



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY

SANDRIDGE EXPL. & PRODUCTION LLC

WELL

YANKEE 1-27 SWD

FIELD

BEALS FIELD AREA

PROVINCE/COUNTY

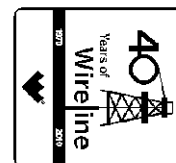
COMANCHE

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

406' FSL & 261' FWL, SW/4



SEC

TWP

RGE

Other Services

MAI/MFE

API Number 15-033-21626

Permit Number

Permanent Datum G.L., Elevation 1838 feet

Log Measured From KB

Elevations:
KB 1854.00
DF 1852.00
GL 1838.00

Drilling Measured From 1381

14-MAR-2012

Run Number

ONE

Depth Driller

6200.00 feet

Depth Logger

6194.00 feet

First Reading

6160.00 feet

Last Reading

615.00 feet

Casing Driller

618.00 feet

Casing Logger

615.00 feet

Bit Size

8.750 inches

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.30 lb/USg

48.00 CP
6.80 ml/30Min

PH / Fluid Loss

9.50

Sample Source

FLOWLINE

Rm @ Measured Temp

0.62 @ 84.0 ohm-m

Rmf @ Measured Temp

0.50 @ 84.0 ohm-m

Rmc @ Measured Temp

0.74 @ 84.0 ohm-m

Source Rmf / Rmc

CALC

Rm @ BHT

0.41 @128.0 ohm-m

Time Since Circulation

5 HOURS

Max Recorded Temp

128.00 deg F

Equipment Name

COMPACT

Equipment / Base

13096 LIB

Recorded By

R. HOFFMAN

Witnessed By

JIMMY DURDEN

S.O. / JOB #

3534716

KATHY GENTRY

LB12-064

BOREHOLE RECORD

Last Edited: 14-MAR-2012 14:56

Bit Size
inches

8.750

Depth From
feet

615.00

Depth To
feet

6194.00

CASING RECORD

Type

Size
inches

9.625

Depth From
feet

0.00

Shoe Depth
feet

615.00

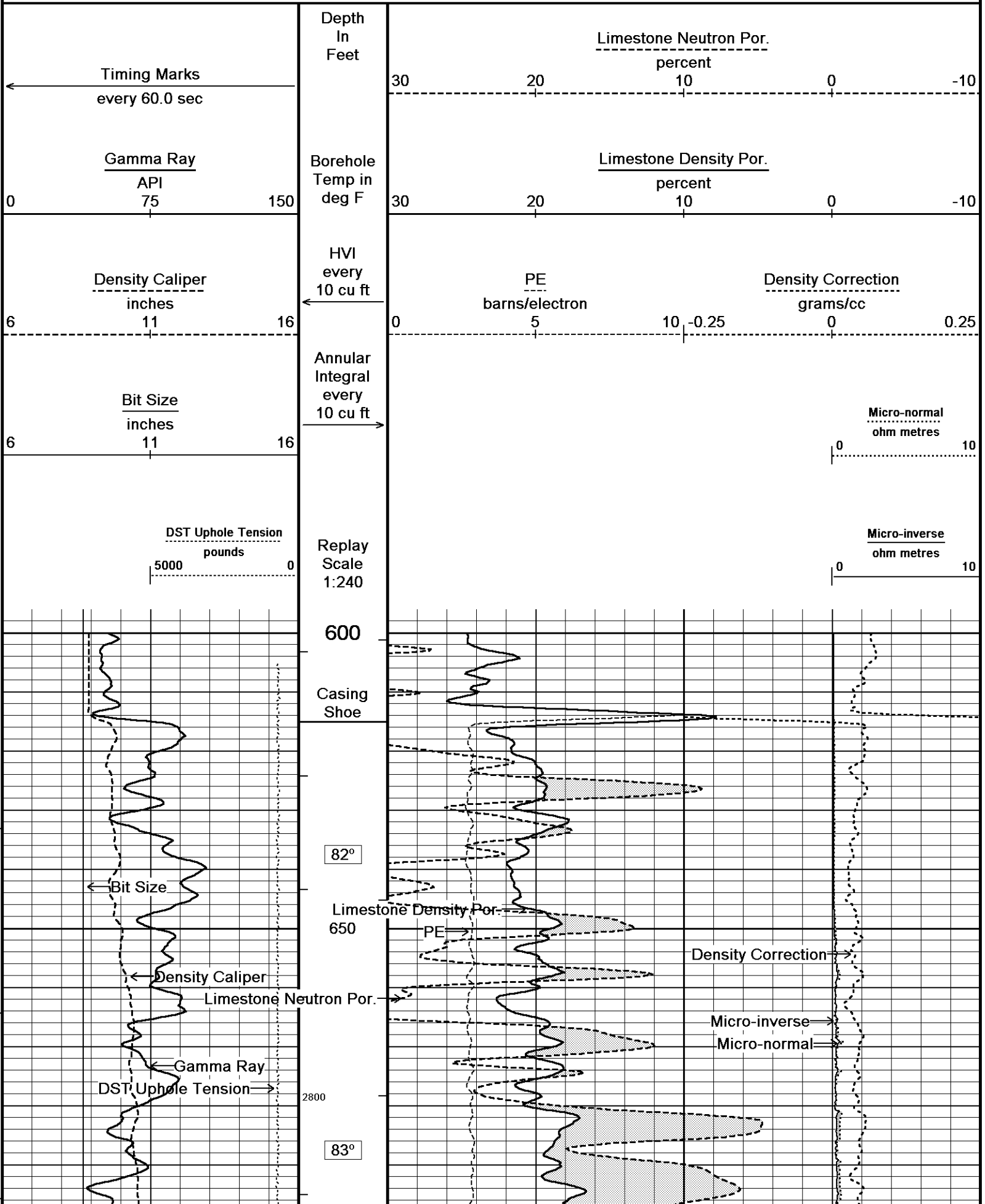
Weight
pounds/ft

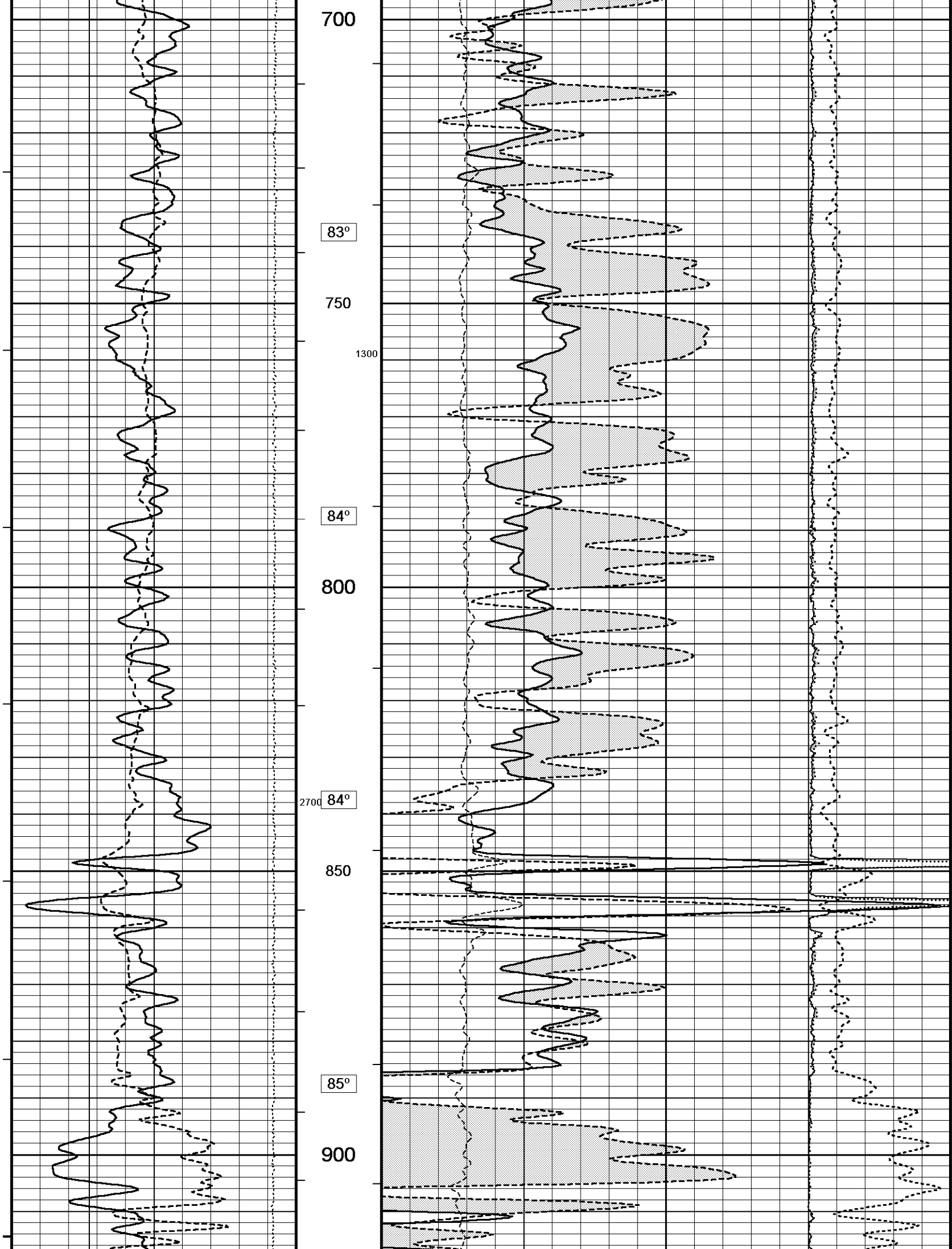
36.00

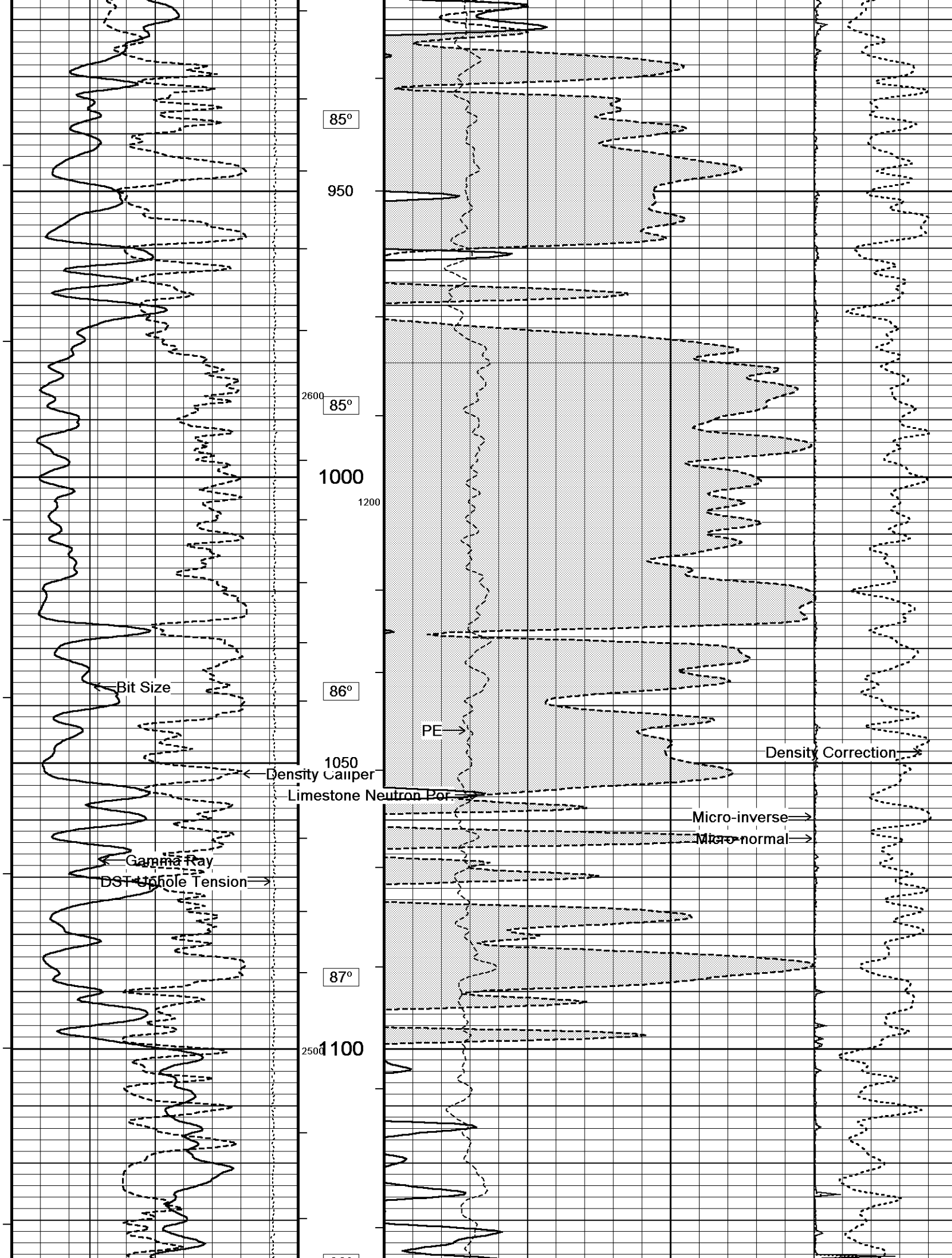
REMARKS

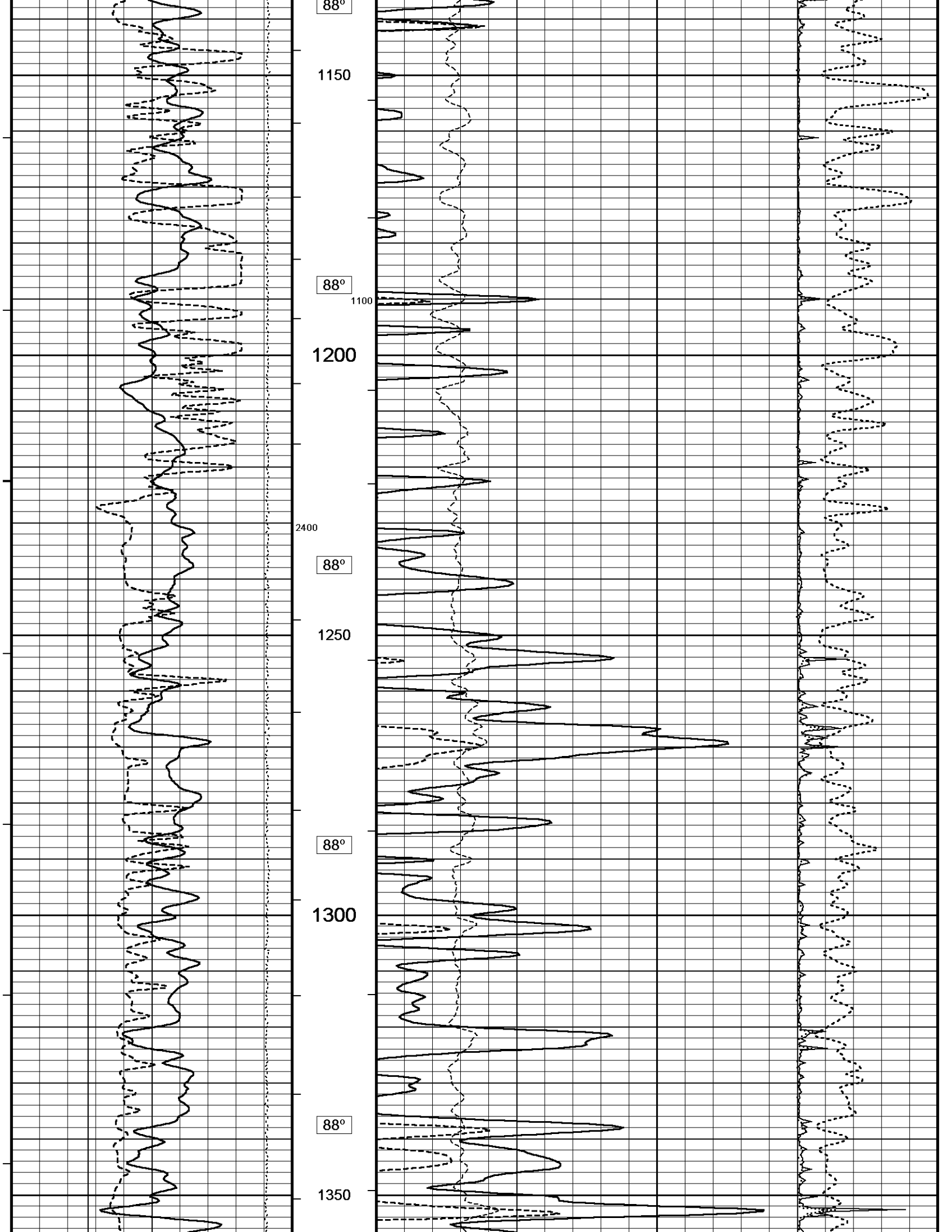
Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MSS, MAI.
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE and MAI 0.5 inch standoffs used.
2.71 g/cc Limestone Density Matrix used to calculate porosity.
Sonic porosity calculated using 47.5 usec/ft Limestone scale.
All intervals logged and scaled per customer's request.
Annular volume with 7 inch production casing calculated from TD to 615ft = 1348 cu. ft.
Service order # 3534716
Rig: Tomcat Drilling Rig # 2
Engineer: R. Hoffman
Operator(s): K. Rinehart

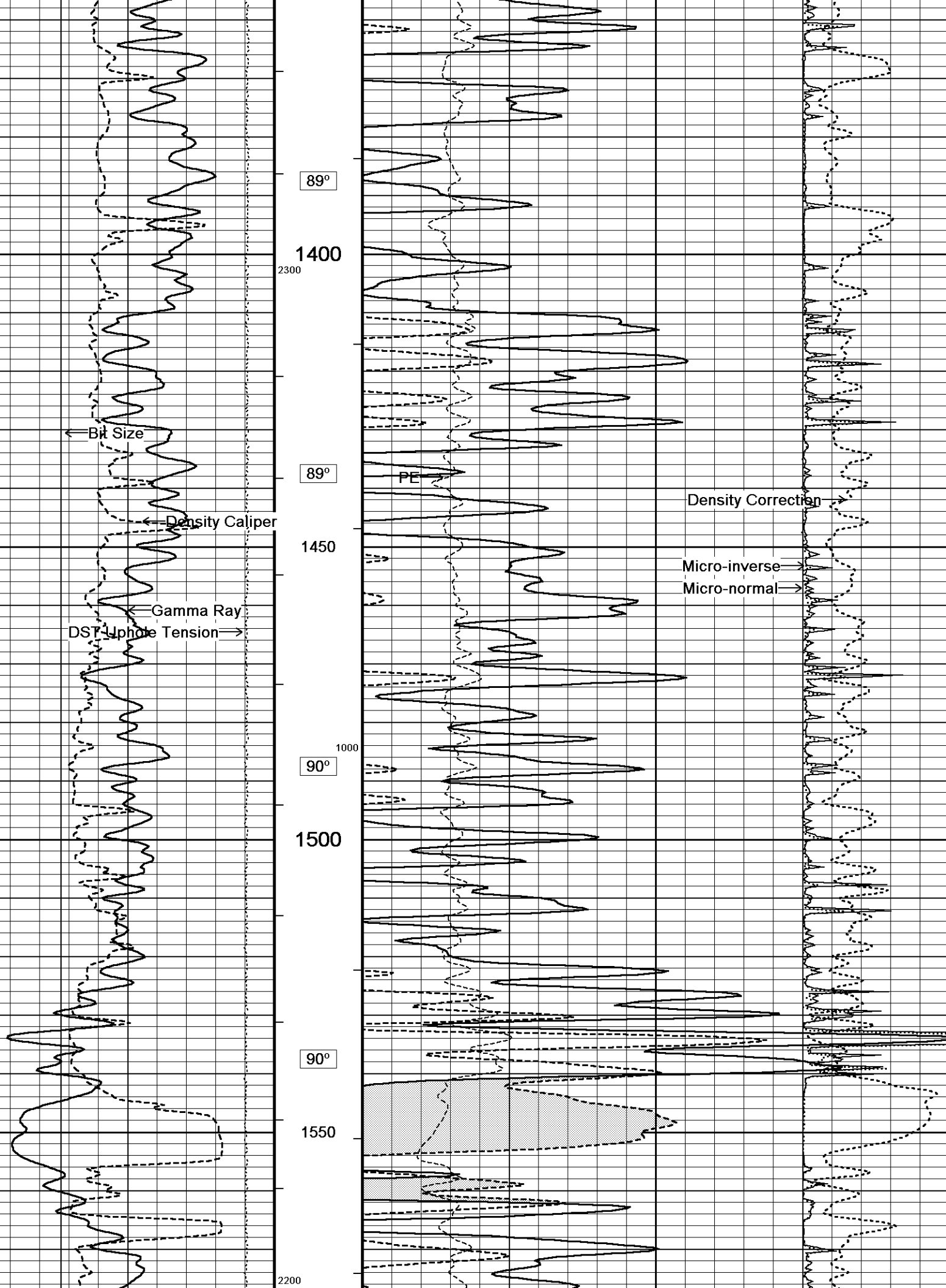
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

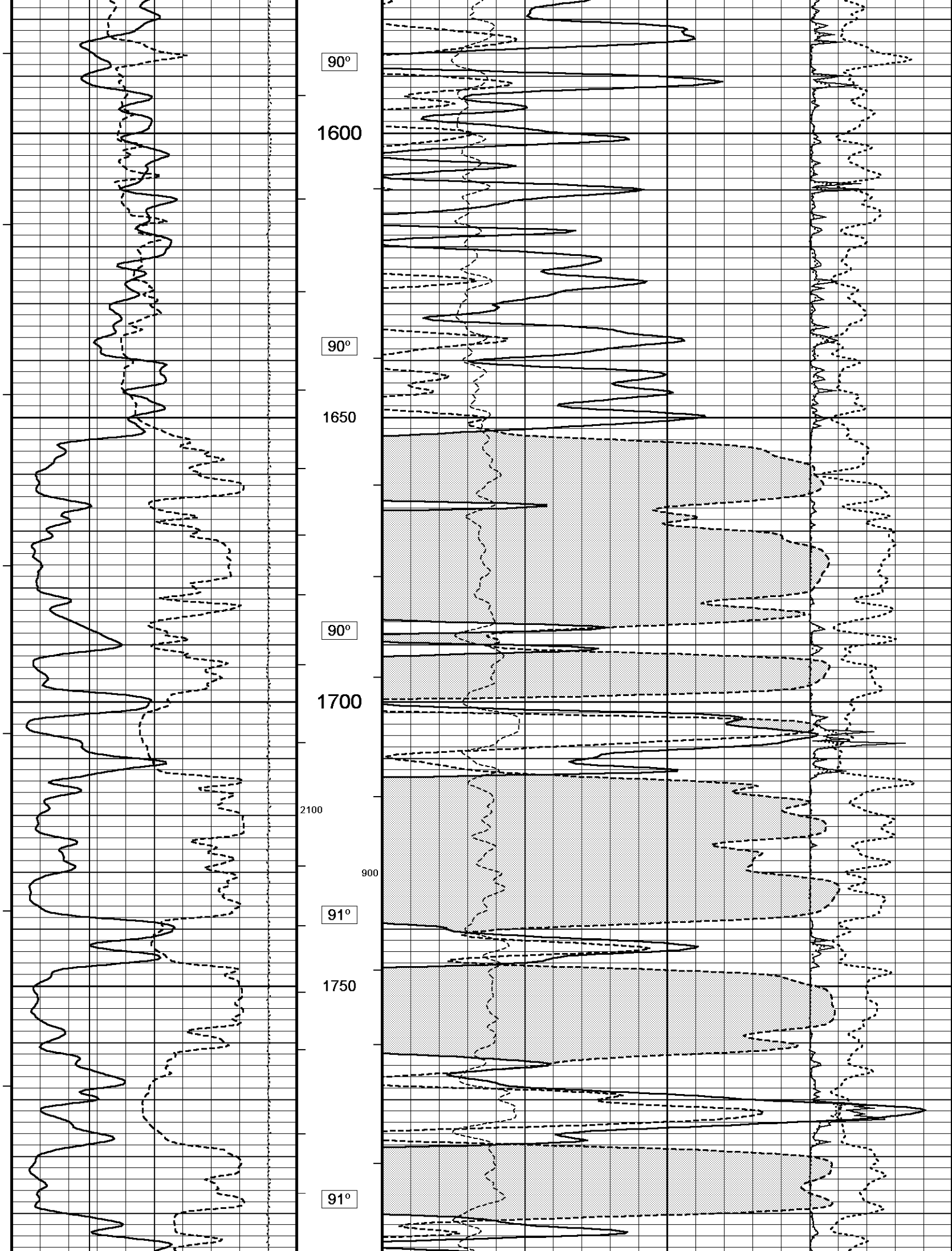


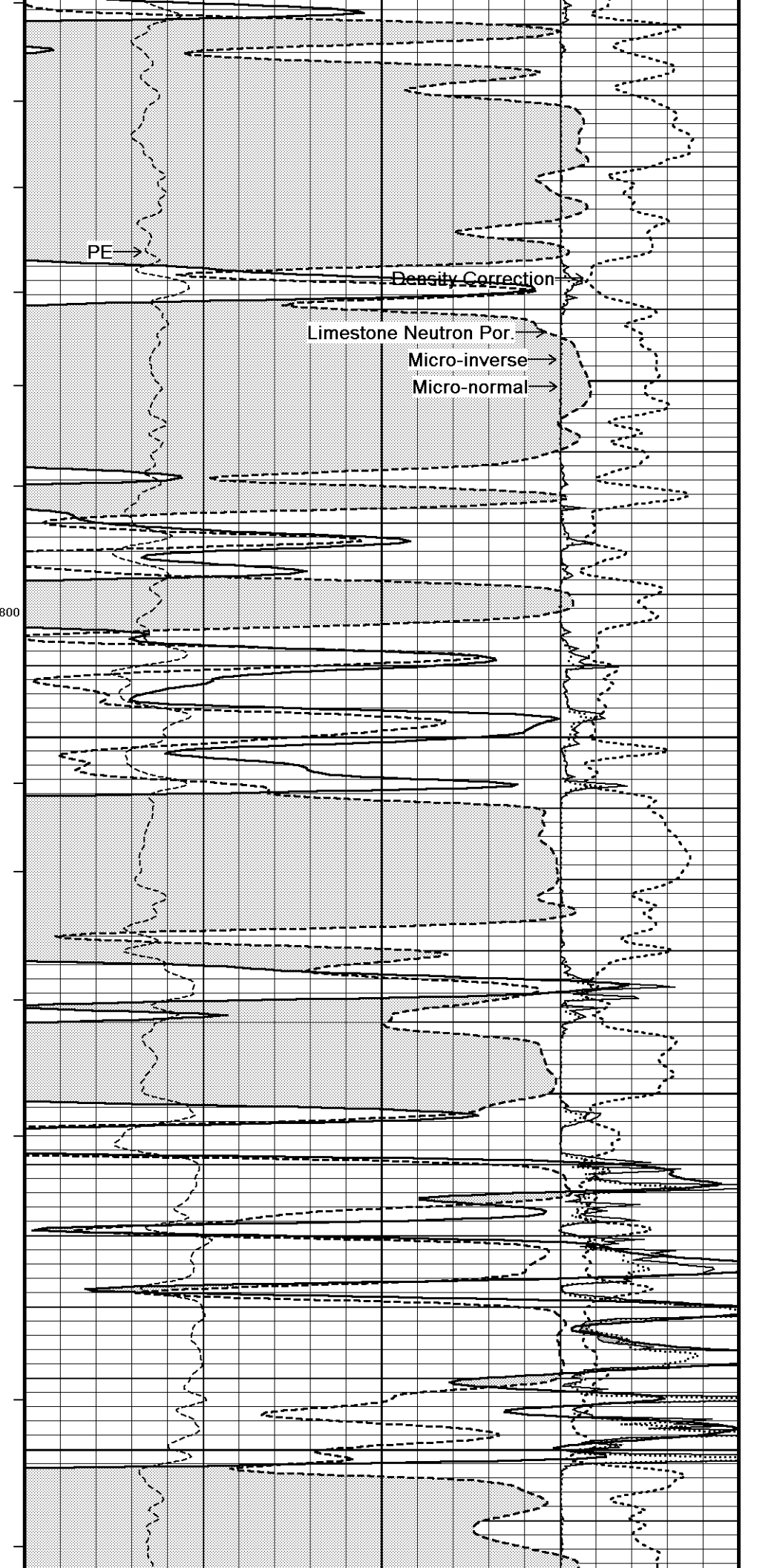
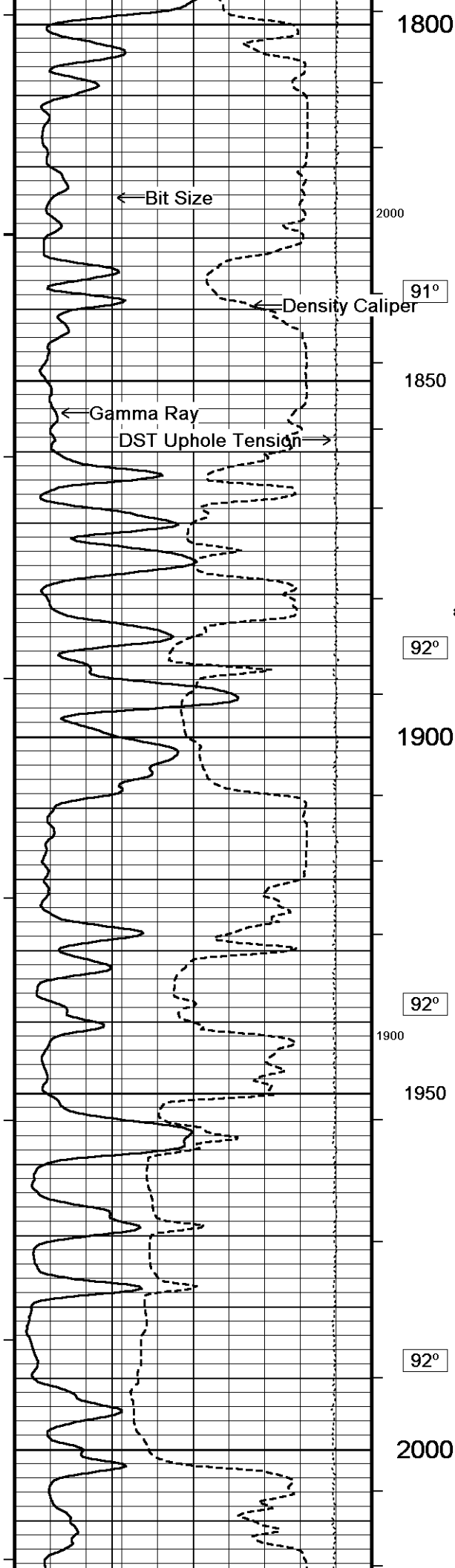


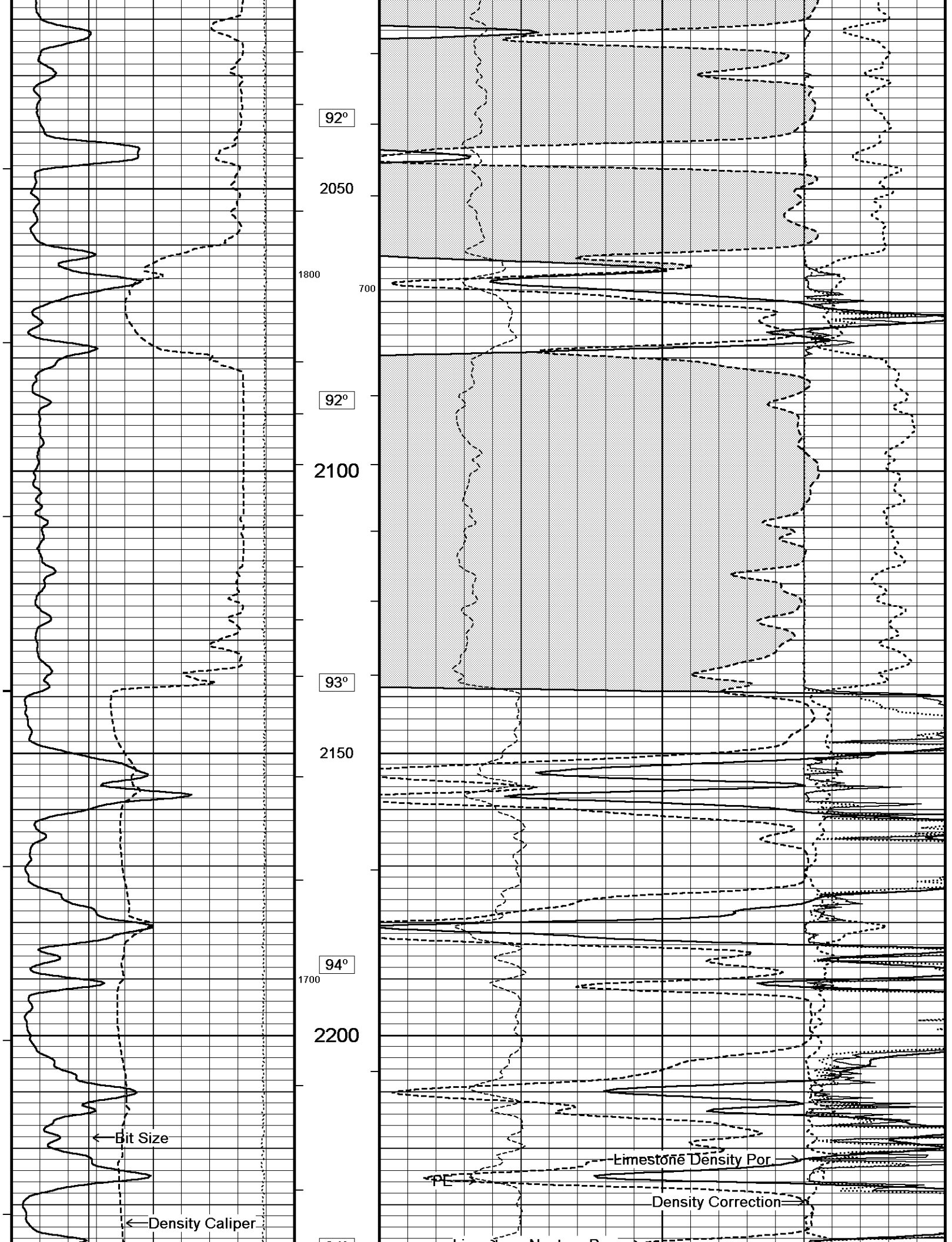


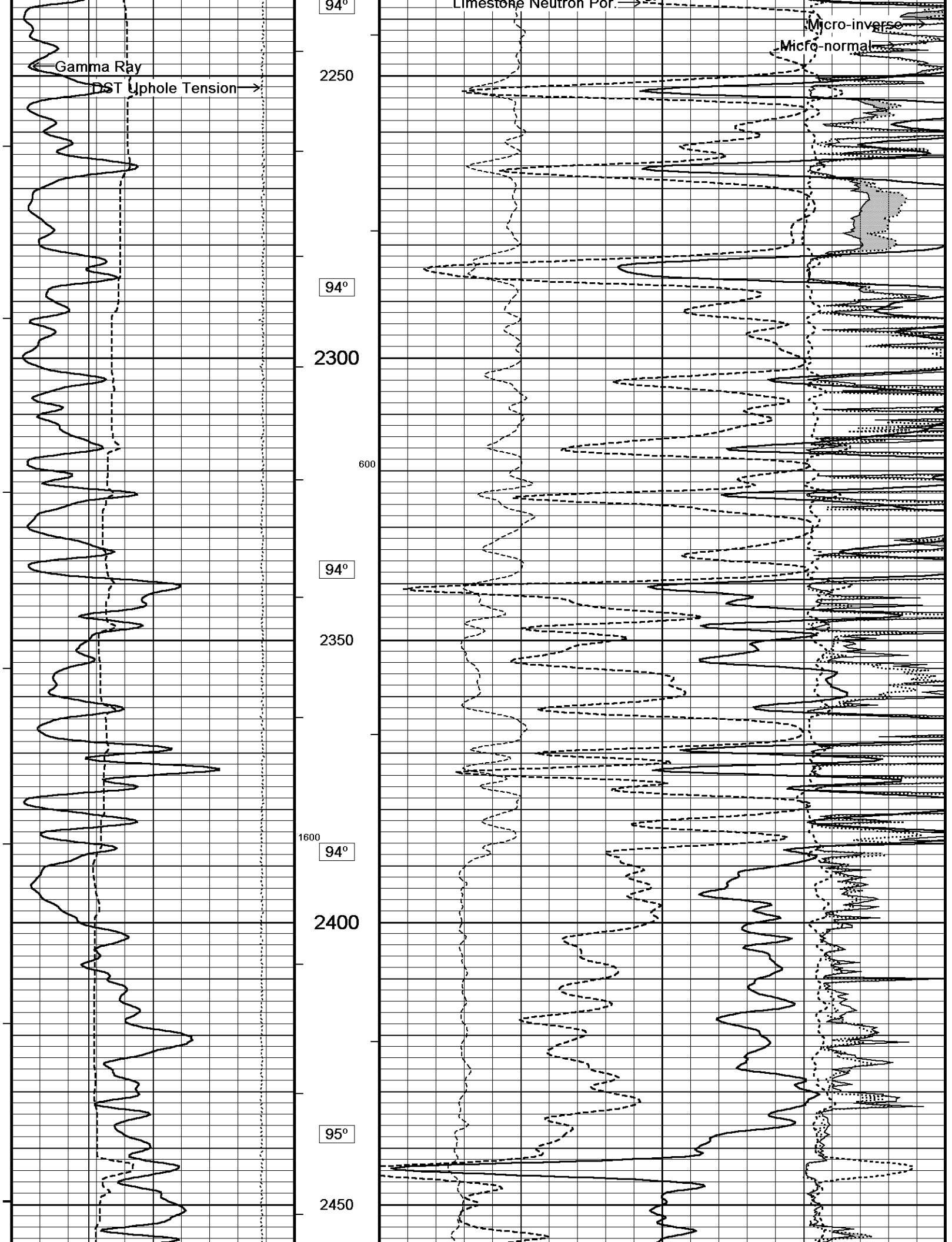


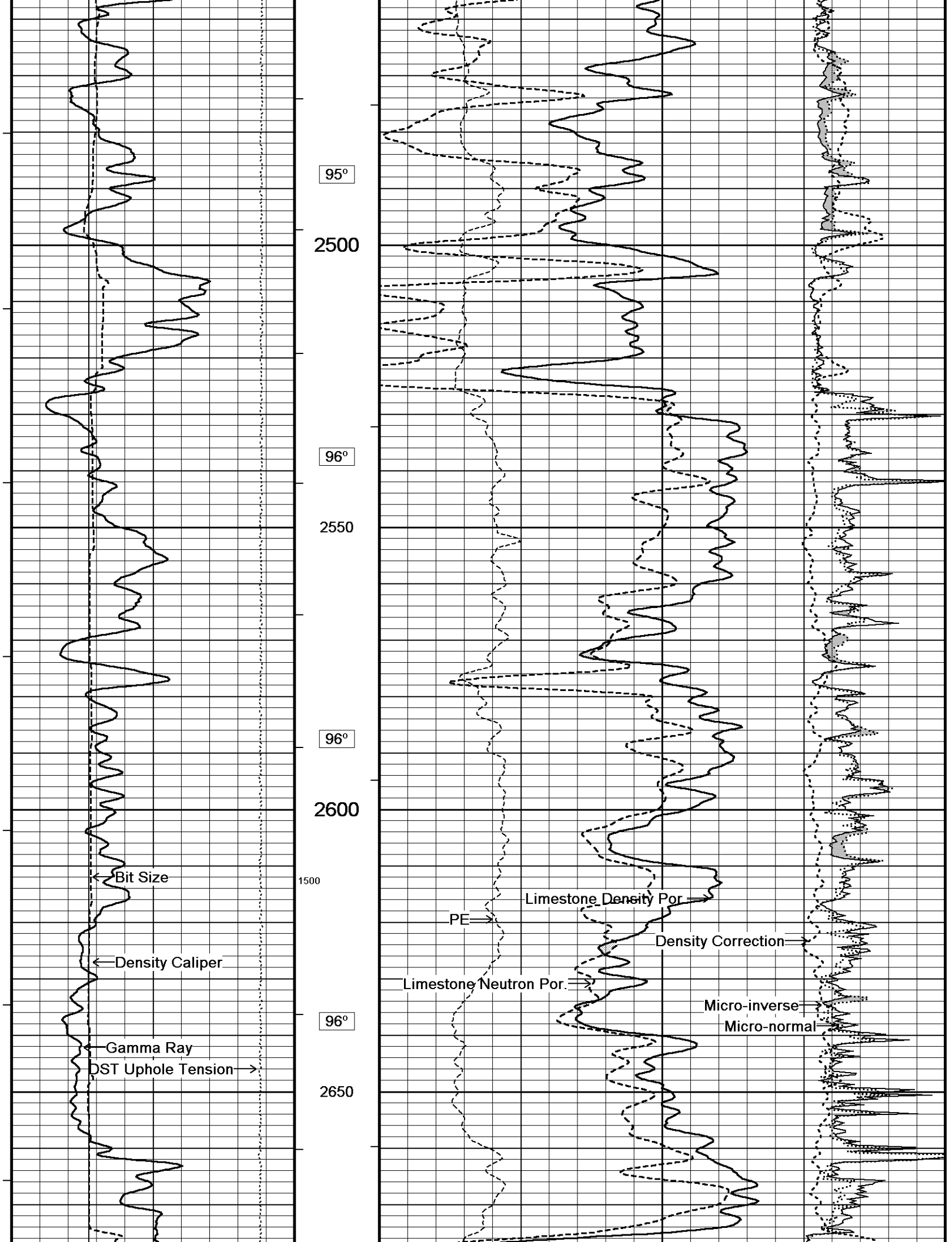


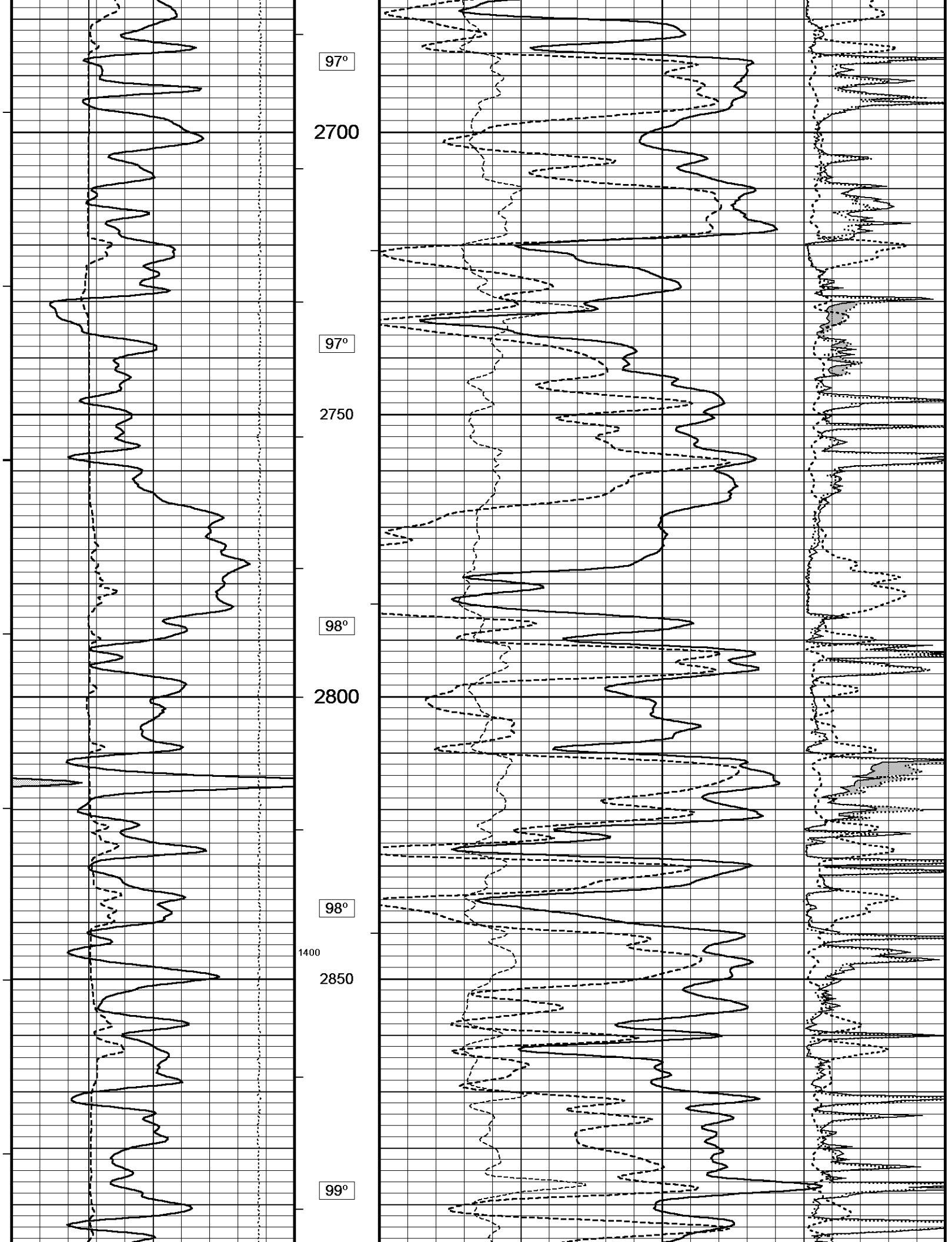












2900₅₀₀

99°

2950

100°

3000

Limestone Density Por.

PE

Density Correction

Limestone Neutron Por.

Micro-inverse

Micro-normal

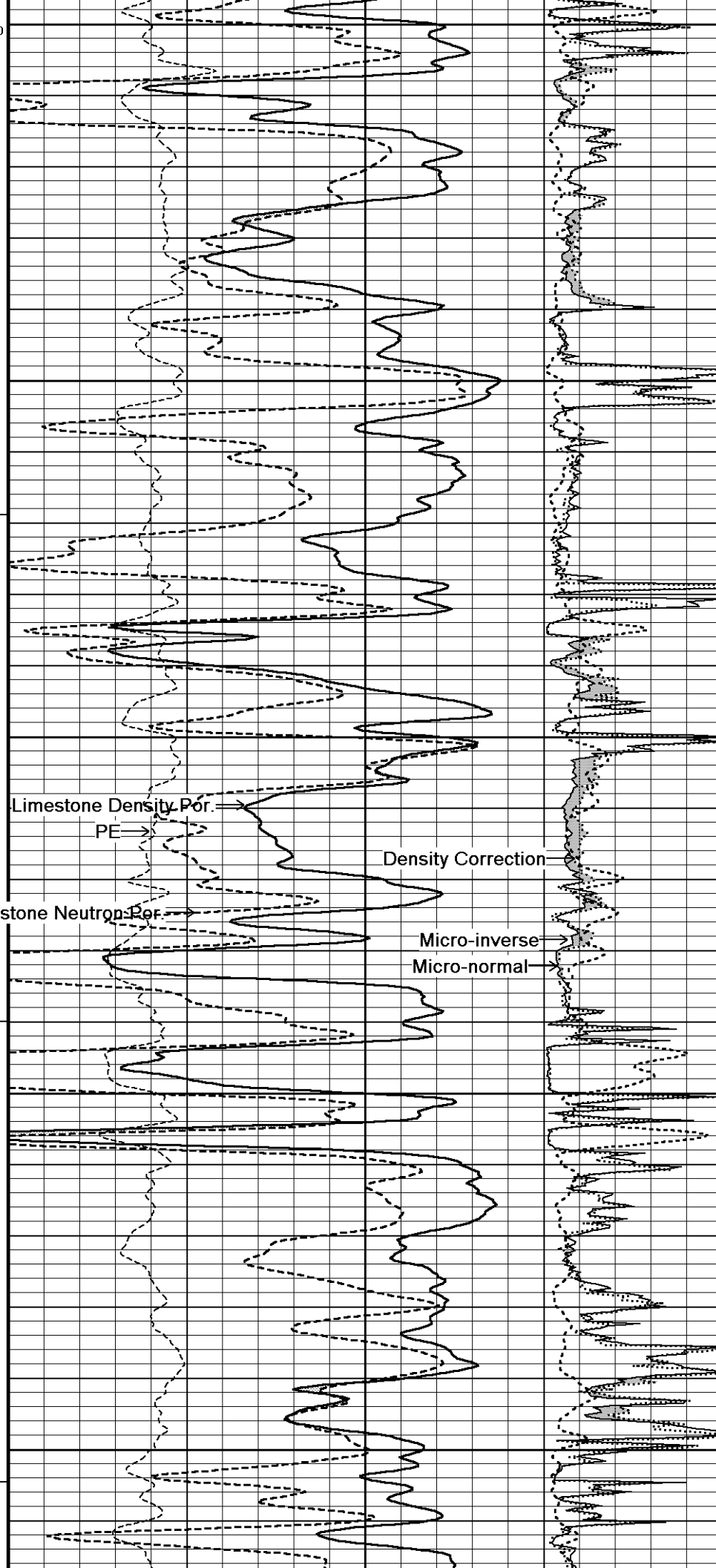
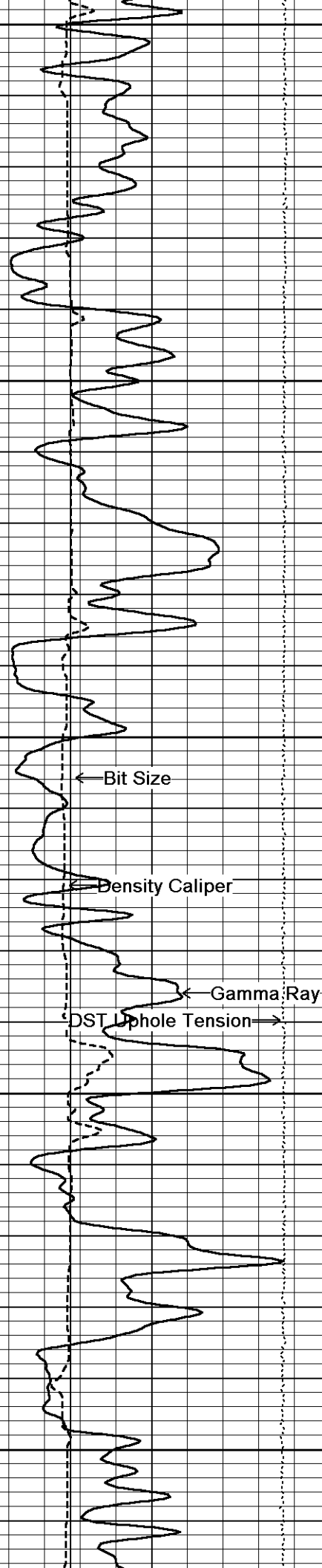
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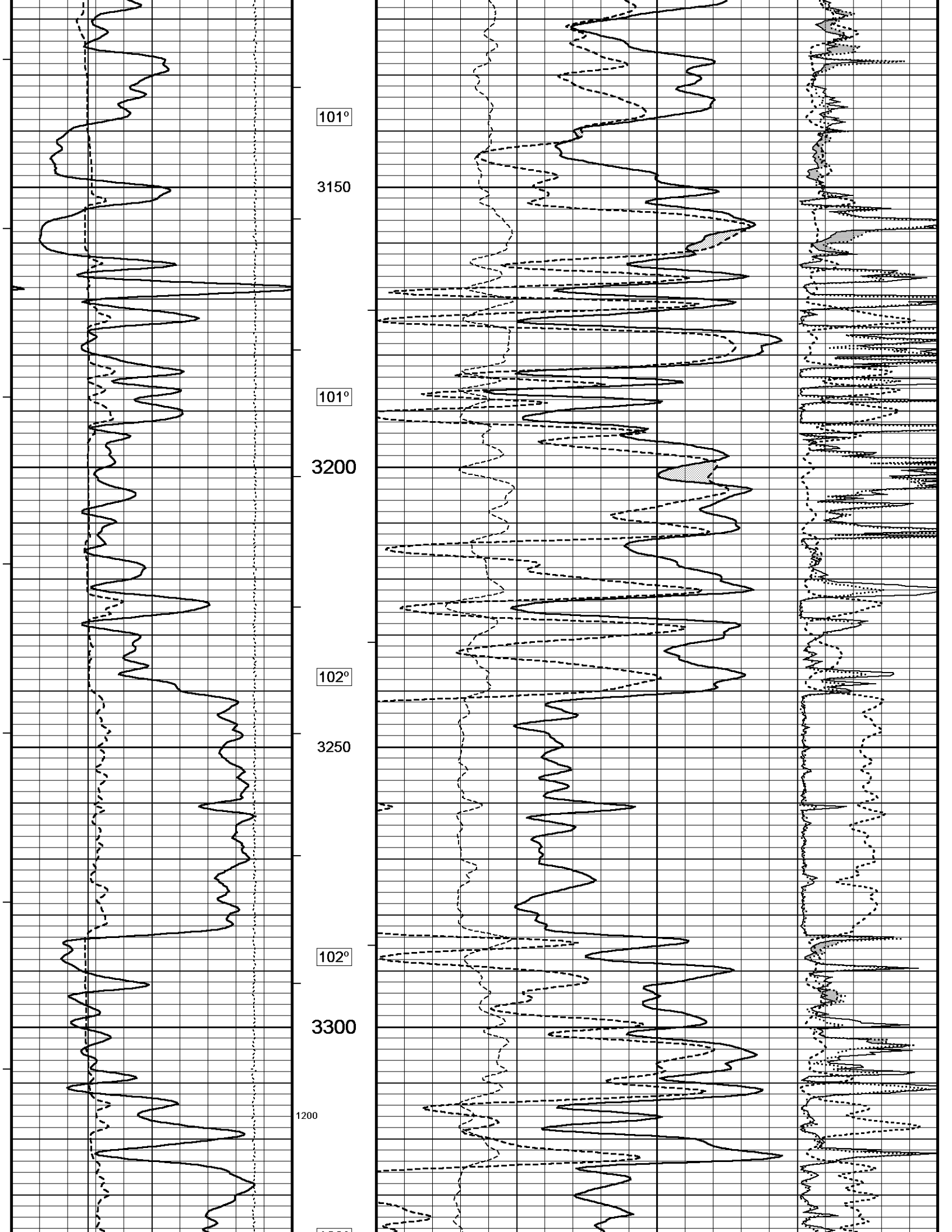
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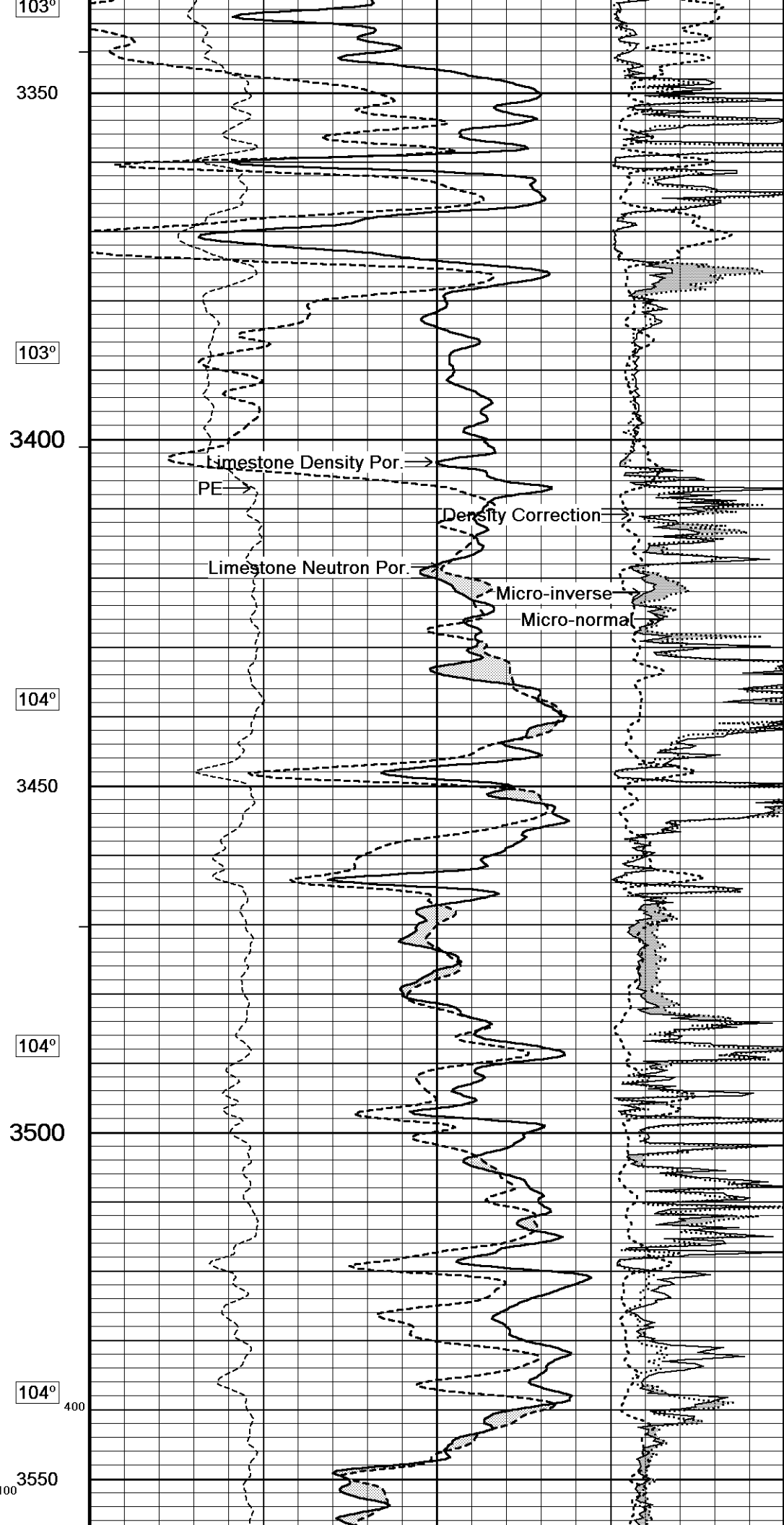
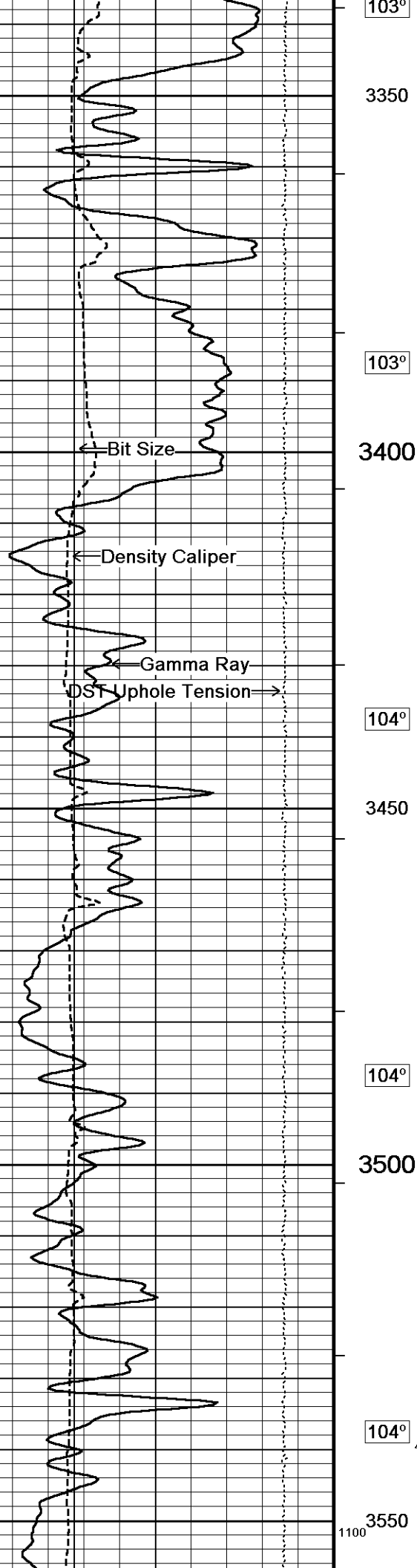
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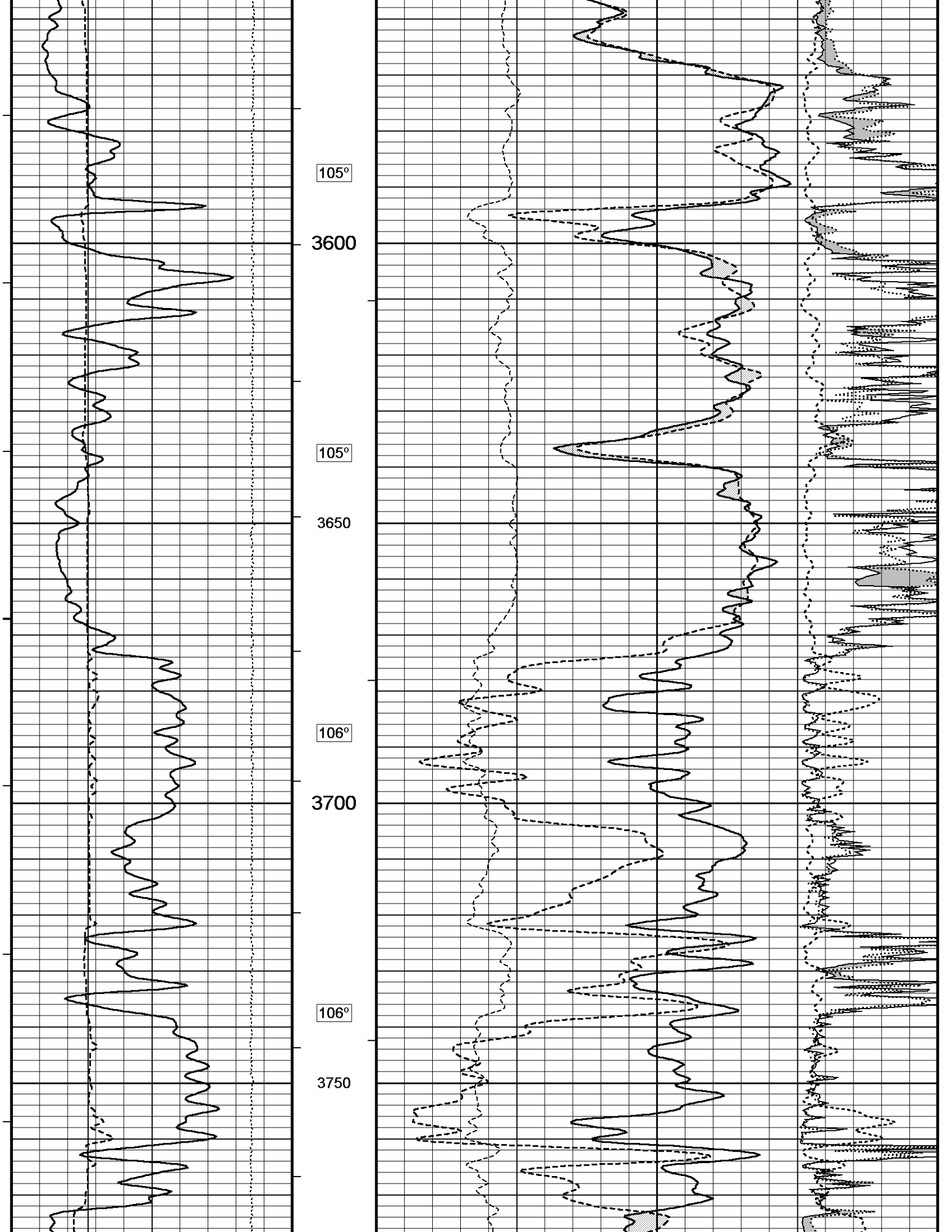
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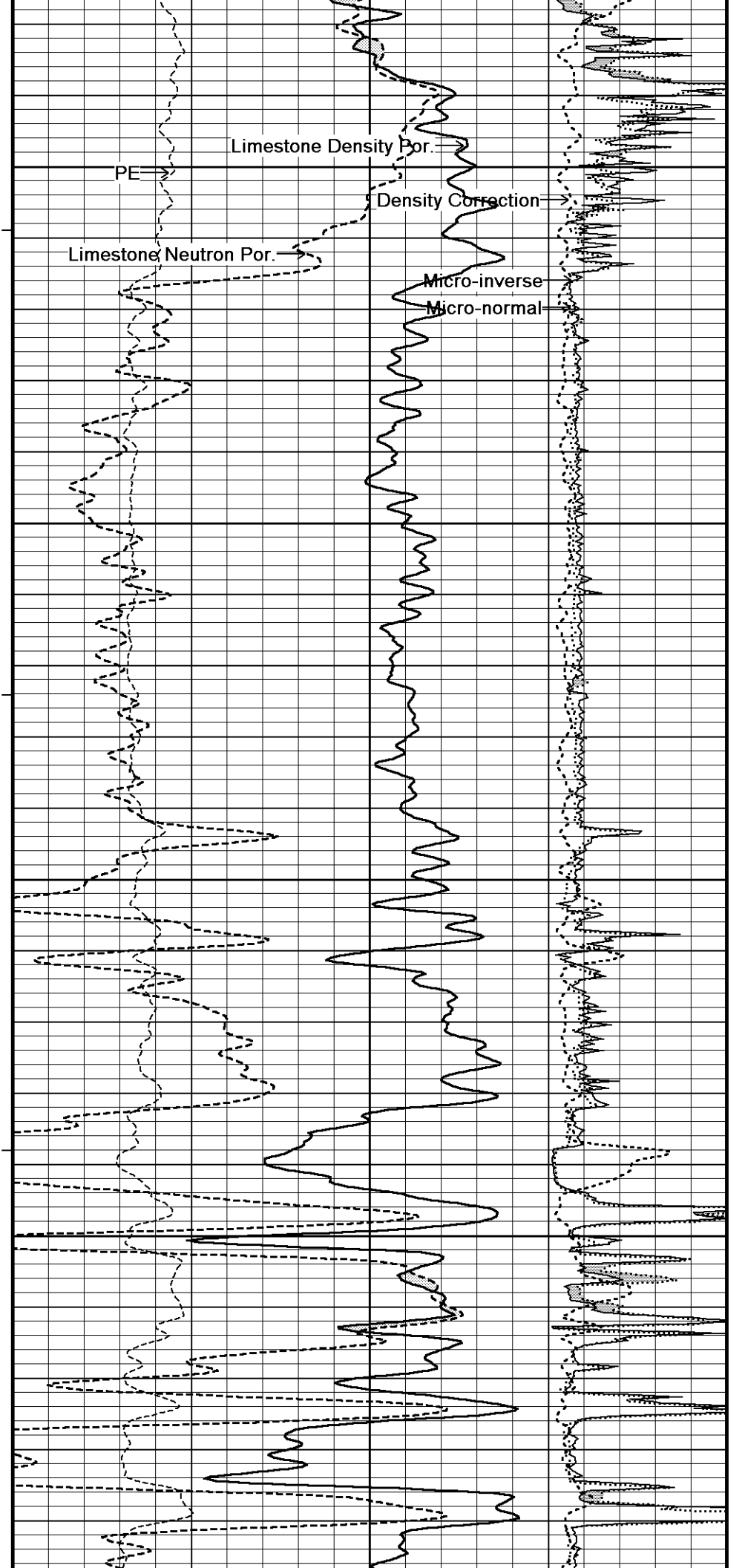
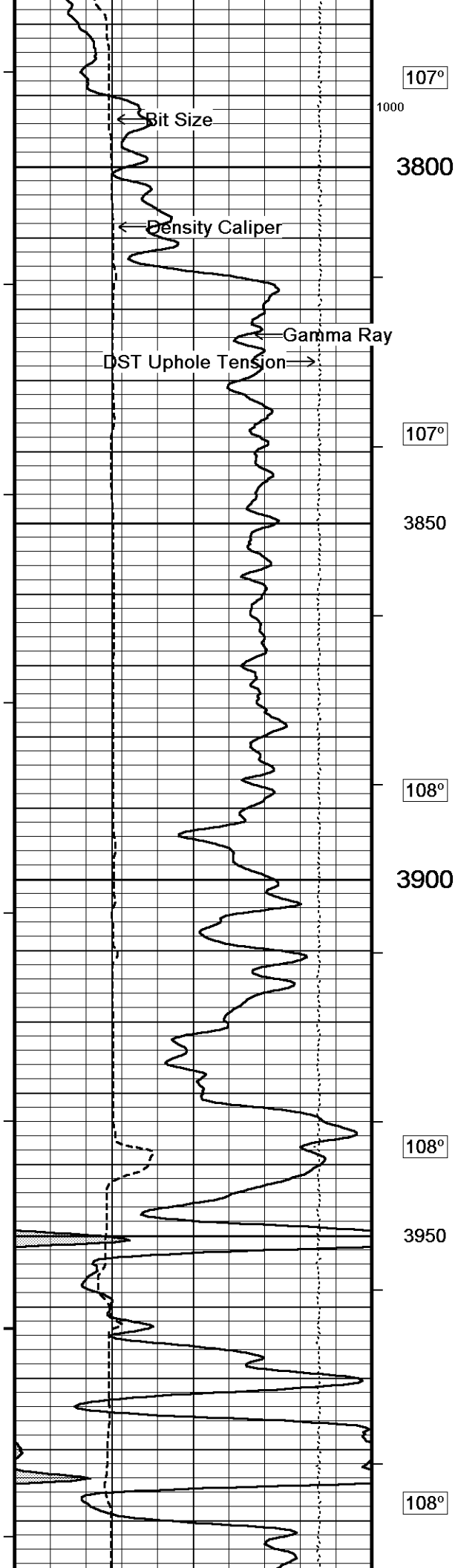
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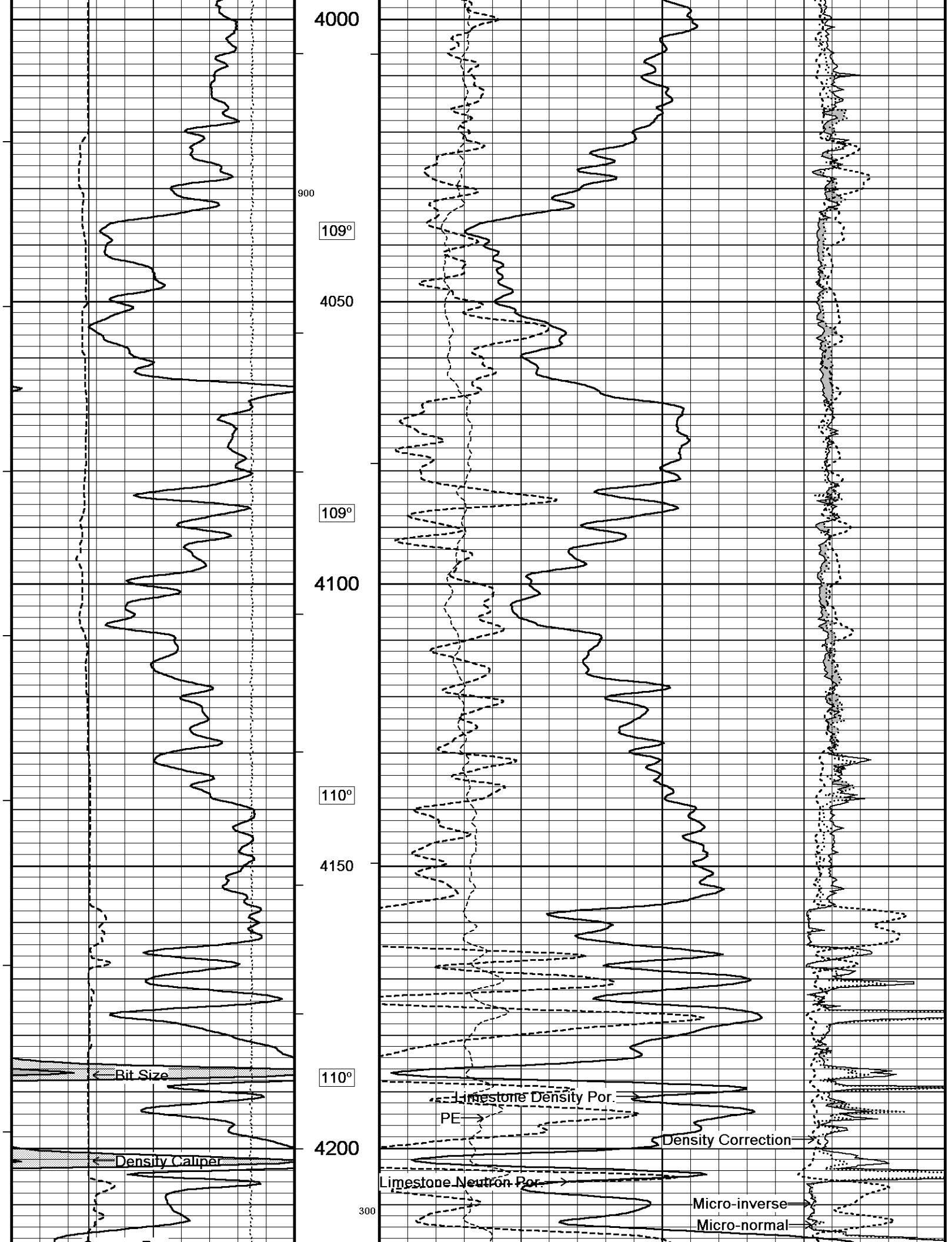


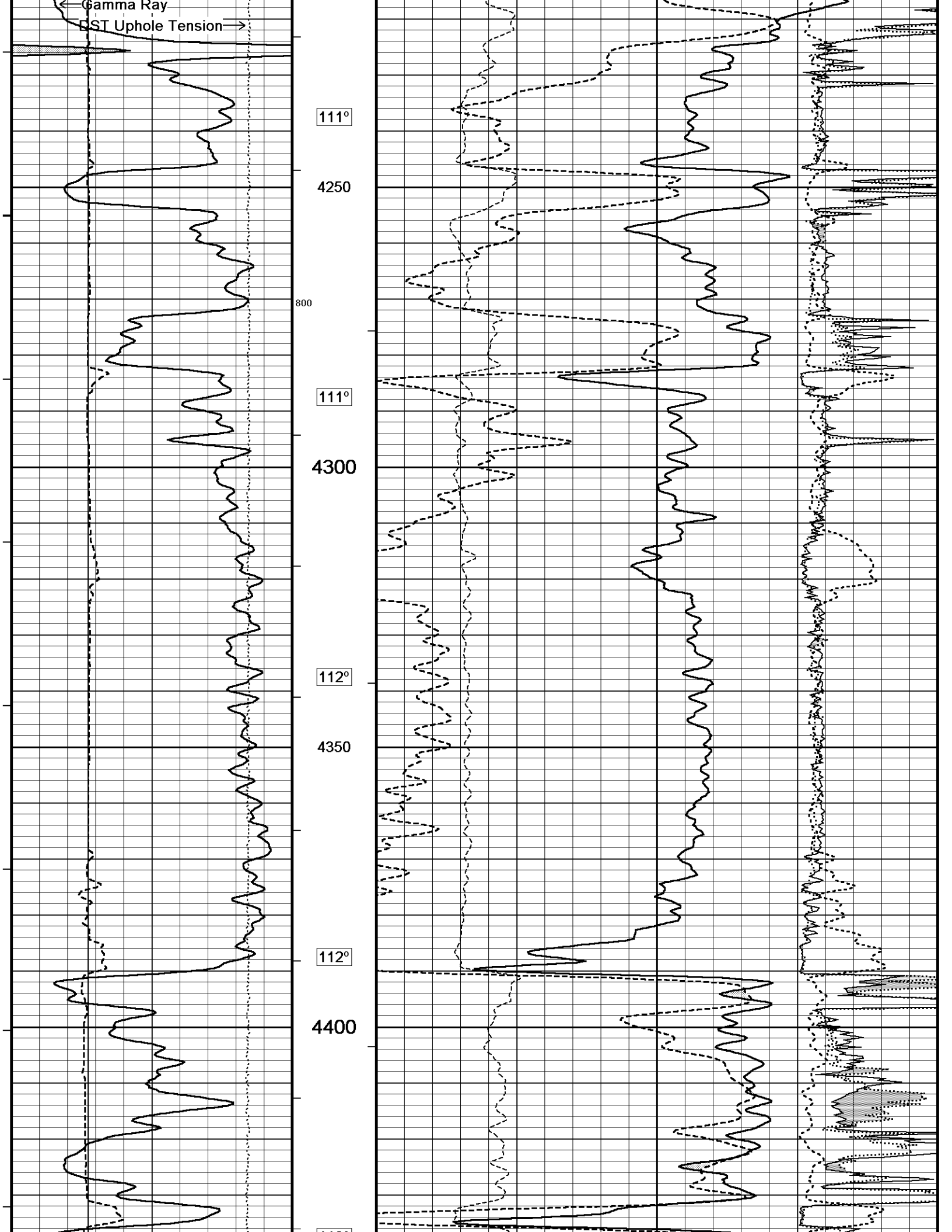


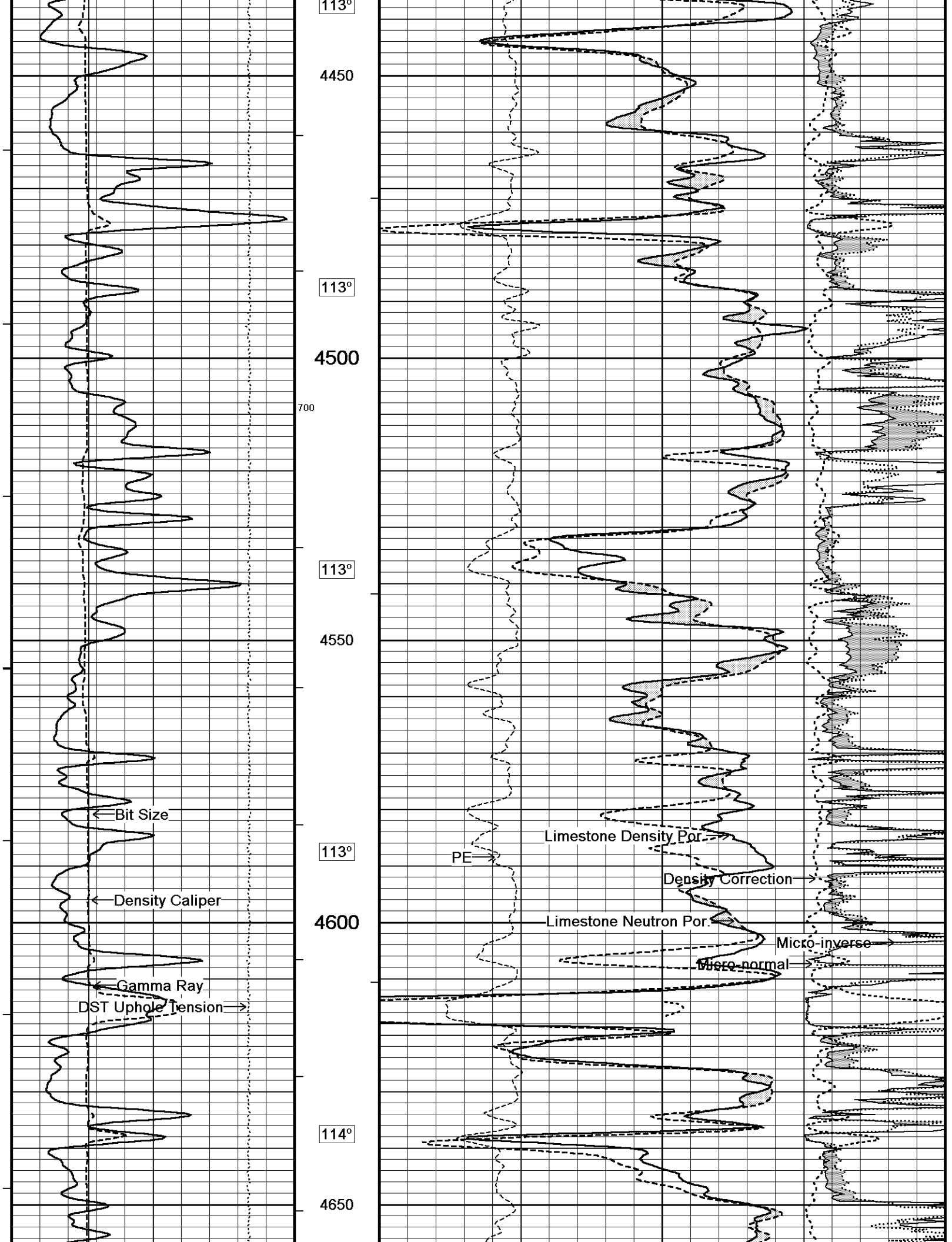


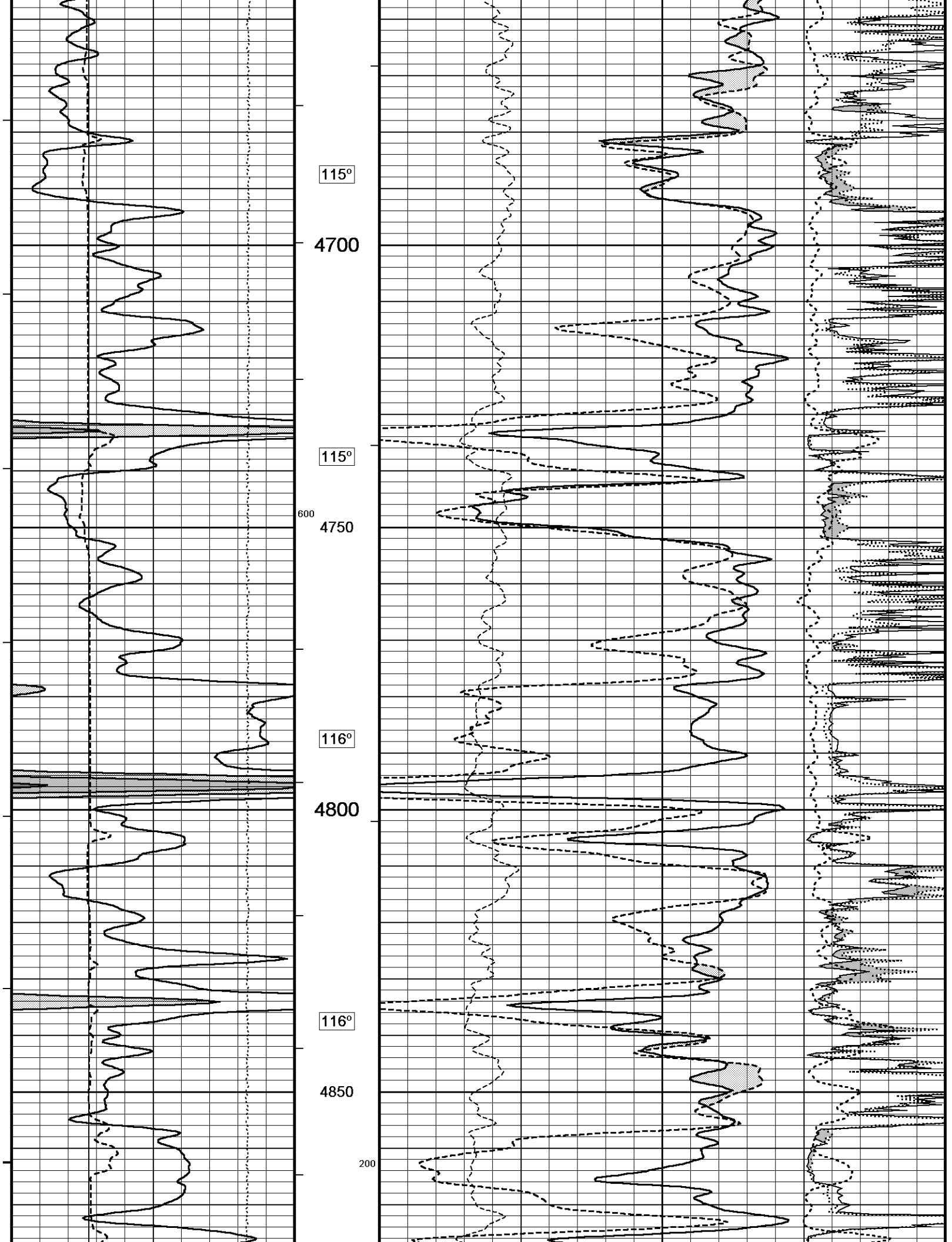


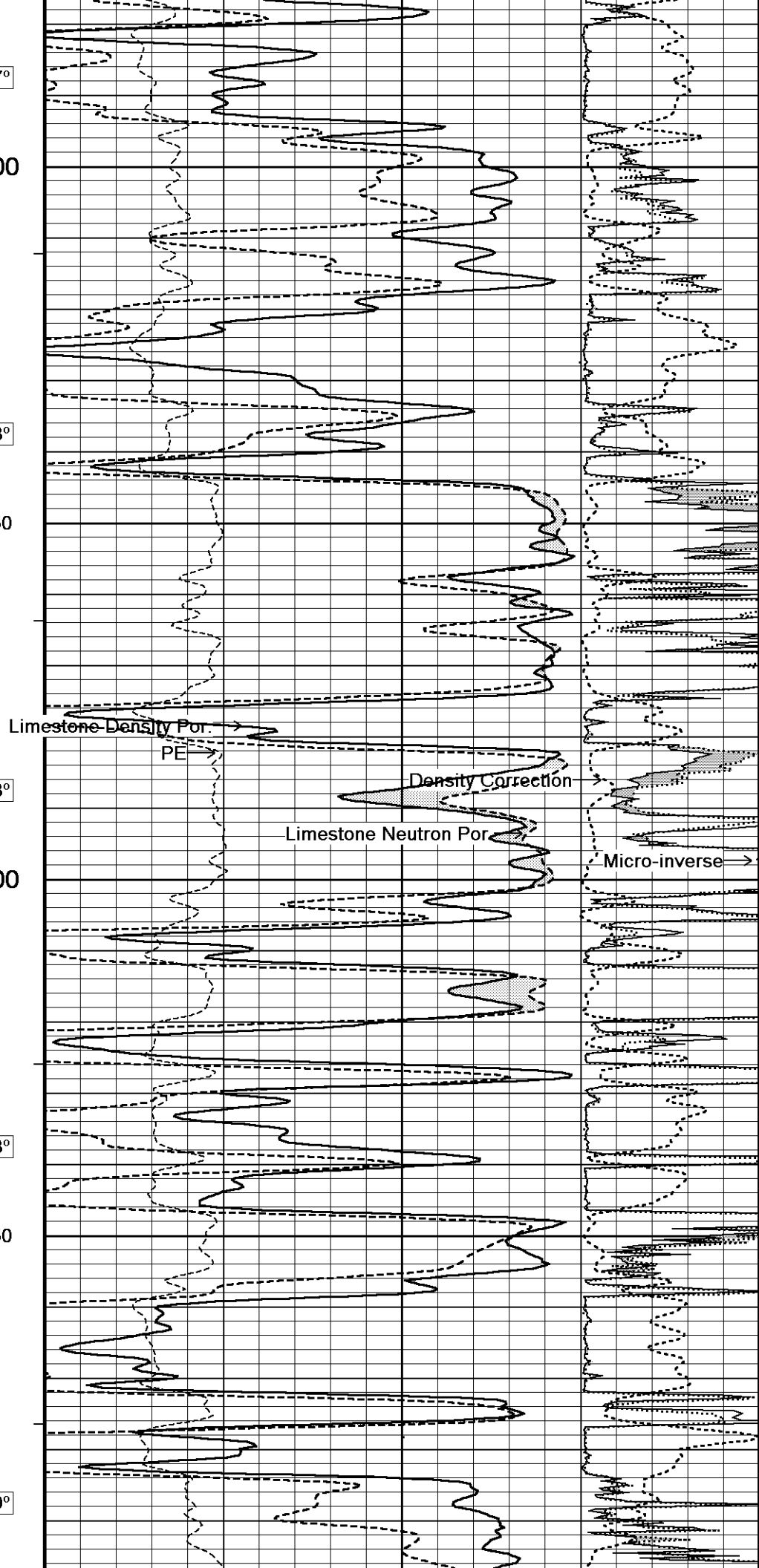
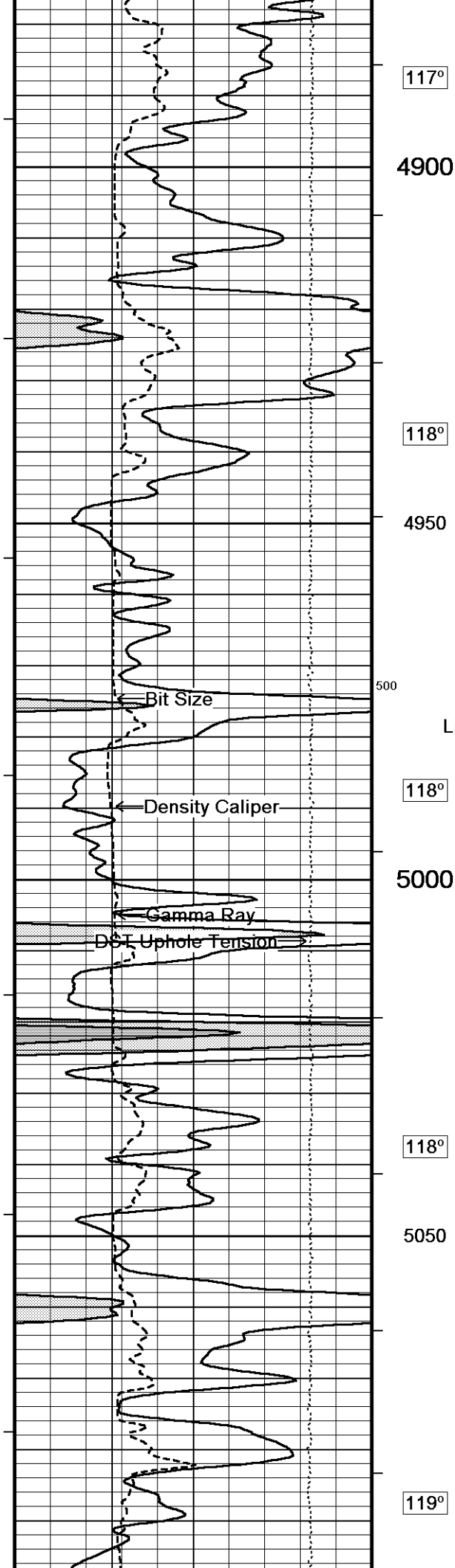


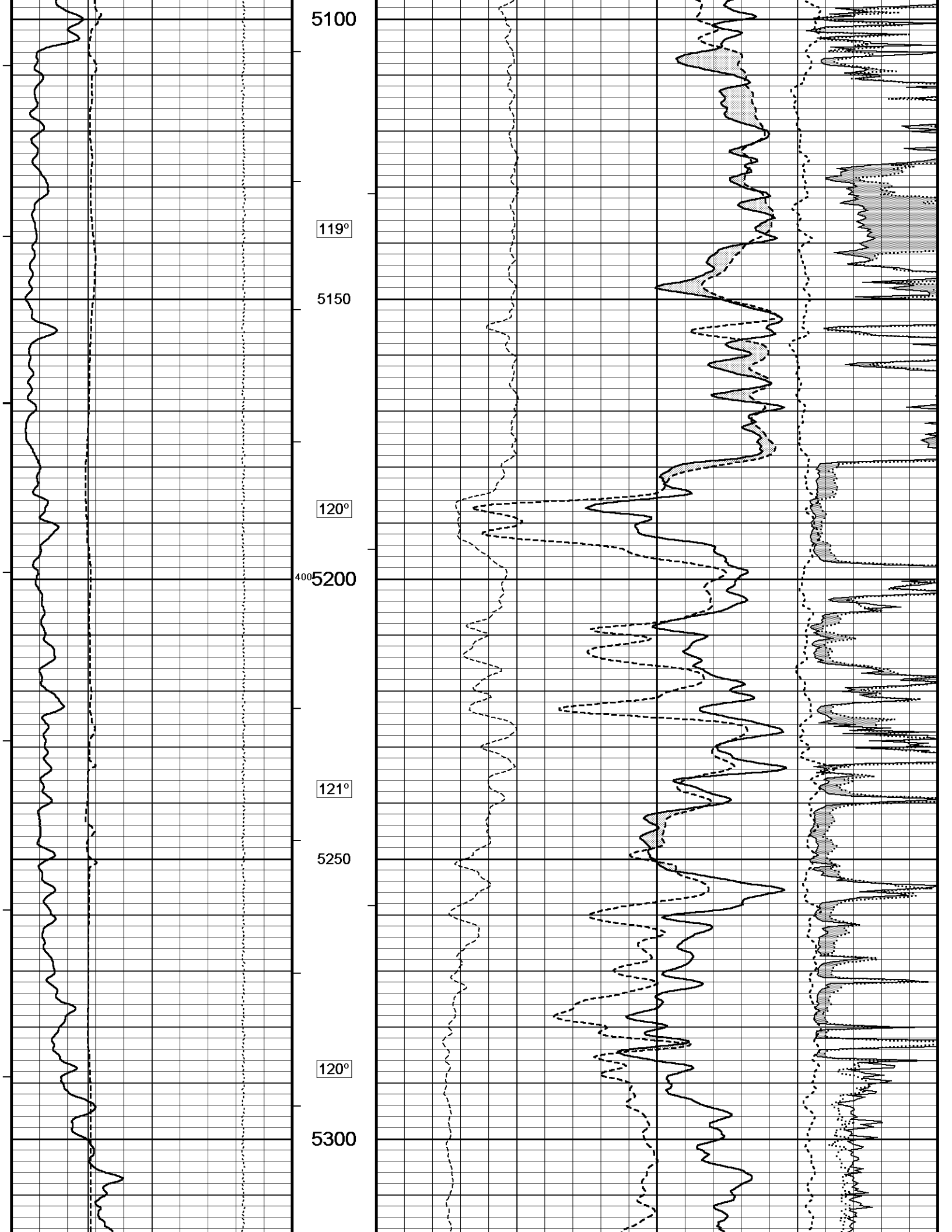


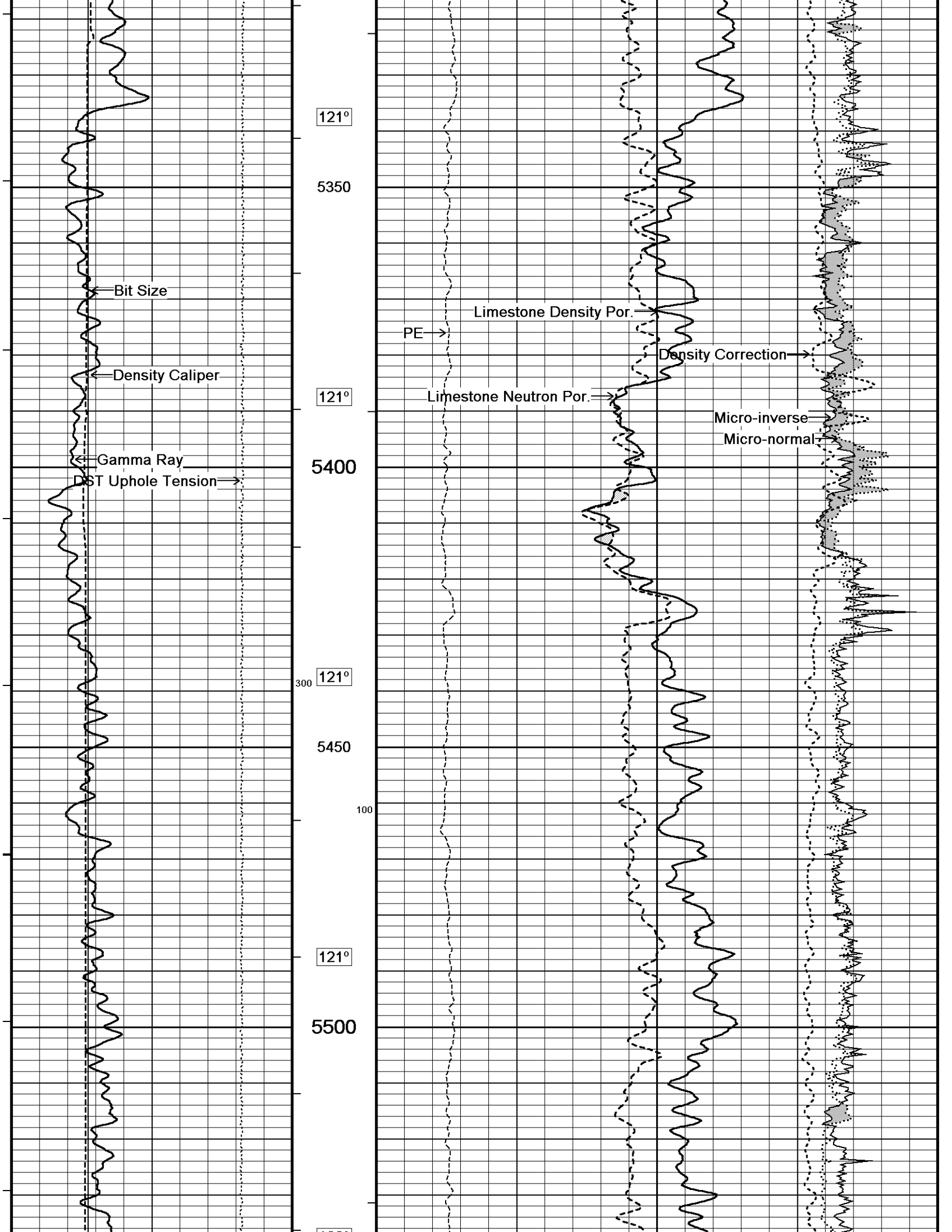


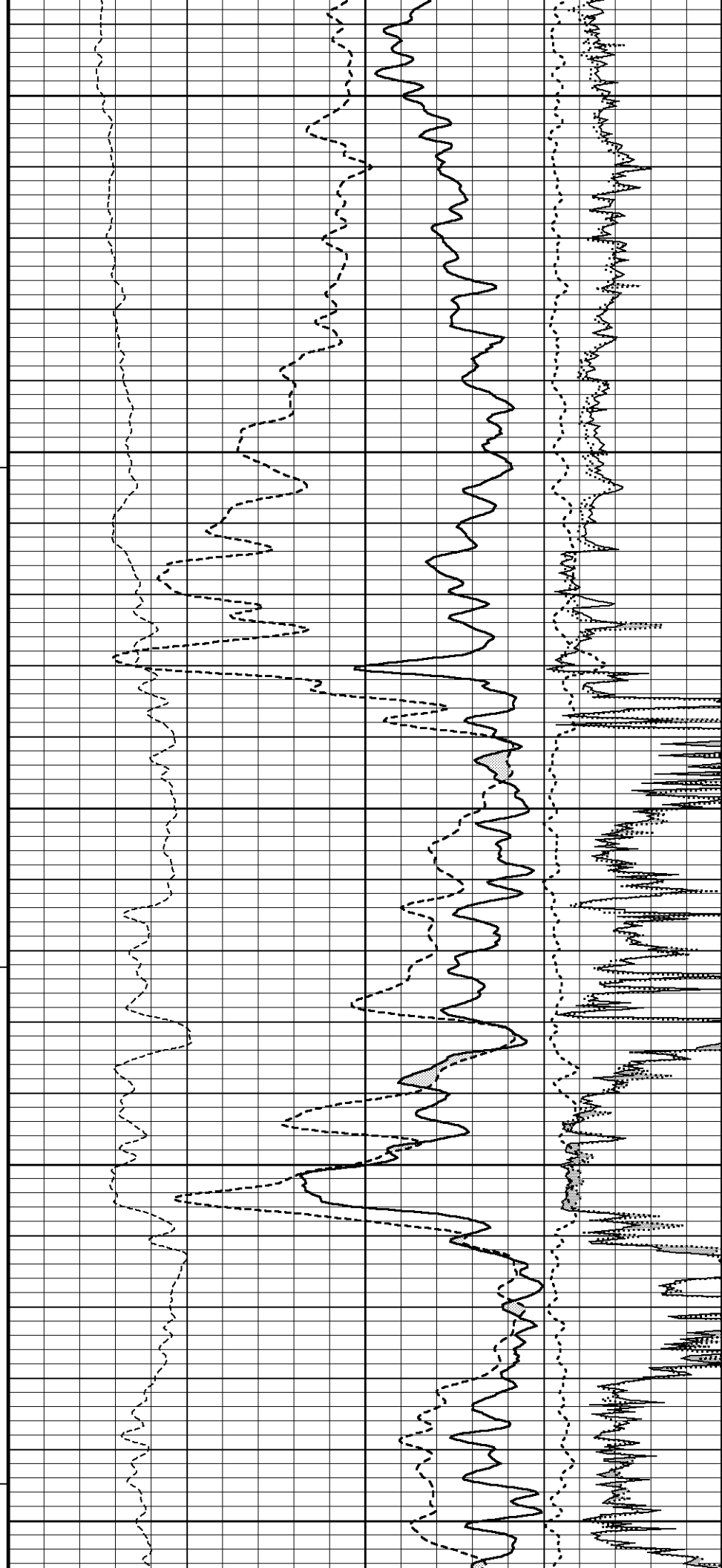
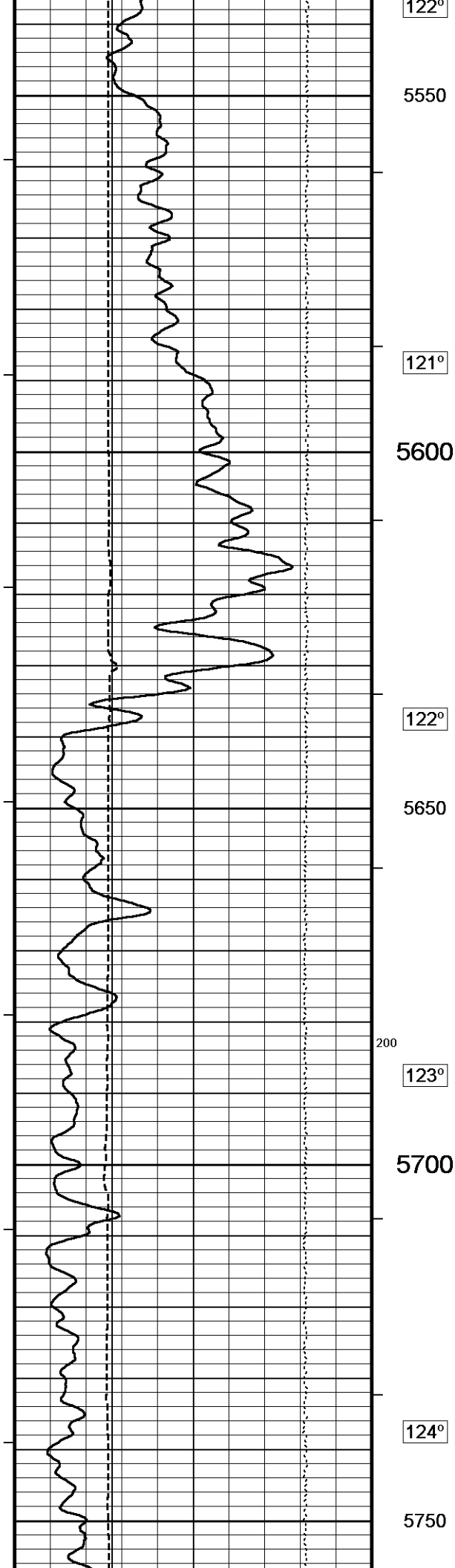


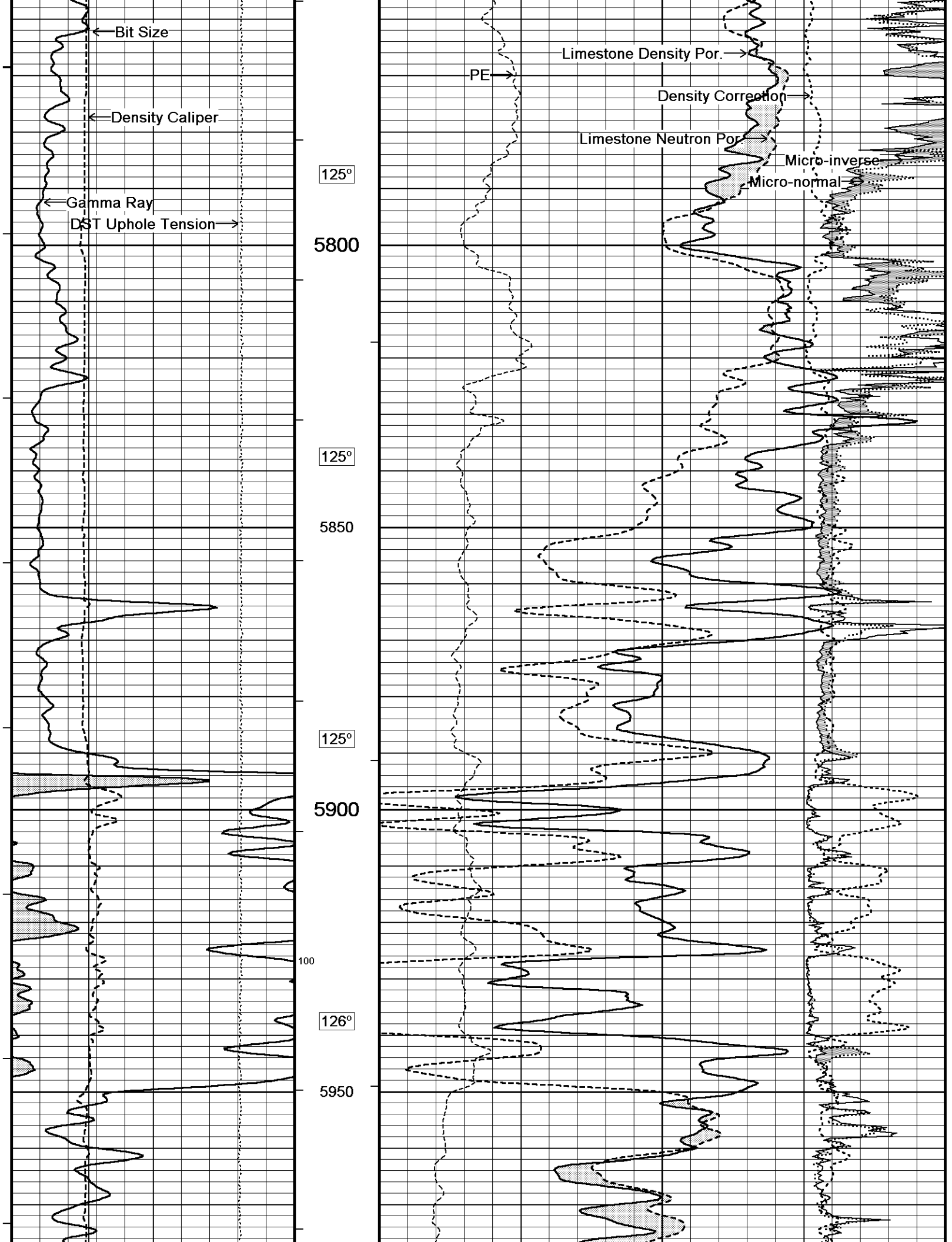


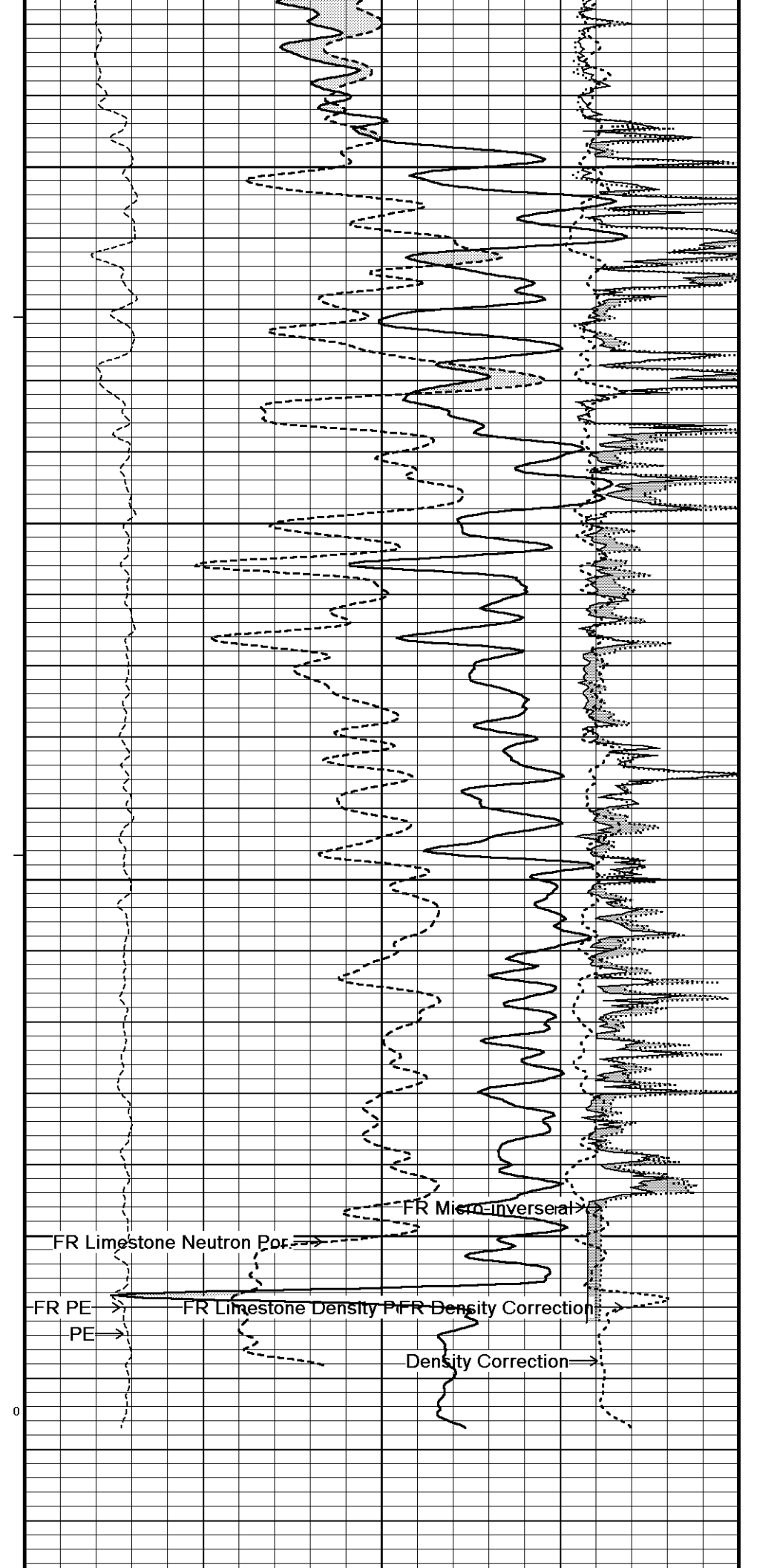
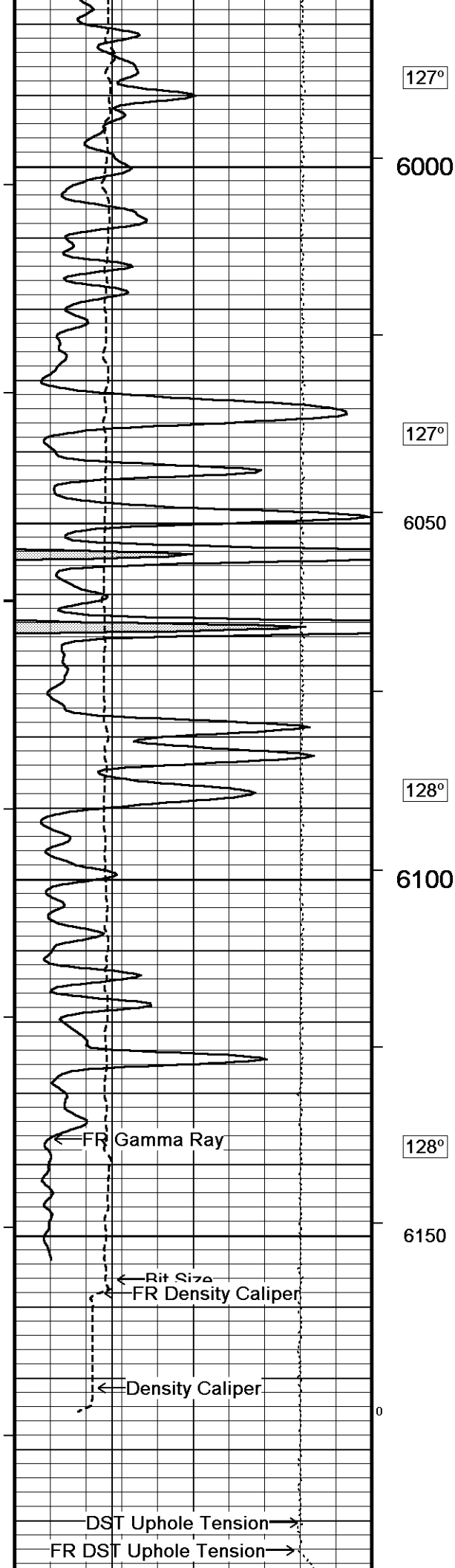


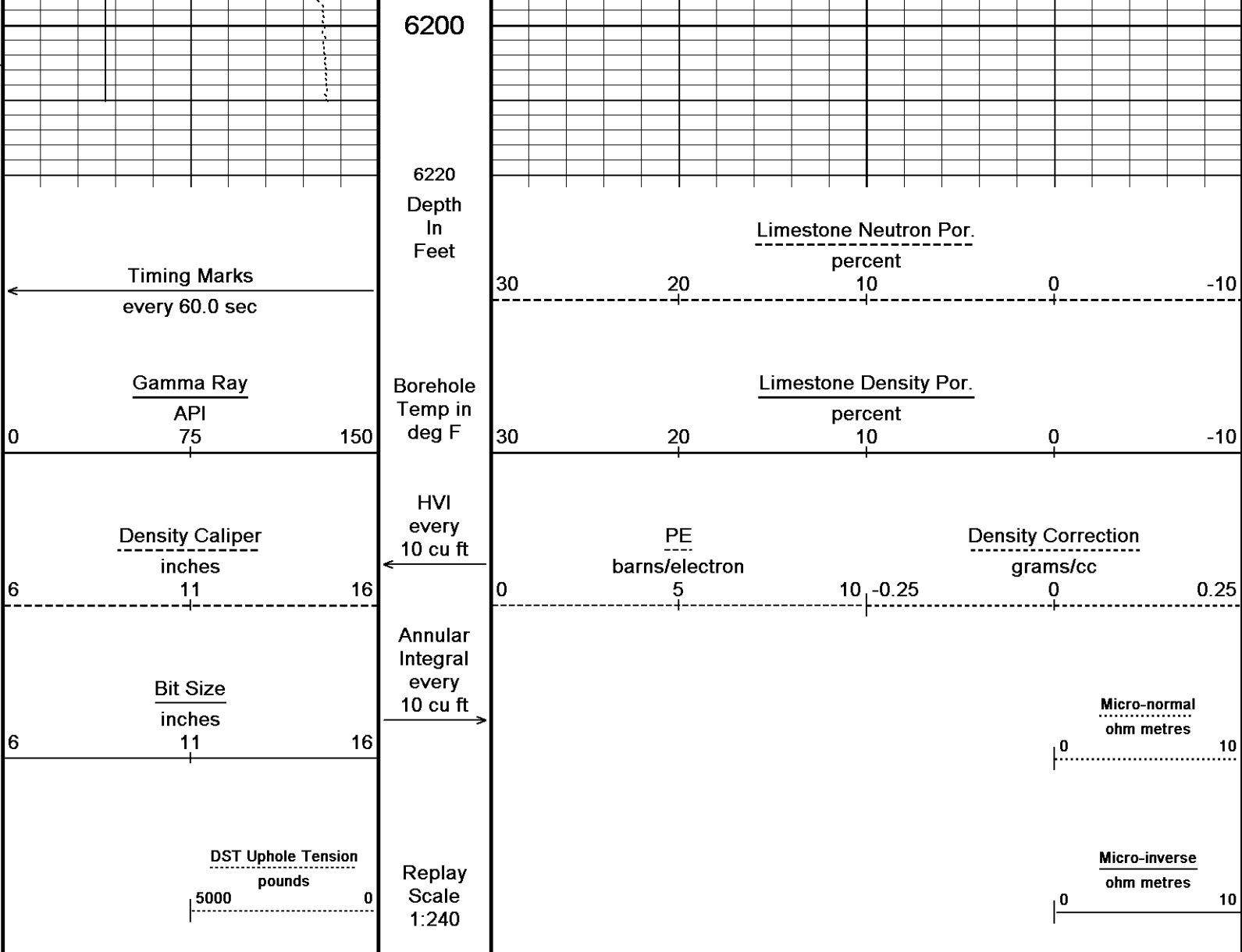












Depth Based Data - Maximum Sampling Increment 10.0cm

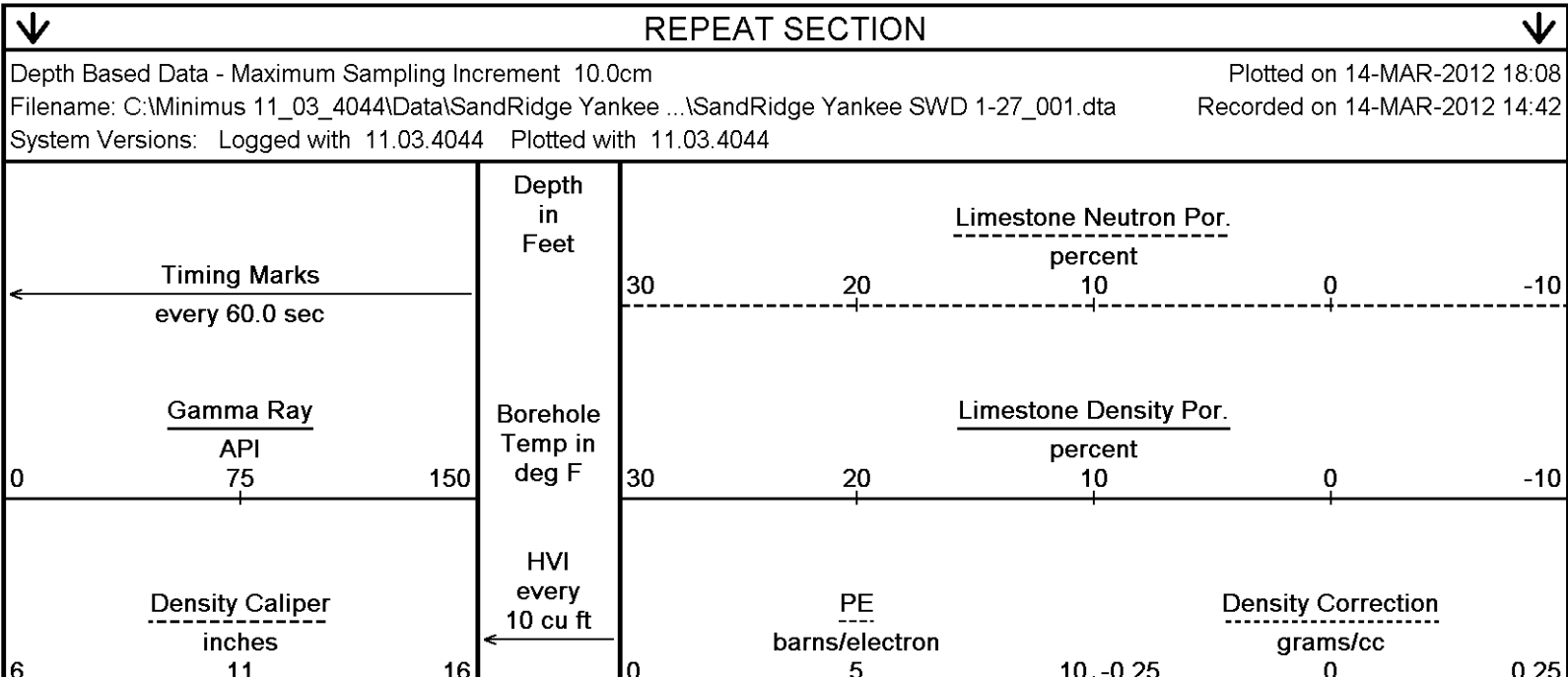
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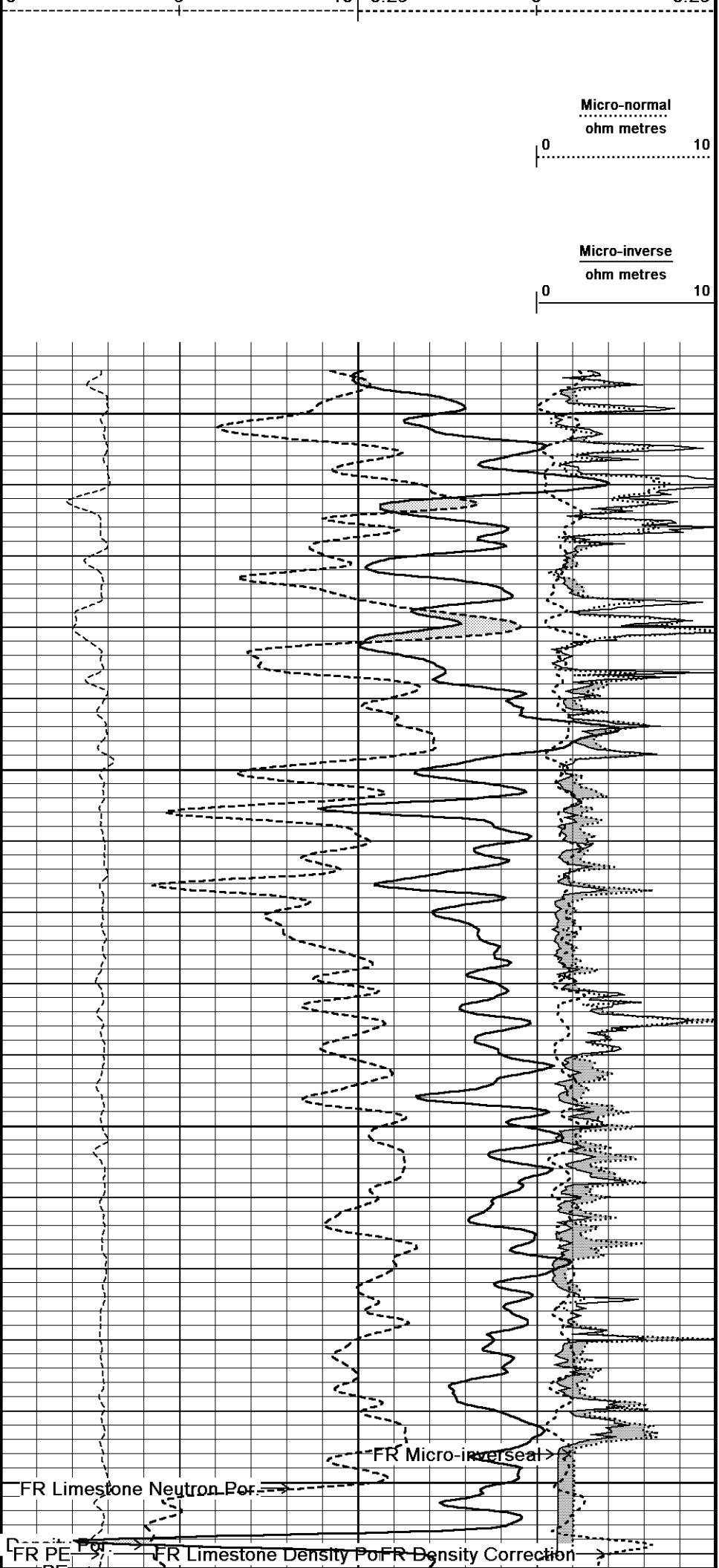
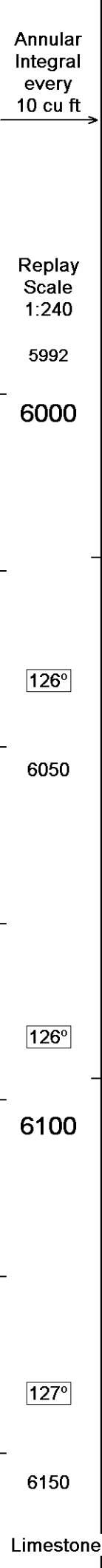
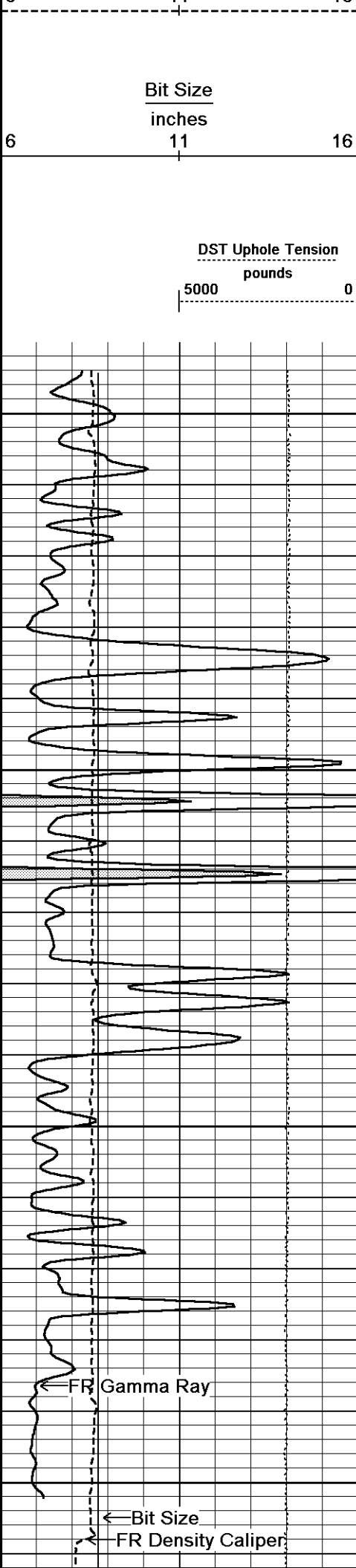
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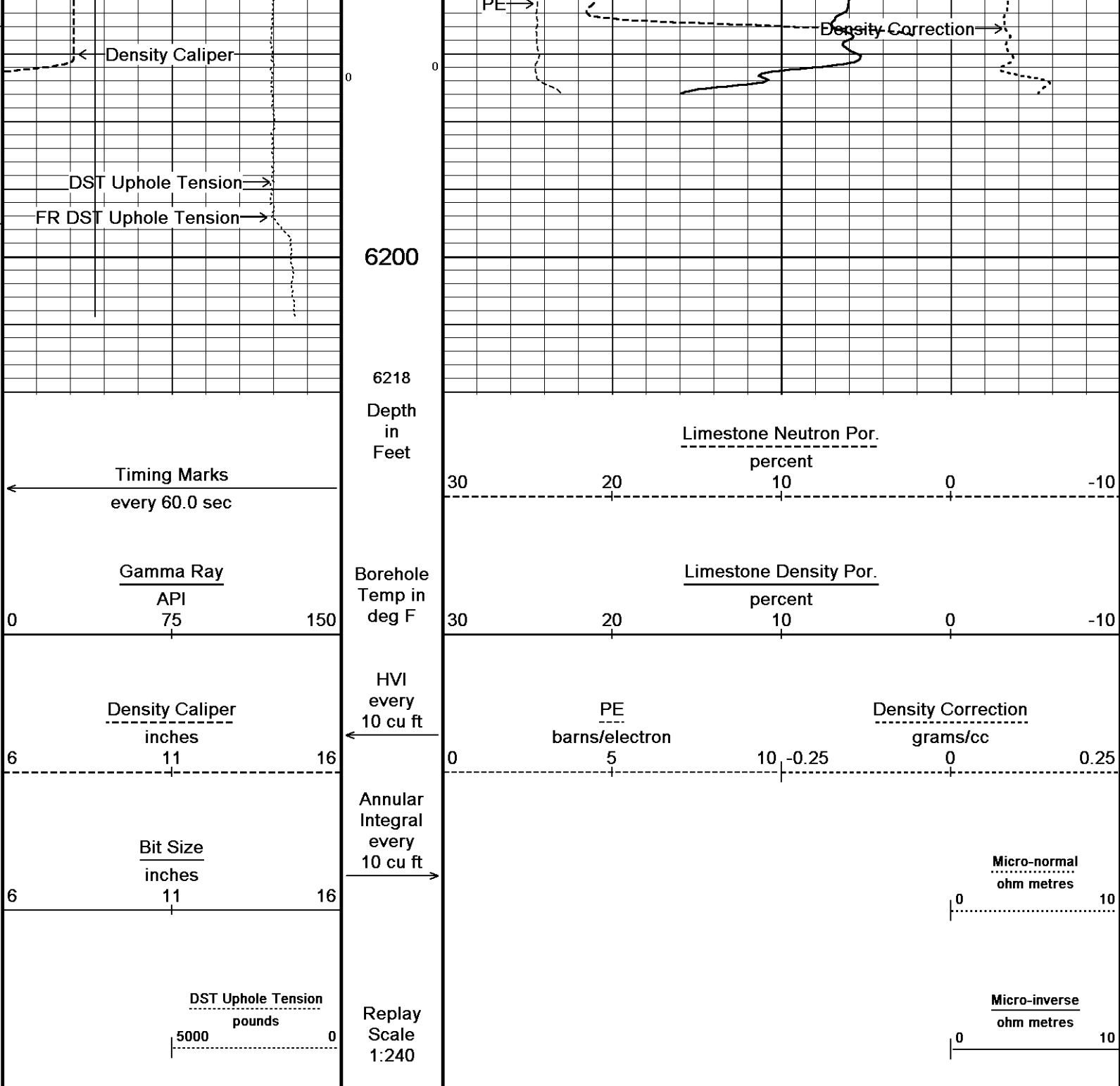
Recorded on 14-MAR-2012 14:56

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

5 INCH MAIN





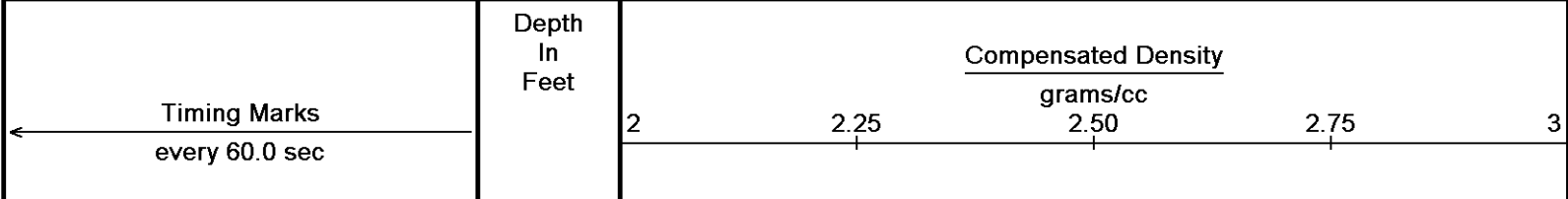


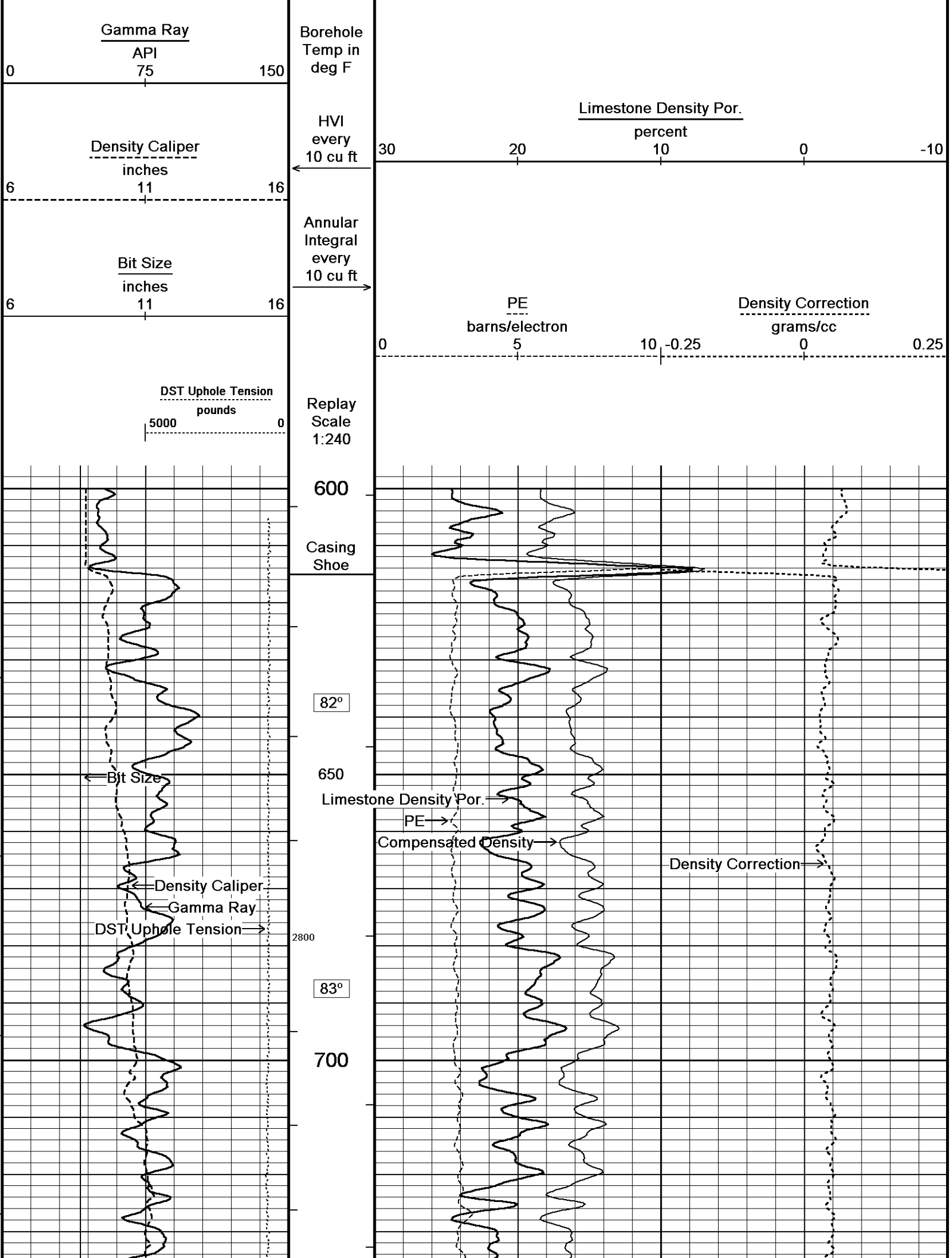
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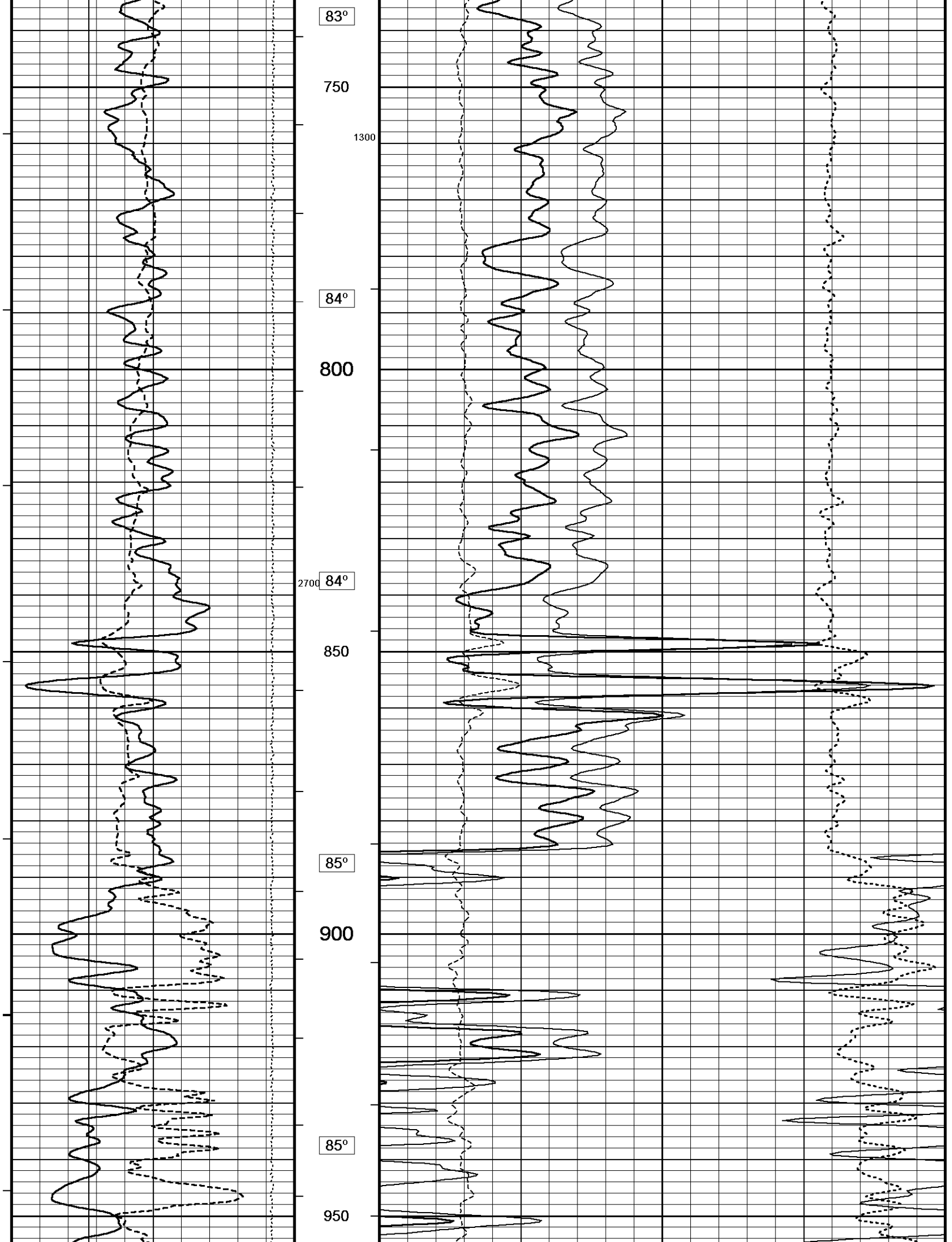
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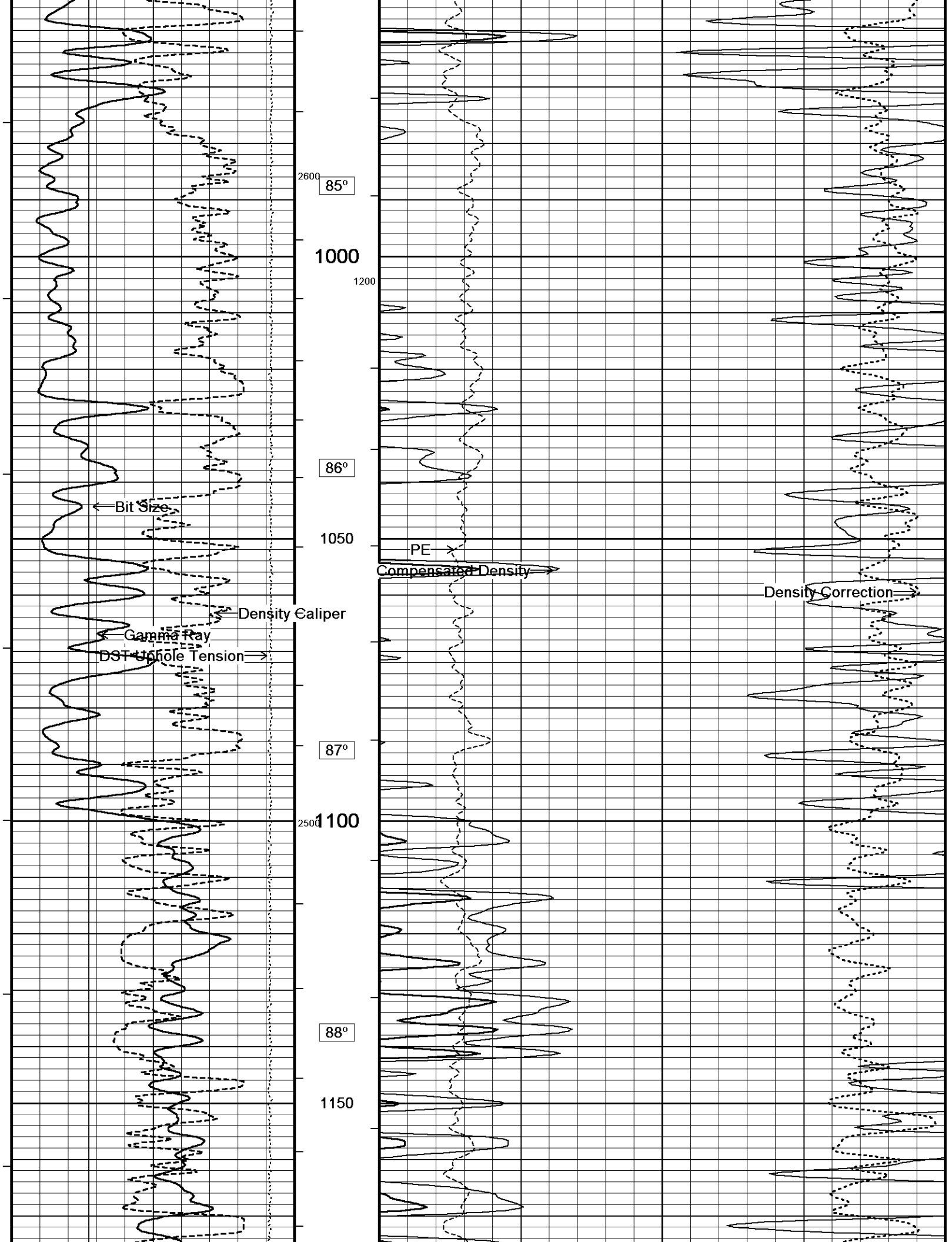
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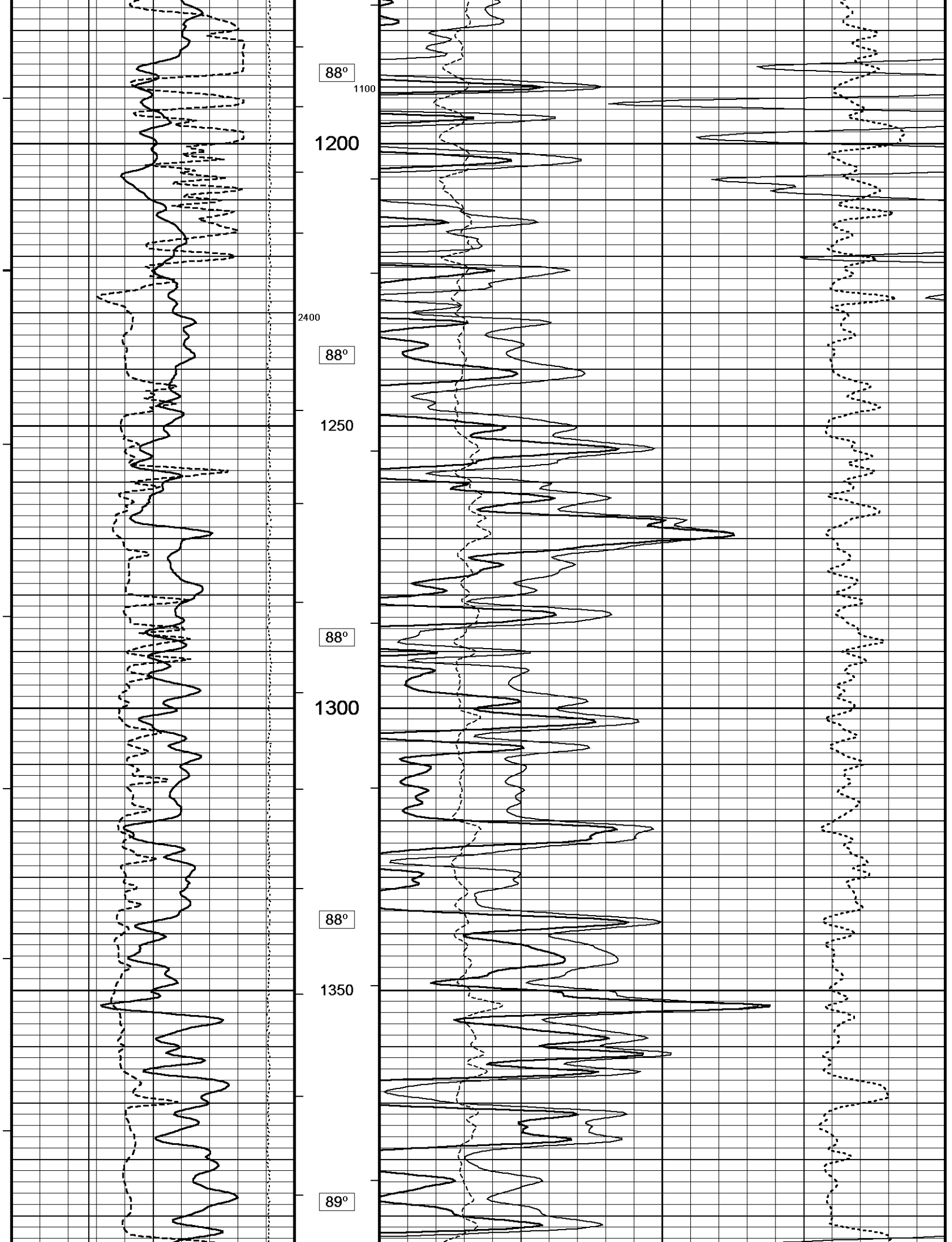
Depth Based Data - Maximum Sampling Increment 10.0cm
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System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

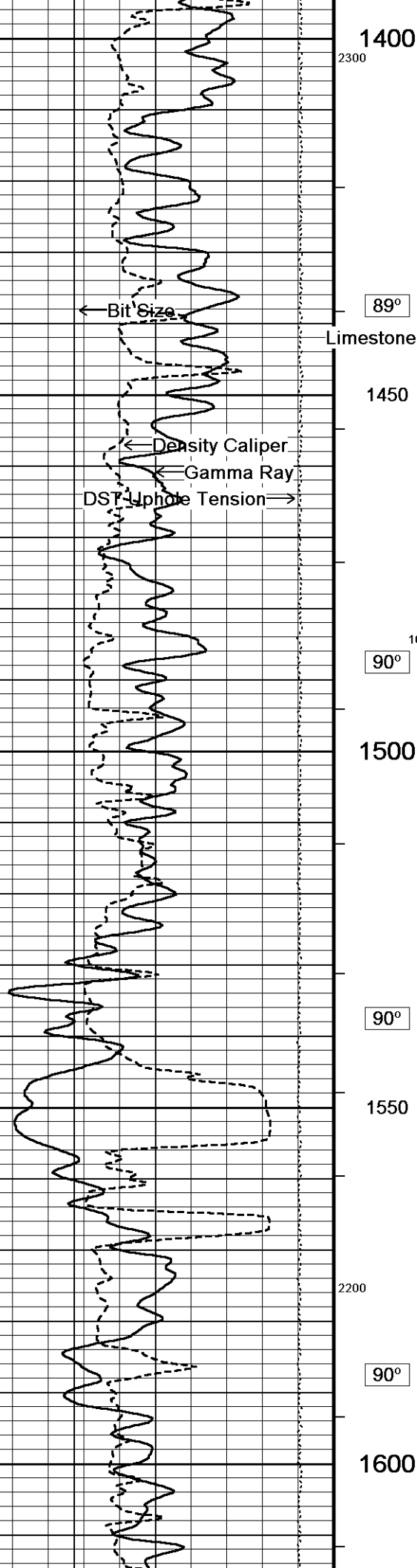












1400

2300

89°

Limestone Density Por.

1450

PE

Compensated Density

Density Correction

1500

90°

1000

1550

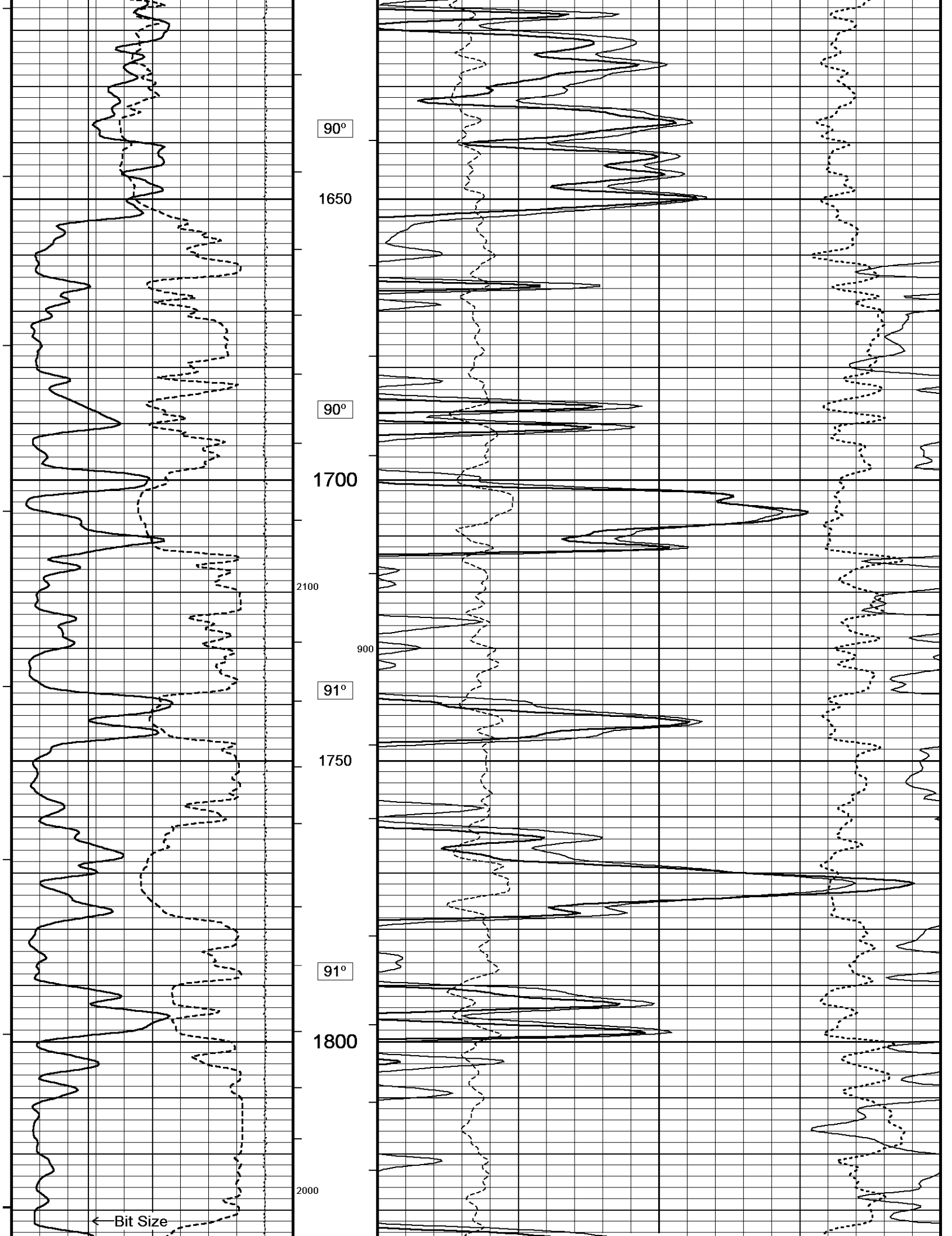
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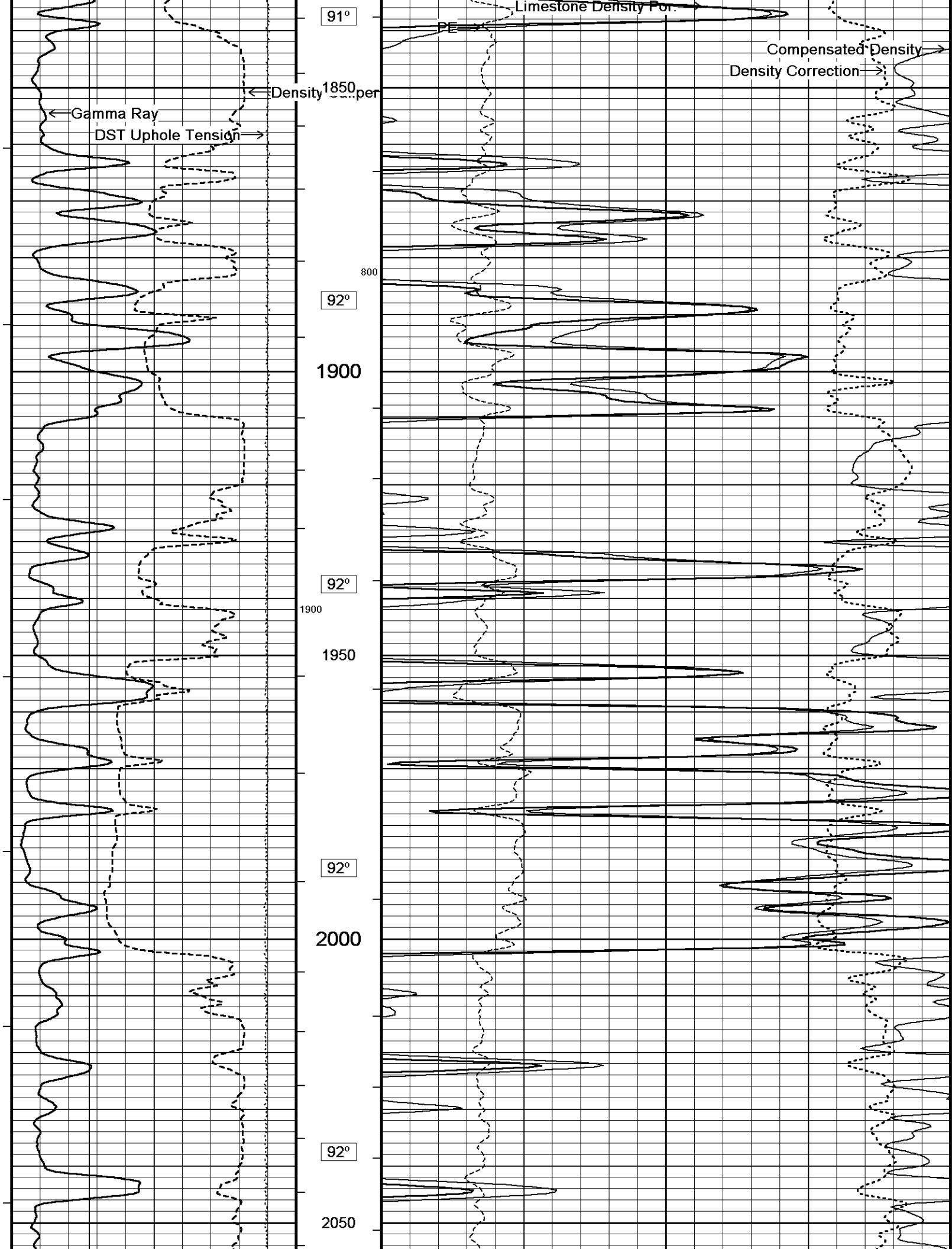
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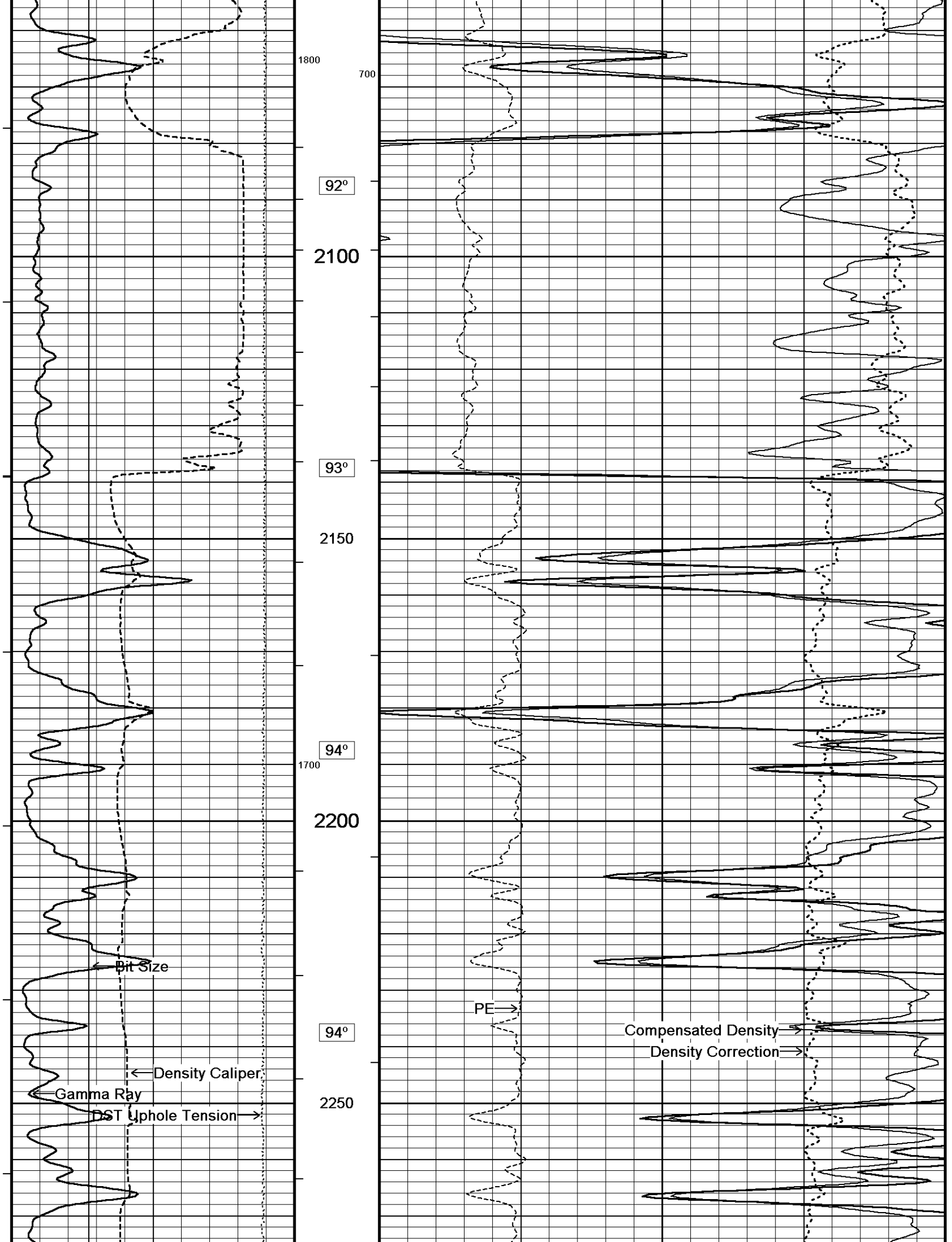
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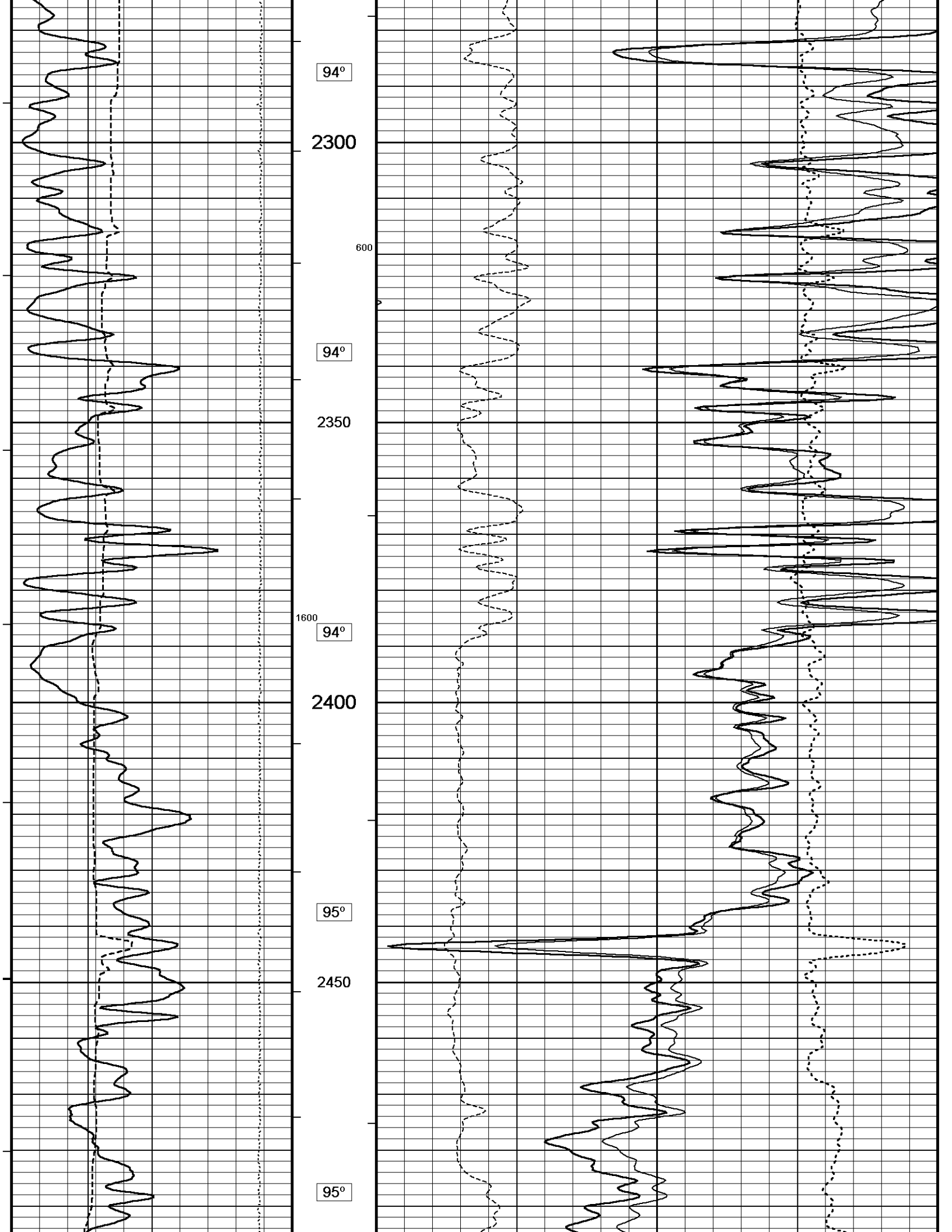
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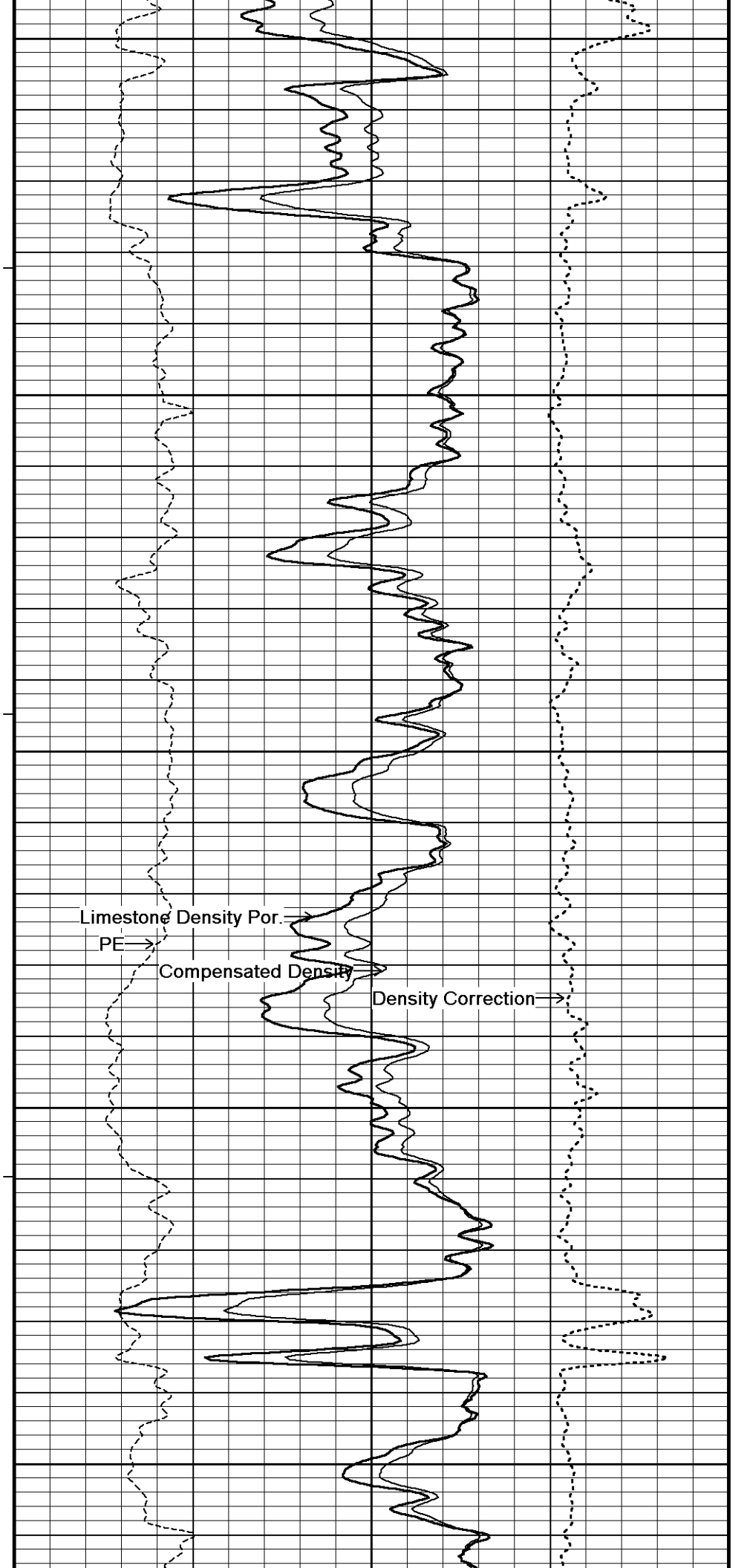
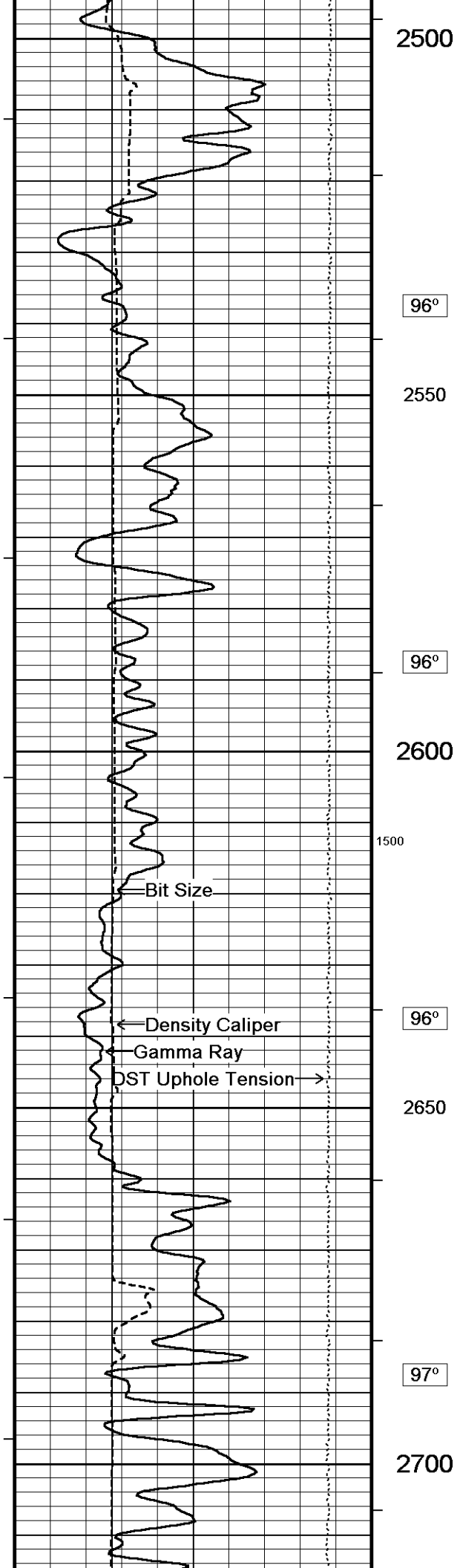
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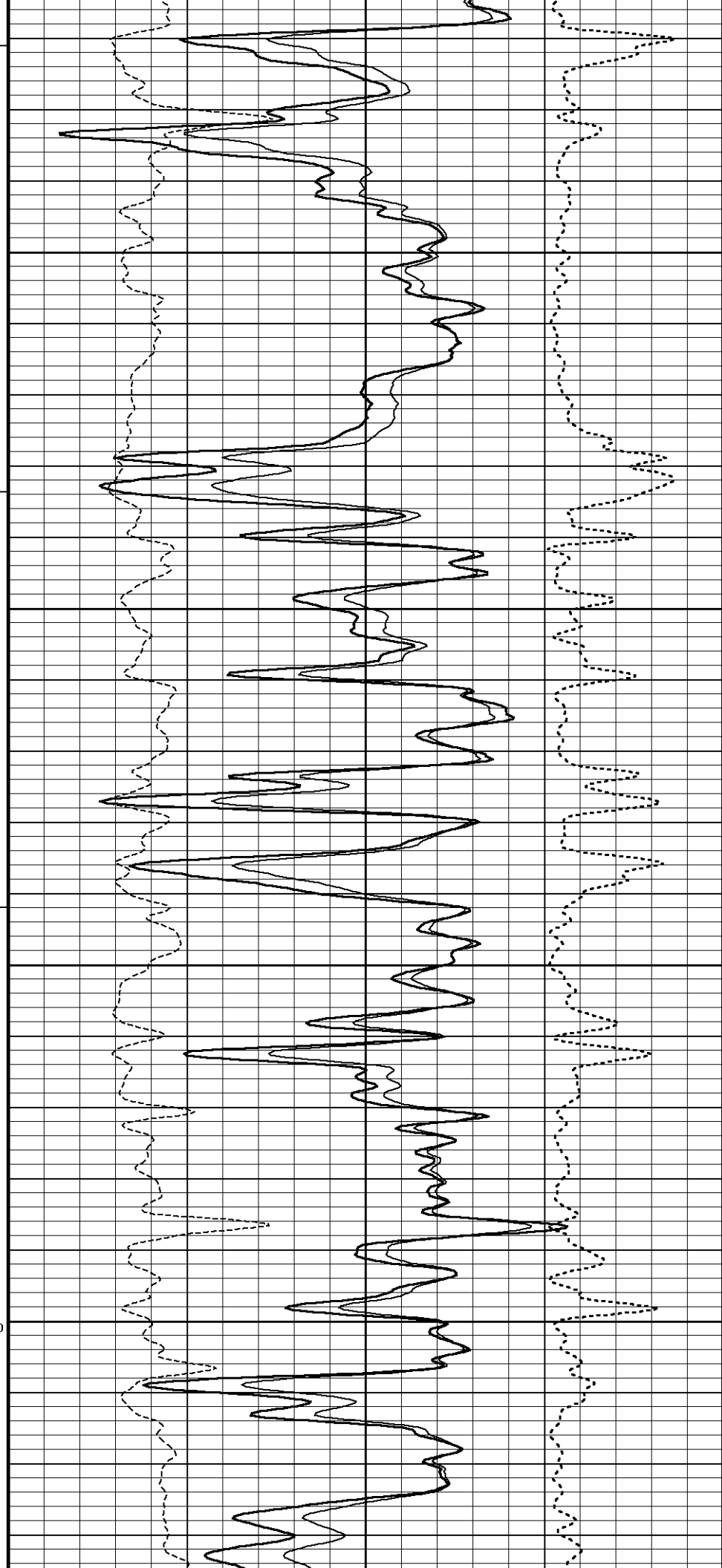
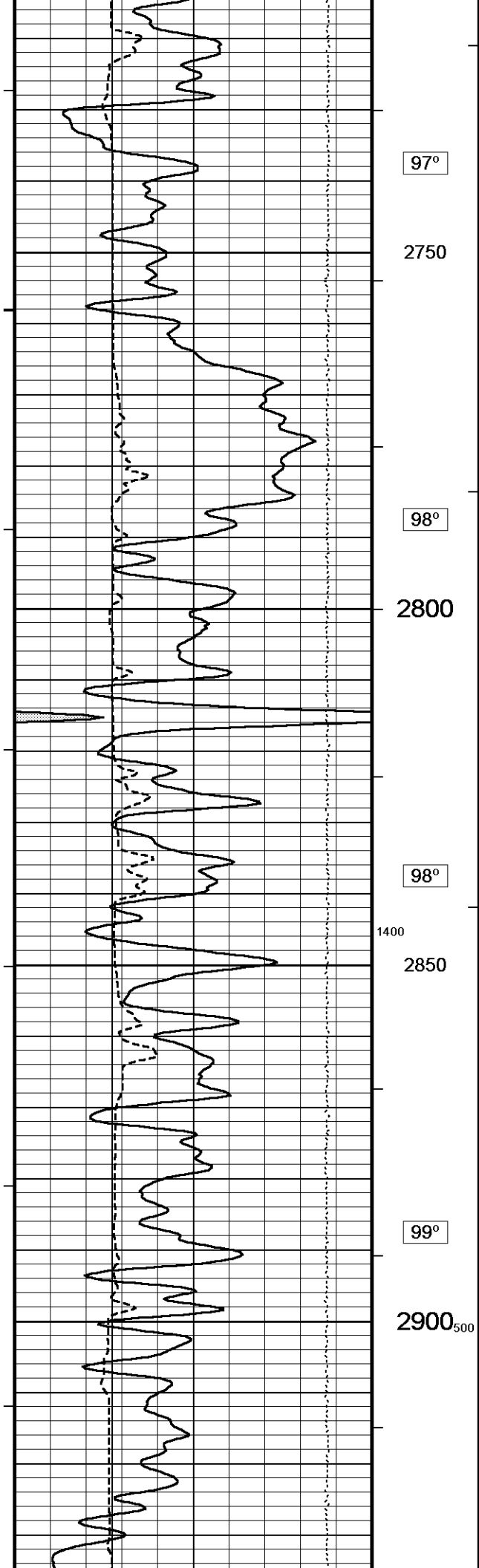


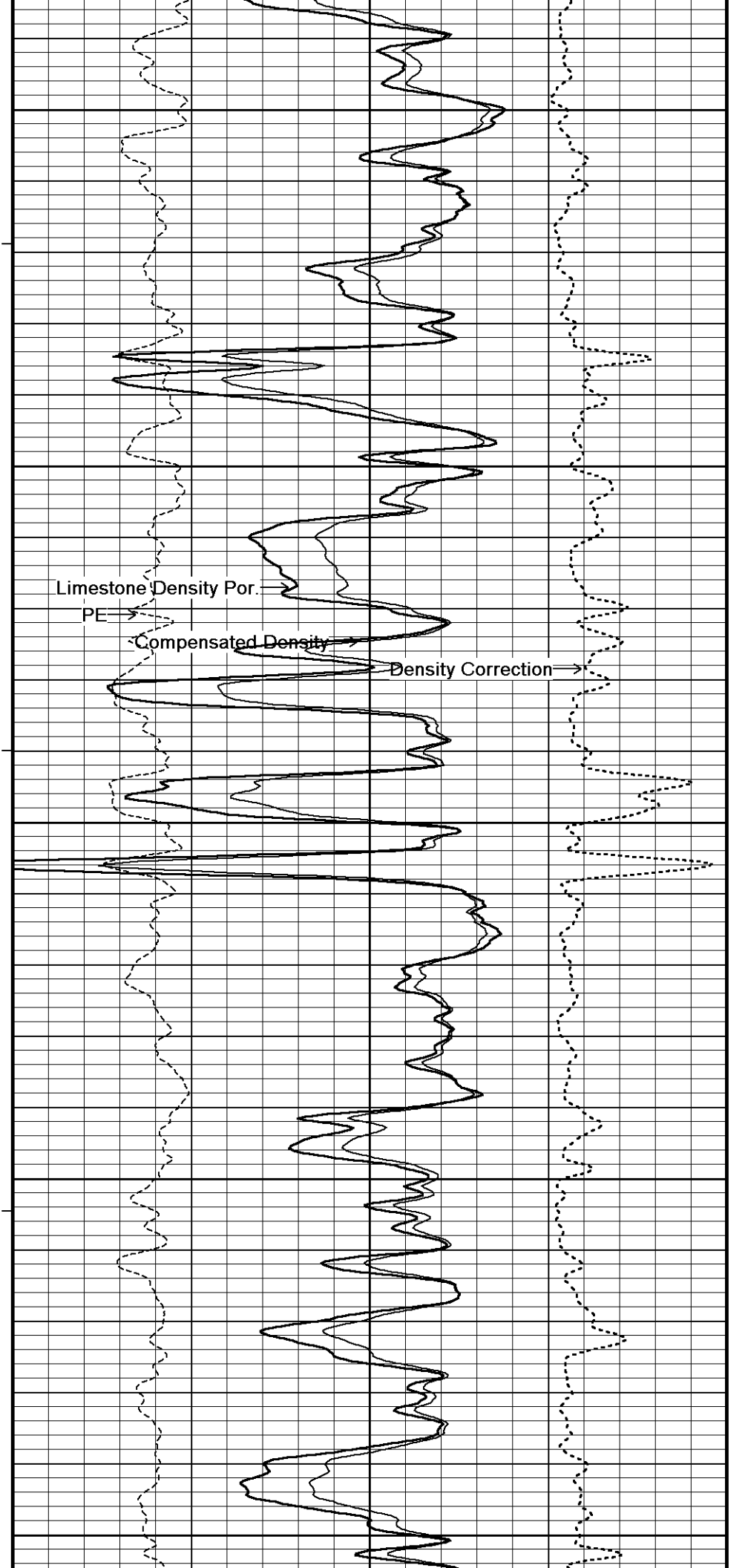
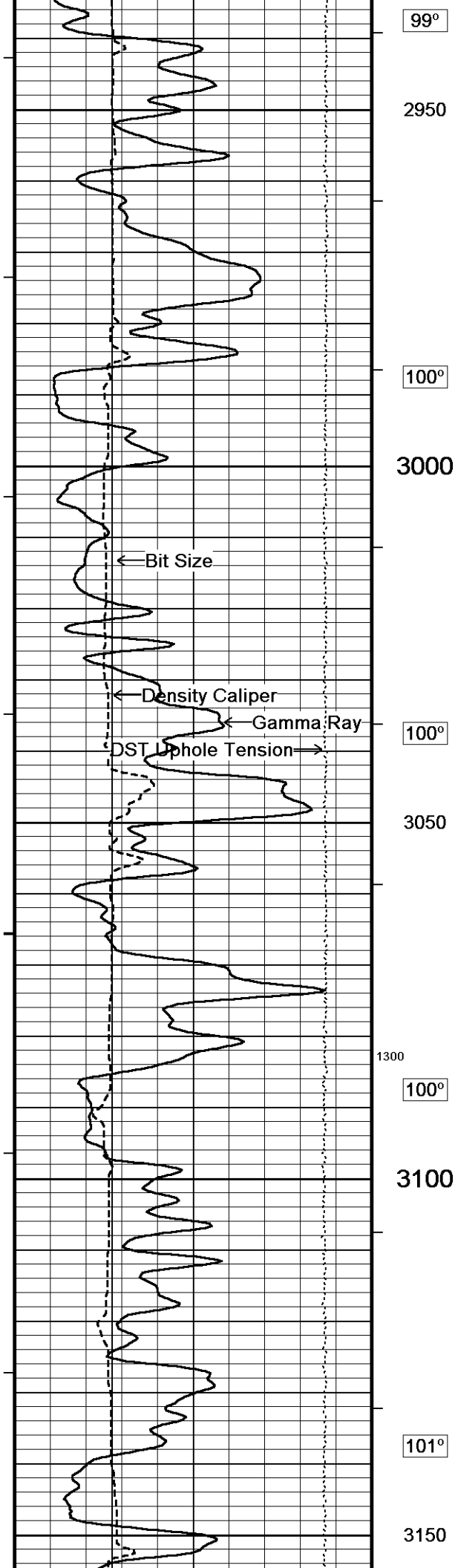


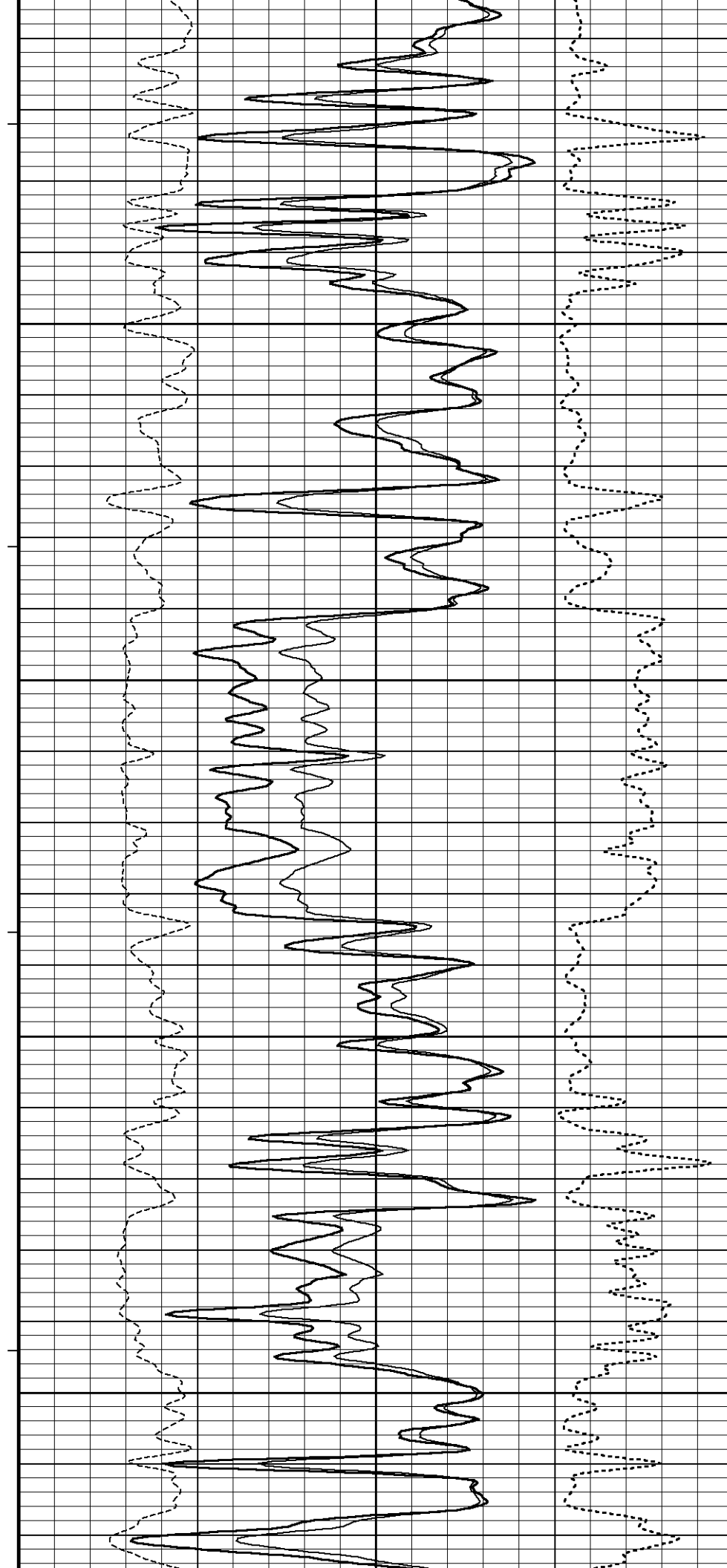
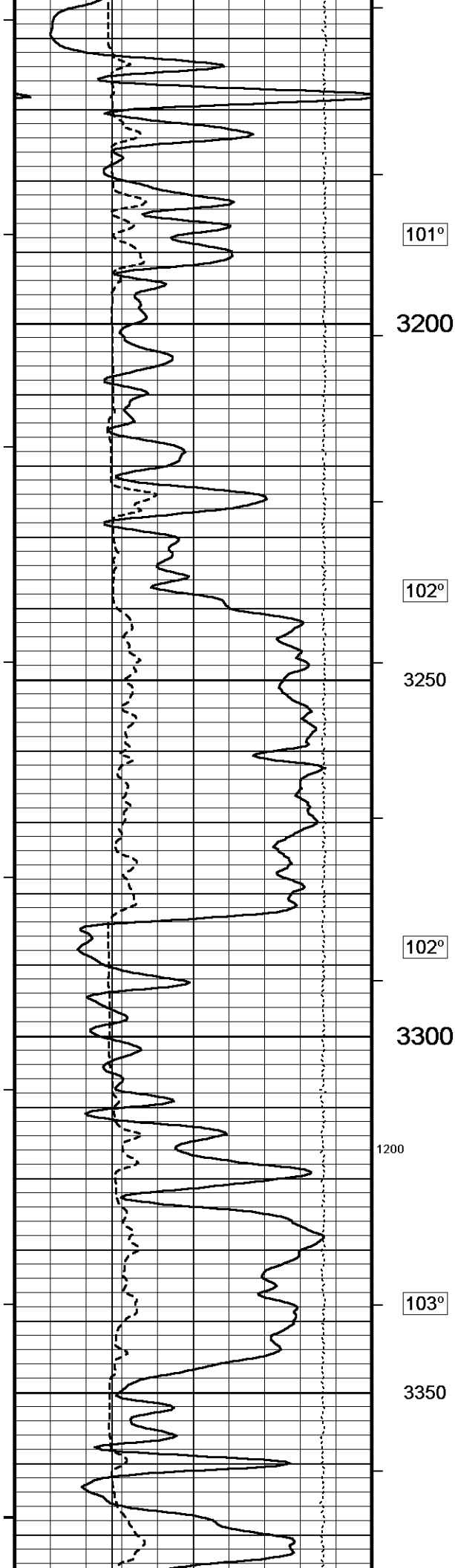


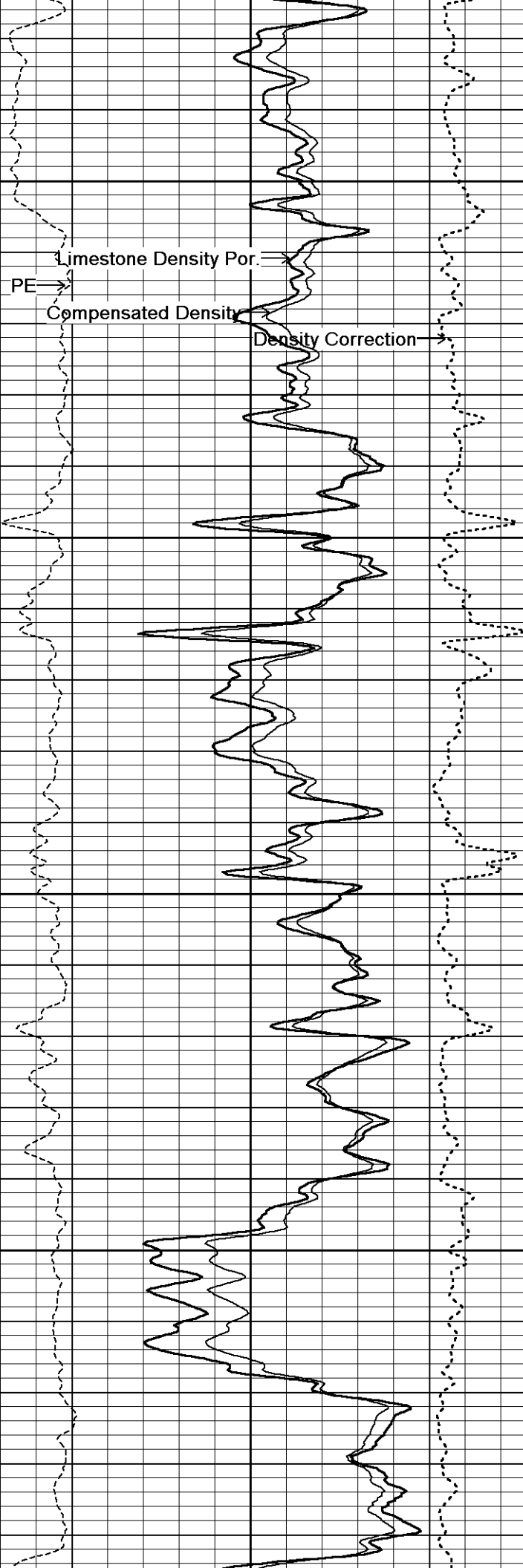
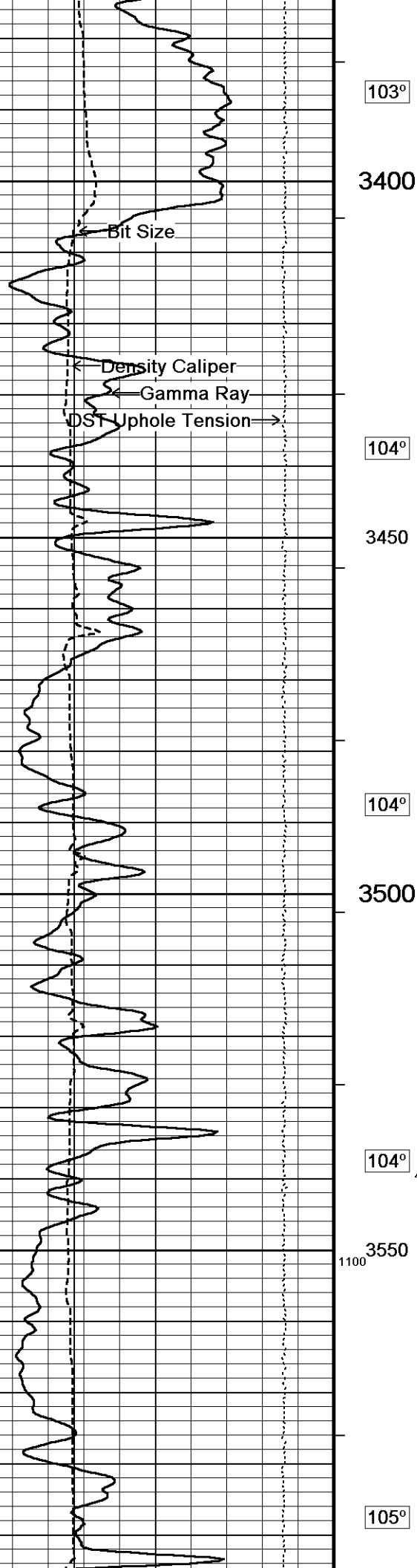


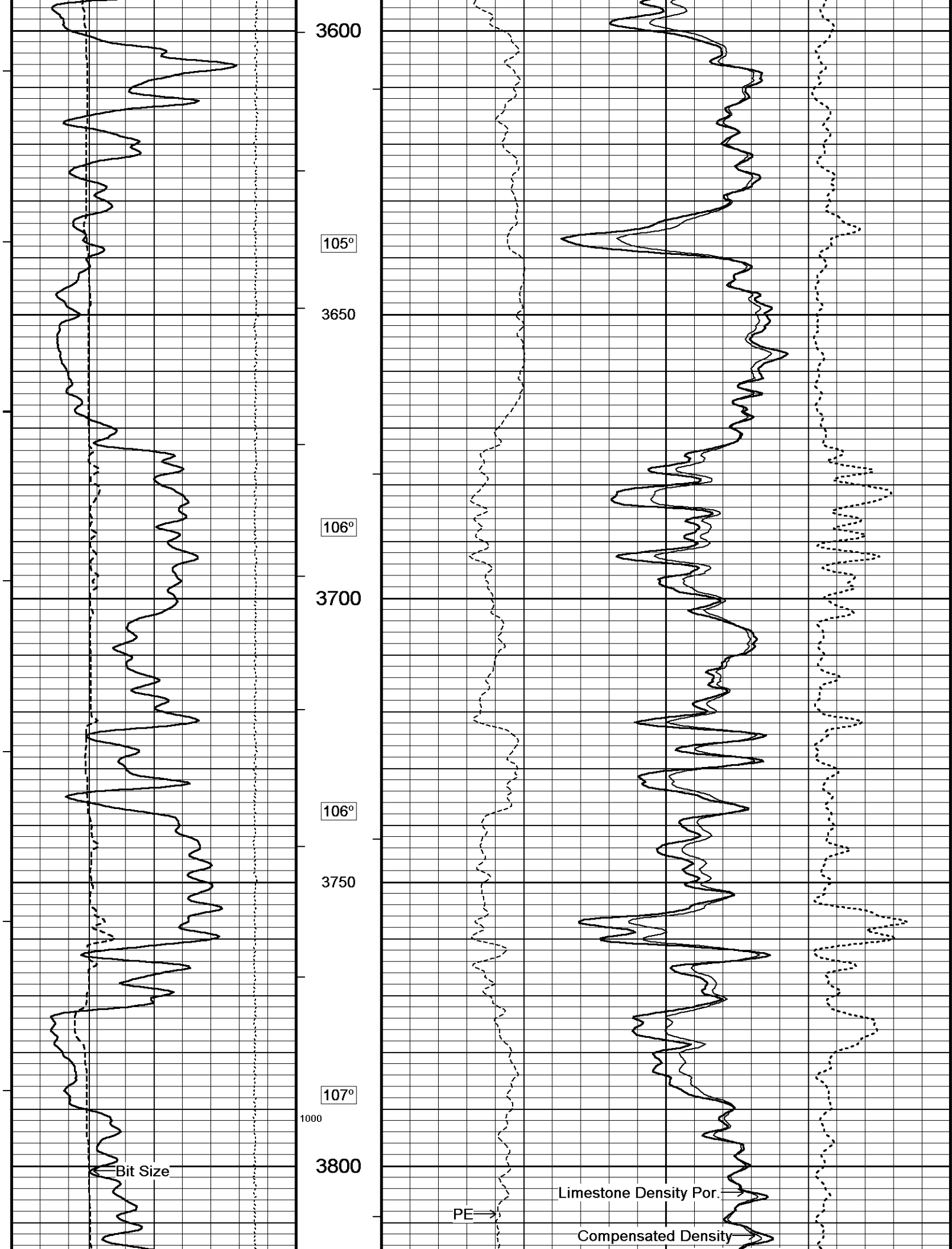


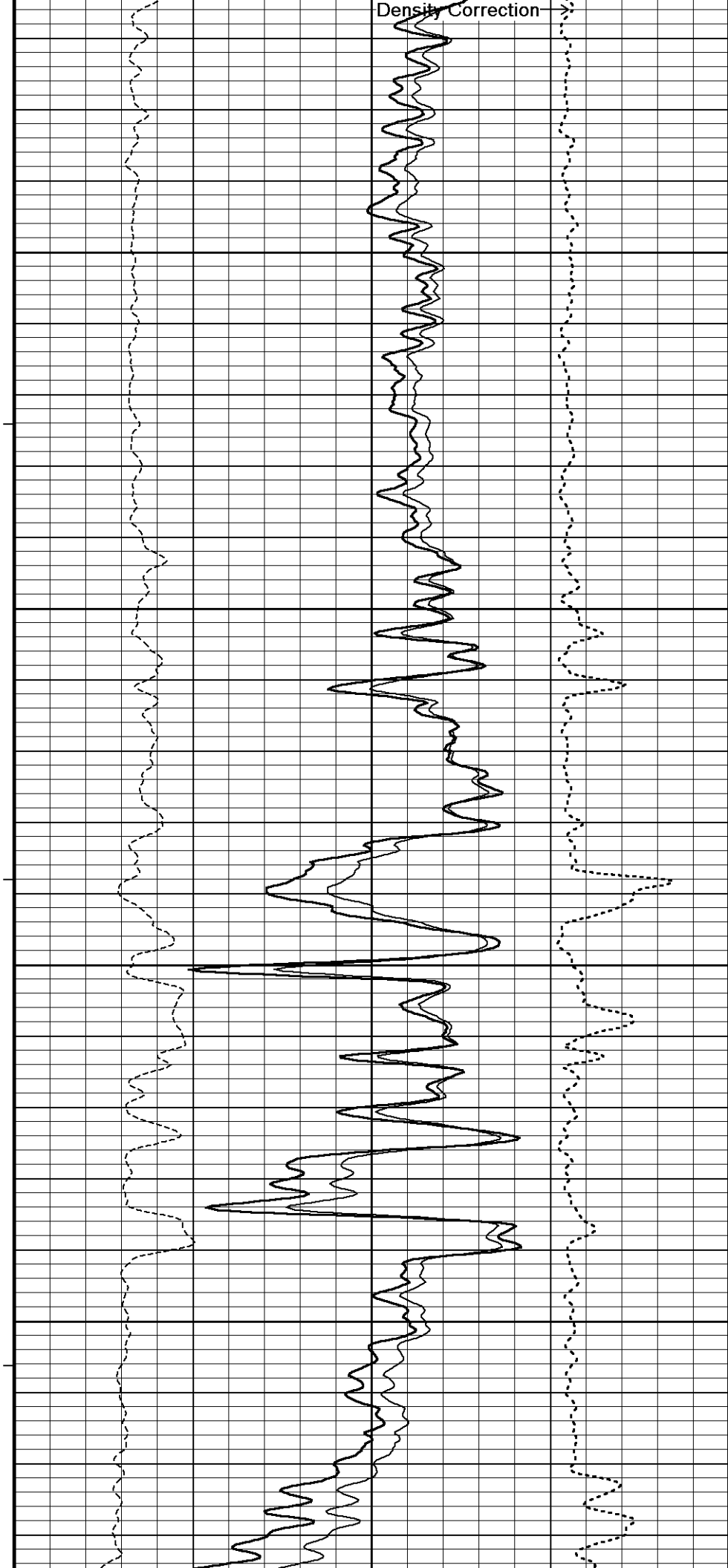
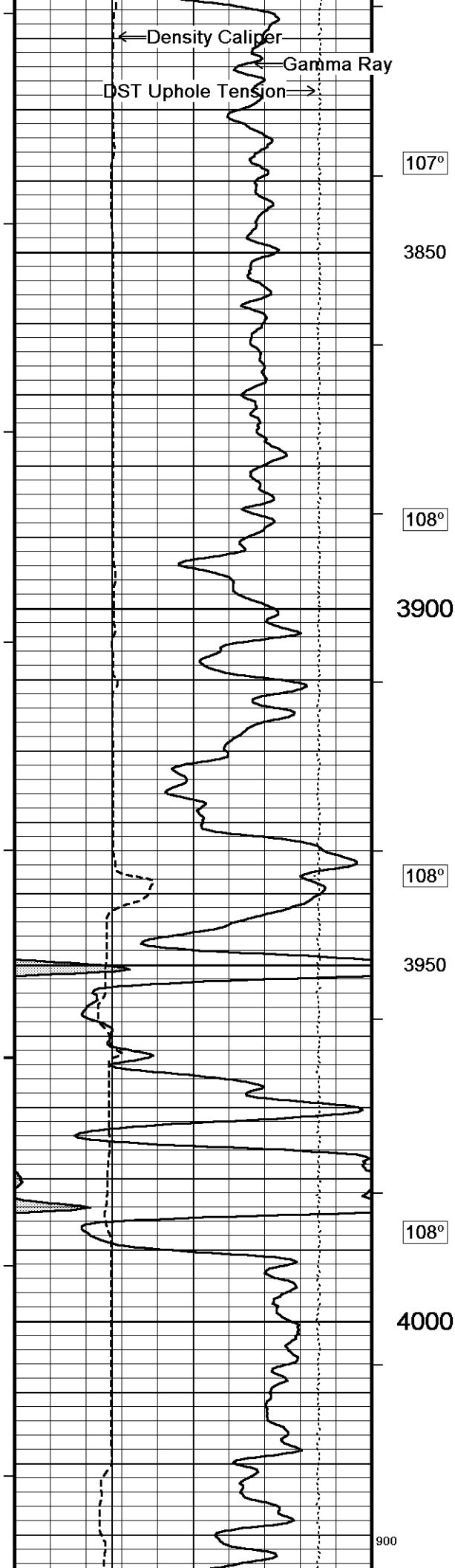


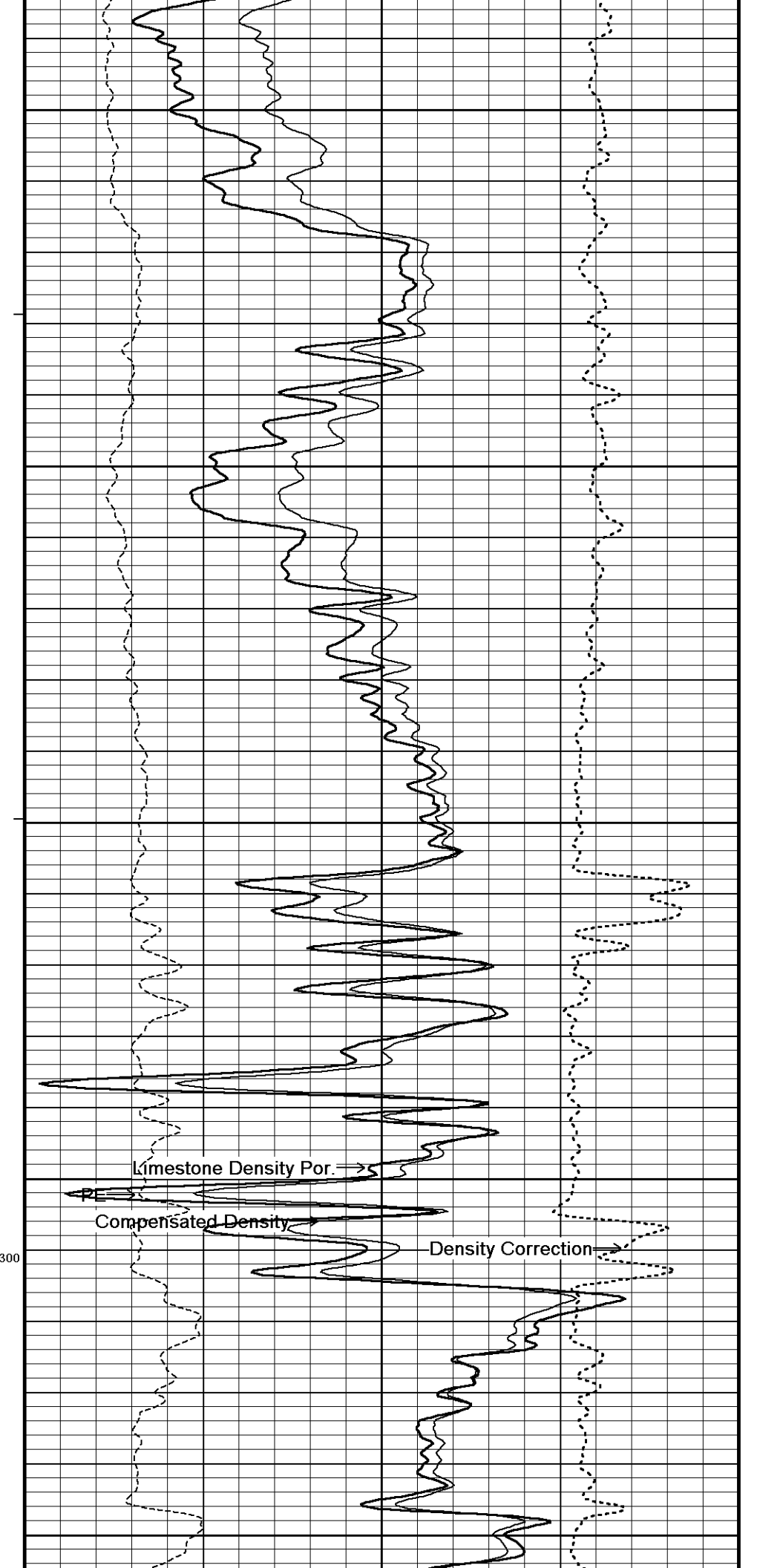
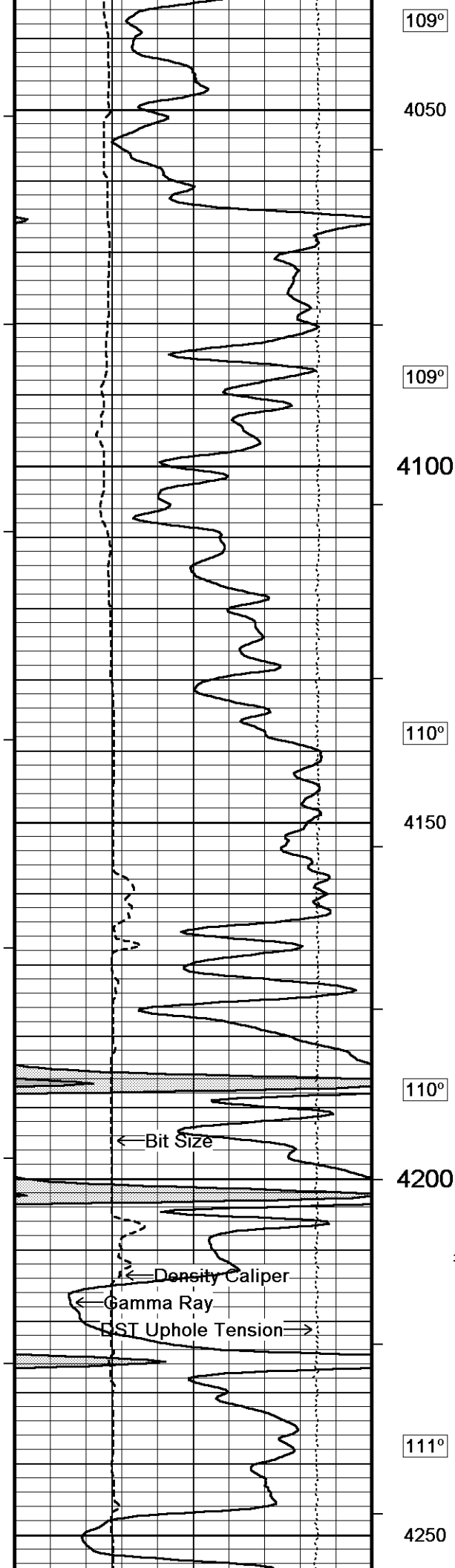


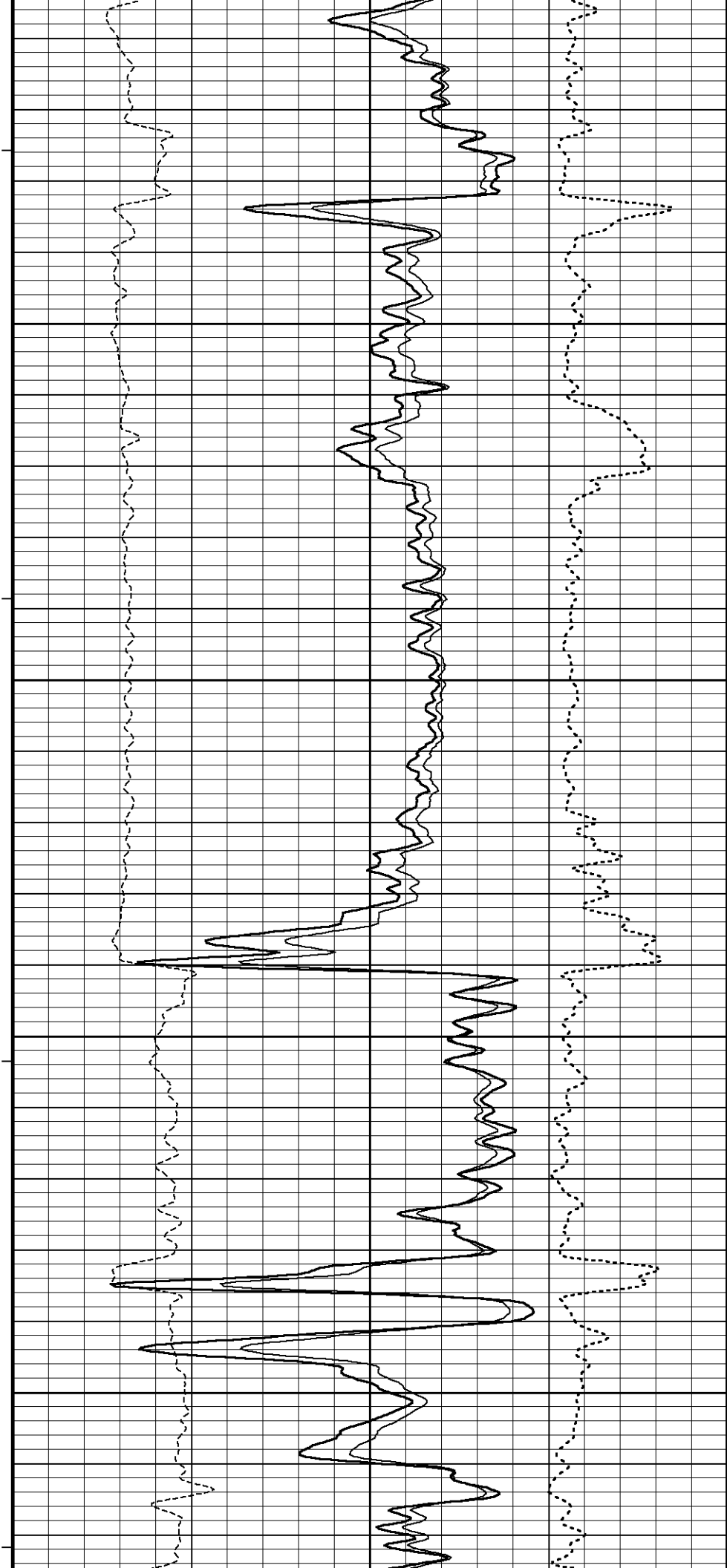
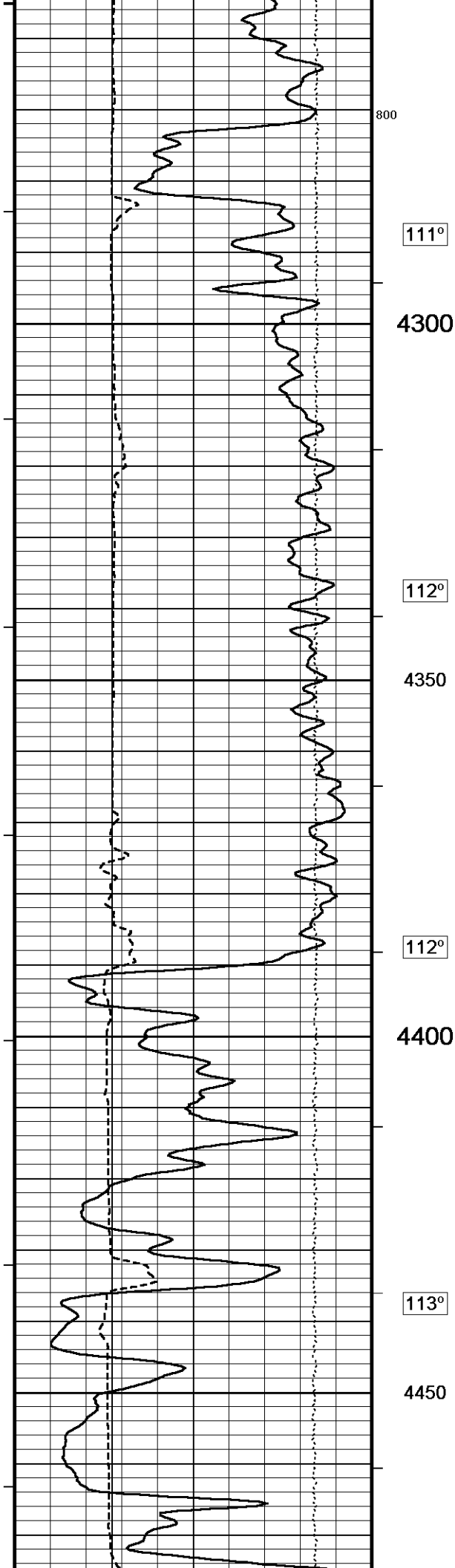


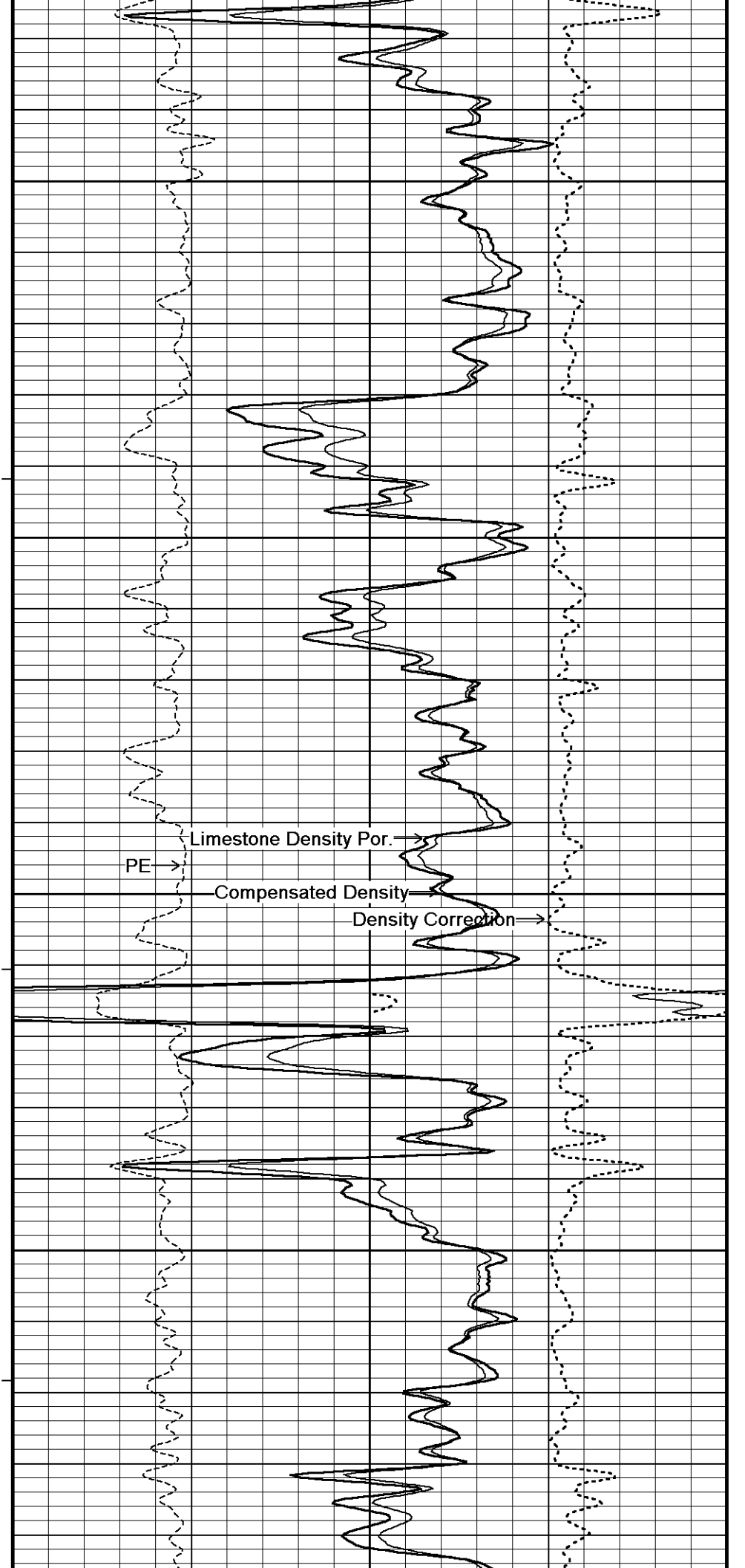
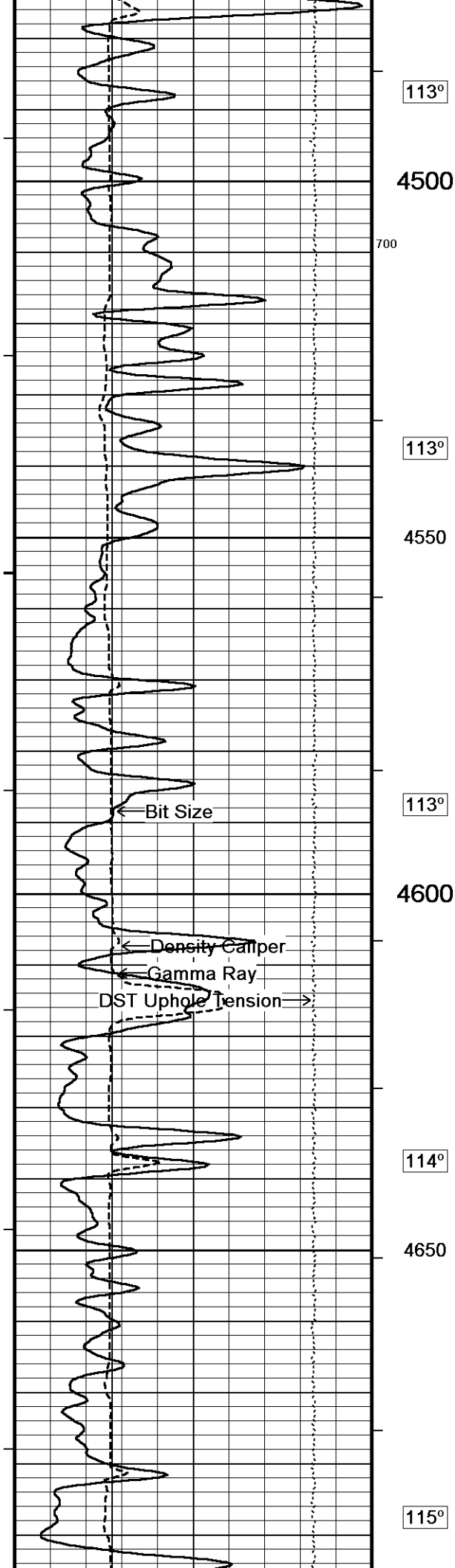


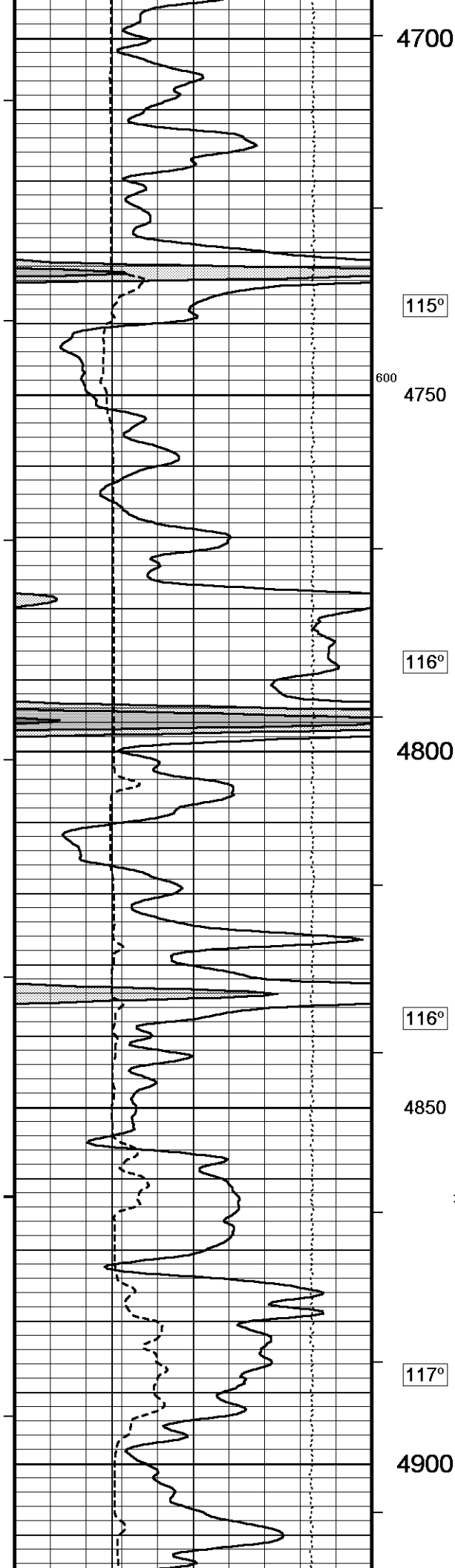












4700

115°

600

4750

116°

4800

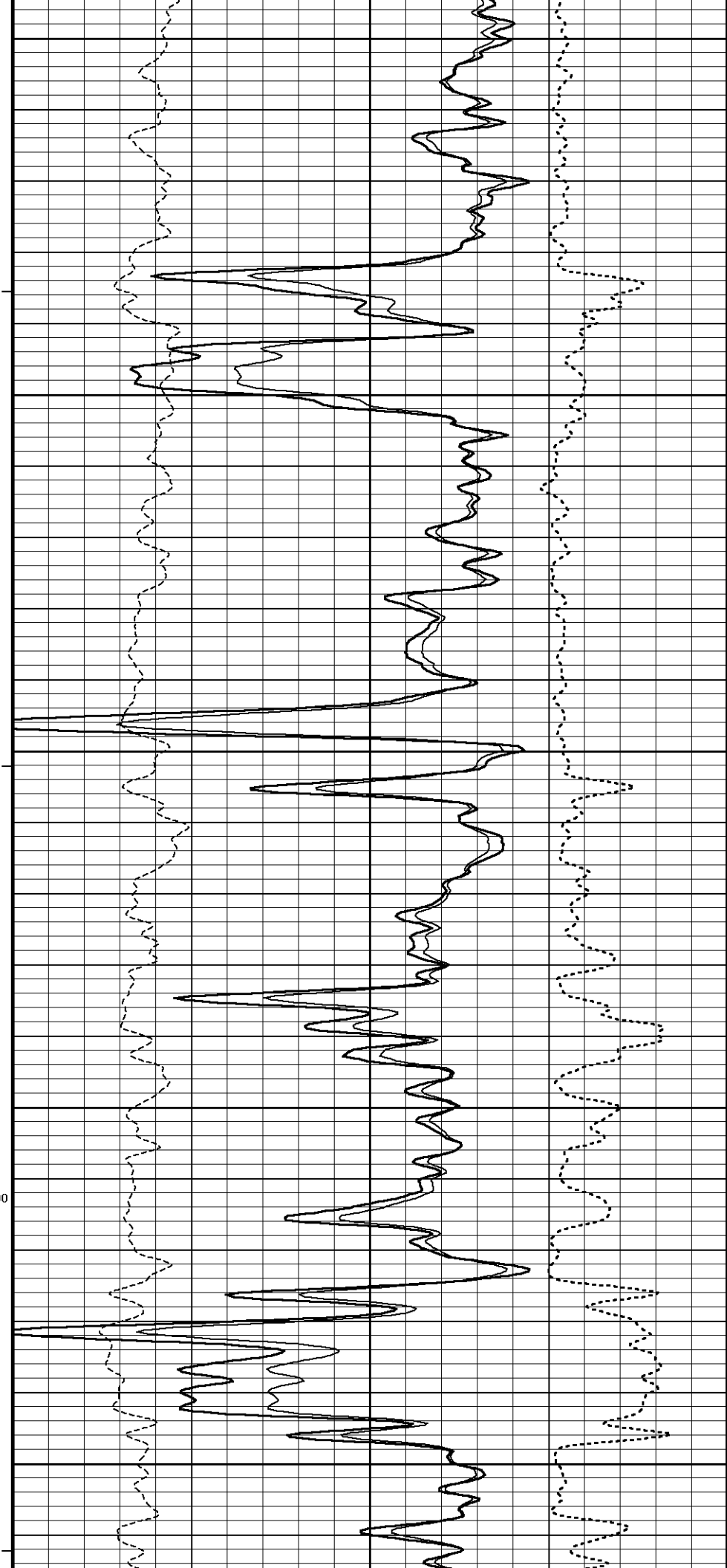
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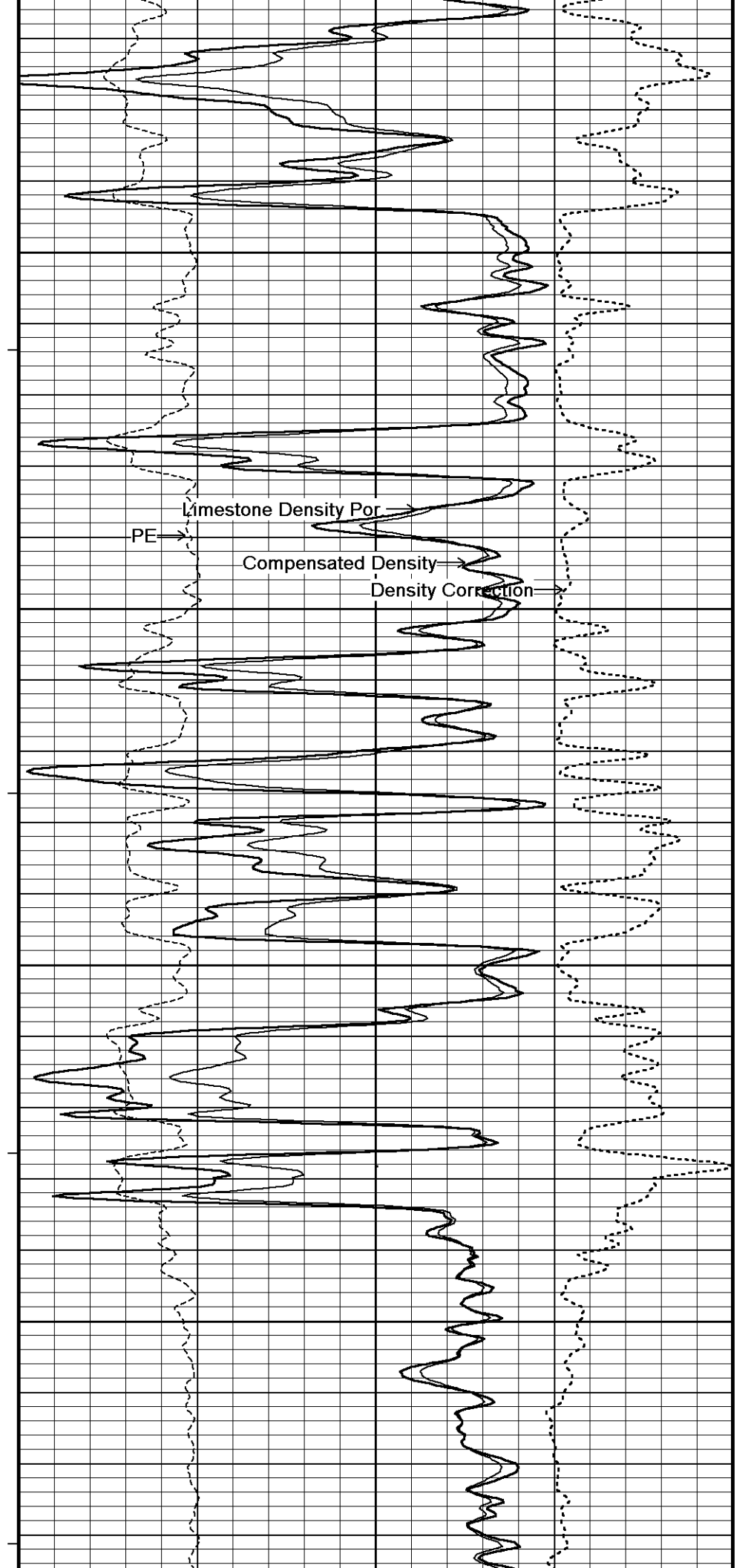
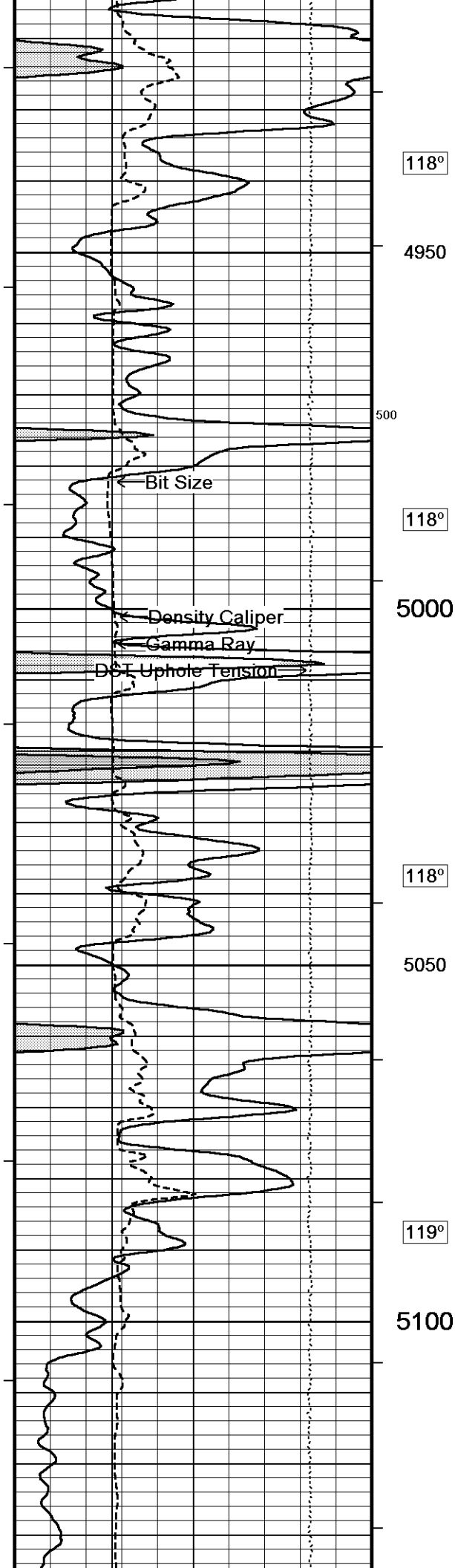
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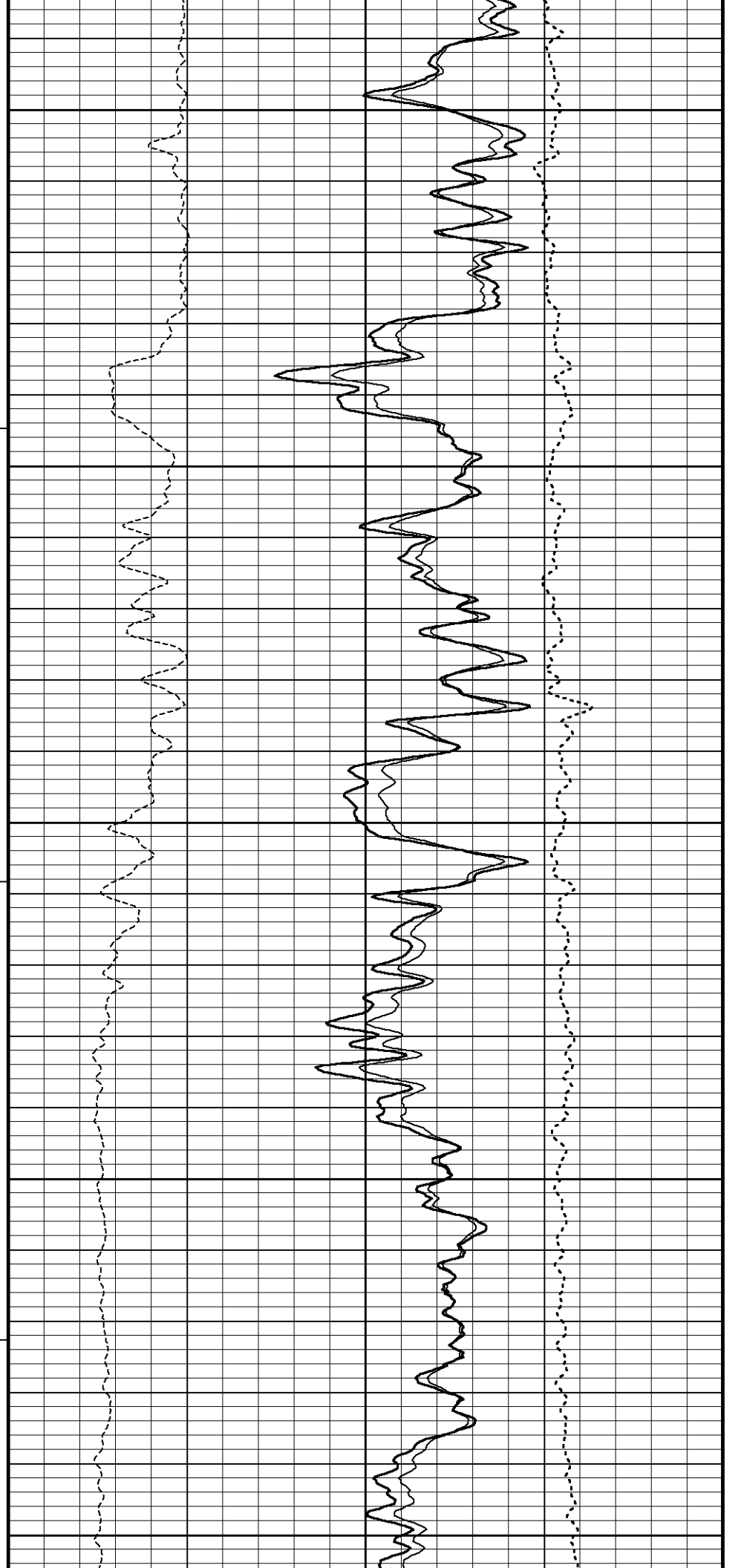
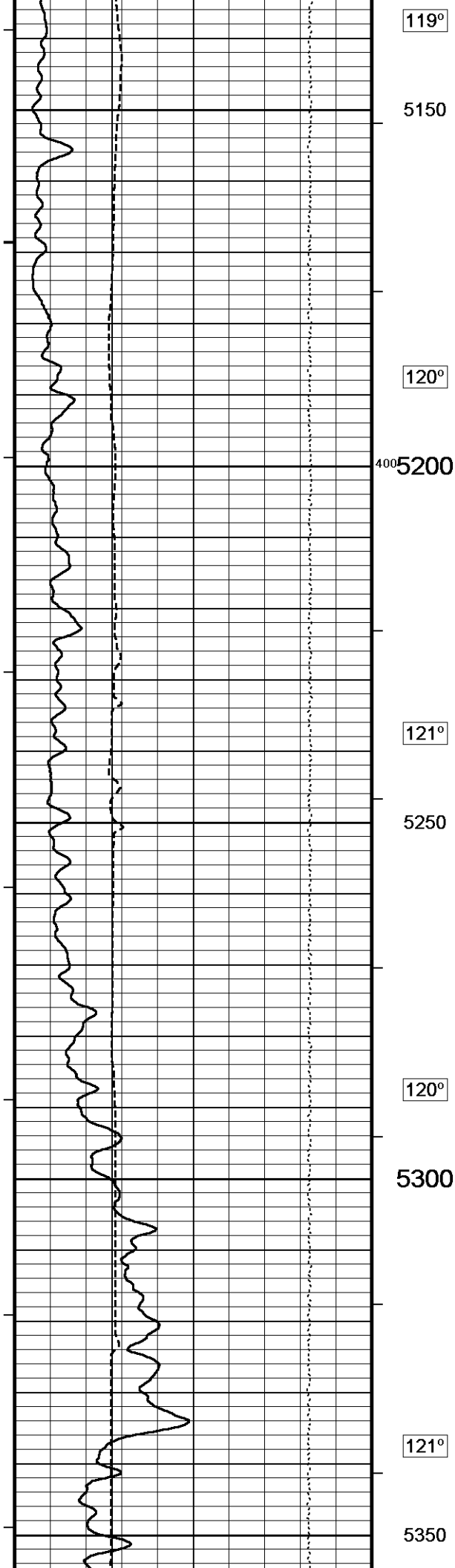
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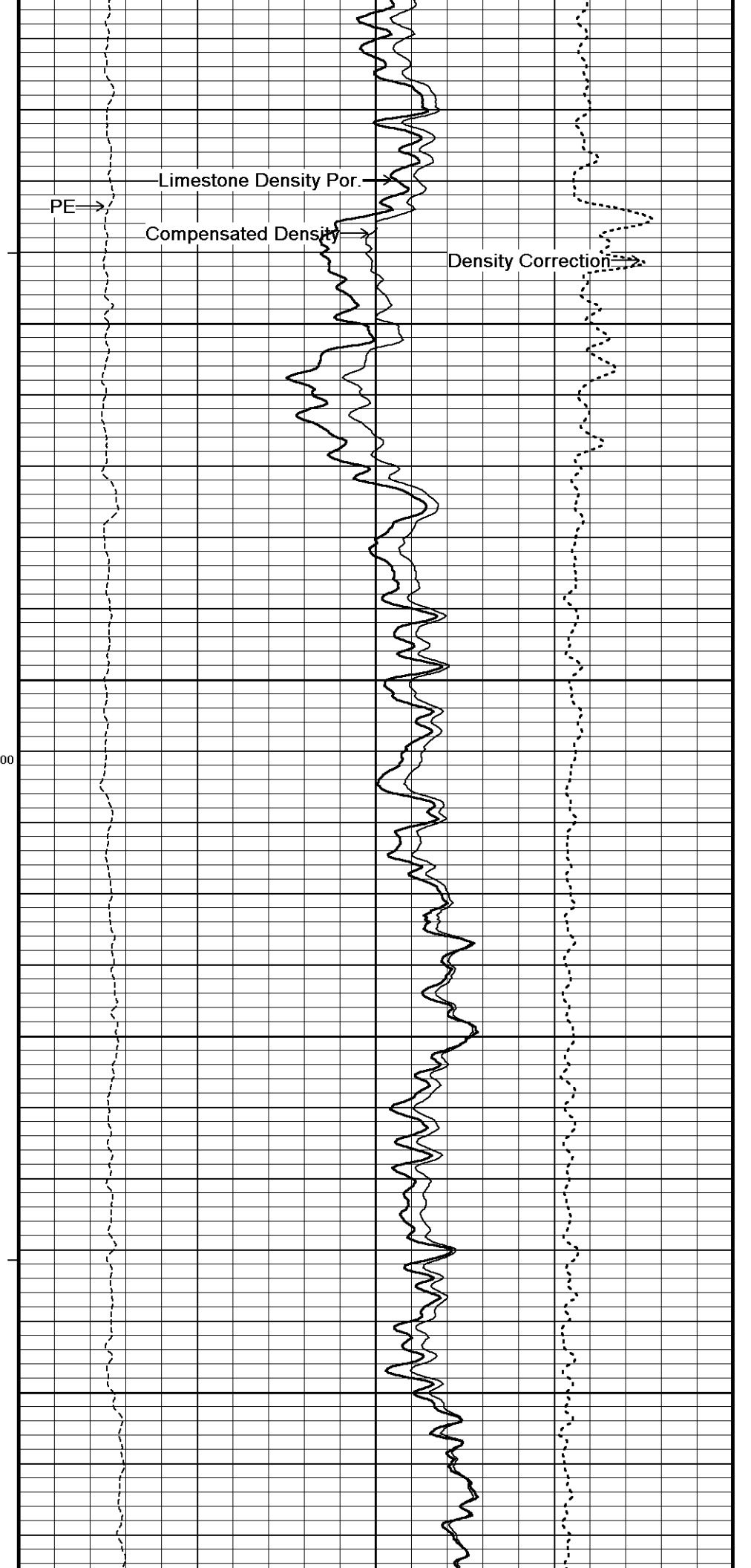
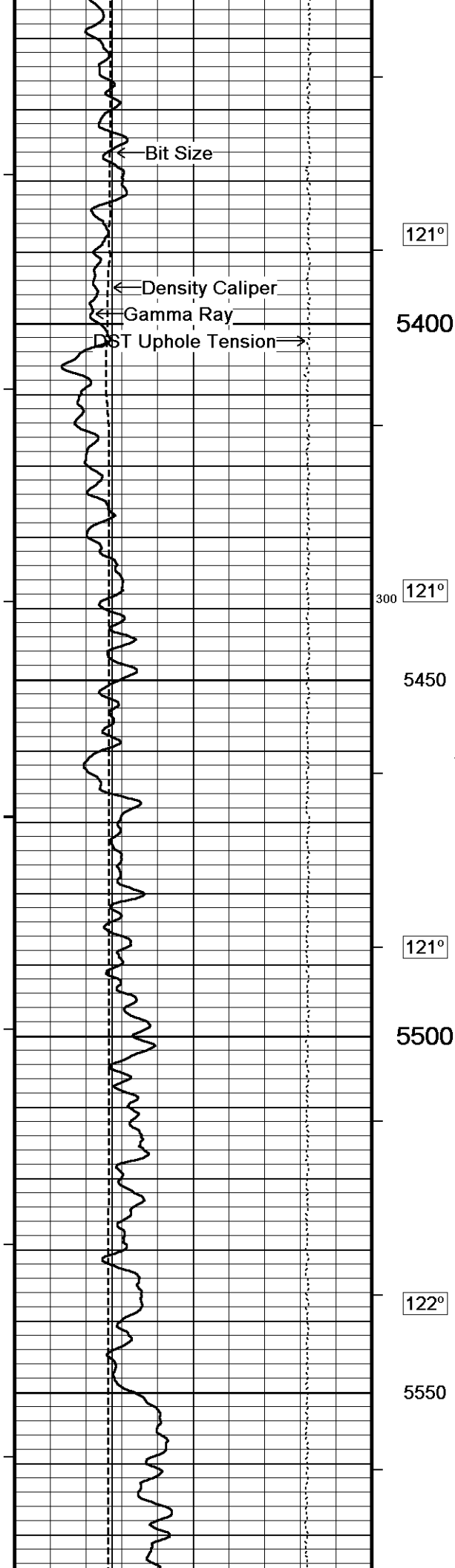
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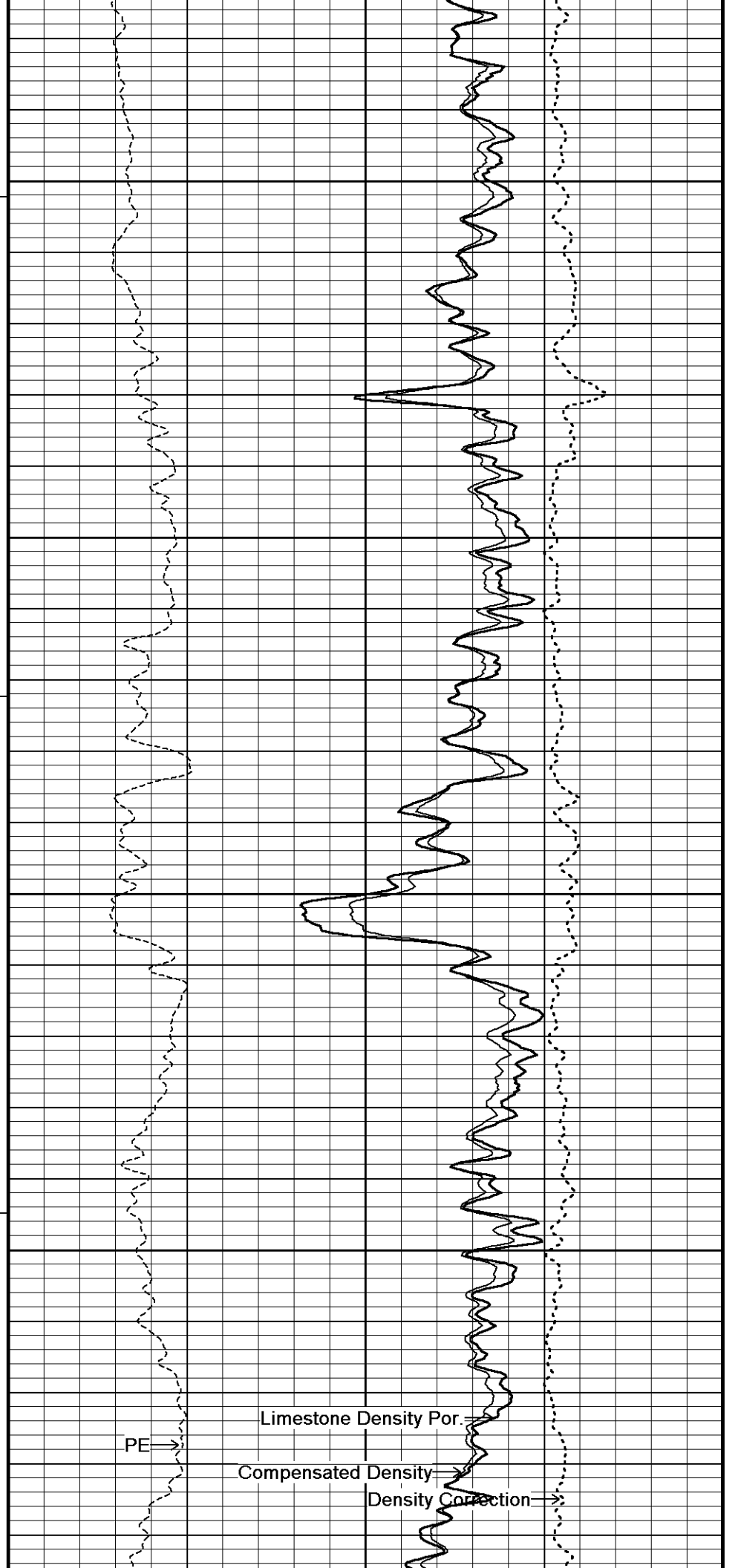
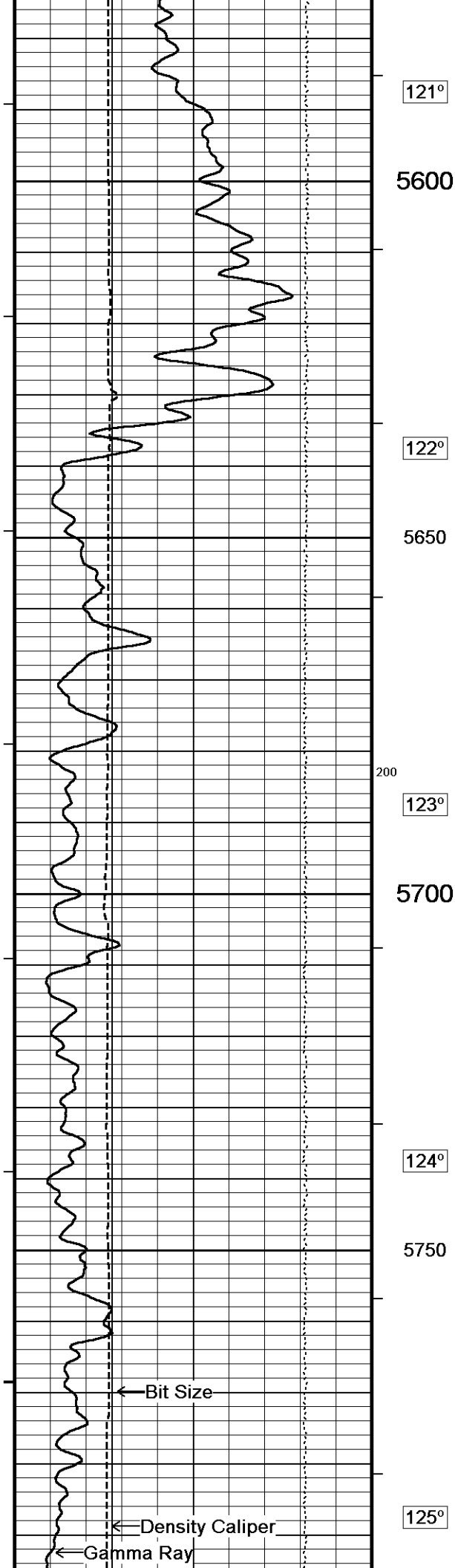
4900

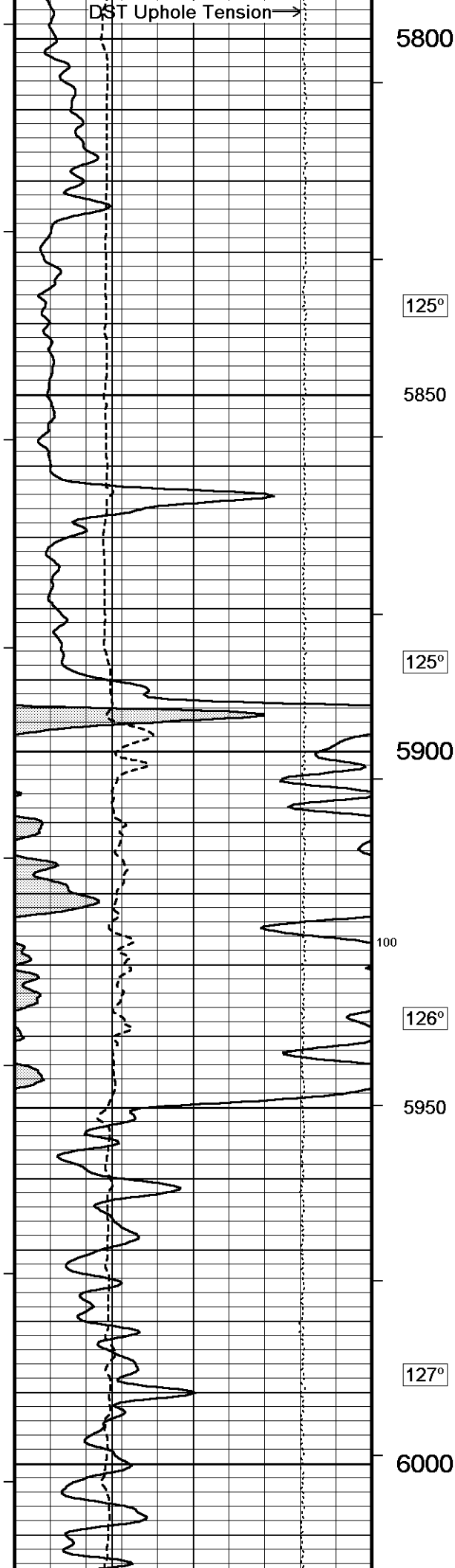












5800

125°

5850

125°

5900

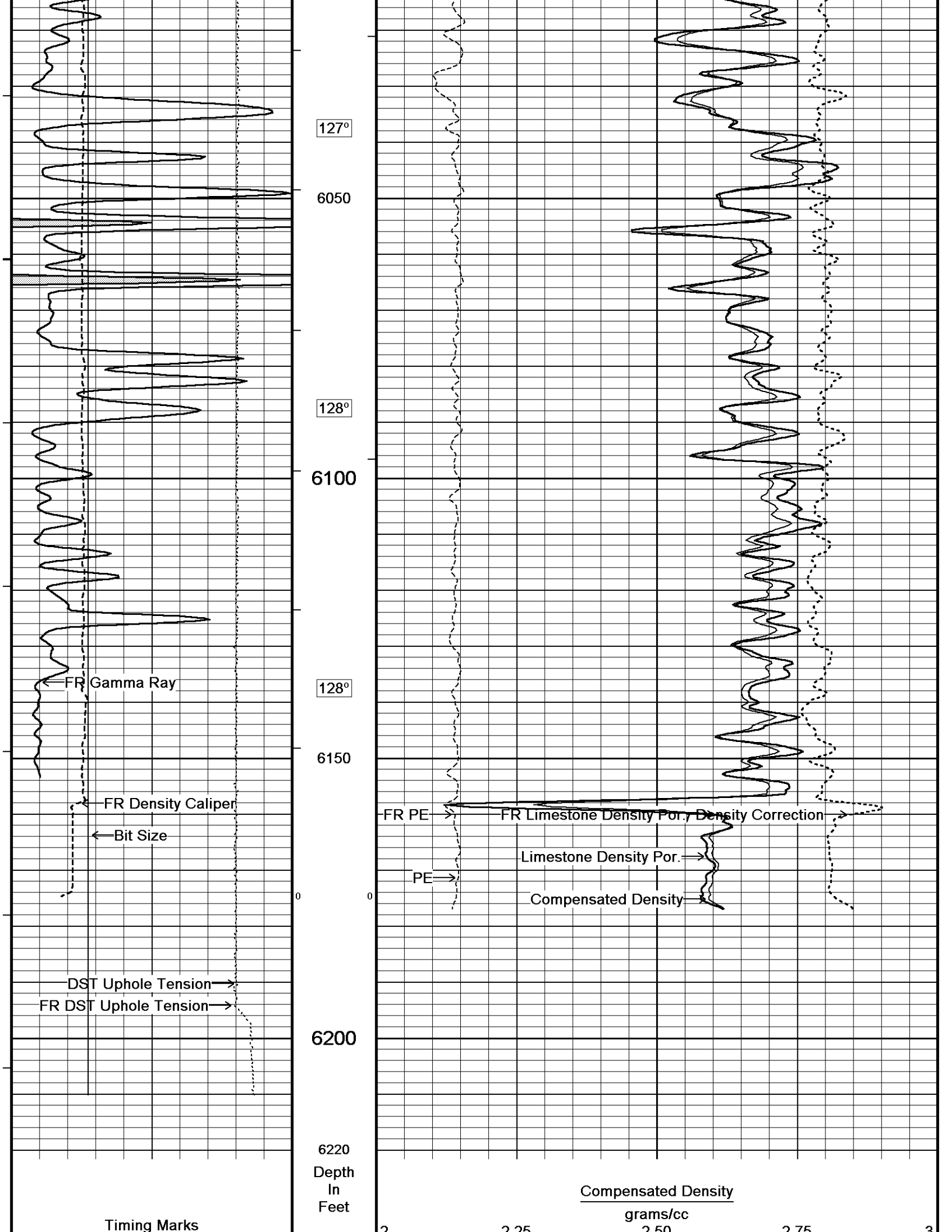
100

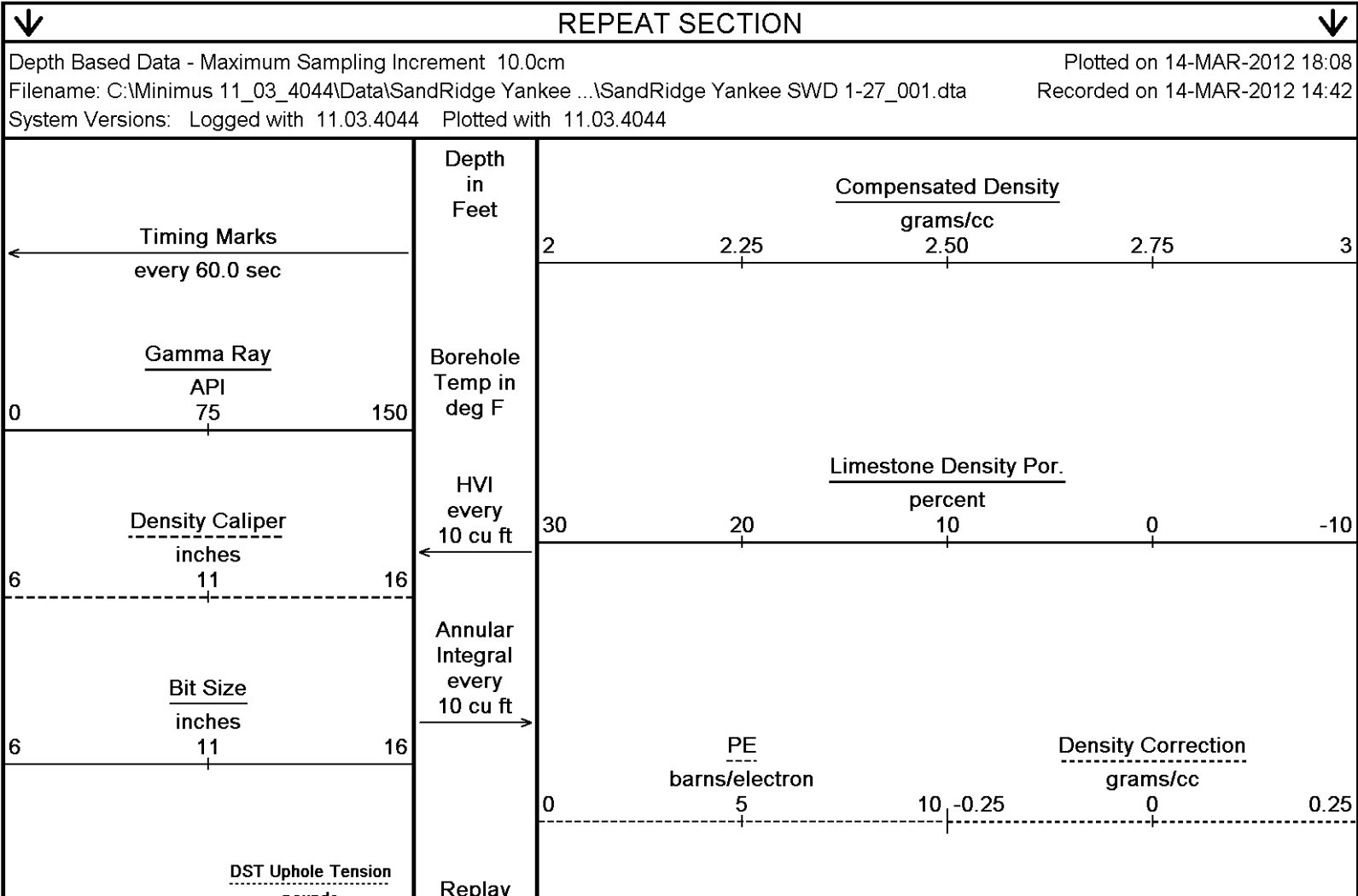
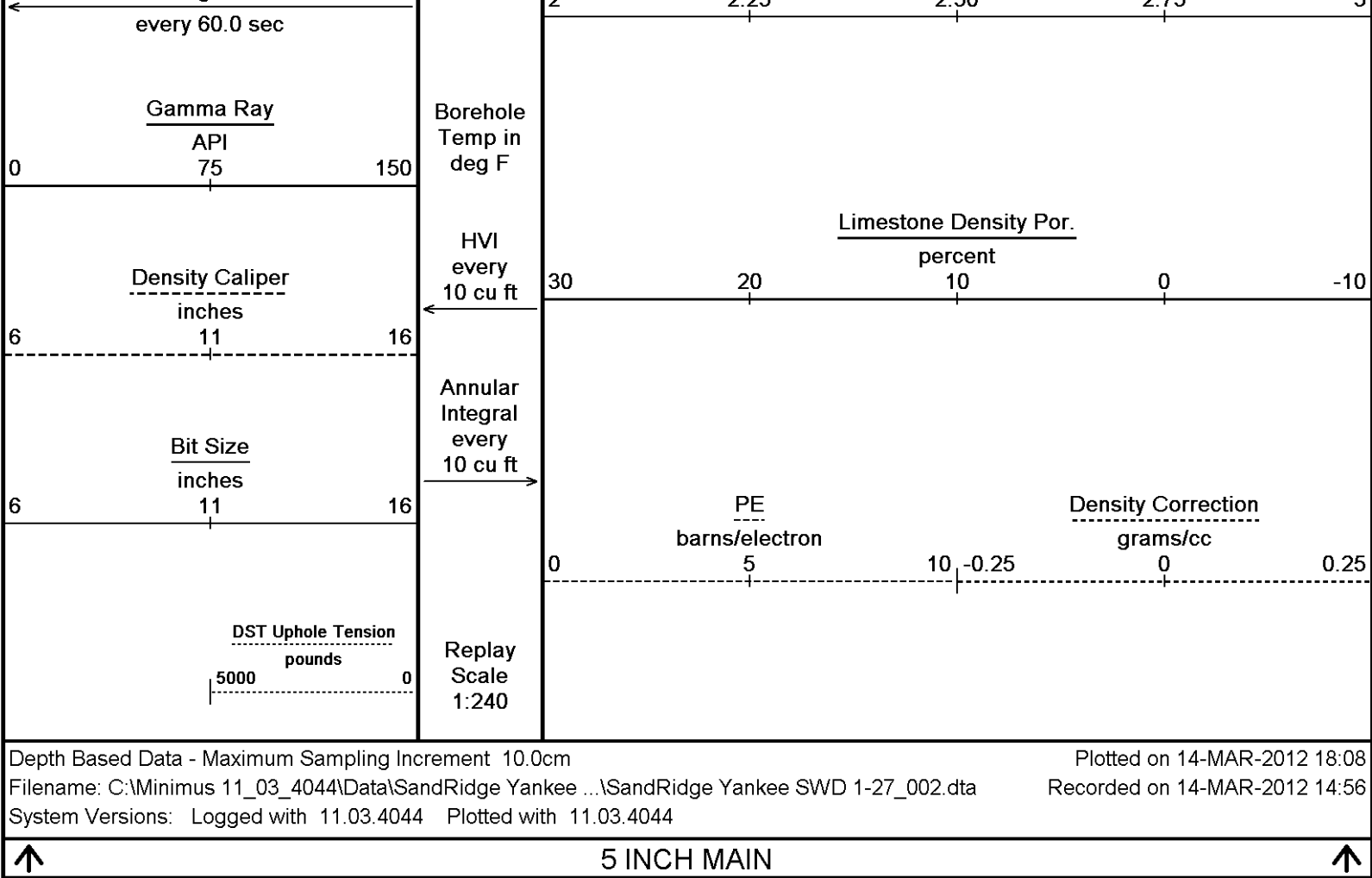
126°

5950

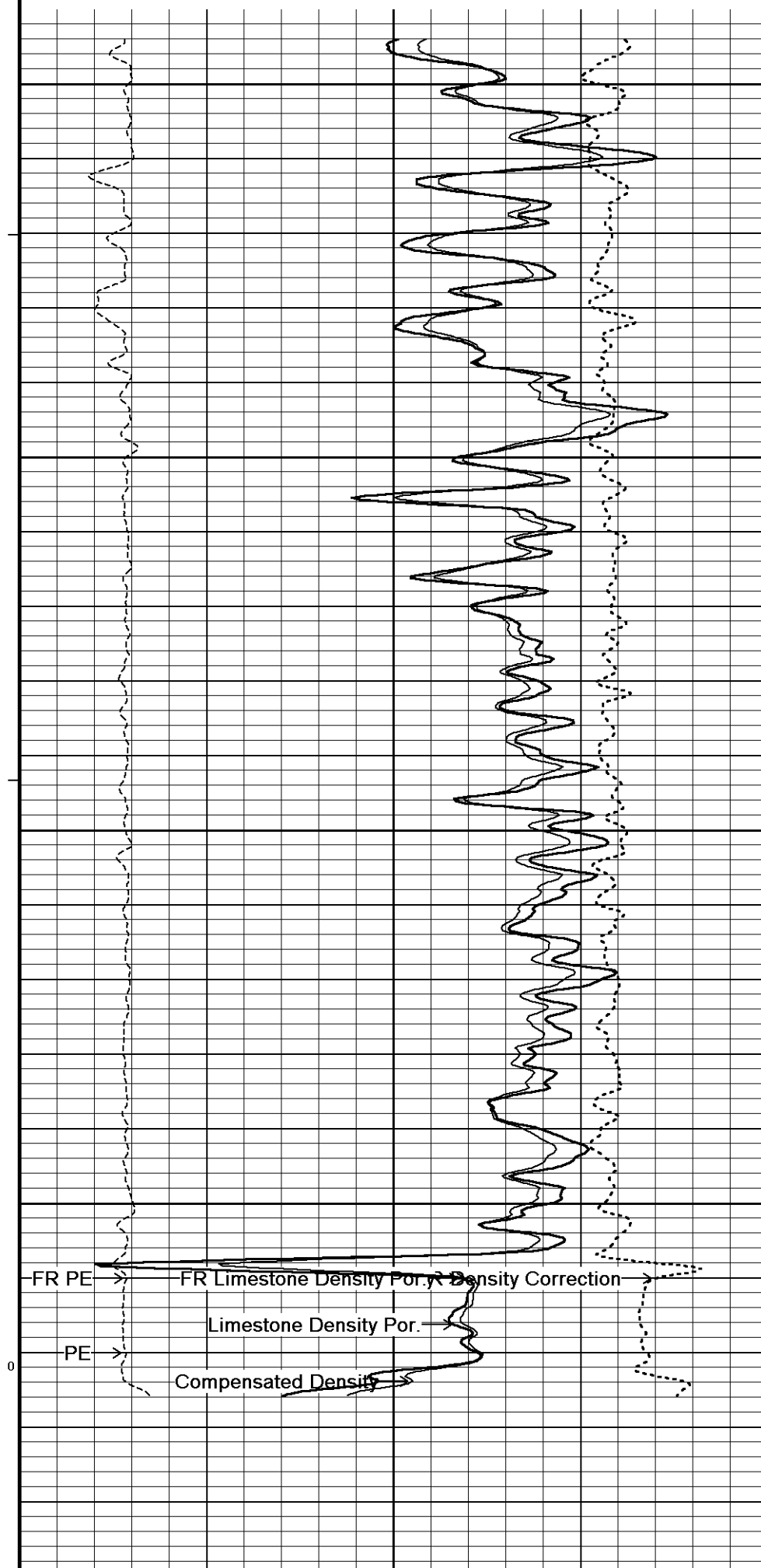
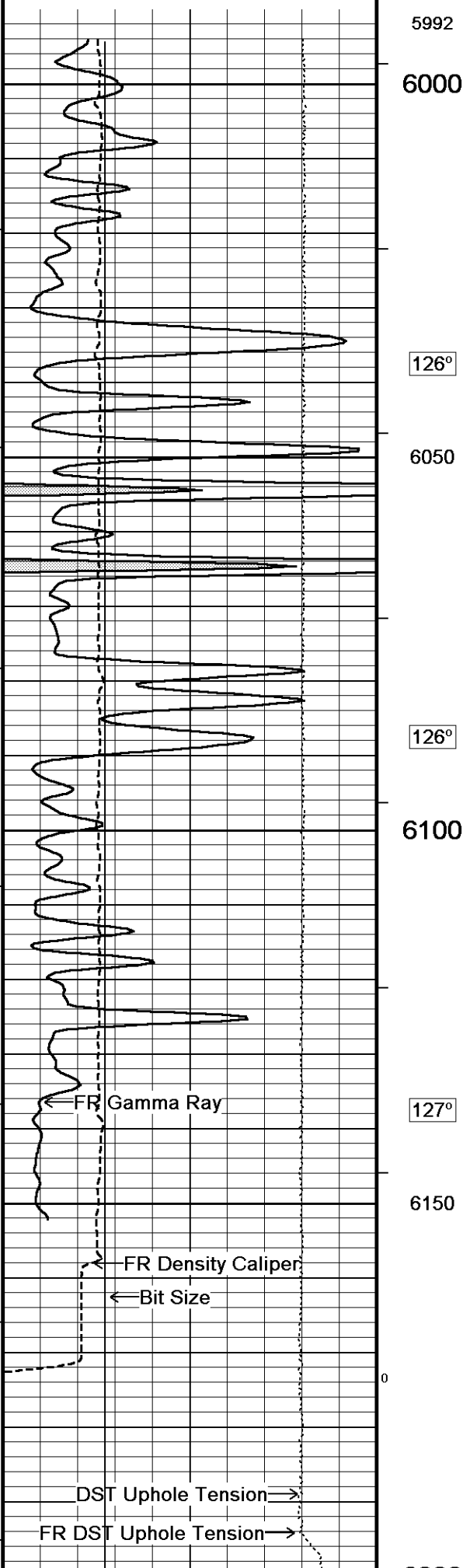
127°

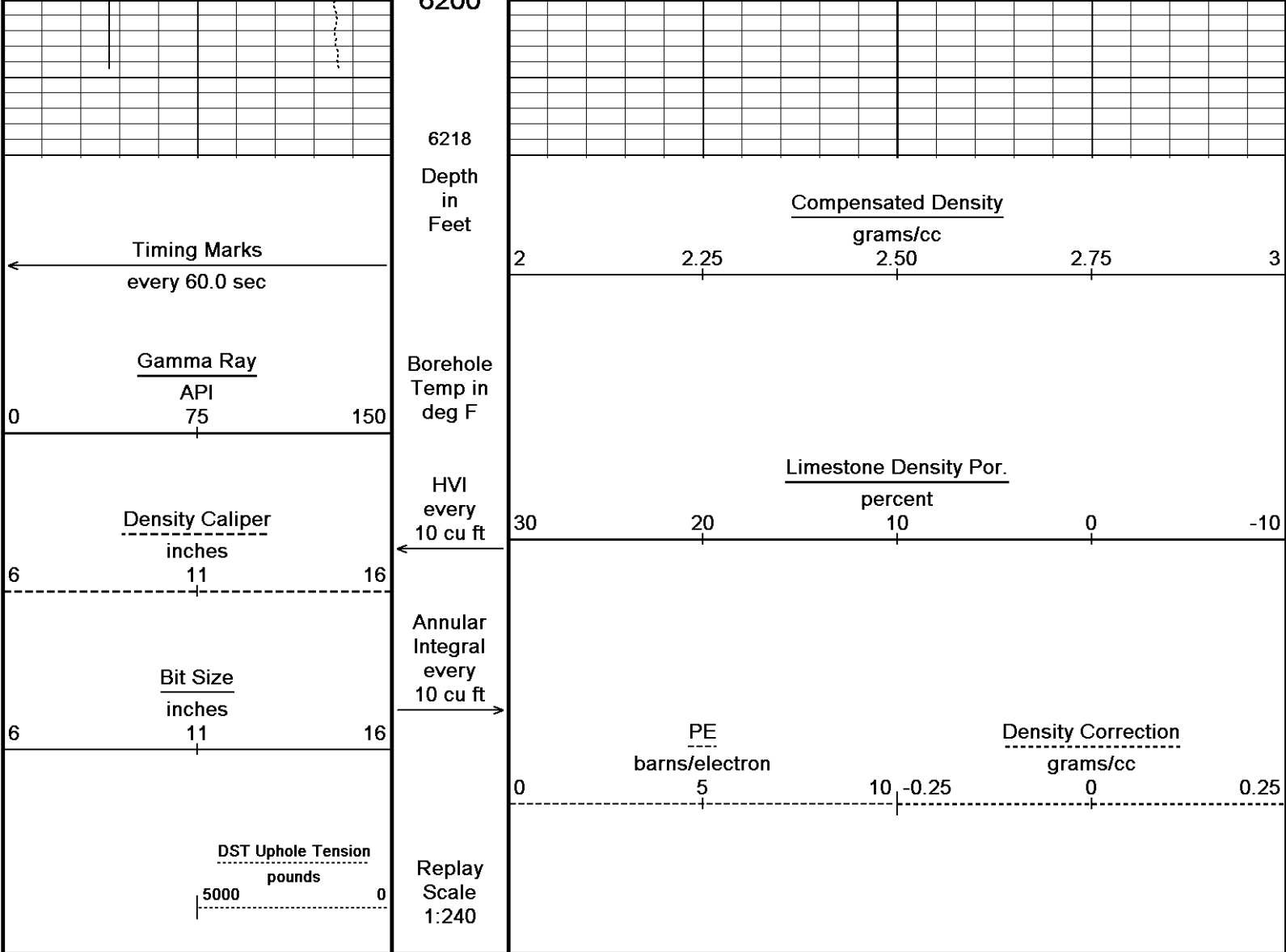
6000





Scale 1:240
pounds 0





Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 14-MAR-2012 18:08

Filename: C:\Minimus 11_03_4044\Data\SandRidge Yankee ...\SandRidge Yankee SWD 1-27_001.dta Recorded on 14-MAR-2012 14:42

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION		
C:\Minimus 11_03_4044\Data\SandRidge Yankee SWD 1-27\SandRidge Yankee SWD 1-27_002.dta		
General Constants All 000		Last Edited on 14-MAR-2012,08:54
General Parameters		
Mud Resistivity	0.620	ohm-metres
Mud Resistivity Temperature	84.000	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	7.000	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

Down-hole Tension Calibration SMS 0			Field Calibration on 23-FEB-2012 23:25	
Reading No	Measured	Calibrated (lbs)		
1	13693.36	0.00		
2	14387.39	407.90		
SP Calibration MCG-D.K 443			Field Calibration on 01-FEB-2012 10:26	
	Measured	Calibrated (mV)		
Reference 1	100.9	100.0		
Reference 2	-98.4	-100.0		
High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 12-JAN-2012,09:06	
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MCG-D.K 443			Last Edited on	
Pre-filter Length	11			
Gamma Calibration MCG-D.K 443			Field Calibration on 12-MAR-2012 17:00	
	Measured	Calibrated (API)		
Background	66	44		
Calibrator (Gross)	743	500		
Calibrator (Net)	677	456		
Gamma Constants MCG-D.K 443			Last Edited on 14-MAR-2012,08:40	
Gamma Calibrator Number	grc141			
Mud Density	1.12	gm/cc		
Caliper Source for Processing	Density Caliper			
Tool Position	Eccentred			
Concentration of KCl	0.00	kppm		
Caliper Calibration MML-A 9			Base Calibration on 06-FEB-2012 09:52 Field Calibration on 12-MAR-2012 16:54	
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	15071	5.98		
2	18450	7.97		
3	21808	9.86		
4	25812	11.92		
5	0	0.00		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	6.09	5.98		
Micro Normal and Micro Inverse Calibration MML-A 9			Base Calibration on 06-FEB-2012 09:39 Field Check on 12-MAR-2012 16:55	
Base Calibration				
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1 Resistor 2	
Micro Normal	12.1	59.8	2.6 12.8	
Micro Inverse	15.6	78.1	1.7 8.4	
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	32.4		32.4	
Micro Inverse	16.4		16.4	
Micro Normal and Micro Inverse Constants MML-A 9			Last Edited on 12-MAR-2012,16:54	
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159			
Micro Normal K Factor	0.5110			
Micro Inverse K Factor	0.3380			
Standoff Offset	N/A			inches
Neutron Calibration MDN-A.B 39			Base Calibration on 12-MAR-2012 14:56 Field Check on 12-MAR-2012 15:18	
Base Calibration				

	Measured	Calibrated (cps)
	Near Far	Near Far
	2762 87	3714 110
Ratio	31.770	33.764
Field Calibrator at Base		Calibrated (cps)
		2387 3366
Ratio		0.709
Field Check		Calibrated (cps)
		2373 3373
Ratio		0.703

Neutron Constants MDN-A.B 39	Last Edited on 13-MAR-2012,10:47	
Neutron Source Id	N1095	
Neutron Jig Number	NECD117	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 67	Base Calibration on 06-FEB-2012 10:02 Field Check on 12-MAR-2012 16:46	
Base Calibration	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	959.8	126.8
Base Check		280.8
Field Check		280.8

FE Constants MFE-A.A 67	Last Edited on 13-MAR-2012,10:46	
Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Sonic Constants MSS-A.A 126	Last Edited on 14-MAR-2012,08:39	
Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft
Sonde Mode	Compensated	
Hole Type	Open Hole	
Sonde Parameters		

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A
Peak Amplitude Source	N/A	

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A			
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A	
N/A	N/A	N/A		
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
3' Waveform Filter	N/A	
4' Waveform Filter	N/A	
5' Waveform Filter	N/A	
6' Waveform Filter	N/A	
Semblance Level	N/A	
Semblance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

High Resolution Temperature Calibration MAI-A.A 188

Field Calibration on 12-AUG-2011,21:41

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

High Resolution Temperature Constants MAI-A.A 188

Last Edited on 21-JUN-2011,19:05

Pre-filter Length	11
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Induction Calibration MAI-A.A 188

Base Calibration on 04-JAN-2012,13:31

Field Check on 12-MAR-2012 16:44

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	16.9	470.2	9.3	966.2
2	6.4	377.1	7.6	821.4
3	3.9	257.8	5.2	566.0
4	1.7	135.1	2.6	279.2

Array Temperature	66.3	Deg F
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Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	14.0	3867.0
2	0.0	0.0	30.2	3583.9
3	0.0	0.0	28.0	3078.1
4	0.0	0.0	19.9	2046.4
Deep	0.0	0.0	17.3	1954.7
Medium	0.0	0.0	40.4	4113.9
Shallow	0.0	0.0	45.0	5368.3

Array Temperature

0.0

74.3

Deg F

Induction Constants MAI-A.A 188

Last Edited on 13-MAR-2012,10:46

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper		
Hole Size for Borehole Correction	N/A	inches	
Tool Centred	No		
Stand-off Type	Fins		
Stand-off	0.50	inches	
Number of Fins on Stand-off	8.0000		
Stand-off Fin Angle	45.00	degrees	
Stand-off Fin Width	0.5000	inches	
Borehole Corr. Rm Source	Temperature Corr		
Temp. for Rm Corr.	MCG External Temperature		
Squasher Start	0.0020	mhos/metre	
Squasher Offset	N/A	mhos/metre	

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Caliper Calibration MPD-B 65

Base Calibration on 06-FEB-2012 15:42

Field Calibration on 12-MAR-2012 16:48

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14246	3.99
2	22911	5.98
3	31473	7.97
4	39776	9.86
5	48992	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.04	5.98

Photo Density Calibration MPD-B 65

Base Calibration on 06-FEB-2012 16:03

Field Check on 12-MAR-2012 16:53

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58421	27705	59556	30836
Reference 2	23654	2410	24941	2541

Field Check at Base

1233.9	1179.6
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Field Check

1226.3	1175.3
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PE Calibration

Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	226	1097		
Reference 1	21385	58213	0.370	0.371
Reference 2	6241	23505	0.268	0.272

Field Check at Base

225.7 1097.3

Field Check

222.9 1089.8

Density Constants MPD-B 65

Last Edited on 14-MAR-2012,08:40

Density Source Id	P57072B
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	1.12 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

DOWNHOLE EQUIPMENT

C:\Minimus 11_03_4044\Data\SandRidge Yankee SWD 1-27\SandRidge Yankee SWD 1-27_002.dta

Compact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 9 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

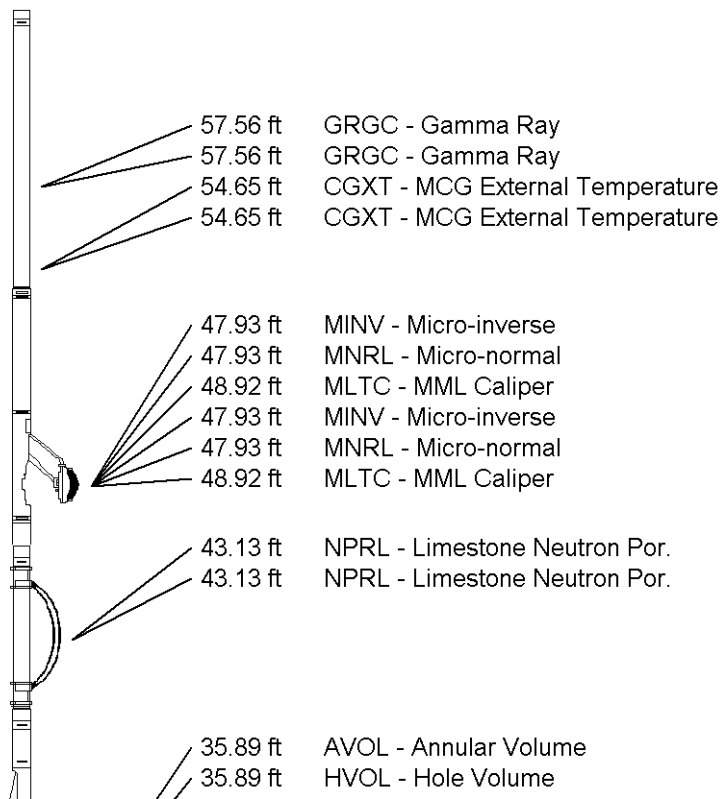
Compact Micro-log
MML-A 9 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 39 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Neutron
MDN-A.B 39 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 65 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Density/Caliper
MPD-B 65 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

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 Focussed Electric
MFE-A.A 67 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

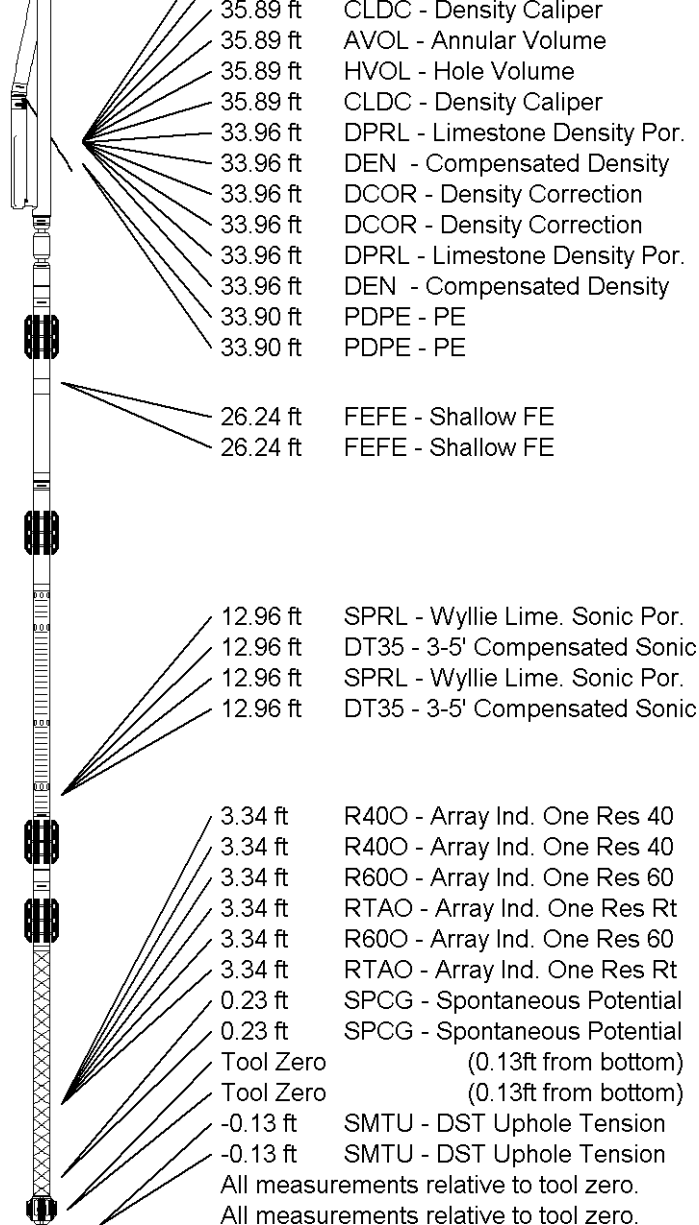
Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 188 LG: 10.81 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: 62.84 ft Weight: 480.6 lb

Total Length: 62.84 ft Weight: 480.6 lb



COMPANY	SANDRIDGE EXPL. & PRODUCTION LLC
WELL	YANKEE 1-27 SWD
FIELD	BEALS FIELD AREA
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1854.00	feet	First Reading	6160.00	feet
Elevation Drill Floor	1852.00	feet	Depth Driller	6200.00	feet
Elevation Ground Level	1838.00	feet	Depth Logger	6194.00	feet



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COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

