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JOB 800
4/5/73
p. 1
TR.MK. REG. U.S. PAT. OFF.

GRAVITY-SURVEY

Red Mtn. — Patagonia

	DIAL	TIME	ELEV. 4/5/73
RM 17	195.2	12:30	
"	195.0	12:33	
"	195.1	12:35	
"	195.1	12:41	
B-1	1327.5	13:12	
"	1327.6	13:18	
B-2	1481.0	13:33	
B-3	1001.1	13:58	
RM 17	196.4	14:20	
" "	195.9	14:26	
			4/6/73
B-1	1335.6	8:20	
"	1335.4	8:31	
B-4	1079.2	9:00	
B-5	1028.2	9:28	
B-1	1335.6	9:58	
B-1	1335.6	9:58	
B-6	1562.3	10:18	
B-7	1514.0	10:37	
B-1	1335.6	10:57	

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JOB 800
4/9/73
p 2

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Grav. E/W

	DIAL	TIME	ELEV.
RM17	217.4	11:21	
"	217.7	11:27	
G1 E/W	259.1	11:33	
G2 E/W	368.5	11:39	
G3 E/W	457.0	11:44	
G4	517.3	11:57	
G5	578.5	12:18	
G6	765.5	12:33	
G7	996.6	12:56	
B-3	1024.8	13:04	
B-3	1024.8	13:35	
G8 E/W	1175.2	13:54	
B-1	1349.9	14:20	
G-9 E/W	1343.5	14:31	
B-1	1350.5	14:41	
RM 17	218.6	15:14	
B-8	465.5	15:30	
B-9	525.9	15:44	
RM-17	218.6	16:04	
RM-17	218.6	16:04	
B-10	613.4	16:35	
B-11	711.2	17:01	
RM-17	217.8	17:20	

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8

Job 800
4/10/73
P. 3

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GRAVITY LINE E/W

STA.	DIAL	TIME
RM17	219.5	9:22
RM17	219.8	9:32
RM17	219.9	9:36
RM17	219.9	9:40
G1	261.6	9:51
G10	497.4	10:30
G11	692.8	11:00
B11	715.2	11:10
B11	715.1	11:15
B11	715.1	11:20
RM17	222.1	11:44
RM17	222.8	11:55
~~B9~~	~~305.3~~	~~12:12~~
G12	594.3	12:36
G13	663.3	1:09
RM17	222.9	1:40
B-7	1534.2	2:19
B-12	837.9	2:57
G14	928.7	3:25
G15	1185.8	3:47
G16	1433.9	4:17
G17	1456.0	4:35
G18	1491.1	4:51
G19	1501.0	5:05
~~G~~ 20	1514.7	5:18

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$$\begin{array}{r} 1344.5 \\ 1322.5 \\ \hline 22 \end{array}$$

Job 800
4/10/73
p 4

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

Grav. Line E/W

	DIAL	TIME
G-21	1528.9	5:31
B-7	1533.7	5:43
		4/11/73
B-1	1358.0	12:47
B-1	1358.0	1:57
B-13	1400.1	2:25
B-14	1349.5	2:48
B-1	1359.3	3:31
~~B 11~~	~~744.7~~	

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JOB 800

4/17/73

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N-S LINE

STA	DIAL	TIME	
B-8	494.3	10:39	
B 8	494.9	10:47	
N/S G-22	835.5	11:49	Base of cliffs
G-23	887.4	12:26	5' ↑ notice of Lee Red Hawk #6
G-24	1143.9	12:48	stream junction
G-25	1142.0	13:07	saddle.
G-26	1284.6	13:29	5' above creek bed outlin
G-27	1214.1	13:59	in draw.
G-28	1243.1	14:14	@ creek level.
G-29	1215.9	14:29	5' above creek.
G-30	1160.8	14:46	on road & X w/ side road
B-4	1126.1	15:03	
B-11	744.7	16:29	
B-11	744.7	16:35	
G-31	752.3	16:45	
G-32	949.4	17:02	
B-11	745.3	17:21	

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1371.9
1349.5
22.4

650
6134
376

14.8
3.7
19.9

Job 800
4/18/73
Page 6

LINE N/5

Stat	Read	Time
B-10	650.0	9:25
B-10	650.0	9:35
G33	713.5	10:13
G34	1040.6	10:47
G35	1242.2	11:28
G36	1331.8	11:50
G37	1364.2	12:00
B14	1371.9	12:07
G38	1387.3	12:44
G39	1388.1	12:53
G40	1407.2	1:03
B13	1424.5	1:17

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JOB No. 800 LINE No. E/W PAGE 1
AREA Red Mountain DATE 4/10/73
INSTRUMENT Altimeter - Remote

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1			Alt	Temp			
2	RM17	9:22	6101	68			
3	RM17	9:30	6101	69			
4	G 1	9:49	6045	75			
5	G 10	10:35	5734	72			
6	G 11	11:05	5458	70			
7	B 11	11:10	5438	74			
8	RM17	11:44	6090	79			
9	RM17	11:48	6094	75			
10							
11							
12	RM17	11:55	6101	78			
13	B-9	12:10	5686	75			
14	G 12	12:40	5614	74			
15	G 13	13:10	5492	82			
16							
17	B 12	13:35	5255	78			
18	B 12	13:47	5264	78			
19	B 12	14:00	5270	75			
20	B 12	14:15	5275	77			
21	B 12	14:30	5275	77			
22	B 12	14:45	5275	78	B12		
23	G 14	15:26	5112	82			
24	B 15	15:52	4714	82			
25	G 16	16:17	4296	83			
26	G 17	16:36	4266	74			
27	G 18	16:54	4209	75			
28	G 19	17:08	4178	74			
29	G 20	17:19	4154	72			
30							

Job No. 800 Line No. E/W Page 2
Area RED MOUNTAIN Date 4/10/73
Instrument ALTIMETER REMOTE

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Sta	Time	Alt	Temp			
2	G21	17:33	4138	74			
3	B7	17:40	4132	73			
4	B7	18:05	4129	73			
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
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25							
26							
27							
28							
29							
30							

JOB No. 80@ LINE No. E/W PAGE 3
AREA RED MOUNTAIN DATE 4/11/73
INSTRUMENT NEMI NI 2 ALTIMETER (NILCRO)

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	RN17	4:00	6101	70			
2	G1	4:04	6062	74			
3	G2	4:10	5920	70			
4	G3	4:14	5796	73			
5	G4	4:18	5709	73			
6	G6	4:27	5328	73			
7	G7	4:34	4983	71			
8	B3	4:38	4941	73			
9	RED4	4:45	4771	74			
10	RN17	5:06	6088	72			
11							
12							
13							
14							
15							
16							
17							
18							
19							
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21							
22							
23							
24							
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26							
27							
28							
29							
30							

Job No. 800 Line No. N S Page 4
Area Red Mountain Date 4-17-73
Instrument New Altimeter

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Sta	Time	Alt	Temp		Remote	
2	R-8	9:40	5168	60			
3	B8	10:20	5775	68			
4	G 22	11:49	5311	66			
5	G 23	12:19	5252	72			
6	G 24	12:48	4812	77			
7	G 25	13:07	4903	79			
8	G 26	13:29	4611	70			
9	27	13:55	4762	71			
10	28	14:14	4710	70			
11	29	14:29	4748	70			
12	30	14:46	4860	68			
13	B-4	15:00	4928	71			
14	Red 8	15:30	5316	75			
15							
16	RM17	4:14	6101	66			
17	G31	4:44	5434	69			
18	G32	5:01	5123	67			
19	B11	5:18	5452	70			
20	RM17	5:31	6108	68			
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 300 LINE No. N-S PAGE 5
AREA Red Mountain DATE 4-18-73
INSTRUMENT NEW ALTIMETER REMOTE

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Sta	Time	Alt	Temp			
2	Red 2	8:43	4224	59			
3	B 10	9:46	5510	52			
4	B 33	10:11	5396	55			
5	34	10:49	4906	57			
6	35	11:30	4550	61			
7	36	11:50	4401	51			
8	37	12:04	4349	62			
9	~~38~~	~~12:27~~	~~4281~~	~~58~~			
10	38	12:45	4309	61			
11	39	12 56	4298	59			
12	40	13:05	4265	64			
13	B 13	13:15	4237	63			
14	Red 2	13:38	4188	63			
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB No. 800 LINE No. E/W PAGE 1
AREA Red MTN DATE 4/10/73
INSTRUMENT ALTIMETER BASE

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	STA	TIME	ALT	TEMP		Remote Alt	
2							
3	RM 17	9:22	6101	74		RM 17	
4	RM 17	9:32	6101	65		RM 17	
5	"	9:49	6101	65	←	G 9	
6	"	10:10	6101	66			
7	"	10:20	6101	69			
8	"	10:34	6101	66	←	G 10	
9	"	10:57	6101	65			
10	"	11:05	6106	66	←	G 11	
11	RM 17	11:10	6106	68	←	B 11	
12	RM 17	11:44	6113	69	←	RM 17	
13	RM 17	11:48	6113	74		RM 17	
14							
15							
16	RM 17	11:55	6101	72		RM 17	
17		12:10	6101	71		B 9	
18		12:20	6101	73		RM 17	
19		12:30	6108	74		RM 17	
20		12:38	6108	74		G 12	
21		12:50	6108	74		RM 17	
22		13:00	6108	74		RM 17	
23		13:10	6111	75		G 13	
24		1323	6111	75		RM 17	
25		13:35	6116	75		B 12	
26							
27	B 12 ~~14:45~~	14:45	5294	80	←	B 12	
28	B 12	15:15	5306	82			
29							
30							

HEINRICHS GEOEXPLORATION COMPANY

68 6096
4730 6053

38 43

41
6095
4117
1978

6181
1378
4723

JOB No. 800 LINE No. E/W PAGE 2
AREA RED MOUNTAIN DATE 4/10/73
INSTRUMENT New M-2 Altimeter

	STA.	TIME	READING	BASE CORR	Δt	DRIFT CORR.	VALUE
1	B12	15:26	5308	74		E14	
2	B12	15:47	5308	73		E15	
3	B12	16:06	5308	74			
4	B12	16:17	5308	72		E16	
5	B12	16:30	5308	72			
6	B12	16:37	5303	74		E17	
7	B12	16 48	5303	70		E18	
8	B12	17:07	5303	69		E19	
9	B12	17:18	5300	69		E20	
10	B12	17:32	5300	69		E21	
11	B12	17:40	5300	68		B7	
12							
13	B7	18:05	4159	72		B7.	
14							
15					4/11/73		
16	RM17	9:01	6084	68		Remote	
17	RM17	9:08	6101	64		RM 17	
18	"	9:15	6107	62		G2	
19	"	9:23	6106	63		G3	
20		9:27	6106	63		G4	
21	"	9:34	6106	63		G5	
22	"	9:42	6104	62		G6	
23	"	9:53	6104	61		G7	
24	"	9:58	6103	63		B-3	
25	"	10:06	6099	63		G8	
26	"	10:17	6099	62		B-1	
27	"	10:22	6095	63		G-9	
28	RM-17	10:39	6095	63		Red-4	
29	RM-17	10:55	6096	65		RM 17	
30	Red 4	11:20	4768	86		Red 4	

JOB No. 800 LINE No. E/W PAGE 3
AREA RED MOUNTAIN DATE 4-11-73
INSTRUMENT (OLD) M2 ALTIMETER

	STA.	TIME	READING	BASE ~~CORR~~	Δt	DRIFT CORR.	VALUE
1	RM17	9:03	6037	66			
2	RM17	9:08	6101	64			
3	C2	9:14	5915	72			
4	G3	9:23	5790	72			
5	G4	9:26	5696	71			
6	G5	9:33	5594	73			
7	G6	9:40	5316	75			
8	G7	9:52	4972	76			
9	B3	9:55	4924	78			
10	G8	10:05	4702	77			
11	B1	10:16	4381	77			
12	G9	10:21	4398	77			
13	RED4	10:38	4717	78			
14	RM17	10:55	6053	69			
15	RED4	11:18	4730	80			
16							
17		ALT CHECK					
18	~~B-1~~		(NEW)		~~TEMP~~		
19	STA	TIME	BASE	REMOTE	TEMP	B TEMP	
20	B-1	12:20	4381	4381	74	78	
21	B-1	12:30	4381	4390	68	70	
22		1240	4384	4390	75	75	
23		12:50	4384	4390	80	79	
24		1300	4384	4390	82	82	
25		13:10	4384	4390	82	83	
26		13:20	4387	4387	83	82	
27		13:30	4393	4394	81	84	
28		13:40	4393	4394	84	85	
29		13:50	4393	4394	86	83	
30		14:00	4393	4394	84	81	

HEINRICHS GEOEXPLORATION COMPANY

6854

6771

5336

Base Alt Readings.

JOB No. 800 LINE No. N/S PAGE 4
AREA REDMOUNTAIN DATE 4/17/73
INSTRUMENT OLD NIKRO N2 ALTIMETER

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	RED 8	9:40	5168	60			
2	B-8	10:20	5173	62			
3	Red 8	11:20	5210	65			
4	"	11:30	5215	65			
5	"	11:40	5215	65			
6	"	11:49	5219	65 +			
7	"	12:12	5229	70 +			
8	"	12:19	5229	71 -			
9	"	12:53	5245	71 -			
10	"	1:08	5247	72			
11	"	1:12	5253	72			
12	"	1:40	5265	75 -			
13	"	1:50	5270	74			
14	"	1:55	5279	73 -			
15	"	2:15	5282	75 -			
16	"	2:30	5282	73 -			
17	"	2:46	5288	73 -			
18	"	3:00	5293	72 -			
19	"	3:29	5298	75			
20							
21							
22	RM 17	16:14	6101	68			
23	"	16:43	6113	73			
24		17:00	6129	70			
25		17:18	6129	68			
26		17:30	6129	67			
27							
28							
29							
30							

JOB No. 800 LINE No. N/S PAGE 5
AREA Red Mtn. DATE 4/18/73
INSTRUMENT OLD ALT. GRASE.

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	4/18/73 - WINDY			TEMP		Remote	
2	Red 2	8:43	4224	59		Red 2	
3	Red 2	9:46	4216	63		B-107	
4	"	10:12	4213	63		G 33	
5	"	10:49	4204	64		G 34	
6		~~11:26~~	~~4176~~	~~65~~			
7		11:30	4178	65		G 35	
8		11:51	4178	61		G-36	
9		12:05	4185	63		G-37	
10		~~12:25~~	~~4185~~	~~64~~		~~G-38~~	
11		12:46	4194	64		G-38	
12		12:56	4194	66		G-39	
13		13:05	4190	65		G-40	
14		13:15	4190	65		G-41	
15		13:37	4184	63		Red 2	
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

JOB NO. _____ LINE NO. _____ PAGE _____
AREA _____ DATE _____
INSTRUMENT OLD ALTIMETER

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	STA	TIME	BASE	REMOTE	TEMP B	TEMP R	
2	B1	14:10	4396	4396	81	83	
3		14:20	4396	4396	81	84	
4		14:30	4402	4402	80	79	
5		14:40	4402	4402	82	81	
6		14:50	4402	4410	83	80	
7		15:00	4402	4410	83	79	
8		15:10	4402	4410	83	80	
9		15:20	4409	4414	84	80	
10	STA	Time	Dial	Temp		Remote	
11	RM17	16:00	6101	75		RM17	
12	"	16:05	6101	76		G1	
13	"	16:10	6101	78		G2	
14		16:15	6102	78		G3	
15		16:18	6102	77		G4	
16		16:27	6109	75		G6	
17		16:34	6109	74		G7	
18		16:38	6109	72		B-3	
19	RM17	16:46	6109	73		Red 4	
20	RM17	17:06	6100	71		RM17	
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Wire = 1.0 gm

Specific Gravity Data [Kerr McGee]

~~Gm Rock~~	~~wet~~	~~dry~~	~~Sp G~~
~~5 - 1427~~	~~213.2~~	~~374.3~~	~~2.32~~
~~2 - 1500~~	~~2.51.0~~	~~600.5~~	~~1.62~~

Porphery - unoxidized (Red Mtn) Relatively Near Surface

	wet wt	dry wt	SpG
P-1s	145.9	236.7	2.59
P-2s	162.3	260.2	2.66
P-3s	227.6	363.8	2.67
P-4s	153.3	250.3	2.58
			2.625 avg. (4)

Porphery - Greater Depth

	wet wt	dry wt	SpG
P-5	31.1	50.3	2.62
P-6	30.1	48.8	2.61
P-7	100.4	160.3	2.68
P-8	77.8	127.9	2.55
			2.615 avg. (4)

Box 1 Andesite (unox. & oxidized) Below the Breccia

		wet wt	dry	SpG
	A-1	273.3	454.5	2.51
Row 1	A-2	241.3	390.6	2.62
	A-3	333.2	543.1	2.59
	A-4	336.9	545.7	2.61
	A-5	364.5	587.1	2.64
Block	A-6	386.5	613.5	2.70
Row 2	A-7	122.9	197.4	2.65
	A-8	143.2	231.7	2.62
	A-9	215.1	339.6	2.73
	A-10	265.3	417.1	2.75
Row 3	A-11	176.4	280.3	2.70
Block	A-12	226.6	360.1	2.70
	A-13	194.8	317.4	2.59
	A-14	108.6	174.3	2.65
	A-15	174.6	286.1	2.57
	A-16	241.2	389.1	2.63
	A-17	97.9	152.5	2.79
Row 4	A-18	65.0	102.7	2.72
	A-19	59.4	93.6	2.71
	A-20	102.1	159.9	2.77
	A-21	217.8	348.7	2.66
	A-22	152.2	238.2	2.77
(Row 5)	A-23	181.6	292.6	2.64
	A-24	85.7	138.0	2.64
	A-25	233.3	370.8	2.70
	A-26	143.9	229.7	2.68
				2.667 avg. (26)

Box II

Tuff & Tuff Breccia - oxidized & unox. from upper Red Mt.

		wet wt	dry wt	SG			wet wt	dry wt	SG
	B-1	358.3	681.1	2.11		B-12	421.2	687.2	2.58
	B-2	489.5	858.1	2.33	Row 3	B-13	304.3	481.7	2.72
Row 1	B-3	498.0	870.2	2.34		B-14	680.5	1050.2	2.84
	B-4	409.6	669.9	2.57		B-15	288.8	464.2	2.65
	B-5	383.5	609.2	2.70		B-16	496.7	827.0	2.50
	B-6	188.4	304.7	2.62	Row 4	B-17	580.9	972.2	2.48
	B-7	135.3	214.0	2.72		B-18	574.3	934.9	2.59
Row 2 Blk	B-8	340.9	544.1	2.68		B-19	363.9	577.9	2.70
	B-9	470.1	778.2	2.43	Row 5	B-20	301.3	482.4	2.66
	B-10	447.5	738.7	2.54		B-21	369.4	589.9	2.68
	B-11	548.3	919.8	2.48					

2.568 avg
(21)

21
26
4
4
55 total

$\boxed{2.622}$ total sample avg.

Gravity Survey

on

Red Mountain

Santa Cruz County

Arizona

for

Kerr McGee Corporation

May 1973

by

Heinrichs GEOEXploration Company

P.O. Box 5964 Tucson, Arizona 85703

GEOEX Job #800

CONTENTS

	Page
Introduction----------	1
Conclusions and Recommendations----------	2
Procedure----------	4
Specific Gravity, Red Mountain Core Samples---	5

In Map Pocket:

Gravity Traverse Location Plan

Gravity Traverses

INTRODUCTION

At the request of Mr. E. E. Jones, Regional Exploration Manager of the Kerr McGee Corporation, Heinrichs GEOEXploration Company conducted two experimental gravity traverses across Red Mountain near Patagonia, Santa Cruz Coutny, Arizona. Field work on this project took place during the interim April 5 to April 18, 1973.

One east-west traverse and one north-south traverse were run, each about four miles long and roughly centered on the peak of Red Mountain. The station spacing was nominally 1000 feet, taking advantage of features locatable on the topographic maps and accessability. The traverse plan map shows the station positions in detail at a scale of 1"=1000'.

The data are presented as Bouguer gravity profiles, with and without terrain correction, and topography all on a single sheet. A schematic interpretation is shown as part of the topographic profile. A table of specific gravity measurements made on representative core samples is also included.

The purpose of this experimental survey was to determine if a gravity survey might reflect any features of geologic interest - directly or indirectly related to the Red Mountain mineralized zone.

As the traverses are not straight lines, the station positions were projected to an east-west or a north-south line for plotting purposes.

Reference has been made to the "Geologic Map of the Mount Wrightson Quadrangle", U.S.G.S. Map I-614, by Harald Drewes, 1971, and "Mineral Deposits of the Santa Rita and Patagonia Mountains", U.S.G.S. Bulletin 582, by Frank C. Schrader, 1915.

CONCLUSIONS AND RECOMMENDATIONS

The rather erratic nature of the gravity profiles makes their interpretation quite tenuous but there is no obvious gravity correlation with the mineralized zone. However, considering the very small density contrasts indicated by the sample testing, no direct gravity correlation with mineralization would be expected.

The main mountain crest on the east-west line and the two main ridges crossed by the north-south line show locally lower gravity values. This could be reflecting the lower density tuffs capping the mountain or perhaps insufficient terrain correction due to the extreme ruggedness of terrain present.

The north and west flanks of the mountain appear to be fault bounded in that the gravity shows a sharp drop between stations 18 and 19 on the east-west line and between B-14 and 38 on the north-south line. Assuming that these sharp drops are reflecting an alluvium-bedrock density contrast and that the contrast is about 0.52 grams/cc (alluvium assumed 2.10 grams/cc and bedrock assumed 2.62 grams/cc) an alluvial thickness can be estimated on the downthrown block. These calculations give about 750 feet of alluvium to the west and about 1,000 feet to the north.

The interpreted fault positions correspond quite well with the available mapped geology. Drewes' map shows a steep, northwest dipping major fault, striking NNE, whose trace goes between stations 18 and 19 on the east-west line. His Section E-E' suggests about 500 feet of alluvium resting on a thick section of rhyolitic tuffs, welded tuffs and flows on the downthrown side, which are likely similar in density to the Red Mountain volcanics on the upthrown block. His interpretation is quite compatible with the gravity results.

To the north, the only geology we have available is Schrader's map. He shows a rhyolite-alluvium contact, corresponding in part to Drewes' fault, trending northeasterly and intersecting the north-south line near stations 37 and B-14. Considering the 1:125,000 scale of his mapping, this is also in good agreement with the gravity interpretation.

There are a number of local high and low gravity features on both terrain corrected profiles of up to 3 milligals amplitude. If these highs and lows are assumed to be random errors on a much smoother "true" gravity profile, then the maximum error is likely on the order of ± 1.5 milligals. This in turn implies a maximum elevation error of about ± 25 feet if all the error is assumed to be caused by inaccuracies in station elevation. The terrain corrections in topography this rugged are only approximate, but it is believed that they are accurate to within ± 0.25 milligals (which would correspond to only about ± 4 feet pf elevation error).

The station elevations were estimated in the field from the detailed contour plans. In most of the area, the contour interval is 50 feet and making the reasonable assumption that the station position could usually be estimated only to the nearest contour interval, this would imply an elevation error of about ± 25 feet. Therefore, it is reasonable to assume that the majority of the erratic profile variation is due to elevation error.

To produce more interpretable, smoother profiles, it would therefore be necessary to more accurately survey the station elevations. This could be done by levelling or vertical angle surveying, which, in this terrain, would be quite time consuming and expensive. Surveying altimeters were tried but due to the large elevation differences involved, their accuracy appeared to be no better or even somewhat less than that obtained by contour estimating.

For the possible interpretational advantage to be obtained with more accurate elevations, it is not recommended that this surveying be done unless perhaps there are other reasons to have more elevation control in the area. Hand curve smoothing of the present data gives a very uninteresting profile except for the broad lows and level changes already discussed which can be apparently accounted for by the known surface geology.

The specific gravity (density) sample measurements show only very slight contrasts between the tuff, porphyry and andesite. The tuff is the lightest material - averaging about 2.57 g/cc. The porphyry is about 2.62 g/cc and the andesite averages about 2.67 g/cc. There is more density variance between the individual samples of each rock type than there is between the averages of the three different rock types. These slight density contrasts would not be expected to produce significant surface gravity anomalism.

PROCEDURE

A Worden "Prospector" model gravimeter with a scale factor of 0.1014 milligals per scale division was used to obtain the gravity readings. Base stations were established at convenient access points on and near the traverses and were occupied at various times through the day to allow proper tidal and instrument drift corrections to be made.

Station elevations were estimated from the detailed Kerr McGee topographic contour plans. Where possible, the stations were located at easily identifiable positions on the maps. Elevations were also obtained with a pair of American Paulin System surveying altimeters used in a fixed base station mode. Air column temperature, barometric and drift corrections were applied to the field data. Ties to several known elevations were made and it was determined that the contour estimated elevations were probably somewhat more accurate than the altimeter elevations. Therefore, the contour estimated elevations were used in the gravity calculations.

A combined Bouguer-Free Air elevation correction of 0.06060 milligals per foot was made which corresponds to a rock density of 2.622 g/cc. This density is an average of all the drill core samples tested and is probably fairly representative of the material crossed by the traverses.

Terrain corrections were made with the standard Hammer technique using Zone B through Zone L, which compensates for terrain from a radius of about 6.6 feet out to about 9.2 miles from each station. The 2.622 g/cc density was used as the terrain correction density. The 1"=400' Kerr McGee topographic maps were used for the inner zones and the appropriate U.S.G.S. 1:24,000 and 1:62,500 topographic quadrangles were used for the outer zones.

Latitude corrections were made based on the station locations relative to 31°30' north latitude. The correction factor amounts to -1.1645 milligals per mile north.

Drill core specific gravity (density) measurements were made on water saturated samples which hopefully approximate the in situ bulk material densities.

Respectfully submitted,

Heinrichs GEOEXploration Co.

Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

CSL:mt
5/18/73
P.O. Box 5964 Tucson,AZ 85703

Specific Gravity

Red Mountain Core Samples

Porphyry - unoxidized, relatively near surface

Sample #	Specific Gravity
P-1S	2.59
P-2S	2.66
P-3S	2.67
P-4S	2.58

Average: 2.625

Porphyry - from a greater depth

Sample #	Specific Gravity
P-5	2.62
P-6	2.61
P-7	2.68
P-8	2.55

Average: 2.615

Andesite - unoxidized and oxidized, below the Breccia

Sample #	Specific Gravity	Sample #	Specific Gravity
A-1	2.51	A-14	2.65
A-2	2.62	A-15	2.57
A-3	2.59	A-16	2.63
A-4	2.61	A-17	2.79
A-5	2.64	A-18	2.72
A-6	2.70	A-19	2.71
A-7	2.65	A-20	2.77
A-8	2.62	A-21	2.66
A-9	2.73	A-22	2.77
A-10	2.75	A-23	2.64
A-11	2.70	A-24	2.64
A-12	2.70	A-25	2.70
A-13	2.59	A-26	2.68

Average: 2.667

Tuff and Tuff Breccia - oxidized and unoxidized

Sample #	Specific Gravity	Sample #	Specific Gravity
B-1	2.11	B-12	2.58
B-2	2.33	B-13	2.72
B-3	2.34	B-14	2.84
B-4	2.57	B-15	2.65
B-5	2.70	B-16	2.50
B-6	2.62	B-17	2.48
B-7	2.72	B-18	2.59
B-8	2.68	B-19	2.70
B-9	2.43	B-20	2.66
B-10	2.54	B-21	2.68
B-11	2.48		

Average: 2.568

Average of all determinations: 2.622

ALTIMETER CORRECTIONS JOB 800 NOGALES, ARIZONA

WILSON JONES G 7112

	STA (Remote)		TIME	1 MEAN TEMP. WET	1 MEAN TEMP. DRY	2 (from graph) Rel Humid. %	3 REMOTE ALT.	4 (BASE - REMOTE) SET. DIFF.	5 CORR. REMOTE	6 BASE ALT.	7 Δ ALT (5)-(6)	8 X FACTOR (Temp+Hum)	9 ELEV. DIFF. (7)X(8)	10 UNCORR. ELEVATION	11 DRIFT CORR.	12 CORRECTED ELEVATION
1																1
2	BM 5010		11 00	49	70	16	4800	+16	4816	4816	0		0	(4994) ON BM. 5010 Map	0	5010 2
3	BS	Road Junct. NW 1/4 sec 11	11 11	50	72	15	4652	↓	4668	4819	-151	1.045	-158	4852	-2	4850 3
4	BS	elev. 4868	11 17	51	69	24	4650	↓	4666	4663	+3		+3	—	-3	— 4
5																5
6	BS	LINE 1	11 17	51	69	24	4650	+13	4663	4663	0	1.040	0	4850	0	4850 6
7	L-1 2		11 24	51	66	33	4679	↓	4692	4665	27	1.034	28	4878	0	4878 7
8	3		11 48	51	68	27	4694	↓	4707	4669	38	1.038	39	4889	-2	4887 8
9	4		11 52	51	66	33	4713	↓	4726	4670	56	1.034	58	4908	-2	4906 9
10	5		12 00	51	66	33	4728	↓	4741	4671	70	1.034	72	4922	-2	4920 10
11	6		12 06	52	67	34	4761	↓	4774	4691	83	1.036	86	4936	-2	4934 11
12	6		12 19	53	73	22	4766	↓	4779	4776	+3	1.047	+3	—	-3	— 12
13																13
14	L-1 6	LINE 1	10 58	50	68	23	4625	+43	4668	4668	0	1.035	0	4934		4934 14
15	7		11 05	50	69	21	4689	↓	4732	4669	63	1.038	65	4999		4999 15
16	8		11 09	50	67	26	4705	↓	4748	4669	79	1.037	82	5016		5016 16
17	9		11 13	50	68	23	4789	↓	4832	4668	164	1.038	170	5104	NONE	5104 17
18	10		11 19	50	68	23	4820	↓	4863	4653	210	1.037	218	5152		5152 18
19	11		11 24	50	68	23	4781	↓	4824	4649	175	1.038	182	5116		5116 19
20	11		11 35	50	71	17	4789	↓	4832	4802	30	1.044	~~31~~		misreading	20
21																21
22	BS	LINE 1	12 36	51	72	18	4666	+15	4681	4681	0	1.045	0	4850	0	4850 22
23	12		12 47	51	69	25	4671	↓	4686	4681	5	1.039	5	4855	-1	4854 23
24	13		12 53	51	70	22	4689	↓	4704	4685	19	1.043	20	4870	-1	4869 24
25	14		12 57	51	71	20	4669	↓	4684	4684	0	1.045	0	4850	-1	4849 25
26	15		13 01	51	69	24	4633	↓	4648	4684	-36	1.040	-37	4813	-2	4811 26
27	16		13 06	51	66	33	4639	↓	4654	4689	-35	1.034	-36	4814	-2	4812 27
28	16		13 12	56	73	32	4639	↓	4654	4652	+2	1.048	+2	4852	-2	28
29																29
30																30
31																31

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ALTIMETER CORRECTIONS JOB # 800 NOGALES, ARIZONA

WILSON JONES G 7112

	STA (Remote)		TIME	1 MEAN TEMP WET	1 MEAN TEMP DRY	2 (from graph) REL HUM.	3 REMOTE ALT.	4 (Base - Remote) SET DIFF.	5 CORR. REMOTE	6 BASE ALT.	7 Δ ALT (5) - (6)	8 X FACTOR (Temp + hum)	9 ELEV. DIFF. (7) X (8)	10 UNCORR. ELEVATION	11 DRIFT CORR.	12 CORRECTED ELEVATION
1																
2	BS	LINE 2	13 33	52	68	31	4677	+12	4689	4689	0	1.037	0	4850	0	4850
3	1		1338	52	65	40	4676		4688	4691	-3	1.032	-3	4847	0	4847
4	2		1402	52	67	34	4683		4695	4698	-3	1.036	-3	4847	+2	4849
5	3		1414	51	67	30	4724		4736	4700	36	1.035	37	4887	+2	4889
6	4		1425	51	66	33	4703		4715	4702	13	1.034	13	4863	+3	4866
7	5		1433	50	65	32	4788		4800	4700	100	1.032	103	4953	+3	4956
8	5		1500	51	69	24	4788		4800	4805	-5	1.040	-5			
9																
10	5	L-2	1500	51	69	25	4788	+17	4805	4805	0	1.039	0	4956	0	4956
11	6		1555	51	68	27	4789		4806	4811	-5	1.038	-5	4951	-6	4945
12	7		1615	50	69	21	4784		4801	4809	-8	1.039	-8	4948	-8	4940
13	8		1620	49	69	18	4842		4859	4810	49	1.038	51	5007	-8	4999
14	9		1624	48	69	14	4925		4942	4809	133	1.037	138	5094	-9	5085
15	10		1629	48	65	23	4958		4975	4803	172	1.031	177	5133	-10	5123
16	10		1645	50	67	26	4959		4976	4965	11	1.032	+11			
17																
18	10	L-2	1645	50	67	26	4959	+6	4965	4965	0	1.032	0	5123	0	5123
19	11		1649	50	66	29	4987		4993	4965	28	1.034	29	5152	+1	5153
20	12		1654	49	66	25	5038		5044	4968	76	1.033	79	5202	+2	5204
21	13		1659	48	66	21	5050		5056	4965	91	1.032	94	5217	+3	5220
22	14		1703	48	64	26	5100		5106	4965	141	1.027	145	5268	+4	5272
23	14		1708	51	65	35	5100		5106	5111	-5	1.031	-5			
24																
25	BS	L-2	808	42	47	68	4525	+15	4540	4540	0	0.996	0	4850	0	4850
26	15		815	42	43	92	4565		4580	4540	40	0.988	40	4890	+1	4891
27	16		820	43	43	100	4568		4583	4541	42	0.990	42	4892	+1	4893
28	17		824	43	44	92	4575		4590	4541	49	0.991	49	4899	+1	4900
29	18		828	44	44	100	4580		4595	4539	56	0.992	56	4906	+2	4908
30	19		832	44	44	100	4611		4626	4537	89	0.992	88	4938	+2	4940
31	19		838	46	50	74	4611		4626	4629	-3	1.004	-3			

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ALTIMETER CORRECTIONS JOB # 800 NOGALES, ARIZONA

WILSON JONES G 7112

STA		TIME	1 MEAN TEMP. WET	DRY	2 (from graph) REL HUM	3 REMOTE ALT	4 (Base - Remote) SET. DIFF.	5 CORR. REMOTE	6 BASE ALT.	7 Δ ALT (5)-(6)	8 X FACTOR (Temp+hum)	9 ELEV. DIFF. (7) X (8)	10 UNCORR. ELEVATION	11 DRIFT CORR.	12 CORRECTED ELEVATION
19	LINE 2	838	46	50	74	4611	+18	4629	4629	0	1.004	0	4940	0	4940
20		849	46	50	74	4605		4623	4622	1	1.004	1	4941		4941
21		854	46	49	81	4665		4683	4622	61	1.002	61	5001		5001
22		858	47	48	90	4695		4713	4622	91	1.002	91	5031		5031
23		903	47	47	100	4689		4707	4621	86	0.999	86	5026		5026
24		908	47	48	91	4705		4723	4621	102	1.000	102	5042		5042
24		915	47	54	58	4700		4718	4718	0	1.013	0			
24	LINE 2	915	47	54	58	4700	+18	4718	4718	0	-	0	5042	0	5042
25		921	47	54	58	4730		4748	4718	30	1.013	30	5072	-1	5071
26		926	47	53	68	4689		4707	4717	-10	1.009	-10	5032	-2 (4955 12 4943)	5030
27		932	48	54	64	4521		4539	4719	-180	1.011	-182	4860	-3	4857
28		936	48	53	70	4505		4523	4720	-197	1.010	-199	4843	-4	4839
29		949	48	53	70	4495		4513	4720	-207	1.011	-209	4833	-6	4827
29		1000	49	60	44	4503		4521	4513	+8	1.026	8		-8	
29	LINE 2	1214	50	71	17	4538	+14	4552	4552	0	-	0	4827	0	4827
30		1225	51	73	16	4525		4539	4549	-10	1.044	-10	4817	+1	4818
31		1231	52	75	15	4572		4586	4549	37	1.053	39	4866	+2	4868
32		1237	52	71	23	4629		4643	4551	92	1.043	96	4923	+2	4925
33		1245	53	72	25	4700		4714	4561	153	1.045	160	4987	+3	4990
33		1300	54	76	19	4708		4722	4727	-5	1.053	-5		+5	
33	LINE 2	1300	54	76	19	4708	+19	4727	4727	0	-	0	4990	0	4990
34		1311	52	74	17	4746		4765	4729	36	1.048	38	5028	+4	5032
35		1318	50	70	19	4813		4832	4734	98	1.042	101	5091	+8	5099
36		1328	48	70	12	4870		4889	4735	154	1.041	160	5150	+12	5162
36		1340	51	76	11	4871		4890	4906	-16	1.054	-17		+17	

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ALTIMETER CORRECTIONS JOB 800 NOGALES, ARIZONA

WILSON JONES G 7112

	STA		TIME	MEAN TEMP. WET	MEAN TEMP. DRY	(from graph) Rel Hum.	REMOTE ALT	(Base - Remote) SET DIFF	CORR. REMOTE	BASE ALT	Δ ALT (5) - (6)	X FACTOR (Temp+hum)	ELEV. DIFF. (7) X (8)	UNCORR ELEVATION	DRIFT CORR	CORRECTED ELEVATION
				1		2	3	4	5	6	7	8	9	10	11	12
2	36	LINE 2	1340	51	76	11	4871	+35	4906	4906	0	1.054	0	5162	0	5162
3	37		1347	51	72	17	4912		4947	4896	51	1.043	53	5215	-4	5211
4	38		1354	52	69	28	4977		5012	4897	115	1.040	120	5335	-11	5324
5	38		1404	60	71	52	4976		5011	4994	17	1.047	18	5282	-18	5271
8	25 L-2	LINE 4	1308	(assumed) 52	74	17	4859	+21	4880	4880	0	1.049	0	5071	0	5071
9	1		1312		73	19	4889		4910	4881	29	1.047	30	5101	0	5101
10	2		1316		74	17	4871		4892	4881	11	1.049	12	5083	+1	5084
11	3		1320		74	17	4871		4892	4887	5	1.049	5	5076	+2	5078
12	3		1332		73	19	4875		4896	4899	-3	1.047	-3		+3	
14	3	L-4	1332	52	73	19	4875	+24	4899	4899	0	1.047	0	5078	0	5078
15	4		1336		73	19	4880		4904	4903	1	1.047	1	5079	-2	5077
16	5		1340		71	23	4920		4944	4903	41	1.045	43	5121	-3	5118
17	6		1343		70	25	4961		4985	4907	78	1.043	81	5159	-4	5155
18	7		1347		68	31	5033		5057	4906	151	1.037	157	5235	-5	5230
19	8		1351		69	28	5155		5179	4907	272	1.040	283	5361	-6	5355
20	8		1401		72	21	5164		5188	5178	10	1.046	10		-10	
22	25 L-2	L-4	1515	61	72	53	4809	+24	4833	4833	0	1.048	0	5071	0	5071
23	9		1529		69	63	4855		4879	4834	45	1.041	47	5118	-1	5117
24	10		1533		69	63	4851		4875	4835	40	1.041	42	5113	-2	5111
25	11		1537		69	63	4835		4859	4836	23	1.041	24	5095	-2	5093
26	12		1544		69	63	4919		4943	4838	105	1.041	109	5180	-3	5177
27	13		1602		68	67	4862		4886	4839	47	1.040	49	5120	-4	5116
28	13		1612		72	53	4860		4884	4879	5	1.048	5		-5	

MADE IN U.S.A.

ALTIMETER CORRECTIONS JOB 800 NOGALES ARIZONA.

WILSON JONES G 7112

STA		TIME	1 MEAN TEMP WET DRY	2 (from graph) Rel Hum.	3 REMOTE ALT	4 (Base - Remote) SET DIFF	5 CORR REMOTE	6 BASE ALT	7 Δ ALT (5) - (6)	8 X FACTOR (Temp + hum)	9 ELEV. DIFF. (7) X (8)	10 UNCORR ELEVATION	11 DRIFT CORR.	12 CORRECTED ELEVATION
13	LINE 4	1612	72	ASSUME 30 %	4860	+19	4879	4879	0	1.046	0	5116	0	5116
14		1622	67		4839		4858	4880	-22	1.037	-23	5093	-1	5092
15		1625	66		4808		4827	4879	-52	1.034	-54	5062	-2	5060
16		1628	65		4900		4919	4876	43	1.032	44	5160	-2	5158
17		1634	64		4881		4900	4874	26	1.030	27	5143	-3	5140
18		1639	65		4905		4924	4875	49	1.032	51	5167	-3	5164
18		1649	67		4906		4925	4921	4	1.037	4		-4	
18	L-4	1649	67		4906	+15	4921	4921	0	1.037	0	5164	0	5164
19		1653	66		4929		4944	4923	21	1.034	22	5186	+1	5187
20		1656	65		4950		4965	4923	42	1.032	43	5207	+1	5208
21		1725	63		5095		5110	4926	184	1.027	189	5353	+3	5356
22		1730	63		5169		5184	4928	256	1.027	263	5427	+4	5431
23		1733	62		5250		5265	4928	337	1.025	345	5509	+4	5513
23		1747	63		5250		5265	5270	-5	1.027	-5		+5	
	LINE 3											(5408) (-30)		
1		830	57		5153	+16	5169	5169	0	—	0	5378	0	5378
2		835	56		5129		5145	5170	-25	1.014	-25	5353	0	5353
3		838	57		5079		5095	5170	-75	1.016	-76	5302	0	5302
4		844	56		5142		5158	5170	-12	1.014	-12	5366	0	5366
5		848	55		5121		5137	5169	-32	1.012	-32	5346	-1	5345
6		853	54		5087		5103	5165	-62	1.010	-63	5315	-1	5314
6		900	57		5087		5103	5102	1	1.016	1		-1	

MADE IN U.S.A.

ALTIMETER CORRECTIONS JOB 800 NOGALES, ARIZONA

WILSON JONES G 7112

	STA		TIME	1 MEAN TEMP WET	DRY	2 (from graph) Rel Hum.	3 REMOTE ALT	4 (Base - Remote) SET DIFF	5 CORR REMOTE	6 BASE ALT	7 Δ ALT (5) - (6)	8 X FACTOR (Temp + hum)	9 ELEV. DIFF. (7) X (8)	10 UNCORR ELEV.	11 DRIFT CORR.	12 CORRECTED ELEVATION
1		LINE 3														
2	6		949		66	assume	5088	+17	5105	5105	0	1.034	0	5314	0	5314
3	7		1000		64	30%	5013		5030	5125	-95	1.030	-98	5216	+1	5217
4	8		1006		65		5042		5059	5124	-65	1.032	-67	5247	+2	5249
5	9		1022		64		4922		4939	5125	-186	1.030	-192	5122	+3	5125
6	10		1027		64		4873		4890	5122	-232	1.030	-239	5075	+4	5079
7	11		1031		63		4858		4875	5119	-244	1.028	-251	5063	+5	5068
8	11		1045		67		4859		4876	4882	+6	1.036	-6		+6	
9																
10	11	L-3	1045		67		4859	+23	4882	4882	0	1.036	0	5068	0	5068
11	12		1050		68		4810		4833	4891	-58	1.038	-60	5008	-3	5005
12	13		1056		69		4812		4835	4890	-55	1.040	-57	5011	-6	5005
13	14		1102		68		4828		4851	4889	-38	1.038	-39	5029		
14	15		1106		69		4807		4830	4891	-61	1.040	-63	5005	not needed	
15	16		1109		68		4798		4821	4891	-70	1.038	-73	4995		
16	16		1118		72		4809		4832	4813	19	1.045	20		-19	
17																
18																
19	12 L-1	LINE 3	1438		68		4713	+1	4714	4714	0	1.038	0	4854	0	4854
20	17		1452		69		4763		4764	4720	44	1.040	46	4900	0	4900
21	18		1502		69		4818		4819	4719	100	1.040	104	4958	-1	4957
22	19		1511		69		4859		4860	4719	141	1.040	147	5001	-1	5000
23	12 L-1		1521		68		4719		4720	4721	1	1.038	1		-1	
24																
25																
26																
27																
28																
29																
30																
31																

MADE IN U.S.A.

G-23 Elev: 5210

4.92 → 5.54

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	6.4	5220	5210	5198	5207									
		10	0	12	3									
		3		3	0.4									
C	22	5245	5260	5230	5160	5170	5175							
		35	50	20	50	40	35							
		3	5	1	5	4	3							
D	59	5325	5350	5145	5100	5060	5100							
		115	140	65	110	150	110							
		10	13	3	9	15	9							
E	84	5600	5430	5100	4965	4850	4880	4975	5350					
		390	220	110	245	360	330	235	140					
		22	7	2	9	18	15	8	3					
F	120	5960	5500	4950	4820	4650	4650	5020	5700					
		750	290	260	390	560	560	190	490					
		36	6	5	10	22	22	3	14					
G	45.5	5700	5900	4950	4925	5025	4975	4650	4775	4600	4600	4300	5425	
		490	690	260	285	185	235	560	435	410	610	910	215	
		4	7	1	1	0.5	1	5	3	5	5	12	1	
H	18.1	5600	5750	5150	4775	5025	5000	5050	5050	4800	4560	4480	4950	
		390	540	60	435	185	210	160	160	410	650	730	260	
		1	3	0	2	0.3	0.4	0.2	0.2	1	4	5	1	
I	32.8	4600	4500	4650	4700	4925	5325	5500	5600	4900	4080	4240	4500	
	.07	610	710	560	510	285	1150	290	390	410	1130	970	710	
	.12													
	.21	2	3	2	1	0.4	7	0.4	1	1	7	5	3	

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G-32 Elev. 5090

$\boxed{5.67} \rightarrow 6.38$

			1	2	3	4	5	6	7	8	9	10	11	12	13
B	1.4		5095	5092	5092	5089									
			5	2	2	1									
			1	0.2	0.2	0									
C	19		5135	5110	5140	5140	5125	5075							
			45	20	50	50	35	15							
			4	1	5	5	3	1							
D	94		5200	5340	5295	5250	5260	5040							
			110	250	145	160	170	50							
			9	33	14	17	19	2							
E	140		5500	5525	5470	5470	5550	5500	5150	5150					
			410	435	380	380	460	400	60	60					
			22	26	20	20	28	22	1	1					
F	126.4		5410	5700	5900	5850	5720	5350	5000	5000					
			320	610	810	760	630	260	90	90					
			7	24	40	36	14	5	0.2	0.2					
G	32		4725	5500	5900	5700	5475	5275	4900	4800	4800	4575	4750	4750	
			365	410	810	610	385	185	190	290	290	515	340	340	
			2	2	10	5	2	0.5	0.5	1	1	4	2	2	
H	18		4575	4700	5300	5300	4875	4875	4775	4880	4600	4320	4500	4600	
			515	390	210	210	215	215	315	210	490	770	590	490	
			2	1	0.4	0.4	0.4	0.4	1	0.4	2	5	3	2	
I	27.3	.18 .09 .06	4200	4325	4650	4550	4750	5075	5200	5300	4240	4160	4080	4175	
			890	765	440	540	340	15	110	210	850	930	1010	915	
			4	3	1	1	1	0	0.1	0.2	4	4	5	4	

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G-31 Elev: 5413

		1	2	3	4	5	6	7	8	9	10	11	12	13
		~~4.74~~ 5.11 × 1.125 = → 5.75												
B	2.0	5410	5415	5420	5410									
		3	2	7	3									
		0.4	0.2	1	0.4									
C	19.4	5400	5440	5455	5455	5450	5470							
		13	27	42	42	37	57							
		0.4	2	4	4	3	6							
D	~~44~~ 78	53550	55165	5610	5580	5600	5490							
		63	102	197	167	187	77							
		3	8	24	17	21	5							
E	112	5310	5600	59225	5790	5790	5810	5630	5250					
		103	187	512	377	377	397	217	163					
		2	5	82	20	20	22	7	4					
F	49.5	5620	5825	5900	5700	5200	5500	5250	5050					
		207	412	487	287	213	87	163	363					
		3	11	16	5	3	0.5	2	9					
G	56.5	5200	5700	5900	5250	5200	4975	4675	4600	4700	4600	4700	4900	
		213	287	487	163	213	438	738	813	713	813	714	513	
		1	1	4	0.5	1	3	8	10	7	10	7	4	
H	~~46~~ 44	4800	4975	5350	4875	4950	4900	4850	4880	4600	4400	4500	4625	
		613	438	63	538	463	513	563	533	813	1013	913	788	
		3	2	0	3	2	2	3	2	4	9	7	5	
I	41.5	4200	4325	4650	4625	4825	5025	5150	5575	4400	4160	4160	4200	
	.1 .17 .15	1213	1088	763	788	588	388	263	162	1013	1253	1253	1213	
		7	6	1	3	2	1	0.4	0.1	5	8	8		

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G-36 Elev: 4480

~~2.17~~

~~2.17~~

3.55 → 3.99

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	4	4490	4480	4480	4485									
		10	0	0	5									
		3			1									
C	5.2	4495	4507	4485	4475	4495	4495							
		15	27	5	5	15	15							
		1	2	0.1	0.1	1	1							
D	14	4530	4530	4475	4475	4550	4565							
		50	50	5	5	70	85							
		2	2	0	0	4	6							
E	51.5	4630	4565	4605	4460	4530	4775	4850	4750					
		150	85	125	20	50	295	370	270					
		4	1	2	0.1	0.4	13	20	11					
F	103.4	5050	4550	4700	4750	4450	5600	4880	5250					
		570	70	220	270	30	620	370	770					
		22	0.3	3	5	0.1	26	9	38					
G	55.6	4275	4650	4775	4950	5700	5675	5100	4725	4700	4550	4380	4280	
		205	170	295	470	1220	1195	620	245	220	70	100	200	
		1	0.4	1	3	21	20	6	1	1	0.1	0.1	1	
H	45.8	4150	4200	4375	5000	5650	5900	5550	4400	4400	4240	4200	4150	
		330	280	105	520	1170	1420	1070	80	80	240	280	330	
		1	1	0.1	2	12	17	10	0.1	0.1	0.5	1	1	
I	5.6	4275	4700	4575	4750	4775	5000	4750	4400	4160	4000	4080	4200	
		205	220	95	270	295	520	270	80	320	480	400	280	
.06														
.07		0.2	0.2	0	0.4	0.4	1	0.4	0	0.5	1	1	0.4	
-1														

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G-35 Elev: 4605

$\boxed{3.40}$ → 3.83

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	2	4600	4606	4606	4600									
		5	1	1	5									
		1	0	0	1									
C	3.6	4580	4600	4615	4612	4625	4610							
		25	5	10	7	20	5							
		2	0.1	0.3	0.1	1	0.1							
D	19.2	4560	4600	4700	4670	4700	4620							
		45	5	95	65	95	25							
		2	0	7	3	7	0.2							
E	63.1	4490	4675	4925	4900	4850	4625	5000	4540					
		115	70	320	295	245	20	395	65					
		2	1	15	13	9	0.1	22	1					
F	86.3	4450	4920	5275	5325	5050	4750	4700	4540					
		155	325	670	720	445	145	95	65					
		2	7	28	34	13	1	1	0.3					
G	61.2	4375	4775	4825	5400	5950	5675	5200	4800	4750	4500	4475	4350	
		230	170	220	795	1345	1070	595	195	145	105	130	255	
		1	0.4	1	9	25	17	5	1	0.3	0.2	0.3	1	
H	31.4	4175	4300	4450	5075	5575	5625	5325	4400	4325	4320	4320	4300	
		430	305	155	470	970	1020	720	205	280	285	285	305	
		2	1	0.2	2	8	9	5	0.4	1	1	1	1	
I	7.2	4200	4400	4450	4800	4750	5000	4900	4400	4150	4080	4080	4125	
		405	205	155	195	145	395	295	205	455	525	525	480	
.05		1	0.2	0.1	0.2	0.1	1	0.4	0.2	1	1	1	1	
.06														
-1														

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G-34 Elev: 4940

$\boxed{4.57} \rightarrow 5.14$

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	18	4920	4950	4955	4930									
		20	10	15	10									
		7	3	5	3									
C	39.1	4860	4850	4960	5010	5000	4945							
		80	90	20	70	60	5							
		10	12	1	9	7	0.1							
D	77.1	4800	4815	4930	5150	5150	5000							
		140	125	10	210	210	60							
		13	11	0.1	25	25	3							
E	56	4700	4950	5150	5300	5225	5050	4950	4710					
		240	10	210	360	285	110	10	230					
		9	0	7	18	12	2	0	8					
F	76	4600	5150	5500	5600	5150	4780	4650	4700					
		340	210	560	660	210	160	290	240					
		8	3	22	28	3	2	6	4					
G	52.9	4425	4725	5125	5600	6050	5800	5600	5100	4550	4700	4625	4475	
		515	215	185	660	1110	860	660	160	390	240	315	465	
		4	1	0.5	6	17	11	6	0.4	2	1	1	3	
H	25.2	4200	4375	4575	5325	5300	5300	5300	4800	4400	4400	4500	4250	
		740	565	365	385	360	360	360	140	540	540	440	690	
		5	3	1	1	1	1	1	0.2	3	3	2	4	
I	25.6	4200	4375	4400	4600	4625	5025	4800	4600	4050	4000	4040	4100	
	.06 .07 .14	740	565	540	340	315	85	140	340	890	940	900	840	
		3	2	1	1	0.5	0	0.1	1	4	5	4	4	

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G-33 Elev: 5430

	3.83 → 6.56												
B	4	5430	5440	5430	5425								
		0	10	0	5								
			3		1								
C	15.3	5390	5400	5460	5440	5375	5410						
		40	30	30	10	55							
		4	2	2	0.3	6	1						
D	82	5250	5250	5500	5400	5200	5325						
		180	180	70	30	230	105						
		20	20	4	1	29	8						
E	91.1	5000	5125	5450	5525	5350	5050	5000	5200				
		430	305	20	95	80	380	430	230				
		24	13	0.1	1	1	20	24	8				
F	11	4950	5150	5450	5550	5325	4900	5000	5100				
		480	280	20	120	105	530	430	330				
		15	5	0	1	1	20	12	7				
G	58.9	4600	5050	5600	5800	5900	5900	5800	5250	4700	4725	4550	4600
		830	380	170	370	470	470	370	180	730	705	880	830
		10	2	0.4	2	3	3	2	0.5	8	7	11	10
H	73	4300	4500	4700	5100	4975	5100	4750	4750	4400	4400	4400	4300
		1130	930	730	330	455	330	680	680	1030	1030	1030	1130
		11	7	5	1	2	1	4	4	9	9	9	11
I	64	~~.05~~ .1	4200	4375	4400	4675	4700	5025	5025	4800	4160	4100	4040	4100
		.2 .18	1230	1055	1030	755	730	405	405	630	1270	1330	1390	1330
		.32												
			7	6	5	3	3	1	1	2	8	9	10	9

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B-13 Elev: 4272

0.98 → 1.10

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	1.2	4276	4270	4269	4272									
		4	2	3	0									
		1	0.2	0.4	0									
C	1.5	4282	4280	4255	4270	4275	4271							
		10	8	17	2	3	1							
		0.3	0.2	1	0	0	0							
D	1.0	4278	4280	4250	4260	4265	4250							
		6	8	22	12	7	22							
		0	0.1	0.4	0.1	0	0.4							
E	2.2	4305	4280	4265	4250	4230	4200	4220	4305					
		33	8	7	22	42	72	52	33					
		0.2	0	0	0.1	0.3	1	0.4	0.2					
F	5.3	4175	4200	4300	4450	4400	4350	4250	4200					
		97	72	28	178	128	78	22	72					
		1	0.4	0.1	2	1	0.4	0	0.4					
G	11.1	4110	4125	4200	4400	4750	4600	4650	4650	4375	4200	4125	4085	
		162	147	72	128	478	328	378	378	103	72	147	187	
		0.4	0.3	0.1	0.2	3	2	2	2	0.2	0.1	0.3	0.5	
H	18	4175	4200	4200	4350	4825	5400	4800	4600	4240	4080	4050	4150	
		97	72	72	78	553	1128	528	328	32	192	222	122	
		0.1	0	0	0.1	3	11	2	1	0	0.3	0.4	0.1	
I	17.9	4200	4400	4800	4475	4750	5750	5200	4240	4040	4080	4160	4325	
		72	128	528	203	478	1478	928	32	232	192	112	53	
		0	0.1	1	0.2	1	11	4	0	0.3	0.2	0.1	0	
J	.89													
K	.1													
L	.11													

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G-40 Elev: 4305

		1	2	3	4	5	6	7	8	9	10	11	12	13
	1.07 →	1.20												
B	0.4	4307	4305	4303	4305									
		2	0	2	0									
		0.2		0.2										
C	1.3	4311	4310	4306	4302	4290	4300							
		6	5	1	3	15	5							
		0.1	0.1	0	0	1	0.1							
D	0.4	4320	4310	4300	4295	4295	4312							
		15	5	5	10	10	7							
		0.2	0	0	0.1	0.1	0							
E	1.9	4325	4330	4325	4375	4270	4265	4300	4340					
		20	25	20	70	35	40	5	35					
		0.1	0.1	0.1	1	0.2	0.3	0	0.1					
F	7.7	4450	4400	4360	4500	4200	4220	4325	4450					
		145	95	55	195	105	85	20	145					
		1	1	0.2	3	1	0.5	0	1					
G	21.8	4115	4150	4200	4575	4850	4700	4700	4550	4425	4200	4150	4110	
		190	155	105	270	545	395	395	245	120	105	155	195	
		3	2	1	5	4	2	2	1	0.2	0.2	0.4	1	
H	22.1	4175	4200	4250	4400	5000	5500	4900	4600	4380	4080	4050	4100	
		130	105	55	95	695	1195	595	295	75	225	255	205	
		0.1	0.1	0	0.1	4	12	3	1	0	0.4	1	0.4	
I	11	4200	4250	4775	4475	4900	5400	4800	4320	4080	4080	4160	4175	
		105	55	470	170	595	1095	495	15	225	225	145	130	
J	.1	0.1	0	1	0.1	2	6	1	0	0.3	0.3	0.1	0.1	
K	.1													
L	.09													

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G-39 Elev. 4352

$\boxed{1.08} \rightarrow 1.22$

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	0	4352	4351	4351	4352									
		0	1	1	0									
C	0	4356	4352	4350	4348	4350	4356							
		4	0	2	4	2	4							
D	2.1	4370	4335	4325	4336	4340	4370							
		18	17	27	16	12	18							
		0.3	0.2	1	0.2	0.1	0.3							
E	4.9	4400	4380	4300	4310	4312	4300	4425	4450					
		48	28	52	42	40	52	73	98					
		0.4	0.1	0.4	0.3	0.3	0.4	1	2					
F	9.6	4575	4480	4300	4270	4220	4270	4430	4600					
		223	128	52	82	132	82	78	248					
		3	1	0.2	0.5	1	0.5	0.4	1					
G	16.6	4140	4150	4225	4625	4925	4750	4775	4600	4475	4225	4150	4125	
	4080 12	212	202	127	273	573	398	423	248	123	127	202	227	
		1	1	0.2	1	5	2	3	1	0.2	0.2	1	1	
H	25.7'	4175	4210	4225	4475	5100	5575	5000	4600	4250	4100	4150	4100	
		177	142	127	123	748	1223	648	248	102	252	202	252	
		0.3	0.2	0.1	0.1	5	13	4	0.5	0.1	1	0.4	1	
I	9.9'	4200	4275	4675	4500	5000	5300	4852	4200	4080	4080	4120	4275	
		152	77	323	148	648	948	500	152	272	272	232	77	
	0.28	~~0.2~~	~~0.1~~	~~1~~	~~0.2~~	~~1~~	~~8~~	~~2~~	~~0.2~~	~~1~~	~~1~~	~~0.8~~	~~0.1~~	
		0.1	0	0.5	0.1	2	5	1	0.1	0.4	0.4	0.3	0	

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G-15 Elev. 4640

3.43 → 3.86

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	15	4640	4660	4645	4620									
		0	20	5	20									
			7	1	7									
C	35.3	4575	4650	4720	4690	4610	4565							
		65	10	80	50	30	75							
		8	0.3	10	5	2	10							
D	43	4600	4750	4840	4700	4610	4560							
		40	110	200	60	30	80							
		1	9	24	3	1	5							
E	55.3	4750	4850	4950	4800	4450	4300	4450	4625					
		110	210	310	160	190	340	190	45					
		2	7	14	4	8	16	6	0.3					
F	51.1	4600	4950	5350	4820	4500	4525	4400	4400					
		40	310	710	180	140	115	240	240					
		0.1	7	32	2	1	1	4	4					
G	28.9	4800	4800	5200	5600	5000	4500	4850	4800	4375	4200	4320	4480	
		160	160	560	960	360	140	210	160	265	440	320	160	
		0.4	0.4	5	13	2	0.3	1	0.4	1	3	2	0.4	
H	29.5	4575	4750	5750	5700	4750	4800	4750	4600	4100	4160	4160	4320	
	.05	65	110	1110	1060	110	160	110	40	540	480	480	320	
	.06													
	~~.11~~	0	0.1	11	10	0.1	0.2	0.1	0	3	2	2	1	
	.22													
I	17.3	4200	4450	5000	4750	5050	5250	5600	4720	4160	4000	4000	4040	
		440	190	360	110	410	410	960	80	480	640	640	600	
		1	0.2	1	0.1	1	2	5	0	1	2	2	2	

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G-12 Elev. 5560

6.04 → 6.80

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	13	5545	5555	5580	5560									
		15	5	20	0									
		5	1	7	0									
C	29.3	5500	5500	5500	5560	5625	5550							
		60	60	60	0	65	10							
		7	7	7	0	8	0.3							
D	71.1	5350	5360	5450	5620	5675	~~5550~~							
		210	200	110	40	115	~~560~~ 10							
		25	24	9	3	10	~~76~~ 0.1							
E	61	5175	5300	5500	5650	5820	5470	5565	5200					
		385	260	60	90	240	90	5	360					
		20	10	1	1	10	1	0	18					
F	56.2	5375	5525	6000	5580	5350	5360	4950	4950					
		185	35	40	20	210	200	610	610					
		2	0.1	0.1	0	3	3	24	24					
G	82.9	4900	5700	6000	5500	5375	4750	5050	4600	4650	4600	4700	4750	
		660	140	440	60	185	810	510	960	910	960	860	810	
		6	0.3	3	0.1	0.5	10	4	13	12	13	11	10	
H	74	4500	5000	5200	5100	4900	4875	4800	4800	4600	4240	4560	4600	
		1060	560	360	460	660	685	760	760	960	1320	1000	960	
		10	3	1	2	4	4	5	5	8	15	9	8	
I	70.3	4200	4300	4625	4575	4800	5025	5175	5300	4220	4060	4080	4200	
		1360	1260	935	985	760	535	385	260	1340	1400	1480	1360	
J	.38	9	8	4	6	3	1	1	0.3	9	10	11	9	
K	.21													
L	.12													

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B-9 Elev. 5665

8.42 → 9.47

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	4	5660	5670	5660	5660									
		5	5	5	5									
		1	1	1	1									
C	13.1	5625	5630	5680	5660	5630	5640							
		40	35	15	5	35	25							
		4	3	1	0.1	3	2							
D	61.4	5500	5500	5650	5650	5500	5550							
		165	165	15	15	165	115							
		17	17	0.2	0.2	17	10							
E	134	5100	5250	5470	5800	5600	5350	5250	5250					
		565	415	195	135	65	315	415	415					
		38	24	6	3	1	14	24	24					
F	131	5250	5500	5900	5400	5250	5175	4850	4870					
		415	165	235	265	415	490	815	795					
		12	2	4	5	12	16	40	40					
G	125	4900	5450	5900	5900	5350	5000	4650	4475	4400	4600	4525	4700	
		765	215	235	235	315	665	1015	1190	1265	1065	1140	965	
		9	1	1	1	1	6	15	20	23	16	19	13	
H	91.2	4500	5100	5500	5150	5000	4775	4850	4800	4600	4240	4400	4600	
		1165	565	165	515	665	890	815	865	1065	1425	1265	1065	
		12	3	0.2	2	4	7	6	6	10	17	14	10	
I	92.4	4200	4300	4600	4600	4850	5125	5400	5200	4320	4080	4040	4160	
		1465	1365	1065	1065	815	540	265	465	1345	1585	1625	1505	
J	.43	11	9	6	6	3	1	0.4	1	9	13	13	11	
K	.25													
L	.14													

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G·13 Elev. 5465

		1	2	3	4	5	6	7	8	9	10	11	12	13
	6.51 →	7.32												
B	21	5490	5465	5445	5450									
		25	0	10	15									
		9	0	7	5									
C	43.3	5490	5560	5475	5400	5375	5410							
		25	105	10	65	90	55							
		2	15	0.3	8	12	6							
D	68.1	5475	5600	5400	5275	5570	5280							
		10	135	65	190	105	185							
		0.1	13	3	23	8	21							
E	74	5200	5300	5650	5750	5600	5300	5050	5175					
		265	165	185	285	135	165	415	290					
		10	4	5	12	3	4	24	12					
F	90	5100	5260	5650	5350	5150	5050	4760	4875					
		365	205	185	115	315	415	705	590					
		9	3	2	1	7	12	32	24					
G	89	4875	5250	5800	5925	5775	4825	4600	4500	4450	4580	4600	4725	
		590	215	335	460	310	640	865	965	1015	965	865	740	
		5	1	2	3	1	6	11	13	15	13	11	8	
H	61	4500	5000	5900	4975	5100	4775	4850	5200	4600	4160	4400	4525	
		965	465	435	490	365	690	615	265	865	1305	1065	940	
		8	2	2	2	1	4	3	1	6	14	10	8	
I	60.7	4200	4350	4700	4625	4950	5100	5200	5200	4225	4080	4040	4150	
		1265	1115	765	840	515	365	235	265	1240	1385	1425	1315	
J	.32													
K	.18	8	6	3	4	1	1	0.3	0.4	8	10	10	9	
L	.10													

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G-10 Elev: 5720

6.04 → 6.80

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	12	5710	5735	5730	5715									
		10	15	10	5									
		3	5	3	1									
C	32	5660	5700	5780	5800	5775	5700							
		60	20	60	80	55	20							
		7	1	7	10	6	1							
D	50	5575	5680	5900	5970	5800	5620							
		145	40	180	250	80	100							
		14	1	20	33	6	7							
E	76	5630	5900	6050	6050	6000	5650	5400	5430					
		90	180	330	330	290	70	320	290					
		1	5	15	15	11	1	15	12					
F	34.3	5550	6150	5575	5550	5650	5625	5300	5475					
		170	430	145	170	70	95	420	245					
		2	12	1	2	0.3	1	12	4					
G	56	5325	5500	5475	5475	5050	5025	4975	4850	5400	5000	4875	5000	
		395	220	245	245	670	695	745	870	320	720	845	720	
		2	1	1	1	7	7	8	11	2	8	10	8	
H	106	4800	4700	4725	4775	4800	4975	4675	4650	4730	4480	4600	4650	
		920	1020	995	945	920	745	1045	1070	990	1240	1120	1070	
		7	9	9	8	7	5	9	10	8	13	11	10	
I	78	4200	4800	4850	4875	4875	5000	4650	4725	4240	4160	4675	4525	
		1520	920	870	845	845	720	1070	995	1480	1560	1045	1195	
J	.46	12	4	4	4	4	3	6	5	11	12	6	7	
K	.27													
L	.15													

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G-5 Elev: 5600

7.55 → 8.49

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	6	5600	5590	5600	5610									
		0	10	0	10									
		0	3	0	3									
C	17	5620	5575	5550	5570	5630	5650							
		20	25	50	30	30	50							
		1	2	5	2	2	5							
D	33	5550	5500	5450	5540	5665	5660							
		50	100	150	60	65	60							
		2	7	15	3	3	3							
E	110.4	5250	5480	5185	5220	5500	5600	5550	5275					
		350	120	415	380	500	0	50	325					
		17	2	24	20	32	0	0.4	15					
F	177	4975	5000	4800	4700	4950	5370	5850	5400					
		625	600	800	900	650	230	250	200					
		26	24	40	48	28	4	4	3					
G	113.3	4700	4525	4500	4475	4575	4625	4775	5200	5875	6000	5750	5800	
		900	1075	1100	1125	1025	975	825	400	275	400	150	600	
		12	16	17	19	15	14	10	2	1	2	0.3	5	
H	73.3	4400	4400	4875	4700	4675	4700	5000	4900	5300	5400	4700	4650	
		1200	1200	725	900	925	900	600	700	300	200	900	950	
		12	12	5	7	7	7	3	4	1	0.3	7	8	
I	54	4500	4725	4675	4700	4800	4900	5075	5025	4550	4560	4550	4200	
		1100	875	925	900	800	700	525	575	1050	1040	1050	1400	
J	0.13													
K	0.22	6	4	4	4	3	3	1	2	5	6	6	10	
L	0.4													

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G-4 Eleo: 5680

		1	2	3	4	5	6	7	8	9	10	11	12	13
	6.70 →	7.54												
B	20	5670	5700	5700	5670									
		10	20	20	10									
		3	7	7	3									
C	35	5615	5660	5740	5765	5720	5640							
		65	20	60	85	40	40							
		8	1	7	11	4	4							
D	41.6	5500	5570	5780	5700	5700	5600							
		180	110	100	20	20	80							
		20	9	7	0.3	0.3	5							
E	38.1	5280	5500	5590	5540	5700	5750	5550	5540					
		400	180	90	140	20	70	130	140					
		22	5	1	3	0.1	1	3	3					
F	126	5250	5250	5000	4920	5100	5540	6080	5500					
		430	430	680	760	580	140	400	180					
		12	12	30	36	22	1	11	2					
G	84.6	4900	4650	4800	4600	4625	4700	4875	5300	5925	5950	5800	5200	
		780	1080	880	1080	255	980	805	380	245	170	120	480	
		9	17	11	17	1	14	9	2	1	0.4	0.2	3	
H	91	4425	4400	4800	4550	4600	4750	5050	4800	5300	5025	4800	4800	
		1255	1280	880	1130	1080	930	630	880	380	655	880	880	
		13	14	7	11	10	7	3	7	1	4	7	7	
I	67	4500	4550	4675	4700	4800	4900	5025	4950	4720	4400	4500	4200	
		1180	1130	1005	980	880	780	655	730	960	1280	1180	1480	
J	0.44	7	7	6	5	4	3	2	3	5	8	7	11	
K	0.25													
L	0.16													

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G-3 Elev: 5790

7.13 → 8.02

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	14	5800	5775	5780	5800									
		10	15	10	10									
		3	5	3	3									
C	23.3	5840	5800	5750	5725	5770	5840							
		50	10	40	65	20	50							
		5	0.3	4	8	1	5							
D	55	5825	5725	5650	5650	5725	5920							
		35	65	140	140	65	130							
		1	3	13	13	3	12							
E	40	5670	5500	5650	5430	5720	5940							
		120	290	140	360	70	150							
		2	12	3	18	1	4							
F	87.2	5650	5200	5450	5000	5350	5850	5950	5925					
		140	590	340	790	440	60	160	135					
		1	24	8	38	23	0.2	2	1					
G	98.3	5000	4800	4900	4800	4675	4775	5050	5350	5925	5425	5400	5325	
		790	990	890	990	1115	1015	740	440	135	365	390	465	
		9	14	11	14	17	15	8	3	0.3	2	2	3	
H	121	4500	4450	4575	4500	4600	4875	4925	4650	5150	4700	4800	4875	
		1290	1340	1215	1290	1190	915	865	1140	640	1090	990	915	
		14	15	13	14	12	7	6	11	4	10	8	7	
I	89	4350	4500	4600	4700	4825	4950	5000	5000	4650	4320	4300	4200	
		1440	1290	1190	1090	965	840	790	790	1140	1470	1490	1590	
J	.17	11	8	7	6	5	4	3	3	7	11	11	13	
K	.30													
L	.51													

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G-2 Elev: 5890

7.98 → 8.98

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	14	5895	5875	5875	5900									
		5	15	15	10									
		1	5	5	3									
C	26.3	5950	5900	5850	5830	5875	5950							
		60	10	40	60	15	60							
		7	0.3	4	7	1	7							
D	67.3	6100	5975	5750	5870	5800	6050							
		210	85	140	20	90	160							
		25	6	13	0.3	6	17							
E	68	6150	5980	5650	5575	5650	5975	6150	6200					
		260	490	240	315	240	85	260	310					
		10	1	9	14	9	1	10	14					
F	65	5700	5450	5500	5150	5600	6025	5600	5760					
		190	440	390	740	240	135	290	130					
		3	4	10	34	6	1	6	1					
G	99	5200	5250	5125	5050	4800	4900	5025	5300	5600	5150	5300	5325	
		690	640	765	840	1090	990	865	590	290	740	590	565	
		7	6	9	10	17	14	11	5	1	9	5	5	
H	149	4675	4450	4575	4500	4600	5000	4825	4600	5000	4725	4750	4650	
		1215	1440	1315	1390	1290	890	1065	1290	890	1165	1140	1240	
		13	17	15	16	14	7	10	14	7	12	11	13	
I	101	4275	4500	4625	4750	4775	5000	5200	5000	4600	4250	4400	4200	
		1615	1390	1265	1140	1115	890	690	890	1290	1640	1490	1690	
J	.57	13	10	8	7	6	4	2	4	8	14	11	14	
K	.34													
L	.2													

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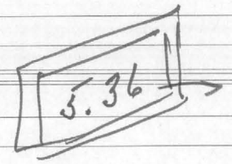
G-6 Elev: 5290



		1	2	3	4	5	6	7	8	9	10	11	12	13
B	9	5300 10 3	5280 10 3	5290 0 0	5300 10 3									
C	15.3	5340 50 5	5300 10 0.3	5270 20 1	5250 40 4	5275 15 1	5330 40 4							
D	58	5350 60 3	5200 90 5	5130 160 16	5150 140 13	5360 130 12	5400 110 9							
E	81	5400 110 2	5050 240 9	4890 400 22	4900 390 22	5100 190 6	4990 300 13	5450 160 4	5420 130 3					
F	133	4770 520 18	4550 740 34	4650 640 26	4650 640 26	4800 490 16	5550 260 5	5450 160 2	5000 290 6					
G	77	4525 765 9	4400 890 11	4700 590 5	4275 1015 15	4500 790 9	4550 740 9	4675 615 6	4850 440 3	5500 210 1	6000 710 7	5500 210 1	4900 390 2	
H	321	4325 965 8	4400 890 7	4800 490 2	4775 515 1	4700 590 1	4675 615 2	4900 390 1	5000 290 1	5900 610 5	5600 310 1	5200 90 1	4600 690 4	
I	16.6	4650 640 2	4700 590 2	4750 540 1	4750 540 1	4700 590 2	4850 440 1	5150 140 0	4975 315 0.5	4700 590 2	4775 515 1	4500 790 3	4200 1090 6	

J 0.24
K 0.14
L 0.08

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G-8 Elev. 4660

2.75 → 3.09

		1	2	3	4	5	6	7	8	9	10	11	12	13
B		4654	4654	4664	4664									
	4	6	6	4	4									
		1	1	1	1									
C		4630	4620	4650	4630	4680	4680							
	10.3	30	40	10	30	20	20							
		2	4	0.3	2	1	1							
D		4740	4525	4600	4700	4740	4750							
	33	80	135	60	40	80	90							
		5	13	3	1	5	6							
E		4500	4400	4420	4550	4720	4850	5000	4800					
	55	160	260	240	110	60	190	340	140					
		4	10	9	2	1	6	16	3					
F		4500	4570	4460	4500	4590	5040	5350	4825					
	57.3	160	90	260	160	70	480	690	165					
		2	1	5	2	0.3	15	30	2					
G		4425	4575	4460	4500	4650	4575	4575	4700	5300	5500	5375	4600	
	25.8	235	85	200	160	10	85	85	40	640	840	715	60	
		1	0.1	1	0.4	0	0.1	0.1	0	6	10	7	0.1	
H		4325	4500	4550	4775	4700	4800	4700	4975	5500	5800	5000	4400	
	21.6	335	160	110	115	40	140	40	315	840	1140	340	260	
		1	0.2	0.1	0.1	0	0.2	0	1	6	11	1	1	
I	18.2	4700	4800	5000	4800	4800	4740	5000	4750	4975	5800	5100	4475	
		40	140	340	140	140	120	340	90	315	1140	440	185	
J	0.21													
K	0.06	0	0.1	1	0.1	0.1	0.2	1	0	0.5	7	1	0.2	
L	0.04													

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B-7 Elev 4040

1.73 → 1.94

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	2	estimate												
C	2													
D		4080	4050	4080	4070	4040	4075							
		40	10	40	30	0	35							
	4.1	1	0.1	1	1	0	1							
E		4100	4100	4100	4180	4120	4060							
		60	60	60	140	80	20							
	7.1	1	1	1	3	1	0.1							
F		4180	4120	4320	4400	4150	4100	4100	4160					
		140	80	280	360	110	60	60	120					
	18.1	1	0.5	5	9	1	0.3	0.3	1					
G		4240	4300	4300	4560	4800	4500	4300	4160	4120	4040	4100	4150	
		200	260	260	520	760	460	260	120	80	0	60	110	
	19.6	1	1	1	4	8	3	1	0.2	0.1	0	0.1	0.2	
H		4160	4500	4600	4750	4400	4850	4800	4160	4160	4120	4000	4050	
		120	460	560	710	360	810	760	120	120	80	40	10	
	21.4	0.1	2	3	4	1	6	5	0.1	0.1	0.1	0	0	
I	0.41													
J	0.14													
K	0.15													
L	0.16													

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6-20 Elev 4060

		1	2	3	4	5	6	7	8	9	10	11	12	13
	1.82 → 2.04													
B														
	2													
C		estimate												
	3													
D		4080	4070	4080	4070	4060	4075							
		20	10	20	10	0	15							
	1	0.3	0.1	0.3	0.1	0	0.2							
E		4160	4100	4150	4170	4170	4065	4085	4120					
		100	40	90	110	110	5	25	60					
	8.4	2	0.3	1	2	2	0	0.1	1					
F		4240	4240	4400	4480	4200	4100	4150	4240					
		180	180	340	420	140	40	90	180					
	26.1	2	2	8	10	1	0.1	1	2					
G		4240	4350	4460	4400	4640	4600	4300	4180	4100	4050	4120	4150	
		180	290	400	340	580	540	240	120	40	10	60	90	
	15.9	0.5	1	2	2	5	4	1	0.2	0	0	0.1	0.1	
H		4160	4500	4750	5200	4750	4800	4800	4240	4200	4100	4000	4040	
		100	440	690	1140	690	740	740	180	140	40	60	20	
	31.6	0.1	2	4	11	4	5	5	0.3	0.2	0	0	0	
I		4100	4400	5300	5250	4850	5400	4800	4120	4000	4100	4150	4100	
	31.0	40	340	1240	1190	790	1340	740	60	60	40	90	40	
		0	1	8	7	3	9	3	0	0	0	0	0	
J	0.14													
K	0.15													
L	0.14													

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6-19 Elev. 4075

	2.54 → 2.86	1	2	3	4	5	6	7	8	9	10	11	12	13
B		5	3	3	4									
	2.8	1	0.4	0.4	1									
C		4110 35	4120 45	4075 0	4100 25	4075 0	4075 0							
	10.0	3	5	0	2	0	0							
D		4100 25	4180 105	4160 85	4120 45	4070 5	4080 5							
	16.5	0.5	8	6	2	0	0							
E		4170 95	4200 125	4250 175	4150 75	4120 45	4090 15	4160 85	4160 85					
	11.3	1	2	5	1	0.3	0	1	1					
F		4300 225	4380 305	4500 425	4450 375	4400 325	4120 45	4120 45	4240 165					
	41.2	4	6	12	10	7	0.1	0.1	2					
G		4320 245	4440 365	4600 525	4750 675	4700 625	4800 725	4800 725	4400 325	4160 85	4080 5	4000 75	4080 5	
	38.2	1	2	4	7	6	8	8	2	0.1	0	0.1	0	
H		4240 165	4650 575	4900 825	5200 1125	4600 525	4720 645	4880 805	4400 325	4200 125	4080 5	4040 35	4080 5	
	33.3	0.2	3	6	11	2	4	6	1	0.1	0	0	0	
I		4100 25	4350 275	5250 1175	5300 1225	4750 675	5300 1225	4800 725	4240 165	4000 75	4040 35	4080 5	4080 5	
	28.5													
J	0.13	0	0.4	7	8	2	8	3	0.1	0	0	0	0	
K	0.15													
L	0.14													

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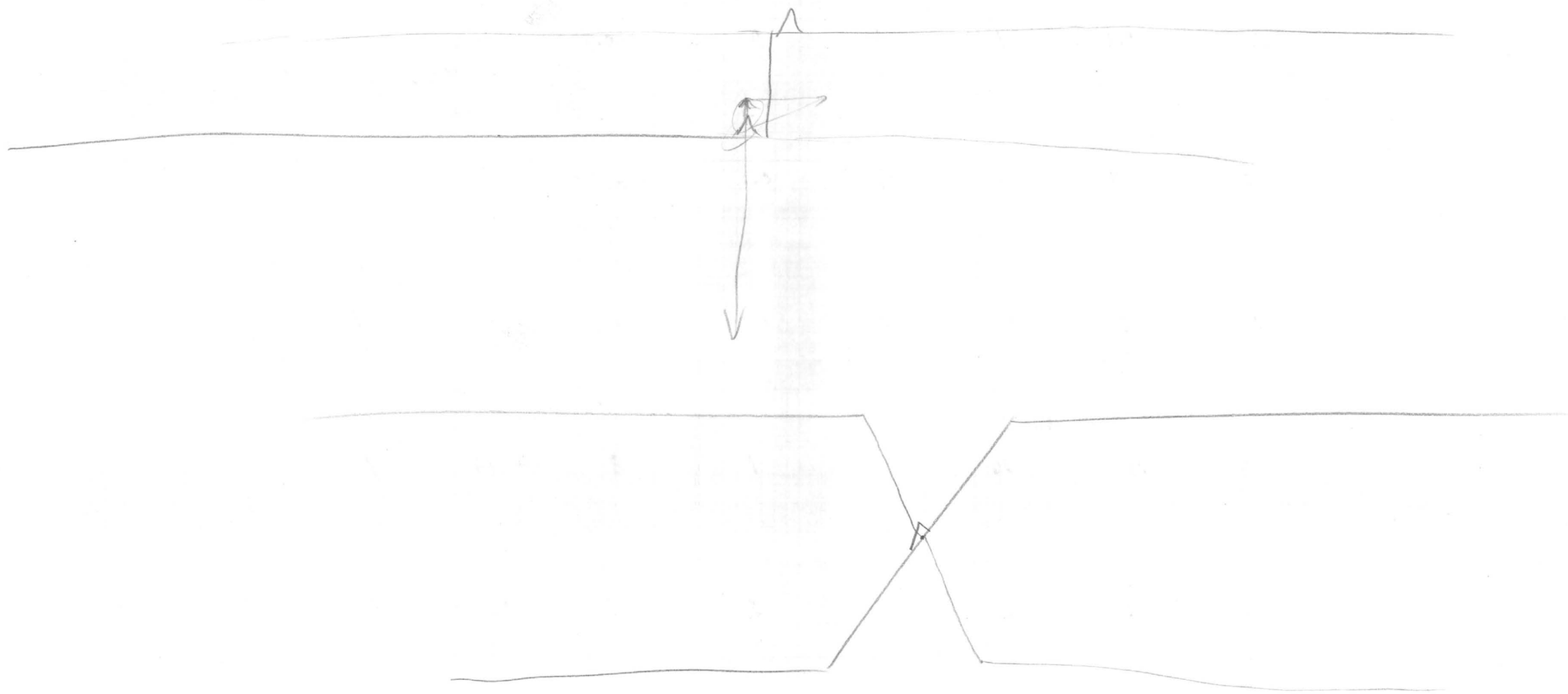
G-9 Elev: 4398

$\boxed{2.35} \rightarrow 2.64$

		1	2	3	4	5	6	7	8	9	10	11	12	13
B	8.4	4400	4400	4385	4385									
		2	2	13	13									
		0.2	0.2	4	4									
C	1.5	4400	4410	4415	4400	4394	4392							
		2	12	17	2	4	6							
		0	0.4	1	0	0	0.1							
D	15.2	4450	4500	4470	4430	4390	4385							
		52	102	72	32	8	13							
		2	8	4	1	0.1	0.1							
E	18.4	4575	4650	4530	4500	4550	4550	4450	4470					
		172	252	132	102	152	152	52	72					
		5	9	3	2	4	4	0.4	1					
F	59	4650	4850	4890	4500	4530	4750	4850	4510					
		252	452	492	102	132	352	452	112					
		4	14	16	1	1	8	14	1					
G	31.7	4500	4700	4800	4850	4750	4600	4540	4625	5100	5300	4800	4500	
		102	302	402	452	352	202	142	227	702	902	402	102	
		0.2	1	2	3	2	1	0.3	1	7	12	2	0.2	
H	30.6	4400	4600	4560	4700	4675	4700	4675	4925	5400	5700	4700	4350	
		2	202	162	302	277	302	277	527	1002	1302	302	48	
		0	0.4	0.2	1	1	1	1	2	9	14	1	0	
I	14.2	4600	5000	4900	5000	4750	4925	4975	4900	5050	4975	4480	4350	
		202	602	502	402	252	527	577	502	652	577	82	48	
J - 0.07		0.2	2	1	2	1	1	2	1	2	2	0	0	
L - 0.10														
K - 0.09														

© WILSON JONES COMPANY G7213 GREEN 7213 BUFF MADE IN U.S.A.



ARIZONA GRAVITY DATA

THE UNIVERSITY OF ARIZONA - DEPARTMENT OF GEOSCIENCES - LABORATORY OF GEOPHYSI

STATION NUMBER	NORTH LATITUDE (DEG)	(MIN)	WEST LONGITUDE (DEG)	(MIN)	ELEV. (FT)	TIDE CORR. (MGAL)	OBSERVED GRAVITY (MGAL)	THEORETICAL SEA-LEVEL GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE RHO 2.67 (MGAL)
---------- DRIFT RATE= -.000374MGAL/HR ----------										
BASE	30	23.98	110	41.29	5530.0	.089	978958.715	979369.052	109.483	-78.919
E 0.1	30	24.01	110	41.21	5505.0	.086	978959.254	979369.091	107.632	-79.919
E.2	30	23.01	110	41.13	5490.0	.084	978960.153	979367.781	108.432	-78.608
E.3	30	23.04	110	41.05	5475.0	.083	978961.127	979367.820	107.956	-78.573
E.4	30	24.06	110	41.96	5460.0	.079	978961.475	979369.157	105.558	-80.460
E.5	30	24.05	110	40.89	5450.0	.078	978962.068	979369.144	105.224	-80.453
E.6	30	24.03	110	40.73	5425.0	.076	978962.958	979369.118	103.790	-81.036
E.7	30	24.04	110	40.65	5420.0	.071	978963.373	979369.131	103.722	-80.933
E.8	30	24.02	110	40.56	5413.0	.069	978963.883	979369.105	103.601	-80.816
E.9	30	24.00	110	40.44	5405.0	.068	978964.444	979369.078	103.436	-80.709
E1.0	30	23.99	110	40.34	5375.0	.067	978964.879	979369.065	101.064	-82.058
E1.5	30	24.09	110	39.88	5240.0	.065	978973.840	979369.196	97.204	-81.319
E2.0	30	24.07	110	39.37	5100.0	.070	978975.842	979369.170	86.072	-87.681
BASE	30	23.98	110	41.29	5530.0	.076	978958.763	979369.052	109.531	-78.872
---------- DRIFT RATE= .006585MGAL/HR ---------- ?									?	?
BASE	30	23.98	110	41.29	5530.0	.175	978958.724	979369.052	109.492	-78.911
E2.5	30	24.12	110	38.79	5060.0	.154	978981.633	979369.236	88.038	-84.353
E3.0	30	24.04	110	38.35	5010.0	.147	978982.338	979369.131	84.148	-86.539
E3.5	30	23.97	110	37.85	4975.0	.143	978982.534	979369.039	81.145	-88.350
E4.0	30	23.70	110	37.43	4930.0	.124	978985.124	979368.685	79.859	-88.102
E4.5	30	23.39	110	36.91	4874.0	.112	978986.831	979368.279	76.708	-89.345
E5.1	30	23.28	110	36.30	4805.0	.105	978989.655	979368.135	73.190	-90.512
W0.2	30	23.99	110	41.48	5555.0	.036	978958.258	979369.065	111.363	-77.891
W0.1	30	23.97	110	41.38	5545.0	.032	978959.144	979369.039	111.335	-77.578
BASE	30	23.98	110	41.~~38~~ 29	5530.0	.025	978958.715	979369.052	109.483	-78.919

SB 31

COPY FROM
PAUL H. JONES & COMPANY, INSURANCE, INC.
POST OFFICE BOX 2350
TUCSON, ARIZONA 85702

February 14, 1973

Kerr McGee Corporation
1639 E. 18th St.
Box 2070
Tucson, Arizona 85711

Attn: E. E. Jones
Regional Exploration Manager

Re: Heinrichs Geoexploration
LC187 46 73
Job #800

Gentlemen:

In accordance with our instructions we are pleased to enclose a Certificate of Insurance for the above insured.

Very truly yours,

Bill Jacobs

William L. Jacobs

WLJ:la
enc.1
cc: Heinrichs Geoexploration

FIREMAN'S FUND AMERICAN
INSURANCE COMPANIES

- [x] FIREMAN'S FUND INSURANCE COMPANY
- [ ] THE AMERICAN INSURANCE COMPANY
- [ ] NATIONAL SURETY CORPORATION
- [ ] ASSOCIATED INDEMNITY CORPORATION
- [ ] AMERICAN AUTOMOBILE INSURANCE COMPANY
- [ ]

CERTIFICATE OF INSURANCE

TO:

KERR McGEE CORPORATION
1639 E. 18th St.
Box 2070
Tucson, Arizona 85711

DATE February 14, 1973

THIS IS TO CERTIFY THAT THE COMPANY OR COMPANIES CHECKED ABOVE HAVE IN FORCE AS OF THE DATE HEREOF THE FOLLOWING POLICY OR POLICIES:

NAME AND ADDRESS OF INSURED OR EMPLOYER	LOCATION OF PROPERTY, DESCRIPTION OF OPERATIONS, BUSINESS CONDUCTED
HEINRICHS GEOEXPLORATION CO., etal 806-808 W. Grant Road Tucson, Arizona	

KIND OF INSURANCE	POLICY NUMBER	EXPIRATION	LIMITS OF LIABILITY
WORKMEN'S COMPENSATION			STATUTORY
EMPLOYERS' LIABILITY			THOUSAND DOLLARS, E THOUSAND DOLLAR
BODILY INJURY LIABILITY OTHER THAN AUTOMOBILE*			500 THOUSAND DOLLA ERSON 1,000 THOUSAND DOLLA ACH OCCURRENCE
Comprehensive	LC187 46 73	8/1/73	1,000 THOUSAND DOLLARS, AGGREGATE PRODUCTS AND COMPLETED OPERATIONS
PROPERTY DAMAGE LIABILITY OTHER THAN AUTOMOBILE*			100 THOUSAND DOLLARS, EACH OCCURRENCE 300 THOUSAND DOLLARS, AGGREGATE OPERATIONS 300 THOUSAND DOLLARS, AGGREGATE PROTECTIVE
Comprehensive	LC187 46 73	8/1/73	300 THOUSAND DOLLARS, AGGREGATE CONTRACTUAL 300 THOUSAND DOLLARS, AGGREGATE PRODUCTS AND COMPLETED OPERATIONS
AUTOMOBILE: BODILY INJURY LIABILITY* Comp.	LC187 46 73	8/1/73	500 THOUSAND DOLLARS, EACH PERSON 1,000 THOUSAND DOLLARS, EACH OCCURRENCE
PROPERTY DAMAGE LIABILITY* Comp.	LC187 46 73	8/1/73	100 THOUSAND DOLLARS, EACH OCCURRENCE
MEDICAL PAYMENTS			$ EACH PERSON
COMPREHENSIVE—LOSS OF OR DAMAGE TO THE AUTOMOBILE, EXCEPT BY COLLISION OR UPSET BUT INCLUDING FIRE, THEFT AND WINDSTORM			ACTUAL CASH VALUE UNLESS OTHERWISE STATED HEREIN $
COLLISION OR UPSET			ACTUAL CASH VALUE LESS $ DEDUCTIBLE

DESCRIPTION AND LOCATION OF OPERATIONS AND AUTOMOBILES COVERED

Heinrichs Geoexploration Job No. 800

*IF COMPREHENSIVE, SO STATE.

WLJ:la

THIS CERTIFICATE OF INSURANCE NEITHER AFFIRMATIVELY NOR NEGATIVELY AMENDS, EXTENDS OR ALTERS THE COVERAGE AFFORDED BY THE POLICY OR POLICIES SHOWN ABOVE.

IN EVENT OF ANY MATERIAL CHANGE IN OR CANCELLATION OF THE POLICY OR POLICIES THE COMPANY WILL MAKE EVERY EFFORT TO NOTIFY THE ADDRESSEE BUT UNDERTAKES NO RESPONSIBILITY BY REASON OF FAILURE TO DO SO.

AUTHORIZED REPRESENTATIVE
PAUL H. JONES & CO. INS., INC.
By: Wm. L. Jacobs

385054—1-71

1637 E 18th. Ken Magee

2/8/73

George Job. #800

Zeb Jones Russ Carr

135-150 Stations

CSL & WRH.

7-8 field days

$7500.00 A.F.E. requested.

$225.00/day + expenses

50 living/day
30 vehicle/day
80 350-400
8
00

$2500 $3000 Part A

$4000.00 " B.

500 Contingent = 7% ±

Coordinates are based on two separate closed traverses, with the Crandall Adjustment applied. Ground to grid factors figured on mean elevation per line and position of Station "Pat."

Station	X	Y	Elevation
Pat	864,267.13	199,780.23	4,067.0
Pat Az.	866,052.61	200,895.43	4,101.7
Red-1	866,718.89	201,581.04	4,116.7
→ Red-2	872,444.48	196,176.26	4,224.4
→ Red-3	878,043.12	191,070.84	4,383.0
→ Red-4	877,315.95	184,551.22	4,728.7
→ Red-5	876,713.79	178,055.29	4,700.3
→ RM-17	870,127.41	185,165.49	6,101.1
→ Red-6	869,101.15	186,914.06	5,808.8
Red-10	865,995.34	184,500.52	5,762.0
→ Red-9	869,150.51	177,991.11	5,215.6
→ Red-8	872,359.70	170,646.72	5,167.9
→ Red-7	879,175.85	170,710.98	4,998.5

Coordinates are calculated from above traverse stations, with a mean ground to grid factor based on position and elevation of Station "Pat." These are only meant to be used for control of models in stereo-plotter. They should not be used for other coordinate calculations.

Station	X	Y	Elevation
→ HV-1	871,701.04	191,683.83	
→ TG-12	879,391.91	185,000.13	
→ TG-19	872,699.33	180,390.40	
→ TG-13	877,290.97	189,427.29	
→ HV-3	865,487.63	177,877.02	
TG-4	872,754.60	178,932.93	
TG-5	872,362.89	177,542.58	
→ TG-20	870,234.13	184,483.09	
TG-7	870,090.09	187,698.19	

(cont'd)

	+800,000.00	-100,000.00	
1001	64267.130	99780.230	PAT
1002	66052.610	100895.430	PAT AZ
1003	66718.890	101581.040	RED 1
1004	66325.020	94335.750	Sec Cor
1005	67818.460	94354.800	RM-25
1006	61120.180	93132.600	CEM
1007	64056.200	92996.440	TARY
1008	68170.190	92416.380	CHALK
1009	65549.650	92078.120	Broad
1010	62228.510	91153.790	HAUL
1011	66506.030	91310.960	RM-26
1012	67647.750	91348.980	GASH
1013	63481.040	90591.420	LONG
1014	63773.980	89613.780	ICH
1015	64987.790	89755.290	SPUR
1016	64475.630	89124.500	RM-7
1017	63892.320	89403.620	TCH
1018	61169.740	89032.900	SEC COR SW 8
1019	61468.370	88400.940	BIT
1020	71378.650	88638.100	SAND
1021	70090.090	87698.190	TG-7
1022	65005.350	87326.770	RM-4
1023	61881.550	86497.060	ALUM
1024	64029.700	86073.660	RM-2
1025	66121.700	86338.520	RM-3
1026	68312.510	86381.960	RM-11
1027	70127.410	85165.490	RM-17 R
1028	66983.670	85257.040	EAE
1029	66605.050	85601.750	RM-13
1030	65309.470	85593.000	EASY
1031	64099.870	85487.000	INTER
1032	61434.200	84401.130	HV-2
1033	65000.590	84315.900	RM-5
1034	65995.340	84500.520	RED-10
1035	65915.130	84445.100	RM-1
1036	67048.140	84513.010	RM-15
1037	69250.320	84510.750	HOPE-2
1038	69164.620	84253.700	Hope-1
1039	70234.130	84483.090	TG-20 R
1040	62118.000	82804.170	HV-2-A
1041	63892.690	82458.490	OOPS
1042	67448.060	81476.790	TUNA
1043	68505.000	80980.100	FRED
1044	66515.780	78951.060	ROAD
1045	66493.180	78556.380	SEC Cor 29-32
1046	69078.030	78080.620	RED 9-A
1047	69150.510	77991.110	RED 9 R
1048	65487.630	77877.020	HV-3 R
1049	69101.150	86914.060	RED 6

EAGLE
HAM
SID
SEX
ICY
BRUSH
TG-6
MID
UV-5
TG-18
FORK
OAK
RM-21
RM-21A
MM
BLUE

THESE 16 STATIONS ARE ON MAP BUT COORDINATES ARE NOT ON LIST

IT DOESN'T APPEAR AS THOUGH THESE POINTS HAVE VERTICAL CONTROL HOWEVER.

→ ARROW INDICATES THE OTHER STATIONS ON MAP – ALL OTHER POINTS NOT SHOWN

R REPEAT (STATION ALSO LISTED ON FIRST PAGE)

Geon

PATAGONIA, ARIZ.
GRAVITY CALCULATIONS
WORDEN GRAVITY METER

JOB NO: 800

PAGE 1 (OF 4)

2.00 gm/cm³ assumed density

	STA	TIME	1 METER SCALE DIV.	2 STEP CORRECTION	3 DRIFT SCALE DIV.	4 CORRECTED METER (SD)	5 (4) X .1014 (MGALS)	6 MILES N OF 31° 25' LATITUDE	7 LATITUDE CORREC. (6) X 1.163	8 ELEV. IN FEET	9 ELEV. CORR. (8) X 0.06854 (mgals)	10 BOUGUER GRAVITY (5)-(7)+(9)	11	12	13
	B.S.	12:16	1085.1	(-1.5) 1083.6	0.0	1083.6	109.88	2.42	2.81	4850	332.42	439.49			
LN1	12	:21	1050.8	1049.3	.00	1049.3	106.40	2.11	2.45	4854	332.69	436.64			
	13	:26	1024.7	1023.2	-0.1	1023.1	103.74	1.78	2.07	4869	333.73	435.40			
	14	12:29	1015.6	1014.1	-0.1	1014.0	102.81	1.46	1.70	4849	332.35	433.46			
	15	34	1029.0	1027.5	-0.2	1027.3	104.17	1.14	1.33	4811	329.75	432.59			
LN1	16	:40	1024.8	1023.3	-0.2	1023.1	103.74	0.97	1.13	4812	329.81	432.42			
	B.S.	12:47	1085.3	1083.8	-0.2	1083.6	109.88	2.42	2.81	4850	332.42	439.49			
	BS	13:36	1083.6		0.0	1083.6	109.88	2.42	2.81	4850	332.42	439.49			
LN2	1	:40	1081.1		-0.1	1081.0	109.61	2.41	2.80	4847	332.21	439.02			
	2	:46	1079.1		-0.1	1079.0	109.41	2.56	2.98	4849	332.35	438.78			
	3	13:56	1055.8		-0.2	1055.6	107.04	2.66	3.09	4889	335.09	439.04			
	4	14:04	1066.4		-0.2	1066.2	108.11	2.66	3.09	4866	333.52	438.54			
	5	:08	1013.4		-0.3	1013.2	102.73	2.67	3.11	4956	339.68	439.30			
	6	:20	1007.0		-0.4	1006.7	102.08	2.65	3.08	4945	338.93	437.93			
	7	:32	1014.7		-0.4	1014.3	102.85	2.67	3.11	4940	338.59	438.33			
	8	:37	977.0		-0.4	976.6	99.03	2.55	2.97	4999	342.63	438.69			
	9	:43	930.0		-0.5	929.5	94.25	2.68	3.12	5085	348.52	439.65			
	10	:47	919.6		-0.5	919.1	93.20	2.75	3.20	5123	351.13	441.13			
	11	:51	905.0		-0.6	904.4	91.71	2.77	3.22	5153	353.19	441.68			
	12	:54	881.2		-0.6	880.6	89.29	2.93	3.41	5204	356.68	442.56			
	13	14:57	879.0		-0.6	878.4	89.07	3.02	3.51	5220	357.79	443.35			
LN2	14	15:03	847.9		-0.7	847.2	85.91	3.14	3.65	5272	361.34	443.60			
	BS.	15:29	1084.7		-1.1	1083.6	109.88	2.42	2.81	4850	332.42	439.49			
				↓(-1.1)↓											
	BS	15:34	1084.7	1083.6	0.0	1083.6	109.88	2.42	2.81	4850	332.42	439.49 ✓			
LN1	1	:38	1100.9	1099.8	-0.1	1099.7	111.51	2.66	3.09	~~4862?~~	~~333.29~~	~~441.66~~ ✓			
	2	:42	1109.9	1108.8	-0.1	1108.7	112.42	2.91	3.38	4878	334.34	443.38 ✓			
	3	:49	1110.4	1109.3	-0.2	1109.1	112.46	3.13	3.64	4887	334.95	443.77 ✓ ←			
	4	15:57	1100.4	1109.3	-0.2	~~1109.1~~	~~112.46~~	3.45	4.01	4906	~~336.26~~ 322.55	~~443.70~~ 431.00 ✓ ←			
	5	16:02	1087.6	1086.5	-0.3	1086.2	110.14	3.73	4.34	4920	337.22	~~443.02~~ 442.98 ✓			
	6	:07	1077.9	1076.8	-0.3	1076.5	109.16	4.01	4.66	4934	338.18	442.68 ✓		4965	31
	7	:12	1057.2	1056.1	-0.4	1055.7	107.05	4.26	4.95	4999	342.63	444.78 ✓	?	5039	36
	8	:16	1047.5	1046.4	-0.4	1046.0	106.06	4.56	5.30	5016	343.80	444.56 ✓	?	5059	34
	9	:22	1037.1	1036.0	-0.5	1035.5	105.01	4.71	5.48	5104	~~343.80~~ 349.83	443.33 ?	449.35 ?	5070	-34 +68
	10	:27	1001.6	1000.5	-0.5	1000.0	101.40	4.97	5.78	5152	353.12	448.74 ✓	446.27	5150	-2 +36
LN1	11	:34	1033.6	1032.5	-0.5	1032.0	104.64	5.23	6.08	5116	350.65	449.21 ✓	445.50	5090	-26 +66
	B.S.	16:48	1085.4	1084.3	-0.7	1083.6	109.88	2.42	2.81	4850	332.42	439.49			

PATAGONIA, ARIZ. JOB NO: 800

GRAVITY CALCULATIONS

WORDEN GRAVITY METER PAGE NO: 2 (OF 4)

	STA	TIME	1 METER SCALE DIV.	2 STEP CORRECTION	3 DRIFT SCALE DIV.	4 CORRECTED METER (SD)	5 (4) x 10.14 (M GALS)	6 MILES N OF 31°25' LATITUDE	7 LATITUDE CORR (6) x 1.163	8 ELEVATION IN FEET	9 ELEV. CORR (8) x 0.06854 (M GALS)	10 BOUGUER GRAVITY (5)-(7)+(9)
1	B.S	8:59	1091.7	(-8.1) 1083.6	0.0	1083.6	109.88	2.42	2.81	4850	332.42	439.49
2	LN2 15	8:59	1070.4	1062.3	0.0	1062.3	106.23	2.41	2.80	4891	335.23	438.66
3	16	9:03	1064.9	1056.8	+0.1	1056.9	107.17	2.41	2.80	4893	335.37	439.74
4	17	:07	1068.0	1059.9	+0.1	1060.0	107.48	2.58	3.00	4900	335.85	440.33
5	18	:11	1067.3	1059.2	+0.1	1059.3	107.41	2.66	3.09	4908	336.39	440.71
6	19	:15	1045.6	1037.5	+0.1	1037.6	105.21	2.67	3.11	4940	338.59	440.69
7	20	:18	1043.3	1035.2	+0.2	1035.4	104.99	2.68	3.12	4941	338.66	440.53
8	21	:23	1000.1	992.0	+0.2	992.2	100.61	2.68	3.12	5001	342.77	440.26
9	22	:27	975.3	967.2	0.2	967.4	98.09	2.62	3.05	5031	344.82	439.86
10	23	:31	981.7	973.6	+0.3	973.9	98.75	2.68	3.12	5026	344.48	440.11
11	24	:34	973.2	965.1	+0.3	965.4	97.89	2.67	3.11	5042	345.58	440.36
12	LN2 25	:38	949.7	941.6	+0.3	941.9	95.51	2.64	3.07	5071	347.57	440.01
13	BS.	9:50	1091.2	1083.1	+0.5	1083.6	109.88	2.42	2.81	4850	332.42	439.49
14												
15	B.M (5010)	9:58	1021.9	1013.8	+1.0	1014.8	102.90	3.39	3.94	5010	343.39	442.35
16	B.S	10:08	1090.3	(-8.1) 1082.2	+1.4	1083.6	109.88	2.42	2.81	4850	332.42	439.49
17												
18												
19	LN2 25	10:21	950.0	(-8.1) 941.9	0.0	941.9	95.51	2.64	3.07	5071	347.57	440.01
20	LN4 1	:27	942.7	934.6	0.0	934.6	94.77	3.00	3.49	5101	349.62	440.90
21	2	:32	968.8	960.7	0.0	960.7	97.41	3.33	3.87	5084	348.46	442.00
22	3	:35	989.9	981.8	+0.1	981.9	99.56	3.65	4.24	5078	348.05	443.37
23	4	:40	1003.9	995.8	+0.1	995.9	100.98	3.96	4.61	5077	347.98	444.35
24	5	:43	997.7	989.6	+0.2	989.8	100.37	4.28	4.98	5118	350.79	446.18
25	6	:47	994.9	986.8	+0.2	987.0	100.08	4.59	5.34	5155	353.32	448.06
26	7	:51	971.2	963.1	0.2	963.3	97.68	4.87	5.66	5230	358.46	450.48
27	8	10:55	907.5	899.4	+0.3	894.7	90.72	5.12	5.95	~~5255~~ 5355	~~360.18~~ 367.03	~~444.95~~ 452.30
28	LN2 25	11:08	949.7	941.6	+0.3	941.9	95.50	2.64	3.07	5071	347.57	440.01

PATAGONIA, ARIZ.
GRAVITY CALCULATIONS
WORDEN GRAVITY METER

JOB NO: 800

PAGE NO: 3 (OF 4)

STA.	TIME	1 METER SCALE DIV.	2 STEP CORRECTION	3 DRIFT SCALE DIV.	4 CORRECTED METER (S.D)	5 (4) X .1014 (M GALS)	6 MILES N OF 31°25' LATITUDE	7 LATITUDE CORR. (6) X 1.163	8 ELEVATION IN FEET	9 ELEV. CORR. (8) X 0.06854 (MGALS)	10 BOUGUER GRAVITY (5) - (7) + (9)	11	12	13
LN2 25	11:14	949.9	(-8.0) 941.9		941.9	95.51	2.64	3.07	5071	347.57	440.01			
26	:18	1032.8	1024.8		1024.8	103.91	2.54	2.95	5030 (4943)	344.76 33879	445.72	439.75		
27	:22	1083.2	1075.2		1075.2	109.03	2.68	3.16	4857	332.90	438.77			
28	:26	1106.0	1098.0		1098.0	111.34	2.77	3.22	4839	331.67	439.79			
29	:32	1113.3	1105.3		1105.3	112.08	2.70	3.14	4827	330.84	439.88			
30	:37	1121.8	1113.8		1113.8	112.94	2.58	3.00	4818	330.23	440.17			
31	:49	1101.3	1093.3		1093.3	110.86	2.33	2.71	4868	333.65	441.80			
32	11:52	1073.4	1065.4		1065.4	108.03	2.07	2.41	4925	337.56	443.18			
33	12:02	1033.5	1025.5		1025.5	103.99	1.91	2.21	4990	342.01	443.79			
34	:07	1020.2	1012.2		1012.2	102.64	1.80	2.09	5032	344.89	445.44			
35	:14	1000.9	992.9		992.9	100.68	1.69	1.97	5099	349.49	448.20			
36	:21	975.4	967.4		967.4	98.09	1.49	1.73	5162	353.80	450.16			
37	:24	955.2	947.2		947.2	96.05	1.35	1.57	5211	357.16	451.64			
38	:30	923.3	915.2		915.2	92.79	1.27	1.48	~~5324~~ 5271	~~364.91~~ 361.27	~~456.22~~ 452.58			
LN2 25	12:57	949.9	941.9		941.9	95.50	2.64	3.07	5071	347.57	440.01			
		DR. 0.0												
LN1 12	14:38	1055.8	(-6.5) 1049.3	0.0	1049.3	106.40	2.11	2.45	4854	332.69	436.63		4888 1-12	38.97
LN3 17	14:52	1015.0	1008.5	-0.2	1008.3	102.24	1.90	2.21	4900	335.85	435.88		4910 17	36.56
18	15:02	972.9	966.4	-0.2	966.1	97.96	1.80	2.09	4957	339.75	435.62		4960 18	35.83
LN3 19	15:11	955.3	948.8	-0.3	948.5	96.18	1.78	2.07	4985 5000	342.70	438.81		4990 19	36.12
LN1 12	15:21	1056.2	1049.7	-0.4	1049.3	106.40	2.11	2.45	4854	332.69	436.63			
		DR 0.4												
LN2 25	15:39	949.7	(-7.8) 941.9	0.0	941.9	95.51	2.64	3.07	5071	347.57	440.01			
LN4 9	:44	907.5	899.7	0.0	899.7	91.23	2.31	2.69	5117	350.71	439.26	5135	18	
10	:48	905.4	897.6	-0.1	897.5	91.01	2.01	2.34	5111	350.31	438.99	5100	-11	
11	:53	911.9	904.1	-0.1	904.0	91.67	1.71	1.99	5093	349.07	438.75	5095	2	
12	15:59	846.4	838.6	-0.2	838.4	85.01	1.42	1.65	5177	354.53	438.19	5187	10	
LN4 13	16:08	875.7	867.9	-0.2	867.7	87.98	1.03	1.20	5116	350.65	437.43			
LN2 25	16:18	950.1	942.3	-0.4	941.9	95.51	2.64	3.07	5071	347.57	440.01			
		DR. 0.4												

45-613 EYE-EASE
45-713 20/20 BUFF
Made in U.S.A.

PATAGONIA, ARIZ. JOB NO: 800

GRAVITY CALCULATIONS

WORDEN GRAVITY METER PAGE NO: 4 (OF 4)

+1.95 angle

	STA.	TIME	1 METER SCALE DIV.	2 STEP CORRECTION	3 DRIFT SCALE DIV.	4 CORRECTED METER (S.D)	5 (4) x .1014 (M GALS)	6 MILES N. OF 31°25' LATITUDE	7 LATITUDE CORR. (6) X 1.163	8 ELEVATION IN FEET	9 ELEV. CORR (8) X 0.06854 (MGALS)	10 BOUGUER GRAVITY (5)-(7)+(9)	11	12	13
1	LN4 13	8:45	882.3	(-14.6) 867.7	0.0	867.7	87.98	1.03	1.20	5116	350.65	437.43	13	5135	18 38.74
2	14	:50	899.8	885.2	0.0	885.2	88.72	0.89	1.04	5092	349.01	434.69	14	5115	23 39.30
3	15	:54	894.7	880.1	+0.1	880.2	89.25	0.75	0.87	5060	346.81	435.19	15	5150	90 41.36
4	16	8:57	877.4	862.8	+0.2	863.0	87.51	0.68	0.79	5158	353.53	440.25	16	5190	32 42.44
5	17	9:03	896.4	881.8	+0.2	882.0	89.43	0.36	0.42	5140	352.30	441.31		5160	20
6	18	:07	886.0	871.4	+0.2	871.6	88.38	0.08	0.09	5164	353.94	442.31		5185	21
7	19	:13	874.7	860.1	+0.3	860.4	87.24	-0.20	-.23	5187	355.52	442.99		5215	28
8	20	:17	861.0	846.4	+0.3	846.7	85.86	-0.94	-1.09	5208	356.96	443.91		5243	32
9	21	:34	767.1	752.5	+0.4	752.9	76.34	-0.76	-0.88	5356	367.10	444.32		5405	49
10	22	:44	726.0	711.4	+0.5	711.9	72.19	-1.03	-1.20	5431	372.24	445.63		5460	29
11	LN4 23	9:50	698.2	683.6	+0.5	684.1	69.37	-1.16	-1.35	5513	377.86	448.58		5535	22
12	LN3 1	10:02	828.7	814.1	+0.6	814.7	82.61	0.53	0.62	5378	368.61	450.60	1	5401	30 52.65
13	2	:06	844.0	829.4	+0.6	830.0	84.16	0.62	0.72	5353	366.89	450.33	2	5400	47 53.56
14	3	:10	856.6	842.0	+0.7	842.7	85.45	0.67	0.78	5302	363.40	448.07	3	5345	43 51.02
15	4	:15	786.5	771.9	+0.8	772.7	78.35	0.77	0.90	5366	367.79	445.24	4	5410	44 48.25
16	5	:19	790.1	775.5	+0.8	776.3	78.72	0.87	1.01	5345	366.35	444.06	5	5390	45 47.14
17	6	:23	800.0	785.4	+0.9	786.3	79.73	0.92	1.07	5314	364.22	442.88	6	5360	46 47.03
18	7	:32	844.9	830.3	+0.9	831.2	84.28	0.88	1.02	5217	357.57	440.83	7	5275	58 44.81
19	LN3 8	:38	816.5	801.9	+1.0	802.9	81.40	0.78	0.91	5249	359.77	440.26	8	5300	51 43.75
20	LN4 13	10:50	881.3	866.7	+1.0	867.7	87.98	1.03	1.20	5116	350.65	437.43			
21	10		DR (1.0)												
22	LN3 9	10:58	843.9	(-14.6) 829.3	+0.2	829.5	84.11	0.73	0.85	5125	351.27	434.53	9	5190	65 38.98
23	10	11:03	868.4	853.8	+0.4	854.2	86.62	0.87	1.01	5079	348.11	433.72	10	5135	56 37.56
24	11	:07	873.8	859.2	+0.6	859.8	87.18	0.97	1.13	5068	347.36	433.41	11	5110	42 36.39
25	12	:12	908.3	893.7	+0.8	894.5	90.70	1.08	1.26	~~4854~~ 5025	~~332.69~~ 343.04	~~422.13~~ 432.49	12	5050	45 35.57
26	LN3 13	:15	911.4	896.8	+1.0	897.8	91.04	1.33	1.55	5005	343.04	432.53	13	5040	35 34.93
27	LN4 13	11:27	880.8	866.2	+1.5	867.7	87.98	1.03	1.20	5116	350.65	437.43			

Gravity Survey

of the

San Rafael Valley

Santa Cruz County

Arizona

for

Kerr McGee Corporation

May 1973

by

Heinrichs GEOEXploration Company
P.O. Box 5964 Tucson, Arizona 85703

GEOEX Job #800

STRATHMORE ONION SKIN
25% COTTON FIBER USA

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HEINRICHS GEOEXPLORATION COMPANY
STRATHMORE ONION SKIN

CONTENTS

	Page
Introduction	1
Interpretation and Recommendations	2
Procedure	4
Gravity Profiles	
Line 1	
Line 2	
Line 3	
Line 4	
Kerr McGee Line	

In Map Pocket:

Interpretation and Gravity Traverse Location Plan

STRATHMORE ONION SKIN
25% COTTON FIBER USA

INTRODUCTION

At the request of Mr. E. E. Jones, Regional Exploration Manager of the Kerr McGee Corporation, Heinrichs GEOEXploration Company conducted a gravity reconnaissance of the northern portion of the San Rafael Valley, Santa Cruz County, Arizona. This field work was done in the interim February 28, 1973, to March 7, 1973.

Four gravity traverses were run, all with an approximate station spacing of 1/3 mile. Two east-west traverses (Lines 2 and 3) and two north-south traverses (Lines 1 and 4) were involved. Line 2 goes completely across the valley, outcrop to outcrop, while Line 3, one to two miles south of Line 2, goes easterly from outcrop on the west to the middle of the valley. Line 1 goes southerly from outcrop in the north and proceeds southerly to Line 3 where it bends southwesterly to outcrop near the Shaffer Ranch. The accompanying plan shows the location details of these traverses.

A previous Kerr McGee gravity traverse which goes easterly from near the Shaffer Ranch is also included with the GEOEX data for a more complete presentation. This previous work was re-computed to tie with our data.

The data are presented as Bouguer gravity profiles, one for each line together with a schematic interpretation section showing estimated depths of the valley fill.

The purpose of this survey was to define the approximate basin shape to aid in locating potential aquifers. Increased thickness of the lower density valley filling material (in contrast with the higher density crystalline basement rocks) shows as lower gravity values. An estimate of the basin depth can be made, assuming a particular density contrast, by the amplitude of the gravity low.

The traverses are not straight lines in that advantage was taken of existing roads for access. However, for plotting purposes, the station locations were projected onto straight line segments, the directions of which are indicated on the profile plots.

Rock types and outcrop boundaries were abstracted from U.S.G.S. P.P. #658-E and the open file U.S.G.S. geologic map of the Lochiel Quadrangle, both by Frank S. Simons.

INTERPRETATION AND RECOMMENDATIONS

A large portion of the valley mapped as Quaternary alluvium likely has more than 1000 feet of low density valley fill, much of which is probably a good aquifer or contains good aquifers. In fact, most of the area surveyed likely has more than 2000 feet of valley fill as is indicated on the plan map. The numerous windmills in the valley indicate a very shallow water table so the bulk of the valley filling material should be water saturated. If at least portions of the alluvial section are permeable, the water production potential of the valley should be excellent.

Lines 2, 3, 4, and the Kerr McGee Line all indicate that the western margin of the valley is bounded by a rather steep NNW trending fault. The eastern edge of outcrop marks the interpreted trace of this fault quite closely. The throw of this fault appears to be about 1500 feet.

Erosional debris off the steep fault scarp may be coarser and, therefore, more permeable than material further out in the basin. Therefore, we suggest initial test drilling considerations be given to a target (or targets) about 2000 feet east of the interpreted fault trace. There is no real geophysical preference north or south along the fault trace except that going north of Line 2 is uncertain, without more information, because of the increased possibility of intercalated volcanics being present within the section. Your existing drill hole DW-2 is in a fairly good position, being about 3500 feet east of the fault, and similar or somewhat better water production could be expected moving closer to the fault trace.

The northern margin of the basin is less well defined. Line 1 shows a relatively shallow alluvial shelf south of the limit of outcrop to near the intersection of Line 1 and Line 2 where a sharp drop in gravity occurs. This sharp dropoff is likely due to a major fault and south of Line 2 the basin is interpreted as being deeper than 2000 feet. Line 4, on the north, runs just east of outcrop - making the interpretation difficult. The magnitude and steepness of the gravity falloff on Line 4 going south, however, suggests that a thick section of low density material is present nearby - before the main alluvial basin is reached to the south. Perhaps the small alluvial flat in Sections 31 and 32 is very thick or, more likely, the gravity is simply showing the contrast between the more dense monzonite to the north and the less dense trachyandesite to the south (which probably directly underlies the alluvium in this area).

More detailed gravity surveying and perhaps even several drill holes for control would be necessary to resolve the subsurface geology in the north part of the valley with any degree of certainty.

Line 2 suggests that the basin is also fault bounded to the east, in the vicinity of the projected Dove Canyon fault. The gravity amplitude change in this vicinity is less than half the change present on the west edge of the basin. Quite likely this difference is due to low density welded tuffs comprising the majority of the outcrop (and probably basement) to the east, whereas higher density Mesozoic and Paleozoic rocks are present to the west. A smaller density contrast between bedrock and alluvium is, therefore, involved to the east.

The deepest part of the basin based on the work to date, would appear to be east of the east end of the Kerr McGee line. The deepest part of the basin probably slopes gradually to the south and more or less follows the present Santa Cruz River. An alluvial thickness in excess of 3000 feet is interpreted near the east end of the Kerr McGee line.

The interpreted alluvial thicknesses probably tend towards the conservative side in that no allowance was made for increased alluvial density with increased depth due to compaction. No deep drill holes into bedrock are known in the area that could give a depth control. Your drill hole DW-2, 1659 feet deep and still in gravel, indicates that our depth estimates are not on the deep side.

Another factor to consider is that some of the volcanic rocks in this district, particularly the tuffaceous members, could be quite low density and may cause gravity lows which could be mistaken for increased alluvial thickness. Also, low density volcanics could be intercalated within the alluvium and may or may not reduce the overall water production potential depending on their premeability and porosity.

If it is felt that more depth control is necessary before drilling, electric resistivity soundings could be made which would probably respond to the alluvium-bedrock interface. Depending on electrical contrasts and geologic complexities involved, bedrock depths accurate to $\pm$ 10% of true might be obtained in this manner. Poor contrasts and/or complex geology could, of course, greatly mitigate these estimates. A side advantage of resistivity sounding is that an estimate of water quality can be made based on the measured conductivity. Increased conductivity would imply increased salinity.

PROCEDURE

The gravity readings were obtained with a Worden "Prospector" model gravimeter having a scale factor of 0.1014 milligals per scale division. A base station was established and checked into every two or three hours to allow proper drift corrections (instrument and tidal) to be made.

Elevations were estimated with a pair of Wallace & Tiernan surveying altimeters used in a "leapfrog" fashion. Air column temperature, barometric and drift corrections were made to the raw field data. Only one elevation benchmark was found in the area so no checks could be made on the altimetry although the measured elevations in general agree with the contour picked elevations based on the topographic maps. The majority of the elevations are probably within ± 15 feet of the true elevation. This error corresponds to ± 1.0 milligal of gravity variation. In that we were primarily interested in the gross basin shape this is sufficient accuracy considering that the gravity profiles have up to about 20 milligals of total relief.

Latitude corrections were made based on the plotted station positions on the base map relative to 31° 25' latitude. The correction used was -1.163 milligals per mile north of this latitude.

A combined Bouguer - Free Air elevation correction of 0.06854 milligals per foot was made assuming a near-surface dry alluvial density of 2.00 g/cc in that most of the survey (and near surface relief) was on alluvium. No terrain corrections were made nor are believed necessary.

Depth estimates were made assuming "infinite" slabs of contrasting density material. A bedrock-alluvium density contrast of 0.55 g/cc was assumed everywhere except on the east end of Line 2 where a lesser contrast of 0.25 g/cc was used because of the probable low density bedrock (welded tuff) present in that area. A water saturated alluvium density of 2.10 g/cc was assumed with a bedrock density of 2.65 g/cc. The welded tuff was assumed to be 2.35 g/cc.

Respectfully submitted,

Heinrichs GEOEXploration Co.

Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

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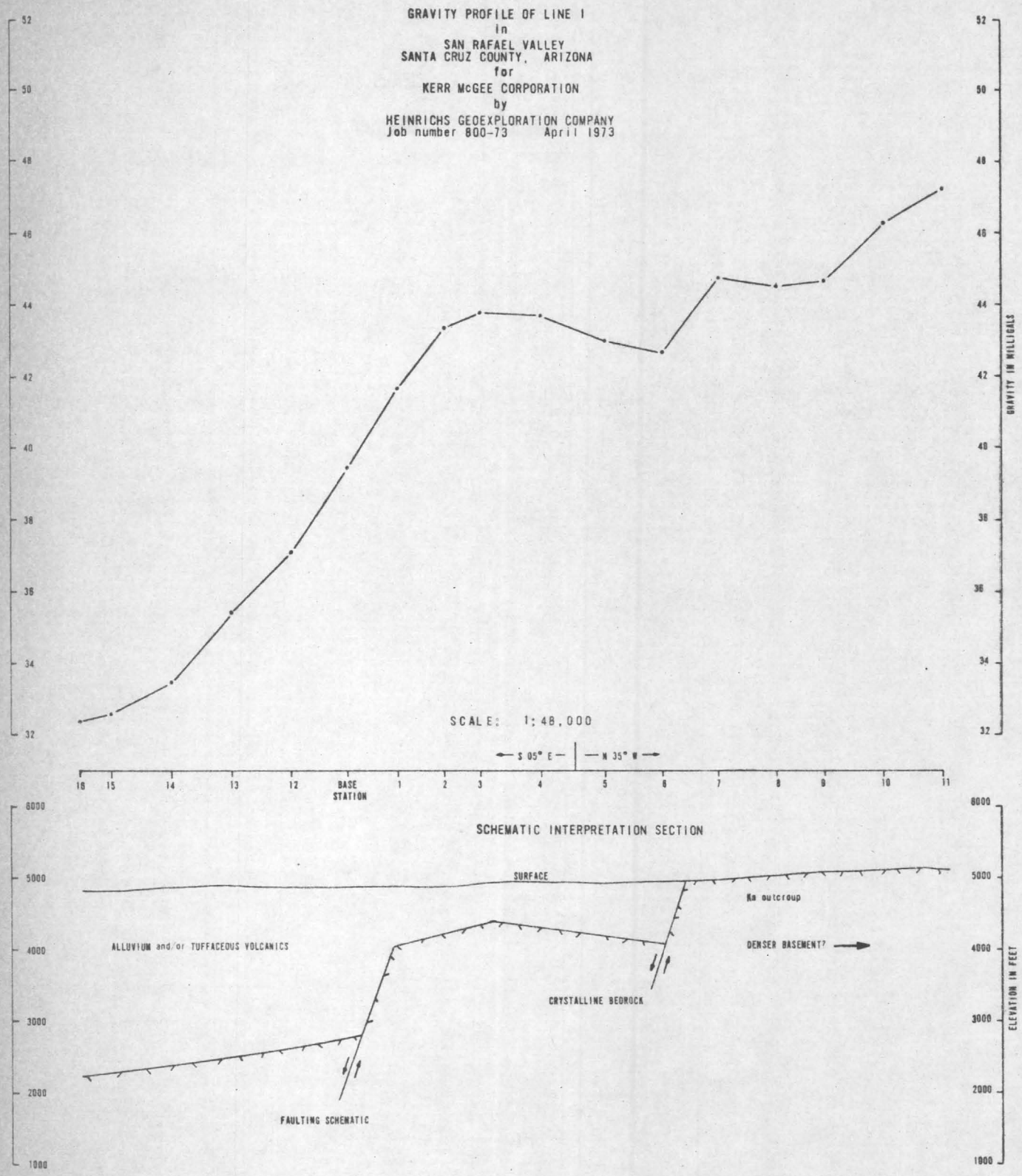
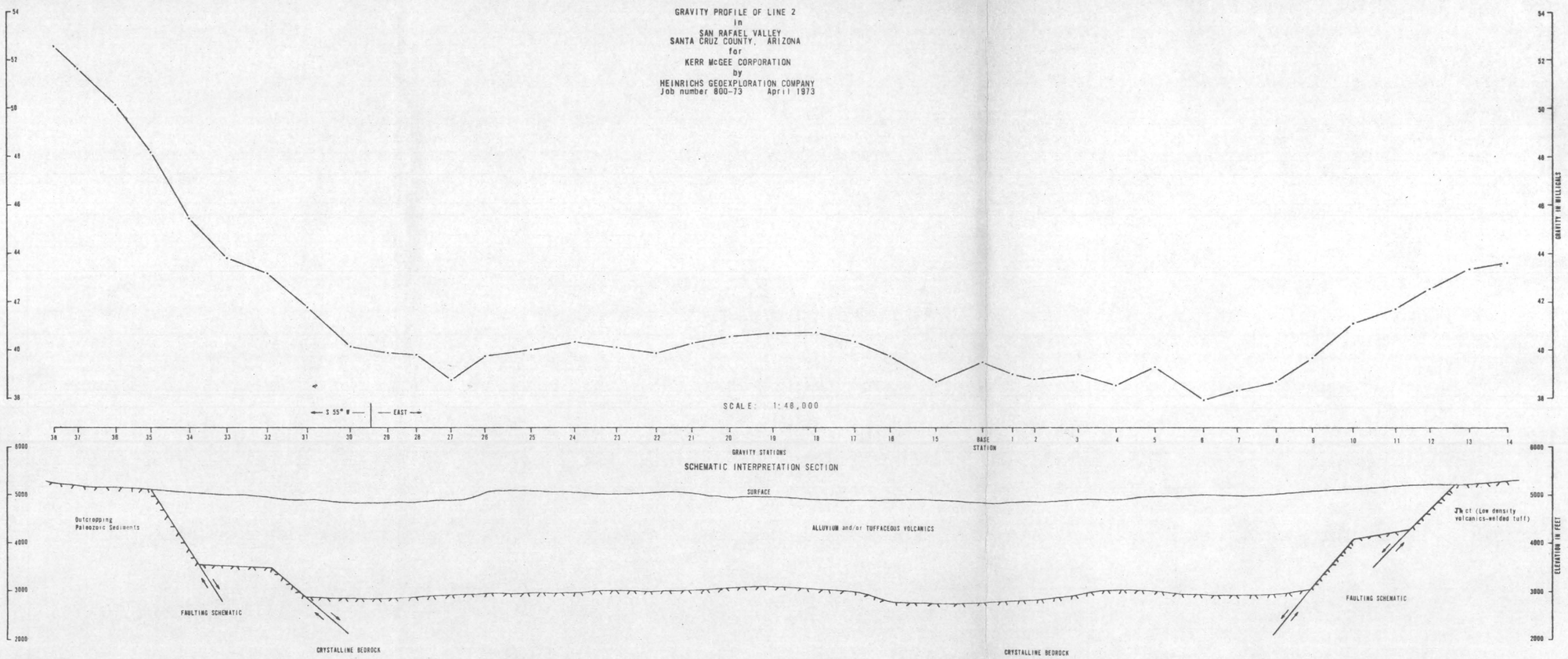
5/3/73
P.O. Box 5964 Tucson, AZ 85703

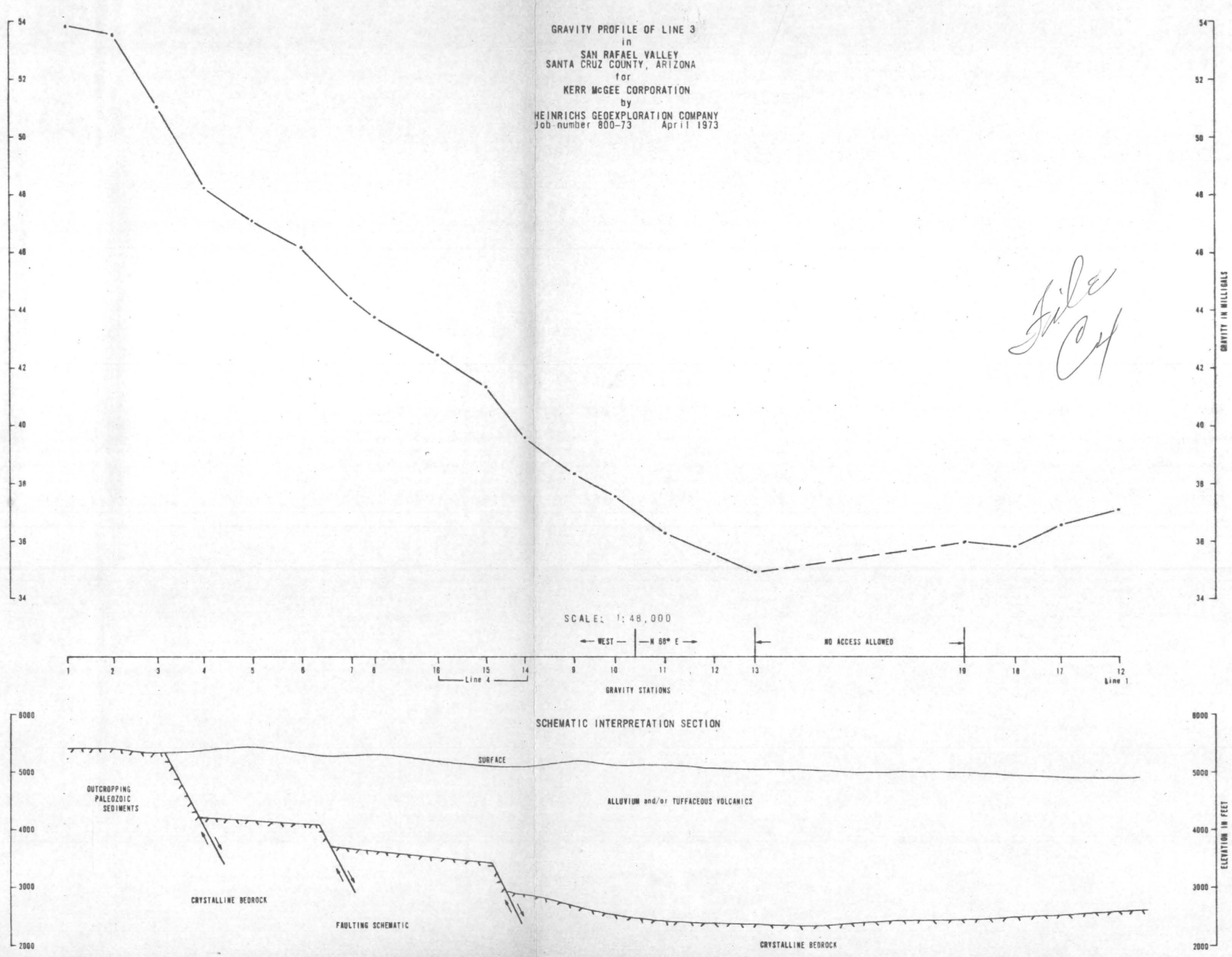

GRAVITY PROFILE OF LINE I
in
SAN RAFAEL VALLEY
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973
GRAVITY IN MILLIGALS
52
50
48
46
44
42
40
38
36
34
32
SCALE: 1:48,000
← S 05° E — | — N 35° W →
16 15 14 13 12 BASE STATION 1 2 3 4 5 6 7 8 9 10 11
SCHEMATIC INTERPRETATION SECTION
SURFACE
Ka outcroup
ALLUVIUM and/or TUFFACEOUS VOLCANICS
DENSER BASEMENT?
CRYSTALLINE BEDROCK
FAULTING SCHEMATIC
ELEVATION IN FEET
6000
5000
4000
3000
2000
1000

GRAVITY PROFILE OF LINE 2
in
SAN RAFAEL VALLEY
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973

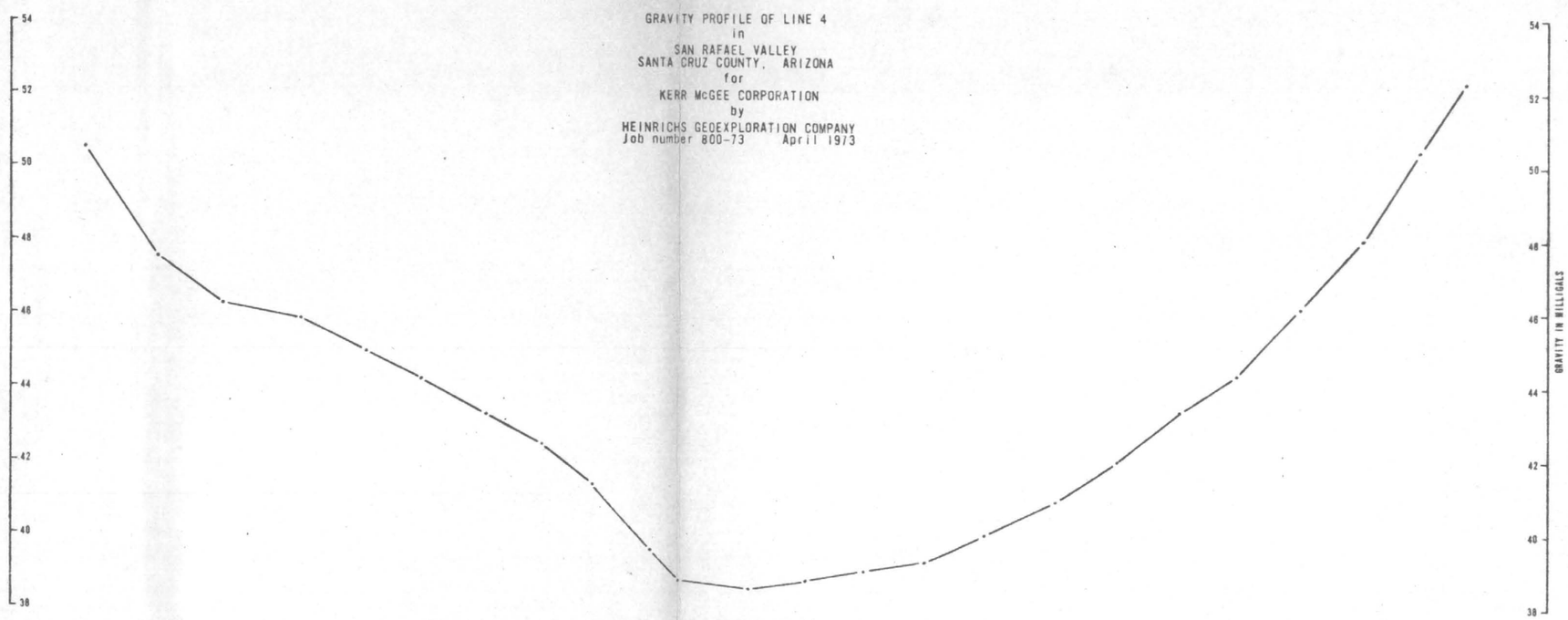


GRAVITY PROFILE OF LINE 3
in
SAN RAFAEL VALLEY
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973

File C4



GRAVITY PROFILE OF LINE 4
in
SAN RAFAEL VALLEY
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973



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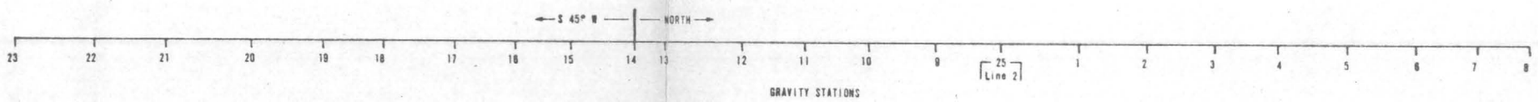
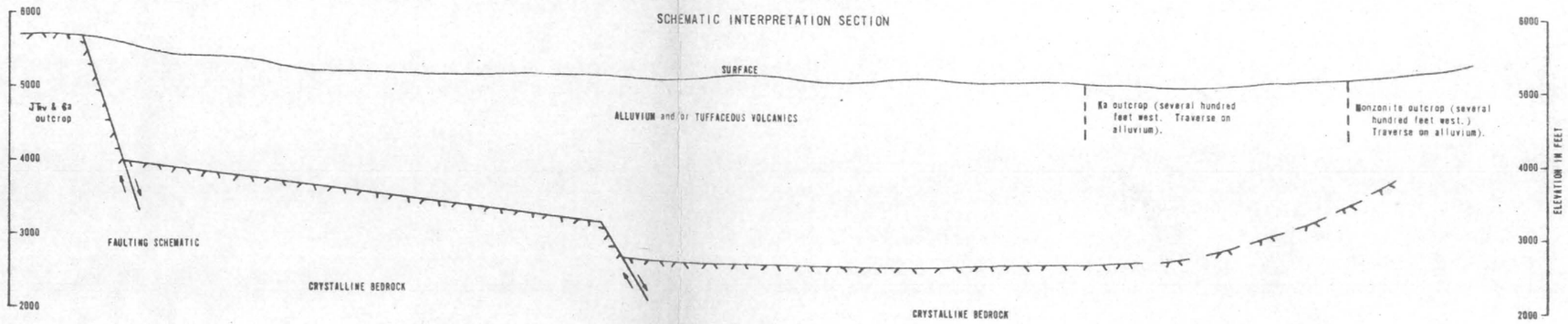
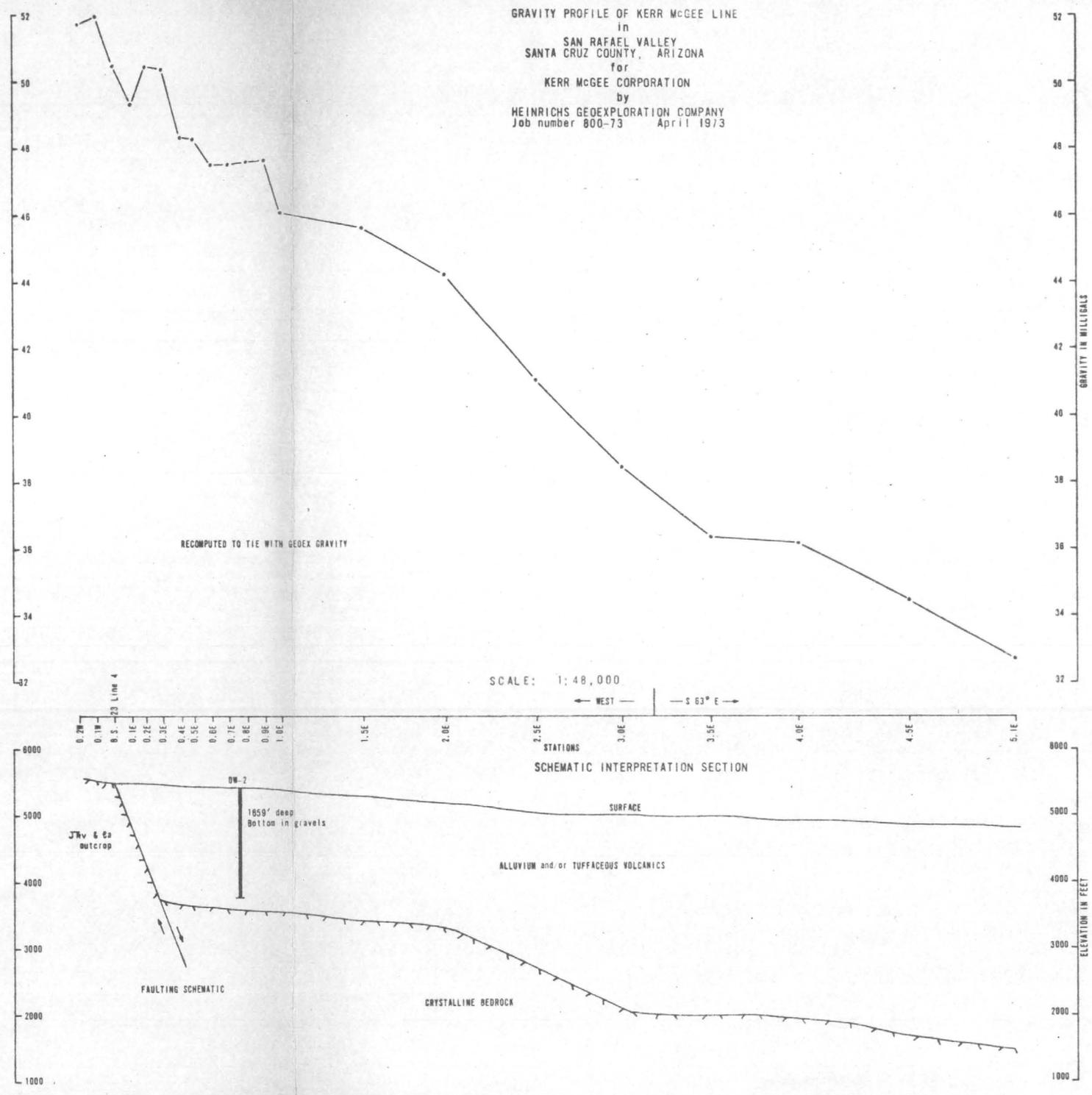


SCHEMATIC INTERPRETATION SECTION




GRAVITY PROFILE OF KERR McGEE LINE
in
SAN RAFAEL VALLEY
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973
RECOMPUTED TO TIE WITH GEOEX GRAVITY
GRAVITY IN MILLIGALS
52
50
48
46
44
42
40
38
36
34
32
SCALE: 1:48,000
← WEST —
— S 63° E →
0.2W
0.1W
B.S.
23 Line 4
0.1E
0.2E
0.3E
0.4E
0.5E
0.6E
0.7E
0.8E
0.9E
1.0E
1.5E
2.0E
2.5E
3.0E
3.5E
4.0E
4.5E
5.1E
STATIONS
SCHEMATIC INTERPRETATION SECTION
DW-2
1659' deep
Bottom in gravels
SURFACE
Jrv & Ea
outcrop
ALLUVIUM and/or TUFFACEOUS VOLCANICS
FAULTING SCHEMATIC
CRYSTALLINE BEDROCK
ELEVATION IN FEET
6000
5000
4000
3000
2000
1000
8000

Gravity Survey

on

Red Mountain

Santa Cruz County

Arizona

for

Kerr McGee Corporation

May 1973

by

Heinrichs GEOEXploration Company

P.O. Box 5964 Tucson, Arizona 85703

GEOEX Job #800

GEOEX

Gravity Survey

on

Red Mountain

Santa Cruz County

Arizona

for

Kerr McGee Corporation

May 1973

by

Heinrichs GEOEXploration Company

P.O. Box 5964 Tucson, Arizona 85703

GEOEX Job #800

STRATHMORE ONION SKIN

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CONTENTS

	Page
Introduction----------	1
Conclusions and Recommendations----------	2
Procedure----------	4
Specific Gravity, Red Mountain Core Samples---	5

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In Map Pocket:

Gravity Traverse Location Plan

Gravity Traverses

INTRODUCTION

At the request of Mr. E. E. Jones, Regional Exploration Manager of the Kerr McGee Corporation, Heinrichs GEOEXploration Company conducted two experimental gravity traverses across Red Mountain near Patagonia, Santa Cruz Coutny, Arizona. Field work on this project took place during the interim April 5 to April 18, 1973.

One east-west traverse and one north-south traverse were run, each about four miles long and roughly centered on the peak of Red Mountain. The station spacing was nominally 1000 feet, taking advantage of features locatable on the topographic maps and accessability. The traverse plan map shows the station positions in detail at a scale of 1"=1000'.

The data are presented as Bouguer gravity profiles, with and without terrain correction, and topography all on a single sheet. A schematic interpretation is shown as part of the topographic profile. A table of specific gravity measurements made on representative core samples is also included.

The purpose of this experimental survey was to determine if a gravity survey might reflect any features of geologic interest - directly or indirectly related to the Red Mountain mineralized zone.

As the traverses are not straight lines, the station positions were projected to an east-west or a north-south line for plotting purposes.

Reference has been made to the "Geologic Map of the Mount Wrightson Quadrangle", U.S.G.S. Map I-614, by Harald Drewes, 1971, and "Mineral Deposits of the Santa Rita and Patagonia Mountains", U.S.G.S. Bulletin 582, by Frank C. Schrader, 1915.

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CONCLUSIONS AND RECOMMENDATIONS

The rather erratic nature of the gravity profiles makes their interpretation quite tenuous but there is no obvious gravity correlation with the mineralized zone. However, considering the very small density contrasts indicated by the sample testing, no direct gravity correlation with mineralization would be expected.

The main mountain crest on the east-west line and the two main ridges crossed by the north-south line show locally lower gravity values. This could be reflecting the lower density tuffs capping the mountain or perhaps insufficient terrain correction due to the extreme ruggedness of terrain present.

The north and west flanks of the mountain appear to be fault bounded in that the gravity shows a sharp drop between stations 18 and 19 on the east-west line and between B-14 and 38 on the north-south line. Assuming that these sharp drops are reflecting an alluvium-bedrock density contrast and that the contrast is about 0.52 grams/cc (alluvium assumed 2.10 grams/cc and bedrock assumed 2.62 grams/cc) an alluvial thickness can be estimated on the downthrown block. These calculations give about 750 feet of alluvium to the west and about 1,000 feet to the north.

The interpreted fault positions correspond quite well with the available mapped geology. Drewes' map shows a steep, northwest dipping major fault, striking NNE, whose trace goes between stations 18 and 19 on the east-west line. His Section E-E' suggests about 500 feet of alluvium resting on a thick section of rhyolitic tuffs, welded tuffs and flows on the downthrown side, which are likely similar in density to the Red Mountain volcanics on the upthrown block. His interpretation is quite compatible with the gravity results.

To the north, the only geology we have available is Schrader's map. He shows a rhyolite-alluvium contact, corresponding in part to Drewes' fault, trending northeasterly and intersecting the north-south line near stations 37 and B-14. Considering the 1:125,000 scale of his mapping, this is also in good agreement with the gravity interpretation.

There are a number of local high and low gravity features on both terrain corrected profiles of up to 3 milligals amplitude. If these highs and lows are assumed to be random errors on a much smoother "true" gravity profile, then the maximum error is likely on the order of $\pm$ 1.5 milligals. This in turn implies a maximum elevation error of about $\pm$ 25 feet if all the error is assumed to be caused by inaccuracies in station elevation. The terrain corrections in topography this rugged are only approximate, but it is believed that they are accurate to within $\pm$ 0.25 milligals (which would correspond to only about $\pm$ 4 feet pf elevation error).

The station elevations were estimated in the field from the detailed contour plans. In most of the area, the contour interval is 50 feet and making the reasonable assumption that the station position could usually be estimated only to the nearest contour interval, this would imply an elevation error of about ± 25 feet. Therefore, it is reasonable to assume that the majority of the erratic profile variation is due to elevation error.

To produce more interpretable, smoother profiles, it would therefore be necessary to more accurately survey the station elevations. This could be done by levelling or vertical angle surveying, which, in this terrain, would be quite time consuming and expensive. Surveying altimeters were tried but due to the large elevation differences involved, their accuracy appeared to be no better or even somewhat less than that obtained by contour estimating.

For the possible interpretational advantage to be obtained with more accurate elevations, it is not recommended that this surveying be done unless perhaps there are other reasons to have more elevation control in the area. Hand curve smoothing of the present data gives a very uninteresting profile except for the broad lows and level changes already discussed which can be apparently accounted for by the known surface geology.

The specific gravity (density) sample measurements show only very slight contrasts between the tuff, porphyry and andesite. The tuff is the lightest material - averaging about 2.57 g/cc. The porphyry is about 2.62 g/cc and the andesite averages about 2.67 g/cc. There is more density variance between the individual samples of each rock type than there is between the averages of the three different rock types. These slight density contrasts would not be expected to produce significant surface gravity anomalism.

HEINRICHS GEOEXPLORATION COMPANY

PROCEDURE

A Worden "Prospector" model gravimeter with a scale factor of 0.1014 milligals per scale division was used to obtain the gravity readings. Base stations were established at convenient access points on and near the traverses and were occupied at various times through the day to allow proper tidal and instrument drift corrections to be made.

Station elevations were estimated from the detailed Kerr McGee topographic contour plans. Where possible, the stations were located at easily identifiable positions on the maps. Elevations were also obtained with a pair of American Paulin System surveying altimeters used in a fixed base station mode. Air column temperature, barometric and drift corrections were applied to the field data. Ties to several known elevations were made and it was determined that the contour estimated elevations were probably somewhat more accurate than the altimeter elevations. Therefore, the contour estimated elevations were used in the gravity calculations.

A combined Bouguer-Free Air elevation correction of 0.06060 milligals per foot was made which corresponds to a rock density of 2.622 g/cc. This density is an average of all the drill core samples tested and is probably fairly representative of the material crossed by the traverses.

Terrain corrections were made with the standard Hammer technique using Zone B through Zone L, which compensates for terrain from a radius of about 6.6 feet out to about 9.2 miles from each station. The 2.622 g/cc density was used as the terrain correction density. The 1"=400' Kerr McGee topographic maps were used for the inner zones and the appropriate U.S.G.S. 1:24,000 and 1:62,500 topographic quadrangles were used for the outer zones.

Latitude corrections were made based on the station locations relative to 31°30' north latitude. The correction factor amounts to -1.1645 milligals per mile north.

Drill core specific gravity (density) measurements were made on water saturated samples which hopefully approximate the in situ bulk material densities.

Respectfully submitted,

Heinrichs GEOEXploration Co.

Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

CSL:mt
5/18/73
P.O. Box 5964 Tucson,AZ 85703

Specific Gravity

Red Mountain Core Samples

Porphyry - unoxidized, relatively near surface

Sample #	Specific Gravity
P-1S	2.59
P-2S	2.66
P-3S	2.67
P-4S	2.58

Average: 2.625

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Porphyry - from a greater depth

Sample #	Specific Gravity
P-5	2.62
P-6	2.61
P-7	2.68
P-8	2.55

Average: 2.615

Andesite - unoxidized and oxidized, below the breccia

Sample #	Specific Gravity	Sample #	Specific Gravity
A-1	2.51	A-14	2.65
A-2	2.62	A-15	2.57
A-3	2.59	A-16	2.63
A-4	2.61	A-17	2.79
A-5	2.64	A-18	2.72
A-6	2.70	A-19	2.71
A-7	2.65	A-20	2.77
A-8	2.62	A-21	2.66
A-9	2.73	A-22	2.77
A-10	2.75	A-23	2.64
A-11	2.70	A-24	2.64
A-12	2.70	A-25	2.70
A-13	2.59	A-26	2.68

Average: 2.667

Tuff and Tuff Breccia - oxidized and unoxidized

Sample #	Specific Gravity	Sample #	Specific Gravity
B-1	2.11	B-12	2.58
B-2	2.33	B-13	2.72
B-3	2.34	B-14	2.84
B-4	2.57	B-15	2.65
B-5	2.70	B-16	2.50
B-6	2.62	B-17	2.48
B-7	2.72	B-18	2.59
B-8	2.68	B-19	2.70
B-9	2.43	B-20	2.66
B-10	2.54	B-21	2.68
B-11	2.48		

Average: 2.568

Average of all determinations: 2.622

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25% COTTON FIBER USA

J&B # 800

3-5-73

1

SAN RAFAEL VALLEY

LN1 GOING SOUTH TO STA. 16

STA.	TIME	RD.
BS	12:05	1085.5
B.S	:16	1085.1
12	:21	1050.8
13	12:26	1024.7
14	:29	1015.6
15	:34	1029.0
16	:40	1024.8
BS	12:47	1085.3

L2 GOING EAST TO STA 14

B.S	13:36	10:83.6
1	:40	1081.1
2	:46	1079.1
3	13:56	1055.8
4	14:04	1066.4
5	:08	1013.4
6	:20	1007.0
7	:32	1014.7
8	:37	977.0
9	:43	930.0
10	:47	919.6
11	:51	905.0
12	:54	881.2
13	14:57	879.0
14	15:03	847.9
B.S	15:29	1084.7

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3-5-73

(2)

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LN 1 GOING NORTH TO STA. 11

STA	TIME	RD.
BS	15:34	1084.7
1	:38	1100.9
2	:42	1109.9
3	:46	1110.4
4	:49	1100.4
5	15:57	1087.6
6	16:02	1077.9
7	:07	1057.2
8	:12	1047.5
9	:16	1037.1
10	:22	1001.6
11	:27	1033.6
B.S	16:48	1085.4

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3

LN 2 GOING WEST TO STA 25

STA	TIME	RD
B.S	8:45	1091.8
B.S	8:55	1091.7
15	8:59	1070.4
16	9:03	1064.9
17	9:07	1068.0
18	9:11	1067.3
19	9:15	1045.6
20	9:18	1043.3
21	:23	1000.1
22	:27	975.3
23	:31	981.7
24	:34	973.2
25	:38	949.7
B.S	9:50	1091.2
B.M 5010	9:58	1021.9 (4994 ELEVATION ON B.M)
B.S.	10:08	1090.3 (5010 " " MAP)

LN 4 GOING NORTH TO STA

25	10:21	950.0
1	:27	942.7
2	:32	968.8
3	:35	989.9
4	:40	1003.9
5	:43	997.7
6	:47	994.9
7	:51	971.2
8	10:55	907.5
25	11:08	949.7

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LN 2 GOING WEST TO STA. 38

~~TIME~~

STA	TIME	RD.
25	11:14	949.9
26	:18	1032.8
27	:22	1083.2
28	:26	1106.0
29	:32	1113.3
30	:37	1121.8
31	:49	1101.3
32	11:52	1073.4
33	12:02	1033.5
34	:07	1020.2
35	:14	1000.9
36	:21	9754
37	:24	955.2
38	12:30	923.3
25	12:57	949.9

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LN 3 GOING WEST TO STA. Remote. ALT

STA	TIME	RD.	ALT	TEMP
L1, 12	14:38	1055.8	4713	67
L3, 17	14:52	1015.0	4763	69
18	15:02	972.9	4818	70
19	15:11	955.3	4859	71
L1, 12	15:21	1056.2	4719	71

FOR READINGS AT BASE STA
(L1 STA 12) P.T.O.

BASE ALT

LN 2 STA 12

TIME	ALT.	TEMP
14:38	4714	68
:43	4717	69
:48	4719	69
:53	4720	70
14:58	4719	69
15:03	4719	68
:08	4719	68
:13	4719	67
:18	4721	65
15:23	4721	64

3-6-73

5

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LN 4 GOING SOUTH TO STA 13

STA	TME	RD
25	15:39	949.7
9	15:44	907.5
10	15:48	905.4
11	15:53	911.9
12	15:59	846.4
13	16:08	875.7
25	16:18	950.1

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(6)

LN 4 GOING EAST TO STA. 23

	STA.	TIME	RD.
L4	13	8:45	882.3
	14	:50	899.8
	15	:54	894.7
	16	8:57	877.4
	17	9:03	896.4
	18	:07	886.0
	19	:13	874.7
	20	:17	861.0
	21	:37	767.1
	22	:44	726.0
	23	9:50	698.2

LN 3 GOING EAST TO STA. 8

L3	1	10:02	828.7
	2	:06	844.0
	3	:10	856.6
	4	:15	786.5
	5	:19	790.1
	6	:23	800.0
	7	:32	844.9
L3	8	10:38	816.5
L4	13	10:50	881.3

L3 GOING EAST TO STA 13

	9	10:58	843.9
	10	11:03	868.4
	11	:07	873.8
	12	:12	908.3
L3,	13	:15	911.4
L4,	13	11:27	880.8

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BASE P1

NOGALES ARIZ

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BASE ALT

Sta.	Time	ALT	Dry
BM 5010	11:00	4816	78
BM 5010	11:11	4819	79
(Road junction in center of NW 1/4			
Sec 11)	11:17	4663	72
2	11:24	4665	65
3	11:48	4669	67
4	11:52	4670	67
5	12:00	4671	66
6	12:06	4691	65
Sta 6	12:12	4776	74
(Road junction in center of NW 1/4			
Sec 11)			
B5	12:36	4681	74
12	12:47	4681	69
13	12:53	4685	68
14	12:57	4684	71
15	13:01	4684	68
16	13:06	4689	65
Sta 16	13:12	4652	76
(Road junction in center of NW 1/4			
Sec 11)	13:19	4691	73
Line 2 Road junction in center of NW 1/4			
Sec 11	13:33	4689	66
	13:38	4691	64
	14:02	4698	63
	14:14	4700	62
	14:25	4702	63
	14:33	4700	62
	15:00	4805	72

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BASE ALT

Sta	Time	Alt	Dry
LINE 2		STA 5	
6	15:55	4811	70
7	16:15	4809	70
8	16:20	4810	69
9	16:24	4809	71
10	16:29	4803	66
LINE 2		STA 10	
10	16:45	4965	68
11	16:49	4965	66
12	16:54	4968	68
13	16:59	4965	68
14	17:03	4965	66
L 2 Sta 14	17:08	5111	65 ← LINE 2 STA 14
ROAD JUNCTION IN CENTER of NW 1/4			
Sec 11	17:33	4695	63
LINE #2 ROAD JUNCTION IN center of NW 1/4 Sec. 11 Elev. 4868 (BASE STA)			
BS	8:08	4540	48
15	8:15	4541	41
16	8:20	4541	39
17	8:24	4541	39
18	8:28	4539	39
19	8:32	4537	39
LINE #2		STA # 19	
19	8:38	4629	48
20	8:49	4622	45
21	8:54	4622	44
22	8:58	4622	43
23	9:03	4621	43
24	9:08	4621	43

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BASE ALT

		TIME	ALT	TEMP	
LINE # 2		STA # 24			
	24	9:15	4718	54	
	25	9:21	4718	51	
	26	9:26	4717	51	
	27	9:32	4719	51	✓
	28	9:36	4720	50	
	29	9:49	4720	50	
LINE # 2		STA # 29			
	29	10:00	4513	59	
ROAD JUNCTION IN center of NW 1/4		Sec. 11	Elev.	4868	
		10:19	4549	62	
LINE # 1		STA # 6			
	6	10:58	4668	67	
	7	11:05	4669	67	
	8	11:09	4669	66	✓
	9	11:13	4668	67	
	10	11:19	4653	67	
	11	11:24	4649	67	
LINE # 1		STA # 11			
		11:35	4802	73	
Line #1 ROAD JUNCTION IN CENTER OF NW 1/4 Sec. 11		Elev 4868			
		11:55	4561	71	
LINE # 2		STA # 29			
	29	12:14	4552	73	
	30	12:25	4549	73	✓
	31	12:31	4549	71	
	32	12:37	4551	70	
	33	12:45	4561	71	

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BASE ALT

		TIME	ALT	TEMP
LINE #2		STA	33	
	33	13:00	4727	77
	34	13:11	4729	73
	35	13:18	4734	70
	36	13:28	4735	70
LINE #2		STA#	36	
	36	13:40	4906	76
	37	13:47	4896	70
	38	13:54	4897	64
LINE #2		STA. #	38	
	38	14:04	4994	71
LINE #2	ROAD Junction in center of NW 1/4 Sec. 11		ECU 4868	
		14:44	4619	70
LINE # 4		STA #	25	(BASE STAT.)
	25	15:15	4838	72
	9	15:29	4834	68
	10	15:33	4835	67
	11	15:37	4836	67
	12	15:44	4838	67
	13	16:02	4839	66
LINE #4	STA#13	16:12	4879	71 LINE#4 STA#13
	14	16:22	4880	65
	15	16:25	4879	64
	16	16:28	4876	63
	17	16:34	4874	62
	18	16:39	4875	63
LINE #		4 STA #	18	
	18	16:49	4921	68
	19	16:53	4923	67
	20	16:56	4923	66

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~~P8~~ P5

BASE. ALT.

		Time	Alt	Temp
LINE #4		Sta # 18		
	21	17 25	4926	60
	22	17 30	4928	59
	23	17 33	4928	59
LINE #4		Sta # 23		
	23	17:47	5270	64
LINE #4		Sta 25 BASE		
		18:13	4837	62
LINE #3		Sta 1		
	1	8:30	5169	58
	2	8:35	5170	55
	3	8:38	5170	58
	4	8:44	5170	54
	5	8:48	5169	52
	6	8:53	5165	50
LINE #3		Sta #6		
	6	9:00	5102	57
		Sta #6		
	6	9:49	5105	67
	7	10:00	5125	64
	8	10:06	5124	63
	9	10 24	5125	62
	10	10 27	5122	61
	11	10 31	5119	60
LINE #3		Sta # 11		
	11	10 45	4882	68
	12	10 50	4891	69
	13	10:56	4890	70
	14	1102	4889	71
	15	11:06	4891	72

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BASE · ALT ·

		Time	Alt	Temp
LINE #3		Sta #11		cont
	16	11:09	4891	70
LINE #3		Sta # 16		
	16	11:18	4813	76
LINE # 4		STA. # 25 (line 2)		
	25	13:08	4880	75
	1	13:12	4881	76
	2	13:16	4881	76
	3	13:20	4887	77
	3 4	13:32	4899	74
	4 5	13:37	4903	72
	5 6	13.42	4903	72
	6 7	13:47	4907	72
	7 8	13:52	4906	70
	8 8	13:57	4907	70
LINE#4 STA 8		14:07	5178	73 LINE#1 STA 8
LINE#4		STA. #25 (line 2)		
	25	14:11	4881	73
LINE #3		Sta # 16		cont.
dk →	16	14:33	4840	75
	17	14:38	4839	75
	18	14:43	4839	75
		14:48		
		14:53		
		14:58		
		15:03		
		15:08		
		15:13		
		15:18		
		15:23		

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p7

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BASE ALT

	TIME	ALT	TEMP
LINE #3 Sta #1	1540	5197	65

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Remote ALT

BASE
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STA	TIME	ALT	DRY	WET
BM5010	11:00	4800	61	49
ROAD JUNCTION IN CENTER OF NW 1/4				
SEC. 11 ELEV 4868				
	11:11	4652	64	50
	11:17	4650	65	51
LINE # 1				
STA 2	11:24	4679	66	
#3	11:48	4694	69	
#4	11:52	4713	64	
#5	12:00	4728	65	
#6	12:06	4761	69	52
#6	12:19	4766	71	53
ROAD JUNCTION IN CENTER of NW 1/4				
SEC. 11		ELEV	4868	
	12:36	4666	70	51
LINE #2				
STA #12	12:47	4671	68	
#13	12:53	4689	71	
#14	12:57	4669	71	
#15	13:01	4633	69	
#16	13:06	4639	66	51
16	13:12	4639	70	56
ROAD JUNCT	13:19	4680	66	49
CENTER NW 1/4 SEC 11 ELEV 4868				ROAD JUNCT
" "	13:33	4677	69	52
LINE # 2				
STA. #1	13:38	4676	66	
#2	14:02	4683	70	
42 #3	14:14	4724	72	
#4	14:25	4703	68	

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pg 2

Remote

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STA	TIME	ALT	DRY	WET
LINE #2				
STA #5	14:33	4788	67	50
#5	15:00	4788	65	51
#6	15:55	4789	65	
#7	16:15	4784	67	
#8	16:20	4842	68	
#9	16:24	4925	67	
#10	16:29	4958	64	48
10	16:45	4959	65	50
#11	16:49	4987	66	
#12	16:54	5038	63	
#13	16:59	5050	64	
#14	17:03	5100	62	48
	17:08	5100	65	51
ROAD JUNCTION in center of NW1/4				
SEC 11	ELEV	4868		
	17:33	4678	61	48
ROAD JUNCTION in center of NW1/4				
Sec 11	Elev.	4868		
	8:08	4525	46	42
LINE 2				
#15	8:15	4565	45	
#16	8:20	4568	47	
#17	8:24	4575	49	
#18	8:28	4580	49	
#19	8:32	4611	48	44
#19	8:38	4611	52	46
[redacted]	[redacted]	[redacted]	[redacted]	
#20	8:49	4605	54	

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Remote

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Stn	Time	Alt	Dry	Wet
LINE 2 CONT.				
21	8:54	4665	53	
22	8:58	4695	52	
23	9:03	4689	51	
23	9:08	4705	53	47
24	9:15	4700	54	47 ✓
25	9:21	4730	57	
26	9:26	4689	54	
27	9:32	4521	56	
28	9:36	4505	57	
29	9:49	4495	56	48
29	10:00	4503	60	49
Road junction in center of NW¼				
SEC 11	10:19	4521	65	50
LINE 1				
#6	10:58	4625	68	50
#7	11:05	4689	70	
#8	11:09	4705	68	✓
#9	11:13	4789	69	
#10	11:19	4820	68	
#11	11:24	4781	68	50
#11	11:35	4789	68	50
Road junction in center of NW¼				
SEC 11	11:55	4540	67	48
LINE 2 CONT.				
29	12:14	4538	69	50
30	12:25	4525	72	
31	12:31	4572	79	✓
42 32	12:37	4629	71	
33	12:45	4700	73	

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Pg. 4.

Remote

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LINE 2 cont

Sta	Time	Alt	Dry	Wet
33	13:00	4708	75	54
34	13:11	4746	74	
35	13:18	4813	69	
36	13:28	4870	69	48
36	13:40	4871	76	51
37	13:47	4912	74	
38	13:54	4977	75	52
38	1404	4976	71	60

Road junction in center of NW ¼

SEC 11	14:44	4598	72	62

LINE #4 south

25	15:15	4809	72	61
9	15:29	4855	69	
10	15:33	4851	70	
11	15:37	4835	70	
12	15:44	4919	70	
13	16:02	4862	69	
13	16:12	4860	72	
14	16:22	4839	68	
15	16:25	4808	67	
16	16:28	4900	66	
17	16:34	4881	66	
18	16:39	4905	67	
18	16:49	4906	65	
19	16:53	4929	65	
20	16:56	4950	64	
21	17:25	5095	66	
22	17:30	5169	66	
23	17:33	5250	65	
23	17:47	5250	62	

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LINE 4 CONT

Sta	Time	Alt	Dry
25	18:13	4820	62

LINE 3

Sta	#1	Time	Alt	Dry	
1	#1	8:30	5153	56	(BASE)
	#2	8:35	5129	57	
	#3	8:38	5079	56	
	#4	8:44	5142	57	
	#5	8:48	5121	57	
	#6	8:53	5087	58	
	#6	9:00	5087	57	
	#6	9:49	5088	64	
	#7	10:00	5013	63	
	#8	10:06	5042	66	
	#9	10:22	4922	65	
	#10	10:27	4873	66	
	#11	10:31	4858	66	
	#11	10:45	4859	66	
	#12	10:50	4810	67	
	#13	10:56	4812	67	
	#14	11:02	4828	65	
	#15	11:06	4807	65	
	#16	11:09	4798	66	
	#16	11:18	4809	68	
	~~#17~~	~~11:25~~	~~4641~~	~~70~~	
	~~#18~~				
	#16	14:33	4819	72	
	#17	14:58	4631	73	
	#18	15:03	4609	70	
	#19	15:11	4649	69	

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... Remote
~~BASE~~ ACT

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Sta	Time	Alt	Temp
LINE #4 STA #25			
#25	13:08	4859	72
#1	13:12	4889	70
#2	13:16	4871	72
#3	13:20	4871	70
#3	13:32	4875	72
#4	13:36	4880	73
#5	13:40	4920	70
#6	1343	4961	68
#7	13:47	5033	66
#8	13:51	5155	68
#8	14:01	5164	71
#25	14:11	4870	73

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Remote
~~Base~~ Alt

P7

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		Time	Alt	Temp.
Line #3		STA #1		(Base)
	#1	15:40	5782	68

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Tot 800 Red Stn.

Latitude correction

avg φ (latitude) ~ 31°30'N

$= 31.5°$

$1.307 \sin 2\varphi = \underline{1.1645}$

0.09406

-0.01276ρ $\qquad \rho \simeq 2.622$

$\underline{0.06060}$ ~~mgals/ft~~

elevation factor

Terrain adjustment factor from
2.33 g/cc → 2.622 g/cc

= ×1.125

Tot 800 Red Otta.

Job 800 RED MOUNTAIN GRAVITY SURVEY

WILSON JONES G 7112

	Stat	Time		1 Meter Read	2 Step Cor	2 Drift	3 Corrected Meter Read	4 m Gals (3) x 0.1014	5	6 31.5° Lat. Corr.	7 Lat. Corr (6) x 1.1645 mgl/mile	8 Elevation in feet	9 Elev Corr. (8) x 0.06060	10 BOUGUER GRAVITY (4) − (7) + (9)	11 TERRAIN CORRECTION	12 T.C. Gravity (10)+(11)	−390 100
1	RM 17	11:27	E/W	217.7	−17.7	0	200.0	20.28		1370	0.30	6101.1	369.73	389.71		B.G. T.C.B.G.	1
2	G 1	11:33		259.1		−.2	241.2	24.46		1550	0.34	6055	366.93	391.05	10.50	1.05 11.55	2
3	G 2	11:39		368.5		−.3	350.5	35.54		1690	0.37	5890	356.93	392.10	8.98	2.10 11.08	3
4	G 3	11:44		457.0		−.4	438.9	44.50		1750	0.39	5790	350.87	394.98	8.02	4.98 13.00	4
5	G 4	11:57		517.3		−.6	499.0	50.60		1720	0.38	5680	344.21	394.43	7.54	4.43 11.97	5
6	G 5	12:18		578.5		−1.0	559.8	56.76		1615	0.36	5600	339.36	395.76	8.49	5.76 14.25	6
7	G 6	12:33		765.5		−1.3	746.5	75.70		1580	0.35	5290	320.57	395.92	6.03	5.92 11.95	7
8	G 7	12:56		996.6		−1.7	977.2	99.09		1590	0.35	4945?	299.67	398.41	—		8
9	B 3	13:04		1024.8		−1.8	1005.3	101.94		1510	0.33	4910	297.55	399.16	3.77	9.16 12.93	9
10																	10
11	B 3	13:35		1024.8	−19.5	0	1005.3	»									11
12	G 8	13:54		1175.2		+.8	1156.5	117.27		1610	0.36	4660	282.40	399.31	3.09	9.31 12.40	12
13	B 1	14:20		1349.9		+1.7	1332.1	135.07		1630	0.36	4386	265.79	400.50	2.93	10.50 13.43	13
14																	14
15	B 1	14:20		1349.9	−17.8	0	1332.1	»									15
16	G 9	14:31		1343.5		−.3	1325.4	134.40		1610	0.36	4398	266.52	400.56	2.64	10.56 13.20	16
17	B 1	14:41		1350.5		−.6	1332.1	—									17
18																	18
19	RM 17	9:40		219.9	−19.9	0	200.0	—									19
20	G 1	9:51		261.6		−.2	241.5	24.49		1550	0.34	6055	366.93	391.08	10.50	1.08 11.58	20
21	G 10	10:30		497.4		−.9	476.6	48.33		1480	0.33	5720	346.63	394.63	6.80	4.63 11.43	21
22	G 11	11:00		692.8		−1.4	671.5	68.09		1620	0.36	5445	329.97	397.70	5.28	7.70 12.98	22
23	B 11	11:10		715.2		−1.5	693.8	70.35		1780	0.39	5430	329.06	399.02			23
24																	24
25	RM 17	11:55		222.8	−22.8		200.0	—									25
26	B 9	12:12		~~[illegible]~~				51.44		1670	0.37	5665	343.30	394.37	9.47	4.37 13.84	26
27	G 12	12:36		594.3			571.5	57.95		1620	0.36	5560	336.94	394.53	6.80	4.53 11.33	27
28	G 13	1:09		663.3			640.5	64.95		1650	0.36	5465	331.18	395.77	7.32	5.77 13.09	28
29	RM 17	1:40	E/W	222.9		−0.1	200.0	—									29
30																	30
31																	31

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Job 800 RED MOUNTAIN GRAVITY SURVEY

WILSON JONES G 7112

	Stat	Time		1 Meter Read	2 Step cor.	Drift	3 Corrd Meter Read.	4 mgals (3)×0.1014	5	6 feet N of 31.5° lat	7 Lat Corr. (6)×1.1645	8 Elevation in feet	9 Elev. Corr. (8)×0.0606	10 Bouguer Gravity	11 Terrain Correction	12 T.C. Gravity (10+(11))
1	B 7	2:19	E/W	1534.2	-23.7	0	1510.5	153.16		1940	0.43	4040 ~	244.82	397.56	1.94	7.56 9.50
2	B 12	2:57		837.9		+.1	814.3	82.57		1630	0.36	5202	315.24	397.45	6.66	7.45 14.11
3	G 14	3:25		928.7		+.2	905.2	91.79		1520	0.34	5066	307.00	398.45	6.59	8.45 15.04
4	G 15	3:47		1185.8		+.3	1162.4	117.87		1700	0.37	4640	281.18	398.68	3.86	8.68 12.54
5	G 16	4:17		1433.9		+.3	1410.5	143.02		1730	0.38	4200	254.52	397.16	6.68	7.16 13.84
6	G 17	4:35		1456.0		+.4	1432.7	145.28		2020	0.45	4150	251.49	396.32	6.28	6.32 12.60
7	G 18	4:51		1491.1		+.4	1467.8	148.83		2155	0.48	4105	248.76	397.11	4.48	7.11 11.59
8	G 19	5:05		1501.0		+.5	1477.8	149.85		2000	0.44	4075	246.95	396.35	2.86	6.35 9.21
9	G 20	5:18		1514.7		+.5	1491.5	151.24		2000	0.44	4060 ~	246.04	396.84 ~	2.04	4.84 8.88
10	G 21	5:31		1528.9		+.5	1505.7	152.68		2070	0.46	4050 ~	245.43	397.65	1.98	7.65 9.63
11	B 7	5:43	E/W	1533.7		+.5	1510.5	—								
12																
13	B 8	10:47	N/S	494.9	-48	0	446.9	45.32		270	0.06	5778	350.15	395.41	8.12	5.41 13.53
14	G 22	11:49		835.5		-.6	786.9	79.79		-780	-0.17	5250	318.15	398.11	7.08	8.11 15.19
15	G 23	12:26		887.4		-.9	838.5	85.02		-1650	-0.36	5210	315.73	401.11	5.54	11.11 16.65
16	G 24	12:48		1143.9		-1.1	1094.8	111.01		-2580	-0.57	4770	289.06	400.64	3.80	10.64 14.44
17	G 25	13:07		1142.0		-1.3	1092.7	110.80		-3700	-0.82	4796	290.64	402.26	2.32	12.26 14.58
18	G 26	13:29		1284.6		-1.5	1235.1	125.24		-4730	-1.04	4515	273.61	399.89	4.56	9.89 14.45
19	G 27	13:59		1214.1		-1.8	1164.3	118.06		-5670	-1.25	4637	281.00	400.31	4.25	10.31 14.56
20	G 28	14:14		1243.1		-1.9	1193.2	120.99		-6255	-1.38	4575	277.25	399.62	4.86	9.62 14.48
21	G 29	14:29		1215.9		-2.0	1165.9	118.22		-6895	-1.52	4608	279.24	398.98	4.38	8.98 13.36
22	G 30	14:46		1160.8		-2.2	1110.6	112.61		-7420	-1.64	4725	286.34	400.59	3.96	10.59 14.55
23	B 4	15:03		1126.1		-2.3	1075.8	109.09		-8220	-1.81	4785	289.97	400.87	2.52	10.87 13.39
24																
25	B 11	16:35		744.7	-50.9	0	693.8	70.35								
26	G 31	16:45		752.3		-.2	701.2	71.10		1200	0.26	5413	328.03	398.87	5.75	8.87 14.62
27	G 32	17:02		944.4		-.4	893.1	90.56		2250	0.50	5090	308.45	398.51	6.38	8.51 14.89
28	B 11	17:21	N/S	745.3		-.6	693.8	—								
29																
30																
31																

MADE IN U.S.A.

JOB 800 RED MOUNTAIN GRAVITY BASE STATIONS (set to RM17 = "200")

WILSON JONES G 7112

	Stat	Time	Meter Read.	Step Cor.	Drift	Corrected Meter Read		mgals (3) x 0.1014	Lat. N 1 31.5° lat.	Lat. Cor. (6) x 1.1645	Elev. in feet	Elev. Cor. (8) x 0.0606	Bouguer Gravity	Terrain Cor.	F.C. grav. (10)+(11)
1	RM 17	12:41	195.1	+4.9	0	200.0		20.28							
2	B1	13:12	1327.5		-.3	1332.1		135.07							
3	B1	13:18	1327.6		-.4	1332.1	← B1	"							
4	B2	13:33	1481.0		-.5	1485.4	← B2	150.62							
5	B3	13:58	1001.1		-.7	1005.3	← B3	101.94							
6	RM 17	14:20	196.4	1.05	-1.3	200.3		20.31							
7	RM 17	14:26	195.9		-0.8	199.8		20.26							
8															
9	B1	8:31	1335.4	-3.3	0	1332.1		135.07							
10	B4	9:00	1079.2		-.1	1075.8	← B4	109.09							
11	B5	9:28	1028.2		-.1	1024.8	← B5	103.91							
12	B1	9:58	1335.6		-.2	1332.1									
13															
14	B1	9:58	1335.6	-3.5	0	1332.1									
15	B6	10:18	1562.3			1558.8	← B6	158.06							
16	B7	10:37	1514.0			1510.5	← B7	153.16							
17	B1	10:57	1335.6		0	1332.1									
18															
19	RM 17	15:14	218.6	-18.6	0	200.0									
20	B8	15:30	465.5			446.9	← B8	45.32							
21	B9	15:44	525.9			507.3	← B9	51.44							
22	RM 17	16:04	218.6	-18.6	0	200									
23															
24	RM 17	16:04	218.6	-18.6	0	200.0									
25	B10	16:35	613.4		+.4	595.2	← B10	60.35							
26	B11	17:01	711.2		+.6	693.8	← B11	70.35							
27	RM17	17:20	217.8		+.8	200	Note 1312								
28	B1	1:57	1358.0	-25.9	0	1332.1	for Alt. survey only								
29	B13	2:25	1400.1		-.4	1373.8	← B13	139.30							
30	B14	2:46	1349.5		-.8	1322.8	← B14	134.13							
31	B1	3:31	1359.3		-1.3	1332.1									

711.2
18.6
692.6
693.4

MADE IN U.S.A.

Job 800 RED MOUNTAIN GRAVITY SURVEY

WILSON JONES G 7112

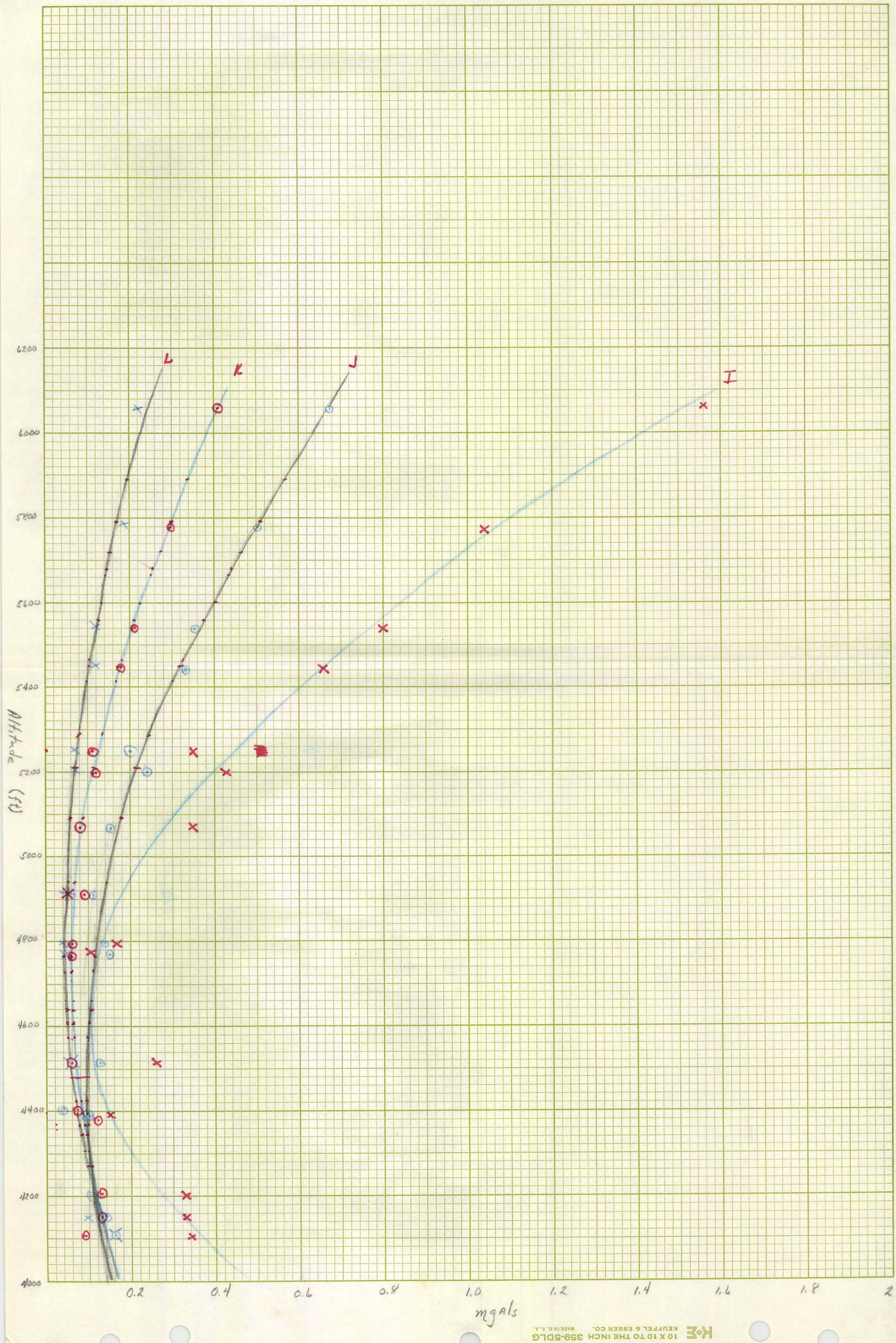
	Stat	Time	Meter Read	Step Corr	Drift	Corrected Meter Reading	mgals X 0.1014		feet N of 31.5° lat	Lat. Corr. (6) X 1.1645	Elev. in feet	Elev. Corr. (8) X 0.06060	Bouguer Gravity	Terrain Corr.	T.C. grav. (10)+(11)	
			1	2		3	4	5	6	7	8	9	10	11	12	
1	B 10	9:35	650.0	-54.8	0	595.2	60.35		3250	0.72	5540	335.72	395.35	7.90	5.35 13.25	1
2	G 33	10:13	713.5		+1.5	660.2	66.94		4380	0.97	5430	329.06	395.03	6.56	5.03 11.59	2
3	G 34	10:47	1040.6		+2.7	988.5	100.23		5260	1.16	4940	299.36	398.43	5.14	8.43 13.57	3
4	G 35	11:28	1242.2		+4.3	1191.7	120.84		6255	1.38	4605	279.06	398.52	3.83	8.52 12.35	4
5	G 36	11:50	1331.8		+5.1	1282.1	130.00		7140	1.57	4480	271.49	399.92	3.99	9.92 13.91	5
6	G 37	12:00	1364.2		+5.5	1314.9	133.33		8190	1.81	4422	267.97	399.49	2.63	9.49 12.12	6
7	B 14	12:07	1371.9		+5.7	1322.8	134.13		8375	1.85	4405	266.94	399.22	2.82	9.22 12.04	7
8																8
9	B 14	12:07	1371.9	-49.1	0	1322.8	"									9
10	G 38	12:44	1381.3		-.9	1331.3	134.99		9245	2.04	~ 4368	264.70	397.65	2.06	7.65 9.71	10
11	G 39	12:53	1388.1		-1.1	1337.9	135.66		10200	2.25	4352	263.23	397.14	1.22	7.14 8.36	11
12	G 40	1:03	1407.2		-1.3	1356.8	137.58		11185	2.47	4305	260.88	395.99	1.20	5.99 7.19	12
13	B 13	1:17	1424.5		-1.6	1373.8	139.30		12040	2.66	4272	258.88	395.52	1.10	5.52 6.62	13
14																14
15																15
16																16
17																17
18																18
19																19
20																20
21																21
22																22
23																23
24																24
25																25
26																26
27																27
28																28
29																29
30																30
31																31

MADE IN U.S.A.

4		3
1	6.1	6
8	21	8
10		2
12		1
2		1
5		1
7		2
16		18
7		3
3		11
2		2
4		10
10		0
4		10
16		3
-		0
4		13
3		0
2		2
0		0
		1
		0
		0

$$\begin{array}{r} 4.25 \\ 24\overline{)97} \\ \underline{96} \\ 100 \end{array}$$

$$\begin{array}{r} 128 \\ 97 \\ \hline 45\overline{)225} \\ \underline{\pm 8} \end{array}$$



K+E 10 X 10 TO THE INCH 359-5DLG KEUFFEL & ESSER CO. MADE IN U.S.A.

G-24

Elev: (~ 4770)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	9	4780	4785	4765	4770								
		10 3	15 5	5 1	0								
C		4820	4810	4835	4800	4750	4875						
	35	50 5	40 4	65 8	30 2	20 1	105 15						
D		4950	4900	4940	4765	4715	4900						
		180 20	130 12	170 19	5 0	55 2	130 12						
E	65	5175	5030	4975	4830	4675	4720	4825	5000				
		405 22	260 10	395 22	60 1	95 1	50 0.1	55 0.5	230 8				
F	79	5675	5150	4875	4675	4575	4550	4680	5200				
		905 48	390 10	105 1	95 1	195 3	220 3	90 1	430 12				
G	48.8	5775	5700	5300	5000	4900	4950	4800	5000	5025	4475	5150	5700
		1005 14	930 12	530 4	230 1	130 0.3	180 0.5	30 0	230 1	255 1	295 1	380 2	930 12
H	22.1	5700	5650	4950	4800	5075	4950	5325	5100	4500	4900	4400	4975
		930 7	880 7	180 0.3	30 0	305 1	180 0.3	555 3	330 1	270 1	130 0.1	370 1	205 0.4
I	0.1 9.6	4950	4450	4625	4850	5000	5325	5525	4600	4800	4200	4250	4500
	13 14 15 16	180 0.2	320 0.5	145 0.1	80 0	230 0.3	555 2	755 3	170 0.1	30 0	570 2	520 1	270 0.4
J	12.7 4100 4050 4050 4050	4200	4500	4600	4600	4750	4950	5100	5500	6250	5600	4600	4200
	0.1 670 1 720 1 720 1 720 1	570 1	270 0.1	170 0.1	170 0.1	20 0	280 0.1	330 0.2	730 1	1480 4	230 1	170 0.1	570 1
K	6.5 4000 4200 4400 4400	4250	4500	4800	5000	5025	5000	5300	5600	5500	4800	4300	4275
	0.0 770 1 570 0.4 370 0.2 330 0.2	520 0.3	270 0.1	30 0	230 0.1	255 0.1	230 0.1	530 0.3	830 1	730 1	30 0	470 0.3	495 0.3
L	4000 4400 5000 4800	4375	5250	5200	5000	5000	5000	5250	6000	4600	4200	4000	4000
	3.4 770 370 230 30	395 0.1	480 0.2	430 0.1	230 0	230 0	230 0	280 0.1	1230 1	170 0	570 0.3	770 0.5	770 0.5
	0.5 0.1 0 0												

0.01

3.38 → 3.80

MADE IN U.S.A.

G-25

Elev: (~ 4796)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
1	B	4796	4796	4795	4794								
2	0.2	0 0	0 0	1 0	2 0.2								
3	C	4760	4815	4780	4780	4793	4775						
4	7	36 3	19 1	16 1	16 1	3 0	21 1						
5	D	4735	4825	4715	4700	4750	4690						
6	26	61 3	29 1	81 5	96 7	46 2	106 8						
7	E	4900	4940	4725	4625	4600	4620	4630	4750				
8	26.3	104 2	144 3	71 1	171 5	196 6	176 5	166 4	46 0.3				
9	F	5150	4875	4870	4975	4640	4575	4675	4875				
10	18.2	354 9	79 0.4	74 0.4	179 2	156 2	221 3	121 1	79 0.4				
11	G	5900	5450	4950	5100	5025	4900	5025	5025	4900	4525	5000	5625
12	0.46 32.8	1104 17	654 6	154 0.4	304 1	229 1	104 0.2	229 1	229 1	104 0.2	271 1	204 1	829 10
13	H	5850	5575	4700	4800	5100	4950	5350	5125	5100	4800	5250	5200
14	0.28 24.3	1054 10	779 5	96 0.1	4 0	304 1	154 0.2	554 3	329 1	304 1	4 0	454 2	404 1
15	I 14.8	5150	4575	4600	4800	4975	5300	5750	5600	4850	4150	4225	4625
16	0.17 13 14 15 16	354 1	221 0.3	196 0.2	4 0	179 0.2	504 1	954 5	804 3	54 0	646 2	571 2	171 0.1
17	J 12 4100 4000 4000 4050	4250	4500	4600	4600	4750	4900	5375	5500	6150	5600	4600	4200
18	0.19 796/1 796/1 796/1 796/1	546 0.5	296 0.2	196 0.1	196 0.1	46 0	104 0	579 1	704 1	1354 3	804 1	196 0.1	596 1
19	K 3.3 4000 4200 4400 4400	4250	4500	4800	5000	5025	5000	5300	5600	5500	4800	4300	4275
20	0.06 796/1 596/0.4 396/0.2 396/0.2	546 0.4	296 0.1	4 0	204 0	229 0.1	204 0	504 0.3	804 1	704 1	4 0	496 0.3	521 0.3
21	L 4000 4400 5000 4800	4375	5250	5200	5000	5000	5000	5250	6000	4600	4200	4000	4000
22	3.5 796/0.6 396/.1 204/0 4/0	421 .1	454 .2	404 .1	204 0	204 0	204 0	454 .2	1204 1	196 0	596 .3	796 .5	796 .5
23	0.04												
24													
25	177.4												
26													
27	2.06 → 2.32												
28													
29													
30													
31													

MADE IN U.S.A.

G-26

Elev: (~ 4515)

WILSON JONES G 7112

		(4515)	1	2	3	4	5	6	7	8	9	10	11	12
1	B	2.2	4517	4520	4510	4515								
2			2 0.2	5 1	5 1	0 0								
3	C	18	4530	4540	4575	4570	4530	4530						
4			15 1	25 2	60 7	55 6	15 1	15 1						
5	D	54.5	4625	4590	4725	4640	4490	4600						
6			110 8	75 4	210 25	125 11	25 0.5	85 6						
7	E	52.4	4740	4670	4900	4850	4600	4550	4550	4710				
8			225 8	155 4	385 17	335 16	85 1	35 0.2	35 0.2	195 6				
9	F	63	4900	4850	4900	4920	4750	4910	4750	4775				
10			385 10	335 8	385 10	405 11	235 4	395 11	235 4	260 5				
11	G	21.1	5650	5200	5000	5025	5125	4900	5300	5025	5000	4950	4600	5100
12	0.71		1135 16	685 7	485 3	510 4	610 5	385 2	785 9	510 4	485 3	435 3	85 0.1	585 5
13	H	53.4	5800	5350	4700	4850	5150	5025	5425	5400	5200	4800	4600	5400
14	0.62		1285 14	835 6	185 0.3	335 1	635 4	510 2	910 7	885 7	685 4	285 1	85 0.1	885 7
15	I	22.2	5175	5000	4625	4800	5050	5300	5800	5600	4800	4400	4350	4675
16	0.26	13 14 15 16	660 2	485 1	110 0.1	285 0.4	535 1	785 3	1285 8	1085 6	285 0.4	115 0.1	165 0.1	160 0.1
17	J	4080 4000 4000 4150	4250	4400	4500	4625	4750	5000	5375	5500	6000	5600	4700	4250
18	11.3 0.13	435/0.3 515/0.5 515/0.5 365/0.2	265 0.1	115 0	15 0	110 0	235 0.1	485 0.4	860 1	985 2	1485 4	1085 2	185 0.1	265 0.1
19	K	4000 4200 4400 4400	4250	4500	4800	5000	5025	5000	5300	5600	5500	4800	4300	4275
20	4.8 0.06	515/0.3 315/0.1 115/0 115/0	265 0.1	15 0	285 0.1	485 0.3	510 0.3	485 0.3	785 1	1085 1	985 1	285 0.1	215 0.1	240 0.1
21	L	4000 4400 5000 4800	4375	5250	5200	5000	5000	5000	5250	6000	4600	4200	4000	4000
22		515/ 115/ 485/ 285/	140	735	685	485	485	485	735	1485	85	315	515	515
23	4.8	0.2 0 0.2 0.1	0	0.4	0.4	0.2	0.2	0.2	0.4	2	0	0.1	0.2	0.2
24	0.06													
25														
26		4.05 → 4.56												
27														
28														
29														
30														
31														

MADE IN U.S.A.

G-27

4637

Elev. 4637

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	9.2	4650	4650	4632	4635								
		13 4	13 4	5 1	2 0.2								
C	24	4675	4700	4700	4680	4610	4620						
		38 3	63 7	63 7	43 4	27 2	17 1						
D	89	4735	4850	~~4800~~	4825	4670	4700	4560	4535				
		98 7	213 27	~~45~~ 163 17	188 21	33 1	63 3	77 5	102 8				
E	51.3	4700	5000	5050	4800	4680	4700	4730	4530				
		63 1	363 18	413 24	163 4	43 0.3	63 1	93 1	107 2				
F	39	4775	4850	5070	4850	5000	4950	4800	4750				
		138 1	213 3	433 13	213 3	363 9	313 7	163 2	113 1				
G	30.2	5150	5025	5075	5050	5100	4900	5400	5050	4925	4850	4525	4900
		513 4	388 2	438 3	413 3	463 3	263 1	763 8	413 3	288 1	213 1	112 0.2	263 1
H	42.7	5750	4950	4800	4900	5100	5100	5350	5600	5550	4700	4400	5450
		1113 11	313 1	163 0.2	263 1	463 2	463 2	713 4	963 8	913 7	63 0	237 0.5	813 6
I	21.2	5300	4975	4625	4825	5100	5400	5825	5600	4900	4325	4200	4800
		663 2	338 1	12 0	188 0.2	463 1	763 3	1188 7	963 5	263 0.4	312 0.5	437 1	163 0.1
J	.1												
K	.06												
L	.05												

3.78 → 4.25

MADE IN U.S.A.

G-28 4575

Elev: 4575

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	2	4580	4575	4575	4570								
		5 1	0 0	0 0	5 1								
C	14.1	4600	4620	4620	4580	4600	4550						
		25 2	45 4	45 4	5 0.1	25 2	25 2						
D	46	4660	4750	4775	4675	4675	4625						
		85 6	175 20	200 24	100 7	100 7	50 2						
E	71.1	4800	5050	4950	4740	4730	4750	4700	4550				
		225 8	475 28	375 20	165 4	155 4	175 5	125 2	25 0.1				
F	85.2	4750	4920	5115	4850	5200	5025	4950	4625				
		175 2	345 8	540 20	275 5	625 26	450 14	375 10	150 0.2				
G	37.5	5000	4950	5075	5100	5000	4975	5500	5050	4900	4975	4725	4700
		425 3	275 2	500 4	525 4	425 3	400 2	925 12	475 3	325 2	400 2	150 0.3	125 0.2
H	53.1	5750	5000	4800	4900	5100	5175	5350	5600	5800	4750	4900	5300
		1175 12	425 2	225 0.4	325 1	525 2	600 3	775 5	1025 9	1225 13	175 0.3	225 0.4	725 5
I	22.7												
		5000	5000	4675	4800	5100	5400	5900	5600	4800	4950	4250	4875
J	.1	425	425	100	225	525	825	1325	1025	225	375	325	300
K	.07	1	1	0.1	0.3	1	3	9	5	0.3	1	0.5	0.5
L	.05												

$\boxed{4.32}$ → 4.86

MADE IN U.S.A.

G-29 4608

Elev: 4608

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	1.2	4610	4615	4608	4607	[illegible]							
		2 0.2	7 1	0	1 0								
C	17.4	4640	4670	4650	4645	4620	4625						
		32 2	62 7	42 4	37 3	12 0.4	17 1						
D	47.1	4620	4800	4750	4655	4685	4680						
		12 0.1	192 23	142 14	42 1	77 5	72 4						
E	44.2	4800	4990	4940	4640	4680	4690						
		192 6	382 20	332 16	32 0.2	72 1	82 1						
F	97	4940	4975	5030	4875	5325	5175	4950	4985				
		332 8	367 9	422 12	267 5	717 32	567 22	342 8	123 1				
G	34.7	4900	4950	5025	5200	5000	5000	5500	5450	4950	4950	4750	4775
		292 1	342 2	417 3	592 5	392 2	392 2	892 11	542 4	342 2	342 2	142 0.3	167 0.4
H	45.4	5500	4900	4775	4925	5100	5300	5500	5700	5700	4900	4750	5200
		892	292	167	317	492	692	892	1092	1092	292	142	492
I	29.3	7	1	0.2	1	2	4	7	10	10	1	0.2	2
		5600	4975	4750	4875	5150	5475	5900	5680	4900	5000	4275	4900
J	1.0	992	367	142	267	542	847	1292	1072	292	392	333	292
K	0.06	6	1	0.1	0.4	2	4	8	6	0.4	1	1	0.4
L	0.05												

3.89 → 4.38

MADE IN U.S.A.

G-30 4725

Elev: 4725

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	11	4710	4725	4735	4715	[illegible]							
		15 5	0 0	10 3	10 3								
C	24	4675	4650	4710	4765	4750	4700						
		50 5	75 10	15 1	40 4	25 2	25 2						
D	25.1	4640	4720	4690	4850	4825	4715						
		85 6	5 0	35 1	125 11	100 7	10 0.1						
E	46.4	4750	4950	4760	4905	5100	5000	4825	4700				
		25 0.1	225 8	35 0.2	175 5	375 20	275 11	100 2	25 0.1				
F	70	5000	5075	4900	4950	5375	5250	4925	4575				
		275 5	350 8	175 2	225 4	650 28	525 18	200 3	150 2				
G	44.4	4775	4975	5025	5200	5000	5075	5375	5175	5100	4925	4700	4600
		50 0.2	250 4	300 6	475 15	275 5	350 2	650 6	450 3	375 2	200 1	25 0	125 0.2
H	40.6	5500	4900	4800	5000	5100	5300	5600	5850	5800	5050	4900	5000
		775 5	175 0.3	75 0	275 1	375 1	575 3	875 7	1125 11	1075 10	325 1	175 0.3	275 1
I	22.2	5600	4900	4725	4900	5200	5600	5900	5600	4900	5000	4300	4900
		875 4	175 0.2	0	175 0.2	475 1	875 4	1175 7	875 4	175 0.2	275 0.4	425 1	175 0.2
J	.11												
K	.06												
L	.04												

3.52 → 3.96

MADE IN U.S.A.

B-4

4785

Elev: 4785

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	5	4775	4780	4790	4785								
		10 3	5 1	5 1	0								
C	10.4	4772	4753	4765	4810	4825	4800						
		13 0.4	32 2	20 1	25 2	40 4	15 1						
D	14.2	4770	4800	4765	4850	4900	4760						
		15 0.2	15 0.2	20 0.3	65 3	115 10	25 0.5						
E	23.1	4930	4950	4840	4860	4950	5050	4825	4825				
		145 3	165 4	55 0.5	75 1	165 4	265 10	40 0.3	40 0.3				
F	54.5	5080	5140	5000	4975	5125	5425	4900	4700				
		295 6	355 9	215 3	190 3	340 8	640 24	115 1	95 0.5				
G	19.6	4850	5025	5000	5125	5100	5100	5100	5375	5075	5000	4750	4600
		65 0.1	240 1	215 1	340 2	315 1	315 1	315 1	590 5	290 1	215 1	35 0	185 0.5
H	29.4	5100	4900	4750	4975	5075	5300	5600	5800	5800	5125	4650	4900
		315 ≠	115	35	10	290	515	815	1015	1015	340	135	115
		1	0.1	0	0	1	2	6	9	9	1	0.2	0.1
I	22.2	5700	4650	4700	4900	5300	5575	5875	5800	5100	5275	4475	5300
		915	135	85	115	515	790	1090	1015	315	390	310	515
		4	0.1	0	0.1	1	3	6	5	0.5	1	0.5	1
J	.04												
K	.06												
L	.12												

2.24 → 2.52

MADE IN U.S.A.

B-8

5778

Elev: (~5778)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
1	B	5778	5772	5780	5775								
2	1.6	0 0	6 1	2 0.2	3 0.4								
3	C	5760	5780	5750	5740	5775	5770						
4	4.2	18 1	2 0	28 2	38 3	3 0	8 0.2						
5	D	5675 8	5800	5675	5740	5785	5765						
6	17.5	103 8	22 0.4	103 8	38 1	7 0	13 0.1						
7	E	5650	6000	5900	5500	5350	5550	5875	5550				
8	64	128 3	222 7	122 2	278 11	428 24	228 8	97 1	228 8				
9	F	5500	6050	5550	5150	4900	5150	5450	5150				
10	144	278 5	272 5	223 3	628 26	878 46	628 26	328 7	628 26				
11	G 1.36	5400	5950	5750	5200	5025	4825	4600	4600	4650	4850	4900	5100
12	116.4	378 2	172 0.4	28 0	578 5	753 8	953 13	1178 20	1178 20	1128 19	928 11	878 11	678 7
13	H 1.12	4900	5100	5400	4725	5000	4950	4900	5000	5000	4400	4300	4650
14	96	878 7	678 4	378 1	1053 10	778 5	828 6	878 7	778 5	778 5	1378 16	1478 19	1128 11
15	I 1.04	4325	4350	4700	4600	4800	5050	5400	5600	4400	4150	4150	4400
16	89.2 13 14 15 16	1153 11	1128 10	1078 6	1178 7	978 5	728 3	378 1	178 0.2	1378 10	1428 13	1628 13	1378 10
17	J 0.50 4000 4080 4160 4100	4300	4550	4600	4700	5050	5000	5250	5550	5500	5500	4450	4080
18	42.8 1178 6 1680 5 1628 5 1578 5	1428 4	1228 3	1178 2	1078 2	728 1	778 1	528 0.5	228 0.1	278 0.1	278 0.1	1328 3	1678 5
19	K 0.30 4250 4350 4400 4400	4250	4250	4825	4575	4850	5000	5200	5500	5500	5000	4560	4150
20	25.4 1528 3 1428 2 1378 2 1378 2	1578 3	1128 2	953 1	1203 2	928 1	778 1	578 0.4	278 0.1	278 0.1	778 1	1218 2	1628 3
21	L 0.19 4000 4500 5000 4800	4500	5500	5300	5175	5150	5000	5250	5500	4975	4300	4000	4000
22	14.5 1778 3 1278 1 978 0.5 978 1	1278 1	278 0.1	478 0.2	603 0.3	628 0.3	778 0.5	528 0.2	278 0.1	803 0.3	1478 2	1778 3	1778 3
23													
24													
25													
26	7.22 →	8.12											
27													
28													
29													
30													
31													

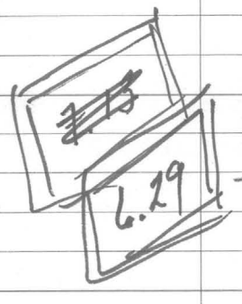
MADE IN U.S.A.

G-22 (5250) (cliff edge)

Elev: (~5250)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
1	B	5290	5250	5230	5260								
2	20	40 13	0 0	20 7	0 0								
3	C	5380	5400	5300	5225	5175	5290						
4	61	130 19	150 21	50 5	25 2	75 10	40 4						
5	D	5500	5550	5450	5225	5175	5350						
6	116.5	250 33	300 41	200 24	25 0.5	125 11	100 7						
7	E	5700	5800	5675	5210	5000	5000	5340	5680				
8	122.3	450 26	550 36	425 24	140 0.3	250 9	250 9	90 1	430 24				
9	F	5725	5780	5040	4900	4725	4775	5400	5700				
10	95	475 15	530 20	210 3	350 8	525 18	475 15	150 2	450 14				
11	G 0.45	5600	6000	5400	4975	4975	4850	4625	4625	4525	4775	5150	5200
12	38.4	350 2	750 8	150 0.3	275 1	275 1	400 3	625 6	625 6	725 8	475 3	150 0.1	50 0
13	H 0.28	4800	5650	5525	4725	5000	5000	5100	5000	4800	4400	4500	4700
14	23.7	450 2	400 1	325 1	525 2	250 0.5	250 0.5	150 0.2	250 0.5	450 2	850 6	750 5	550 3
15	I 0.35	4400	4400	4500	4775	4850	5100	5600	5600	4600	4200	4250	4675
16	30.1 13 14 15 16	850 4	850 4	750 3	475 1	400 1	150 0.1	350 1	350 1	650 2	1050 6	1000 5	575 2
17	J 4100 4100 4150 4080	4200	4500	4500	4625	4700	4800	5375	5500	6000	5675	4600	4200
18	17.5 1150/2 1150/2 1100/2 1170/2	1050 2	750 1	750 1	625 1	550 0.5	450 0.4	125 0	250 0.1	350 0.2	425 0.3	650 1	1050 2
19	K 4150 4225 4400 4400	4250	4500	4600	4875	5025	5000	5375	5600	5550	4800	4300	4175
20	9.3 1100/1 1025/1 850/1 850/1	1000 1	750 1	650 0.5	375 0.2	225 0.1	250 0.1	125 0.0	350 0.1	300 0.1	450 0.2	950 1	1075 1
21	L 0.07 4000 4500 5100 4800	4475	5400	5350	5000	5000	5000	5350	6000	4600	4200	4000	4000
22	6.3 1250/1 750/0.5 150/0 100/0.2	775 0.5	150 0	100 0	250 0.1	250 0.1	250 0.1	100 0	750 0.5	650 0.3	1050 1	1250 1	1250 1
23													
24													
25													
26													
27													
28													
29													
30													
31													



→ 7.08

MADE IN U.S.A.

B-10

Elev: (~5540)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
	5540												
B	18	5525	5550	5550	5520								
		15 5	10 3	10 3	20 7								
C	34	5425	5525	5575	5500	5500	5490						
		115 17	15 1	35 3	40 4	40 4	50 5						
D	84.3	5350	5525	5550	5400	5300	5375						
		190 23	15 0.2	10 0.1	140 13	240 31	165 17						
E	103.2	5475	5650	5725	5425	5100	4975	5200	5200				
		35 0.2	110 2	185 5	115 2	440 26	565 36	340 16	340 16				
F		5100	5650	5800	5775	5650	5200	4750	5000				
	90	440 13	110 1	260 5	235 4	110 1	340 8	790 38	540 20				
G		4800	5300	5600	5800	5600	5700	5300	5200	4900	4600	4550	4650
	57.6	740 8	240 1	60 0.1	260 1	60 0.1	160 0.4	240 1	340 2	640 6	940 13	990 14	890 11
H		4400	4600	4900	5350	4850	4950	4600	4500	4450	4400	4500	4400
	88.3	1140 11	940 8	640 4	190 0.3	690 4	590 3	940 8	1040 9	1090 10	1140 11	1040 9	1140 11
I	69	4200	4350	4400	4550	4700	5000	5100	5000	4200	4150	4200	4300
	13 14 15 16	1240 9	1190 7	1140 7	990 5	840 4	540 1	440 1	540 1	1240 8	1390 10	1240 8	1240 8
J	4000 4160 4250 4250	4214	4300	4600	5200	4600	4800	4800	5250	5900	5200	5350	4080
	1540 4 1390 3 1290 3 1290 3	1326 3	1240 3	940 2	340 0.2	940 2	740 1	740 1	290 0.1	360 0.2	340 0.2	190 0.1	1460 4
K	4350 4400 4400 4500	4250	4625	4600	4750	5050	4900	5150	5600	5750	4800	4500	4000
	1190 2 1140 2 1140 2 1040 1	1290 2	915 1	940 1	790 1	490 0.3	640 0.5	390 0.2	60 0	210 0.1	740 1	1050 1	1540 3
L	4150 4600 4900 4800	4600	5400	5300	5400	5100	5000	5200	5850	4300	4000	5000	4000
	1390 2 940 1 640 0.3 940 0.4	440 1	140 0	240 0	140 0	440 0.2	540 0.2	340 0.1	310 0.1	1240 1	1540 2	540 0.2	1540 2

0.20 0.35 29.8 18.1 0.21 6.12

7.02 → 7.90

MADE IN U.S.A.

G-38

4368

Elev: (~4368)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	1.4	4370	4368	4370	4372								
		2 0.2	0	2 0.2	4 1								
C	7	4385	4370	4370	4400	4395	4395						
		17 1	2 0	2 0	32 2	27 2	27 2						
D	3.5	4380	4400	4340	4380	4450	4340						
		12 0.1	32 1	28 1	12 0.1	18 0.3	28 1						
E	10.1	4460	4480	4390	4430	4370	4470	4500	4450				
		92 1	112 2	22 0.1	62 1	2 0	102 2	132 3	82 1				
F		4675	4650	4400	4270	4280	4350	4700	4500				
	21.6	307 6	282 5	32 0.1	98 1	88 0.5	18 0	332 8	132 1				
G		4200	4250	4500	4600	5300	5375	5000	4700	4475	4425	4250	4230
	44.7	164 2	118 1	132 1	232 4	982 14	1007 14	632 6	332 2	107 0.2	57 0	118 0.2	138 0.3
H		4150	4200	4250	4625	5575	5800	5225	4400	4440	4160	4150	4075
	38.5	218 0.4	167 0.2	148 0.1	257 1	1207 12	1432 17	857 6	32 0	72 0	208 0.4	218 0.4	293 1
I		4200	4575	4600	4400	4725	5000	4650	4225	4125	4000	4080	4200
	6.8	48 1	207 0.2	232 0.3	32 0	357 1	632 2	242 0.4	143 0.1	243 0.3	328 1	288 0.4	168 0.1

J -.10

K .09

L .08

1.83 → 2.06

MADE IN U.S.A.

B-14

Elev. (~4405)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
1	4.0 B	4410	4400	4400	4400	4415							
2		5 1	5 1	5 1	5 1								
3	4.5 C	4420	4430	4420	4410	4415	4400						
4		15 1	25 2	15 1	5 0.1	10 0.3	5 0.1						
5	9.7 D	4450	4480	4440	4430	4460	4420						
6		45 2	75 4	35 1	25 0.5	55 2	15 0.2						
7	22.3 E	4500	4450	4600	4525	4600	4600	4500	4400				
8		95 1	45 0.3	195 6	120 2	195 6	195 6	95 1	5 0				
9	59.6 F	4375	4600	4925	4975	4700	4775	4525	4325				
10		30 0.1	195 3	520 18	570 22	295 6	370 9	120 1	80 0.5				
11	49 G	4200	4300	4600	4850	5500	5500	5100	4750	4500	4500	4300	4250
12		205 1	105 0.2	195 1	445 3	1095 17	1095 17	695 7	345 2	95 0.1	95 0.1	105 0.2	155 0.4
13	44.5 H	4125	4200	4300	4600	5600	5975	5375	4640	4400	4320	4300	4100
14		280 1	205 0.4	105 0.1	195 0.3	1195 12	1570 21	970 8	235 0.5	5 0	85 0.1	105 0.1	305 1
15	5.2 I	4250	4500	4500	4500	4650	5000	4600	4750	4150	4100	4080	4180
16	(0.06) 13 / 14 / 15 / 16	155 0.1	95 0	95 0	95 0	245 0.3	595 2	195 0.2	345 1	255 0.3	305 0.5	325 0.5	225 0.3
17	J 3.4 4160 / 4400 / 4260 / 4200	4250	4750	4350	4750	4750	4750	4750	4850	5250	4960	4340	4000
18	(0.04) 245/0.1 / 5/0 / 145/0 / 205/0.1	155 0	345 0.2	55 0	345 0.2	345 0.2	345 0.2	345 0.2	445 0.4	845 1	555 0.5	65 0	405 0.3
19	K 6.2 4400 / 4600 / 4600 / 4700	4400	4750	4850	4750	5000	5000	4950	5500	6000	4800	4200	4000
20	(0.07) 5/0 / 195/0 / 195/0 / 295/0.1	5 0	345 0.1	445 0.2	345 0.1	595 0.4	595 0.4	545 0.4	1095 1	1595 3	395 0.2	205 0.1	405 0.2
21	L 4600 / 4900 / 5000 / 4800	4500	5250	5400	5400	5050	5000	5250	5600	5200	4500	4100	4000
22	6.9 195/0 / 495/0.2 / 595/0.3 / 395/0.1	95 0	845 1	995 1	995 1	645 0.3	595 0.3	845 1	1195 1	795 0.5	95 0	305 0.1	405 0.1
23	(0.08)												
24													
25													
26	2.51 → 2.82												
27													
28													
29													
30													
31													

MADE IN U.S.A.

G-37 4422

Elev: (~4422)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
B	1.2	4420 2 0.2	4420 2 0.2	4425 3 0.4	4425 3 0.4								
C	1.8	4430 8 0.2	4420 2 0	4420 2 0	4440 18 1	4435 13 0.4	4430 8 0.2						
D	11.2	4450 28 12	4450 28 1	4410 12 0.1	4475 53 2	4500 78 5	4475 53 26						
E	26.5	4490 68 1	4600 178 5	4400 22 0.1	4475 53 0.4	4525 103 2	4490 68 1	4720 298 13	4575 153 4				
F	27.4	4700 278 5	4800 378 10	4525 103 1	4330 92 1	4350 72 0.4	4550 128 1	4775 353 8	4560 138 1				
G	53.5	4200 222 1	4300 122 0.2	4600 178 0.5	4850 428 3	5550 1128 19	5575 1153 19	5200 778 9	4700 278 1	4500 78 0.1	4500 78 0.1	4300 122 0.2	4250 172 0.4
H	46.4	4125 297 1	4225 197 0.3	4275 147 0.2	4700 278 1	5600 1178 12	5950 1528 20	5425 1003 9	4675 253 1	4250 172 0.3	4240 182 0.3	4175 247 0.5	4100 322 1
I	11.6	4250 172 0.3	4650 228 0.5	4550 128 0.1	4700 278 1	4750 328 1	5000 578 3	4675 253 1	4600 178 0.3	4160 262 1	4000 422 2	4080 342 1	4200 222 0.4

J .1

K .08

L .07

2.34 → 2.63

G-16

Elev: ~4200

WILSON JONES G 7112

	Zone	1	2	3	4	5	6	7	8	9	10	11	12
1	B 7	4220	4200	4200	4200								
2		20 7	0 0	0 0	0 0								
3	C 14	4225	4240	4225	4230	4240	4200						
4		25 2	40 4	25 2	30 2	40 4	0 0						
5	D 81	4350	4375	4300	4350	4375	4275						
6		150 15	175 20	100 7	150 15	175 20	75 4						
7	E 126	4650	4575	4500	4300	4625	4475	4300	4675				
8		450 26	375 20	300 13	100 2	425 24	275 11	100 2	475 28				
9	F ~~71.2~~ 87.2	4475	4750	4900	4450	4650	4600	4250	4325				
10		275 5	550 ~~20~~ 26	700 ~~32~~ 50	250 4	450 14	400 11	50 0.2	125 1				
11	G ~~87.3~~ 88.3	4800	5000	5200	5700	4750	4650	5000	5000	4675	4250	4350	4400
12		600 5	800 9	1000 14	1500 ~~31~~ 36	550 4	450 3	800 9	800 9	475 3	50 0	150 0.3	200 1
13	H 49.1	4525	4750	5650	5600	4700	4850	4825	4600	4200	4150	4175	4300
14		325 1	750 5	1450 19	1400 17	500 2	350 1	625 3	400 1	0 0	50 0	25 0	100 0.1
15	I (0.33) 27.9	4225	4500	5250	4800	5025	5300	5500	4600	4175	4100	4000	4040
16	13 14 15 16	25 0	200 0.5	1050 6	600 2	825 3	1100 6	1300 9	400 1	25 0	100 0.1	200 0.2	160 0.1
17	J 9.1 4250 4160 4400 4250	4175	4250	4500	4500	4600	4850	4250	5750	5600	4550	4175	4000
18	(0.11) 50/0 40/0 200/0.1 50/0	25 0	50 0	300 0.2	300 0.2	400 0.3	650 1	50 0	1550 4	1400 3	350 0.2	25 0	200 0.1
19	K 10.8 4175 4400 4550 4400	4300	4500	4575	5225	4800	4900	5500	5750	5300	4400	4240	4250
20	(0.13) 25/0 200/0 350/0.1 200/0	100 0	300 0.1	375 0.2	1025 1	600 0.4	700 1	1300 2	1550 3	1100 1	1200 2	40 0	50 0
21	L 4250 4400 5600 4800	4350	5000	4875	5000	5050	5125	5300	5500	4800	4250	4025	3850
22	9.4 50/0 200/0 1400/2 600/0.3	150 0	800 0.5	675 0.4	800 0.5	850 1	975 1	1100 1	1300 1	600 0.3	50 0	175 0	350 0.1
23	(0.11)												
24													
25													
26	~~6.32~~												
27													
28	5.94 → 6.68												
29													
30													
31													

MADE IN U.S.A.

G-17

Elev: (~4150)

WILSON JONES G 7112

		(4150)	1	2	3	4	5	6	7	8	9	10	11	12
1	B		4160	4155	4160	4150								
2		7.0	10 3	5 1	10 3	0 0								
3	C		4175	4225	4160	4225	4200	4150						
4		27.3	25 2	75 10	10 0.3	75 10	50 5	0 0						
5	D		4375	4400	4225	4375	4375	4225						
6		125	225 28	250 33	75 4	225 28	225 28	75 4						
7	E		4600	4450	4300	4575	4600	4325	4200	4350				
8		104.4	450 26	300 13	150 4	425 24	450 26	175 5	50 0.4	200 6				
9	F		4375	4650	4550	4650	4500	4150	4200	4320				
10		61.2	225 4	500 18	400 11	500 18	350 8	0 0	50 0.2	170 2				
11	G		4480	4750	5000	5250	4650	4750	4800	4400	4100	4100	4250	4320
12	0.58	49.5	330 2	600 5	850 10	1100 16	500 4	600 5	650 6	250 1	50 0	50 0	100 0.1	170 0.4
13	0.52 H		4400	4600	5250	5750	4500	4800	5000	4400	4160	4080	4100	4100
14		45	250 0.5	450 2	1100 10	1600 21	350 1	650 4	850 6	250 0.5	10 0	70 0	50 0	50 0
15	I		4100	4300	5250	5250	5000	5200	5100	4480	4100	4000	4000	4040
16	0.23	28.4 13 14 15 16	50 0	150 0.1	1100 6	1100 6	850 4	1050 6	950 5	330 1	50 0	150 0.1	150 0.1	110 0.1
17	J	4100 4200 4400 4300	4250	4250	4400	4500	4600	4750	5250	5750	5400	4400	4100	3950
18	0.14 12	50/0 50/0 250/0.1 150/0	100 0	100 0	250 0.1	350 0.2	450 0.4	600 1	1100 2	1600 5	1250 3	250 0.1	50 0	200 0.1
19	K	4100 4400 4600 4400	4350	4500	4650	5000	5000	5000	5500	5750	5400	4300	4240	4000
20	0.13 10.8	50/0 250/0.1 450/0.2 250/0.1	200 0	350 0.1	500 0.3	850 1	850 1	850 1	1350 2	1600 3	1250 2	150 0	90 0	150 0
21	L	4200 4450 5225 4900	4400	5000	5250	5000	5050	5100	5375	5400	4400	4000	4000	3900
22	8.7	50/0 300/0.1 1075/1 650/0.3	250 0.1	850 1	1100 1	850 1	900 1	950 1	1225 1	1250 1	250 0.1	150 0	150 0	250 0.1
23	0.10													
24														
25		5.58	6.28											
26														
27														
28														
29														
30														
31	127.3													

MADE IN U.S.A.

G-18

Elev: (~ 4105)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
1	B 12	4120	4100	4100	4120								
2		15 5	5 1	5 1	15 5								
3	C 28	4140	4125	4150	3990	4120	4140						
4		35 3	20 1	45 4	115 16	15 1	35 3						
5	D 48	4200	4175	4300	4110	4175	4225						
6		95 7	70 4	195 23	5 0	70 4	120 10						
7	E 80.8	4300	4400	4325	4575	4525	4050	4150	4225				
8		195 6	295 13	220 7	470 28	420 24	55 0.5	45 0.3	120 2				
9	F 54.2	4375	4575	4400	4700	4300	4080	4160	4200				
10		270 5	470 15	295 6	595 24	195 3	25 0	55 0.2	95 1				
11	G 22	4320	4440	4500	4480	4600	4950	4400	4100	4080	4100	4100	4100
12		215 1	335 2	395 2	375 2	495 4	845 10	295 1	5 0	25 0	5 0	5 0	5 0
13	H 31.7	4200	4500	4800	5550	4600	4700	4800	4300	4200	4000	4000	4080
14		95 0.1	295 1	695 4	1445 17	495 2	595 3	695 4	195 0.3	95 0.1	105 0.1	105 0.1	25 0
15	I 29.5	4100	4225	5275	5250	4750	5600	4800	4300	4000	4000	4100	4080
16	13 14 15 16	5 0	120 0.1	1170 7	1145 7	645 2	1145 11	695 2	195 0.2	105 0.1	105 0.1	5 0	25 0
17	14 4200 4175 4450 4250	4200	4200	4250	4500	4600	4750	5200	6200	5100	4375	4100	4000
18	95/0 70/0 345/0.2 145/0	95 0	95 0	145 0	395 0.3	495 0.4	645 1	1095 2	2095 8	995 2	270 0.1	5 0	105 0
19	8.1 4000 4400 4650 4500	4400	4400	4500	5000	4800	5000	5550	5850	4900	4300	4225	4000
20	105/0 295/0.1 545/0.4 395/0.2	295 0.1	295 0.1	395 0.2	895 1	695 1	895 1	1445 2	745 1	795 1	195 0	120 0	105 0
21	4250 4500 5700 4800	4475	4900	5000	5200	5100	5100	5500	5400	4400	4000	4000	3800
22	13.6 145/0 395/0.2 595/3 695/1	370 0.2	795 1	895 1	1095 1	995 1	995 1	1395 2	1295 2	295 0.1	105 0	105 0	305 0.1
23													
24													
25													
26													
27													
28													
29													
30													
31													

0.34

0.16

0.07

0.14

3.98 → 4.48

MADE IN U.S.A.

B-12

Elev. (~5202)

WILSON JONES G 7112

		Zones	1	2	3	4	5	6	7	8	9	10	11	12
1	0.6	B	5202	5205	5205	5202								
2			0 0	2 0.2	3 0.4	0 0								
3	11	C	5180	5160	5205	5205	5155	5170						
4			22 1	42 4	3 0	3 0	47 5	22 1						
5	54	D	5075	5075	5250	5275	5050	5075						
6			127 11	127 11	42 2	73 4	152 15	127 11						
7	77	E	5075	5400	5400	5600	5300	5025	4800	4925				
8			127 3	198 6	198 6	398 22	98 2	177 5	402 22	277 11				
9	198	F	4975	5400	5675	5300	4925	4600	4700	4650				
10			227 4	198 3	473 15	98 1	277 5	602 42	502 32	552 24				
11	56.2	G	4700	5300	5750	6000	5275	4700	4500	4650	4850	4400	4400	4700
12			502 4	98 0.1	548 4	798 9	73 0.1	502 4	702 7	552 4	352 2	802 9	802 9	502 4
13	38	H	4500	5200	5750	5250	4900	4650	4950	4800	4400	4160	4340	4500
14			702 4	2 0	548 3	52 0	302 1	552 3	252 1	402 1	802 6	1042 9	862 6	702 4
15	36.5	I 0.43	4200	4300	4500	4600	4875	5250	4800	4900	4700	4000	4000	4160
16		13 14 15 16	1002 5	902 4	702 3	602 2	327 0.5	48 0	402 1	302 0.5	1002 0.5	1202 7	1202 7	1042 6
17	J 20.6	4000 4200 4200 4100	4175	4250	4500	4500	4500	4850	4800	5350	5680	4800	4225	4000
18	0.24	1202 3 1002 2 1002 2 1102 2	1027 2	952 0.5	702 1	702 1	702 1	352 0.2	302 0.2	148 0	478 0.4	402 0.3	977 2	1202 3
19	K	4250 4400 4600 4400	4250	4650	4500	5100	5000	4875	5850	5600	5300	4400	4240	4000
20	10.1	952 1 802 1 602 0.4 802 1	952 1	552 0.4	702 1	102 0	202 0	327 0.1	148 0	398 0.2	98 0	802 1	962 1	1202 2
21	0.12 L	4175 4600 5350 4800	4400	5350	5350	5800	5075	5075	5300	5800	4750	4200	4000	4100
22	5.9	1027 1 602 0.3 148 0 102 0.1	902 0.5	148 0	148 0	798 0.5	127 0	127 0	98 0	598 0.3	452 0.2	1002 1	1202 1	1102 1
23	8.07													
24														
25														
26		5.92 →	6.66											
27														
28														
29														
30														
31														

MADE IN U.S.A.

G-14 (5066)

Flex. (~5066)

WILSON JONES G 7112

	Zones	1	2	3	4	5	6	7	8	9	10	11	12
11	B	5050	5060	5050	5066								
		16 5	6 1	16 5	0 0								
29	C	5025	5020	5050	5000	5000	5030						
		41 4	46 5	16 1	66 8	66 8	36 3						
90.1	D	4900	4900	5075	4950	4800	4950						
		166 17	166 17	9 0.1	116 10	266 36	116 10						
77	E	4900	5125	5250	5250	4950	4625	4650	4800				
		166 2	59 1	181 5	184 5	116 2	441 26	416 24	266 10				
127	F	4875	5450	5650	4900	4600	4450	4475	4425				
		191 3	324 10	524 22	166 2	466 14	616 26	591 24	641 26				
72.8	G	4750	5250	5400	5750	5200	4650	4700	4750	4400	3800	4400	4225
		316 1	184 0.5	334 2	684 7	134 0.3	416 3	316 2	316 1	666 6	1266 34	666 6	941 10
40.6	H	4650	5000	5750	5700	4850	4750	4900	4200	4125	4200	4200	4500
		416 2	66 0	684 4	634 4	216 0.4	316 1	166 0.2	866 6	941 8	866 6	866 6	566 3
22.8	I (0.35)	4200	4500	4900	4700	5100	5100	5600	4800	4200	4000	4000	4080
		866 4	566 2	266 0.4	266 1	34 0	34 0	534 1	266 0.4	866 4	1066 6	1066 6	926 5
5.7 (0.15)	13 14 15 16	4000 4200 4300 4150		4500	4500	4700	4850	5200	5500	5200	4750	4300	4000
12.7		1066/2 866/1 766/1 916/1		866 1	816 1	566 1	566 1	366 0.2	216 0.1	134 0	334 0.2	134 0	316 0.2	766 1	1060 2
0.08	6.5	4175 4400 4400 4400		4250	4500	4500	5200	5200	4850	5350	5650	5400	4400	4240	4200
		891/1 666/0.5 666/0.5 666/0.4		216 0.1	566 0.4	566 0.4	134 0	134 0	216 0.1	284 0.1	584 0.4	534 0.1	466 0.5	816 1	866 1
	4200 4500 5300 4800			4400	5600	5500	5300	5100	5100	5325	5600	4750	4175	4000	3900
6.9	866/1 566/0.3 766/0.5 866/1			666 0.4	434 0.2	334 0.1	234 0	34 0	34 0	259 0.1	534 0.2	316 0.1	891 1	1066 1	1170 1
(0.08)													

5.86 → 6.59

MADE IN U.S.A.

G-11 (5445)

Elev: (~5445)

WILSON JONES G 7112

	Zones	1	2	3	4	5	6	7	8	9	10	11	12
8	B	5450	5460	5450	5440								
		5 1	15 5	5 1	5 1								
21.2	C	5450	5500	5500	5500	5450	5410						
		5 0.1	55 2	55 2	55 2	5 0.1	35 3						
64	D	5375	5525	5650	5575	5375	5275						
		70 4	80 5	205 25	130 12	70 4	170 17						
61	E	5550	5525	5850	5850	5600	5575	5275	5300				
		105 2	80 1	405 22	405 22	155 4	130 3	170 4	145 3				
53	F	5700	5950	5850	5800	5700	5250	5300	5650				
		255 4	505 18	405 11	355 9	255 4	195 3	145 1	205 3				
36.5	G 0.43	5200	5700	5800	5550	5300	5050	4800	4900	5100	4800	4700	4900
		245 1	255 1	355 2	105 0.2	145 0.3	395 2	645 1	545 4	345 2	245 1	745 8	545 4
48.5	H 0.57	4700	4800	5050	4900	4900	4850	4675	5200	4850	4400	4525	4725
		745 5	645 4	395 1	545 3	545 3	595 3	770 5	245 0.5	595 3	1045 9	920 7	720 5
56.6	I 0.66	4250	4350	4500	4600	4750	5050	5200	5200	4400	4200	4100	4200
	13 14 15 16	1195 7	1095 6	945 5	845 4	695 2	395 1	245 0.3	245 0.3	1045 6	1245 8	1345 9	1245 8
10.33	4000 4100 4200 4200	4250	4500	4600	4750	4750	4875	5000	5250	5900	5200	4400	4080
28	1445/4 1345/3 1245/3 1245/3	1195 3	945 2	845 1	695 1	695 1	570 1	445 0.4	195 0.1	455 0.4	245 0.1	1045 2	1365 3
K 0.18	4300 4375 4400 4400	4250	4600	4600	4800	5075	5000	5175	5700	5700	4700	4300	4175
15.2	1145/2 1045/1 1045/1 1045/1	1195 2	845 1	845 1	645 0.5	370 0.2	445 0.2	270 0.1	255 0.1	255 0.1	745 1	1145 2	1270 2
L 0.12	4000 4600 5100 4800	4500	5250	5900	5175	5200	5000	5250	6000	5000	4350	4000	4000
10.3	1445/2 845/1 345/0.1 645/0.3	945 1	195 0	455 0.2	270 0.1	245 0	445 0.2	195 0	555 0.2	445 0.2	1095 1	1445 2	1445 2

402.3

4.69 → 5.28

MADE IN U.S.A.

G-1 #800 Elev: (~6055)

WILSON JONES G 7112

	Zones		1	2	3	4	5	6	7	8	9	10	11	12
1	B	8.0	6050	6045	6060	6045								
2			5 1	10 3	5 1	10 3								
3	C	10.1	6040	6025	6010	6055	6060	6020						
4			15 1	30 2	45 4	0 0	5 .1	35 3						
5	D	53.3	6025	6075	5900	6010	6025	5800						
6			30 1	20 .3	155 16	45 2	30 1	255 33						
7	E	61	6170	6150	5725	5725	5975	5950	5625	5750				
8			115 2	95 1	330 15	330 15	80 1	105 2	430 12	305 13				
9	F	101	5900	5800	5500	5425	5750	5750	5425	5650				
10			155 2	255 4	555 20	630 26	305 6	305 6	630 26	405 11				
11	G	1.43 123	5500	5500	5300	5300	4825	5050	5050	5100	5600	5200	5200	5225
12			555 5	555 5	755 8	755 8	1230 21	1005 14	1005 14	955 13	455 3	855 11	855 11	830 10
13	H	2.28 196	4900	4700	4650	4625	4700	5050	4700	4600	4650	4600	4600	4500
14			1155 11	1355 16	1405 17	1430 17	1355 16	1005 9	1355 16	1455 19	1405 17	1455 19	1455 19	1555 20
15	I	1.56 134	4250	4375	4650	4675	4850	5100	5000	5200	4400	4300	4300	4250
16			1905 12	1780 14	1405 10	1380 10	1205 7	955 5	1055 6	855 4	1655 14	1755 16	1755 16	1805 16
17	13 / 14 / 15 / 16		4300	4650	4675	4700	4750	5075	5200	5200	5900	5600	4700	4300
18	1.8 / 57.4	4000 / 2055 7	4025 / 2030 7	4150 / 1905 6	4200 / 1855 6	1755 5	1405 4	1380 3	1355 3	1305 3	980 2	955 2	855 1	155 0	455 0.4	1355 3	1755 5
19	K 0.41	4200	4400	4400	4350	4500	4600	4700	4800	5050	5000	5200	5450	5675	5475	4425	4000
20	35	1855 4	1655 3	1655 3	1705 3	1555 3	1455 3	1355 2	1255 2	1005 1	1055 1	855 1	605 0.4	380 0.2	580 0.4	1630 3	2055 5
21	L 0.25	4075	4625	4850	4800	4500	5500	5500	5500	5125	5000	5200	5800	5000	4425	4000	4000
22	21.7	1980 3	1430 2	1205 1	1255 1	1555 2	555 0.2	555 0.2	555 0.2	930 1	1055 1	855 1	255 0.1	1055 1	1630 2	2055 3	2055 3

9.33 → 10.50

MADE IN U.S.A.

B-3

Elev: (~4910)

WILSON JONES G 7112

	Zones	1	2	3	4	5	6	7	8	9	10	11	12
13	B	4920	4900	4890	4910								
		10 3	10 3	20 7	0 0								
10.1	C	4925	4885	4875	4875	4915	4930						
		15 1	25 2	35 3	35 3	5 0.1	20 1						
28	D	4960	4840	4810	4875	4950	5050						
		50 2	70 4	100 7	35 1	40 1	140 13						
77.2	E	4900	4675	4700	4715	4875	5075	5400	5300				
		10 0	235 8	210 7	195 6	35 0.2	165 4	490 30	390 22				
74	F	4550	4425	4450	4575	4700	5250	5325	5150				
		360 9	485 16	410 14	335 8	210 3	340 8	415 12	240 4				
27.3	G	4500	4550	4850	4525	4550	4500	4625	4800	5400	5700	5200	4525
		410 2	360 2	60 0.1	385 2	360 2	410 2	285 1	110 0.2	490 4	790 9	290 1	385 2
18.3	H	4300	4450	4775	4800	4700	4725	4800	5050	5600	5700	5325	4500
		610 3	460 2	135 0.2	110 0.1	210 0.4	185 0.3	110 0.1	140 0.2	690 4	790 5	415 2	410 1
4.0 (0.05)	I	4750	4750	4900	4750	4750	4850	5100	4800	4750	4700	4400	4250
		160 0.1	160 0.1	10 0	160 0.1	160 0.1	60 0	190 0.2	110 0.1	160 0.1	210 0.2	310 1	660 2
9.7	13 14 15 16												
J	4200 4150 4080 4250	4300	4400	5300	5250	5100	4825	4800	5175	5500	5500	5600	4375
(0.1)	710 0.1 760 0.1 830 0.1 660 0.1	610 1	510 0.5	390 0.3	340 0.2	190 0.1	25 0	110 0.0	265 0.1	590 1	590 1	690 1	535 -0.5
K	4000 4300 4300 4250	4600	4750	5150	5050	5100	5000	5150	5350	5600	5800	4700	4175
5.9	310 1 610 0.4 610 0.4 660 0.5	310 0.1	160 0	240 0.1	140 0	190 0	90 0	240 0.1	440 0.2	690 1	890 1	210 0.1	735 1
(0.4) L	4200 4600 4775 4400	5200	5400	5400	5625	5100	4900	5100	5325	5425	4475	4300	4075
3.4	710 0.4 310 0.1 135 0 510 0.2	290 0.1	490 0.2	490 0.2	715 0.4	190 0	10 0	190 0	415 0.1	515 0.2	435 0.2	410 0.3	835 1.
(0.04)													

3.35 → 3.77

MADE IN U.S.A.

B-1

Elev: (~4386)

WILSON JONES G 7112

		1	2	3	4	5	6	7	8	9	10	11	12
0.4 B		4385	4388	4388	4385								
		1 0	2 0.2	2 0.2	1 0								
0.1 C		4385	4389	4392	4389	4390	4383						
		1 0	3 0	6 0.1	3 0	4 0	3 0						
6.2 D		4380	4390	4390	4380	4475	4400						
		6 0	4 0	4 0	6 0	89 1	14 0.2						
32 E		4475	4550	4475	4400	4550	4675	4650	4400				
~~[illegible]~~		89 1	164 4	89 1	14 0	164 4	289 12	264 10	14 0				
16.3 F		4650	4775	4525	4450	4600	4850	5100	4500				
		264 6	389 10	139 1	64 0.3	214 3	464 14	714 32	114 1				
42.6 G		4475	4700	4875	4800	4700	4600	4525	4900	5300	5300	4900	4500
		89 0.1	314 1	489 4	414 3	314 1	214 1	139 0.3	514 1	914 12	914 12	514 4	114 0.2
35.6 H		4350	4575	4575	4650	4700	4775	4700	4900	5500	5800	4775	4375
		36 0	189 0.3	189 0.3	264 1	314 1	389 1	314 1	514 2	1114 11	1414 17	389 1	11 0
13.3 I (0.15)		4200	4800	5100	4750	4750	4850	4750	4950	4900	5000	4500	4300
		214 0.2	414 1	714 3	364 1	364 1	464 1	364 1	564 2	514 1	614 2	114 0.1	86 0
	13 / 14 / 15 / 16												
(0.1) 18.9	4275 / 4325 / 4150 / 4350	4475	4550	4750	4825	5240	5000	4825	5160	5400	5350	5200	4400
	111 0 / 61 0 / 236 0.1 / 36 0	89 0	164 0	364 0.2	439 0.3	854 1	614 1	439 0.3	774 1	1014 2	964 2	814 1	14 0
(0.12) R 10.6	4000 / 4300 / 4300 / 4250	4750	4750	5000	5000	5100	5000	5150	5325	5500	6200	5000	4200
	86 0.2 / 86 0 / 86 0 / 136 0	364 0.2	364 0.2	614 0.5	614 0.5	714 1	614 0.5	764 1	939 1	1114 1	1814 4	614 0.5	186 0
(0.07) L 7.4	4300 / 5000 / 4800 / 4400	5400	5300	5300	5600	5050	4900	5000	5300	5500	4800	4200	4250
	86 0 / 614 0.3 / 414 0.1 / 14 0	1014 1	914 1	914 1	1214 1	664 0.4	514 0.2	614 0.3	914 1	1114 1	414 0.1	186 0	136 0

$\boxed{2.60}$ → 2.93

MADE IN U.S.A.

KEUFFEL & ESSER CO.
MADE IN U.S.A.
K+E STANDARD CROSS SECTION
10 X 10 TO THE INCH
KEUFFEL & ESSER CO.
MADE IN U.S.A.
K+E STANDARD CROSS SECTION
10 X 10 TO THE INCH

Red 4 → Elevation Control
0.1 Foot

JOB # 800

DATE OF SURVEY APRIL 17, 1970	CONTOUR INTERVAL 10 FEET WITH 50 FEET INDEXING	GEOLOGY BY	REFERENCES	AREA – PATAGONIA	SANTA CRUZ COUNTY	**KERR–McGEE CORPORATION**	PROJECT RED MOUNTAIN
SCALE: 1" = 1000 FEET	COMPILED BY PHOTOGRAMMETRIC METHODS. DATE OF PHOTOGRAPHY APRIL 23, 1970.	DRAWN BY		DISTRICT HARSHAW	STATE OF ARIZONA	**MINERAL EXPLORATION DEPARTMENT**	AREA PATAGONIA

REVISIONS	DATE
GROUPS: RED MTN. CONTROL	SHEET 1 OF 15

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

HARSHAW QUADRANGLE
ARIZONA–SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 LOCHIEL 15' QUADRANGLE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

CANELO PASS QUADRANGLE
ARIZONA–SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 LOCHIEL 15' QUADRANGLE

Mapped by the Army Map Service
Edited and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography from aerial photographs by stereoplanigraph methods
Aerial photographs taken 1946 Field check 1948
Revised by the Geological Survey 1958
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue
Unchecked elevations are shown in brown

SCALE 1:24 000

CONTOUR INTERVAL 25 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
Light-duty Unimproved dirt

QUADRANGLE LOCATION

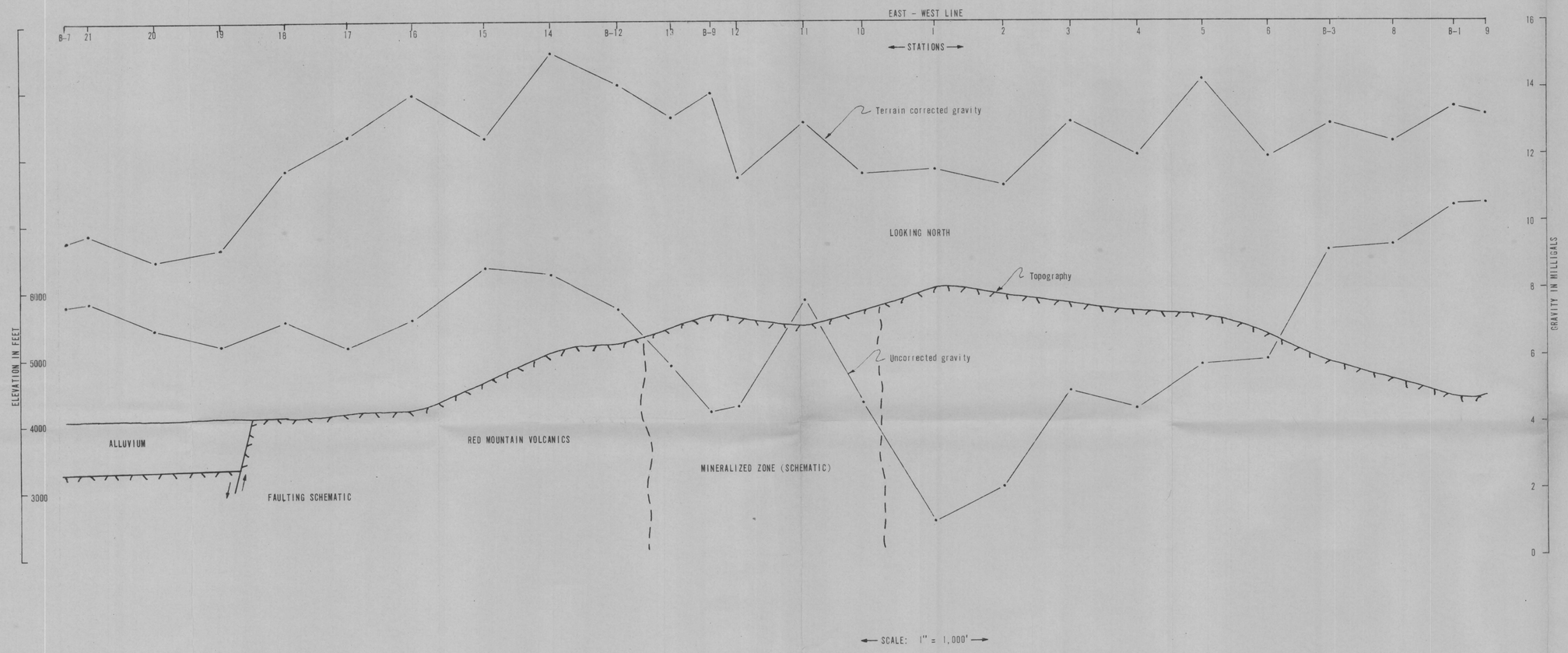
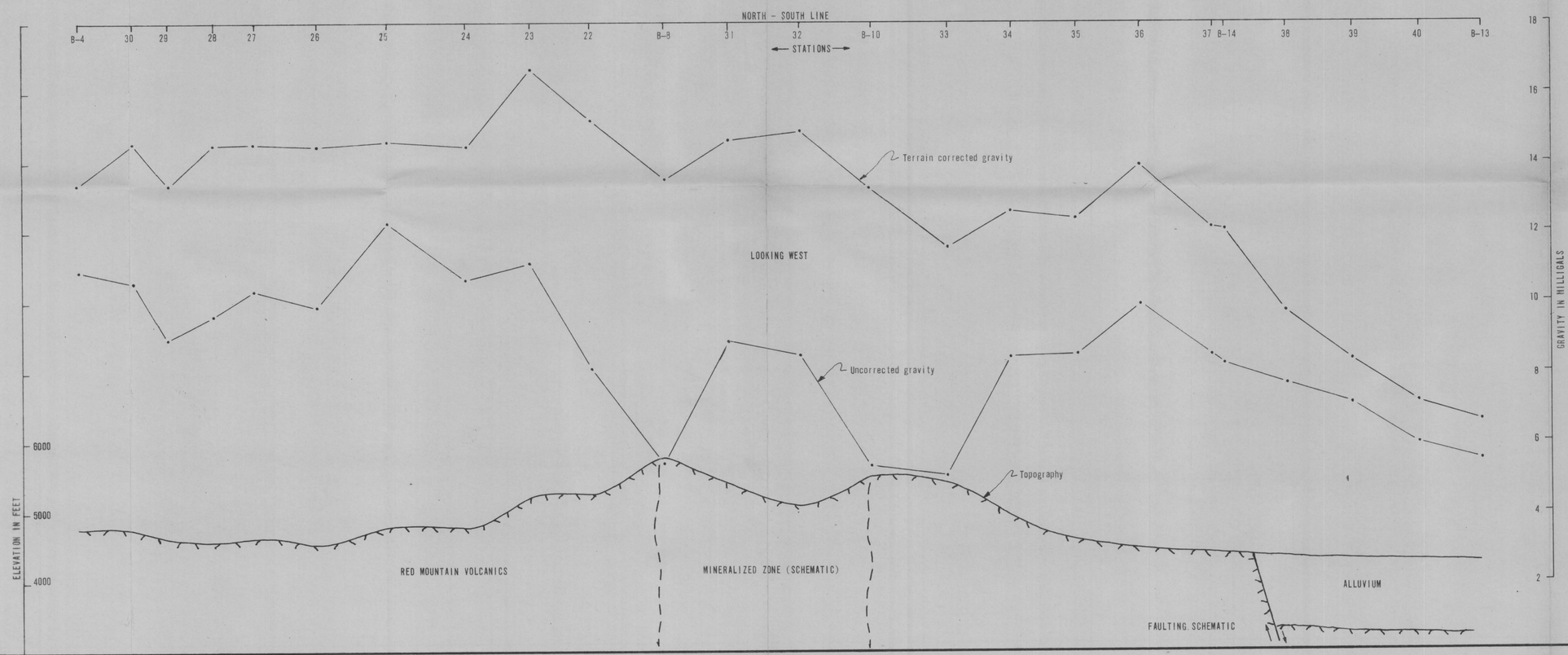
HARSHAW, ARIZ.
NW/4 LOCHIEL 15' QUADRANGLE
N3122.5—W11037.5/7.5
1958

Mapped by the Army Map Service
Edited and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography from aerial photographs by stereoplanigraph methods
Aerial photographs taken 1946 Field check 1948
Revised by the Geological Survey 1958
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue
Unchecked elevations are shown in brown

CANELO PASS, ARIZ.
NE/4 LOCHIEL 15' QUADRANGLE
N3122.5—W11030/7.5
1958

This sheet overlays base map furnished by Kerr McGee Corporation "Patagonia area, Harshaw district, Santa Cruz County, Arizona dated April 23, 1970 (Sheet 1 of 15)".

GRAVITY TRAVERSES
over
RED MOUNTAIN
SANTA CRUZ COUNTY, ARIZONA
for
KERR McGEE CORPORATION
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 800-73 April 1973



SCALE: 1" = 1,000'