

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1069 State Office Bldg.
Portland, Oregon 97201

OPEN-FILE REPORT O-76- 2

1975

GEOHERMAL GRADIENT DATA
BROTHERS FAULT ZONE, OREGON

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Preliminary data from a geothermal research project funded by
U.S. Geological Survey Research Grant No. 14-08-0001- G-200

INTRODUCTION

During 1975 the State Of Oregon Department of Geology drilled 26 holes along the Brothers fault zone in central Oregon to obtain temperature gradient data to be used in calculating heat flow. The preliminary gradient results are released to open-file at this time in the hope that they will be of value to interested geothermal research and exploration groups. It should be noted that holes BR-75-1 and BR-75-28 may not have reached thermal stability.

Future publications will provide detail on the significance of these temperature gradients and the geothermal resource potential of central Oregon.

Funds for this work were provided by U.S. Geological Survey geothermal research grant number 14-08-0001-G-200.

The hole locations are given as township, range, section, and quarter-quarter section. The letter code following the section number is as follows: northeast-A, northwest-B, southwest-C, and southeast-D. Hole number BR-75-1, eg., is located in the southeast $\frac{1}{4}$ (D) of the northwest quarter (B) of section 3, township 25 south, range 33 east, Willamette B.L. & M. This convention follows the U.S. Geological Survey system of locating water wells.

LOCATION: DIAMOND LEG, OREGON

25S/33E-3BD

HOLE NUMBER: BR-75-1

DATE MEASURED: 11/22/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	12.450	54.41	.0	.0
5.0	16.4	12.150	53.87	-120.0	-6.6
7.5	24.6	11.980	53.56	-68.0	-3.7
10.0	32.8	12.430	54.37	180.0	9.9
12.5	41.0	12.950	55.31	208.0	11.4
15.0	49.2	13.580	56.44	252.0	13.8
17.5	57.4	14.090	57.36	204.0	11.2
20.0	65.6	14.570	58.23	192.0	10.5
22.5	73.8	15.130	59.23	224.0	12.3
25.0	82.0	15.600	60.08	188.0	10.3
27.5	90.2	15.910	60.64	124.0	6.8
28.6	93.8	16.040	60.87	118.2	6.5

LOCATION: DIAMOND LEG, OREGON

27S/33E-33CB

HOLE NUMBER: BR-75-2

DATE MEASURED: 11/22/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	12.570	54.63	.0	.0
5.0	16.4	12.760	54.97	76.0	4.2
7.5	24.6	11.810	53.26	-380.0	-20.9
10.0	32.8	11.360	52.45	-180.0	-9.9
12.5	41.0	11.350	52.43	-4.0	-.2
15.0	49.2	11.350	52.43	.0	.0
17.5	57.4	11.310	52.36	-16.0	-.9
20.0	65.6	11.330	52.39	8.0	.4
22.5	73.8	11.290	52.32	-16.0	-.9
25.0	82.0	11.280	52.30	-4.0	-.2
27.5	90.2	11.290	52.32	4.0	.2
30.0	98.4	11.280	52.30	-4.0	-.2
30.5	100.0	11.290	52.32	20.0	1.1

LOCATION: DIAMOND LEG, OREGON

28S/32E-36CC

HOLE NUMBER: BR-75-3

DATE MEASURED: 8/12/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
20.0	65.6	12.990	55.38	.0	.0
22.5	73.8	13.050	55.49	24.0	1.3
25.0	82.0	13.120	55.62	28.0	1.5
27.5	90.2	13.200	55.76	32.0	1.8
30.0	98.4	13.300	55.94	40.0	2.2
32.5	106.6	13.430	56.17	52.0	2.9
35.0	114.8	13.570	56.43	56.0	3.1
37.5	123.0	13.680	56.62	44.0	2.4
40.0	131.2	13.700	56.66	8.0	.4
42.5	139.4	13.700	56.66	.0	.0
45.0	147.6	13.700	56.66	.0	.0
47.5	155.8	13.710	56.68	4.0	.2
50.0	164.0	13.710	56.68	.0	.0

LOCATION: DIAMOND LEG, OREGON

29S/32E-34DC

HOLE NUMBER: BR-75-4

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	15.960	60.73	.0	.0
5.0	16.4	13.290	55.92	-1068.0	-58.6
7.5	24.6	12.120	53.82	-468.0	-25.7
10.0	32.8	12.100	53.78	-8.0	-.4
12.5	41.0	12.320	54.18	88.0	4.8
15.0	49.2	12.500	54.50	72.0	4.0
17.5	57.4	12.680	54.82	72.0	4.0
20.0	65.6	12.910	55.24	92.0	5.0
22.5	73.8	13.120	55.62	84.0	4.6
25.0	82.0	13.360	56.05	96.0	5.3
27.5	90.2	13.630	56.53	108.0	5.9
30.0	98.4	13.920	57.06	116.0	6.4
32.5	106.6	14.220	57.60	120.0	6.6
35.0	114.8	14.540	58.17	128.0	7.0
37.5	123.0	14.860	58.75	128.0	7.0
40.0	131.2	15.200	59.36	136.0	7.5
42.5	139.4	15.550	59.99	140.0	7.7
45.0	147.6	15.930	60.67	152.0	8.3
47.5	155.8	16.360	61.45	172.0	9.4
50.0	164.0	16.790	62.22	172.0	9.4
52.0	170.6	17.130	62.83	170.0	9.3

LOCATION: DIAMOND LEG, OREGON

30S/31E-238C

HOLE NUMBER: BR-75-5

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	14.700	58.46	.0	.0
5.0	16.4	11.890	53.40	-1124.0	-61.7
7.5	24.6	11.730	53.11	-64.0	-3.5
10.0	32.8	12.100	53.78	148.0	8.1
12.5	41.0	12.400	54.32	120.0	6.6
15.0	49.2	12.440	54.39	16.0	.9
17.5	57.4	12.530	54.55	36.0	2.0
20.0	65.6	12.730	54.91	80.0	4.4
22.5	73.8	12.800	55.04	28.0	1.5
25.0	82.0	12.830	55.09	12.0	.7
27.5	90.2	13.060	55.51	92.0	5.0
30.0	98.4	13.190	55.74	52.0	2.9

LOCATION: DIAMOND LEG, OREGON

32S/32E-163A

HOLE NUMBER: BR-75-6

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	13.890	57.00	.0	.0
5.0	16.4	10.600	51.08	-1316.0	-72.2
7.5	24.6	10.520	50.94	-32.0	-1.8
10.0	32.8	10.720	51.30	80.0	4.4
12.5	41.0	10.820	51.48	40.0	2.2
15.0	49.2	10.830	51.49	4.0	.2
17.5	57.4	10.850	51.53	8.0	.4
20.0	65.6	10.890	51.60	16.0	.9
22.5	73.8	10.930	51.67	16.0	.9
25.0	82.0	10.970	51.75	16.0	.9
27.5	90.2	11.020	51.84	20.0	1.1
30.0	98.4	11.060	51.91	16.0	.9
32.5	106.6	11.100	51.98	16.0	.9
35.0	114.8	11.140	52.05	16.0	.9
37.5	123.0	11.190	52.14	20.0	1.1
40.0	131.2	11.230	52.21	16.0	.9
42.5	139.4	11.270	52.29	16.0	.9
45.0	147.6	11.310	52.36	16.0	.9
47.5	155.8	11.360	52.45	20.0	1.1
50.0	164.0	11.400	52.52	16.0	.9
52.5	172.2	11.450	52.61	20.0	1.1
55.0	180.4	11.490	52.68	16.0	.9
57.5	188.6	11.540	52.77	20.0	1.1
60.0	196.8	11.590	52.86	20.0	1.1

LOCATION: COYOTE BUTTE, OREGON

27S/30E-36CC

HOLE NUMBER: BR-75-7

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	12.000	53.60	.0	.0
5.0	16.4	10.280	50.50	-688.0	-37.8
7.5	24.6	10.670	51.21	156.0	8.6
10.0	32.8	11.040	51.87	148.0	8.1
12.5	41.0	11.200	52.16	64.0	3.5
15.0	49.2	11.360	52.45	64.0	3.5
17.5	57.4	11.650	52.97	116.0	6.4
20.0	65.6	12.060	53.71	164.0	9.0
22.5	73.8	12.160	53.89	40.0	2.2
25.0	82.0	12.340	54.21	72.0	4.0
27.5	90.2	12.530	54.55	76.0	4.2
30.0	98.4	12.770	54.99	96.0	5.3
32.5	106.6	12.980	55.36	84.0	4.6
35.0	114.8	13.200	55.76	88.0	4.8
37.5	123.0	13.430	56.17	92.0	5.0
40.0	131.2	13.640	56.55	84.0	4.6
42.5	139.4	13.850	56.93	84.0	4.6
45.0	147.6	14.070	57.33	88.0	4.8
47.5	155.8	14.260	57.67	76.0	4.2
50.0	164.0	14.470	58.05	84.0	4.6
52.5	172.2	14.640	58.35	68.0	3.7
55.0	180.4	14.710	58.48	28.0	1.5
57.5	188.6	15.160	59.29	180.0	9.9
60.0	196.8	15.410	59.74	100.0	5.5
62.5	205.0	15.650	60.17	96.0	5.3
65.0	213.2	15.890	60.60	96.0	5.3
67.5	221.4	16.120	61.02	92.0	5.0

LOCATION: DOUBLE-8 LEG, OREGON

26S/30E-20DB

HOLE NUMBER: BR-75-8

DATE MEASURED: 9/29/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	13.010	55.42	.0	.0
7.5	24.6	10.935	51.68	-830.0	-45.5
10.0	32.8	11.215	52.19	112.0	6.1
12.5	41.0	11.330	52.39	46.0	2.5
15.0	49.2	11.365	52.46	14.0	.8
17.5	57.4	11.720	53.10	142.0	7.8
20.0	65.6	12.085	53.75	146.0	8.0
22.5	73.8	12.095	53.77	4.0	.2
25.0	82.0	12.260	54.07	66.0	3.6

LOCATION: DOUBLE-0 LEG, OREGON

27S/29E-21AC

HOLE NUMBER: BR-75-9

DATE MEASURED: 9/29/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	12.650	54.77	.0	.0
7.5	24.6	11.650	52.97	-400.0	-22.0
10.0	32.8	11.140	52.05	-204.0	-11.2
12.5	41.0	11.420	52.56	112.0	6.1
15.0	49.2	11.630	52.93	84.0	4.6
17.5	57.4	11.770	53.19	56.0	3.1
20.0	65.6	11.880	53.38	44.0	2.4
22.5	73.8	11.970	53.55	36.0	2.0
25.0	82.0	12.070	53.73	40.0	2.2
27.5	90.2	12.195	53.95	50.0	2.7
30.0	98.4	12.325	54.18	52.0	2.9
32.5	106.6	12.450	54.41	50.0	2.7
35.0	114.8	12.600	54.68	60.0	3.3
37.5	123.0	12.730	54.91	52.0	2.9
40.0	131.2	12.860	55.15	52.0	2.9
42.5	139.4	13.010	55.42	60.0	3.3
45.0	147.6	13.180	55.72	68.0	3.7

LOCATION: DOUBLE-0 LEG, OREGON

26S/30E-3BB

HOLE NUMBER: BR-75-10

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	14.160	57.49	.0	.0
5.0	16.4	11.940	53.49	-888.0	-48.7
7.5	24.6	12.230	54.01	116.0	6.4
10.0	32.8	12.480	54.46	100.0	5.5
12.5	41.0	12.610	54.70	52.0	2.9
15.0	49.2	12.820	55.08	84.0	4.6
17.5	57.4	12.890	55.20	28.0	1.5
20.0	65.6	12.980	55.36	36.0	2.0
22.5	73.8	13.090	55.56	44.0	2.4
25.0	82.0	13.180	55.72	36.0	2.0
27.5	90.2	13.250	55.85	28.0	1.5
30.0	98.4	13.300	55.94	20.0	1.1

LOCATION: DOUBLE-0 LEG, OREGON

25S/31E-4BB

HOLE NUMBER: BR-75-11

DATE MEASURED: 9/16/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	13.340	56.01	.0	.0
5.0	16.4	10.510	50.92	-1132.0	-62.1
7.5	24.6	10.240	50.43	-108.0	-5.9
10.0	32.8	10.460	50.83	88.0	4.8
12.5	41.0	10.480	50.86	8.0	.4
15.0	49.2	10.490	50.88	4.0	.2
17.5	57.4	10.490	50.88	.0	.0
20.0	65.6	10.540	50.97	20.0	1.1
22.5	73.8	10.540	50.97	.0	.0
25.0	82.0	10.550	50.99	4.0	.2
27.5	90.2	10.600	51.08	20.0	1.1
30.0	98.4	10.650	51.17	20.0	1.1
32.5	106.6	10.700	51.26	20.0	1.1
35.0	114.8	10.750	51.35	20.0	1.1
37.5	123.0	10.810	51.46	24.0	1.3
40.0	131.2	10.880	51.58	28.0	1.5
42.5	139.4	10.950	51.71	28.0	1.5
45.0	147.6	11.030	51.85	32.0	1.8
47.5	155.8	11.100	51.98	28.0	1.5
50.0	164.0	11.180	52.12	32.0	1.8
52.5	172.2	11.270	52.29	36.0	2.0
55.0	180.4	11.320	52.38	20.0	1.1
57.5	188.6	11.410	52.54	36.0	2.0
60.0	196.8	11.490	52.68	32.0	1.8

LOCATION: WAGONTIRE LEG, OREGON

23S/28E-18D

HOLE NUMBER: BR-75-12

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	11.395	52.51	.0	.0
7.5	24.6	10.865	51.56	-212.0	-11.6
10.0	32.8	11.245	52.24	152.0	8.3
12.5	41.0	11.365	52.46	48.0	2.6
15.0	49.2	11.440	52.59	30.0	1.6
17.5	57.4	11.490	52.68	20.0	1.1
20.0	65.6	11.535	52.76	18.0	1.0
22.5	73.8	11.590	52.86	22.0	1.2
25.0	82.0	11.650	52.97	24.0	1.3
27.5	90.2	11.710	53.08	24.0	1.3
30.0	98.4	11.775	53.19	26.0	1.4
32.5	106.6	11.845	53.32	28.0	1.5
35.0	114.8	11.915	53.45	28.0	1.5
37.5	123.0	11.985	53.57	28.0	1.5
40.0	131.2	12.055	53.70	28.0	1.5
42.5	139.4	12.125	53.82	28.0	1.5
45.0	147.6	12.205	53.97	32.0	1.8
47.5	155.8	12.290	54.12	34.0	1.9
50.0	164.0	12.375	54.27	34.0	1.9
52.5	172.2	12.455	54.42	32.0	1.8
55.0	180.4	12.545	54.58	36.0	2.0
57.5	188.6	12.620	54.72	30.0	1.6
60.0	196.8	12.705	54.87	34.0	1.9

LOCATION: WAGONTIRE LEG, OREGON

24S/26E-24AC

HOLE NUMBER: BR-75-13

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	11.535	52.76	.0	.0
7.5	24.6	11.970	53.55	174.0	9.5
10.0	32.8	12.500	54.50	212.0	11.6
12.5	41.0	13.000	55.40	200.0	11.0
15.0	49.2	13.590	56.46	236.0	13.0
17.5	57.4	14.090	57.36	200.0	11.0
20.0	65.6	14.880	58.78	316.0	17.3
22.5	73.8	15.470	59.85	236.0	13.0
25.0	82.0	15.830	60.49	144.0	7.9
27.5	90.2	16.570	61.83	296.0	16.2
30.0	98.4	16.905	62.43	134.0	7.4
32.5	106.6	17.510	63.52	242.0	13.3
35.0	114.8	17.880	64.18	148.0	8.1
37.5	123.0	18.490	65.28	244.0	13.4
40.0	131.2	18.820	65.88	132.0	7.2
42.5	139.4	19.155	66.48	134.0	7.4
45.0	147.6	19.465	67.04	124.0	6.8
47.5	155.8	19.660	67.39	78.0	4.3
50.0	164.0	19.880	67.78	88.0	4.8
52.5	172.2	20.070	68.13	76.0	4.2
55.0	180.4	20.260	68.47	76.0	4.2
57.5	188.6	20.465	68.84	82.0	4.5
60.0	196.8	20.675	69.21	84.0	4.6
61.5	201.7	20.745	69.34	46.7	2.6

LOCATION: WAGONTIRE LEG, ORE.

25S/26E-4CC

HOLE NUMBER: BR-75-14

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	11.110	52.00	.0	.0
7.5	24.6	10.240	50.43	-348.0	-19.1
10.0	32.8	10.450	50.81	84.0	4.6
12.5	41.0	10.730	51.31	112.0	6.1
15.0	49.2	10.900	51.62	68.0	3.7
17.5	57.4	11.030	51.85	52.0	2.9
20.0	65.6	11.170	52.11	56.0	3.1
22.5	73.8	11.310	52.36	56.0	3.1
25.0	82.0	11.550	52.79	96.0	5.3
27.5	90.2	11.775	53.19	90.0	4.9

LOCATION: WAGONTIRE LEG, OREGON

26S/25E-20BB

HOLE NUMBER: BR-75-15

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	10.160	50.29	.0	.0
7.5	24.6	10.795	51.43	254.0	13.9
10.0	32.8	10.920	51.66	50.0	2.7
12.5	41.0	10.945	51.70	10.0	.5
15.0	49.2	10.965	51.74	8.0	.4
17.5	57.4	10.995	51.79	12.0	.7
20.0	65.6	11.040	51.87	18.0	1.0
22.5	73.8	11.095	51.97	22.0	1.2

LOCATION: WAGONTIRE LEG, OREGON

28S/24E-4BA

HOLE NUMBER: BR-75-16

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	10.145	50.26	.0	.0
7.5	24.6	9.340	48.81	-322.0	-17.7
10.0	32.8	9.340	48.81	.0	.0
12.5	41.0	9.520	49.14	72.0	4.0
15.0	49.2	9.655	49.38	54.0	3.0
17.5	57.4	9.760	49.57	42.0	2.3
20.0	65.6	9.890	49.80	52.0	2.9
22.5	73.8	10.040	50.07	60.0	3.3
25.0	82.0	10.200	50.36	64.0	3.5
27.5	90.2	10.255	50.46	22.0	1.2
30.0	98.4	10.365	50.66	44.0	2.4

LOCATION: WAGONTIRE LEG, OREGON
26S/24E-24AD

HOLE NUMBER: BR-75-17

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	10.585	51.05	.0	.0
7.5	24.6	10.725	51.30	56.0	3.1
10.0	32.8	11.025	51.84	120.0	6.6
12.5	41.0	11.180	52.12	62.0	3.4
15.0	49.2	11.320	52.38	56.0	3.1
17.5	57.4	11.495	52.69	70.0	3.8
20.0	65.6	11.705	53.07	84.0	4.6
22.5	73.8	11.840	53.31	54.0	3.0
25.0	82.0	12.075	53.73	94.0	5.2
27.5	90.2	12.330	54.19	102.0	5.6
30.0	98.4	12.540	54.57	84.0	4.6
32.5	106.6	12.760	54.97	88.0	4.8
35.0	114.8	12.970	55.35	84.0	4.6
37.5	123.0	13.185	55.73	86.0	4.7
40.0	131.2	13.415	56.15	92.0	5.0
42.5	139.4	13.655	56.58	96.0	5.3
45.0	147.6	13.845	56.92	76.0	4.2
47.5	155.8	14.035	57.26	76.0	4.2
50.0	164.0	14.230	57.61	78.0	4.3
52.5	172.2	14.440	57.99	84.0	4.6
55.0	180.4	14.595	58.27	62.0	3.4
57.5	188.6	14.850	58.73	102.0	5.6
60.0	196.8	15.050	59.09	80.0	4.4

LOCATION: GLASS BUTTES LEG, OREGON

21S/23E-26C

HOLE NUMBER: BR-75-18

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	11.055	51.90	.0	.0
7.5	24.6	11.020	51.84	-14.0	.8
10.0	32.8	11.340	52.41	128.0	7.0
12.5	41.0	11.500	52.70	64.0	3.5
15.0	49.2	11.605	52.89	42.0	2.3
17.5	57.4	11.735	53.12	52.0	2.9
20.0	65.6	11.880	53.38	58.0	3.2
22.5	73.8	12.000	53.60	48.0	2.6
25.0	82.0	12.100	53.78	40.0	2.2
27.5	90.2	12.195	53.95	38.0	2.1
30.0	98.4	12.295	54.13	40.0	2.2
32.5	106.6	12.395	54.31	40.0	2.2
35.0	114.8	12.500	54.50	42.0	2.3
37.5	123.0	12.605	54.69	42.0	2.3
40.0	131.2	12.705	54.87	40.0	2.2
42.5	139.4	12.810	55.06	42.0	2.3
45.0	147.6	12.905	55.23	38.0	2.1
47.5	155.8	13.005	55.41	40.0	2.2
50.0	164.0	13.105	55.59	40.0	2.2
52.5	172.2	13.205	55.77	40.0	2.2
55.0	180.4	13.310	55.96	42.0	2.3
57.5	188.6	13.410	56.14	40.0	2.2
60.0	196.8	13.515	56.33	42.0	2.3

LOCATION: GLASS BUTTES LEG, OREGON

22S/23E-14CB

HOLE NUMBER: BR-75-19

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	10.190	50.34	.0	.0
7.5	24.6	10.235	50.42	18.0	1.0
10.0	32.8	10.630	51.13	158.0	8.7
12.5	41.0	10.850	51.53	88.0	4.8
15.0	49.2	11.000	51.80	60.0	3.3
17.5	57.4	11.155	52.08	62.0	3.4
19.0	62.3	11.150	52.07	-3.3	-.2

LOCATION: GLASS BUTTES LEG, OREGON

23S/23E-18C

HOLE NUMBER: BR-75-21

DATE MEASURED: 9/30/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	11.040	51.87	.0	.0
7.5	24.6	10.895	51.61	-58.0	-3.2
10.0	32.8	11.350	52.43	182.0	10.0
12.5	41.0	11.670	53.01	128.0	7.0
15.0	49.2	11.950	53.51	112.0	6.1
17.5	57.4	12.290	54.12	136.0	7.5
20.0	65.6	12.620	54.72	132.0	7.2
22.5	73.8	12.980	55.36	144.0	7.9
25.0	82.0	13.390	56.10	164.0	9.0
27.5	90.2	13.690	56.64	120.0	6.6
30.0	98.4	14.105	57.39	166.0	9.1
32.5	106.6	14.610	58.30	202.0	11.1
35.0	114.8	15.080	59.14	188.0	10.3
37.5	123.0	15.440	59.79	144.0	7.9
40.0	131.2	15.780	60.40	136.0	7.5
42.5	139.4	16.095	60.97	126.0	6.9
45.0	147.6	16.425	61.56	132.0	7.2
47.5	155.8	16.760	62.17	134.0	7.4
50.0	164.0	17.100	62.78	136.0	7.5
52.5	172.2	17.440	63.39	136.0	7.5
55.0	180.4	17.780	64.00	136.0	7.5
57.5	188.6	18.095	64.57	126.0	6.9
60.0	196.8	18.430	65.17	134.0	7.4
62.5	205.0	18.740	65.73	124.0	6.8

LOCATION: GLASS BUTTES LEG, OREGON
24S/22E-2DD

HOLE NUMBER: BR-75-22

DATE MEASURED: 10/ 2/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	13.800	56.84	.0	.0
5.0	16.4	11.340	52.41	-984.0	-54.0
7.5	24.6	11.560	52.81	88.0	4.8
10.0	32.8	11.665	53.00	42.0	2.3
12.5	41.0	12.335	54.20	268.0	14.7
15.0	49.2	12.545	54.58	84.0	4.6
17.5	57.4	12.830	55.09	114.0	6.3
20.0	65.6	13.110	55.60	112.0	6.1
22.5	73.8	13.400	56.12	116.0	6.4
25.0	82.0	13.680	56.62	112.0	6.1
27.5	90.2	13.990	57.18	124.0	6.8
30.0	98.4	14.250	57.65	104.0	5.7
32.5	106.6	14.590	58.26	136.0	7.5
35.0	114.8	14.895	58.81	122.0	6.7
37.5	123.0	15.180	59.32	114.0	6.3
40.0	131.2	15.500	59.90	128.0	7.0
42.5	139.4	15.790	60.42	116.0	6.4
45.0	147.6	16.140	61.05	140.0	7.7
47.5	155.8	16.455	61.62	126.0	6.9
50.0	164.0	16.760	62.17	122.0	6.7
52.5	172.2	17.065	62.72	122.0	6.7
55.0	180.4	17.355	63.24	116.0	6.4
57.5	188.6	17.660	63.79	122.0	6.7
60.0	196.8	17.955	64.32	118.0	6.5

LOCATION: GLASS BUTTES LEG, OREGON

24S/22E-20AA

HOLE NUMBER: BR-75-23

DATE MEASURED: 10/ 2/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	10.515	50.93	.0	.0
7.5	24.6	10.425	50.76	-36.0	-2.0
10.0	32.8	10.660	51.19	94.0	5.2
12.5	41.0	10.740	51.33	32.0	1.8
15.0	49.2	10.800	51.44	24.0	1.3
17.5	57.4	10.885	51.59	34.0	1.9
20.0	65.6	10.985	51.77	40.0	2.2
22.5	73.8	11.240	52.23	102.0	5.6
25.0	82.0	11.535	52.76	118.0	6.5
27.5	90.2	11.815	53.27	112.0	6.1
30.0	98.4	12.110	53.80	118.0	6.5
32.5	106.6	12.420	54.36	124.0	6.8
35.0	114.8	12.540	54.57	48.0	2.6
37.5	123.0	12.710	54.88	68.0	3.7
40.0	131.2	12.880	55.18	68.0	3.7
42.5	139.4	13.055	55.50	70.0	3.8
45.0	147.6	13.230	55.81	70.0	3.8
47.5	155.8	13.410	56.14	72.0	4.0
50.0	164.0	13.610	56.50	80.0	4.4
52.5	172.2	13.845	56.92	94.0	5.2
55.0	180.4	14.085	57.35	96.0	5.3
57.5	188.6	14.280	57.70	78.0	4.3
60.0	196.8	14.430	57.97	60.0	3.3

LOCATION: FREDRICK B. LEG, OREGON

21S/19E-12D

HOLE NUMBER: BR-75-24

DATE MEASURED: 10/ 2/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	11.680	53.02	.0	.0
5.0	16.4	9.580	49.24	-840.0	-46.1
7.5	24.6	8.860	47.95	-238.0	-15.8
10.0	32.8	9.020	48.24	64.0	3.5
12.5	41.0	9.255	48.66	94.0	5.2
15.0	49.2	9.410	48.94	62.0	3.4
17.5	57.4	9.630	49.33	88.0	4.8
20.0	65.6	9.860	49.75	92.0	5.0
22.5	73.8	9.965	49.94	42.0	2.3
25.0	82.0	10.055	50.10	36.0	2.0
27.5	90.2	10.170	50.31	46.0	2.5
30.0	98.4	10.285	50.51	46.0	2.5
32.5	106.6	10.465	50.84	72.0	4.0
35.0	114.8	10.680	51.22	86.0	4.7
37.5	123.0	10.920	51.66	96.0	5.3
40.0	131.2	11.165	52.10	98.0	5.4
42.5	139.4	11.450	52.61	114.0	6.3
45.0	147.6	11.785	53.21	134.0	7.4
47.5	155.8	12.125	53.82	136.0	7.5
50.0	164.0	12.345	54.22	88.0	4.8
52.5	172.2	12.590	54.66	98.0	5.4
55.0	180.4	12.860	55.15	108.0	5.9
57.5	188.6	13.035	55.46	70.0	3.8
60.0	196.8	13.230	55.81	78.0	4.3

LOCATION: FREDRICK B. LEG, OREGON
 20S/21E-78A
 HOLE NUMBER: BR-75-25
 DATE MEASURED: 10/ 2/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
5.0	16.4	9.550	49.19	.0	.0
7.5	24.6	9.480	49.06	-28.0	-1.5
10.0	32.8	9.750	49.55	108.0	5.9
12.5	41.0	9.915	49.85	66.0	3.6
15.0	49.2	10.035	50.06	48.0	2.6
17.5	57.4	10.160	50.29	50.0	2.7
20.0	65.6	10.295	50.53	54.0	3.0
22.5	73.8	10.420	50.76	50.0	2.7
25.0	82.0	10.560	51.01	56.0	3.1
27.5	90.2	10.695	51.25	54.0	3.0
30.0	98.4	10.835	51.50	56.0	3.1
32.5	106.6	10.965	51.74	52.0	2.9
35.0	114.8	11.095	51.97	52.0	2.9
37.5	123.0	11.225	52.20	52.0	2.9
40.0	131.2	11.350	52.43	50.0	2.7
42.5	139.4	11.470	52.65	48.0	2.6
45.0	147.6	11.610	52.90	56.0	3.1
47.5	155.8	11.750	53.15	56.0	3.1
50.0	164.0	11.885	53.39	54.0	3.0
52.5	172.2	12.010	53.62	50.0	2.7
55.0	180.4	12.150	53.87	56.0	3.1
57.5	188.6	12.290	54.12	56.0	3.1

LOCATION: FREDRICK B. LEG, OREGON
 22S/19E-5CC
 HOLE NUMBER: BR-75-27
 DATE MEASURED: 10/ 2/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	12.780	55.00	.0	.0
5.0	16.4	10.045	50.08	-1094.0	-60.0
7.5	24.6	9.155	48.48	-356.0	-19.5
10.0	32.8	9.265	48.68	44.0	2.4
12.5	41.0	9.495	49.09	92.0	5.0
15.0	49.2	9.730	49.51	94.0	5.2
17.5	57.4	9.905	49.83	70.0	3.8
20.0	65.6	10.080	50.14	70.0	3.8
22.5	73.8	10.240	50.43	64.0	3.5
25.0	82.0	10.400	50.72	64.0	3.5
27.5	90.2	10.590	51.06	76.0	4.2
30.0	98.4	10.700	51.26	44.0	2.4
32.5	106.6	10.825	51.48	50.0	2.7
35.0	114.8	10.960	51.73	54.0	3.0
37.5	123.0	11.170	52.11	84.0	4.6

LOCATION: FREDRICK B. LEG, OREGON
 22S/19E-32AD
 HOLE NUMBER: BR-75-28
 DATE MEASURED: 11/21/75

DEPTH METERS	DEPTH FEET	TEMPERATURE		GEOTHERMAL GRADIENT	
		DEG C	DEG F	DEG C/KM	DEG F/100 FT
2.5	8.2	9.720	49.50	.0	.0
5.0	16.4	10.270	50.49	220.0	12.1
7.5	24.6	9.610	49.30	-264.0	-14.5
10.0	32.8	9.290	48.72	-128.0	-7.0
12.5	41.0	9.340	48.81	20.0	1.1
15.0	49.2	9.500	49.10	64.0	3.5
17.5	57.4	9.620	49.32	48.0	2.6
20.0	65.6	9.720	49.50	40.0	2.2
22.5	73.8	9.830	49.69	44.0	2.4
25.0	82.0	9.940	49.89	44.0	2.4
27.5	90.2	10.030	50.05	36.0	2.0
30.0	98.4	10.130	50.23	40.0	2.2
32.5	106.6	10.220	50.40	36.0	2.0
35.0	114.8	10.310	50.56	36.0	2.0
37.5	123.0	10.410	50.74	40.0	2.2
40.0	131.2	10.560	51.01	60.0	3.3
42.5	139.4	10.760	51.37	80.0	4.4
45.0	147.6	11.160	52.09	160.0	8.8
47.5	155.8	11.480	52.66	128.0	7.0
49.4	162.2	11.660	52.99	92.3	5.1











