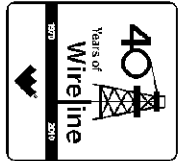




# Weatherford

## COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRO RESISTIVITY LOG



COMPANY APACHE  
 WELL DECKARD #1-33  
 FIELD E. ENGLEWOOD  
 PROVINCE/COUNTY MEADE  
 COUNTRY/STATE U.S.A./KANSAS  
 LOCATION 660' FNL & 2220' FEL

SEC 33 TWP 34S RGE 26W  
 API Number 15-119-21286  
 Permit Number MAI/MFE  
 MML Other Services

Permanent Datum G.L., Elevation 2343 feet  
 Log Measured From K.B. @ 12 FEET above Permanent Datum  
 Drilling Measured From K.B.

Elevations:  
 KB 2355.00  
 DF 2354.00  
 GL 2343.00

Date	12-APR-2011
Run Number	ONE
Depth Driller	6200.00 feet
Depth Logger	6200.00 feet
First Reading	6179.00 feet
Last Reading	1619.00 feet
Casing Driller	1623.00 feet
Casing Logger	1619.00 feet
Bit Size	7.880 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.05 lb/USg 55.00 CP
PH / Fluid Loss	11.00 8.00 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	0.55 @ 68.0 ohm-m
Rmf @ Measured Temp	0.44 @ 68.0 ohm-m
Rmc @ Measured Temp	0.66 @ 68.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.31 @120.0 ohm-m
Time Since Circulation	5 HOURS
Max Recorded Temp	120.00 deg F
Equipment Name	COMPACT
Equipment / Base	13096 LIB
Recorded By	SHAWN NUTT
Witnessed By	KARL GRAHAM
S.O.#/JOB#	3529114 LB11-076

BOREHOLE RECORD			Last Edited: 12-APR-2011 12:08
Bit Size inches	Depth From feet	Depth To feet	
7.880	1619.00	6200.00	

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1619.00	24.00

### REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ  
 Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.  
 2.71 G/CC Limestone density matrix used to calculate porosity.  
 Borhole rugosity, tight pulls, and washouts will affect data quality.  
 All intervals logged and scaled per customer's request.  
 Annular volume with 5.5 inch production casing= 1015 cu. ft.  
 Service order #3529114  
 Rig: Duke #6  
 Engineer: Shawn Nutt  
 Operator(s): Nick Adame

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.

# 5 Inch Main

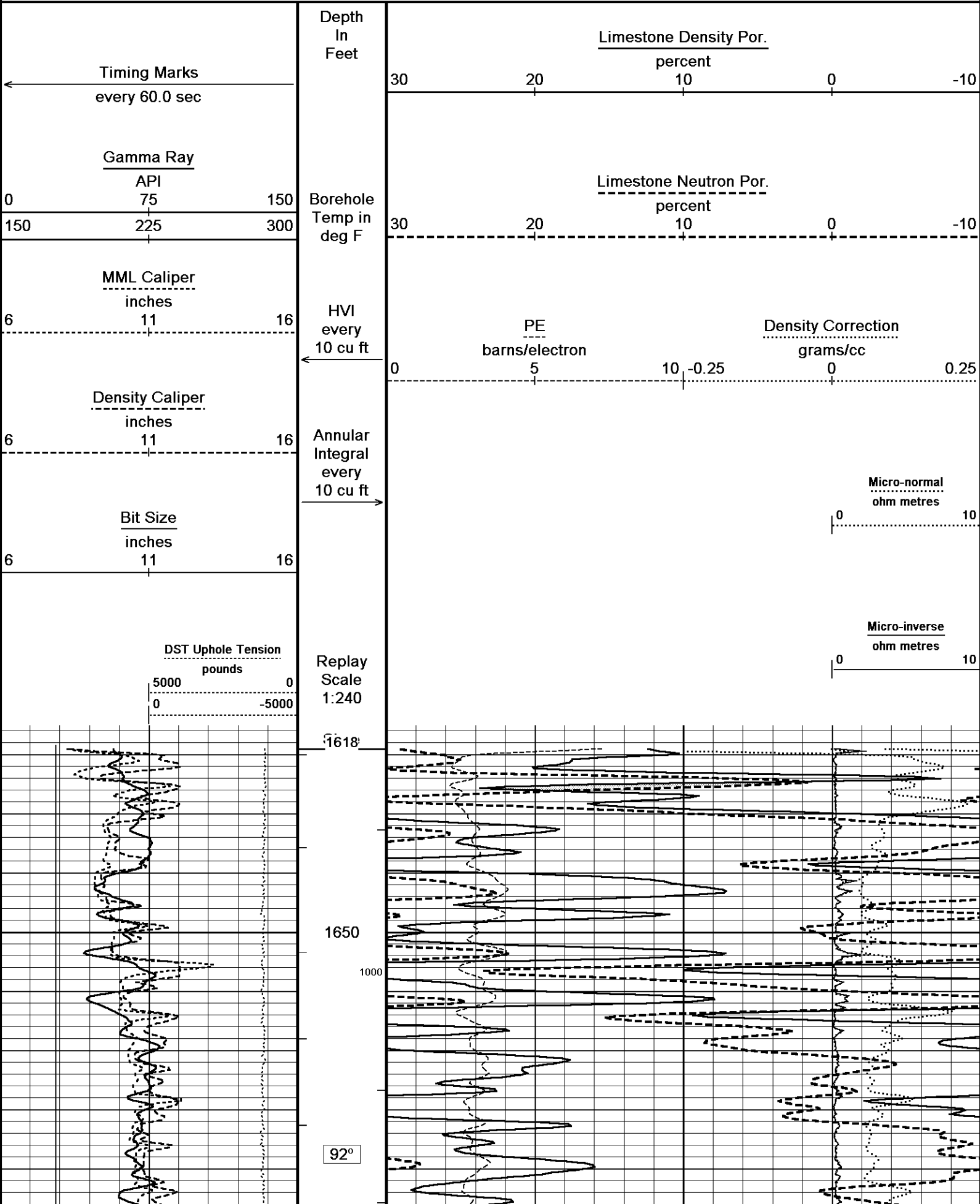
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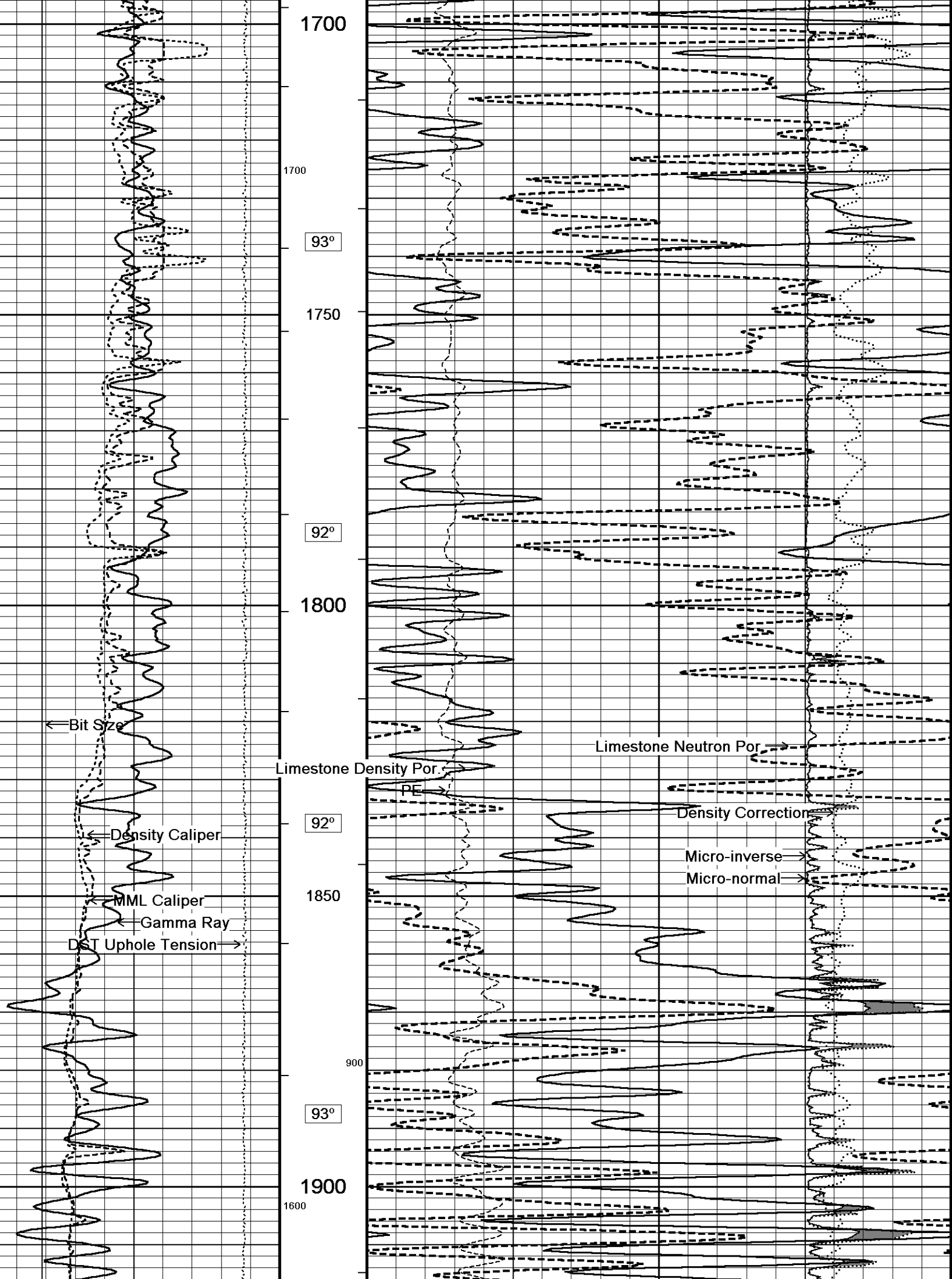
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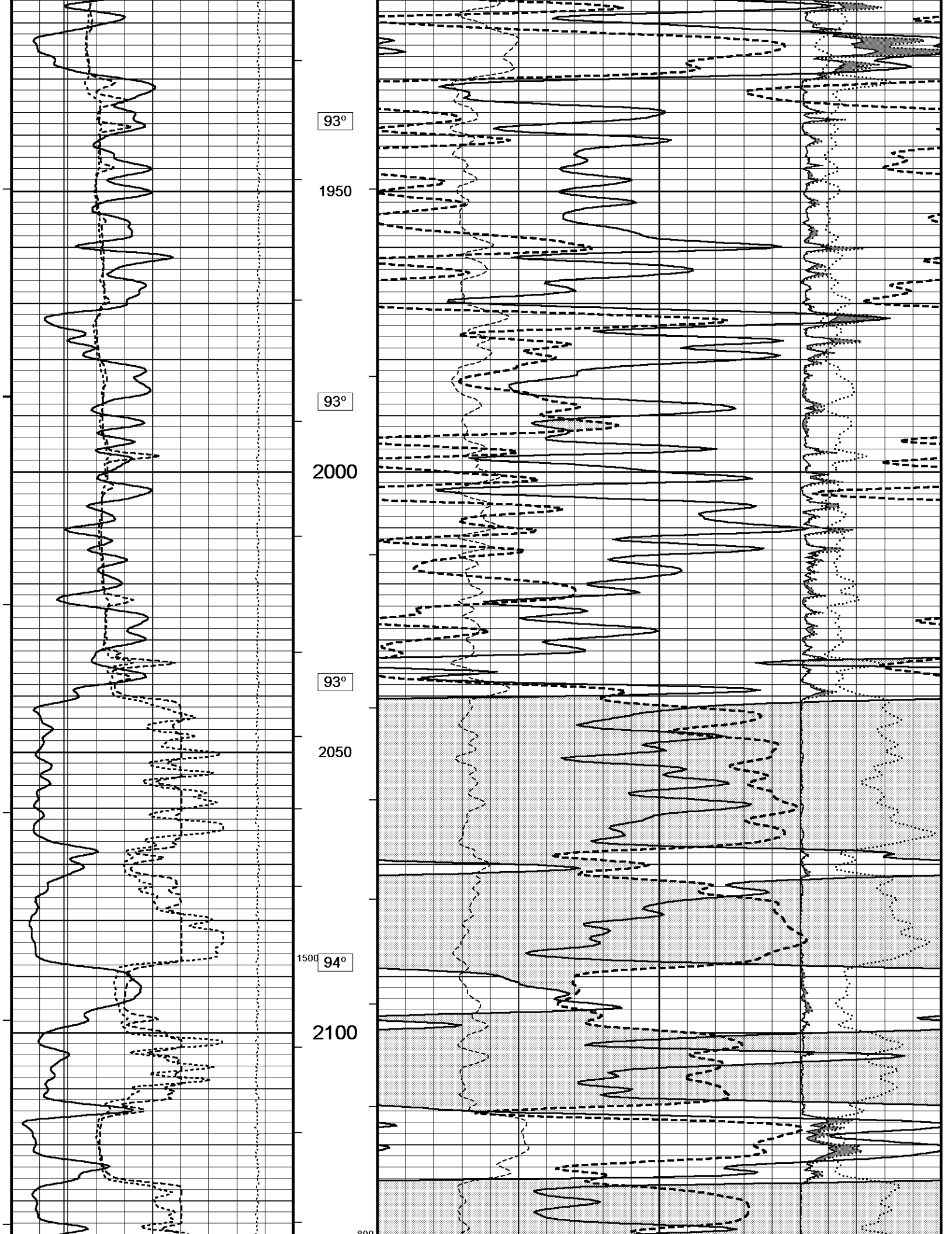
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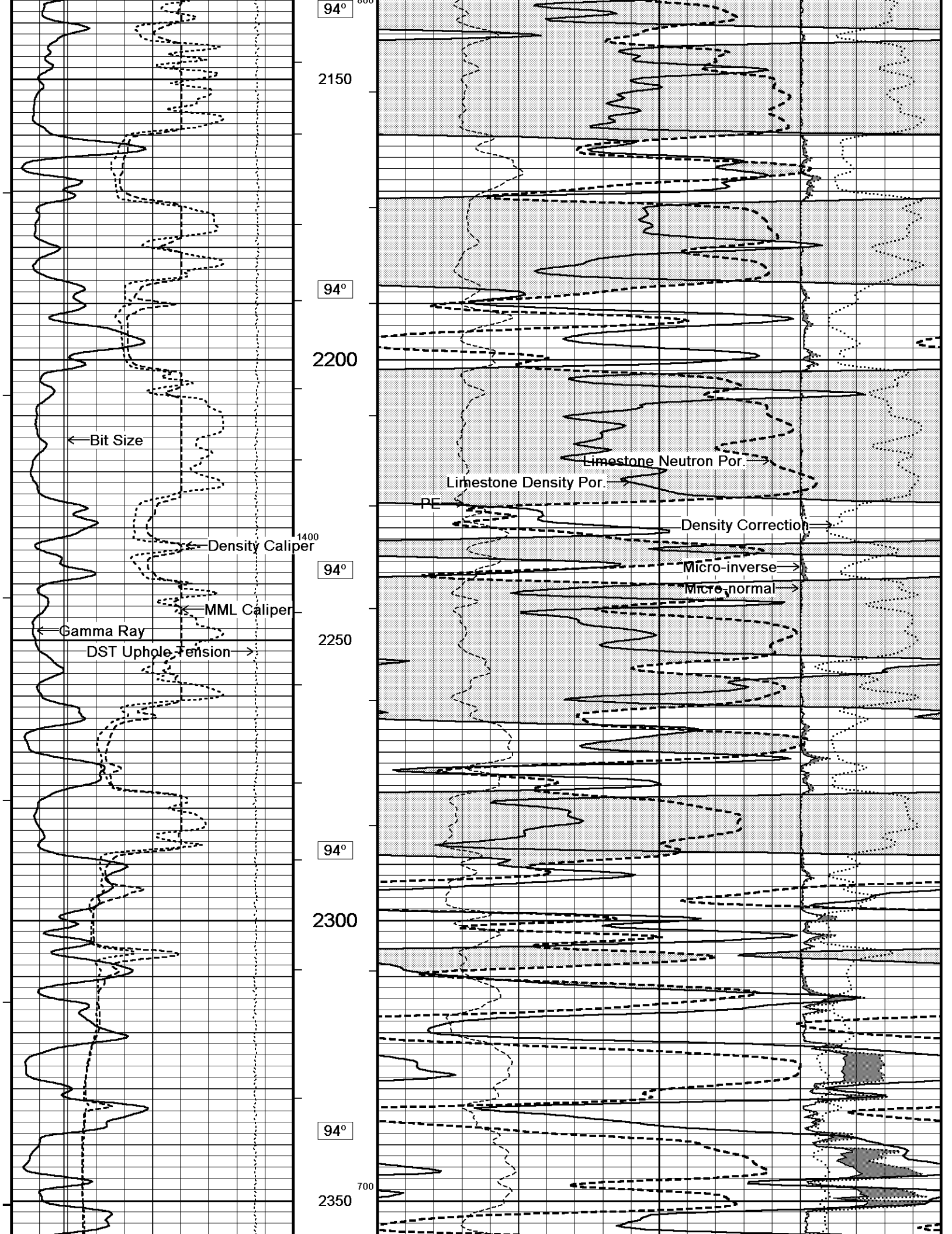
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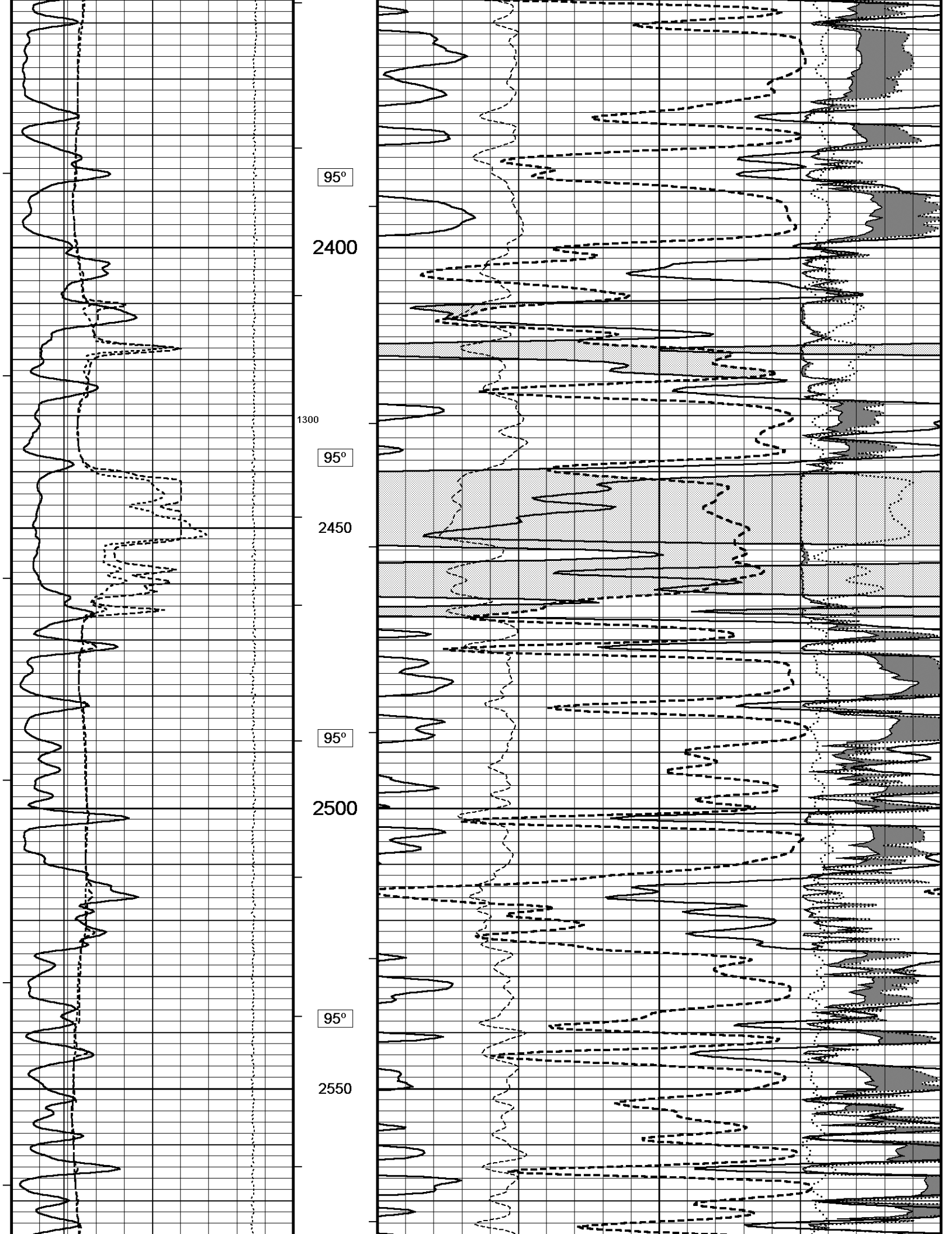
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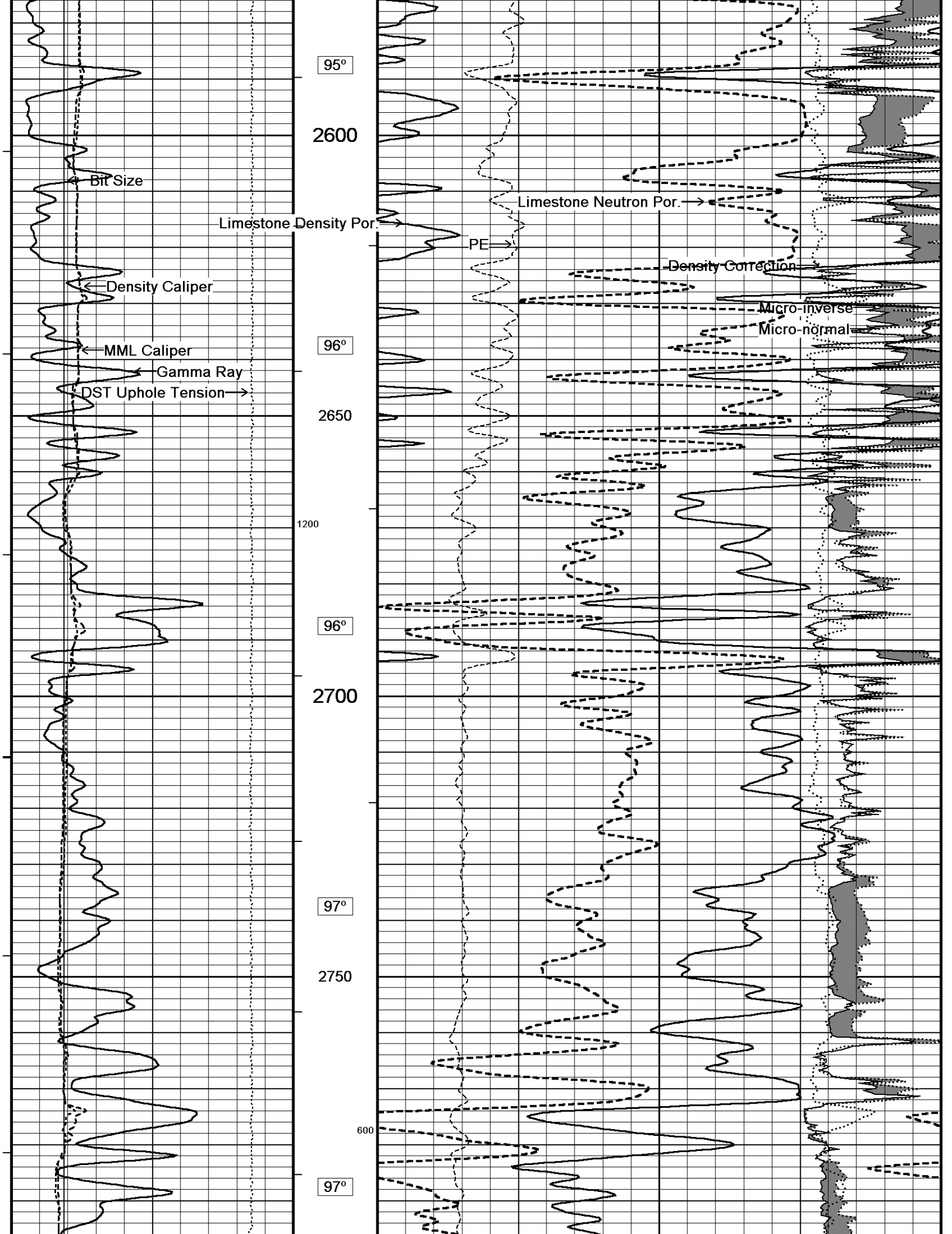


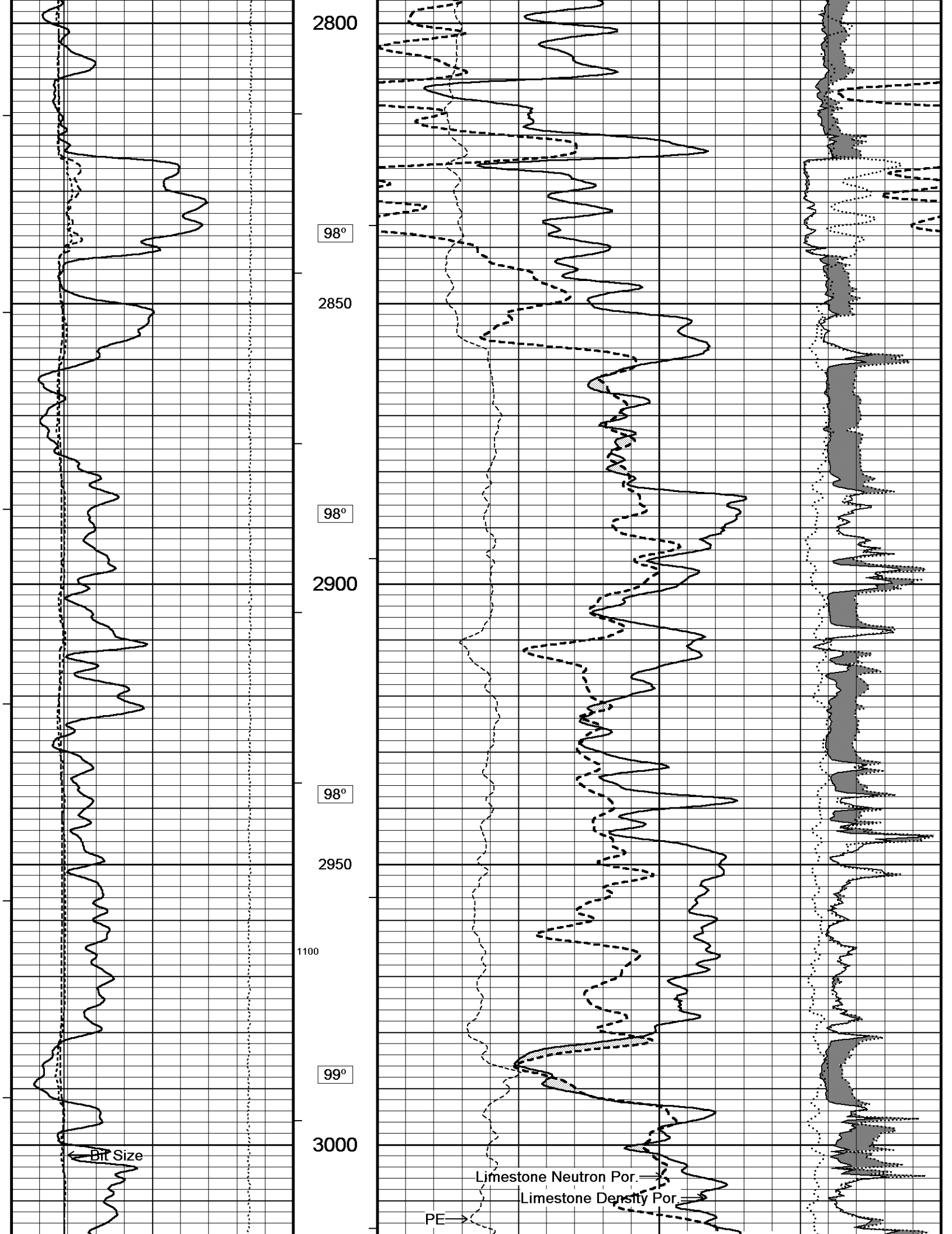












2800

98°

2850

98°

2900

98°

2950

1100

99°

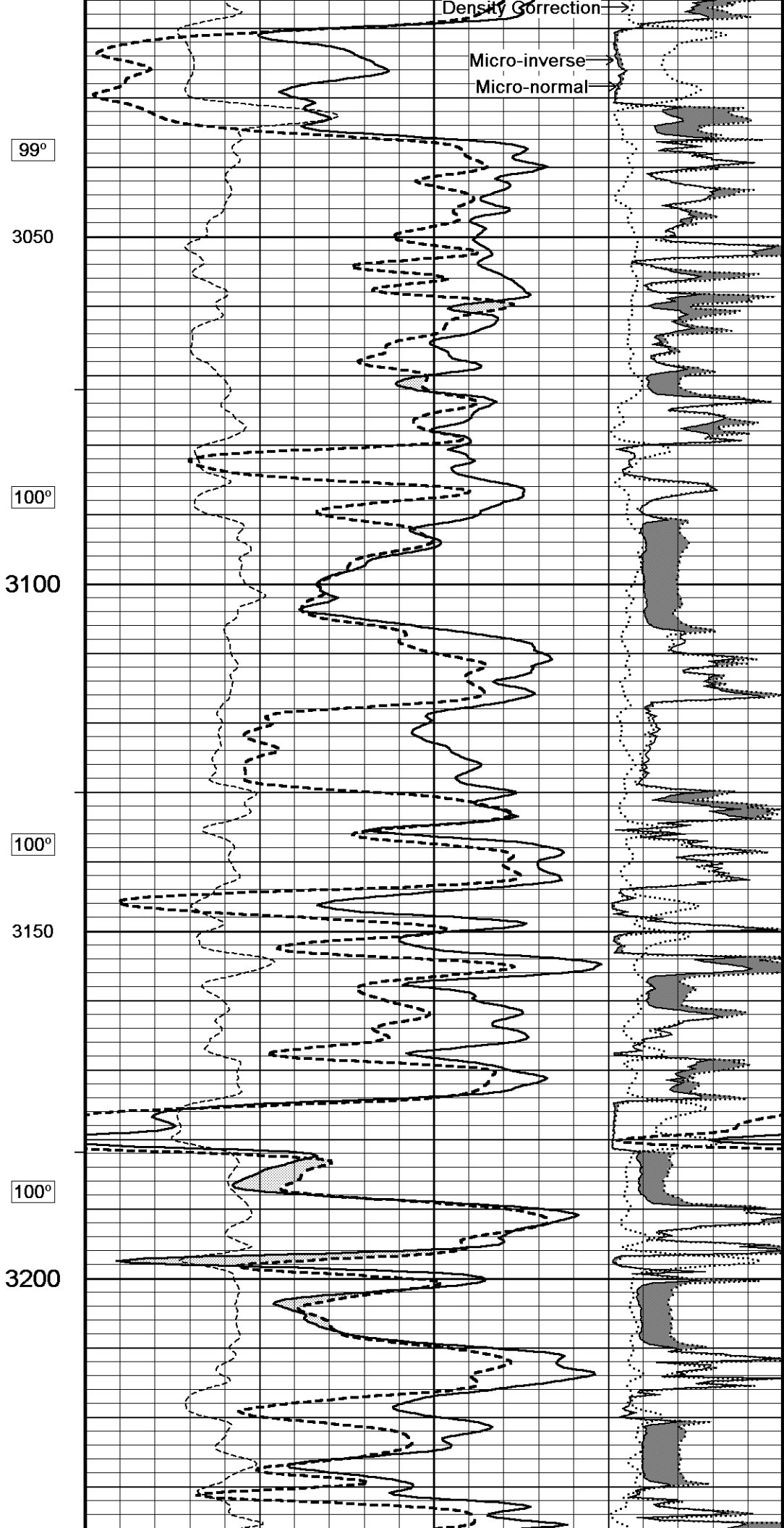
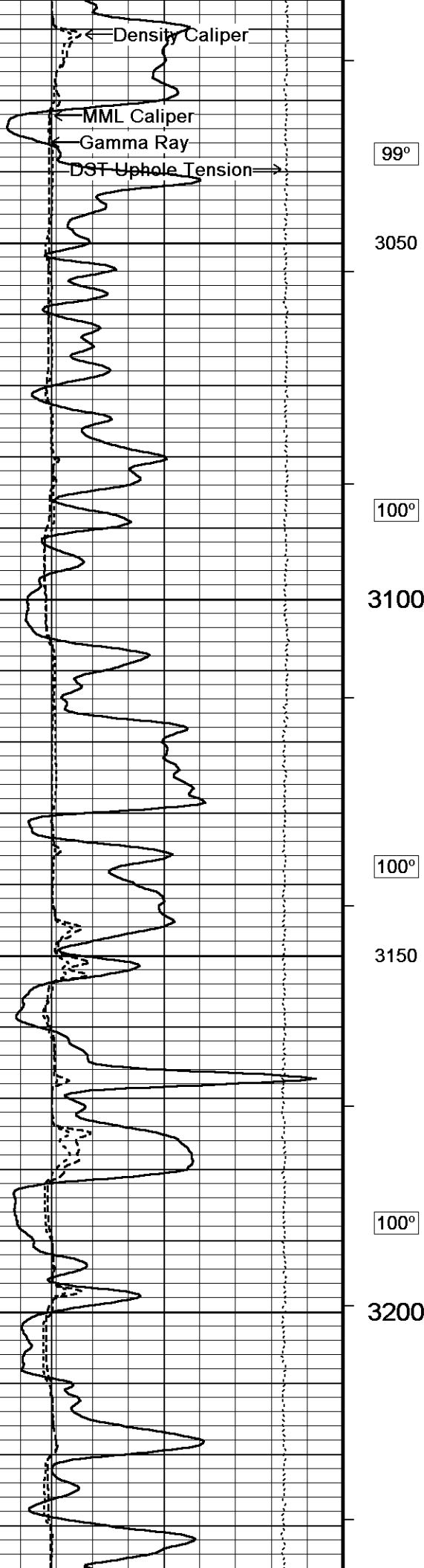
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Bit Size

PE

Limestone Neutron Por.

Limestone Density Por.



99°

3050

100°

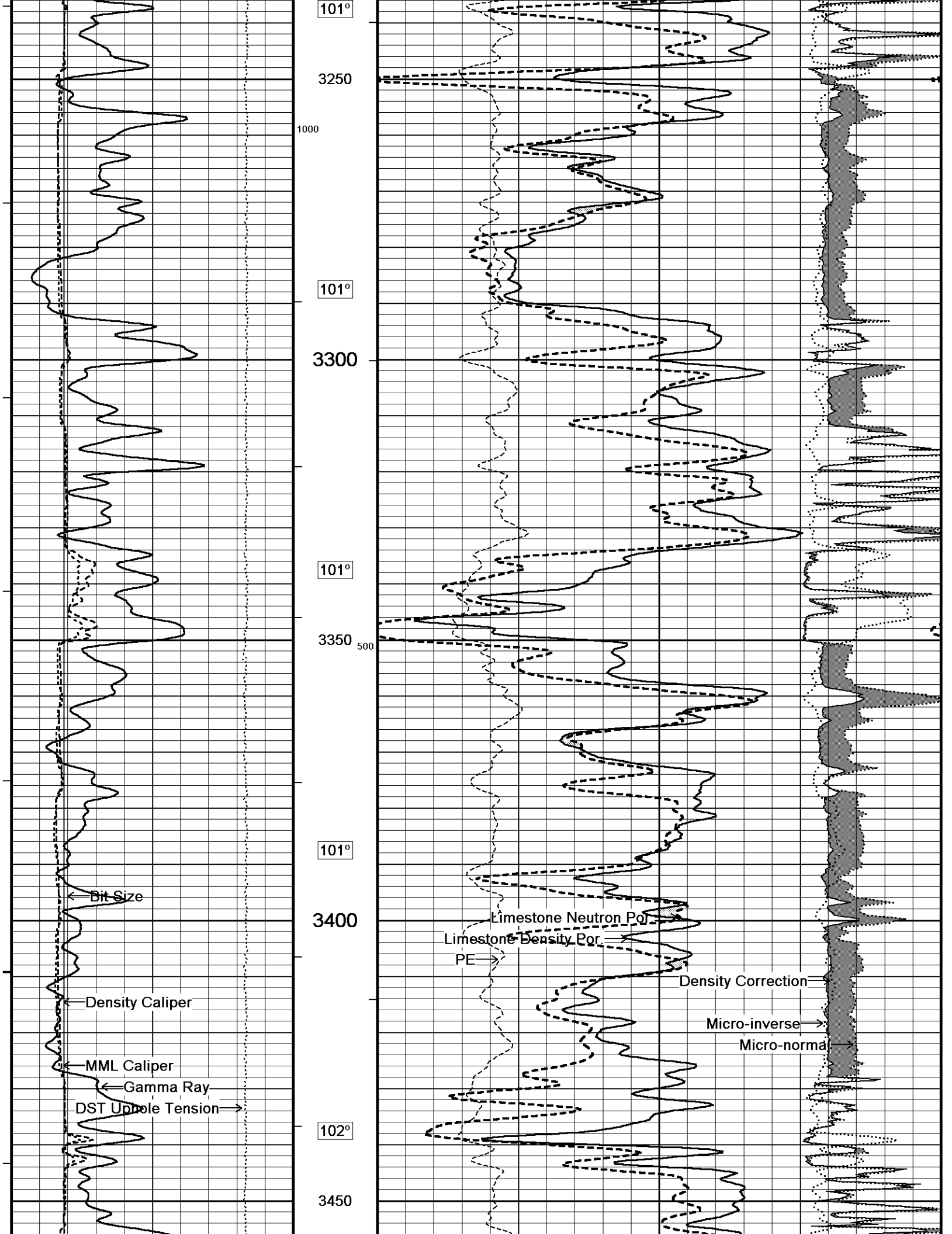
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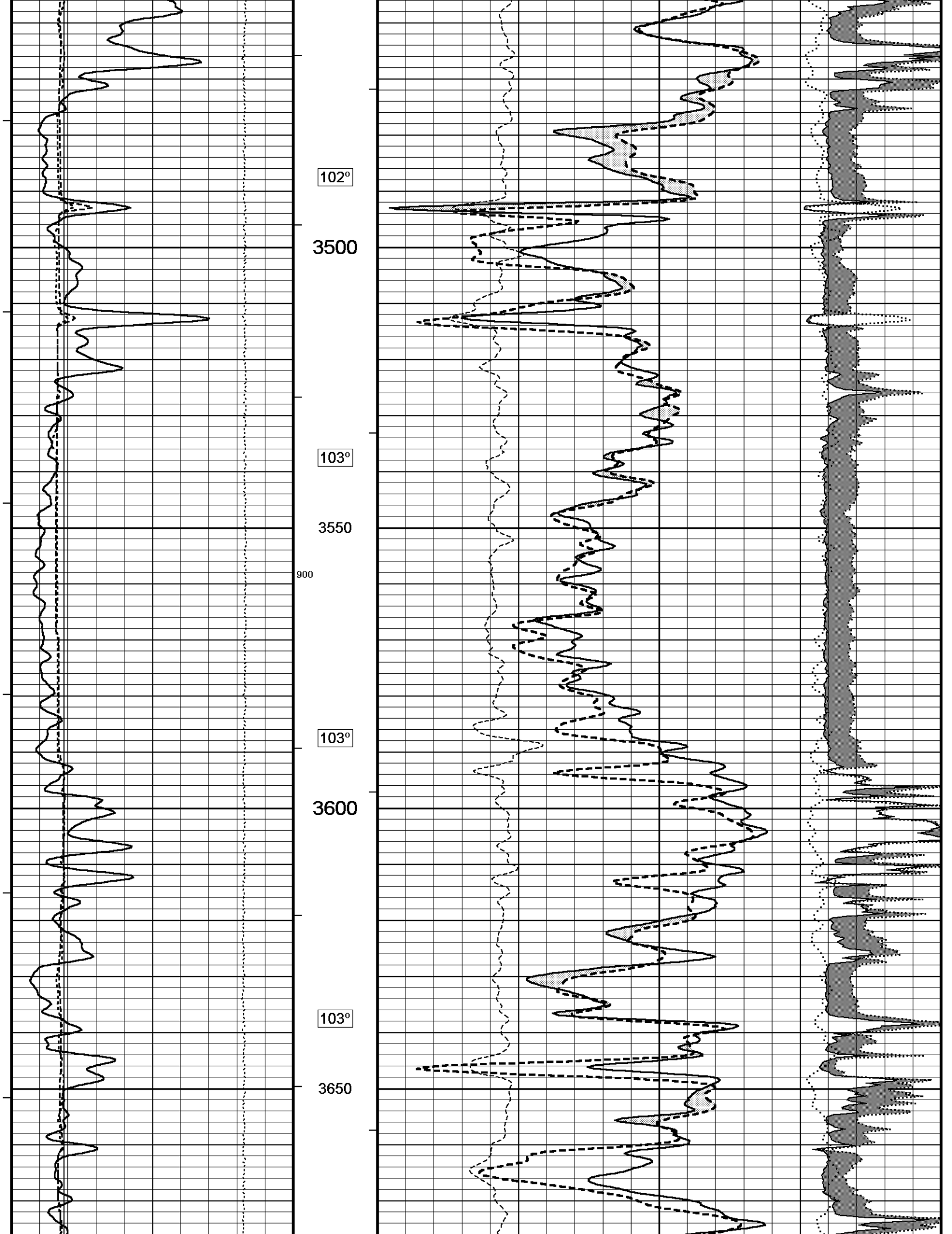
100°

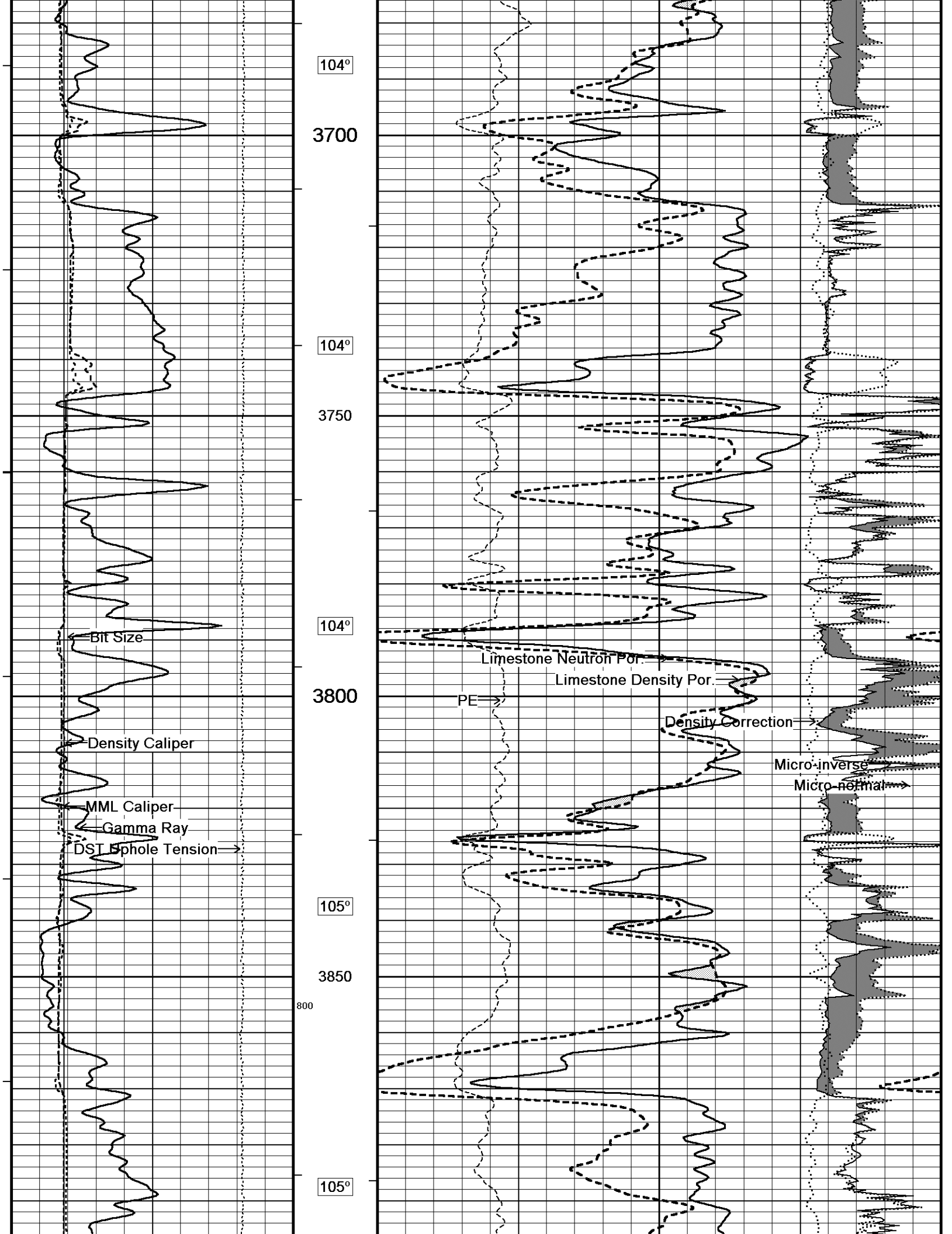
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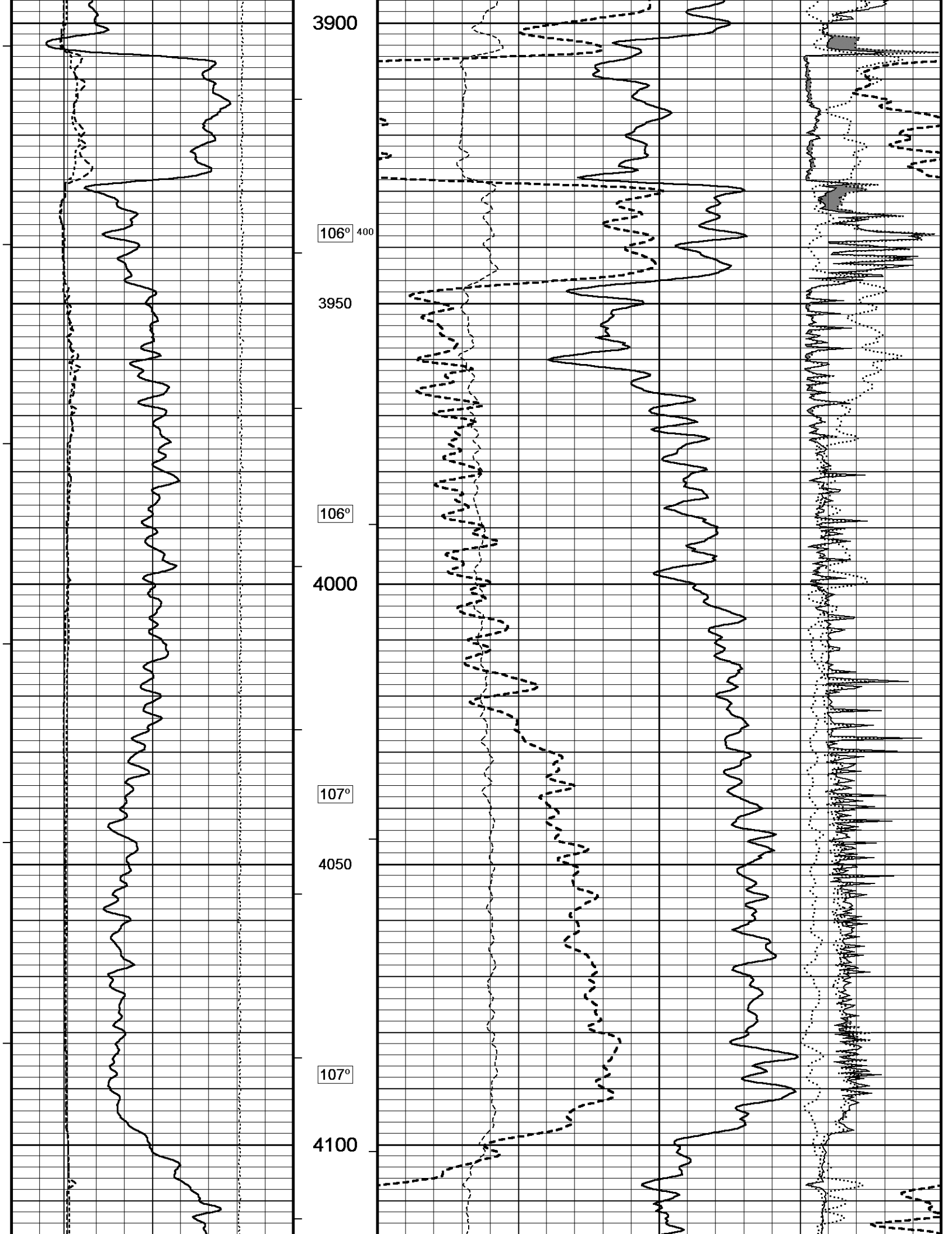
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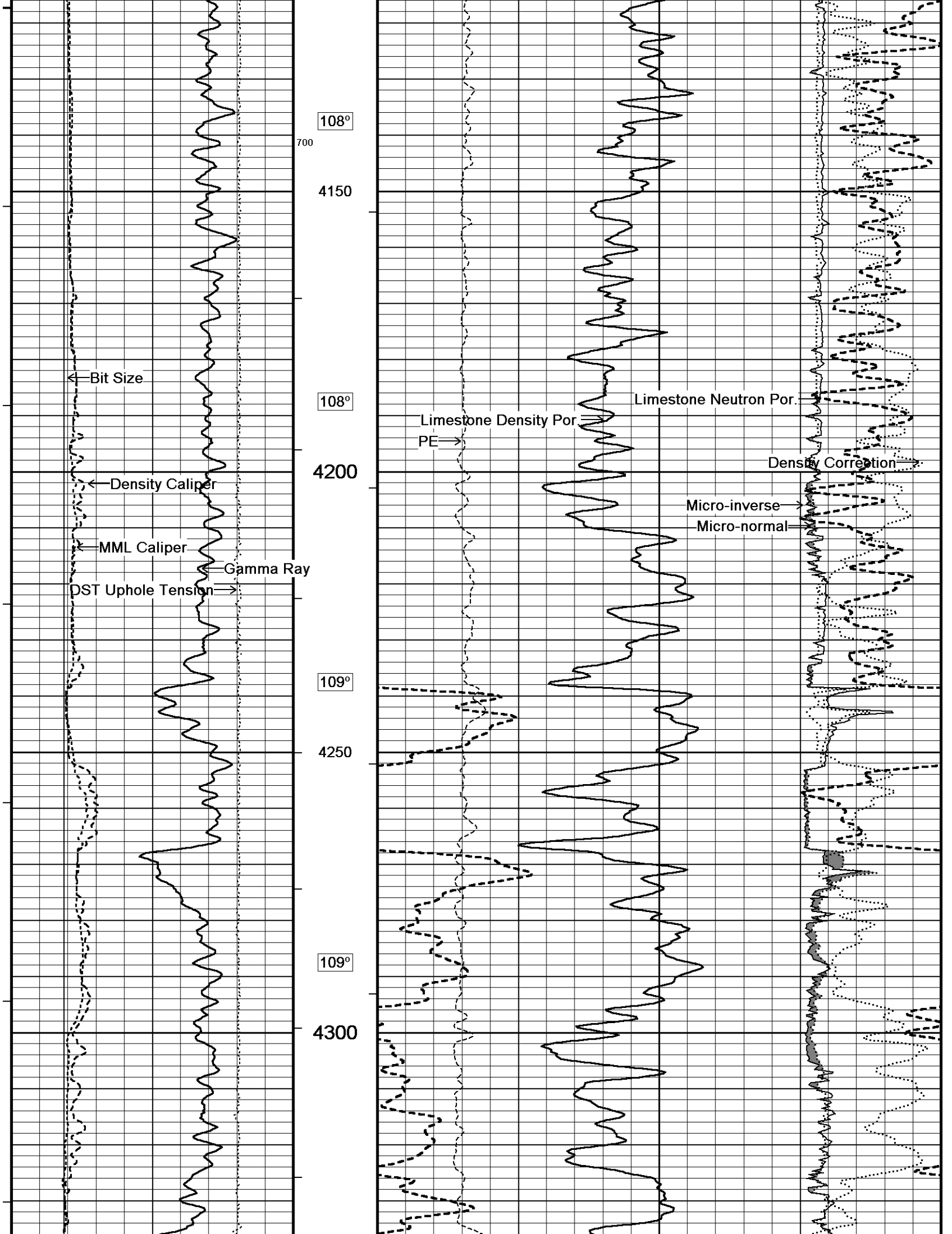
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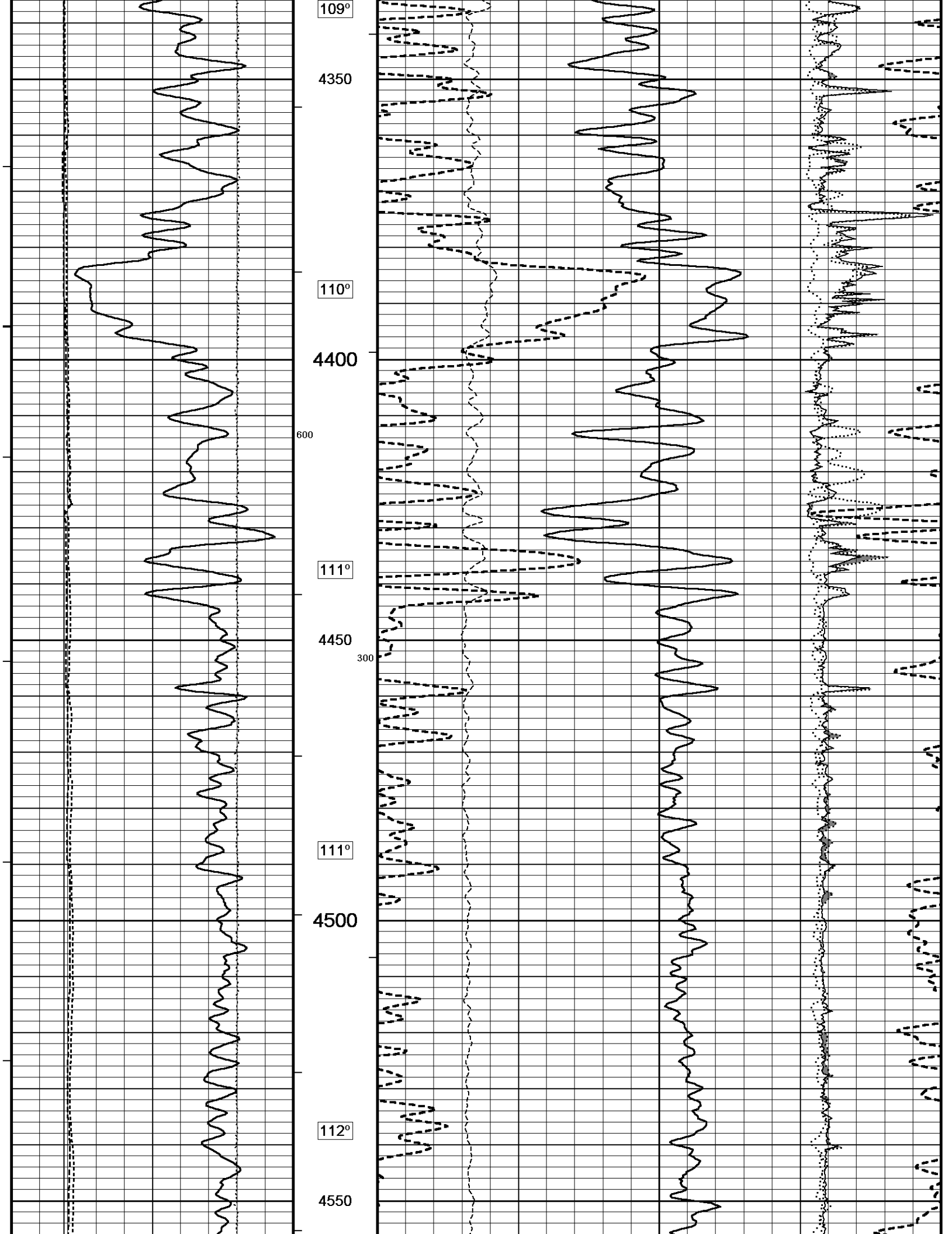


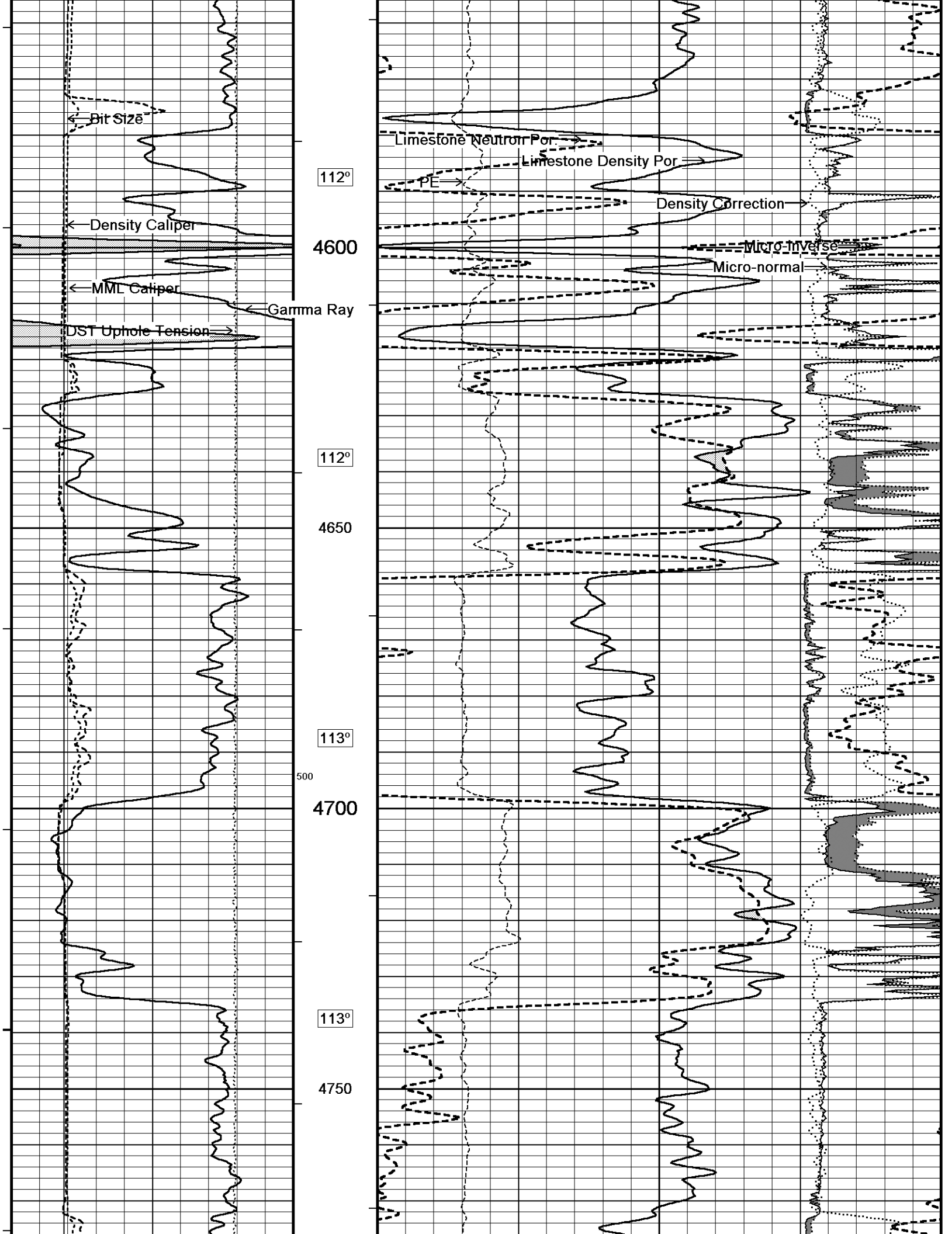


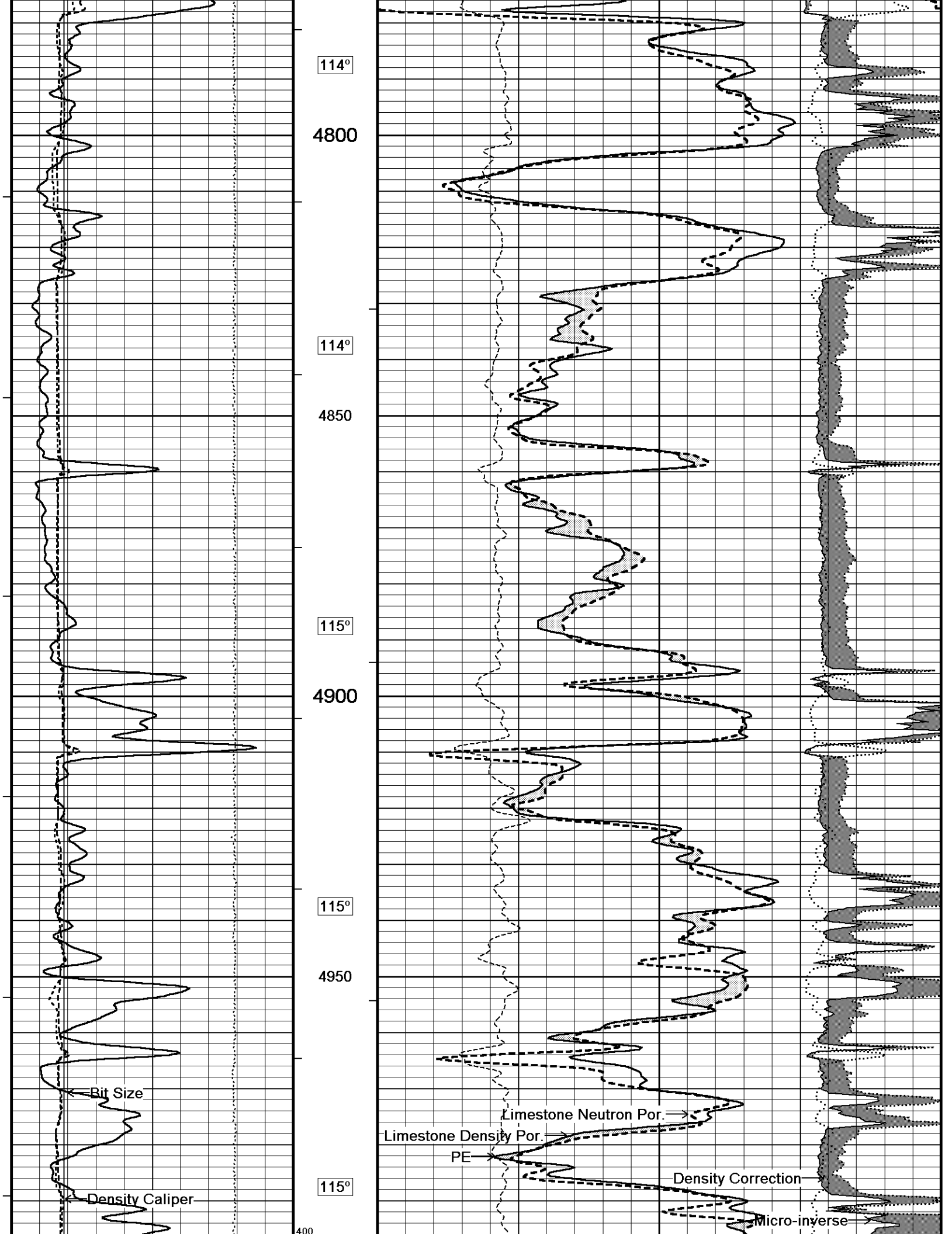


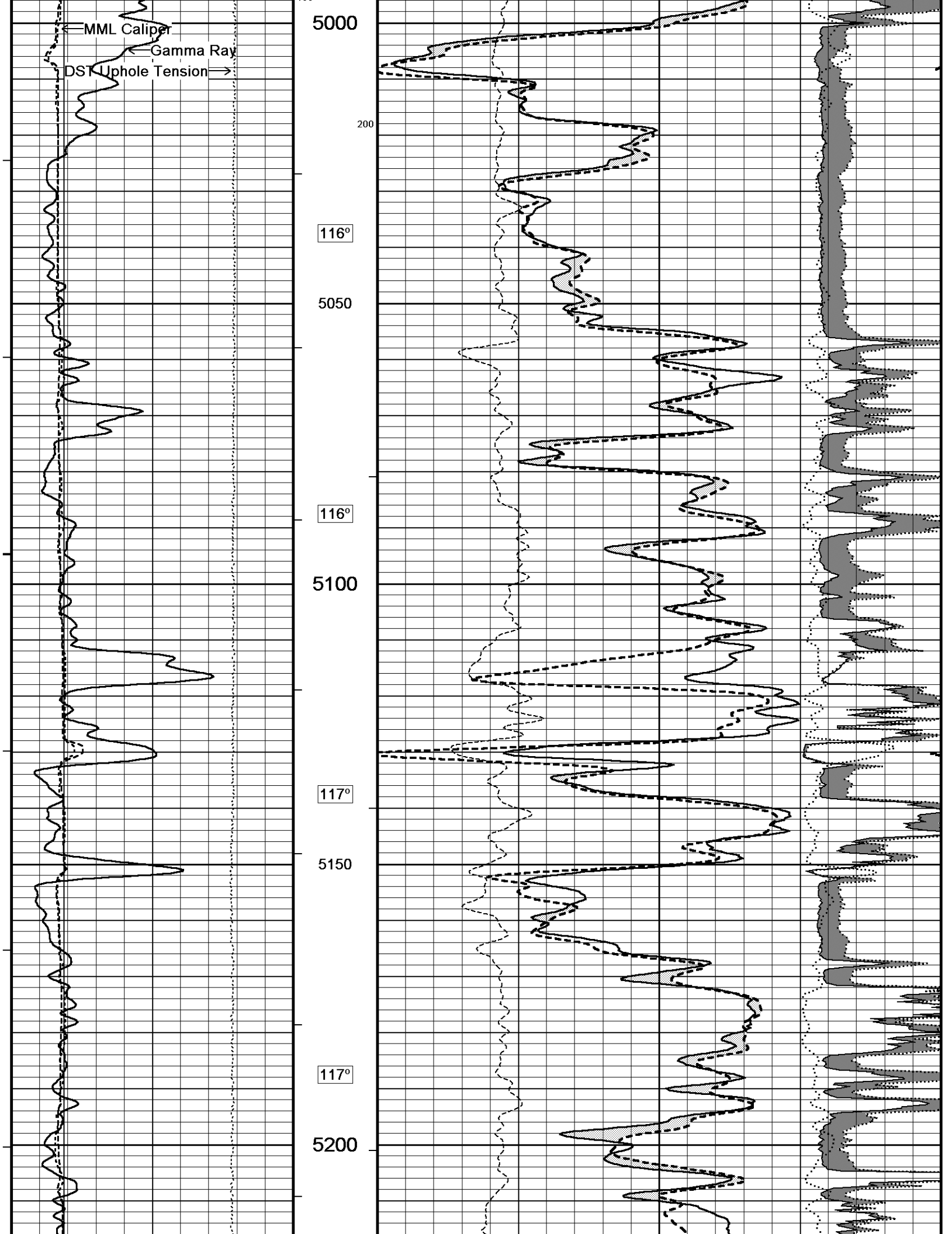


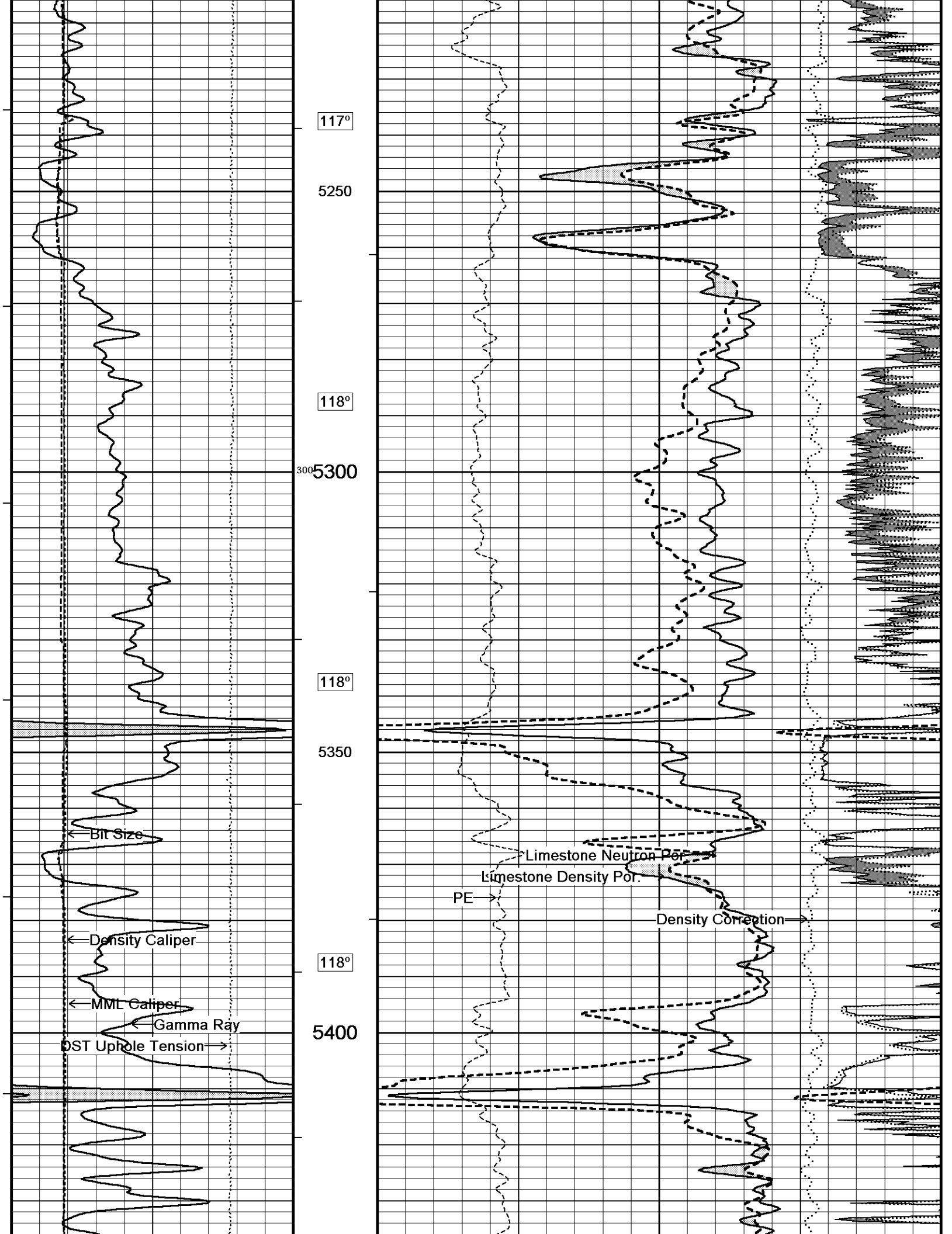


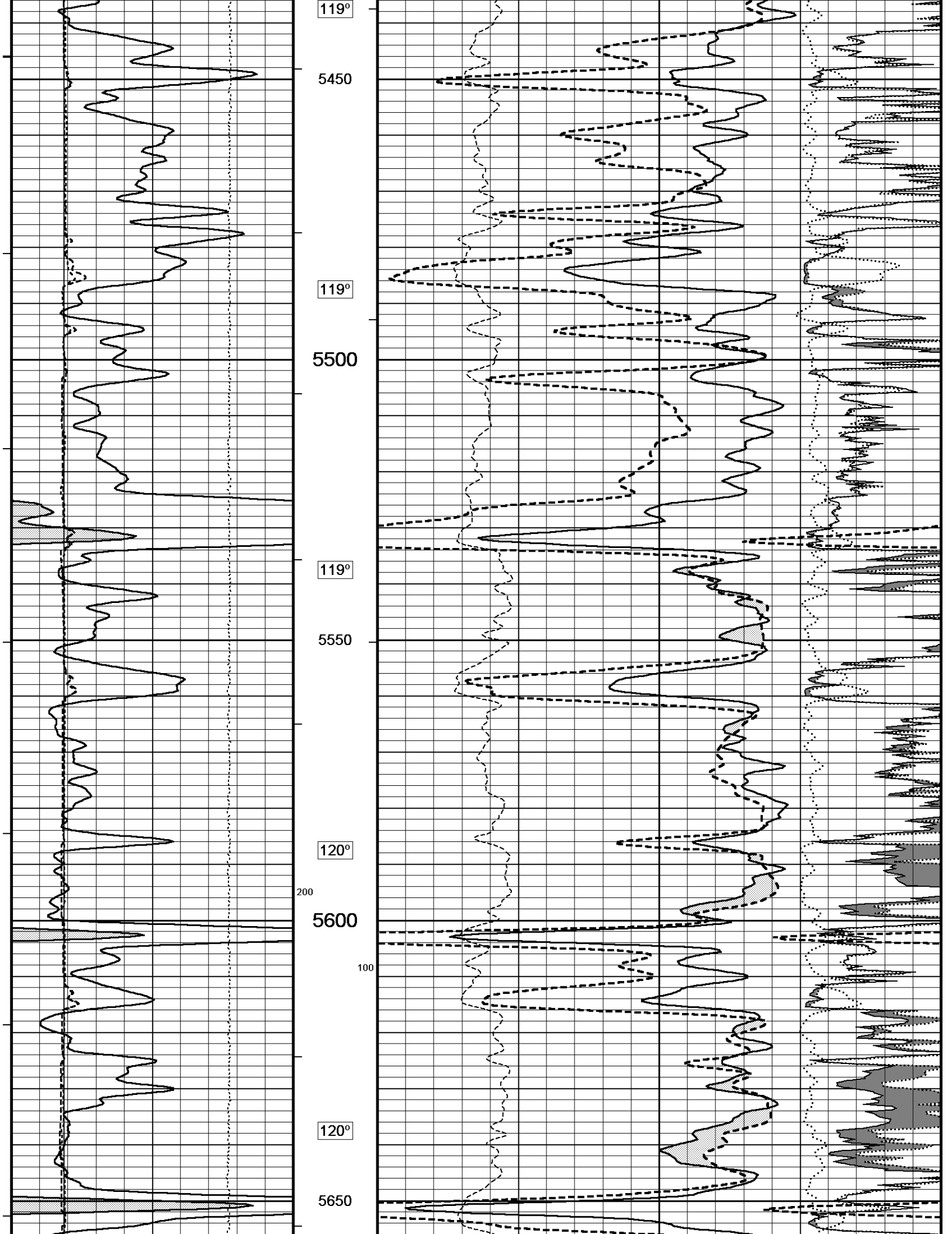


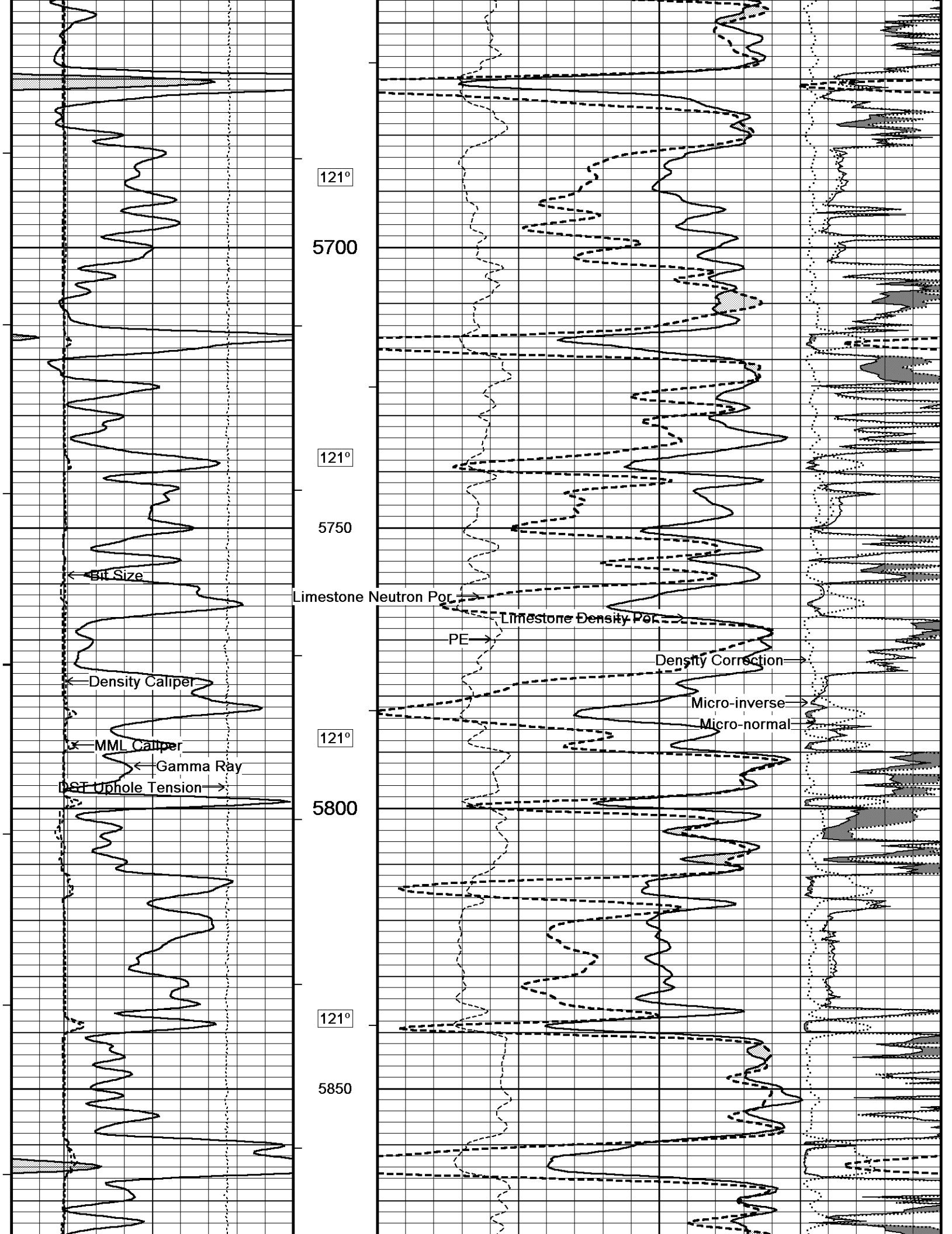


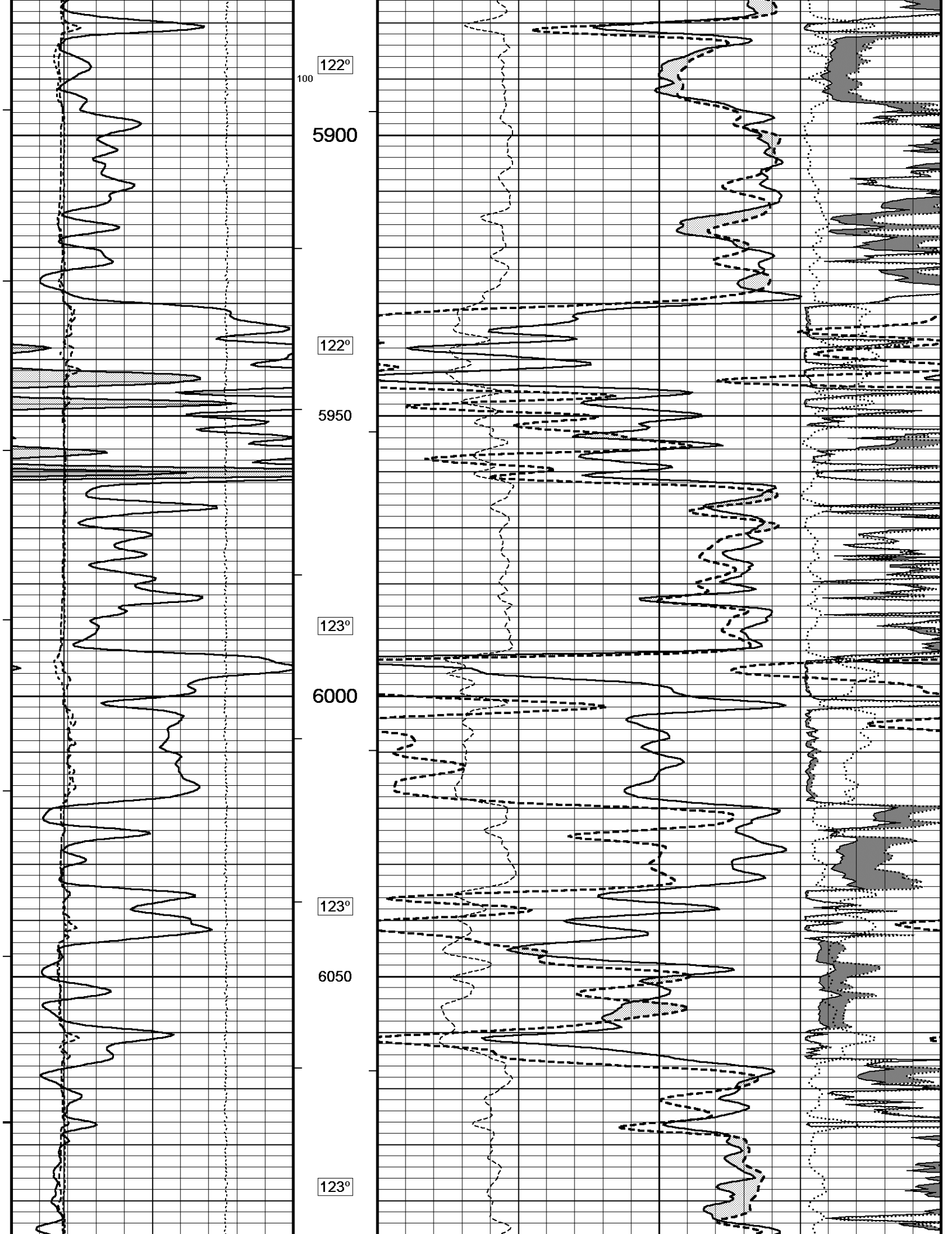


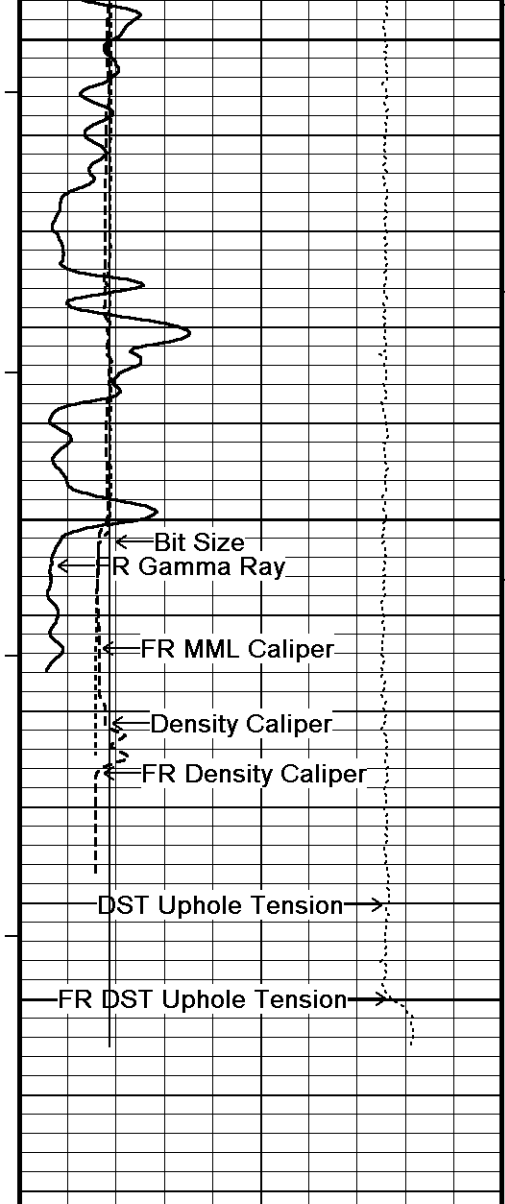




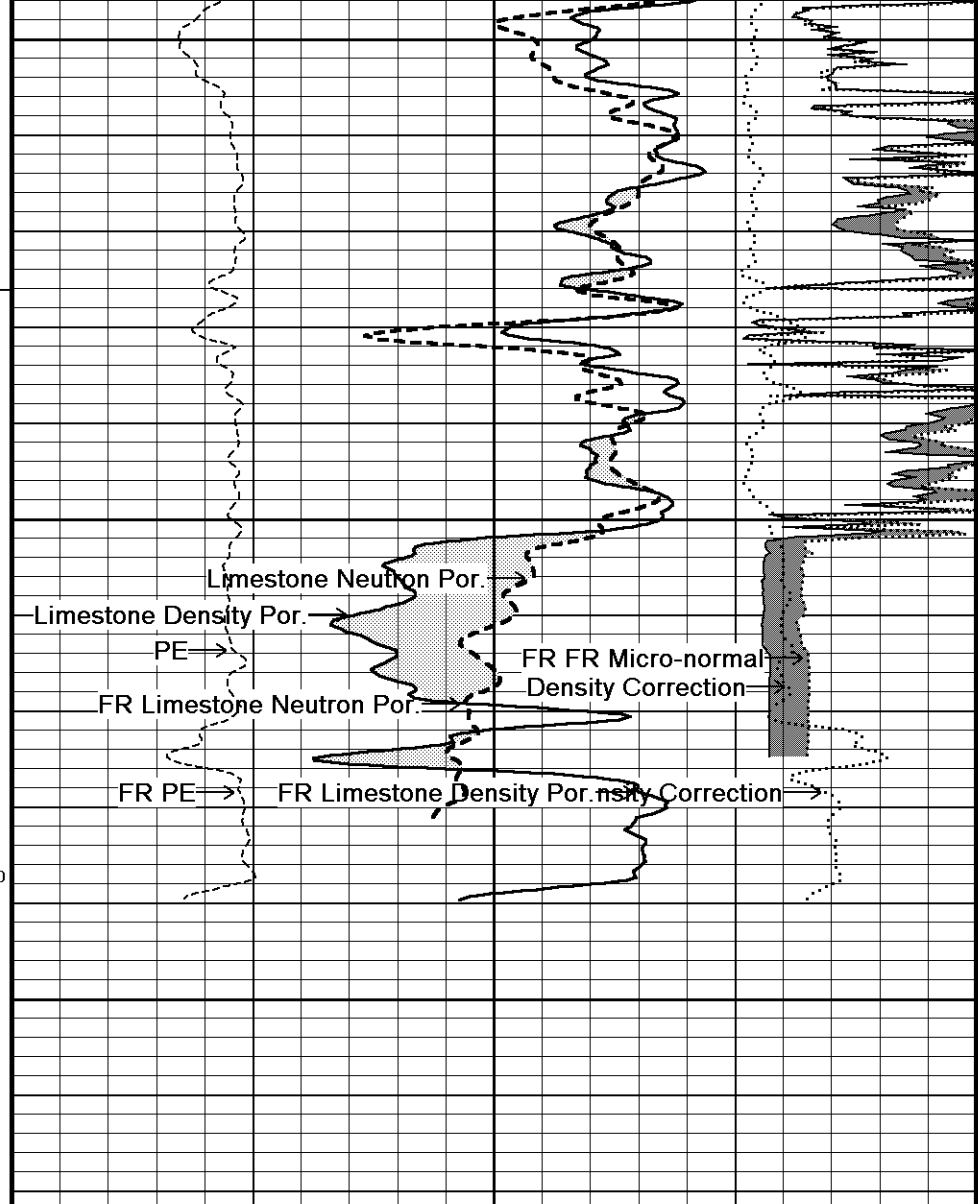








6100  
 124°  
 6150  
 6200  
 6220  
 Depth In Feet



Timing Marks every 60.0 sec

Gamma Ray

API	
0	150
75	
150	300
Borehole Temp in deg F	
150	300

MML Caliper inches

6	16
11	

HVI every 10 cu ft

Density Caliper inches

6	16
11	

Annular Integral every 10 cu ft

Bit Size inches

Limestone Density Por. percent

30	20	10	0	-10
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Limestone Neutron Por. percent

30	20	10	0	-10
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PE barns/electron

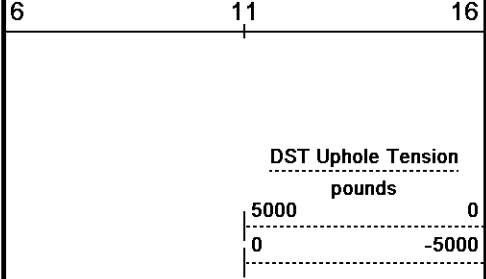
0	5	10
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Density Correction grams/cc

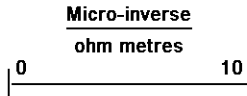
-0.25	0	0.25
-------	---	------

Micro-normal ohm metres

0	10
---	----



Replay  
Scale  
1:240

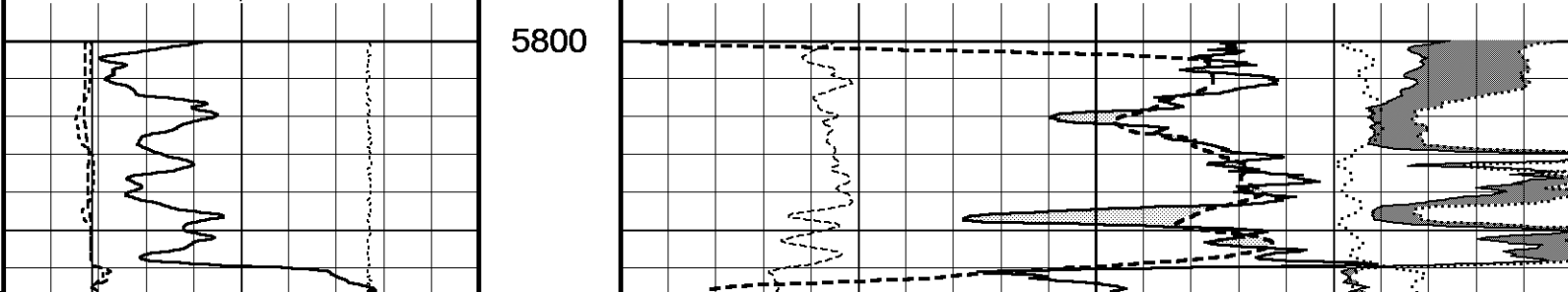
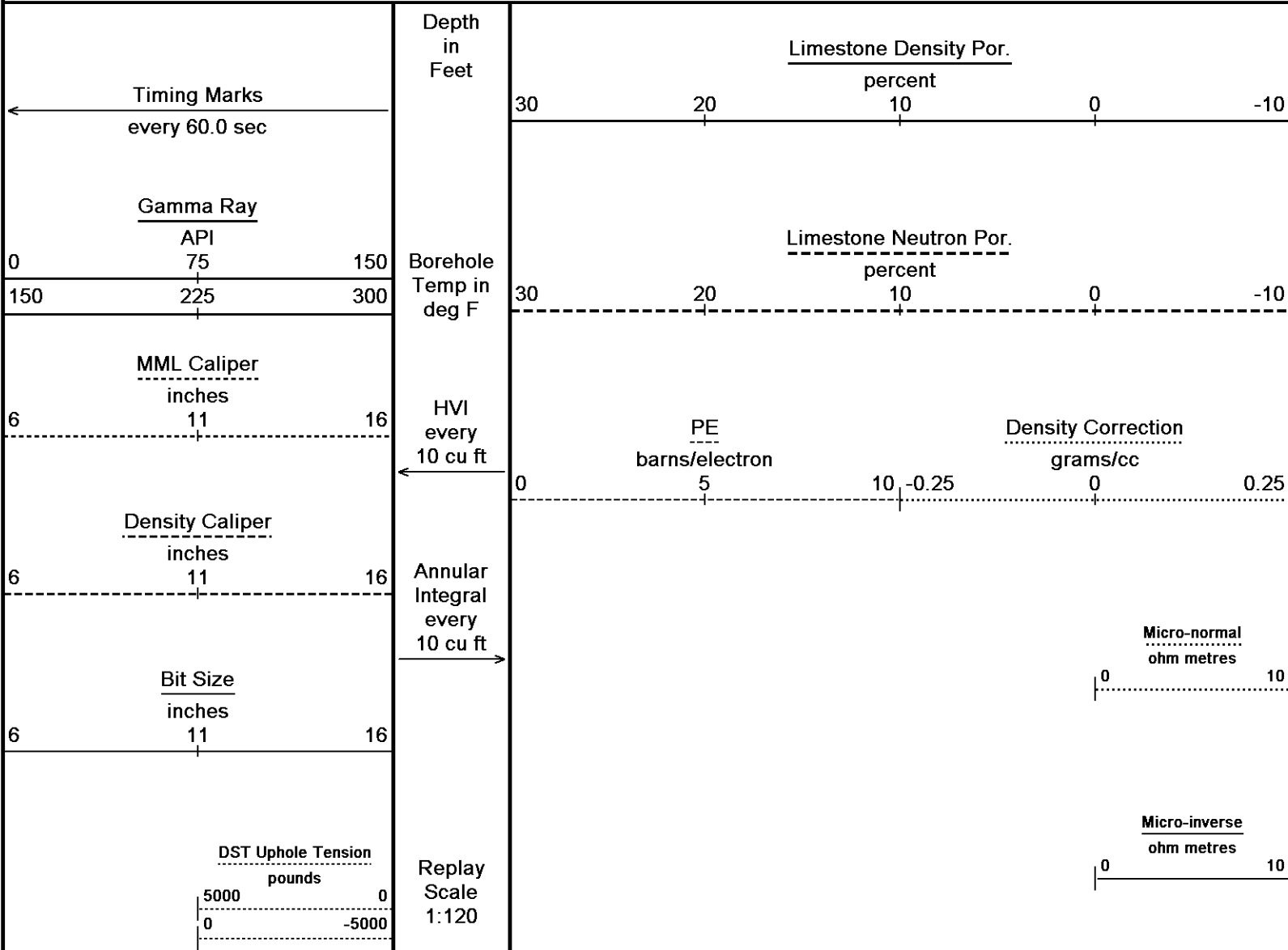


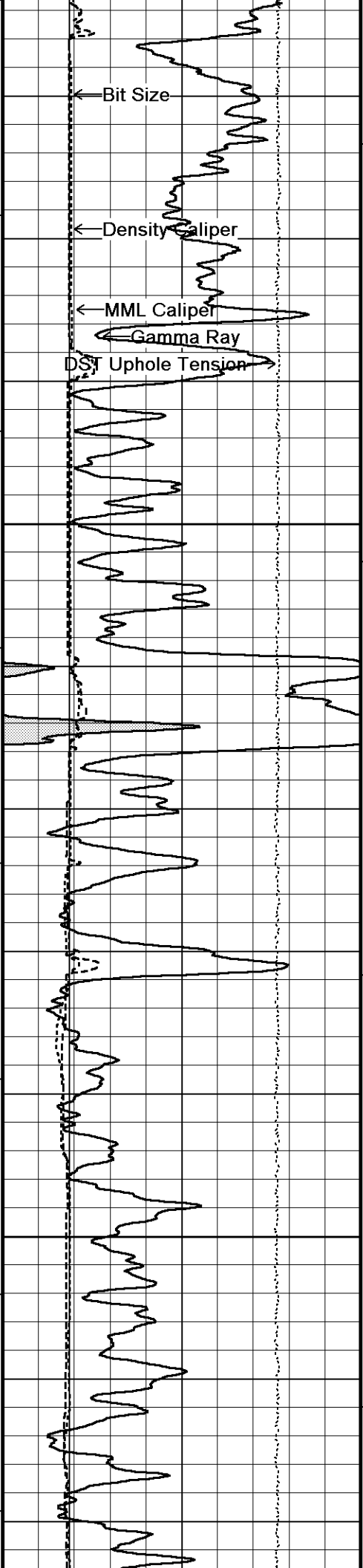
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 Recorded on 12-APR-2011 09:51  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164

↑ 5 Inch Main ↑

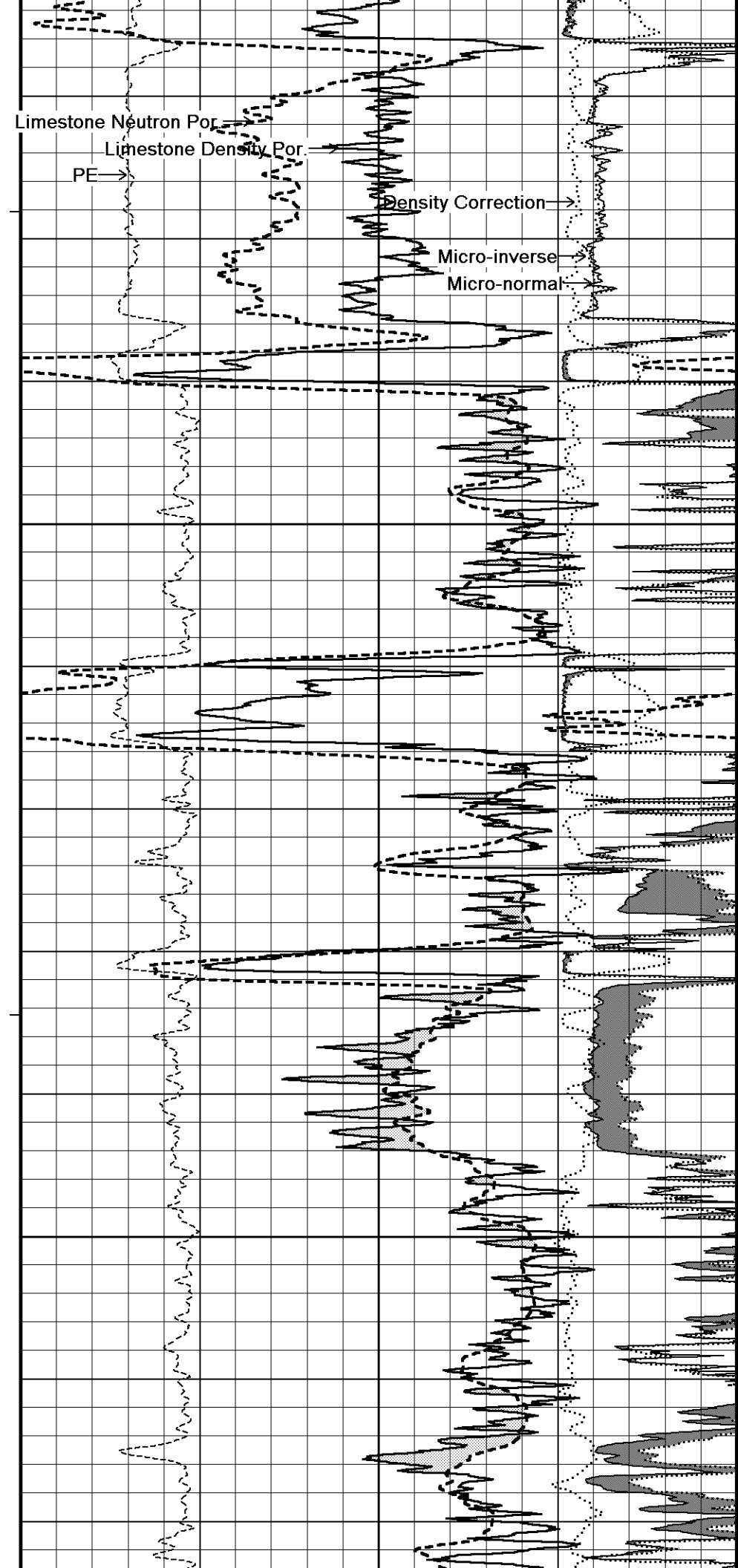
↓ HI RES Section ↓

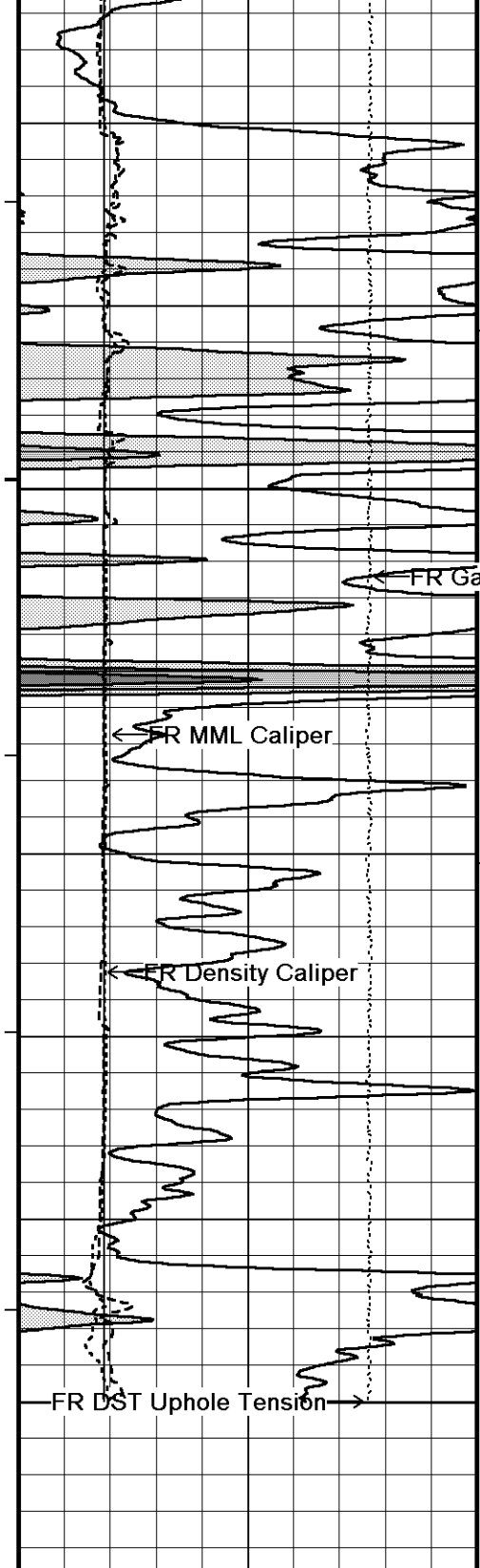
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 Recorded on 12-APR-2011 09:27  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164





120°  
5850  
121°  
5900





121°

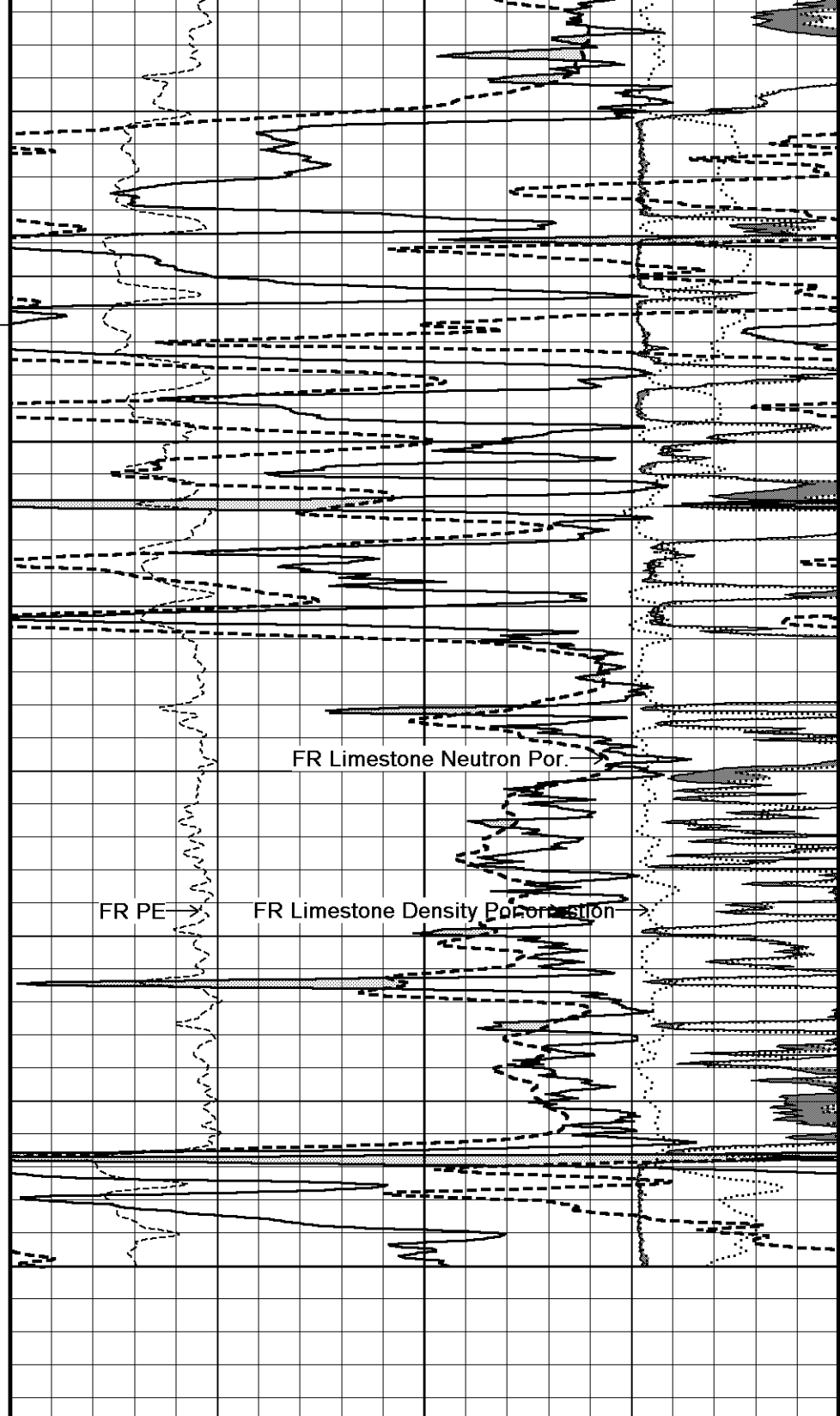
5950

121°

6000

6008

Depth in Feet



Timing Marks every 60.0 sec

Gamma Ray		
API		
0	75	150
150	225	300

MML Caliper

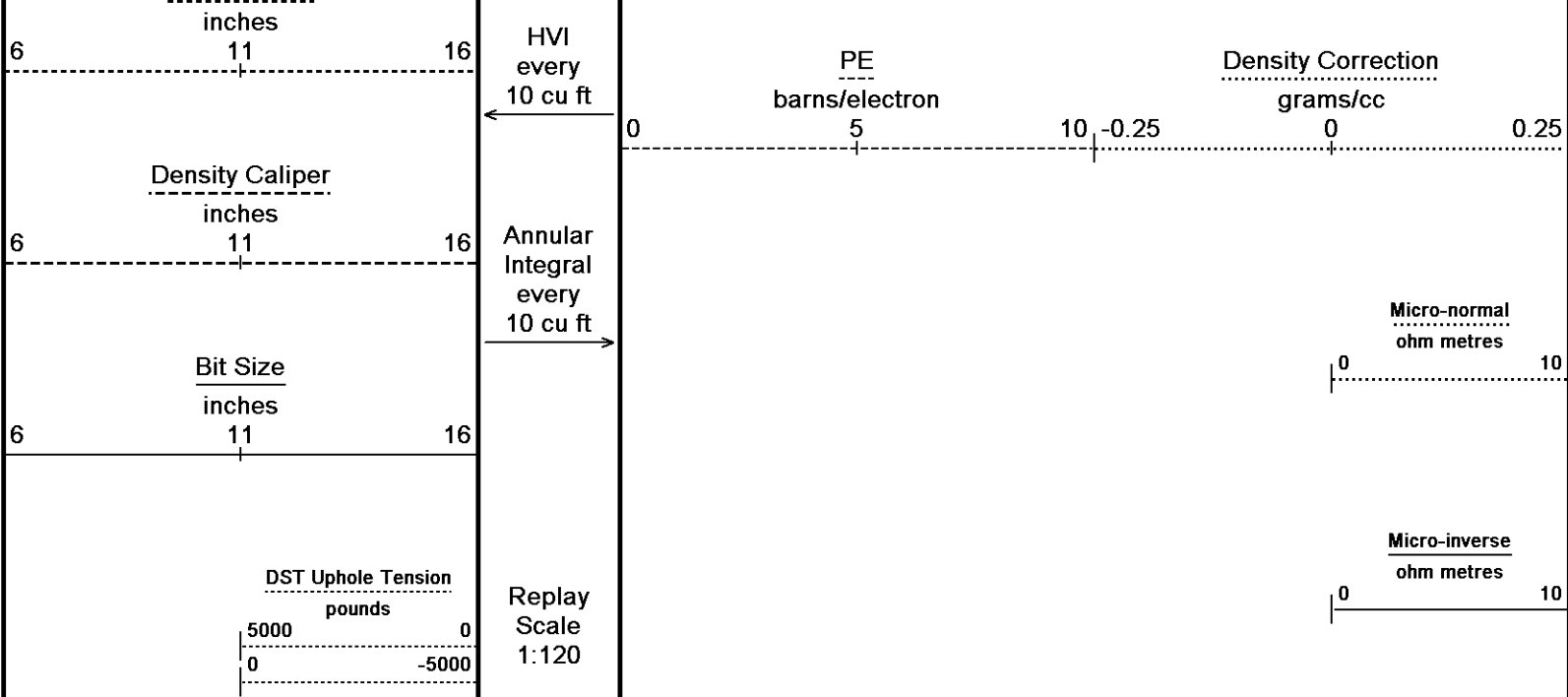
Borehole Temp in deg F

Limestone Density Por.  
percent

30 20 10 0 -10

Limestone Neutron Por.  
percent

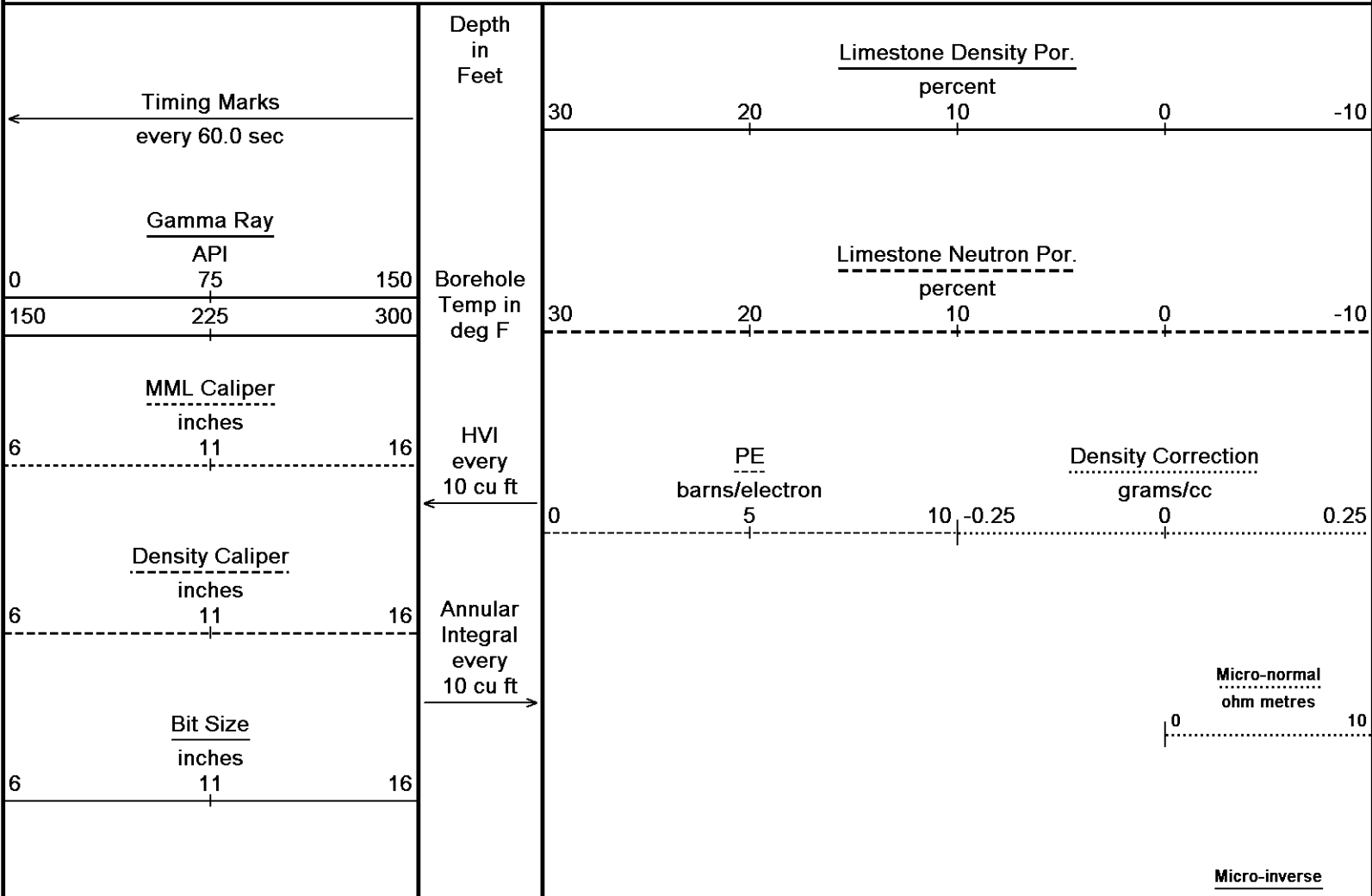
30 20 10 0 -10



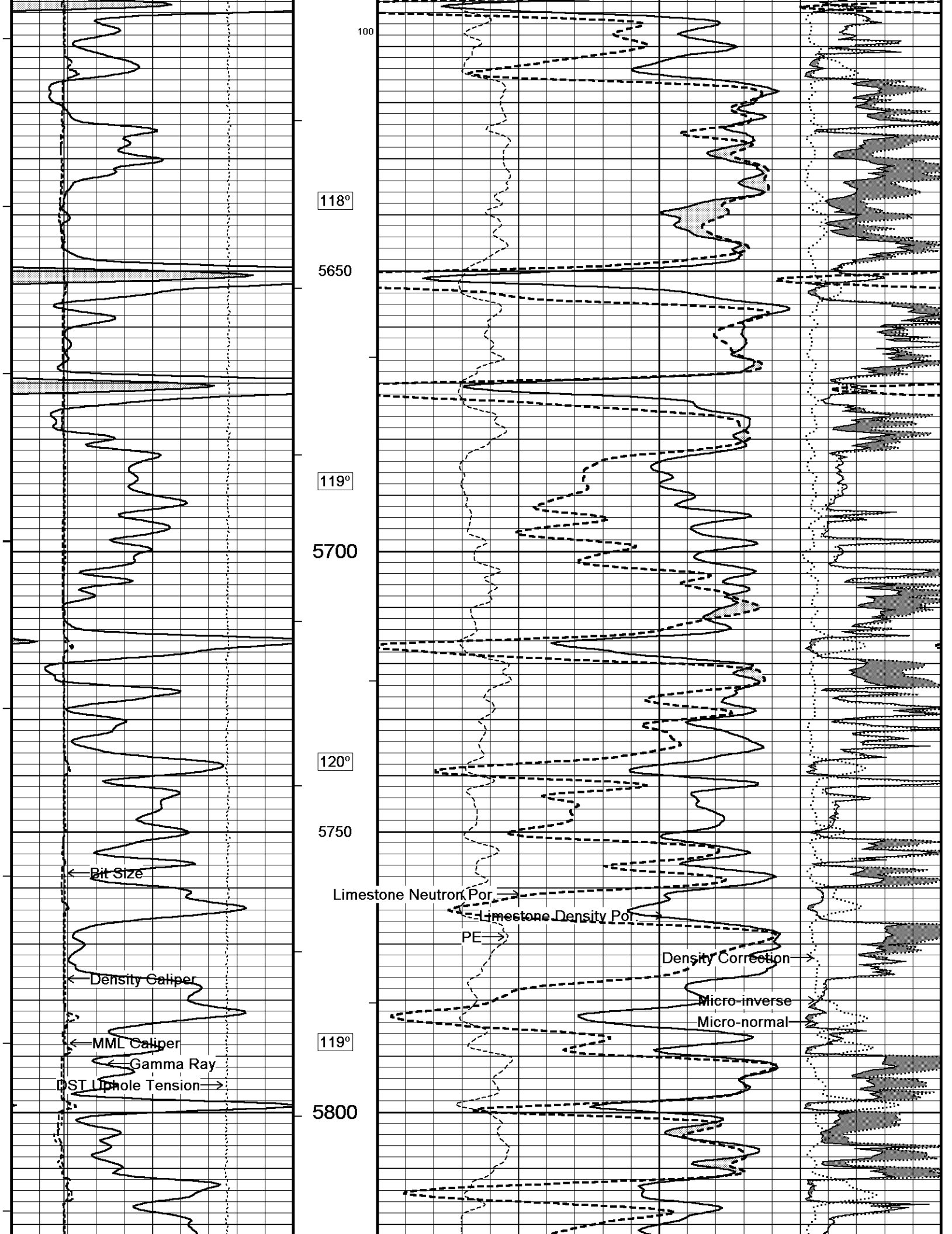
**HI RES Section**

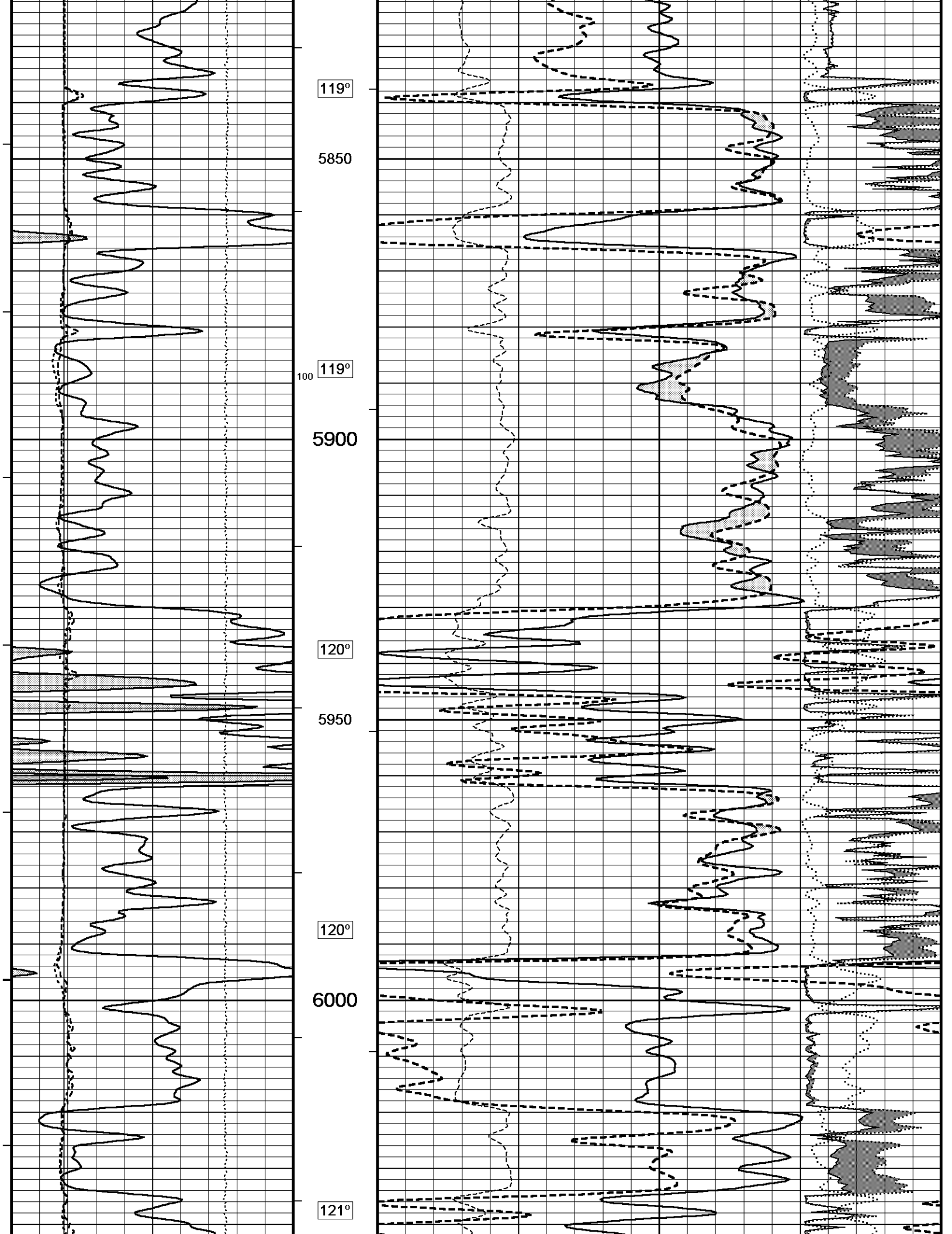
**Repeat Section**

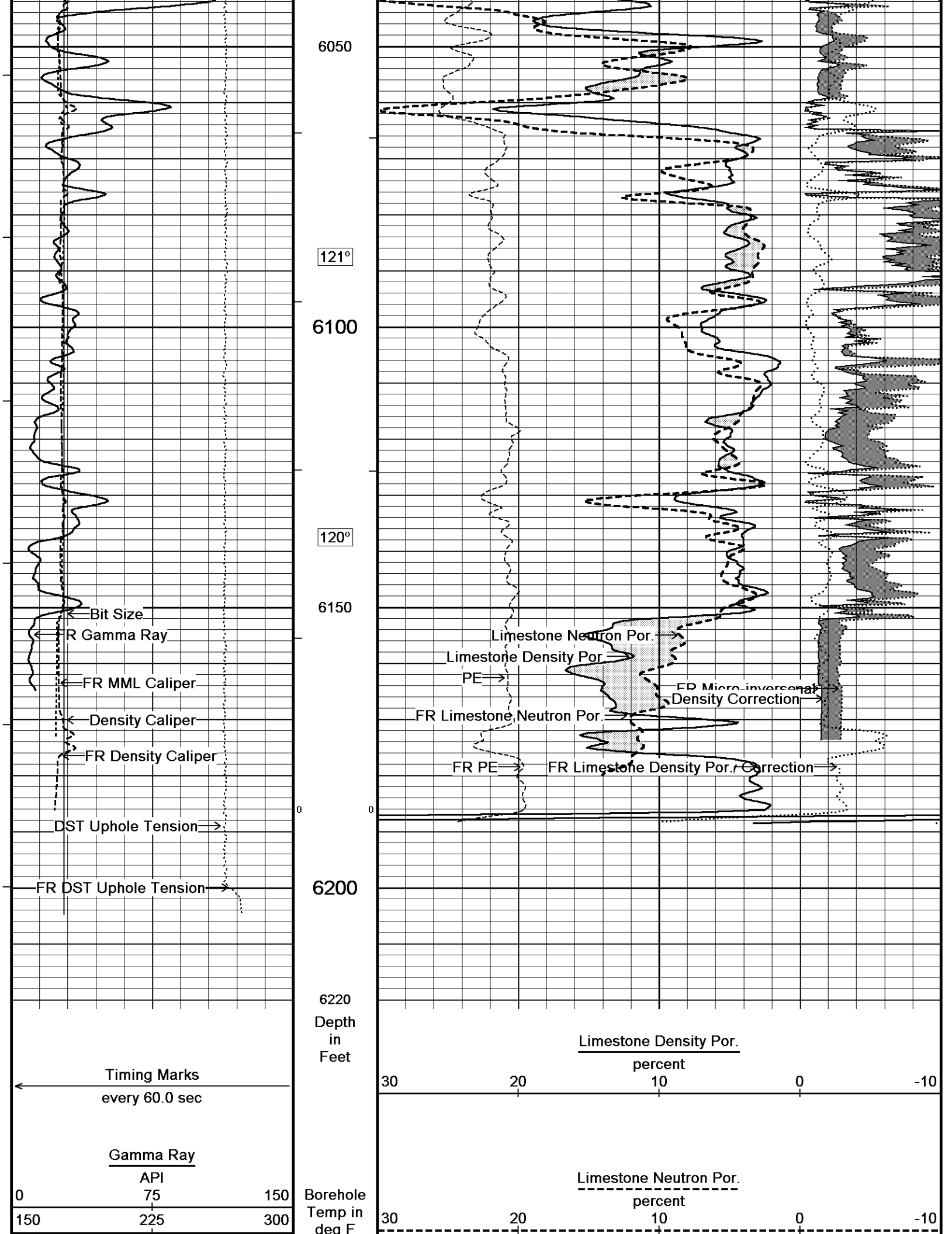
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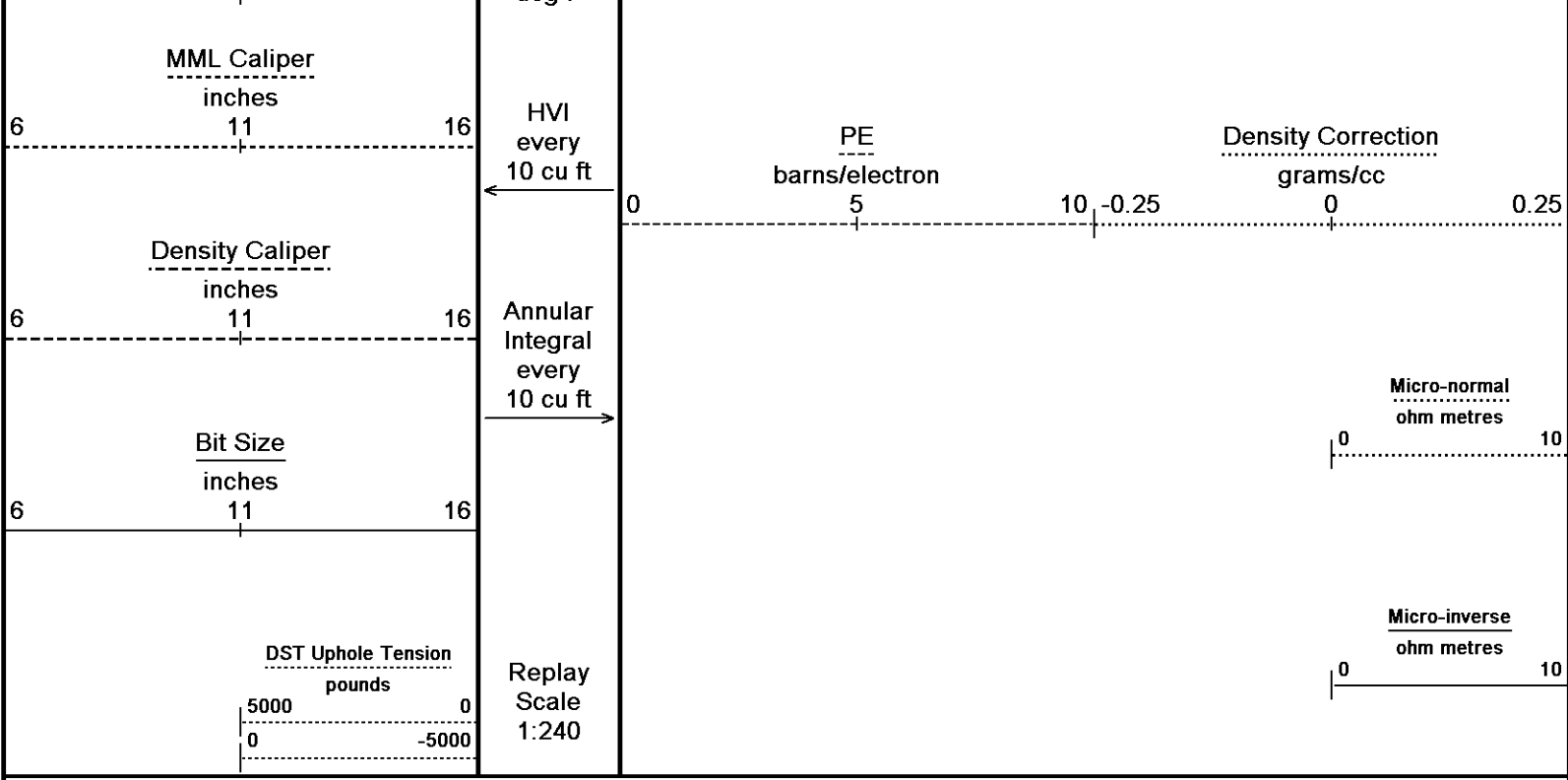








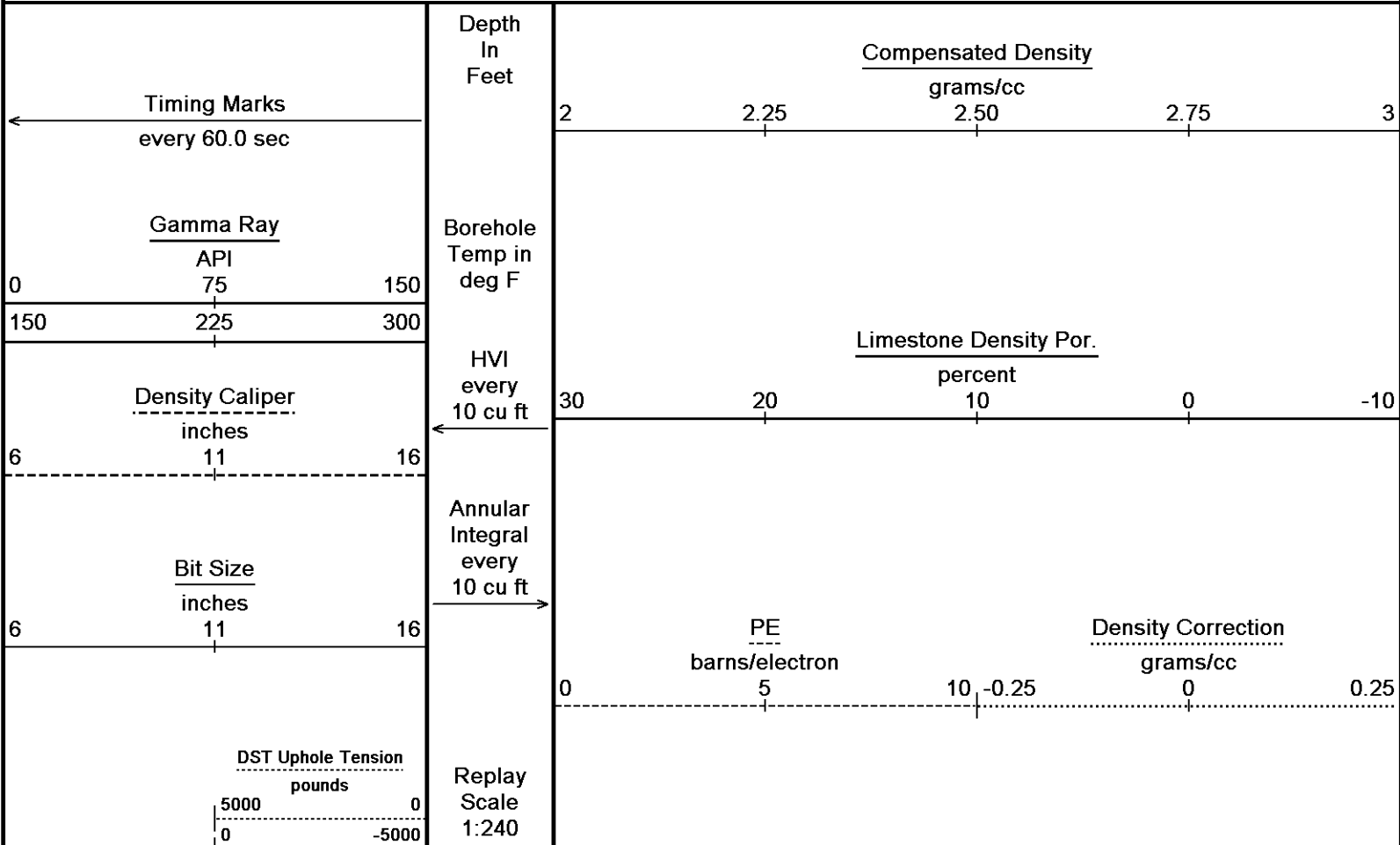




Depth Based Data - Maximum Sampling Increment 10.0cm  
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 Recorded on 12-APR-2011 08:48  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164

↑ Repeat Section ↑

↓ 5 Inch Main ↓  
 Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-APR-2011 13:22  
 Filename: C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView...\Deckard #1-33\_003.dta  
 Recorded on 12-APR-2011 09:51  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164



1616  
Since

1650

92°

1700

1700

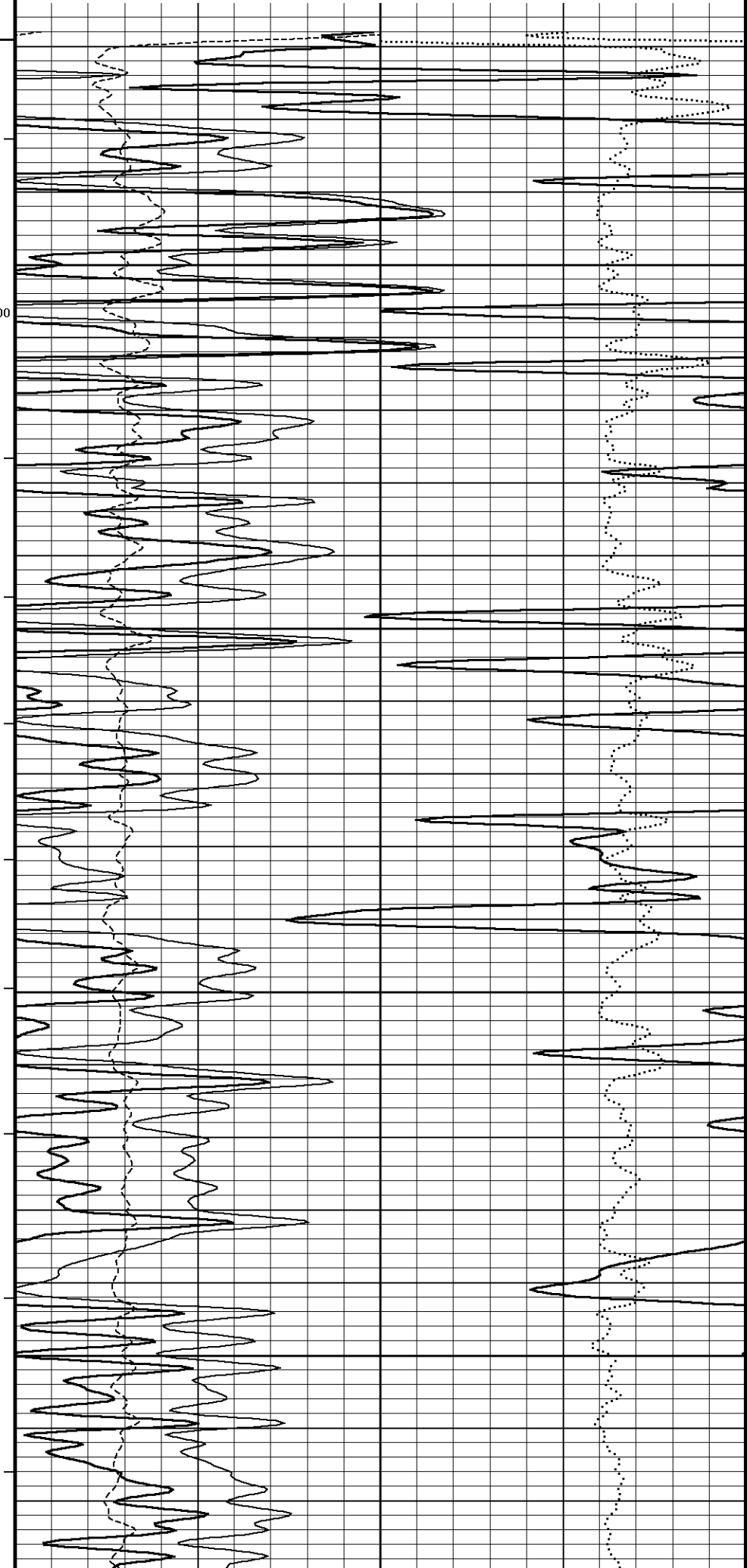
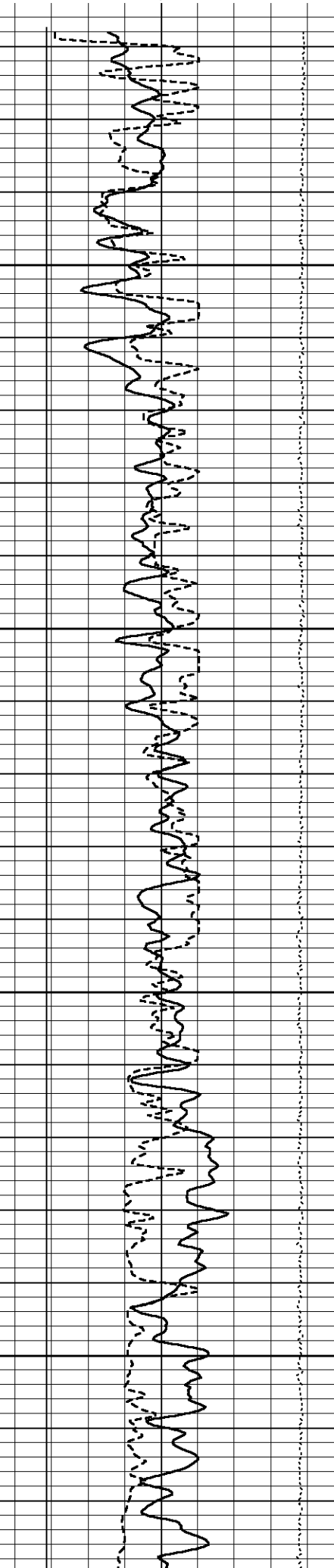
93°

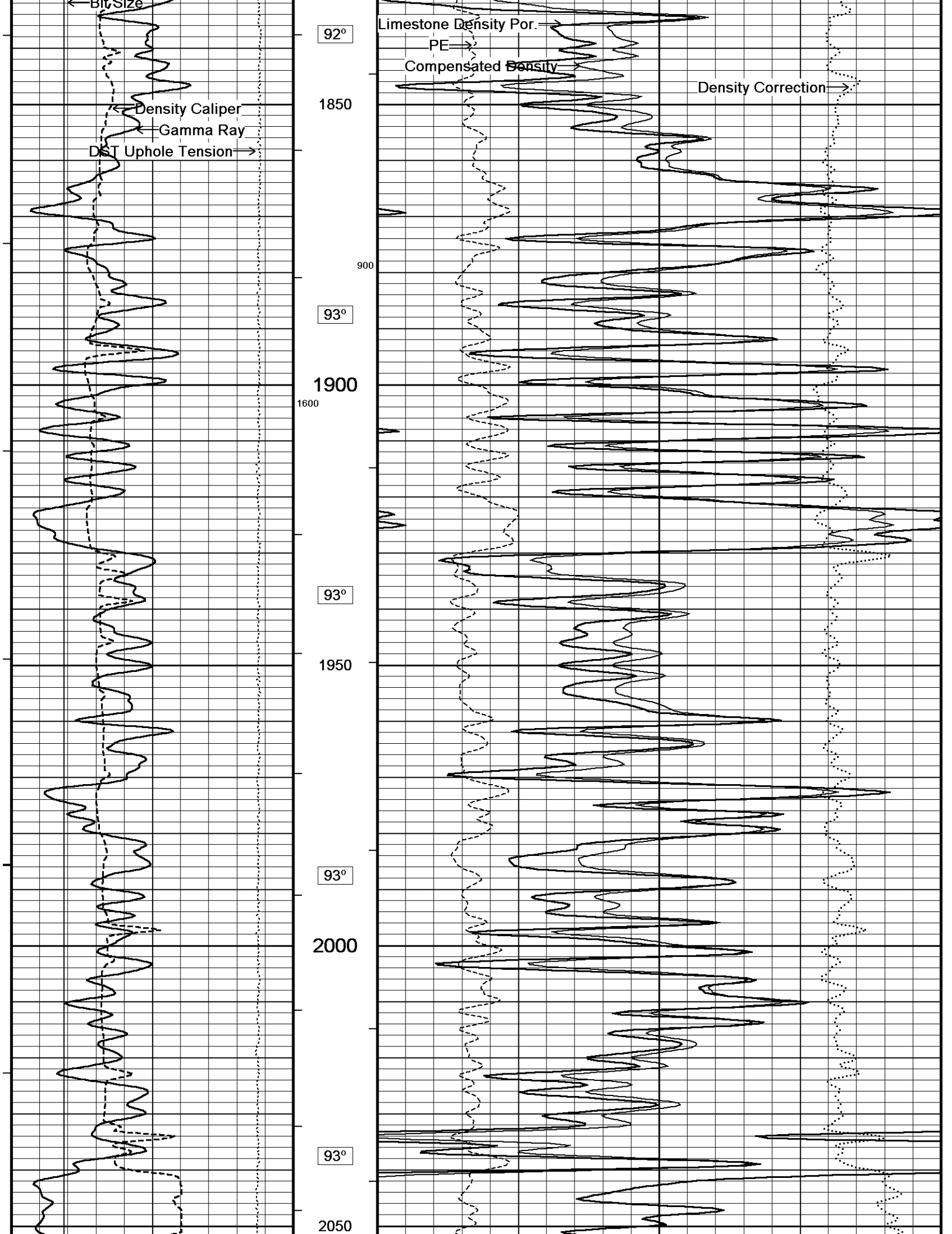
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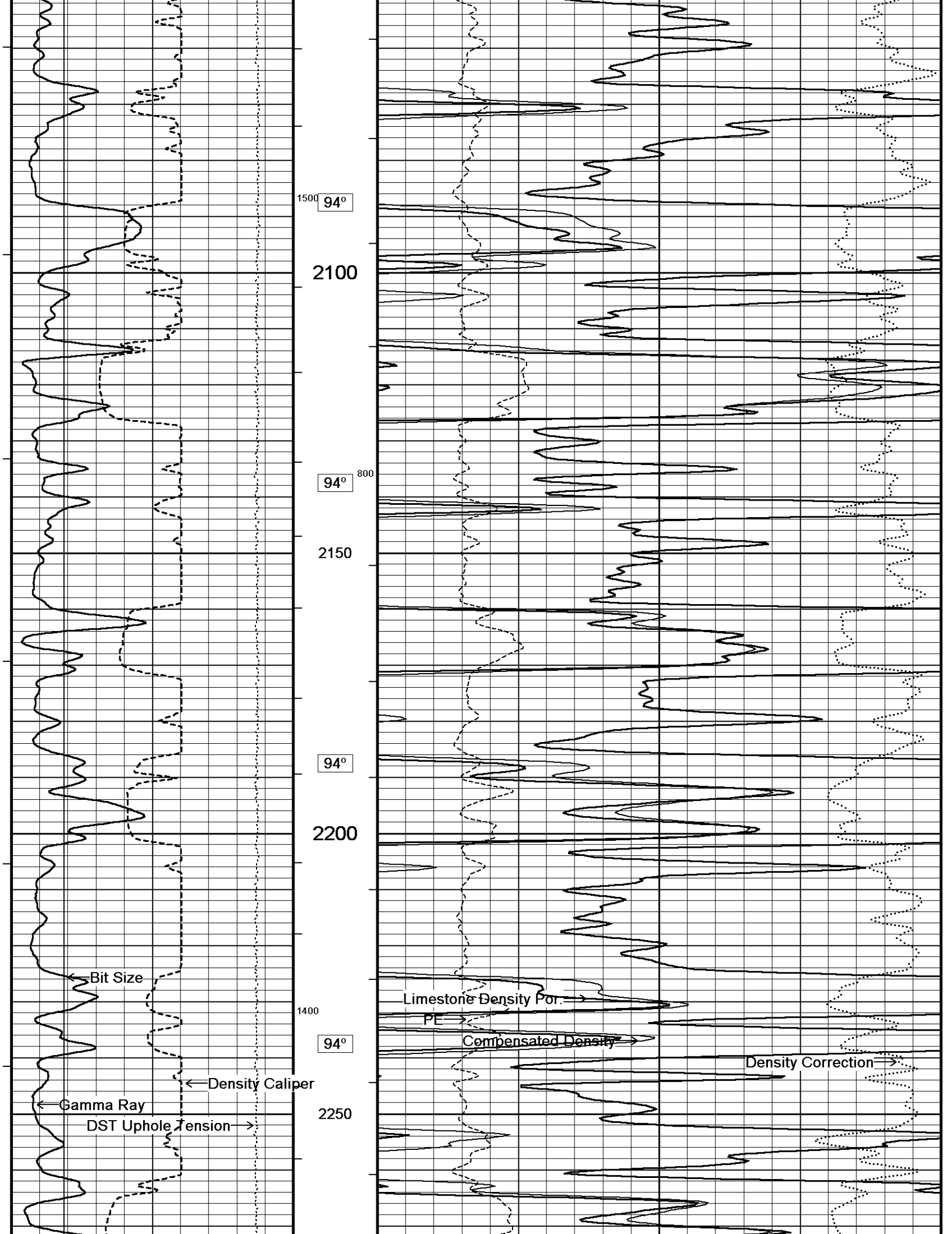
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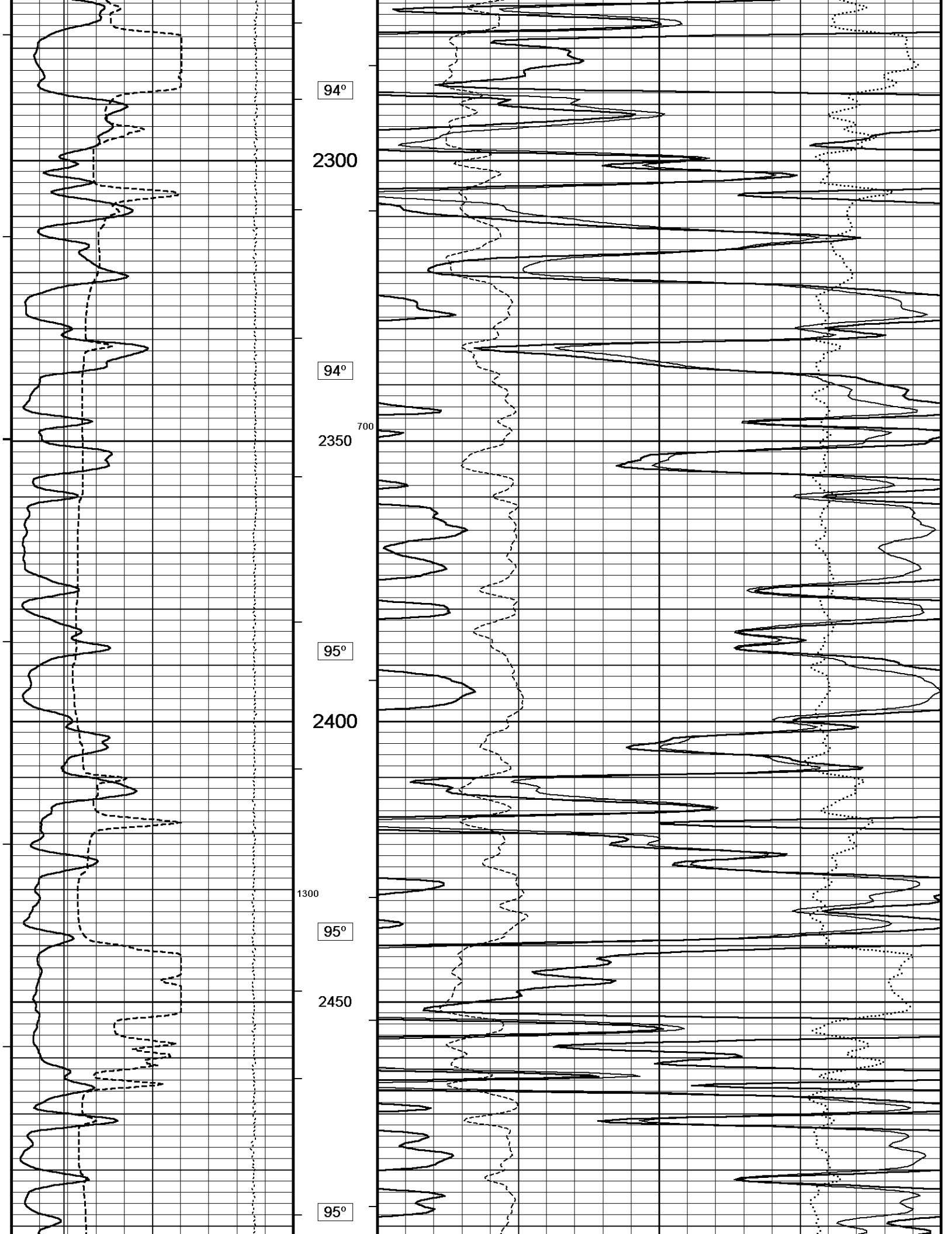
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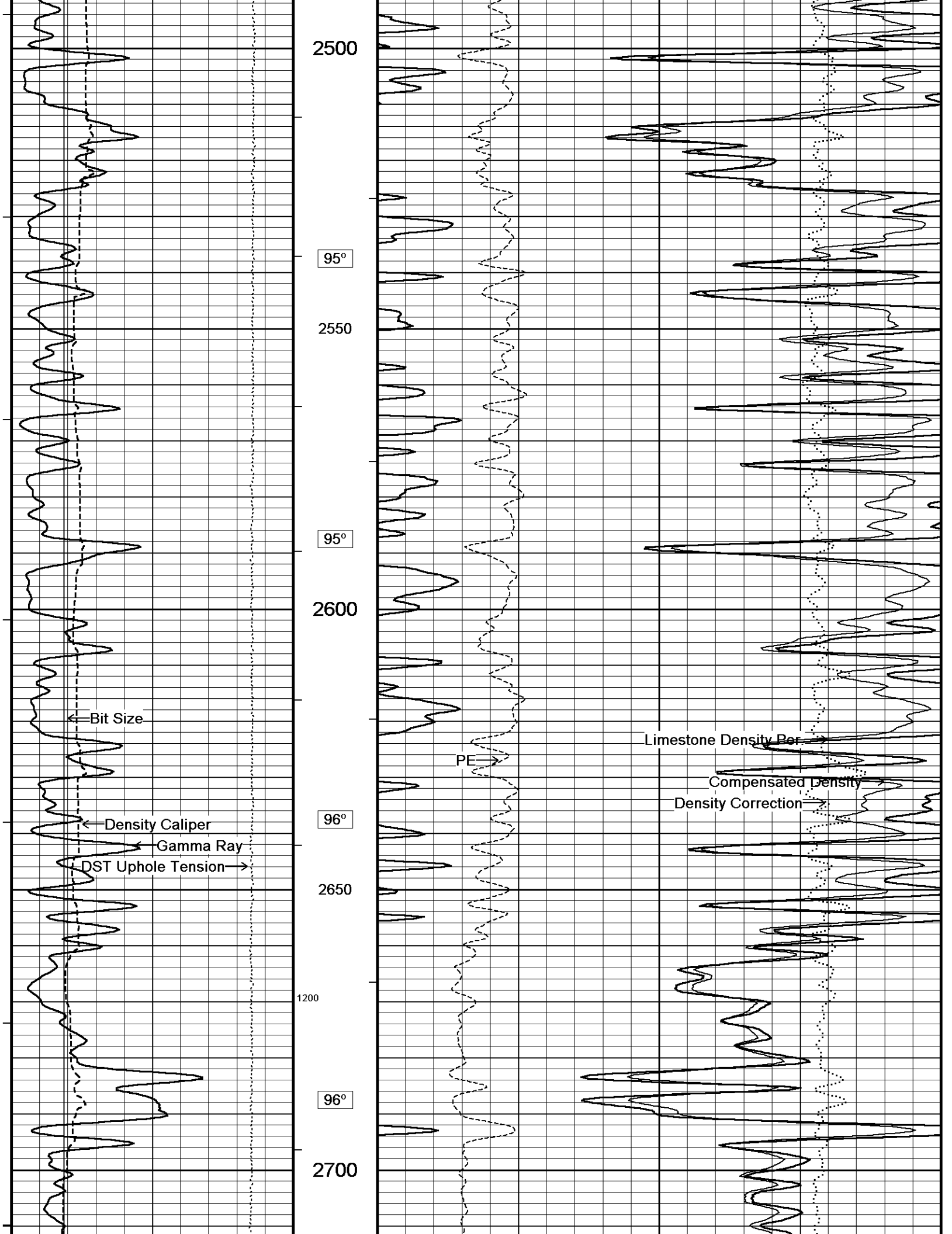
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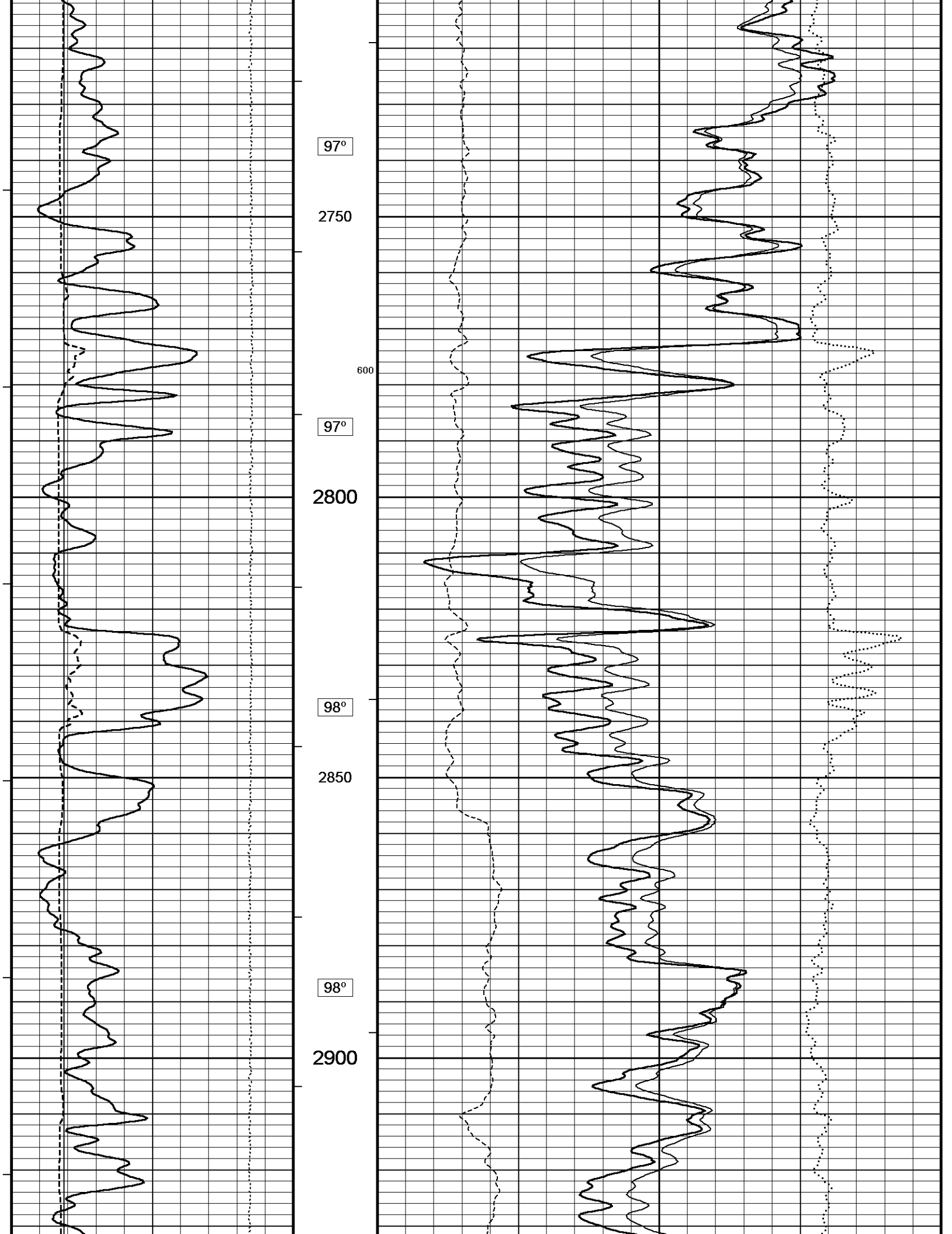


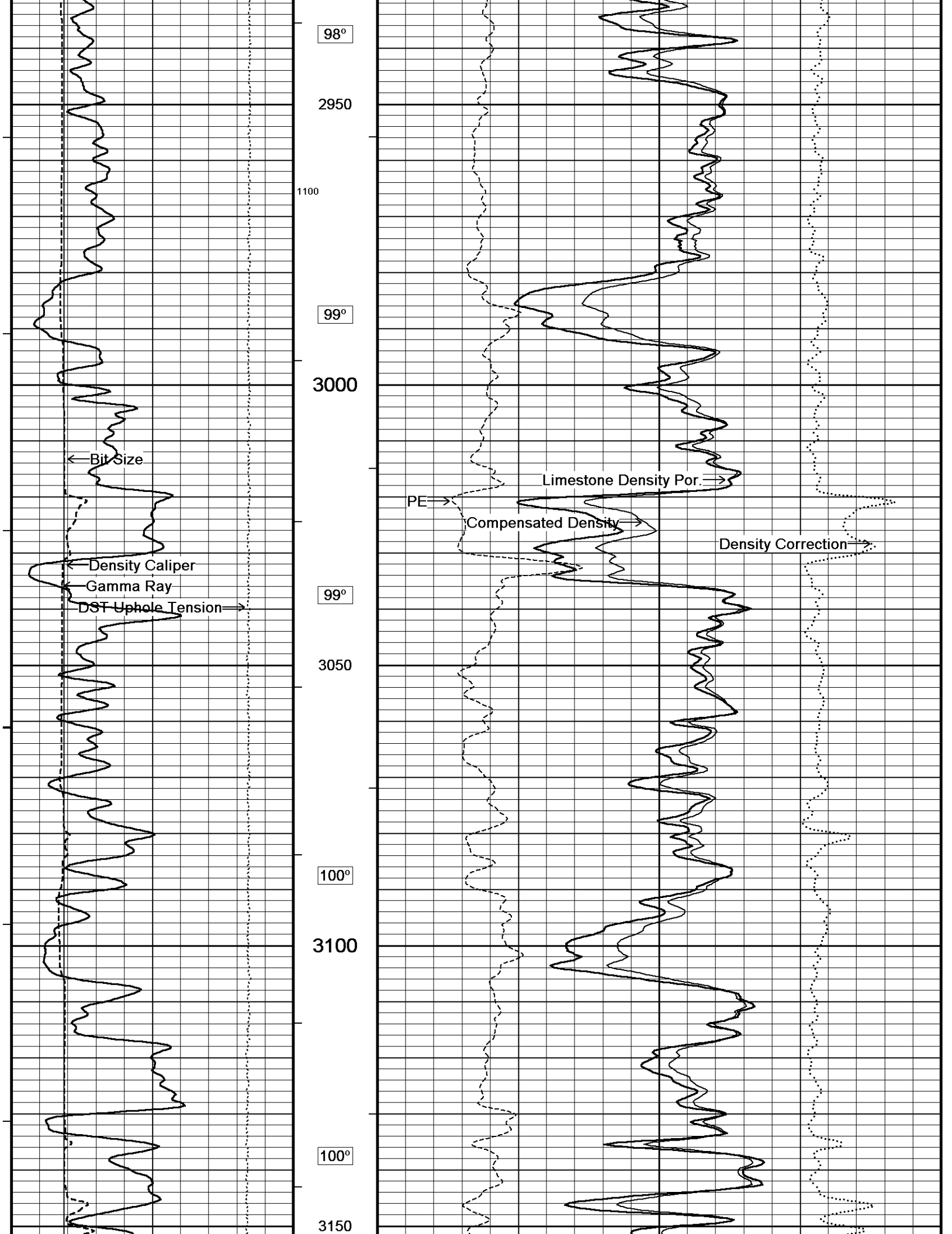


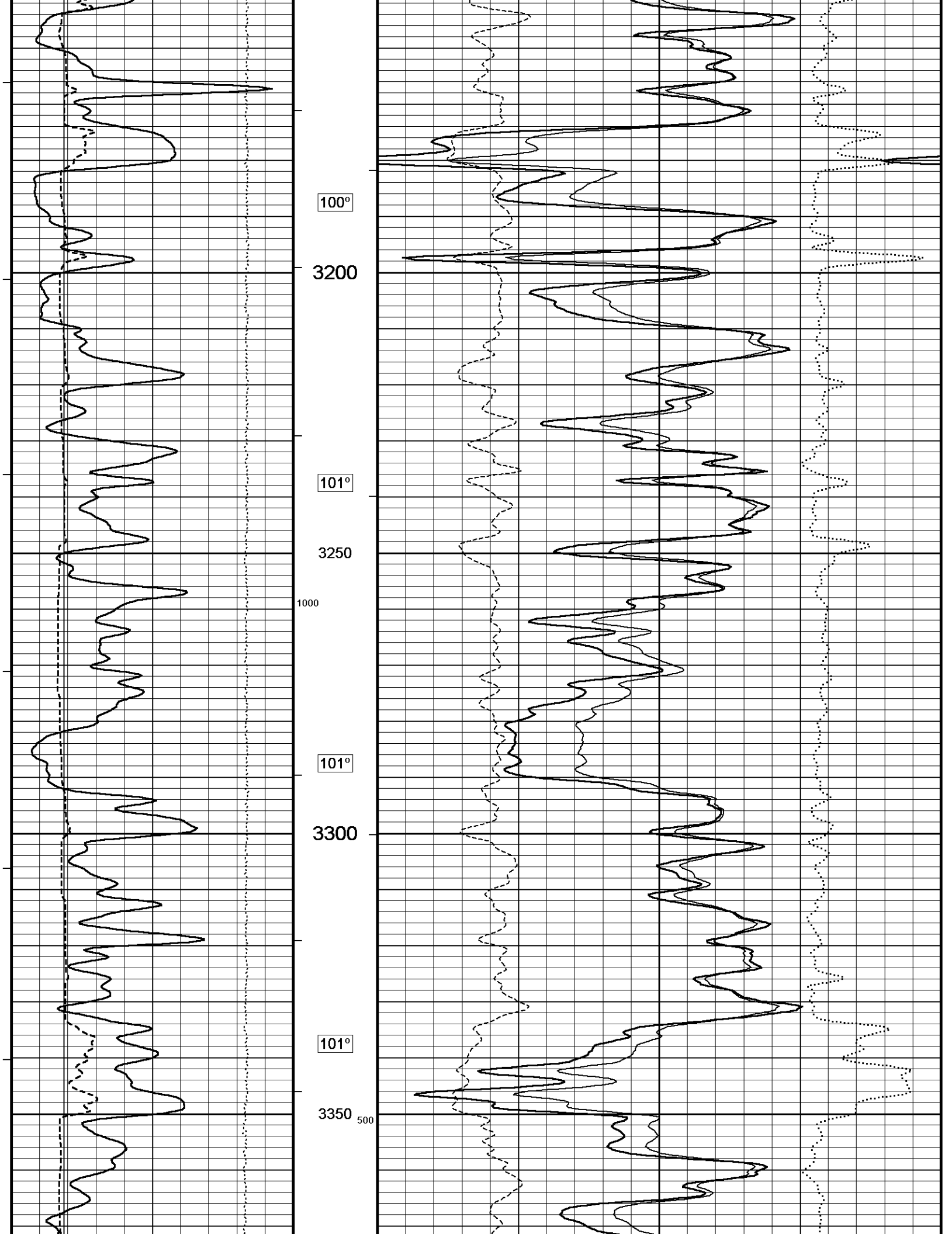


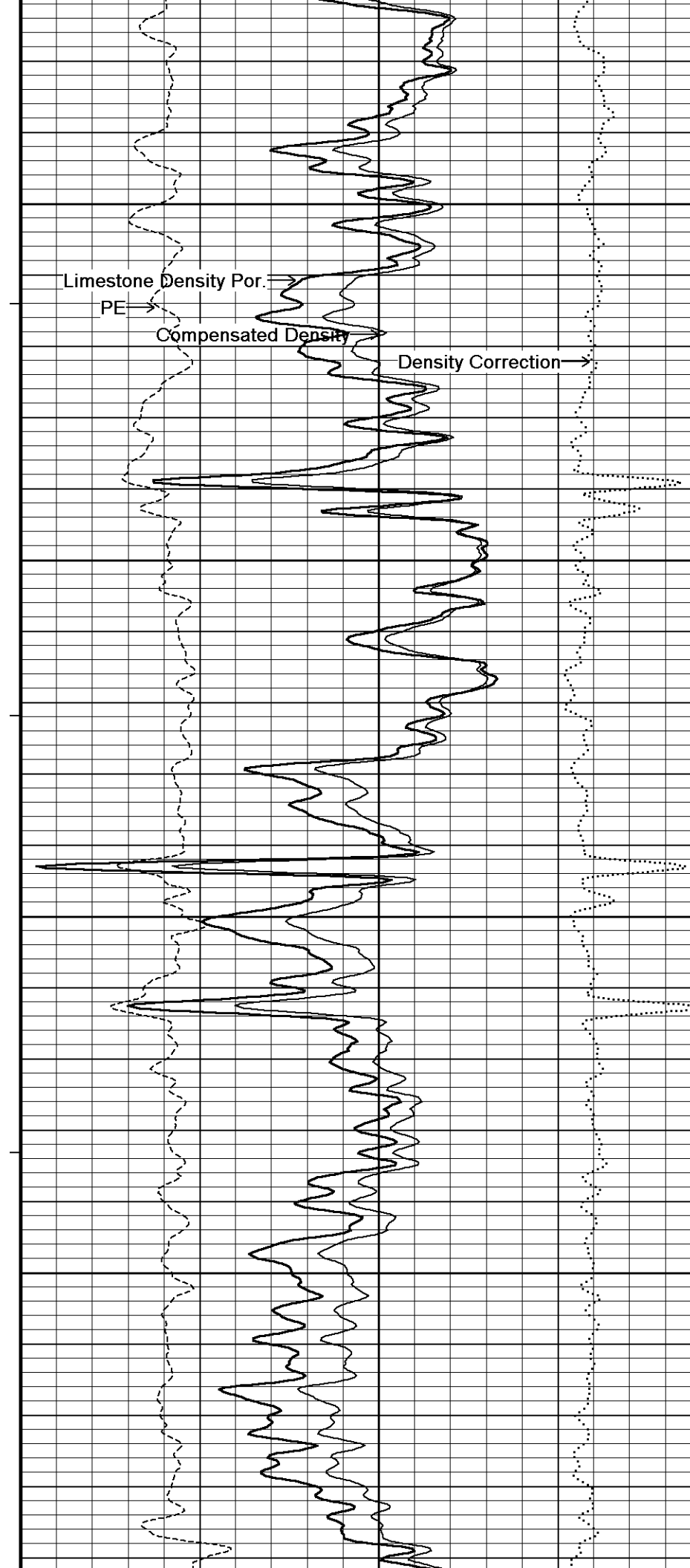
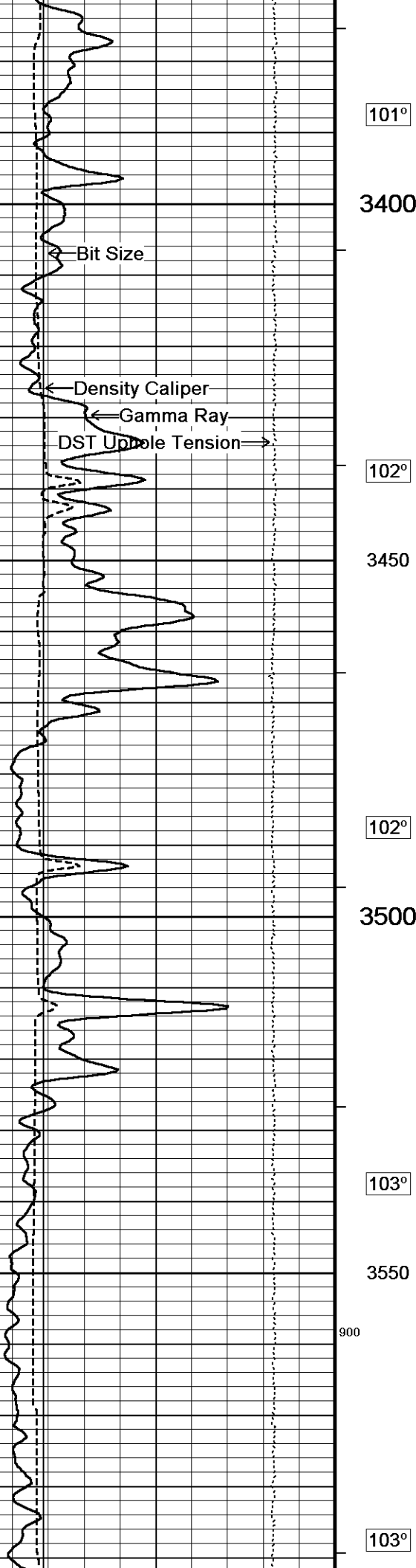


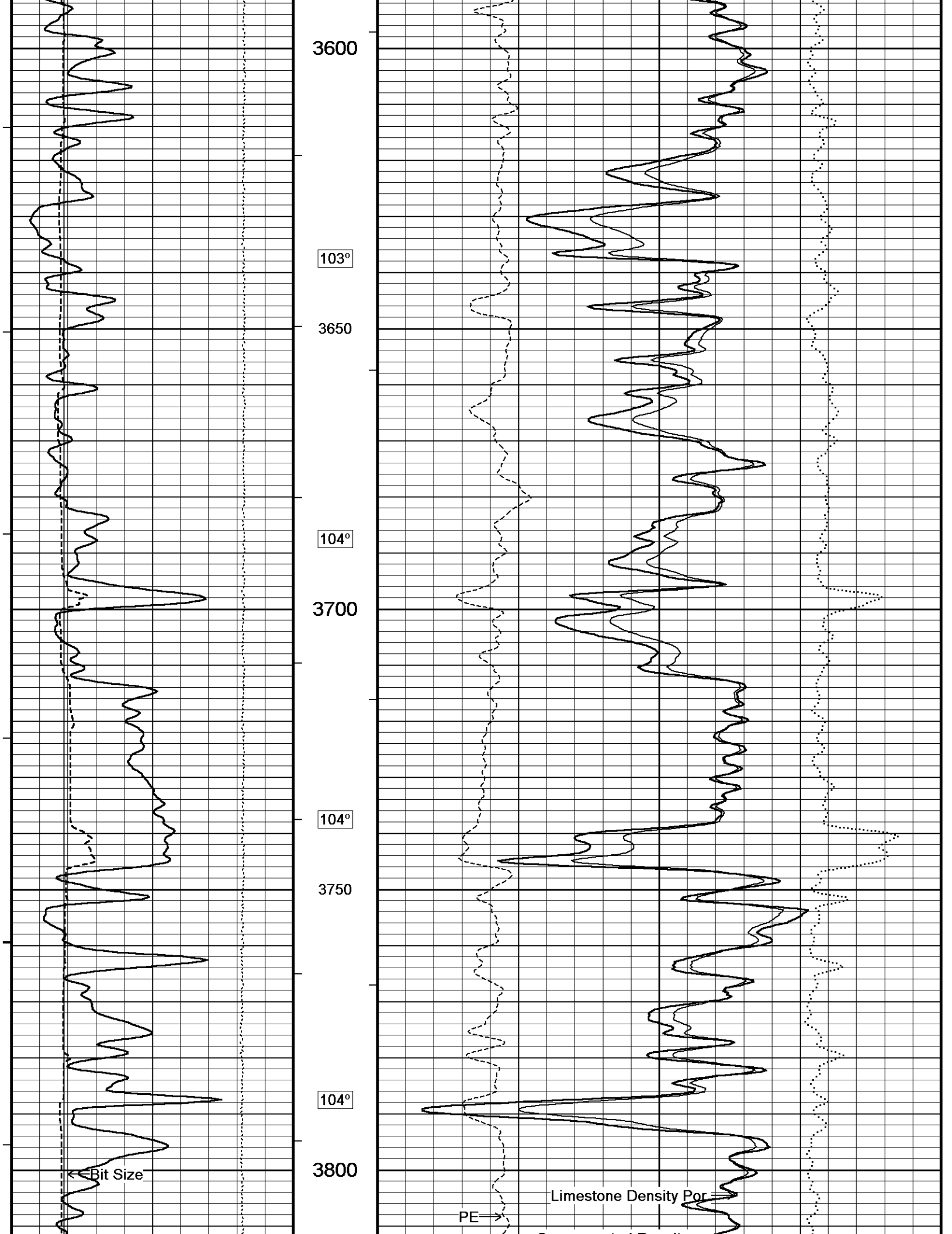


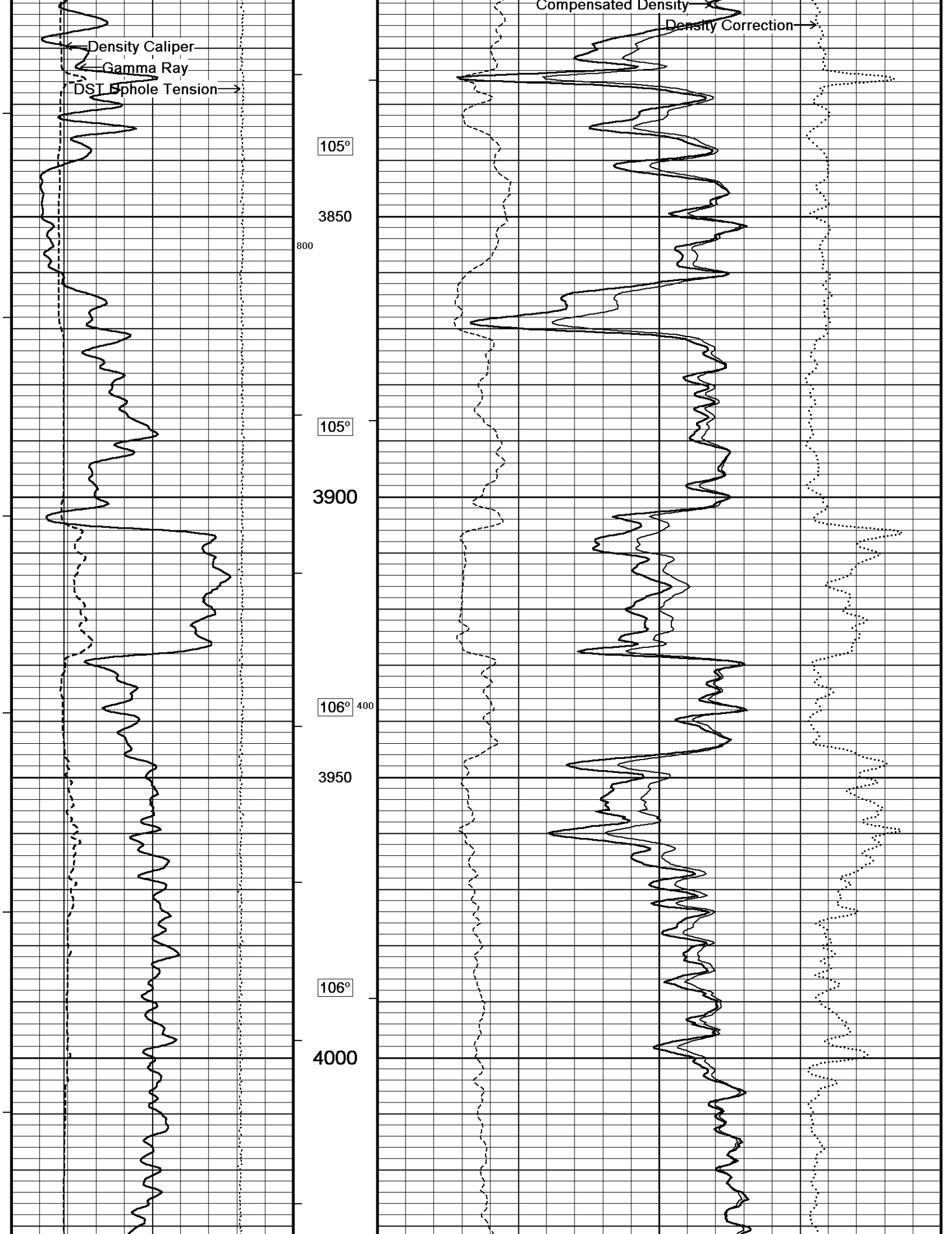


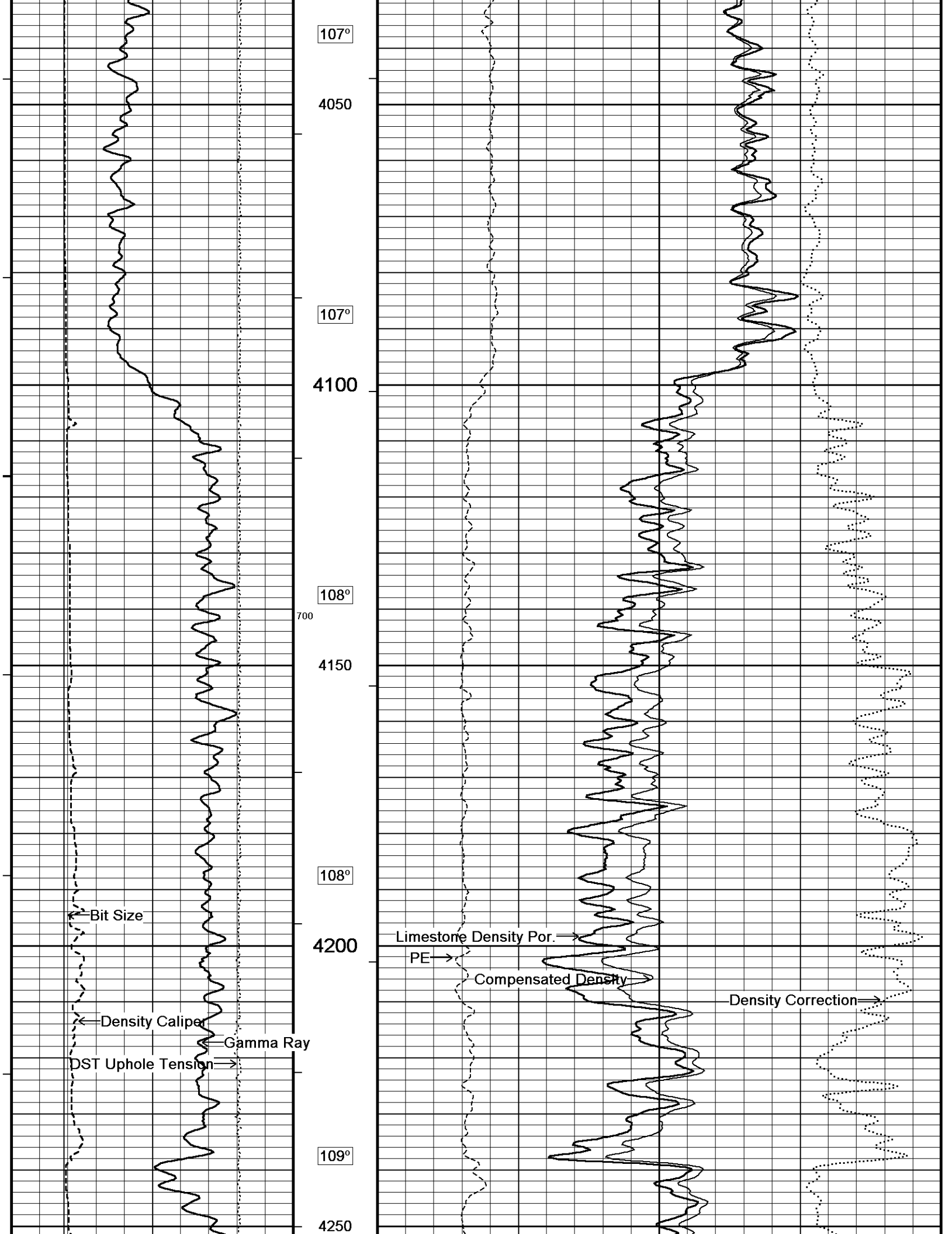


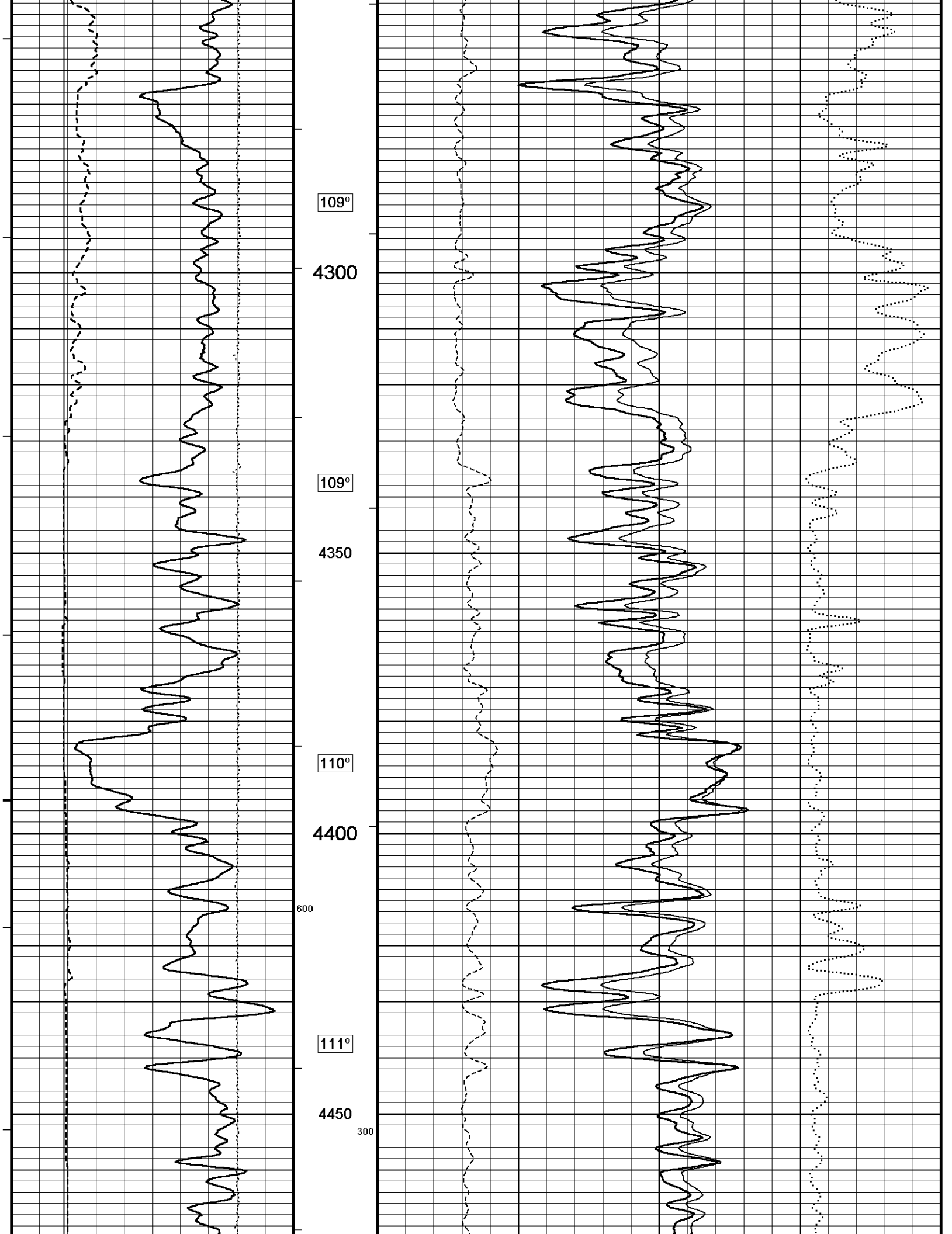


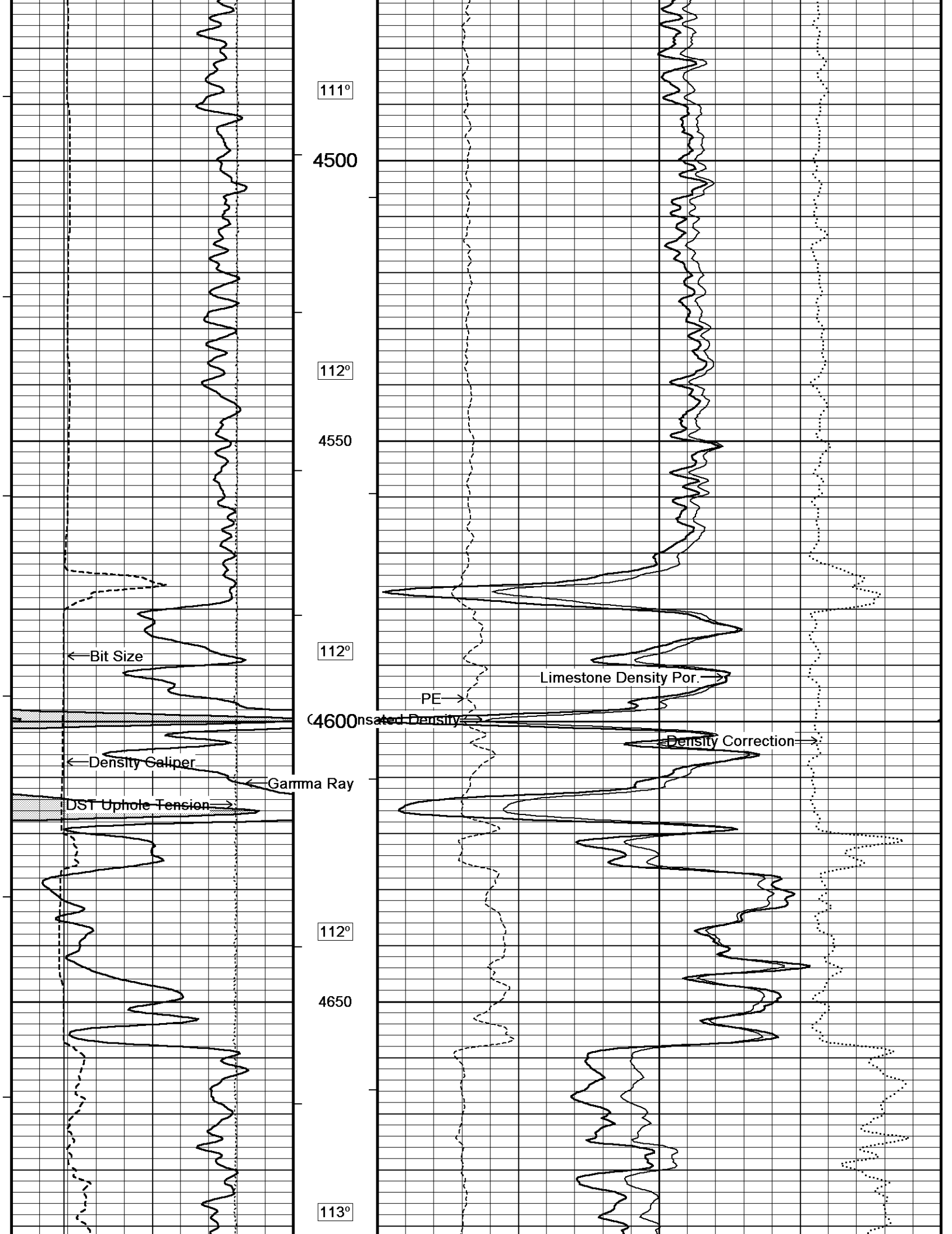


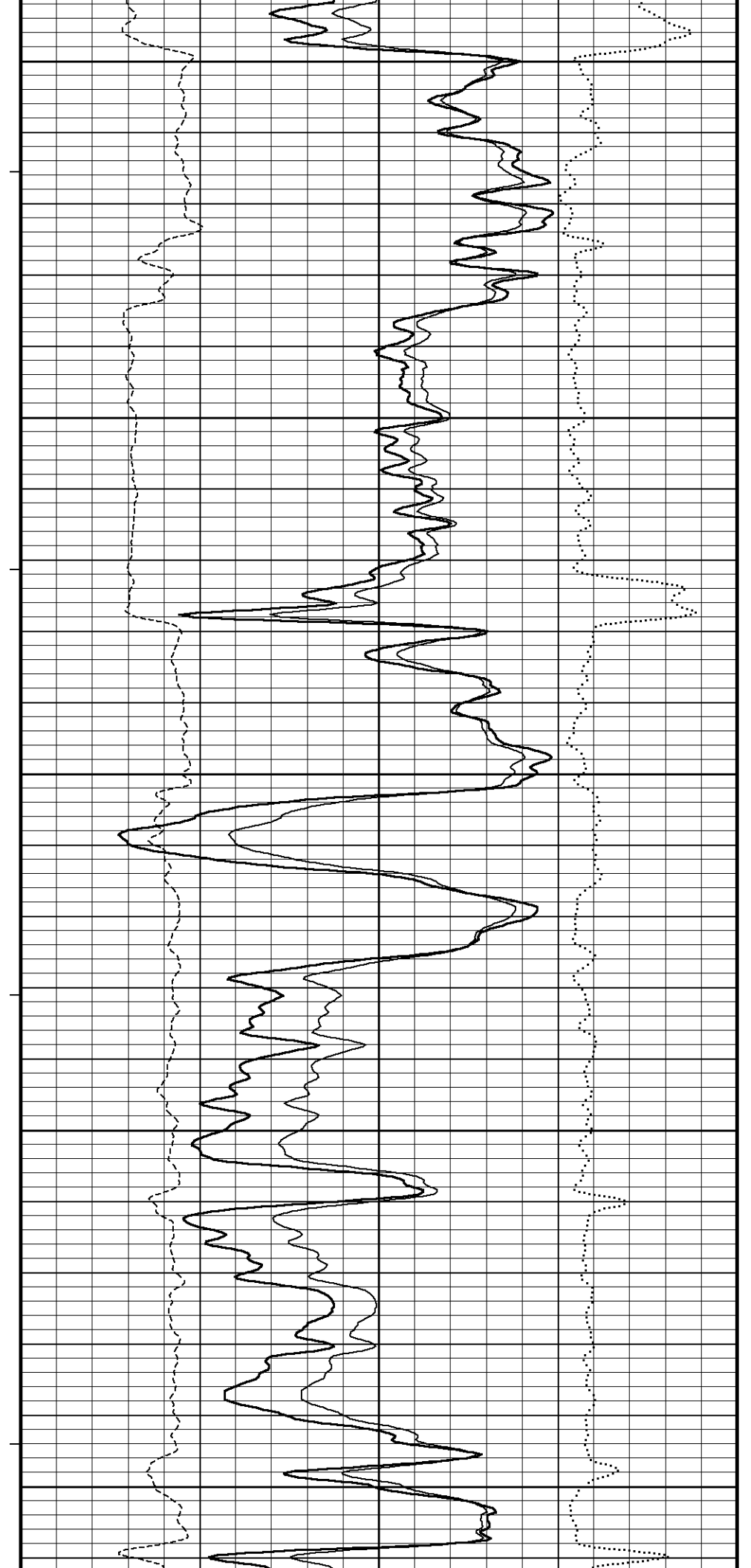
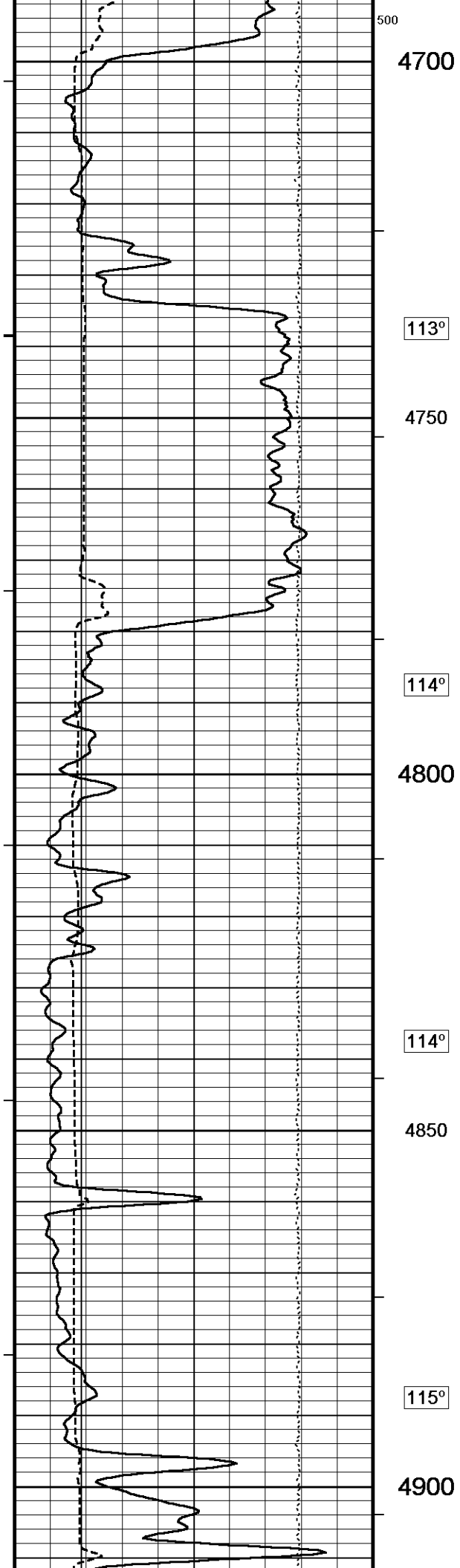


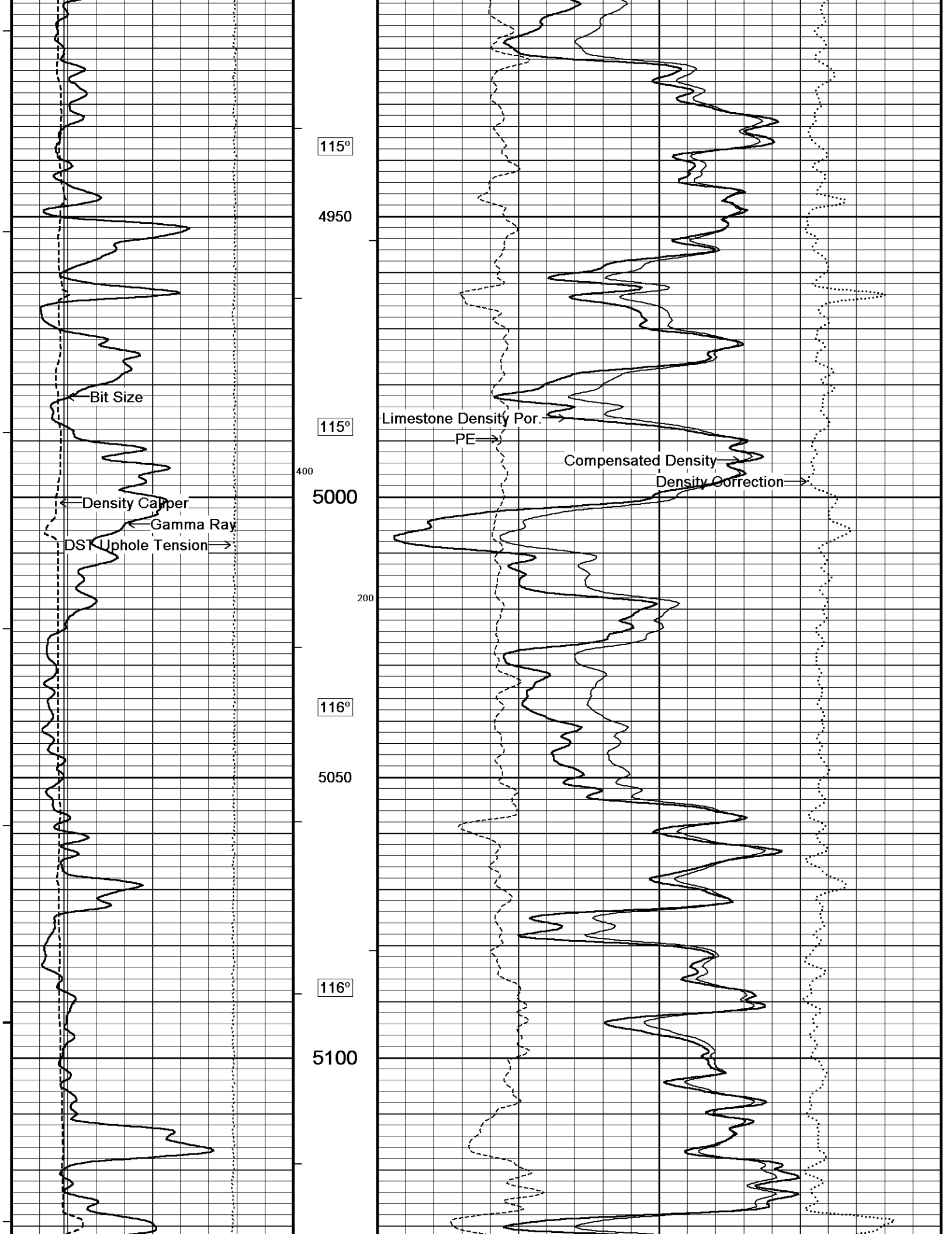


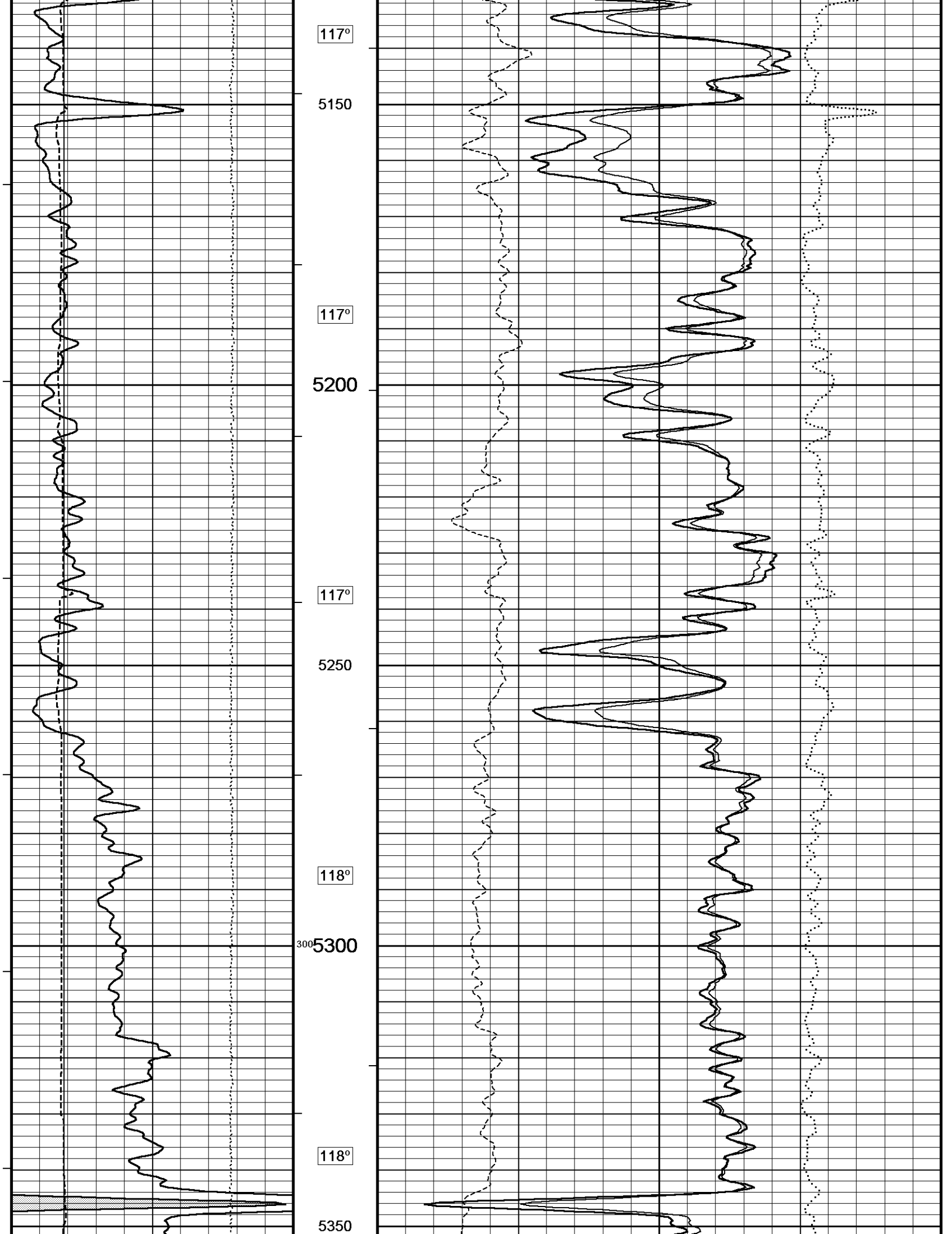


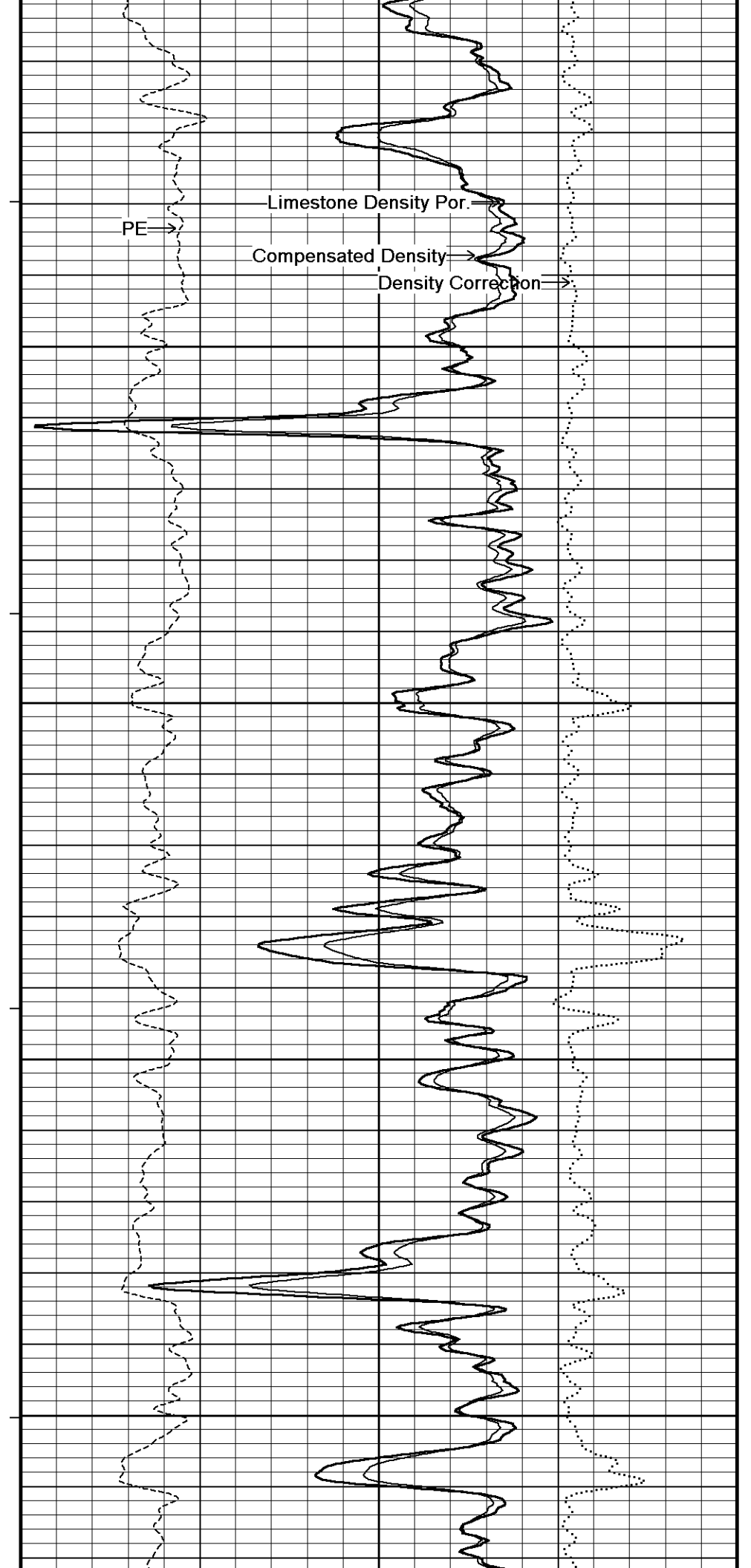
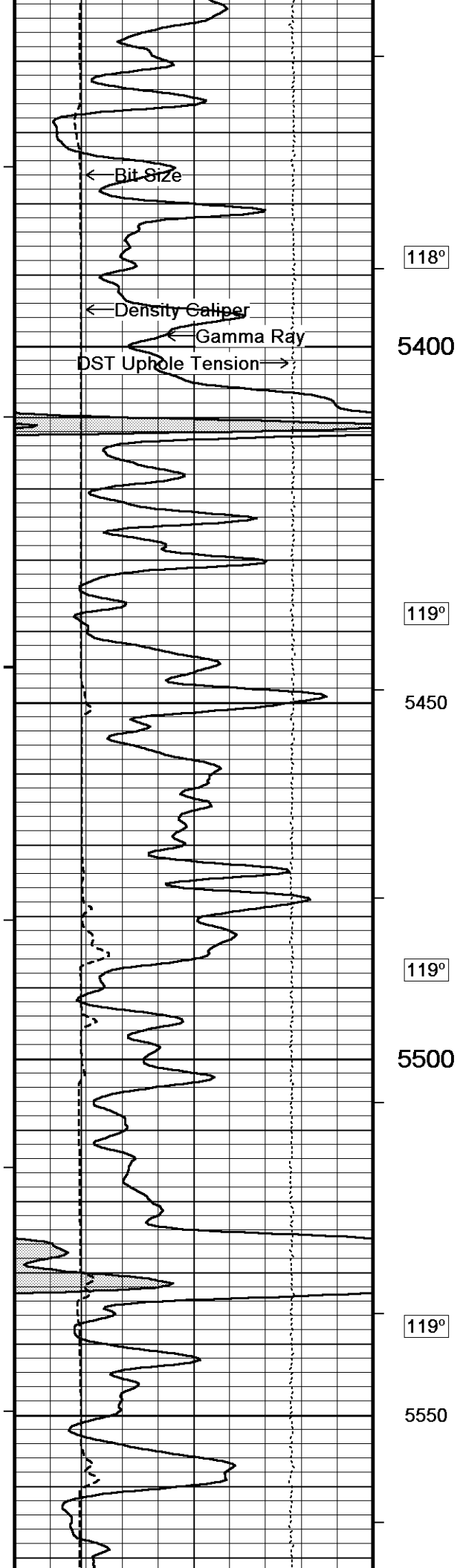


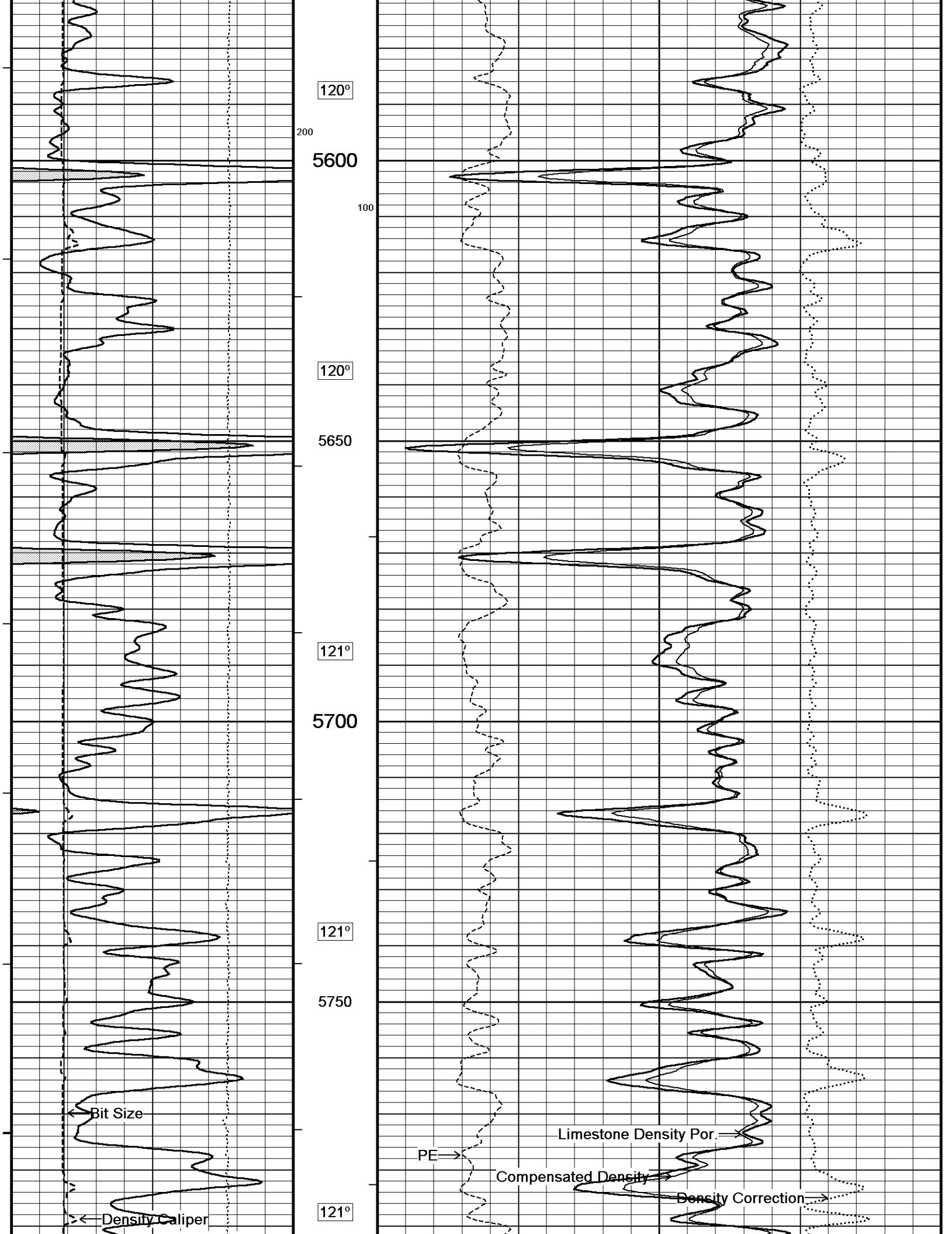


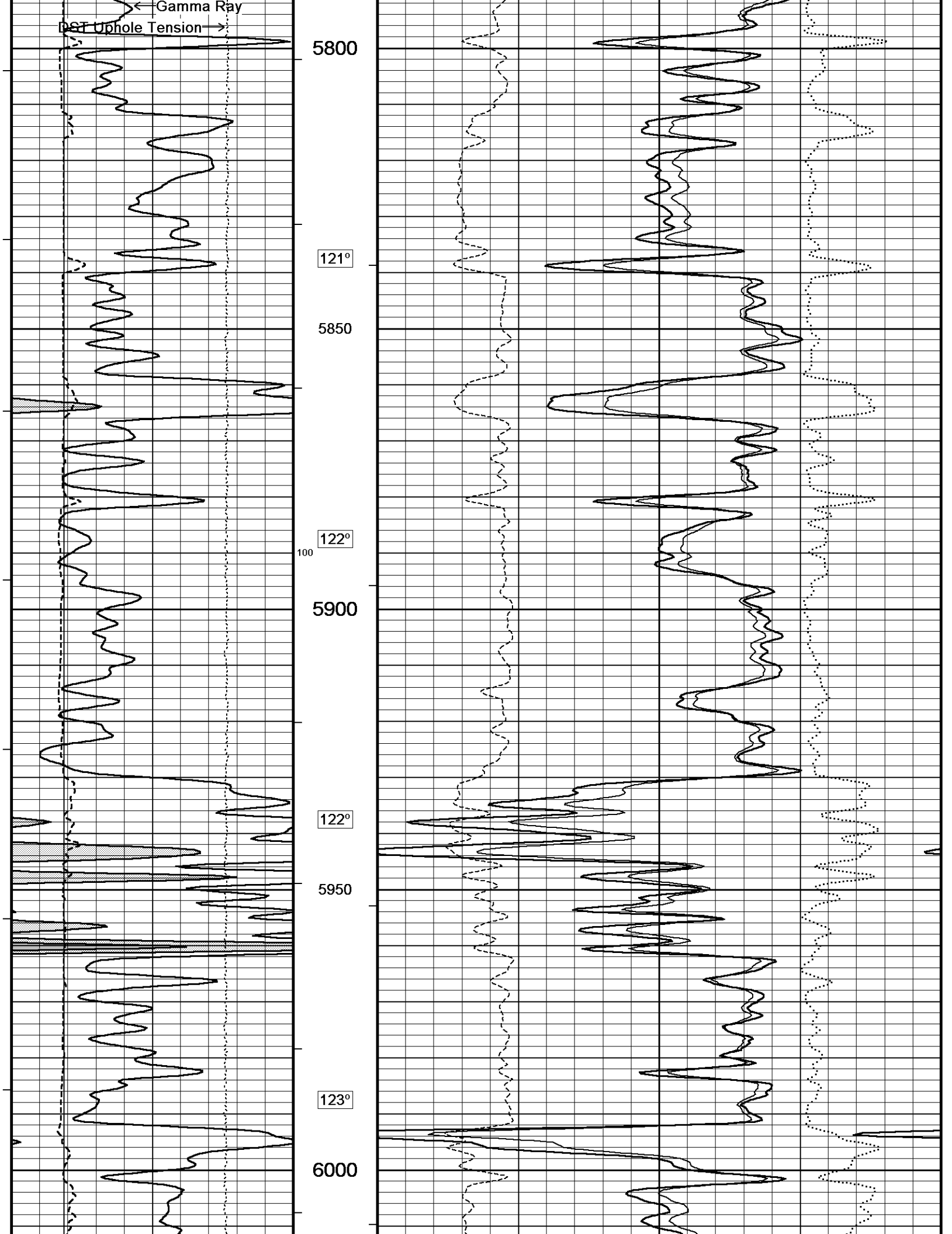


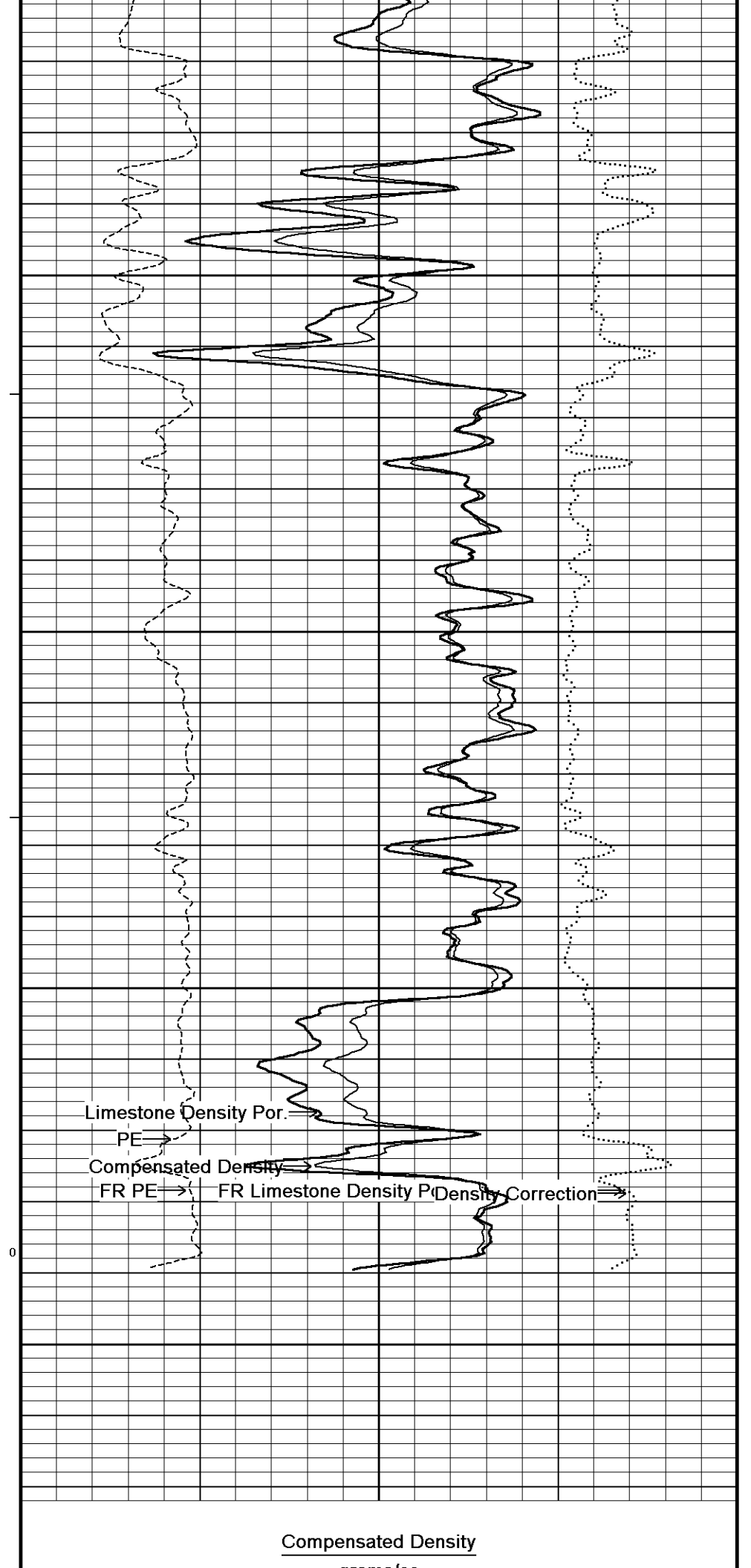
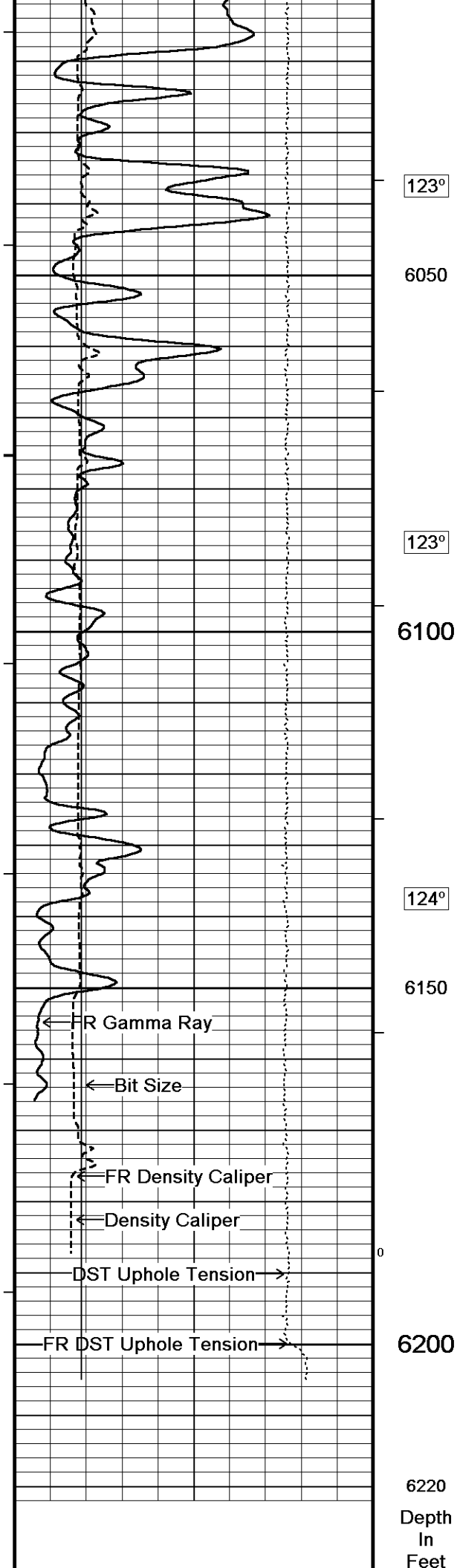


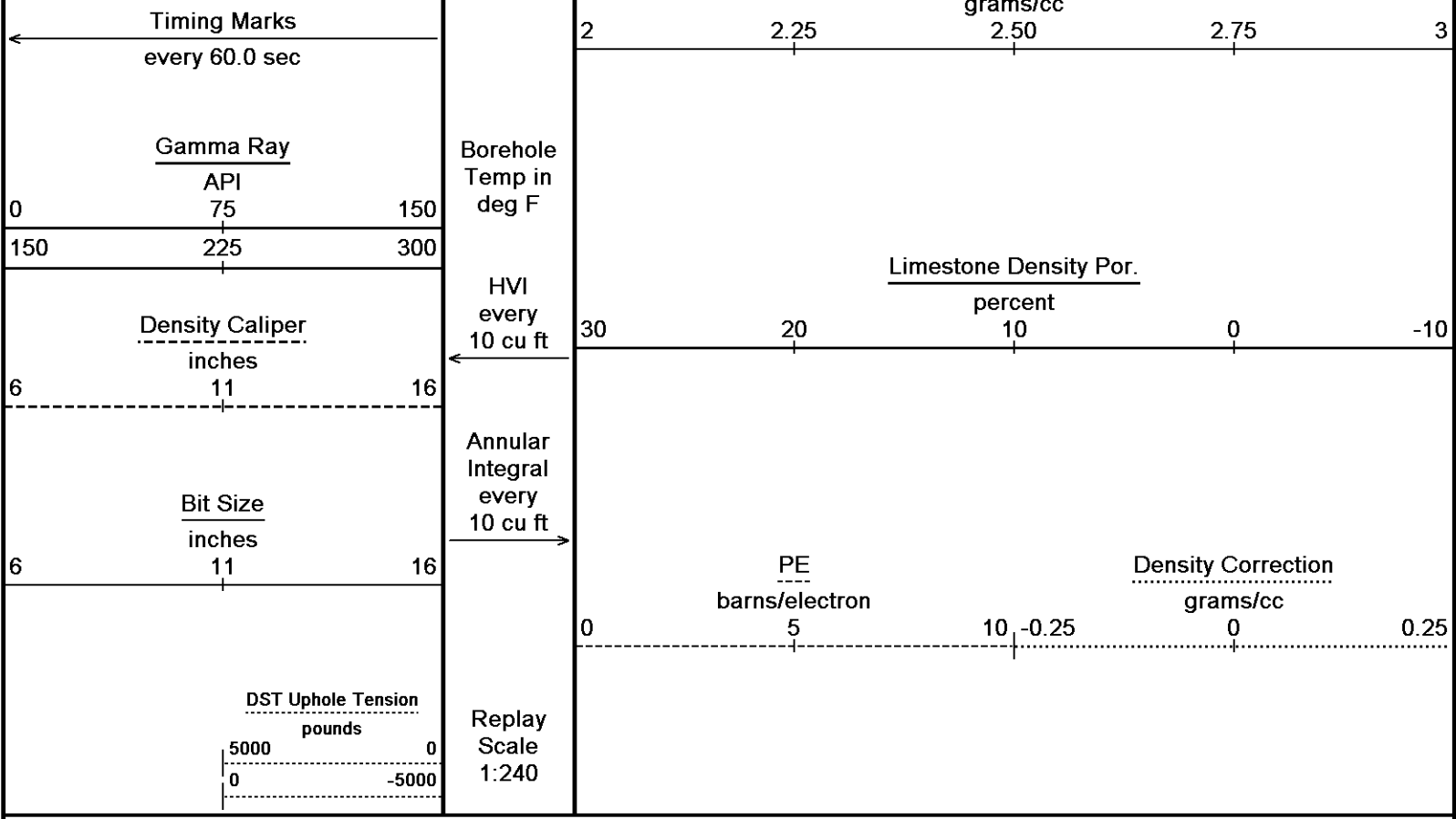










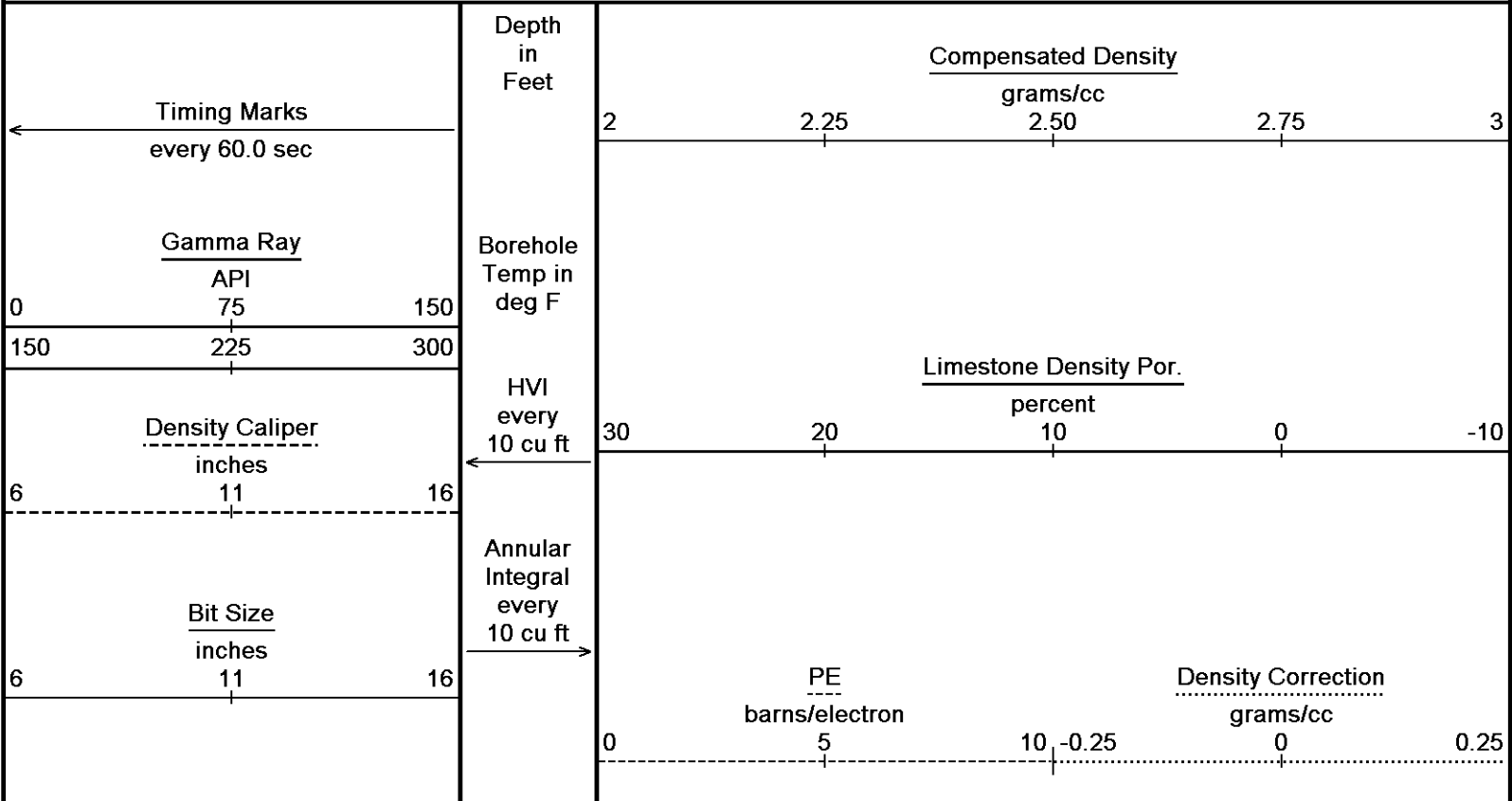


Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-APR-2011 13:22  
 Filename: C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView...\Deckard #1-33\_003.dta  
 Recorded on 12-APR-2011 09:51  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164

**5 Inch Main**

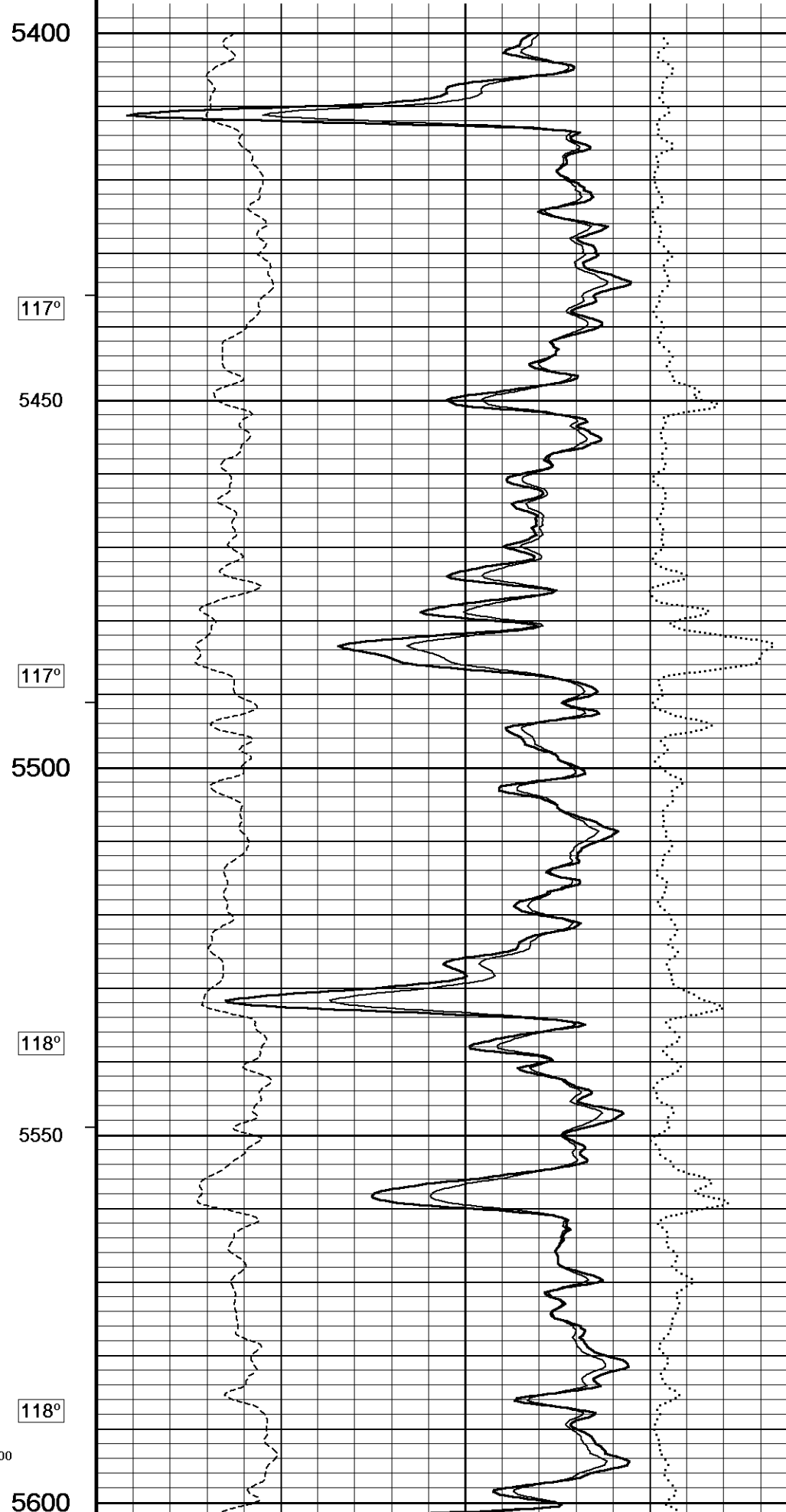
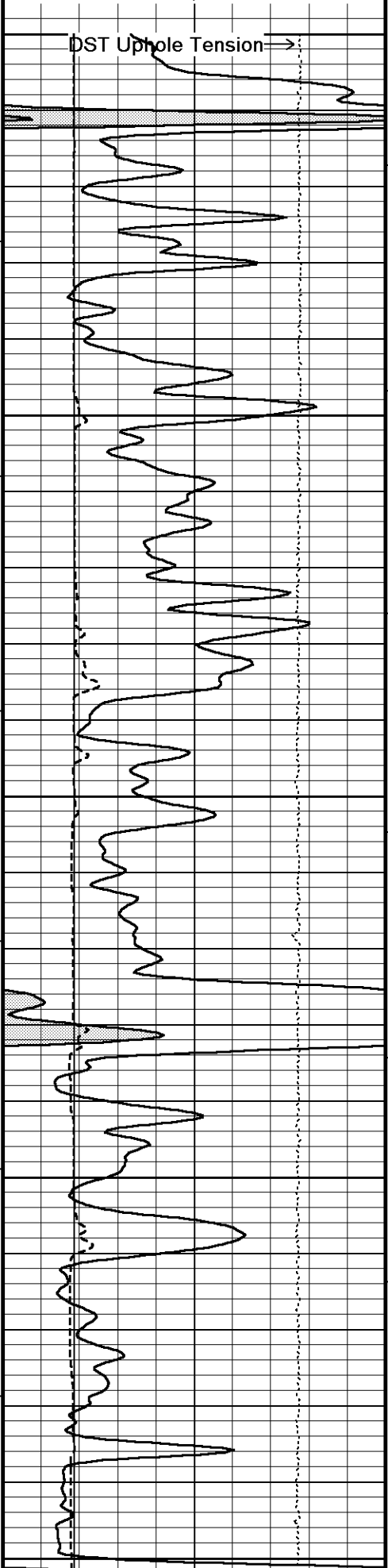
**Repeat Section**

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-APR-2011 13:22  
 Filename: C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView...\Deckard #1-33\_001.dta  
 Recorded on 12-APR-2011 08:48  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164



DST Uphole Tension  
pounds  
5000 0  
0 -5000

Replay  
Scale  
1:240



117°

5450

117°

5500

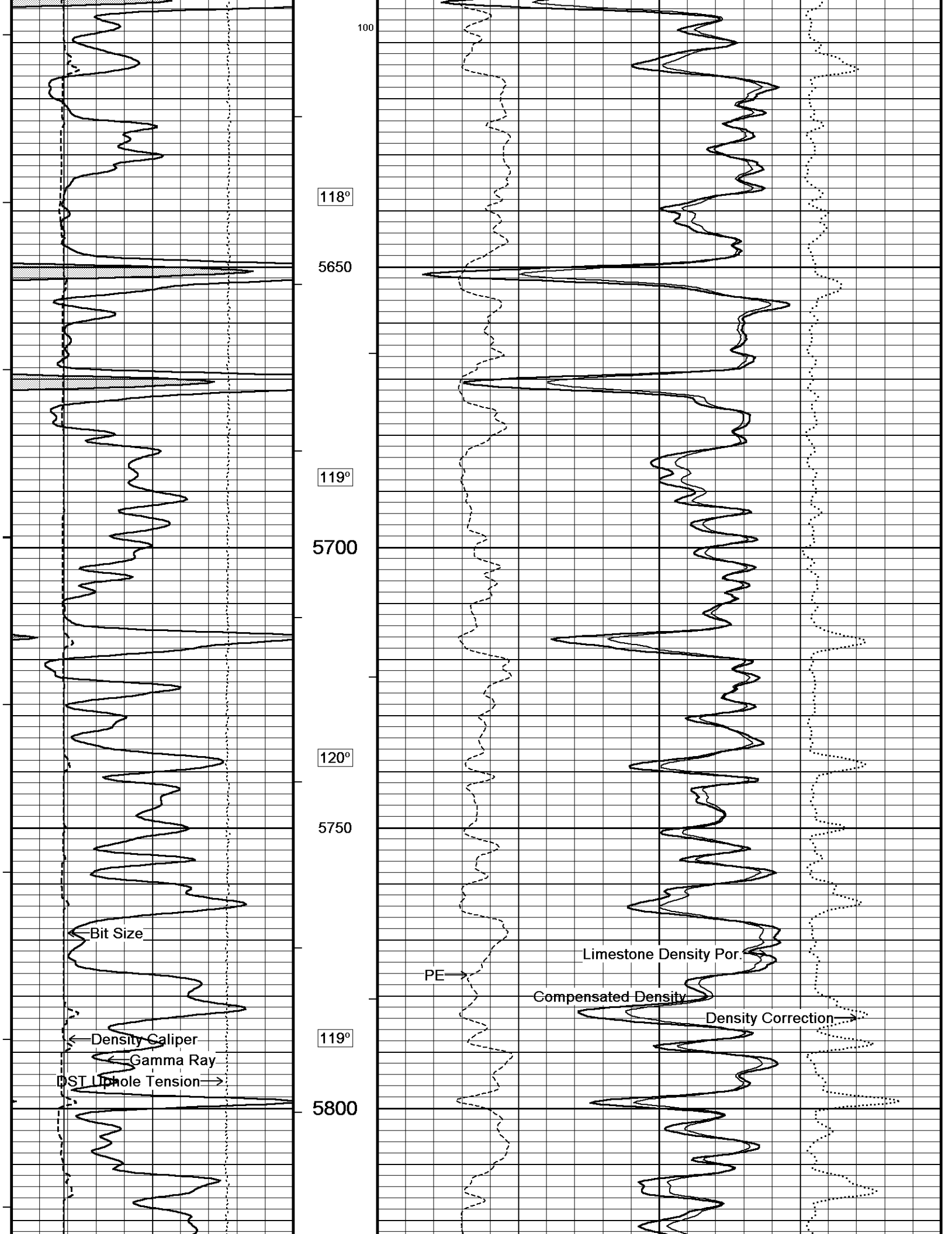
118°

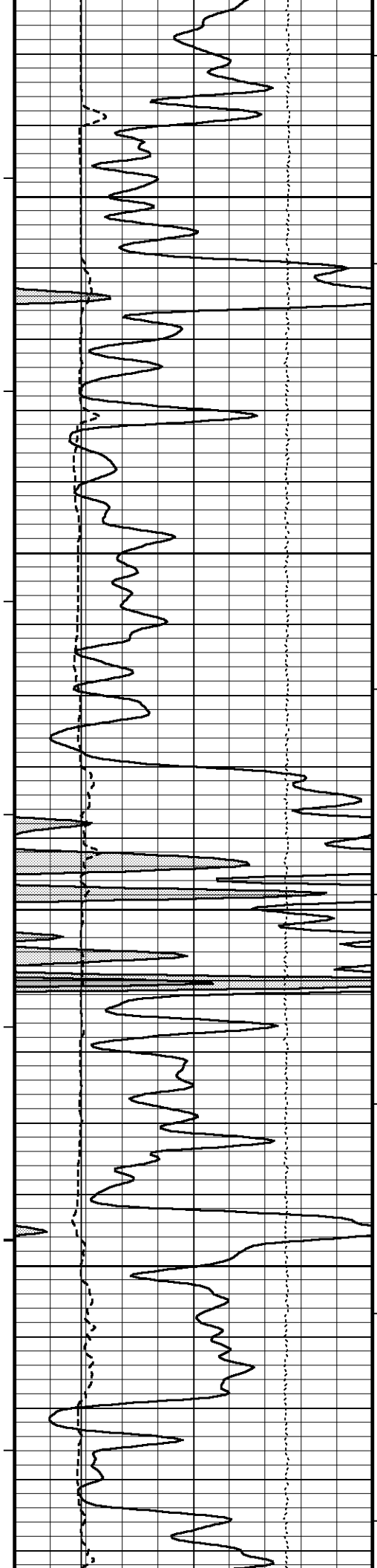
5550

118°

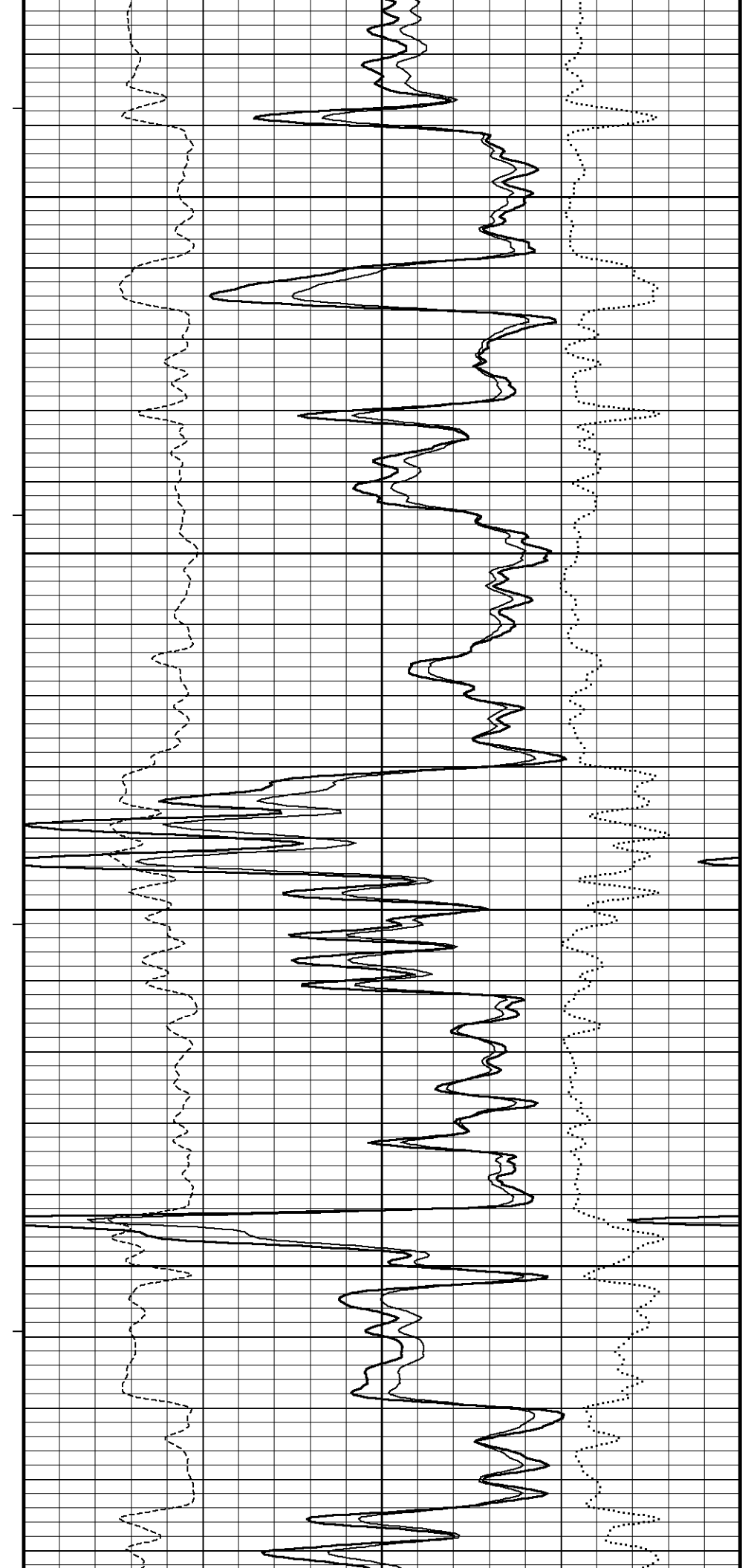
200

5600

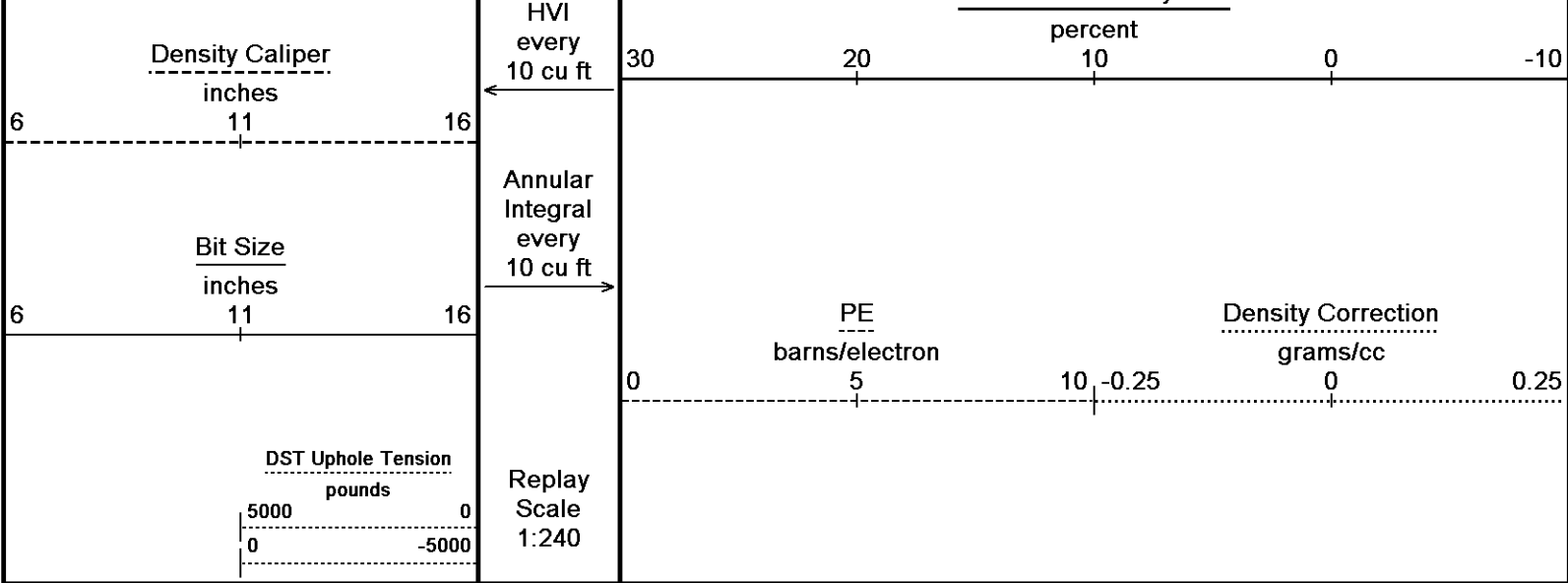




119°  
5850  
100 119°  
5900  
120°  
5950  
120°  
6000  
121°







Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-APR-2011 13:22  
 Filename: C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView...\Deckard #1-33\_001.dta  
 Recorded on 12-APR-2011 08:48  
 System Versions: Logged with 11.02.3186 Plotted with 11.02.2164

Repeat Section

### BEFORE SURVEY CALIBRATION

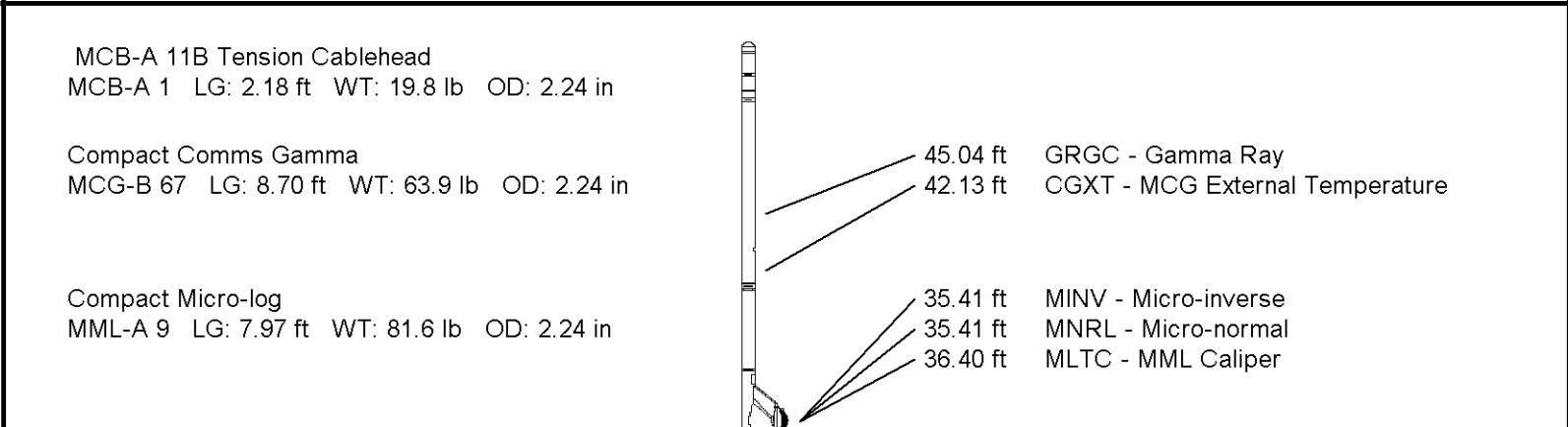
C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView\0\Deckard #1-33.dta

General Constants All 000 Last Edited on 12-APR-2011,05:56

<b>General Parameters</b>		
Mud Resistivity	0.550	ohm-metres
Mud Resistivity Temperature	68.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
<b>Hole/Annular Volume and Differential Caliper Parameters</b>		
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	
<b>Rwa Parameters</b>		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

### DOWNHOLE EQUIPMENT

C:\Users\DAVID~1.LAN\AppData\Local\Temp\Weatherford PreView\0\Deckard #1-33.dta



Compact Neutron  
MDN-A.B 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

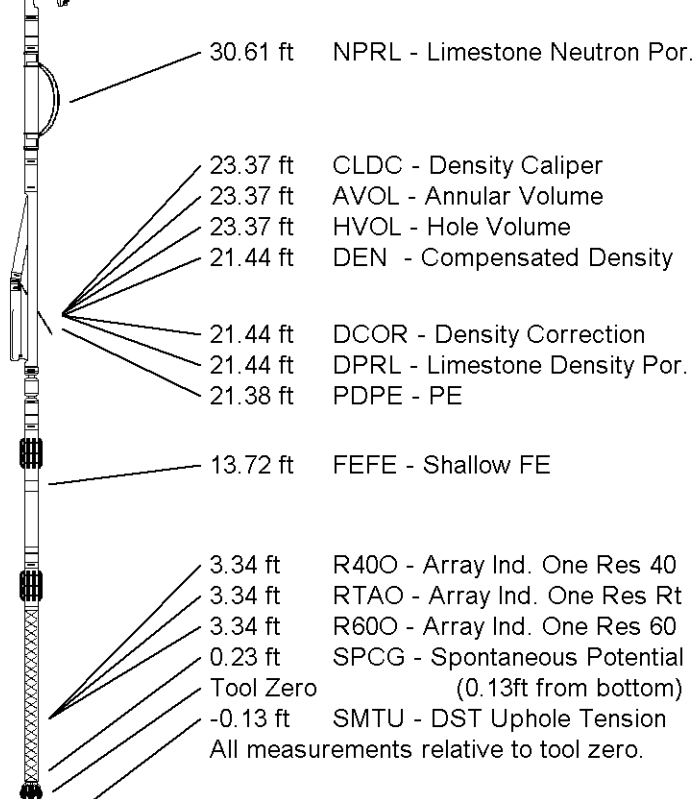
Compact Density/Caliper  
MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric  
MFE-A.A 67 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction  
MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 52.50 ft Weight: 427.7 lb



COMPANY	APACHE
WELL	DECKARD #1-33
FIELD	E. ENGLEWOOD
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2355.00	feet	First Reading	6179.00	feet
Elevation Drill Floor	2354.00	feet	Depth Driller	6200.00	feet
Elevation Ground Level	2343.00	feet	Depth Logger	6200.00	feet



**Weatherford®**

COMPACT PHOTO DENSITY  
COMPENSATED NEUTRON  
MICRO RESISTIVITY LOG

