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Temperatures and Natural Gamma-Ray Logs Obtained in 1986 from Shady Rest Drill Hole RD08, Mammoth Lakes, Mono County, California

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ABSTRACT

Temperatures were measured in Shady Rest drill hole RD08, Mammoth Lakes, Mono County, Calif., on five occasions in July and once in September 1986. The interpretation of these temperature logs was complicated by a complex drilling history, multiple strings of casing, lost circulation, and the introduction of a large quantity (~1,100 gal) of cold water into the annulus between the HQ and NQ casings in order to determine the top of the cement. Nevertheless, the general pattern from these logs indicates a high temperature (maximum 202°C at -1,110 ft) and significant formation permeability above this level, as evidenced by the lost circulation during drilling and the ability of the formation to absorb injected fluid after the well was completed. Changes in temperature logs run in July and September appear to result from fluid loss to the formation during and following drilling and possibly to ground shaking associated with present and past seismic activity in the Long Valley region. Natural gamma-ray logs obtained on four occasions in September 1986 vary in detail but generally follow the same trend from one log to another with pronounced breaks at about 800 and 1,076 ft, corresponding to changes in lithology.

The fact that temperatures in RD08 are close to boiling at 1,110 ft and that RD08 is located near the western terminus of a WNW zone of strike-slip faulting some 10 km long, 2 km wide, and extending to a depth of about 8 km leads us to speculate as to the cause and consequence of this seismicity, particularly with regard to spasmodic tremor evident in earthquake swarms in this zone.

The fragile hydrothermal regime of Long Valley caldera was severely disrupted by strong local earthquakes beginning between 1978 and 1980. Subsurface boiling may have occurred along dilational jogs (in the manner of Sibson, 1986) in the south moat. Consequent brecciation of rocks may have produced a significant positive change in volume, the process being fortified by the large heat release upon hydrothermal alteration of previously unaltered rocks. Whether this hypothetical volume change is large enough to have significantly influenced tectonic events remains obscure.

INTRODUCTION

The town of Mammoth Lakes is located in the Long Valley caldera on the eastern margin of the Sierra Nevada block in Mono County, Calif. Numerous surface manifestations of hydrothermal activity are readily apparent at a number of locations in Long Valley. Hot springs and pools, fumeroles, mudpots, warm ground, clay, and other hydrothermal alteration products are present. Most of the surface thermal activity is in the area near Casa Diablo Hot Springs, along Hot Creek, and along Little Hot Creek. Bailey and others (1976) recently discussed the geology of the Long Valley caldera. Cleveland (1962) discussed the geology of the area with special emphasis on the clay

deposits. Hydrologic and geochemical data have been summarized by Sorey and others (1978) and Farrar and others (1985).

To evaluate the geothermal potential of the Mammoth Lakes area, a test well, Shady Rest drill hole RD08 (in this text referred to as RD08, fig. 1) was cored to a total depth of 2,346 ft. The location (37°39.4' N. lat, 118°57.2' W. long) is about 2 km northeast of the town of Mammoth Lakes adjacent to the Shady Rest Campground of Inyo National Forest. The hole presented an opportunity to periodically monitor temperature, pressure, and chemistry of water in a thermal aquifer of the southwestern moat of the caldera (Wollenberg and others, 1986; 1987). Drilling operations were completed on June 17, 1986. From the ground surface downward, the well encountered glacial till (0-210 ft), moat rhyolite (210-672 ft), early rhyolite (672-1,407 ft), and Bishop Tuff (1,407-2,346 ft) (Flexser and Dayvault, 1987). A preliminary Kuster-gage temperature-survey, obtained on June 20, 1986 at roughly 50-ft intervals, indicated the overall pattern of high temperatures at shallow depth that we report here.

The project was sponsored as part of the Continental Scientific Drilling Program by the Department of Energy, Office of Basic Energy Sciences, with contributions by the California Energy Commission, Mono County, and the U.S. Geological Survey.

DRILLING HISTORY

RD08 (Research Drilling Office No. 8) was drilled by the Tonto Drilling Company under the auspices of DOE's Geosciences Research Drilling Office at Sandia National Laboratories. The hole is sometimes referred to as the Shady Rest (SR) hole because of its proximity to the Shady Rest campground.

Drilling commenced on May 7, 1986. The hole was drilled with a rotary tricone bit (7-3/8 in.) to 303 ft, measured from the ground surface. Subsequently, a PQ casing was set from the surface to 303 ft and the annulus cemented. The hole was then cored to 2,346 ft (using HQ diamond-core bits) with greater than 90 percent recovery (Wollenberg and others, 1986; 1987). Due to the high temperatures and alteration of the early rhyolite (Bailey and others, 1976), attempts to ream the hole in order to set casing were unsuccessful. After several attempts (fig. 2; table 1) to clear the hole of material that sloughed, accompanied by multiple bit deviations from the initial track, an HQ casing was set at 898 ft and the annulus cemented. An NQ hole was subsequently drilled to 1,397 ft (almost to the Bishop Tuff at 1,407 ft) and past the point of maximum temperature, as determined by maximum- and Kuster-gage thermometers. A decision was made to cement the drill rods in place, and excess cement was pumped down the NQ rods to fill the annulus. No cement circulated to the surface, despite pumping a wiper plug down the NQ drill rods to displace the cement in the rods with water. The wiper plug used to displace the cement from the NQ rod did not hold, and the cement level stabilized at about 1,276 ft (fig. 3). On the basis of the temperature logs and the cold water "slug" test conducted on July 8, 1986, it appeared that the cement filled the annulus around the NQ rods to about 1,106 ft, as shown in figure 3.

From the driller's log (L.C. Bartel, written commun., 1987), it was evident that there were problems during drilling with lost circulation, hard and soft layers, badly fractured zones, and deviations from the initial hole that was drilled to 2,346 ft. How many holes were subsequently drilled will probably never be known. From figure 2 it is conceivable that as many as nine

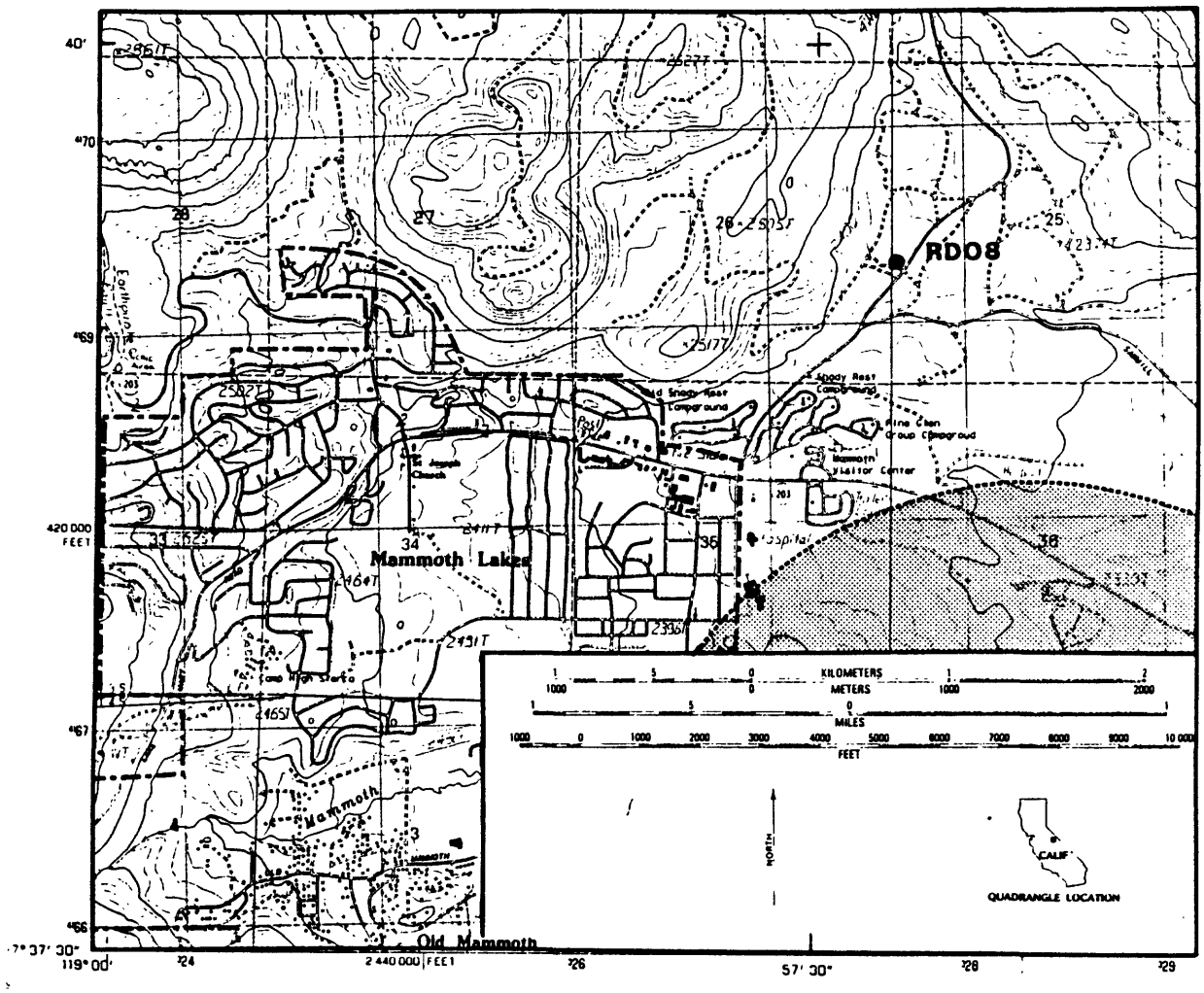

FIGURE 1. Location of drill hole RDO8 on U.S. Geological Survey 7½-minute Old Mammoth quadrangle map, Provisional Edition of 1983. The boundary of Mammoth Lakes is shown by a dot-dash line. The partial circle (shaded pattern outlined by a dotted line) east of Mammoth Lakes is the region of intense earthquake swarms and spasmodic tremor outlined by Ryall and Ryall (1983, p. 1432).

TABLE 1.--Drilling history of RD08

[Diameters=inches; L.C.=lost circulation. Data from drillers' log]

Day number	Date (1986)	Depth (feet)		Remarks
		From	To	
1	5/7	0	160	Started drilling.
2	5/8	160	287	
3	5/9	287	303	Cased (PQ) and cemented.
4	5/10	303	327	
5	5/11	327	398	From 384 to 387 ft, badly fractured.
6	5/12	398	609	
7	5/13	609	734	From 624 to 643 ft, 698 ft L.C.
8	5/14	734	969	
9	5/15	969	1134	From 1064 to 1075 ft L.C.
10	5/16	1134	1244	Void(?) from 1194 to 1204 ft.
11	5/17	1244	1324	
12	5/18	1324	1452	
13	5/19	1452	1496	Drill depth 1492 ft. Fluid level measured at 150 ft.
14	5/20	1496	1544	
15	5/21	1544	1672	
16	5/22	1672	1742	
17	5/23	1742	1794	
18	5/24	1794	1834	
19	5/25	1834	1913	
20	5/26	1913	2042	Badly fractured from 1941 to 1951 ft.
21	5/27	2042	2124	
22	5/28	2124	2202	Badly fractured from 2134 to 2162 ft.
23	5/29	2202	2304	
24	5/30	2304	2346	
25	5/31	623	673	Reamed with tricone bit.
26	6/1	671	981	Reamed with 3-7/8-in.-diameter tricone bit.
27	6/2	981	1101	Wash.
28	6/3	810	1090	Wash.
29	6/4	800	1100?	"New" hole; cemented.
30	6/5	674	835	Drilled cement; soft.
31	6/6	835	1101	Drilled from 855 to 1123 ft with a 3-7/8-in.-diameter tricone bit.
32	6/7	1101	1179.5	Started coring at 1123 ft; hard.
33	6/8	1179.5	1239	
		790	820	"New" hole; caving.
34	6/9	790	1071	"New" hole.
35	6/10	1071	1101	
		794	898.5	"New" hole.
36	6/11	898.5	914.5	Cemented at 898.5 ft HQ drill rod.
37	6/12	914.5	1071	Gouge at 932-942 ft and 972-992 ft.
38	6/13	1071	1128.5	At 1073 ft L.C.
39	6/14	1128.5	1254	
40	6/15	1254	1377.5	Gouge at 1350-1360 ft.
41	6/16	1377.5	1397.5	Gouge at 1384-1397 ft.
42	6/17			Cemented NQ drill rod.

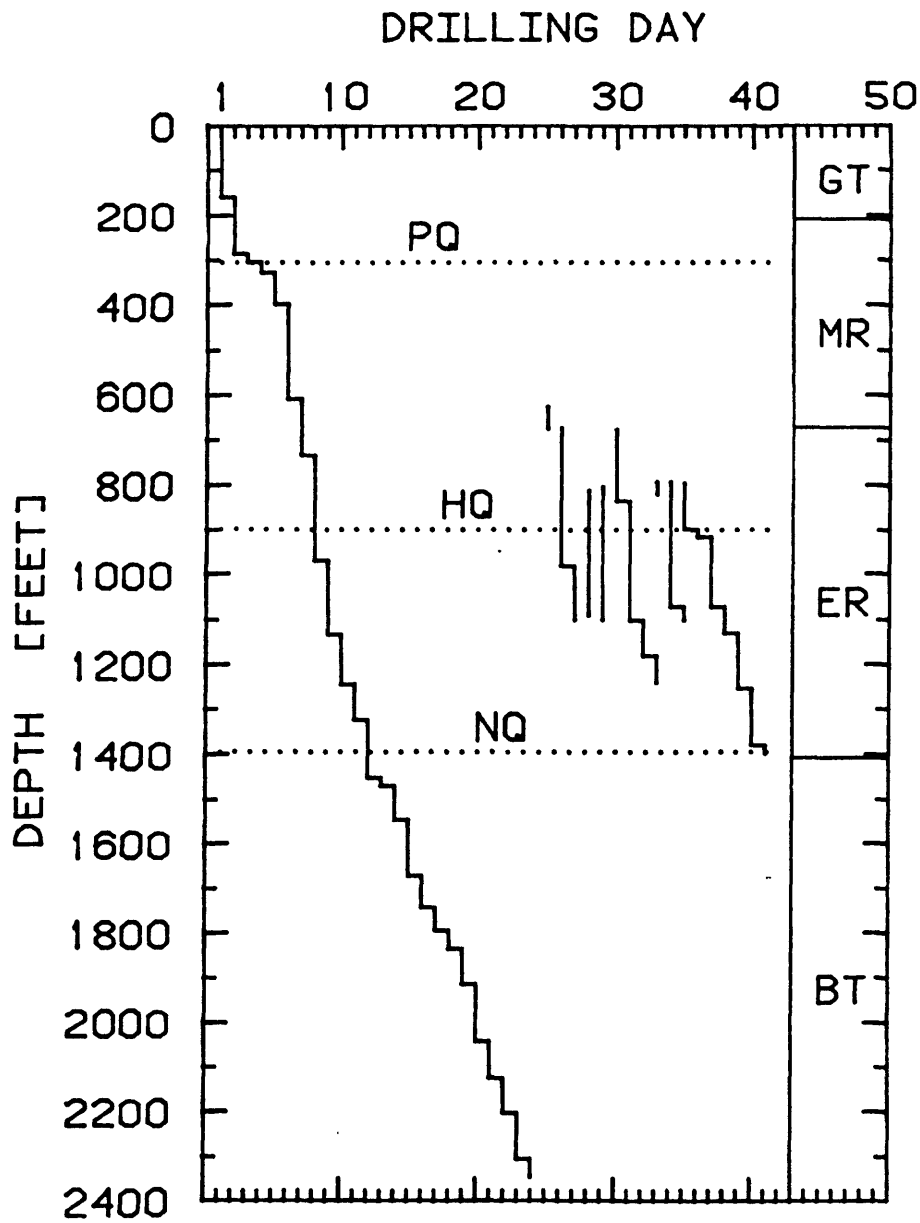

FIGURE 2. Drilling history of RDO8 showing the depths (in feet) drilled on a given date. These depths include drilling and reaming of the hole. The depths drilled are shown only to the nearest day for emphasis, although drilling was actually conducted on a 24-hr basis. The bottom of the PQ, HQ, and NQ casings are shown as dotted lines. A completion diagram for the hole is illustrated in figure 3. The generalized geologic section from Flexser and Dayvault (1987) is shown on the right-hand margin of the plot. The units represented are GT (glacial till), MR (moat rhyolite), ER (early rhyolite), and BT (Bishop Tuff). All depths are referenced to ground level.

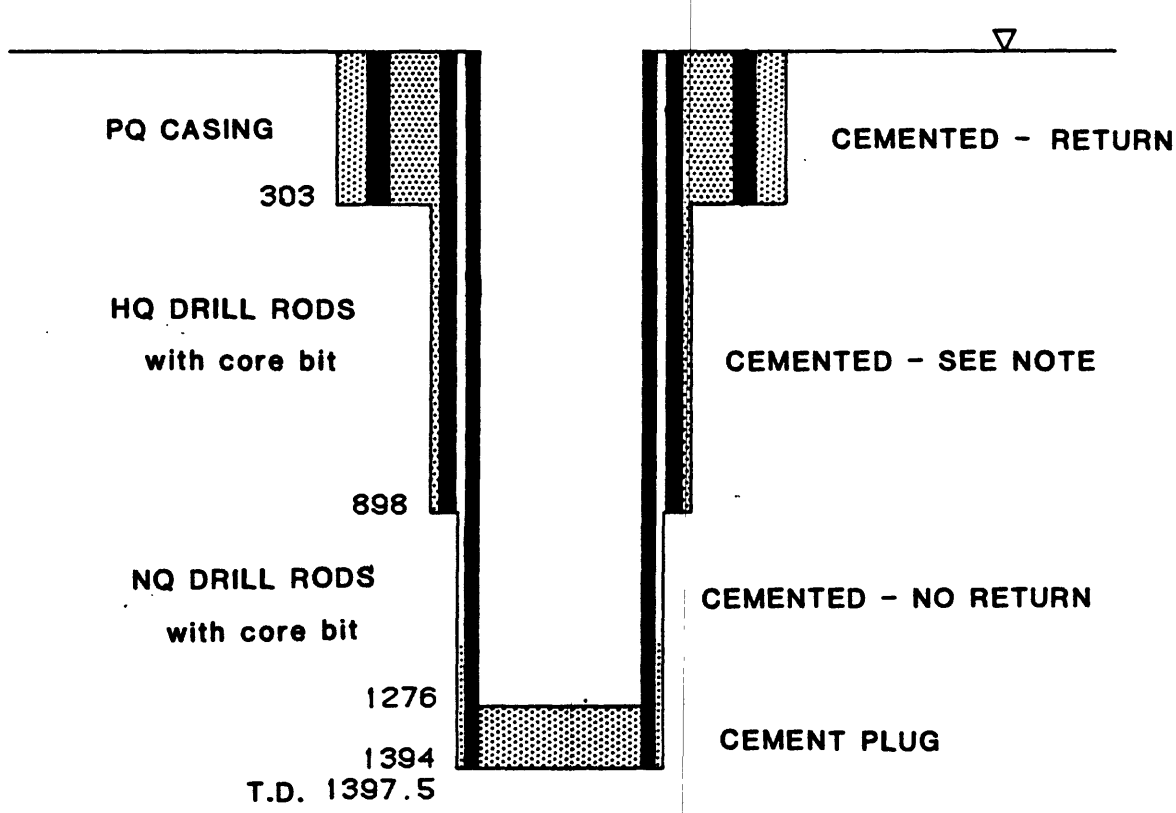

FIGURE 3. Casing diagram for RD08. Casing is solid, thick lines; hole wall is solid thin lines; and cement is dotted pattern. All measurements in feet are from the ground surface. HQ drill rod was cemented with 200 ft^3 of cement with no return to the surface on June 11, 1986. Cement (140 ft^3) was subsequently pumped down from the top on June 17, 1986. The PQ casing is 5 in. I.D. and 5-5/8 in. O.D. The HQ drill rod is 3-1/16 in. I.D. and 3-1/2 in. O.D. The NQ drill rod is 2-3/8 in. I.D. and 2-3/4 in. O.D. The HQ bit was 3.782 in. O.D. and the NQ bit was 2.980 in. O.D.

separate holes were drilled during the drilling and subsequent reaming processes, although only five "new" holes are mentioned in the drilling log. This multiplicity of holes complicated any interpretation of the thermal regime since, depending upon whether the previous holes had filled-in or collapsed, they could have provided fluid conduits in addition to existing fractures in the formations.

BHT AND KUSTER-GAGE TEMPERATURES

Temperatures were measured during drilling using maximum thermometers. A thermometer was lowered to the bottom of the hole and retrieved after several minutes. The temperature noted on the thermometer was the maximum temperature that the thermometer encountered in the hole but this did not necessarily reflect the temperature at the bottom of the hole (BHT). It reflected the temperature at the bottom of the hole if the temperatures increased monotonically with depth; that is, there were no major reversals. In order to minimize any effects on the readings obtained by the maximum thermometer, due to hot zones above the bottom of the hole, the thermometer was encased in a water-filled tube. This increased the thermal inertia of the thermometer but required that it be left at the bottom of the hole for a longer period of time in order to reach temperature equilibrium with its surroundings. This method was used for the data set obtained from the first hole (BHT of fig. 4) which was drilled to 2,346 ft. Successive "holes" were also measured using this technique and temperatures are shown as plus signs (+) in figure 4. All of the BHT measurements were referenced to the ground surface.

After completion of drilling on June 17, 1986, a Kuster-gage temperature survey was obtained in the cased hole on June 20, 1986 (labeled 6/20, fig. 4). As can be seen, these temperatures compared favorably to those we obtained on July 7, 1986, using a thermistor probe. The agreement was good considering the disturbance above 1,100 ft due to drilling, washing, redrilling, and cementing. The temperatures from the BHT and Kuster-gage surveys are listed in tables 2 and 3.

THERMISTOR TEMPERATURES--METHOD

Temperatures were measured in RD08 during July and September 1986 using a thermistor probe. The probe was manufactured by Conax and is a single, glass-encapsulated thermistor bead housed in a 1/8-in.-diameter stainless steel tube, with the void space in the tubing filled with manganese oxide to increase the thermal contact between the thermistor and the tubing. The probe has a nominal time constant of less than 2 s in stirred water. The probe was attached to a probe housing (1 in. diameter by 3 in. long) by a compression fitting with a Viton seal. The probe housing was attached to a 4-conductor, teflon-insulated cable through a Gearhart-Owen cablehead. The 7/32-in.-diameter armored cable was manufactured by Rochester Cable. To add weight to the probe, two sinker bars were positioned above the cablehead. The first was 1 in. diameter and the next in line up the cable was 1-3/4 in. diameter. The sinker bars were made of steel and were 4 ft long.

To measure temperatures, the thermistor resistance in ohms was measured with a Fluke 8502 digital multimeter (DMM) using a four-wire ohms measurement that eliminated the cable resistance. The DMM was interfaced to a Tektronix 4051 Graphic Computer System through the General Purpose Interface Bus (GPIB or IEEE-488 bus). The depths were encoded by a measuring sheave and also

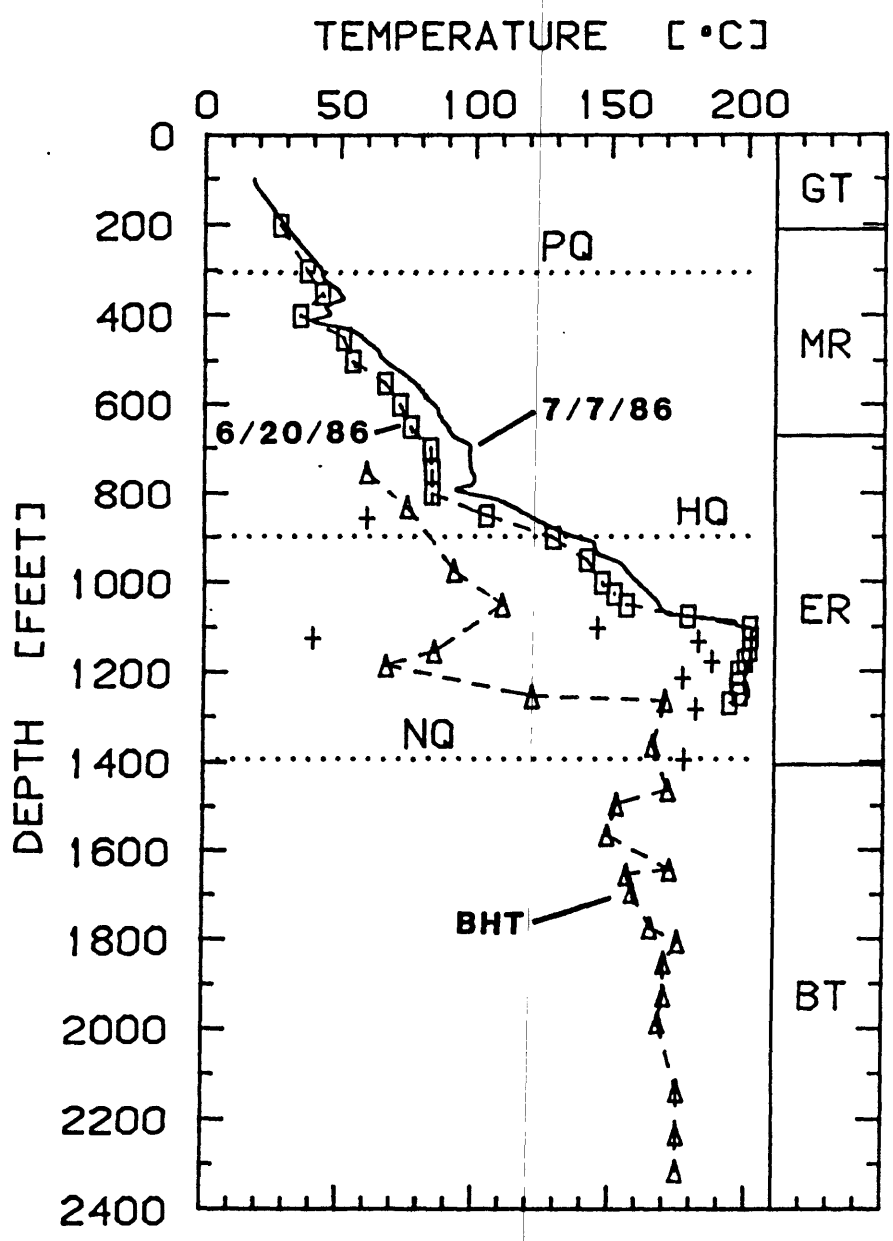

FIGURE 4. BHT and Kuster-gage temperatures for RDO8. The BHT (Bottom Hole Temperatures, Δ) were obtained on the date shown in table 2 as the hole was drilled. Dashed line connecting the triangles is for clarity only. It should not be interpreted as a continuous log. The Kuster-gage temperatures (□) were obtained on June 20, 1986, and they are listed in table 3. The remaining temperature points (+) are BHT measurements obtained after the first hole was drilled. Thermistor temperatures (7/7/86) are plotted as a solid line. The maximum depth of PQ, HQ, and NQ casings is shown as a dotted line. The generalized geologic section illustrated on the right-hand side of the figure is from Flexser and Dayvault (1987). GT (glacial till), MR (moat rhyolite), ER (early rhyolite), and BT (Bishop Tuff). The BHT temperatures are referenced to ground level while all other temperatures are referenced to the top of the casing, 1.8 ft above ground surface.

TABLE 2.--Bottom-hole temperatures (BHT) for RD08

[Exact time after circulation ceased is unknown but is on the order of tens of minutes. Depth are referenced to ground level]

Depth (feet)	Temperature (°C)	Date (1986)
753	60	5/14
832	75	5/14
974	92	5/15
1050	110	5/15
1154	85	5/16
1184	67	5/16
1254	121	5/17
1264	170	5/17
1362	166	5/18
1462	171	5/19
1494	152	5/19
1564	149	5/21
1642	172	5/21
1682	156	5/22
1692	158	5/22
1772	165	5/23
1804	175	5/24
1850	170	5/25
1923	170	5/26
1984	168	5/26
2134	175	5/28
2232	175	5/29
2314	175	5/30
855	60	6/6
1123	40	6/7
1100	145	6/13
1129	182	6/14
1174	187	6/14
1212	176	6/14
1281	181	6/15
1393	177	6/16

TABLE 3.--Kuster-gage temperatures in RD08 obtained in RD08 on June 20, 1986

[Depths are referenced to the top of the casing, 1.8 ft above ground level]

Depth (feet)	Temperature (°C)	Length of time (minutes)	Time (PDT)
100	<26.7	5	08:06
200	27.8	5	08:15
300	37.7	5	08:21
350	43.3	7	08:27
400	35.3	5	08:35
450	51.4	5	08:41
500	54.8	10	08:47
550	66.6	5	08:58
600	72.2	5	09:04
650	76.0	7	09:10
700	83.6	5	09:18
750	84.1	10	09:24
800	84.2	5	09:34
850	104.1	5	09:40
900	128.5	5	09:45
950	141.0	5	09:51
1000	146.7	10	09:56
1025	151.1	7	10:07
1050	155.6	7	10:15
1075	178.2	7	10:22
1100	200.9	7	10:30
1125	201.1	7	10:38
1150	200.9	11	10:45
1175	199.3	7	10:56
1200	196.6	7	11:02
1225	196.3	7	11:09
1250	197.1	7	11:16
1269	193.7	10	11:23
1100	201.0	9	11:35
900	132.4	9	11:46
500	56.3	9	11:57

interfaced to the Tektronix 4051 through the GPIB bus. Data were reduced by a BASIC program which converted thermistor resistance to temperature with a 3-constant equation:

$$T = (C1 + C2 \times \ln(R))/(C3 + \ln(R)) , \qquad (1)$$

where T is temperature (°C), R is resistance (ohms), C1, C2, and C3 are the probe constants and ln is the natural logarithm. The calibrations for the probe used (100-13) are listed in tables 4 and 5. As the data were being obtained, they were stored on punched-paper tape, printed on a dot-matrix line printer, and plotted on a digital x-y plotter. The field temperatures all used the June 27, 1986, calibration.

The logs were obtained by lowering the probe down the hole at a continuous rate of 10 ft/min with the configuration as described above. The depths obtained from the measuring sheave were continuously sampled, and at integer 1-ft intervals, readings were obtained from the Fluke 8502A DMM. The depths for the thermistor temperatures are referenced to the top of the casing, 1.8 ft above ground level. The 8502A was set to obtain 32 samples and average them for one reading. The time for taking the 32 samples, averaging them, and addressing the 8502A over the GPIB bus was about 300 ms. Most of the time was consumed by the GPIB bus operations as the 8502A can take up to 500 samples per second. During the time that one reading was being obtained (300 ms), the probe moved about 0.6 in. The DC noise (DC voltage) generated by the combination of the cable (about 7,000 ft long), the slip ring, and the probe was checked before (probe at the surface) and after the log was completed (probe at the bottom of the hole). The noise ranged from 1 to 10 μV. Noise values greater than about 10-15 μV usually indicate some water leakage into the cablehead or into the probe due to O-ring failure.

THERMISTOR TEMPERATURES--CALIBRATIONS

Thermistor probe no. 100-13 was calibrated on June 27, 1986, using a Guildline 9540 platinum resistance thermometer. The 9540 was calibrated in Guildline's standards laboratory. The standards are directly traceable to the National Research Council in Ottawa, Canada, and MIL-STD-45662 establishes traceability of the relevant Canadian legal standards to the United States legal standards. Applicable NRC reports include: APH-2511 and APH-2688. The results of this calibration are presented in table 4. The calibration procedure consisted of mechanically attaching the thermistor probe and the 9540 together and immersing them in a stirred fluid bath for temperatures greater than 0°C. For the ice point (0°C), the probe and platinum thermometer were placed in a thermos of crushed ice and distilled water. The temperatures were allowed to stabilize in the thermos and 10 readings were taken of temperature and resistance over a length of time of 5 min (a reading every 30 s). Although this is not necessary at the ice point, taking 10 readings over 5 min is standard for all the other temperature-calibration points and is, therefore, done for consistency. For temperatures from 10°C on up, the calibration interval is 10°C. For all of these temperature steps, the procedure was to raise the temperature to the next 10 degrees, roughly, and then slowly allow the temperature to increase while taking temperature-resistance readings. The slow increase in temperature gave a range of values,

TABLE 4.--Thermistor calibrations for probe 100-13 on June 27, 1986

[Seven calibrations are presented. For each calibration, the probe constants are given for the nominal temperature range along with a standard deviation for each of the probe constants and a table showing the thermistor resistance (in ohms); platinum-thermometer temperature (observed temperature (°C); calculated temperature (°C) based on the thermistor equation, resistance, and calibration constants (C1, C2, and C3); and the difference between the observed and calibrated temperatures. T=calculated temperature (°C), R=thermistor resistance (ohms), C1, C2, and C3=calibration constants, and ln=natural logarithm]

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 0 - 30 C

CALIBRATION RESISTANCE RANGE: 84210 - 388930 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 4206.8795	S. DEV. C1 = 3.3878
C2 = -326.8486	S. DEV. C3 = 0.2635
C3 = 5.2646	S. DEV. C3 = 0.0134

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 0 - 30 C

CALIBRATION RESISTANCE RANGE: 84210 - 388930 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
388923	-0.001	-0.002	0.001
388923	-0.003	-0.002	-0.001
388924	-0.001	-0.002	0.001
388927	-0.001	-0.002	0.001
388926	-0.003	-0.002	-0.001
388933	-0.003	-0.002	-0.001
388927	-0.003	-0.002	-0.001
388928	-0.001	-0.002	0.001
388927	-0.001	-0.002	0.001
388928	-0.001	-0.002	0.001
226663	10.025	10.027	-0.002
226324	10.055	10.056	-0.001
225990	10.085	10.084	0.001
225653	10.113	10.113	0.000
225321	10.141	10.141	0.000
224978	10.169	10.170	-0.001
224630	10.199	10.200	-0.001
224285	10.229	10.229	0.000
223951	10.257	10.258	-0.001
223605	10.285	10.287	-0.002
135544.5	20.164	20.167	-0.003
135344.0	20.198	20.197	0.001
134952.0	20.256	20.256	0.000
134562.7	20.316	20.315	0.001
134374.6	20.346	20.343	0.003
134175.3	20.374	20.374	0.000
133989.5	20.402	20.402	0.000
133794.2	20.432	20.432	0.000
133247.8	20.518	20.515	0.003
133061.3	20.546	20.543	0.003
84582.5	30.018	30.019	-0.001
84498.8	30.042	30.041	0.001
84418.1	30.060	30.061	-0.001
84337.8	30.082	30.082	0.000
84253.0	30.102	30.103	-0.001
84168.7	30.126	30.125	0.001
84087.3	30.146	30.145	0.001
84001.1	30.168	30.168	0.000
83916.9	30.188	30.189	-0.001
83834.9	30.208	30.210	-0.002

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 30 - 60 C

CALIBRATION RESISTANCE RANGE: 23230 - 84210 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	4112.0519	S. DEV. C1 =	3.6998
C2 =	-319.3870	S. DEV. C3 =	0.2932
C3 =	4.9258	S. DEV. C3 =	0.0126

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 30 - 60 C

CALIBRATION RESISTANCE RANGE: 23230 - 84210 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
84582.5	30.018	30.019	-0.001
84498.8	30.042	30.040	0.002
84418.1	30.060	30.061	-0.001
84337.8	30.082	30.081	0.001
84253.0	30.102	30.103	-0.001
84168.7	30.126	30.125	0.001
84087.3	30.146	30.145	0.001
84001.1	30.168	30.167	0.001
83916.9	30.188	30.189	-0.001
83834.9	30.208	30.210	-0.002
53757.4	40.030	40.031	-0.001
53691.8	40.058	40.059	-0.001
53629.4	40.084	40.085	-0.001
53572.7	40.110	40.109	0.001
53515.6	40.136	40.133	0.003
53460.5	40.158	40.157	0.001
53406.4	40.182	40.180	0.002
53354.1	40.204	40.202	0.002
53305.1	40.222	40.223	-0.001
53255.4	40.244	40.244	0.000
34975.3	50.068	50.071	-0.003
34922.4	50.105	50.107	-0.002
34898.3	50.121	50.124	-0.003
34874.0	50.139	50.140	-0.001
34849.8	50.157	50.157	0.000
34827.1	50.173	50.173	0.000
34804.7	50.191	50.188	0.003
34700.1	50.261	50.260	0.001
34679.3	50.275	50.275	0.000
34661.1	50.287	50.287	0.000
23334.3	60.051	60.050	0.001
23311.0	60.075	60.075	0.000
23287.3	60.101	60.101	0.000
23264.9	60.127	60.125	0.002
23243.8	60.149	60.148	0.001
23220.6	60.175	60.174	0.001
23199.7	60.195	60.196	-0.001
23176.7	60.221	60.222	-0.001
23156.0	60.243	60.244	-0.001
23135.7	60.267	60.267	0.000

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 60 - 90 C

CALIBRATION RESISTANCE RANGE: 7730 - 23230 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 4064.7973	S. DEV. C1 =	5.4444
C2 = -315.6368	S. DEV. C3 =	0.4449
C3 = 4.7672	S. DEV. C3 =	0.0162

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 60 - 90 C

CALIBRATION RESISTANCE RANGE: 7730 - 23230 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
23334.3	60.051	60.049	0.002
23311.0	60.075	60.075	0.000
23287.3	60.101	60.100	0.001
23264.9	60.127	60.125	0.002
23243.8	60.149	60.148	0.001
23220.6	60.175	60.173	0.002
23199.7	60.195	60.196	-0.001
23176.7	60.221	60.221	0.000
23156.0	60.243	60.244	-0.001
23135.7	60.267	60.266	0.001
15911.0	70.009	70.010	-0.001
15896.9	70.031	70.034	-0.003
15884.4	70.053	70.055	-0.002
15847.8	70.113	70.117	-0.004
15825.1	70.153	70.155	-0.002
15803.6	70.189	70.191	-0.002
15783.2	70.225	70.226	-0.001
15773.2	70.242	70.243	-0.001
15763.6	70.258	70.259	-0.001
15753.3	70.274	70.276	-0.002
11046.4	80.010	80.007	0.003
11037.6	80.032	80.029	0.003
11032.6	80.044	80.042	0.002
11025.8	80.062	80.060	0.002
11018.1	80.080	80.079	0.001
11014.5	80.090	80.088	0.002
11004.8	80.116	80.113	0.003
11000.2	80.126	80.125	0.001
10988.3	80.158	80.155	0.003
10978.8	80.180	80.180	0.000
7800.4	90.030	90.034	-0.004
7785.6	90.090	90.090	0.000
7769.5	90.150	90.151	-0.001
7754.0	90.212	90.210	0.002
7738.6	90.268	90.269	-0.001
7722.9	90.328	90.329	-0.001
7707.9	90.387	90.386	0.001
7692.6	90.443	90.445	-0.002
7677.0	90.505	90.505	0.000
7661.6	90.565	90.565	0.000

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 90 - 120 C

CALIBRATION RESISTANCE RANGE: 3010 - 7730 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 3974.5736	S. DEV.	C1 =	8.5165
C2 = -308.1820	S. DEV.	C3 =	0.7230
C3 = 4.5072	S. DEV.	C3 =	0.0227

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 90 - 120 C

CALIBRATION RESISTANCE RANGE: 3010 - 7730 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
7800.4	90.030	90.033	-0.003
7785.6	90.090	90.089	0.001
7769.5	90.150	90.150	0.000
7754.0	90.212	90.210	0.002
7738.6	90.268	90.268	0.000
7722.9	90.328	90.329	-0.001
7707.9	90.387	90.386	0.001
7692.6	90.443	90.445	-0.002
7677.0	90.505	90.505	0.000
7661.6	90.565	90.565	0.000
5605.4	100.040	100.048	-0.008
5594.2	100.112	100.111	0.001
5586.8	100.156	100.152	0.004
5580.2	100.191	100.188	0.003
5572.8	100.231	100.230	0.001
5565.9	100.273	100.268	0.005
5557.7	100.313	100.314	-0.001
5549.7	100.361	100.359	0.002
5541.1	100.405	100.407	-0.002
5532.1	100.459	100.458	0.001
4094.5	110.043	110.046	-0.003
4086.5	110.111	110.110	0.001
4078.5	110.173	110.174	-0.001
4069.8	110.245	110.244	0.001
4061.1	110.313	110.314	-0.001
4052.5	110.381	110.383	-0.002
4044.2	110.449	110.450	-0.001
4035.4	110.519	110.521	-0.002
4026.4	110.594	110.594	0.000
4017.8	110.664	110.664	0.000
3036.2	120.037	120.031	0.006
3030.1	120.105	120.100	0.005
3023.7	120.173	120.172	0.001
3017.1	120.247	120.247	0.000
3010.5	120.322	120.322	0.000
3003.9	120.398	120.397	0.001
2997.2	120.472	120.474	-0.002
2990.0	120.554	120.556	-0.002
2983.4	120.630	120.632	-0.002
2976.4	120.708	120.712	-0.004

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 120 - 150 C

CALIBRATION RESISTANCE RANGE: 1320 - 3010 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 3832.8126	S. DEV. C1 = 13.9705
C2 = -295.8394	S. DEV. C3 = 1.2381
C3 = 4.1505	S. DEV. C3 = 0.0338

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 120 - 150 C

CALIBRATION RESISTANCE RANGE: 1320 - 3010 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
3036.2	120.037	120.033	0.004
3030.1	120.105	120.101	0.004
3023.7	120.173	120.174	-0.001
3017.1	120.247	120.248	-0.001
3010.5	120.322	120.323	-0.001
3003.9	120.398	120.398	0.000
2997.2	120.472	120.475	-0.003
2990.0	120.554	120.557	-0.003
2983.4	120.630	120.633	-0.003
2976.4	120.708	120.714	-0.006
2281.7	130.041	130.031	0.010
2276.8	130.116	130.108	0.008
2271.9	130.192	130.185	0.007
2266.4	130.274	130.272	0.002
2261.3	130.358	130.353	0.005
2255.7	130.442	130.442	0.000
2250.4	130.526	130.526	0.000
2244.8	130.618	130.616	0.002
2238.7	130.711	130.714	-0.003
2233.0	130.803	130.805	-0.002
1736.1	140.054	140.055	-0.001
1732.1	140.142	140.142	0.000
1727.8	140.234	140.235	-0.001
1724.0	140.316	140.318	-0.002
1719.7	140.410	140.412	-0.002
1715.5	140.499	140.504	-0.005
1711.2	140.591	140.598	-0.007
1707.2	140.683	140.686	-0.003
1703.0	140.773	140.779	-0.006
1698.6	140.869	140.876	-0.007
1338.6	150.046	150.041	0.005
1335.4	150.142	150.135	0.007
1332.3	150.228	150.226	0.002
1329.1	150.325	150.321	0.004
1325.9	150.417	150.416	0.001
1322.6	150.515	150.514	0.001
1319.1	150.617	150.618	-0.001
1316.1	150.707	150.708	-0.001
1312.7	150.807	150.810	-0.003
1309.3	150.910	150.912	-0.002

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 150 - 180 C

CALIBRATION RESISTANCE RANGE: 650 - 1320 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 3060.1304	S. DEV. C1 = 28.5502
C2 = -223.9025	S. DEV. C3 = 2.6464
C3 = 2.4522	S. DEV. C3 = 0.0634

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 150 - 180 C

CALIBRATION RESISTANCE RANGE: 650 - 1320 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
1338.6	150.046	150.045	0.001
1335.4	150.142	150.138	0.004
1332.3	150.228	150.228	0.000
1329.1	150.325	150.321	0.004
1325.9	150.417	150.415	0.002
1322.6	150.515	150.511	0.004
1319.1	150.617	150.614	0.003
1316.1	150.707	150.703	0.004
1312.7	150.807	150.803	0.004
1309.3	150.910	150.904	0.006
1040.48	160.055	160.068	-0.013
1038.22	160.145	160.157	-0.012
1035.87	160.237	160.249	-0.012
1033.64	160.327	160.337	-0.010
1031.49	160.411	160.423	-0.012
1029.09	160.505	160.518	-0.013
1026.70	160.599	160.613	-0.014
1024.27	160.698	160.710	-0.012
1021.87	160.796	160.807	-0.011
1019.37	160.898	160.907	-0.009
820.10	170.061	170.043	0.018
818.39	170.151	170.133	0.018
816.82	170.231	170.215	0.016
815.29	170.313	170.296	0.017
813.58	170.402	170.387	0.015
811.97	170.486	170.472	0.014
810.34	170.574	170.559	0.015
808.58	170.664	170.652	0.012
806.88	170.754	170.743	0.011
805.26	170.848	170.830	0.018
653.64	180.037	180.046	-0.009
652.45	180.121	180.128	-0.007
651.92	180.157	180.165	-0.008
651.38	180.194	180.203	-0.009
650.82	180.234	180.242	-0.008
649.82	180.306	180.311	-0.005
649.31	180.342	180.347	-0.005
648.82	180.374	180.381	-0.007
647.18	180.490	180.496	-0.006
646.20	180.556	180.564	-0.008

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 180 - 210 C

CALIBRATION RESISTANCE RANGE: 350 - 650 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 3675.9770	S. DEV. C1 = 11.0217
C2 = -281.8587	S. DEV. C3 = 1.0747
C3 = 3.7863	S. DEV. C3 = 0.0225

THERMISTOR CALIBRATION: PROBE 100-13 - 27 JUNE 1986

NOMINAL TEMPERTURE RANGE: 180 - 210 C

CALIBRATION RESISTANCE RANGE: 350 - 650 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
653.64	180.037	180.040	-0.003
652.45	180.121	180.122	-0.001
651.92	180.157	180.159	-0.002
651.38	180.194	180.196	-0.002
650.82	180.234	180.235	-0.001
649.82	180.306	180.304	0.002
649.31	180.342	180.339	0.003
648.82	180.374	180.373	0.001
647.18	180.490	180.487	0.003
646.20	180.556	180.556	0.000
526.20	190.002	190.006	-0.004
525.47	190.072	190.071	0.001
524.72	190.136	190.138	-0.002
523.99	190.202	190.204	-0.002
523.13	190.280	190.281	-0.001
522.49	190.342	190.338	0.004
521.65	190.416	190.414	0.002
520.86	190.488	190.485	0.003
519.99	190.565	190.564	0.001
519.23	190.639	190.633	0.006
427.09	200.006	200.010	-0.004
426.37	200.086	200.092	-0.006
425.70	200.170	200.169	0.001
425.03	200.244	200.247	-0.003
424.32	200.327	200.329	-0.002
423.55	200.415	200.418	-0.003
422.75	200.509	200.510	-0.001
422.04	200.591	200.593	-0.002
421.30	200.679	200.679	0.000
420.62	200.765	200.758	0.007
349.58	210.014	210.017	-0.003
349.02	210.097	210.099	-0.002
348.45	210.179	210.182	-0.003
347.88	210.269	210.266	0.003
347.32	210.349	210.348	0.001
346.67	210.449	210.444	0.005
346.09	210.531	210.529	0.002
345.51	210.617	210.615	0.002
344.92	210.700	210.703	-0.003
344.33	210.794	210.790	0.004

TABLE 5.--Thermistor calibrations for probe 100-13 on January 31, 1987

[Seven calibrations are presented. For each calibration, the probe constants are given for the nominal temperature range along with a standard deviation for each of the probe constants and a table showing the thermistor resistance (in ohms); platinum-thermometer temperature (observed temperature (°C); calculated temperature (°C) based on the thermistor equation, resistance, and calibration constants (C1, C2, and C3); and the difference between the observed and calibrated temperatures. T=calculated temperature (°C), R=thermistor resistance (ohms), C1, C2, and C3=calibration constants, and ln=natural logarithm]

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 0 - 30 C

CALIBRATION RESISTANCE RANGE: 81780 - 390220 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	4160.5821	S. DEV. C1 =	3.6138
C2 =	-323.1435	S. DEV. C3 =	0.2811
C3 =	5.0743	S. DEV. C3 =	0.0142

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 0 - 30 C

CALIBRATION RESISTANCE RANGE: 81780 - 390220 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
390218	0.017	0.016	0.001
390218	0.017	0.016	0.001
390218	0.015	0.016	-0.001
390219	0.017	0.016	0.001
390220	0.017	0.016	0.001
390220	0.017	0.016	0.001
390220	0.017	0.016	0.001
390220	0.015	0.016	-0.001
390220	0.015	0.016	-0.001
390220	0.015	0.016	-0.001
223102	10.402	10.405	-0.003
222353	10.468	10.470	-0.002
221611	10.532	10.534	-0.002
220878	10.594	10.598	-0.004
220146	10.660	10.661	-0.001
219422	10.724	10.725	-0.001
218719	10.786	10.786	0.000
218012	10.848	10.849	-0.001
217322	10.910	10.910	0.000
216639	10.970	10.970	0.000
137140.9	20.009	20.008	0.001
136709.5	20.073	20.072	0.001
136252.1	20.141	20.140	0.001
135821.9	20.204	20.204	0.000
135384.1	20.270	20.270	0.000
134954.3	20.336	20.334	0.002
134512.5	20.406	20.401	0.005
134083.1	20.470	20.466	0.004
133665.9	20.530	20.530	0.000
133231.0	20.596	20.596	0.000
82706.6	30.591	30.591	0.000
82493.4	30.645	30.647	-0.002
82279.0	30.701	30.703	-0.002
82068.1	30.759	30.758	0.001
81861.7	30.813	30.813	0.000
81661.7	30.865	30.865	0.000
81464.1	30.917	30.918	-0.001
81265.5	30.969	30.971	-0.002
81073.3	31.023	31.022	0.001
80886.9	31.071	31.072	-0.001

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 30 - 60 C

CALIBRATION RESISTANCE RANGE: 23210 - 81780 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 4098.7500	S. DEV. C1 = 4.6684
C2 = -318.2629	S. DEV. C3 = 0.3701
C3 = 4.8599	S. DEV. C3 = 0.0158

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 30 - 60 C

CALIBRATION RESISTANCE RANGE: 23210 - 81780 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
82706.6	30.591	30.590	0.001
82493.4	30.645	30.646	-0.001
82279.0	30.701	30.702	-0.001
82068.1	30.759	30.758	0.001
81861.7	30.813	30.812	0.001
81661.7	30.865	30.865	0.000
81464.1	30.917	30.917	0.000
81265.5	30.969	30.970	-0.001
81073.3	31.023	31.021	0.002
80886.9	31.071	31.071	0.000
54054.8	40.006	40.006	0.000
53856.6	40.090	40.090	0.000
53660.0	40.174	40.173	0.001
53464.7	40.254	40.256	-0.002
53271.3	40.335	40.338	-0.003
53079.9	40.419	40.420	-0.001
52891.5	40.499	40.501	-0.002
52702.6	40.579	40.583	-0.004
52345.1	40.737	40.738	-0.001
52085.4	40.855	40.852	0.003
35177.0	50.050	50.047	0.003
35072.5	50.121	50.119	0.002
34865.2	50.261	50.261	0.000
34763.2	50.331	50.332	-0.001
34662.1	50.405	50.402	0.003
34461.3	50.543	50.542	0.001
34364.7	50.611	50.610	0.001
34267.4	50.679	50.678	0.001
34051.6	50.830	50.830	0.000
33972.6	50.886	50.886	0.000
23462.5	60.041	60.043	-0.002
23406.8	60.103	60.103	0.000
23351.9	60.161	60.163	-0.002
23294.9	60.223	60.225	-0.002
23240.1	60.283	60.284	-0.001
23185.6	60.343	60.344	-0.001
23131.2	60.405	60.404	0.001
23076.7	60.466	60.464	0.002
23022.8	60.524	60.523	0.001
22969.2	60.582	60.582	0.000

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 60 - 90 C

CALIBRATION RESISTANCE RANGE: 7780 - 23210 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 = 4105.8742	S. DEV. C1 = 5.4498
C2 = -318.9094	S. DEV. C3 = 0.4453
C3 = 4.8704	S. DEV. C3 = 0.0162

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 60 - 90 C

CALIBRATION RESISTANCE RANGE: 7780 - 23210 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
23462.5	60.041	60.042	-0.001
23406.8	60.103	60.102	0.001
23351.9	60.161	60.162	-0.001
23294.9	60.223	60.224	-0.001
23240.1	60.283	60.284	-0.001
23185.6	60.343	60.343	0.000
23131.2	60.405	60.403	0.002
23076.7	60.466	60.463	0.003
23022.8	60.524	60.522	0.002
22969.2	60.582	60.582	0.000
16001.1	70.005	70.010	-0.005
15971.0	70.057	70.060	-0.003
15942.2	70.105	70.108	-0.003
15913.0	70.157	70.157	0.000
15885.1	70.201	70.204	-0.003
15857.4	70.250	70.251	-0.001
15774.9	70.392	70.391	0.001
15748.4	70.436	70.436	0.000
15662.4	70.582	70.582	0.000
15638.4	70.624	70.623	0.001
11103.4	80.028	80.028	0.000
11062.7	80.134	80.131	0.003
11024.5	80.230	80.229	0.001
11004.9	80.278	80.279	-0.001
10986.8	80.326	80.325	0.001
10936.7	80.456	80.454	0.002
10919.5	80.500	80.498	0.002
10903.7	80.540	80.539	0.001
10889.1	80.578	80.577	0.001
10875.5	80.615	80.612	0.003
7853.3	90.010	90.011	-0.001
7838.8	90.066	90.066	0.000
7822.6	90.128	90.127	0.001
7808.5	90.180	90.180	0.000
7794.3	90.232	90.234	-0.002
7763.8	90.348	90.350	-0.002
7748.5	90.407	90.409	-0.002
7733.4	90.467	90.466	0.001
7701.3	90.589	90.590	-0.001
7687.2	90.645	90.644	0.001

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 90 - 120 C

CALIBRATION RESISTANCE RANGE: 3010 - 7780 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	3913.2138	S. DEV. C1 =	4.5225
C2 =	-303.0354	S. DEV. C3 =	0.3840
C3 =	4.3118	S. DEV. C3 =	0.0120

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 90 - 120 C

CALIBRATION RESISTANCE RANGE: 3010 - 7780 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
7853.3	90.010	90.010	0.000
7838.8	90.066	90.065	0.001
7822.6	90.128	90.126	0.002
7808.5	90.180	90.180	0.000
7794.3	90.232	90.234	-0.002
7763.8	90.348	90.350	-0.002
7748.5	90.407	90.408	-0.001
7733.4	90.467	90.466	0.001
7701.3	90.589	90.590	-0.001
7687.2	90.645	90.644	0.001
5645.9	100.026	100.026	0.000
5635.3	100.084	100.084	0.000
5624.1	100.146	100.146	0.000
5613.7	100.203	100.204	-0.001
5603.0	100.261	100.263	-0.002
5572.0	100.439	100.436	0.003
5561.3	100.497	100.496	0.001
5551.0	100.557	100.554	0.003
5538.6	100.625	100.624	0.001
5527.1	100.689	100.689	0.000
4128.9	110.007	110.006	0.001
4112.8	110.133	110.134	-0.001
4104.5	110.199	110.200	-0.001
4087.3	110.337	110.337	0.000
4079.2	110.401	110.402	-0.001
4071.0	110.467	110.468	-0.001
4062.9	110.537	110.533	0.004
4039.5	110.722	110.723	-0.001
4031.5	110.786	110.788	-0.002
4023.2	110.854	110.855	-0.001
3049.3	120.157	120.156	0.001
3042.9	120.229	120.228	0.001
3029.8	120.378	120.376	0.002
3023.5	120.450	120.448	0.002
3017.1	120.520	120.520	0.000
3010.6	120.594	120.595	-0.001
3003.9	120.670	120.671	-0.001
2996.7	120.754	120.754	0.000
2990.4	120.824	120.826	-0.002
2984.4	120.894	120.895	-0.001

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 120 - 150 C

CALIBRATION RESISTANCE RANGE: 1330 - 3010 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	3963.5122	S. DEV. C1 =	17.1876
C2 =	-307.4967	S. DEV. C3 =	1.5236
C3 =	4.4327	S. DEV. C3 =	0.0414

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 120 - 150 C

CALIBRATION RESISTANCE RANGE: 1330 - 3010 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
3049.3	120.157	120.155	0.002
3042.9	120.229	120.227	0.002
3029.8	120.378	120.375	0.003
3023.5	120.450	120.447	0.003
3017.1	120.520	120.519	0.001
3010.6	120.594	120.594	0.000
3003.9	120.670	120.670	0.000
2996.7	120.754	120.753	0.001
2990.4	120.824	120.825	-0.001
2984.4	120.894	120.894	0.000
2300.5	130.053	130.054	-0.001
2294.8	130.138	130.143	-0.005
2289.3	130.228	130.229	-0.001
2283.6	130.316	130.319	-0.003
2278.1	130.406	130.406	0.000
2261.2	130.666	130.674	-0.008
2242.9	130.957	130.967	-0.010
2237.9	131.047	131.047	0.000
2232.0	131.139	131.143	-0.004
2227.1	131.215	131.222	-0.007
1754.1	140.014	140.022	-0.008
1750.0	140.108	140.110	-0.002
1745.5	140.206	140.207	-0.001
1741.1	140.306	140.302	0.004
1736.7	140.402	140.397	0.005
1722.4	140.715	140.709	0.006
1717.8	140.819	140.810	0.009
1712.9	140.927	140.918	0.009
1707.8	141.041	141.030	0.011
1704.2	141.120	141.110	0.010
1346.5	150.186	150.191	-0.005
1343.1	150.285	150.291	-0.006
1339.9	150.385	150.384	0.001
1336.1	150.493	150.496	-0.003
1329.1	150.699	150.703	-0.004
1325.7	150.805	150.804	0.001
1322.2	150.910	150.908	0.002
1313.5	151.166	151.169	-0.003
1310.1	151.274	151.271	0.003
1306.5	151.378	151.380	-0.002

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 150 - 180 C

CALIBRATION RESISTANCE RANGE: 650 - 1330 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	4272.5513	S. DEV. C1 =	27.0760
C2 =	-336.7925	S. DEV. C3 =	2.5127
C3 =	5.0852	S. DEV. C3 =	0.0598

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 150 - 180 C

CALIBRATION RESISTANCE RANGE: 650 - 1330 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
1346.5	150.186	150.187	-0.001
1343.1	150.285	150.287	-0.002
1339.9	150.385	150.382	0.003
1336.1	150.493	150.494	-0.001
1329.1	150.699	150.703	-0.004
1325.7	150.805	150.805	0.000
1322.2	150.910	150.910	0.000
1313.5	151.166	151.172	-0.006
1310.1	151.274	151.275	-0.001
1306.5	151.378	151.385	-0.007
1056.09	160.017	160.007	0.010
1053.05	160.135	160.126	0.009
1049.97	160.251	160.247	0.004
1047.08	160.369	160.360	0.009
1043.89	160.493	160.486	0.007
1040.82	160.613	160.608	0.005
1037.75	160.736	160.730	0.006
1031.29	160.996	160.989	0.007
1028.28	161.114	161.110	0.004
1025.45	161.227	161.224	0.003
832.31	170.021	170.024	-0.003
829.93	170.137	170.147	-0.010
827.41	170.271	170.278	-0.007
825.12	170.388	170.397	-0.009
822.75	170.510	170.520	-0.010
820.49	170.630	170.639	-0.009
817.95	170.766	170.772	-0.006
815.58	170.890	170.897	-0.007
813.15	171.017	171.026	-0.009
810.76	171.143	171.153	-0.010
662.41	180.017	180.016	0.001
660.57	180.141	180.140	0.001
658.67	180.274	180.269	0.005
654.89	180.532	180.526	0.006
653.01	180.662	180.655	0.007
650.98	180.795	180.794	0.001
649.12	180.925	180.922	0.003
647.21	181.057	181.054	0.003
645.36	181.189	181.182	0.007
641.01	181.488	181.486	0.002

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 180 - 210 C

CALIBRATION RESISTANCE RANGE: 350 - 650 OHMS

THERMISTOR EQUATION: $T = [C1 + C2 \times \ln(R)]/[C3 + \ln(R)]$

C1 =	3906.0222	S. DEV. C1 =	24.1573
C2 =	-302.6496	S. DEV. C3 =	2.3485
C3 =	4.2811	S. DEV. C3 =	0.0495

THERMISTOR CALIBRATION: PROBE 100-13 - 31 JANUARY 1987

NOMINAL TEMPERTURE RANGE: 180 - 210 C

CALIBRATION RESISTANCE RANGE: 350 - 650 OHMS

THERMISTOR RESISTANCE (OHMS)	OBSERVED TEMPERTURE (C)	CALCULATED TEMPERTURE (C)	TEMPERTURE DIFFERENCE (C)
662.41	180.017	180.018	-0.001
660.57	180.141	180.143	-0.002
658.67	180.274	180.272	0.002
654.89	180.532	180.530	0.002
653.01	180.662	180.659	0.003
650.98	180.795	180.799	-0.004
649.12	180.925	180.928	-0.003
647.21	181.057	181.060	-0.003
645.36	181.189	181.189	0.000
641.01	181.488	181.493	-0.005
532.32	190.018	190.013	0.005
530.75	190.152	190.151	0.001
529.26	190.284	190.282	0.002
525.01	190.667	190.659	0.008
523.60	190.791	190.785	0.006
522.20	190.913	190.910	0.003
520.88	191.035	191.029	0.006
519.44	191.168	191.159	0.009
518.17	191.282	191.273	0.009
516.71	191.402	191.406	-0.004
431.30	200.022	200.032	-0.010
428.75	200.308	200.320	-0.012
426.30	200.591	200.599	-0.008
425.09	200.735	200.738	-0.003
423.82	200.883	200.884	-0.001
422.66	201.016	201.017	-0.001
421.43	201.160	201.159	0.001
418.90	201.442	201.453	-0.011
417.72	201.581	201.591	-0.010
416.58	201.715	201.725	-0.010
352.70	210.012	209.999	0.013
351.87	210.129	210.118	0.011
350.91	210.255	210.257	-0.002
349.19	210.507	210.505	0.002
346.54	210.898	210.891	0.007
345.60	211.030	211.029	0.001
343.03	211.417	211.408	0.009
342.09	211.543	211.547	-0.004
339.57	211.924	211.923	0.001
338.76	212.042	212.045	-0.003

allowing them to be plotted on the 4051. The temperature-resistance relationship over a 1°C span is approximately linear. Therefore, after taking 10 readings if the temperatures are plotted against the resistances, the points should fall along a straight line, at least at the scale that can be perceived. Departures from a straight line are readily apparent and indicate a bad point. Thus, it was possible to edit out this point immediately and obtain a replacement point. The reasons for "bad" points are many and probably vary from one bad point to another. For example, the time constants of the probe (~2 s) and the 9540 platinum thermometer (~5 s) are different, and with changing temperatures they may be out of synchronization. The integration times of the Fluke 8502 and the 9540 were slightly different. The temperature of the bath did not uniformly increase with time, so there may have been currents of warmer and cooler water. The thermistor resistance was measured using a very low current (~10 μA) in order to prevent self-heating. Power-level fluctuations in the building could have induced small voltages in the cables and thus generated some noise. Although precautions were taken to minimize these effects, they could not be eliminated entirely. Our solution was to try to detect "bad" points at the time of calibration as much as we possibly could. For temperatures in the range of 10° to 80°C, a water bath was used. From 90°C to a maximum of 240°C, another bath was used containing UCON HFT-100 Heat Transfer Fluid (an oil). In practice, both baths were operated in the same manner of heating and rapid stirring. The oil could be used at low temperatures, but the viscosity became so large that adequate stirring was not possible; therefore, the oil was only used at the higher temperatures.

As the resistances and temperatures were obtained, they were grouped in 30° blocks: 0°-30°, 30°-60°, 60°-90°, etc. Although larger ranges can be used to generate the constants for equation 1, we found that this range gave good results without undue computations and loss of accuracy. The 30° data (40 pairs of numbers) were fitted to equation 1 using a general least-squares fit to yield the constants C1, C2, and C3. The statistics and constants are illustrated in tables 4 and 5 for probe 100-13.

A second calibration was obtained on January 31, 1987 (table 5). A correction based on these two calibrations was subsequently made to all the thermistor temperatures measured in the field. This consisted of a linear correction based on elapsed time from the first calibration until the time of the temperature log. The maximum correction for the last log (September 23, 1986) was about 0.2°C at 200°C. The drift rate (~0.07°C/mo) was fairly high because the thermistor was new and had not aged by long-term heating at high temperature (~240°C). Proper aging would slow the drift to less than 0.01°C/mo.

THERMISTOR TEMPERATURES--MEASUREMENTS

Temperatures were measured on six occasions (table 6) in July and September 1986 using the thermistor probe described above. A composite plot of all these logs is presented in figure 5. Individual plots and tables of temperatures for these dates are in Appendices I and II.

Several observations can be made concerning figure 5. The first is that hot water, greater than 200°C, existed at depths below 1,100 ft. The second observation is that the irregular shape of the profiles was most likely due to the complex drilling history, multiple casing strings, lost circulation, and changes in lithology. The temperature profile of July 8, 1986, differed from

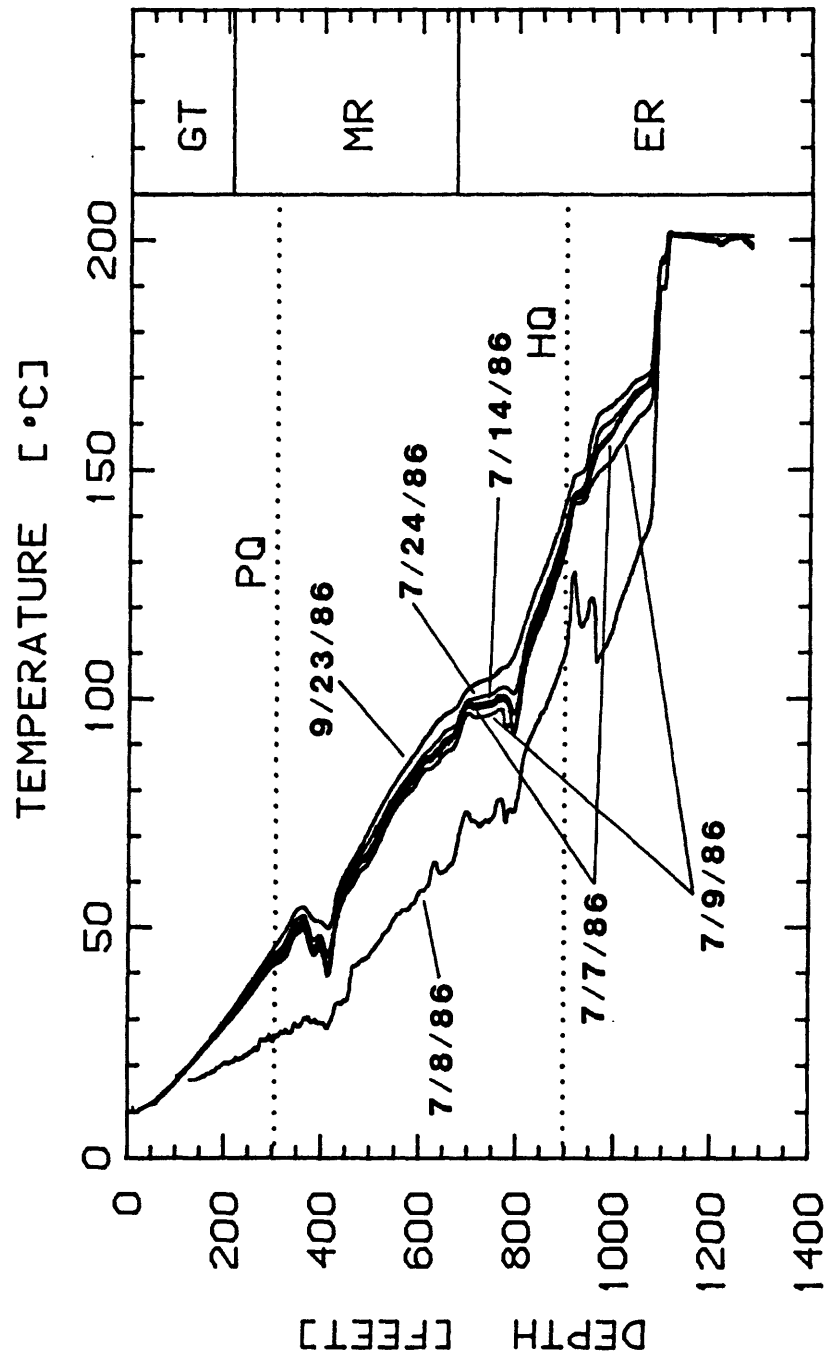

FIGURE 5. Composite thermistor temperature plot for measurements obtained in July and September 1986. Individual plots are shown in Appendix I and the data for each date in Appendix II. All measurements were made starting at the water level in the NQ drill rod (table 8). All measurements are referenced to the top of the casing which is 1.8 ft above ground level. The log obtained on July 24, 1986, is essentially the same as that of July 7, 1986. Slight warming can be observed in the plots and data in the Appendices and in figure 6. The Chalfant earthquake (M_L=6.4) was on July 19, 1986. Bottom of PQ and HQ casings is shown as a dotted line. The NQ drill rod extends from the surface to 1,394 ft and is not shown. Generalized geologic section is from Flexser and Dayvault (1987). GT (glacial till), MR (moat rhyolite), and ER (early rhyolite). Bishop Tuff begins at 1,407 ft and is not shown. Casing and geology are referenced to ground surface.

TABLE 6.--Logging history of RD08

[Depths referenced to top of casing, 1.8 ft above ground level]

Date (1986)	Depth logged (feet)	Remarks
6/20	1269	Kuster-gage temperatures.
7/07	1275	Thermistor temperatures
7/08	1276	Thermistor temperatures. Slug test.
7/09	1275	Thermistor temperatures.
7/14	1276	Thermistor temperatures. Temperature-time recording at 1080 ft.
7/24	1275	Thermistor temperatures.
9/23	1276	Thermistor temperatures. Natural gamma-ray log.
9/24	1276	Natural gamma-ray log.

TABLE 7.--Slug test in RD08 on July 8, 1986

Water flow started down annulus between NQ and HQ drill rods at 08:36 PDT.
Total volume was 1000-1100 gal.
Temperature of water was 17.7 °C as measured at wellhead.
Water flow stopped at 09:20 PDT.

Water level in NQ rods was 122.9 ft at 09:45 PDT.
Water level in HQ rods unknown but not observable from surface.

Temperature probe reached water at 10:00 PDT, and temperatures were logged to 1276 ft (T.D. at 11:45 PDT)--average logging rate was 9.6 ft/min.

the others because it was obtained immediately after about 1,100 gal of water was dumped down the annulus between the HQ and the NQ drill rod (table 7; fig. 3). Finally, some of the temperature anomalies coincided with void spaces or fractures, as noted in the driller's log (L.C. Bartel, written commun., 1987) or in the core log (Flexser and Dayvault, 1987), and may have been zones of fluid flow or zones that accepted drilling fluid.

The starting depths of the temperature logs (App. I) vary on different dates because the logging starts at the top of the water column. We routinely measured the depth to the surface of the water in the casing (table 8). The primary reason for this was that although the time constant for the probe in stirred water, or a probe moving though still water, is less than 2 s, the time constant for the same probe is on the order of tens of minutes or hours in still or slowly moving air. Therefore, the probe moving down the hole at 10 ft/min was severely out of equilibrium with the surroundings in an air-filled hole. Since this data would be discarded later, it was more convenient to start the log at about the water level in the hole. The reason for the decline in the water level in the hole was probably leakage through the joints in the casing. We filled the NQ rods to the surface on July 8, 1986, and by July 9th the water level had dropped to 6.95 ft. After logging on July 9th, the level had decreased slightly due to adhesion of the water to the cable, sinker bars, and probe assembly. However, by July 14th, the level had dropped to 45 ft below the top of the casing. In the driller's log entry dated May 19, 1986, the fluid level was at 150 ft, when the total depth of the hole was 1,462 ft. Measurements made in November 1986, after the NQ rod was perforated at a depth of 1,110-1,120 ft on October 20, 1986, indicated a static water level of 443 ft below the top of the casing.

THERMISTOR TEMPERATURE DIFFERENCES

Due to the large temperature range in RD08, the change in temperature with time at various depths is not discernible in figure 5. We, therefore, have taken our first log on July 7, 1986, as a reference set of temperatures and have substracted them from the temperatures of the same depth from each of the succeeding logs. The differences plotted as a function of depth in figure 6 illustrate, in an amplified manner, the complexity of the temperatures in this hole. We used the July 7, 1986, temperatures as a base and not the Kuster-gage temepratures of June 20, 1986, because the Kuster-gage temperature log obtained at 25-, 50-, or 100-ft intervals did not provide the detail needed for comparison. It should also be noted that the temperatures of July 7, 1986, were out of thermal equilibrium with the formation due to the drilling disturbance, lost circulation, and curing of cement. Although the "first" hole was completed quickly (drilled to about 1,300 ft in 11 days), subsequent reaming and redrilling extended the circulation time above 800 ft to roughly 35-42 days. If the decay in the drilling disturbance was by conduction alone, then the temperature gradient, or the rate of change in temperature with depth, will reach its equilibrium value in about 10 times the drilling disturbance (Diment and Weaver, 1964) or about 1 year. The gradient will be at about 95 percent of its equilibrium value in about 1.5 times the drilling disturbance (Diment and Weaver, 1964; Lachenbruch and Brewer, 1959) or about 2 months. The absolute temperatures, however, could continue to increase slightly for much greater lengths of time. If lost circulation was significant, and from the driller's log, this appeared to be the case at some depths, then the return of the temperatures at certain depths to their

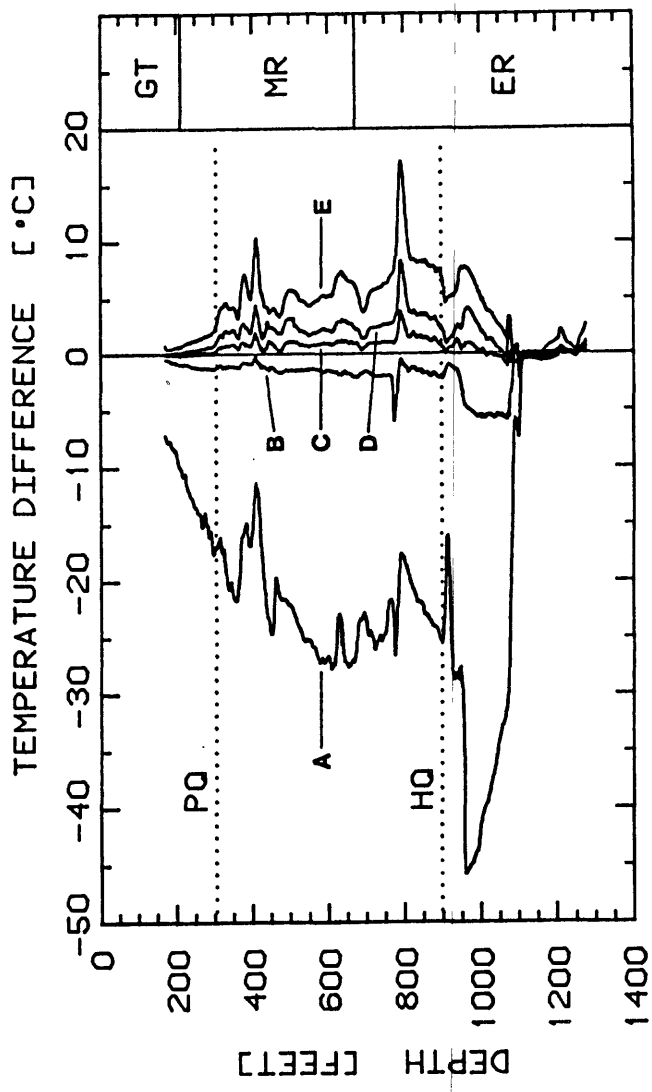

FIGURE 6. Plot of temperature differences in RD08 as a function of depth, based on the July 7, 1986, temperature log. A is the difference between temperatures obtained on July 8, 1986, and July 7, 1986. B is between July 9, 1986, and July 7, 1986. C is between July 14, 1986, and July 7, 1986. D is between July 24, 1986, and July 7, 1986. E is between September 23, 1986, and July 7, 1986. About 1,100 gal of water was poured down the annulus between the NQ and HQ drill rods before the temperature log of July 8, 1986. Curve A represents the cooling that occurred due to this injection of water. It appears that most of the water entered the formation below the HQ casing at 898 ft and above ~1,100 ft. Below 1,100 ft, the annulus between the NQ drill and the hole wall appears to have been effectively sealed with cement (see fig. 3). The bottom of the PQ and HQ casings are shown for reference by a dotted line. The generalized geologic section is from Flexser and Dayvault (1987). GT (glacial till), MR (moat rhyolite), and ER (early rhyolite). The Bishop Tuff starts at 1,407 ft and is not shown. The NQ drill rod extends to 1,394 ft and is not shown for clarity. Temperatures are referenced to the top of the casing, 1.8 ft above ground level. Geology and casing are referenced to ground surface.

TABLE 8.--Water levels in RD08

[All measurements were referenced to top of casing which is 1.8 ft above ground level, except for 5/19 which is referenced to ground level. HQ casing refers to the annulus between NQ and HQ casing. Leaders (---) indicate no water observed in annulus.

Date (1986)	NQ rod (feet)	HQ casing (feet)	Time (PDT)	Remarks
5/19	150		08:35	Drilling of original hole.
7/07	98.2	---	11:10	Before temperature log.
7/08	122.9	---	09:45	After slug test.
7/09	6.95	---	10:10	Filled 7/8 at 12:30.
7/14	45.0	---	11:34	Before temperature log.
	46.4	---	14:52	After temperature log.
7/24	67.4	3.1	14:25	Before temperature log.
	68.0	3.1	19:30	After temperature log.
9/23	166.65	3.75	11:00	Before temperature log.
9/24	168.30	3.70	~11:45	Before gamma-ray log.

predrilling values may be on the order of several years. The same is true for the dissipation of heat due to the curing of the cement if a fracture, void, or washout accepted a large quantity of cement.

NATURAL GAMMA-RAY MEASUREMENTS

On September 23 and 24, 1986, we obtained a series of natural gamma-ray logs in RD08 (fig. 7; App. III). We used a Geiger-Mueller tool manufactured by Geosource/SIE with a diameter of 1-11/16 in. As with the thermistor temperatures, all of these measurements were made with reference to the top of the casing, which was 1.8 ft above ground level. To convert to API units, multiply counts per second by approximately 3.6. We logged down the hole at about 150 ft/min. This high logging rate was necessary due to the high temperatures encountered in the hole. The tool has a nominal rating of 125°C for continuous exposure. By logging at the high rate we were able to reach the bottom of the hole before the internal temperature of the tool became sufficiently greater than 125°C and therefore would have quit working.

The last gamma-ray log (labeled 9/24-3 in fig. 7) was run with a time constant of 0.5 s, whereas the previous logs had a 1-s time constant. The logging speed was about 150 ft/min. The logs in figure 7 are the raw data digitized by hand at 1-ft intervals with a Tektronix 4956 Digitizing Tablet from the analog stripchart records and have not been filtered.

DISCUSSION

The shallow thermal regime in Long Valley has been discussed by Lachenbruch and others (1976), Sorey and Lewis (1976), Sorey and others (1978), Diment and others (1980), Sorey (1985), Blackwell (1985), and Diment and others (1985). Although geochemical studies (Mariner and Willey, 1976; Fournier and others, 1979) indicated reservoir temperatures in excess of 200°C and possibly as high as 282°C, the maximum temperature previously observed in the south moat was 172°C at Casa Diablo in Mammoth No. 1 (Urban and Diment, 1984). Although the shallow thermal regime was fairly well known over a significant part of the caldera, the southwestern moat in and around Mammoth Lakes had not been explored as extensively as other parts of Long Valley. The high temperatures (~202°C at 1,110 ft) at the location of RD08 (figs. 1 and 5) was unexpected at such shallow depths (see Blackwell, 1985). RD08 also encountered the Bishop Tuff at about 1,407 ft, which is the shallowest that it has been found in the caldera (Wollenberg and others, 1986; 1987). With the preliminary Kuster-gage temperatures (fig. 4) as a guide, we logged RD08 in July and September 1986 to obtain detailed and repeated temperatures and to monitor the decay of the drilling disturbance.

It was necessary to repeat temperature measurements because of the complex drilling history (fig. 2) that resulted in at least five and possibly as many as nine holes being drilled. This problem was caused by the soft tuffs in the 700- to 800-ft interval, which made it impossible to ream the hole for casing and, at the same time, to remain in the original hole. Thus, multiple reaming and drilling of new holes may have affected the temperature logs (fig. 5) by creating new conduits for fluid flow. On the other hand, detailed logging of the core by Stephen Flexser of Lawrence Berkeley Laboratory and Richard Dayvault of the Department of Energy, Curatorial Office (Flexser and Dayvault, 1987) indicates that many of the fractures in the formations have deposits of chalcedony, clay, zeolite, pyrite, euhedral

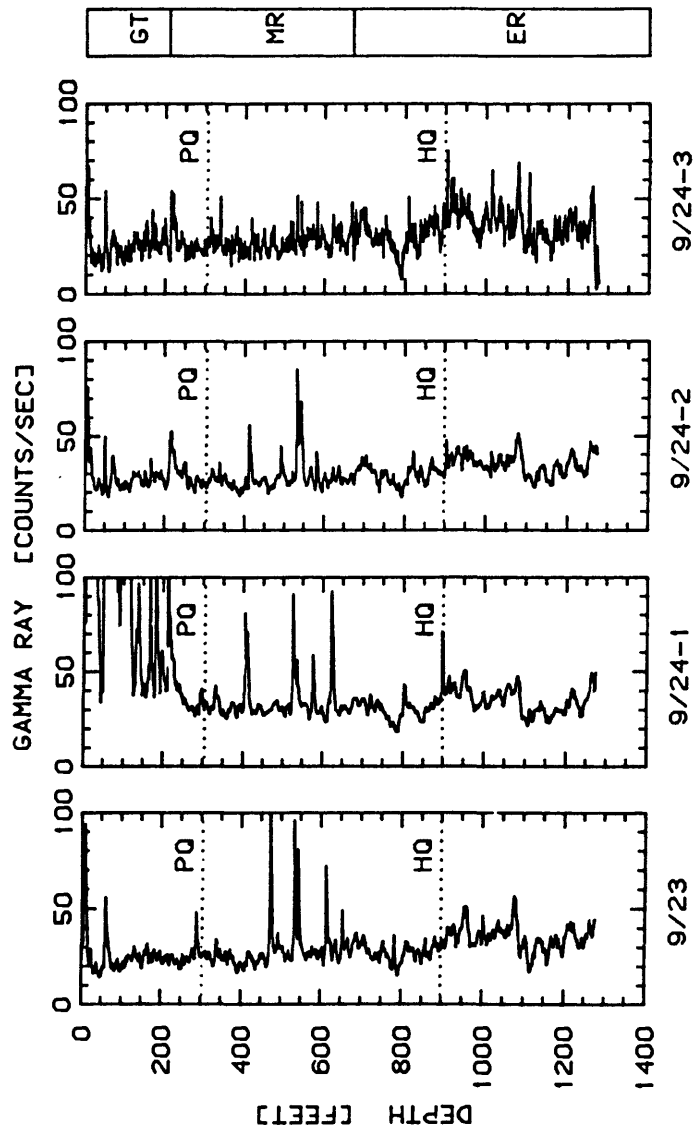

FIGURE 7. Natural gamma-ray logs obtained in RD08 on September 23 and 24, 1986. Data was obtained with a Geiger-Mueller tool, logging down at about 150 ft/min. The time constant for the first three logs was 1 s. For the fourth log (9/24-3), it was 0.5 s. The data for the plots were obtained from the analog stripchart recordings by digitizing at 1-ft intervals. The data for the plots have not been filtered. The bottoms of the PQ and HQ casings are shown as dotted lines. The details of the casing and cementing of the annulus are shown in figure 3. The NQ drill rod extends from the surface to 1,394 ft and is not shown. The generalized geologic section on the right-hand side of the diagram is from Flexser and Dayvault (1987). GT (glacial till), MR (moat rhyolite), and ER (early rhyolite). The Bishop Tuff begins at 1,407 ft and is not shown. Gamma-ray logs are referenced to the top of the casing, 1.8 ft above ground leve. Geology and casing depths are referenced to ground level.

quartz, calcite, and sulfide minerals, indicating that fluid flow has occurred in the fractures under predrilling conditions. In addition, the temperature reversal at 350 to 400 ft was similar in appearance to the reversals and isothermal sections below 700-800 ft. Thus, the multiplicity of holes may not have had a significant effect on the total flow regime, except possibly immediately in the vicinity of the hole as it now exists.

A second reason for the repeated logging was to determine the position of the cement column outside the NQ drill rod. The final cementing of the NQ drill rod resulted in no return of cement to the surface. The method of cementing the annulus consisted of pumping the cement down the center of the drill rod and up the annulus between the drill rod and the hole or other casing strings. Usually an additional percentage of cement is pumped to allow for the filling of fractures, voids, washouts, and dilution of the initial cement slug by water and drilling mud in the drill rod and hole. After all the cement was pumped into the drill rod, a wiper plug was pumped with water down the inside of the drill rod to the bottom of the hole to displace the cement. If all works properly, then the annulus is filled with cement, cement returns to the surface from around the annulus, and the drill rod is filled only with water. All of the above occurred with the exception that no cement returned to the surface. In this case, cement was also pumped down from the top of the annulus. Since it was not clear where all the cement wound up in the hole, on July 8, 1986, about 1,100 gal of water was pumped down the annulus between the NQ and HQ casings (fig. 3; table 7). The formation accepted all of the water without any pressure buildup, and no water was observed in the annulus near the surface. The temperature of the water pumped down the hole was about 17.7°C. From figures 5, and 6, it can be seen that the temperatures in the hole cooled by 40°C or more in the sections above 1,100 ft. However, at about 1,110 ft (depth of maximum temperature) there was only about 0.4°C decrease in temperature compared to that observed on the previous day (July 7, 1986). Several anomalies on the difference plot of figure 6 can be associated with the drilling or casing history. The bottoms of the PQ casing and HQ drill hole are marked by sharp breaks in the temperature plots (fig. 5) and in the temperature difference plots (fig. 6). Not only does this depth mark the bottom of the casings, it is also the depth where a significant, or at least known, change in hole diameter occurred (fig. 3). Normally, an anomaly associated with change in hole diameter only occurs in holes in which the annulus is not cemented. From figure 6, it appears that the annulus around the PQ casing had been filled successfully with cement as there has been little subsequent change with time in the temperatures. What changes have occurred can probably be related to the uncemented annulus between NQ and HQ drill rods. At the base of the HQ drill rod, the cementing operation appears not to have been as good as for the PQ casing and therefore hole diameter may have had an effect.

The most striking anomaly is that of curve A (fig. 6) between 900 and 1,100 ft. It appears that most of the water dumped down the hole between the HQ and NQ drill rod entered the early rhyolite between about 750 and 1,000 ft. The temperatures in the hole recovered rapidly, however, since by July 9, 1986 (curve B of fig. 6), the differences were substantially reduced from those of the previous day. Certain anomalies persist, such as those associated with the PQ and HQ casings at 303 and 898 ft and the anomalies at 410 and 800 ft. Both of the anomalies at 410 and 800 ft appear to be lost circulation zones (fig. 5). The persistence of these two anomalies and subsequent warming at these depths probably represents a continued warming of the formations in these sections in response to the decay of the drilling

disturbance and lost circulation. The section starting at about 800 ft may also represent a washout zone, as this was the depth where serious problems developed in drilling the hole (fig. 2).

Another temperature anomaly between 600 and 700 ft appears to be related to the change from the moat rhyolite to the early rhyolite. Finally, the section of the hole below 1,110 ft shows little change due to the slug test (fig. 6). It appears that the annulus below about 1,110 ft was successfully filled with cement. By July 9, 1986, the temperatures in the hole had recovered almost the the same values as those of July 7th. Thus, it appears that the cement returned up the annulus only to about the 1,110-ft level. The wiper plug, which was pumped to the bottom, migrated up the hole to about 1,276 ft and, therefore, the lower 120 ft of the hole was not accessible.

From an examination of figures 5 and 6, it is apparent that the temperatures increased in subsequent logs after July 9, 1986. The cause of this is mainly related to the recovery from the drilling disturbance, lost circulation, water injection, and multiple holes in this section of the hole. However, based on the September 23, 1986, temperature log, it appears that the increase extends up beyond the problem section in the hole (fig. 2). We note that the Chalfant earthquake (M_L=6.4) occurred on July 21, 1986 (Cockerham and Corbett, 1987) and that the seismicity increased in the Sierran block just south of the caldera, beginning about mid-June (Cockerham and others, 1987). After the Chalfant mainshock, the frequency rate of earthquakes decreased in the Sierran block. However, in the Long Valley caldera, the frequency rate increased slightly starting in early July and continued through the Chalfant sequence. Whether the ground shaking altered the flow regime in the vicinity of RD08 enough to perturb the observed temperature profiles is not clear. Gradual changes in temperature have been observed in other parts of Long Valley since the 1980 earthquake sequence (Diment and others, 1985), so it is also possible that some of the thermal anomalies observed in RD08 may be in response to the 1980 and 1983 earthquake sequences in and near Long Valley.

The presence of secondary minerals in fractures indicates fluid flows have occurred through the rock in the past and are possibly continuing at present. An examination of the natural gamma-ray log (fig. 7) illustrates some character that might be attributed to casing, mineralization, solution cavities, or washouts. The break above 1,100 ft possibly correlates with the change in the core log at 1,076 ft, where the rock abruptly became a silicified, pumice-rich tuff. The zone from 672 to 1,407 ft is part of the early rhyolite, with the section from 800 to 1,050 ft containing zones of lacustrine tuff, some pumiceous, with pyritic bands. Flexser and Dayvault (1987) noted that by 1,115-ft, solution cavities were common. The decrease in radioactivity at about 800 ft corresponds to a change in the rhyolite containing tuff with pyrite to zones of lacustrine tuff. This is also the depth at which the hole started to deviate from the original track when attempts were made to ream it. Therefore, this zone might be a large washout or cavity due to the multiple reamings and drillings.

The large spikes in the logs of figure 7 are a mystery. The pulses from the gamma-ray tool were monitored by an oscilloscope, and on several occasions the spikes were observed to correlate with bursts of pulses. The spikes generally occurred above 600 ft, well within the operating temperature of the tool. The slip-ring assemblies were rated to operate at the voltages and rotational speeds under which they were operating and were periodically tested

for noise. The noise tests indicated that the slip ring produces only about 1 μV of DC voltage, so it is unlikely that this was the source of the spikes. There were several possible explanations for these spikes. Killion (1978) noted that fluid motion behind casings can produce radioactive anomalies by a chemical reaction between the dissolved radioactive minerals and the casing, depositing a "radioactive crust" on the casing. However, such anomalies should be stationary, whereas most that we observed occurred at different depths on different logs. On July 24, 1986, the 4-in. plug in the surface casing was bubbling at the threads. This was 3 days after the Chalfant earthquake, and we also observed water in the annulus between the HQ and NQ casing for the first time. On September 23, 1986, the water level in the NQ casing had dropped to 166 ft and the wellhead was under a vacuum, although the water level in the annulus was at the same level as on July 24, 1986. We noted that repeated logs on September 24, 1986, resulted in a decrease in the number and amplitude of the spikes with time. The first log on September 24, 1986, was run shortly after the hole was uncapped. The hole remained open for subsequent logs. However, no gas pressure or vacuum was noted on this date, although the water level in the NQ casing had dropped about 2 ft. Conceivably, the spikes were somehow related to bubble transport of gases up the hole.

Our first (July 7, 1986) and last (September 23, 1986) temperature logs are plotted on figure 8 along with boiling point depth (BPD) curves. In calculating the BPD curves it was assumed that hydrostatic conditions prevailed and that the hypothetical fluid column was at the boiling point of "pure" water throughout (Urban and others, 1987). BPD 1 assumes that the top of the hypothetical boiling column was at the surface. BPD 2 assumes that the top of the column was at 150 ft (the top of the fluid column that was observed on May 19, 1986 during drilling). BPD 3 assumes that the top of the column was at 443 ft (the depth at which the water level stablized after the NQ rods were perforated between 1,110 and 1,120 ft on October 20, 1986). BPD 3 was probably closest to reality as an indicator of how close the observed temperatures were to boiling. Evidently fluids near 1,110 ft were closest to boiling. How close is difficult to specify with precision. The difference between the maximum observed temperature (201.8°C, 1,110 ft, September 23, 1986) and BPD 3 (208.7°C at 1,110 ft) was 6.9°C. But, this difference was too small because the actual pressure at 1,110 ft was greater than that used to calculate BPD 3 (that is, the whole fluid column above 1,110 ft was assumed to be at the boiling point of "pure" water). In order to correct for this effect, we calculated the actual pressure at 1,110 ft (assuming "pure" water) using the temperatures observed on September 23rd and assuming the top of the fluid column was at 443 ft. This shifted the BPD 3 curve at 1,110 ft from 208.7 to 211.4°C. Thus, the observed temperature (201.8°C) was 9.6°C below the corrected BPD 3 (211.4°C). Although further corrections could be made if the distribution of salinity with depth were known, it is pointless at this time. In no event would this have elevated BPB 3 by more than a few tenths of a degree (Hass, 1971), providing pressures were hydrostatic. The important point is that temperatures near 1,110 ft were close to boiling.

Although fluids in and about RD08 are not presently boiling, some evidence suggests that they may have boiled in 1980 when the fragile hydrothermal system of the caldera was severely shaken by large (M_L>6) earthquakes near the caldera. Intense swarms of earthquakes, some with

appearance of spasmotic tremor, occurred immediately east of Mammoth Lakes in 1980 (Ryall and Ryall, 1983, fig. 2). This is also the location of the western terminous of the right-lateral strike-slip south moat fault zone (for example, Savage and others, 1987, fig. 8). By invoking a pull-apart mechanism (dilational jog) such as that described by Sibson (Sibson, 1986; Kerr, 1987), pressures could be reduced so that water in the pores and fractures of the rocks would boil. Sibson (1986, p. 1188) notes that "There is historical evidence for boiling events triggered by the arrest of strike-slip rupture in the fault jog...." at Cerro Prieto. The boiling would cease when pressure rose, when fluid was exhausted, or when the supply of heat was insufficient to maintain boiling. Clearly, scenarios could be constructed where interplay among these factors could result in periodic boiling. These are complex issues that require elaboration far beyond the scope of this report.

The problem with involing Sibson's mechanism for subsurface boiling and brecciation is that there is no evidence for a right-stepping jog to the northwest of the south moat fault. However, RD08 does fall in the dilational strain field of a right-lateral strike-slip fault (for example, Chinnery, 1963, fig. 3). But, if this model is adopted, the zone of intense swarm activity (fig. 1) would be in the compressional field. An increase in pressure would tend to decrease the potential for boiling if the pressure increase did not cause the upward movement of hot waters along faults and joints. If, however, hot waters did rise, the consequent pressure reduction upon the ascending hot waters might be sufficient to cause boiling. The notion that we can have it either way is a strong testament as to the complexity of the processes involved and our ignorance of their details.

Another factor may be important. According to Ellis (1967, p. 500): "Hydration reactions of silicates are in general exothermic. For a glassy ignimbrite or pumice typical of the New Zealand Taupo Volcanic zone, a reasonable heat of devitrification and alteration would be about 75 cal/gram. With a specific heat for the rock of 0.2 cal/gram [°C] and, for example, an associated water content of 0.1 gram/cc, the adiabatic temperature rise during alteration would be about 300°C. Each cubic kilometer of volcanic rock would give by this means sufficient heat to maintain the natural heat output of a major area such as Wairakel (about 3×10^{15} cal/yr) for 100 years. As rock volumes of the order of hundreds of cubic kilometers are involved, the heat of alteration could make a significant contribution during the life of an area. The mechanism would be particularly effective as a means of propagating heat during the initial heating up of a large aquifer volume."

Although the surficial discharge of water out of the caldera has not changed significantly since the onset of the most recent episode of seismicity (about 1980; Farrar and others, 1985), hot waters have moved in the subsurface. The questions are: how much and where? Ascending hot waters probably avoid previously altered rocks (unless they are newly faulted) because hydrothermal alteration is an effective self-sealing mechanism (for example, White, 1973). Now, if we suppose that the rock beneath the south moat in the zone of high seismicity (fig. 1) contains a large fraction of rock susceptible to alteration, and we suppose that some of it has been brecciated by the previously mentioned seismic process, we have a mechanism for raising the temperatures, perhaps significantly. The volume of the hydrothermally altered rocks may also increase but the size and sign of the effect are uncertain because they depend on the amount of material carried away in solution, which could vary locally. The timing of the alteration is an even

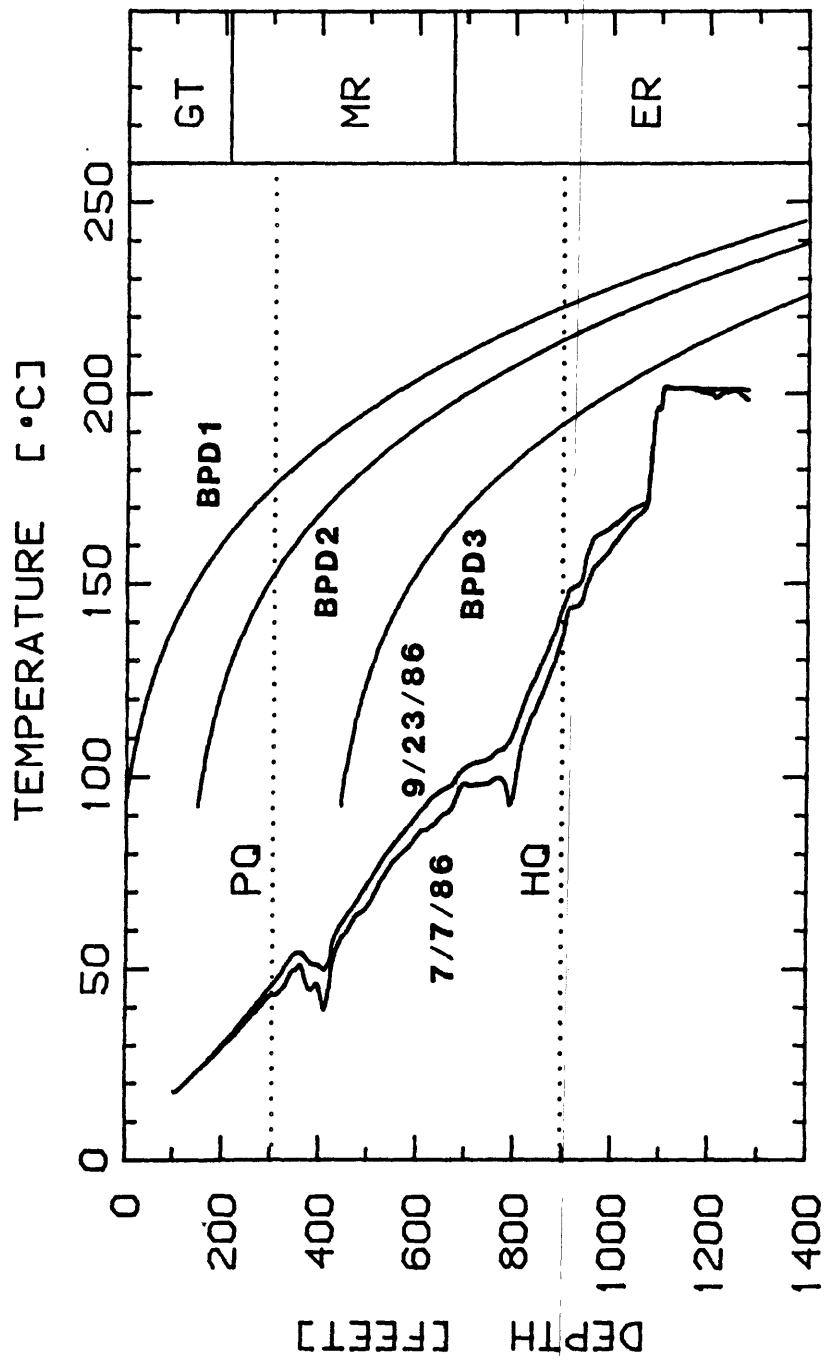

FIGURE 8. Temperatures and boiling-point-depth (BPD) curves for RD08 with fluid at the surface (BPD 1), 150 ft (BPD 2), and 443 ft (BPD 3) below the surface. Dotted lines mark the bottom of PQ casing and HQ drill rod. Geology from Flexser and Dayvault (1987). GT (glacial till), MR (moat rhyolite), and ER (early rhyolite).

more difficult question because it involves the temperature and chemistry of the altering solutions, as well as the degree of brecciation.

In preceding discussion, it has been assumed that pressures are hydrostatic. They need not be. Pressures in excess of hydrostatic will shift the BPD curves to the right (fig. 8). Pressures less than hydrostatic will shift them to the left. It is important to recognize that the distribution of pressure with depth is one of the most poorly known parameters in geothermal systems. Witness The Geysers stream field where pressures are far below hydrostatic pressure at stream-production depths of 6,000 ft or more (for example, White, 1973). The point is that without knowing distribution of both temperature and pressure with depth it is difficult to predict explosive spauling with depth in response to earthquake generated faulting and shaking. The process could occur at considerable depths.

CONCLUSIONS

We measured temperatures in drill hole RD08 on five occasions to better define the thermal regime in the southwest moat of the Long Valley Caldera, and to assess the effects of the drilling disturbance, multiple casing strings, lost circulation, and ground shaking related to the Chalfant earthquakes on the thermal regime in this part of the caldera. The temperatures in the well were the hottest (202°C) found in the caldera and were quite shallow (1,110 ft).

A slug test conducted on July 8, 1986, indicated that the cementing of the annulus between the NQ drill rod and the hole wall and other casing strings had been only partially successful. The annulus apparently was only cemented up to about 1,110 ft. The thermal disturbance from the slug test decayed rapidly, and on July 9, 1986, only a small remanant of the cooling of the hole was observed (figs. 5 and 6). Subsequent temperature logs indicated that the hole continued to warm above ~1,100 ft. This in part represented the recovery of the temperature in the well from the drilling disturbance and lost circulation. It may also have been a consequence of an adjustment of the flow pattern in the formation that resulted from multiple reaming and drilling problems (fig. 2) in the initial hole. Furthermore, the hydrothermal regime may have been perturbed by the Chalfant earthquake (M_L=6.4) of July 21, 1986, and its aftershock sequence. Seismicity in the caldera increased slightly during the period of the logging in July 1986. We have observed changes in the thermal regime of another part of the caldera in response to the 1980 and later earthquake sequences. Some of the warming in this hole may have been the result of shaking that opened new conduits for fluid flow near the well. Some of the conduits may not have been new but may have been relics of the 1980 and 1983 earthquake sequences.

Natural gamma-ray logs (fig. 7) of RD08 indicated anomalies that may correlate with lithologic changes, with washouts due to the multiple reaming and drilling of the hole, and possibly with deposition of radioactive minerals behind the casing. The numerous mineral-filled fractures in the core samples are evidence that fluid had moved through the formation in the past. The slug test indicated high formation permeability from 900 to 1,110 ft. This interval took up about 1,100 gal of water during the slug test without the wellhead overflowing. Although the ability of the formation to produce substantial quantities of high-temperature fluid is unknown at present, the high temperatures are indicative of the geothermal potential of this area near Mammoth Lakes.

Temperatures were within 10°C of boiling at 1,110 ft (fig. 8). RD08 is close to the site of the most intense earthquake swarm activity following the large earthquakes of 1980. Conceivably, faulting reduced pressure sufficiently to cause boiling with consequent brecciation and spauling. However, this zone of earthquake activity would be in the compressional field of the right-lateral strike-slip fault (for example, Chinnery, 1963, fig. 3). An increase in pressure would tend to decrease the potential for boiling, unless upward movement of hot water along faults and joints was allowed. The subsequent reduction in pressure of the ascending hot waters might be sufficient to cause boiling. The notion that we can have it either way is a strong testament as to the complexity of the processes involved and to our ignorance of their details.

Another contributing factor may be the hydrothermal alteration of rock beneath the south moat of the caldera in the zone of high seismicity. Hydration reactions are generally exothermic (Ellis, 1967). If the rock had been brecciated by this seismic activity, then the hydrothermal alterations accompanying the ascent of hot waters could be a mechanism for raising the temperatures, perhaps significantly. The volume of the hydrothermally altered rocks may also increase. However, the sign and size of the effect is unknown due to the uncertainty in the amount of material carried away in solution, the temperature, and chemistry of the solutions and the degree of brecciation involved.

Acknowledgments

H. A. Wollenberg of Lawrence Berkeley Laboratory provided the geologic log of the core from RD08. R. Jacobson and L. C. Bartel of Sandia National Laboratory provided details of the drilling operation, the driller's log, and a completion diagram of the hole. M. D. Clark of the U.S. Forest Service shared his knowledge of the geothermal system and arranged for logistical support. C. G. Bufe and A. J. Crone reviewed the manuscript and suggested significant improvements.

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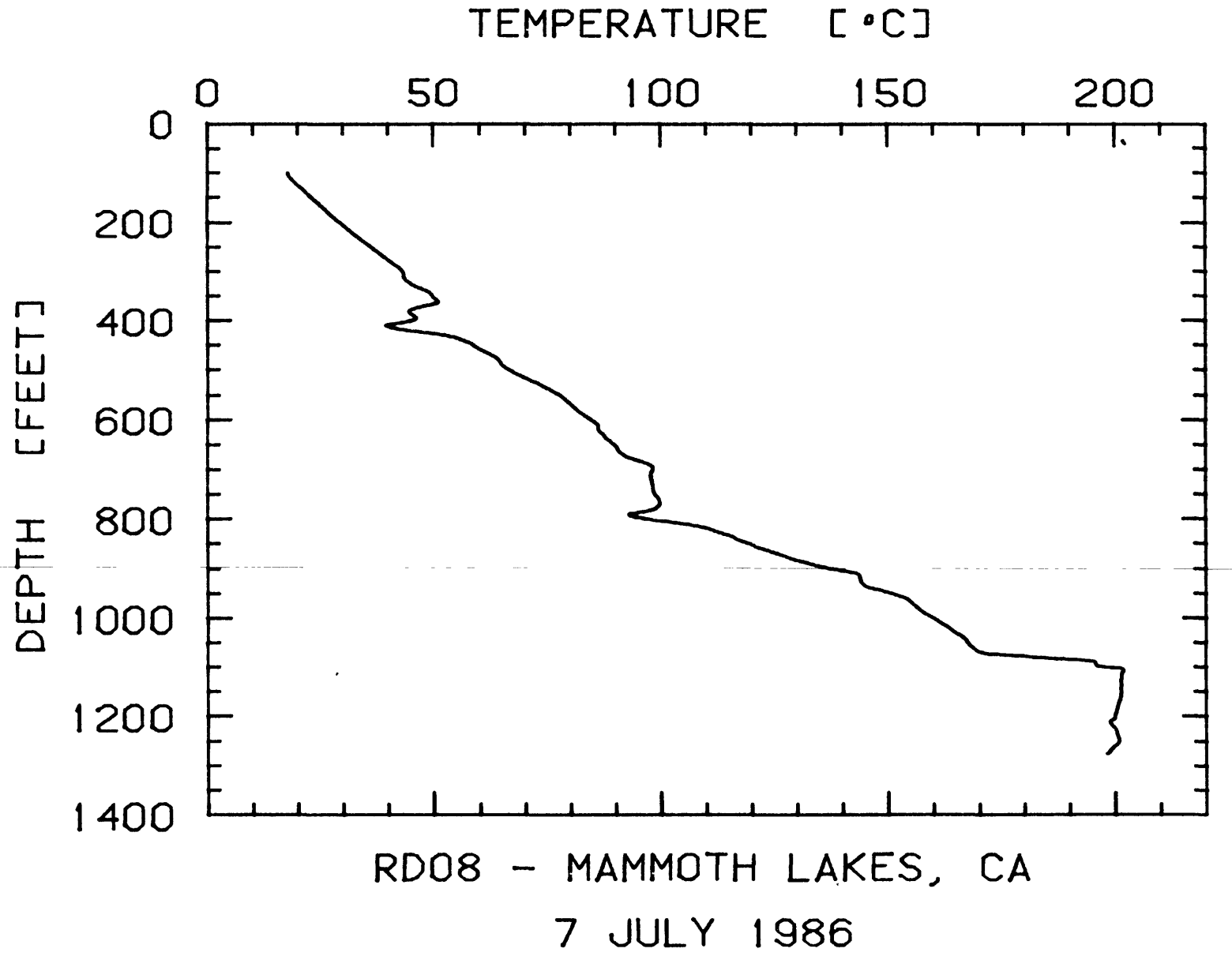
APPENDIX I

Temperature Plots for RDO8 in July and September 1986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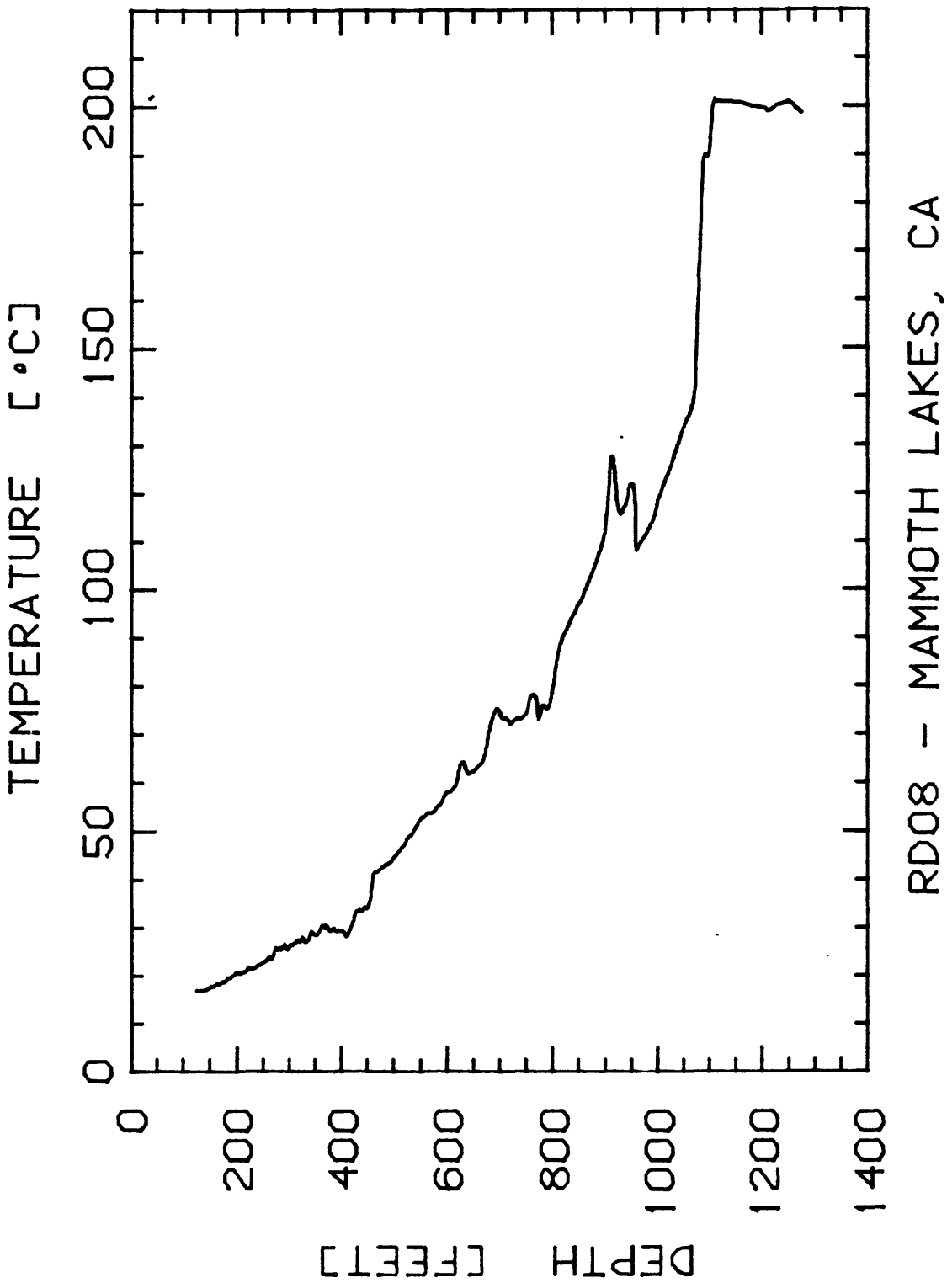
RD08 - MAMMOTH LAKES, CA
7 JULY 1986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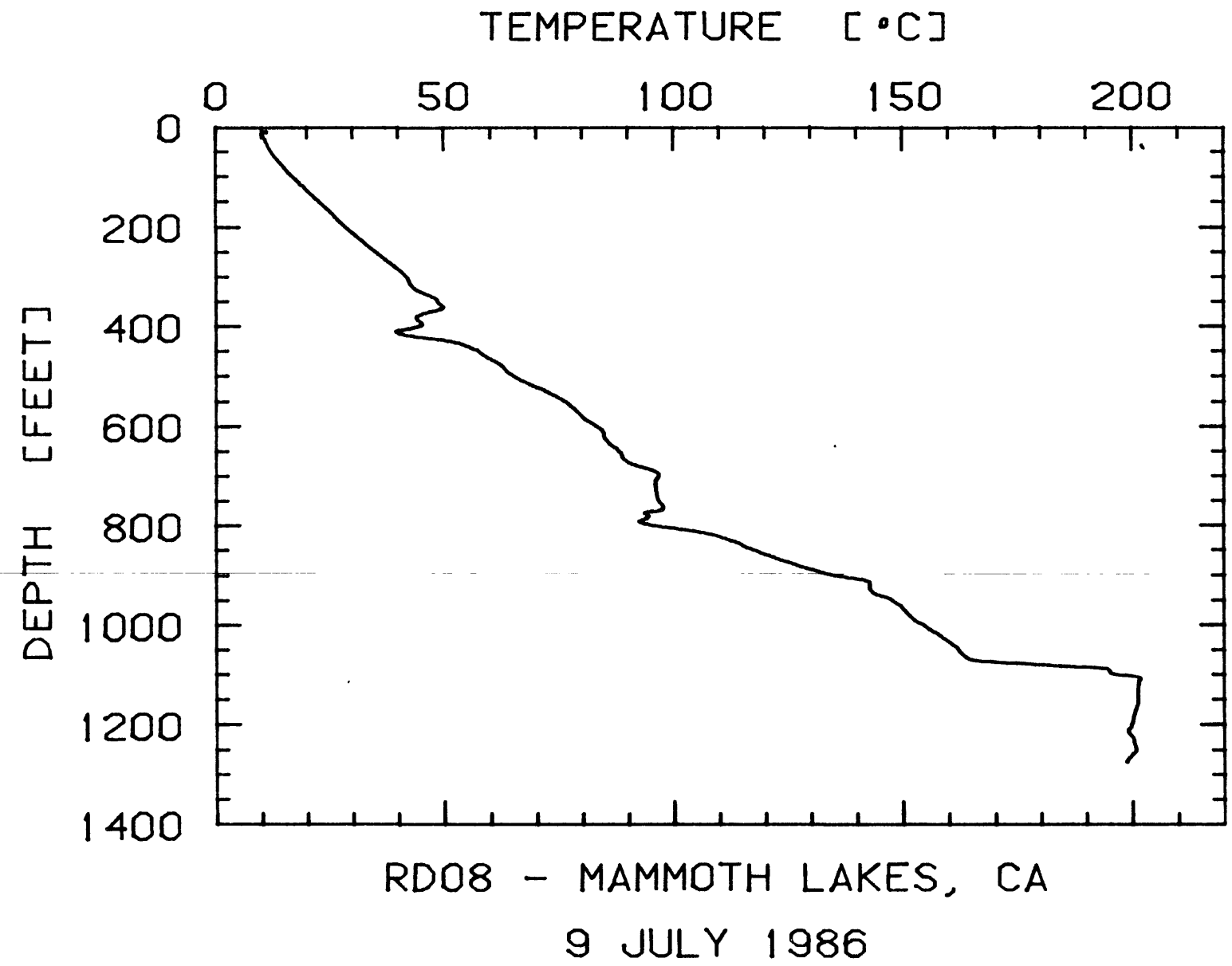
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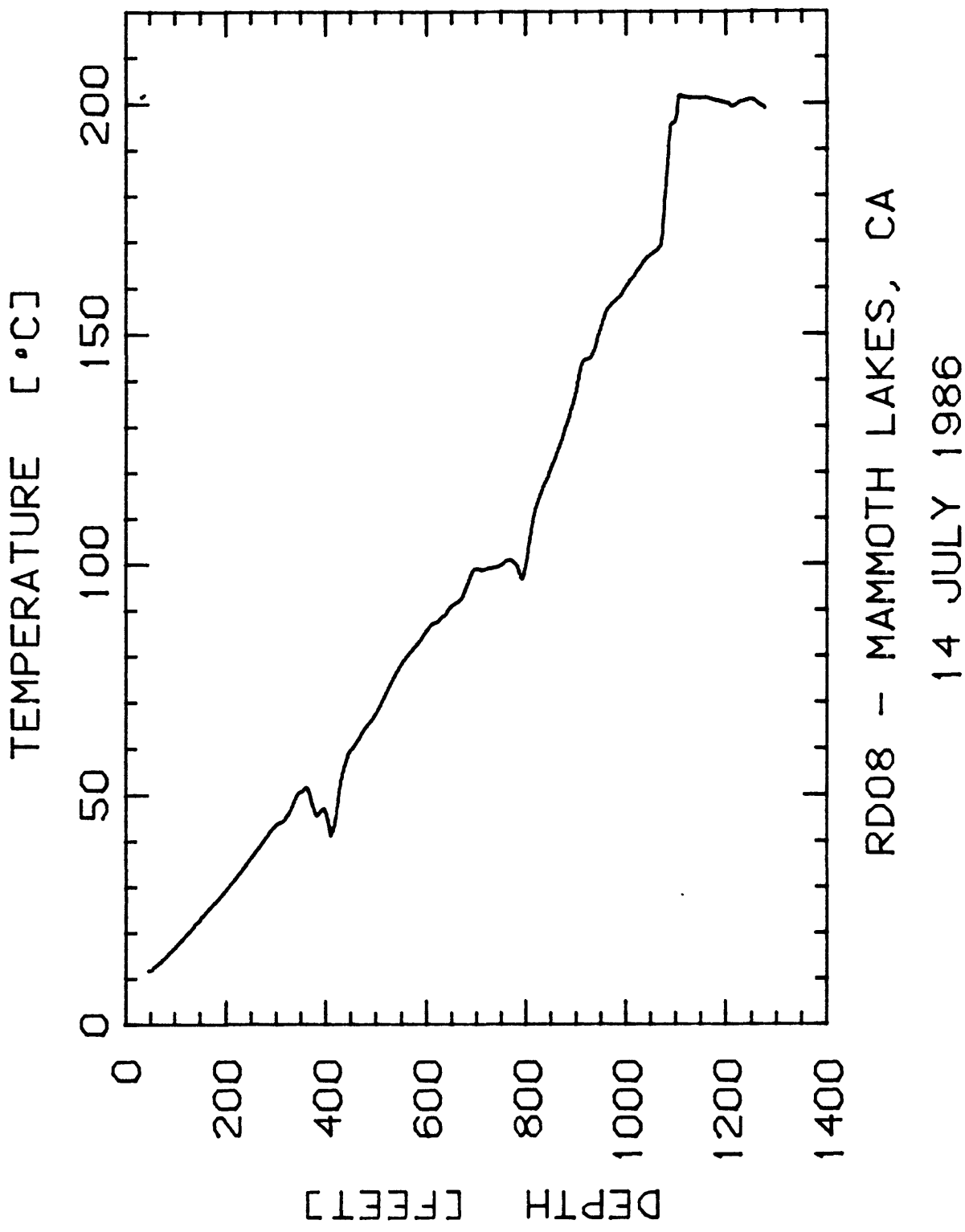
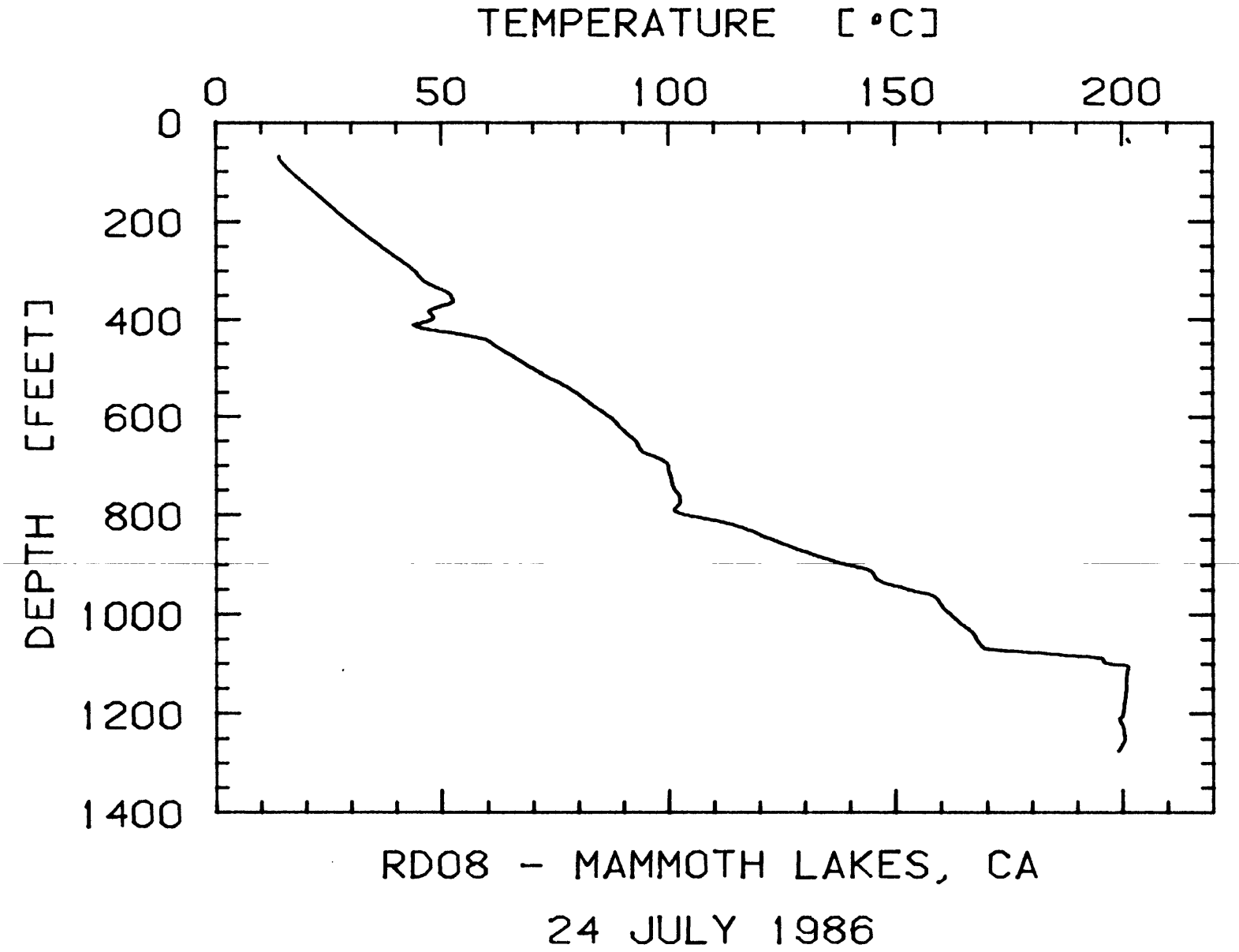
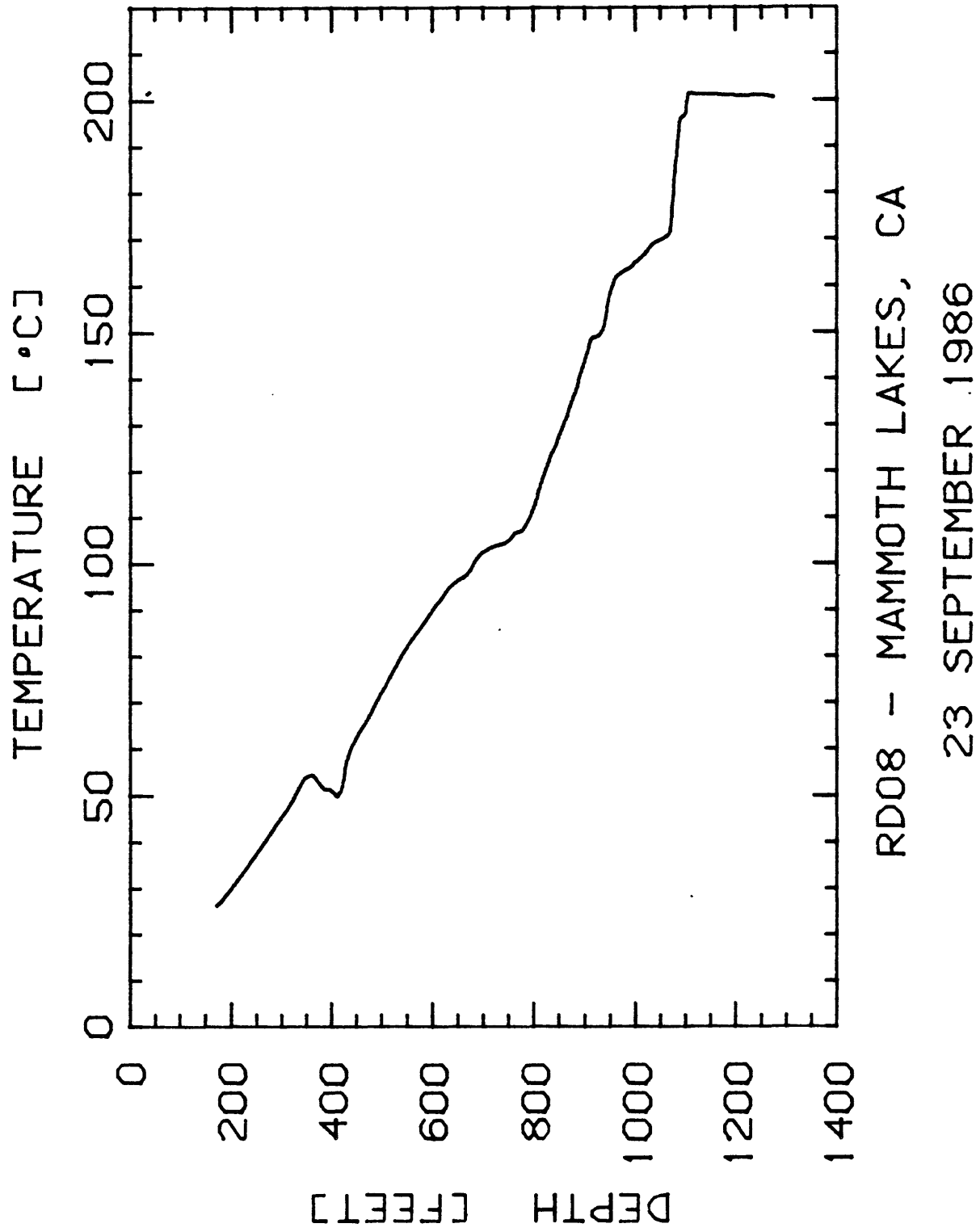
DEPTH [FEET]
RD08 - MAMMOTH LAKES, CA
9 JULY 1986


TEMPERATURE [°C]
0
50
100
150
200
DEPTH [FEET]
0
200
400
600
800
1000
1200
1400
RD08 - MAMMOTH LAKES, CA
14 JULY 1986


TEMPERATURE [°C]
0
50
100
150
200
0
200
400
600
800
1000
1200
1400
DEPTH [FEET]
RD08 - MAMMOTH LAKES, CA
24 JULY 1986


TEMPERATURE [°C]
0
50
100
150
200
DEPTH [FEET]
0
200
400
600
800
1000
1200
1400
RD08 - MAMMOTH LAKES, CA
23 SEPTEMBER 1986

APPENDIX II

Temperature Data for RD08 in July and September 1986

R008 - MAMMOTH LAKES, CA - 7 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
100	17.744	170	25.543	240	34.644	310	43.488	380	44.704	450	58.728
101	17.713	171	25.674	241	34.806	311	43.492	381	44.609	451	58.841
102	17.691	172	25.850	242	34.987	312	43.491	382	44.571	452	58.982
103	17.713	173	25.941	243	35.054	313	43.499	383	44.621	453	59.137
104	17.790	174	26.056	244	35.240	314	43.525	384	44.671	454	59.329
105	17.830	175	26.173	245	35.375	315	43.583	385	44.726	455	59.456
106	17.883	176	26.293	246	35.500	316	43.659	386	44.838	456	59.665
107	17.983	177	26.383	247	35.654	317	43.766	387	44.987	457	59.847
108	18.049	178	26.474	248	35.824	318	43.900	388	45.156	458	60.016
109	18.125	179	26.620	249	35.963	319	44.022	389	45.317	459	60.246
110	18.215	180	26.709	250	36.103	320	44.182	390	45.528	460	60.458
111	18.305	181	26.858	251	36.247	321	44.298	391	45.706	461	60.687
112	18.421	182	26.952	252	36.357	322	44.541	392	45.913	462	60.895
113	18.533	183	27.062	253	36.550	323	44.730	393	46.063	463	61.114
114	18.616	184	27.191	254	36.666	324	44.874	394	46.184	464	61.356
115	18.750	185	27.333	255	36.815	325	44.963	395	46.239	465	61.568
116	18.873	186	27.454	256	36.974	326	45.074	396	46.263	466	61.869
117	18.951	187	27.561	257	37.104	327	45.208	397	46.244	467	62.092
118	19.067	188	27.714	258	37.248	328	45.407	398	46.080	468	62.278
119	19.178	189	27.832	259	37.373	329	45.633	399	45.748	469	62.482
120	19.259	190	27.965	260	37.515	330	45.831	400	45.323	470	62.696
121	19.412	191	28.079	261	37.668	331	46.056	401	44.845	471	62.890
122	19.533	192	28.200	262	37.805	332	46.264	402	44.341	472	63.114
123	19.669	193	28.283	263	37.960	333	46.539	403	43.767	473	63.305
124	19.775	194	28.413	264	38.104	334	46.840	404	43.109	474	63.489
125	19.868	195	28.620	265	38.277	335	47.139	405	42.434	475	63.653
126	20.034	196	28.728	266	38.388	336	47.440	406	41.766	476	63.796
127	20.142	197	28.850	267	38.577	337	47.713	407	41.077	477	63.967
128	20.284	198	28.993	268	38.712	338	47.999	408	40.408	478	64.134
129	20.411	199	29.108	269	38.842	339	48.254	409	39.802	479	64.217
130	20.564	200	29.295	270	38.979	340	48.497	410	39.476	480	64.295
131	20.679	201	29.426	271	39.143	341	48.736	411	39.793	481	64.373
132	20.848	202	29.508	272	39.292	342	48.933	412	40.005	482	64.432
133	20.908	203	29.632	273	39.440	343	49.112	413	40.213	483	64.512
134	21.054	204	29.786	274	39.584	344	49.241	414	40.476	484	64.568
135	21.182	205	29.966	275	39.733	345	49.382	415	40.865	485	64.631
136	21.263	206	30.067	276	39.838	346	49.482	416	41.345	486	64.686
137	21.385	207	30.213	277	40.011	347	49.571	417	41.923	487	64.772
138	21.530	208	30.314	278	40.167	348	49.651	418	42.687	488	64.842
139	21.655	209	30.474	279	40.293	349	49.713	419	43.358	489	64.924
140	21.808	210	30.612	280	40.433	350	49.781	420	44.238	490	65.032
141	21.897	211	30.742	281	40.619	351	49.849	421	45.190	491	65.138
142	22.055	212	30.818	282	40.741	352	49.906	422	46.018	492	65.254
143	22.176	213	30.962	283	40.886	353	50.003	423	47.031	493	65.422
144	22.316	214	31.132	284	41.055	354	50.069	424	48.012	494	65.596
145	22.441	215	31.219	285	41.180	355	50.206	425	48.846	495	65.747
146	22.585	216	31.356	286	41.328	356	50.369	426	49.531	496	65.900
147	22.754	217	31.500	287	41.509	357	50.561	427	50.437	497	66.070
148	22.847	218	31.637	288	41.620	358	50.692	428	51.217	498	66.211
149	22.886	219	31.747	289	41.806	359	50.868	429	51.939	499	66.390
150	23.046	220	31.870	290	41.955	360	51.002	430	52.568	500	66.583
151	23.218	221	32.018	291	42.100	361	51.088	431	53.137	501	66.775
152	23.348	222	32.145	292	42.239	362	51.129	432	53.582	502	67.016
153	23.438	223	32.249	293	42.406	363	51.131	433	54.247	503	67.166
154	23.573	224	32.373	294	42.469	364	51.046	434	54.616	504	67.366
155	23.710	225	32.553	295	42.599	365	50.697	435	54.938	505	67.613
156	23.865	226	32.672	296	42.737	366	50.275	436	55.366	506	67.770
157	23.977	227	32.803	297	42.790	367	49.747	437	55.646	507	68.034
158	24.079	228	32.886	298	42.919	368	49.207	438	55.934	508	68.274
159	24.224	229	33.089	299	43.006	369	48.657	439	56.169	509	68.433
160	24.375	230	33.199	300	43.095	370	48.134	440	56.425	510	68.671
161	24.488	231	33.365	301	43.194	371	47.650	441	56.704	511	68.842
162	24.636	232	33.513	302	43.259	372	47.230	442	56.929	512	69.080
163	24.720	233	33.666	303	43.335	373	46.798	443	57.196	513	69.359
164	24.846	234	33.778	304	43.382	374	46.428	444	57.474	514	69.590
165	24.961	235	33.932	305	43.419	375	46.046	445	57.850	515	69.789
166	25.079	236	34.077	306	43.454	376	45.681	446	58.150	516	70.077
167	25.212	237	34.211	307	43.465	377	45.375	447	58.320	517	70.351
168	25.315	238	34.388	308	43.471	378	45.091	448	58.458	518	70.595
169	25.481	239	34.526	309	43.479	379	44.883	449	58.580	519	70.844

R008 - MAMMOTH LAKES, CA - 7 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
520	71.087	590	82.884	660	90.628	730	98.227	800	97.166	870	125.769
521	71.308	591	83.051	661	90.643	731	98.242	801	97.922	871	126.062
522	71.599	592	83.288	662	90.713	732	98.253	802	98.734	872	126.375
523	71.845	593	83.496	663	90.772	733	98.262	803	99.477	873	126.666
524	72.118	594	83.662	664	90.889	734	98.269	804	100.422	874	126.997
525	72.368	595	83.860	665	90.995	735	98.284	805	101.282	875	127.234
526	72.656	596	84.014	666	91.140	736	98.295	806	102.173	876	127.597
527	72.920	597	84.175	667	91.269	737	98.309	807	102.929	877	127.949
528	73.106	598	84.306	668	91.437	738	98.324	808	103.604	878	128.169
529	73.342	599	84.469	669	91.587	739	98.340	809	104.564	879	128.499
530	73.578	600	84.609	670	91.708	740	98.360	810	105.375	880	128.829
531	73.755	601	84.778	671	91.845	741	98.376	811	106.112	881	129.123
532	73.968	602	84.930	672	92.015	742	98.397	812	106.847	882	129.439
533	74.187	603	85.096	673	92.256	743	98.427	813	107.439	883	129.891
534	74.405	604	85.243	674	92.447	744	98.452	814	108.111	884	130.332
535	74.661	605	85.461	675	92.654	745	98.478	815	108.710	885	130.708
536	74.869	606	85.593	676	92.911	746	98.512	816	109.119	886	131.115
537	75.058	607	85.721	677	93.224	747	98.551	817	109.576	887	131.543
538	75.266	608	85.885	678	93.579	748	98.599	818	110.066	888	131.944
539	75.455	609	86.022	679	93.857	749	98.644	819	110.346	889	132.394
540	75.663	610	86.124	680	94.172	750	98.696	820	110.607	890	132.762
541	75.885	611	86.212	681	94.541	751	98.793	821	111.028	891	133.176
542	76.039	612	86.282	682	94.882	752	98.852	822	111.261	892	133.561
543	76.244	613	86.335	683	95.181	753	98.963	823	111.654	893	133.961
544	76.458	614	86.365	684	95.598	754	99.085	824	111.904	894	134.275
545	76.662	615	86.386	685	95.908	755	99.199	825	112.210	895	134.734
546	76.867	616	86.394	686	96.308	756	99.317	826	112.521	896	135.145
547	77.061	617	86.399	687	96.679	757	99.442	827	112.912	897	135.497
548	77.286	618	86.389	688	97.034	758	99.539	828	113.250	898	136.098
549	77.465	619	86.371	689	97.249	759	99.607	829	113.601	899	136.650
550	77.650	620	86.370	690	97.491	760	99.650	830	113.960	900	137.116
551	77.798	621	86.380	691	97.686	761	99.670	831	114.225	901	137.811
552	77.951	622	86.420	692	97.850	762	99.712	832	114.594	902	138.264
553	78.085	623	86.498	693	98.001	763	99.743	833	114.961	903	138.752
554	78.237	624	86.582	694	98.107	764	99.772	834	115.254	904	139.440
555	78.381	625	86.712	695	98.211	765	99.801	835	115.546	905	139.837
556	78.494	626	86.817	696	98.283	766	99.812	836	115.823	906	140.621
557	78.626	627	86.939	697	98.338	767	99.820	837	116.050	907	141.432
558	78.762	628	87.102	698	98.372	768	99.823	838	116.212	908	142.069
559	78.891	629	87.250	699	98.381	769	99.827	839	116.447	909	142.633
560	79.005	630	87.384	700	98.377	770	99.824	840	116.652	910	143.095
561	79.134	631	87.476	701	98.342	771	99.808	841	116.802	911	143.365
562	79.291	632	87.568	702	98.274	772	99.753	842	117.063	912	143.595
563	79.378	633	87.631	703	98.204	773	99.663	843	117.291	913	143.726
564	79.531	634	87.671	704	98.119	774	99.556	844	117.579	914	143.818
565	79.660	635	87.701	705	98.027	775	99.385	845	117.854	915	143.850
566	79.777	636	87.780	706	97.941	776	99.252	846	118.131	916	143.867
567	79.924	637	87.858	707	97.871	777	99.105	847	118.554	917	143.876
568	80.023	638	87.980	708	97.807	778	98.934	848	118.869	918	143.901
569	80.177	639	88.181	709	97.769	779	98.760	849	119.099	919	143.927
570	80.274	640	88.339	710	97.758	780	98.533	850	119.452	920	143.947
571	80.394	641	88.501	711	97.758	781	98.251	851	119.831	921	143.979
572	80.503	642	88.692	712	97.766	782	97.904	852	120.120	922	144.010
573	80.655	643	88.881	713	97.791	783	97.467	853	120.428	923	144.035
574	80.808	644	89.004	714	97.810	784	96.927	854	120.647	924	144.067
575	80.913	645	89.152	715	97.837	785	96.279	855	120.854	925	144.106
576	81.062	646	89.264	716	97.868	786	95.566	856	121.071	926	144.135
577	81.190	647	89.398	717	97.895	787	94.885	857	121.336	927	144.167
578	81.296	648	89.520	718	97.940	788	94.125	858	121.660	928	144.192
579	81.428	649	89.623	719	97.969	789	93.431	859	122.004	929	144.229
580	81.531	650	89.766	720	98.010	790	92.963	860	122.406	930	144.298
581	81.611	651	89.873	721	98.042	791	92.856	861	122.759	931	144.404
582	81.728	652	90.002	722	98.072	792	92.926	862	122.958	932	144.525
583	81.859	653	90.114	723	98.094	793	93.119	863	123.325	933	144.639
584	81.986	654	90.218	724	98.119	794	93.502	864	123.701	934	144.767
585	82.124	655	90.322	725	98.150	795	93.975	865	123.994	935	144.915
586	82.280	656	90.398	726	98.168	796	94.452	866	124.384	936	145.083
587	82.400	657	90.471	727	98.187	797	95.080	867	124.726	937	145.253
588	82.553	658	90.512	728	98.199	798	95.770	868	125.010	938	145.515
589	82.725	659	90.578	729	98.218	799	96.397	869	125.397	939	145.831

RD08 - MAMMOTH LAKES, CA - 7 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
940	146.268	1010	161.566	1080	183.981	1150	201.336	1220	199.588
941	146.761	1011	161.813	1081	185.395	1151	201.324	1221	199.690
942	147.179	1012	161.953	1082	186.979	1152	201.324	1222	199.792
943	147.754	1013	162.120	1083	188.793	1153	201.324	1223	199.906
944	148.376	1014	162.308	1084	189.960	1154	201.324	1224	199.986
945	148.622	1015	162.582	1085	191.522	1155	201.312	1225	200.078
946	148.964	1016	162.709	1086	193.013	1156	201.312	1226	200.147
947	149.261	1017	162.884	1087	194.574	1157	201.312	1227	200.204
948	149.778	1018	163.080	1088	195.179	1158	201.312	1228	200.262
949	150.197	1019	163.222	1089	195.587	1159	201.301	1229	200.308
950	150.674	1020	163.364	1090	195.721	1160	201.242	1230	200.331
951	151.033	1021	163.529	1091	195.762	1161	201.195	1231	200.354
952	151.269	1022	163.681	1092	195.793	1162	201.148	1232	200.377
953	151.636	1023	163.791	1093	195.845	1163	201.089	1233	200.412
954	151.953	1024	163.922	1094	195.907	1164	201.065	1234	200.424
955	152.399	1025	164.103	1095	195.927	1165	201.042	1235	200.447
956	152.662	1026	164.214	1096	195.948	1166	201.007	1236	200.482
957	152.920	1027	164.365	1097	196.021	1167	200.971	1237	200.493
958	153.283	1028	164.543	1098	196.239	1168	200.913	1238	200.551
959	153.544	1029	164.704	1099	196.828	1169	200.866	1239	200.598
960	153.773	1030	164.921	1100	197.900	1170	200.819	1240	200.644
961	153.982	1031	165.053	1101	199.395	1171	200.772	1241	200.667
962	154.155	1032	165.254	1102	200.831	1172	200.726	1242	200.714
963	154.396	1033	165.391	1103	201.573	1173	200.714	1243	200.737
964	154.553	1034	165.658	1104	201.776	1174	200.702	1244	200.772
965	154.656	1035	165.857	1105	201.848	1175	200.679	1245	200.796
966	154.769	1036	166.048	1106	201.884	1176	200.644	1246	200.819
967	154.870	1037	166.165	1107	201.896	1177	200.563	1247	200.842
968	154.977	1038	166.311	1108	201.920	1178	200.528	1248	200.878
969	155.146	1039	166.472	1109	201.932	1179	200.493	1249	200.901
970	155.238	1040	166.571	1110	201.908	1180	200.435	1250	200.913
971	155.367	1041	166.714	1111	201.752	1181	200.401	1251	200.889
972	155.521	1042	166.838	1112	201.644	1182	200.377	1252	200.807
973	155.606	1043	166.938	1113	201.490	1183	200.377	1253	200.737
974	155.703	1044	167.015	1114	201.466	1184	200.377	1254	200.633
975	155.866	1045	167.145	1115	201.430	1185	200.366	1255	200.505
976	155.980	1046	167.198	1116	201.418	1186	200.331	1256	200.389
977	156.133	1047	167.290	1117	201.430	1187	200.297	1257	200.297
978	156.259	1048	167.363	1118	201.407	1188	200.285	1258	200.158
979	156.410	1049	167.460	1119	201.395	1189	200.239	1259	199.986
980	156.561	1050	167.592	1120	201.395	1190	200.204	1260	199.792
981	156.696	1051	167.704	1121	201.407	1191	200.181	1261	199.644
982	156.809	1052	167.797	1122	201.383	1192	200.147	1262	199.542
983	156.959	1053	167.901	1123	201.359	1193	200.112	1263	199.463
984	157.103	1054	167.975	1124	201.336	1194	200.090	1264	199.384
985	157.229	1055	168.039	1125	201.324	1195	200.067	1265	199.283
986	157.359	1056	168.099	1126	201.324	1196	200.032	1266	199.193
987	157.493	1057	168.208	1127	201.312	1197	199.986	1267	199.103
988	157.632	1058	168.342	1128	201.312	1198	199.952	1268	199.025
989	157.829	1059	168.507	1129	201.312	1199	199.906	1269	198.935
990	157.958	1060	168.653	1130	201.312	1200	199.883	1270	198.779
991	158.117	1061	168.784	1131	201.324	1201	199.861	1271	198.691
992	158.299	1062	168.906	1132	201.324	1202	199.849	1272	198.668
993	158.519	1063	169.130	1133	201.324	1203	199.838	1273	198.635
994	158.685	1064	169.283	1134	201.324	1204	199.838	1274	198.414
995	158.999	1065	169.494	1135	201.324	1205	199.701	1275	198.129
996	159.220	1066	169.608	1136	201.324	1206	199.463		
997	159.362	1067	169.779	1137	201.324	1207	199.226		
998	159.555	1068	169.925	1138	201.324	1208	199.036		
999	159.737	1069	170.255	1139	201.312	1209	198.913		
1000	159.963	1070	170.647	1140	201.312	1210	198.868		
1001	160.135	1071	170.931	1141	201.301	1211	198.857		
1002	160.322	1072	171.293	1142	201.301	1212	198.880		
1003	160.492	1073	172.205	1143	201.301	1213	198.935		
1004	160.659	1074	173.934	1144	201.301	1214	199.002		
1005	160.828	1075	175.725	1145	201.312	1215	199.081		
1006	160.715	1076	178.038	1146	201.312	1216	199.170		
1007	160.972	1077	179.560	1147	201.324	1217	199.294		
1008	161.219	1078	181.060	1148	201.336	1218	199.407		
1009	161.435	1079	182.105	1149	201.336	1219	199.463		

RD08 - MAMMOTH LAKES, CA - 8 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
124	16.776	194	20.122	264	23.964	334	27.111	404	29.259	474	42.006
125	16.786	195	20.147	265	23.678	335	27.134	405	29.206	475	42.139
126	16.806	196	20.181	266	23.451	336	27.151	406	28.973	476	42.262
127	16.815	197	20.356	267	23.414	337	27.175	407	28.631	477	42.420
128	16.815	198	20.534	268	23.472	338	27.327	408	28.356	478	42.524
129	16.810	199	20.663	269	23.636	339	27.511	409	28.194	479	42.612
130	16.809	200	20.712	270	23.852	340	27.796	410	28.133	480	42.696
131	16.811	201	20.702	271	24.232	341	28.183	411	28.172	481	42.751
132	16.812	202	20.635	272	24.559	342	28.588	412	28.247	482	42.867
133	16.815	203	20.604	273	24.901	343	28.912	413	28.410	483	42.928
134	16.816	204	20.593	274	25.255	344	29.217	414	28.635	484	42.974
135	16.821	205	20.463	275	25.738	345	29.331	415	28.917	485	43.046
136	16.825	206	20.404	276	25.904	346	29.228	416	29.230	486	43.122
137	16.841	207	20.409	277	25.888	347	29.027	417	29.582	487	43.136
138	16.861	208	20.474	278	25.780	348	28.832	418	29.862	488	43.187
139	16.908	209	20.563	279	25.586	349	28.653	419	30.126	489	43.265
140	16.959	210	20.629	280	25.442	350	28.551	420	30.382	490	43.293
141	17.008	211	20.703	281	25.505	351	28.453	421	30.620	491	43.372
142	17.045	212	20.790	282	25.677	352	28.430	422	30.899	492	43.426
143	17.091	213	20.865	283	25.826	353	28.456	423	31.233	493	43.504
144	17.110	214	20.938	284	25.841	354	28.520	424	31.639	494	43.591
145	17.178	215	20.834	285	25.639	355	28.599	425	32.108	495	43.690
146	17.223	216	20.779	286	25.448	356	28.680	426	32.513	496	43.797
147	17.263	217	20.764	287	25.427	357	28.808	427	33.035	497	43.958
148	17.325	218	20.844	288	25.533	358	28.972	428	33.286	498	44.113
149	17.381	219	20.953	289	25.799	359	29.221	429	33.437	499	44.326
150	17.465	220	21.108	290	26.110	360	29.470	430	33.453	500	44.461
151	17.548	221	21.271	291	26.395	361	29.736	431	33.425	501	44.637
152	17.634	222	21.473	292	26.688	362	30.007	432	33.482	502	44.771
153	17.727	223	21.681	293	26.789	363	30.239	433	33.629	503	44.921
154	17.806	224	21.836	294	26.650	364	30.485	434	33.786	504	45.078
155	17.743	225	21.677	295	26.089	365	30.576	435	33.872	505	45.255
156	17.699	226	21.445	296	25.699	366	30.338	436	33.845	506	45.382
157	17.689	227	21.308	297	25.525	367	30.088	437	33.699	507	45.482
158	17.713	228	21.267	298	25.405	368	30.015	438	33.488	508	45.579
159	17.769	229	21.294	299	25.394	369	30.108	439	33.398	509	45.653
160	17.856	230	21.322	300	25.495	370	30.289	440	33.375	510	45.807
161	17.973	231	21.389	301	25.658	371	30.502	441	33.474	511	45.934
162	18.107	232	21.476	302	25.856	372	30.588	442	33.715	512	46.063
163	18.231	233	21.553	303	26.200	373	30.514	443	33.899	513	46.256
164	18.326	234	21.630	304	26.520	374	30.327	444	34.185	514	46.413
165	18.318	235	21.682	305	26.538	375	30.067	445	34.367	515	46.581
166	18.284	236	21.669	306	26.546	376	29.700	446	34.286	516	46.686
167	18.280	237	21.707	307	26.634	377	29.452	447	34.080	517	46.795
168	18.306	238	21.785	308	26.618	378	29.346	448	33.969	518	46.932
169	18.336	239	21.878	309	26.433	379	29.330	449	34.009	519	47.074
170	18.382	240	22.019	310	26.485	380	29.399	450	34.087	520	47.232
171	18.462	241	22.114	311	26.681	381	29.485	451	34.248	521	47.394
172	18.542	242	22.237	312	27.017	382	29.523	452	34.393	522	47.584
173	18.694	243	22.312	313	26.980	383	29.593	453	34.616	523	47.838
174	18.767	244	22.350	314	26.975	384	29.720	454	34.953	524	47.995
175	18.752	245	22.359	315	27.159	385	29.854	455	35.359	525	48.221
176	18.703	246	22.365	316	27.391	386	29.933	456	35.762	526	48.449
177	18.684	247	22.377	317	27.632	387	29.884	457	36.351	527	48.565
178	18.717	248	22.429	318	27.554	388	29.693	458	37.321	528	48.751
179	18.781	249	22.507	319	27.305	389	29.426	459	38.615	529	48.915
180	18.870	250	22.633	320	27.168	390	29.247	460	39.795	530	48.977
181	19.032	251	22.779	321	27.084	391	29.165	461	40.811	531	49.077
182	19.186	252	22.856	322	27.089	392	29.163	462	41.259	532	49.120
183	19.383	253	22.965	323	27.208	393	29.202	463	41.452	533	49.214
184	19.560	254	23.057	324	27.446	394	29.280	464	41.543	534	49.334
185	19.639	255	23.090	325	27.699	395	29.375	465	41.586	535	49.518
186	19.653	256	23.095	326	27.953	396	29.420	466	41.588	536	49.693
187	19.661	257	23.118	327	28.018	397	29.402	467	41.574	537	49.842
188	19.669	258	23.216	328	27.820	398	29.352	468	41.616	538	50.039
189	19.675	259	23.347	329	27.515	399	29.282	469	41.667	539	50.171
190	19.684	260	23.455	330	27.274	400	29.233	470	41.714	540	50.379
191	19.716	261	23.641	331	27.151	401	29.204	471	41.795	541	50.625
192	19.851	262	23.787	332	27.106	402	29.205	472	41.849	542	50.885
193	19.967	263	23.914	333	27.088	403	29.225	473	41.940	543	51.143

RD08 - MAMMOTH LAKES, CA - 8 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
544	51.356	614	58.967	684	72.250	754	75.585	824	91.108	894	109.152
545	51.524	615	59.084	685	72.614	755	76.137	825	91.293	895	109.463
546	51.726	616	59.247	686	72.929	756	76.801	826	91.564	896	109.853
547	51.919	617	59.416	687	73.382	757	77.305	827	91.794	897	110.205
548	52.074	618	59.614	688	73.669	758	77.706	828	92.030	898	110.824
549	52.207	619	60.046	689	74.127	759	77.855	829	92.269	899	111.344
550	52.413	620	60.562	690	74.431	760	77.945	830	92.458	900	112.029
551	52.573	621	60.922	691	74.706	761	77.981	831	92.693	901	112.896
552	52.707	622	61.599	692	74.951	762	77.988	832	92.953	902	113.721
553	52.807	623	62.070	693	75.098	763	78.010	833	93.126	903	114.927
554	52.926	624	62.584	694	75.289	764	78.119	834	93.411	904	116.011
555	52.984	625	63.101	695	75.365	765	78.196	835	93.676	905	117.140
556	52.977	626	63.559	696	75.359	766	78.100	836	93.934	906	117.966
557	52.979	627	63.897	697	75.242	767	77.958	837	94.167	907	120.355
558	52.985	628	64.217	698	75.120	768	77.813	838	94.432	908	121.863
559	53.069	629	64.331	699	75.010	769	77.592	839	94.597	909	123.991
560	53.154	630	64.371	700	74.777	770	77.150	840	94.781	910	126.048
561	53.285	631	64.326	701	74.461	771	76.317	841	94.936	911	127.130
562	53.446	632	64.299	702	74.042	772	74.806	842	95.162	912	127.395
563	53.606	633	64.230	703	73.670	773	73.410	843	95.350	913	127.459
564	53.715	634	64.048	704	73.434	774	72.980	844	95.613	914	127.717
565	53.842	635	63.710	705	73.231	775	73.008	845	95.851	915	127.842
566	53.834	636	63.192	706	73.138	776	73.215	846	96.128	916	127.423
567	53.802	637	62.731	707	73.207	777	73.630	847	96.452	917	126.386
568	53.835	638	62.393	708	73.362	778	74.123	848	96.662	918	125.167
569	53.806	639	62.156	709	73.409	779	74.958	849	96.821	919	124.100
570	53.770	640	61.956	710	73.359	780	75.556	850	96.941	920	122.802
571	53.754	641	61.845	711	73.282	781	75.914	851	97.066	921	121.394
572	53.745	642	61.807	712	73.218	782	75.879	852	97.224	922	120.015
573	53.783	643	61.826	713	73.086	783	75.781	853	97.408	923	118.860
574	53.877	644	61.927	714	72.974	784	75.853	854	97.634	924	117.795
575	53.976	645	62.058	715	72.913	785	75.932	855	97.907	925	117.057
576	53.979	646	62.133	716	72.873	786	75.881	856	98.162	926	116.519
577	53.989	647	62.187	717	72.808	787	75.704	857	98.386	927	116.197
578	54.121	648	62.216	718	72.668	788	75.511	858	98.672	928	115.998
579	54.269	649	62.259	719	72.361	789	75.352	859	98.946	929	115.829
580	54.495	650	62.292	720	72.096	790	75.263	860	99.258	930	115.703
581	54.698	651	62.382	721	72.021	791	75.271	861	99.628	931	115.670
582	54.917	652	62.482	722	72.037	792	75.359	862	99.855	932	115.803
583	55.101	653	62.539	723	72.106	793	75.537	863	100.056	933	115.976
584	55.217	654	62.655	724	72.267	794	75.796	864	100.317	934	116.346
585	55.260	655	62.815	725	72.403	795	76.176	865	100.573	935	116.682
586	55.296	656	62.935	726	72.577	796	76.639	866	100.866	936	116.975
587	55.313	657	63.114	727	72.755	797	77.178	867	101.194	937	117.143
588	55.390	658	63.271	728	72.890	798	77.747	868	101.523	938	117.312
589	55.491	659	63.366	729	72.979	799	78.491	869	101.788	939	117.540
590	55.693	660	63.491	730	73.035	800	79.101	870	102.075	940	117.874
591	55.938	661	63.594	731	73.091	801	79.708	871	102.312	941	118.245
592	56.215	662	63.725	732	73.164	802	80.428	872	102.576	942	118.792
593	56.536	663	63.848	733	73.295	803	80.919	873	102.753	943	119.175
594	56.848	664	63.886	734	73.427	804	81.742	874	102.992	944	119.622
595	57.098	665	63.963	735	73.485	805	82.586	875	103.276	945	120.724
596	57.255	666	64.051	736	73.487	806	83.547	876	103.636	946	121.320
597	57.415	667	64.151	737	73.439	807	84.227	877	103.876	947	121.675
598	57.713	668	64.333	738	73.286	808	84.916	878	104.176	948	121.893
599	57.878	669	64.614	739	73.128	809	85.479	879	104.463	949	121.898
600	57.958	670	64.932	740	73.054	810	86.105	880	104.750	950	122.011
601	58.056	671	65.294	741	73.102	811	86.791	881	105.077	951	122.086
602	58.123	672	65.808	742	73.302	812	87.331	882	105.413	952	122.069
603	58.156	673	66.226	743	73.486	813	87.828	883	105.725	953	121.862
604	58.222	674	66.861	744	73.625	814	88.335	884	106.073	954	121.560
605	58.204	675	67.401	745	73.698	815	88.689	885	106.396	955	121.051
606	58.193	676	68.073	746	73.773	816	89.106	886	106.856	956	119.712
607	58.147	677	68.787	747	73.842	817	89.444	887	107.230	957	118.321
608	58.207	678	69.474	748	73.926	818	89.697	888	107.487	958	117.704
609	58.278	679	70.185	749	74.013	819	89.953	889	107.811	959	110.136
610	58.405	680	70.576	750	74.100	820	90.202	890	108.017	960	107.996
611	58.609	681	70.990	751	74.284	821	90.412	891	108.246	961	108.186
612	58.723	682	71.379	752	74.648	822	90.623	892	108.539	962	108.391
613	58.878	683	71.839	753	75.052	823	90.858	893	108.801	963	108.761

R008 - MAMMOTH LAKES, CA - 8 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
964	108.930	1034	128.521	1104	196.981	1174	200.167	1244	200.730
965	109.116	1035	128.813	1105	198.655	1175	200.148	1245	200.758
966	109.328	1036	129.131	1106	200.126	1176	200.129	1246	200.781
967	109.523	1037	129.533	1107	200.514	1177	200.094	1247	200.807
968	109.637	1038	129.839	1108	200.792	1178	200.031	1248	200.835
969	109.809	1039	130.176	1109	201.093	1179	200.002	1249	200.860
970	109.989	1040	130.393	1110	201.361	1180	199.971	1250	200.875
971	110.149	1041	130.730	1111	201.574	1181	199.932	1251	200.878
972	110.360	1042	131.082	1112	201.431	1182	199.909	1252	200.859
973	110.530	1043	131.401	1113	201.193	1183	199.896	1253	200.780
974	110.734	1044	131.684	1114	201.105	1184	199.896	1254	200.706
975	110.925	1045	132.046	1115	201.044	1185	199.903	1255	200.608
976	111.112	1046	132.380	1116	200.977	1186	199.899	1256	200.479
977	111.277	1047	132.678	1117	200.980	1187	199.866	1257	200.381
978	111.412	1048	133.055	1118	201.007	1188	199.853	1258	200.295
979	111.548	1049	133.225	1119	201.010	1189	199.847	1259	200.155
980	111.711	1050	133.604	1120	200.989	1190	199.815	1260	199.981
981	112.072	1051	133.826	1121	200.946	1191	199.792	1261	199.816
982	112.338	1052	134.101	1122	200.976	1192	199.775	1262	199.678
983	112.560	1053	134.376	1123	200.965	1193	199.749	1263	199.576
984	112.763	1054	134.716	1124	200.937	1194	199.722	1264	199.505
985	112.934	1055	134.917	1125	200.914	1195	199.712	1265	199.431
986	113.237	1056	135.105	1126	200.902	1196	199.699	1266	199.329
987	113.459	1057	135.391	1127	200.891	1197	199.674	1267	199.236
988	113.707	1058	135.526	1128	200.894	1198	199.650	1268	199.155
989	113.940	1059	135.708	1129	200.889	1199	199.628	1269	199.085
990	114.093	1060	135.804	1130	200.885	1200	199.617	1270	199.014
991	114.286	1061	136.078	1131	200.878	1201	199.607	1271	198.902
992	114.555	1062	136.436	1132	200.874	1202	199.605	1272	198.769
993	114.933	1063	136.708	1133	200.874	1203	199.611	1273	198.645
994	115.209	1064	137.034	1134	200.873	1204	199.619	1274	198.597
995	115.584	1065	137.450	1135	200.875	1205	199.621	1275	198.568
996	116.078	1066	137.896	1136	200.875	1206	199.621	1276	198.525
997	116.661	1067	138.204	1137	200.873	1207	199.440		
998	117.086	1068	138.532	1138	200.874	1208	199.254		
999	117.672	1069	139.088	1139	200.866	1209	199.080		
1000	118.159	1070	139.588	1140	200.861	1210	198.964		
1001	118.555	1071	140.071	1141	200.849	1211	198.936		
1002	118.968	1072	141.088	1142	200.836	1212	198.940		
1003	119.273	1073	142.114	1143	200.825	1213	198.964		
1004	119.517	1074	144.174	1144	200.821	1214	199.007		
1005	119.816	1075	148.579	1145	200.813	1215	199.080		
1006	120.089	1076	152.887	1146	200.809	1216	199.157		
1007	120.422	1077	156.240	1147	200.798	1217	199.216		
1008	120.797	1078	159.593	1148	200.776	1218	199.333		
1009	121.163	1079	161.770	1149	200.756	1219	199.436		
1010	121.467	1080	165.028	1150	200.757	1220	199.543		
1011	121.755	1081	167.619	1151	200.760	1221	199.664		
1012	122.039	1082	170.832	1152	200.762	1222	199.733		
1013	122.357	1083	173.591	1153	200.765	1223	199.843		
1014	122.637	1084	176.784	1154	200.763	1224	199.953		
1015	122.878	1085	180.582	1155	200.748	1225	200.027		
1016	123.135	1086	183.057	1156	200.725	1226	200.101		
1017	123.367	1087	186.352	1157	200.718	1227	200.164		
1018	123.653	1088	188.168	1158	200.676	1228	200.229		
1019	123.787	1089	189.351	1159	200.653	1229	200.278		
1020	124.083	1090	189.894	1160	200.615	1230	200.315		
1021	124.373	1091	190.062	1161	200.572	1231	200.351		
1022	124.753	1092	190.058	1162	200.538	1232	200.373		
1023	125.083	1093	189.985	1163	200.509	1233	200.393		
1024	125.360	1094	189.809	1164	200.479	1234	200.416		
1025	125.580	1095	189.654	1165	200.462	1235	200.442		
1026	125.912	1096	189.550	1166	200.441	1236	200.463		
1027	126.266	1097	189.516	1167	200.411	1237	200.485		
1028	126.675	1098	189.599	1168	200.369	1238	200.520		
1029	126.854	1099	189.901	1169	200.329	1239	200.563		
1030	127.273	1100	190.635	1170	200.284	1240	200.602		
1031	127.527	1101	192.176	1171	200.243	1241	200.637		
1032	127.940	1102	193.504	1172	200.204	1242	200.676		
1033	128.239	1103	195.426	1173	200.175	1243	200.710		

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10	11.058	80	14.732	150	22.632	220	30.963	290	40.627	360	49.810
11	10.510	81	14.822	151	22.727	221	31.134	291	40.775	361	49.920
12	10.137	82	14.879	152	22.879	222	31.272	292	40.891	362	49.941
13	9.940	83	15.010	153	23.018	223	31.348	293	41.026	363	49.943
14	9.913	84	15.159	154	23.097	224	31.519	294	41.177	364	49.784
15	9.957	85	15.232	155	23.282	225	31.626	295	41.261	365	49.469
16	10.003	86	15.275	156	23.306	226	31.776	296	41.367	366	49.054
17	9.987	87	15.374	157	23.486	227	31.913	297	41.452	367	48.613
18	10.132	88	15.463	158	23.626	228	32.025	298	41.574	368	48.148
19	10.095	89	15.551	159	23.742	229	32.161	299	41.692	369	47.686
20	10.143	90	15.656	160	23.860	230	32.292	300	41.781	370	47.215
21	10.247	91	15.748	161	23.990	231	32.428	301	41.888	371	46.754
22	10.277	92	15.840	162	24.071	232	32.522	302	41.968	372	46.340
23	10.330	93	15.933	163	24.204	233	32.681	303	42.061	373	45.952
24	10.506	94	15.993	164	24.386	234	32.774	304	42.139	374	45.592
25	10.587	95	16.299	165	24.456	235	32.920	305	42.193	375	45.255
26	10.700	96	16.370	166	24.575	236	33.039	306	42.273	376	44.942
27	10.753	97	16.393	167	24.750	237	33.148	307	42.312	377	44.664
28	10.832	98	16.446	168	24.842	238	33.297	308	42.332	378	44.393
29	10.894	99	16.725	169	24.968	239	33.451	309	42.338	379	44.157
30	10.918	100	16.767	170	25.069	240	33.553	310	42.446	380	43.975
31	11.010	101	16.871	171	25.191	241	33.683	311	42.461	381	43.843
32	11.075	102	17.072	172	25.300	242	33.819	312	42.491	382	43.803
33	11.068	103	17.127	173	25.413	243	33.949	313	42.531	383	43.807
34	11.144	104	17.164	174	25.535	244	34.106	314	42.583	384	43.827
35	11.143	105	17.469	175	25.656	245	34.219	315	42.649	385	43.898
36	11.276	106	17.524	176	25.752	246	34.339	316	42.706	386	44.015
37	11.281	107	17.591	177	25.854	247	34.490	317	42.798	387	44.152
38	11.376	108	17.634	178	25.949	248	34.662	318	42.905	388	44.298
39	11.393	109	17.678	179	26.084	249	34.756	319	42.993	389	44.524
40	11.432	110	17.992	180	26.135	250	34.891	320	43.097	390	44.692
41	11.458	111	18.121	181	26.253	251	35.070	321	43.222	391	44.874
42	11.582	112	18.202	182	26.375	252	35.198	322	43.382	392	45.052
43	11.651	113	18.269	183	26.445	253	35.327	323	43.482	393	45.194
44	11.693	114	18.347	184	26.546	254	35.472	324	43.625	394	45.326
45	11.747	115	18.431	185	26.681	255	35.600	325	43.745	395	45.376
46	11.807	116	18.514	186	26.777	256	35.740	326	43.895	396	45.385
47	11.877	117	18.592	187	26.849	257	35.851	327	44.077	397	45.351
48	11.929	118	18.668	188	26.963	258	36.021	328	44.249	398	45.171
49	12.001	119	19.097	189	27.106	259	36.149	329	44.502	399	44.890
50	12.079	120	19.180	190	27.196	260	36.276	330	44.691	400	44.526
51	12.153	121	19.262	191	27.322	261	36.443	331	44.877	401	44.125
52	12.160	122	19.383	192	27.406	262	36.623	332	45.163	402	43.674
53	12.248	123	19.435	193	27.549	263	36.713	333	45.471	403	43.193
54	12.329	124	19.535	194	27.711	264	36.831	334	45.743	404	42.629
55	12.405	125	19.647	195	27.793	265	36.998	335	46.021	405	42.035
56	12.468	126	19.745	196	27.915	266	37.137	336	46.282	406	41.444
57	12.572	127	19.848	197	28.057	267	37.277	337	46.606	407	40.849
58	12.696	128	20.006	198	28.131	268	37.432	338	46.936	408	40.232
59	12.726	129	20.098	199	28.293	269	37.607	339	47.208	409	39.734
60	12.857	130	20.185	200	28.401	270	37.769	340	47.397	410	39.451
61	12.947	131	20.279	201	28.545	271	37.922	341	47.643	411	39.415
62	13.046	132	20.461	202	28.674	272	38.011	342	47.830	412	39.478
63	13.089	133	20.550	203	28.773	273	38.178	343	47.993	413	39.522
64	13.258	134	20.674	204	28.918	274	38.354	344	48.133	414	39.870
65	13.337	135	20.787	205	29.006	275	38.480	345	48.275	415	40.108
66	13.351	136	20.912	206	29.172	276	38.621	346	48.385	416	40.614
67	13.495	137	21.001	207	29.301	277	38.766	347	48.494	417	41.168
68	13.563	138	21.168	208	29.431	278	38.890	348	48.544	418	41.806
69	13.711	139	21.254	209	29.560	279	39.065	349	48.600	419	42.654
70	13.750	140	21.428	210	29.659	280	39.205	350	48.652	420	43.469
71	13.866	141	21.539	211	29.786	281	39.325	351	48.780	421	44.296
72	13.983	142	21.658	212	29.938	282	39.497	352	48.825	422	45.100
73	14.142	143	21.749	213	30.070	283	39.642	353	48.878	423	45.801
74	14.189	144	21.912	214	30.173	284	39.751	354	48.959	424	46.800
75	14.302	145	22.023	215	30.328	285	39.896	355	49.059	425	47.596
76	14.401	146	22.173	216	30.432	286	40.063	356	49.199	426	48.539
77	14.469	147	22.308	217	30.587	287	40.201	357	49.347	427	49.458
78	14.547	148	22.436	218	30.667	288	40.315	358	49.503	428	50.197
79	14.701	149	22.490	219	30.875	289	40.481	359	49.672	429	50.786

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430	51.433	500	65.101	570	78.913	640	86.597	710	96.014	780	94.441
431	51.972	501	65.363	571	78.986	641	86.801	711	95.977	781	94.548
432	52.524	502	65.529	572	79.122	642	87.062	712	95.948	782	94.581
433	53.053	503	65.738	573	79.255	643	87.277	713	95.919	783	94.547
434	53.418	504	65.922	574	79.403	644	87.470	714	95.907	784	94.419
435	53.801	505	66.151	575	79.488	645	87.578	715	95.922	785	94.242
436	54.098	506	66.344	576	79.615	646	87.676	716	95.946	786	93.979
437	54.355	507	66.523	577	79.714	647	87.733	717	95.981	787	93.639
438	54.652	508	66.735	578	79.806	648	87.808	718	96.015	788	93.251
439	54.866	509	66.951	579	79.878	649	87.874	719	96.027	789	92.861
440	55.117	510	67.173	580	79.969	650	88.008	720	96.051	790	92.525
441	55.324	511	67.395	581	80.049	651	88.092	721	96.067	791	92.404
442	55.614	512	67.632	582	80.150	652	88.222	722	96.086	792	92.407
443	55.878	513	67.859	583	80.240	653	88.353	723	96.097	793	92.610
444	56.138	514	68.097	584	80.352	654	88.455	724	96.108	794	92.863
445	56.385	515	68.375	585	80.461	655	88.540	725	96.115	795	93.283
446	56.760	516	68.625	586	80.608	656	88.609	726	96.124	796	93.649
447	57.192	517	68.855	587	80.728	657	88.667	727	96.136	797	94.200
448	57.337	518	69.106	588	80.900	658	88.705	728	96.151	798	94.727
449	57.457	519	69.349	589	81.067	659	88.742	729	96.165	799	95.520
450	57.580	520	69.605	590	81.279	660	88.773	730	96.179	800	96.047
451	57.669	521	69.893	591	81.517	661	88.796	731	96.199	801	96.886
452	57.804	522	70.128	592	81.713	662	88.836	732	96.220	802	97.644
453	57.915	523	70.361	593	81.939	663	88.865	733	96.238	803	98.416
454	58.091	524	70.663	594	82.170	664	88.908	734	96.259	804	99.169
455	58.222	525	70.921	595	82.334	665	88.953	735	96.280	805	100.179
456	58.434	526	71.181	596	82.502	666	89.046	736	96.301	806	100.920
457	58.524	527	71.463	597	82.649	667	89.167	737	96.325	807	101.610
458	58.694	528	71.683	598	82.806	668	89.329	738	96.342	808	102.417
459	58.871	529	71.954	599	82.981	669	89.463	739	96.362	809	103.177
460	59.033	530	72.127	600	83.118	670	89.624	740	96.378	810	103.870
461	59.220	531	72.306	601	83.289	671	89.782	741	96.393	811	104.485
462	59.393	532	72.575	602	83.450	672	89.961	742	96.420	812	105.254
463	59.567	533	72.790	603	83.602	673	90.154	743	96.448	813	105.962
464	59.776	534	72.990	604	83.770	674	90.432	744	96.487	814	106.549
465	60.006	535	73.201	605	83.919	675	90.666	745	96.533	815	107.196
466	60.227	536	73.388	606	84.083	676	90.919	746	96.558	816	107.740
467	60.464	537	73.606	607	84.206	677	91.212	747	96.606	817	108.205
468	60.631	538	73.813	608	84.321	678	91.483	748	96.650	818	108.690
469	60.853	539	73.994	609	84.424	679	91.837	749	96.705	819	109.026
470	61.059	540	74.217	610	84.532	680	92.098	750	96.753	820	109.385
471	61.229	541	74.426	611	84.607	681	92.591	751	96.836	821	109.713
472	61.385	542	74.698	612	84.659	682	92.929	752	96.924	822	109.983
473	61.568	543	74.884	613	84.704	683	93.351	753	97.014	823	110.338
474	61.750	544	75.103	614	84.724	684	93.780	754	97.107	824	110.657
475	61.905	545	75.296	615	84.738	685	94.173	755	97.233	825	110.999
476	62.143	546	75.495	616	84.743	686	94.591	756	97.370	826	111.323
477	62.285	547	75.695	617	84.741	687	94.911	757	97.493	827	111.647
478	62.438	548	75.833	618	84.730	688	95.235	758	97.599	828	111.940
479	62.527	549	76.041	619	84.724	689	95.518	759	97.663	829	112.272
480	62.650	550	76.233	620	84.730	690	95.746	760	97.706	830	112.578
481	62.737	551	76.420	621	84.744	691	96.019	761	97.734	831	112.826
482	62.848	552	76.548	622	84.765	692	96.229	762	97.746	832	113.193
483	62.921	553	76.704	623	84.823	693	96.379	763	97.763	833	113.371
484	63.009	554	76.872	624	84.892	694	96.480	764	97.779	834	113.661
485	63.115	555	77.015	625	84.974	695	96.580	765	97.785	835	113.973
486	63.193	556	77.149	626	85.056	696	96.690	766	97.769	836	114.301
487	63.266	557	77.299	627	85.164	697	96.791	767	97.707	837	114.528
488	63.387	558	77.392	628	85.260	698	96.826	768	97.588	838	114.761
489	63.493	559	77.534	629	85.415	699	96.839	769	97.316	839	114.928
490	63.609	560	77.645	630	85.547	700	96.828	770	96.818	840	115.139
491	63.703	561	77.742	631	85.655	701	96.778	771	95.918	841	115.343
492	63.803	562	77.891	632	85.717	702	96.699	772	94.782	842	115.549
493	63.969	563	78.020	633	85.785	703	96.604	773	93.896	843	115.761
494	64.108	564	78.156	634	85.847	704	96.507	774	93.610	844	115.989
495	64.259	565	78.284	635	85.895	705	96.395	775	93.573	845	116.331
496	64.442	566	78.425	636	85.966	706	96.281	776	93.637	846	116.659
497	64.574	567	78.544	637	86.110	707	96.198	777	93.831	847	116.878
498	64.768	568	78.680	638	86.247	708	96.133	778	94.064	848	117.107
499	64.940	569	78.784	639	86.408	709	96.070	779	94.270	849	117.491

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850	117.820	920	142.892	990	152.453	1060	163.059	1130	201.212	1200	199.791
851	118.103	921	142.897	991	152.556	1061	163.141	1131	201.221	1201	199.773
852	118.381	922	142.902	992	152.785	1062	163.261	1132	201.219	1202	199.763
853	118.647	923	142.904	993	152.918	1063	163.452	1133	201.215	1203	199.754
854	118.889	924	142.909	994	153.172	1064	163.623	1134	201.227	1204	199.748
855	119.128	925	142.913	995	153.403	1065	163.744	1135	201.221	1205	199.678
856	119.357	926	142.916	996	153.670	1066	163.916	1136	201.224	1206	199.495
857	119.627	927	142.920	997	153.871	1067	164.126	1137	201.220	1207	199.310
858	119.939	928	142.930	998	154.153	1068	164.276	1138	201.222	1208	199.160
859	120.286	929	142.949	999	154.308	1069	164.464	1139	201.218	1209	199.046
860	120.611	930	143.010	1000	154.487	1070	164.804	1140	201.214	1210	198.993
861	120.992	931	143.089	1001	154.653	1071	165.248	1141	201.203	1211	198.988
862	121.257	932	143.155	1002	154.760	1072	165.871	1142	201.201	1212	199.010
863	121.598	933	143.277	1003	154.941	1073	167.022	1143	201.207	1213	199.045
864	121.843	934	143.430	1004	154.995	1074	168.724	1144	201.214	1214	199.117
865	122.121	935	143.540	1005	155.126	1075	170.483	1145	201.216	1215	199.193
866	122.409	936	143.685	1006	155.311	1076	172.442	1146	201.222	1216	199.280
867	122.762	937	143.787	1007	155.471	1077	174.806	1147	201.227	1217	199.373
868	123.101	938	144.062	1008	155.611	1078	177.532	1148	201.231	1218	199.459
869	123.422	939	144.313	1009	155.756	1079	178.816	1149	201.235	1219	199.563
870	123.704	940	144.740	1010	155.980	1080	180.639	1150	201.235	1220	199.686
871	124.027	941	145.099	1011	156.140	1081	182.162	1151	201.231	1221	199.748
872	124.393	942	145.500	1012	156.323	1082	184.515	1152	201.227	1222	199.844
873	124.775	943	145.884	1013	156.573	1083	185.879	1153	201.224	1223	199.942
874	125.128	944	146.319	1014	156.757	1084	187.878	1154	201.220	1224	200.032
875	125.500	945	146.633	1015	156.896	1085	189.595	1155	201.211	1225	200.120
876	125.817	946	146.776	1016	157.169	1086	191.783	1156	201.196	1226	200.176
877	126.124	947	147.011	1017	157.448	1087	193.706	1157	201.198	1227	200.229
878	126.439	948	147.191	1018	157.586	1088	194.416	1158	201.202	1228	200.288
879	126.714	949	147.453	1019	157.772	1089	194.811	1159	201.180	1229	200.324
880	127.022	950	147.605	1020	157.882	1090	194.965	1160	201.106	1230	200.353
881	127.290	951	147.744	1021	158.070	1091	195.049	1161	201.080	1231	200.380
882	127.614	952	147.970	1022	158.289	1092	195.080	1162	201.042	1232	200.394
883	128.019	953	148.155	1023	158.360	1093	195.142	1163	200.986	1233	200.416
884	128.353	954	148.321	1024	158.472	1094	195.229	1164	200.960	1234	200.434
885	128.752	955	148.489	1025	158.637	1095	195.272	1165	200.940	1235	200.453
886	129.123	956	148.638	1026	158.785	1096	195.282	1166	200.900	1236	200.479
887	129.460	957	148.708	1027	158.993	1097	195.379	1167	200.865	1237	200.509
888	129.801	958	148.829	1028	159.115	1098	195.518	1168	200.815	1238	200.541
889	130.263	959	148.974	1029	159.248	1099	195.939	1169	200.762	1239	200.587
890	130.610	960	149.179	1030	159.406	1100	196.609	1170	200.717	1240	200.626
891	130.975	961	149.434	1031	159.595	1101	197.502	1171	200.670	1241	200.655
892	131.353	962	149.556	1032	159.804	1102	198.628	1172	200.635	1242	200.691
893	131.816	963	149.695	1033	159.925	1103	199.980	1173	200.619	1243	200.712
894	132.155	964	149.776	1034	160.129	1104	201.231	1174	200.605	1244	200.740
895	132.618	965	149.849	1035	160.311	1105	201.618	1175	200.582	1245	200.761
896	132.961	966	149.951	1036	160.386	1106	201.731	1176	200.546	1246	200.792
897	133.562	967	150.048	1037	160.569	1107	201.815	1177	200.466	1247	200.811
898	133.966	968	150.142	1038	160.629	1108	201.862	1178	200.425	1248	200.839
899	134.417	969	150.201	1039	160.841	1109	201.872	1179	200.395	1249	200.863
900	134.987	970	150.345	1040	160.957	1110	201.863	1180	200.350	1250	200.872
901	135.543	971	150.405	1041	161.187	1111	201.676	1181	200.312	1251	200.863
902	136.298	972	150.529	1042	161.358	1112	201.553	1182	200.294	1252	200.803
903	136.770	973	150.627	1043	161.428	1113	201.448	1183	200.283	1253	200.725
904	137.356	974	150.716	1044	161.641	1114	201.439	1184	200.283	1254	200.655
905	138.132	975	150.834	1045	161.798	1115	201.388	1185	200.280	1255	200.531
906	138.871	976	150.923	1046	161.897	1116	201.381	1186	200.243	1256	200.424
907	139.641	977	151.022	1047	161.972	1117	201.396	1187	200.214	1257	200.347
908	140.581	978	151.138	1048	161.908	1118	201.376	1188	200.197	1258	200.231
909	141.151	979	151.240	1049	162.000	1119	201.363	1189	200.164	1259	200.085
910	141.799	980	151.375	1050	162.114	1120	201.343	1190	200.130	1260	199.915
911	142.079	981	151.448	1051	162.229	1121	201.343	1191	200.099	1261	199.776
912	142.382	982	151.576	1052	162.287	1122	201.322	1192	200.069	1262	199.674
913	142.608	983	151.716	1053	162.367	1123	201.309	1193	200.026	1263	199.602
914	142.798	984	151.817	1054	162.493	1124	201.284	1194	200.003	1264	199.530
915	142.847	985	151.905	1055	162.575	1125	201.232	1195	199.975	1265	199.442
916	142.880	986	151.970	1056	162.677	1126	201.211	1196	199.931	1266	199.345
917	142.885	987	152.068	1057	162.767	1127	201.213	1197	199.894	1267	199.254
918	142.899	988	152.226	1058	162.910	1128	201.214	1198	199.859	1268	199.184
919	142.892	989	152.319	1059	162.996	1129	201.221	1199	199.824	1269	199.110

R008 - MAMMOTH LAKES, CA - 9 JULY 1986

DEPTH (FT)	TEMPERATURE (C)
1270	199.006
1271	198.893
1272	198.833
1273	198.808
1274	198.773
1275	198.751

R008 - MAMMOTH LAKES, CA - 14 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
46	11.599	116	18.678	186	27.349	256	37.005	326	45.776	396	46.981
47	11.631	117	18.833	187	27.559	257	37.159	327	45.954	397	46.974
48	11.651	118	18.904	188	27.637	258	37.316	328	46.142	398	46.838
49	11.712	119	19.019	189	27.728	259	37.407	329	46.361	399	46.598
50	11.721	120	19.137	190	27.862	260	37.596	330	46.590	400	46.284
51	11.789	121	19.296	191	28.007	261	37.734	331	46.912	401	45.939
52	11.804	122	19.427	192	28.153	262	37.882	332	47.126	402	45.537
53	11.835	123	19.532	193	28.284	263	38.080	333	47.388	403	45.091
54	11.898	124	19.640	194	28.401	264	38.194	334	47.638	404	44.582
55	11.929	125	19.796	195	28.547	265	38.327	335	47.891	405	44.052
56	11.996	126	19.910	196	28.670	266	38.478	336	48.243	406	43.508
57	12.081	127	20.052	197	28.796	267	38.660	337	48.468	407	42.923
58	12.342	128	20.175	198	28.942	268	38.785	338	48.815	408	42.318
59	12.484	129	20.236	199	29.067	269	38.931	339	49.054	409	41.797
60	12.524	130	20.382	200	29.249	270	39.076	340	49.272	410	41.364
61	12.595	131	20.564	201	29.336	271	39.254	341	49.532	411	41.206
62	12.713	132	20.651	202	29.461	272	39.367	342	49.734	412	41.407
63	12.828	133	20.730	203	29.602	273	39.529	343	49.920	413	41.818
64	12.912	134	20.854	204	29.760	274	39.691	344	50.104	414	42.106
65	12.977	135	20.972	205	29.865	275	39.783	345	50.250	415	42.336
66	13.065	136	21.055	206	30.003	276	40.010	346	50.372	416	42.667
67	13.151	137	21.201	207	30.198	277	40.136	347	50.489	417	43.156
68	13.285	138	21.295	208	30.295	278	40.313	348	50.555	418	43.563
69	13.346	139	21.642	209	30.415	279	40.373	349	50.634	419	44.395
70	13.532	140	21.801	210	30.562	280	40.566	350	50.691	420	45.051
71	13.583	141	21.951	211	30.635	281	40.725	351	50.742	421	45.988
72	13.628	142	22.025	212	30.810	282	40.850	352	50.786	422	46.535
73	13.754	143	22.171	213	30.966	283	40.979	353	50.845	423	47.504
74	13.907	144	22.244	214	31.164	284	41.161	354	50.944	424	48.368
75	13.943	145	22.344	215	31.203	285	41.329	355	51.015	425	49.314
76	14.056	146	22.427	216	31.373	286	41.470	356	51.111	426	50.192
77	14.151	147	22.551	217	31.504	287	41.611	357	51.264	427	50.859
78	14.231	148	22.604	218	31.645	288	41.773	358	51.395	428	51.581
79	14.389	149	22.726	219	31.736	289	41.928	359	51.500	429	52.242
80	14.435	150	22.832	220	31.900	290	42.063	360	51.602	430	52.909
81	14.618	151	23.252	221	32.047	291	42.218	361	51.666	431	53.510
82	14.625	152	23.396	222	32.142	292	42.335	362	51.695	432	54.071
83	14.767	153	23.501	223	32.284	293	42.473	363	51.679	433	54.506
84	14.916	154	23.594	224	32.450	294	42.609	364	51.501	434	54.939
85	14.977	155	23.687	225	32.540	295	42.766	365	51.197	435	55.420
86	15.077	156	23.778	226	32.710	296	42.875	366	50.826	436	55.821
87	15.255	157	23.900	227	32.844	297	43.000	367	50.415	437	56.121
88	15.416	158	24.056	228	33.023	298	43.101	368	49.968	438	56.458
89	15.492	159	24.133	229	33.110	299	43.234	369	49.516	439	56.811
90	15.600	160	24.267	230	33.249	300	43.327	370	49.094	440	57.144
91	15.681	161	24.375	231	33.391	301	43.432	371	48.679	441	57.401
92	15.761	162	24.489	232	33.489	302	43.517	372	48.273	442	57.909
93	15.886	163	24.595	233	33.666	303	43.587	373	47.906	443	58.259
94	15.996	164	24.740	234	33.801	304	43.687	374	47.521	444	58.685
95	16.097	165	24.879	235	33.951	305	43.763	375	47.158	445	59.090
96	16.226	166	25.007	236	34.129	306	43.825	376	46.803	446	59.323
97	16.347	167	25.148	237	34.230	307	43.868	377	46.490	447	59.448
98	16.473	168	25.247	238	34.401	308	43.937	378	46.181	448	59.537
99	16.616	169	25.393	239	34.511	309	43.973	379	45.924	449	59.656
100	16.717	170	25.605	240	34.692	310	44.031	380	45.713	450	59.729
101	16.816	171	25.658	241	34.823	311	44.077	381	45.560	451	59.875
102	16.938	172	25.749	242	34.942	312	44.119	382	45.445	452	60.004
103	17.039	173	25.912	243	35.129	313	44.168	383	45.394	453	60.131
104	17.232	174	25.986	244	35.266	314	44.236	384	45.532	454	60.247
105	17.251	175	26.107	245	35.441	315	44.300	385	45.681	455	60.440
106	17.388	176	26.239	246	35.563	316	44.340	386	45.802	456	60.578
107	17.592	177	26.354	247	35.692	317	44.420	387	45.919	457	60.725
108	17.635	178	26.425	248	35.852	318	44.485	388	46.010	458	60.877
109	17.806	179	26.600	249	36.009	319	44.692	389	46.170	459	61.019
110	17.925	180	26.657	250	36.172	320	44.889	390	46.362	460	61.209
111	18.037	181	26.801	251	36.281	321	45.048	391	46.521	461	61.342
112	18.093	182	26.887	252	36.415	322	45.329	392	46.665	462	61.535
113	18.295	183	27.041	253	36.582	323	45.395	393	46.802	463	61.726
114	18.414	184	27.173	254	36.701	324	45.546	394	46.904	464	61.901
115	18.547	185	27.250	255	36.854	325	45.641	395	46.959	465	62.082

RDO8 - MAMMOTH LAKES, CA - 14 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
466	62.297	536	75.636	606	86.507	676	93.950	746	99.611	816	110.742
467	62.477	537	75.805	607	86.632	677	94.196	747	99.646	817	111.221
468	62.684	538	76.059	608	86.760	678	94.478	748	99.692	818	111.611
469	62.841	539	76.246	609	86.880	679	94.762	749	99.738	819	112.071
470	63.024	540	76.451	610	86.991	680	95.034	750	99.793	820	112.417
471	63.219	541	76.665	611	87.067	681	95.281	751	99.857	821	112.816
472	63.392	542	76.833	612	87.135	682	95.546	752	99.943	822	113.157
473	63.551	543	77.085	613	87.200	683	95.802	753	100.048	823	113.417
474	63.767	544	77.251	614	87.249	684	96.089	754	100.134	824	113.785
475	63.958	545	77.447	615	87.294	685	96.447	755	100.264	825	114.100
476	64.211	546	77.626	616	87.330	686	96.756	756	100.386	826	114.498
477	64.334	547	77.794	617	87.364	687	97.028	757	100.504	827	114.770
478	64.516	548	77.971	618	87.391	688	97.376	758	100.586	828	115.048
479	64.680	549	78.162	619	87.425	689	97.633	759	100.681	829	115.330
480	64.775	550	78.331	620	87.458	690	97.897	760	100.733	830	115.651
481	64.917	551	78.487	621	87.511	691	98.168	761	100.770	831	115.912
482	65.040	552	78.635	622	87.570	692	98.367	762	100.803	832	116.221
483	65.146	553	78.756	623	87.656	693	98.544	763	100.829	833	116.449
484	65.292	554	78.973	624	87.742	694	98.662	764	100.944	834	116.715
485	65.465	555	79.134	625	87.863	695	98.790	765	100.962	835	117.004
486	65.565	556	79.274	626	87.999	696	98.892	766	100.873	836	117.272
487	65.711	557	79.413	627	88.129	697	98.979	767	100.878	837	117.556
488	65.858	558	79.604	628	88.232	698	99.033	768	100.879	838	117.757
489	65.946	559	79.717	629	88.434	699	99.070	769	100.876	839	118.015
490	66.079	560	79.840	630	88.573	700	99.083	770	100.855	840	118.206
491	66.184	561	79.970	631	88.679	701	99.084	771	100.806	841	118.424
492	66.331	562	80.099	632	88.774	702	99.064	772	100.720	842	118.683
493	66.472	563	80.219	633	88.846	703	99.031	773	100.613	843	118.901
494	66.667	564	80.352	634	88.884	704	98.990	774	100.526	844	119.181
495	66.856	565	80.515	635	88.938	705	98.941	775	100.433	845	119.468
496	67.031	566	80.656	636	88.996	706	98.894	776	100.343	846	119.807
497	67.177	567	80.757	637	89.099	707	98.848	777	100.257	847	119.967
498	67.334	568	80.899	638	89.188	708	98.810	778	100.166	848	120.326
499	67.493	569	81.006	639	89.353	709	98.780	779	100.049	849	120.591
500	67.708	570	81.142	640	89.483	710	98.759	780	99.911	850	120.966
501	67.877	571	81.273	641	89.695	711	98.758	781	99.737	851	121.230
502	68.148	572	81.394	642	89.867	712	98.771	782	99.507	852	121.478
503	68.252	573	81.529	643	90.045	713	98.786	783	99.206	853	121.797
504	68.489	574	81.694	644	90.168	714	98.813	784	98.878	854	122.036
505	68.708	575	81.827	645	90.348	715	98.845	785	98.524	855	122.332
506	68.963	576	81.931	646	90.539	716	98.880	786	98.157	856	122.515
507	69.153	577	82.084	647	90.651	717	98.914	787	97.803	857	122.809
508	69.292	578	82.211	648	90.742	718	98.942	788	97.451	858	123.185
509	69.543	579	82.317	649	90.833	719	98.966	789	97.148	859	123.464
510	69.767	580	82.441	650	90.899	720	98.998	790	96.885	860	123.806
511	69.982	581	82.569	651	91.021	721	99.023	791	96.739	861	124.147
512	70.223	582	82.659	652	91.093	722	99.045	792	96.723	862	124.489
513	70.458	583	82.835	653	91.182	723	99.070	793	96.856	863	124.782
514	70.659	584	82.954	654	91.254	724	99.091	794	97.012	864	125.028
515	70.895	585	83.093	655	91.326	725	99.111	795	97.394	865	125.324
516	71.148	586	83.262	656	91.401	726	99.133	796	97.843	866	125.625
517	71.398	587	83.390	657	91.483	727	99.152	797	98.282	867	125.983
518	71.629	588	83.577	658	91.570	728	99.173	798	98.830	868	126.333
519	71.912	589	83.725	659	91.660	729	99.189	799	99.457	869	126.514
520	72.104	590	83.907	660	91.728	730	99.200	800	99.907	870	126.847
521	72.320	591	84.100	661	91.802	731	99.217	801	100.644	871	127.169
522	72.569	592	84.295	662	91.864	732	99.228	802	101.331	872	127.469
523	72.782	593	84.456	663	91.909	733	99.236	803	101.931	873	127.866
524	72.991	594	84.672	664	91.971	734	99.255	804	102.760	874	128.121
525	73.247	595	84.815	665	92.027	735	99.264	805	103.464	875	128.489
526	73.492	596	84.979	666	92.109	736	99.282	806	104.184	876	128.831
527	73.699	597	85.142	667	92.200	737	99.310	807	105.004	877	129.271
528	73.930	598	85.234	668	92.362	738	99.346	808	105.817	878	129.599
529	74.214	599	85.407	669	92.498	739	99.380	809	106.217	879	129.939
530	74.403	600	85.559	670	92.638	740	99.408	810	106.991	880	130.270
531	74.572	601	85.732	671	92.791	741	99.433	811	107.644	881	130.512
532	74.812	602	85.882	672	92.965	742	99.465	812	108.363	882	130.844
533	75.082	603	86.065	673	93.165	743	99.504	813	108.959	883	131.257
534	75.247	604	86.237	674	93.423	744	99.546	814	109.583	884	131.579
535	75.455	605	86.365	675	93.687	745	99.580	815	110.287	885	131.933

R008 - MAMMOTH LAKES, CA - 14 JULY 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
886	132.233	956	153.371	1026	164.263	1096	196.027	1166	201.063	1236	200.621
887	132.614	957	153.709	1027	164.436	1097	196.109	1167	201.031	1237	200.642
888	132.962	958	153.922	1028	164.560	1098	196.222	1168	200.991	1238	200.670
889	133.341	959	154.315	1029	164.735	1099	196.454	1169	200.943	1239	200.704
890	133.745	960	154.561	1030	164.872	1100	197.187	1170	200.902	1240	200.738
891	134.013	961	154.959	1031	164.982	1101	197.980	1171	200.865	1241	200.768
892	134.432	962	155.162	1032	165.201	1102	198.991	1172	200.831	1242	200.786
893	134.719	963	155.311	1033	165.415	1103	200.448	1173	200.815	1243	200.815
894	135.144	964	155.475	1034	165.532	1104	201.320	1174	200.806	1244	200.837
895	135.490	965	155.578	1035	165.707	1105	201.670	1175	200.788	1245	200.853
896	136.105	966	155.722	1036	165.834	1106	201.777	1176	200.757	1246	200.869
897	136.452	967	155.877	1037	165.975	1107	201.811	1177	200.693	1247	200.893
898	136.868	968	155.982	1038	166.094	1108	201.837	1178	200.653	1248	200.910
899	137.224	969	156.128	1039	166.210	1109	201.854	1179	200.632	1249	200.924
900	137.666	970	156.233	1040	166.345	1110	201.846	1180	200.583	1250	200.937
901	138.297	971	156.338	1041	166.507	1111	201.725	1181	200.554	1251	200.935
902	138.863	972	156.454	1042	166.596	1112	201.615	1182	200.528	1252	200.887
903	139.390	973	156.581	1043	166.713	1113	201.465	1183	200.522	1253	200.829
904	139.892	974	156.680	1044	166.787	1114	201.430	1184	200.522	1254	200.772
905	140.403	975	156.791	1045	166.875	1115	201.399	1185	200.514	1255	200.678
906	141.090	976	156.869	1046	166.952	1116	201.380	1186	200.486	1256	200.589
907	141.510	977	156.987	1047	167.040	1117	201.391	1187	200.464	1257	200.529
908	142.174	978	157.098	1048	167.135	1118	201.375	1188	200.452	1258	200.461
909	142.644	979	157.242	1049	167.232	1119	201.367	1189	200.417	1259	200.345
910	143.139	980	157.321	1050	167.318	1120	201.367	1190	200.383	1260	200.214
911	143.433	981	157.509	1051	167.405	1121	201.368	1191	200.353	1261	200.092
912	143.718	982	157.591	1052	167.494	1122	201.359	1192	200.322	1262	200.007
913	143.974	983	157.663	1053	167.562	1123	201.335	1193	200.294	1263	199.943
914	144.179	984	157.744	1054	167.638	1124	201.314	1194	200.270	1264	199.882
915	144.268	985	157.846	1055	167.684	1125	201.301	1195	200.248	1265	199.800
916	144.356	986	157.927	1056	167.775	1126	201.292	1196	200.203	1266	199.715
917	144.381	987	158.008	1057	167.848	1127	201.290	1197	200.171	1267	199.631
918	144.428	988	158.112	1058	167.970	1128	201.284	1198	200.134	1268	199.570
919	144.475	989	158.282	1059	168.014	1129	201.285	1199	200.101	1269	199.512
920	144.497	990	158.401	1060	168.087	1130	201.287	1200	200.066	1270	199.414
921	144.552	991	158.537	1061	168.121	1131	201.290	1201	200.042	1271	199.340
922	144.589	992	158.646	1062	168.204	1132	201.290	1202	200.031	1272	199.335
923	144.629	993	158.778	1063	168.299	1133	201.294	1203	200.015	1273	199.332
924	144.671	994	159.035	1064	168.428	1134	201.295	1204	200.006	1274	199.291
925	144.706	995	159.245	1065	168.546	1135	201.297	1205	199.949	1275	199.206
926	144.746	996	159.538	1066	168.747	1136	201.292	1206	199.775	1276	198.865
927	144.786	997	159.716	1067	168.856	1137	201.288	1207	199.602		
928	144.834	998	159.856	1068	169.039	1138	201.288	1208	199.468		
929	144.914	999	160.071	1069	169.162	1139	201.284	1209	199.377		
930	145.045	1000	160.252	1070	169.501	1140	201.279	1210	199.343		
931	145.207	1001	160.426	1071	170.059	1141	201.274	1211	199.337		
932	145.387	1002	160.566	1072	170.858	1142	201.274	1212	199.358		
933	145.584	1003	160.689	1073	171.820	1143	201.283	1213	199.398		
934	145.813	1004	160.809	1074	173.560	1144	201.289	1214	199.452		
935	146.030	1005	161.014	1075	175.125	1145	201.291	1215	199.515		
936	146.212	1006	161.124	1076	177.211	1146	201.303	1216	199.580		
937	146.356	1007	161.432	1077	178.911	1147	201.311	1217	199.651		
938	146.699	1008	161.621	1078	180.721	1148	201.317	1218	199.730		
939	147.099	1009	161.704	1079	182.365	1149	201.321	1219	199.834		
940	147.608	1010	161.852	1080	183.580	1150	201.318	1220	199.929		
941	147.947	1011	161.960	1081	185.057	1151	201.318	1221	200.005		
942	148.394	1012	162.058	1082	186.801	1152	201.316	1222	200.087		
943	149.031	1013	162.168	1083	187.962	1153	201.316	1223	200.161		
944	149.472	1014	162.299	1084	189.073	1154	201.313	1224	200.257		
945	149.594	1015	162.404	1085	191.053	1155	201.302	1225	200.325		
946	149.829	1016	162.567	1086	192.537	1156	201.304	1226	200.390		
947	150.121	1017	162.744	1087	194.207	1157	201.303	1227	200.441		
948	150.467	1018	162.832	1088	195.056	1158	201.298	1228	200.481		
949	150.912	1019	163.109	1089	195.498	1159	201.291	1229	200.513		
950	151.043	1020	163.298	1090	195.739	1160	201.244	1230	200.537		
951	151.461	1021	163.454	1091	195.810	1161	201.216	1231	200.551		
952	151.850	1022	163.680	1092	195.844	1162	201.186	1232	200.563		
953	152.301	1023	163.809	1093	195.907	1163	201.139	1233	200.578		
954	152.626	1024	163.954	1094	195.939	1164	201.114	1234	200.588		
955	153.010	1025	164.087	1095	195.995	1165	201.090	1235	200.599		

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68	13.960	138	21.441	208	30.525	278	40.723	348	51.901	418	45.850
69	13.879	139	21.600	209	30.658	279	40.905	349	51.984	419	46.328
70	13.812	140	21.748	210	30.771	280	41.063	350	52.055	420	47.021
71	13.835	141	21.850	211	30.914	281	41.241	351	52.126	421	47.705
72	13.866	142	21.962	212	31.033	282	41.401	352	52.178	422	48.463
73	13.908	143	22.101	213	31.176	283	41.522	353	52.218	423	49.184
74	13.965	144	22.230	214	31.316	284	41.680	354	52.260	424	49.917
75	13.990	145	22.385	215	31.477	285	41.880	355	52.333	425	50.549
76	14.060	146	22.496	216	31.562	286	42.008	356	52.386	426	51.562
77	14.177	147	22.667	217	31.727	287	42.126	357	52.461	427	52.132
78	14.264	148	22.746	218	31.877	288	42.300	358	52.541	428	52.708
79	14.328	149	22.851	219	31.986	289	42.451	359	52.629	429	53.519
80	14.424	150	22.999	220	32.150	290	42.617	360	52.691	430	54.073
81	14.486	151	23.134	221	32.299	291	42.763	361	52.718	431	54.761
82	14.601	152	23.230	222	32.435	292	42.909	362	52.722	432	55.385
83	14.694	153	23.400	223	32.572	293	43.045	363	52.669	433	55.884
84	14.818	154	23.505	224	32.697	294	43.183	364	52.486	434	56.380
85	14.873	155	23.655	225	32.842	295	43.314	365	52.224	435	56.996
86	14.964	156	23.779	226	32.972	296	43.483	366	51.907	436	57.401
87	15.140	157	23.904	227	33.103	297	43.579	367	51.570	437	57.832
88	15.256	158	24.073	228	33.278	298	43.740	368	51.218	438	58.279
89	15.383	159	24.153	229	33.390	299	43.849	369	50.869	439	58.799
90	15.450	160	24.294	230	33.526	300	43.943	370	50.522	440	59.346
91	15.554	161	24.413	231	33.700	301	44.051	371	50.175	441	59.641
92	15.652	162	24.559	232	33.861	302	44.185	372	49.838	442	59.868
93	15.789	163	24.671	233	33.966	303	44.283	373	49.517	443	60.051
94	15.858	164	24.791	234	34.154	304	44.440	374	49.199	444	60.262
95	15.993	165	24.918	235	34.287	305	44.486	375	48.859	445	60.379
96	16.103	166	25.106	236	34.437	306	44.563	376	48.526	446	60.576
97	16.213	167	25.243	237	34.586	307	44.690	377	48.219	447	60.723
98	16.328	168	25.280	238	34.741	308	44.743	378	47.897	448	60.861
99	16.442	169	25.432	239	34.863	309	44.835	379	47.640	449	60.986
100	16.584	170	25.542	240	35.028	310	44.882	380	47.408	450	61.128
101	16.693	171	25.678	241	35.178	311	44.996	381	47.224	451	61.268
102	16.856	172	25.823	242	35.327	312	45.102	382	47.101	452	61.426
103	16.928	173	25.883	243	35.501	313	45.165	383	47.052	453	61.596
104	17.046	174	26.014	244	35.640	314	45.273	384	47.110	454	61.732
105	17.171	175	26.178	245	35.795	315	45.344	385	47.267	455	61.893
106	17.290	176	26.290	246	35.975	316	45.476	386	47.354	456	62.055
107	17.419	177	26.446	247	36.078	317	45.581	387	47.448	457	62.164
108	17.535	178	26.525	248	36.191	318	45.703	388	47.548	458	62.365
109	17.663	179	26.638	249	36.387	319	45.815	389	47.667	459	62.559
110	17.856	180	26.750	250	36.517	320	45.944	390	47.791	460	62.721
111	17.893	181	26.889	251	36.672	321	46.041	391	47.875	461	62.948
112	17.960	182	27.034	252	36.809	322	46.167	392	48.000	462	63.121
113	18.208	183	27.154	253	36.976	323	46.301	393	48.091	463	63.309
114	18.315	184	27.296	254	37.122	324	46.660	394	48.163	464	63.476
115	18.473	185	27.385	255	37.238	325	46.949	395	48.197	465	63.646
116	18.583	186	27.516	256	37.380	326	47.094	396	48.214	466	63.889
117	18.691	187	27.649	257	37.540	327	47.300	397	48.225	467	64.028
118	18.849	188	27.766	258	37.710	328	47.475	398	48.101	468	64.199
119	18.993	189	27.909	259	37.849	329	47.687	399	47.929	469	64.395
120	19.089	190	27.985	260	37.999	330	47.938	400	47.697	470	64.582
121	19.193	191	28.180	261	38.130	331	48.162	401	47.436	471	64.784
122	19.374	192	28.324	262	38.332	332	48.453	402	47.148	472	64.992
123	19.468	193	28.397	263	38.455	333	48.662	403	46.815	473	65.215
124	19.622	194	28.536	264	38.577	334	48.944	404	46.411	474	65.375
125	19.754	195	28.714	265	38.769	335	49.253	405	46.008	475	65.554
126	19.876	196	28.842	266	38.943	336	49.500	406	45.561	476	65.770
127	20.031	197	28.996	267	39.078	337	49.768	407	45.118	477	65.871
128	20.158	198	29.149	268	39.260	338	50.057	408	44.660	478	66.037
129	20.294	199	29.306	269	39.390	339	50.292	409	44.243	479	66.164
130	20.454	200	29.418	270	39.523	340	50.533	410	43.871	480	66.385
131	20.517	201	29.573	271	39.686	341	50.760	411	43.703	481	66.538
132	20.671	202	29.678	272	39.855	342	50.935	412	43.725	482	66.704
133	20.772	203	29.753	273	40.009	343	51.174	413	43.933	483	66.857
134	20.946	204	29.945	274	40.140	344	51.356	414	44.488	484	67.048
135	21.054	205	30.132	275	40.326	345	51.530	415	44.690	485	67.211
136	21.223	206	30.248	276	40.468	346	51.651	416	44.954	486	67.399
137	21.341	207	30.344	277	40.584	347	51.813	417	45.326	487	67.564

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488	67.720	558	80.632	628	90.051	698	99.856	768	102.650	838	119.710
489	67.917	559	80.796	629	90.206	699	99.909	769	102.658	839	119.963
490	68.130	560	80.937	630	90.343	700	99.956	770	102.661	840	120.187
491	68.252	561	81.079	631	90.454	701	99.980	771	102.661	841	120.382
492	68.423	562	81.192	632	90.546	702	99.998	772	102.657	842	120.671
493	68.619	563	81.313	633	90.615	703	100.010	773	102.644	843	120.925
494	68.759	564	81.470	634	90.687	704	100.017	774	102.614	844	121.236
495	68.959	565	81.609	635	90.787	705	100.028	775	102.579	845	121.483
496	69.106	566	81.765	636	90.873	706	100.036	776	102.535	846	121.719
497	69.277	567	81.903	637	91.010	707	100.044	777	102.471	847	122.032
498	69.428	568	82.020	638	91.134	708	100.056	778	102.394	848	122.456
499	69.637	569	82.187	639	91.240	709	100.071	779	102.303	849	122.770
500	69.889	570	82.305	640	91.397	710	100.098	780	102.203	850	123.073
501	70.023	571	82.439	641	91.571	711	100.122	781	102.085	851	123.314
502	70.171	572	82.571	642	91.720	712	100.153	782	101.957	852	123.589
503	70.381	573	82.720	643	91.888	713	100.185	783	101.827	853	123.898
504	70.581	574	82.875	644	92.053	714	100.226	784	101.702	854	124.148
505	70.805	575	83.021	645	92.153	715	100.257	785	101.588	855	124.421
506	70.995	576	83.182	646	92.275	716	100.289	786	101.480	856	124.739
507	71.212	577	83.330	647	92.401	717	100.330	787	101.372	857	124.981
508	71.447	578	83.456	648	92.521	718	100.360	788	101.278	858	125.311
509	71.692	579	83.613	649	92.618	719	100.395	789	101.204	859	125.574
510	71.907	580	83.754	650	92.698	720	100.427	790	101.178	860	125.861
511	72.089	581	83.874	651	92.785	721	100.458	791	101.187	861	126.179
512	71.651	582	83.997	652	92.873	722	100.488	792	101.284	862	126.430
513	71.895	583	84.158	653	92.950	723	100.513	793	101.457	863	126.723
514	72.148	584	84.294	654	93.022	724	100.536	794	101.648	864	127.042
515	72.407	585	84.457	655	93.098	725	100.571	795	102.009	865	127.299
516	72.654	586	84.626	656	93.169	726	100.596	796	102.418	866	127.625
517	72.876	587	84.757	657	93.226	727	100.628	797	102.752	867	127.979
518	73.097	588	84.935	658	93.275	728	100.664	798	103.157	868	128.228
519	73.329	589	85.099	659	93.327	729	100.688	799	103.610	869	128.549
520	73.516	590	85.268	660	93.381	730	100.711	800	104.101	870	128.855
521	73.684	591	85.431	661	93.419	731	100.730	801	104.634	871	129.156
522	73.909	592	85.591	662	93.475	732	100.753	802	105.196	872	129.454
523	74.114	593	85.766	663	93.537	733	100.768	803	105.717	873	129.782
524	74.335	594	85.920	664	93.596	734	100.783	804	106.287	874	130.103
525	74.549	595	86.074	665	93.675	735	100.800	805	106.962	875	130.439
526	74.787	596	86.232	666	93.745	736	100.820	806	107.422	876	130.788
527	74.964	597	86.375	667	93.813	737	100.842	807	108.050	877	131.124
528	75.183	598	86.534	668	93.884	738	100.868	808	108.684	878	131.402
529	75.424	599	86.679	669	93.981	739	100.899	809	109.167	879	131.753
530	75.674	600	86.845	670	94.072	740	100.929	810	109.771	880	132.053
531	75.921	601	86.991	671	94.188	741	100.971	811	110.433	881	132.441
532	76.120	602	87.152	672	94.317	742	101.018	812	111.039	882	132.747
533	76.298	603	87.327	673	94.485	743	101.060	813	111.503	883	133.058
534	76.526	604	87.443	674	94.682	744	101.104	814	112.009	884	133.394
535	76.728	605	87.610	675	94.903	745	101.148	815	112.480	885	133.735
536	76.902	606	87.732	676	95.223	746	101.186	816	112.952	886	134.028
537	77.101	607	87.861	677	95.509	747	101.239	817	113.323	887	134.429
538	77.311	608	87.956	678	95.831	748	101.294	818	113.772	888	134.786
539	77.453	609	88.063	679	96.089	749	101.347	819	114.127	889	135.176
540	77.634	610	88.183	680	96.407	750	101.411	820	114.386	890	135.482
541	77.821	611	88.261	681	96.694	751	101.485	821	114.698	891	135.845
542	78.011	612	88.356	682	96.979	752	101.579	822	115.016	892	136.110
543	78.190	613	88.448	683	97.251	753	101.666	823	115.325	893	136.531
544	78.359	614	88.522	684	97.522	754	101.771	824	115.741	894	136.800
545	78.546	615	88.628	685	97.810	755	101.892	825	116.119	895	137.119
546	78.701	616	88.698	686	98.022	756	102.018	826	116.489	896	137.671
547	78.866	617	88.781	687	98.282	757	102.133	827	116.752	897	138.048
548	79.027	618	88.880	688	98.518	758	102.230	828	117.031	898	138.488
549	79.183	619	88.963	689	98.725	759	102.307	829	117.362	899	138.931
550	79.323	620	89.072	690	98.913	760	102.376	830	117.728	900	139.389
551	79.519	621	89.167	691	99.095	761	102.426	831	117.978	901	139.920
552	79.670	622	89.268	692	99.249	762	102.475	832	118.263	902	140.310
553	79.840	623	89.370	693	99.415	763	102.525	833	118.513	903	140.784
554	79.973	624	89.503	694	99.543	764	102.571	834	118.763	904	141.332
555	80.167	625	89.659	695	99.651	765	102.601	835	119.084	905	141.758
556	80.332	626	89.768	696	99.733	766	102.625	836	119.239	906	142.411
557	80.475	627	89.906	697	99.804	767	102.638	837	119.464	907	142.868

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908	143.400	978	159.971	1048	167.839	1118	201.082	1188	200.398	1258	200.308
909	143.805	979	160.041	1049	167.899	1119	201.077	1189	200.379	1259	200.223
910	144.102	980	160.148	1050	167.967	1120	201.072	1190	200.358	1260	200.133
911	144.296	981	160.242	1051	168.028	1121	201.063	1191	200.338	1261	200.055
912	144.487	982	160.294	1052	168.081	1122	201.052	1192	200.318	1262	199.999
913	144.701	983	160.361	1053	168.145	1123	201.022	1193	200.300	1263	199.951
914	144.868	984	160.408	1054	168.214	1124	200.998	1194	200.288	1264	199.901
915	144.989	985	160.460	1055	168.270	1125	200.993	1195	200.274	1265	199.847
916	145.074	986	160.511	1056	168.340	1126	200.982	1196	200.249	1266	199.788
917	145.122	987	160.567	1057	168.413	1127	200.984	1197	200.224	1267	199.745
918	145.183	988	160.686	1058	168.482	1128	200.985	1198	200.199	1268	199.692
919	145.239	989	160.815	1059	168.618	1129	200.986	1199	200.171	1269	199.629
920	145.295	990	160.892	1060	168.686	1130	200.991	1200	200.151	1270	199.534
921	145.353	991	160.980	1061	168.785	1131	200.988	1201	200.140	1271	199.487
922	145.427	992	161.105	1062	168.866	1132	200.987	1202	200.129	1272	199.474
923	145.478	993	161.235	1063	168.941	1133	200.996	1203	200.119	1273	199.449
924	145.567	994	161.361	1064	169.052	1134	200.992	1204	200.117	1274	199.245
925	145.616	995	161.586	1065	169.143	1135	200.996	1205	200.005	1275	199.040
926	145.672	996	161.788	1066	169.300	1136	200.999	1206	199.841		
927	145.734	997	161.936	1067	169.471	1137	200.994	1207	199.684		
928	145.804	998	162.042	1068	169.675	1138	200.995	1208	199.565		
929	145.930	999	162.147	1069	169.820	1139	200.987	1209	199.492		
930	146.112	1000	162.233	1070	170.463	1140	200.985	1210	199.465		
931	146.316	1001	162.278	1071	171.280	1141	200.985	1211	199.465		
932	146.489	1002	162.372	1072	172.377	1142	200.980	1212	199.479		
933	146.745	1003	162.474	1073	174.210	1143	200.987	1213	199.510		
934	147.004	1004	162.600	1074	175.782	1144	200.996	1214	199.550		
935	147.157	1005	162.719	1075	177.646	1145	200.998	1215	199.603		
936	147.353	1006	162.843	1076	179.768	1146	201.002	1216	199.661		
937	147.606	1007	163.035	1077	181.453	1147	201.007	1217	199.721		
938	147.982	1008	163.164	1078	183.205	1148	201.013	1218	199.784		
939	148.398	1009	163.282	1079	184.433	1149	201.015	1219	199.848		
940	148.921	1010	163.410	1080	185.643	1150	201.009	1220	199.916		
941	149.377	1011	163.516	1081	186.595	1151	201.013	1221	199.985		
942	149.857	1012	163.636	1082	188.078	1152	201.012	1222	200.061		
943	150.413	1013	163.744	1083	189.376	1153	201.008	1223	200.116		
944	150.844	1014	163.863	1084	190.399	1154	201.001	1224	200.184		
945	151.187	1015	163.955	1085	192.218	1155	200.892	1225	200.235		
946	151.455	1016	164.056	1086	193.359	1156	200.833	1226	200.268		
947	151.811	1017	164.164	1087	194.696	1157	200.822	1227	200.303		
948	152.137	1018	164.271	1088	195.432	1158	200.819	1228	200.328		
949	152.560	1019	164.415	1089	195.743	1159	200.813	1229	200.344		
950	152.922	1020	164.556	1090	195.829	1160	200.801	1230	200.355		
951	153.407	1021	164.799	1091	195.880	1161	200.788	1231	200.362		
952	153.811	1022	165.005	1092	195.911	1162	200.771	1232	200.360		
953	154.191	1023	165.169	1093	195.965	1163	200.752	1233	200.366		
954	154.773	1024	165.284	1094	196.034	1164	200.745	1234	200.371		
955	155.259	1025	165.464	1095	196.067	1165	200.733	1235	200.377		
956	155.886	1026	165.606	1096	196.107	1166	200.718	1236	200.388		
957	156.403	1027	165.794	1097	196.181	1167	200.701	1237	200.410		
958	156.913	1028	165.925	1098	196.364	1168	200.678	1238	200.439		
959	157.165	1029	166.063	1099	196.827	1169	200.657	1239	200.463		
960	157.621	1030	166.197	1100	197.539	1170	200.638	1240	200.490		
961	157.951	1031	166.334	1101	198.975	1171	200.614	1241	200.514		
962	158.184	1032	166.445	1102	200.424	1172	200.597	1242	200.527		
963	158.415	1033	166.592	1103	201.062	1173	200.595	1243	200.539		
964	158.576	1034	166.697	1104	201.340	1174	200.593	1244	200.547		
965	158.799	1035	166.881	1105	201.430	1175	200.582	1245	200.550		
966	158.931	1036	166.951	1106	201.459	1176	200.560	1246	200.559		
967	159.060	1037	167.057	1107	201.476	1177	200.523	1247	200.568		
968	159.155	1038	167.153	1108	201.495	1178	200.505	1248	200.581		
969	159.274	1039	167.248	1109	201.503	1179	200.488	1249	200.595		
970	159.381	1040	167.309	1110	201.481	1180	200.464	1250	200.602		
971	159.482	1041	167.386	1111	201.346	1181	200.454	1251	200.597		
972	159.540	1042	167.458	1112	201.266	1182	200.447	1252	200.568		
973	159.644	1043	167.517	1113	201.133	1183	200.443	1253	200.542		
974	159.691	1044	167.580	1114	201.110	1184	200.446	1254	200.499		
975	159.768	1045	167.643	1115	201.076	1185	200.436	1255	200.434		
976	159.803	1046	167.712	1116	201.075	1186	200.421	1256	200.390		
977	159.873	1047	167.775	1117	201.083	1187	200.409	1257	200.362		

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DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
170	26.314	240	35.837	310	46.793	380	51.916	450	62.676	520	76.453
171	26.365	241	36.033	311	46.980	381	51.799	451	62.840	521	76.681
172	26.410	242	36.210	312	47.129	382	51.693	452	63.032	522	76.854
173	26.490	243	36.365	313	47.293	383	51.584	453	63.234	523	77.035
174	26.578	244	36.473	314	47.448	384	51.508	454	63.396	524	77.185
175	26.655	245	36.603	315	47.659	385	51.448	455	63.609	525	77.374
176	26.758	246	36.768	316	47.801	386	51.403	456	63.815	526	77.558
177	26.850	247	36.972	317	47.966	387	51.370	457	64.016	527	77.759
178	26.956	248	37.139	318	48.139	388	51.345	458	64.203	528	77.941
179	27.061	249	37.278	319	48.309	389	51.324	459	64.385	529	78.165
180	27.146	250	37.428	320	48.476	390	51.304	460	64.568	530	78.392
181	27.288	251	37.596	321	48.652	391	51.290	461	64.734	531	78.616
182	27.403	252	37.723	322	48.833	392	51.284	462	64.886	532	78.839
183	27.531	253	37.883	323	49.011	393	51.282	463	65.066	533	79.028
184	27.627	254	38.020	324	49.236	394	51.277	464	65.242	534	79.283
185	27.785	255	38.209	325	49.446	395	51.266	465	65.364	535	79.456
186	27.915	256	38.367	326	49.635	396	51.244	466	65.560	536	79.651
187	28.030	257	38.509	327	49.858	397	51.210	467	65.694	537	79.842
188	28.163	258	38.674	328	50.055	398	51.160	468	65.852	538	80.011
189	28.312	259	38.846	329	50.288	399	51.090	469	66.013	539	80.175
190	28.473	260	39.008	330	50.505	400	51.008	470	66.181	540	80.343
191	28.590	261	39.162	331	50.713	401	50.920	471	66.335	541	80.482
192	28.732	262	39.324	332	50.911	402	50.822	472	66.525	542	80.670
193	28.854	263	39.467	333	51.180	403	50.717	473	66.705	543	80.852
194	29.042	264	39.625	334	51.391	404	50.606	474	66.959	544	81.002
195	29.183	265	39.768	335	51.592	405	50.489	475	67.186	545	81.162
196	29.330	266	39.963	336	51.788	406	50.365	476	67.384	546	81.327
197	29.448	267	40.118	337	52.014	407	50.232	477	67.608	547	81.499
198	29.574	268	40.281	338	52.236	408	50.102	478	67.787	548	81.703
199	29.721	269	40.434	339	52.448	409	49.979	479	67.976	549	81.833
200	29.896	270	40.623	340	52.641	410	49.875	480	68.195	550	81.994
201	30.066	271	40.788	341	52.872	411	49.802	481	68.362	551	82.146
202	30.172	272	40.940	342	53.056	412	49.768	482	68.631	552	82.323
203	30.314	273	41.107	343	53.228	413	49.792	483	68.842	553	82.480
204	30.457	274	41.246	344	53.393	414	49.905	484	69.057	554	82.638
205	30.603	275	41.422	345	53.546	415	50.400	485	69.320	555	82.785
206	30.776	276	41.576	346	53.662	416	50.677	486	69.505	556	82.935
207	30.903	277	41.730	347	53.782	417	50.873	487	69.766	557	83.141
208	31.052	278	41.856	348	53.906	418	50.978	488	69.938	558	83.317
209	31.190	279	42.025	349	53.987	419	51.296	489	70.158	559	83.471
210	31.338	280	42.183	350	54.055	420	51.618	490	70.393	560	83.633
211	31.474	281	42.337	351	54.118	421	52.081	491	70.551	561	83.776
212	31.641	282	42.499	352	54.163	422	52.488	492	70.780	562	83.928
213	31.815	283	42.681	353	54.198	423	53.139	493	70.980	563	84.071
214	31.927	284	42.819	354	54.252	424	53.578	494	71.224	564	84.210
215	32.053	285	42.988	355	54.303	425	54.358	495	71.436	565	84.359
216	32.218	286	43.109	356	54.355	426	55.066	496	71.614	566	84.554
217	32.378	287	43.350	357	54.396	427	55.843	497	71.814	567	84.707
218	32.478	288	43.499	358	54.430	428	56.628	498	72.003	568	84.838
219	32.657	289	43.671	359	54.458	429	57.234	499	72.178	569	84.982
220	32.807	290	43.831	360	54.474	430	57.665	500	72.352	570	85.143
221	32.952	291	43.997	361	54.474	431	57.979	501	72.521	571	85.302
222	33.116	292	44.147	362	54.455	432	58.267	502	72.723	572	85.423
223	33.251	293	44.309	363	54.407	433	58.587	503	72.937	573	85.534
224	33.425	294	44.480	364	54.334	434	58.946	504	73.124	574	85.679
225	33.561	295	44.634	365	54.205	435	59.291	505	73.323	575	85.855
226	33.686	296	44.787	366	54.062	436	59.649	506	73.518	576	86.013
227	33.818	297	44.912	367	53.898	437	59.937	507	73.729	577	86.213
228	33.984	298	45.052	368	53.729	438	60.223	508	73.961	578	86.380
229	34.155	299	45.197	369	53.575	439	60.454	509	74.180	579	86.543
230	34.333	300	45.306	370	53.416	440	60.732	510	74.385	580	86.688
231	34.467	301	45.444	371	53.256	441	60.967	511	74.600	581	86.831
232	34.606	302	45.618	372	53.096	442	61.124	512	74.754	582	86.981
233	34.764	303	45.772	373	52.937	443	61.370	513	74.965	583	87.105
234	34.923	304	45.908	374	52.783	444	61.538	514	75.139	584	87.258
235	35.093	305	46.065	375	52.625	445	61.713	515	75.404	585	87.417
236	35.199	306	46.179	376	52.470	446	61.900	516	75.621	586	87.583
237	35.374	307	46.326	377	52.332	447	62.098	517	75.854	587	87.726
238	35.542	308	46.505	378	52.192	448	62.299	518	76.075	588	87.897
239	35.696	309	46.651	379	52.048	449	62.469	519	76.265	589	88.056

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DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
590	88.220	660	97.111	730	104.153	800	112.320	870	133.527	940	152.271
591	88.399	661	97.153	731	104.190	801	112.565	871	133.867	941	152.883
592	88.567	662	97.208	732	104.215	802	112.841	872	134.217	942	153.604
593	88.740	663	97.270	733	104.241	803	113.156	873	134.539	943	154.176
594	88.903	664	97.358	734	104.267	804	113.441	874	134.745	944	154.754
595	89.045	665	97.454	735	104.285	805	113.830	875	135.093	945	155.633
596	89.204	666	97.558	736	104.308	806	114.214	876	135.386	946	156.287
597	89.355	667	97.654	737	104.330	807	114.585	877	135.657	947	156.899
598	89.502	668	97.764	738	104.366	808	114.969	878	135.972	948	157.413
599	89.675	669	97.881	739	104.395	809	115.276	879	136.338	949	157.862
600	89.879	670	97.974	740	104.434	810	115.611	880	136.511	950	158.388
601	90.043	671	98.076	741	104.472	811	116.030	881	136.823	951	158.820
602	90.245	672	98.166	742	104.531	812	116.366	882	137.101	952	159.093
603	90.409	673	98.267	743	104.585	813	116.731	883	137.413	953	159.457
604	90.591	674	98.374	744	104.658	814	117,166	884	137.718	954	159.743
605	90.759	675	98.561	745	104.717	815	117.495	885	137.998	955	160.004
606	90.906	676	98.699	746	104.789	816	117.827	886	138.389	956	160.354
607	91.036	677	98.886	747	104.854	817	118.242	887	138.957	957	160.668
608	91.181	678	99.103	748	104.936	818	118.561	888	139.291	958	161.016
609	91.321	679	99.321	749	105.006	819	118.814	889	139.888	959	161.320
610	91.446	680	99.516	750	105.083	820	119.103	890	140.224	960	161.552
611	91.577	681	99.740	751	105.158	821	119.441	891	140.787	961	161.782
612	91.685	682	100.002	752	105.241	822	119.704	892	141.104	962	161.956
613	91.818	683	100.200	753	105.352	823	120.006	893	141.482	963	162.101
614	91.952	684	100.358	754	105.454	824	120.376	894	141.867	964	162.264
615	92.079	685	100.569	755	105.588	825	120.696	895	142.177	965	162.339
616	92.218	686	100.751	756	105.750	826	121.014	896	142.522	966	162.448
617	92.398	687	100.944	757	105.912	827	121.328	897	142.809	967	162.532
618	92.568	688	101.112	758	106.086	828	121.677	898	143.159	968	162.607
619	92.713	689	101.265	759	106.217	829	121.990	899	143.526	969	162.700
620	92.898	690	101.419	760	106.348	830	122.275	900	143.951	970	162.780
621	93.035	691	101.559	761	106.463	831	122.556	901	144.310	971	162.871
622	93.218	692	101.687	762	106.578	832	122.914	902	144.709	972	162.948
623	93.362	693	101.835	763	106.667	833	123.198	903	145.064	973	163.030
624	93.540	694	101.961	764	106.749	834	123.444	904	145.410	974	163.089
625	93.708	695	102.066	765	106.812	835	123.710	905	145.745	975	163.144
626	93.861	696	102.196	766	106.877	836	123.944	906	145.983	976	163.179
627	94.012	697	102.296	767	106.932	837	124.164	907	146.360	977	163.235
628	94.175	698	102.397	768	106.977	838	124.395	908	146.869	978	163.309
629	94.339	699	102.488	769	107.010	839	124.644	909	147.262	979	163.359
630	94.500	700	102.555	770	107.036	840	124.841	910	147.736	980	163.469
631	94.687	701	102.632	771	107.064	841	125.118	911	148.147	981	163.543
632	94.826	702	102.702	772	107.091	842	125.278	912	148.495	982	163.621
633	94.952	703	102.768	773	107.121	843	125.565	913	148.682	983	163.674
634	95.027	704	102.840	774	107.152	844	125.817	914	148.818	984	163.739
635	95.119	705	102.901	775	107.194	845	126.107	915	148.896	985	163.777
636	95.196	706	102.974	776	107.246	846	126.360	916	148.953	986	163.818
637	95.268	707	103.031	777	107.324	847	126.757	917	148.993	987	163.854
638	95.358	708	103.102	778	107.459	848	127.039	918	149.015	988	163.902
639	95.445	709	103.154	779	107.592	849	127.419	919	149.052	989	163.971
640	95.565	710	103.231	780	107.734	850	127.734	920	149.092	990	164.094
641	95.669	711	103.305	781	107.882	851	128.052	921	149.140	991	164.188
642	95.769	712	103.365	782	108.080	852	128.300	922	149.177	992	164.280
643	95.885	713	103.436	783	108.284	853	128.604	923	149.223	993	164.376
644	96.001	714	103.509	784	108.479	854	128.831	924	149.263	994	164.458
645	96.098	715	103.571	785	108.700	855	129.106	925	149.337	995	164.534
646	96.186	716	103.632	786	108.822	856	129.399	926	149.397	996	164.724
647	96.281	717	103.680	787	109.010	857	129.749	927	149.446	997	164.939
648	96.351	718	103.731	788	109.213	858	129.974	928	149.489	998	165.061
649	96.437	719	103.764	789	109.397	859	130.247	929	149.541	999	165.199
650	96.476	720	103.807	790	109.559	860	130.617	930	149.627	1000	165.272
651	96.564	721	103.849	791	109.780	861	130.856	931	149.780	1001	165.341
652	96.626	722	103.887	792	110.065	862	131.041	932	149.874	1002	165.402
653	96.714	723	103.927	793	110.279	863	131.348	933	150.037	1003	165.448
654	96.787	724	103.957	794	110.551	864	131.597	934	150.190	1004	165.527
655	96.851	725	103.986	795	110.845	865	131.817	935	150.499	1005	165.605
656	96.935	726	104.010	796	111.142	866	132.119	936	150.649	1006	165.676
657	96.988	727	104.044	797	111.398	867	132.517	937	150.882	1007	165.763
658	97.039	728	104.080	798	111.772	868	132.868	938	151.203	1008	165.904
659	97.076	729	104.116	799	112.036	869	133.258	939	151.572	1009	166.069

RD08 - MAMMOTH LAKES, CA - 23 SEPTEMBER 1986

DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)	DEPTH (FT)	TEMPERATURE (C)
1010	166.152	1080	186.224	1150	201.449	1220	201.102
1011	166.255	1081	187.007	1151	201.447	1221	201.111
1012	166.355	1082	188.002	1152	201.445	1222	201.117
1013	166.472	1083	189.234	1153	201.444	1223	201.120
1014	166.570	1084	190.101	1154	201.442	1224	201.126
1015	166.653	1085	190.942	1155	201.437	1225	201.132
1016	166.739	1086	192.486	1156	201.416	1226	201.140
1017	166.869	1087	193.594	1157	201.369	1227	201.146
1018	166.948	1088	195.002	1158	201.356	1228	201.157
1019	167.068	1089	195.750	1159	201.349	1229	201.163
1020	167.189	1090	196.196	1160	201.348	1230	201.172
1021	167.320	1091	196.400	1161	201.345	1231	201.180
1022	167.529	1092	196.498	1162	201.343	1232	201.191
1023	167.638	1093	196.542	1163	201.338	1233	201.199
1024	167.745	1094	196.608	1164	201.331	1234	201.208
1025	167.869	1095	196.671	1165	201.327	1235	201.220
1026	167.998	1096	196.732	1166	201.323	1236	201.229
1027	168.112	1097	196.782	1167	201.316	1237	201.233
1028	168.267	1098	196.855	1168	201.309	1238	201.234
1029	168.422	1099	196.928	1169	201.302	1239	201.233
1030	168.572	1100	197.143	1170	201.296	1240	201.232
1031	168.700	1101	197.839	1171	201.286	1241	201.227
1032	168.849	1102	198.753	1172	201.276	1242	201.225
1033	168.940	1103	200.139	1173	201.271	1243	201.219
1034	169.049	1104	201.099	1174	201.267	1244	201.218
1035	169.181	1105	201.549	1175	201.266	1245	201.218
1036	169.324	1106	201.676	1176	201.266	1246	201.215
1037	169.371	1107	201.731	1177	201.262	1247	201.215
1038	169.453	1108	201.759	1178	201.254	1248	201.217
1039	169.533	1109	201.775	1179	201.245	1249	201.218
1040	169.591	1110	201.786	1180	201.242	1250	201.219
1041	169.661	1111	201.779	1181	201.237	1251	201.219
1042	169.696	1112	201.705	1182	201.232	1252	201.217
1043	169.746	1113	201.630	1183	201.229	1253	201.201
1044	169.812	1114	201.536	1184	201.227	1254	201.183
1045	169.858	1115	201.508	1185	201.229	1255	201.172
1046	169.893	1116	201.493	1186	201.227	1256	201.154
1047	169.937	1117	201.477	1187	201.224	1257	201.137
1048	170.000	1118	201.484	1188	201.220	1258	201.127
1049	170.042	1119	201.489	1189	201.217	1259	201.119
1050	170.112	1120	201.489	1190	201.212	1260	201.099
1051	170.159	1121	201.483	1191	201.202	1261	201.075
1052	170.215	1122	201.482	1192	201.198	1262	201.052
1053	170.258	1123	201.474	1193	201.190	1263	201.031
1054	170.310	1124	201.458	1194	201.181	1264	201.011
1055	170.368	1125	201.444	1195	201.174	1265	200.988
1056	170.428	1126	201.436	1196	201.170	1266	200.968
1057	170.473	1127	201.429	1197	201.159	1267	200.941
1058	170.546	1128	201.425	1198	201.151	1268	200.918
1059	170.607	1129	201.424	1199	201.139	1269	200.893
1060	170.685	1130	201.425	1200	201.133	1270	200.868
1061	170.770	1131	201.422	1201	201.129	1271	200.835
1062	170.843	1132	201.424	1202	201.126	1272	200.813
1063	170.934	1133	201.424	1203	201.124	1273	200.787
1064	170.995	1134	201.428	1204	201.124	1274	200.781
1065	171.072	1135	201.429	1205	201.122	1275	200.780
1066	171.178	1136	201.431	1206	201.120	1276	200.781
1067	171.345	1137	201.429	1207	201.104		
1068	171.522	1138	201.430	1208	201.078		
1069	171.711	1139	201.430	1209	201.055		
1070	171.892	1140	201.425	1210	201.035		
1071	172.515	1141	201.424	1211	201.026		
1072	173.688	1142	201.421	1212	201.022		
1073	175.262	1143	201.421	1213	201.023		
1074	177.246	1144	201.423	1214	201.029		
1075	178.372	1145	201.431	1215	201.036		
1076	180.063	1146	201.438	1216	201.049		
1077	182.727	1147	201.442	1217	201.062		
1078	184.411	1148	201.445	1218	201.077		
1079	185.073	1149	201.447	1219	201.093		

APPENDIX III

Natural Gamma-Ray Data for RD08 on September 23 and 24, 1986

RD08 - MAMMOTH LAKES, CA - 23 SEPTEMBER 1986 - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1	22.2	71	29.6	141	25.0	211	25.4	281	28.5
2	22.3	72	27.1	142	24.9	212	24.1	282	25.2
3	24.1	73	26.8	143	24.8	213	23.8	283	25.7
4	25.8	74	25.9	144	23.9	214	23.6	284	24.5
5	25.1	75	23.7	145	22.6	215	23.4	285	23.8
6	32.9	76	21.7	146	24.5	216	23.1	286	23.9
7	82.4	77	18.7	147	26.6	217	25.4	287	33.3
8	63.6	78	19.6	148	26.9	218	26.3	288	48.0
9	51.2	79	21.4	149	25.6	219	26.0	289	43.3
10	78.1	80	21.3	150	23.0	220	23.2	290	37.0
11	94.0	81	21.1	151	22.8	221	21.5	291	34.7
12	69.6	82	20.6	152	21.3	222	20.3	292	33.8
13	61.8	83	18.7	153	20.0	223	21.5	293	33.1
14	49.1	84	17.6	154	18.8	224	22.2	294	31.5
15	42.0	85	17.6	155	20.9	225	25.0	295	30.1
16	35.8	86	20.5	156	23.7	226	25.7	296	28.4
17	32.0	87	20.4	157	23.9	227	25.6	297	27.3
18	28.2	88	20.5	158	23.3	228	25.5	298	25.9
19	24.6	89	19.9	159	25.4	229	25.4	299	24.8
20	23.0	90	20.8	160	26.2	230	25.1	300	25.1
21	21.1	91	22.4	161	28.4	231	26.0	301	25.0
22	20.1	92	23.1	162	28.1	232	24.1	302	24.6
23	19.9	93	23.7	163	28.1	233	23.0	303	24.3
24	21.8	94	21.8	164	27.4	234	21.6	304	25.9
25	27.8	95	20.4	165	26.0	235	22.7	305	26.9
26	29.0	96	18.2	166	27.4	236	21.5	306	26.9
27	27.2	97	19.0	167	31.8	237	20.9	307	27.0
28	23.3	98	17.2	168	30.0	238	21.3	308	27.3
29	20.1	99	17.2	169	29.1	239	21.9	309	26.9
30	19.1	100	19.7	170	27.2	240	23.1	310	25.8
31	17.2	101	20.5	171	24.1	241	23.2	311	27.6
32	16.0	102	19.8	172	21.5	242	23.3	312	28.0
33	16.7	103	18.8	173	23.1	243	24.1	313	27.9
34	16.9	104	18.5	174	23.2	244	22.1	314	26.1
35	16.6	105	19.4	175	23.1	245	22.1	315	24.4
36	16.7	106	22.2	176	26.5	246	21.6	316	23.9
37	17.7	107	22.4	177	25.8	247	18.6	317	23.5
38	20.2	108	21.3	178	24.0	248	18.9	318	24.9
39	21.3	109	19.1	179	23.7	249	19.3	319	26.1
40	22.1	110	19.6	180	22.1	250	19.1	320	26.6
41	20.5	111	19.6	181	22.3	251	18.6	321	27.6
42	17.5	112	20.5	182	24.9	252	18.8	322	27.5
43	16.8	113	23.6	183	27.5	253	22.3	323	26.7
44	15.9	114	24.8	184	28.5	254	26.6	324	26.0
45	16.2	115	24.8	185	28.5	255	25.9	325	25.2
46	15.5	116	22.1	186	27.4	256	22.9	326	23.3
47	15.3	117	22.4	187	26.7	257	21.5	327	23.1
48	14.3	118	25.4	188	26.3	258	20.9	328	23.3
49	14.5	119	25.2	189	25.8	259	20.8	329	22.9
50	15.8	120	25.9	190	24.6	260	21.0	330	21.1
51	15.4	121	25.6	191	22.9	261	22.6	331	20.0
52	16.8	122	25.6	192	22.9	262	23.8	332	20.2
53	18.1	123	25.2	193	23.3	263	24.8	333	21.7
54	18.8	124	24.4	194	24.2	264	24.6	334	21.3
55	18.6	125	24.2	195	26.3	265	24.2	335	22.2
56	19.0	126	24.2	196	26.1	266	25.3	336	22.6
57	20.3	127	23.7	197	26.6	267	24.1	337	27.0
58	19.2	128	22.7	198	27.5	268	23.3	338	33.9
59	19.2	129	22.9	199	28.1	269	23.1	339	32.2
60	20.3	130	24.2	200	27.8	270	22.5	340	33.7
61	55.8	131	25.5	201	25.6	271	22.7	341	32.0
62	48.1	132	26.5	202	23.7	272	22.4	342	28.5
63	43.4	133	27.6	203	21.3	273	22.0	343	26.4
64	40.7	134	30.2	204	22.4	274	23.9	344	25.9
65	38.1	135	28.7	205	21.8	275	25.5	345	24.6
66	35.1	136	27.9	206	22.0	276	25.7	346	24.4
67	33.7	137	28.2	207	21.7	277	26.5	347	25.2
68	33.2	138	28.1	208	21.5	278	28.5	348	27.5
69	32.1	139	24.3	209	23.9	279	29.4	349	29.0
70	29.8	140	25.0	210	25.1	280	28.7	350	28.6

R008 - MAMMOTH LAKES, CA - 23 SEPTEMBER 1986 - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
351	26.0	421	27.7	491	28.4	561	24.9	631	24.7
352	24.1	422	27.0	492	35.4	562	25.1	632	27.7
353	23.2	423	27.2	493	37.4	563	24.9	633	28.7
354	23.1	424	27.2	494	36.5	564	23.3	634	29.4
355	24.0	425	25.1	495	32.1	565	23.6	635	30.9
356	24.8	426	24.2	496	30.9	566	27.1	636	31.5
357	25.0	427	25.2	497	29.8	567	26.0	637	34.0
358	23.5	428	25.8	498	30.6	568	24.8	638	34.0
359	23.0	429	24.5	499	30.9	569	25.5	639	32.7
360	24.4	430	23.0	500	29.9	570	27.4	640	30.5
361	24.7	431	22.4	501	29.9	571	27.7	641	28.8
362	27.3	432	23.8	502	29.7	572	26.0	642	26.2
363	28.1	433	23.8	503	29.2	573	26.7	643	25.2
364	28.0	434	23.0	504	29.3	574	27.2	644	23.6
365	26.4	435	20.6	505	29.4	575	25.9	645	23.2
366	24.5	436	20.3	506	30.5	576	25.0	646	21.8
367	22.7	437	18.7	507	27.6	577	24.8	647	22.0
368	20.9	438	18.5	508	27.2	578	26.8	648	24.5
369	21.8	439	20.9	509	27.1	579	29.6	649	25.2
370	24.0	440	21.5	510	26.3	580	30.6	650	24.0
371	25.0	441	21.8	511	24.7	581	28.6	651	23.8
372	26.8	442	22.5	512	22.6	582	27.7	652	27.1
373	28.6	443	21.7	513	23.3	583	27.1	653	49.0
374	29.1	444	21.5	514	23.5	584	26.5	654	44.5
375	25.1	445	22.8	515	24.6	585	26.7	655	39.8
376	24.8	446	23.1	516	25.0	586	26.6	656	38.6
377	25.1	447	22.6	517	25.6	587	26.8	657	34.8
378	25.5	448	25.1	518	25.9	588	28.3	658	31.6
379	25.7	449	25.9	519	26.6	589	29.3	659	29.9
380	25.3	450	27.1	520	28.4	590	28.5	660	28.6
381	25.0	451	26.3	521	26.8	591	28.1	661	30.4
382	23.4	452	24.8	522	26.8	592	25.0	662	31.1
383	24.4	453	24.2	523	25.4	593	24.5	663	31.9
384	21.8	454	25.4	524	23.3	594	23.9	664	31.8
385	22.0	455	26.1	525	23.9	595	23.8	665	31.4
386	21.8	456	25.5	526	24.3	596	25.4	666	32.2
387	20.5	457	27.1	527	24.6	597	27.9	667	35.0
388	20.4	458	25.2	528	23.7	598	27.5	668	33.8
389	19.1	459	24.5	529	22.9	599	27.4	669	32.3
390	18.1	460	24.8	530	23.0	600	26.1	670	30.3
391	17.3	461	24.7	531	23.4	601	25.7	671	27.7
392	16.5	462	23.0	532	33.6	602	27.9	672	27.3
393	16.4	463	21.7	533	95.9	603	30.3	673	27.5
394	17.2	464	20.9	534	77.2	604	30.0	674	25.6
395	18.1	465	19.8	535	61.4	605	27.6	675	24.7
396	19.4	466	19.8	536	53.8	606	25.6	676	24.7
397	21.5	467	20.7	537	46.7	607	23.8	677	25.9
398	22.2	468	21.2	538	42.4	608	22.0	678	27.3
399	22.5	469	22.8	539	41.0	609	20.5	679	27.9
400	22.4	470	23.7	540	38.3	610	24.0	680	31.1
401	21.1	471	27.0	541	35.1	611	25.4	681	33.0
402	20.3	472	48.6	542	34.2	612	29.4	682	32.5
403	20.0	473	140.8	543	80.7	613	71.9	683	32.4
404	20.9	474	100.1	544	70.1	614	63.5	684	33.6
405	21.0	475	81.4	545	63.5	615	53.7	685	34.8
406	19.7	476	67.4	546	54.5	616	48.1	686	36.7
407	18.9	477	60.8	547	44.9	617	41.2	687	37.3
408	17.7	478	52.2	548	39.0	618	37.5	688	37.6
409	17.7	479	45.0	549	34.9	619	34.4	689	37.6
410	19.0	480	36.9	550	31.7	620	33.2	690	36.6
411	22.3	481	34.4	551	31.6	621	32.3	691	35.2
412	22.2	482	32.4	552	31.9	622	33.2	692	33.8
413	21.4	483	30.3	553	31.0	623	34.3	693	32.4
414	21.6	484	31.0	554	30.1	624	33.5	694	31.8
415	21.0	485	28.1	555	29.3	625	32.6	695	30.3
416	20.5	486	29.7	556	28.6	626	32.1	696	29.2
417	21.1	487	28.1	557	28.1	627	29.4	697	30.7
418	27.6	488	27.0	558	26.6	628	27.6	698	31.8
419	27.3	489	28.7	559	26.5	629	25.9	699	30.0
420	28.1	490	29.2	560	25.5	630	23.1	700	31.1

RD08 - MAMMOTH LAKES, CA - 23 SEPTEMBER 1986 - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
701	32.3	771	24.7	841	28.3	911	31.9	981	31.3
702	33.2	772	23.3	842	28.6	912	36.3	982	31.3
703	33.9	773	22.4	843	29.0	913	39.4	983	30.5
704	31.9	774	20.4	844	28.6	914	40.2	984	30.7
705	31.2	775	19.0	845	28.5	915	40.4	985	31.4
706	35.6	776	19.1	846	28.2	916	40.3	986	32.2
707	36.2	777	18.8	847	26.7	917	39.8	987	32.9
708	35.4	778	18.5	848	25.1	918	38.0	988	36.0
709	34.2	779	18.0	849	23.3	919	36.8	989	36.9
710	33.4	780	19.8	850	21.2	920	39.7	990	38.6
711	32.8	781	23.3	851	21.3	921	39.3	991	38.7
712	31.7	782	22.2	852	21.3	922	39.1	992	38.9
713	31.7	783	36.2	853	23.3	923	38.7	993	37.6
714	29.9	784	35.0	854	25.2	924	35.9	994	36.2
715	28.1	785	30.1	855	27.1	925	36.5	995	36.0
716	27.7	786	27.3	856	28.5	926	37.7	996	36.3
717	26.6	787	22.5	857	29.2	927	40.7	997	34.8
718	26.8	788	21.1	858	30.8	928	39.7	998	33.1
719	27.2	789	20.4	859	30.0	929	41.8	999	31.8
720	27.6	790	18.7	860	34.6	930	41.7	1000	31.8
721	28.7	791	15.5	861	34.6	931	41.1	1001	46.6
722	29.3	792	15.1	862	28.2	932	39.7	1002	42.4
723	27.5	793	15.7	863	24.8	933	38.6	1003	38.5
724	27.4	794	16.4	864	25.7	934	35.4	1004	41.2
725	26.5	795	17.0	865	26.8	935	33.7	1005	38.1
726	25.0	796	19.1	866	25.6	936	31.9	1006	35.8
727	24.1	797	19.7	867	25.4	937	29.9	1007	35.4
728	24.6	798	21.0	868	26.9	938	32.6	1008	35.8
729	23.9	799	20.8	869	27.4	939	32.9	1009	34.7
730	24.6	800	21.5	870	27.0	940	32.4	1010	33.2
731	24.3	801	22.2	871	25.2	941	32.3	1011	34.9
732	23.1	802	22.1	872	24.8	942	36.0	1012	34.6
733	23.6	803	21.5	873	23.2	943	36.1	1013	31.3
734	24.1	804	22.0	874	24.0	944	37.9	1014	34.9
735	24.2	805	24.0	875	26.5	945	38.4	1015	37.5
736	26.1	806	26.3	876	27.3	946	39.7	1016	37.4
737	27.3	807	26.6	877	29.8	947	39.3	1017	36.9
738	26.7	808	25.8	878	29.7	948	39.7	1018	35.6
739	25.4	809	26.8	879	29.7	949	40.0	1019	35.6
740	25.0	810	27.8	880	30.9	950	40.2	1020	34.3
741	23.8	811	30.9	881	32.6	951	41.0	1021	33.8
742	25.6	812	33.0	882	34.1	952	45.7	1022	35.4
743	26.4	813	32.7	883	35.5	953	44.7	1023	37.5
744	27.1	814	31.0	884	33.1	954	50.3	1024	36.1
745	27.4	815	32.1	885	32.5	955	50.9	1025	36.5
746	25.4	816	32.4	886	32.0	956	48.6	1026	39.6
747	25.1	817	32.1	887	30.2	957	47.5	1027	39.4
748	23.6	818	29.7	888	30.3	958	50.1	1028	37.6
749	21.8	819	28.0	889	31.5	959	51.3	1029	36.3
750	25.0	820	27.5	890	32.0	960	50.3	1030	34.9
751	26.2	821	29.2	891	31.8	961	50.4	1031	35.0
752	27.0	822	30.2	892	27.9	962	48.5	1032	35.8
753	28.9	823	30.2	893	29.6	963	45.7	1033	36.6
754	32.8	824	28.7	894	27.7	964	43.0	1034	37.4
755	32.1	825	28.5	895	27.7	965	40.6	1035	39.5
756	33.2	826	28.3	896	28.7	966	38.7	1036	41.8
757	30.1	827	28.5	897	30.7	967	38.0	1037	42.4
758	29.5	828	29.1	898	28.7	968	36.3	1038	41.4
759	28.3	829	28.7	899	33.2	969	34.1	1039	43.6
760	28.7	830	29.4	900	34.0	970	33.0	1040	43.9
761	28.9	831	29.8	901	33.4	971	30.1	1041	41.9
762	28.9	832	29.3	902	30.8	972	30.9	1042	39.2
763	27.7	833	26.8	903	29.8	973	31.5	1043	38.9
764	26.0	834	23.8	904	32.6	974	30.5	1044	38.3
765	24.6	835	23.1	905	33.4	975	30.9	1045	38.9
766	25.1	836	22.5	906	32.8	976	31.3	1046	40.2
767	26.2	837	22.6	907	31.2	977	31.5	1047	38.6
768	26.6	838	23.8	908	31.0	978	32.0	1048	37.8
769	24.8	839	26.4	909	30.4	979	30.7	1049	38.0
770	24.8	840	27.0	910	29.5	980	31.1	1050	39.0

RD08 - MAMMOTH LAKES, CA - 23 SEPTEMBER 1986 - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1051	38.8	1121	20.6	1191	29.6	1261	41.3
1052	37.6	1122	20.6	1192	30.0	1262	43.9
1053	36.5	1123	20.6	1193	30.0	1263	44.2
1054	37.3	1124	21.5	1194	30.0	1264	42.8
1055	38.2	1125	24.2	1195	28.9	1265	41.4
1056	35.3	1126	27.1	1196	26.5	1266	40.8
1057	35.5	1127	25.7	1197	25.5	1267	39.8
1058	34.9	1128	24.8	1198	25.0	1268	38.7
1059	36.6	1129	24.5	1199	26.7	1269	37.0
1060	38.5	1130	30.0	1200	29.8	1270	35.4
1061	40.0	1131	30.9	1201	35.5	1271	36.2
1062	41.8	1132	29.3	1202	35.8	1272	36.3
1063	40.2	1133	33.0	1203	34.7	1273	38.2
1064	39.1	1134	35.0	1204	35.9	1274	40.7
1065	37.6	1135	32.5	1205	37.0	1275	43.2
1066	36.6	1136	32.5	1206	38.5	1276	44.4
1067	40.4	1137	33.5	1207	39.0		
1068	41.2	1138	34.2	1208	40.2		
1069	41.6	1139	34.5	1209	42.3		
1070	41.4	1140	34.0	1210	41.6		
1071	39.5	1141	35.0	1211	40.4		
1072	40.2	1142	34.6	1212	40.2		
1073	41.5	1143	32.8	1213	39.9		
1074	47.7	1144	32.6	1214	39.3		
1075	48.1	1145	33.7	1215	40.4		
1076	51.2	1146	33.2	1216	41.5		
1077	53.7	1147	33.1	1217	43.6		
1078	56.5	1148	32.8	1218	42.4		
1079	55.2	1149	30.5	1219	39.5		
1080	54.6	1150	27.5	1220	38.3		
1081	53.8	1151	29.0	1221	39.6		
1082	50.9	1152	28.6	1222	40.8		
1083	48.6	1153	28.3	1223	41.4		
1084	46.8	1154	29.3	1224	42.5		
1085	43.5	1155	29.4	1225	40.4		
1086	42.9	1156	28.8	1226	38.8		
1087	40.8	1157	25.9	1227	36.6		
1088	37.6	1158	23.7	1228	36.0		
1089	35.0	1159	22.4	1229	36.3		
1090	32.6	1160	21.1	1230	34.2		
1091	29.8	1161	22.0	1231	33.0		
1092	26.4	1162	23.4	1232	33.2		
1093	25.6	1163	24.9	1233	34.2		
1094	25.6	1164	25.5	1234	31.8		
1095	24.4	1165	28.6	1235	31.6		
1096	27.2	1166	30.8	1236	30.8		
1097	28.6	1167	32.4	1237	29.9		
1098	30.5	1168	35.6	1238	29.7		
1099	31.2	1169	35.9	1239	29.8		
1100	31.5	1170	33.9	1240	30.2		
1101	34.2	1171	34.0	1241	31.3		
1102	31.5	1172	33.6	1242	32.4		
1103	29.8	1173	32.2	1243	34.4		
1104	32.9	1174	31.0	1244	35.3		
1105	36.1	1175	29.9	1245	34.3		
1106	33.7	1176	30.0	1246	33.5		
1107	32.6	1177	32.9	1247	32.0		
1108	33.7	1178	34.2	1248	30.7		
1109	31.2	1179	35.4	1249	30.0		
1110	30.8	1180	36.8	1250	29.8		
1111	29.1	1181	36.4	1251	32.3		
1112	26.2	1182	36.4	1252	33.9		
1113	21.8	1183	35.3	1253	36.8		
1114	21.8	1184	33.8	1254	37.6		
1115	18.1	1185	31.9	1255	35.1		
1116	18.1	1186	29.7	1256	34.7		
1117	17.0	1187	32.5	1257	35.8		
1118	17.3	1188	34.5	1258	36.4		
1119	18.0	1189	31.2	1259	37.0		
1120	19.6	1190	30.2	1260	37.7		

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(1) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1	213.4	71	157.8	141	69.1	211	80.1	281	26.5
2	167.8	72	133.7	142	64.6	212	128.2	282	27.5
3	130.2	73	120.7	143	62.1	213	108.7	283	28.5
4	113.7	74	143.2	144	53.1	214	93.6	284	30.0
5	92.6	75	121.2	145	49.5	215	80.6	285	30.5
6	76.1	76	196.3	146	45.5	216	75.1	286	32.0
7	287.5	77	212.4	147	44.0	217	79.1	287	32.5
8	282.5	78	181.3	148	37.5	218	71.6	288	32.0
9	231.9	79	141.7	149	38.0	219	64.6	289	32.5
10	205.4	80	131.2	150	40.0	220	62.1	290	31.0
11	343.1	81	188.8	151	42.5	221	66.6	291	28.5
12	327.6	82	149.2	152	43.5	222	56.6	292	27.5
13	270.5	83	120.2	153	43.5	223	58.6	293	33.0
14	217.4	84	95.6	154	40.5	224	56.6	294	38.5
15	173.3	85	92.1	155	39.5	225	56.6	295	39.5
16	321.1	86	147.2	156	38.0	226	55.6	296	41.0
17	381.2	87	123.7	157	37.5	227	54.6	297	40.5
18	310.6	88	104.7	158	36.5	228	47.5	298	39.5
19	275.5	89	89.6	159	36.5	229	47.0	299	37.0
20	214.9	90	74.6	160	38.5	230	44.0	300	37.0
21	186.8	91	80.6	161	45.0	231	42.5	301	33.9
22	183.3	92	124.7	162	51.6	232	43.5	302	31.4
23	200.4	93	110.2	163	53.6	233	44.5	303	30.4
24	283.5	94	138.7	164	48.0	234	43.0	304	31.4
25	397.7	95	154.3	165	45.5	235	40.0	305	31.9
26	324.6	96	135.7	166	57.6	236	42.0	306	33.4
27	277.5	97	200.4	167	127.7	237	43.0	307	33.9
28	236.4	98	214.4	168	105.7	238	43.0	308	33.9
29	234.4	99	252.5	169	88.1	239	43.0	309	33.9
30	286.5	100	298.0	170	73.1	240	43.0	310	33.9
31	231.4	101	404.8	171	64.1	241	42.0	311	32.9
32	185.8	102	350.2	172	56.6	242	40.5	312	31.9
33	159.8	103	389.2	173	52.1	243	39.5	313	31.4
34	119.7	104	302.1	174	47.0	244	39.0	314	30.4
35	95.1	105	320.6	175	43.5	245	38.0	315	29.9
36	88.1	106	313.6	176	42.0	246	37.5	316	29.4
37	88.1	107	600.7	177	40.5	247	38.0	317	27.9
38	84.1	108	582.1	178	38.5	248	38.0	318	27.4
39	81.1	109	543.0	179	36.5	249	36.5	319	28.4
40	69.1	110	459.4	180	38.5	250	35.5	320	29.4
41	59.6	111	390.2	181	99.6	251	33.5	321	30.9
42	53.1	112	293.0	182	129.7	252	33.0	322	31.9
43	45.5	113	224.9	183	107.2	253	34.5	323	31.9
44	38.5	114	190.3	184	90.6	254	35.5	324	30.9
45	34.0	115	174.8	185	82.6	255	36.0	325	29.9
46	36.0	116	163.8	186	71.6	256	35.5	326	29.9
47	49.5	117	126.2	187	65.6	257	35.0	327	30.4
48	46.5	118	100.2	188	59.1	258	34.0	328	30.4
49	39.0	119	82.1	189	54.6	259	33.0	329	31.4
50	77.1	120	68.6	190	50.6	260	33.0	330	41.9
51	219.4	121	62.1	191	44.0	261	32.0	331	42.4
52	185.8	122	57.1	192	41.0	262	32.0	332	40.4
53	188.8	123	50.6	193	38.5	263	31.0	333	38.9
54	292.5	124	45.0	194	52.6	264	30.5	334	38.4
55	269.5	125	39.0	195	60.1	265	30.0	335	37.4
56	308.1	126	37.5	196	60.6	266	29.5	336	36.4
57	326.1	127	40.0	197	61.1	267	30.0	337	36.9
58	408.3	128	43.0	198	59.6	268	30.5	338	36.9
59	343.6	129	43.0	199	55.6	269	30.5	339	36.4
60	415.3	130	43.5	200	54.1	270	30.5	340	36.4
61	338.6	131	59.1	201	50.6	271	31.0	341	35.4
62	282.5	132	72.6	202	46.5	272	31.5	342	34.4
63	217.4	133	71.6	203	45.0	273	32.0	343	32.4
64	174.3	134	65.6	204	44.0	274	32.0	344	29.9
65	151.3	135	68.1	205	43.0	275	32.0	345	27.9
66	180.3	136	78.6	206	42.0	276	31.0	346	28.9
67	145.2	137	94.1	207	40.0	277	29.0	347	29.4
68	156.8	138	97.1	208	40.0	278	29.0	348	26.9
69	146.2	139	88.6	209	40.0	279	29.0	349	27.4
70	126.7	140	84.1	210	40.0	280	29.5	350	27.4

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(1) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
351	27.9	421	30.9	491	29.9	561	32.4	631	36.0
352	29.9	422	30.4	492	29.4	562	31.9	632	34.0
353	28.9	423	27.9	493	29.4	563	31.4	633	32.0
354	27.4	424	27.4	494	30.4	564	31.4	634	29.5
355	26.4	425	27.9	495	30.9	565	29.4	635	29.5
356	26.4	426	29.9	496	30.9	566	27.9	636	29.5
357	25.9	427	29.4	497	30.9	567	25.9	637	29.5
358	25.9	428	28.9	498	31.4	568	24.9	638	29.0
359	25.9	429	28.9	499	31.9	569	26.4	639	28.5
360	25.4	430	29.4	500	31.4	570	28.4	640	28.0
361	25.4	431	28.9	501	29.9	571	29.4	641	28.0
362	25.9	432	28.9	502	28.9	572	28.9	642	27.0
363	27.9	433	27.9	503	28.4	573	28.4	643	27.0
364	29.9	434	27.9	504	27.4	574	30.9	644	27.0
365	30.4	435	28.4	505	27.4	575	58.4	645	29.0
366	30.4	436	28.9	506	26.9	576	54.4	646	31.5
367	29.4	437	30.4	507	26.4	577	50.4	647	32.5
368	28.9	438	31.4	508	28.4	578	46.4	648	32.0
369	28.9	439	32.4	509	30.9	579	43.9	649	30.5
370	29.9	440	32.9	510	31.9	580	40.9	650	29.5
371	30.9	441	32.4	511	31.9	581	37.9	651	30.5
372	33.4	442	31.9	512	31.9	582	34.9	652	30.5
373	33.9	443	31.9	513	30.9	583	33.4	653	30.5
374	33.9	444	31.9	514	30.9	584	31.4	654	31.5
375	33.4	445	31.9	515	32.9	585	29.9	655	32.0
376	33.4	446	31.9	516	33.4	586	29.4	656	32.5
377	33.4	447	30.9	517	31.9	587	28.4	657	32.0
378	33.4	448	29.9	518	30.4	588	27.9	658	32.0
379	32.9	449	29.4	519	27.9	589	27.9	659	31.0
380	31.9	450	28.9	520	27.4	590	27.9	660	30.5
381	31.4	451	27.4	521	27.9	591	27.9	661	30.5
382	29.9	452	26.9	522	29.4	592	28.4	662	30.0
383	27.9	453	26.9	523	30.4	593	28.4	663	30.0
384	26.9	454	26.9	524	33.9	594	28.4	664	30.0
385	25.9	455	26.9	525	90.9	595	28.4	665	29.0
386	25.9	456	27.4	526	83.9	596	30.4	666	28.5
387	26.4	457	27.9	527	72.9	597	31.4	667	28.0
388	29.9	458	27.9	528	58.4	598	30.4	668	28.0
389	31.4	459	27.9	529	54.4	599	30.9	669	29.0
390	32.4	460	28.4	530	53.4	600	31.9	670	29.5
391	32.4	461	28.4	531	54.9	601	27.5	671	30.0
392	32.9	462	28.4	532	51.4	602	28.5	672	30.5
393	32.9	463	28.9	533	46.9	603	28.5	673	31.5
394	32.9	464	28.9	534	43.4	604	26.5	674	32.0
395	32.9	465	28.9	535	55.9	605	24.5	675	33.0
396	32.4	466	28.9	536	54.9	606	24.5	676	34.5
397	31.4	467	29.4	537	45.9	607	24.5	677	35.5
398	29.4	468	29.9	538	42.4	608	24.0	678	35.5
399	28.4	469	29.9	539	41.4	609	23.5	679	36.0
400	28.9	470	29.9	540	39.4	610	23.5	680	36.0
401	29.9	471	29.9	541	38.9	611	24.0	681	36.0
402	29.9	472	29.9	542	36.9	612	24.0	682	36.0
403	29.9	473	29.9	543	35.9	613	25.0	683	36.0
404	38.9	474	30.4	544	34.9	614	29.0	684	36.0
405	80.9	475	31.4	545	33.4	615	34.0	685	36.0
406	74.9	476	32.4	546	32.9	616	35.5	686	36.0
407	66.4	477	32.9	547	32.4	617	36.0	687	35.0
408	59.4	478	32.9	548	31.4	618	36.0	688	34.0
409	52.4	479	33.4	549	32.4	619	34.0	689	33.0
410	70.9	480	33.9	550	33.4	620	33.5	690	32.5
411	70.9	481	33.4	551	32.4	621	85.1	691	32.5
412	62.9	482	33.4	552	32.4	622	92.6	692	32.0
413	56.9	483	33.4	553	32.4	623	82.6	693	32.0
414	50.4	484	33.4	554	32.4	624	73.6	694	32.5
415	42.4	485	34.4	555	32.4	625	67.6	695	33.0
416	39.4	486	34.9	556	32.4	626	61.6	696	33.5
417	36.9	487	34.4	557	33.4	627	56.1	697	34.0
418	34.4	488	33.9	558	33.4	628	46.0	698	34.5
419	33.4	489	32.9	559	32.4	629	41.0	699	35.5
420	31.4	490	30.9	560	32.4	630	38.5	700	36.0

R008 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(1) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
701	36.0	771	21.5	841	25.5	911	44.5	981	31.0
702	35.5	772	21.5	842	25.0	912	45.5	982	31.5
703	36.0	773	21.5	843	24.5	913	47.0	983	32.5
704	36.0	774	21.5	844	24.0	914	47.5	984	32.5
705	35.5	775	22.5	845	23.5	915	45.5	985	31.5
706	35.0	776	23.5	846	23.5	916	39.5	986	31.0
707	34.0	777	23.5	847	23.5	917	38.5	987	31.5
708	33.0	778	23.0	848	23.5	918	38.5	988	32.0
709	32.0	779	21.5	849	23.5	919	39.5	989	32.5
710	30.0	780	21.0	850	23.5	920	40.0	990	33.0
711	28.5	781	20.5	851	23.5	921	40.5	991	32.5
712	28.0	782	20.0	852	23.5	922	41.5	992	32.5
713	27.0	783	18.5	853	24.0	923	43.5	993	34.0
714	27.0	784	18.5	854	28.5	924	43.5	994	34.5
715	29.0	785	18.5	855	30.0	925	43.5	995	35.0
716	30.0	786	18.5	856	31.0	926	43.5	996	35.0
717	31.0	787	19.0	857	31.5	927	44.0	997	36.0
718	32.0	788	18.5	858	31.0	928	44.0	998	37.5
719	35.5	789	18.5	859	29.5	929	42.5	999	39.5
720	38.0	790	21.0	860	29.0	930	40.5	1000	39.5
721	37.0	791	23.0	861	29.0	931	39.0	1001	37.0
722	36.5	792	25.0	862	29.5	932	38.0	1002	36.0
723	35.5	793	26.5	863	29.5	933	36.5	1003	34.5
724	33.0	794	27.0	864	29.5	934	36.5	1004	34.0
725	32.5	795	27.5	865	30.0	935	36.5	1005	33.0
726	31.0	796	27.0	866	30.5	936	37.0	1006	31.0
727	31.0	797	27.0	867	31.0	937	37.0	1007	30.5
728	30.5	798	26.5	868	33.0	938	37.0	1008	31.0
729	30.5	799	27.0	869	33.5	939	36.5	1009	32.0
730	30.5	800	27.5	870	33.5	940	36.0	1010	32.0
731	30.5	801	40.5	871	33.0	941	36.0	1011	31.5
732	29.0	802	43.0	872	32.0	942	36.5	1012	31.0
733	30.5	803	42.5	873	31.5	943	38.5	1013	31.0
734	32.5	804	42.0	874	30.5	944	42.0	1014	32.0
735	33.5	805	42.0	875	30.5	945	44.5	1015	33.5
736	34.5	806	38.0	876	31.0	946	46.5	1016	34.0
737	35.0	807	36.0	877	31.5	947	48.5	1017	34.5
738	35.0	808	34.5	878	35.5	948	49.0	1018	35.0
739	35.0	809	33.0	879	37.0	949	49.5	1019	37.0
740	34.0	810	33.0	880	36.5	950	50.0	1020	37.5
741	33.0	811	32.0	881	35.5	951	50.5	1021	37.5
742	32.0	812	32.0	882	35.0	952	50.5	1022	37.0
743	31.0	813	31.5	883	35.5	953	50.5	1023	35.5
744	30.0	814	31.0	884	36.0	954	50.0	1024	35.5
745	30.5	815	32.0	885	35.0	955	49.0	1025	36.0
746	31.5	816	32.0	886	33.0	956	46.0	1026	36.5
747	33.0	817	33.5	887	32.5	957	41.5	1027	36.5
748	32.0	818	33.0	888	33.0	958	40.5	1028	36.5
749	31.0	819	32.0	889	33.5	959	40.0	1029	36.5
750	30.5	820	31.5	890	34.5	960	40.0	1030	36.5
751	30.0	821	31.5	891	34.5	961	40.5	1031	37.0
752	29.0	822	31.0	892	34.0	962	41.0	1032	38.5
753	28.5	823	31.0	893	34.5	963	41.5	1033	39.5
754	28.5	824	31.0	894	36.0	964	41.5	1034	40.5
755	28.5	825	31.5	895	41.0	965	41.0	1035	40.5
756	28.0	826	31.5	896	71.1	966	40.0	1036	40.5
757	27.5	827	31.0	897	70.6	967	39.0	1037	40.5
758	27.5	828	30.5	898	63.6	968	38.0	1038	40.5
759	26.0	829	29.0	899	55.1	969	37.5	1039	39.5
760	25.0	830	29.5	900	51.6	970	36.0	1040	38.5
761	25.0	831	29.5	901	43.0	971	35.5	1041	37.5
762	25.5	832	29.0	902	40.0	972	34.5	1042	36.5
763	26.0	833	28.0	903	38.0	973	33.5	1043	36.0
764	26.0	834	28.0	904	37.5	974	32.5	1044	36.0
765	26.5	835	28.5	905	38.0	975	31.5	1045	36.0
766	26.0	836	29.0	906	39.5	976	30.5	1046	35.0
767	25.5	837	28.5	907	39.5	977	29.0	1047	33.5
768	24.0	838	28.0	908	38.0	978	29.5	1048	32.0
769	22.0	839	27.5	909	41.5	979	29.5	1049	32.5
770	21.0	840	26.0	910	44.0	980	30.0	1050	33.5

R008 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(1) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1051	35.5	1121	24.5	1191	30.0	1261	47.0
1052	37.0	1122	25.5	1192	29.5	1262	48.0
1053	39.5	1123	27.5	1193	28.5	1263	49.0
1054	40.5	1124	29.5	1194	28.0	1264	49.5
1055	41.5	1125	30.0	1195	28.0	1265	49.0
1056	42.0	1126	30.0	1196	27.5	1266	48.5
1057	43.0	1127	30.0	1197	27.5	1267	47.5
1058	43.5	1128	30.0	1198	27.5	1268	47.5
1059	43.5	1129	30.0	1199	27.5	1269	47.0
1060	42.5	1130	30.0	1200	28.5	1270	43.0
1061	42.5	1131	31.0	1201	30.0	1271	40.0
1062	42.5	1132	31.0	1202	33.5	1272	40.5
1063	42.5	1133	31.0	1203	35.5	1273	48.0
1064	41.5	1134	31.0	1204	34.5	1274	49.5
1065	41.0	1135	30.5	1205	33.5		
1066	40.5	1136	29.5	1206	34.0		
1067	39.0	1137	30.0	1207	33.5		
1068	38.0	1138	32.5	1208	32.0		
1069	38.0	1139	34.5	1209	31.5		
1070	38.5	1140	33.0	1210	32.5		
1071	39.0	1141	32.5	1211	34.5		
1072	38.5	1142	32.5	1212	36.0		
1073	39.0	1143	31.5	1213	39.0		
1074	39.0	1144	30.5	1214	40.5		
1075	39.5	1145	30.5	1215	41.0		
1076	40.5	1146	31.0	1216	41.0		
1077	42.5	1147	31.0	1217	40.5		
1078	44.5	1148	30.5	1218	40.0		
1079	46.5	1149	29.0	1219	40.0		
1080	47.5	1150	27.0	1220	40.0		
1081	47.5	1151	25.5	1221	39.5		
1082	47.0	1152	24.5	1222	39.0		
1083	46.5	1153	23.5	1223	36.0		
1084	44.5	1154	24.0	1224	37.0		
1085	44.5	1155	25.5	1225	36.0		
1086	43.5	1156	27.0	1226	35.5		
1087	40.0	1157	26.0	1227	35.0		
1088	37.0	1158	25.0	1228	33.5		
1089	36.0	1159	24.0	1229	33.5		
1090	34.0	1160	23.0	1230	32.5		
1091	31.0	1161	23.0	1231	32.5		
1092	29.0	1162	24.0	1232	32.0		
1093	26.5	1163	24.5	1233	31.0		
1094	25.0	1164	25.0	1234	31.0		
1095	25.5	1165	25.5	1235	28.5		
1096	26.5	1166	26.5	1236	26.5		
1097	26.5	1167	27.5	1237	26.5		
1098	26.5	1168	27.5	1238	27.0		
1099	26.0	1169	26.5	1239	27.0		
1100	25.5	1170	27.0	1240	26.5		
1101	26.0	1171	27.5	1241	27.0		
1102	25.5	1172	28.0	1242	27.5		
1103	24.5	1173	29.0	1243	29.0		
1104	24.0	1174	30.0	1244	31.5		
1105	23.0	1175	30.5	1245	32.5		
1106	22.5	1176	31.0	1246	33.5		
1107	21.5	1177	31.0	1247	34.0		
1108	22.0	1178	30.5	1248	35.0		
1109	25.5	1179	30.5	1249	35.0		
1110	28.5	1180	30.0	1250	35.5		
1111	30.0	1181	29.5	1251	35.5		
1112	30.5	1182	29.5	1252	35.5		
1113	30.0	1183	30.0	1253	35.5		
1114	29.5	1184	29.0	1254	36.0		
1115	28.5	1185	29.5	1255	37.0		
1116	27.0	1186	30.0	1256	37.5		
1117	25.0	1187	30.0	1257	38.0		
1118	24.0	1188	29.5	1258	38.5		
1119	24.0	1189	30.0	1259	41.0		
1120	24.0	1190	30.0	1260	44.5		

R008 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(2) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1	31.9	71	39.2	141	28.4	211	30.9	281	28.5
2	31.7	72	38.9	142	25.5	212	32.4	282	28.8
3	32.1	73	35.0	143	23.5	213	40.8	283	28.7
4	32.4	74	34.9	144	25.8	214	46.7	284	28.2
5	29.7	75	34.7	145	24.9	215	48.4	285	26.9
6	74.5	76	31.7	146	23.9	216	51.3	286	25.9
7	75.9	77	31.1	147	23.7	217	52.5	287	26.5
8	64.5	78	28.8	148	24.2	218	48.9	288	27.1
9	58.6	79	25.5	149	22.9	219	41.9	289	25.0
10	57.6	80	25.1	150	24.7	220	43.2	290	24.8
11	55.6	81	24.7	151	28.1	221	42.4	291	24.6
12	45.9	82	23.7	152	31.0	222	42.4	292	23.6
13	38.6	83	24.3	153	31.4	223	41.6	293	22.4
14	35.9	84	26.5	154	29.4	224	42.5	294	22.3
15	36.1	85	27.2	155	28.7	225	40.9	295	24.8
16	42.8	86	23.9	156	27.5	226	38.7	296	26.4
17	43.5	87	22.3	157	26.9	227	36.2	297	26.7
18	39.1	88	21.9	158	25.4	228	33.5	298	26.7
19	36.2	89	21.9	159	24.4	229	32.8	299	25.6
20	31.0	90	21.1	160	23.2	230	32.8	300	24.3
21	27.7	91	21.3	161	22.4	231	33.7	301	24.1
22	27.1	92	23.0	162	24.0	232	32.7	302	24.7
23	27.9	93	23.3	163	24.5	233	30.3	303	23.9
24	24.6	94	22.1	164	24.2	234	30.9	304	23.5
25	23.4	95	24.5	165	25.0	235	31.8	305	22.5
26	22.4	96	24.8	166	25.4	236	30.7	306	22.1
27	22.0	97	24.8	167	37.5	237	30.1	307	22.6
28	21.3	98	21.9	168	34.8	238	29.3	308	23.7
29	20.9	99	21.6	169	31.5	239	31.3	309	24.4
30	21.8	100	22.1	170	30.4	240	30.5	310	25.1
31	22.0	101	25.1	171	30.3	241	30.0	311	26.7
32	21.6	102	26.1	172	29.3	242	31.4	312	27.6
33	21.2	103	25.9	173	29.0	243	29.5	313	27.2
34	24.2	104	25.7	174	28.3	244	28.5	314	26.5
35	26.0	105	25.1	175	27.4	245	27.6	315	25.5
36	27.3	106	25.3	176	25.5	246	29.3	316	27.4
37	27.6	107	22.8	177	26.0	247	31.3	317	28.3
38	26.1	108	22.1	178	28.2	248	31.8	318	29.4
39	24.0	109	24.5	179	30.0	249	33.7	319	32.4
40	24.1	110	23.0	180	30.6	250	34.4	320	32.4
41	24.8	111	23.6	181	31.0	251	35.6	321	32.2
42	23.4	112	21.7	182	29.4	252	35.9	322	31.4
43	21.1	113	20.2	183	29.4	253	35.8	323	30.9
44	18.8	114	22.8	184	29.8	254	35.0	324	28.9
45	18.8	115	22.9	185	28.6	255	32.4	325	29.5
46	20.5	116	23.0	186	29.5	256	30.2	326	28.6
47	20.4	117	24.3	187	28.1	257	27.7	327	26.3
48	19.5	118	27.1	188	27.8	258	23.5	328	26.2
49	20.8	119	27.0	189	27.1	259	22.6	329	26.5
50	31.1	120	26.9	190	28.5	260	21.7	330	26.2
51	49.5	121	28.3	191	30.3	261	21.7	331	25.4
52	40.8	122	29.4	192	31.7	262	25.2	332	26.9
53	35.3	123	31.0	193	30.6	263	27.3	333	28.3
54	30.7	124	30.8	194	29.6	264	28.2	334	28.1
55	27.4	125	28.8	195	28.7	265	27.3	335	25.9
56	23.2	126	28.8	196	27.0	266	27.4	336	25.3
57	20.2	127	28.9	197	25.9	267	26.1	337	27.1
58	19.3	128	28.8	198	26.7	268	25.4	338	35.5
59	18.1	129	29.2	199	26.9	269	23.6	339	31.8
60	17.8	130	29.5	200	25.6	270	23.5	340	30.9
61	17.4	131	28.7	201	23.6	271	23.4	341	29.1
62	19.5	132	29.0	202	22.9	272	23.0	342	27.2
63	21.2	133	29.4	203	21.4	273	22.4	343	25.4
64	22.2	134	29.7	204	22.5	274	22.1	344	23.3
65	23.9	135	30.2	205	24.3	275	20.4	345	25.2
66	26.0	136	31.2	206	24.0	276	19.7	346	28.6
67	26.4	137	31.3	207	23.7	277	20.1	347	28.1
68	27.1	138	28.6	208	23.9	278	20.5	348	26.9
69	31.4	139	28.1	209	25.6	279	24.2	349	27.4
70	35.8	140	28.6	210	26.7	280	27.6	350	27.5

RDDB - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(2) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
351	27.2	421	28.6	491	30.1	561	24.9	631	25.7
352	30.0	422	26.3	492	44.8	562	27.8	632	27.8
353	29.6	423	26.1	493	41.5	563	28.3	633	28.3
354	28.8	424	26.1	494	38.7	564	27.7	634	28.5
355	27.8	425	25.0	495	35.2	565	31.1	635	28.8
356	25.5	426	24.5	496	34.9	566	31.5	636	31.0
357	24.5	427	25.3	497	33.9	567	32.5	637	33.3
358	24.8	428	25.8	498	32.6	568	33.5	638	33.9
359	25.6	429	26.8	499	30.4	569	33.4	639	31.7
360	23.1	430	25.7	500	30.2	570	32.7	640	31.6
361	23.7	431	25.7	501	28.7	571	32.3	641	28.2
362	25.1	432	24.9	502	28.6	572	28.6	642	25.5
363	22.8	433	25.1	503	29.1	573	26.6	643	24.2
364	23.5	434	25.4	504	28.5	574	25.0	644	24.3
365	24.9	435	25.3	505	27.4	575	24.9	645	24.6
366	23.3	436	24.3	506	25.3	576	24.5	646	24.0
367	22.7	437	23.3	507	24.0	577	23.3	647	25.3
368	22.8	438	23.9	508	23.5	578	21.3	648	27.9
369	21.8	439	23.5	509	23.6	579	20.9	649	28.0
370	21.3	440	24.0	510	25.9	580	22.2	650	26.9
371	22.1	441	24.3	511	26.1	581	24.7	651	26.6
372	22.6	442	25.0	512	25.1	582	41.2	652	26.5
373	26.4	443	26.7	513	24.0	583	39.9	653	27.0
374	26.3	444	26.8	514	24.6	584	36.3	654	27.3
375	24.0	445	27.6	515	23.6	585	34.6	655	27.3
376	23.0	446	27.2	516	24.3	586	33.7	656	26.2
377	22.6	447	26.9	517	25.8	587	30.9	657	25.9
378	22.9	448	26.7	518	26.6	588	27.2	658	25.5
379	22.1	449	28.1	519	26.4	589	25.7	659	24.5
380	22.8	450	28.4	520	26.2	590	24.6	660	24.6
381	22.3	451	28.0	521	25.3	591	22.7	661	25.7
382	21.6	452	26.9	522	31.0	592	22.3	662	26.0
383	20.1	453	28.2	523	29.2	593	22.2	663	26.0
384	20.4	454	28.1	524	27.6	594	21.4	664	26.2
385	20.9	455	26.9	525	26.6	595	20.9	665	28.0
386	20.9	456	24.8	526	26.8	596	19.9	666	29.1
387	19.0	457	24.3	527	26.2	597	21.5	667	30.3
388	18.0	458	24.6	528	27.3	598	25.4	668	30.3
389	18.1	459	23.9	529	26.8	599	25.9	669	30.1
390	19.0	460	20.1	530	28.3	600	27.6	670	29.9
391	19.8	461	19.2	531	28.7	601	27.3	671	29.3
392	22.6	462	21.4	532	85.0	602	29.0	672	27.4
393	22.0	463	21.9	533	74.0	603	30.5	673	26.7
394	21.4	464	21.5	534	67.8	604	29.8	674	24.5
395	21.0	465	22.0	535	61.8	605	27.0	675	24.2
396	19.8	466	21.5	536	50.9	606	27.0	676	24.1
397	21.1	467	21.5	537	45.2	607	27.4	677	27.7
398	23.1	468	23.2	538	54.4	608	24.8	678	29.1
399	23.4	469	22.7	539	50.4	609	23.2	679	30.3
400	22.9	470	22.8	540	48.2	610	22.4	680	31.6
401	21.8	471	24.1	541	47.2	611	22.2	681	32.0
402	23.4	472	24.1	542	68.2	612	25.2	682	32.2
403	27.5	473	23.3	543	66.1	613	26.3	683	32.4
404	28.5	474	22.0	544	52.3	614	25.7	684	32.0
405	26.6	475	22.7	545	49.6	615	25.1	685	32.4
406	23.1	476	23.3	546	48.4	616	26.3	686	34.3
407	23.9	477	24.3	547	44.0	617	26.2	687	34.6
408	24.6	478	25.8	548	41.3	618	25.2	688	34.4
409	23.0	479	26.7	549	36.4	619	25.8	689	33.8
410	22.0	480	26.5	550	33.2	620	27.8	690	31.7
411	22.2	481	27.5	551	29.3	621	30.5	691	32.4
412	56.1	482	28.2	552	27.8	622	31.1	692	34.2
413	50.4	483	28.0	553	25.5	623	33.2	693	33.7
414	47.4	484	29.4	554	24.7	624	33.0	694	38.3
415	42.9	485	29.2	555	24.6	625	30.4	695	38.8
416	38.1	486	29.2	556	23.2	626	28.0	696	37.9
417	34.7	487	28.9	557	24.1	627	26.7	697	36.9
418	40.5	488	27.8	558	24.6	628	26.5	698	36.8
419	35.4	489	28.7	559	24.6	629	27.2	699	36.9
420	32.8	490	29.2	560	23.8	630	26.0	700	35.7

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(2) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
701	35.3	771	26.7	841	33.9	911	33.6	981	35.3
702	34.0	772	27.0	842	33.0	912	38.9	982	36.0
703	34.8	773	29.8	843	31.8	913	38.8	983	36.4
704	35.7	774	28.5	844	31.1	914	37.9	984	36.2
705	38.8	775	26.0	845	30.5	915	37.6	985	35.8
706	39.4	776	23.7	846	29.3	916	39.2	986	35.1
707	37.3	777	23.2	847	27.2	917	40.8	987	35.2
708	34.0	778	23.8	848	26.4	918	40.9	988	36.9
709	33.2	779	24.1	849	24.8	919	39.3	989	36.4
710	33.9	780	23.0	850	24.4	920	36.7	990	36.0
711	33.7	781	21.2	851	23.1	921	33.9	991	35.4
712	33.3	782	21.0	852	22.8	922	34.3	992	34.7
713	32.4	783	21.7	853	25.9	923	35.4	993	33.6
714	32.4	784	22.2	854	25.8	924	36.0	994	33.1
715	33.7	785	22.3	855	25.1	925	36.8	995	32.9
716	35.0	786	23.2	856	24.6	926	37.6	996	32.7
717	35.0	787	24.8	857	23.7	927	38.7	997	31.9
718	31.8	788	24.7	858	23.9	928	38.7	998	31.9
719	30.5	789	22.2	859	26.0	929	39.2	999	33.2
720	31.4	790	19.7	860	27.9	930	43.7	1000	33.3
721	30.7	791	18.8	861	29.5	931	44.0	1001	34.5
722	31.4	792	18.5	862	29.6	932	43.5	1002	34.6
723	31.4	793	17.3	863	32.8	933	43.9	1003	32.6
724	30.7	794	17.5	864	35.2	934	44.2	1004	32.7
725	30.9	795	17.8	865	33.1	935	43.7	1005	33.7
726	31.9	796	19.1	866	32.3	936	41.4	1006	34.3
727	32.1	797	22.8	867	32.9	937	39.9	1007	33.1
728	31.7	798	22.9	868	37.2	938	39.7	1008	31.4
729	30.8	799	23.3	869	38.4	939	39.7	1009	31.2
730	29.3	800	23.9	870	36.7	940	39.6	1010	30.9
731	26.3	801	26.1	871	35.4	941	39.1	1011	32.6
732	24.6	802	26.3	872	32.7	942	34.3	1012	32.0
733	24.5	803	25.7	873	31.9	943	31.5	1013	28.8
734	24.1	804	26.1	874	32.5	944	32.3	1014	28.0
735	25.0	805	26.7	875	33.1	945	35.8	1015	41.5
736	25.6	806	25.2	876	33.0	946	37.7	1016	40.0
737	22.9	807	25.7	877	32.5	947	43.7	1017	39.5
738	21.1	808	24.1	878	31.5	948	42.5	1018	37.7
739	20.1	809	23.9	879	31.5	949	39.3	1019	38.3
740	23.7	810	33.5	880	33.1	950	38.4	1020	36.8
741	26.9	811	31.3	881	32.2	951	38.3	1021	35.8
742	29.2	812	31.0	882	31.0	952	39.5	1022	34.1
743	30.9	813	31.1	883	30.7	953	40.5	1023	32.1
744	31.8	814	30.7	884	29.6	954	44.8	1024	31.3
745	28.9	815	32.8	885	31.1	955	43.2	1025	32.2
746	28.3	816	32.8	886	30.8	956	41.3	1026	33.1
747	27.7	817	33.5	887	30.9	957	36.6	1027	35.1
748	28.3	818	33.2	888	31.5	958	36.7	1028	34.7
749	29.5	819	33.0	889	30.9	959	37.8	1029	33.0
750	30.9	820	33.8	890	29.6	960	38.0	1030	33.4
751	31.5	821	37.9	891	29.1	961	37.8	1031	33.8
752	31.9	822	40.1	892	28.9	962	38.4	1032	38.6
753	31.5	823	41.5	893	29.0	963	41.5	1033	38.3
754	31.1	824	39.7	894	29.9	964	41.9	1034	39.9
755	31.1	825	35.2	895	30.5	965	40.5	1035	39.0
756	31.6	826	32.3	896	29.9	966	38.7	1036	39.5
757	30.7	827	30.7	897	29.8	967	37.8	1037	40.3
758	28.6	828	28.7	898	29.7	968	40.0	1038	40.0
759	27.9	829	28.5	899	27.6	969	40.4	1039	40.0
760	25.5	830	27.8	900	27.5	970	38.2	1040	36.7
761	25.9	831	29.3	901	29.6	971	36.0	1041	34.5
762	26.4	832	29.9	902	32.2	972	33.8	1042	35.1
763	25.6	833	30.7	903	34.7	973	34.7	1043	36.0
764	25.7	834	28.6	904	47.6	974	36.0	1044	36.1
765	23.7	835	25.8	905	44.6	975	34.9	1045	35.0
766	24.0	836	24.9	906	41.2	976	34.9	1046	33.9
767	25.5	837	27.6	907	38.5	977	35.9	1047	32.4
768	26.1	838	29.4	908	36.4	978	35.2	1048	32.0
769	26.3	839	31.7	909	32.8	979	33.7	1049	31.4
770	26.3	840	32.6	910	33.1	980	34.1	1050	33.6

RDO8 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(2) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1051	34.8	1121	22.6	1191	28.4	1261	43.1
1052	36.9	1122	23.7	1192	28.2	1262	43.4
1053	40.2	1123	24.9	1193	28.2	1263	43.7
1054	38.9	1124	26.5	1194	28.1	1264	44.5
1055	38.2	1125	30.1	1195	29.0	1265	43.9
1056	35.9	1126	31.5	1196	29.0	1266	41.9
1057	34.0	1127	31.2	1197	29.1	1267	41.3
1058	36.8	1128	29.2	1198	31.7	1268	43.4
1059	37.8	1129	28.7	1199	33.7	1269	43.3
1060	38.5	1130	26.4	1200	35.0	1270	42.5
1061	39.6	1131	28.4	1201	36.0	1271	43.3
1062	39.5	1132	30.3	1202	35.7	1272	44.7
1063	38.8	1133	33.4	1203	35.3	1273	44.2
1064	37.5	1134	33.8	1204	35.5	1274	42.4
1065	36.0	1135	33.6	1205	37.3	1275	40.2
1066	38.1	1136	33.5	1206	38.7		
1067	38.8	1137	33.2	1207	38.6		
1068	38.2	1138	33.4	1208	39.1		
1069	36.3	1139	34.2	1209	41.3		
1070	39.1	1140	34.7	1210	42.0		
1071	38.7	1141	34.1	1211	42.8		
1072	38.4	1142	34.3	1212	43.3		
1073	40.7	1143	34.4	1213	40.1		
1074	42.7	1144	33.0	1214	39.9		
1075	48.0	1145	33.2	1215	41.8		
1076	48.2	1146	31.7	1216	41.2		
1077	47.6	1147	30.8	1217	40.9		
1078	49.8	1148	28.4	1218	39.5		
1079	51.6	1149	26.4	1219	35.8		
1080	50.4	1150	25.6	1220	33.6		
1081	48.1	1151	26.0	1221	35.4		
1082	47.4	1152	26.0	1222	36.4		
1083	47.2	1153	25.9	1223	37.6		
1084	47.7	1154	26.4	1224	35.1		
1085	46.1	1155	26.6	1225	32.0		
1086	44.3	1156	26.4	1226	31.7		
1087	42.2	1157	26.1	1227	32.4		
1088	39.6	1158	25.1	1228	33.8		
1089	37.9	1159	24.5	1229	33.3		
1090	39.2	1160	24.0	1230	32.9		
1091	38.3	1161	23.6	1231	32.4		
1092	35.6	1162	24.1	1232	31.8		
1093	31.6	1163	24.1	1233	32.3		
1094	30.4	1164	23.9	1234	34.5		
1095	27.9	1165	26.2	1235	34.3		
1096	27.9	1166	28.6	1236	32.2		
1097	27.2	1167	31.3	1237	32.1		
1098	25.9	1168	34.1	1238	31.5		
1099	27.7	1169	35.1	1239	31.5		
1100	28.7	1170	34.8	1240	30.3		
1101	29.0	1171	35.4	1241	30.0		
1102	28.9	1172	35.6	1242	29.8		
1103	28.6	1173	35.5	1243	28.6		
1104	28.3	1174	36.1	1244	29.3		
1105	29.5	1175	37.1	1245	31.3		
1106	30.2	1176	37.2	1246	30.4		
1107	28.6	1177	34.9	1247	30.4		
1108	28.3	1178	33.7	1248	29.8		
1109	28.4	1179	35.0	1249	32.3		
1110	29.1	1180	35.0	1250	32.8		
1111	29.0	1181	34.5	1251	34.6		
1112	27.9	1182	31.1	1252	36.3		
1113	26.8	1183	30.1	1253	38.3		
1114	25.1	1184	32.0	1254	38.2		
1115	24.5	1185	34.8	1255	41.8		
1116	23.7	1186	32.7	1256	44.1		
1117	23.4	1187	31.5	1257	45.9		
1118	23.2	1188	30.4	1258	47.0		
1119	23.0	1189	29.2	1259	44.6		
1120	22.5	1190	28.1	1260	45.0		

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(3) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1	18.7	71	28.0	141	17.3	211	22.7	281	22.3
2	37.3	72	29.6	142	20.6	212	17.3	282	25.8
3	36.6	73	30.2	143	19.2	213	26.4	283	24.8
4	39.1	74	25.7	144	28.0	214	49.5	284	22.6
5	31.5	75	28.9	145	26.1	215	54.1	285	22.4
6	67.1	76	24.7	146	32.0	216	47.2	286	23.3
7	63.6	77	22.1	147	33.1	217	48.5	287	23.0
8	40.6	78	20.4	148	26.5	218	44.9	288	23.5
9	35.9	79	16.9	149	27.8	219	48.2	289	23.8
10	32.2	80	15.3	150	23.0	220	52.5	290	22.3
11	39.2	81	26.5	151	22.3	221	48.2	291	23.5
12	31.5	82	23.7	152	36.7	222	34.7	292	20.4
13	31.2	83	20.1	153	33.4	223	33.7	293	22.0
14	24.2	84	19.5	154	38.2	224	35.0	294	20.4
15	16.1	85	23.2	155	30.1	225	40.3	295	22.3
16	17.6	86	25.0	156	34.4	226	33.6	296	19.8
17	22.9	87	25.0	157	25.7	227	37.1	297	24.6
18	22.9	88	19.7	158	25.9	228	29.5	298	28.5
19	23.6	89	18.9	159	22.2	229	22.6	299	28.5
20	20.1	90	25.1	160	18.8	230	26.6	300	25.2
21	17.3	91	21.4	161	19.1	231	23.8	301	25.6
22	15.1	92	17.1	162	24.8	232	28.0	302	22.9
23	15.5	93	21.6	163	27.9	233	25.6	303	20.7
24	21.7	94	18.1	164	24.9	234	22.2	304	23.5
25	21.2	95	15.9	165	22.3	235	27.1	305	26.5
26	14.2	96	18.8	166	28.5	236	26.0	306	29.7
27	17.8	97	15.1	167	36.8	237	27.3	307	28.2
28	18.0	98	18.9	168	43.8	238	25.0	308	27.0
29	15.9	99	25.2	169	33.0	239	23.9	309	25.1
30	20.1	100	23.0	170	26.5	240	32.8	310	28.9
31	19.9	101	18.8	171	28.2	241	31.8	311	25.9
32	16.2	102	18.2	172	25.7	242	28.1	312	24.1
33	20.8	103	24.1	173	22.7	243	29.0	313	31.2
34	25.4	104	23.1	174	32.8	244	28.8	314	39.9
35	21.7	105	20.2	175	36.7	245	26.5	315	30.6
36	22.9	106	17.2	176	32.1	246	26.4	316	26.9
37	18.9	107	28.0	177	35.1	247	28.6	317	30.3
38	19.1	108	25.1	178	29.7	248	24.7	318	33.7
39	18.5	109	18.7	179	27.3	249	21.4	319	28.7
40	16.5	110	17.1	180	23.7	250	17.0	320	23.0
41	12.0	111	19.5	181	22.5	251	21.0	321	21.3
42	13.2	112	22.5	182	22.0	252	20.1	322	27.1
43	19.4	113	19.5	183	27.1	253	25.3	323	29.4
44	20.7	114	17.2	184	25.7	254	22.6	324	30.4
45	13.6	115	24.7	185	23.0	255	21.6	325	22.1
46	14.4	116	25.9	186	21.0	256	17.9	326	30.8
47	17.3	117	25.2	187	25.3	257	21.6	327	30.5
48	22.5	118	27.3	188	22.3	258	24.7	328	30.2
49	24.9	119	25.1	189	20.7	259	24.2	329	30.8
50	54.0	120	24.7	190	28.6	260	18.2	330	30.4
51	39.1	121	32.5	191	30.2	261	22.5	331	23.5
52	34.9	122	21.8	192	29.6	262	25.6	332	27.8
53	27.0	123	27.4	193	24.9	263	24.9	333	26.5
54	23.8	124	30.6	194	34.8	264	21.6	334	29.9
55	23.6	125	30.6	195	31.5	265	27.4	335	30.6
56	19.6	126	30.6	196	33.9	266	26.7	336	25.5
57	16.6	127	27.9	197	33.8	267	22.2	337	38.5
58	12.6	128	30.0	198	27.6	268	19.7	338	51.1
59	13.7	129	32.2	199	25.4	269	23.7	339	35.9
60	11.5	130	26.6	200	39.4	270	21.4	340	29.5
61	15.9	131	25.0	201	37.1	271	18.7	341	25.7
62	14.6	132	23.4	202	31.5	272	20.1	342	22.0
63	17.6	133	22.7	203	30.0	273	22.4	343	23.1
64	28.0	134	27.3	204	29.2	274	27.5	344	23.5
65	26.2	135	28.2	205	25.1	275	22.6	345	20.3
66	29.7	136	25.0	206	23.4	276	25.7	346	24.8
67	25.2	137	28.2	207	21.6	277	24.9	347	20.2
68	24.8	138	24.3	208	19.2	278	23.2	348	23.8
69	25.9	139	24.5	209	20.3	279	29.1	349	27.5
70	33.2	140	19.9	210	17.0	280	23.4	350	29.0

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(3) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
351	29.5	421	25.9	491	21.2	561	28.1	631	27.5
352	22.4	422	21.2	492	29.3	562	33.7	632	33.8
353	23.9	423	17.4	493	29.6	563	29.3	633	36.5
354	20.2	424	23.8	494	23.6	564	34.2	634	35.4
355	24.0	425	31.5	495	24.9	565	31.3	635	34.1
356	26.4	426	29.2	496	26.1	566	33.6	636	33.8
357	23.3	427	30.3	497	25.0	567	31.5	637	31.8
358	29.1	428	27.6	498	22.0	568	30.2	638	27.3
359	27.7	429	23.8	499	23.1	569	28.2	639	22.5
360	25.7	430	23.6	500	23.6	570	29.9	640	29.3
361	27.0	431	22.1	501	26.5	571	30.7	641	37.7
362	23.5	432	25.3	502	24.0	572	36.6	642	35.7
363	21.3	433	31.4	503	28.0	573	34.9	643	30.1
364	17.2	434	23.3	504	29.2	574	28.9	644	26.7
365	14.6	435	23.5	505	25.3	575	32.5	645	26.9
366	31.1	436	24.1	506	21.7	576	32.1	646	25.1
367	29.1	437	22.4	507	22.0	577	30.4	647	26.2
368	27.1	438	20.5	508	30.4	578	29.6	648	28.3
369	23.8	439	18.2	509	28.1	579	26.1	649	26.2
370	21.2	440	23.4	510	31.3	580	23.1	650	24.6
371	26.2	441	22.8	511	23.8	581	31.5	651	26.3
372	25.7	442	23.3	512	22.6	582	47.9	652	22.5
373	27.6	443	28.2	513	25.9	583	36.8	653	21.0
374	25.3	444	28.7	514	34.3	584	33.5	654	23.9
375	21.6	445	28.0	515	38.2	585	29.4	655	25.8
376	31.6	446	28.3	516	31.1	586	24.2	656	20.4
377	30.0	447	29.2	517	27.8	587	28.1	657	20.4
378	30.4	448	34.2	518	27.7	588	25.7	658	27.5
379	35.4	449	29.5	519	25.9	589	24.1	659	30.8
380	30.4	450	23.8	520	23.0	590	29.5	660	30.2
381	27.6	451	25.3	521	24.8	591	28.8	661	29.3
382	26.0	452	27.2	522	37.8	592	25.5	662	29.7
383	21.4	453	22.7	523	24.5	593	36.3	663	34.5
384	16.9	454	21.4	524	24.3	594	30.6	664	34.4
385	25.3	455	20.2	525	22.3	595	29.9	665	35.5
386	29.1	456	20.0	526	24.1	596	33.7	666	31.9
387	27.5	457	23.8	527	22.7	597	30.6	667	47.8
388	25.4	458	18.7	528	20.6	598	29.2	668	47.9
389	28.8	459	22.5	529	26.9	599	28.9	669	39.1
390	27.8	460	19.0	530	32.8	600	30.9	670	30.4
391	25.5	461	19.5	531	28.8	601	30.3	671	31.2
392	18.4	462	20.3	532	51.5	602	23.2	672	25.8
393	25.0	463	22.5	533	36.2	603	24.6	673	17.6
394	25.7	464	30.7	534	28.0	604	27.1	674	22.1
395	21.8	465	32.0	535	30.3	605	24.5	675	24.1
396	18.6	466	27.3	536	28.9	606	26.6	676	33.2
397	18.9	467	25.6	537	24.7	607	26.3	677	36.0
398	23.5	468	27.1	538	27.9	608	23.2	678	44.1
399	27.8	469	24.9	539	29.1	609	25.1	679	40.3
400	23.6	470	34.3	540	29.3	610	18.9	680	37.8
401	19.3	471	34.9	541	23.1	611	21.7	681	31.4
402	22.5	472	35.8	542	23.7	612	25.2	682	26.1
403	20.2	473	25.4	543	48.5	613	24.9	683	34.3
404	24.5	474	31.0	544	34.8	614	23.8	684	30.0
405	23.3	475	24.8	545	32.6	615	21.1	685	36.3
406	24.1	476	23.2	546	32.9	616	19.5	686	32.5
407	22.7	477	23.2	547	28.9	617	20.6	687	30.0
408	24.2	478	23.9	548	19.8	618	23.7	688	32.8
409	18.6	479	22.2	549	24.2	619	30.9	689	43.9
410	22.5	480	25.1	550	25.6	620	36.7	690	42.0
411	18.5	481	24.8	551	25.6	621	33.9	691	40.5
412	18.1	482	20.1	552	30.7	622	41.5	692	42.3
413	26.4	483	18.0	553	28.4	623	37.1	693	38.9
414	26.2	484	20.1	554	25.2	624	34.5	694	43.9
415	27.1	485	21.6	555	24.3	625	33.3	695	42.8
416	30.3	486	18.7	556	31.6	626	29.9	696	39.8
417	39.8	487	20.1	557	35.0	627	34.6	697	43.6
418	31.2	488	19.9	558	33.1	628	31.9	698	45.2
419	31.9	489	22.2	559	27.8	629	26.9	699	41.8
420	26.2	490	20.5	560	28.9	630	26.3	700	35.2

R008 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(3) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
701	32.9	771	21.6	841	33.3	911	36.4	981	29.3
702	45.0	772	26.3	842	28.1	912	43.7	982	34.4
703	36.5	773	23.1	843	33.7	913	60.7	983	31.4
704	34.4	774	26.0	844	29.9	914	49.0	984	27.9
705	31.3	775	24.2	845	26.9	915	42.5	985	24.0
706	37.1	776	19.3	846	30.5	916	51.2	986	25.7
707	33.2	777	21.3	847	33.4	917	49.1	987	32.0
708	32.3	778	17.3	848	39.4	918	44.2	988	28.4
709	30.1	779	15.9	849	35.3	919	60.8	989	38.2
710	35.9	780	18.3	850	29.5	920	43.2	990	39.1
711	33.8	781	16.3	851	29.8	921	46.4	991	36.2
712	32.9	782	22.4	852	32.2	922	44.3	992	41.0
713	31.2	783	17.2	853	33.3	923	46.3	993	32.5
714	33.2	784	14.6	854	34.9	924	42.0	994	42.0
715	29.9	785	14.5	855	35.8	925	47.2	995	35.9
716	28.8	786	13.7	856	38.5	926	51.3	996	44.8
717	26.3	787	11.3	857	32.3	927	52.4	997	40.5
718	25.7	788	9.4	858	30.3	928	47.7	998	43.2
719	26.4	789	10.2	859	40.1	929	46.2	999	39.8
720	25.9	790	11.7	860	41.5	930	36.3	1000	48.4
721	24.4	791	7.4	861	39.1	931	33.9	1001	45.9
722	25.7	792	7.6	862	41.1	932	39.4	1002	44.8
723	28.5	793	12.0	863	39.5	933	44.0	1003	42.2
724	31.2	794	21.8	864	39.3	934	36.1	1004	39.3
725	27.0	795	18.1	865	37.2	935	35.0	1005	39.2
726	25.5	796	18.2	866	35.1	936	41.1	1006	34.0
727	27.3	797	22.5	867	36.4	937	40.2	1007	36.8
728	34.5	798	25.1	868	35.9	938	55.2	1008	34.8
729	31.9	799	25.2	869	34.8	939	53.4	1009	33.6
730	29.7	800	25.0	870	41.7	940	47.1	1010	38.9
731	27.1	801	27.7	871	31.9	941	40.8	1011	32.9
732	30.9	802	32.5	872	30.6	942	46.1	1012	32.2
733	27.4	803	24.8	873	46.3	943	43.5	1013	40.7
734	25.1	804	22.2	874	42.1	944	49.2	1014	65.1
735	27.6	805	21.2	875	37.7	945	50.4	1015	50.6
736	31.6	806	25.7	876	36.4	946	46.4	1016	51.7
737	27.8	807	25.8	877	38.5	947	43.3	1017	52.2
738	25.9	808	35.2	878	35.9	948	42.1	1018	45.8
739	28.6	809	51.0	879	34.5	949	43.5	1019	50.5
740	31.7	810	38.4	880	41.8	950	42.0	1020	42.6
741	26.0	811	31.0	881	39.8	951	42.6	1021	40.0
742	32.9	812	31.0	882	32.7	952	41.2	1022	37.9
743	34.5	813	28.7	883	34.7	953	39.5	1023	37.1
744	30.7	814	29.5	884	29.7	954	48.1	1024	35.7
745	28.8	815	33.7	885	24.7	955	42.0	1025	33.2
746	23.1	816	27.1	886	27.0	956	51.7	1026	39.6
747	18.7	817	30.9	887	21.5	957	44.1	1027	36.1
748	31.6	818	37.0	888	25.4	958	52.5	1028	35.0
749	31.9	819	32.5	889	27.2	959	41.6	1029	39.5
750	33.3	820	29.7	890	25.6	960	41.0	1030	47.2
751	31.8	821	29.8	891	26.5	961	36.8	1031	38.3
752	33.6	822	24.3	892	37.2	962	38.6	1032	49.7
753	40.9	823	29.2	893	38.6	963	41.8	1033	47.2
754	36.3	824	35.8	894	45.0	964	43.1	1034	44.0
755	34.5	825	37.1	895	48.1	965	38.8	1035	51.3
756	33.2	826	27.0	896	41.9	966	42.1	1036	37.7
757	27.9	827	31.1	897	40.8	967	32.2	1037	43.8
758	31.9	828	23.0	898	39.2	968	39.4	1038	46.6
759	31.7	829	20.2	899	36.7	969	37.2	1039	47.3
760	31.4	830	23.6	900	34.3	970	32.5	1040	41.6
761	26.6	831	18.2	901	37.2	971	35.4	1041	44.7
762	31.2	832	19.7	902	35.7	972	30.8	1042	39.3
763	32.7	833	24.6	903	56.1	973	31.8	1043	31.6
764	23.0	834	21.0	904	75.0	974	35.1	1044	25.1
765	27.1	835	20.6	905	43.6	975	30.7	1045	31.2
766	24.5	836	20.1	906	39.9	976	29.4	1046	32.6
767	22.9	837	25.7	907	36.8	977	31.6	1047	33.9
768	22.2	838	39.1	908	35.5	978	27.0	1048	34.3
769	28.0	839	37.1	909	34.9	979	34.1	1049	35.5
770	26.5	840	35.8	910	40.6	980	31.8	1050	35.6

RD08 - MAMMOTH LAKES, CA - 24 SEPTEMBER 1986(3) - NATURAL GAMMA RAY

DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)	DEPTH (FT)	GAMMA RAY (CNT/SEC)
1051	34.9	1121	19.8	1191	34.3	1261	56.4
1052	39.2	1122	16.5	1192	41.4	1262	40.4
1053	40.2	1123	18.8	1193	32.2	1263	44.2
1054	47.1	1124	21.4	1194	30.9	1264	42.1
1055	42.8	1125	38.3	1195	31.0	1265	47.0
1056	31.6	1126	32.9	1196	30.6	1266	32.8
1057	28.4	1127	35.3	1197	31.5	1267	21.6
1058	33.2	1128	32.2	1198	27.5	1268	10.7
1059	36.0	1129	31.4	1199	28.3	1269	5.8
1060	40.8	1130	38.4	1200	36.7	1270	2.8
1061	43.6	1131	34.6	1201	39.3	1271	2.4
1062	29.4	1132	37.8	1202	43.9	1272	3.7
1063	35.3	1133	37.9	1203	42.2	1273	24.9
1064	44.7	1134	31.8	1204	43.4	1274	14.6
1065	43.8	1135	38.0	1205	44.9	1275	9.7
1066	39.3	1136	39.0	1206	43.9	1276	5.6
1067	31.2	1137	28.5	1207	38.3		
1068	29.8	1138	31.0	1208	41.3		
1069	32.9	1139	30.5	1209	38.0		
1070	34.6	1140	34.8	1210	33.1		
1071	34.7	1141	29.0	1211	34.9		
1072	35.3	1142	31.2	1212	38.9		
1073	39.2	1143	29.6	1213	42.5		
1074	47.3	1144	27.0	1214	39.6		
1075	47.8	1145	29.3	1215	38.2		
1076	54.9	1146	34.0	1216	41.4		
1077	59.6	1147	34.1	1217	41.6		
1078	68.9	1148	34.4	1218	45.7		
1079	63.6	1149	30.4	1219	38.0		
1080	54.0	1150	25.9	1220	32.2		
1081	52.7	1151	28.2	1221	32.2		
1082	48.8	1152	30.5	1222	32.9		
1083	44.6	1153	25.9	1223	29.8		
1084	42.6	1154	26.4	1224	28.1		
1085	41.0	1155	26.1	1225	28.5		
1086	42.0	1156	27.2	1226	35.0		
1087	42.3	1157	23.8	1227	37.0		
1088	33.7	1158	17.6	1228	34.9		
1089	38.6	1159	25.6	1229	34.1		
1090	31.1	1160	27.4	1230	38.2		
1091	29.2	1161	24.2	1231	34.2		
1092	21.7	1162	27.6	1232	27.1		
1093	23.3	1163	21.4	1233	27.1		
1094	30.9	1164	27.1	1234	23.7		
1095	25.1	1165	33.0	1235	28.1		
1096	21.6	1166	33.8	1236	31.3		
1097	22.6	1167	37.8	1237	31.4		
1098	21.7	1168	41.2	1238	38.4		
1099	27.6	1169	35.1	1239	33.7		
1100	34.2	1170	39.1	1240	31.0		
1101	28.7	1171	35.1	1241	36.8		
1102	27.8	1172	32.8	1242	29.8		
1103	24.2	1173	27.8	1243	33.4		
1104	38.0	1174	33.5	1244	36.1		
1105	63.6	1175	31.0	1245	33.4		
1106	49.1	1176	29.1	1246	32.3		
1107	44.1	1177	33.3	1247	28.3		
1108	28.7	1178	41.1	1248	29.0		
1109	31.3	1179	40.3	1249	26.9		
1110	25.4	1180	37.7	1250	35.1		
1111	27.7	1181	33.4	1251	34.1		
1112	28.6	1182	28.0	1252	38.8		
1113	20.4	1183	31.1	1253	31.8		
1114	21.9	1184	31.8	1254	36.1		
1115	31.6	1185	25.9	1255	40.9		
1116	35.0	1186	28.2	1256	43.2		
1117	25.7	1187	26.0	1257	51.9		
1118	25.4	1188	30.5	1258	50.8		
1119	21.7	1189	37.9	1259	53.5		
1120	22.2	1190	30.7	1260	47.6		