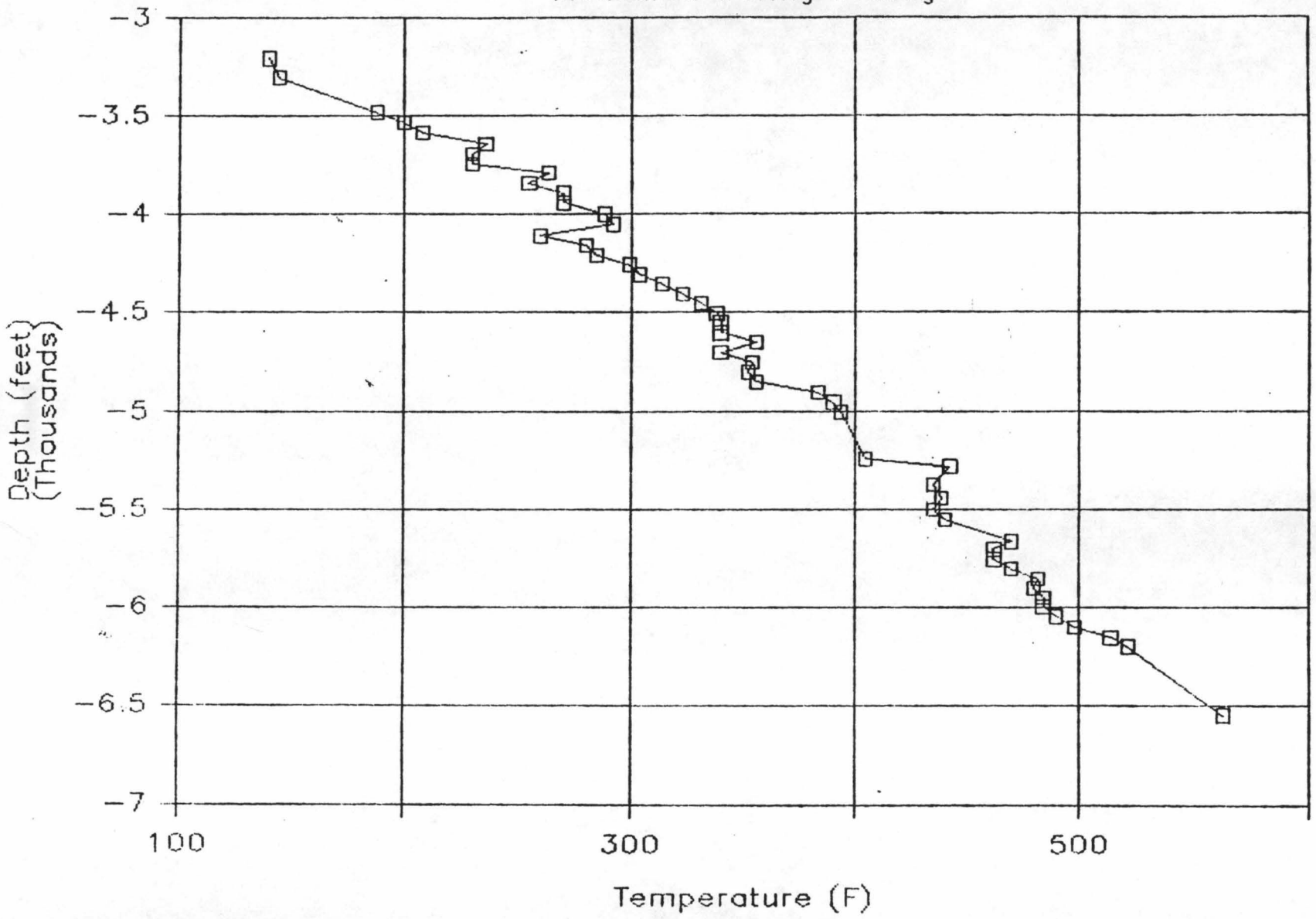
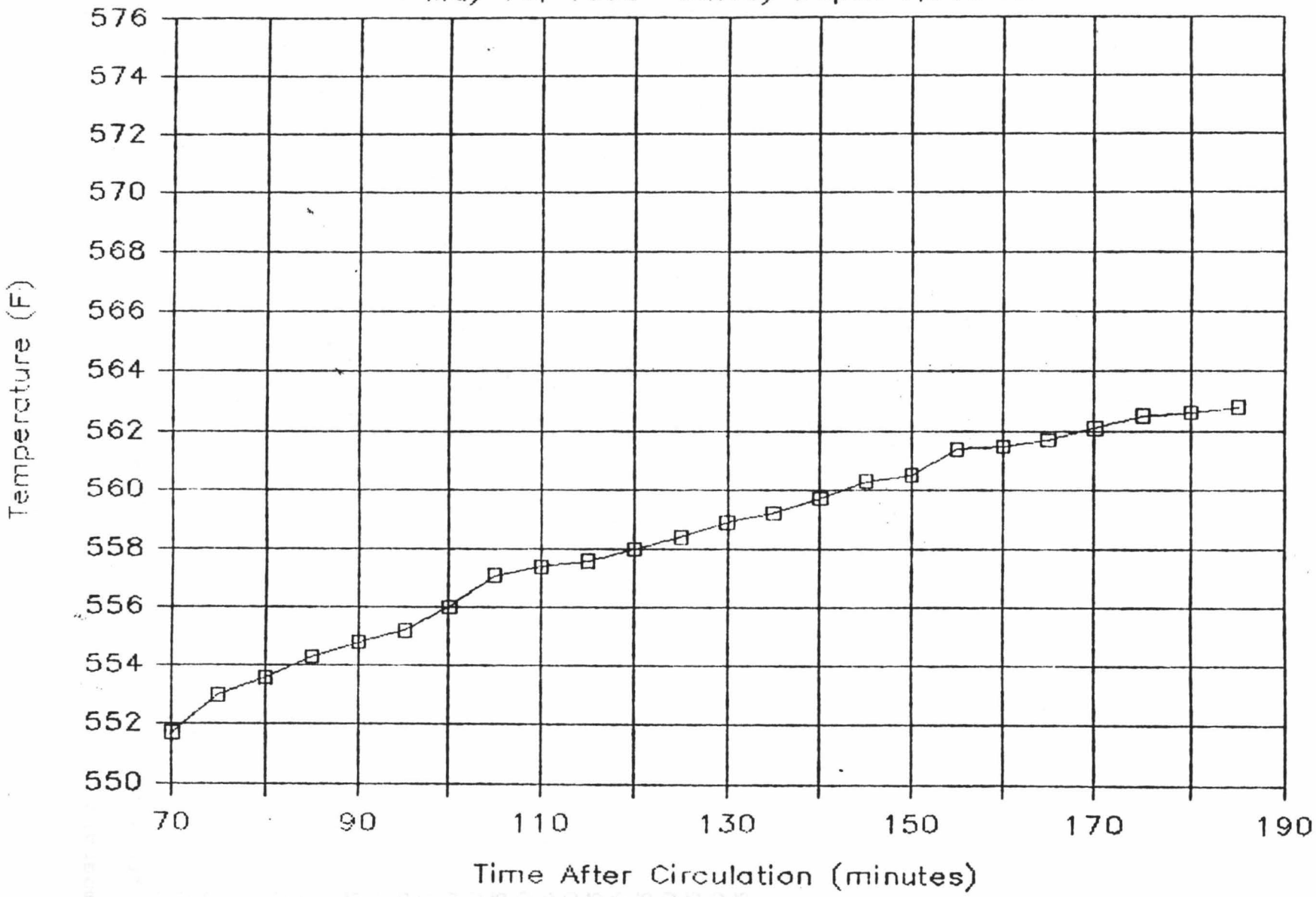
SOH-4 BOTTOM HOLE TEMPERATURES

Measured During Drilling



SOH-4 Time/Temperature Survey

May 16, 1990 Survey Depth 6,546 ft.

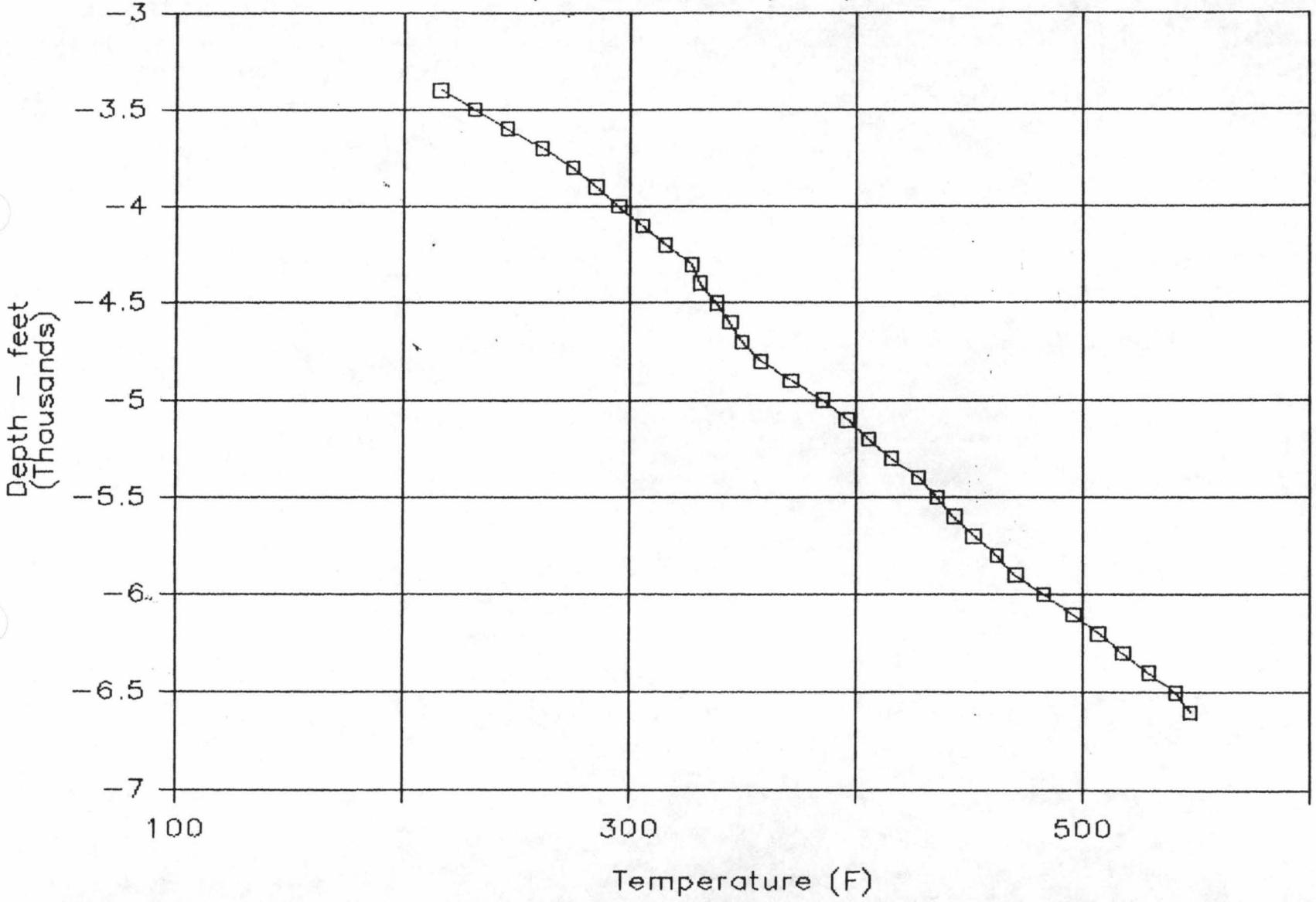


SOH-4 Bottom Hole Temperatures

Depth (ft.)	Temp (F)	Depth (m)	Temp (C)	Notes
3,210	140	979	60	Near bottom, 1 hr. after circ.
3,306	144	1,008	62	Near bottom, 1 hr. after circ.
3,485	188	1,063	87	Near bottom, 1 hr. after circ.
3,540	200	1,079	93	Near bottom, 1 hr. after circ.
3,590	208	1,095	98	Near bottom, 1 hr. after circ.
3,647	236	1,112	113	Near bottom, 1 hr. after circ.
3,698	230	1,127	110	Near bottom, 1 hr. after circ.
3,750	230	1,143	110	Near bottom, 1 hr. after circ.
3,796	264	1,157	129	Near bottom, 1 hr. after circ.
3,846	255	1,173	124	Near bottom, 1 hr. after circ.
3,895	270	1,188	132	Near bottom, 1 hr. after circ.
3,944	270	1,202	132	Near bottom, 1 hr. after circ.
4,002	288	1,220	142	Near bottom, 1 hr. after circ.
4,052	292	1,235	144	Near bottom, 1 hr. after circ.
4,110	260	1,253	127	Near bottom, 1 hr. after circ.
4,160	280	1,268	138	Near bottom, 1 hr. after circ.
4,209	285	1,283	141	Near bottom, 1 hr. after circ.
4,258	299	1,298	148	Near bottom, 1 hr. after circ.
4,307	304	1,313	151	Near bottom, 1 hr. after circ.
4,357	314	1,328	157	Near bottom, 1 hr. after circ.
4,406	323	1,343	162	Near bottom, 1 hr. after circ.
4,455	331	1,358	166	Near bottom, 1 hr. after circ.
4,504	338	1,373	170	Near bottom, 1 hr. after circ.
4,553	340	1,388	171	Near bottom, 1 hr. after circ.
4,603	340	1,403	171	Near bottom, 1 hr. after circ.
4,652	356	1,418	180	Near bottom, 1 hr. after circ.
4,701	340	1,433	171	Near bottom, 1 hr. after circ.
4,753	354	1,449	179	Near bottom, 1 hr. after circ.
4,802	352	1,464	178	Near bottom, 1 hr. after circ.
4,851	356	1,479	180	Near bottom, 1 hr. after circ.
4,905	383	1,495	195	Near bottom, 1 hr. after circ.
4,954	390	1,510	199	Near bottom, 1 hr. after circ.
5,004	393	1,526	201	Near bottom, 1 hr. after circ.
5,240	404	1,598	207	Near bottom, 1 hr. after circ.
5,280	442	1,610	228	10 ft. off bottom 12 hours after circ.
5,372	434	1,638	223	20 ft off bottom, 30 minutes after cir
5,442	438	1,659	226	20 ft off bottom, 30 minutes after cir
5,502	434	1,677	223	20 ft off bottom, 30 minutes after cir
5,552	440	1,693	227	20 ft off bottom, 30 minutes after cir
5,662	470	1,726	243	20 ft off bottom, 30 minutes after cir
5,702	462	1,738	239	20 ft off bottom, 30 minutes after cir
5,752	462	1,754	239	20 ft off bottom, 30 minutes after cir
5,802	470	1,769	243	20 ft off bottom, 30 minutes after cir
5,852	482	1,784	250	20 ft off bottom, 30 minutes after cir
5,902	480	1,799	249	20 ft off bottom, 30 minutes after cir
5,949	484	1,814	251	20 ft off bottom, 30 minutes after cir
5,997	484	1,828	251	20 ft off bottom, 30 minutes after cir
6,048	490	1,844	254	20 ft off bottom, 30 minutes after cir
6,102	498	1,860	259	20 ft off bottom, 30 minutes after cir
6,154	514	1,876	268	20 ft off bottom, 30 minutes after cir
6,202	522	1,891	272	20 ft off bottom, 30 minutes after cir
6,546	563	1,996	295	16 ft off bottom, 3.5 hrs after circ.

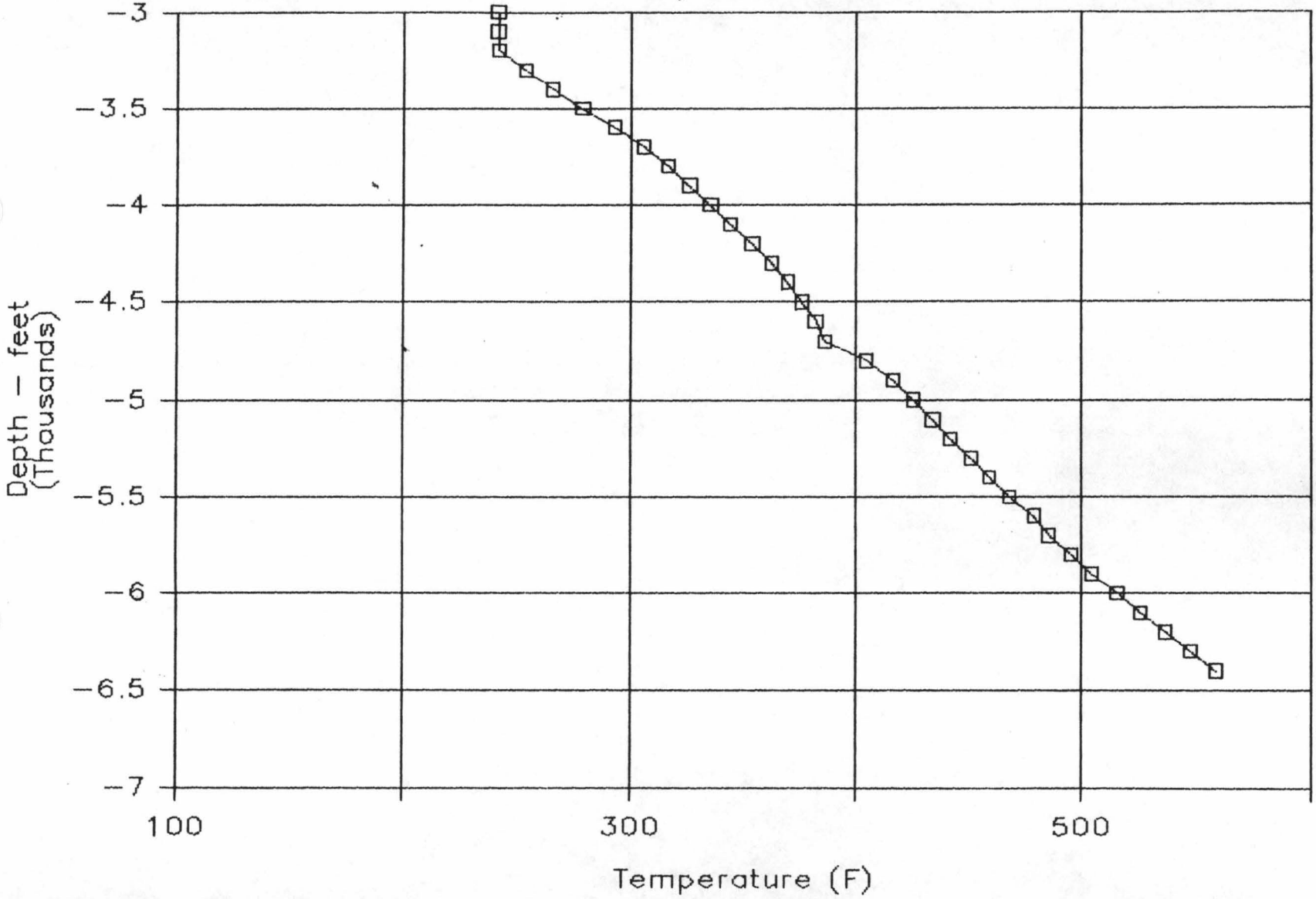
SOH—4

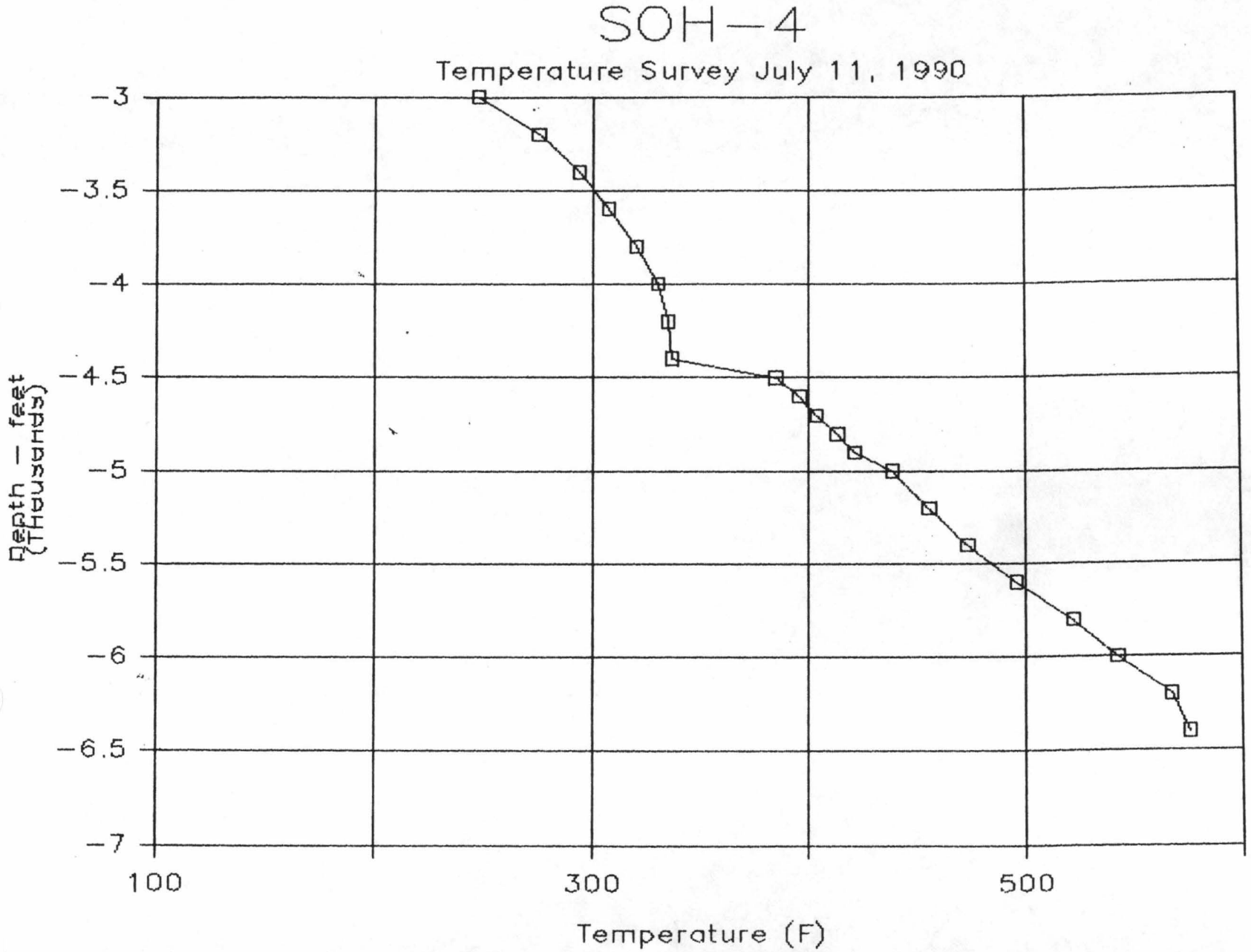
Temperature Survey May 21, 1990

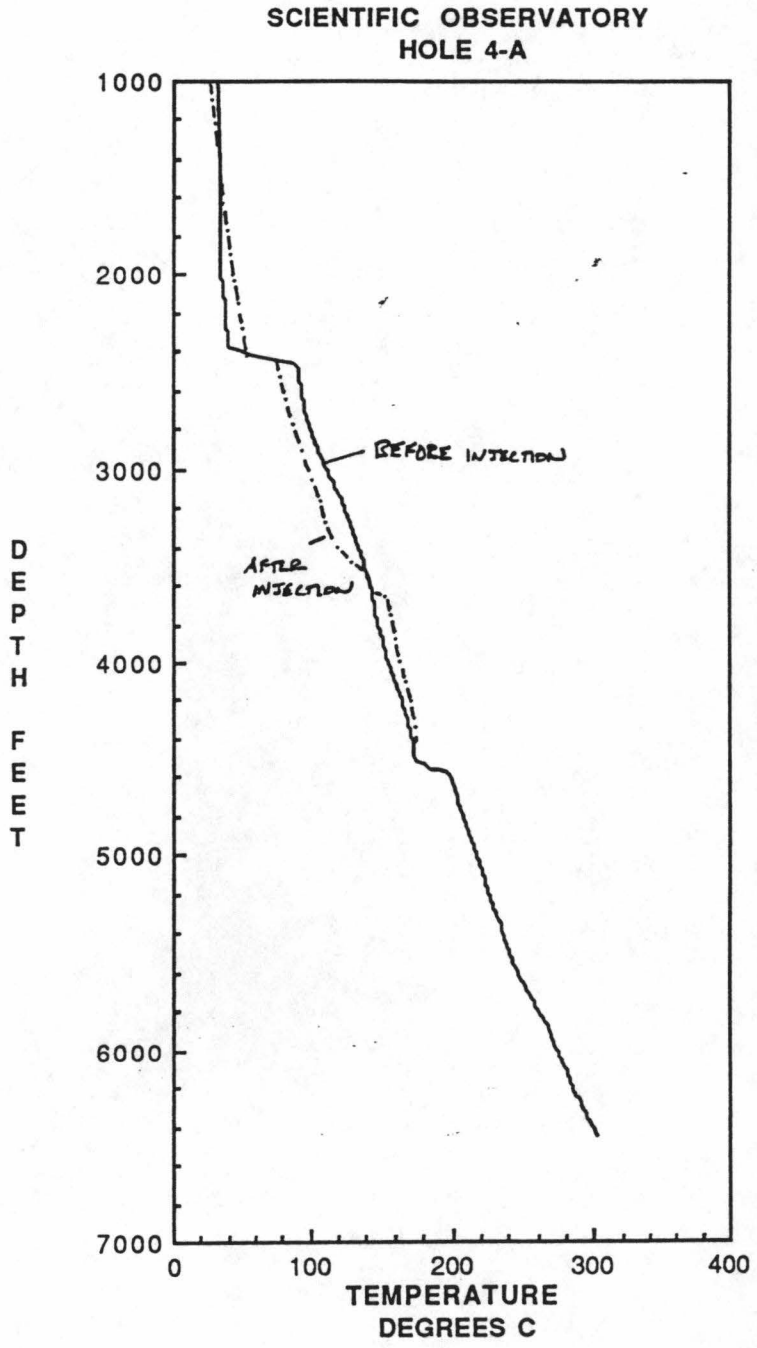


SOH-4 TEMPERATURE SURVEY

May 23, 1990

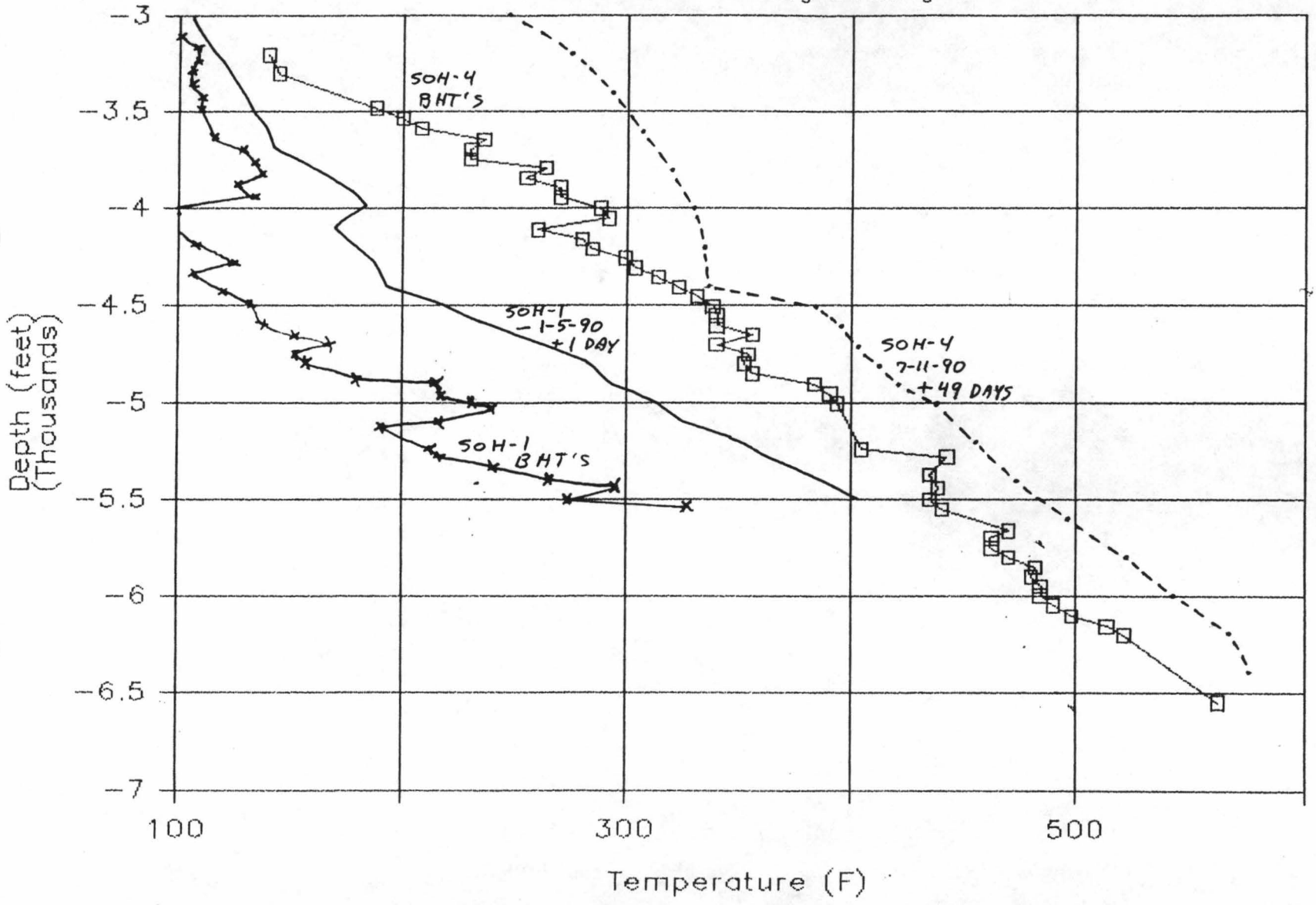



SOH-4
Temperature Survey July 11, 1990
-3
-3.5
-4
-4.5
-5
-5.5
-6
-6.5
-7
Depth - feet (Thousands)
100
300
500
Temperature (F)

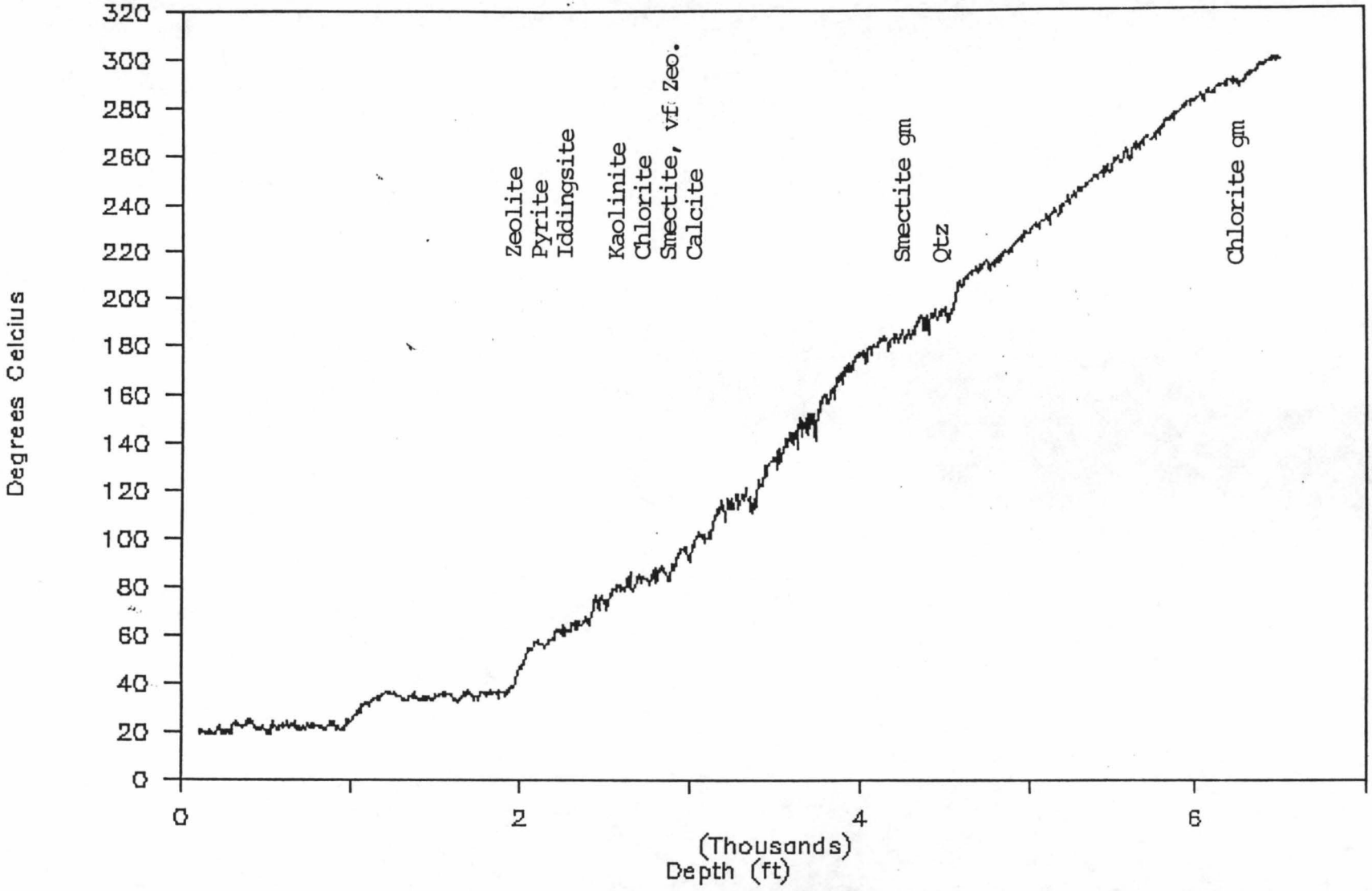

SCIENTIFIC OBSERVATORY
HOLE 4-A
1000
2000
3000
4000
5000
6000
7000
DEPTH FEET
BEFORE INJECTION
AFTER INJECTION
0
100
200
300
400
TEMPERATURE
DEGREES C

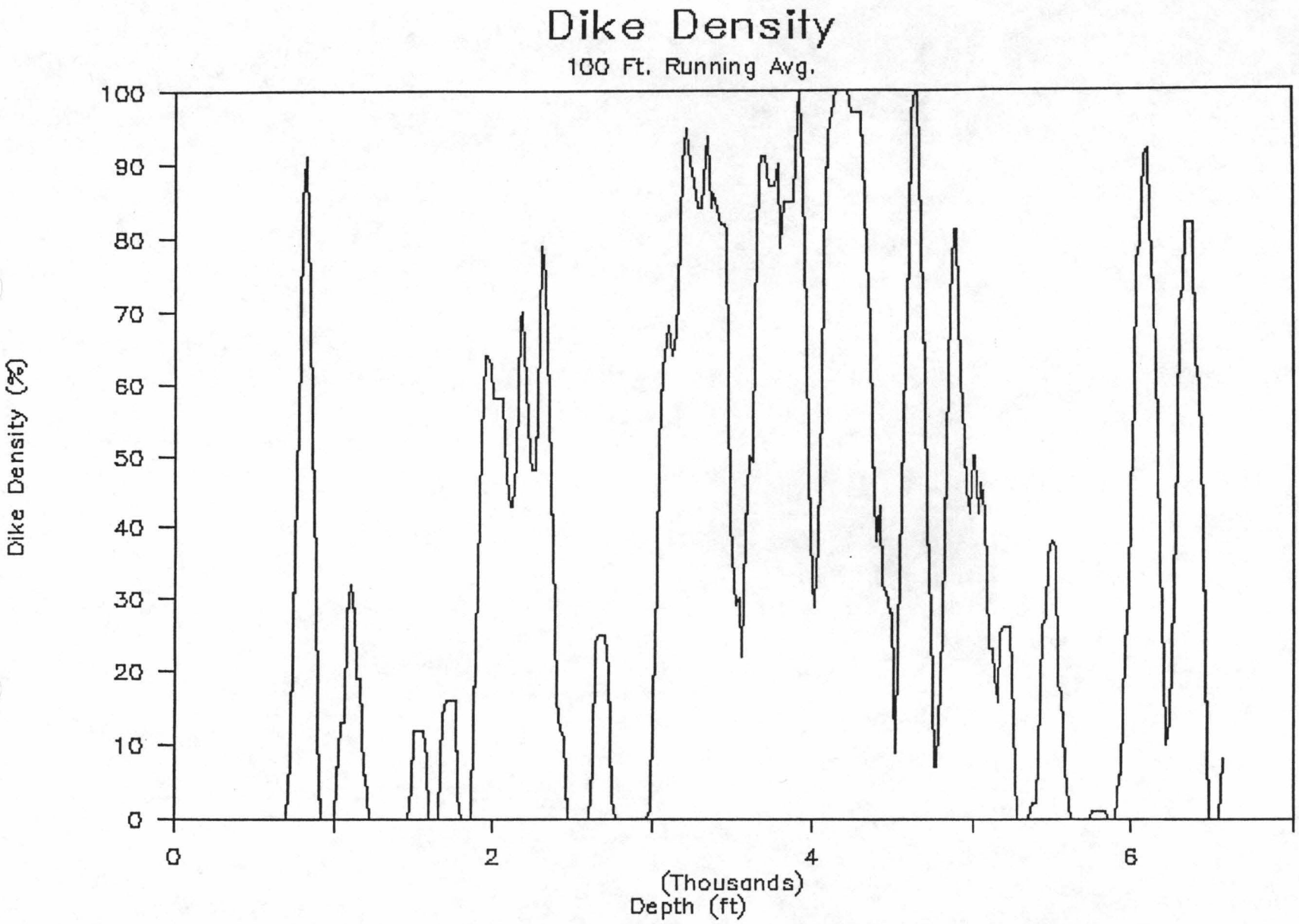
SOH-4 BOTTOM HOLE TEMPERATURES

Measured During Drilling



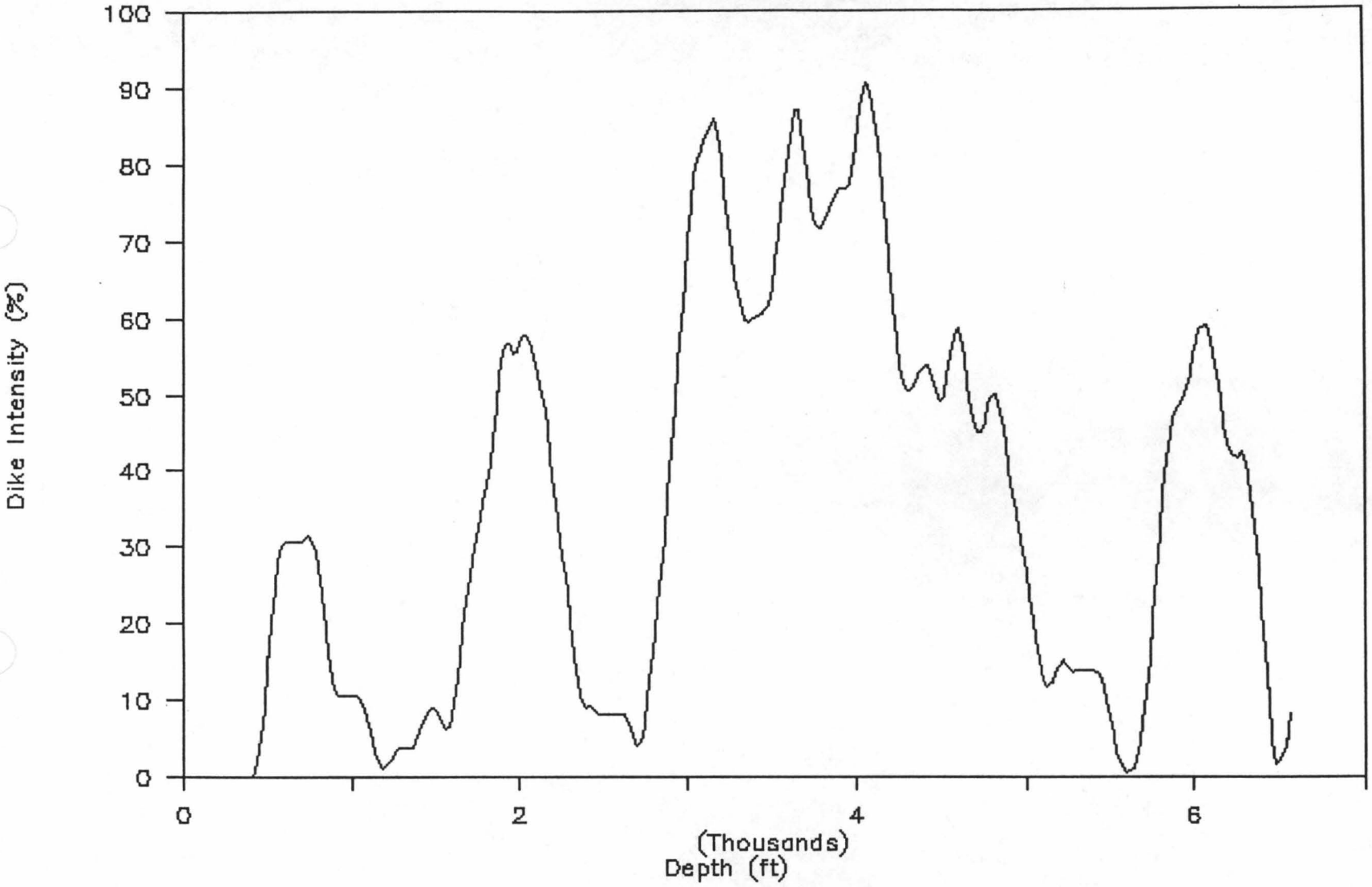
SOH-4 Temperature




Dike Density
100 Ft. Running Avg.
Dike Density (%)
100
90
80
70
60
50
40
30
20
10
0
0
2
4
6
(Thousands)
Depth (ft)

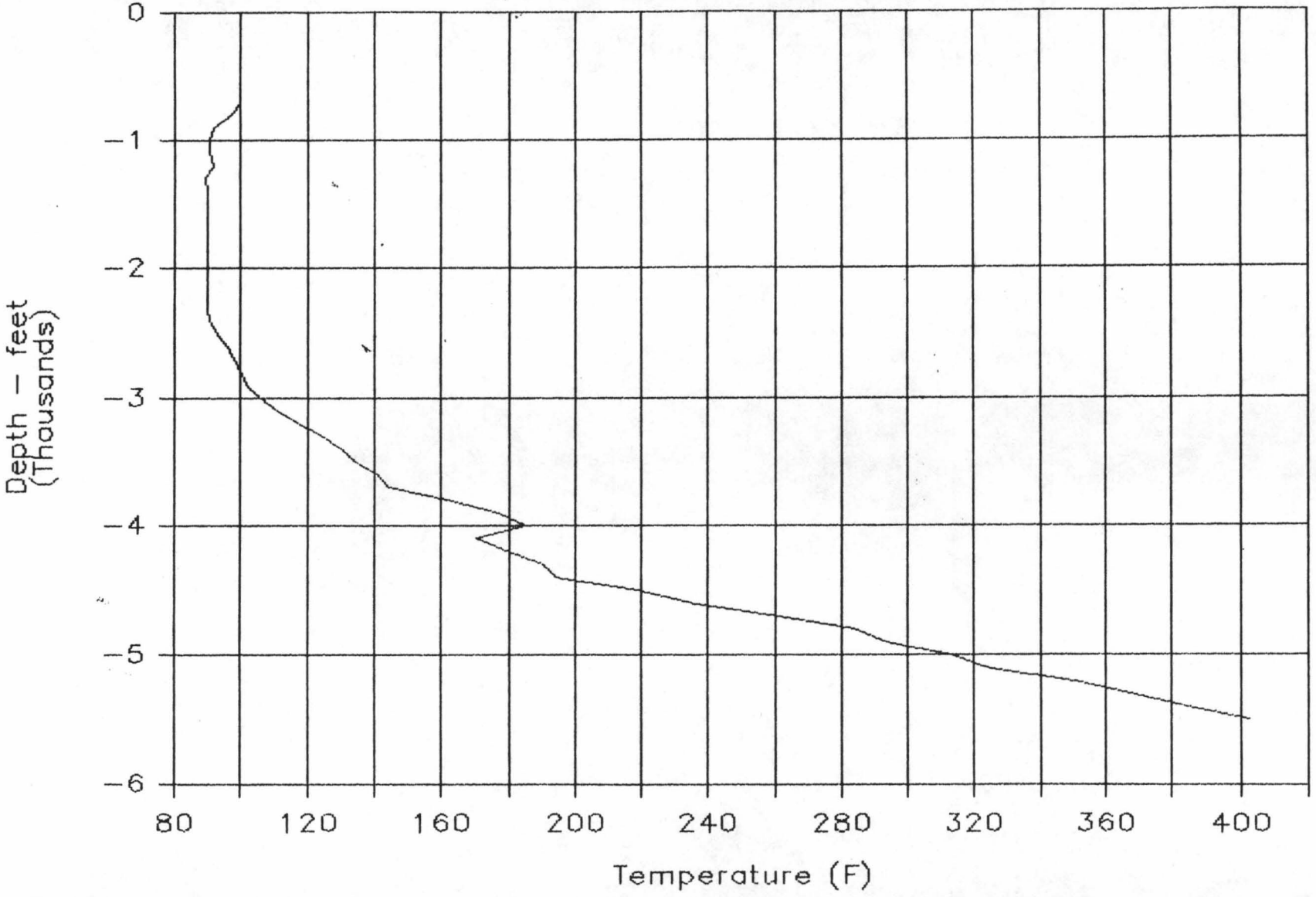
Dike Intensity

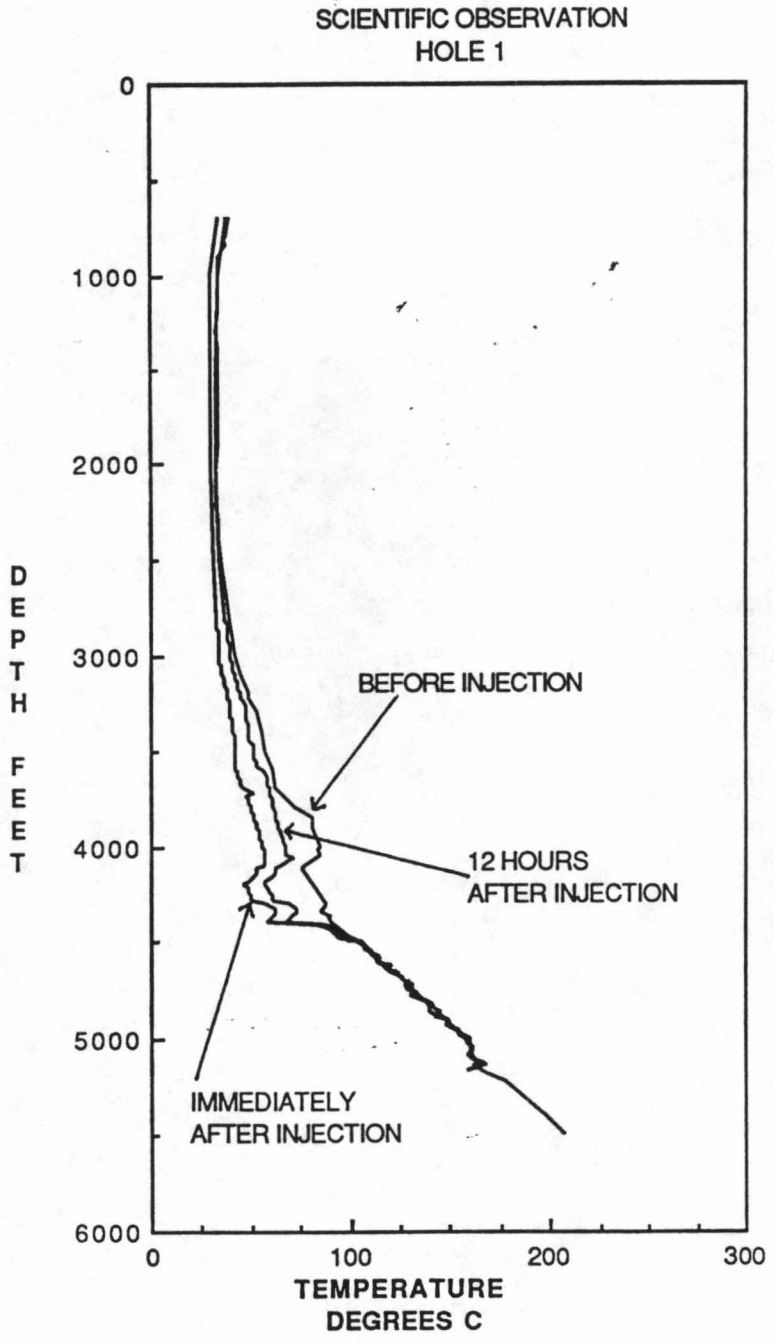
300 Ft. Running Avg.

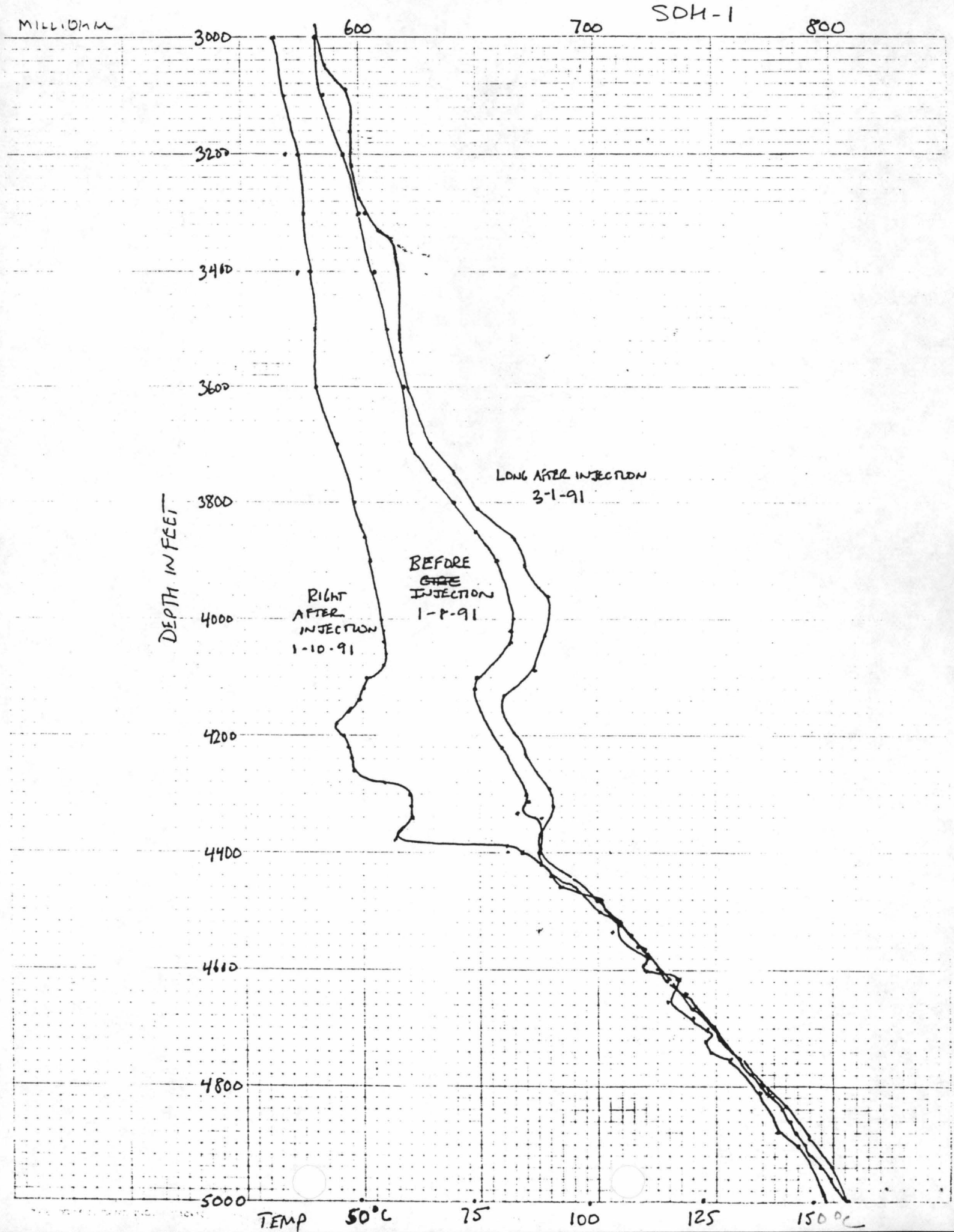


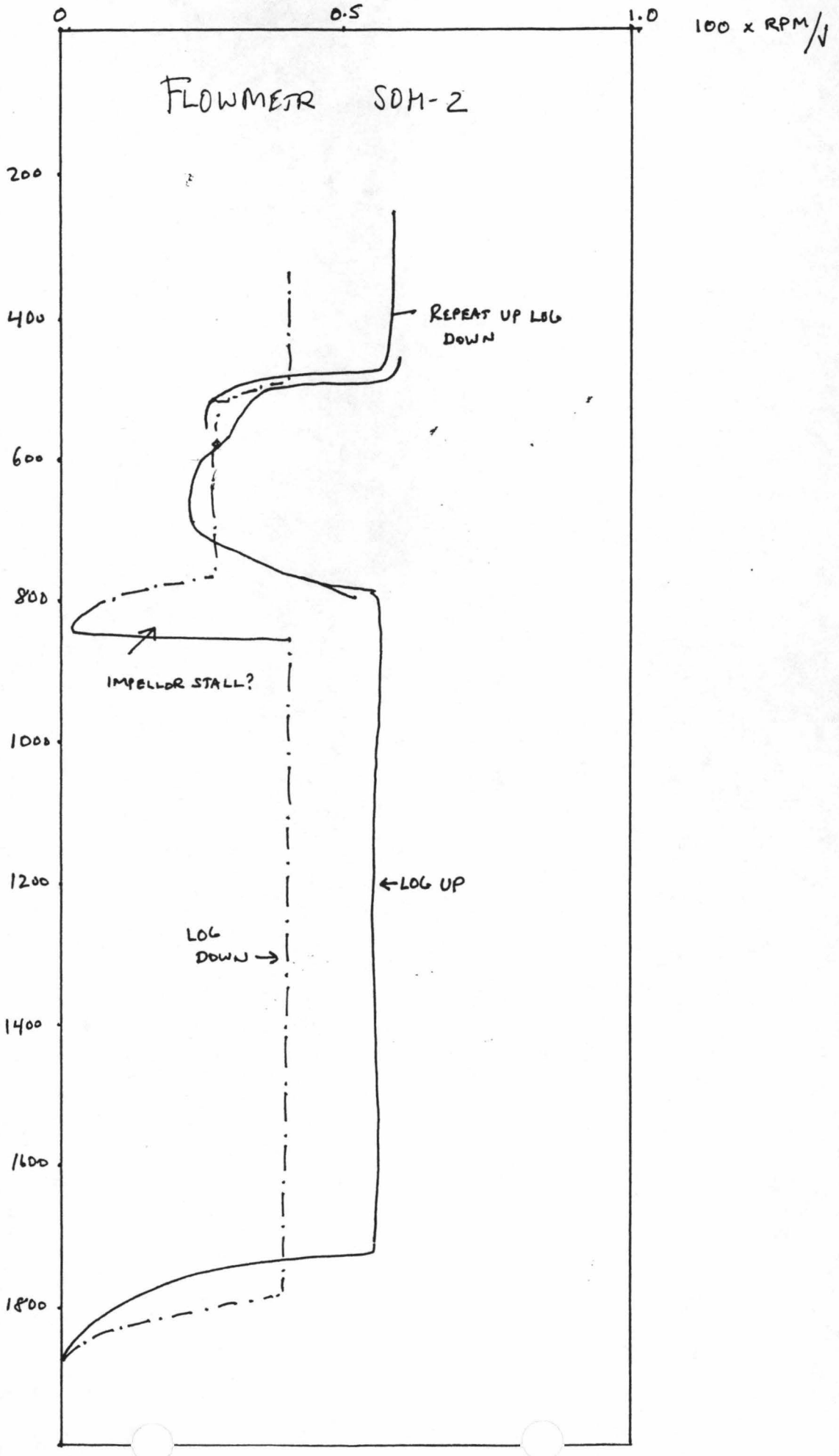
SOH-1

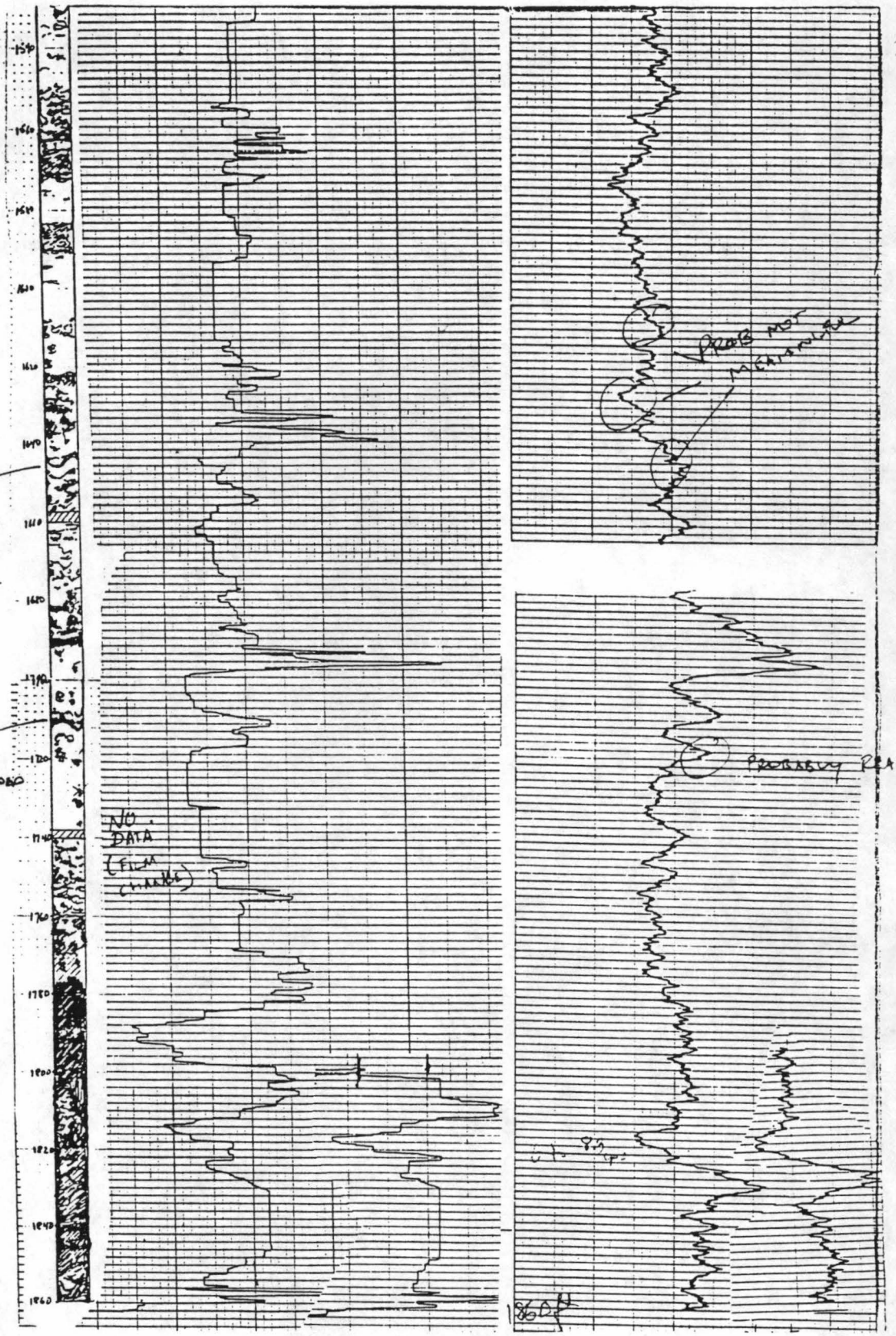
Temperature Survey: January 5, 1991




SCIENTIFIC OBSERVATION
HOLE 1
0
1000
2000
3000
4000
5000
6000
DEPTH FEET
BEFORE INJECTION
12 HOURS
AFTER INJECTION
IMMEDIATELY
AFTER INJECTION
0
100
200
300
TEMPERATURE
DEGREES C


MILLIOHM
SOH-1
600
700
800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
DEPTH IN FEET
LONG AFTER INJECTION
3-1-91
BEFORE
~~GTRE~~
INJECTION
1-8-91
RIGHT
AFTER
INJECTION
1-10-91
TEMP
50°C
75
100
125
150°C


0
0.5
1.0
100 x RPM/√
FLOWMETR SDH-2
200
400
600
800
1000
1200
1400
1600
1800
REPEAT UP LOG DOWN
IMPELLOR STALL?
←LOG UP
LOG DOWN →


INTRUSION?
STRIKE = 70°
DIP 77° TO S
2 ½ FT THICK
BRIGHT BAND SURROUNDED
BY HOLE ENLARGEMENT
INTRUSION?
STRIKE - N30°E
DIP: 75° TO SE
THICKNESS: 1.6 FT
NO DATA
PROBE NOT
PROBABLY REAL PEAKS