3							3.0	-7.6	0.3	2
DC 4								-4.4	0.1	3
DC 5								-80+	3.0 ±	
DC 6 Cm				5.	6.	8.	6.	5.		
DC 7 #				34	35	36	37	38		
DC 8 n				1	2	3	4	5		
DC AVG.										
AC 1				187.	96.4	54.5	~~25.8~~	~~2.37~~		203.
AC 2				0.0	0.0	0.0	25.5	~~2.35~~	1.0	—
AC AVG.							+0.2	~~2.37~~	1.0	~~1.0~~
S.P.	+65.1	+41.9	+29.1	+17.5				2.40		~~0.1~~
AC NOISE								-3.0		
POT RES.	5K	7K	9K	6K						

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT 681-72

LINE 7 HALF S SP. 1 DATE 24

PAGE 6

SEND	1-2	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	40-50					→	60-60			
RANGE	10.	1.0	1.0	1.0	1.0	.01	1.0	1.0	1.0	1.0
DC 1										
DC 2	0.8	1.0	1.7	2.7	~~4.2~~	-18.0	~~0.9~~	1.5	2.0	3.4
DC 3					3.4		1.1			
DC 4										
DC 5 CUR	5.	5.	6.	8.	6.	5.	5.	5.	6.	8.
DC 6 #	39	40	41	42	43	44	45	46	47	48
DC 7 3	1	2	3	4	5	6	2	3	4	5
DC 8										
DC AVG.										
AC 1	127.	54.0	40.7	28.8	~~14.8~~	.990	~~42.4~~	27.0	24.9	20.0
AC 2	0.0	0.0	0.0	0.0	~~+1.0~~	~.0	42.2	0.0	0.0	0.0
AC AVG.					14.9		+0.2			
S.P.	+3.1				+0.4		+5.7			
AC NOISE	Grounded fence ≈ 42.0'									
POT RES.	5K						4K			

See sketch on back

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT 681-72

LINE 7 HALF 5 SP. 1 DATE 24

PAGE 7

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		
RECEIVE	50-60	60-70	→	→	→	70-80	→	→		
RANGE	1.0	1.0	1.0	1.0	1.0	1.0	.01	0.1		
DC 1										
DC 2	4.8	1.6	2.8	2.9	4.0	2.1	2.8	3.6		
DC 3										
DC 4 avg	6.	5.	5.	6.	8.	5.8	5.	6.		
DC 5 #	49	50	51	52	53	54	55	56		
DC 6 n	6	3	4	5	6	4	5	6		
DC 7										
DC 8										
DC AVG.										
AC 1	10.9	20.7	15.9	16.1	14.1	12.5	9.03	9.88		
AC 2	+0.4	0.0	+0.2	0.0	0.0	0.0	0.0	0.0		
AC AVG.										
S.P.		GT 4				-29.1				
AC NOISE										
POT RES.		+1.8				4K				

22705-S
19692-R

INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON M.W. 681 Line: 7 Date: 2-4-72

Send	CAL	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6	6-7
Receive	4-5	30-40s	→	→	→	→	40-50s	→	→	→	→	→
Time	10 × 200	20 × 250	20 × 300	20 × 400	20 × 300	20 × 250	20 × 250	20 × 250	20 × 300	20 × 400	20 × 300	20 × 250
Range	110	500	500	350	480	500	450	500	495	345	475	500
Current	2.0	5.0	6.0	8.0	6.0	5.0	5.0	5.0	6.0	8.0	6.0	5.0

Send	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	50-60	→	→	→	→	60-70	s	→	→	70-80	s	→
Time	20 × 250	20 × 250	20 × 300	20 × 400	20 × 300	20 × 250	20 × 250	20 × 300	20 × 400	20 × 290	20 × 250	20 × 300
Range	450	500	490	345	475	450	500	490	350	500	500	490
Current	5.0	5.0	6.0	8.0	6.0	5.0	5.0	6.0	8.0	5.8	5.0	6.0

WATCH (I) ↗↑↑↑

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 7 SPREAD 1 NORTH 1/2 + SOUTH 1/2 2/4/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 2

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	.40	203.000	0.00	1.00	.10	.4000	.9852

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
22	2	262.44	.90	3.4	.90	3.4	0.00	**	1.30	5.00	22	2	110.000	0.00
23	3	92.23	1.20	13.0	1.04	11.3	.16	**	1.60	6.00	23	3	18.500	0.00
24	4	67.51	1.40	20.7	.95	14.0	.45	**	1.80	8.00	24	4	9.010	0.00
25	5	125.33	1.10	8.8	.78	6.2	.32	**	1.50	6.00	25	5	7.190	0.00
26	6	121.51	1.40	11.5	.88	7.2	.52	**	1.80	5.00	26	6	3.620	0.00
27	3	292.84	1.10	3.8	1.10	3.8	0.00	**	1.50	5.00	27	3	49.000	0.00
28	4	81.40	1.50	18.4	1.15	14.1	.35	**	1.90	6.00	28	4	8.140	0.00
29	5	62.80	1.60	25.5	.77	12.3	.83	**	2.00	8.00	29	5	4.780	0.00
30	6	122.76	1.60	13.0	1.09	8.9	.51	**	2.00	6.00	30	6	4.380	0.00
31	4	327.50	1.10	3.4	1.10	3.4	0.00	**	1.50	5.00	31	4	27.400	0.00
32	5	72.62	1.50	20.7	.82	11.3	.68	**	1.90	6.00	32	5	4.150	0.00
33	6	60.81	1.70	28.0	.39	6.4	1.31	**	2.10	8.00	33	6	2.890	0.00
34	1	110.98	.40	3.6	.40	3.6	0.00	**	.80	5.00	34	1	187.000	0.00
35	2	191.66	.90	4.7	.90	4.7	0.00	**	1.30	6.00	35	2	96.400	0.00
36	3	204.58	1.60	7.8	1.60	7.8	0.00	**	2.00	8.00	36	3	54.500	0.00
37	4	257.77	2.50	9.7	2.50	9.7	0.00	**	3.00	6.00	37	4	25.500	.20
38	5	47.30	-3.30	-69.8	-4.51	-95.3	1.21	**	-4.40	5.00	38	5	2.400	-3.00
39	1	75.37	.40	5.3	.40	5.3	0.00	**	.80	5.00	39	1	127.000	0.00
40	2	128.45	.60	4.7	.60	4.7	0.00	**	1.00	5.00	40	2	54.000	0.00
41	3	203.10	1.30	6.4	1.30	6.4	0.00	**	1.70	6.00	41	3	40.700	0.00
42	4	217.70	2.30	10.6	2.21	10.2	.09	**	2.70	8.00	42	4	28.800	0.00
43	5	264.62	2.80	10.6	2.69	10.1	.11	**	3.40	6.00	43	5	14.900	.40
44	6	26.74	-18.40	-688.0	-22.17	-828.9	3.77	**	-18.00	5.00	44	6	.990	0.00
45	2	100.48	.60	6.0	.60	6.0	0.00	**	1.10	5.00	45	2	42.200	.20
46	3	161.36	1.10	6.8	1.10	6.8	0.00	**	1.50	5.00	46	3	27.000	0.00
47	4	249.25	1.60	6.4	1.60	6.4	0.00	**	2.00	6.00	47	4	24.900	0.00
48	5	26.64	3.00	112.6	.46	17.1	2.54	**	3.40	8.00	48	5	22.000	0.00
49	6	313.95	4.20	13.4	4.06	12.9	.14	**	4.80	6.00	49	6	10.900	.40
50	3	123.83	1.20	9.7	1.10	8.9	.10	**	1.60	5.00	50	3	20.700	0.00
51	4	192.50	2.30	11.9	2.19	11.4	.11	**	2.80	5.00	51	4	15.900	.20
52	5	284.53	2.50	8.8	2.40	8.4	.10	**	2.90	6.00	52	5	16.100	0.00
53	6	302.23	3.60	11.9	3.45	11.4	.15	**	4.00	8.00	53	6	14.100	0.00
54	4	129.57	1.70	13.1	1.52	11.7	.18	**	2.10	5.80	54	4	12.500	0.00
55	5	191.31	2.40	12.5	2.22	11.6	.18	**	2.80	5.00	55	5	9.030	0.00
56	6	81.27	3.20	11.4	3.04	10.8	.16	**	3.60	6.00	56	6	9.880	0.00

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 7 SPREAD 1 NORTH1/2 2/3/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	-.10	203.000	0.00	3.00	.30	-.1000	.9852

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	148.82	.70	4.7	.70	4.7	0.00	**	.60	5.00	1	1	250.000	0.00
2	2	175.03	2.10	12.0	1.97	11.3	.13	**	2.00	8.00	2	2	116.000	0.00
3	3	235.21	3.80	16.2	3.61	15.3	.19	**	3.70	6.00	3	3	46.000	0.00
4	4	77.60	-4.60	-59.3	-6.23	-80.3	1.63	**	-4.70	5.00	4	4	6.880	0.00
5	1	167.34	1.10	6.6	1.10	6.6	0.00	**	1.00	8.00	5	1	448.000	0.00
6	2	254.73	2.60	10.2	2.53	9.9	.07	**	2.50	6.00	6	2	126.000	0.00
7	3	106.94	-.60	-5.6	-1.18	-11.0	.58	**	-.70	5.00	7	3	18.200	0.00
8	1	230.73	1.60	6.9	1.60	6.9	0.00	**	1.50	6.00	8	1	461.000	0.00
9	2	129.77	2.20	17.0	2.01	15.5	.19	**	2.10	5.00	9	2	53.700	0.00
10	1	110.26	2.20	20.0	2.14	19.4	.06	**	2.10	8.00	10	1	292.000	0.00
11	1	128.12	1.20	9.4	1.20	9.4	0.00	**	1.10	6.00	11	1	257.000	0.00
12	2	87.40	-.10	-1.1	-.43	-4.9	.33	**	-.20	8.00	12	2	59.200	0.00
13	3	153.57	-.40	-2.6	-.75	-4.9	.35	**	-.50	6.00	13	3	31.300	0.00
14	4	160.05	-1.90	-11.9	-2.53	-15.8	.63	**	-2.00	5.00	14	4	13.800	0.00
15	5	134.29	-3.70	-27.6	-5.00	-37.2	1.30	**	-3.80	5.00	15	5	6.740	0.00
16	1	223.08	.10	.4	.10	.4	0.00	**	0.00	5.00	16	1	377.000	0.00
17	2	97.05	-.90	-9.3	-1.18	-12.2	.28	**	-1.00	6.00	17	2	49.700	0.00
18	3	71.22	-4.10	-57.6	-5.09	-71.5	.99	**	-4.20	8.00	18	3	20.100	0.00
19	4	127.80	-3.20	-25.0	-4.05	-31.7	.85	**	-3.30	6.00	19	4	13.400	0.00
20	5	124.81	-4.70	-37.7	-6.13	-49.1	1.43	**	-4.80	5.00	20	5	6.330	0.00
21	6	104.64	-6.20	-59.2	-8.89	-85.0	2.69	**	-6.30	5.00	21	6	3.370	0.00

Moore Business Forms, Inc.

Job 681, Line 8, Spread 1, SW+NE¼, 2/9/72 1000.

DP 38

B.F.

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT DRAGOON 681

LINE 8 HALF SW SP. 1 DATE 2-9-72

PAGE 1

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
RANGE	1.0	1.0	1.0	1.0	10	1.0	1.0	10	1.0	10
DC 1	0.6	0.9	1.0	1.3	0.5	0.8	0.9	0.5	0.7	0.5
DC 2										
DC 3										
DC 4 Cm	3	6	8	6	7	8	6	8	6	6
DC 5 #	1	2	3	4	5	6	7	8	9	10
DC 6 n	1	2	3	4	1	2	3	1	2	1
DC 7										
DC 8										
DC AVG.										
AC 1	105.2	73.2	43.1	20.7	271.	102.0	40.0	308.	81.9	263.
AC 2	—	—	—	—	—	—	—	—	—	—
AC AVG.										
S.P.										
AC NOISE										
POT RES.										

ELECTRODE 2 IN WASH

#1 75' N. of WASH

CENTER IS 20S ON LINE 7

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT DRAGOON 681

LINE 8 HALF SW SP. 1 DATE 2-9-72

SEND	CAL	S.P.	S.P.	S.P.	2-3	3-4	4-5	5-6	6-7	1-2
RECEIVE	4.5	0-10 SW	10-20 SW	20-30 SW	30-40 W	—	—	—	→	40-50 SW
RANGE	10				1.0	1.0	1.0	1.0	1.0	1.0
DC 1	0.0				0.7	0.9	1.2	1.2	1.5	0.7
DC 2										
DC 3										
DC 4 Cen	2				2.5	4	6	7	7	3
DC 5 #	1				11	12	13	14	15	16
DC 6 n					1	2	3	4	5	1
DC 7										
DC 8										
DC AVG.										
AC 1	202.				83.8	49.3	34.2	20.5	15.0	71.7
AC 2	—				—	—	—	—	—	—
AC AVG.	1.0									
S.P.	0.1	+27.4	+15.8	+4.6	+21.6					+15.7
AC NOISE										
POT RES.		5K	9K	12K	5K					4K

Crossed fence @ 44 SW
∡ 30°

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT DRAGOON 681
LINE 8 HALF SW SP. 1 DATE 2-9-72

PAGE 3

SEND	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50s	→	→	→	→	50-60 SW	→	→	→	→
RANGE	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	0.1
DC 1	0.7	0.9	1.0	1.4	2.1	0.8	0.9	1.2	1.3	1.9
DC 2										
DC 3										
DC 4 Cm	2	4	7	7	7	3	3	4	7	7
DC 5 #	17	18	19	20	21	22	23	24	25	26
DC 6 "	2	3	4	5	6	2	3	4	5	6
DC 7										
DC 8										
DC AVG.										
AC 1	22.3	22.8	20.9	11.8	9.15	28.9	17.9	13.7	13.3	7.80
AC 2	—	—	—	—	—	—	—	—	—	—
AC AVG.										
S.P.						+21.7				
AC NOISE										
POT RES.						3K				

HEINRICHS GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT DRAGOON 681
LINE 8 HALF SW SP. 1 DATE 2-9-72

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4			
RECEIVE	60-70	→	→	→	70-80	→				
RANGE	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
DC 1	0.8	0.9	1.3	1.7	1.2	1.3	1.8			
DC 2										
DC 3										
DC 4 Cu	2	2	4	7	2	3	4			
DC 5 #	27	28	29	30	31	32	33			
DC 6 n	3	4	5	6	4	5	6			
DC 7										
DC 8										
DC AVG.										
AC 1	9.54	6.68	8.20	8.42	6.42	7.27	6.27			
AC 2	—	—	—	—	—	—	—			
AC AVG.										
S.P.	+17.5				-4.4					
AC NOISE										
POT RES.	3K				6K					

10:30 @ 30-40

STA 40 ≅ 100' NE of fence

HEINRICHS GEOEXPLORATION CO.

I.P. RECEIVER NOTES

PROJECT DRAGOON 681

LINE 8 HALF NE SP. 1 DATE 2-10-72

SEND	S.P.	S.P.	S.P.	5-6	4-5	3-4	2-3	1-2		CAL
RECEIVE	0-10 NE	10-20 NE	20-30 NE	30-40				→		6-7
RANGE				10	1.0	1.0	0.1	0.1		10
DC 1				0.7	0.9	0.9	1.1	1.3		0.0
DC 2										
DC 3										
DC 4 On				5	5	4	2	2		
DC 5 #				34	35	36	37	38		
DC 6 n				1	2	3	4	5		
DC 7										
DC 8										
DC AVG.										
AC 1				234.	68.4	24.7	7.40	4.36		201.
AC 2				—	—	—	—	—		—
AC AVG.										
S.P.	+15.4	+15.2	+9.4	+17.2						
AC NOISE										
POT RES.	5K	4K	4K	5K						

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT DRAGOON # 681

LINE 8 HALF SW SP. 1 DATE 2-9-72

PAGE 1

SEND	3-4	4-5	5-6	6-7	4-5	5-6	6-7	5-6	6-7	6-7
RECEIVE	1-2	→	→	→	2-3	→	→	3-4	→	4-5
RANGE	430	350	420	410	400	420	410	420	410	410
VOLTAGE	10X300	20X300	20X400	20X300	20X350	20X400	20X300	20X400	20X300	20X300
CURRENT	3.0	6.0	8.0	6.0	7.0	8.0	6.0	8.0	6.0	6.0
SEND	CAL	2-3	3-4	4-5	5-6	6-7	1-2	2-3	3-4	4-5
RECEIVE	4-5	30-40SW	→	→	→	→	40-50SW	→	→	→
RANGE	140	~~840~~ ~~10X250~~	505	350	360	450	940 940	~~729~~ ~~10X300~~	505	390
VOLTAGE	10X200	10X250	20X200	20X300	20X350	20X350	10X300	10X200	20X200	20X350
CURRENT	2.0	1.5	4.0	6.0	7.0	7.0	3.0	2.0	4.0	7.0

FREQUENCIES 1 0.1

SENDER NO. 23706-5

OPERATOR Bob Delgado

RECEIVER NO. 19692 R

OPERATOR Bill Freeman

COMMENTS:

HEINRICHS GEOEXPLORATION CO.

I. P. SENDER NOTES

PROJECT DRAGON #681

LINE 8 HALF SW SP. 1 DATE 2/9/72

SEND	5-6	6-7	1-2	2-3	3-4	4-5	5-6	1-2	2-3	~~3-4~~ ~~4-5~~
RECEIVE	40-50 SW →		50-60 SW →				→	60-70 SW →		
RANGE	360	450	920	1000	505	~~480~~ 390	360	660	720	505
VOLTAGE	20X350	20X350	10X300	10X300	20X200	20X350	20X350	10X200	10X200	20X200
CURRENT	7.0	7.0	3.0	3.0	4.0	7.0	7.0	2.0	2.0	4.0

SEND	~~4-5~~ 5	1-2	2-3	3-4
RECEIVE	60-70 SW	70-80 SW →		
RANGE	390	660	980	505
VOLTAGE	20X350	10X200	10X300	20X200
CURRENT	7.0	2.0	3.0	4.0

FREQUENCIES 1 0.1

SENDER NO. 23706-S

OPERATOR BOB DELGADO

RECEIVER NO. ~~19692~~ 19692-R

OPERATOR Bill FREEMAN.

COMMENTS:

23706-S

INDUCED POLARIZATION SENDER NOTES

Project: DRAGOON 681 Line: 8 Sp 1 NE Half Date: 2-10-72

Send	CAL	5-6	4-5	3-4	2-3	1-2	6-7	5-6	4-5	3-4	2-3	1-2
Receive	6-7	30-40	→	→	→	→	40-50 NE	→	→	→	→	→
Time	~~270~~ 150	270	300	505	700	640						
Range	~~20x250~~ 10x200	20x250	20x250	10x400	10x200	10x200						
Current	~~5.0~~ 3.0	5.0	5.0	4.0	2.0	2.0						
Send												
Receive												
Time												
Range												
Current												

HEINRICHS GEOEXPLORATION CO.
POST OFFICE BOX 5964
TUCSON, ARIZONA (85703)
PHONE 623-0578

JOB 681 LINE 8 SPREAD 1 SW + NE 1/2 2/9/72 1000 FEET=DIPOLE LENGTH
CAL GROUP NO. 1

CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL
2.000	0.00	202.000	0.00	1.00	.10	0.0000	.9901

COMPUTED DATA									FIELD DATA					
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	104.78	.60	5.7	.60	5.7	0.00	**	.60	3.00	1	1	105.200	0.00
2	2	146.26	.90	6.2	.90	6.2	0.00	**	.90	6.00	2	2	73.200	0.00
3	3	161.62	1.00	6.2	1.00	6.2	0.00	**	1.00	8.00	3	3	43.100	0.00
4	4	207.61	1.30	6.3	1.21	5.8	.09	**	1.30	6.00	4	4	20.700	0.00
5	1	115.57	.50	4.3	.50	4.3	0.00	**	.50	7.00	5	1	271.000	0.00
6	2	152.70	.80	5.2	.80	5.2	0.00	**	.80	8.00	6	2	102.000	-0.00
7	3	199.80	.90	4.5	.90	4.5	0.00	**	.90	6.00	7	3	40.000	0.00
8	1	114.93	.50	4.4	.50	4.4	0.00	**	.50	8.00	8	1	308.000	0.00
9	2	163.31	.70	4.3	.70	4.3	0.00	**	.70	6.00	9	2	81.900	0.00
10	1	130.85	.50	3.8	.50	3.8	0.00	**	.50	6.00	10	1	263.000	0.00
11	1	100.26	.70	7.0	.70	7.0	0.00	**	.70	2.50	11	1	83.800	0.00
12	2	147.75	.90	6.1	.90	6.1	0.00	**	.90	4.00	12	2	49.300	0.00
13	3	171.34	1.20	7.0	1.20	7.0	0.00	**	1.20	6.00	13	3	34.200	0.00
14	4	176.06	1.20	6.8	1.08	6.1	.12	**	1.20	7.00	14	4	20.500	0.00
15	5	226.11	1.50	6.6	1.36	6.0	.14	**	1.50	7.00	15	5	15.000	0.00
16	1	71.49	.70	9.8	.70	9.8	0.00	**	.70	3.00	16	1	71.700	0.00
17	2	133.40	.70	5.2	.70	5.2	0.00	**	.70	2.00	17	2	22.300	0.00
18	3	170.83	.90	5.3	.90	5.3	0.00	**	.90	4.00	18	3	22.800	0.00
19	4	179.14	1.00	5.6	.88	4.9	.12	**	1.00	7.00	19	4	20.900	0.00
20	5	177.70	1.40	7.9	1.20	6.8	.20	**	1.40	7.00	20	5	11.800	0.00
21	6	221.99	2.10	9.5	1.87	8.4	.23	**	2.10	7.00	21	6	9.150	0.00
22	2	115.37	.80	6.9	.80	6.9	0.00	**	.80	3.00	22	2	28.900	0.00
23	3	178.82	.90	5.0	.90	5.0	0.00	**	.90	3.00	23	3	17.900	0.00
24	4	205.91	1.20	5.8	1.10	5.4	.10	**	1.20	4.00	24	4	13.700	0.00
25	5	200.09	1.30	6.5	1.13	5.7	.17	**	1.30	7.00	25	5	13.300	0.00
26	6	188.87	1.90	10.1	1.62	8.6	.28	**	1.90	7.00	26	6	7.800	0.00
27	3	142.82	.80	5.6	.72	5.0	.08	**	.80	2.00	27	3	9.540	0.00
28	4	200.20	.90	4.	.80	4.0	.10	**	.90	2.0	28	4	6.680	0.00
29	5	215.89	1.30	6.0	1.15	5.3	.15	**	1.30	4.00	29	5	8.200	0.00
30	6	203.48	1.70	8.4	1.44	7.1	.26	**	1.70	7.00	30	6	8.420	0.00
31	4	192.98	1.20	6.	1.09	5.7	.11	**	1.20	2.0	31	4	6.420	0.00
32	5	255.21	1.30	5.1	1.18	4.6	.12	**	1.30	3.00	32	5	7.270	0.00
33	6	265.43	1.80	6.8	1.62	6.1	.18	**	1.80	4.00	33	6	6.270	0.00
34	1	139.98	.70	5.0	.70	5.0	0.00	**	.70	5.00	34	1	234.000	0.00
35	2	164.00	.90	5.5	.90	5.5	0.00	**	.90	5.00	35	2	68.400	0.00
36	3	185.07	.90	4.9	.90	4.9	0.00	**	.90	4.00	36	3	24.700	0.00
37	4	222.22	1.10	5.0	1.01	4.6	.09	**	1.10	2.00	37	4	7.400	0.00
38	5	229.58	1.30	5.7	1.16	5.1	.14	**	1.30	2.00	38	5	4.360	0.00

March 2, 1972

Mr. Q.A. Shaw, President
North American Mines, Inc.
Room 920
50 Congress Street
Boston, Massachusetts 02109

Re: GEOEX Job # 681
NW Dragoon Project
Cochise County, Arizona

Dear Mr. Shaw:

This letter is to serve as a brief report on the I.P. - magnetic survey we recently completed in the NW Dragoon Mountains, Cochise County, Arizona.

Seven I.P. lines and six magnetic traverses were completed. Lines 1, 3, 4, 5 and 7 had both I.P. and magnetic coverage with Line 2 having only magnetic coverage and Lines 6 and 8 having only I.P. coverage.

All I.P. coverage was of a reconnaissance nature and on a 1,000 foot dipole spacing. The dual frequency I.P. technique was used with sending frequencies of 0.1 and 1.0 hertz thereby minimizing inductive coupling interference in the conductive alluvial covered areas. The magnetic coverage was also of a reconnaissance nature and on a 250 foot station interval.

The total I.P. surface coverage aggregates 20.3 line miles of which 12.7 line miles are "subsurface" plotted coverage. A total of 18.2 line miles of magnetic coverage were obtained. Approximately 12 square miles were prospected in a reconnaissance fashion by this survey.

Attached herewith are seven sectional data sheets showing the I.P. information with its associated resistivity, self potential and magnetic information.. Magnetic Line 2 is shown as a separate profile. The location of all coverage is shown in plan on a portion of the U.S.G.S. St. David and Dragoon 15 minute topographic quadrangles at a scale of 1:62,500 which also shows the general land status situation.

For the most part, the I.P. data shows only minor background variations except for the south half of Line 7 and the southeast end of Line 5. A cross line (Line 8) was run over the anomalous portion of Line 7 for further verification and gave negative results. Apparently, the railroad and its grounded right-of-way fences caused the response on Line 7, whereas Line 8, being roughly parallel to the tracks, avoided this artificial response.

Some additional work is perhaps justified on the Line 5 anomaly and, as we discussed by telephone on March 2, 1972, we will send a geologist to this area to make a brief examination. Mobile magnetometer reconnaissance coverage run in 1958 disclosed a small but strong magnetic anomaly in the south half of Section 24, T. 17 S., R. 22 E. which was caused by a several foot wide magnetite zone near a limestone-granite contact. Marblelization and minor copper oxide staining were also associated. This contact zone is quite near the weak I.P. response on Line 5 and could be related. The contact zone happens to be on private land and this problem will have to be dealt with if much additional work is warranted based on the initial reconnaissance results.

Higher resistivities at depth imply that bedrock was apparently reached on portions of all I.P. traverses except perhaps Line 4 which may be over a deep alluvial pocket. Therefore, the presence of a buried pediment was established in most of the area.

The magnetics do show some variation but most response is likely due simply to the normal magnetite variations in the underlying granite. No magnetic response indicative of contact type magnetite was noted except perhaps a one station high on Line 5 correlating with the weak I.P. anomaly near station 47.5 SE.

In light of the lack of significantly interesting I.P. or magnetic response, except on Line 5, we recommend concentrating any remaining effort on this project to the vicinity of Line 5 and south thereof. The prospecting permit applications to the north should be let to lapse with no rental payments being made.

We still believe this general area has good discovery potential and exploration work is certainly justified elsewhere around the periphery of the Dragoon and Little Dragoon Mountains. We are considering this as well as other possibilities for our next area presentation to you.

Respectfully submitted,
Heinrichs GEOEXploration Company

Chris

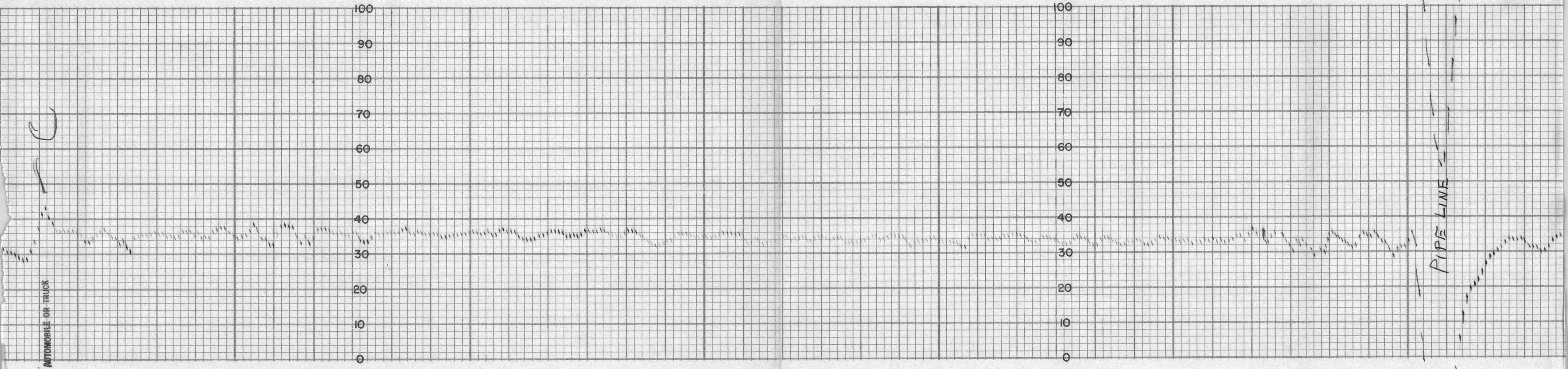
Chris S. Ludwig
Sr. Geophysicist

CSL:dm
Enclosures

STORE AT DRAGOON
23570'
0
10
20
30
40
50
60
70
80
90
100
AUTOMOBILE OR TRUCK
22300'
CATTLE
GUARD
22300
THE ESTERLINE-ANGUS CO., INC., INDIAN
CO., INC., INDIANAPOLIS, IND., U.S.A.
ES

APOLIS, IND., U.S.A. CHART NO. 17491X

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



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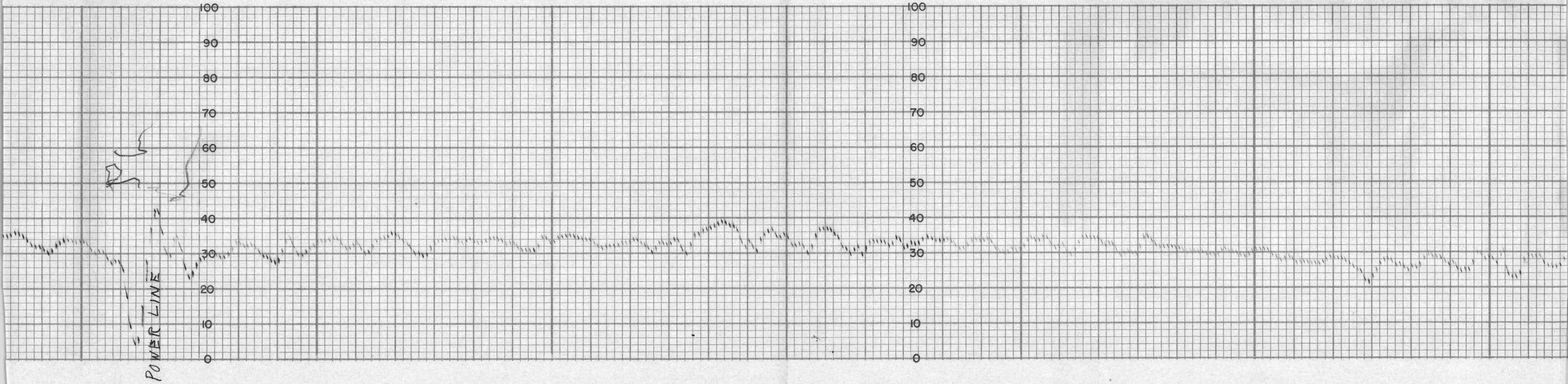

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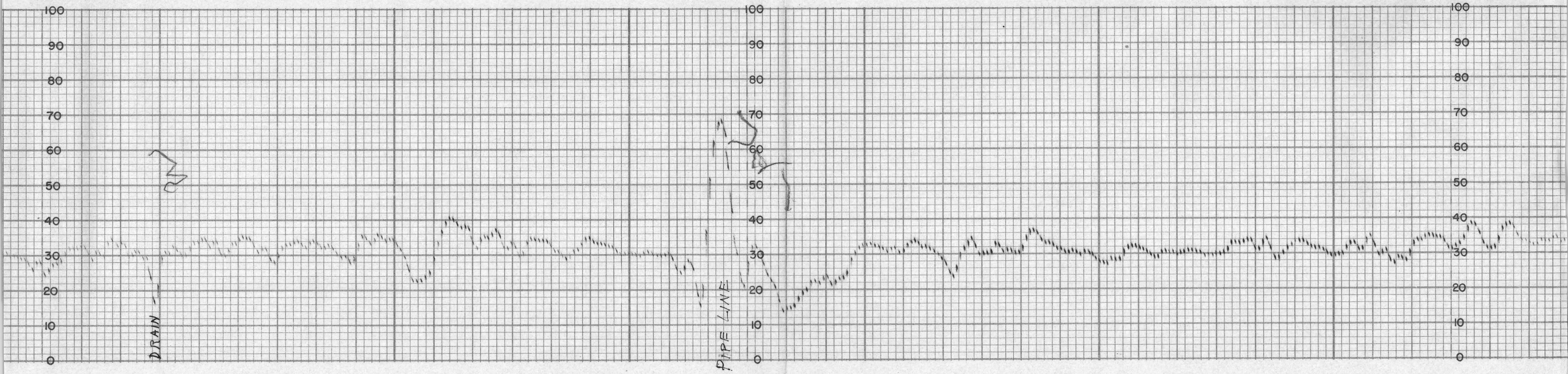

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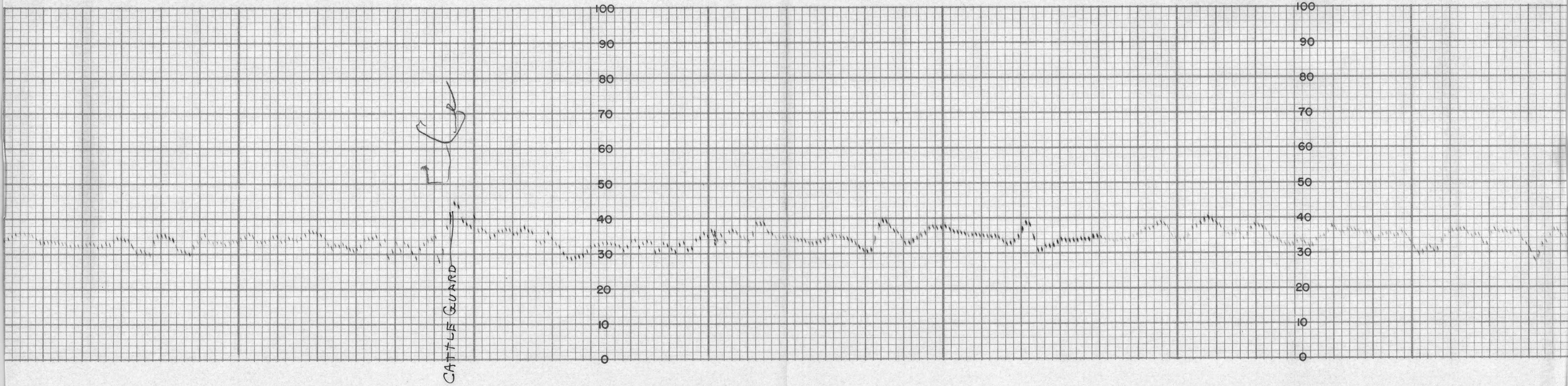

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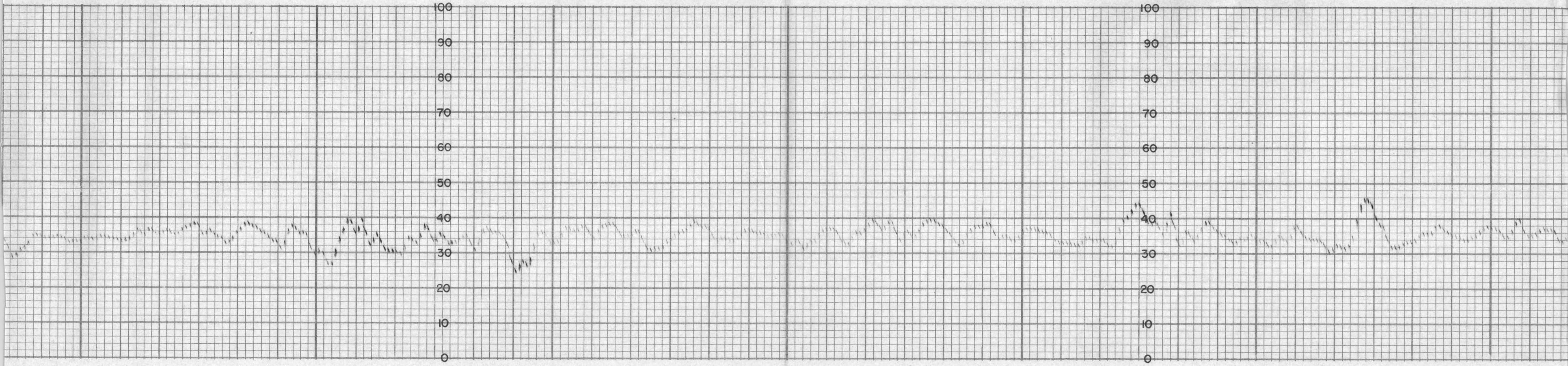

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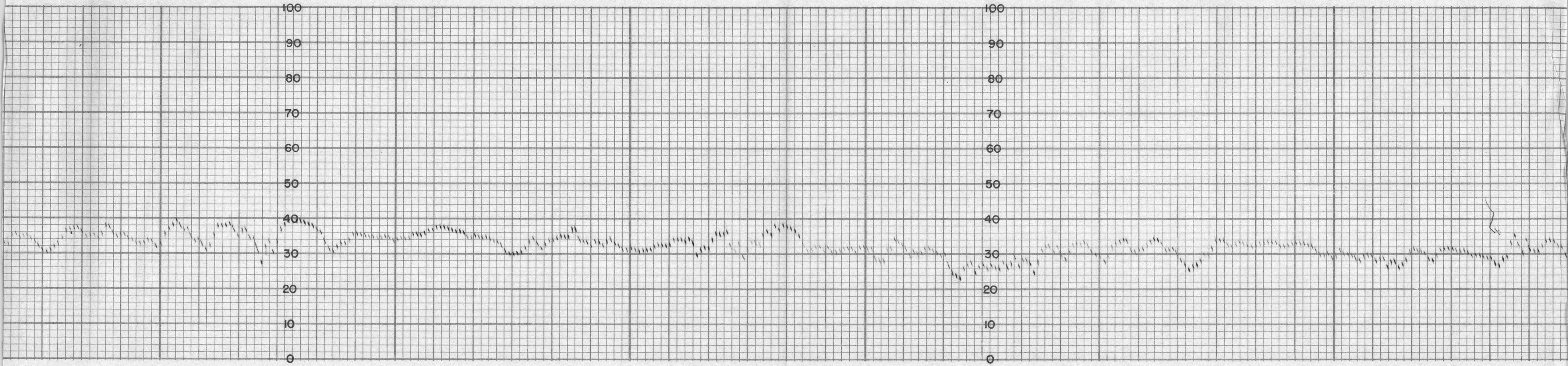

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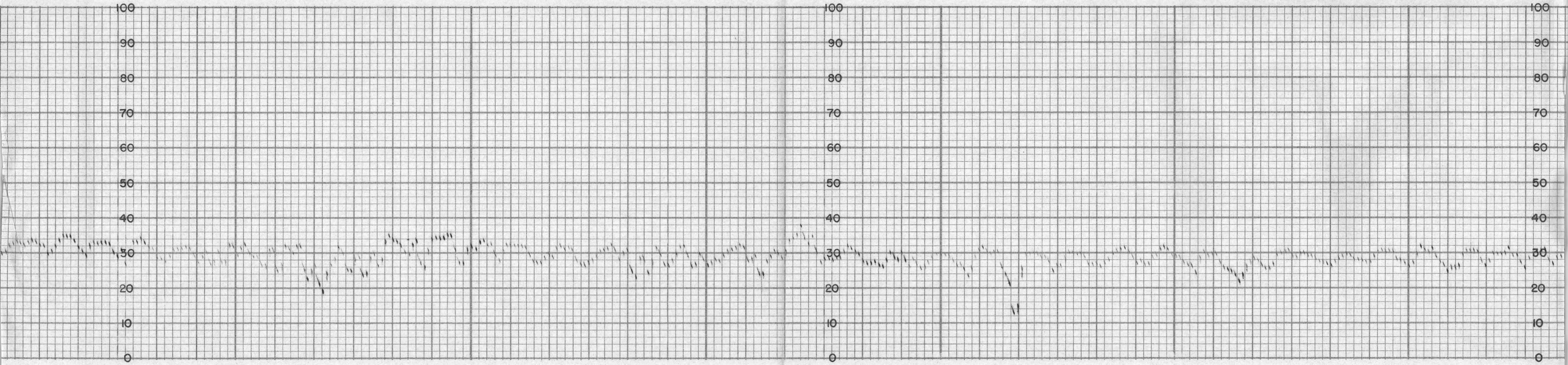

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

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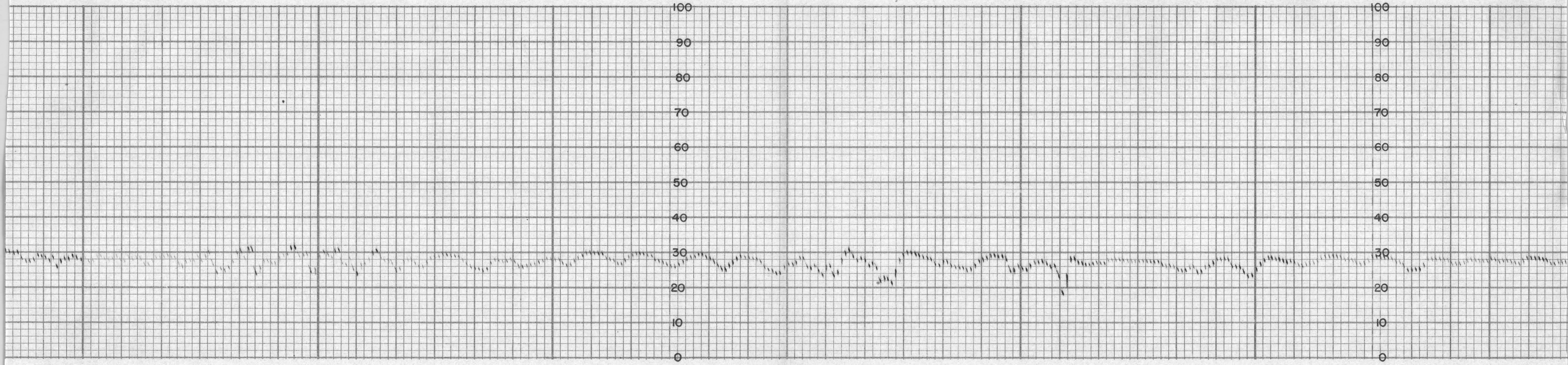

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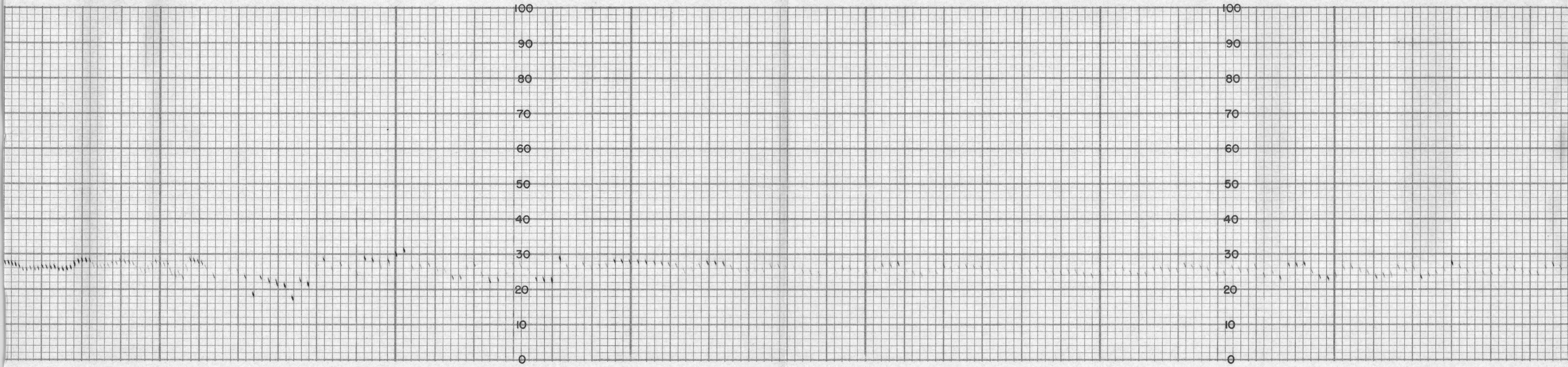
THE ESTERLINE-ANGUS CO., INC., INDIAN



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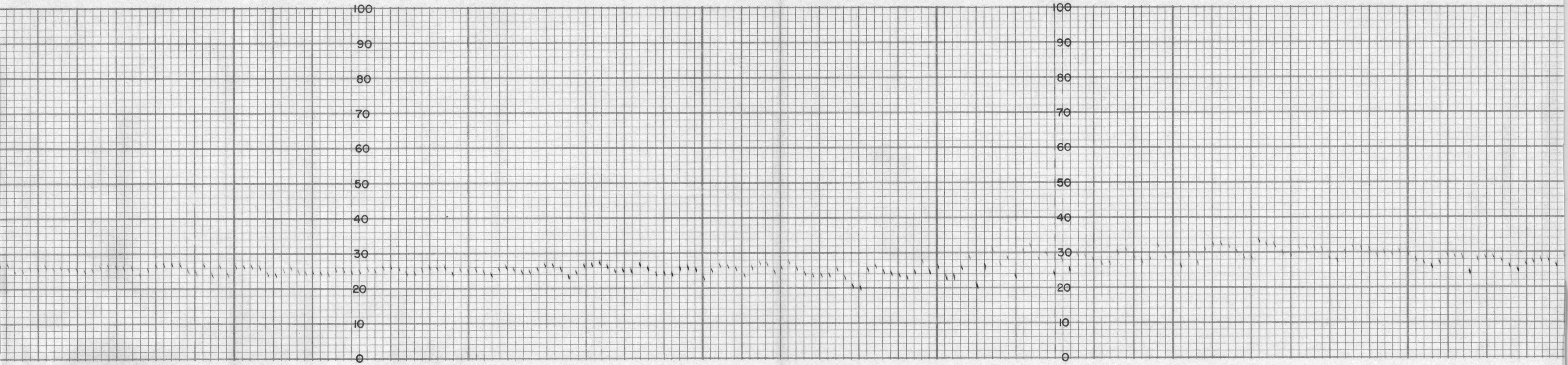

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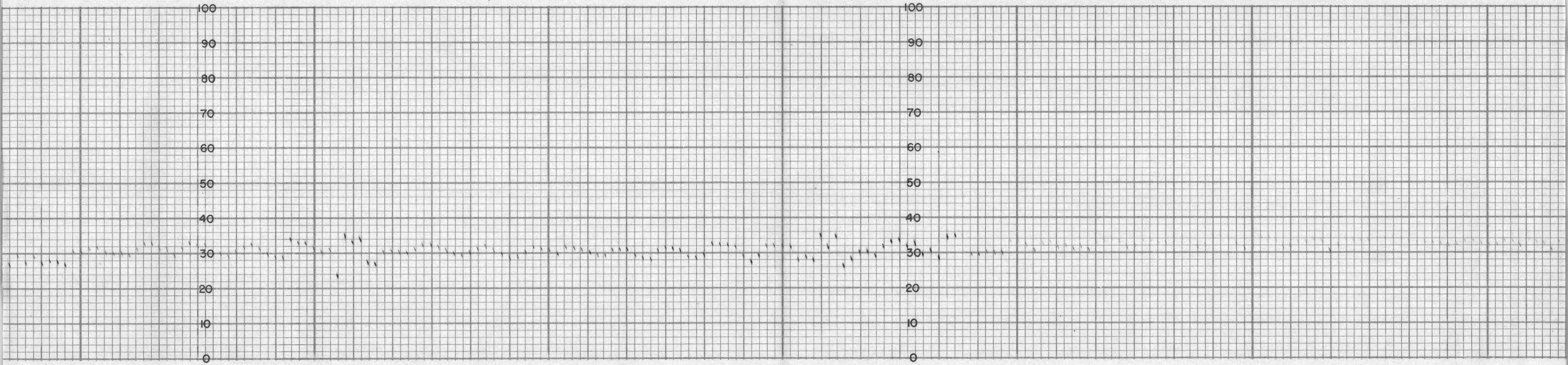
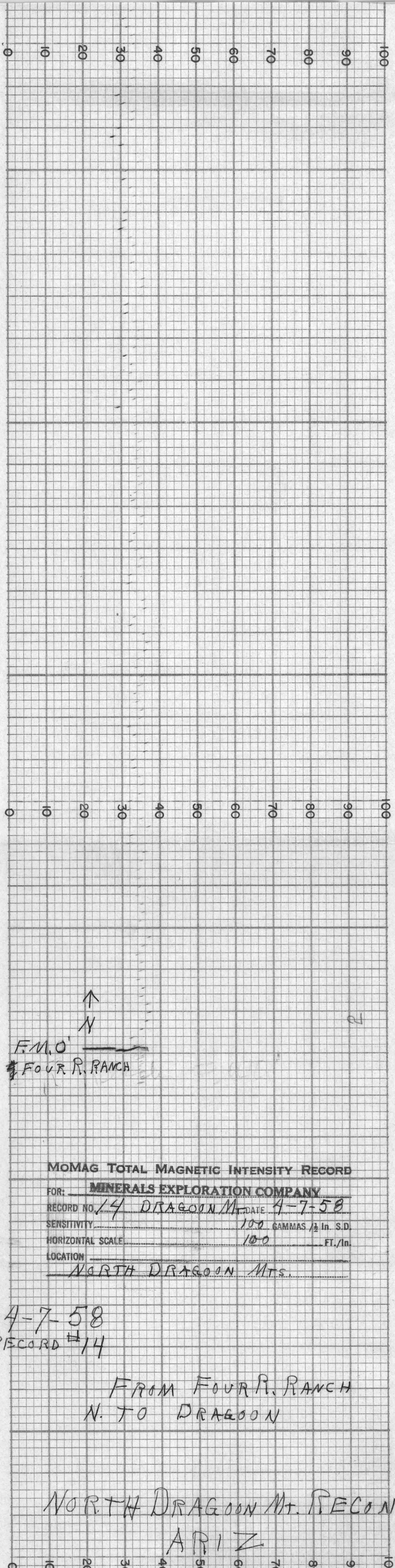




MoMag Total Magnetic Intensity Record

FOR: MINERALS EXPLORATION COMPANY

RECORD NO. 14 DRAGOON Mt. DATE 4-7-58

SENSITIVITY 100 GAMMAS /½ In. S.D.

HORIZONTAL SCALE 100 FT./In.

LOCATION NORTH DRAGOON MTS.

4-7-58
RECORD #14

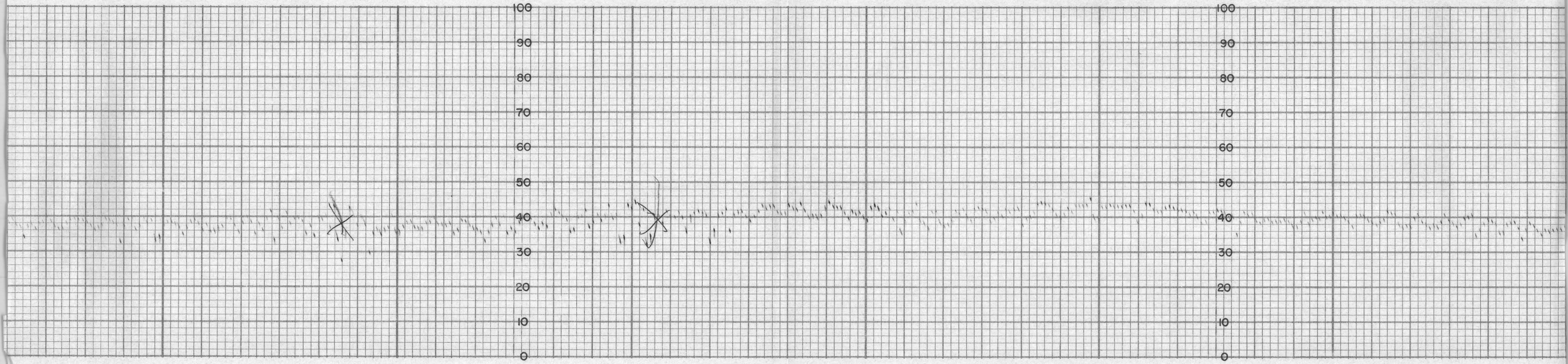
FROM FOUR R. RANCH
N. TO DRAGOON

NORTH DRAGOON Mt. RECON
ARIZ

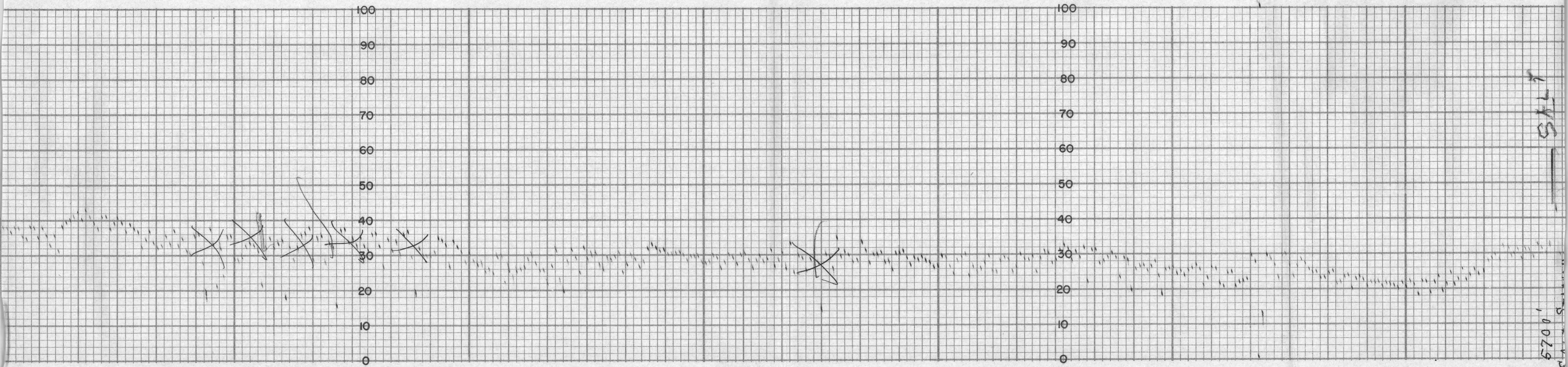
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

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

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



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

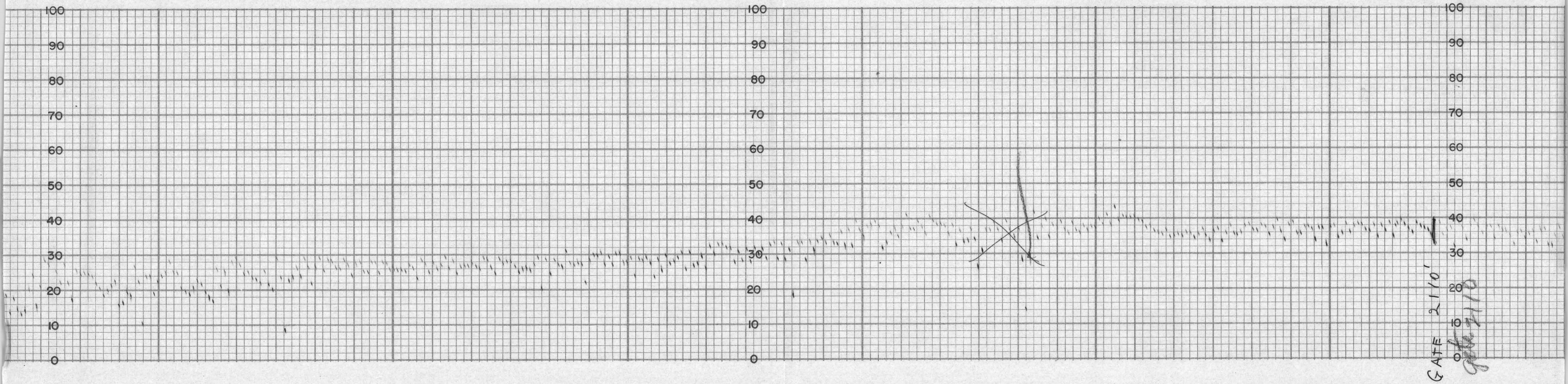


Sal 1

6700'

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

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



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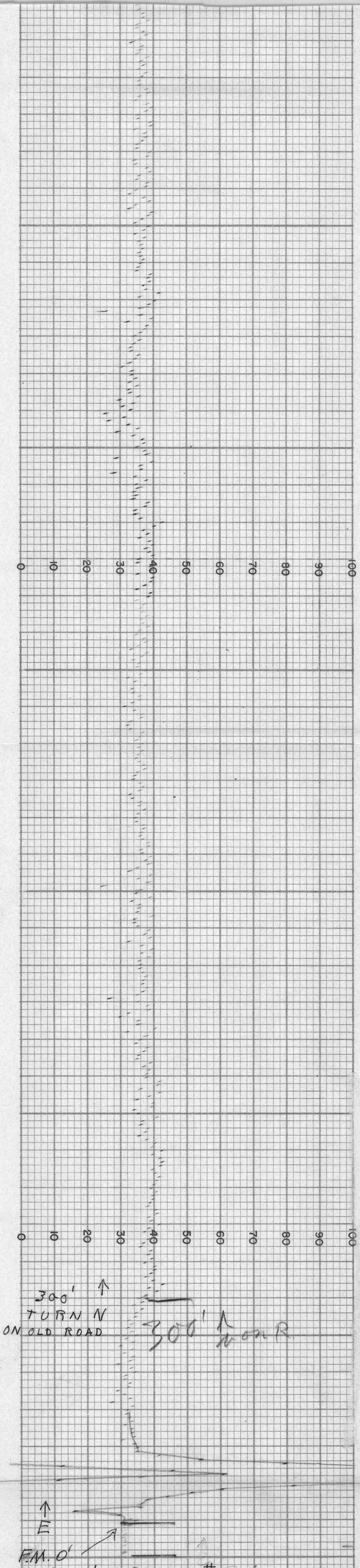


MOMAG TOTAL MAGNETIC INTENSITY RECORD
MINERALS EXPLORATION COMPANY

FOR:
RECORD NO. 13 DRAGOON MT DATE 4-7-58
SENSITIVITY 100 GAMMAS /½ in. S.D.
HORIZONTAL SCALE 100 FT./in.
LOCATION
NORTH DRAGOON MTS

4-7-58
RECORD #13

FROM 14250' ON RECORD #12 N TO FOUR R RANCH.

NORTH DRAGOON MT. RECON

ARIZ.

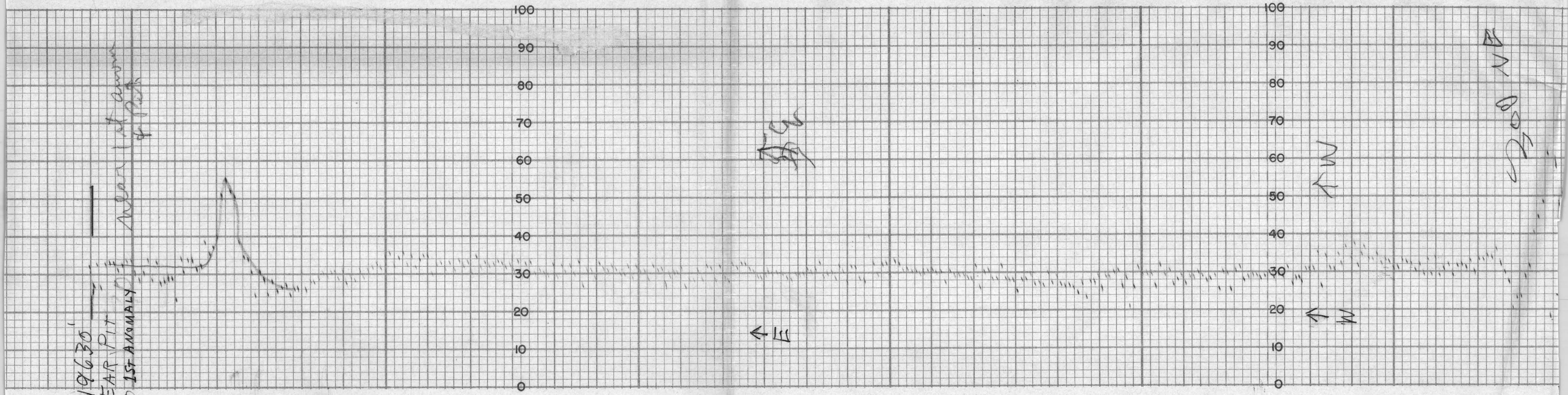
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

ANOMALY
"J"

see DIAGRAM OF "G"
Record # 12

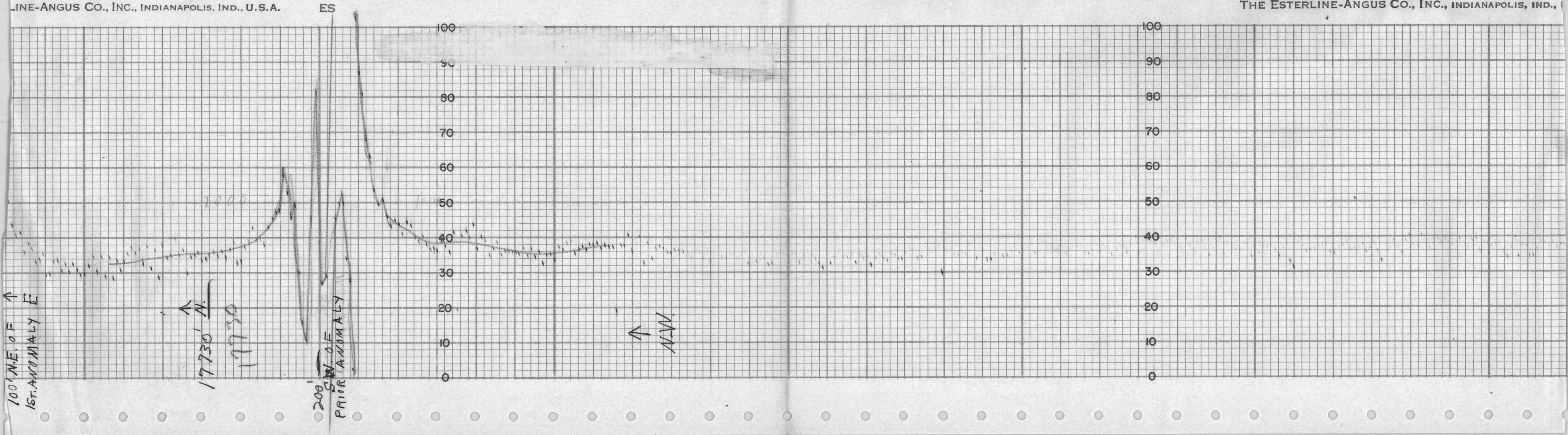
US CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

MADE IN U.S.A. THE ESTERI



ANOMALY
"I"

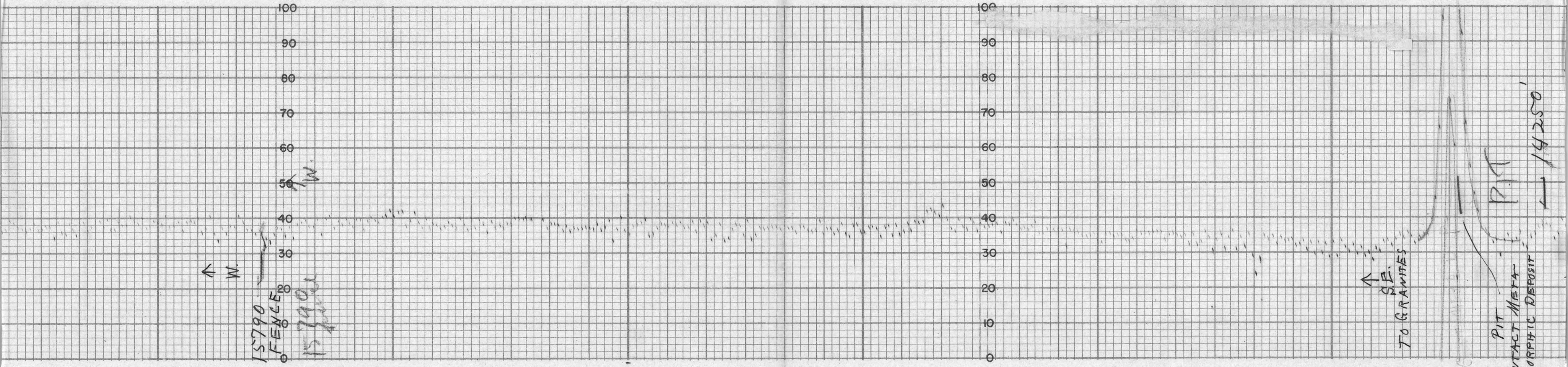
see DIAGRAM OF "G"


ES
100
90
80
70
60
50
40
30
20
10
0
100' N.E. OF 1st. ANOMALY E
17730' N.
17730
200' S.W. OF PRIOR ANOMALY
N.W.

ANOMALY
"H"

see DIAGRAM OF "G"

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

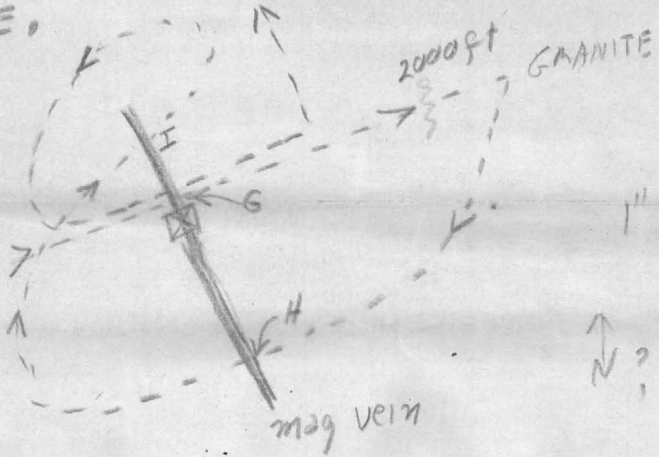


ANOMALY "6"

50 ft Wide
+1400 GAMMAS

CONTACT ZONE.

METAMORPHIC MAGNETITE



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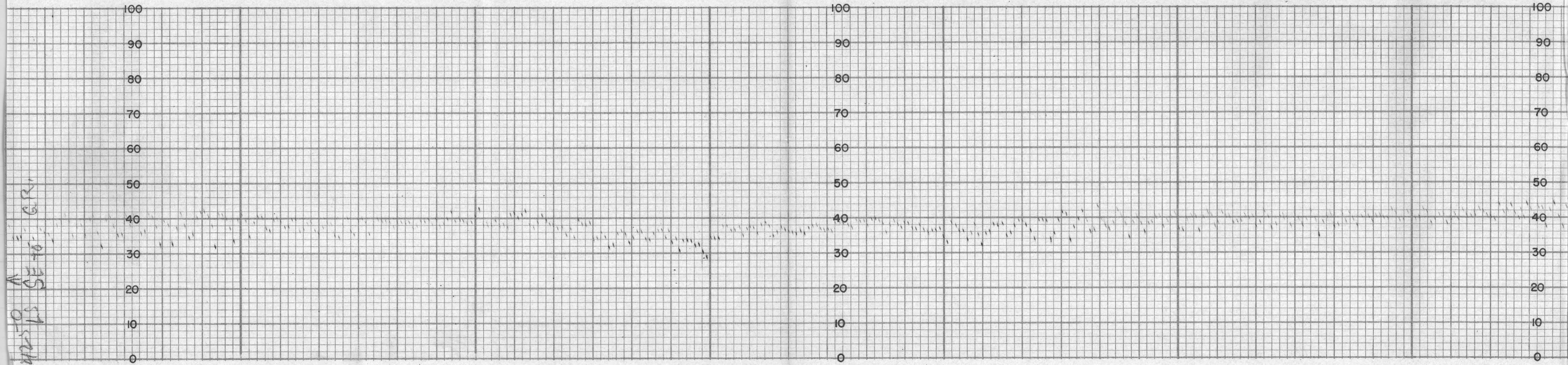
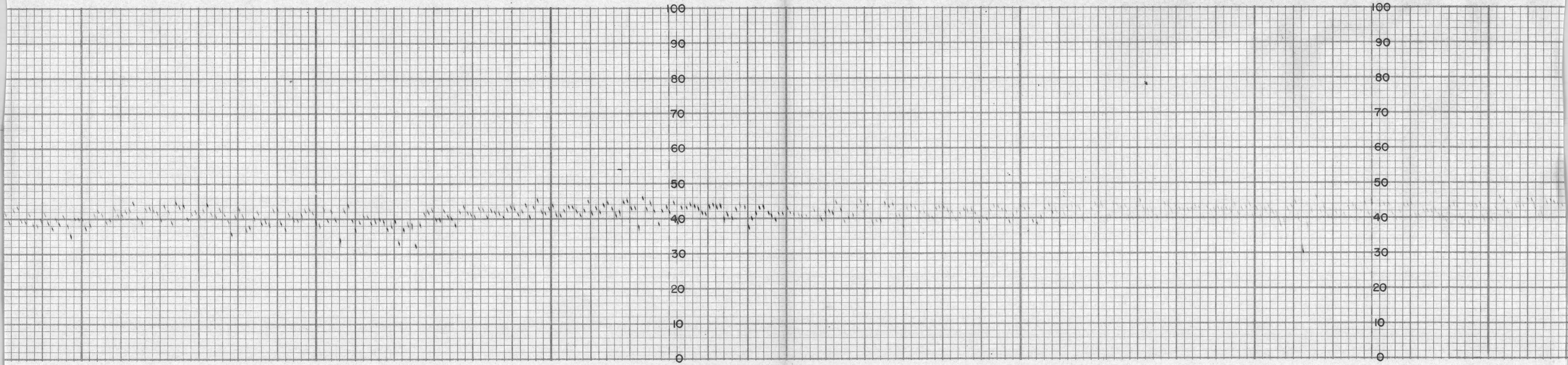
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X



1422-10 A 15 SE 70 GR.

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



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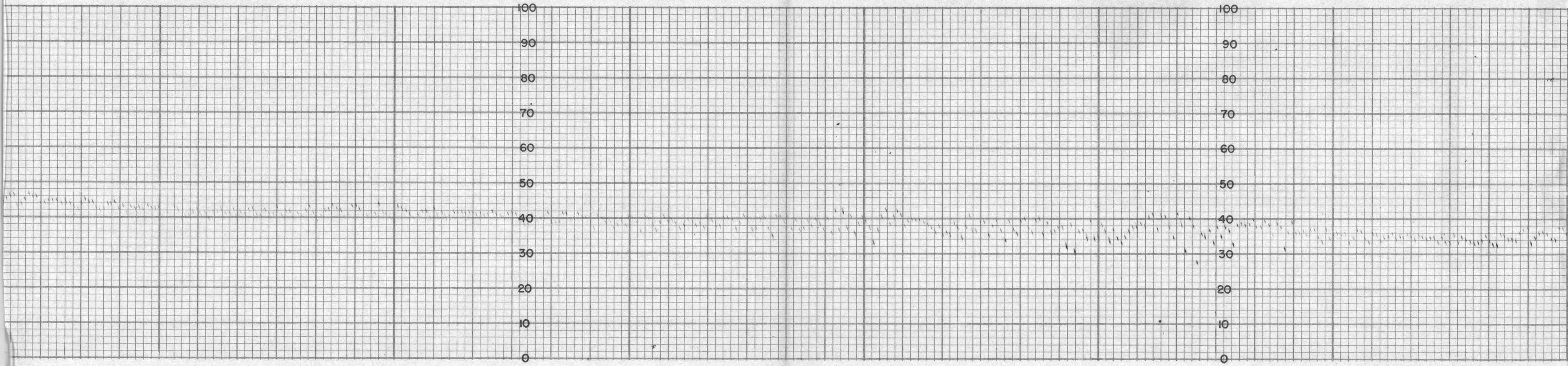

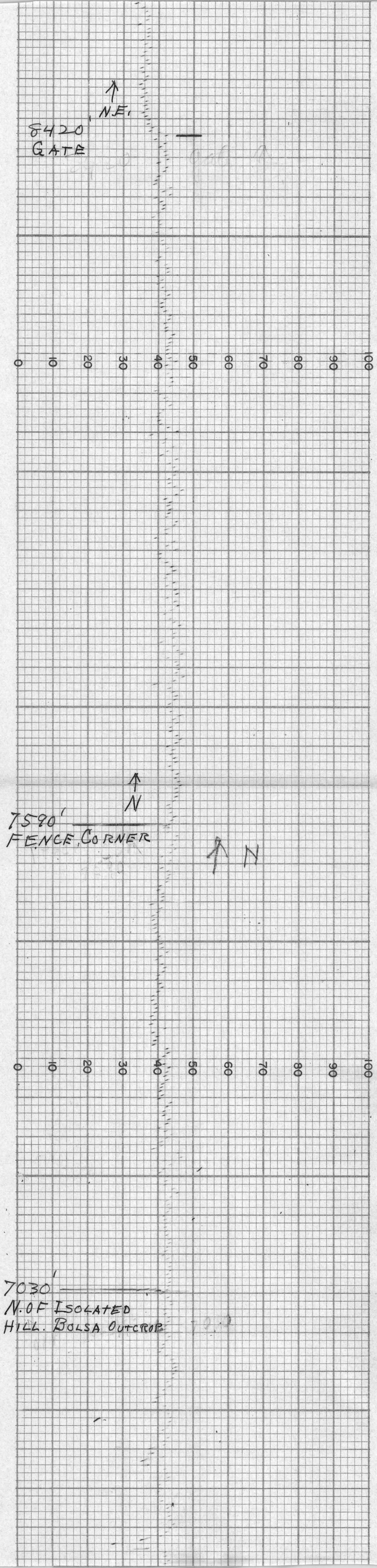

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

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

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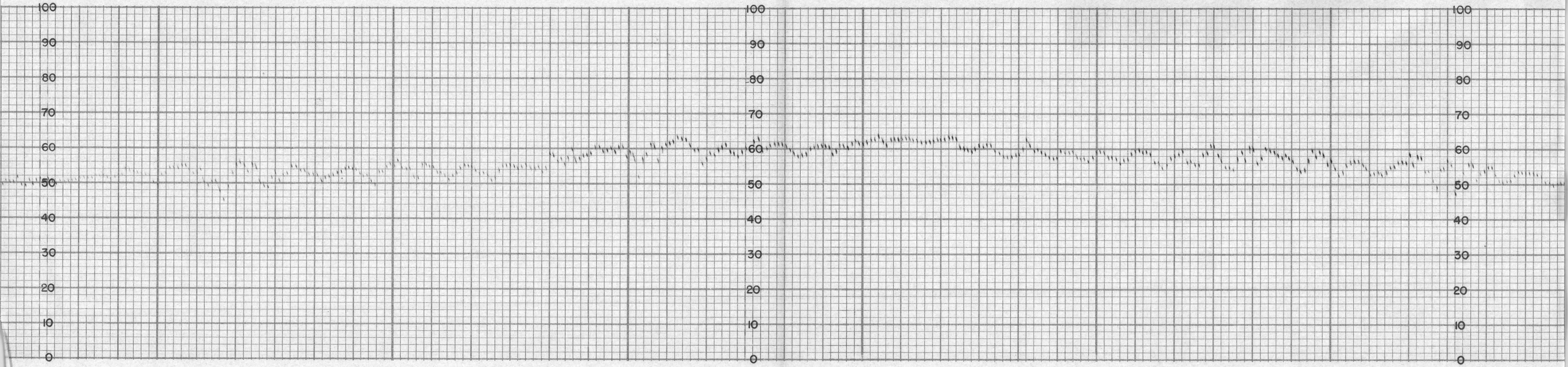

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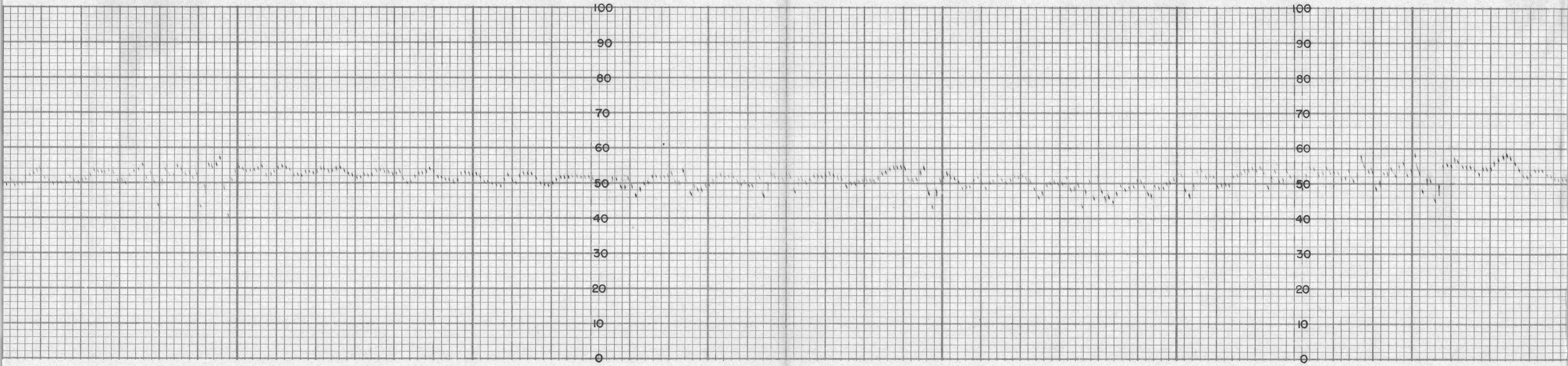
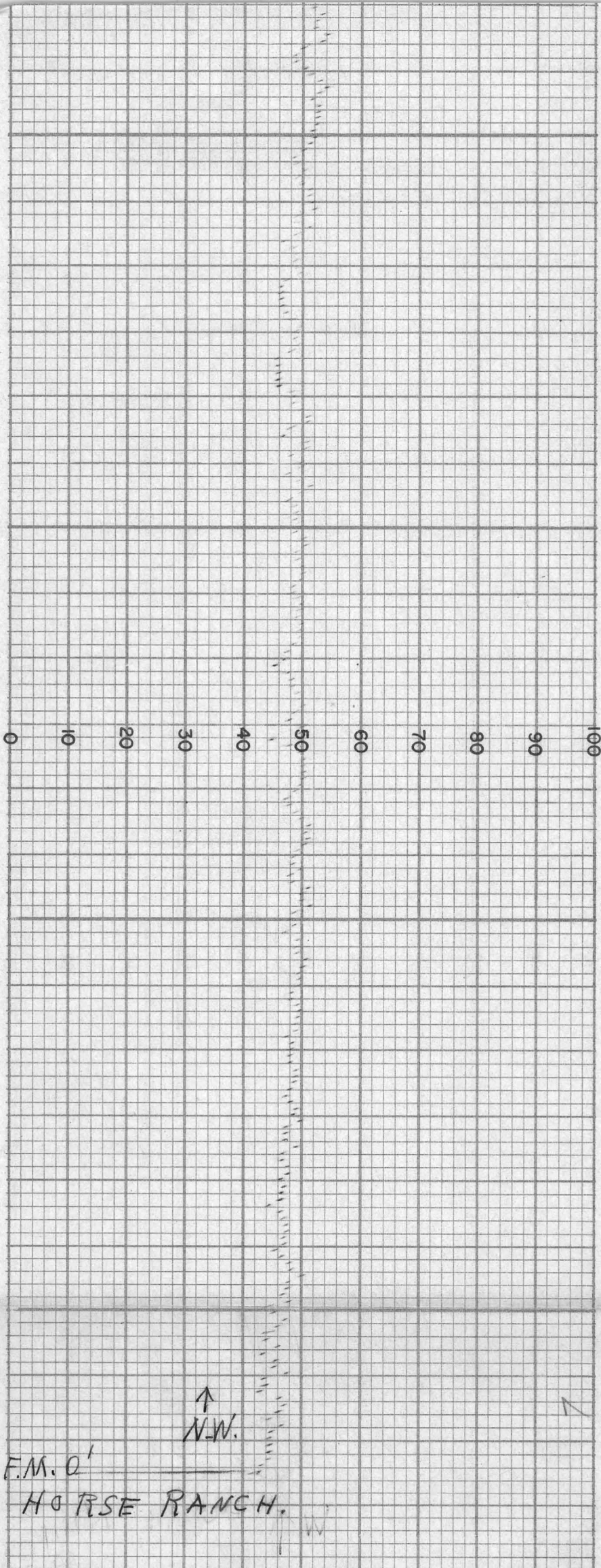


RLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES



MOMAG TOTAL MAGNETIC INTENSITY RECORD
MINERALS EXPLORATION COMPANY

FOR: _____

RECORD NO. 12. DRAGOON MT. DATE 4-7-58

SENSITIVITY 100 GAMMAS /½ In. S.D.

HORIZONTAL SCALE 100 FT./In.

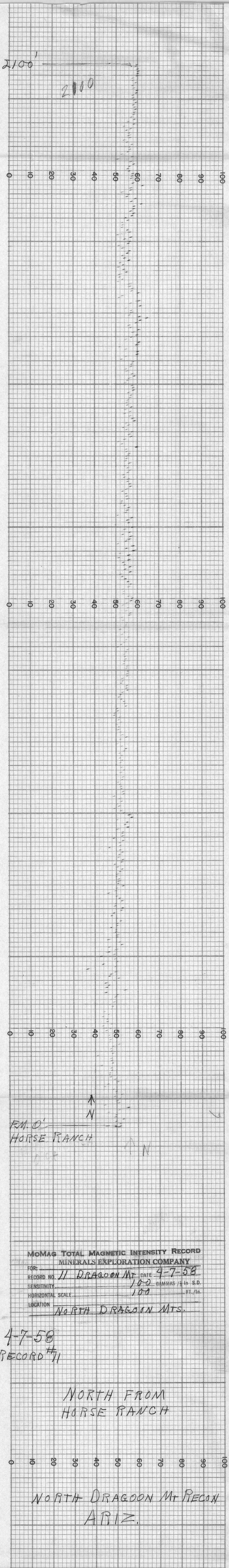
LOCATION NORTH DRAGOON MTS.

4-7-58
RECORD #12.

FROM HORSE RANCH N.W.
7590' TO FENCE CORNER, THEN
N.E. TO SEDIMENTARY OUTCROP
W. OF GRANITES, N. SIDE OF
STRONGHOLD GULCH.

NORTH DRAGOON MT RECON
ARIZ.

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U



MoMag Total Magnetic Intensity Record
MINERALS EXPLORATION COMPANY

FOR:
RECORD NO. 11 DRAGOON MT. DATE 4-7-58
SENSITIVITY 100 GAMMAS /½ In S.D.
HORIZONTAL SCALE 100 FT./In.
LOCATION NORTH DRAGOON MTS.

4-7-58
RECORD #11

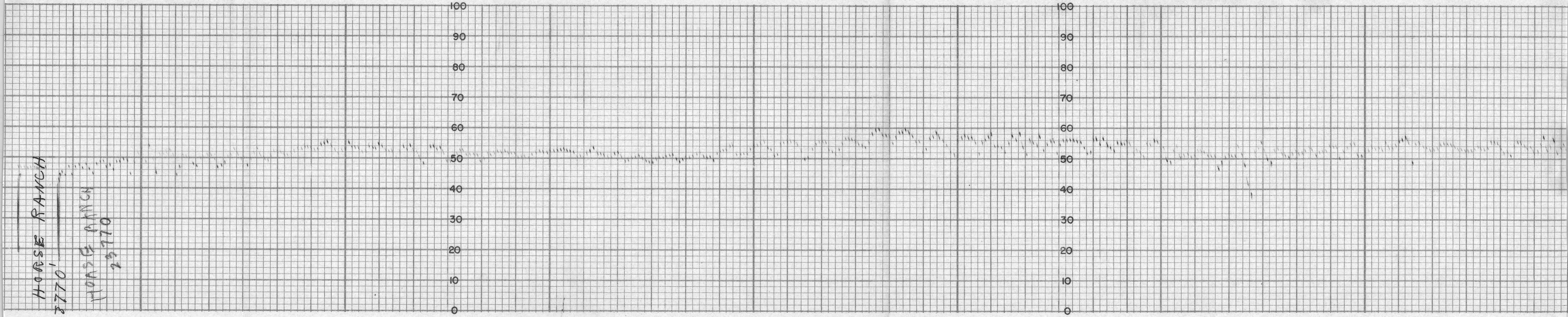
NORTH FROM
HORSE RANCH

NORTH DRAGOON MT RECON
ARIZ.

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

E-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

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



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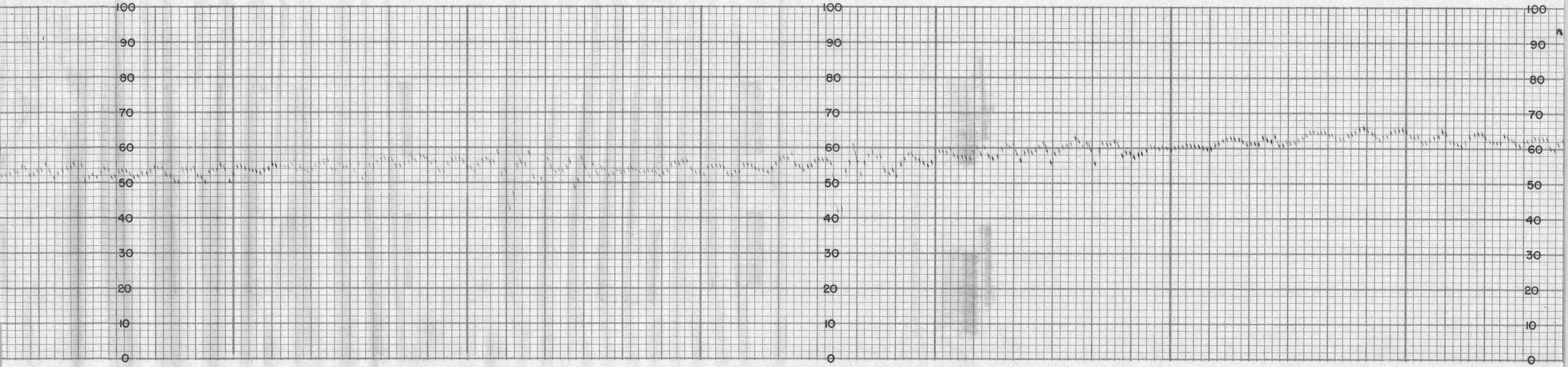
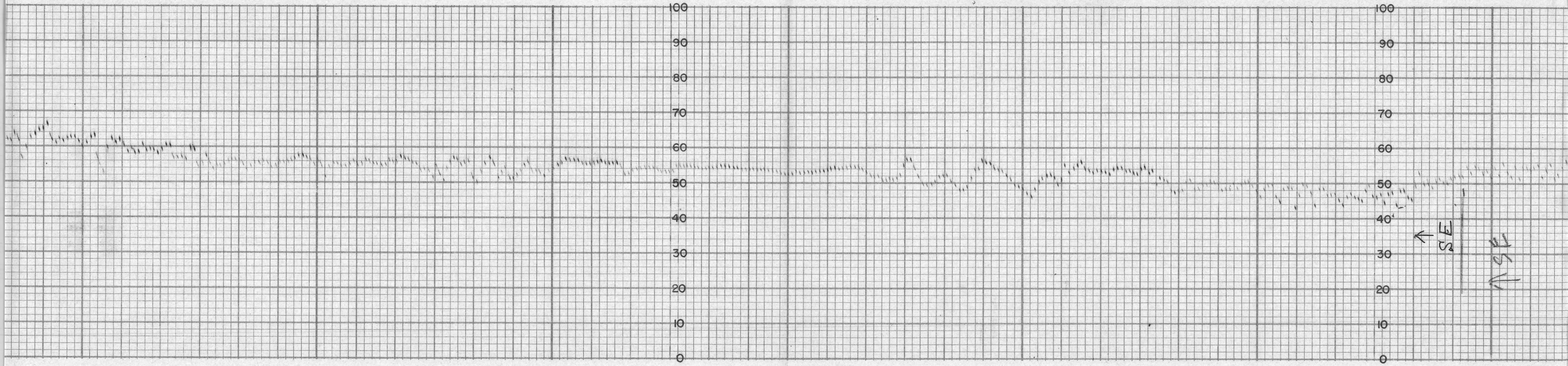
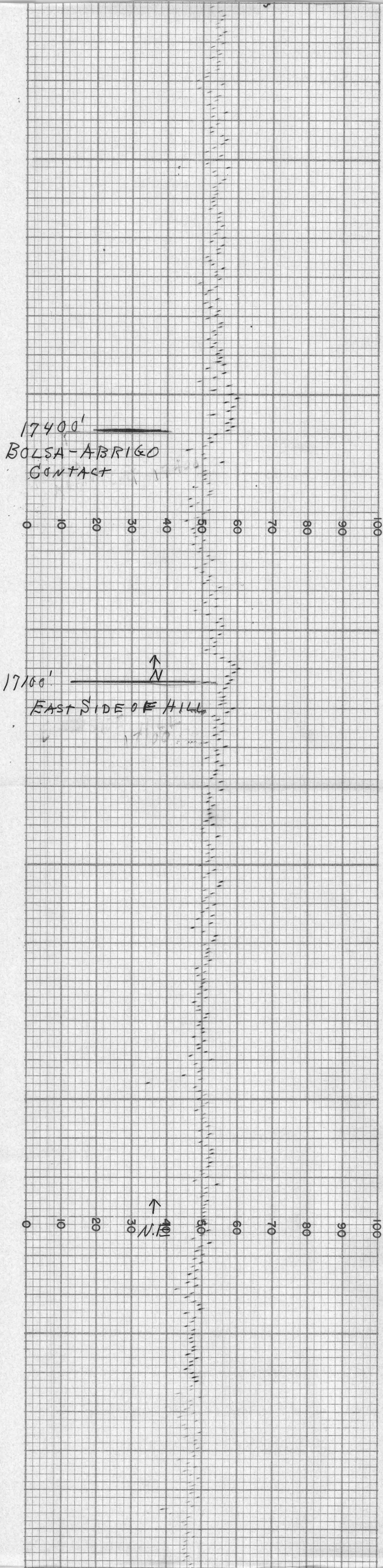
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X



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

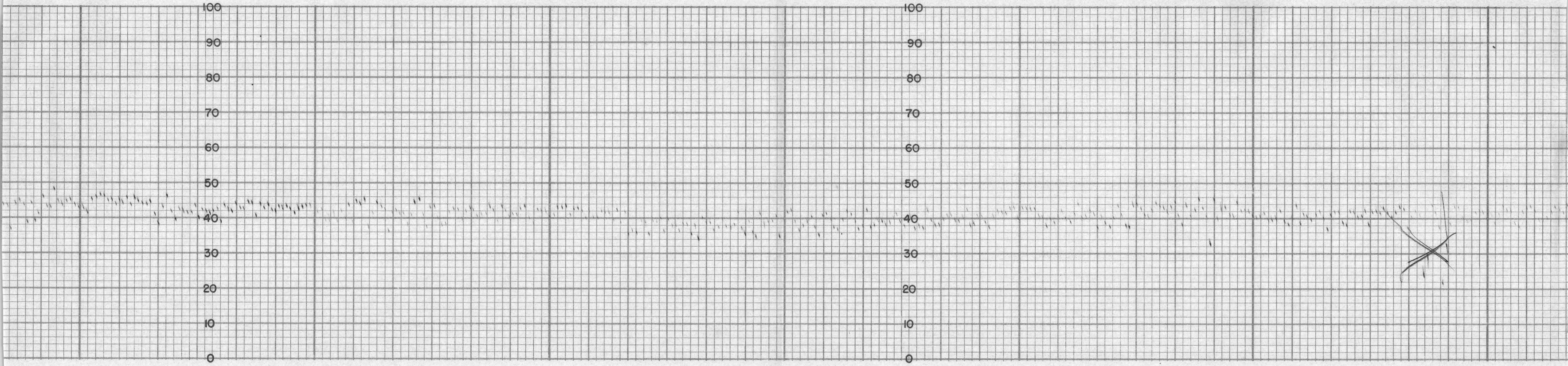




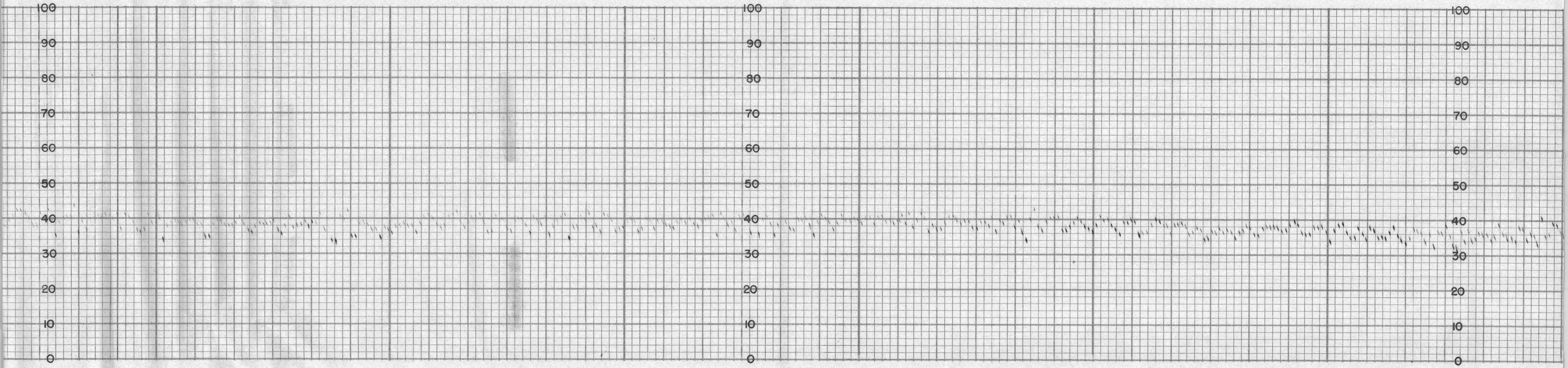
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

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

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



MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES TH



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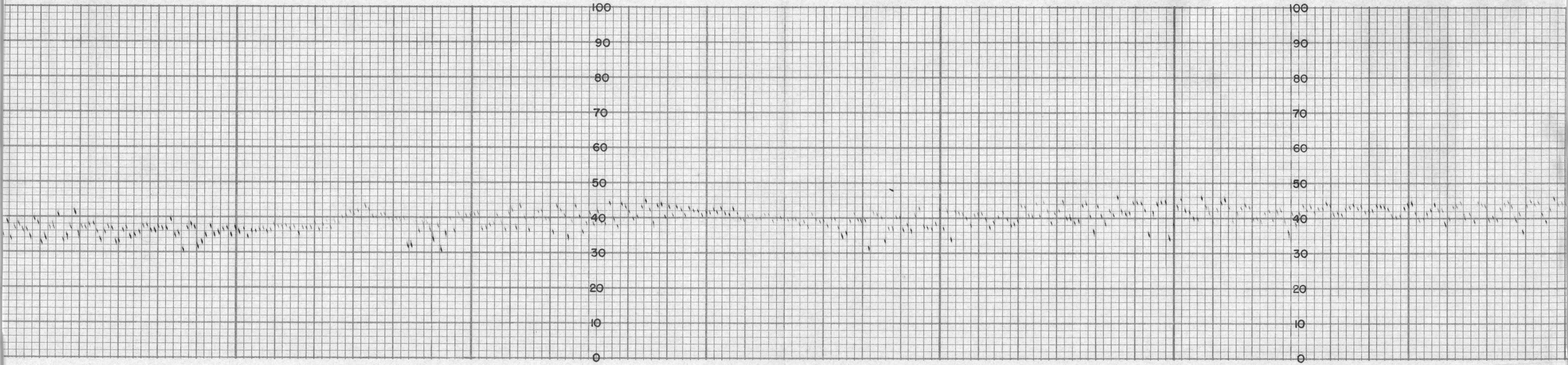
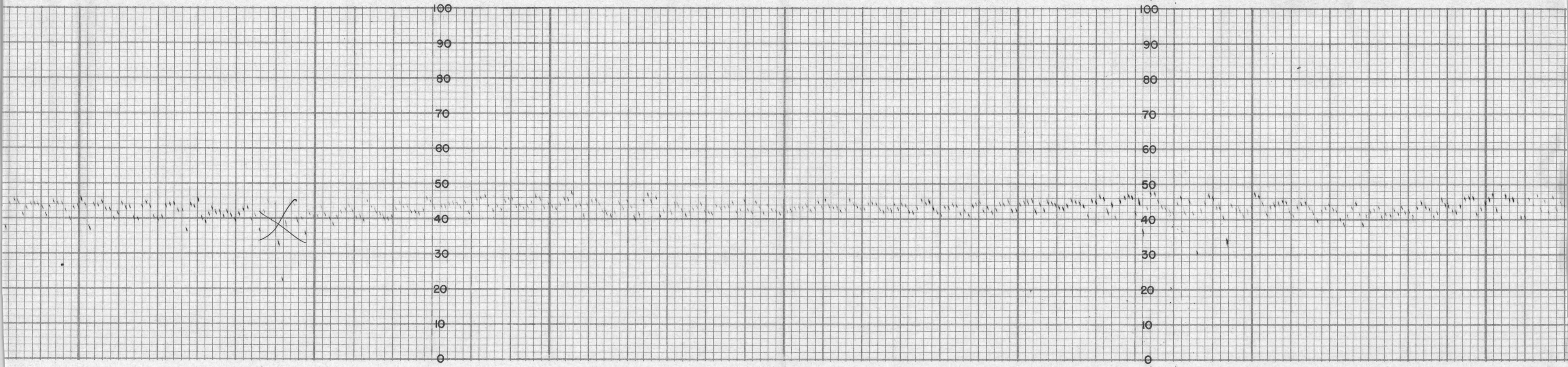
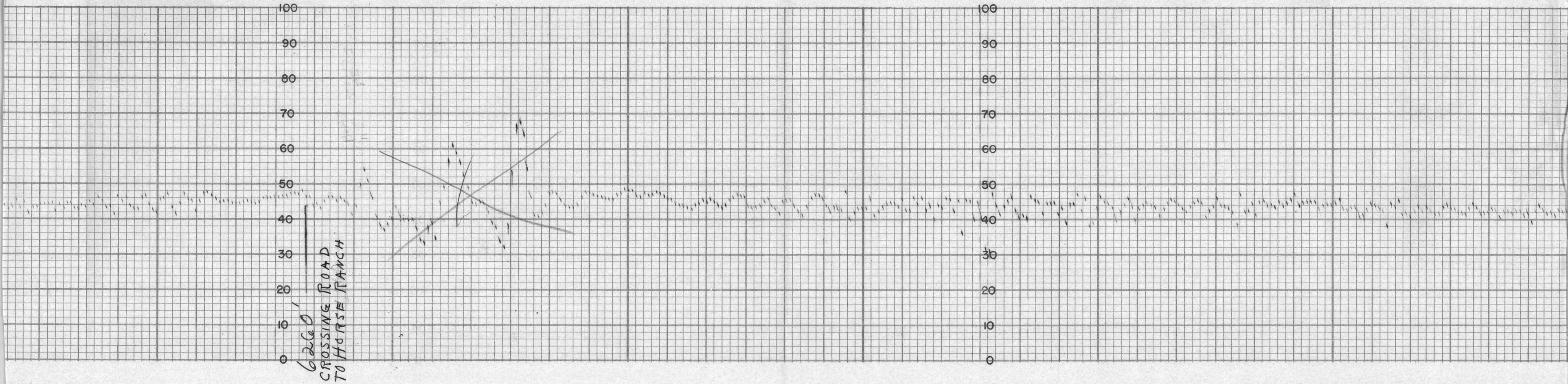



100
90
80
70
60
50
40
30
20
10
0

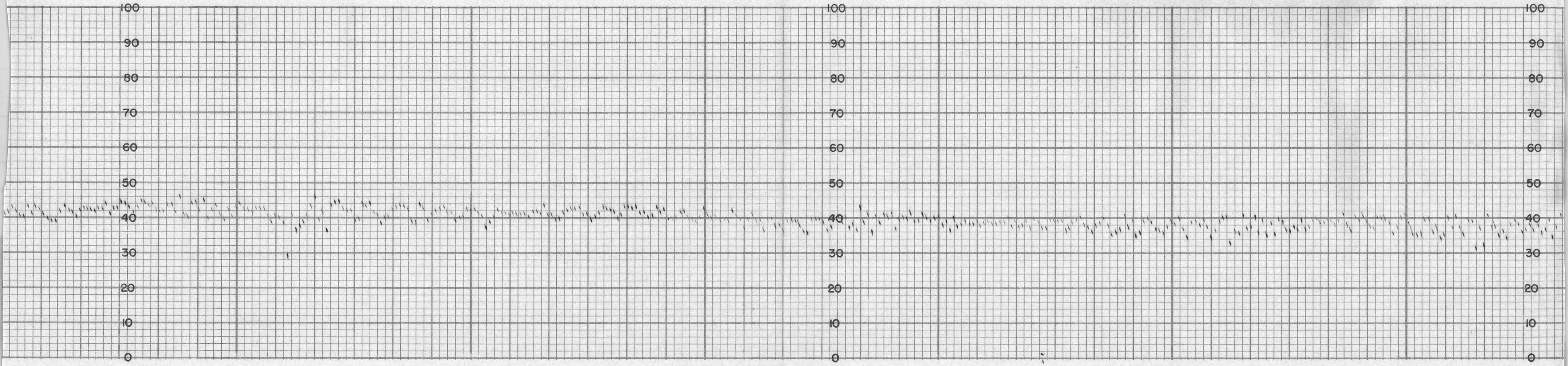
s.a. CHART NO. 17491X

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

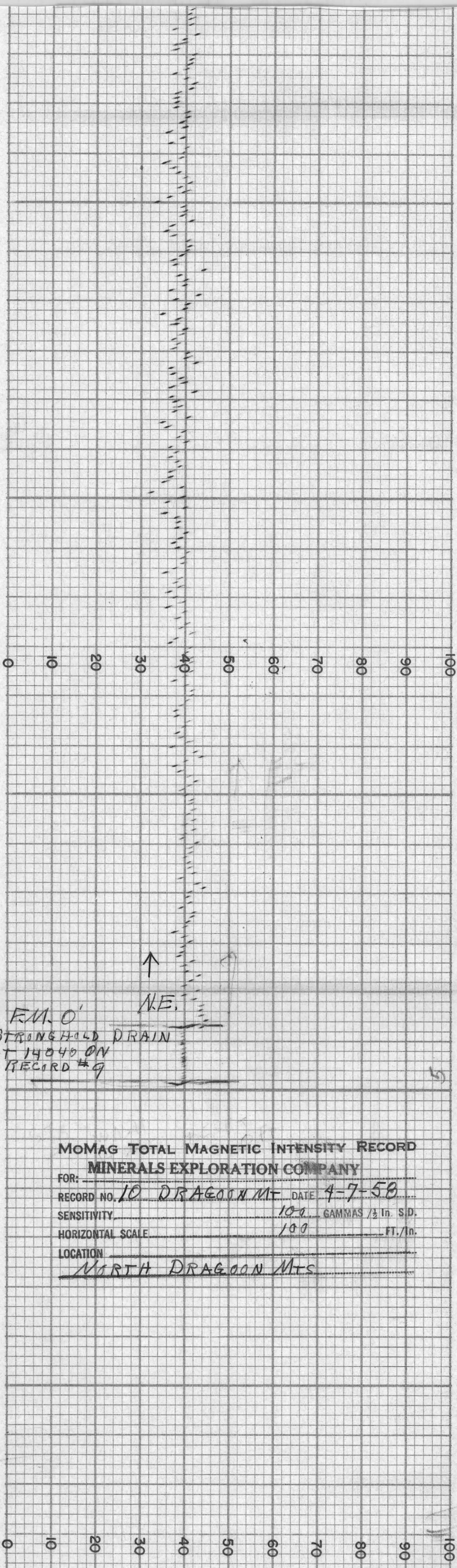


ES

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



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



MoMag Total Magnetic Intensity Record
MINERALS EXPLORATION COMPANY

FOR:
RECORD NO. 10 DRAGOON MT DATE 4-7-58
SENSITIVITY 100 GAMMAS /½ In. S.D.
HORIZONTAL SCALE 100 FT./In.
LOCATION
NORTH DRAGOON MTS

0 10 20 30 40 50 60 70 80 90 100

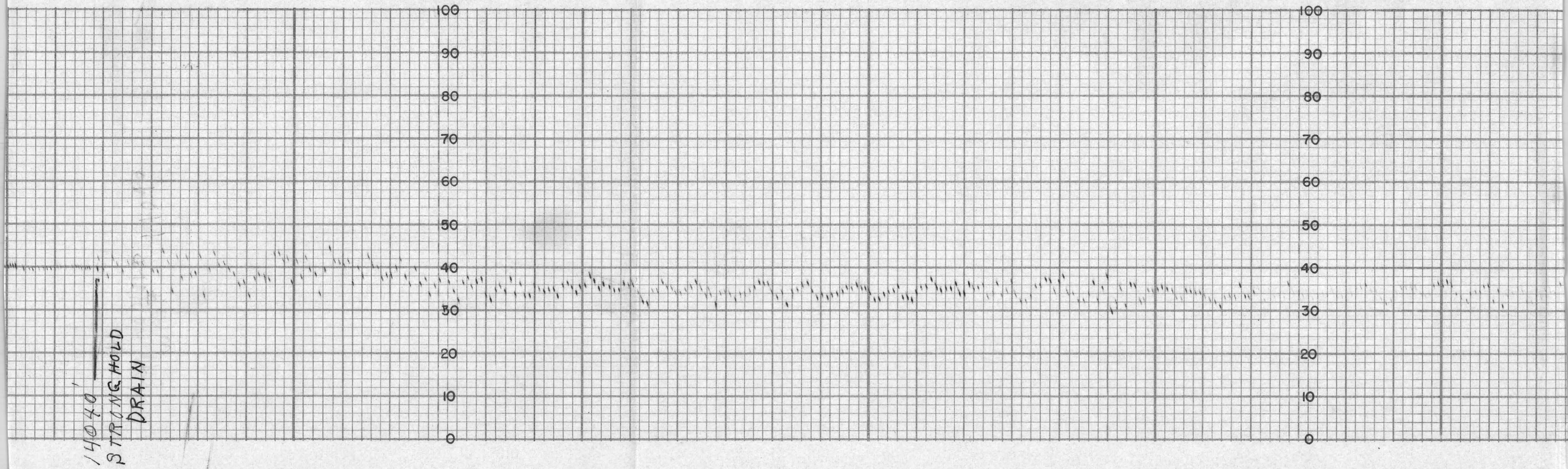
4-7-58
RECORD #10

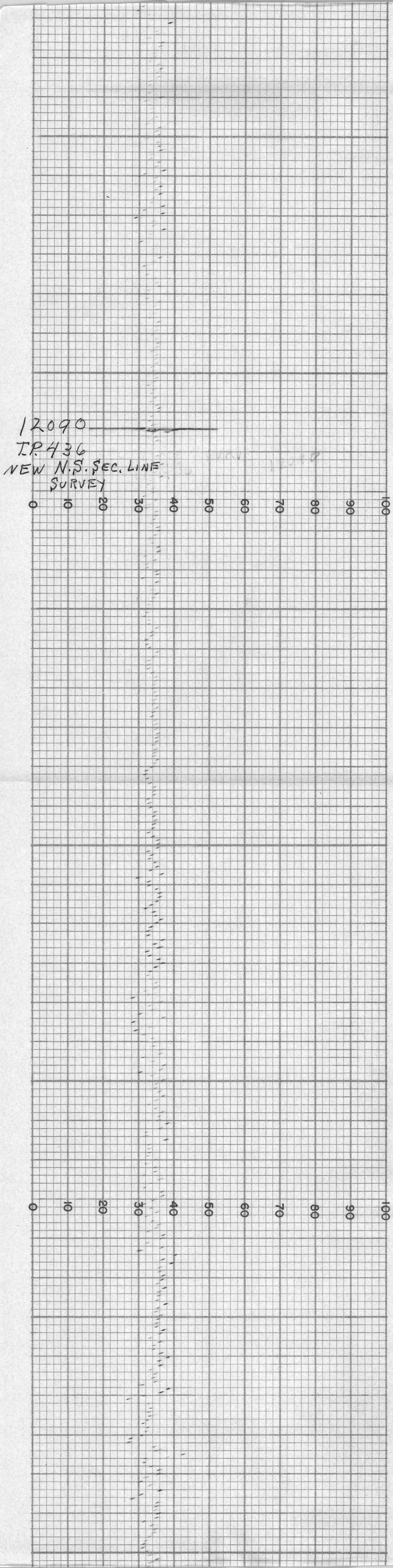
FROM STRONGHOLD DRAIN
WEST OF CORRAL, N.E. TO
HORSE RANCH.

NORTH DRAGOON MT RECON
ARIZ

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

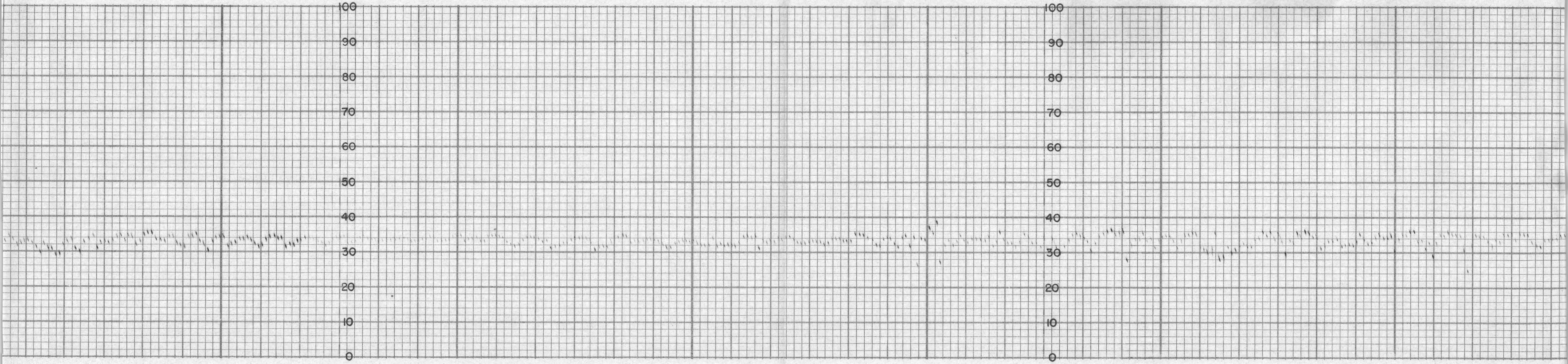
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES



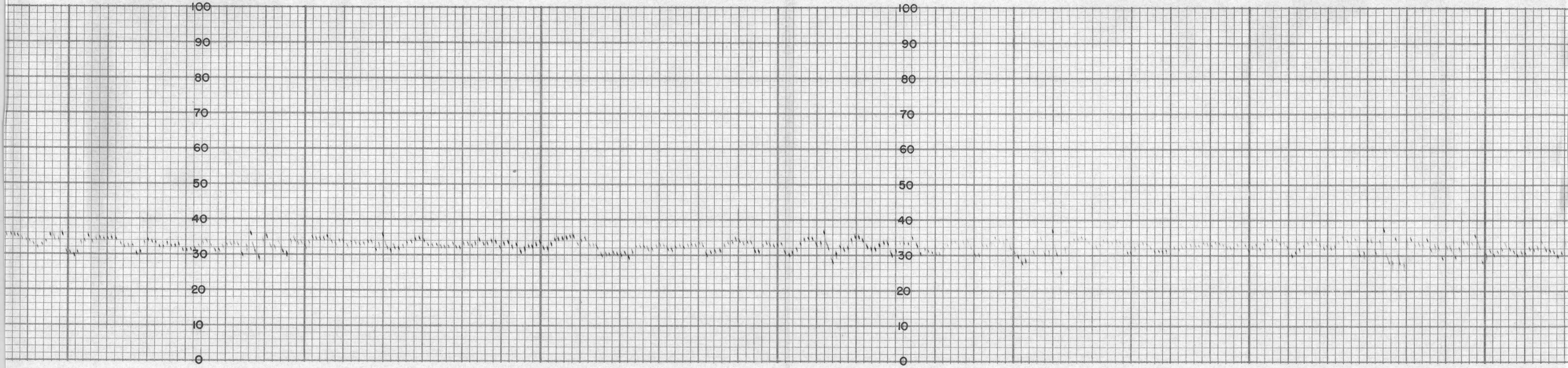


THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

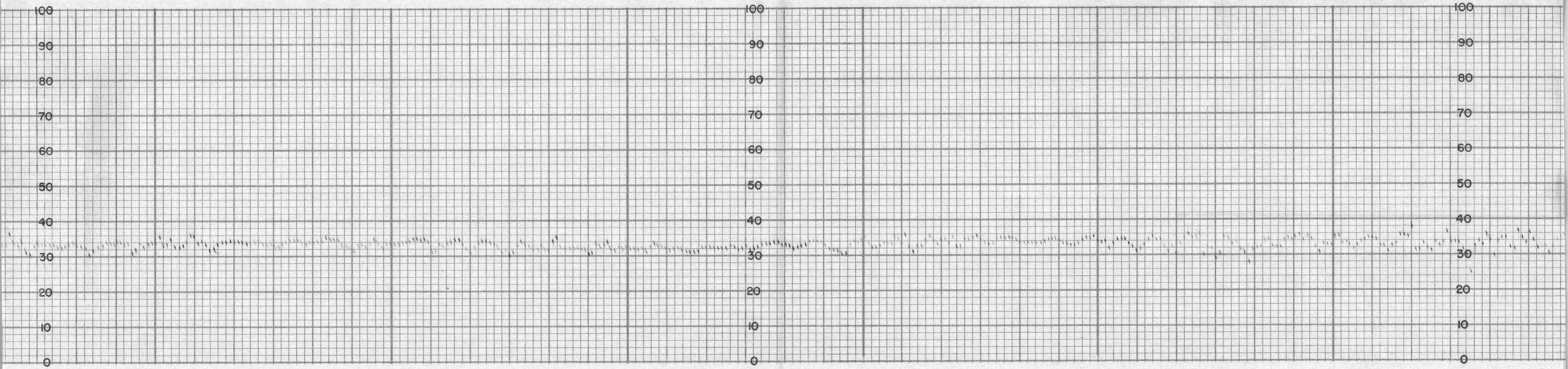
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES



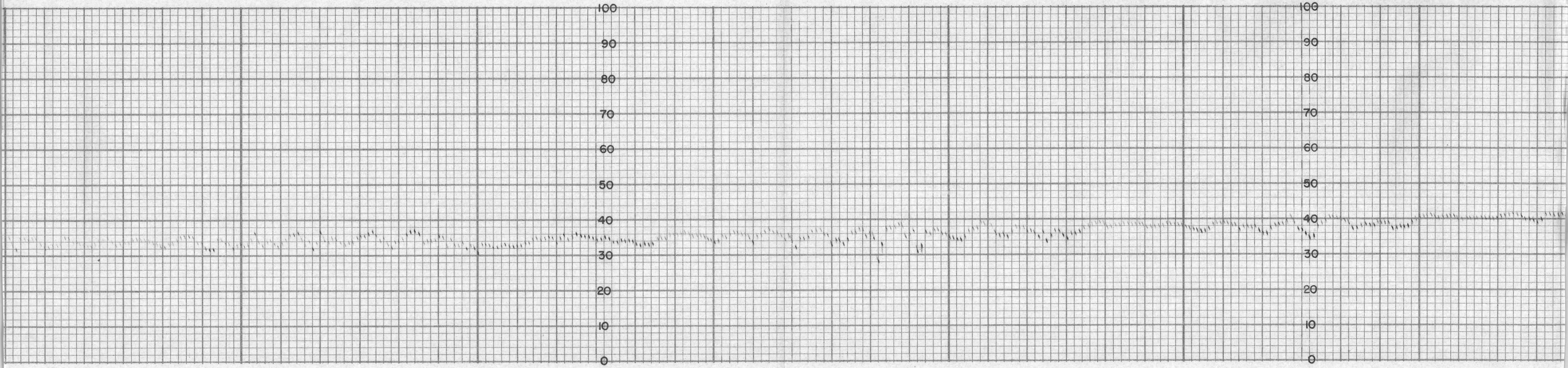
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X



MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES T

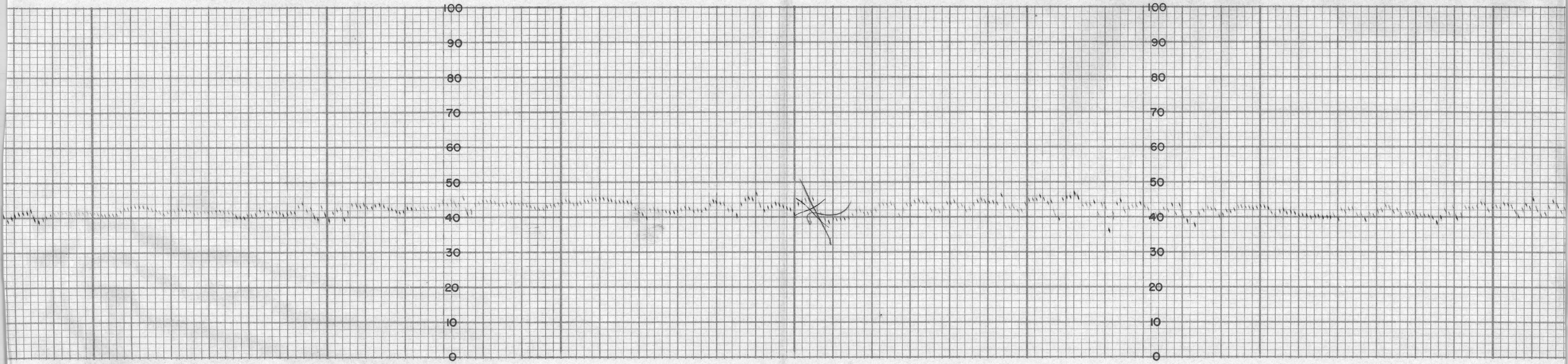


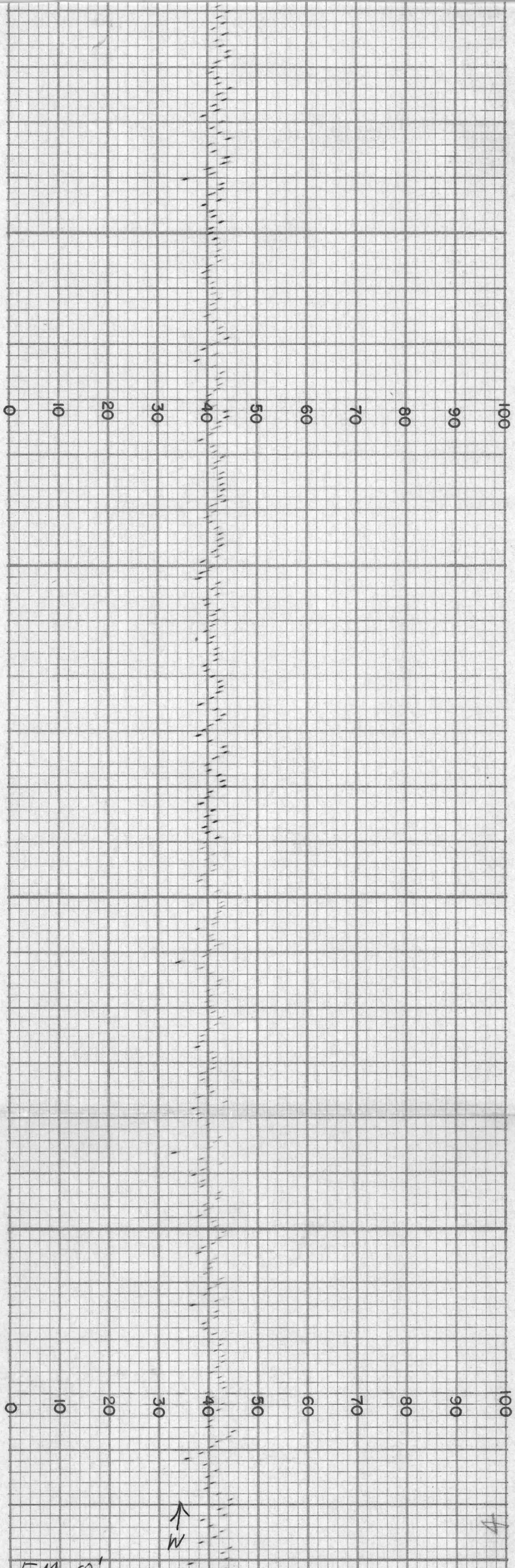
HE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X MADE IN U.S.A. THE EST



ERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND.,





FM. 0'
CORRAL 1MILE S. OF HORSE RANCH
W. ON SECTION LINE

MoMag Total Magnetic Intensity Record

FOR: MINERALS EXPLORATION COMPANY
RECORD NO. 9 DRAGOON MT DATE 4-7-58
SENSITIVITY 100 GAMMAS /½ In. S.D.
HORIZONTAL SCALE 100 FT./In.
LOCATION
NORTH DRAGOON MTS

4-7-58
RECORD #9

FROM CORRAL 1MILE SOUTH
OF HORSE RANCH, WEST
ON SECTION LINE TO
INTERSECTION WITH
STRONGHOLD DRAIN

NORTH DRAGOON MT. RECON
ARIZ.

U.S.A. CHART No. 17491X
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.

1/31/72 . LINE 2

STATION	TIME	READING
STA 50 SW +250		93.60
STA 40 SW	2:41	93.84
+750		93.76
+500	2:44	93.64
+250		93.55
STA 30 SW	2:47	93.46
+750		93.54
+500	2:50	93.24
+250		93.36
STA 20 SW	2:54	93.52
+750		93.56
+500	2:57	93.48
+250		93.53
STA 10 SW	3:01	93.71
+750		93.80
+500	3:04	93.68
CROSSED UNGROUNDED FENCE AT +300		
WOODEN posts.		
+250		93.98
+100 CROSSED LINE 1		
STA 0.0	3:10	93.58
IN WASH 50ft N of LINE 1		
+250		93.65
+500	3:15	93.62
+750		93.86
STA 10 NE	3:18	93.60
+250		93.66
+500	3:21	93.31

Job 681

1-31-72

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

MAG LINE 2 FREEMAN, Hix, Delgado

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MADE IN U.S.A.
LEFAX PHILADELPHIA, PA.
16

1/31/72 . LINE 2 SW . NE

STATION	TIME	READING
STA 10 NE +750		93.55
STA 20 NE	3:24	93.88
+250		93.76
+500	3:26	93.61
+750		93.47
STA 30 NE	3:29	93.35
+250		93.87
+500	3:32	93.56
+750		93.77
STA 40 NE	3:35	93.74
+250		94.05
+500	3:37	93.34
+750		93.80
STA 50 NE	3:40	93.67
+250		93.41
+500	3:44	93.44
+750		93.68
STA 60 NE	3:47	93.52
+250		93.40
CROSSED GROUNDED FENCE AT +450		
+500	3:50	93.32
+750		93.85
STA 70 NE	3:54	94.18
+250		93.27
+500	3:59	93.52
+750		93.56
STA 80 NE	4:04	93.72
BASE #1 SEE COR	4:28	93.52

ORIGINAL COPR. 1976 BY J. O. PARKER
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MADE IN U.S.A.
LEFAX PHILADELPHIA, PA.

Line 3
1/27/72
684

Going South

all on +1

STA	Time	Dial	Corr	Val
0.0	1:50	121	0	121
2.5	53	122		122
5.0	55	120		120
7.5	57	123		123
10.0	59	122		122
12.5	2:01	123		123
15.0	03	121		121
17.5	05	123		123
20.0	06	122	1	123
	07	122	1	123
	08	122	1	123
	11	122	1	123
3000	12	120	1	121
	13	122	1	123
	14	123	1	124
	15	120	1	121
4000	16	123	2	125
	17	121	2	123
	18	120	2	122
	20	120	2	122
5000	22	120	2	122

212
110

ORIGINAL COPR. 1919 BY J. C. PARKER
TR. MK. REG. U.S. PAT. OFF.
LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

GOING N

LINE 2

	TIME			
50.0	33	122	2	124
47.5	34	121	2	123
45.0	35	122	2	124
42.5	36	120	2	122
40.0	37	120	3	123
	38	120	3	123
	39	122	3	125
	41	121	3	124
30.0	42	122	3	125
	43	122	3	125
	44	121	3	124
	45	120	3	123
20.0	47	121	3	124
	48	121	3	124
	49	121	4	125
	50	121	4	125
10.0s	51	120	4	124
	53	120	4	124
	54	120	4	124
	55	120	4	124
0	56	120	4	124
	58	120	4	124
	59	121	4	125
	3:00	118	5	123
10 N	02	118	5	123
	04	106	5	111
	05	110	5	115
	06	108	5	113
20	08	108	5	113
	09	108	5	113
25 N	10	112	5	119

ORIGINAL COPR. 1918 BY J. C. PARKER

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

684
1/28/72

HPC 3 GOING S

STA	TIME	I	Corr	Vol
25 N	20	116	6	122
	21	106	6	112
20	22	103	6	109
	23	102	6	108
	24	97	6	103
	26	106	7	113
10	27	106	7	113
	29	108	7	115
	30	108	7	115
	31	109	7	117
0	32	114	+ 7	121

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

2000 ft west of west edge of section 35

LINE 4 GOING N

Starting point 500' south of section line

Going north.

Sta	time	scale	dial
0	:05	+1	115
2.5		+1	126
5		+1	125
7.5		+1	125
10	:10	+1	128
		+1	128
		+1	125
		+1	125
		+1	127
2000	:15		124
			127
		+1	134
3000		+1	133
	:20	+1	130
		+1	128
		+1	135
4000	:23	+1	133

ORIGINAL COPR. 1910 J C PARKER

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

684
1/28/72

500' west of west edge of section 35

Line 5

Starting point 3500 north of section line

Going south

	Time		
0	4:30	+1	131
		+	127
		+	115
		+	128
10		+	120
	35	+	121
		+	118
		+	115
20		+	118
		+	111
		+	116
	41	+	113
30		+	111
		+	118
		+	120
	45	+	112
40	46	+1	112

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

LINE 1

In section 36

Starting point 200 south of fence line on P. line

#1 — Going South

	STA	Time		PLE
electrode	0	5:10	+1	112
			+1	112
E6				112
				108
	10	:15		110
				92
E5			+1	90
			+1	92
				94
	20		+1	87
			+1	92
E4		:20		100
				93
	30		+1	100
				96
E3				102
				106
	40	:25		103
				105
E2			+1	114
			+1	118
	50		+1	97
		:30	+1	92
E1			+1	87
			+1	85
	60	35	+1	81

684
1/28/72

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

STA	TIME	Side	DILE
6250		+1	55
6500		+1	62
	40	+1	78
7000		+1	82
		+1	72
7500	48	+1	90

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LEFAX, PHILADELPHIA 2, PA., MADE IN U.S.A.

LINE 1. #681

G. MIX
1-20-72

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

READING	STA.	TIME:
START	BASE	50.0E ≈ 50'E of fence.
93.92	STA 50E	1:30 PM
93.93 close		2:10 PM
93.95	50.0E	1:34
3.89	+250.	1:38
3.81	+500.	
3.77	+750	overhead pwr lines ≈ +800'
3.82	60.0E	1:46
3.72	+250	
3.79	+500	
3.84	+750	
3.80	70.E	1:54
3.81	+250	
3.81	+500	
3.83	+750	
93.87	80.E	2:03

BASE IS ABOUT 200' NORTH OF SECTION CORNER NEAR LINE 1 BESIDE McFARLAND BROS. SIGN (WOODEN)

ORIGINAL CONSTRUCTION BY F. O. PARKER
MADE IN U.S.A.
LEFAX PHILADELPHIA, PA.
16

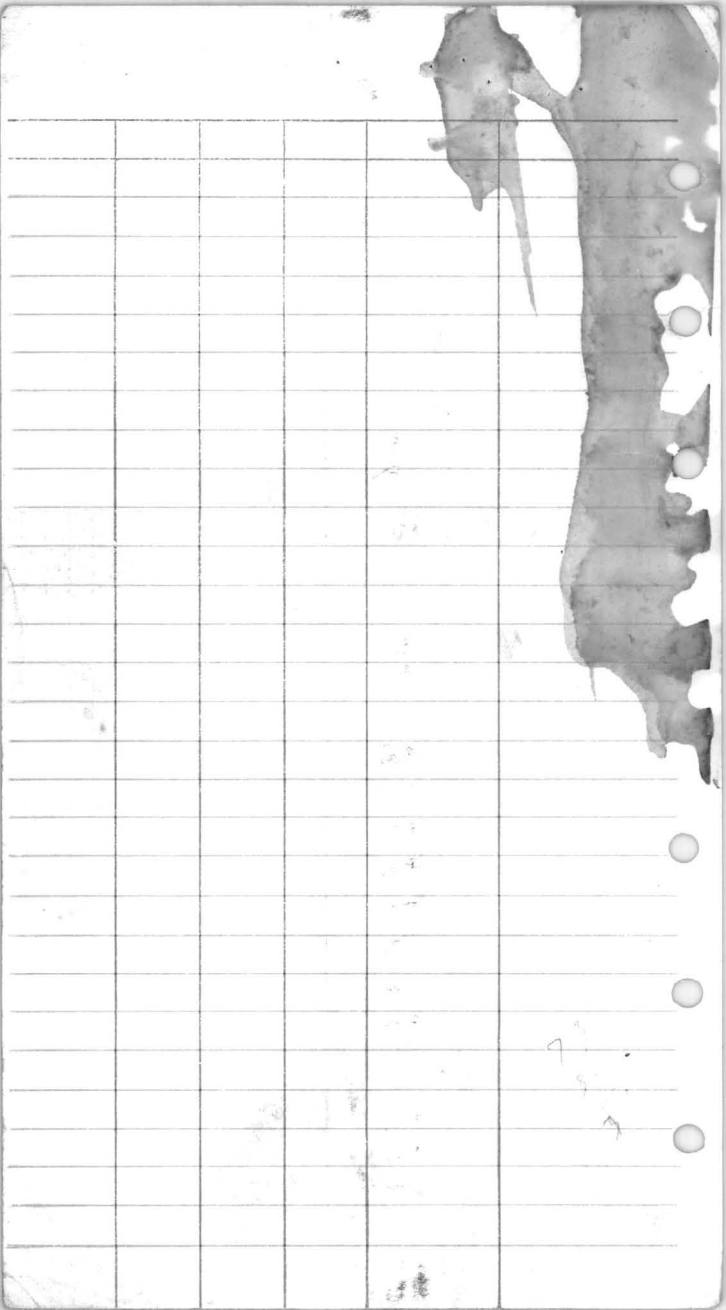
BASE		TIME			

1-21-32

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

Reading	STA.	Time Hardy, W
93.93	BASE	2:24
93.95	50E	2:29
3.96	+250	
3.70	+500	
3.55	+750	
93.85	+800	
94.03	+850	
93.83	+900	
94.13	40E	2:45
93.95	+50'	
93.90	+100'	
93.80	+150'	
93.40	+200'	
94.01	+250'	
93.95	+300'	
94.18	+350'	
93.99	+400	
93.50	+450	
93.85	+500'	
93.90	+550	
93.99	+750	
94.10	130E	3:05
93.43	+250	
93.83	+500	
93.90	+750	
93.87	20E	3:14

ORIGINAL CODE 1910 BY J. C. PARKER
MADE IN U.S.A.
LEFAX PHILADELPHIA, PA.



93.79	+250	
93.75	+500	
93.70	+750	
93.89	10E	3:23
93.90	+250	
93.85	+500	
93.86	+750	
93.93	0.0	3:36
93.97	BASE	4:13

TR MK REG. U.S. PAT. OFF.
LEFAX PHILADELPHIA, PA.
16

1/26/72 L1, Sp1

BASE	SEC COR.	TIME	READING	
	→	8:47	94.11	
STA 0.0		9:11	94.01	
+250		9:13	94.10	
+500		9:15	94.03	
+750		9:17	94.05	
STA 10 W		9:19	94.01	
+250			94.04	
+500		9:23	94.09	
+750			94.11	
STA 20 W		9:27	94.17	
+250			94.18	
+500		9:30	94.09	
+750			94.08	
STA 30 W		9:34	94.26	
+250			94.14	
+500		9:39	94.13	
+750			94.17	
STA 40 W		9:43	94.01	
+250			94.10	
+500		9:47	94.11	
+750			94.16	
STA 50 W		9:51	94.09	
+250			94.00	
+500		9:56	94.01	
+750			93.95	
STA 60 W		10:00	93.95	
wind blow		MAG. down →	93.55	+.40
READING NOW		10:07		
+250			93.84	+.40

CONT. ON NEXT PG.

ADD 0.40 TO READINGS

1/26/72 L1, Sp1
Cont.

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

STA	TIME	READING	
+500	10:12	93.51	+0.40
+750		93.55	.40
STA70W	10:17	93.60	
+250		93.57	
+500	10:21	93.59	
+750		93.69	
STA80W	10:25	93.60	
BASE Closed	10:53	93.50	

1/26/72

L3, Sp1	TIME	READING
BASE ON LINES	11:05	93.84
STA80E	11:10	93.79
+750E		93.75
+500	11:14	93.80
+250		93.75
STA70E	11:17	93.70
+750		93.71
+500	11:22	93.72
+250		93.66
STA60E	11:26	93.63
+750		93.61
+500	11:30	93.63
+250		93.63
STA50E	11:33	93.65
+750		93.64
+500	11:36	93.65
-250		93.68
STA40E	11:41	93.64

"THE TRUE" ON LINE W SPRING → NORTH

Cont NEXT pg.

NICE RANCH

ORIGINAL PRINTING BY J. O. PARKER
MADE IN U.S.A.
LEFAX PHILADELPHIA, PA.

L3, Spl, 1/26/72

STA		TIME		READING
+750				93.63
+500		11:45		93.43
+250				93.55
STA 30 E		11:49		93.53
+750				93.50
+500		11:54		93.52
+250				93.44
STA 20 E		11:58		93.46
+750				93.42
+500		12:01		93.40
+250				93.45
STA 10 E		12:05		93.43
BASE	ON LINE 3 AREA 3 EACH	12:45		93.81
STA 10 E		12:53		93.37
+750				93.37
+500		12:56		93.35
+250				93.41
STA 0.0		1:00		93.43
+250				93.41
+500		1:04		93.45
+600				93.47
+800				93.50
STA 10 W		1:09		93.48
+250				93.43
+500		1:13		93.50
+750				93.54
STA 20 W		1:17		93.53
+250				93.50

L3, Spl, 1/26/72

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

STA	TIME	READING
+500 W	1:20	93.53
+750'		93.49
STA 30W	1:24	93.70
+250		93.50
+500	1:27	93.52
+750		93.50
STA 40W	1:32	93.56
+250		93.55
+500	1:35	93.59
+750		93.60
STA 50W	1:38	93.55
+250		93.53
+500	1:41	93.58
+750		93.52
STA 60W	1:44	93.54
+250		93.55
+500	1:47	93.59
+750		93.53
STA 70W	1:51	93.55
+250		93.58
+500	1:55	93.58
+750		93.49
STA 80W	1:58	~~93.58~~ 93.58
BASE	2:11	93.83

By L3 NEAR RANCH

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L4, Sp1, 1/26/72

STA		TIME	READING
0.0	L4 Tenow	2:25	93.65
+250	W		93.56
+500		2:28	93.60
+750			93.64
STA 10	W	2:31	93.66
+250			93.65
+500		2:34	93.56
+750			93.61
STA 20	W	2:37	93.65
+250			93.63
+500		2:40	93.60
+750			93.65
STA 30	W	2:43	93.64
+250			93.67
+500		2:45	93.67
+750			93.67
STA 40	W	2:48	93.67
+250			93.67
+500		2:54	93.74
+750			93.75
STA 50	W	3:02	93.73
+250			93.79
+500		3:06	93.75
+750			93.79
STA 60	W	3:09	93.79
+250			93.81
+500		3:12	93.89
+700			93.80

L 4, Sp11, 1/26/72

STA	TIME	READING
STA 70W	3:15	93.84
+250		93.89
+500	3:19	93.87
+750		93.85
STA 80W	3:22	93.83
STA 0.04 center	3:30	93.74
+250 E		93.71
+500	3:34	93.71
+750		93.69
STA 10E	3:37	93.75
+250		93.74
+500	3:40	93.75
+700		93.81
STA 20E	3:43	93.76
+250		93.83
+500	3:45	93.81
+700		93.81
STA 30E	3:49	93.83
BASE	4:00	93.93

BY LINE 3 NEAR RANCH

1/27/72

BASE on LINE 3	(3:14)	93.93
STA 80E	3:29	94.04
+750		93.96
+600	3:32	93.90
+250		93.88
STA 70E	3:36	93.85

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1/27/72 L4, Sp1.

STA 70E cont. ~~TIME~~

STA	TIME	Readings
-750		93.92
-500	3:40	93.86
-250		93.90
STA 60E.	3:43	93.85
-750		93.77
-500	3:47	93.85
-250		93.83
STA 50E	3:50	93.83
-750		93.81
-500	3:52	93.84
-250	3	93.86
STA 40E	3:56	93.82
-750		93.90
-500	4:00	93.83
-250		93.80
STA 30E	4:04	93.78
BASE	4:13	93.89

by FENCE ON LINE 3 NEAR RANCH

Job 681
N.A.M.

1-31-72

MAG. DATA	LINE 5
FREEMAN, HIX, Delgado	PLUS PART OF LINE 2

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1/31/72 LINE 5

STATION		TIME		READING	
BASE #1	SG COOK.	9:53		93.60	
STA 0.0 BASE @ LS		10:17		94.49	
+250				94.60	
+500		10:20		94.52	
+750				94.57	
STA 10 E		10:23		94.54	
+250				94.72	
+500		10:26		94.53	
+750				94.50	
STA 20 E		10:29		94.55	
+250				94.53	
+500		10:32		94.54	
+750				94.51	
STA 30 E		10:35		94.53	
+250				94.32	
+500		10:38		94.20	
+750				94.15	
STA 40 E		10:42		94.07	
+250				94.11	
+500		10:45		94.07	
+750				94.64	
STA 50 E		10:50		94.04	
+250				94.07	
+500		10:54		94.00	
+750				94.01	
STA 60 E		10:57		93.93	
+250				93.97	
+500		11:01		93.99	

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1/31/72 LINE 5

STATION	TIME	READING
STA 60E +750		94.08
STA 70E	11:05	94.20
+250		94.10
+500	11:08	94.08
+750		94.19
STA 80E	11:12	94.07
BASE STA 0+0 C L 5	11:33	94.46
+250		94.43
+500	11:44	94.51
+750		94.46
STA 10W	11:49	94.49
+250		94.41
+500	11:54	94.32
+750		94.27
STA 20W	12:00	94.16
+250		94.28
+500	12:07	94.08
+750		94.17
STA 30W	12:13	93.87
+250		94.12
+500	12:18	94.02
+750		94.07
STA 40W	12:23	94.13
+250		93.99
+500	12:26	94.08
+750		93.97
STA 50W	12:32	93.95
+250		93.80

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1/31/72 LINE 5

Station		Time		Readings	
STA 60W					
+500		12:36		93.96	
+750				93.90	
STA 60E		12:45		94.11	
+250				93.84	
+500		12:43		93.39	
+750				94.00	
STA 70 W		12:46		94.10	
+250				93.96	
+500		12:49		93.90	
+750				93.99	
STA 80 W		12:53		94.12	LINE 2 START
BASE #1	SEE COR.	1:14		93.43	
LINE 2		1/31/72			
STA 80 SW		2:04		93.73	
+750				93.73	
+500		2:07		93.43	
+250				93.51	
STA 70 SW		2:18		93.50	
+750				93.74	
+500		2:23		93.71	
+250				93.62	
STA 60 SW		2:26		93.60	
+750				93.65	
+500		2:30		93.71	
+250				93.57	
STA 50 SW		2:33		93.69	IN WASH
+750				93.69	
+500		2:38		93.74	
60 ft	South	of	Road	1000 ft	EAST of tank

Job. 681

2-2-72

2-4-72

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MAG - LINE 7	Freeman, Hix, Delgado

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16

2/2/72 LINE 0.7 North

STA		TIME		READING
BASE	ON	LINE 7	CENTER of 7	
100 ft	North	of	CENTER,	
0.0		11:35		93.63
+250	N			93.53
+500		11:44		93.44
+750				93.46
STA 10 N		11:48		93.43
+250				93.46
+500		11:53		93.50
+750	CROSSED	POWER	LINE	
+850		11:		93.35
STA 20 N		11:58		93.53
+220	CROSSED	PIPE	LINE	
+250				93.59
+500		12:02		93.64
+750				93.65
STA 30 N		12:06		93.53
+250				93.74
+500		12:09		93.73
+750				93.71
+800 to +900		WATER	TANK	
STA 40 N		12:14		93.85
+250				93.85
+500		12:18		93.90
+750				93.93
STA 50 N		12:22		93.87
+250				93.80
+500		12:26		93.86

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- CROSSED RAILROAD TRACKS - AT + 400

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2/2/72 LINE 7 NORTH.

STA	TIME	READING
STA 50N +750		93.84
STA 60 N	12:30	93.74
+250		93.85
+500	12:34	93.56
+750		93.95
STA 70N	12.40	93.94
+250		93.92
+500	12:44	93.94
+750		93.90
STA 80N	12:49	93.93
BASE ON LINE 7		
0.0	12:14	93.64

2-4-72
B. Freeman
G. Hix
H Skowlit

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LINE 7 HEADING S.

STA	Time	Reading	Notes
BASE 7			100 N of 00 L-7
	1:40	93:66	
+250 S		:61	under one of two power lines
+500		:37	
+750		:54	
+10.0S	1:48	93:54	
+250 S		:71	
500		:42	
750		:84	
20.0S	1:57	93:31	
250		:62	
500	2:01	:63	
750		:62	
30.0S	2:06	93:69	
250		:62	
500		:60	
750		:59	
40.0S	2:12	93:55	Un Grfence 125'56" E
250		:95	
500		:60	
750		:62	
50.0S	2:21	93:70	
250		:62	
500		:64	
750		:66	
60.0S	2:28	93:56	

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STA	TIME	READING
60.0		
+250	2:30	93:62
+500		:59
750		:54
70.0S	2:37	93:56
250		:52
500		:56
750		:50
80.0S	2:47	93:47
BASE 7	3:30	93:64

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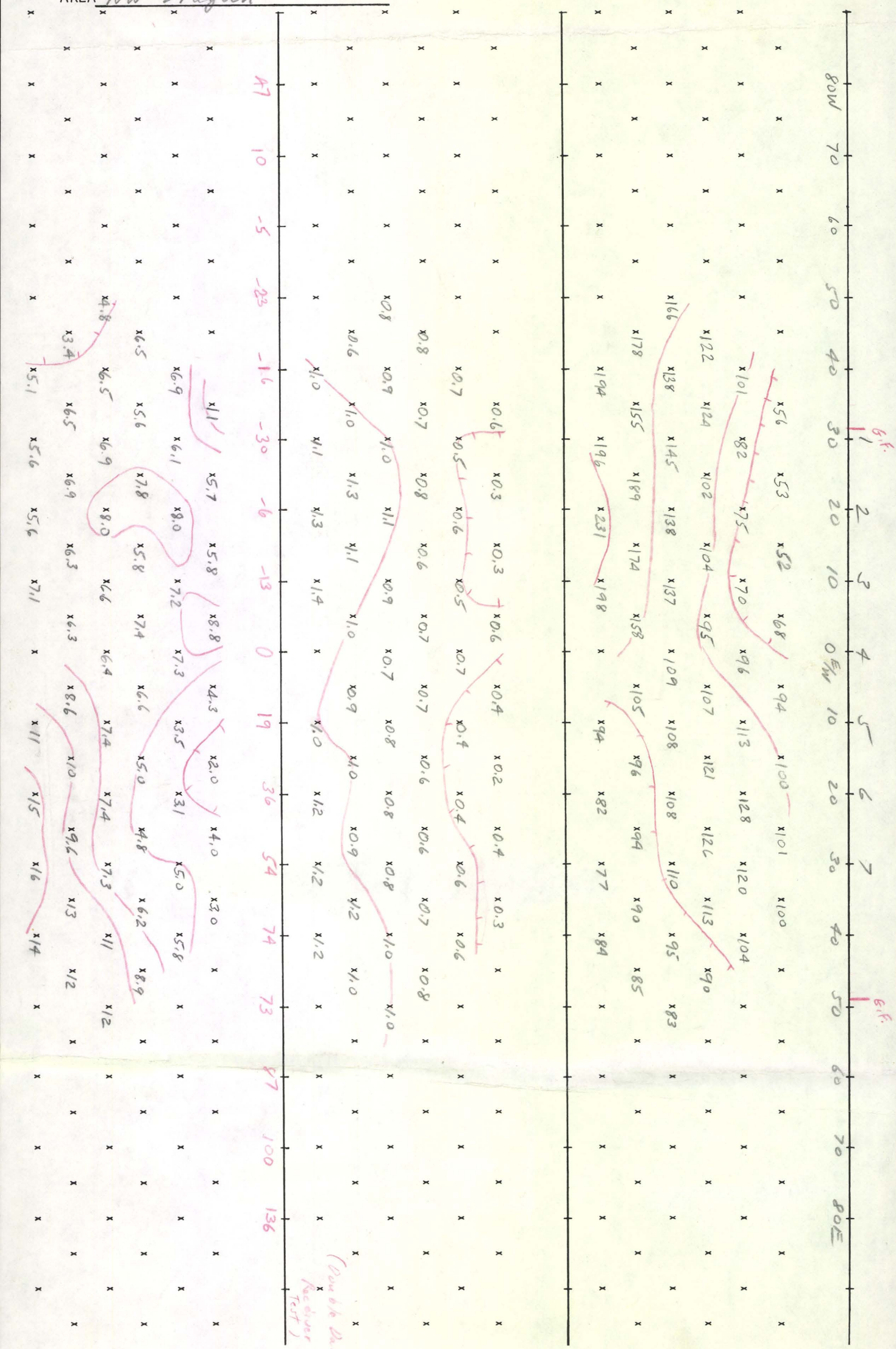
JOB# 681 LINE# 1 SP 1 a = 1000' LOOKING North

CLIENT N.A.M., Inc. DATE Jan. 1972 FREQUENCIES 1.0 & 0.1 Hz

AREA NW Dragoon



11/2001

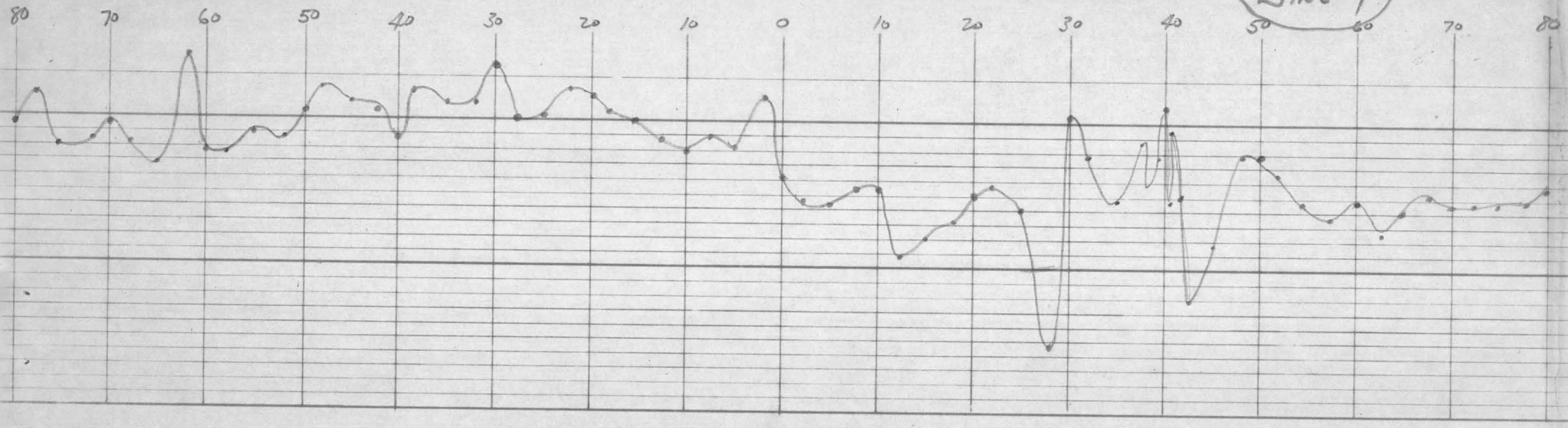
bb 681

← W

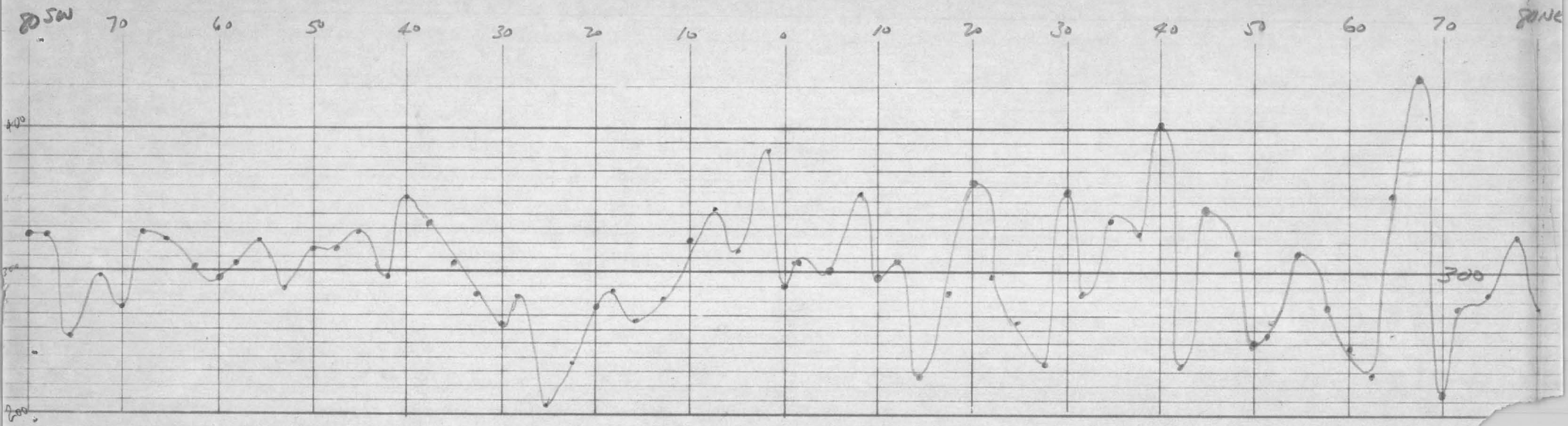
MIDDLE LINE IS REFERENCED TO 22300 γ

LINE 1

E →



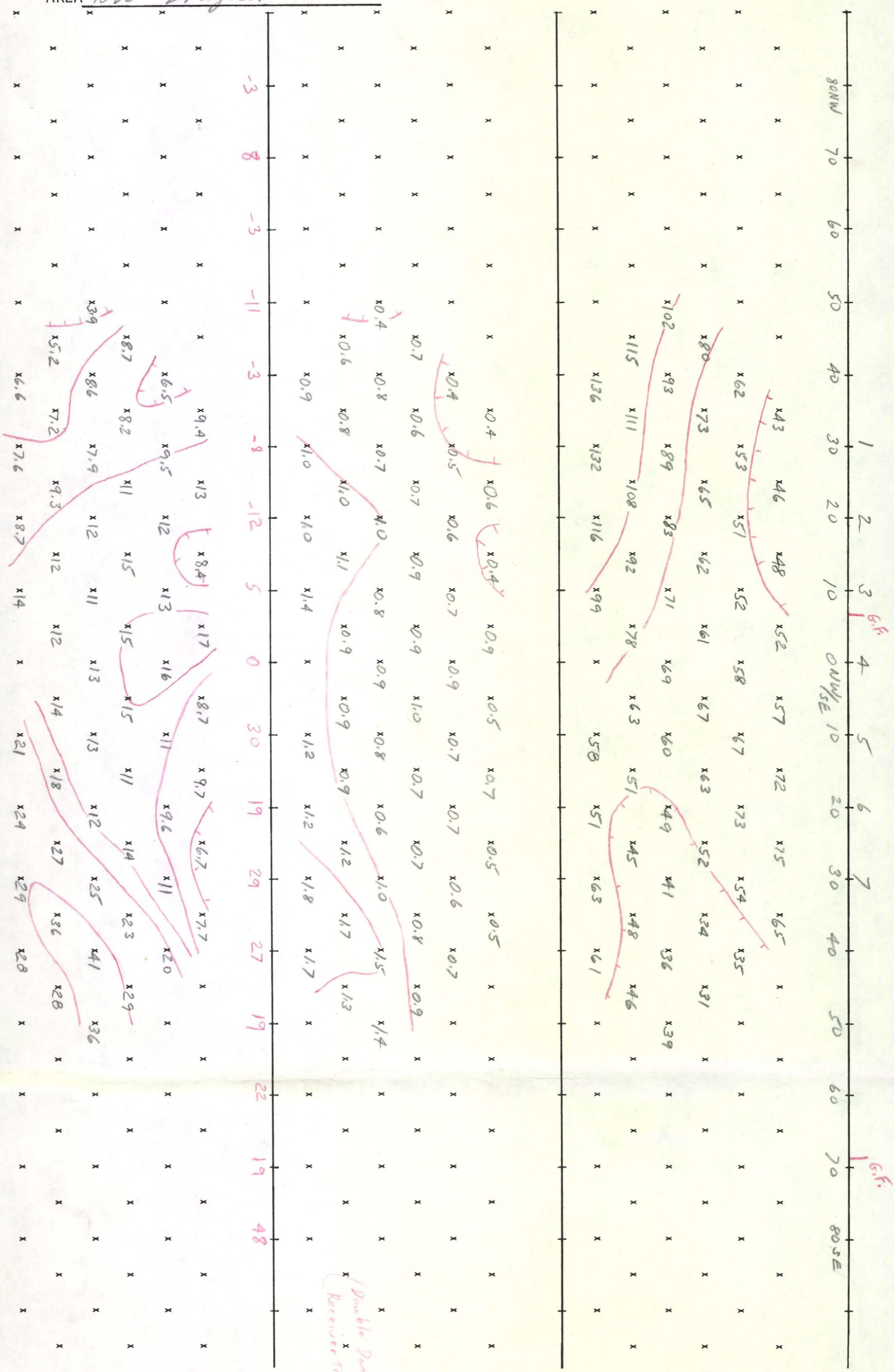
Job 681 LINE 2



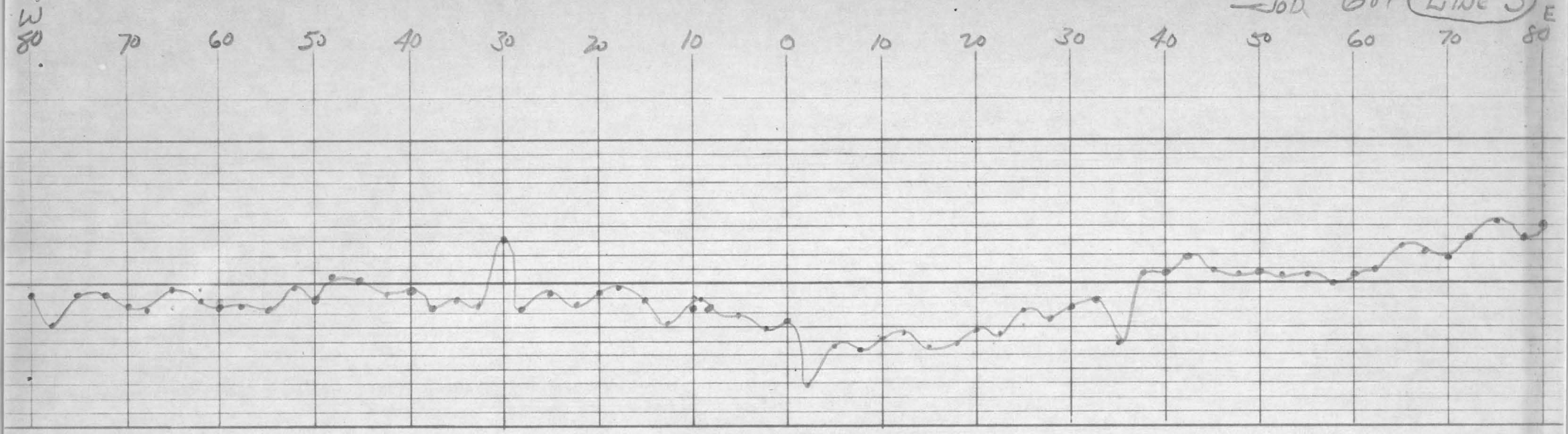
JOB# 681 LINE# 3 SP 1 a = 1000' LOOKING N22°E

CLIENT N.A.M., Inc. DATE Jan., 1972 FREQUENCIES 1.0 & 0.1 Hz

AREA NW Dragoon



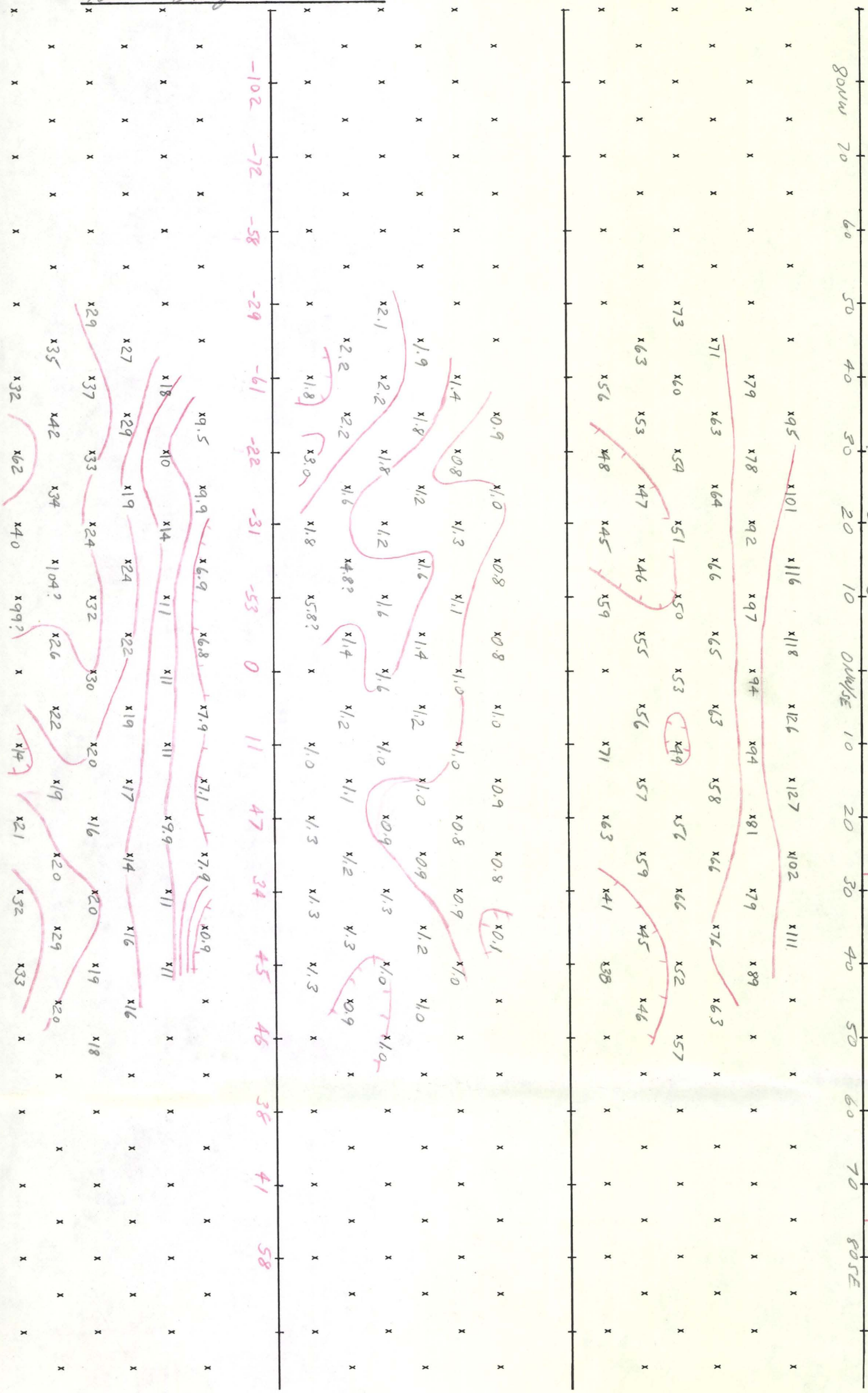
Job 681 Line 3

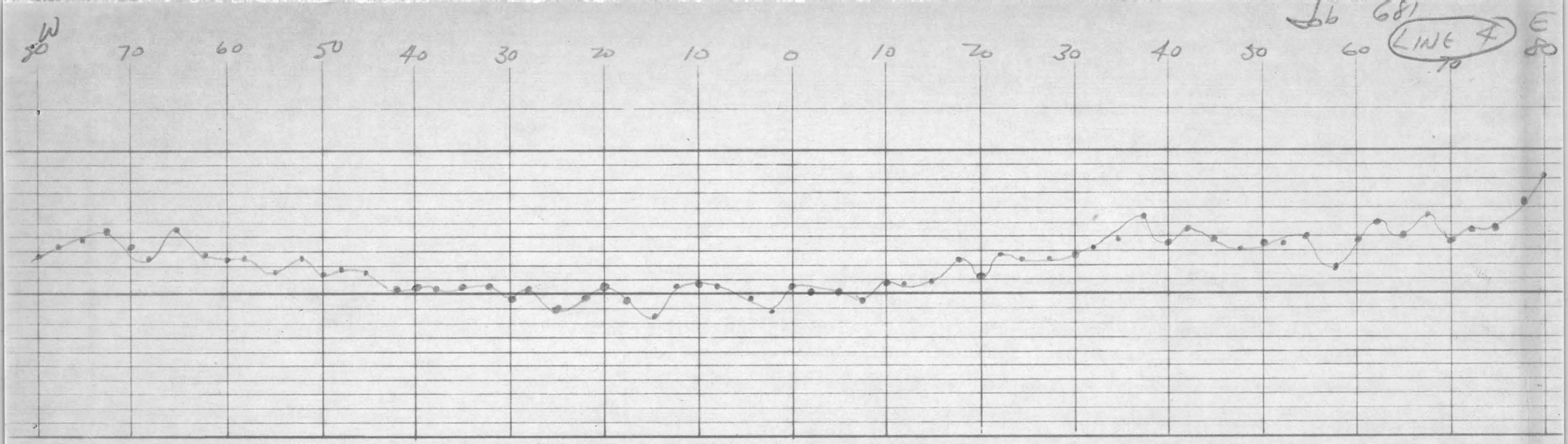


JOB# 681 LINE# 4 SP 1 a = 1000' LOOKING N20E

CLIENT N.A.M., Inc. DATE Jan. 1972 FREQUENCIES 1.0 & 0.1 Hz

AREA NW Dragoon

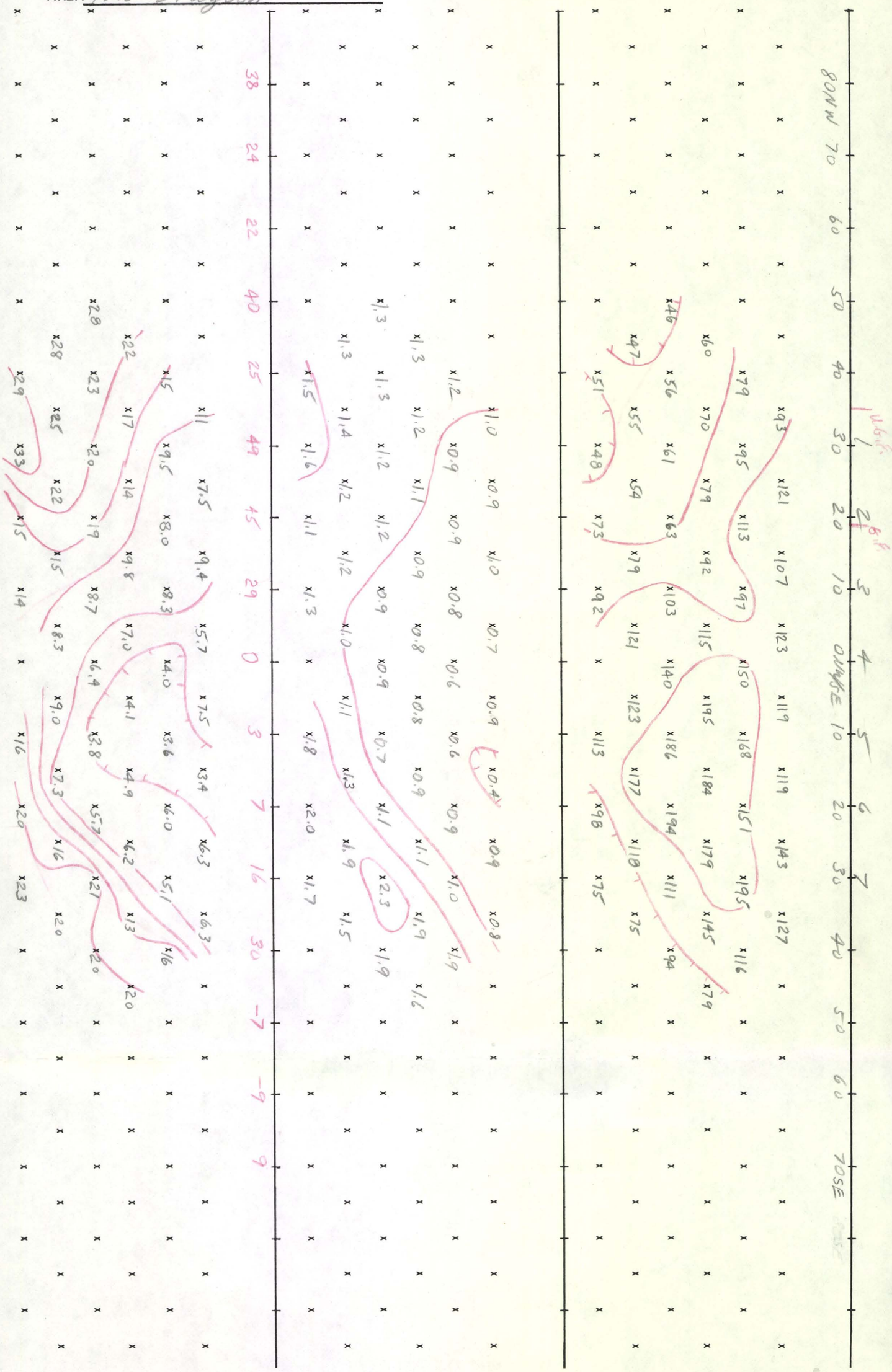



Jb 681
LINE 4
W
E
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

JOB# 681 LINE# 5 SP 1 a = 1000' LOOKING N20°E

CLIENT N.A.M., Inc. DATE Jan. 1972 FREQUENCIES 1.0 & 0.1 Hz

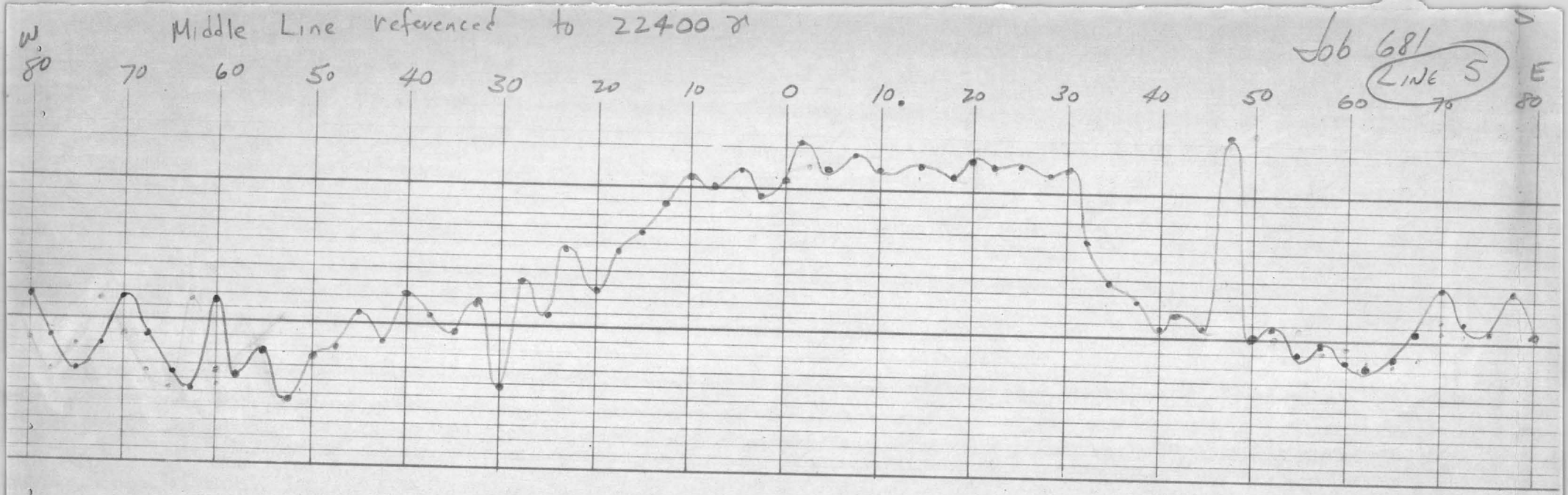
AREA NW Dragoon



Middle Line referenced to 22400 γ

Job 681

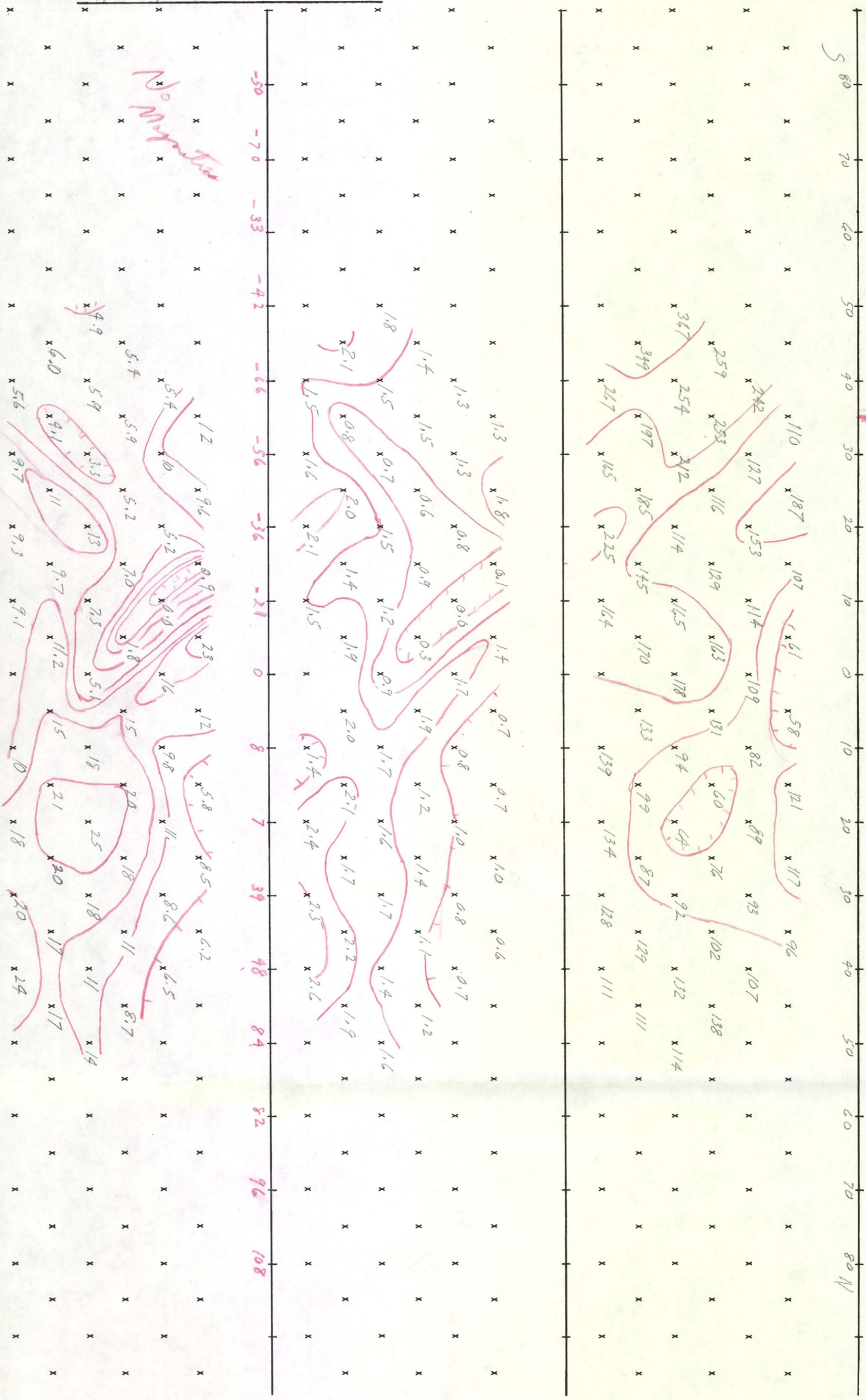
LINE 5



JOB# 681 LINE# 6 SP 1 a = 1000 LOOKING West

CLIENT NAM DATE 2/2/72 FREQUENCIES 1 & 0.1 Hz

AREA NW Dragoon

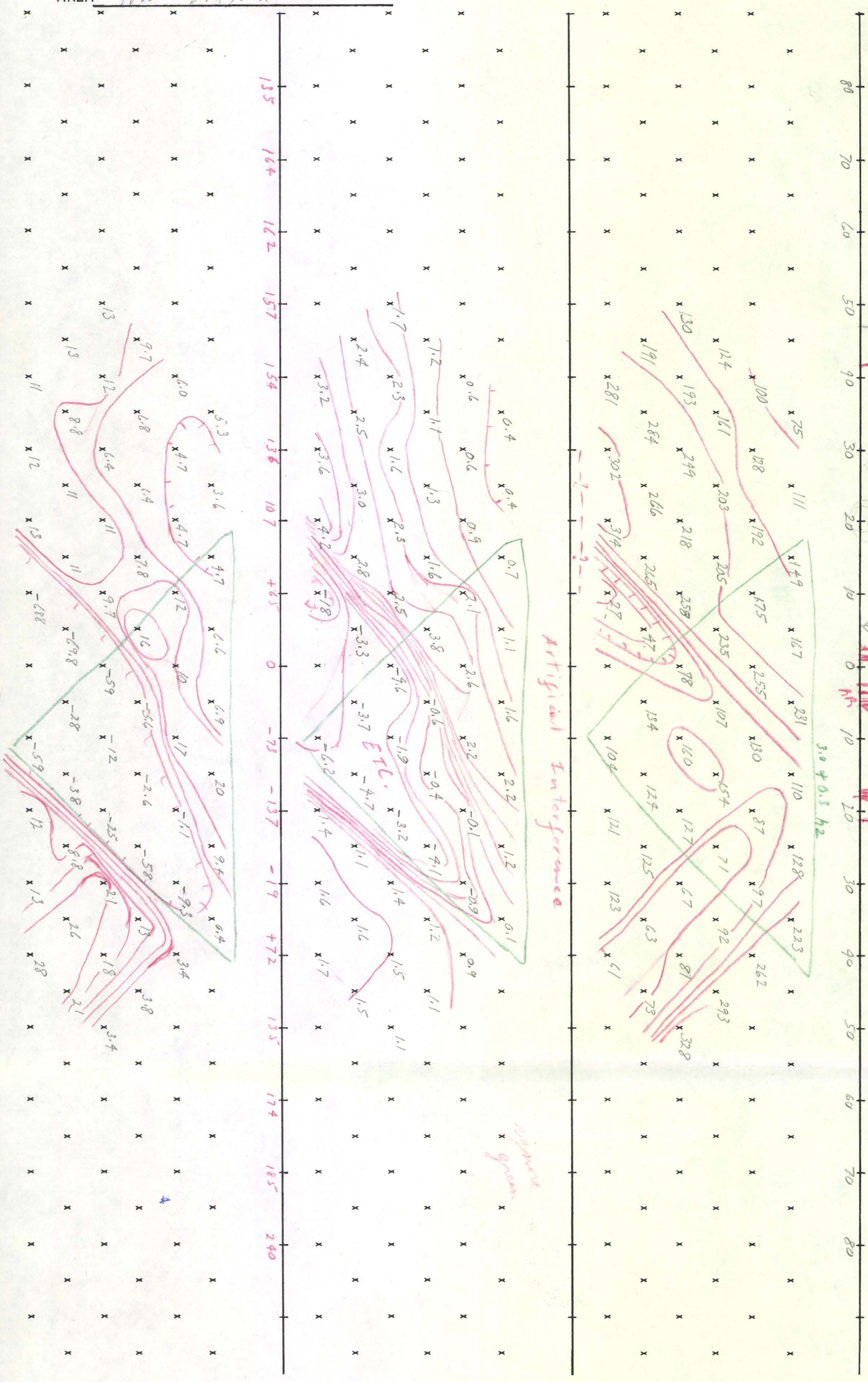


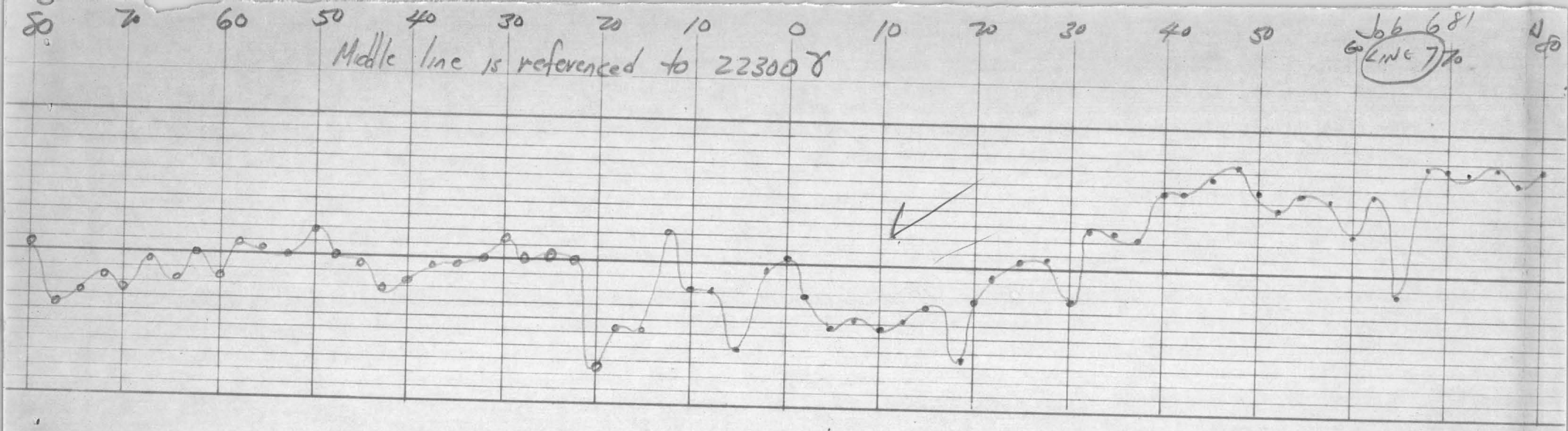
JOB# 681 LINE# 9 SP 1 a = 1000 LOOKING West

CLIENT NAW DATE 2/4/72 FREQUENCIES 1.0 & 0.1 Hz

~~except as noted~~

AREA NW Dragoon

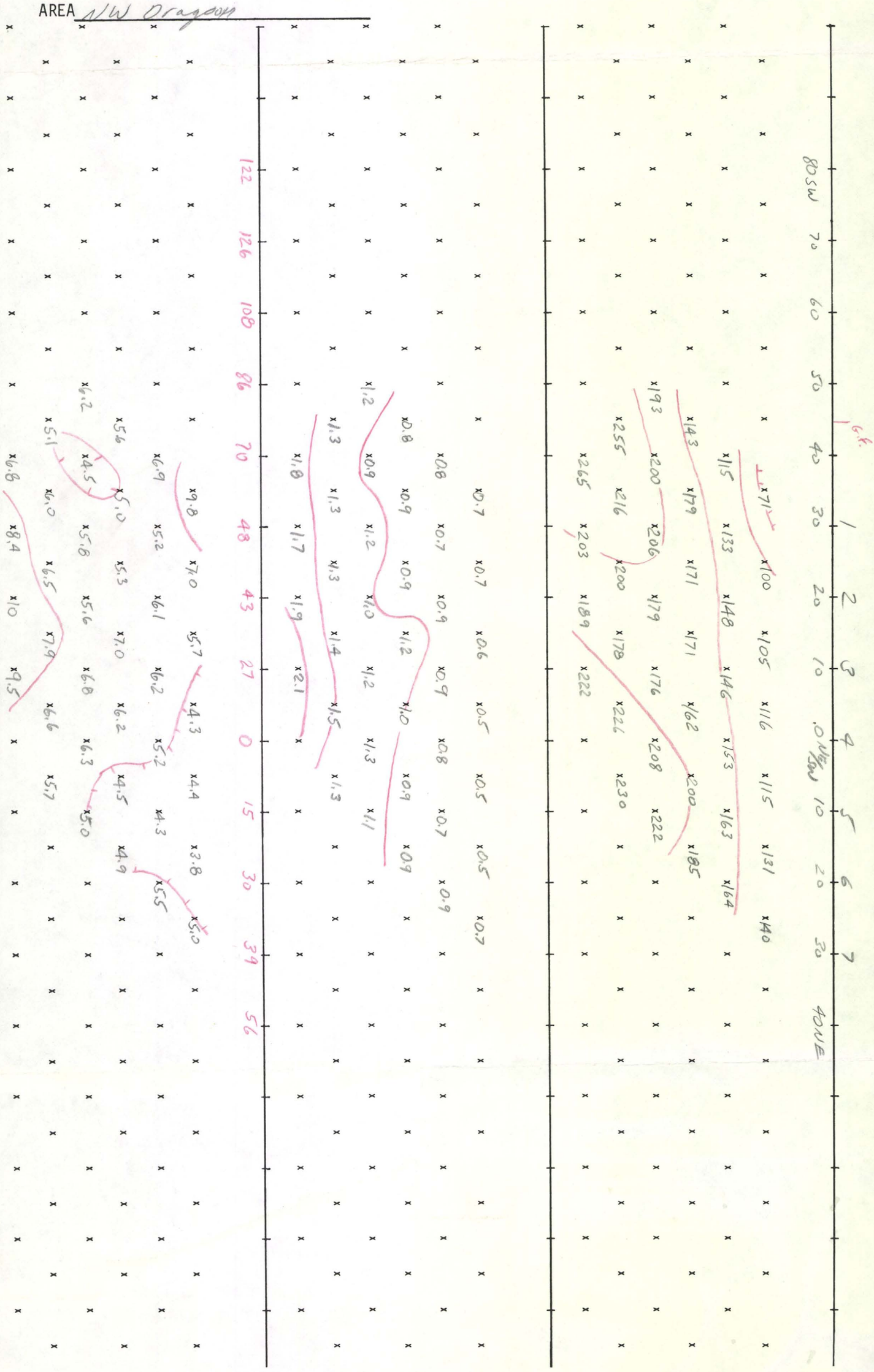



80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
Job 681
Line 7
Middle line is referenced to 22300 γ

JOB# 681 LINE# 8 SP 1 a = 1000' LOOKING N45°W

CLIENT N.A.M., Inc. DATE Feb. '72 FREQUENCIES 1.0 & 0.1 Hz

AREA NW Dragoon

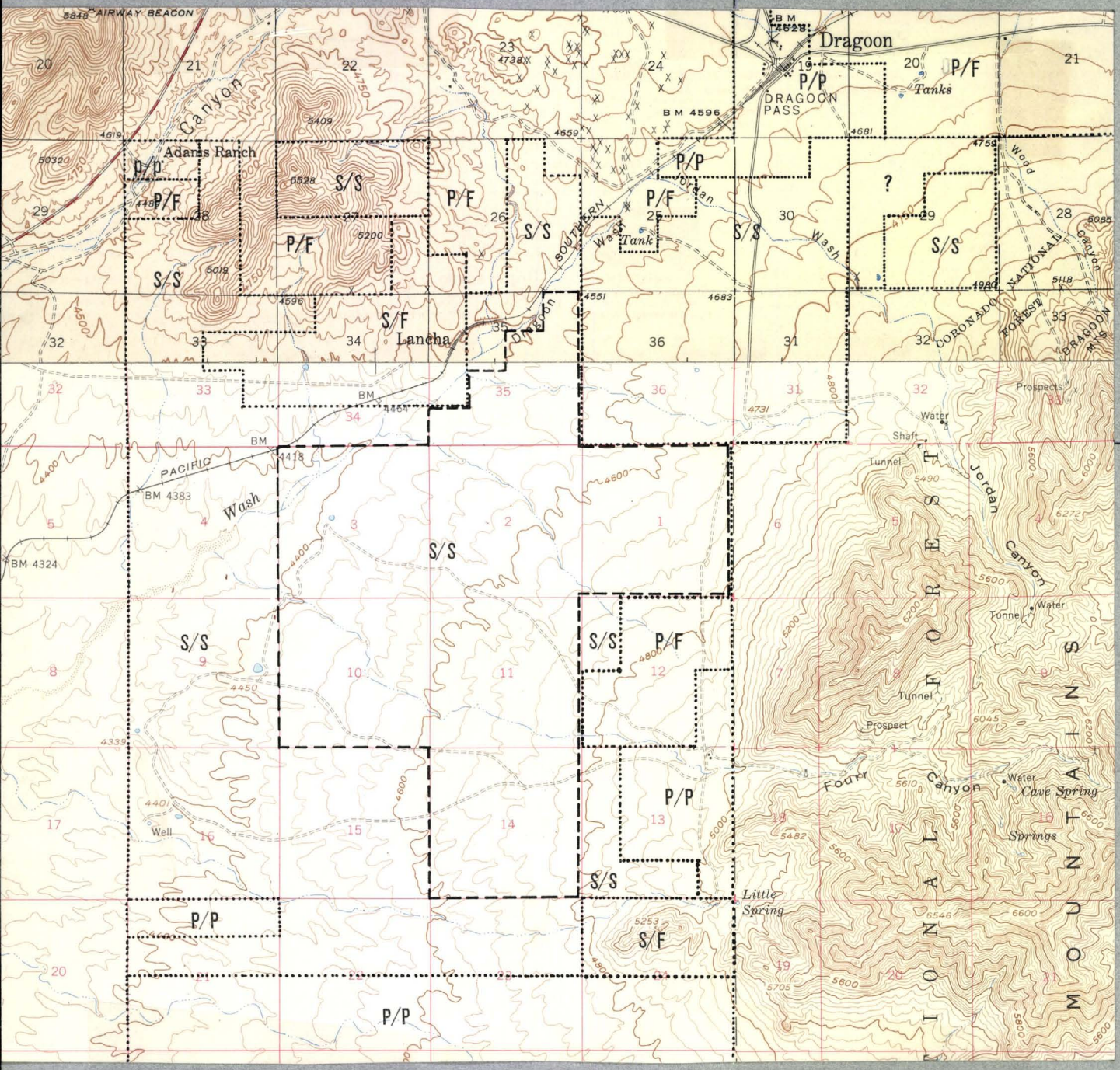


TOPOGRAPHIC MAP
of
NORTHWEST DRAGOON AREA
COCHISE COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 681-72 February 1972

NORTH
SCALE: 1:62,500

R 22 E | R 23 E

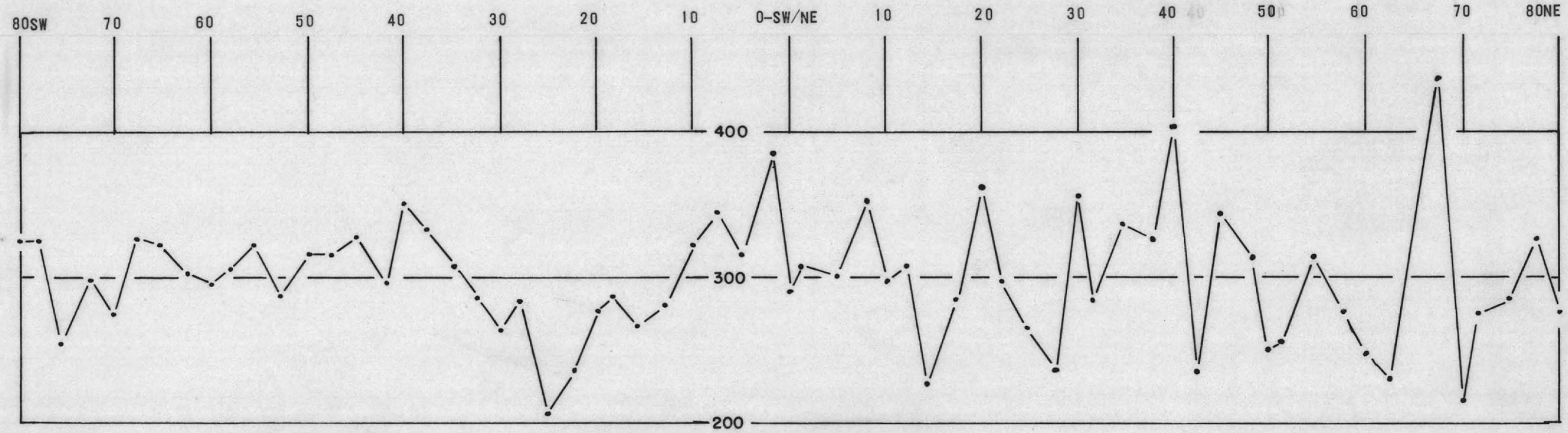
T 16 S
T 17 S



S – State F – Federal P – Private Surface/Minerals Ownership Code

Outline of area for which Application for Prospecting Permit has been submitted.

MAGNETIC PROFILE - LINE 2
of
NORTHWEST DRAGOON AREA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 681-72 February 1972

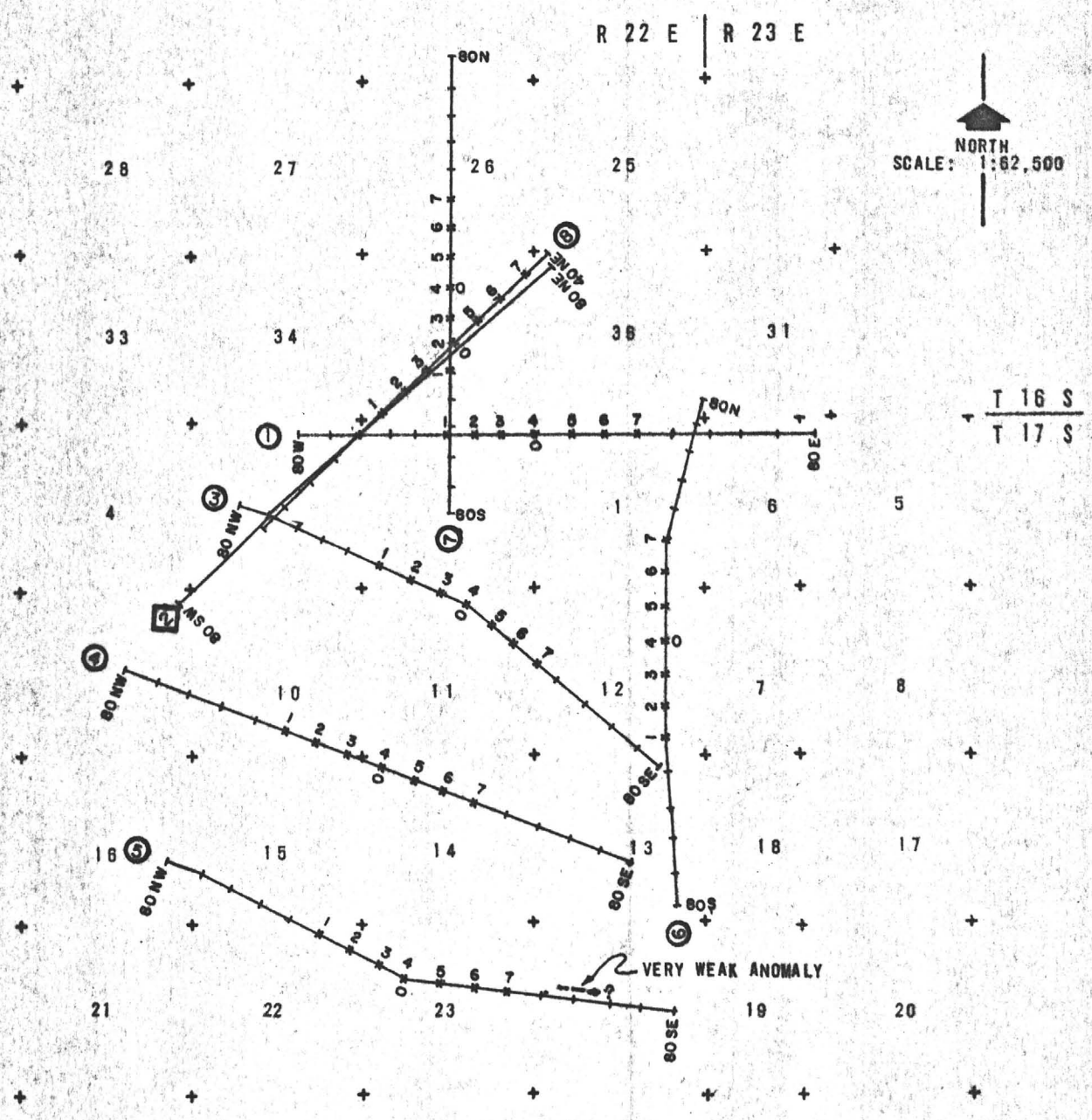


MAGNETICS IN GAMMAS

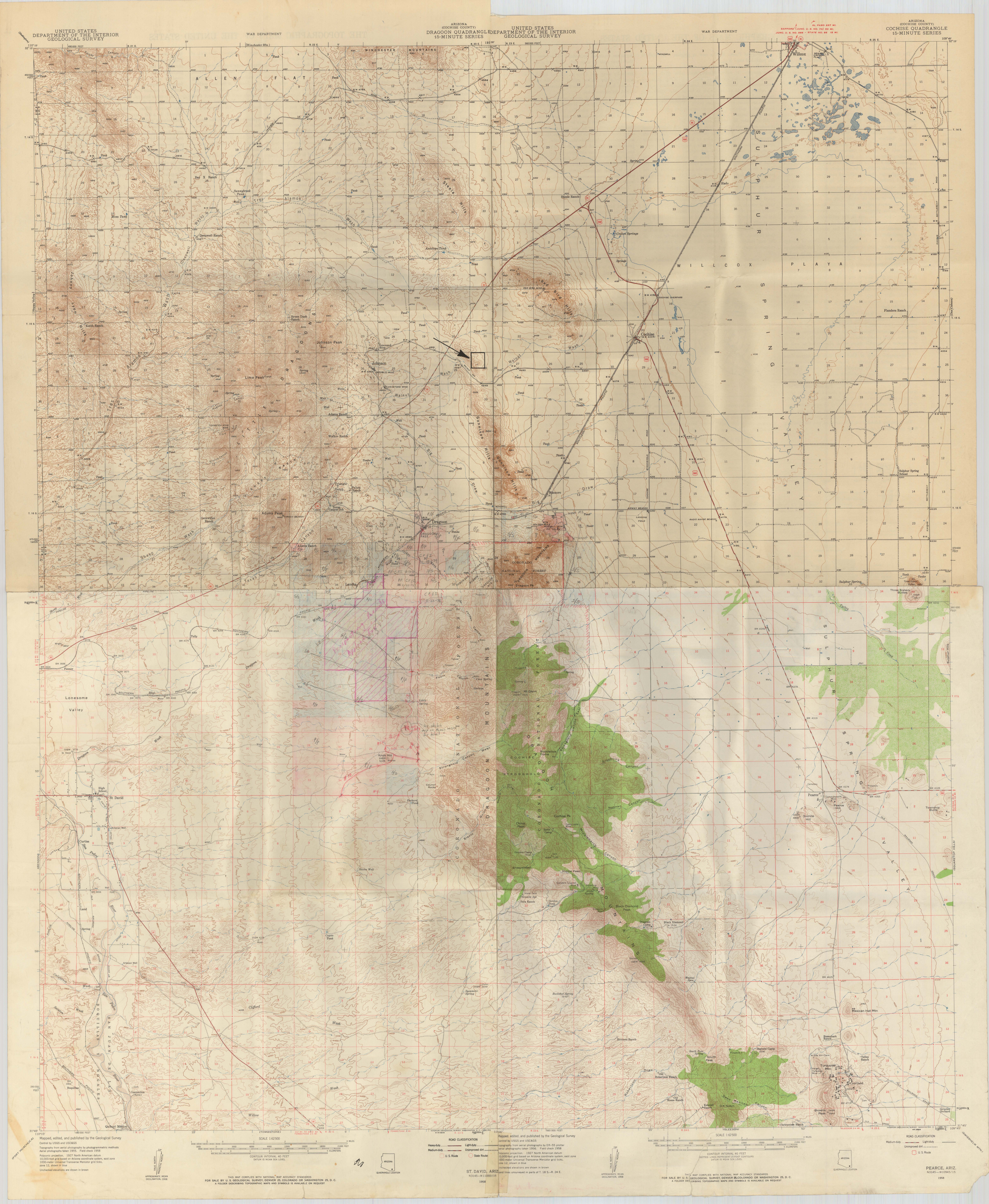
MAGNETICS LINE NUMBER
I. P. LINE NUMBER
I. P. ELECTRODE
I. P. STATION
85 SECTION NUMBER
SECTION CORNER

INDUCED POLARIZATION AND MAGNETIC LOCATION PLAN of NORTHWEST DRAGOON AREA COCHISE COUNTY, ARIZONA for NORTH AMERICAN MINES, INC. by HEINRICHS GEOEXPLORATION COMPANY

Job number 681-72 February 1972



THIS SHEET OVERLAYS THE U.S.G.S. ST. DAVID & DRAGOON QUADRANGLES


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WAR DEPARTMENT
ARIZONA
(COCHISE COUNTY)
DRAGOON QUADRANGLE
15-MINUTE SERIES
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WAR DEPARTMENT
EL PASO 237 MI.
SAFFORD (JUNC. U. S. NO. 70) 50 MI.
JUNC. U. S. NO. 666 - STATE NO. 86 15 MI.
ARIZONA
(COCHISE COUNTY)
COCHISE QUADRANGLE
15-MINUTE SERIES
WINCHESTER MOUNTAINS
ALLEN FLAT
Kelsey Canyon
Bar X Ranch
Sunnybrook Tank
Tres Alamos
Mesa Tank
Deepwell Ranch
Steele Hills
Antelope Tank
Johnny Lyon Hills
Keith Ranch
Seven Dash Ranch
Johnson Peak
Johnson
Lime Peak
LITTLE DRAGOONS
Adams Ranch
Walker Ranch
Tungsten King Mine
Triangle T Ranch
Fulton Ranch
Getzwiller Ranch
Adams Peak
Texas Canyon
Sheep Wash
Dragoon
Dragoon Pass
Gunnison Hills
Willcox
Steele Ranch
Croton Springs
Hado
WILLCOX PLAYA
SULPHUR SPRING VALLEY
Red Bird Hills
Cochise
Flanders Ranch
Manzoro
Big Draw
Airway Beacon
Landing Field
Radio Range Beacon
Sulphur Spring School
Golden Rule Mine
CORONADO NATIONAL FOREST
Dragoon Pk
Three Sisters Buttes
Lancha
Tully
Fenner
Sibyl
Lonesome Valley
St David
High School
Curtiss
San Pedro River
Land
Boquillas
Contention (Ruins)
Quiburi Mission (Ruins)
Knob Hill
Packard Tank
Slavin Well
Coyote Tank
Clifford Wash
Willow
Stronghold Canyon West
Council Rocks
DRAGOON MOUNTAINS
Mt Glenn
Rockfellow Dome
COCHISE STRONGHOLD
Cochise Pk
China Peak
Middlemarch Canyon
Sheepshead
Middle Pass
Black Diamond Peak
Dragoon Camp
Bennett Ranch
Buckshot Spring
Sycamore Spring
Turkey Creek
Pearce
Pearce Hill
Sixmile Hill
Township Butte
Mexican Hat Mtn
Busenbark Ranch
Telles Ranch
Turquoise Mtn
Courtland
Browns Peak
Grizzles Orchard
South Pass
Barrett Camp
Old Robertson Ranch
Old Home Ranch
Kendall Ranch
O K Notch
Dead Mexican Canyon
Christenson Ranch
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1955. Field check 1958
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue
Unchecked elevations are shown in brown
SCALE 1:62500
CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL
APPROXIMATE MEAN DECLINATION, 1958
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U. S. Route
State Route
QUADRANGLE LOCATION
ST. DAVID, ARIZ.
N3145—W11000/15
1958
Mapped, edited, and published by the Geological Survey
Topography from aerial photographs by ER-55 plotter
Aerial photographs taken 1956. Field check 1958
DOTTED LINES REPRESENT 20-FOOT CONTOURS
Unchecked elevations are shown in brown
and lines unsurveyed in parts of T. 18 S.–R. 24 E.
PEARCE, ARIZ.
N3145—W10945/15
1958

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.

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The aerial camera is now being used in mapping. From the information recorded on the photographs, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 44 percent of its area has now been mapped. About 15 percent of the Territory has been covered by maps on a scale of $\frac{1}{500,000}$ (1 inch = nearly 8 miles). For most of the remainder of the area surveyed the maps published are on a scale of $\frac{1}{250,000}$ (1 inch = nearly 4 miles). For some areas of particular economic importance, covering about 4,300 square miles, the maps published are on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile) or larger. In addition to the area covered by topographic maps, about 11,300 square miles of southeastern Alaska has been covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

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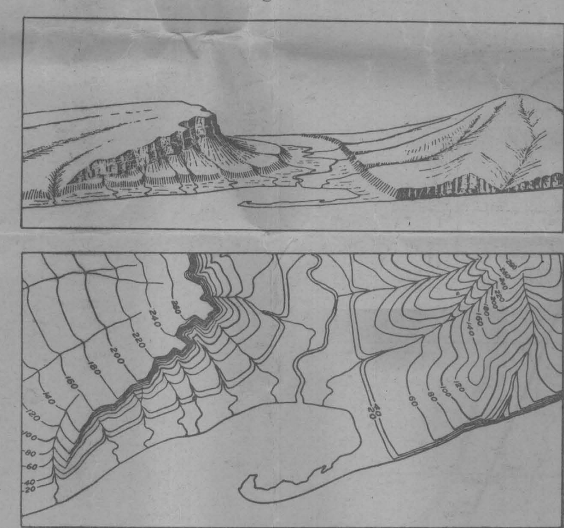
The manner in which contour lines express altitude, form, and grade is shown in the figure below.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

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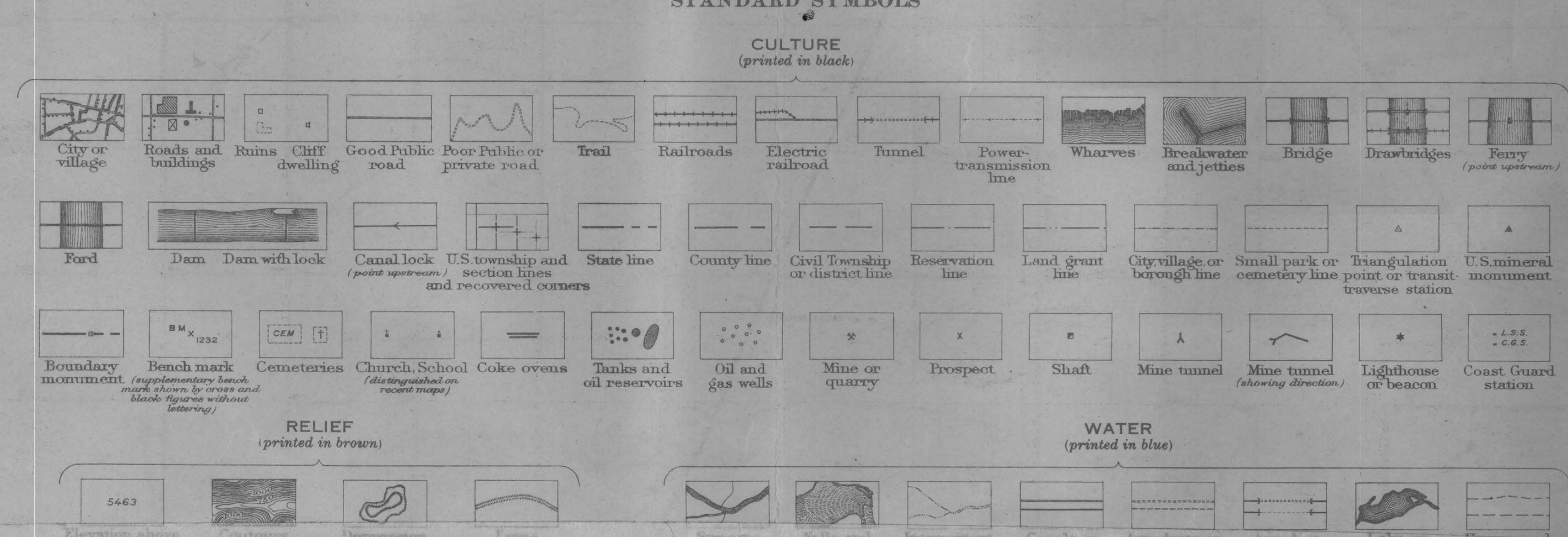
November 1937.

STANDARD SYMBOLS



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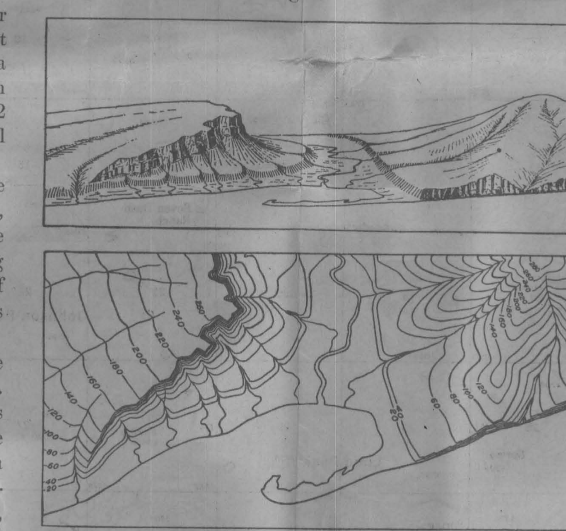

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November 1937.

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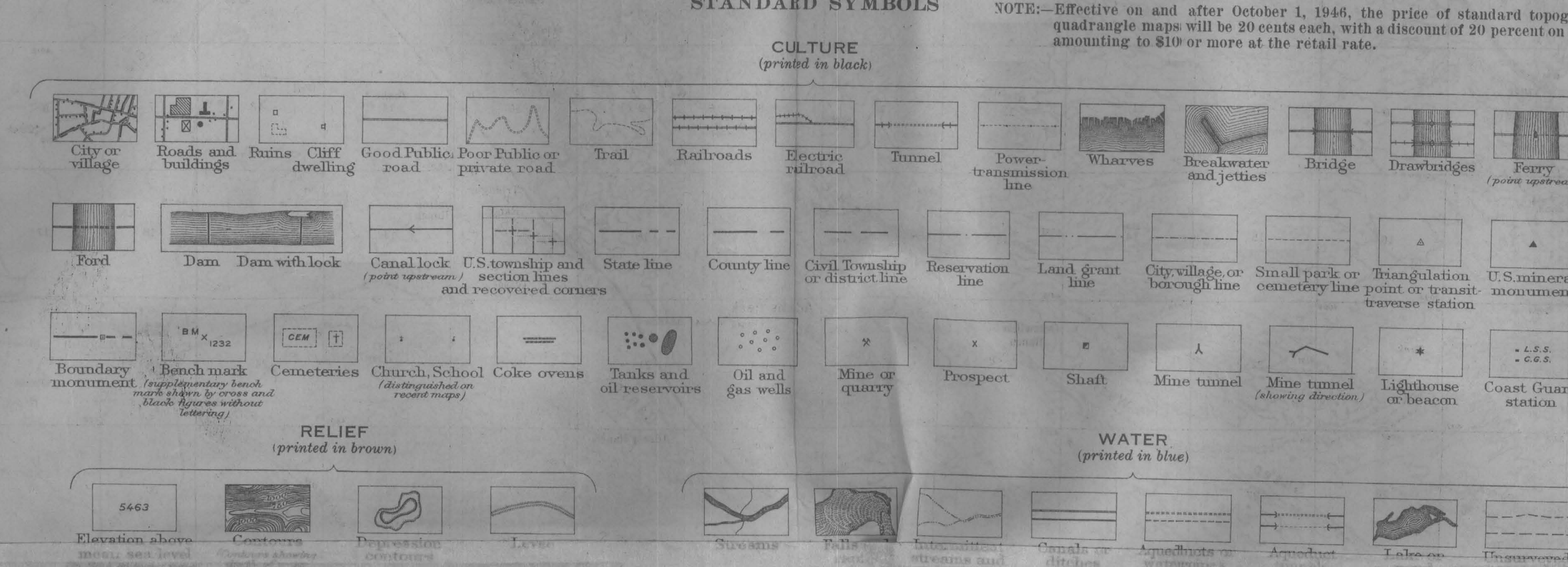
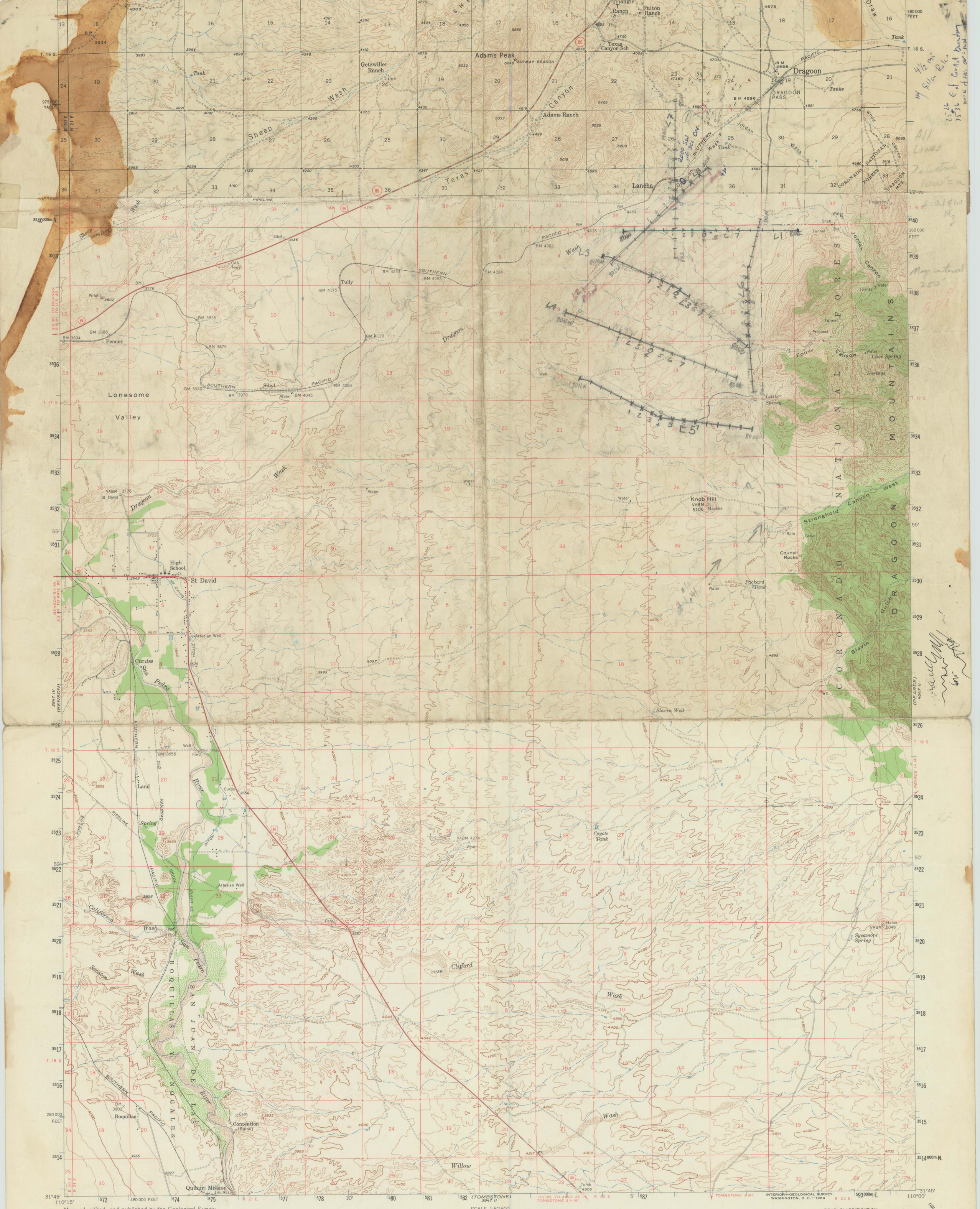
NOTE:—Effective on and after October 1, 1946, the price of standard topographic quadrangle maps will be 20 cents each, with a discount of 20 percent on orders amounting to $10 or more at the retail rate.





Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1955. Field check 1958

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Unchecked elevations are shown in brown

UTM GRID AND 1958 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62 500

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
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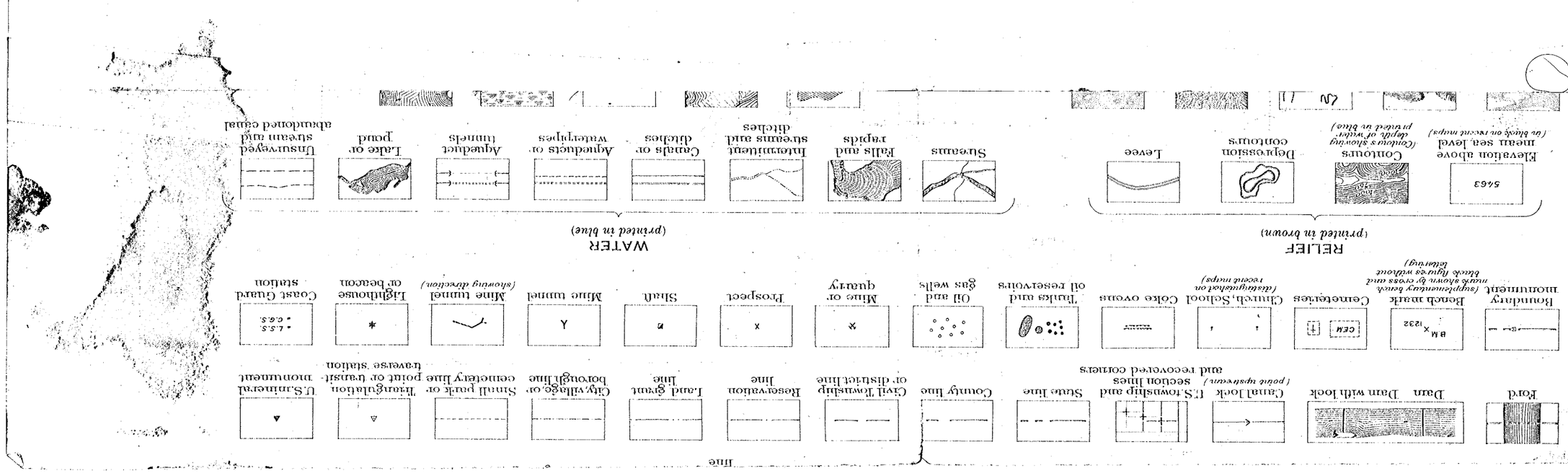
ST. DAVID, ARIZ.

N3145—W11000/15

1958

AMS 3947 I—SERIES V798


Ford
Dam
Dam with lock
Canal lock
(pole upstream)
T.S. township and section lines
and recovered corners
State line
County line
Civil Township or district line
Reservation line
Land Grant line
City, village, or borough line
Small park or cemetery line point or transit-traverse station
Triangulation monument
U.S. mineral monument
Boundary monument
Bench mark
(supplementary bench marks shown by cross and black figures without lettering)
B M x 1232
Cemeteries
CEM
Church, School
(classified as on recent maps)
Coke ovens
Tanks and oil reservoirs
Oil and gas wells
Mine or quarry
Prospect
Shaft
Mine tunnel
Mine tunnel
(showing direction)
Lighthouse or beacon
Coast Guard station
L.S.S.
C.G.S.
RELIEF
(printed in brown)
Elevation above mean sea level
(in black on recent maps)
5463
Contours
(Contour's showing depth of water printed in blue)
Depression contours
Levee
WATER
(printed in blue)
Streams
Falls and rapids
Intermittent streams and ditches
Canals or ditches
Aqueducts or waterpipes
Aqueduct tunnels
Lake or pond
Unsurveyed stream and abandoned canal

HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA 85703, P.O. BOX 5964, PHONE: (602) 623-0578

March 2, 1972

Mr. Q.A. Shaw, President
North American Mines, Inc.
Room 920
50 Congress Street
Boston, Massachusetts 02109

Re: GEOEX Job # 681
NW Dragoon Project
Cochise County, Arizona

Dear Mr. Shaw:

This letter is to serve as a brief report on the I.P. - magnetic survey we recently completed in the NW Dragoon Mountains, Cochise County, Arizona.

Seven I.P. lines and six magnetic traverses were completed. Lines 1, 3, 4, 5 and 7 had both I.P. and magnetic coverage with Line 2 having only magnetic coverage and Lines 6 and 8 having only I.P. coverage.

All I.P. coverage was of a reconnaissance nature and on a 1,000 foot dipole spacing. The dual frequency I.P. technique was used with sending frequencies of 0.1 and 1.0 hertz thereby minimizing inductive coupling interference in the conductive alluvial covered areas. The magnetic coverage was also of a reconnaissance nature and on a 250 foot station interval.

The total I.P. surface coverage aggregates 20.3 line miles of which 12.7 line miles are "subsurface" plotted coverage. A total of 18.2 line miles of magnetic coverage were obtained. Approximately 12 square miles were prospected in a reconnaissance fashion by this survey.

Attached herewith are seven sectional data sheets showing the I.P. information with its associated resistivity, self potential and magnetic information. Magnetic Line 2 is shown as a separate profile. The location of all coverage is shown in plan on a portion of the U.S.G.S. St. David and Dragoon 15 minute topographic quadrangles at a scale of 1:62,500 which also shows the general land status situation.

For the most part, the I.P. data shows only minor background variations except for the south half of Line 7 and the southeast end of Line 5. A cross line (Line 8) was run over the anomalous portion of Line 7 for further verification and gave negative results. Apparently, the railroad and its grounded right-of-way fences caused the response on Line 7, whereas Line 8, being roughly parallel to the tracks, avoided this artificial response.

Some additional work is perhaps justified on the Line 5 anomaly and, as we discussed by telephone on March 2, 1972, we will send a geologist to this area to make a brief examination. Mobile magnetometer reconnaissance coverage run in 1958 disclosed a small but strong magnetic anomaly in the south half of Section 24, T. 17 S., R. 22 E. which was caused by a several foot wide magnetite zone near a limestone-granite contact. Marblelization and minor copper oxide staining were also associated. This contact zone is quite near the weak I.P. response on Line 5 and could be related. The contact zone happens to be on private land and this problem will have to be dealt with if much additional work is warranted based on the initial reconnaissance results.

Higher resistivities at depth imply that bedrock was apparently reached on portions of all I.P. traverses except perhaps Line 4 which may be over a deep alluvial pocket. Therefore, the presence of a buried pediment was established in most of the area.

The magnetics do show some variation but most response is likely due simply to the normal magnetite variations in the underlying granite. No magnetic response indicative of contact type magnetite was noted except perhaps a one station high on Line 5 correlating with the weak I.P. anomaly near station 47.5 SE.

In light of the lack of significantly interesting I.P. or magnetic response, except on Line 5, we recommend concentrating any remaining effort on this project to the vicinity of Line 5 and south thereof. The prospecting permit applications to the north should be let to lapse with no rental payments being made.

We still believe this general area has good discovery potential and exploration work is certainly justified elsewhere around the periphery of the Dragoon and Little Dragoon Mountains. We are considering this as well as other possibilities for our next area presentation to you.

Respectfully submitted,
Heinrichs GEOEXploration Company

Chris

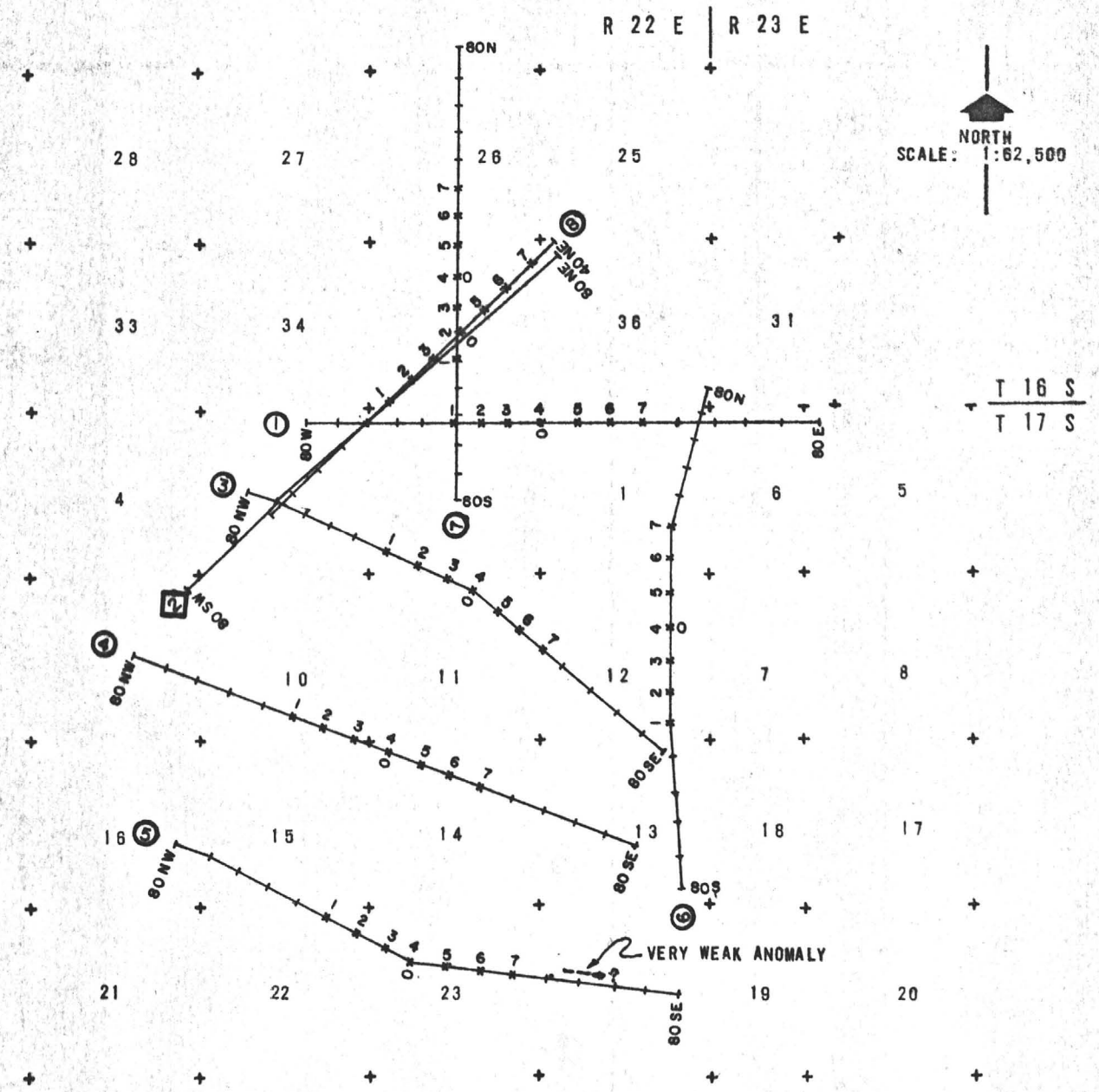
Chris S. Ludwig
Sr. Geophysicist

CSL:dm
Enclosures

MAGNETICS LINE NUMBER
I. P. LINE NUMBER
I. P. ELECTRODE
I. P. STATION
35 SECTION NUMBER
SECTION CORNER

INDUCED POLARIZATION AND MAGNETIC LOCATION PLAN of NORTHWEST DRAGOON AREA COCHISE COUNTY, ARIZONA for NORTH AMERICAN MINES, INC. by HEINRICHS GEOEXPLORATION COMPANY

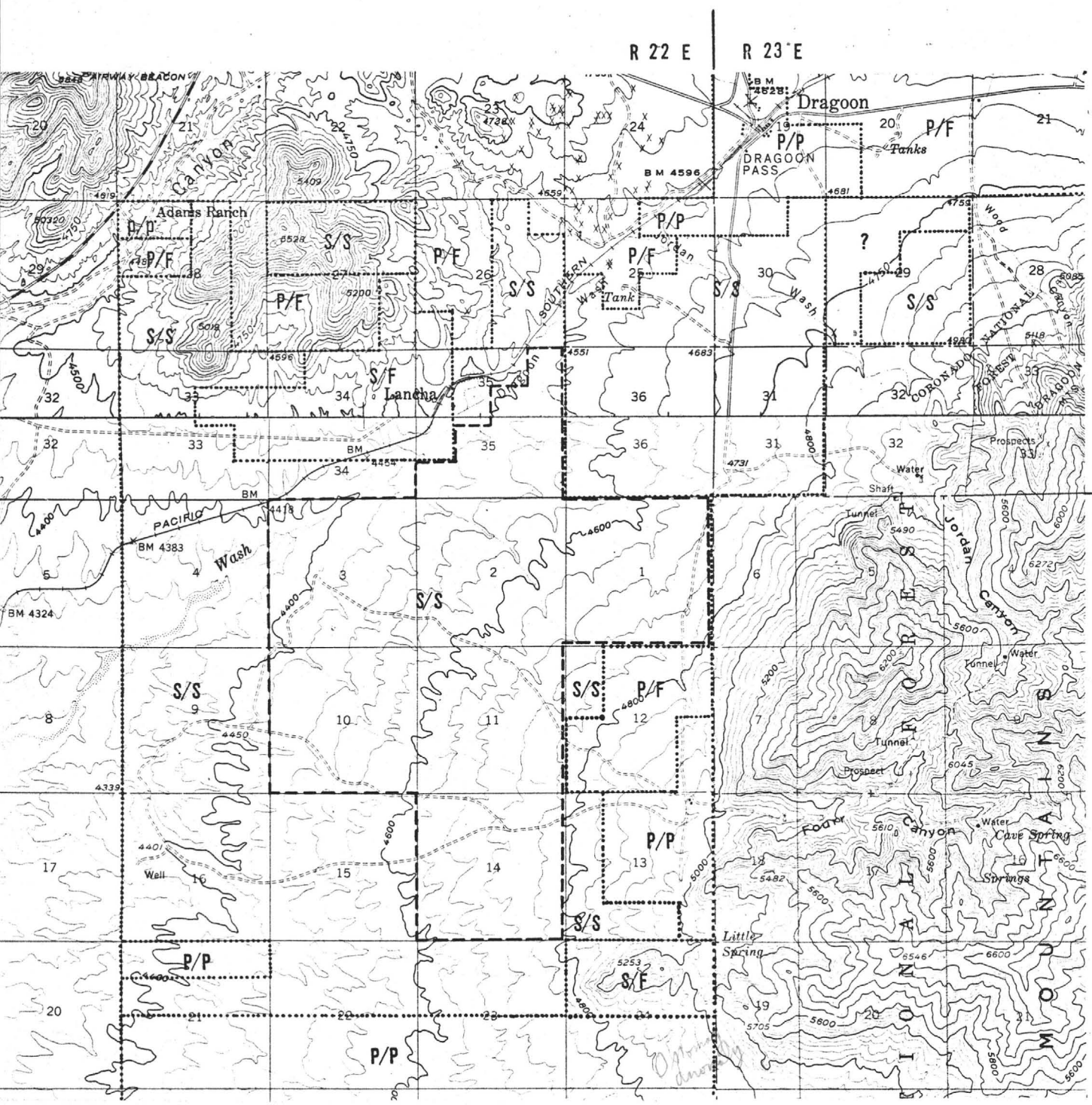
Job number 681-72 February 1972



THIS SHEET OVERLAYS THE U.S.G.S. ST. DAVID & DRAGOON QUADRANGLES

TOPOGRAPHIC MAP
of
NORTHWEST DRAGOON AREA
COCHISE COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 681-72 February 1972

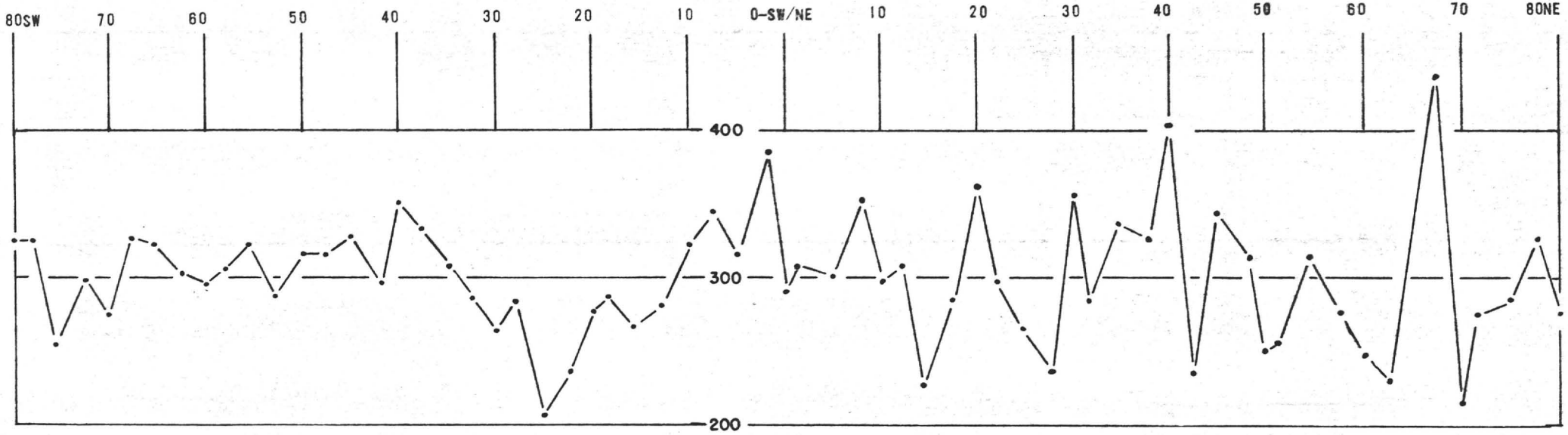
NORTH
SCALE: 1:62,500



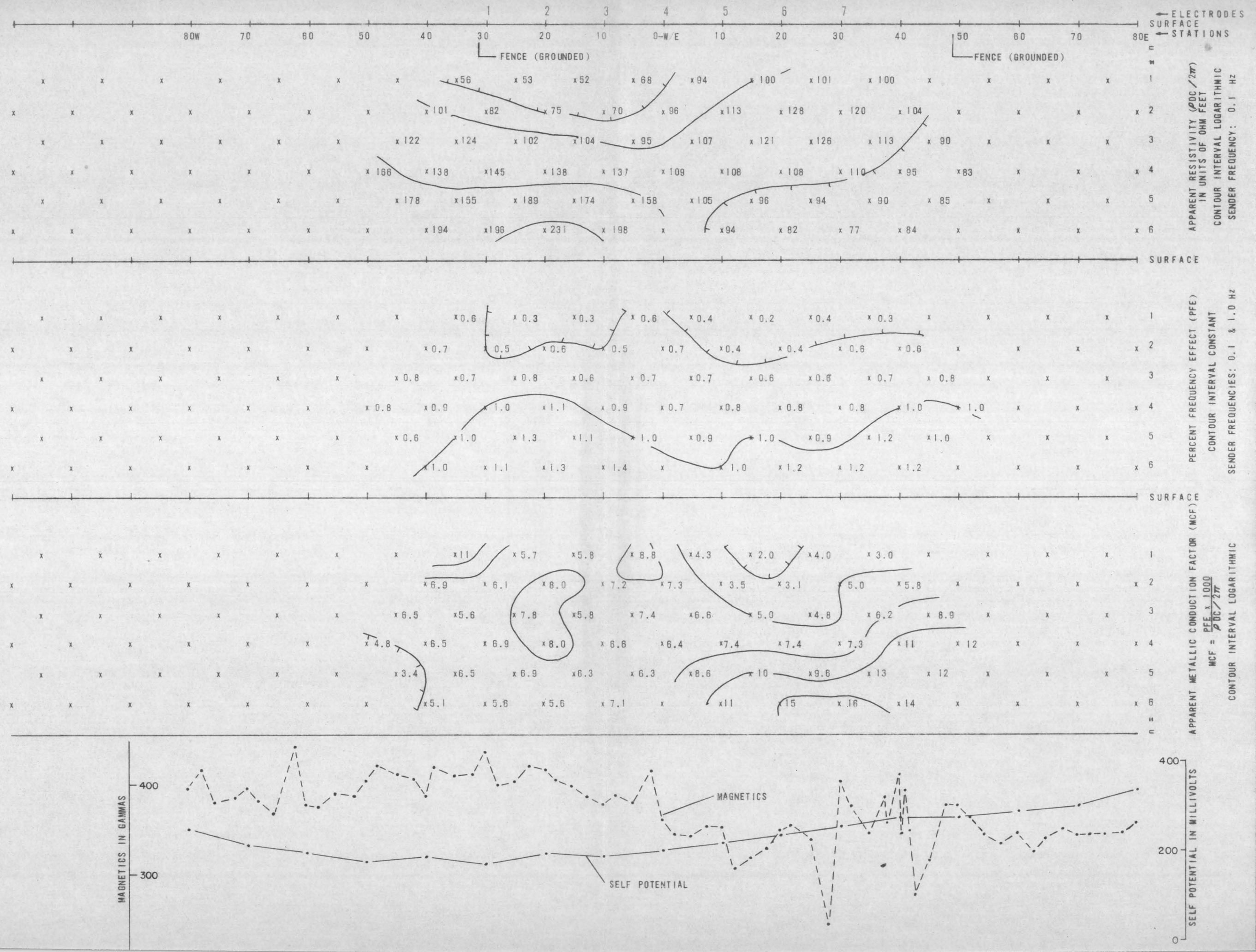
S – State F – Federal P – Private Surface/Minerals Ownership Code

Outline of area for which Application for Prospecting Permit has been submitted.

MAGNETIC PROFILE - LINE 2
of
NORTHWEST DRAGOON AREA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 681-72 February 1972



MAGNETICS IN GAMMAS



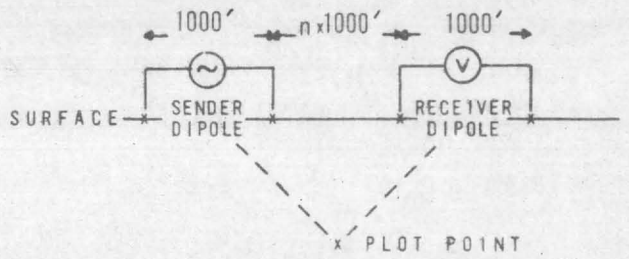
6B1-72

LINE NO.
1
SPREAD(S)
1

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET for NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

DIPOLE DIPOLE ELECTRODE ARRAY

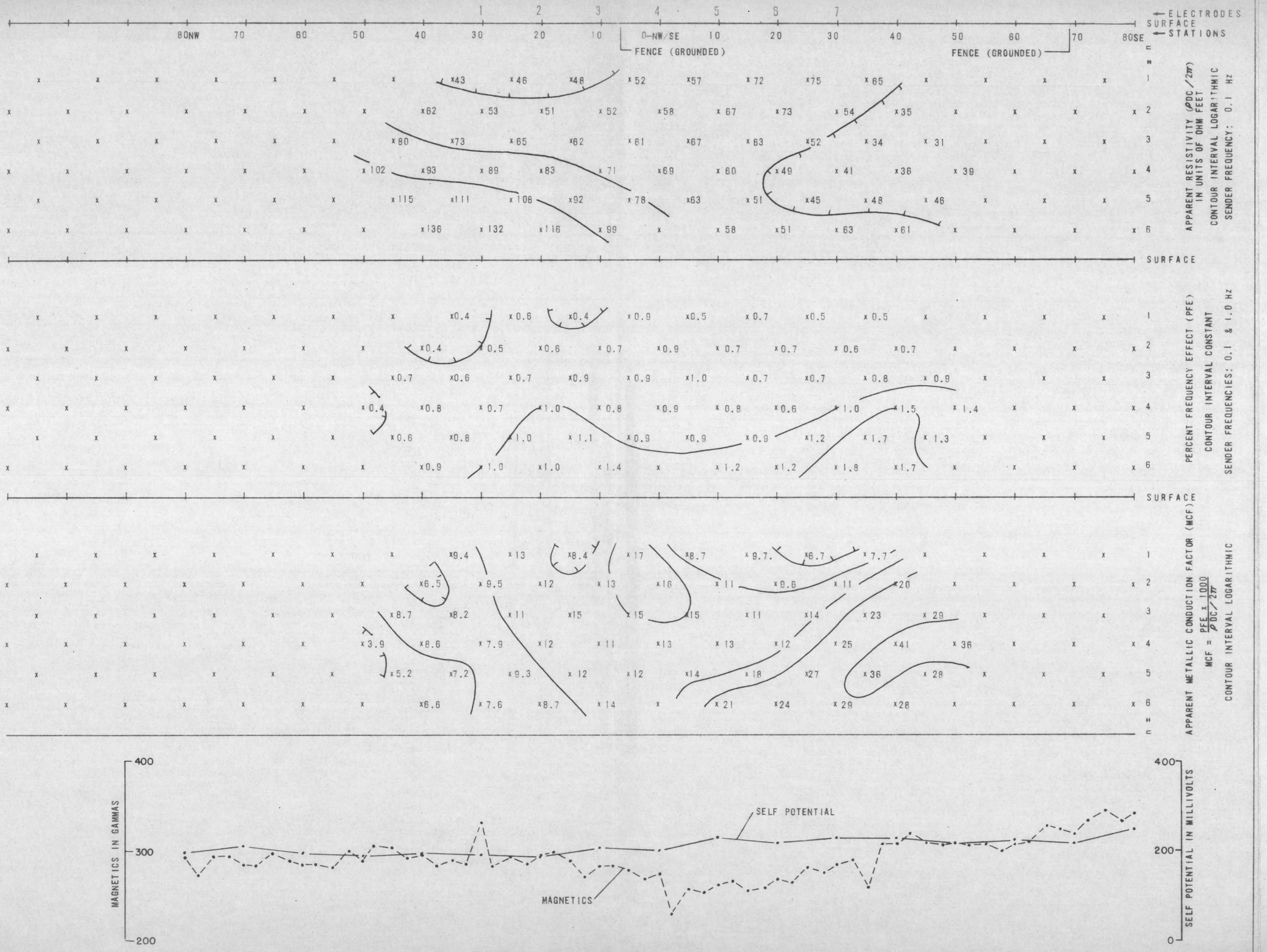


AREA
NORTHWEST DRAGOON

LOOKING
NORTH

DATE
FEB 1972

HEINRICHS
GEOEXPLORATION COMPANY
GEOPHYSICAL ENGINEERS
AUSTRALIA (SYDNEY) 39 Hume Street Crows Nest, NSW Phone: 439-1793
U.S.A. Post Office Box 5964 Tucson, Arizona 85703 Phone: (602) 623-0578 Cable: GEOEX, Tucson



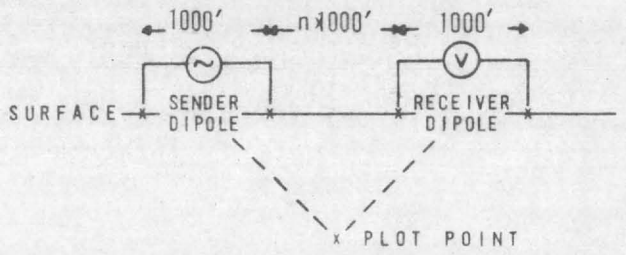
681-72

LINE NO.
3
SPREAD(S)
1

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
for
NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

DIPOLE DIPOLE ELECTRODE ARRAY



AREA
NORTHWEST DRAGOON

LOOKING
N 22° E

DATE
FEB 1972

HEINRICHS
GEOEXPLORATION COMPANY
GEOPHYSICAL ENGINEERS
AUSTRALIA
(SYDNEY)
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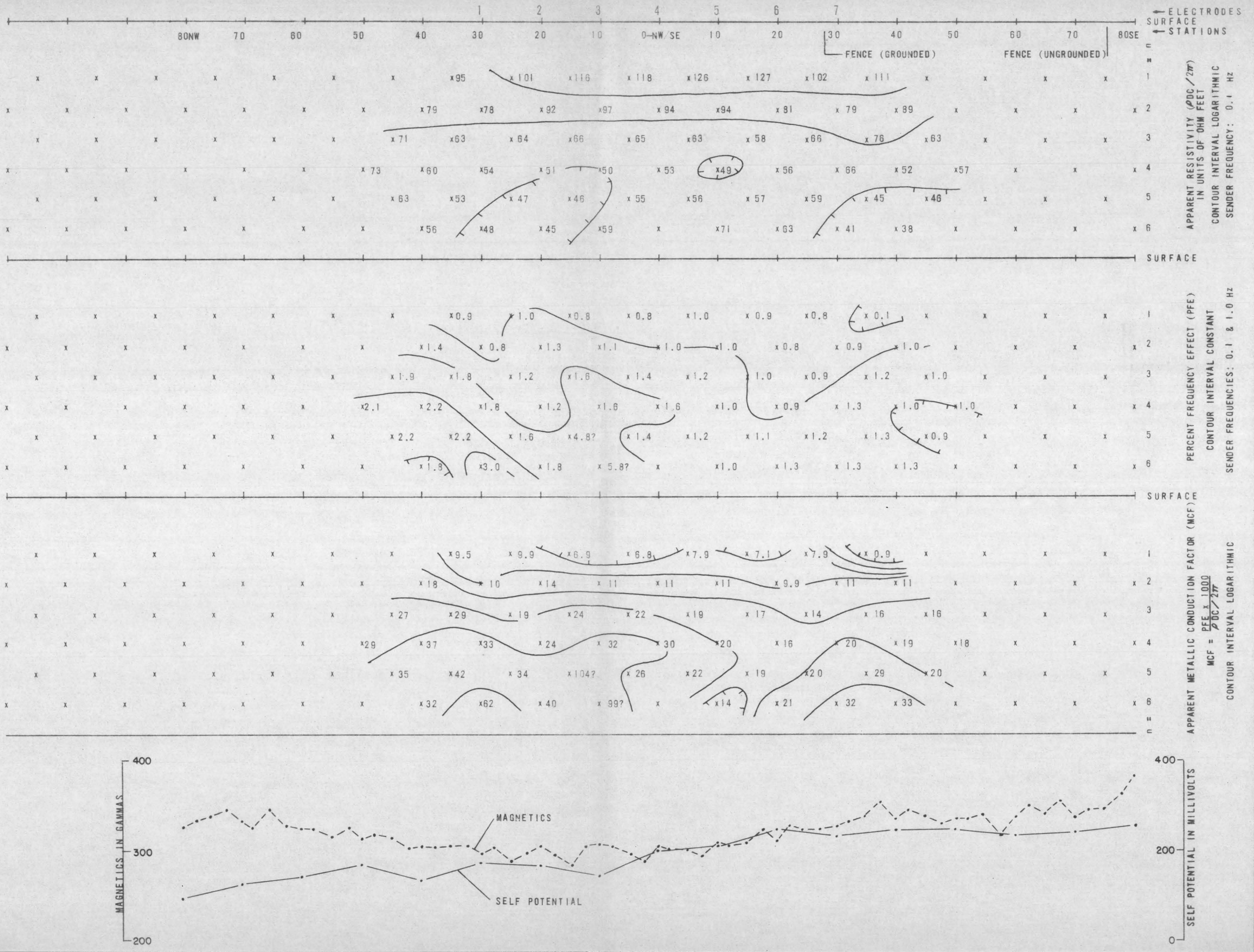

681-72

LINE NO.
4
SPREAD(S)
1

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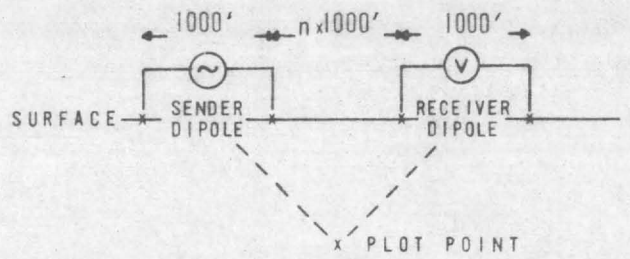
RELATIVE ANOMALY STRENGTH

DIPOLE DIPOLE ELECTRODE ARRAY



AREA
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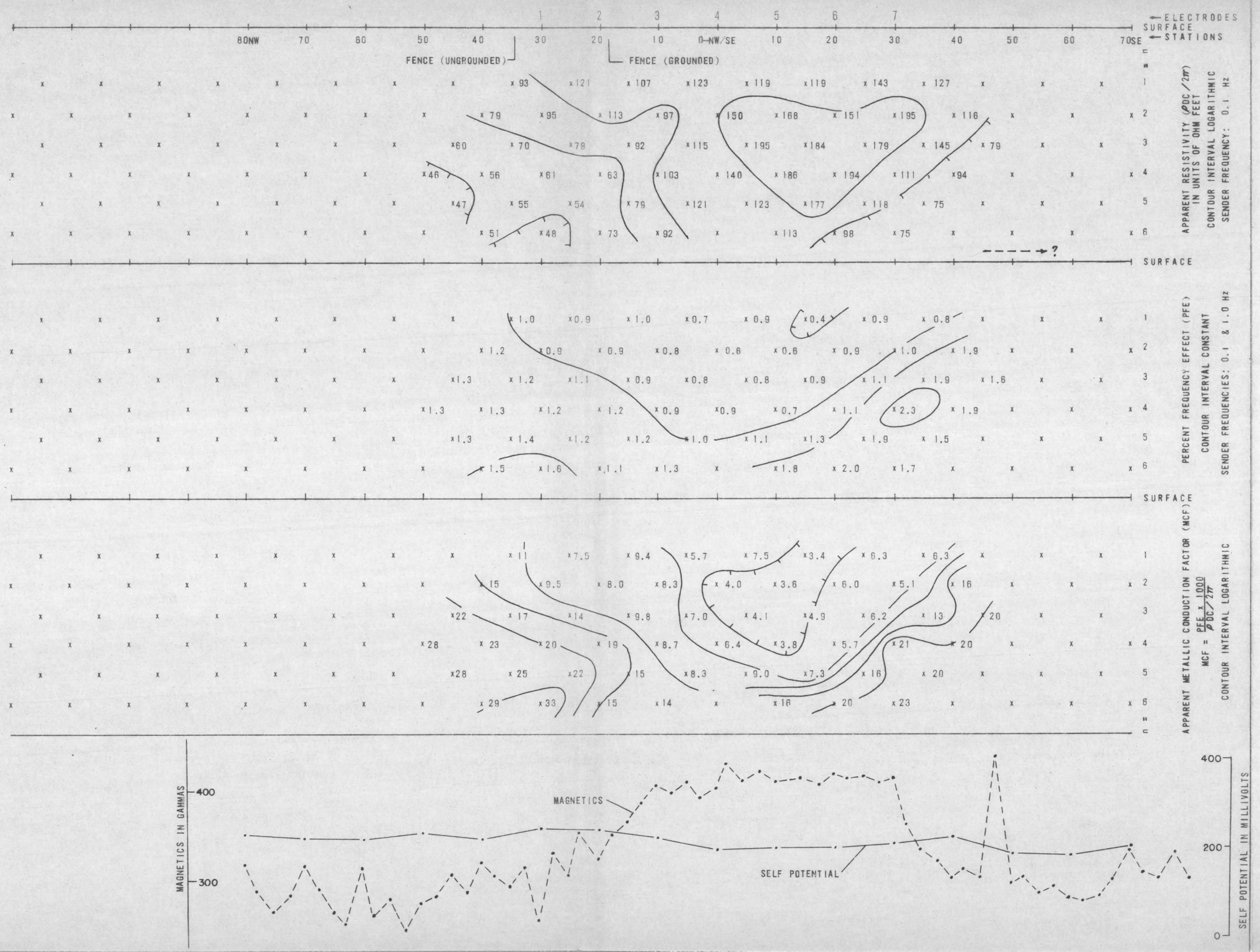


691-72

LINE NO. 5

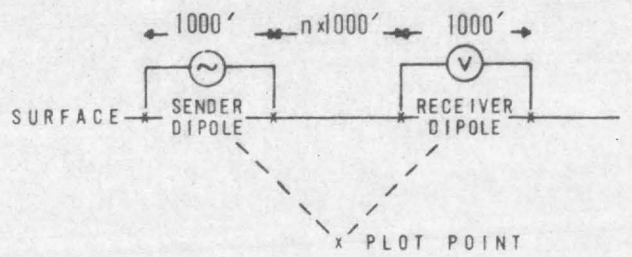
SPREAD(S) 1

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET for NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE DIPOLE ELECTRODE ARRAY



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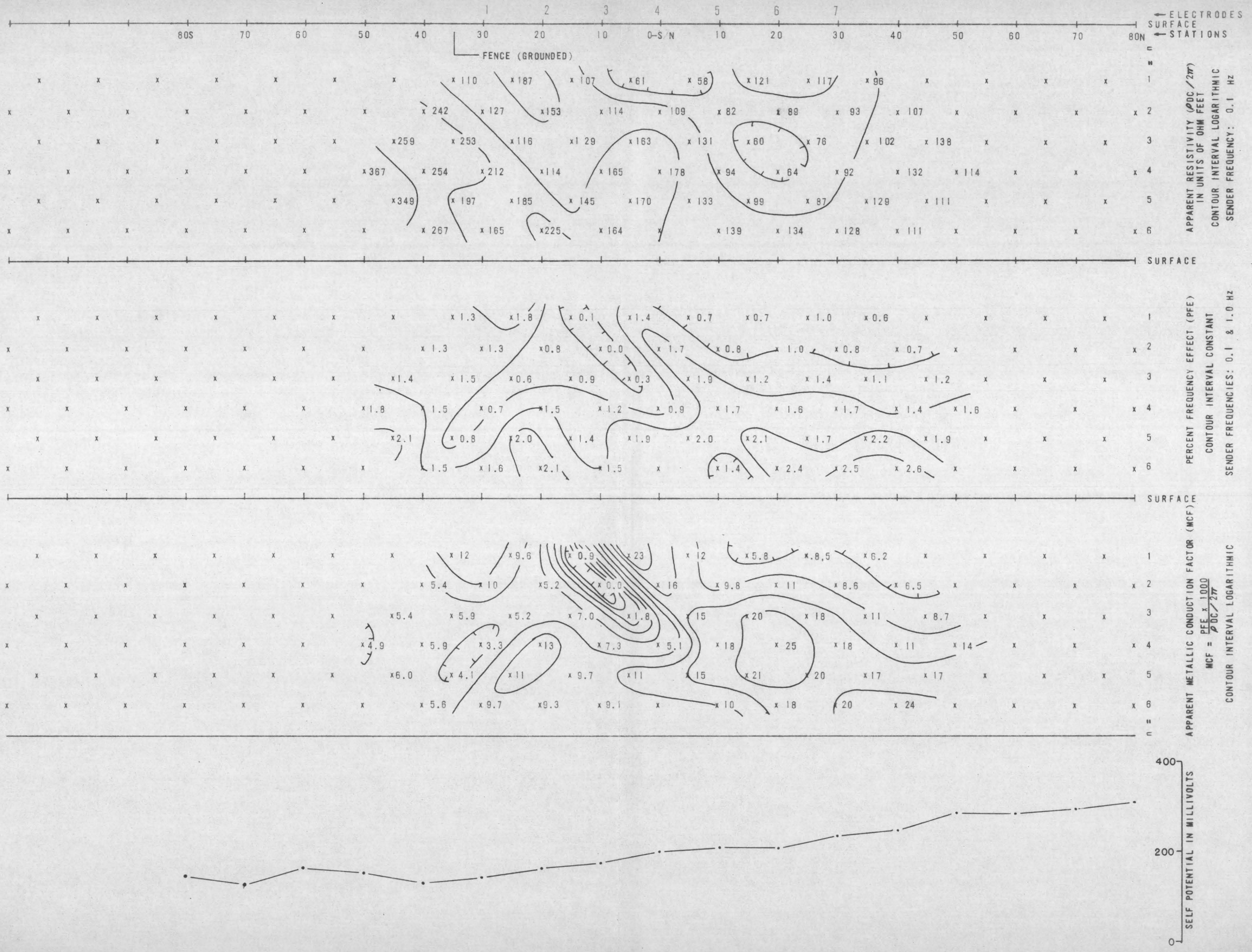


681-72

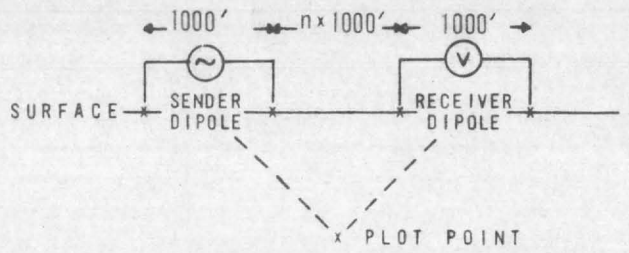
LINE NO.
6
SPREAD(S)
I

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
for
NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE DIPOLE ELECTRODE ARRAY



AREA
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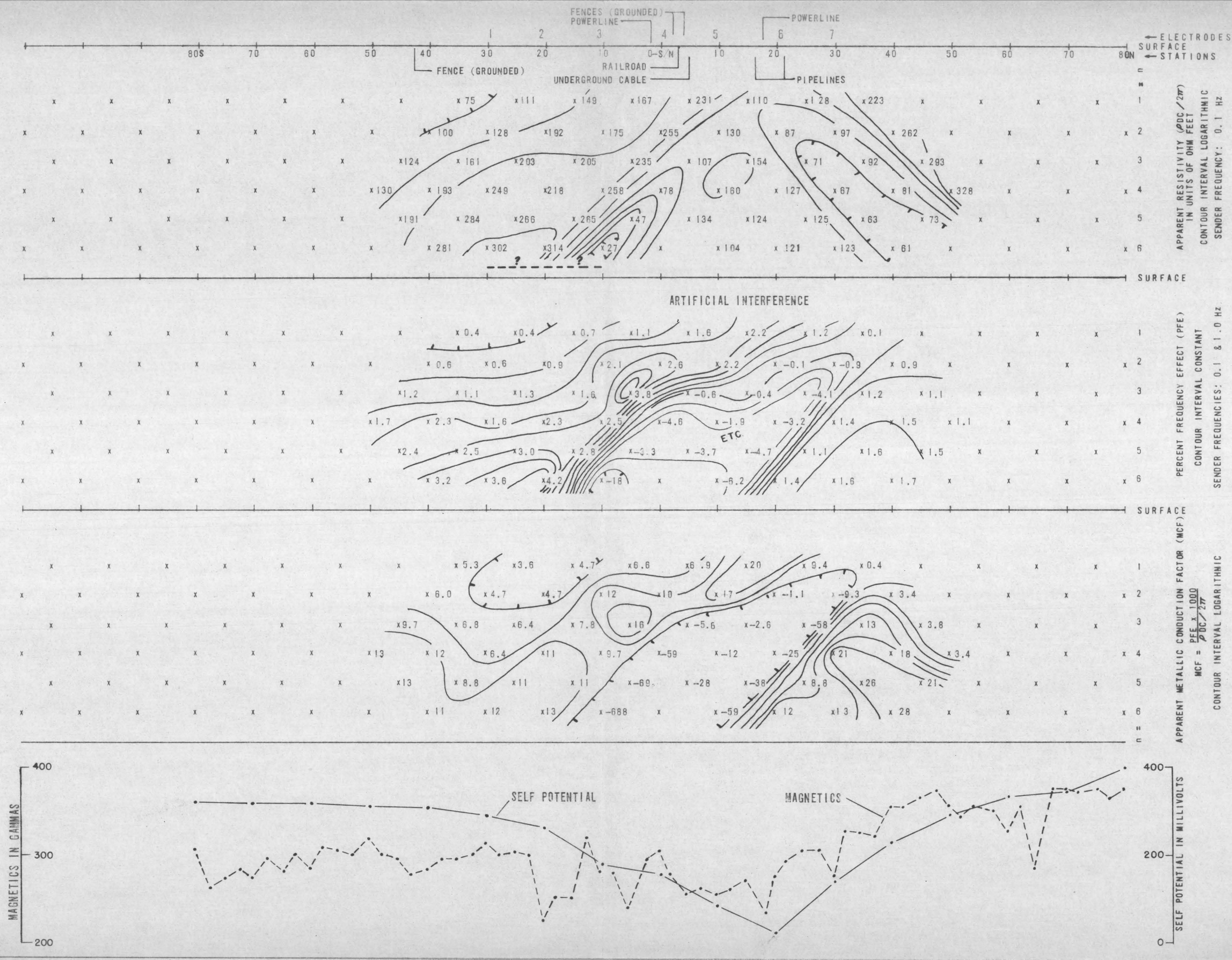


681-72

LINE NO.
7
SPREAD(S)
1

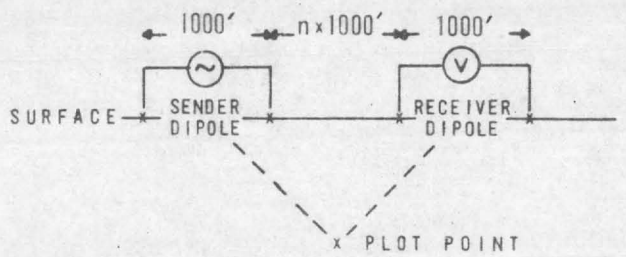
INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET for

NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE DIPOLE ELECTRODE ARRAY



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DATE

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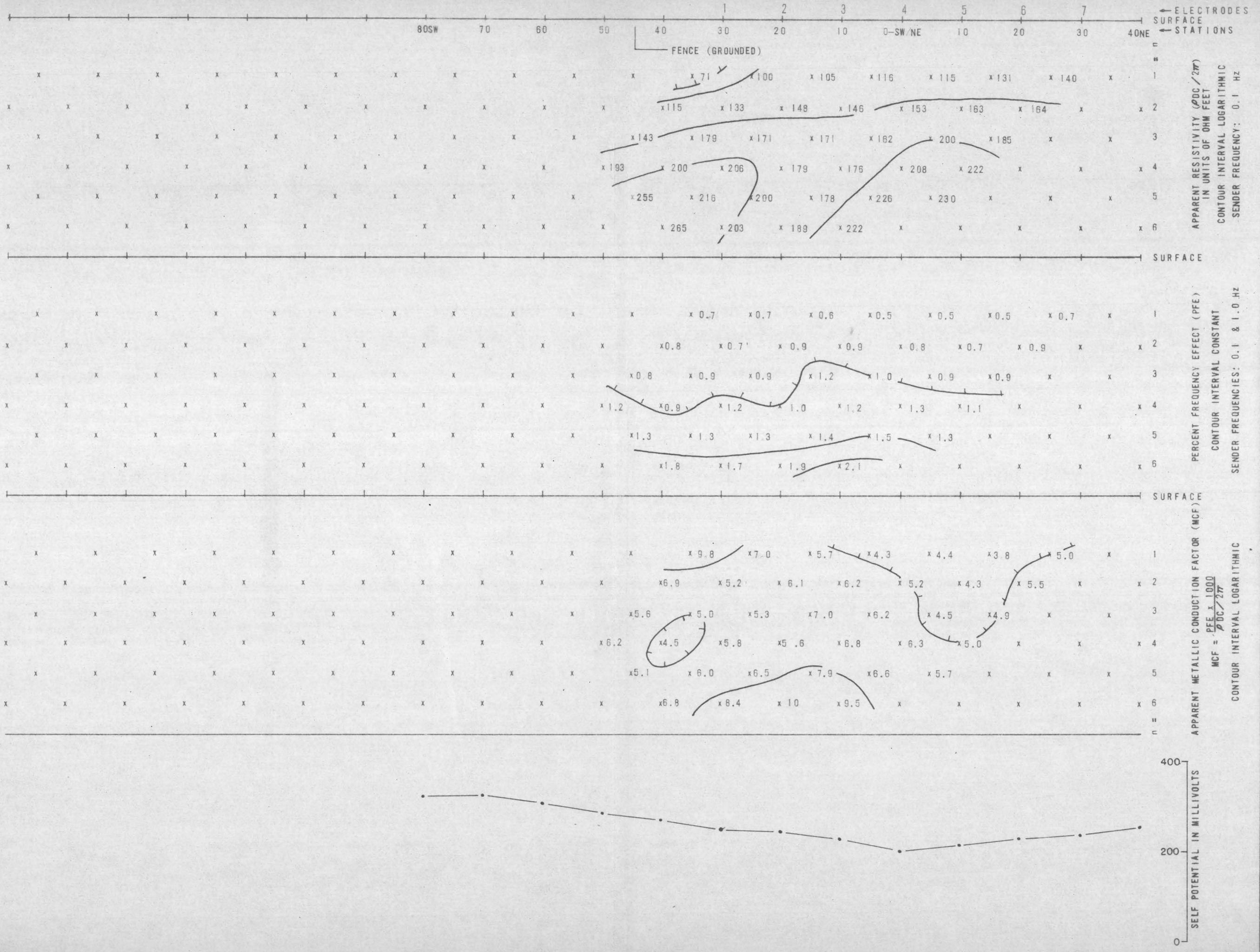


681-72

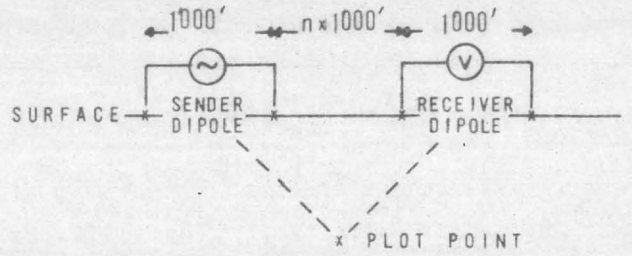
LINE NO
8
SPREAD(S)
1

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET
for
NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE DIPOLE ELECTRODE ARRAY



AREA
NORTHWEST DRAGOON
LOOKING
N 45° W
DATE
FEB 1972

FIVE

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