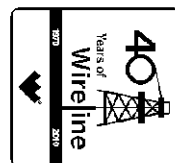




Weatherford

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRO RESISTIVITY LOG



COMPANY	O' BRIEN ENERGY		
WELL	VAIL #1-30		
FIELD	SINGLEY		
PROVINCE/COUNTY	MEADE		
COUNTRY/STATE	U.S.A./KANSAS		
LOCATION	760' FSL & 1320' FWL		
SEC	TWP	RGE	Other Services
30	33S	29W	MAI/MFE
API Number	15-119-21277		
Permit Number			
Permanent Datum G.L., Elevation 2667 feet			Elevations: feet
Log Measured From K.B. @ 12 FEET above Permanent Datum			KB 2679.00
Drilling Measured From K.B.			DF 2678.00
			GL 2667.00
Date	07-DEC-2010		
Run Number	ONE		
Depth Driller	6351.00	feet	
Depth Logger	6354.00	feet	
First Reading	6332.00	feet	
Last Reading	3100.00	feet	
Casing Driller	1534.00	feet	
Casing Logger	1534.00	feet	
Bit Size	7.880	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.20 lb/USg	51.00 CP	
PH / Fluid Loss	9.50	9.20 ml/30Min	
Sample Source	FLOWLINE		
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	0.52 @122.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	122.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13096	LIB	
Recorded By	SHAWN NUTT		
Witnessed By	ROGER PEARSON		PETER DEBENHAM
S.O.#/JOB#	3524634		LB10-312

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:13

Bit Size inches	Depth From feet	Depth To feet
7.880	1534.00	6354.00

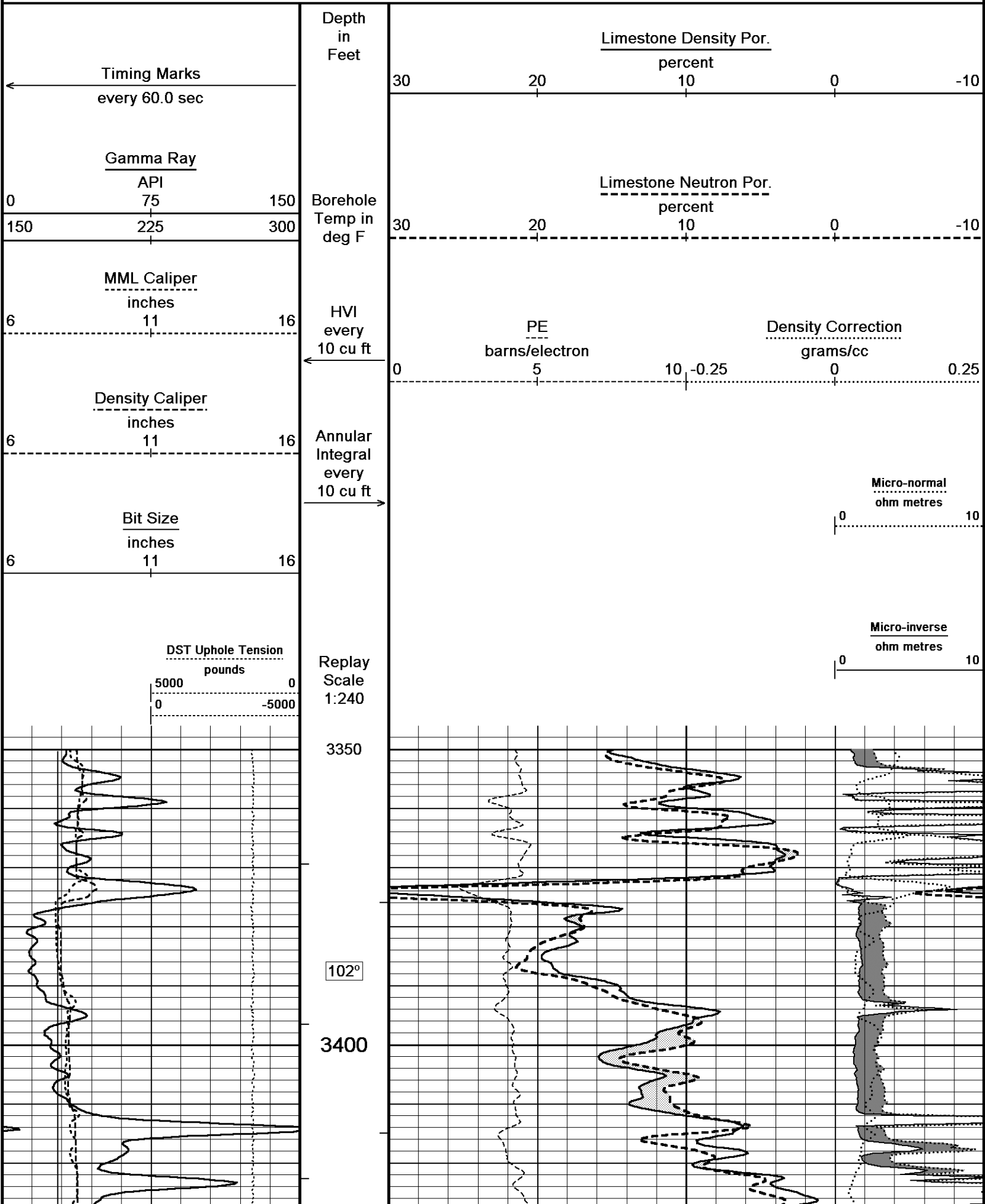
CASING RECORD

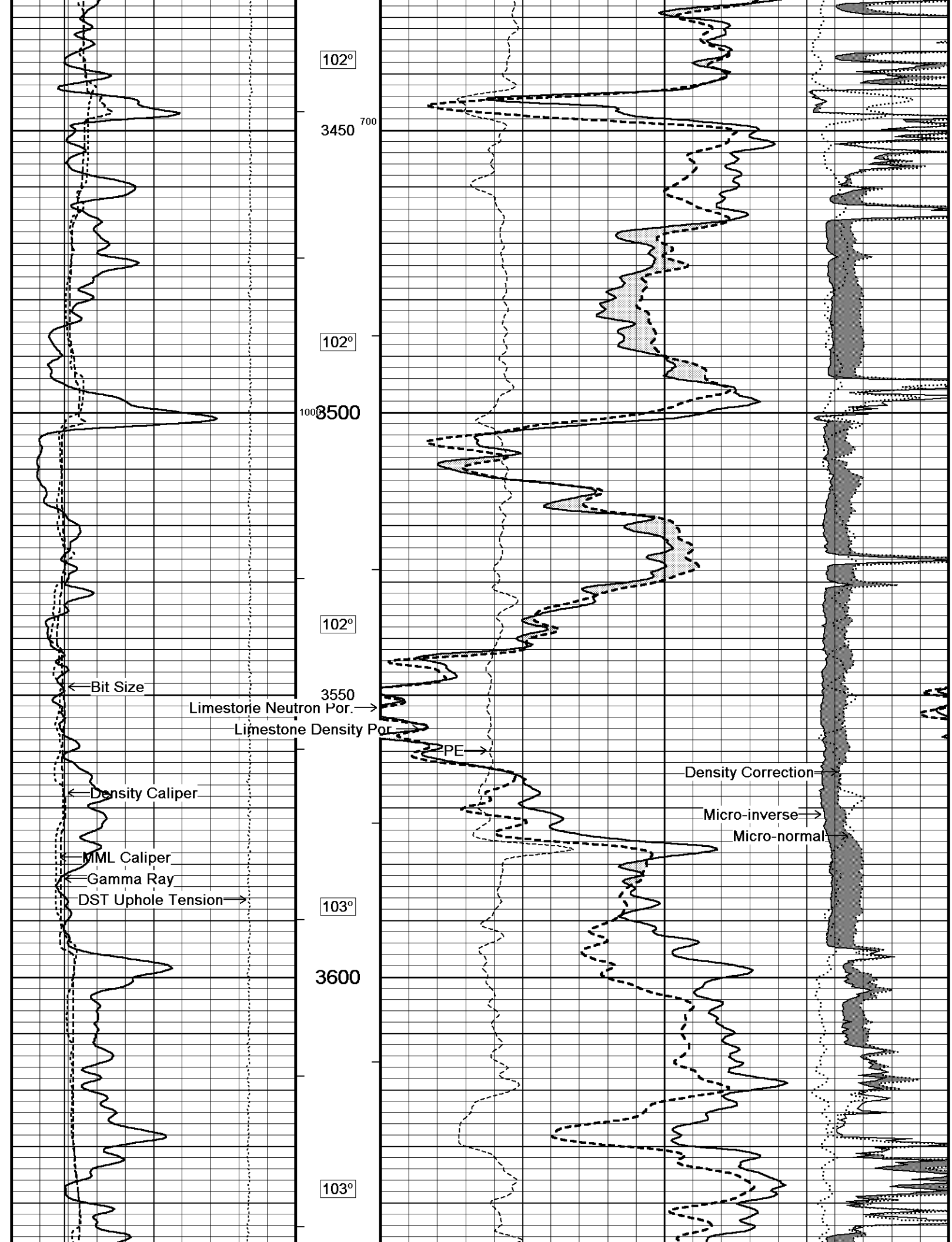
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1534.00	24.00

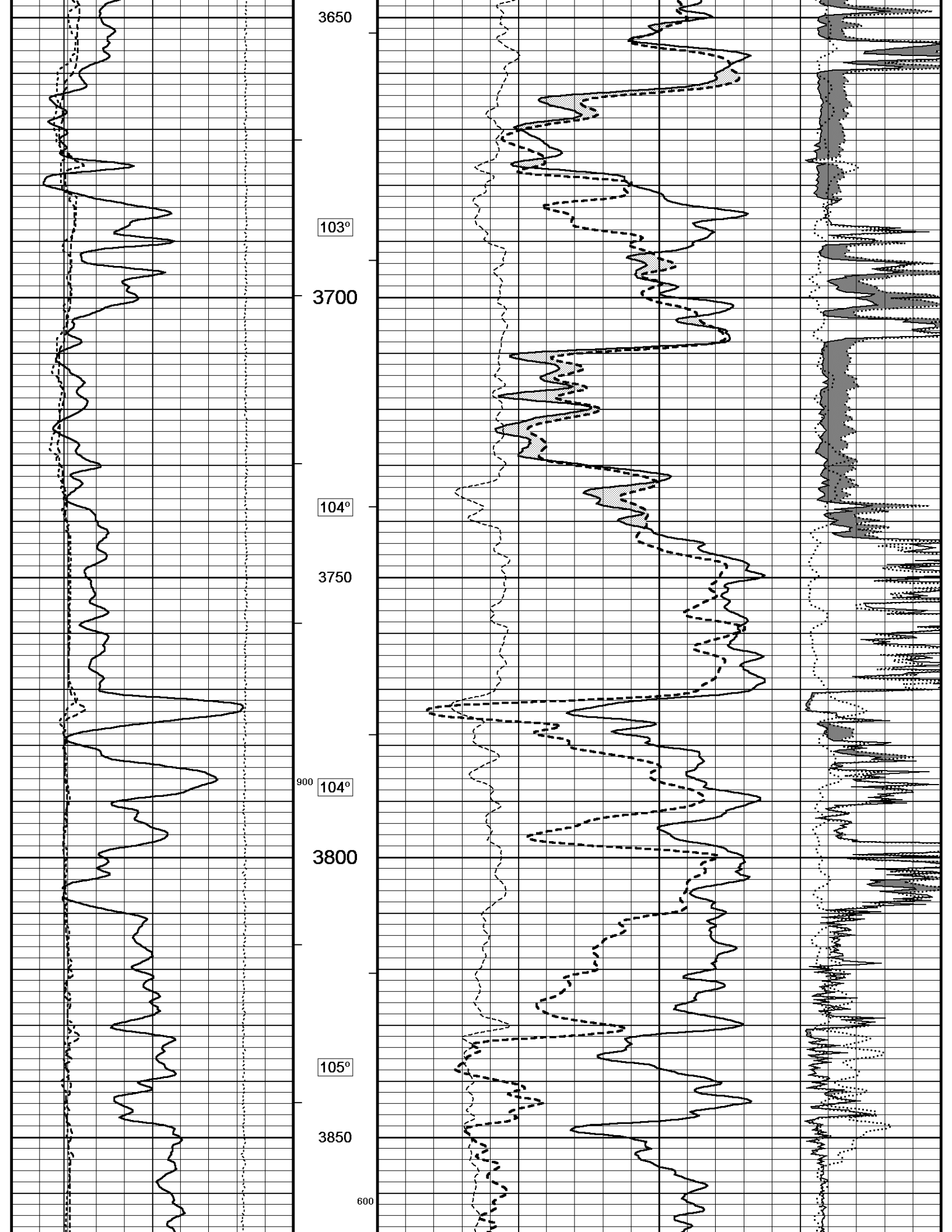
REMARKS

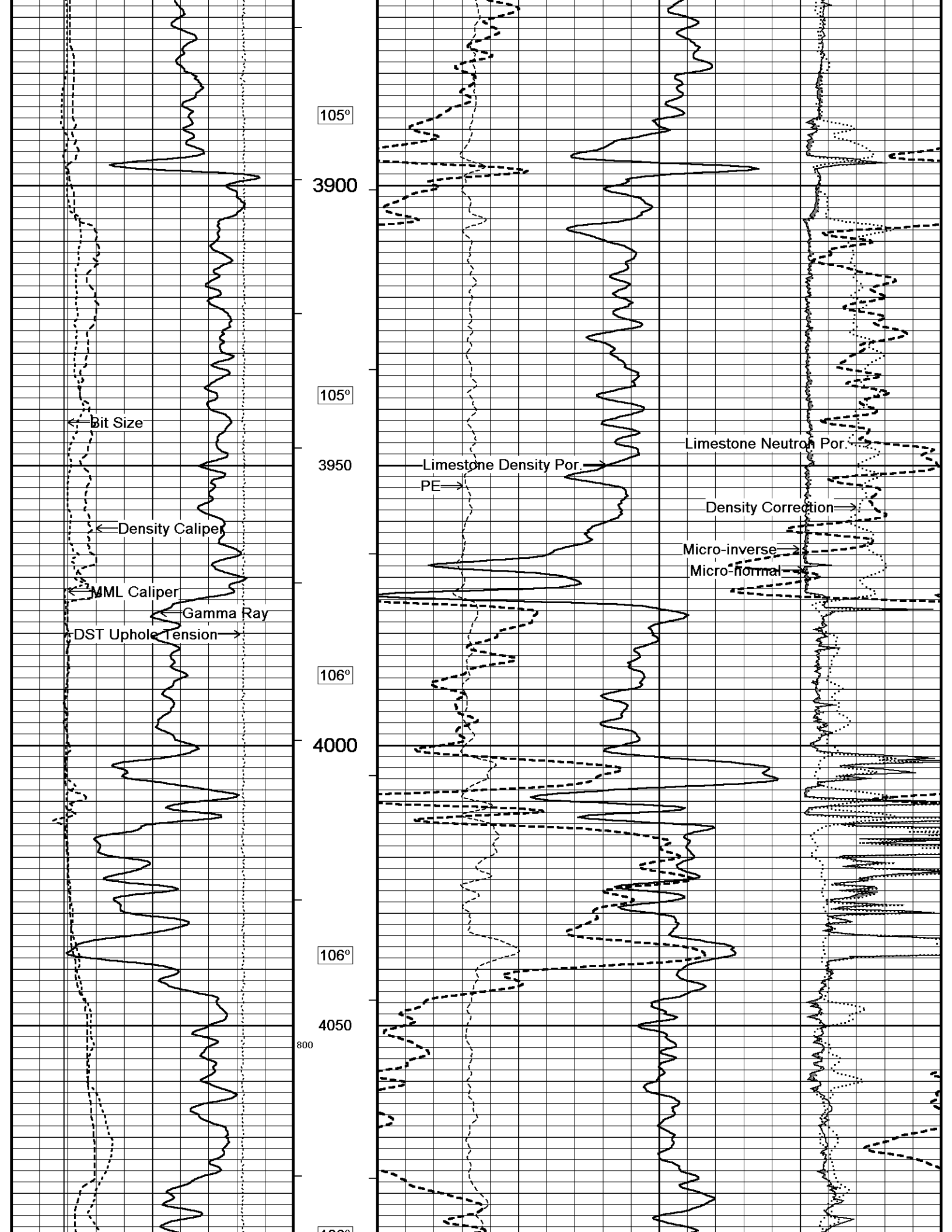
Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

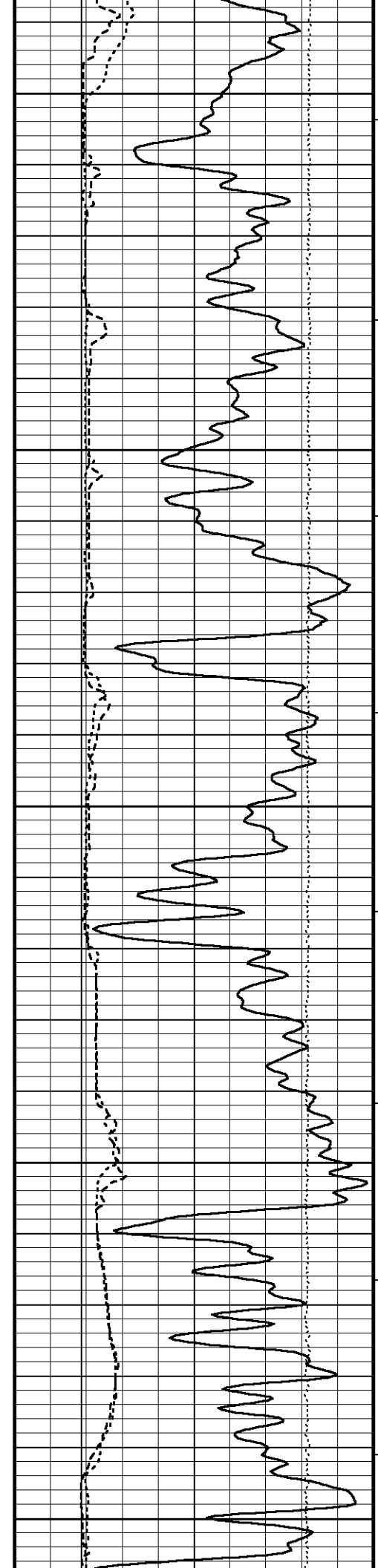
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.











106°

4100

107°

4150

108°

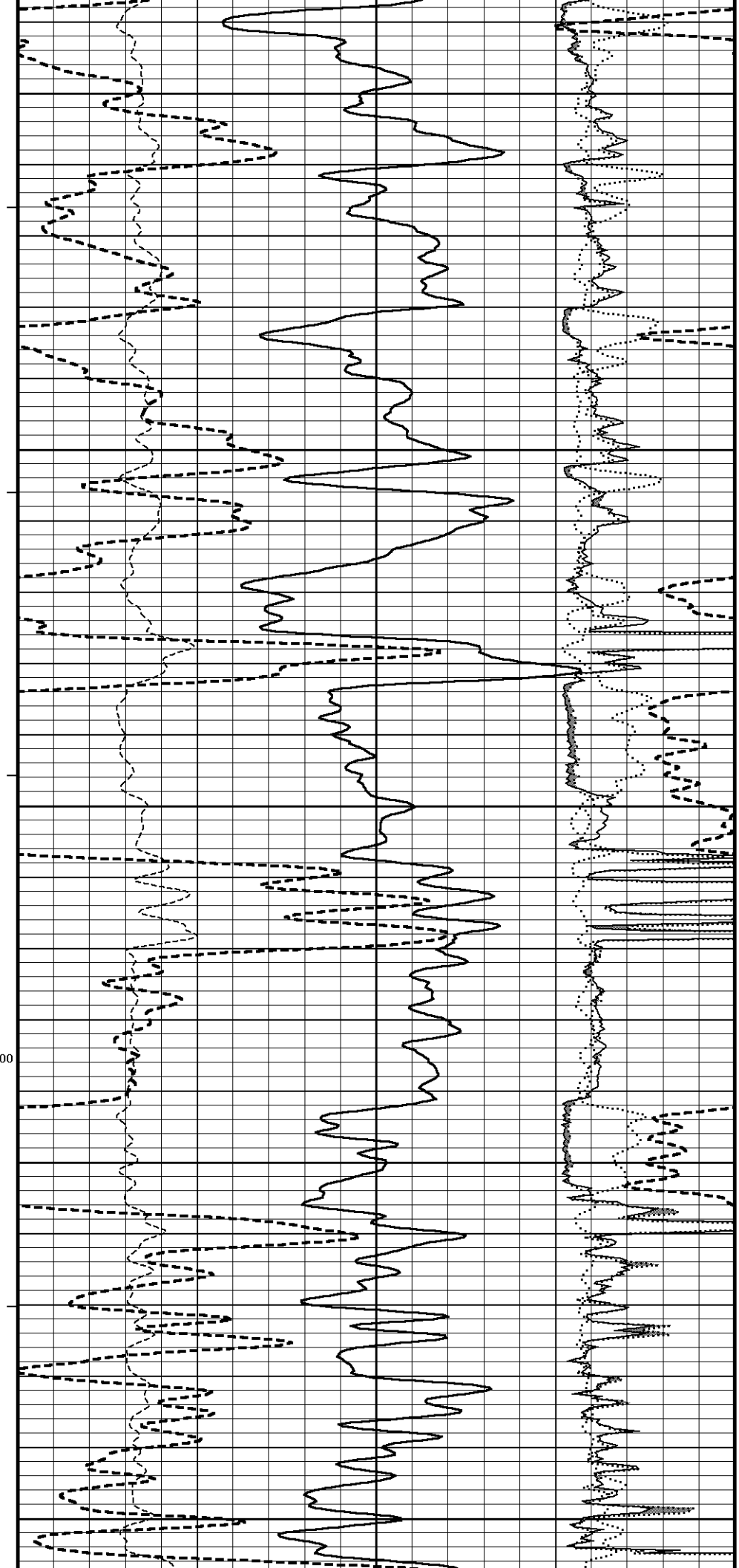
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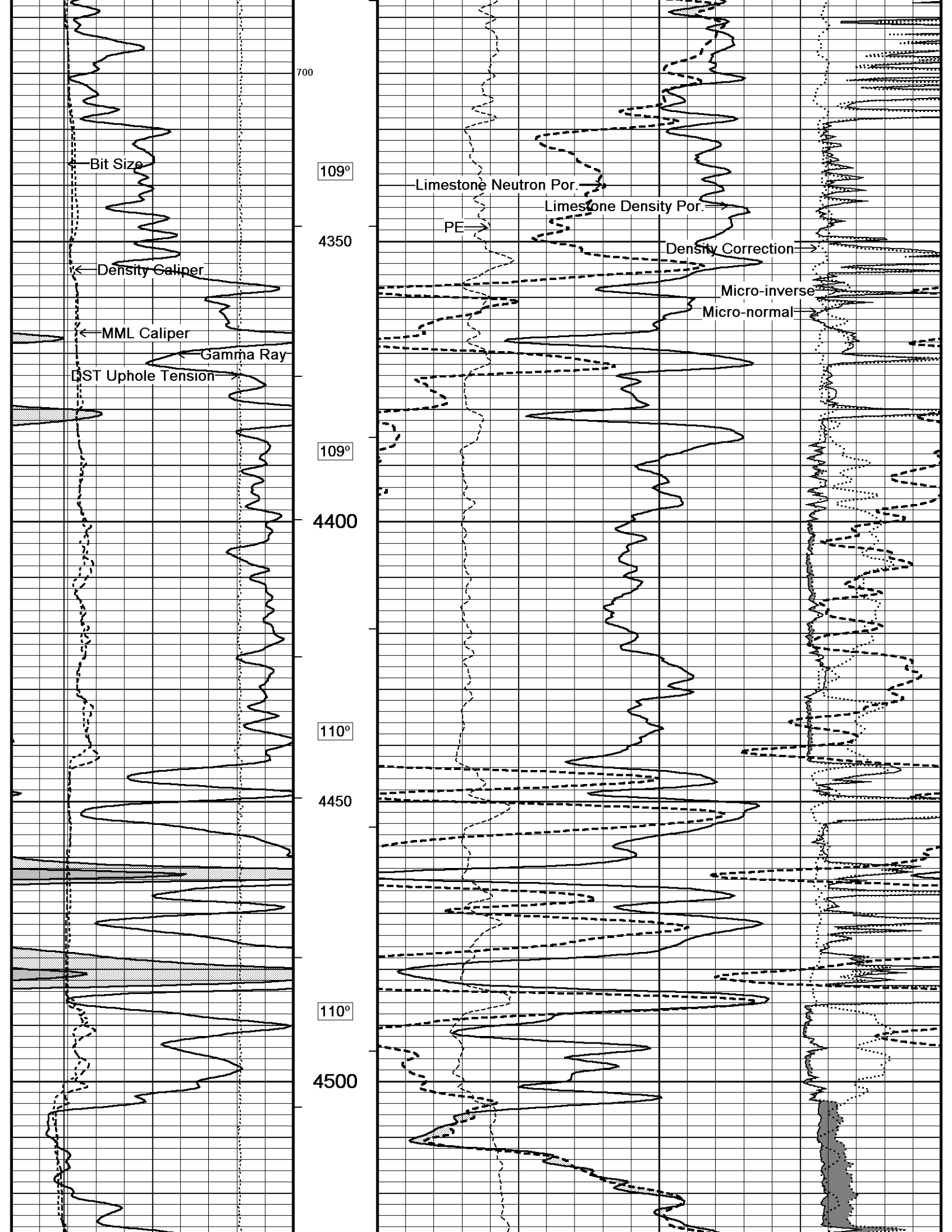
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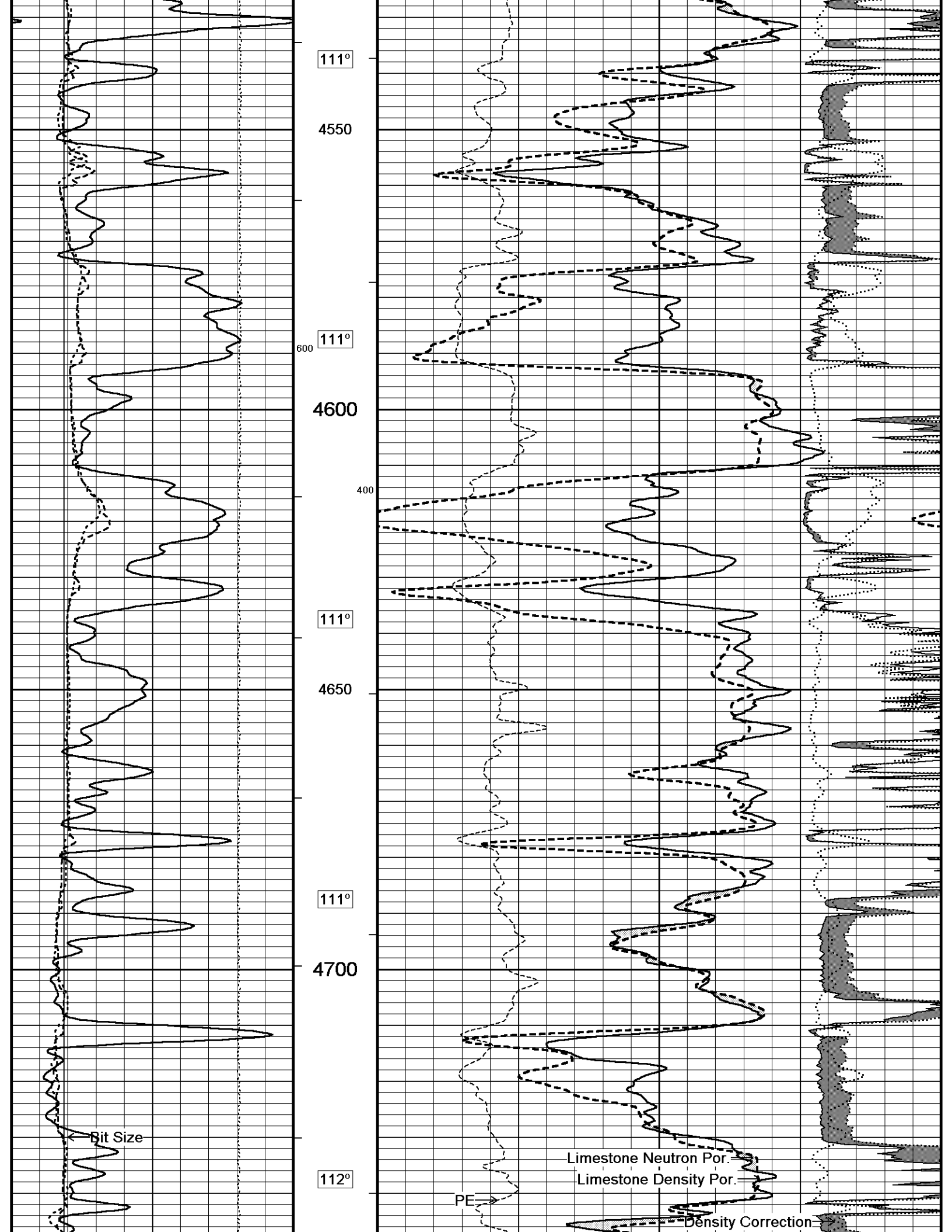
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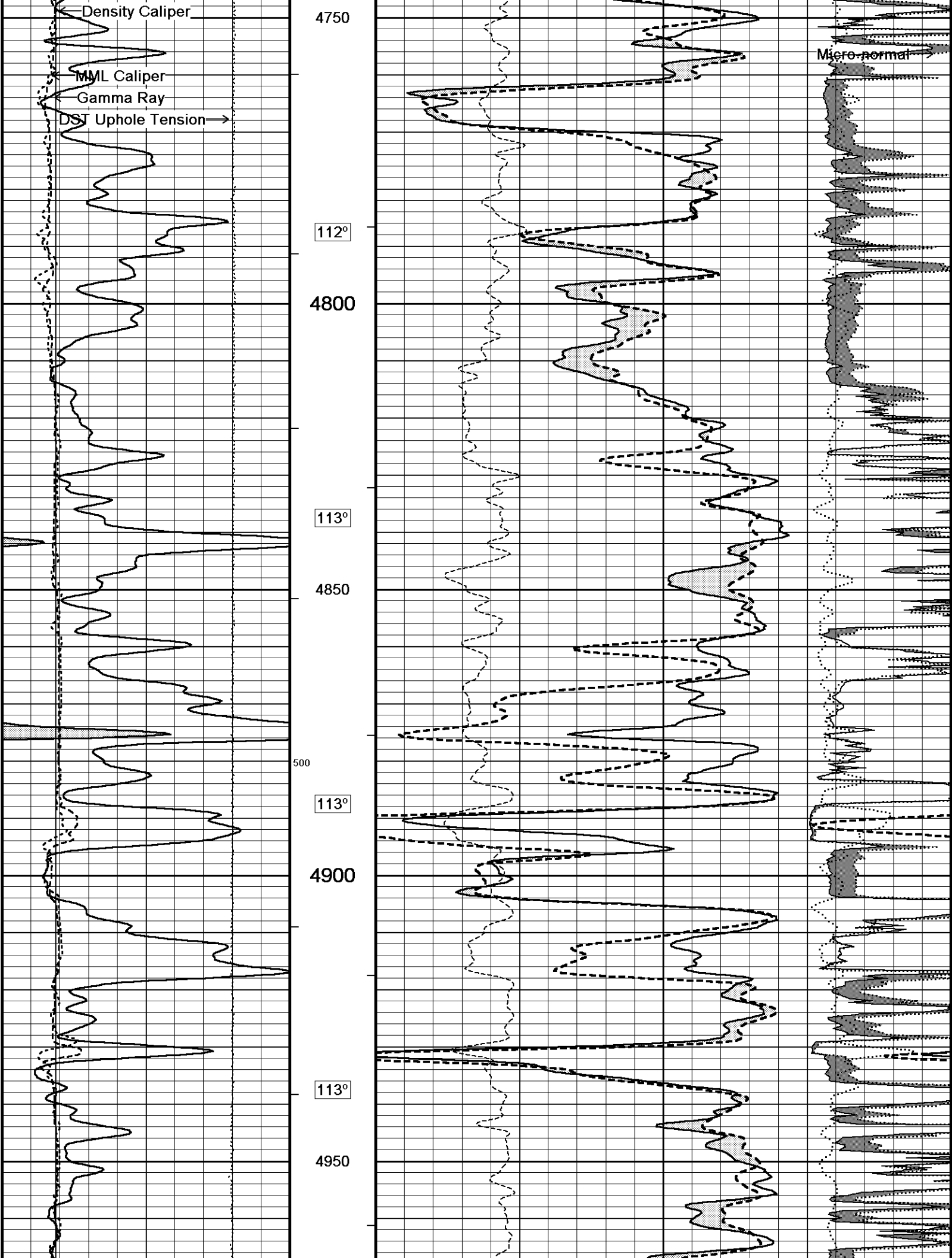
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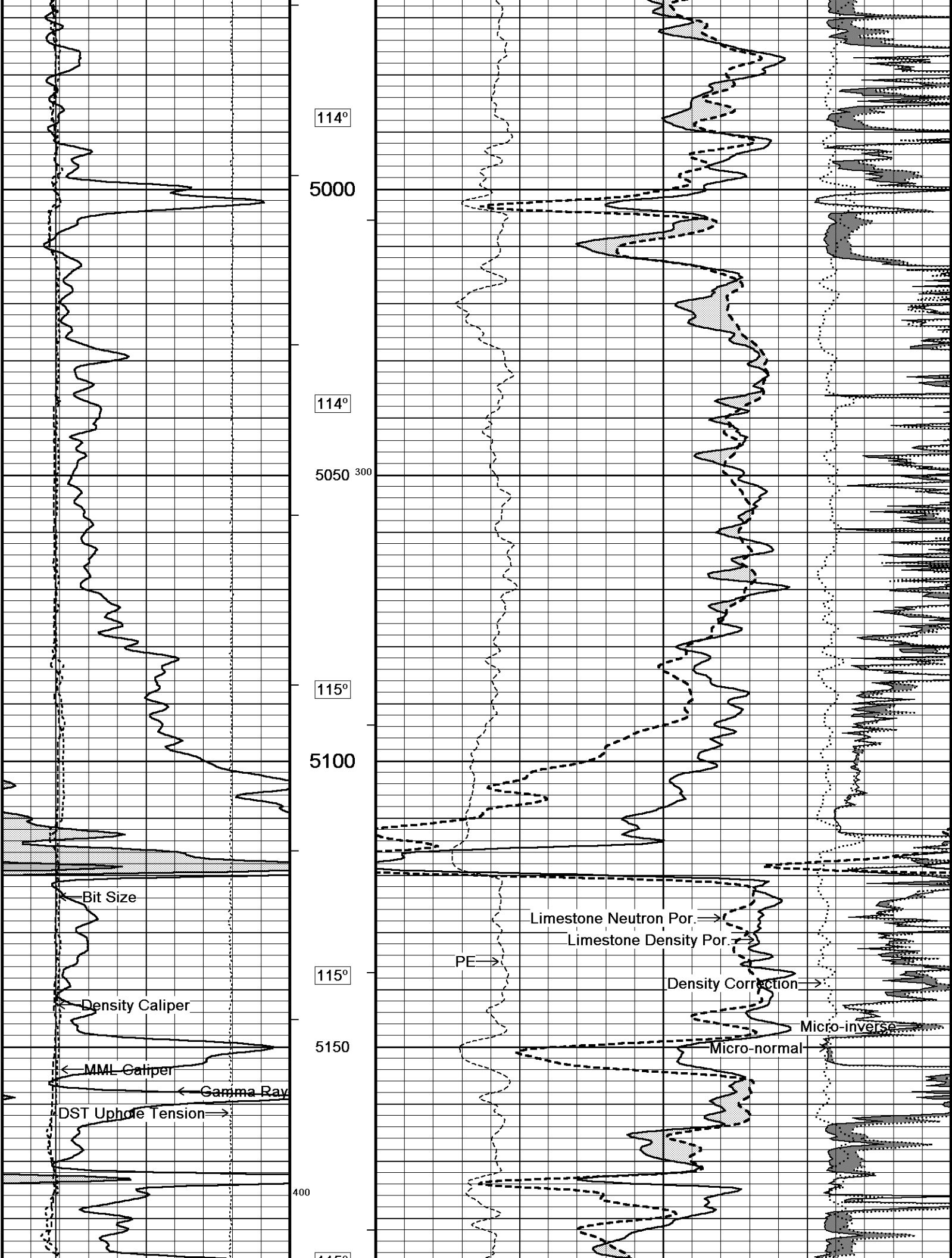
4300

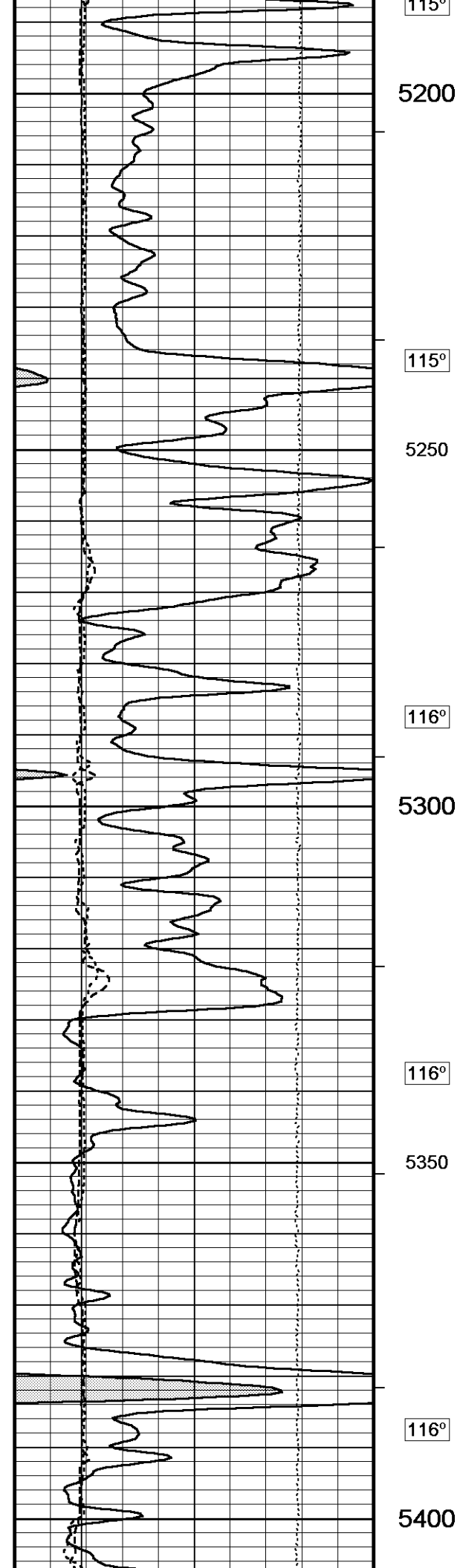












115°

5200

115°

5250

116°

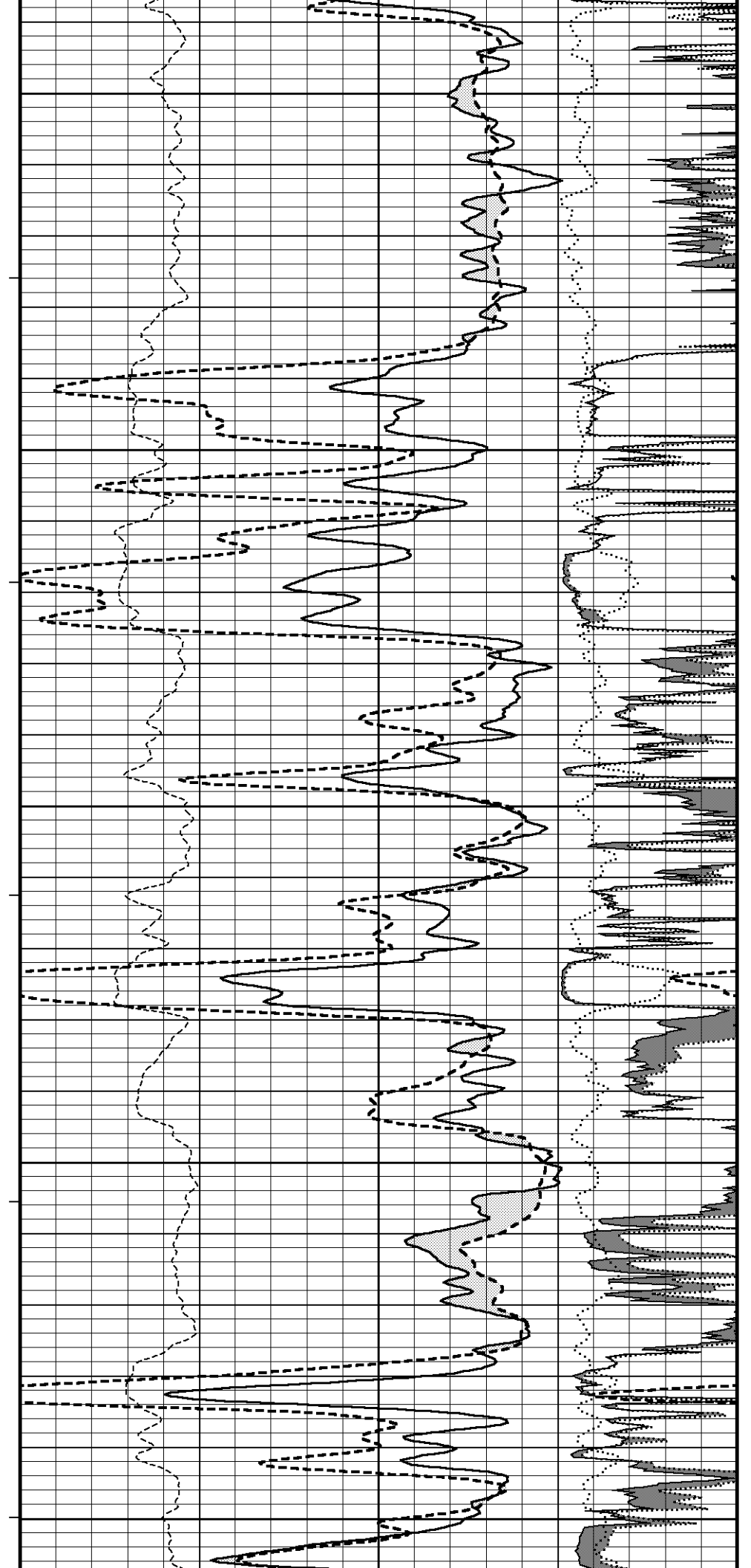
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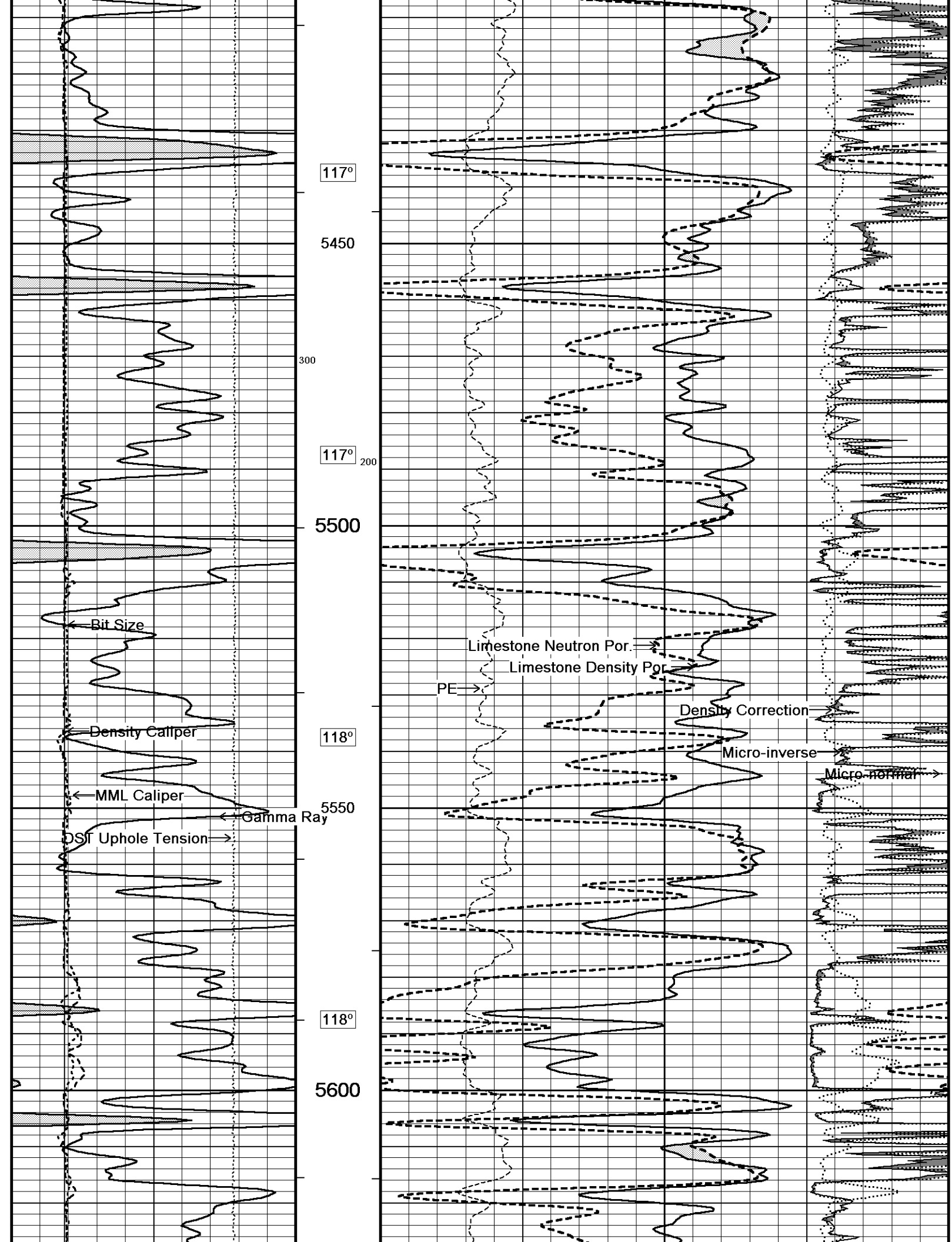
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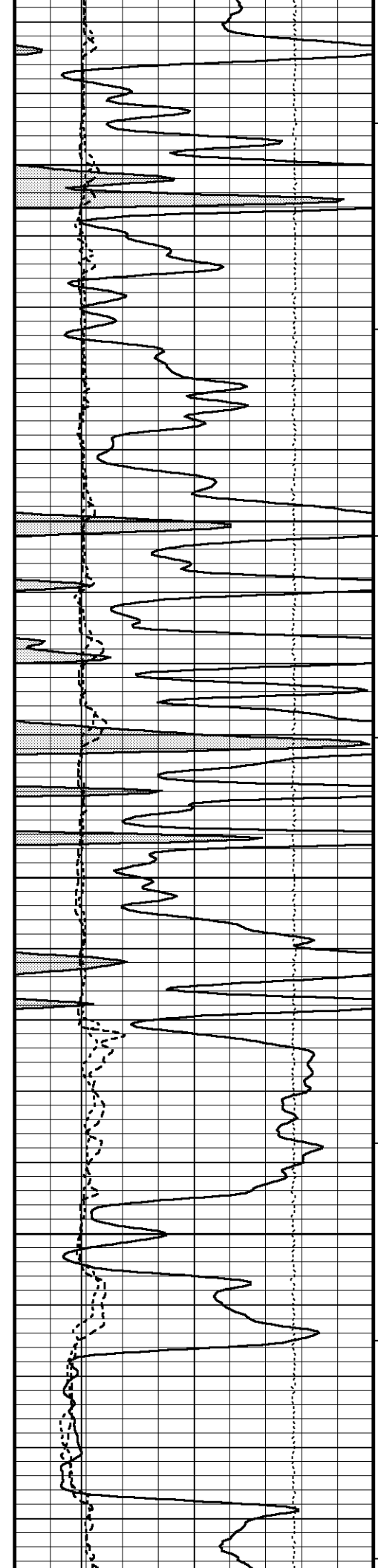
5350

116°

5400







119°

5650

119°

5700

120°

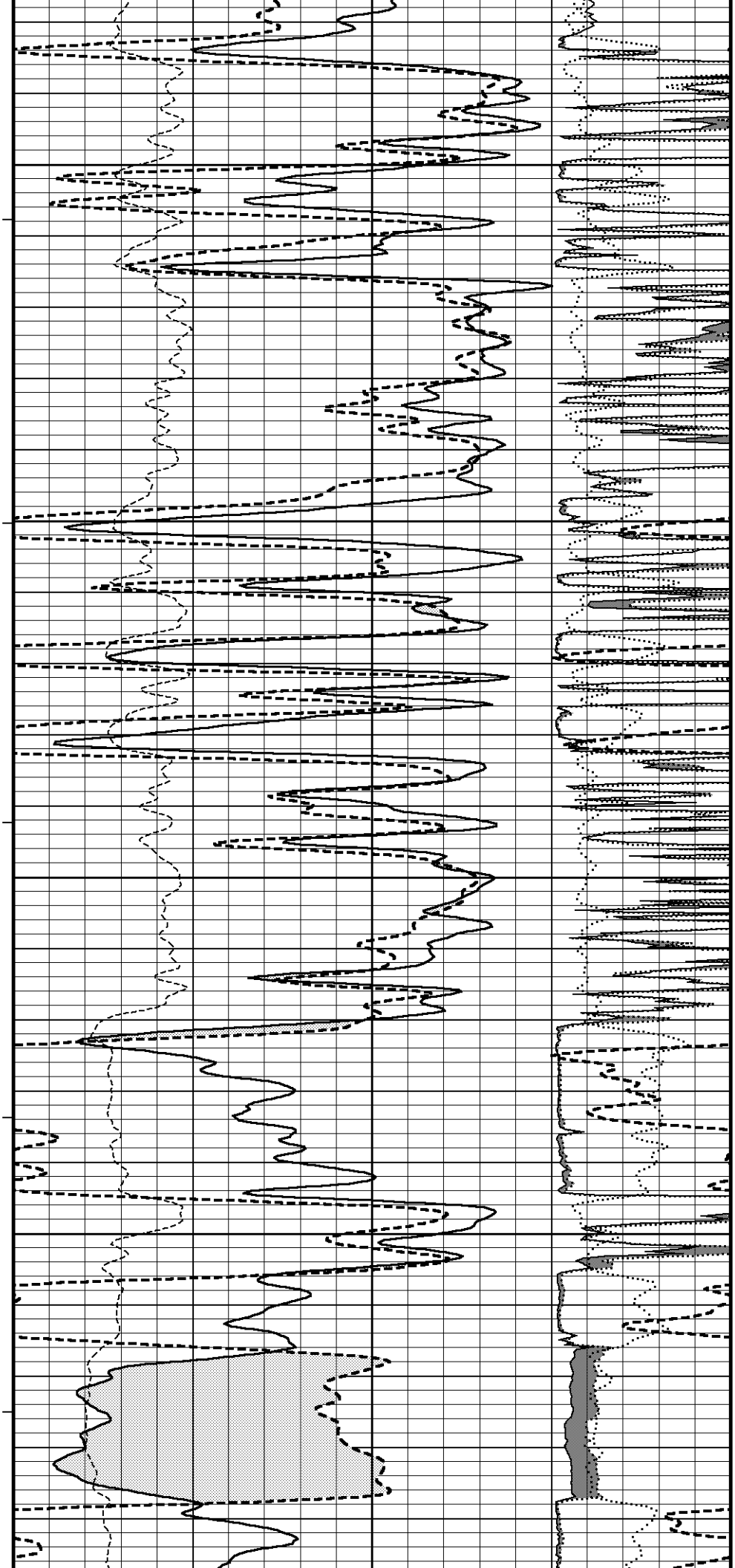
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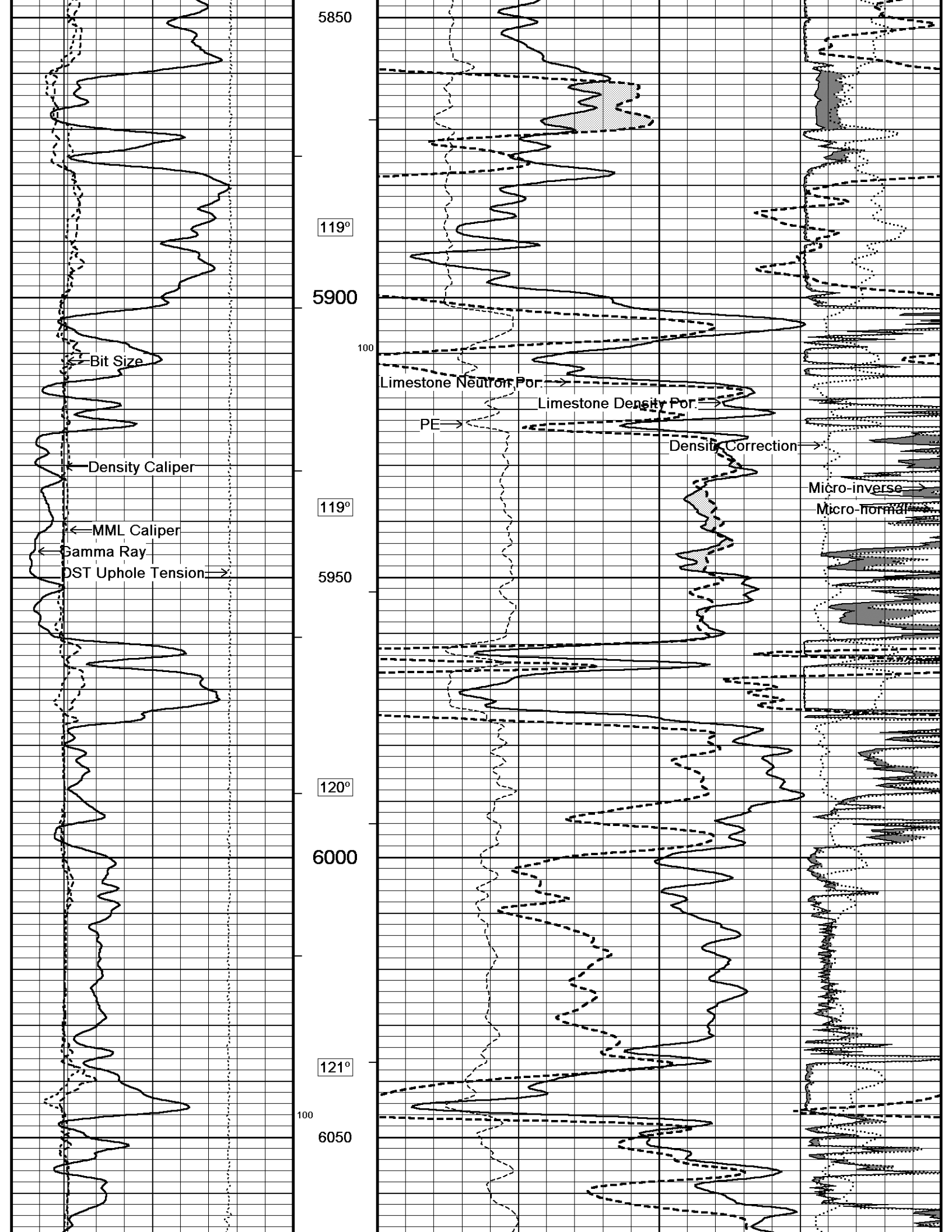
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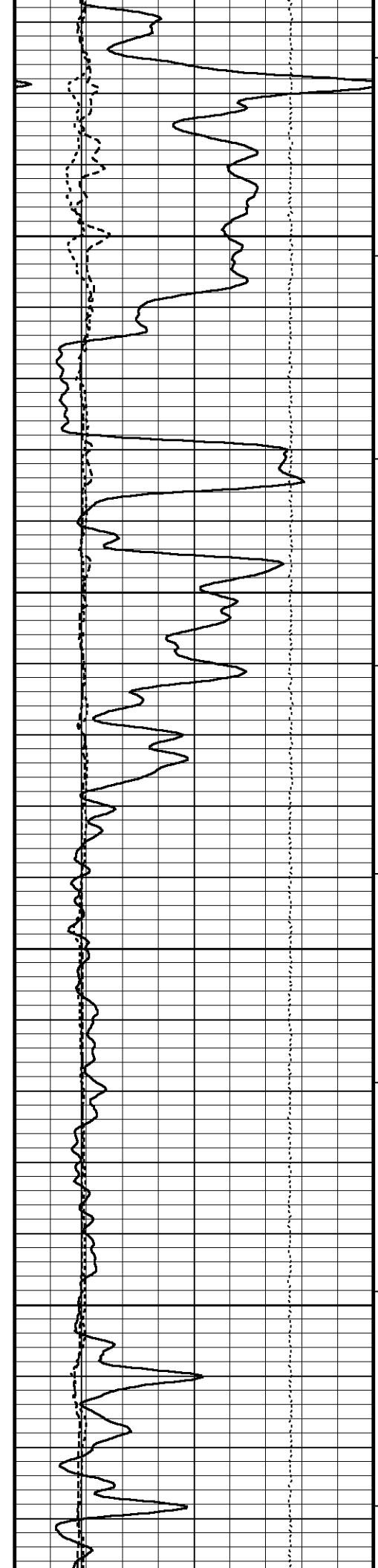
120°

5800

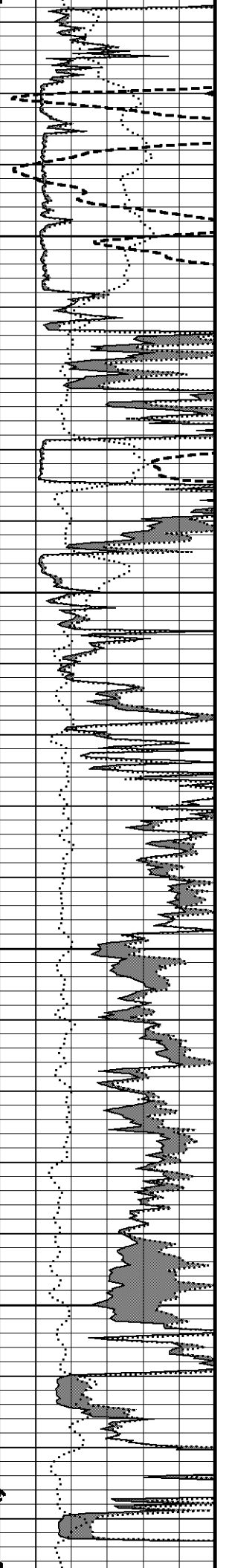
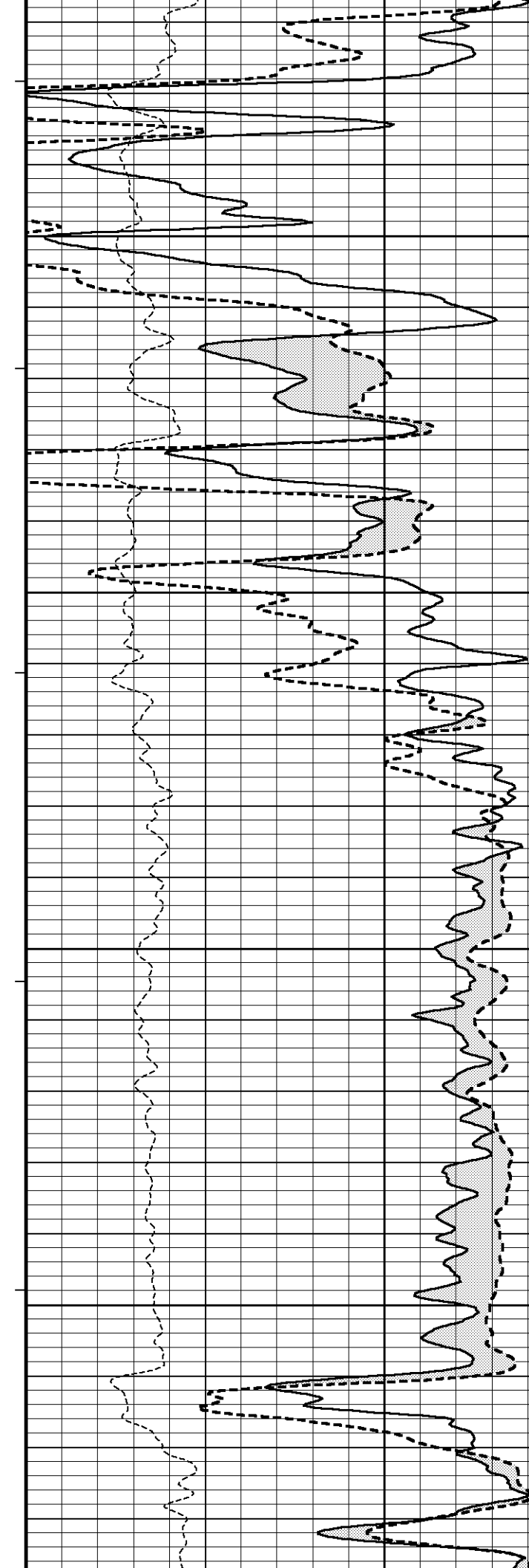
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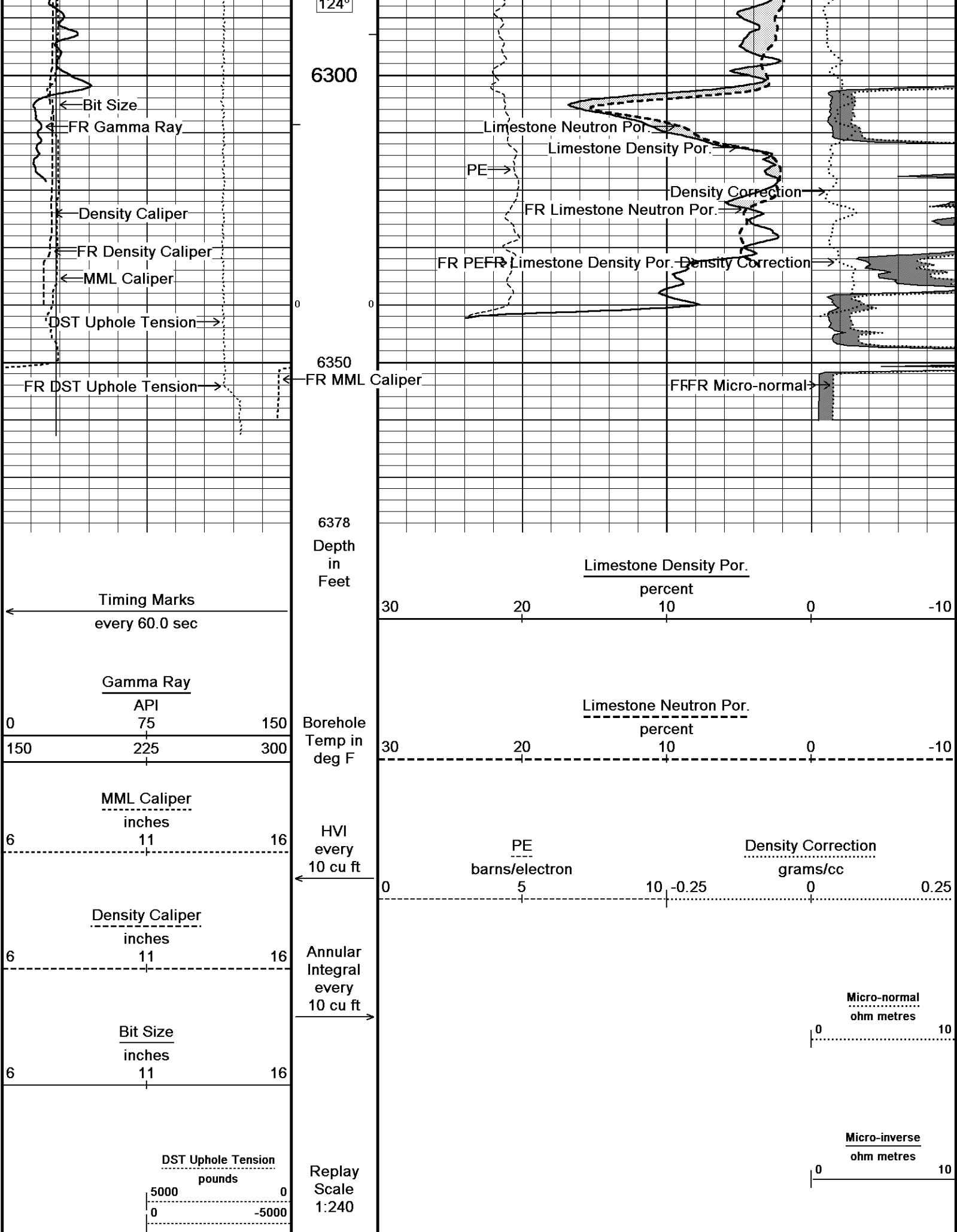






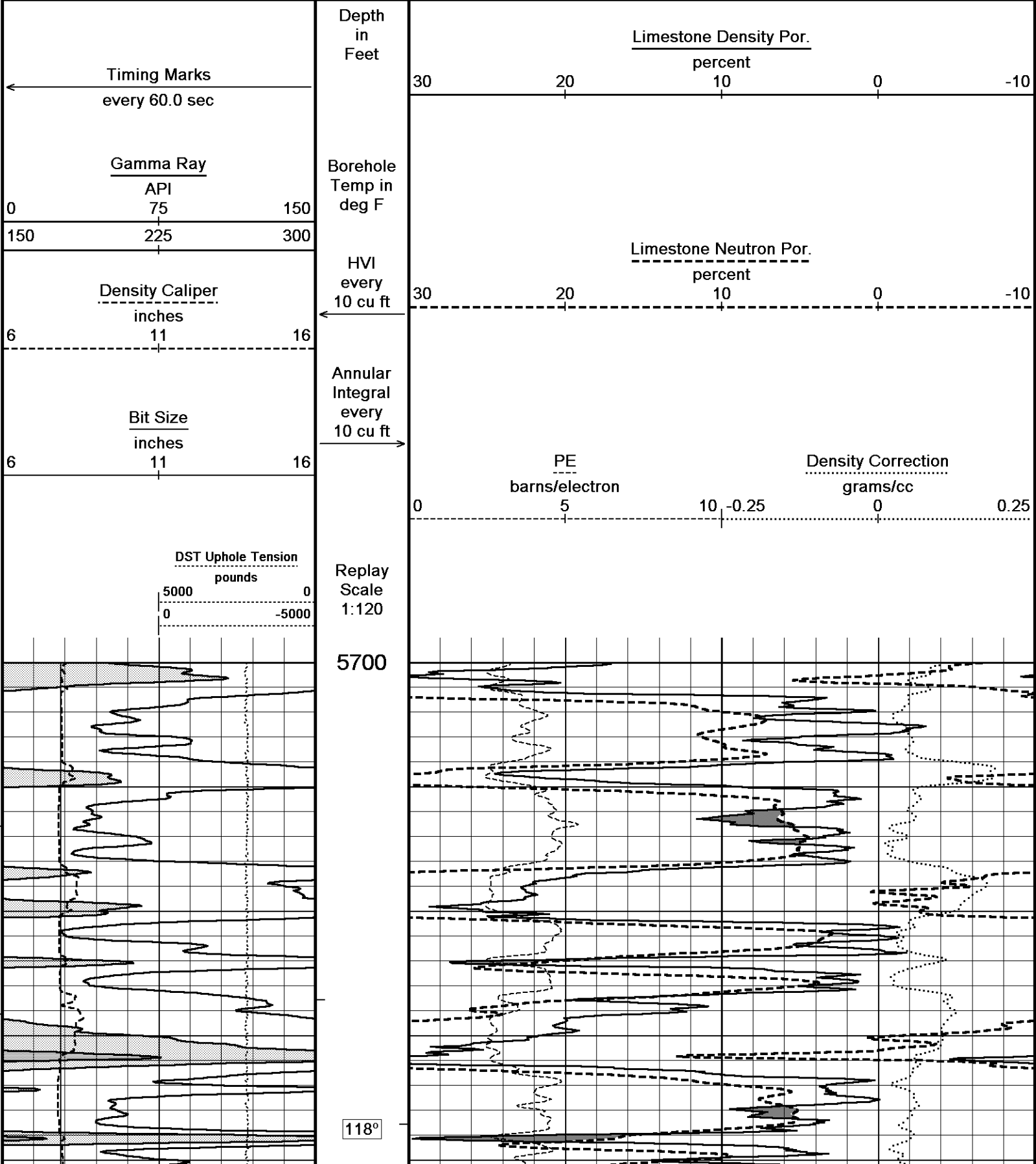
121°
6100
122°
6150
123°
6200
124°
6250
125°

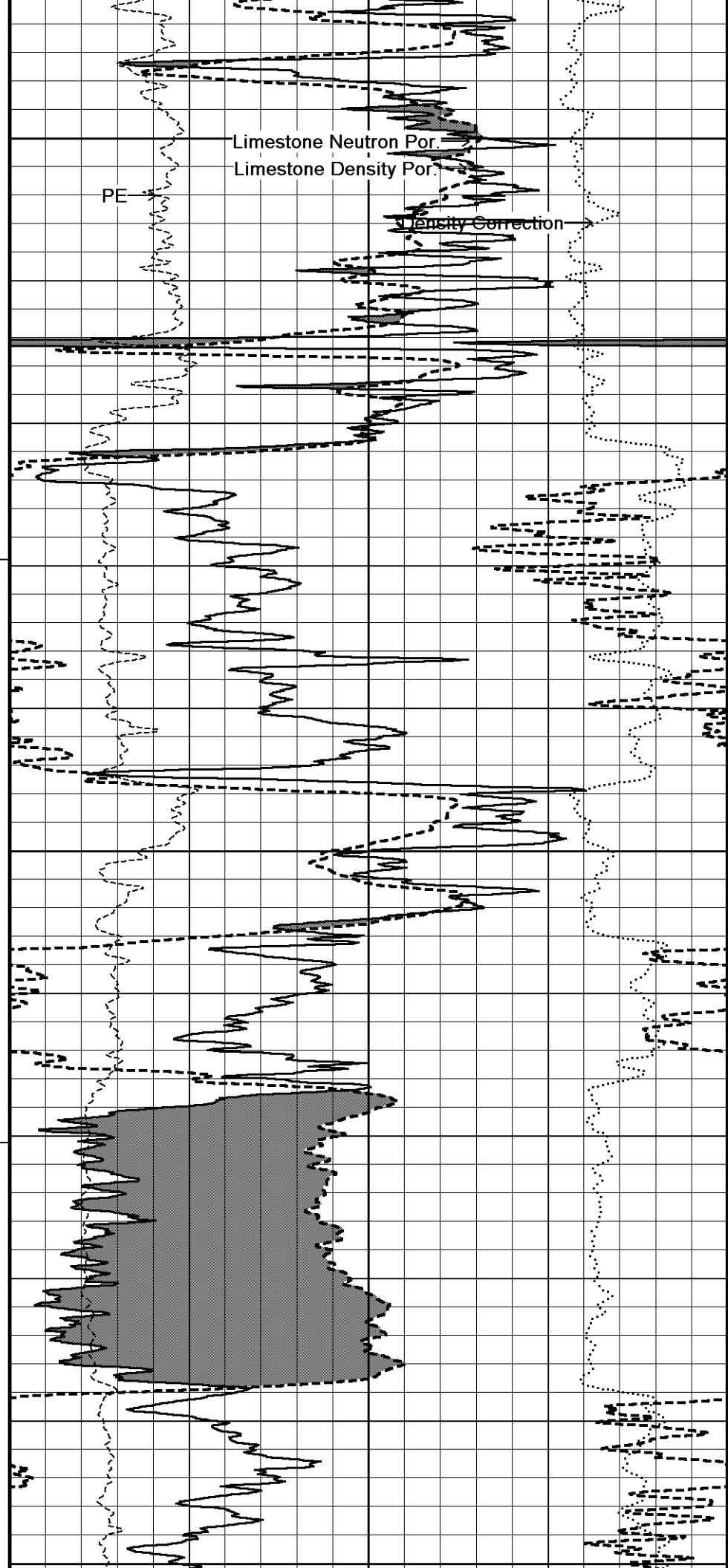
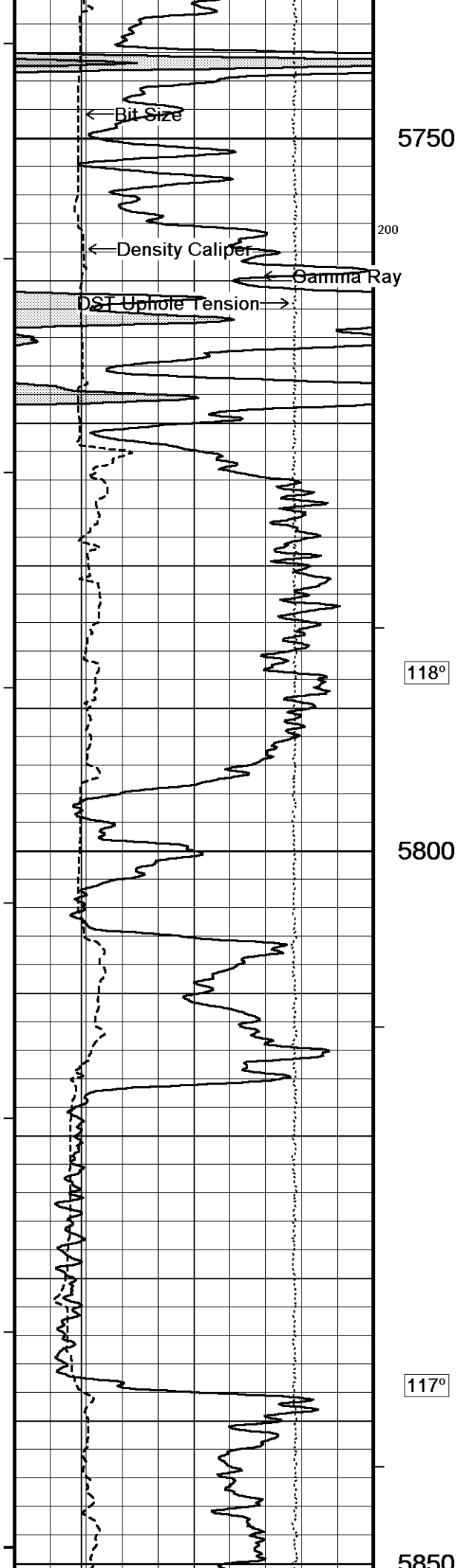


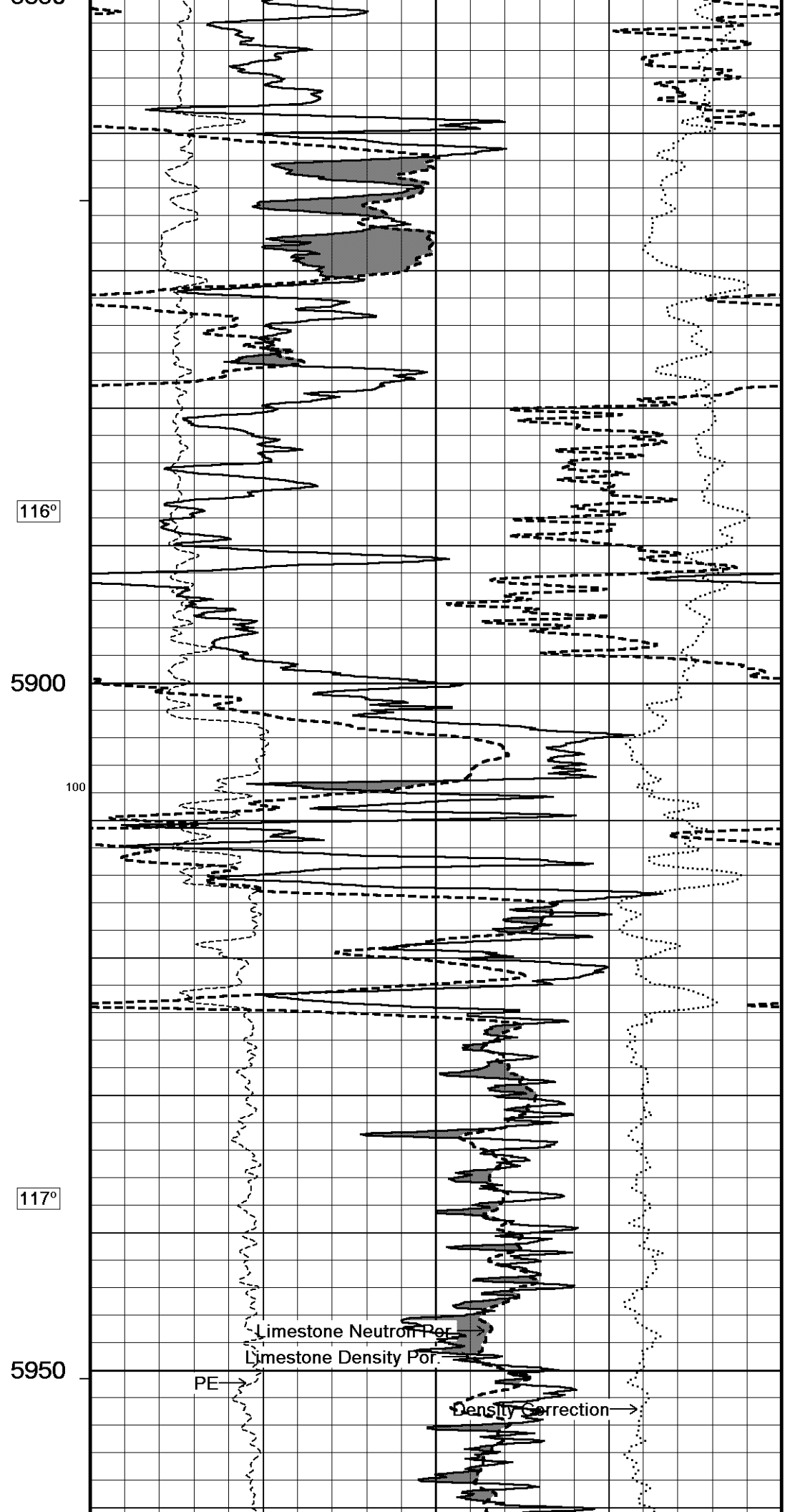
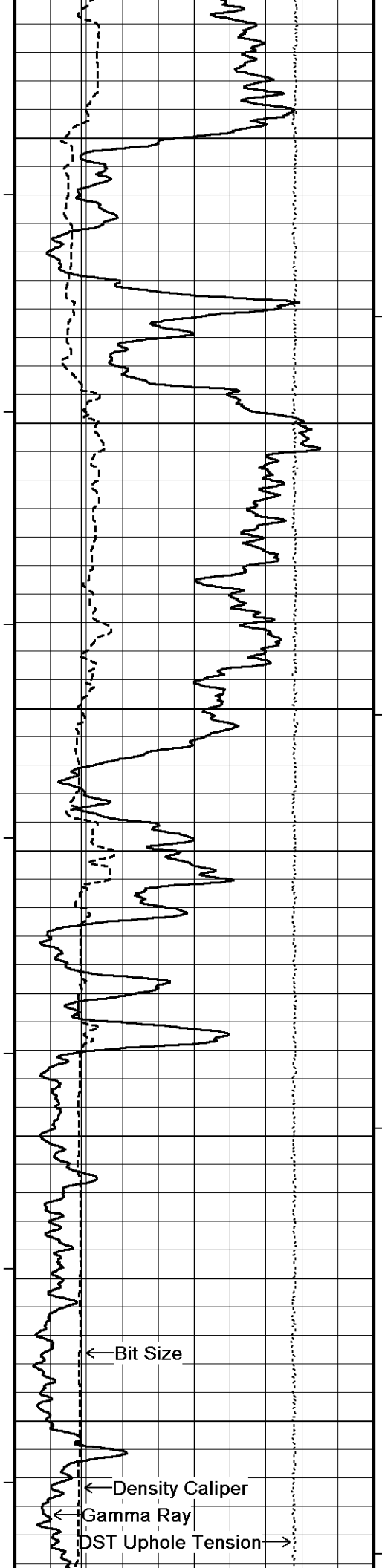


↓ HI RES SECTION ↓

Depth Based Data - Maximum Sampling Increment 2.5cm Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...Copy of VAIL #1-30_001.dta Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164







116°

5900

100

117°

5950

← Bit Size

← Density Caliper

← Gamma Ray

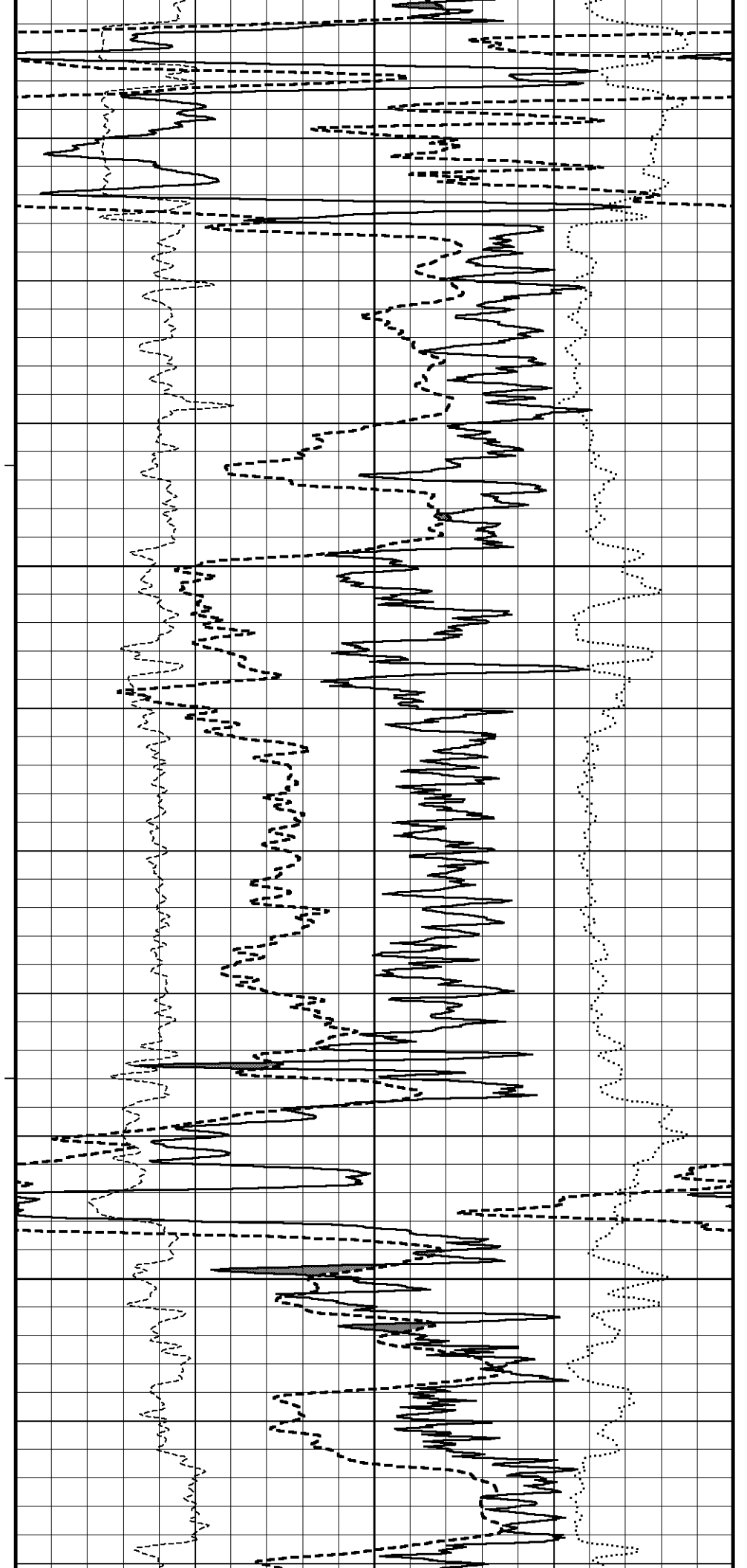
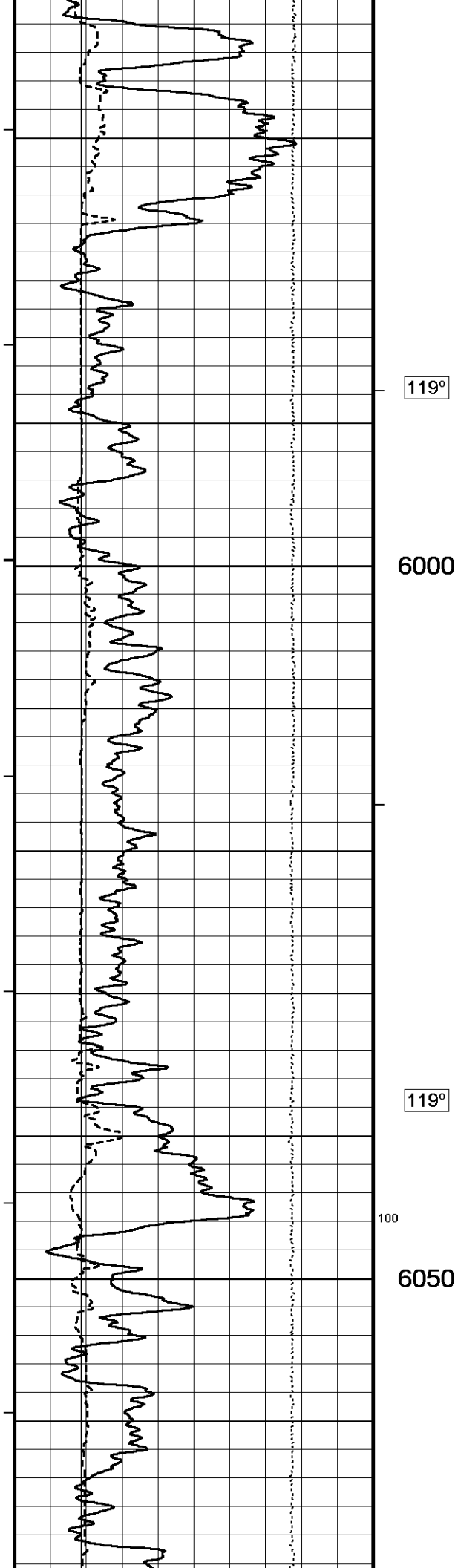
→ DST Uphole Tension

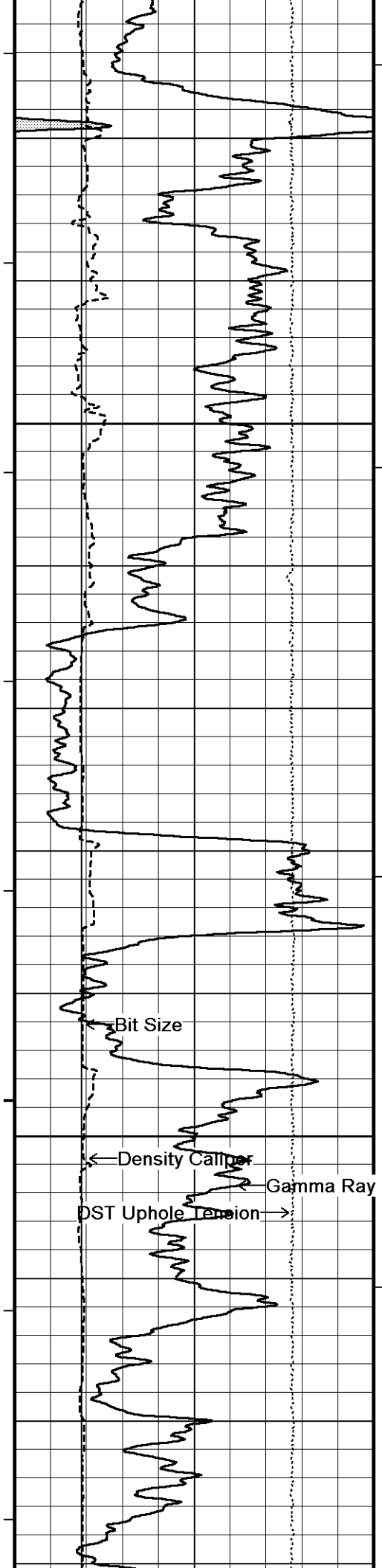
Limestone Neutron Por.

Limestone Density Por.

PE →

→ Density Correction



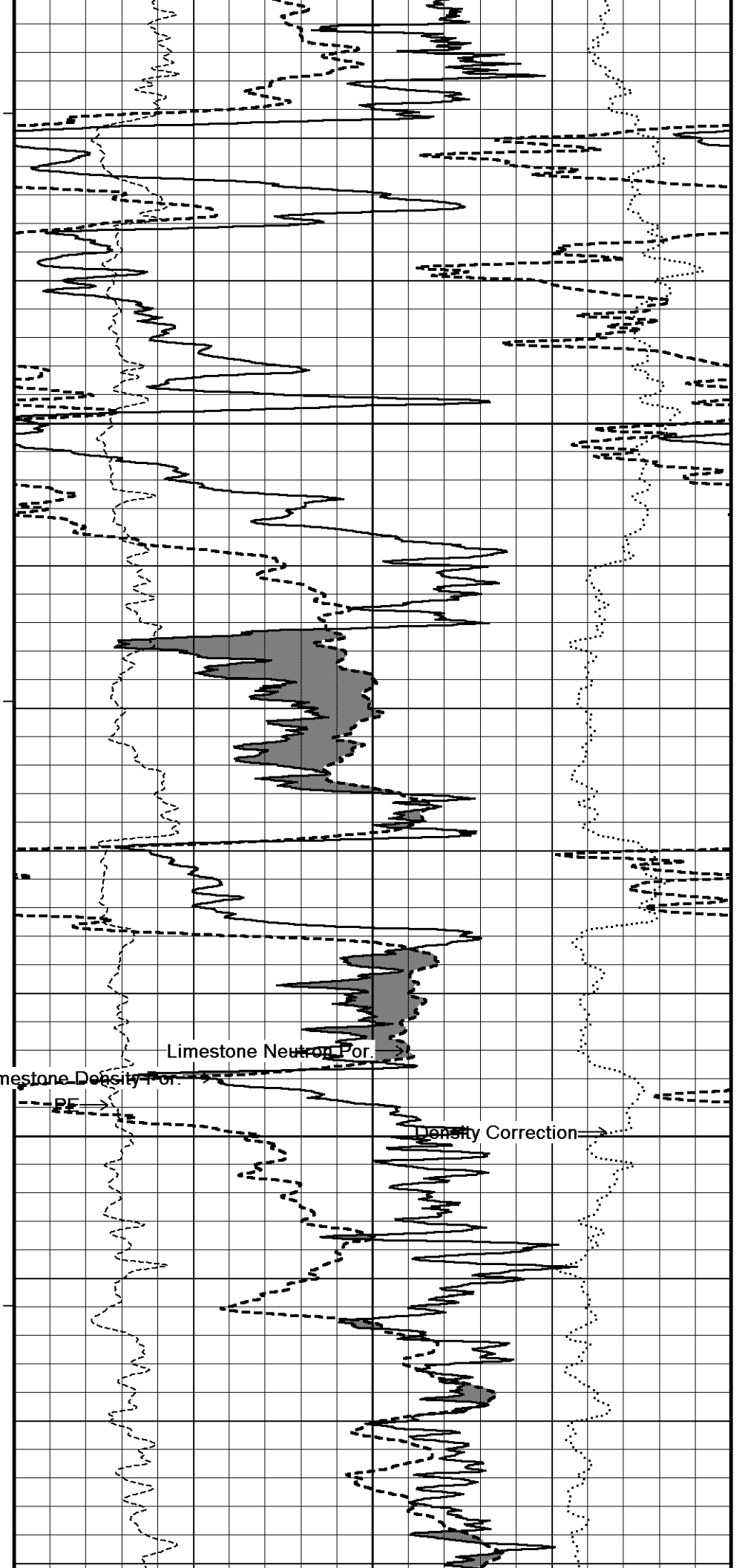


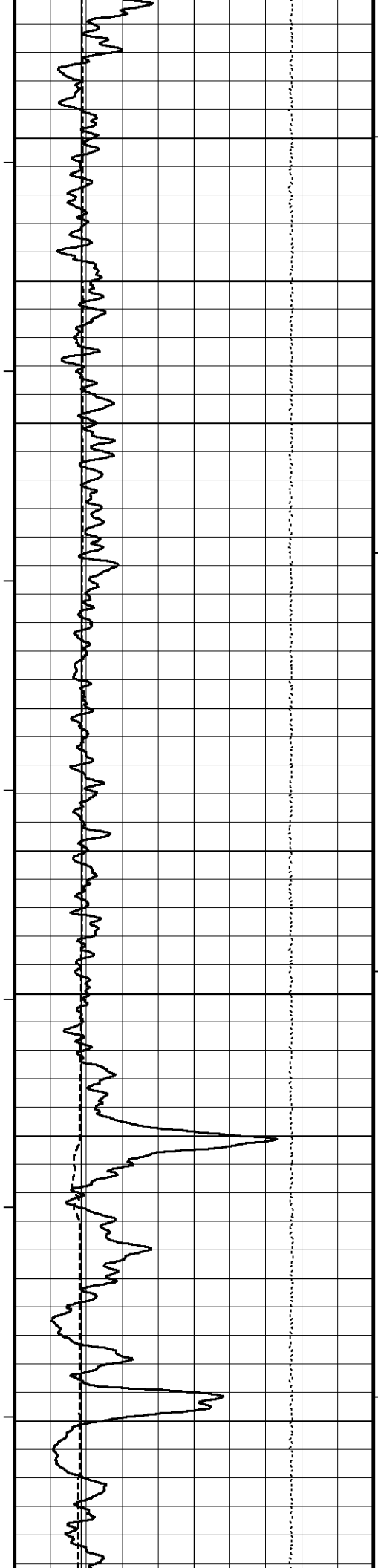
120°

6100

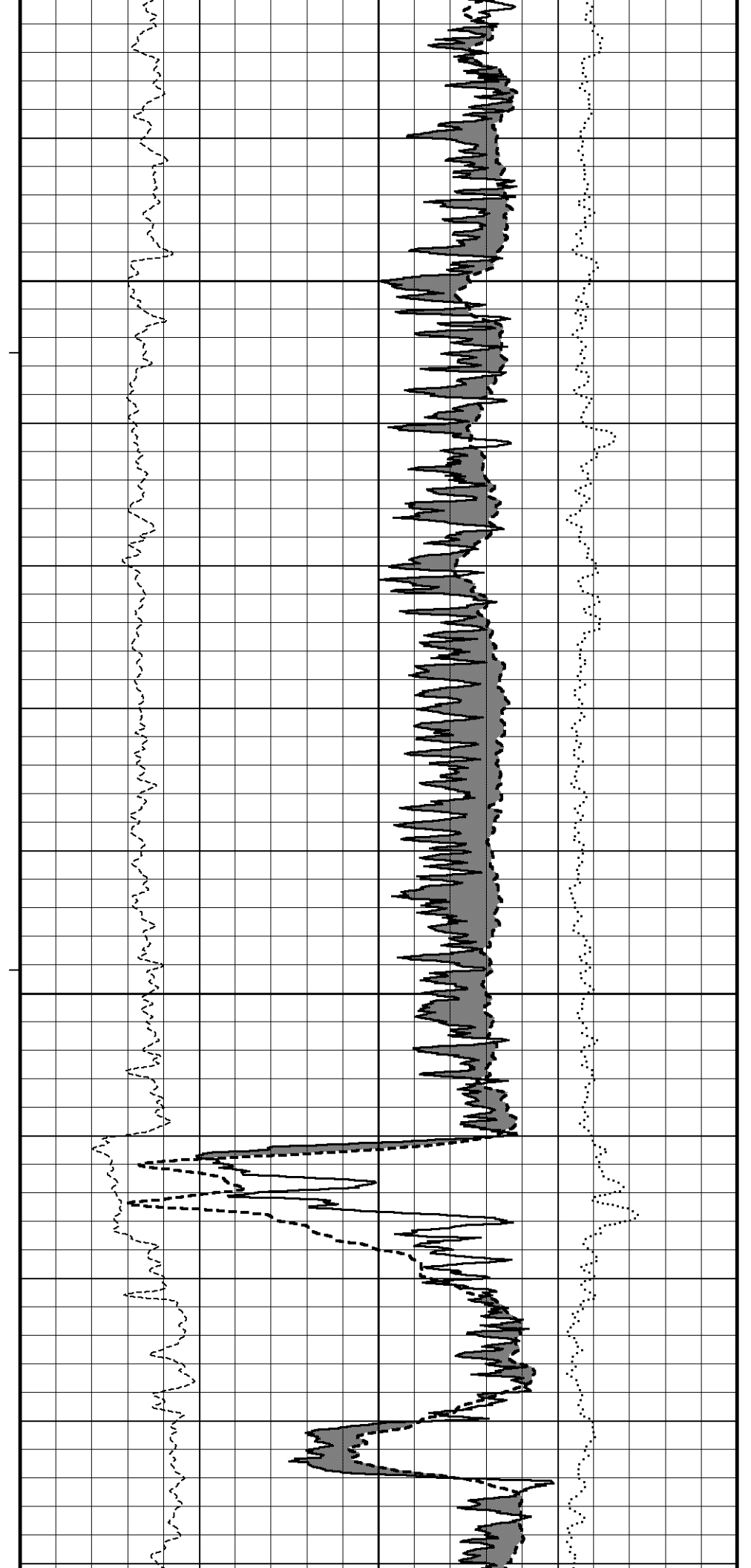
120°

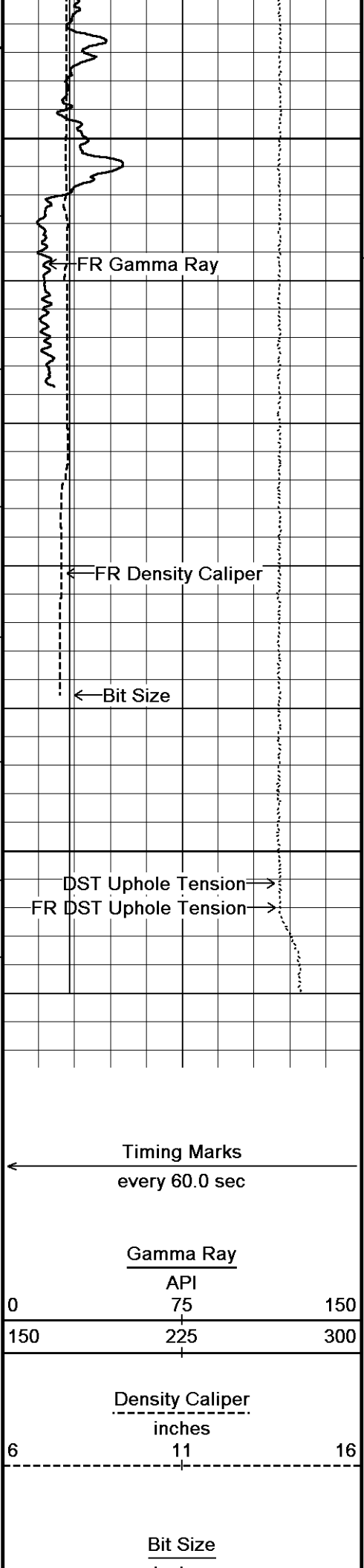
6150





121° 6200 121° 6250 122°





6300

6350

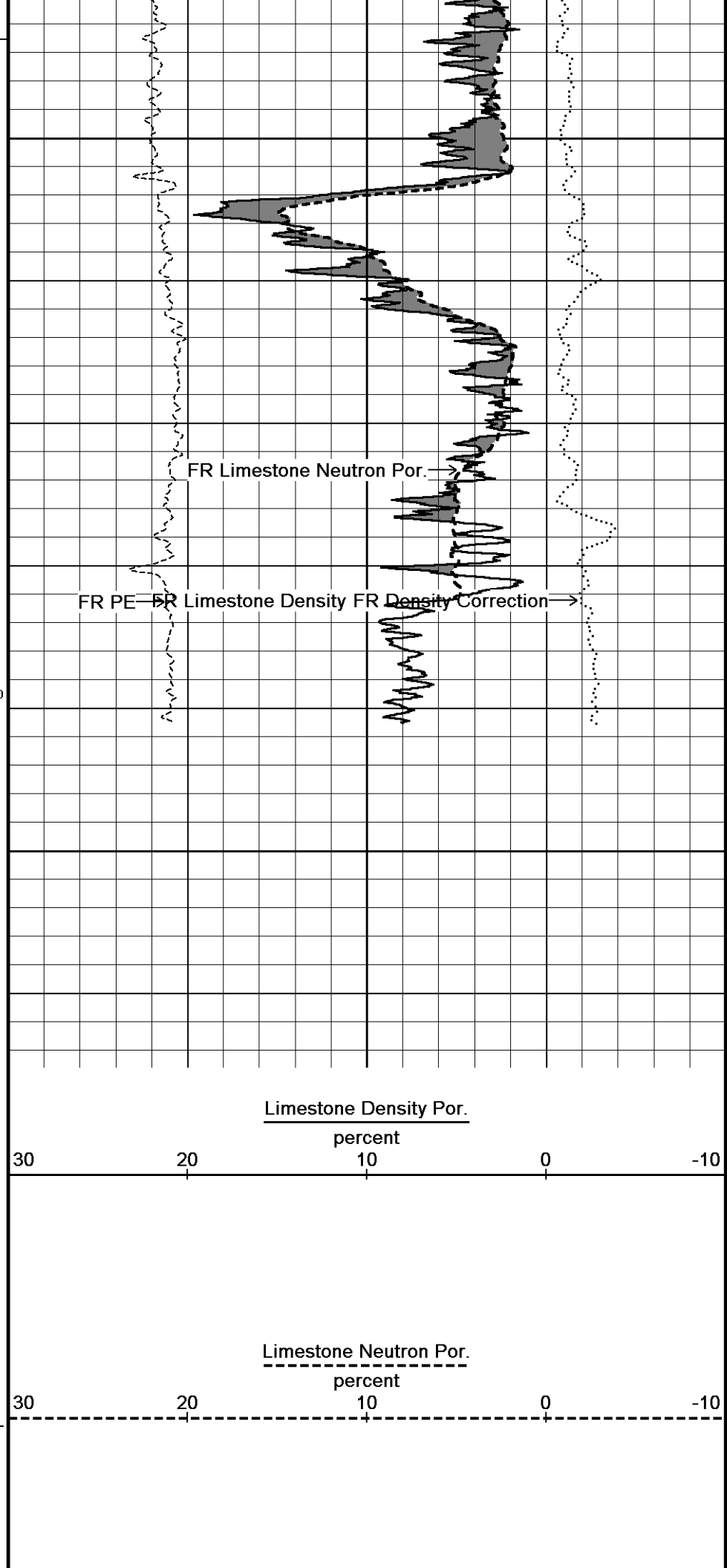
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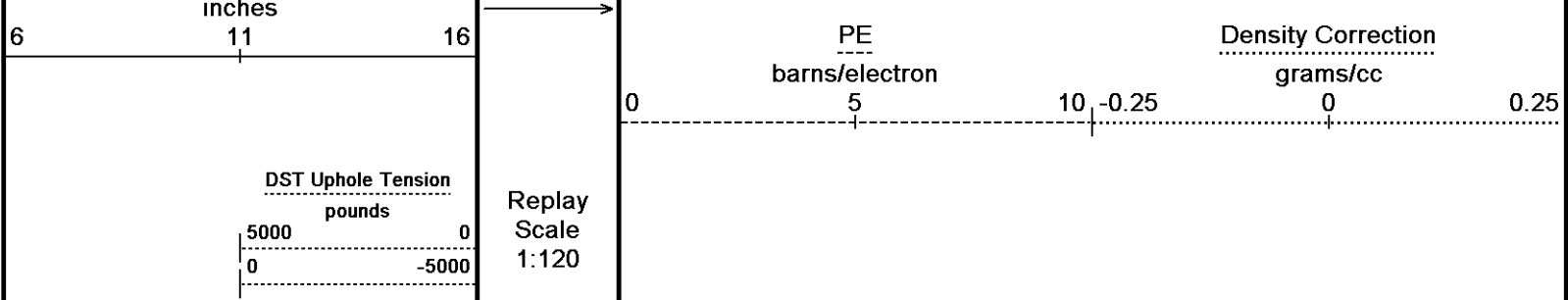
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft





Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 08-DEC-2010 10:48

Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_001.dta

Recorded on 07-DEC-2010 16:32

System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

↑HI RES SECTION↑

↓Repeat Section↓

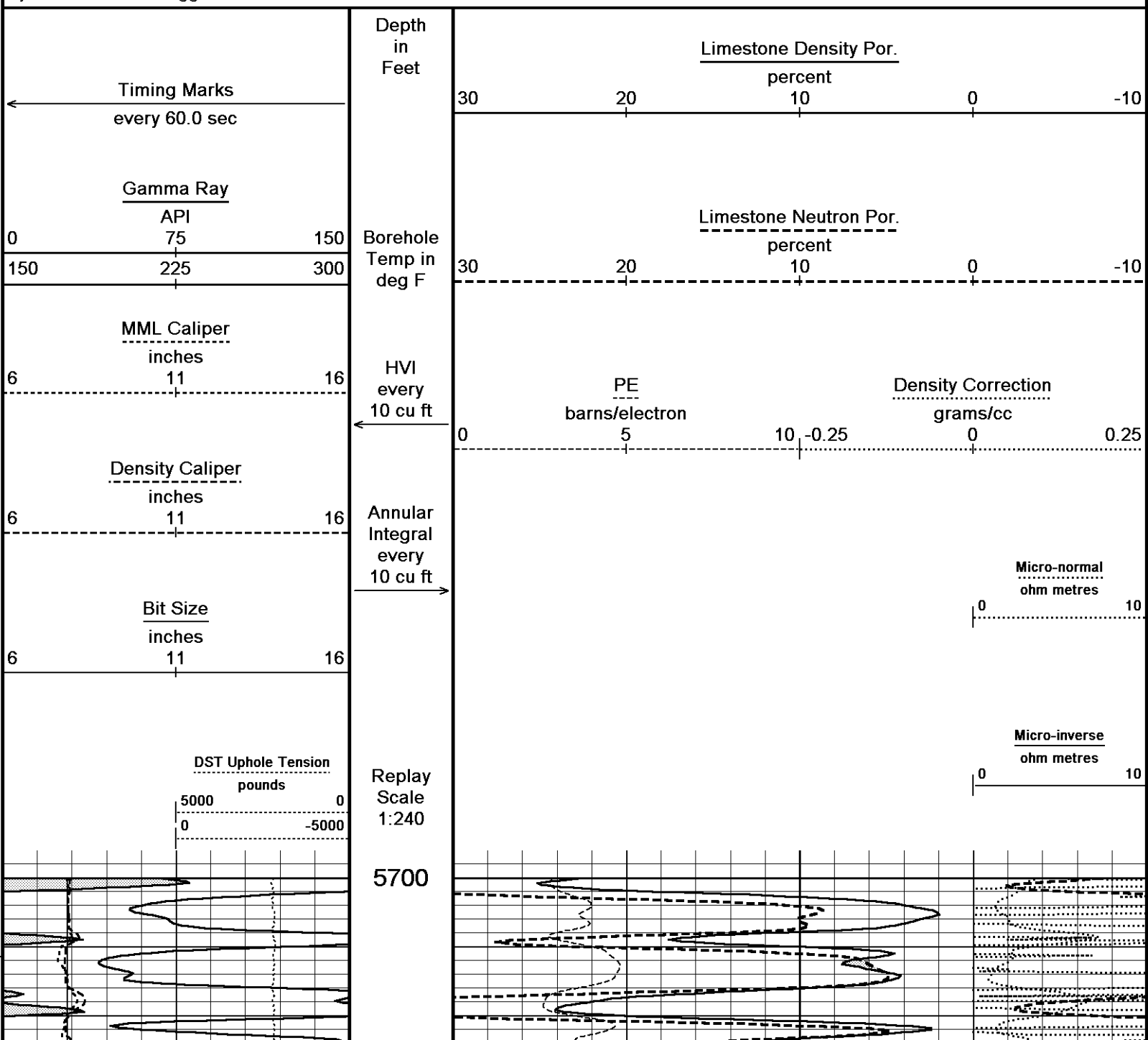
Depth Based Data - Maximum Sampling Increment 10.0cm

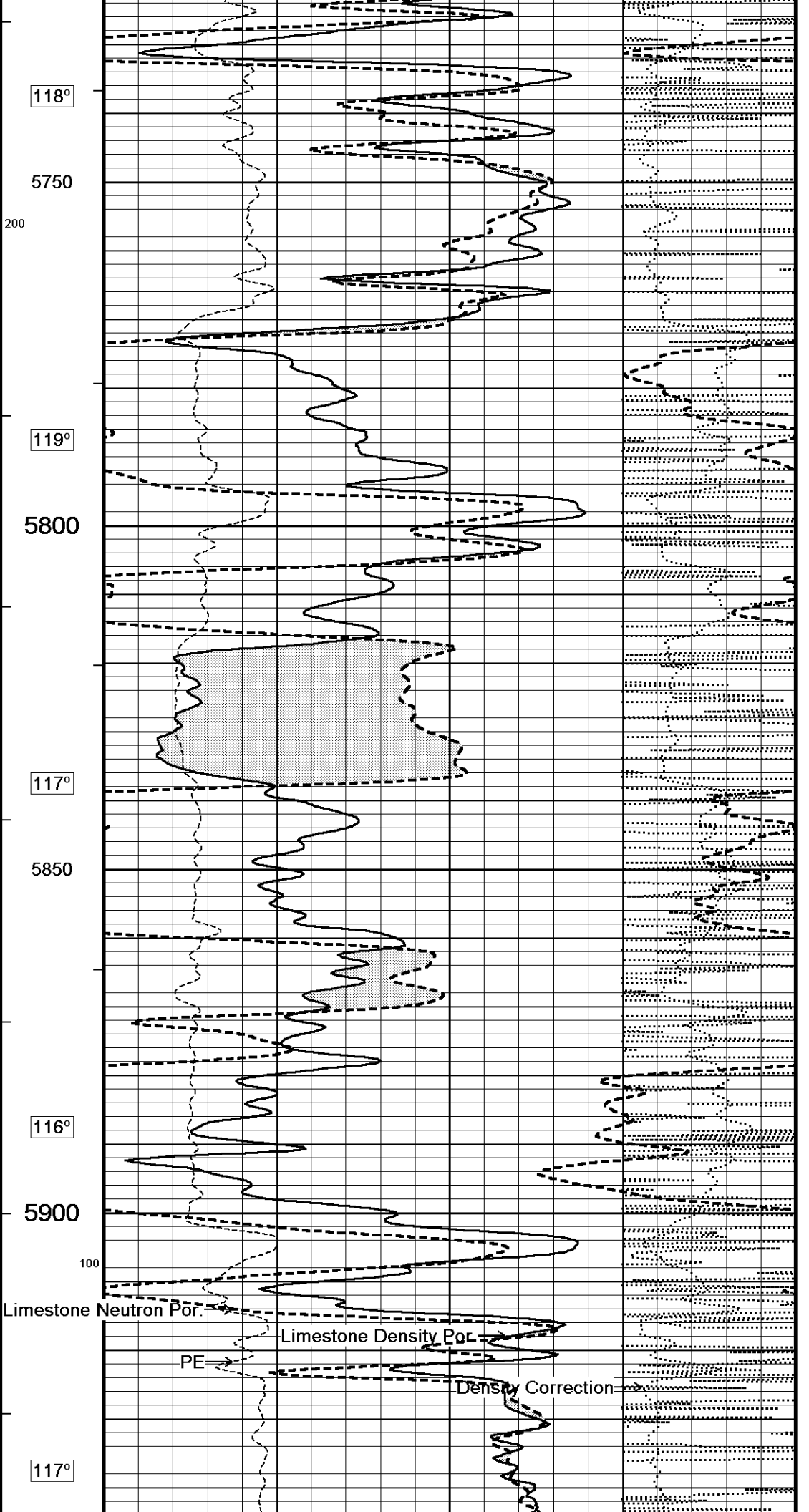
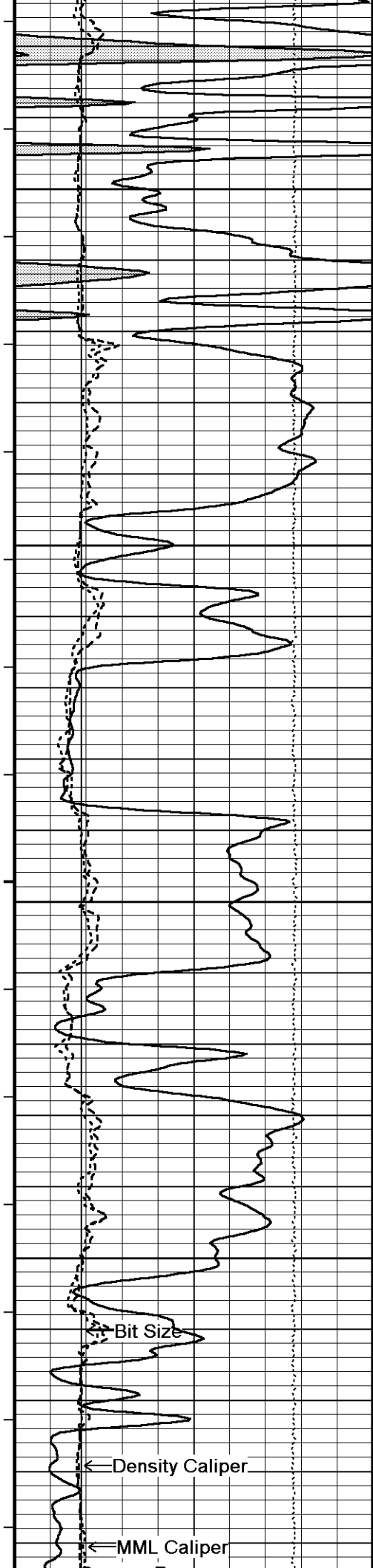
Plotted on 08-DEC-2010 10:48

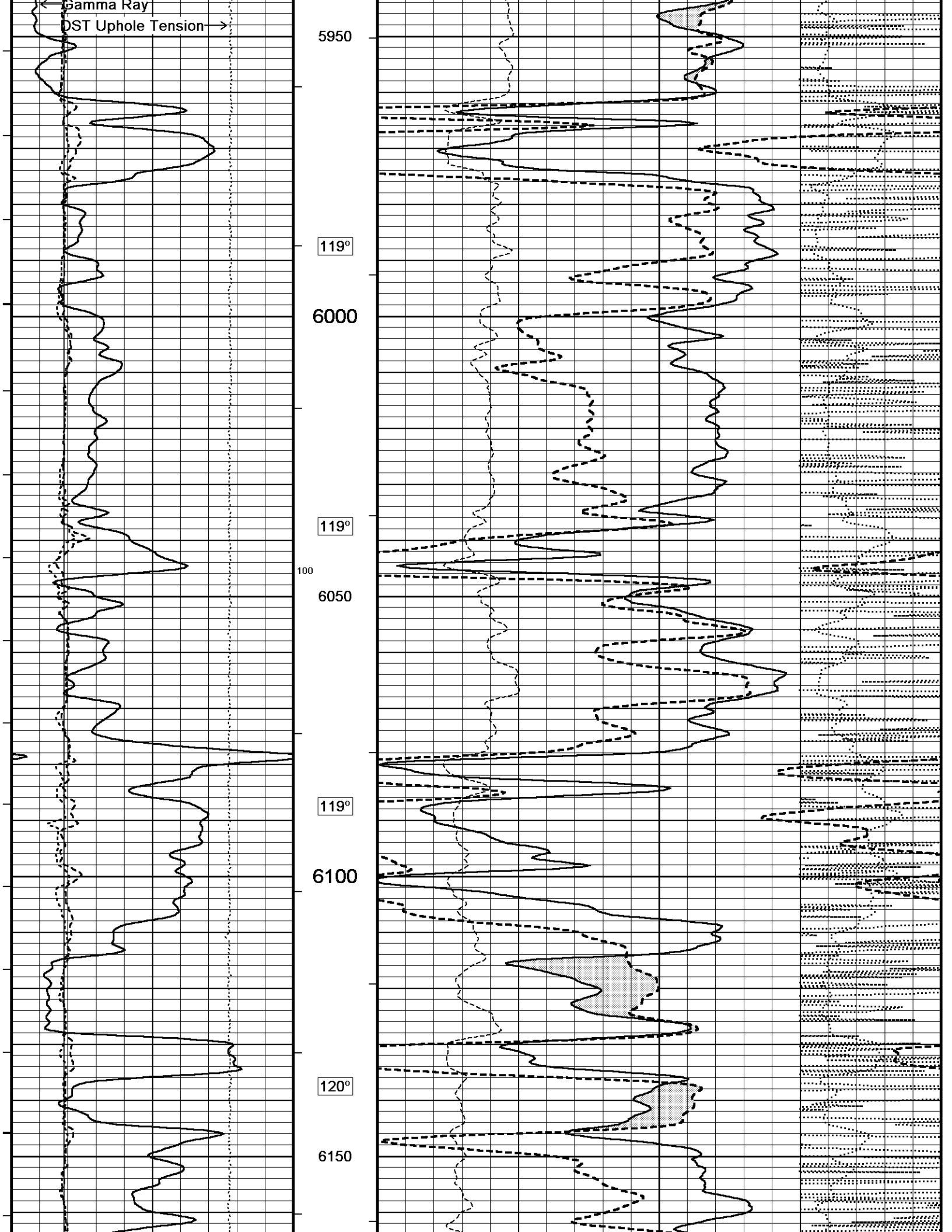
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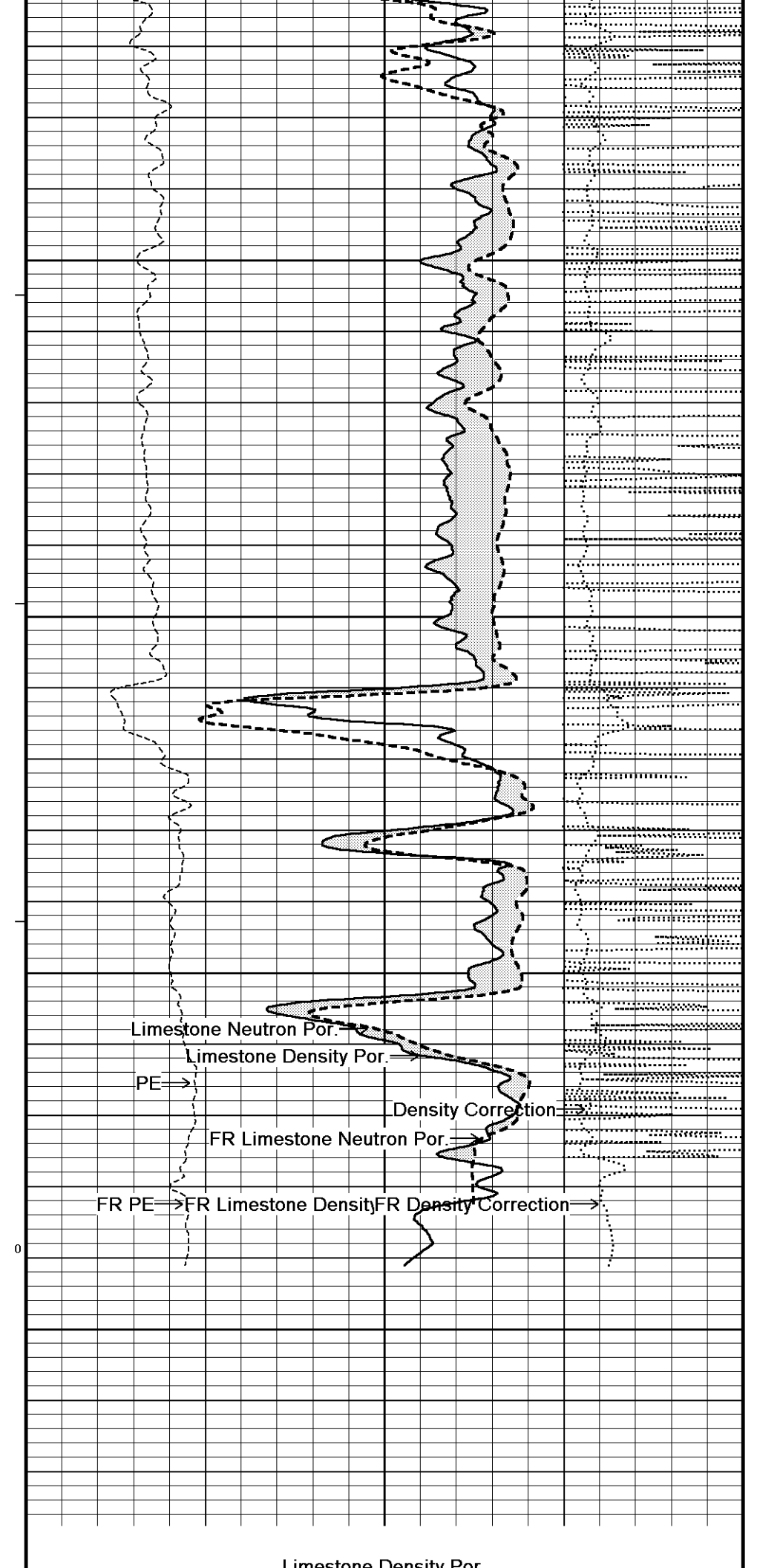
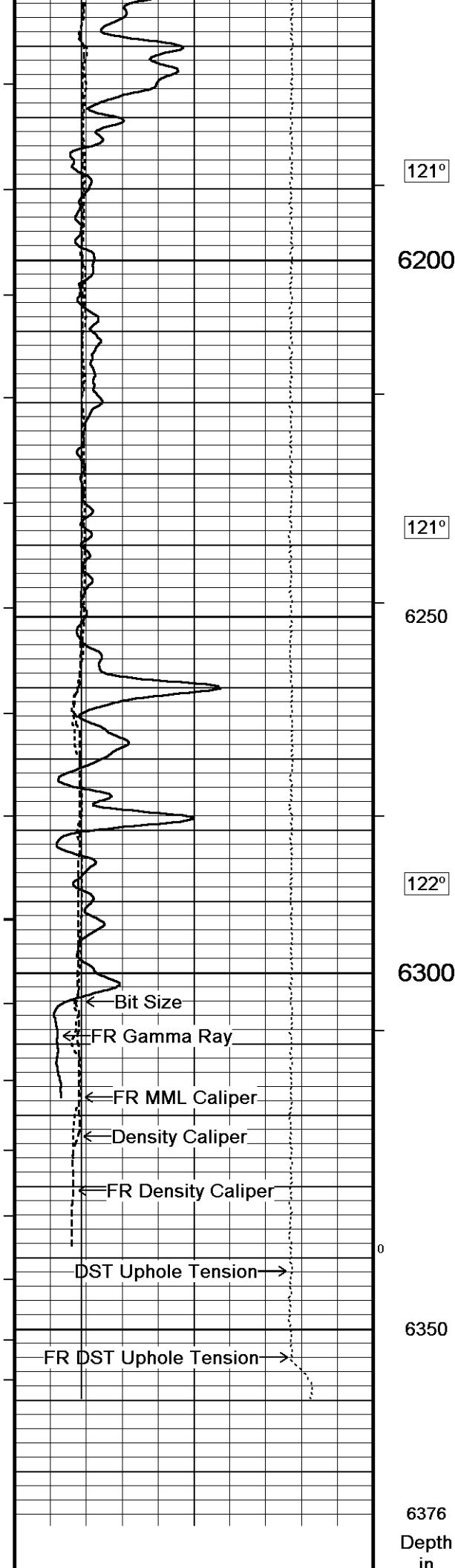
Recorded on 07-DEC-2010 16:32

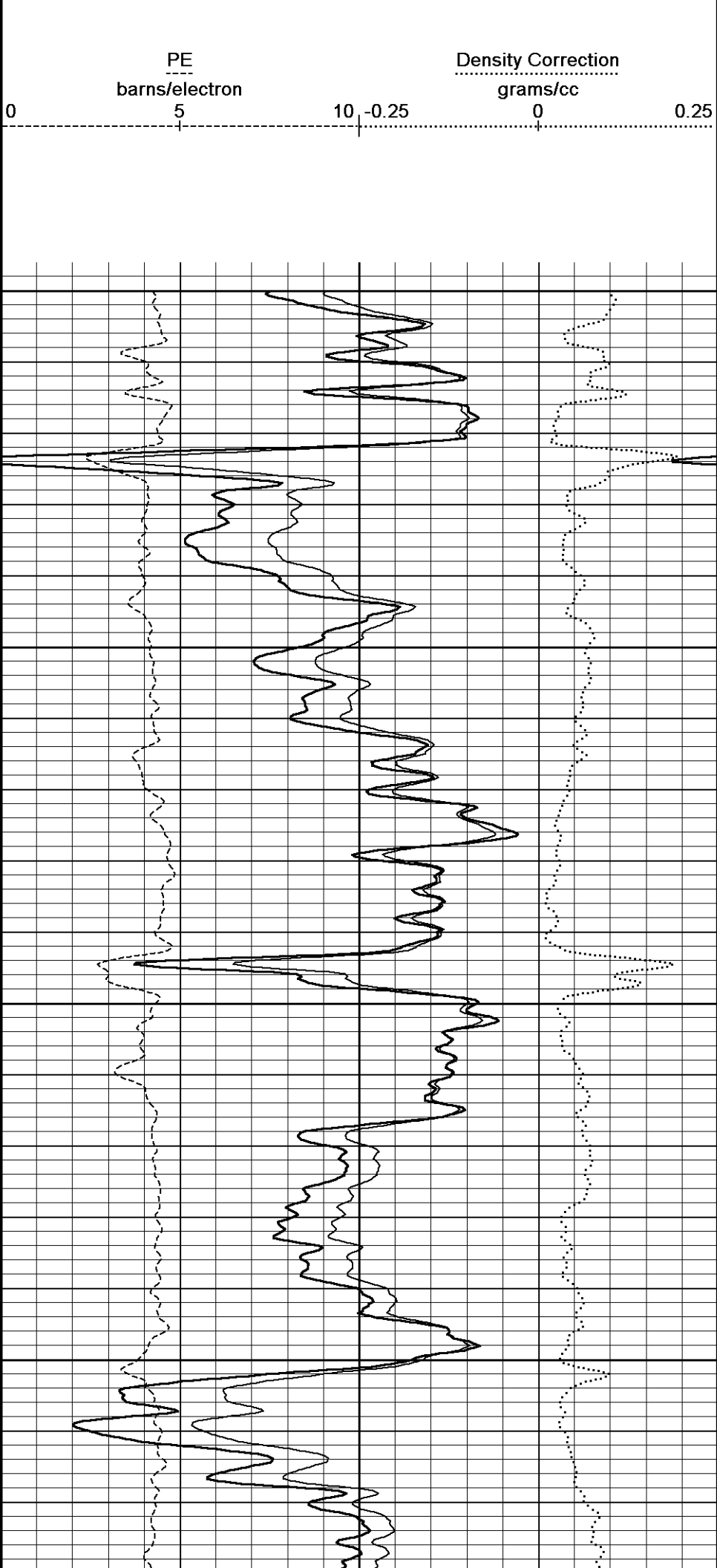
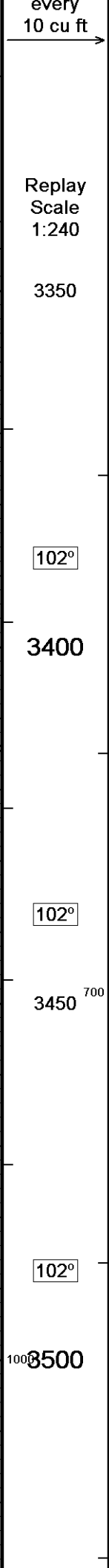
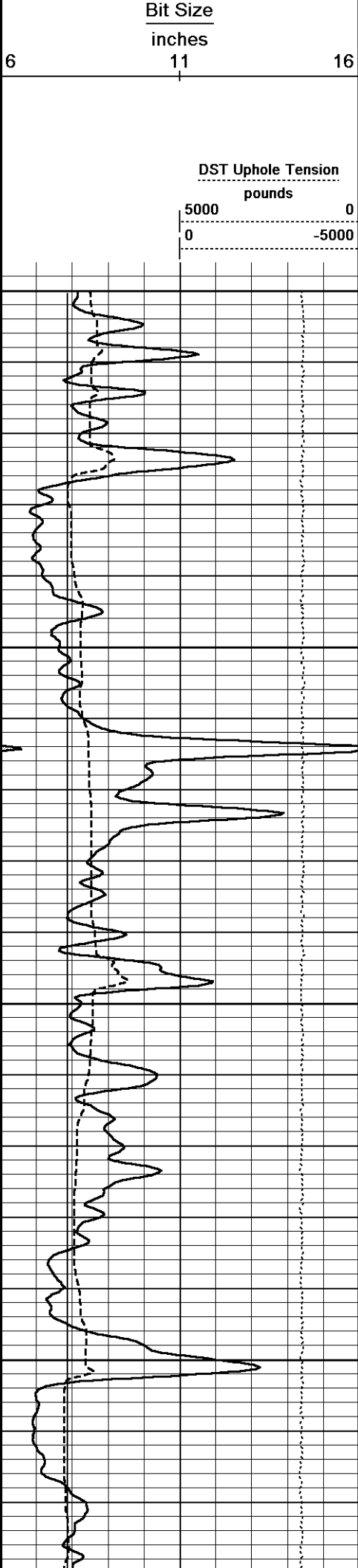
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

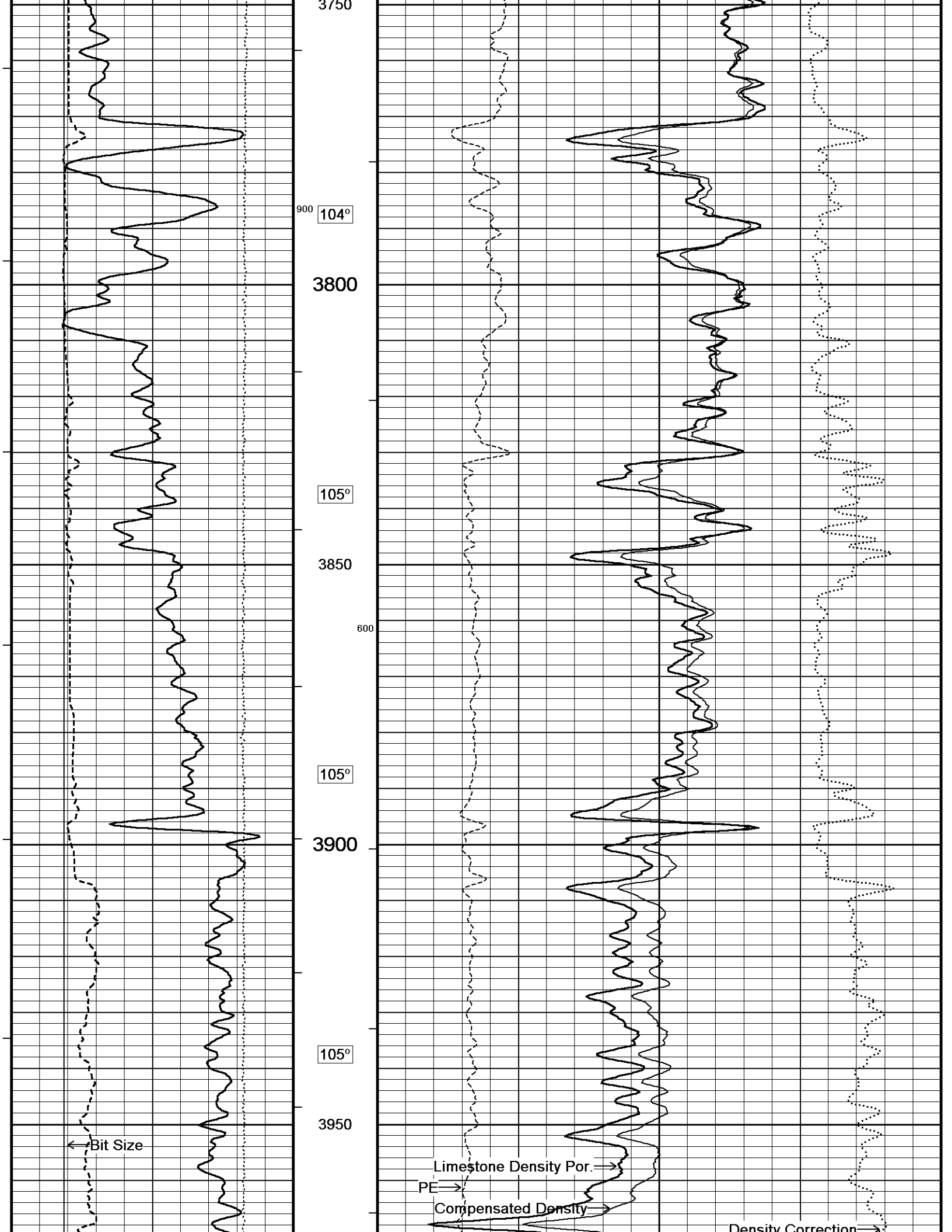


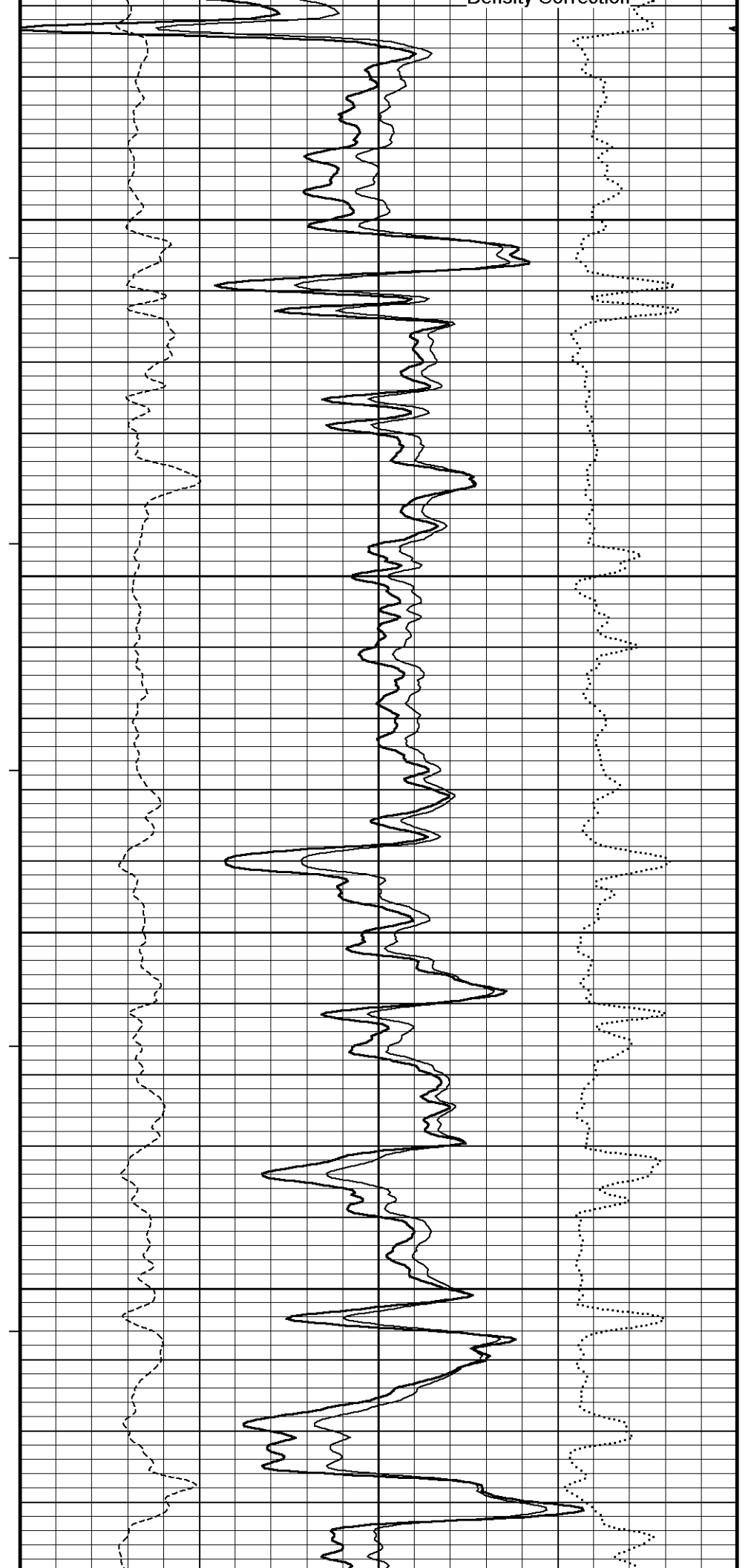
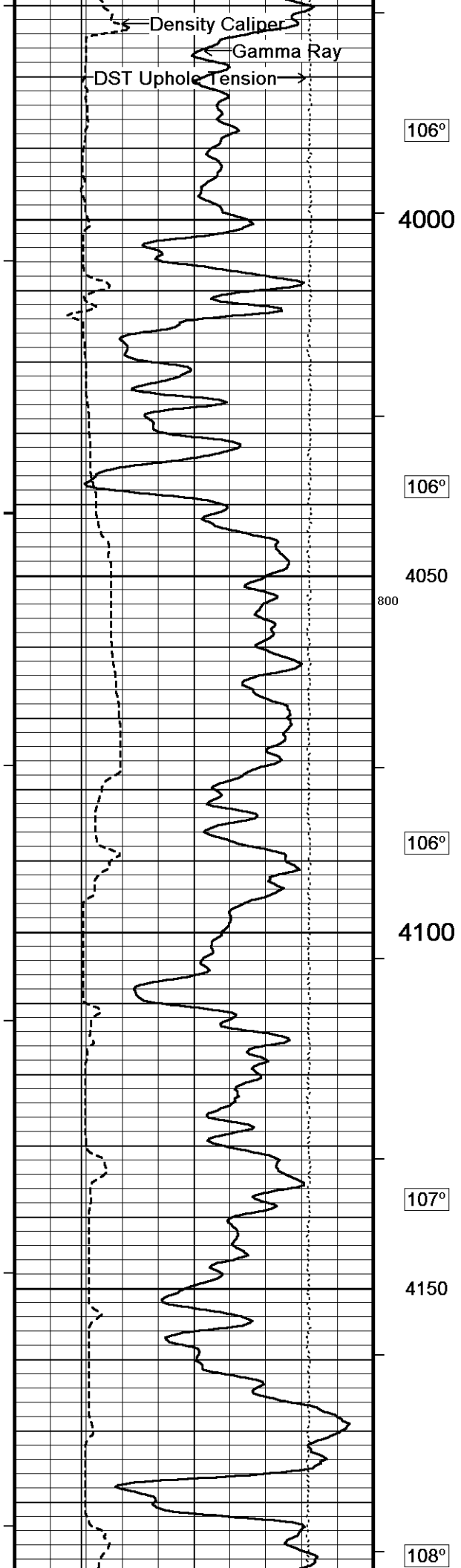


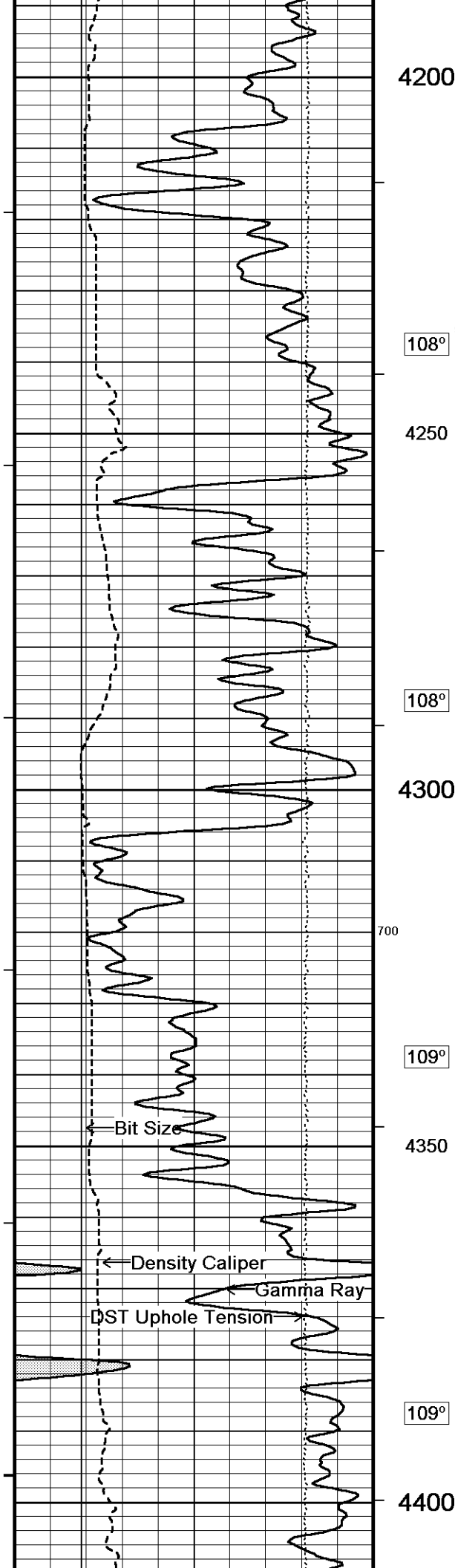












4200

108°

4250

108°

4300

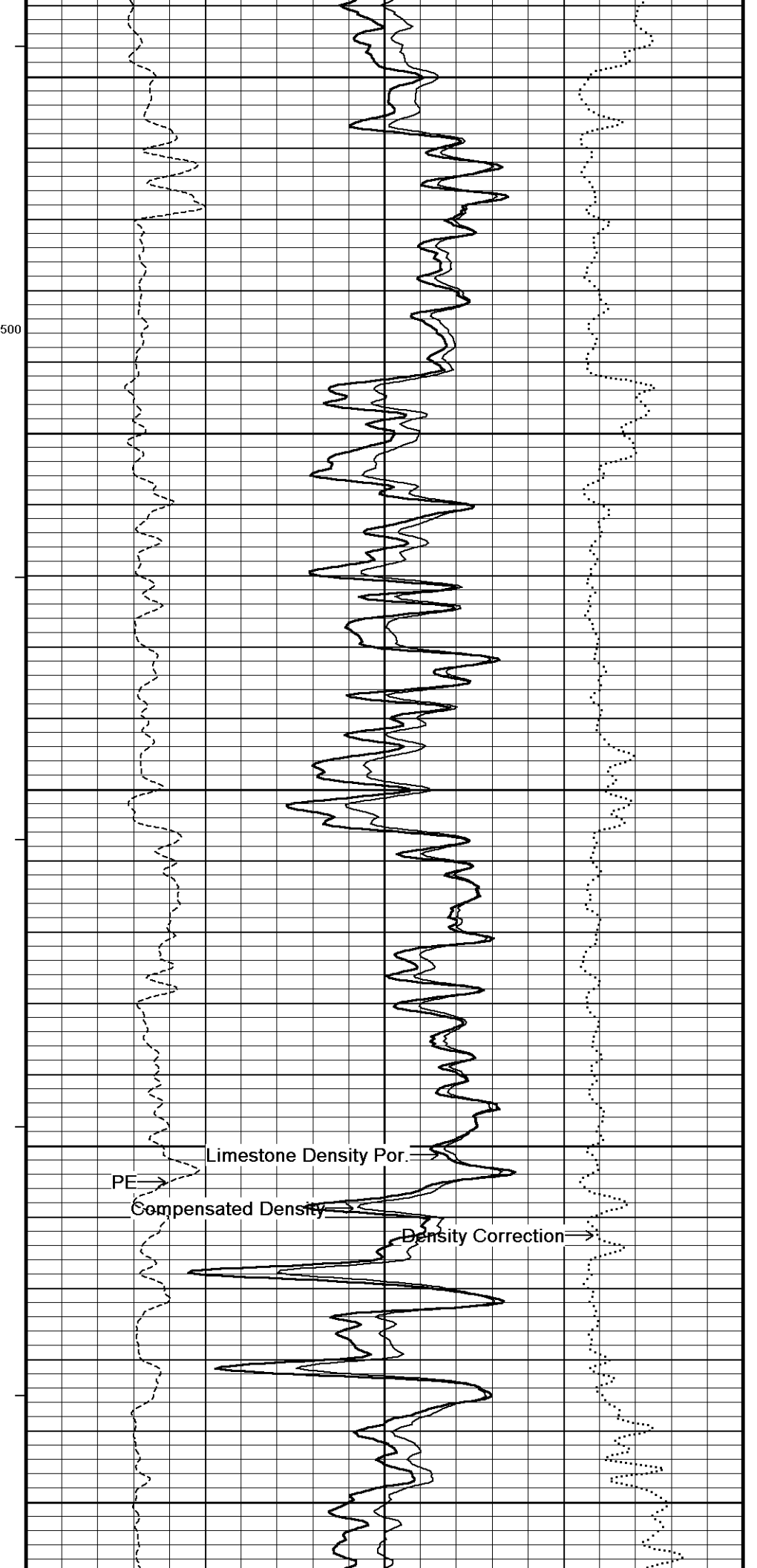
700

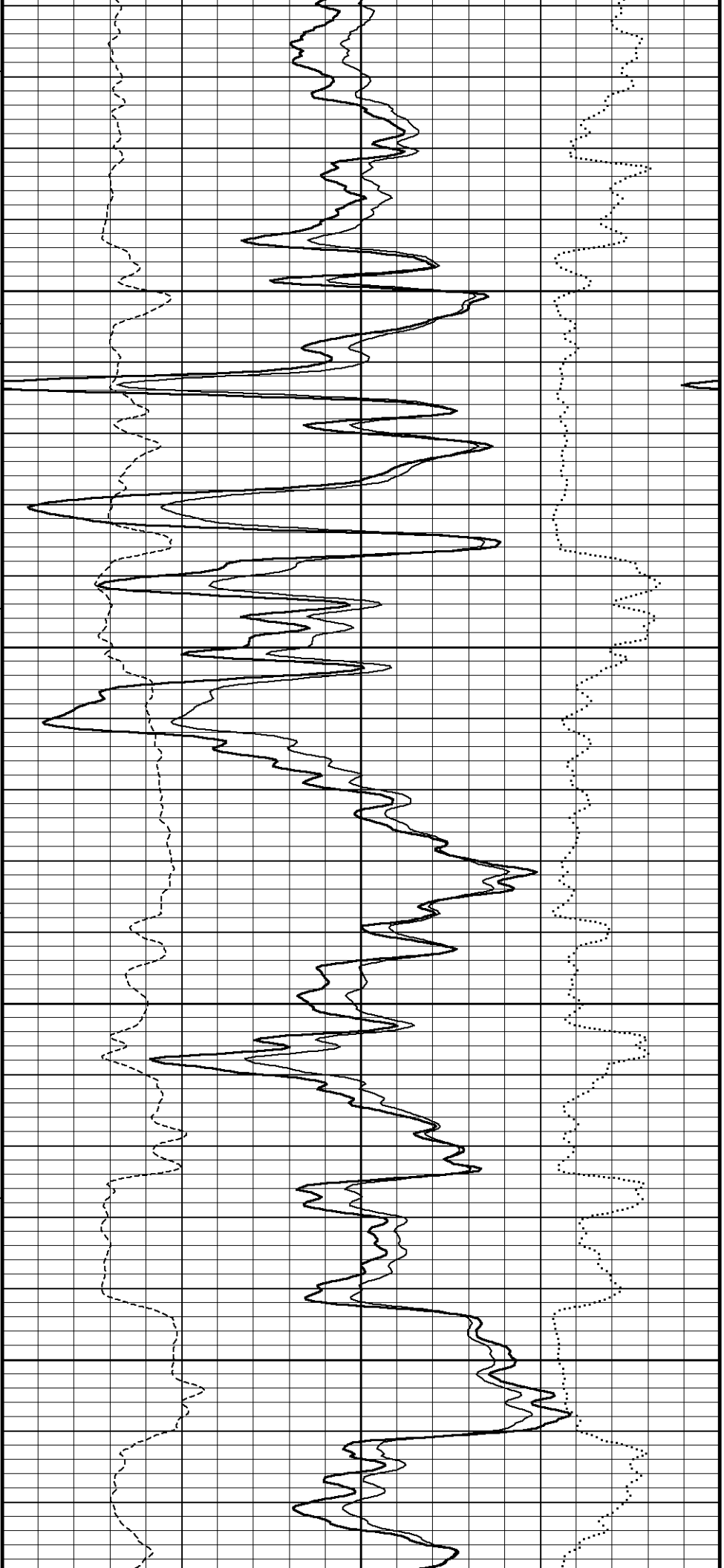
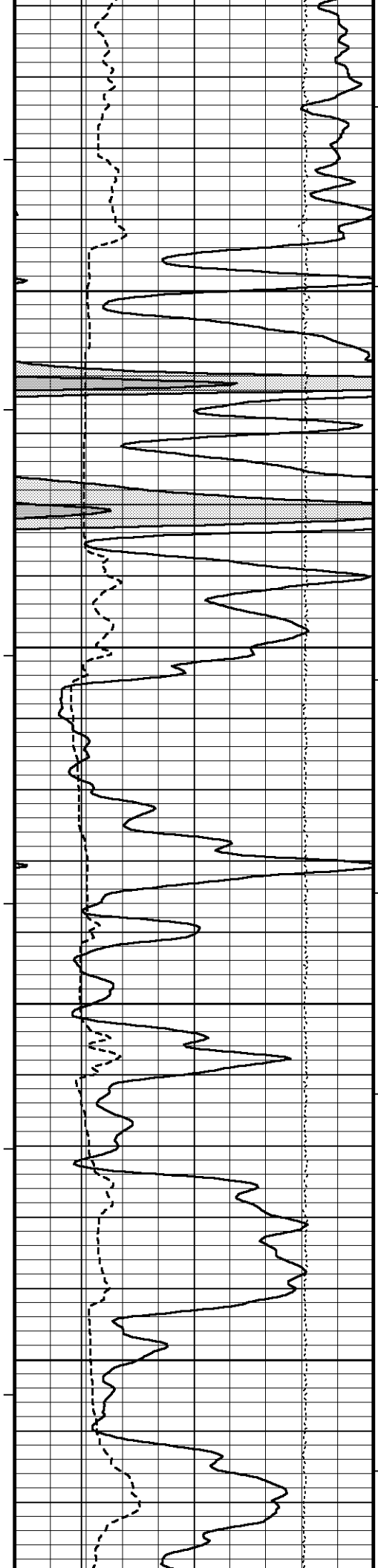
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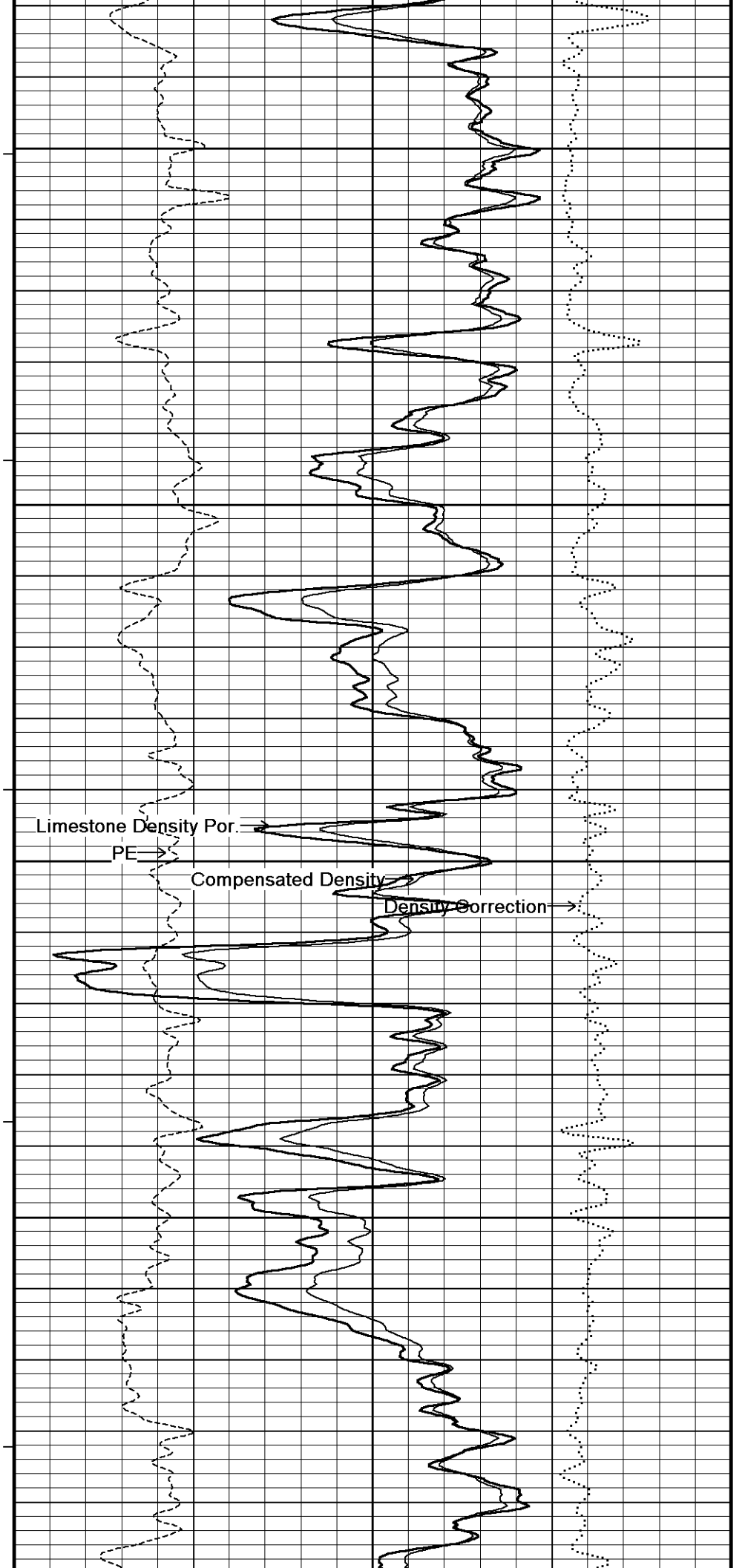
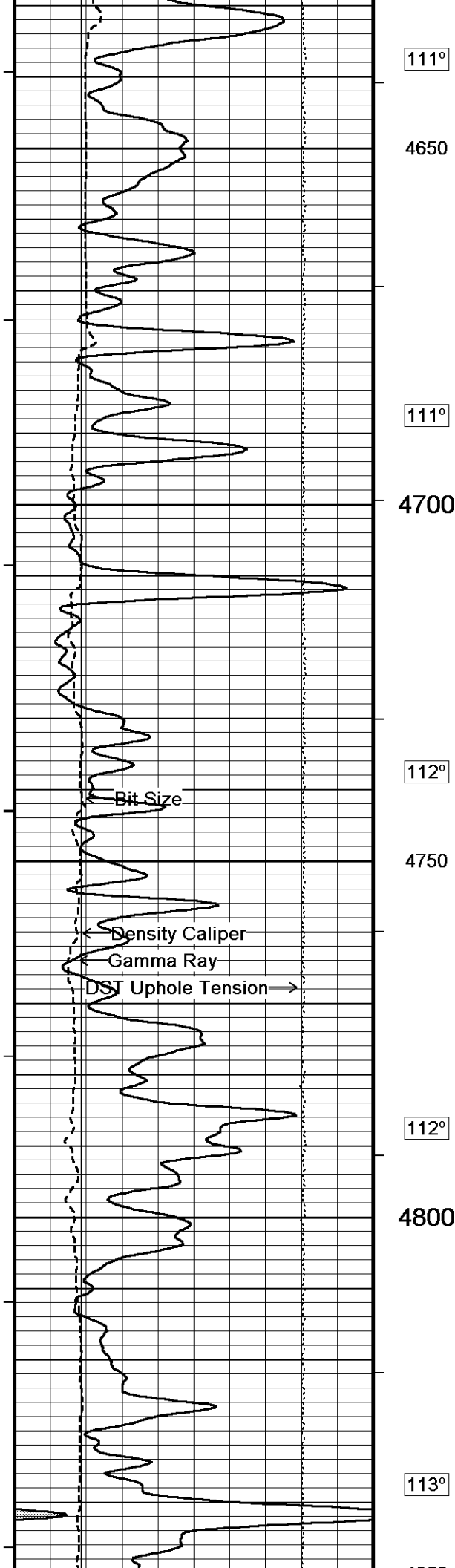
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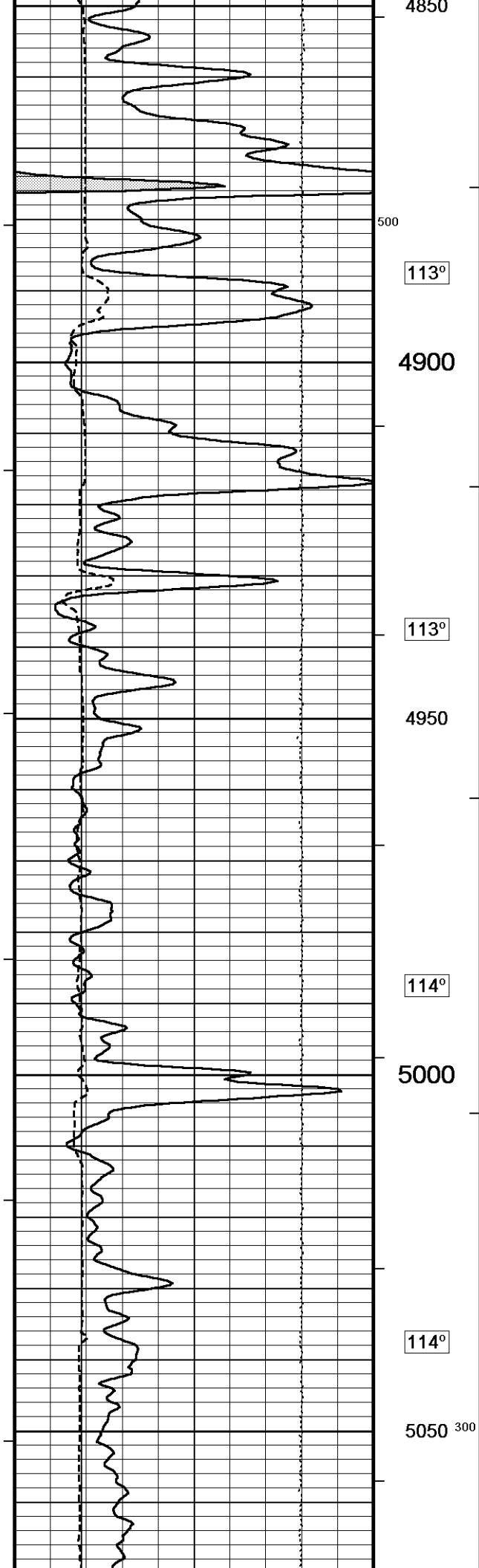
109°

4400









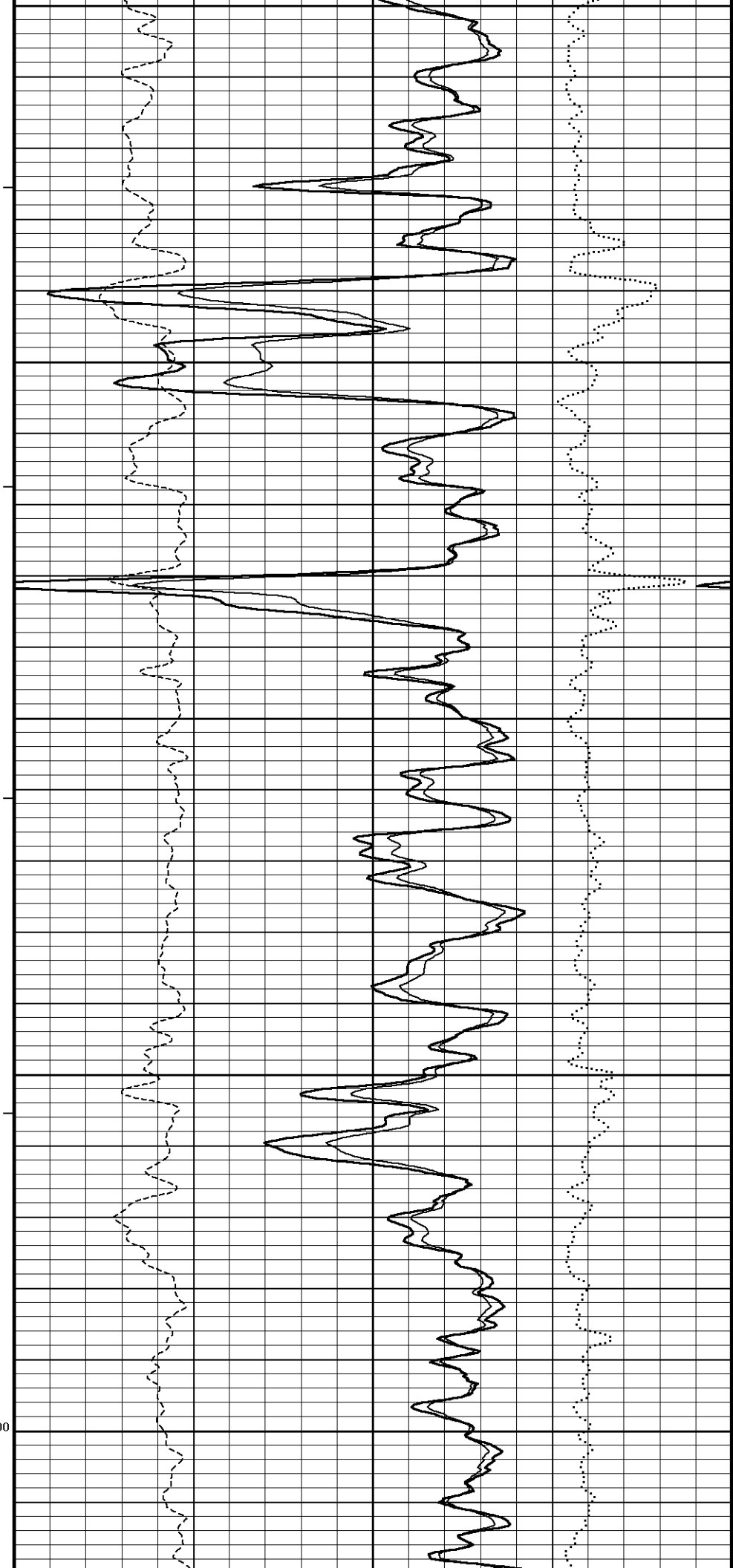
113°

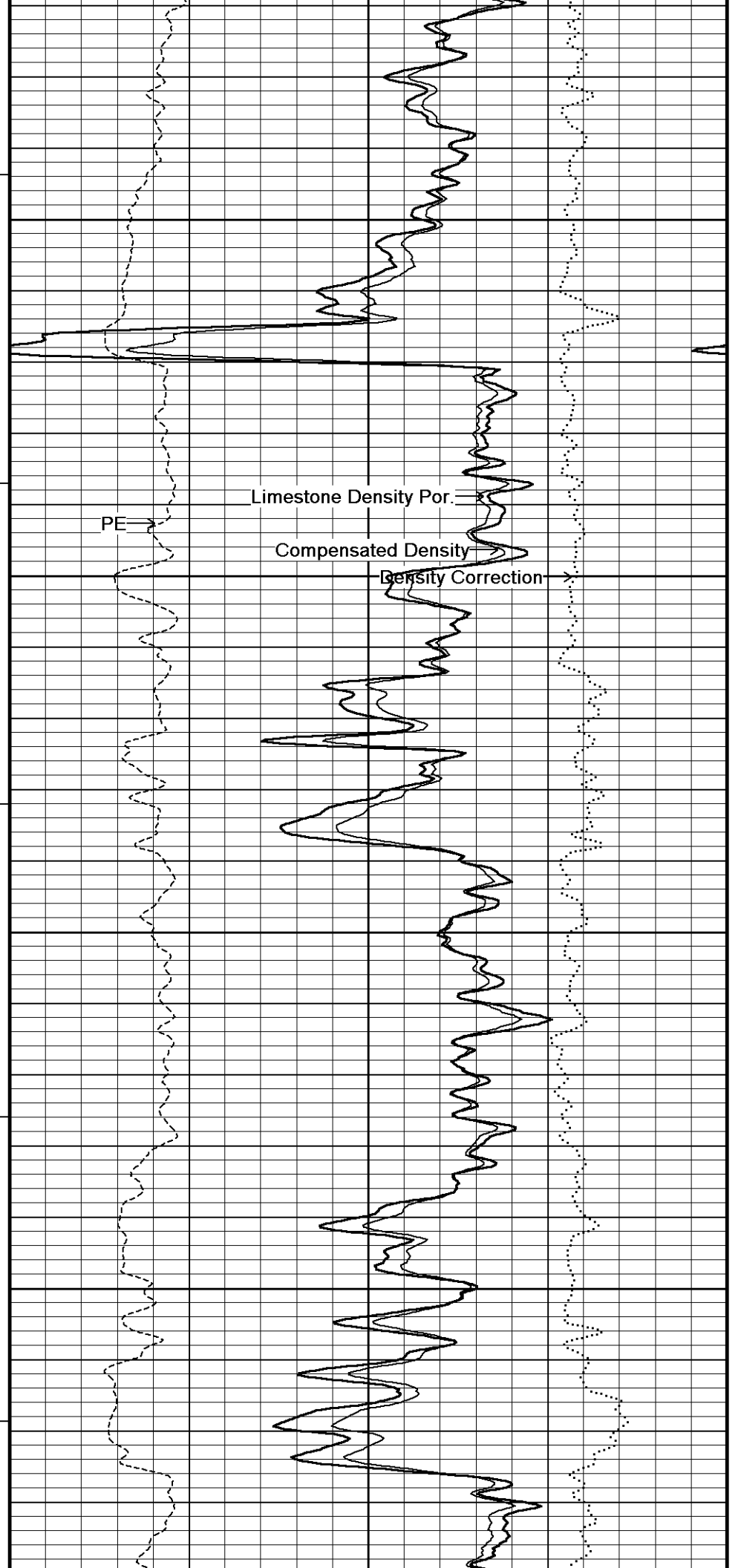
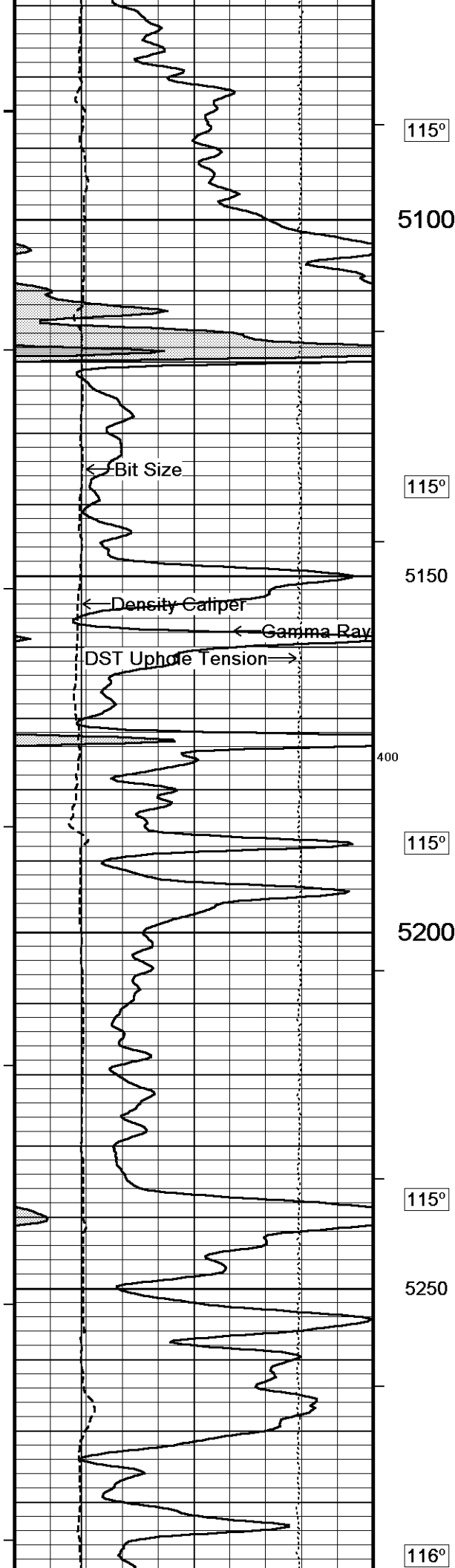
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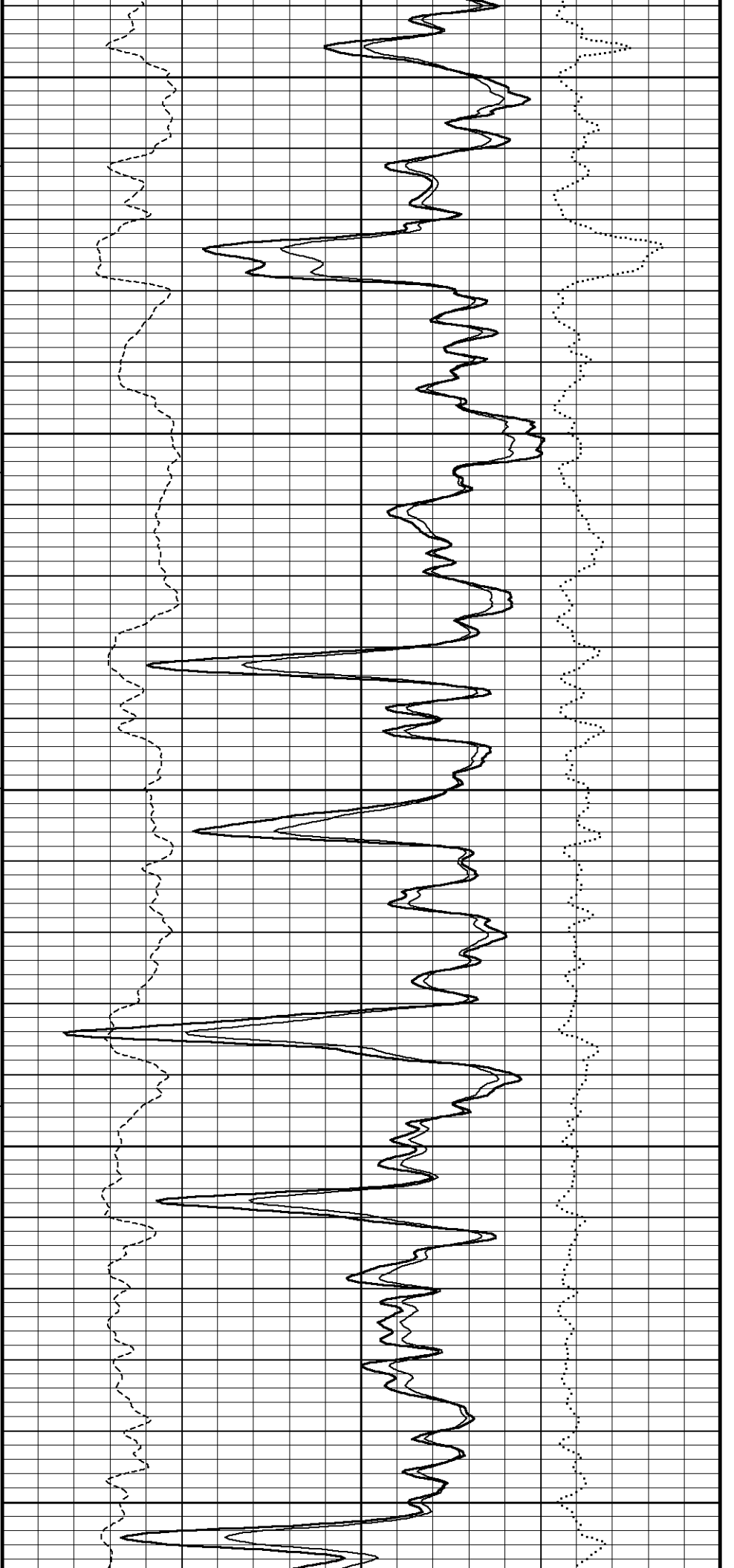
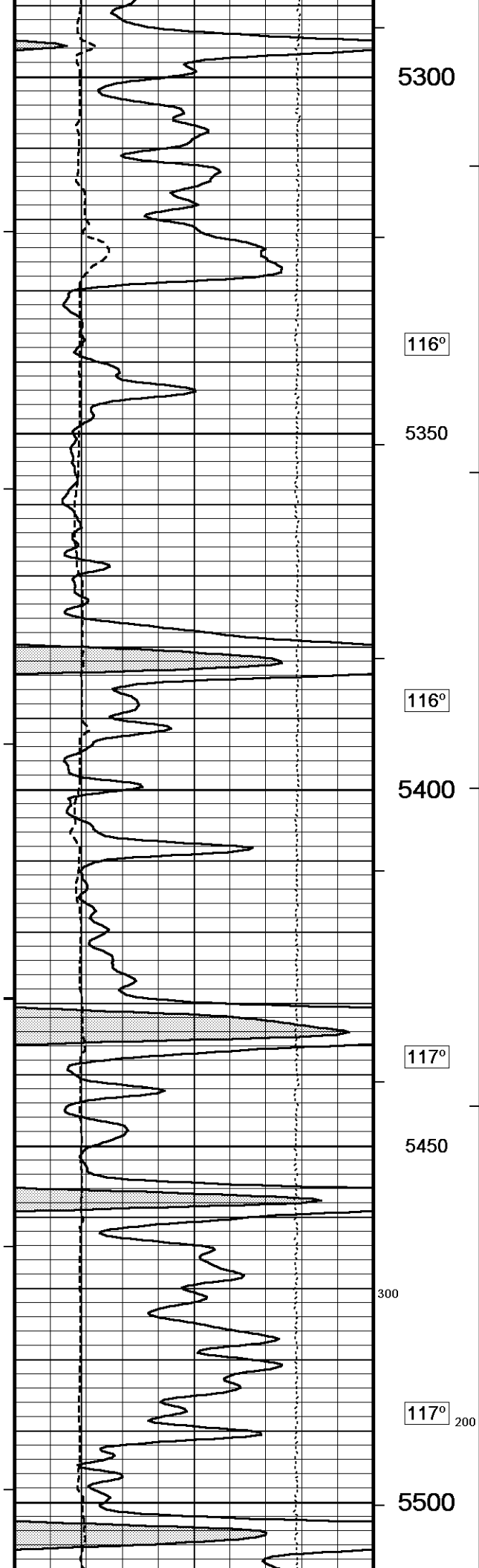
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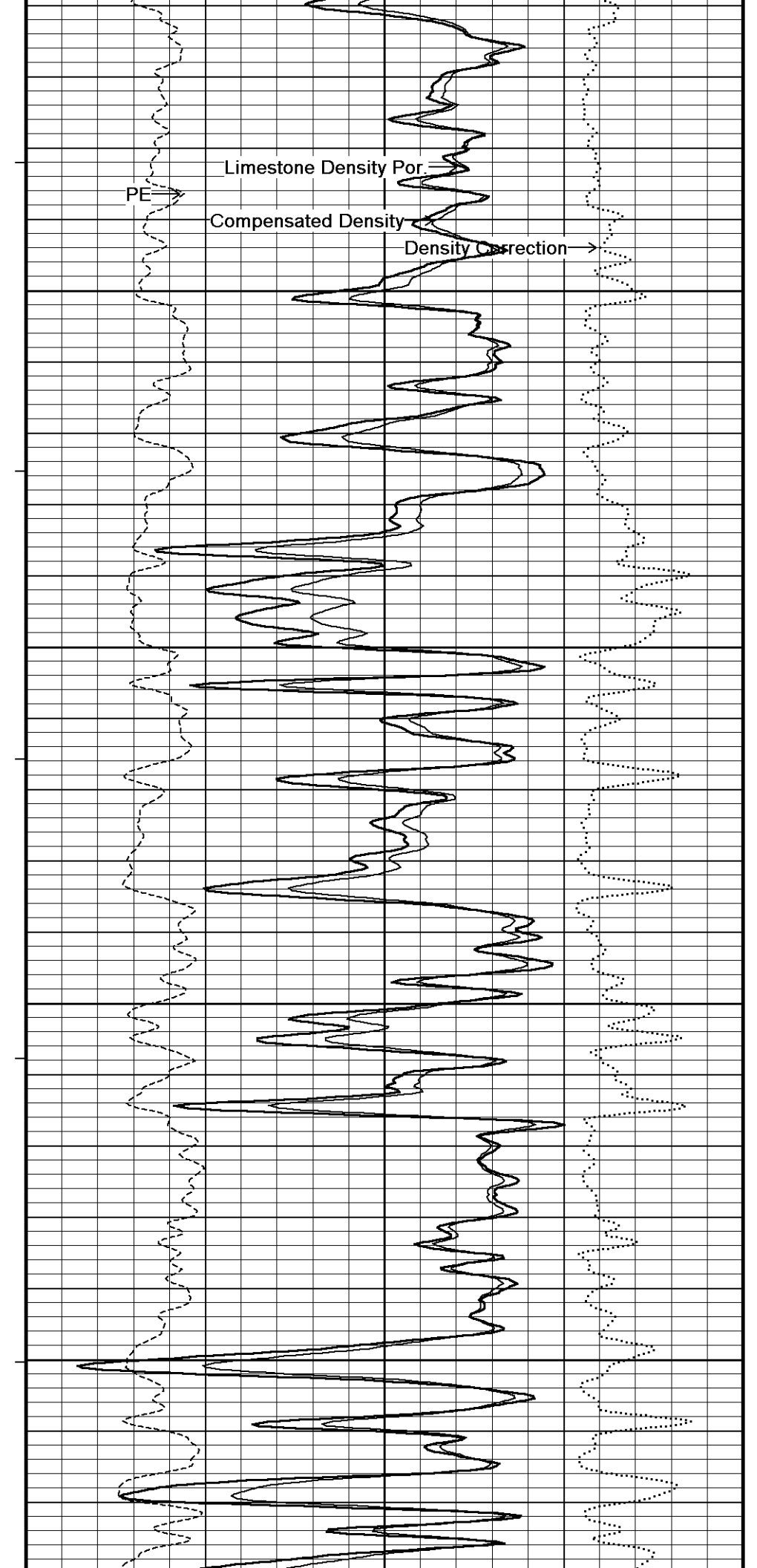
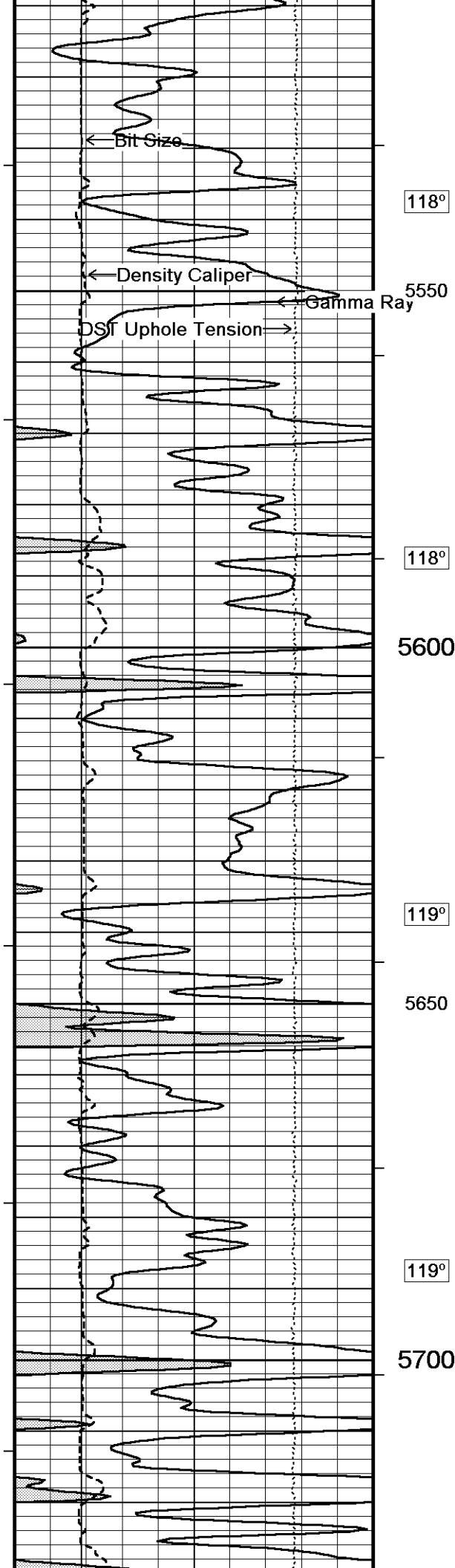
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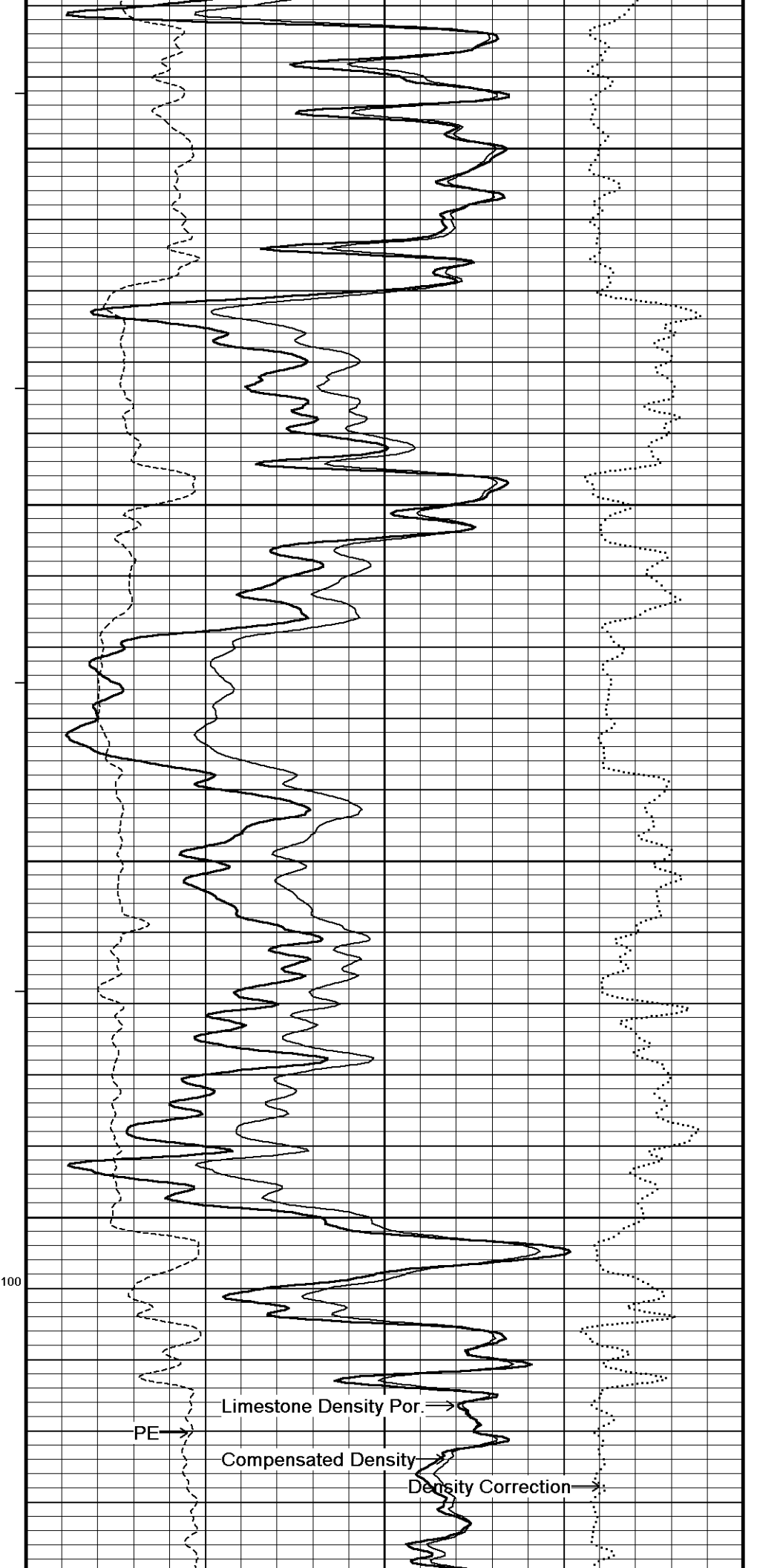
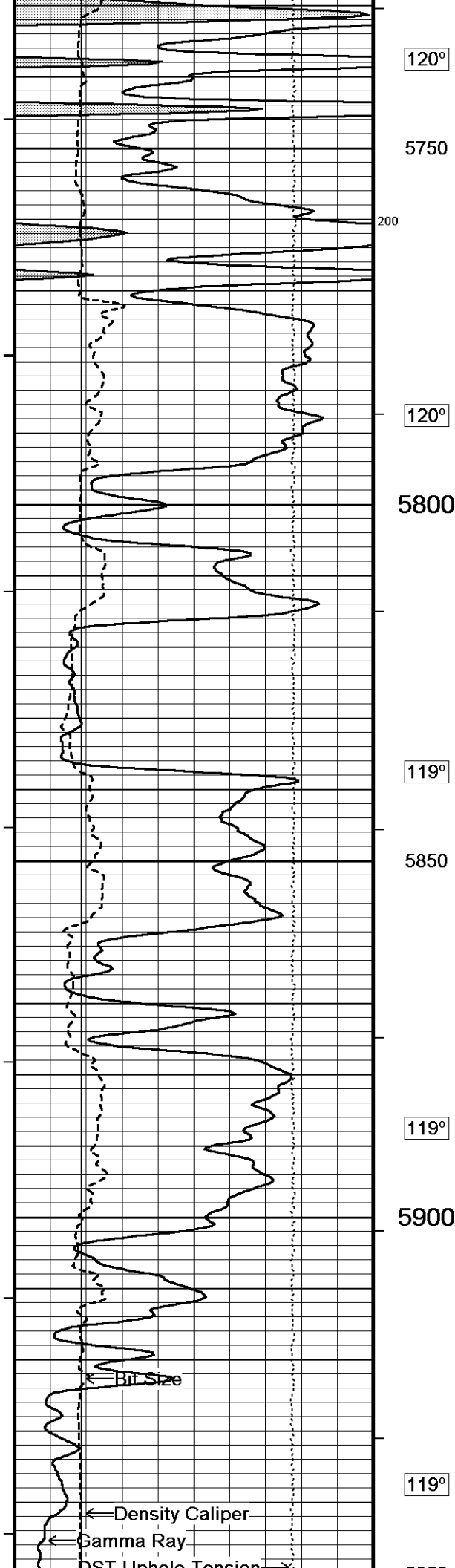
5050 300

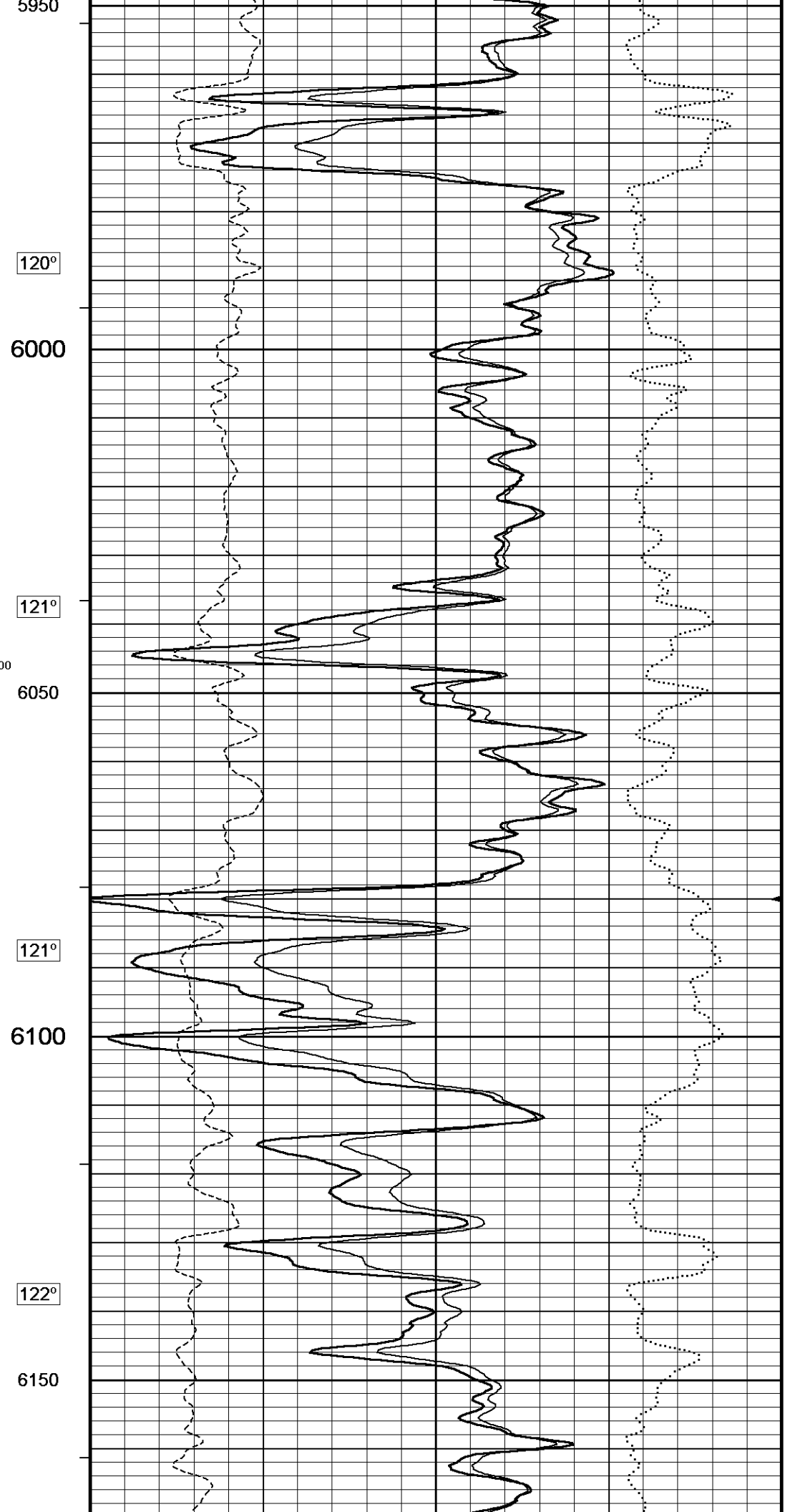
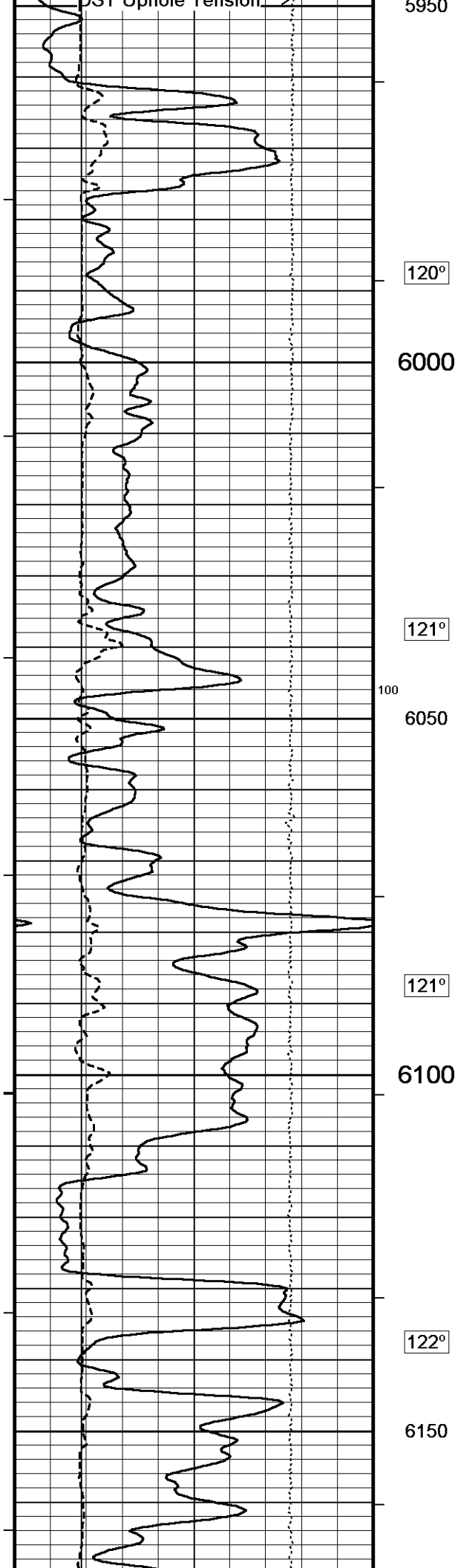


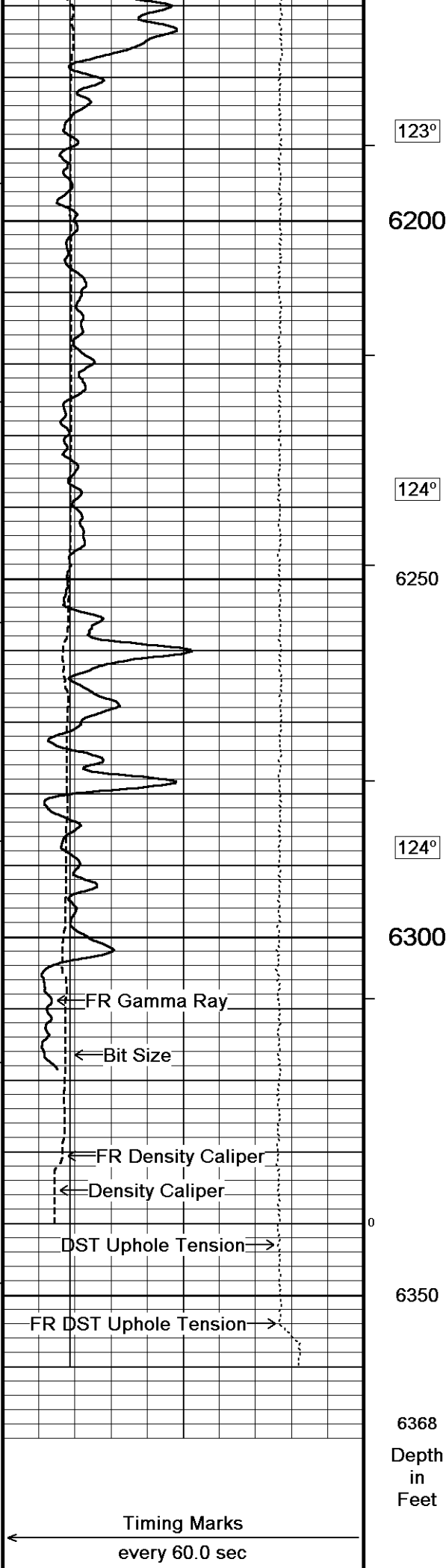












123°

6200

124°

6250

124°

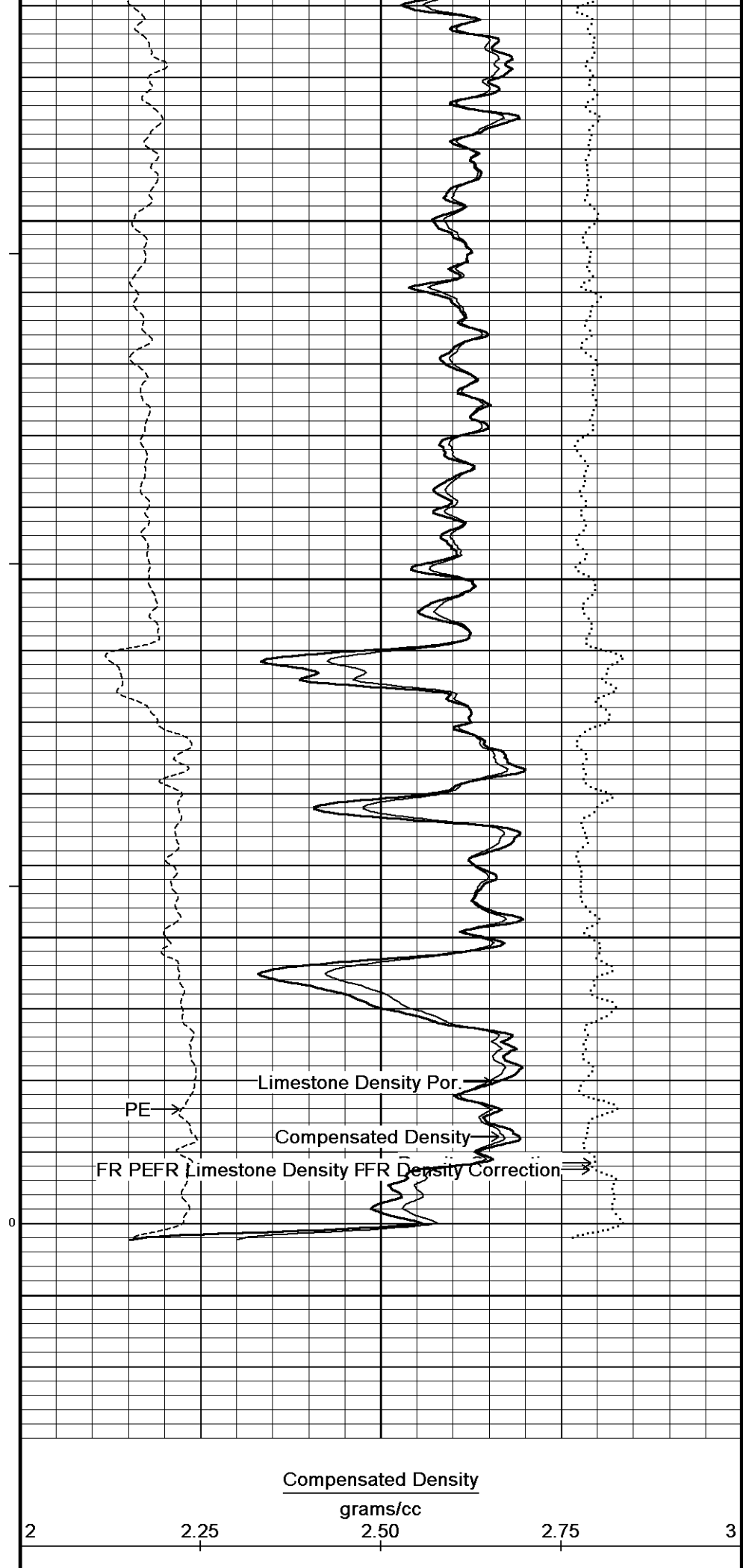
6300

0

6350

6368

Depth
in
Feet



2

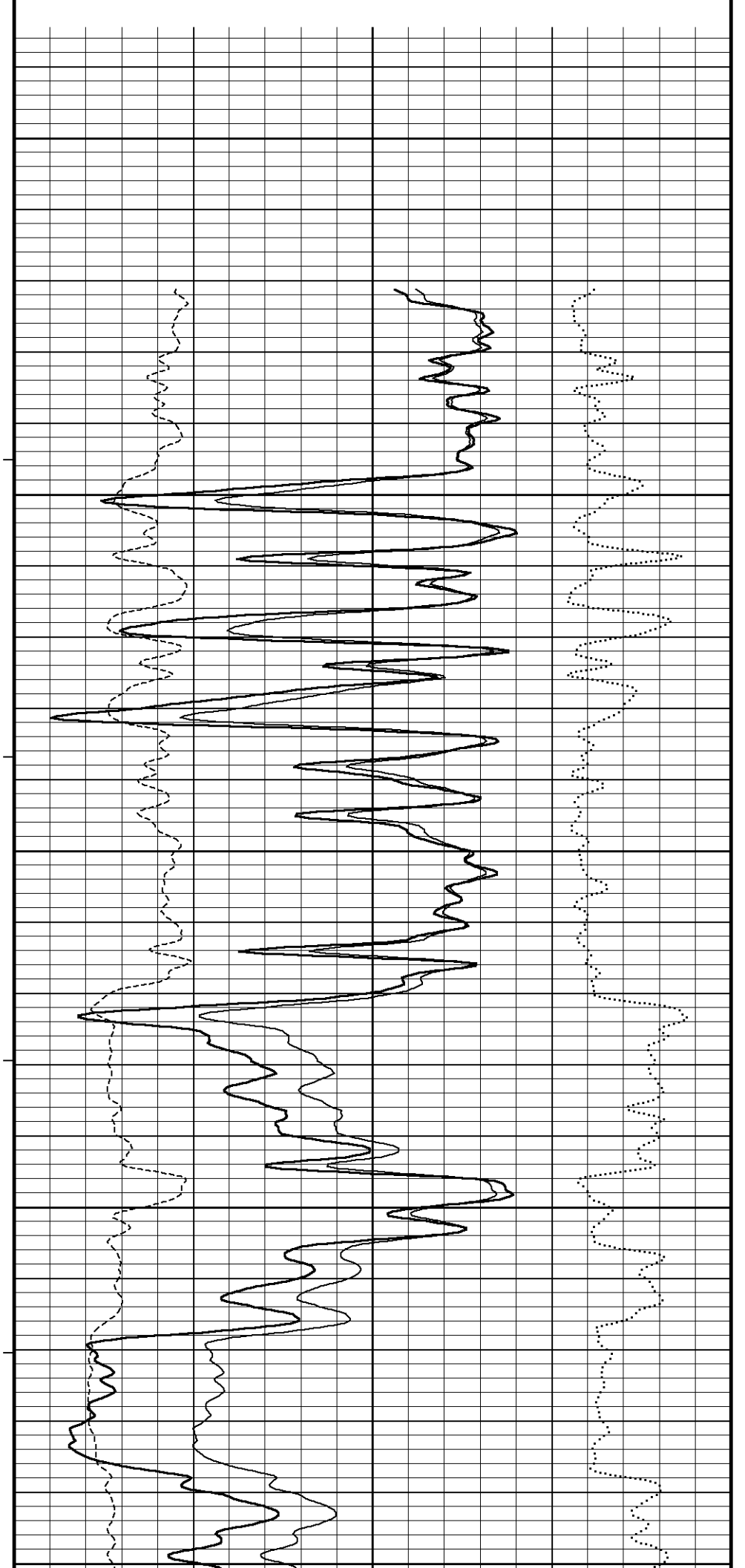
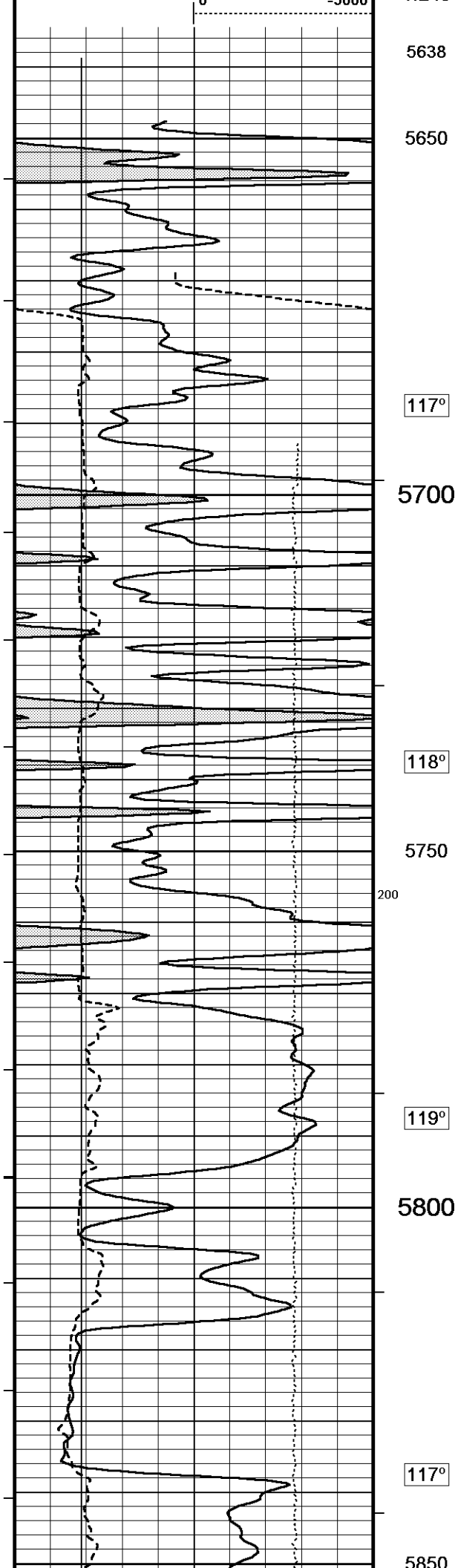
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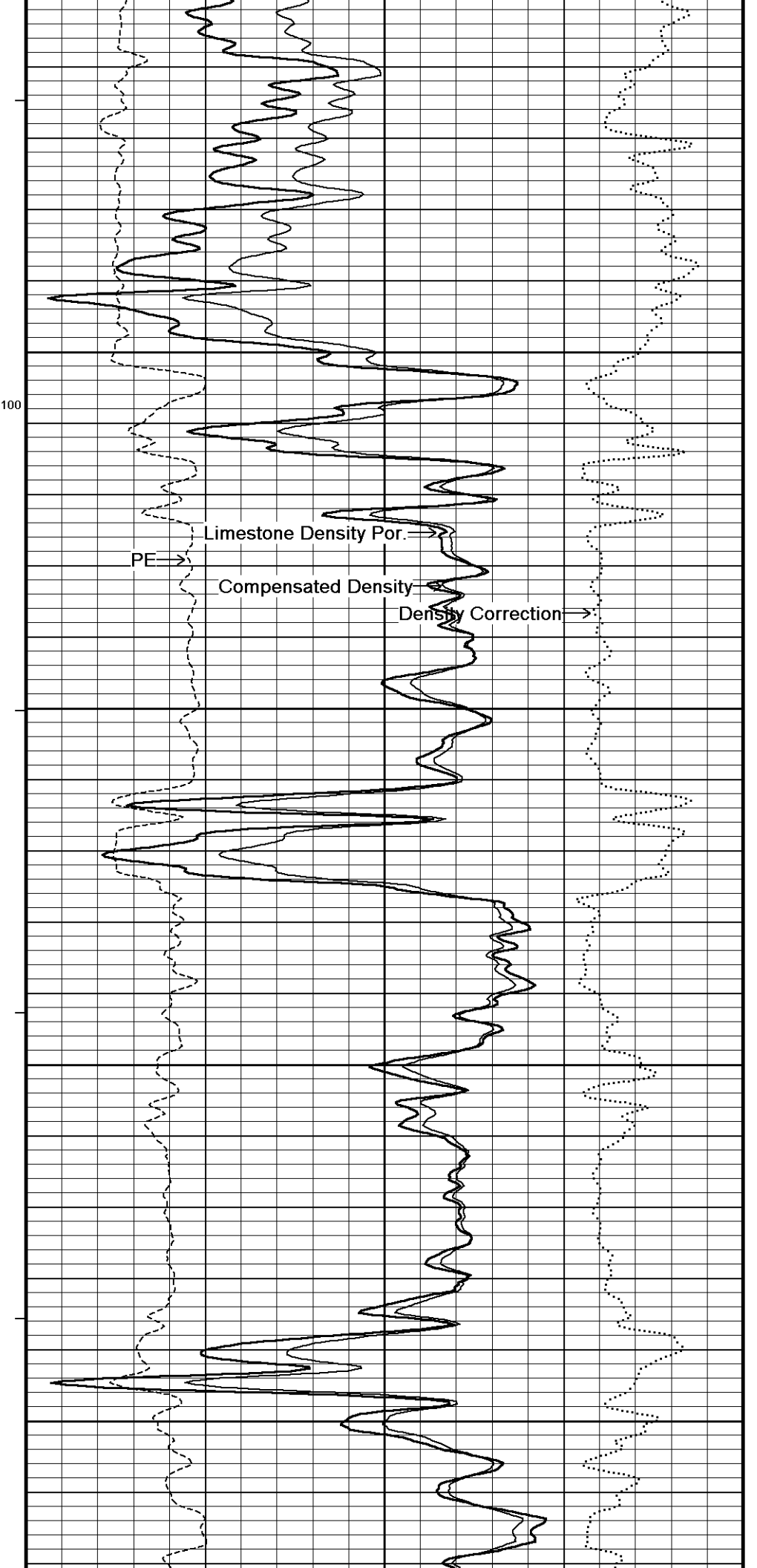
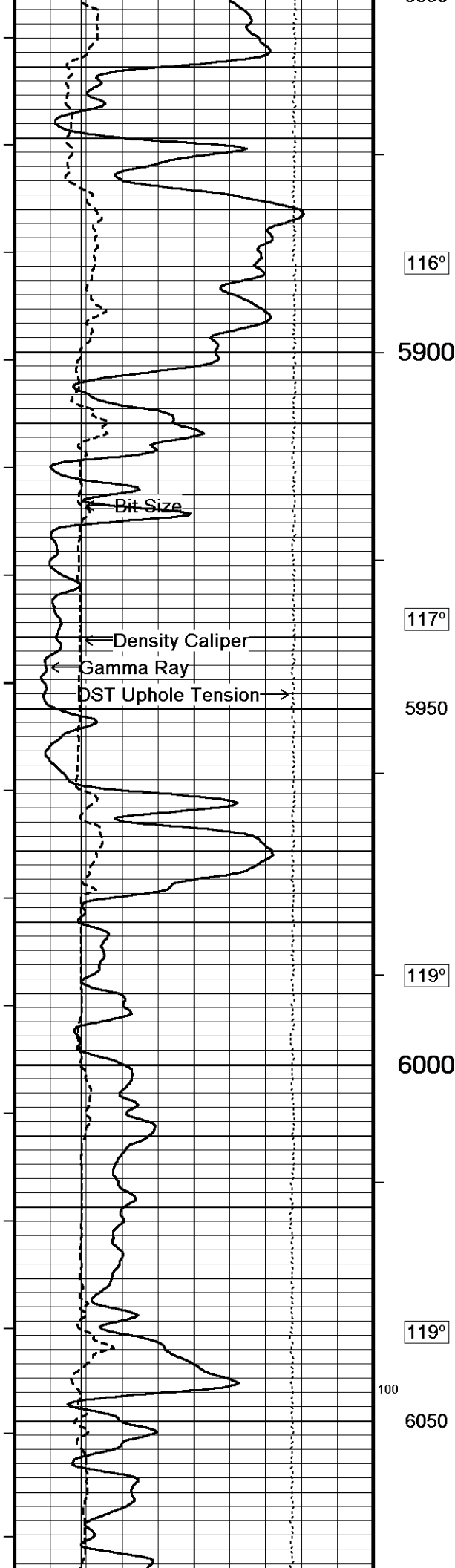
Compensated Density
grams/cc

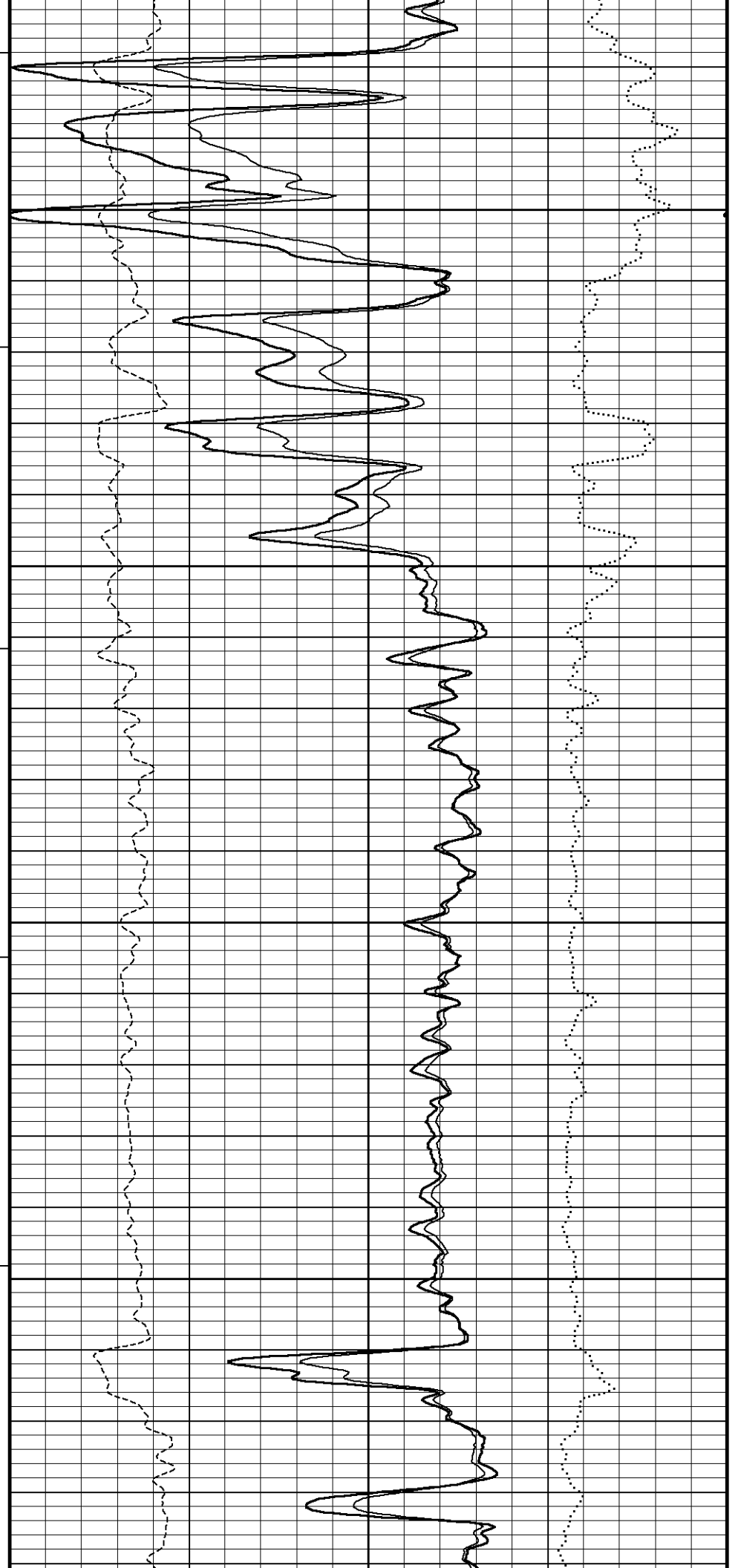
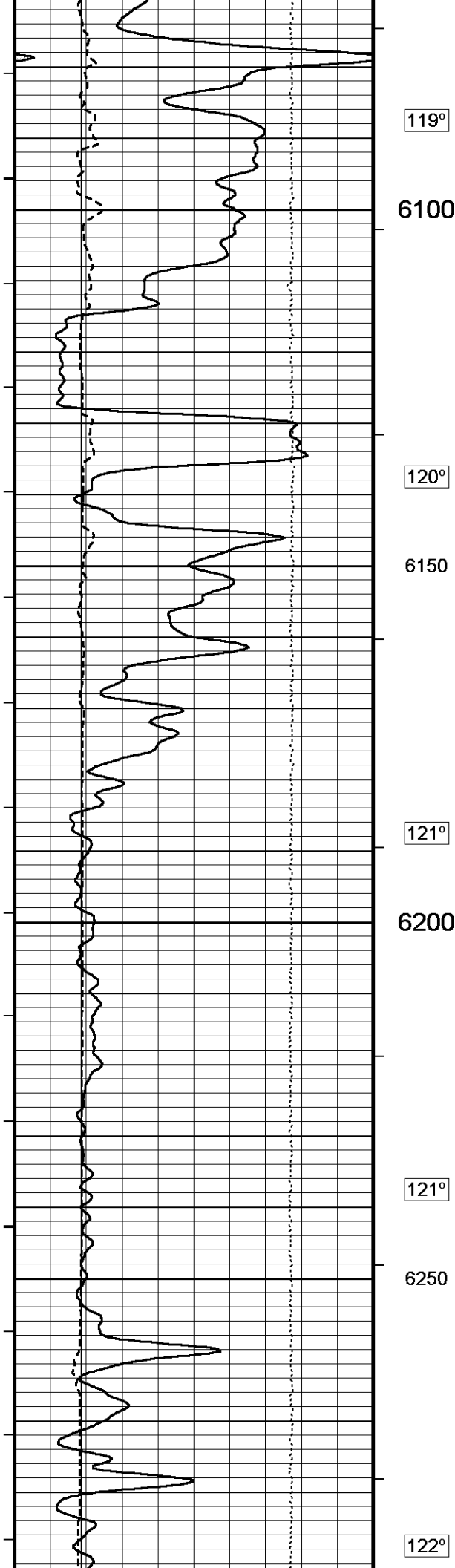
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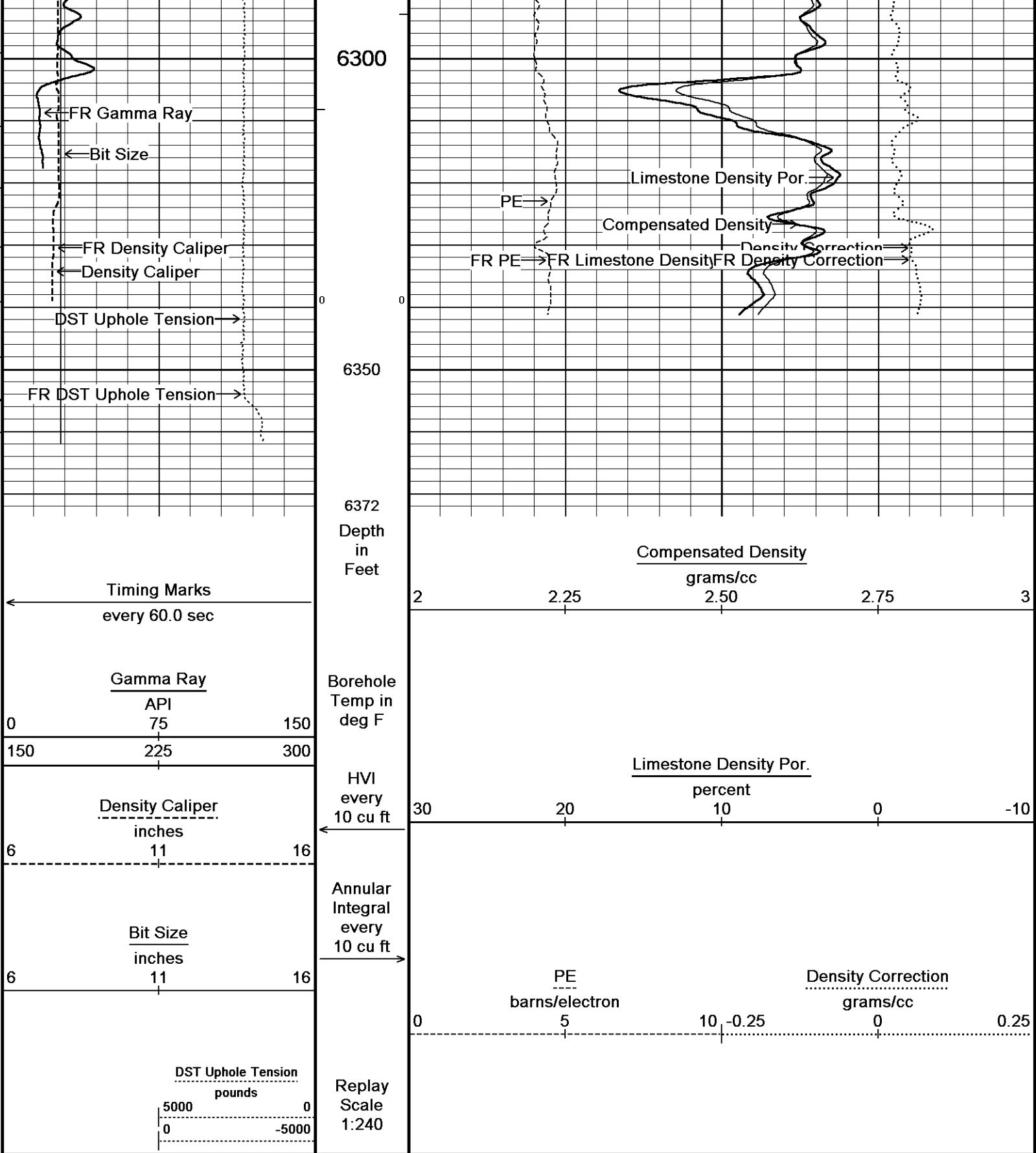
2.75

3









Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-DEC-2010 10:48

Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...Copy of VAIL #1-30_002.dta Recorded on 07-DEC-2010 16:32

System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

↑ Repeat Section ↑

BEFORE SURVEY CALIBRATION

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General Constants All 000 Last Edited on 07-DEC-2010 14:59

General Parameters

Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	4.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-B 67

Field Calibration on 06-AUG-2010,10:40

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-B 67

Last Edited on 06-AUG-2010,10:39

Pre-filter Length	11
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Gamma Calibration MCG-B 67

Field Calibration on 02-DEC-2010 14:00

	Measured	Calibrated (API)
Background	65	45
Calibrator (Gross)	727	501
Calibrator (Net)	662	456

Gamma Constants MCG-B 67

Last Edited on 07-DEC-2010,15:00

Gamma Calibrator Number	grcc141	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Caliper Calibration MPD-B 61

Base Calibration on 22-NOV-2010 11:55

Field Calibration on 05-DEC-2010 03:14

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	19857	4.01
2	29308	5.96
3	39543	7.98
4	49616	9.95
5	59808	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.95	5.96

Photo Density Calibration MPD-B 61

Base Calibration on 22-NOV-2010 12:12

Field Check on 05-DEC-2010 03:19

Density Calibration

Base Calibration		Measured	Calibrated (sdu)
	Near	Far	Near Far
Reference 1	42985	18873	59556 30836
Reference 2	16752	1673	24941 2541

Field Check at Base

680.6	839.8
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Field Check

681.1	842.4
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PE Calibration

Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	123	609		
Reference 1	17134	42878	0.402	0.371
Reference 2	4610	16672	0.279	0.272

Field Check at Base

123.4 608.5

Field Check

125.0 610.0

Density Constants MPD-B 61

Last Edited on 07-DEC-2010,15:00

Density Source Id	20718b
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

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MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

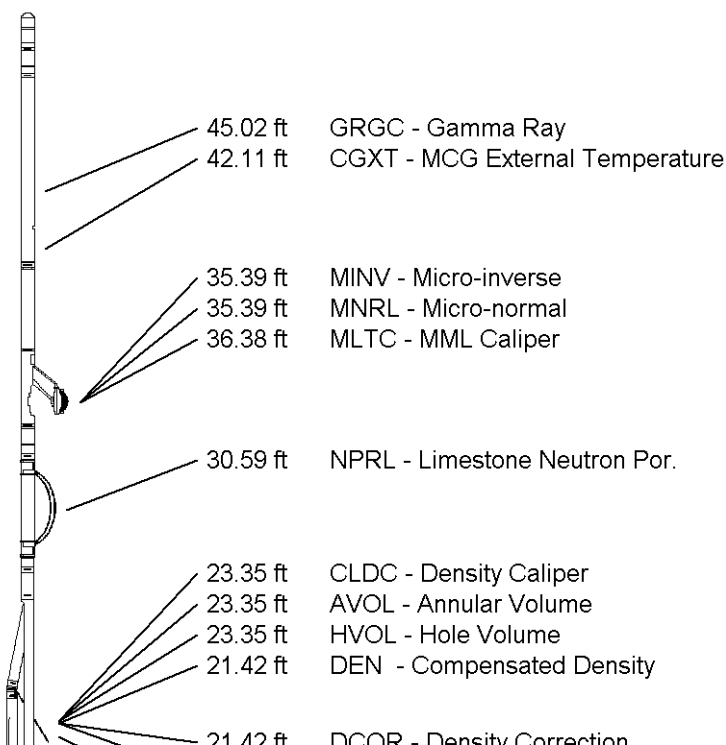
Compact Comms Gamma
MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

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 21 LG: 2.17 ft WT: 21.2 lb OD: 2.24 in

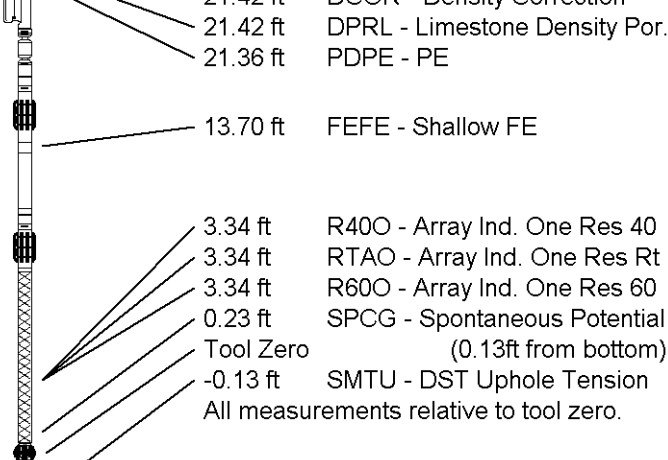


SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 67 LG: 6.03 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: 52.70 ft Weight: 427.7 lb



COMPANY O' BRIEN ENERGY
WELL VAIL #1-30
FIELD SINGLEY
PROVINCE/COUNTY MEADE
COUNTRY/STATE U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6332.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRO RESISITIVITY LOG

