



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY	PETROSANTANDER (USA), INC.			
WELL	SCOTT #6-13			
FIELD	CHRISTABELLE			
PROVINCE/COUNTY	KEARNY			
COUNTRY/STATE	U.S.A. / KANSAS			
LOCATION	660' FNL & 330' FWL			
SEC 13	TWP 21S	RGE 35W	Other Services	
Latitude				MAI/MFE
Longitude				
API Number	15-093-21924			
Permanent Datum GL, Elevation	3094 feet			Elevations:
Log Measured From	KB			KB 3106.00
Drilling Measured From	KB @ 12 FEET			DF 3104.00
				GL 3094.00
Date	13-AUG-2014			
Run Number	ONE			
Service Order	7606-95087167			
Depth Driller	5010.00			feet
Depth Logger	5012.00			feet
First Reading	4992.78			feet
Last Reading	523.00			feet
Casing Driller	521.00			feet
Casing Logger	523.00			feet
Bit Size	7.875			inches
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.15 lb/USg		50.00 CP	
PH / Fluid Loss	9.50		10.00 ml/30Min	
Sample Source	MUDPIT			
Rm @ Measured Temp	0.71 @ 75.0		ohm-m	
Rmf @ Measured Temp	0.57 @ 75.0		ohm-m	
Rmc @ Measured Temp	0.85 @ 75.0		ohm-m	
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.47 @ 116.0		ohm-m	
Time Since Circulation	4 HOURS			
Max Recorded Temp	116.00		deg F	
Equipment / Base	13057	LIB		
Recorded By	BEN WELDIN			
Witnessed By	WES HANSEN			
JOB #	LB14-232			

BOREHOLE RECORD					Last Edited: 13-AUG-2014 01:21
Bit Size inches		Depth From feet		Depth To feet	
12.250		0.00		521.00	
7.875		521.00		5010.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	521.00	24.00	

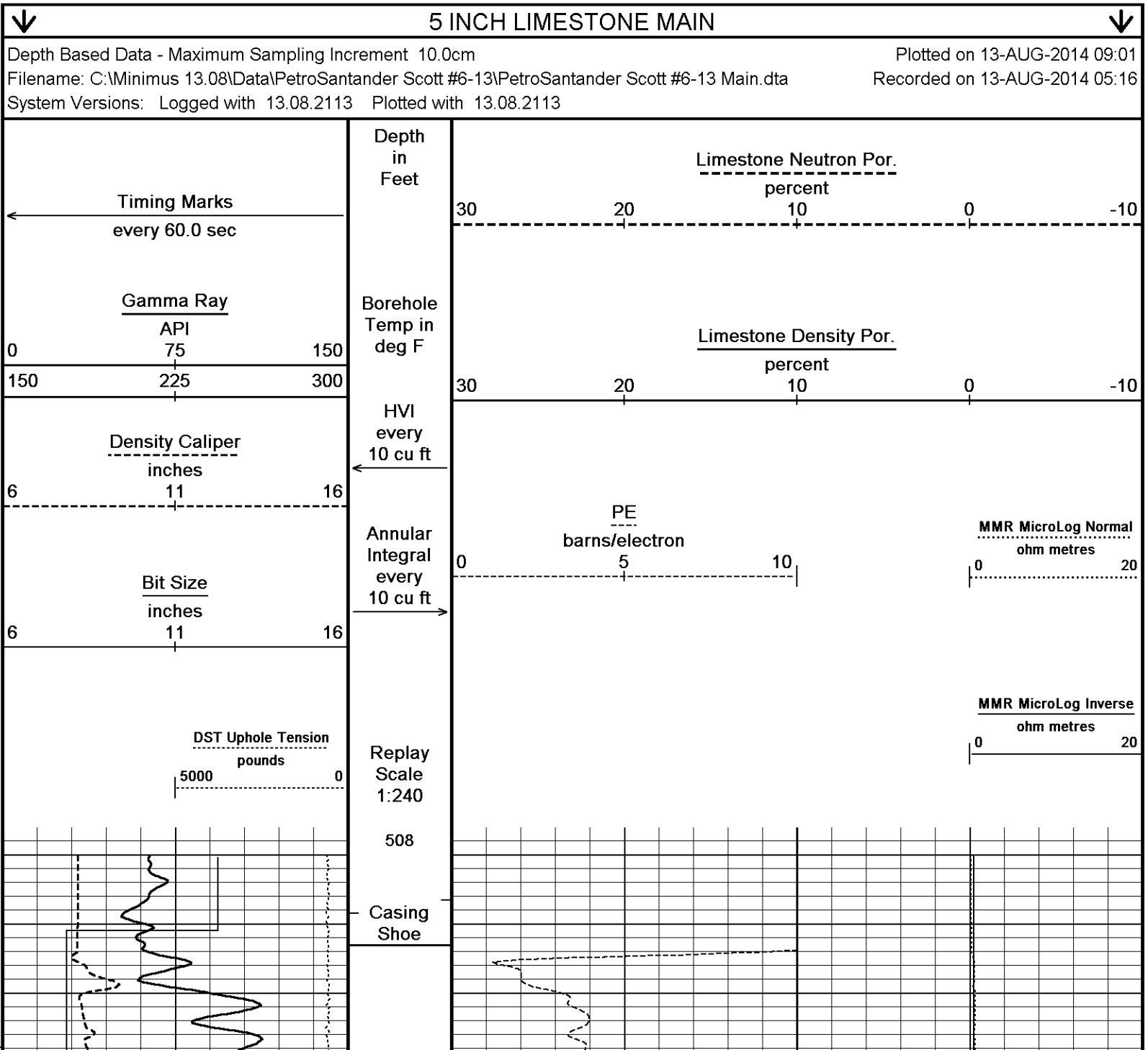
REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 2170 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1430 CU.FT.

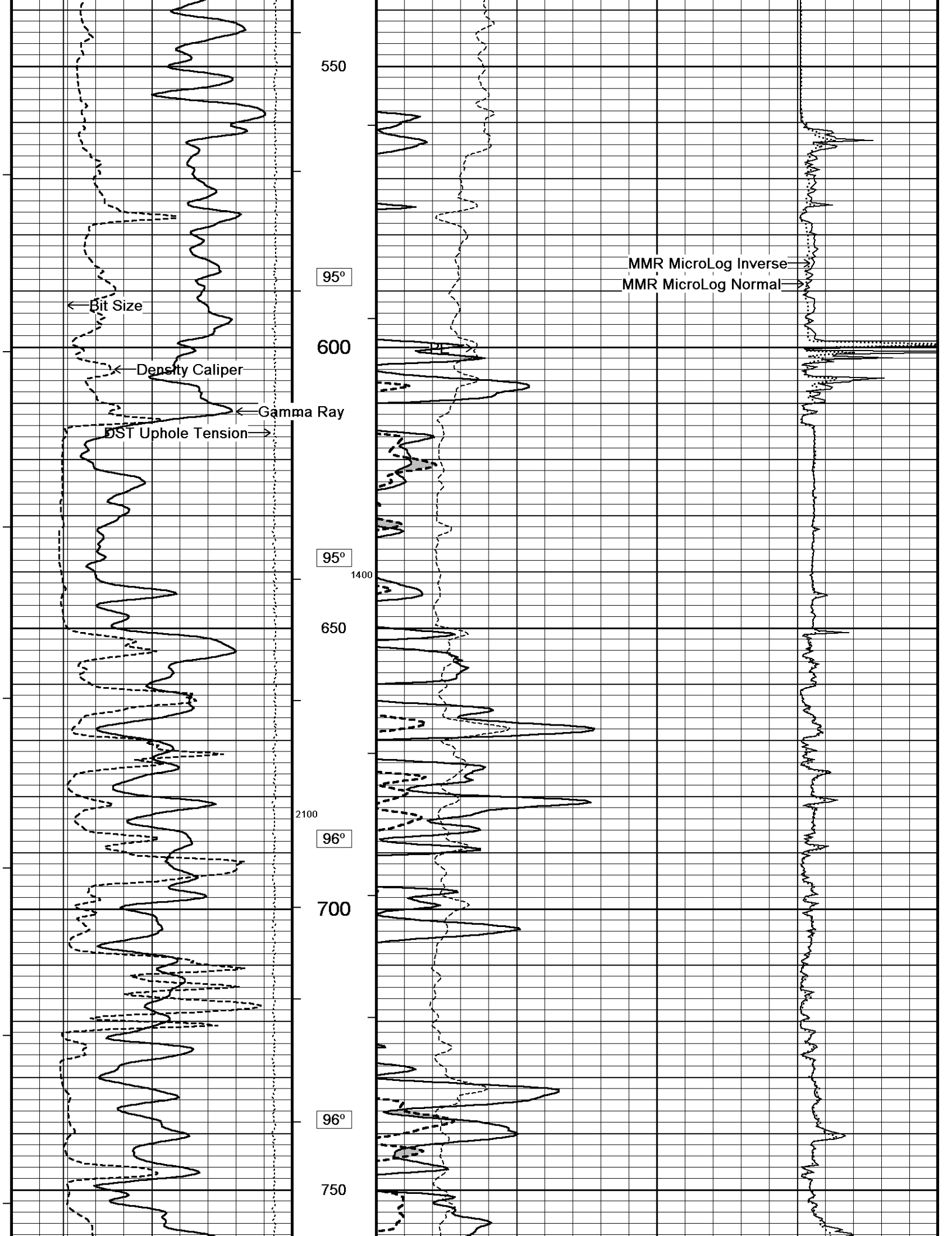
- RIG: VAL RIG #1

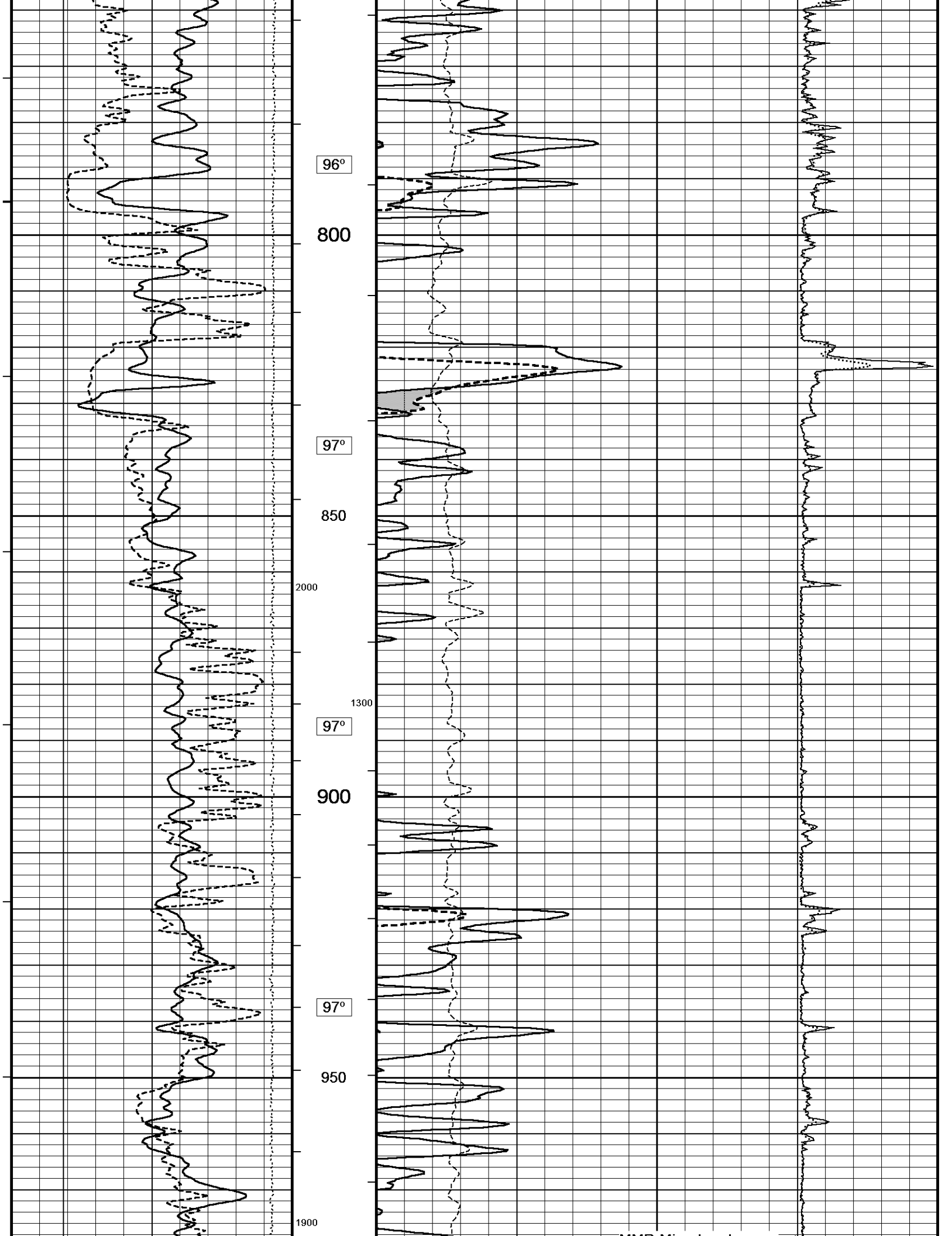
- ENGINEER: BEN WELDIN

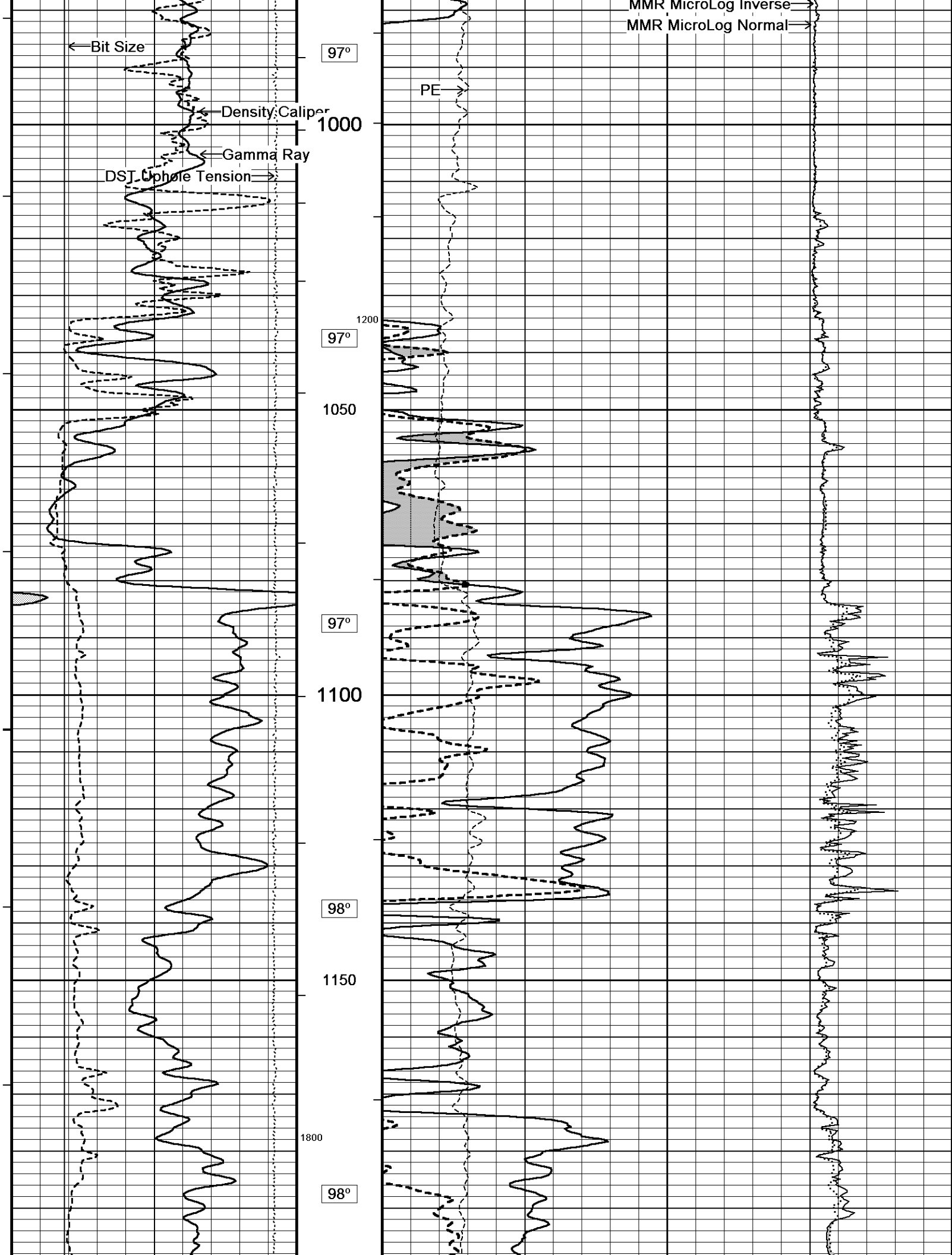
- OPERATOR: KEN RINEHART

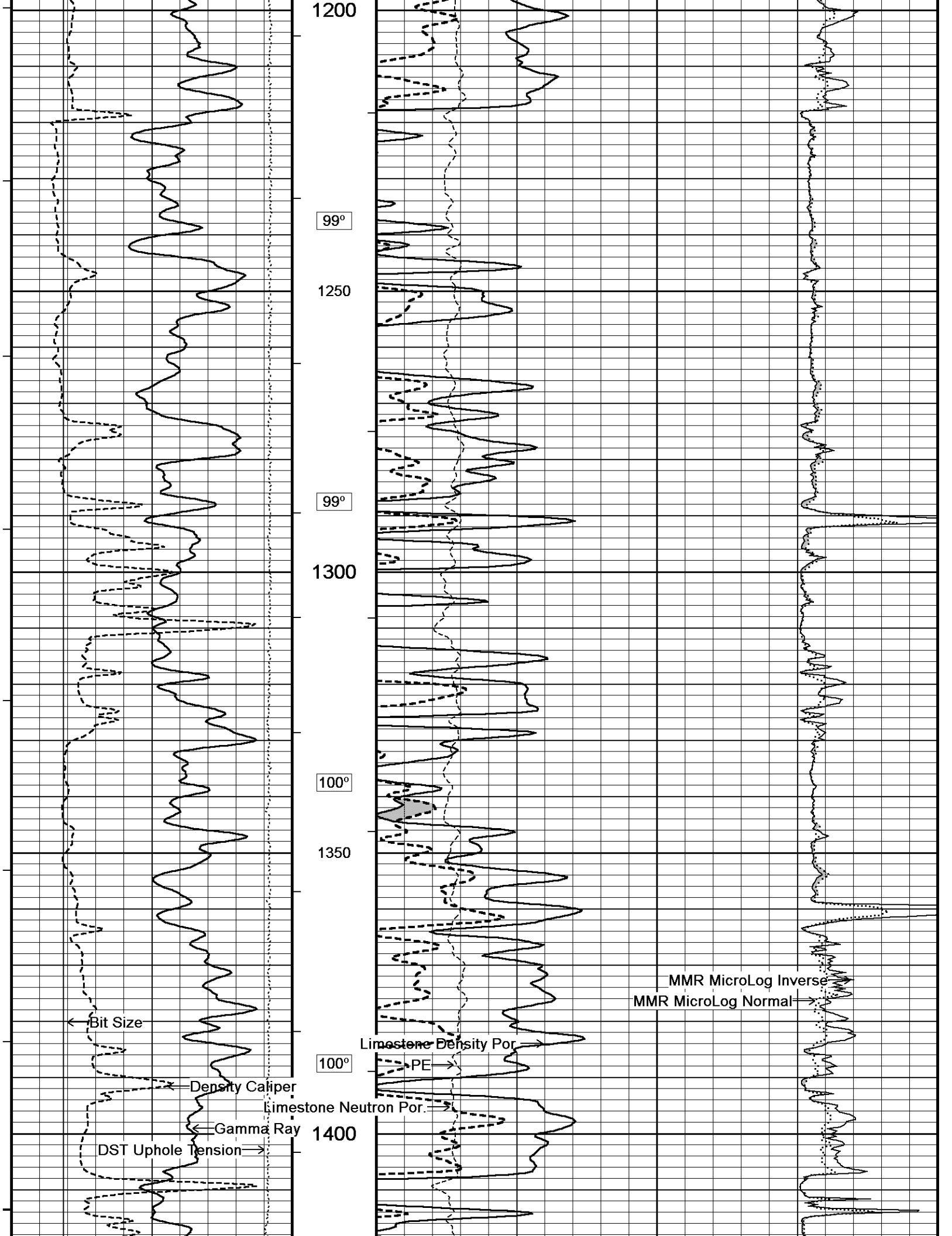
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

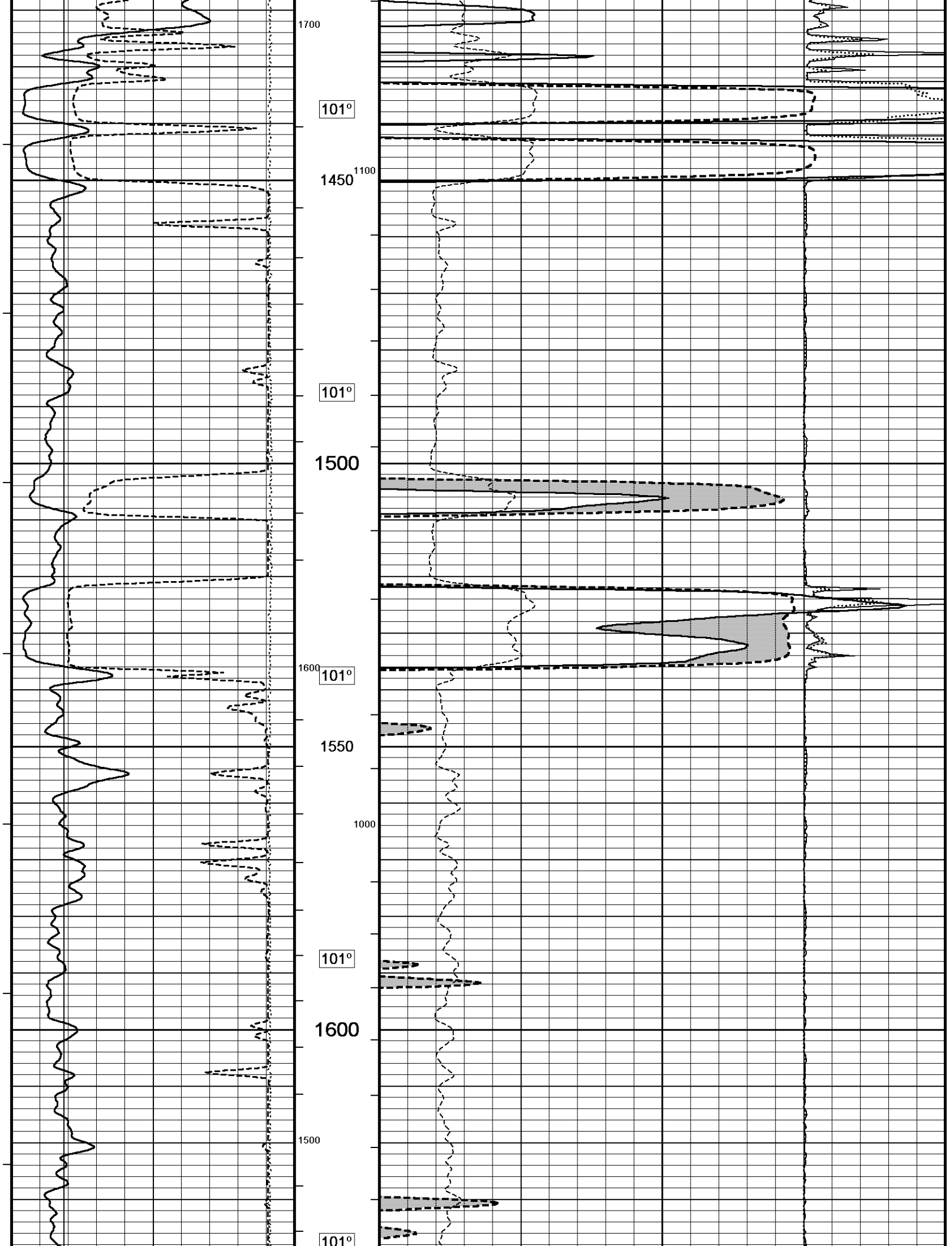


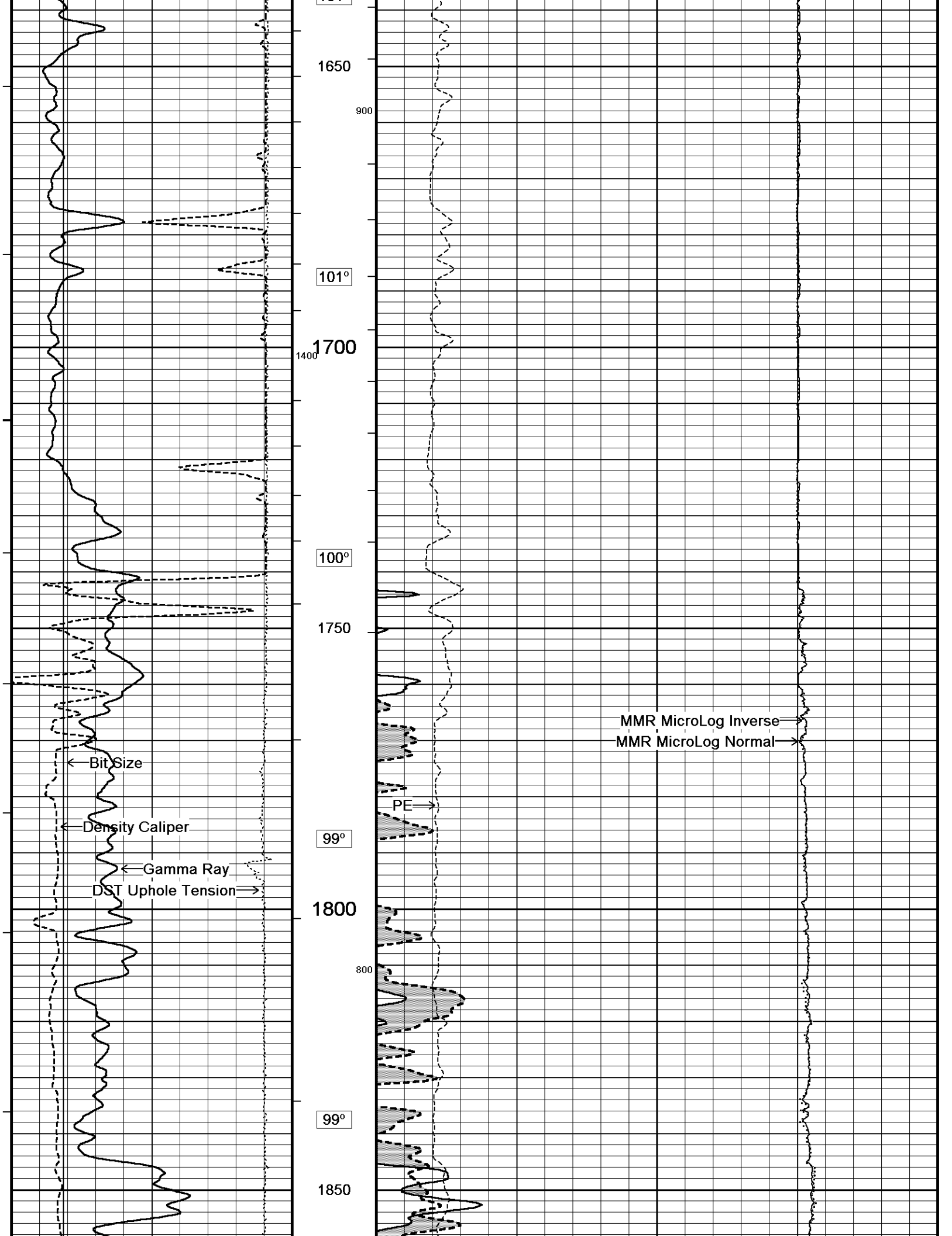


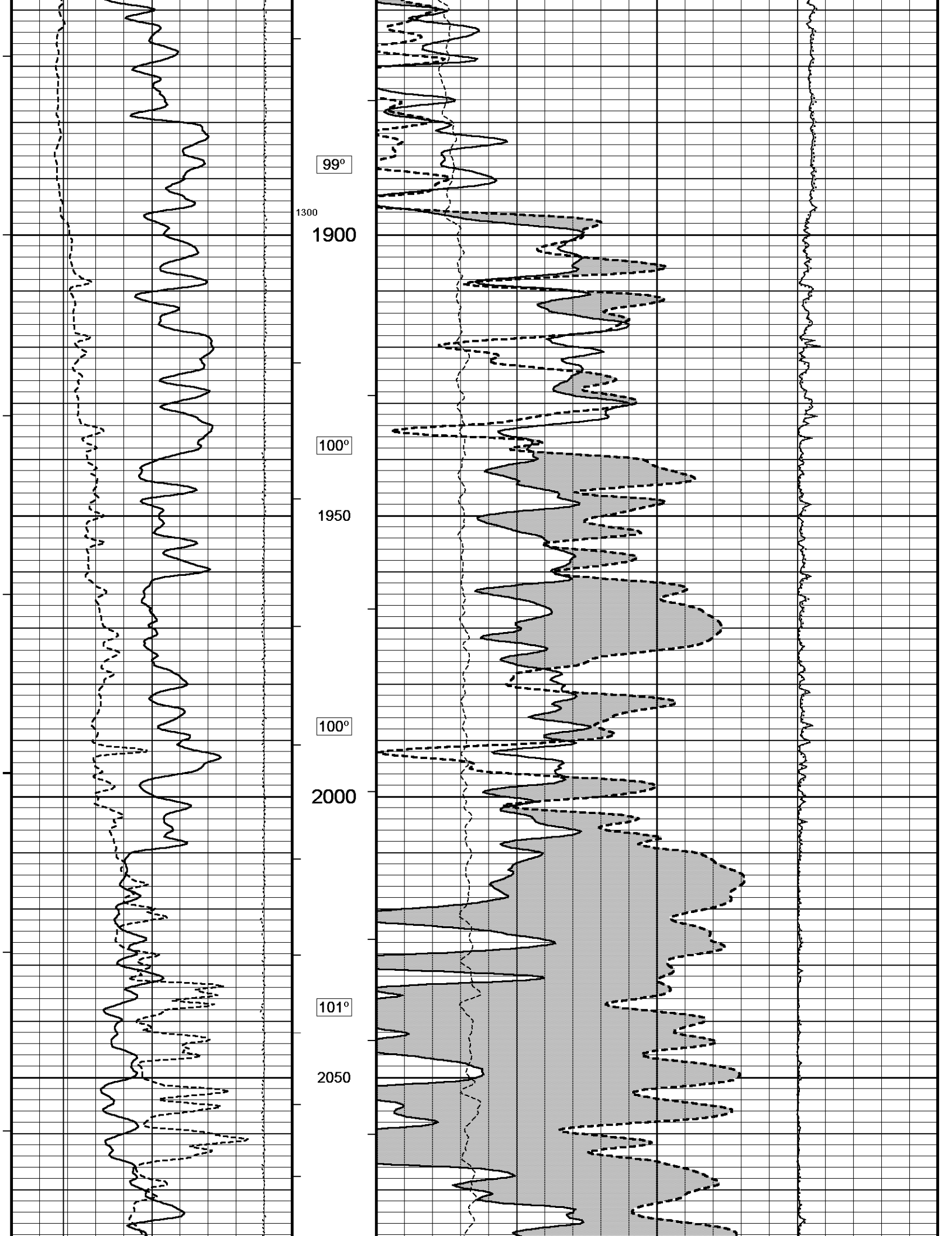


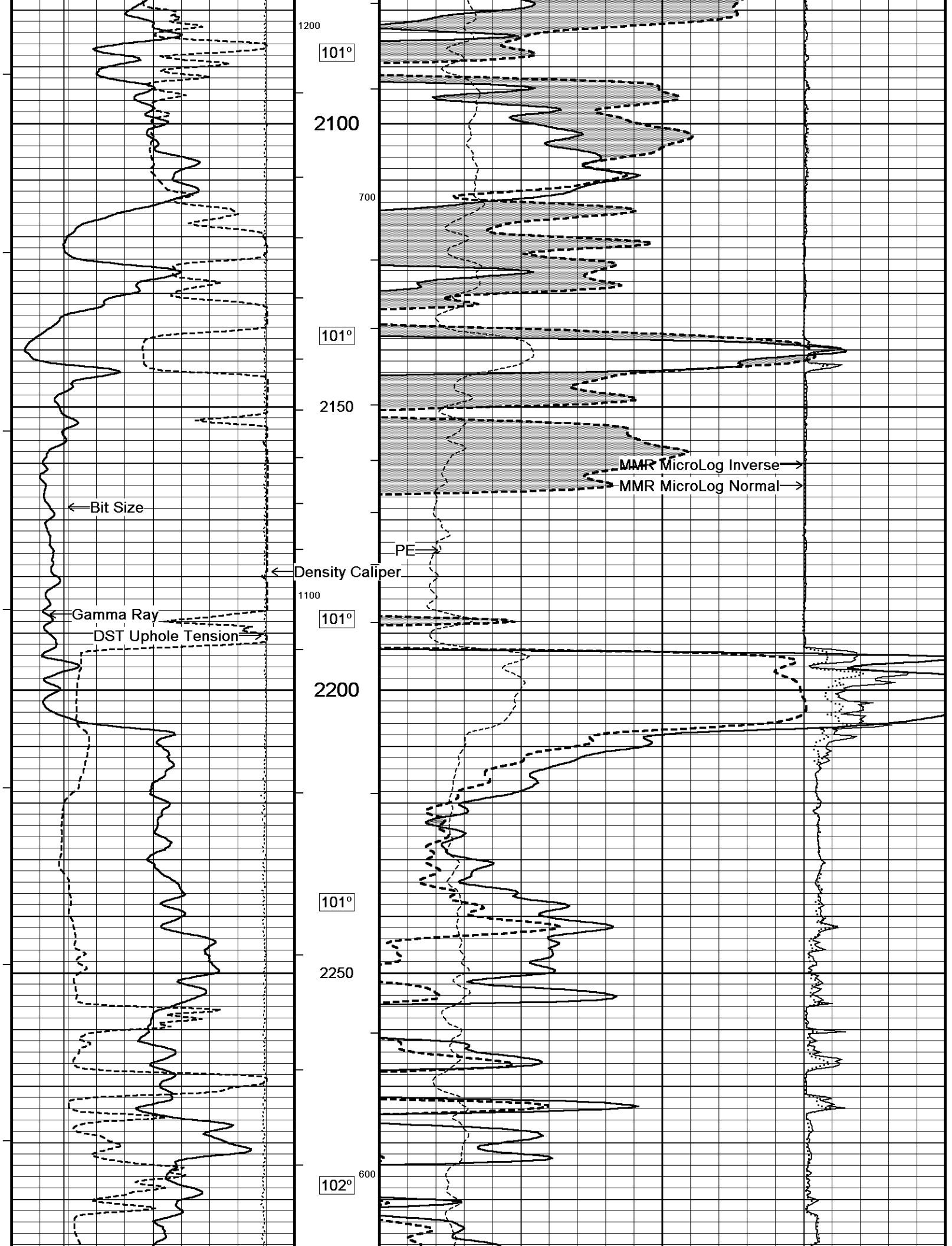


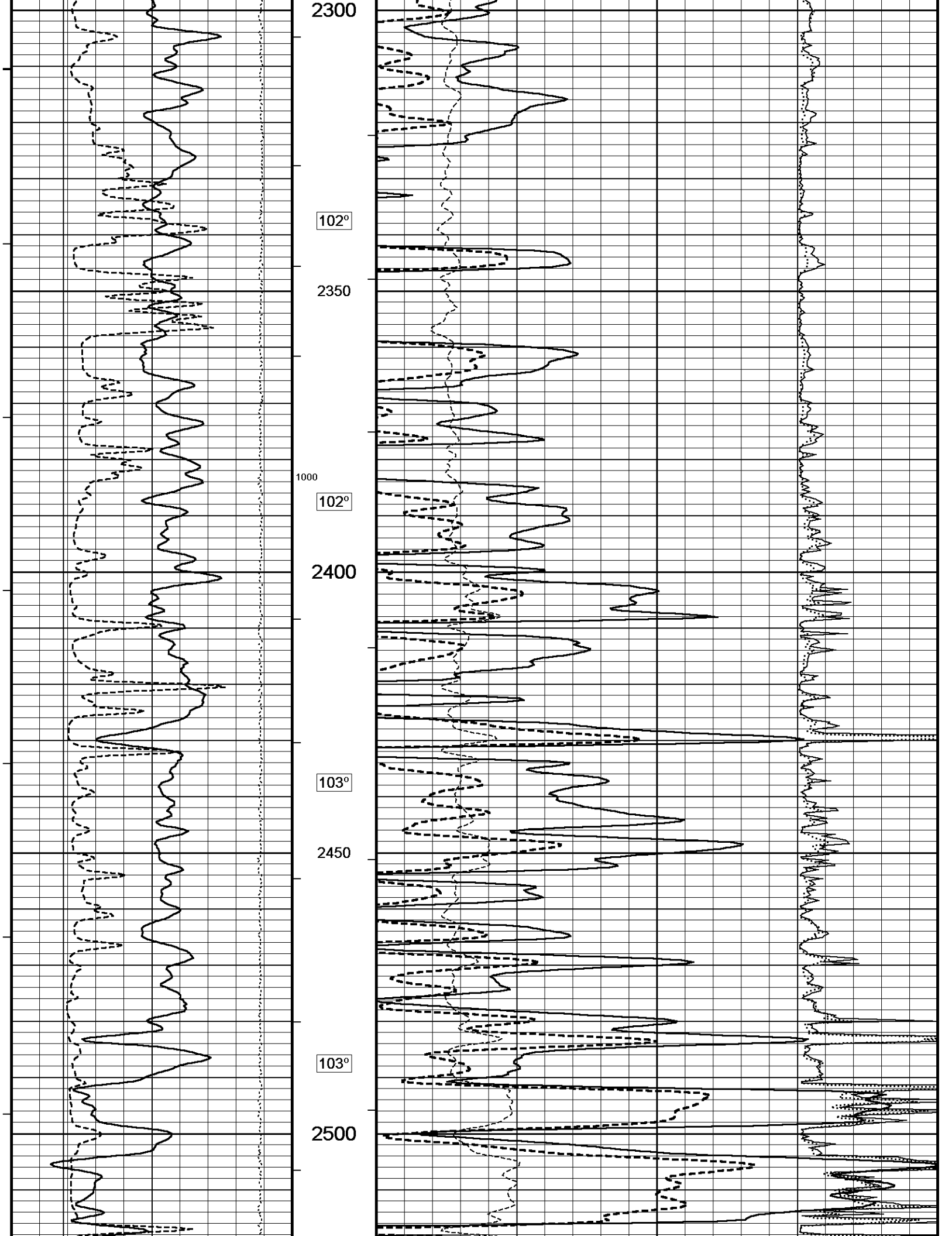


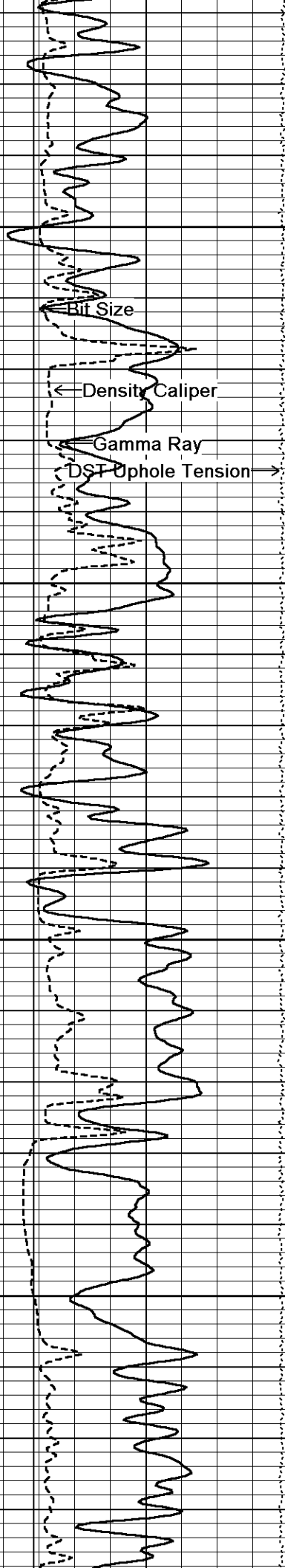












103°

2550

103°

2600

900

103°

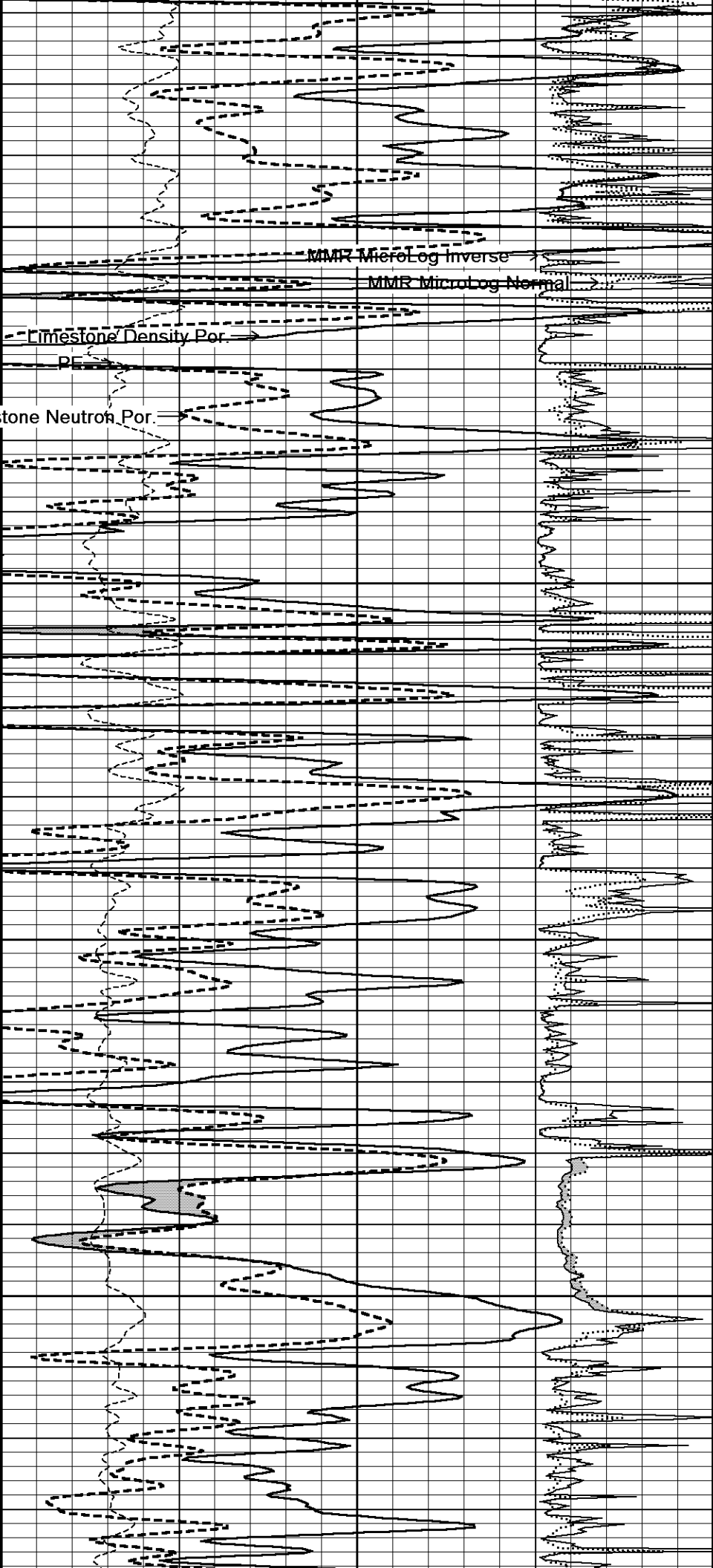
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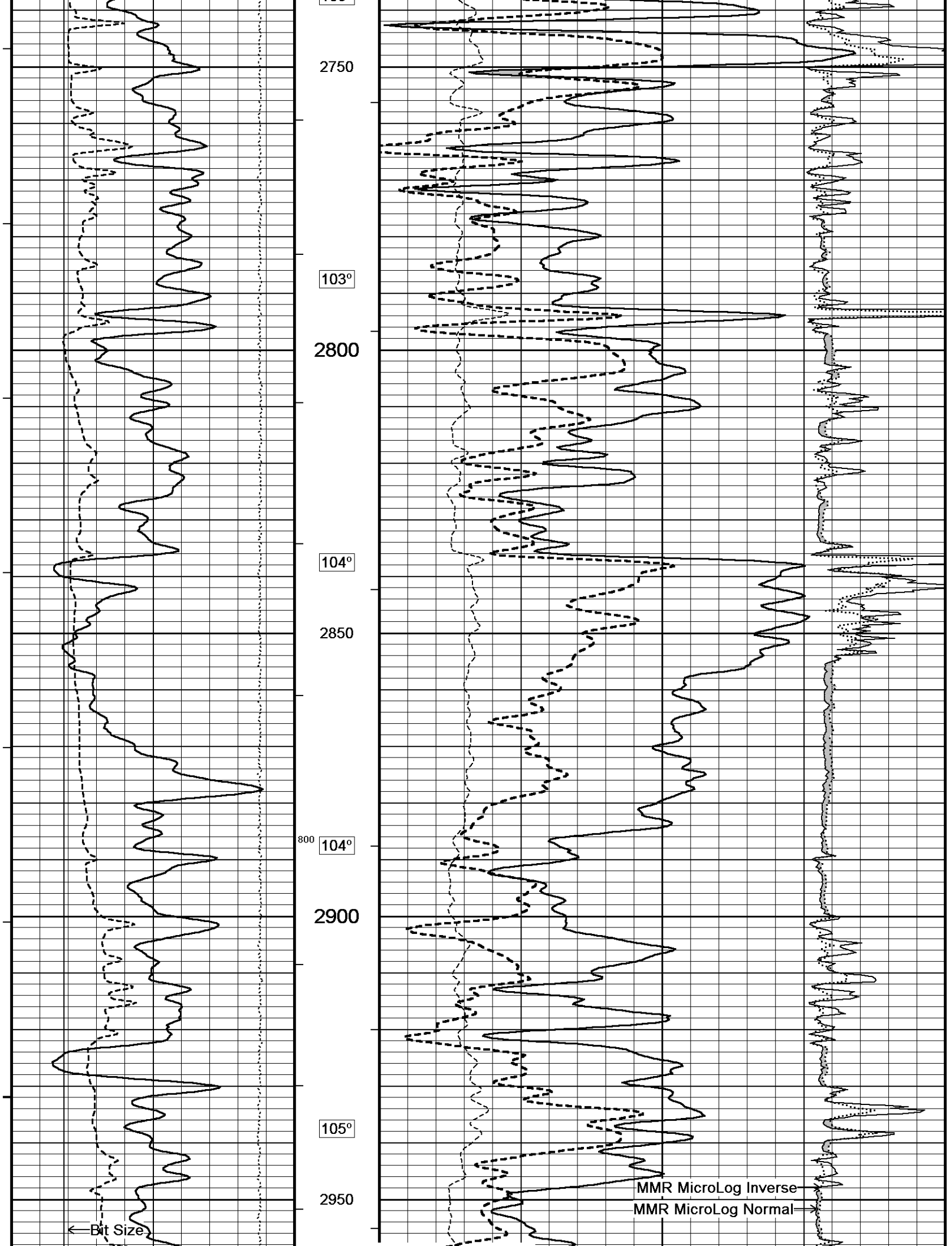
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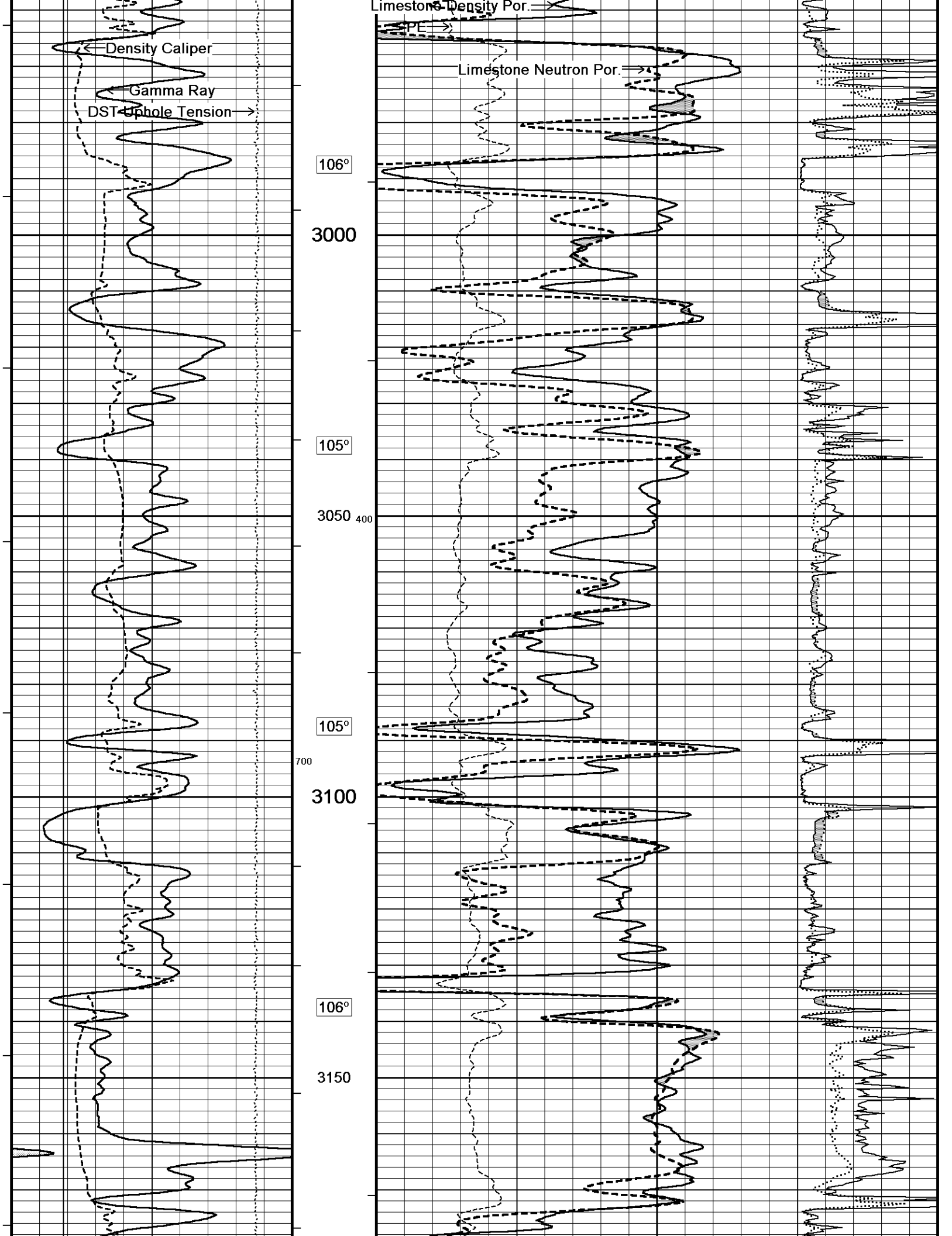
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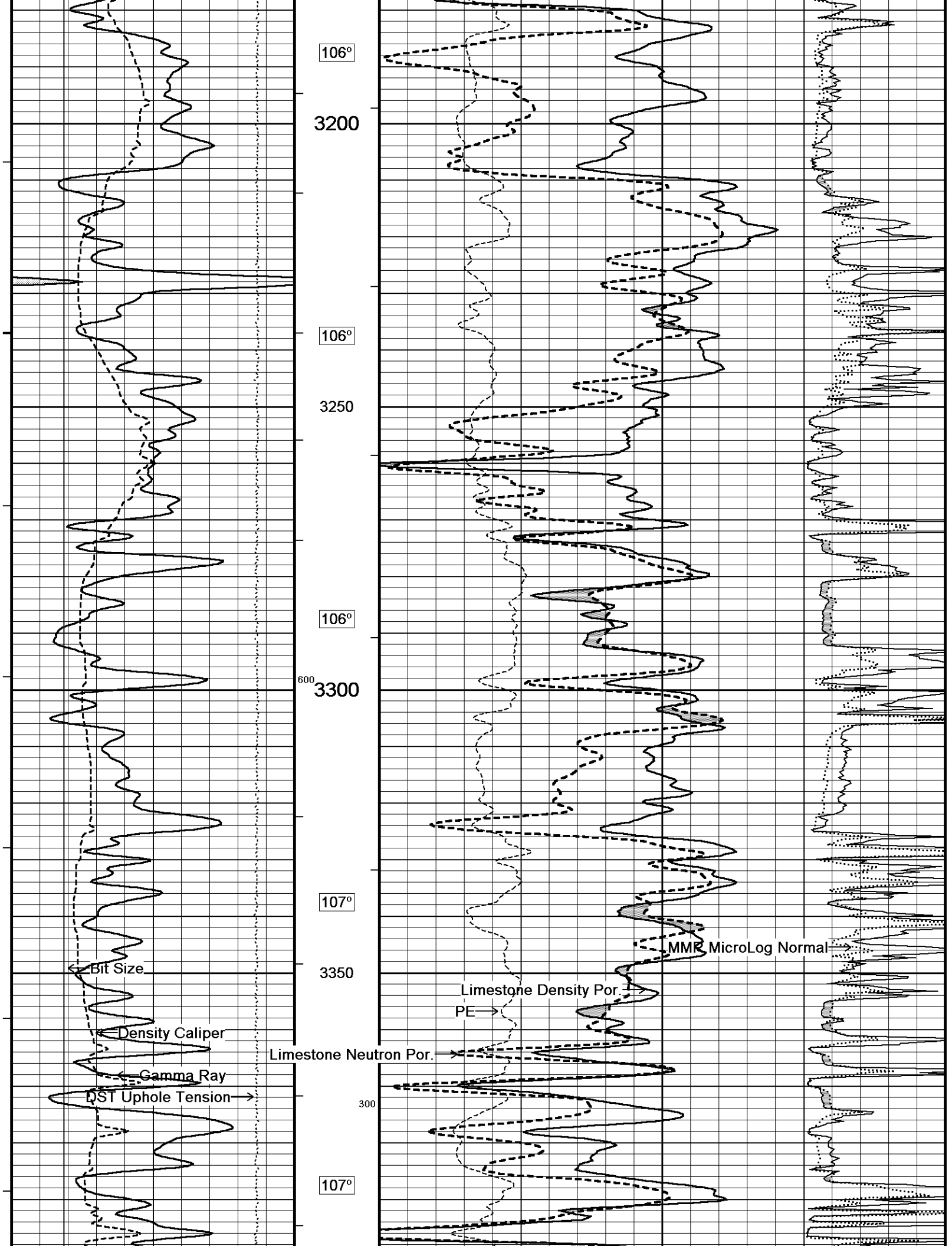
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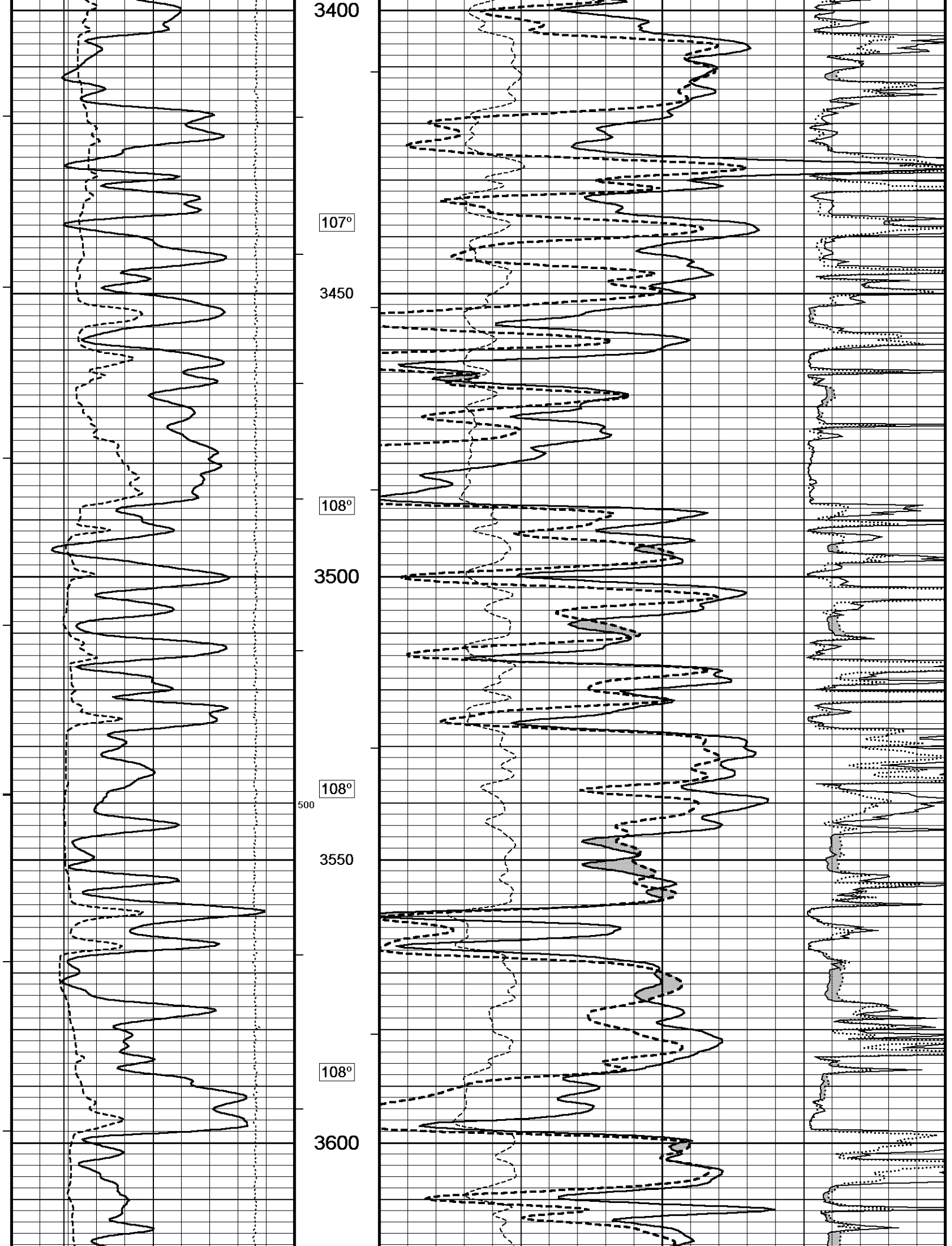
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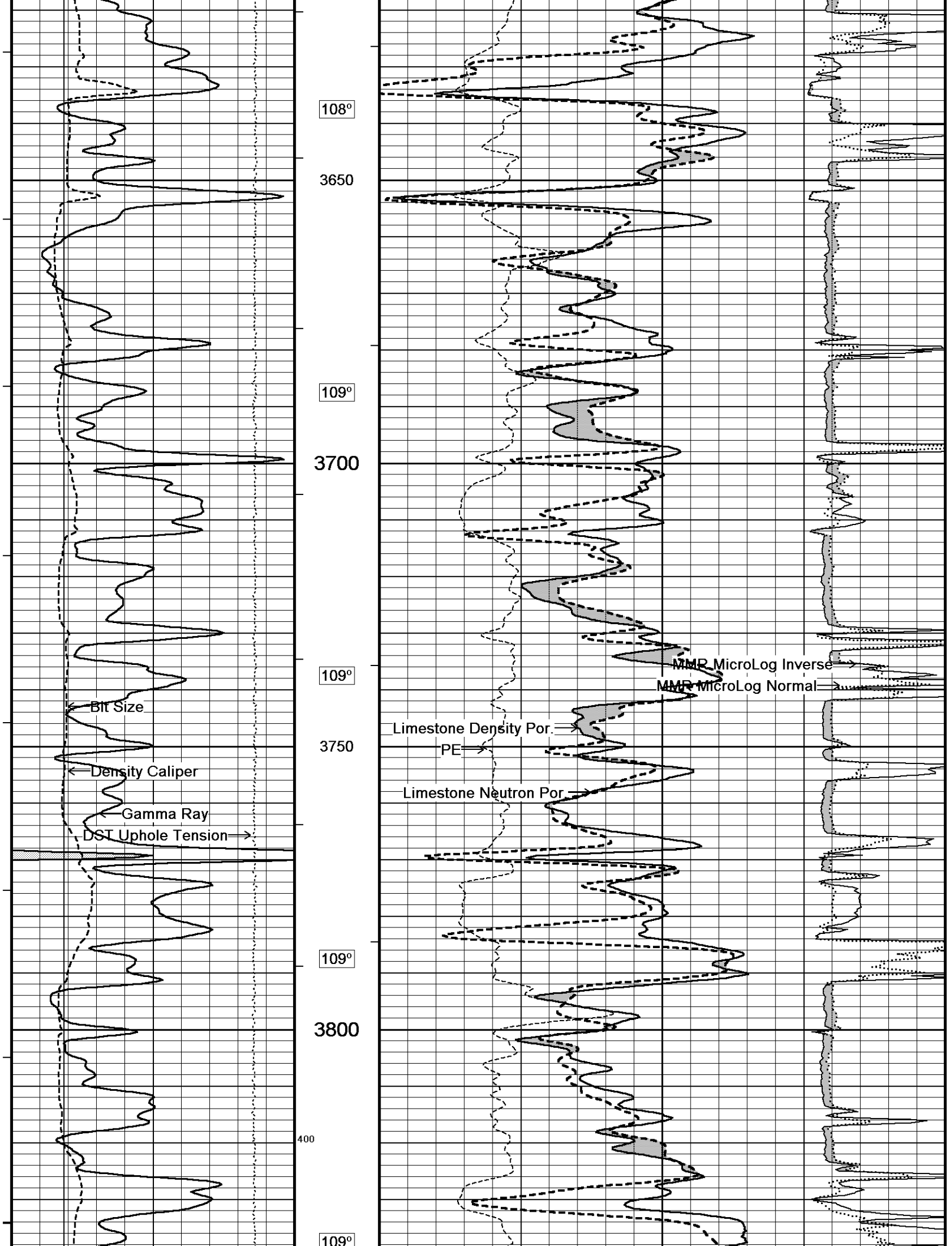


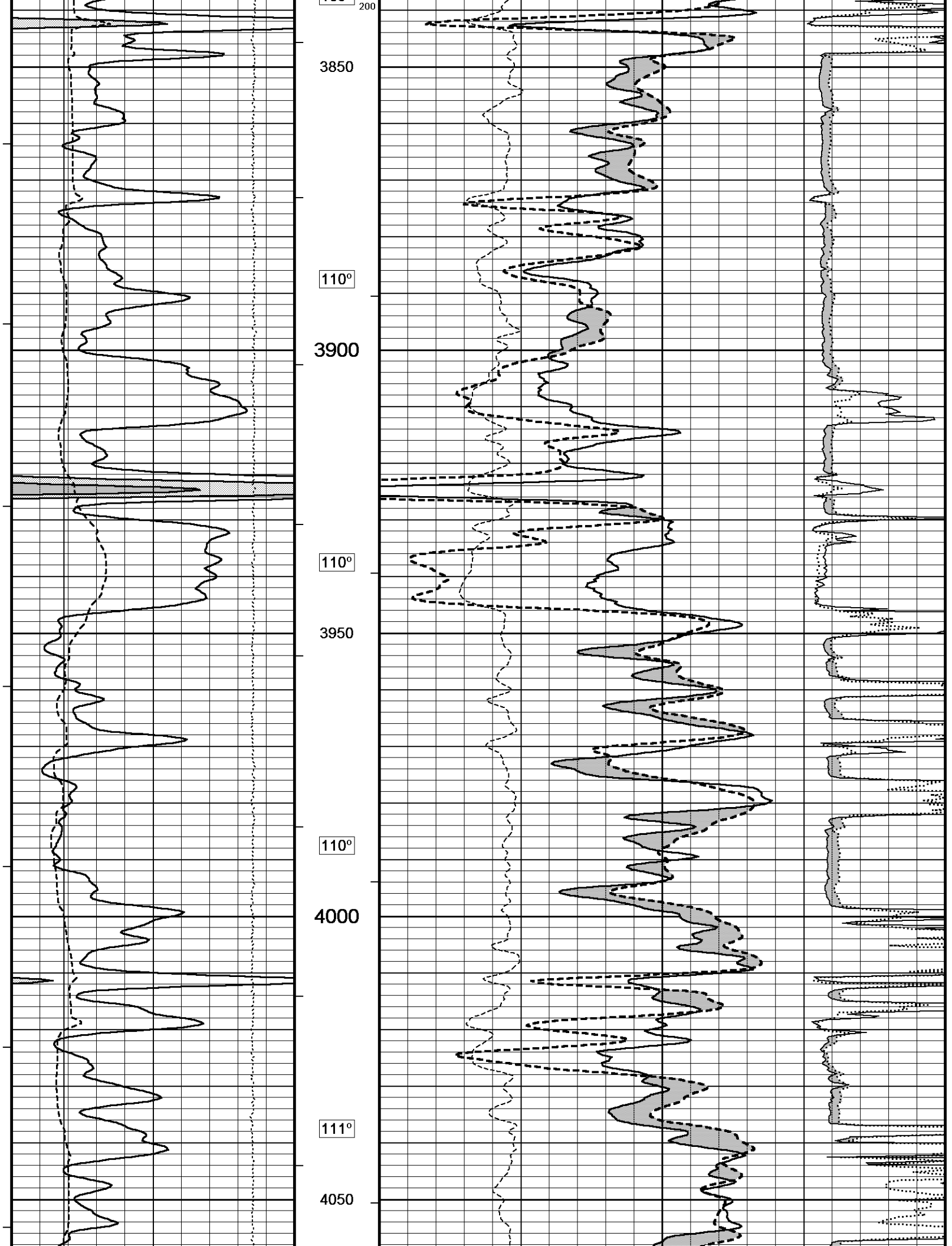


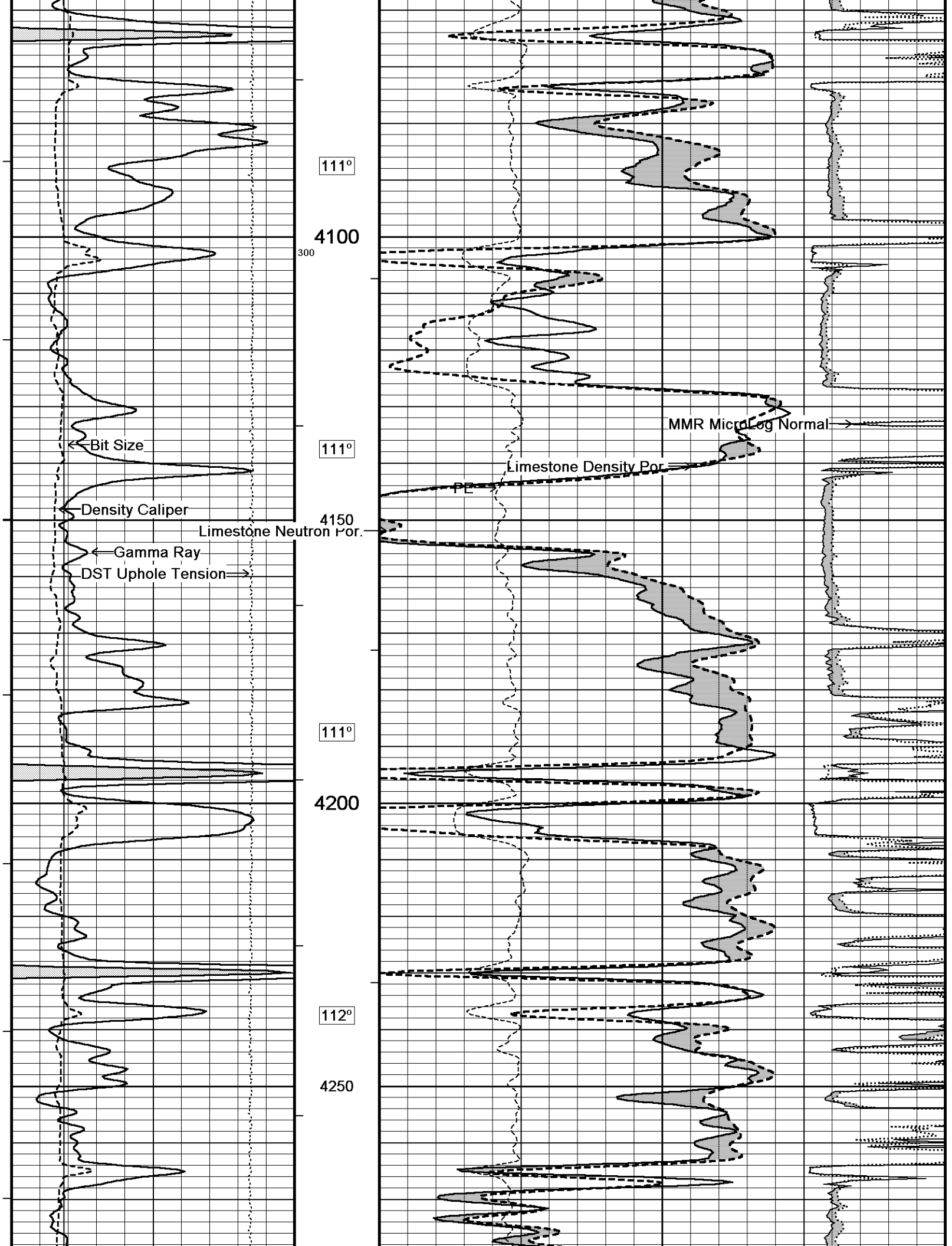


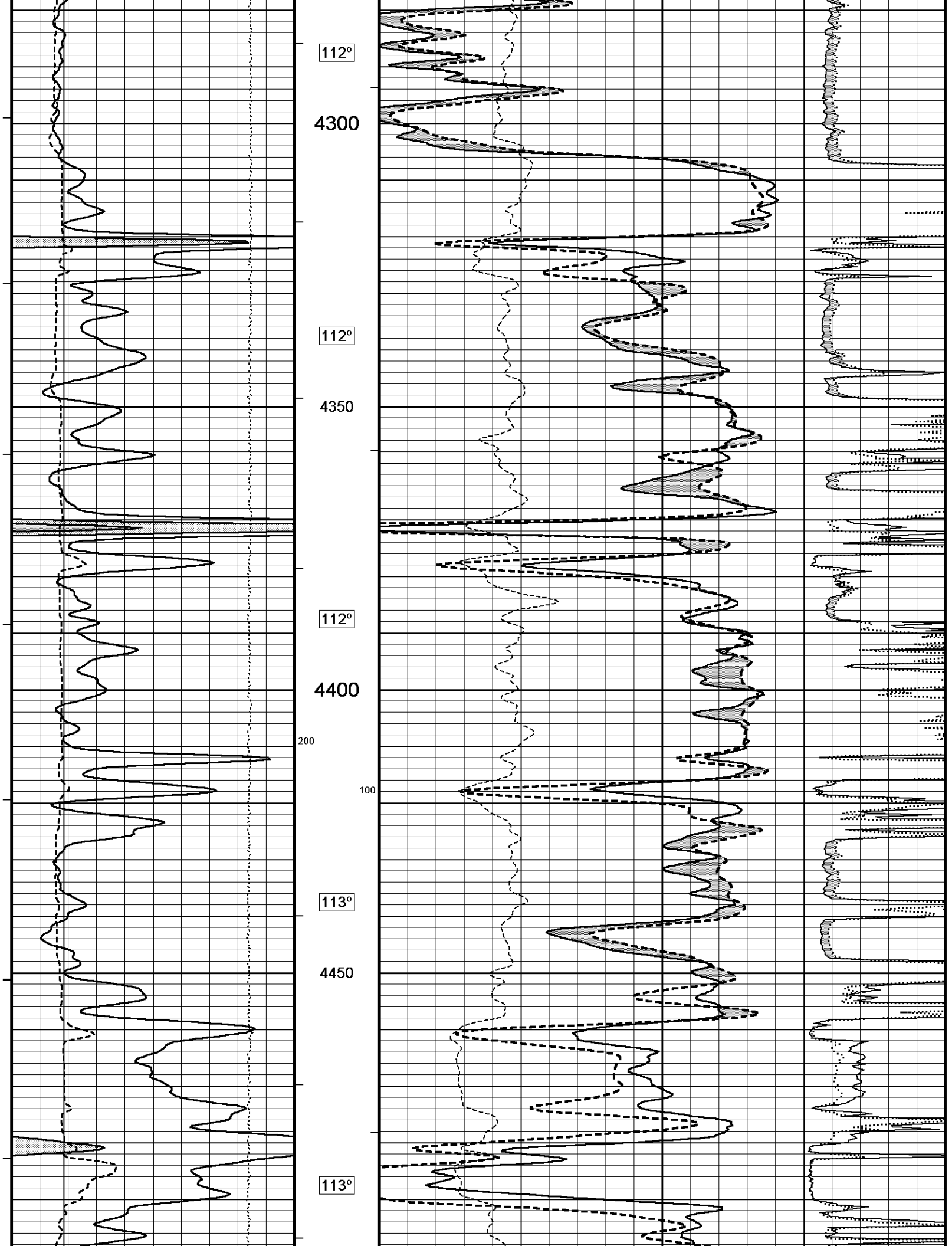


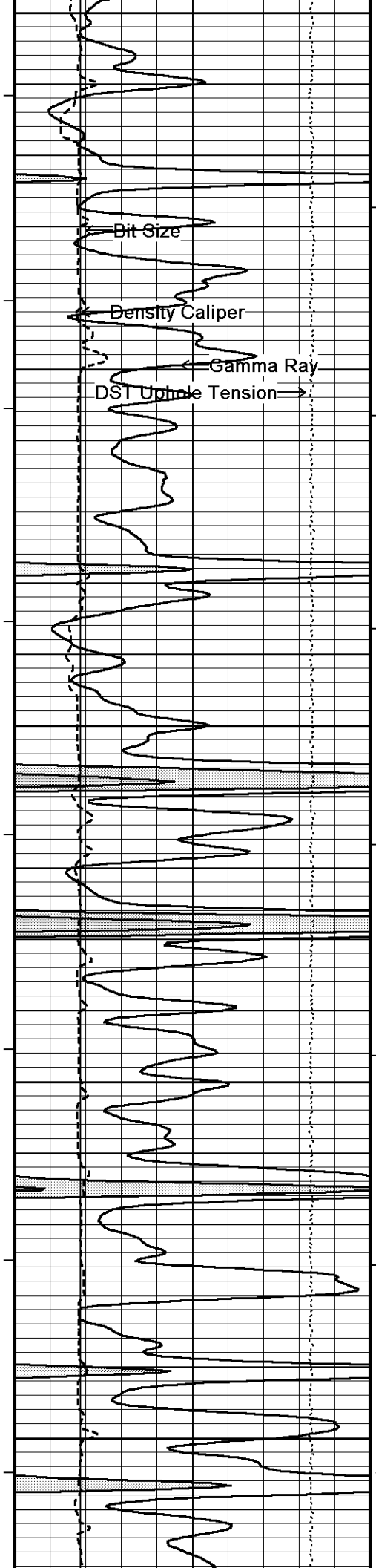












4500

114°

4550

114°

4600

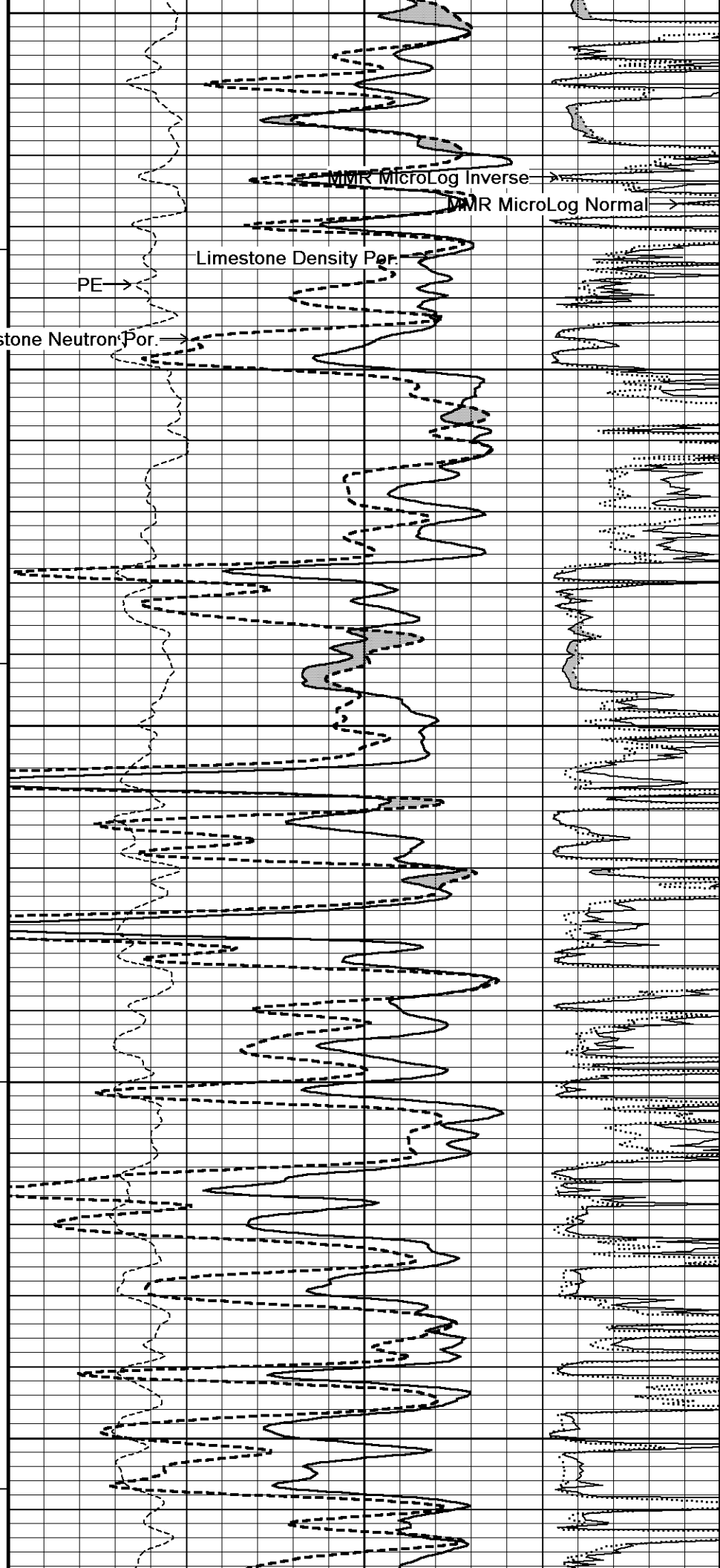
114°

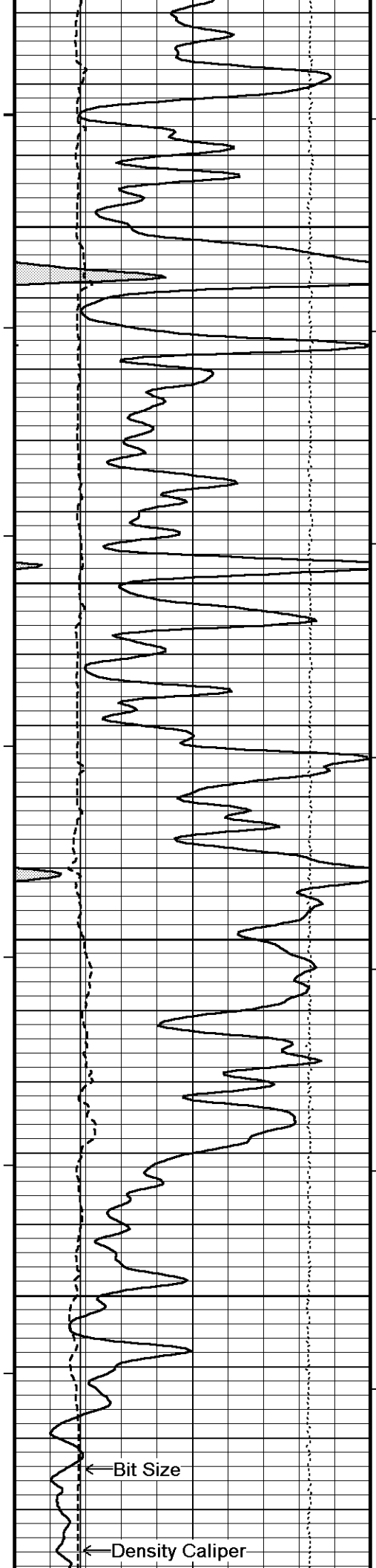
4650

115°

4700

100





115°

4750

116°

4800

116°

4850

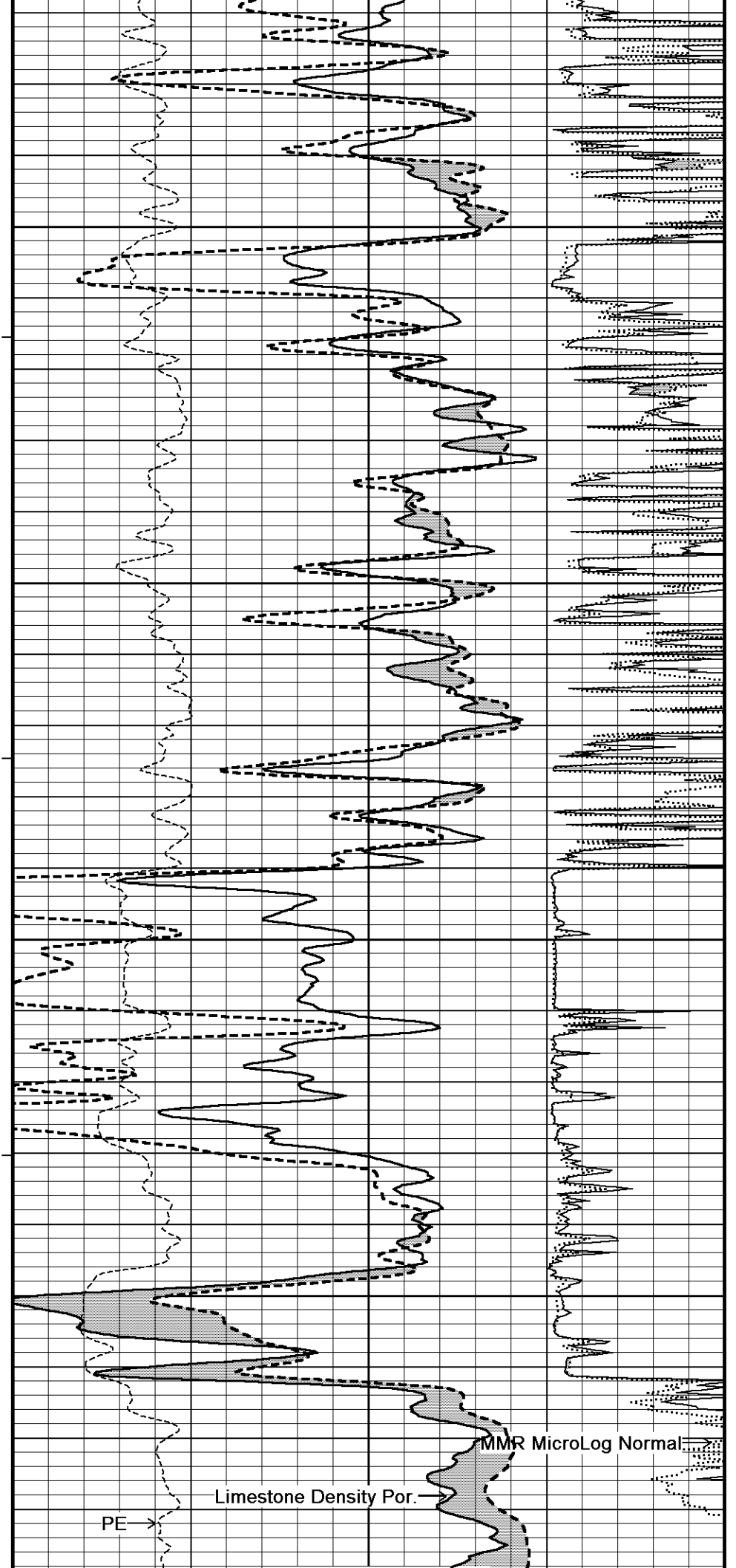
116°

4900

116°

← Bit Size

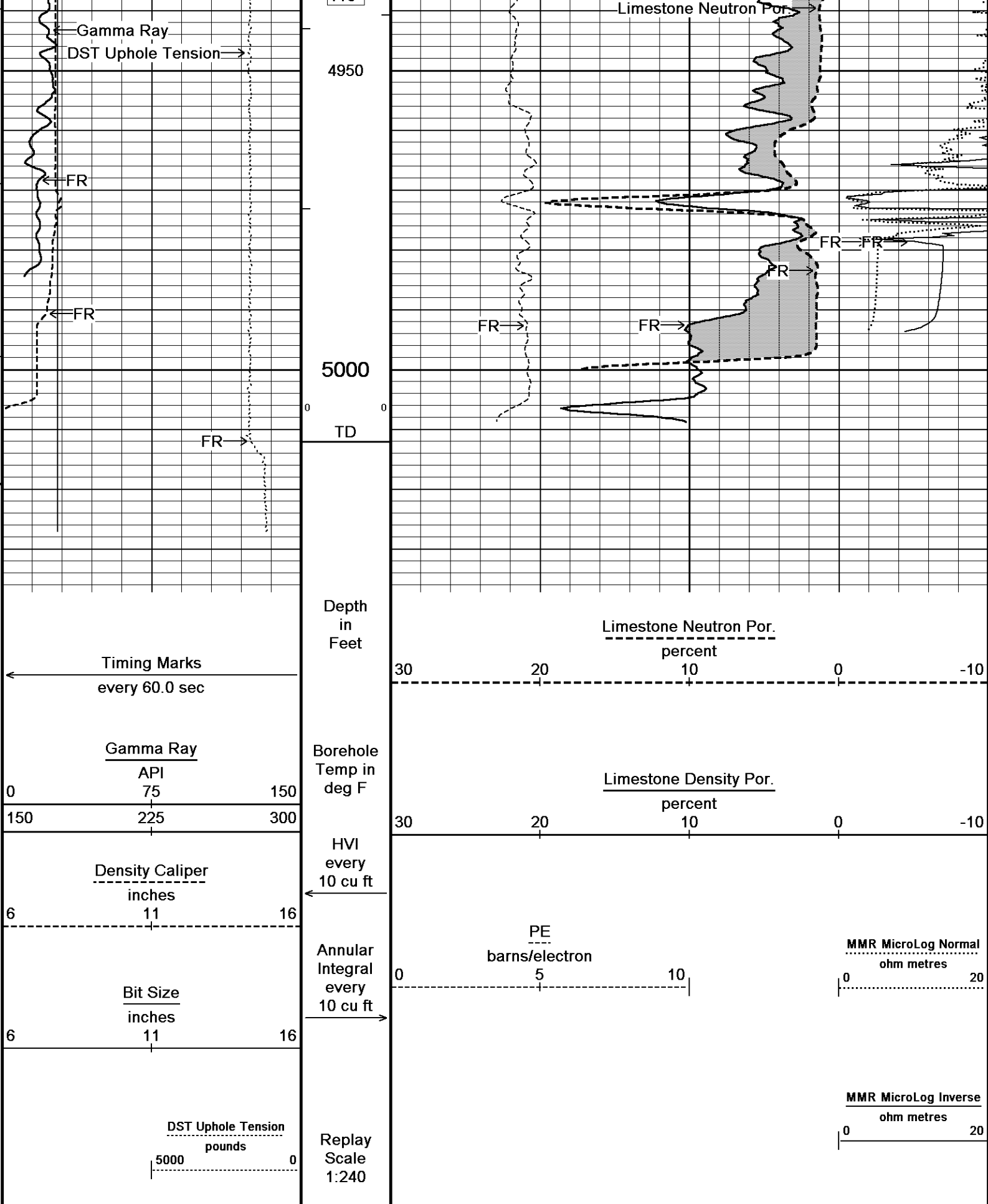
← Density Caliper



PE →

Limestone Density Por.

MMR MicroLog Normal





REPEAT SECTION



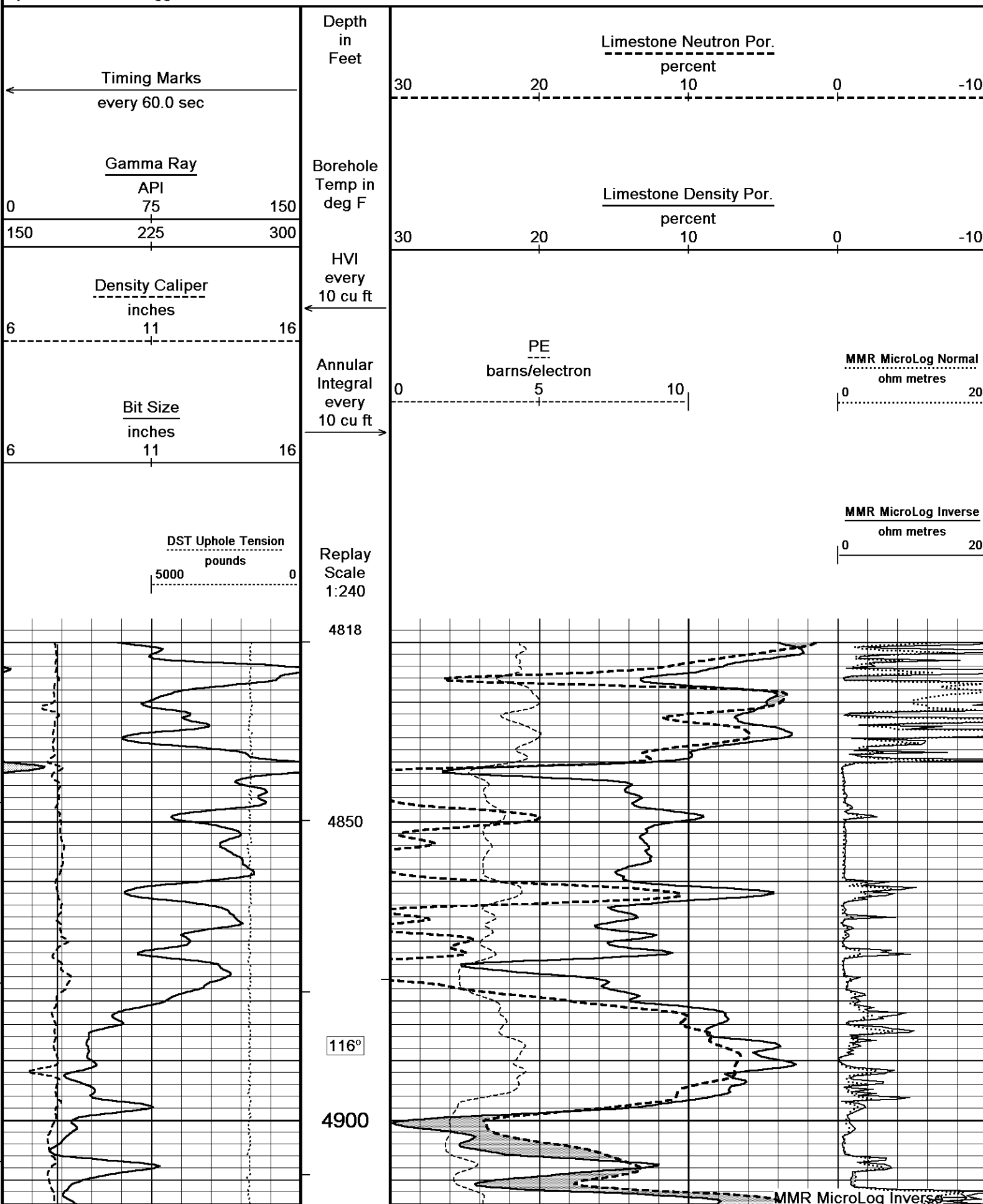
Depth Based Data - Maximum Sampling Increment 10.0cm

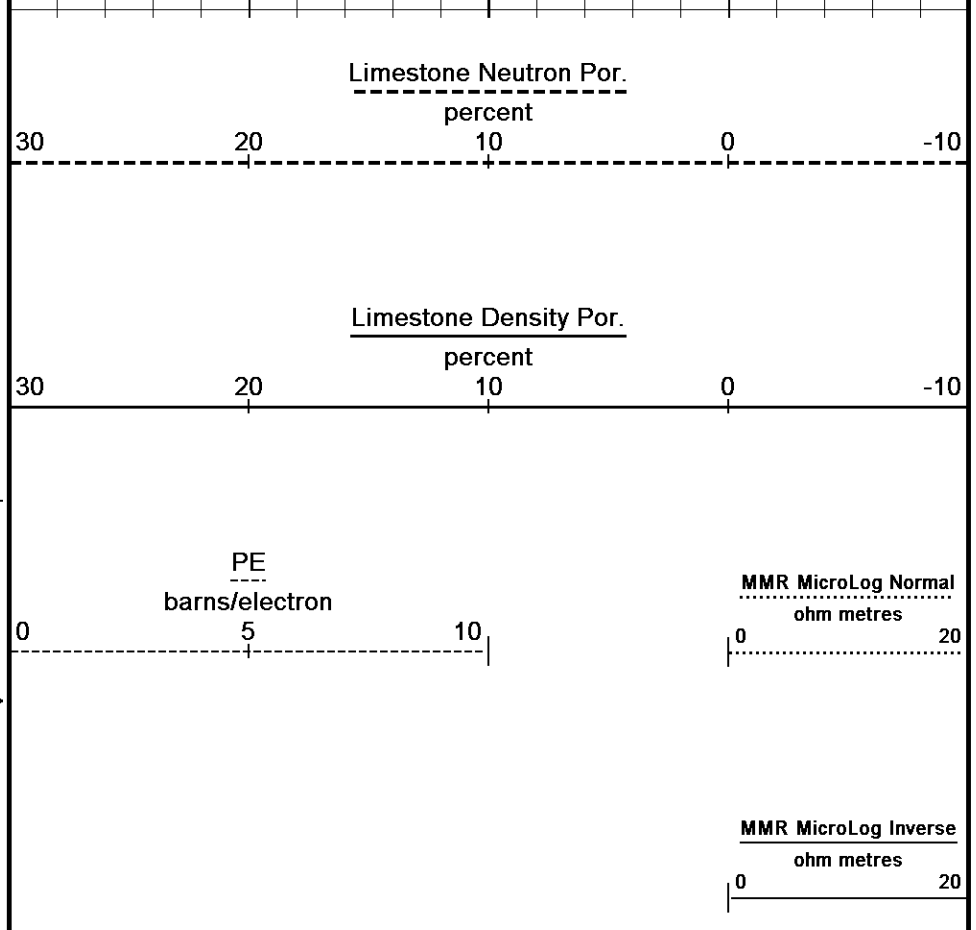
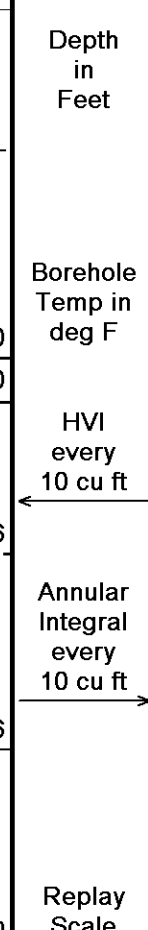
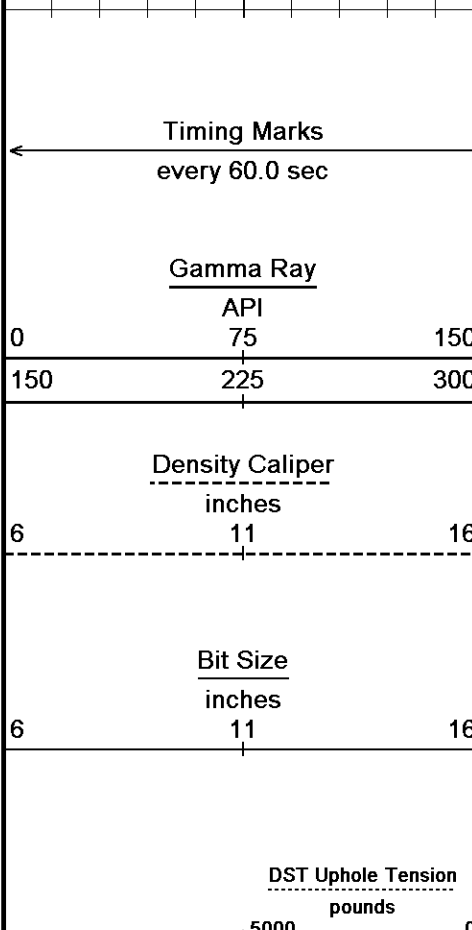
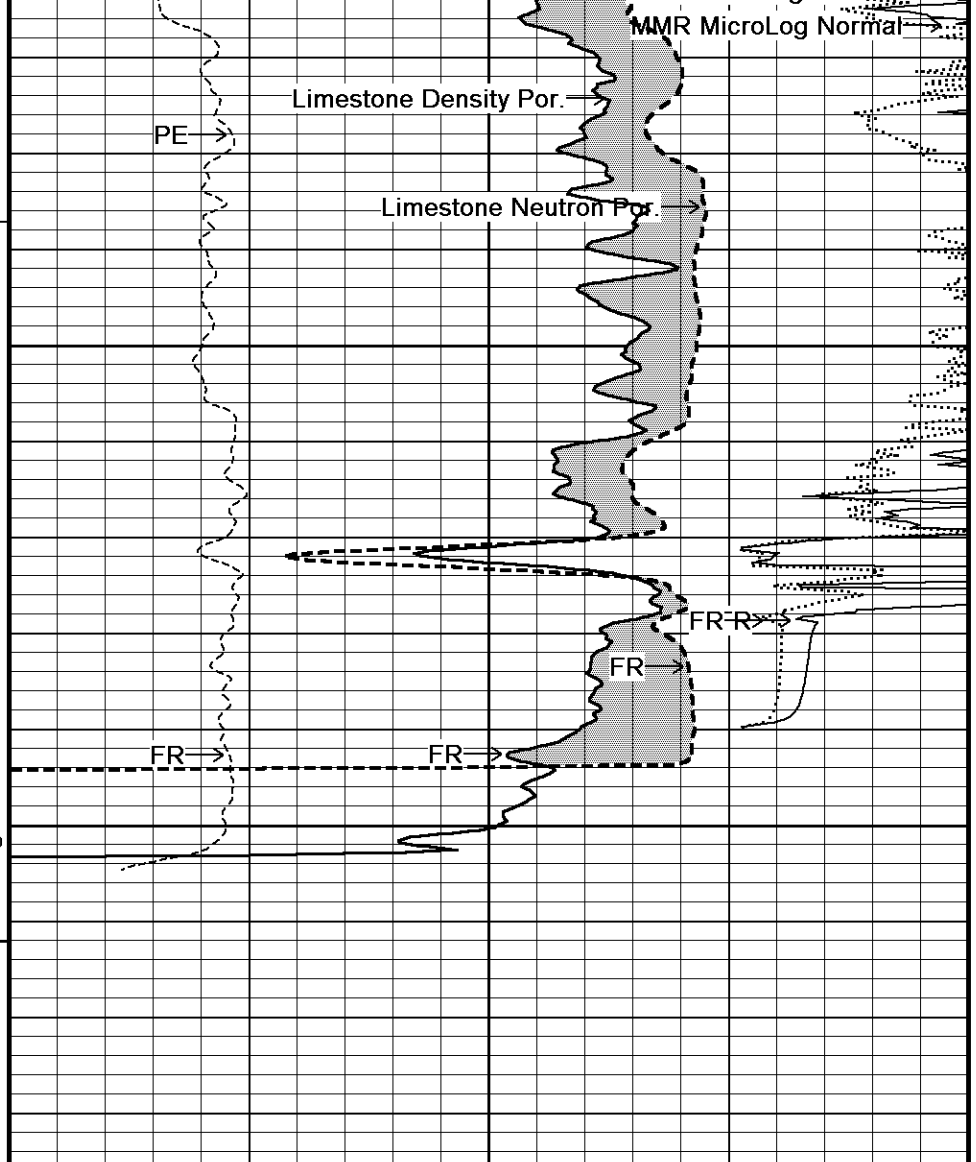
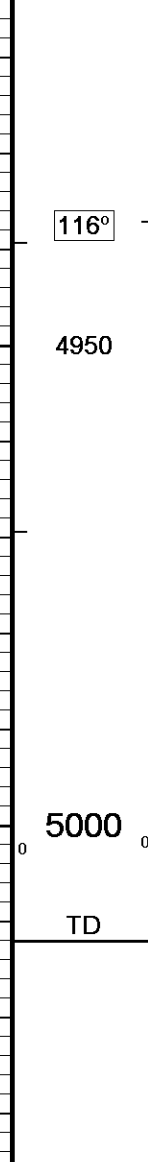
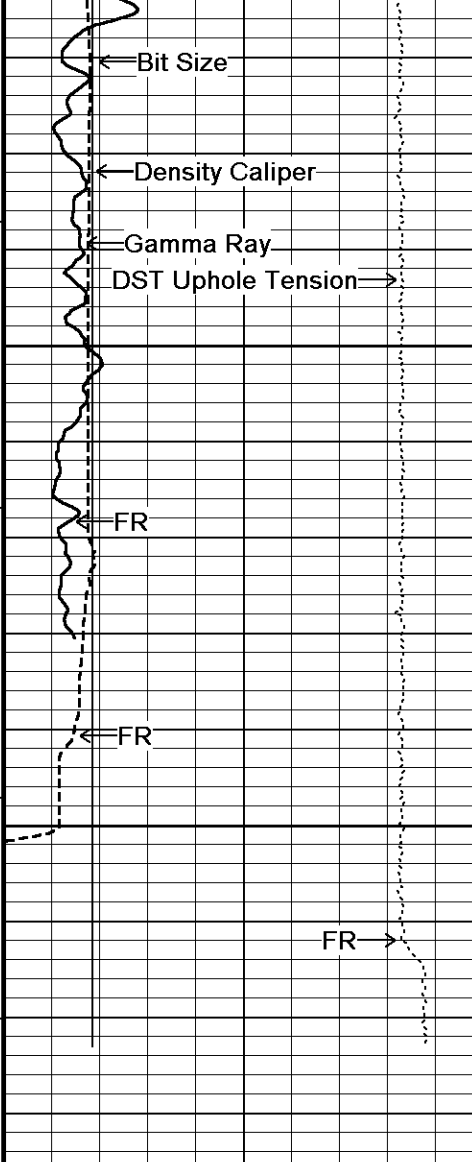
Plotted on 13-AUG-2014 09:01

Filename: C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Repeat.dta

Recorded on 13-AUG-2014 04:51

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113





↑

REPEAT SECTION

↑

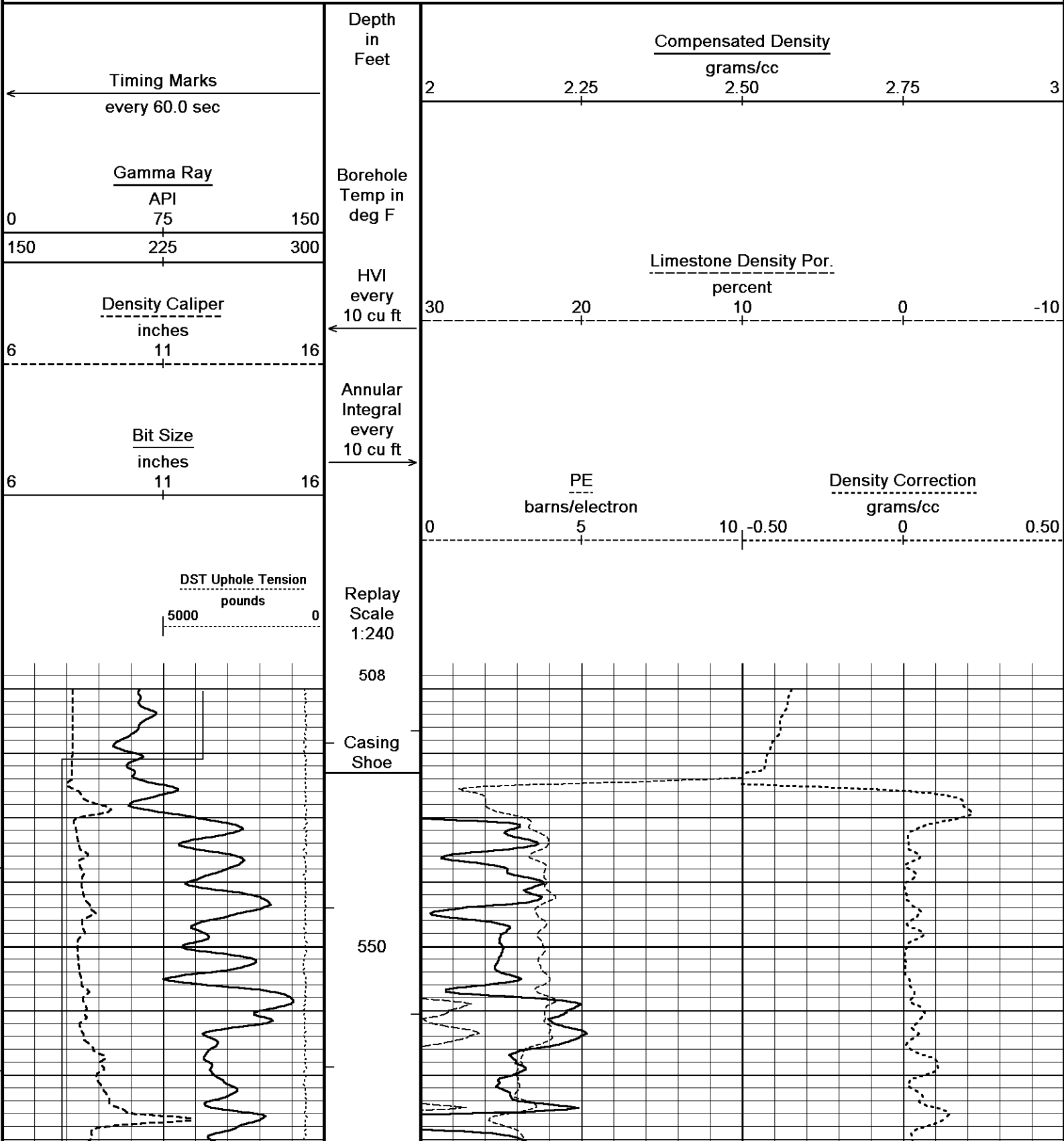
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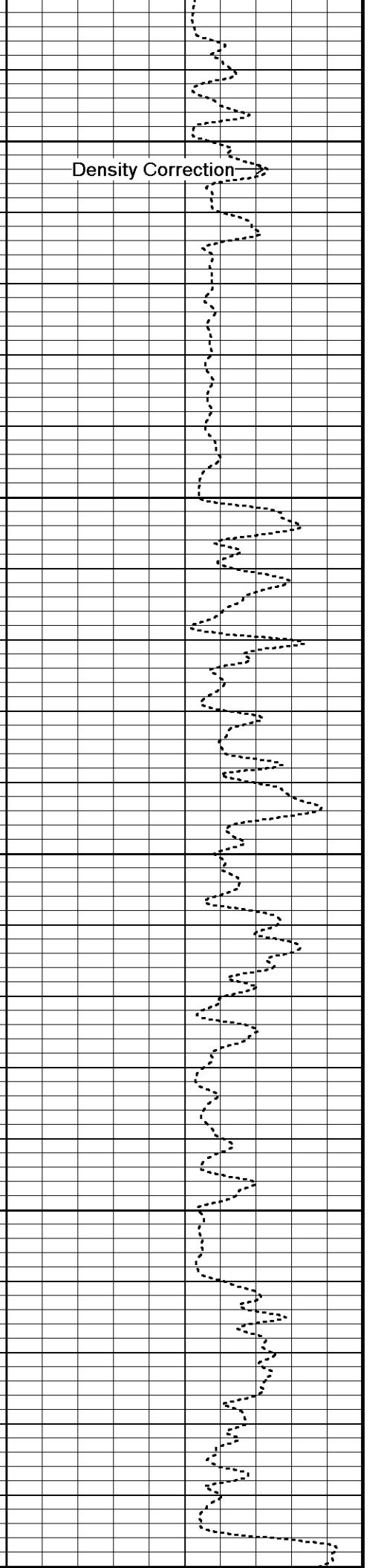
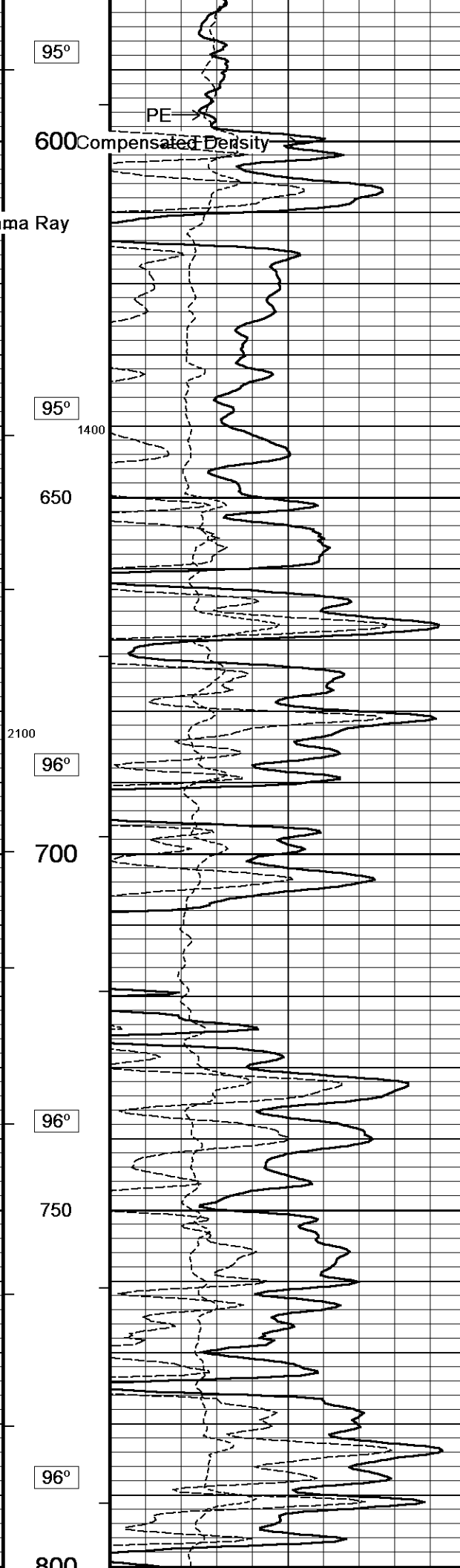
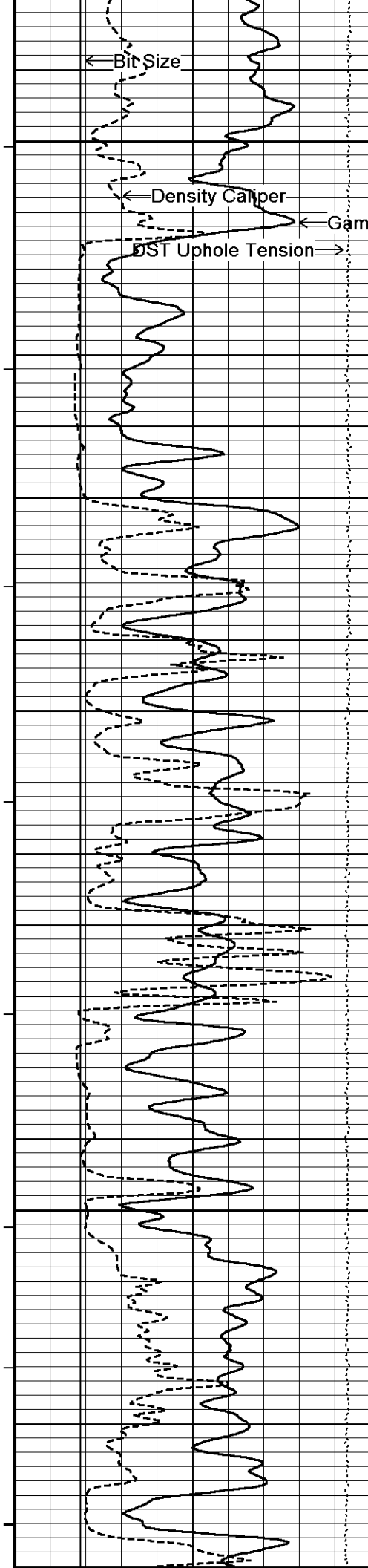
5 INCH BULK DENSITY MAIN

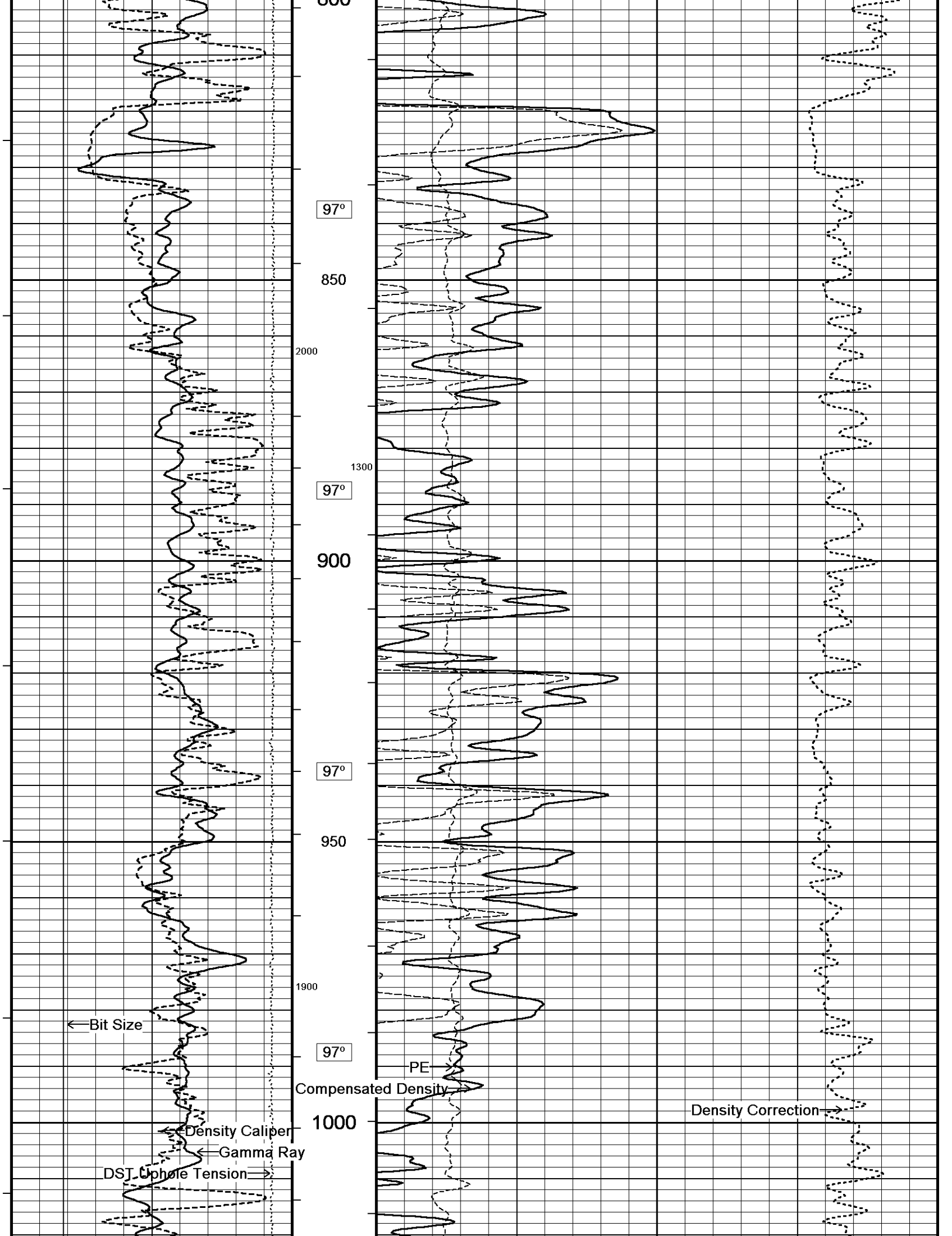
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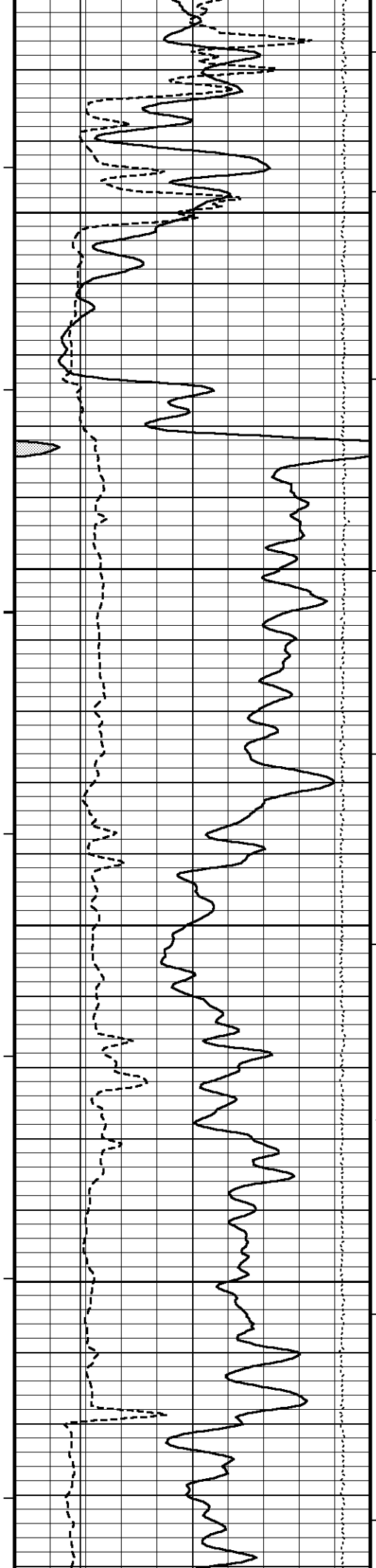
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 13-AUG-2014 09:01
Recorded on 13-AUG-2014 05:16









1200
97°

1050

97°

1100

98°

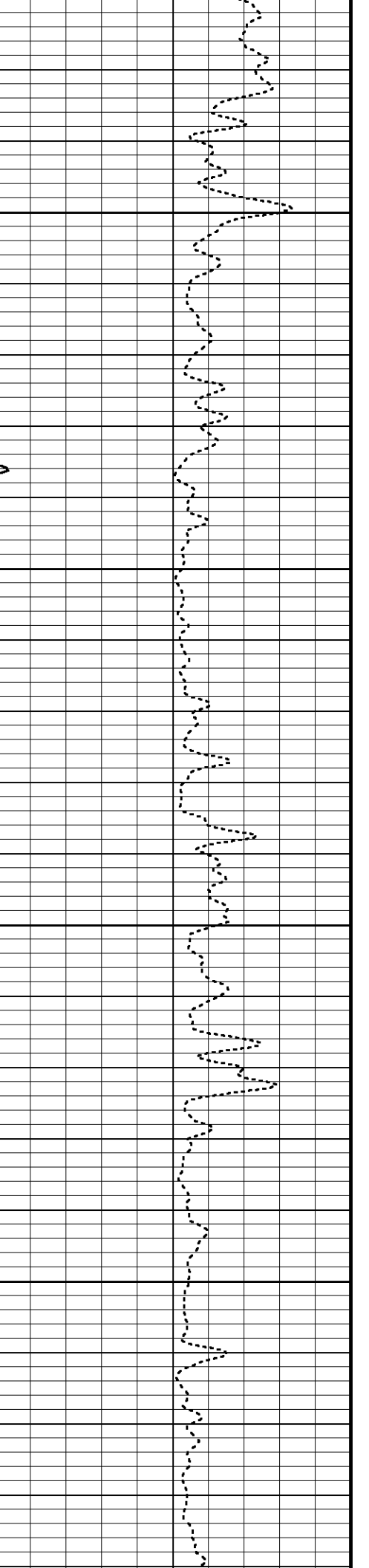
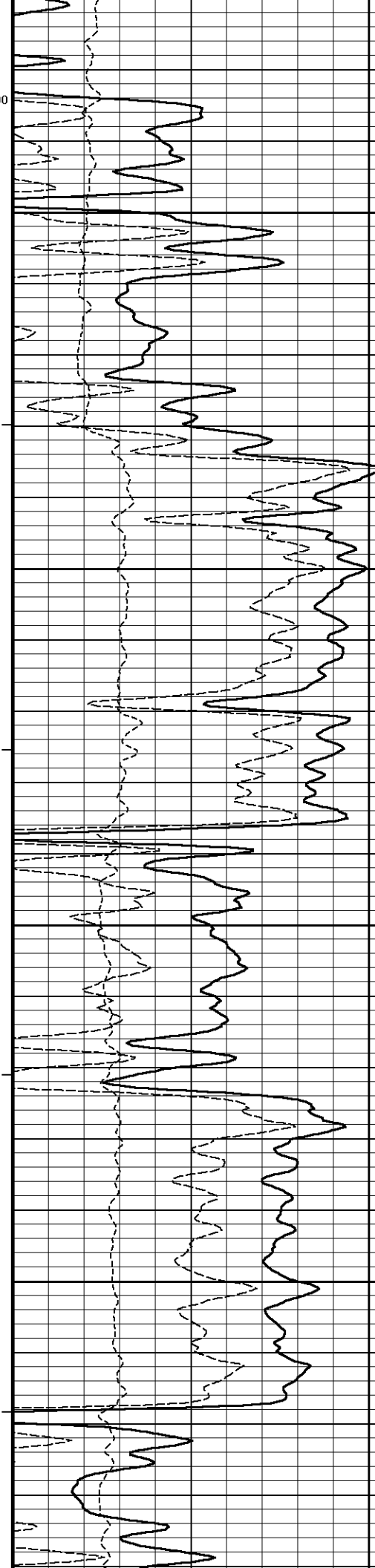
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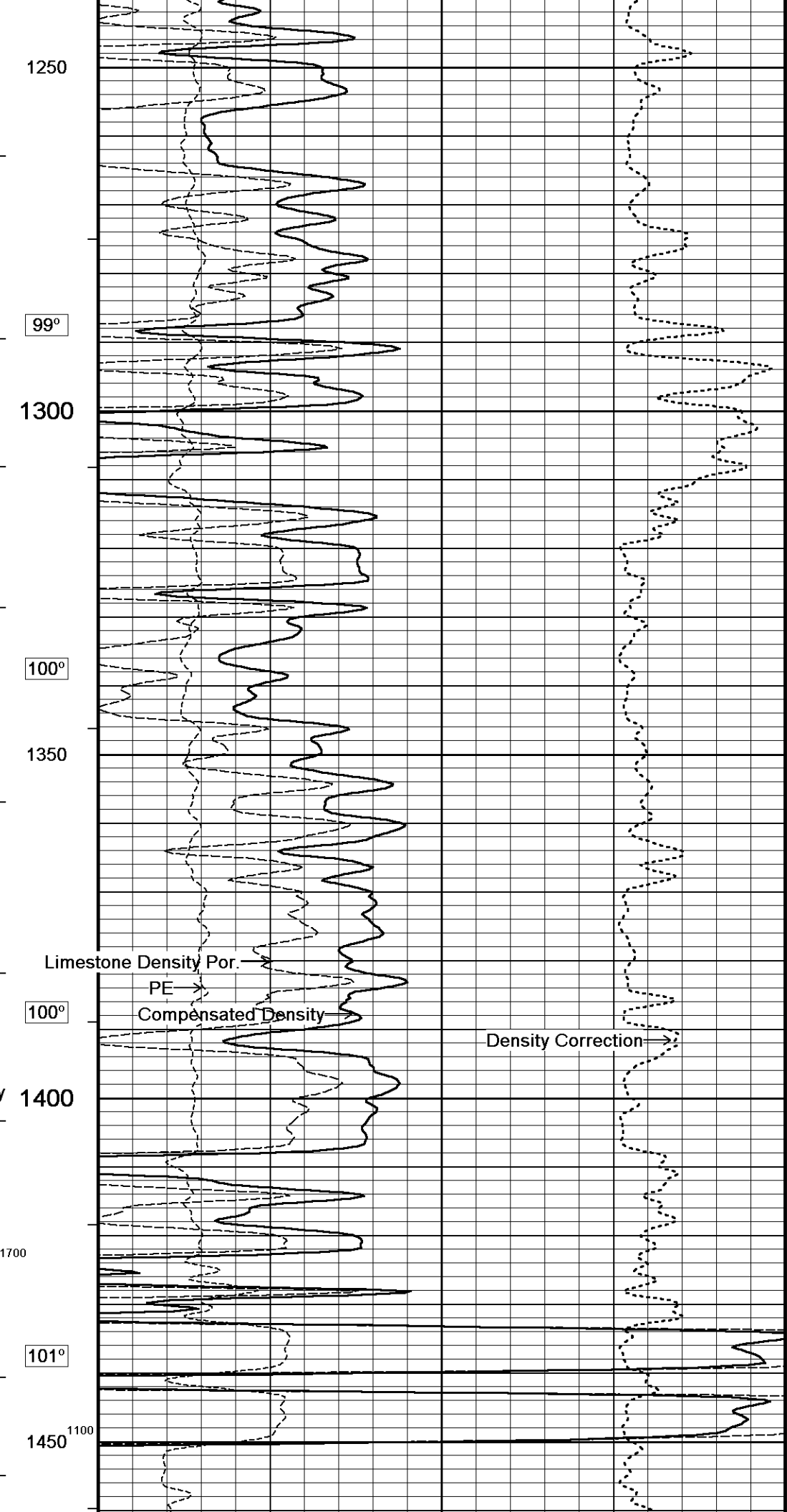
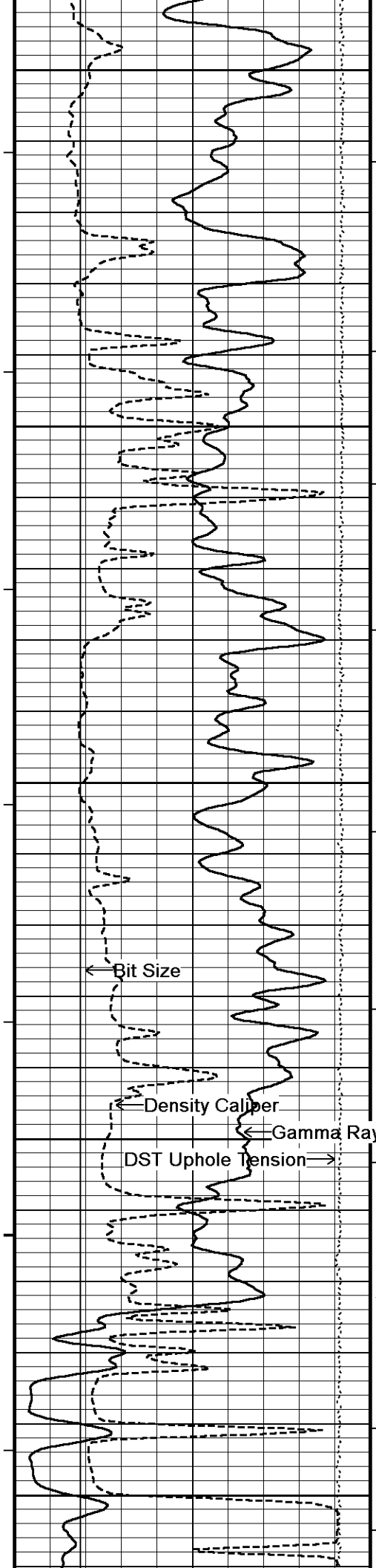
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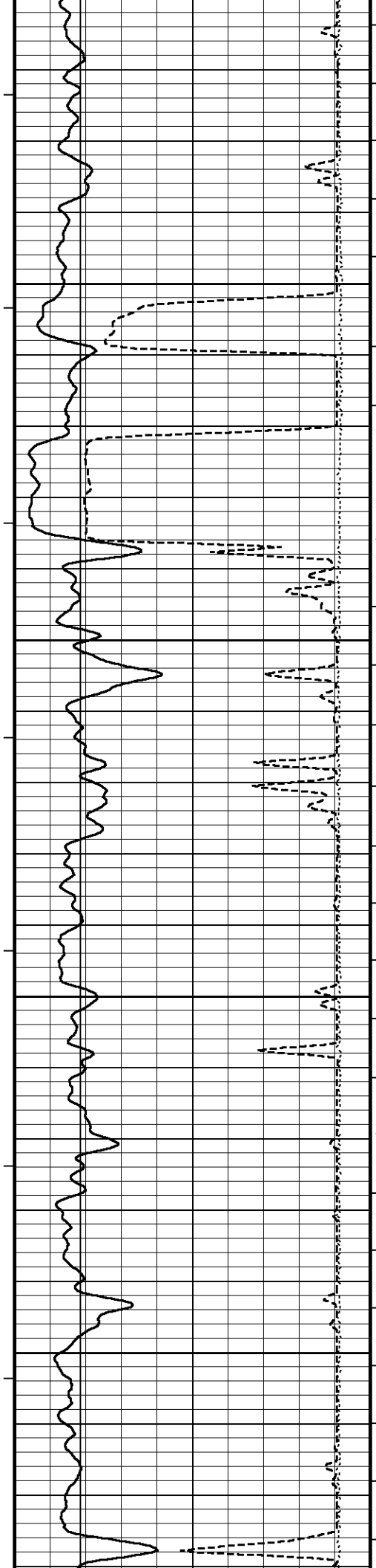
98°

1200

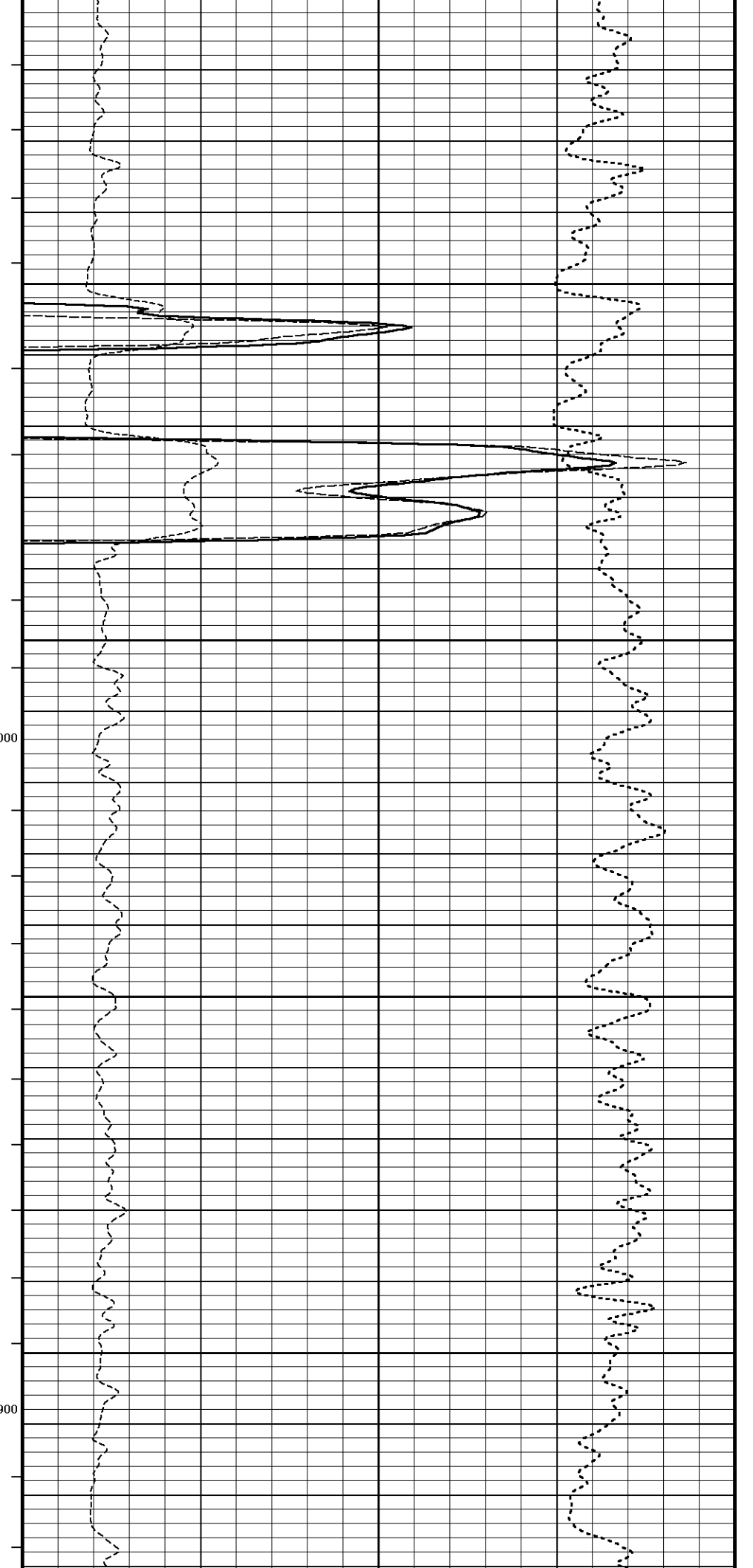
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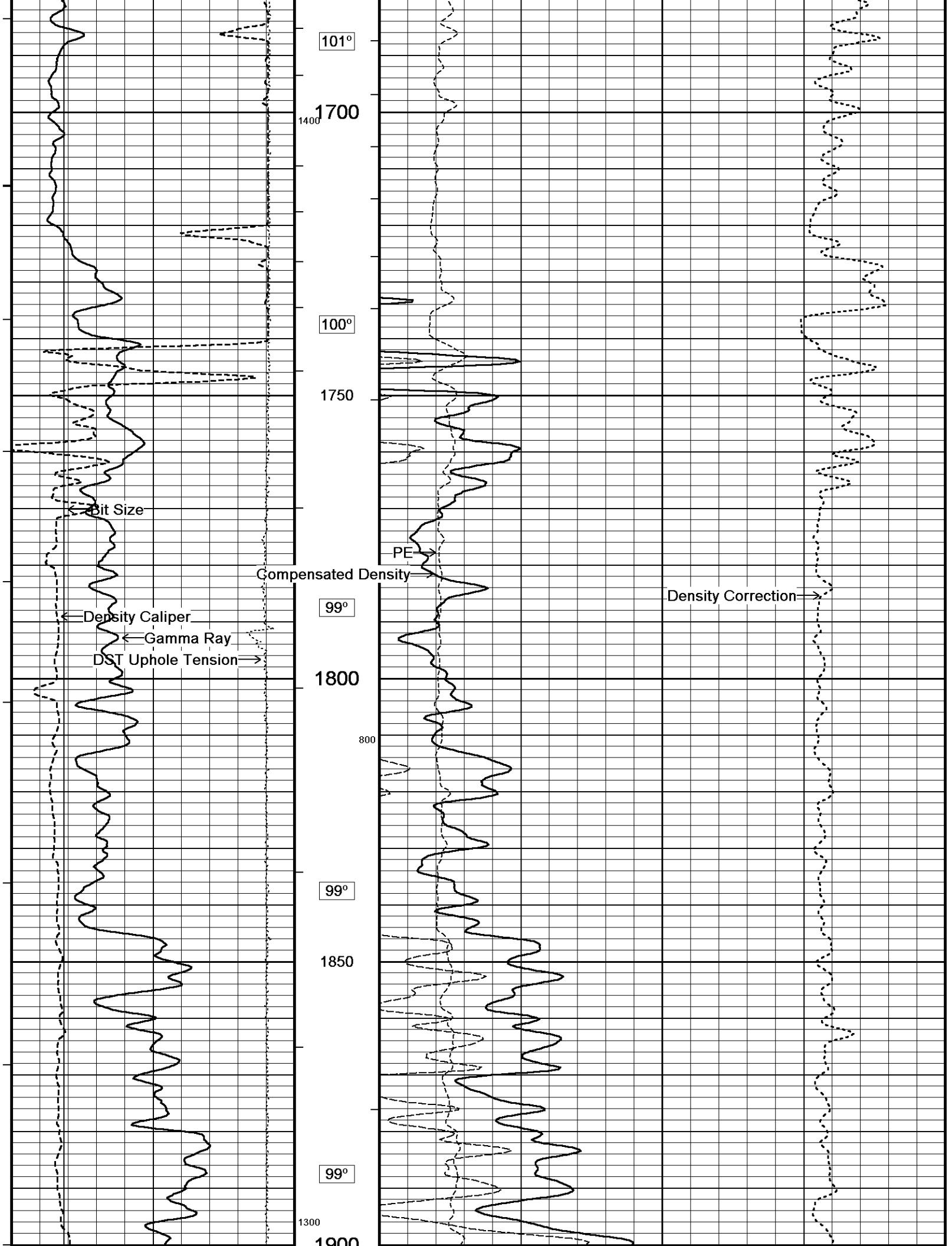


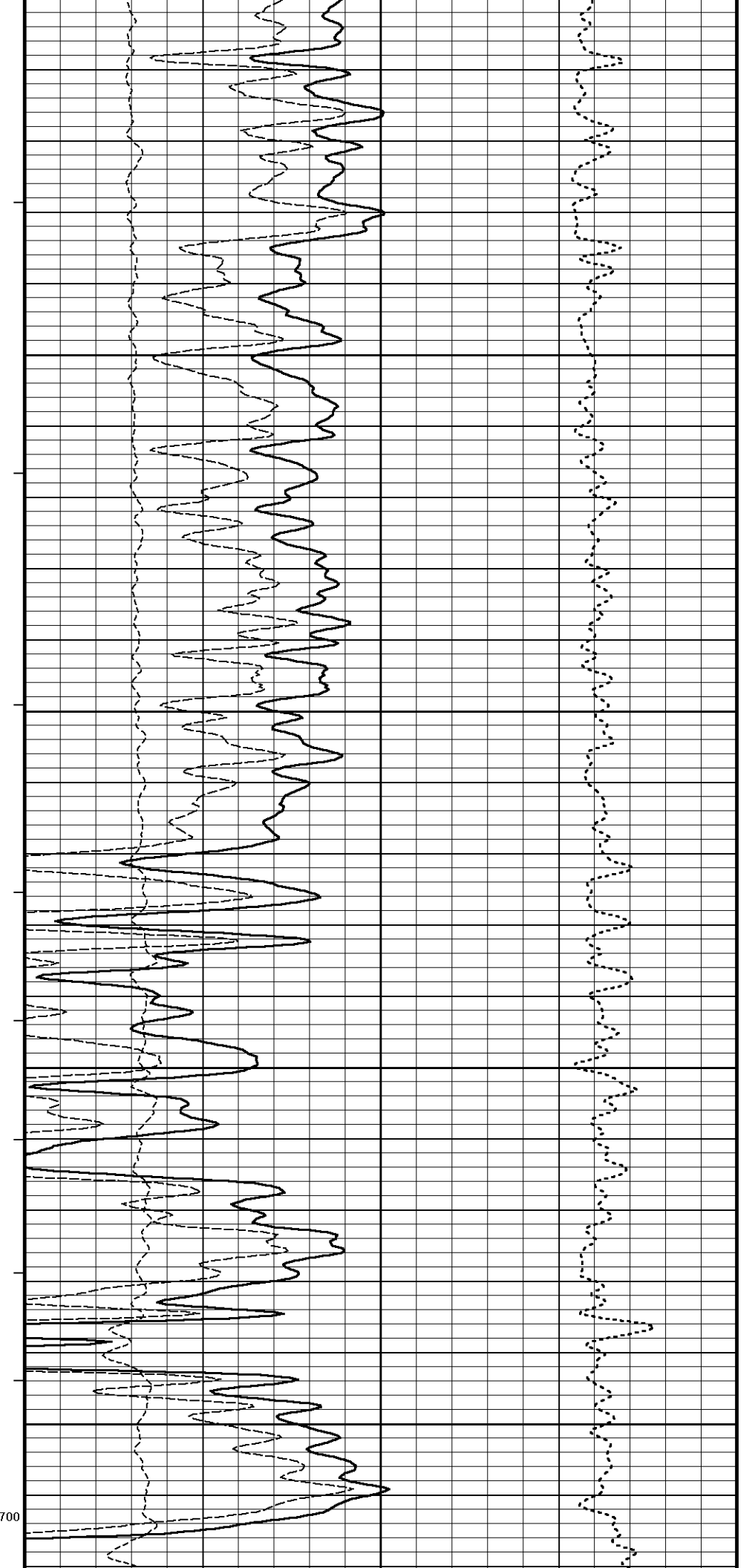
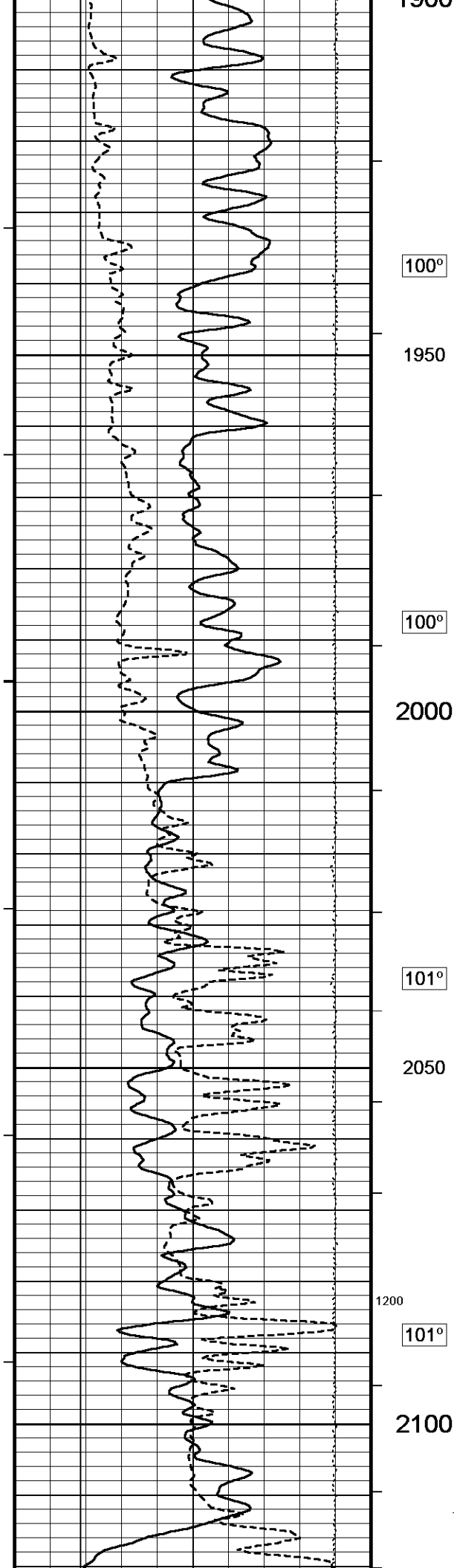


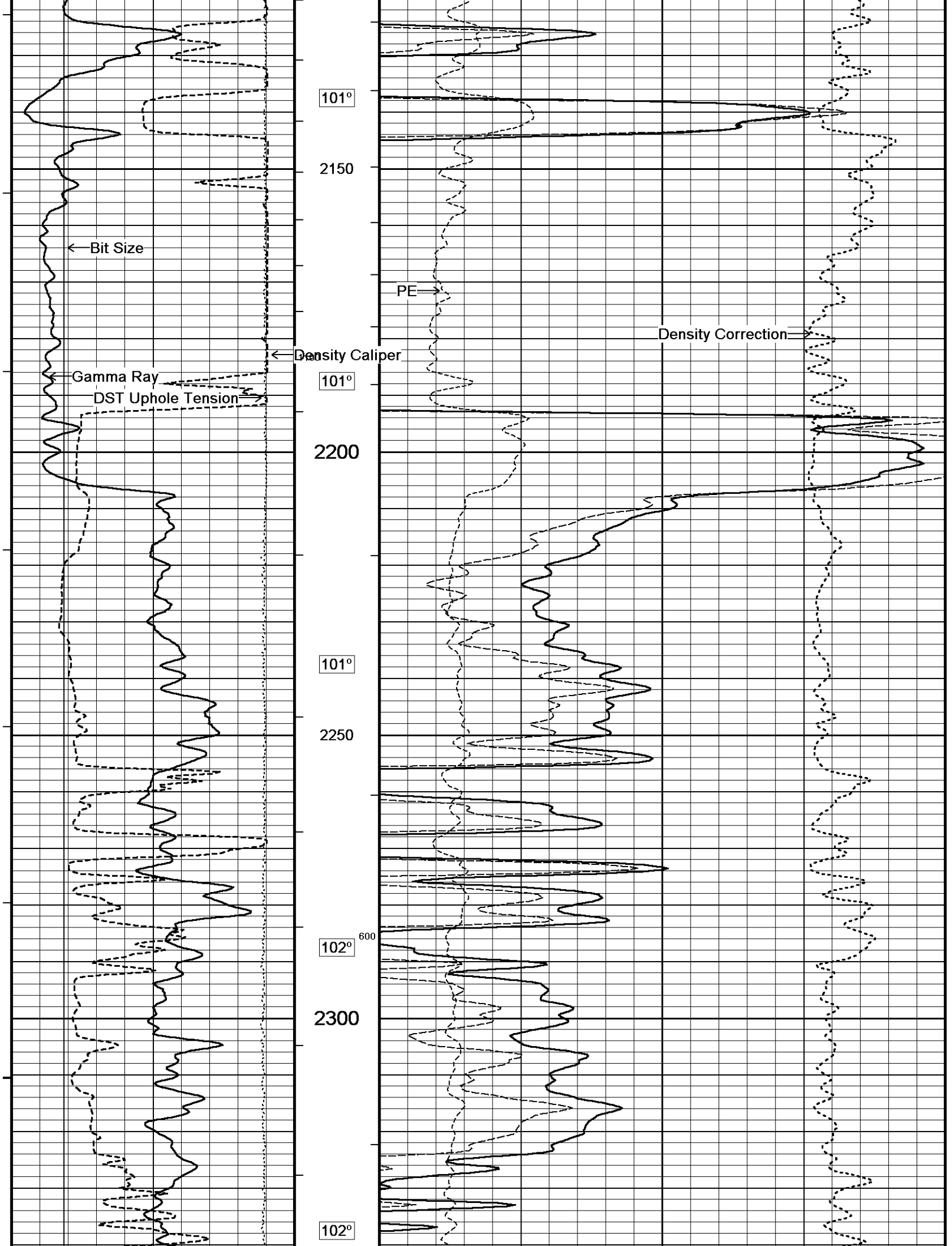


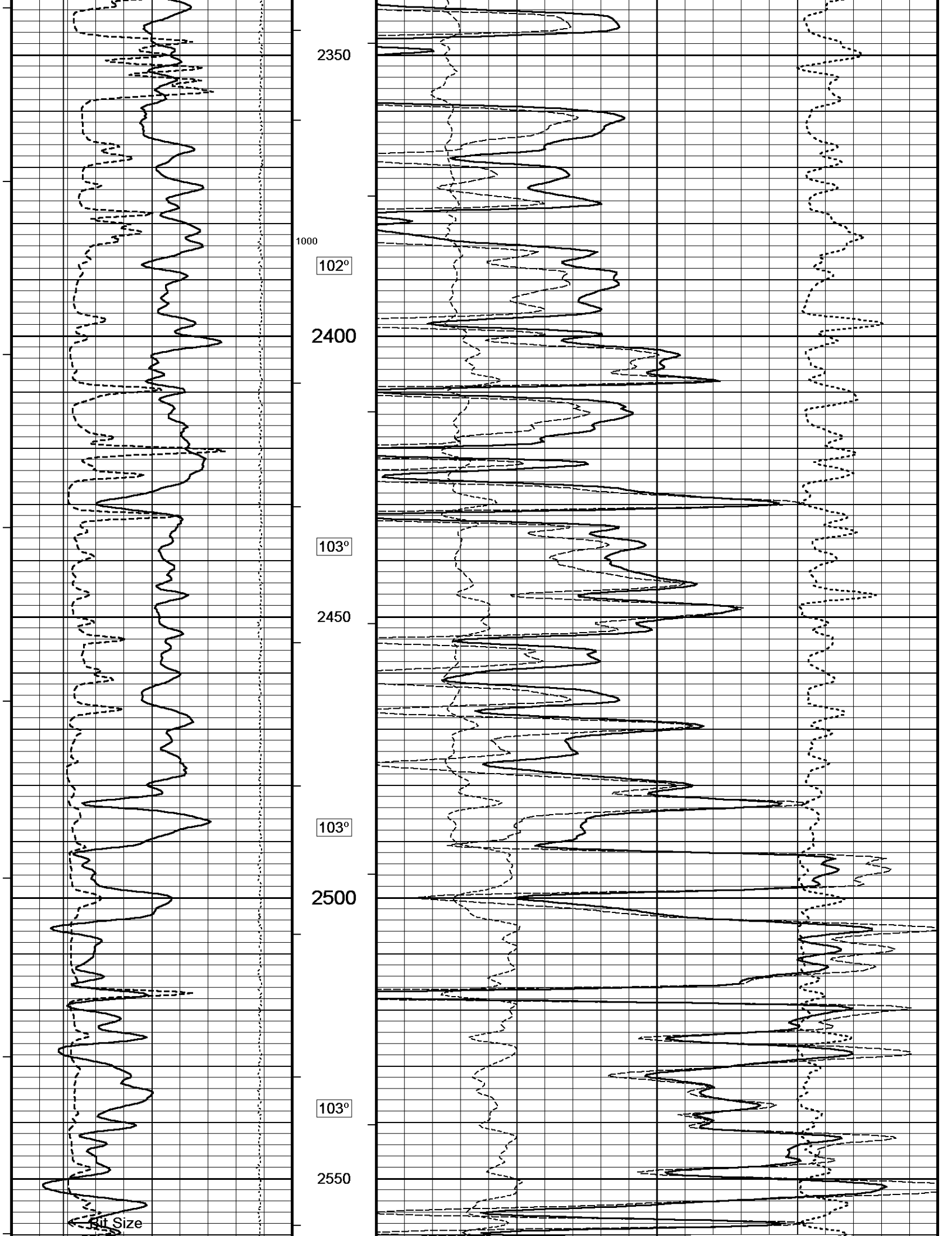
101°
1500
1600
101°
1600
1500
101°
1650
900

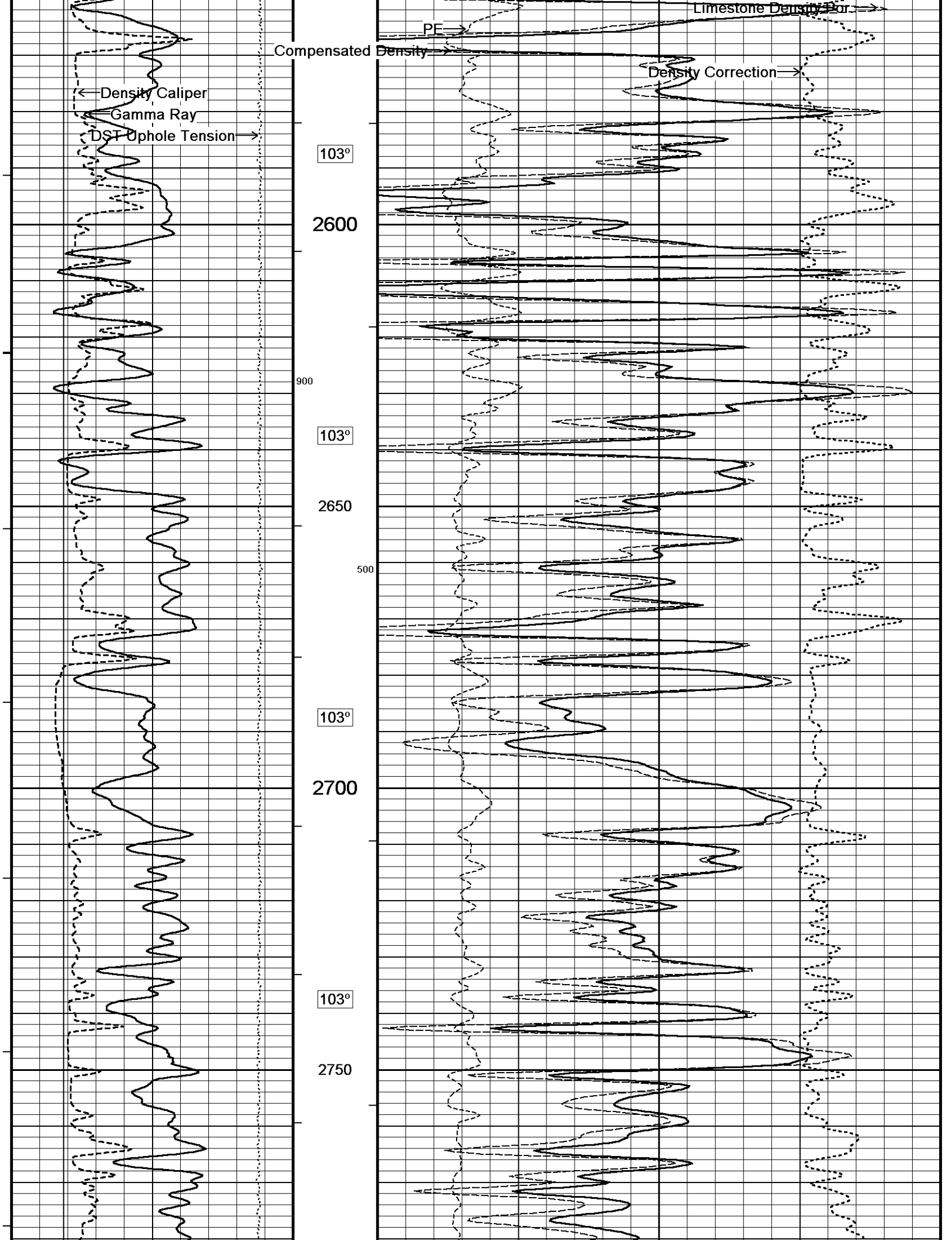


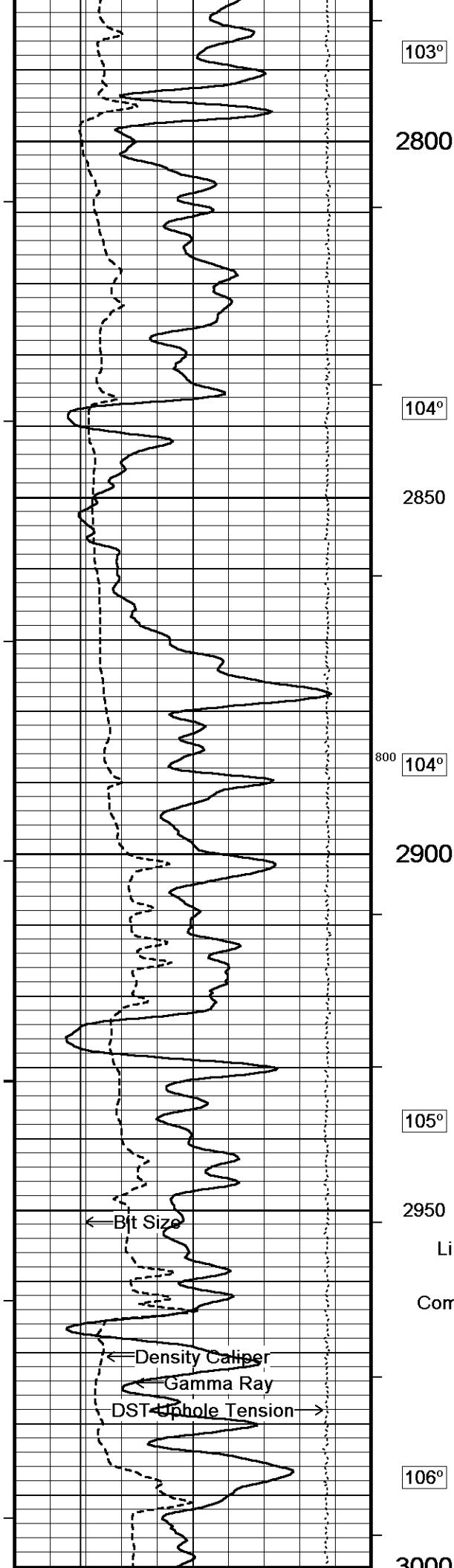












103°

2800

104°

2850

800 104°

2900

105°

2950

Limestone Density Por. →

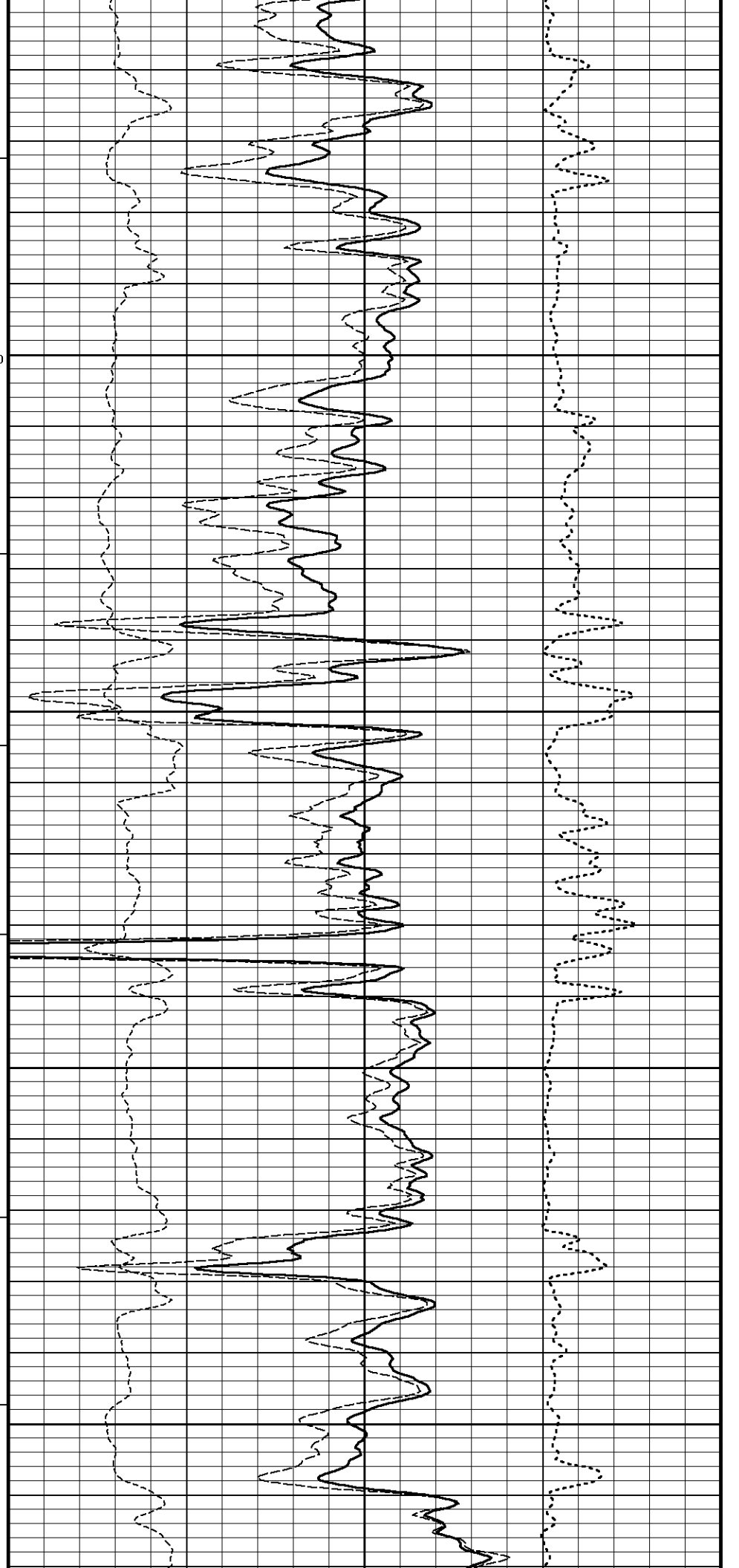
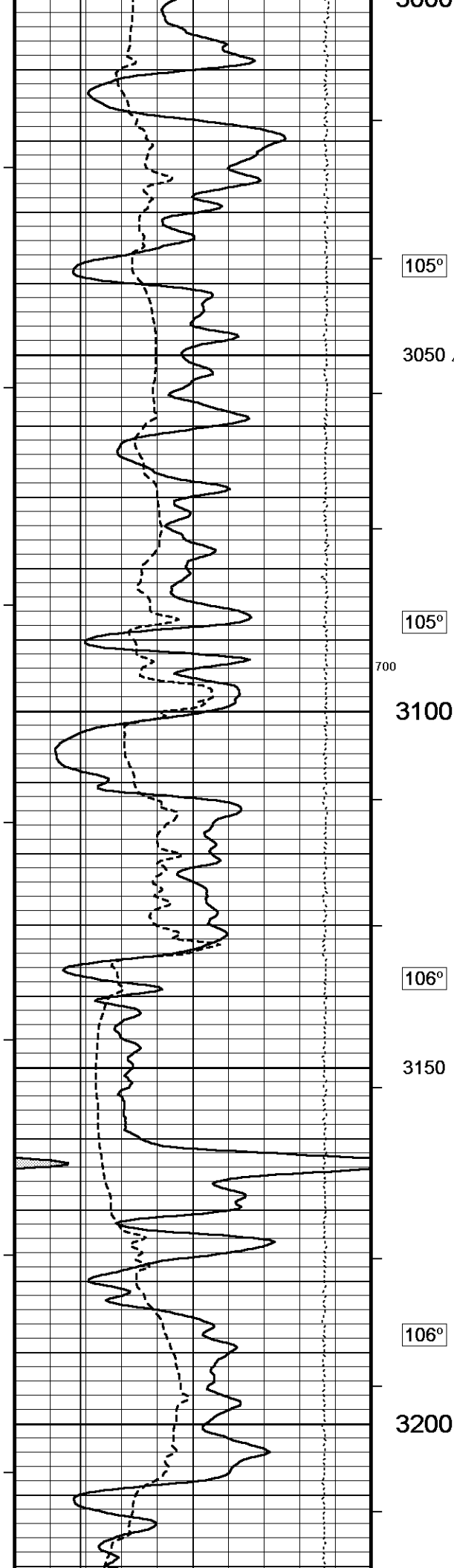
PE →

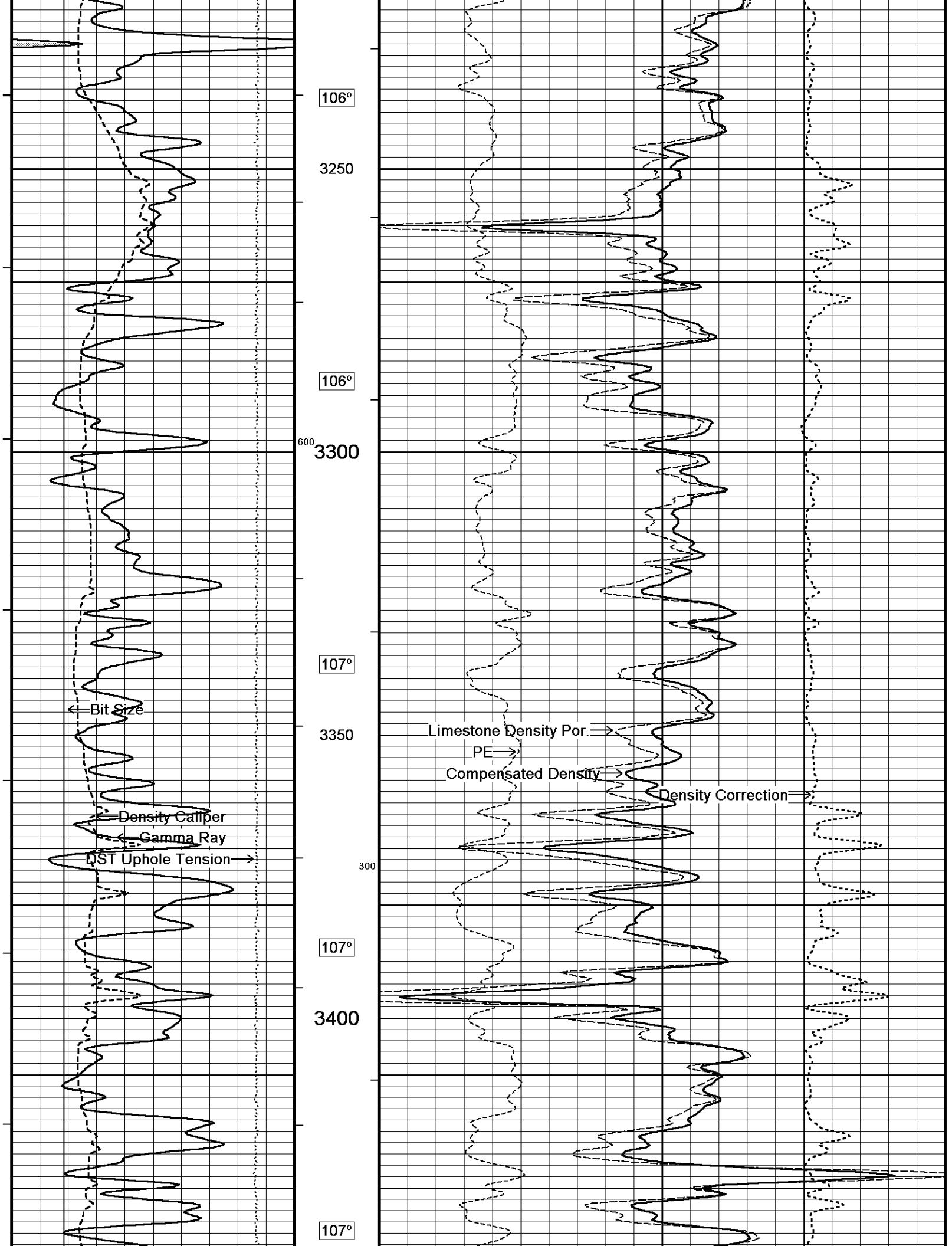
Compensated Density →

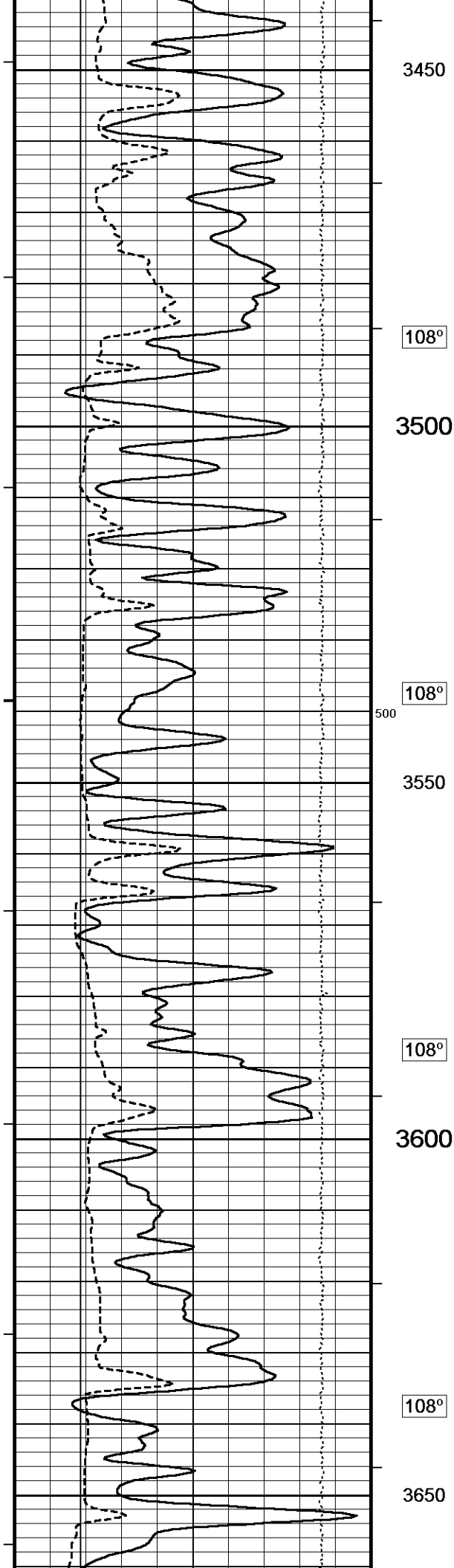
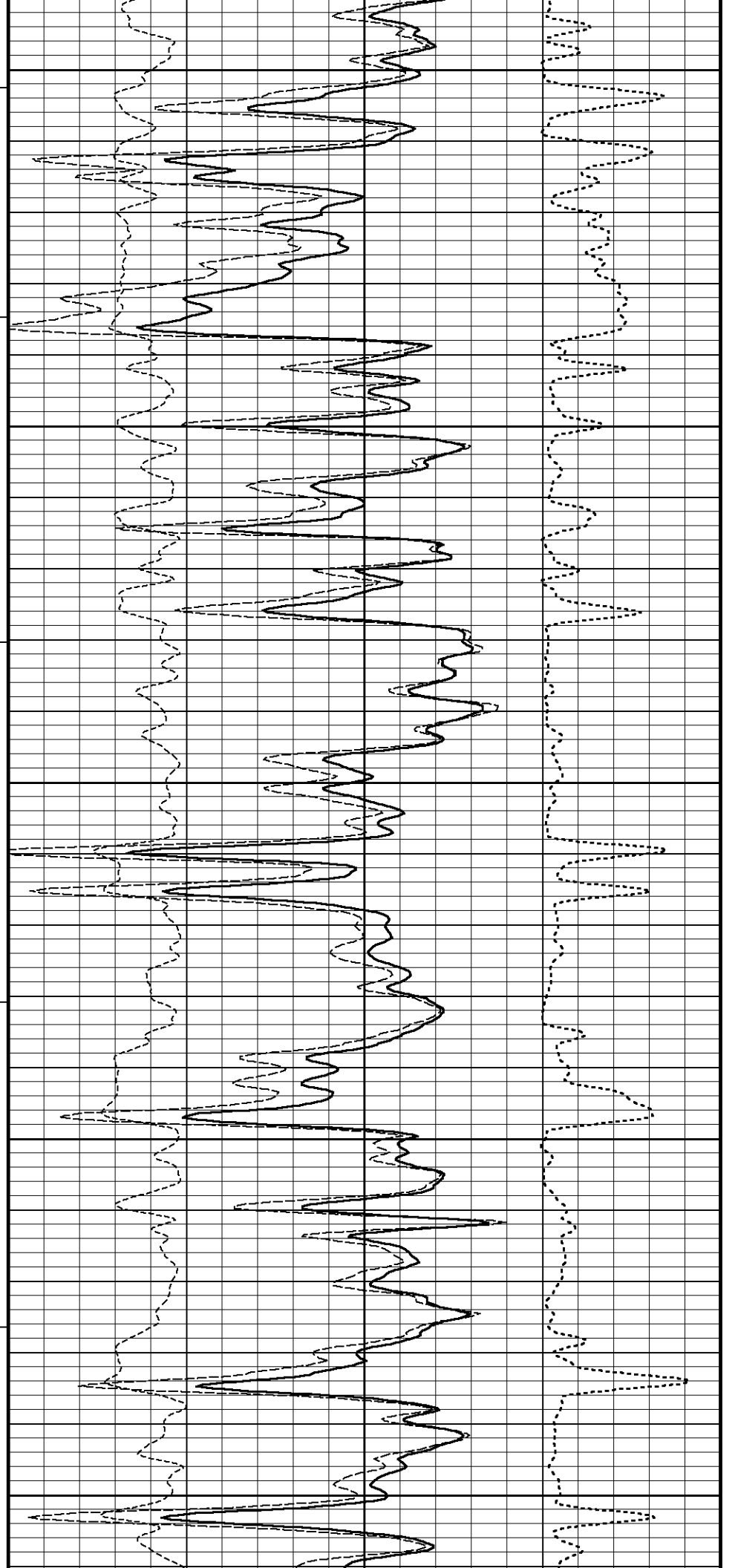
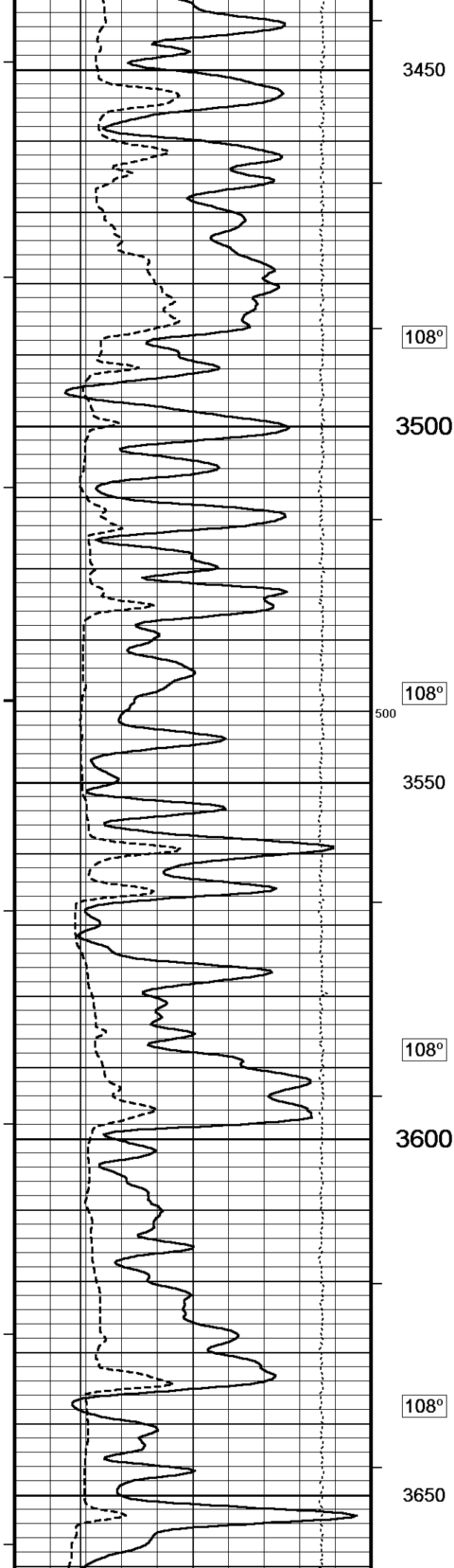
Density Correction →

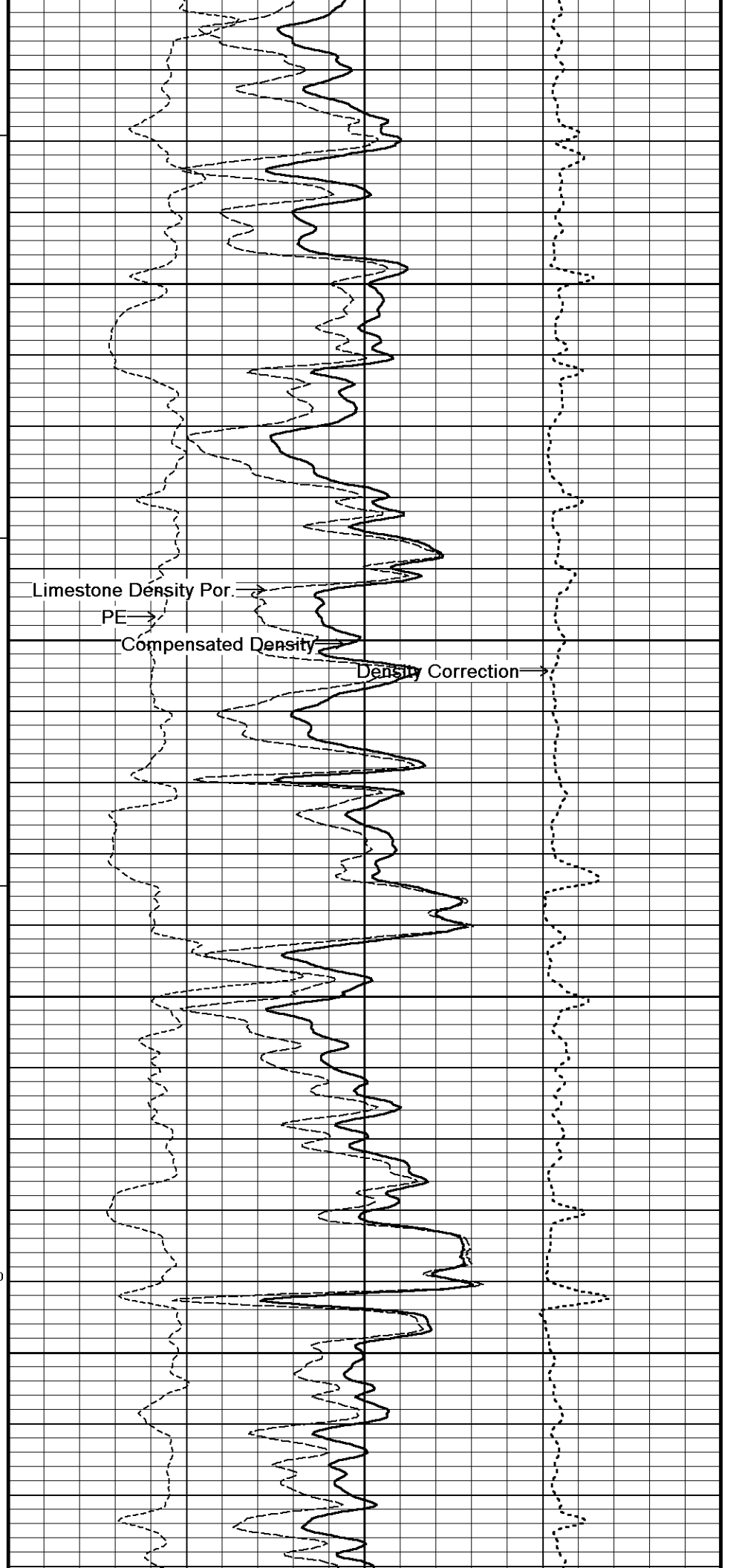
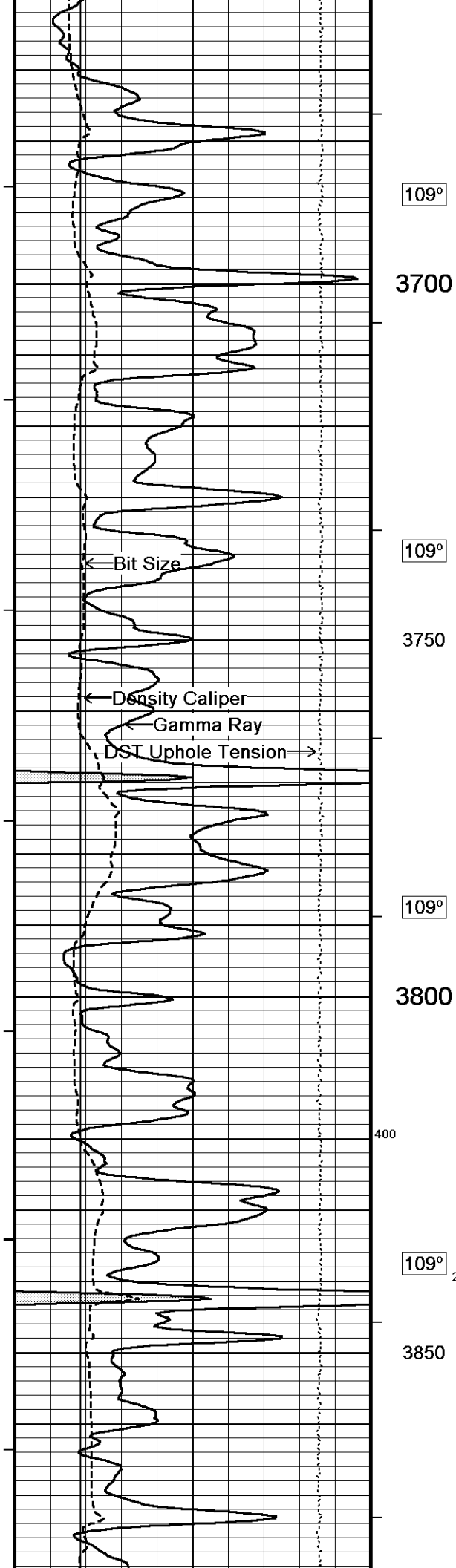
106°

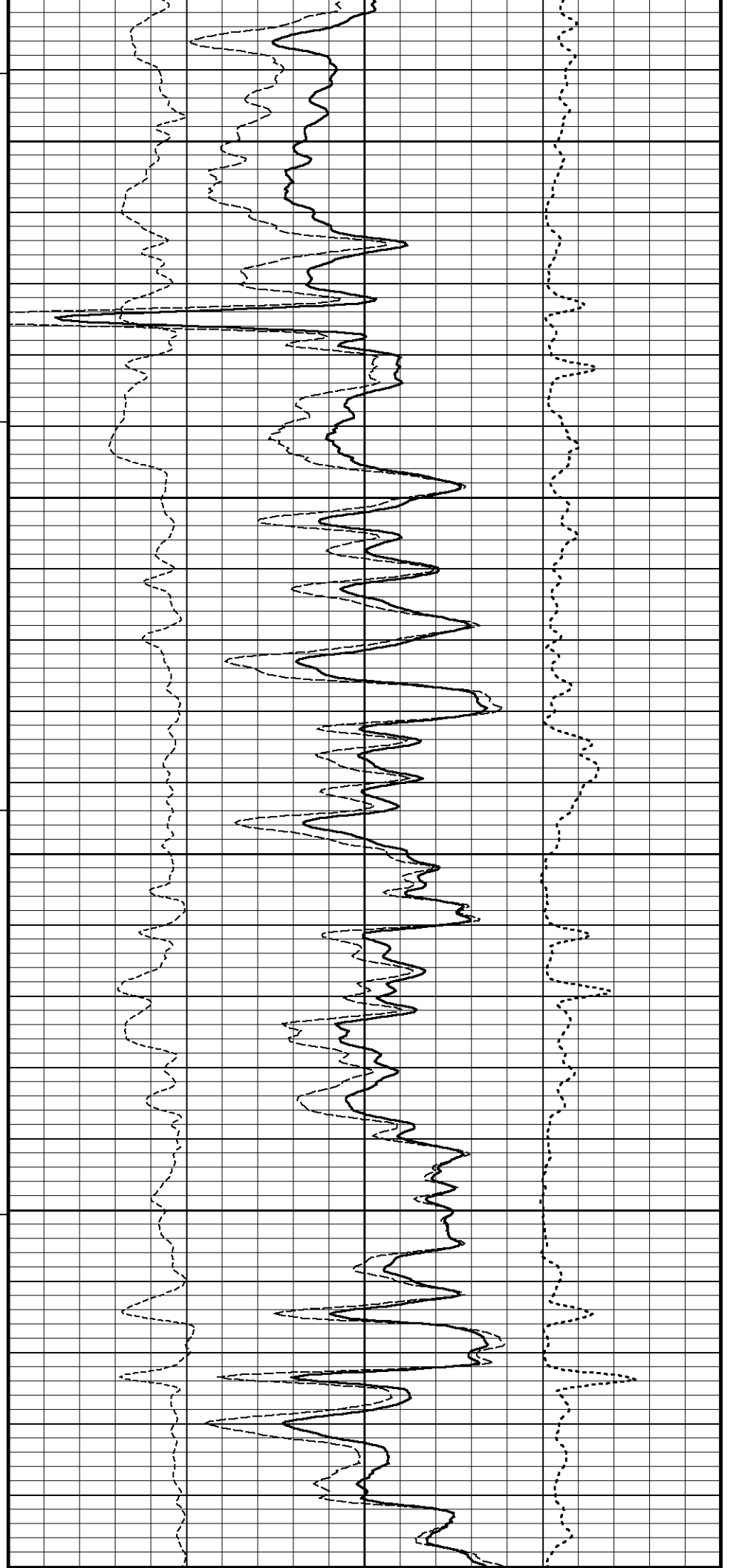
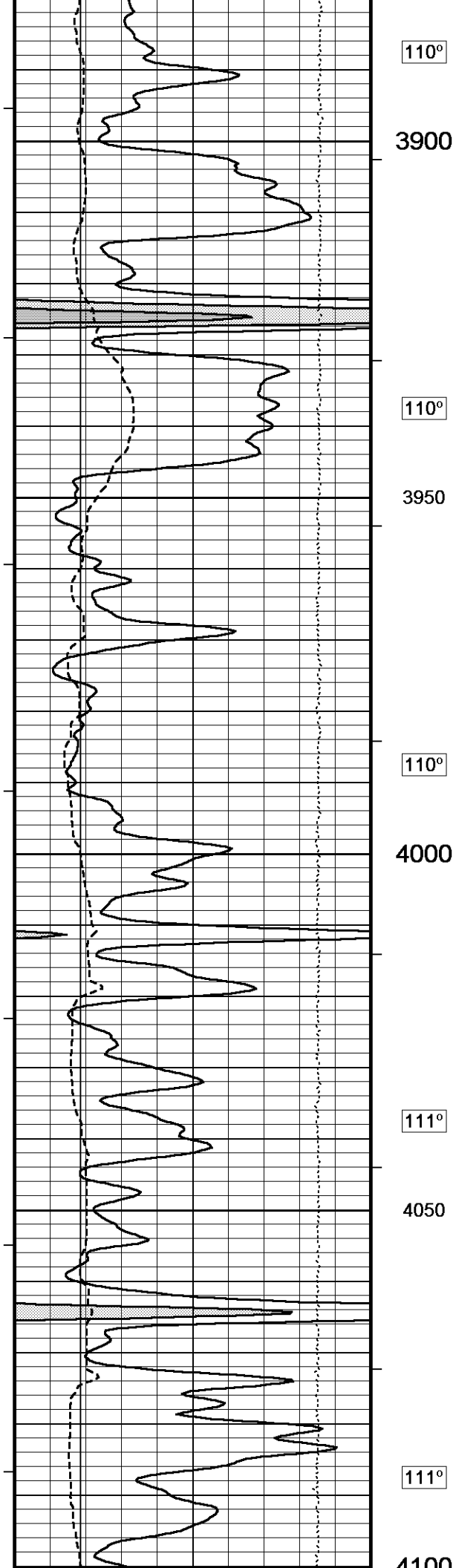
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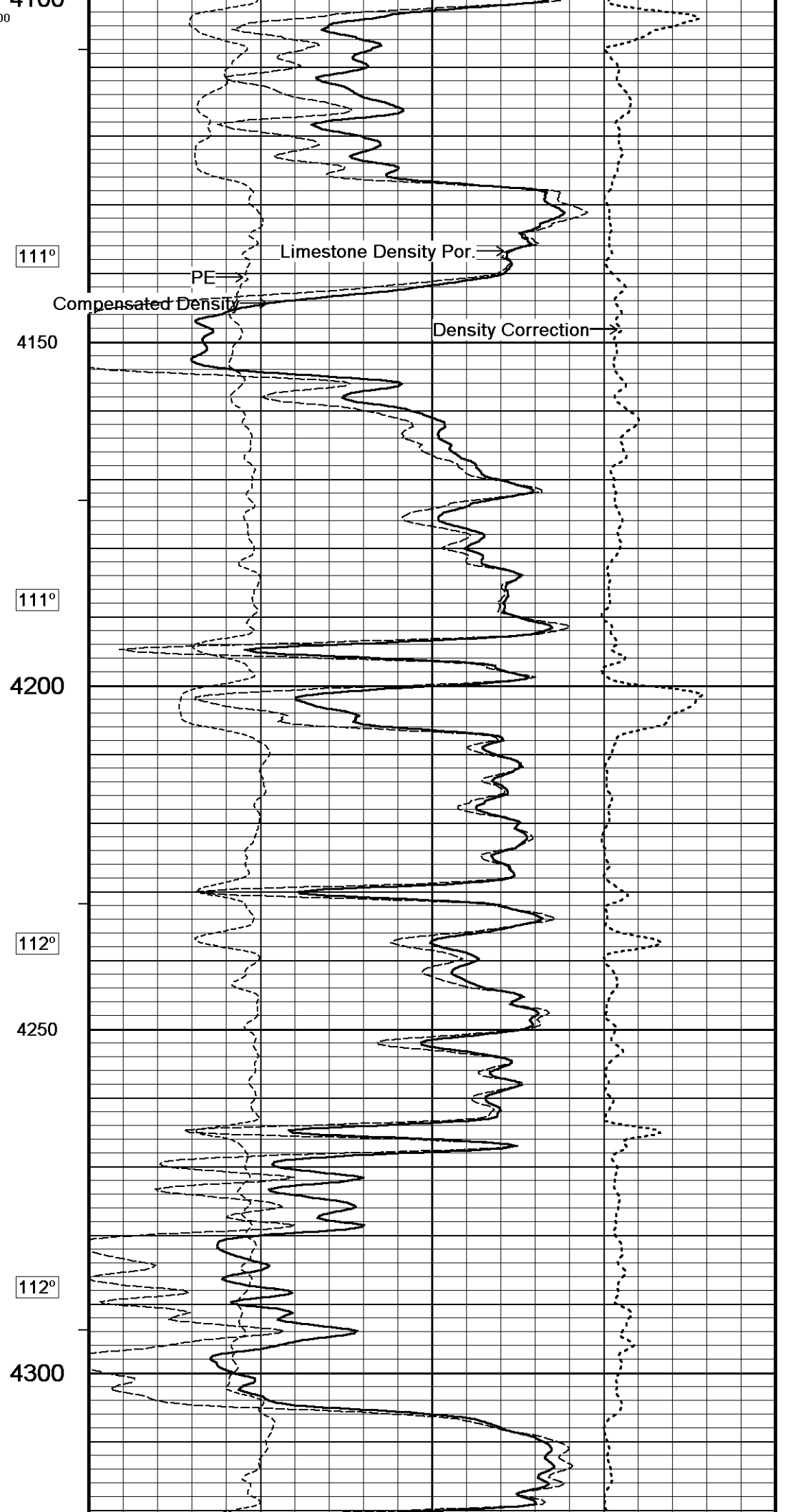
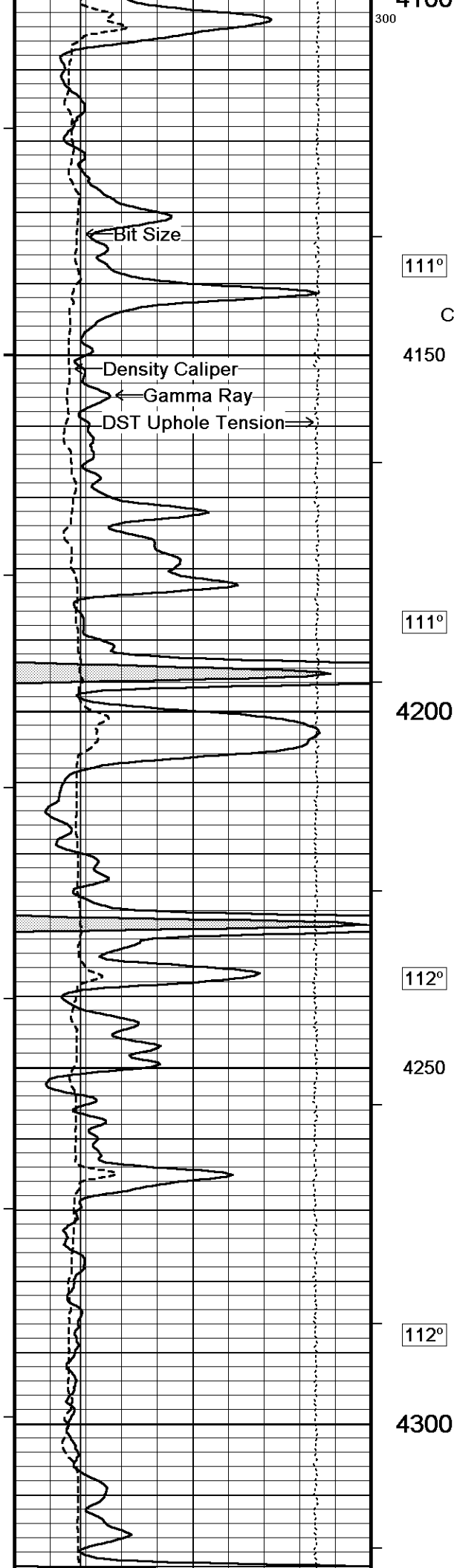


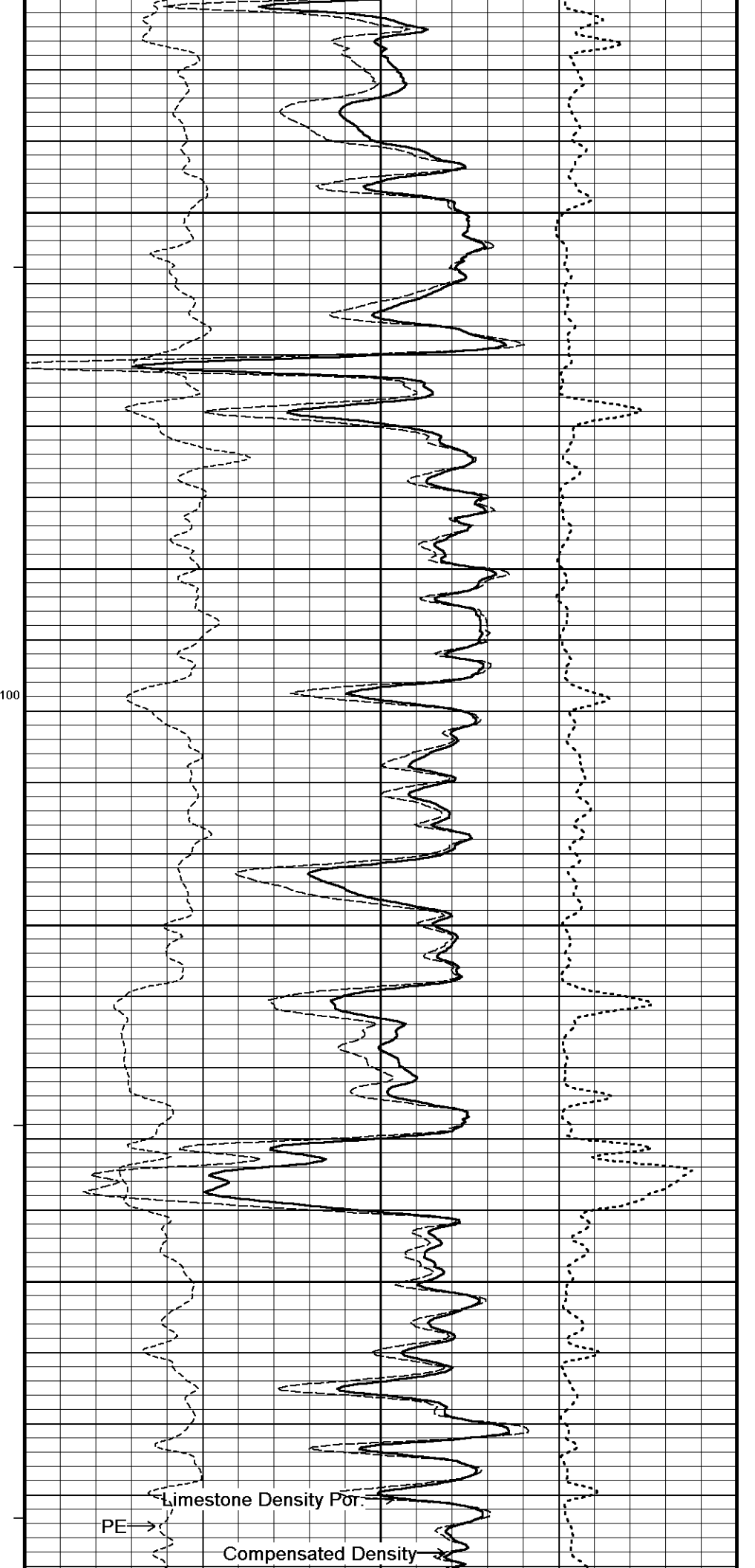
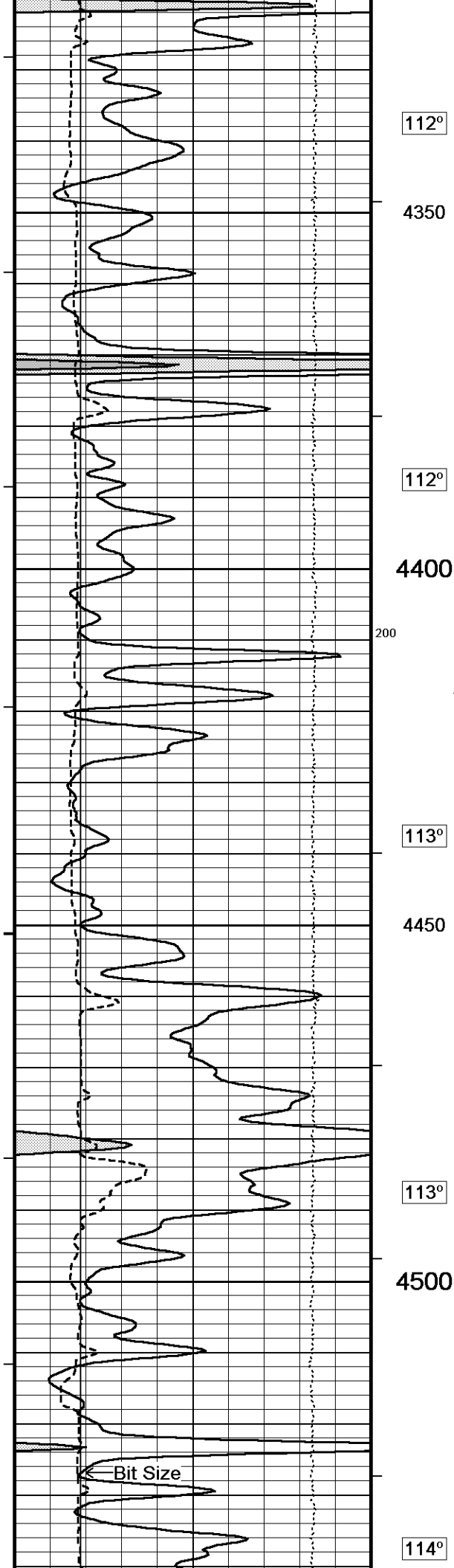


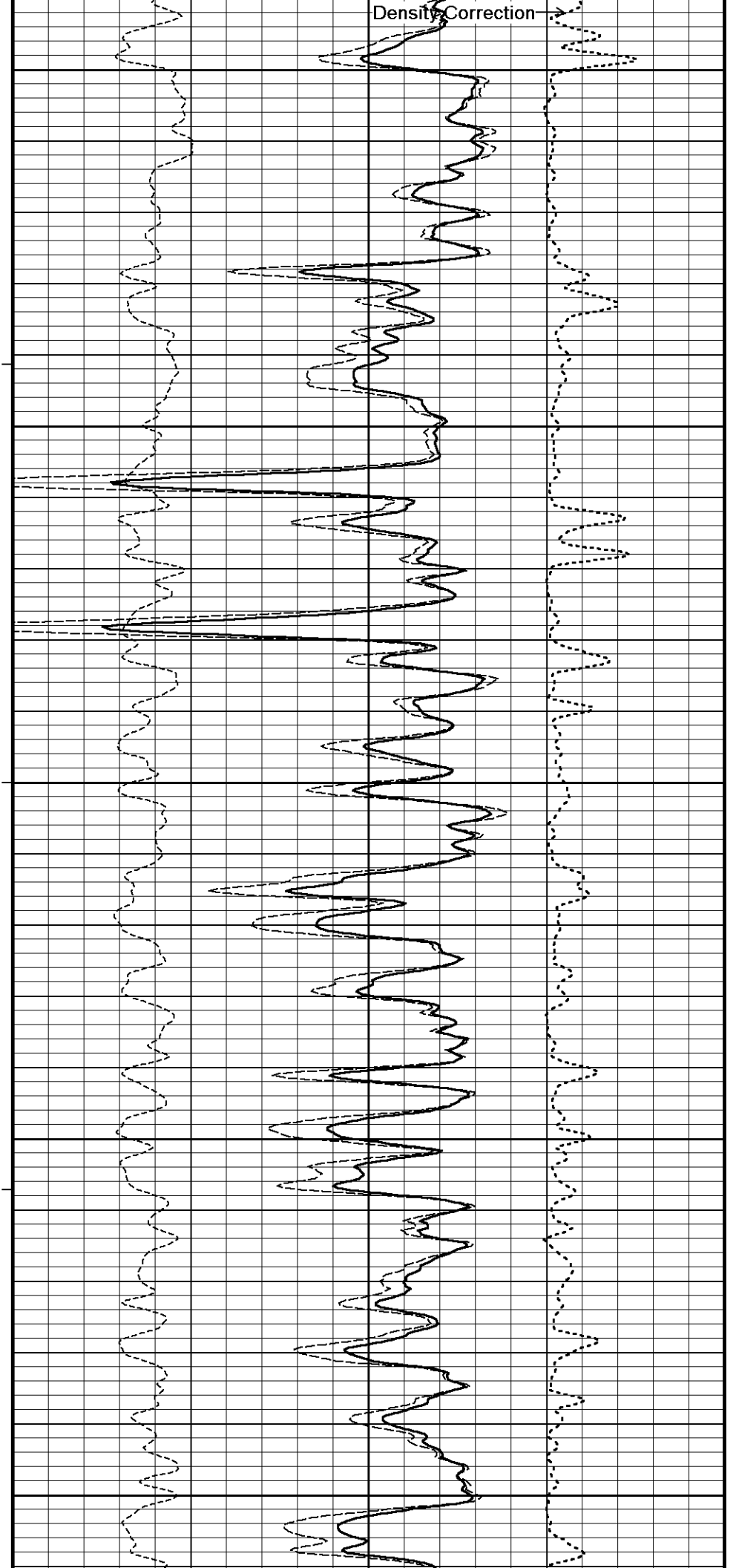
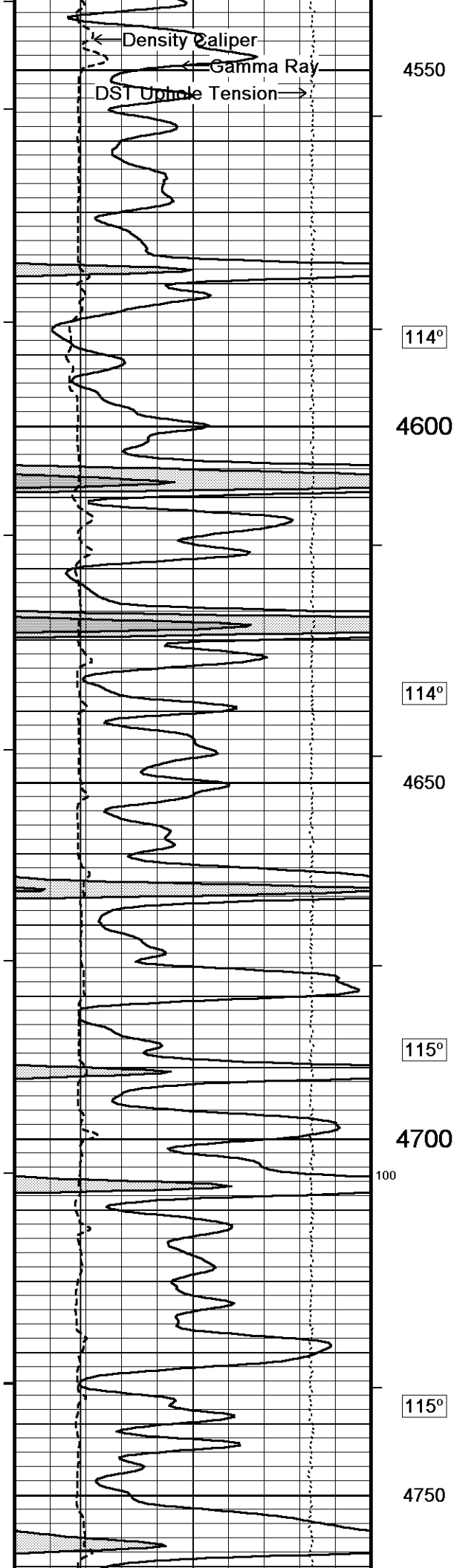


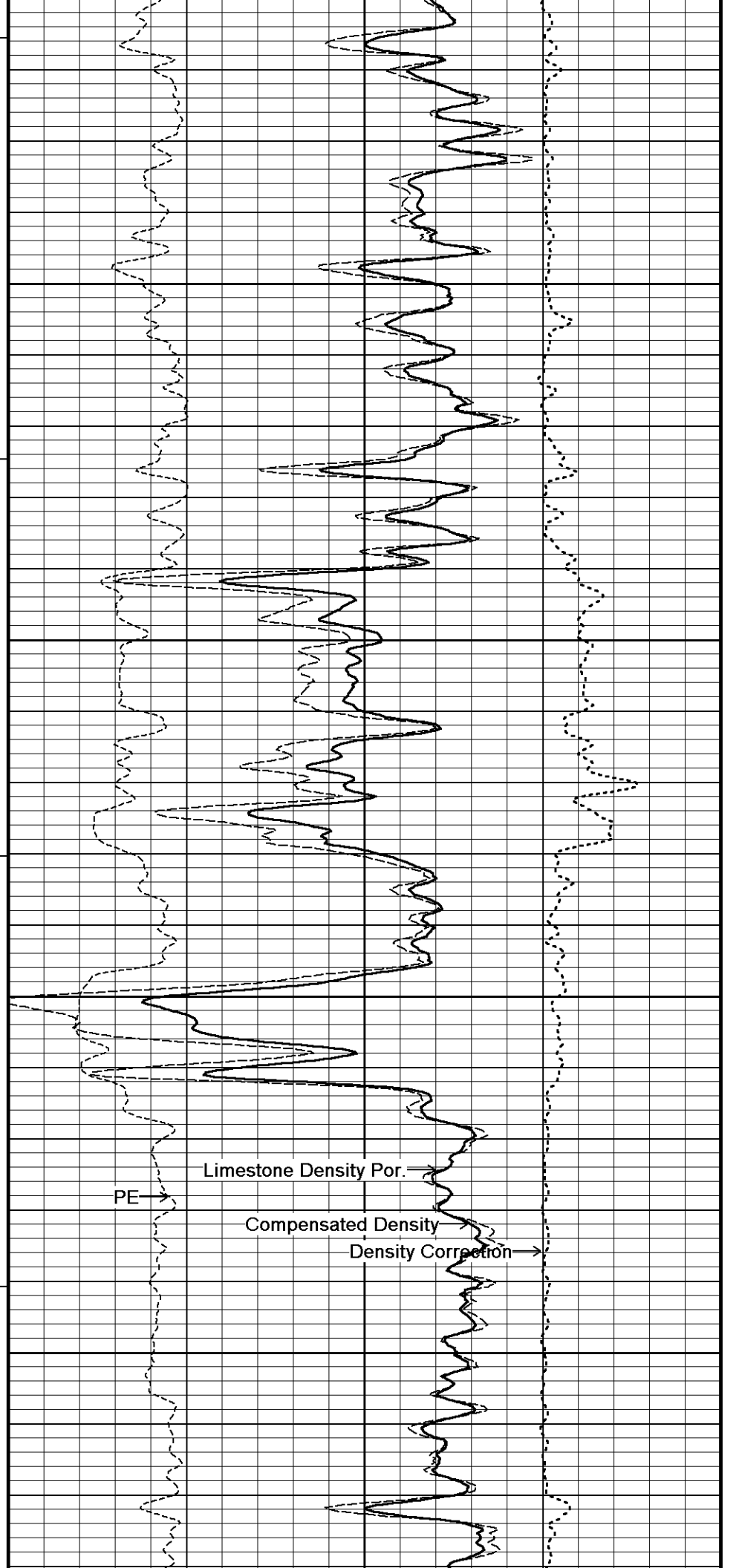
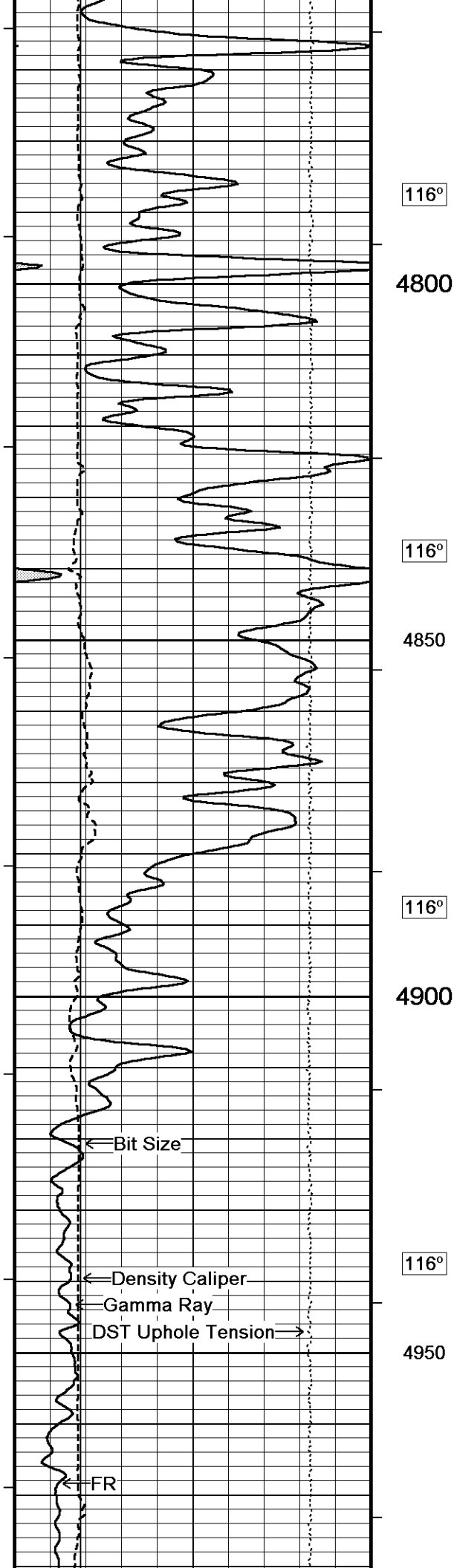


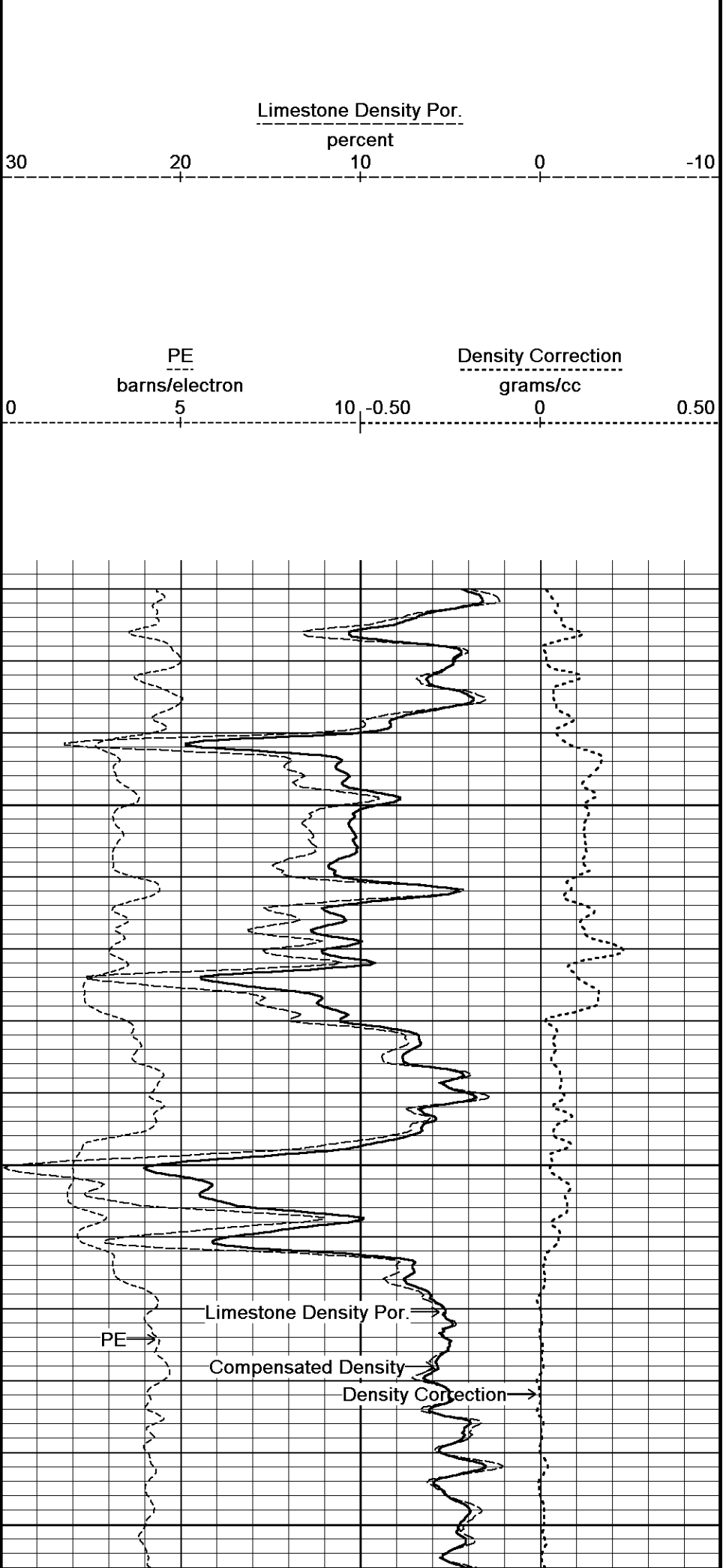
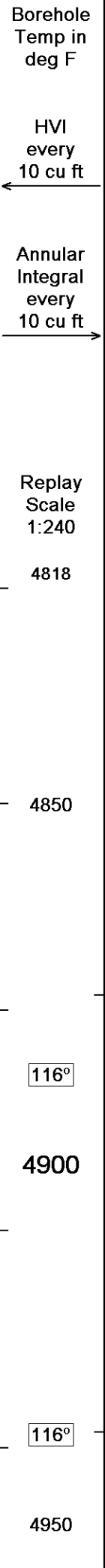


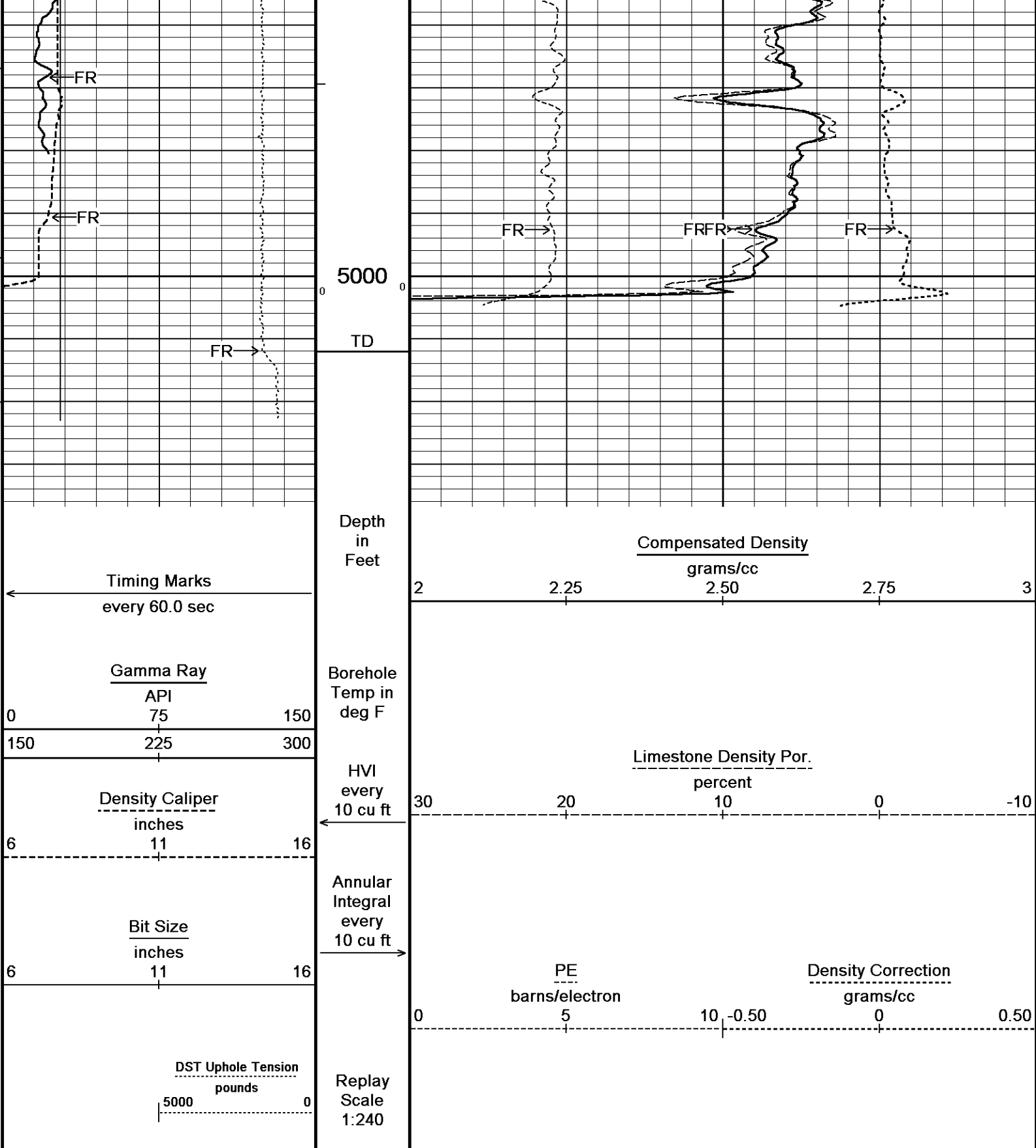












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Repeat.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 13-AUG-2014 09:01
Recorded on 13-AUG-2014 04:51

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta

General Constants All 000
Last Edited on 13-AUG-2014,04:11

General Parameters		
Mud Resistivity	0.710	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	Density Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 05-MAR-2014,20:50	
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	75.00	75.00		

High Resolution Temperature Constants MCG-D.K 443		Last Edited on 22-JUL-2014,11:40
Pre-filter Length	11	

Gamma Calibration MCG-D.K 443			Field Calibration on 12-AUG-2014 20:37	
	Measured	Calibrated (API)		
Background	73	49		
Calibrator (Gross)	1156	774		
Calibrator (Net)	1083	725		

Gamma Constants MCG-D.K 443			Last Edited on 13-AUG-2014,01:20		
Gamma Calibrator Number	GRC38				
Mud Density	1.10	gm/cc			
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
Concentration of KCl		kppm			
K Mud Type	Chloride				
K Mud Concentration	0.00	%			

Caliper Calibration MPD-B 104			Base Calibration on 12-AUG-2014 21:09
			Field Calibration on 12-AUG-2014 21:10
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	12248	3.99	
2	21021	5.98	
3	29619	7.97	
4	37847	9.86	
5	46921	11.92	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	7.94	7.97	

Photo Density Calibration MPD-B 104				Base Calibration on 12-AUG-2014 21:27	
				Field Check on 12-AUG-2014 21:34	
Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
	Near	Far	Near	Far	
Background	1200	1392			
Reference 1	43233	21553	59556	30836	
Reference 2	17877	2370	24941	2541	
Field Check at Base					

1200.4 1392.3

Field Check

1200.1 1384.3

PE Calibration

Base Calibration

Measured

Calibrated

	WS	WH	Ratio	Ratio
Background	220	1078		
Reference 1	18382	43065	0.433	0.371
Reference 2	5186	17746	0.298	0.272

Field Check at Base

219.8 1078.1

Field Check

221.3 1073.8

Density Constants MPD-B 104

Last Edited on 13-AUG-2014,01:19

Density Source Id	254
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	1.10 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

DOWNHOLE EQUIPMENT

C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.244 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.240 in

Compact Micro-Resistivity

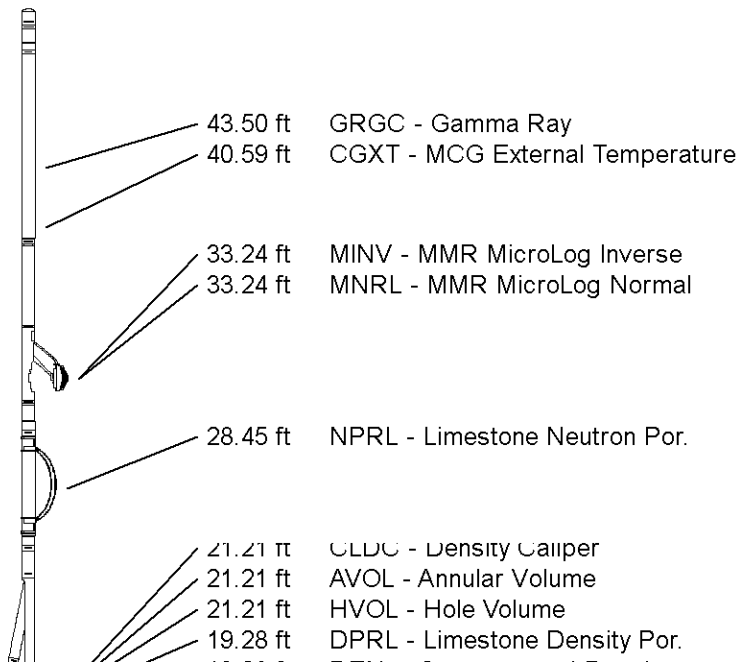
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.240 in

Compact Density/Caliper

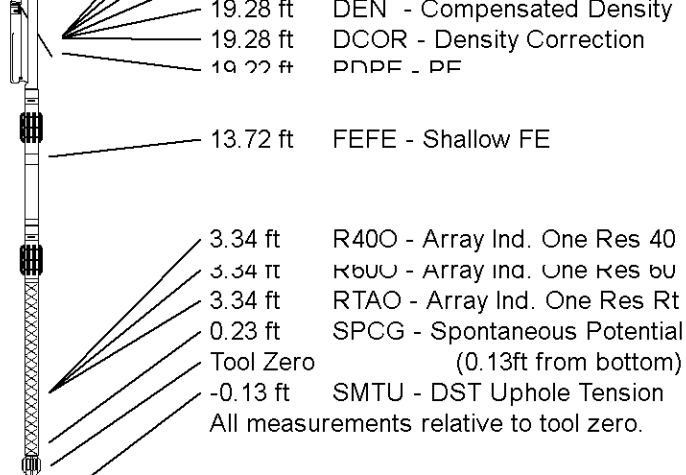
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in



Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.240 in

Compact Induction
MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY	PETROSANTANDER (USA), INC.
WELL	SCOTT #6-13
FIELD	CHRISTABELLE
PROVINCE/COUNTY	KEARNY
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3106.00	feet	First Reading	4992.78	feet
Elevation Drill Floor	3104.00	feet	Depth Driller	5010.00	feet
Elevation Ground Level	3094.00	feet	Depth Logger	5012.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG