UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Audio-magnetotelluric data log, and station location map for the Randsburg Known Geothermal Resource Area, California

By

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Open-File Report 76-309

1976

This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.

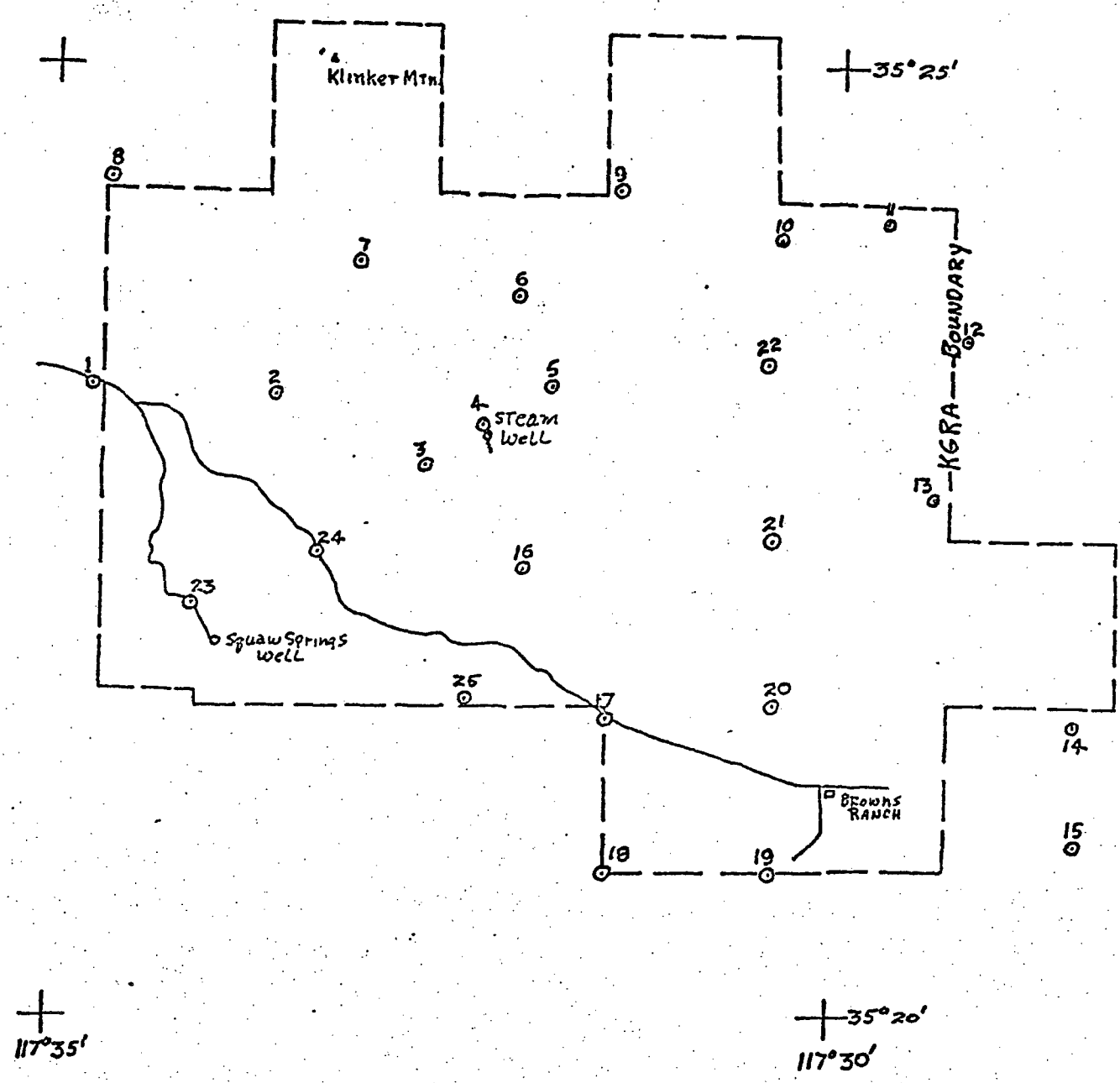

Fig. #1 AUDIO-MAGNETOTELLURIC STATION LOCATION MAP OF RANDSBURG KGRA, CALIFORNIA

Randsburg, Calif., KGRA U.S. GEOLOGICAL SURVEY A.M.T. DATA LOG

ρa = observed apparent resistivity in ohm-metres
N = number of observations
Er = standard error in ohm metres
– = no data

"NOTE" - Telluric line orientation indicated with station numbers.

		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
1NS	ρa	57.9	31.9	54.7	56.9	80.8	65.8	–	–	–	27.6	39.6	8.0
	N	5	4	7	6	6	4	–	–	–	4	1	1
	Er	12.0	7.7	4.7	4.9	7.7	18.9	–	–	–	1.1	–	–
1EW	ρa	47.2	33.4	32.7	35.2	40.9	50.6	–	–	–	13.3	32.7	4.4
	N	8	5	7	6	5	5	–	–	–	6	1	1
	Er	7.5	2.9	0.7	2.1	1.8	2.6	–	–	–	0.5	–	–
2NS	ρa	174.6	158.0	133.5	131.0	125.8	59.8	–	–	–	59.2	82.2	11.7
	N	8	5	6	6	8	4	–	–	–	6	1	1
	Er	29.6	31.1	15.3	15.2	10.9	9.3	–	–	–	4.9	–	–
2EW	ρa	48.3	31.2	32.0	26.6	26.6	16.2	–	–	–	3.8	23.7	45.3
	N	6	6	7	9	9	6	–	–	–	6	1	1
	Er	6.2	7.0	2.4	2.3	1.5	0.5	–	–	–	0.2	–	–
3NS	ρa	23.6	43.5	40.2	58.2	43.7	23.1	–	–	–	17.4	15.8	3.7
	N	6	4	8	8	9	5	–	–	–	7	1	1
	Er	1.7	10.4	3.2	4.8	5.2	2.7	–	–	–	1.0	–	–
3EW	ρa	14.0	12.3	10.9	10.5	11.1	10.4	–	–	–	2.9	18.0	38.1
	N	7	7	5	5	7	7	–	–	–	7	1	1
	Er	2.1	1.7	0.9	0.7	0.7	0.6	–	–	–	0.1	–	–
4NS	ρa	25.1	15.6	20.1	21.1	14.5	5.4	–	–	–	11.6	17.1	2.9
	N	6	10	7	7	7	7	–	–	–	7	1	1
	Er	6.6	2.5	2.5	1.2	1.4	0.5	–	–	–	1.4	–	–
4EW	ρa	9.7	10.1	8.9	9.1	9.8	12.6	–	–	–	5.0	12.9	1.4
	N	7	9	7	7	8	7	–	–	–	7	1	1
	Er	1.1	0.9	0.7	0.6	0.5	1.5	–	–	–	0.3	–	–

U.S. GEOLOGICAL SURVEY A.M.T. DATA LOG

ρa = observed apparent resistivity in ohm-metres
N = number of observations
Er = standard error in ohm metres — = no data

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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
5NS	ρa	2.2	7.7	7.8	9.4	10.2	5.9	—	—	—	13.5	21.8	3.2
	N	5	6	5	3	6	6	—	—	—	5	1	1
	Er	0.3	0.9	0.8	3.3	0.4	0.3	—	—	—	1.6	—	—
5EW	ρa	1.8	4.6	5.2	7.0	8.5	9.0	—	—	—	3.1	18.5	3.1
	N	5	6	7	6	5	7	—	—	—	6	1	1
	Er	0.2	0.4	0.4	0.5	0.5	0.4	—	—	—	0.1	—	—
6NS	ρa	281.2	123.7	203.0	208.0	206.7	221.6	—	—	—	52.1	50.5	13.4
	N	6	4	6	5	7	6	—	—	—	5	1	1
	Er	59.8	23.5	24.7	50.8	45.1	55.1	—	—	—	7.4	—	—
6EW	ρa	148.9	110.0	124.4	91.8	77.4	342.9	—	—	—	13.6	803	7.3
	N	6	6	5	8	7	7	—	—	—	6	1	1
	Er	13.3	12.8	21.5	9.4	4.0	94.2	—	—	—	0.8	—	—
7NS	ρa	14.0	41.9	114.0	44.9	77.7	36.8	—	—	—	38.7	42.3	11.7
	N	5	6	5	9	5	6	—	—	—	6	1	1
	Er	3.1	7.7	17.7	8.1	5.1	5.8	—	—	—	3.1	—	—
7EW	ρa	29.1	35.4	39.5	35.7	32.3	57.2	—	—	—	9.5	83.2	2.3
	N	6	10	9	8	7	7	—	—	—	9	1	1
	Er	3.8	4.2	5.4	1.6	2.2	6.6	—	—	—	0.8	—	—
8NS	ρa	10.2	8.1	13.3	17.2	30.3	16.2	—	—	—	39.5	82.2	7.9
	N	6	5	7	8	7	7	—	—	—	4	1	1
	Er	0.5	1.9	2.1	2.8	1.6	0.9	—	—	—	7.9	—	—
8EW	ρa	13.9	9.4	15.7	16.5	23.3	47.4	—	—	—	20.1	123.4	5.4
	N	6	6	6	7	6	7	—	—	—	8	1	1
	Er	1.8	2.7	3.3	1.4	0.8	5.7	—	—	—	1.8	—	—

U.S. GEOLOGICAL SURVEY A.M.T. DATA LOG

ρa = observed apparent resistivity in ohm-metres
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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
9NS	ρa	18.9	22.9	28.3	20.9	45.9	24.0	–	–	–	9.2	14.5	2.5
	N	5	5	6	8	6	7	–	–	–	8	1	1
	Er	3.7	2.5	2.5	5.1	3.8	5.2	–	–	–	0.3	–	–
9EW	ρa	3.2	3.0	4.6	3.5	28.5	22.0	–	–	–	0.9	6.9	2.6
	N	5	6	7	3	6	3	–	–	–	7	1	1
	Er	0.5	0.4	0.3	0.8	5.9	4.7	–	–	–	0.1	–	–
10NS	ρa	10.2	6.4	10.4	11.9	14.9	4.9	–	–	–	9.0	19.4	1.1
	N	7	6	9	5	6	4	–	–	–	6	1	1
	Er	1.6	0.4	0.9	0.6	1.1	0.7	–	–	–	1.2	–	–
10EW	ρa	13.8	8.8	8.1	9.0	8.9	17.3	–	–	–	2.9	23.6	0.7
	N	7	6	7	8	6	6	–	–	–	6	1	1
	Er	1.5	1.0	0.6	0.6	0.7	3.9	–	–	–	0.1	–	–
11NS	ρa	5.1	7.2	5.7	7.1	7.3	4.2	–	–	–	13.6	21.0	2.6
	N	6	5	6	7	8	6	–	–	–	7	1	1
	Er	0.9	2.6	1.1	0.7	0.1	0.4	–	–	–	1.3	–	–
11EW	ρa	9.3	6.7	7.8	8.2	7.2	10.4	–	–	–	2.7	19.8	0.9
	N	5	8	6	6	8	5	–	–	–	7	1	1
	Er	1.7	1.2	0.9	0.8	0.6	2.2	–	–	–	0.3	–	–
12NS	ρa	3.9	5.6	7.8	4.8	22.9	14.9	–	–	–	15.4	38.2	0.9
	N	6	6	6	6	7	7	–	–	–	6	1	1
	Er	0.6	0.3	1.1	0.9	3.4	1.7	–	–	–	1.0	–	–
12EW	ρa	12.1	11.6	10.1	9.2	25.5	45.3	–	–	–	9.5	7.9	8.9
	N	7	7	6	7	6	7	–	–	–	8	1	1
	Er	1.3	1.8	0.6	1.7	1.3	11.7	–	–	–	0.7	–	–

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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
13NS	ρa	12.0	8.2	8.7	10.0	8.9	13.1	–	–	–	9.3	15.2	1.6
	N	5	8	7	6	5	5	–	–	–	7	1	1
	Er	4.0	1.9	2.0	4.0	0.9	0.6	–	–	–	0.8	–	–
13EW	ρa	8.7	8.2	7.6	7.0	11.9	23.0	–	–	–	2.7	14.9	0.8
	N	6	7	8	8	6	5	–	–	–	5	1	1
	Er	0.8	1.2	0.6	1.3	1.3	1.6	–	–	–	0.4	–	–
14NS	ρa	11.5	8.2	15.8	13.6	15.2	21.5	–	–	–	11.1	30.4	2.6
	N	6	6	8	7	6	6	–	–	–	6	1	1
	Er	2.0	0.4	2.0	1.7	0.9	5.6	–	–	–	0.2	–	–
14EW	ρa	4.6	4.9	7.4	8.2	7.9	14.8	–	–	–	2.2	11.3	10.1
	N	6	10	7	8	7	8	–	–	–	6	1	1
	Er	0.6	0.5	0.3	0.7	0.6	1.9	–	–	–	0.2	–	–
15NS	ρa	13.7	12.7	23.5	16.3	36.6	31.2	–	–	–	30.6	18.6	7.9
	N	6	4	10	8	7	6	–	–	–	7	1	1
	Er	4.4	3.2	3.3	1.1	3.8	8.3	–	–	–	1.6	–	–
15EW	ρa	20.5	21.3	25.0	21.6	26.2	39.7	–	–	–	6.7	16.4	92.0
	N	6	9	8	9	6	6	–	–	–	7	1	1
	Er	1.9	2.4	1.8	1.8	3.1	3.4	–	–	–	0.4	–	–
16NS	ρa	3.9	4.6	6.7	9.1	13.5	5.7	–	–	–	10.4	10.9	10.0
	N	6	6	7	6	10	6	–	–	–	8	1	1
	Er	0.5	1.3	1.1	1.9	1.2	1.2	–	–	–	0.8	–	–
16EW	ρa	10.0	7.8	12.9	13.8	10.8	12.1	–	–	–	2.6	17.9	0.6
	N	6	8	9	9	9	6	–	–	–	9	1	1
	Er	0.4	0.9	1.6	1.4	0.6	2.0	–	–	–	0.3	–	–

Randsburg, Calif., KGRA

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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
17NS	ρa	8.4	13.9	19.3	25.5	34.4	54.0	—	—	—	27.9	38.0	5.1
	N	5	6	5	10	5	5	—	—	—	6	1	1
	Er	1.4	3.9	2.8	2.9	6.8	21.4	—	—	—	1.2	—	—
17EW	ρa	12.5	11.3	15.7	18.6	22.9	50.2	—	—	—	6.3	47.8	2.2
	N	6	10	9	10	6	4	—	—	—	5	1	1
	Er	1.4	1.2	1.0	0.9	1.4	14.6	—	—	—	0.4	—	—
18NS	ρa	5.7	4.4	10.4	15.4	23.5	11.1	—	—	—	30.5	35.0	5.2
	N	6	8	9	9	8	7	—	—	—	7	1	1
	Er	1.2	0.4	1.1	1.1	1.3	1.2	—	—	—	1.8	—	—
18EW	ρa	8.8	7.4	10.5	17.2	27.3	33.1	—	—	—	6.1	29.9	4.1
	N	7	7	11	12	6	9	—	—	—	7	1	1
	Er	1.5	1.3	0.7	0.5	1.1	7.9	—	—	—	0.6	—	—
19NS	ρa	4.3	4.3	6.9	7.6	17.4	47.0	—	—	—	13.2	16.5	2.5
	N	6	6	11	10	9	7	—	—	—	6	1	1
	Er	0.4	0.9	0.7	1.0	1.9	16.9	—	—	—	0.7	—	—
19EW	ρa	3.9	3.9	6.5	5.6	12.9	10.0	—	—	—	0.7	5.8	0.6
	N	5	11	10	9	6	6	—	—	—	6	1	1
	Er	0.7	0.4	0.4	0.6	1.1	0.8	—	—	—	0.1	—	—
20NS	ρa	7.2	3.0	8.4	16.1	33.4	15.7	—	—	—	20.2	35.7	5.1
	N	6	5	9	9	8	6	—	—	—	7	1	1
	Er	1.3	0.2	0.9	3.9	9.8	2.4	—	—	—	1.3	—	—
20EW	ρa	8.4	5.7	5.8	8.4	13.6	14.1	—	—	—	3.5	33.4	5.0
	N	8	13	9	10	11	7	—	—	—	6	1	1
	Er	1.5	0.4	0.3	0.8	2.6	1.4	—	—	—	0.3	—	—

U.S. GEOLOGICAL SURVEY A.M.T. DATA LOG

ρa = observed apparent resistivity in ohm-metres
N = number of observations
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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
21 NS	ρa	5.3	7.5	8.4	9.7	17.1	10.8	–	–	–	16.3	25.6	7.4
	N	8	6	8	8	6	6	–	–	–	5	1	1
	Er	0.7	1.2	0.5	1.2	1.7	1.4	–	–	–	0.9	–	–
21 EW	ρa	9.7	8.2	8.1	7.0	11.5	21.4	–	–	–	2.8	16.1	0.8
	N	3	8	7	8	7	4	–	–	–	5	1	1
	Er	1.8	1.1	0.9	0.4	0.9	1.9	–	–	–	0.4	–	–
22 NS	ρa	13.0	13.8	9.7	13.5	15.5	10.2	–	–	–	19.9	21.7	2.9
	N	6	6	8	6	7	8	–	–	–	9	1	1
	Er	1.9	2.9	0.8	1.2	1.1	1.8	–	–	–	1.3	–	–
22 EW	ρa	16.7	16.6	10.0	13.1	13.7	11.7	–	–	–	1.5	14.4	0.9
	N	6	6	8	7	7	7	–	–	–	8	1	1
	Er	3.6	2.2	0.9	0.7	0.9	1.3	–	–	–	0.1	–	–
23 NS	ρa	35.7	35.6	33.7	39.7	28.1	17.7	–	–	–	34.2	49.0	9.4
	N	5	4	7	10	6	5	–	–	–	8	1	1
	Er	6.6	12.6	4.6	4.7	1.3	2.5	–	–	–	2.5	–	–
23 EW	ρa	119.0	89.2	84.1	66.3	36.3	46.9	–	–	–	8.5	36.5	7.8
	N	6	7	10	8	5	4	–	–	–	6	1	1
	Er	16.4	7.4	7.8	3.6	2.4	2.5	–	–	–	0.6	–	–
24 NS	ρa	9.2	6.3	8.4	10.0	12.9	–	–	–	–	34.5	49.4	3.3
	N	5	6	7	9	7		–	–	–	3	1	1
	Er	2.6	0.8	1.5	1.3	1.5		–	–	–	2.3	–	–
24 EW	ρa	10.7	5.7	6.9	7.6	8.0	131.4	–	–	–	6.6	96.5	31.9
	N	6	7	7	8	7	3	–	–	–	5	1	1
	Er	2.0	0.6	0.5	0.6	0.5	40.5	–	–	–	1.4	–	–

Ranchsburg, Calif., KGRA

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		FREQUENCY											
Sta. No.		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
25NS	ρa	15.8	21.4	31.4	44.7	49.7	51.7	—	—	—	26.6	37.8	4.5
	N	6	6	9	13	13	4	—	—	—	6	1	1
	Er	2.7	3.1	5.6	3.9	2.8	23.3	—	—	—	2.8	—	—
25EW	ρa	25.9	29.5	37.4	48.3	63.5	38.5	—	—	—	7.6	51.9	6.3
	N	6	8	12	12	13	3	—	—	—	7	1	1
	Er	1.6	4.1	3.2	2.5	3.1	5.1	—	—	—	0.7	—	—
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