



# TEMPERATURE LOG

**COMPANY** BILL BARRETT CORPORATION  
**WELL** GGU FEDERAL 31C-29-691  
**FIELD** GIBSON GULCH  
**PROVINCE/COUNTY** GARFIELD  
**COUNTRY/STATE** U.S.A. / COLORADO  
**LOCATION** SHL: 1200' FNL & 1367' FEL  
 BHL: 492' FNL & 1990' FEL

**SEC** 29      **TWP** 6S      **RGE** 91W      **Other Services**  
**API Number** 05-045-19807  
**Permit Number**  
**Permanent Datum** G.L., Elevation 6104 feet  
**Log Measured From** K.B. @ 23 FEET above Permanent Datum  
**Drilling Measured From** K.B.

		Elevations:
Date	26-MAR-2011	feet
Run Number	ONE	KB 6127.00
Depth Driller	7428.00	DF 6104.00
Depth Logger	7420.00	GL
First Reading		
Last Reading		
Casing Driller	760.00	feet
Casing Logger	761.00	feet
Bit Size	7.875	inches
Hole Fluid Type	WATER	
Density / Viscosity		
PH / Fluid Loss		
Sample Source		
Rm @ Measured Temp		
Rmf @ Measured Temp		
Rmc @ Measured Temp		
Source Rmf / Rmc		
Rm @ BHT		
Time Since Circulation		
Max Recorded Temp		
Equipment Name	COMPACT	
Equipment / Base	13173	GD JCT
Recorded By	M. RICHINS, K. SALLER	
Witnessed By	C. CROW	

## BOREHOLE RECORD

Last Edited: 26-MAR-2011 08:12

Bit Size inches	Depth From feet	Depth To feet
8.750	760.00	3412.00
7.880	3412.00	7475.00

## CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	760.00	36.00
PRODUCT	4.500	0.00	7428.00	11.60

## REMARKS

TOOLS: SHA, MCG, MHT  
 TOP OF CEMENT FOUND AT 2843 FT  
 ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.  
 MAXIMUM WELL DEVIATION 17 DEG  
 SERVICE ORDER: # 3524874  
 RIG: PATTERSON #307

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or

**5 INCH MAIN LOG**

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Filename: C:\LOGS\GJ11-038\Setup.dta  
 System Versions: Logged with 11.02.2782 Plotted with 11.01.1914

Plotted on 26-MAR-2011 12:24  
 Recorded on 26-MAR-2011 08:16

← Timing Marks  
every 60.0 sec

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Gamma Ray  
API

0	75	150
150	225	300

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Borehole Temperature  
degrees F

0	50	100
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DST Uphole Tension  
pounds

3000	0	-3000
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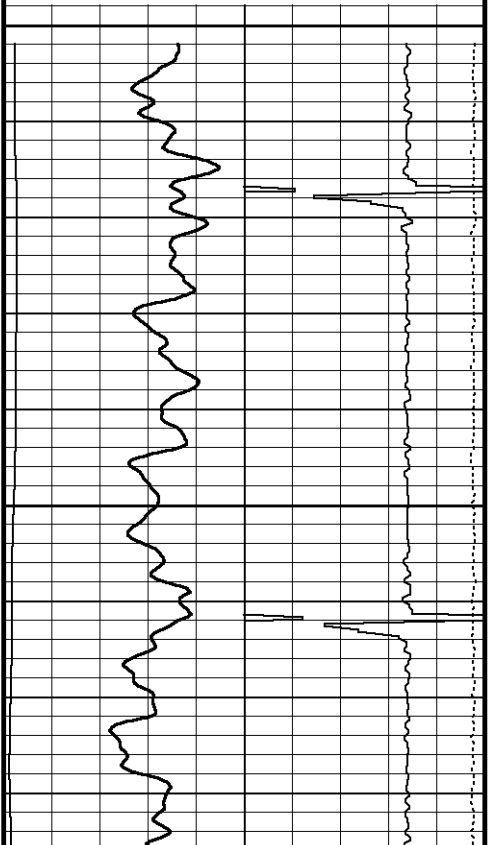
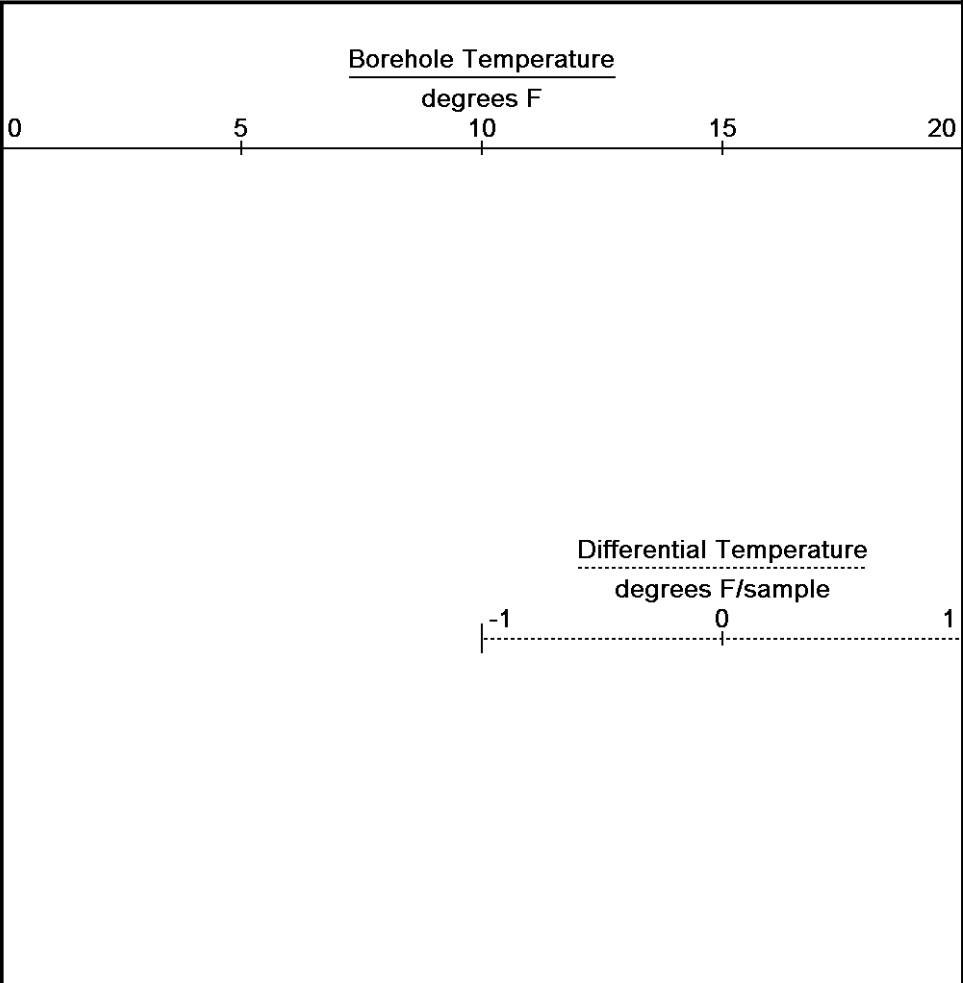
Casing Collar Locator

-15000	---	7000
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Depth  
In  
Feet

Borehole  
Temp in  
deg F

Replay  
Scale  
1:240

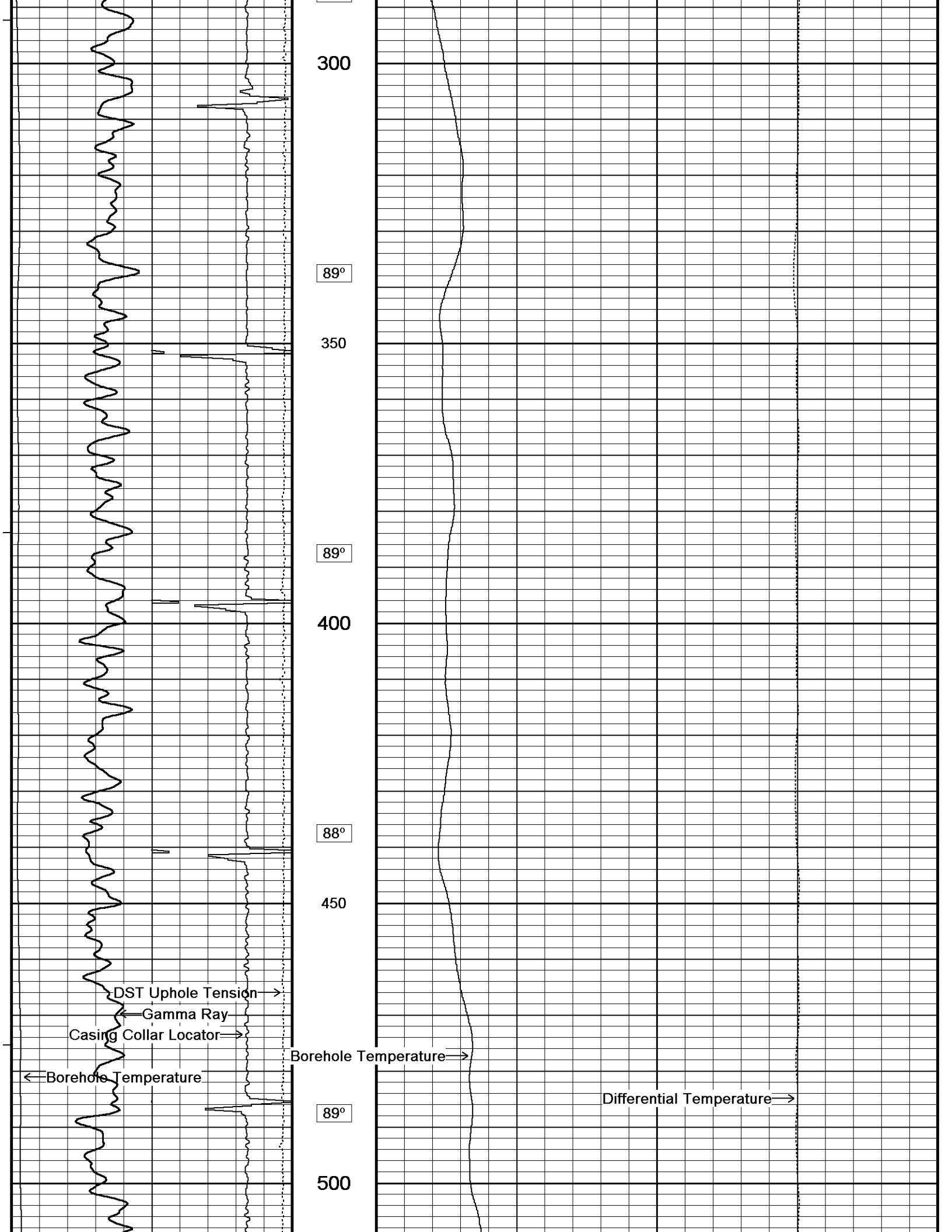


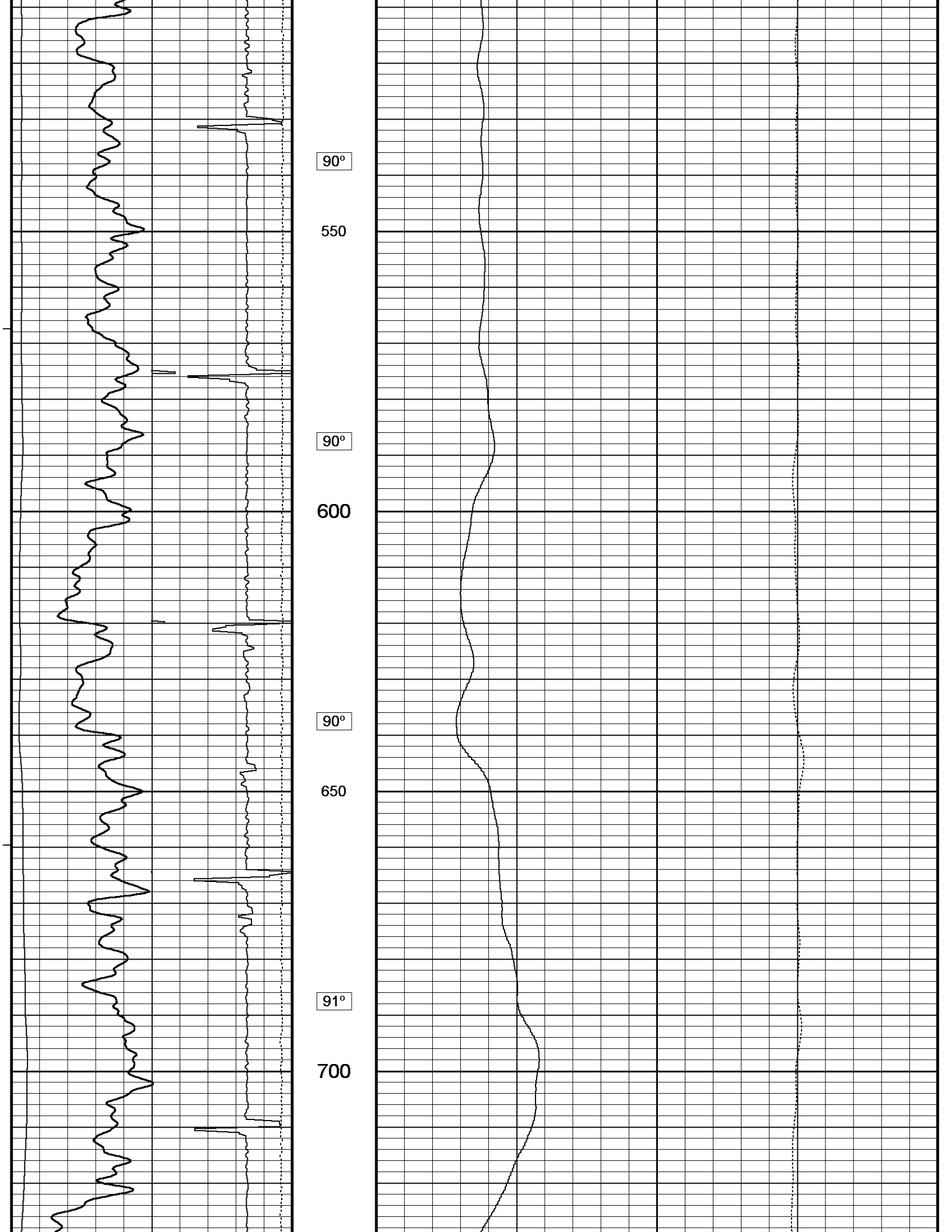
200

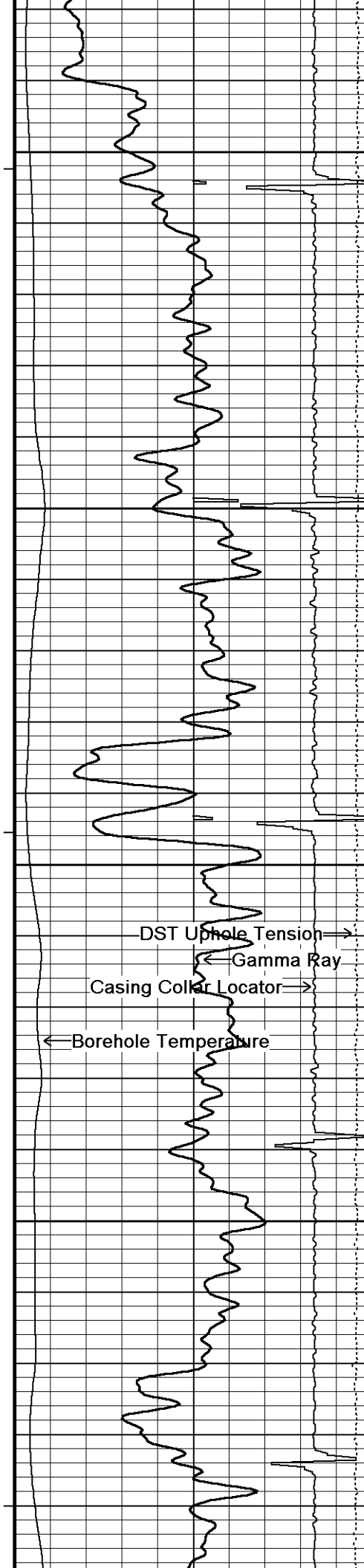
88°

250

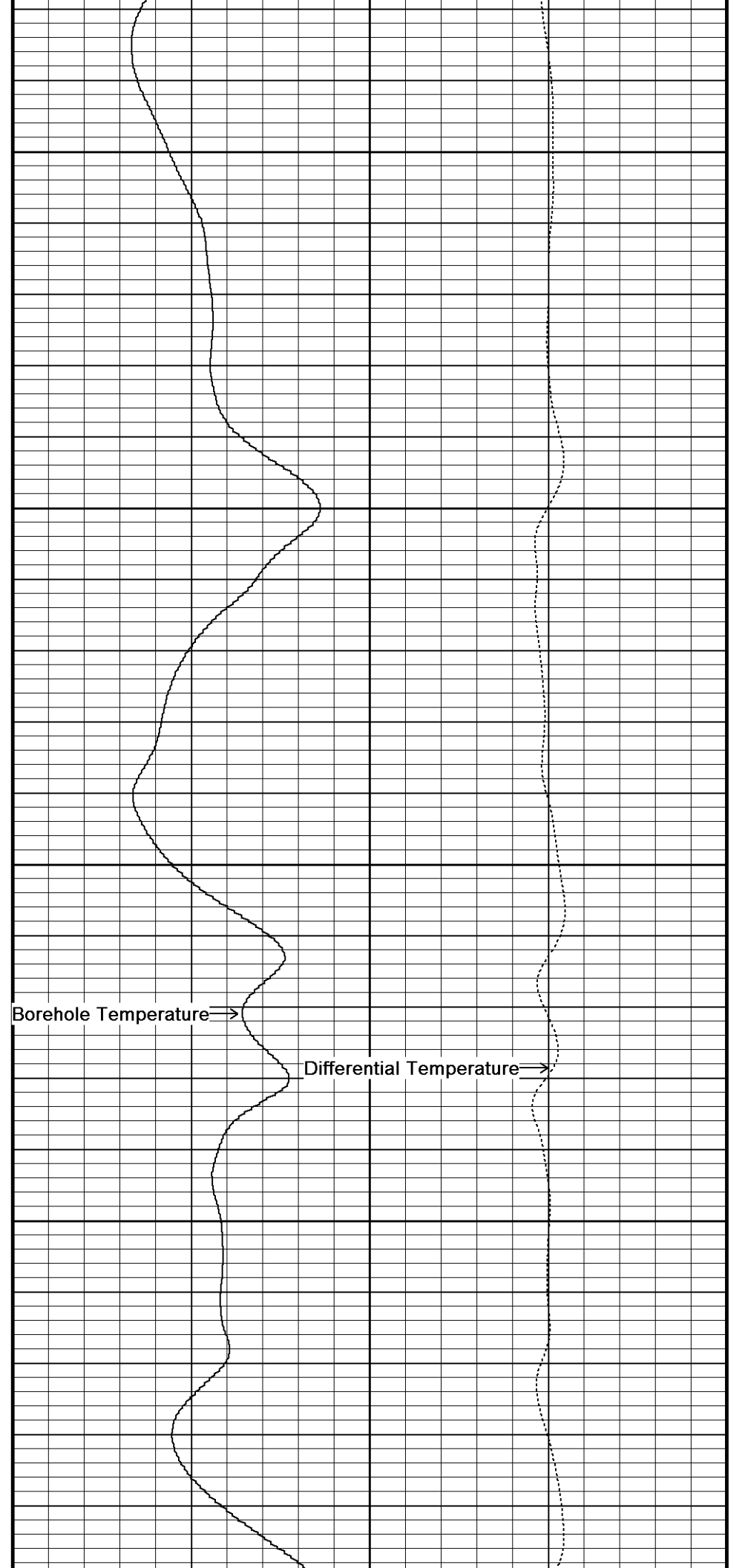
87°



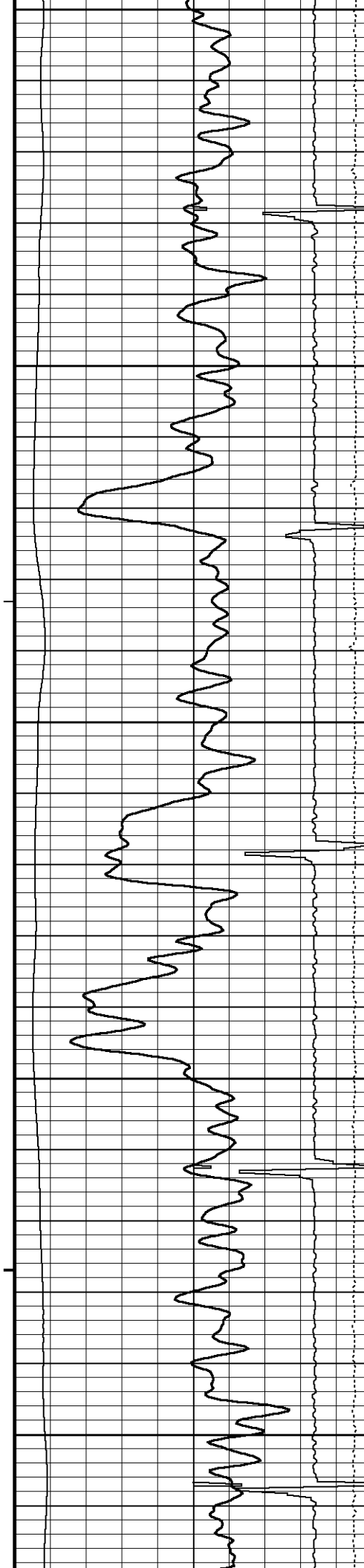




90°  
750  
92°  
800  
92°  
850  
93°  
900  
92°



Borehole Temperature  
Differential Temperature



950

94°

1000

95°

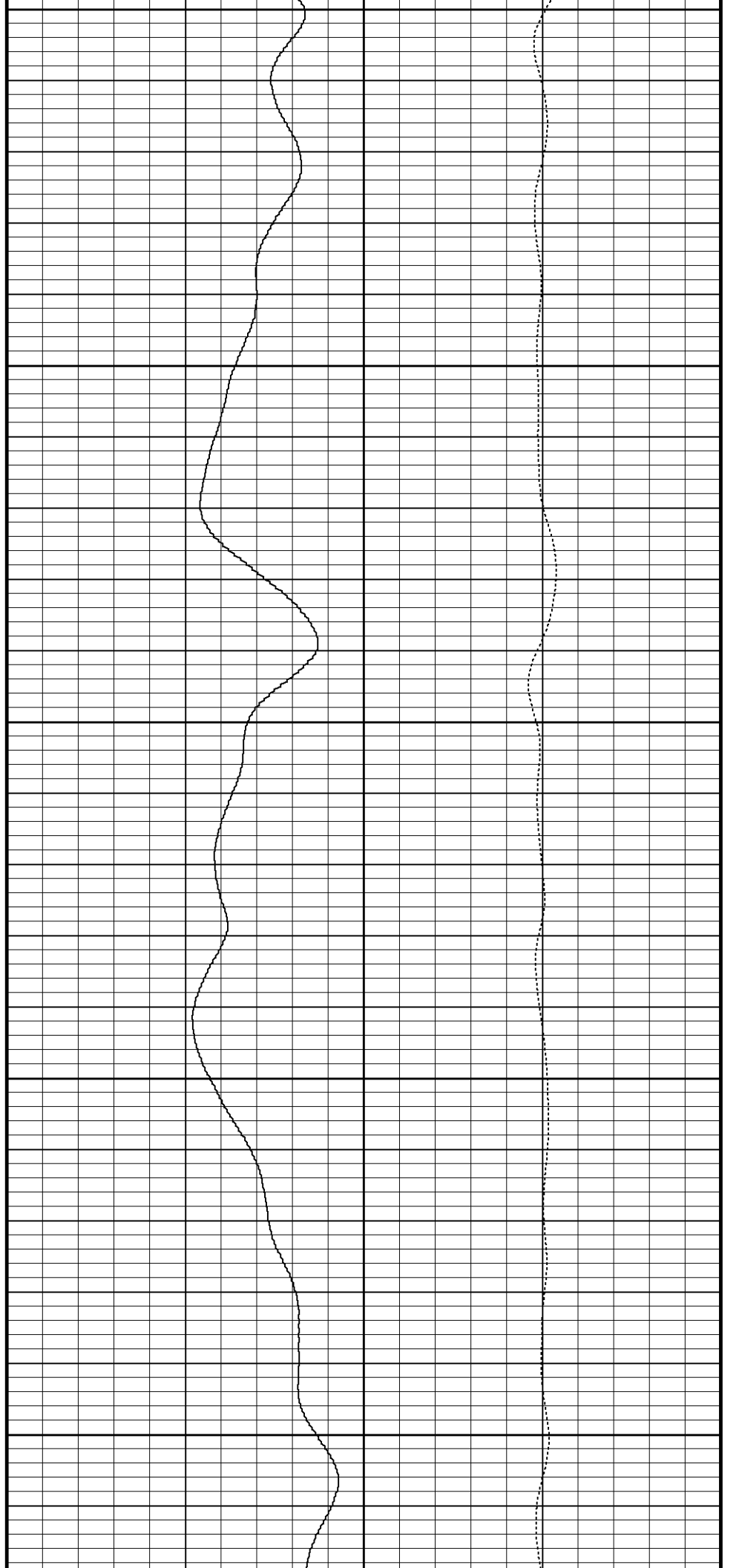
1050

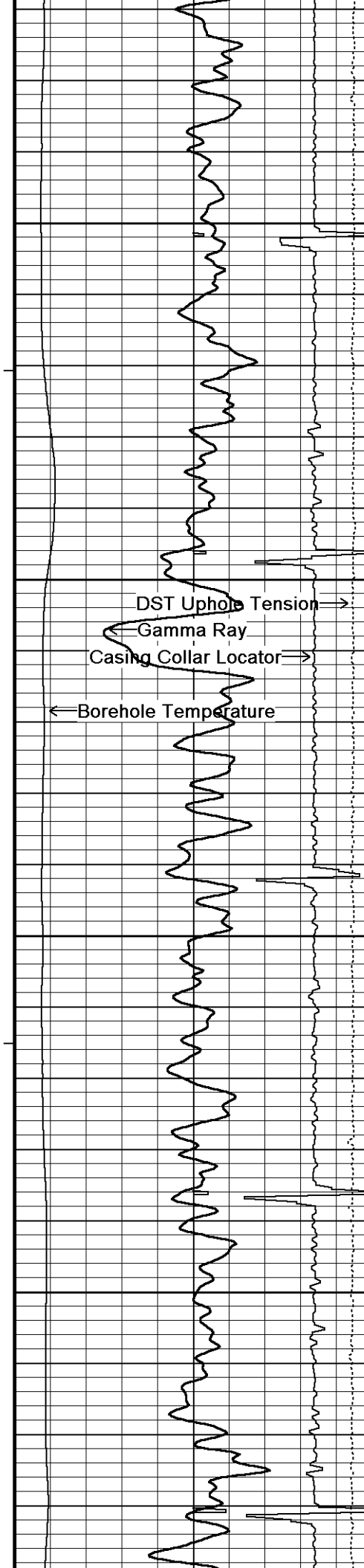
93°

1100

95°

1150





95°

1200

97°

1250

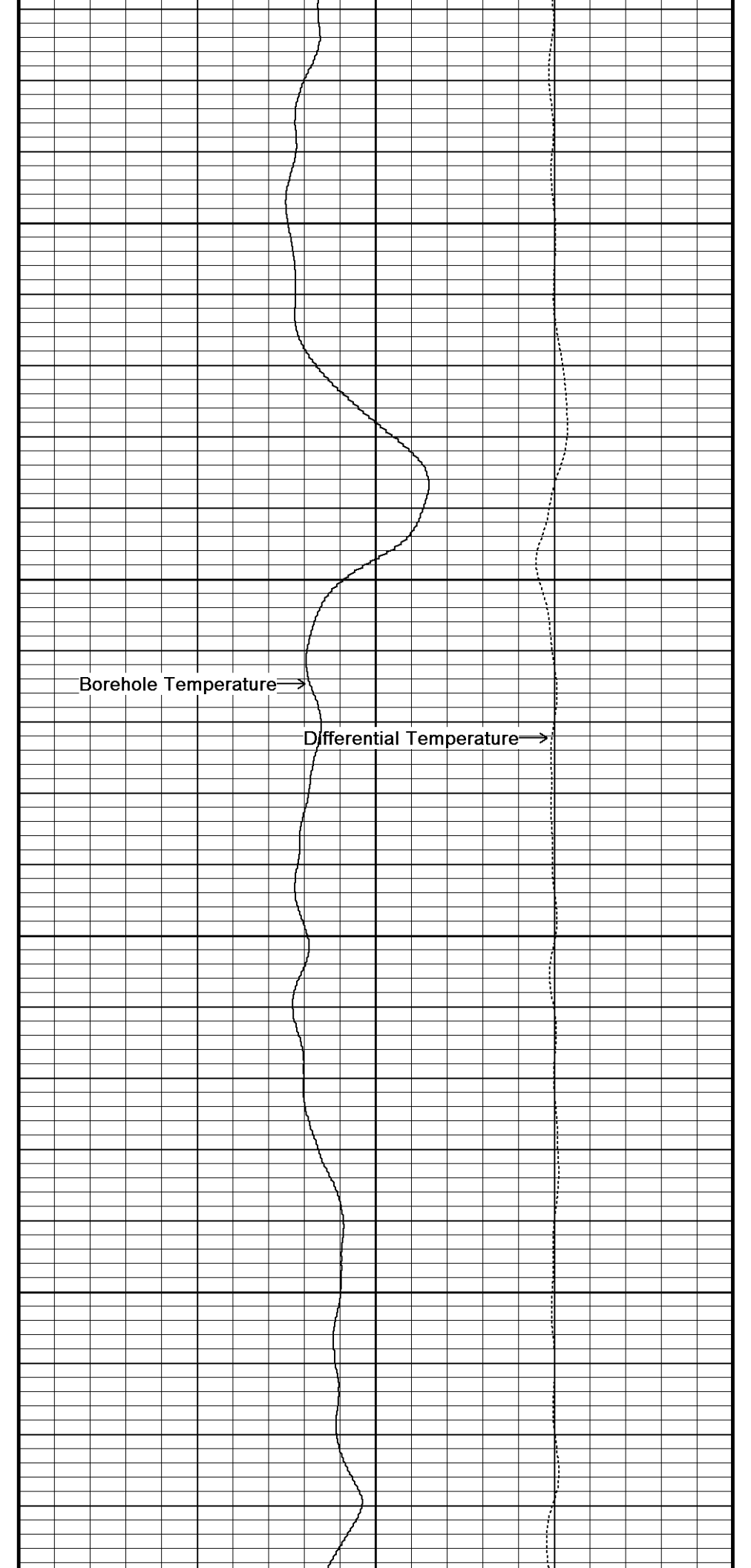
96°

1300

96°

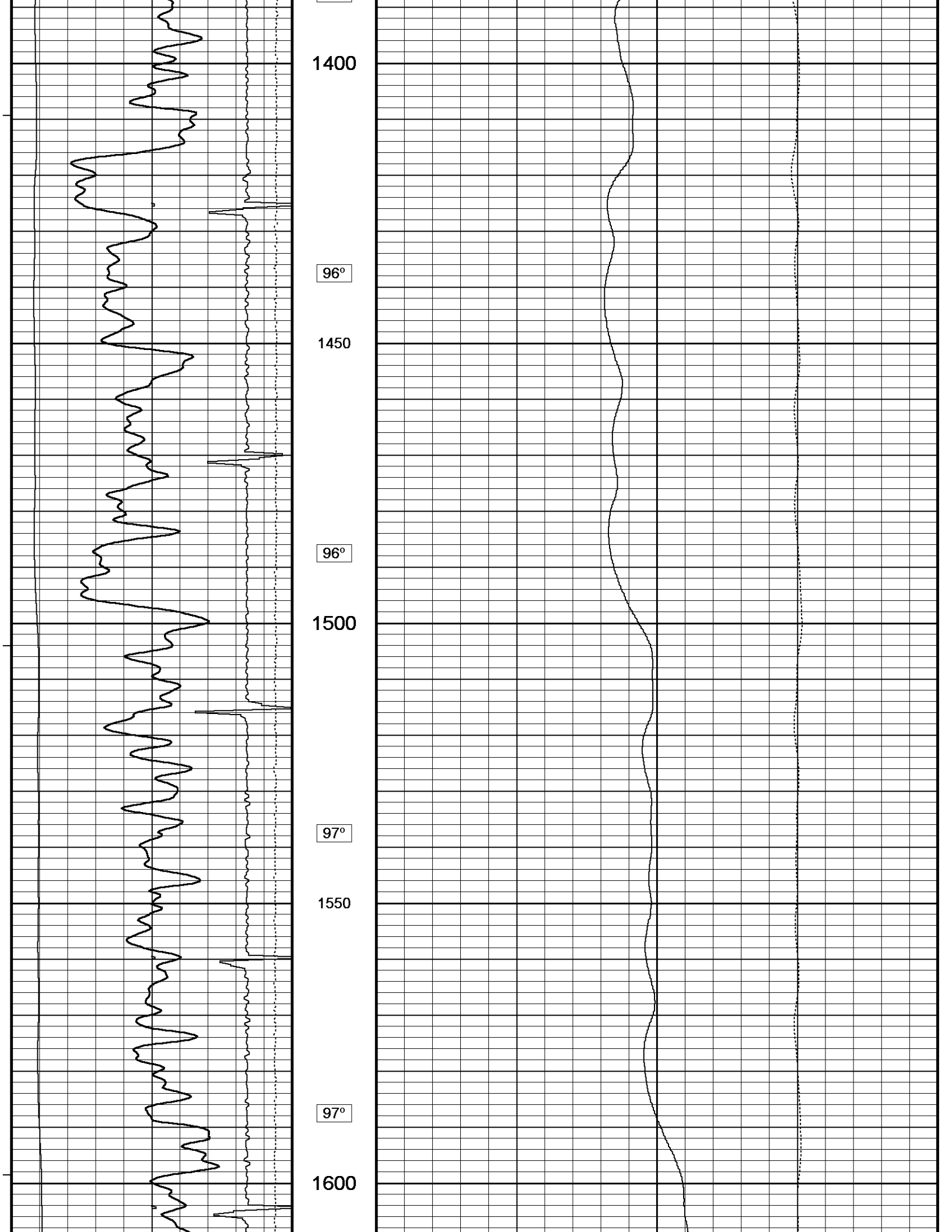
1350

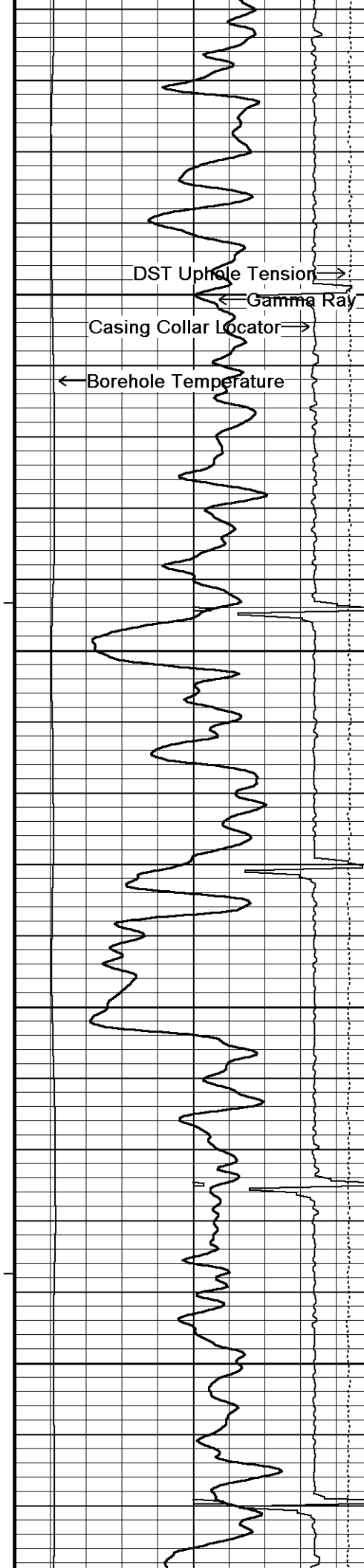
97°



Borehole Temperature →

Differential Temperature →





98°

1650

99°

1700

99°

1750

99°

1800

DST Uphole Tension →

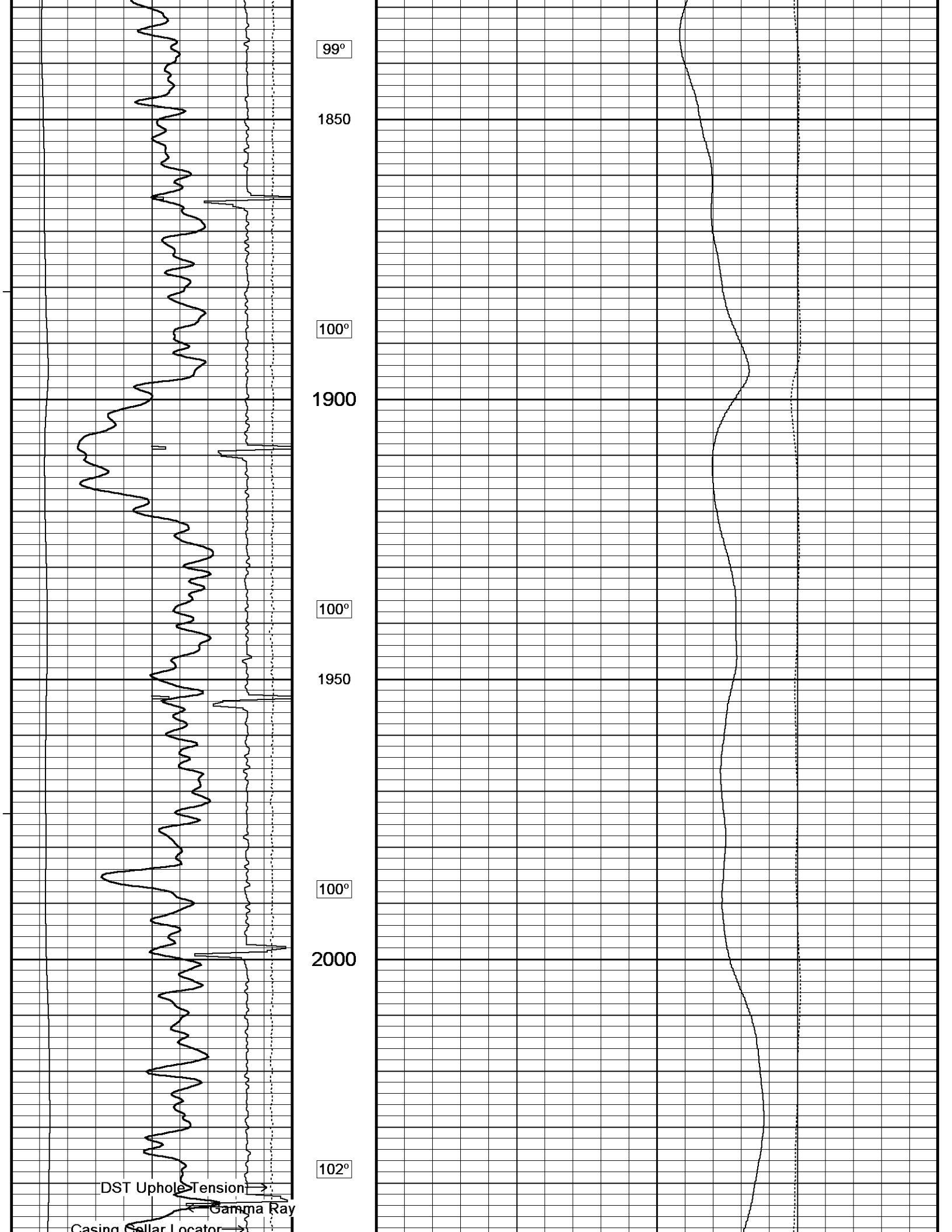
← Gamma Ray

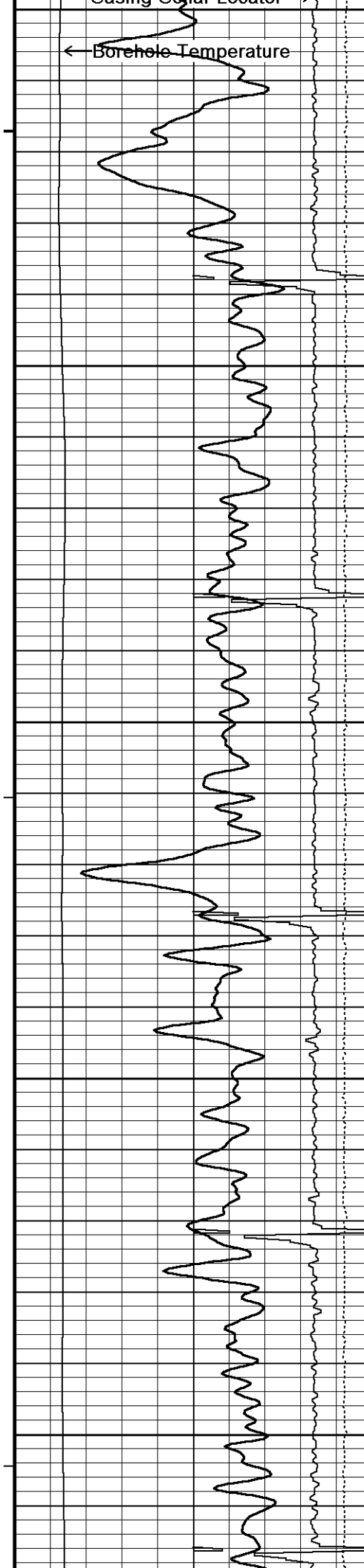
Casing Collar Locator →

← Borehole Temperature

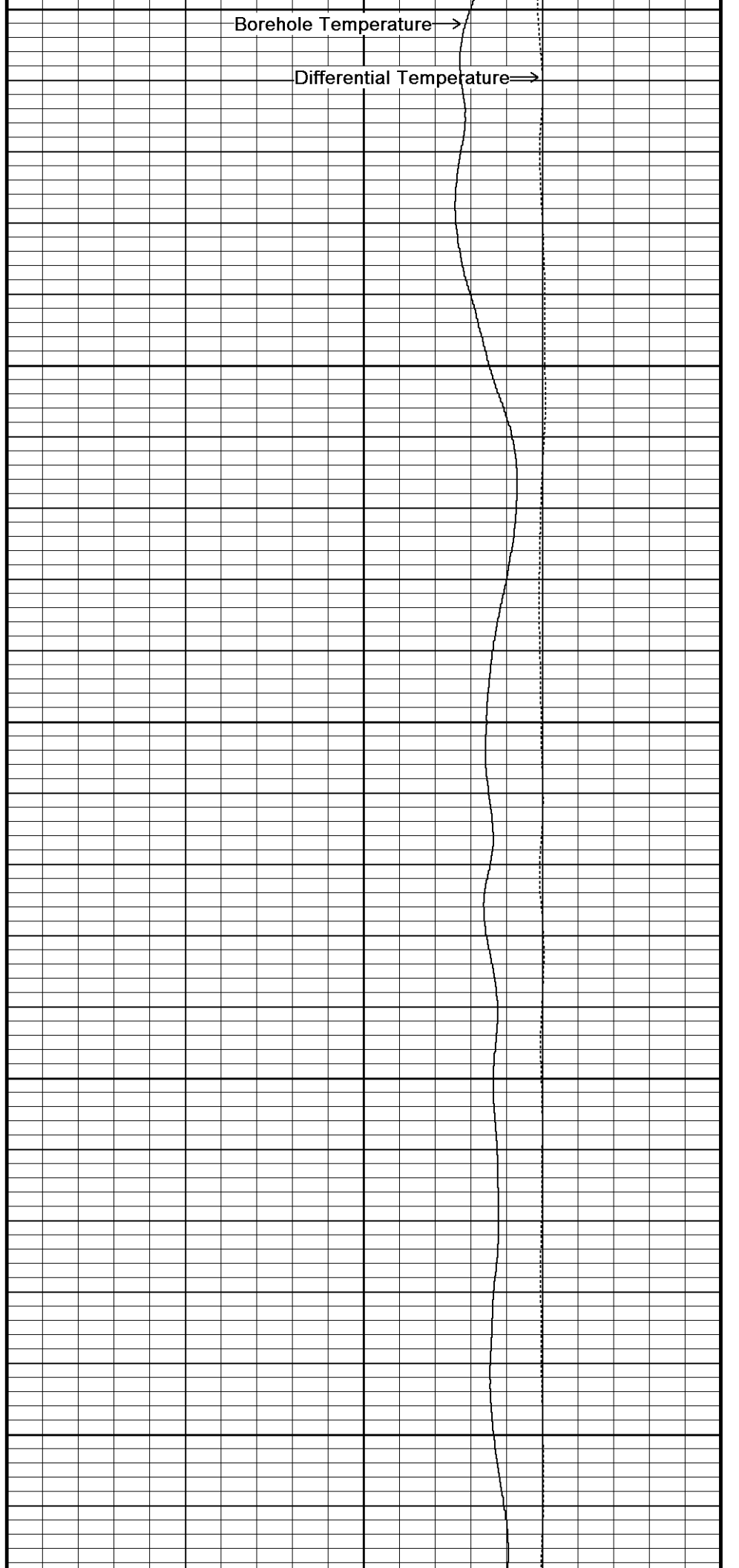
Borehole Temperature →

Differential Temperature →

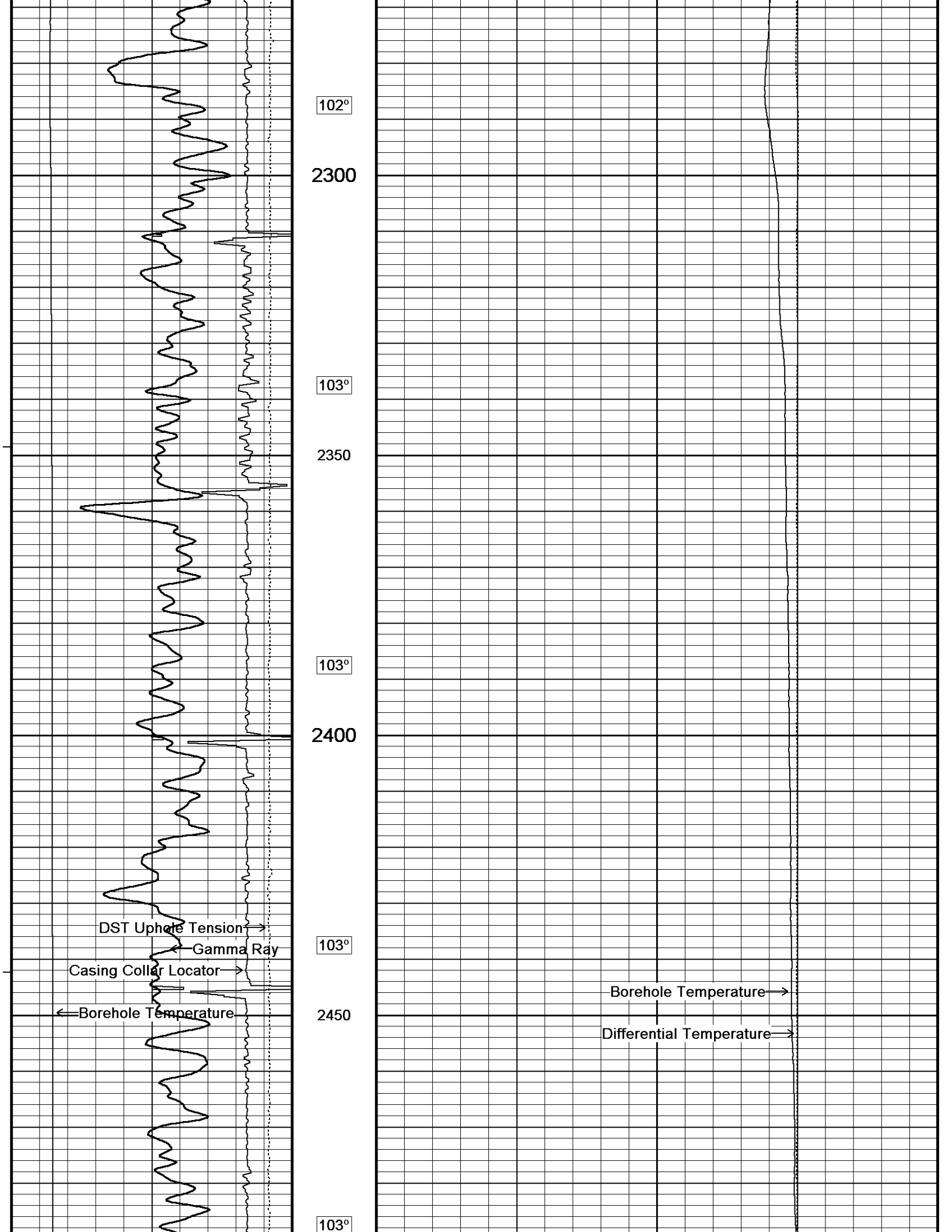




2050  
101°  
2100  
102°  
2150  
102°  
2200  
102°  
2250



Borehole Temperature →  
Differential Temperature ⇒



102°

2300

103°

2350

103°

2400

DST Uphole Tension →

Gamma Ray →

Casing Collar Locator →

← Borehole Temperature

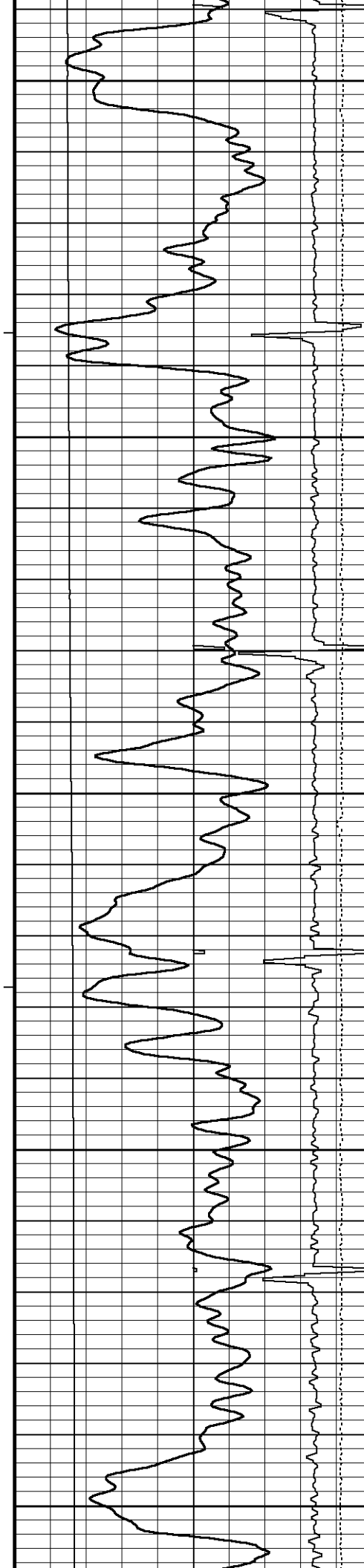
103°

2450

Borehole Temperature →

Differential Temperature →

103°



2500

103°

2550

104°

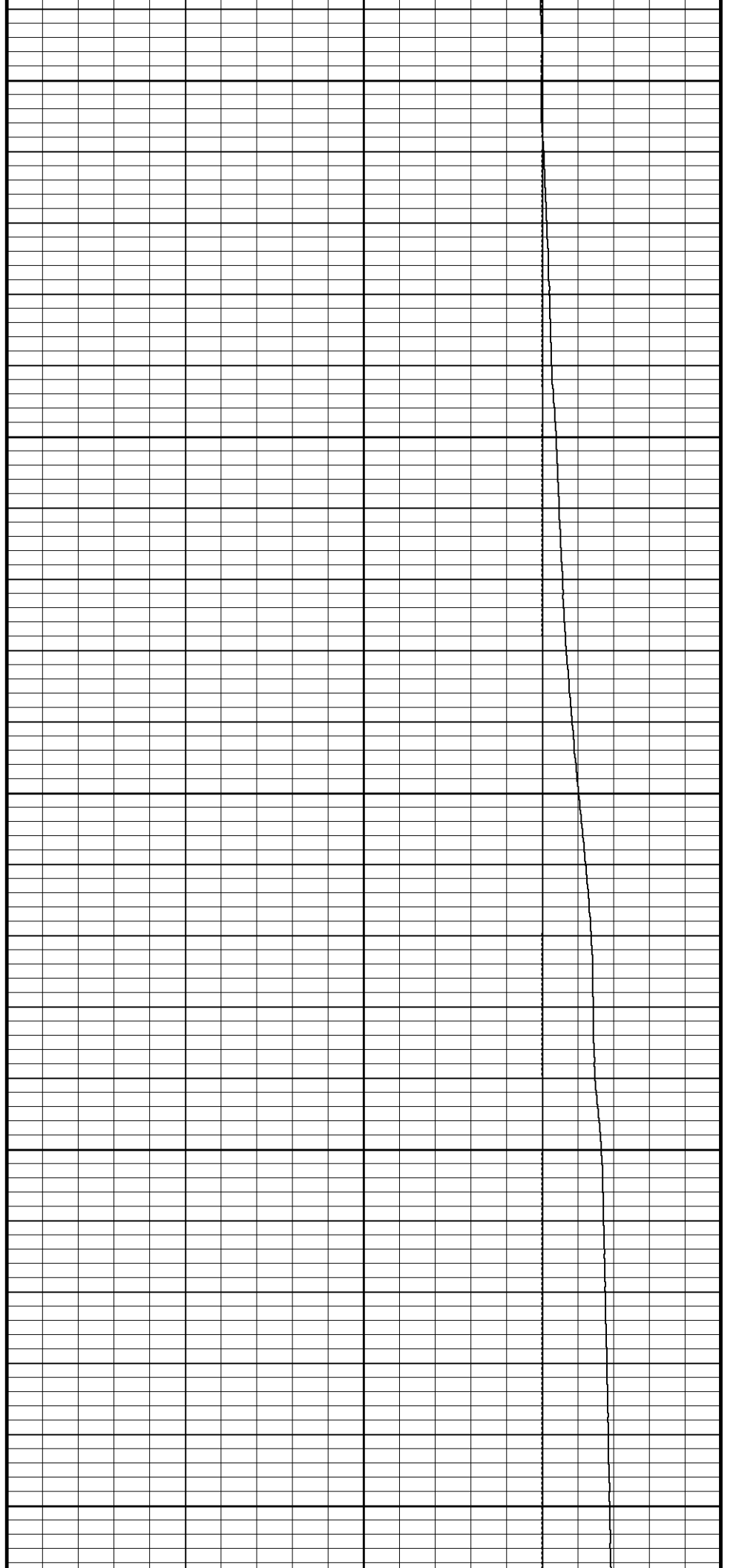
2600

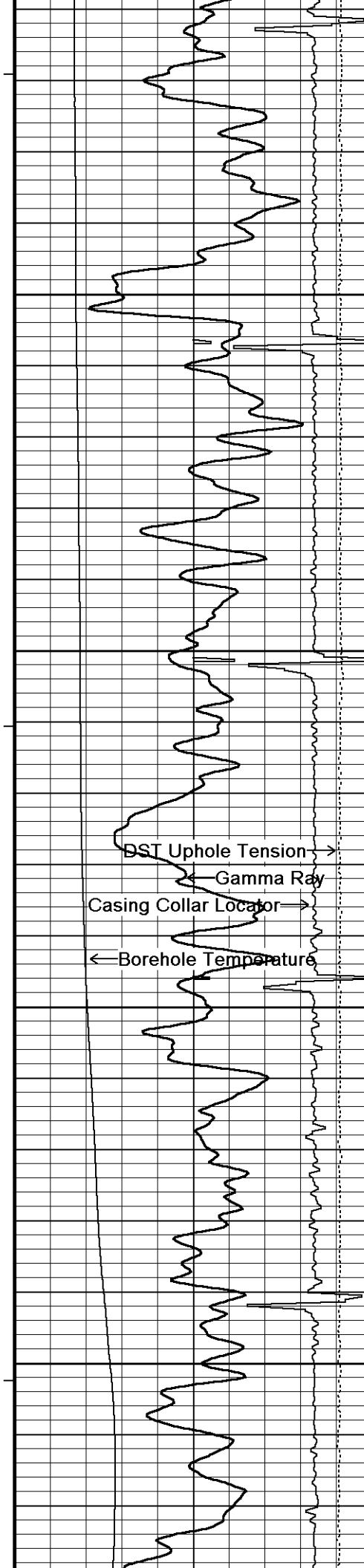
105°

2650

105°

2700





106°

2750

106°

2800

DST Uphole Tension →  
← Gamma Ray  
Casing Collar Locator →  
← Borehole Temperature

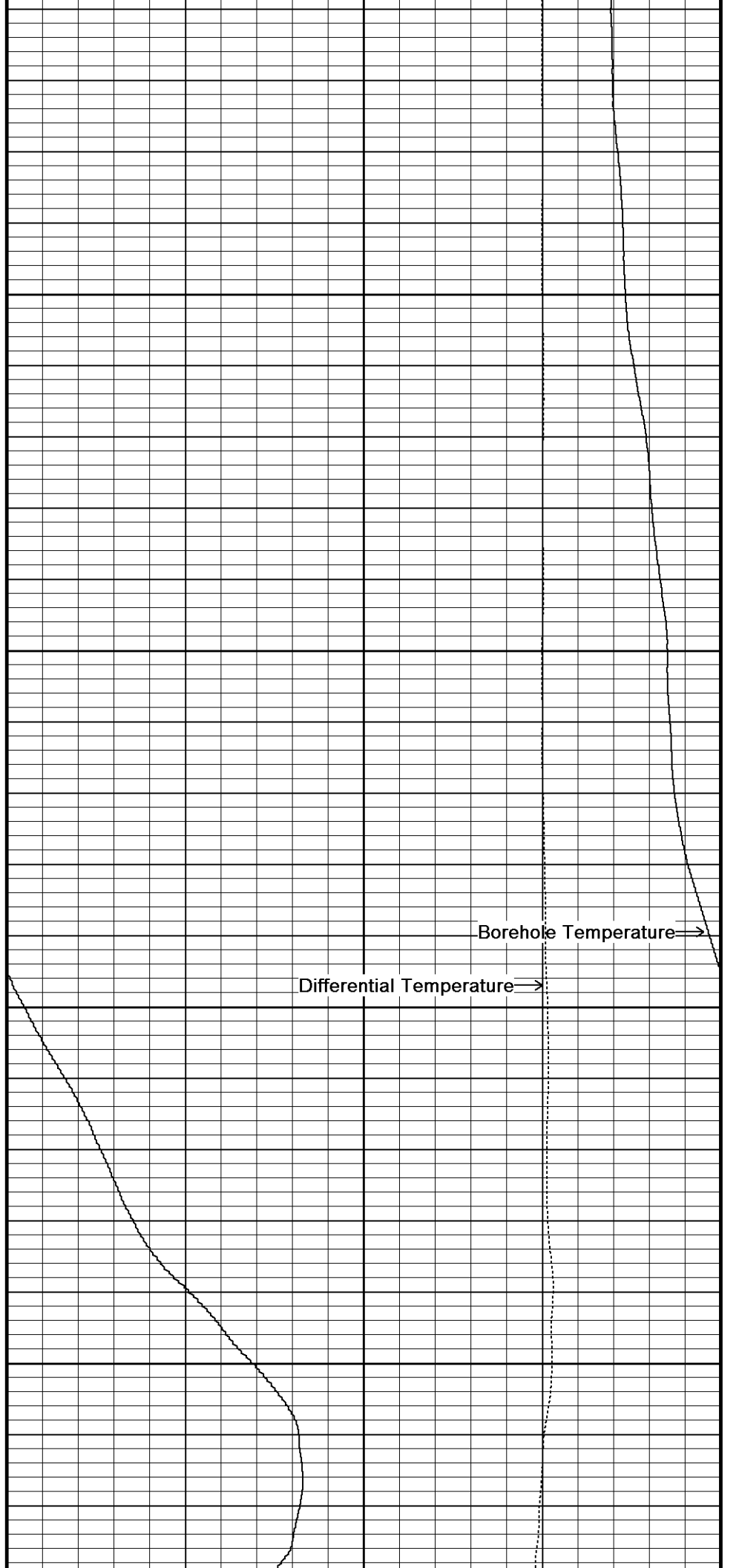
107°

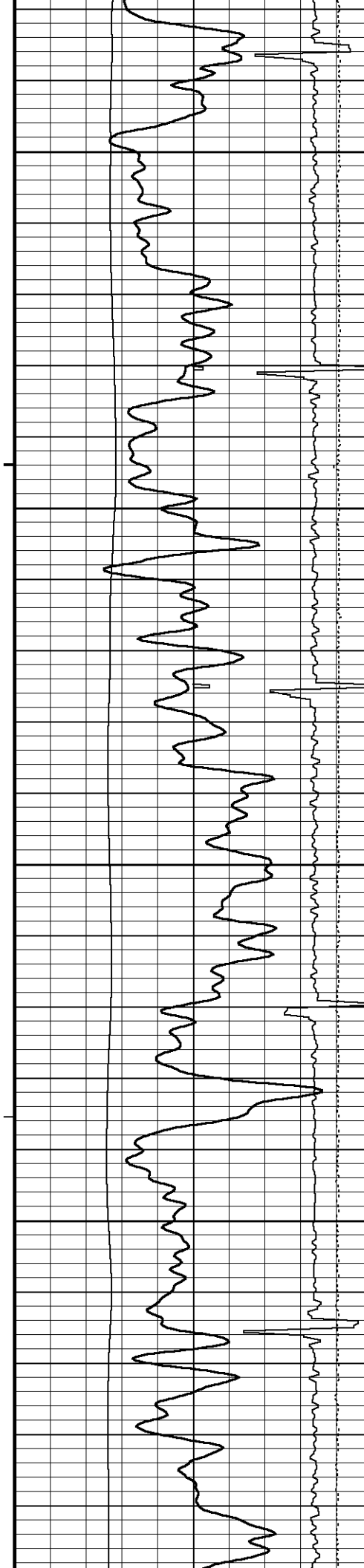
2850

Borehole Temperature →  
Differential Temperature →

112°

2900





116°

2950

117°

3000

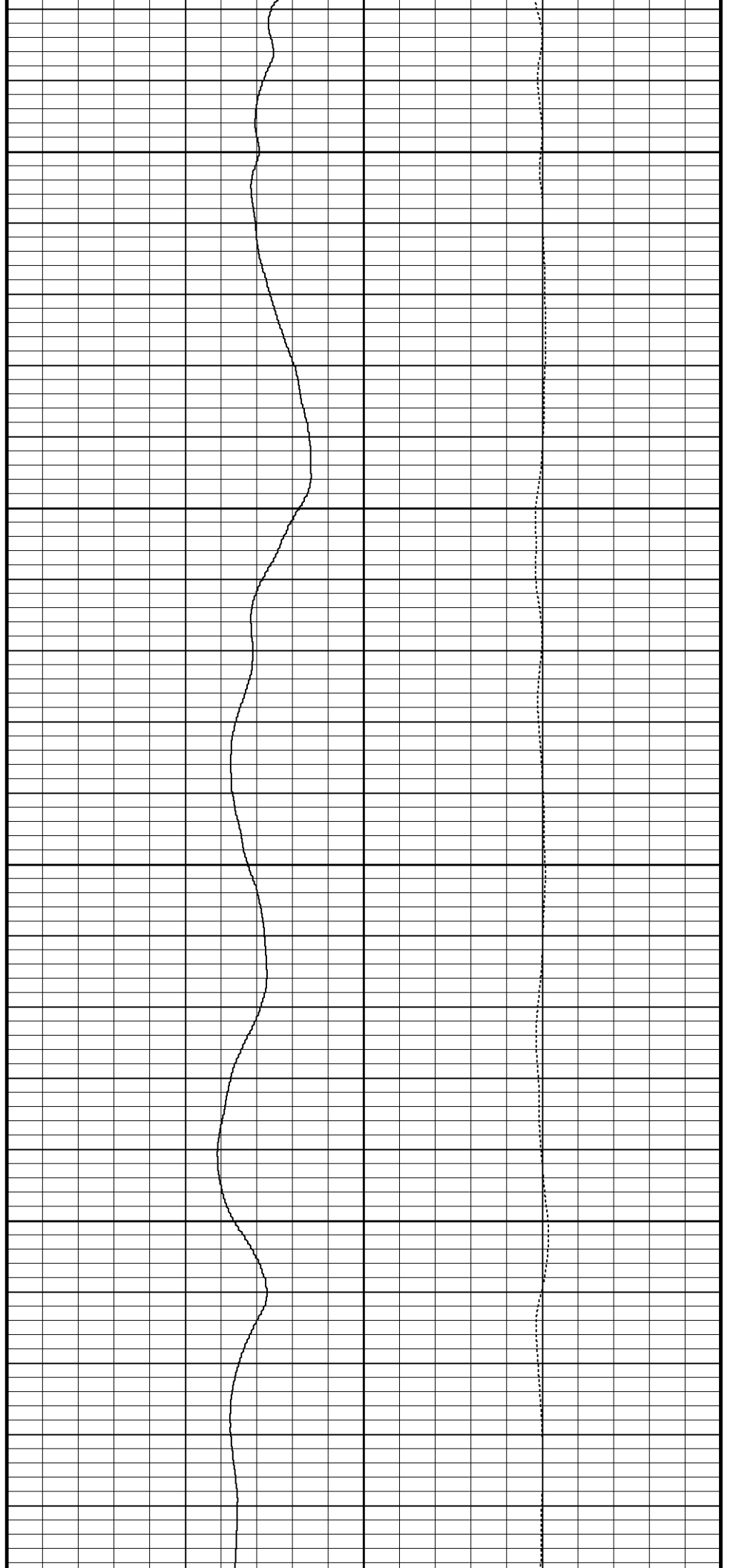
115°

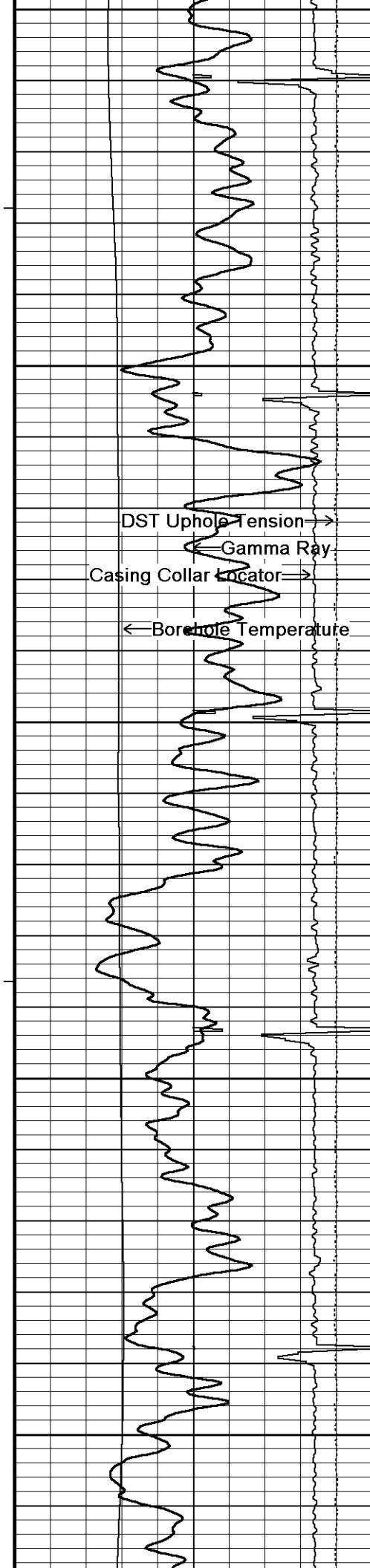
3050

115°

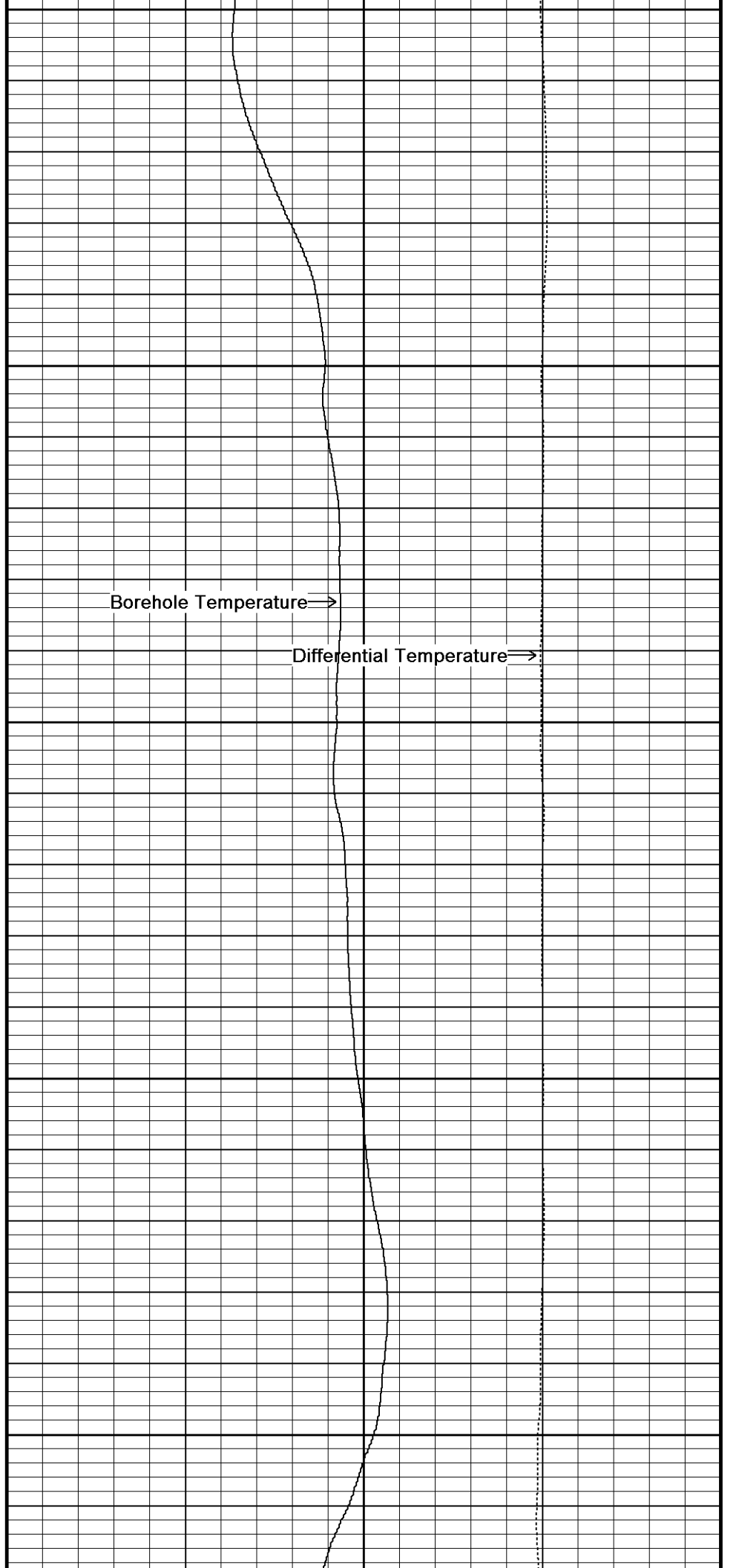
3100

115°

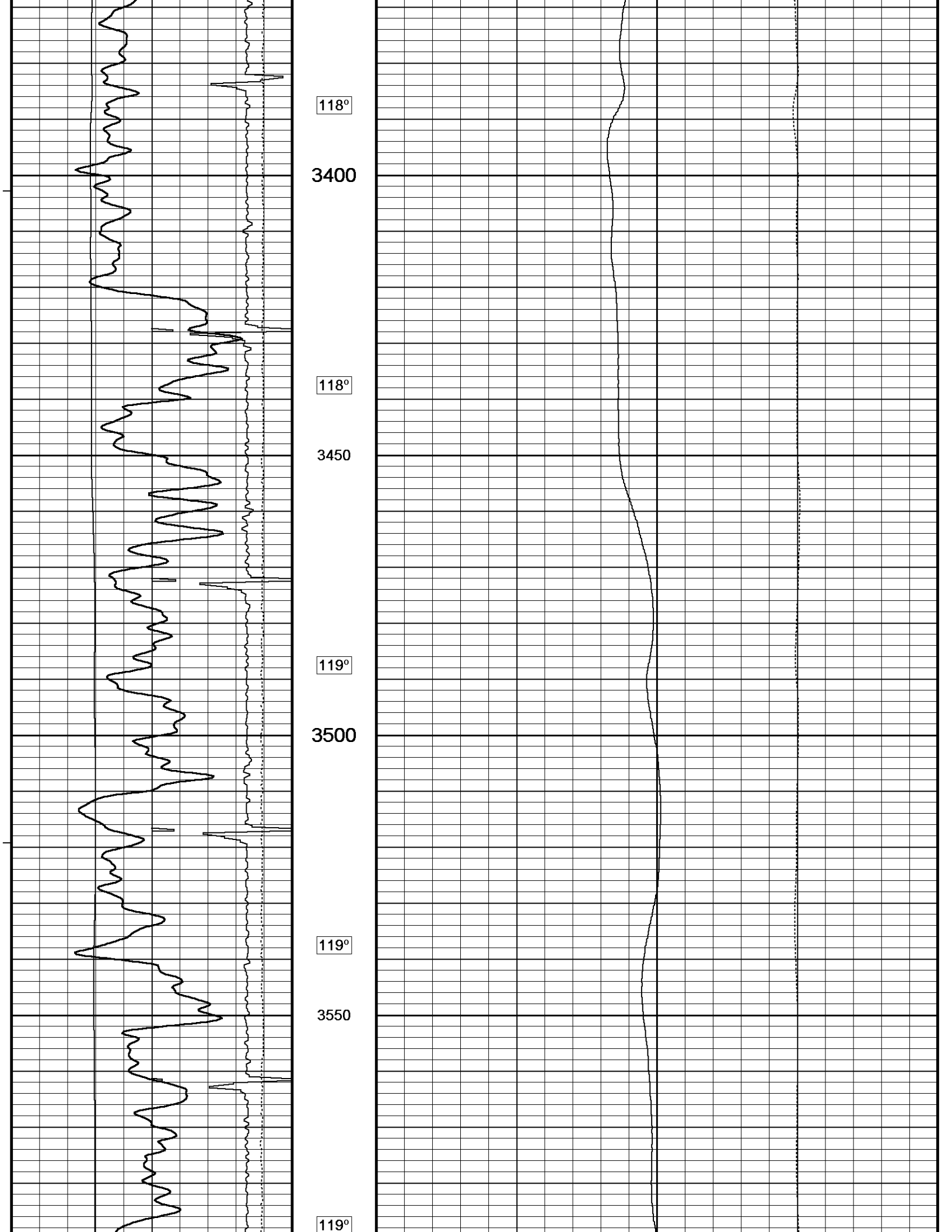




3150  
117°  
3200  
118°  
3250  
118°  
3300  
119°  
3350



Borehole Temperature →  
Differential Temperature →



DST Uphole Tension →  
Gamma Ray ←  
Casing Collar Locator →  
← Borehole Temperature

3600

120°

3650

121°

3700

121°

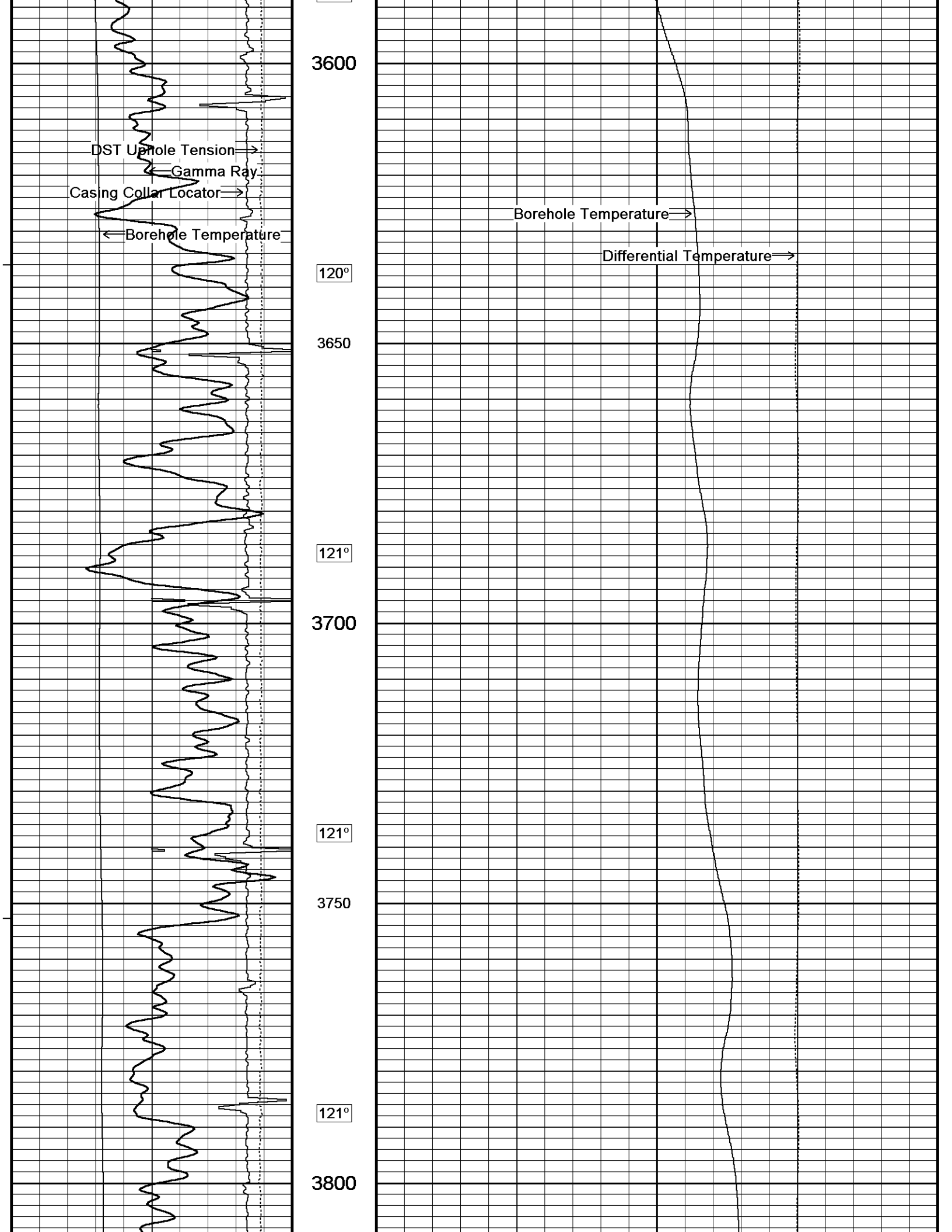
3750

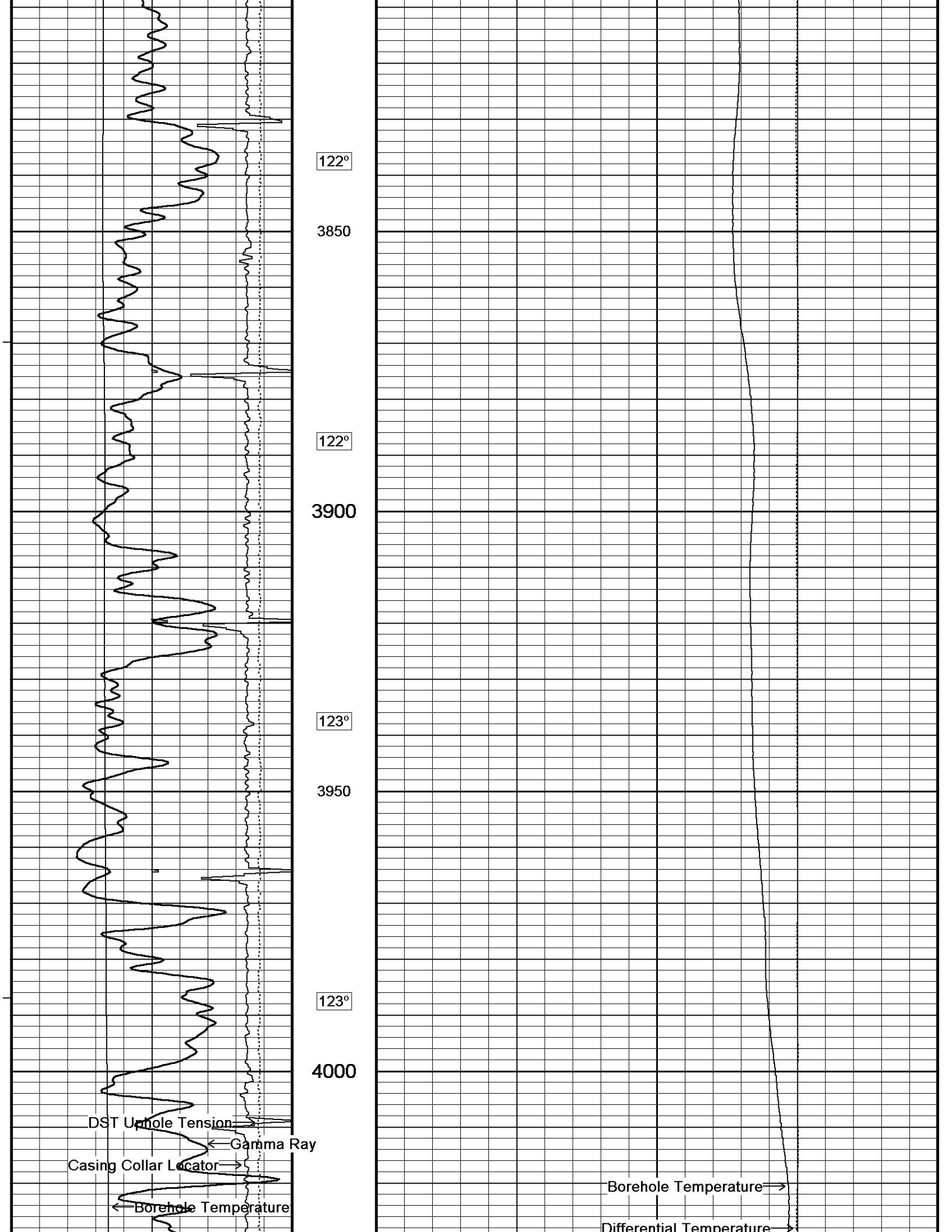
121°

3800

Borehole Temperature →

Differential Temperature →





122°

3850

122°

3900

123°

3950

123°

4000

DST Uphole Tension →

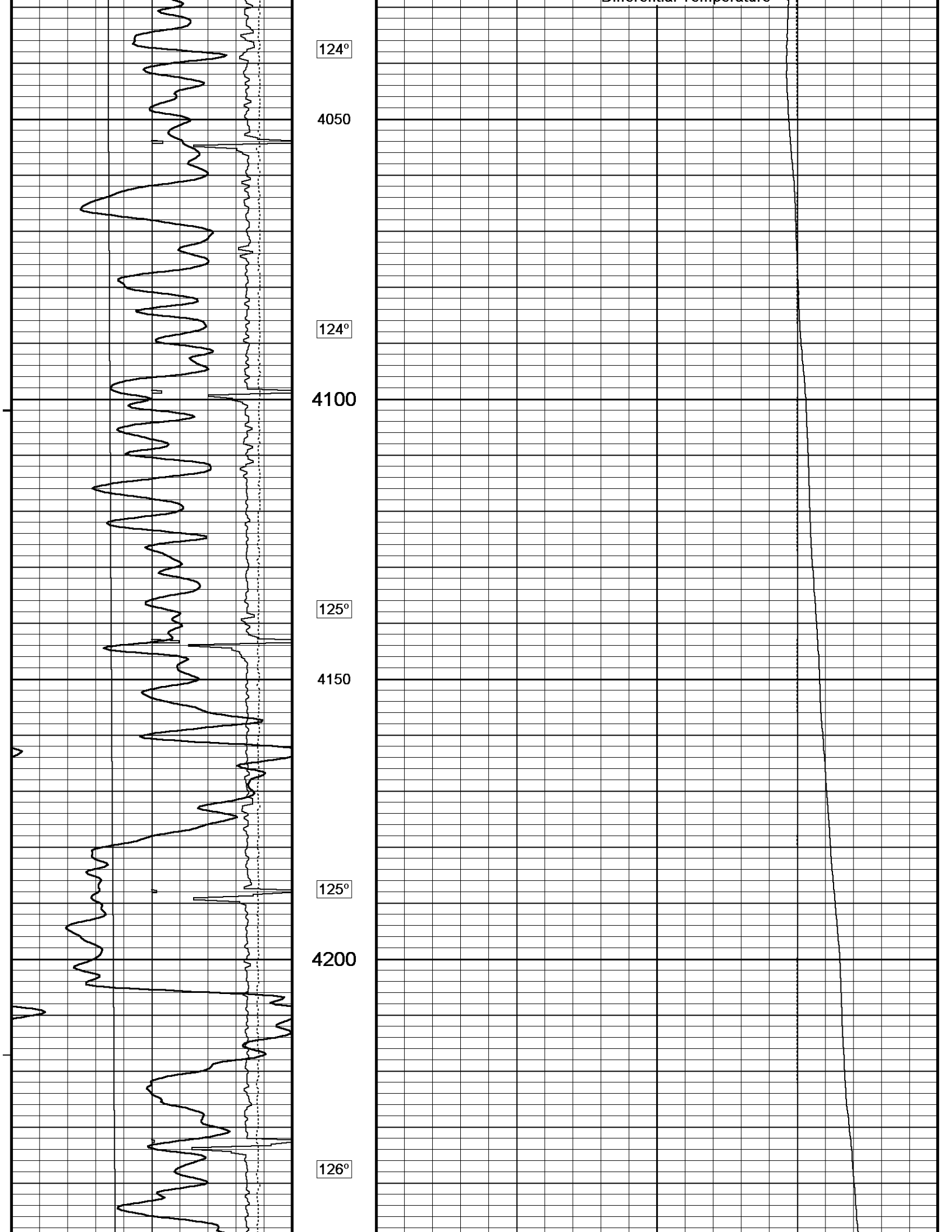
← Gamma Ray

Casing Collar Locator →

← Borehole Temperature

Borehole Temperature →

Differential Temperature →



124°

4050

124°

4100

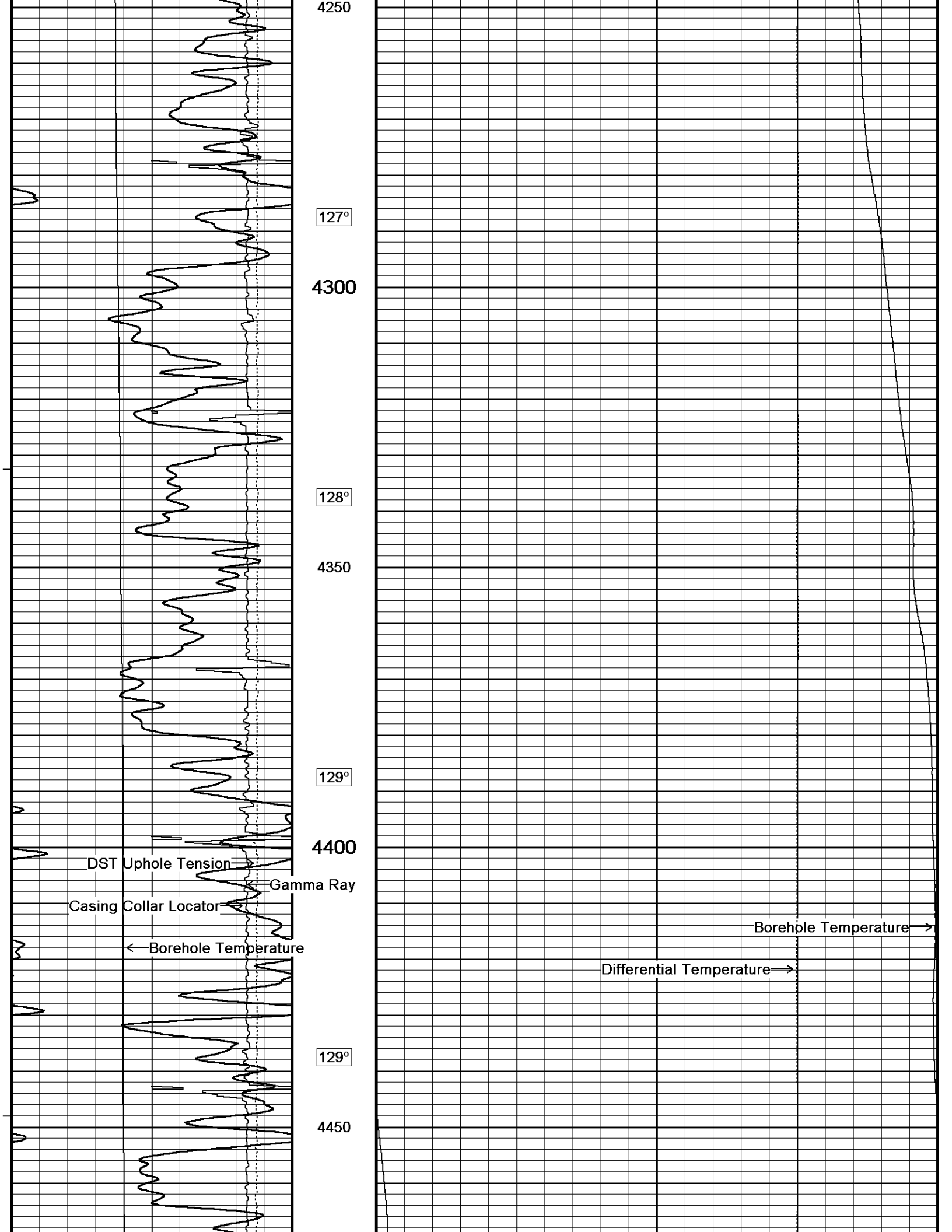
125°

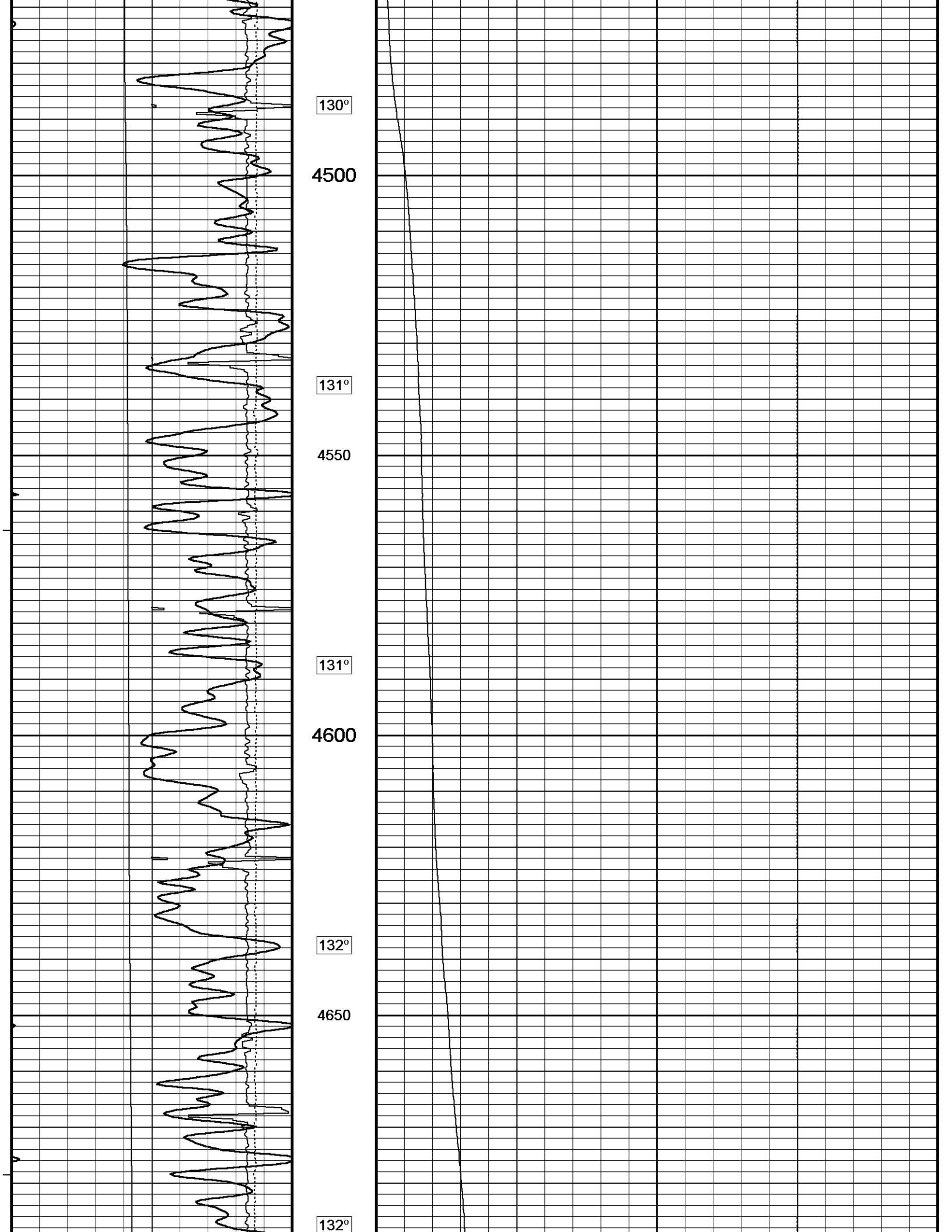
4150

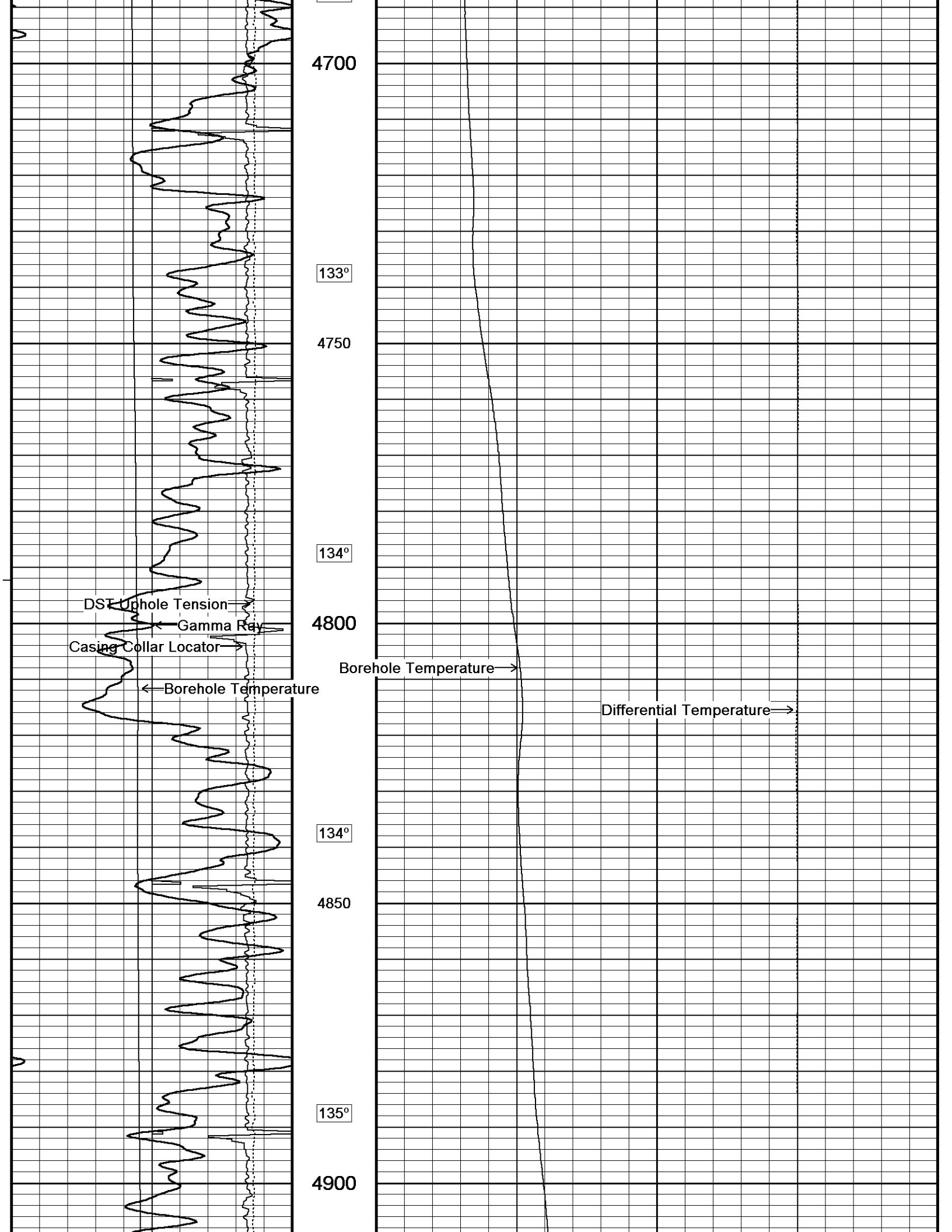
125°

4200

126°







4700

133°

4750

134°

4800

134°

4850

135°

4900

DST Uphole Tension →

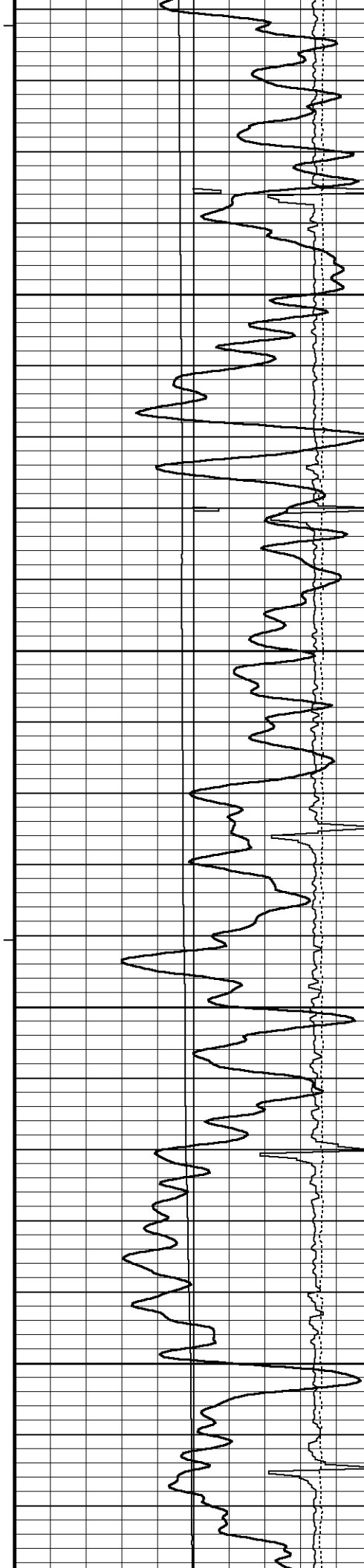
← Gamma Ray

Casing Collar Locator →

← Borehole Temperature

Borehole Temperature →

Differential Temperature →



136°

4950

136°

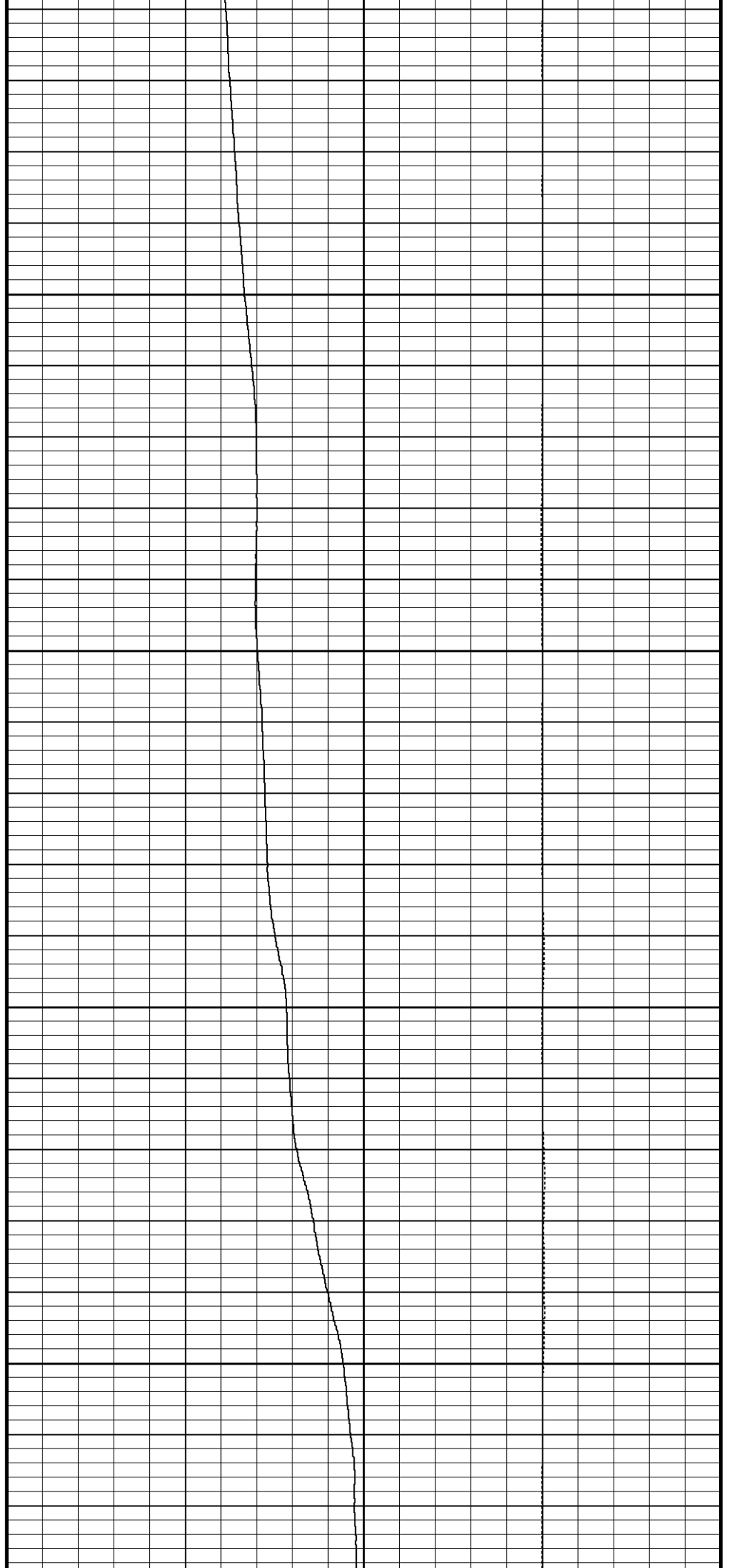
5000

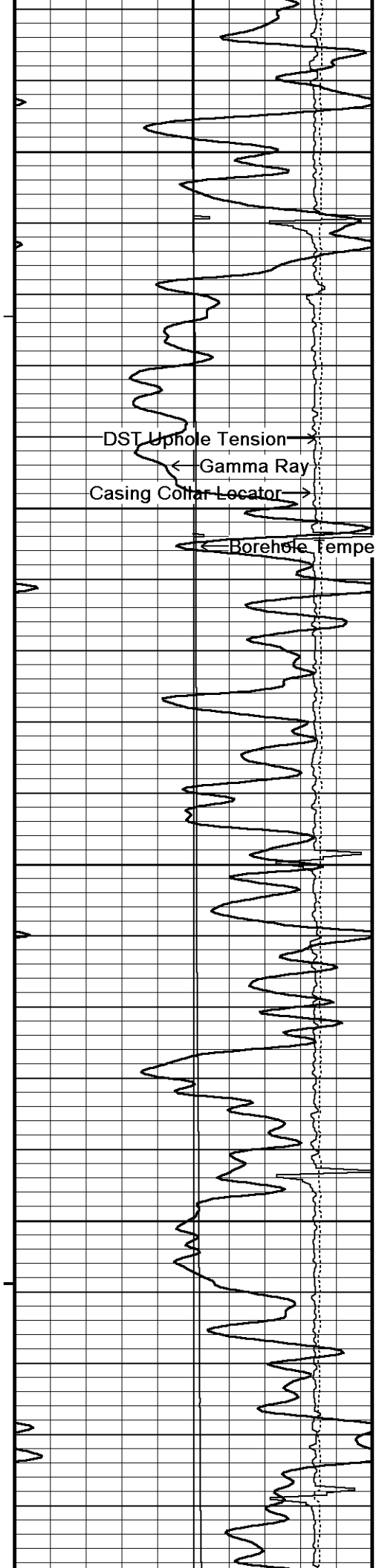
137°

5050

138°

5100

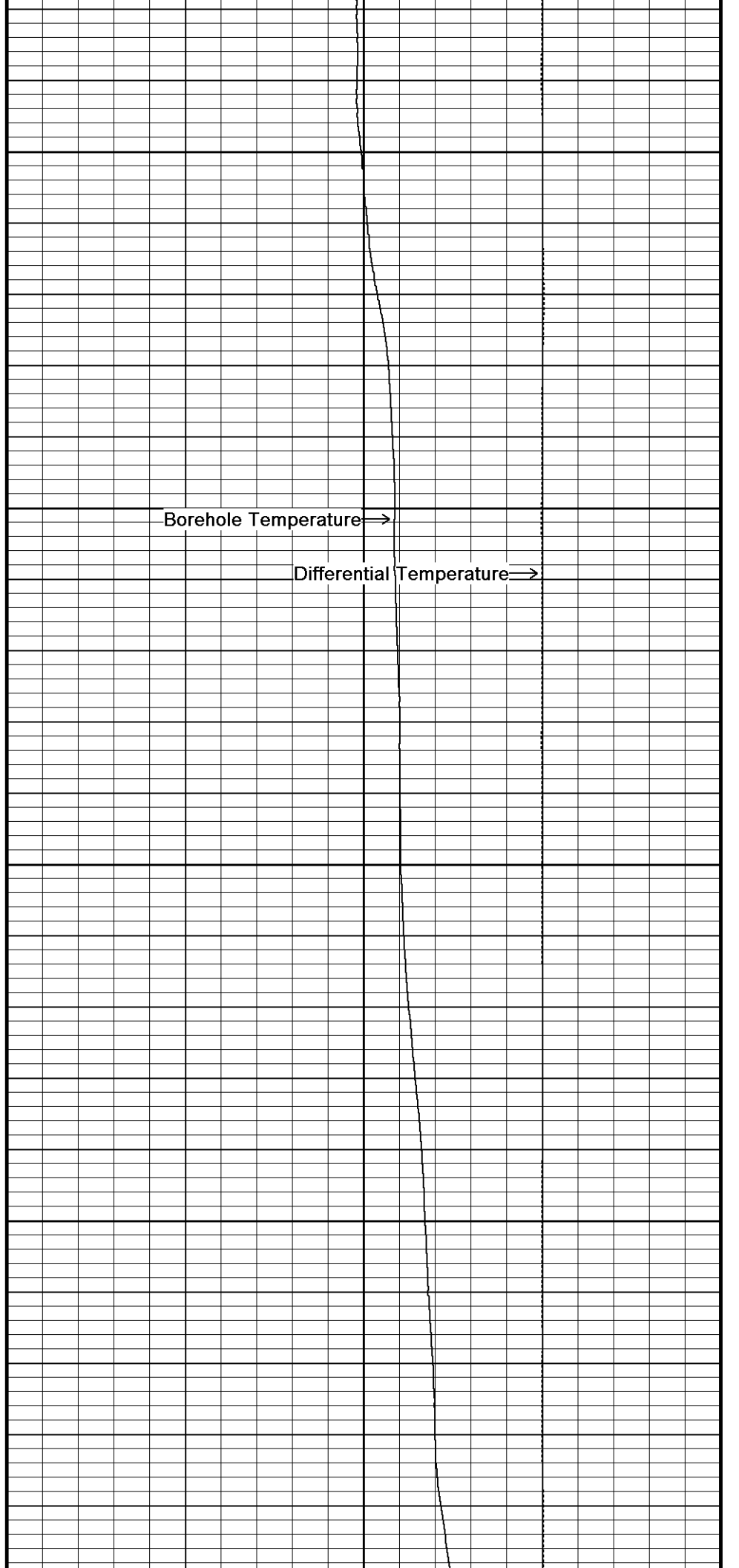




139°  
5150  
140°  
5200  
140°  
5250  
141°  
5300  
141°

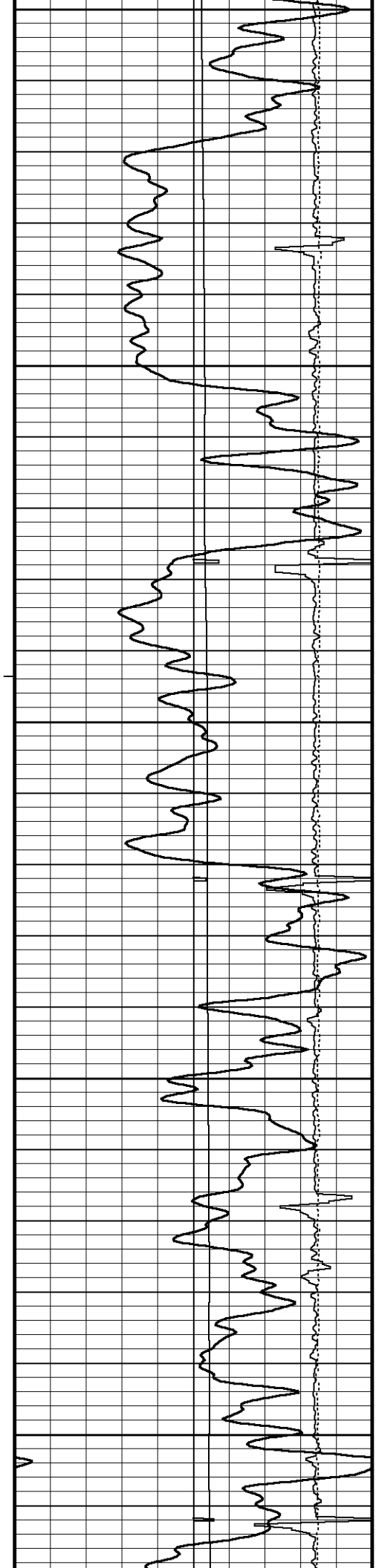
DST Uphole Tension →  
← Gamma Ray  
Casing Collar Locator →

Borehole Temperature



Borehole Temperature →

Differential Temperature →



5350

142°

5400

143°

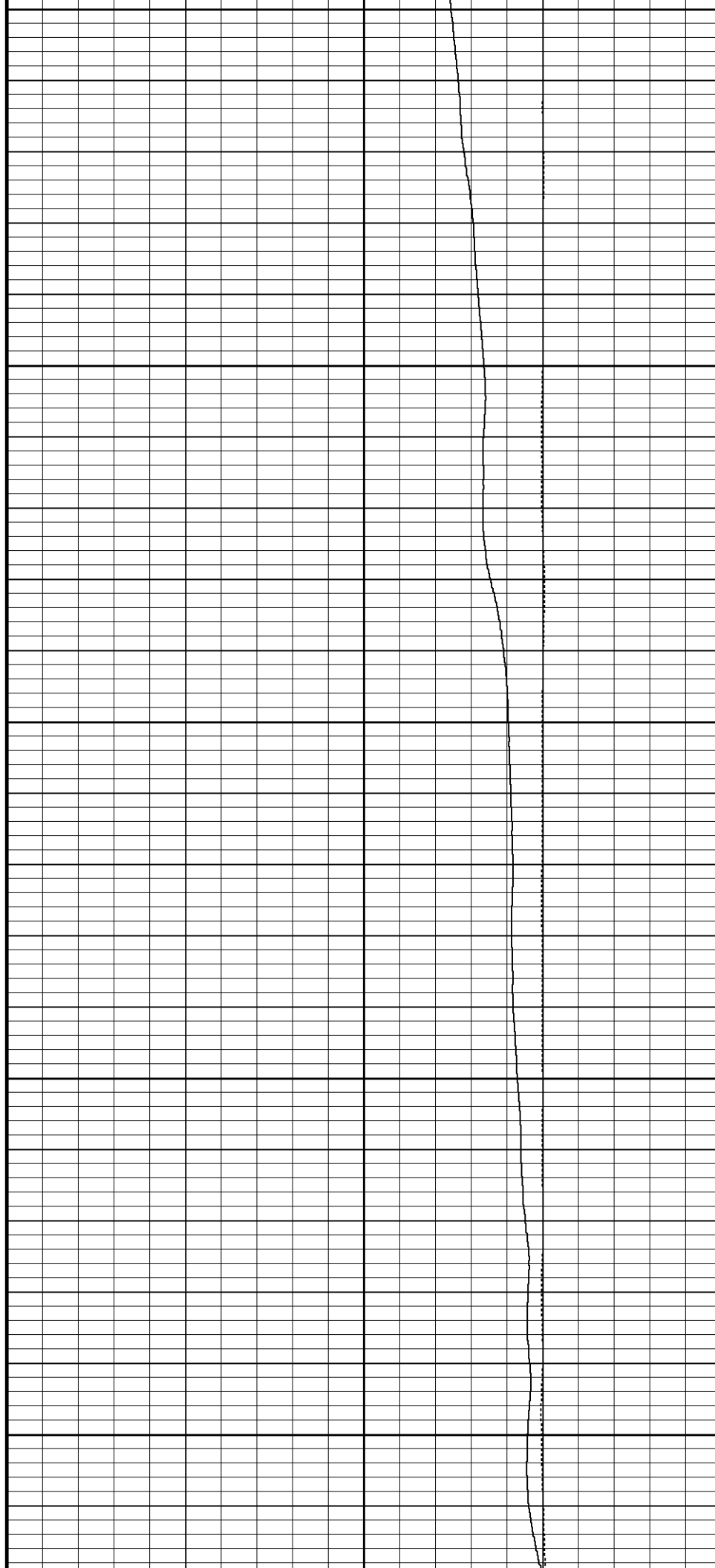
5450

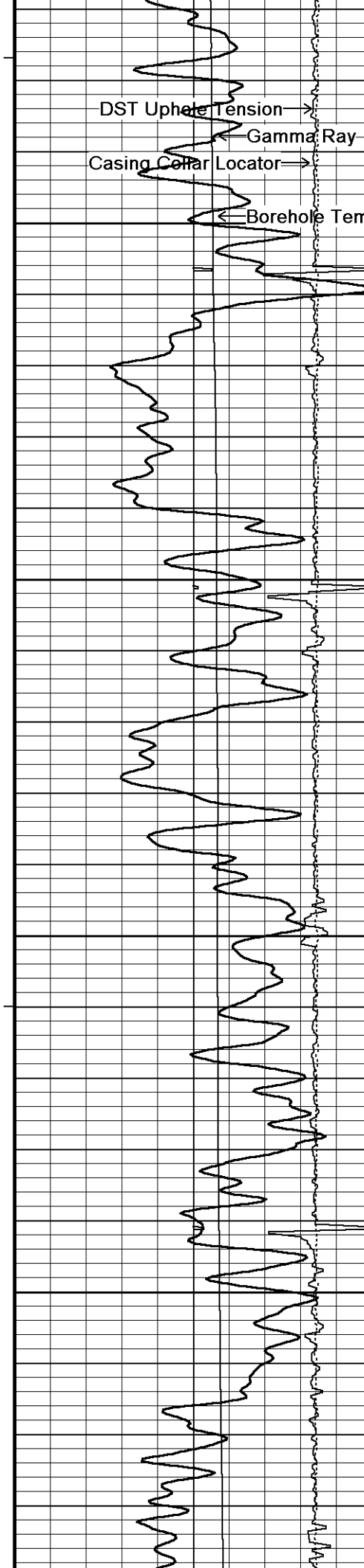
143°

5500

144°

5550





DST Uphole Tension →

← Gamma Ray

Casing Collar Locator →

← Borehole Temperature

144°

5600

146°

5650

146°

5700

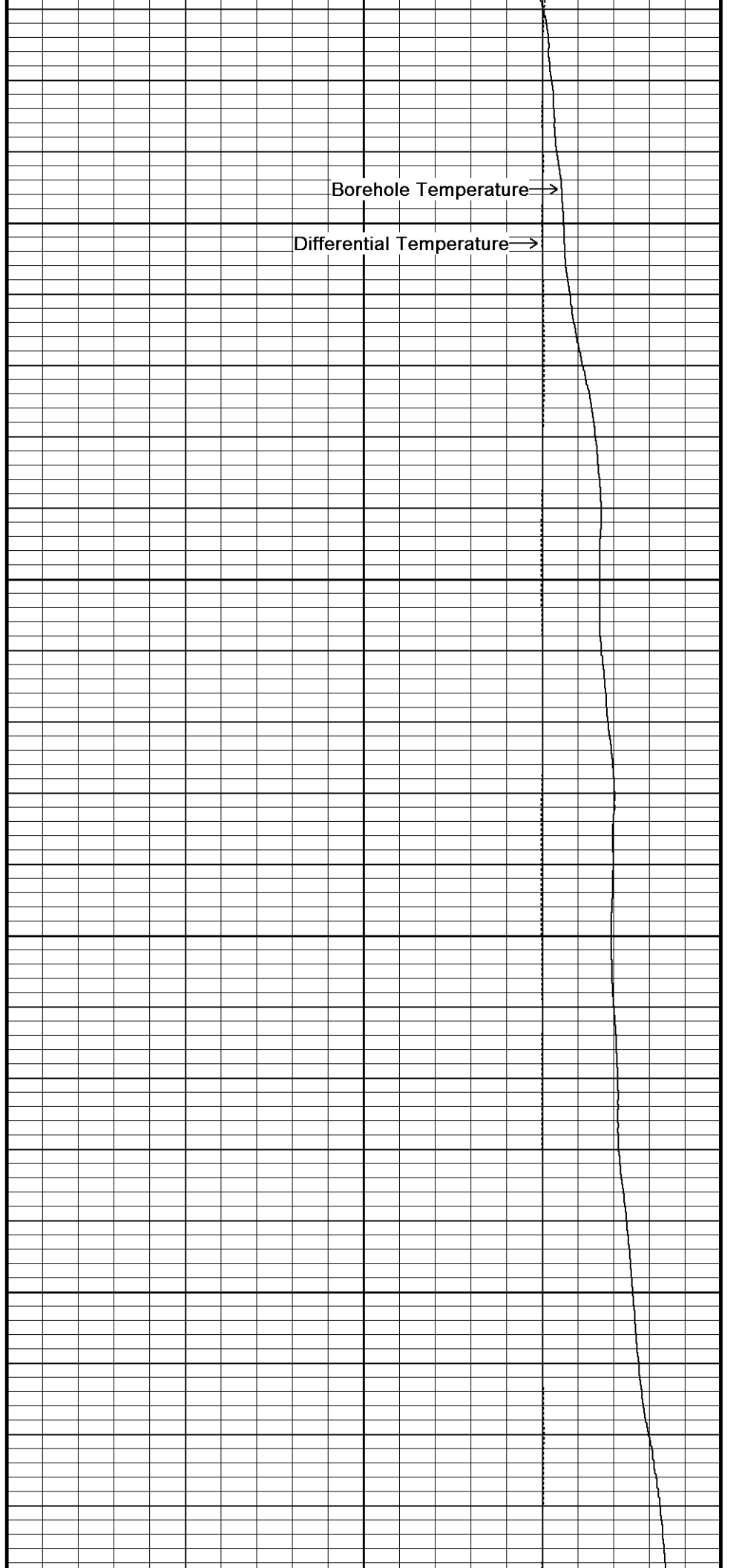
146°

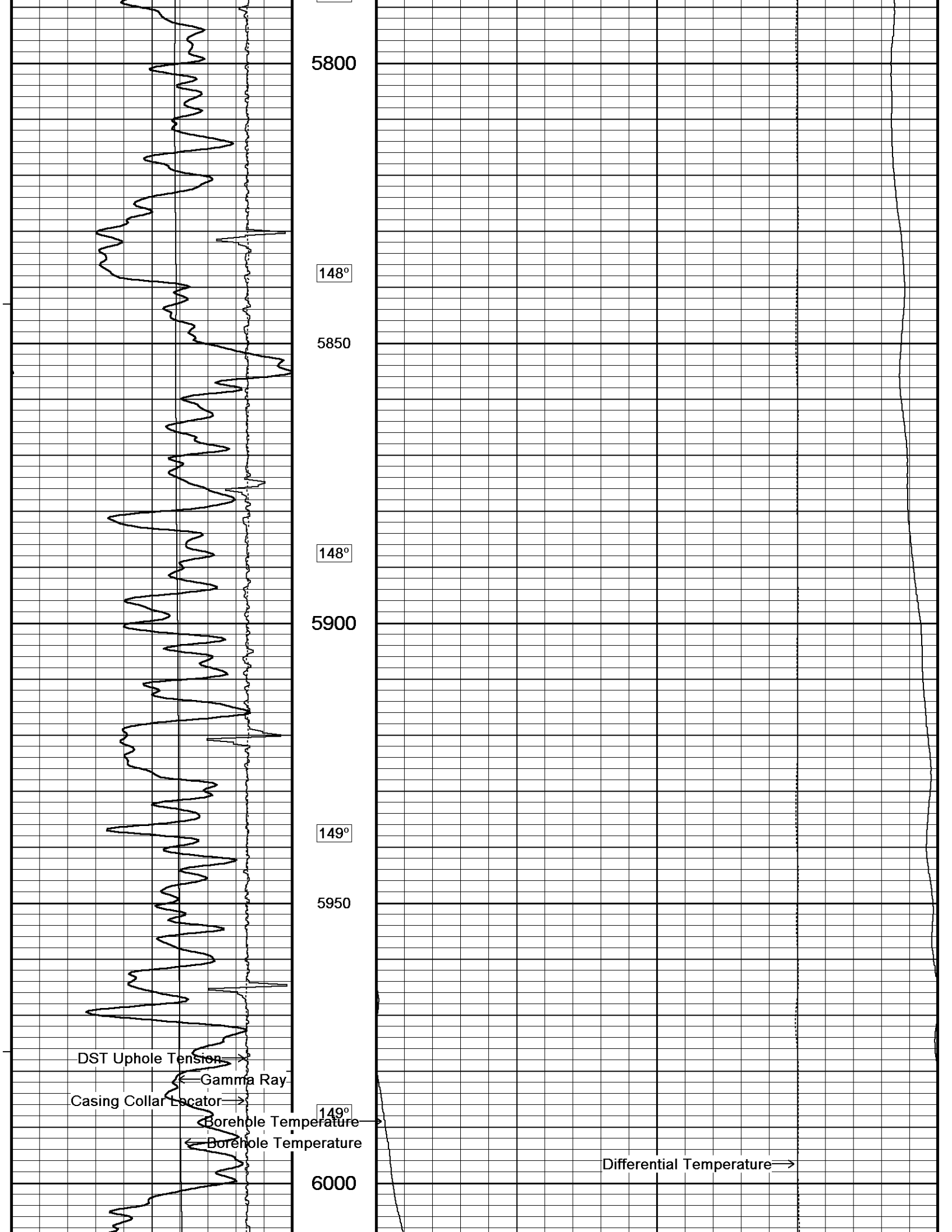
5750

147°

Borehole Temperature →

Differential Temperature →





5800

148°

5850

148°

5900

149°

5950

DST Uphole Tension →

← Gamma Ray

Casing Collar Locator →

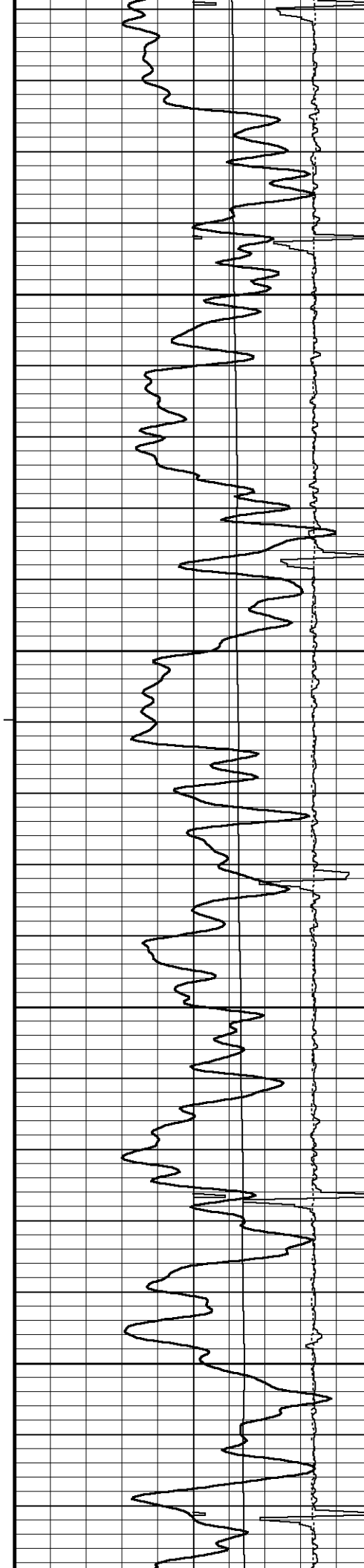
← Borehole Temperature

← Borehole Temperature

149°

6000

Differential Temperature →



150°

6050

151°

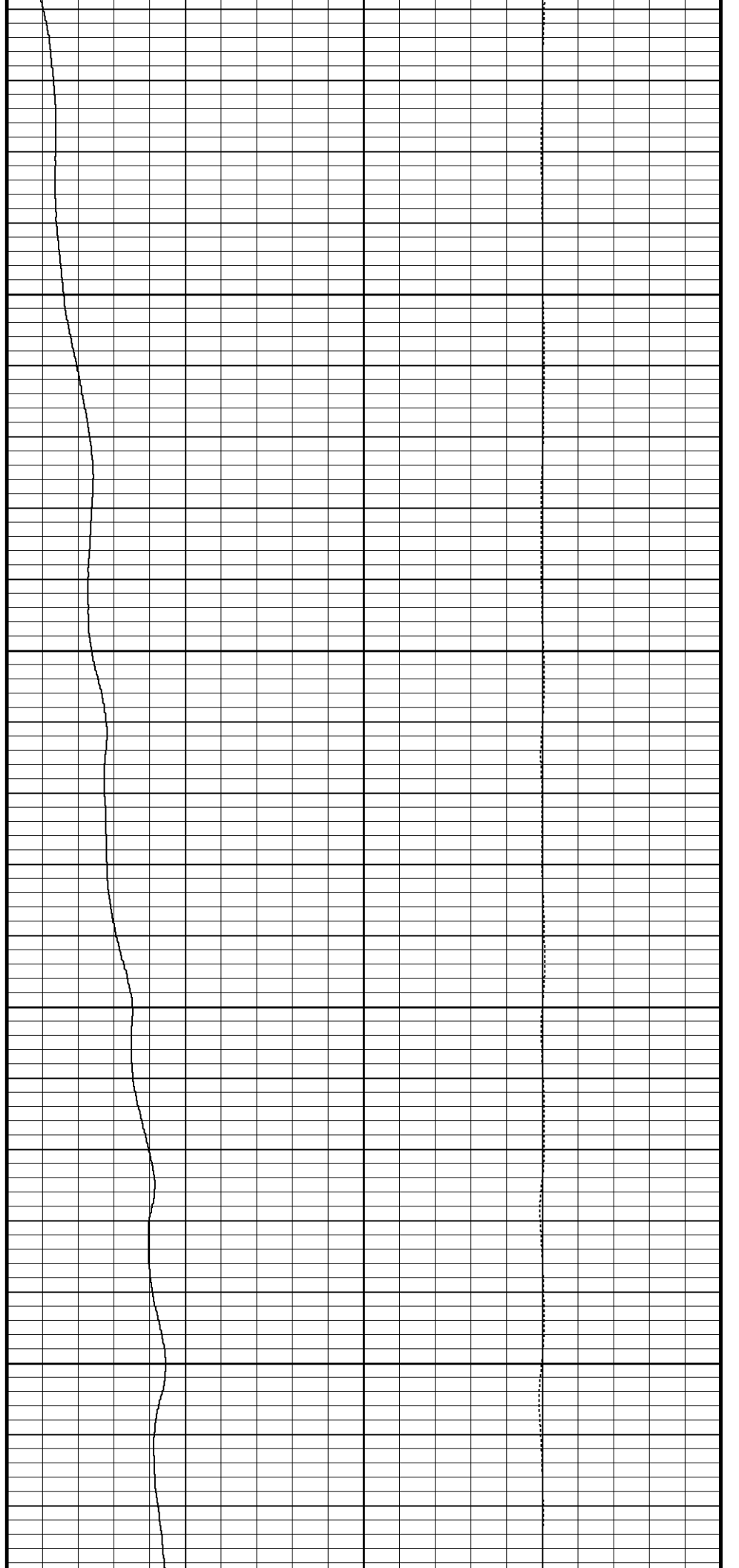
6100

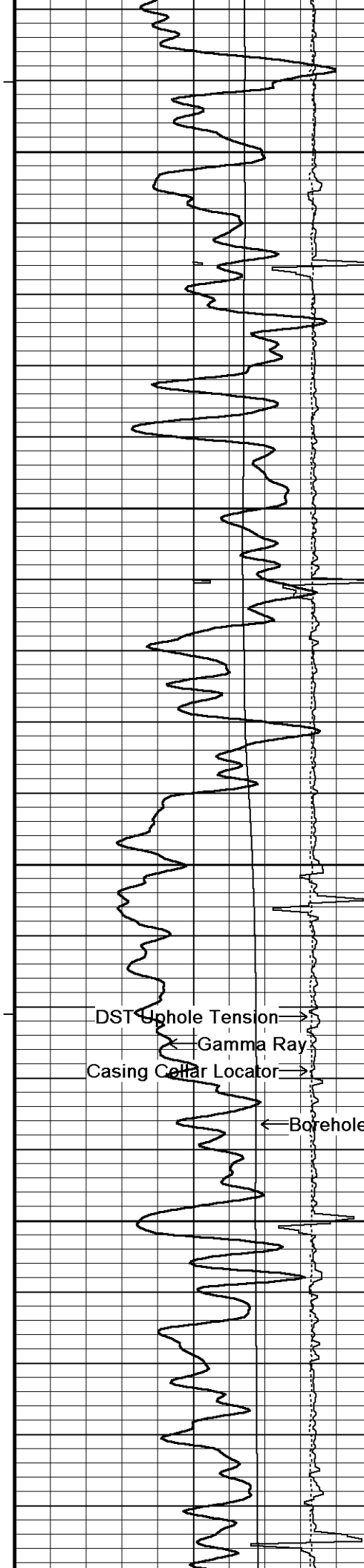
152°

6150

153°

6200





154°

6250

154°

6300

154°

6350

DST Uphole Tension →

Gamma Ray

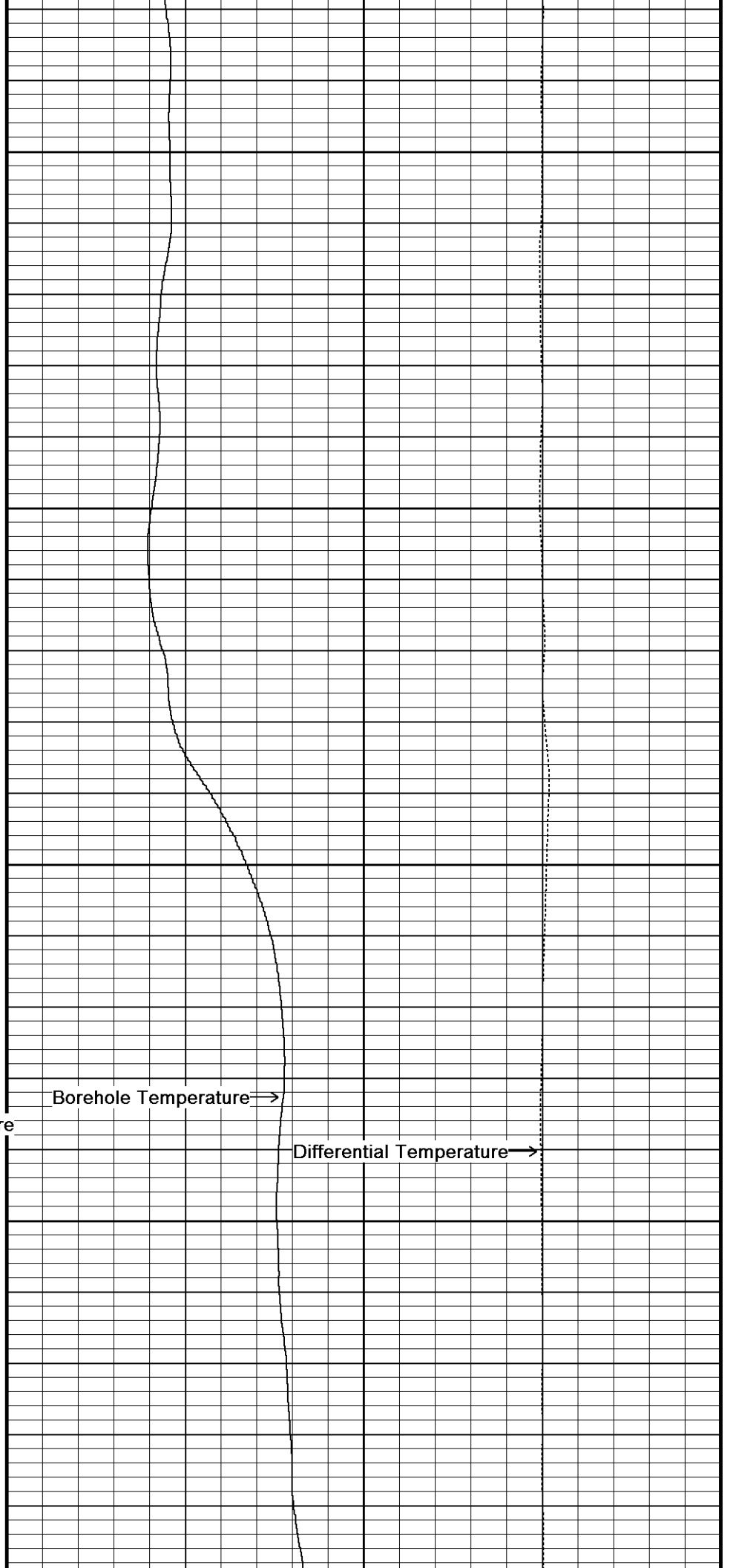
Casing Collar Locator →

← Borehole Temperature

157°

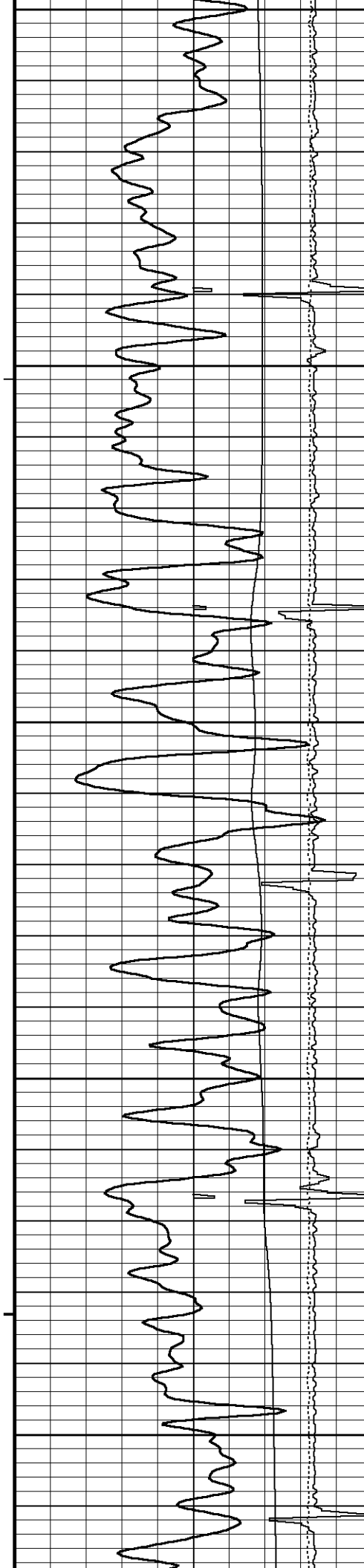
6400

157°

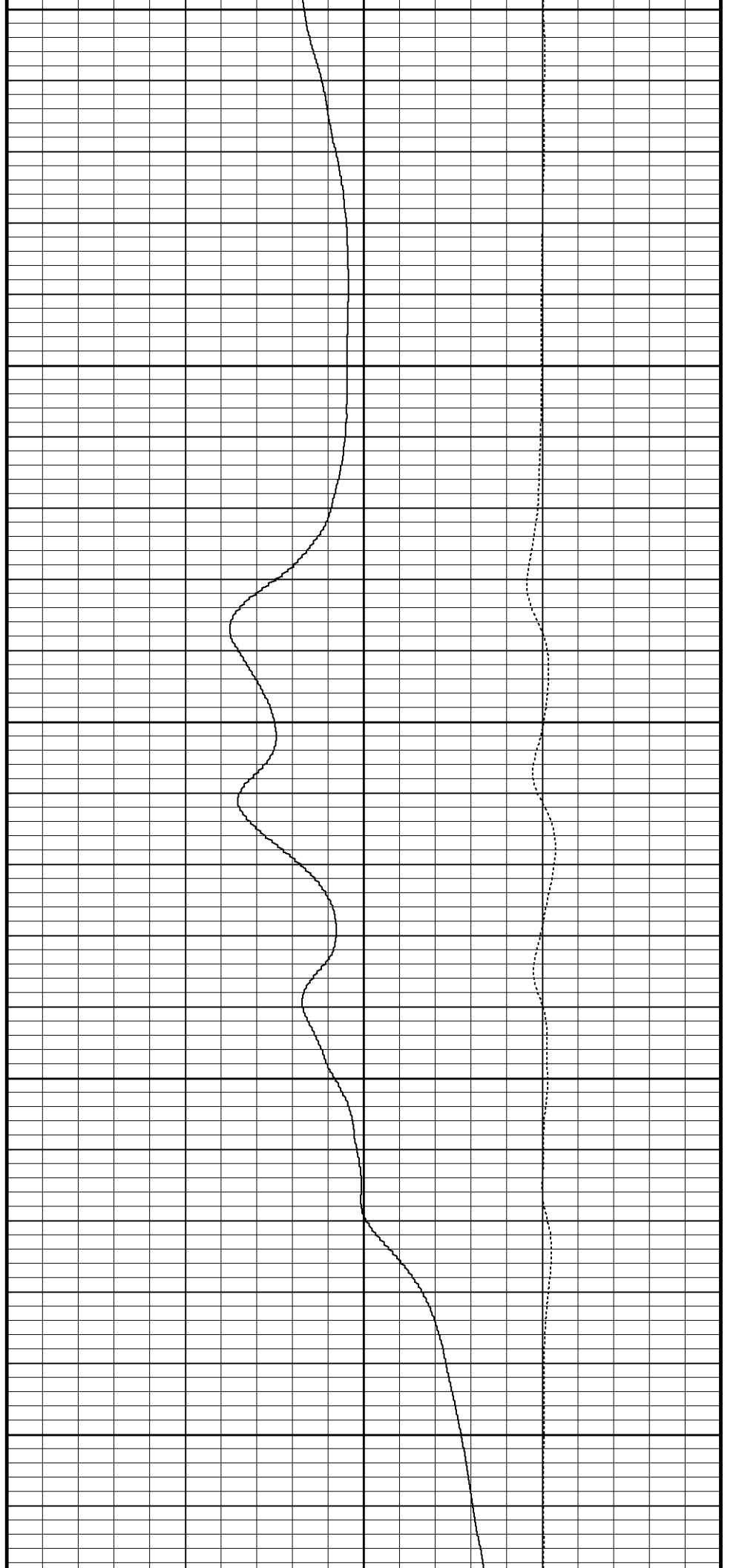


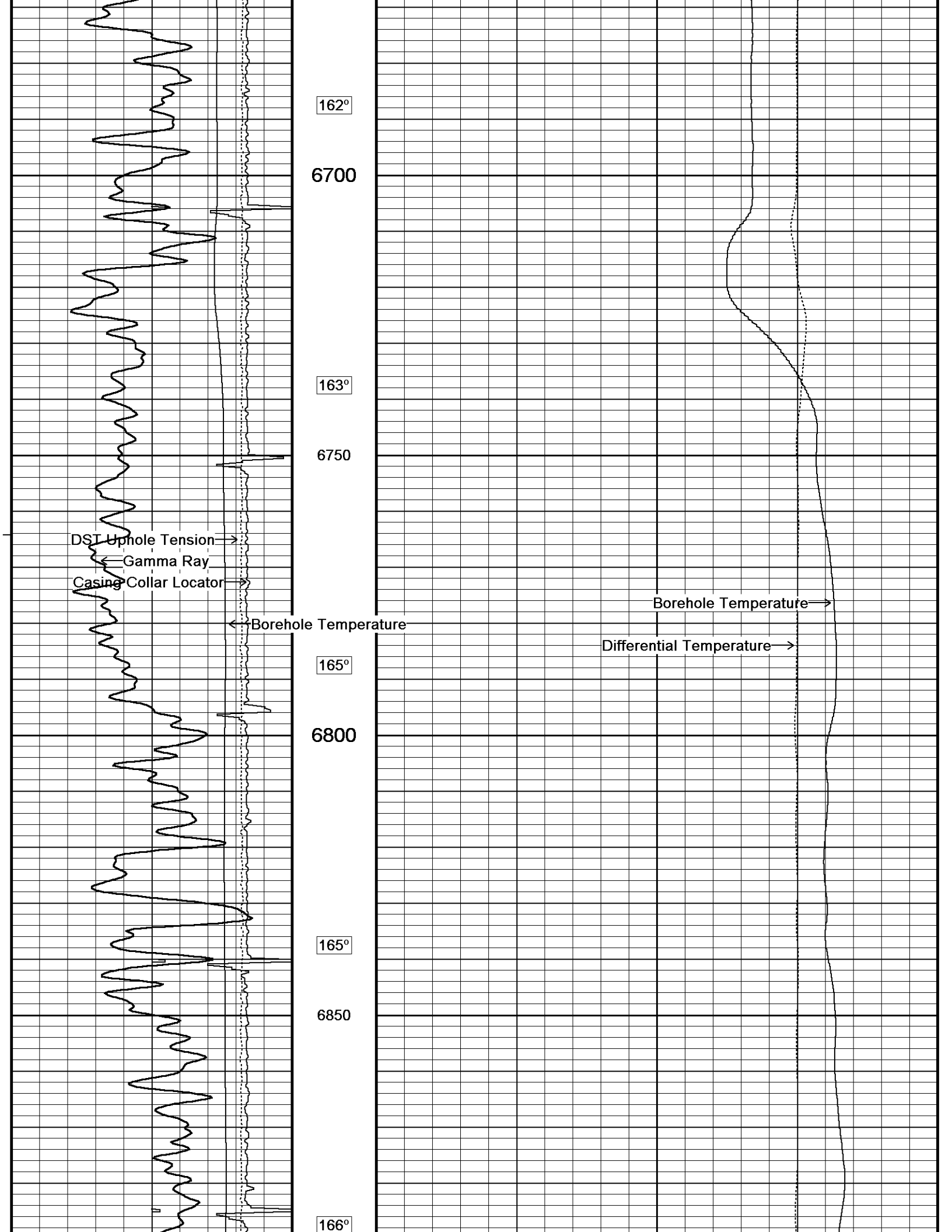
Borehole Temperature →

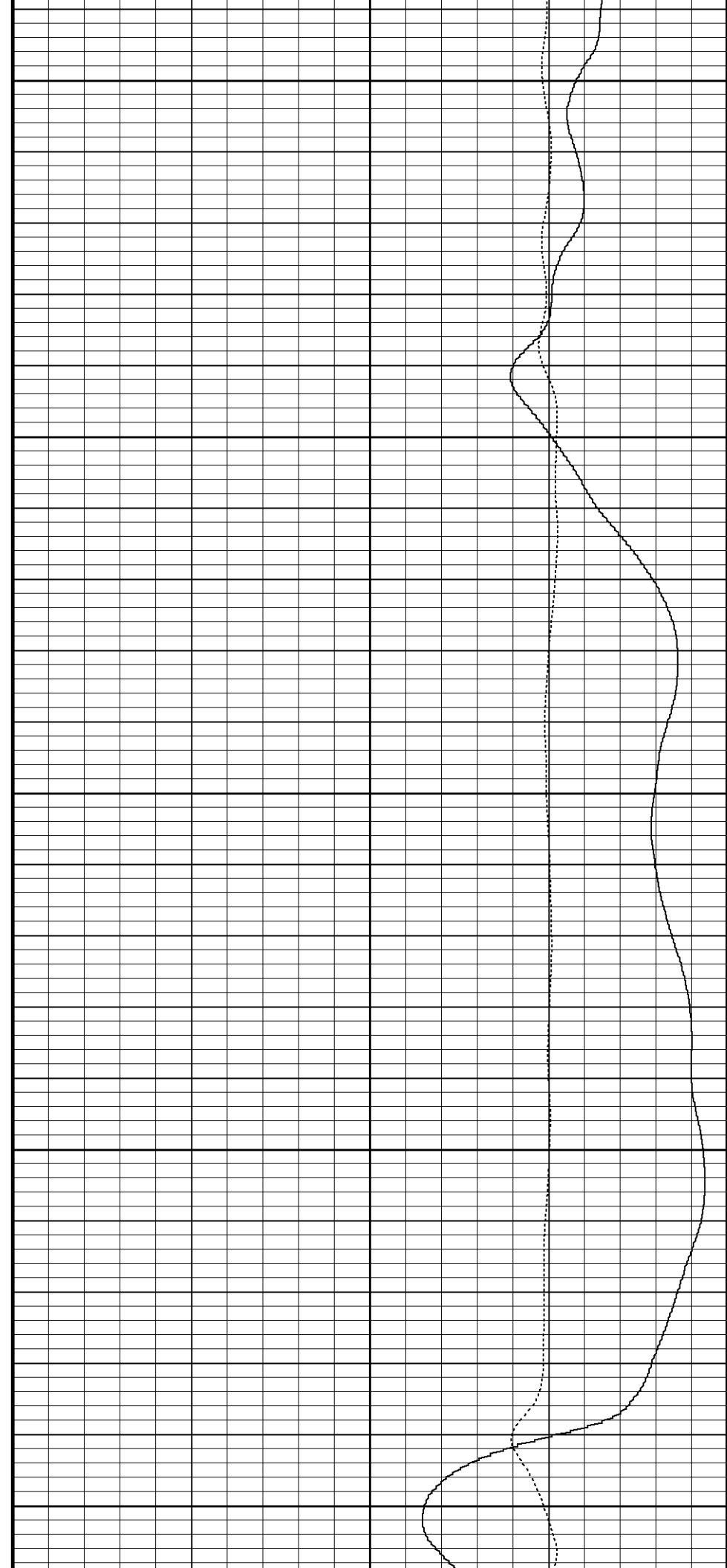
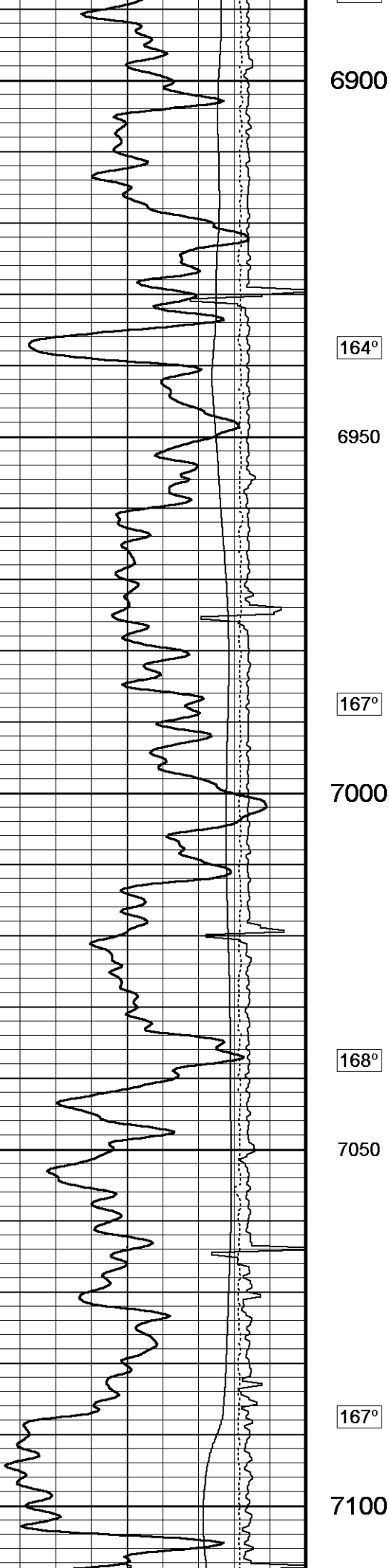
Differential Temperature →

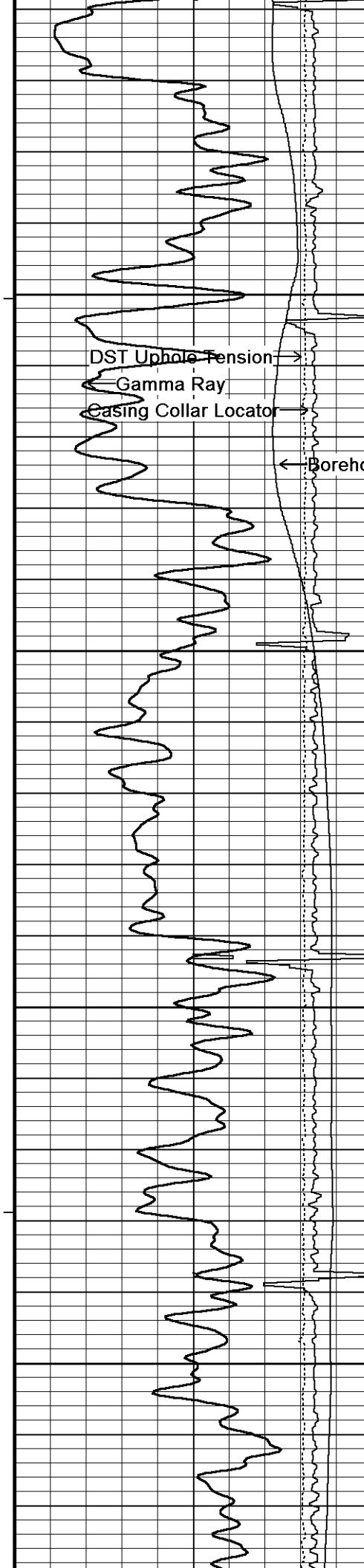


6450  
158°  
6500  
157°  
6550  
158°  
6600  
160°  
6650









165°

7150

DST Uphole Tension →  
Gamma Ray  
Casing Collar Locator →

← Borehole Temperature

166°

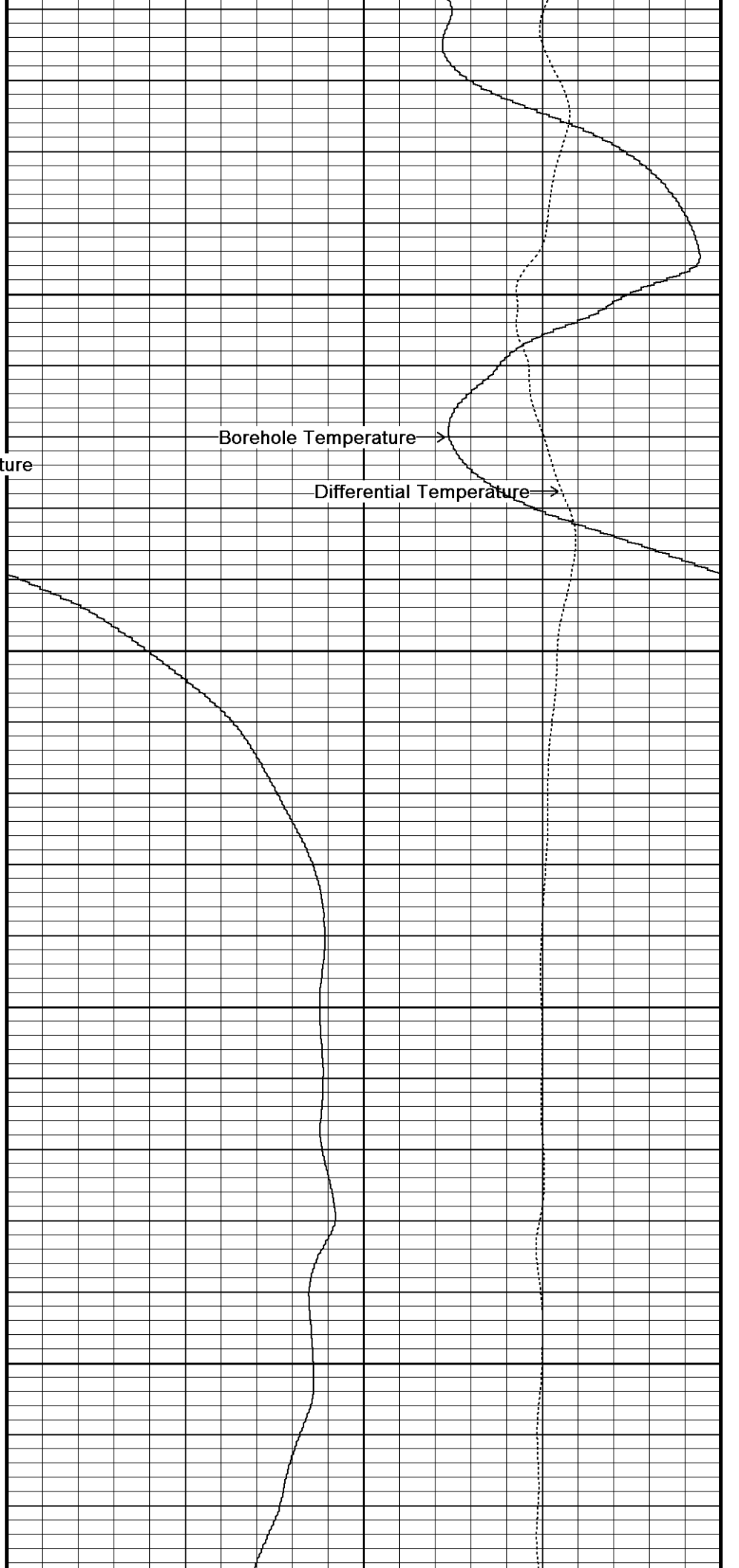
7200

175°

7250

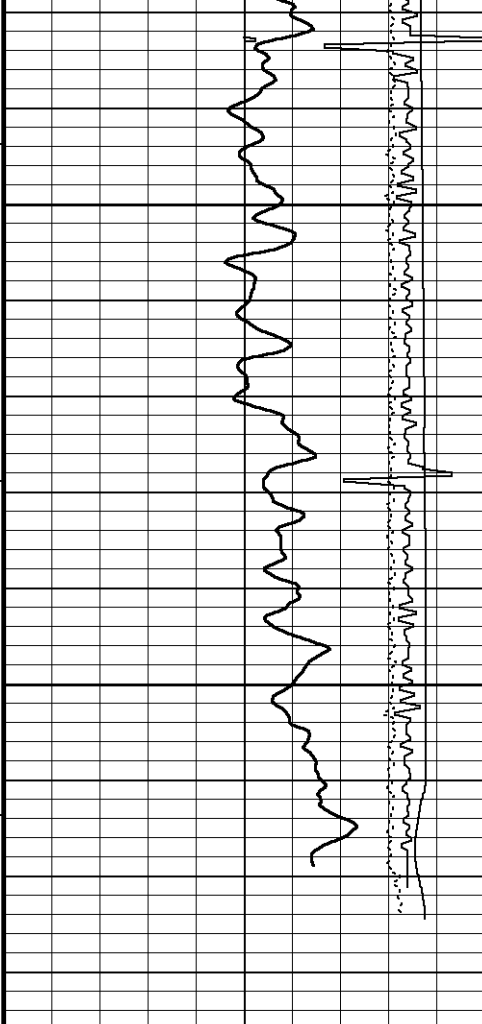
177°

7300



Borehole Temperature →

Differential Temperature →



176°

7350

176°

7400

7434

Depth  
In  
Feet

← Timing Marks  
every 60.0 sec

Gamma Ray  
API  
0            75            150  
150          225          300

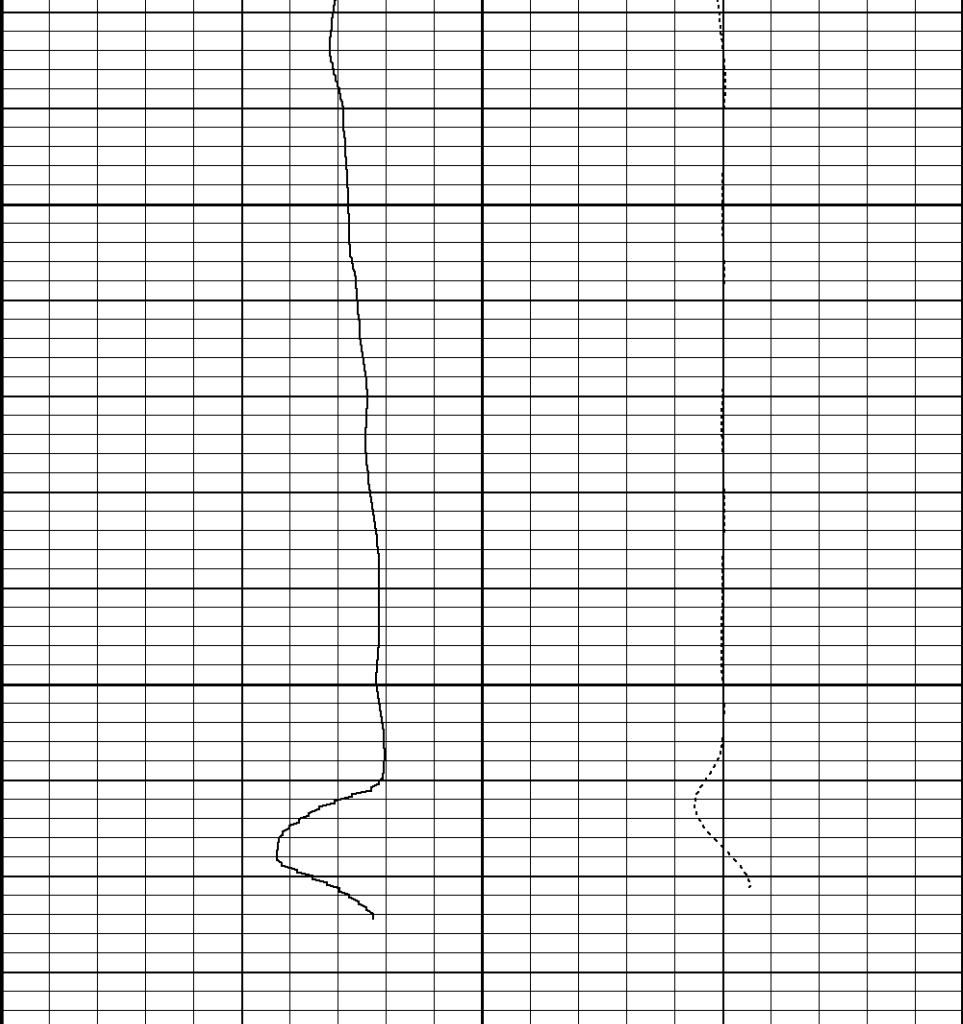
Borehole Temperature  
degrees F  
0            50            100

DST Uphole Tension  
pounds  
3000            0  
0                -3000

Casing Collar Locator  
-15000            7000

Borehole  
Temp in  
deg F

Replay  
Scale  
1:240



Borehole Temperature  
degrees F  
0            5            10            15            20

Differential Temperature  
degrees F/sample  
-1            0            1



## BEFORE SURVEY CALIBRATION

C:\LOGS\GJ11-038\Setup.dta

## General Constants All 000

Last Edited on 26-MAR-2011,08:12

## General Parameters

Mud Resistivity	3.000	ohm-metres
Mud Resistivity Temperature	90.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	

## Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	None	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	

## Rwa Parameters

Porosity used	N/A
Resistivity used	N/A
RWA Constant A	N/A
RWA Constant M	N/A

## Down-hole Tension Calibration SMS 0

Field Calibration on 24-MAR-2011 20:35

Reading No	Measured	Calibrated (lbs)
1	15606.31	0.00
2	16566.65	350.00

## High Resolution Temperature Calibration MCG-C 192

Field Calibration on 11-MAR-2011,06:06

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

## High Resolution Temperature Constants MCG-C 192

Last Edited on 11-MAR-2011,06:06

Pre-filter Length	11
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## SP Calibration MCG-C 192

Field Calibration on 11-MAR-2011,06:06

	Measured	Calibrated (mV)
Reference 1	100.9	100.0
Reference 2	-100.2	-100.0

## Gamma Calibration MCG-C 192

Field Calibration on 24-MAR-2011 18:41

	Measured	Calibrated (API)
Background	150	104
Calibrator (Gross)	1466	1016
Calibrator (Net)	1316	912

## Gamma Constants MCG-C 192

Last Edited on 26-MAR-2011,08:04

Gamma Calibrator Number	GRC-072	
Mud Density	1.28	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

## High Resolution Temperature Calibration MHT-A 11

Field Calibration on 26-MAR-2011,08:09

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

## High Resolution Temperature Constants MHT-A 11

Last Edited on 26-MAR-2011,08:09

Pre-filter Length	11
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**DOWNHOLE EQUIPMENT**

C:\LOGS\GJ11-038\Setup.dta

SHA-J.A Compact Swivel Head Adaptor  
 SHA-J.A 316 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma  
 MCG-C 192 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact High Resolution Temperature  
 MHT-A 11 LG: 1.53 ft WT: 13.2 lb OD: 2.24 in

Total Length: 12.53 ft Weight: 99.2 lb



4.94 ft GRGC - Gamma Ray  
 2.76 ft CCLG - Casing Collar Locator  
 2.03 ft CGXT - MCG External Temperature  
 0.00 ft BHTF - Borehole Temperature  
 0.00 ft BHTD - Differential Temperature  
 Tool Zero (0.13ft from bottom)  
 -0.13 ft SMTU - DST Uphole Tension  
 All measurements relative to tool zero.

**COMPANY** BILL BARRETT CORPORATION  
**WELL** GGU FEDERAL 31C-29-691  
**FIELD** GIBSON GULCH  
**PROVINCE/COUNTY** GARFIELD  
**COUNTRY/STATE** U.S.A. / COLORADO

Elevation Kelly Bushing	6127.00	feet	First Reading		feet
Elevation Drill Floor		feet	Depth Driller	7428.00	feet
Elevation Ground Level	6104.00	feet	Depth Logger	7420.00	feet



**Weatherford**<sup>®</sup>

**TEMPERATURE LOG**