



Weatherford

**ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**

COMPANY

SHAKESPEARE OIL CO., INC.

WELL

SCHOWALTER #8-12

FIELD

BECKLEY NORTH

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

SE NW SE SE 985' FSL & 940' FEL

SEC 12

TWP 18S

RGE 32W

Other Services

Latitude

38.500277

MDN/MPD

Longitude

-100.800000

MML

API Number

15-171-21253

Permanent Datum GL, Elevation 2962 feet

Log Measured From KB

Drilling Measured From KB

Elevations:

KB

DF

GL

feet

2972.00

2970.00

2962.00

Date

26-JUN-2019

Run Number

ONE

Service Order

17937-248748599

Depth Driller

4650.00 feet

Depth Logger

4649.00 feet

First Reading

4646.00 feet

Last Reading

265.00 feet

Casing Driller

265.00 feet

Casing Logger

265.00 feet

Bit Size

7.875 inches

Hole Fluid Type

WATER-BASED

Density / Viscosity

9.10 lb/USg 46.00 sec/qt

PH / Fluid Loss

10.00 8.80 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

0.98 @ 96.0 ohm-m

Rmf @ Measured Temp

0.78 @ 96.0 ohm-m

Rmc @ Measured Temp

1.18 @ 96.0 ohm-m

Source Rmf / Rmc

CALC CALC

Rm @ BHT

0.78 @122.0 ohm-m

Time Since Circulation

4 HOURS

Max Recorded Temp

122.00 deg F

Equipment / Base

13057 ELRENO

Recorded By

MATT MCGLOTHLIN

Witnessed By

VERN SCHARG

BOREHOLE RECORD

Last Edited: 26-JUN-2019 21:10

Bit Size inches	Depth From feet	Depth To feet
7.875	265.00	4650.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	265.00	24.00

REMARKS

- LOGGING SOFTWARE: 18.01.6830
- TOOLSTRING:
MCB, SHA, MCG, MML, MDN, MPD, SKJ, MFE, MAI LOGGED IN COMBINATION.
- HARDWARE USED:
MAI: TOW 0.5 INCH STANDOFFS.
MFE: ONE 0.5 INCH STANDOFF.
MDN: DUAL BOWSPRING.
MPD: 8 INCH PROFILE PLATE.
- 2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
NEUTRON / DENSITY / MICROLOG = TD - 3600'.
GAMMA RAY / INDUCTION / SP / CALIPER = TD - SURFACE CASING.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 1820 CU FT

- ANNULAR HOLE VOLUME FROM TD TO SURFACE CASING = 1340 CU.FT.

- OPERATORS: J. KLINE, C. BAKER.

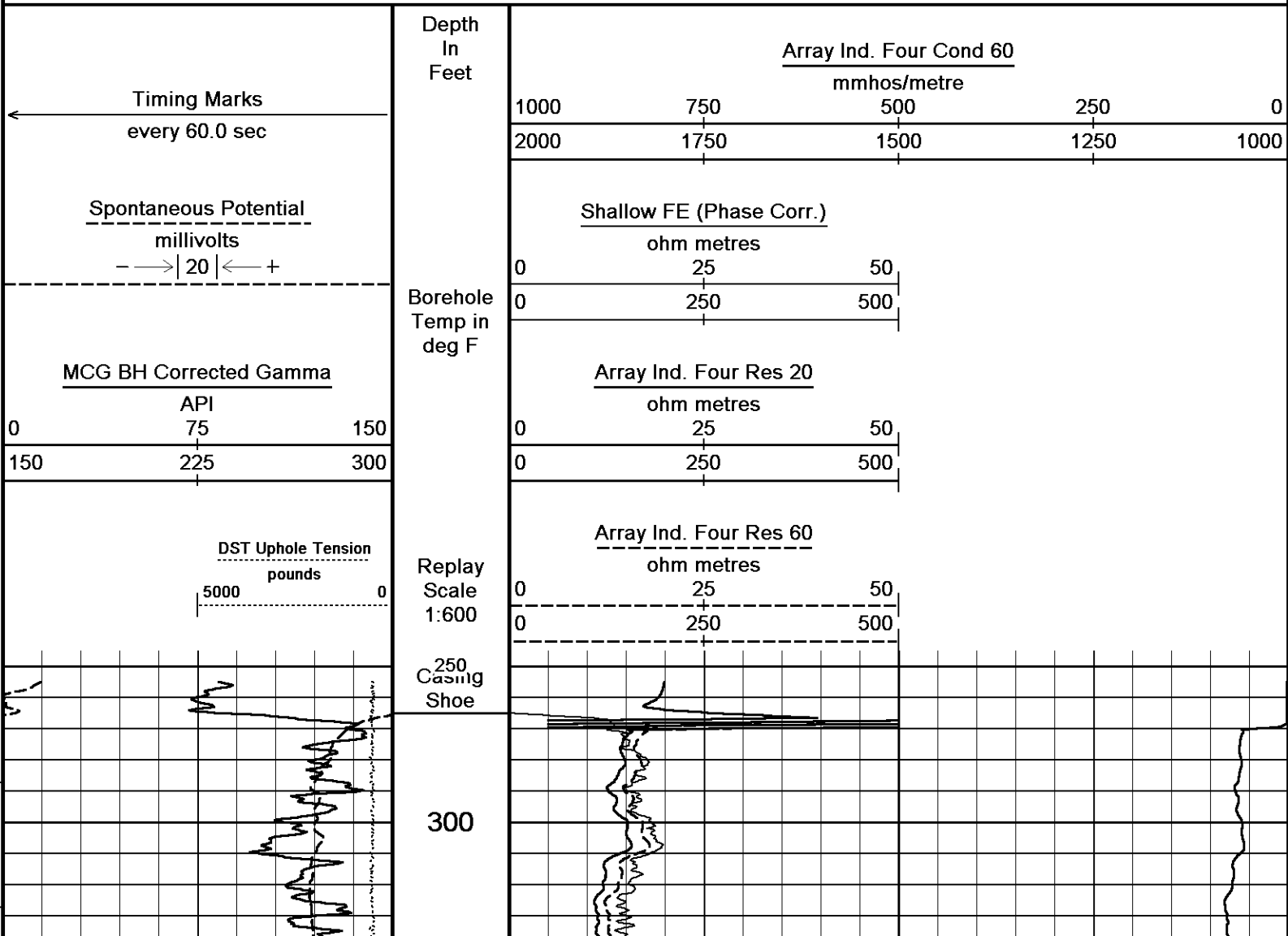
- MUD PROPERTIES:
 CHLORIDES: 4400 PPM.
 LCM: 1.5 #/BBL.

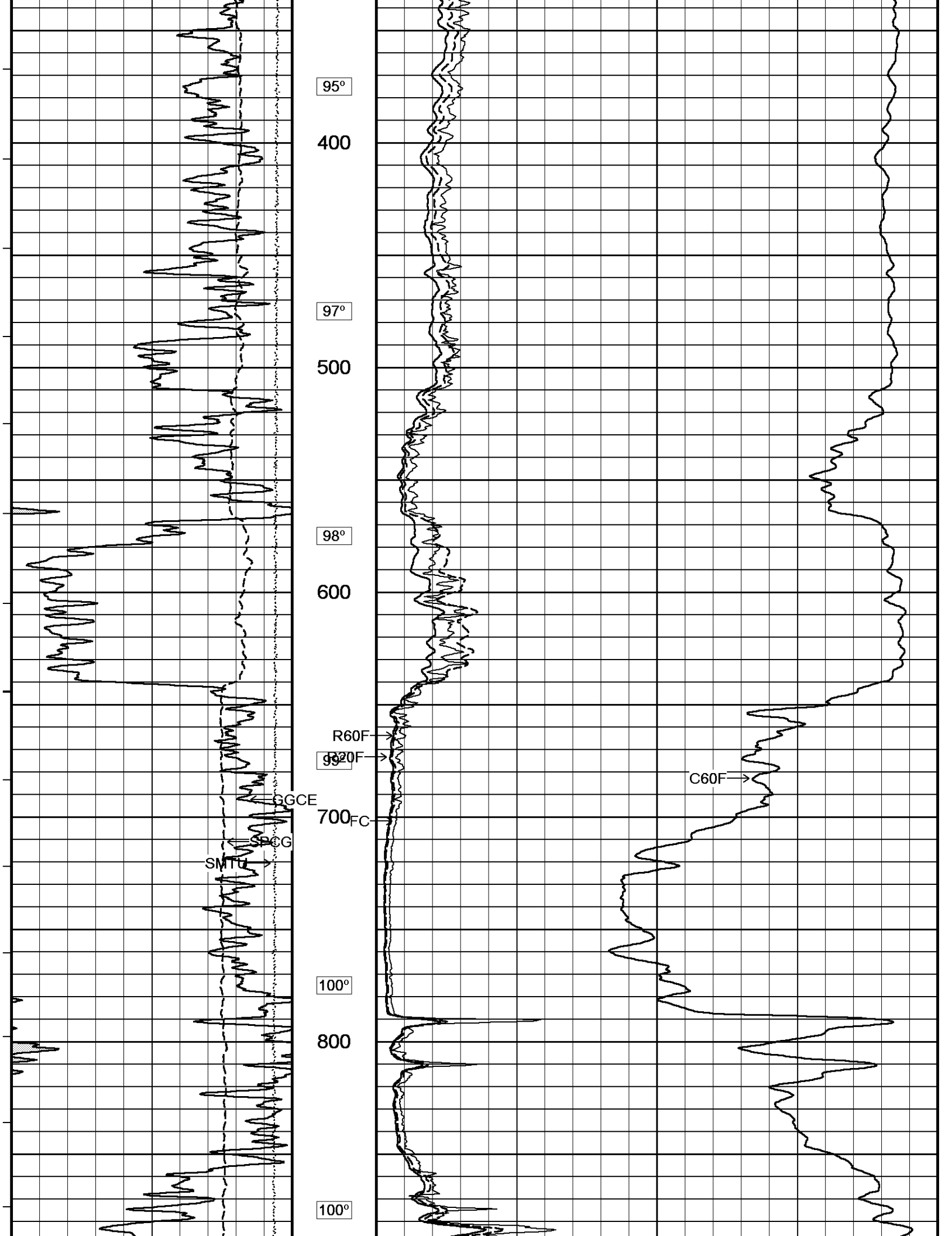
NEUTRON TOOL WILL BE CALIBRATED AFTER JOB AND READINGS WILL BE NORMALIZED TO NEW CALIBRATION.

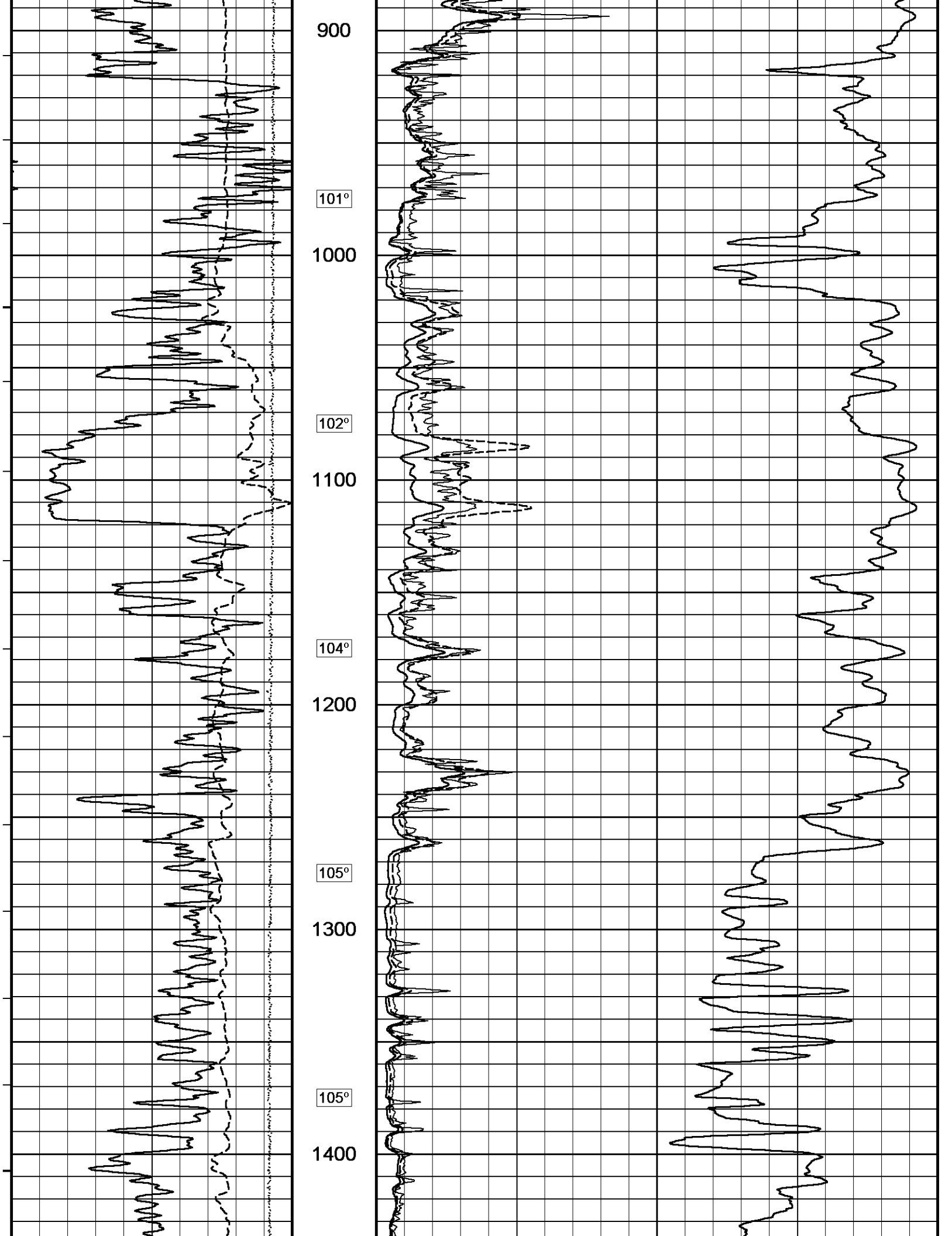
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

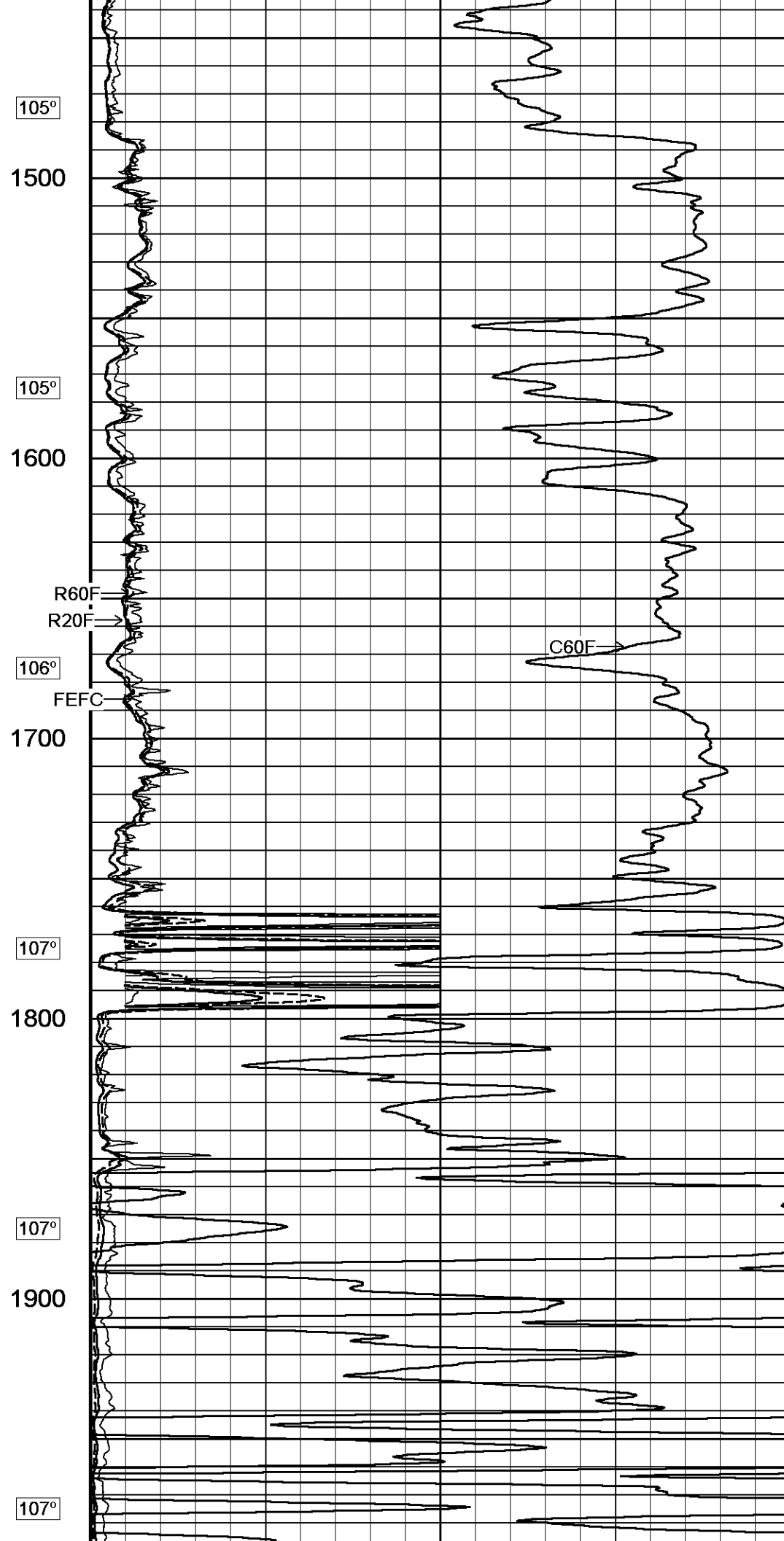
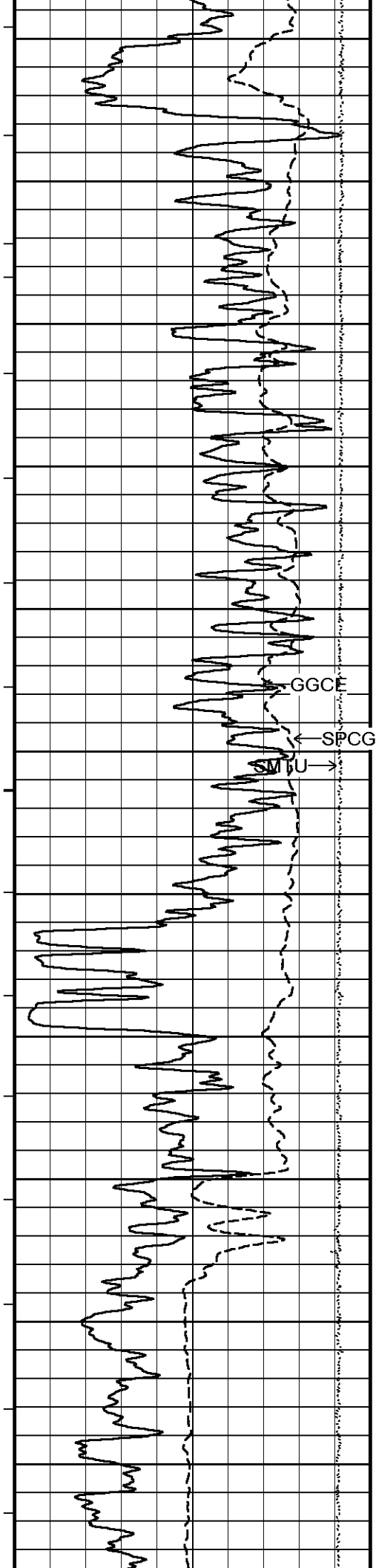
2 INCH MAIN PASS

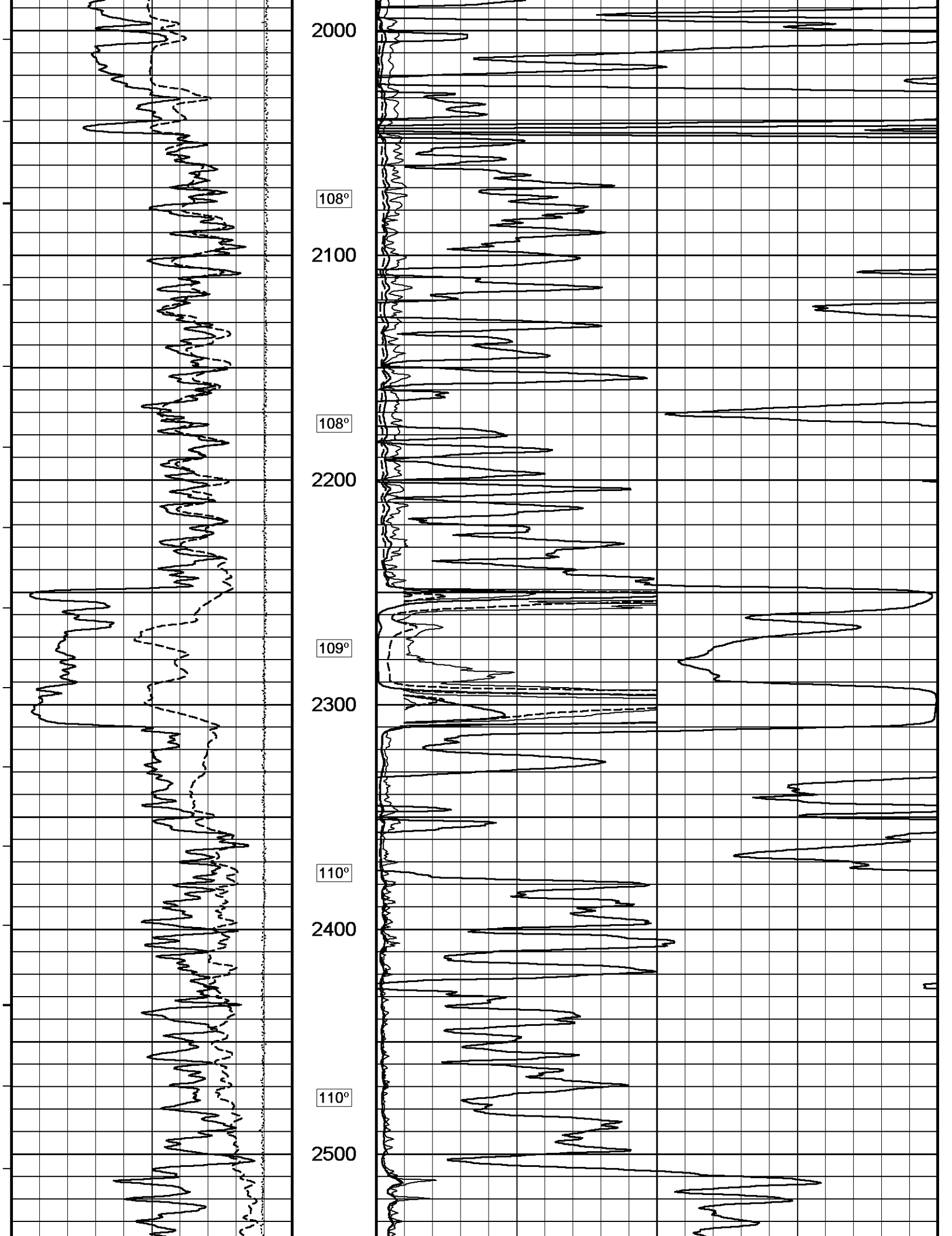
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 27-JUN-2019 07:33
 Filename: C:\Users\DHELPI~1\AppData\Local\Temp\Weatherford PreView0\MAIN PASS 001.dta Recorded on 26-JUN-2019 22:04
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365

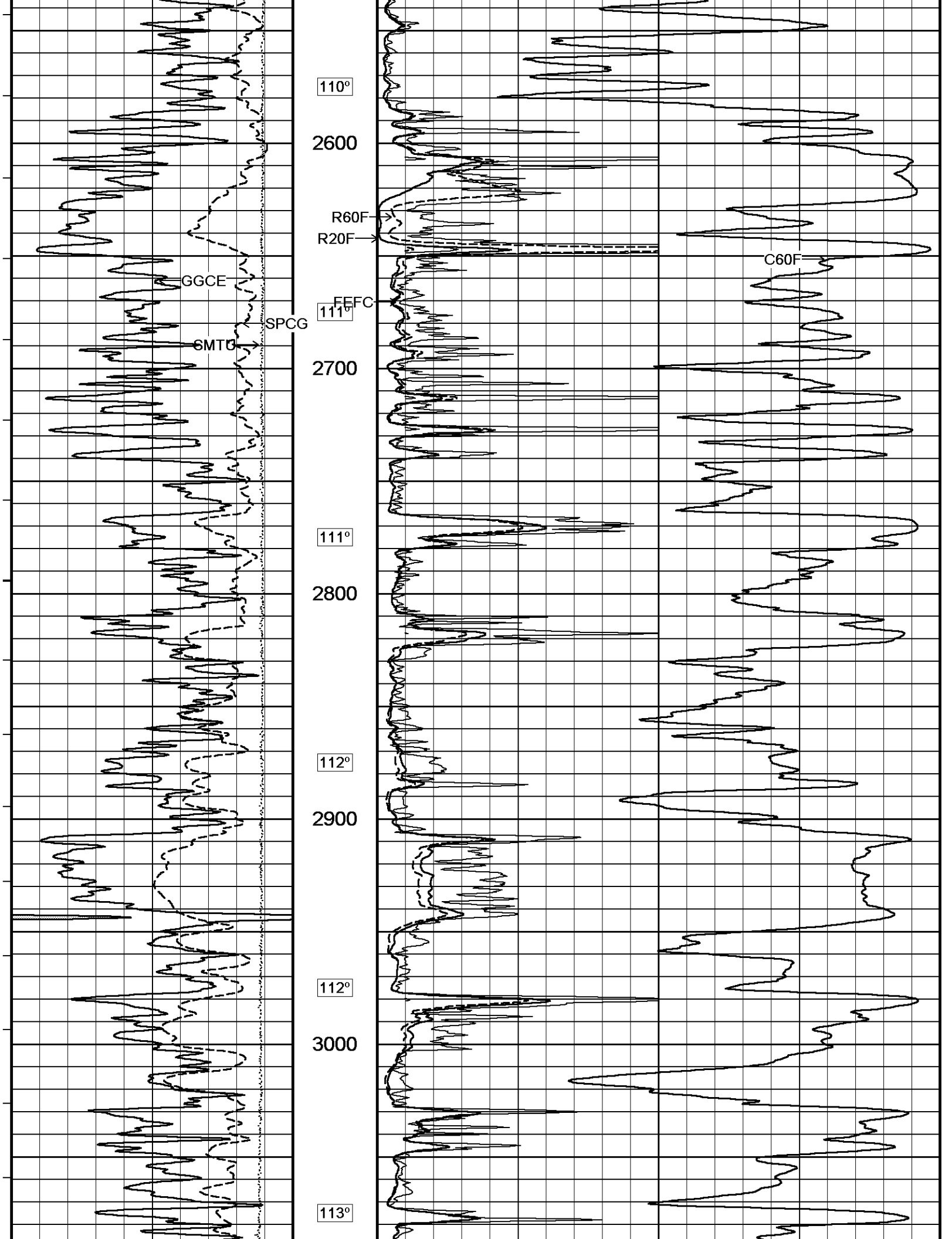


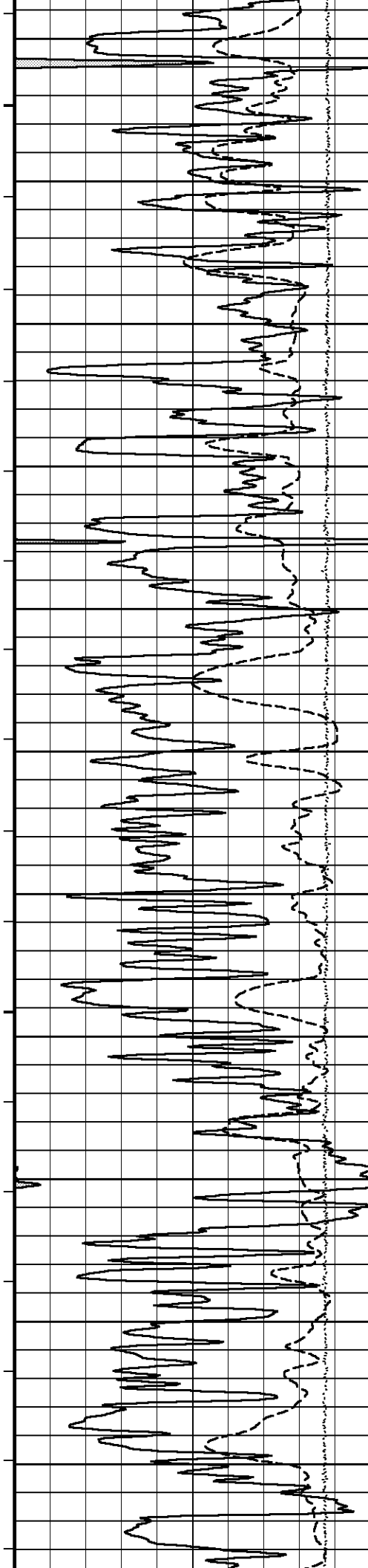












3100

114°

3200

114°

3300

115°

3400

115°

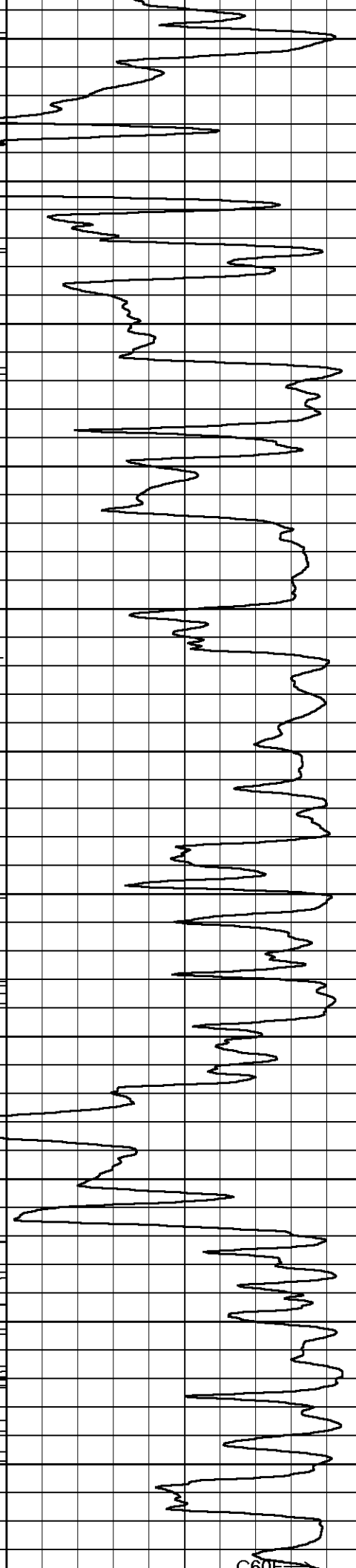
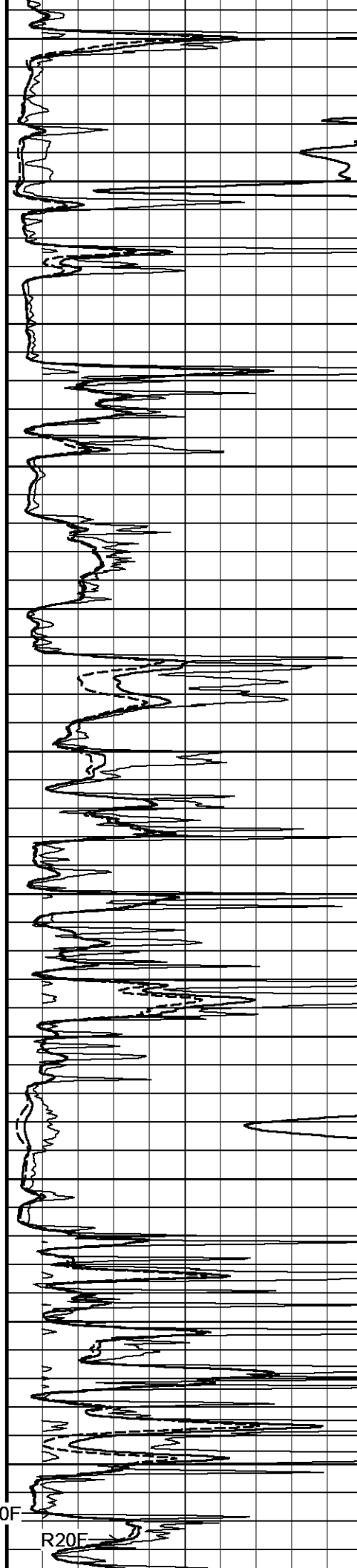
3500

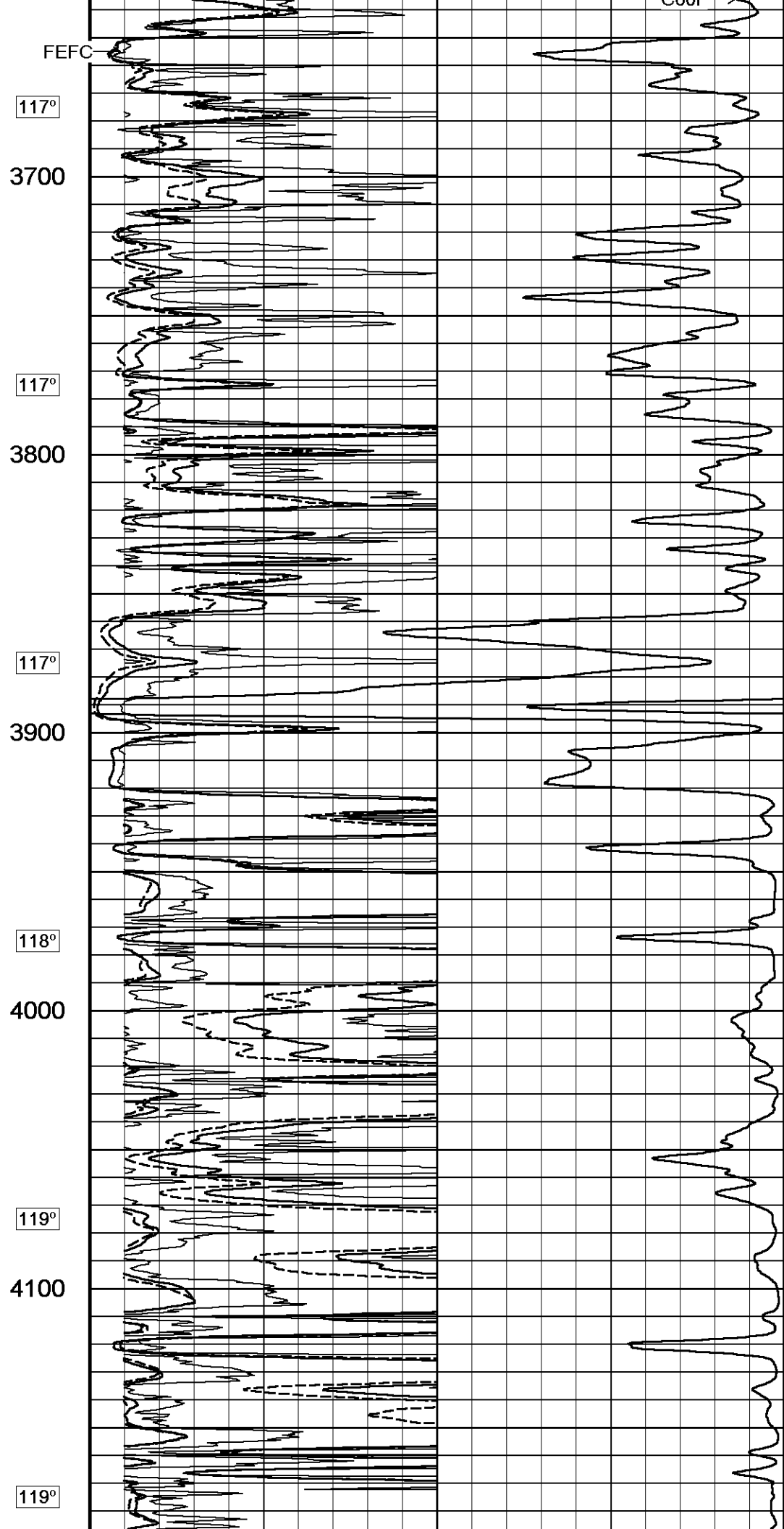
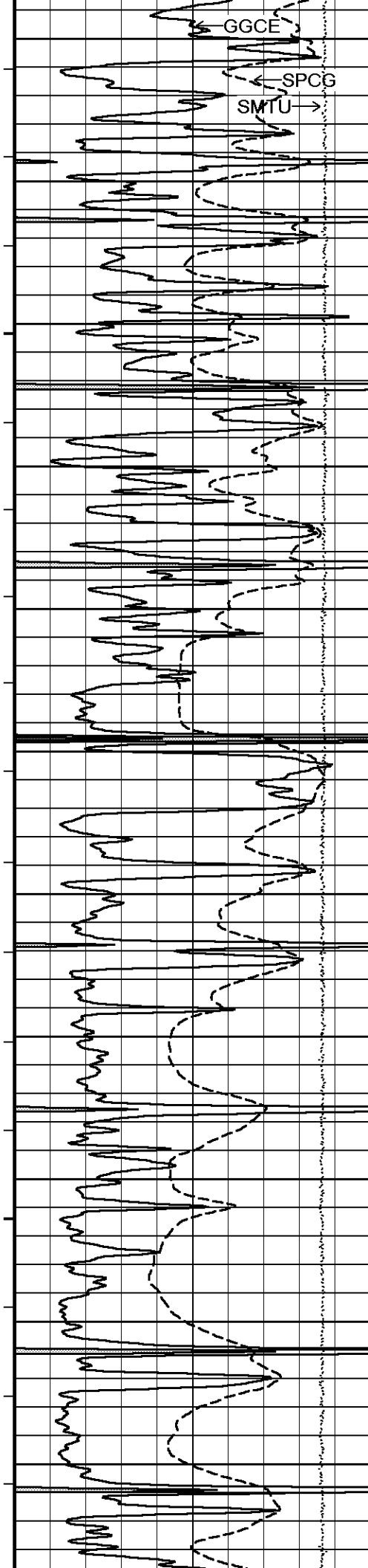
116°

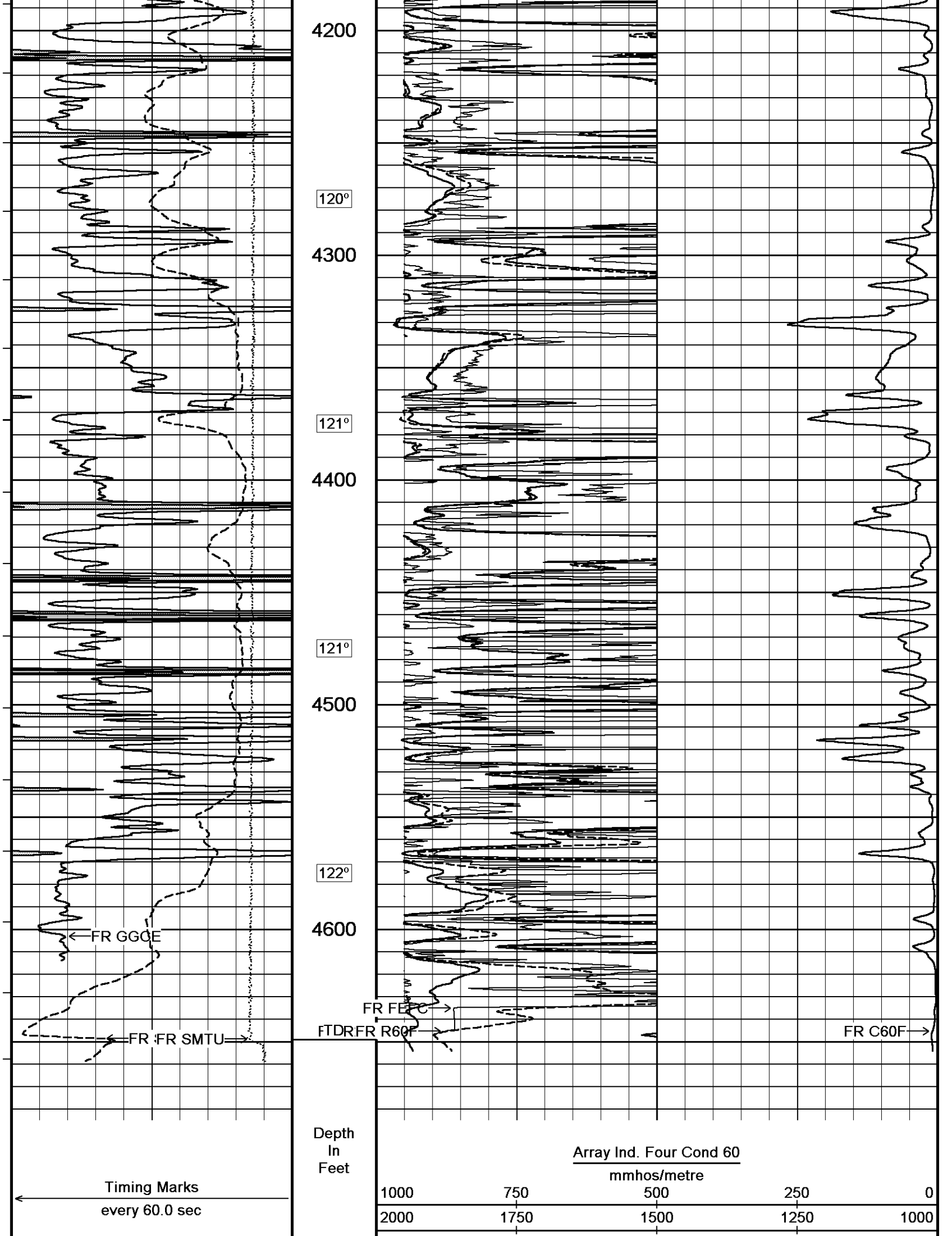
3600

R60F

R20F







4200

120°

4300

121°

4400

121°

4500

122°

4600

← FR GG0E

FR FEFC →

FTDRFR R60F →

FR C60F →

Timing Marks
every 60.0 sec

Depth
In
Feet

Array Ind. Four Cond 60

mmhos/metre

1000

750

500

250

0

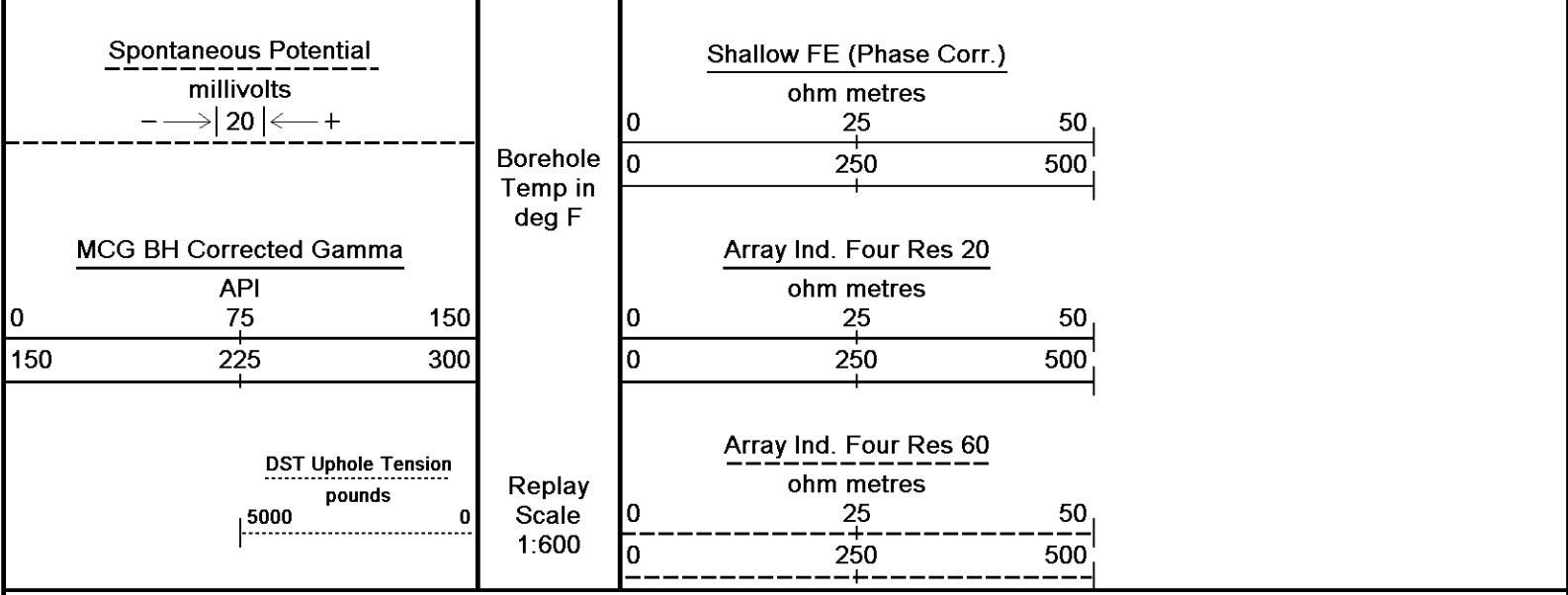
2000

1750

1500

1250

1000

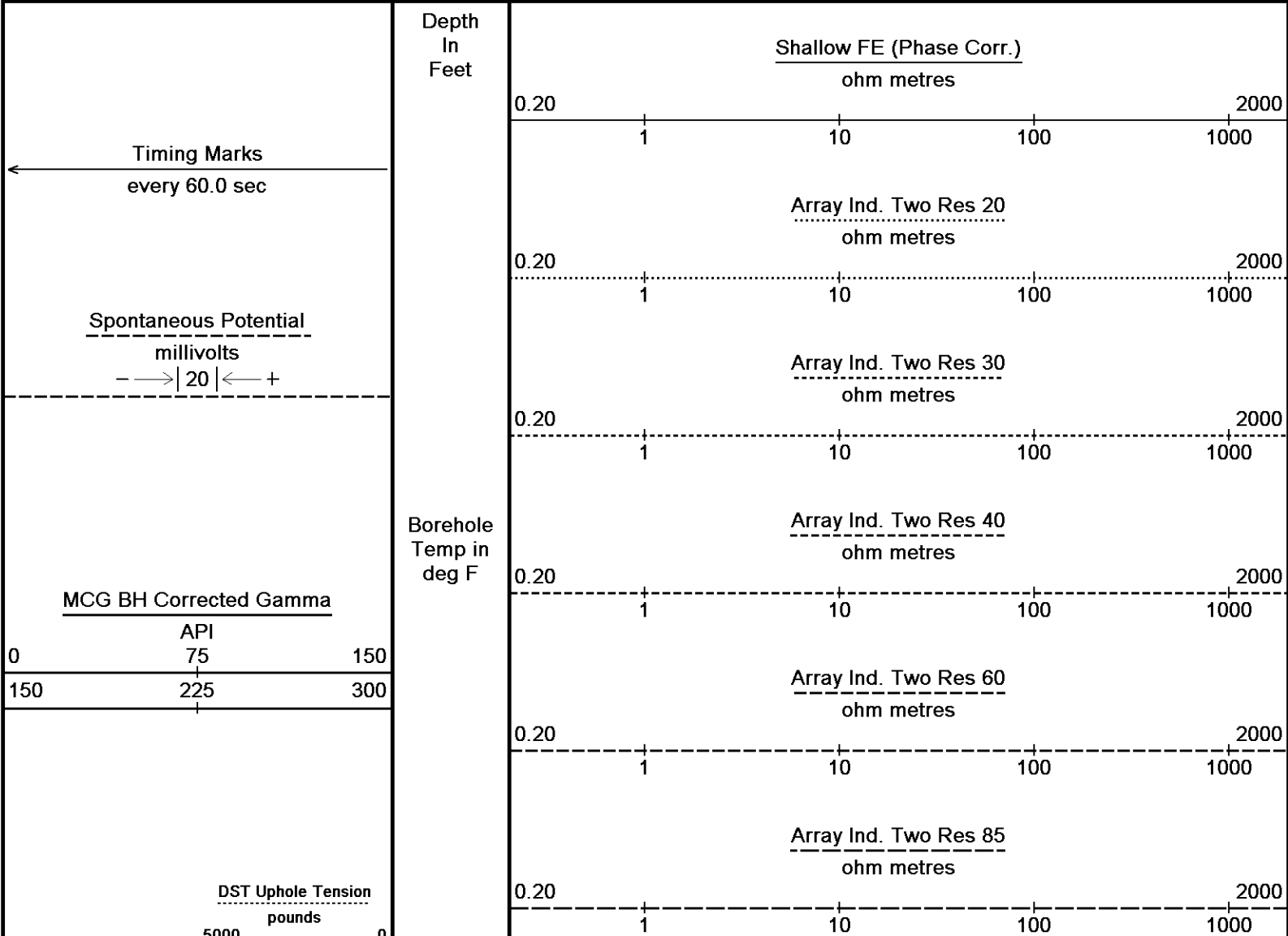


Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 27-JUN-2019 07:33
 Filename: C:\Users\DHELPI~1\AppData\Local\Temp\Weatherford PreView0\MAIN PASS 001.dta Recorded on 26-JUN-2019 22:04
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365

↑ **2 INCH MAIN PASS** ↑

↓ **5 INCH MAIN PASS** ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 27-JUN-2019 07:33
 Filename: C:\Users\DHELPI~1\AppData\Local\Temp\Weatherford PreView0\MAIN PASS 001.dta Recorded on 26-JUN-2019 22:04
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365



Array Ind. Two Res Rt
ohm metres

0.20 1 10 100 2000

Replay
Scale
1:240

254

Casing
Shoe

300

GGCE

SPCG

SMTU

95°

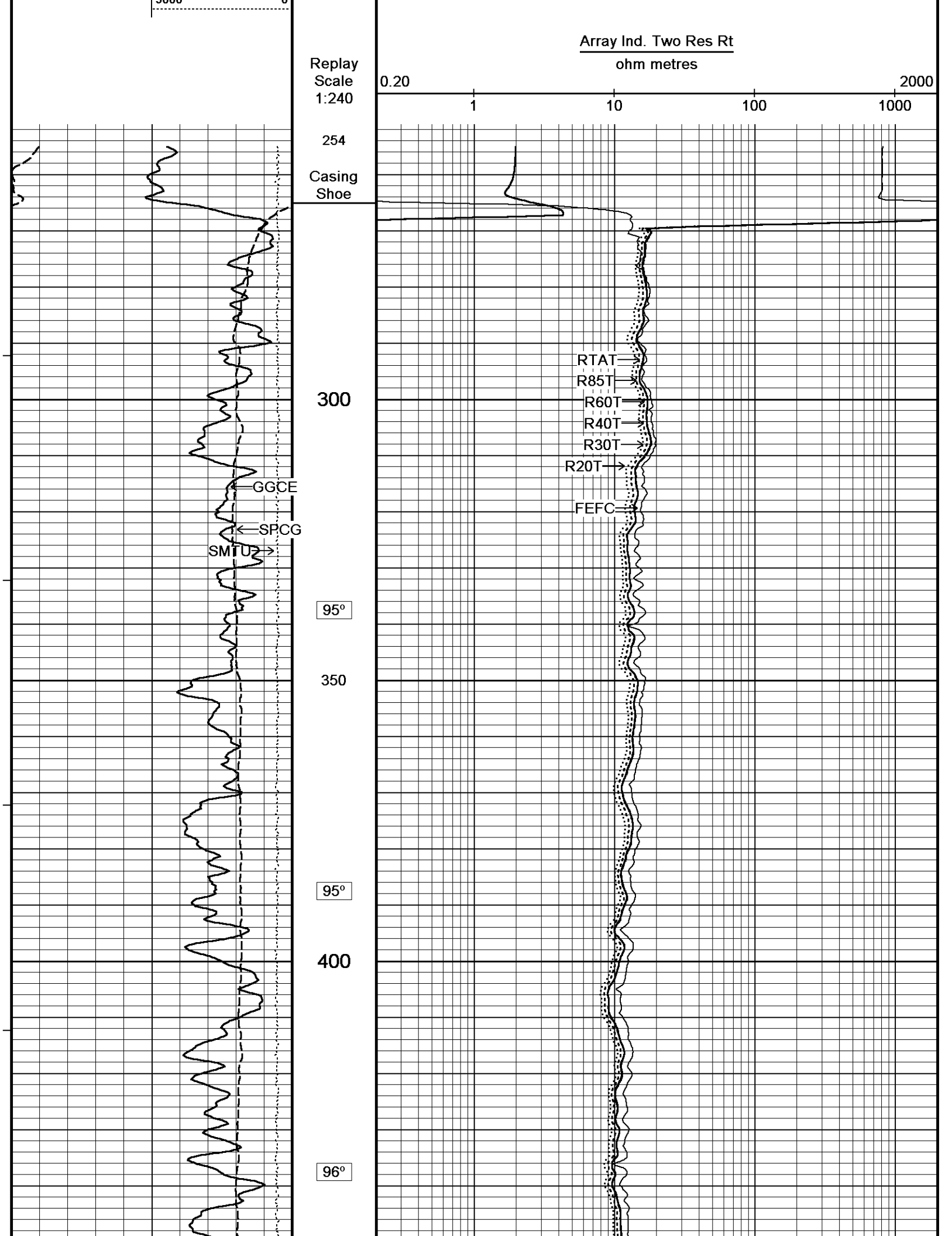
350

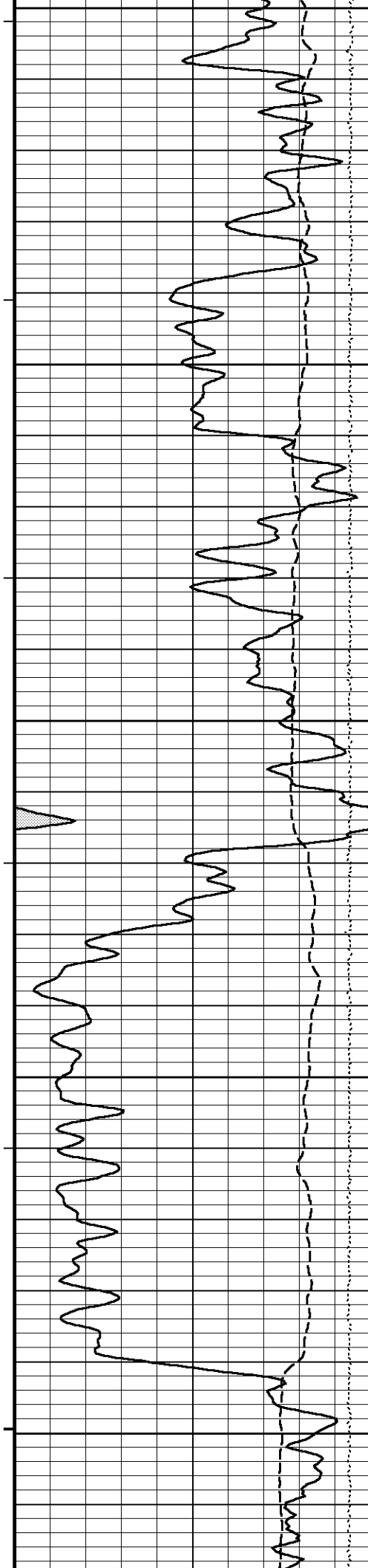
95°

400

96°

RTAT
R85T
R60T
R40T
R30T
R20T
FEFC





450

97°

500

97°

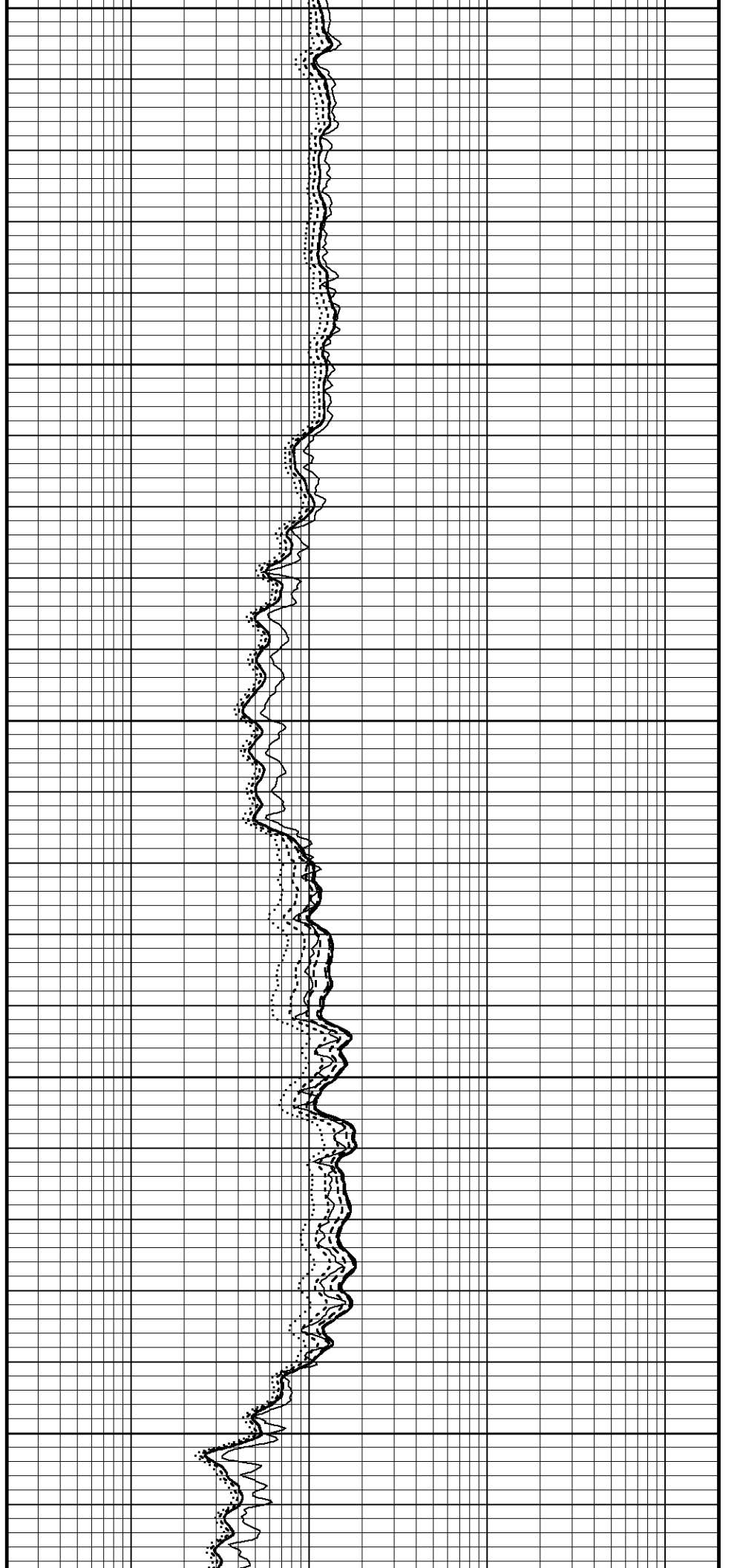
550

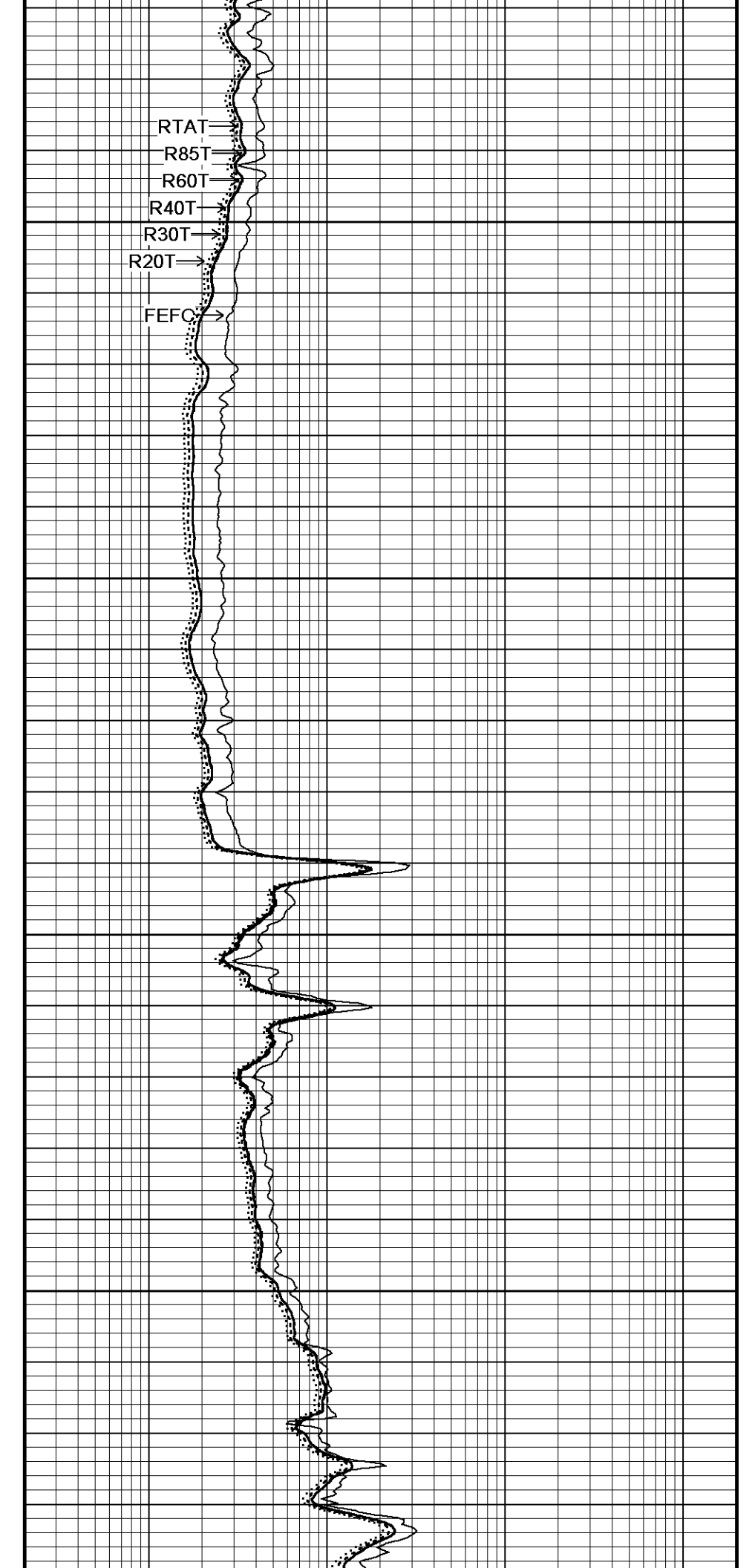
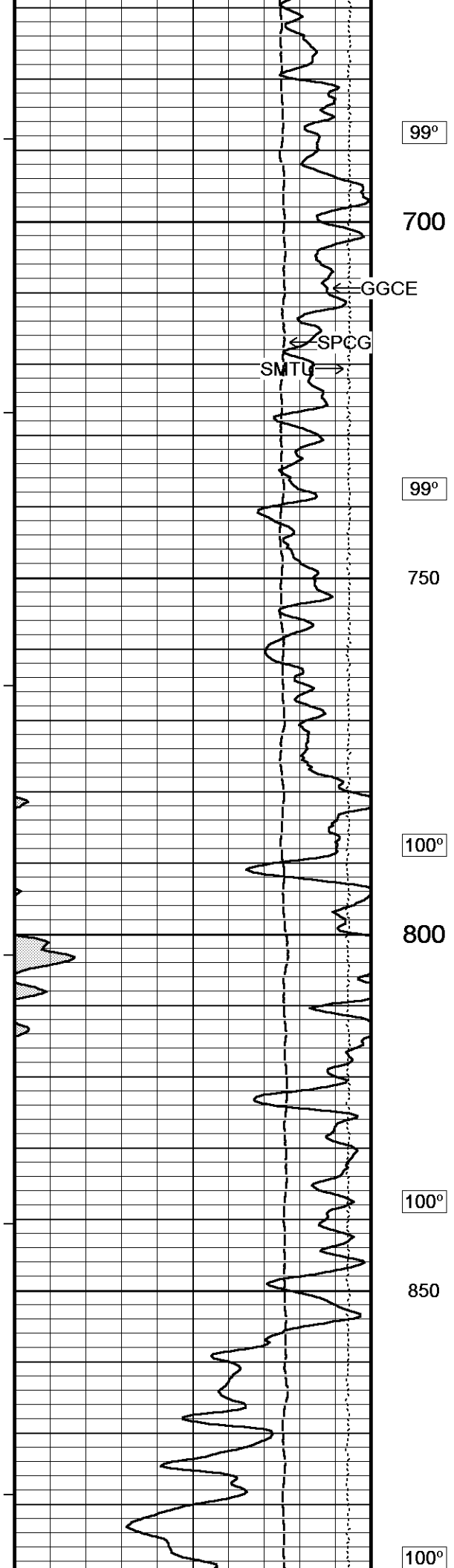
98°

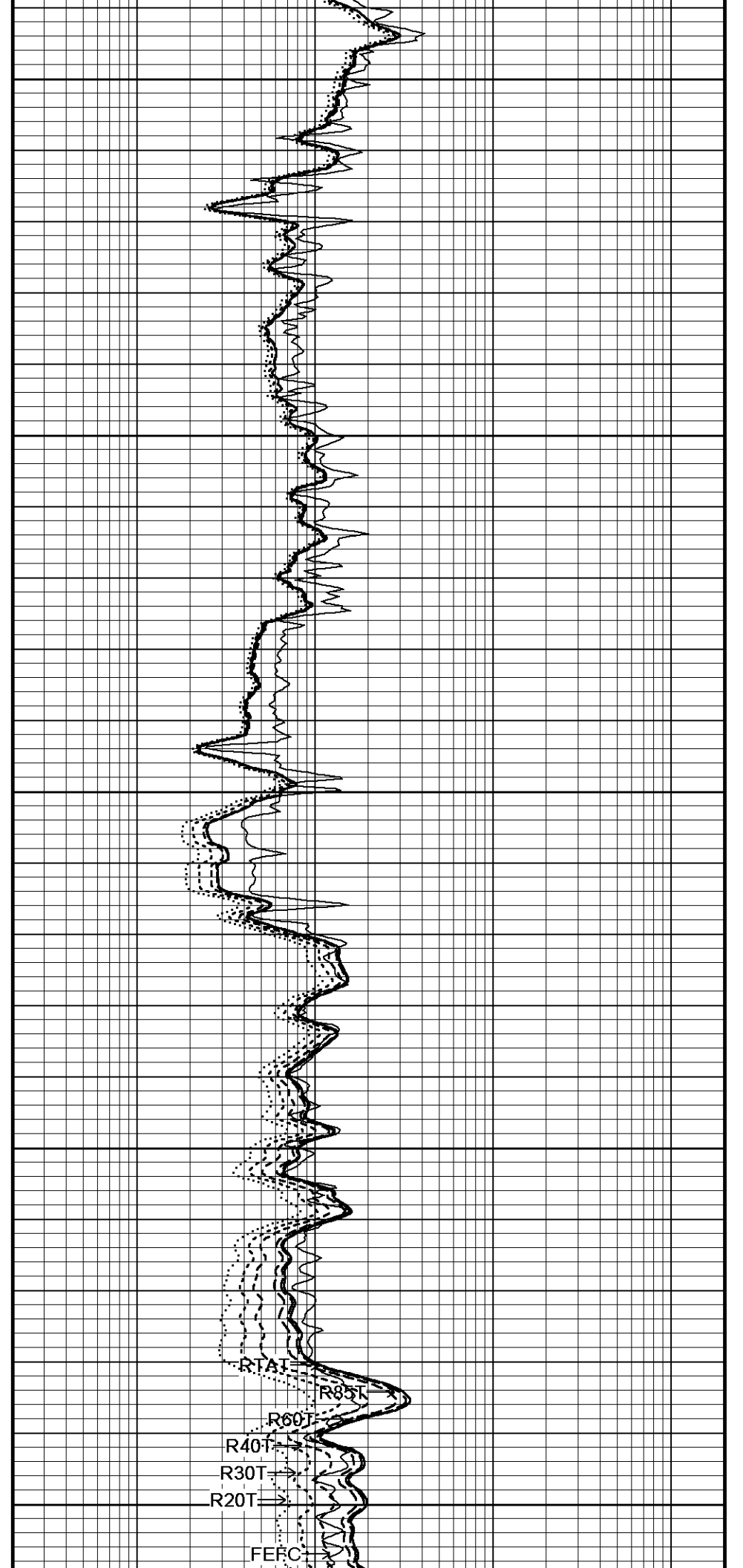
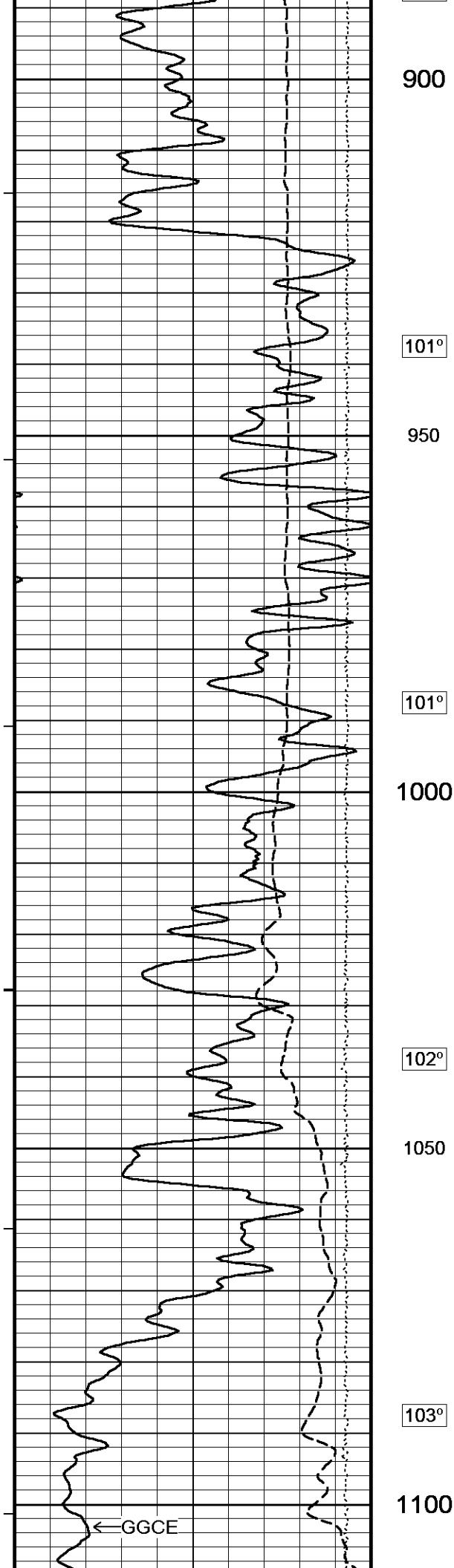
600

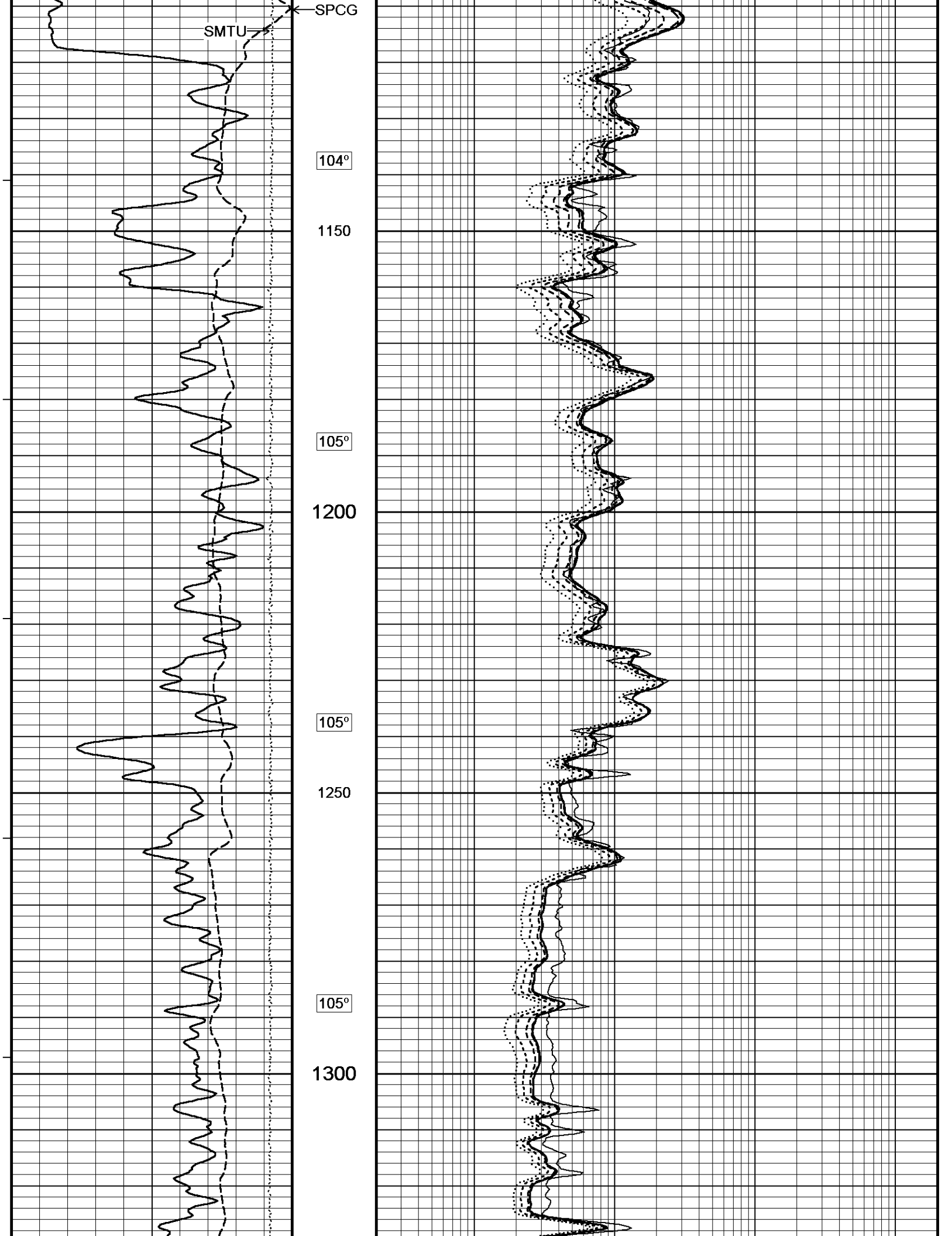
98°

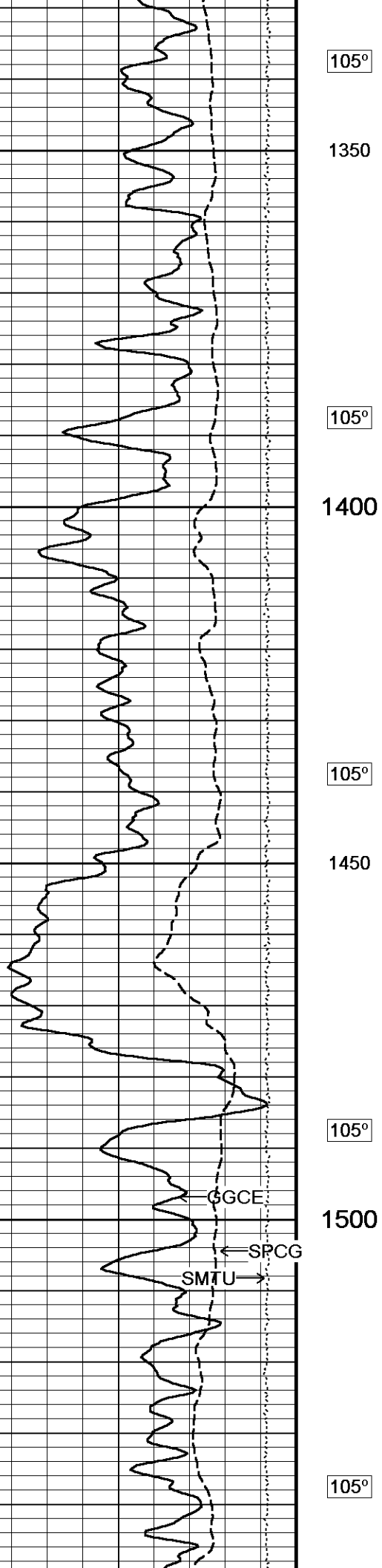
650











105°

1350

105°

1400

105°

1450

105°

1500

105°

RTAT

R85T

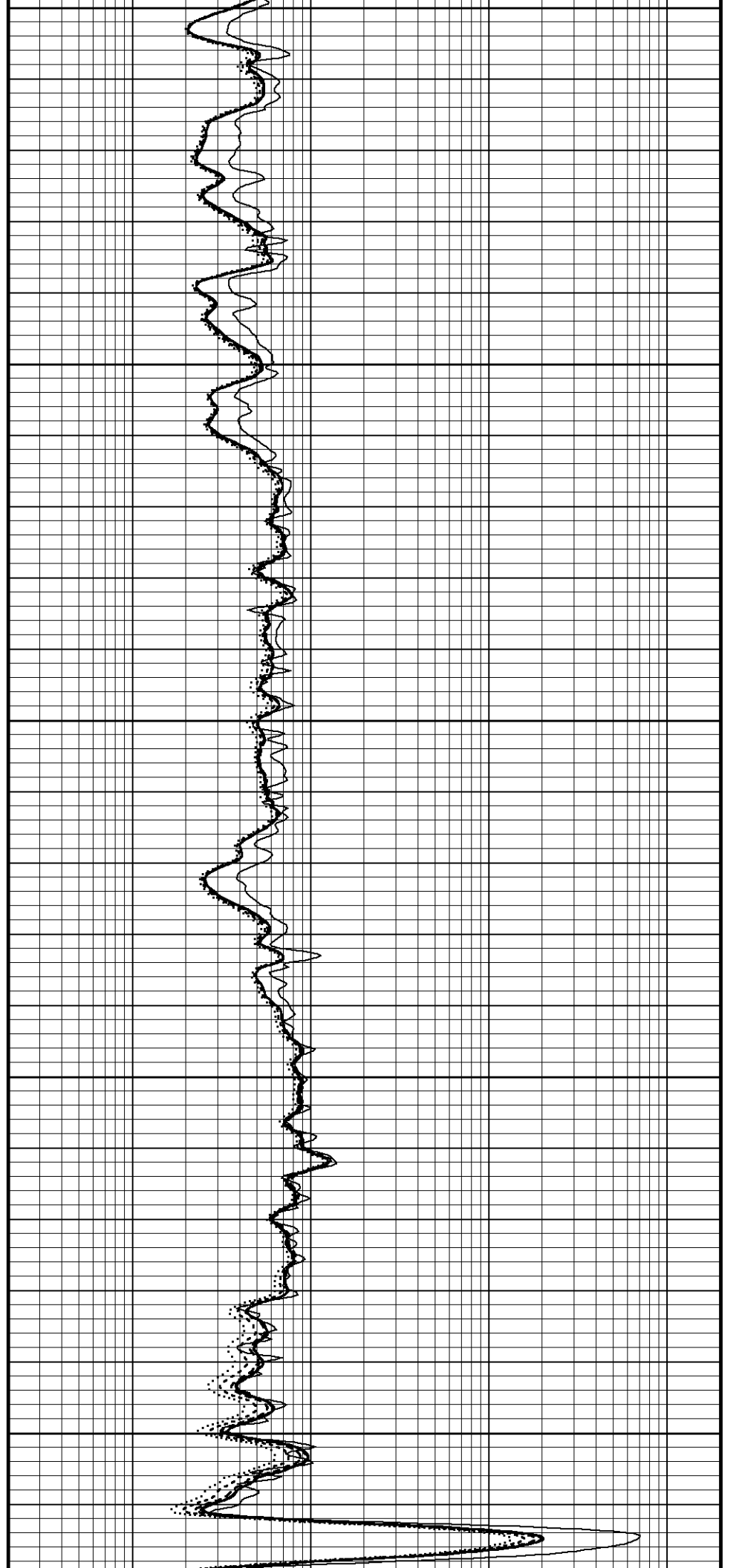
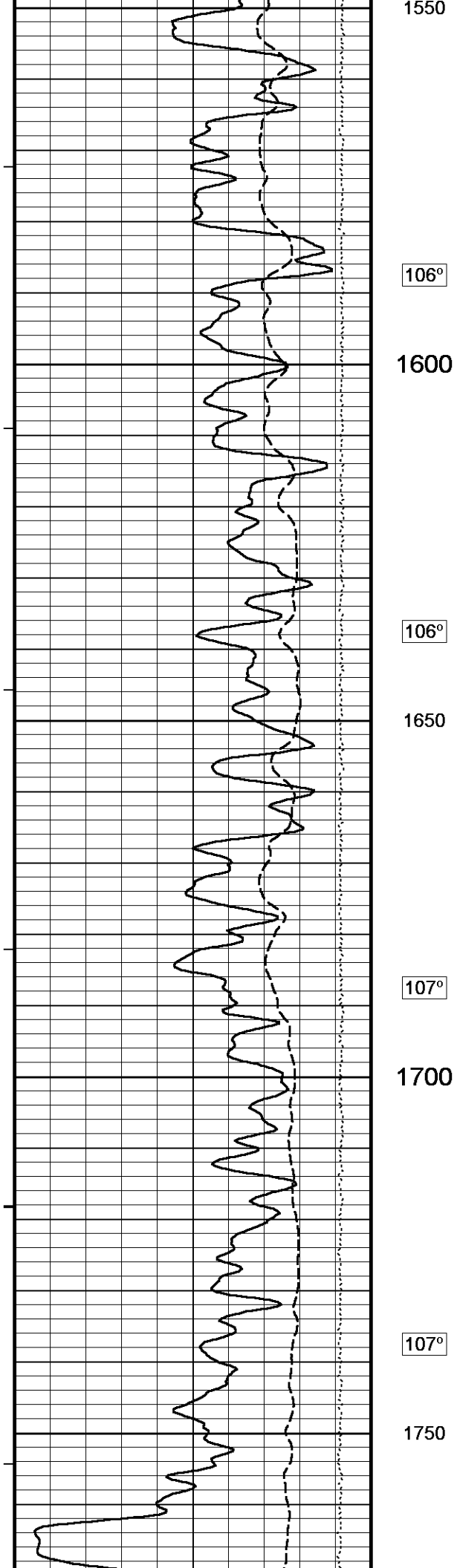
R60T

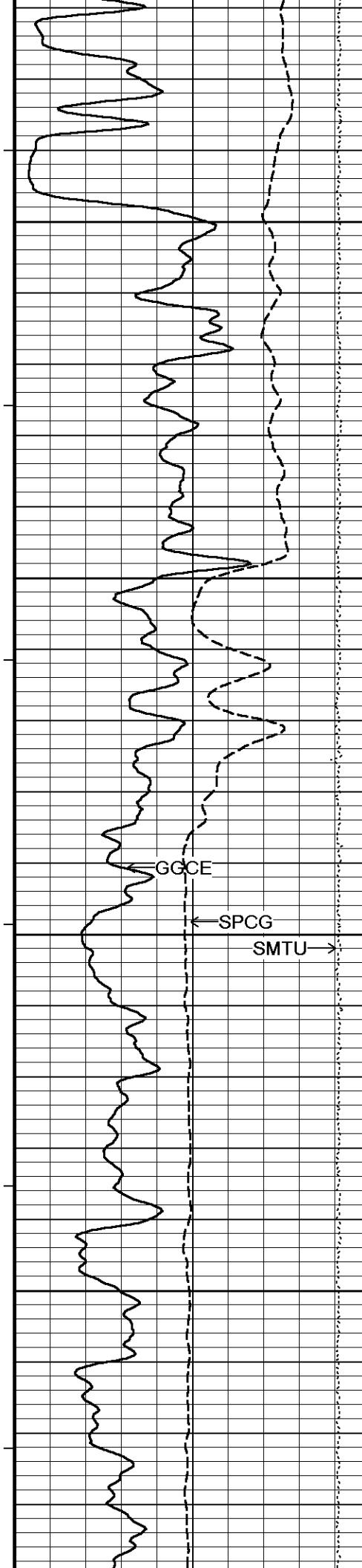
R40T

R30T

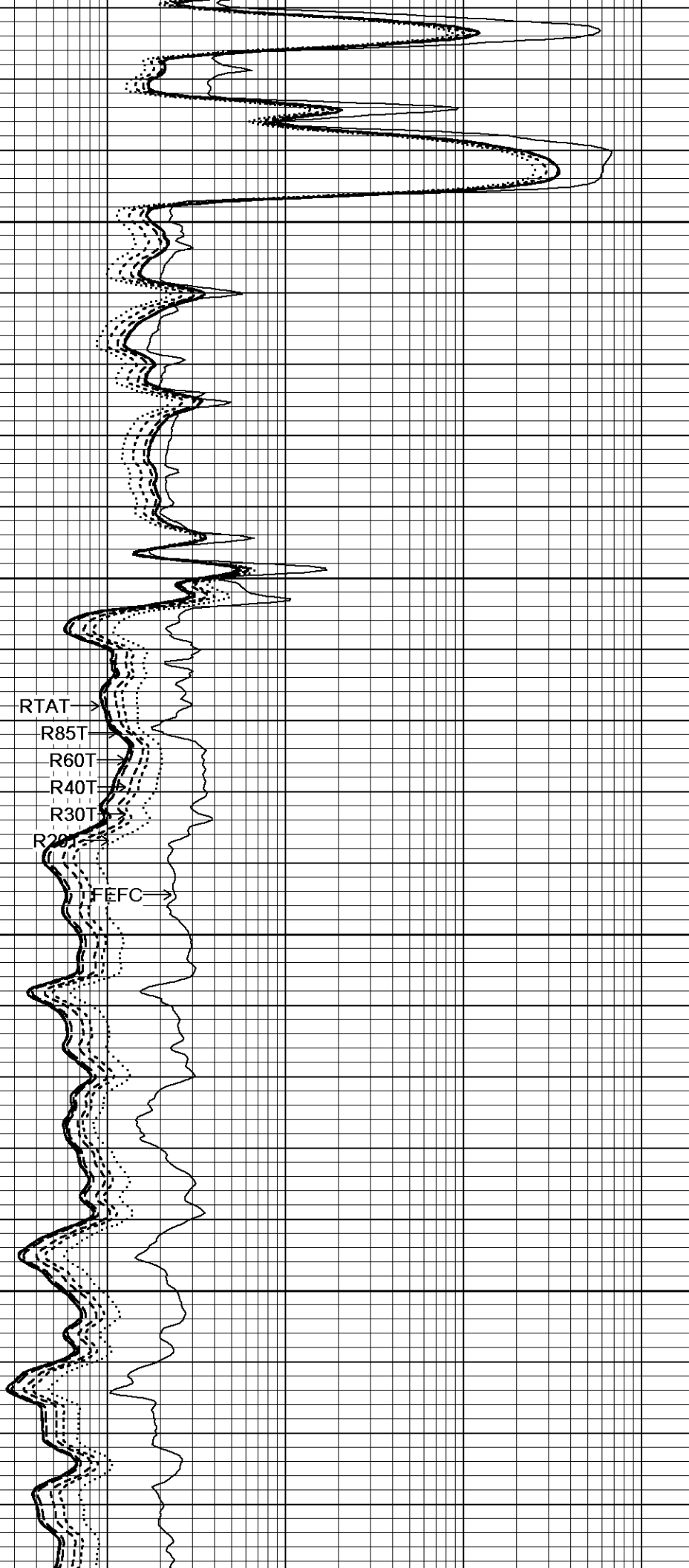
R20T

FEFC



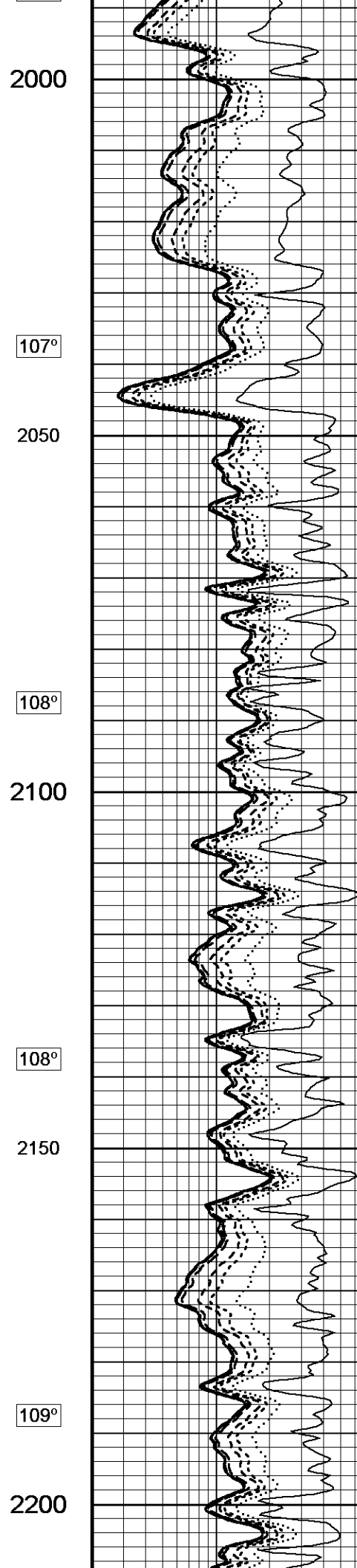
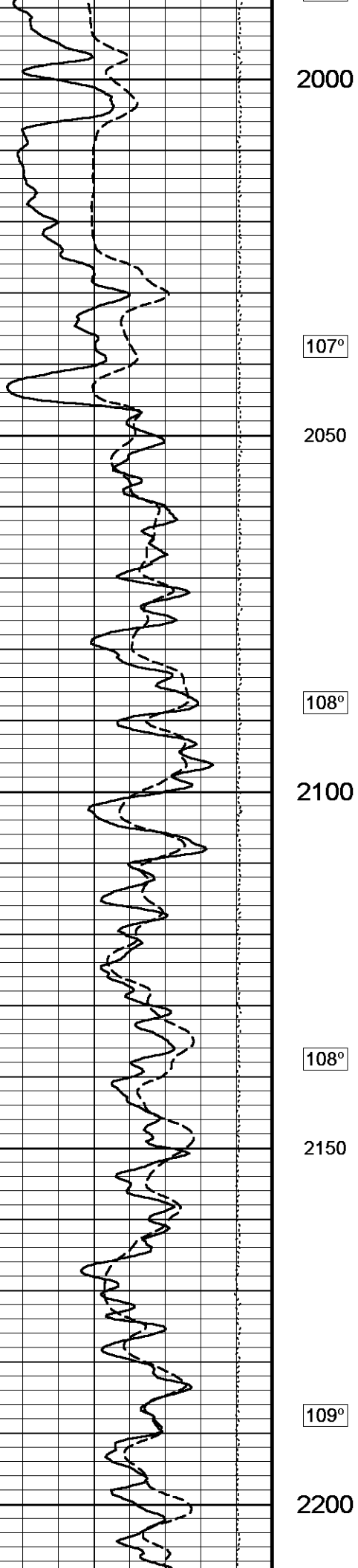


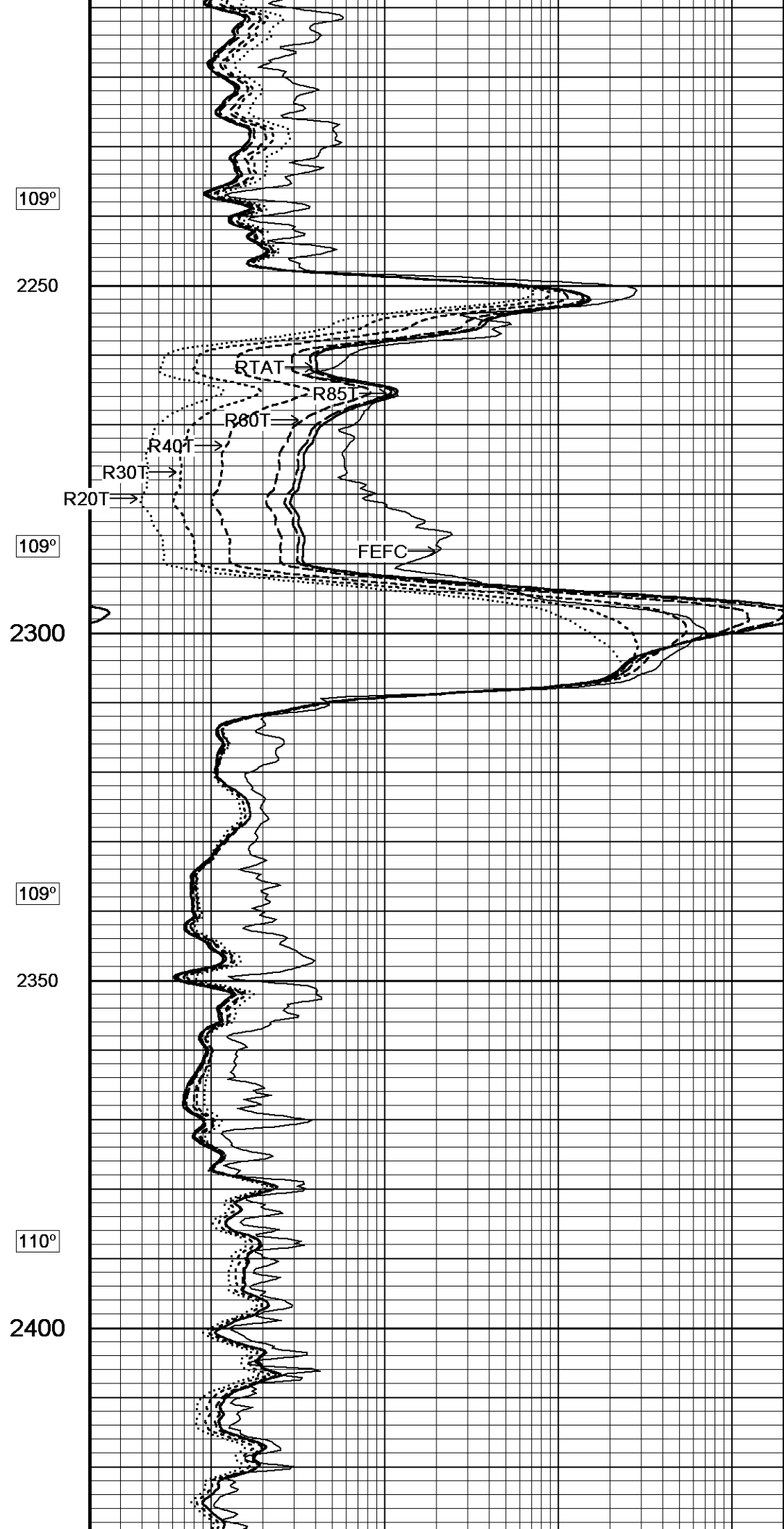
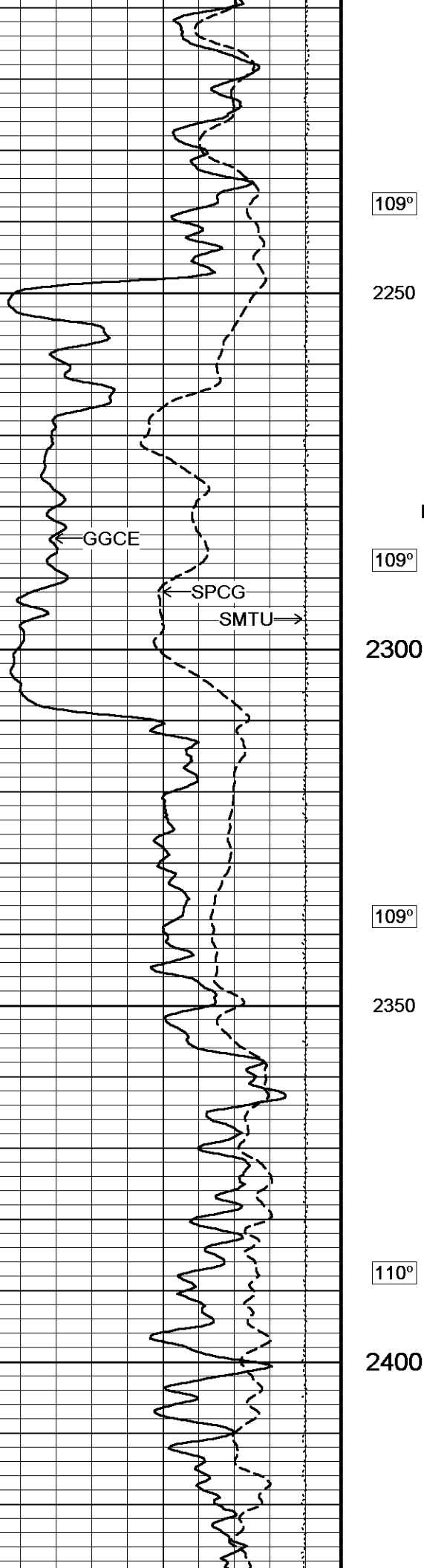
107°
1800
107°
1850
107°
1900
107°
1950
107°

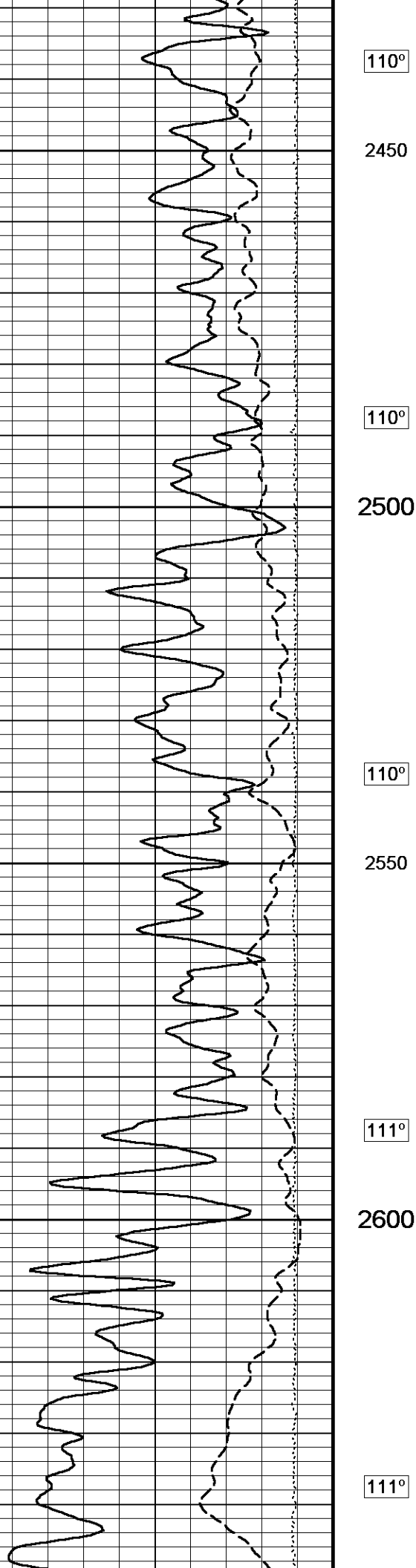


RTAT
R85T
R60T
R40T
R30T
R20T

TFEFC







110°

2450

110°

2500

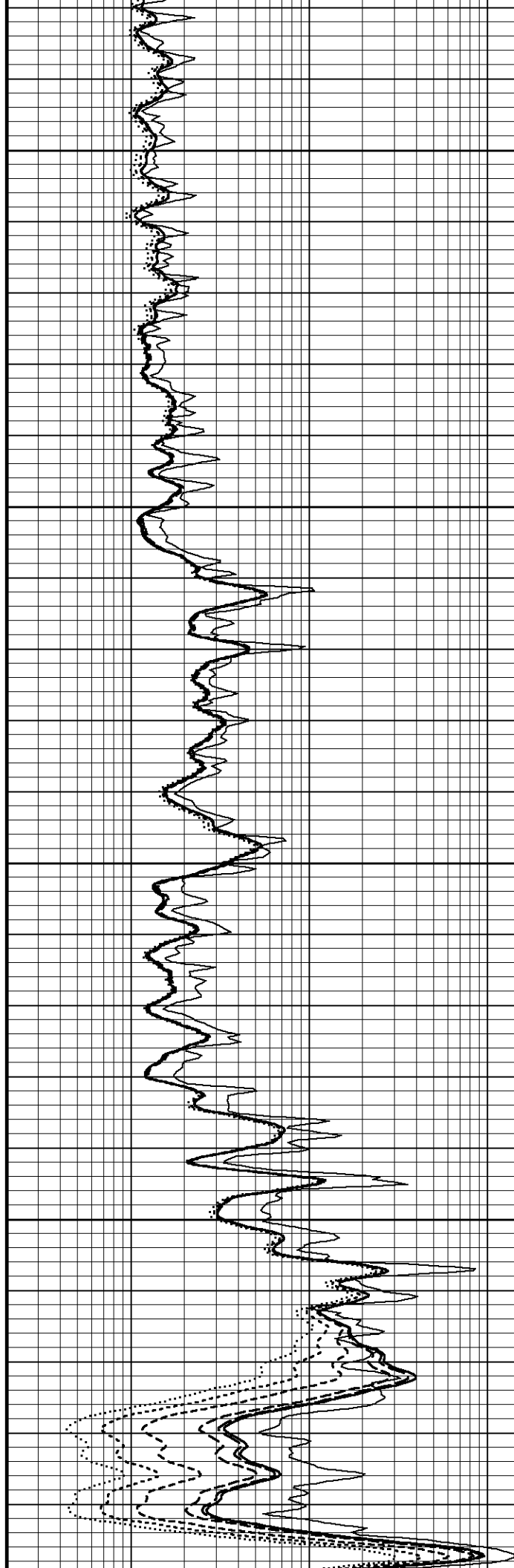
110°

2550

111°

2600

111°



110°

2450

110°

2500

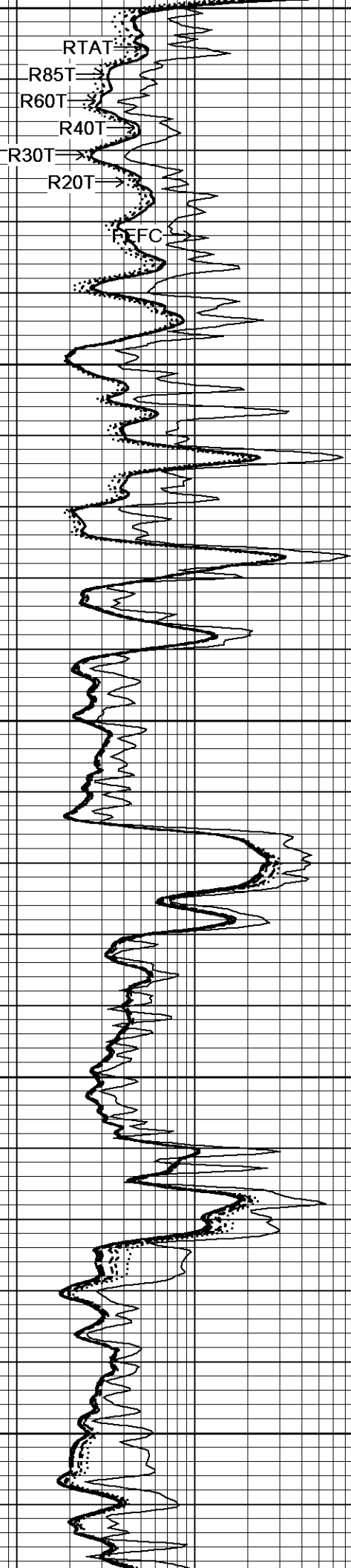
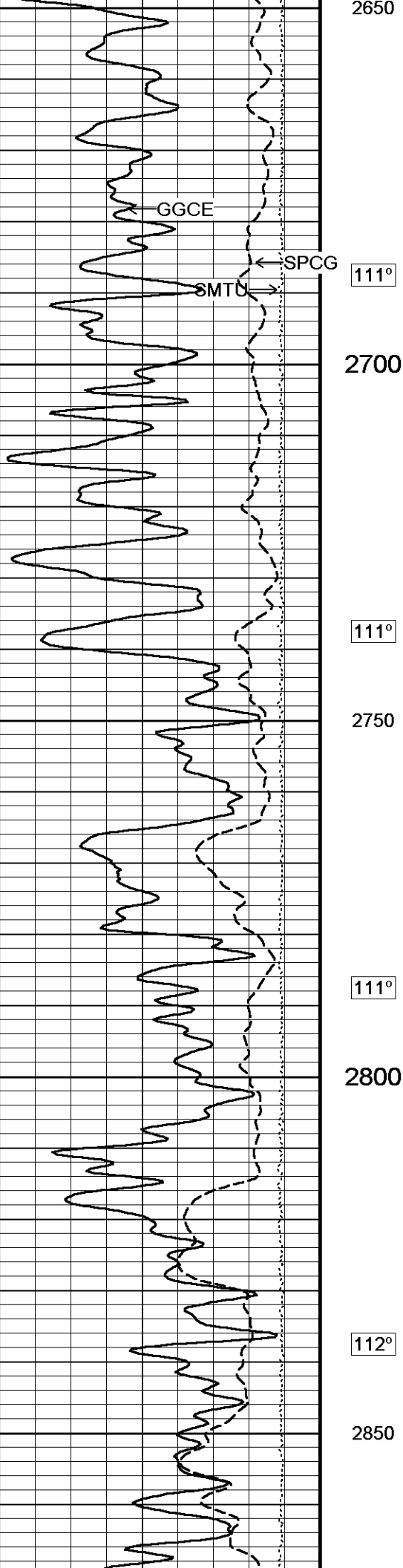
110°

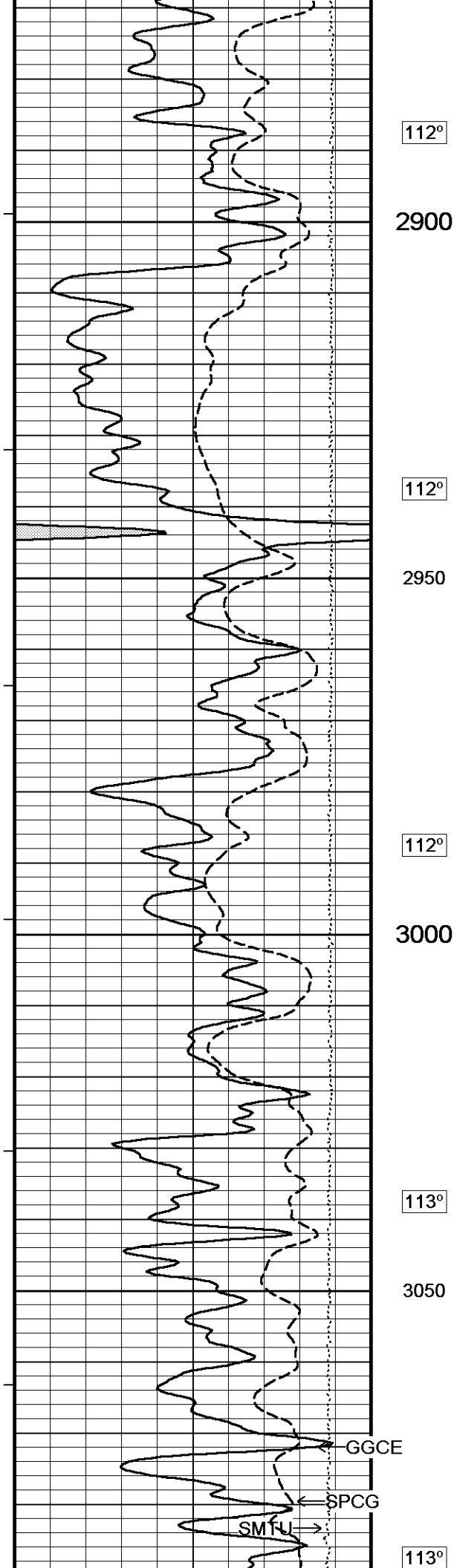
2550

111°

2600

111°





112°

2900

112°

2950

112°

3000

113°

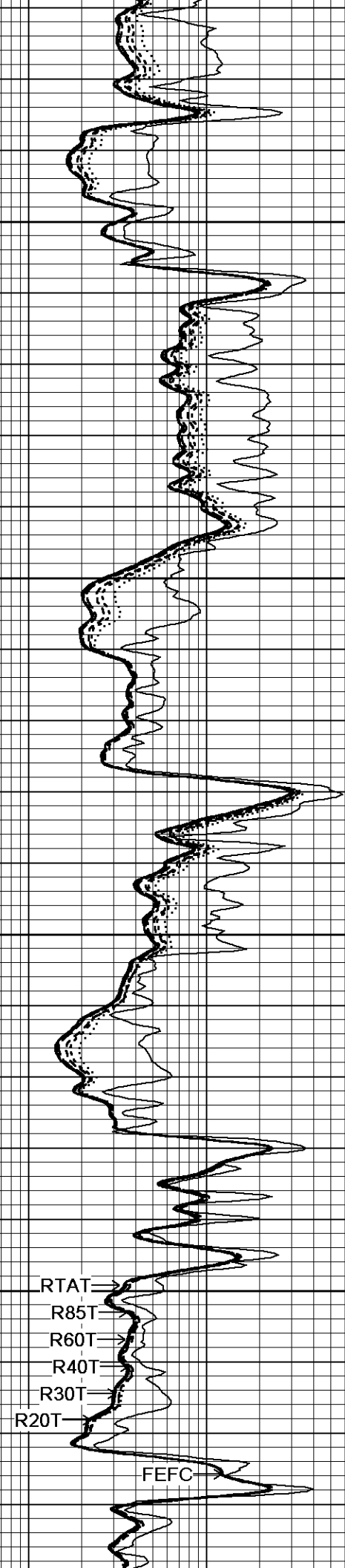
3050

GGCE

SPCG

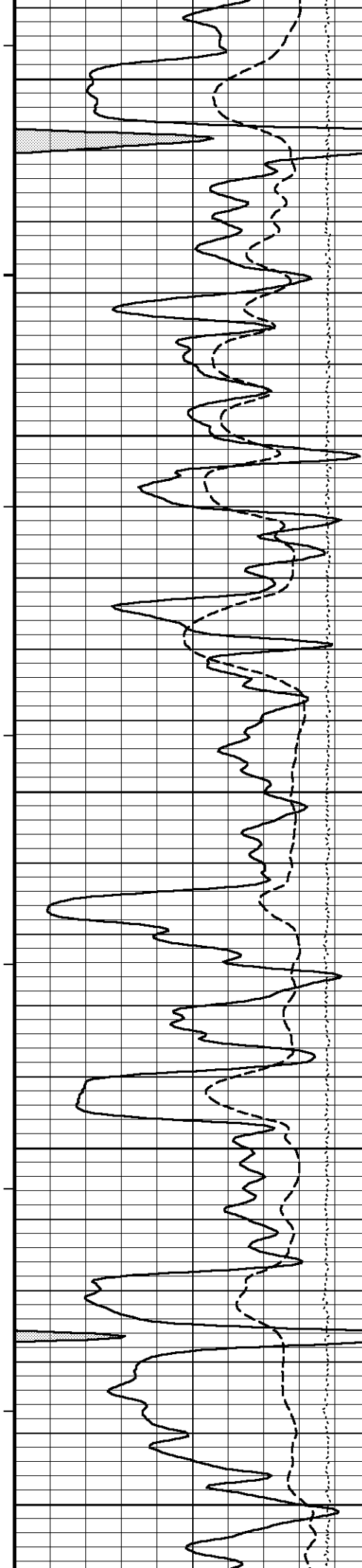
SMTU

113°



RTAT
R85T
R60T
R40T
R30T
R20T

FEFC



3100

113°

3150

114°

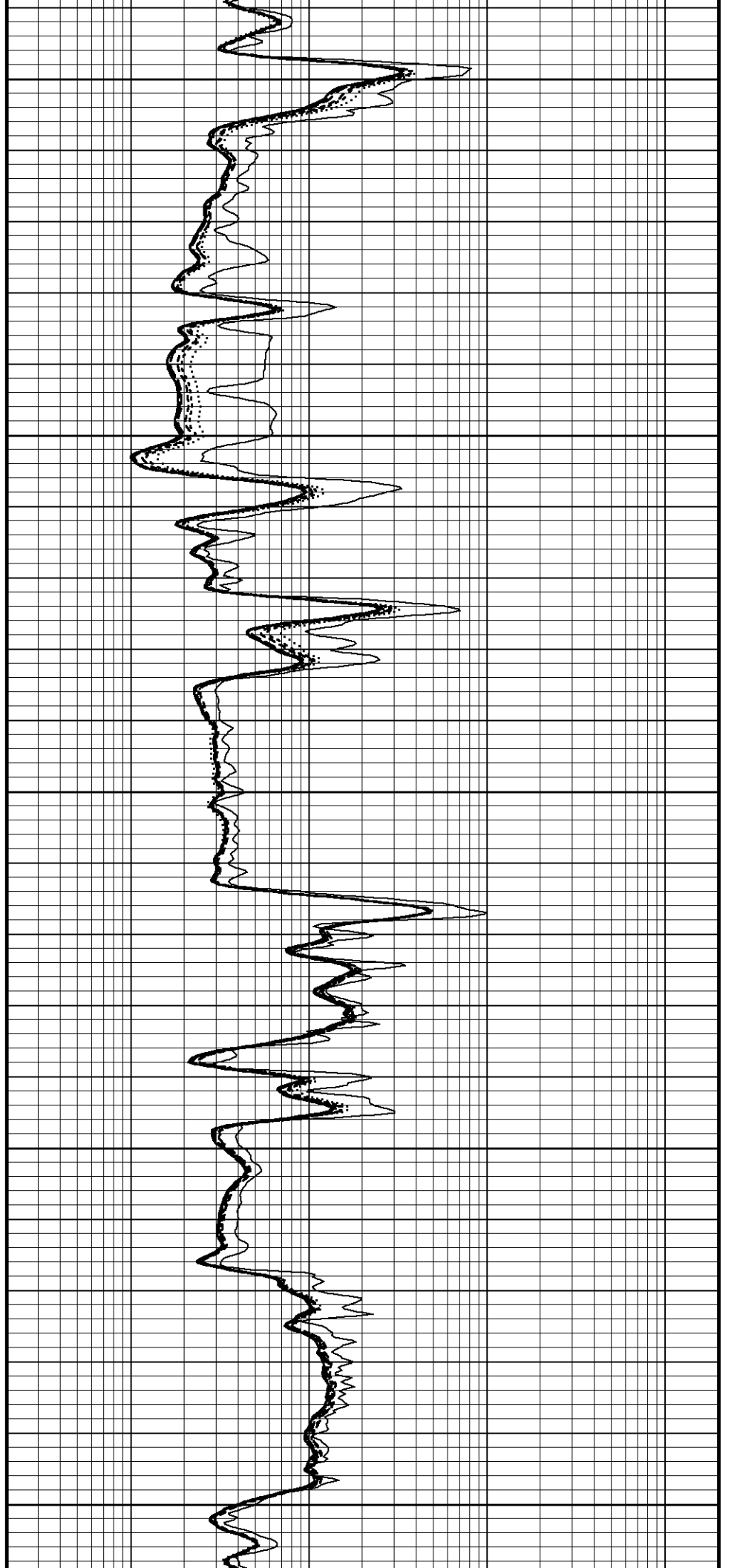
3200

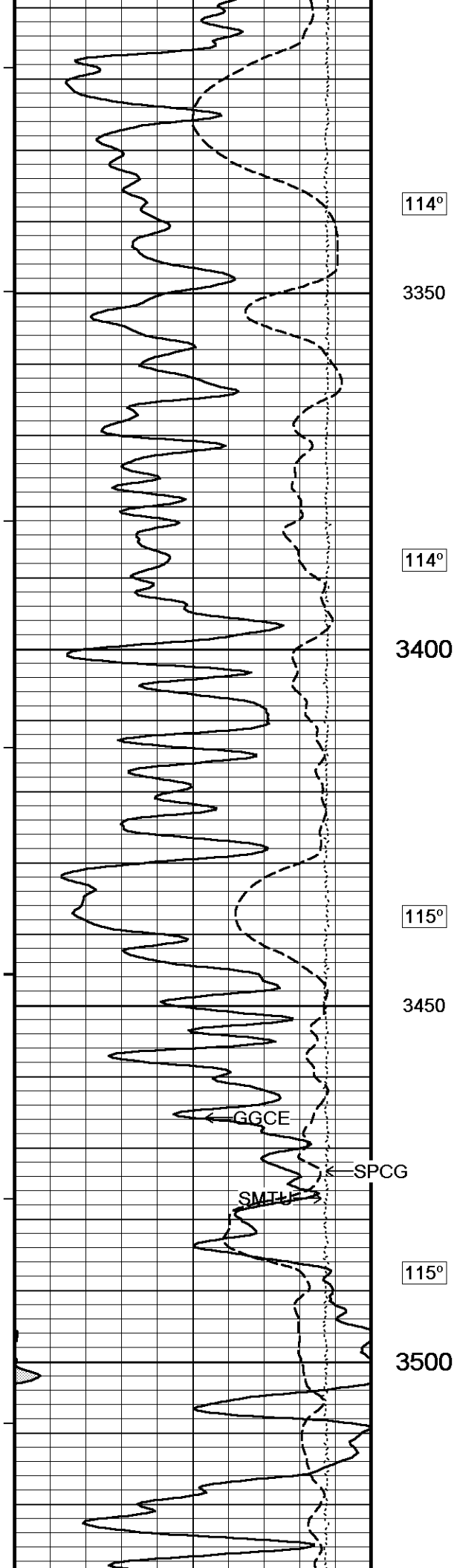
114°

3250

114°

3300





114°

3350

114°

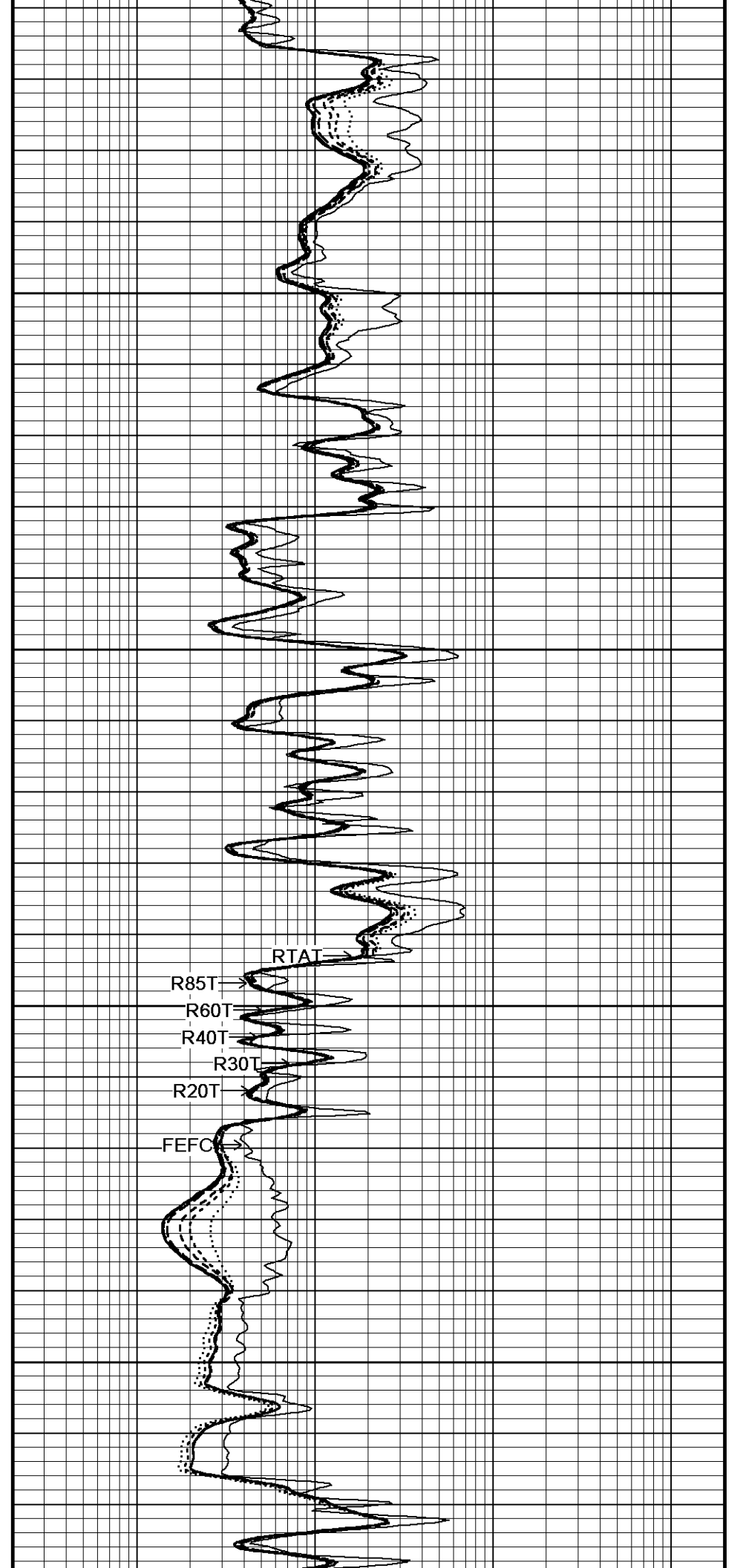
3400

115°

3450

115°

3500



RTAT

R85T

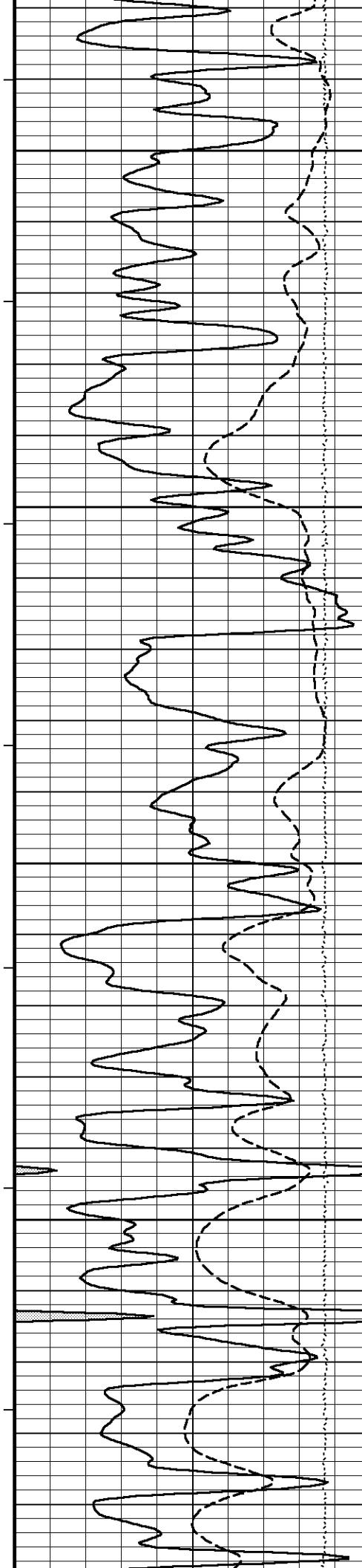
R60T

R40T

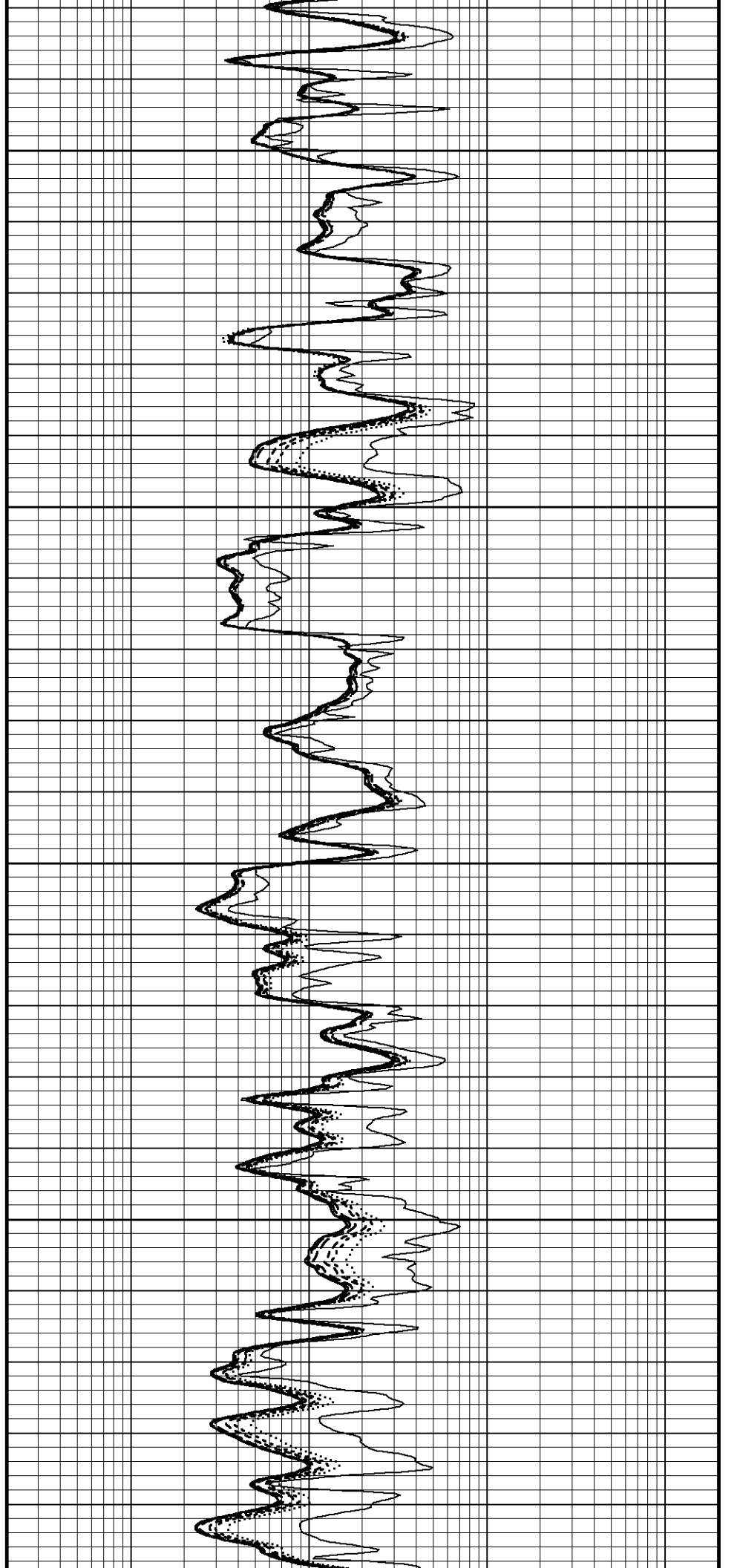
R30T

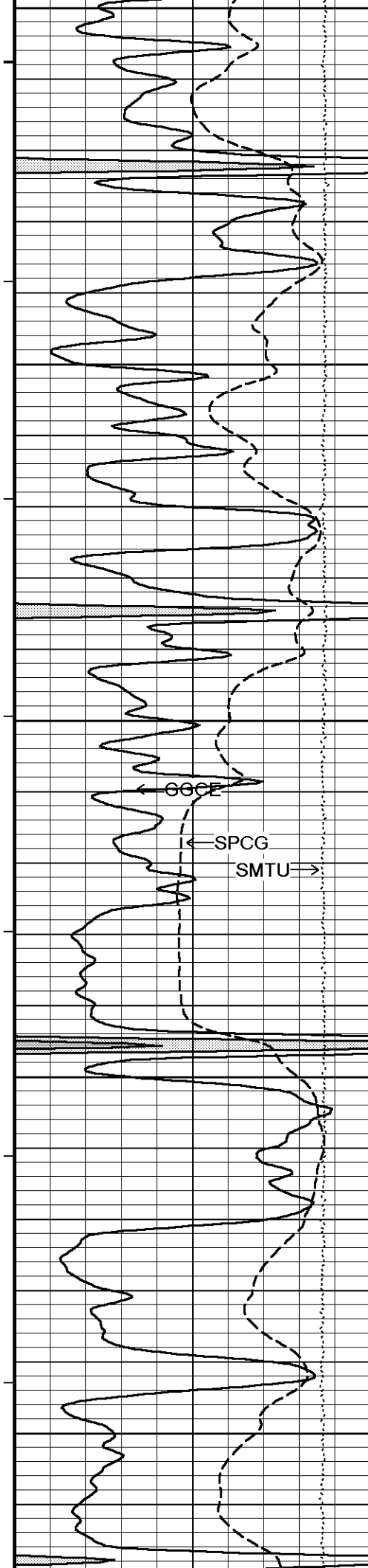
R20T

FEFC

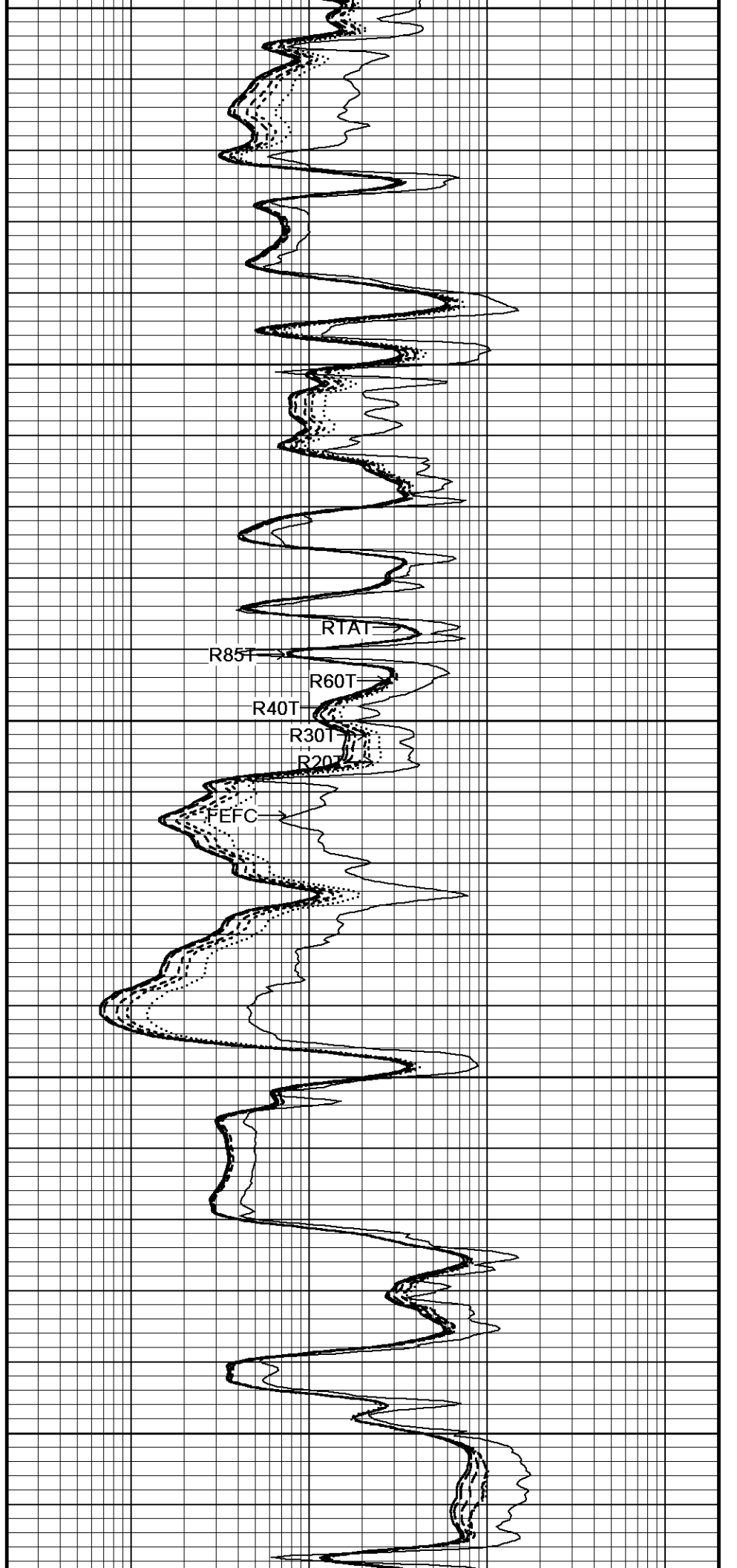


115°
3550
116°
3600
116°
3650
116°
3700
117°





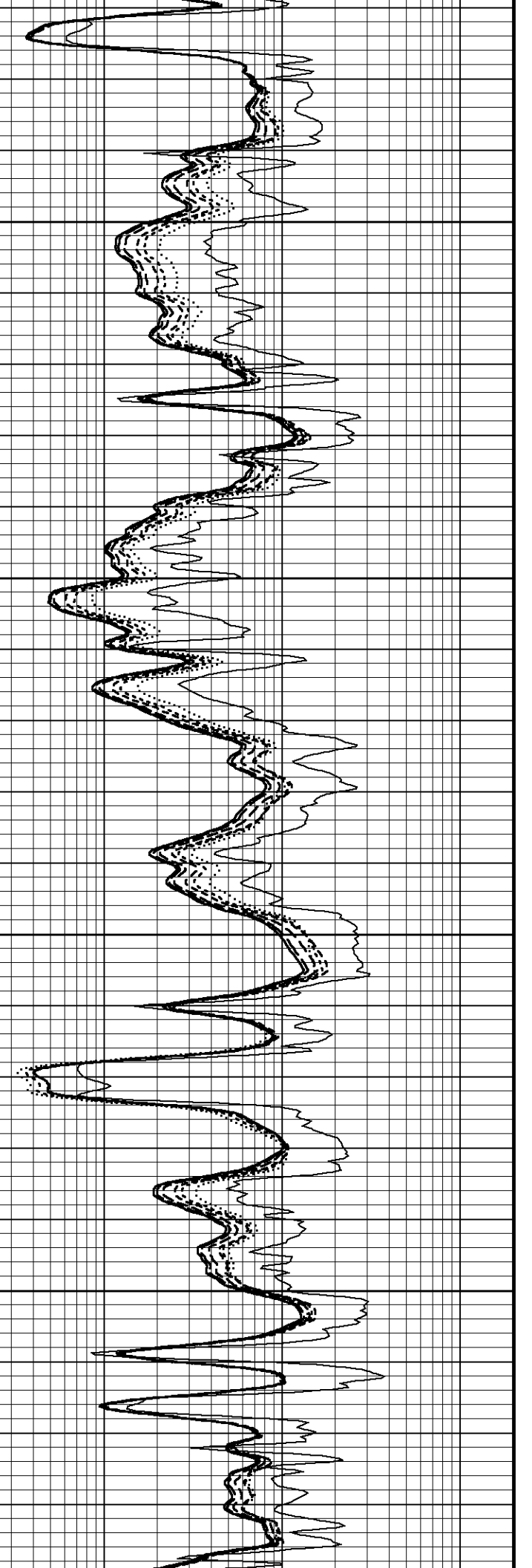
3750
117°
3800
117°
3850
118°
3900
118°
3950

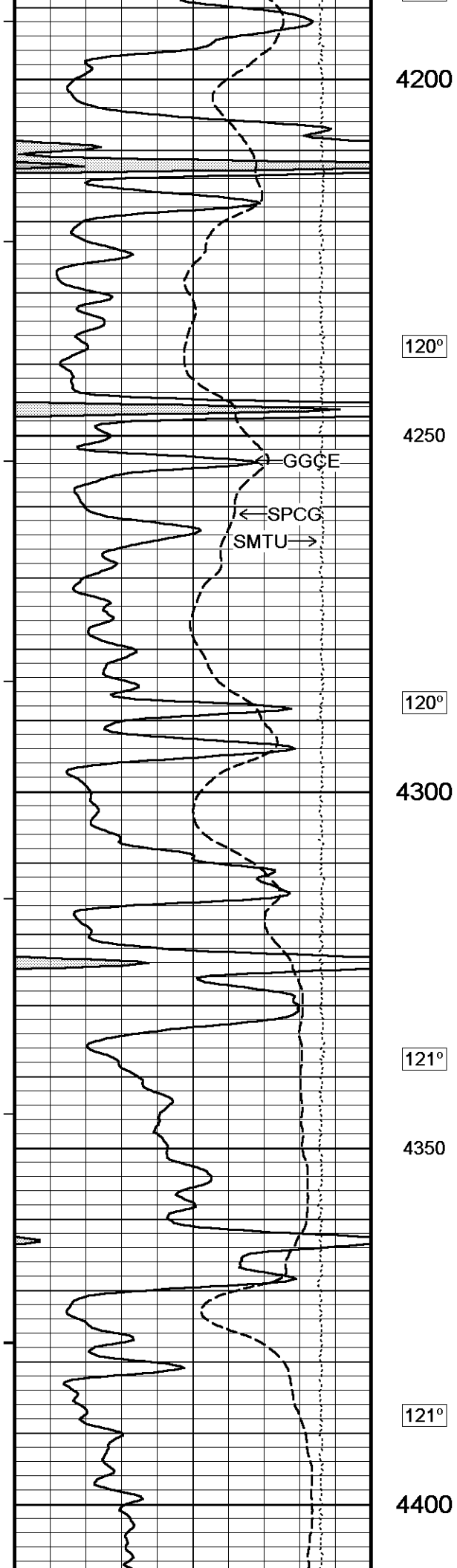


RTAI
R85T
R60T
R40T
R30T
R20T
FEFC



118°
4000
118°
4050
119°
4100
119°
4150
119°





4200

120°

4250

120°

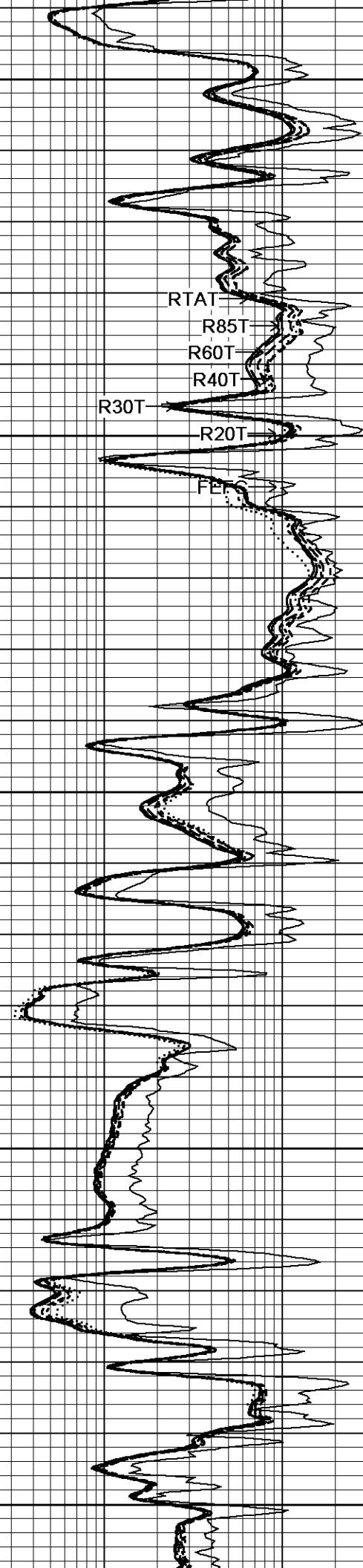
4300

121°

4350

121°

4400



RTA1

R85T

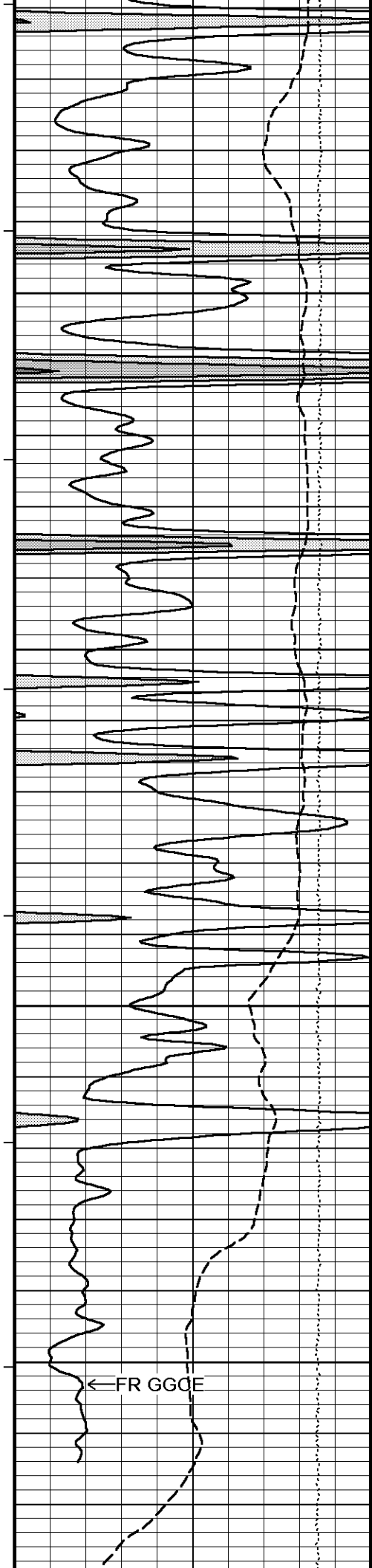
R60T

R40T

R30T

R20T

FEI.6



121°

4450

122°

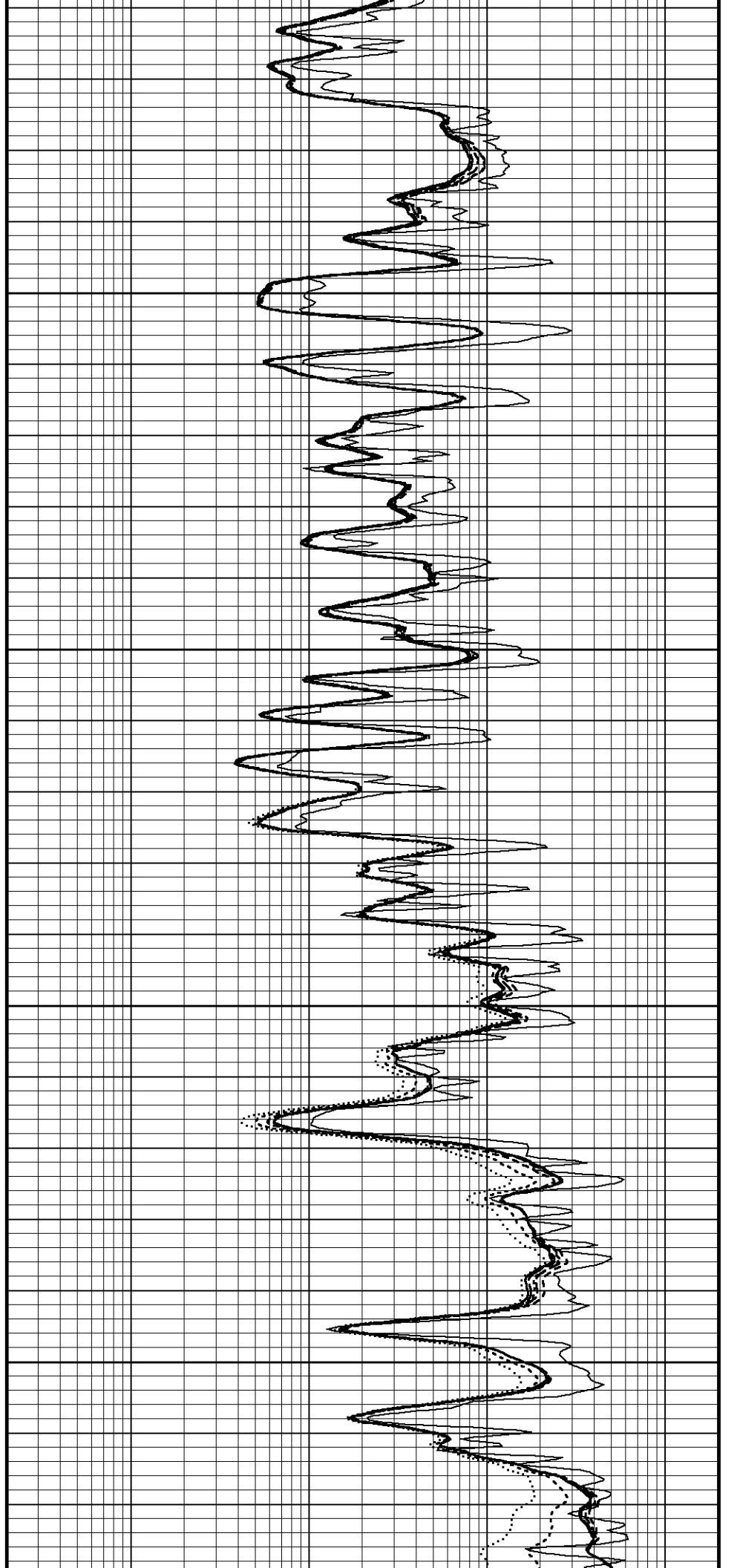
4500

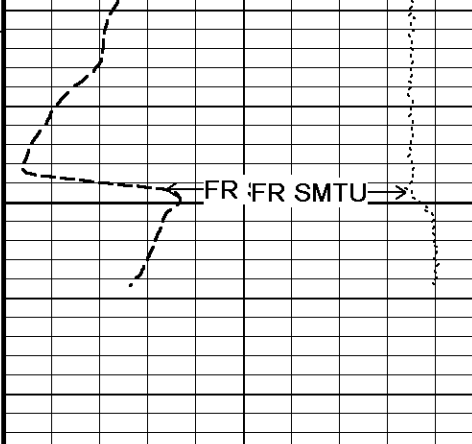
123°

4550

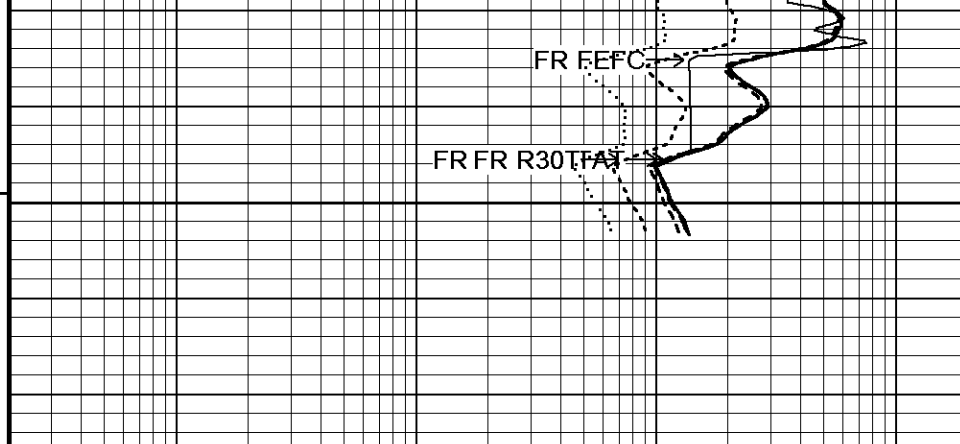
122°

4600



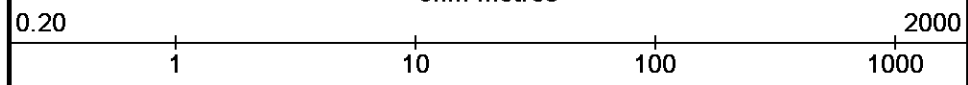


TD
4650



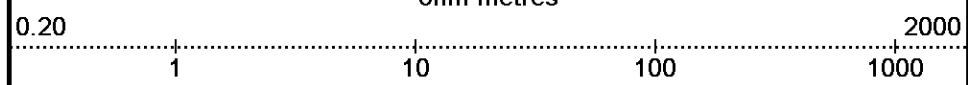
Depth
In
Feet

Shallow FE (Phase Corr.)
ohm metres



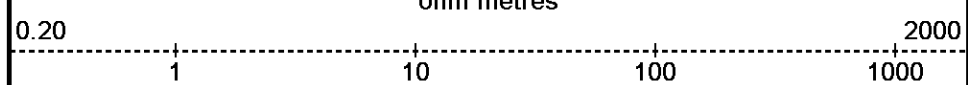
Timing Marks
every 60.0 sec

Array Ind. Two Res 20
ohm metres



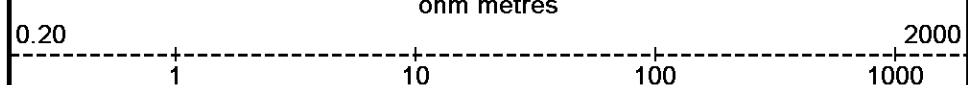
Spontaneous Potential
millivolts
- -> | 20 | <- +

Array Ind. Two Res 30
ohm metres



Borehole
Temp in
deg F

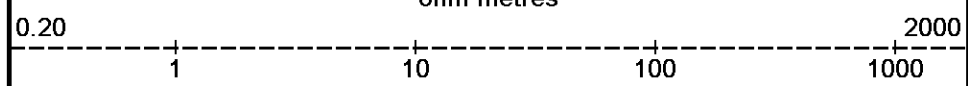
Array Ind. Two Res 40
ohm metres



MCG BH Corrected Gamma

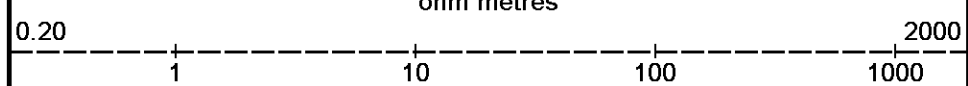
0	API	150
	75	
150	225	300

Array Ind. Two Res 60
ohm metres



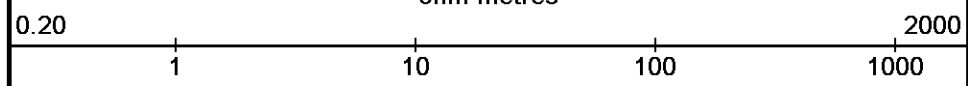
DST Uphole Tension
pounds
5000 0

Array Ind. Two Res 85
ohm metres



Replay
Scale
1:240

Array Ind. Two Res Rt
ohm metres



Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 27-JUN-2019 07:33
 Filename: C:\Users\DHELPI~1\AppData\Local\Temp\Weatherford PreView0\MAIN PASS 001.dta
 Recorded on 26-JUN-2019 22:04
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365

↑ 5 INCH MAIN PASS ↑

↓ 5 INCH REPEAT PASS ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 27-JUN-2019 07:33

← Timing Marks every 60.0 sec

Spontaneous Potential
 millivolts
 - -> | 20 | <- +

MCG BH Corrected Gamma

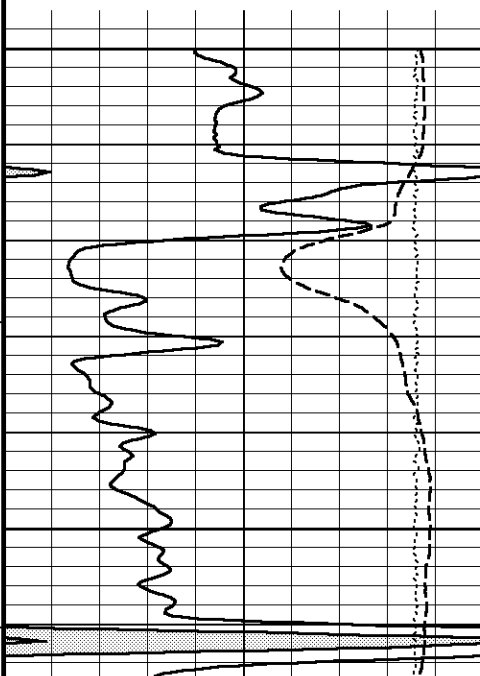
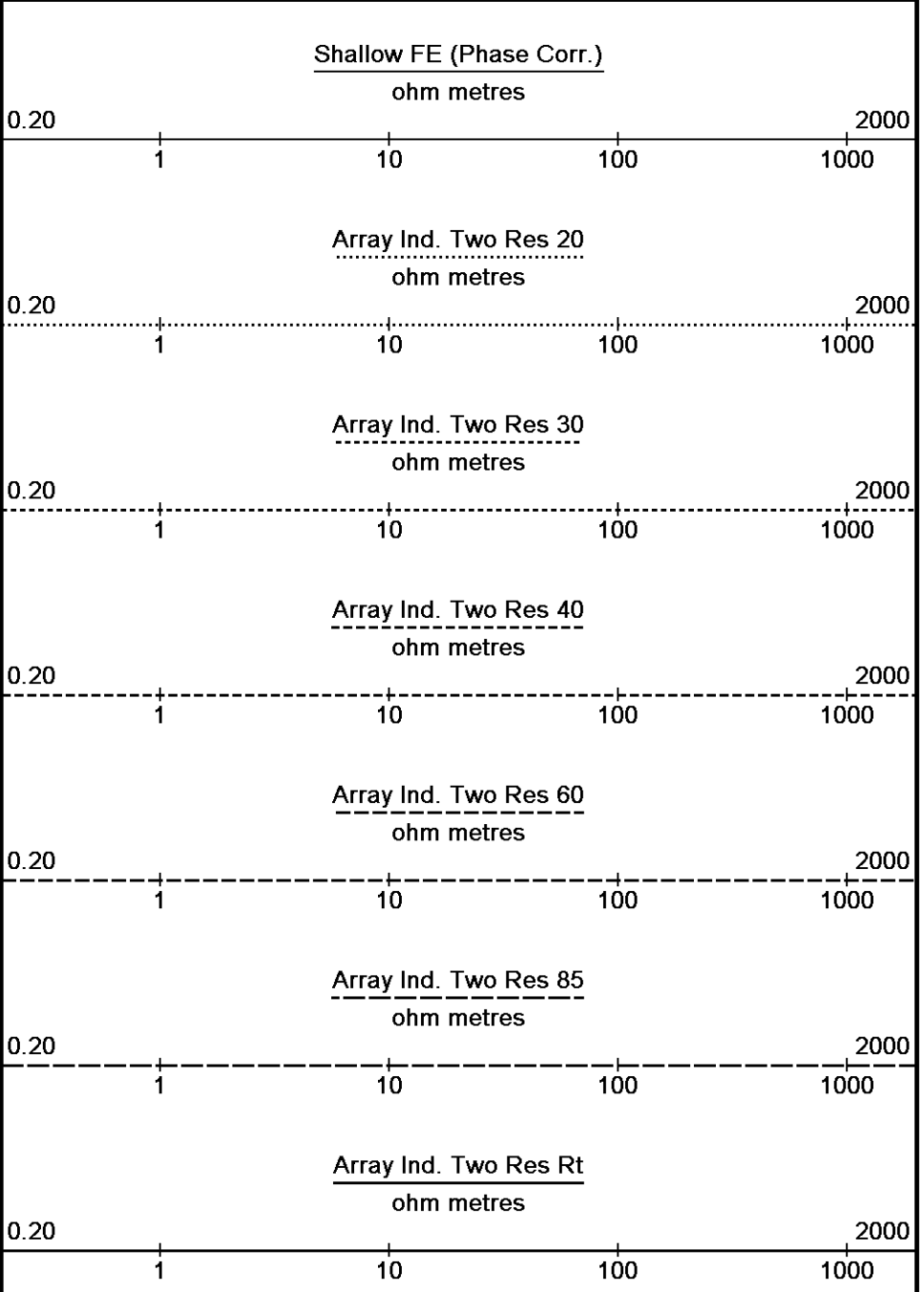
0	API	150
	75	
150	225	300

DST Uphole Tension
 pounds
 5000 0

Depth in Feet

Borehole Temp in deg F

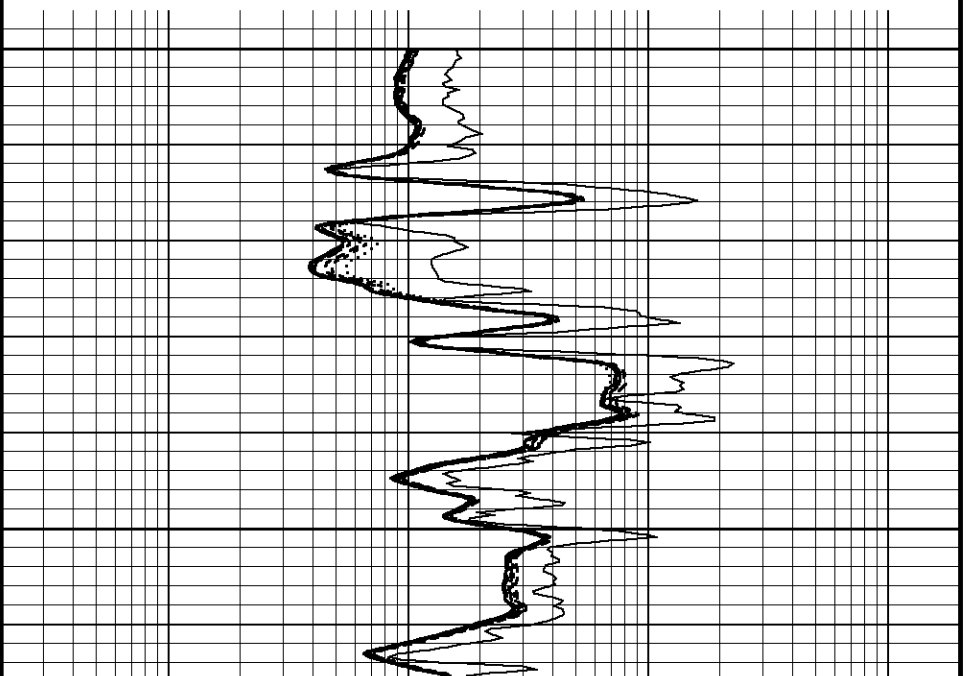
Replay Scale 1:240

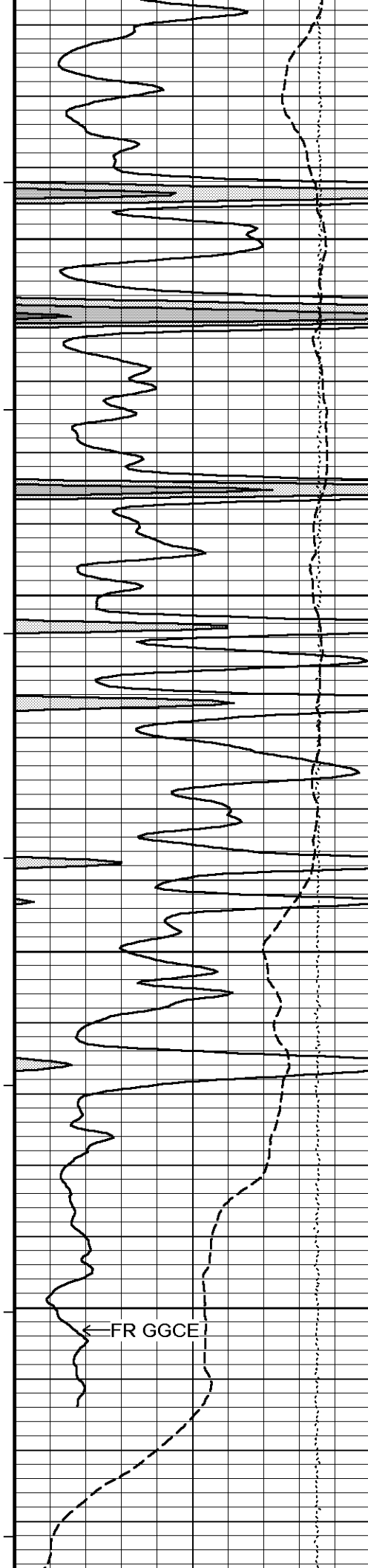


4350

120°

4400





121°

4450

121°

4500

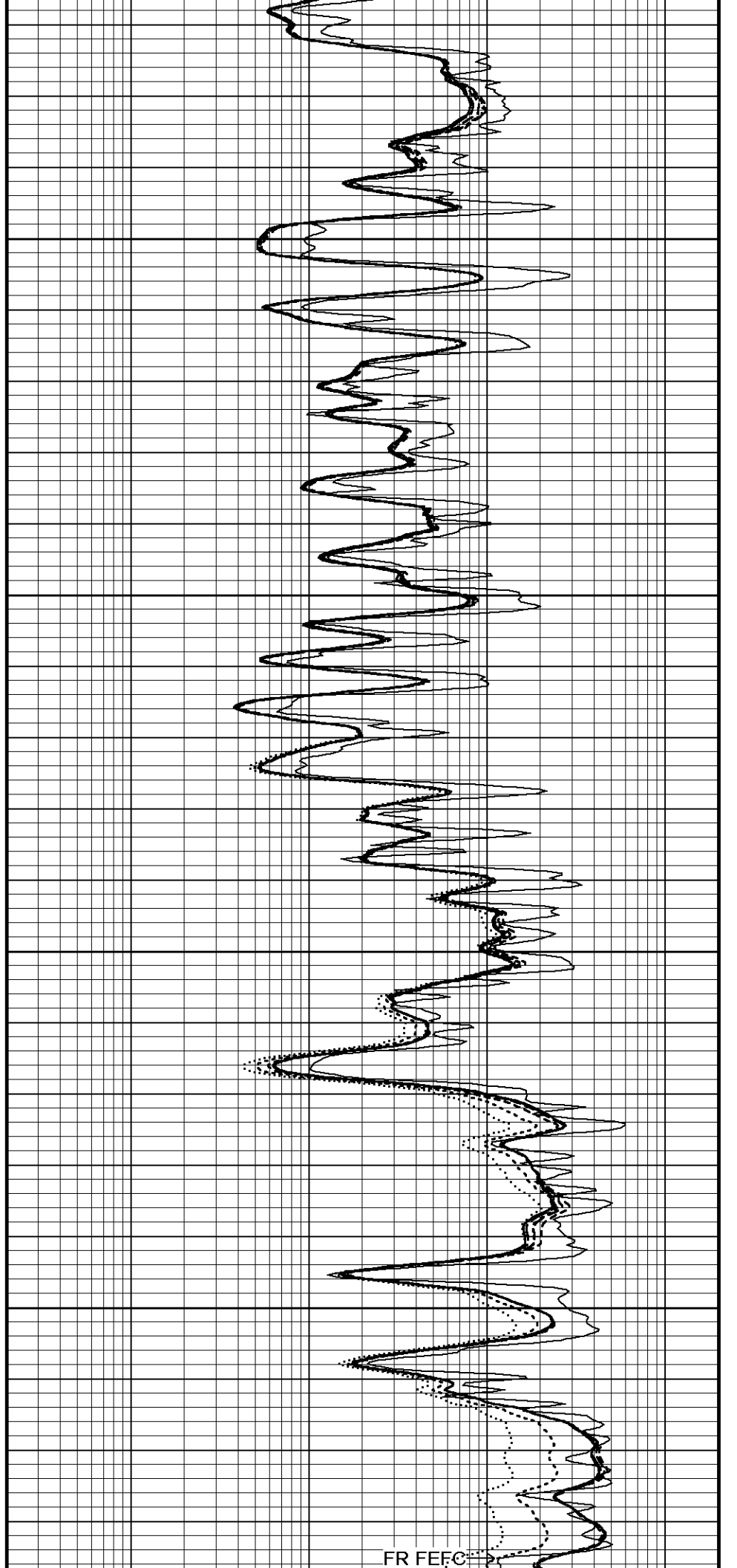
122°

4550

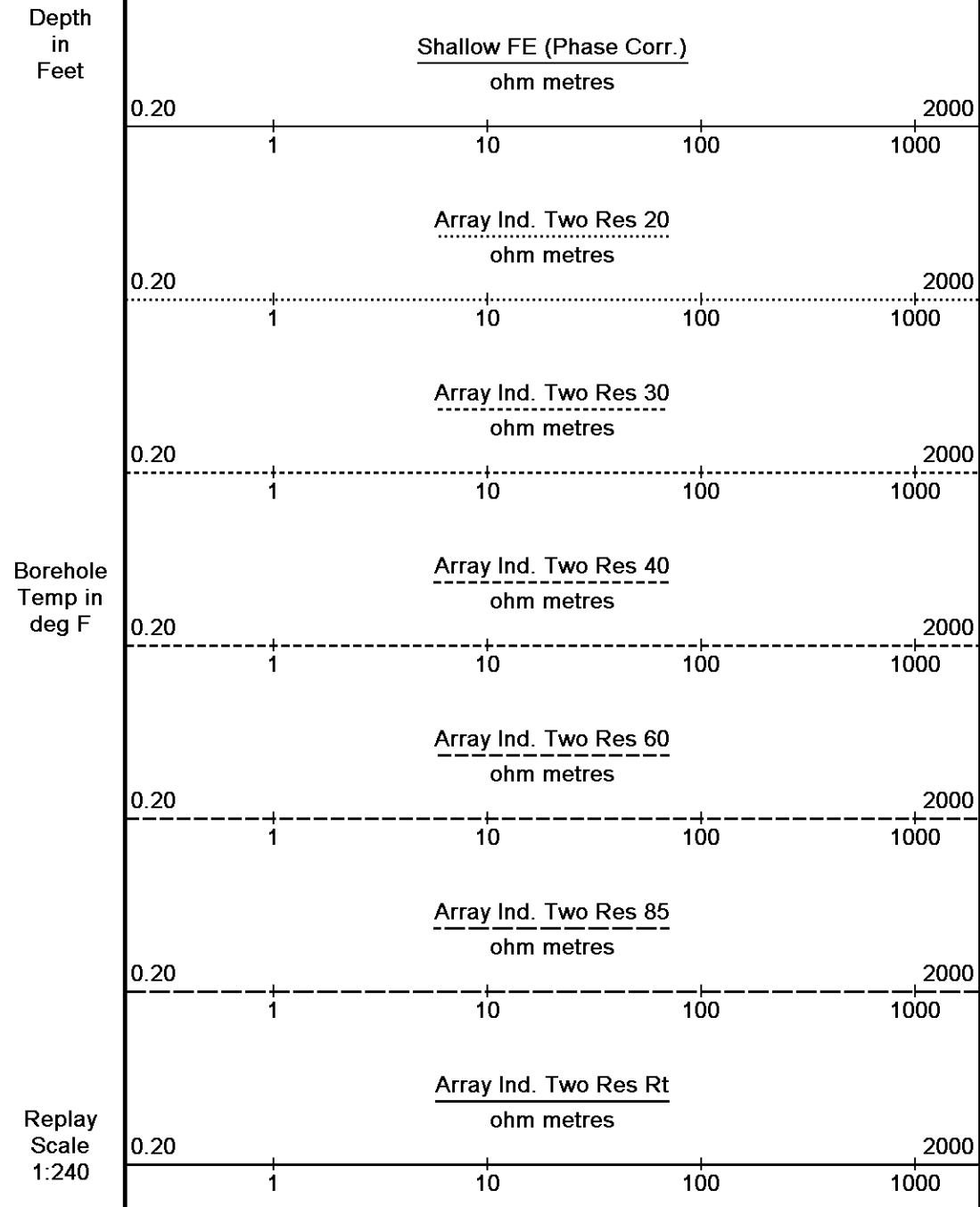
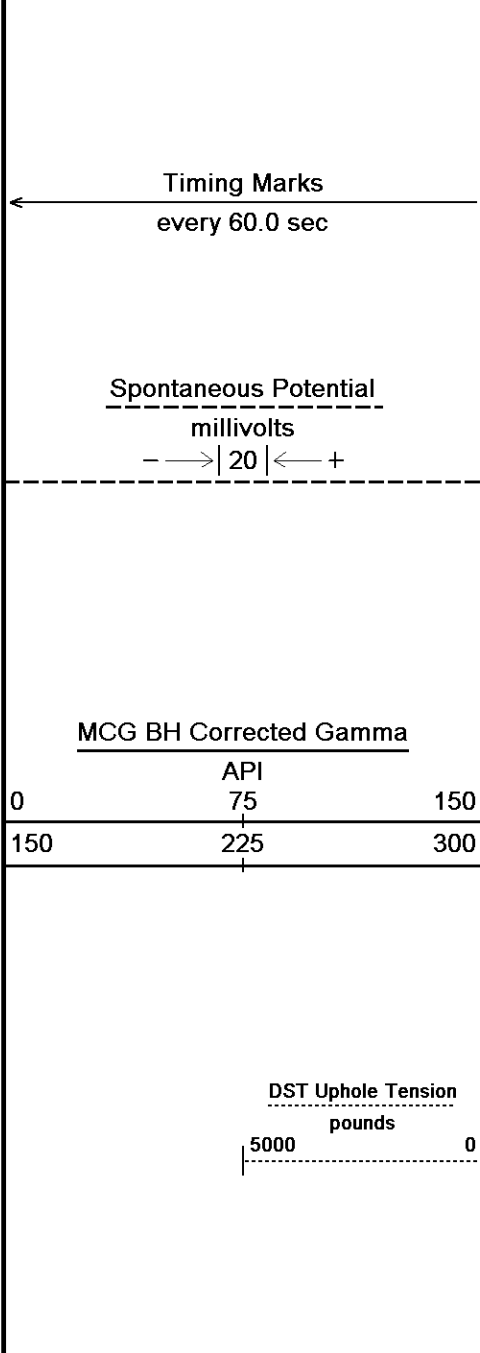
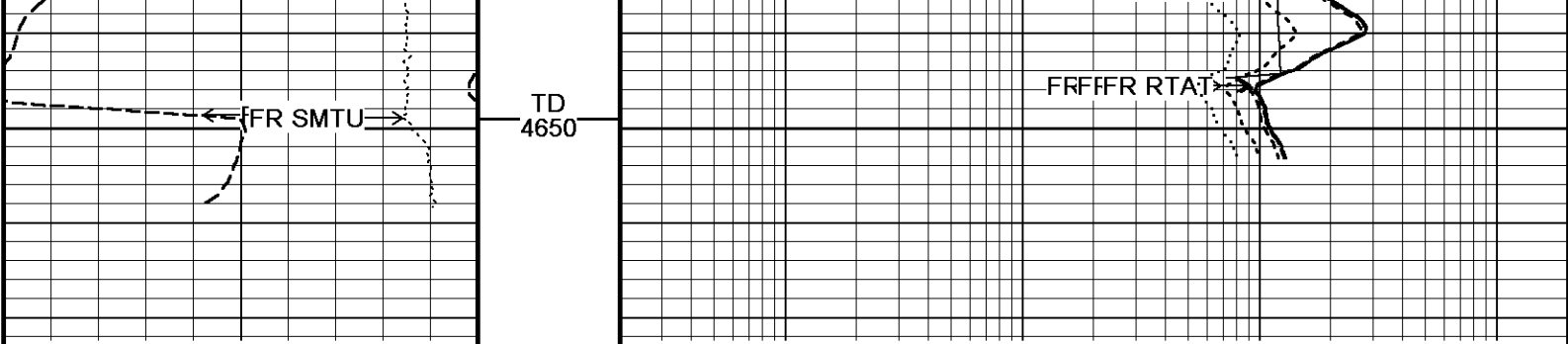
122°

4600

← FR GGCE



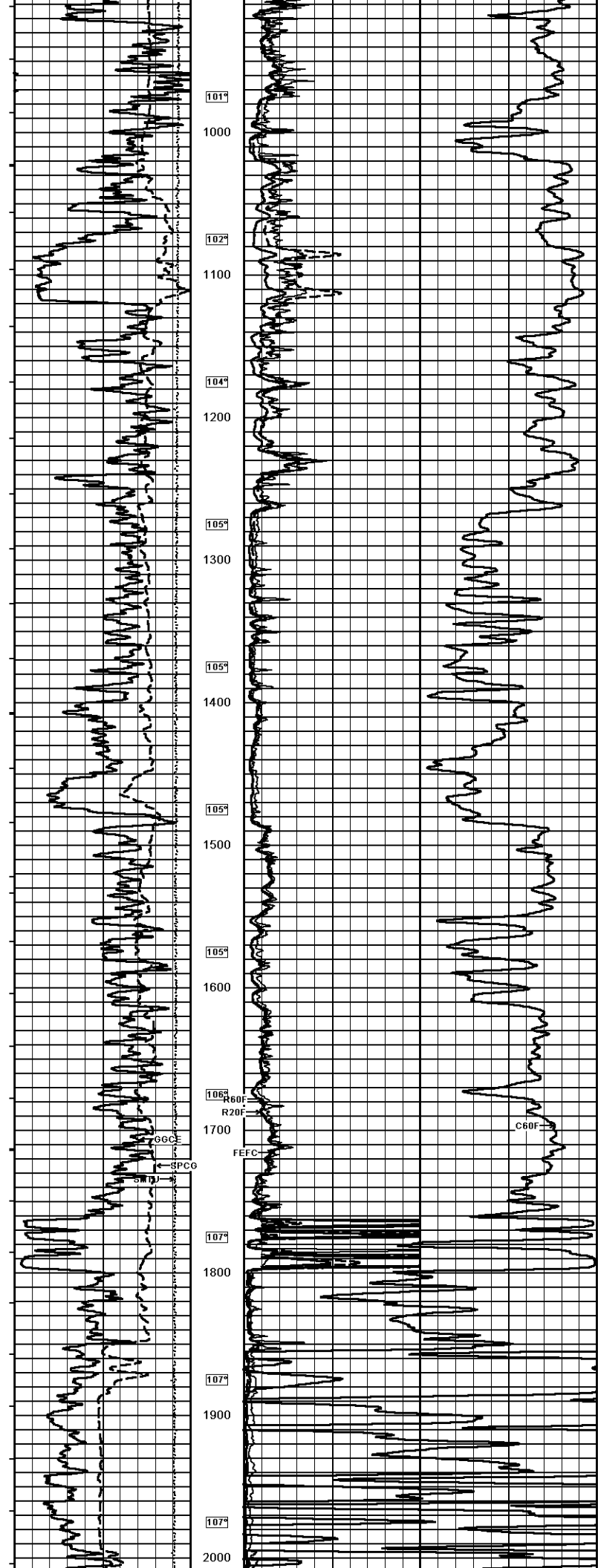
FR FEFC →

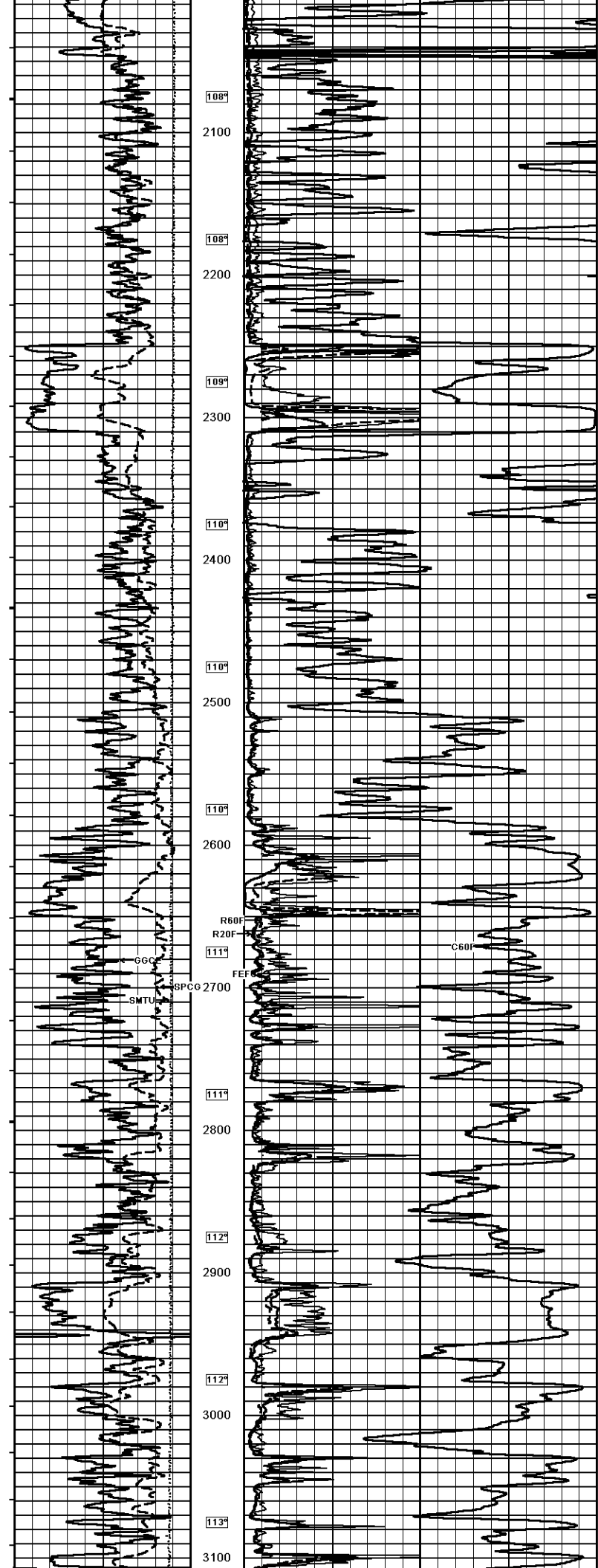


Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Users\DHELPI~1\AppData\Local\Temp\Weatherford PreView0\REPEAT PASS 001.dta
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365
 Plotted on 27-JUN-2019 07:33
 Recorded on 26-JUN-2019 21:48

5 INCH REPEAT PASS

Weatherford	
COMPANY	SHAKE-SPEL
WELL	SCHOWALT
FIELD	BECKLEY N
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KAN
LOCATION	SE 1/4 NW 36 T10N R10E S1E
SEC 13	T10N R10E S1E
Latitude	38.80277 N
Longitude	-100.80000 W
API Number	15-11-21251
Permanent Datum	GL, Elevation 2862 feet
Log Measured From	K9
Drilling Measured From	K9
Date	26-JUN-20
Run Number	ONE
Service Order	17937-2483
Depth Driller	4650.00
Depth Logger	4648.00
First Reading	4846.00
Last Reading	285.00
Casing Driller	285.00
Casing Logger	285.00
BIT Size	7.875
Hole Fluid Type	WATER-BASE
Density/Viscosity	9.10 lb/c
pH/Fund Loss	10.00
FLOCCULINE	
Sample Source	FLOCCULINE
Rm @ Measured Temp	0.98 @ 96
Rm @ Measured Temp	0.78 @ 96
Rm @ Measured Temp	1.18 @ 96
Source Rm/r/Rmic	CALC
Rm @ BHT	0.78 @ 122
Time Since Circulation	4 HOURS
Max Recorded Temp	122.00
Equipment / Base	113057
Recorded By	MAIT MCGI
Missed By	VERN SCHL





108°

2100

108°

2200

109°

2300

110°

2400

110°

2500

110°

2600

R60F

R20F

111°

C60F

GOC

SMTU

GPCG

2700

111°

2800

112°

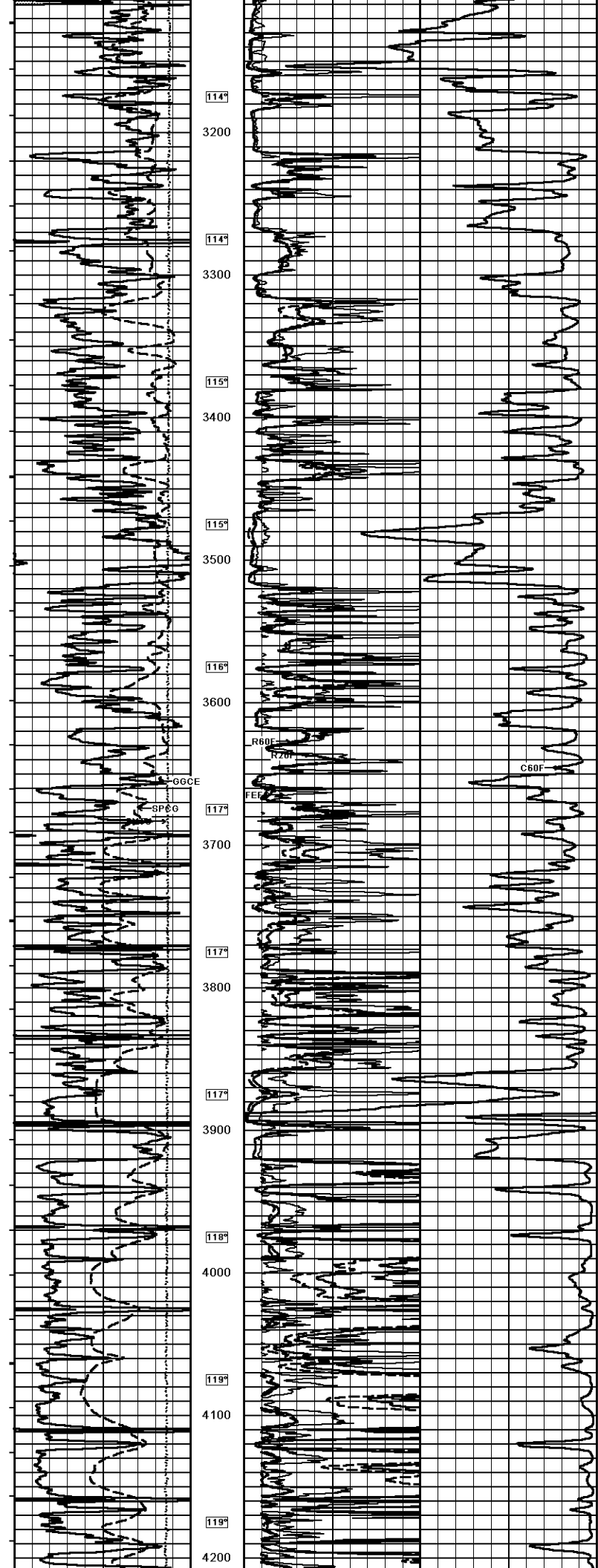
2900

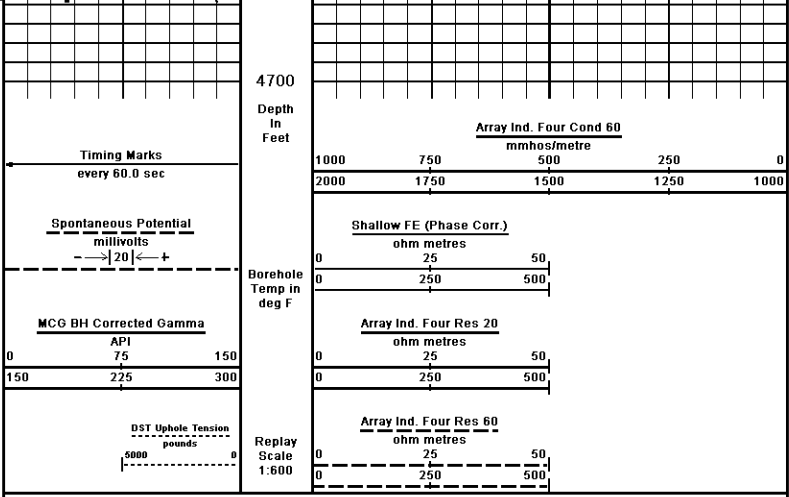
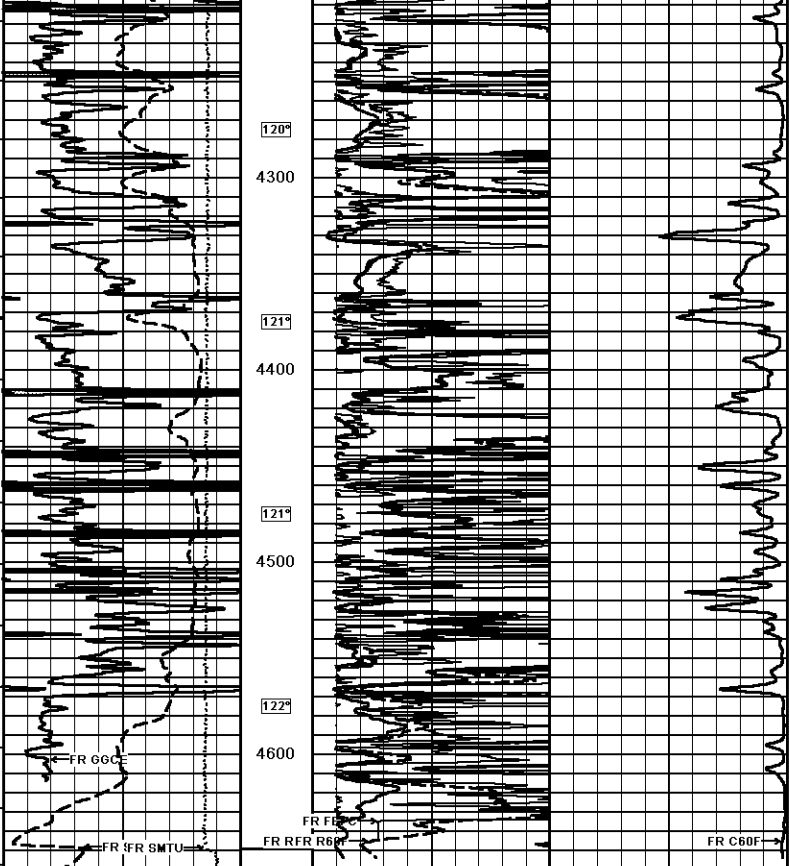
112°

3000

113°

3100





Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 27-JUN-2019 07:33
 Recorded on 26-JUN-2019 22:04
 Filename: C:\Users\DHLEPI-1\AppData\Local\Temp\Weatherford PreView\0\MAIN PASS 001.dta
 System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 14.04.4365

1 INCH MAIN PASS