



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY				GRAND MESA OPERATING COMPANY			
WELL				APC MARTIN #1-3			
FIELD				WILDCAT			
PROVINCE/COUNTY				LINCOLN			
COUNTRY/STATE				U.S.A. / COLORADO			
LOCATION				1743' FSL & 1539' FEL			
SEC	TWP	RGE	Other Services		MSS		
3	10S	55W	MAI/MFE				
API Number			05-073-06488-00				
Permit Number							
Permanent Datum GL, Elevation 5237 feet					Elevations:		
Log Measured From KB					KB 5250.00		
Drilling Measured From KB					DF 5248.00		
					GL 5237.00		
Date	28-NOV-2012						
Run Number	ONE						
Service Order	3537785						
Depth Driller	7900.00				feet		
Depth Logger	7901.00				feet		
First Reading	7869.00				feet		
Last Reading	6400.00				feet		
Casing Driller	395.00				feet		
Casing Logger	391.00				inches		
Bit Size	7.875						
Hole Fluid Type	CHEMICAL				lb/USg		
Density / Viscosity	9.40 lb/USg		76.00 CP				
PH / Fluid Loss	10.00		10.00				
Sample Source	FLOWLINE						
Rm @ Measured Temp	1.22 @ 96.0				ohm-m		
Rmf @ Measured Temp	0.98 @ 96.0				ohm-m		
Rmc @ Measured Temp	1.46 @ 96.0				ohm-m		
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	0.71 @169.0		ohm-m				
Time Since Circulation	5 HOURS						
Max Recorded Temp	169.00		deg F				
Equipment / Base	13096		LIB				
Recorded By	ADAM SILL						
Witnessed By	BOB SCHRIEBER						
JOB #	LB12-313						

BOREHOLE RECORD

Last Edited: 28-NOV-2012 11:53

Bit Size inches	Depth From feet	Depth To feet
17.500	0.00	80.00
12.250	80.00	395.00
7.875	395.00	7900.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CONDUCT	13.375	0.00	80.00	48.00
SURFACE	8.625	0.00	395.00	24.00

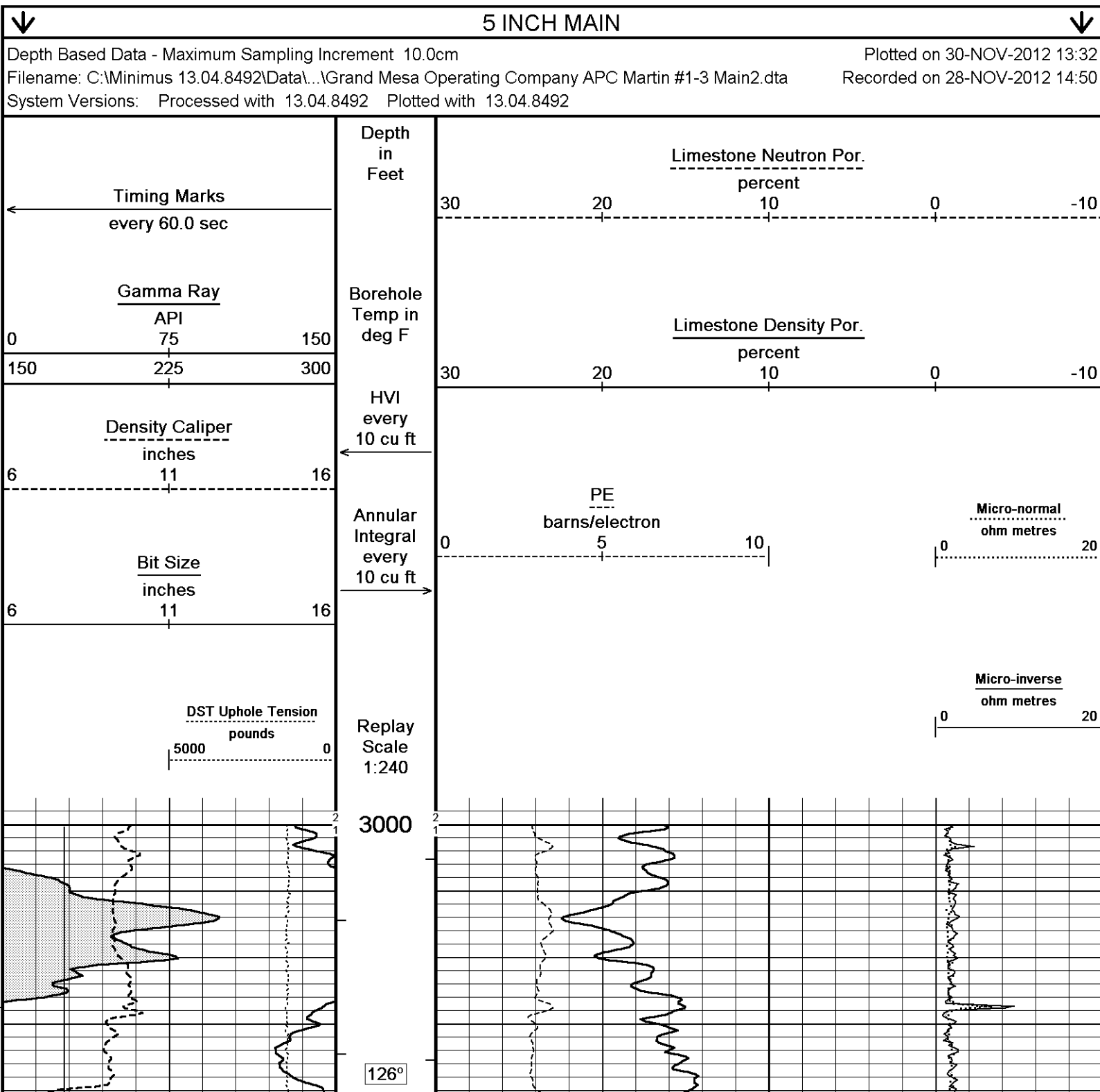
REMARKS

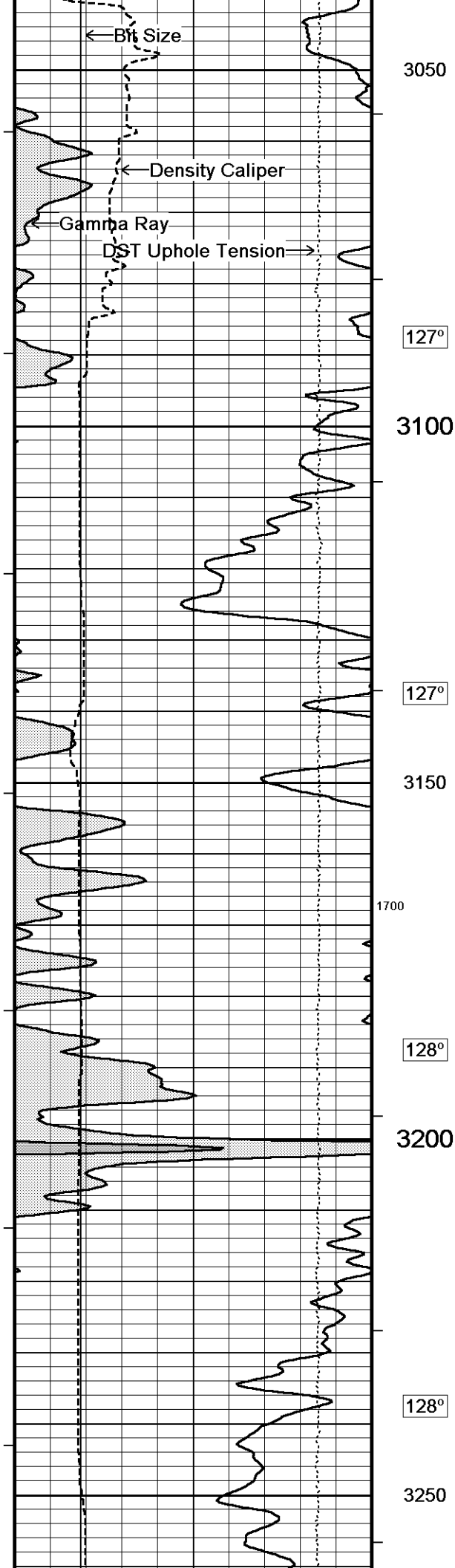
- SOFTWARE ISSUE: WLS 13.04.8492.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- 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: 2643 CU FT

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 3643 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 3000 FT: 962 CU. FT.
- SERVICE ORDER # 3537785.
- RIG: MURFIN #25.
- ENGINEER: A. SILL.
- OPERATOR(S): N. ADAME, R. VENEGAS.

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 employees. These interpretations are also subject to our general terms and conditions in our price schedule.





3050

127°

3100

127°

3150

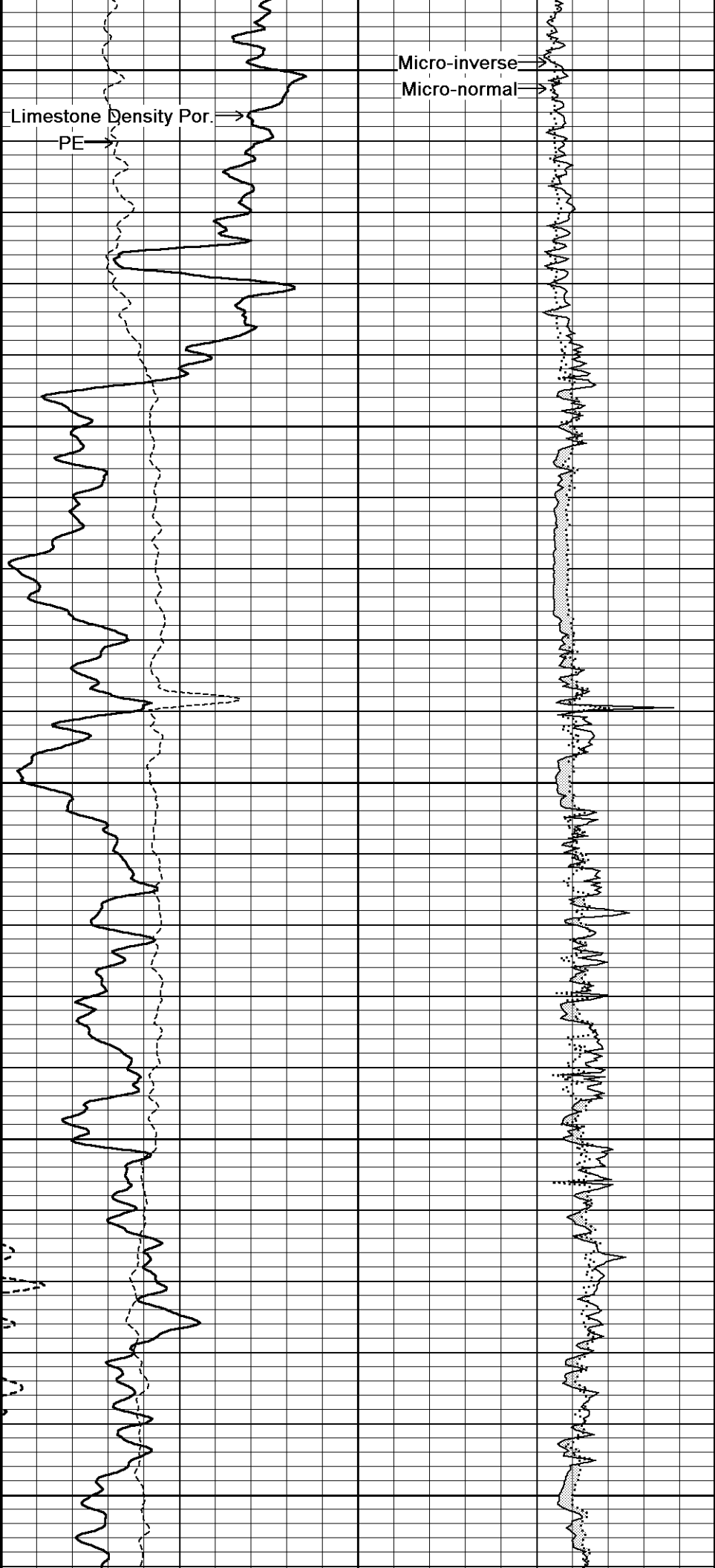
1700

128°

3200

128°

3250

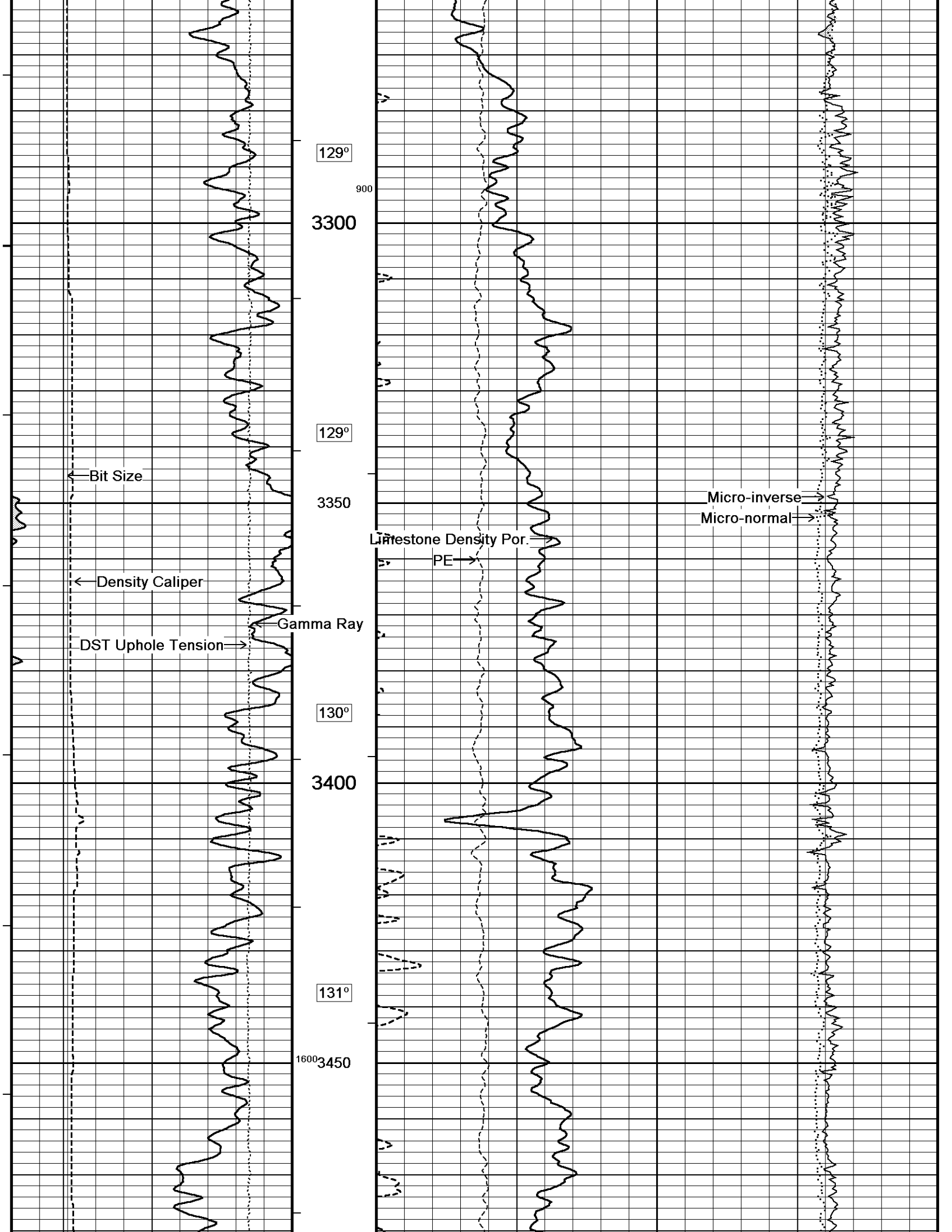


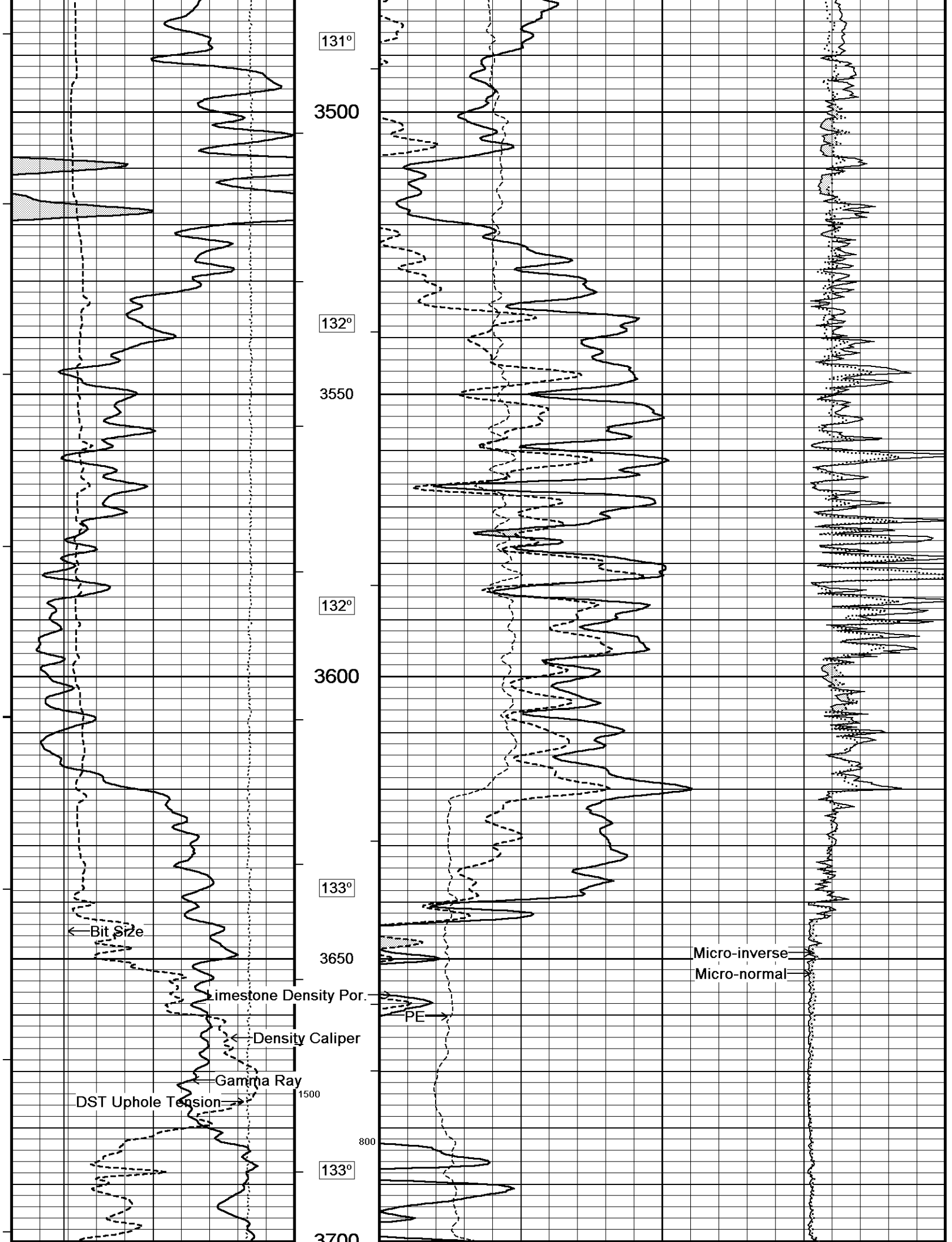
Limestone Density Por.

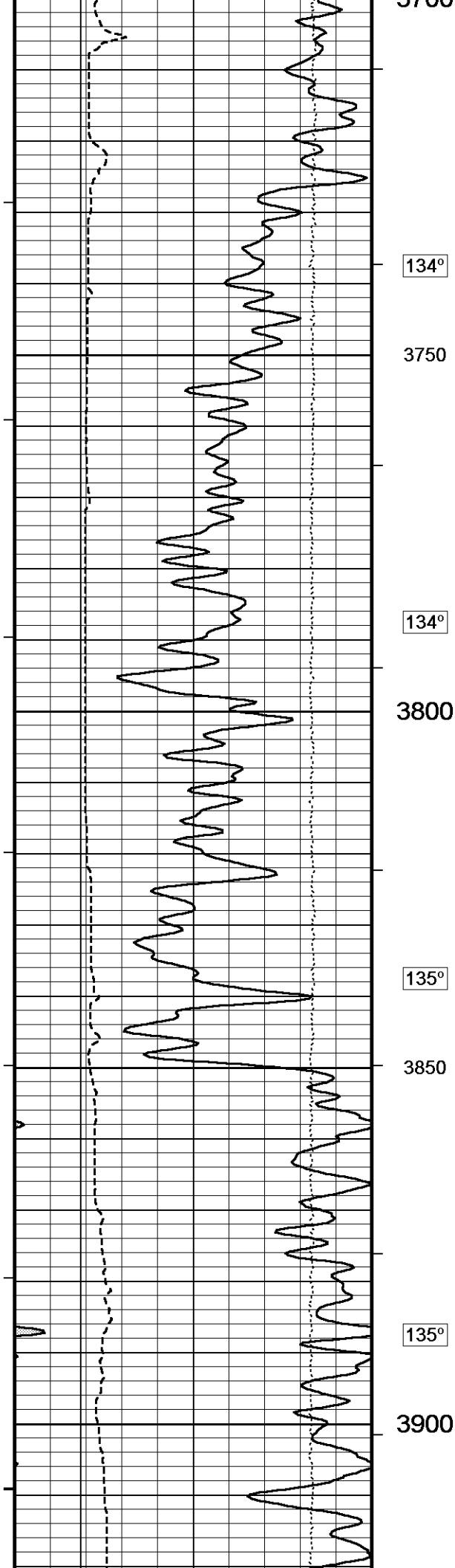
PE

Micro-inverse

Micro-normal





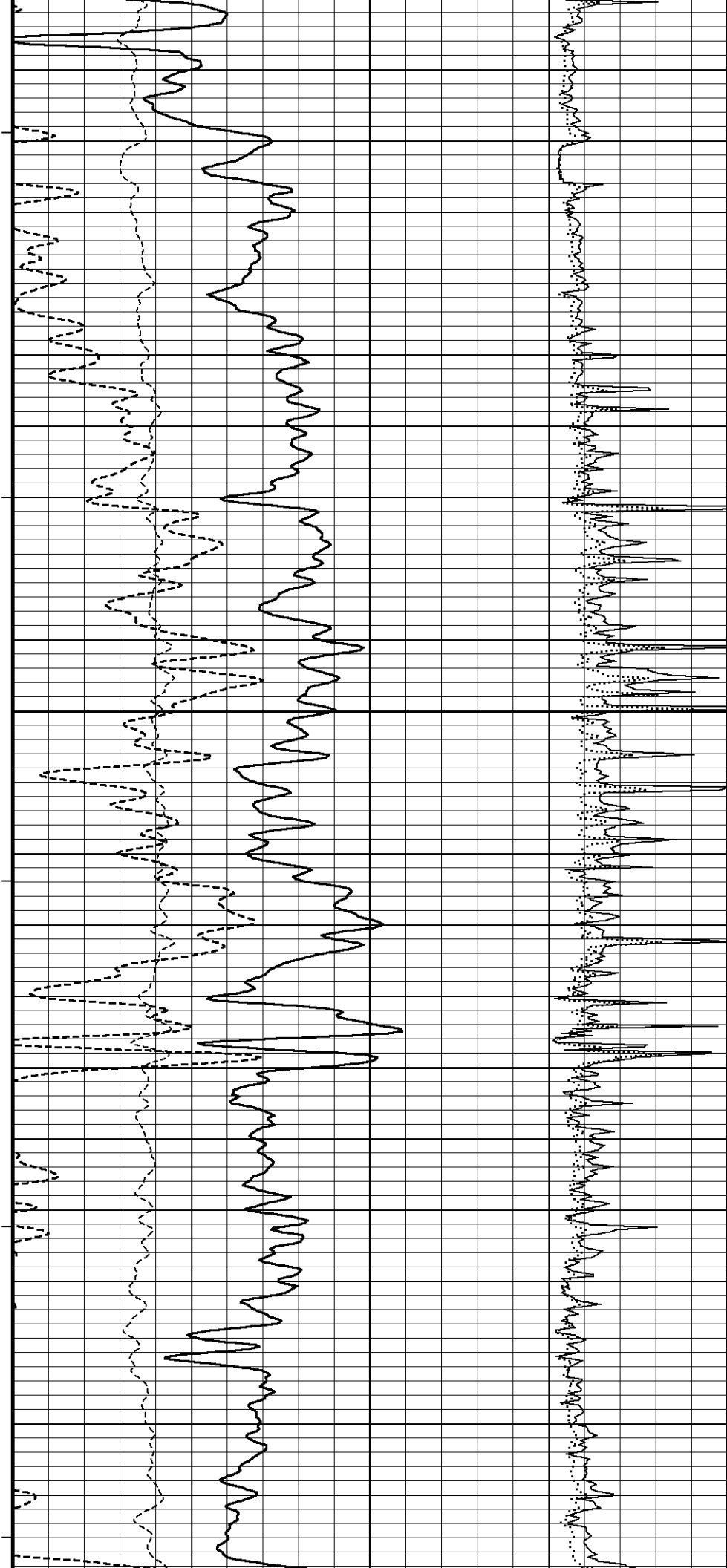


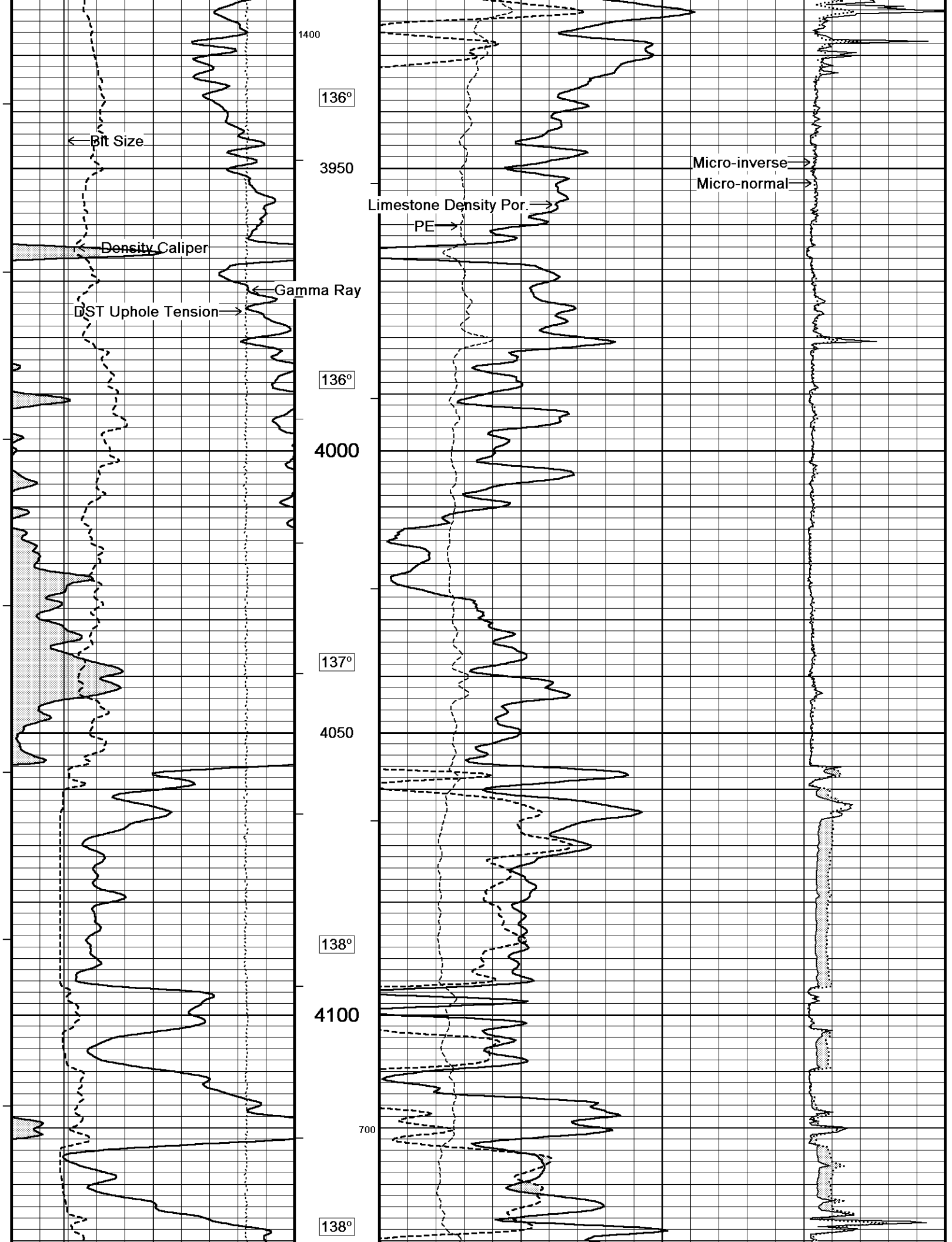
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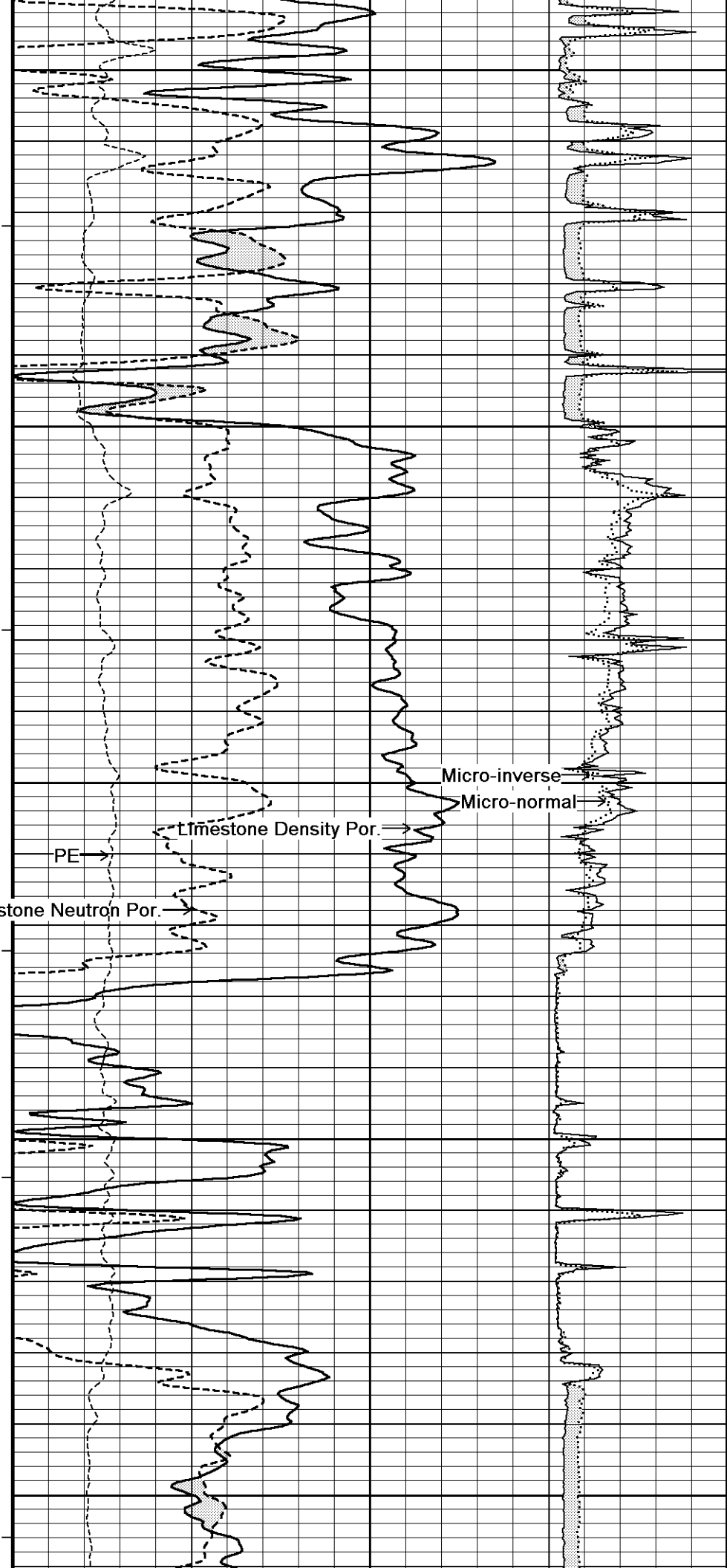
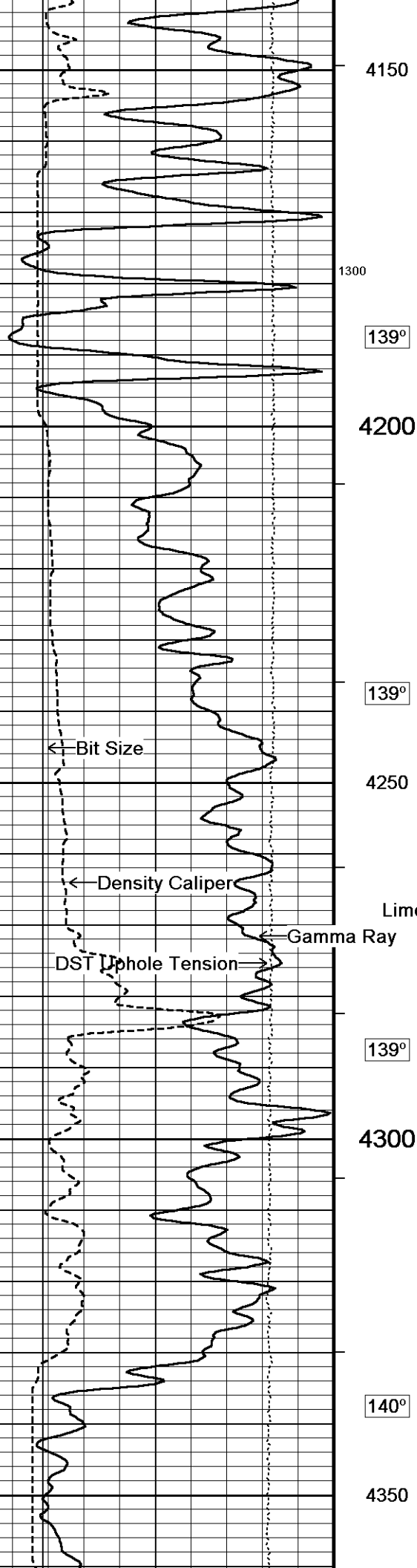
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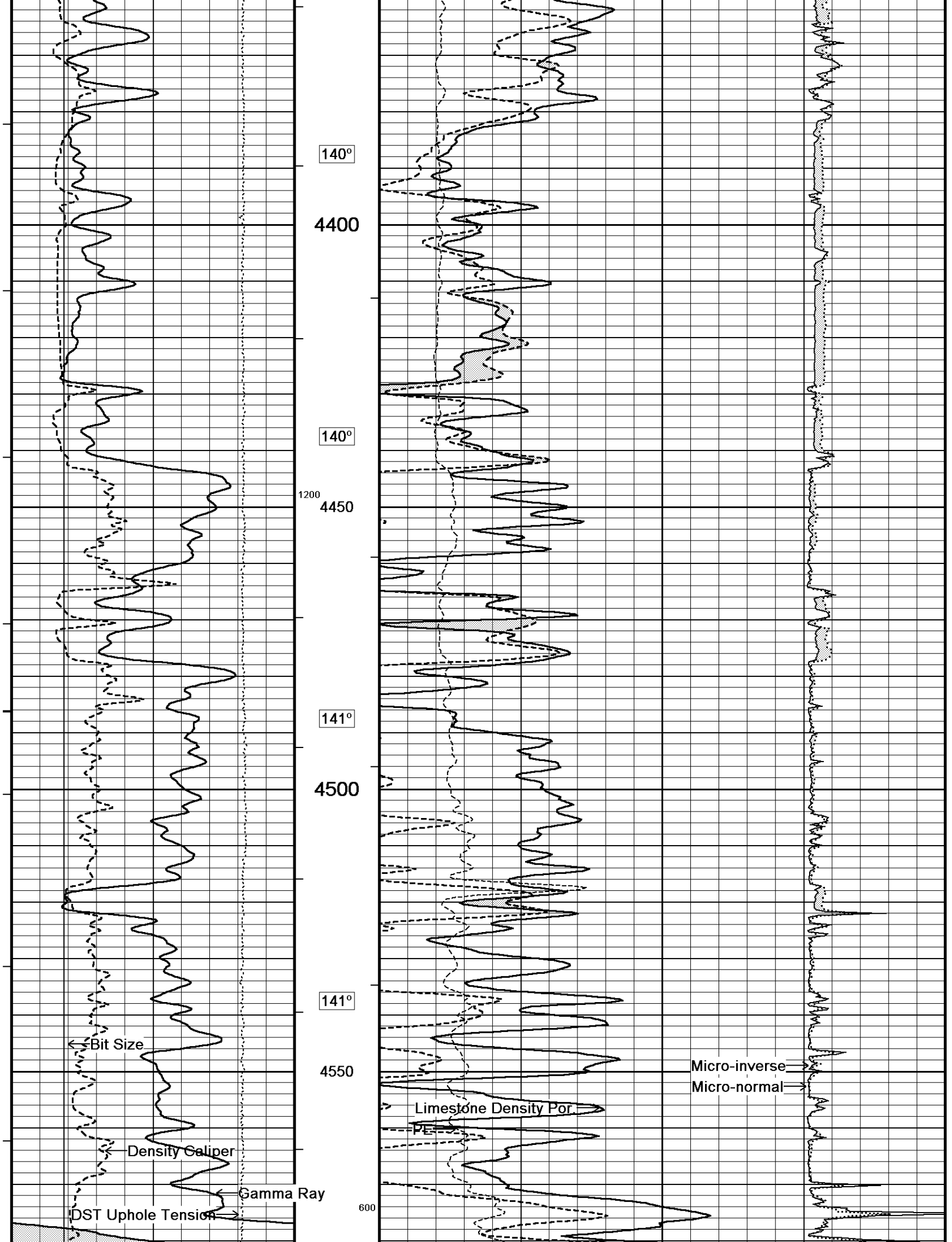
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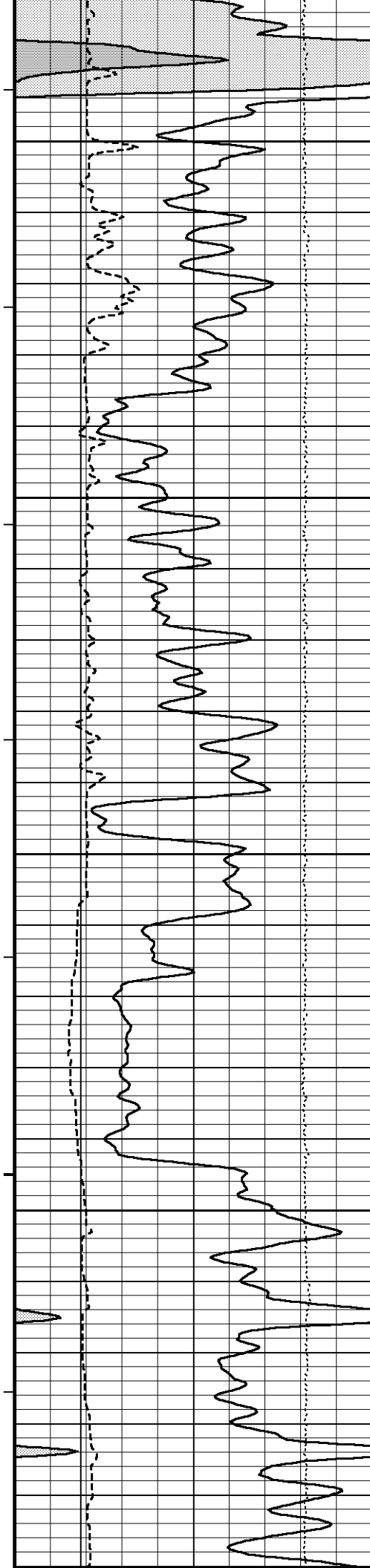
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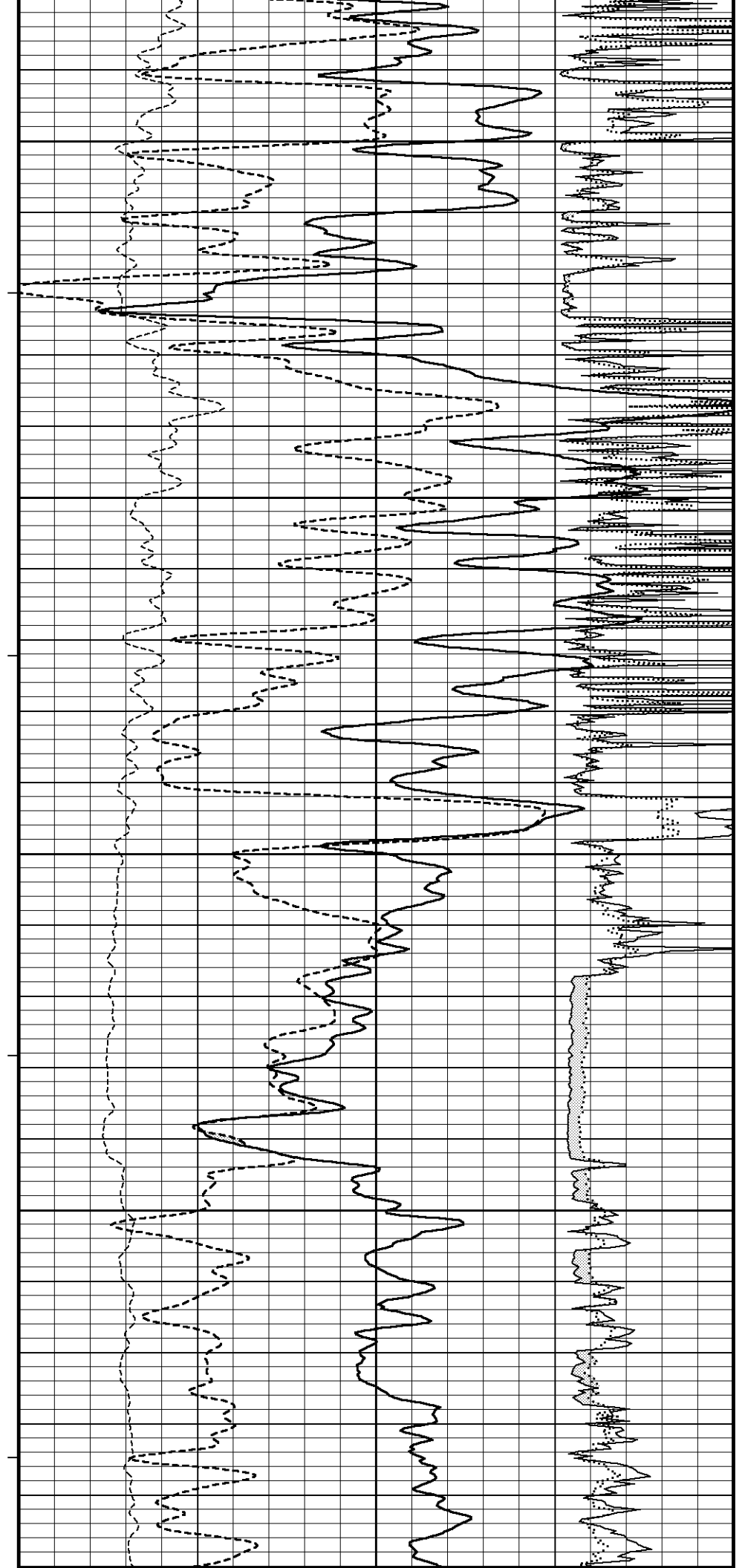


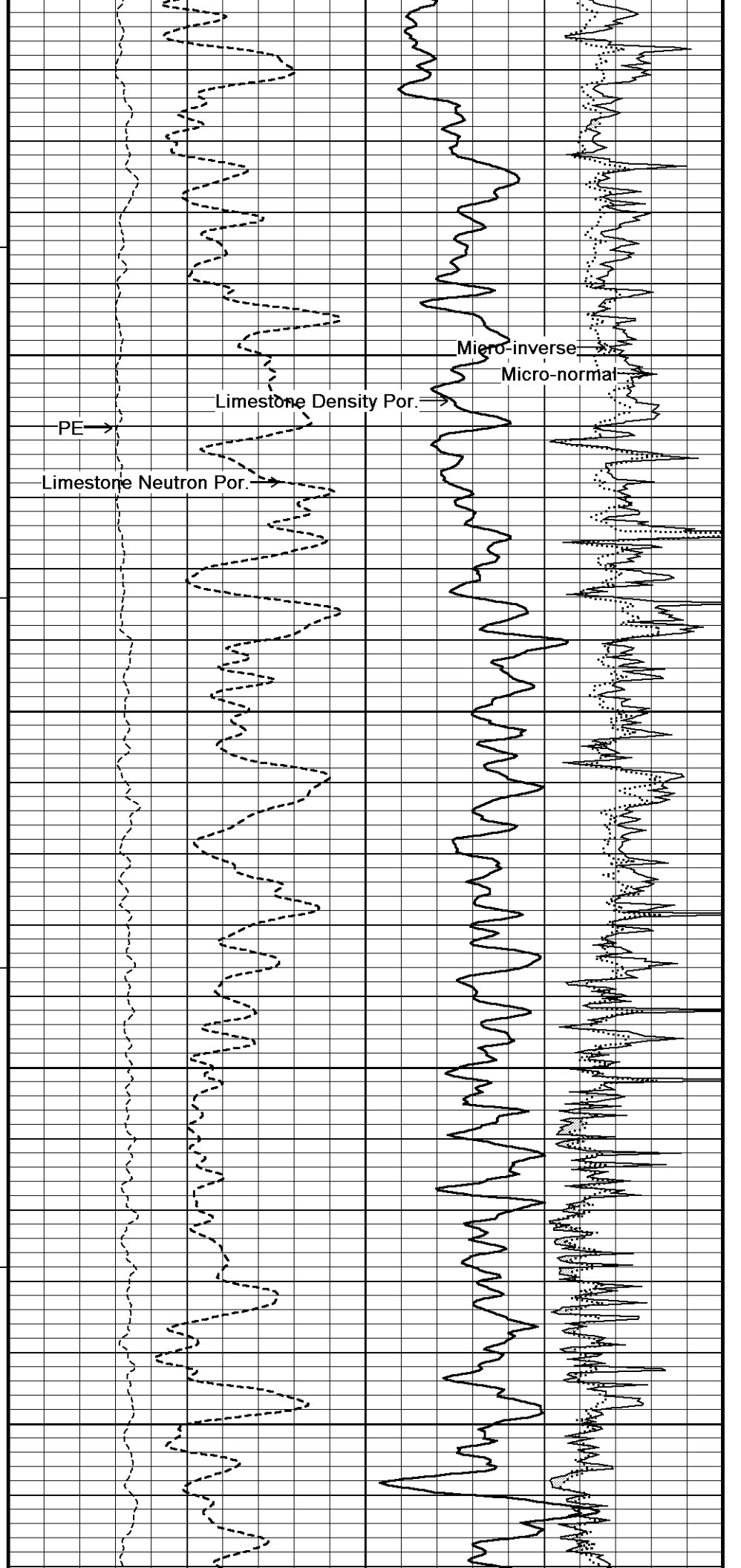
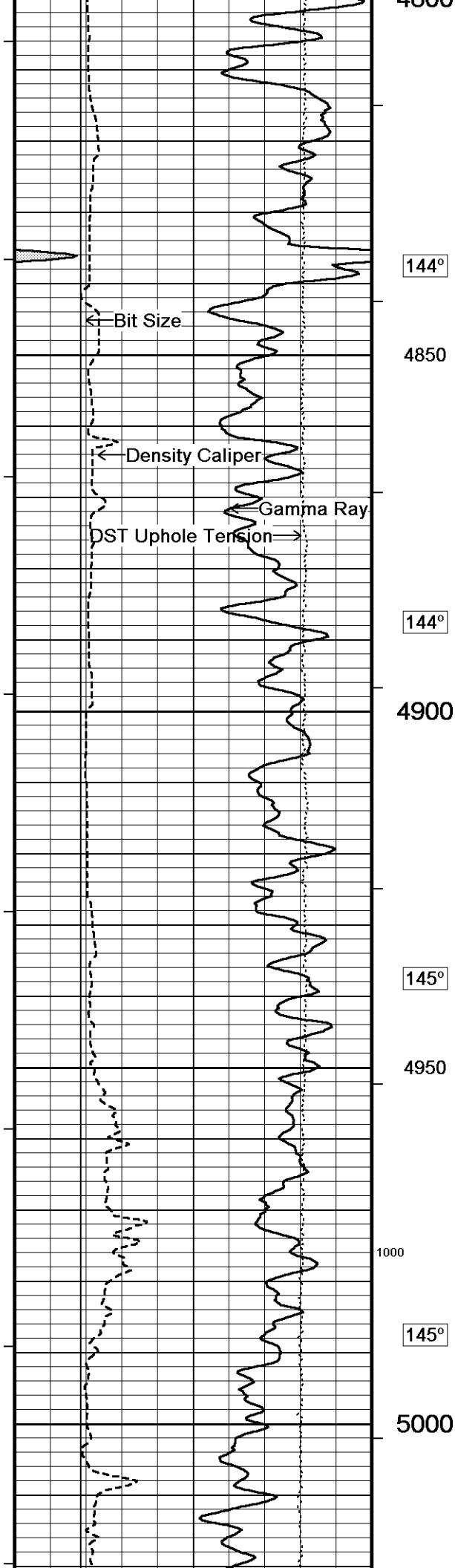


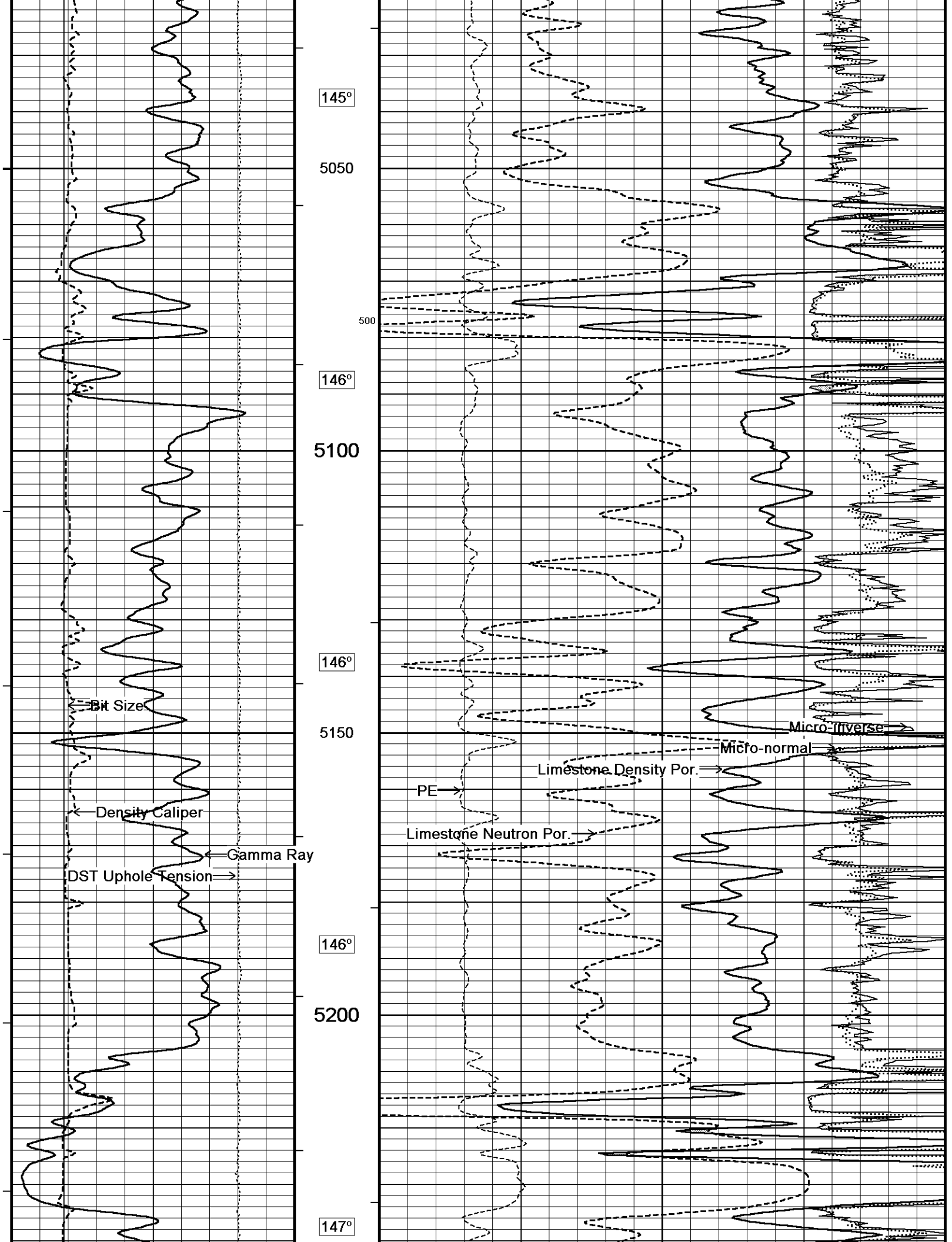


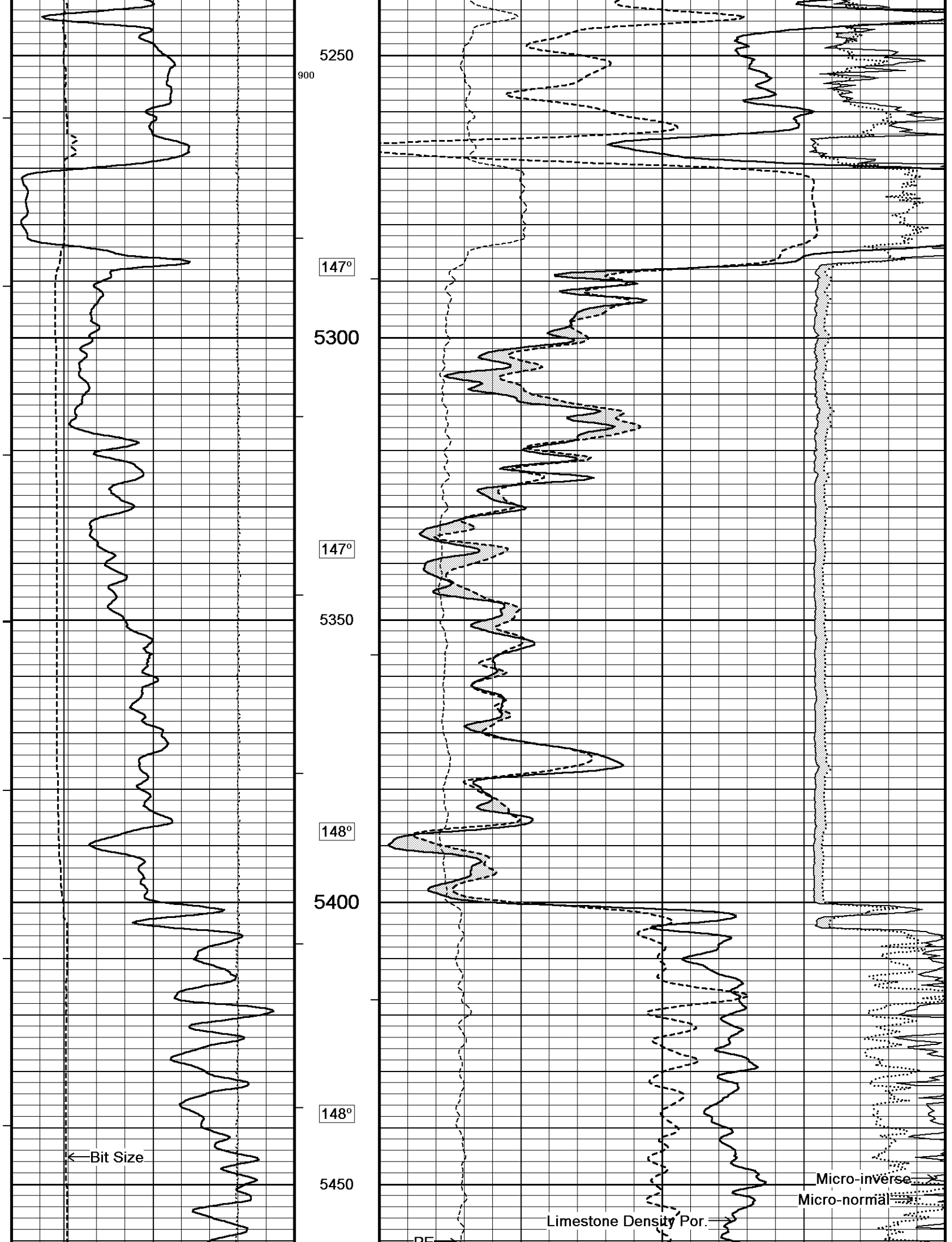


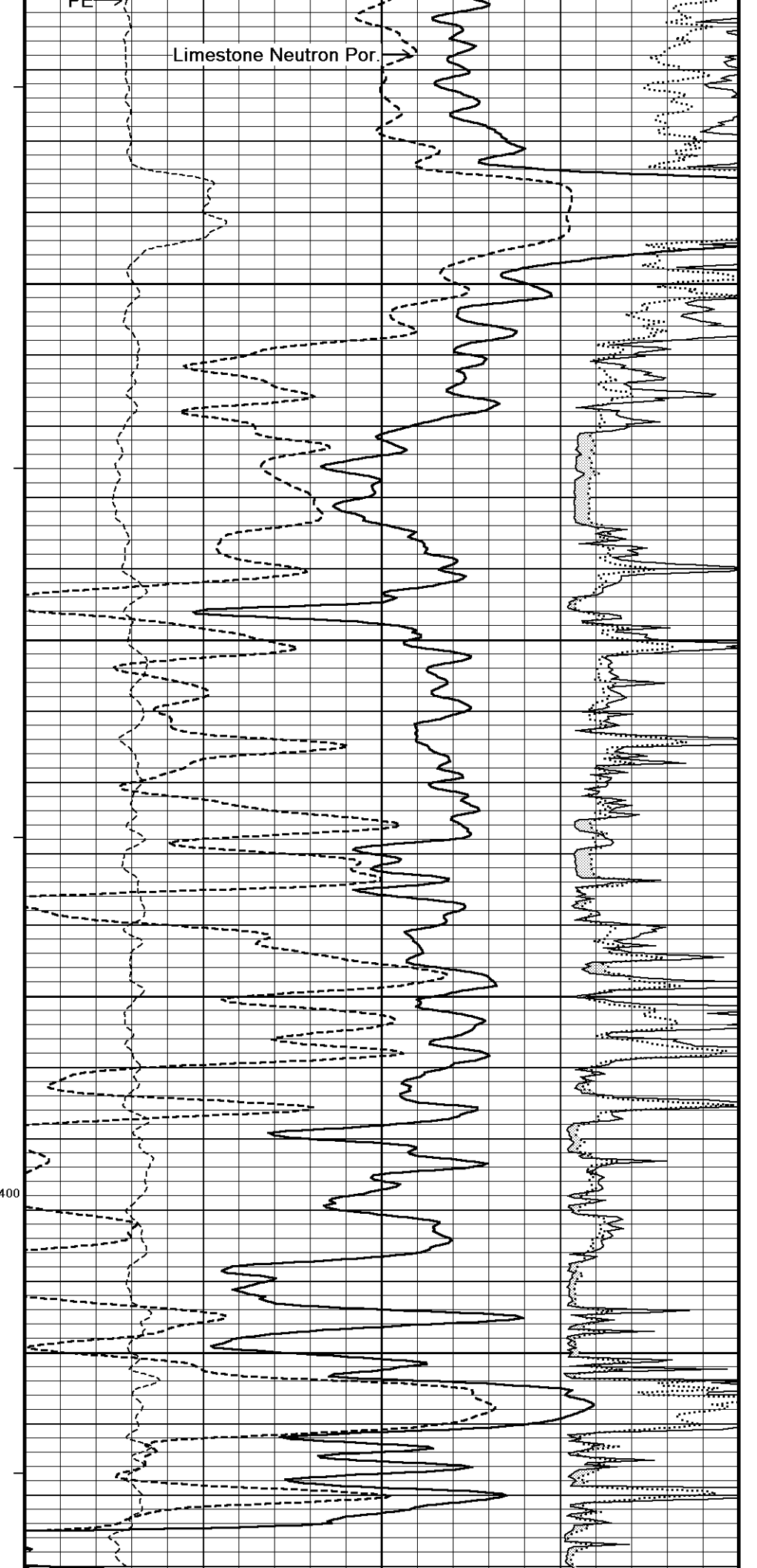
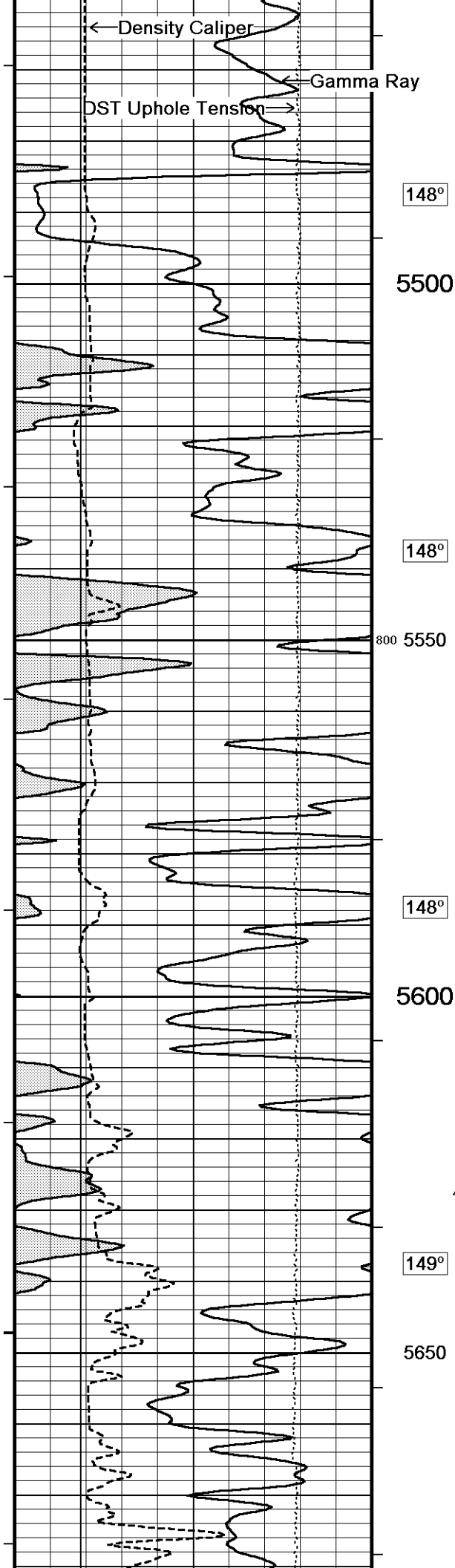
142°
4600
143°
4650
143°
1100
4700
143°
4750
143°
4800

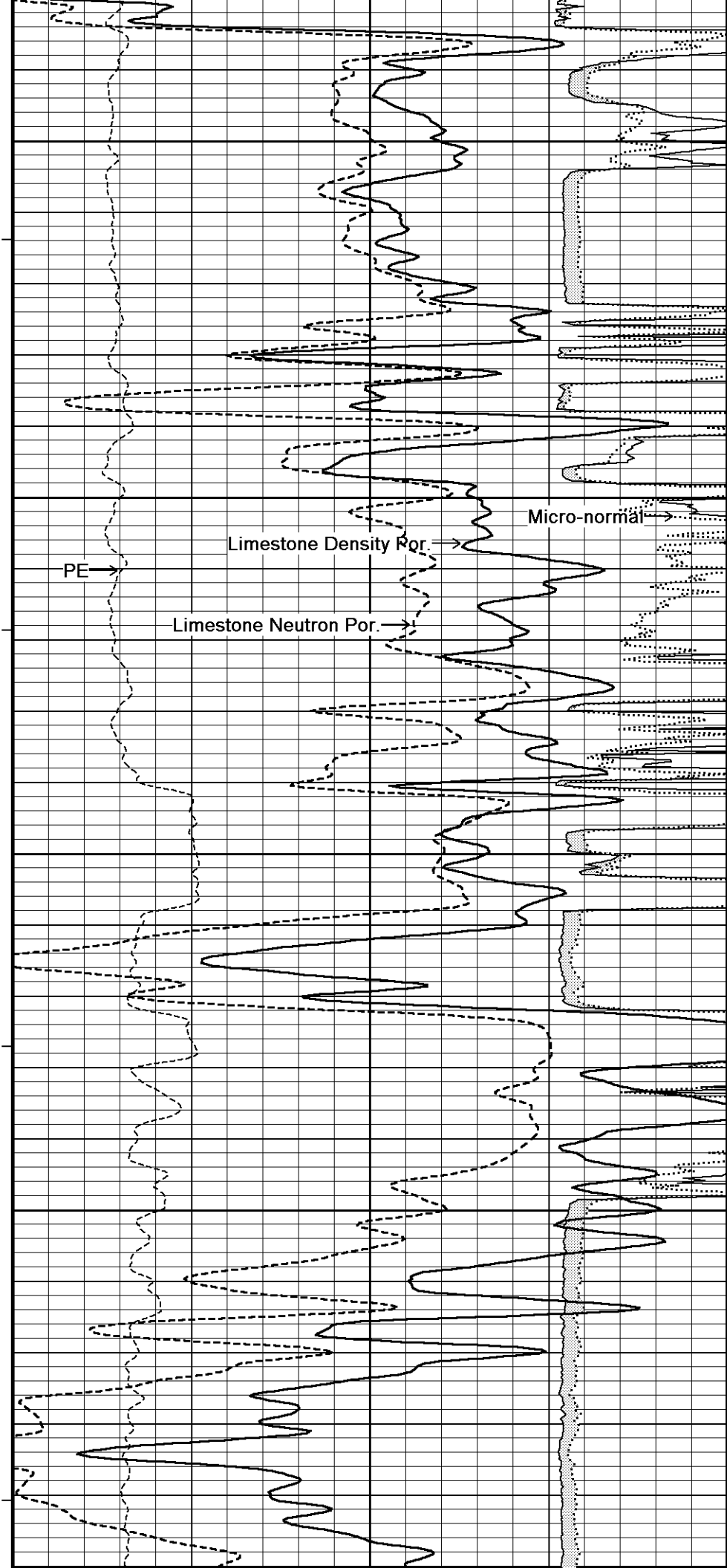
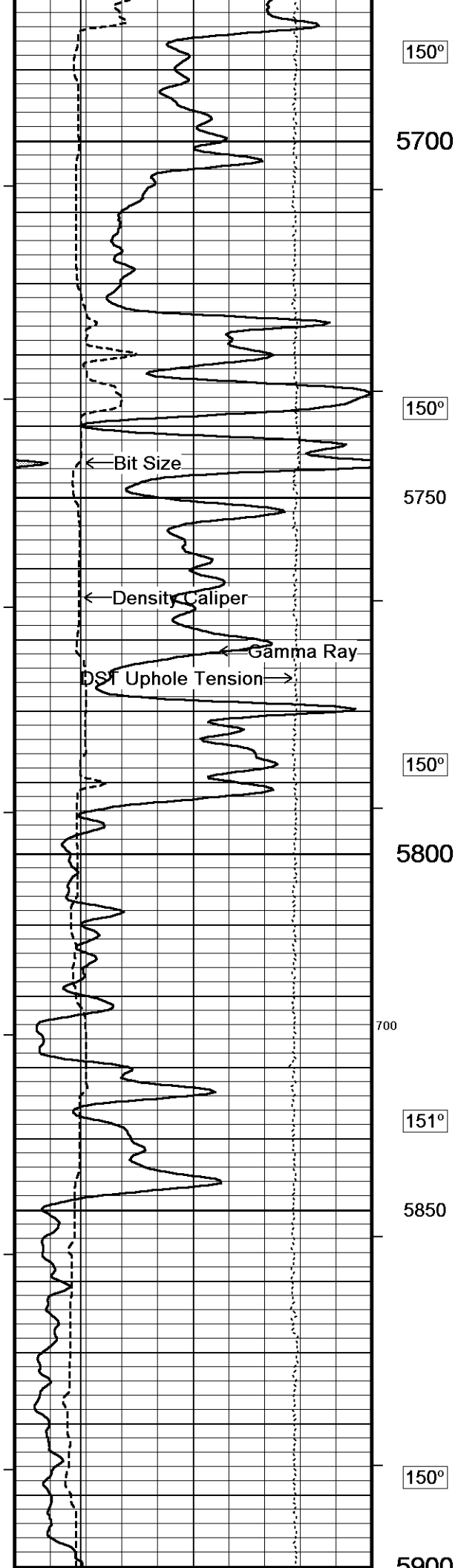


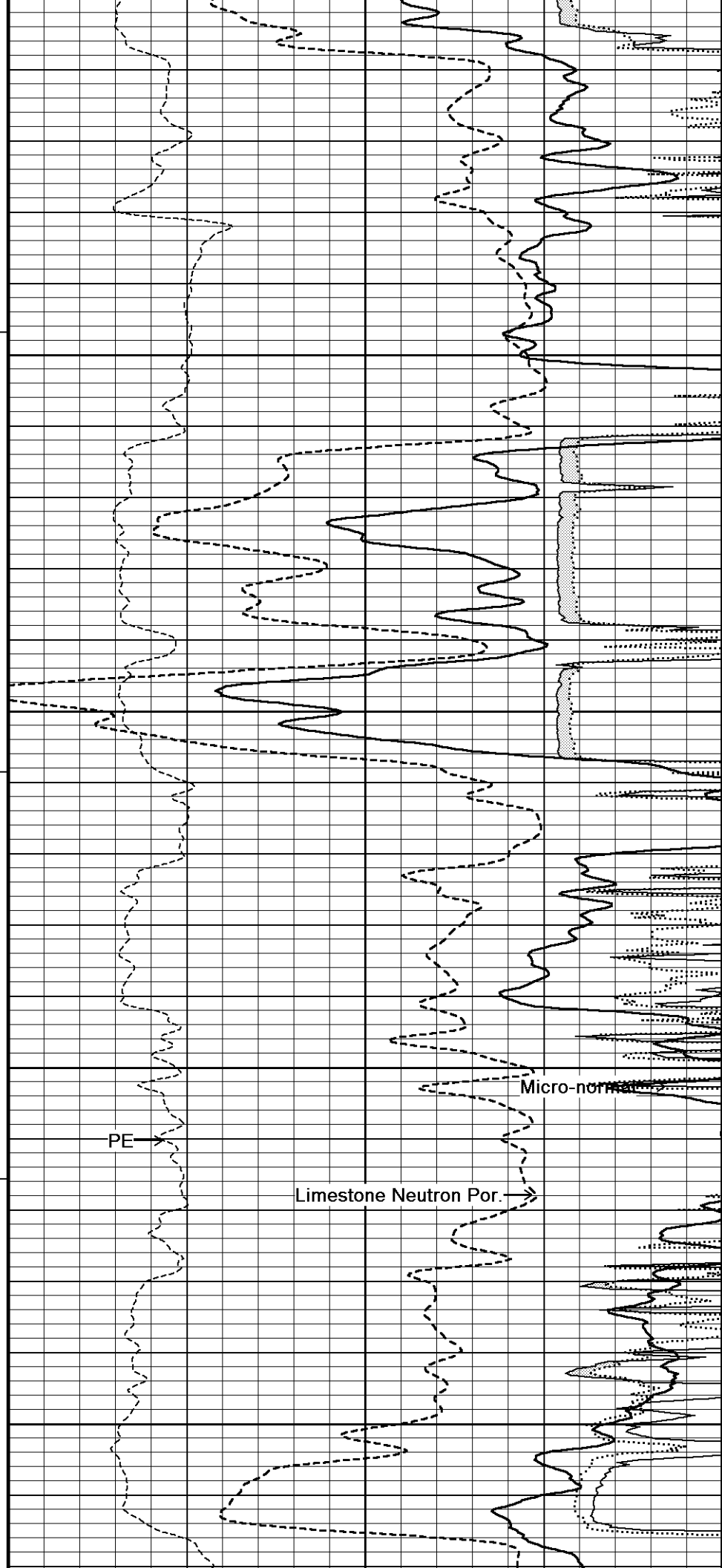
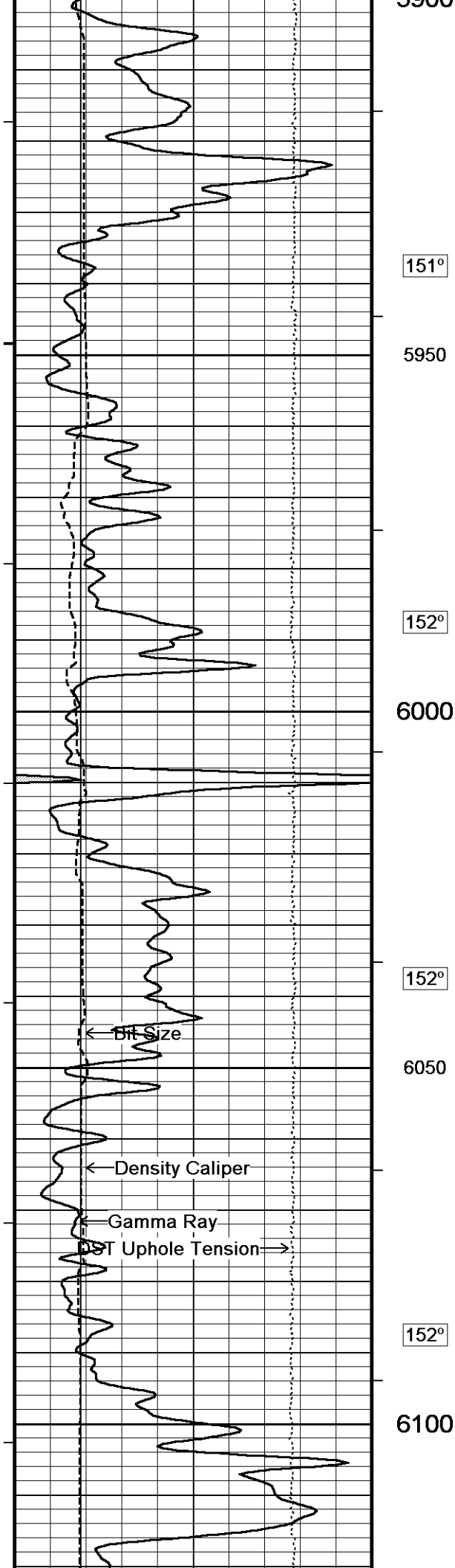


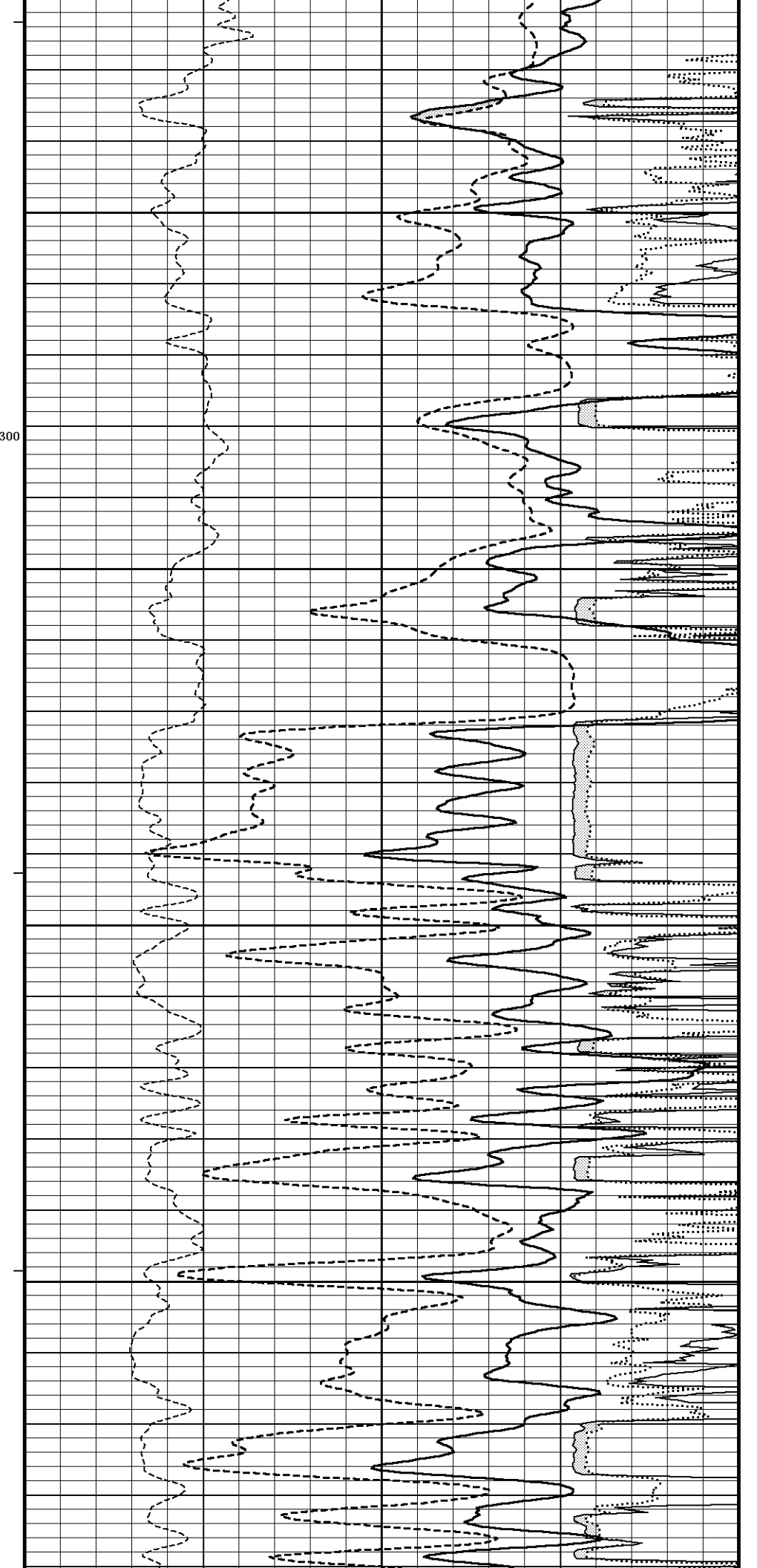
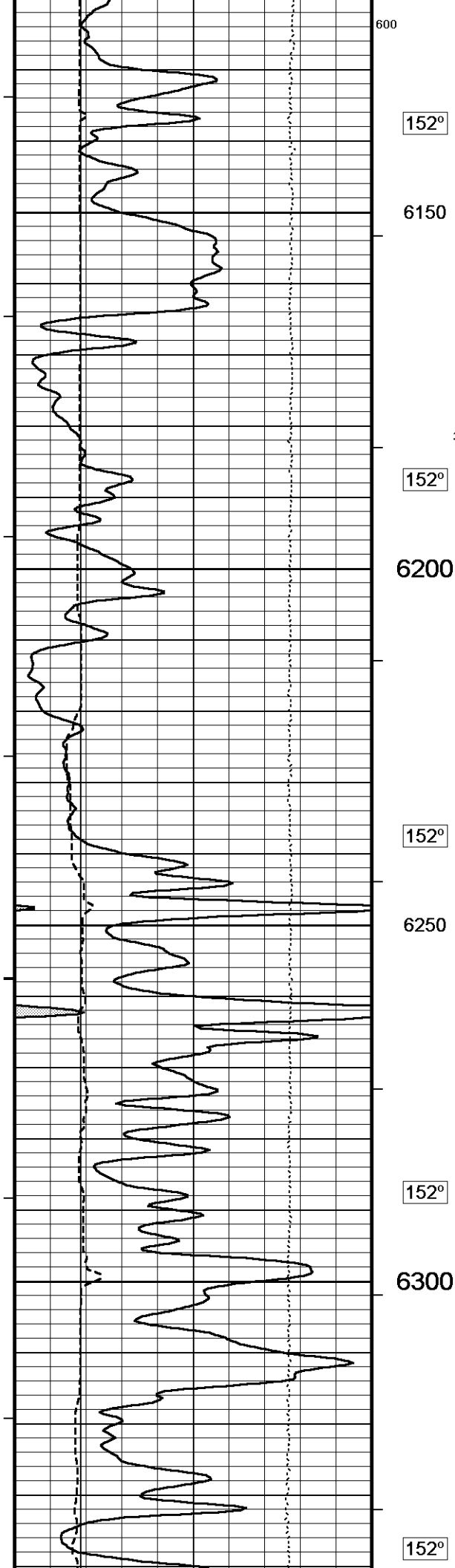


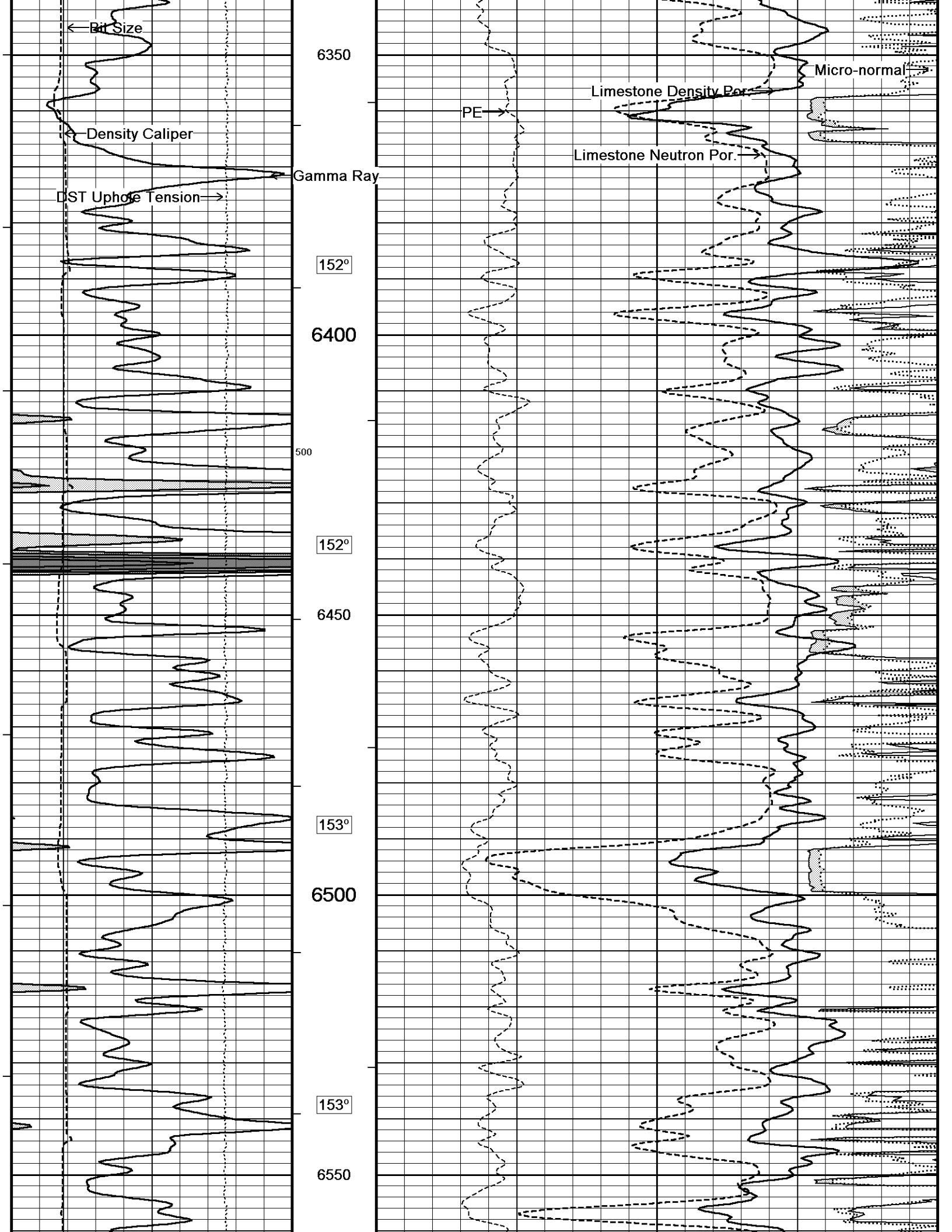


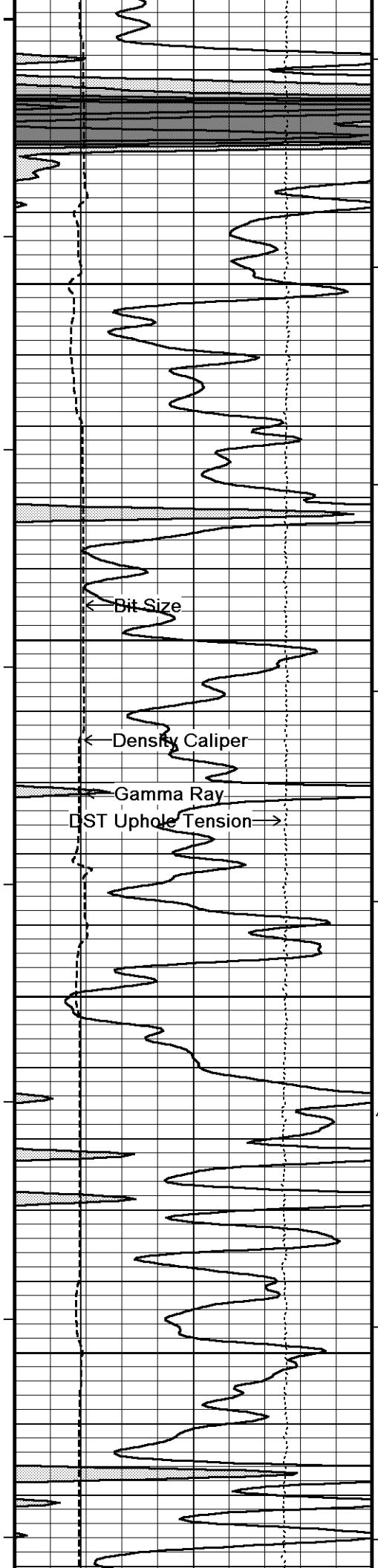




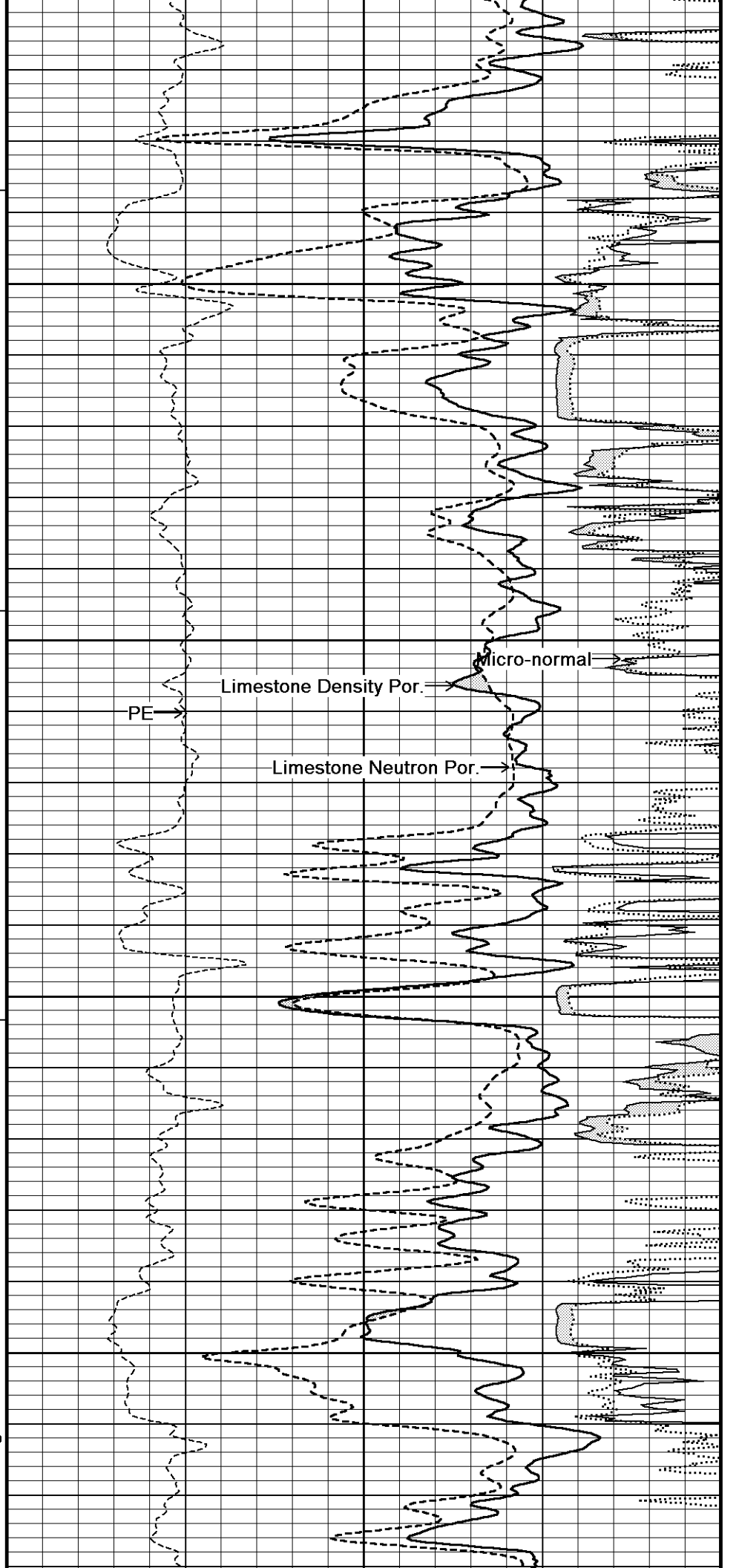








153°
6600
154°
6650
154°
6700
400
154°
6750
200

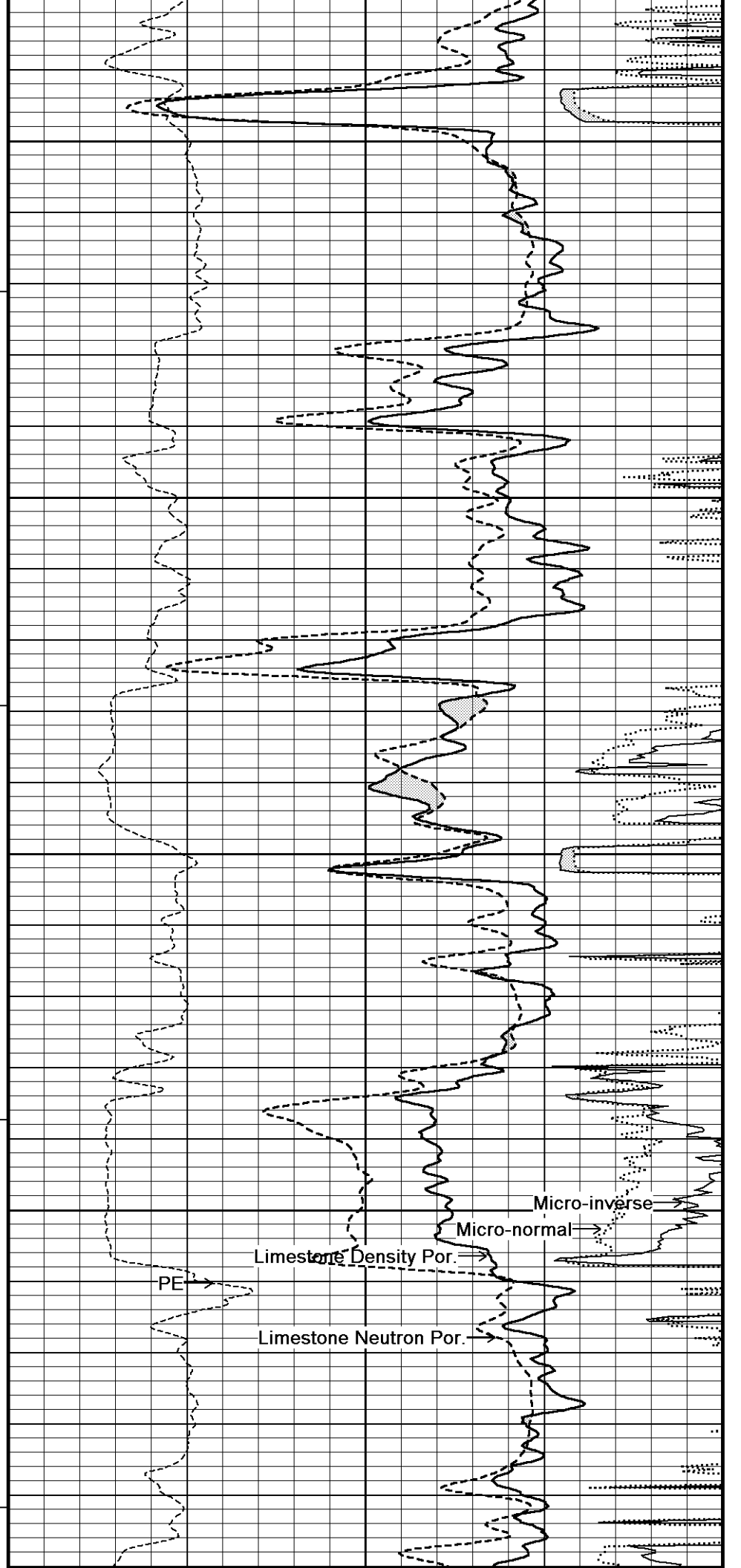
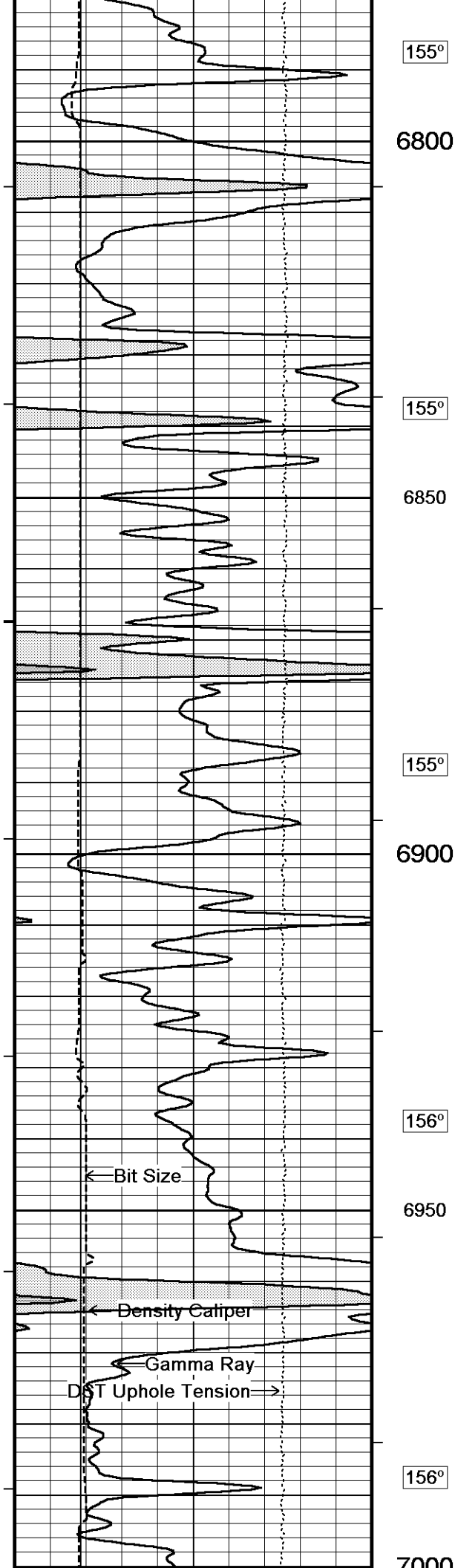


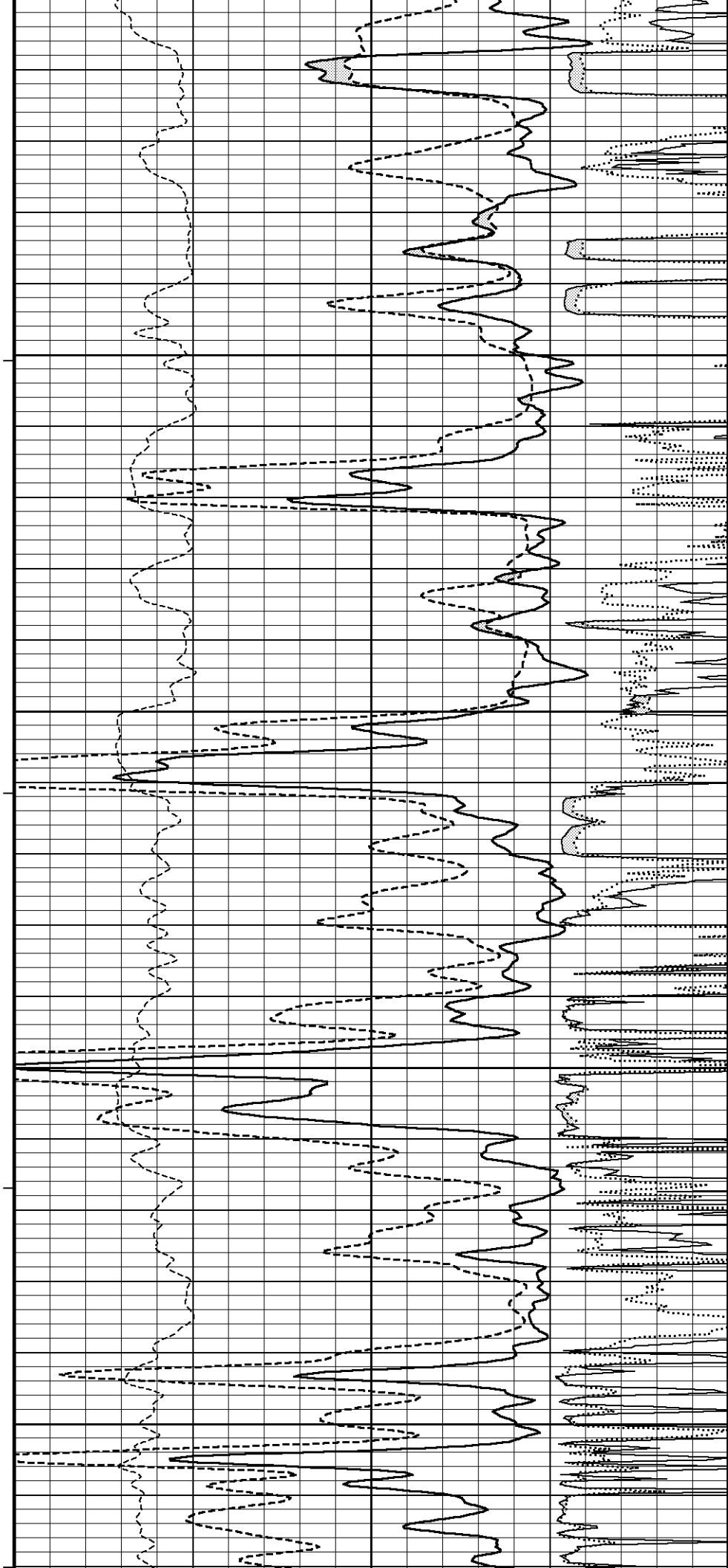
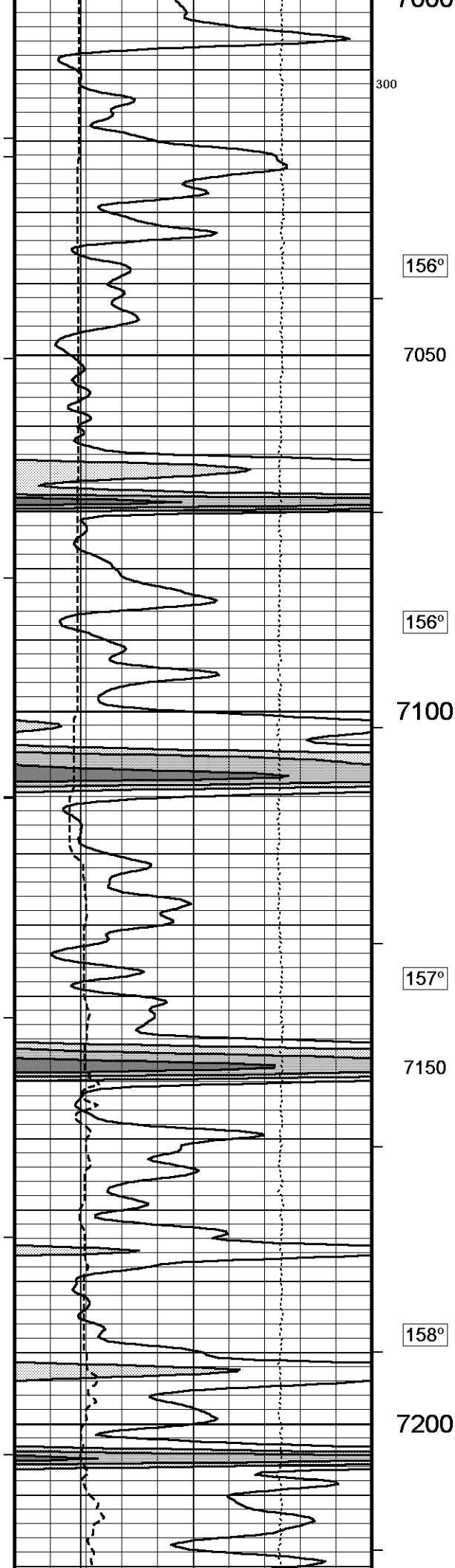
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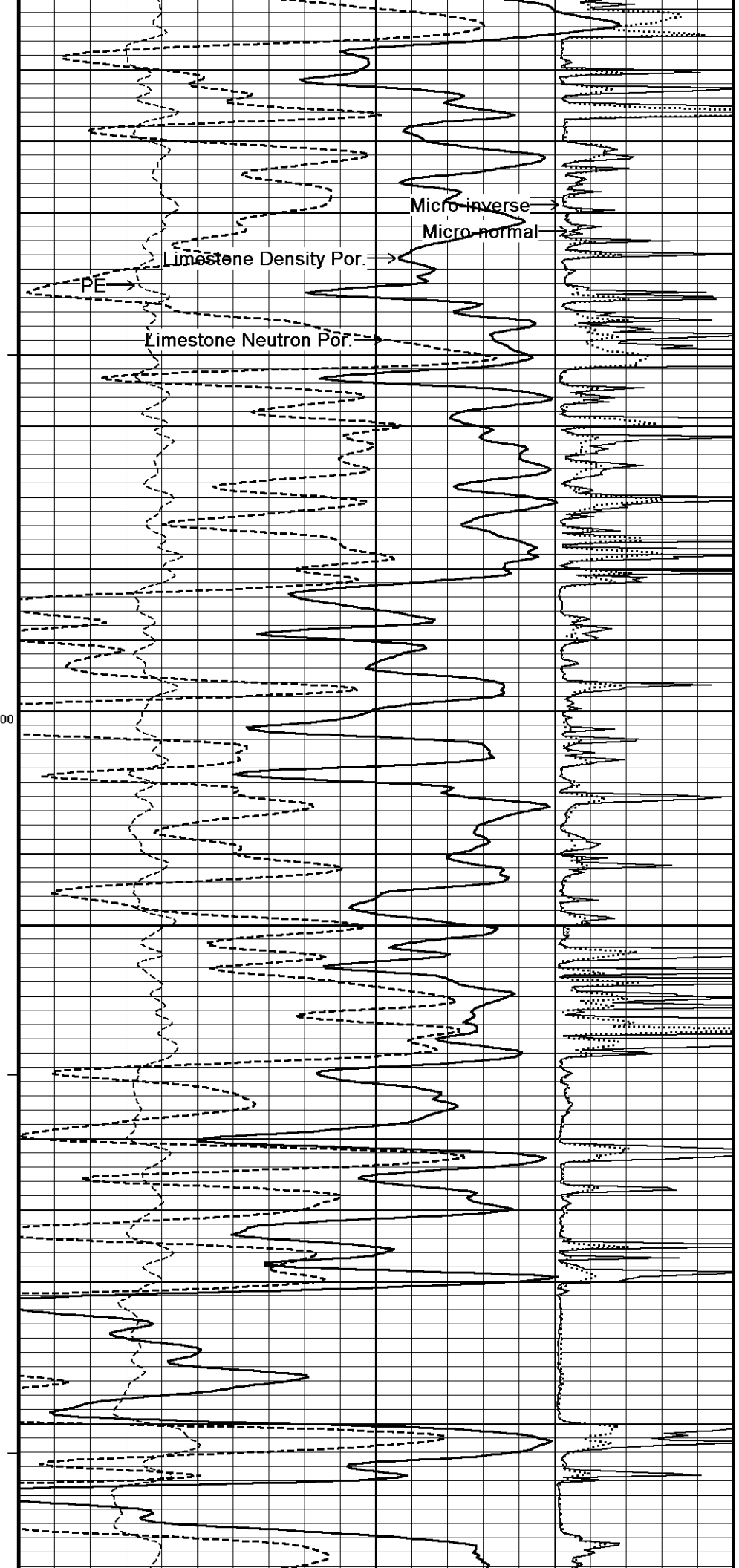
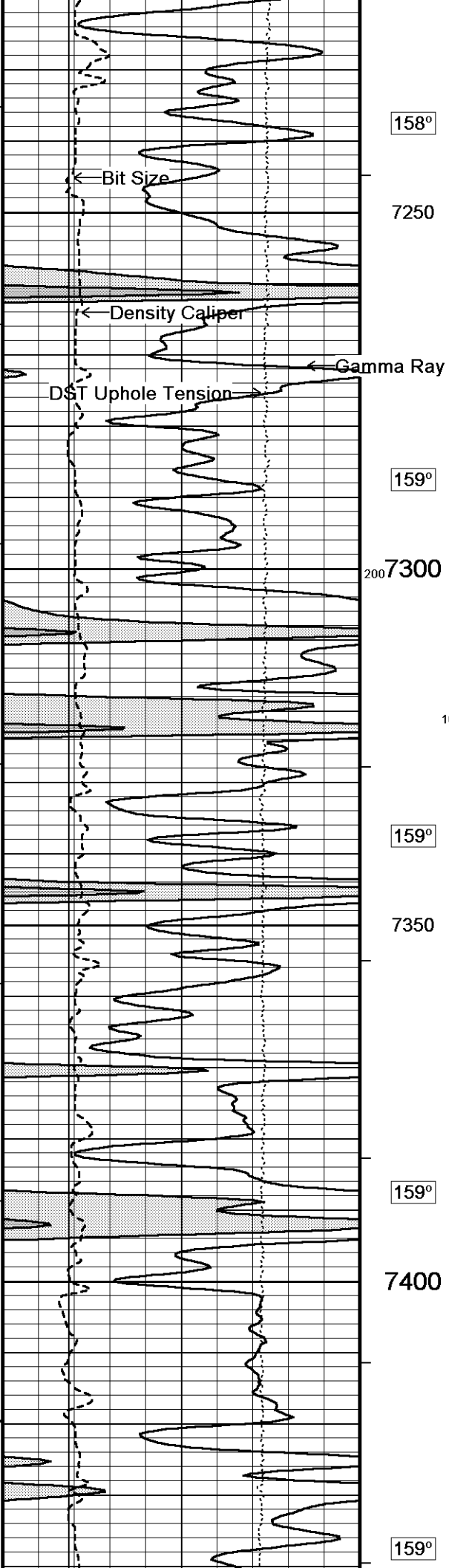
Limestone Density Por.

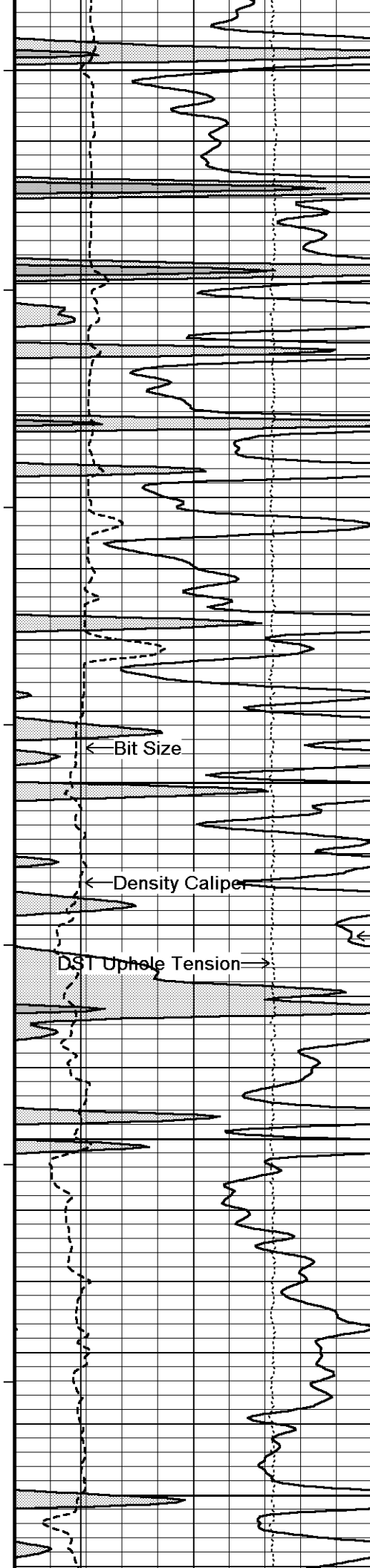
Limestone Neutron Por.

Micro-normal









7450

160°

7500

161°

7550

Gamma Ray

100

161°

7600

161°

7650

← Bit Size

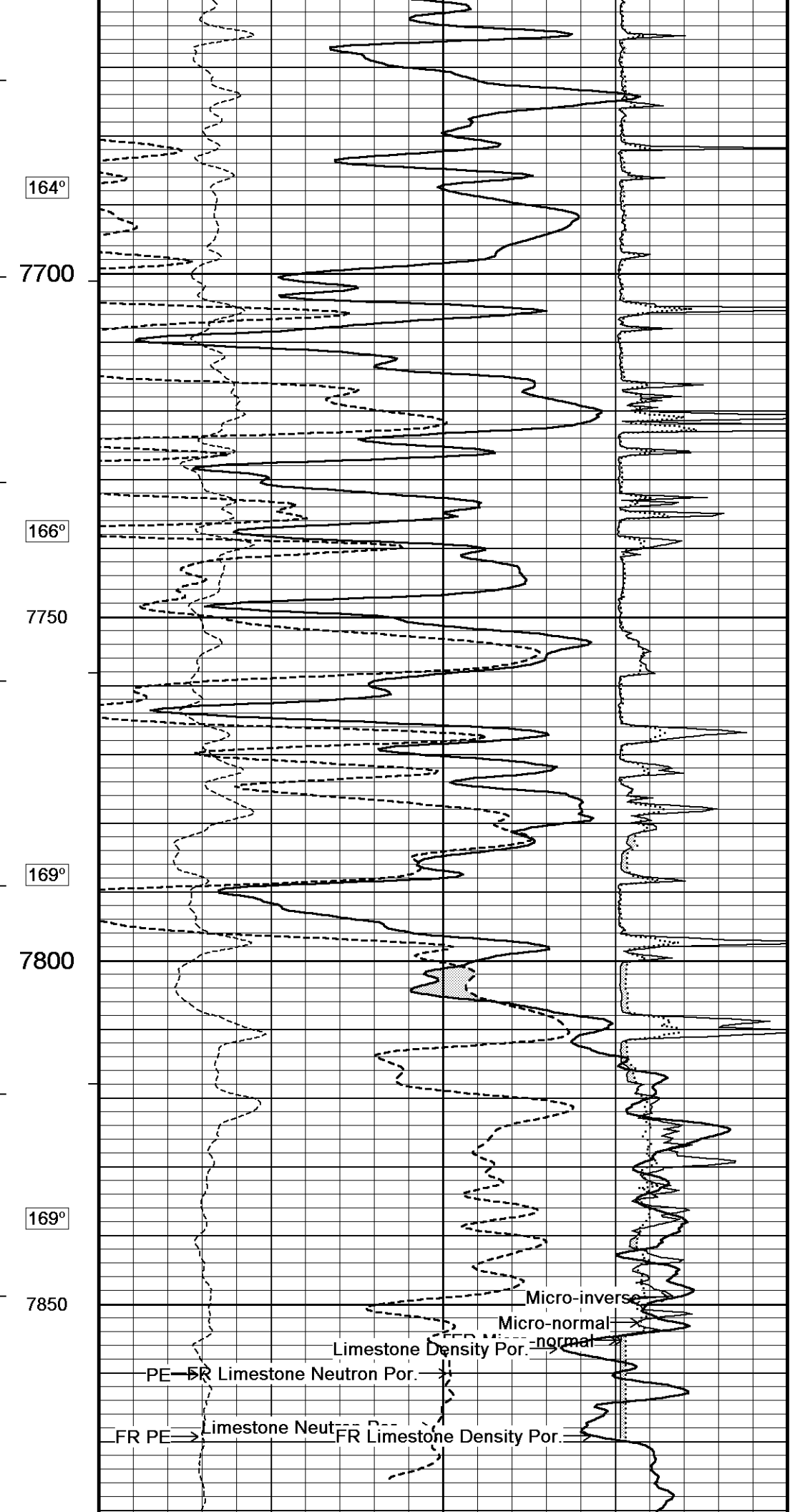
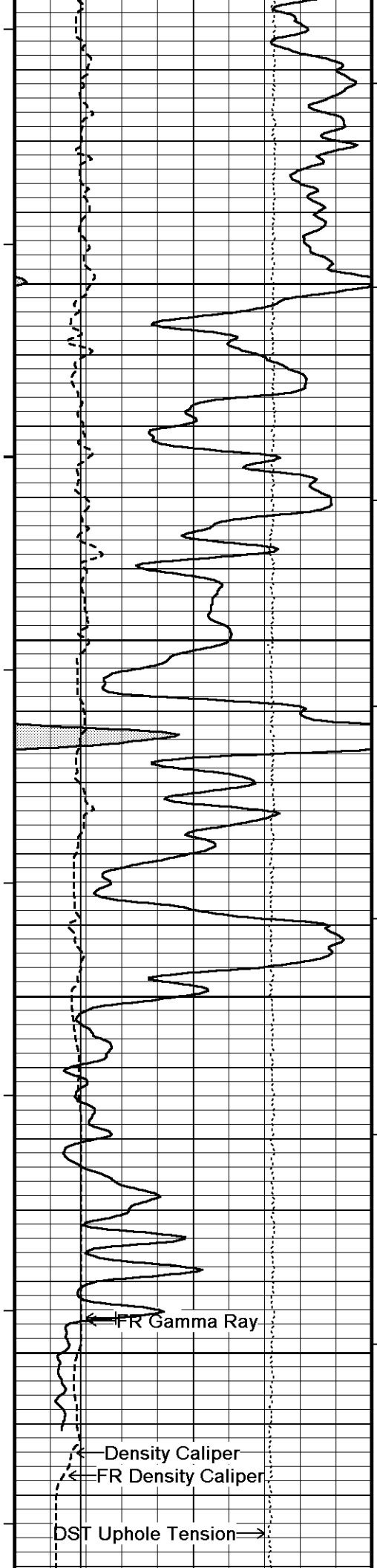
← Density Caliper

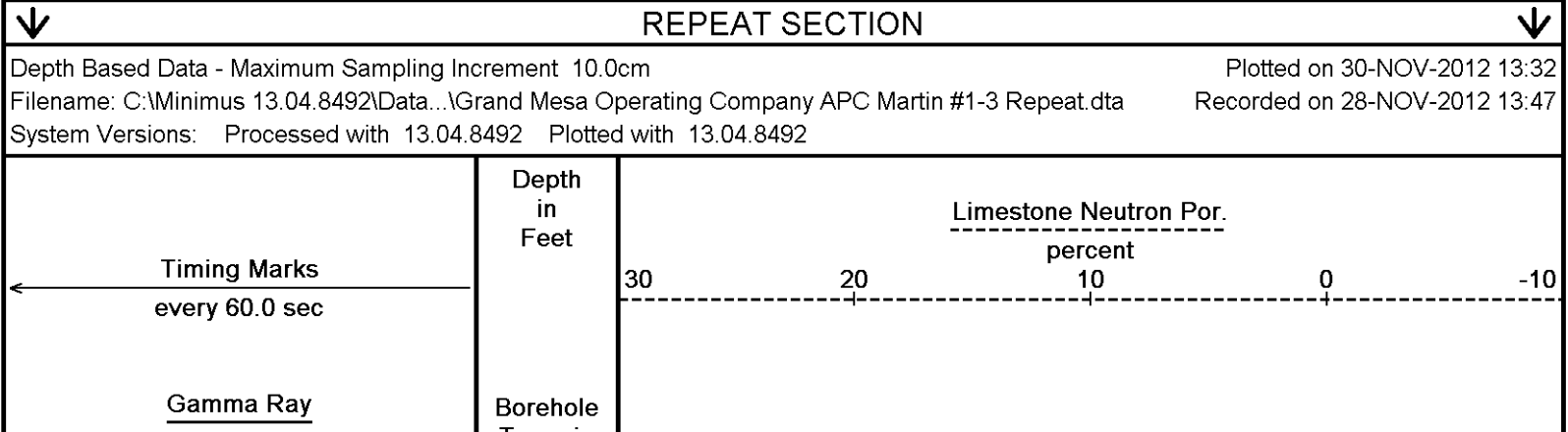
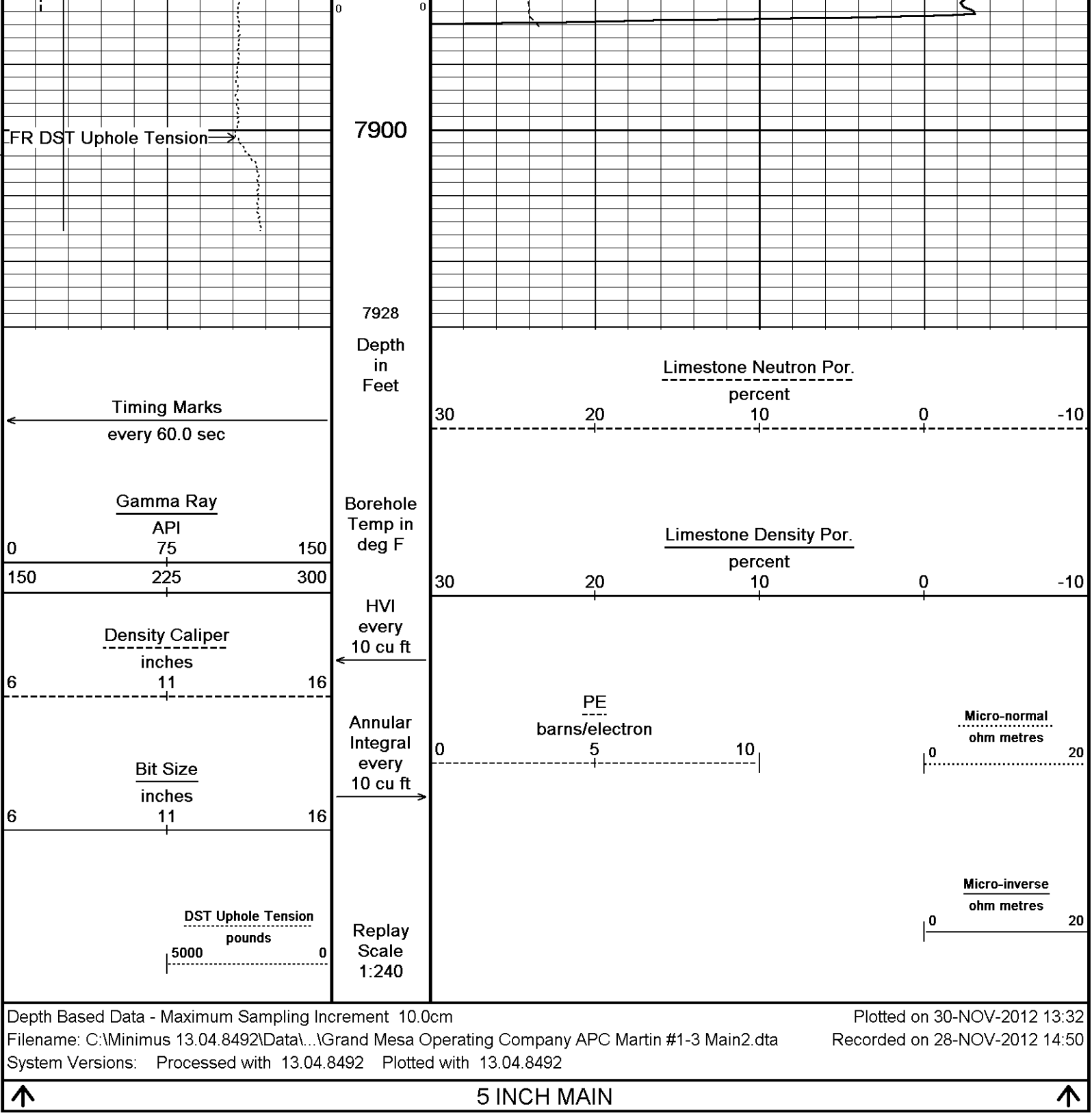
DST Up-hole Tension →

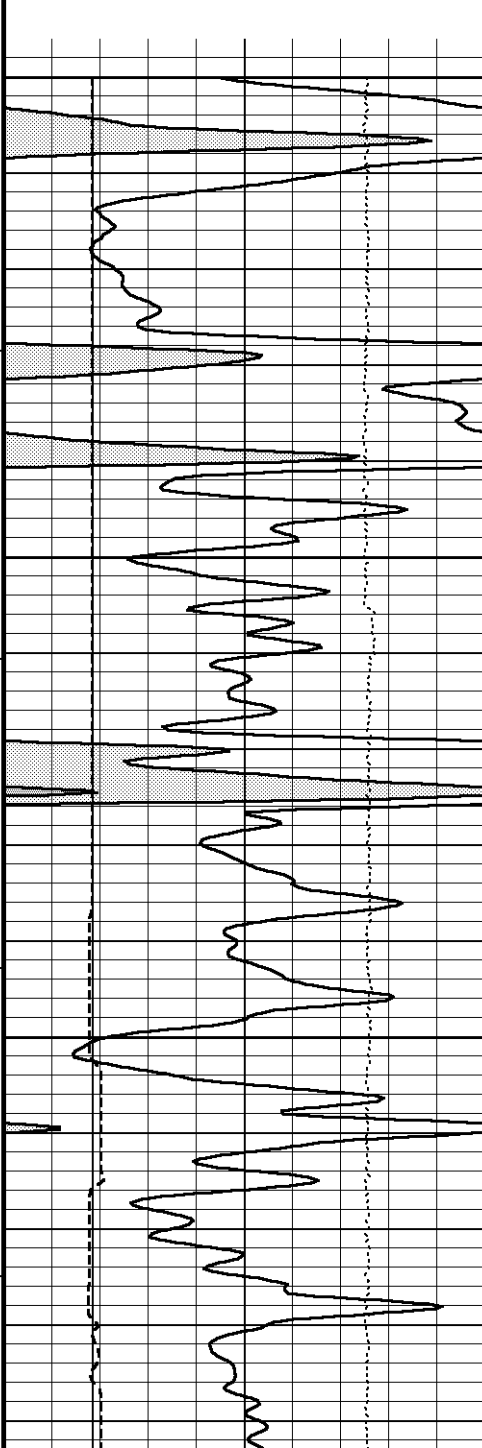
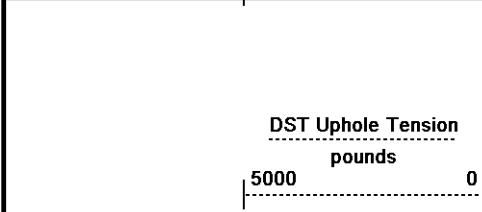
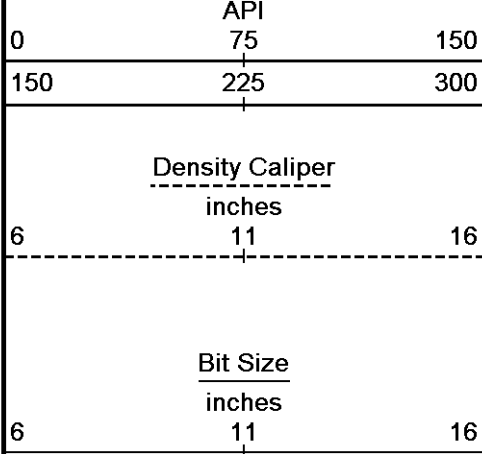
Limestone Density Por.

Micro-normal →

PR







Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240

6800

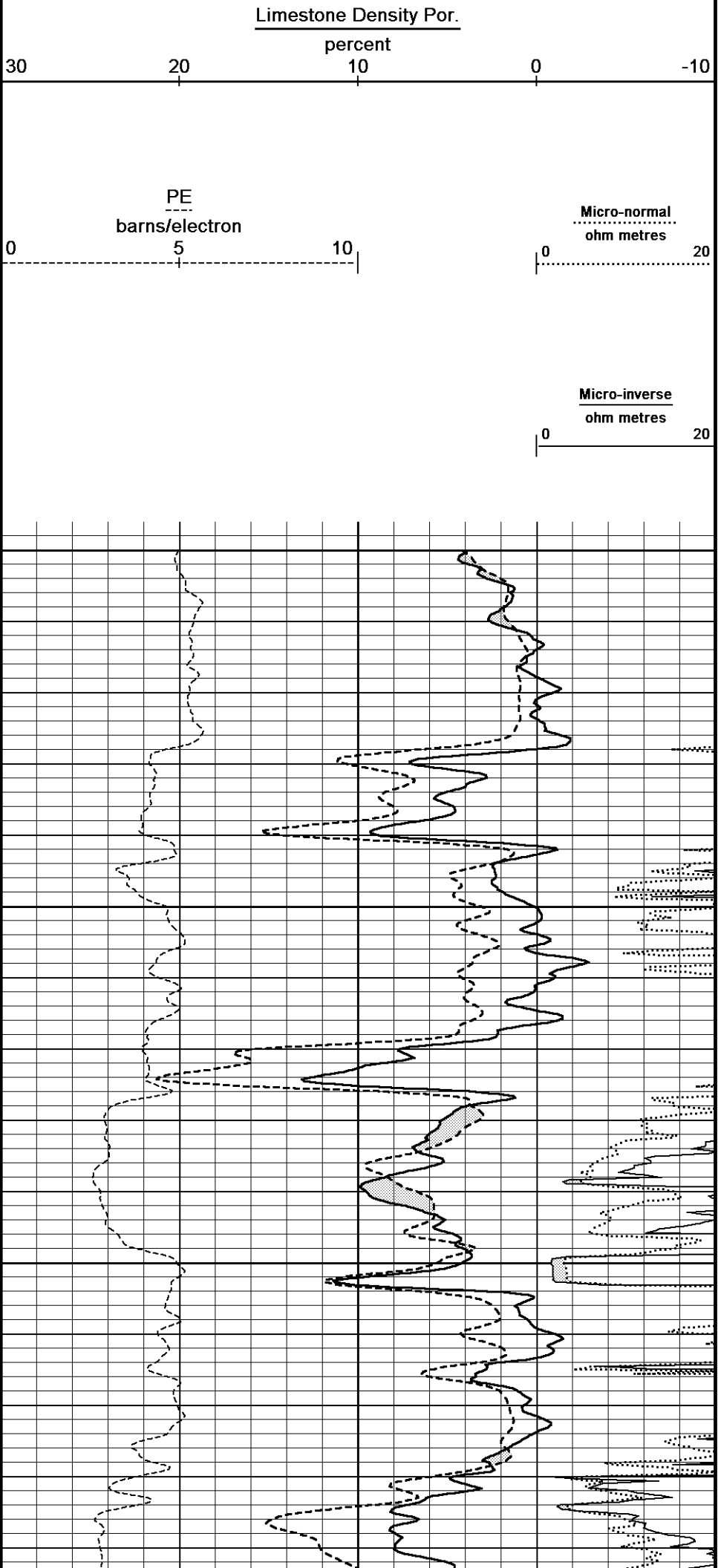
154°

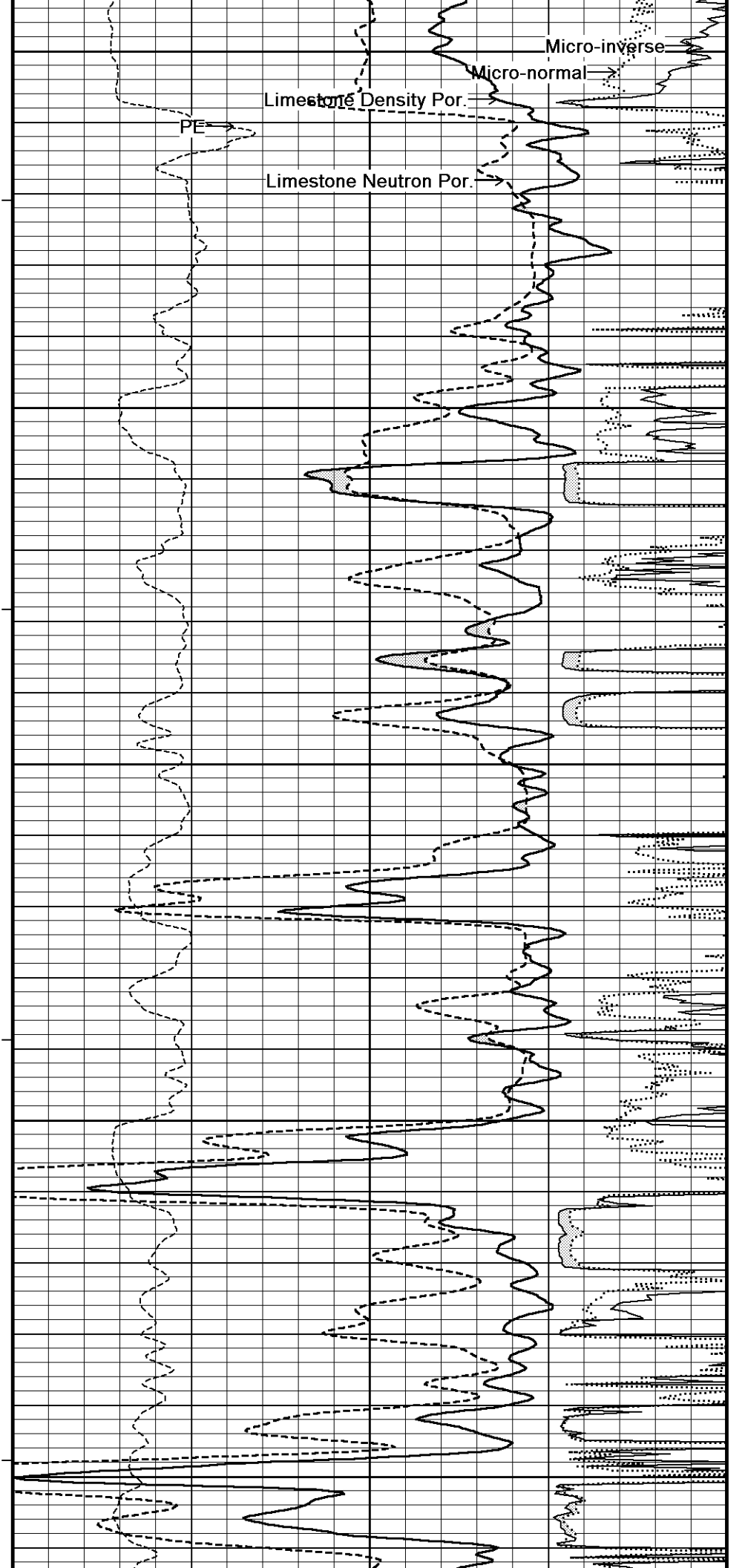
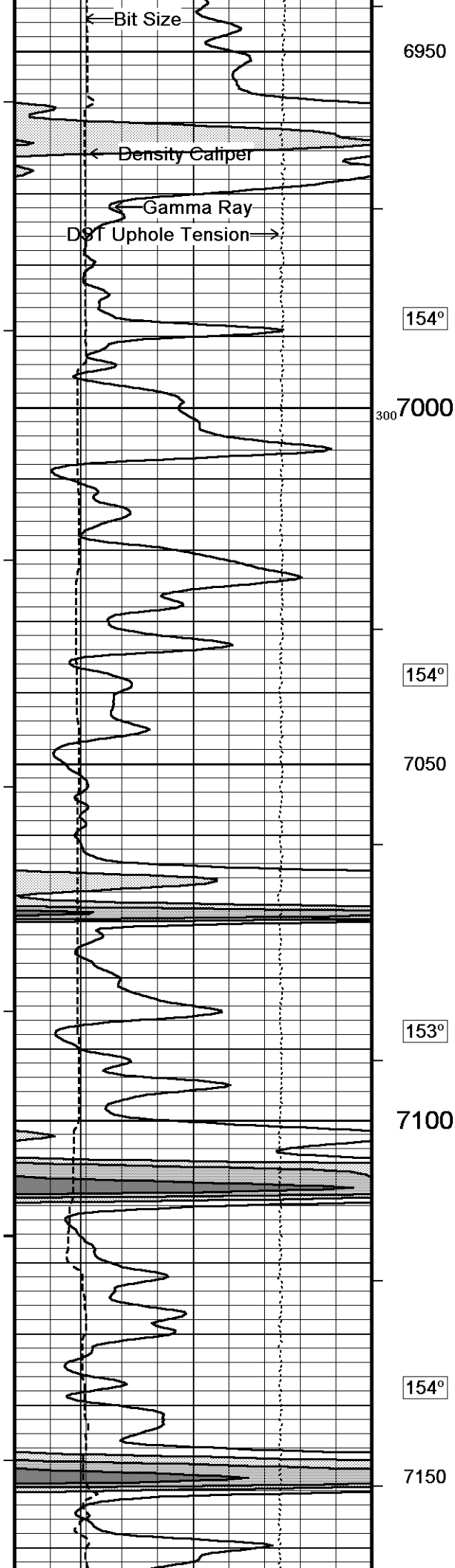
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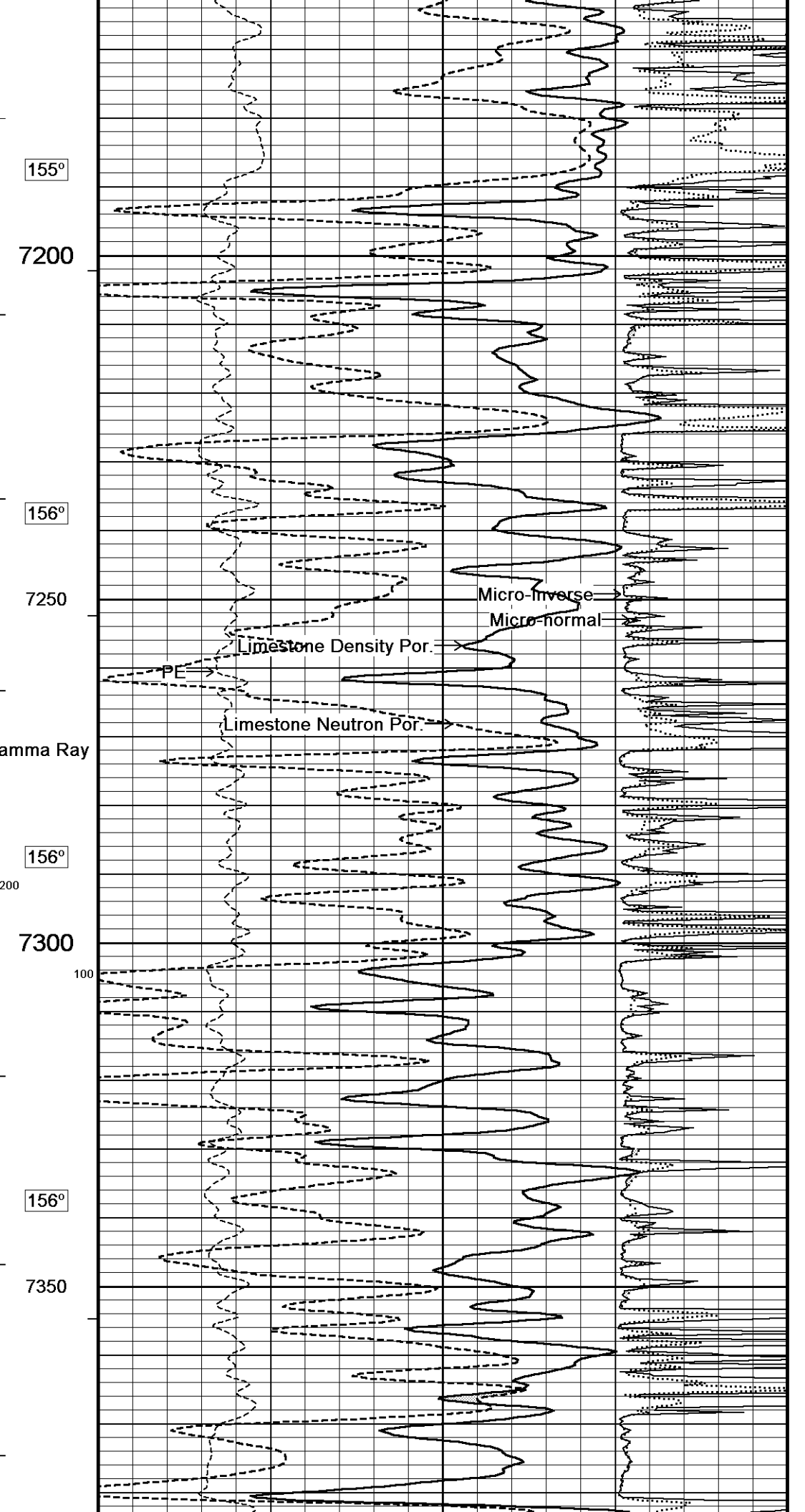
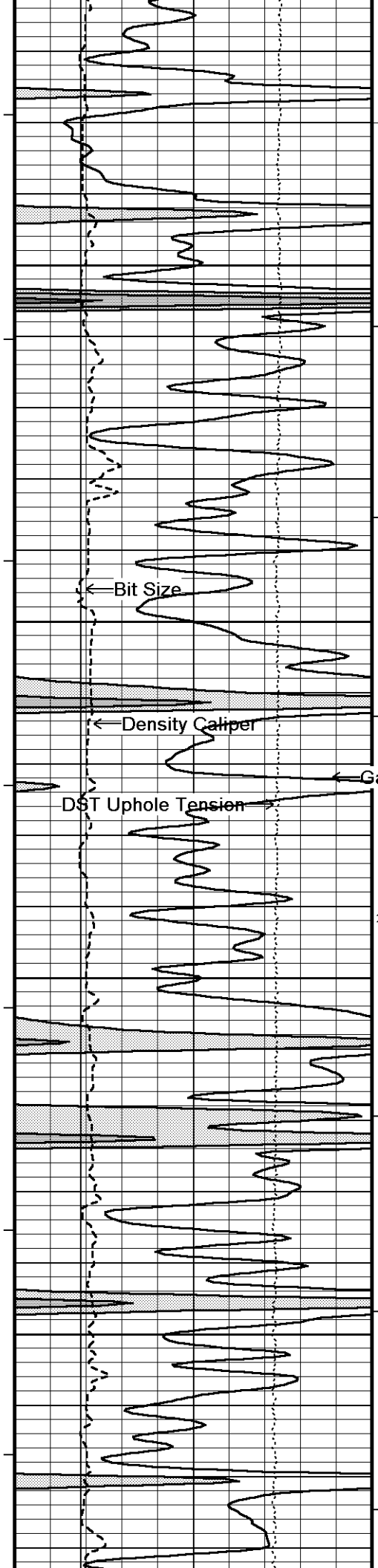
154°

6900

154°







155°

7200

156°

7250

Bit Size

Micro-Inverse

Micro-normal

Density Caliper

Limestone Density Por.

PE

Limestone Neutron Por.

DST Uphole Tension

Gamma Ray

156°

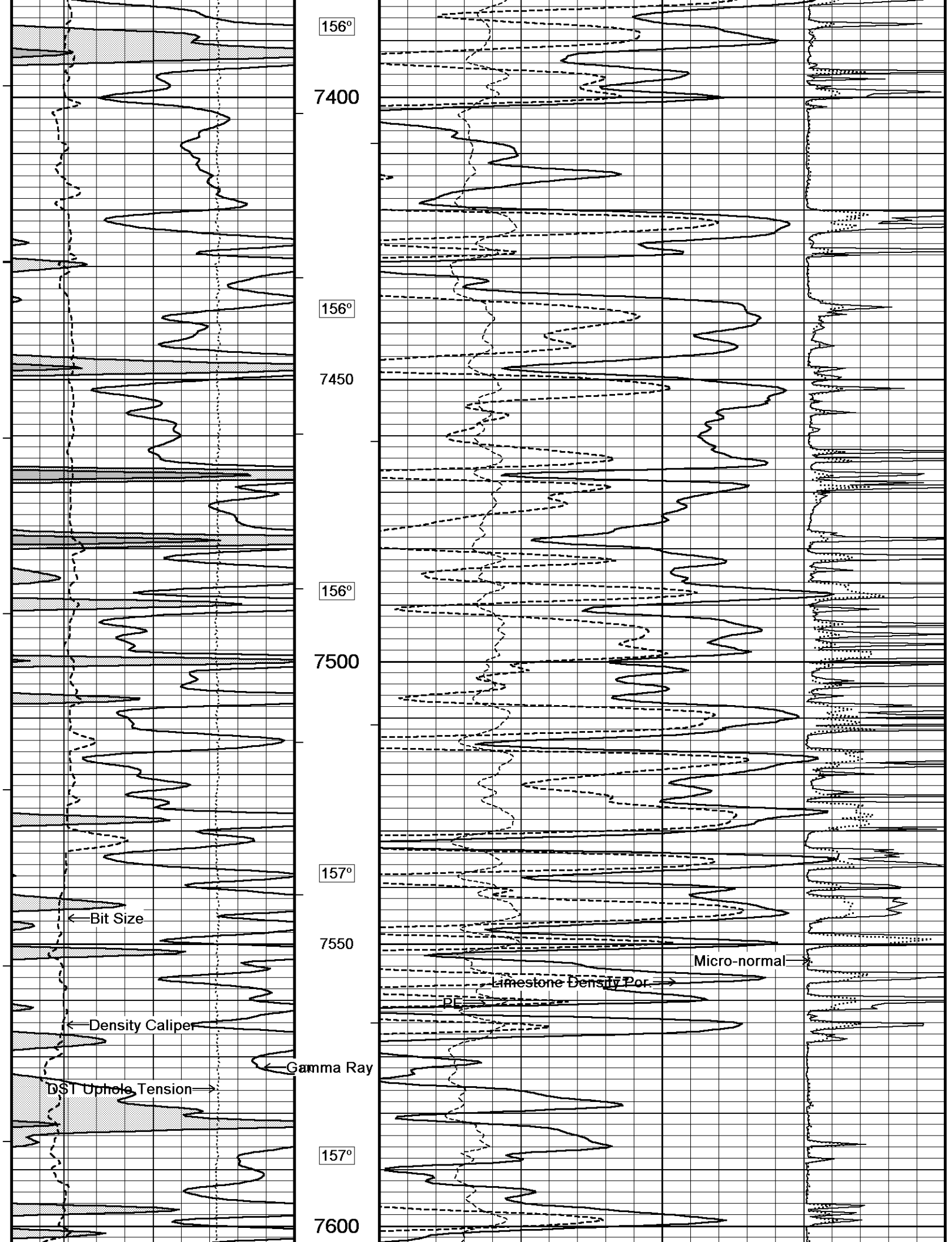
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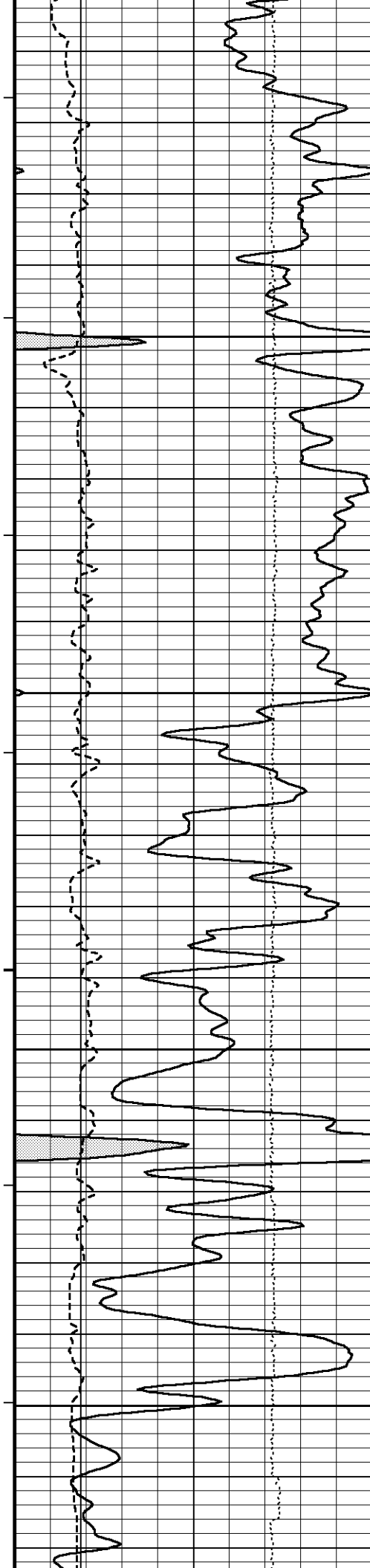
7300

100

156°

7350





157°

7650

159°

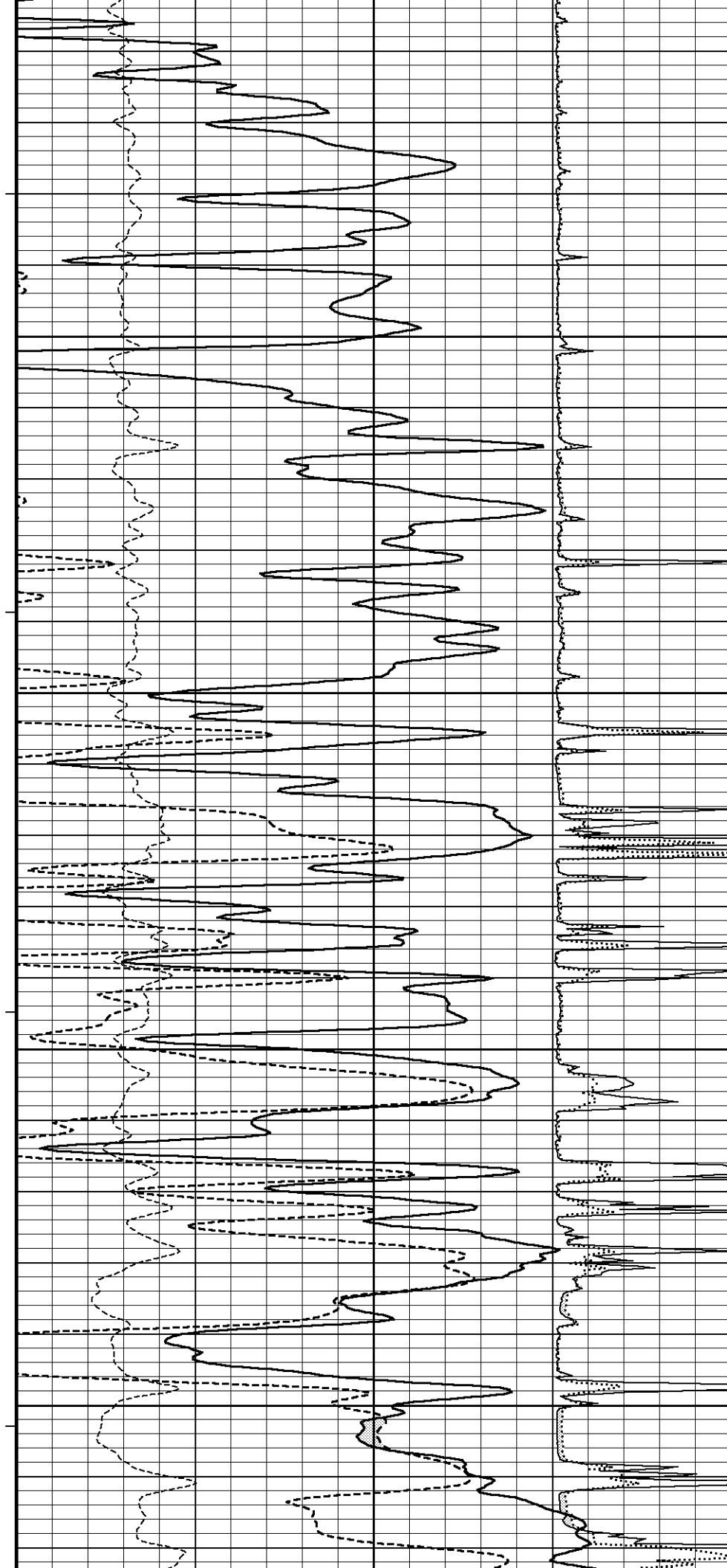
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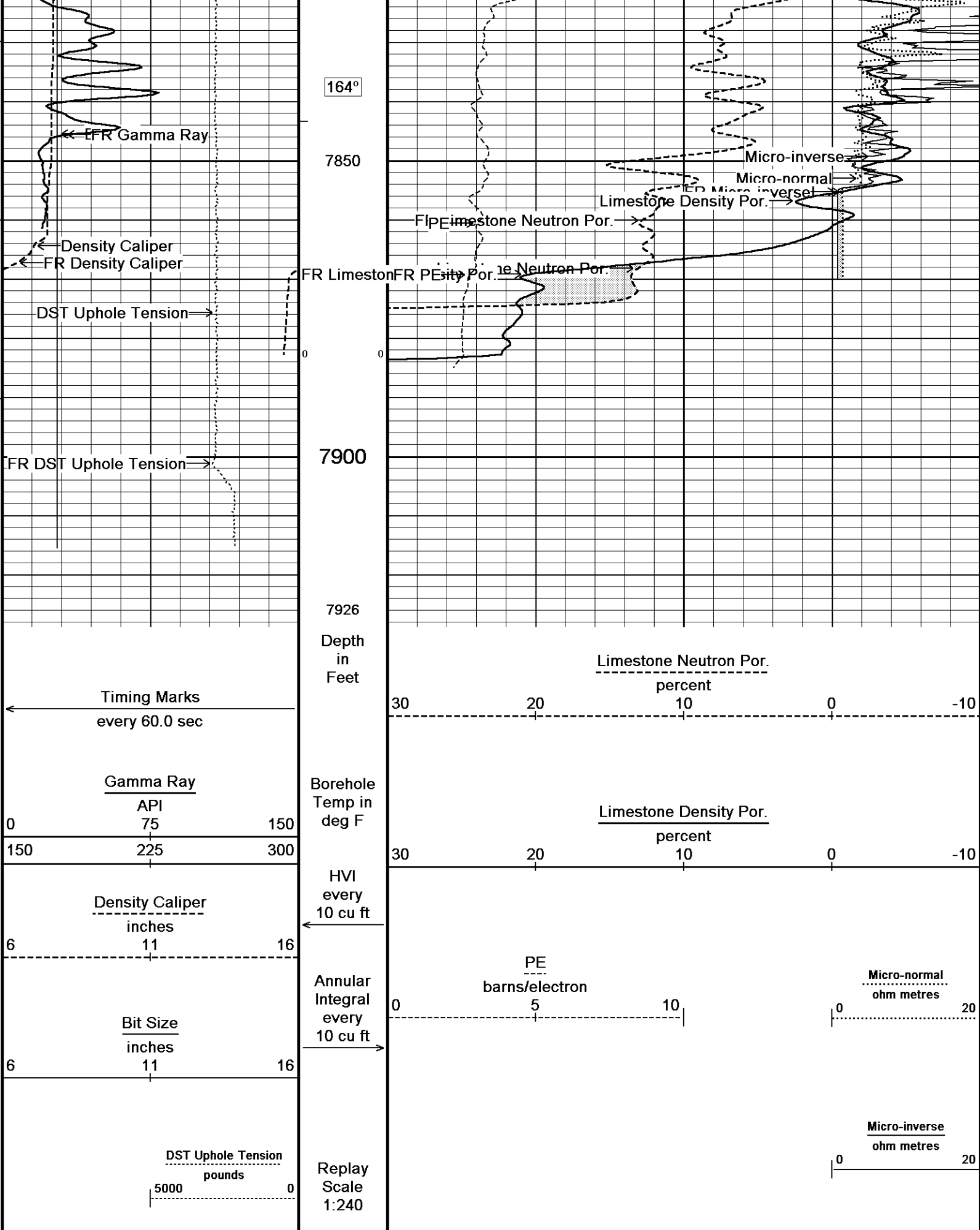
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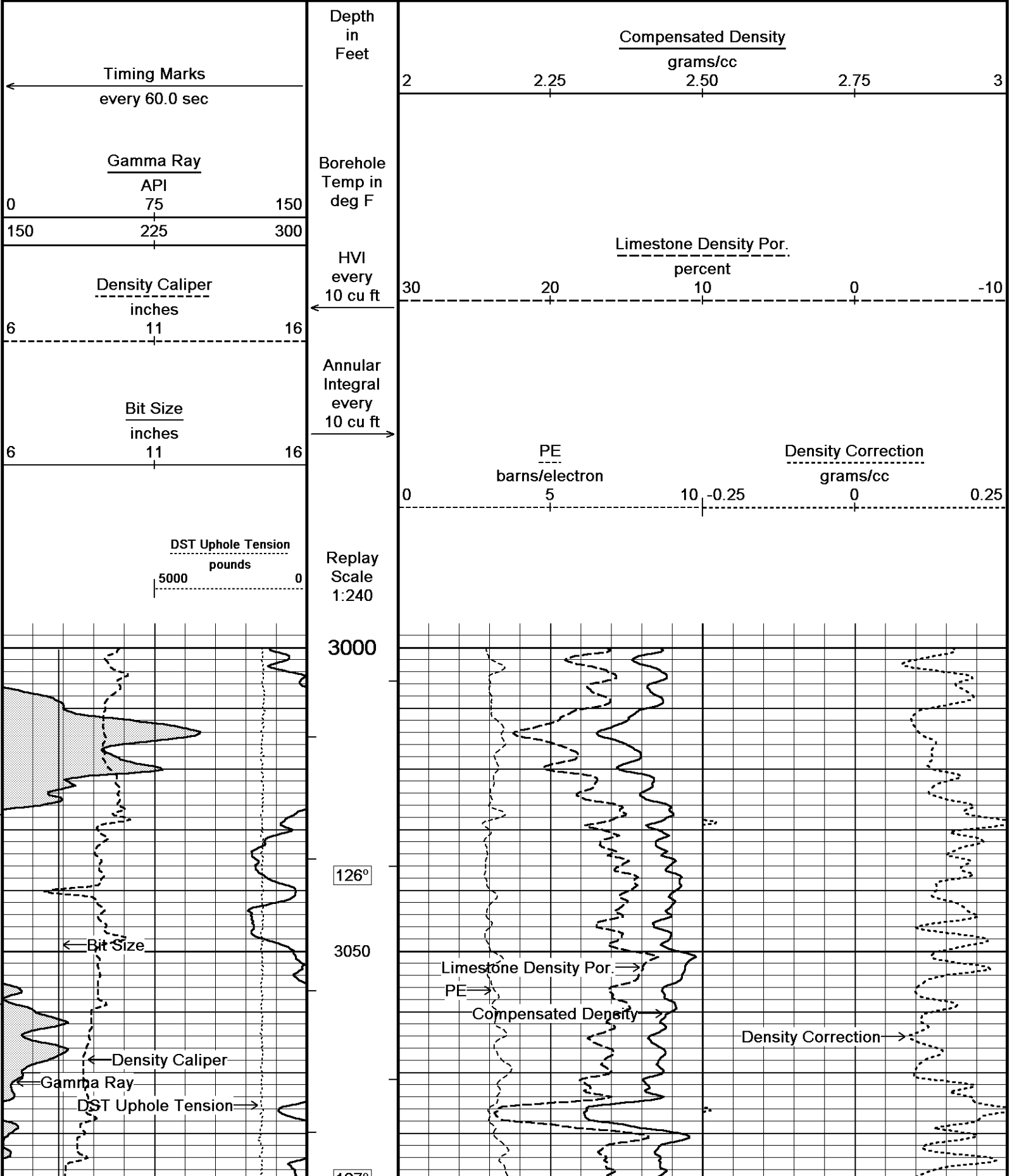
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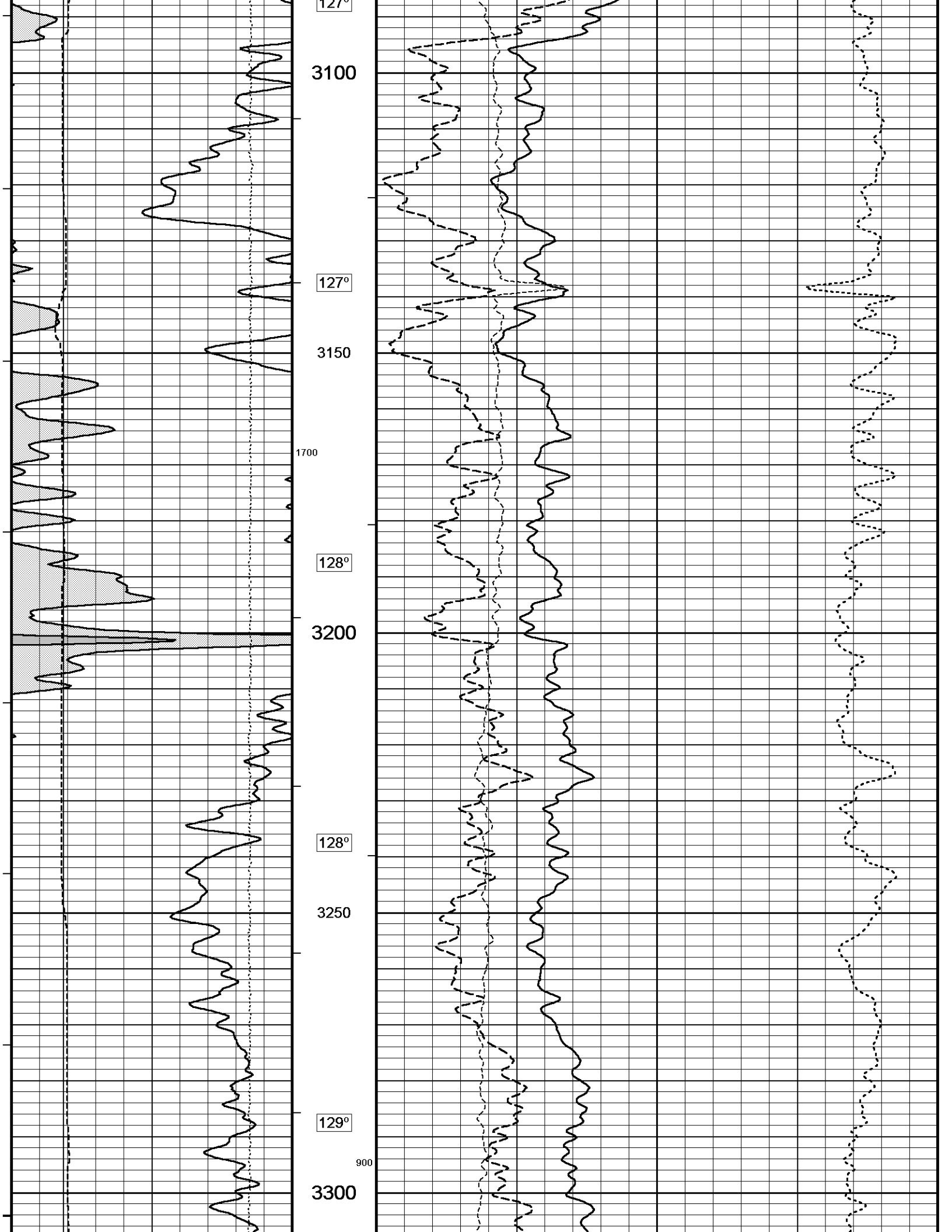
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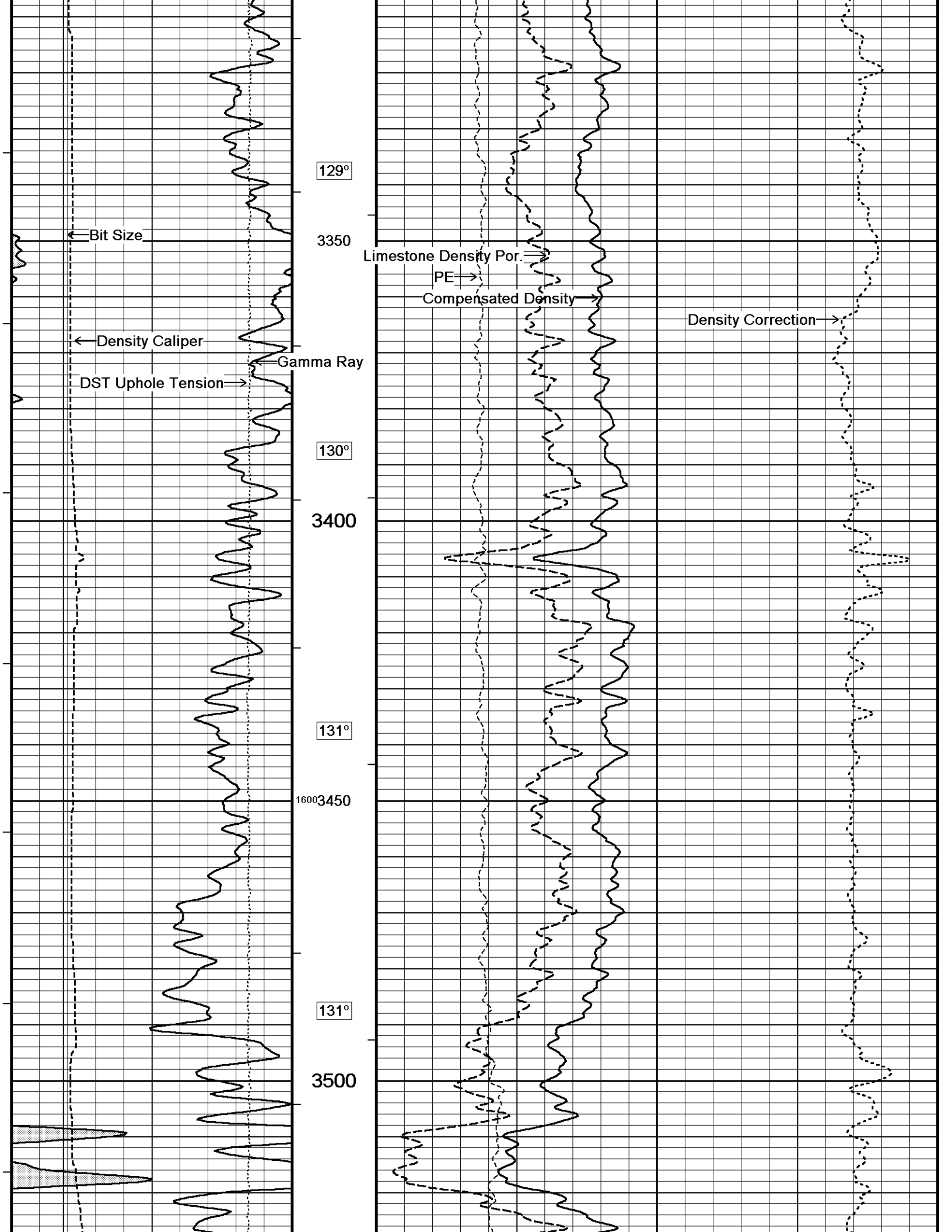
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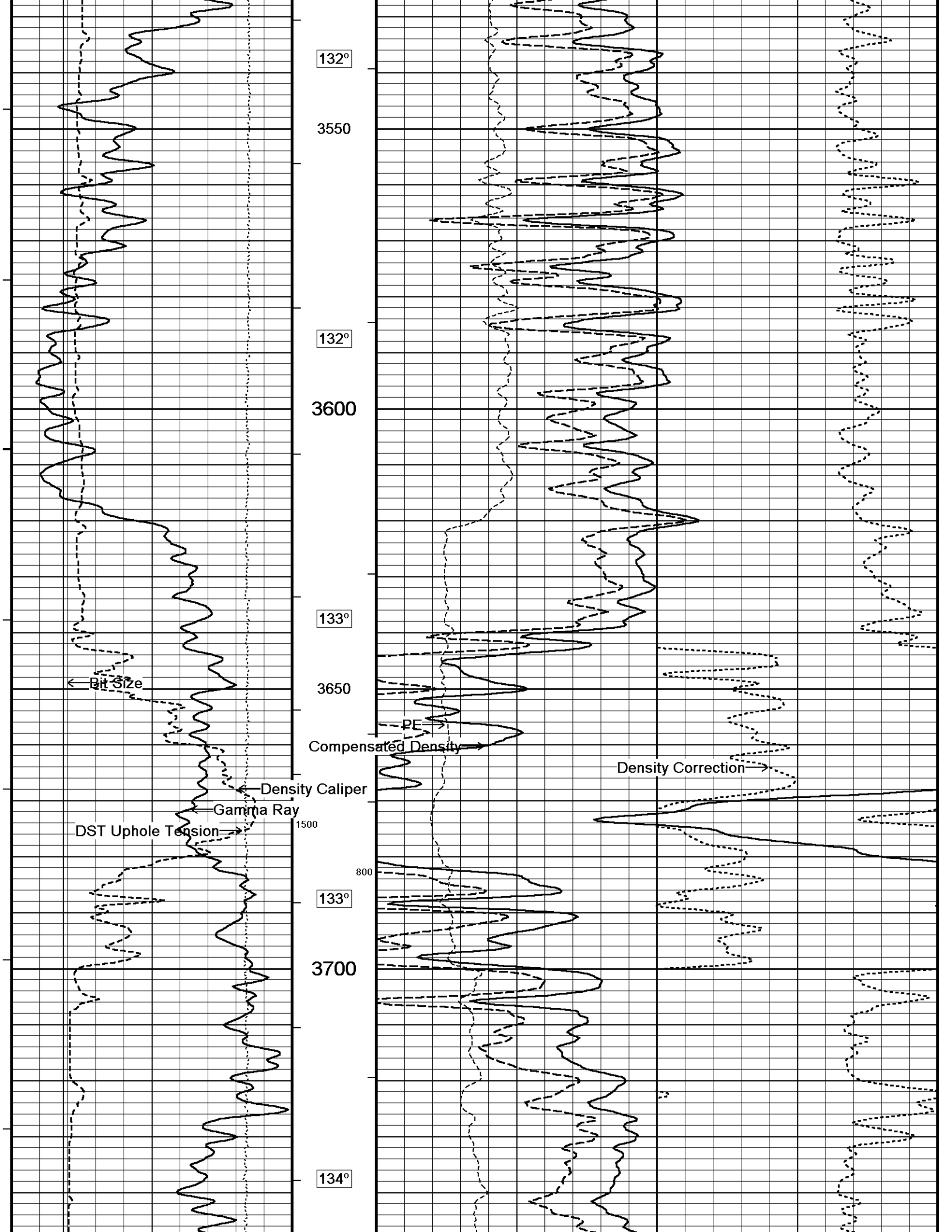


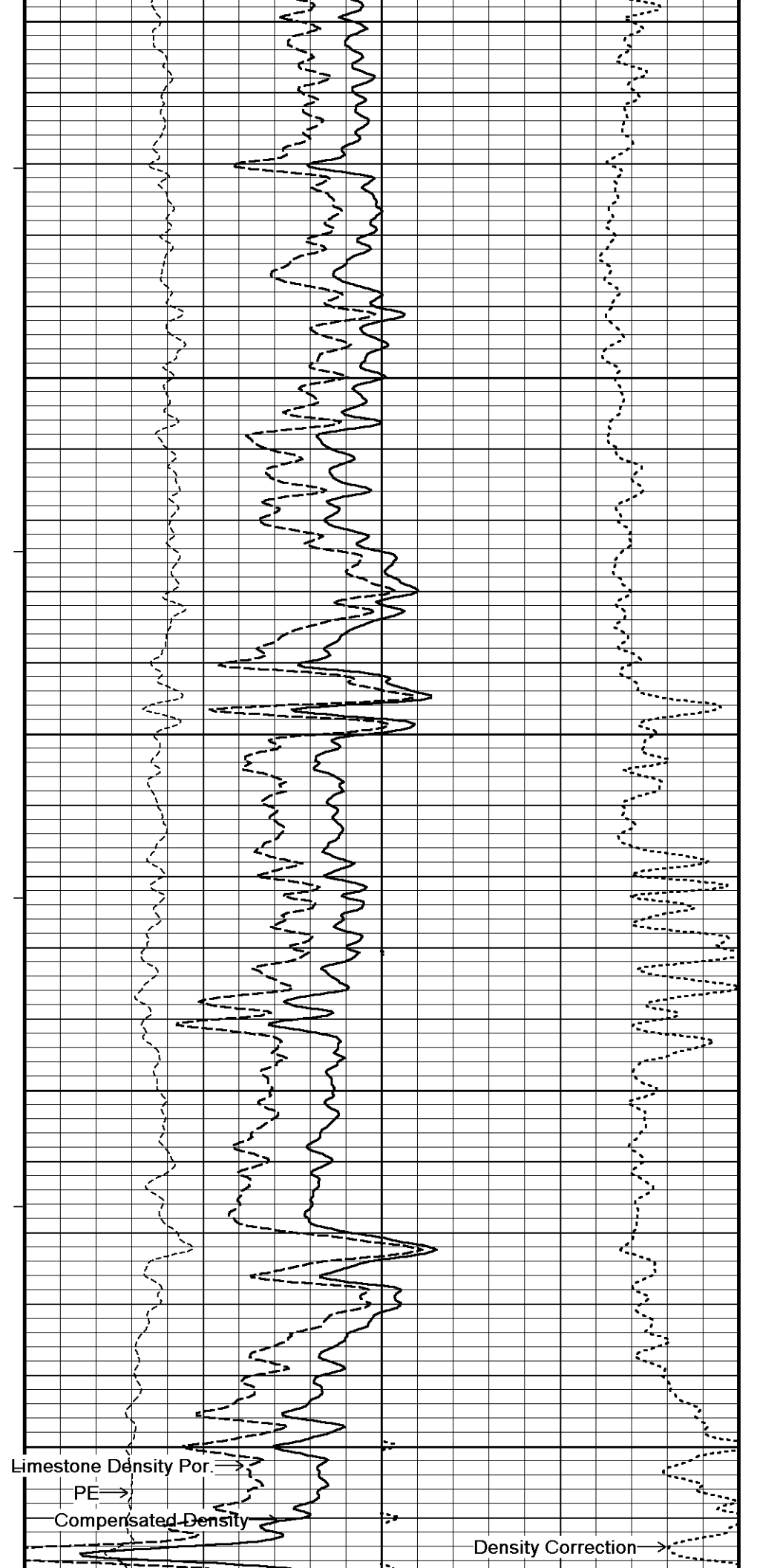
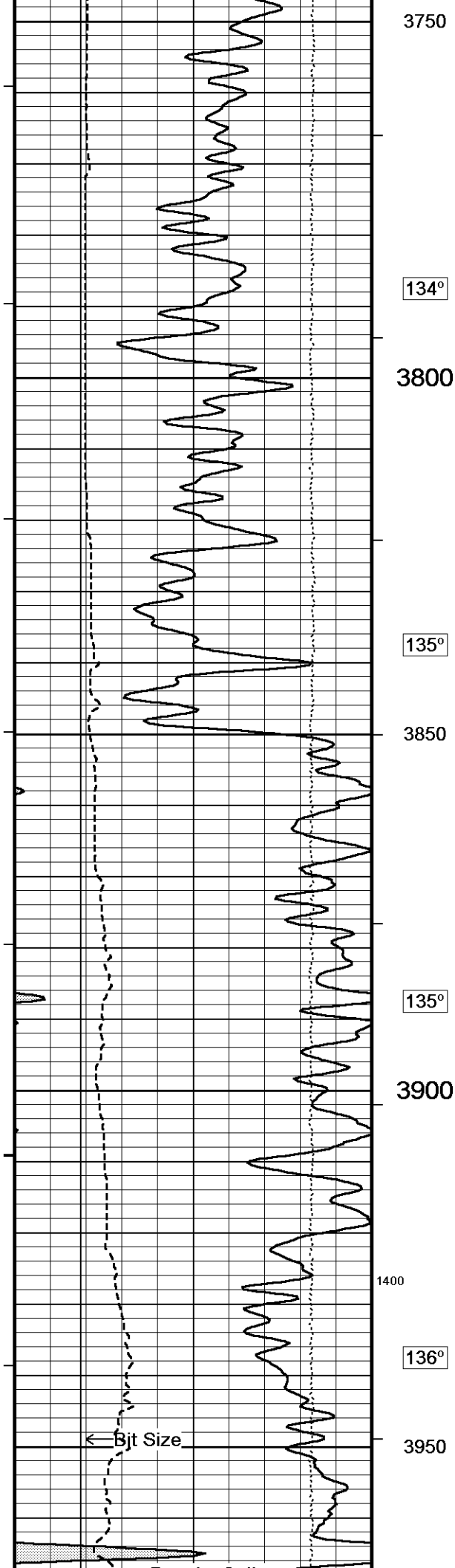


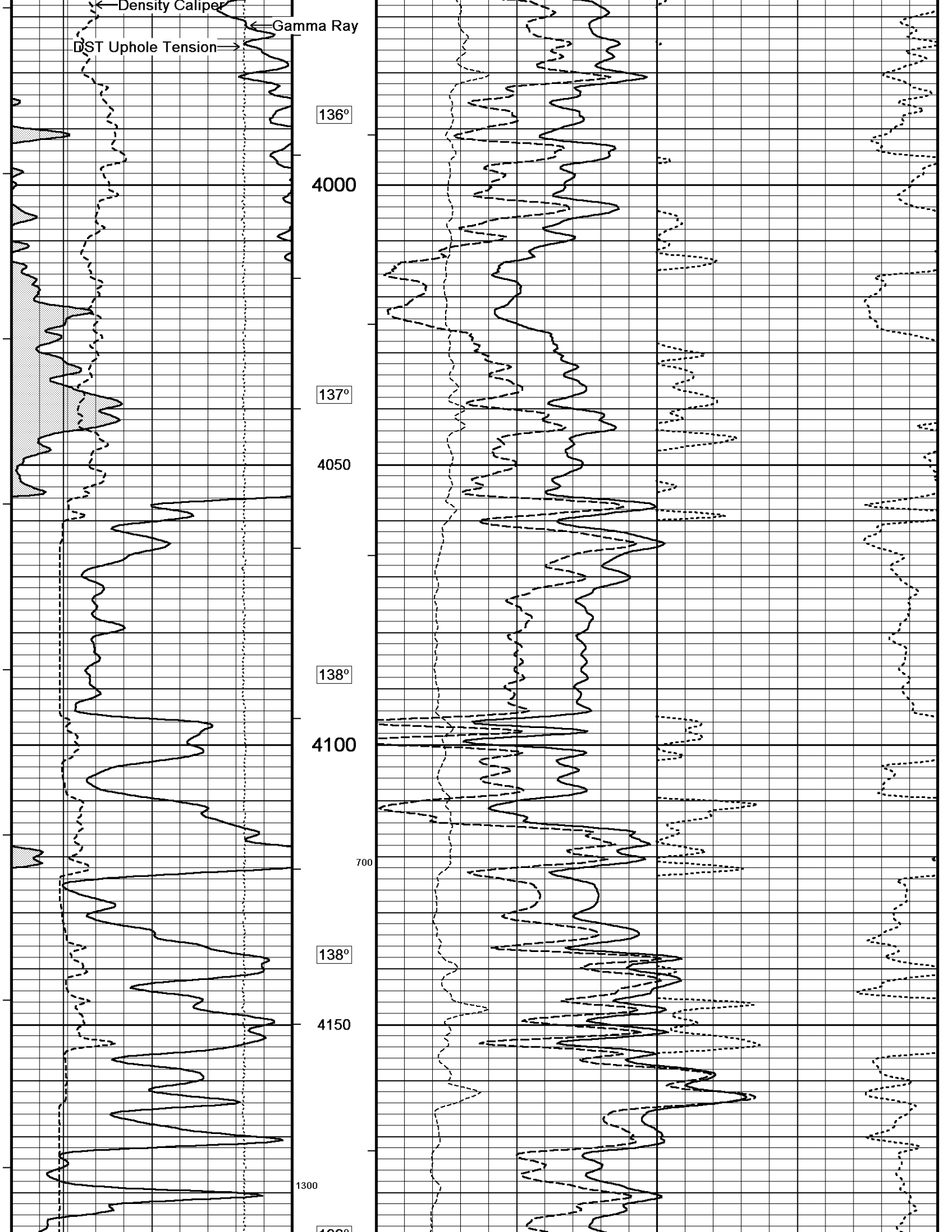


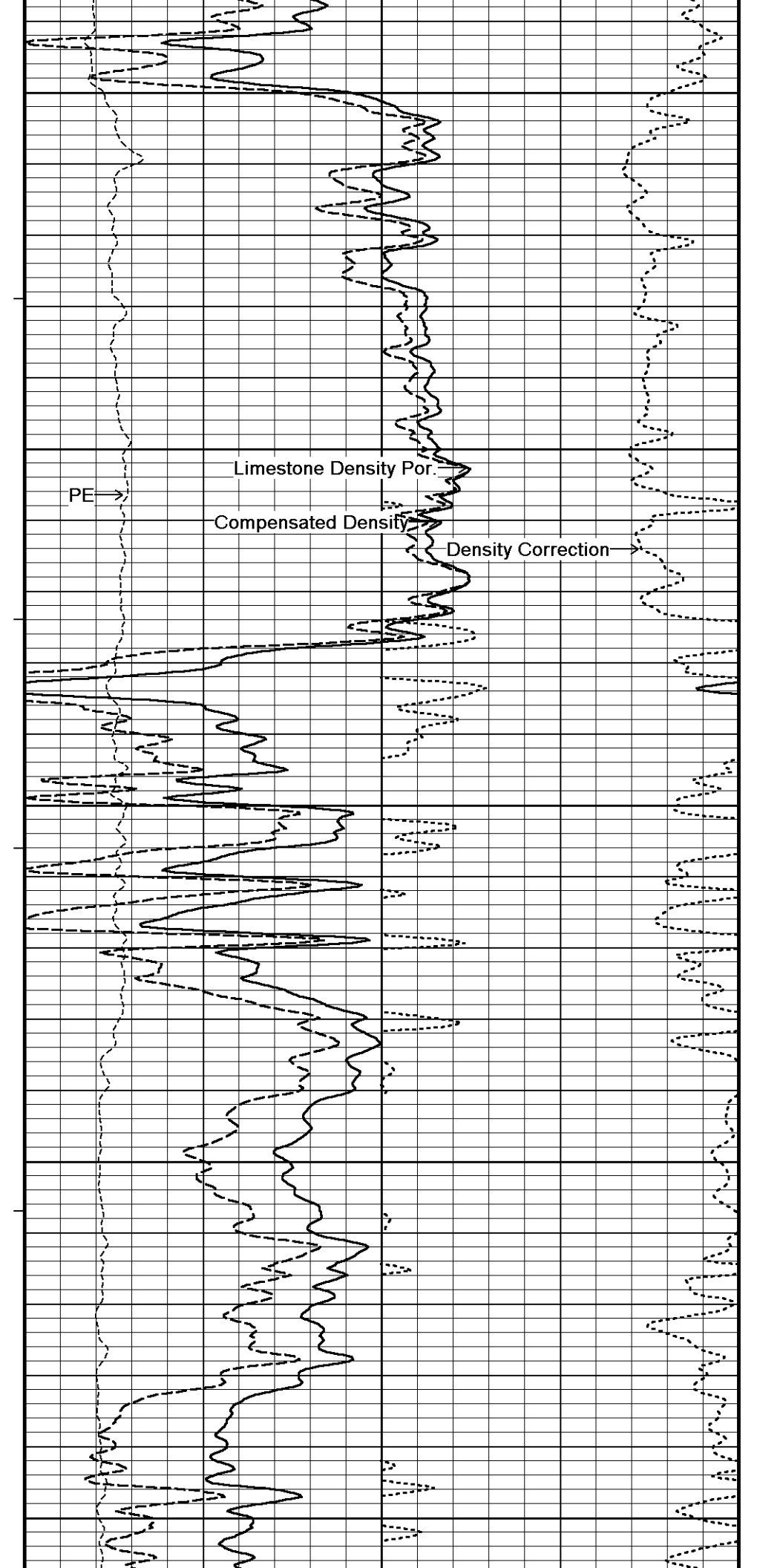
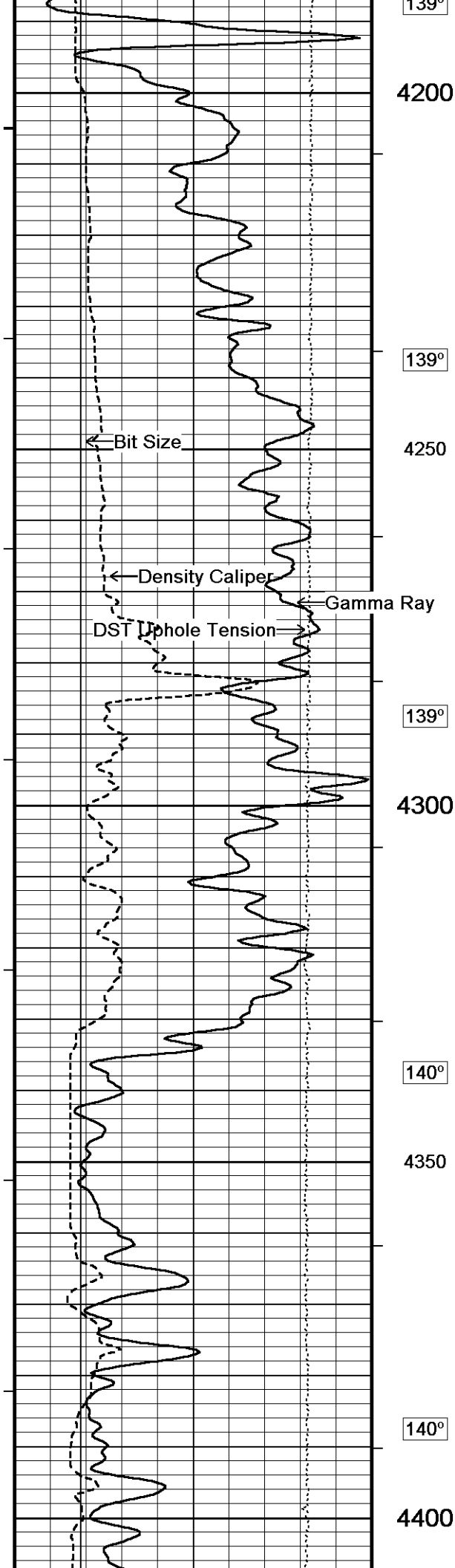


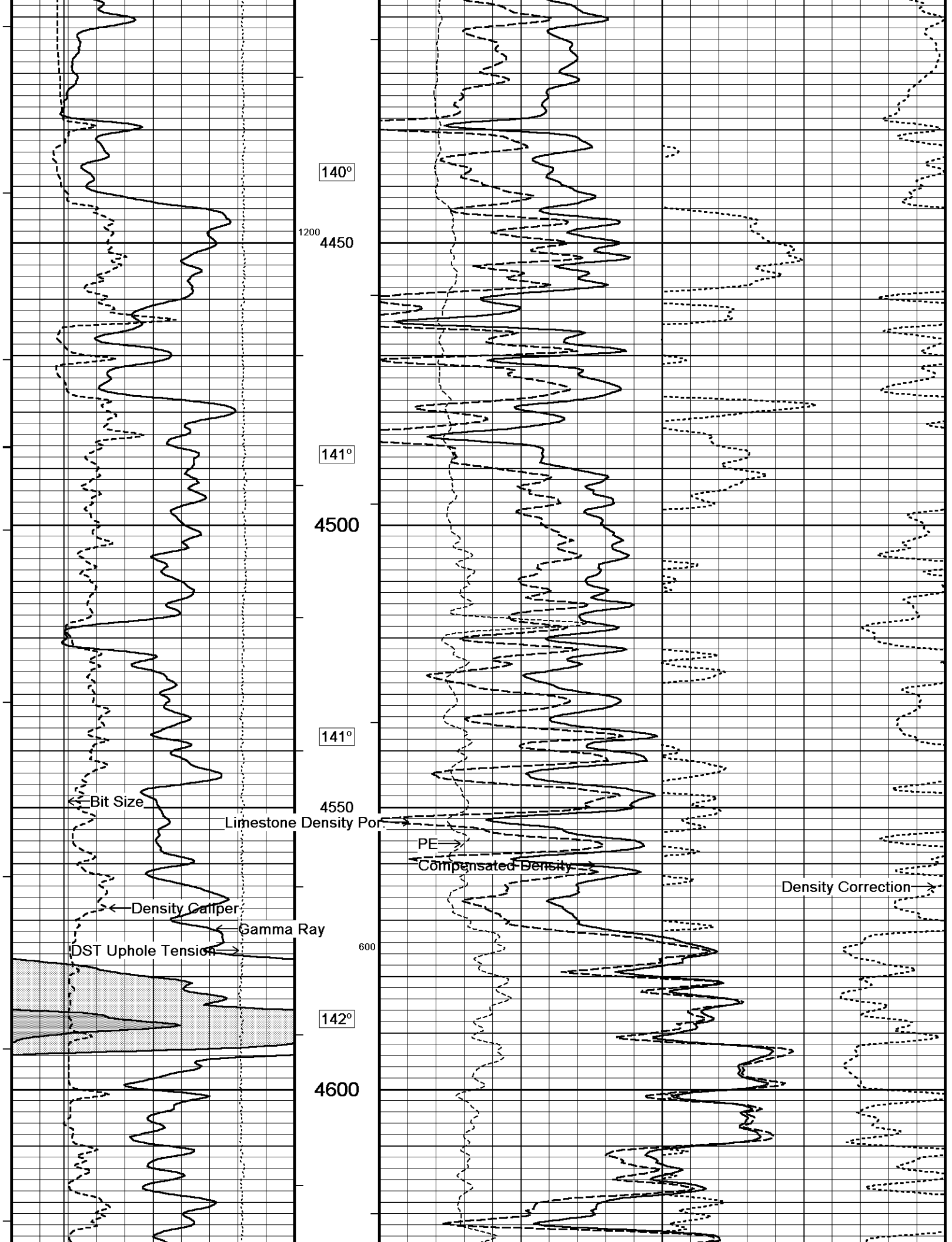


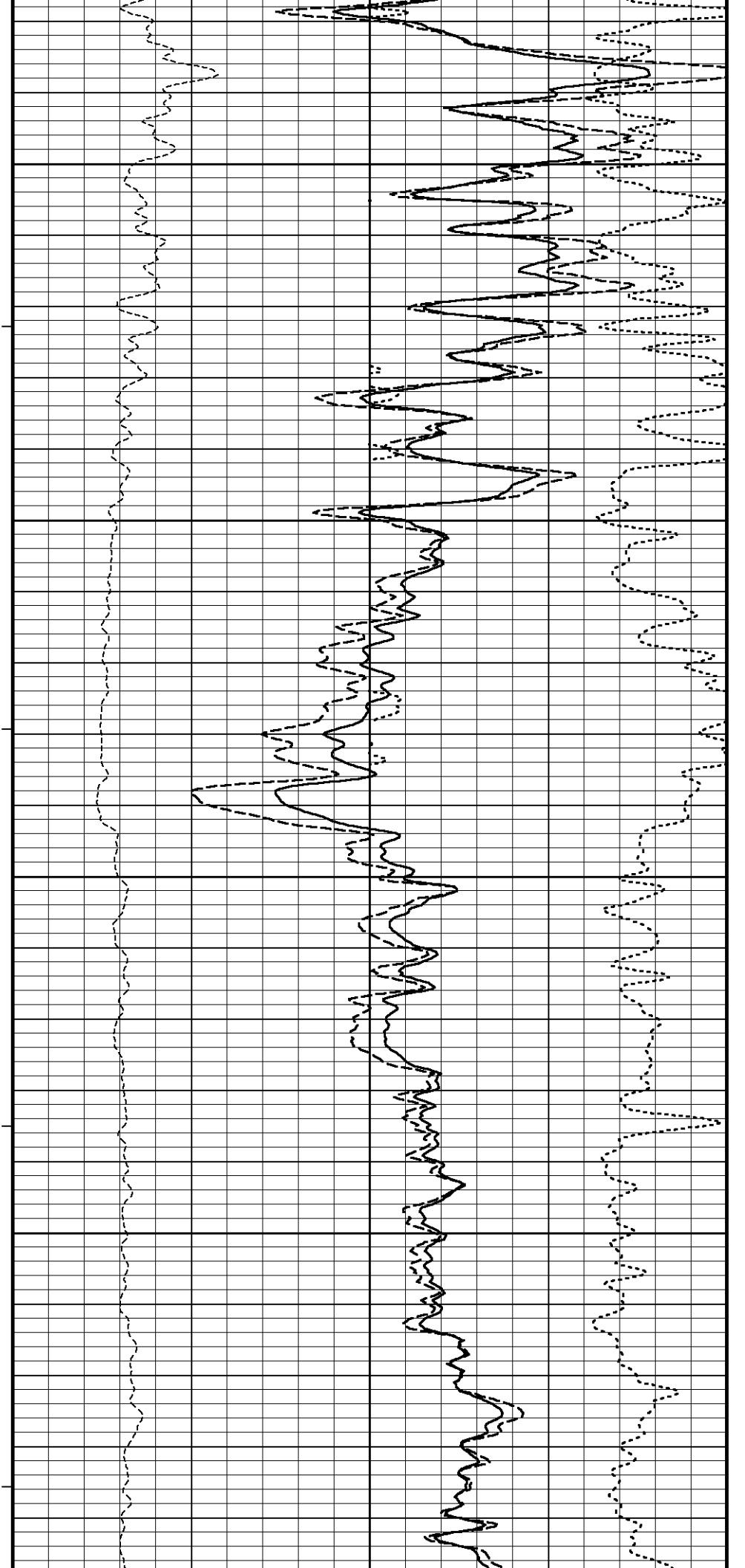
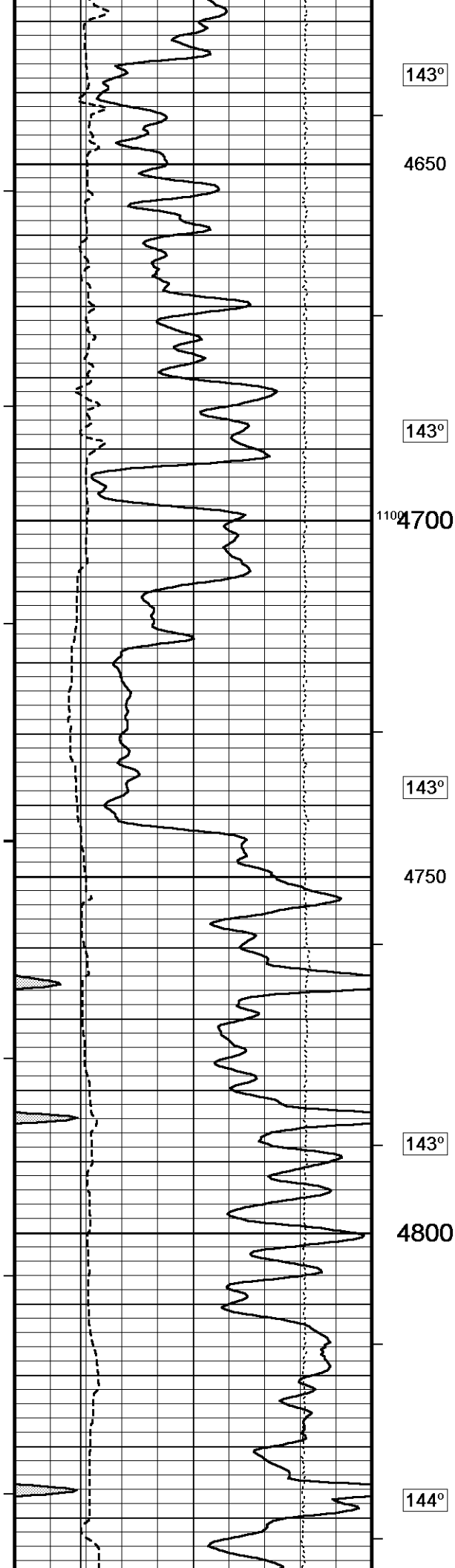


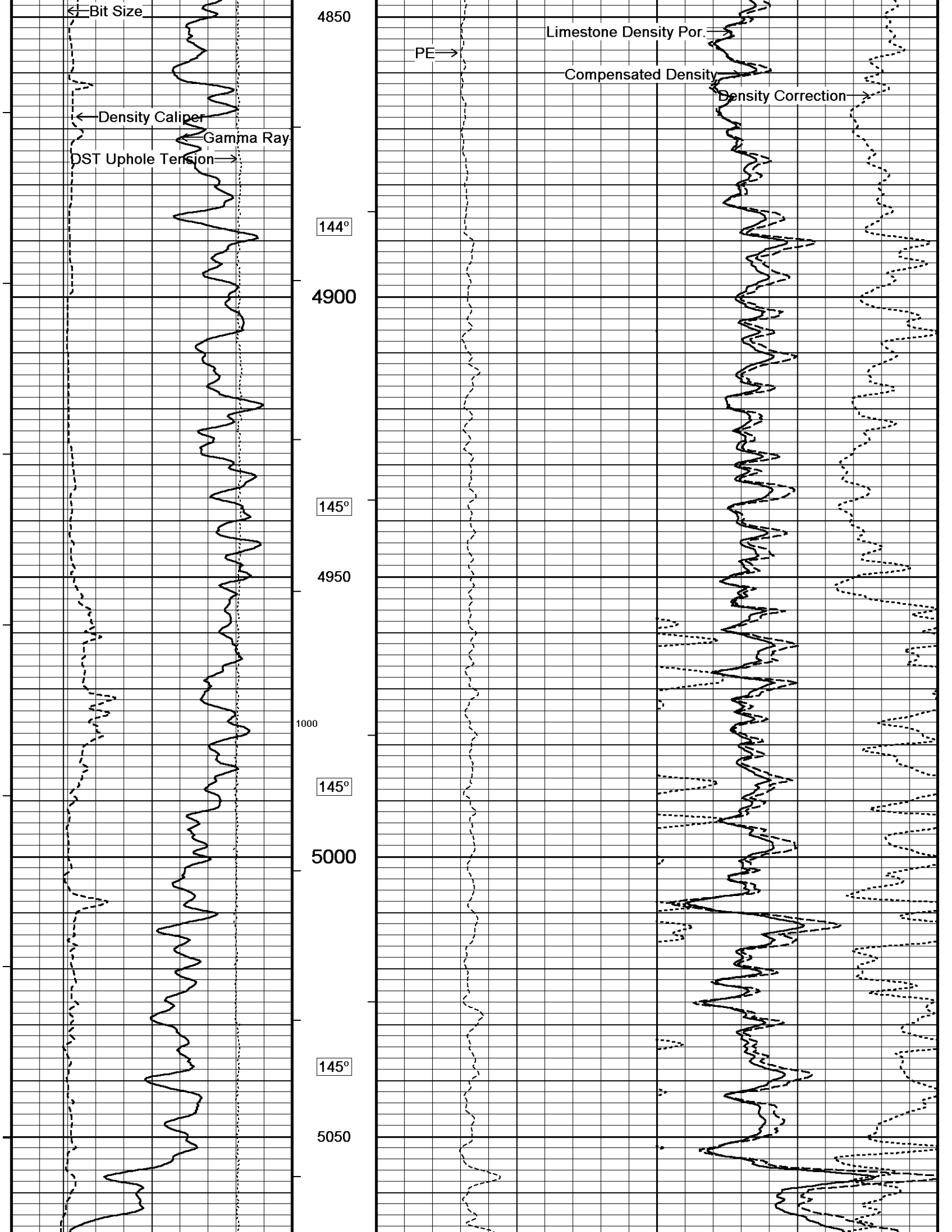


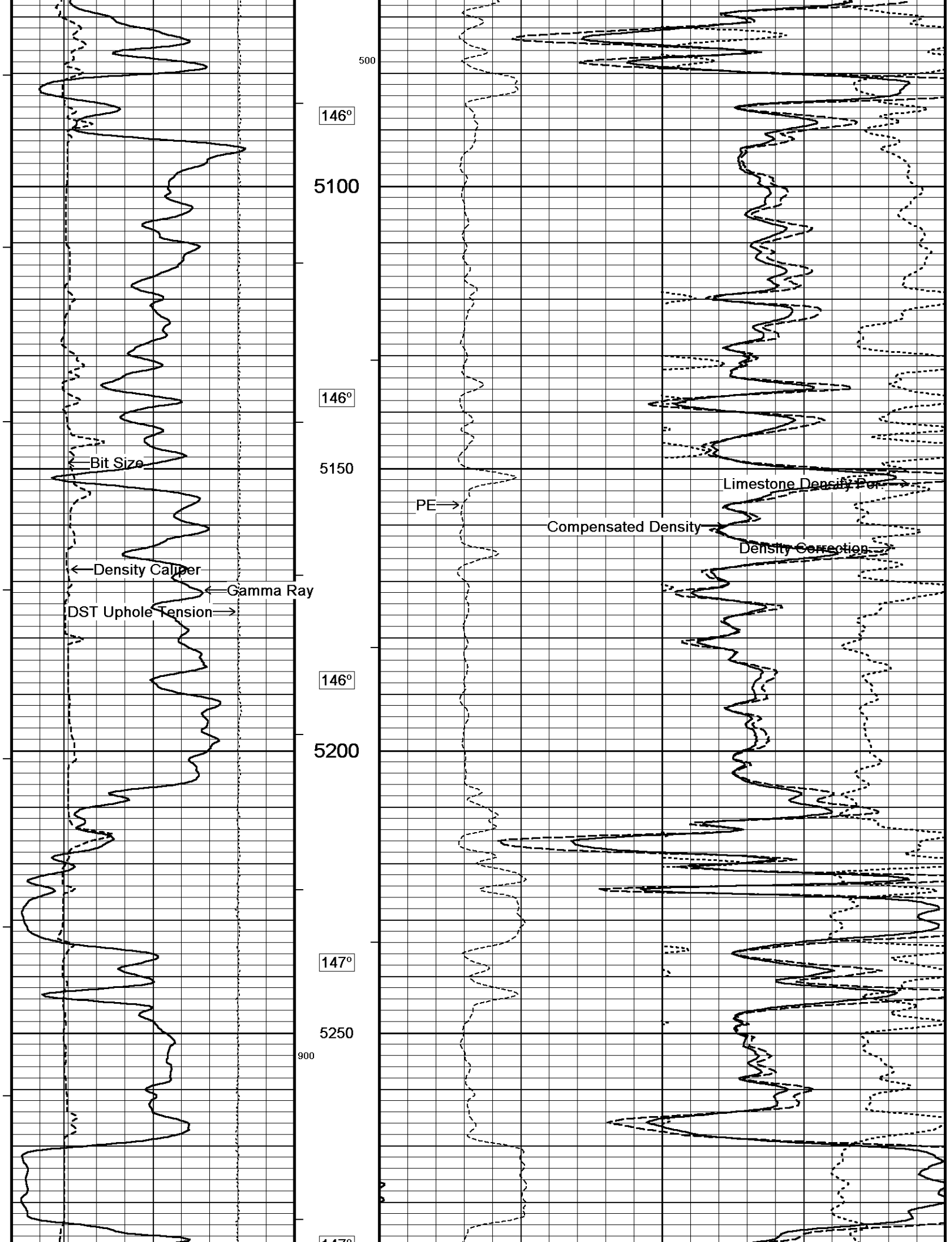


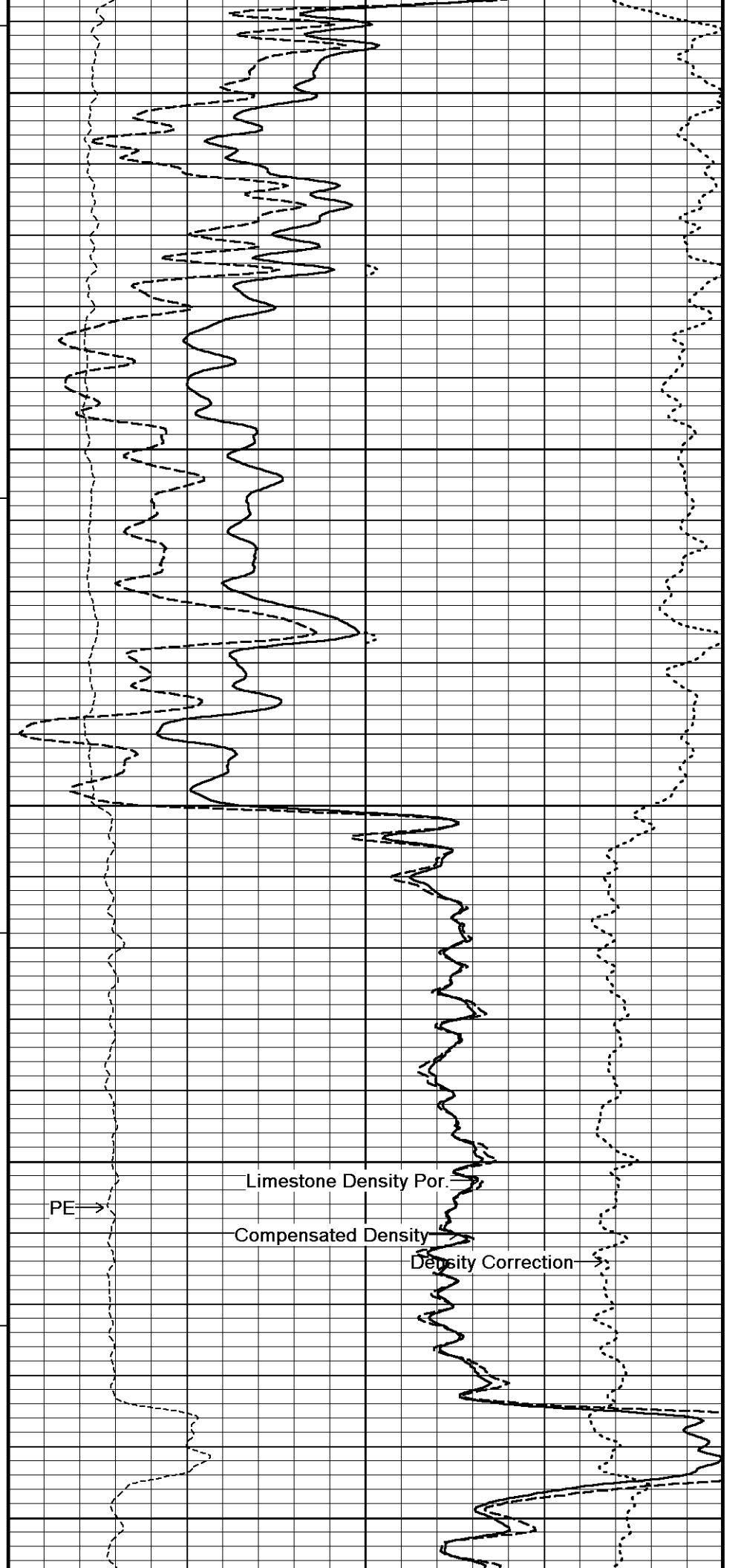
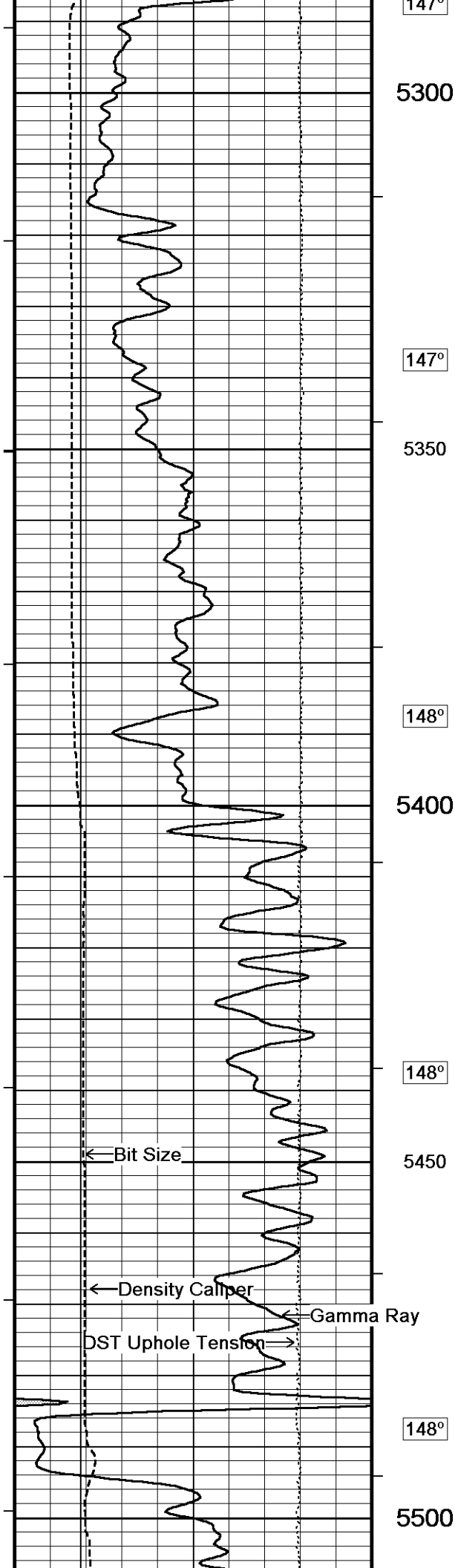


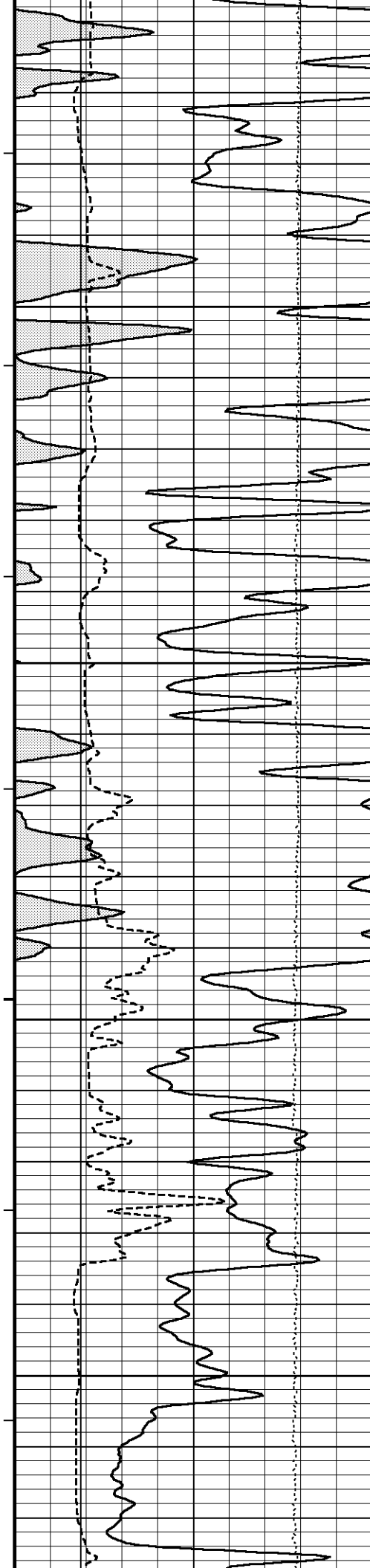












148°

800 5550

148°

5600

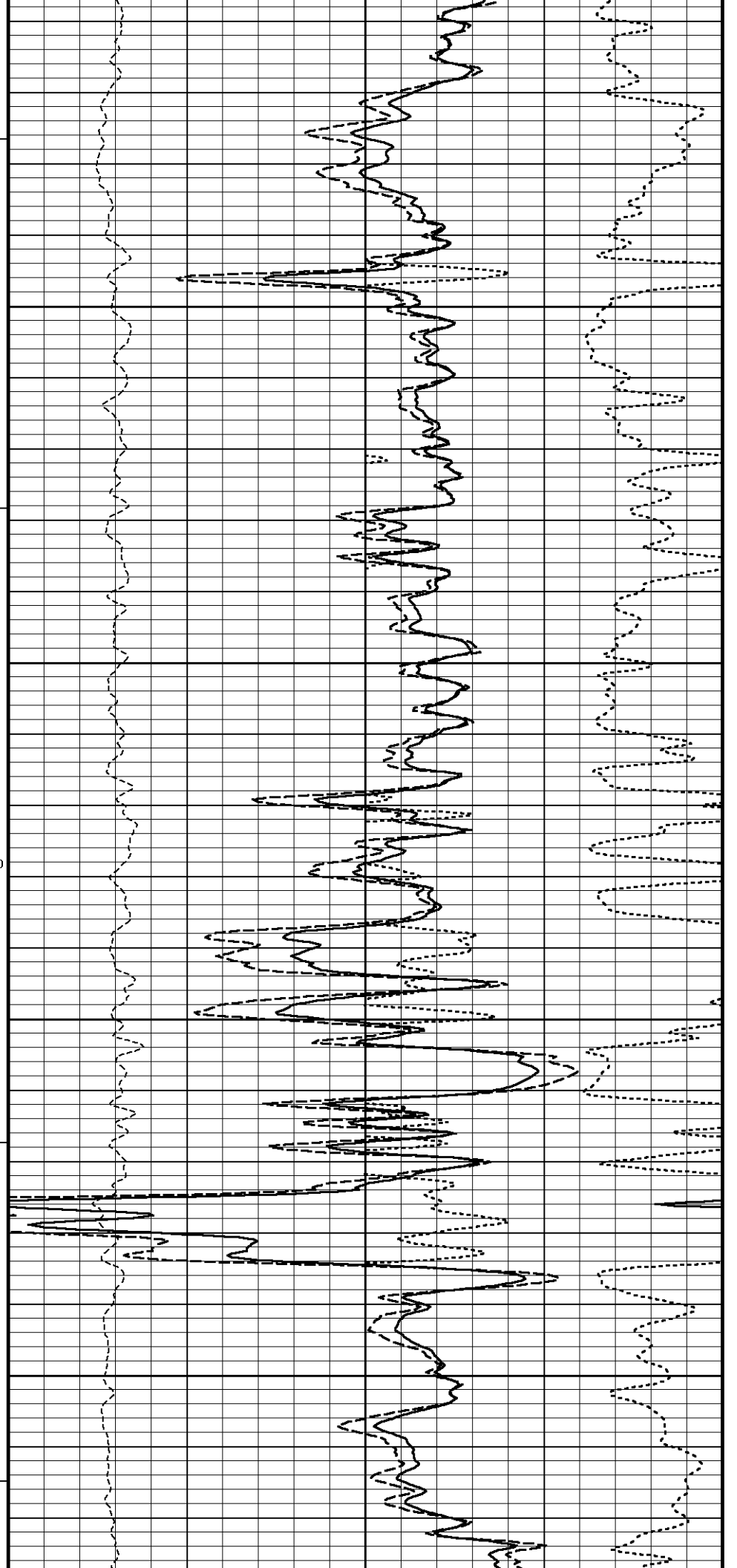
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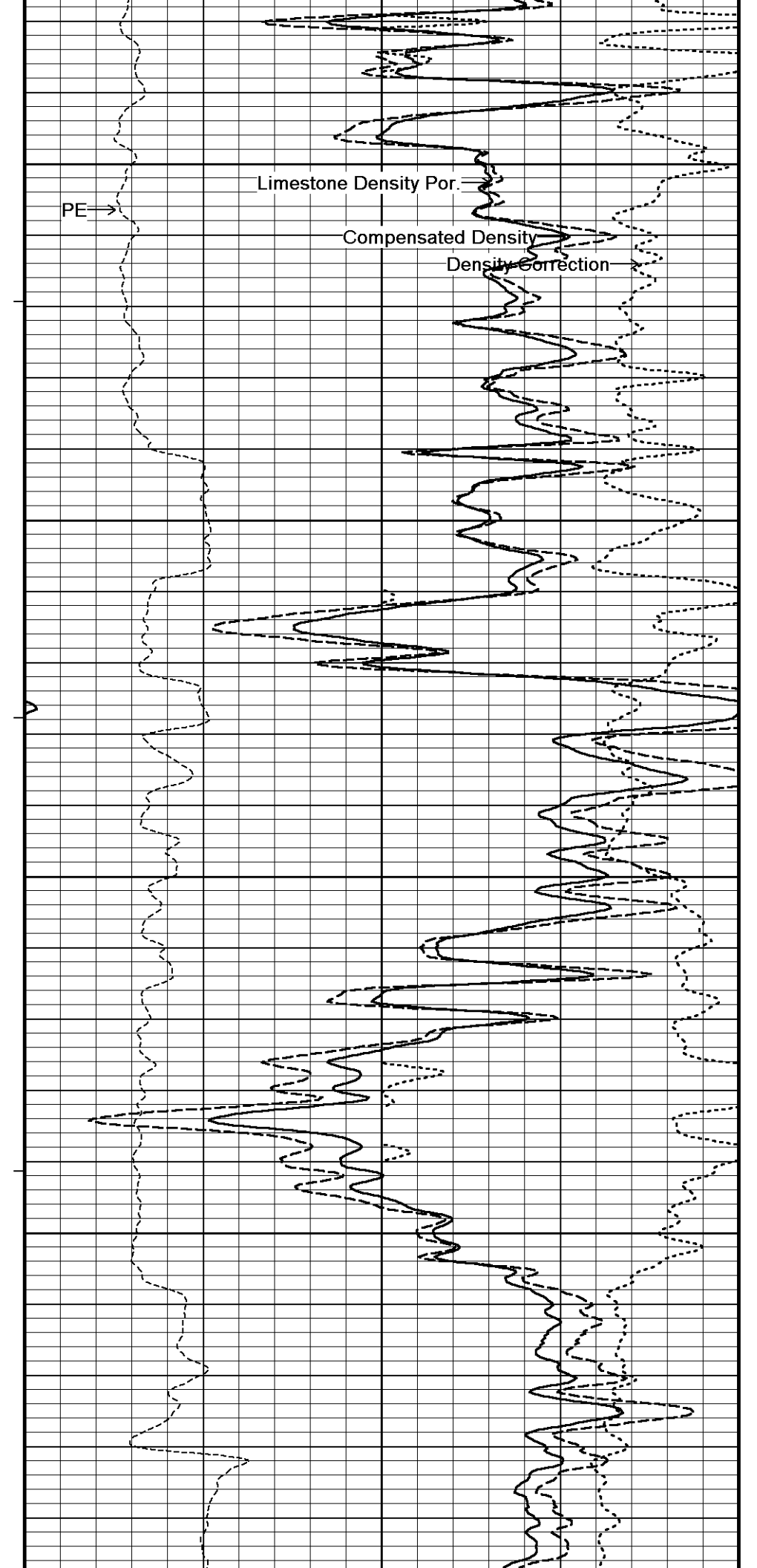
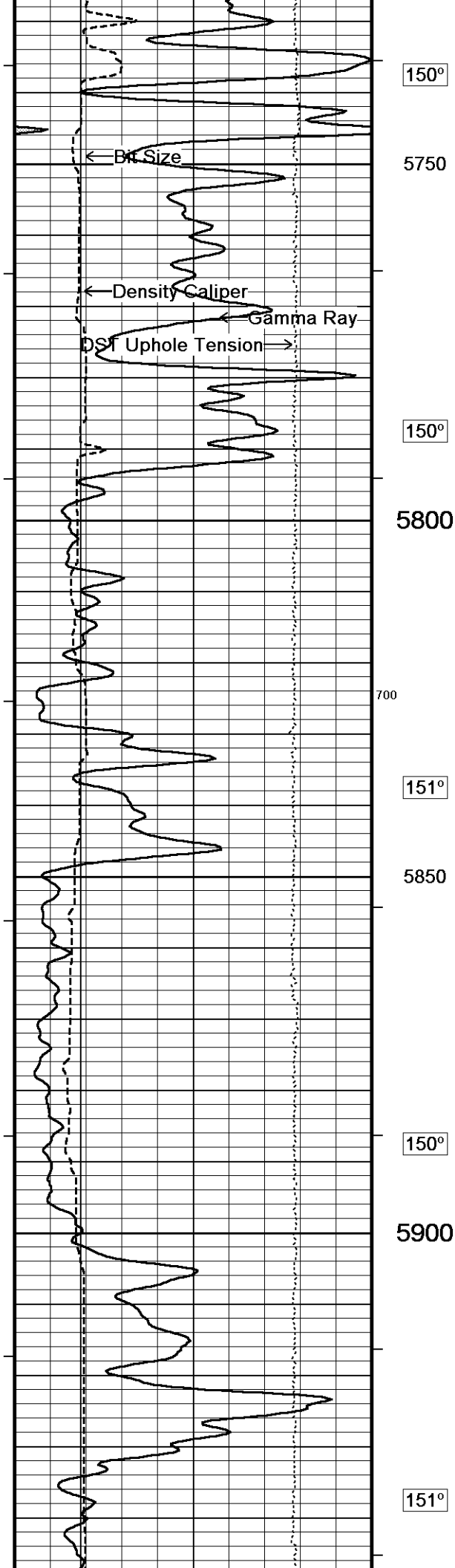
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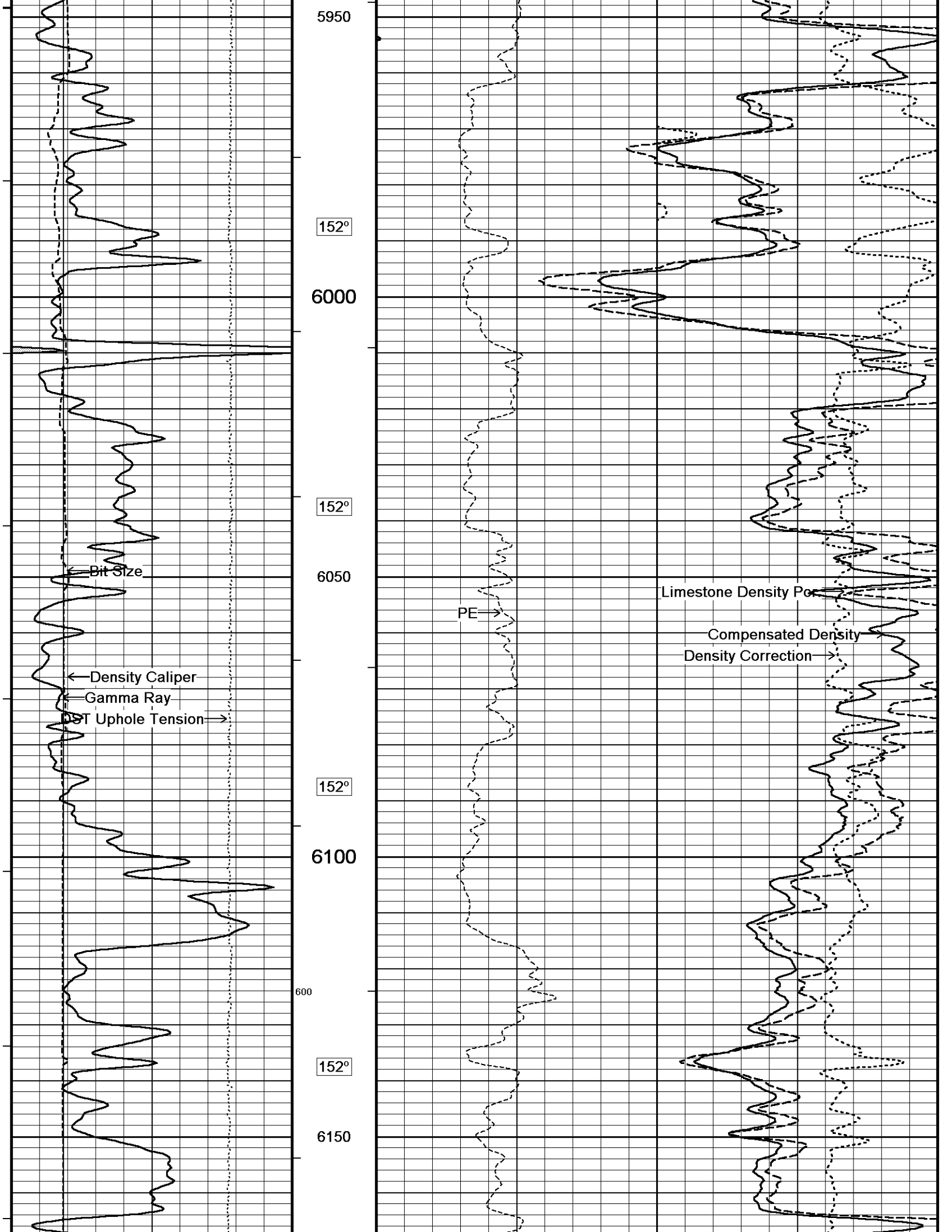
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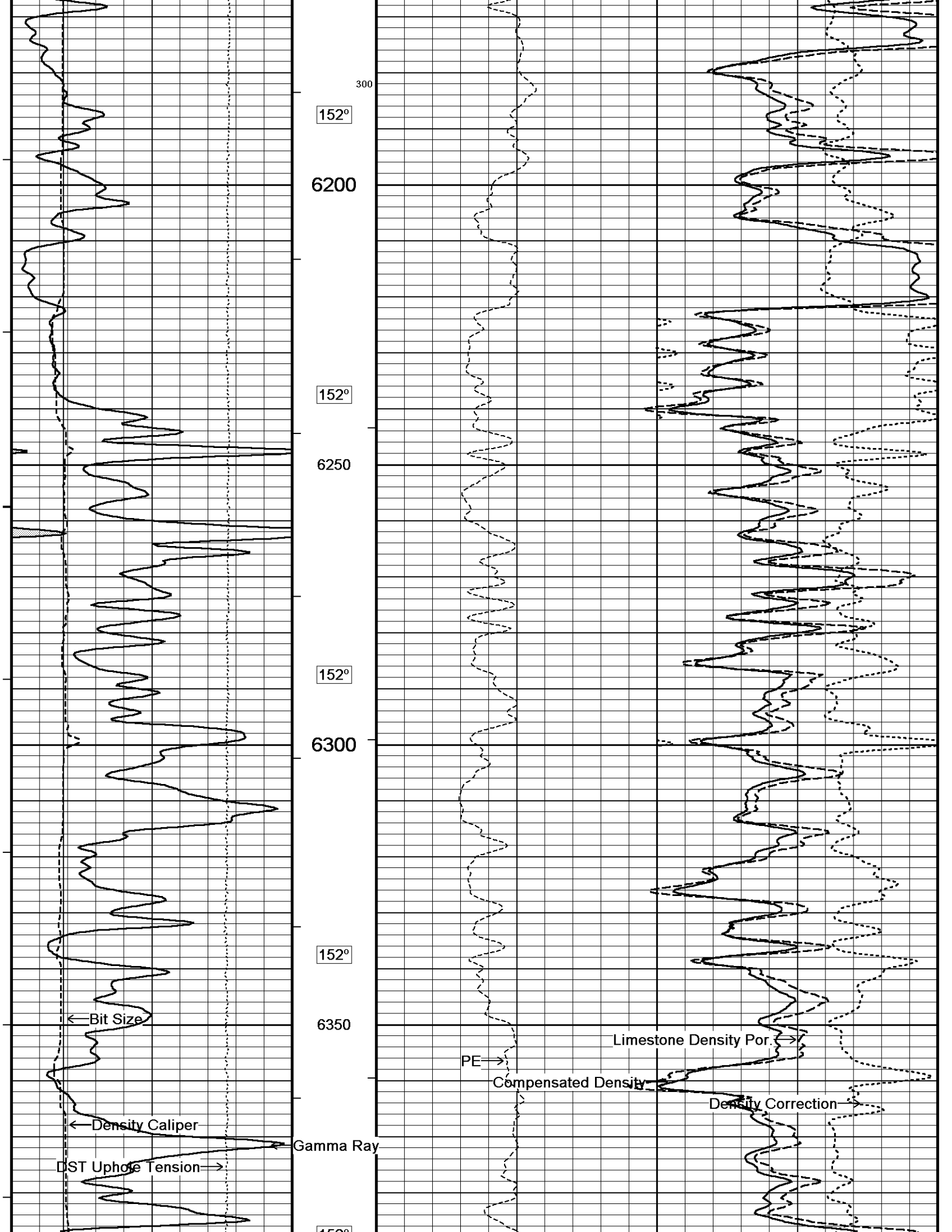
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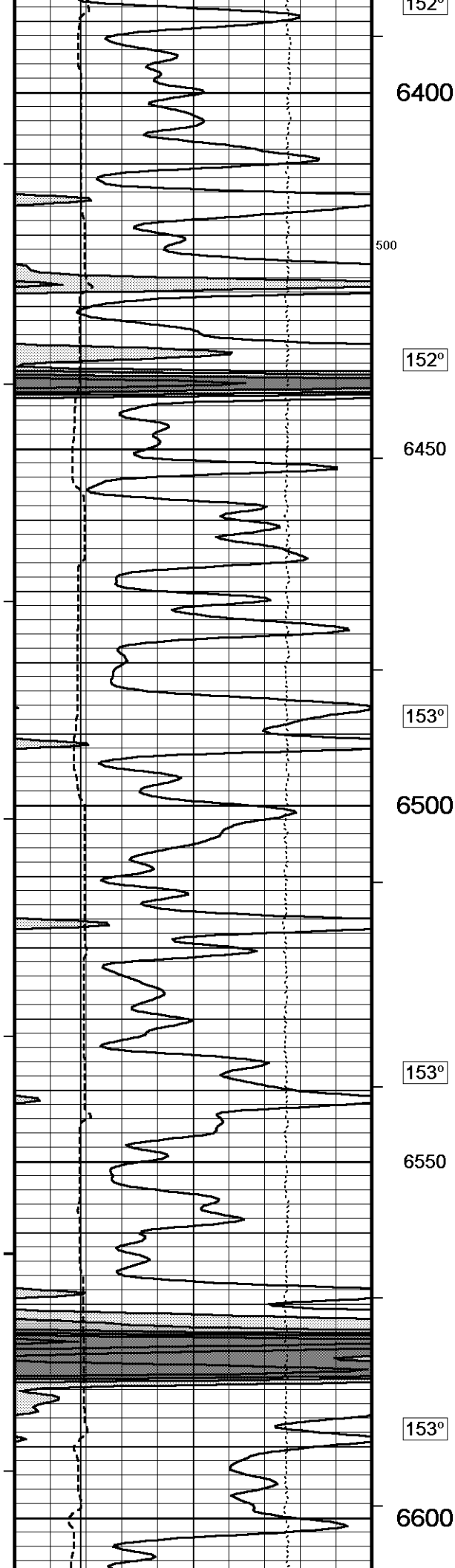
5700











152°

6400

500

152°

6450

153°

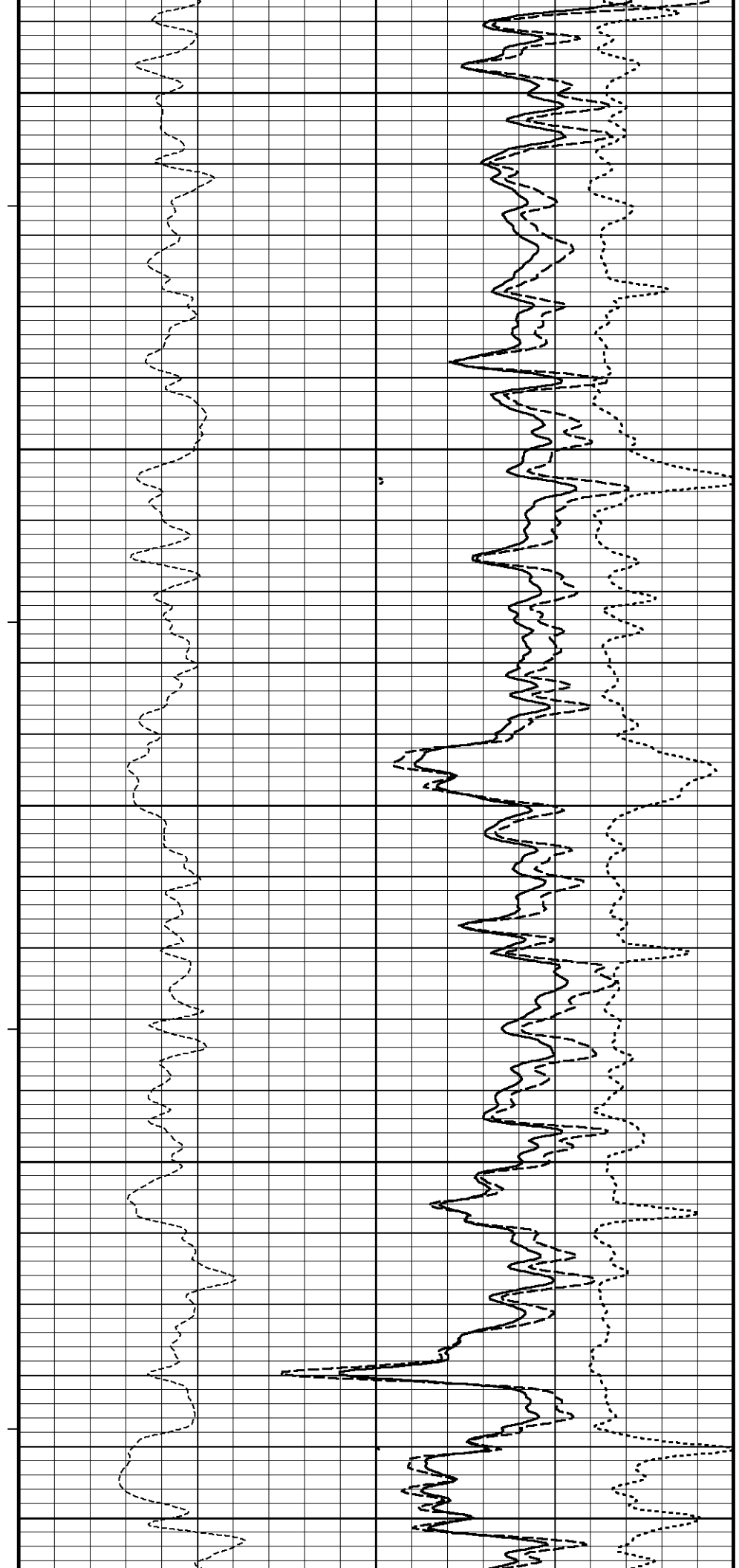
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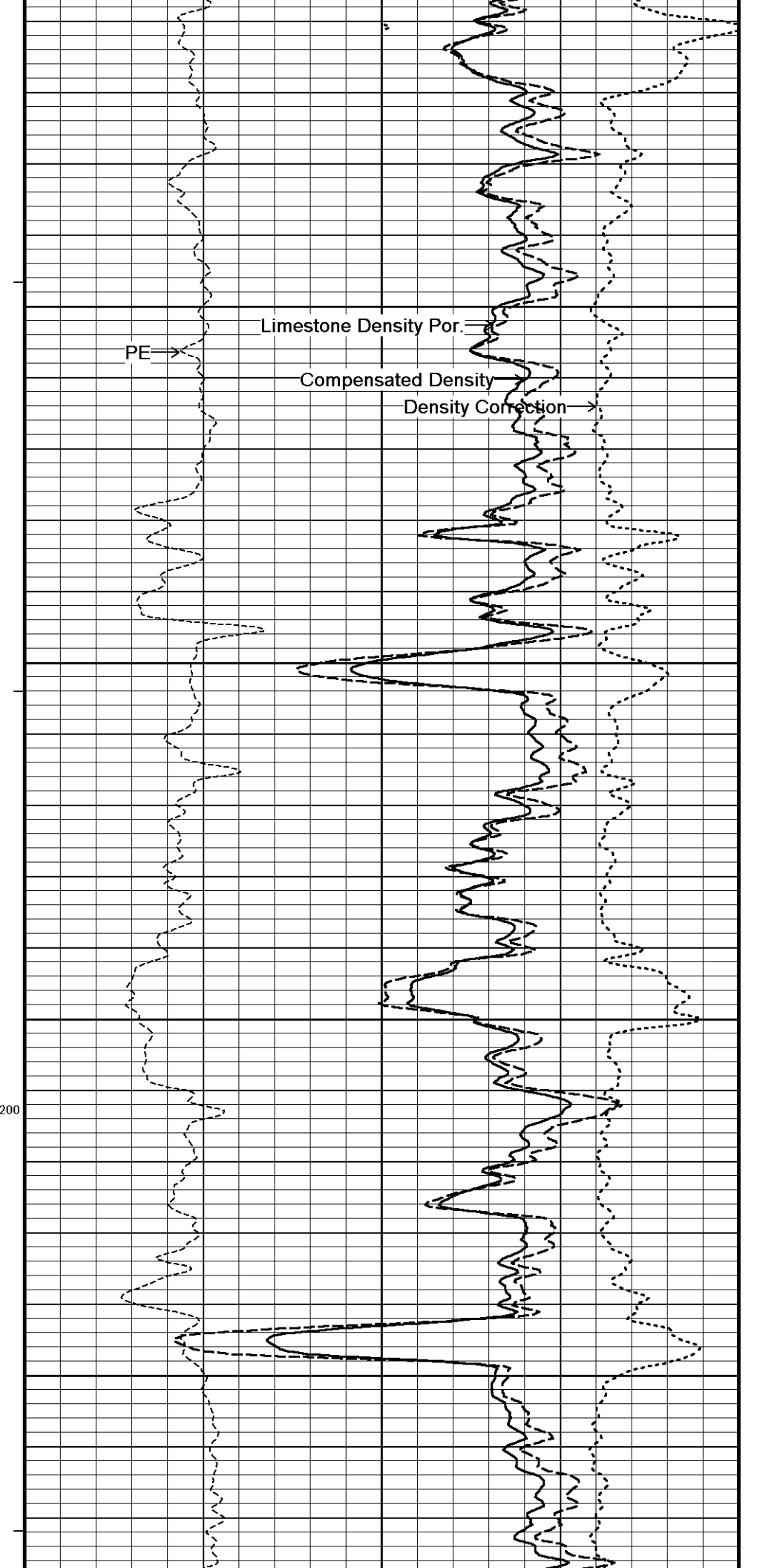
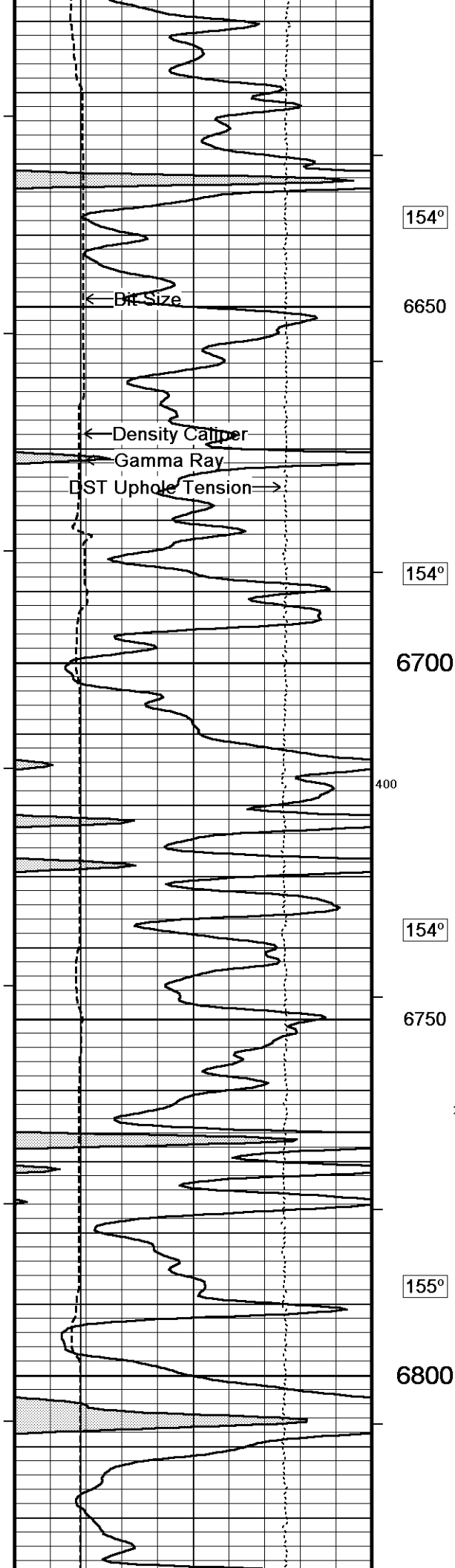
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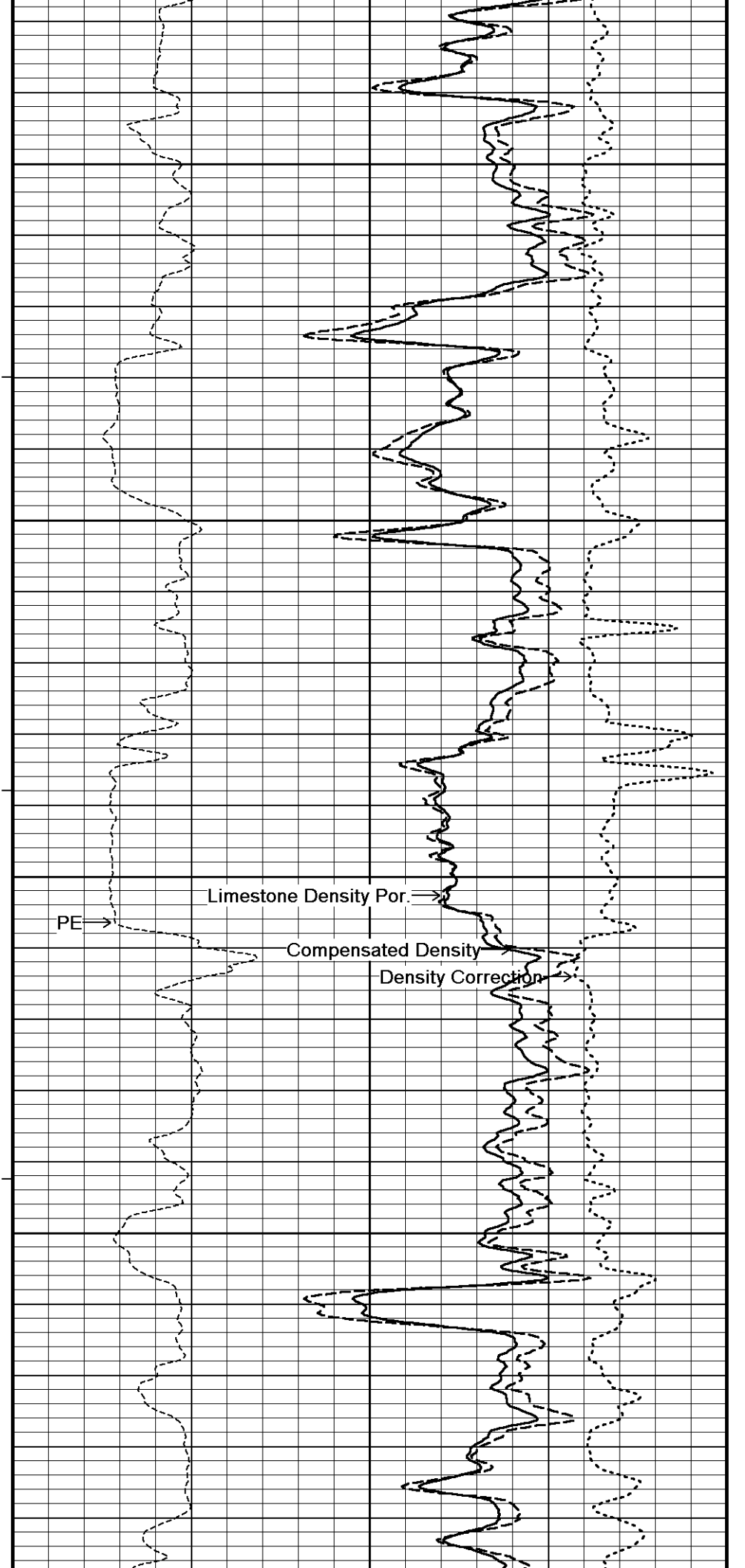
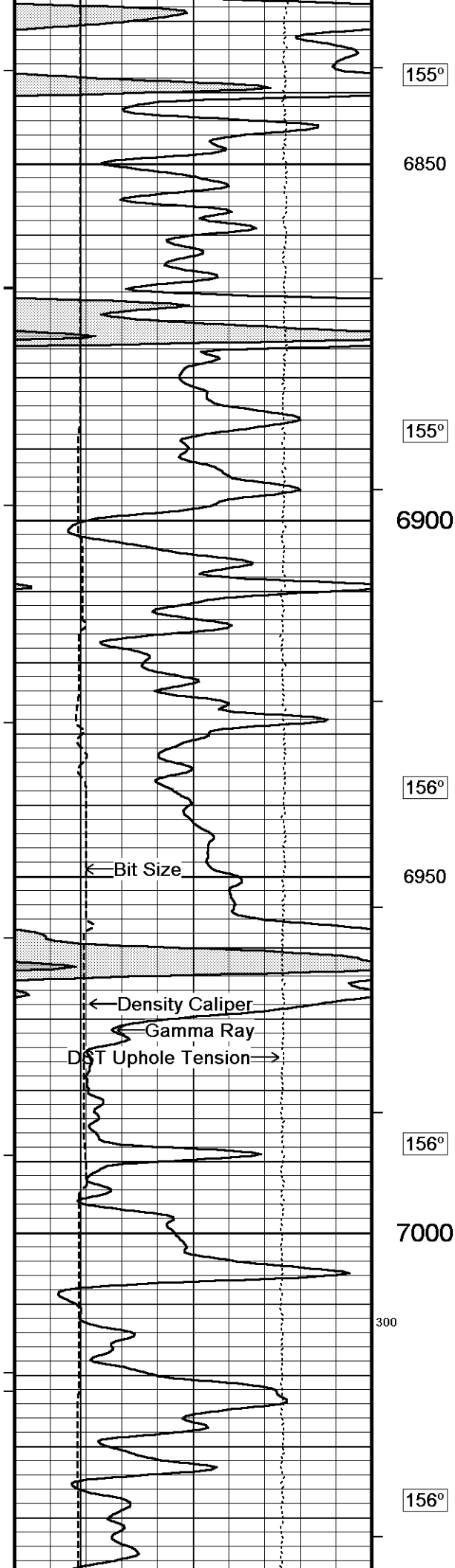
6550

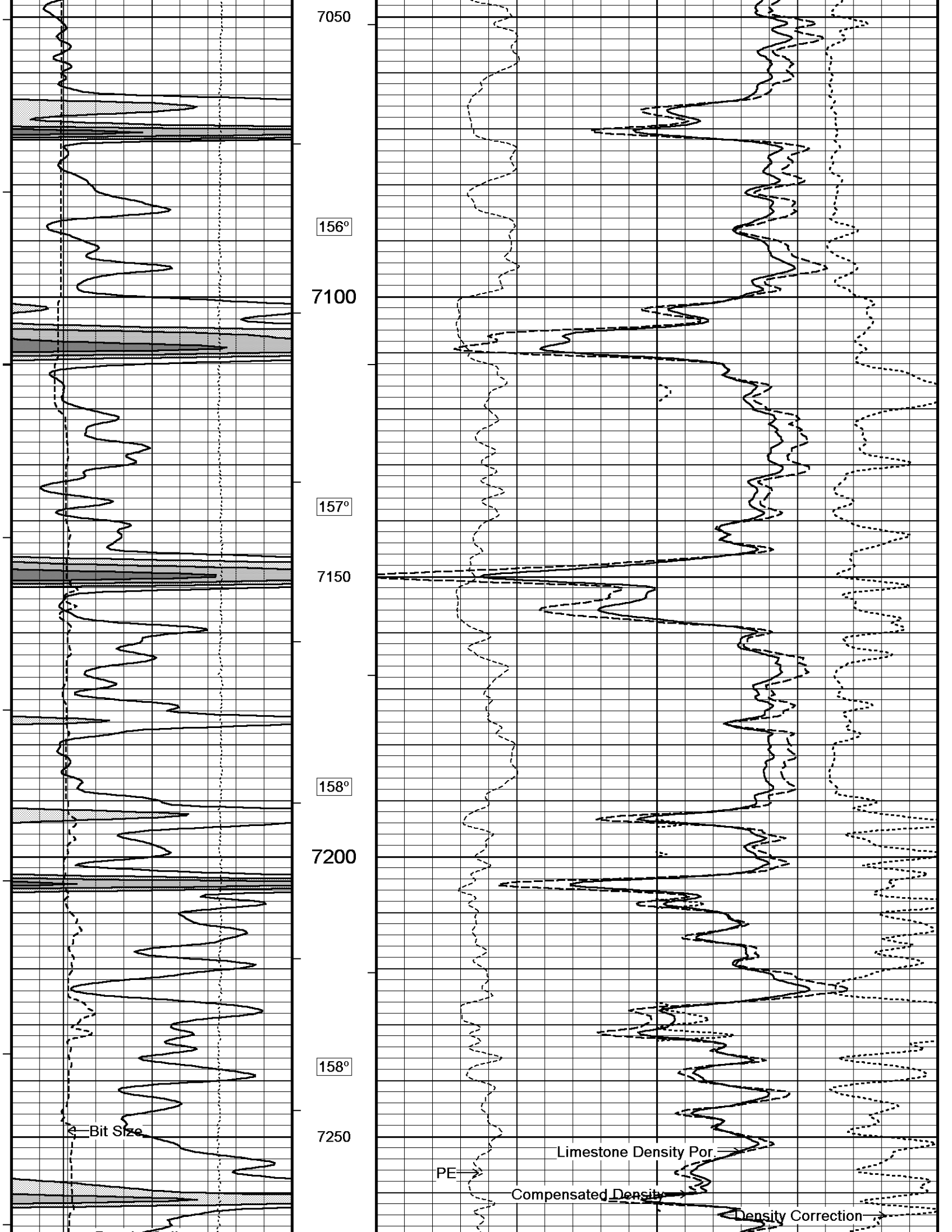
153°

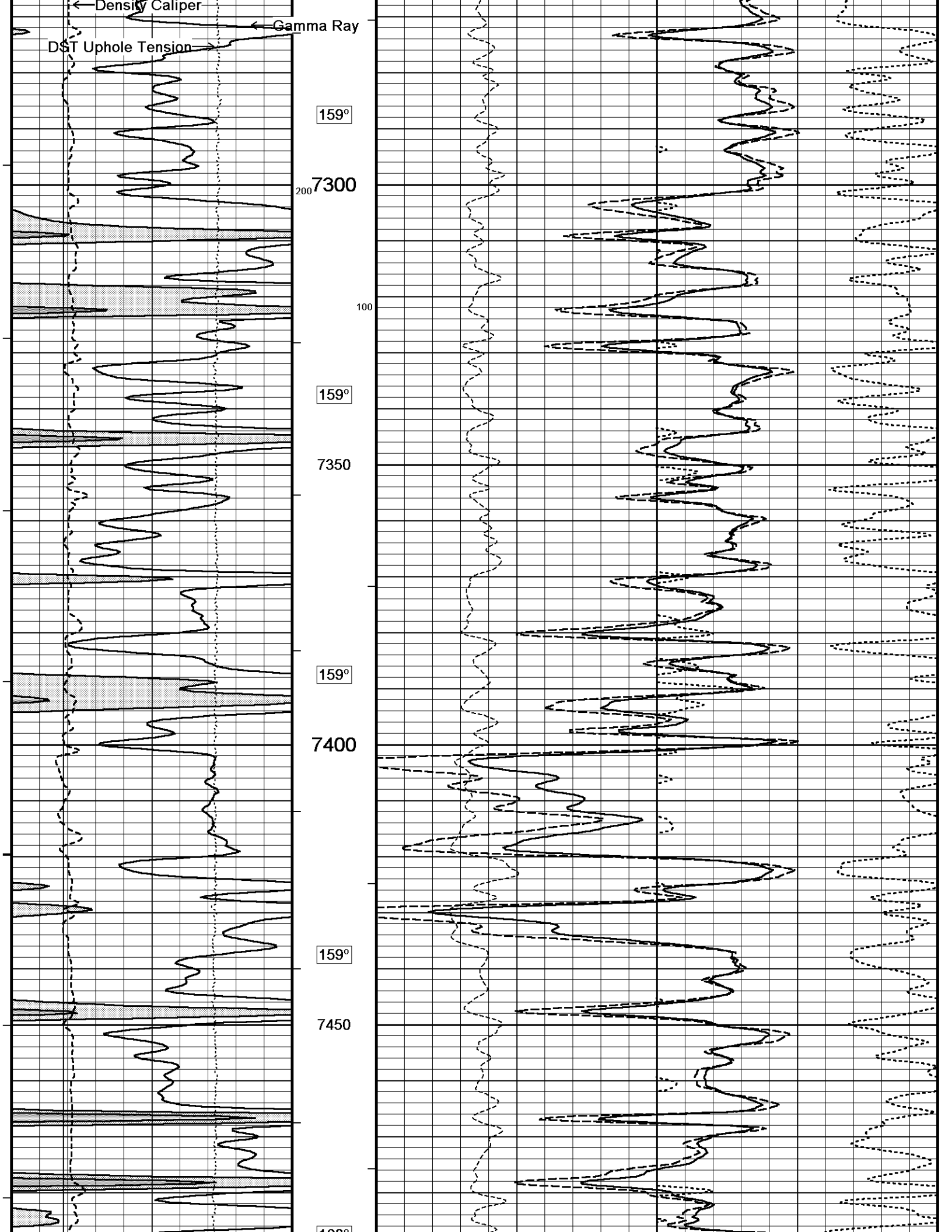
6600

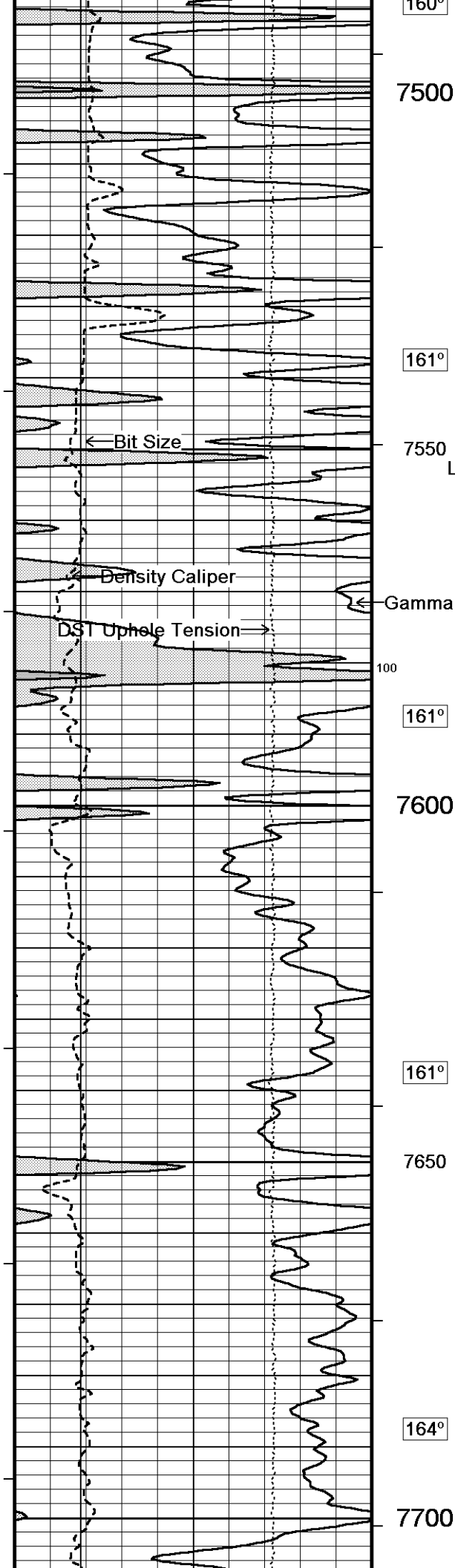




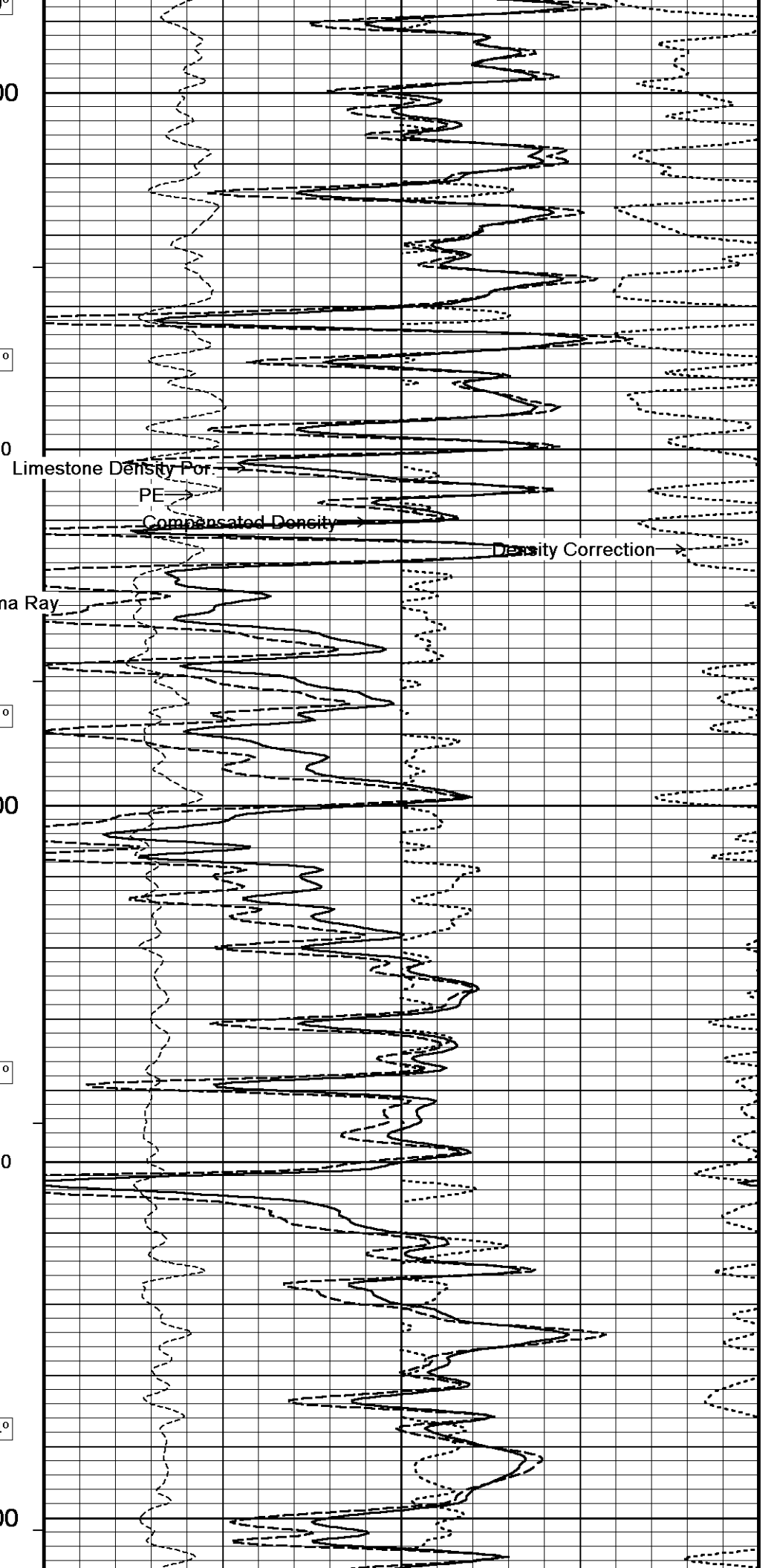


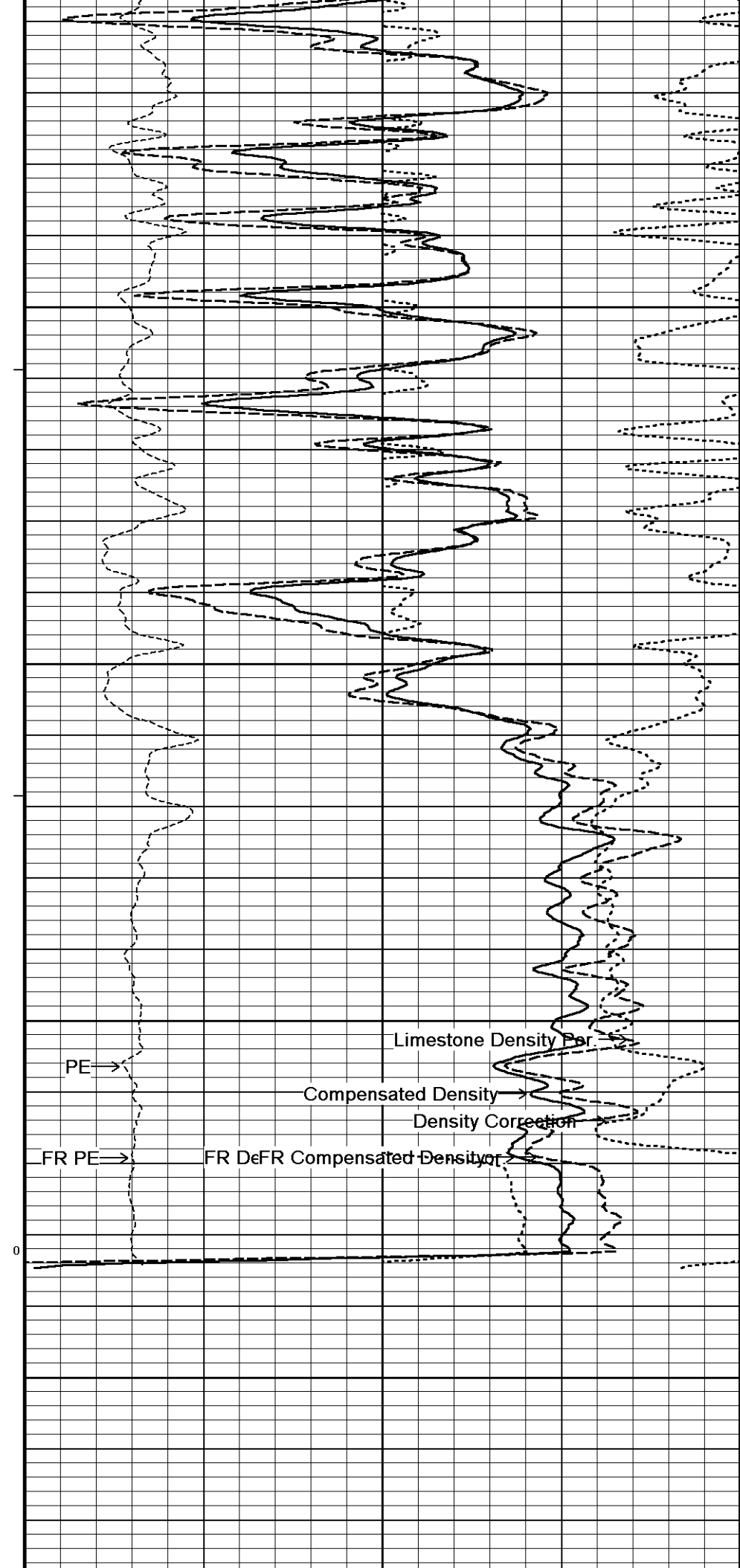
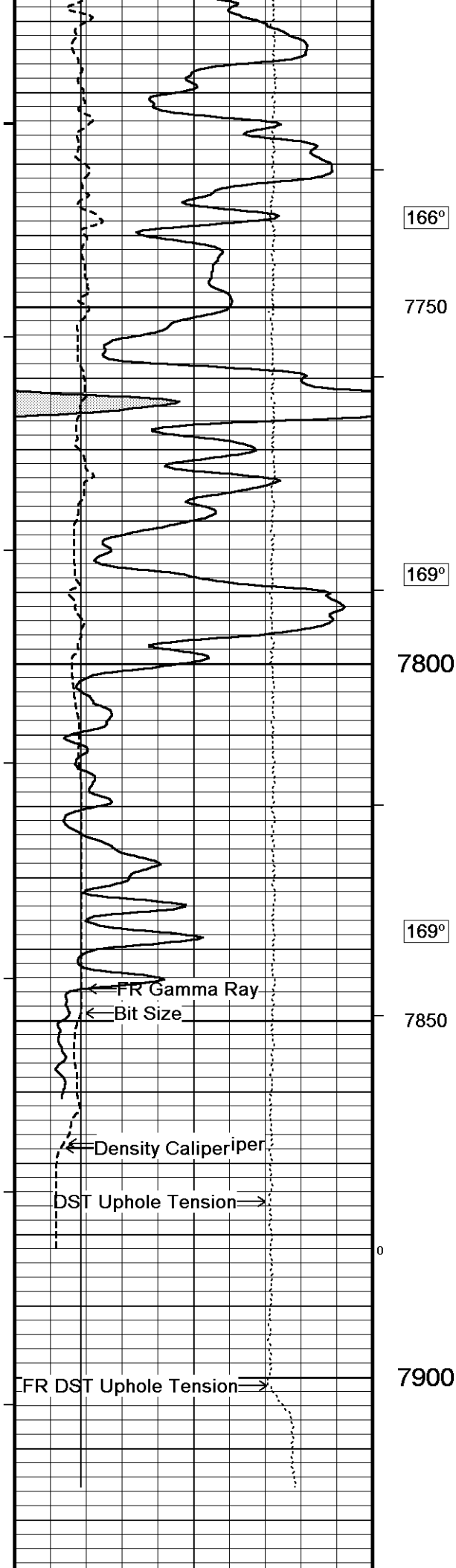


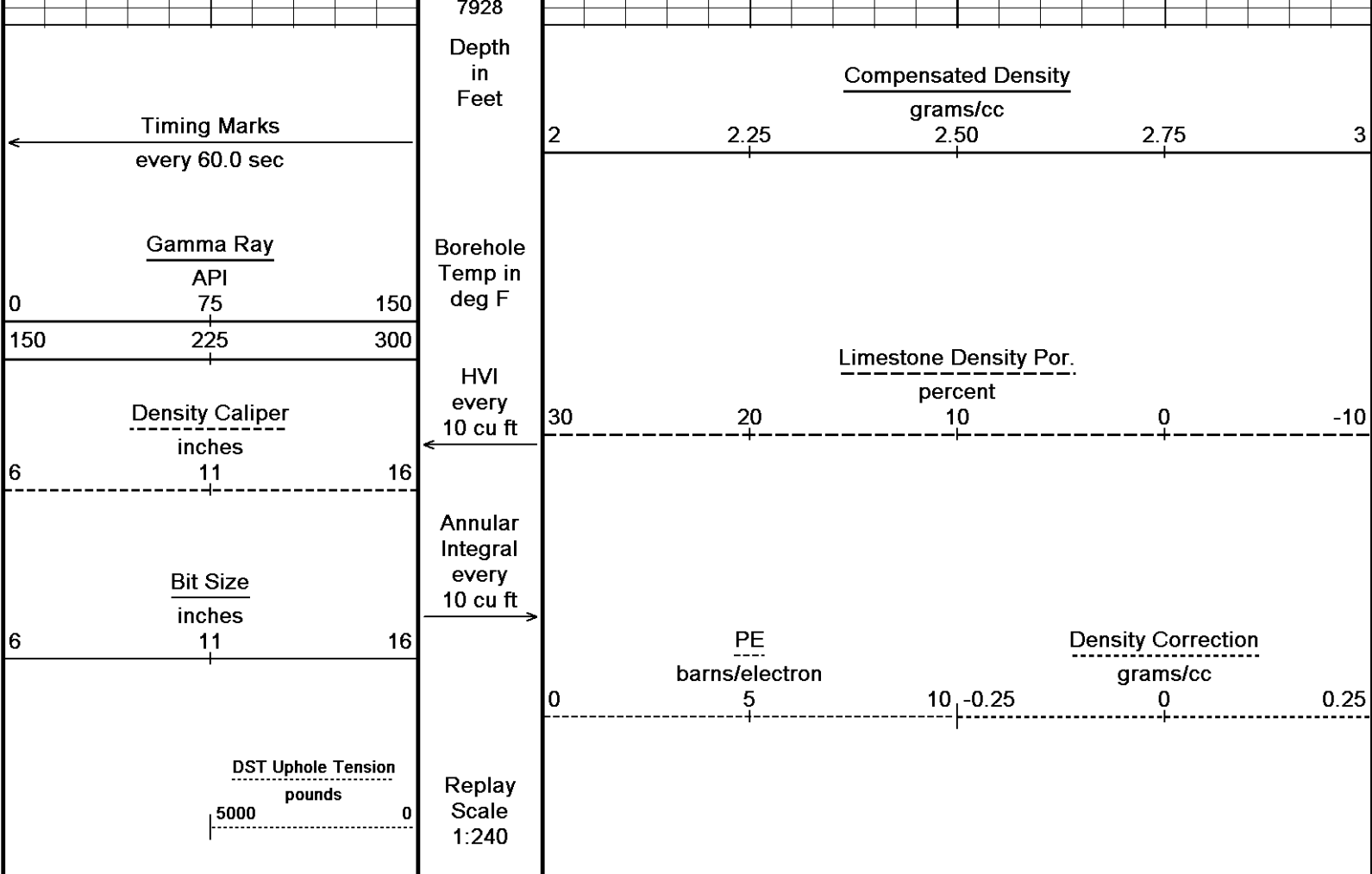




160°
7500
161°
7550
161°
7600
161°
7650
164°
7700





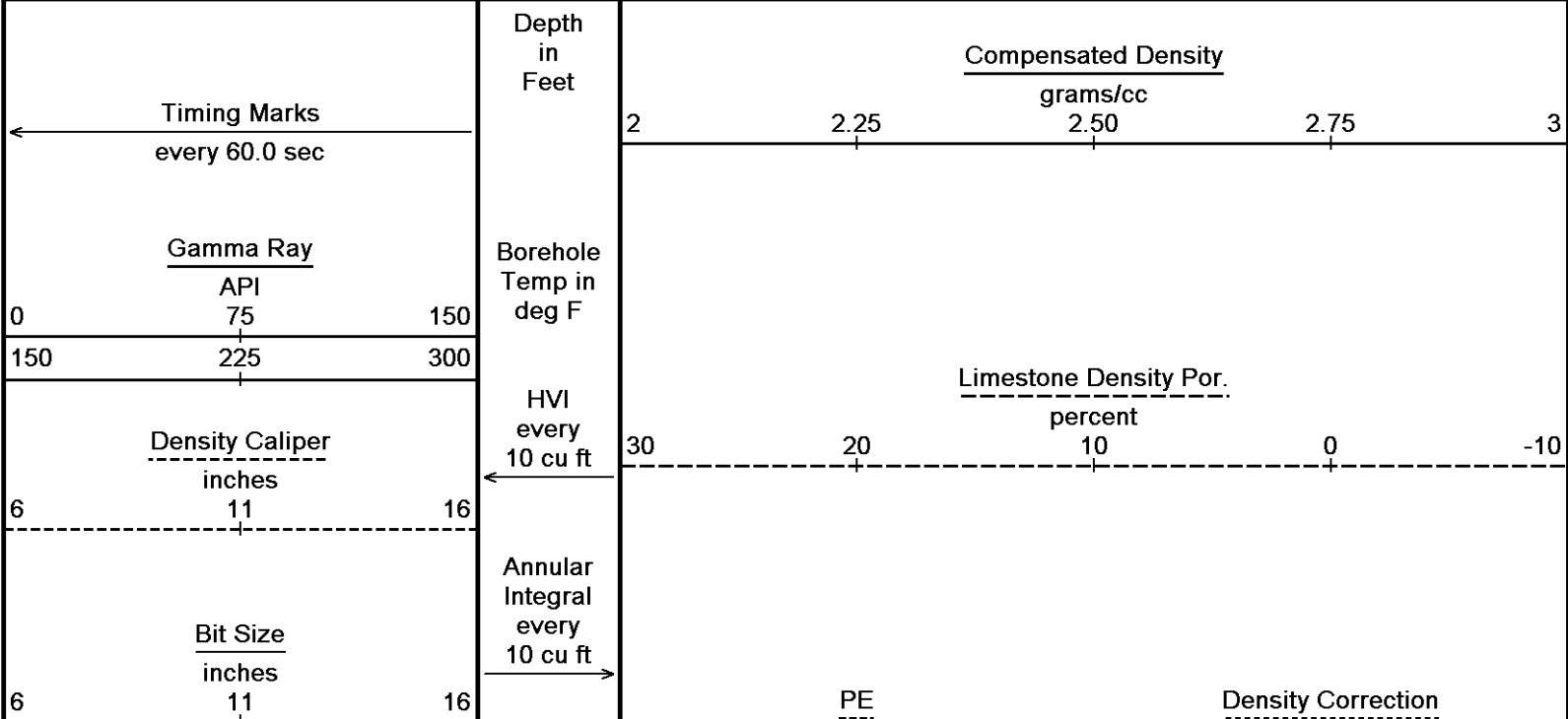


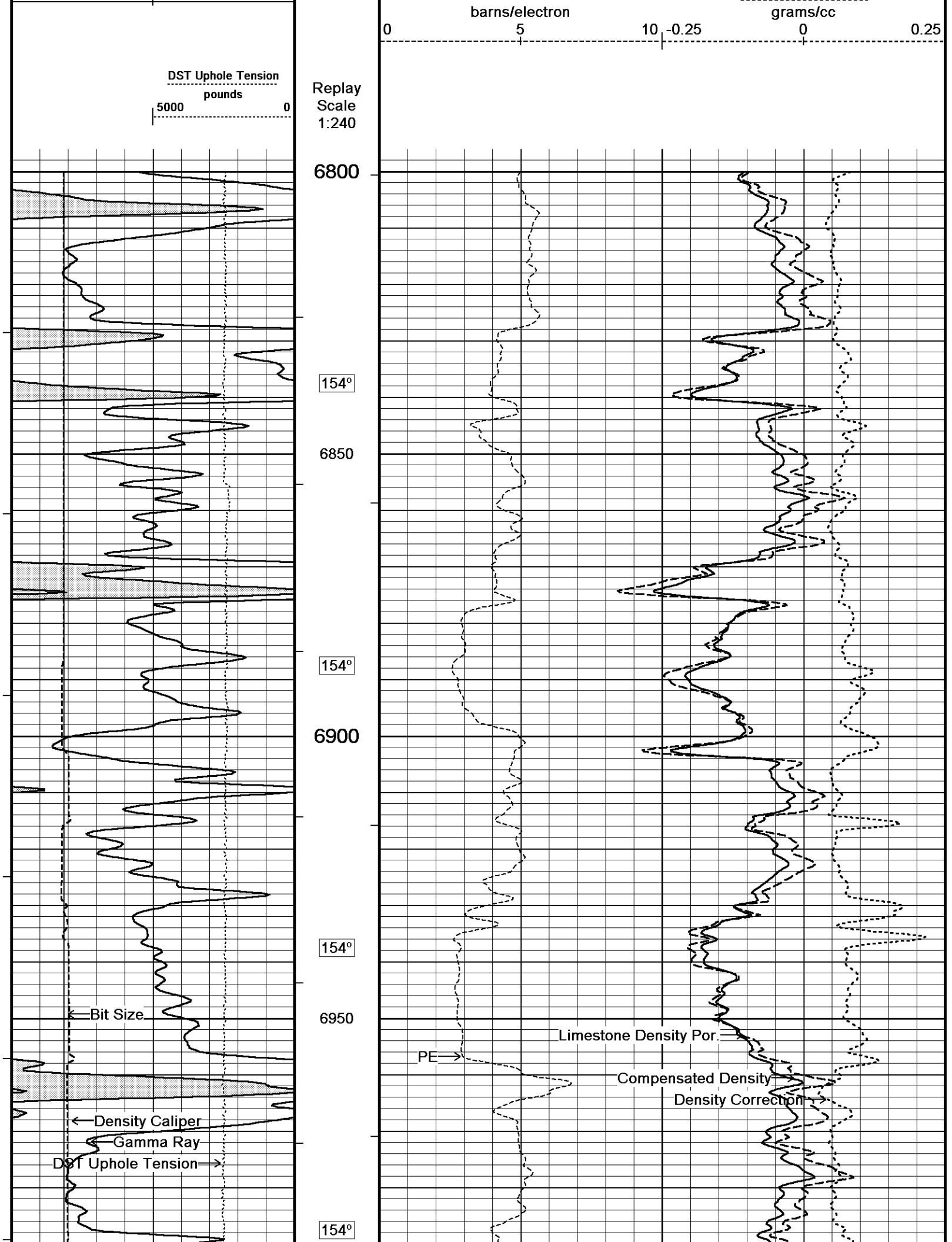
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 30-NOV-2012 13:32
Filename: C:\Minimus 13.04.8492\Data\...\Grand Mesa Operating Company APC Martin #1-3 Main2.dta Recorded on 28-NOV-2012 14:50
System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

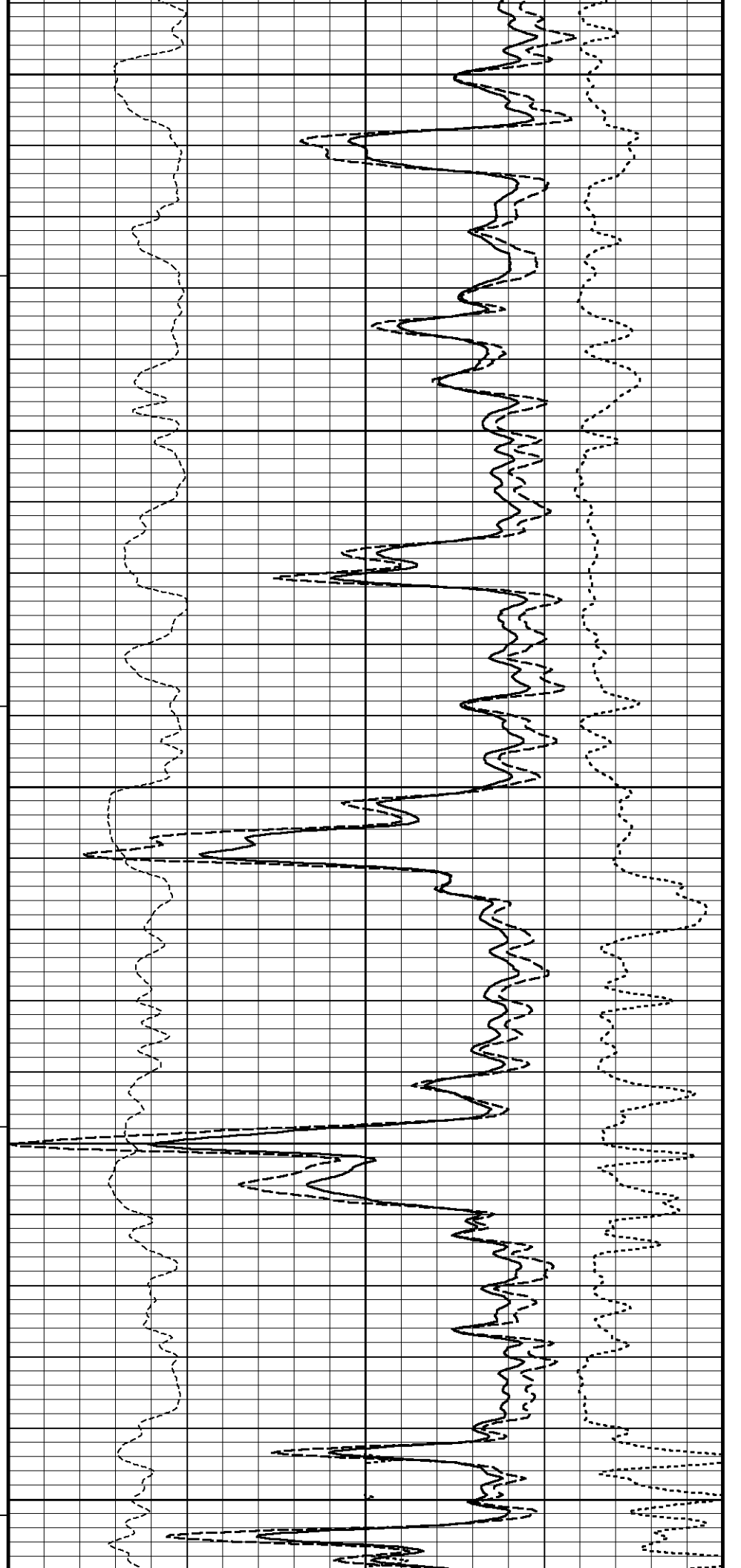
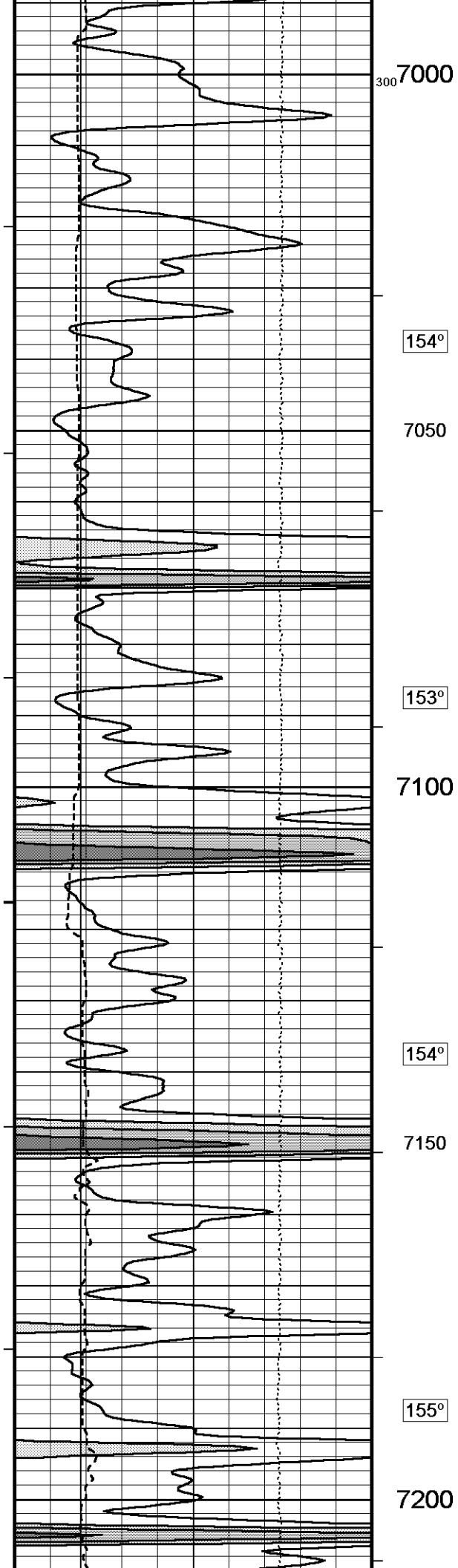
↑ 5 INCH MAIN ↑

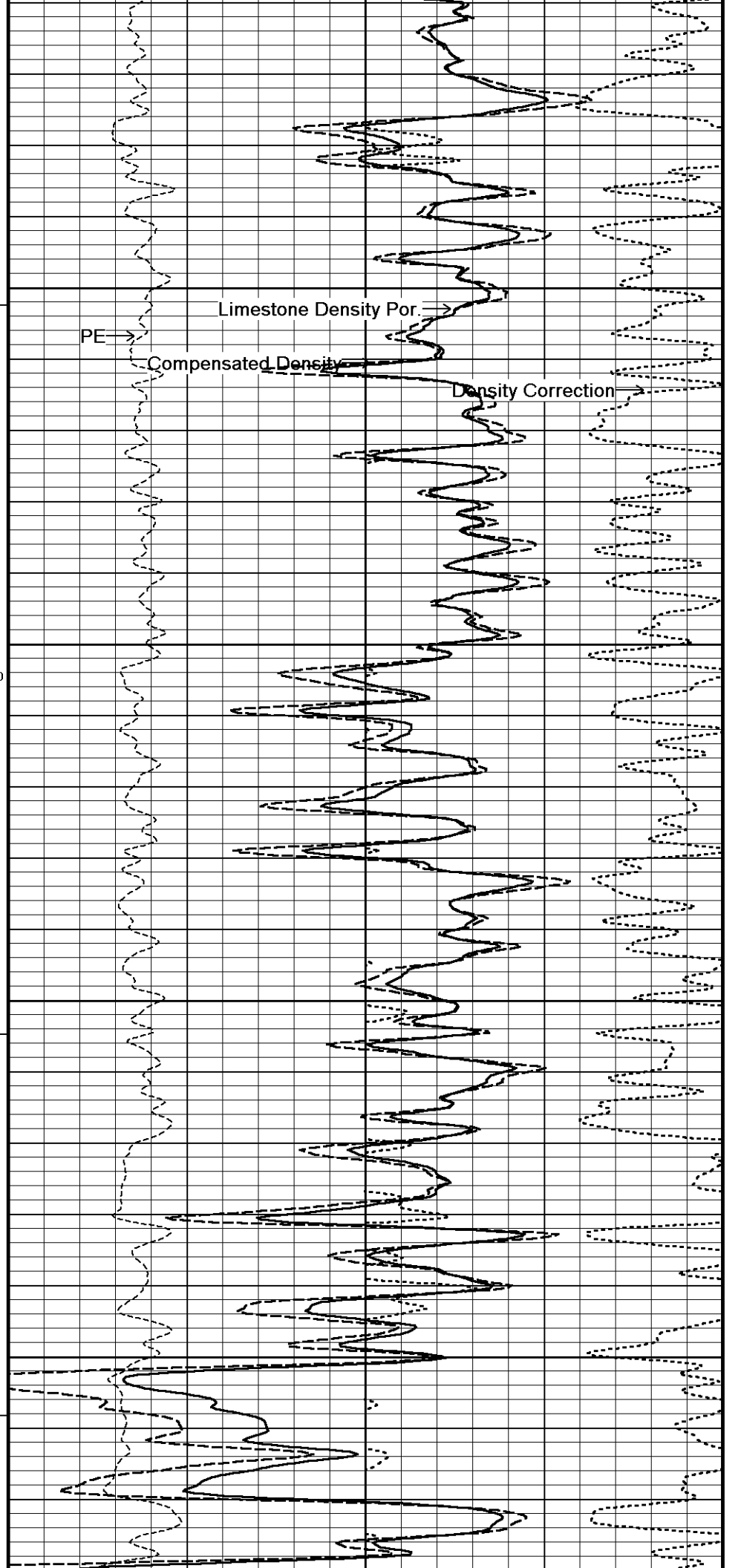
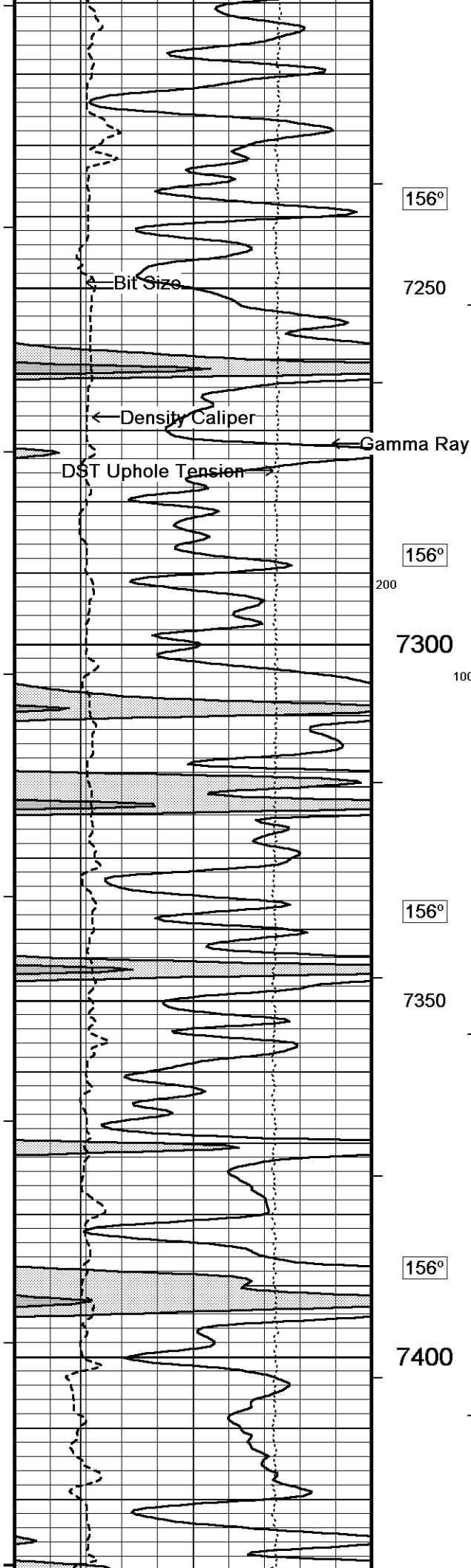
↓ REPEAT SECTION ↓

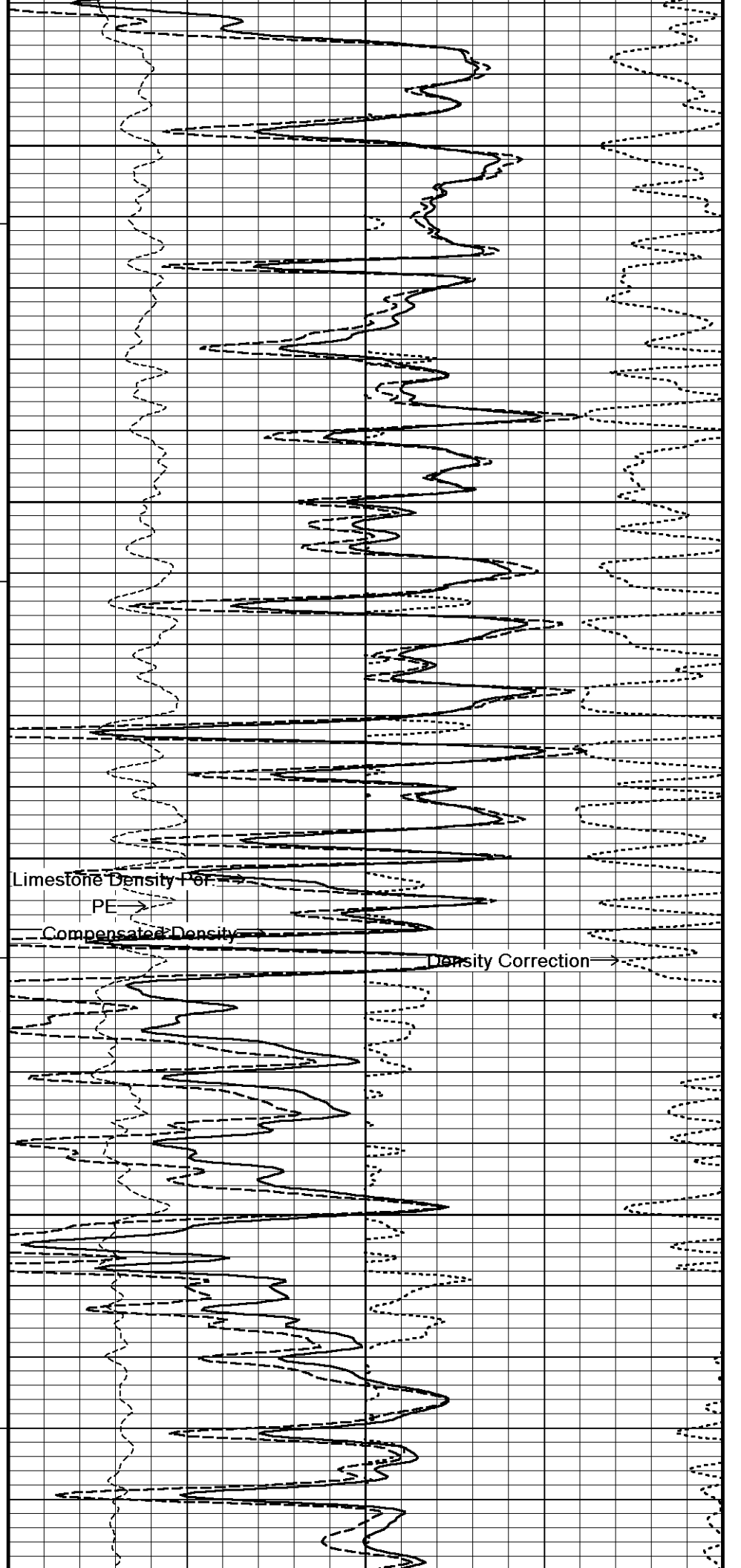
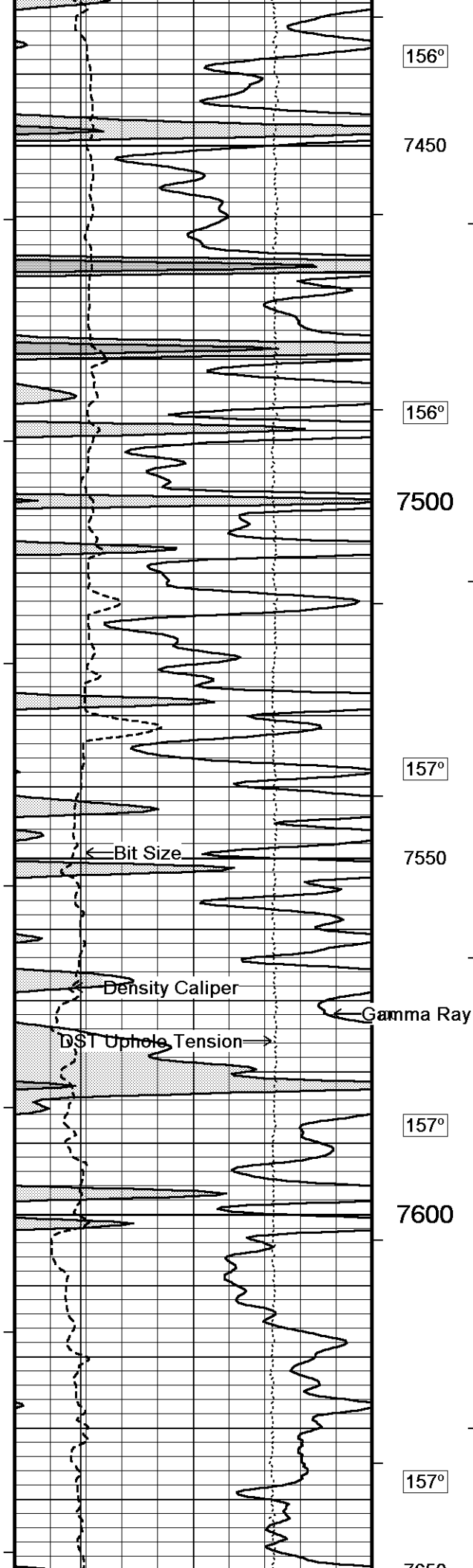
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 30-NOV-2012 13:32
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System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

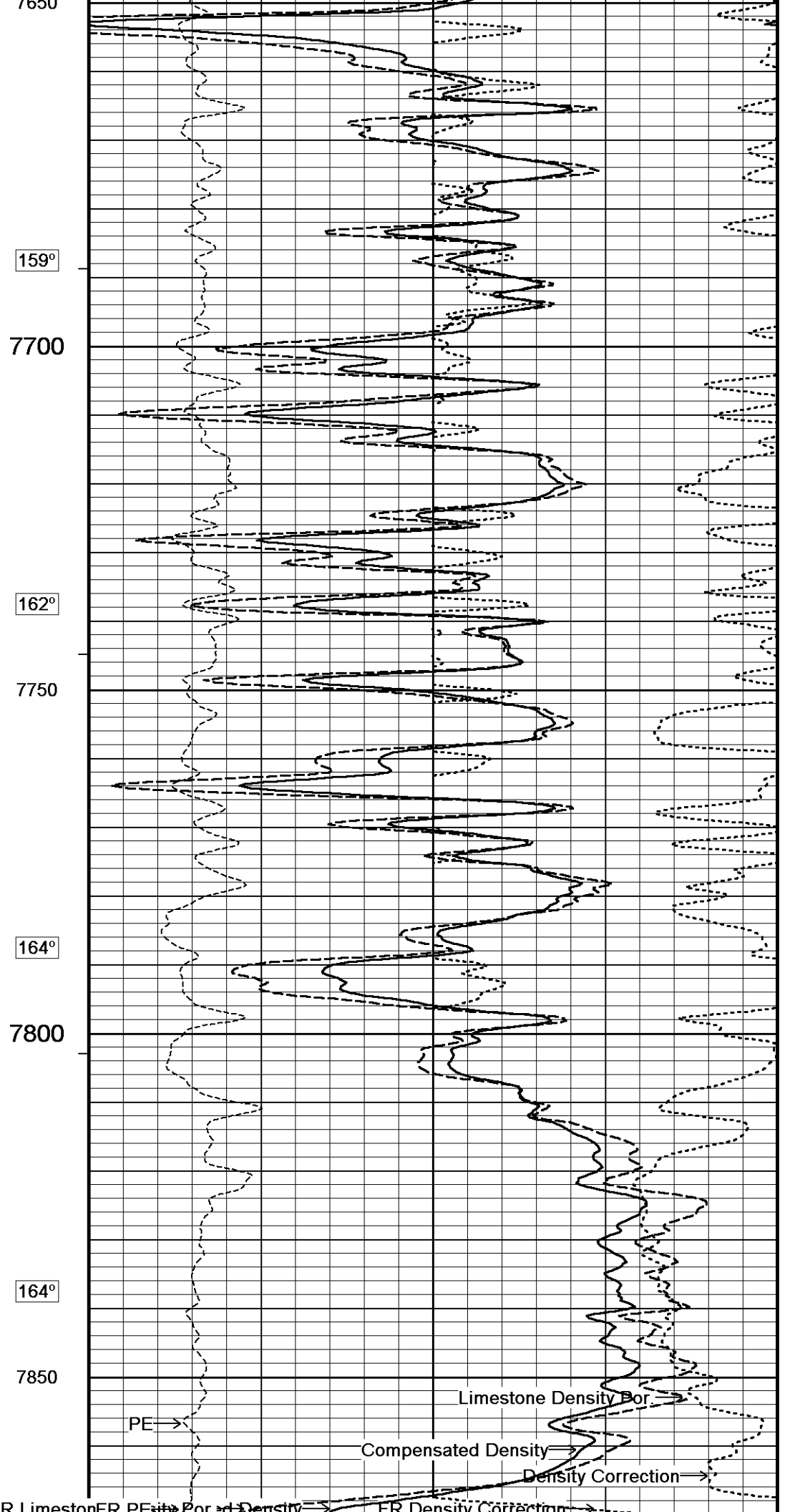
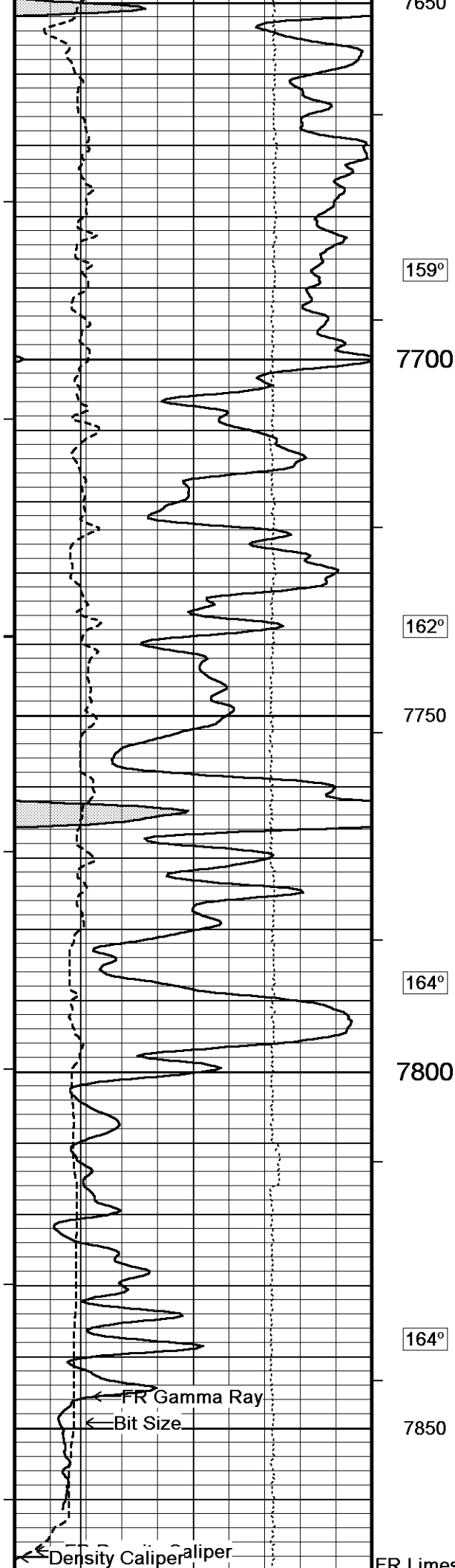


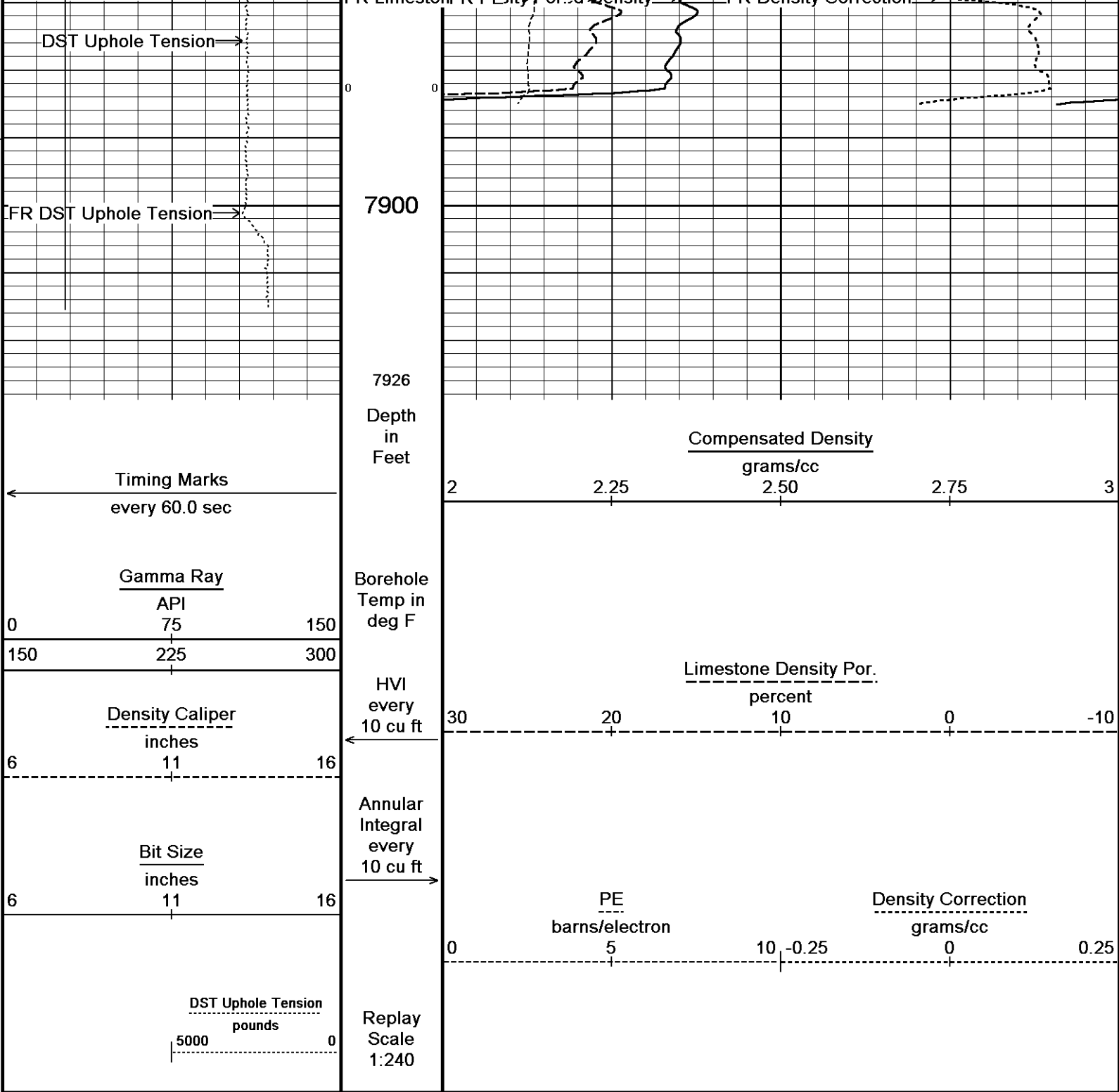












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.04.8492\Data\Grand Mesa Operating Company APC Martin #1-3 Repeat.dta
System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION		
C:\Minimus 13.04.8492\Data\Grand Mesa Operating Company APC ...Grand Mesa Operating Company APC Martin #1-3 Main2.dta		
General Constants All 000		Last Edited on 28-NOV-2012,19:26
General Parameters		
Mud Resistivity	1.220	ohm-metres
Mud Resistivity Temperature	96.000	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	Base Density Porosity			
Resistivity used	Array Ind. Four Res Rt			
RWA Constant A	1.000			
RWA Constant M	2.000			
High Resolution Temperature Calibration MCG-D.K 442				
Field Calibration on 08-NOV-2012,09:48				
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MCG-D.K 442				
Last Edited on 08-NOV-2012,09:48				
Pre-filter Length	11			
Gamma Calibration MCG-D.K 442				
Field Calibration on 27-NOV-2012 16:06				
	Measured	Calibrated (API)		
Background	70	47		
Calibrator (Gross)	1147	772		
Calibrator (Net)	1077	725		
Gamma Constants MCG-D.K 442				
Last Edited on 28-NOV-2012,11:55				
Gamma Calibrator Number	GRC38			
Mud Density	1.13	gm/cc		
Caliper Source for Processing	Density Caliper			
Tool Position	Eccentred			
Concentration of KCl	0.00	kppm		
Caliper Calibration MPD-B 64				
Base Calibration on 14-NOV-2012 10:10				
Field Calibration on 27-NOV-2012 15:59				
Base Calibration				
Reading No	Measured		Calibrator Size (in)	
1	12782		3.99	
2	21549		5.98	
3	30053		7.97	
4	38387		9.86	
5	47704		11.92	
6	N/A		N/A	
Field Calibration				
	Measured Caliper (in)		Actual Caliper (in)	
	5.88		5.98	
Photo Density Calibration MPD-B 64				
Base Calibration on 14-NOV-2012 10:35				
Field Check on 27-NOV-2012 15:54				
Density Calibration				
Base Calibration				
		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	59022	32914	59556	30836
Reference 2	24784	2905	24941	2541
Field Check at Base				
	1182.0	1367.8		
Field Check				
	1179.1	1369.8		
PE Calibration				
Base Calibration				
	WS	Measured WH	Ratio	
Background	214	1053		
Reference 1	22259	58821	0.382	
Reference 2	6702	24646	0.275	
			0.371	
			0.272	

Field Check at Base
214.3 1053.1

Field Check
212.2 1049.9

Density Constants MPD-B 64

Last Edited on 28-NOV-2012,11:54

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	1.13 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 13.04.8492\Data\Grand Mesa Operating Company APC ...Grand Mesa Operating Company APC Martin #1-3 Main2.dta

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

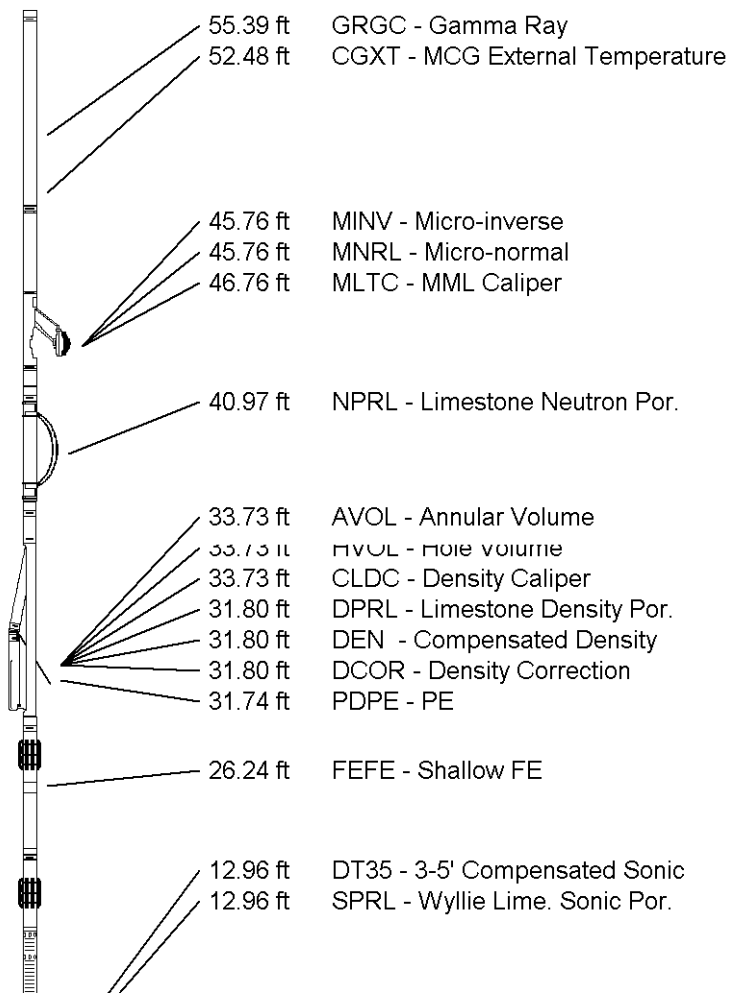
Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

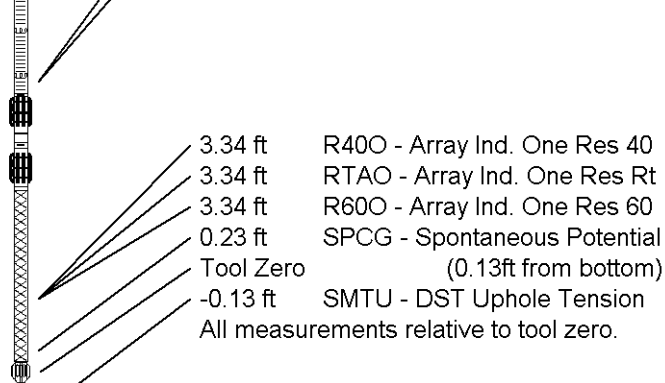
Compact Focussed Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in



Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 60.68 ft Weight: 456.4 lb



COMPANY	GRAND MESA OPERATING COMPANY
WELL	APC MARTIN #1-3
FIELD	WILDCAT
PROVINCE/COUNTY	LINCOLN
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	5250.00	feet	First Reading	7869.00	feet
Elevation Drill Floor	5248.00	feet	Depth Driller	7900.00	feet
Elevation Ground Level	5237.00	feet	Depth Logger	7901.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG