



**COMPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON
LOG**

COMPANY **BILL BARRETT CORPORATION**
 WELL **GGU MILLER 23C-32-691**
 FIELD **GIBSON GULCH**
 PROVINCE/COUNTY **GARFIELD**
 COUNTRY/STATE **U.S.A. / COLORADO**
 LOCATION **SHL: 1256' FSL & 2297' FWL**
BHL: 2130' FSL & 1990' FWL

SEC 32 TWP 6S RGE 91W Other Services MA/IMFE
 API Number 05-045-19430
 Permit Number

Permanent Datum G.L., Elevation 6121 feet
 Log Measured From K.B. @ 23 FEET above Permanent Datum
 Drilling Measured From K.B.

Elevations:
 KB 6144.00
 DF 6143.00
 GL 6121.00

Date	8-DEC-2010
Run Number	ONE
Depth Driller	7333.00 feet
Depth Logger	7335.00 feet
First Reading	7311.00
Last Reading	785.00
Casing Driller	781.00 feet
Casing Logger	785.00 feet
Bit Size	7.880 inches
Hole Fluid Type	LSND
Density / Viscosity	10.60 lb/USg 58.00 CP
PH / Fluid Loss	9.40 7.20 ml/30Min
Sample Source	FLOW LINE
Rm @ Measured Temp	2.45 @ 96.0 ohm-m
Rmf @ Measured Temp	1.96 @ 96.0 ohm-m
Rmc @ Measured Temp	2.94 @ 96.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	1.25 @190.0 ohm-m
Time Since Circulation	6 HOURS
Max Recorded Temp	190.00 deg F
Equipment Name	COMPACT
Equipment / Base	13173 GD_JCT
Recorded By	M.RICHINS
Witnessed By	C.CROW

BOREHOLE RECORD Last Edited: 08-DEC-2010 19:31

Bit Size inches	Depth From feet	Depth To feet
8.750	781.00	5521.00
7.880	5521.00	7325.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	781.00	36.00

REMARKS

TOOLS: SHA, MCG, MDN, MPD, SKJ, MFE AND MAI RAN IN COMBINATION.

HARDWARE: MPD: 8 INCH PROFILE PLATE USED.
 ONE 0.5 INCH STANDOFFS USED ON INDUCTION.
 ONE 0.5 INCH STANDOFFS USED ON MFE.
 DUAL BOWSPRING USED ON NEUTRON.

2.68 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

TIGHT PULLS, BOREHOLE SIZE, AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY.

CALIPER CHECK IN CASING PRESENTED, REFERENCE I.D. = 8.92" (9 5/8", 36 LB/FT CASING)

8.75 INCH BIT USED FROM SURFACE CASING TO 5521 FT.

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 2600 CU.FT.

ANNULAR VOLUME WITH 4.5 INCH PRODUCTION CASING = 1880 CU.FT.

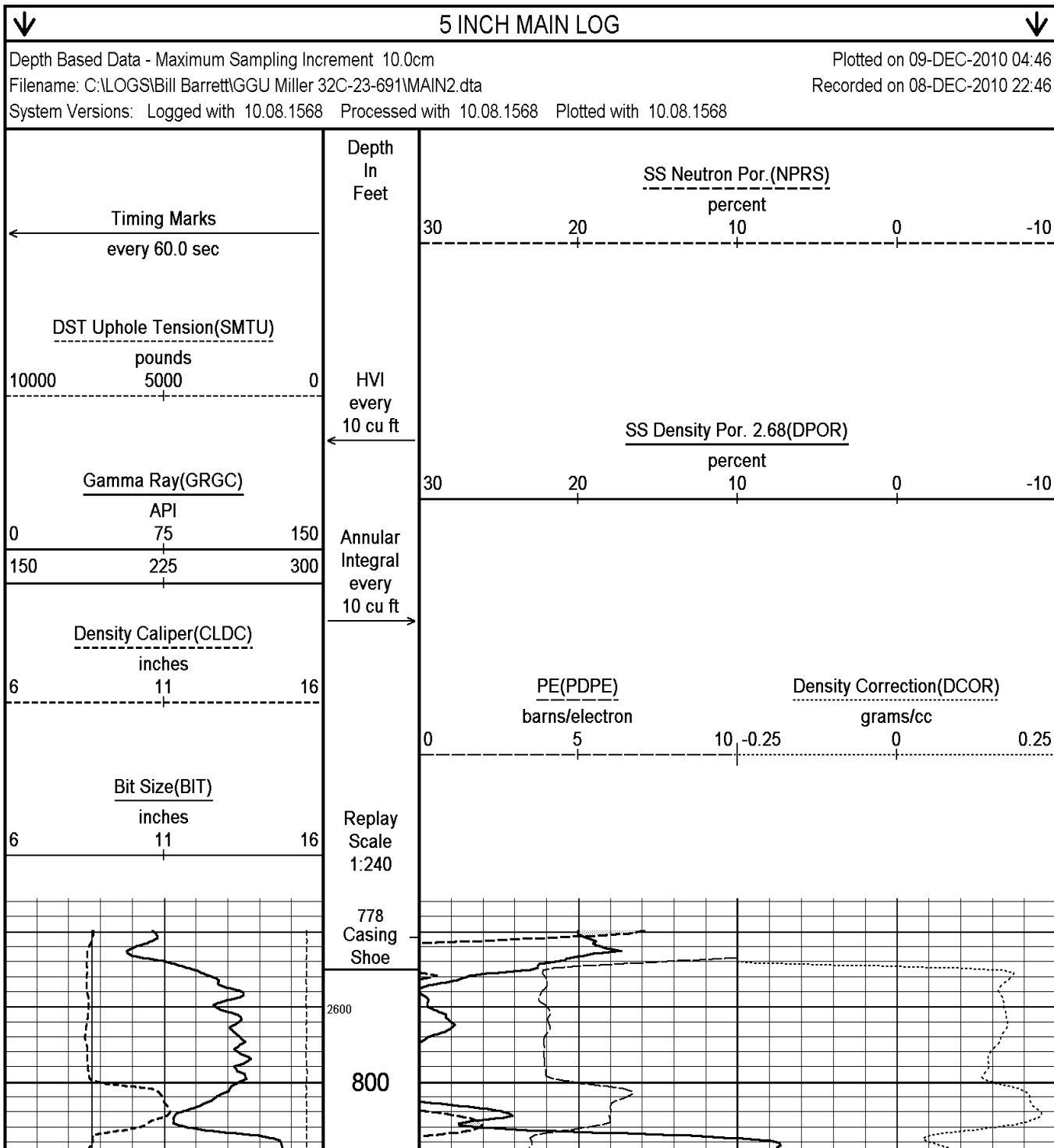
ENGINEER(S): M.RICHINS

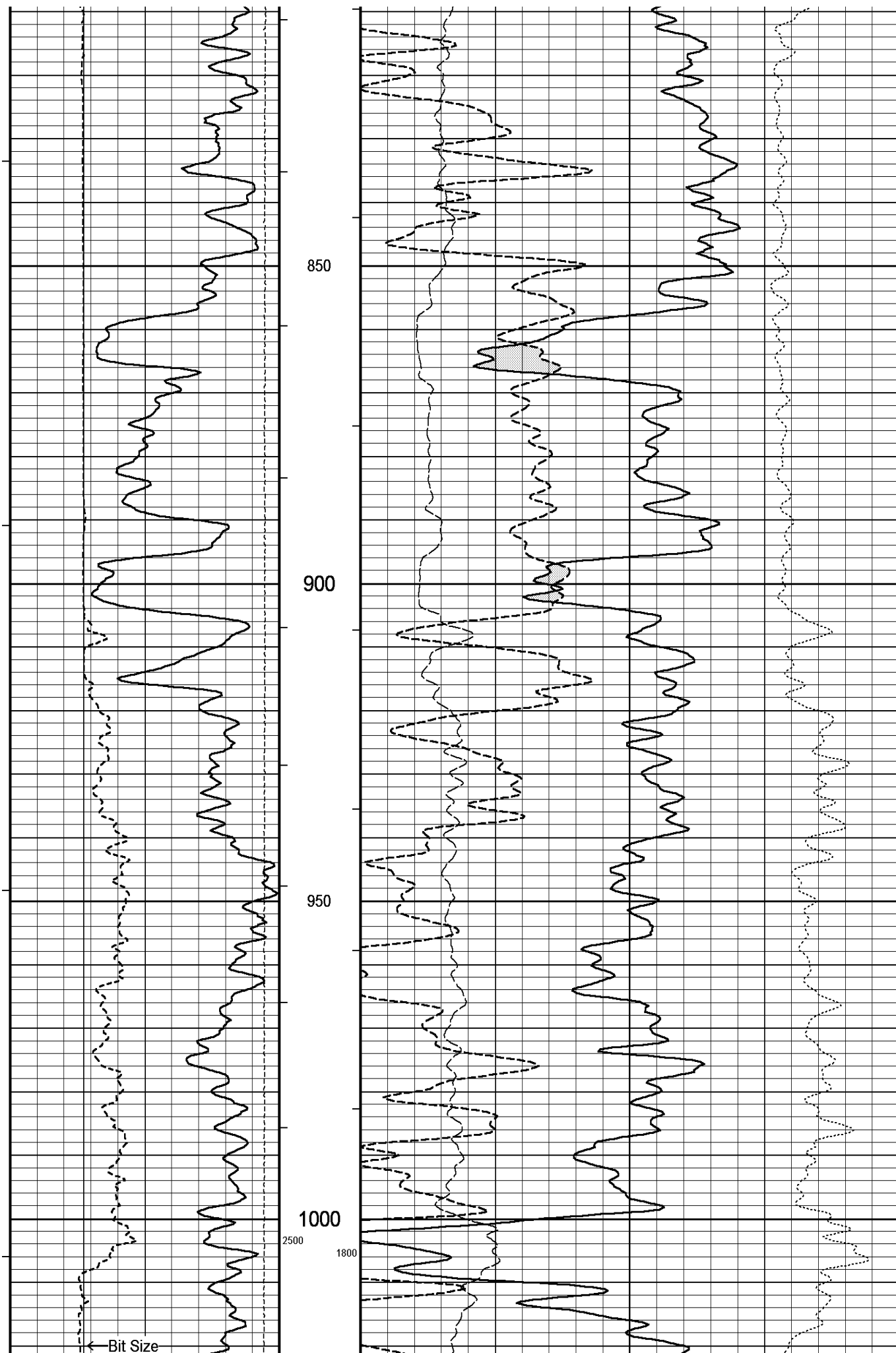
OPERATOR: K.BOBLITT, J.YOAKUM

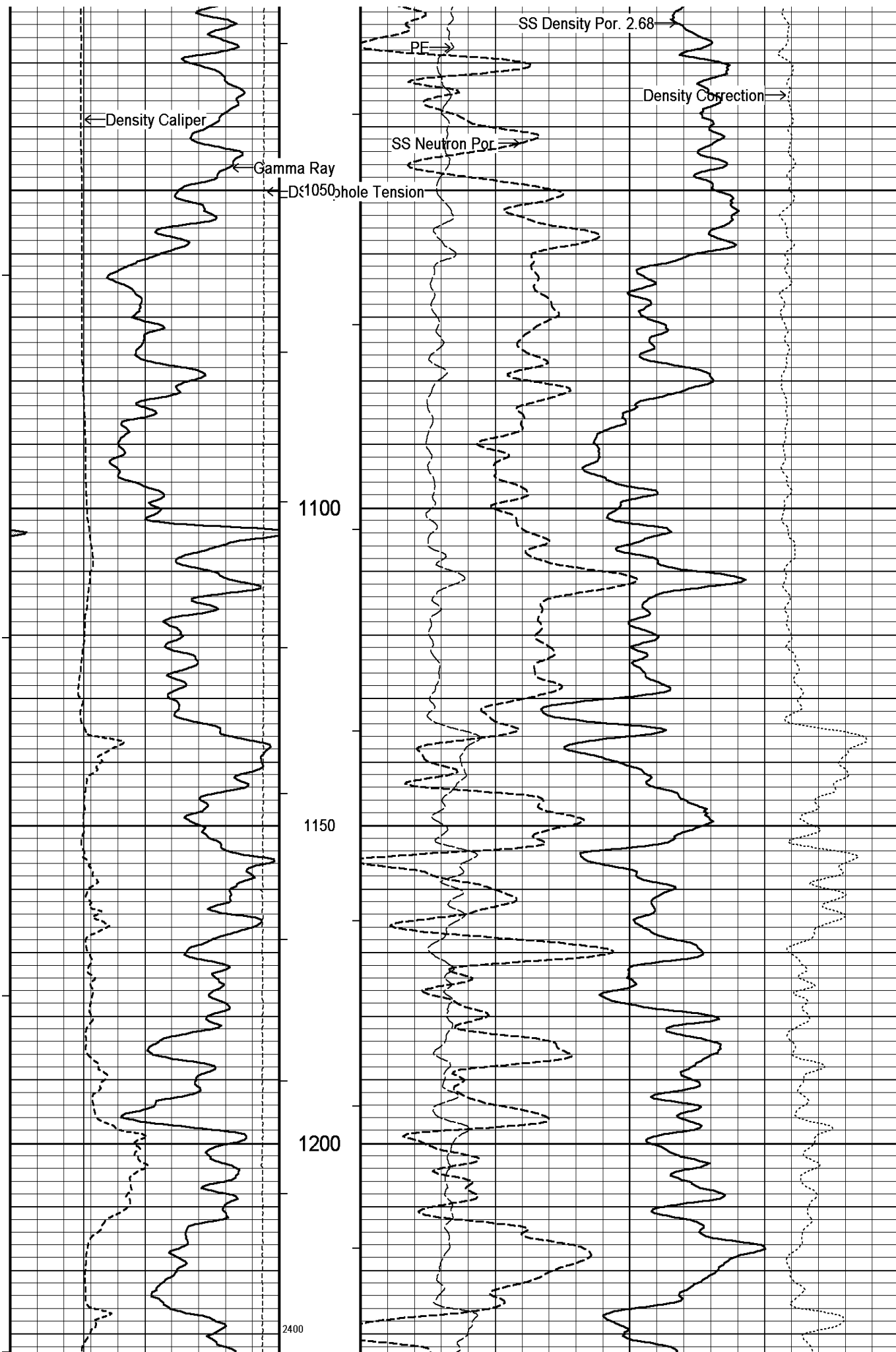
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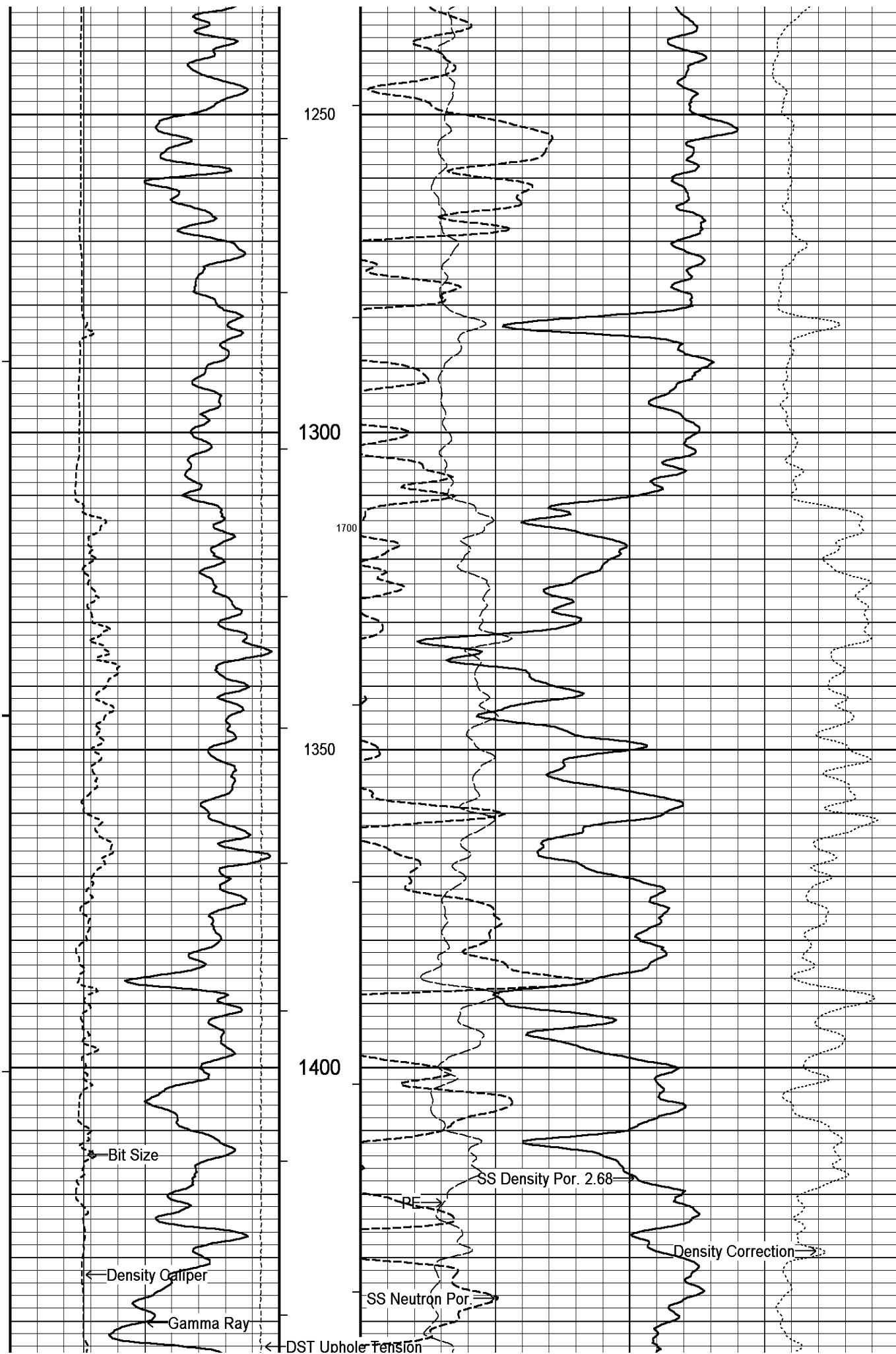
RIG: PATTERSON #307

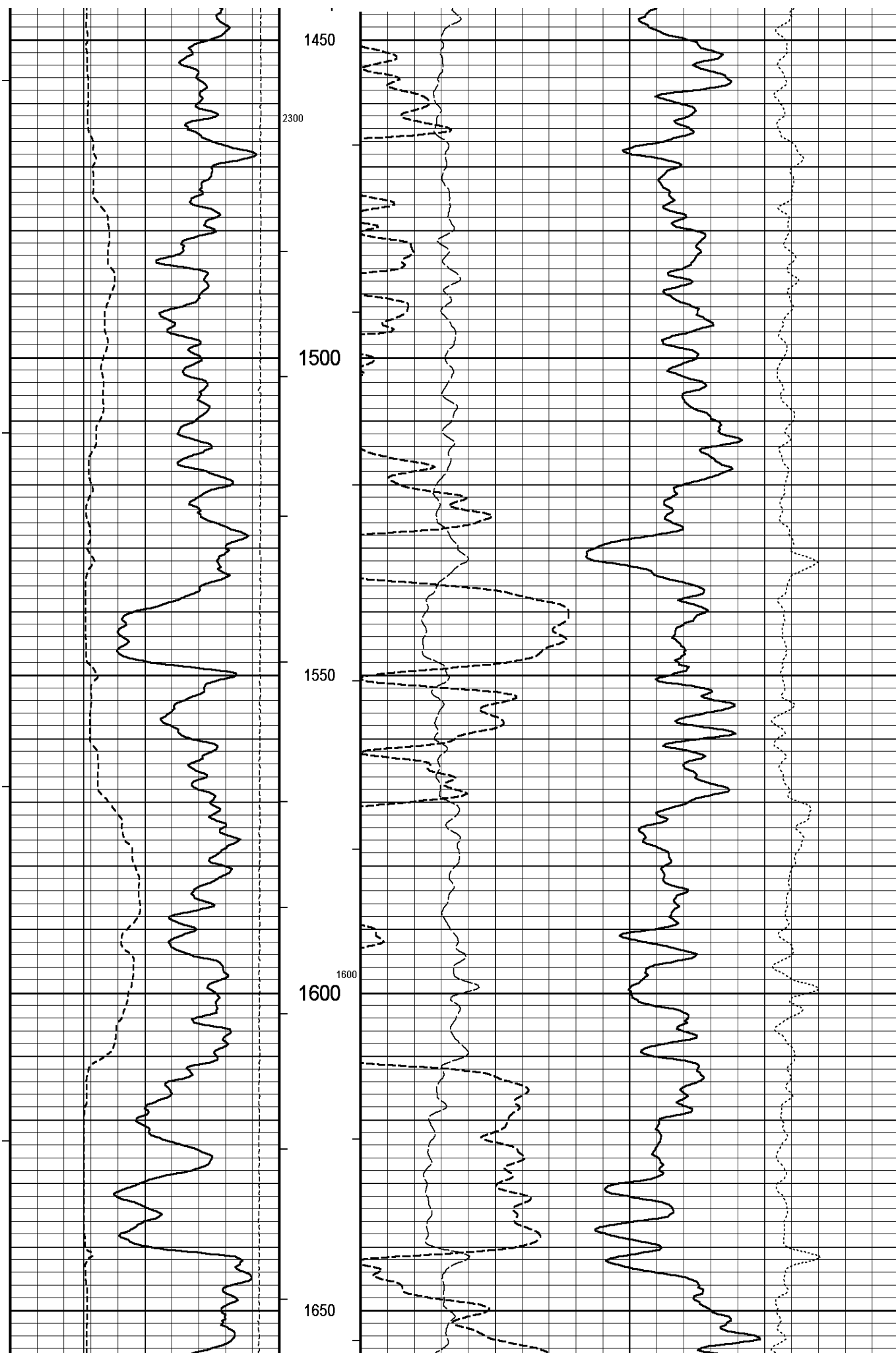
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

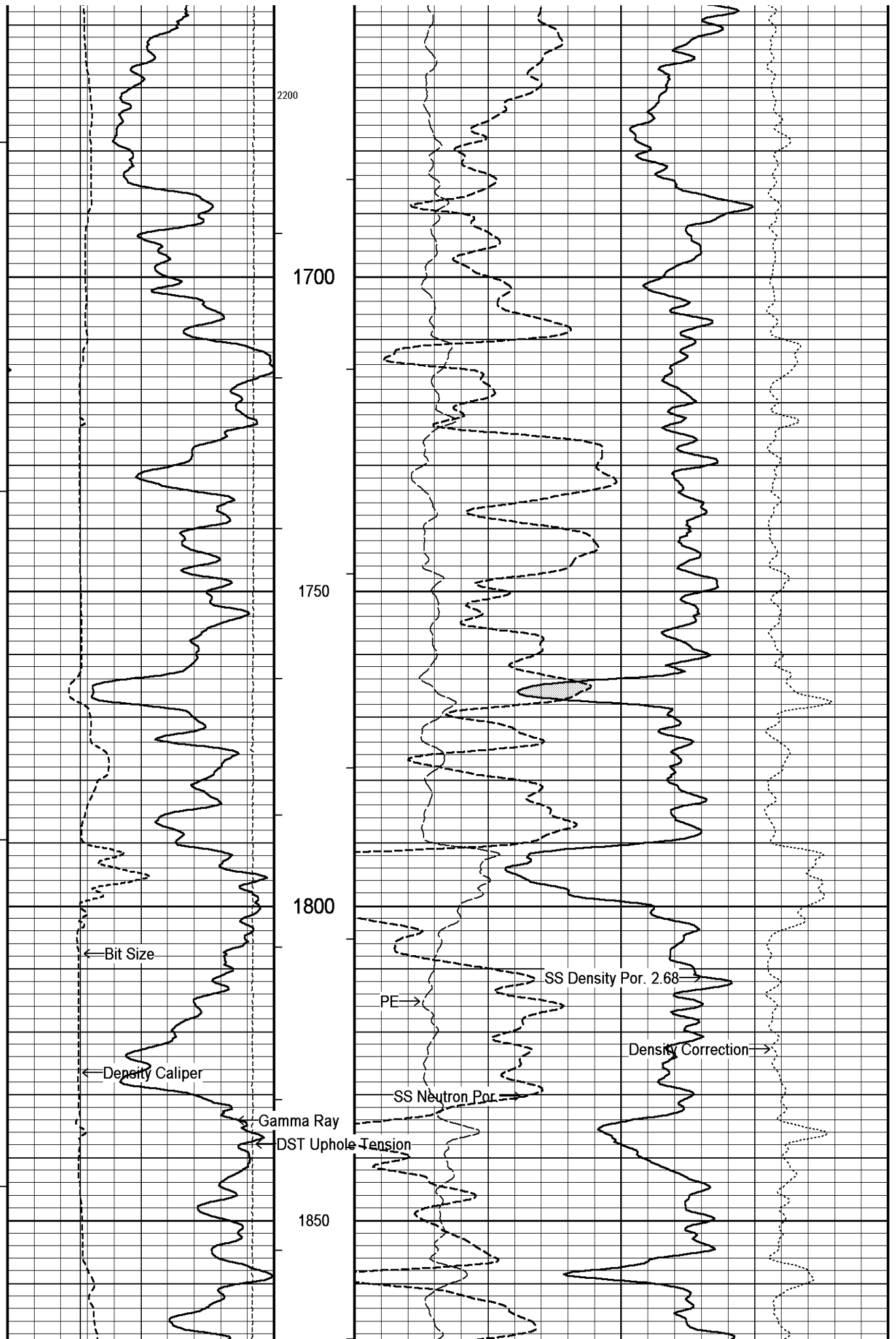


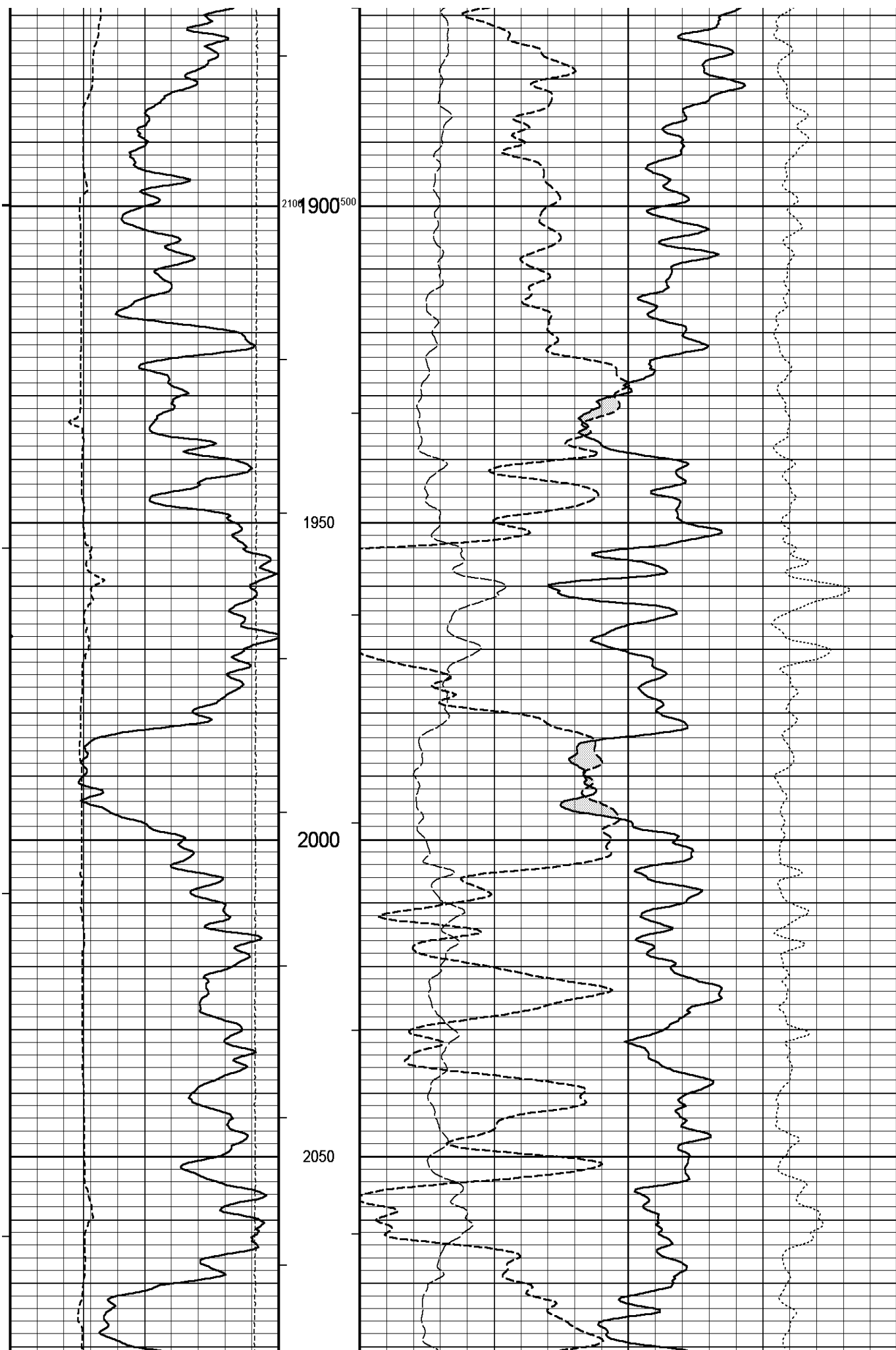


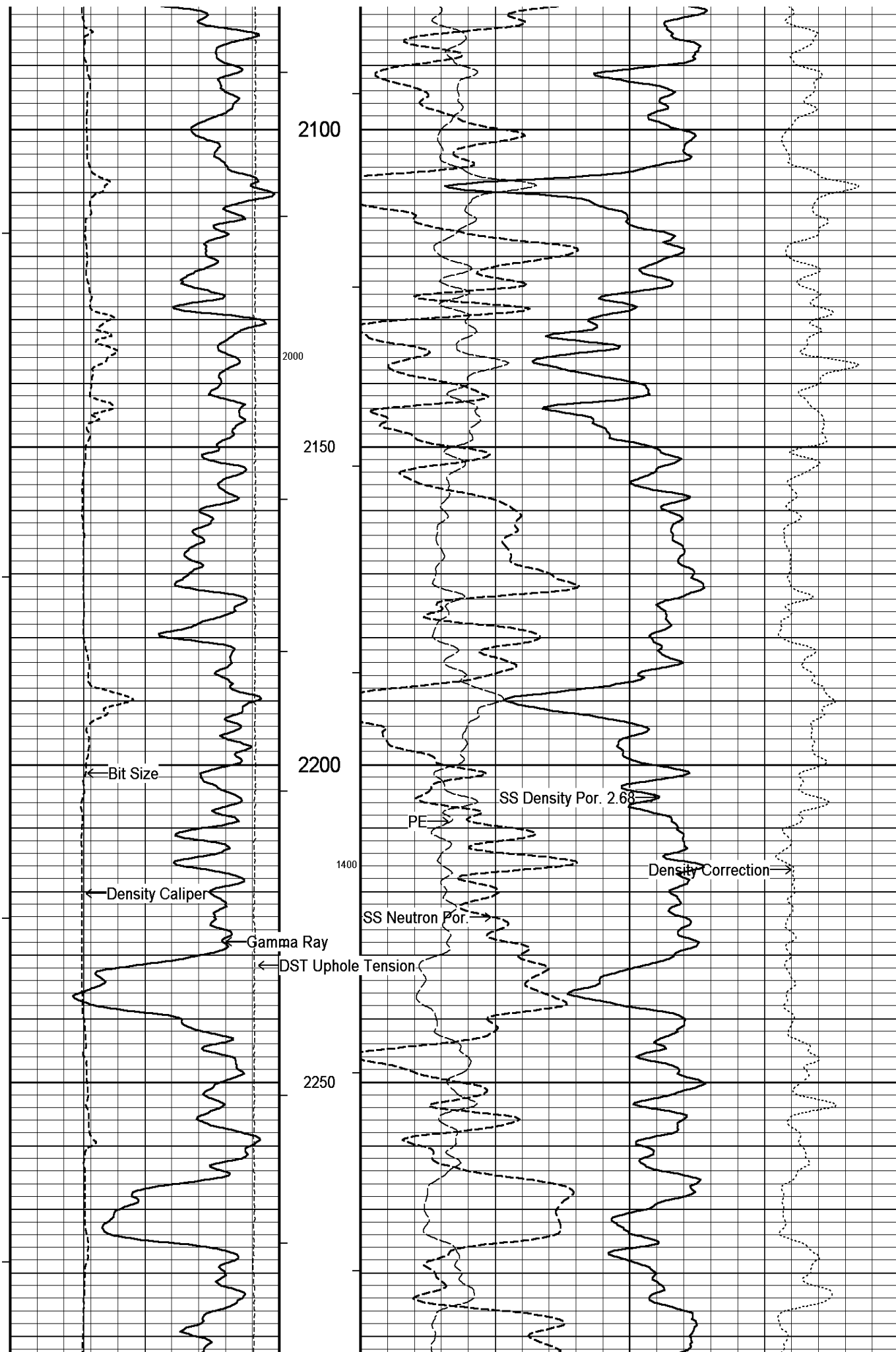


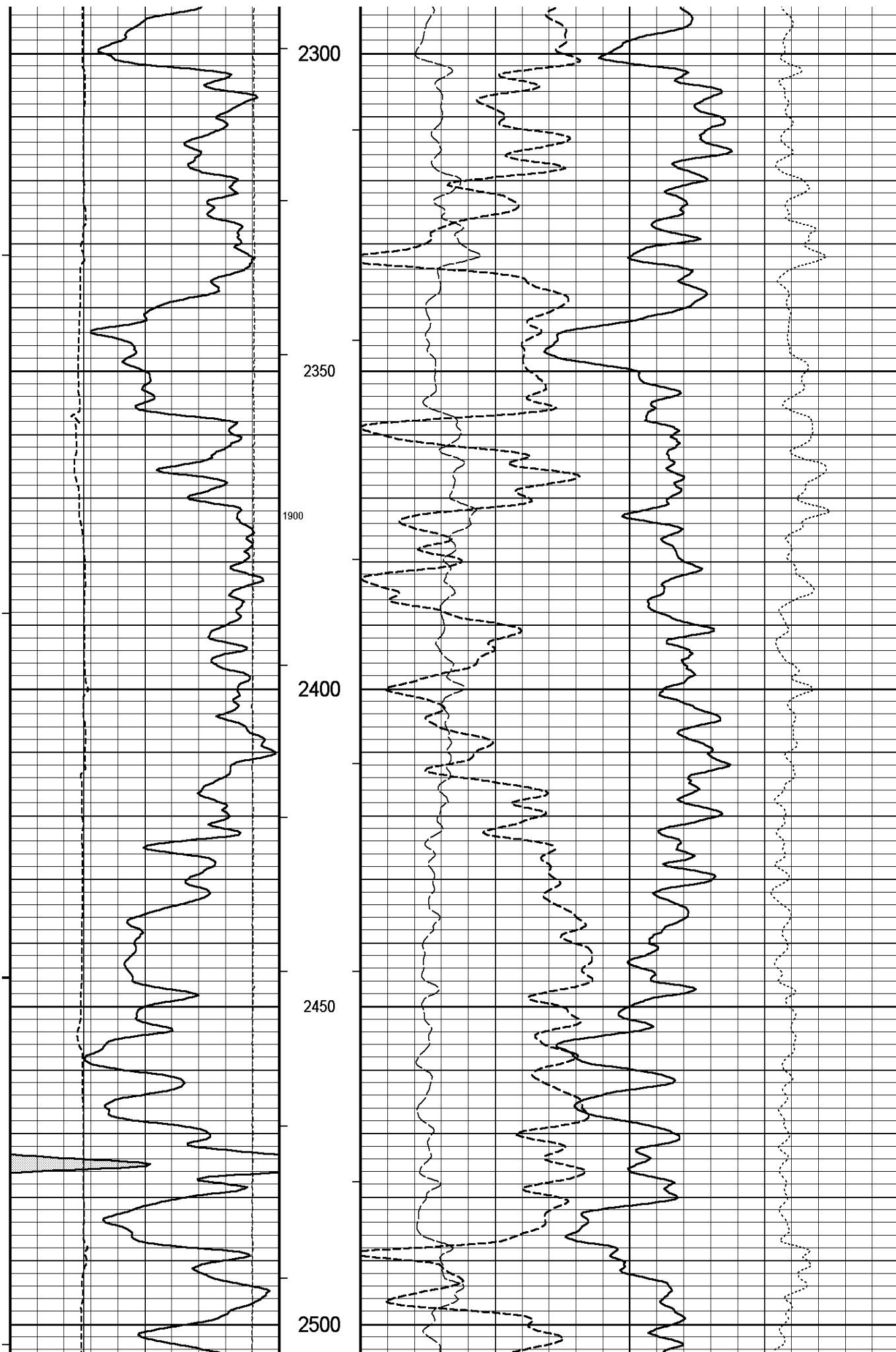


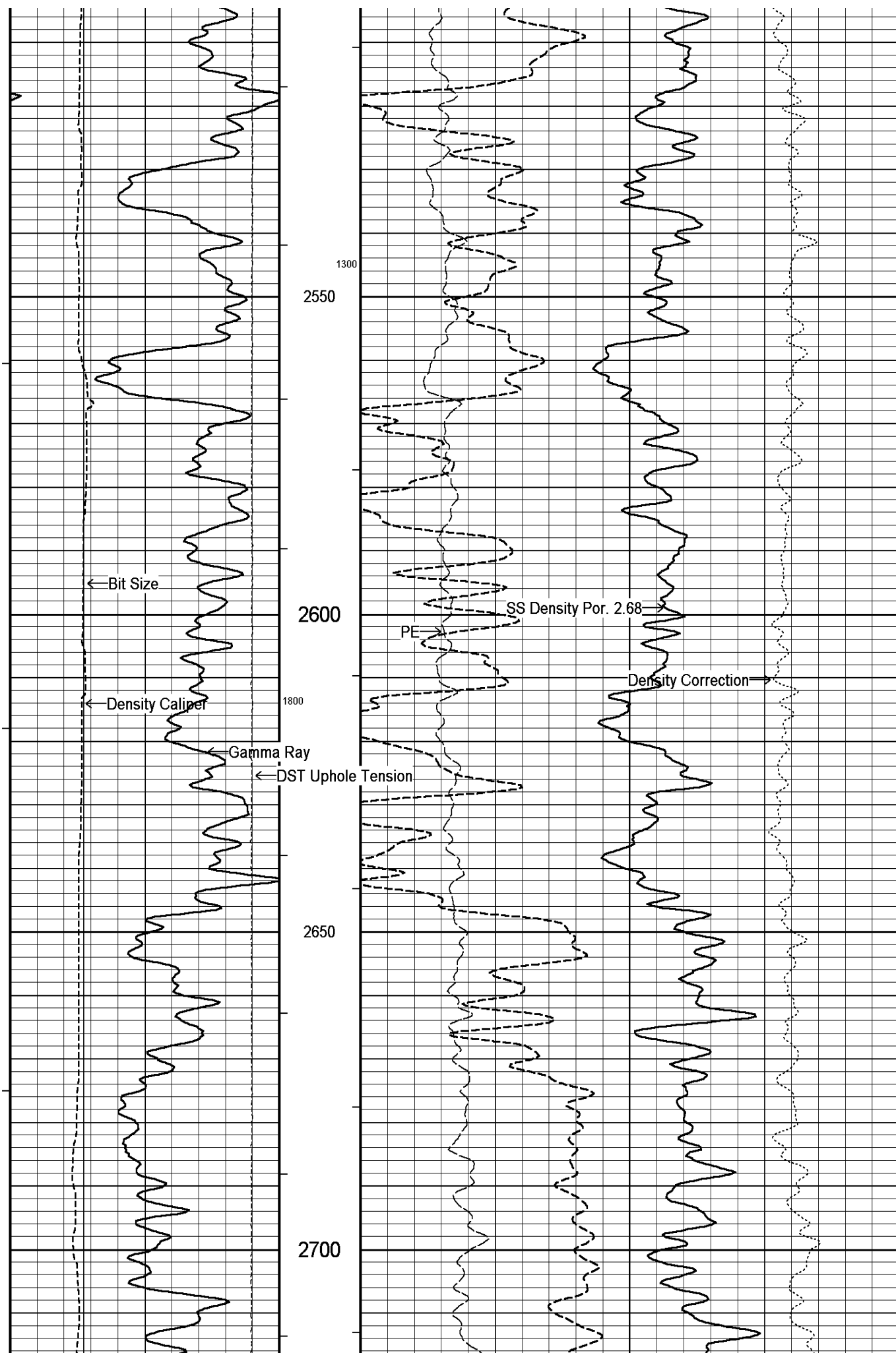


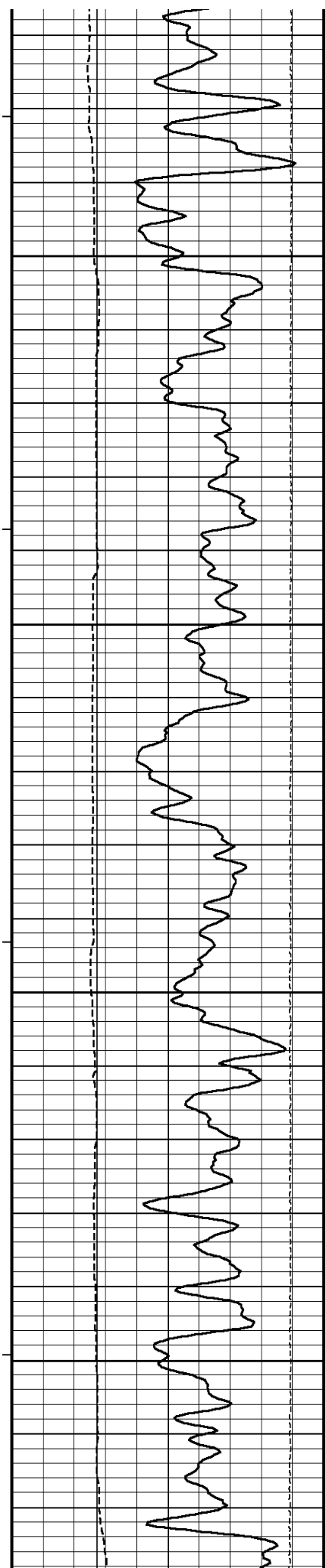












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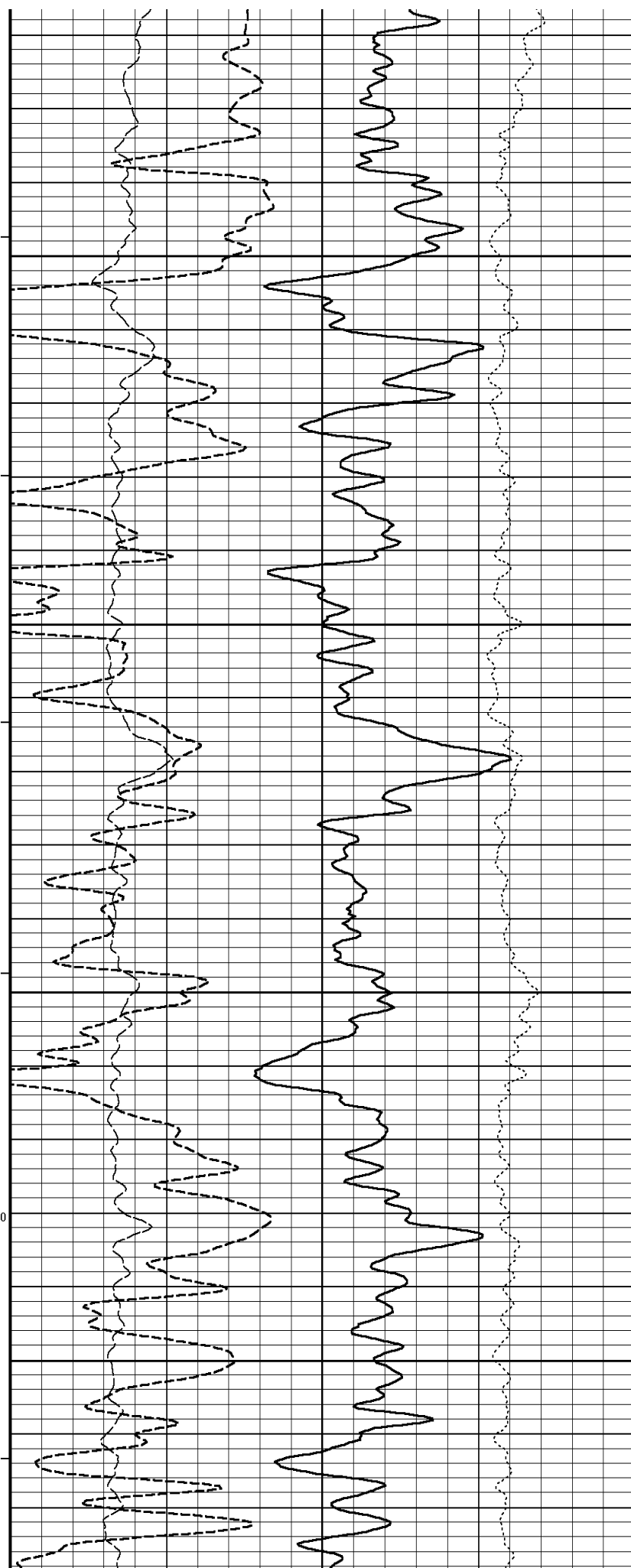
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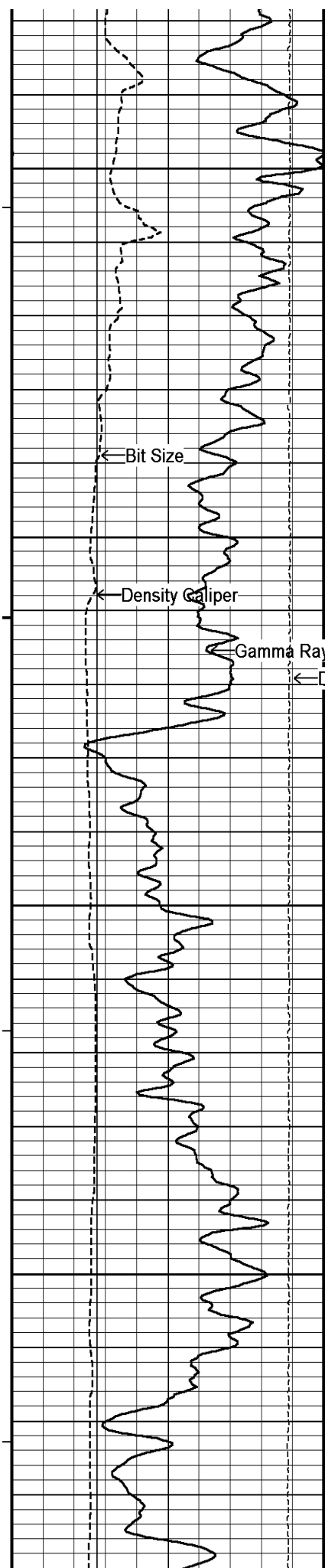
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1700

1200

2900





2950

← Bit Size

3000

← Density Caliper

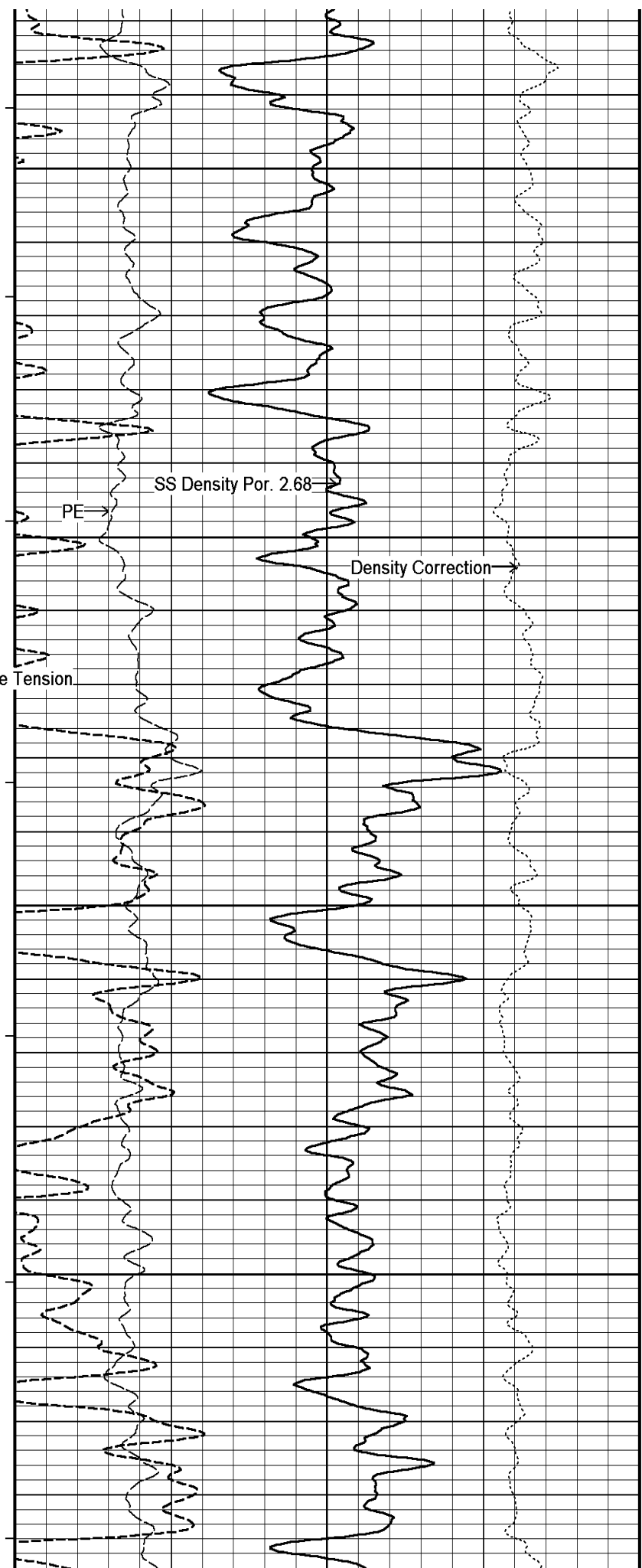
Gamma Ray

← DST Uphole Tension

3050

1600

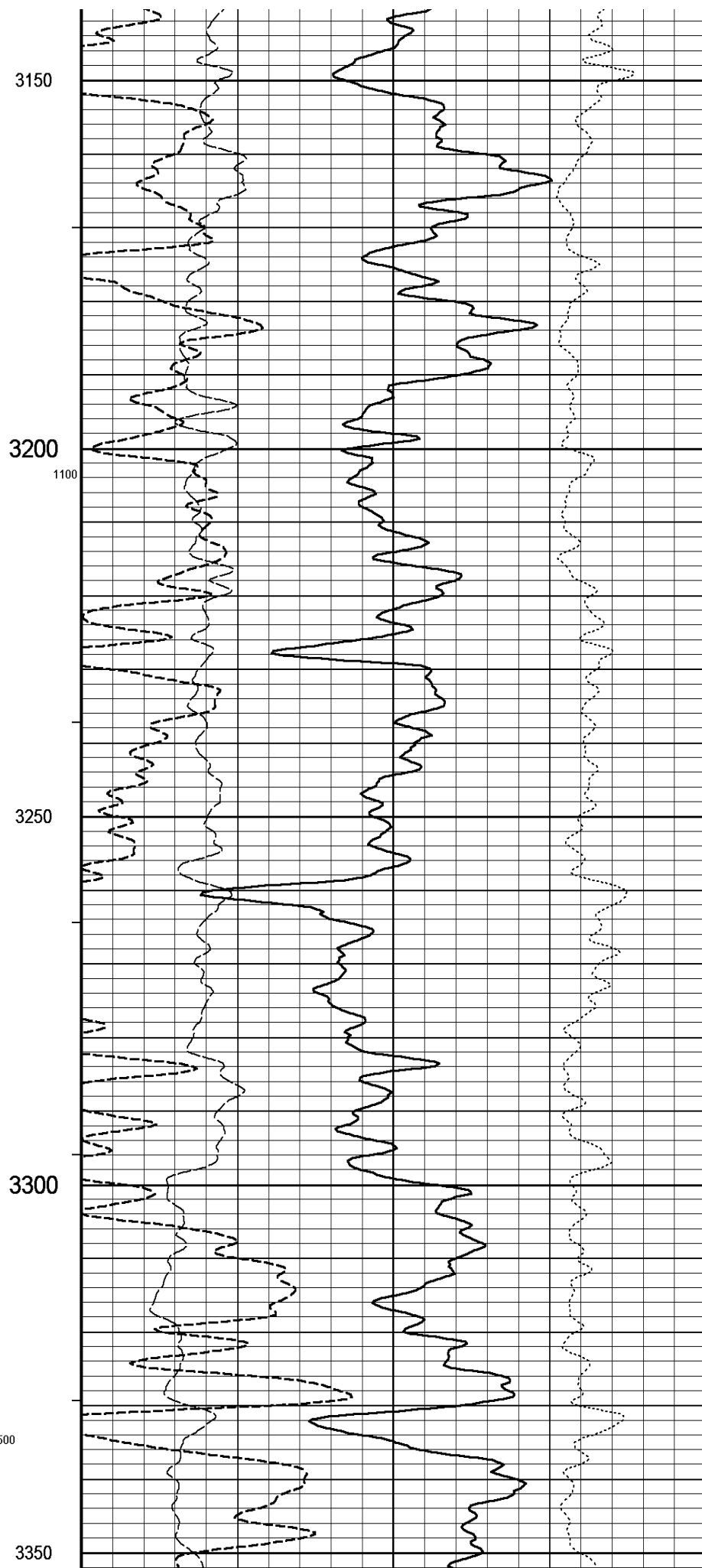
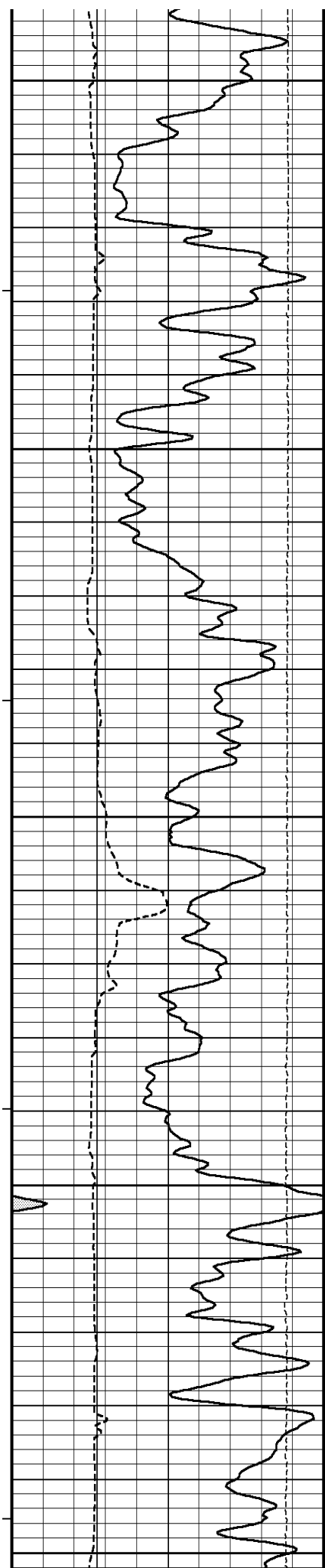
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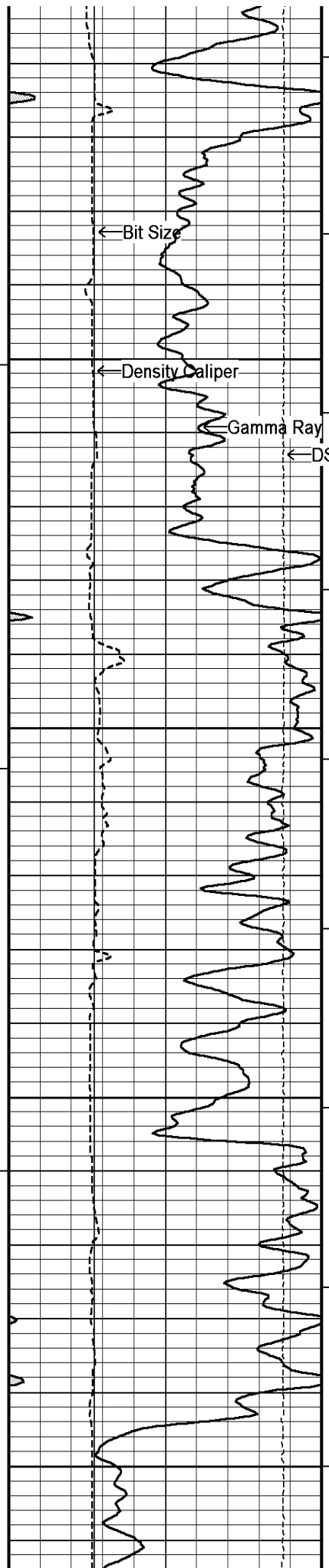


SS Density Por. 2.68

PE →

Density Correction →



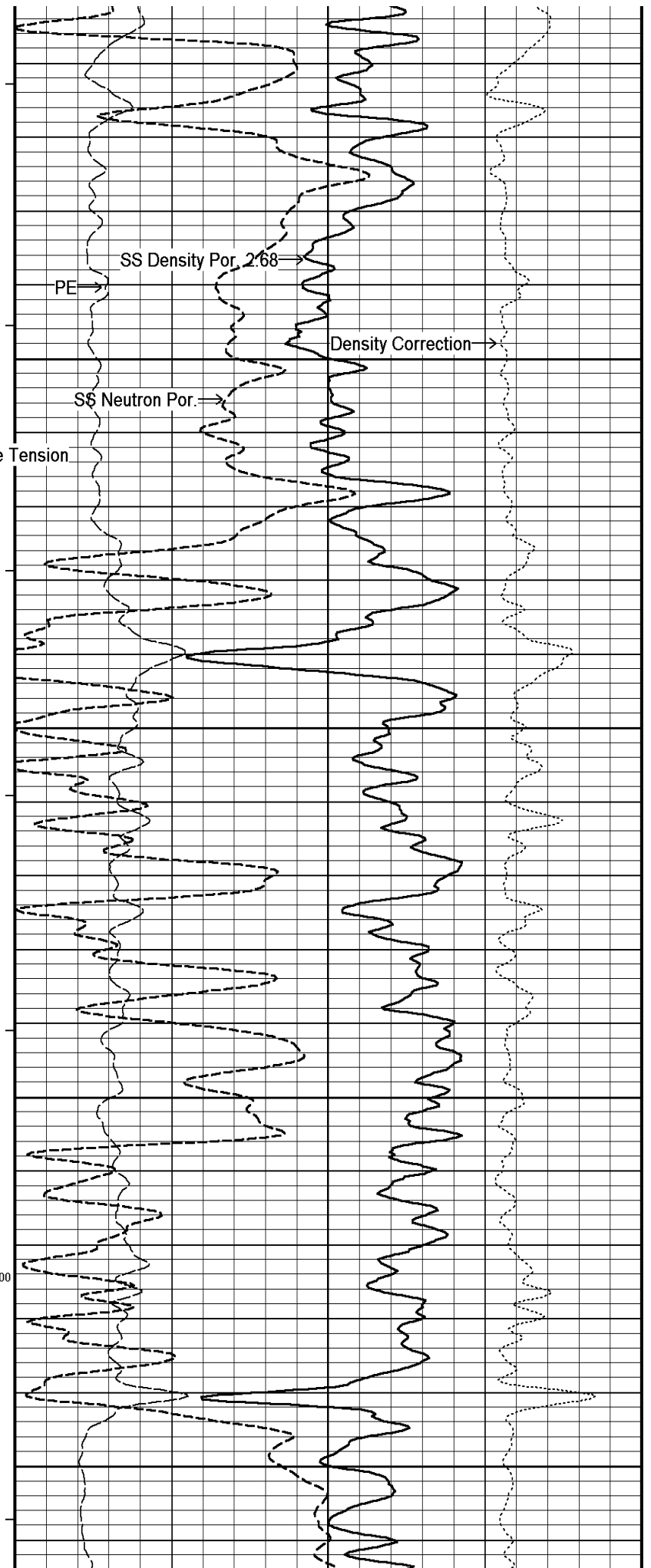


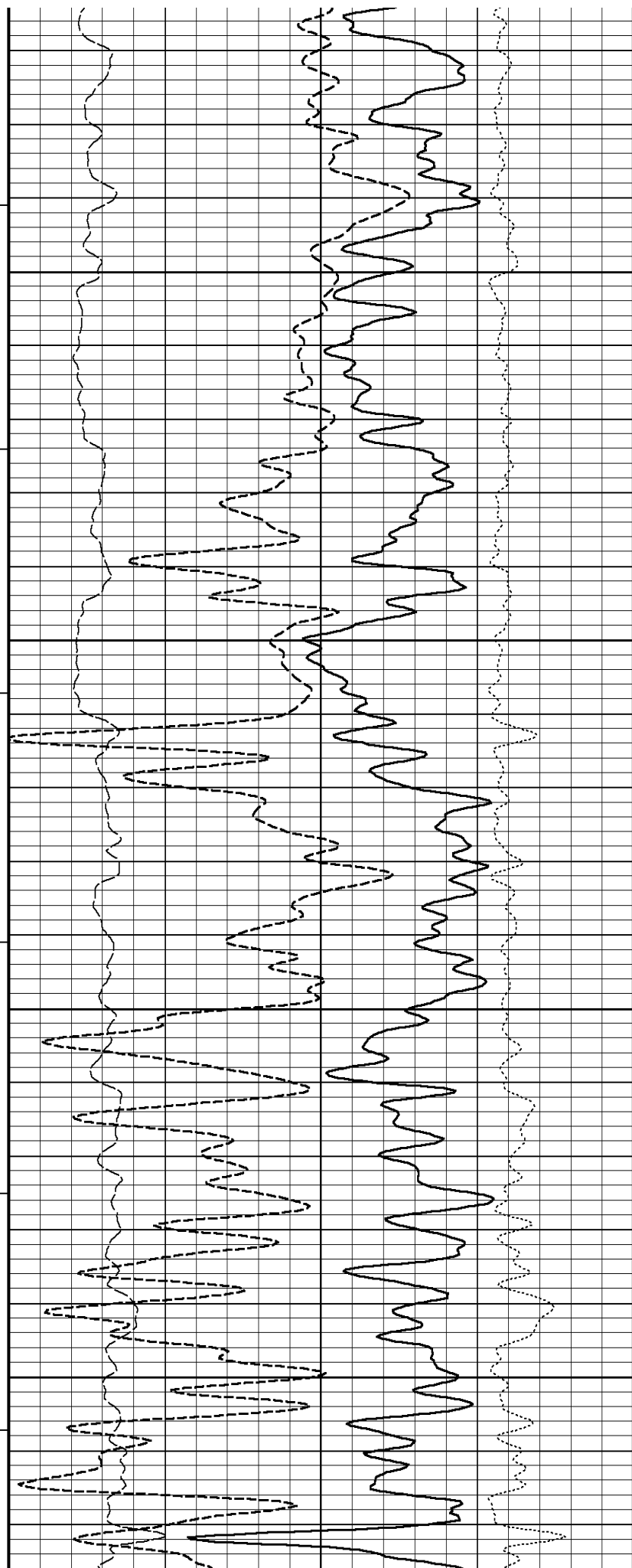
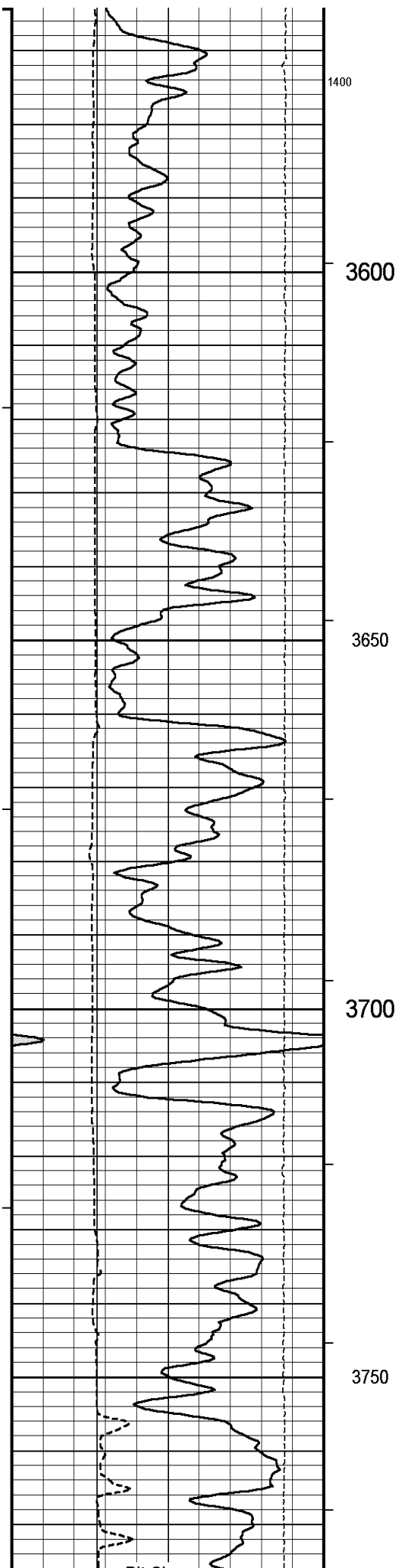
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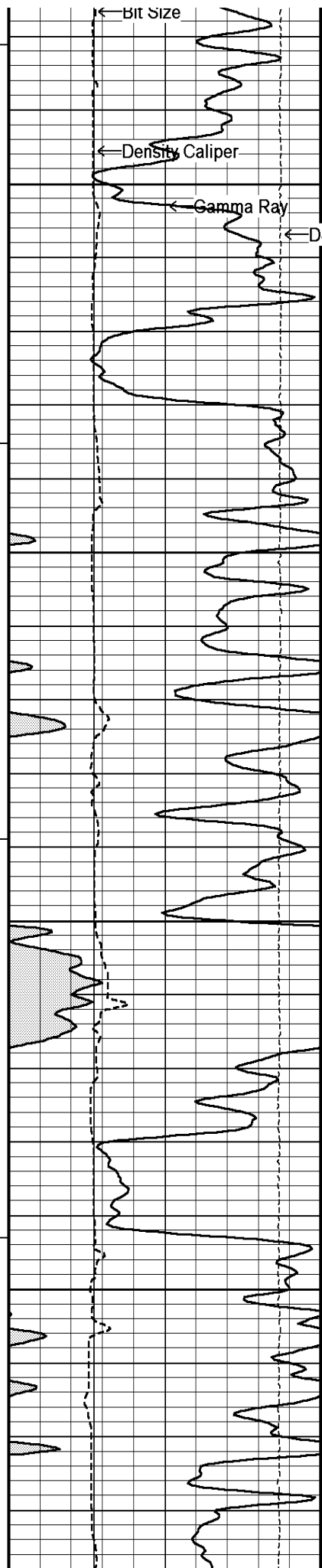
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3500

3550







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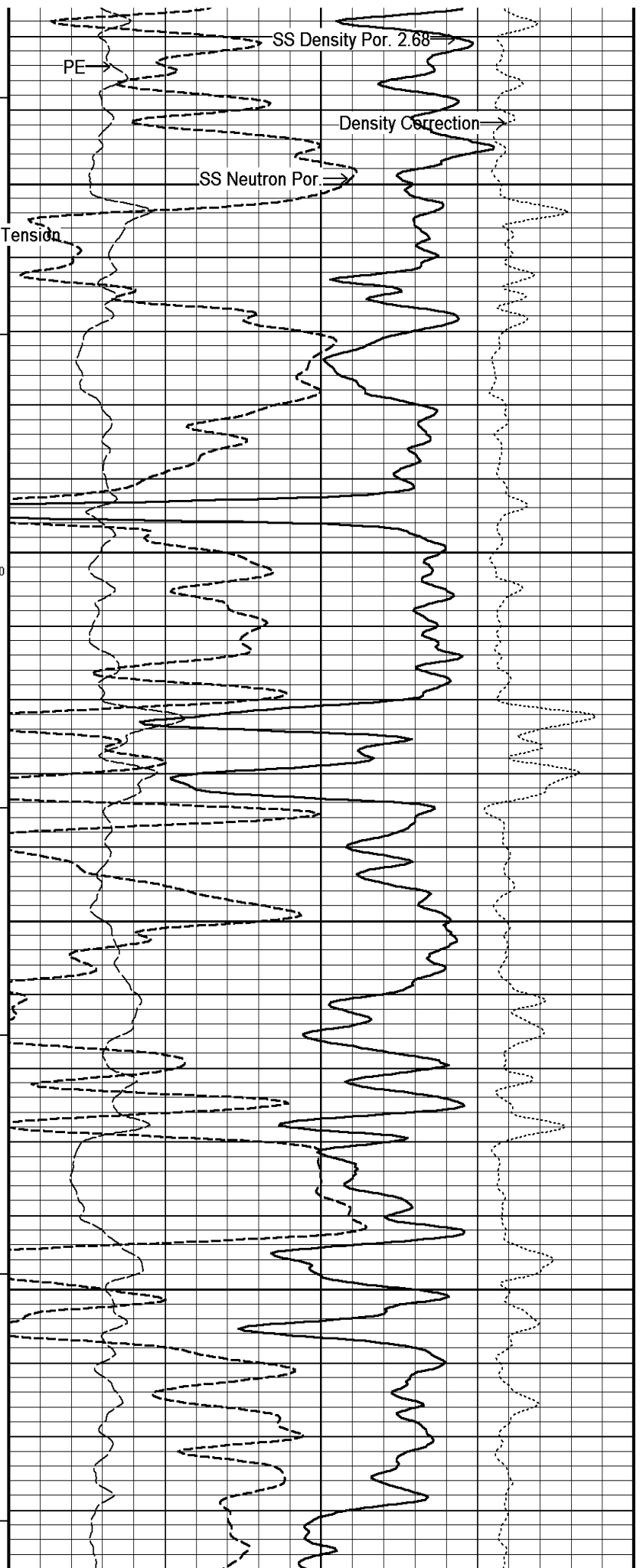
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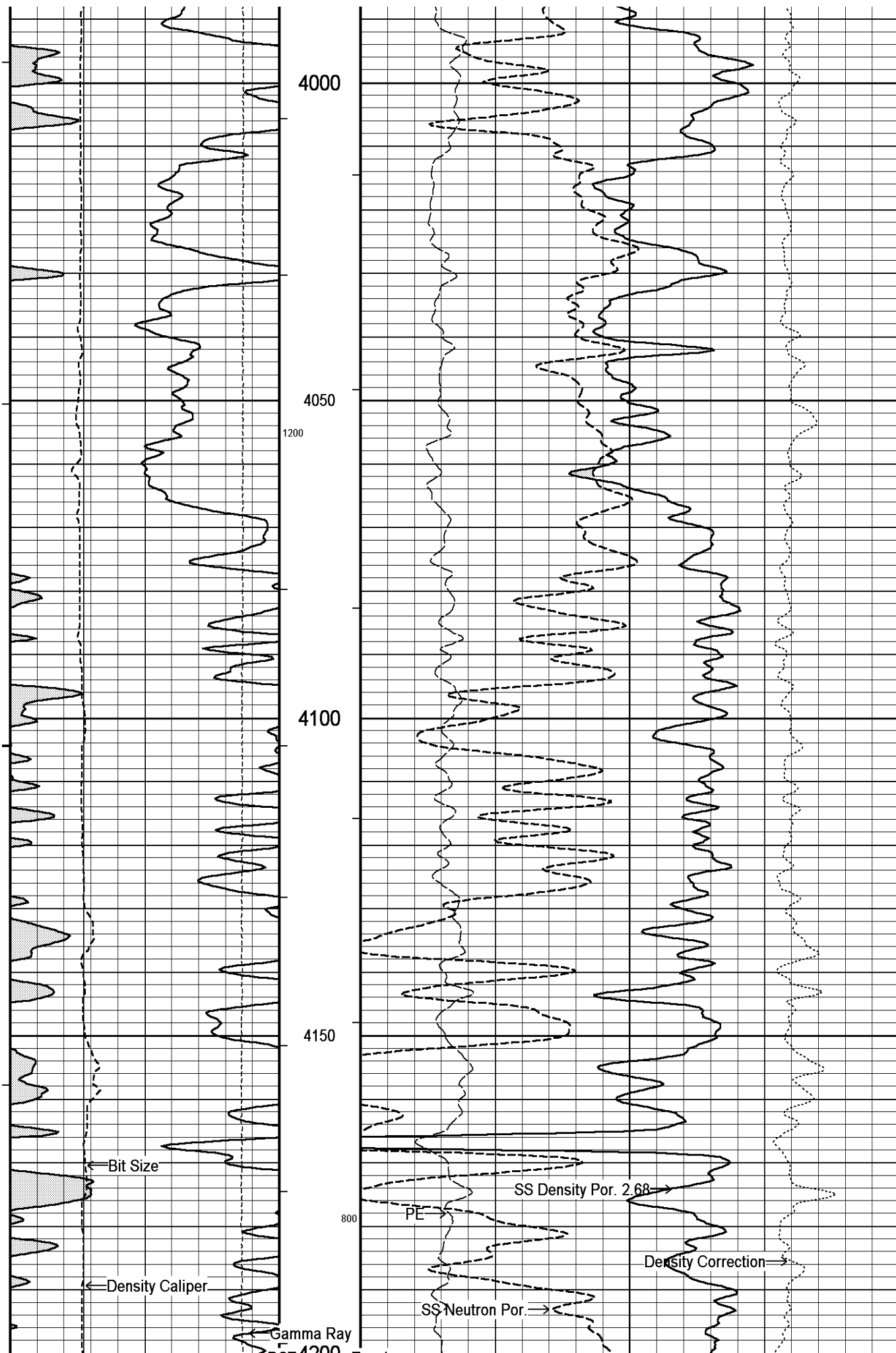
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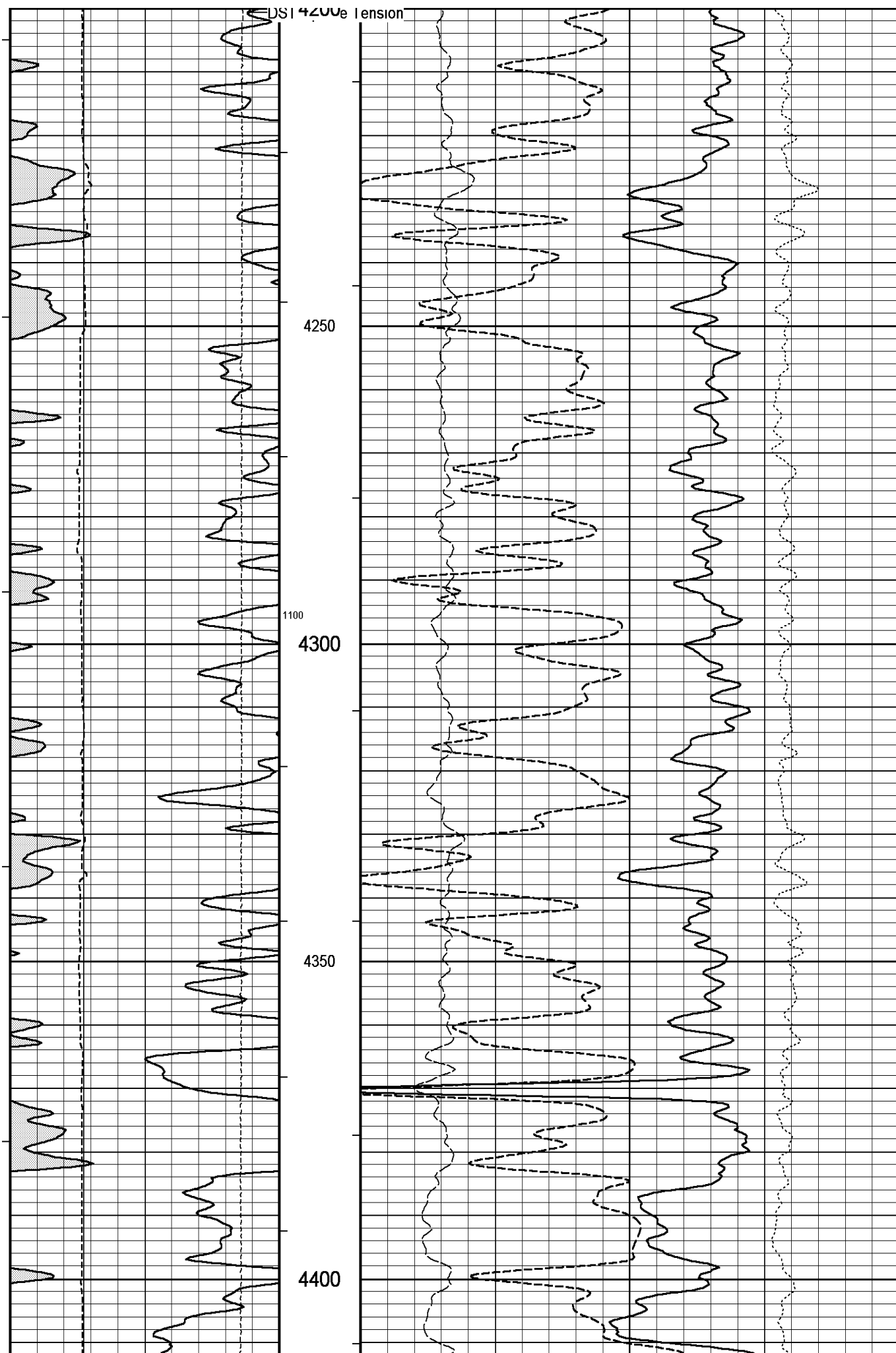
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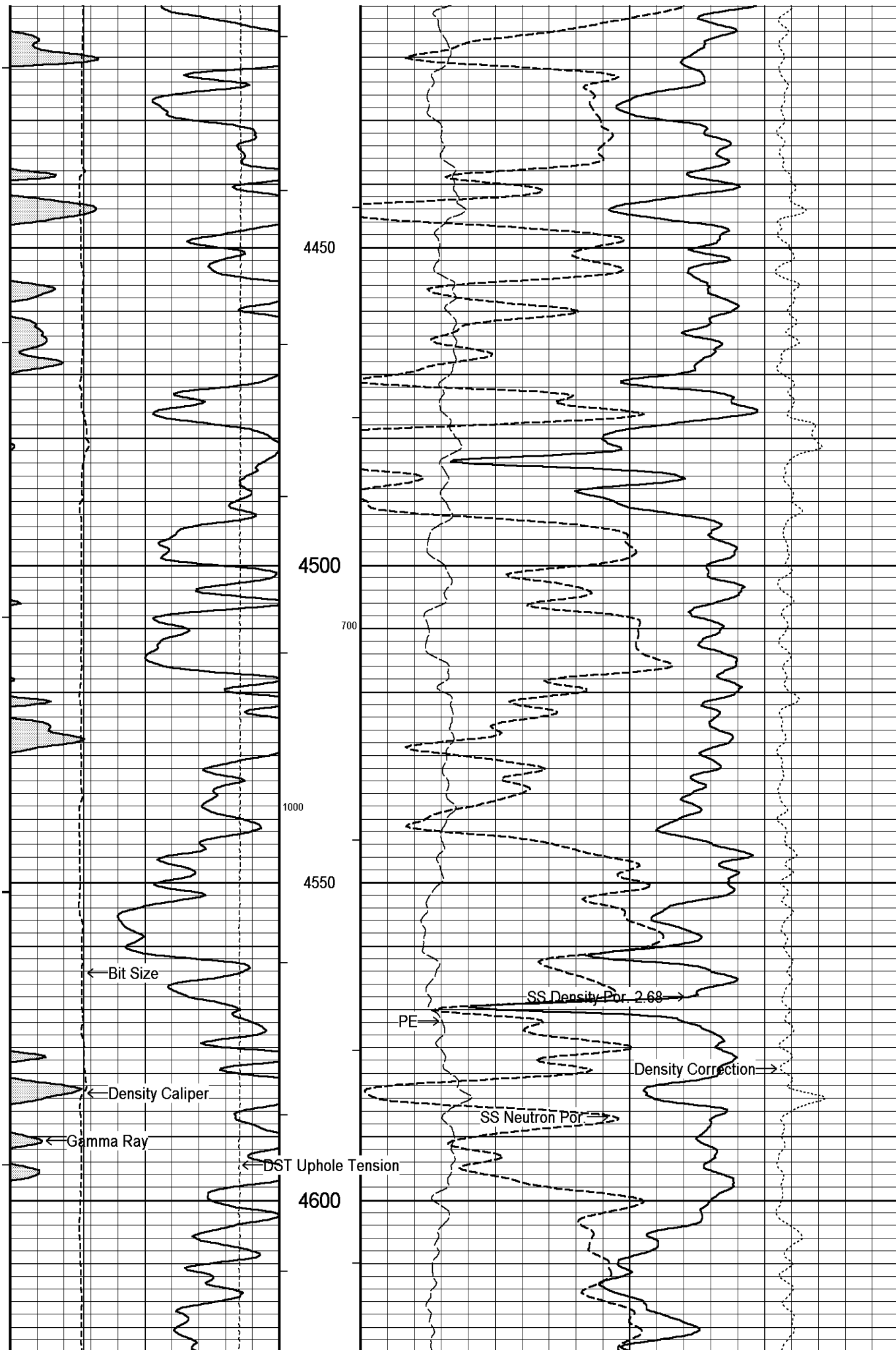
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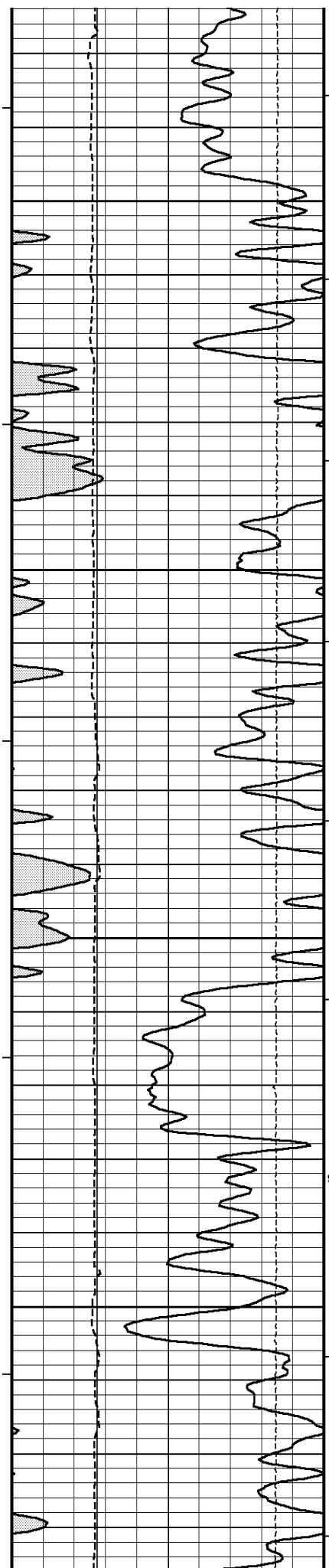
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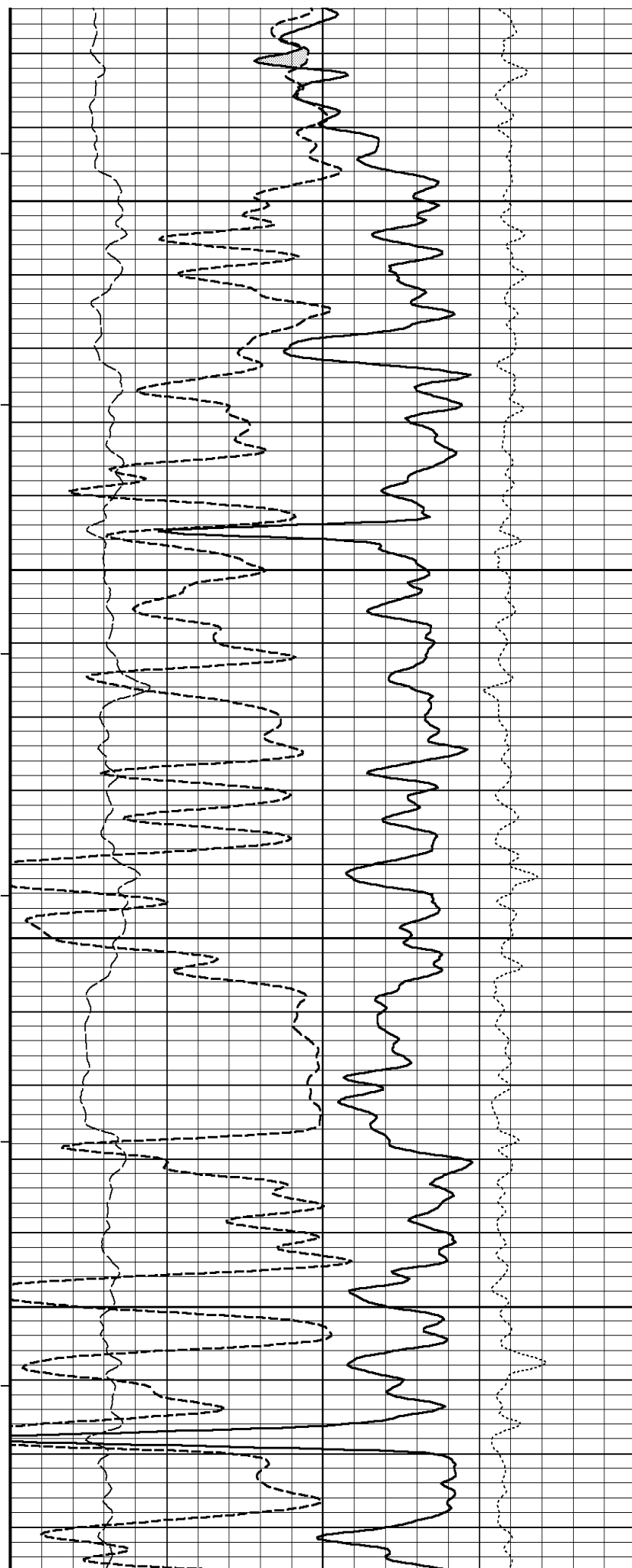
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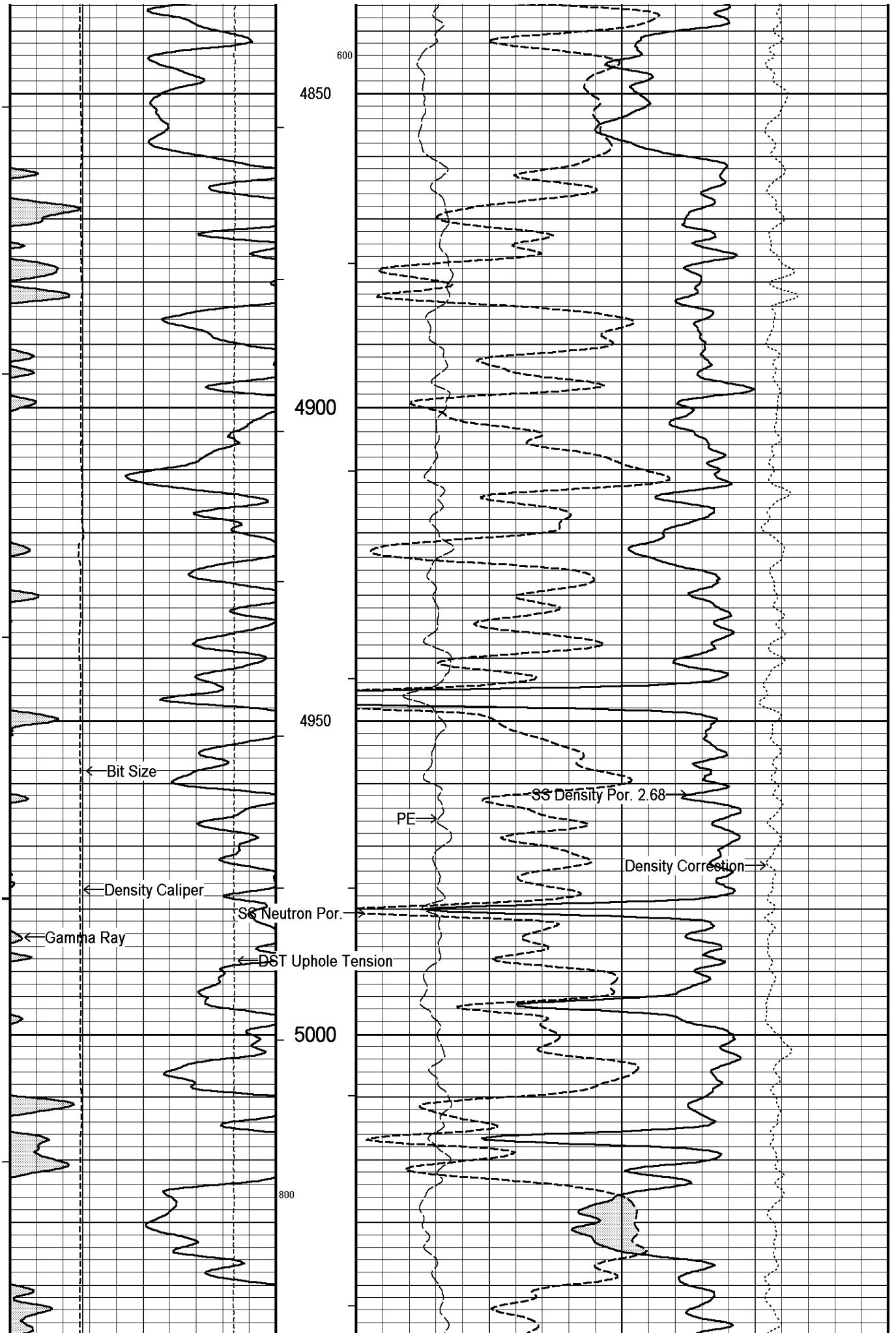
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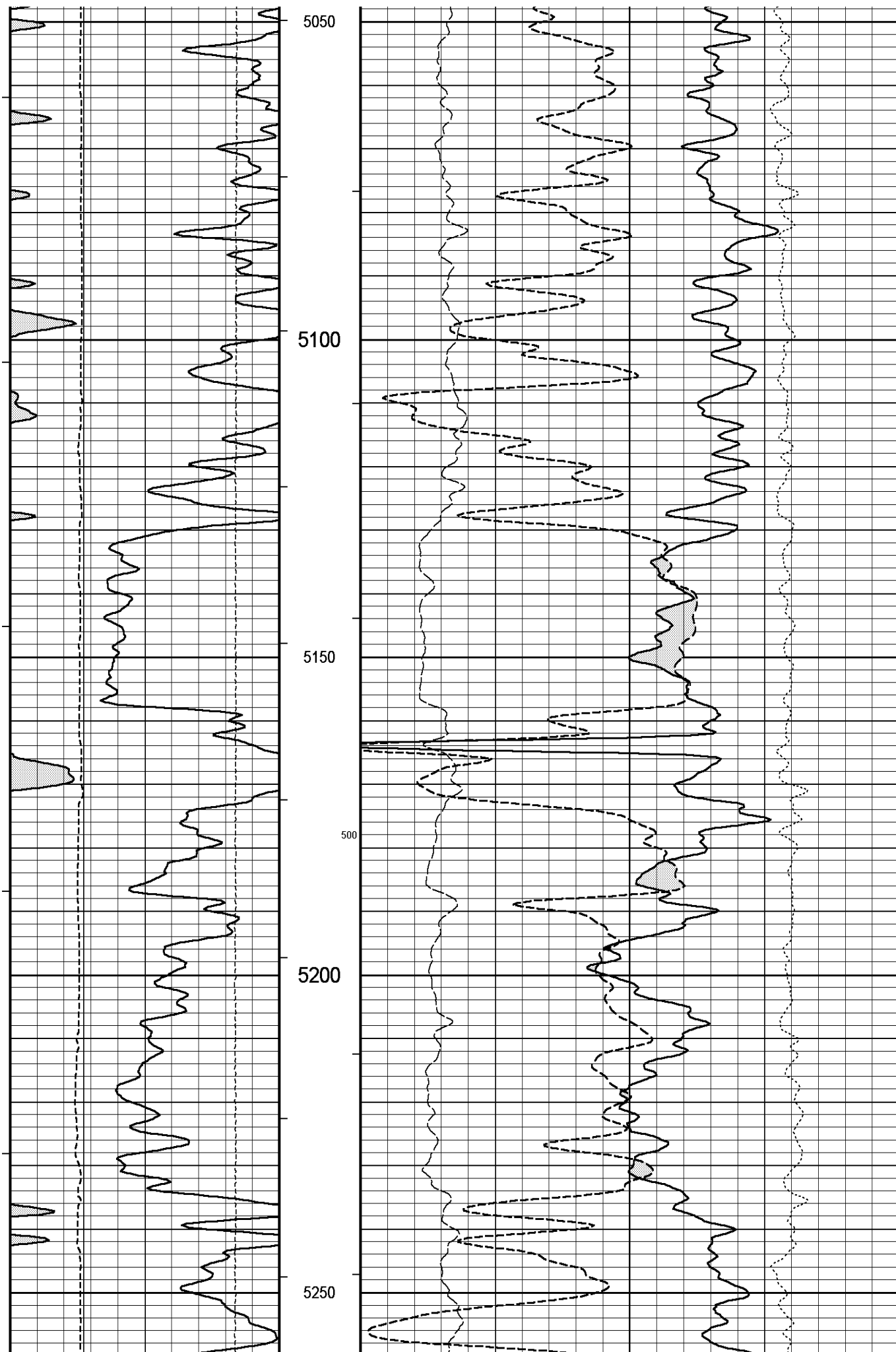
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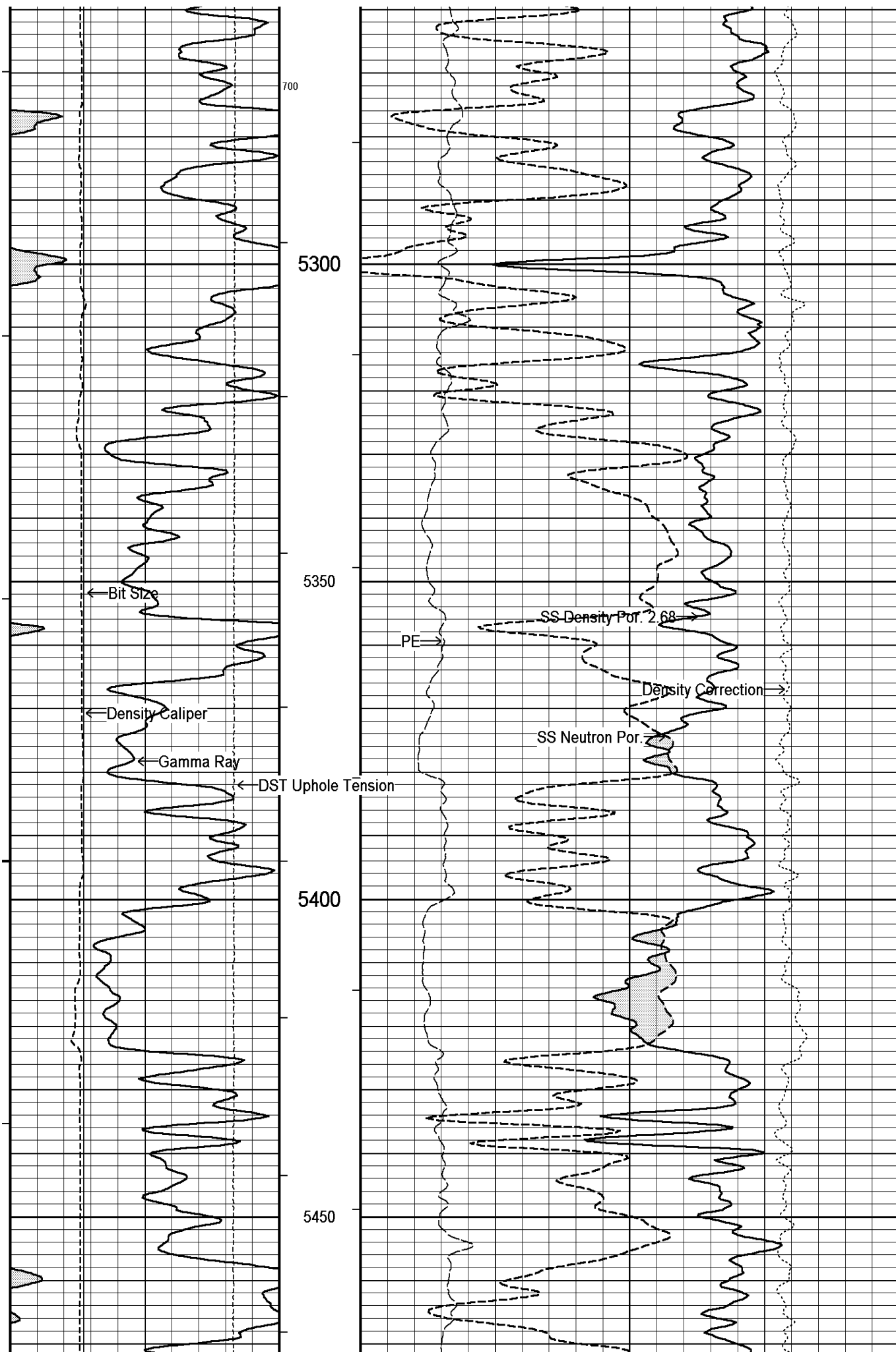
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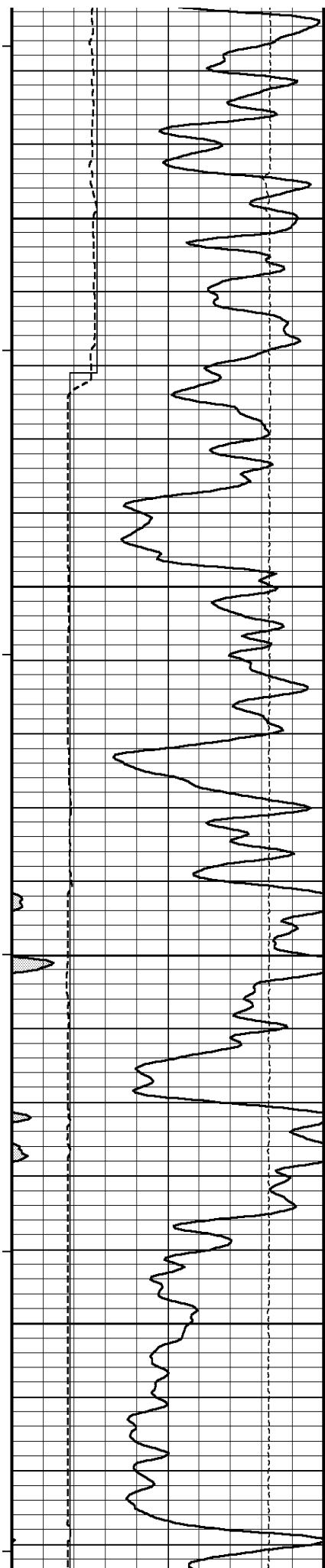
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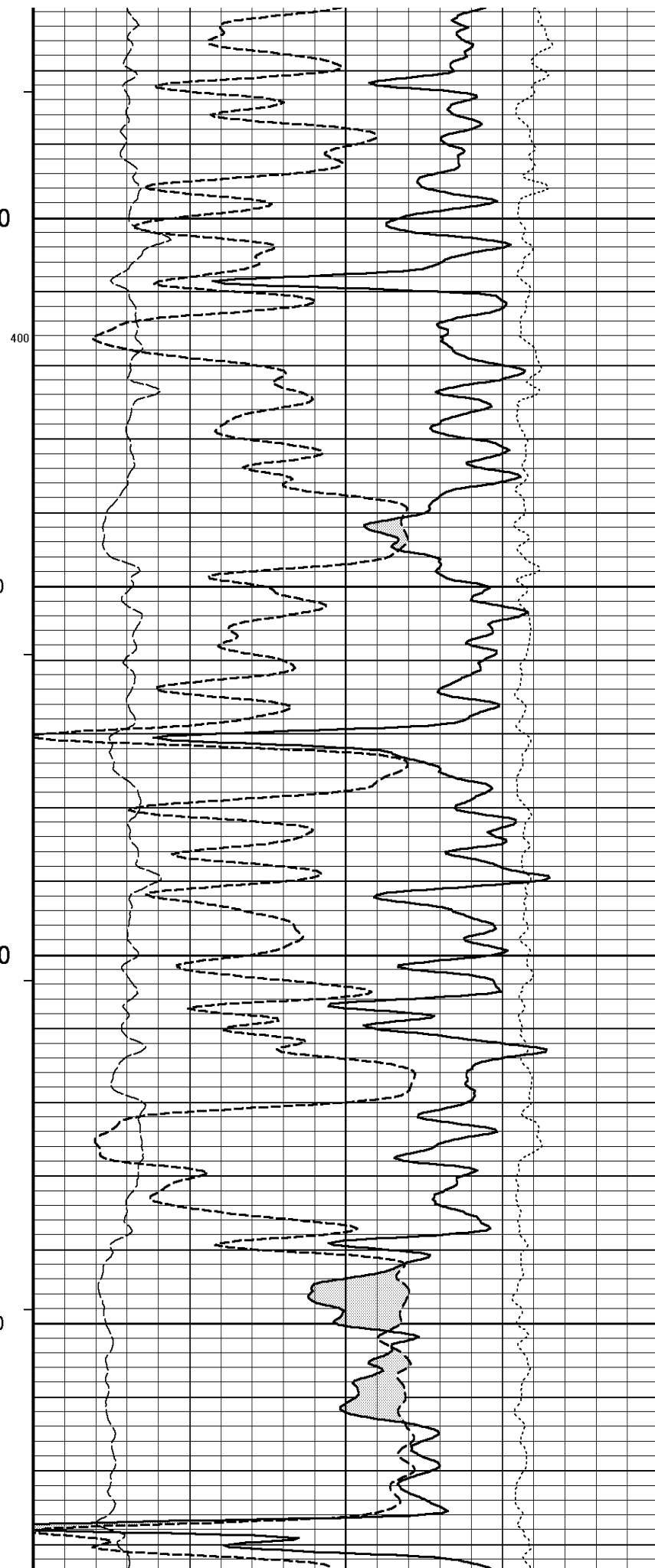
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600

5550

5600

5650



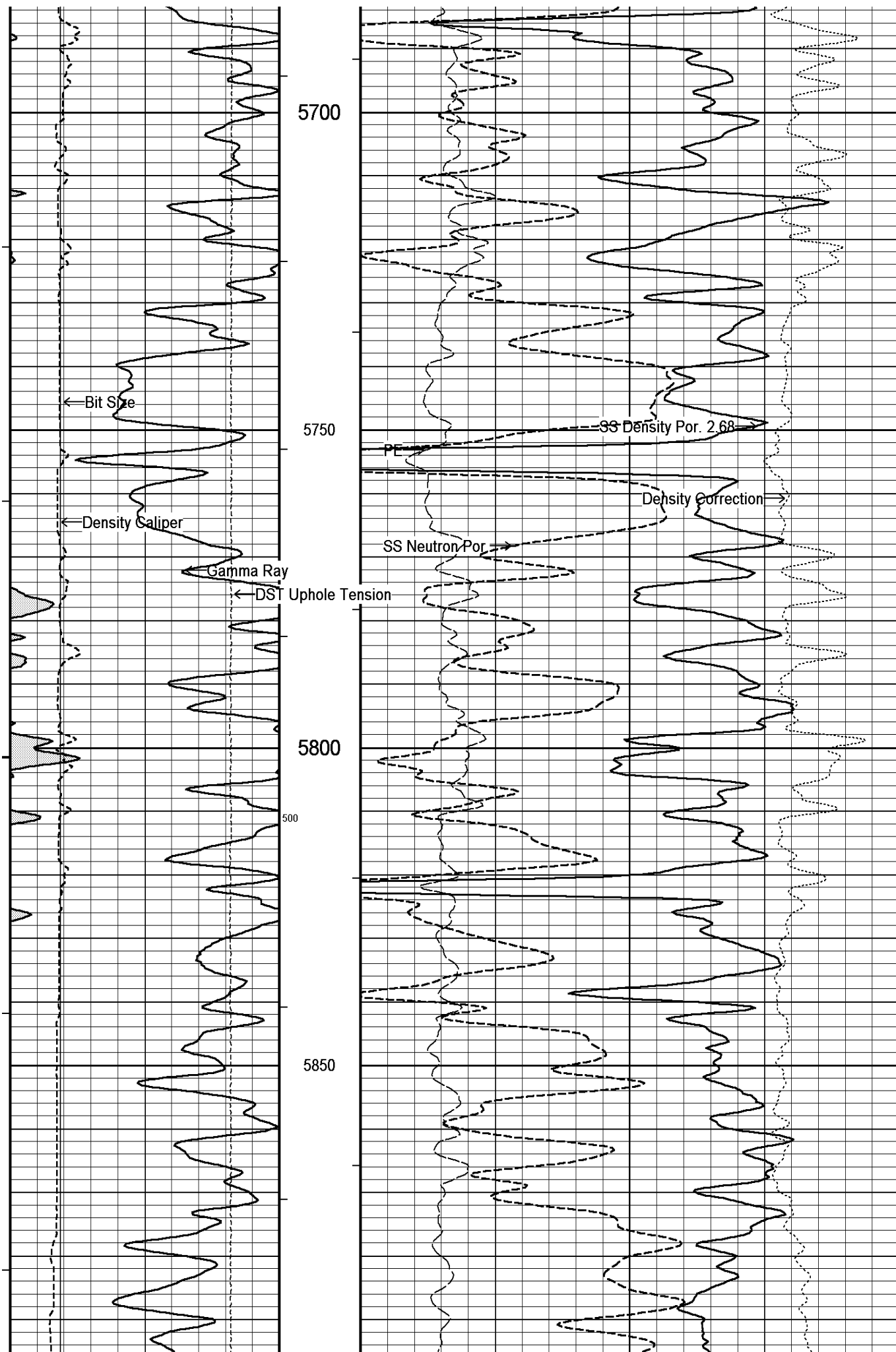
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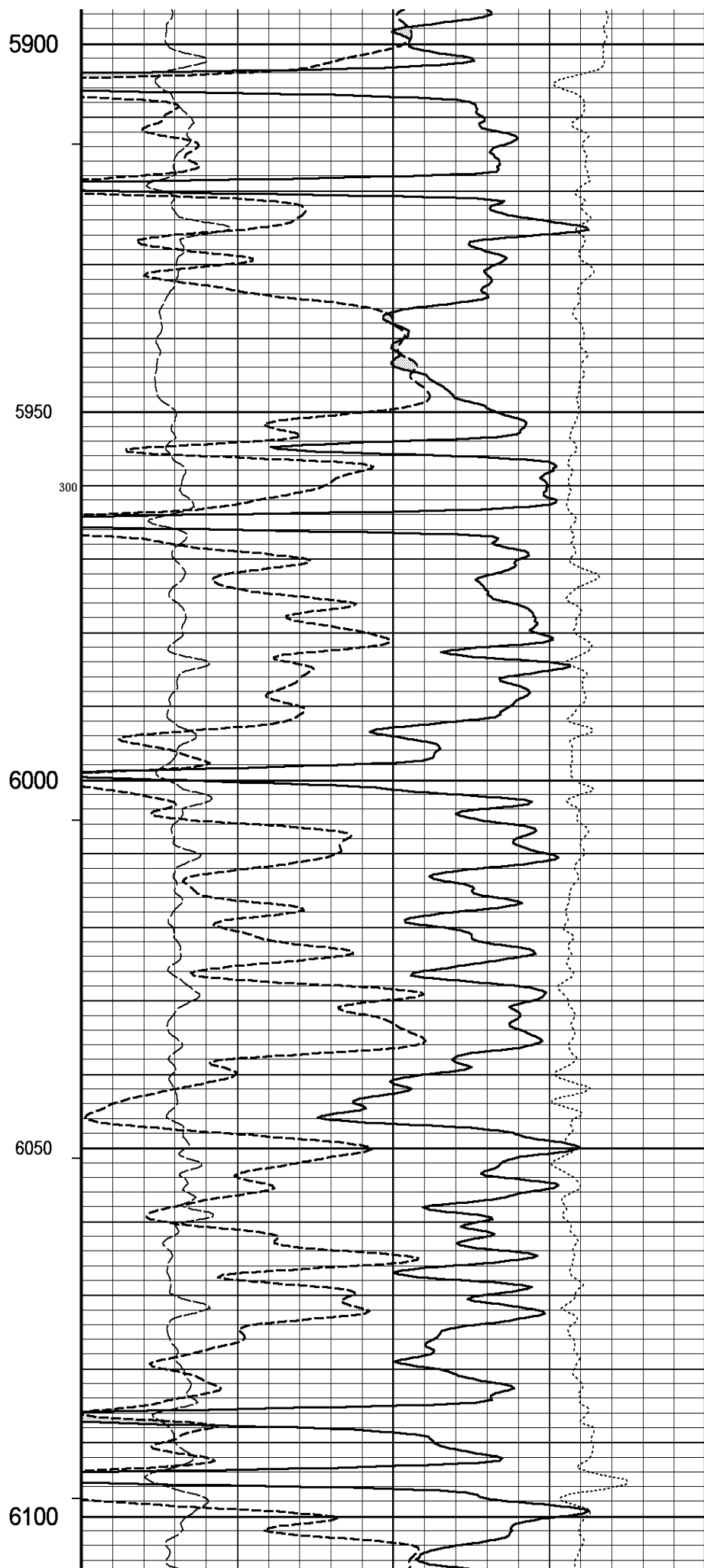
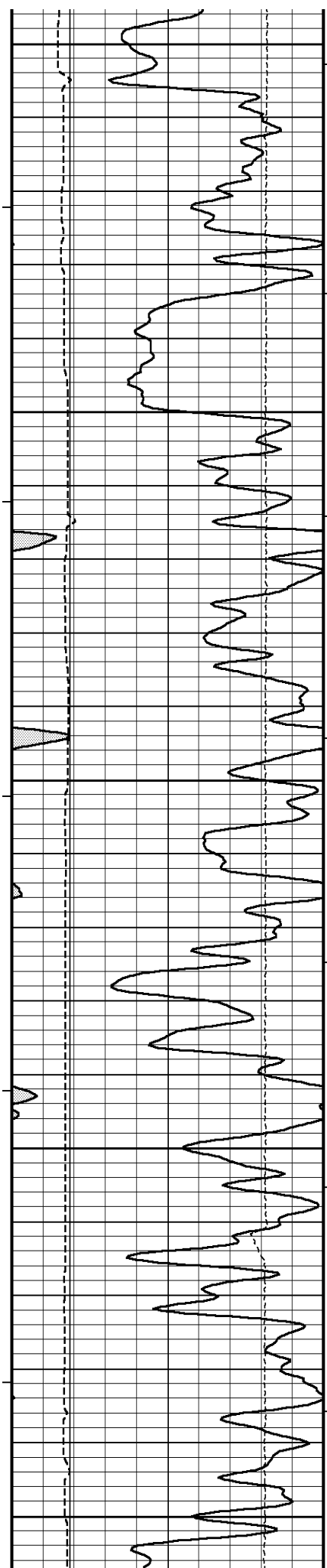
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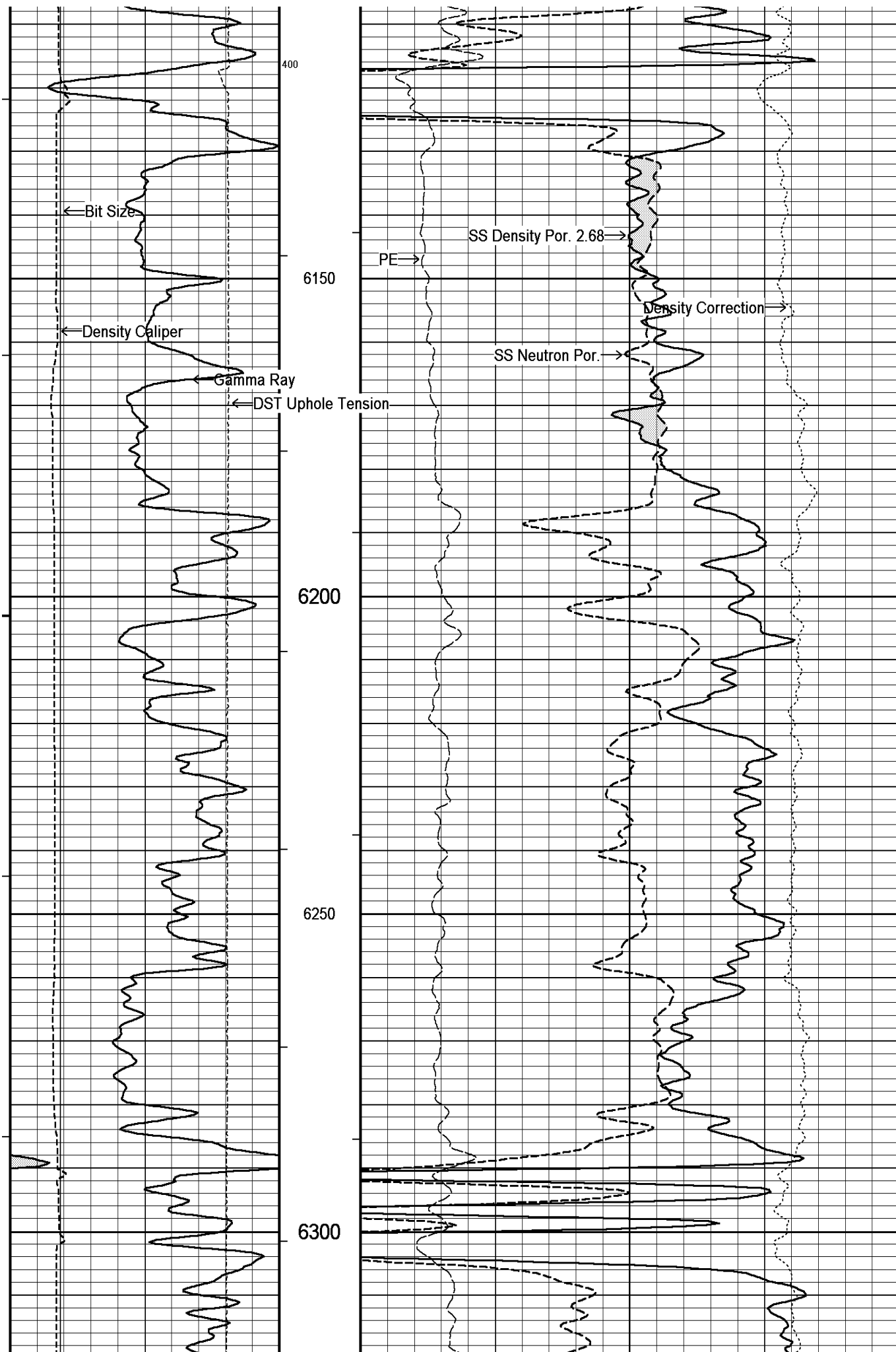
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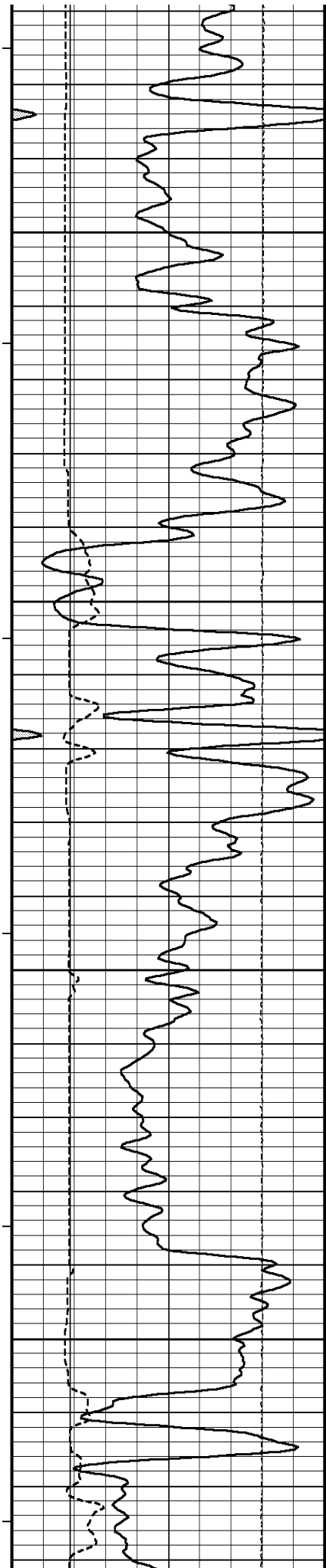
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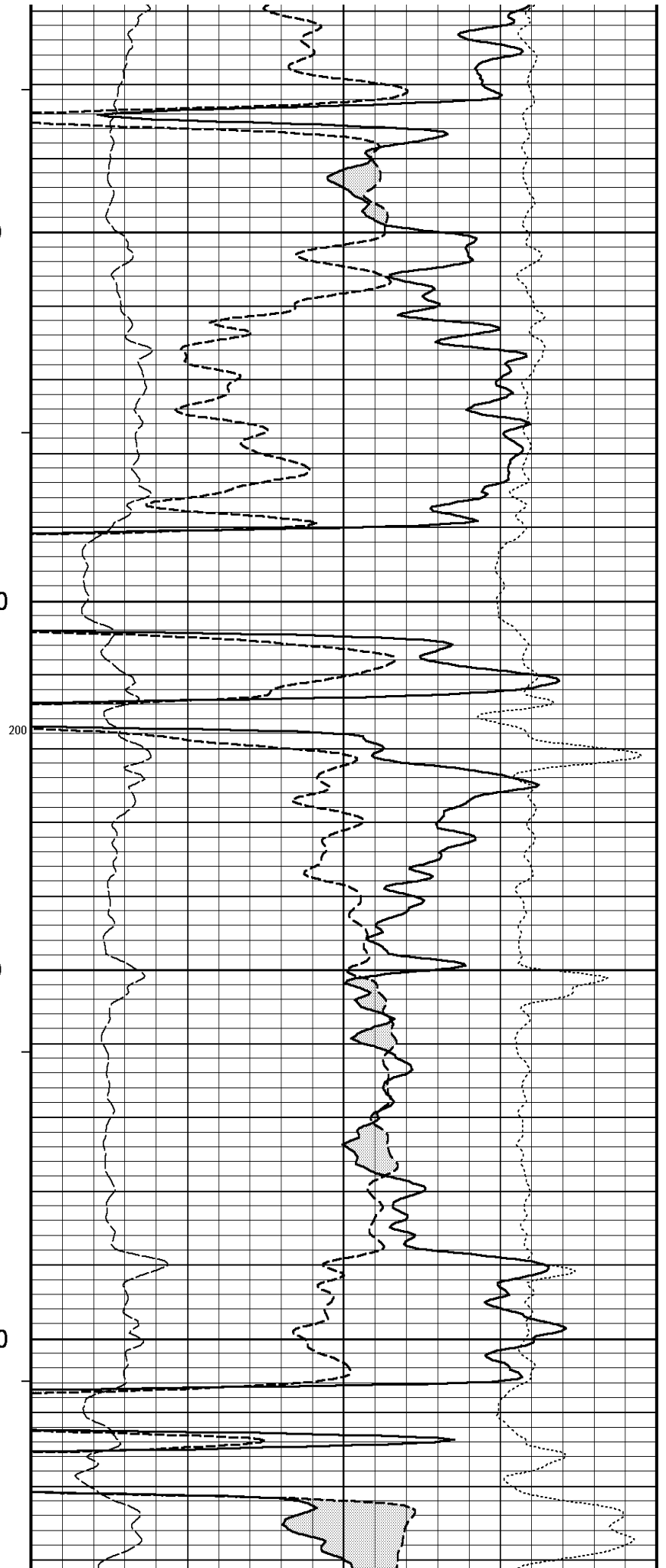
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6400

300

6450

6500



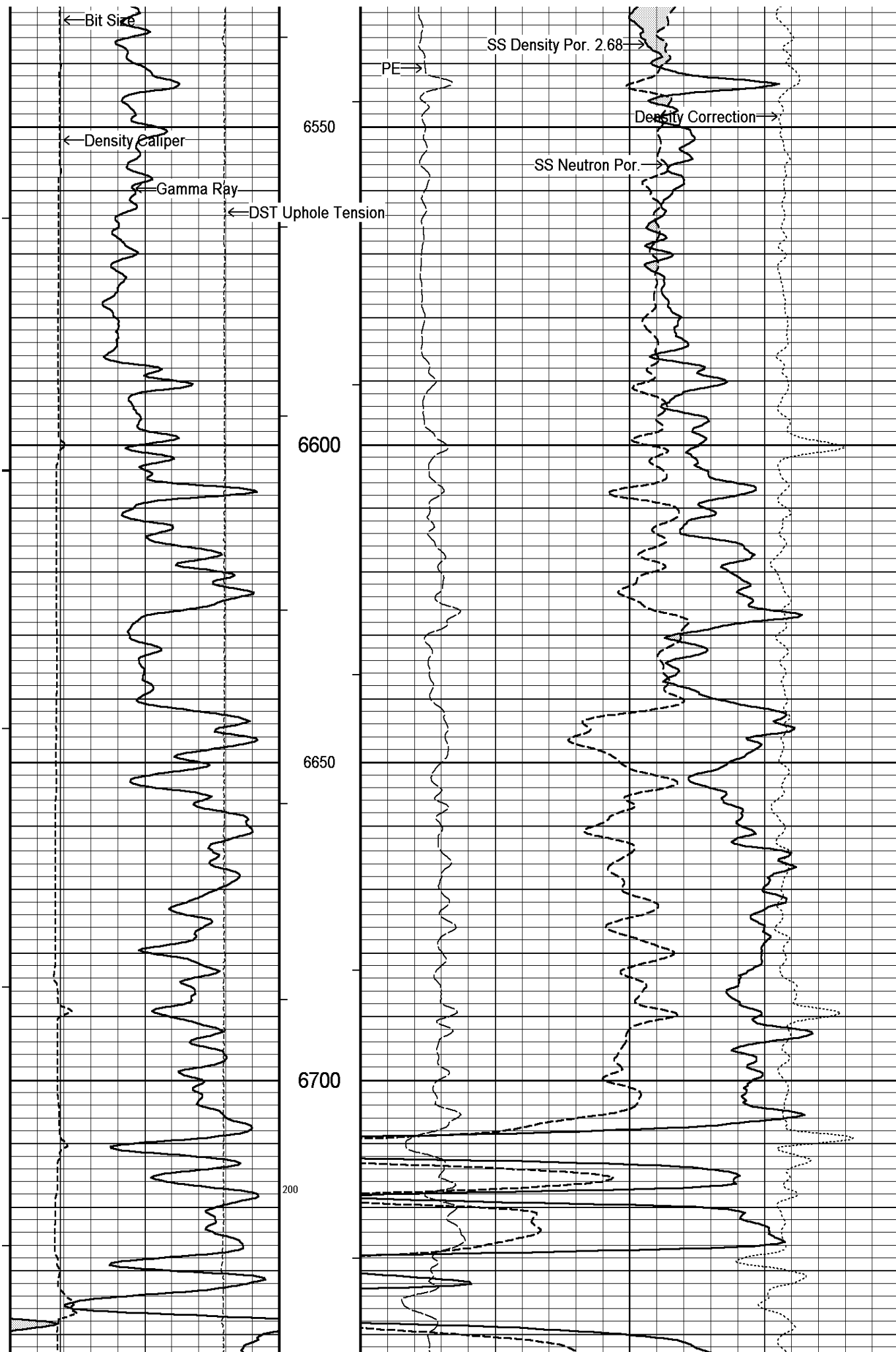
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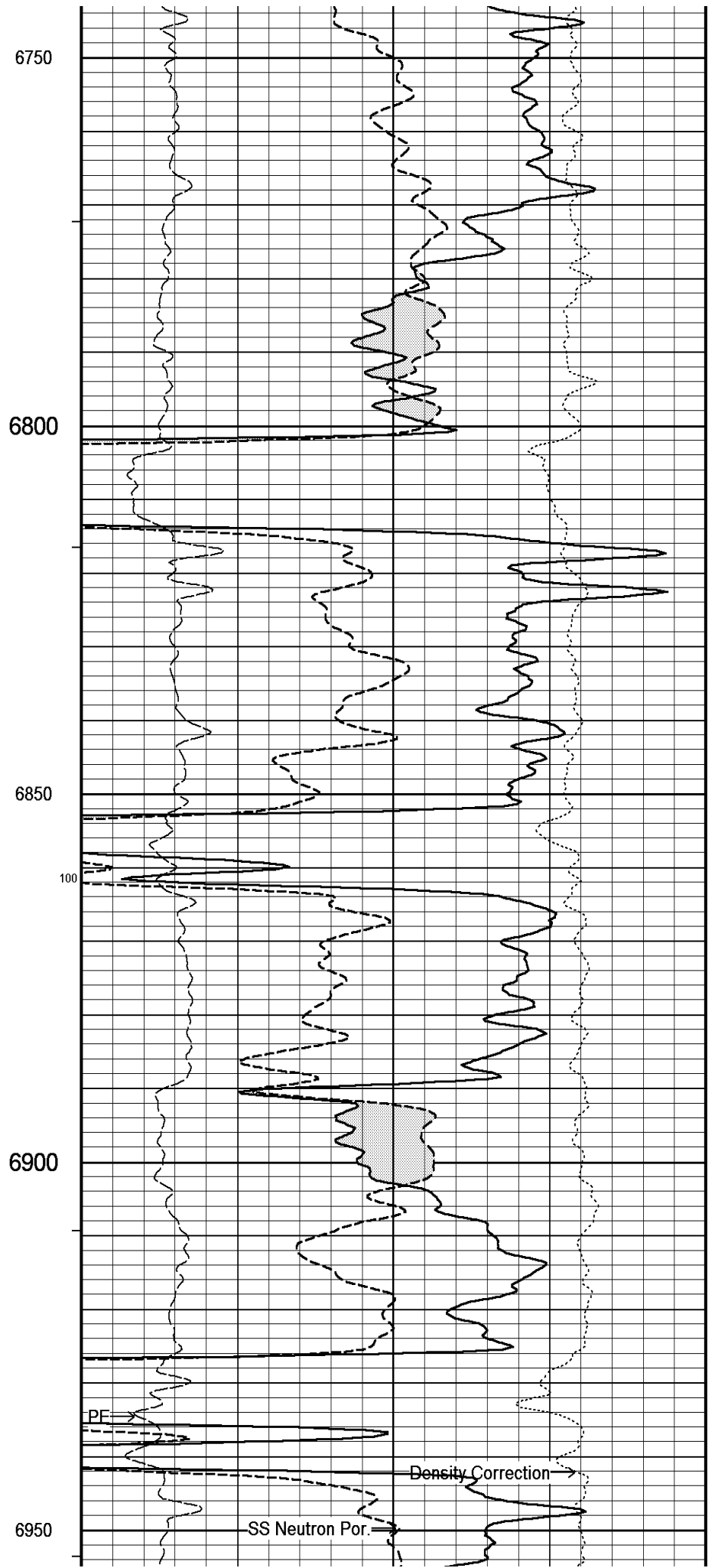
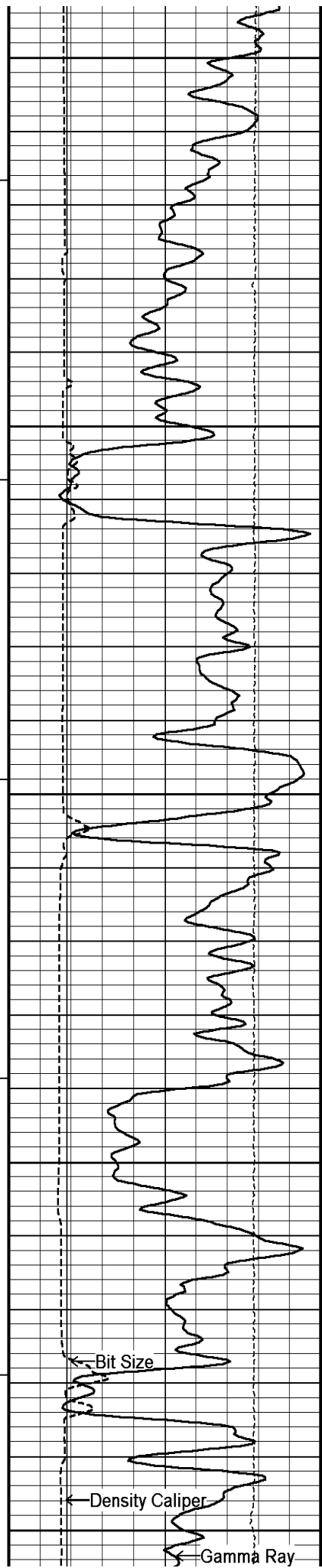
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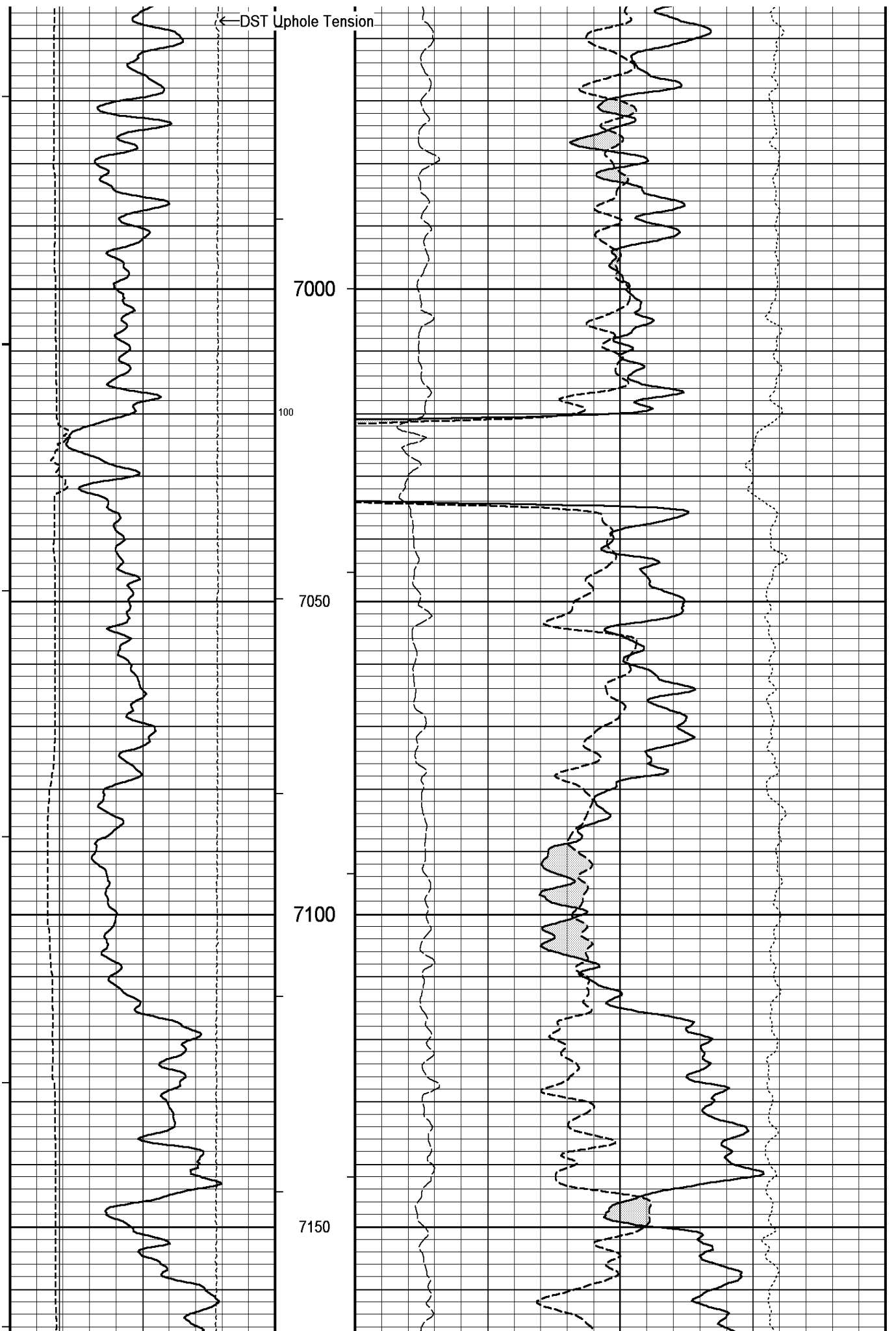
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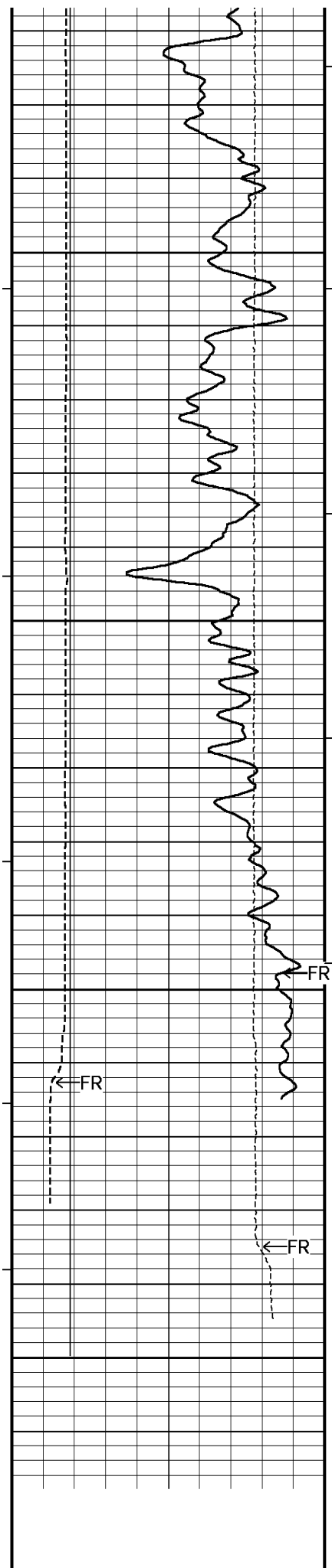
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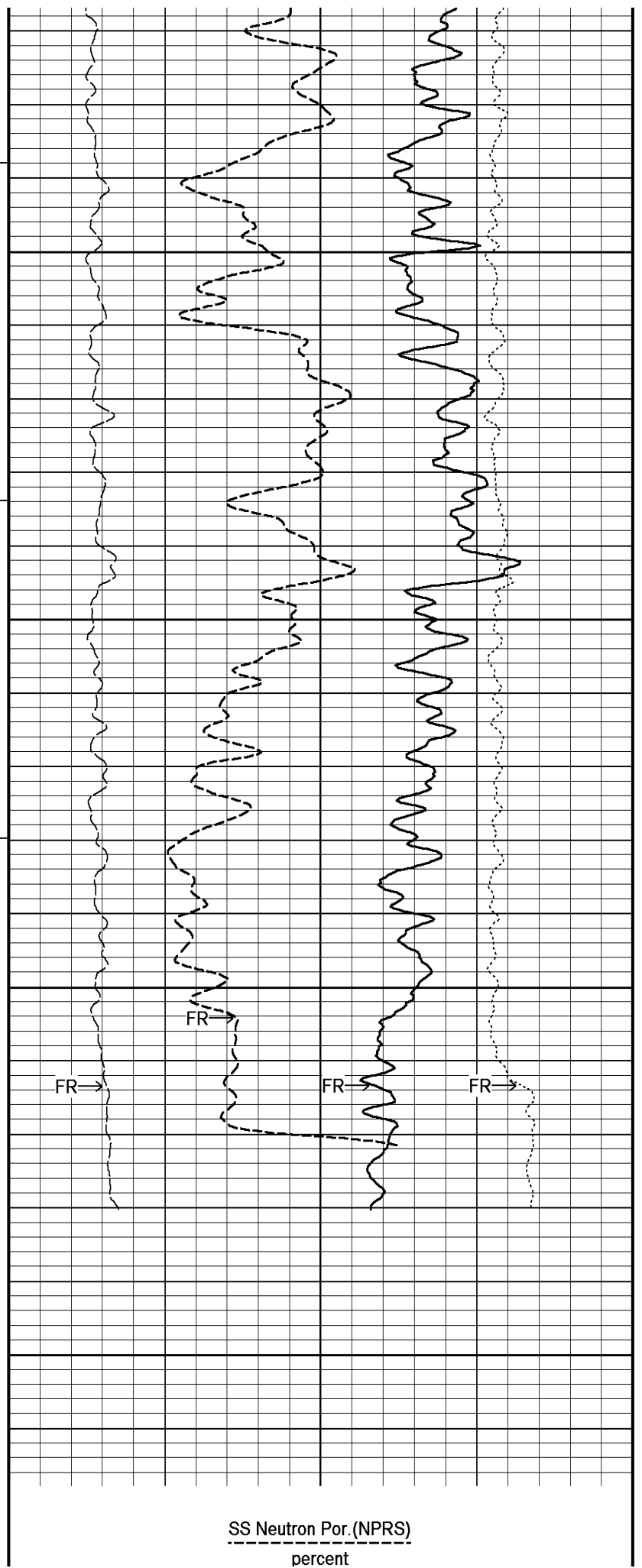
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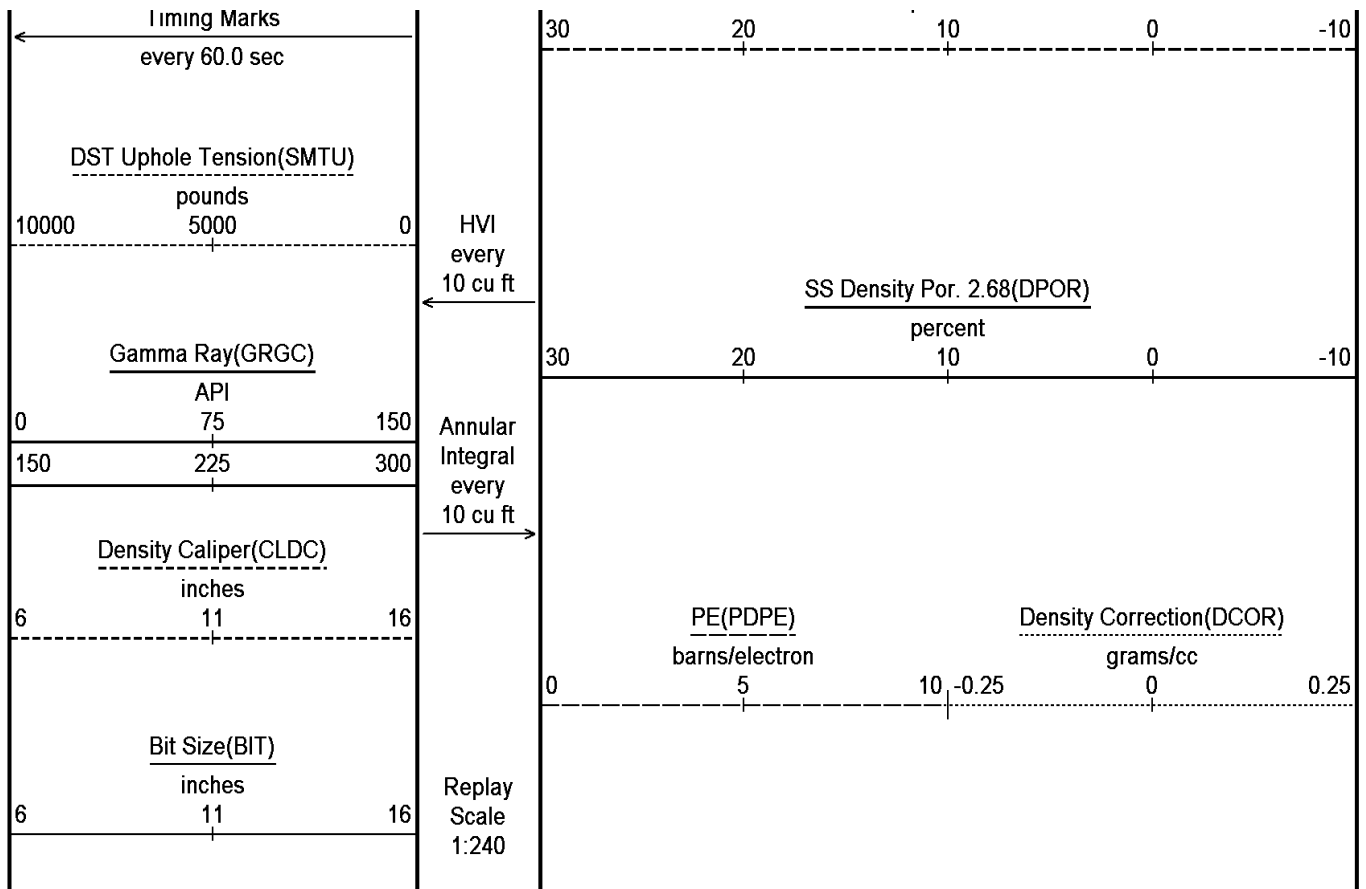
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7366

Depth
In
Feet

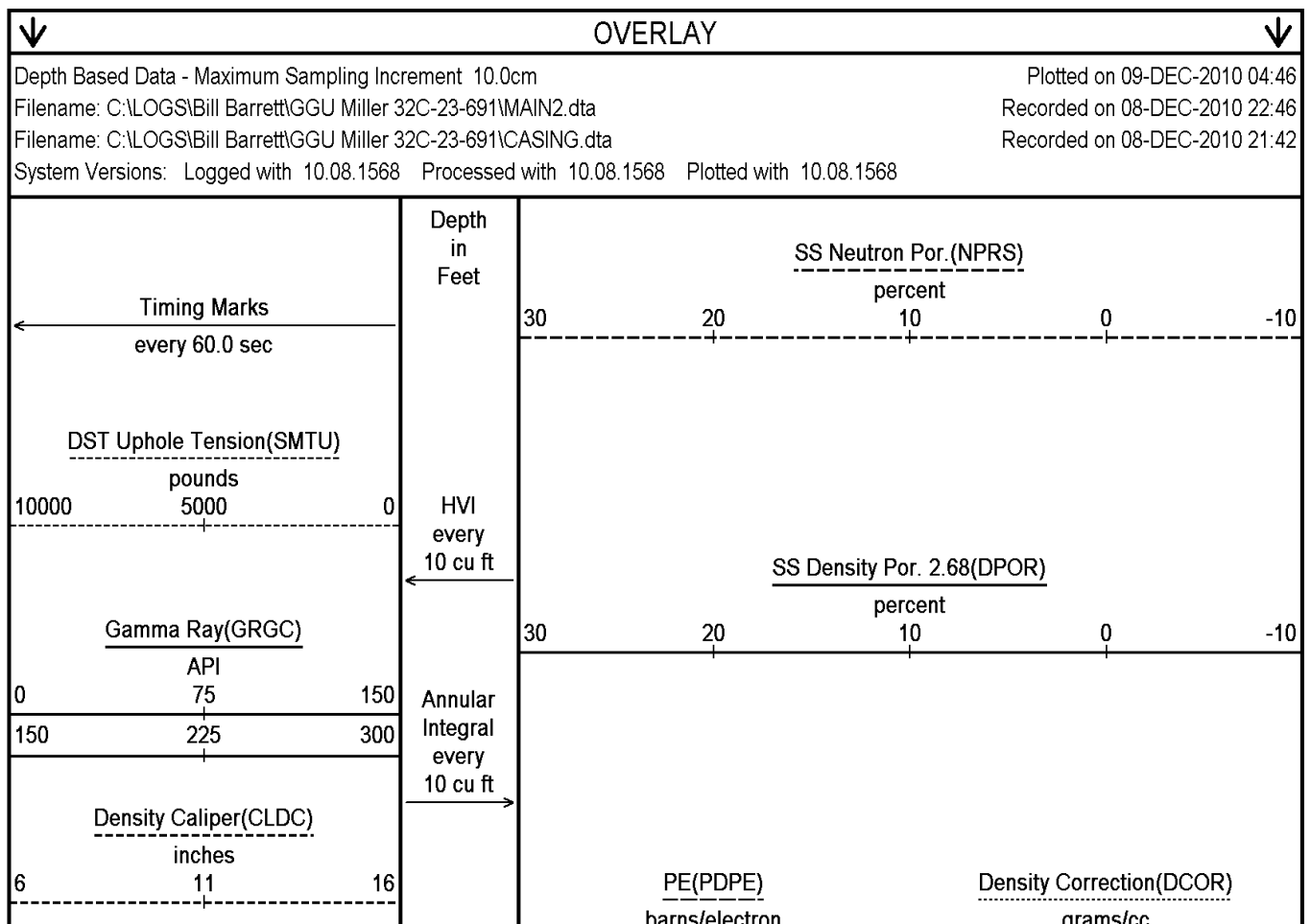


SS Neutron Por. (NPRS)
percent

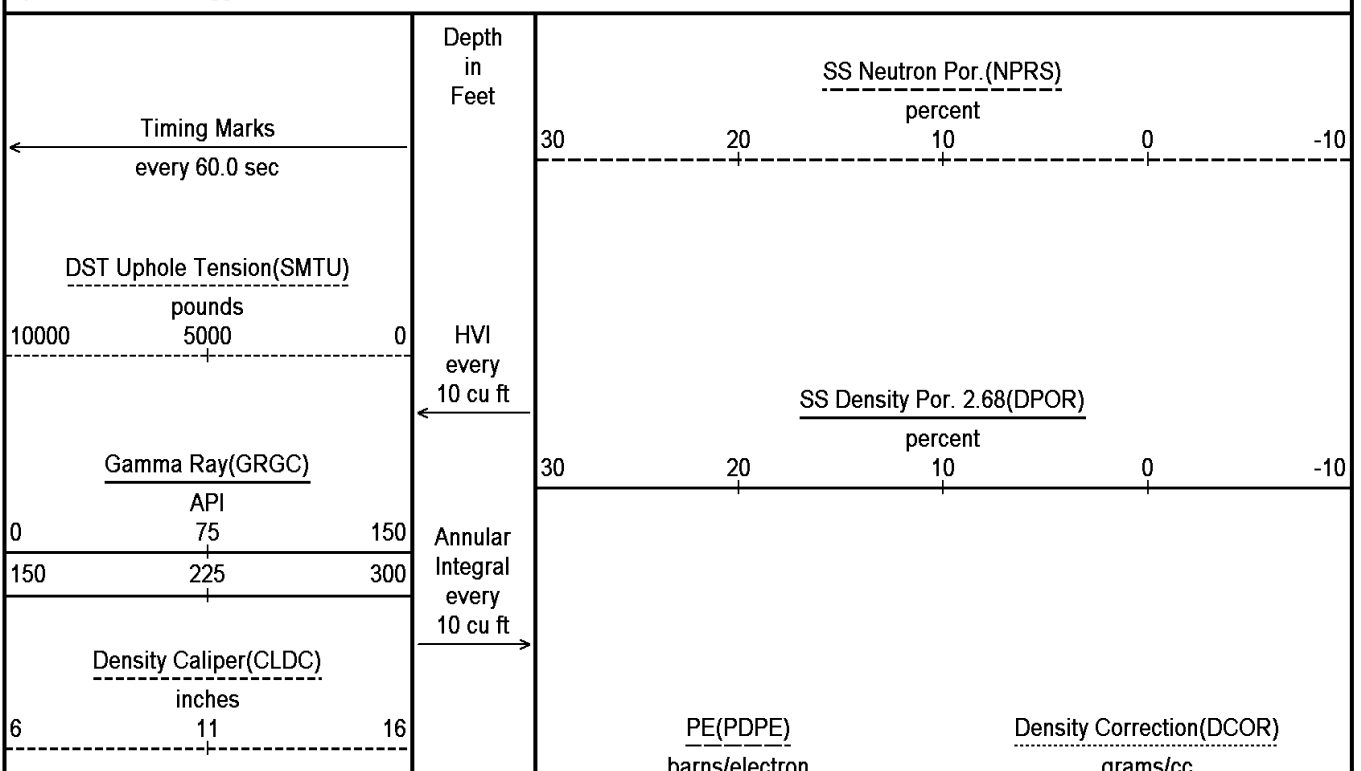


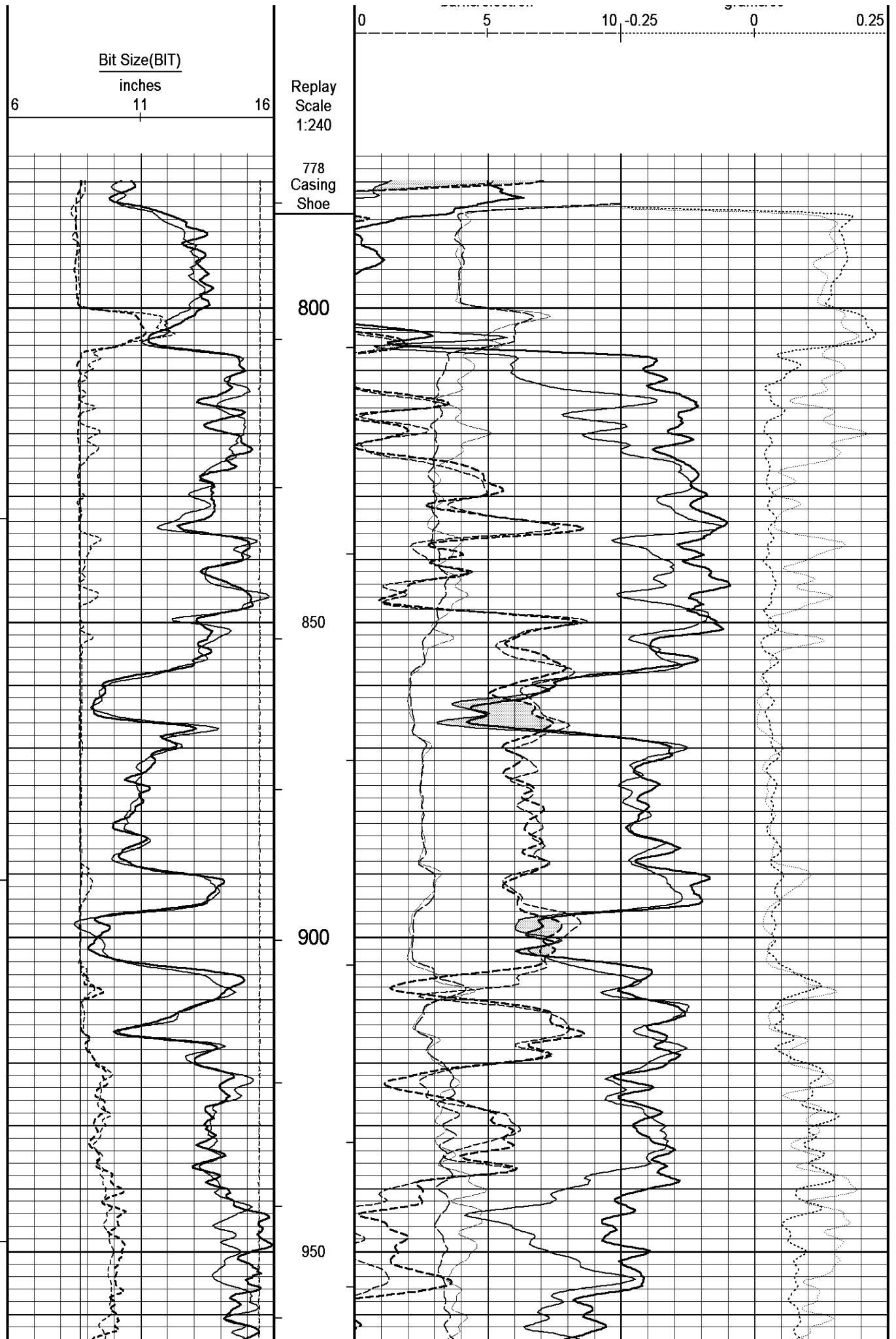
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 System Versions: Logged with 10.08.1568 Processed with 10.08.1568 Plotted with 10.08.1568

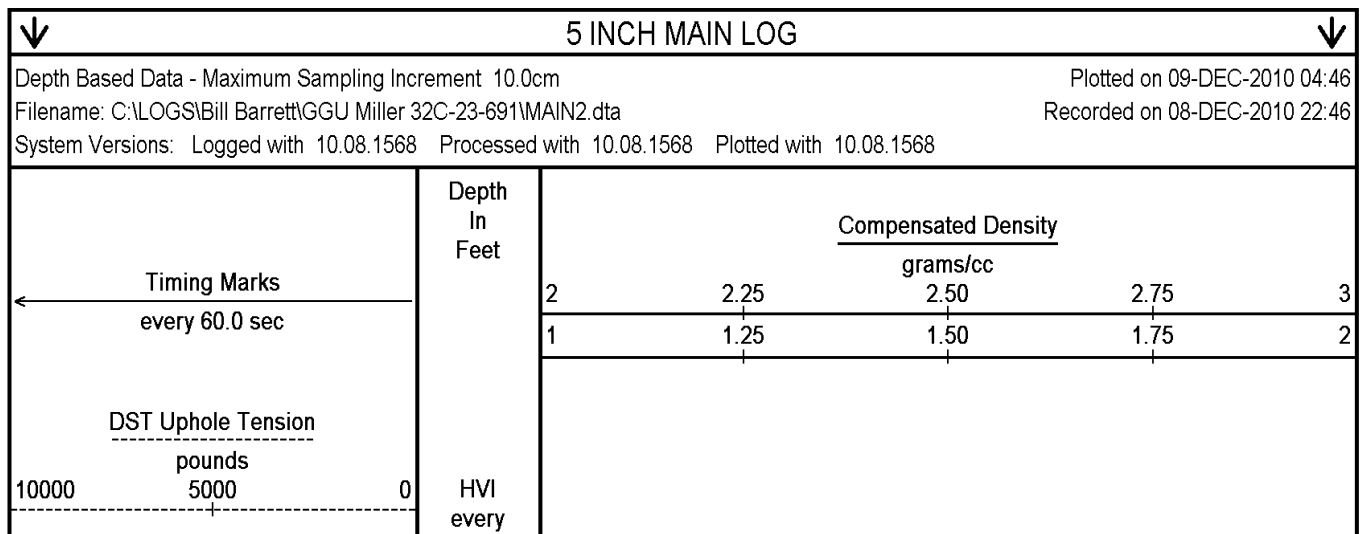
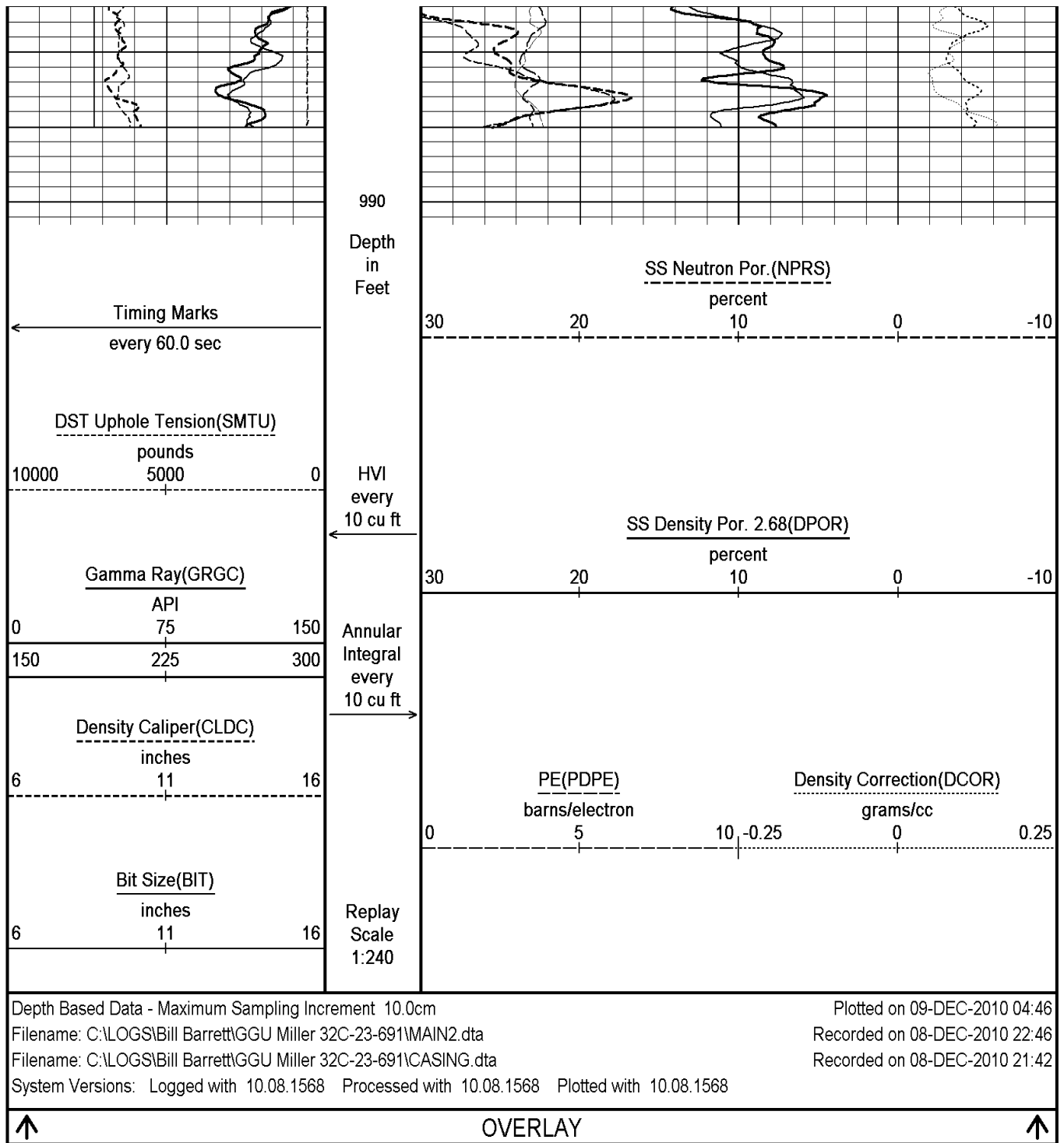
↑ 5 INCH MAIN LOG ↑

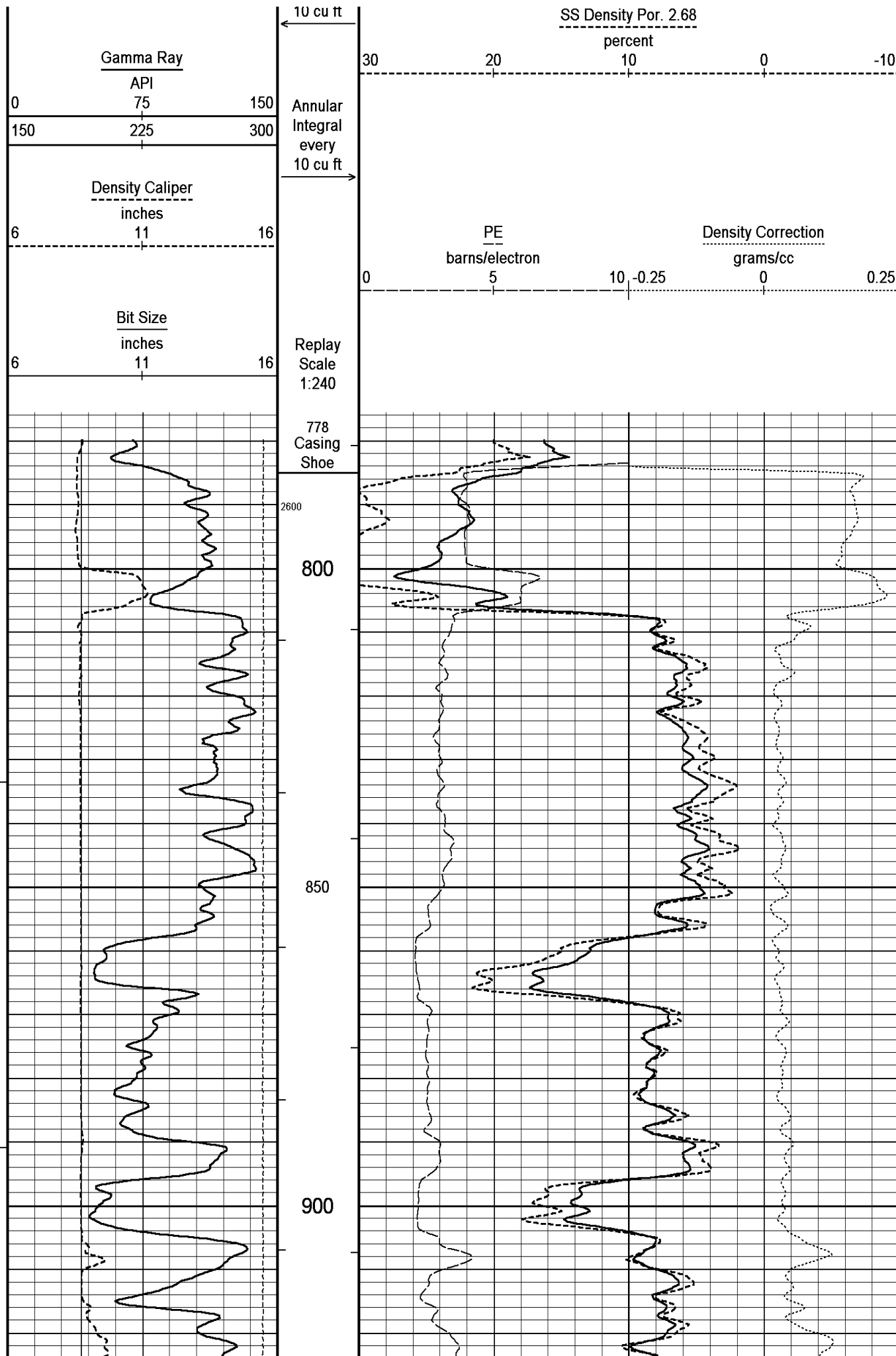


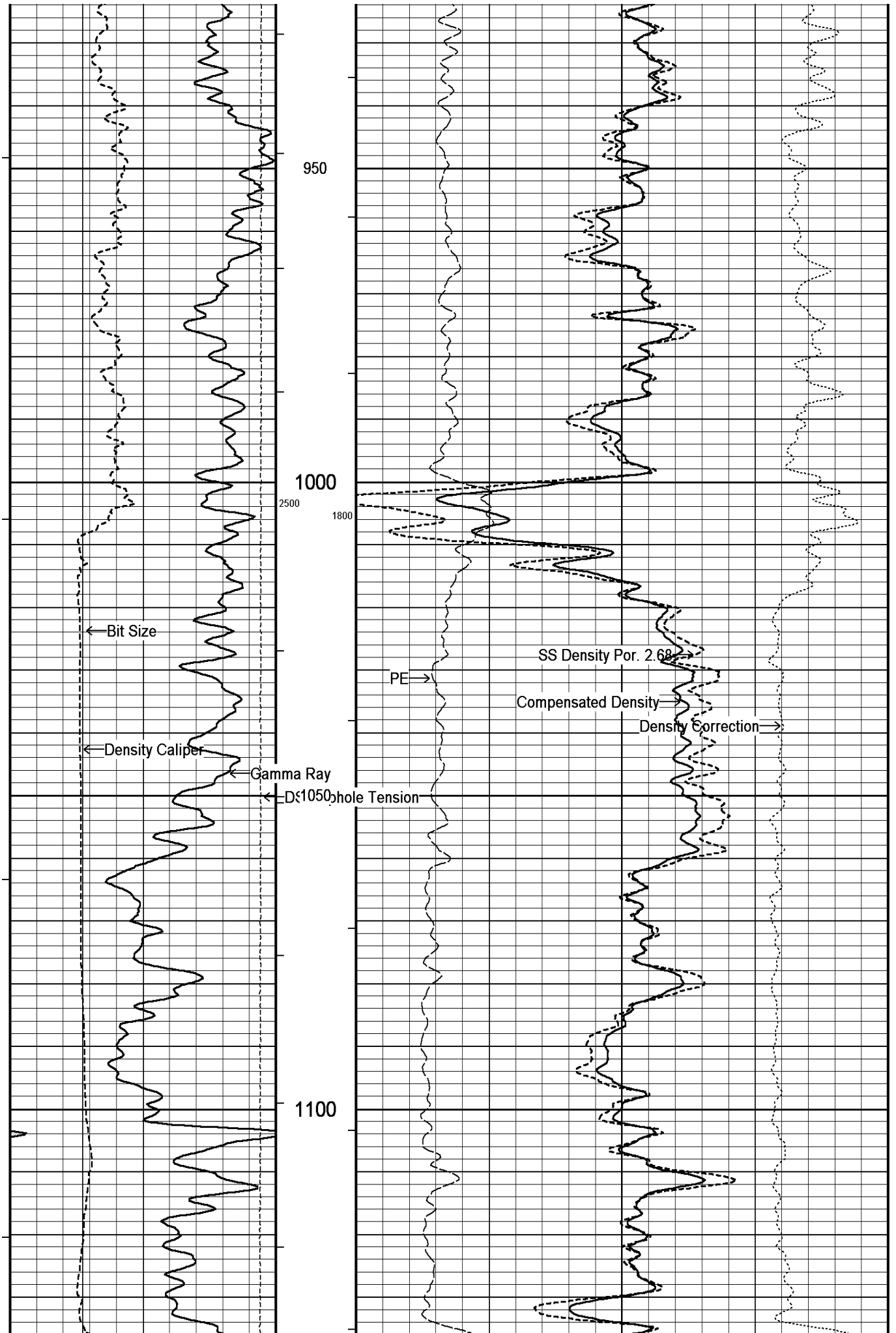
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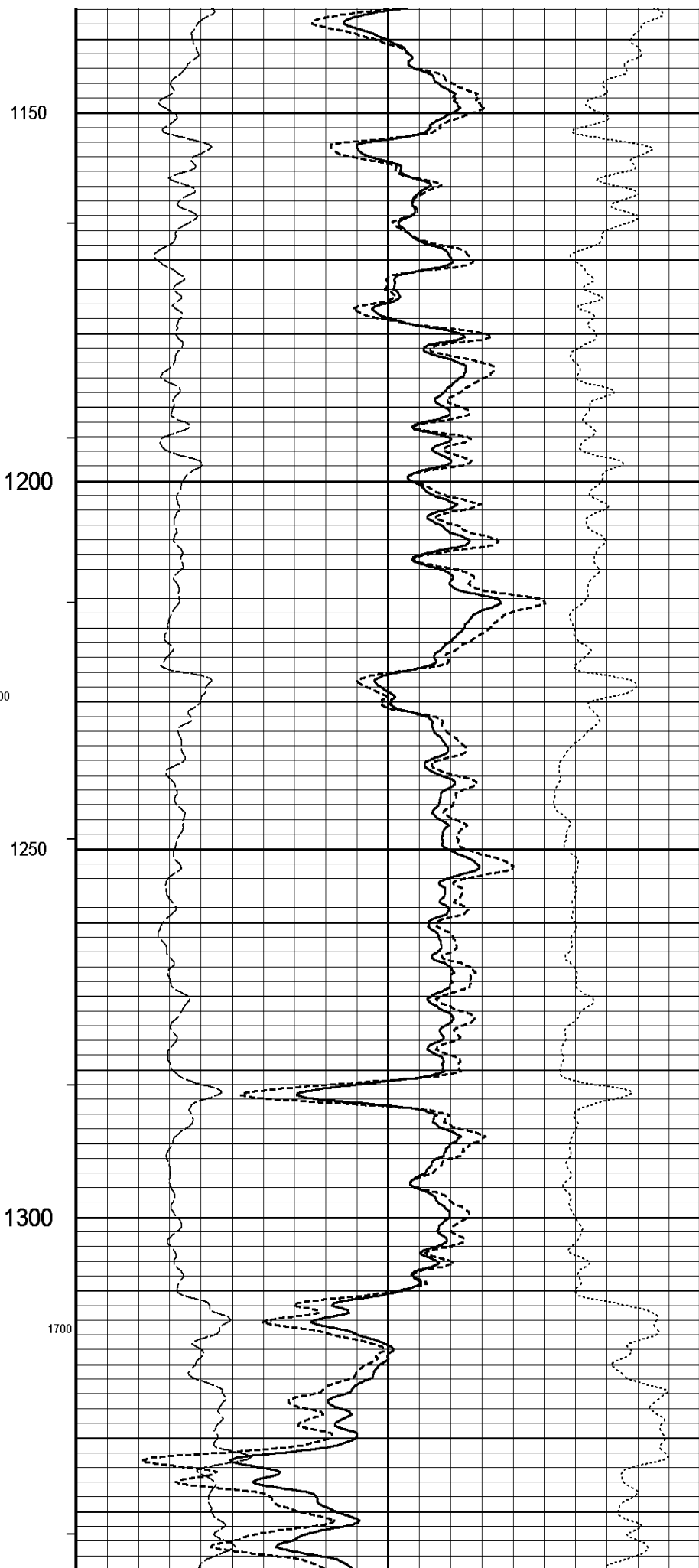
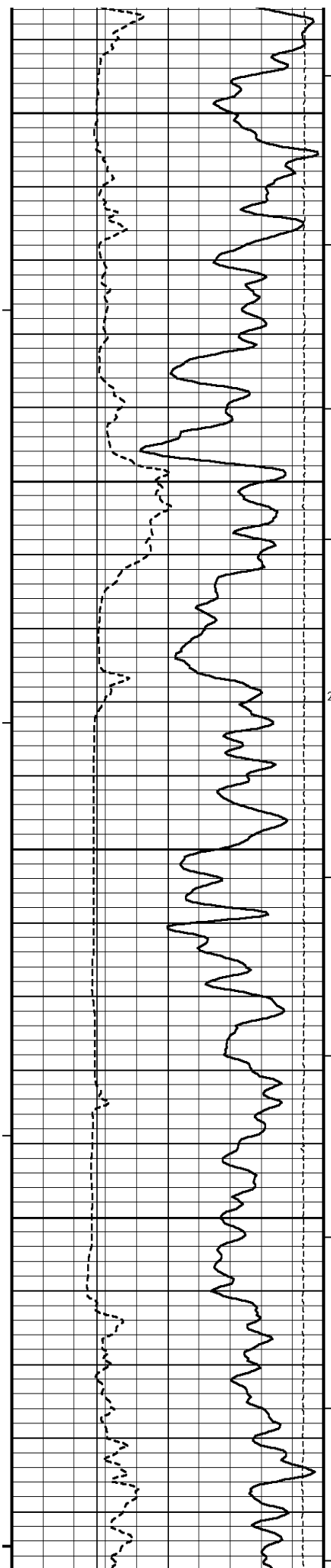


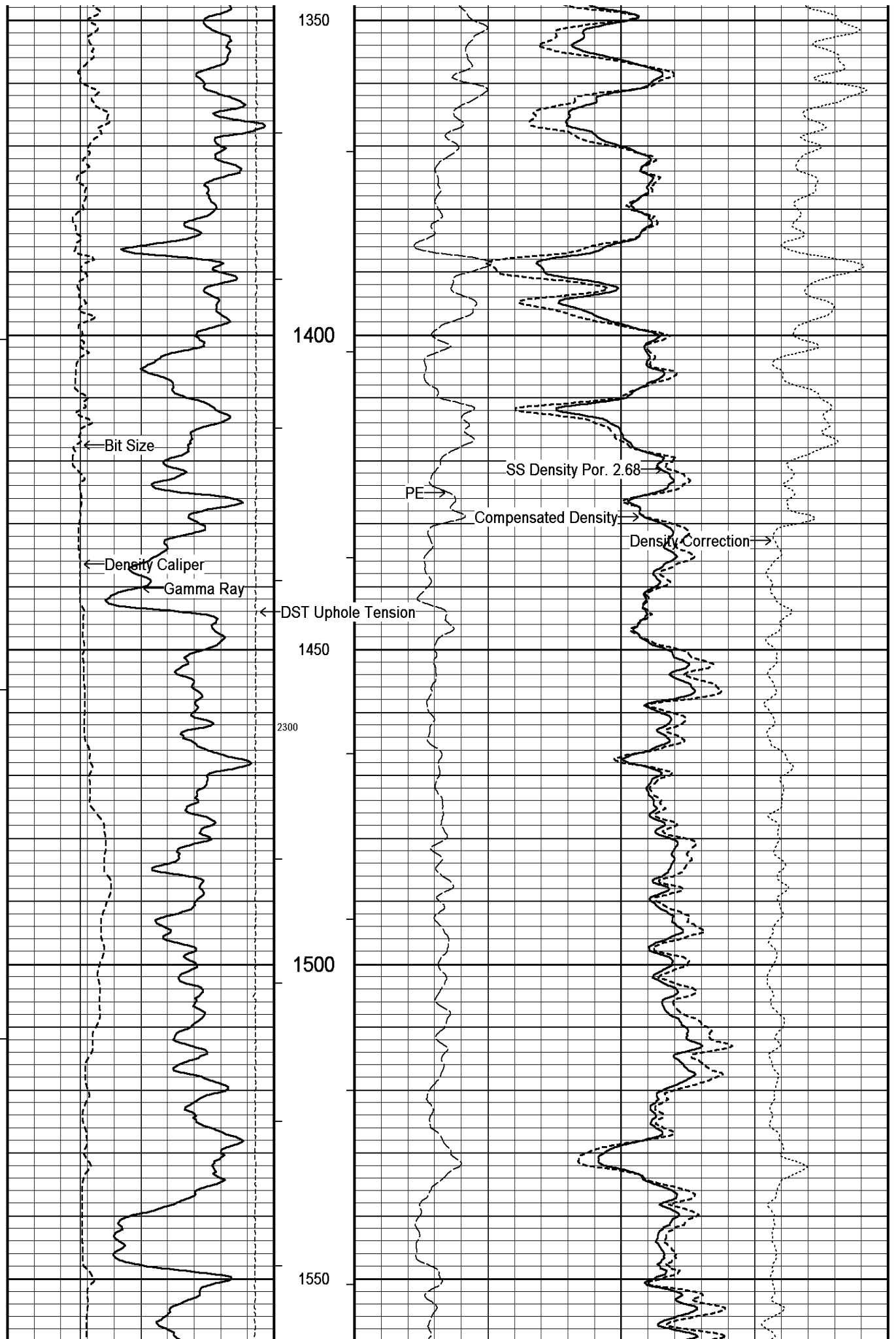


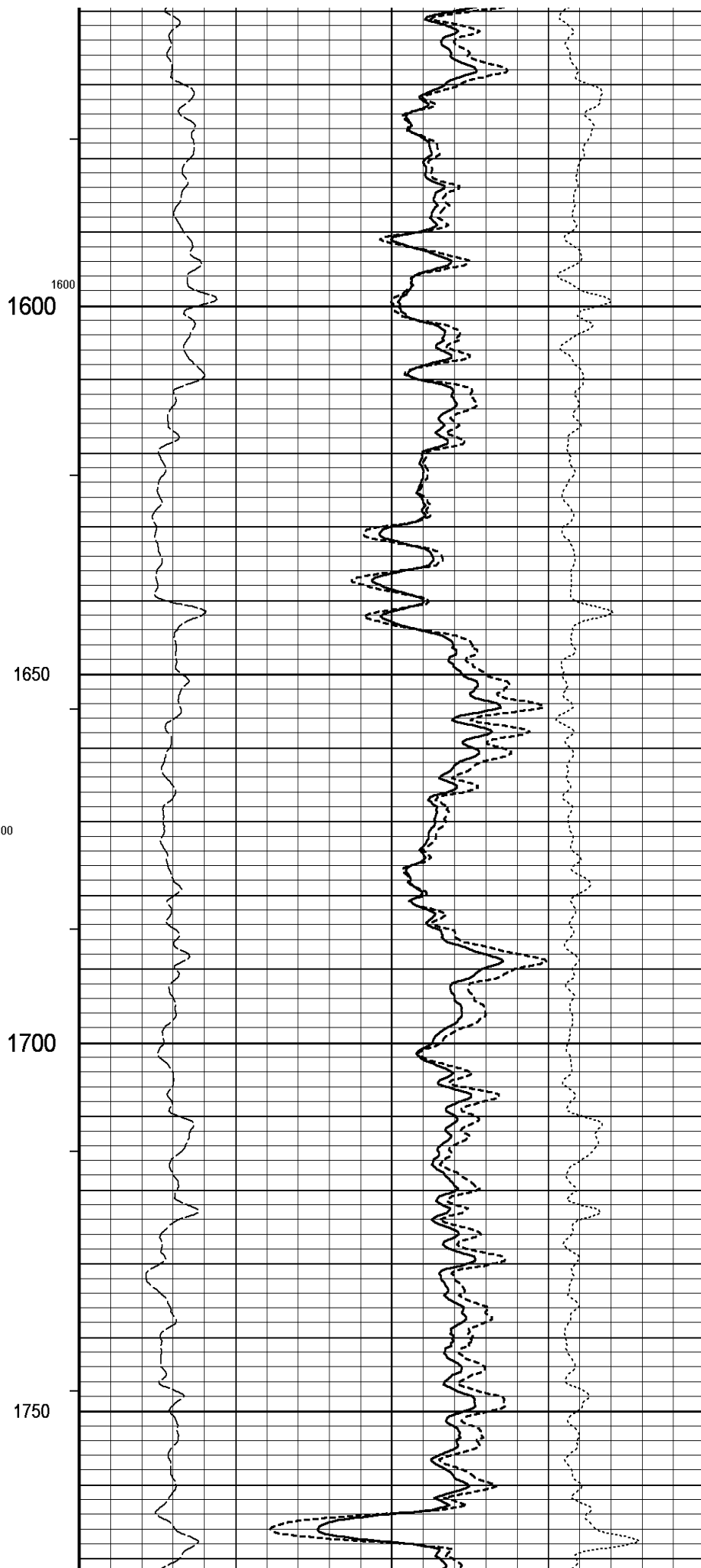
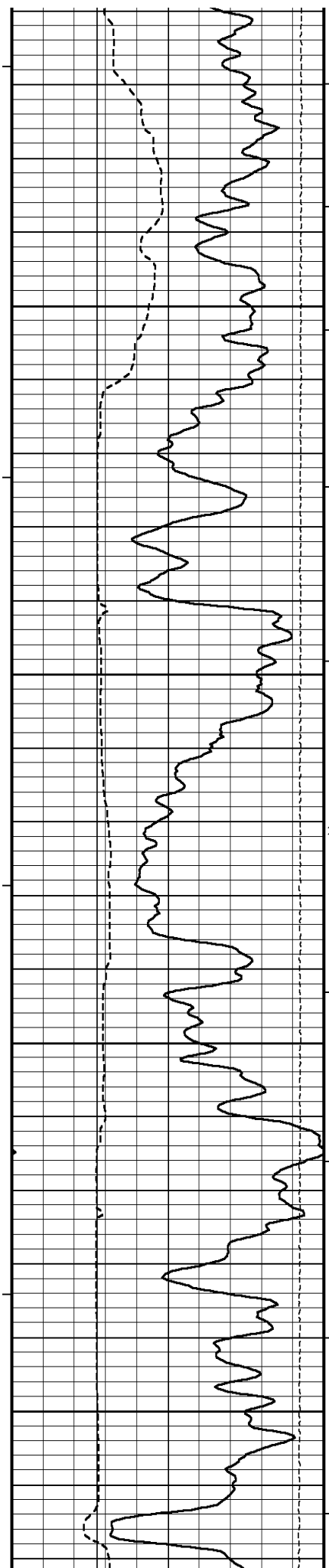


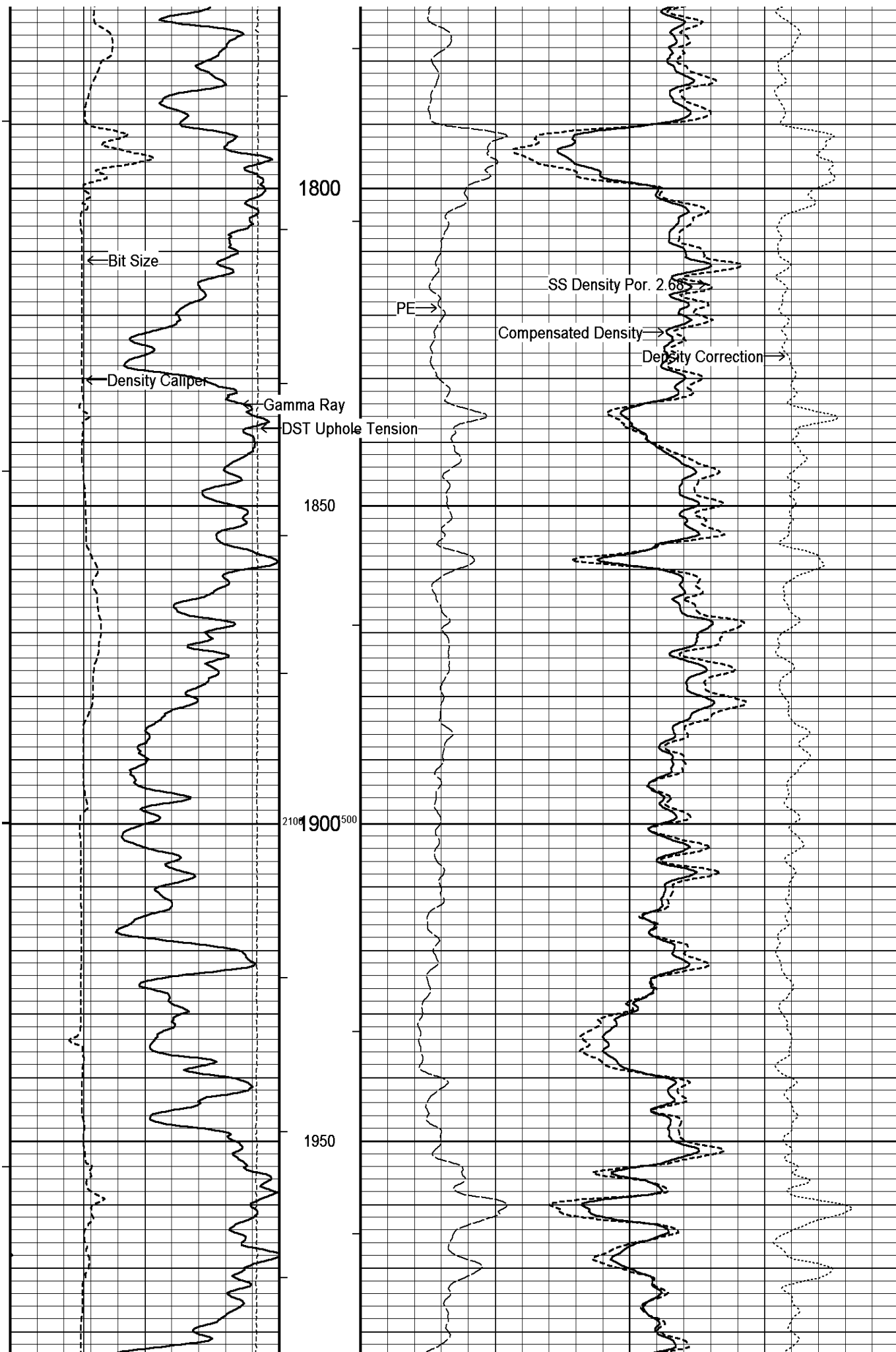


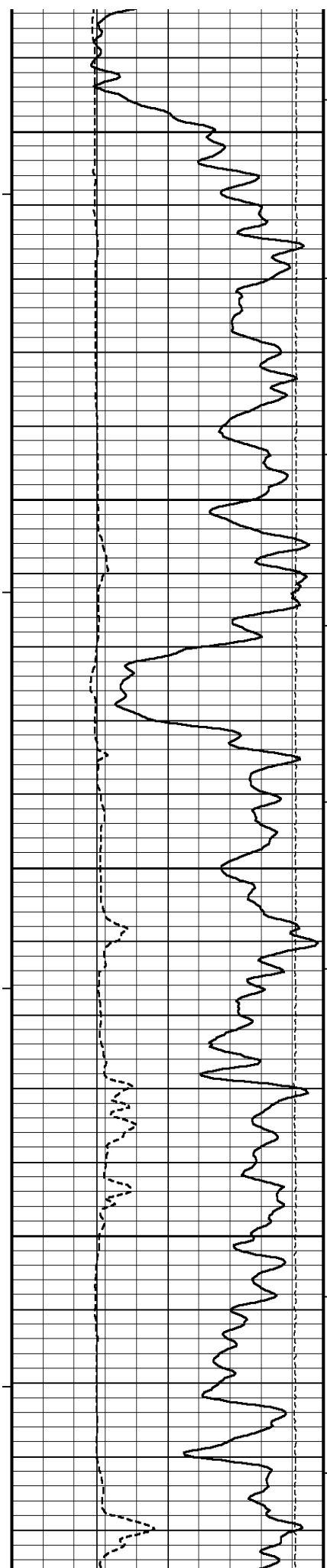












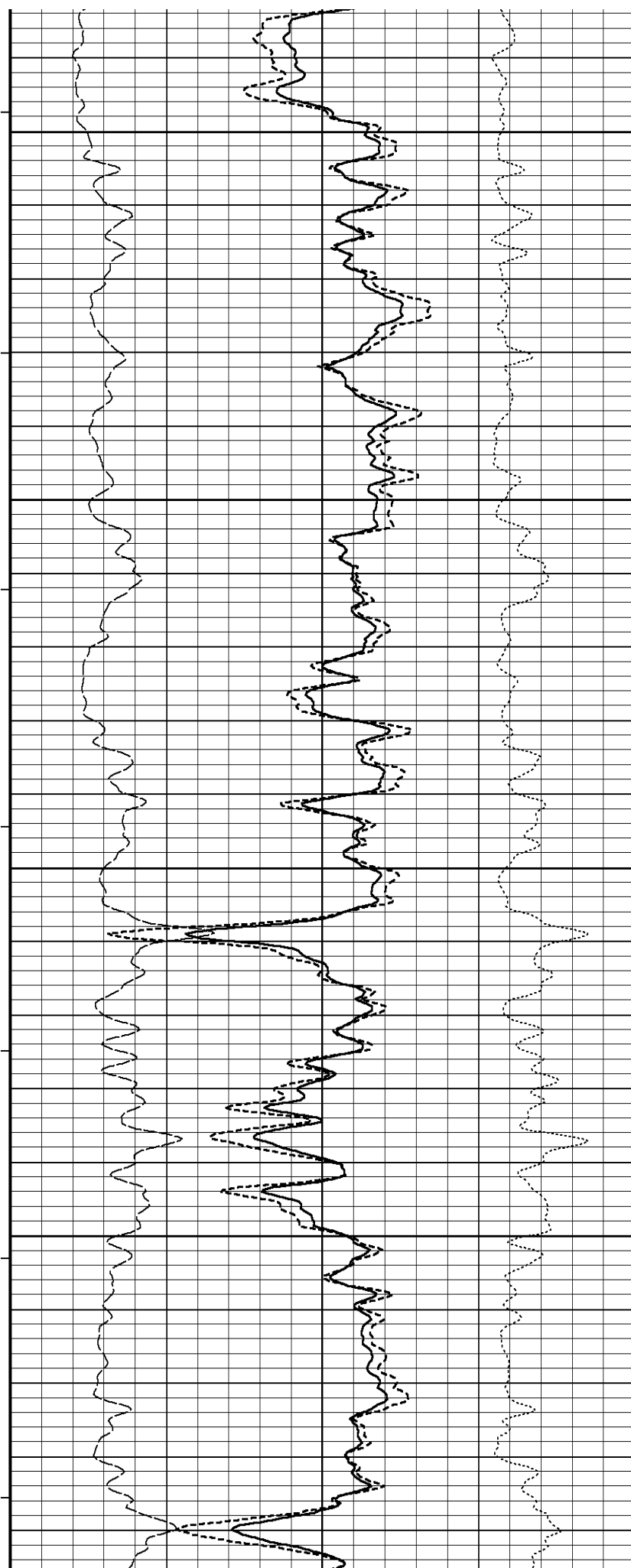
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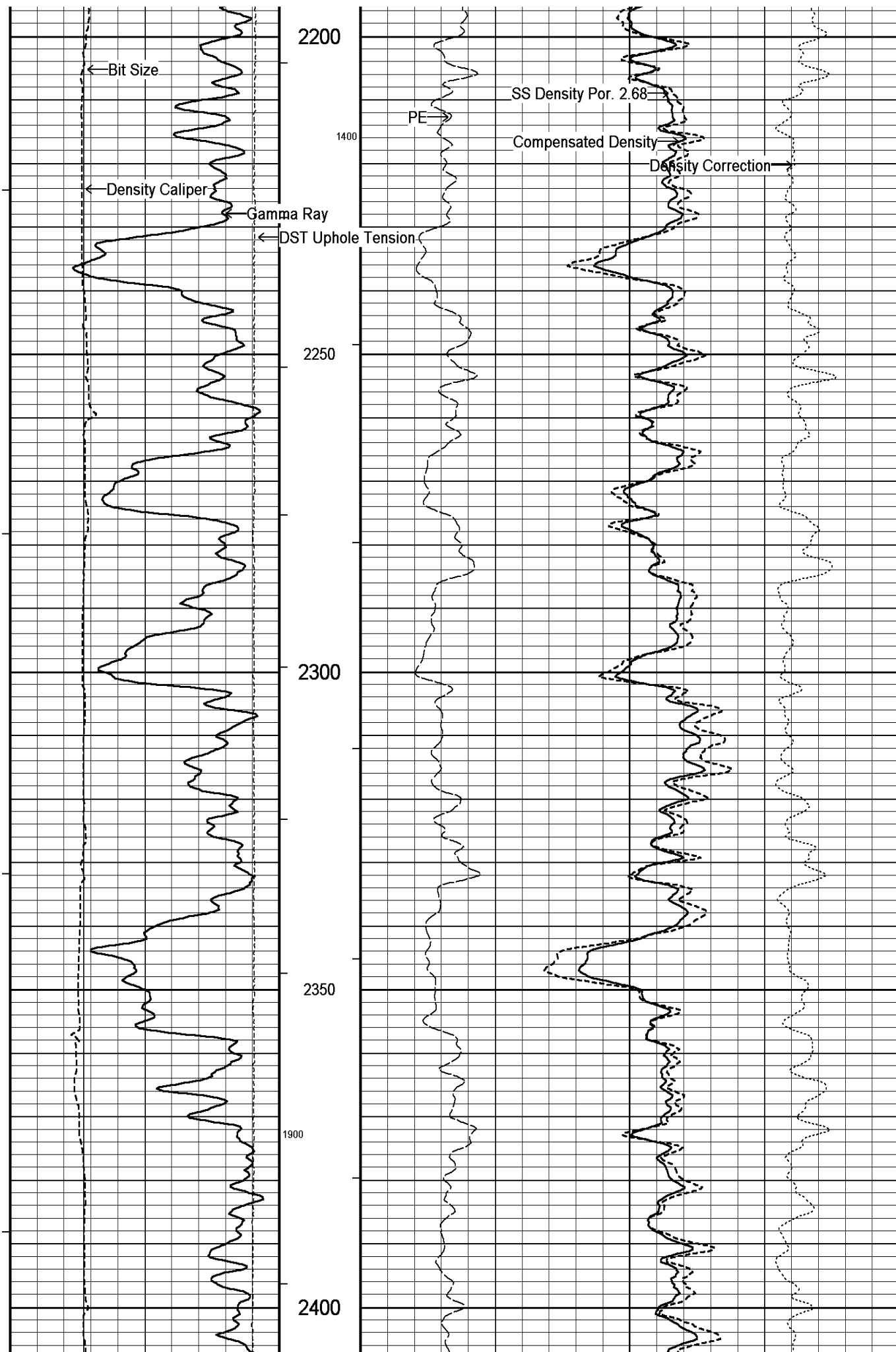
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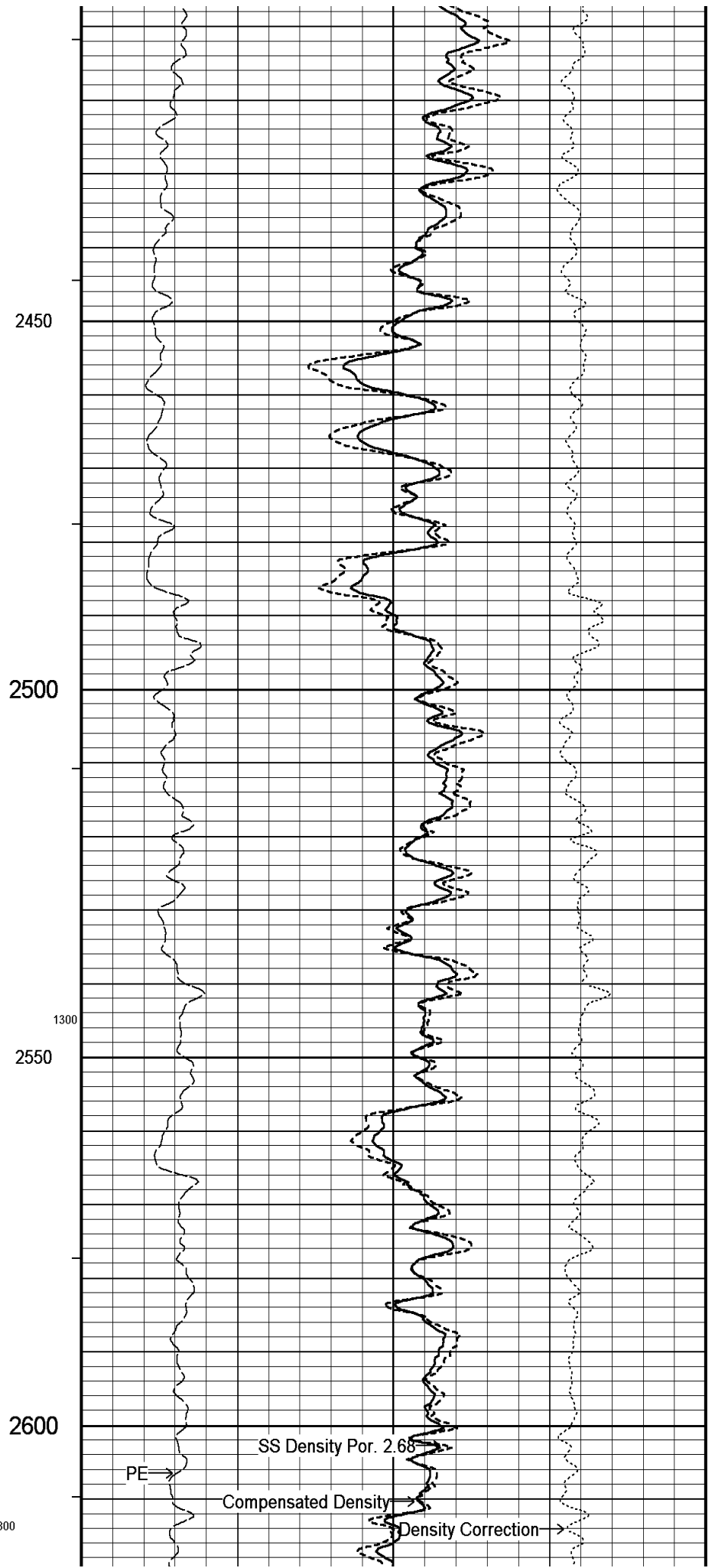
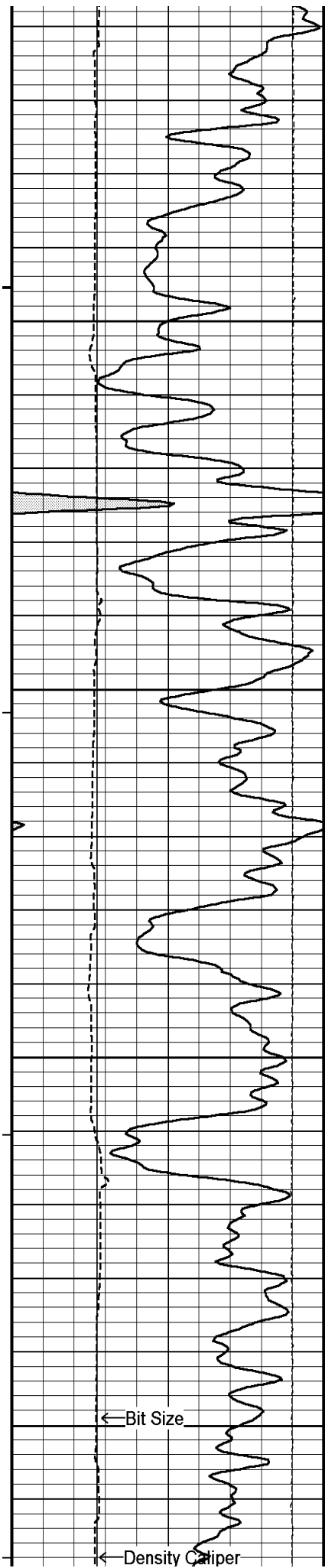
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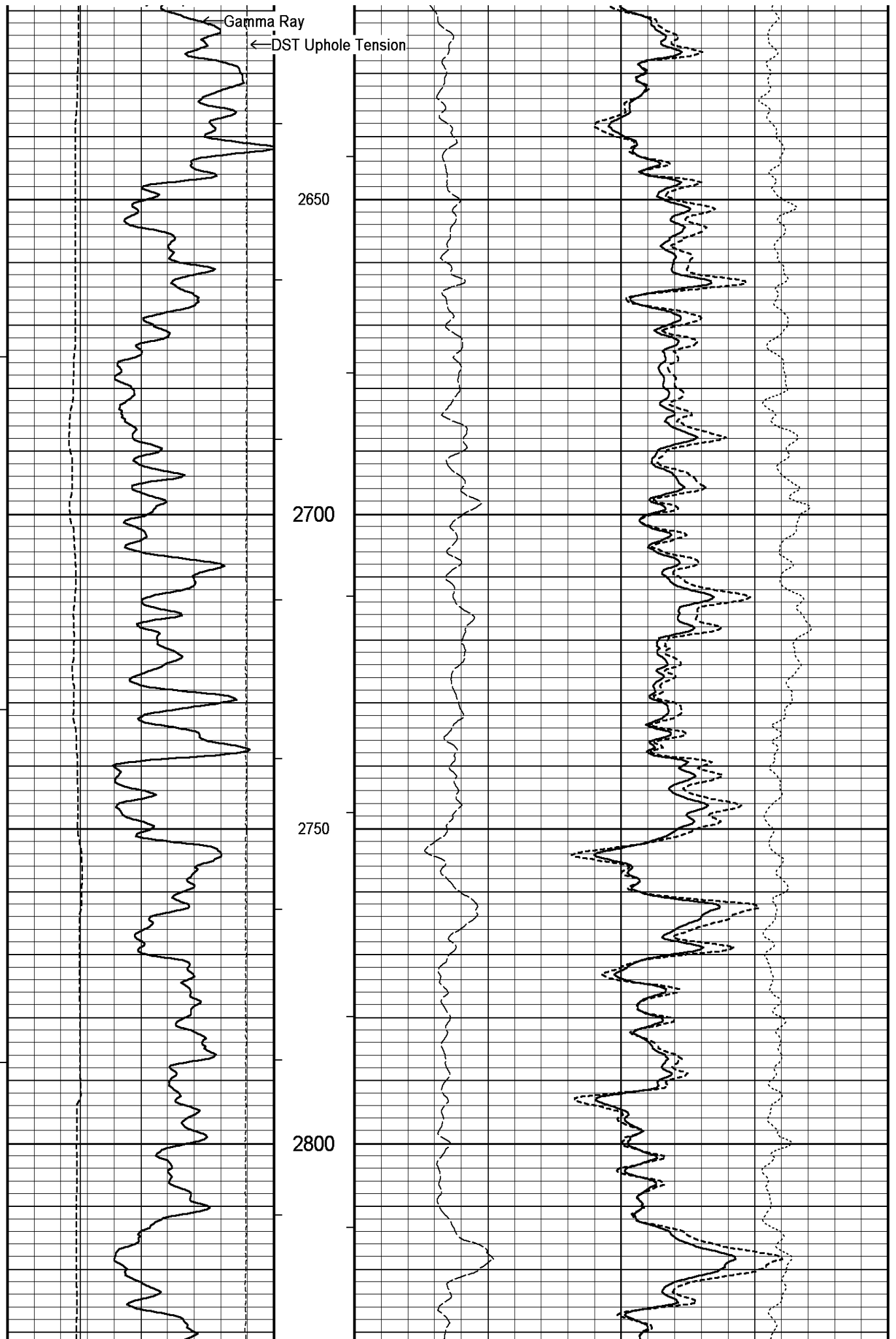
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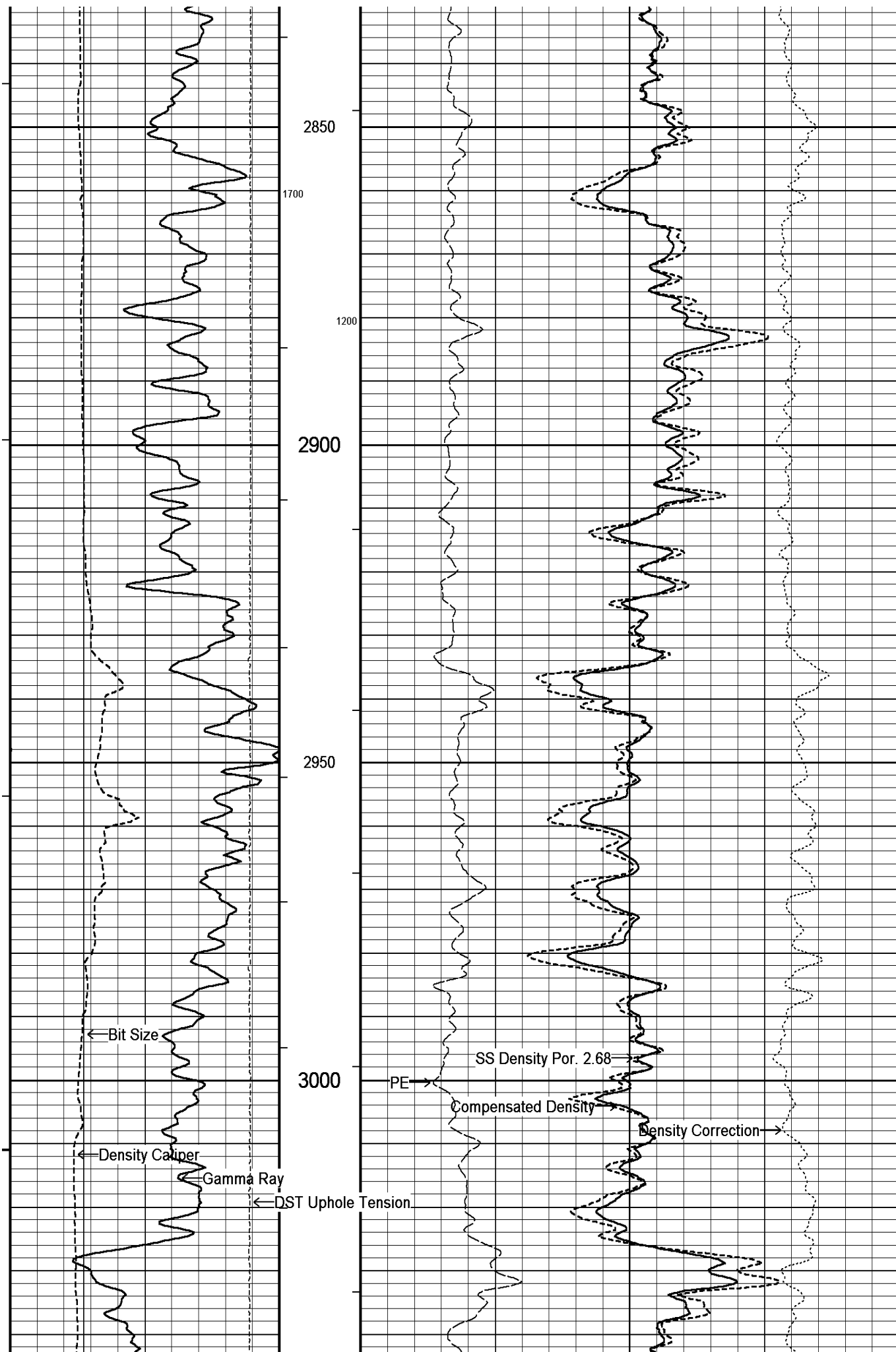
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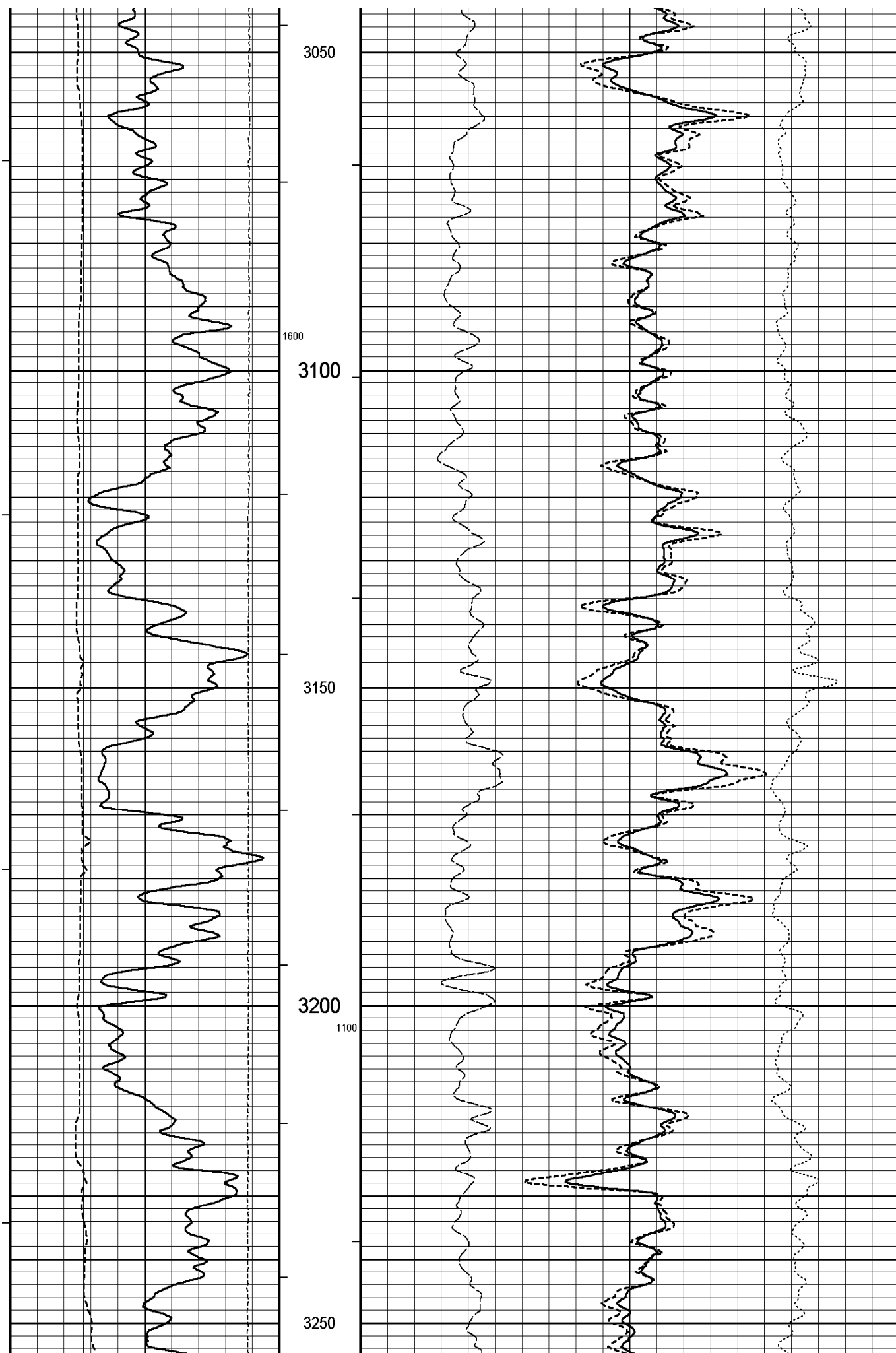


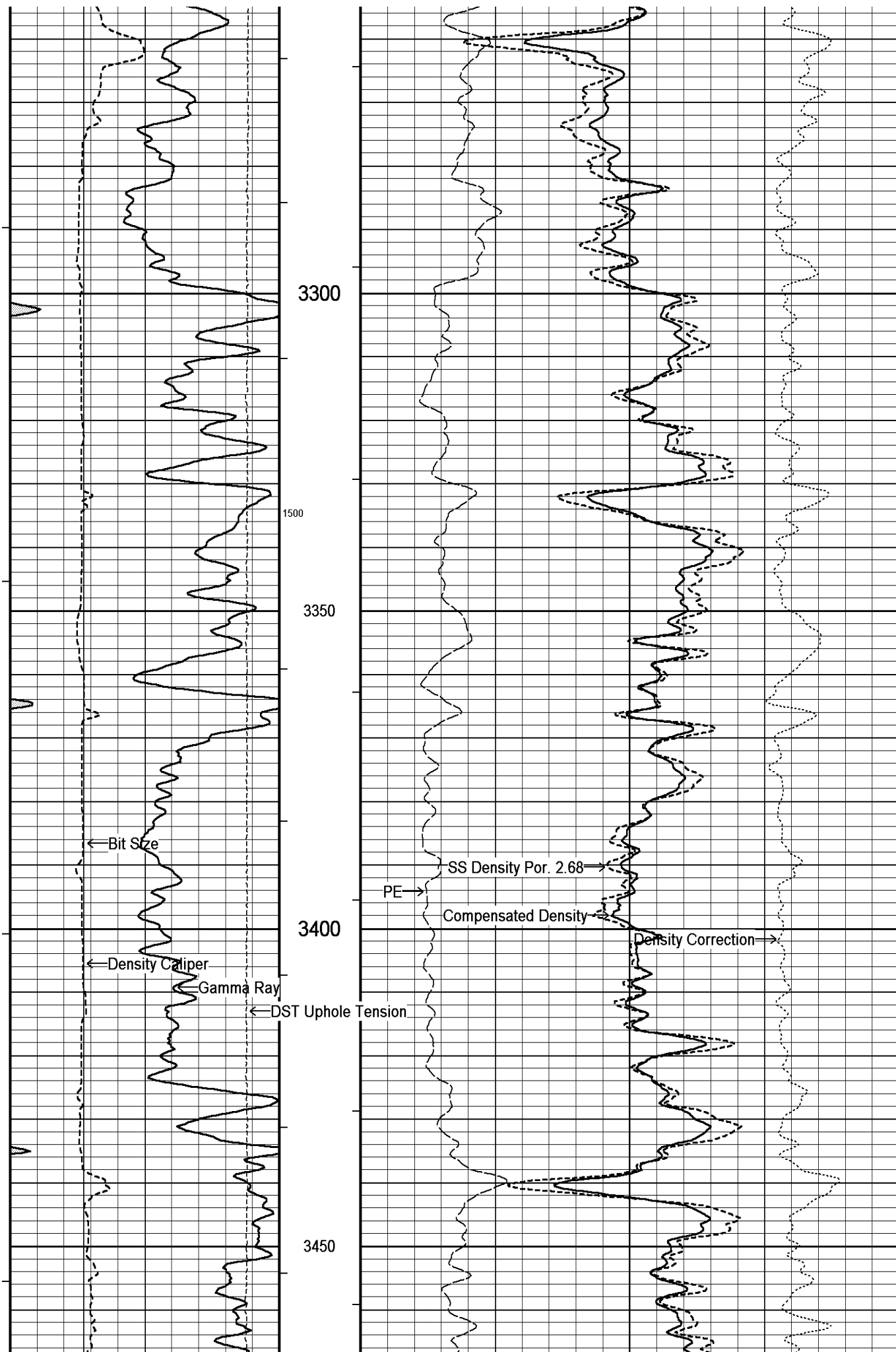


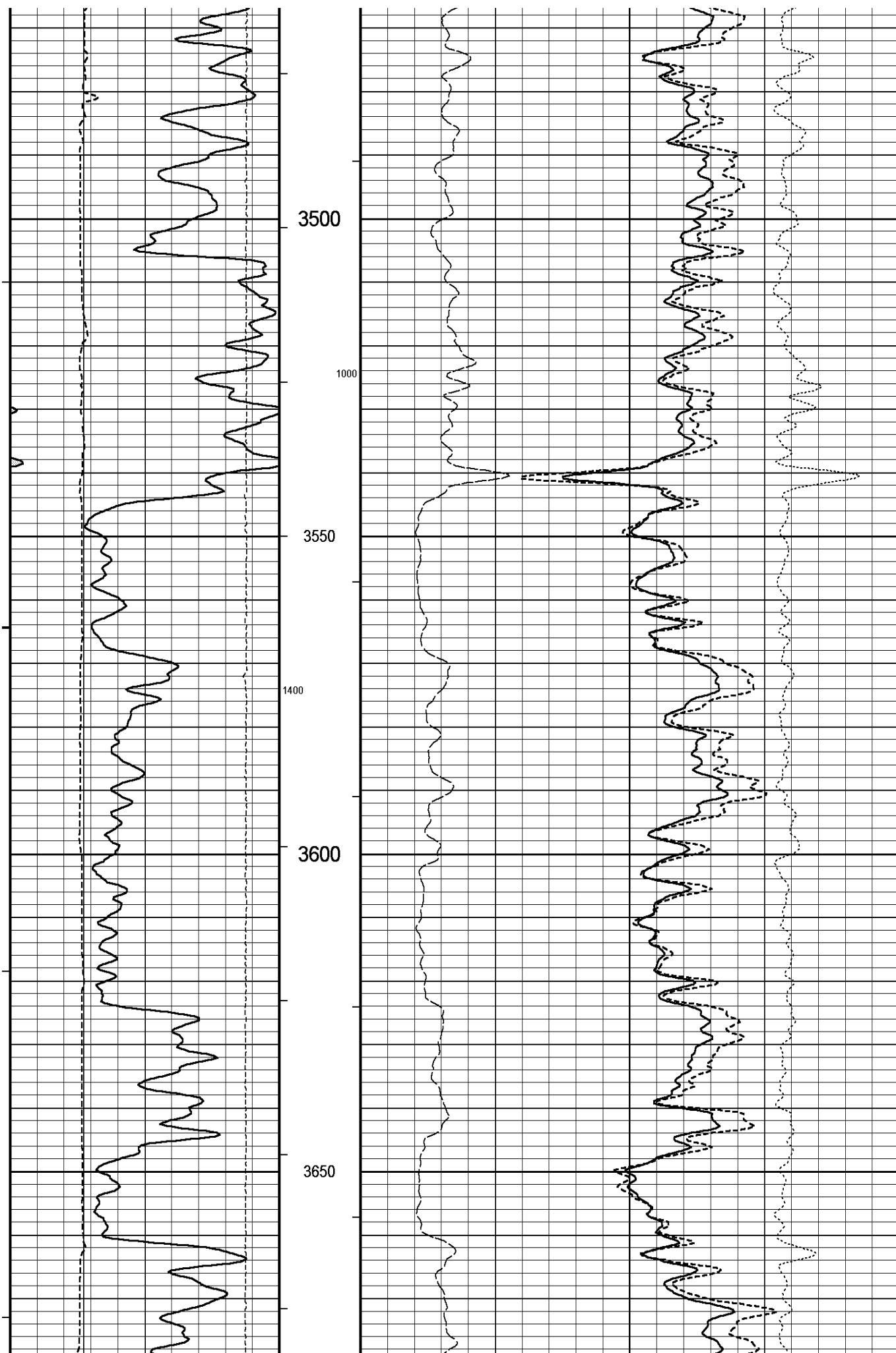


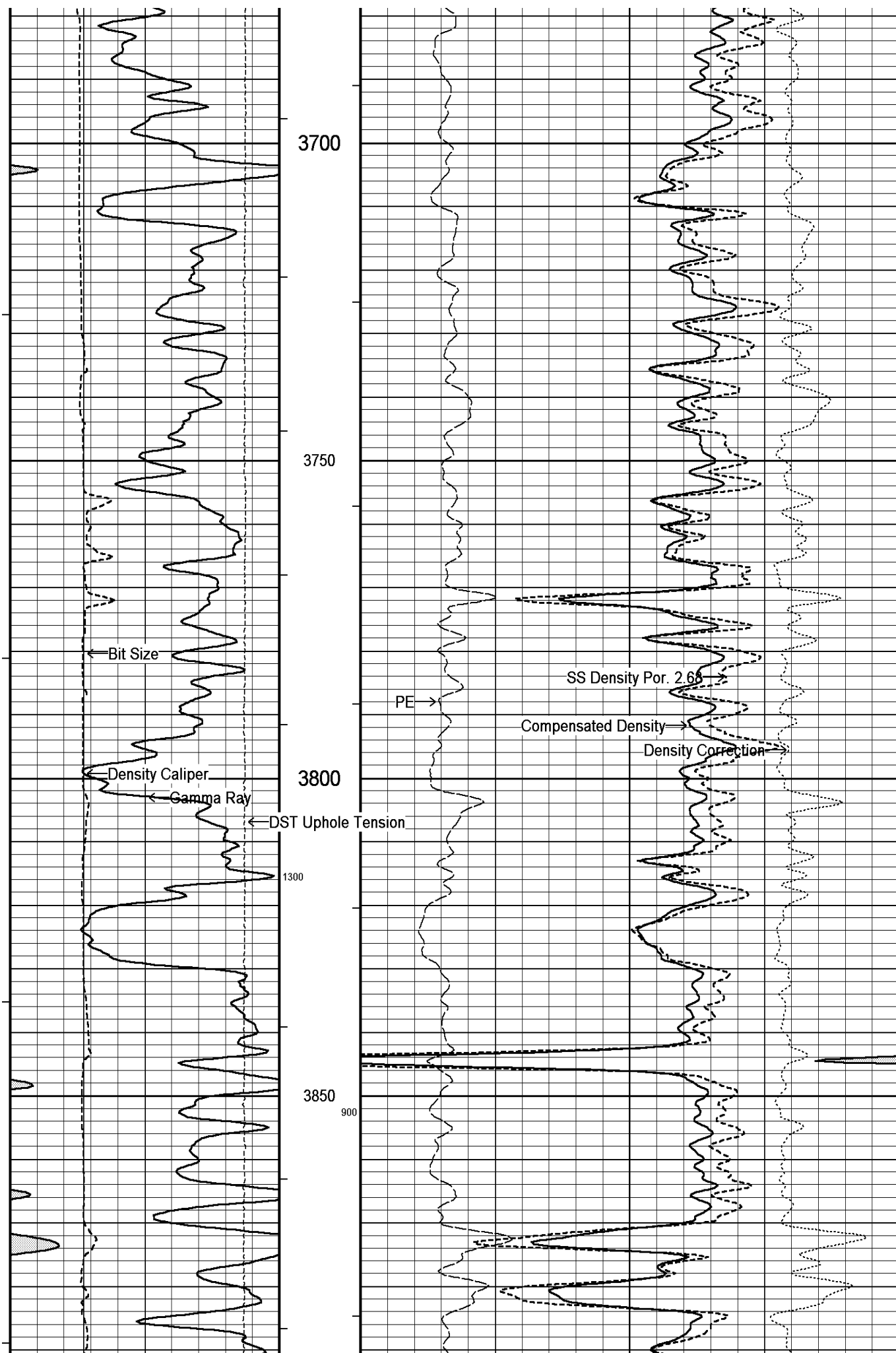


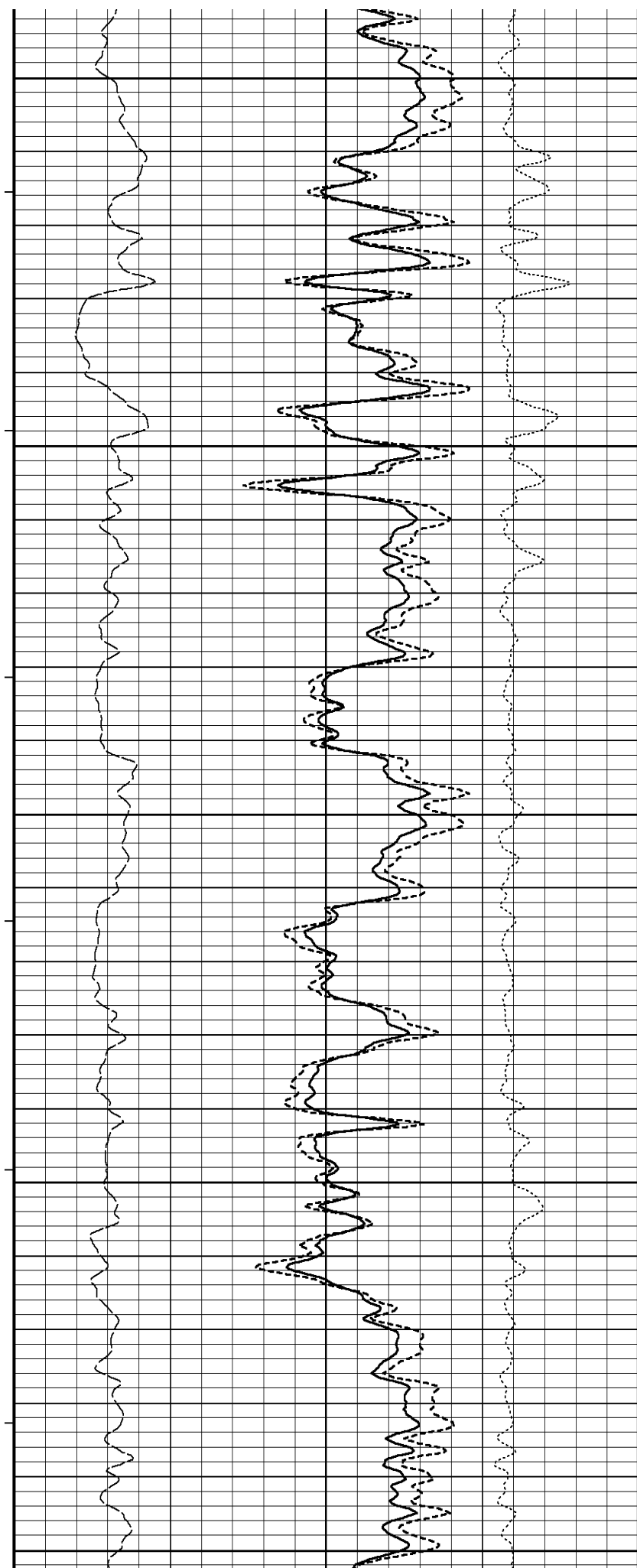
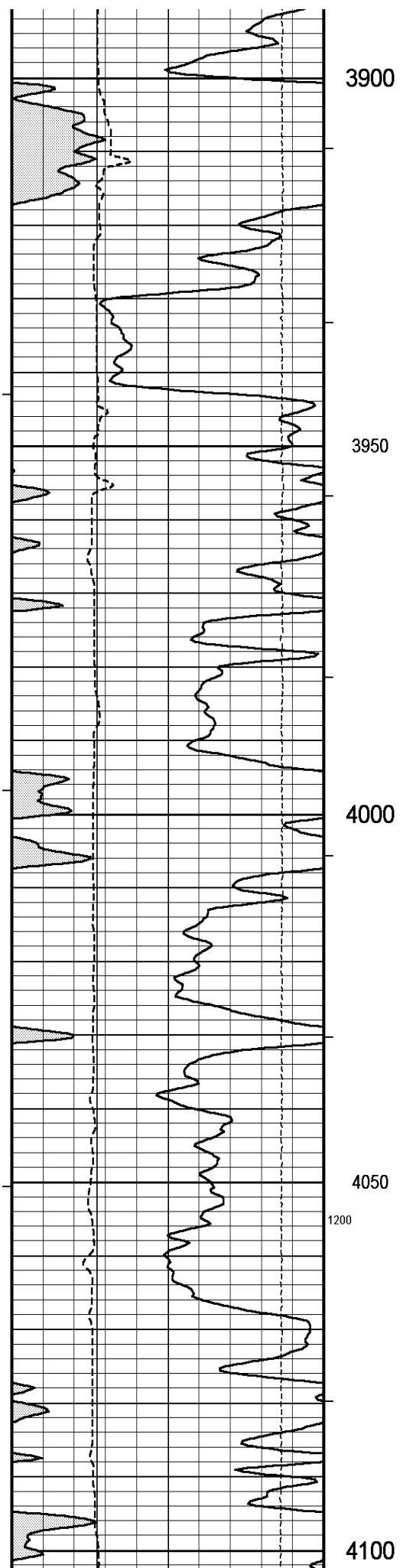


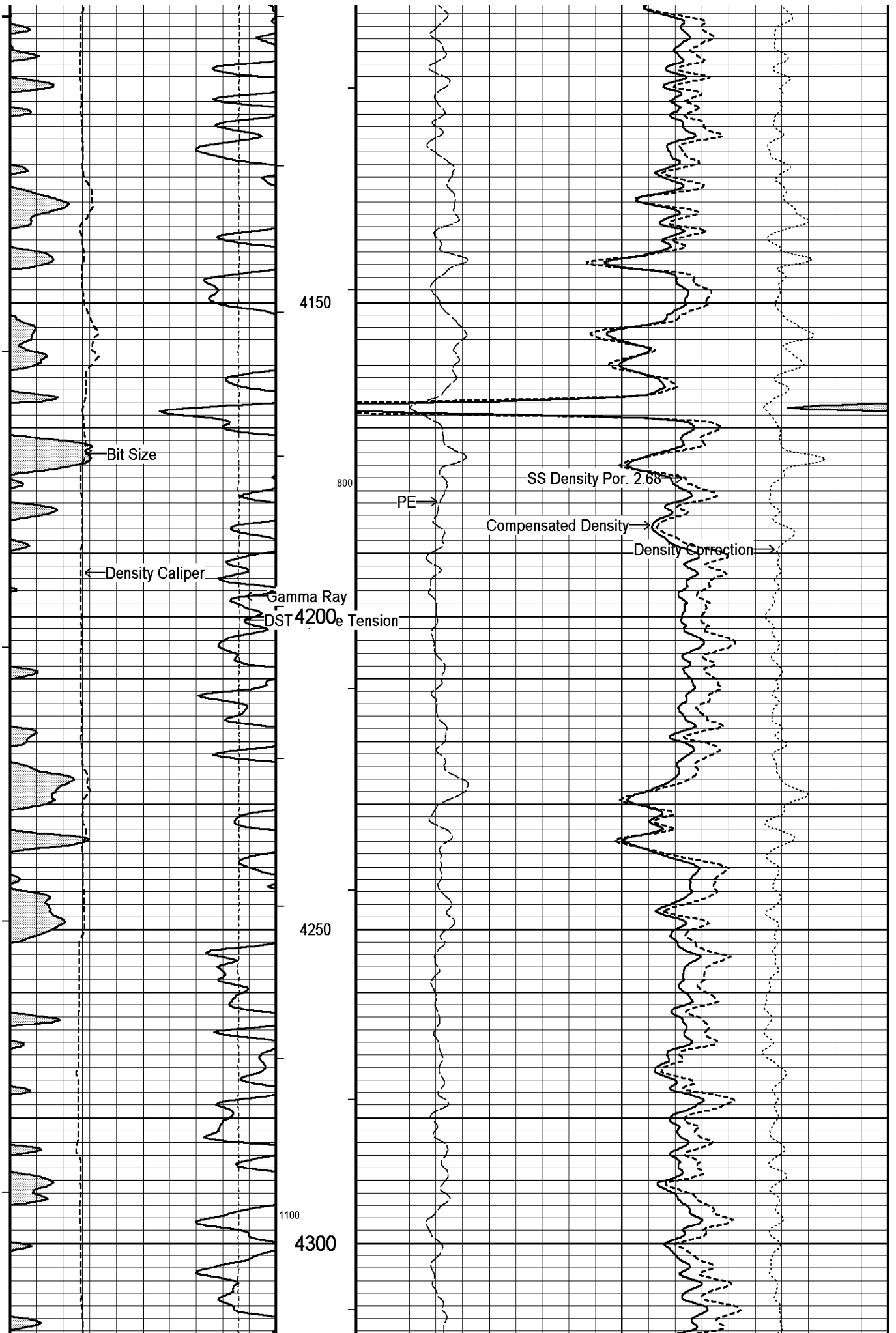


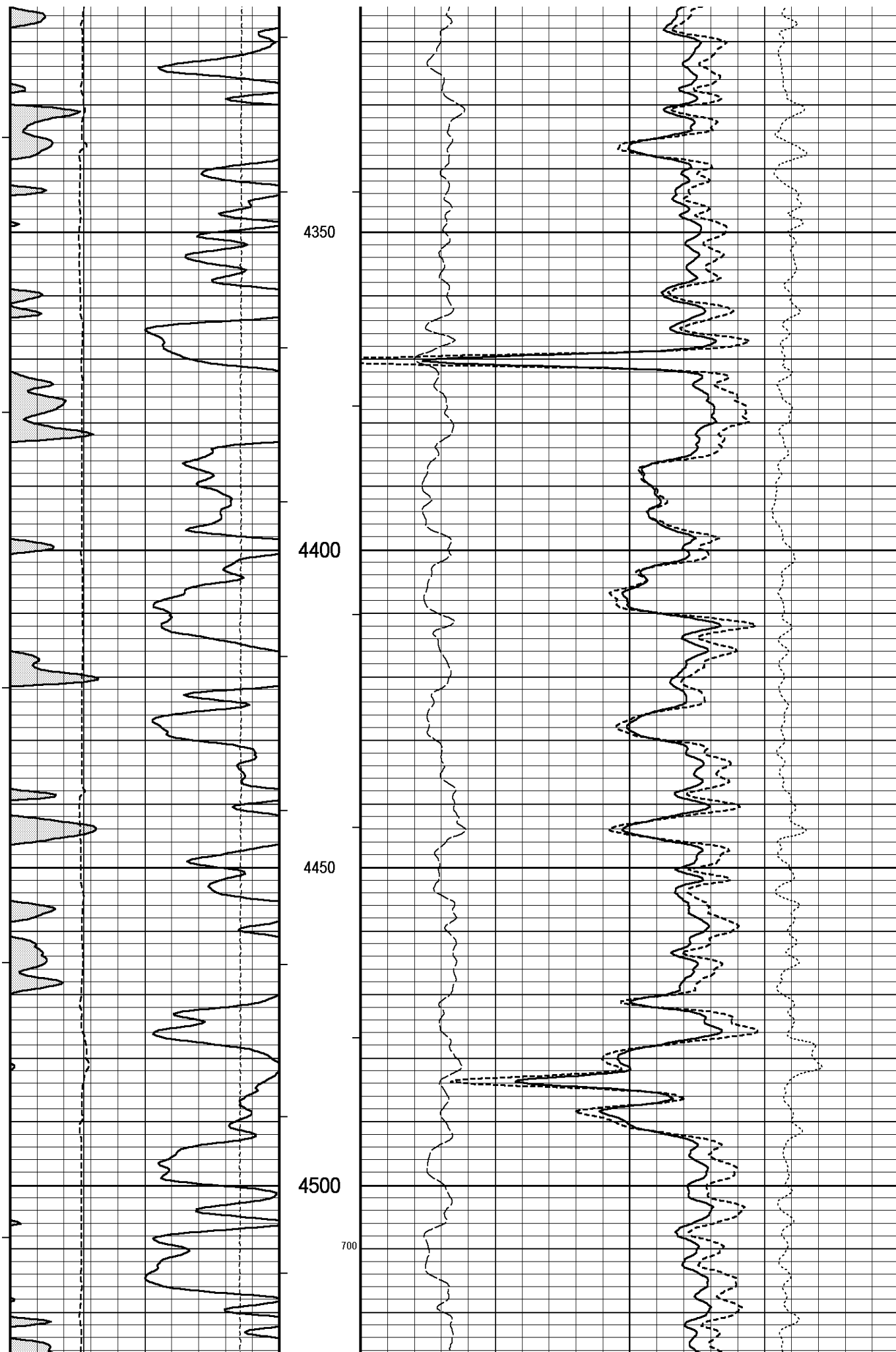


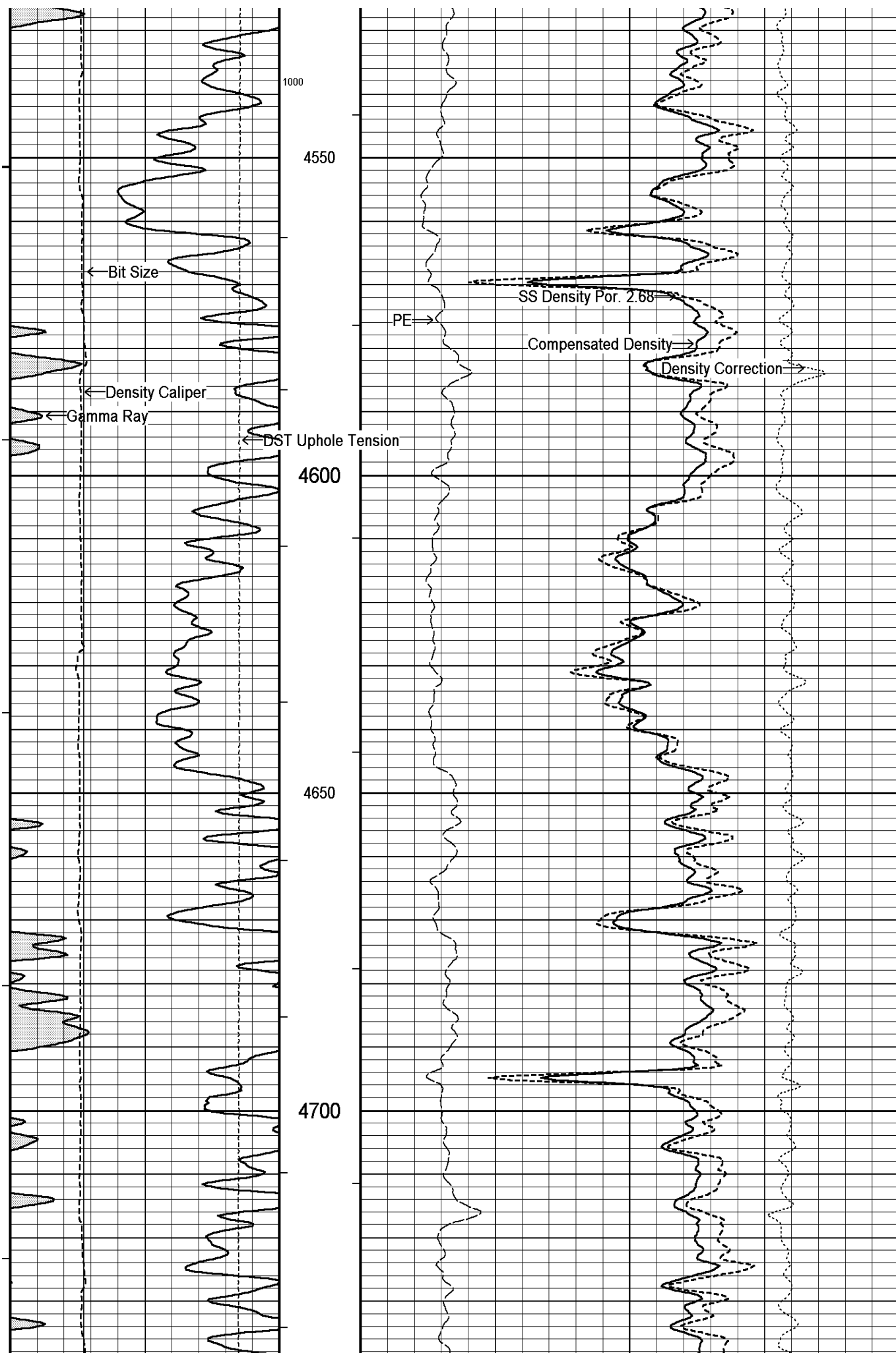


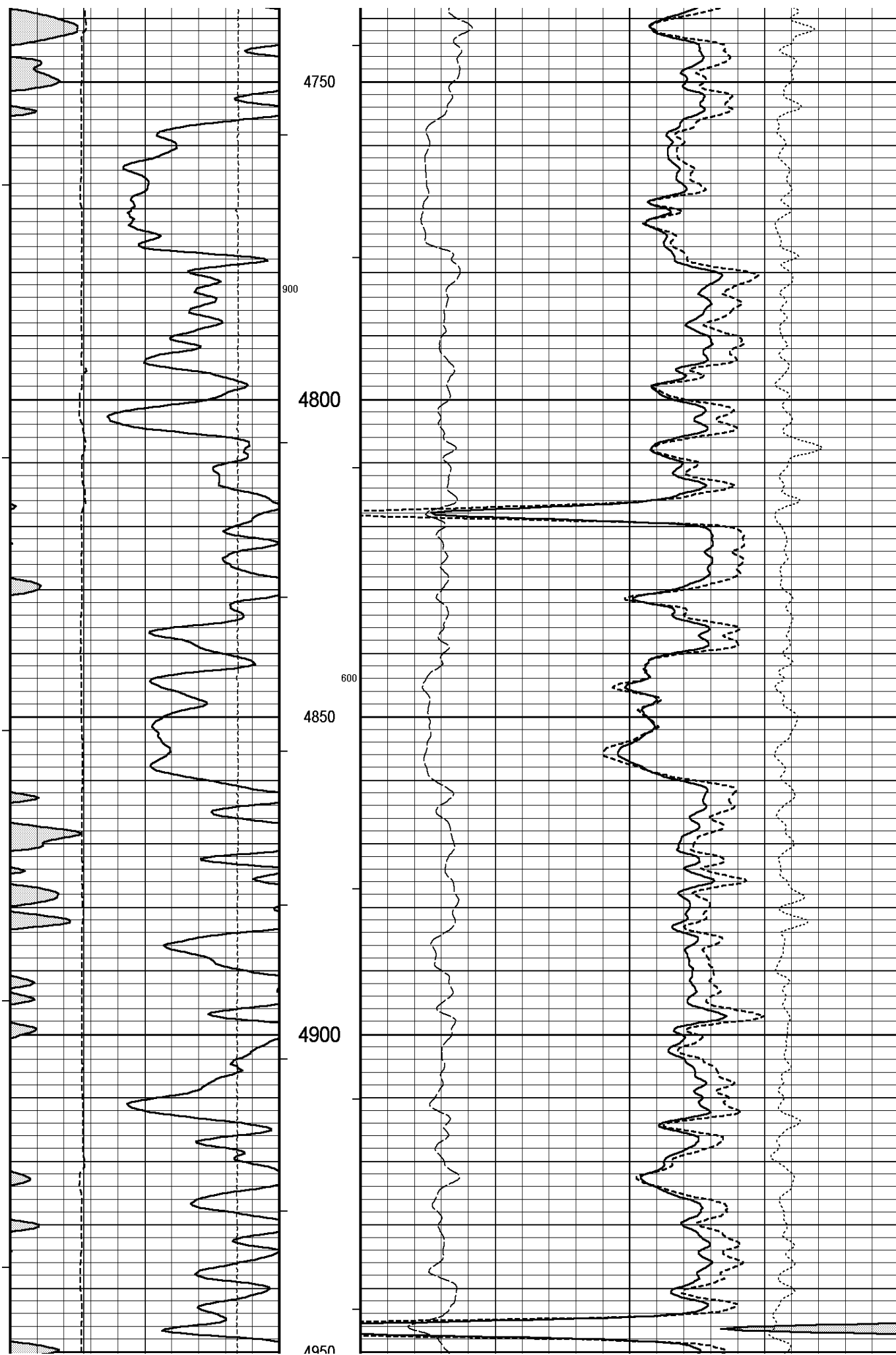


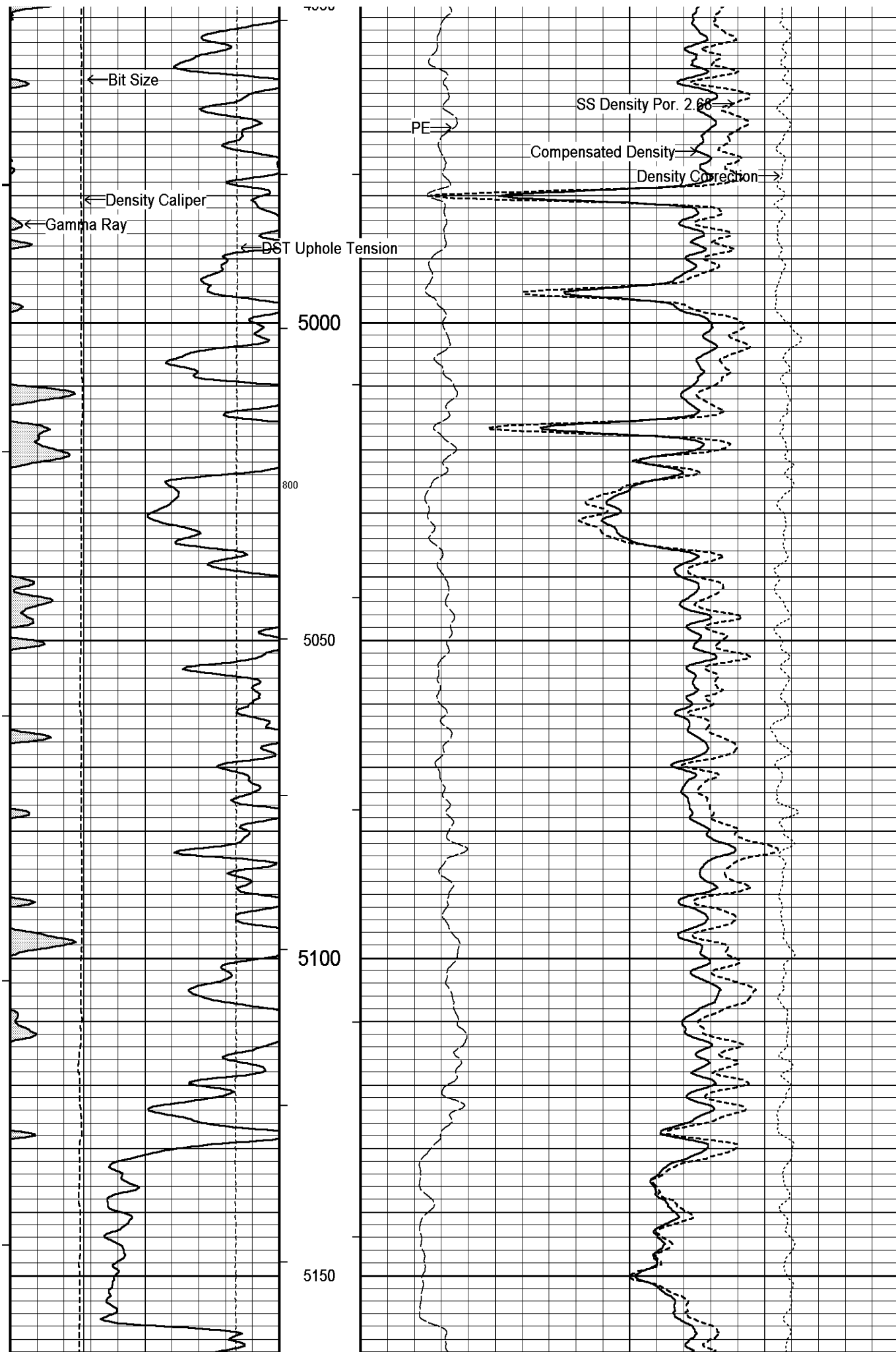


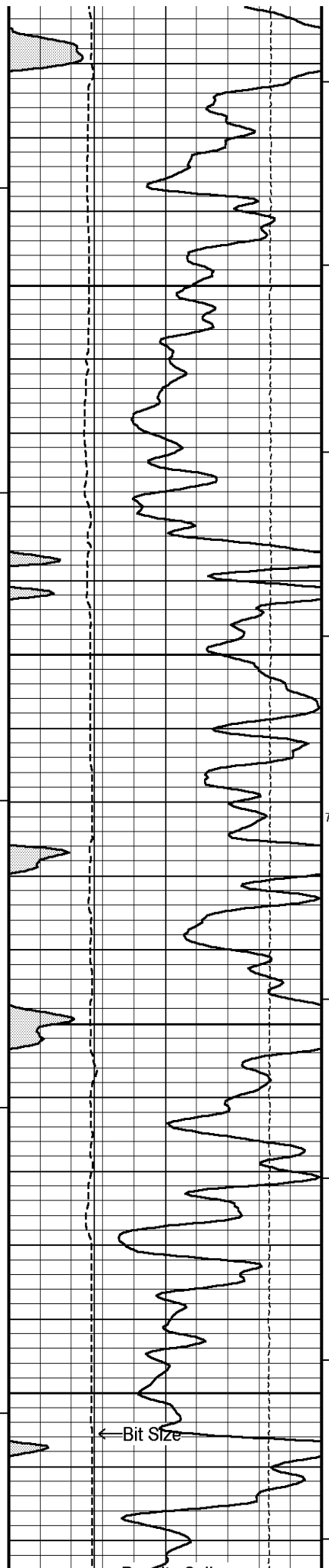












5200

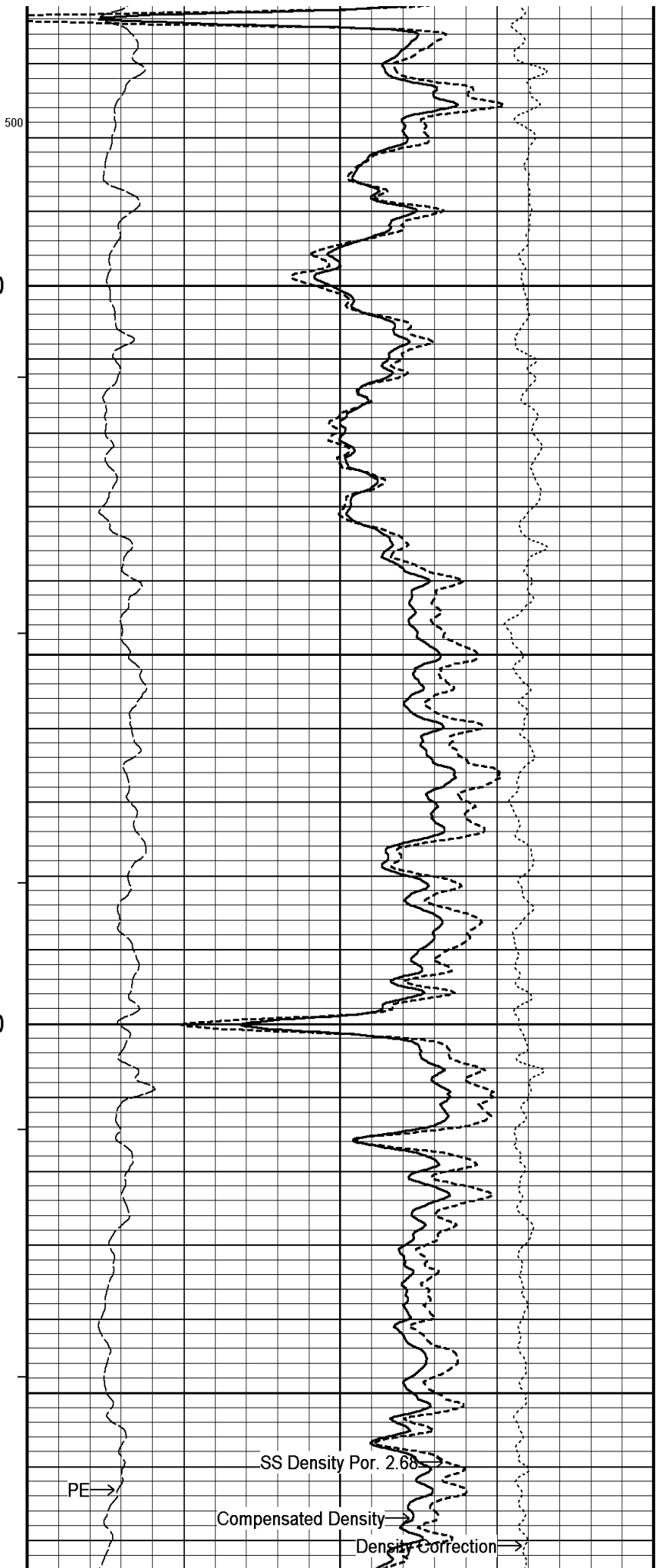
5250

700

5300

5350

← Bit Size



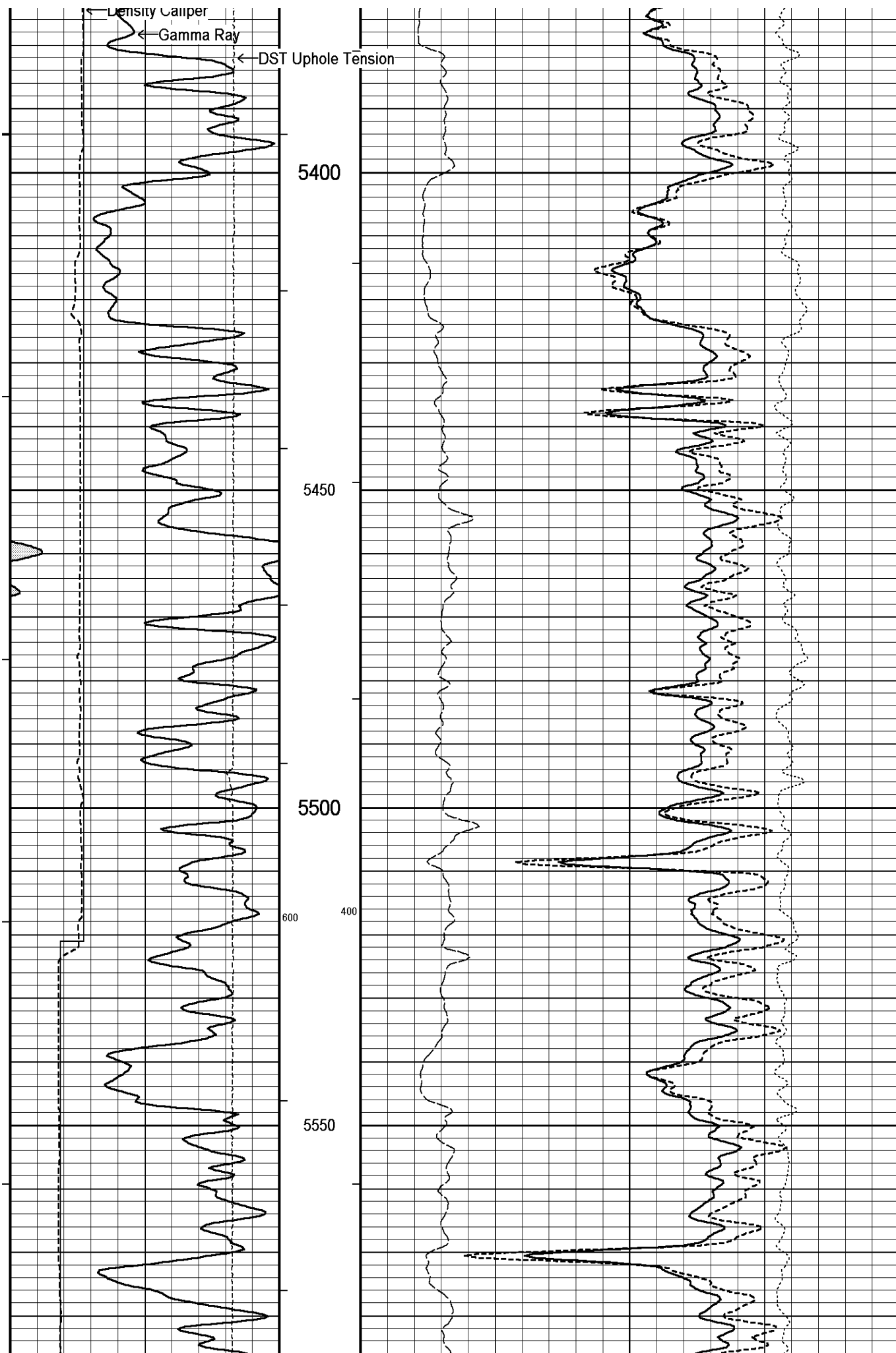
500

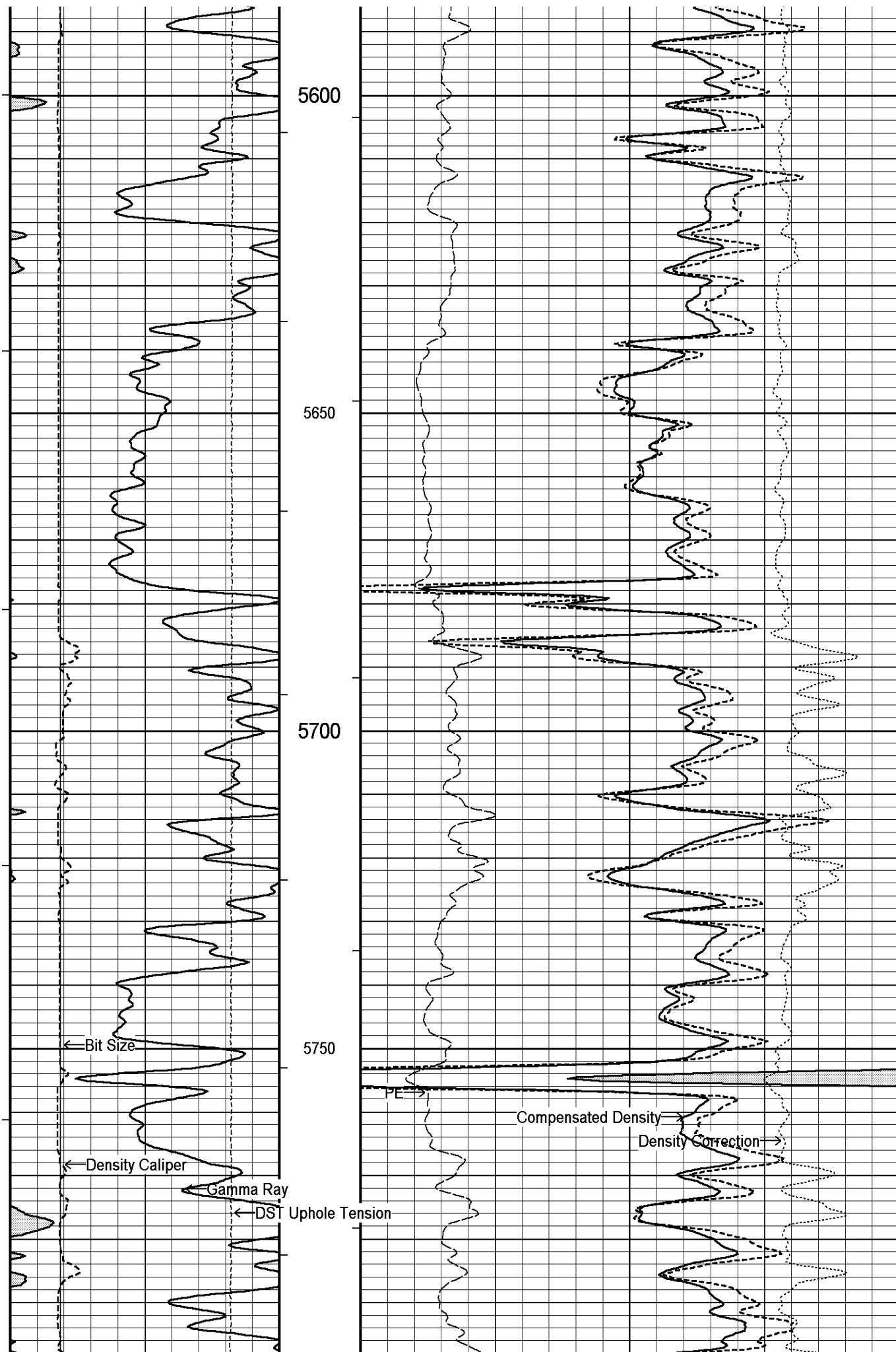
PE →

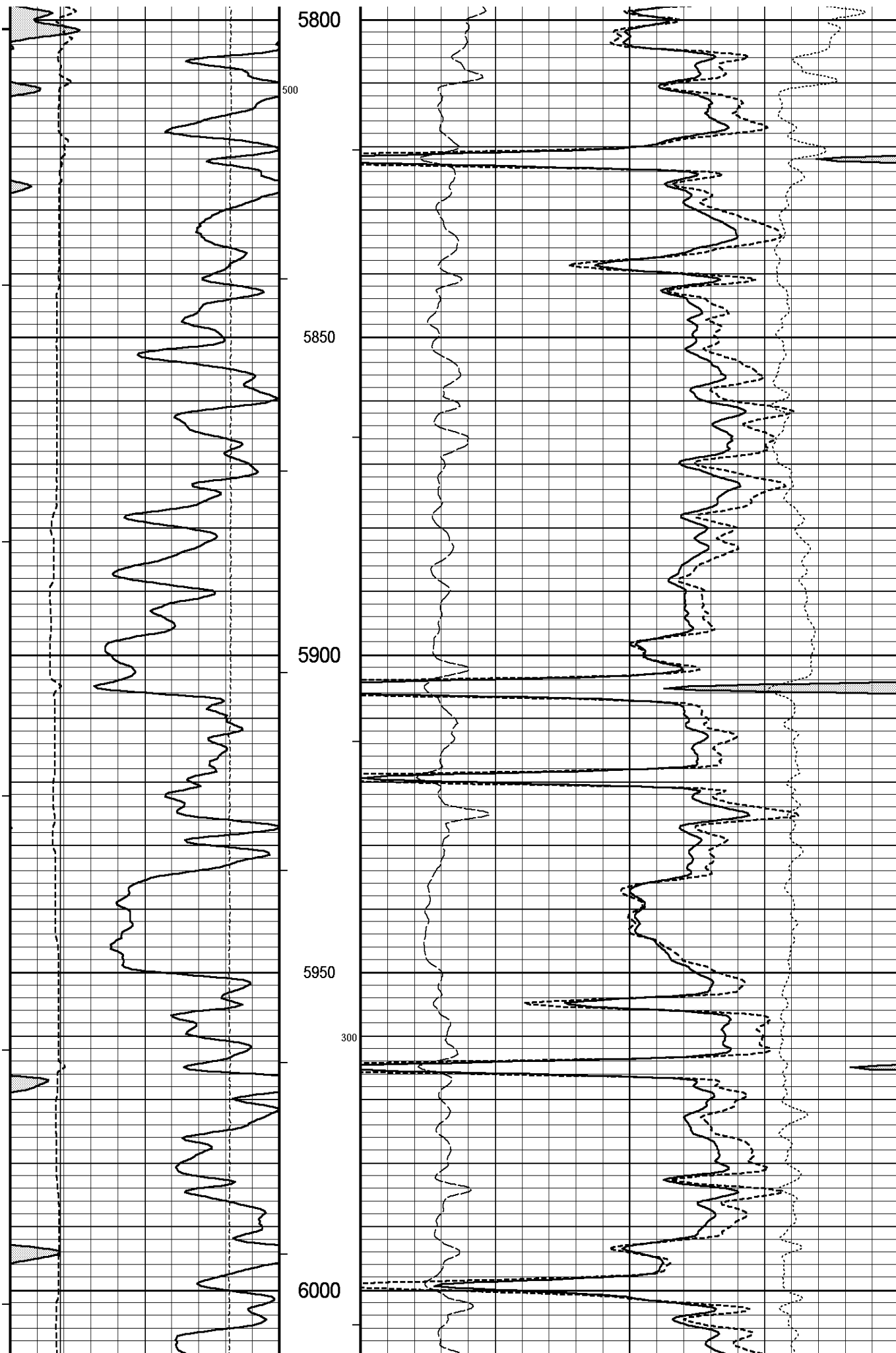
SS Density Por. 2.66

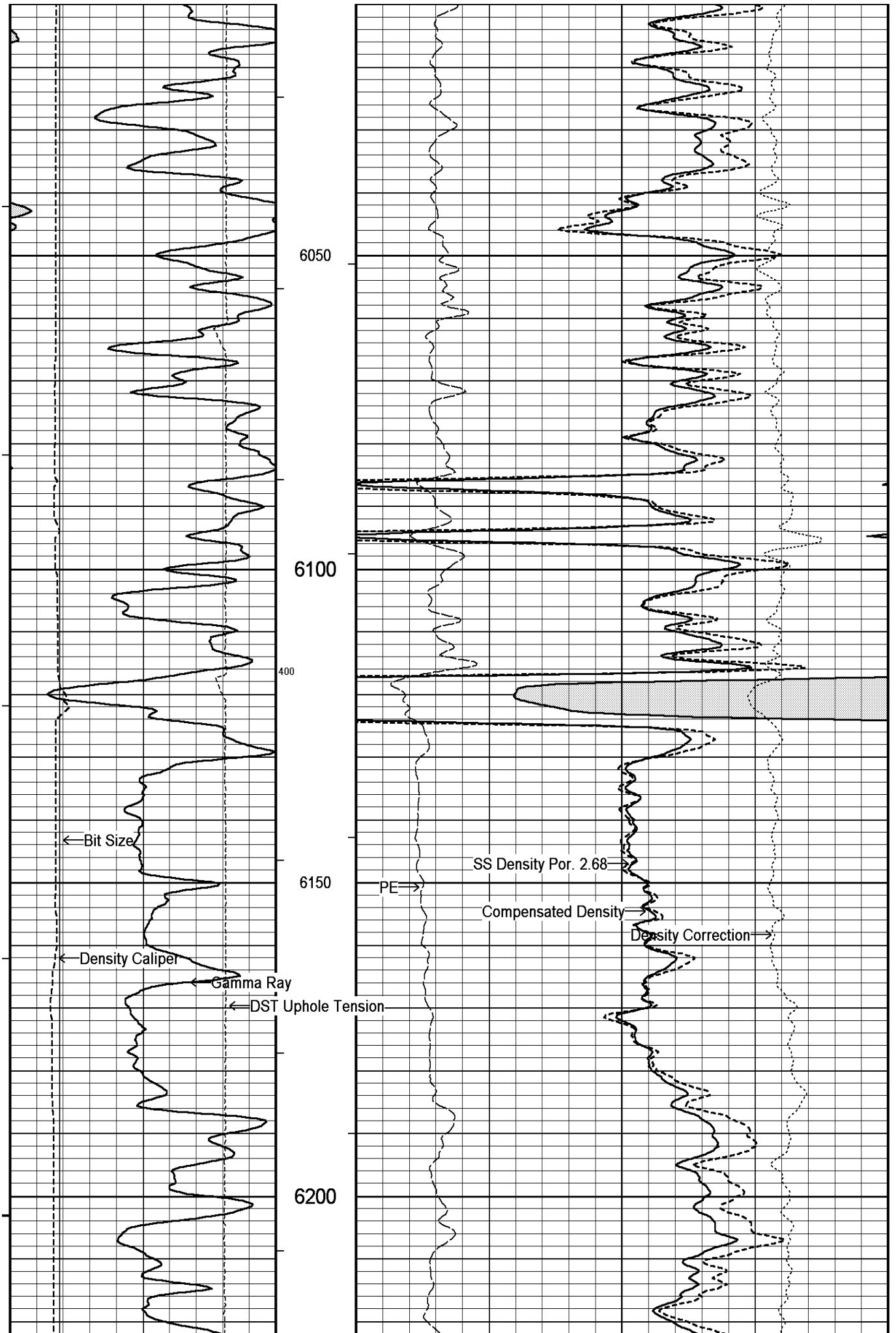
Compensated Density →

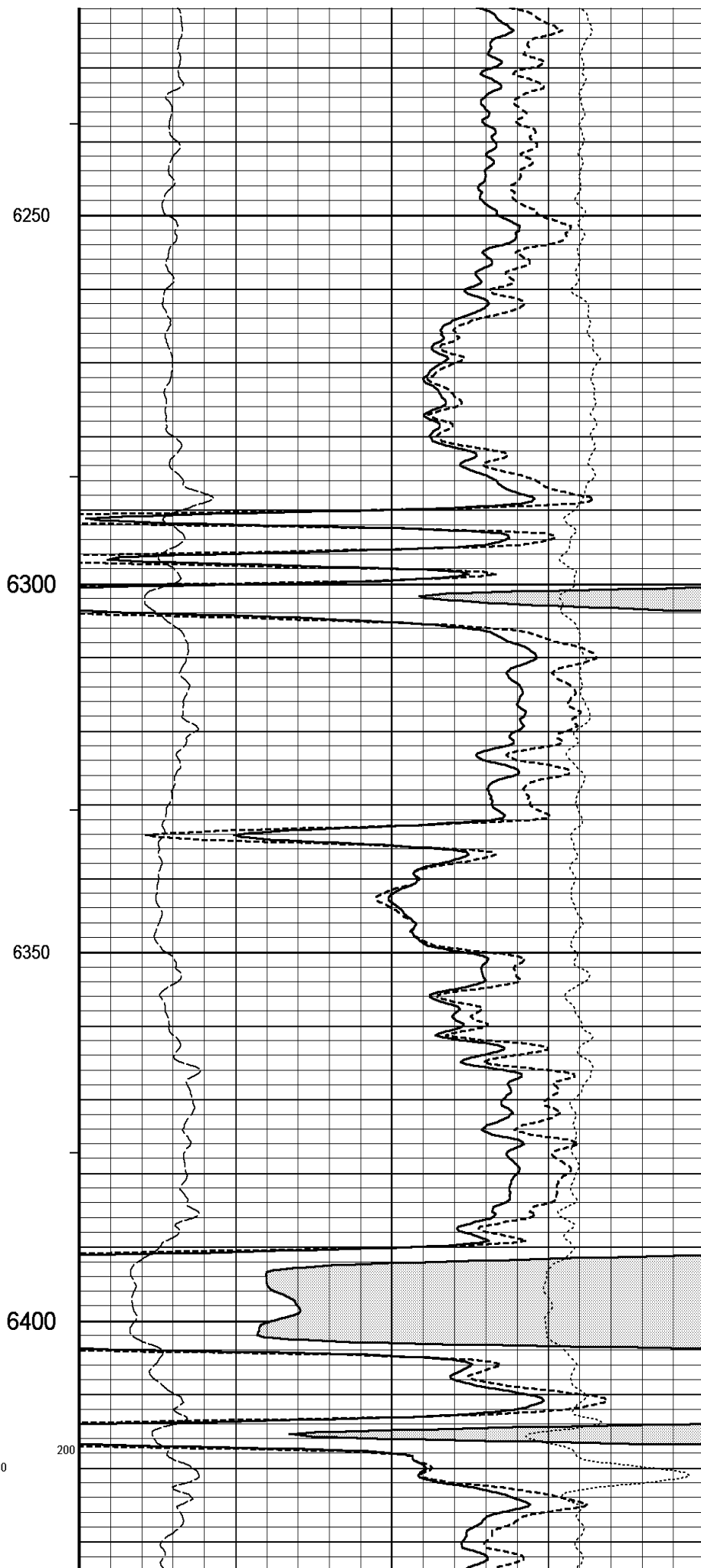
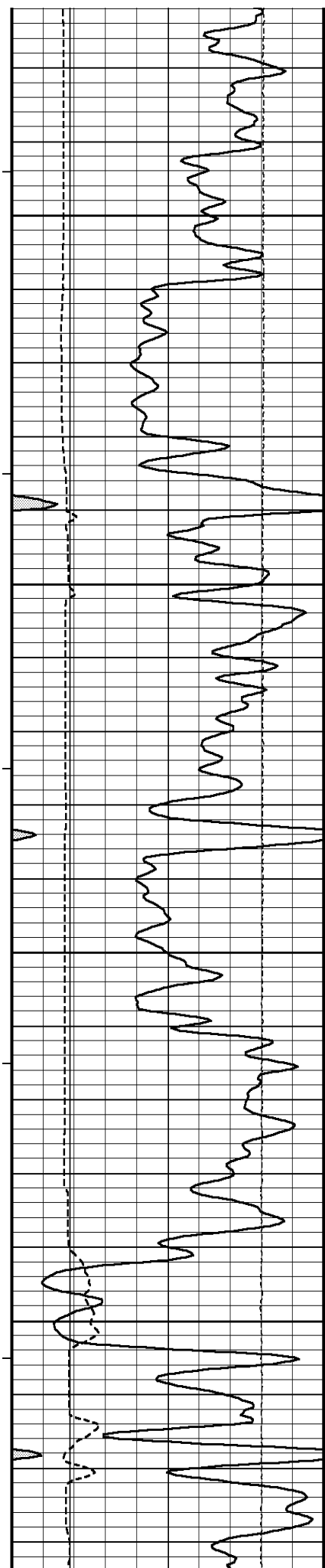
Density Correction →

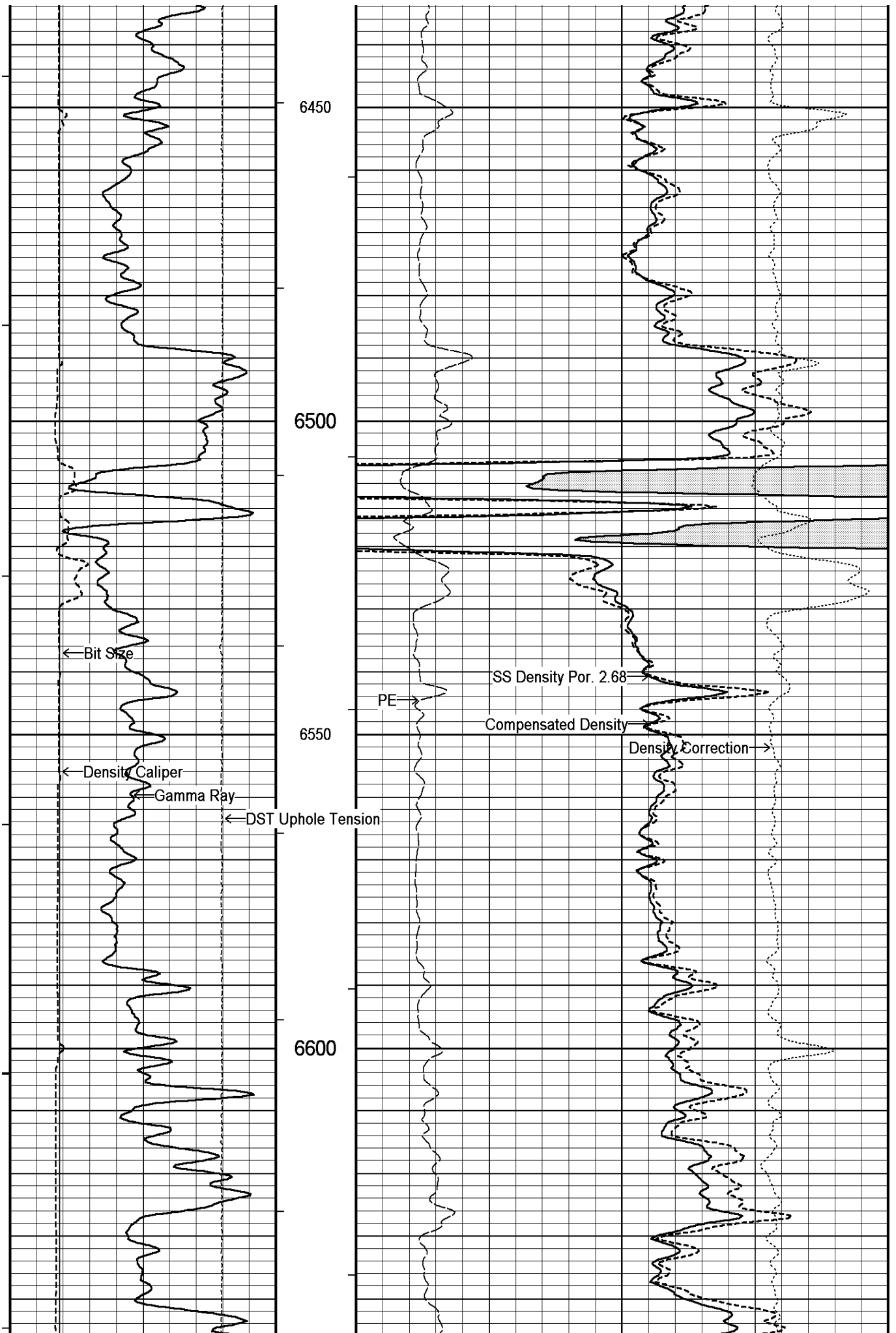


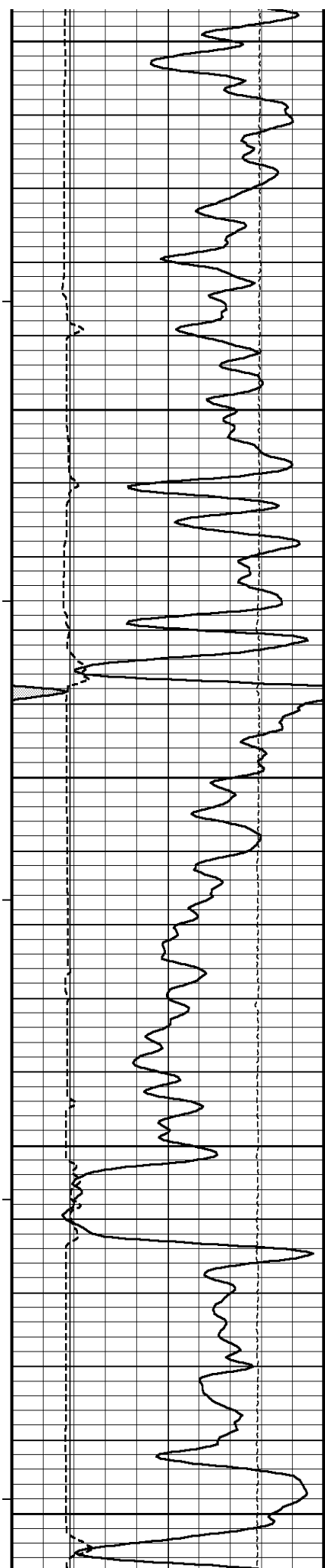












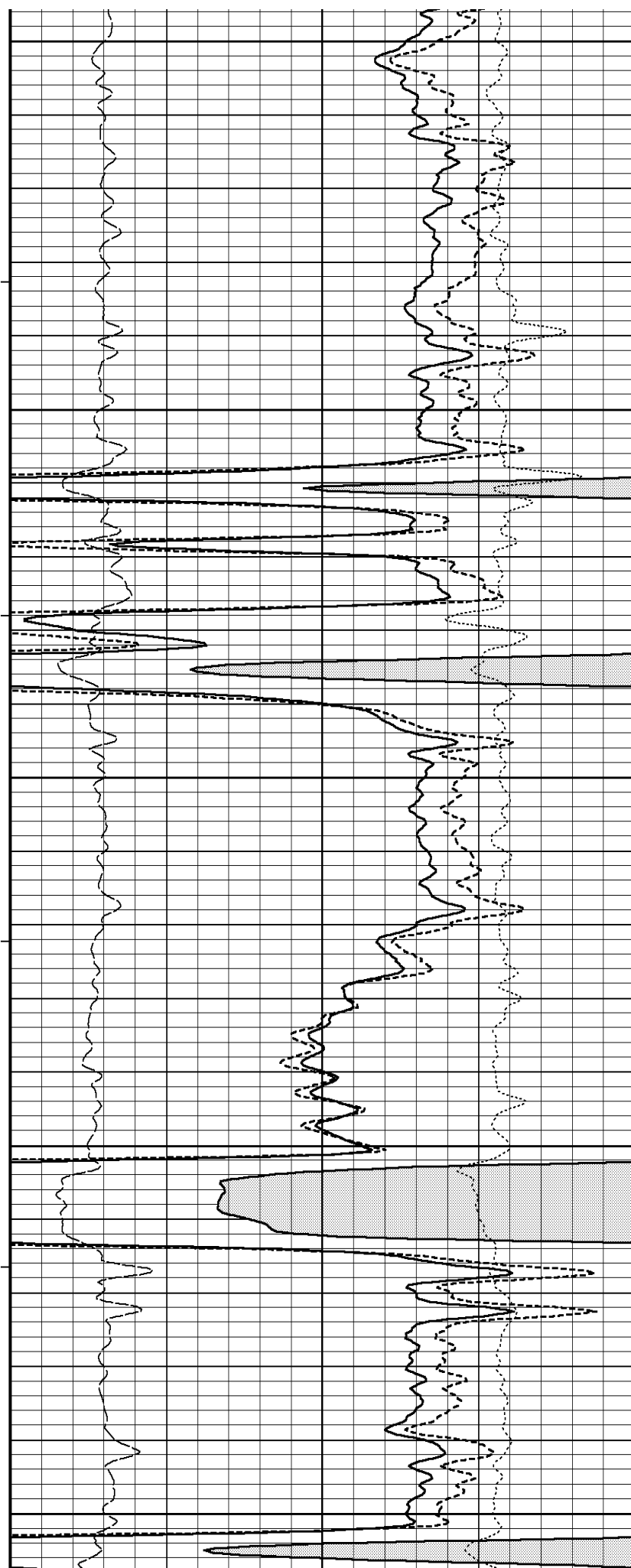
6650

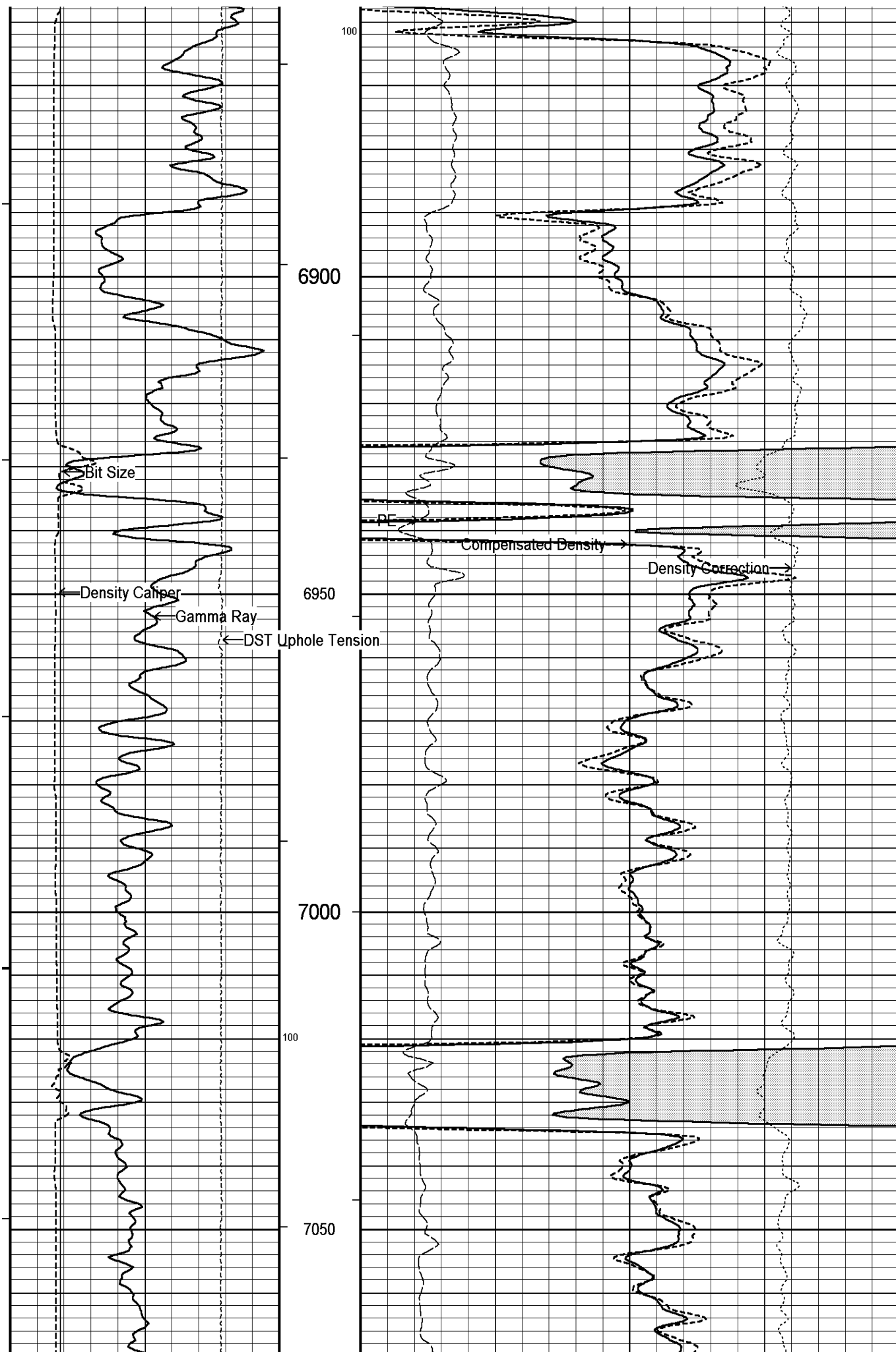
6700

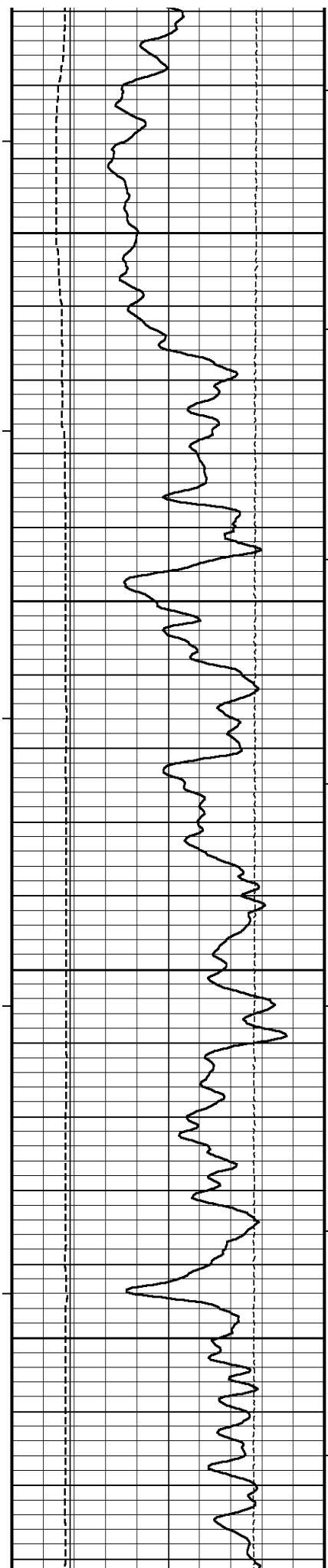
6750

6800

6850





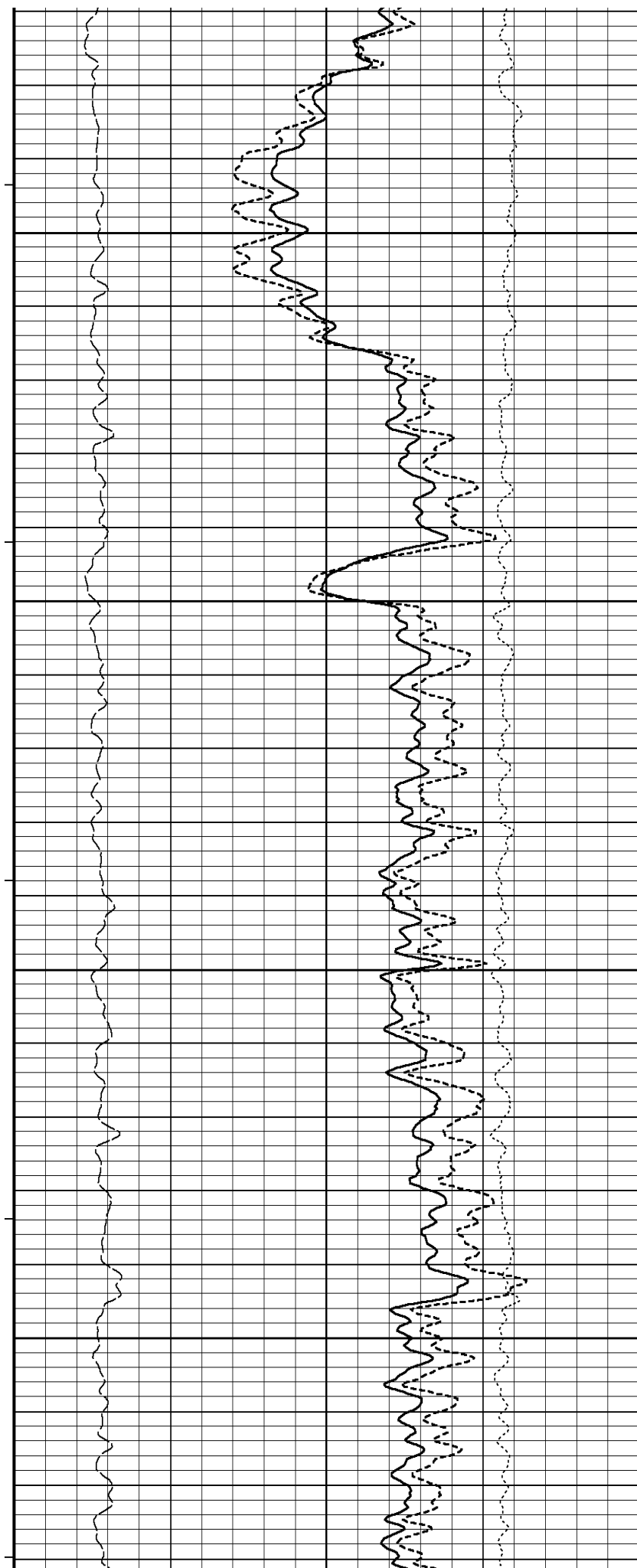


7100

7150

7200

7250



OVERLAY

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 09-DEC-2010 04:47

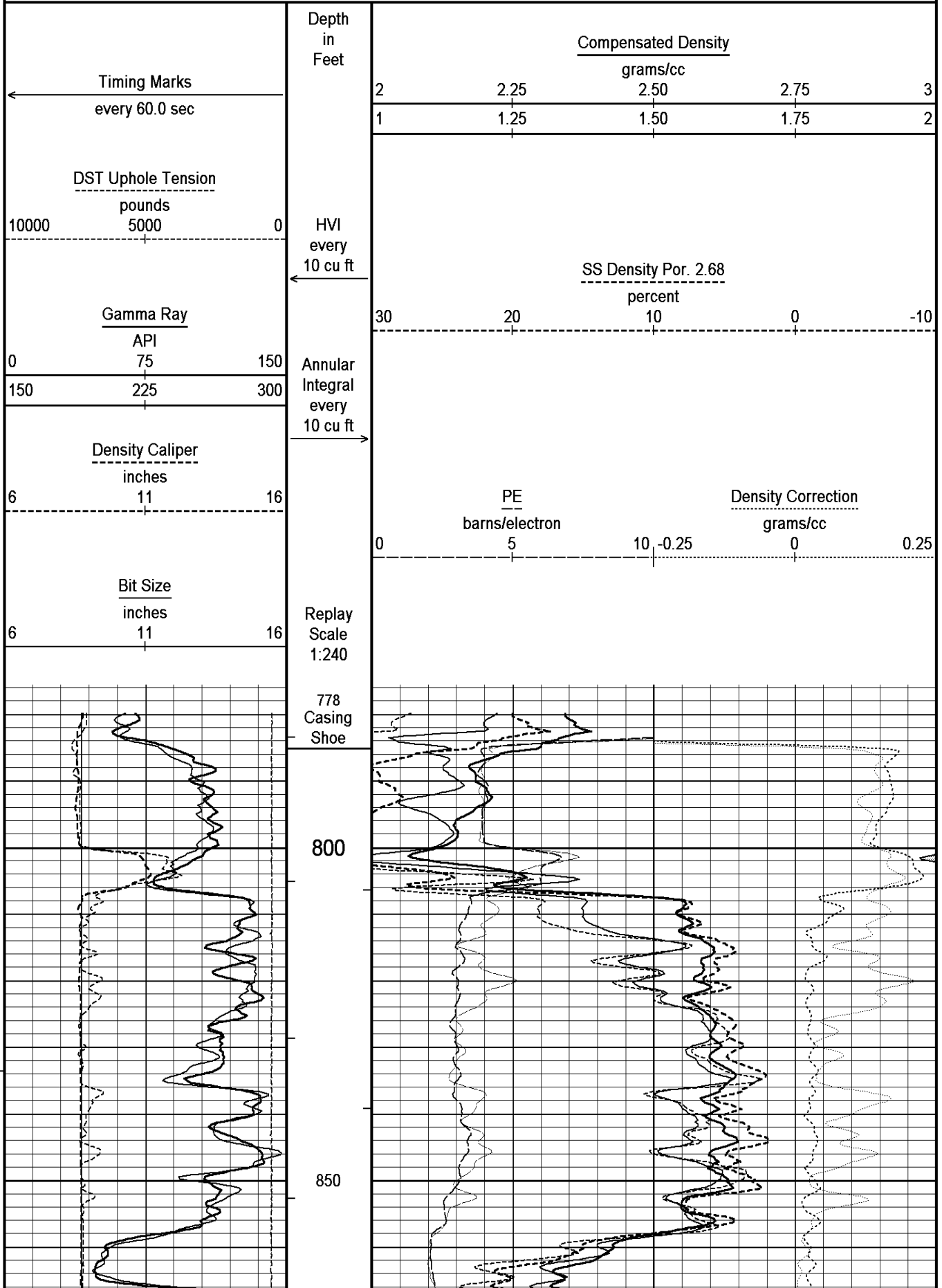
Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

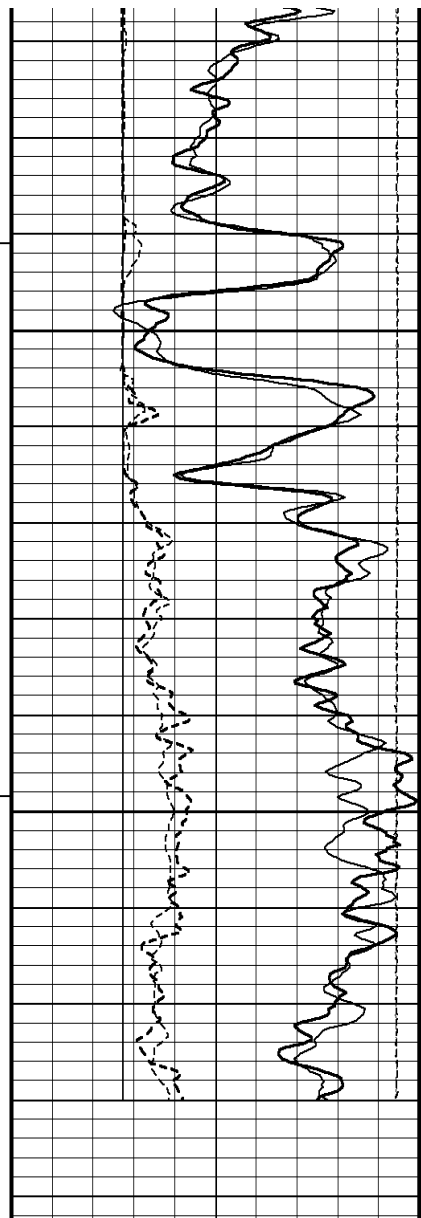
Recorded on 08-DEC-2010 22:46

Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\CASING.dta

Recorded on 08-DEC-2010 21:42

System Versions: Logged with 10.08.1568 Processed with 10.08.1568 Plotted with 10.08.1568



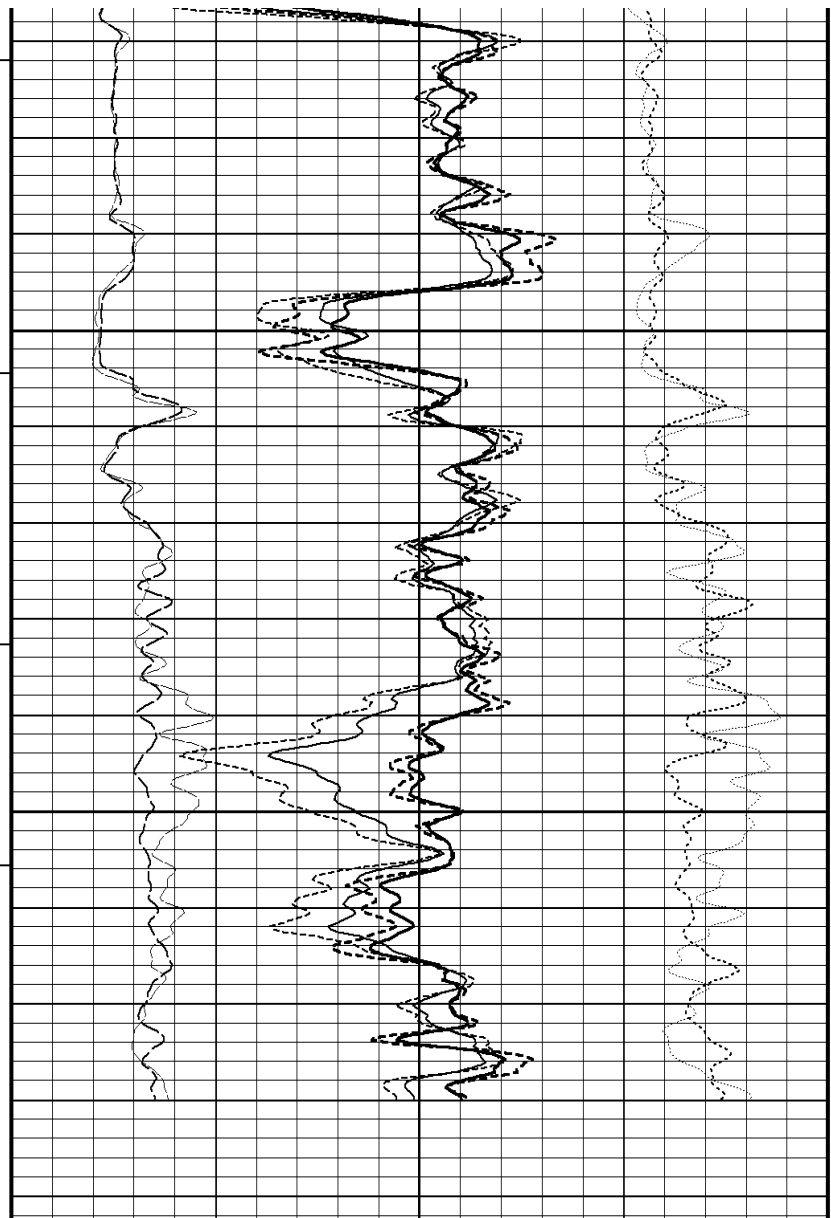


900

950

990

Depth
in
Feet



Compensated Density

grams/cc

2 2.25 2.50 2.75 3

1 1.25 1.50 1.75 2

Timing Marks
every 60.0 sec

DST Uphole Tension

pounds

10000 5000 0

HVI
every
10 cu ft

Gamma Ray

API

0 75 150

150 225 300

Annular
Integral
every
10 cu ft

Density Caliper

inches

6 11 16

SS Density Por. 2.68

percent

30 20 10 0 -10

PE

barns/electron

0 5 10, -0.25

Density Correction

grams/cc

0 0.25

6	Bit Size inches 11	16	Replay Scale 1:240
---	--------------------------	----	--------------------------

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 09-DEC-2010 04:47
 Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta
 Recorded on 08-DEC-2010 22:46
 Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\CASING.dta
 Recorded on 08-DEC-2010 21:42
 System Versions: Logged with 10.08.1568 Processed with 10.08.1568 Plotted with 10.08.1568

↑ OVERLAY ↑

BEFORE SURVEY CALIBRATION
 C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

General Constants All 000 Last Edited on 08-DEC-2010,19:31

General Parameters			
Mud Resistivity	2.450	ohm-metres	
Mud Resistivity Temperature	96.000	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	None		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		

Down-hole Tension Calibration SMS 000 Field Calibration on 08-DEC-2010 21:25

Reading No	Measured	Calibrated (lbs)
1	10099.40	0.00
2	11155.73	360.00

High Resolution Temperature Calibration MCG 192 Field Calibration on 08-DEC-2010,19:18

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

High Resolution Temperature Constants MCG 192 Last Edited on 08-DEC-2010,19:18

Pre-filter Length	11
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SP Calibration MCG 192 Field Calibration on 08-DEC-2010,19:18

	Measured	Calibrated (mV)
Reference 1	102.5	101.0
Reference 2	-98.8	-101.0

Gamma Calibration MCG 192 Field Calibration on 08-DEC-2010,21:35

	Measured	Calibrated (API)
Background	135	92
Calibrator (Gross)	1471	1004
Calibrator (Net)	1336	912

Gamma Constants MCG 192 Last Edited on 08-DEC-2010,19:18

Gamma Calibrator Number	GRC-072
-------------------------	---------

Mud Density	1.00	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
Neutron Calibration MDN 160		Base Calibration on 30-NOV-2010,21:21 Field Check on 08-DEC-2010,21:35	
Base Calibration			
	Measured	Calibrated (cps)	
	Near Far	Near Far	
	3208 98	3714 110	
Ratio	32.812	33.764	
Field Calibrator at Base			
		Calibrated (cps)	
		1323 1983	
Ratio		0.667	
Field Check			
		Calibrated (cps)	
		1313 1981	
Ratio		0.663	
Neutron Constants MDN 160		Last Edited on 08-DEC-2010,19:19	
Neutron Source Id	1056		
Neutron Jig Number	5922		
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	7.00	cu	
Dolomite Sigma	4.70	cu	
Formation Pressure Source	None		
Formation Pressure	N/A	kpsi	
Temperature Source	None		
Temperature	N/A	degrees F	
Mud Salinity	0.00	kppm	
Formation Fluid Salinity Source	None		
Formation Fluid Salinity	N/A	kppm	
Barite Mud Correction	Not Applied		
FE Calibration MFE 085		Base Calibration on 12-NOV-2010 11:03 Field Check on 08-DEC-2010 21:28	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	9.7	1.3	
Reference 2	964.3	126.8	
Base Check		282.0	
Field Check		282.1	
FE Constants MFE 085		Last Edited on 08-DEC-2010,19:21	
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	
High Resolution Temperature Calibration MAI 213		Field Calibration on 08-DEC-2010,19:21	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MAI 213		Last Edited on 08-DEC-2010,19:21	

Induction Calibration MAI 213

Base Calibration on 20-NOV-2010,09:51
Field Check on

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	16.8	462.4	9.3	966.2
2	6.2	381.7	7.6	821.4
3	3.6	254.8	5.2	566.0
4	2.3	132.3	2.6	279.2

Array Temperature 73.6 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0
Deep	0.0	0.0	0.0	0.0
Medium	0.0	0.0	0.0	0.0
Shallow	0.0	0.0	0.0	0.0

Array Temperature 0.0 Deg F

Induction Constants MAI 213

Last Edited on 08-DEC-2010,19:21

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	6.0000		
Stand-off Fin Angle	60.00	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 167

Base Calibration on 17-NOV-2010 16:07
Field Calibration on 08-DEC-2010,19:20

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18710	4.00
2	27104	5.96
3	35068	7.98
4	43201	9.86
5	52390	11.88
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	6.00	5.96

Photo Density Calibration MPD 167

Base Calibration on 17-NOV-2010 15:52
Field Check on 08-DEC-2010 21:32

Density Calibration	Measured		Calibrated (sdu)	
Base Calibration	Near	Far	Near	Far
Reference 1	48981	19042	53237	19445
Reference 2	22577	3078	25135	2545
Field Check at Base	1182.7	1754.2		
Field Check	1178.9	1761.7		

PE Calibration	Measured			Calibrated
Base Calibration	WS	WH	Ratio	Ratio
Background	214	1054		
Reference 1	14834	48805	0.306	0.320
Reference 2	5846	22443	0.263	0.274
Field Check at Base	214.2	1053.8		
Field Check	213.6	1053.4		

Density Constants MPD 167

Last Edited on 08-DEC-2010,19:20

Density Source Id	P50561B	
Nylon Calibrator Number	532	
Aluminium Calibrator Number	532	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.27	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)	
2.68	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	0.00	

AFTER SURVEY CALIBRATION

C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

FE Check MFE 085

Before Survey Check 08-DEC-2010 21:28
 After Survey Check on 09-DEC-2010 01:24

Before (ohm-m) 282.1
 After (ohm-m) 281.7

Induction Check MAI 213

Before Survey Check on
 After Survey Check on 09-DEC-2010 01:23

Channel	Before Survey (mmho/m)		After Survey (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	17.6	3937.4
2	0.0	0.0	32.5	3539.8
3	0.0	0.0	30.8	3113.9
4	0.0	0.0	20.3	2096.7
Deep	0.0	0.0	18.7	2078.4
Medium	0.0	0.0	44.9	4087.3
Shallow	0.0	0.0	48.8	5159.0
Array Temperature	0.0		93.4	

Photo Density Check MPD 167

Before Survey Check on 08-DEC-2010 21:32
 After Survey Check on 09-DEC-2010 01:28

Density Check

	Near		Far	
	Before	After	Before	After
	1178.9	1176.8	1761.7	1749.9

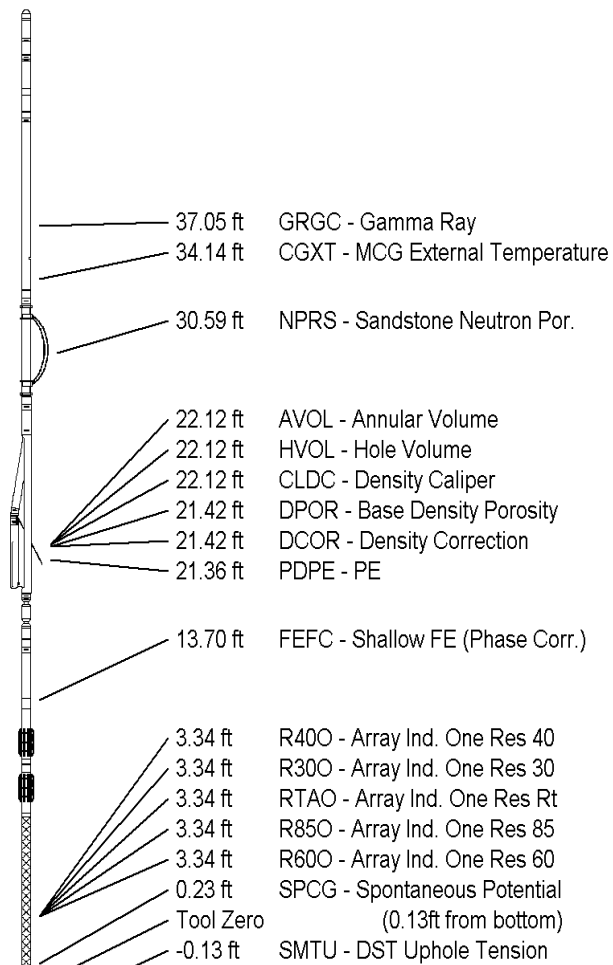
PE Check

	Before	After
WS	213.6	212.8
WH	1053.4	1047.6

DOWNHOLE EQUIPMENT

C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

- MCB-A 11B Tension Cablehead
- MCB 1 Length: 2.18 ft Weight: 19.8 lb
- SHA-F Compact Swivel Head Adaptor
- SHA 82 Length: 2.74 ft Weight: 26.5 lb
- Compact Gamma
- MCG 192 Length: 8.70 ft Weight: 63.9 lb
- Compact Neutron
- MDN 160 Length: 5.04 ft Weight: 50.7 lb
- Compact Density/Caliper
- MPD 167 Length: 9.59 ft Weight: 90.4 lb
- SKJ-E.A Compact Knuckle Joint
- SKJ 114 Length: 2.17 ft Weight: 24.3 lb
- Compact Focussed Electric
- MFE 85 Length: 6.03 ft Weight: 48.5 lb
- Compact Induction
- MAI 213 Length: 10.81 ft Weight: 48.5 lb
- Total Length: 47.25 ft Weight: 372.6 lb





All measurements relative to tool zero.

COMPANY	BILL BARRETT CORPORATION
WELL	GGU MILLER 23C-32-691
FIELD	GIBSON GULCH
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	6144.00	feet	First Reading	7311.00
Elevation Drill Floor	6143.00	feet	Depth Driller	7333.00 feet
Elevation Ground Level	6121.00	feet	Depth Logger	7335.00 feet



Weatherford[®]

COMPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON
LOG