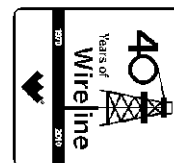




Weatherford

**COPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON LOG**

COMPANY **LARAMIE ENERGY II**
WELL **HAWXHURST 17-05B**
FIELD **BUZZARD CREEK**
PROVINCE/COUNTY **MESA**
COUNTRY/STATE **U.S.A. / COLORADO**
LOCATION **SHL: 1279' FNL & 386' FWL**
BHL: 1832' FNL & 653' FWL



SEC	TWP	RGE	Other Services
17	9S	94W	MAI-MFE CALIPER
API Number 05-077-10159-00			
Permit Number			
Permanent Datum GL, Elevation 6786 feet			
Log Measured From KB			
Drilling Measured From KB @ 21 FEET			
Date	6-NOV-2011	Elevations: KB 6807.00 DF 6806.00 GL 6786.00	
Run Number	ONE		
Depth Driller	7180.00	feet	
Depth Logger	7194.00	feet	
First Reading	7173.00	feet	
Last Reading	1541.00	feet	
Casing Driller	1544.00	feet	
Casing Logger	1541.00	feet	
Bit Size	8.750	inches	
Hole Fluid Type	GEL/POLY		
Density / Viscosity	9.70 lb/USg	59.00 CP	
PH / Fluid Loss	9.60	5.60 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.37 @ 91.0	ohm-m	
Rmf @ Measured Temp	1.10 @ 91.0	ohm-m	
Rmc @ Measured Temp	1.64 @ 91.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.65 @196.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	196.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13045	GD JCT	
Recorded By	A. VAN BRUNT		
Witnessed By	C. CLAUSSEN		
Service Order	#3524916		

BOREHOLE RECORD				Last Edited: 06-NOV-2011 08:35
Bit Size inches	Depth From feet		Depth To feet	
8.750	1544.00		7180.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1544.00	32.00

REMARKS
SOFTWARE VERSION: 12.02.4401.
TOOLS RUN: MAI, MFE, SKJ, MPD, MDN, MCG, AND SHA RAN IN COMBINATION.
HARDWARE: MPD: 8 INCH DENSITY SKID PLATE RAN. MDN: DUAL BOWSPRING RAN. MFE: 0.5 INCH STANDOFF RAN. MAI: 0.5 INCH STANDOFF RAN.
TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 2535 CU. FT.
ANNULAR VOLUME WITH 7.0 INCH PRODUCTION CASING FROM TD TO SURFACE CASING = 1030 CU. FT.
2.68 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
WELL DEVIATION MAXIMUM 10 DEGREES

WELL DEVIATION MEASUREMENTS DECKLEED.

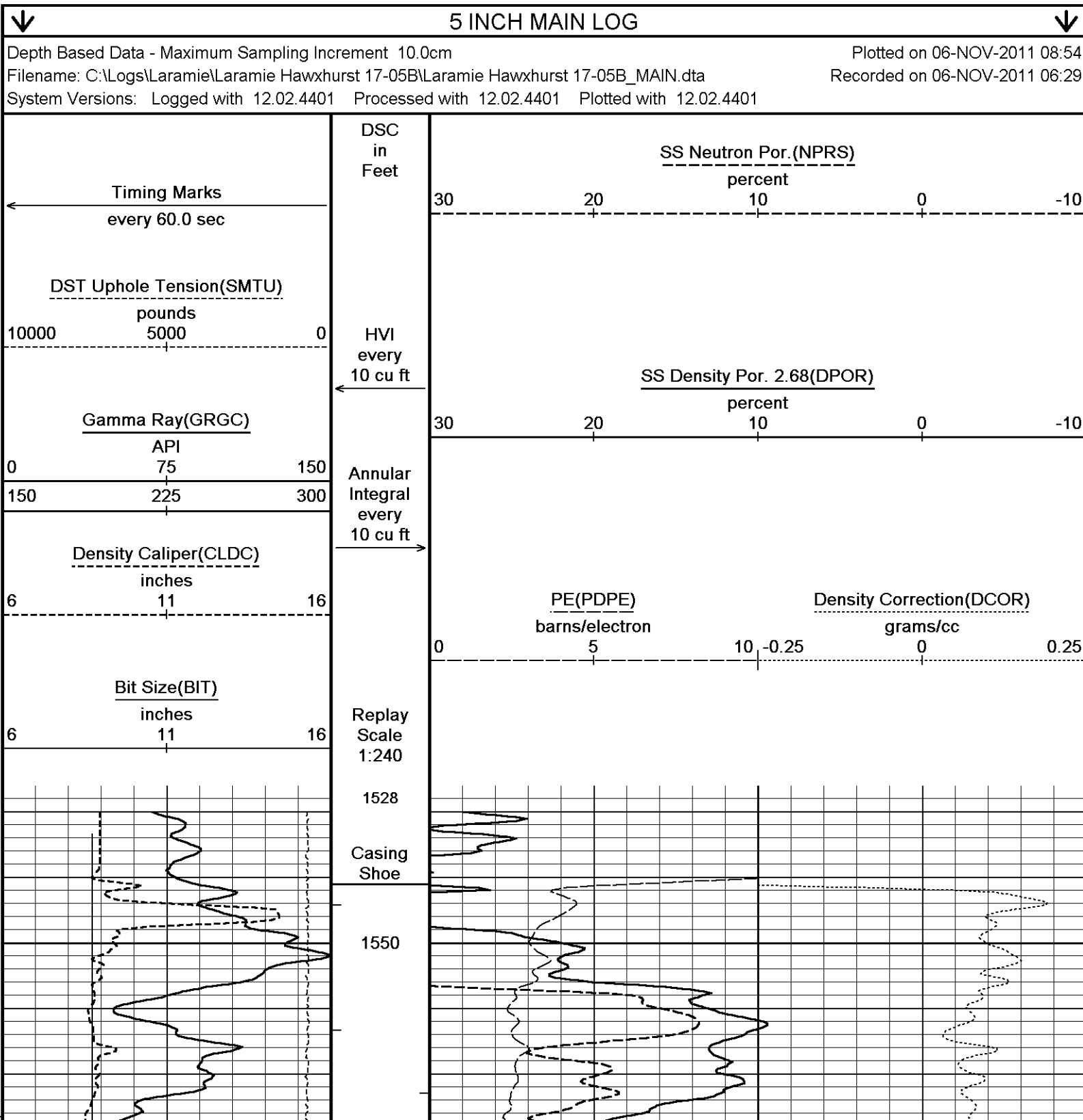
TIGHT PULLS, BOREHOLE SIZE, EXCESS MUD CAKE AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY.

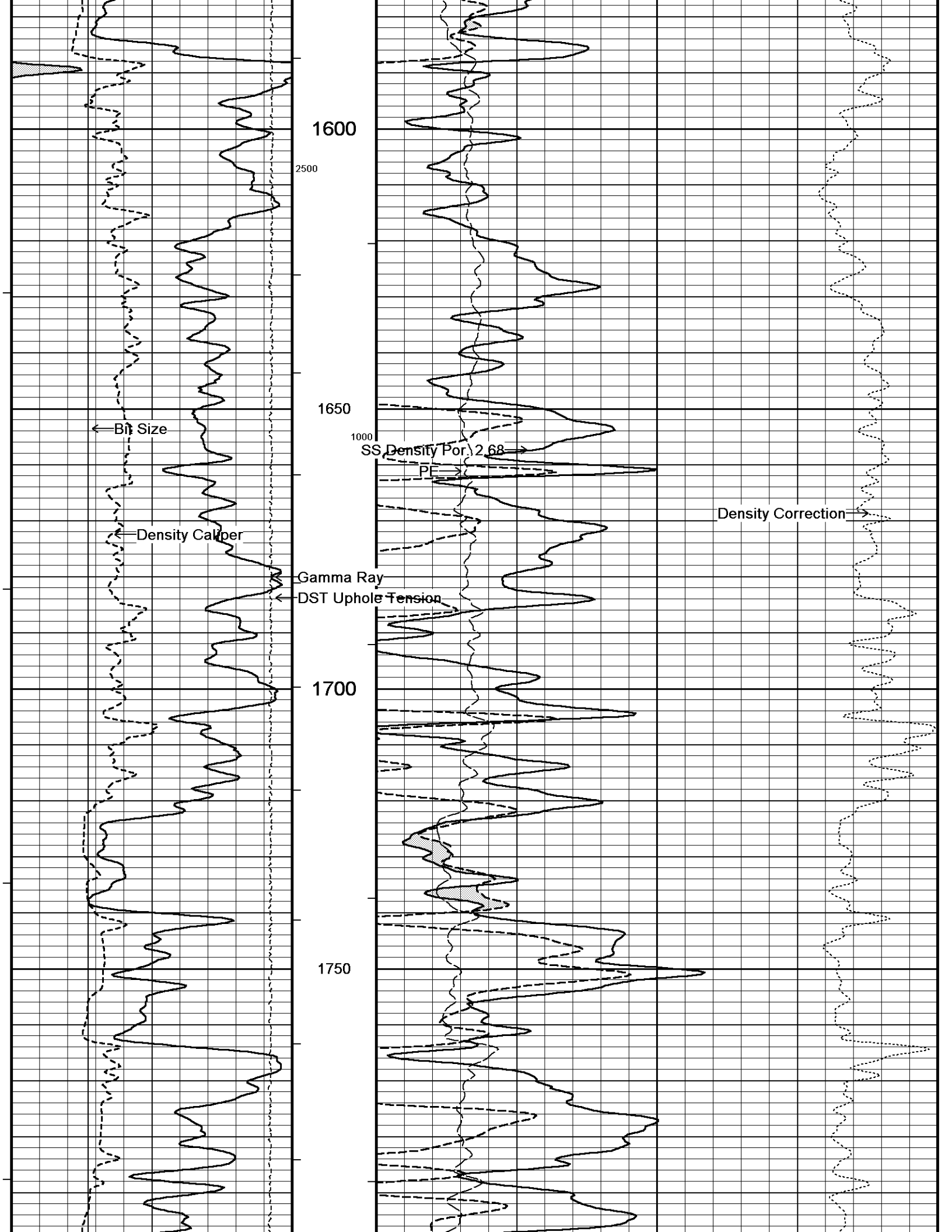
OPERATORS: B. FRISBIE, A. ALLRED.

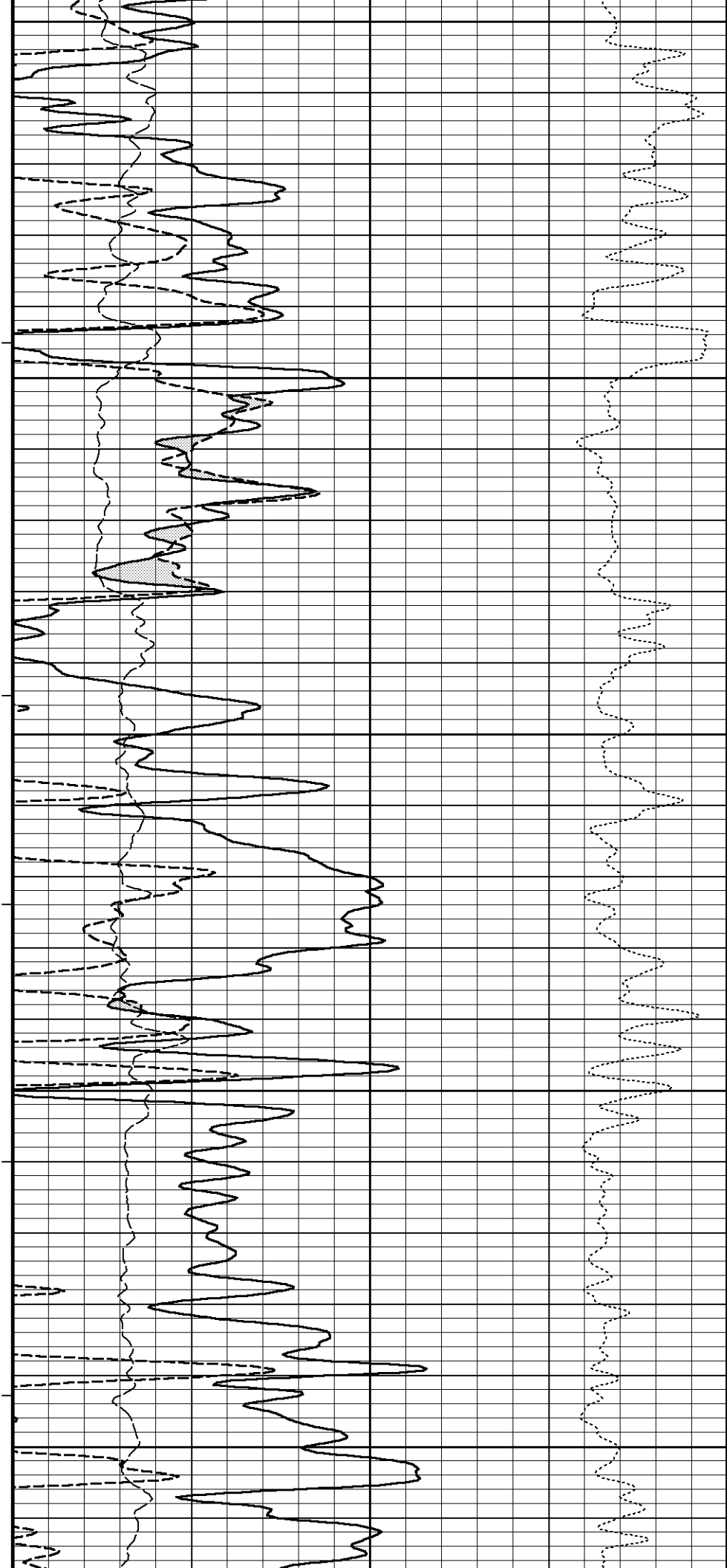
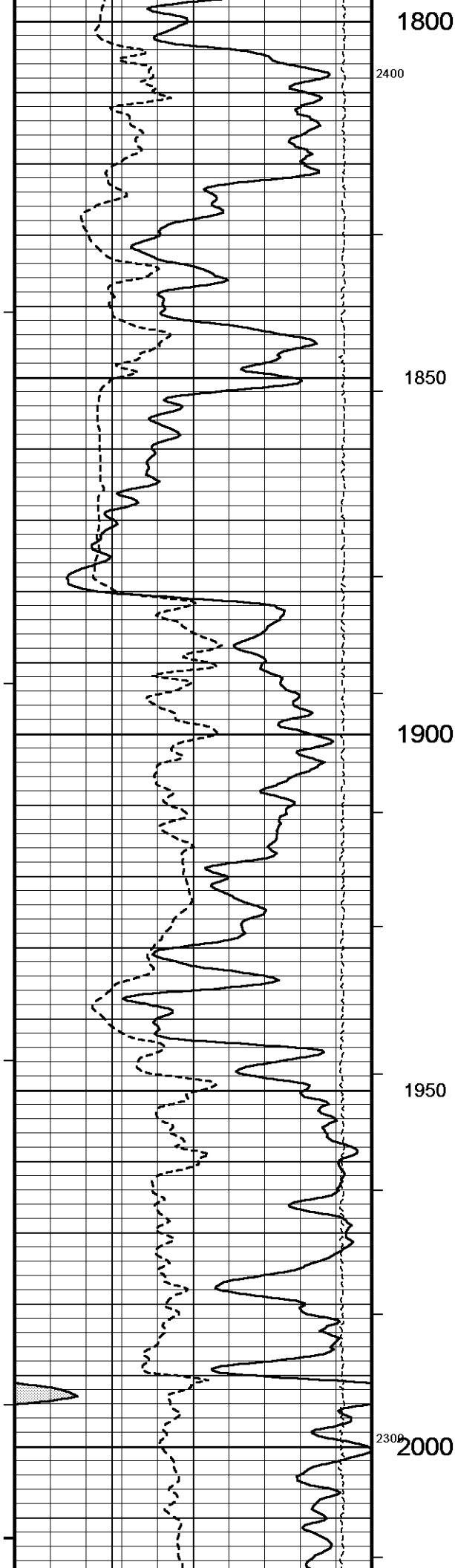
SERVICE ORDER: #3524916.

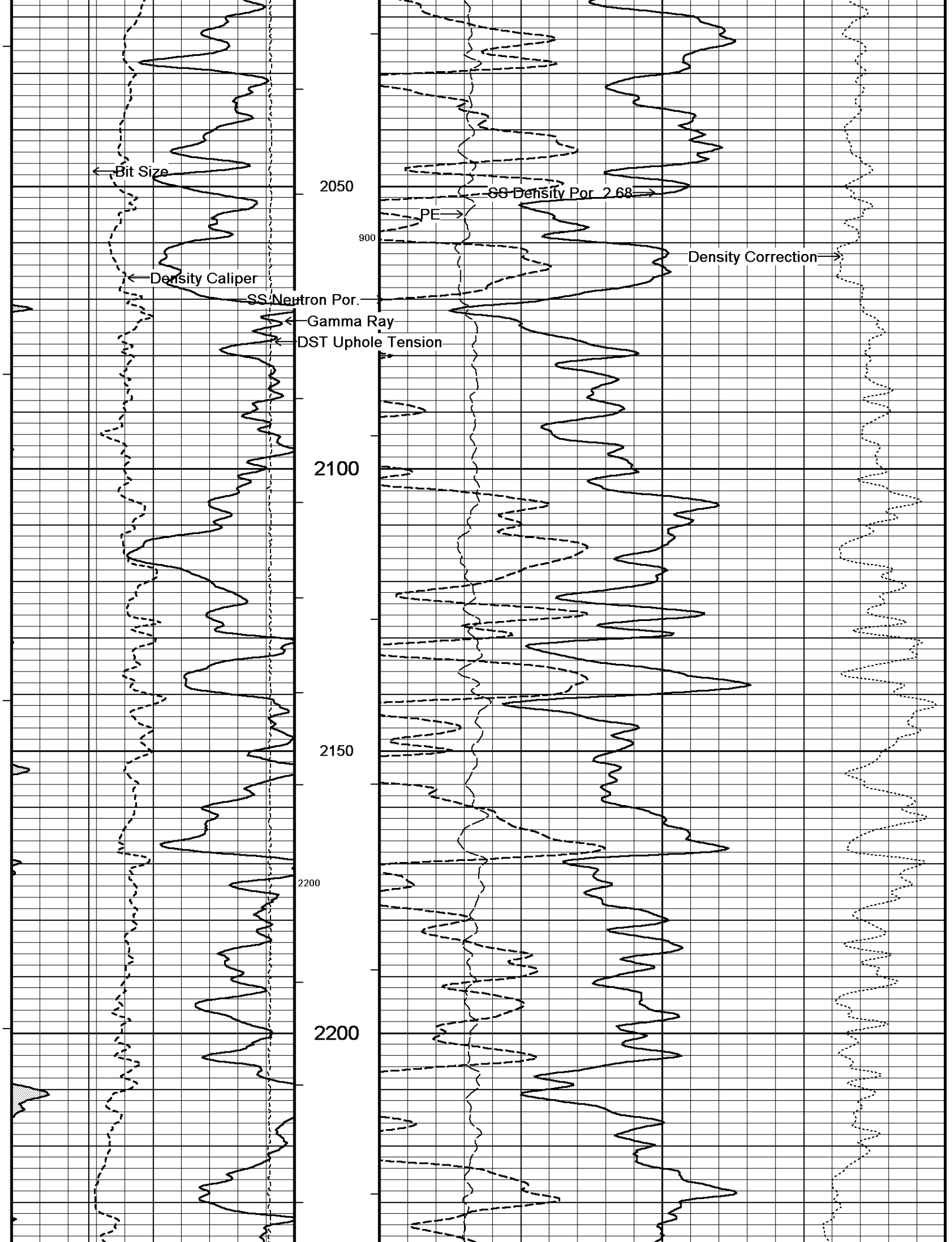
RIG: PRECISION #706.

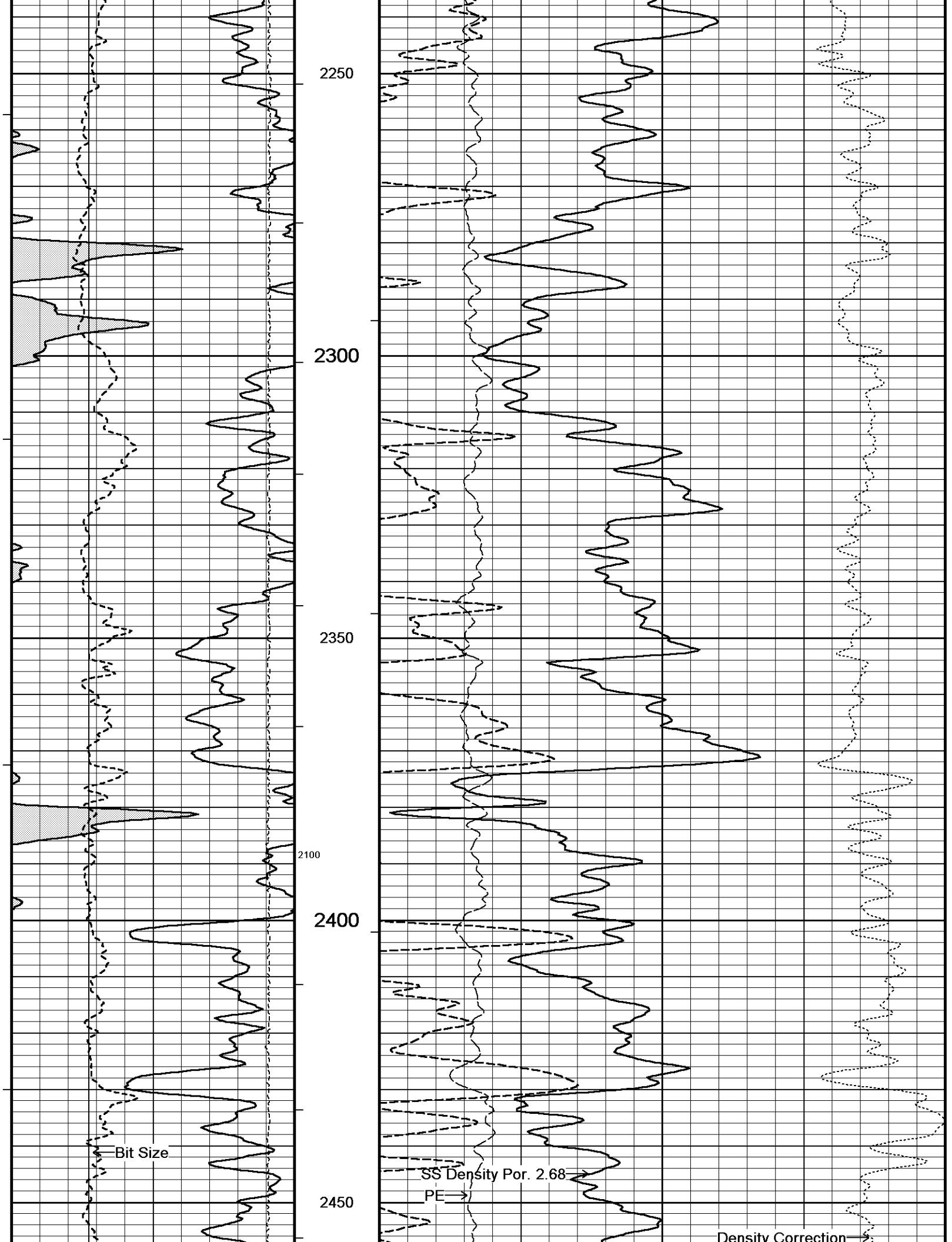
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

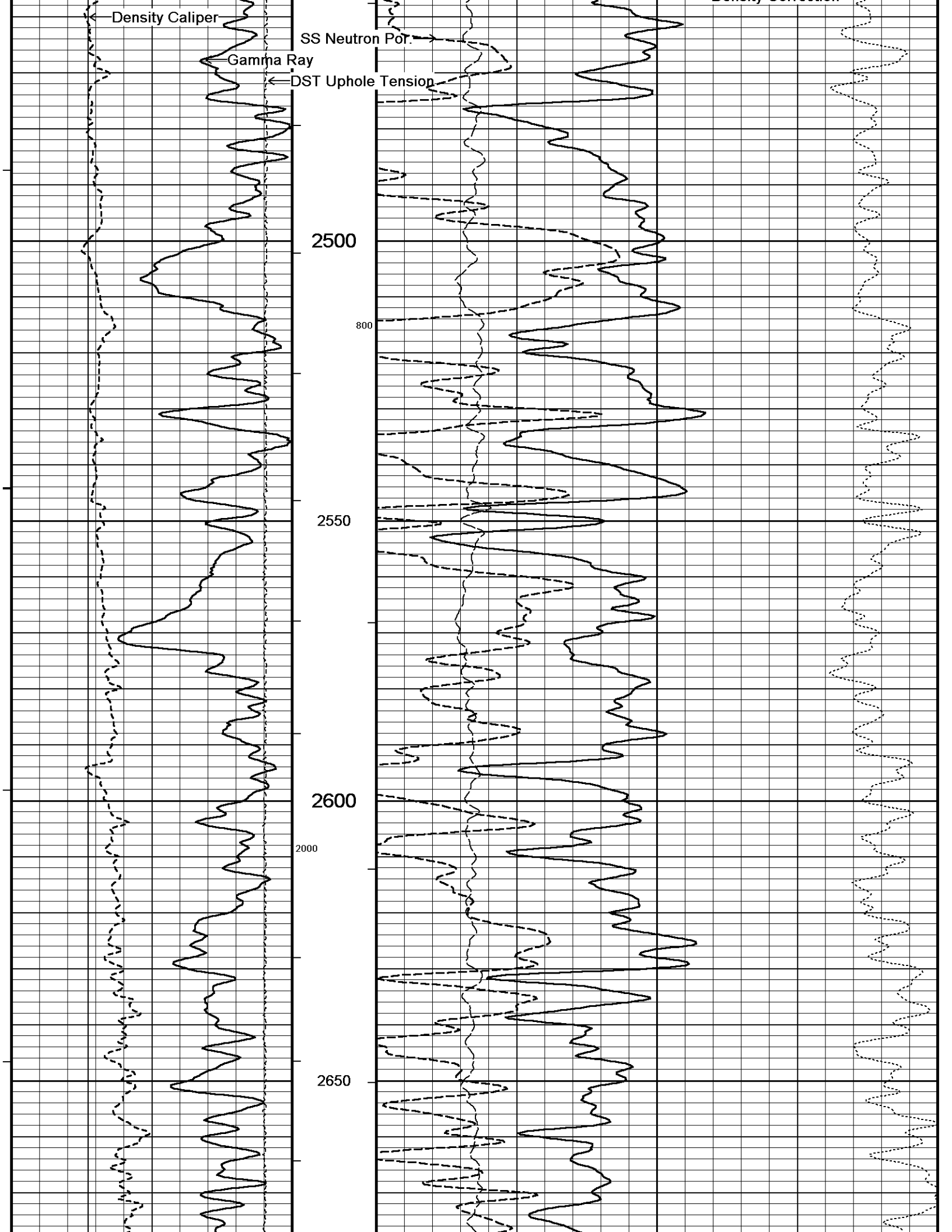


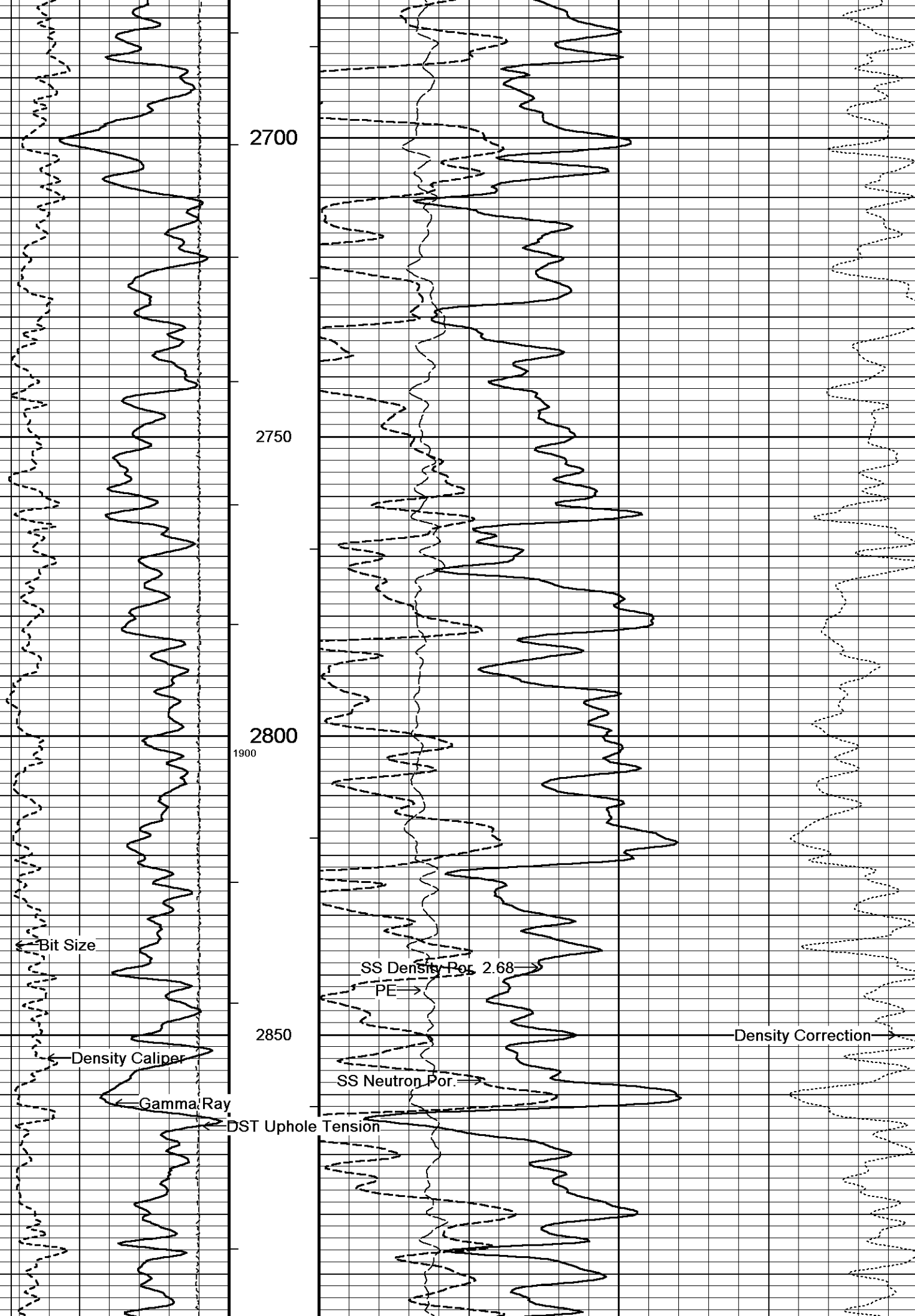


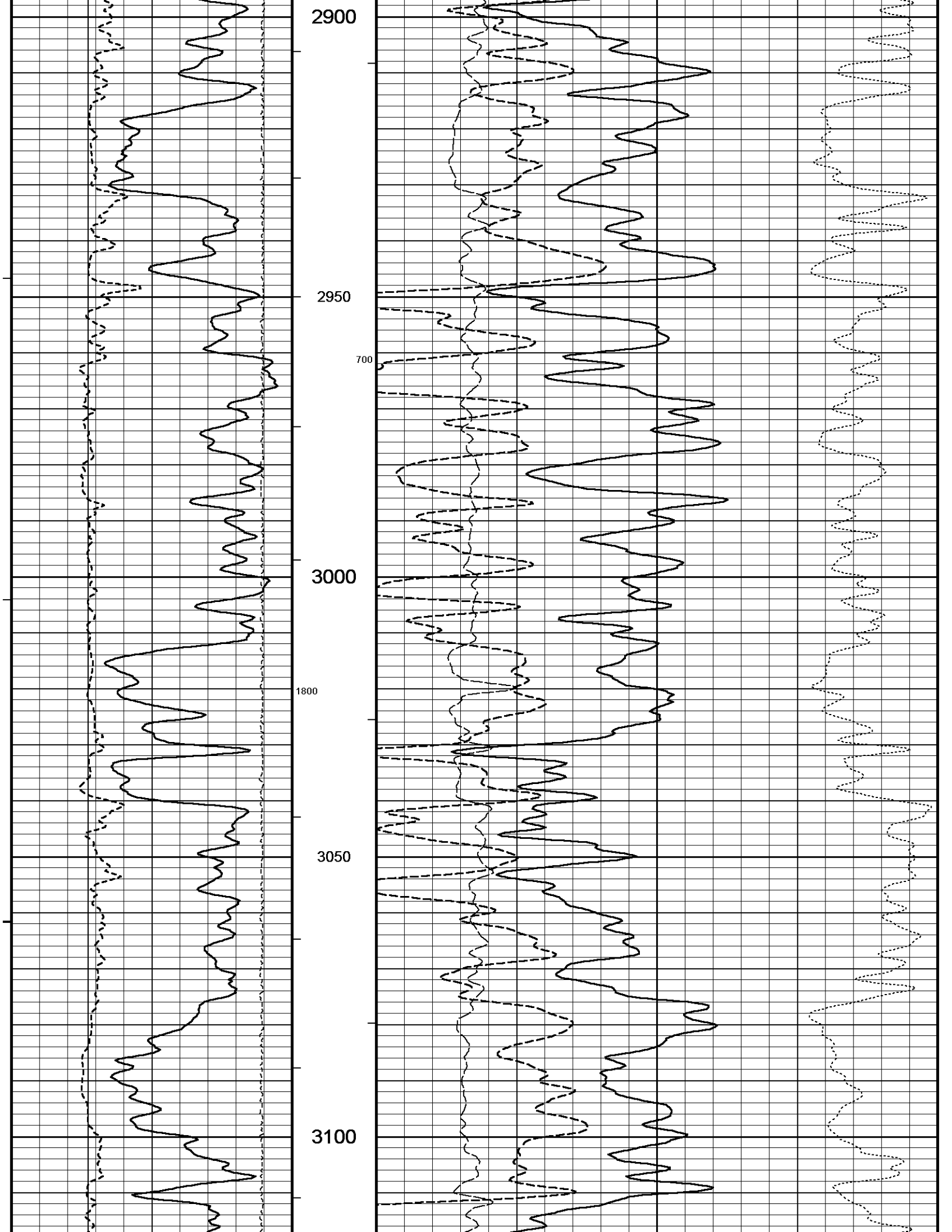


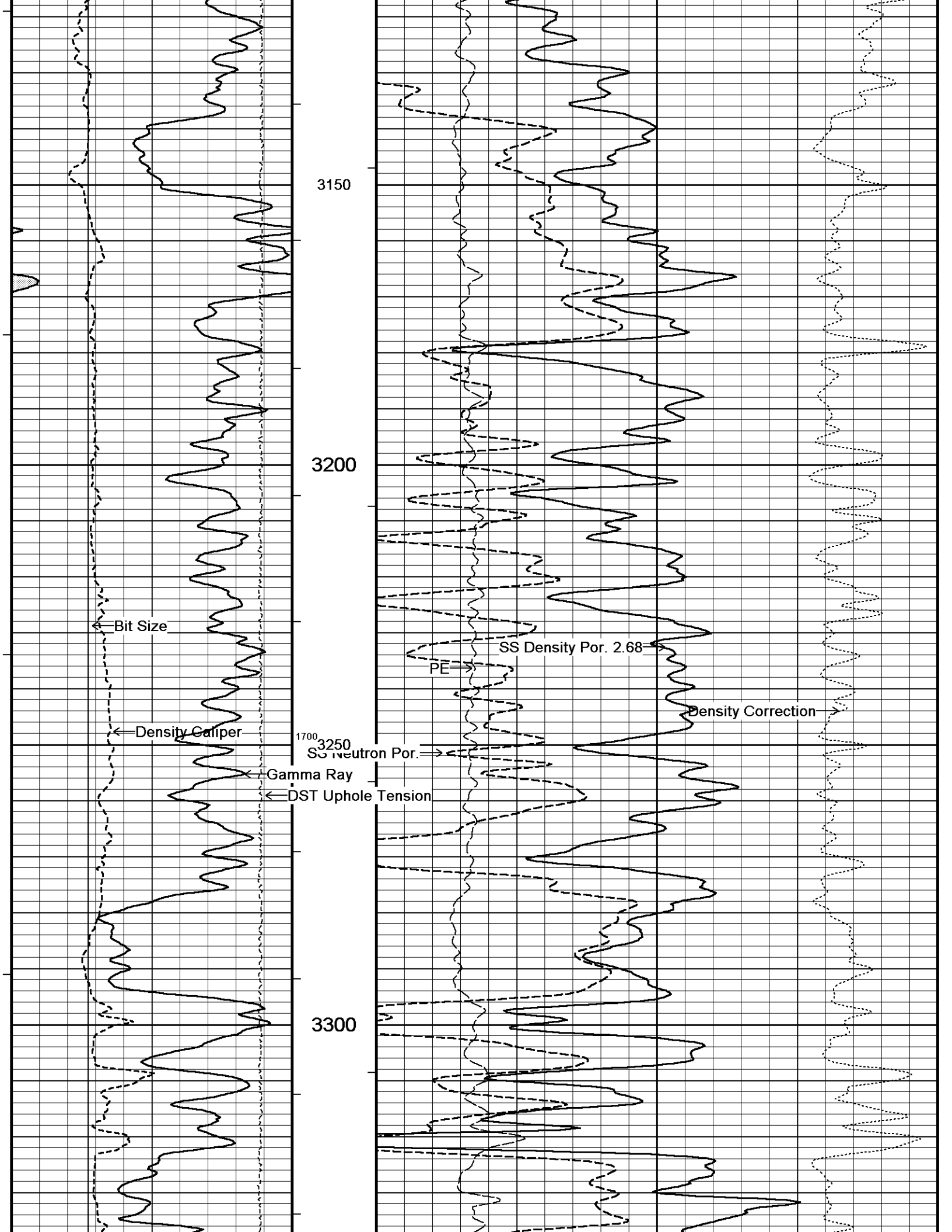


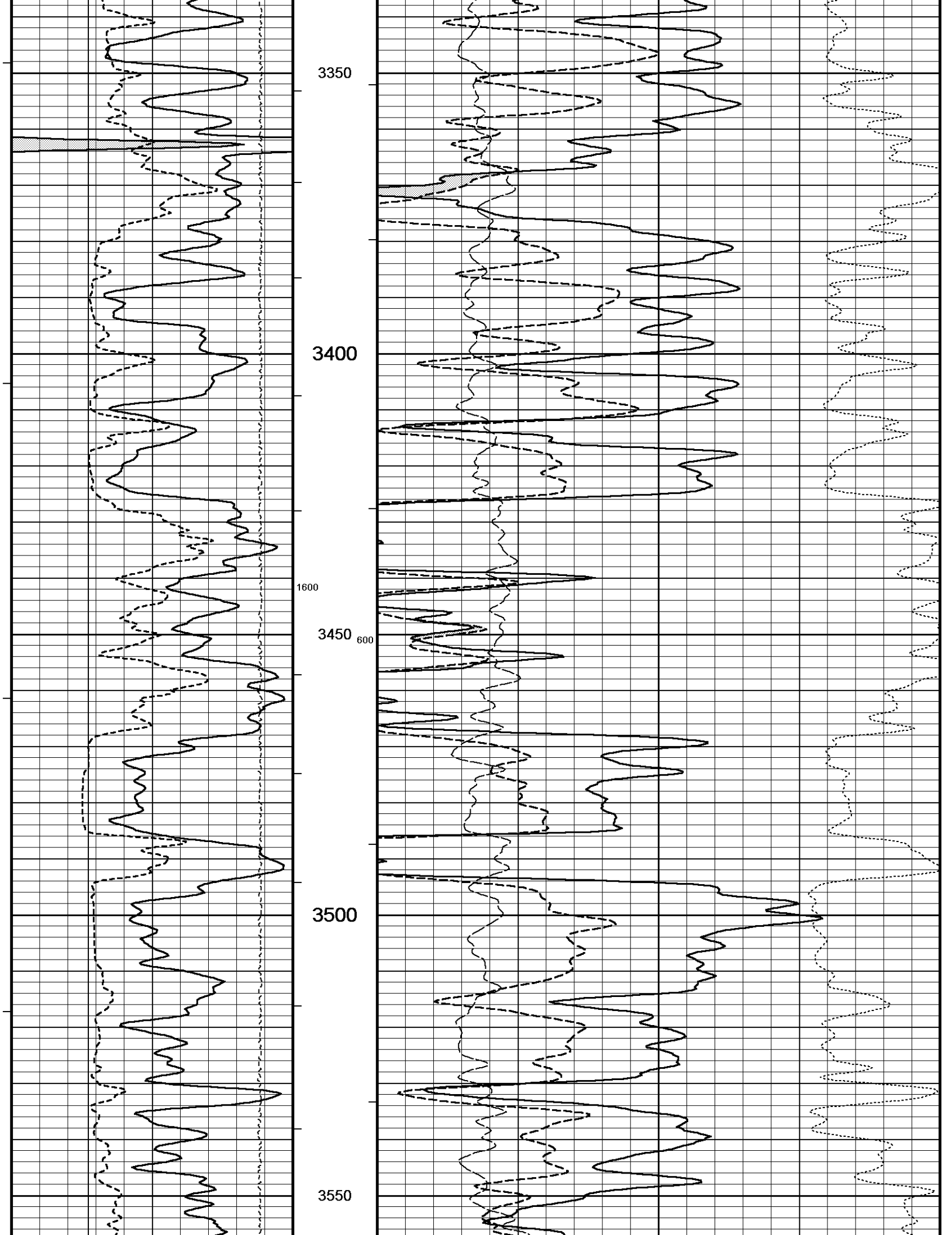


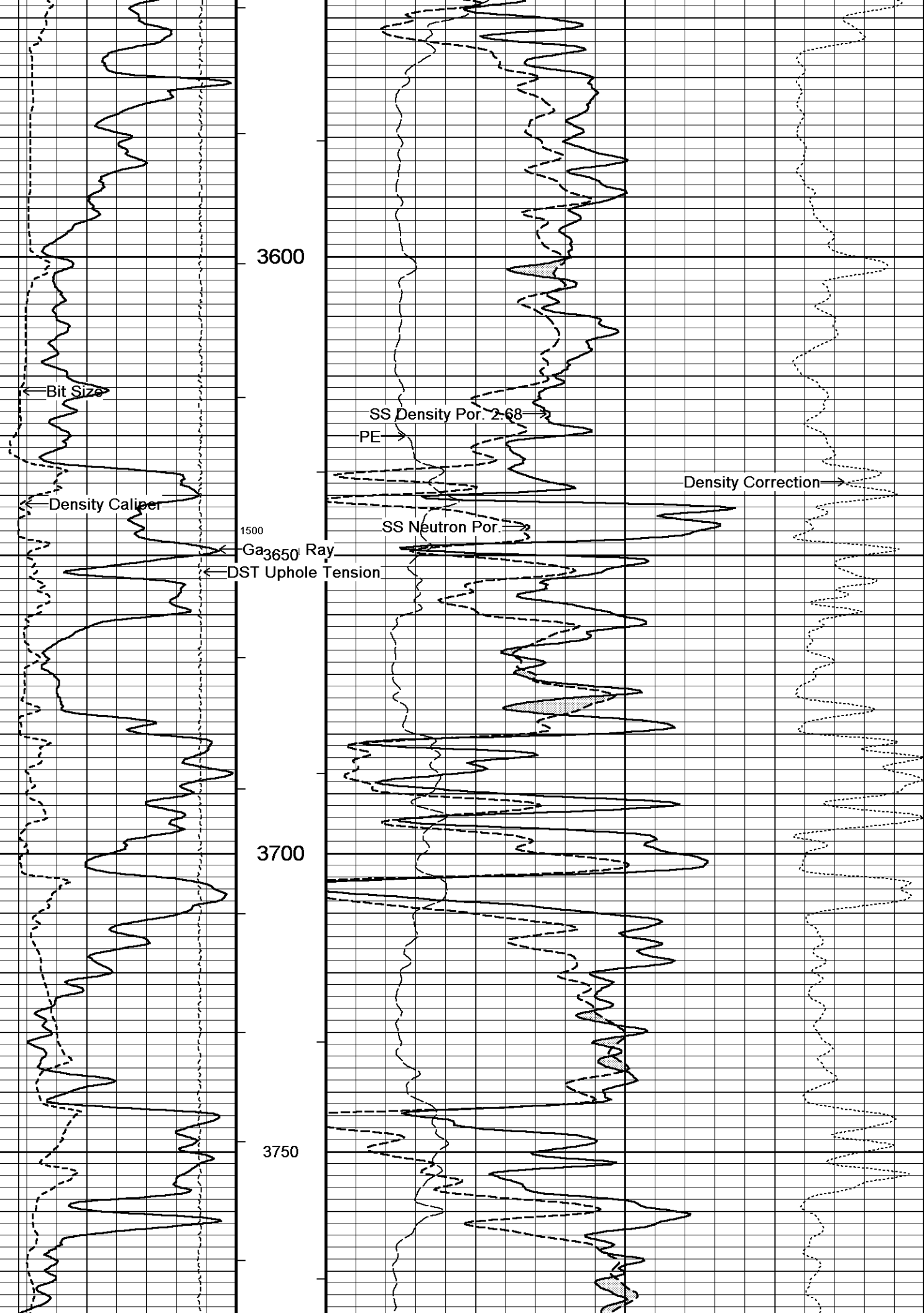


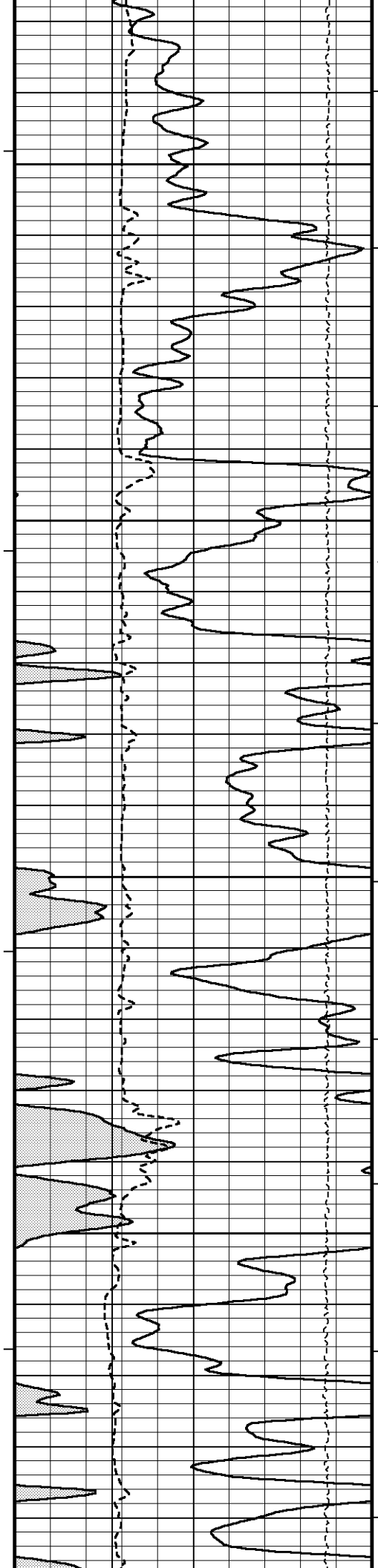












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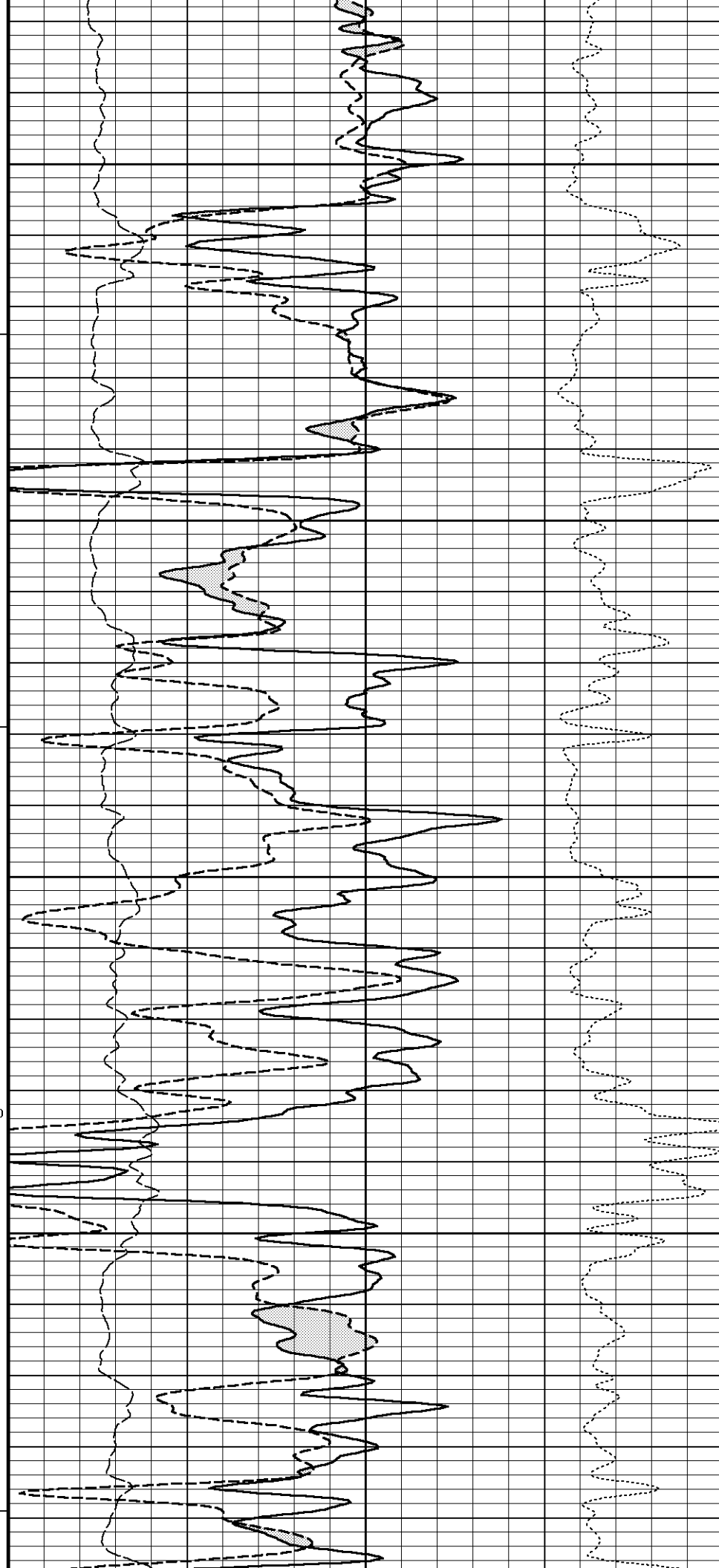
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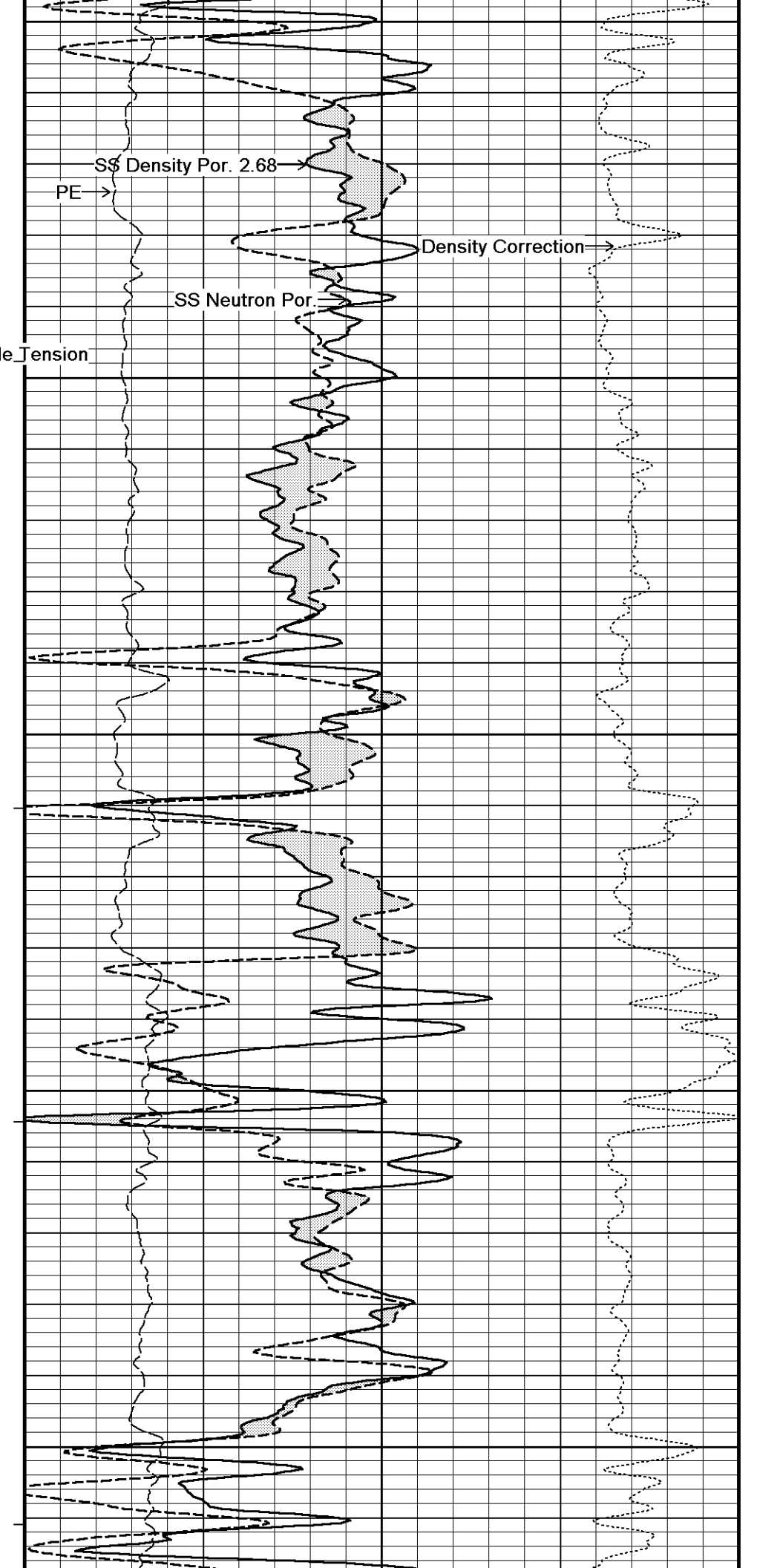
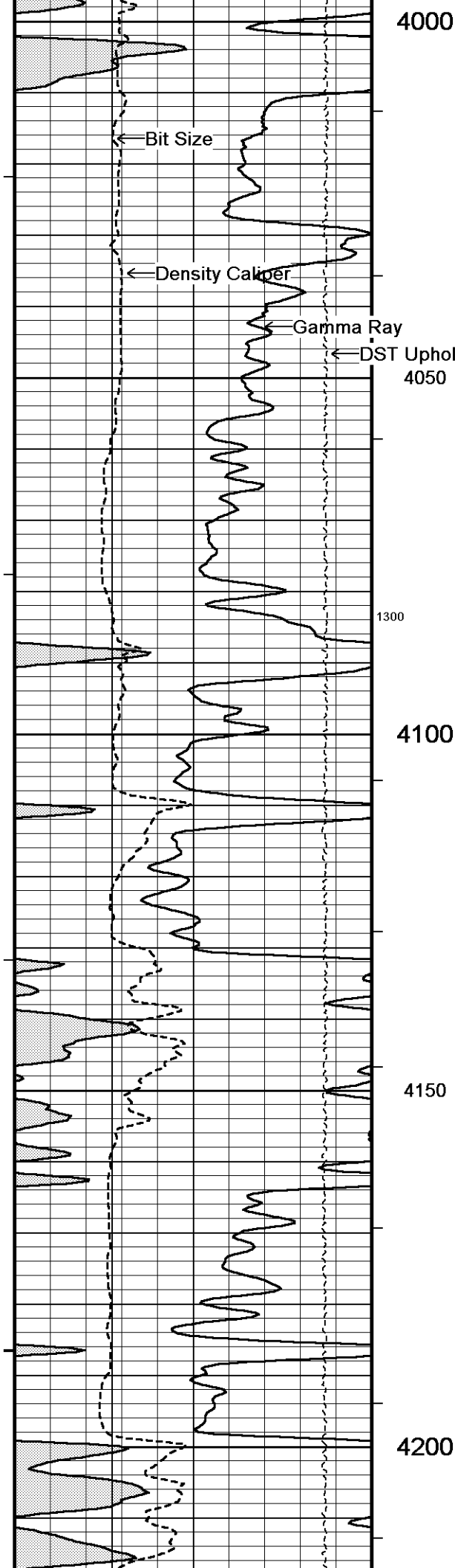
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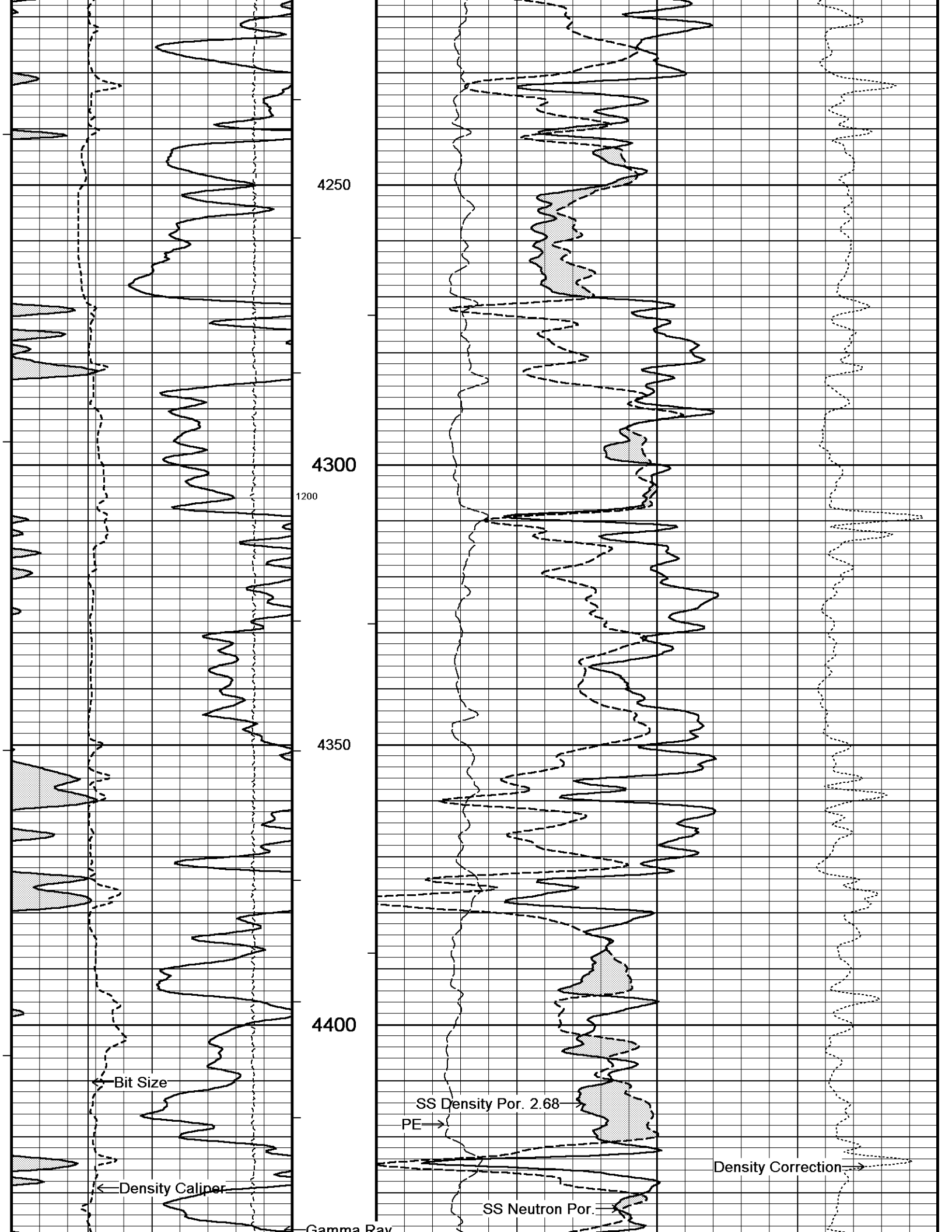
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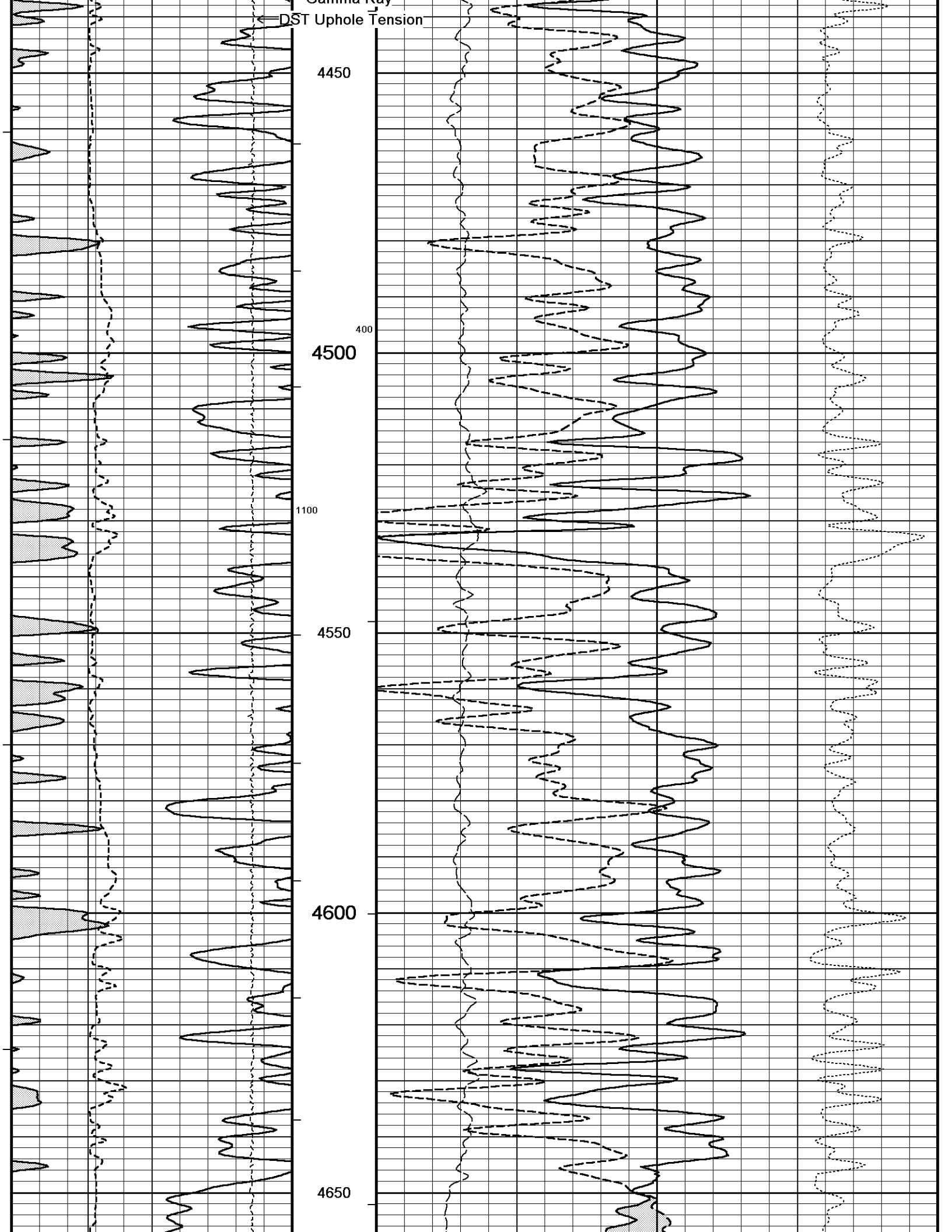
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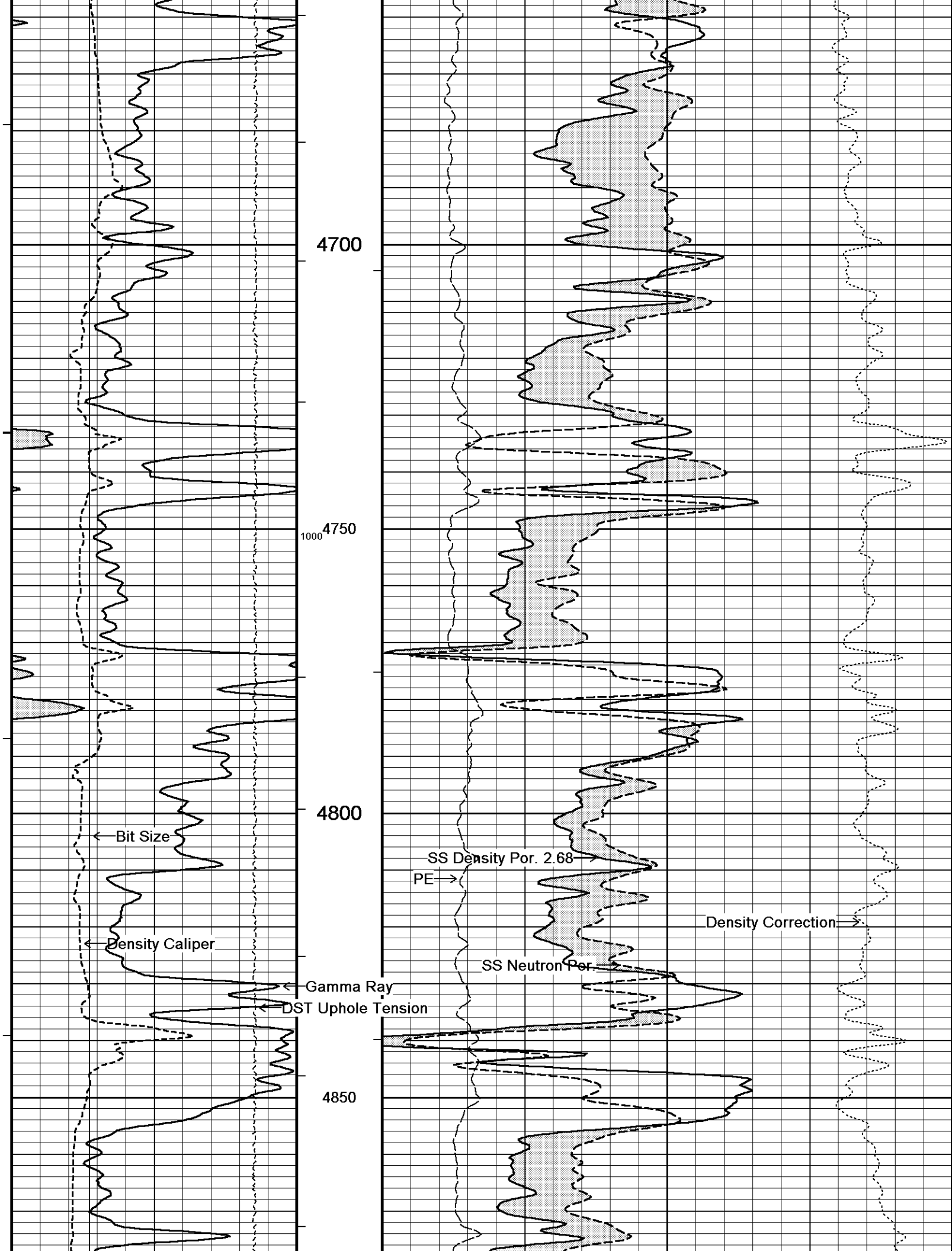
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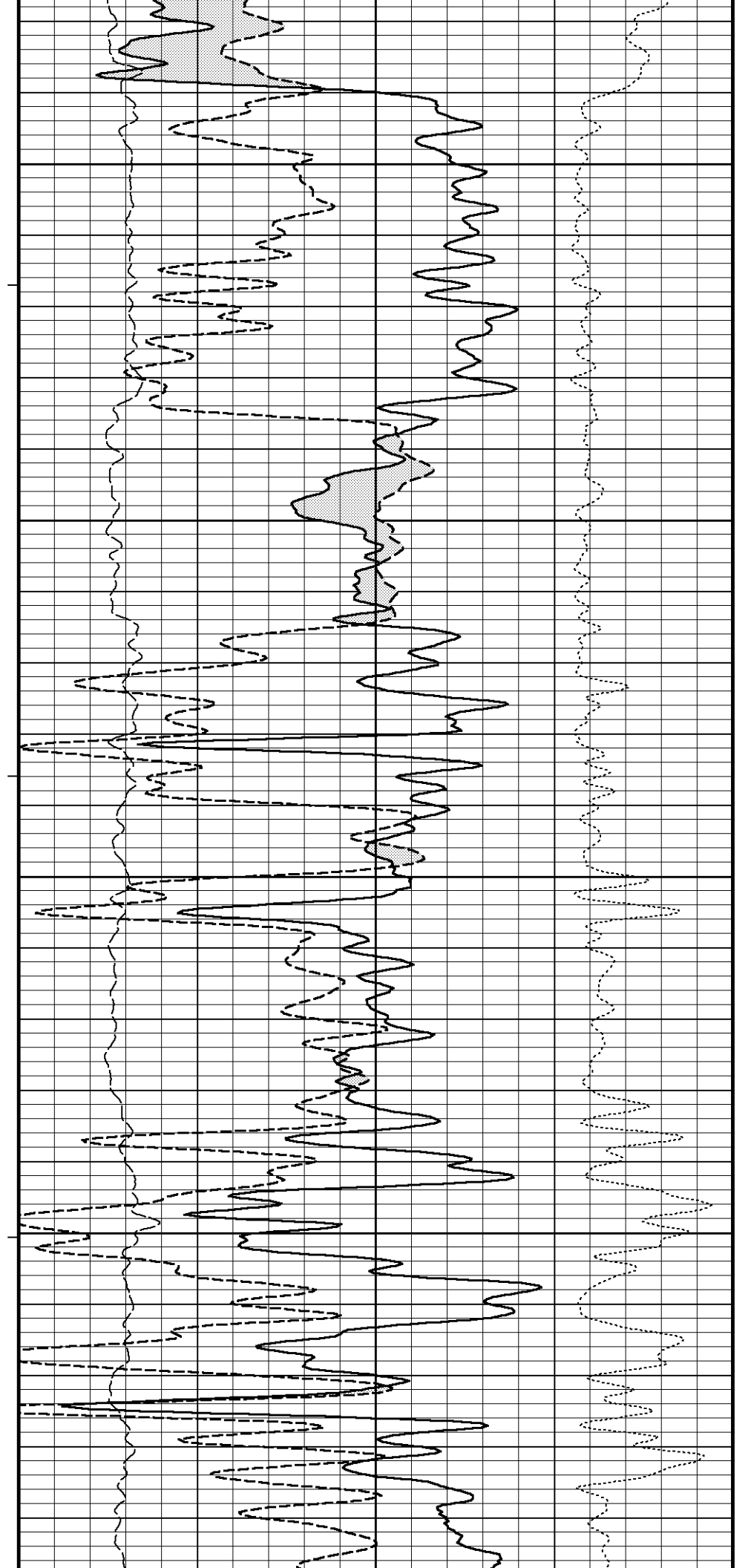
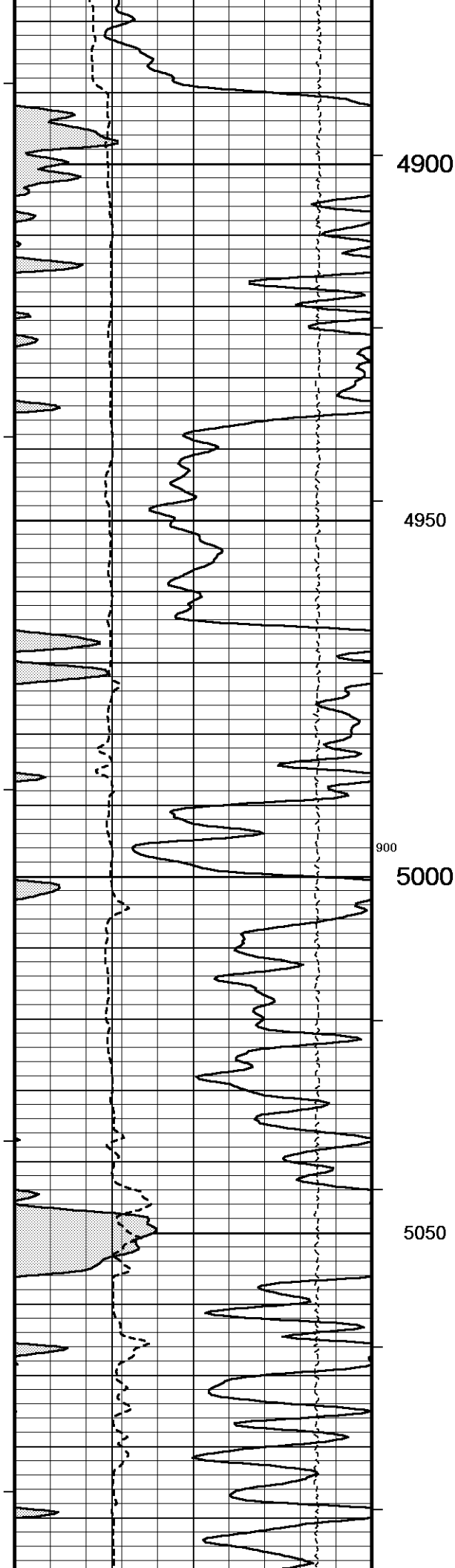


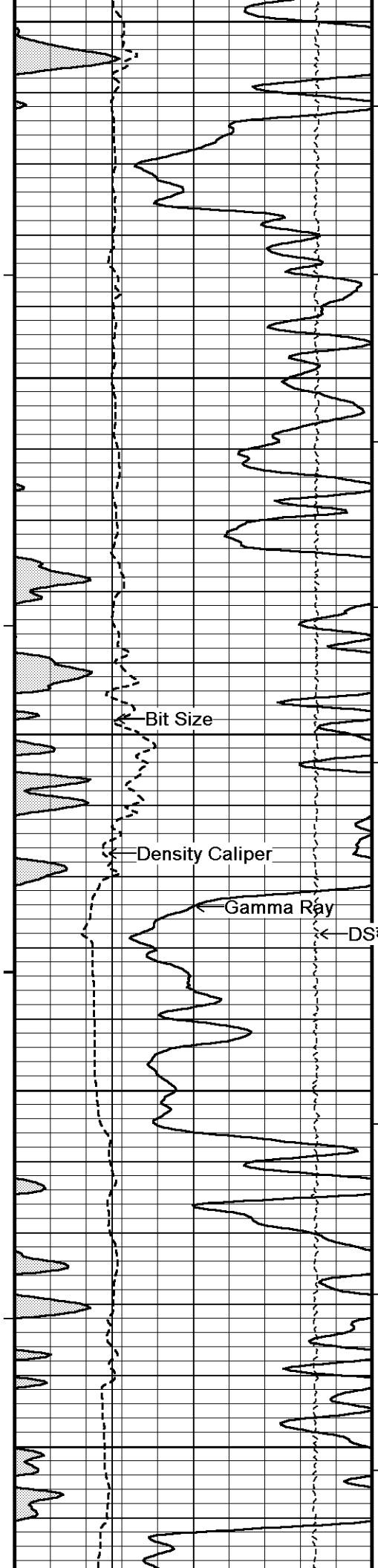












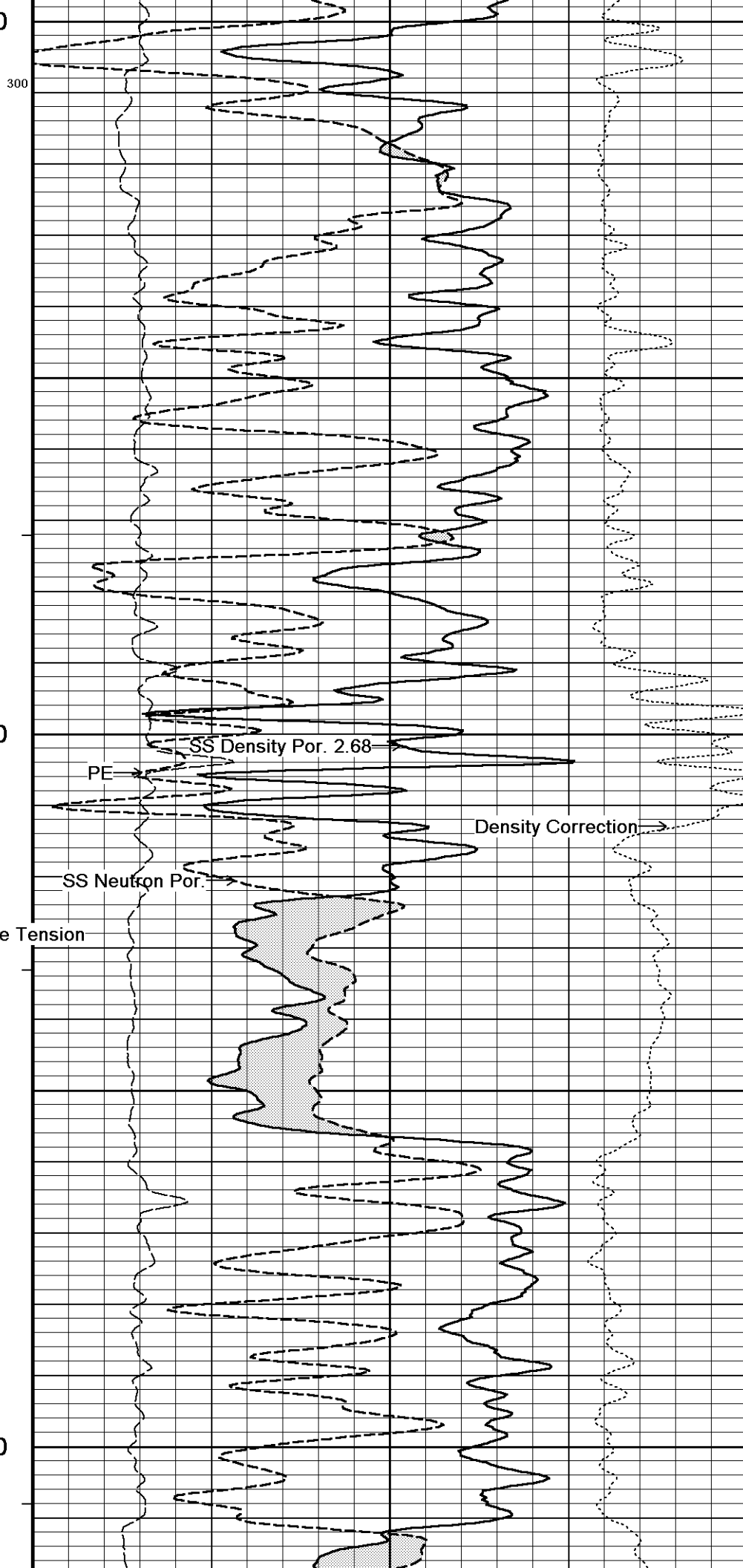
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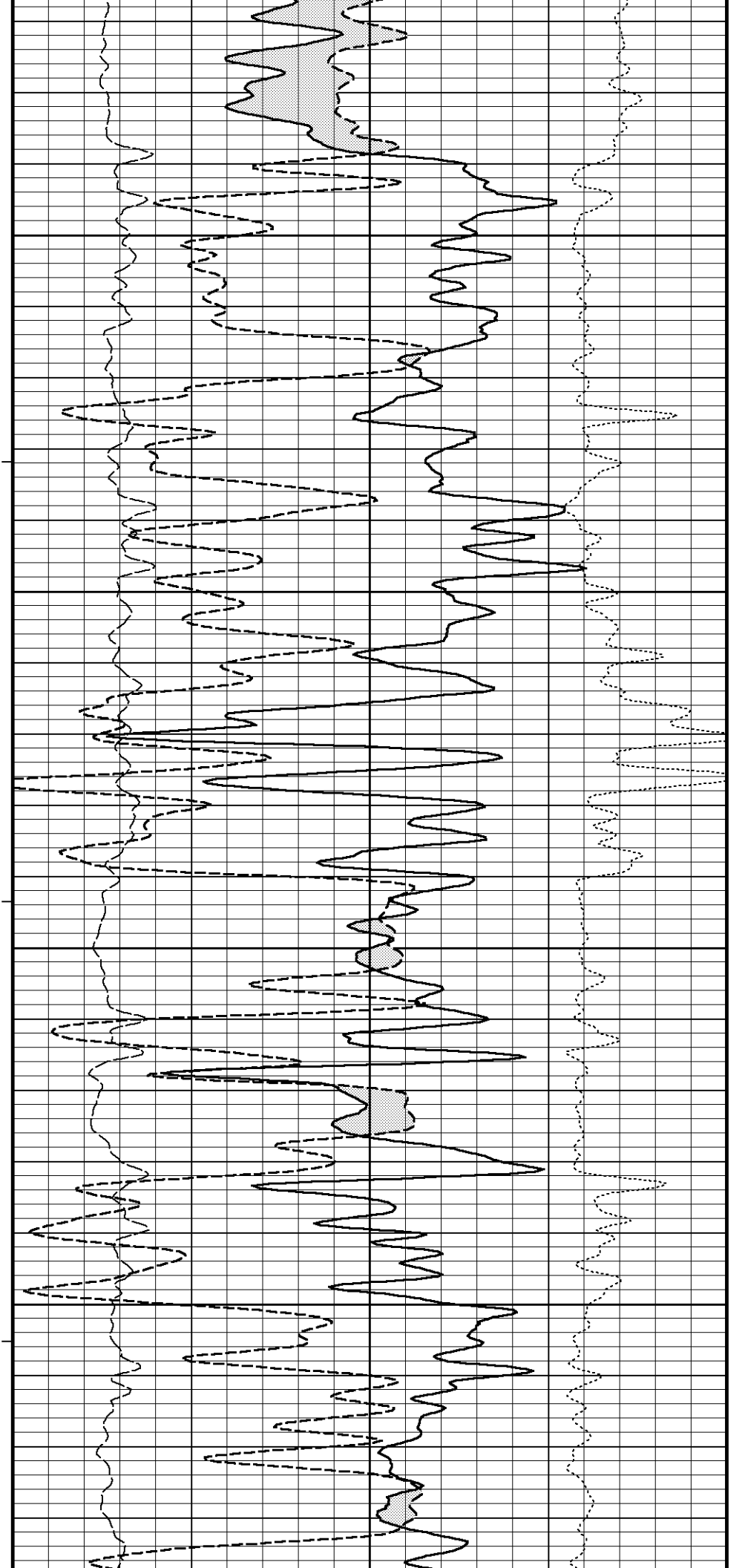
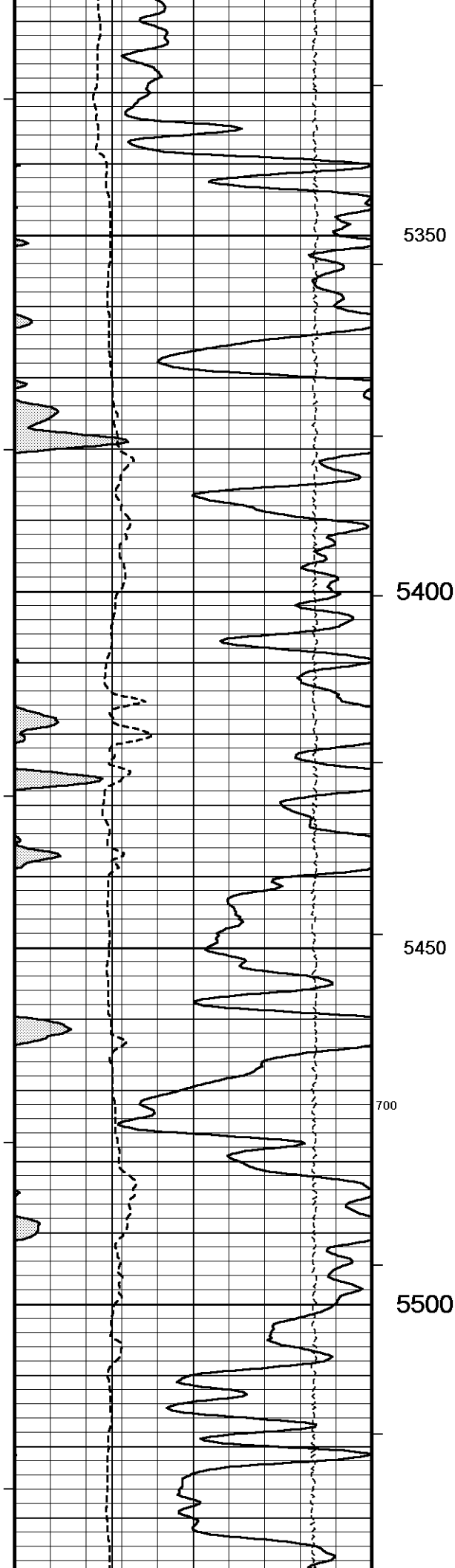
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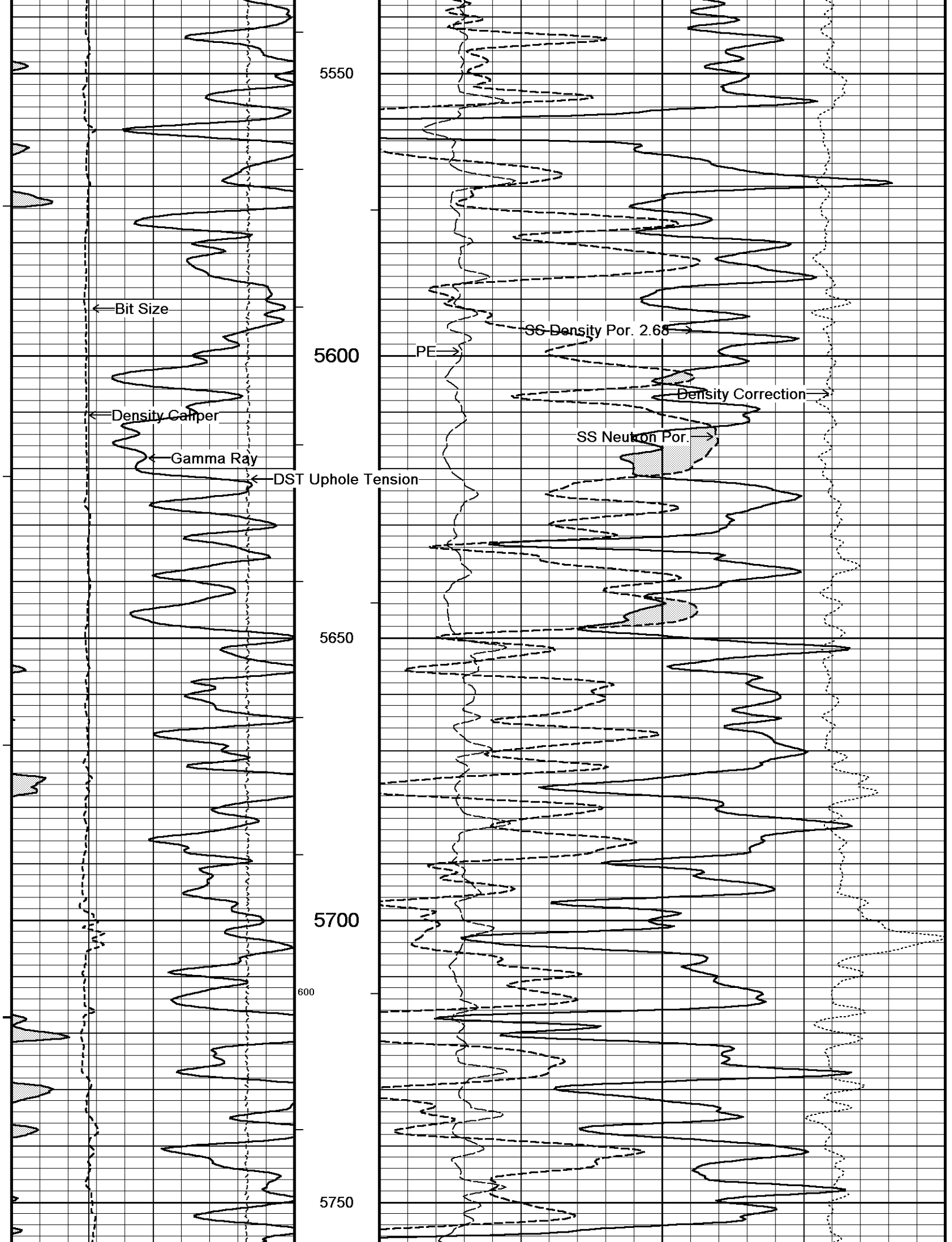
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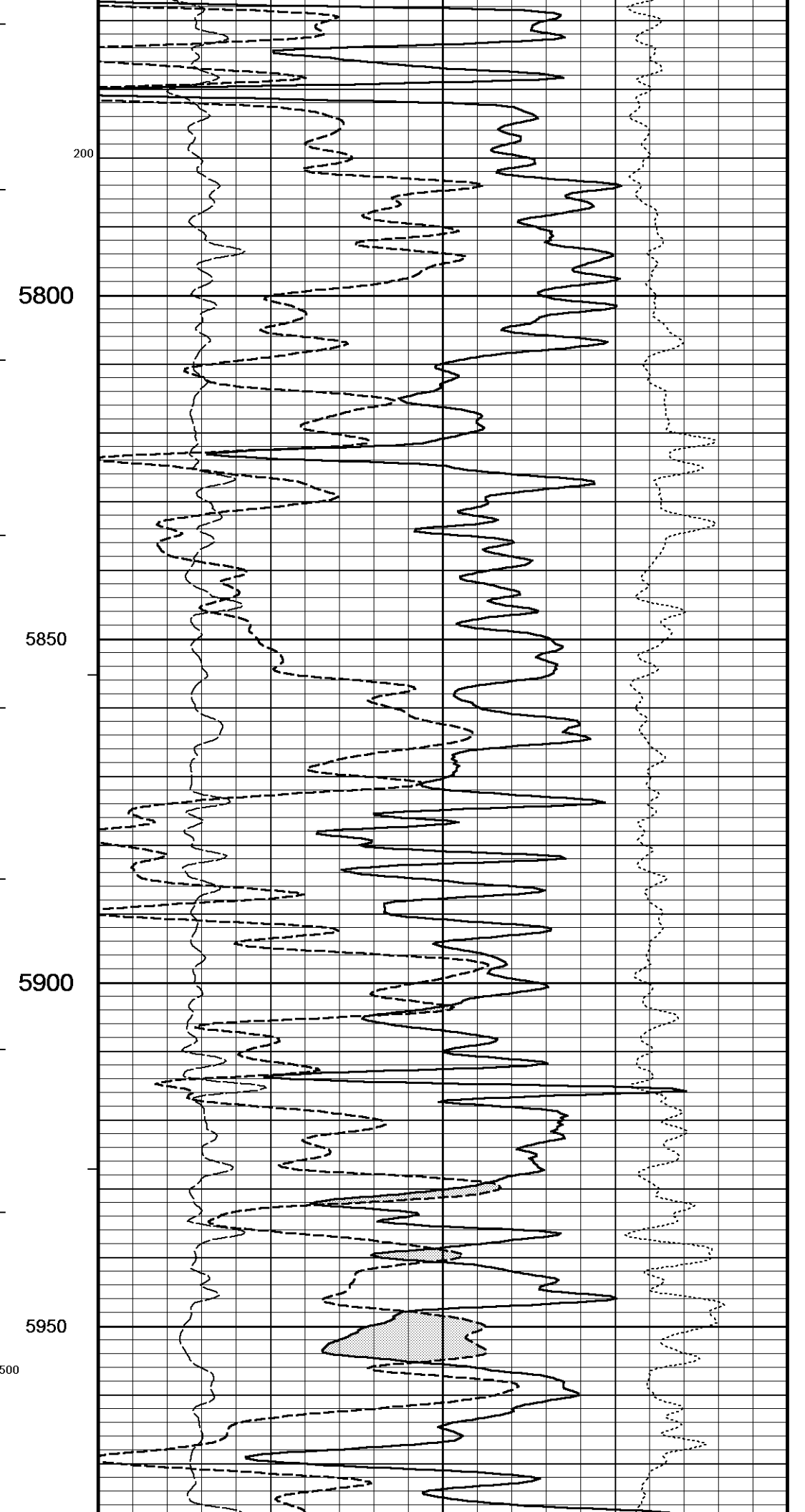
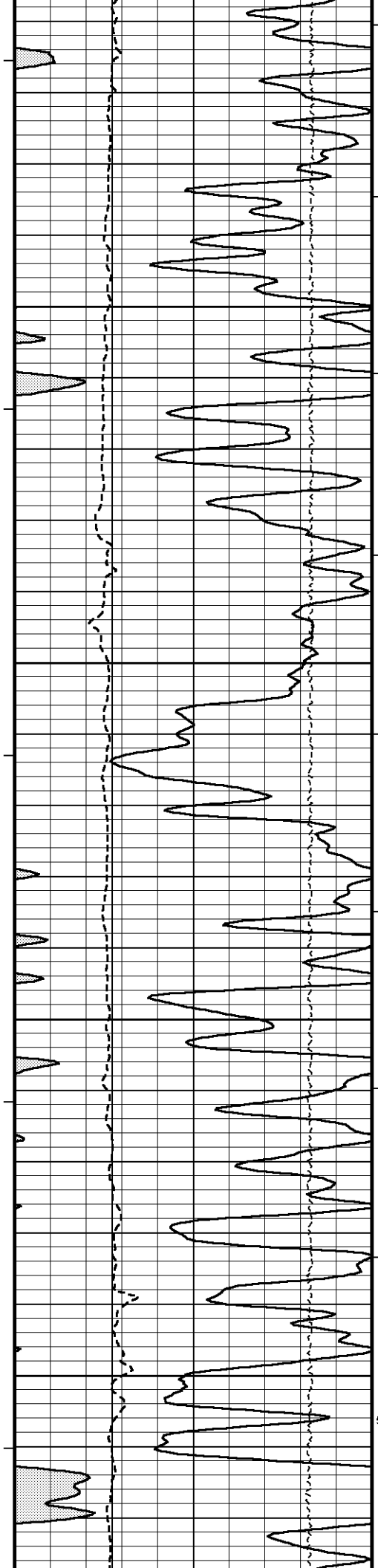
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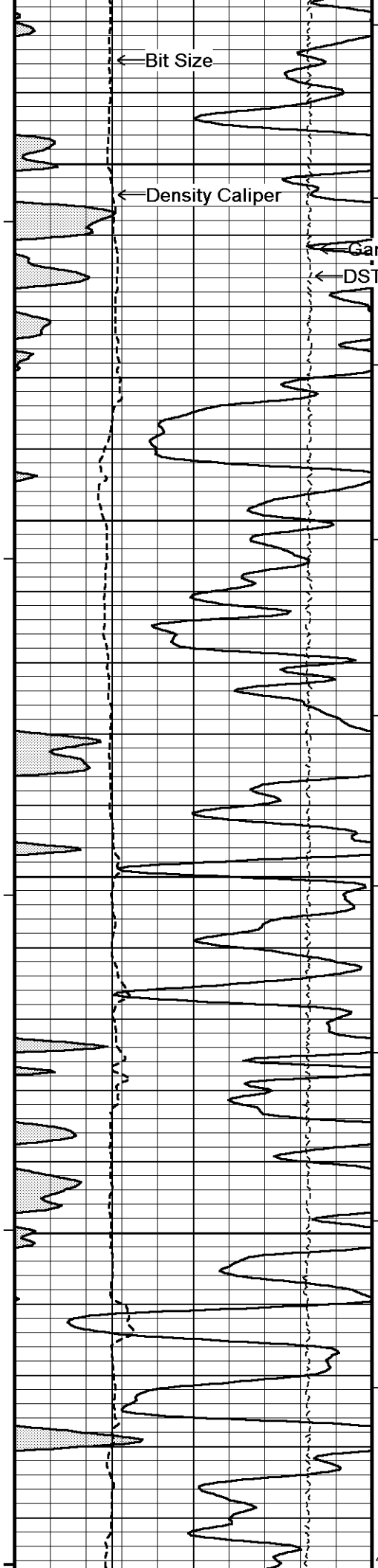
5300











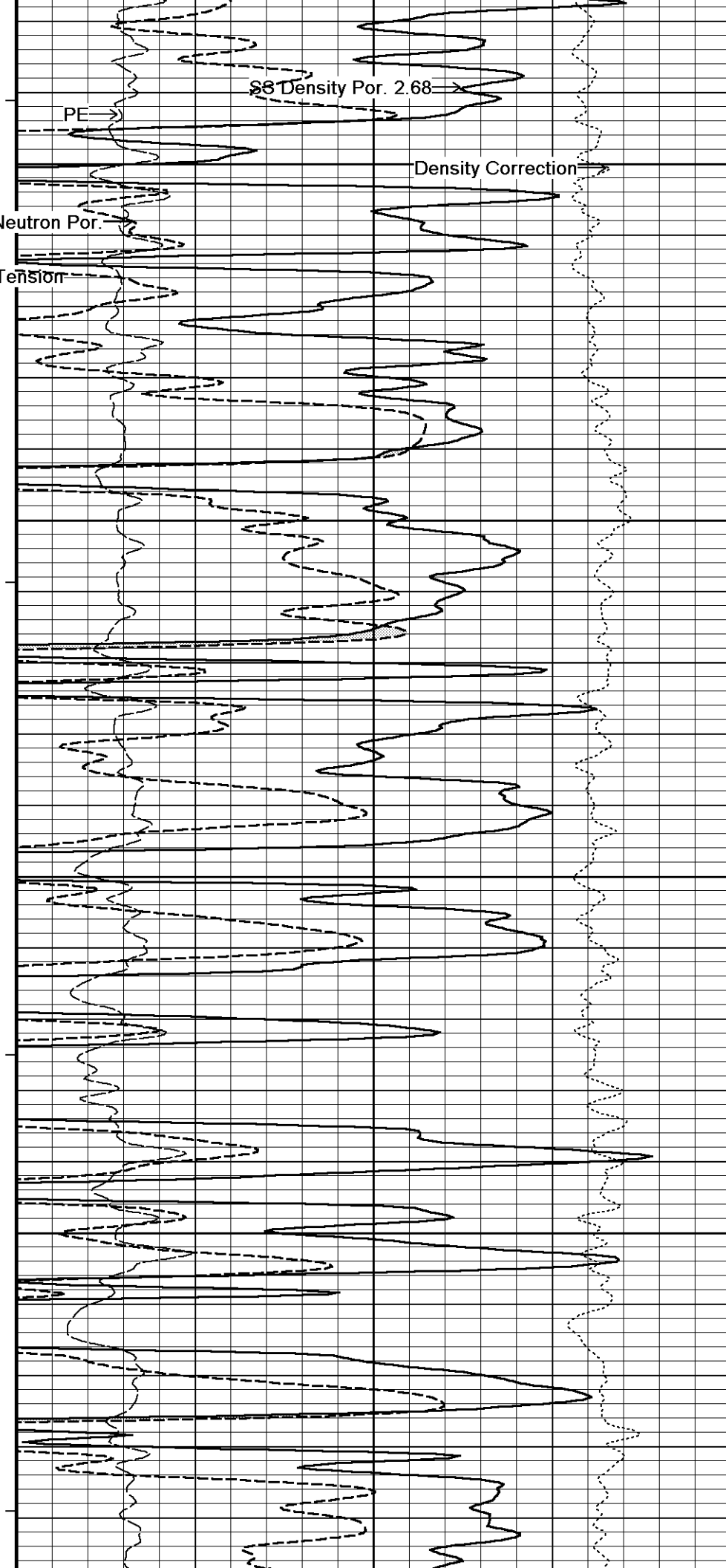
6000

6050

6100

6150

400



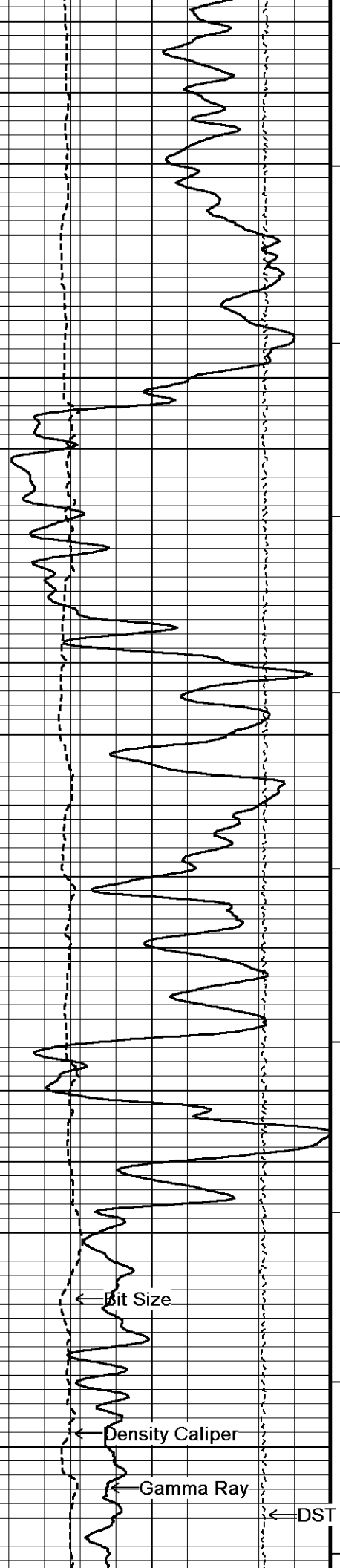
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6250

6300

6350

6400

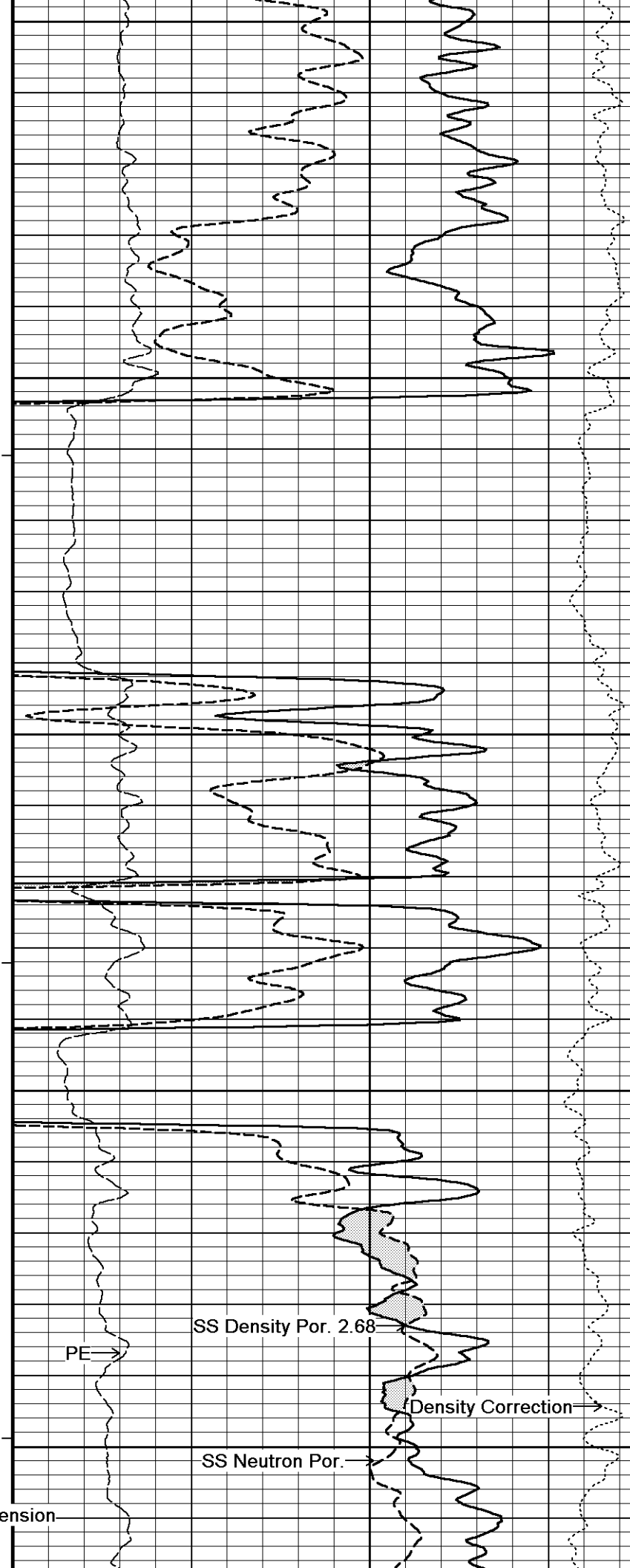


Bit Size

Density Caliper

Gamma Ray

DST Uphole Tension

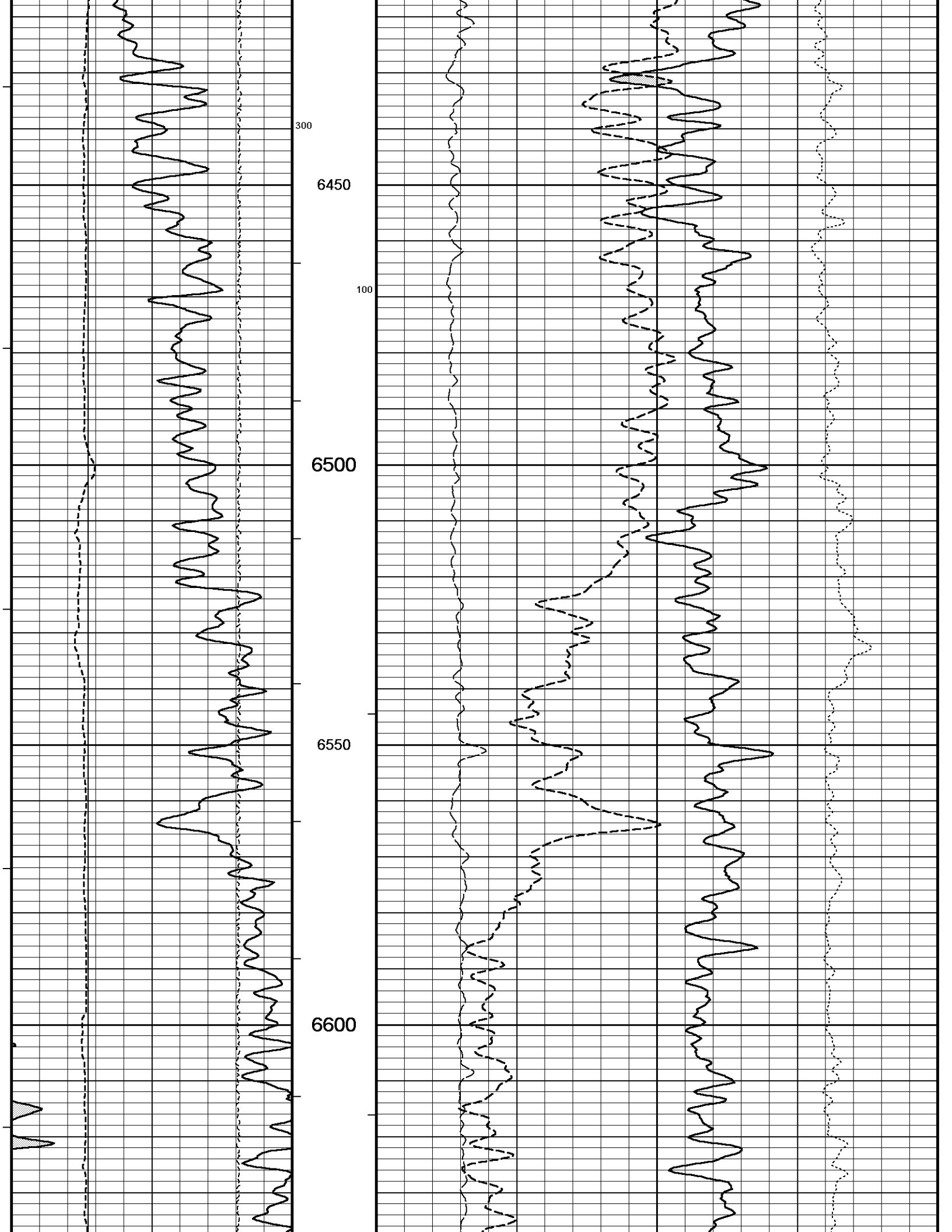


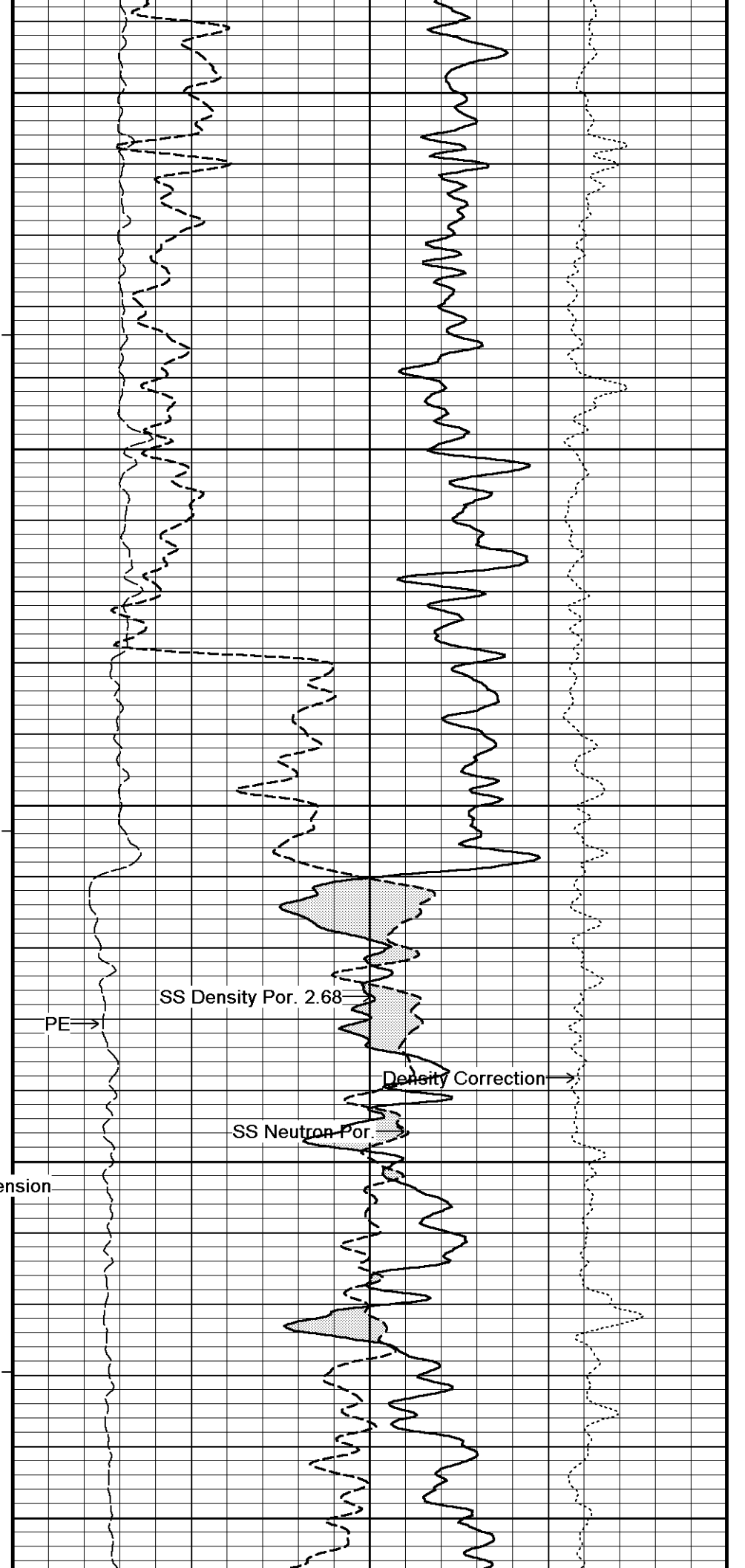
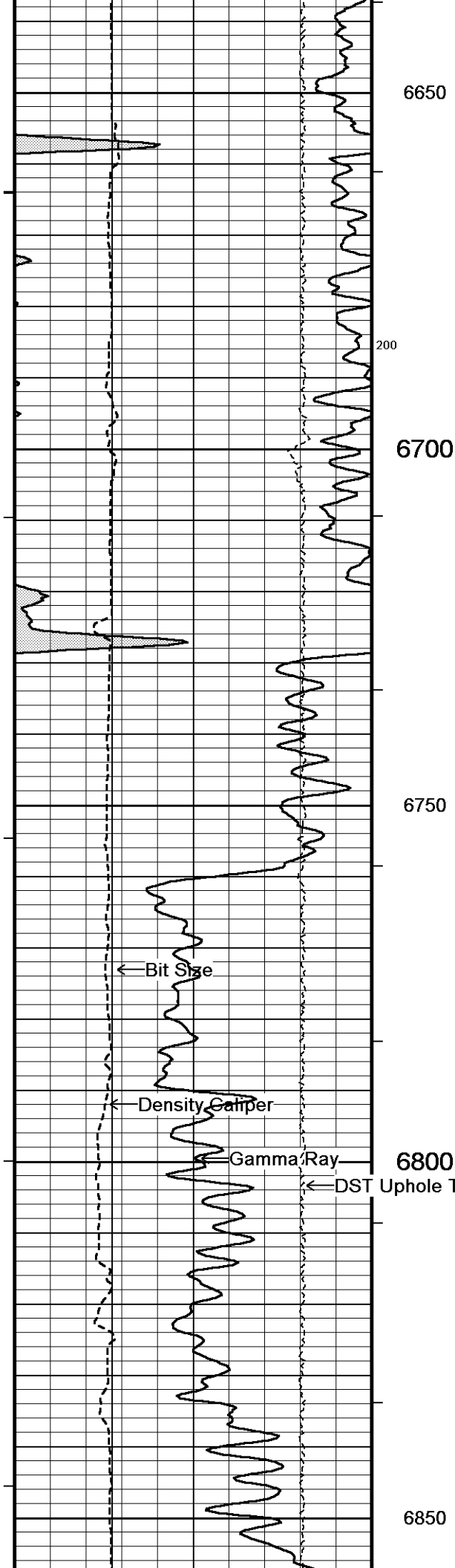
PE

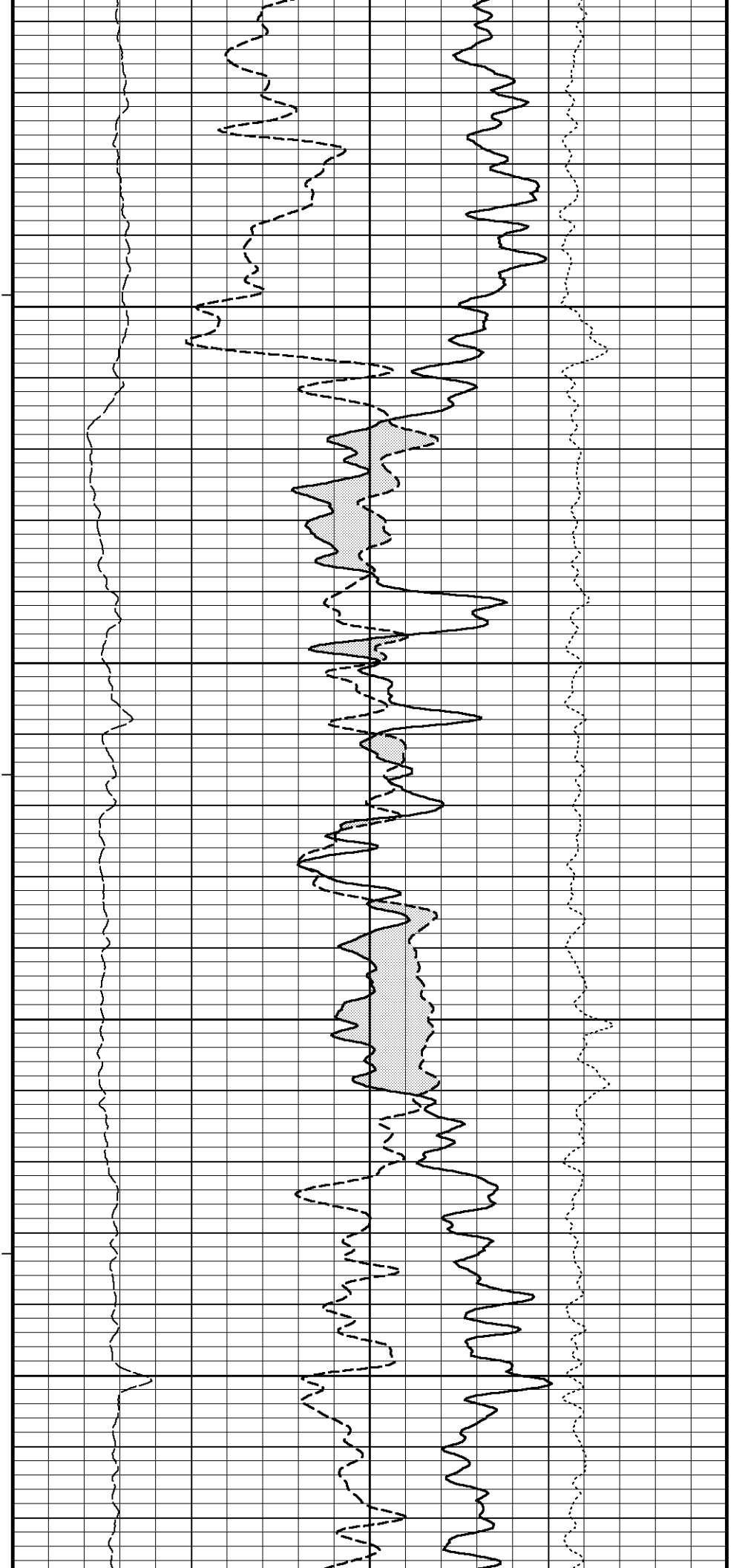
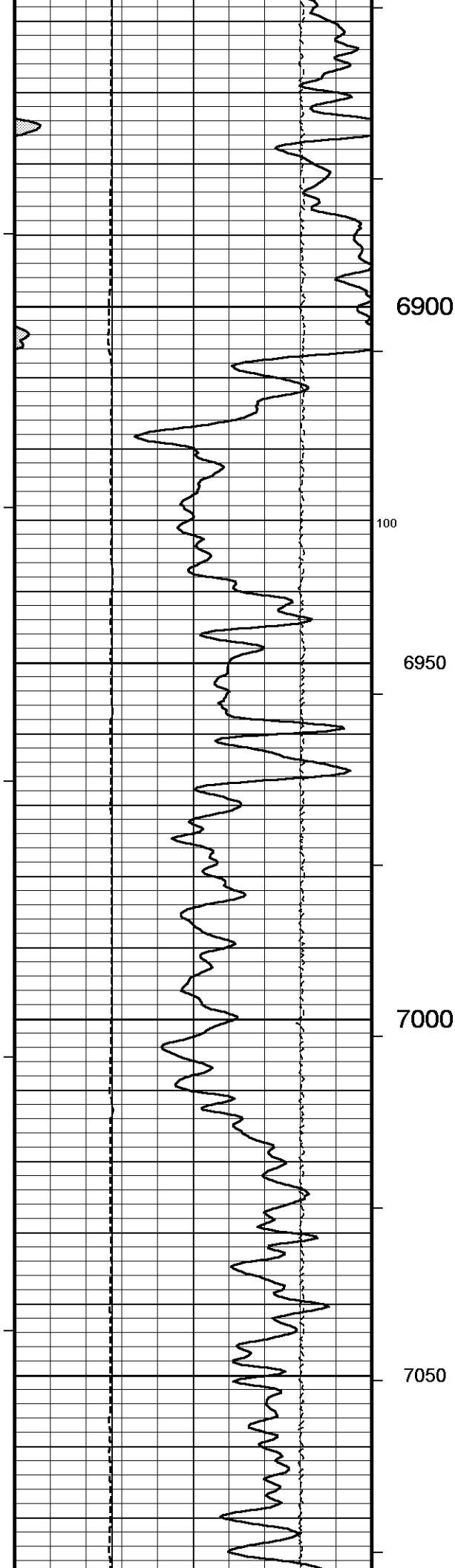
SS Density Por. 2.68

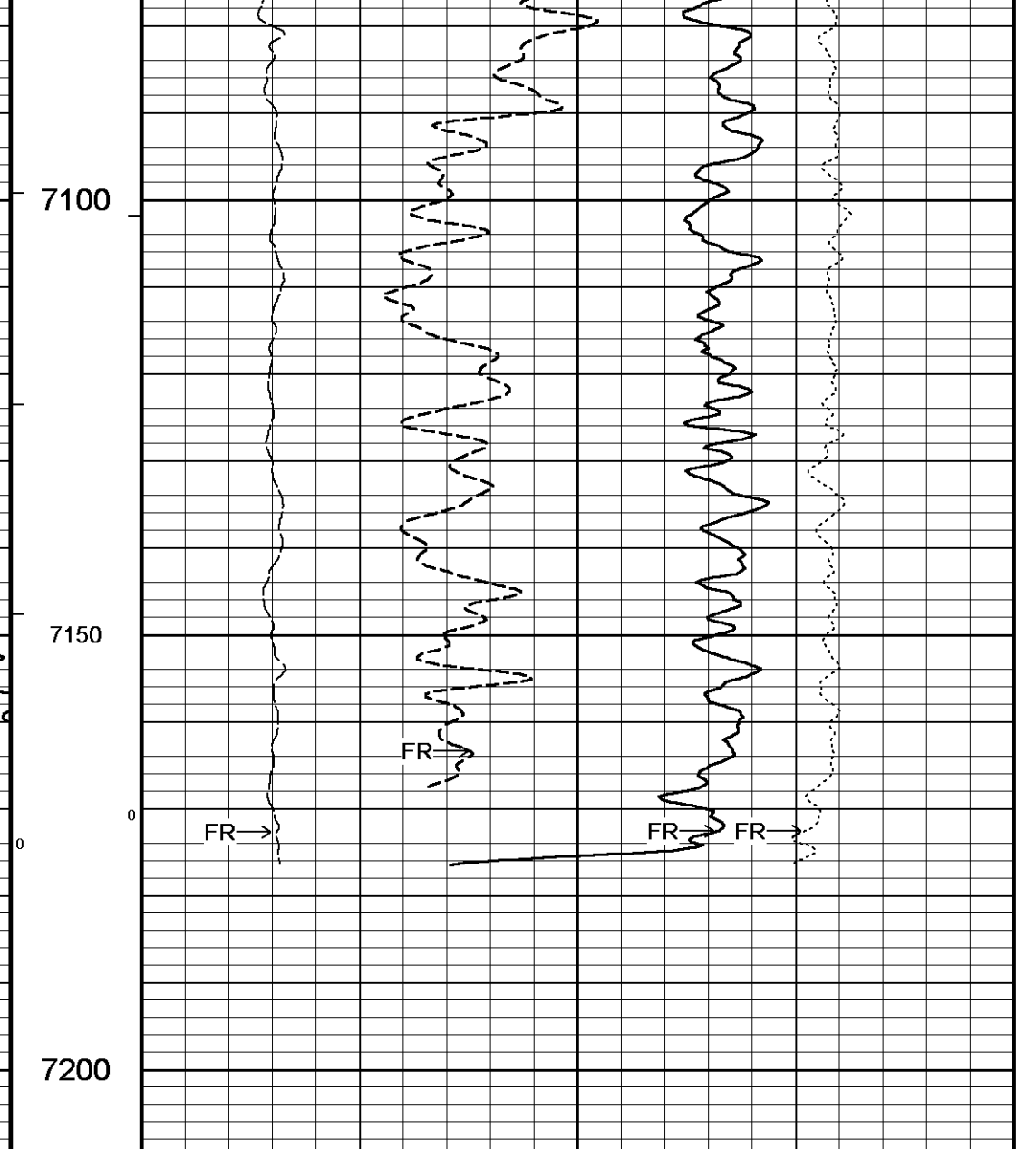
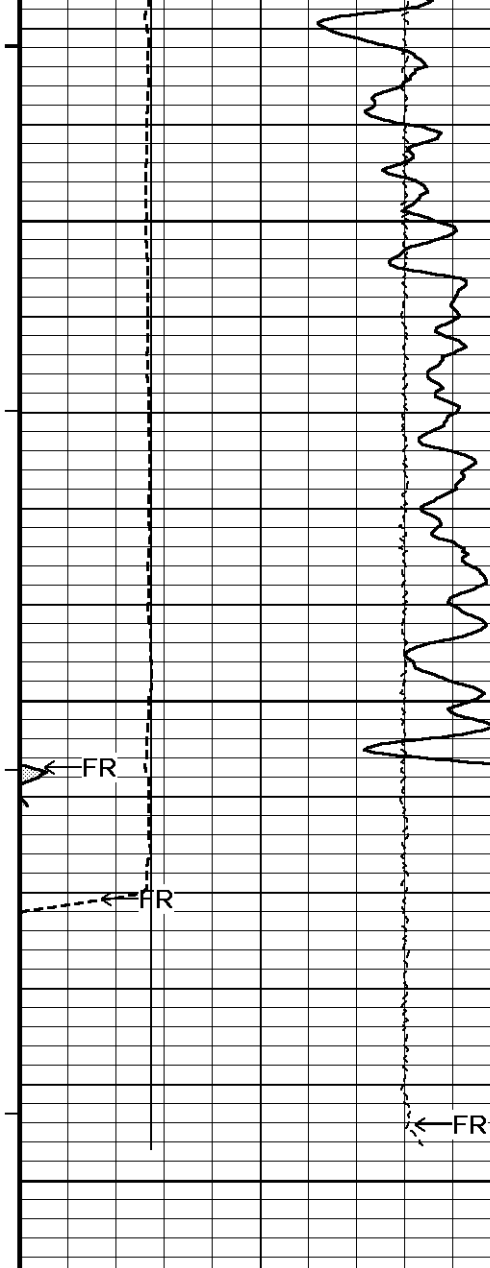
SS Neutron Por.

Density Correction









7100

7150

7200

DSC
in
Feet

Timing Marks
every 60.0 sec

DST Uphole Tension(SMTU)
pounds

10000 5000 0

HVI
every
10 cu ft

Gamma Ray(GRGC)

0 75 150
150 225 300

Annular
Integral
every
10 cu ft

Density Caliper(CLDC)
inches

6 11 16

Bit Size(BIT)

SS Neutron Por.(NPRS)
percent

30 20 10 0 -10

SS Density Por. 2.68(DPOR)
percent

30 20 10 0 -10

PE(PDPE)
barns/electron

0 5 10

Density Correction(DCOR)
grams/cc

-0.25 0 0.25

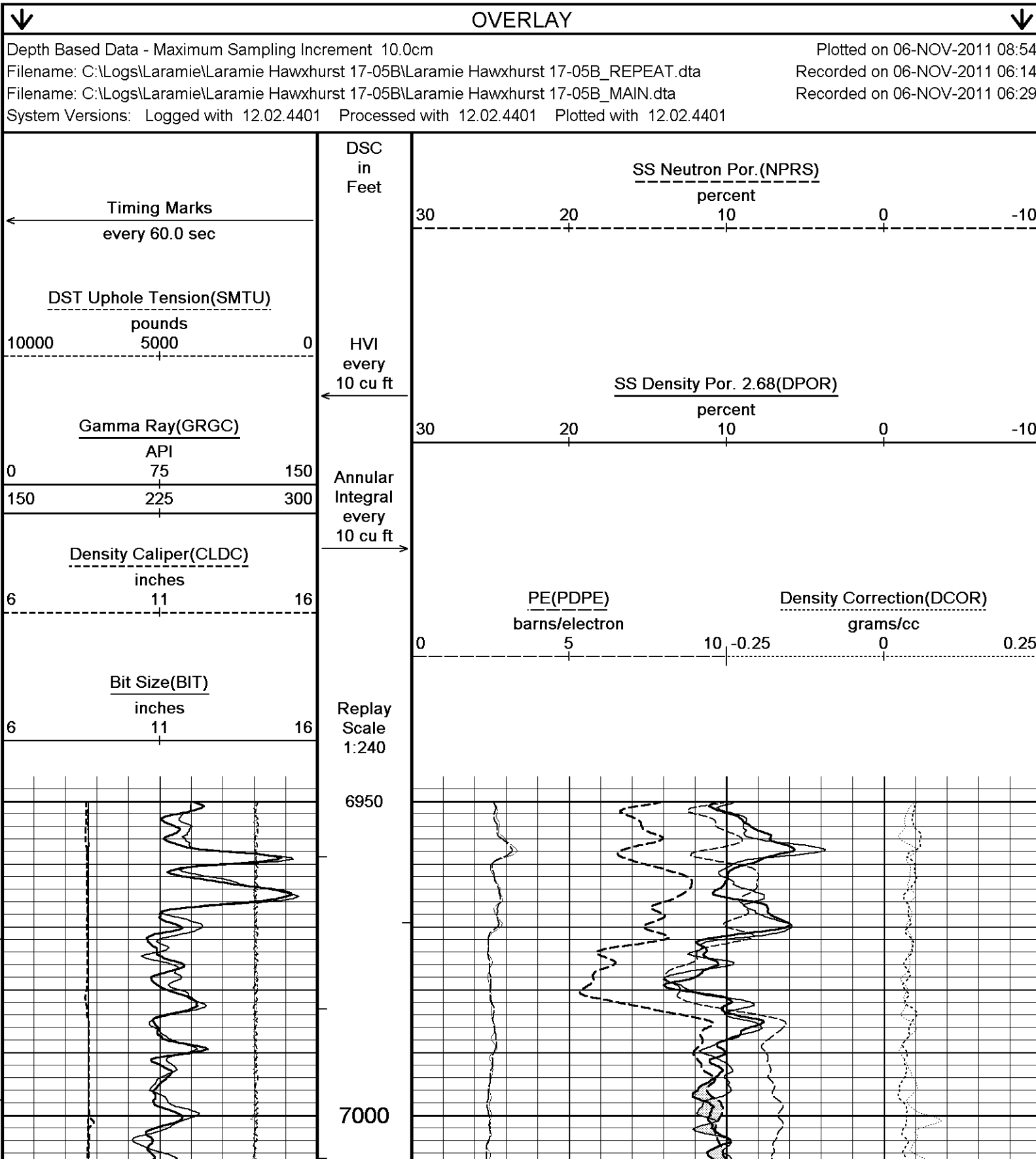
Bit Size(BIT)
inches
61116

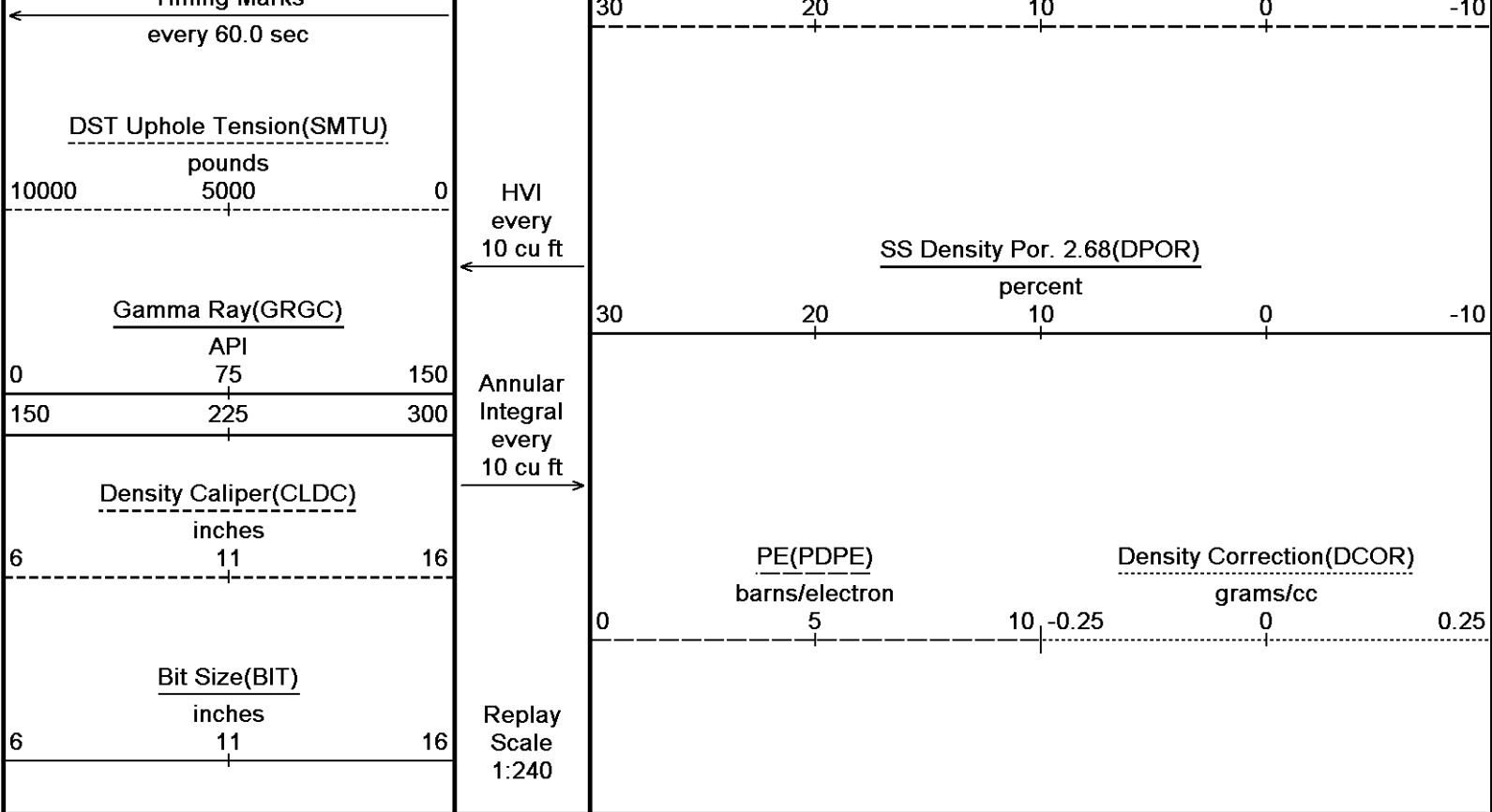
Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta
System Versions: Logged with 12.02.4401 Processed with 12.02.4401 Plotted with 12.02.4401

Plotted on 06-NOV-2011 08:54
Recorded on 06-NOV-2011 06:29

5 INCH MAIN LOG





Depth Based Data - Maximum Sampling Increment 10.0cm		Plotted on 06-NOV-2011 08:54
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_REPEAT.dta		Recorded on 06-NOV-2011 06:14
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta		Recorded on 06-NOV-2011 06:29
System Versions: Logged with 12.02.4401 Processed with 12.02.4401 Plotted with 12.02.4401		

↑

OVERLAY

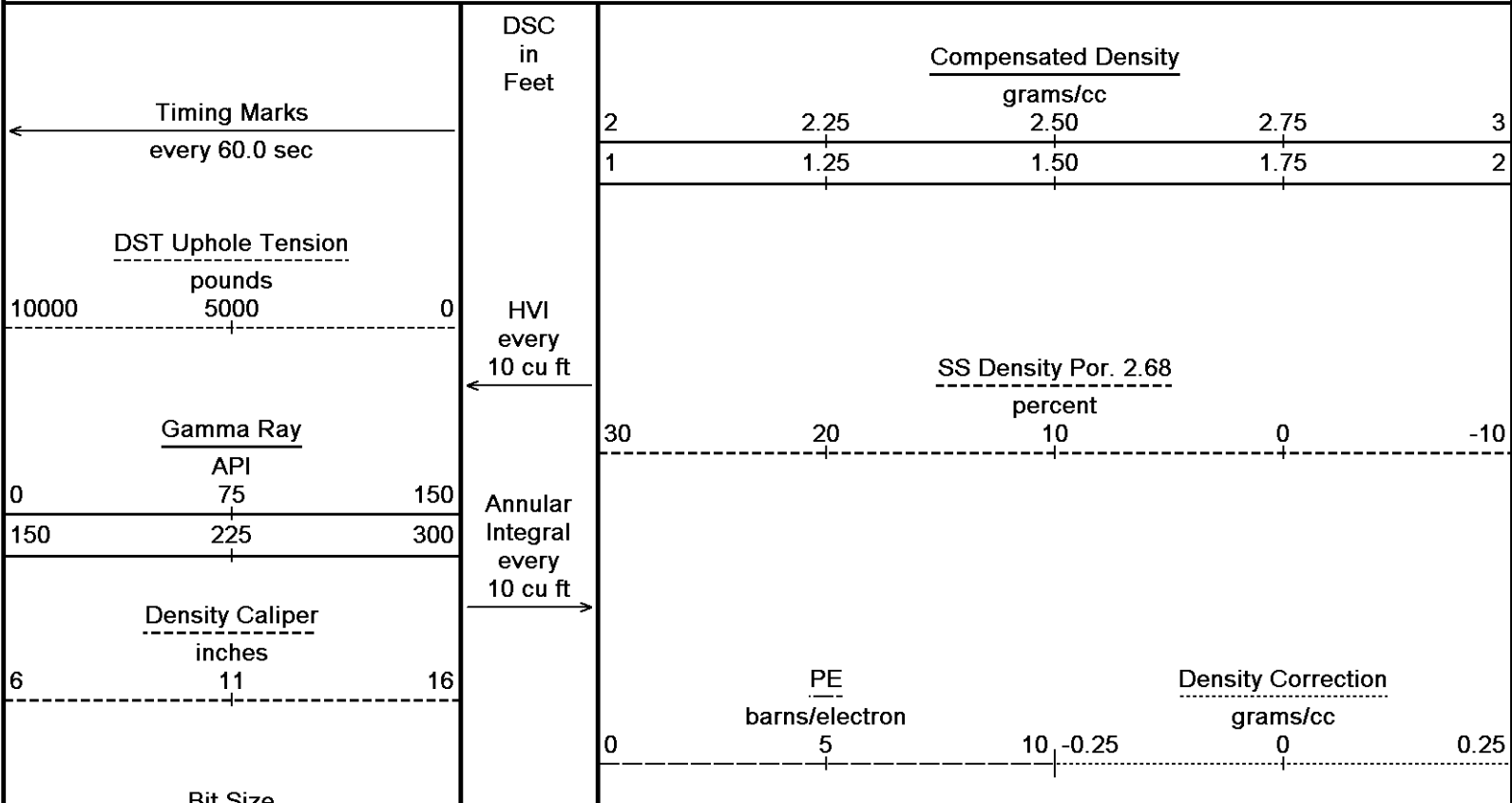
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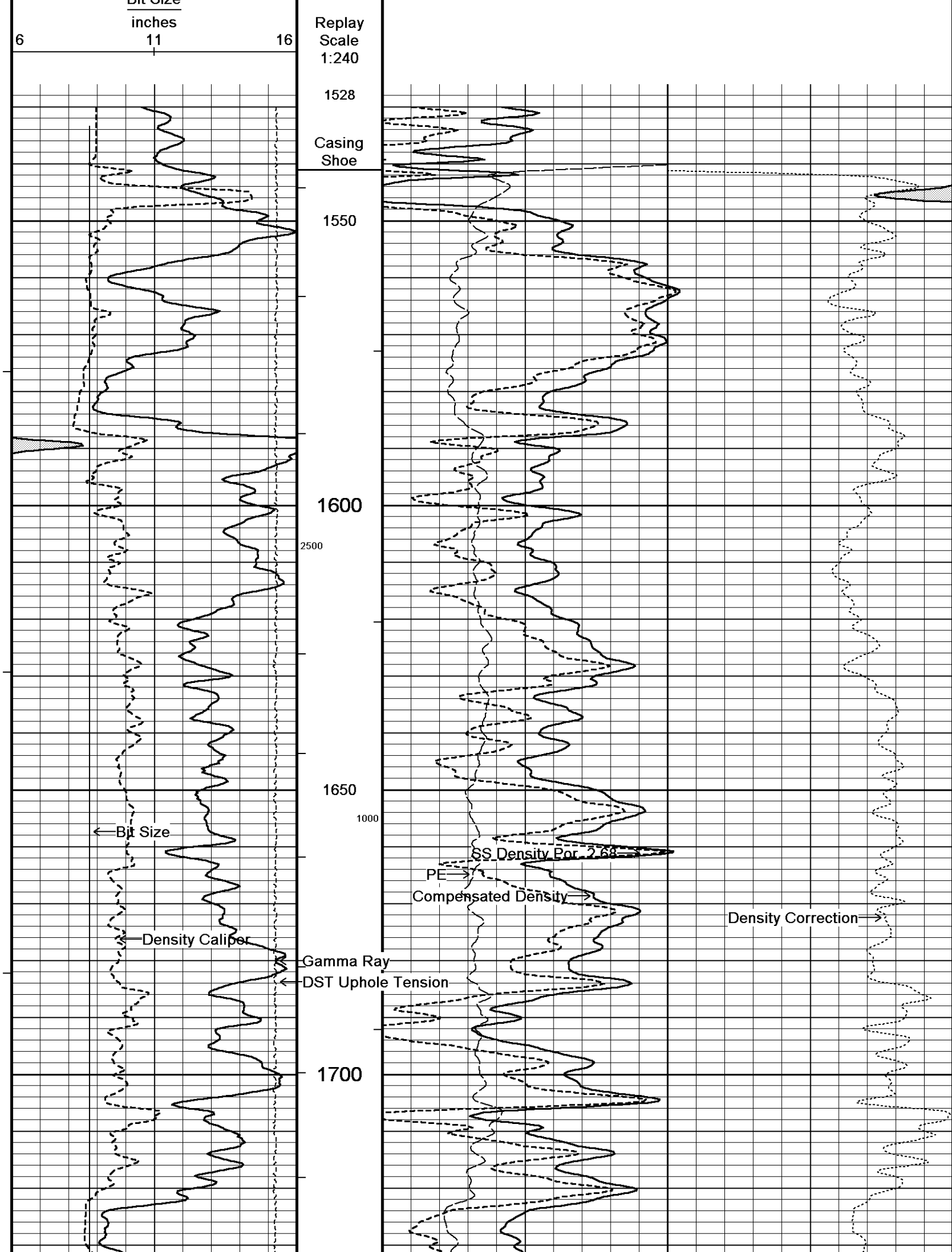
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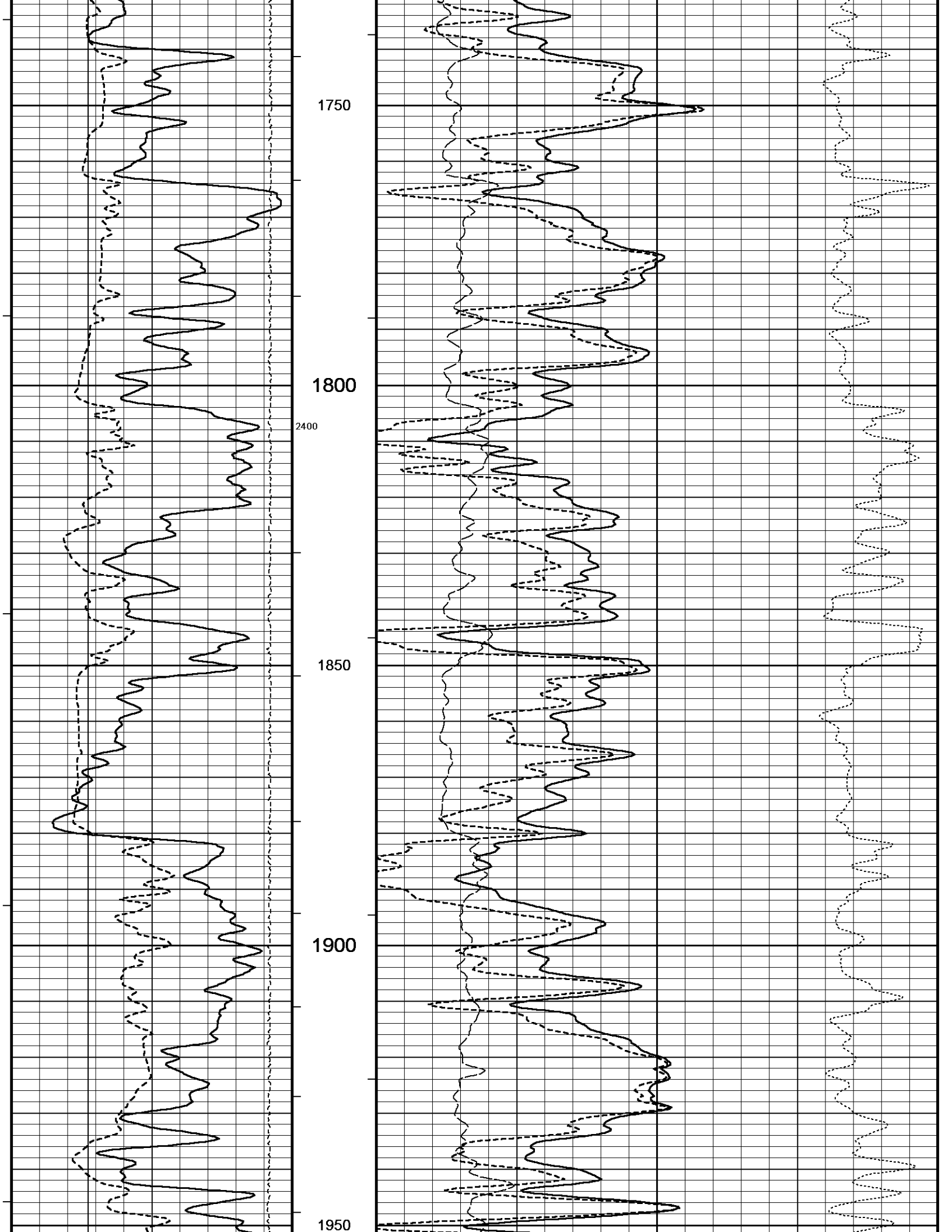
5 INCH MAIN LOG

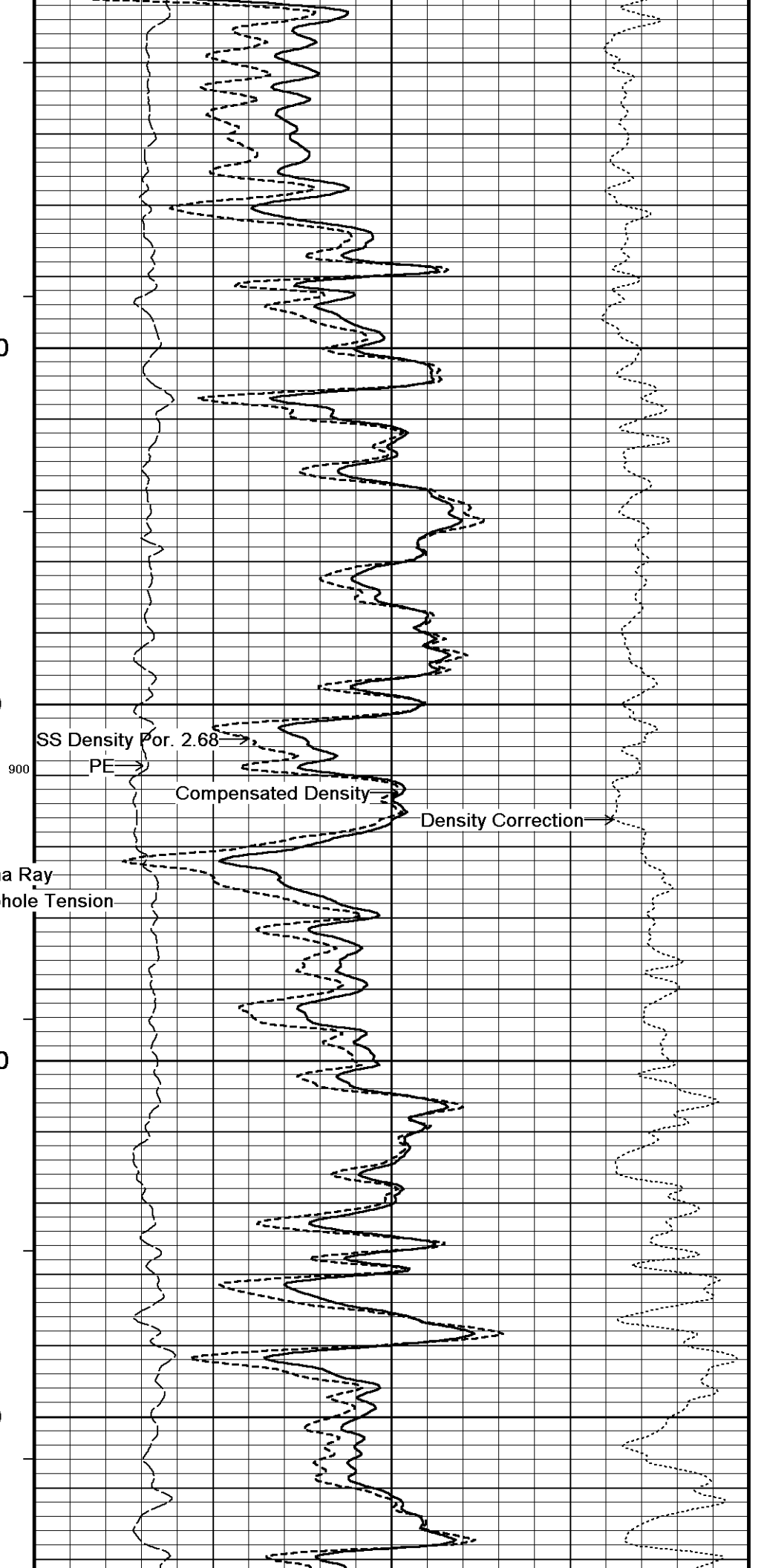
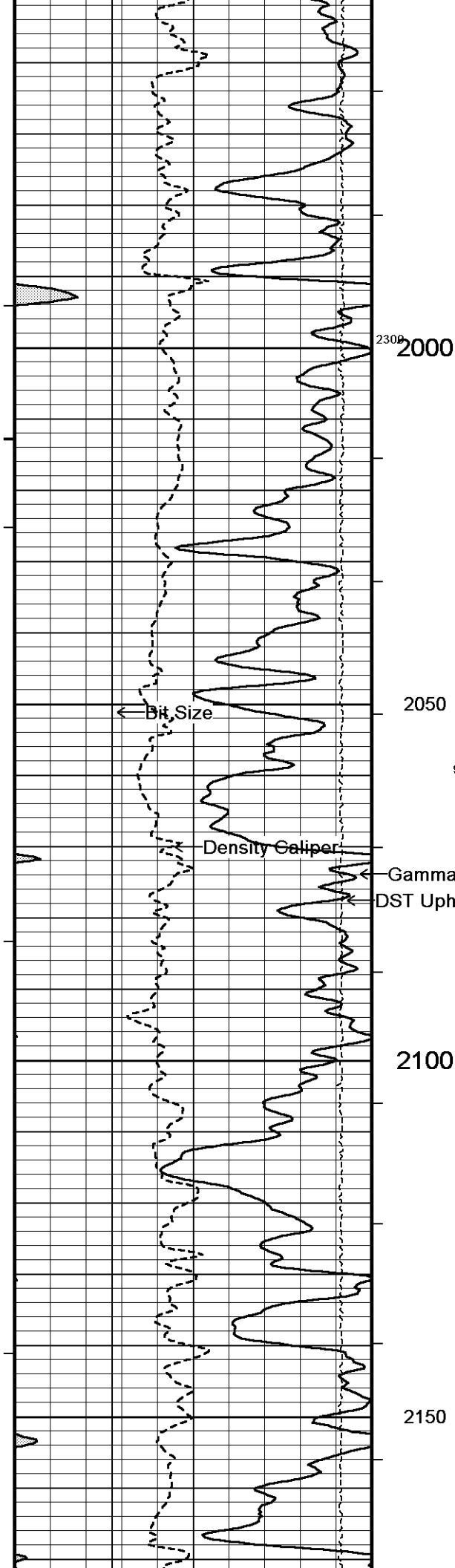
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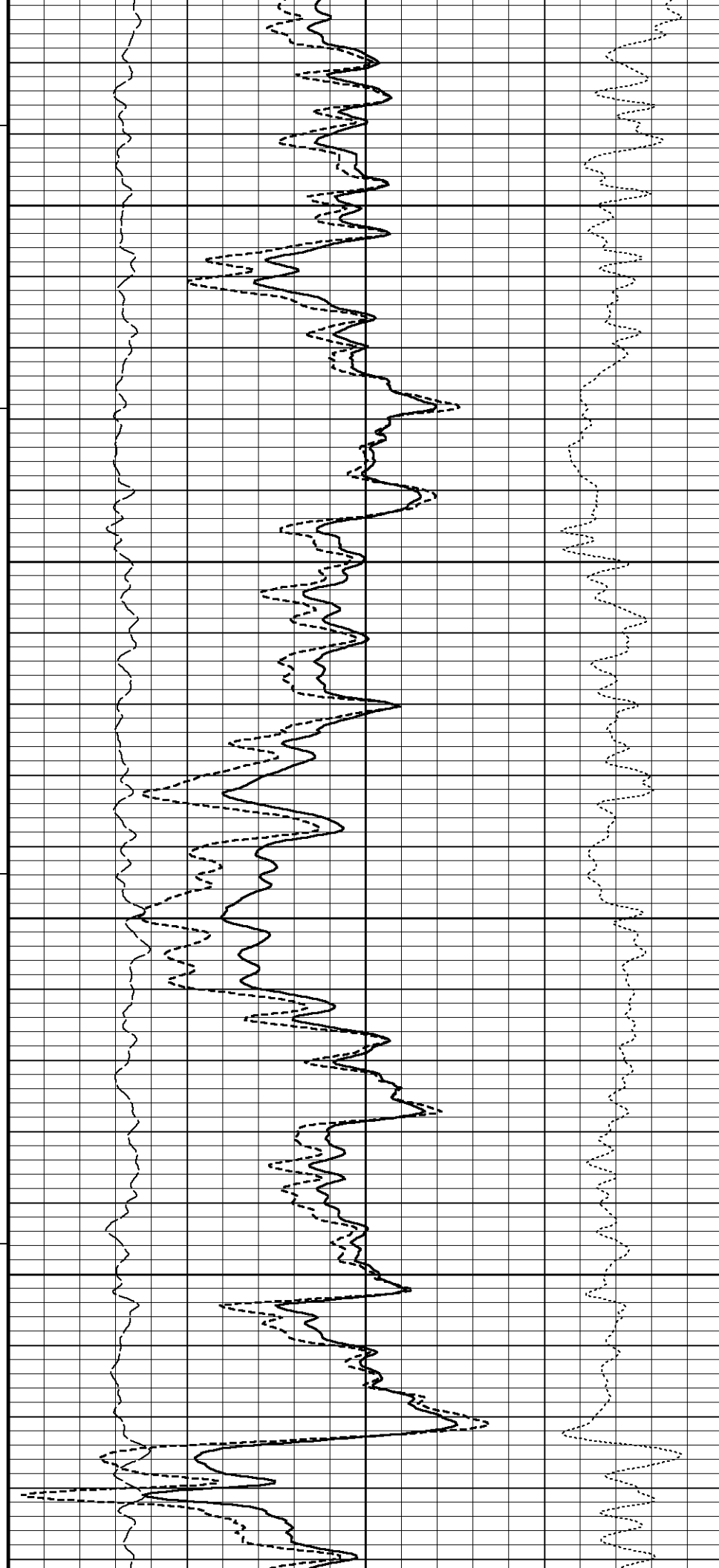
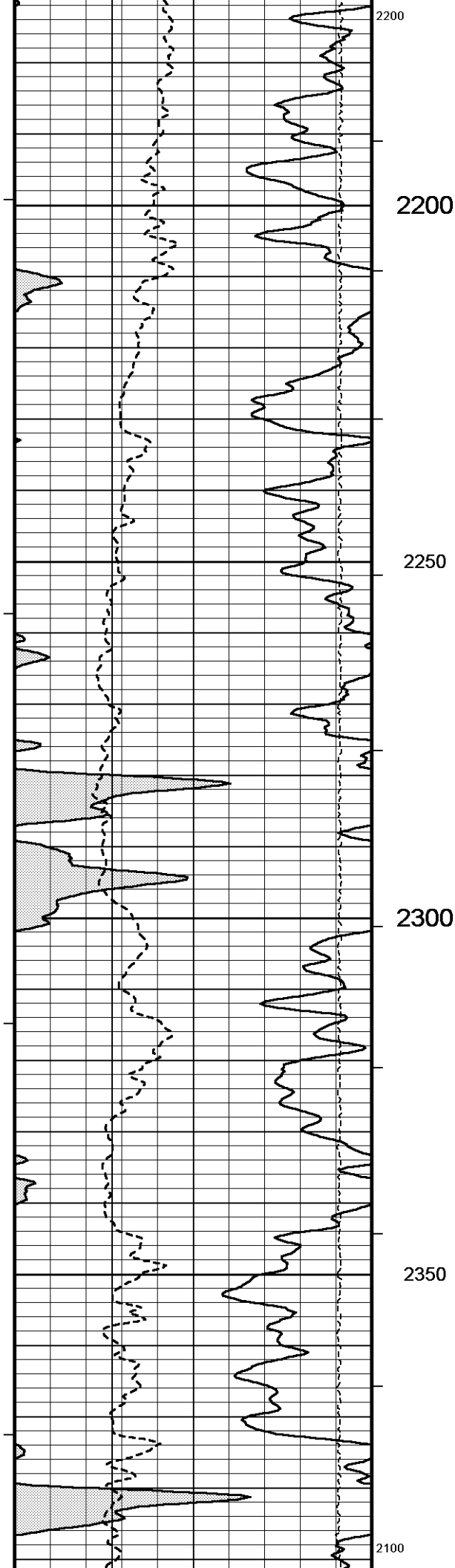
Depth Based Data - Maximum Sampling Increment 10.0cm		Plotted on 06-NOV-2011 08:54
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta		Recorded on 06-NOV-2011 06:29
System Versions: Logged with 12.02.4401 Processed with 12.02.4401 Plotted with 12.02.4401		

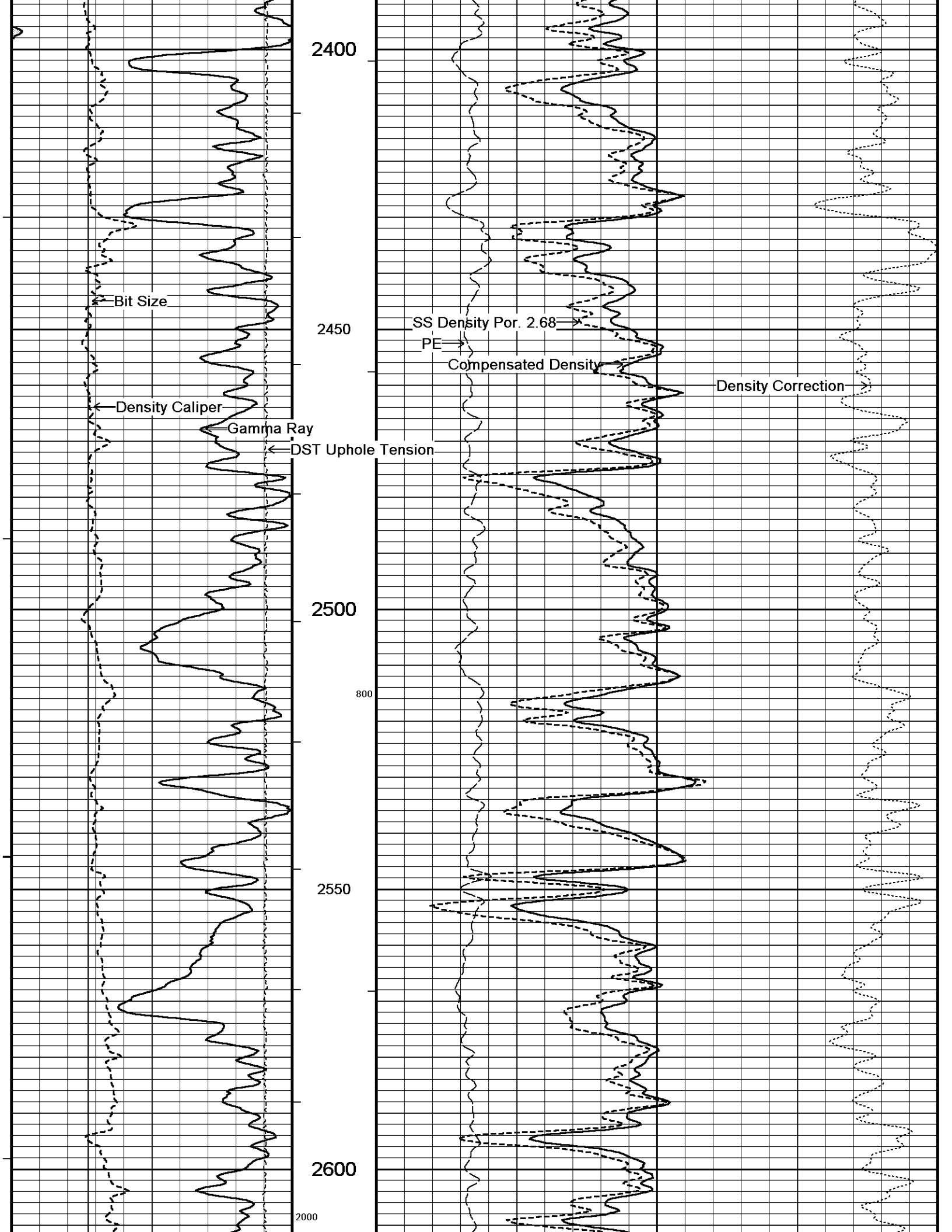


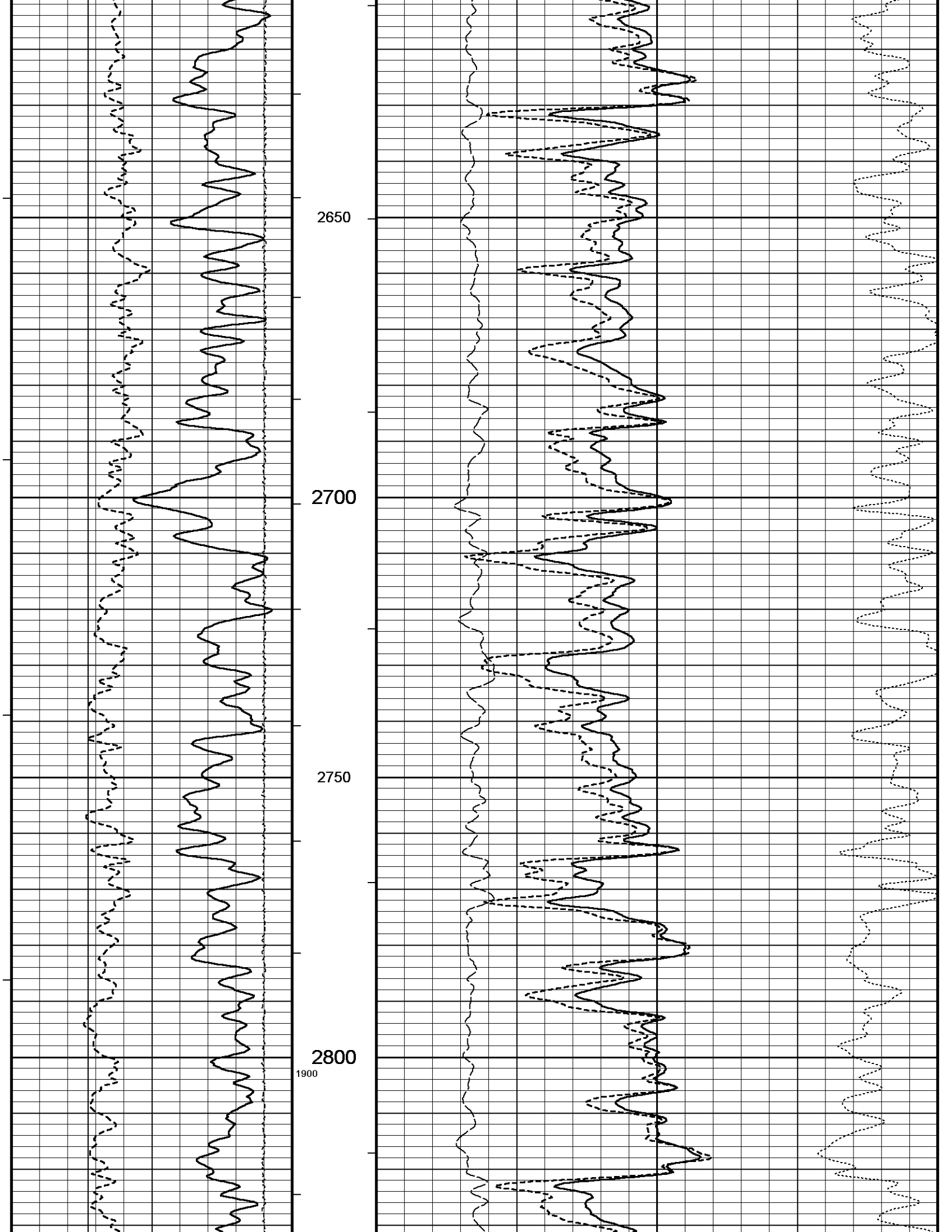


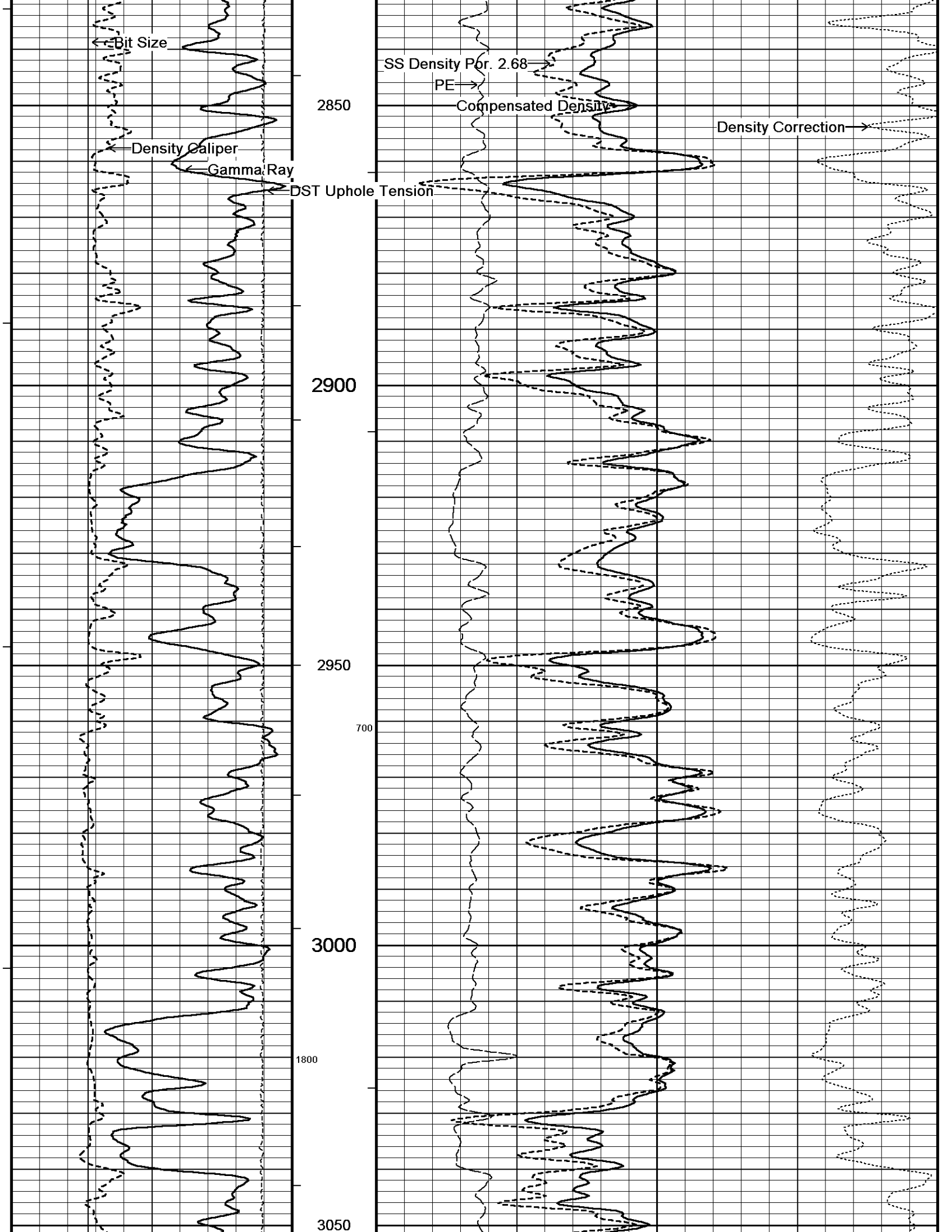


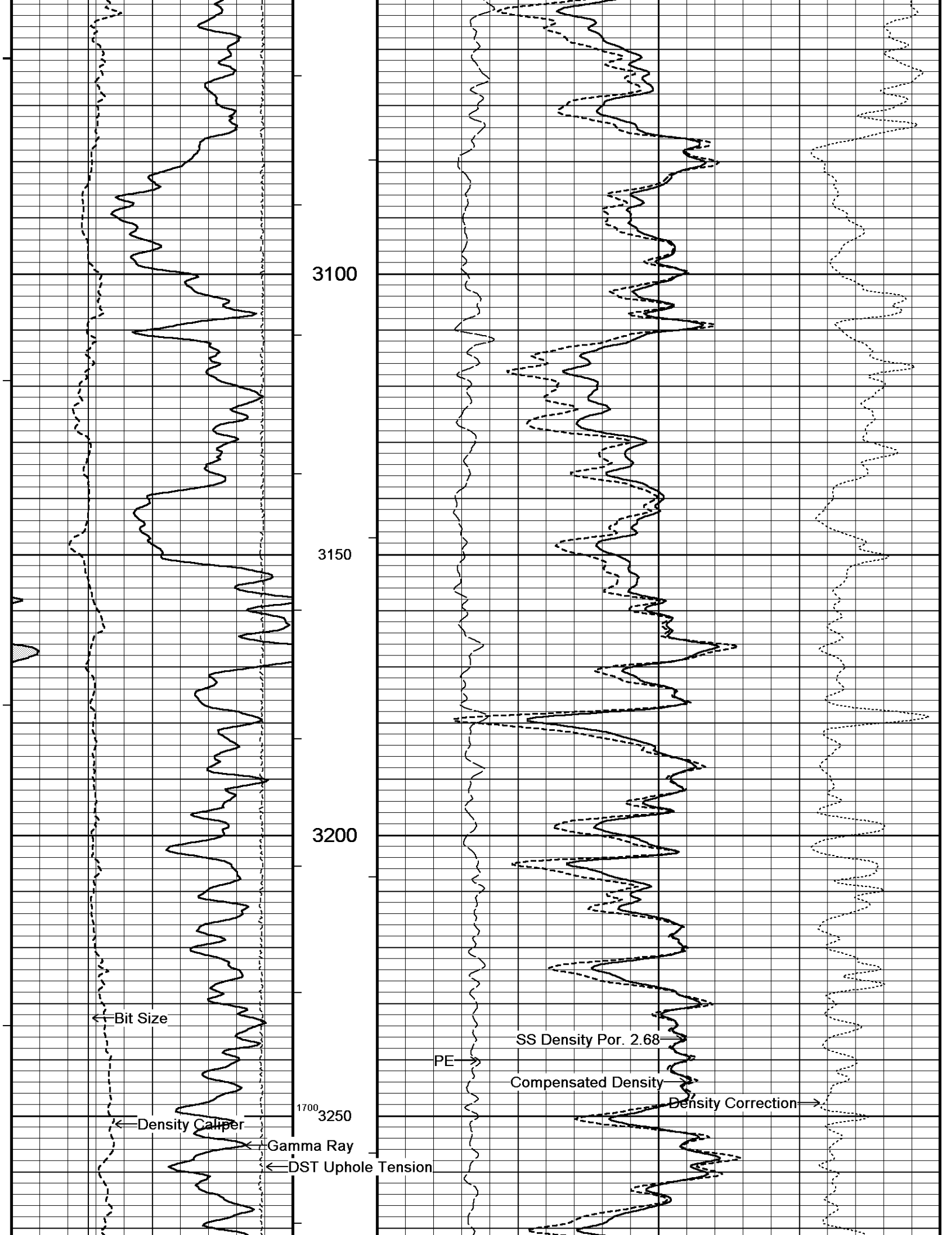


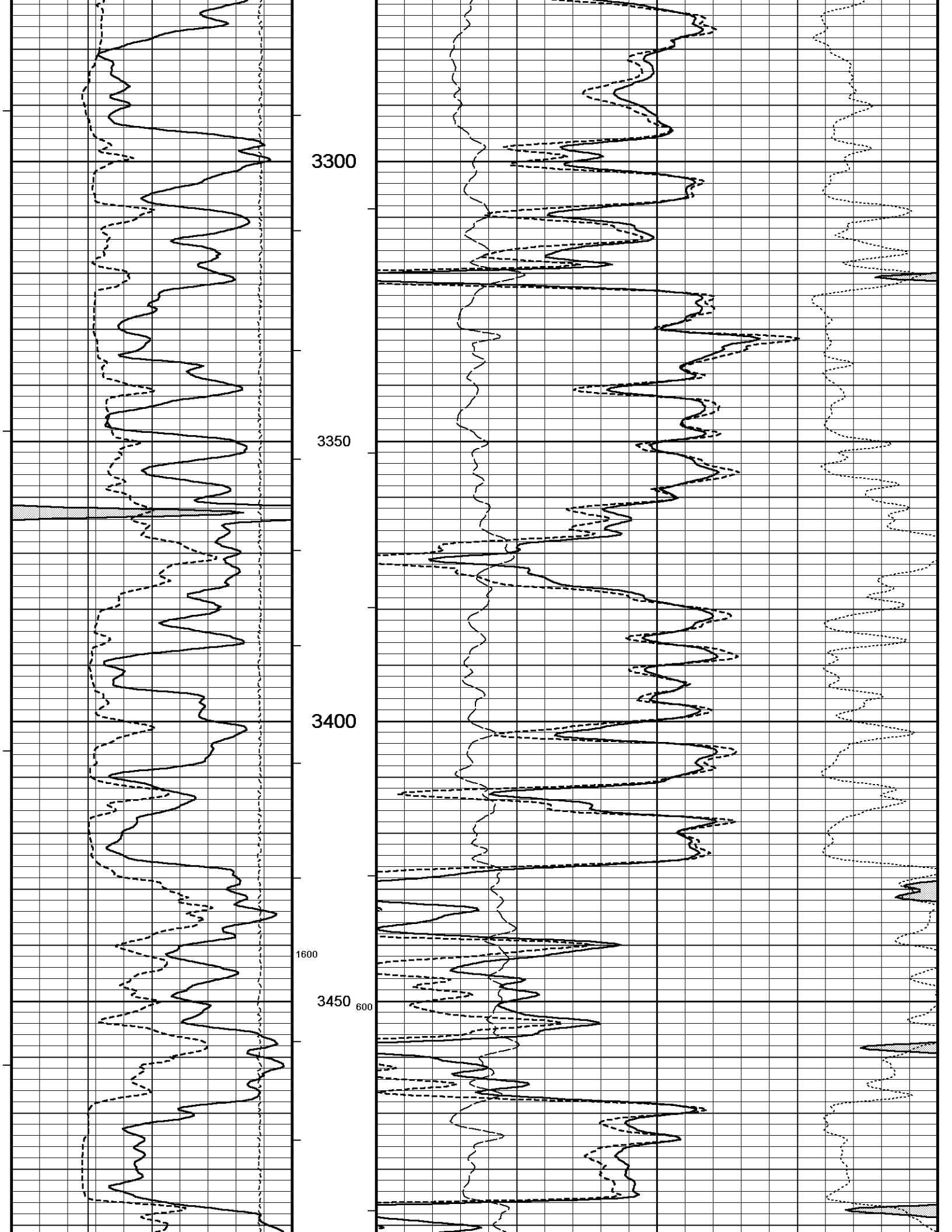


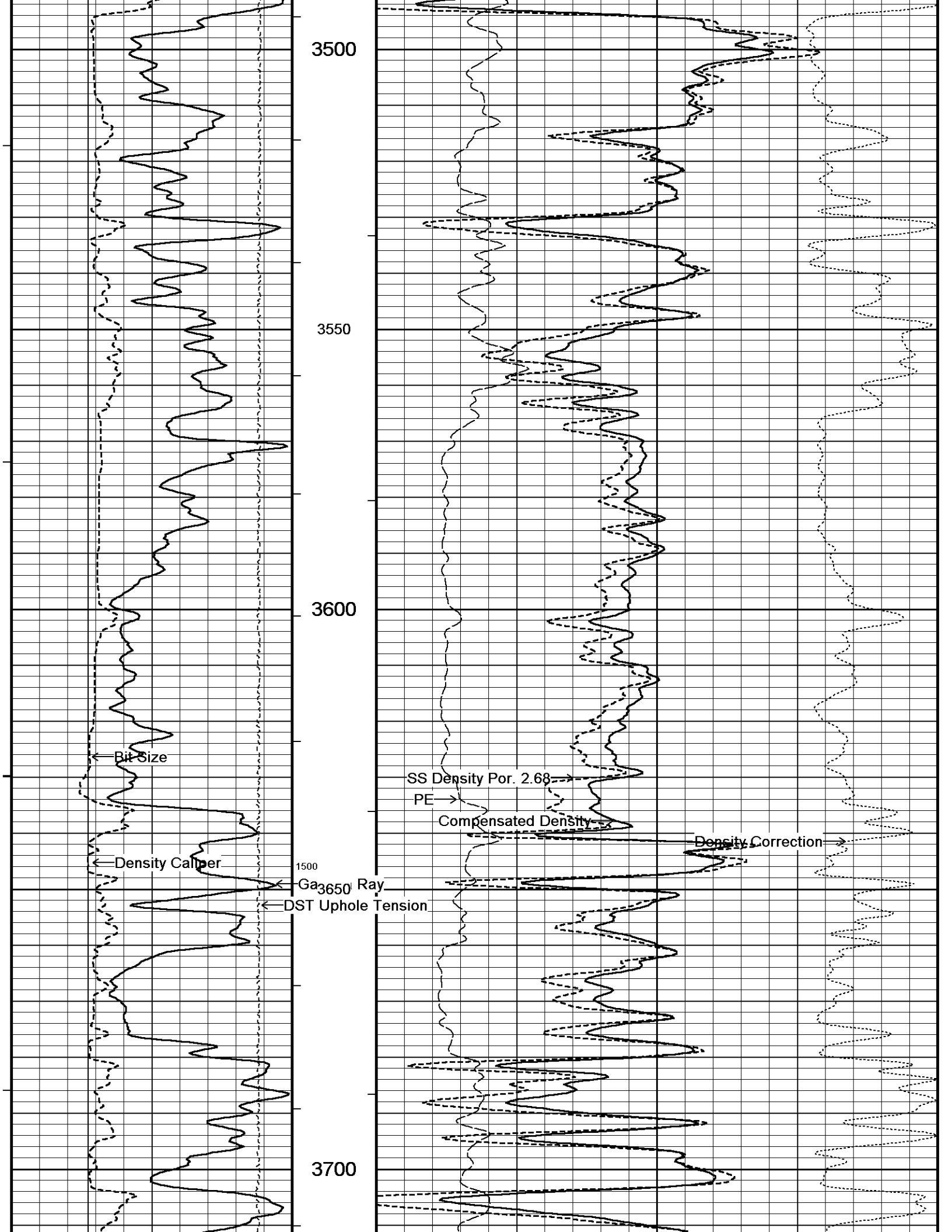


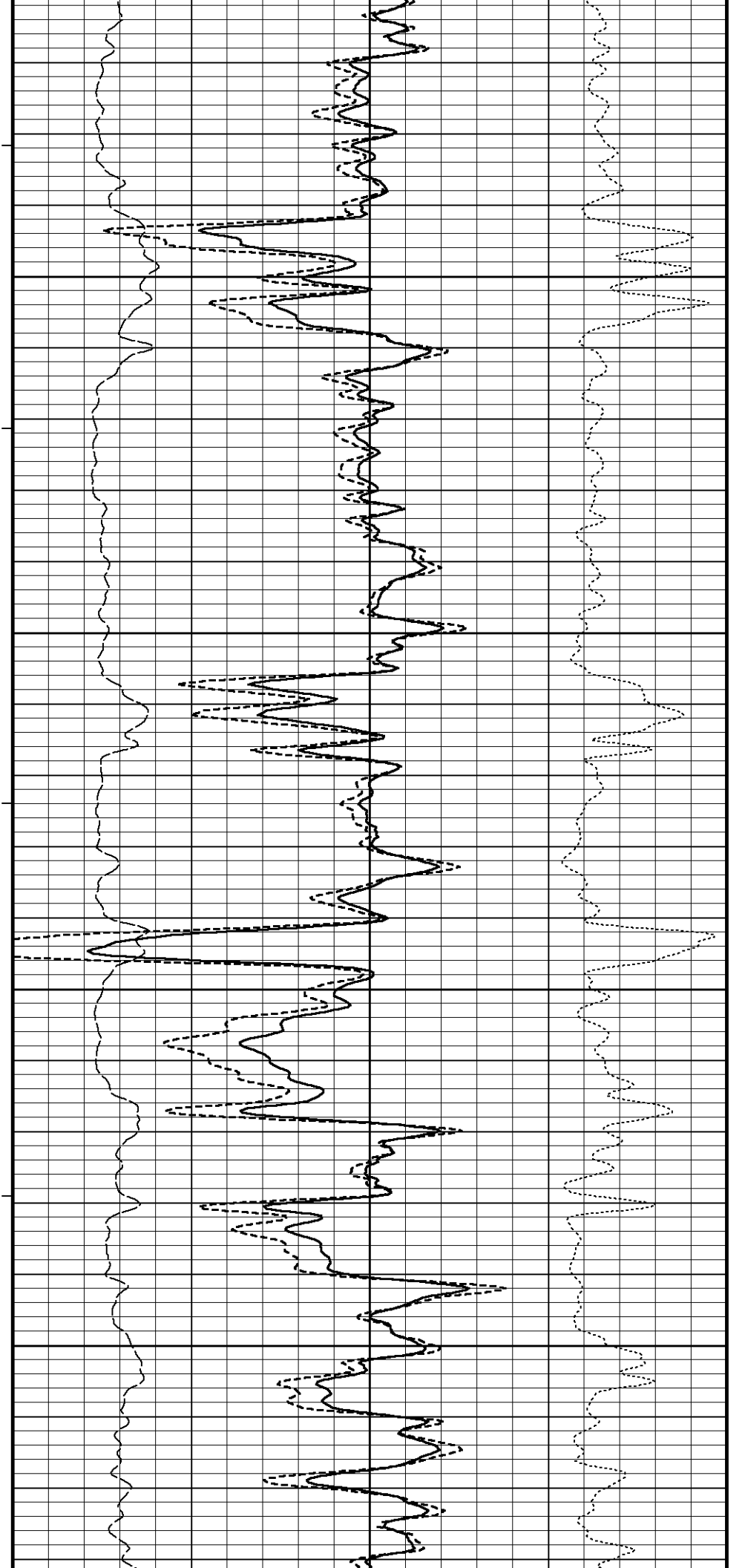
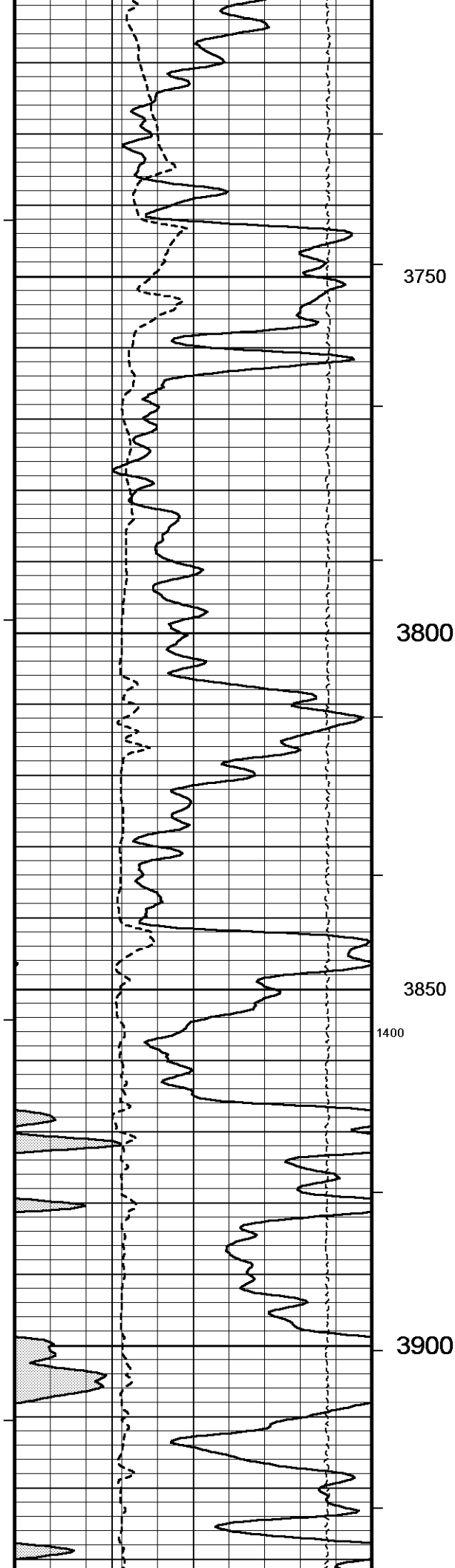


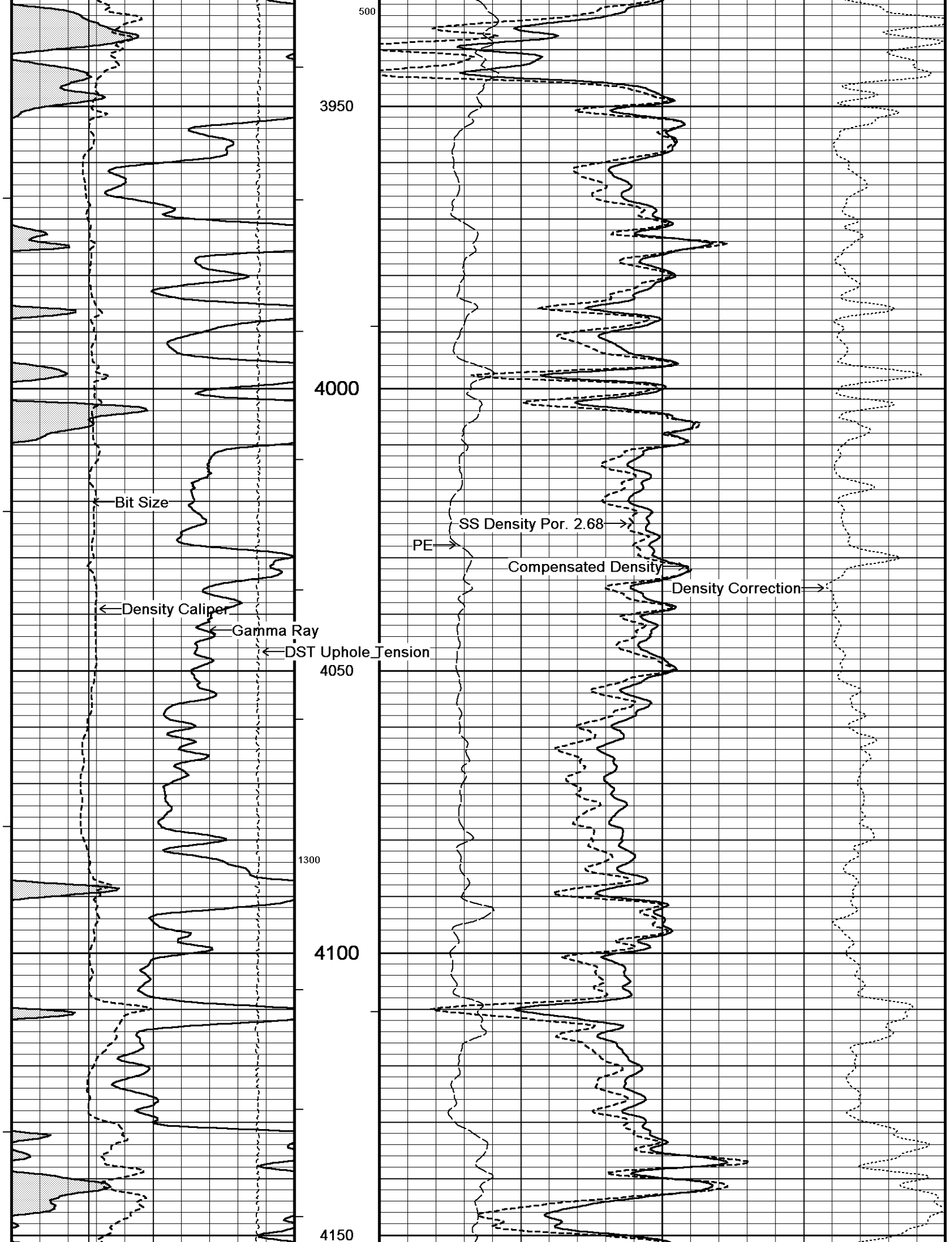


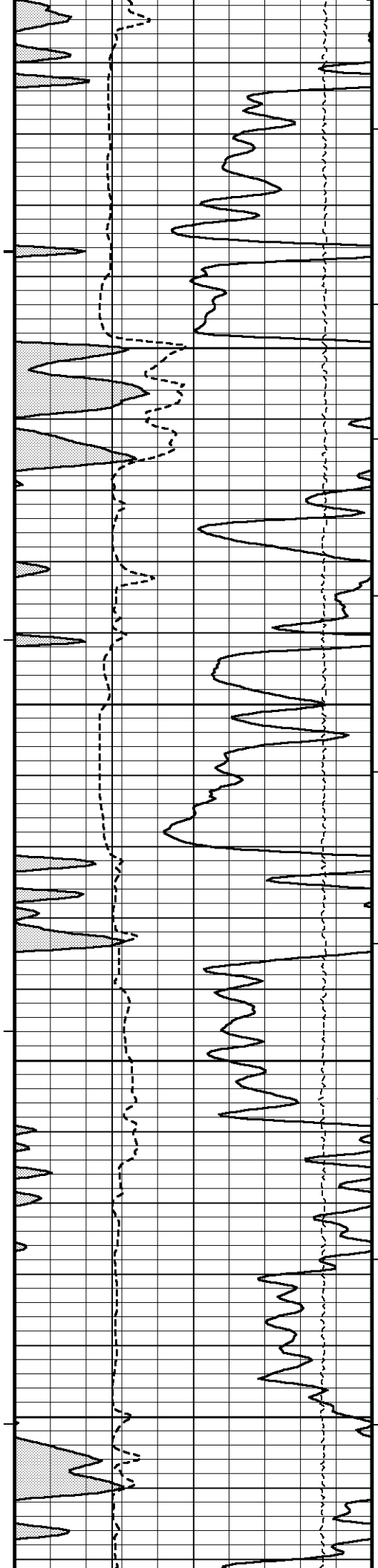




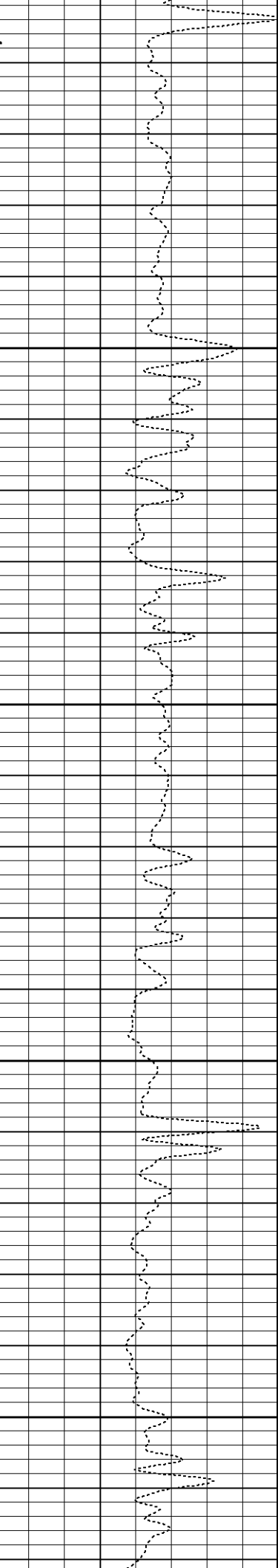
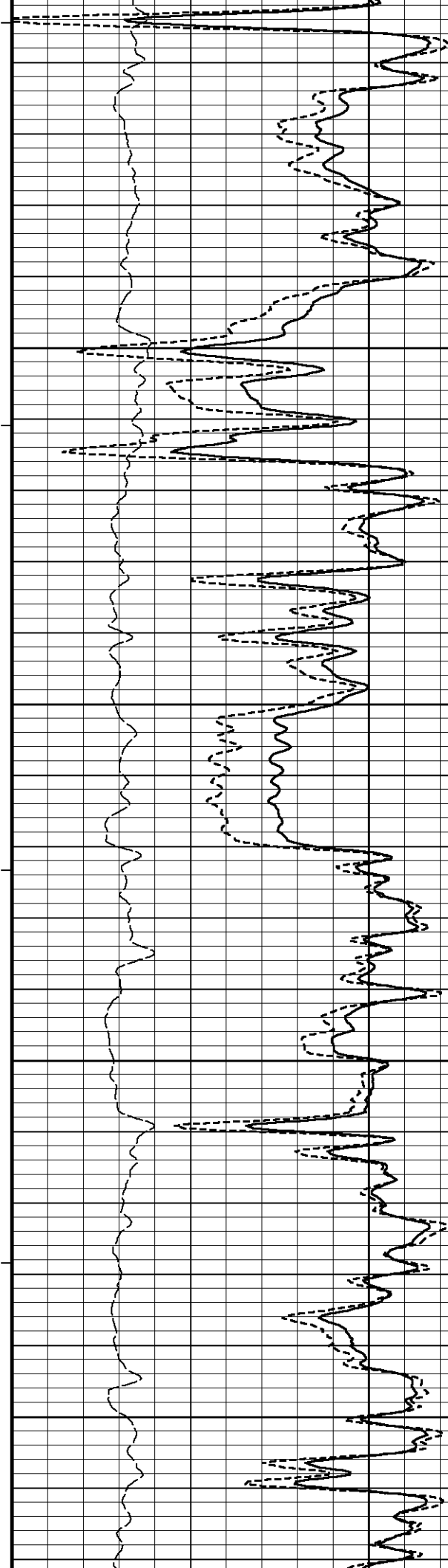


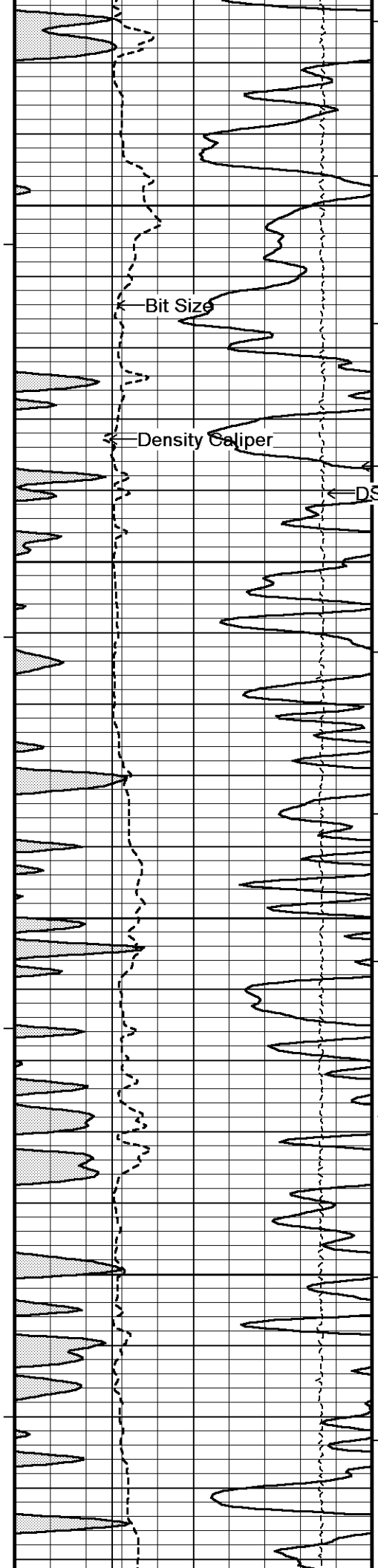






4200
4250
4300
1200
4350





4400

Bit Size

Density Caliper

Gamma Ray

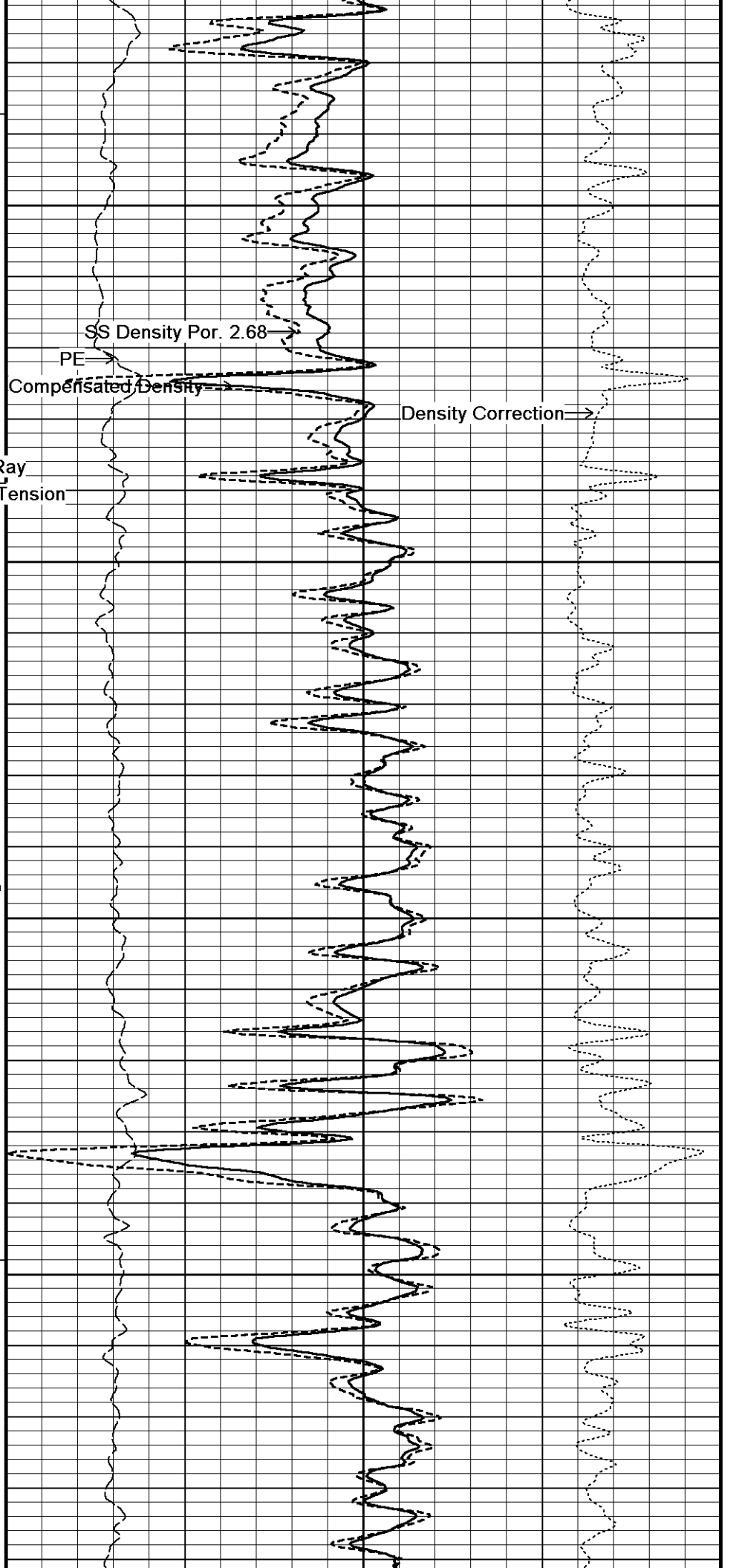
DST Uphole Tension

4450

4500

1100

4550

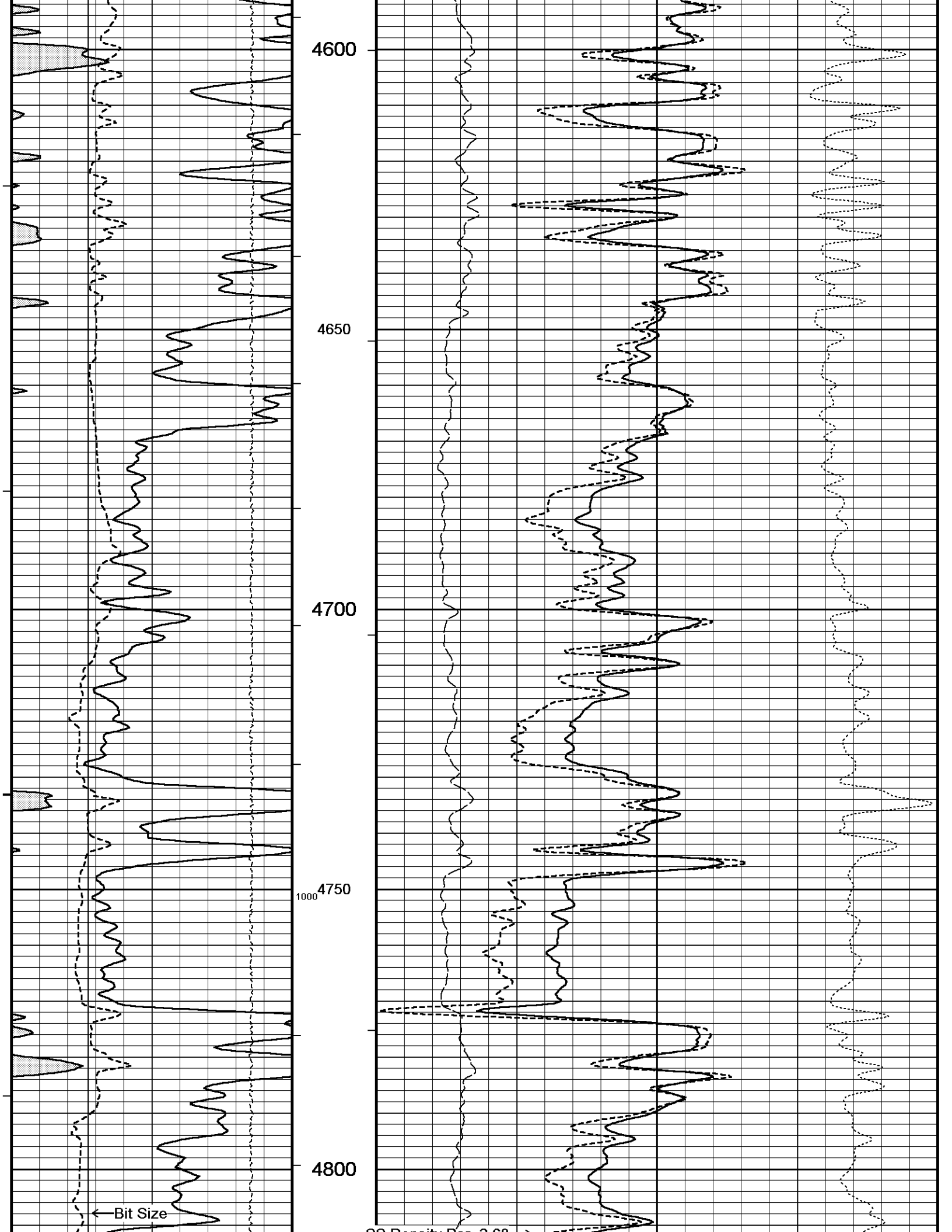


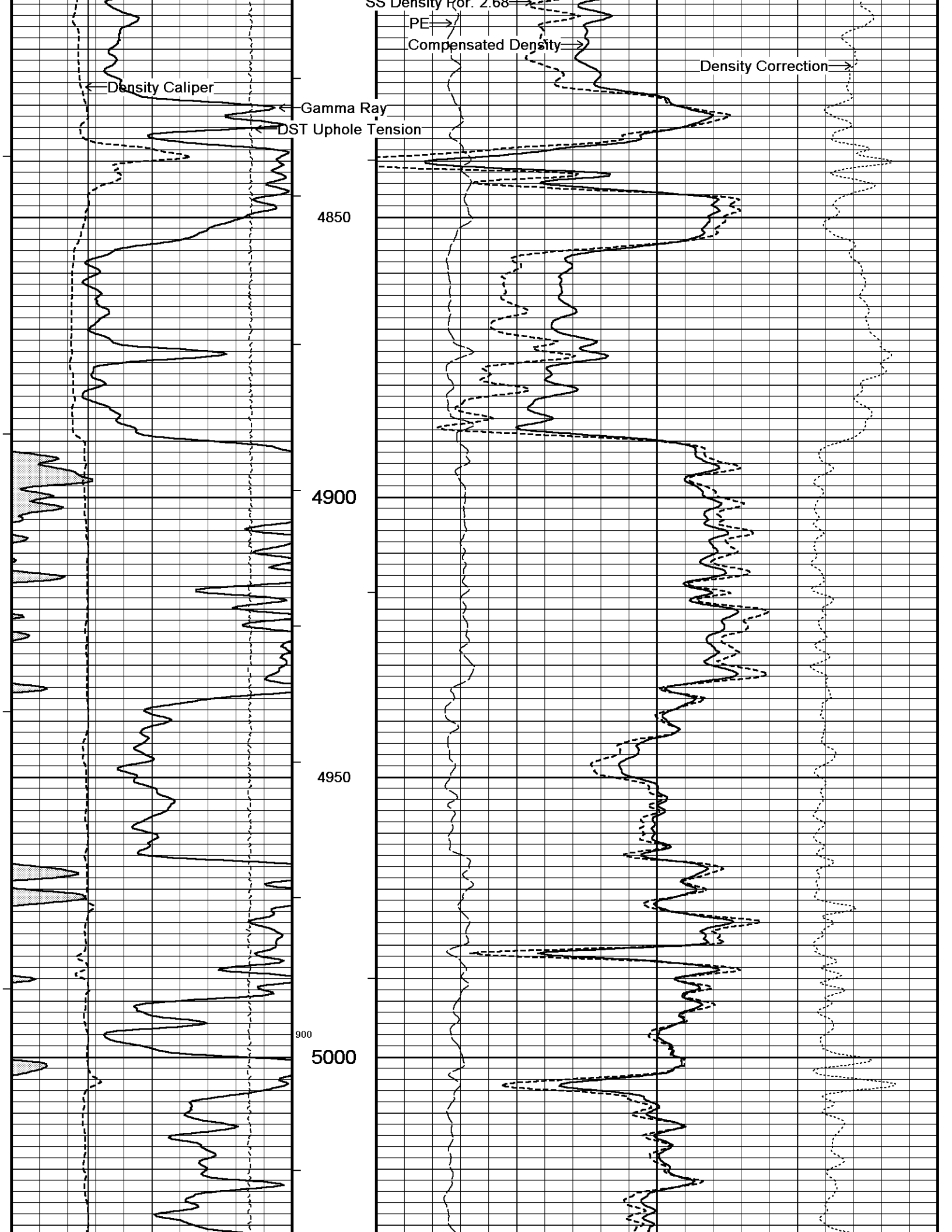
SS Density Por. 2.68

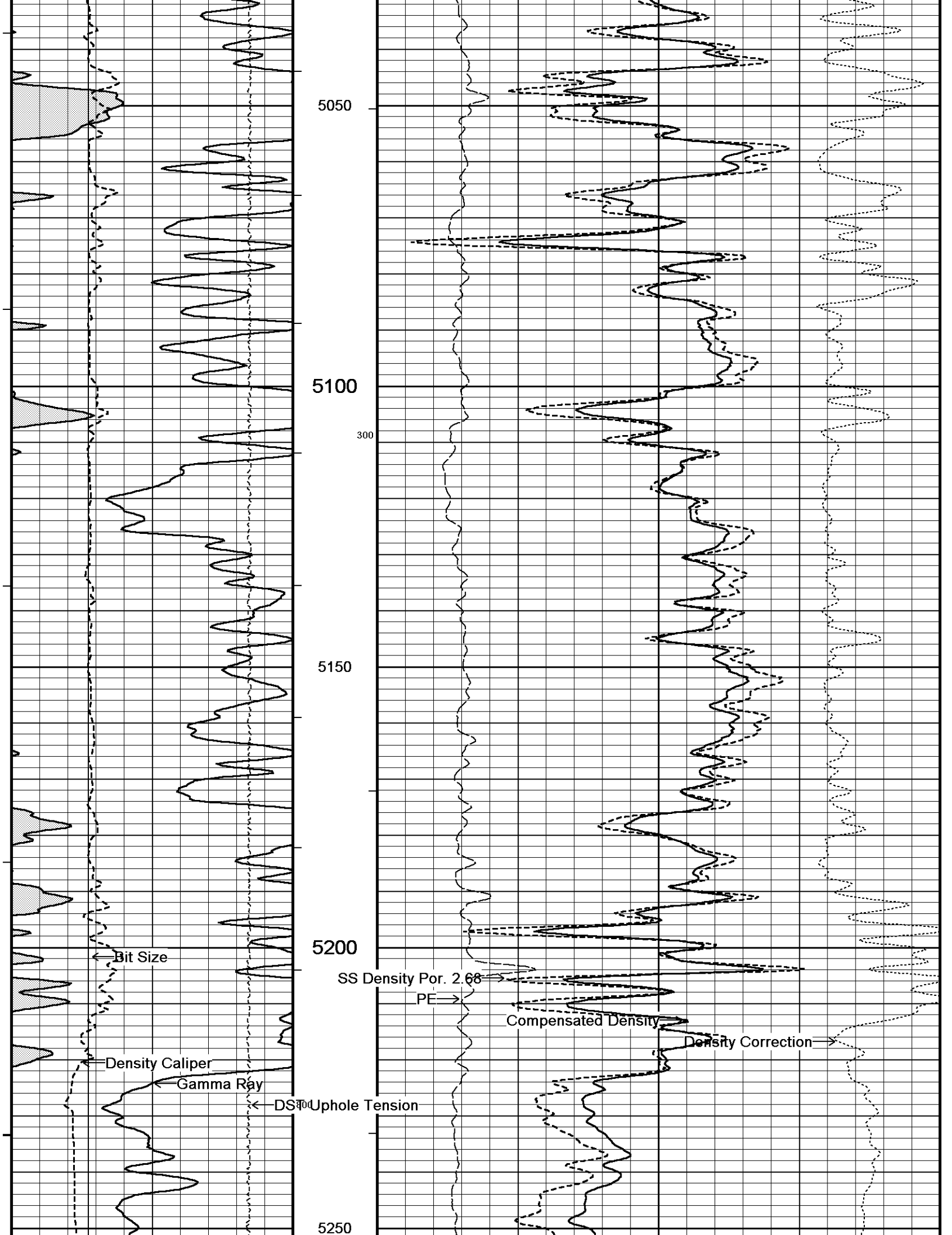
PE

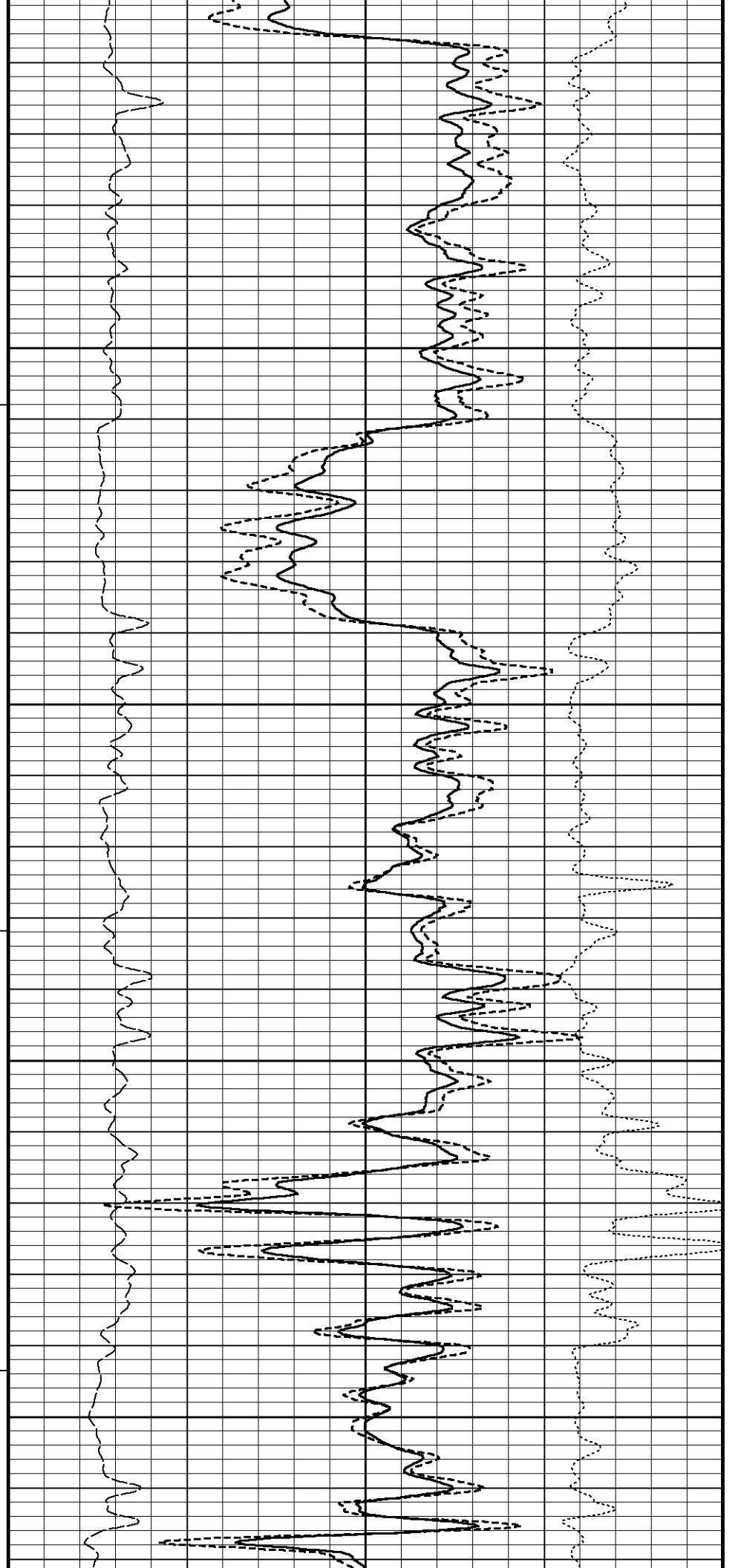
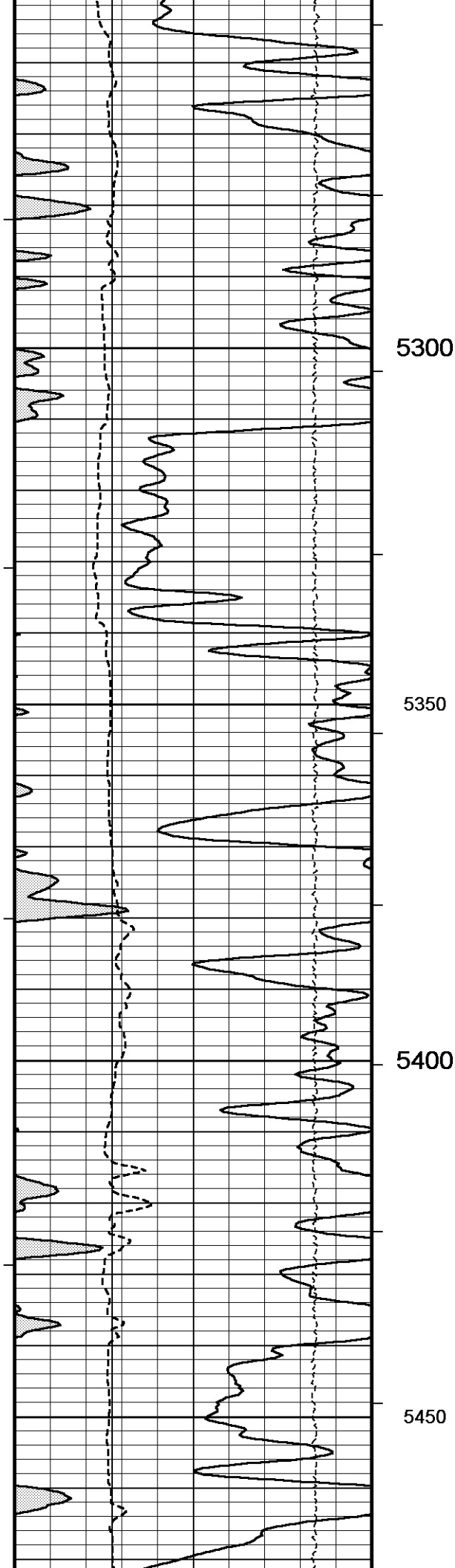
Compensated Density

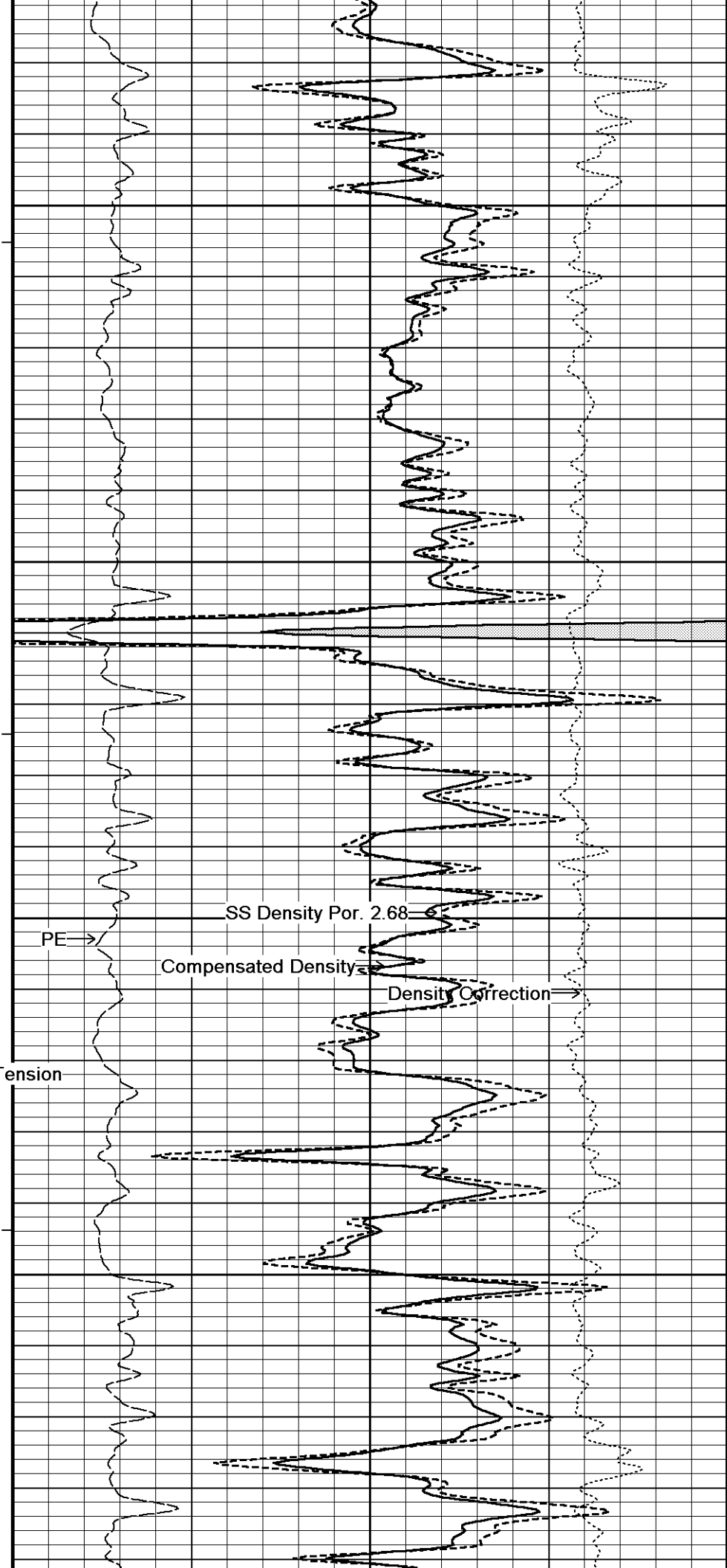
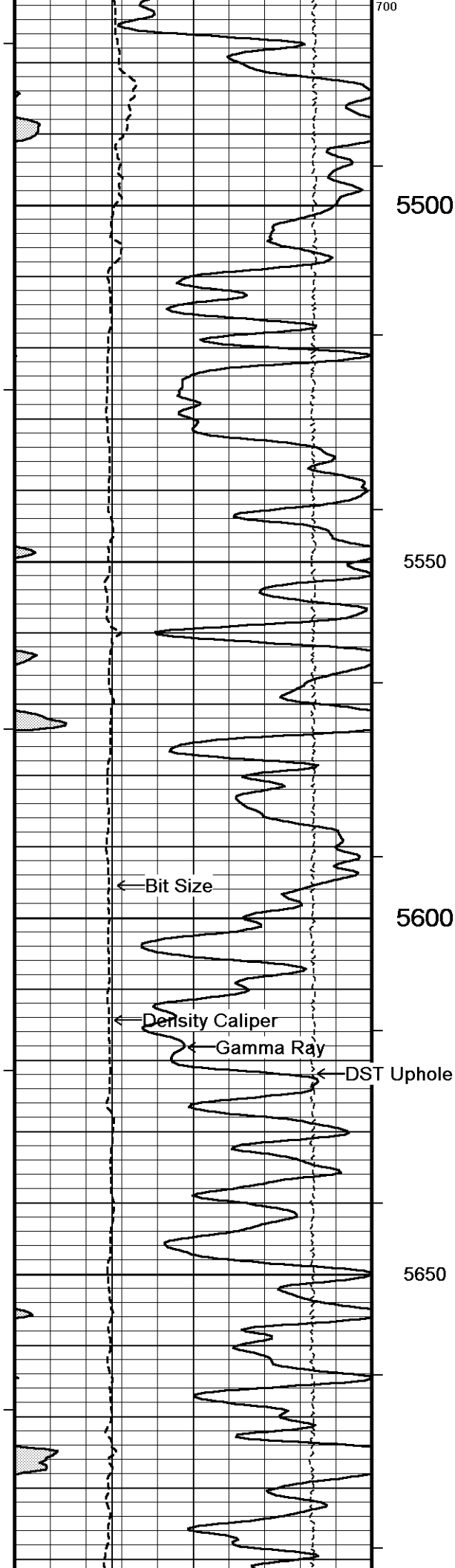
Density Correction

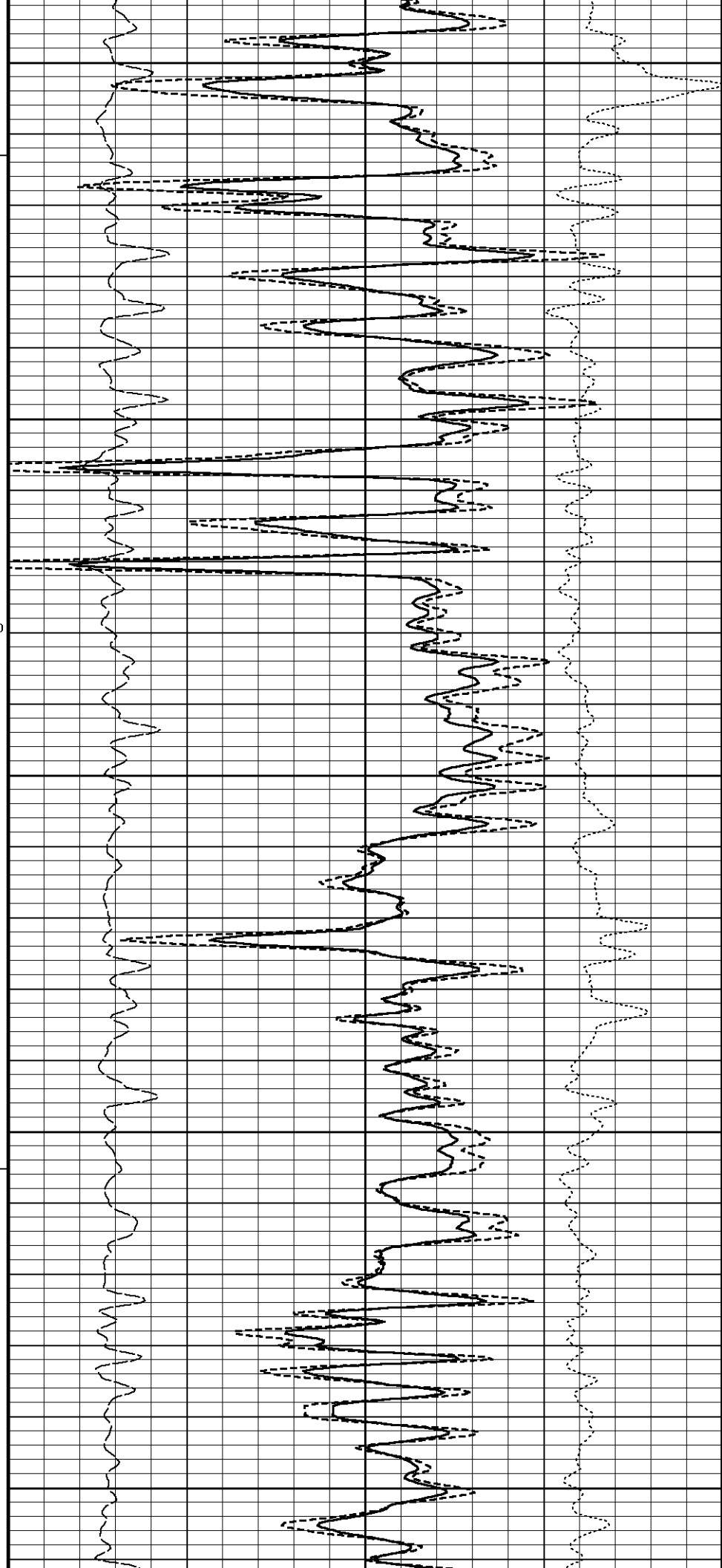
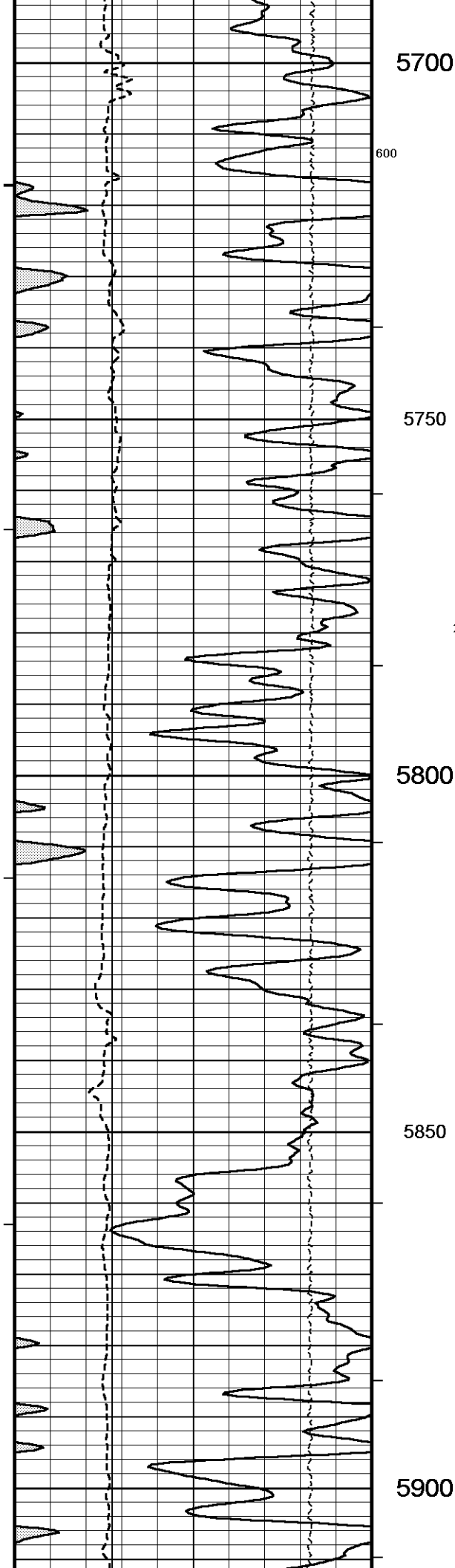


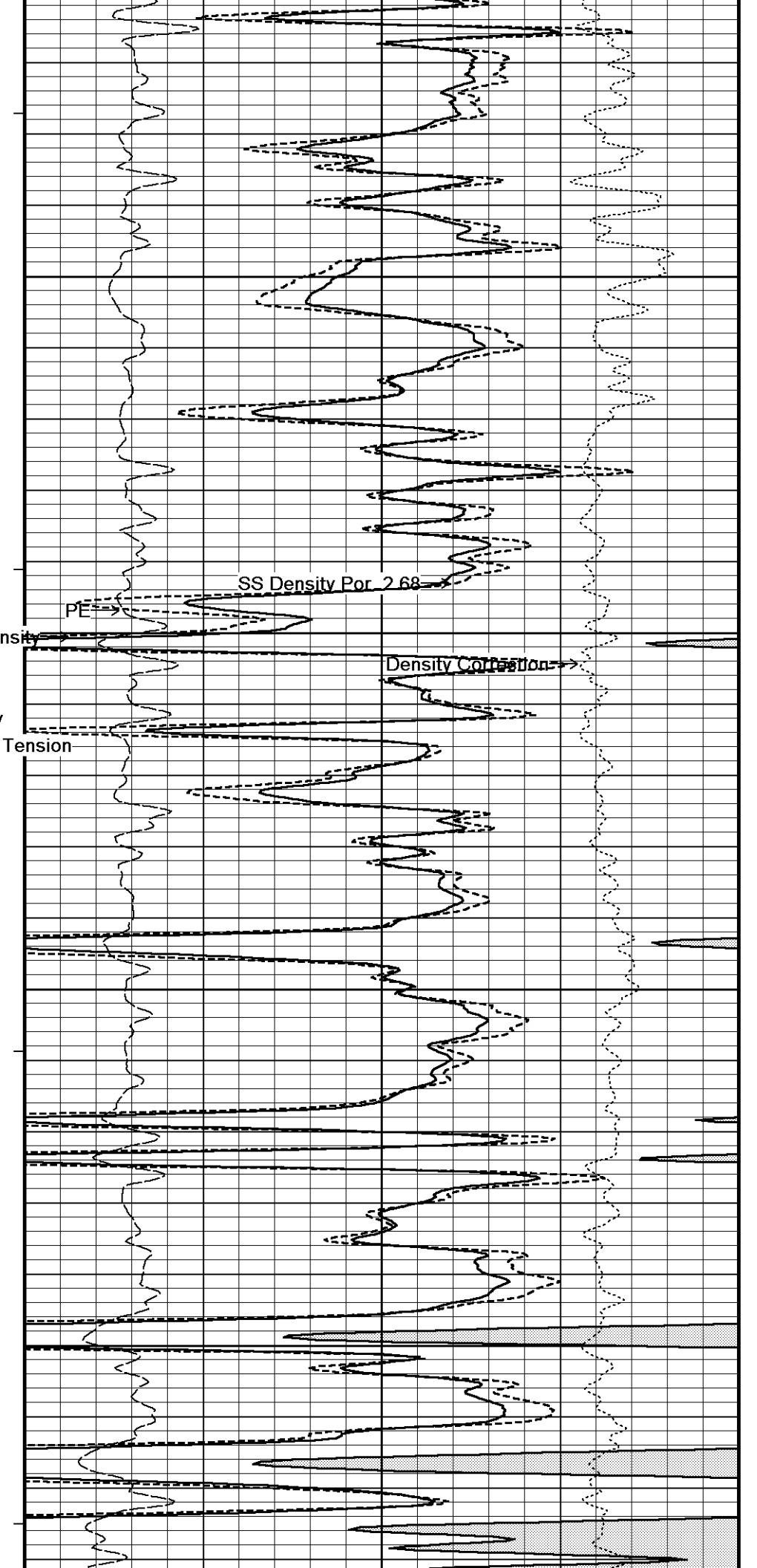
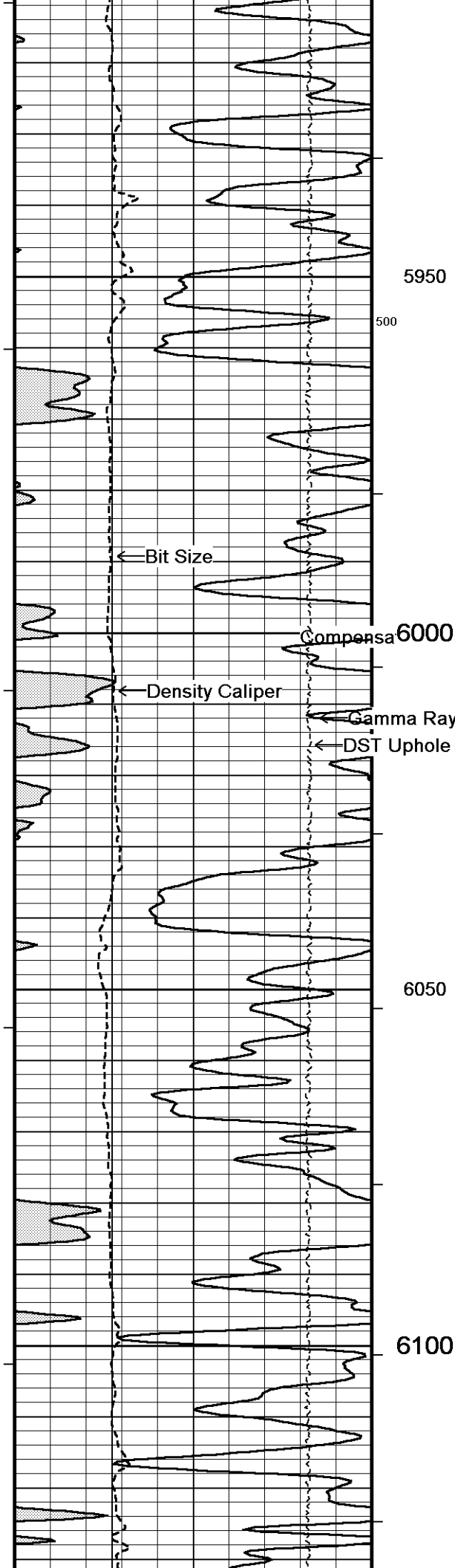


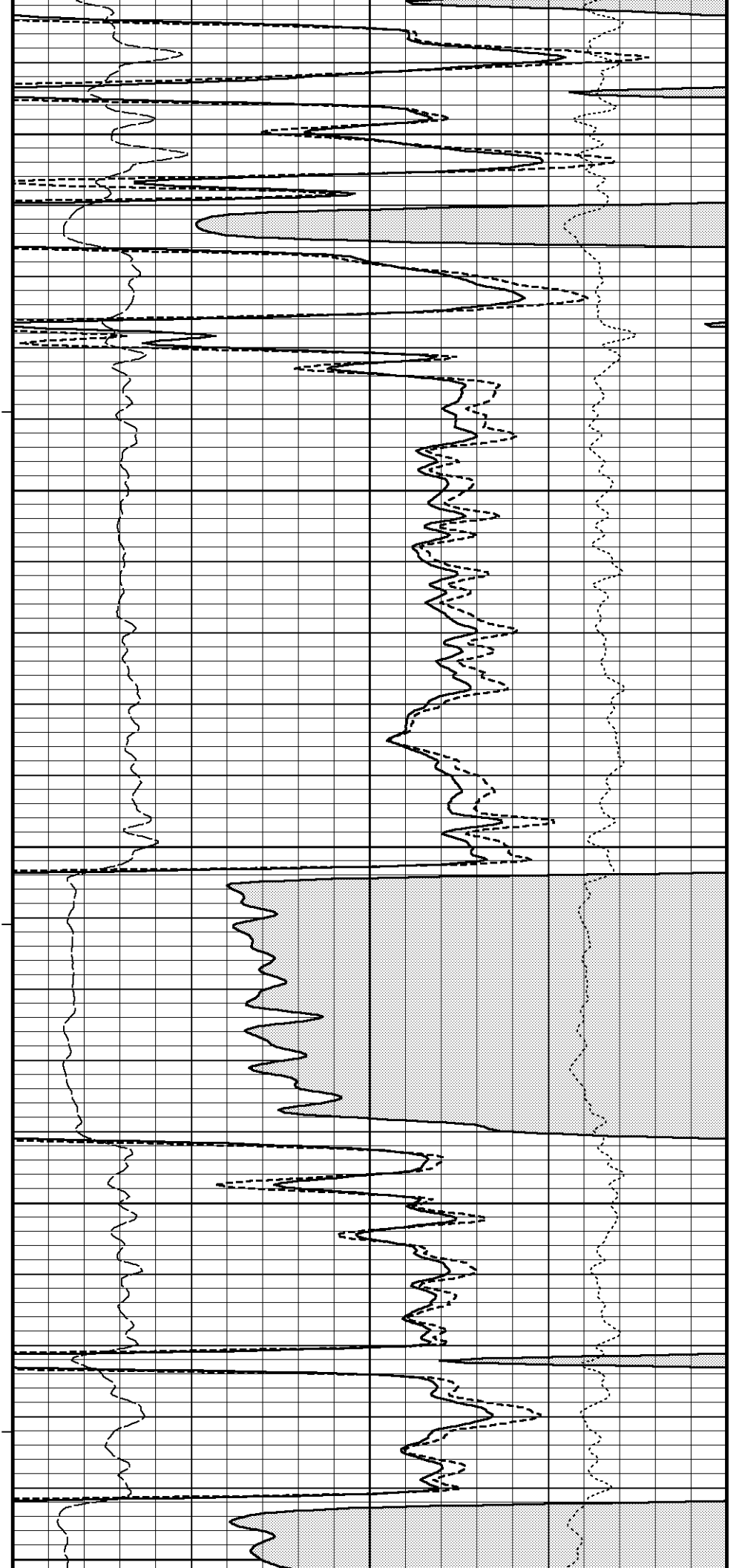
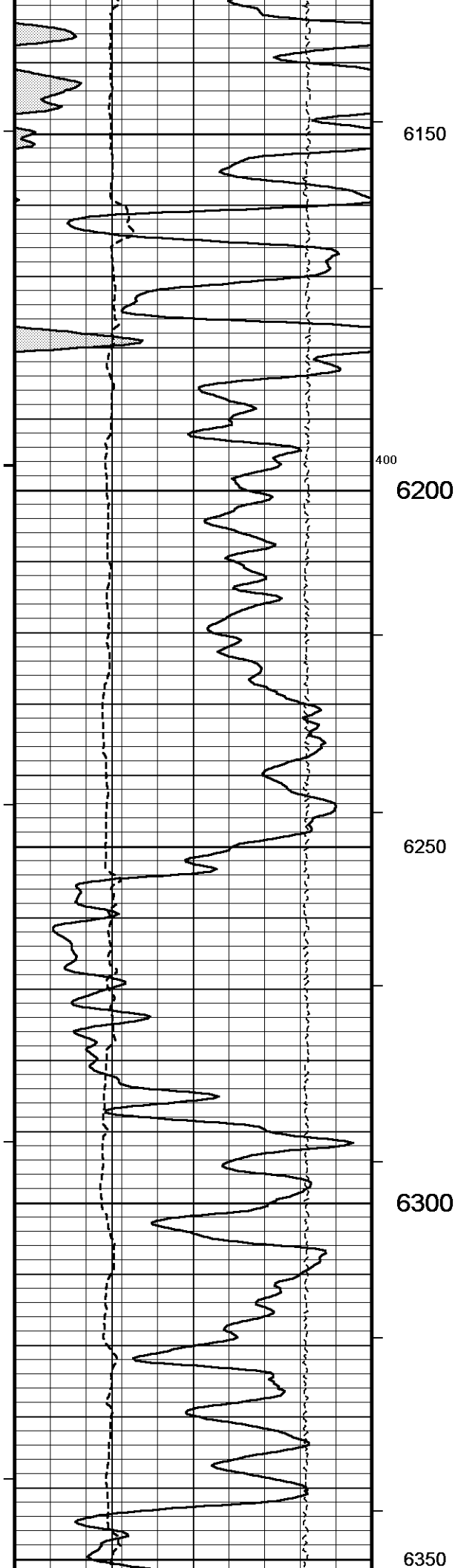


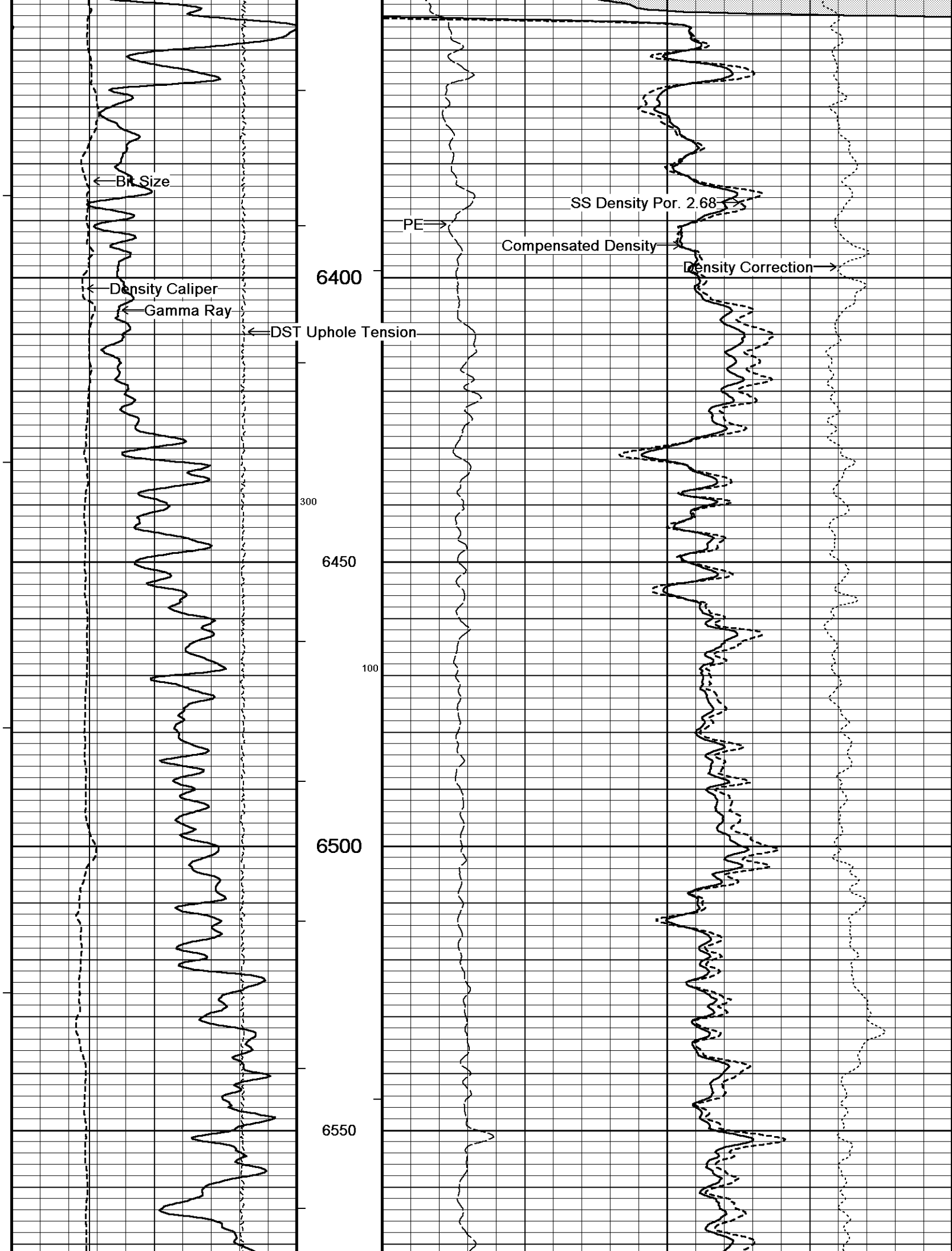


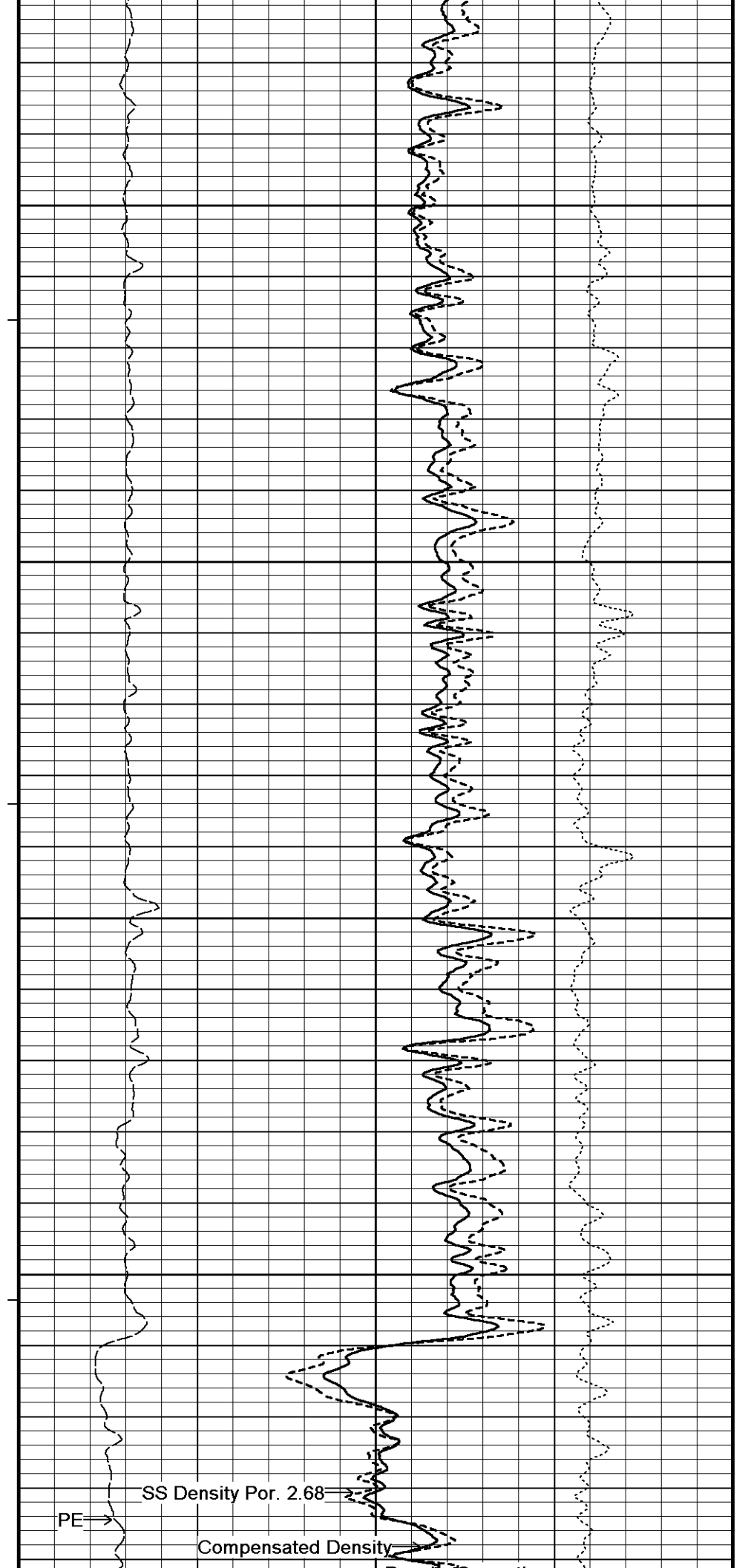
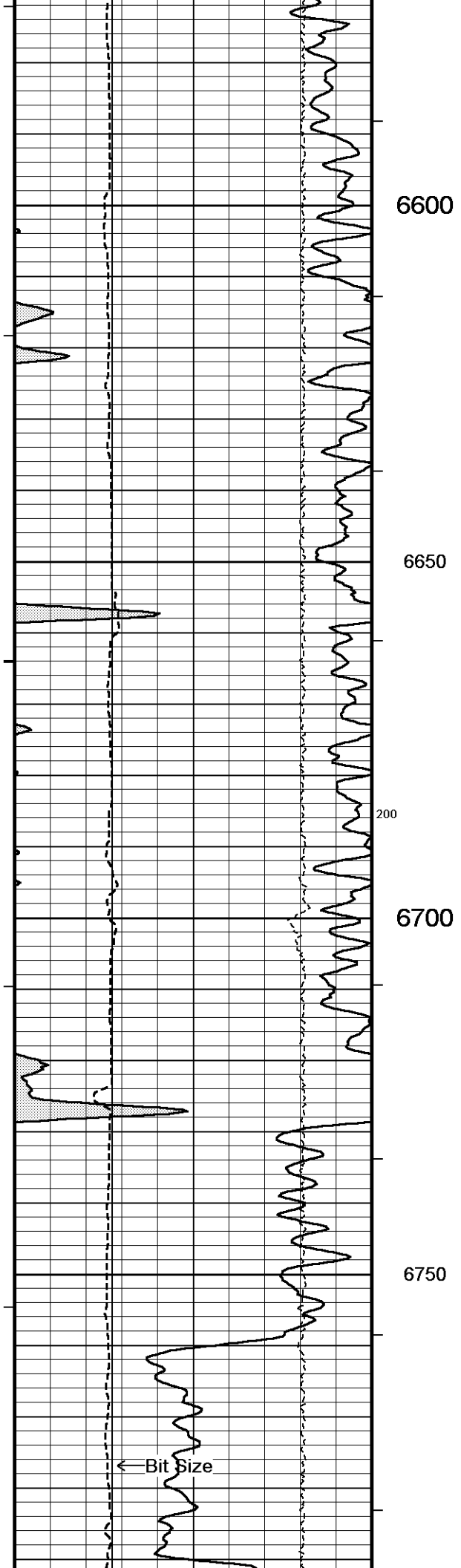


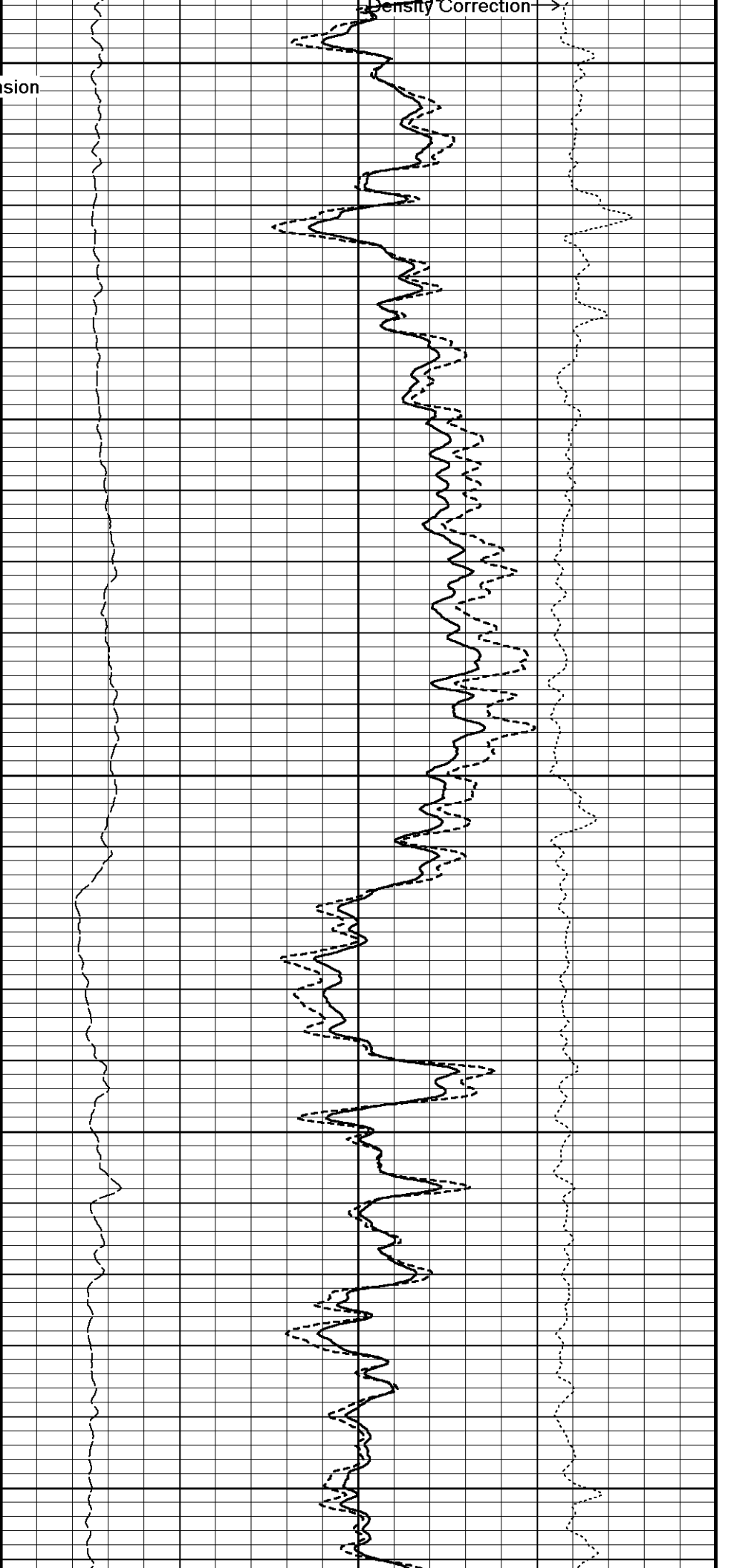
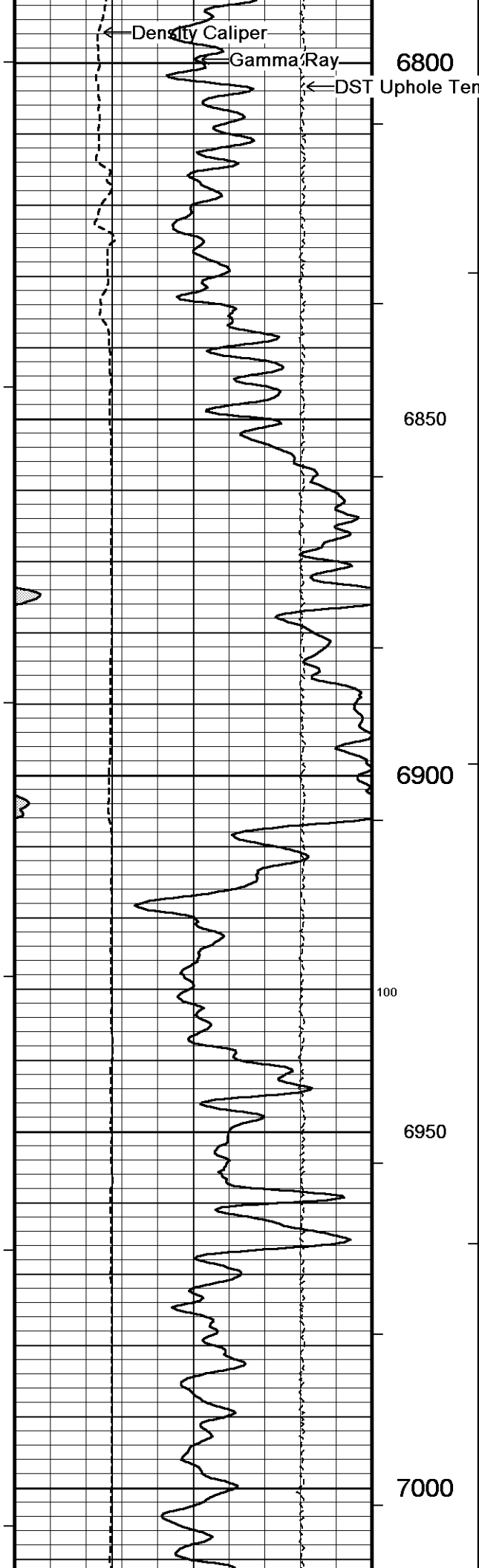


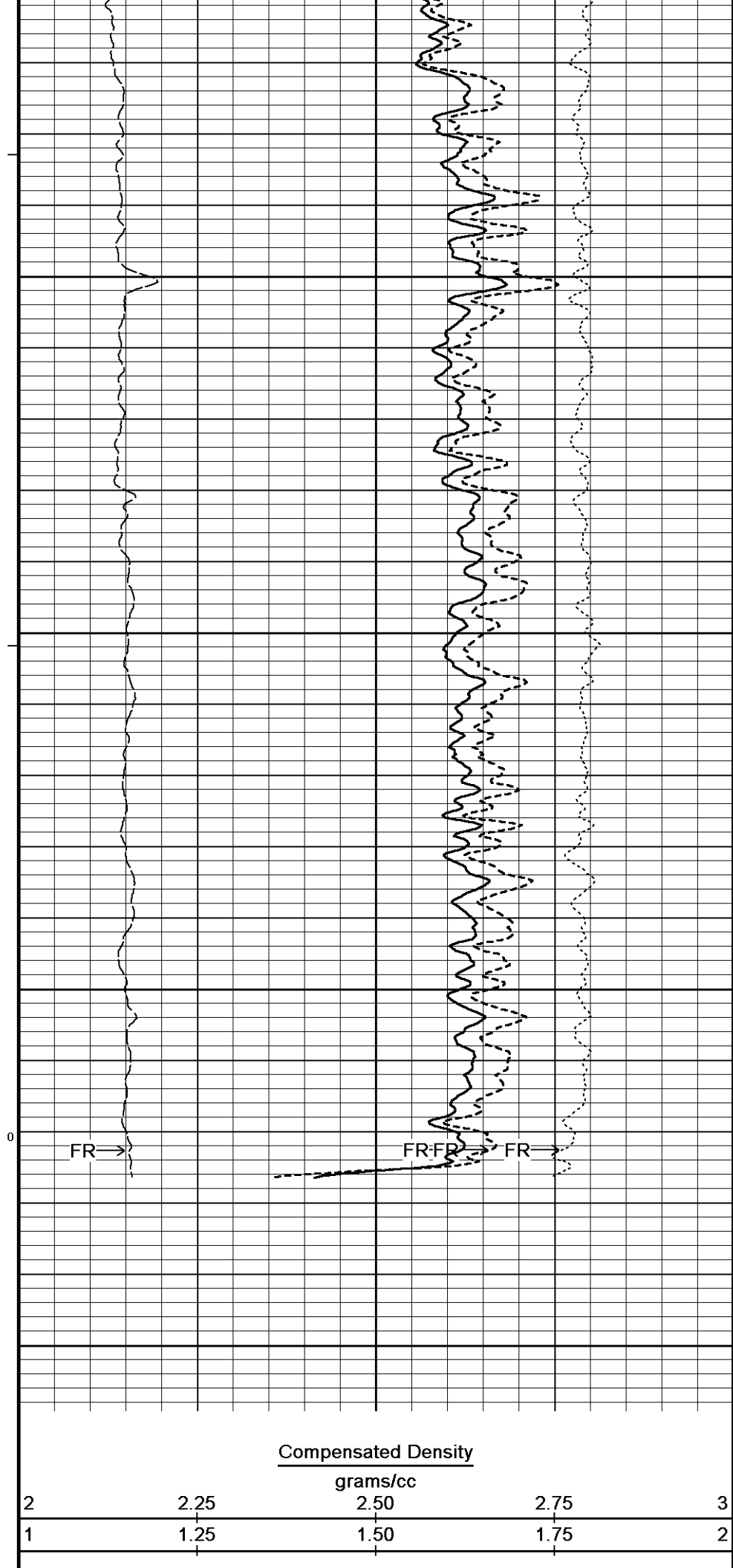
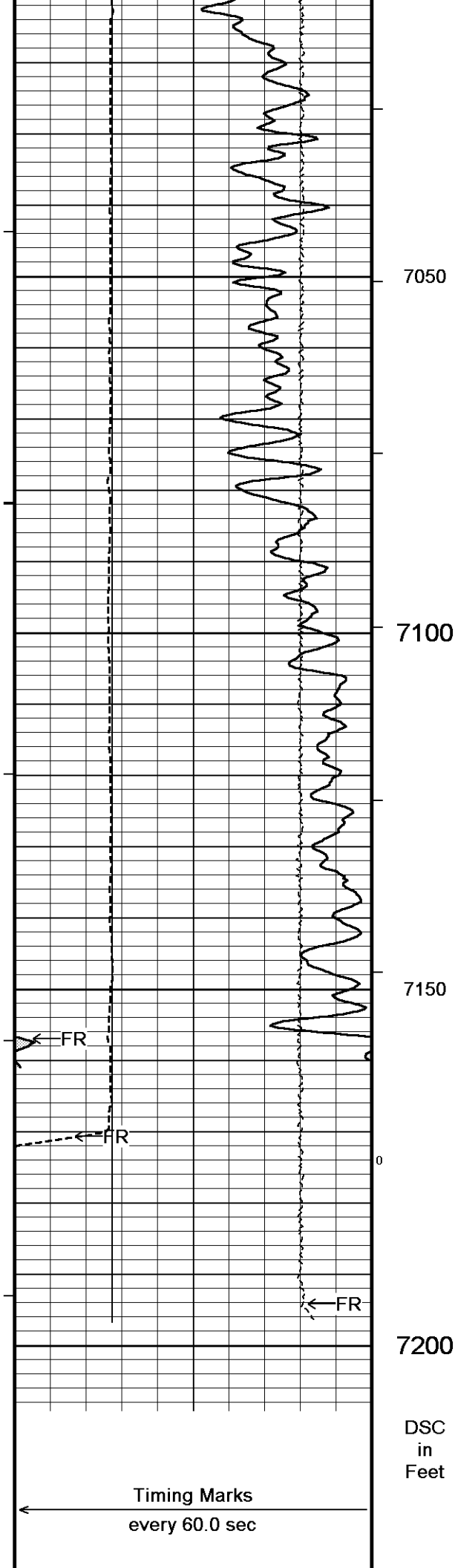


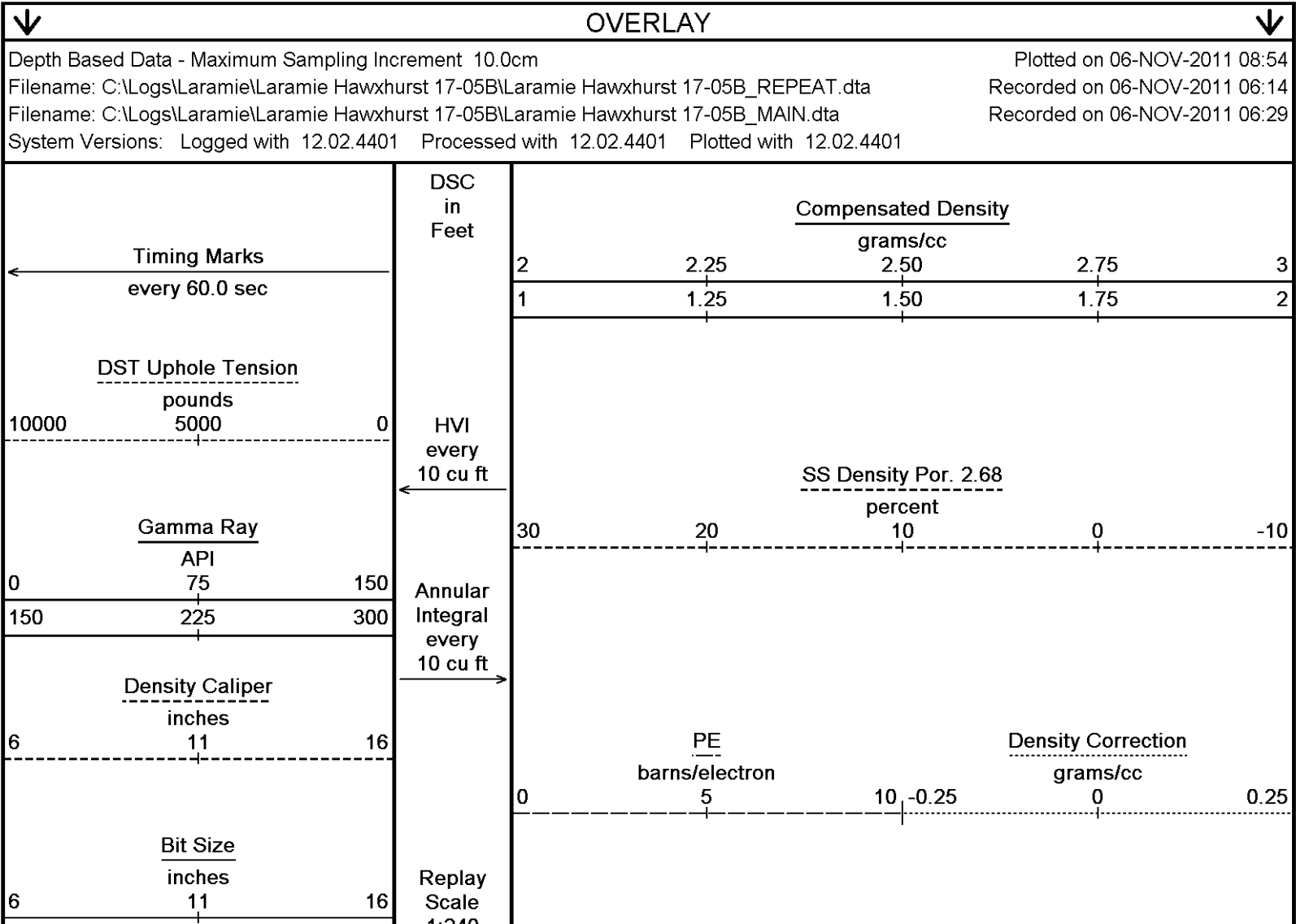
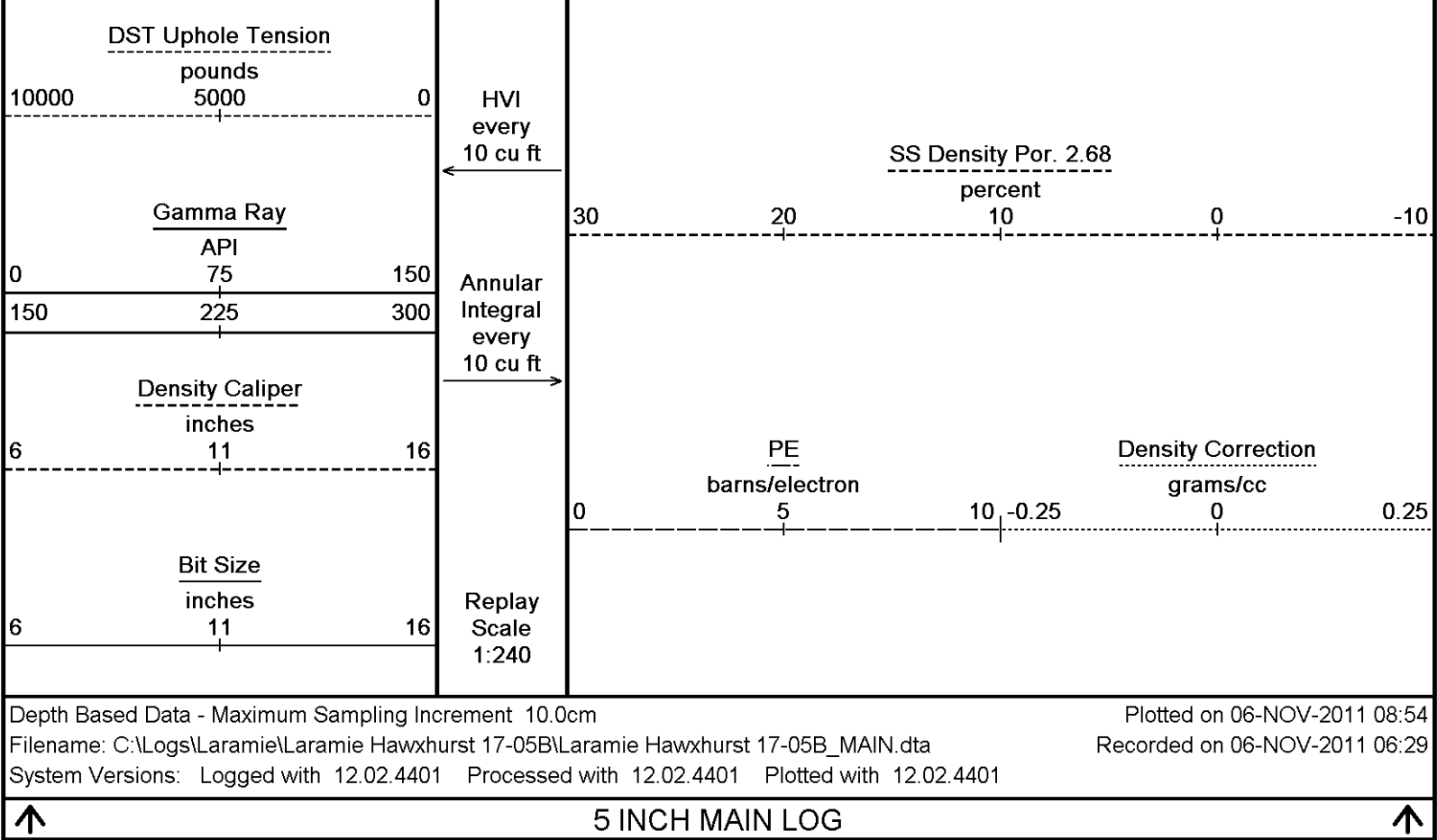


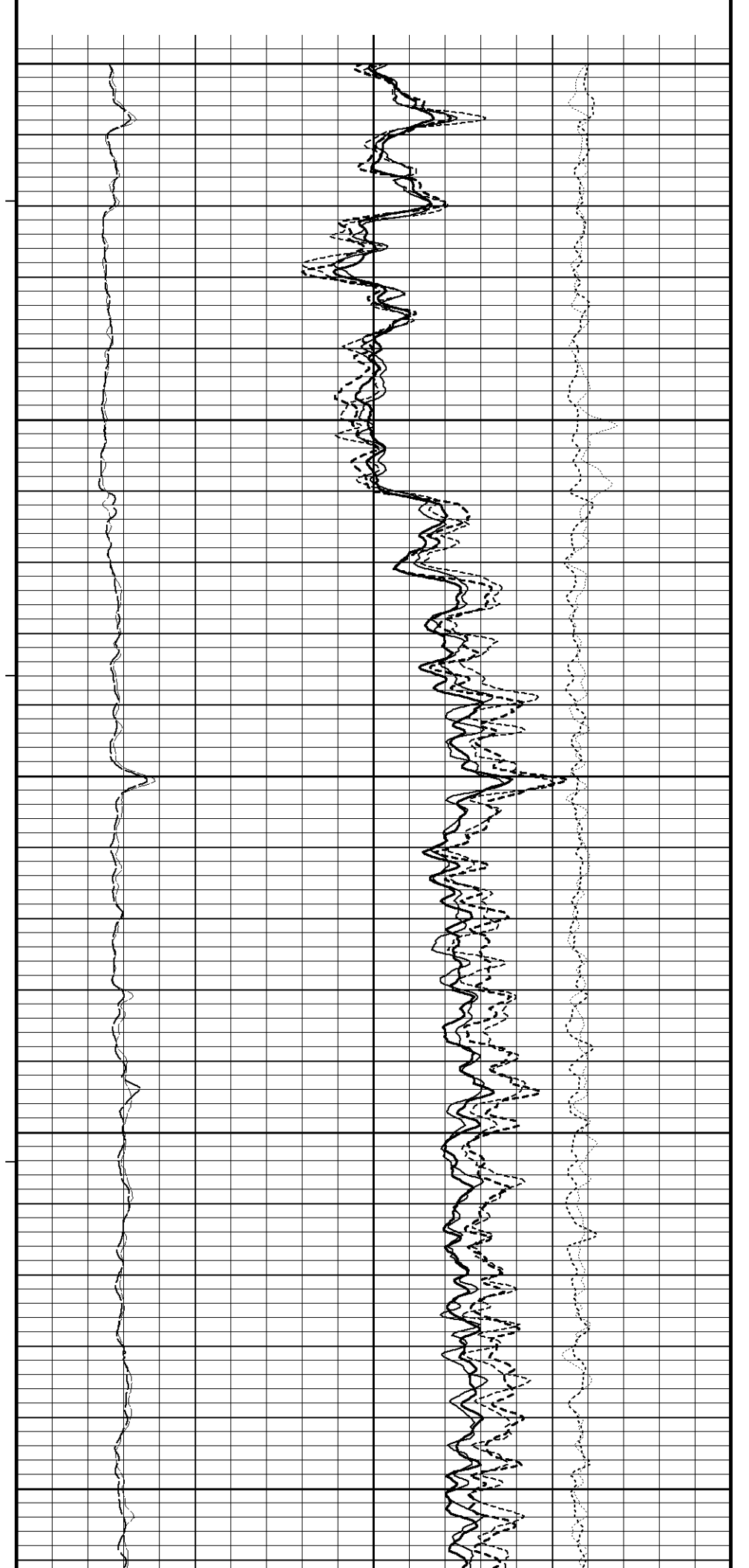
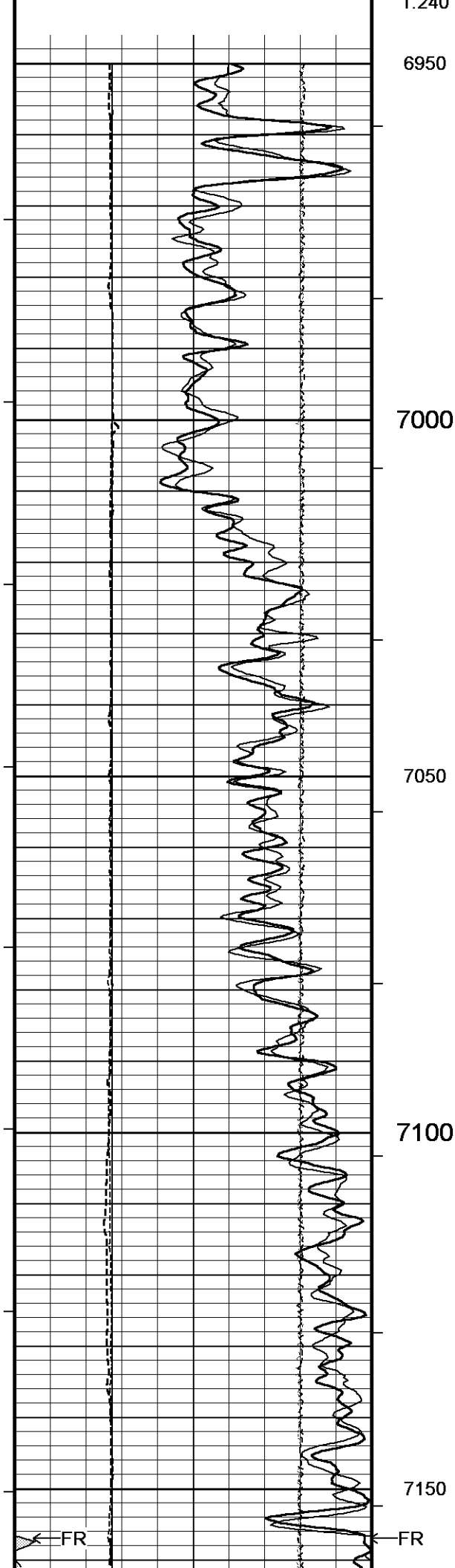


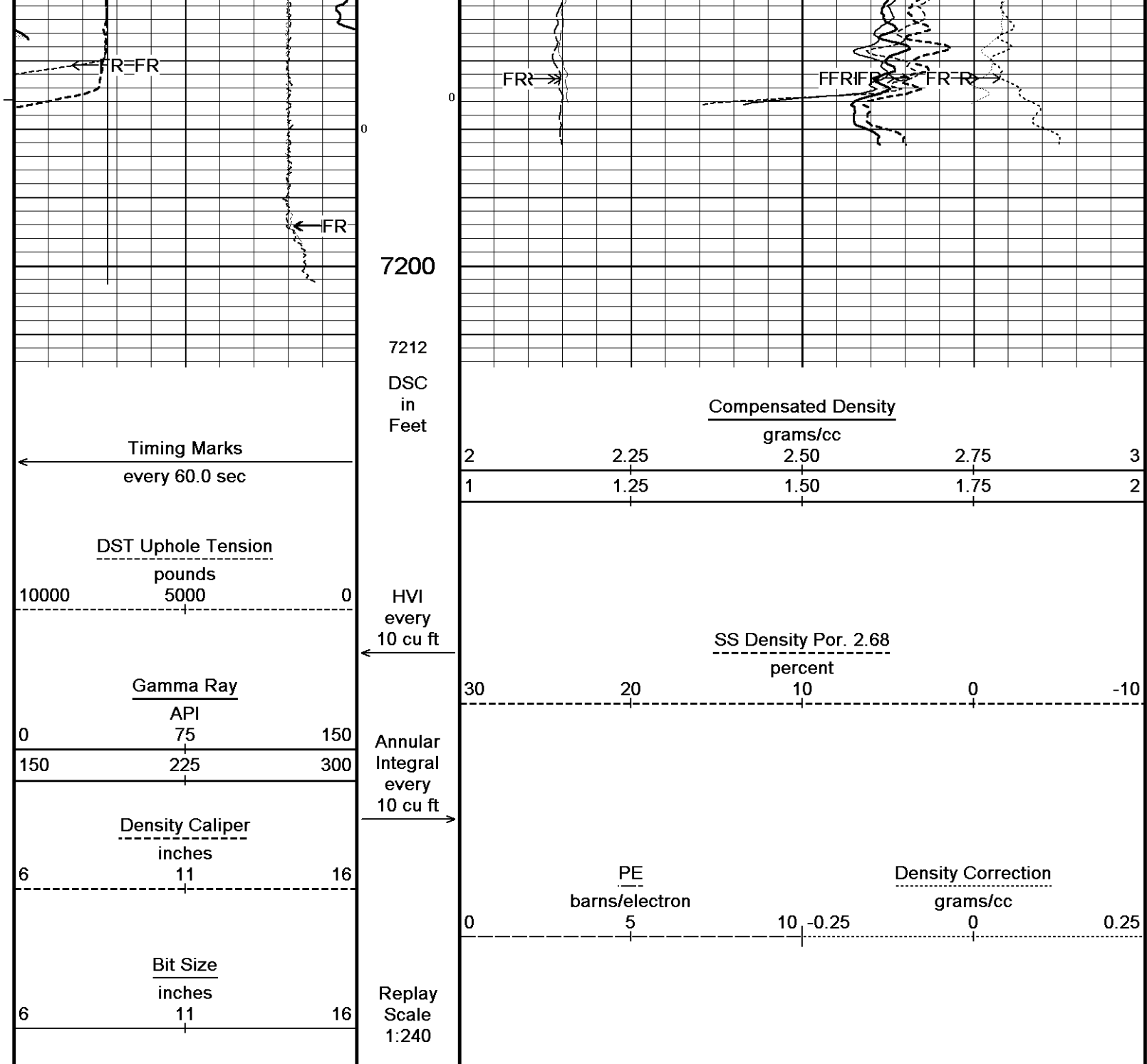












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_REPEAT.dta
Filename: C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta
System Versions: Logged with 12.02.4401 Processed with 12.02.4401 Plotted with 12.02.4401

↑ OVERLAY ↑

BEFORE SURVEY CALIBRATION

C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta

General Constants All 000

Last Edited on 06-NOV-2011 05:31

General Parameters

Mud Resistivity	1.370	ohm-metres
Mud Resistivity Temperature	91.000	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	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 0			
Reading No	Measured	Calibrated (lbs)	Field Calibration on 06-NOV-2011 05:03
1	15421.76	0.00	
2	17032.58	360.00	
High Resolution Temperature Calibration MCG-D.A 342			
	Measured	Calibrated(Deg F)	Field Calibration on 29-OCT-2011 19:26
Lower	10.00	10.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG-D.A 342			
Pre-filter Length	11		Last Edited on
SP Calibration MCG-D.A 342			
	Measured	Calibrated (mV)	Field Calibration on 29-OCT-2011 19:26
Reference 1	100.0	100.0	
Reference 2	-100.0	-100.0	
Gamma Calibration MCG-D.A 342			
	Measured	Calibrated (API)	Field Calibration on 06-NOV-2011 04:51
Background	104	72	
Calibrator (Gross)	869	599	
Calibrator (Net)	765	527	
Gamma Constants MCG-D.A 342			
			Last Edited on 28-OCT-2011 01:46
Gamma Calibrator Number	GRC-174		
Mud Density	1.00	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
Neutron Calibration MDN-B.A 306			
Base Calibration			Base Calibration on 05-OCT-2011 14:34 Field Check on 06-NOV-2011 04:53
	Measured	Calibrated (cps)	
	Near Far	Near Far	
	2907 90	3714 110	
Ratio	32.245	33.764	
Field Calibrator at Base		Calibrated (cps)	
		2329 3388	
Ratio		0.687	
Field Check		Calibrated (cps)	
		2334 3437	
Ratio		0.679	
Neutron Constants MDN-B.A 306			
			Last Edited on 06-NOV-2011 04:55
Neutron Source Id	P44384B		
Neutron Jig Number	6584		
Epithermal Neutron	No		
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.00	gm/cc	
Limestone Sigma	7.10	cm	

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	
Salinity Correction	Not Applied	

FE Calibration MFE-B.A 179		Base Calibration on 05-OCT-2011 16:03 Field Check on 06-NOV-2011 05:22	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	11.5	1.3	
Reference 2	963.8	126.8	
Base Check		280.4	
Field Check		280.5	

FE Constants MFE-B.A 179		Last Edited on 06-NOV-2011 05:22	
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-A.A 191		Field Calibration on 29-OCT-2011 19:28	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MAI-A.A 191		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-A.A 191			Base Calibration on 31-AUG-2011 09:58 Field Check on 06-NOV-2011 05:23		
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	15.8	467.8	9.3	966.2	
2	6.2	382.6	7.6	821.4	
3	3.9	257.9	5.2	566.0	
4	2.1	136.5	2.6	279.2	
Array Temperature		88.9	Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	13.9	3864.4	
2	0.0	0.0	28.8	3513.9	
3	0.0	0.0	26.8	3063.9	
4	0.0	0.0	18.0	2020.5	
Deep	0.0	0.0	15.9	1982.5	
Medium	0.0	0.0	39.2	4080.1	
Shallow	0.0	0.0	43.7	5207.3	
Array Temperature		0.0	58.6		Deg F

Induction Constants MAI-A.A 191			Last Edited on 06-NOV-2011 05:23		
Induction Model		RtAP-WBM			
Caliper for Borehole Corr.		Density Caliper			
Hole Size for Borehole Correction		N/A		inches	
Tool Centred		No			

Stand-off Type	0.50	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-B 167

Base Calibration on 29-OCT-2011 11:57
Field Calibration on 06-NOV-2011 05:21

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	15024	4.00
2	23536	5.96
3	31456	7.98
4	39664	9.86
5	48928	11.88
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.96	7.98

Photo Density Calibration MPD-B 167

Base Calibration on 29-OCT-2011 11:46
Field Check on 06-NOV-2011 05:01

Density Calibration				
Base Calibration				
	Near	Measured Far	Calibrated (sdu) Near	Far
Reference 1	50886	18093	53237	19445
Reference 2	23683	2986	25135	2545
Field Check at Base				
	1233.0	1721.6		
Field Check				
	1232.9	1719.4		
PE Calibration				
Base Calibration				
	WS	Measured WH	Ratio	Calibrated Ratio
Background	225	1111		
Reference 1	17104	50709	0.340	0.320
Reference 2	6561	23545	0.282	0.274
Field Check at Base				

Field Check at Base 225.4 1111.1

Field Check

224.4 1102.6

Density Constants MPD-B 167

Last Edited on 06-NOV-2011 05:21

Density Source Id	P44263B
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	1.16 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

DOWNHOLE EQUIPMENT

C:\Logs\Laramie\Laramie Hawxhurst 17-05B\Laramie Hawxhurst 17-05B_MAIN.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 95 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 314 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.A 342 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Neutron

MDN-B.A 306 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 167 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint

SKJ-D.A 88 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

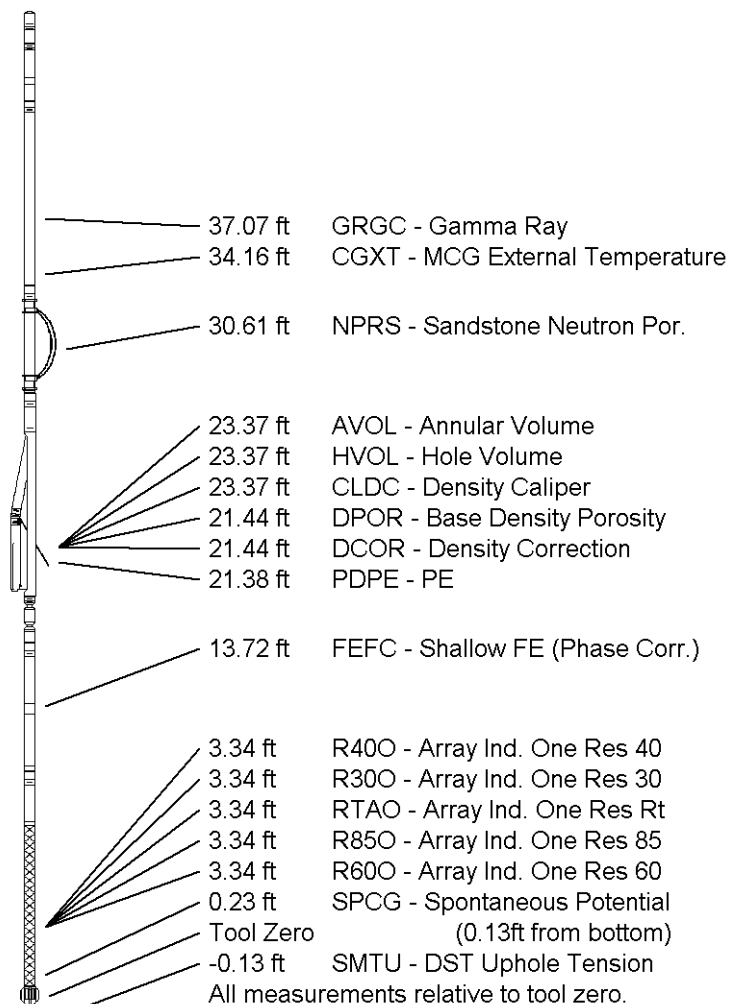
Compact Focussed Electric

MFE-B.A 179 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-A.A 191 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 46.23 ft Weight: 363.8 lb



COMPANY	LARAMIE ENERGY II
WELL	HAWXHURST 17-05B
FIELD	BUZZARD CREEK
PROVINCE/COUNTY	MESA
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	6807.00	feet	First Reading	7173.00	feet
Elevation Drill Floor	6806.00	feet	Depth Driller	7180.00	feet
Elevation Ground Level	6786.00	feet	Depth Logger	7194.00	feet



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