



Weatherford

**COMPACT DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

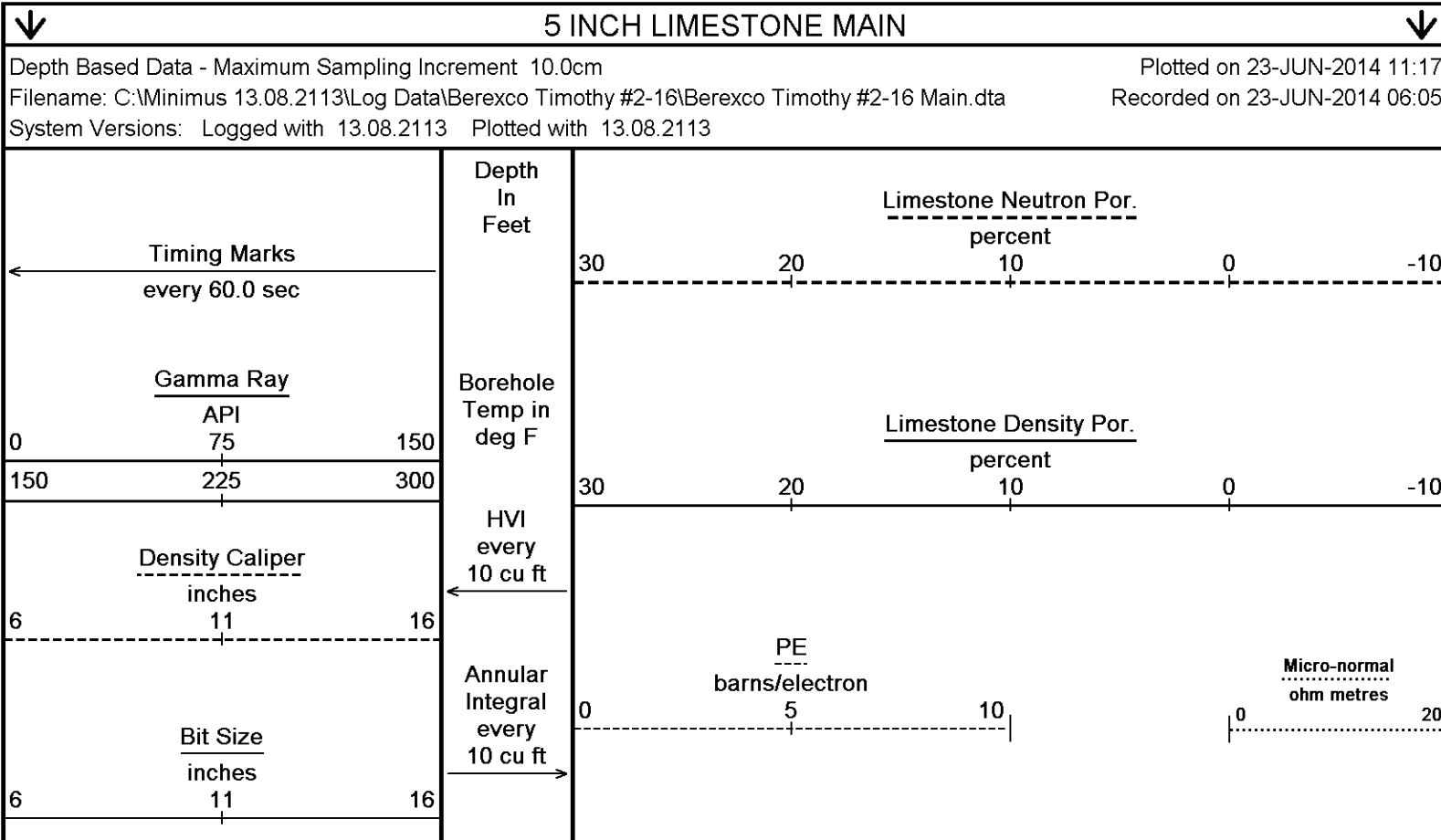
COMPANY	BEREXCO LLC		
WELL	TIMOTHY #2-16		
FIELD	WILDCAT		
PROVINCE/COUNTY	FINNEY		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1644' FSL & 351' FWL		
SEC 16	TWP 22S	RGE 34W	Other Services
Latitude	38.13861	MAI/MFE	MSS
Longitude	101.0653	CMI	
API Number	15-055-22311		
Permanent Datum GL, Elevation 2957 feet			
Log Measured From KB			
Drilling Measured From KB @ 12 FEET			
Date	23-JUN-2014		Elevations: KB 2969.00 DF 2967.00 GL 2957.00
Run Number	ONE		
Service Order	7606-90684489		
Depth Driller	4850.00	feet	
Depth Logger	4847.00	feet	
First Reading	4815.13	feet	
Last Reading	1696.00	feet	
Casing Driller	1700.00	feet	
Casing Logger	1696.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.00 lb/USg	54.00 CP	
PH / Fluid Loss	11.00	8.80 ml/30Min	
Sample Source	MUD PIT		
Rm @ Measured Temp	0.85 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m	
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.617 @105.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	105.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	BEN WELDIN		
Witnessed By	ED GRIEVES	DEREK CARTER	
JOB #	LB14-186		

BOREHOLE RECORD					Last Edited: 23-JUN-2014 03:05
Bit Size inches		Depth From feet		Depth To feet	
12.250		0.00		1700.00	
7.875		1700.00		4850.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	1700.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING:
- RUN 1: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- RUN 2: SHA, MCG, MIM, MIE RUN IN COMBINATION
- HARDWARE:
- MDN: DUAL BOWSPRING ECCENTRALIZER
- MFE: 1 X 0.5 INCH STANDOFF
- MSS: 2 X 0.5 INCH STANDOFF
- MAI: 2 X 0.5 INCH STANDOFF
- MIM: 6 LEAF CENTRALIZER
- MIE: 1 X 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY

- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1470 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO SURFACE CASING: 960 CU. FT.
- SERVICE ORDER # 7606-90684489
- RIG: BEREDCO #1
- ENGINEER: DEREK CARTER
- JUNIOR FIELD ENGINEER: BEN WELDIN
- OPERATORS: CARLOS RAMIREZ
- LATITUDE: 38.13861
- LONGITUDE: -101.0653
- MAGNETIC DECLINATION: 6.23 DEGREES EAST

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.



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Micro-inverse
ohm metres
0 20

1684

Casing
Shoe

1700

91°

1750

91°

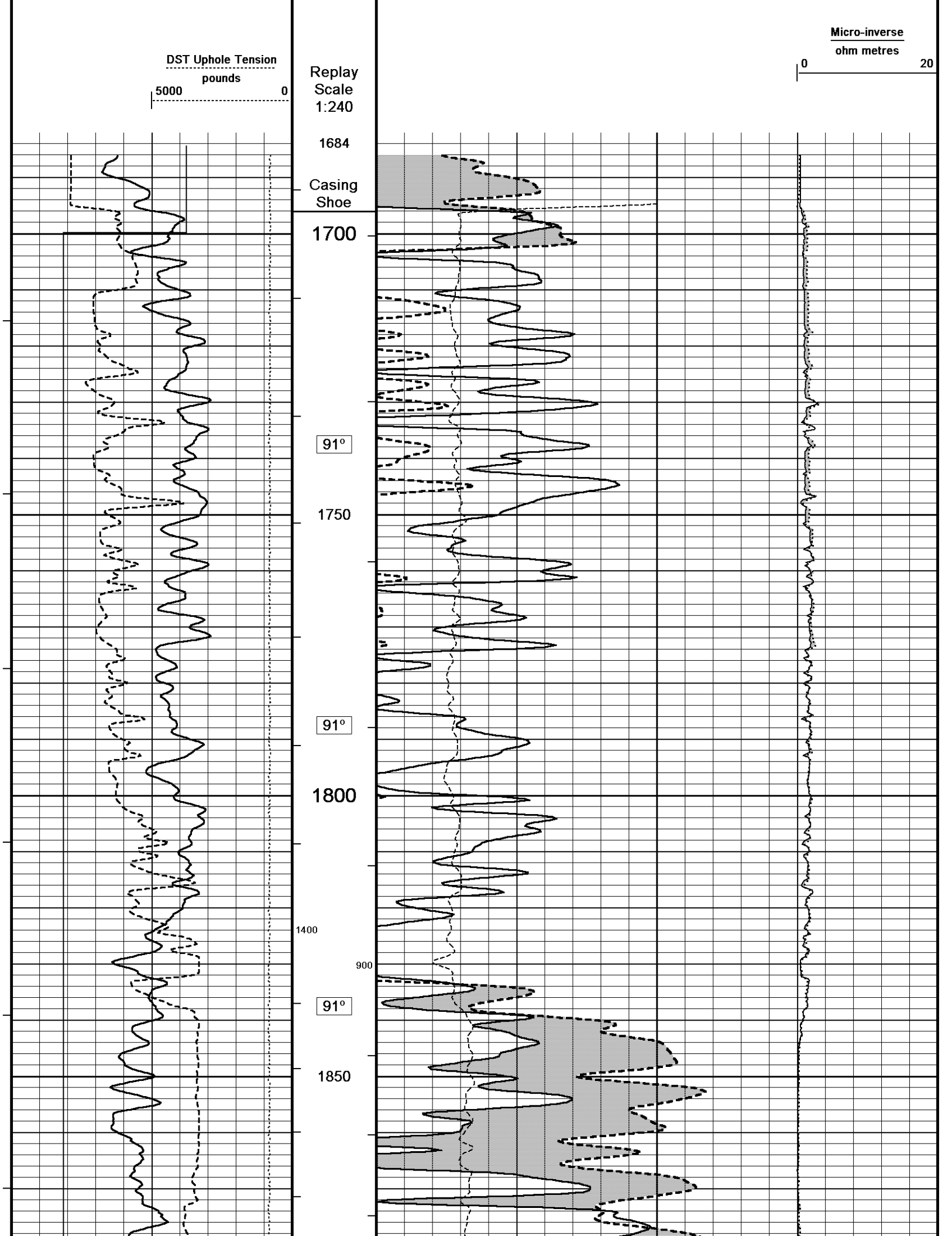
1800

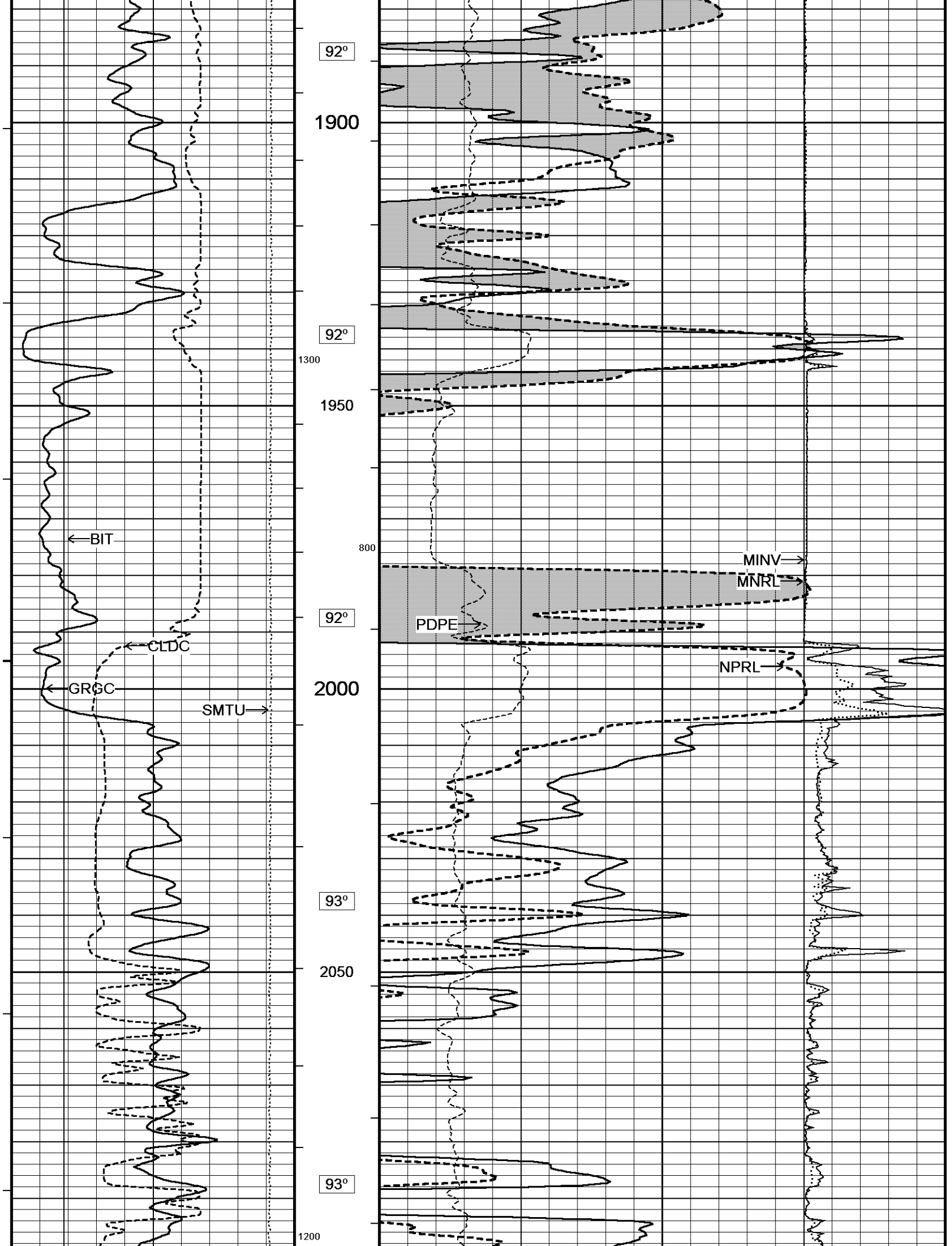
1400

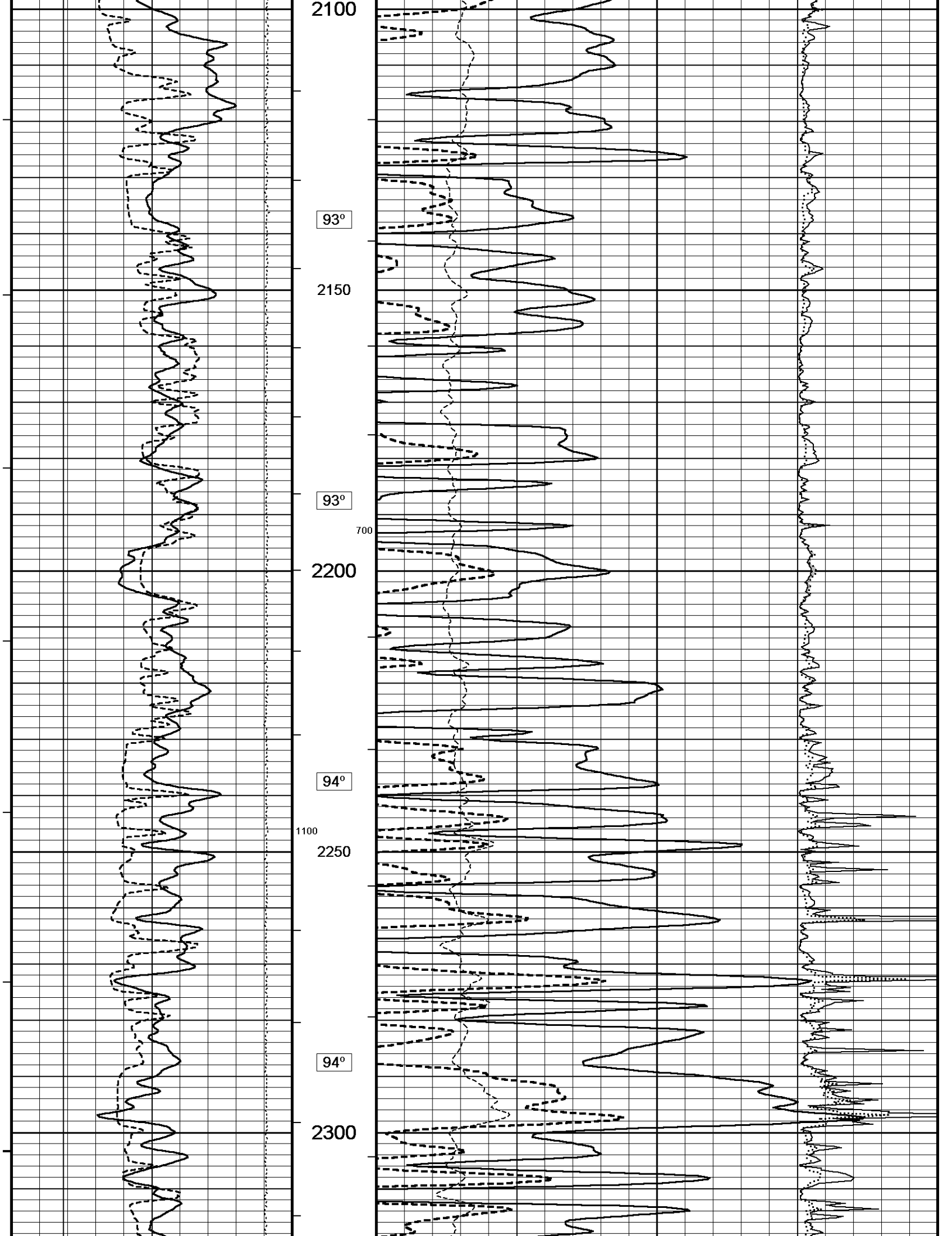
900

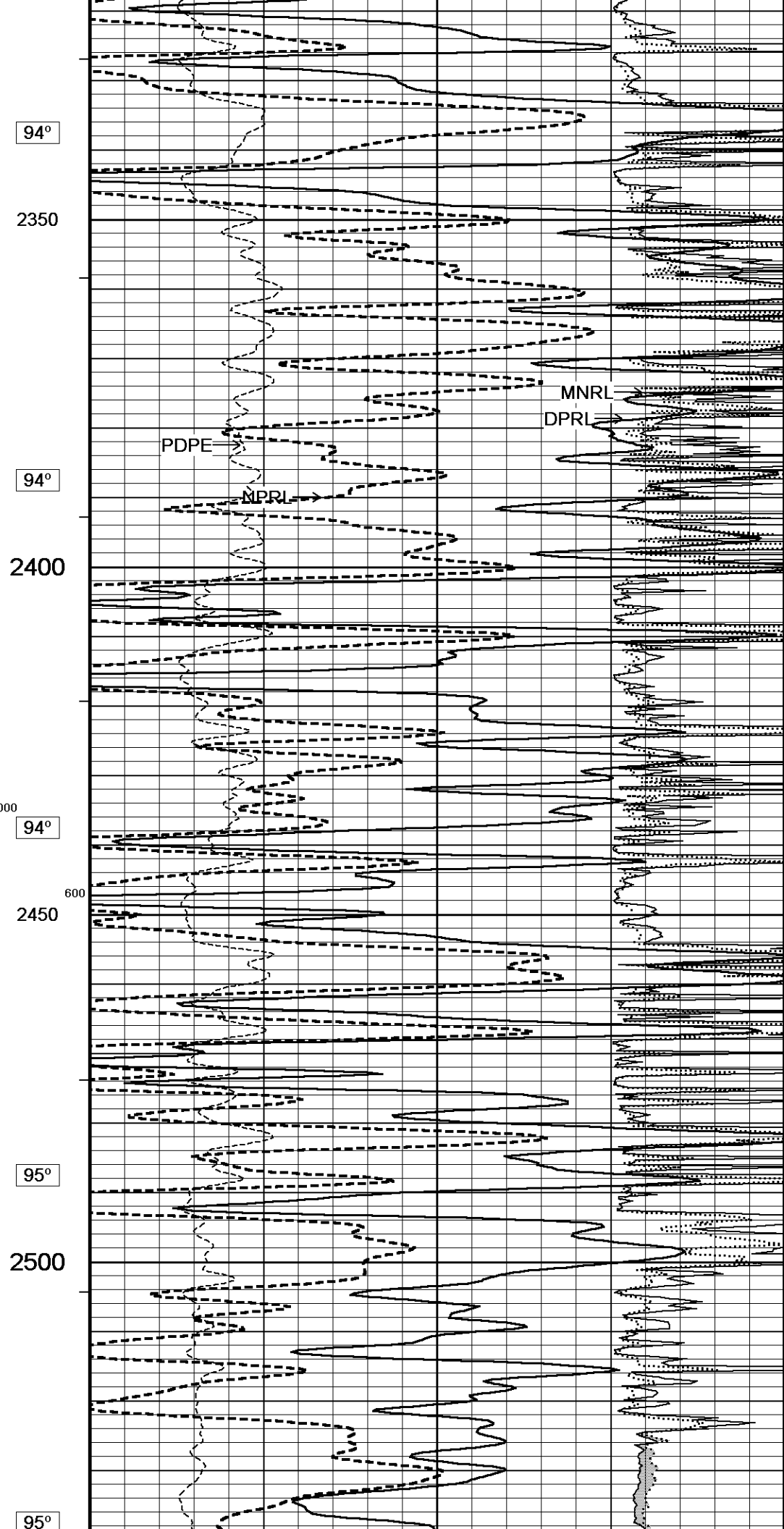
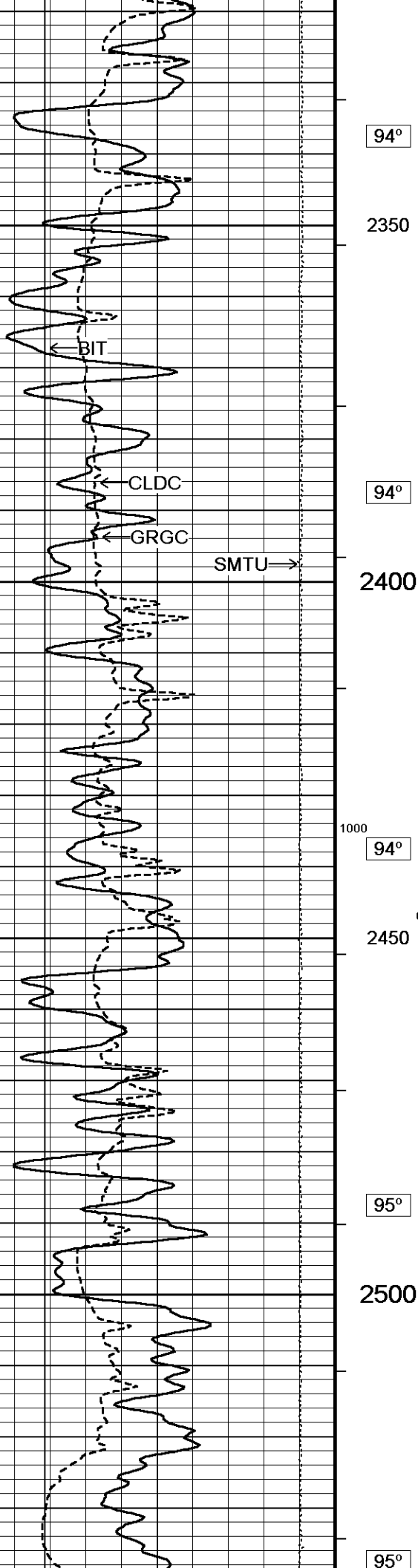
91°

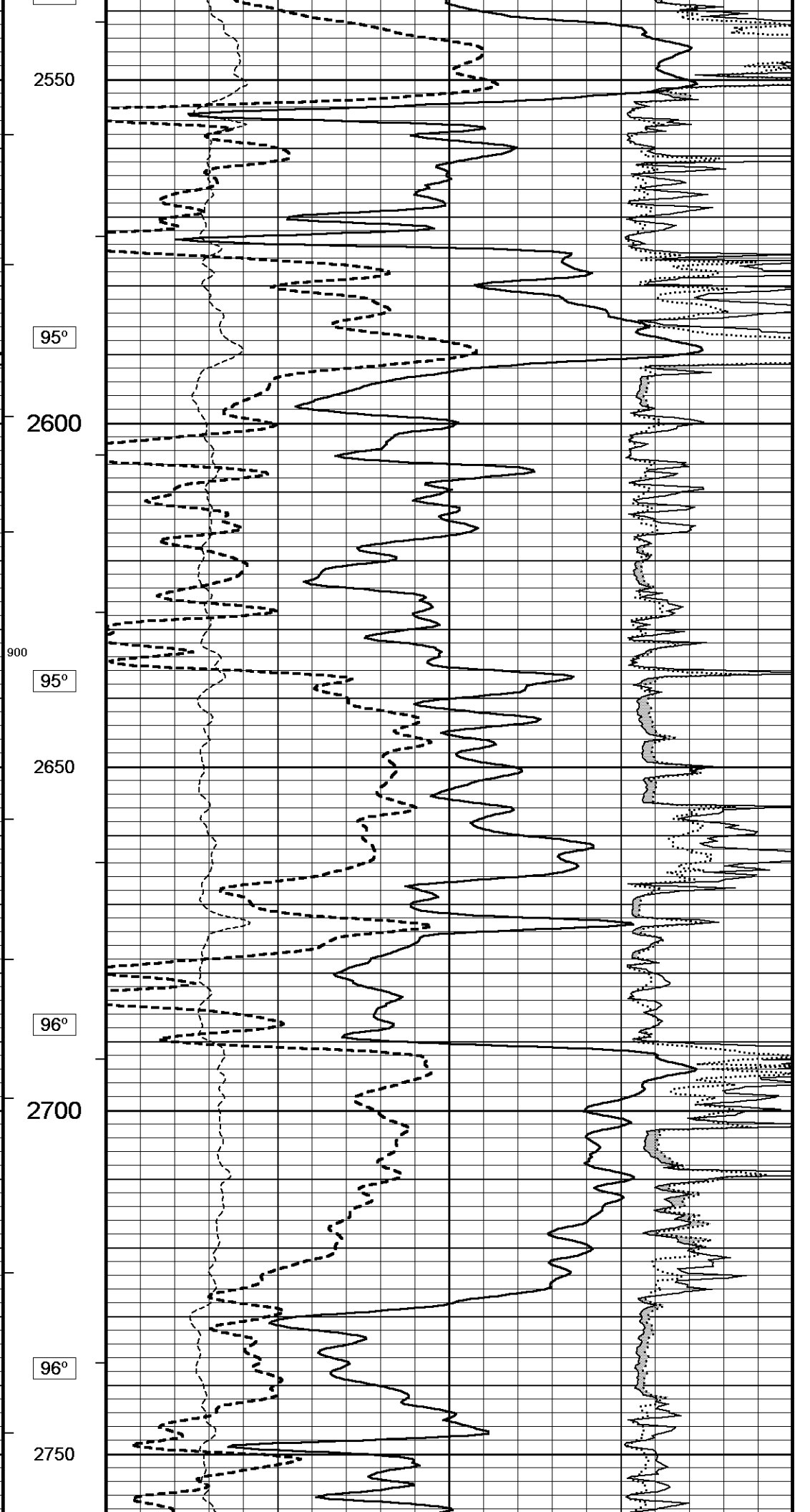
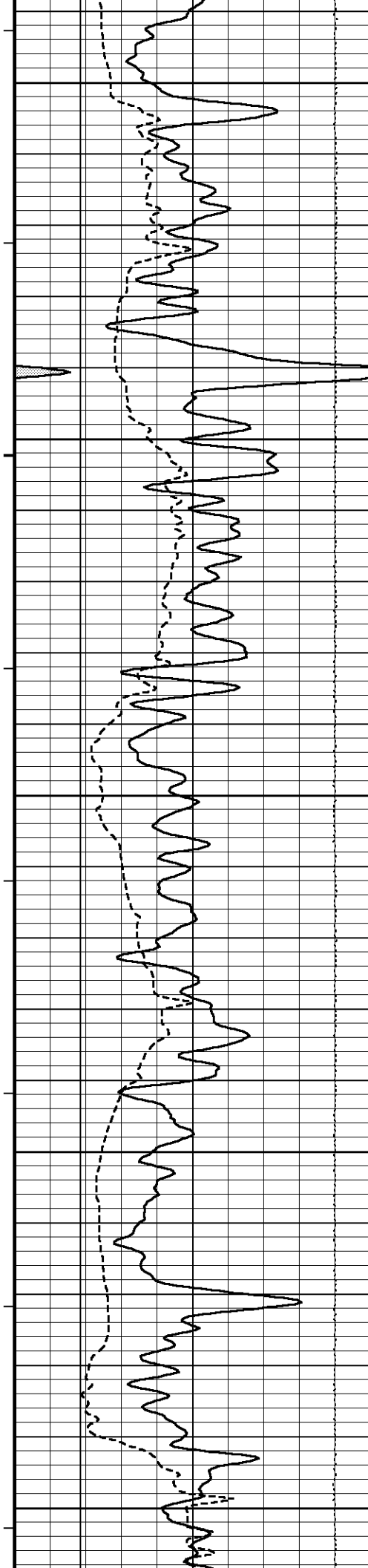
1850

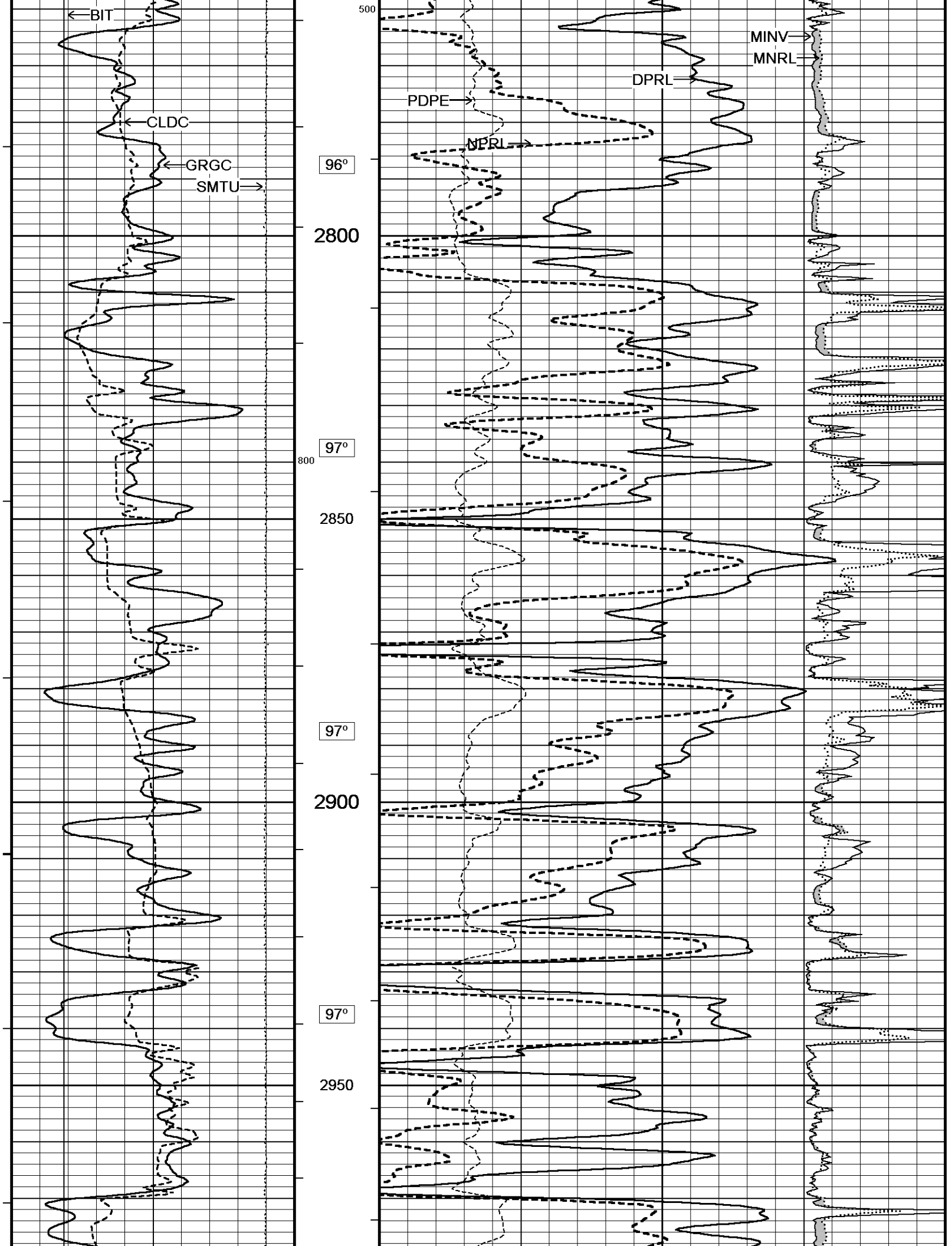


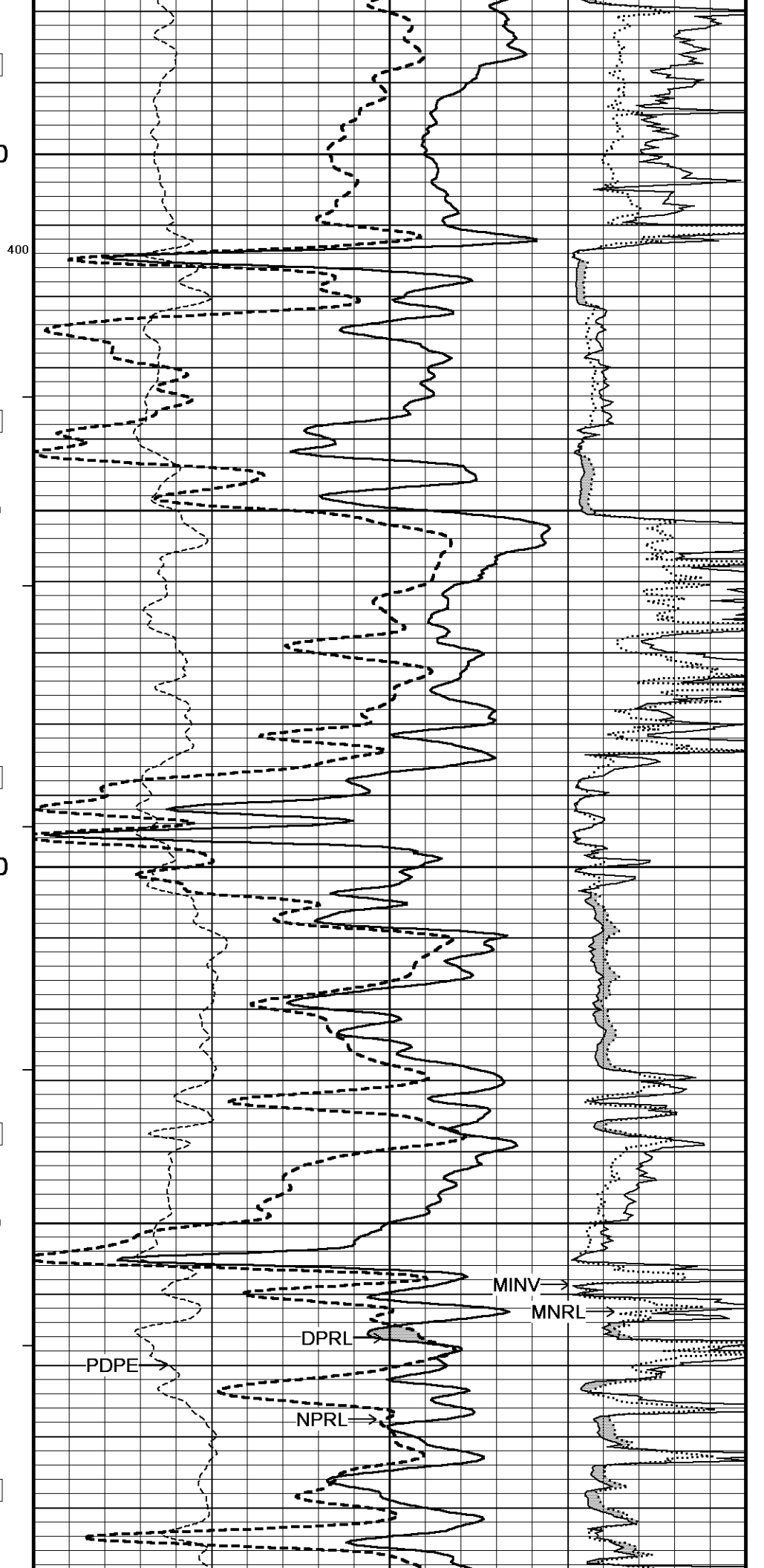
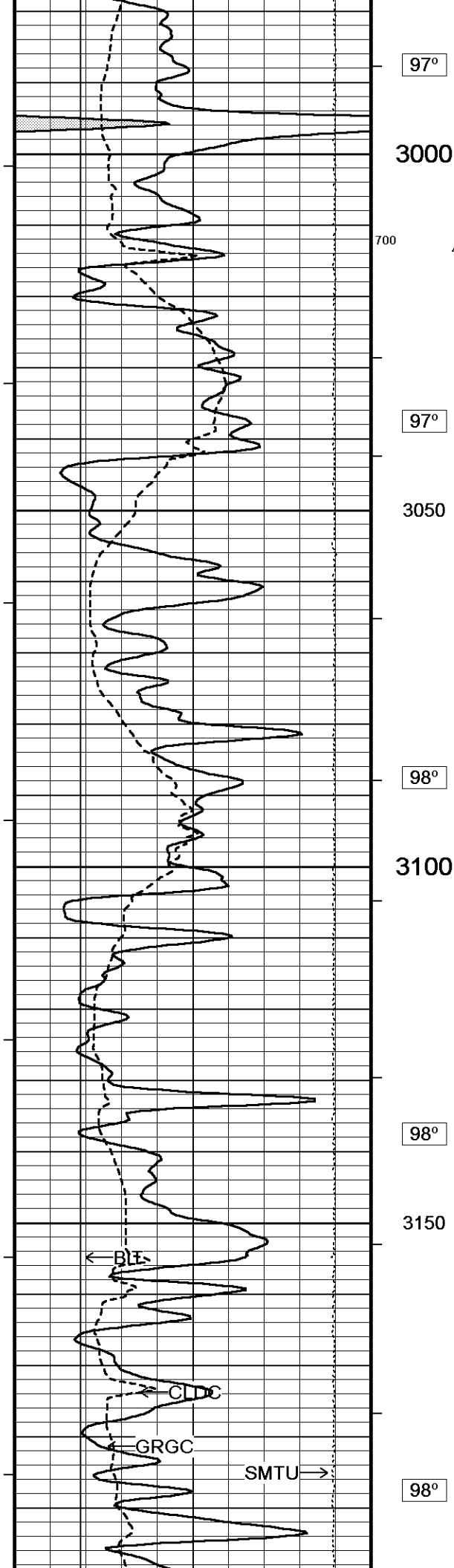


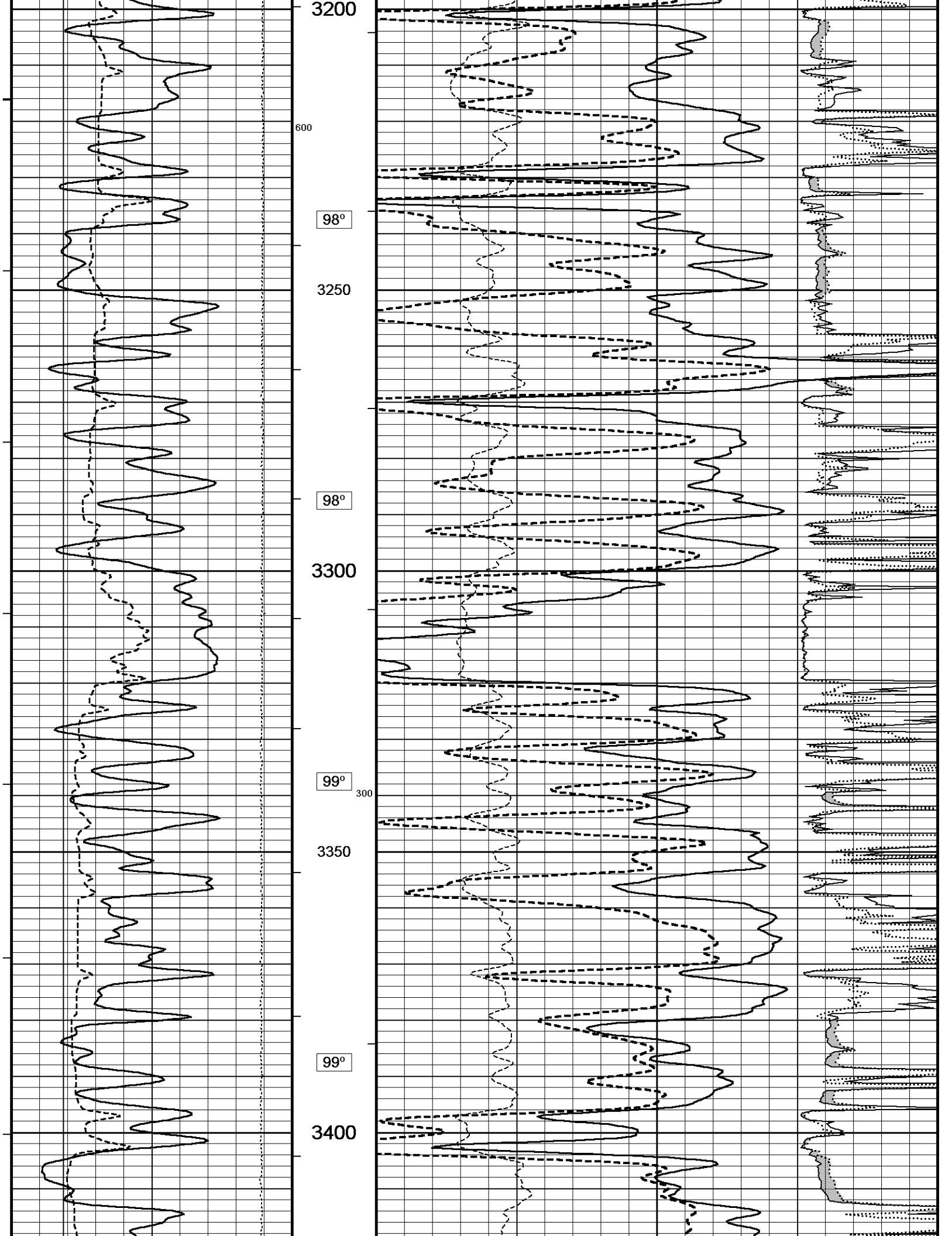


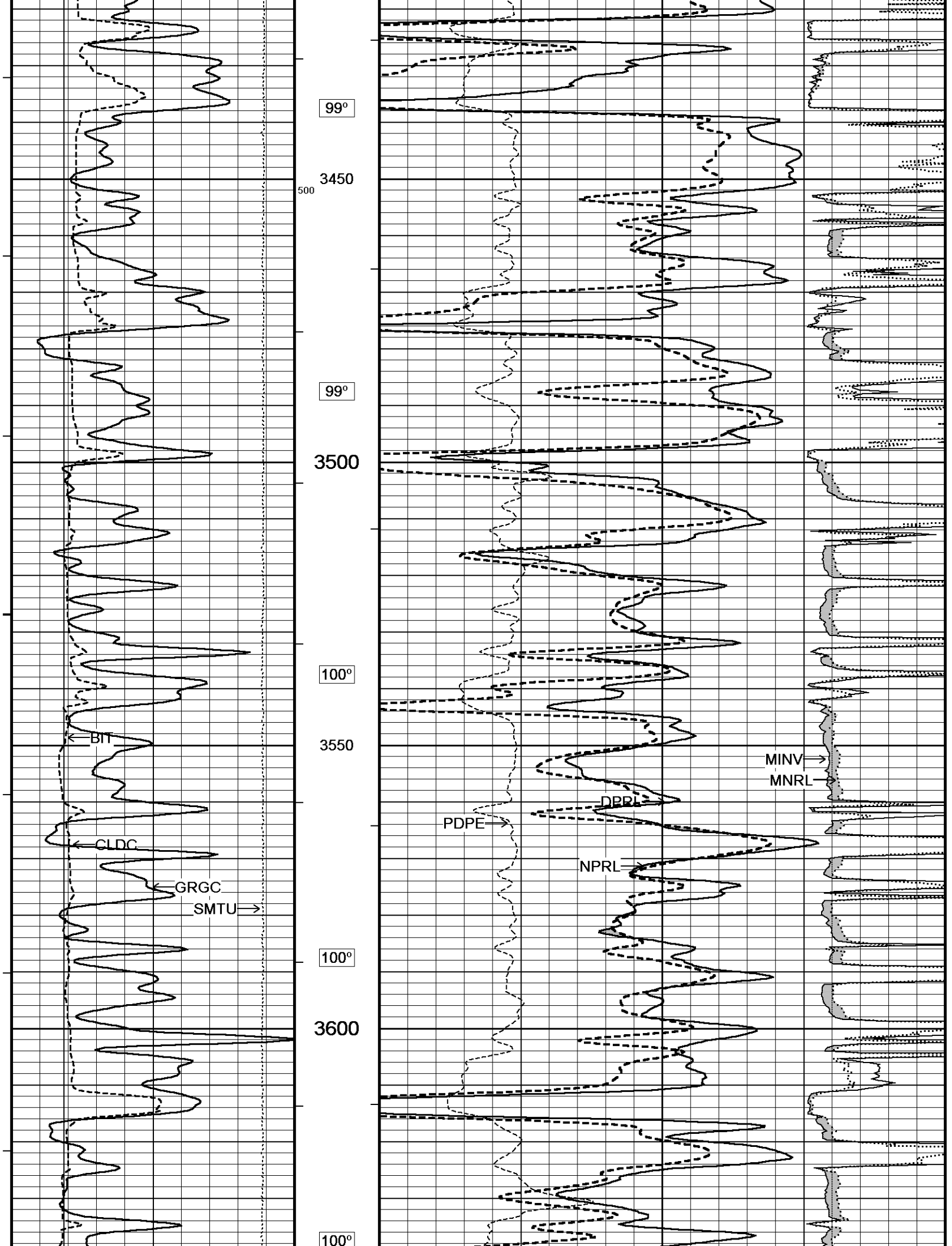


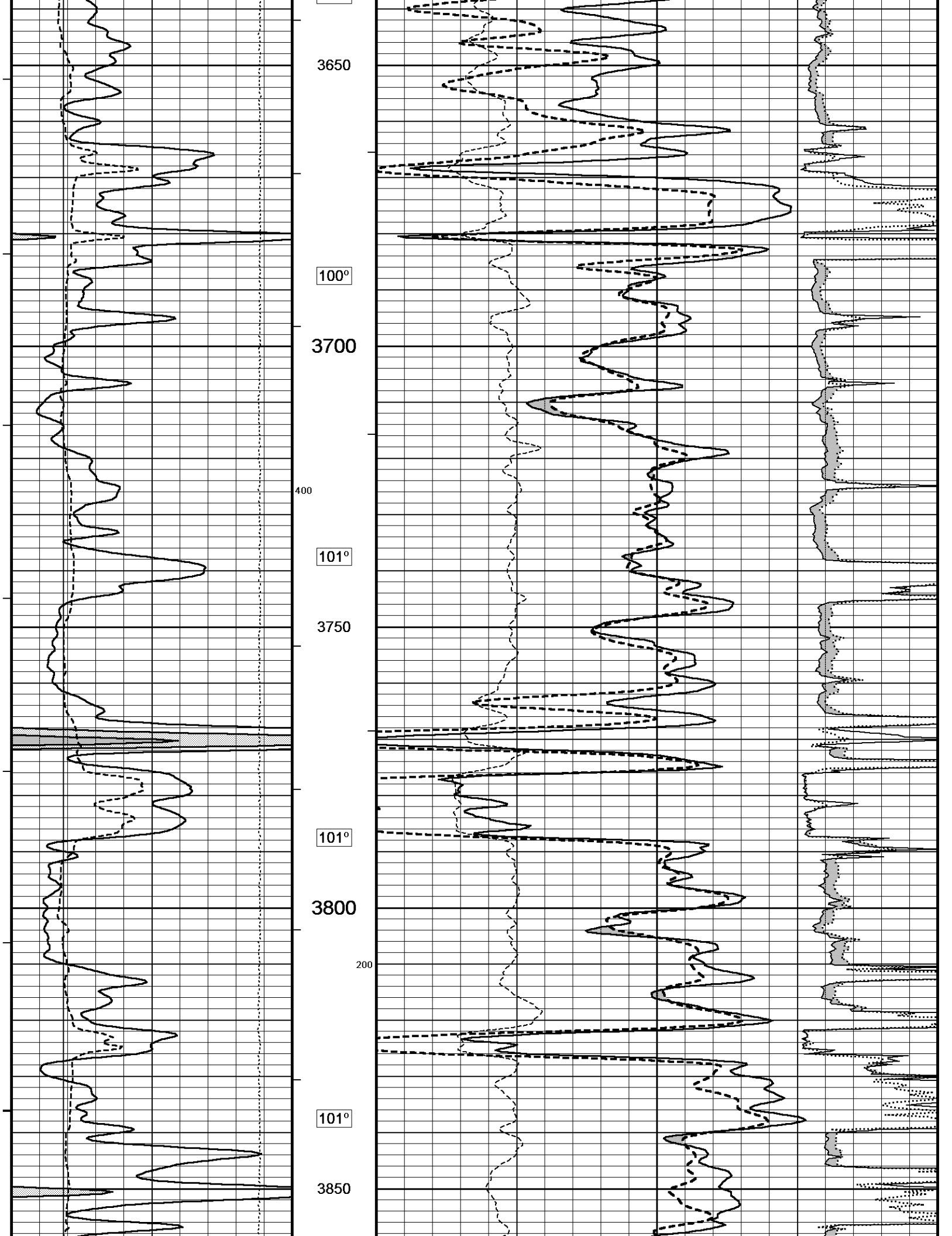


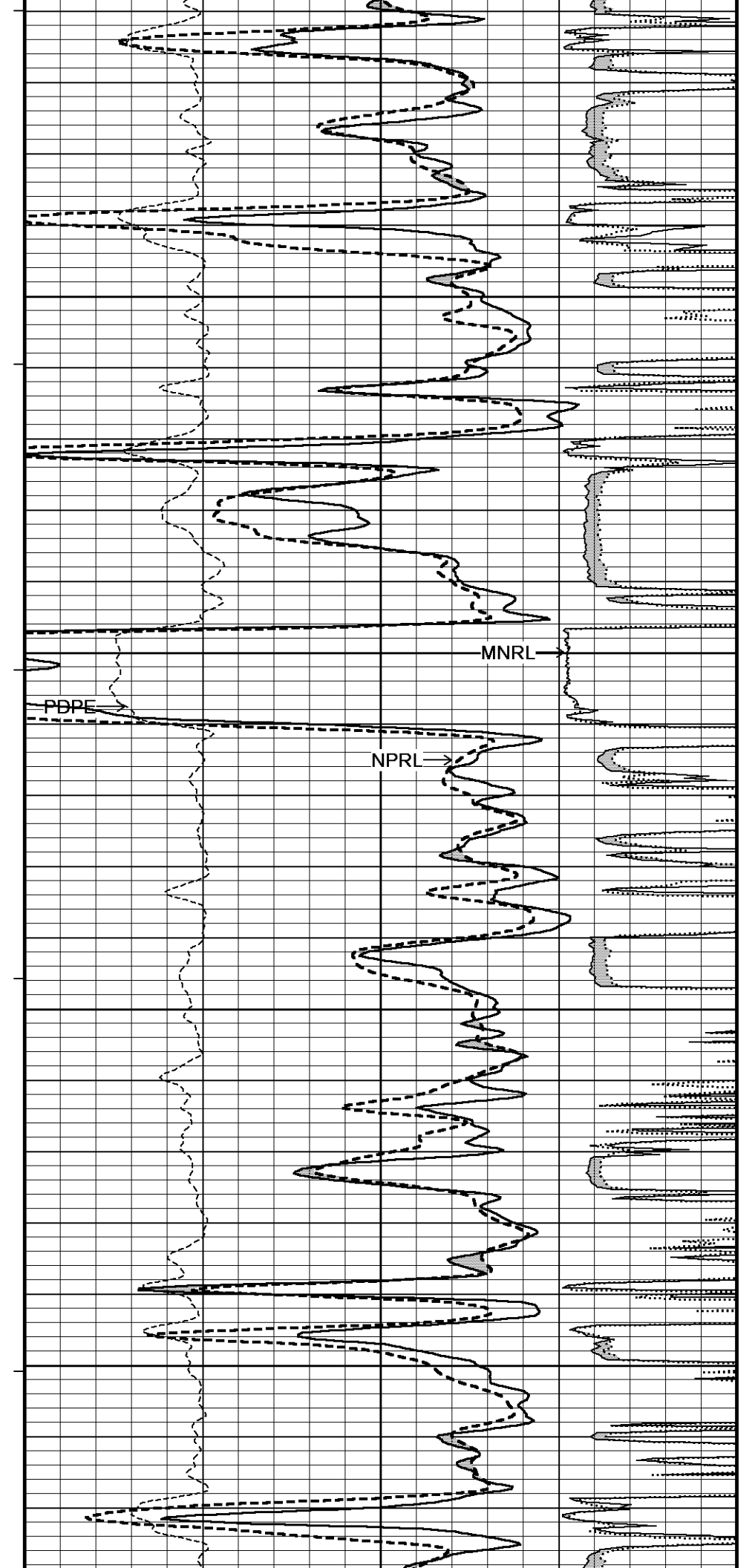
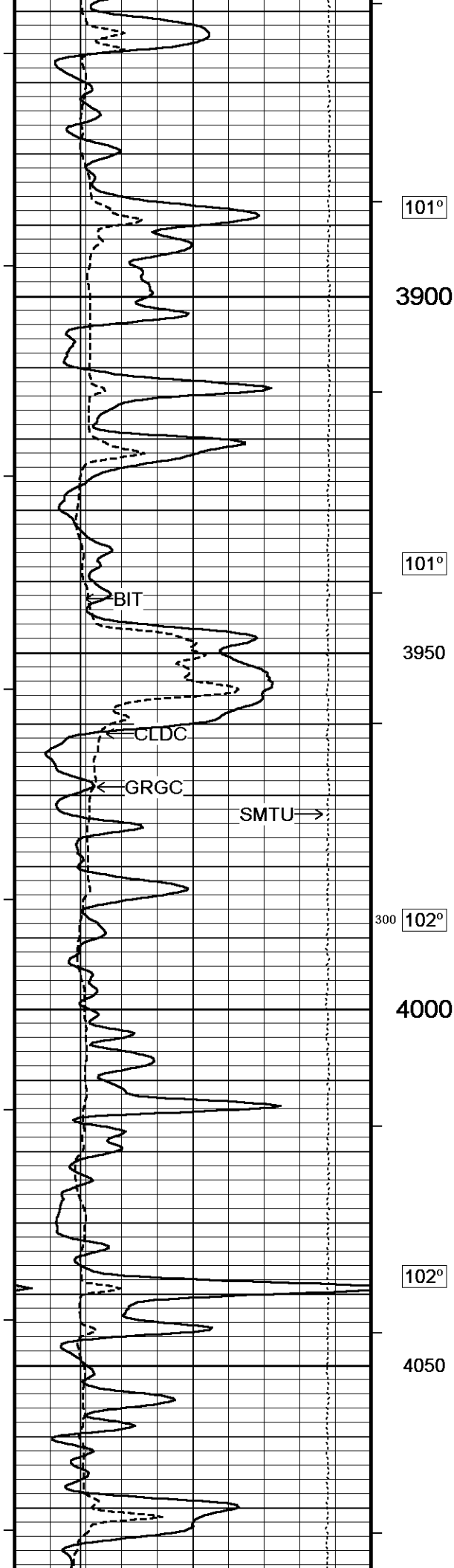


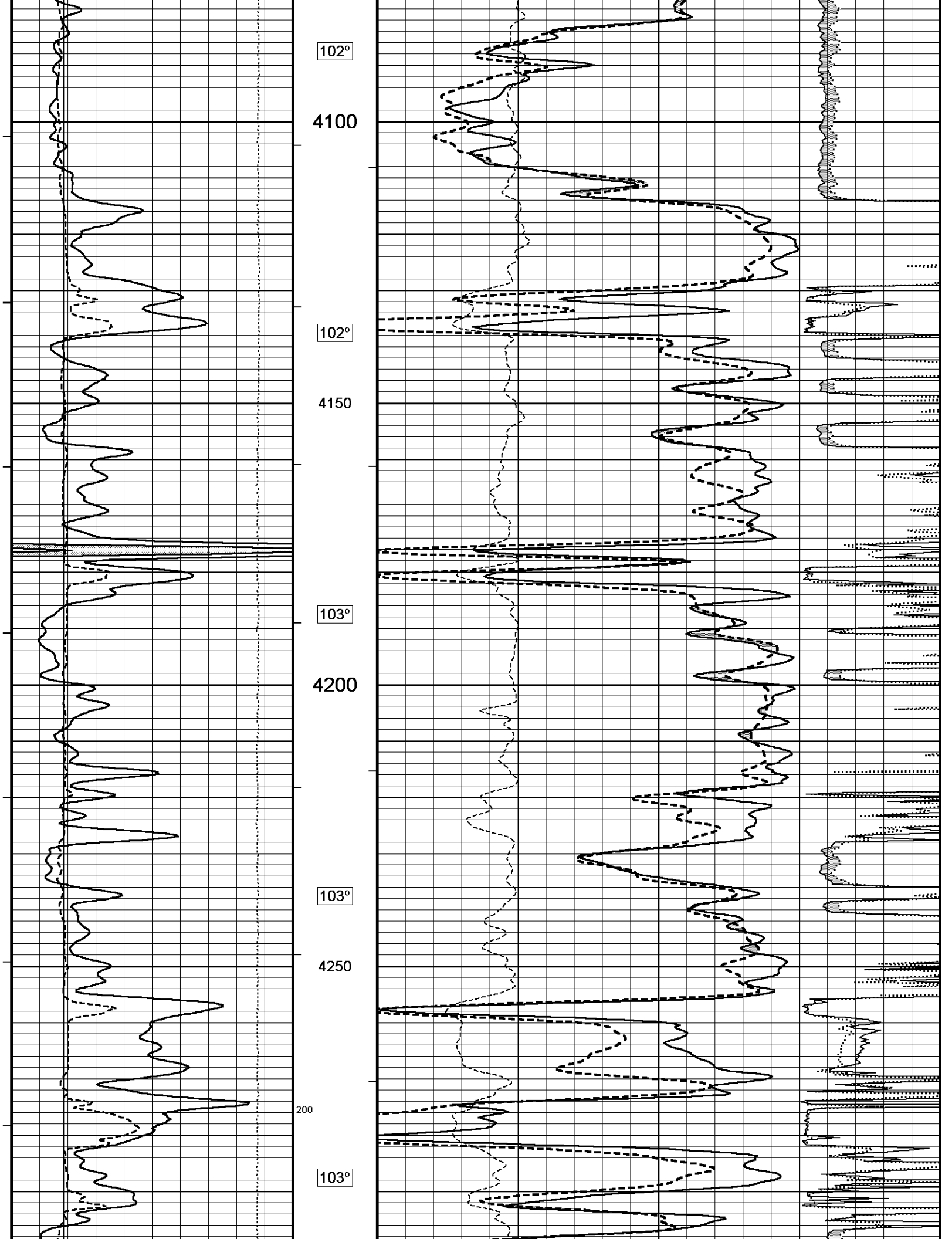


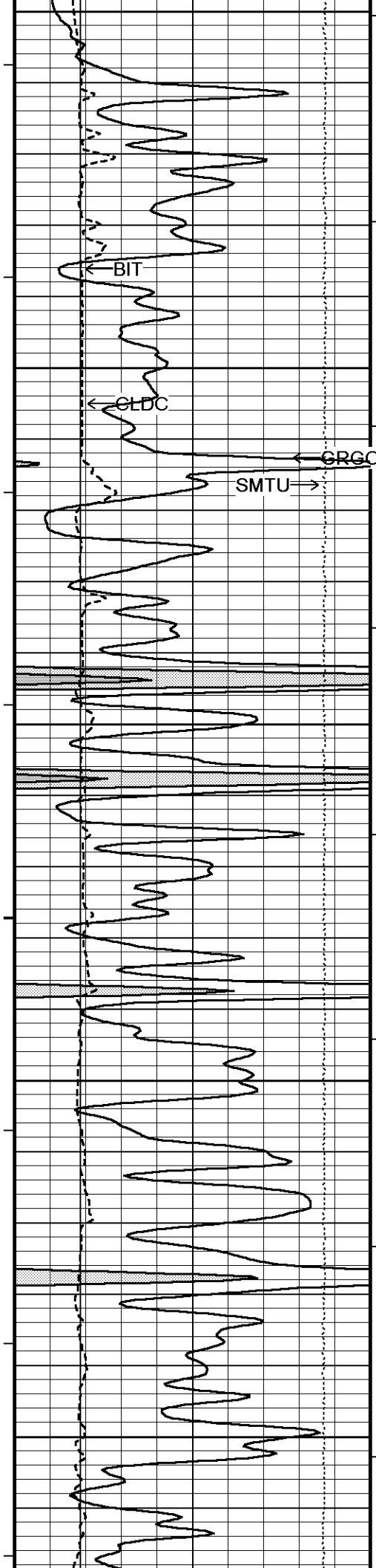












4300

100

103°

4350

PDPE →

NPRL →

DPRL →

← SMTU

← GRGC

104°

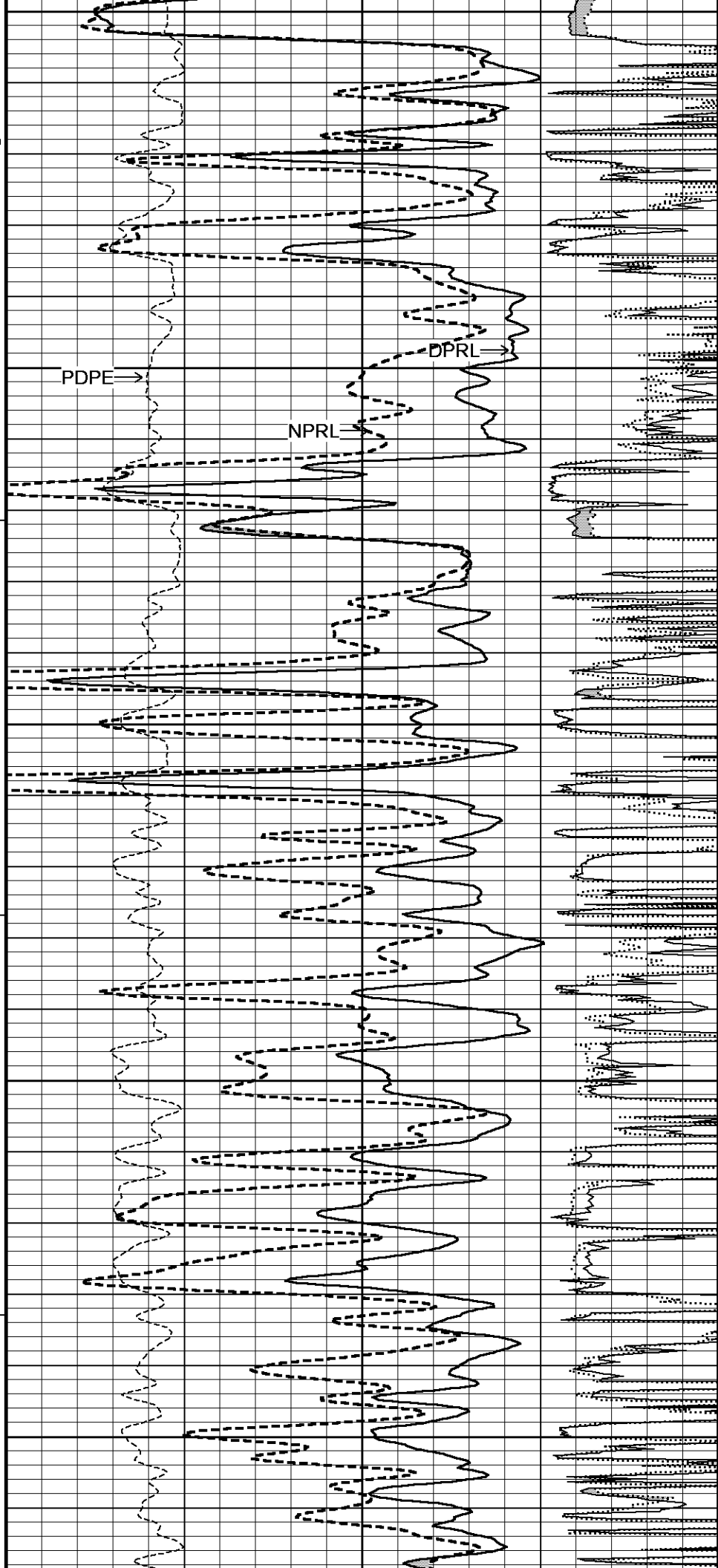
4400

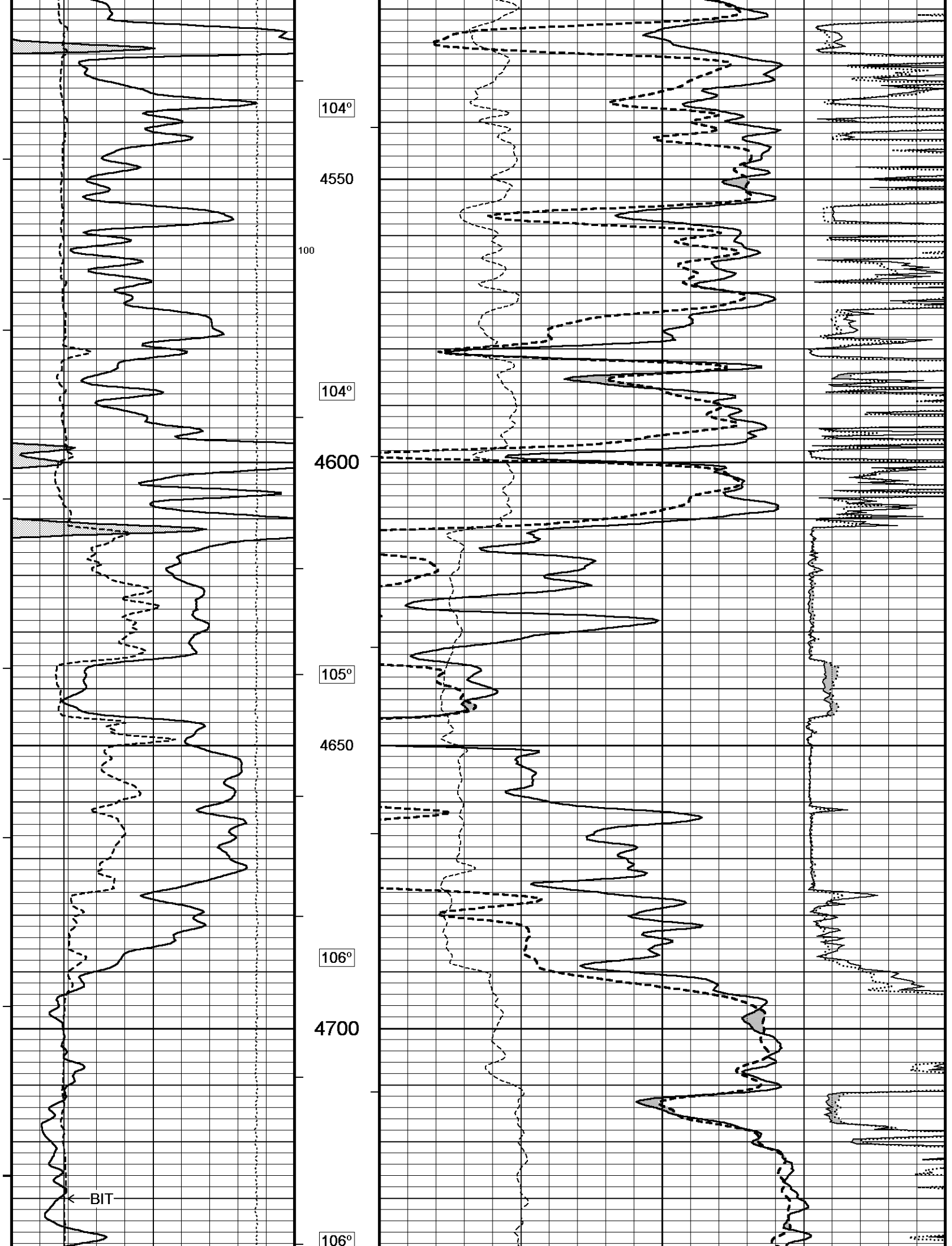
104°

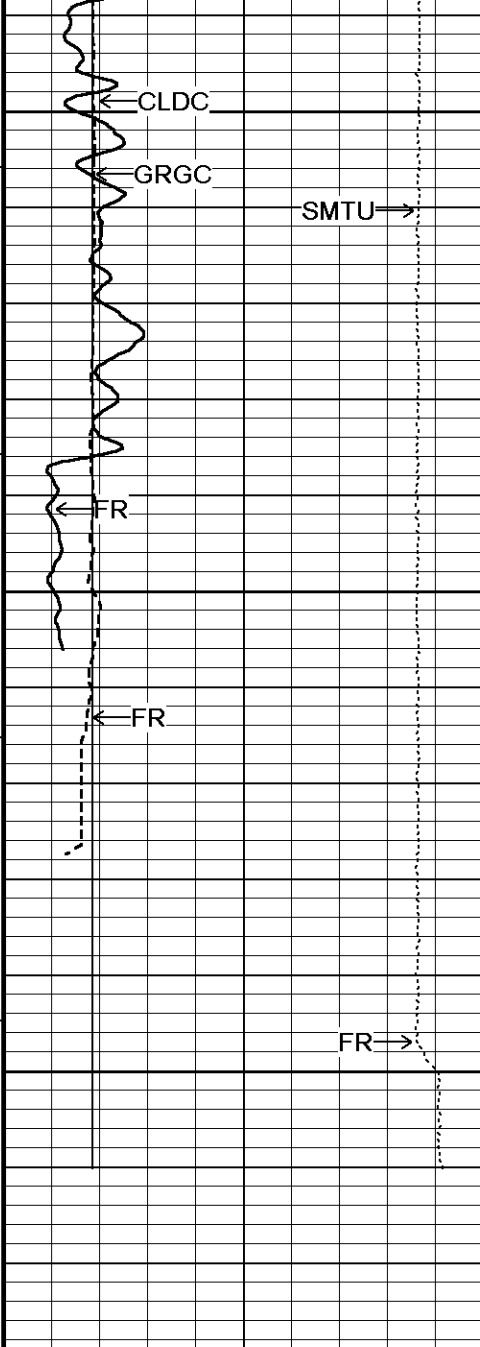
4450

104°

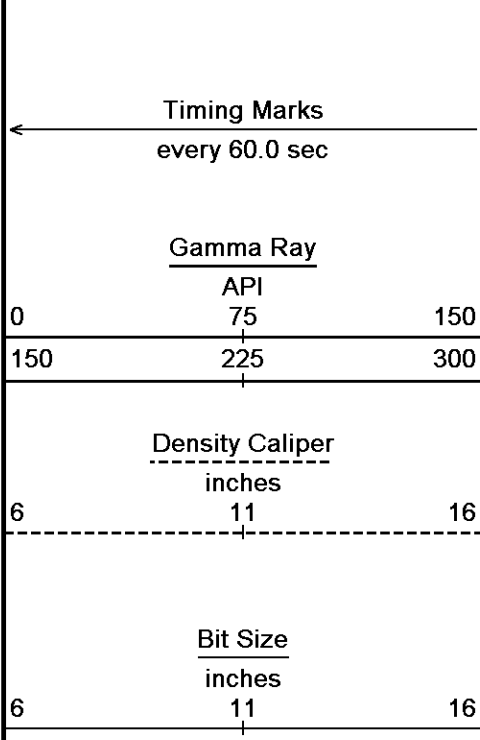
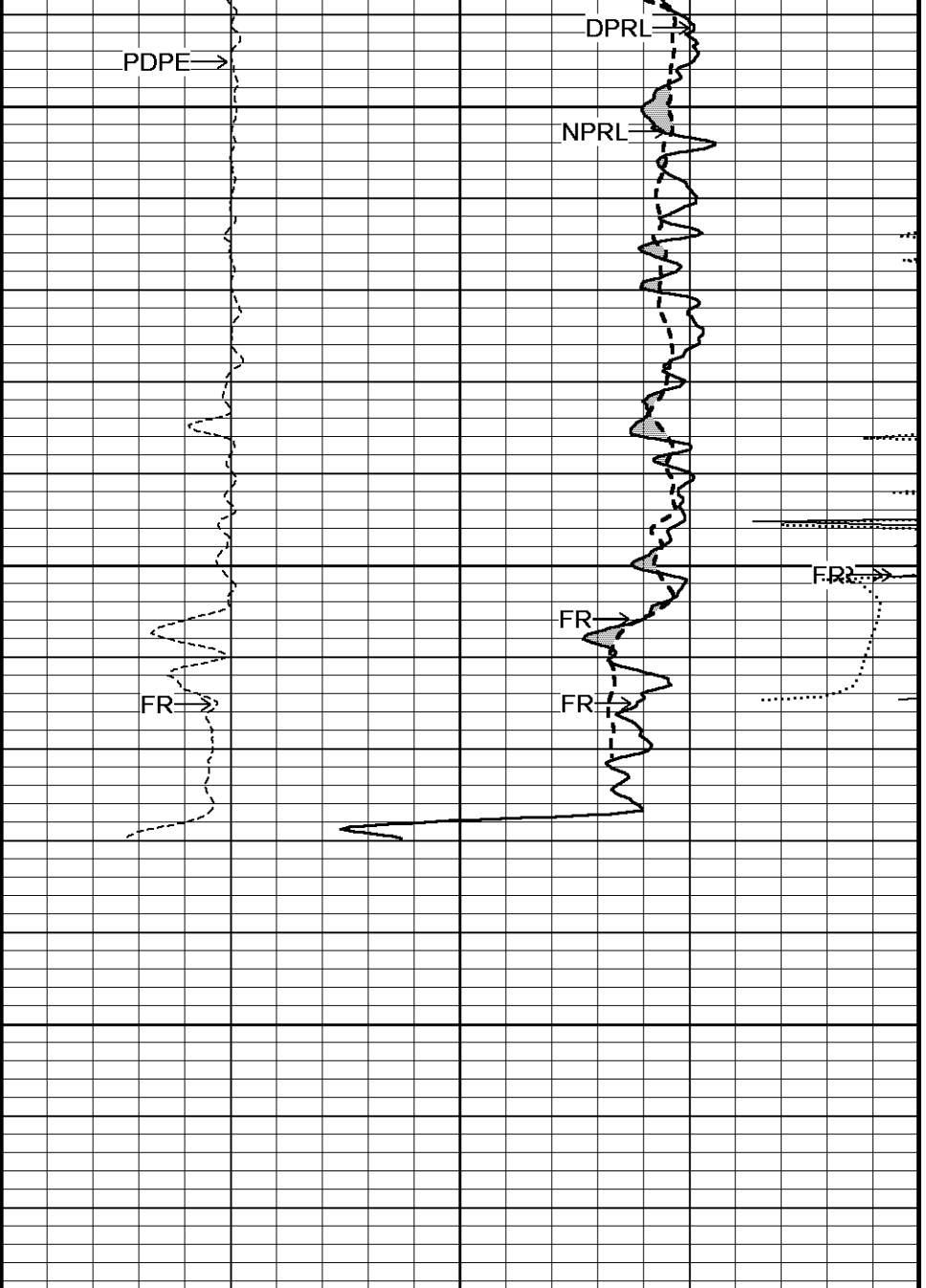
4500







4750
105°
4800
0
0
TD
4850

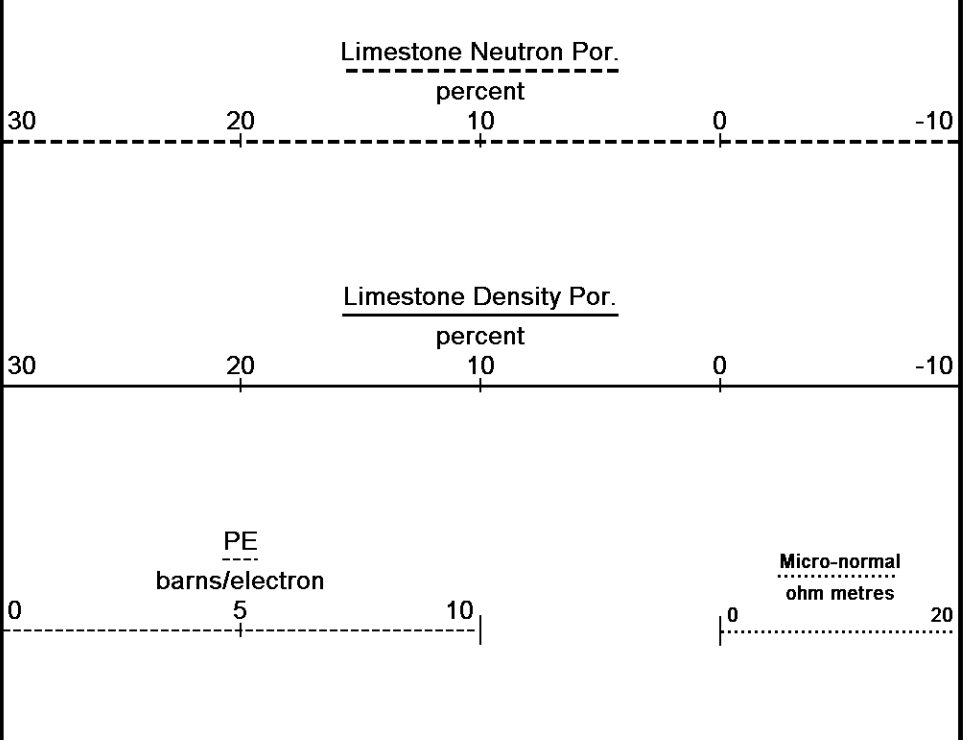


Depth
In
Feet

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 23-JUN-2014 11:17

Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta

Recorded on 23-JUN-2014 06:05

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

↑

5 INCH LIMESTONE MAIN

↑

↓

REPEAT SECTION

↓

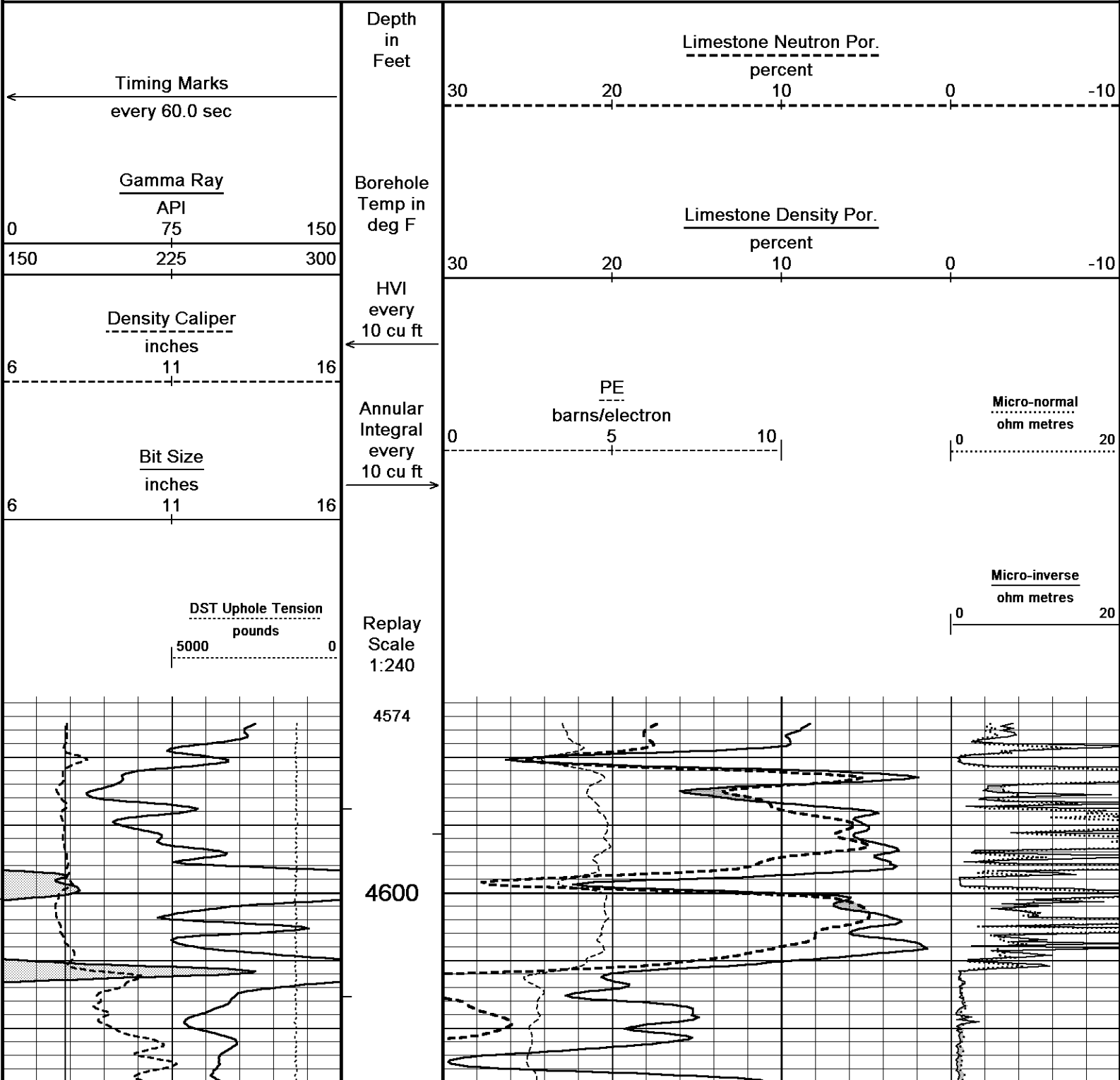
Depth Based Data - Maximum Sampling Increment 10.0cm

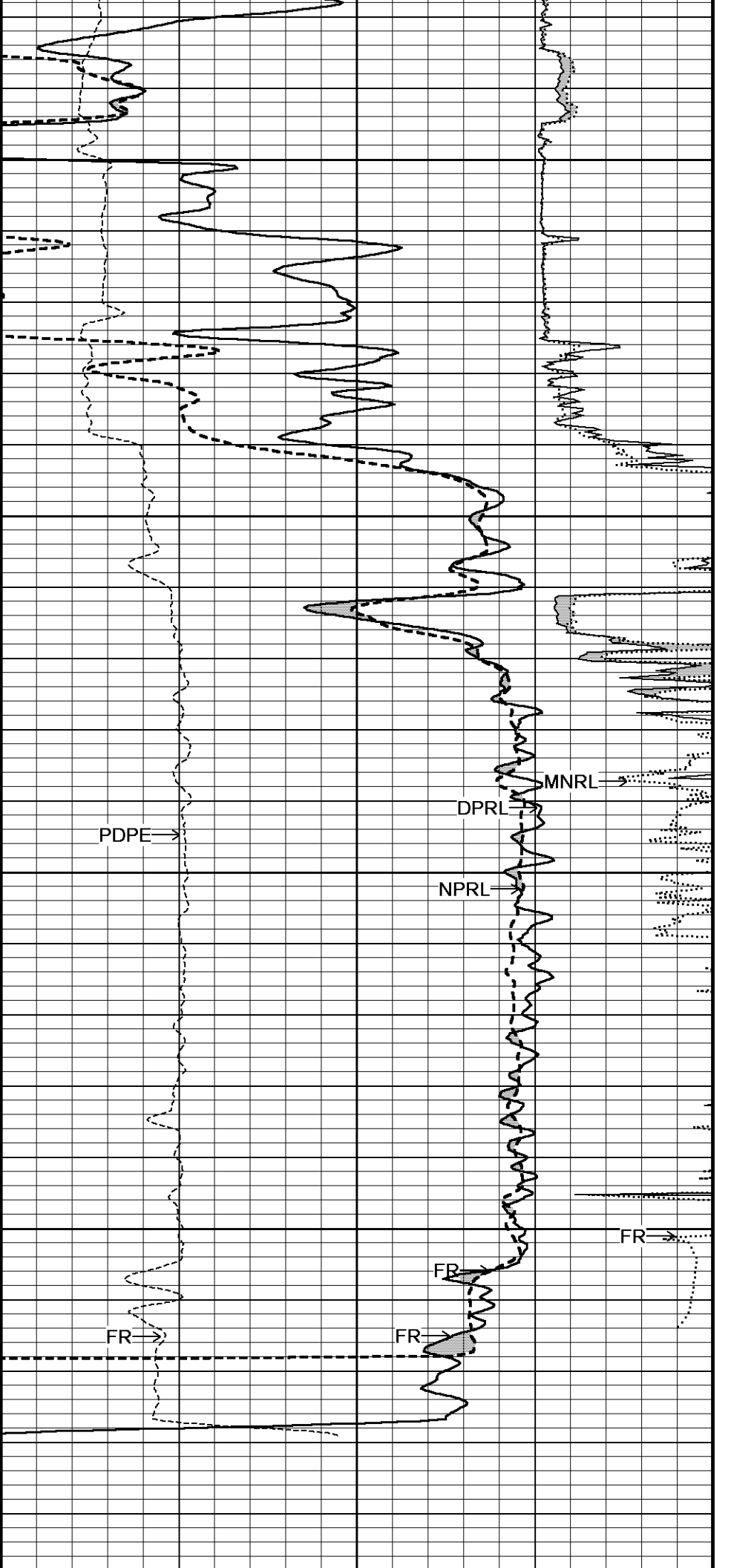
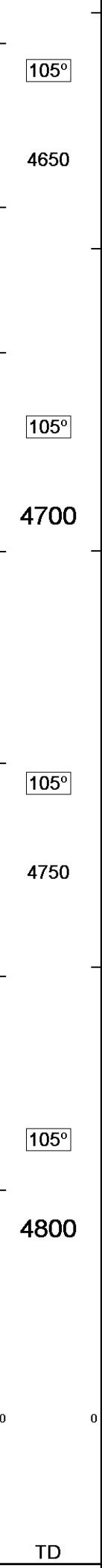
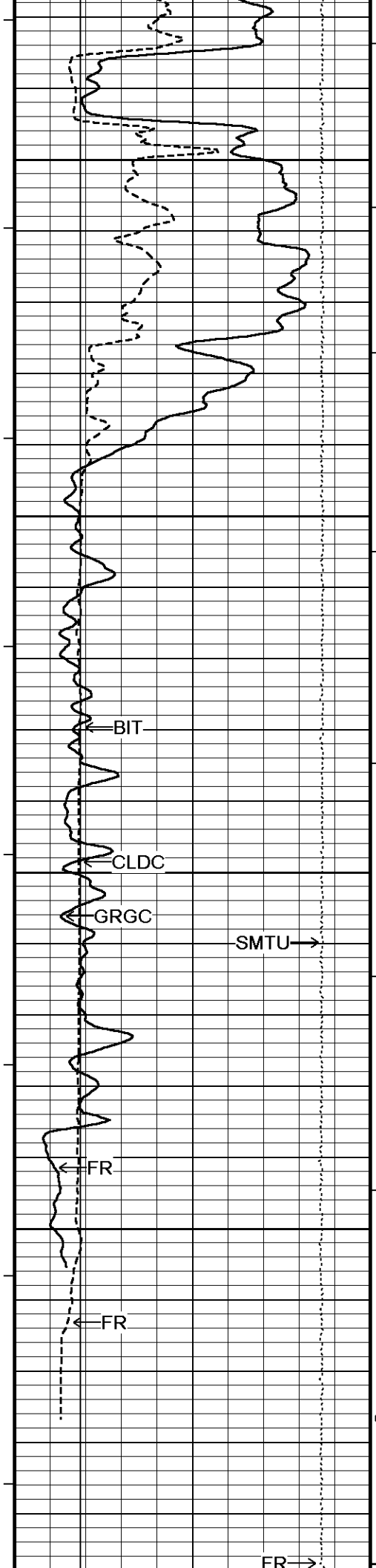
Plotted on 23-JUN-2014 11:17

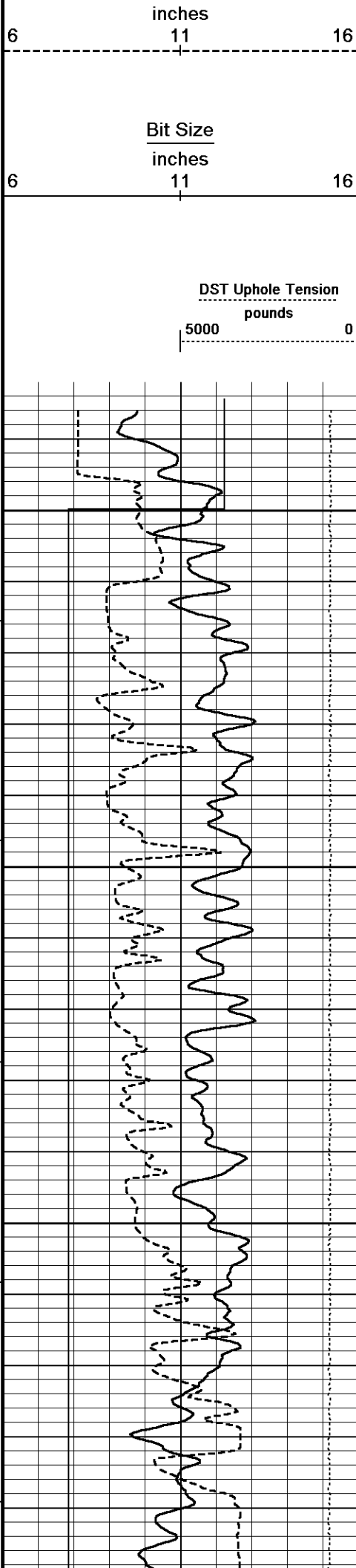
Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Repeat.dta

Recorded on 23-JUN-2014 05:27

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113







16 cu ft
Annular
Integral
every
10 cu ft
→

Replay
Scale
1:240

1684

Casing
Shoe

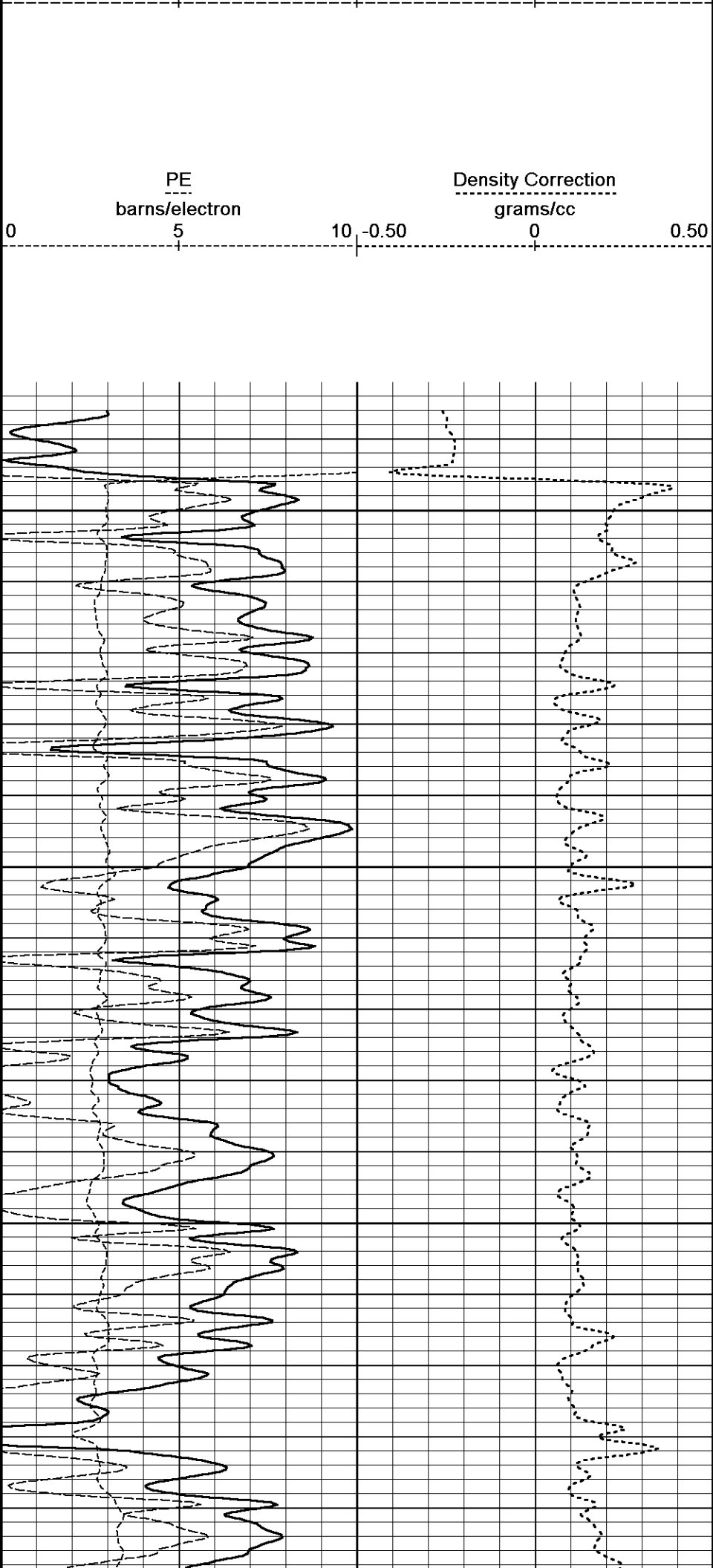
1700

1750

1800

1400

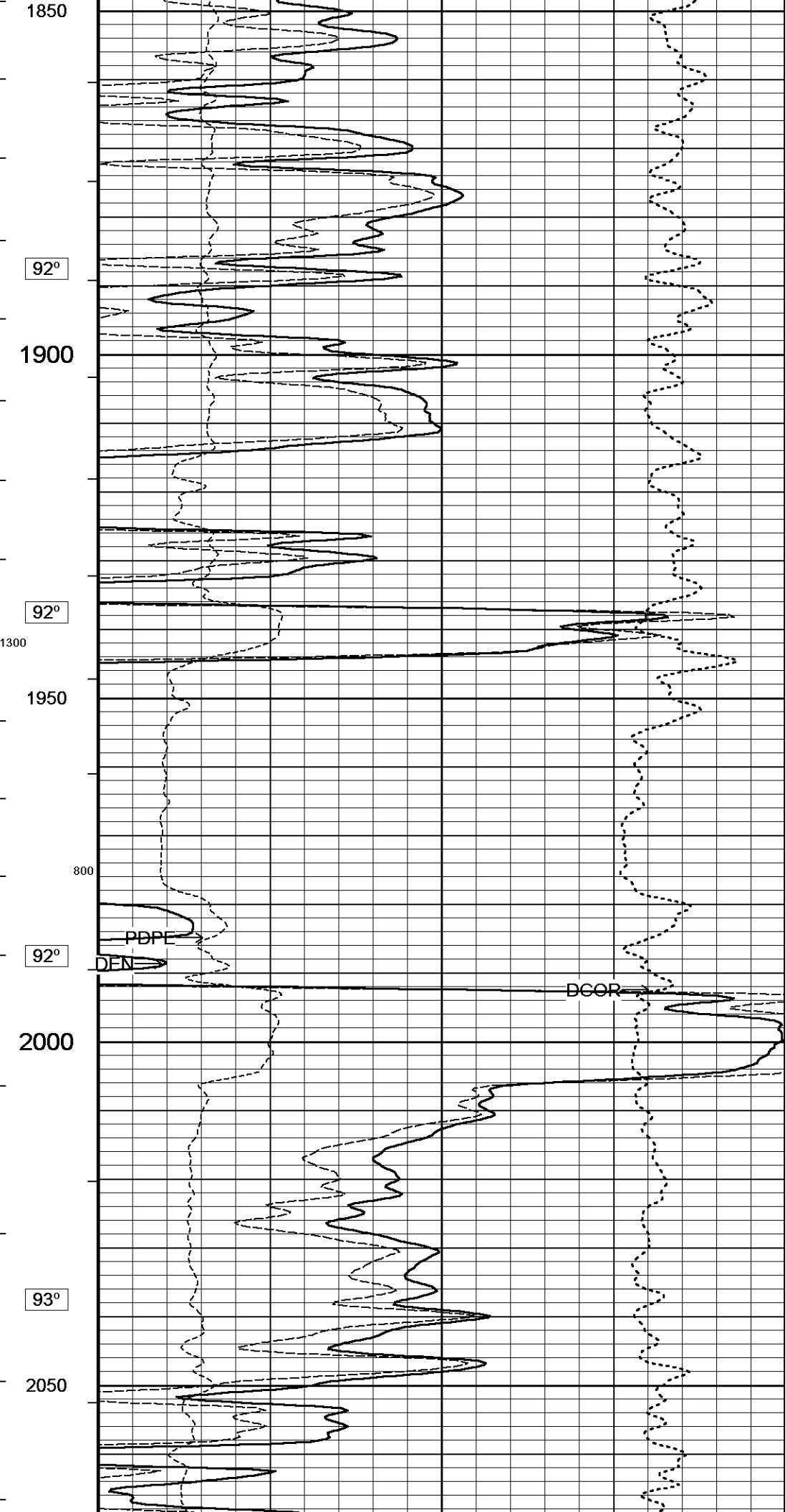
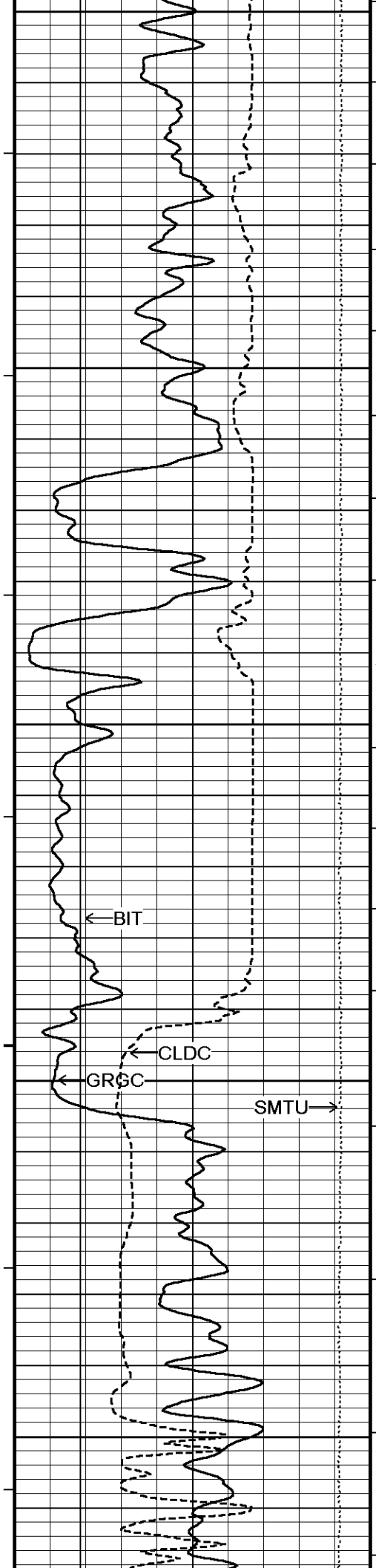
900

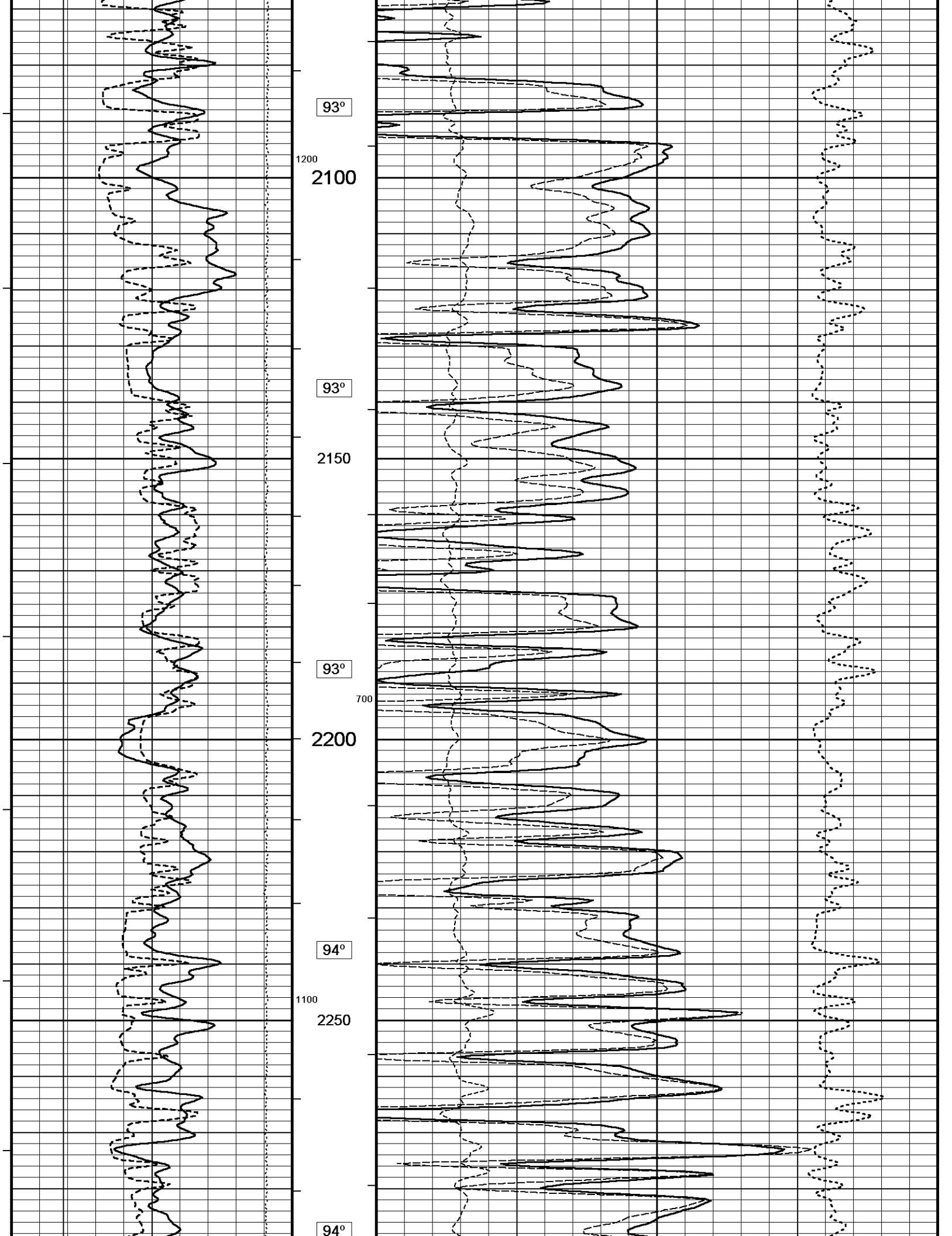


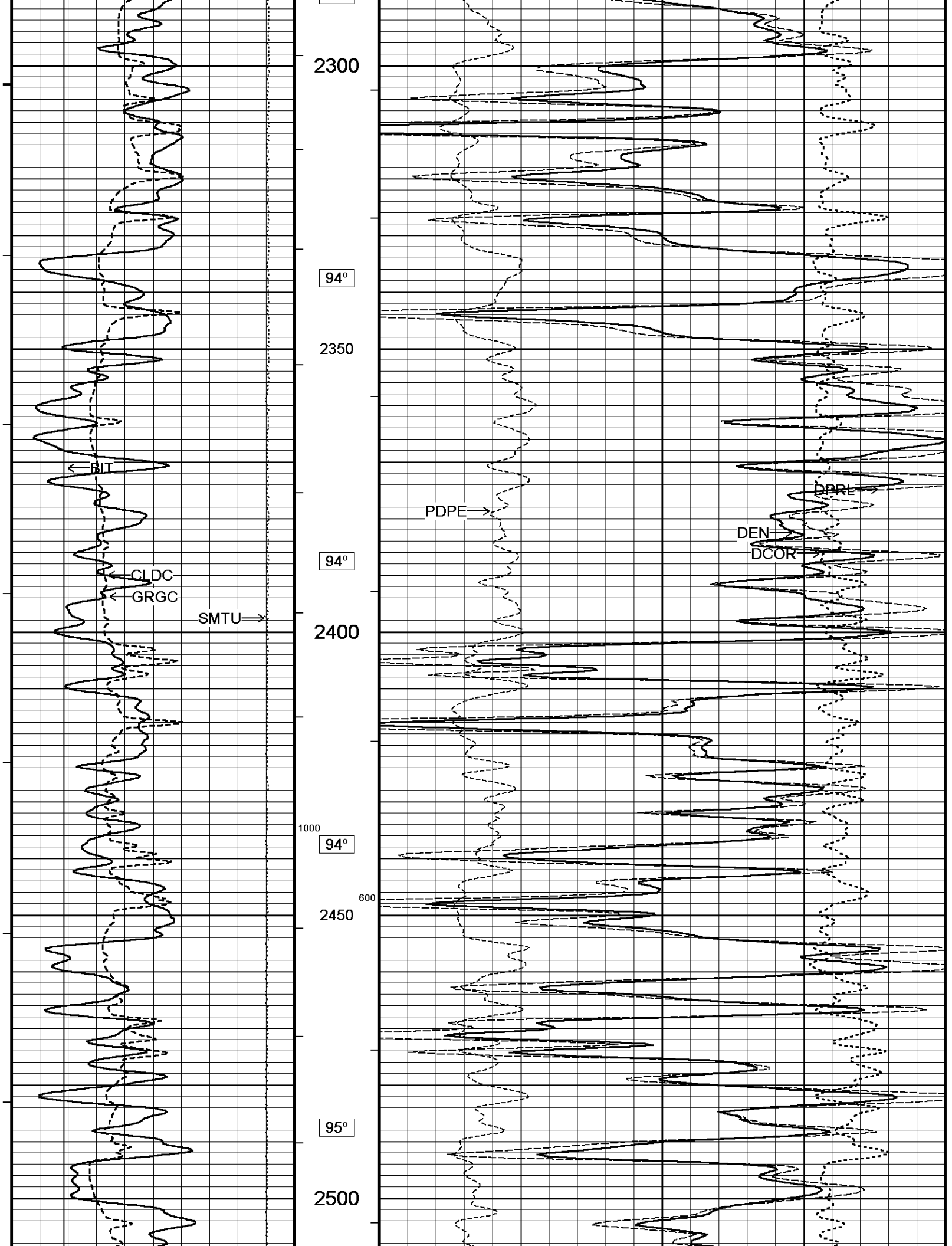
91°

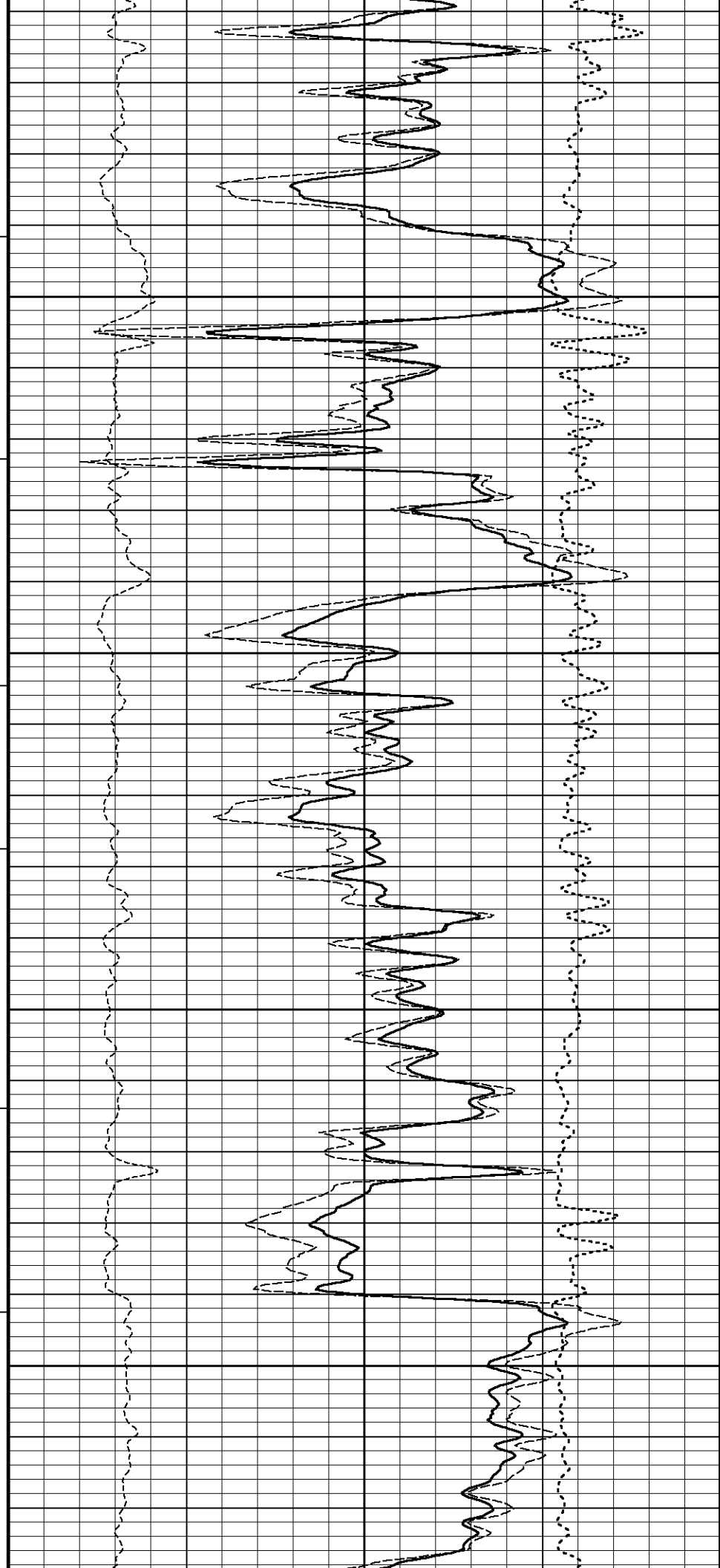
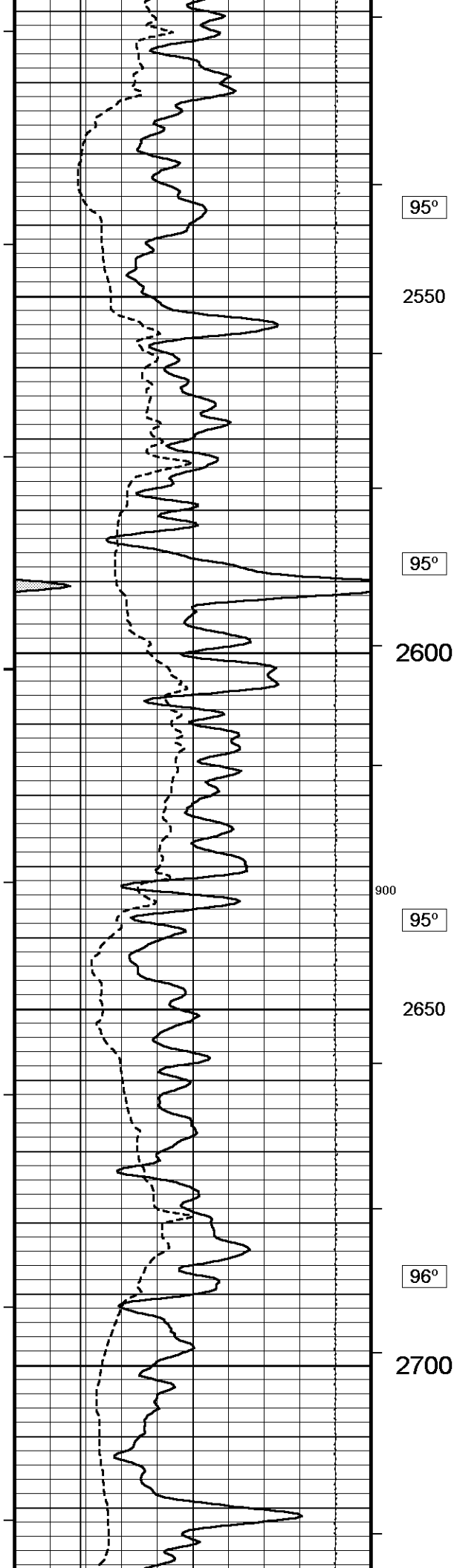
91°

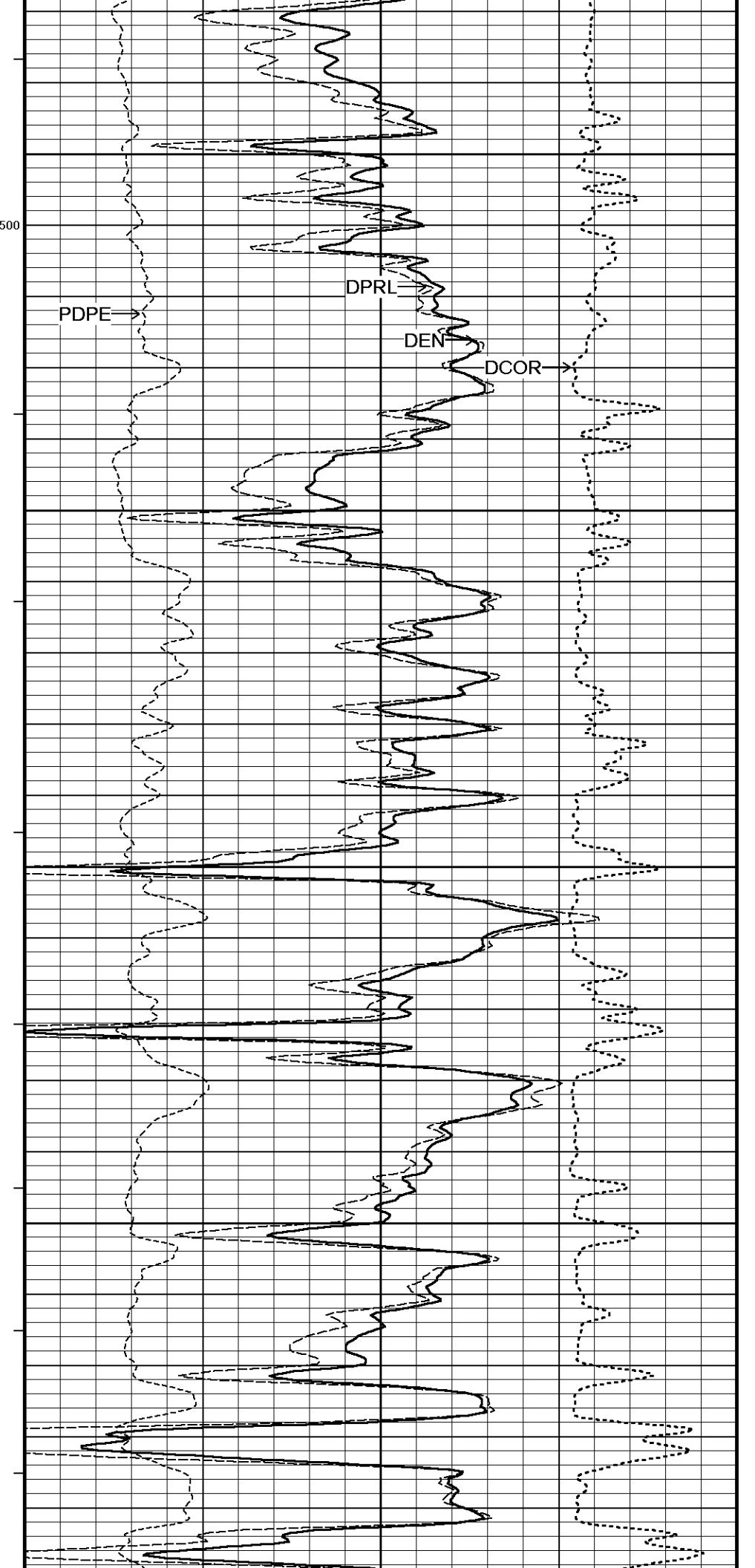
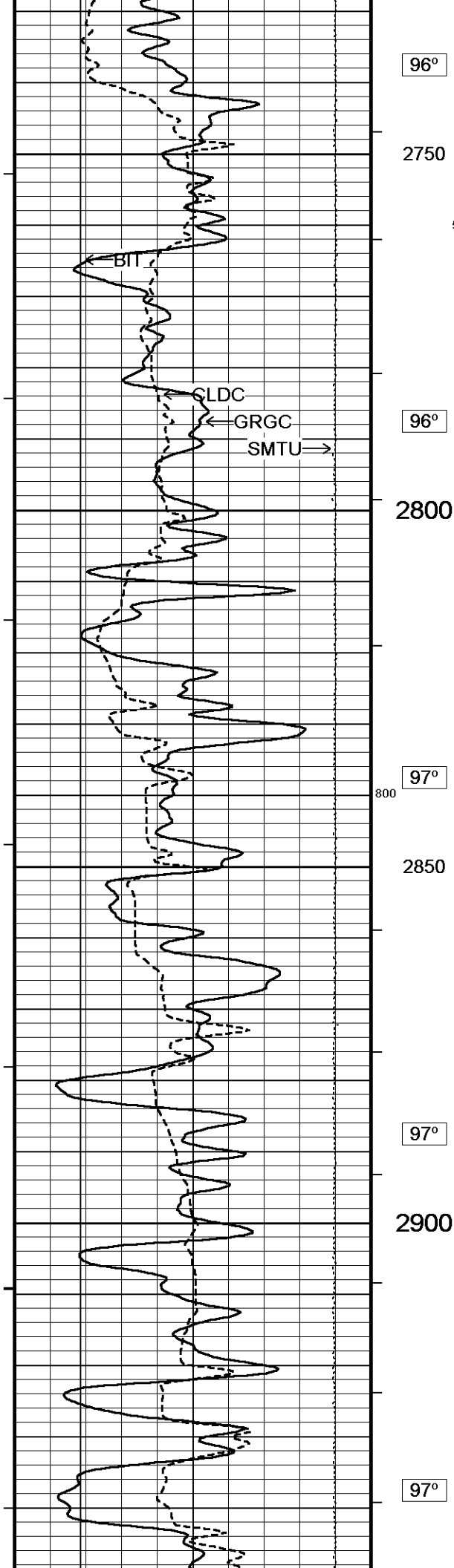
91°

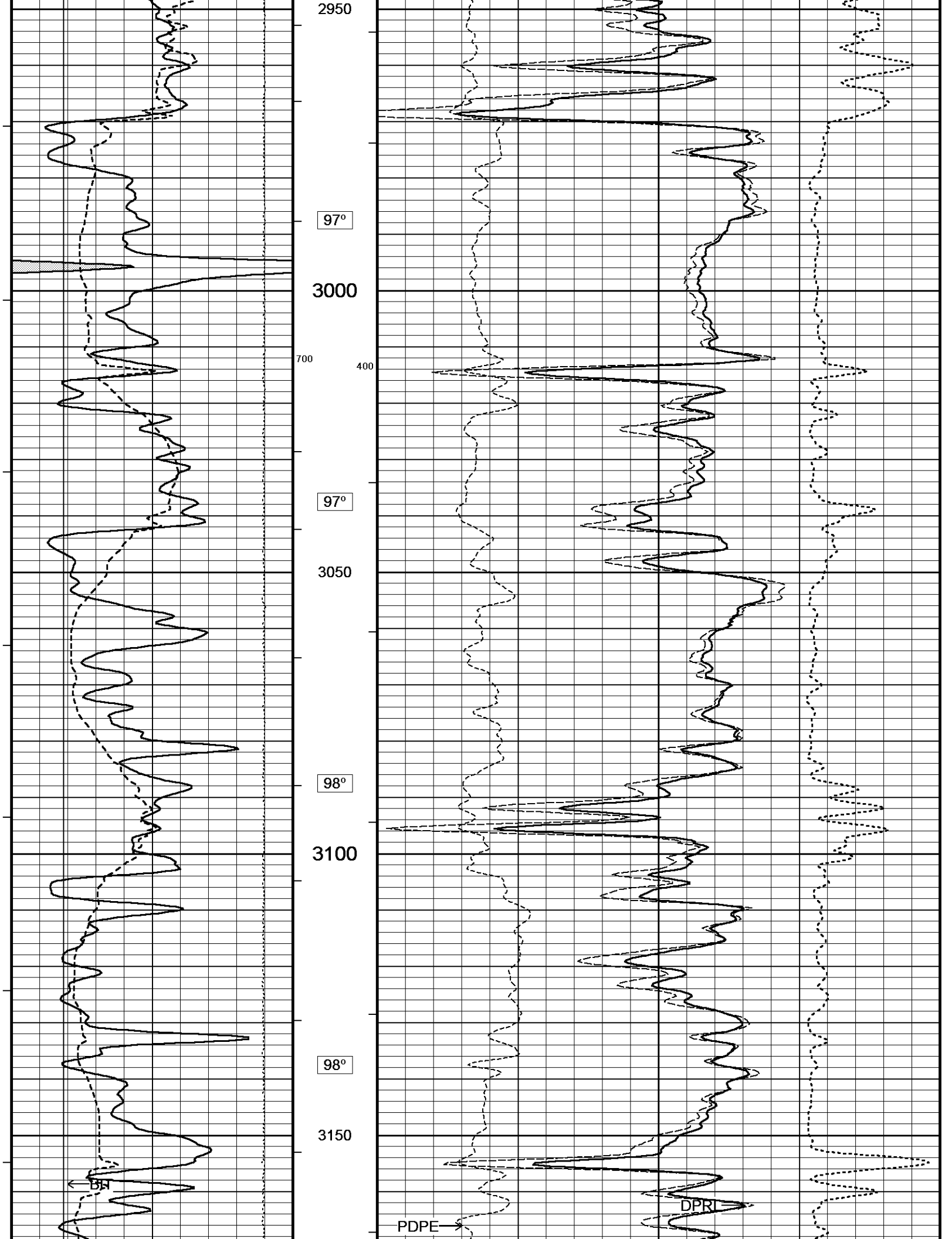


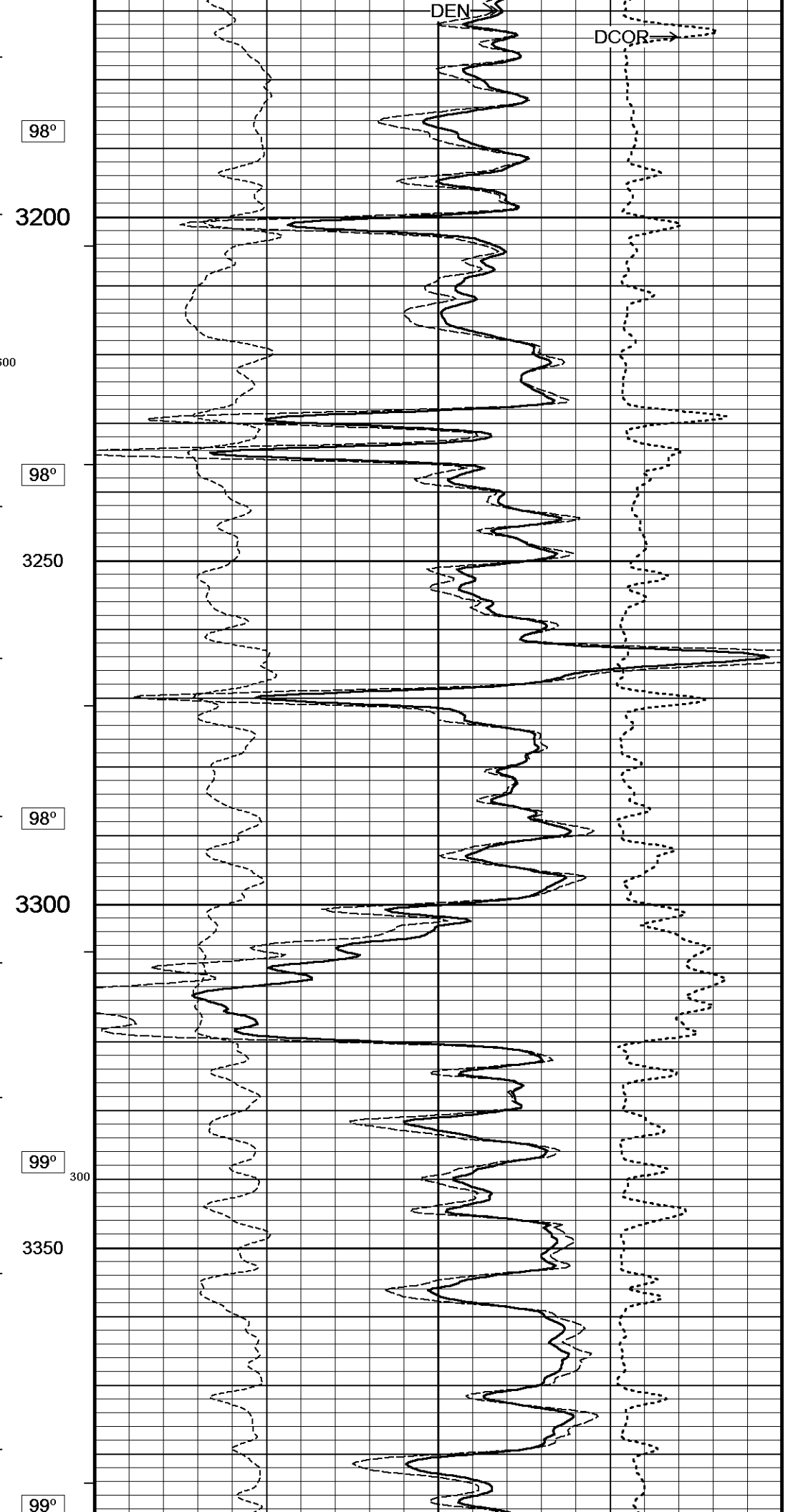
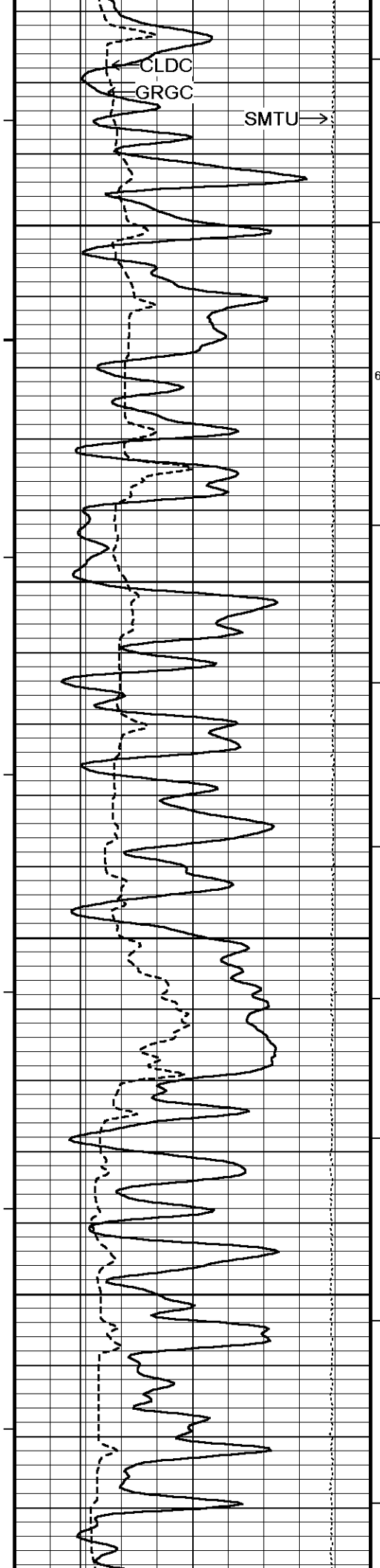


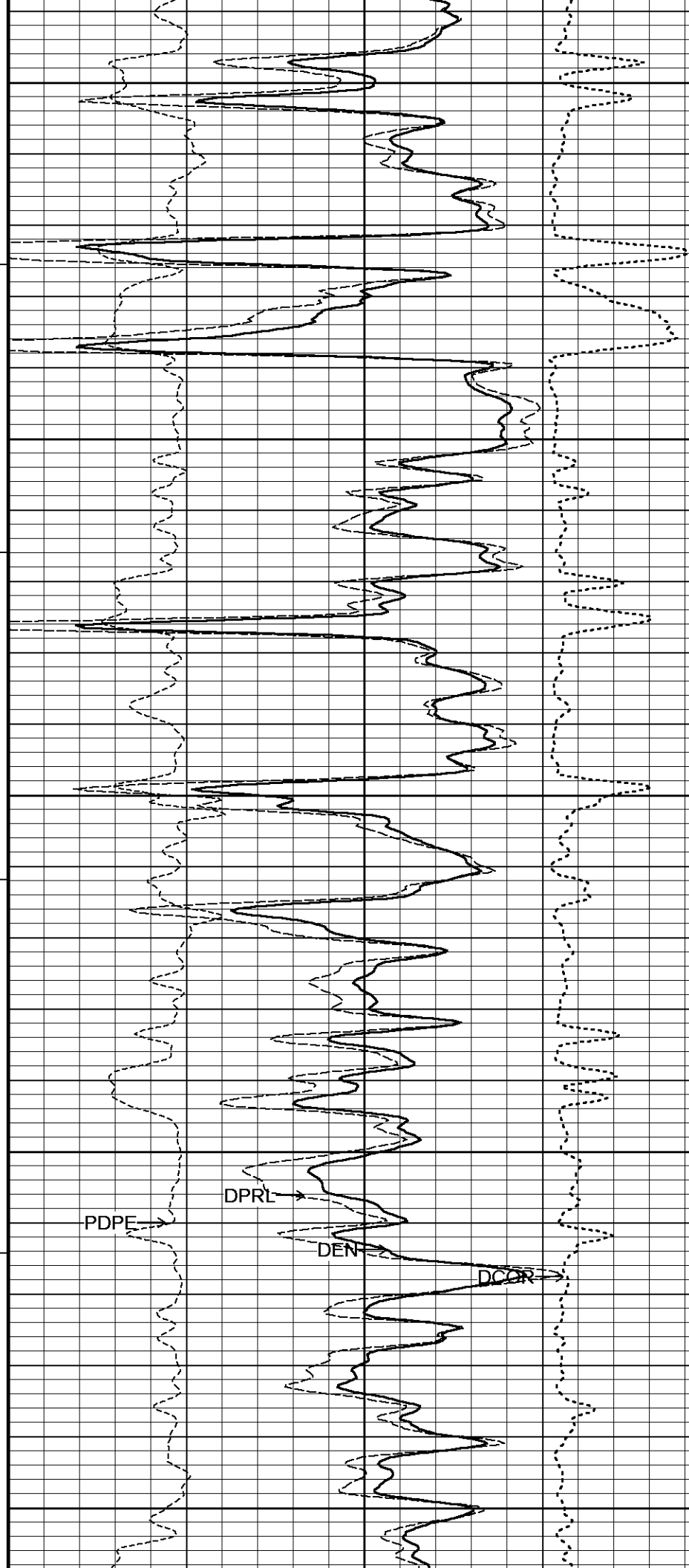
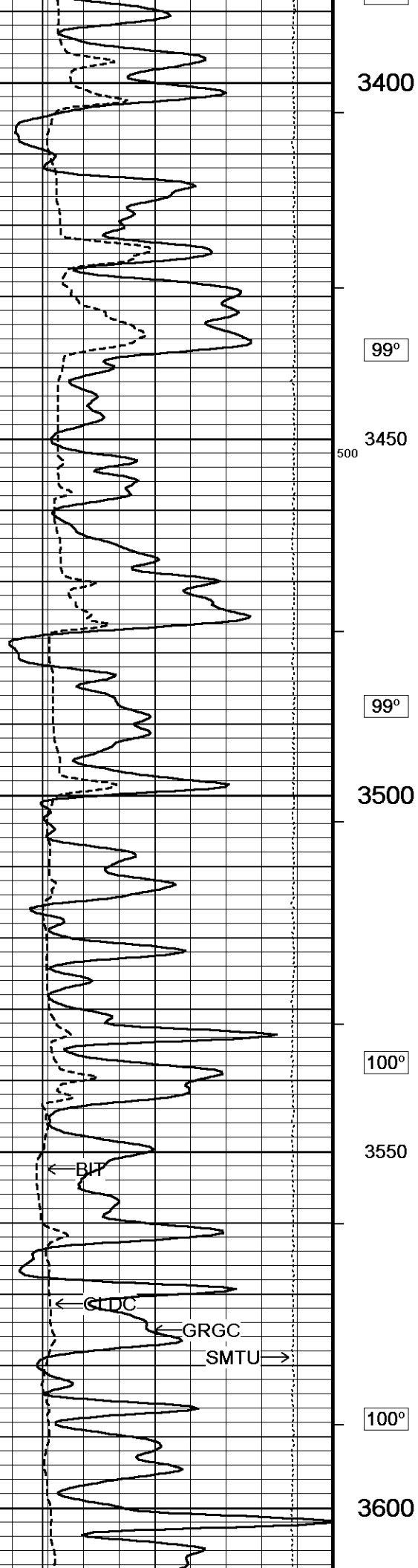


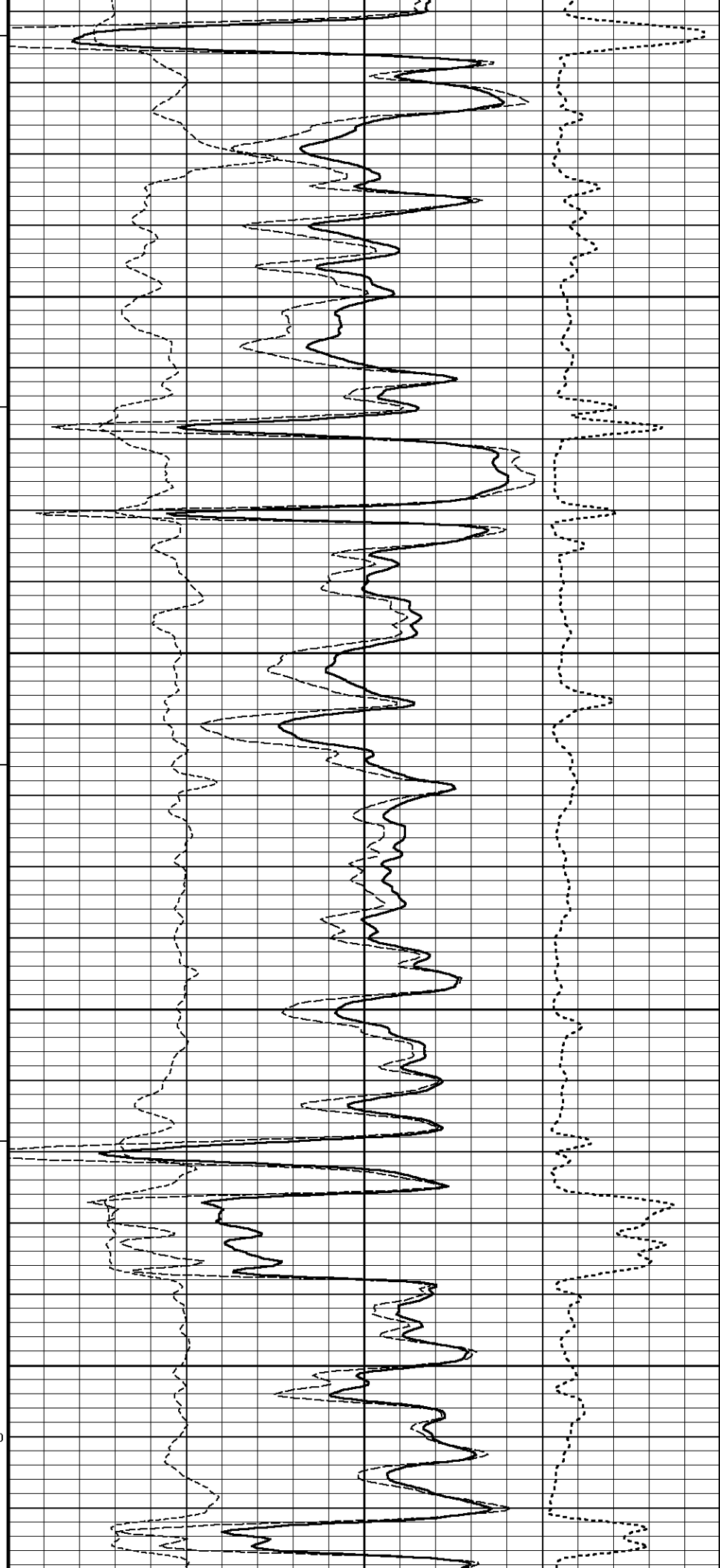
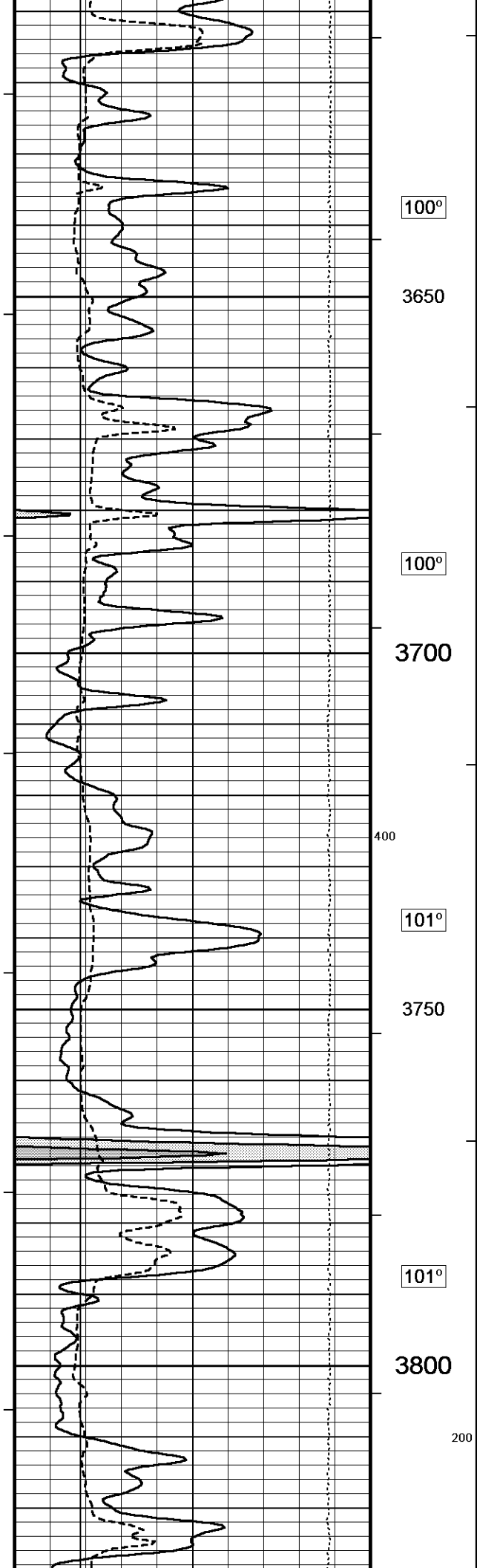


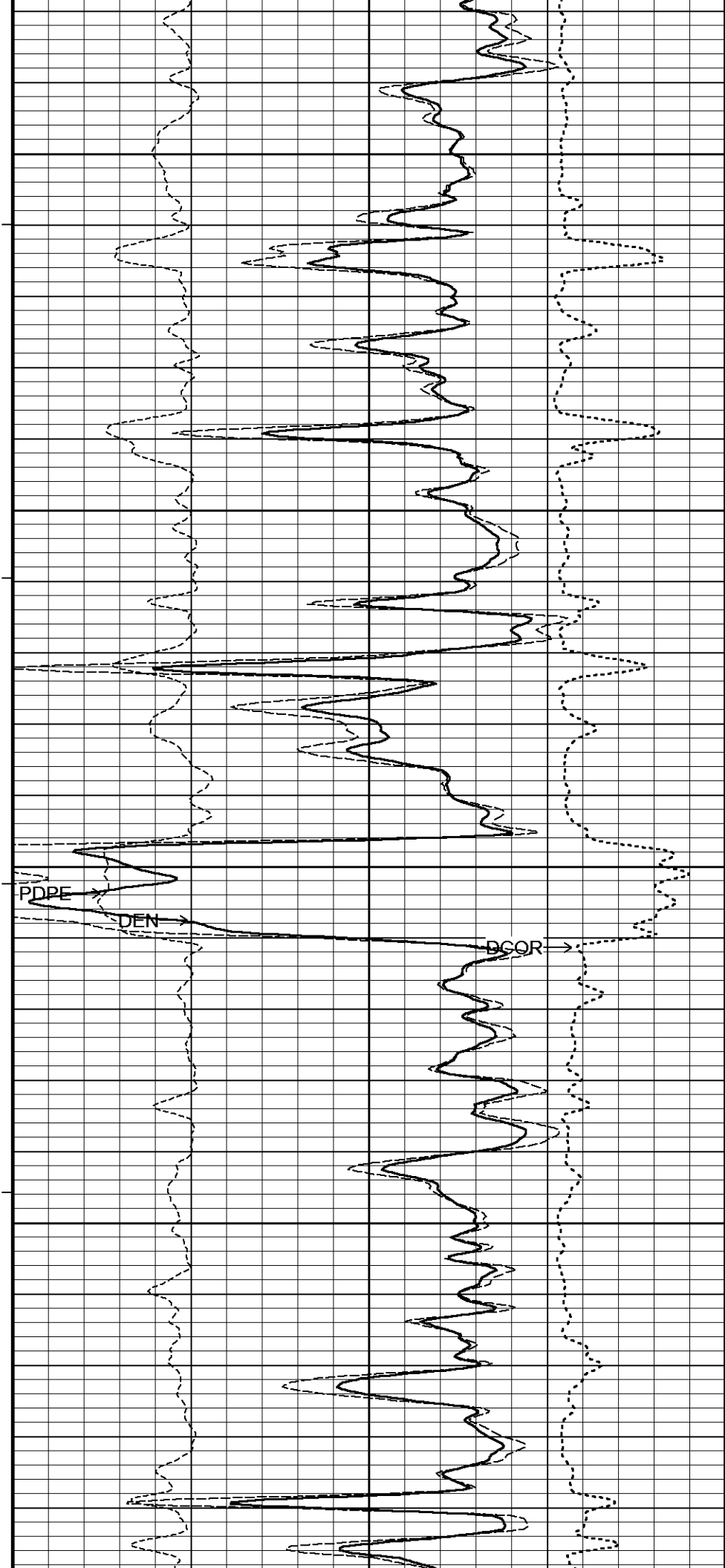
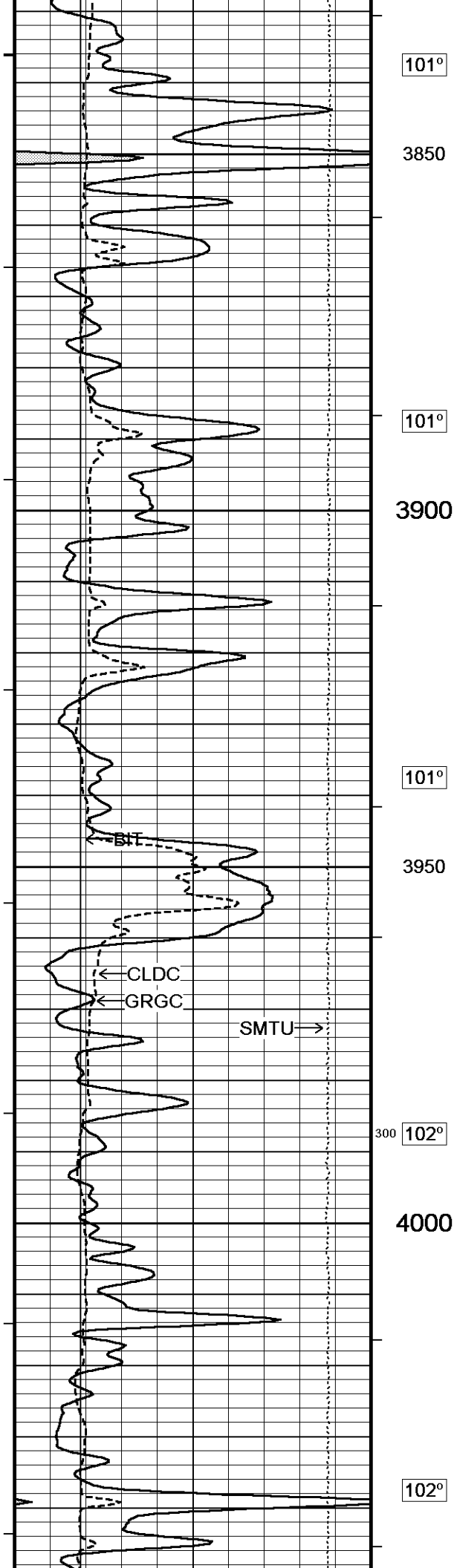


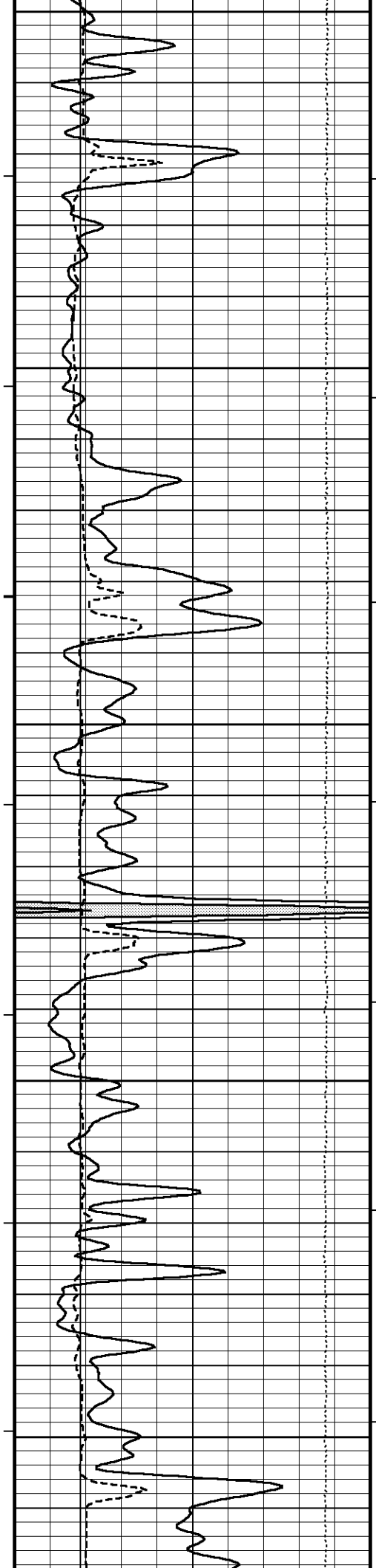












4050

102°

4100

102°

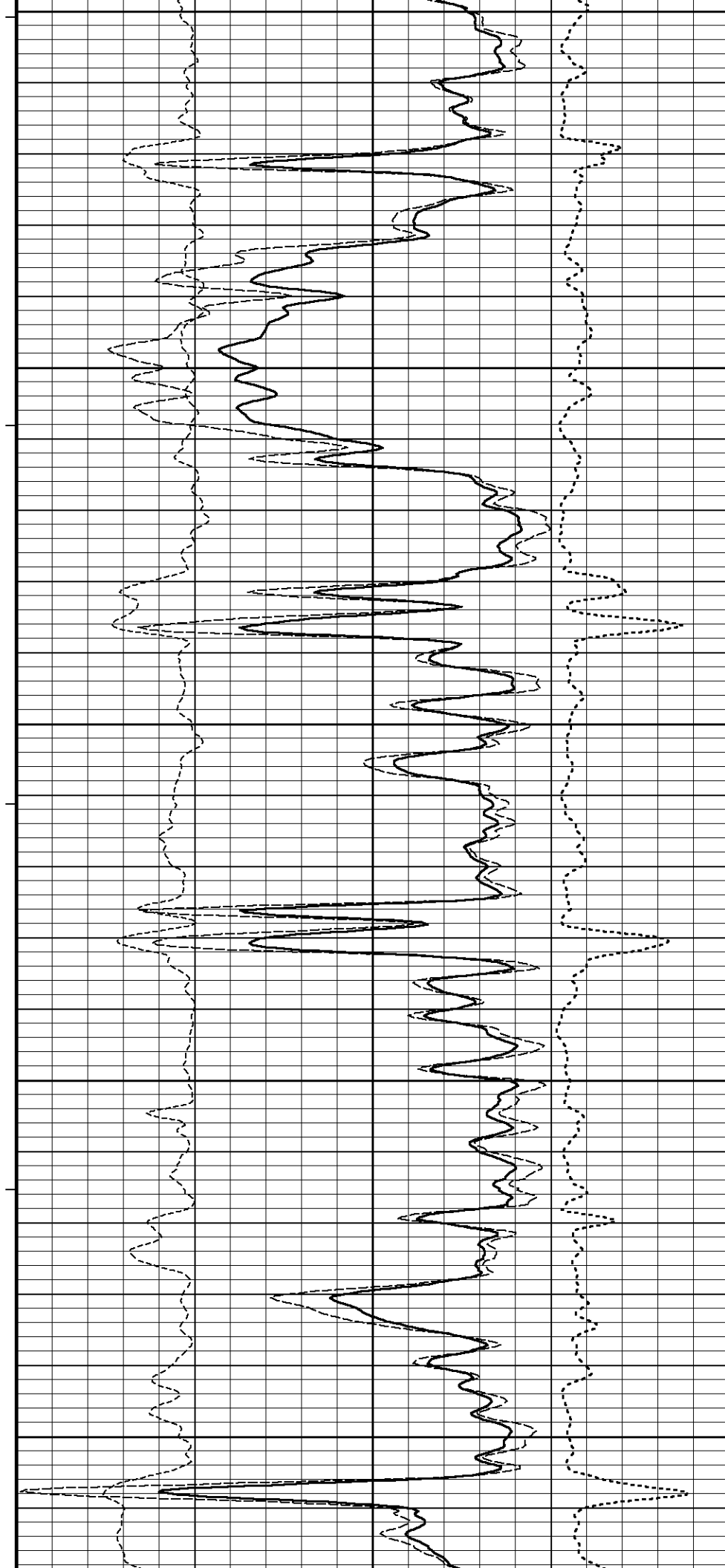
4150

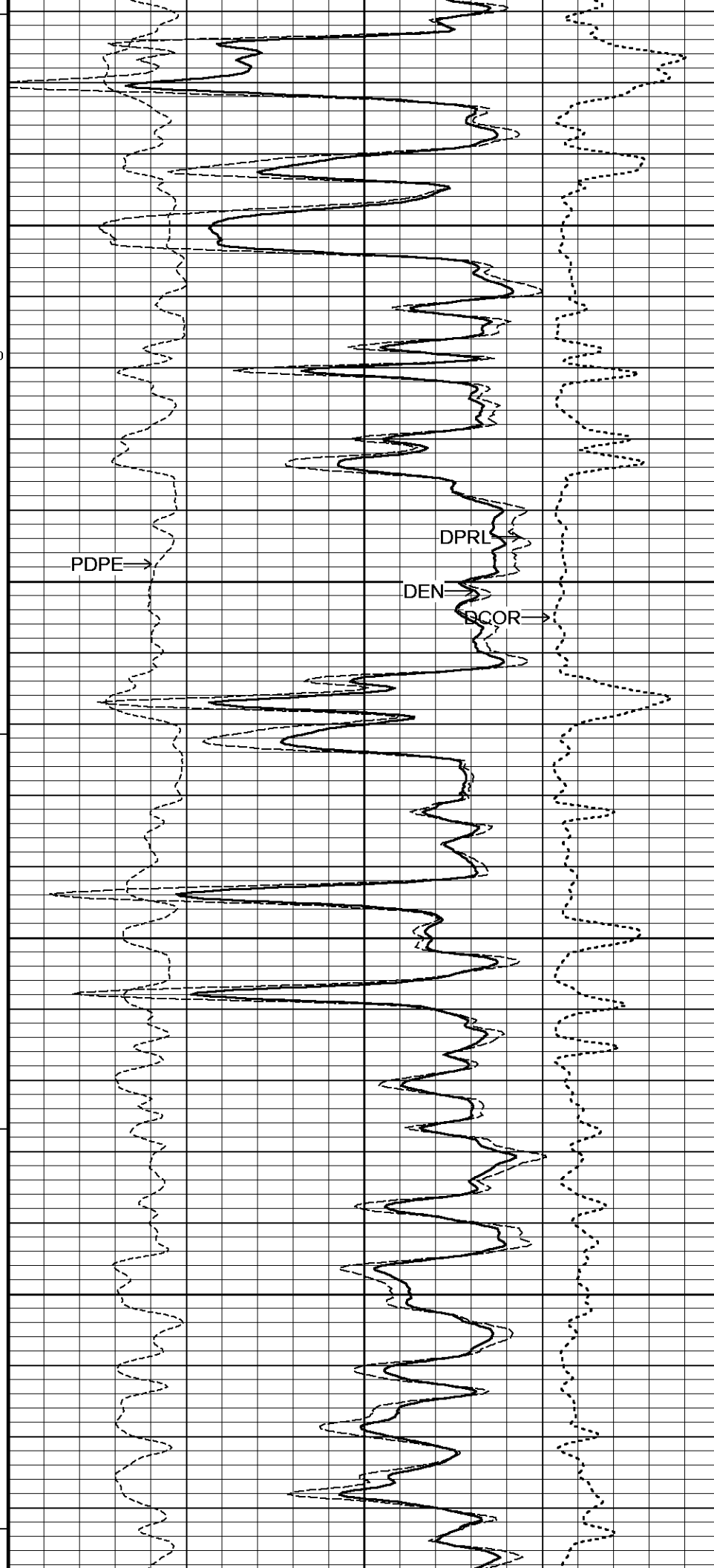
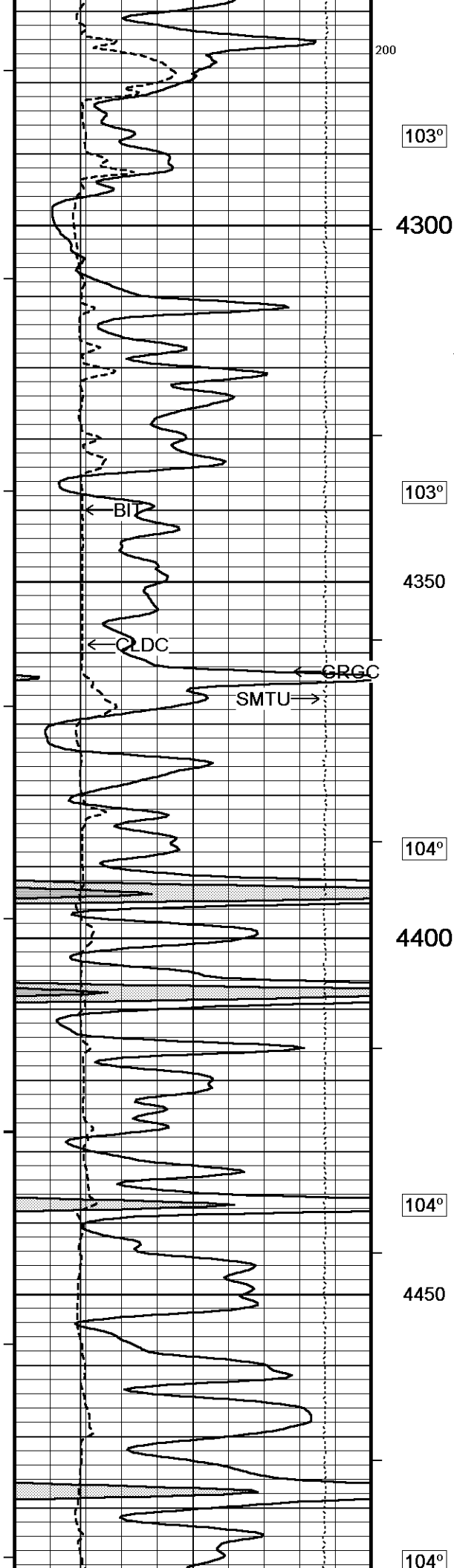
103°

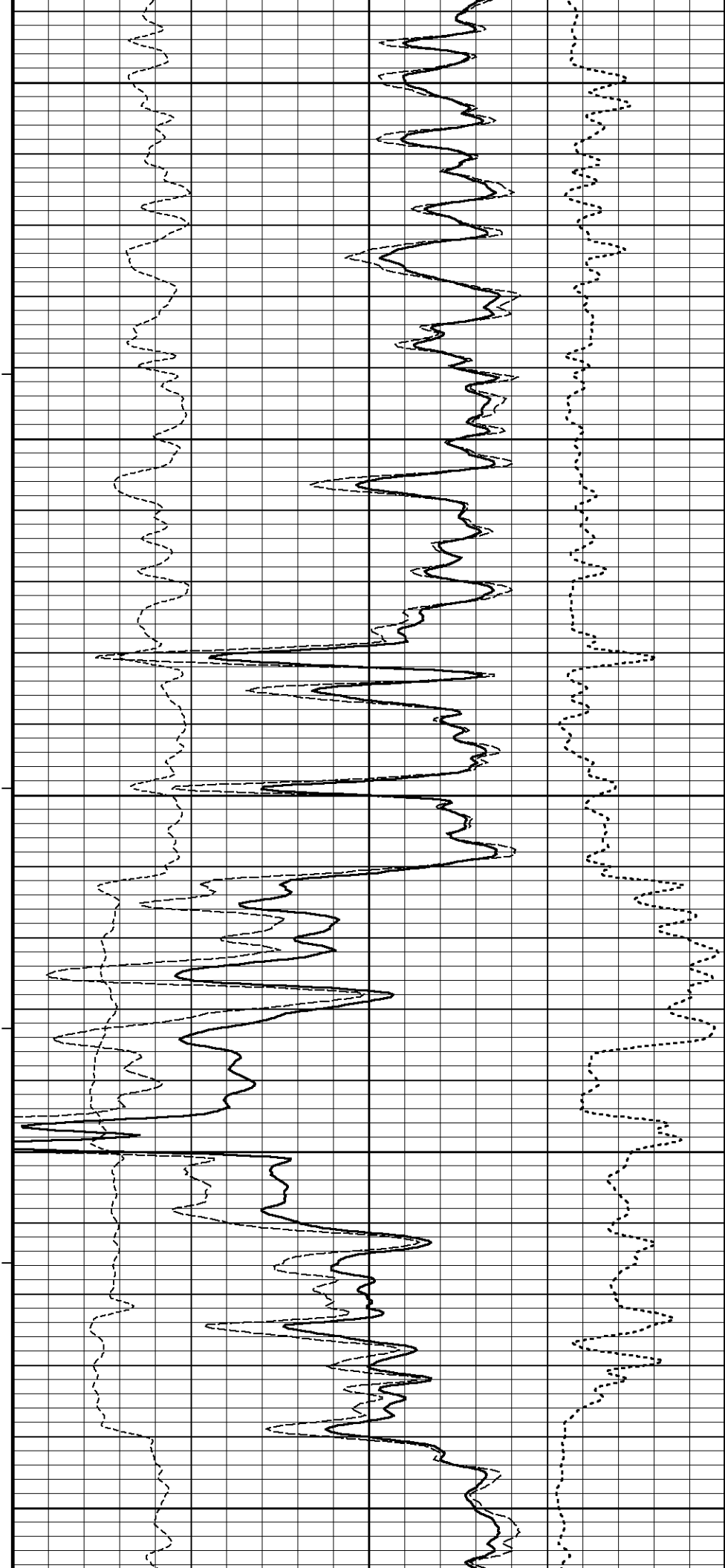
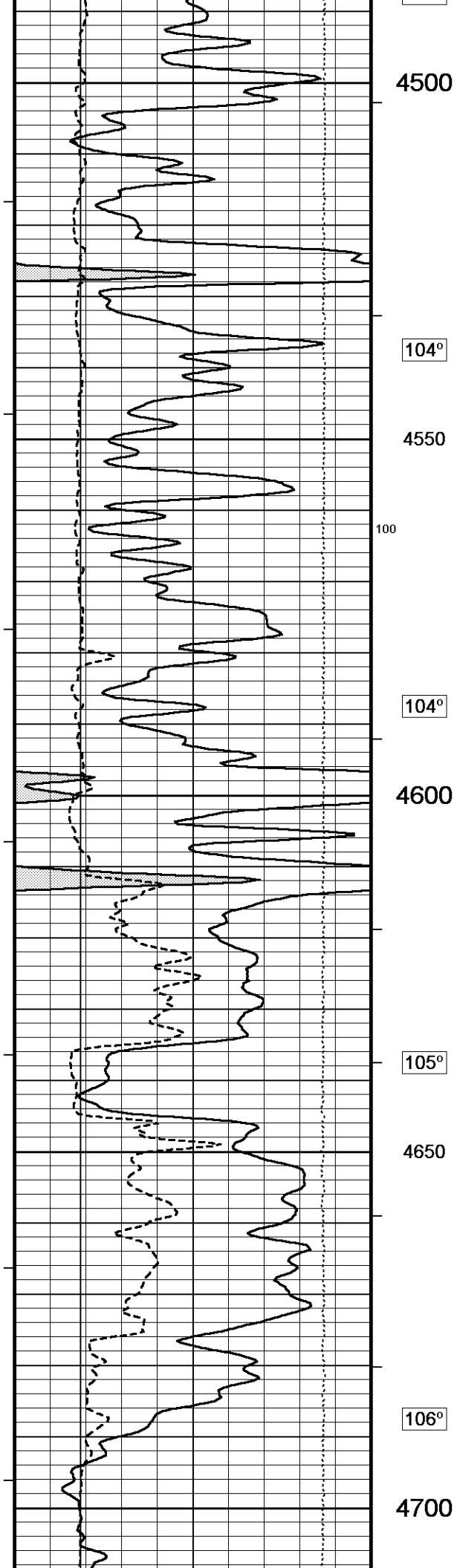
4200

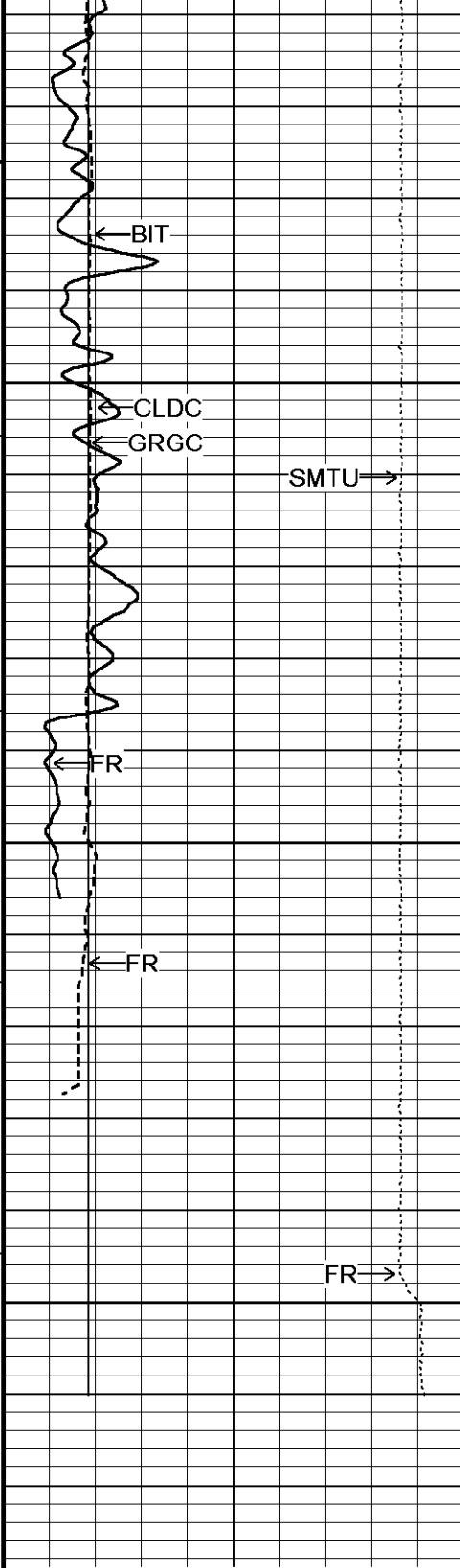
103°

4250









106°

4750

105°

4800

TD

4850

Depth
In
Feet

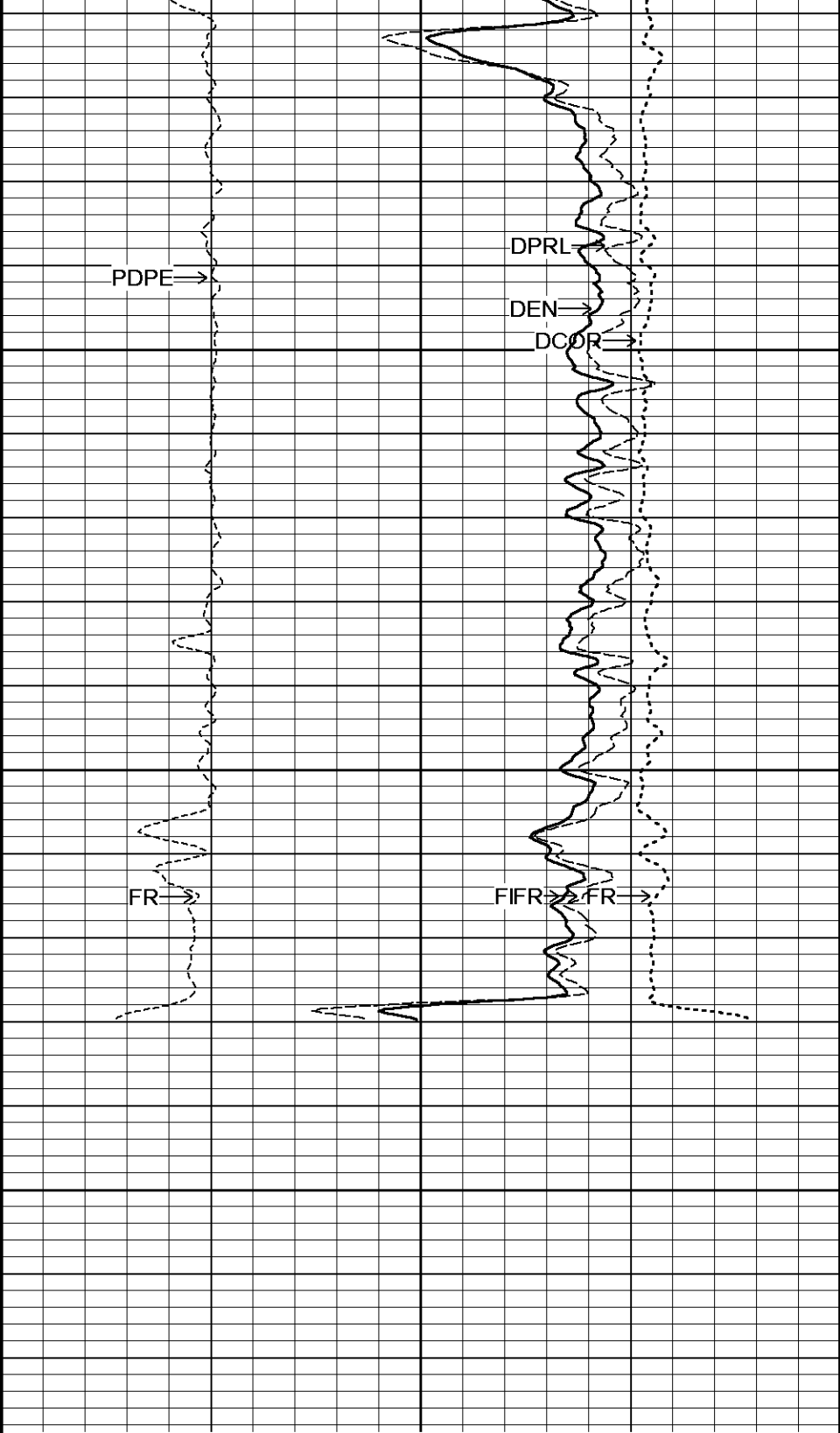
← Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper

Borehole
Temp in
deg F

HVI
every
10 cu ft



PDPE

DPRL

DEN

DCOR

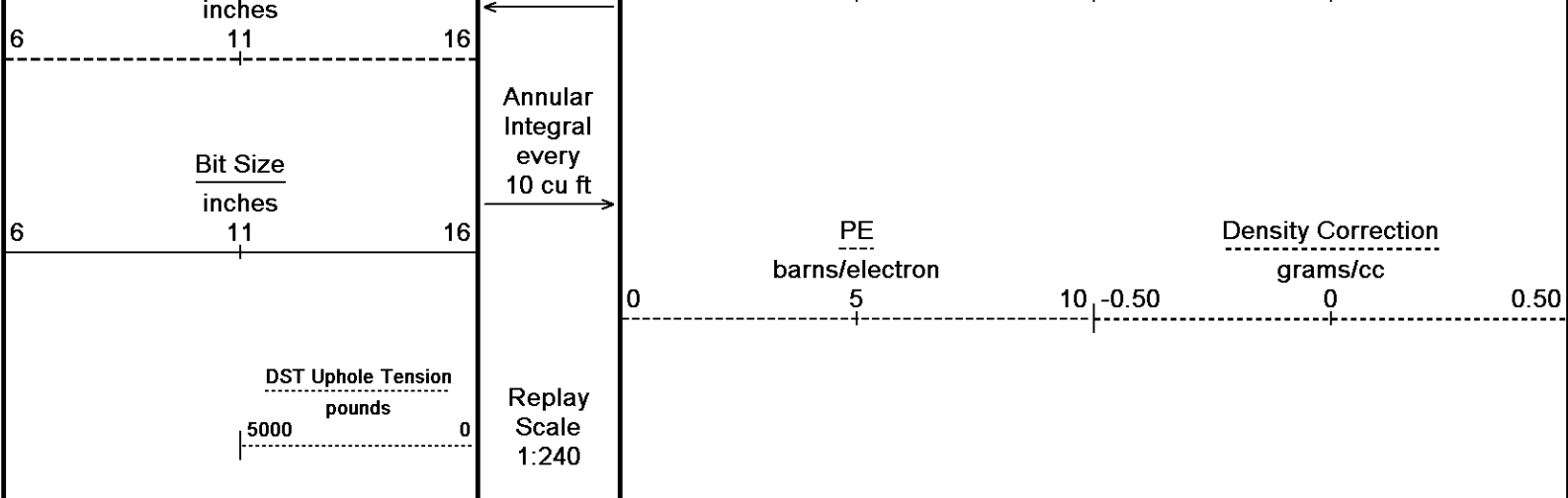
FR

FIFR

FR

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Limestone Density Por.
percent
30 20 10 0 -10



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 23-JUN-2014 11:17
Recorded on 23-JUN-2014 06:05

↑

5 INCH BULK DENSITY MAIN

↑

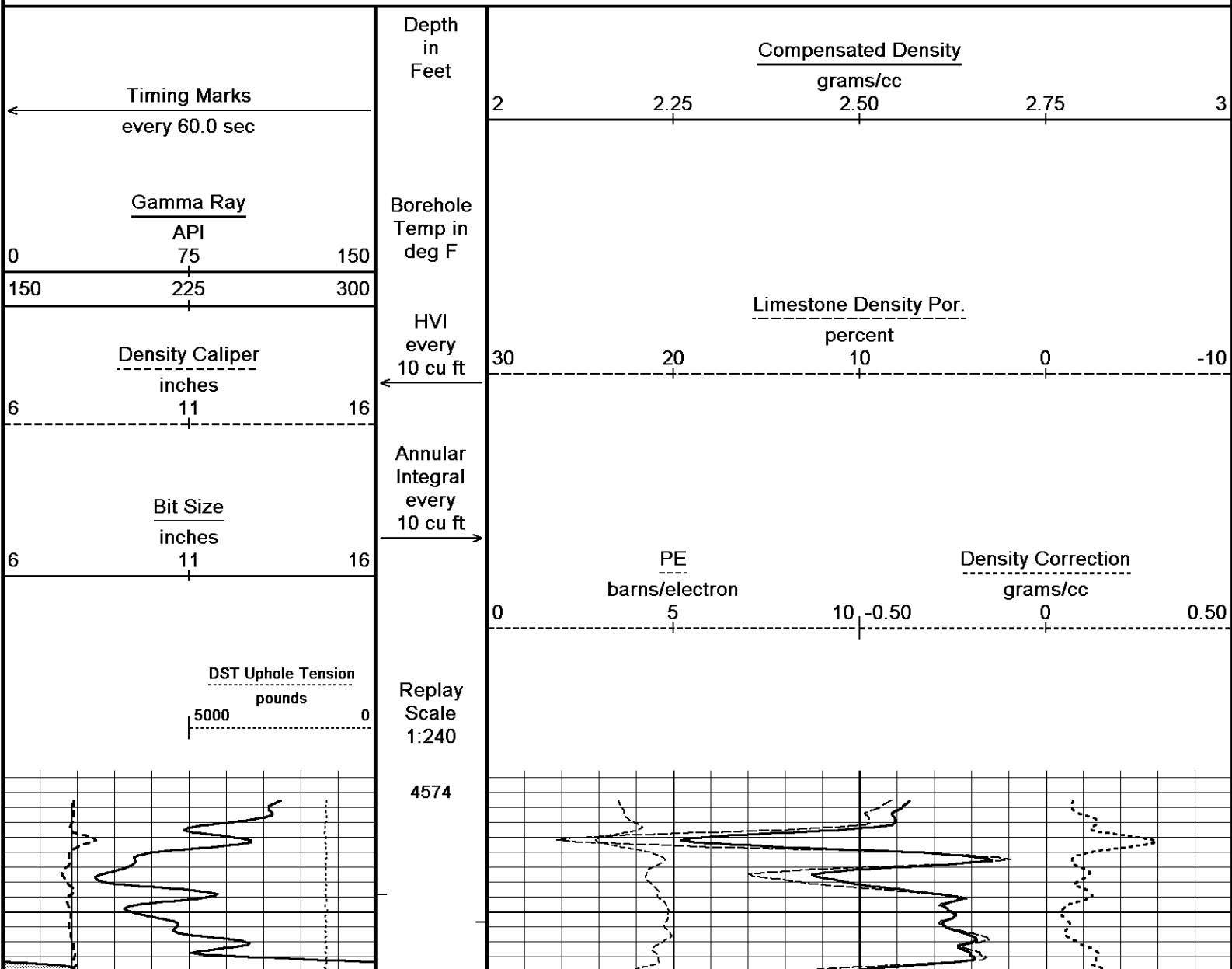
↓

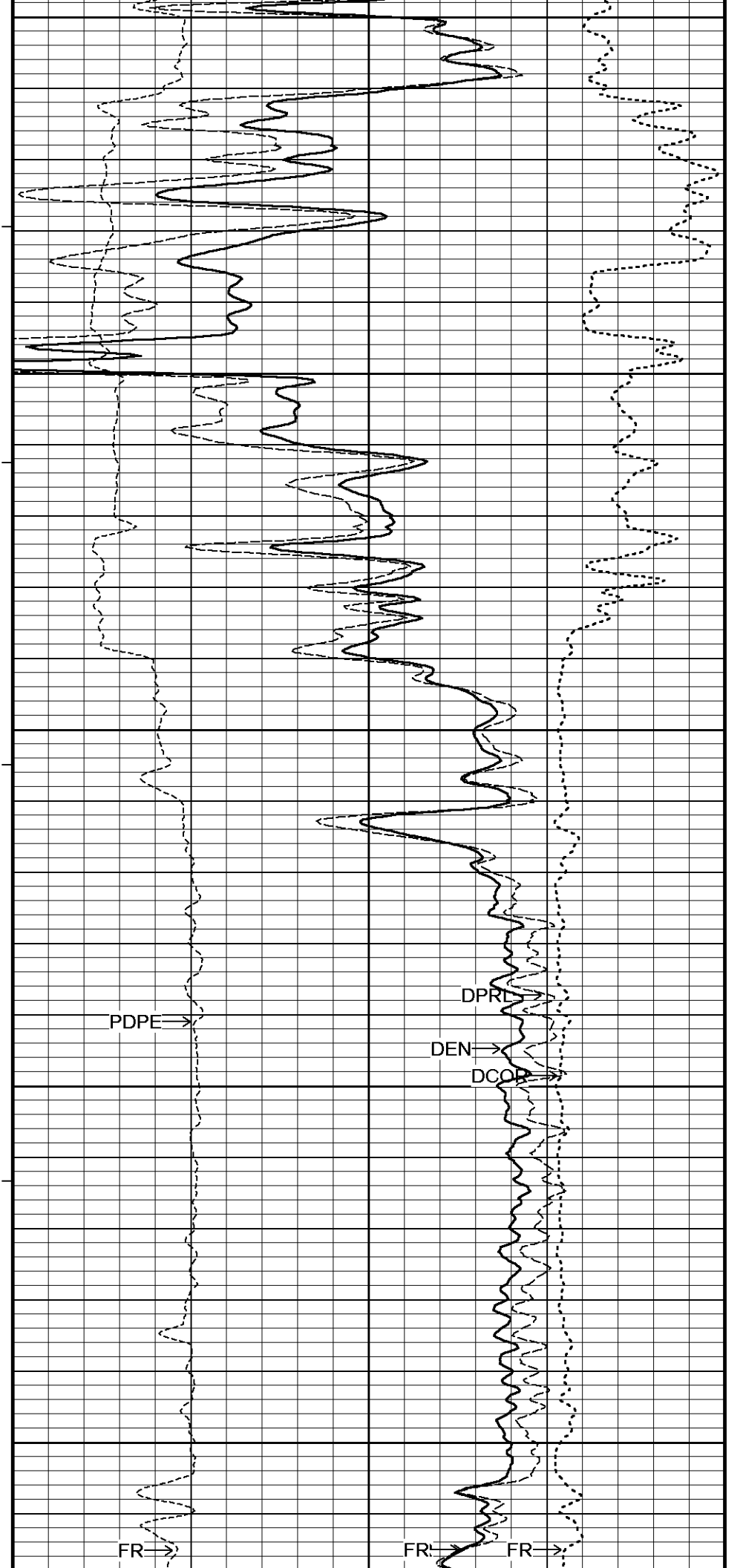
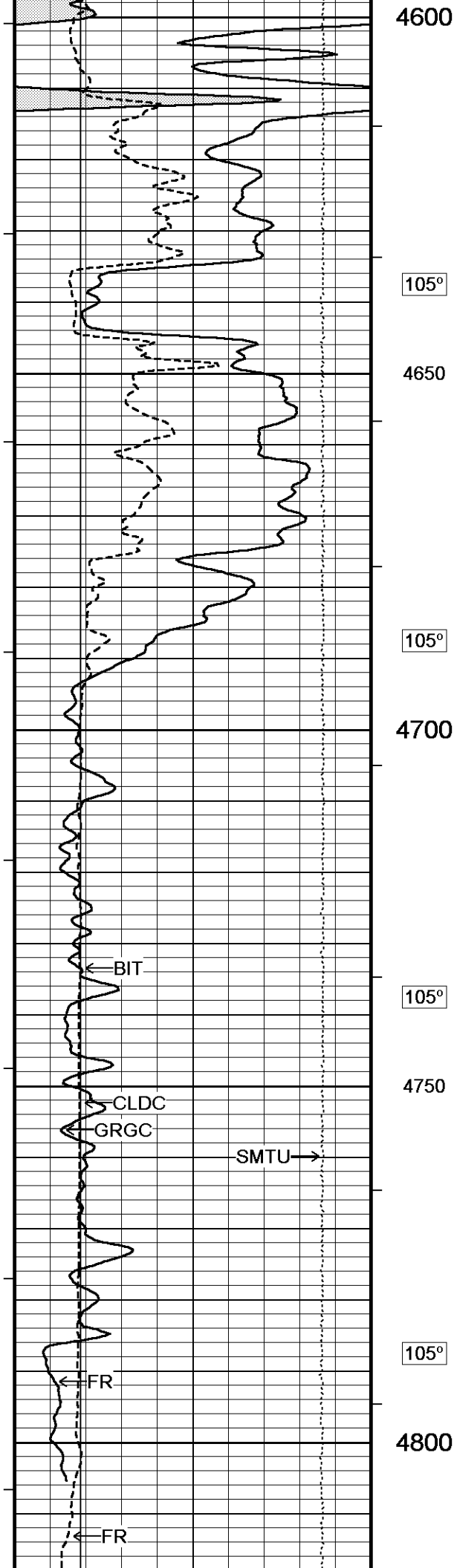
REPEAT SECTION

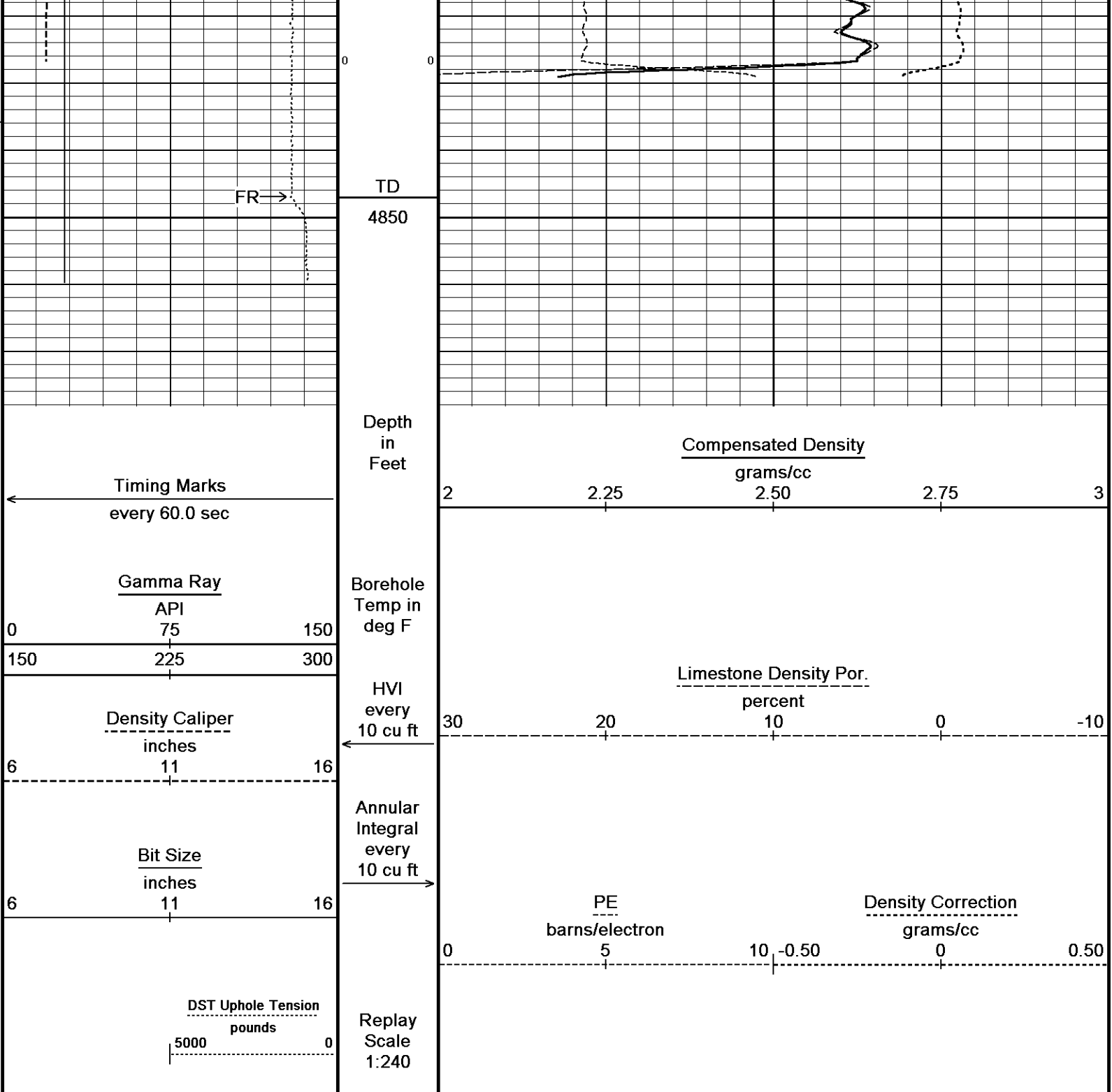
↓

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Repeat.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 23-JUN-2014 11:17
Recorded on 23-JUN-2014 05:27







Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Repeat.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113
Plotted on 23-JUN-2014 11:17
Recorded on 23-JUN-2014 05:27

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION		
C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta		
General Constants All 000		Last Edited on 23-JUN-2014,03:06
General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

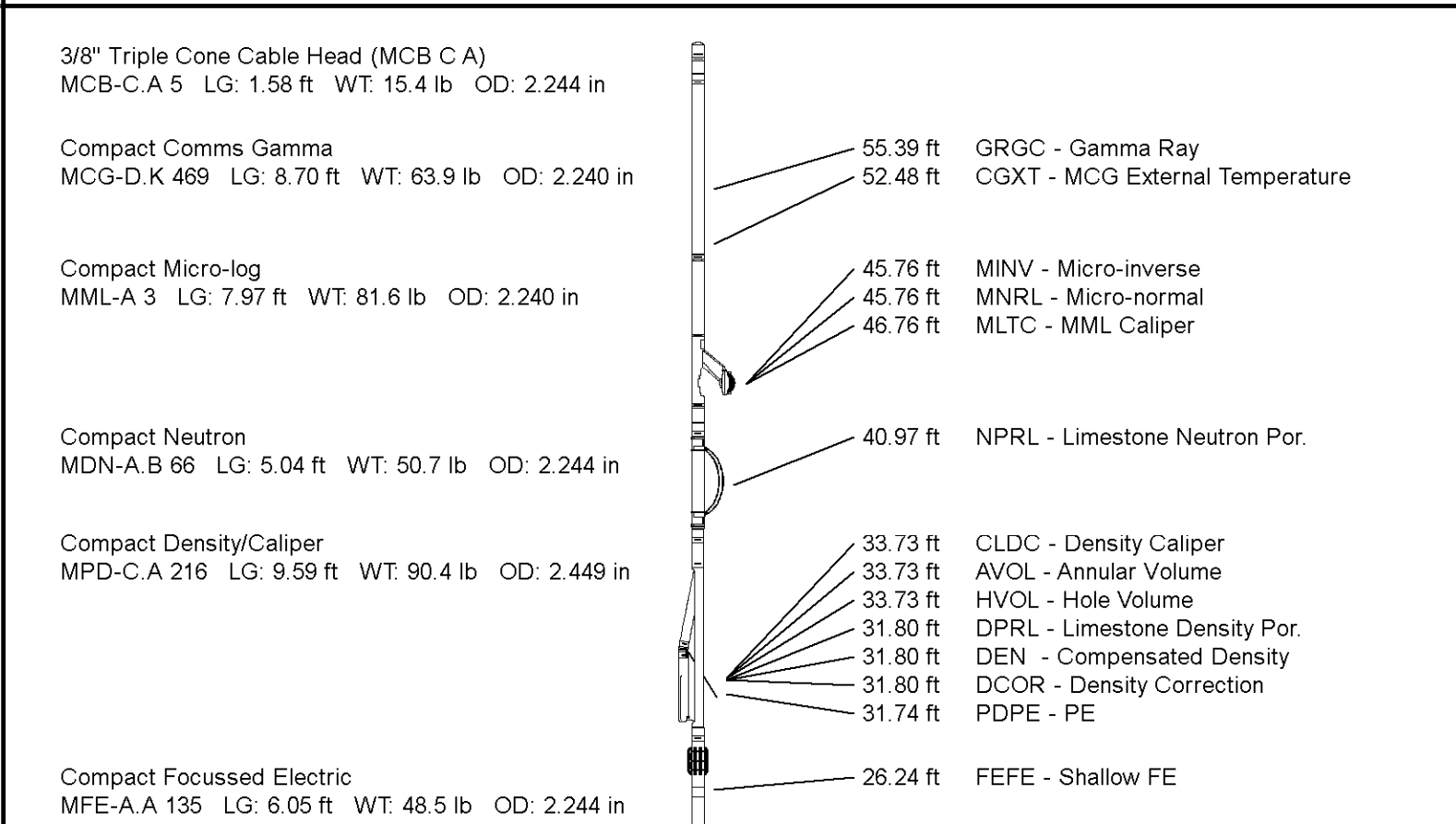
Hole/Annular Volume and Differential Caliper Parameters				
HVOL Method	Single Caliper			
HVOL Caliper 1	Density Caliper			
HVOL Caliper 2	N/A			
Annular Volume Diameter	5.500	inches		
Caliper for Differential Caliper	MML Caliper			
Rwa Parameters				
Porosity used	Wyllie Lime. Sonic Por.			
Resistivity used	Array Ind. One Res Rt			
RWA Constant A	0.610			
RWA Constant M	2.150			
SW/APOR Tool Source	0.000			
Gamma Calibration MCG-D.K 469				
Field Calibration on 22-JUN-2014 22:28				
	Measured	Calibrated (API)		
Background	77	51		
Calibrator (Gross)	1163	776		
Calibrator (Net)	1086	725		
Gamma Constants MCG-D.K 469				
Last Edited on 23-JUN-2014,02:57				
Gamma Calibrator Number	GRC038			
Mud Density	1.08	gm/cc		
Caliper Source for Processing	Density Caliper			
Tool Position	Eccentred			
Concentration of KCl	kppm			
K Mud Type	Chloride			
K Mud Concentration	0.00	%		
High Resolution Temperature Calibration MCG-D.K 469				
Field Calibration on 12-MAY-2014,02:16				
	Measured	Calibrated(Deg F)		
Lower	10.00	10.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MCG-D.K 469				
Last Edited on 12-JUN-2014,06:51				
Pre-filter Length	11			
Caliper Calibration MPD-C.A 216				
Base Calibration on 18-JUN-2014 10:39				
Field Calibration on 22-JUN-2014 22:12				
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	16948	3.99		
2	27088	5.98		
3	37015	7.97		
4	46800	9.86		
5	58001	11.92		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	7.93	7.97		
Photo Density Calibration MPD-C.A 216				
Base Calibration on 18-JUN-2014 11:00				
Field Check on 22-JUN-2014 22:16				
Density Calibration				
Base Calibration				
	Measured	Calibrated (sdu)		
	Near	Far	Near	Far
Background	1108	1302		
Reference 1	60000	31770	59556	30836
Reference 2	24613	2738	24941	2541
Field Check at Base	1107.7	1302.5		
Field Check	1109.7	1307.4		
PE Calibration				
Base Calibration	Measured	Calibrated		

Base Calibration	measured	Calibrated
Background	WS 200	WH 988
Reference 1	24654	59812
Reference 2	6993	24480
		Ratio
		Ratio
Field Check at Base		
	199.7	987.8
Field Check		
	200.5	989.2

Density Constants MPD-C.A 216		Last Edited on 23-JUN-2014,02:56	
Density Source Id	18235B		
Nylon Calibrator Number	DNCE695		
Aluminium Calibrator Number	DACD698		
Density Shoe Profile	8 inch		
Caliper Source for Processing	Density Caliper		
PE Correction to Density	Not Applied		
Mud Density	1.08	gm/cc	
Mud Density Z/A Multiplier	1.11		
Mud Filtrate Density	1.00	gm/cc	
Dry Hole Mud Filtrate Density	1.00	gm/cc	
DNCT	0.00	gm/cc	
CRCT	0.00	gm/cc	
Density Z/A Correction	Hybrid		
Matrix Density (gm/cc)	Depth (ft)		
2.71	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta



Compact Sonic
MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 62.25 ft Weight: 471.8 lb



12.96 ft DT35 - 3-5' Compensated Sonic
12.96 ft SPRL - Wyllie Lime. Sonic Por.

3.34 ft R400 - Array Ind. One Res 40
3.34 ft RTAO - Array Ind. One Res Rt
3.34 ft R600 - Array Ind. One Res 60
0.23 ft SPCG - Spontaneous Potential
Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.

COMPANY BEREXCO LLC
WELL TIMOTHY #2-16
FIELD WILDCAT
PROVINCE/COUNTY FINNEY
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2969.00	feet	First Reading	4815.13	feet
Elevation Drill Floor	2967.00	feet	Depth Driller	4850.00	feet
Elevation Ground Level	2957.00	feet	Depth Logger	4847.00	feet



Weatherford®

COMPACT DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG