

DRILL HOLE DATA SHEETHole Number: L-4Type of Hole: Shallow thermal gradient wellLocation: County Napa State CaliforniaDescription NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 32 Township 10NRange 6W Meridian MDM Elevation 2,590'Surface Ownership: Fee - Norman B. Livermore (620-3024)Minerals Ownership: Fee - Norman B. Livermore (620-3024)Date of: Spud in 8-2-75 Drilling Completed 8-2-75Completion 9-2-75 Abandonment 3-26-76Depth: Permitted 150 m Actual 231'Drilling Information: Lith Log and Temperature/Depth Log attachedWater Encountered: None

Bond Number

Agency Permit Number

AMAX Permit Number

Federal		
State	BND 2-02-60-14	N/A
County	N/A	U-467475
		CA-OG-2004
		CA-NA-3001

Activity

Date

By

Cost of Survey
Support Cost

Drilled	8-2-75	Pitcher Drilling Company	
TG Logging	9-5-75	AMAX	

Total

LITHOLOGIC LOG

PROPERTY: LIVERMORE 4
Sec 32 T10N R6W

Elevation: 2590'
Drilled: 8-2-75

Feet	Description
0-10	Clay
10-43	Weathered tuff
43-65	Brown shale
65-137	Serpentine
137-231	Serpentine with quartz* no water

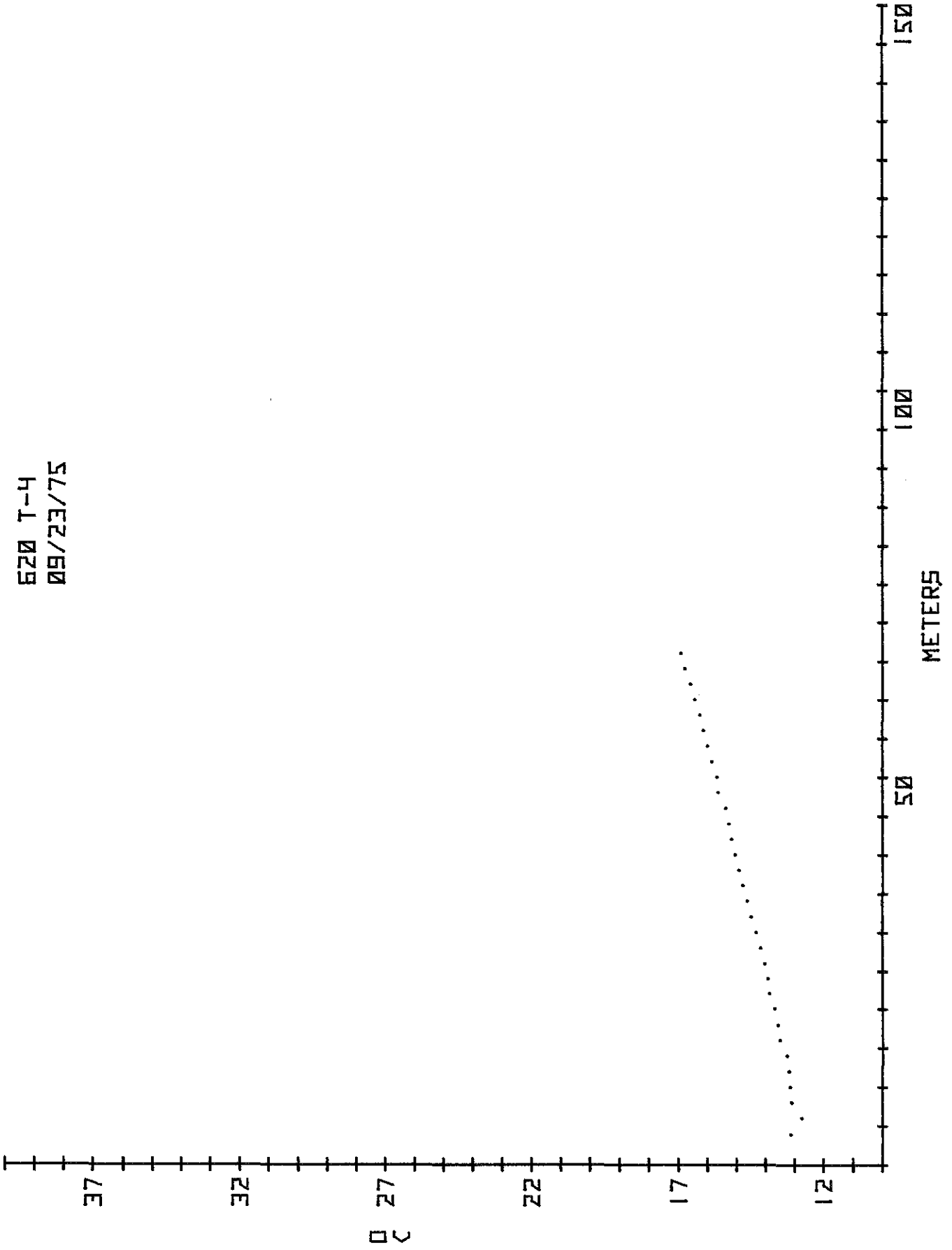
*sample sent to Harry Olson

TEMPERATURE VS DEPTH LOG FOR WELL-620 T-4
09/23/75

L-4

DEPTH METERS	TEMPERATURE DEGREE C	GRADIENT C/KM
4	13.135	-192.5
6	13.75	165
8	13.68	48
10	13.16	22.5
12	13.285	45
14	13.295	167.5
16	13.51	48
18	13.59	52.5
20	13.695	95
22	13.685	22.5
24	13.93	68
26	14.05	65
28	14.18	77.5
30	14.335	85
32	14.585	72.5
34	14.55	77.5
36	14.685	67.5
38	14.94	68
40	15.06	65
42	15.19	47.5
44	15.285	52.5
46	15.38	125
48	15.64	27.5
50	15.665	82.5
52	15.85	88
54	16.02	68
56	16.14	68
58	16.3	77.5
60	16.435	77.5
62	16.61	98
64	16.78	75
66	16.94	255.06666667

620 T-4
09/23/75

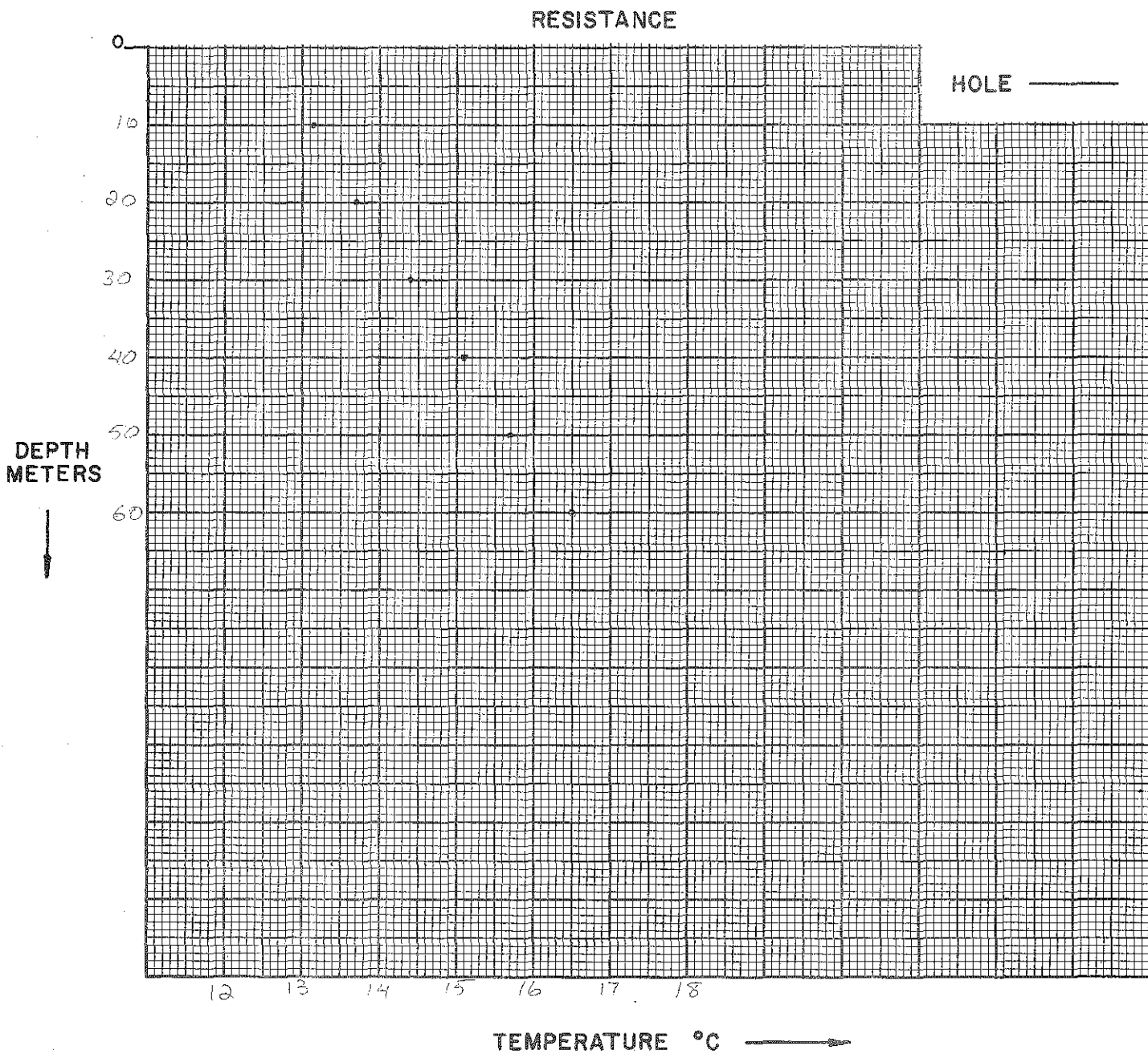
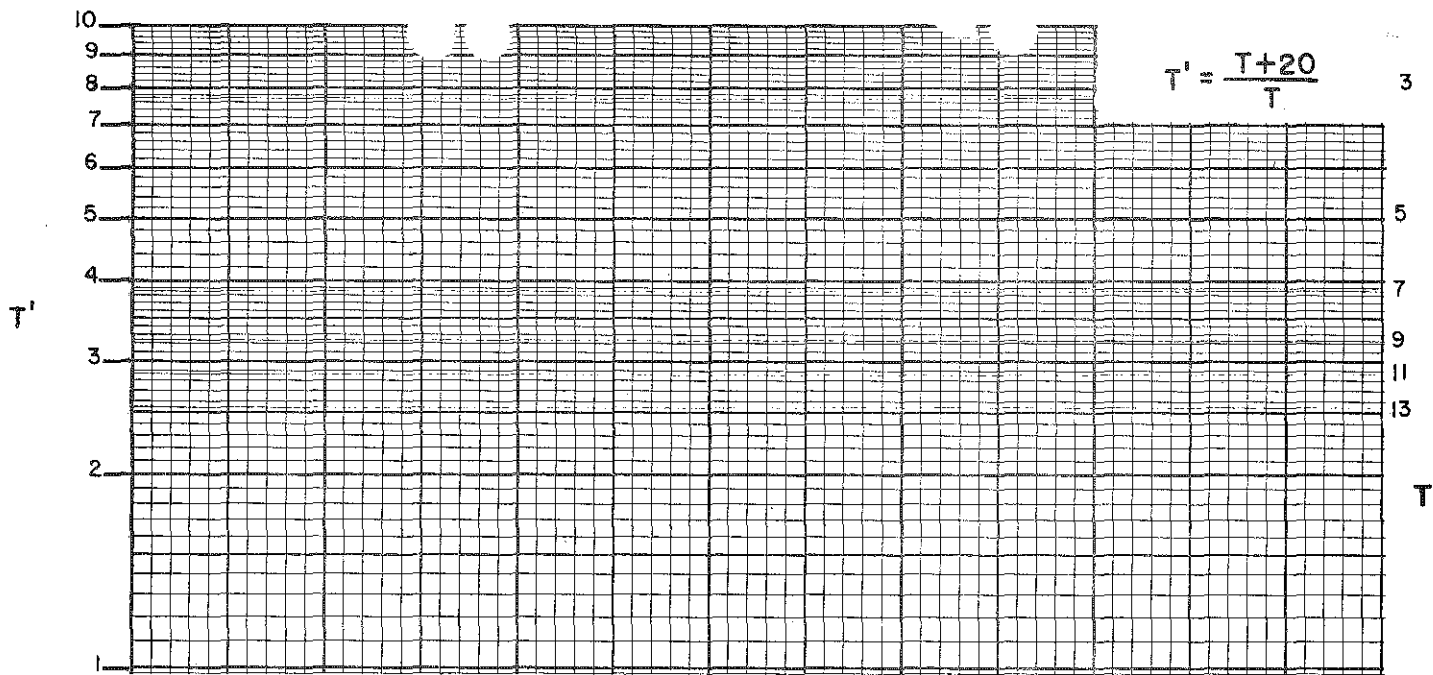


TEMPERATURE - DEPTH LOG

Location CAUSTOSA CALIF Date 9/5/75
 Map DETECT RESERVOIR
 Property WINDMORE T 10N R 6W sec 32
 Drill Hole L-4 Date Drilled 8/2/75 Elevation 2590 ft.
 Instrument PROBE Operator JRD + KM
 Comments 2ND RUN-PIPE 50 CM ABOVE GROUND

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Gradient °C/Km Avg.	Comments
2					
4	5734	13.135			
6	5834	12.950		-192.5	
8	5747	13.020		165.0	
10	5728	13.160		40.0	
12	5712	13.205		22.5	
14	5697	13.275		45.0	
16	5648	13.510		107.5	
18	5629	13.570		40.0	
20	5624	13.675		57.5	
22	5563	13.825		75.0	
24	5553	13.930		22.5	
26	5526	14.020		62.0 ←	
28	5497	14.180		65.0	
30	5463	14.335		77.5	
32	5426	14.505		85.0	
34	5397	14.650		72.5	
36	5361	14.805		77.5	
38	5332	14.940		67.5	
40	5306	15.060		60.0	
42	5277	15.170		65.0	

AVE 71.7 °C/Km



17/10/00

17/10/00

TEMPERATURE - DEPTH LOG

Location _____ Date _____

Map _____

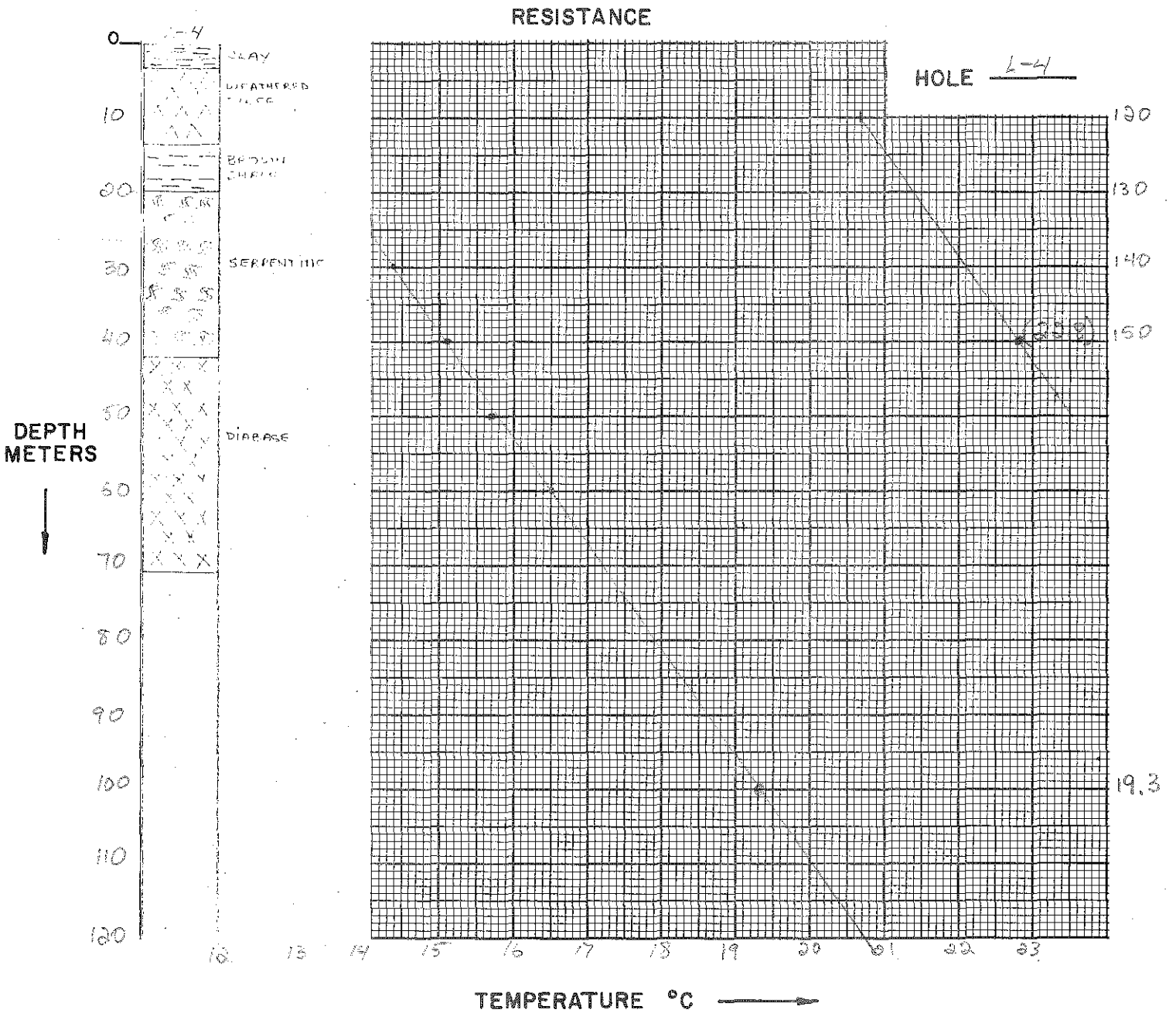
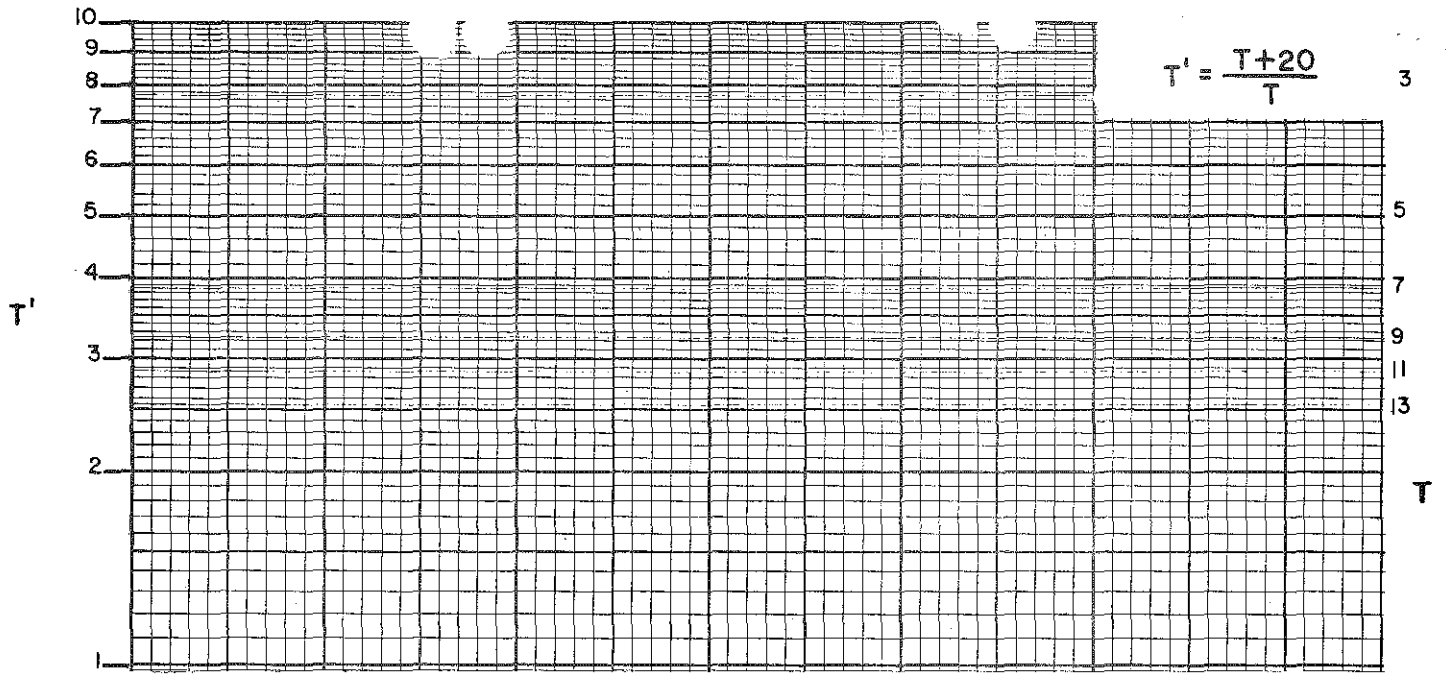
Property _____ T _____ R _____ sec _____

Drill Hole L-4 Date Drilled _____ Elevation _____ ft.

Instrument _____ Operator AD + JM

Comments _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Gradient °C/Km Avg.	Comments
44	5259	15.285		47.5	
46	5237	15.390		52.5	
48	5185	15.610		60.0	
50	5173	15.695		71.5	
52	5137	15.860		82.0	
54	5107	16.030		88.0	
56	5082	16.140		90.0	
58	5050	16.300		92.0	
60	5019	16.455		97.5	
62	4988	16.610		97.5	
64	4954	16.770		70.0	
66	4924	16.910		75.0	
68					
70					
72					
74					
76					
78					
80					
82					
84					
86					
88					
90					



TEMPERATURE - DEPTH LOG

Location CALISTOGA CALIF Date 8/29/75

Map BETAHT RESERVOIR, CALIF

Property WHEATMORE T 10N R 5W sec 32

Drill Hole L-4 Date Drilled 8/29/75 Elevation 2590 ft.

Instrument PROBE Operator DTA

Comments Gradient 2A-60m = 69.0°C/Km Surface Intercept 12.4°C
Gradient 52-66m = 78.2°C/Km

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Gradient °C/Km Avg.	Comments
2					
4	5753	13.055			
6	5772	13.375		-40	
8	5710	13.030		107.5	
10	5691	13.115		47.5	
12	5684	13.350		12.5	
14	5660	13.450		50	
16	5622	13.685		81.5	
18	5606	13.695		35	
20	5584	13.790		47.5	
22	5545	13.965		32.5	
24	5538	13.995		15	
26	5512	14.115		50	
28	5481	14.255		12.5	
30	5451	14.390		67.5	
32	5415	14.555		82.5	
34	5383	14.720		70.5	
36	5352	14.945		72.5	
38	5324	14.975		65	
40	5306	15.090		57.5	
42	5262	15.270		30	

