



COMPENSATED PHOTO DENSITY COMPENSATED DUAL NEUTRON LOG

COMPANY				FRAM OPERATING LLC			
WELL				MANSUR 33-1-K			
FIELD				WHITEWATER			
PROVINCE/COUNTY				MESA			
COUNTRY/STATE				U.S.A. / COLORADO			
LOCATION				SHL: 2165' FNL & 2127' FWL			
				LAT. 38.96463 ; LONG. 108.24227			
SEC	TWP	RGE	Other Services				
33	12S	97W	MA/MFE				
API Number			MSS				
Permit Number			CMI				
Permanent Datum G.L., Elevation 6083 feet				Elevations:			
Log Measured From K.B. @ 11 FEET above Permanent Datum				KB 6094.00			
Drilling Measured From K.B.				DF 6093.00			
				GL 6083.00			
Date	13-JUN-2010						
Run Number	ONE						
Depth Driller	3610.00			feet			
Depth Logger	3604.00			feet			
First Reading	3570.00						
Last Reading	477.00						
Casing Driller	480.00			feet			
Casing Logger	477.00			feet			
Bit Size	8.500			inches			
Hole Fluid Type	KCL						
Density / Viscosity	9.40 lb/USg			40.00 CP			
PH / Fluid Loss	9.14			10.00 ml/30Min			
Sample Source	MUD PIT						
Rm @ Measured Temp	0.49 @ 84.9			ohm-m			
Rmf @ Measured Temp	0.392 @ 84.9			ohm-m			
Rmc @ Measured Temp	0.588 @ 84.9			ohm-m			
Source Rmf / Rmc	CALC			CALC			
Rm @ BHT	0.32 @133.0			ohm-m			
Time Since Circulation	4 HOURS						
Max Recorded Temp	133.00			deg F			
Equipment Name	COMPACT						
Equipment / Base	13038			GD JCT			
Recorded By	D. KUNTZ						
Witnessed By	K. CLAUSSEN						

BOREHOLE RECORD			Last Edited: 13-JUN-2010 08:41	
Bit Size inches	Depth From feet		Depth To feet	
8.500	477.00		3610.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	477.00	36.00

REMARKS	
TOOLS: SHA, MCG, MDN, MPD, SKJ, MFE, MSS AND MAI RAN IN COMBINATION	
HARDWARE: MPD: (1) 8 INCH PROFILE PLATE MDN: (1) DUAL BOWSPRING MFE: (1) 0.5 INCH STANDOFF MSS: (3) 1 INCH STANDOFFS MAI: (1) 0.5 INCH STANDOFF	
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.	
19000 PPM CHLORIDES USED IN THE DRILLING MUD.	
UNDERGAUGE SECTIONS WERE REPEATED AT: 3310-3330 AND 3265-3275 FEET.	

CALIPER CHECK IN CASING PRESENTED, REFERENCE I.D. =8.97" (9 5/8", 36 LB/FT CASING)

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 1170 CU.FT.

ANNULAR VOLUME WITH 5.5 INCH PRODUCTION CASING = 720 CU.FT.

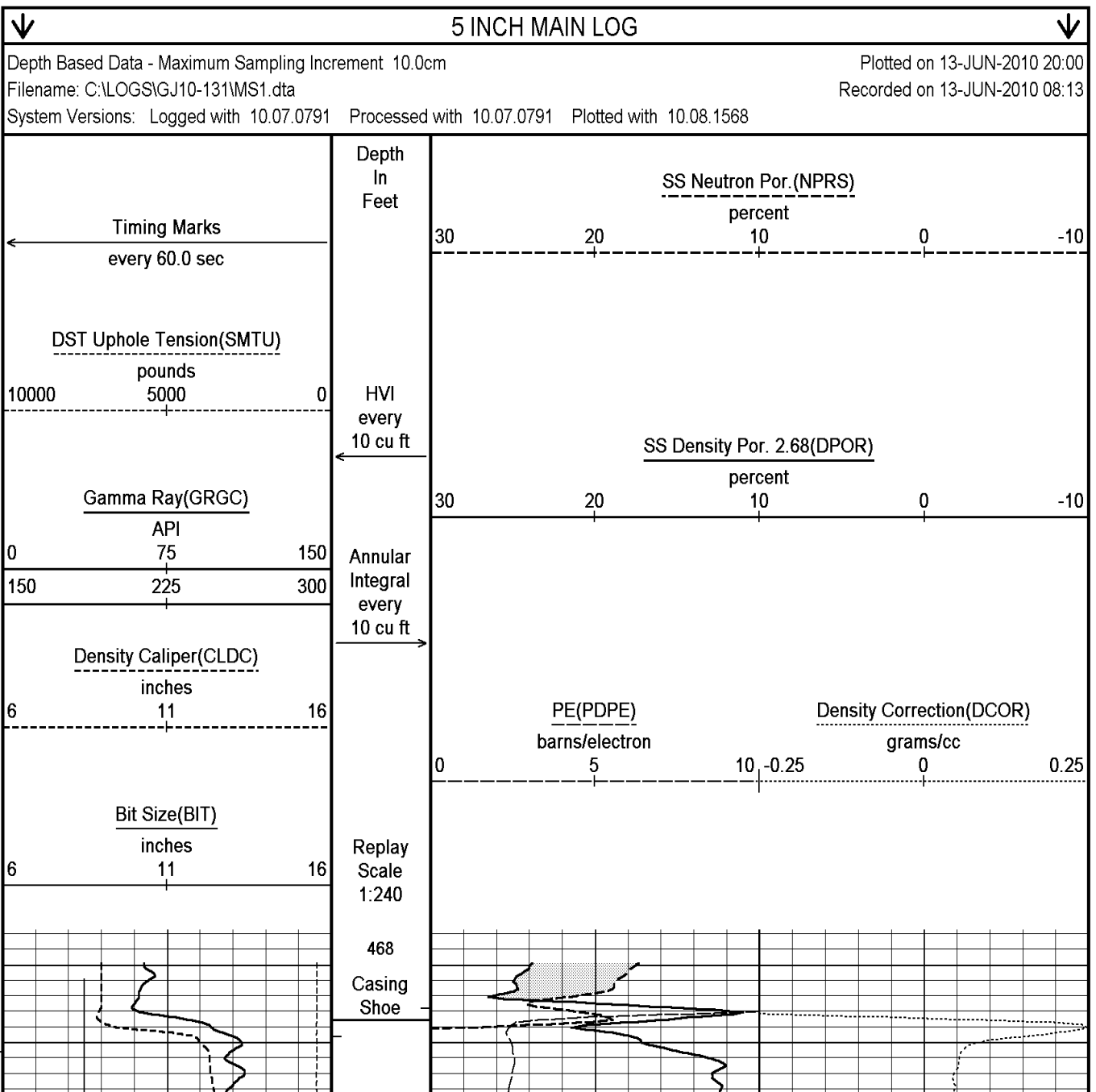
ENGINEER(S): D. KUNTZ

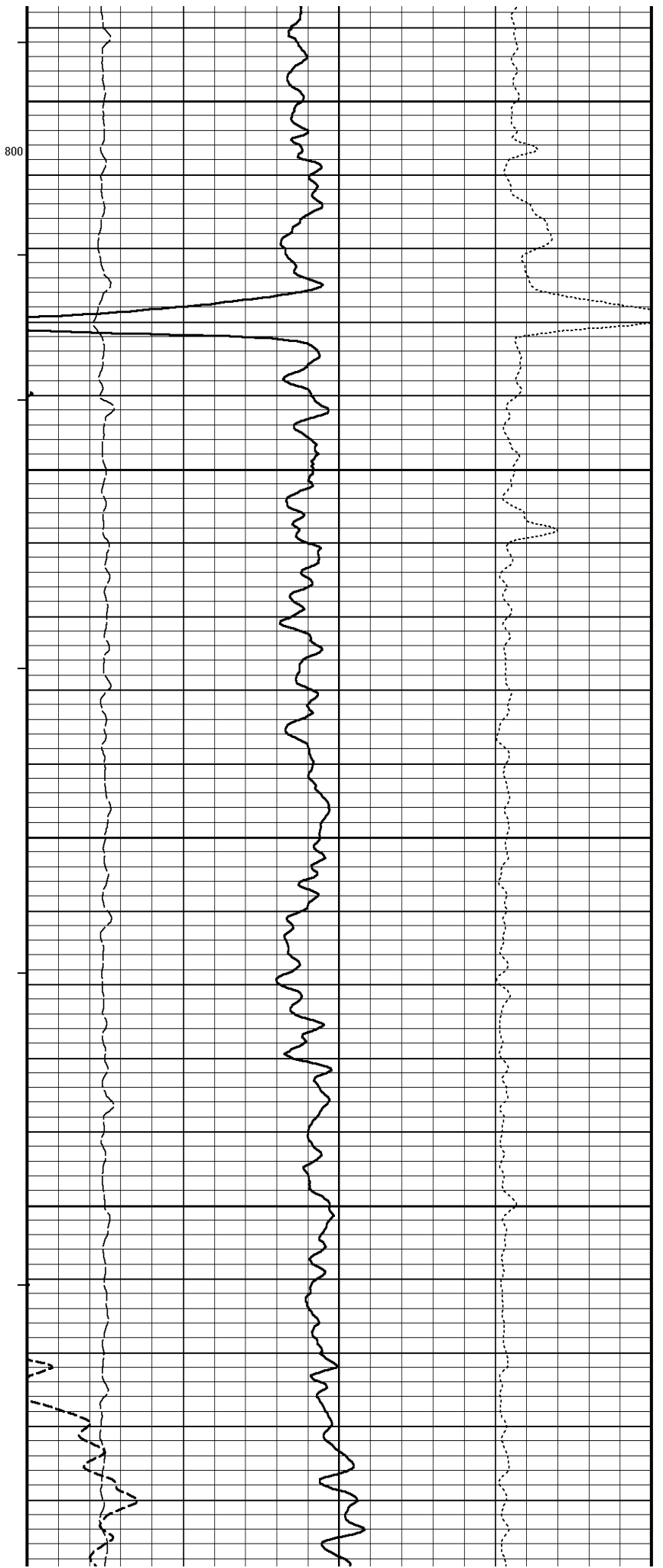
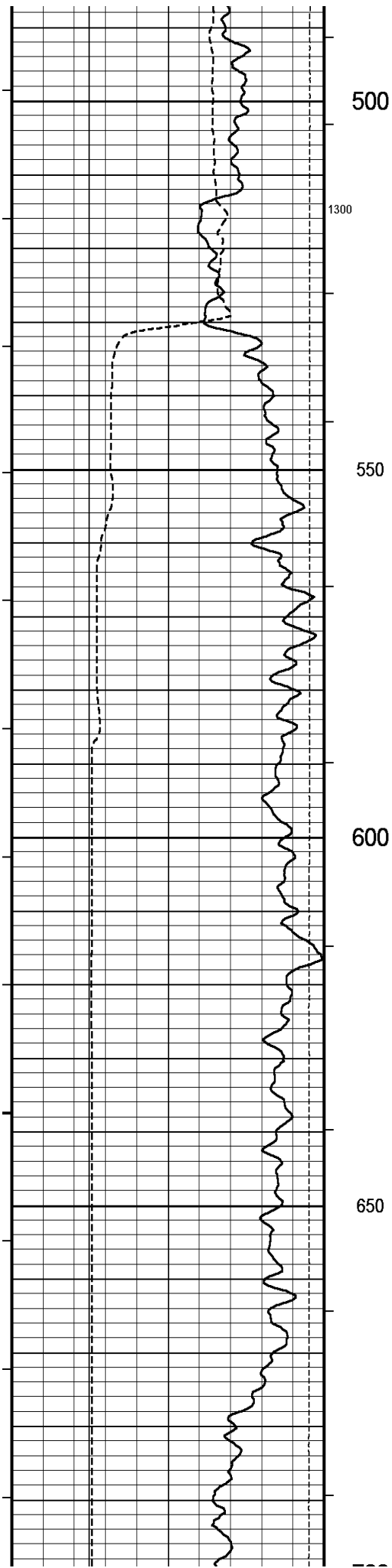
OPERATOR(S): S. KAISER

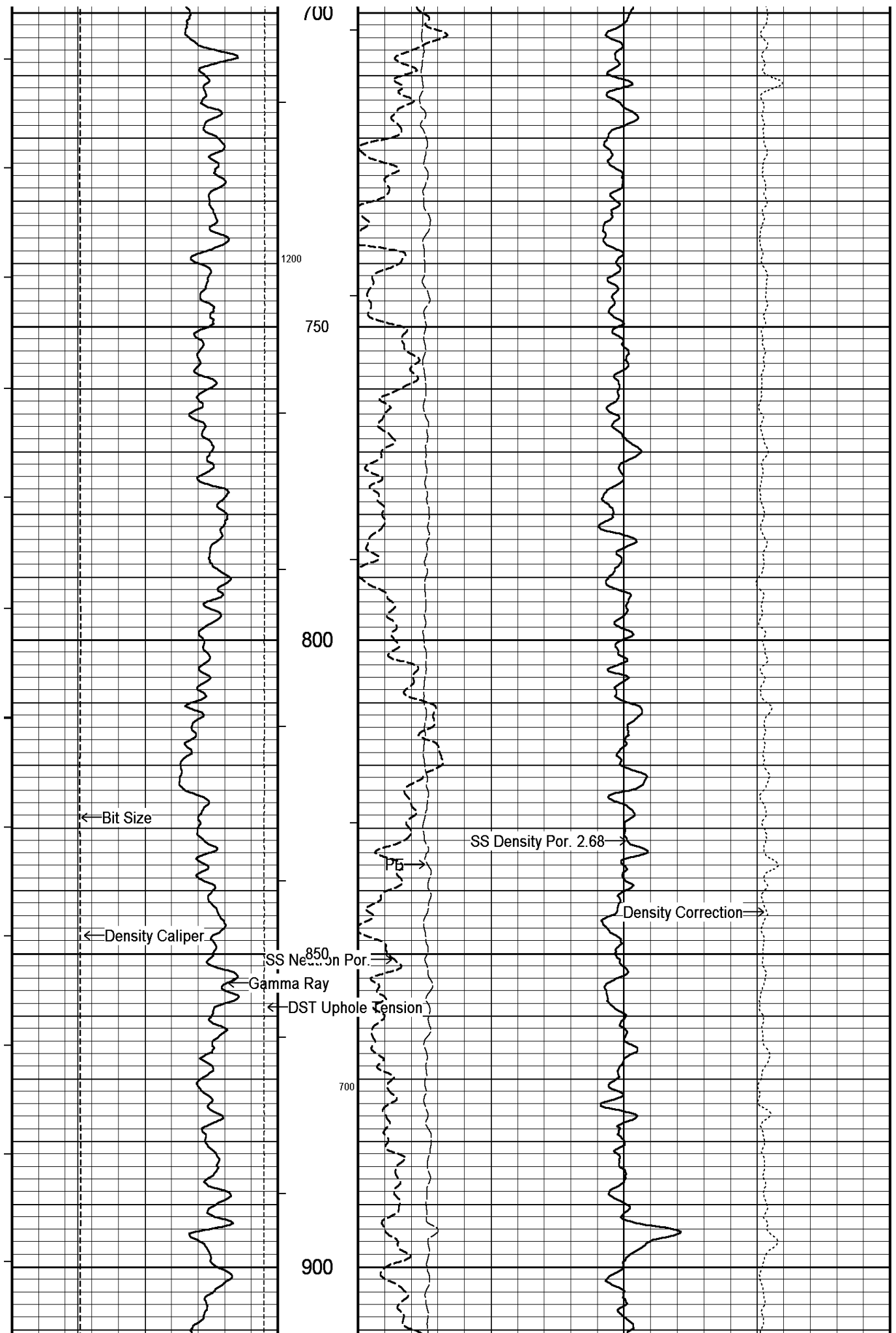
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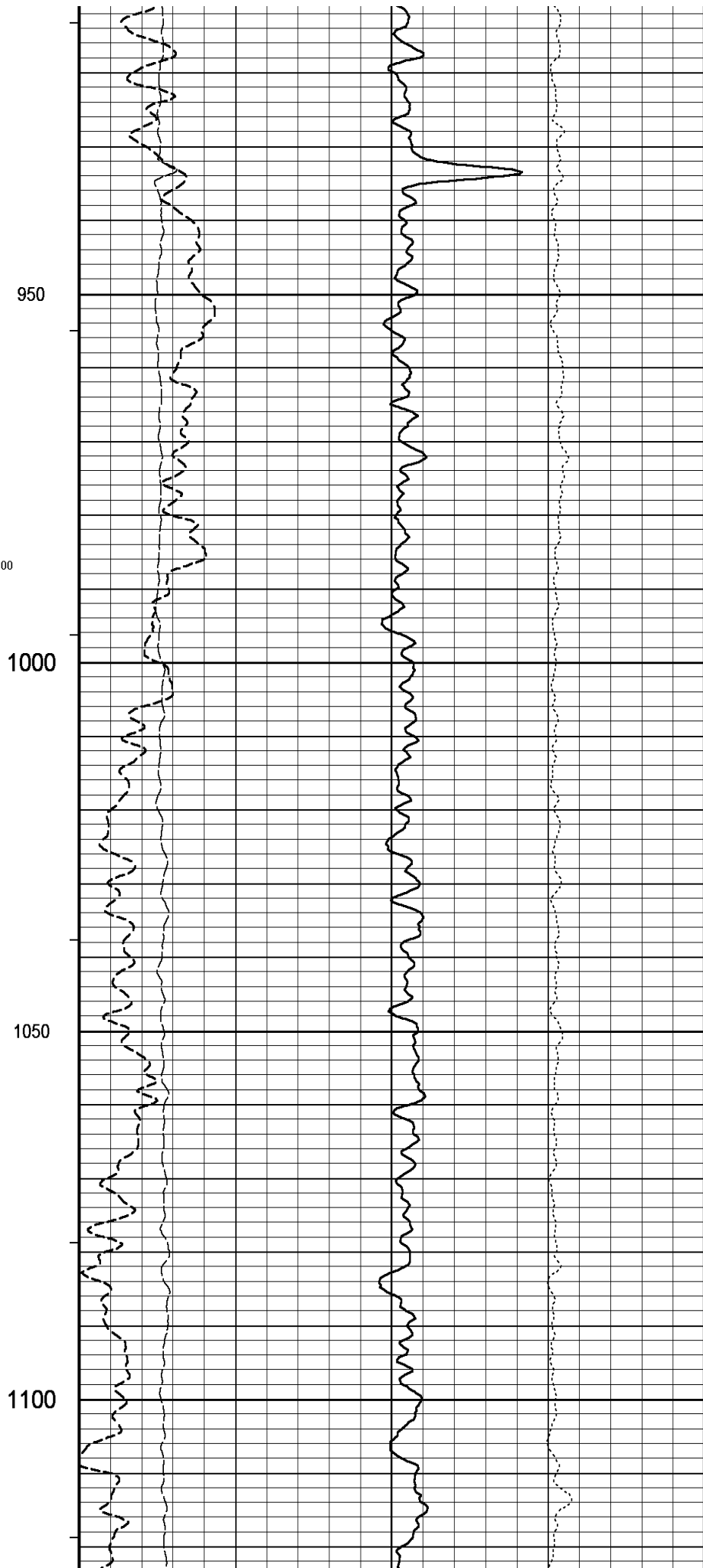
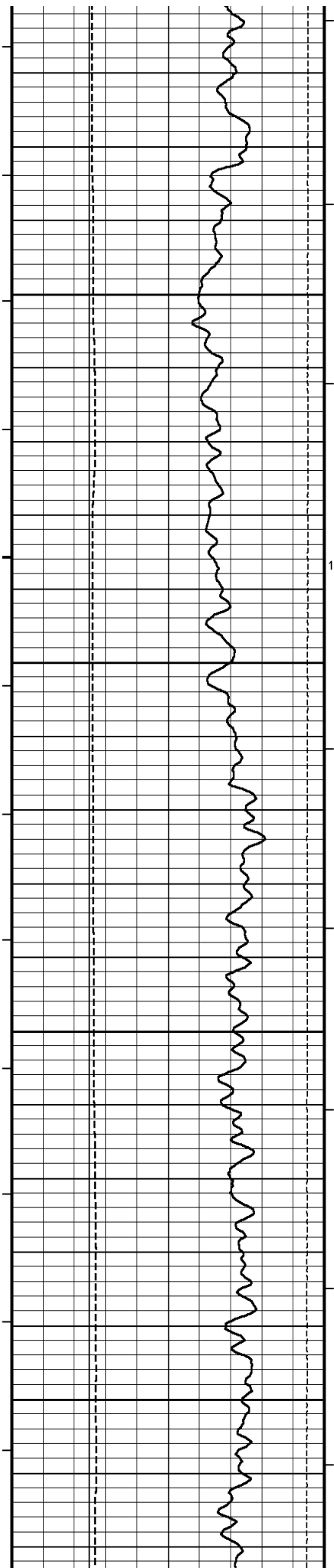
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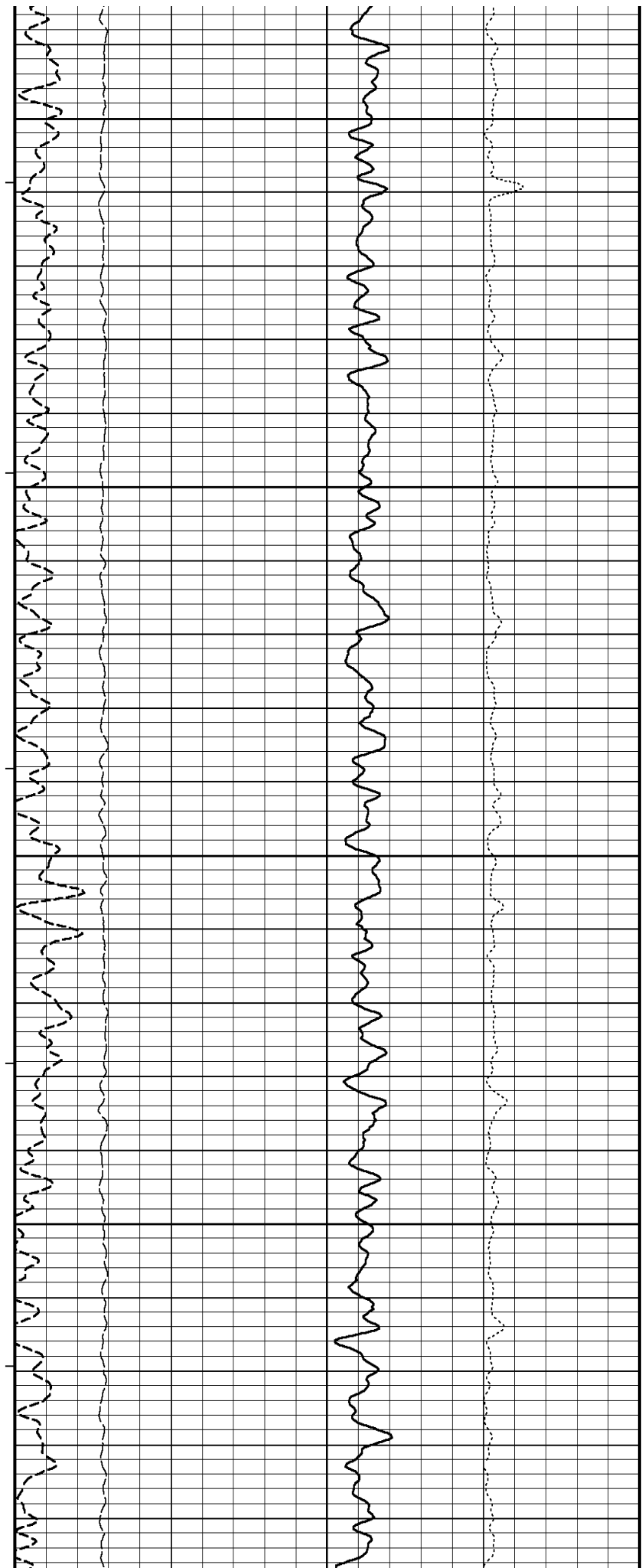
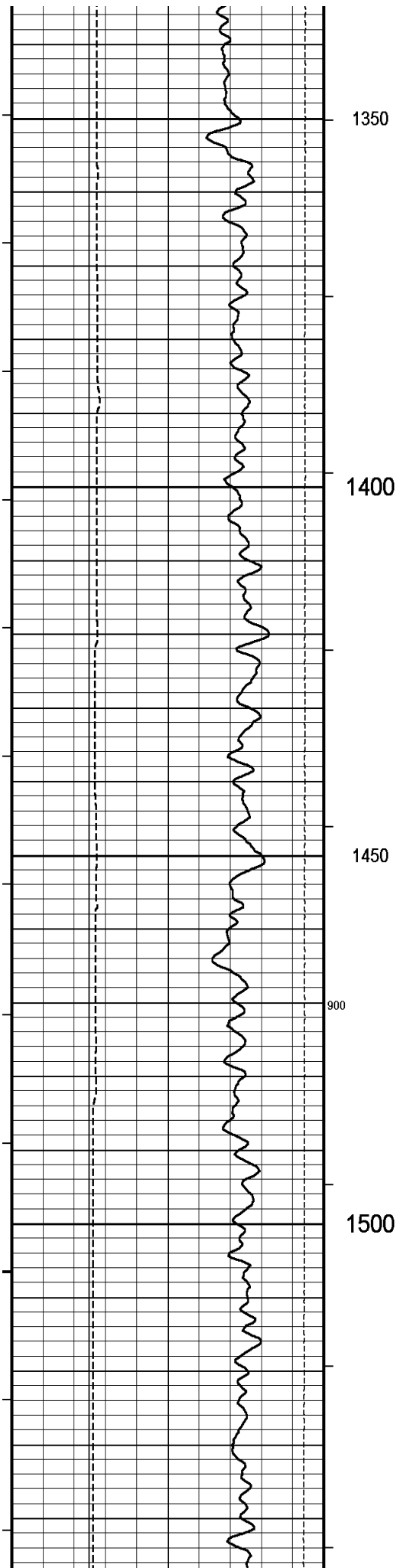
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

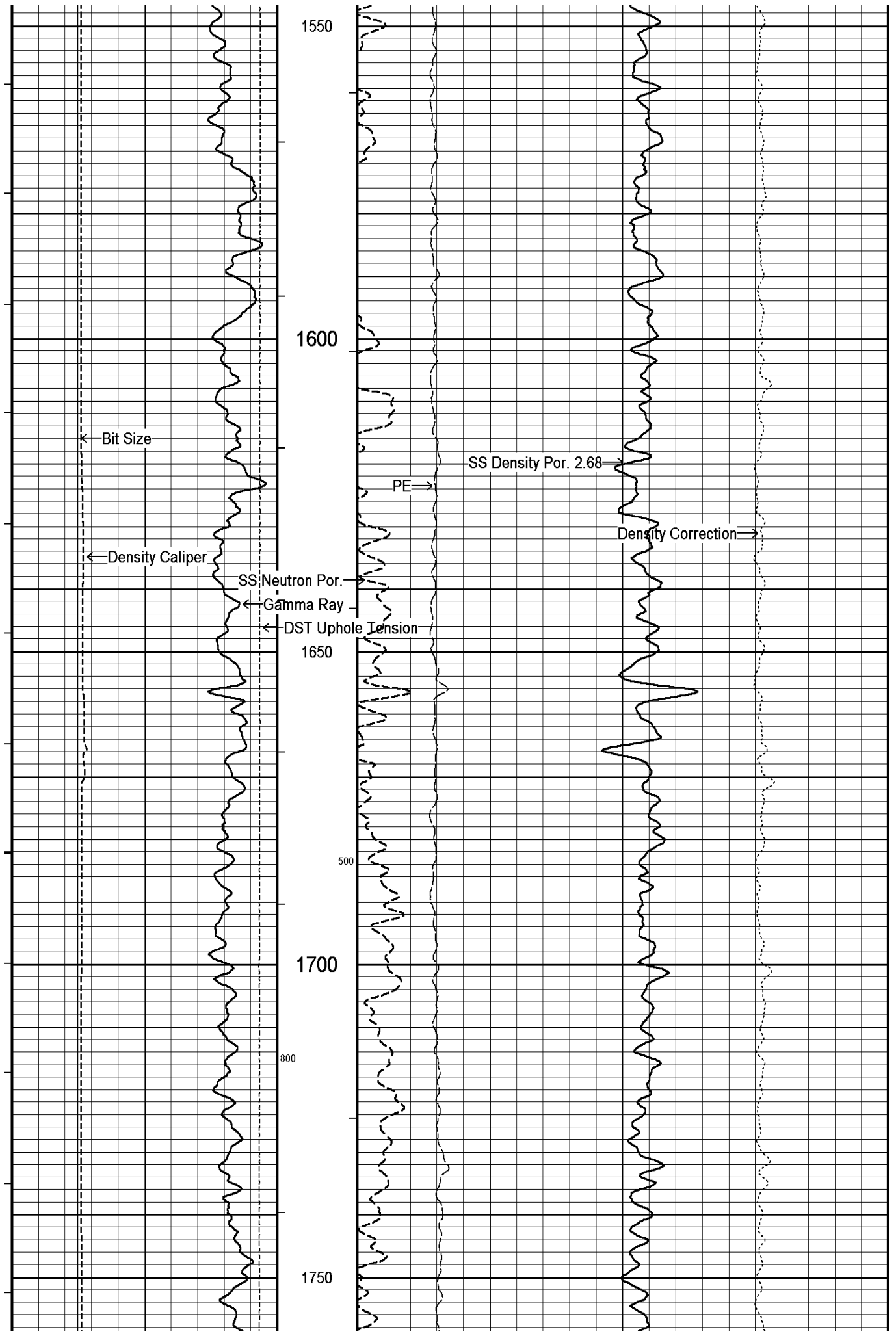


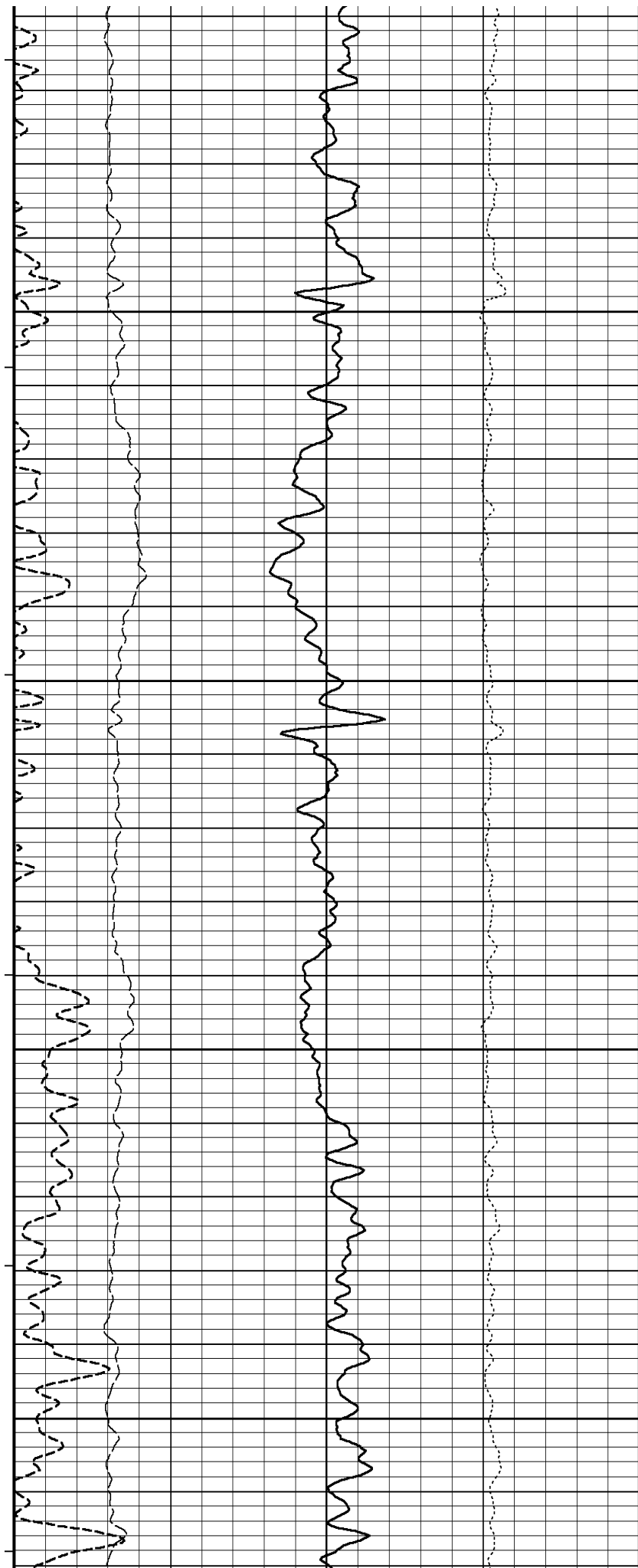
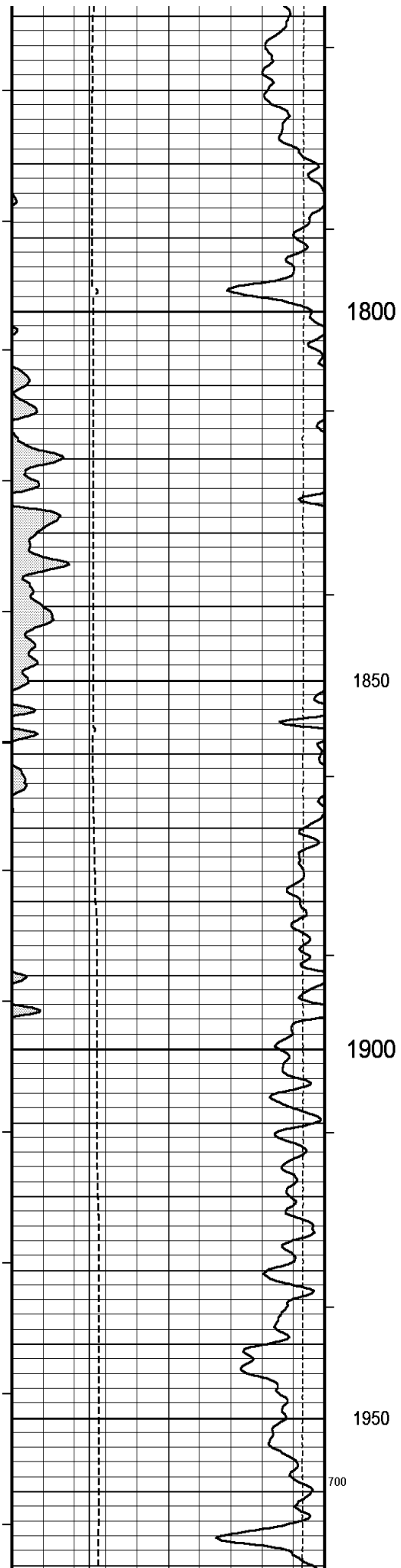


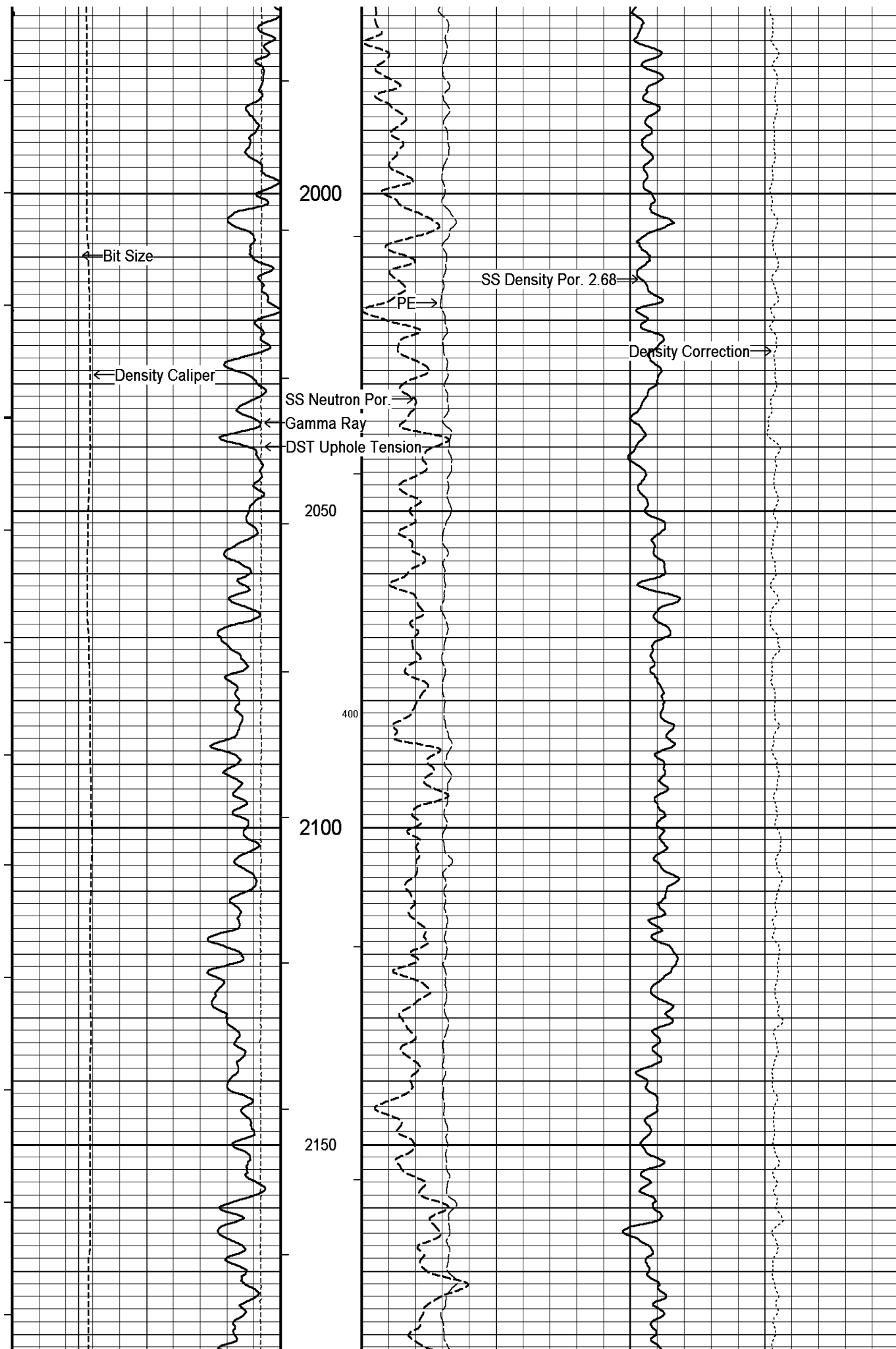


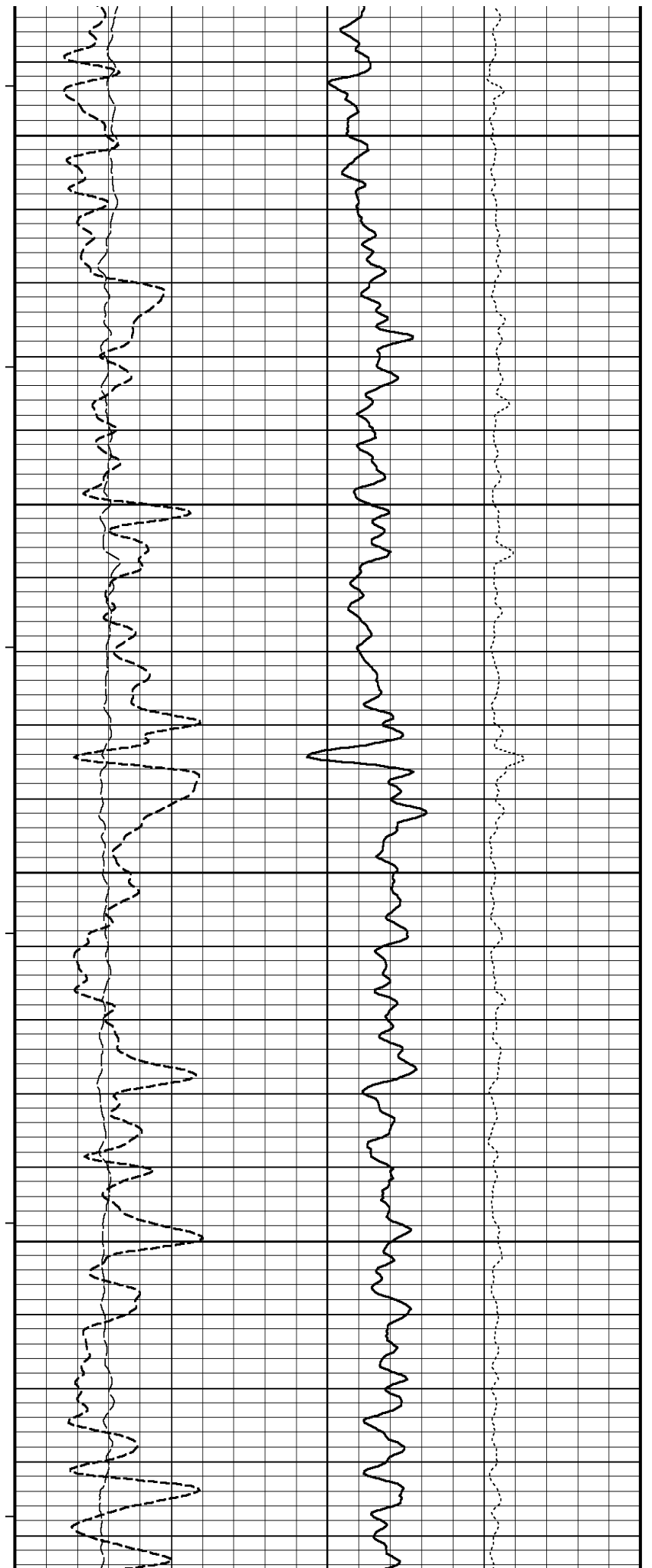
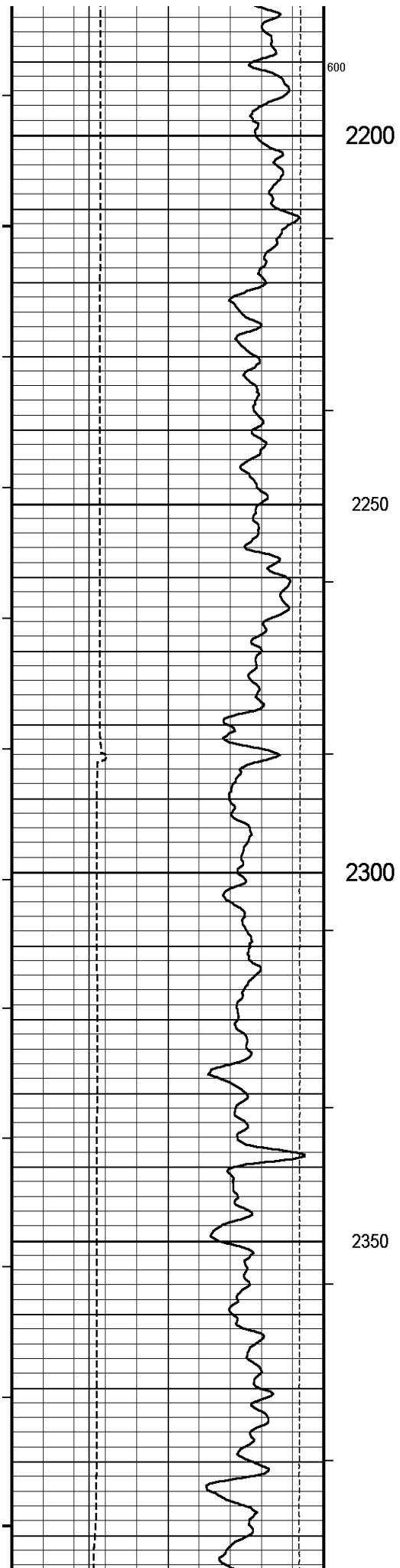


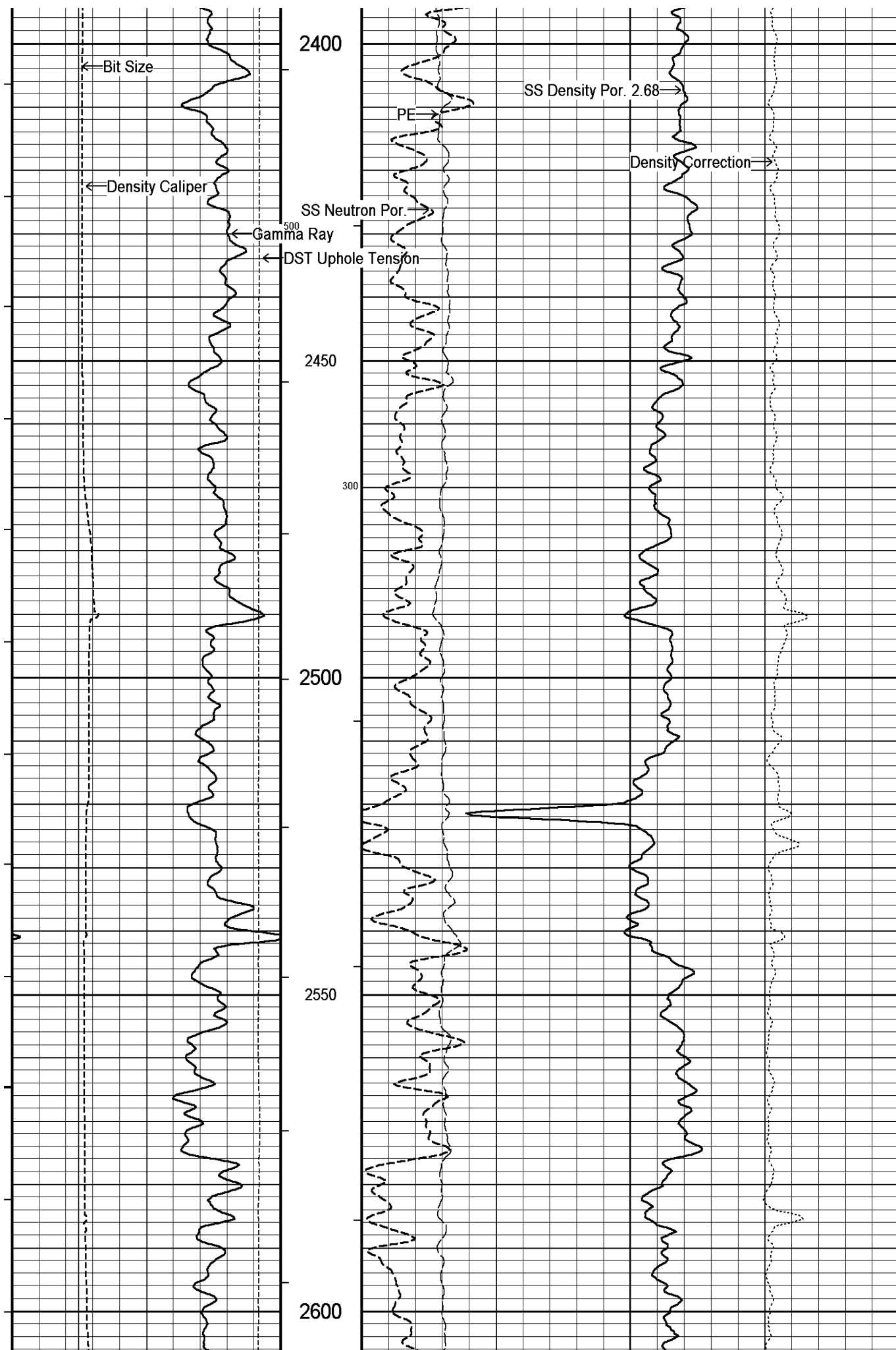


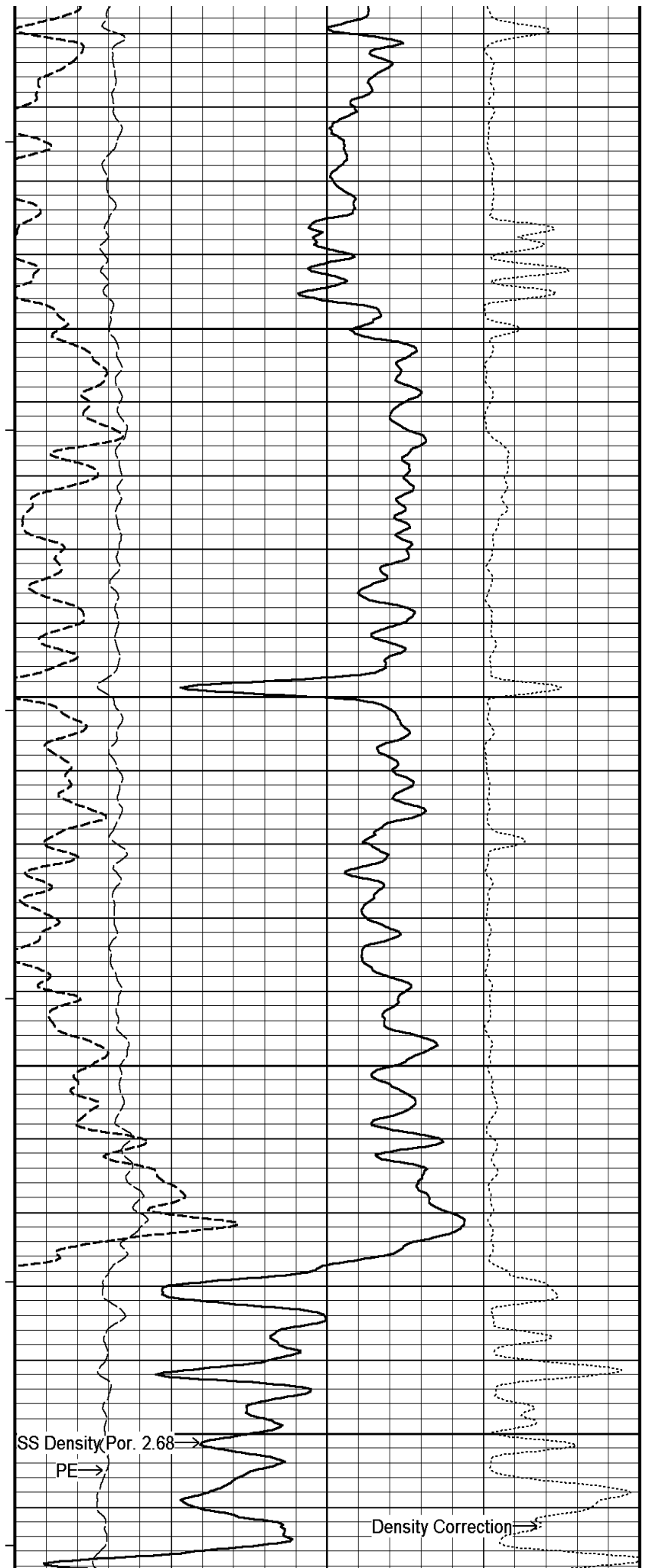
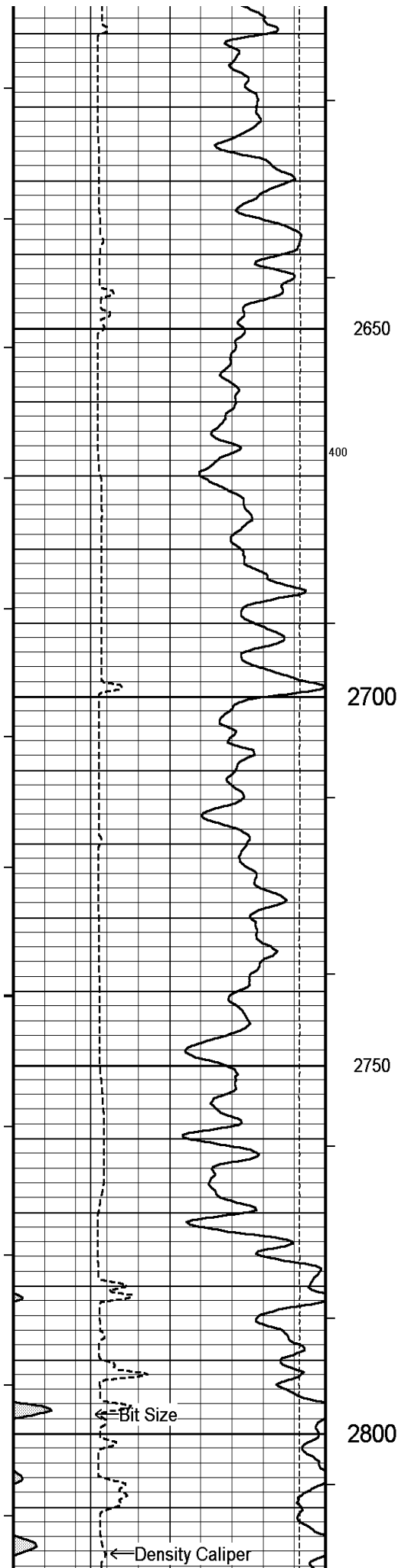


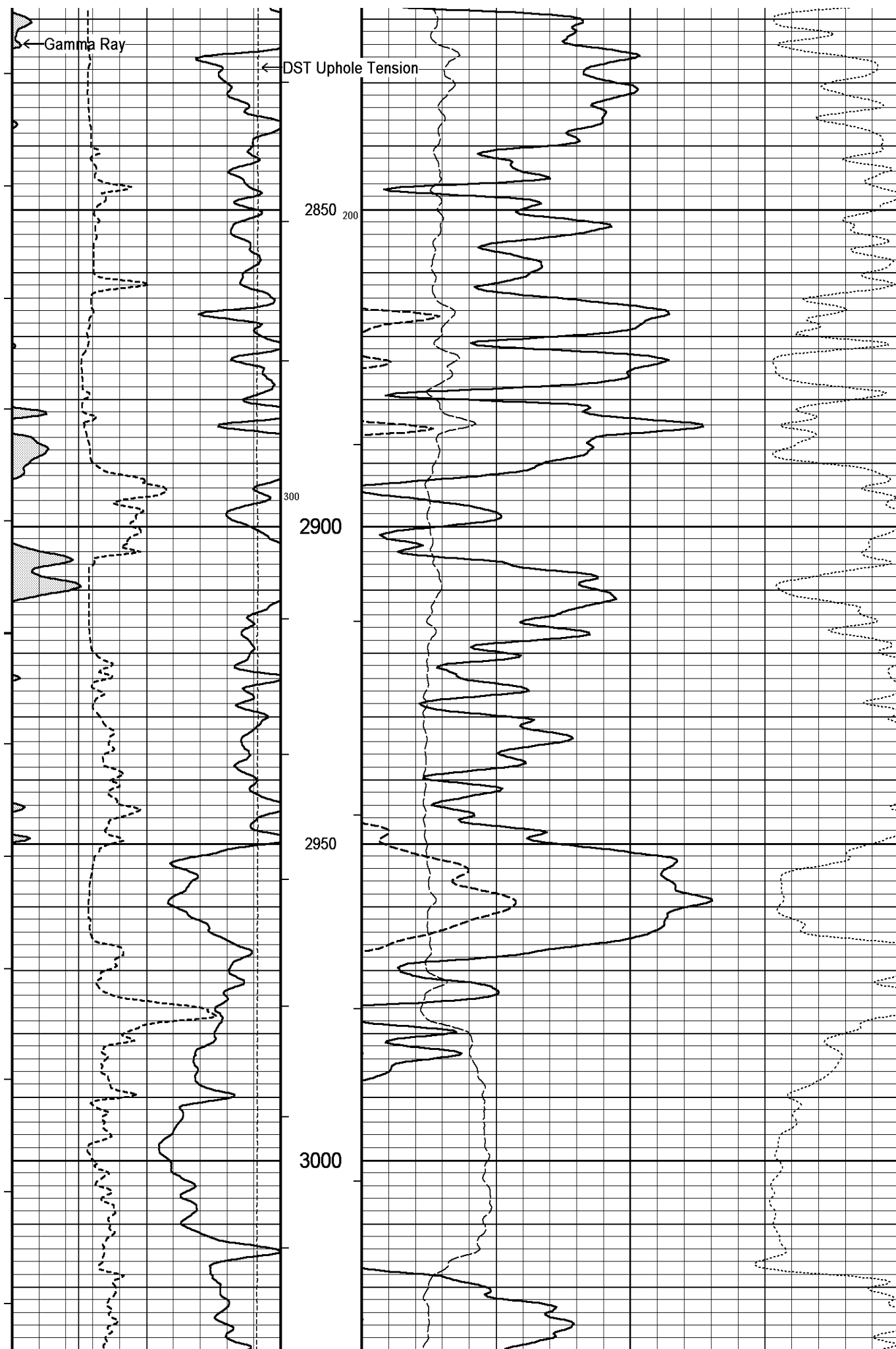


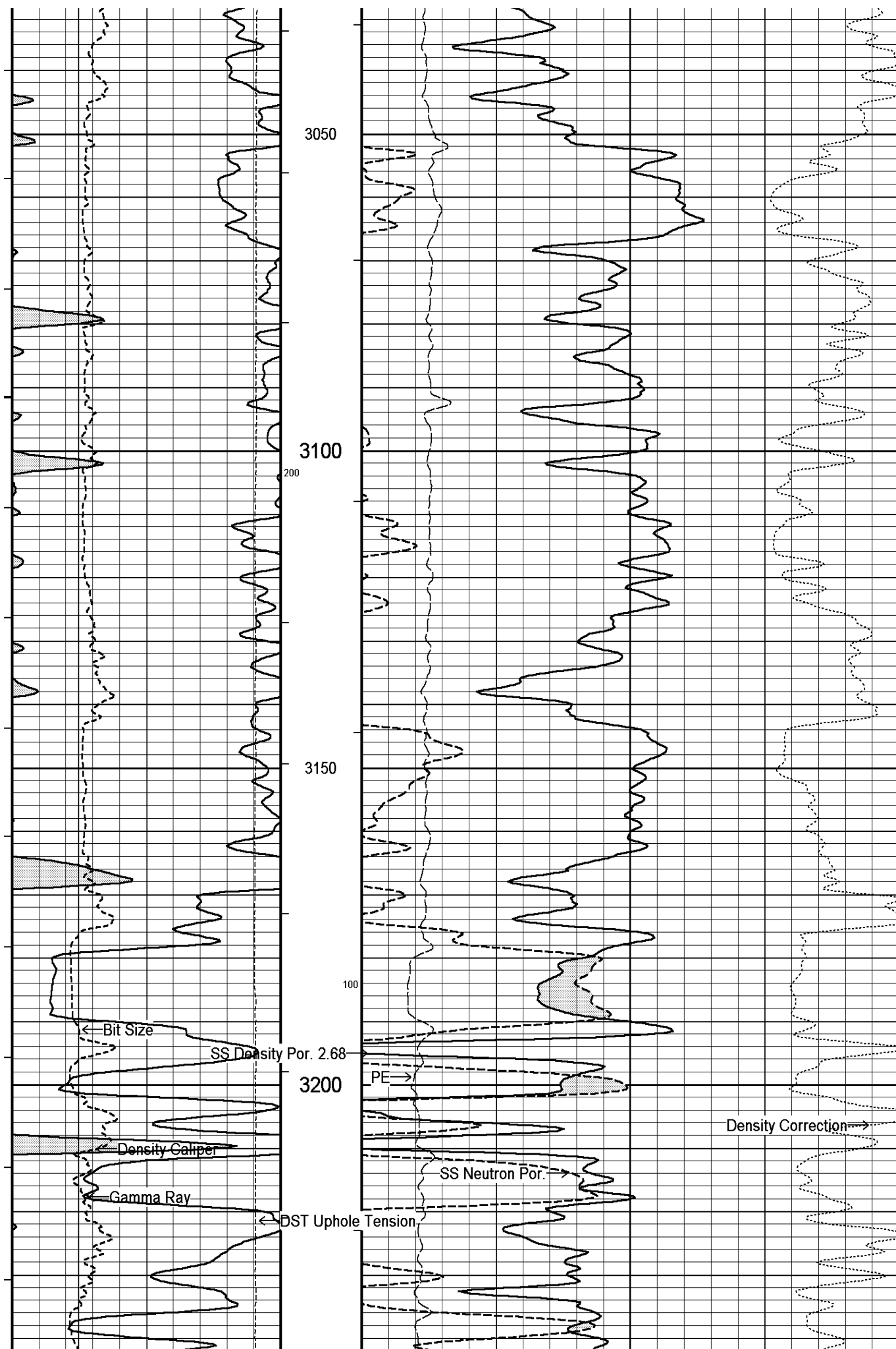


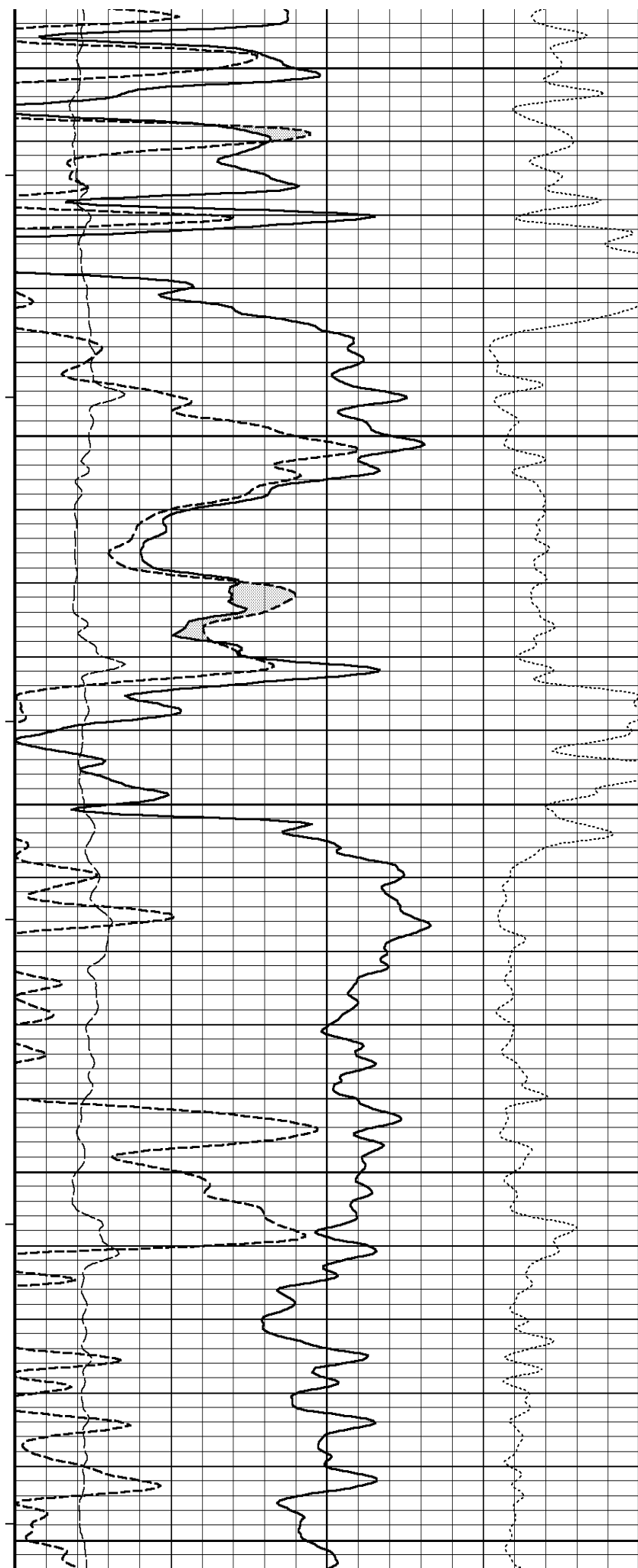
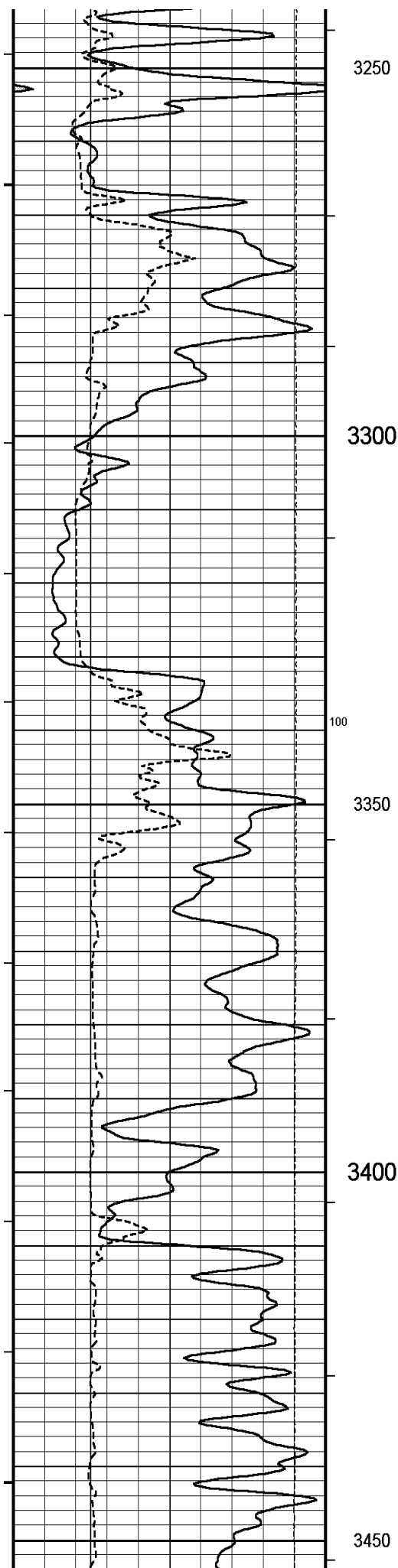


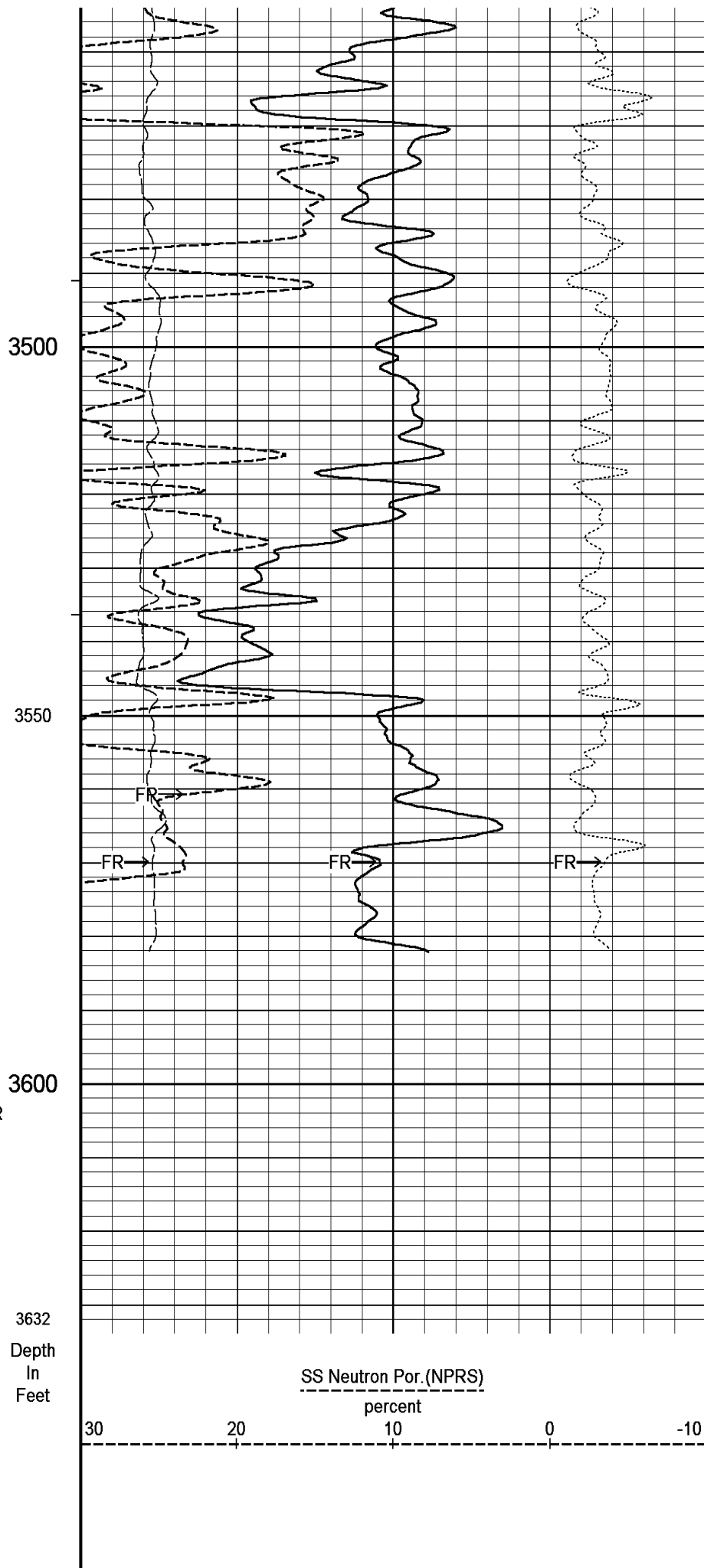
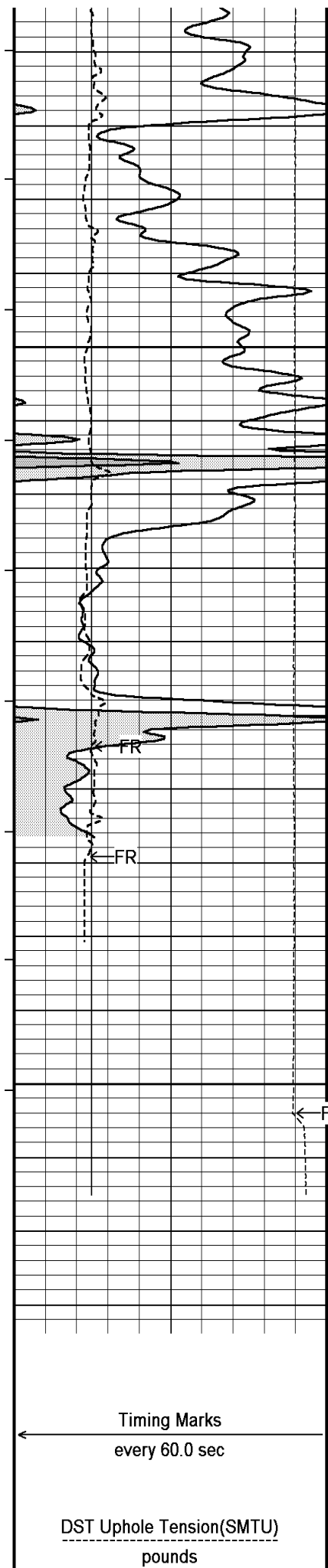


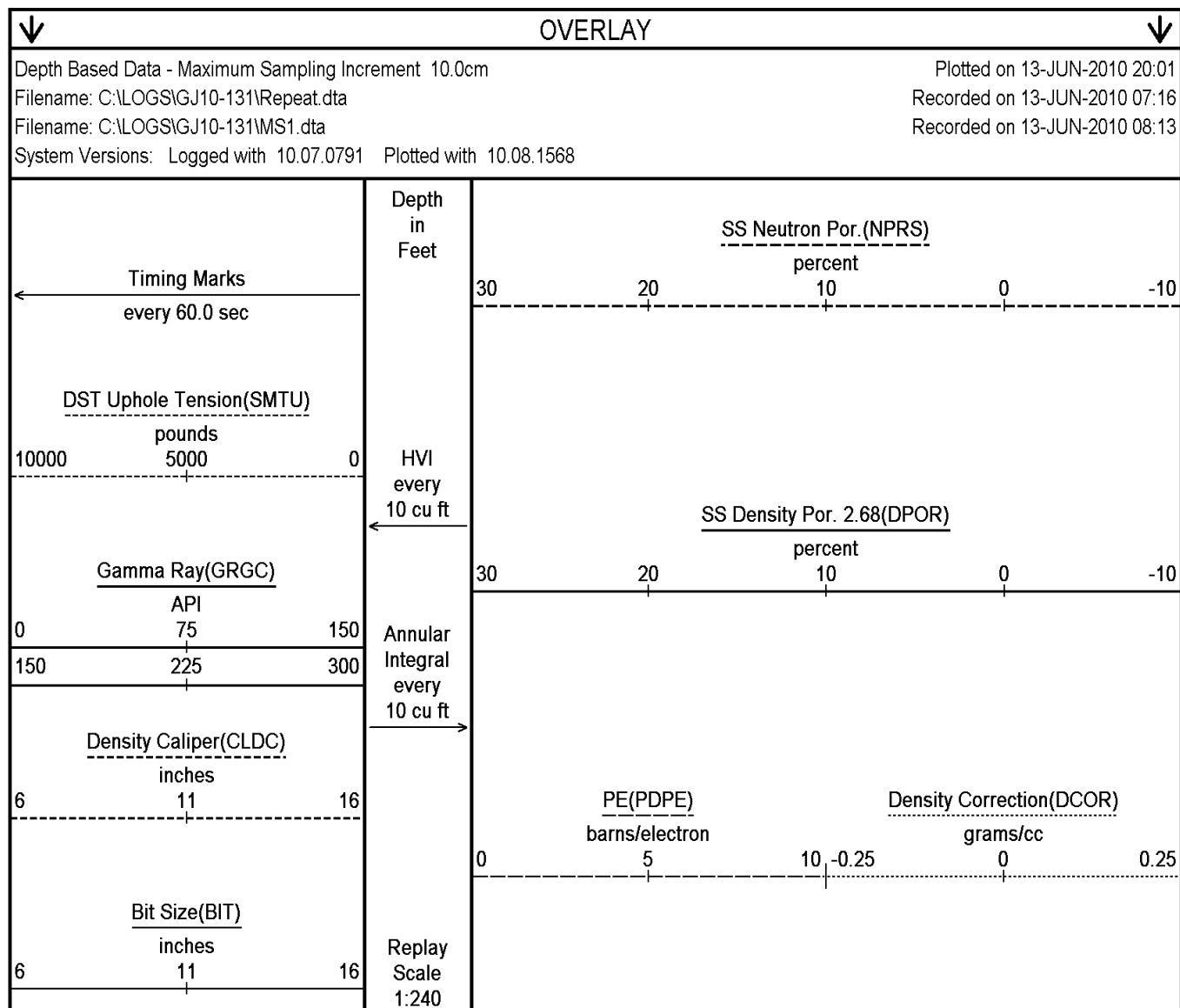
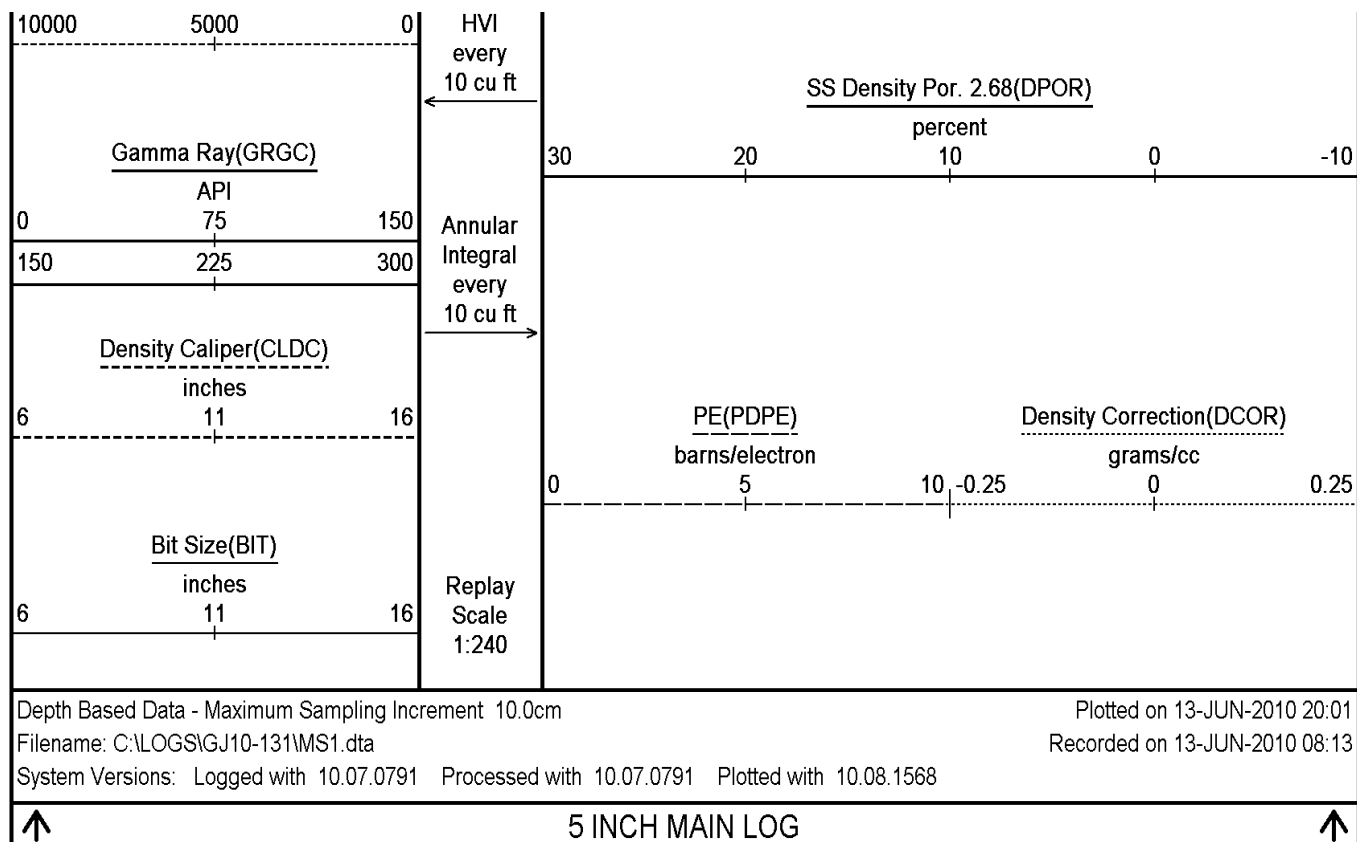


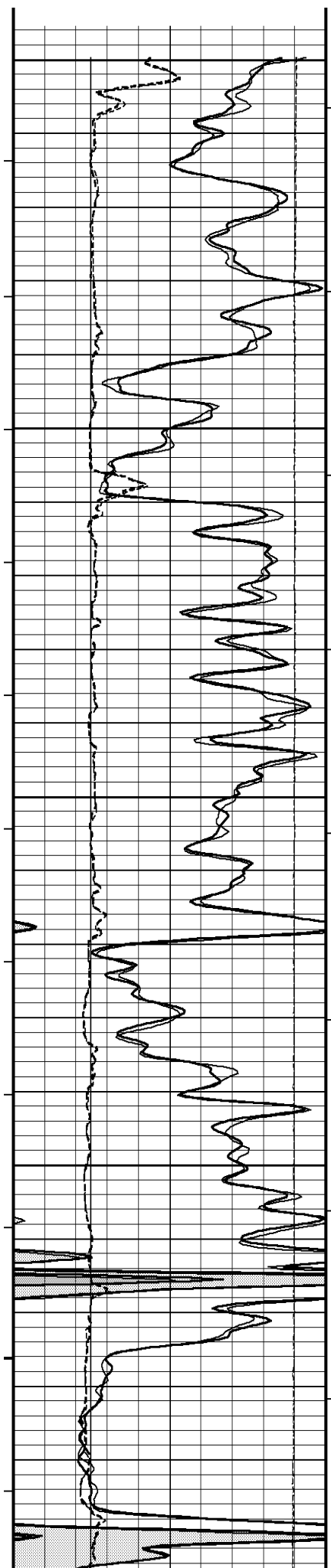












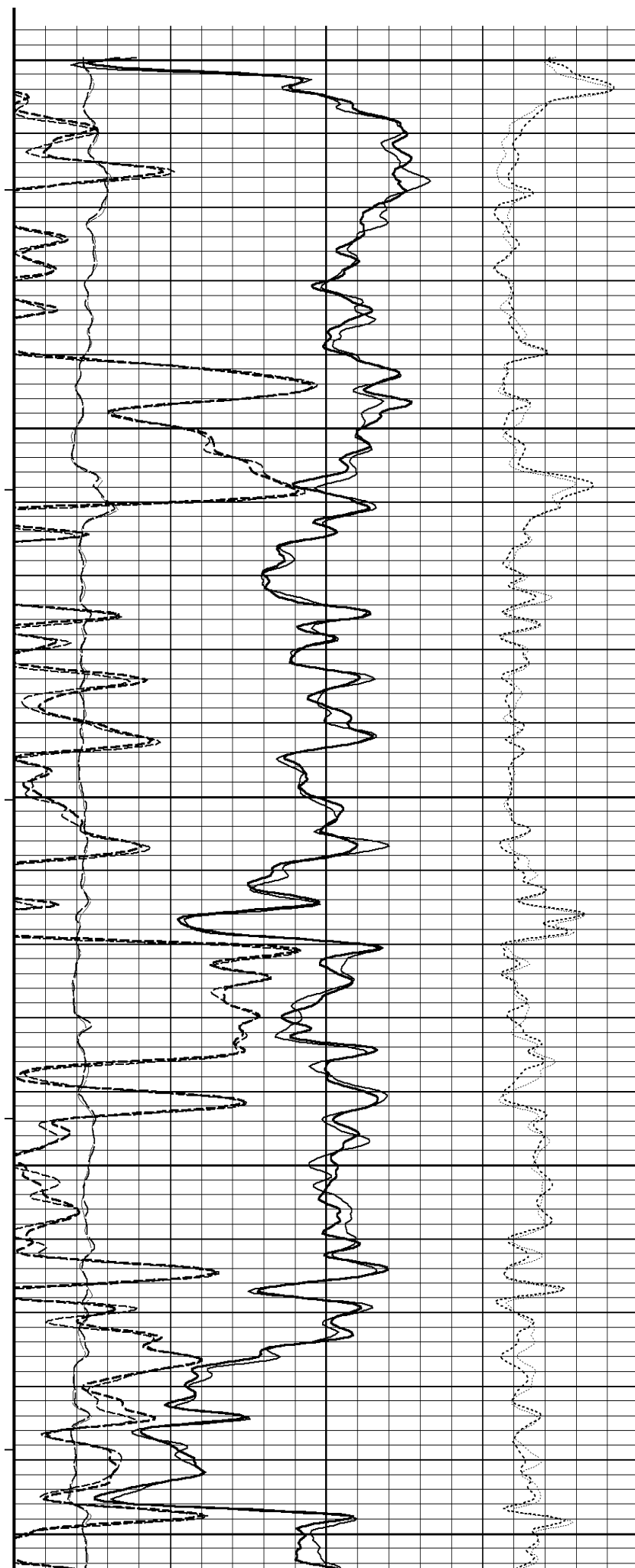
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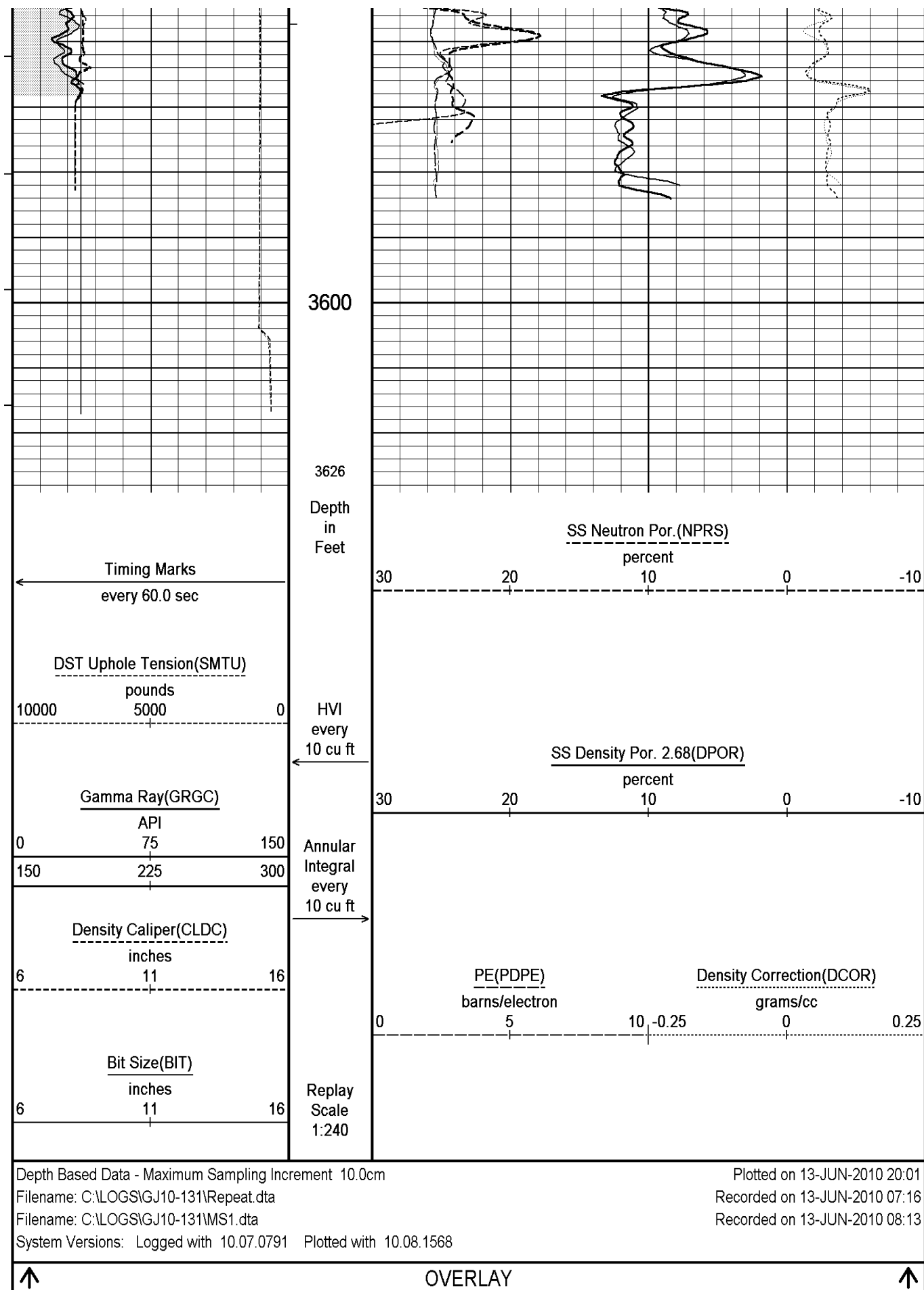
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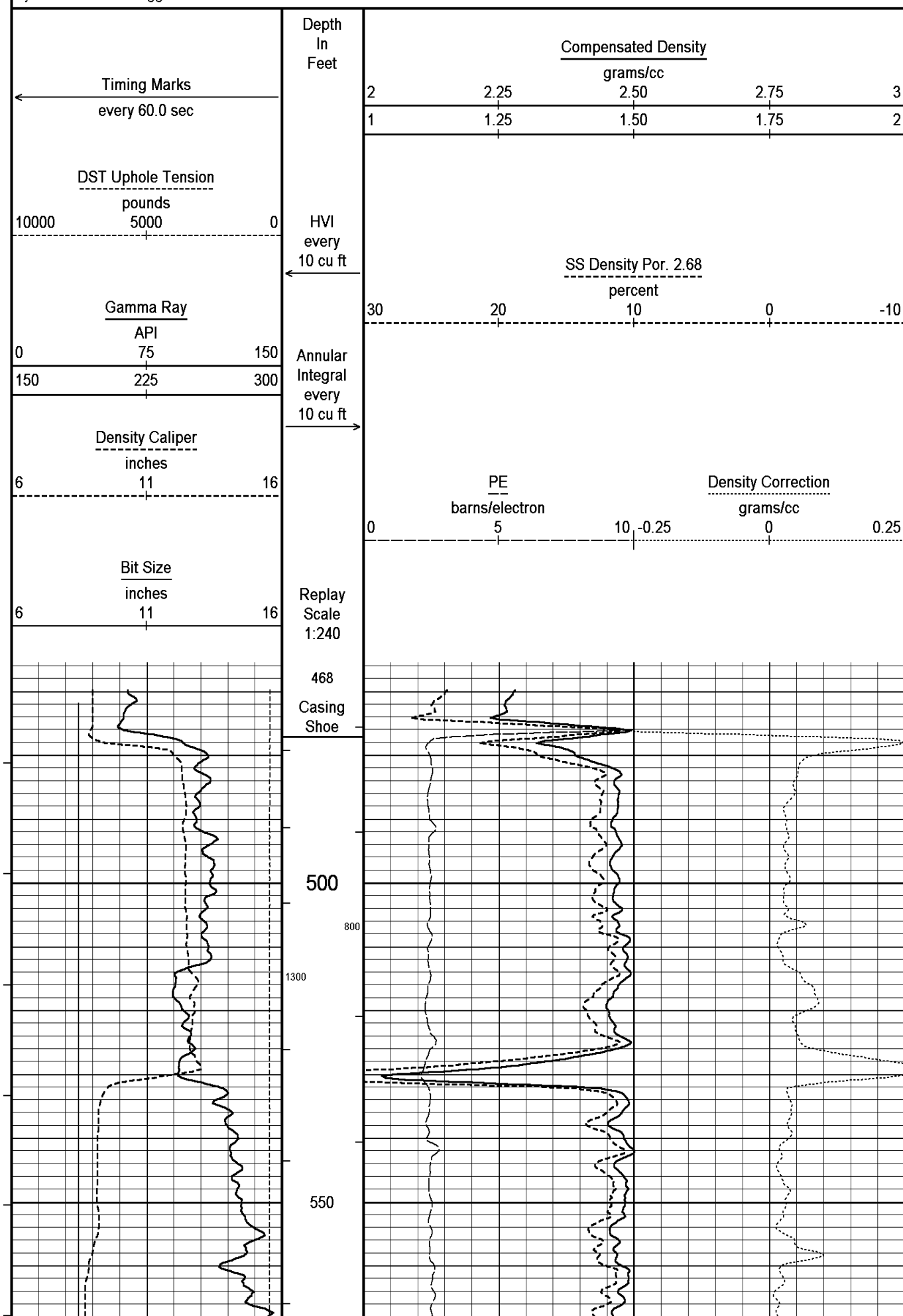
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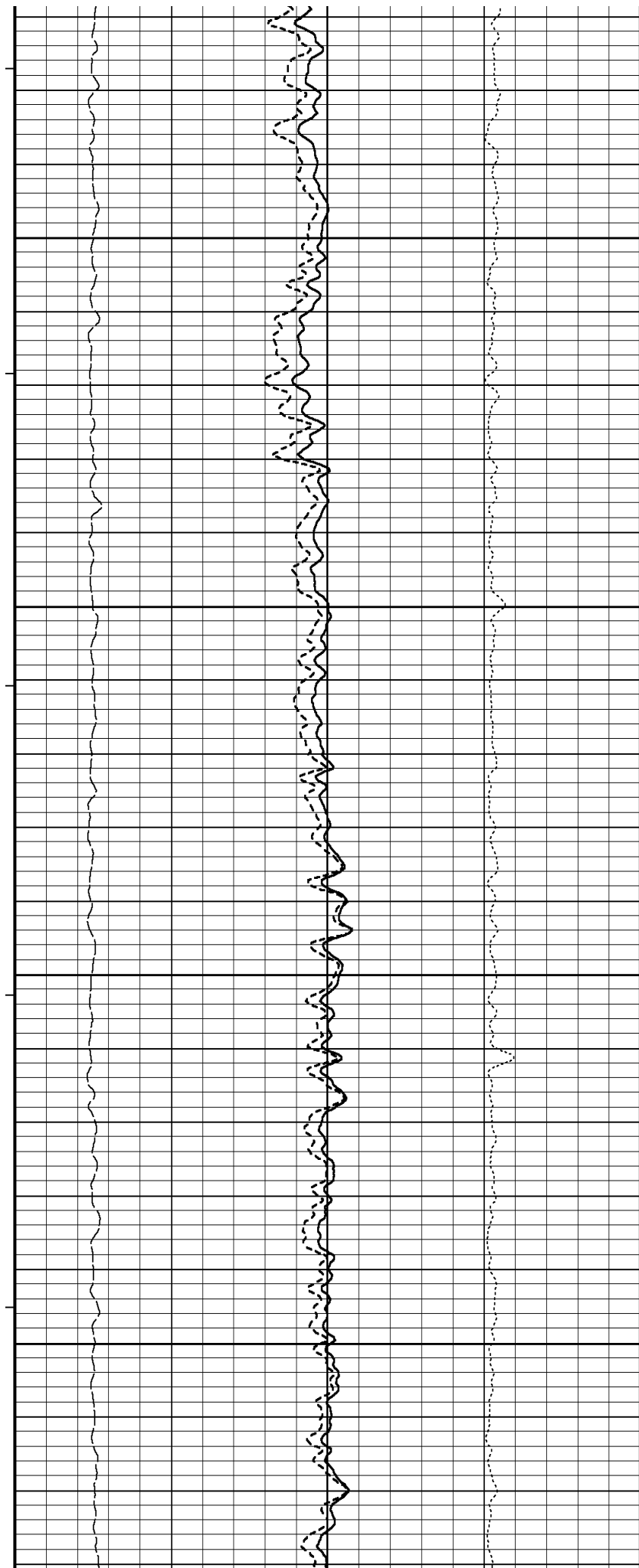
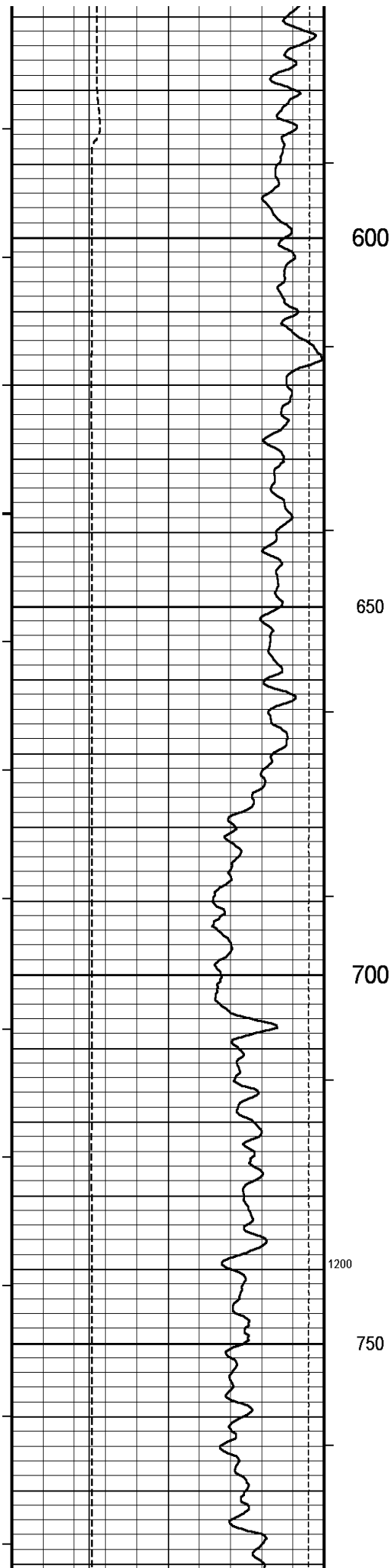
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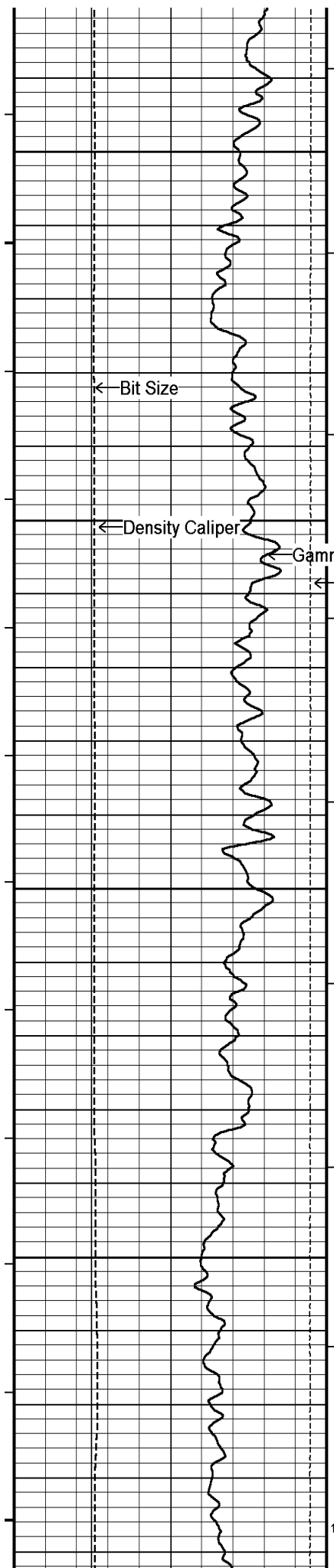
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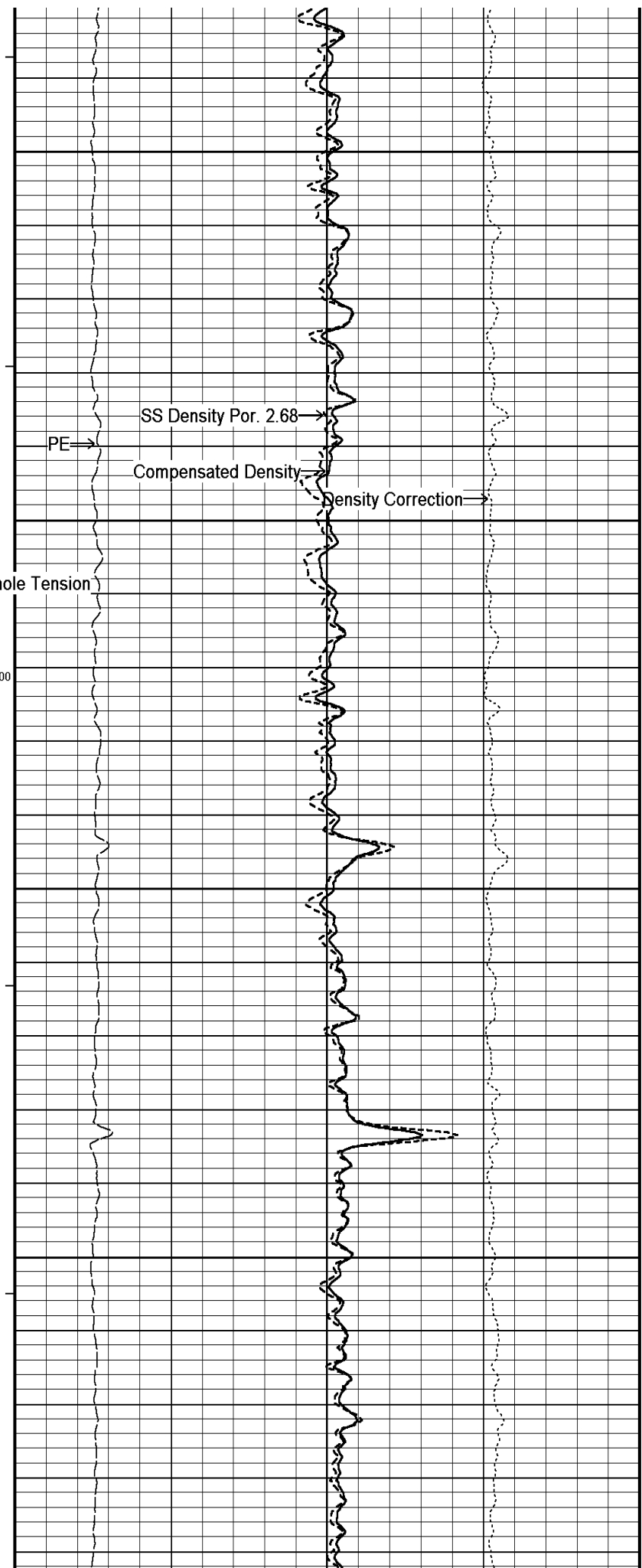
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850

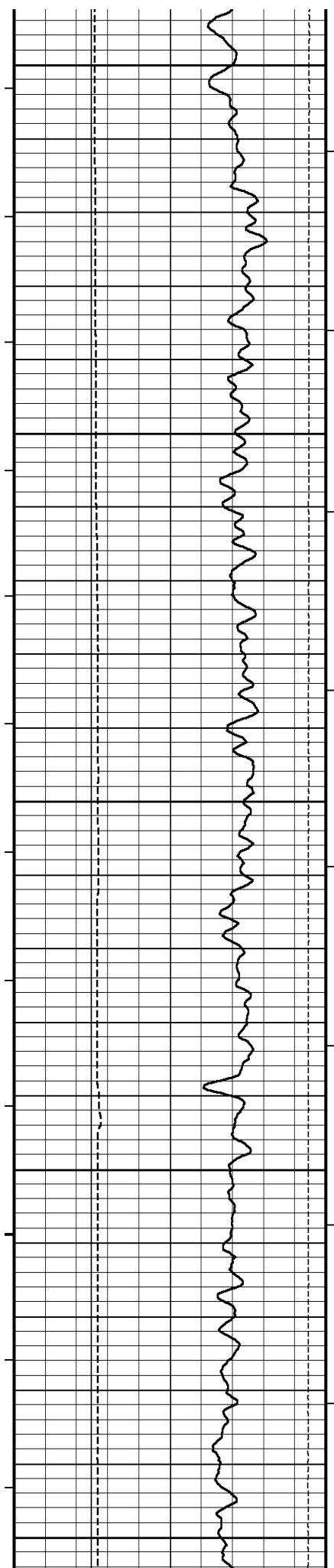
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950

1100



PE



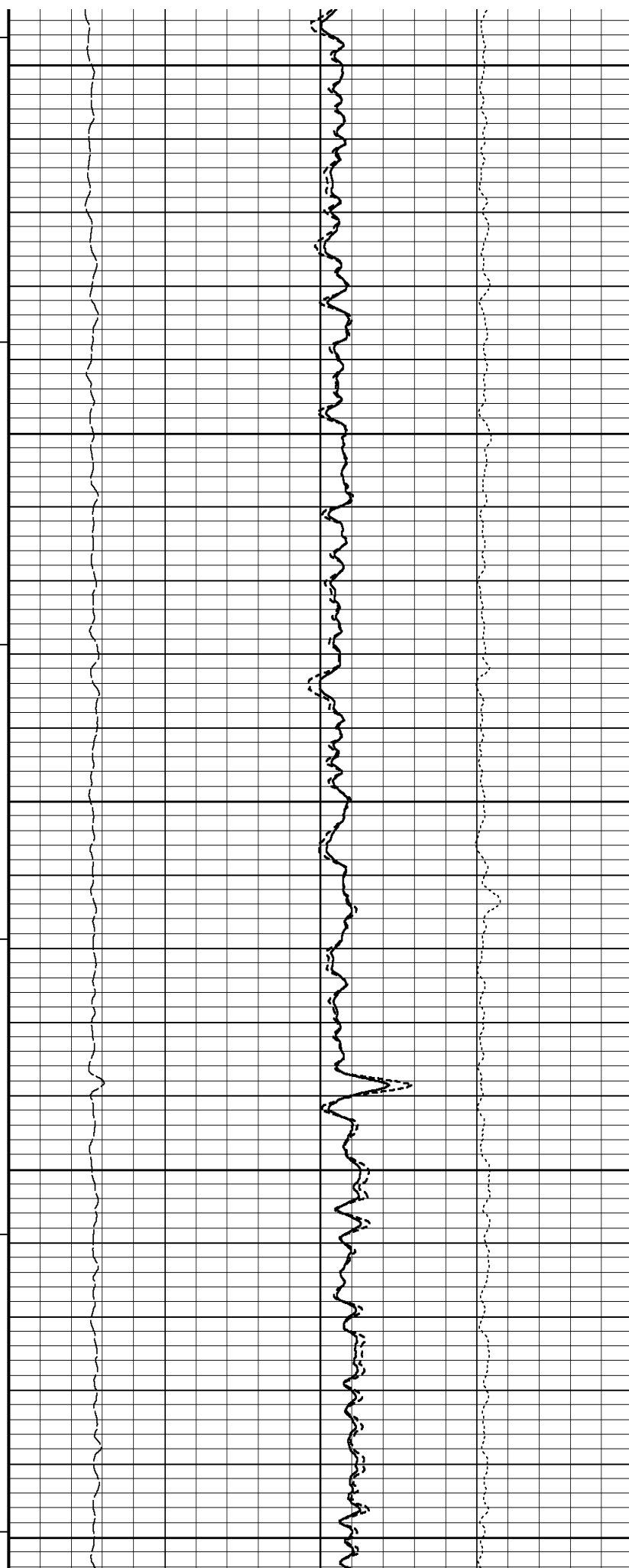
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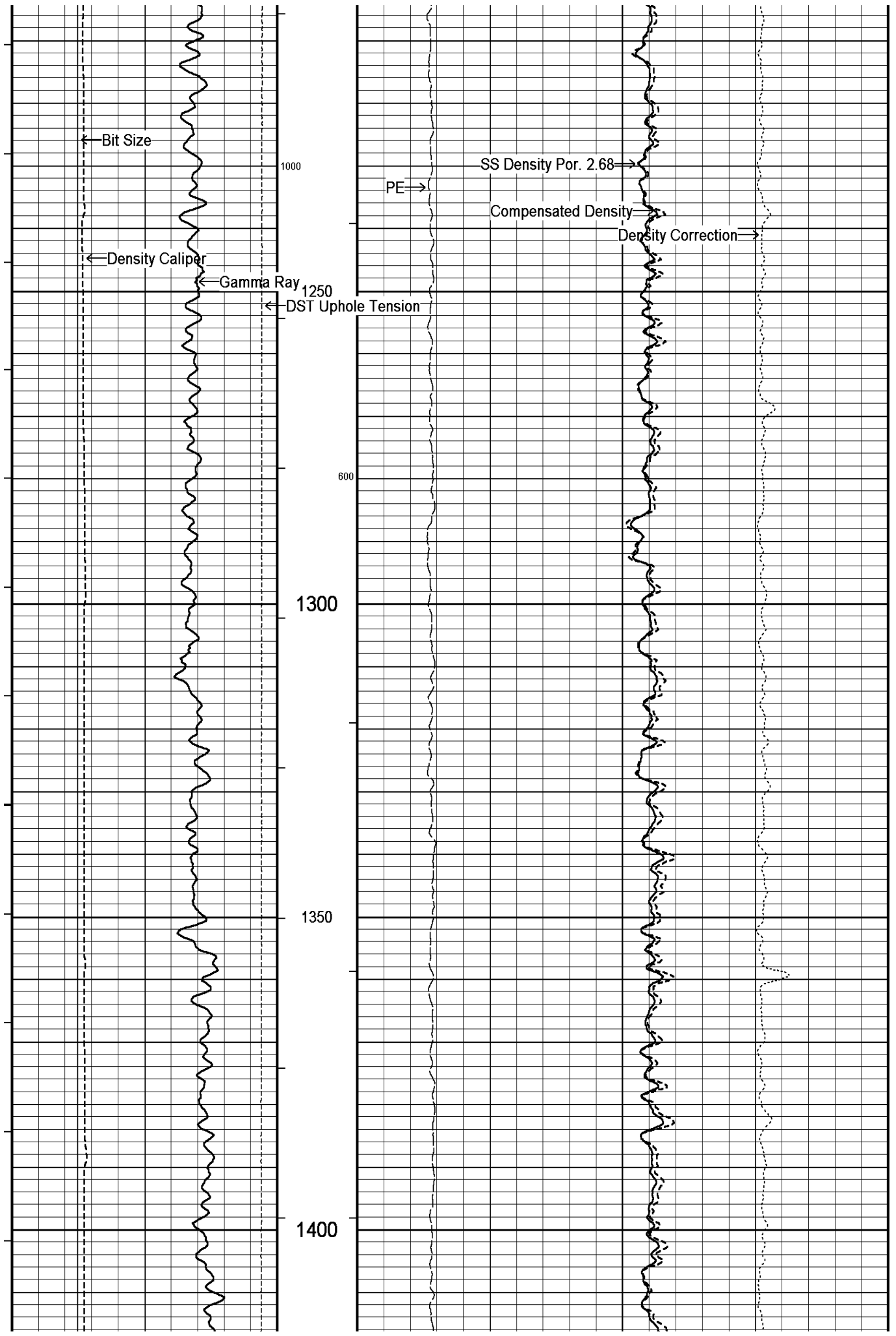
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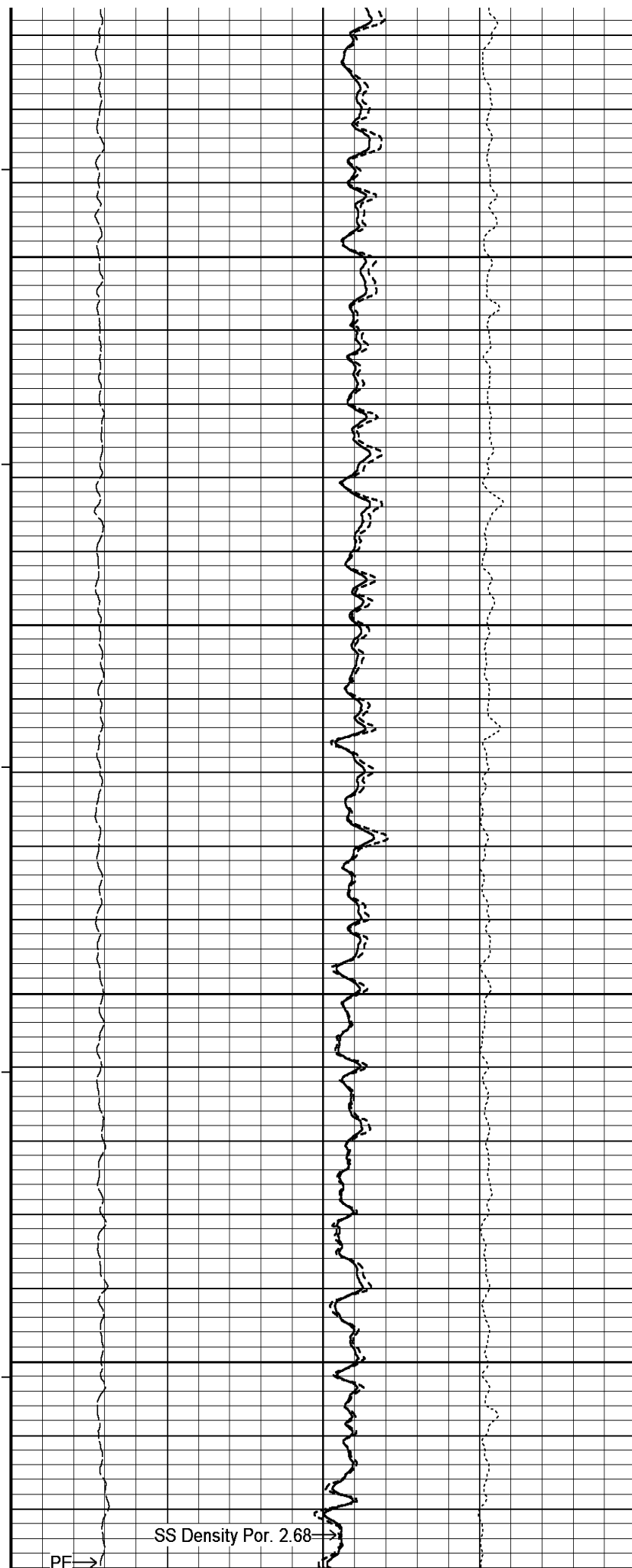
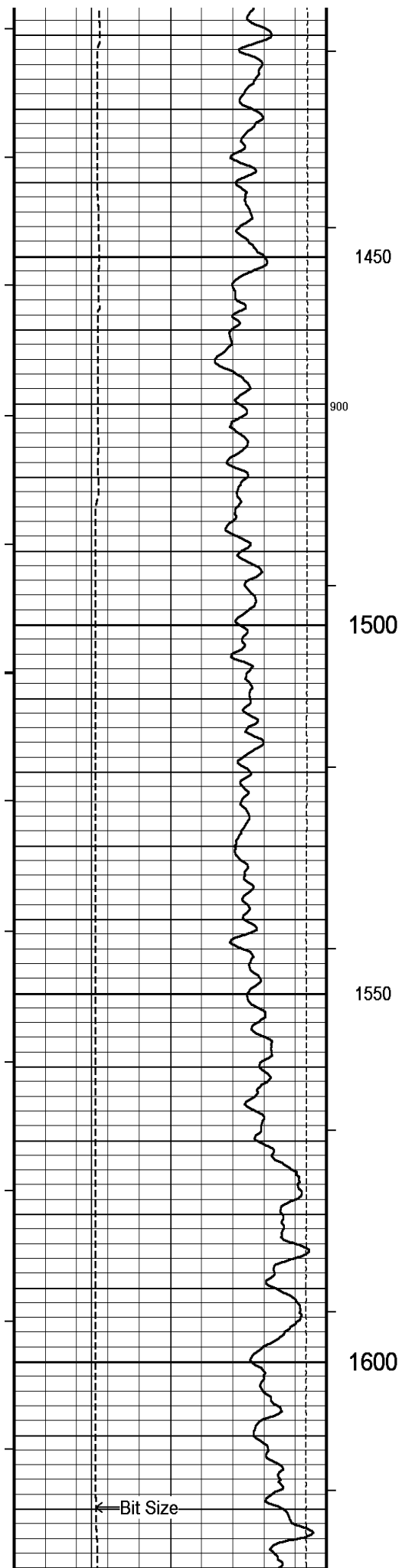
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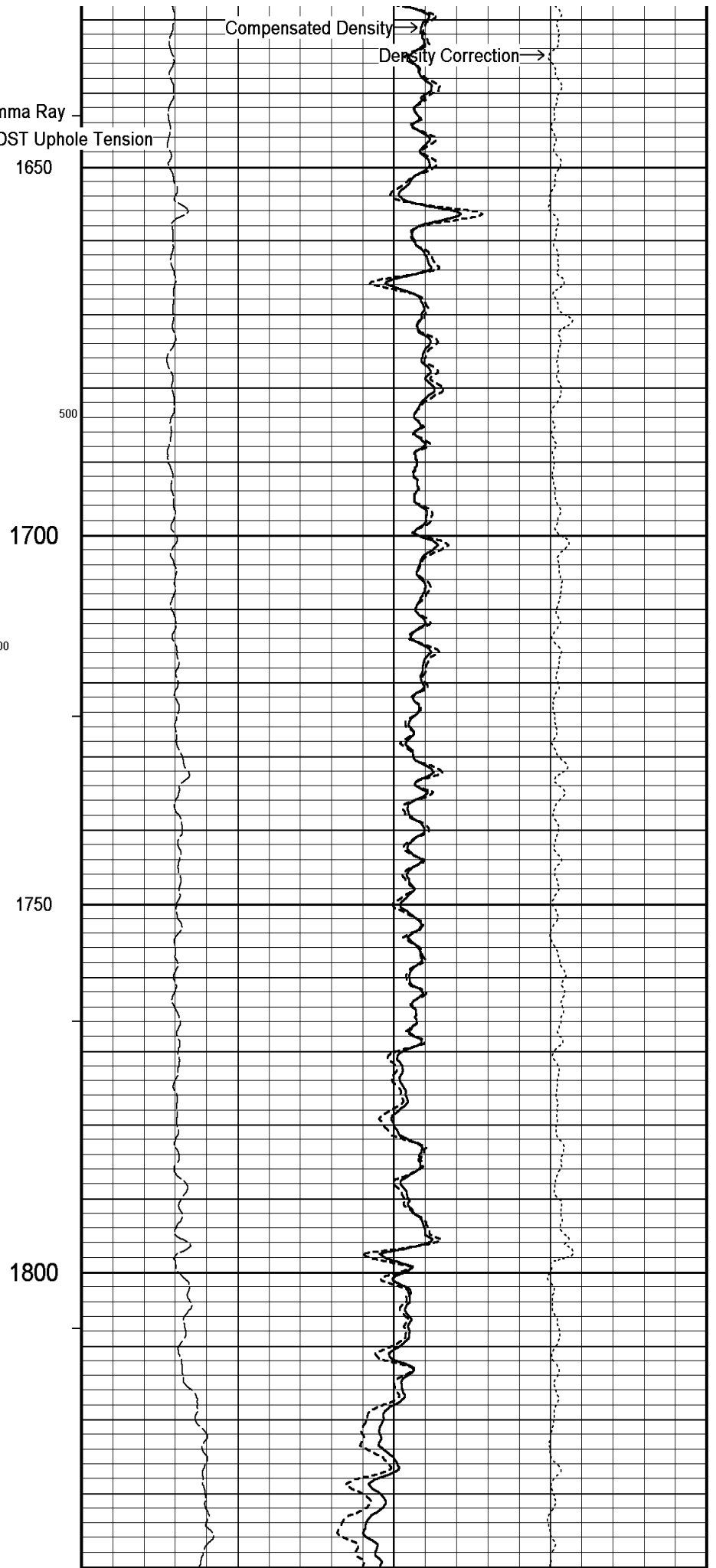
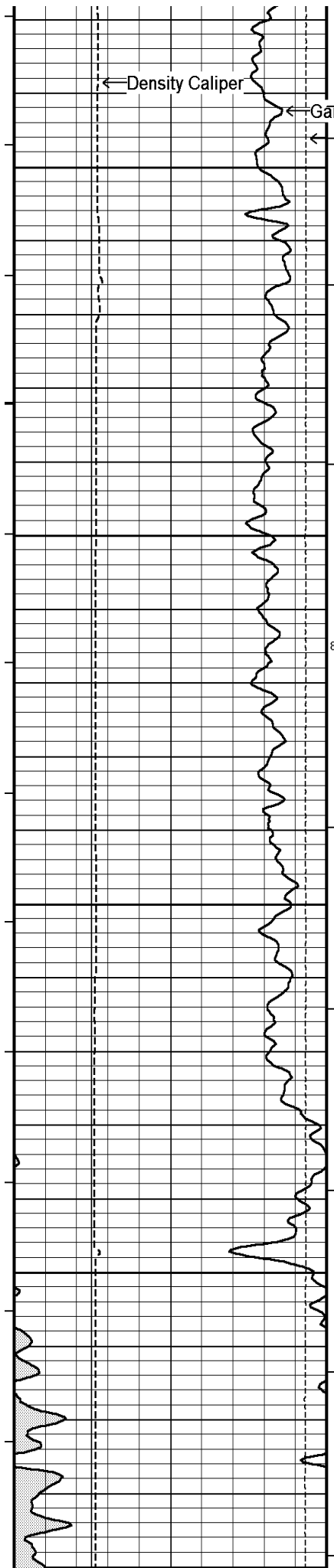
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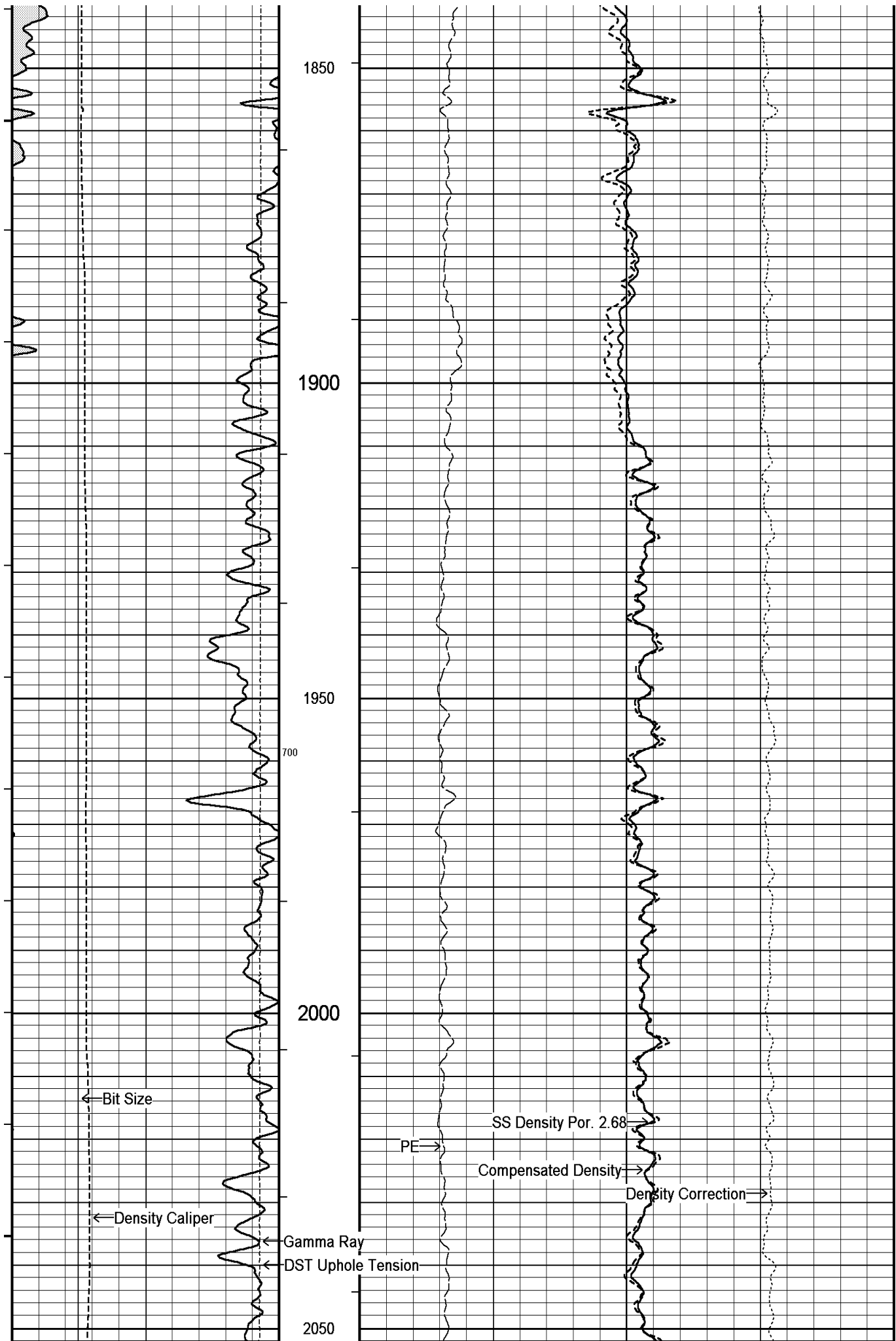
1200

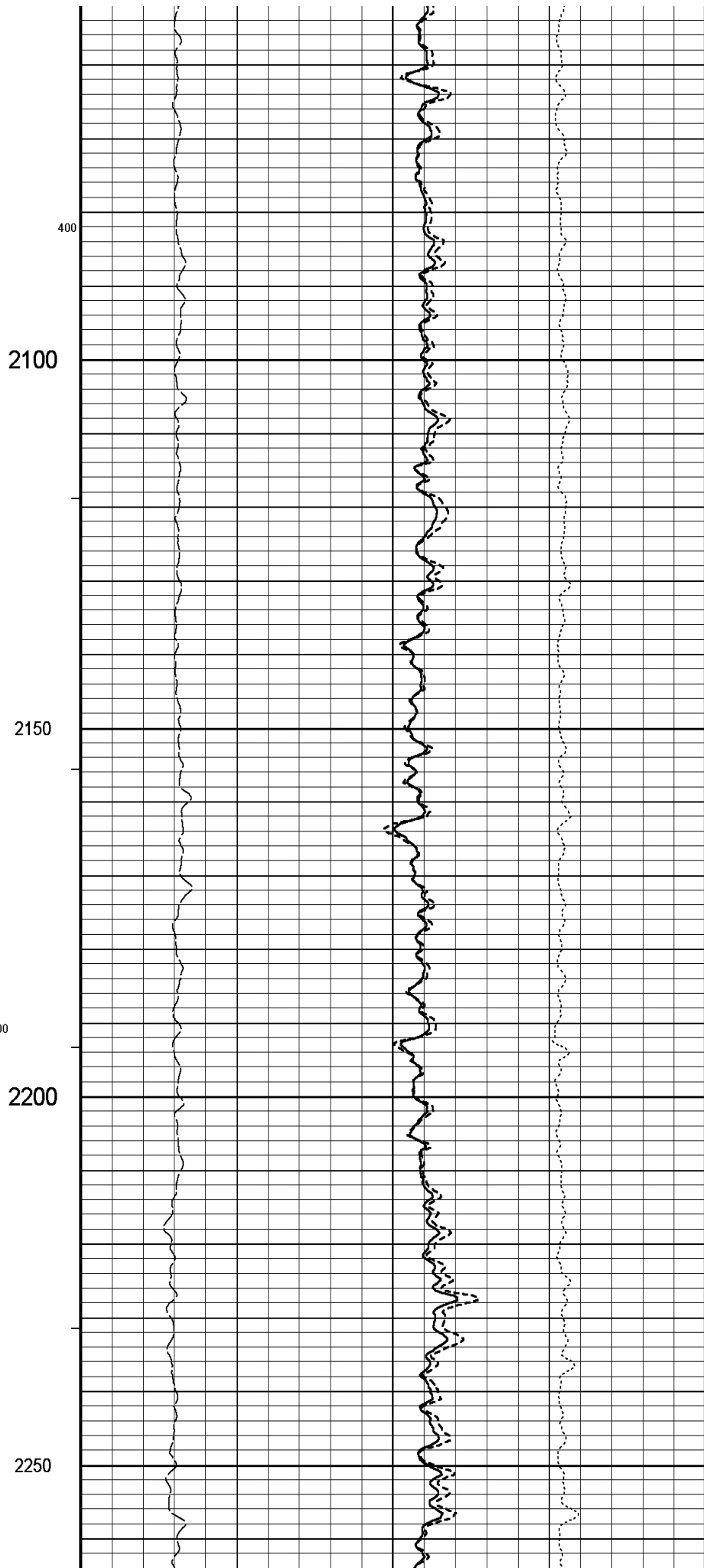
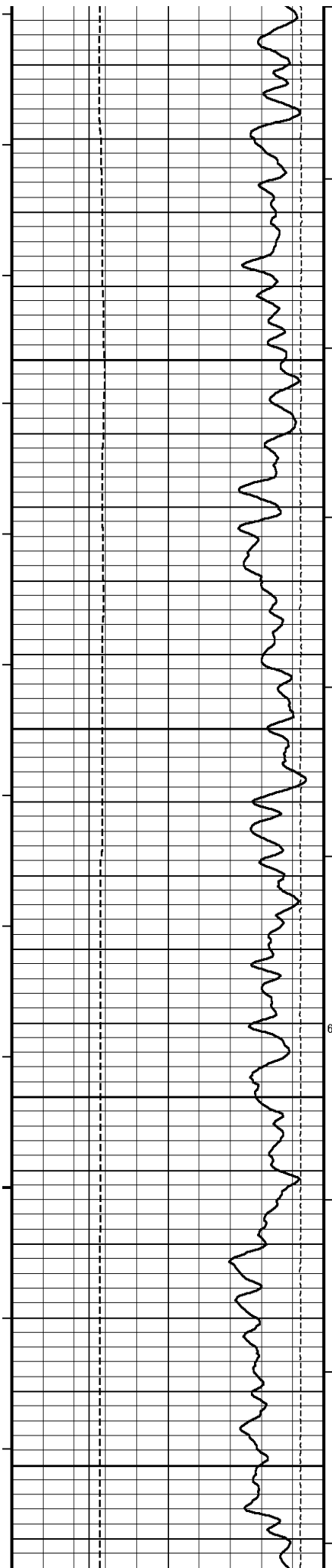


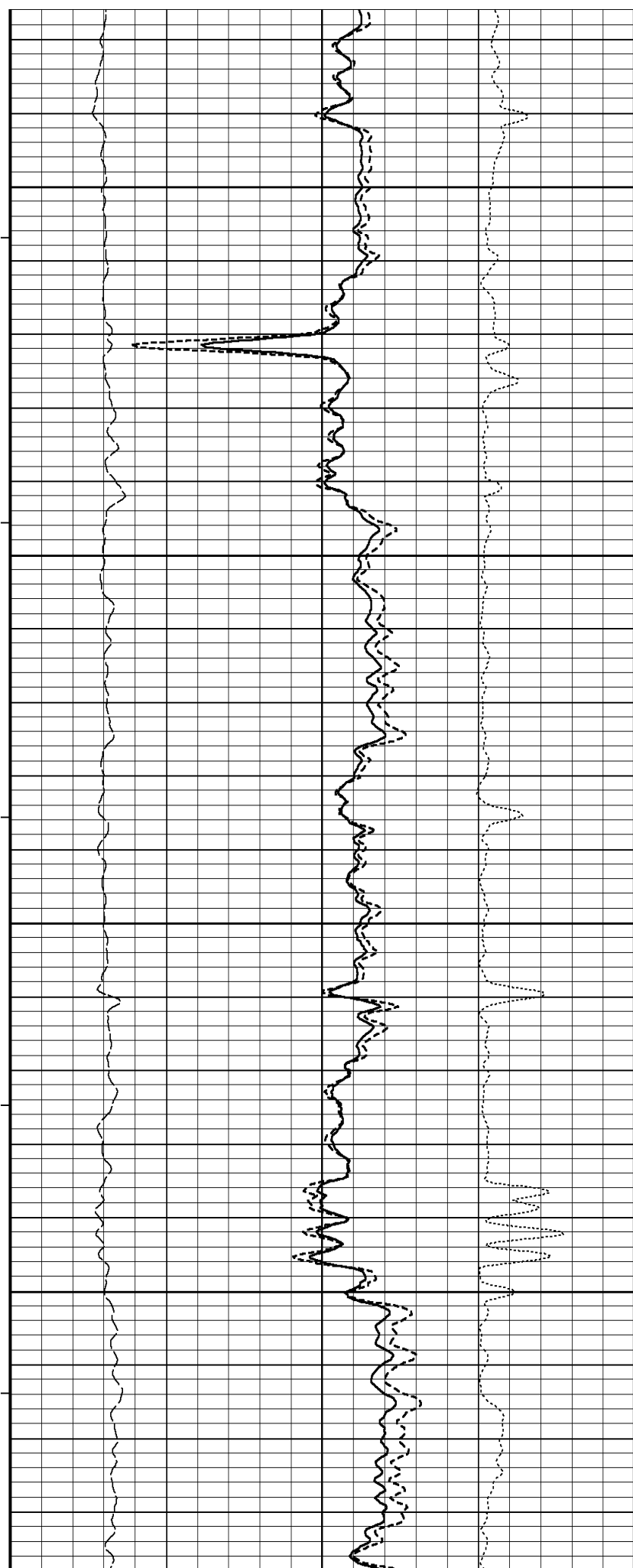
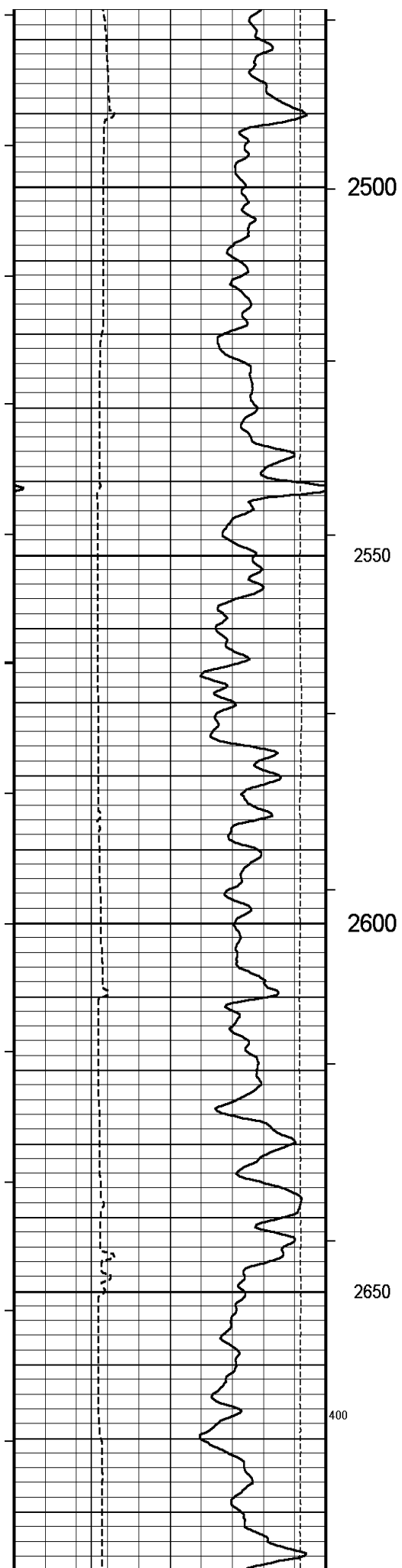


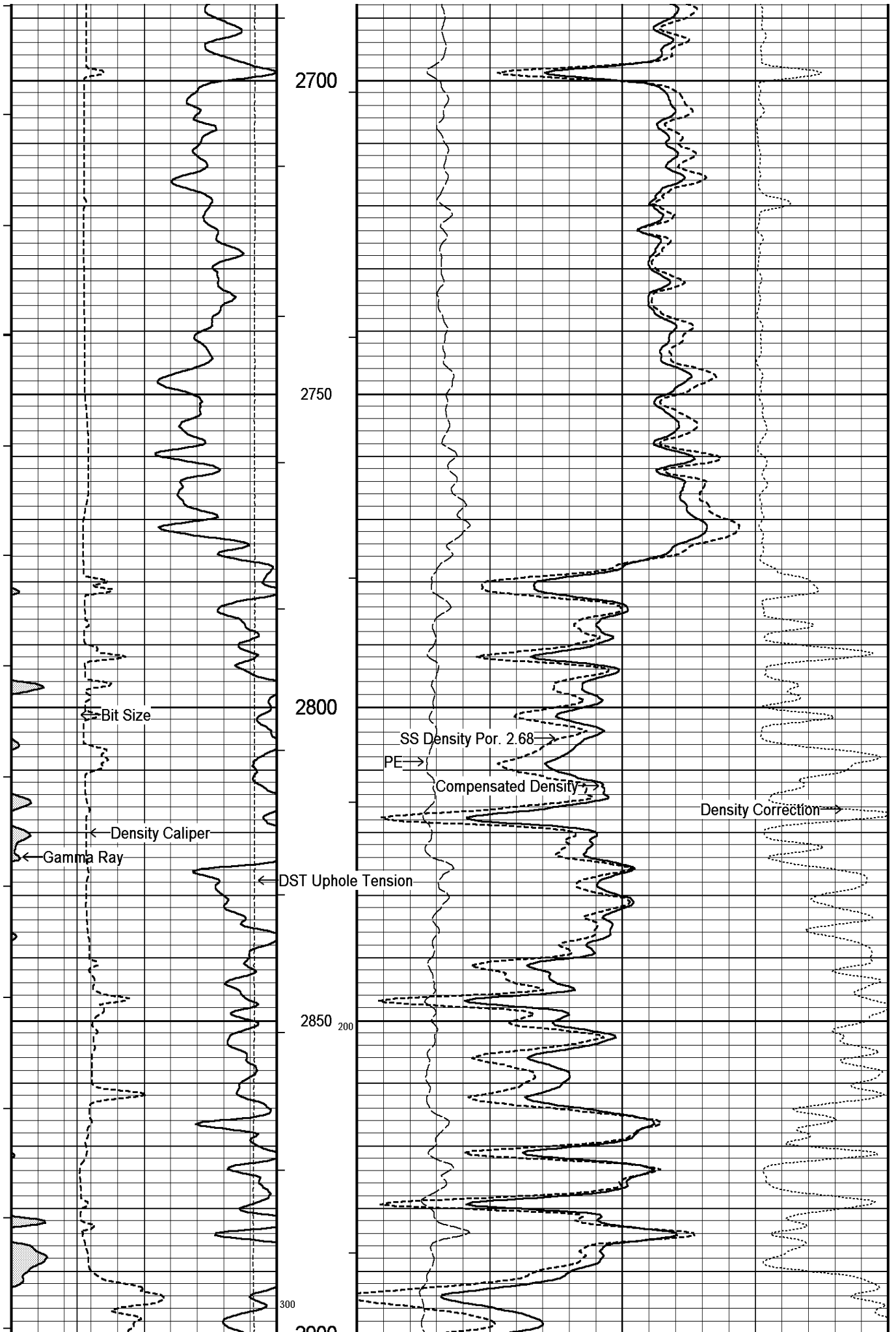


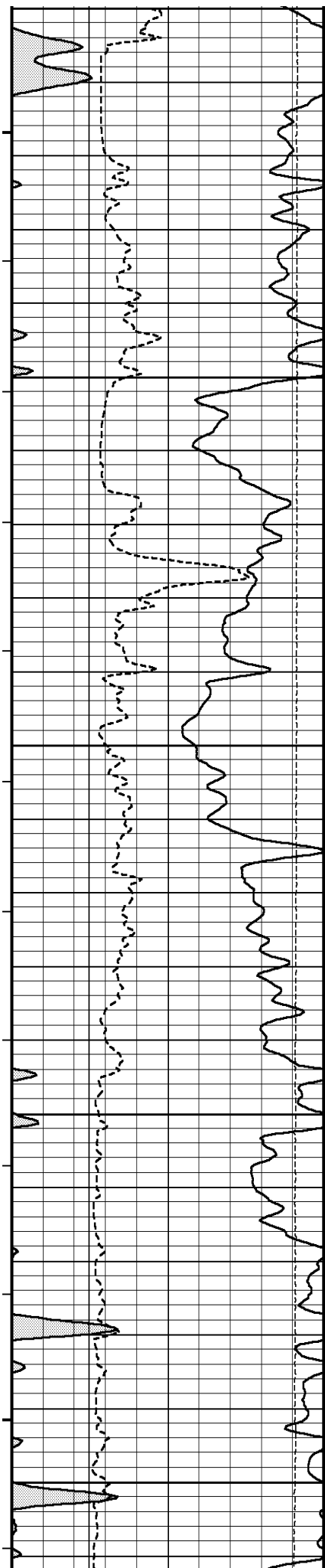












2900

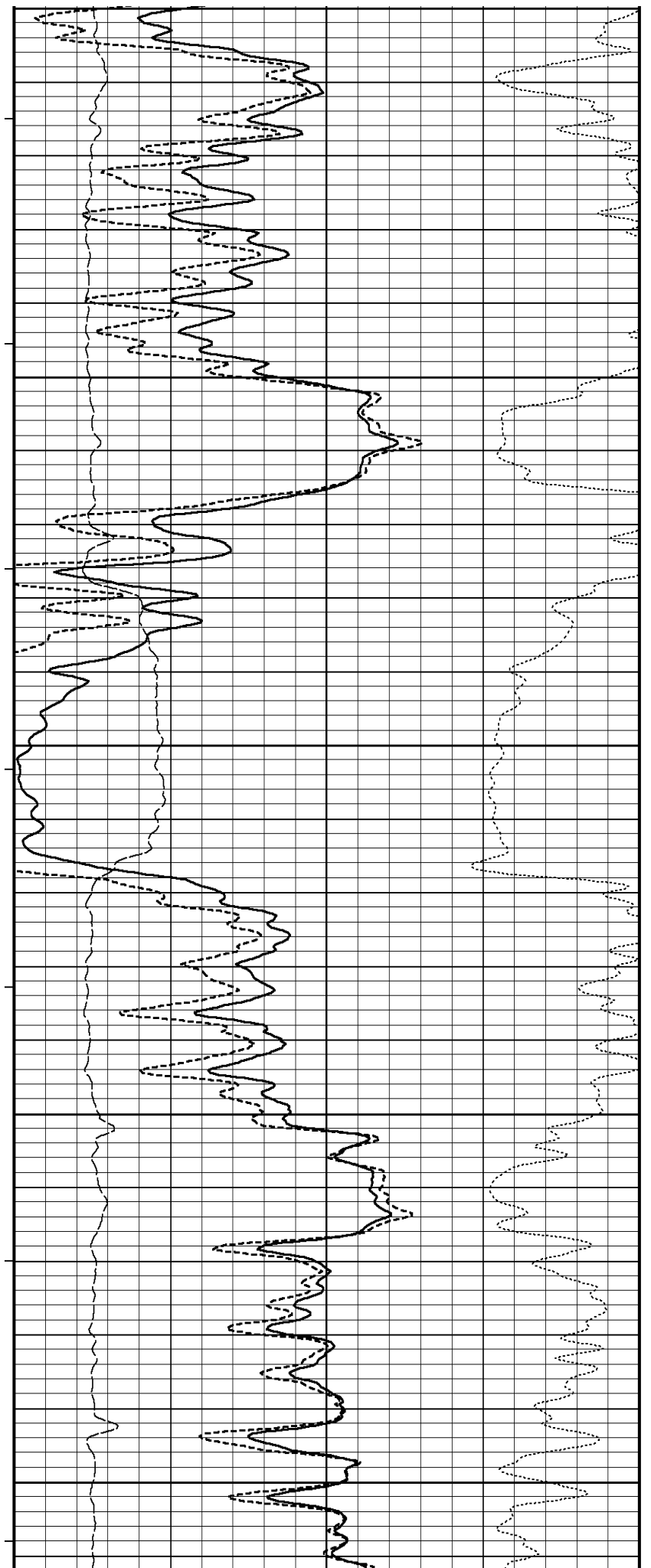
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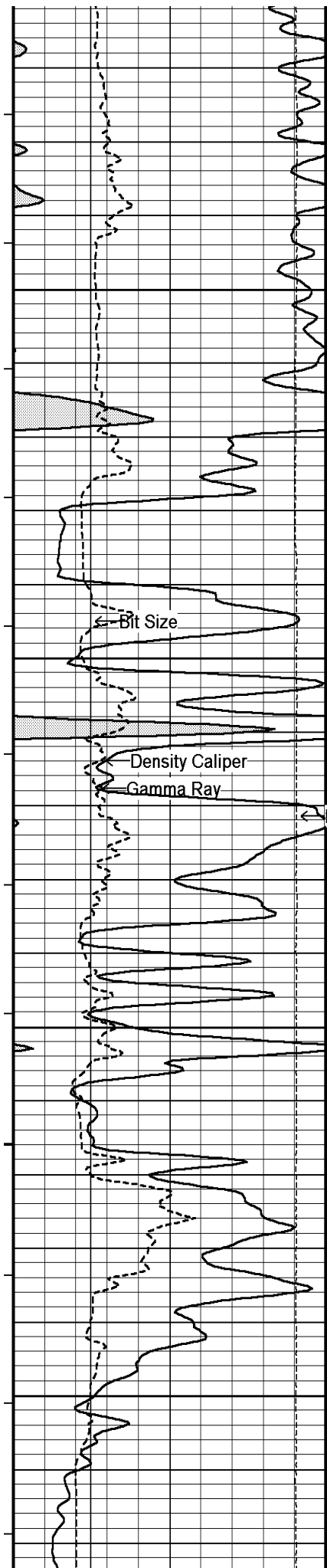
3000

3050

3100

200



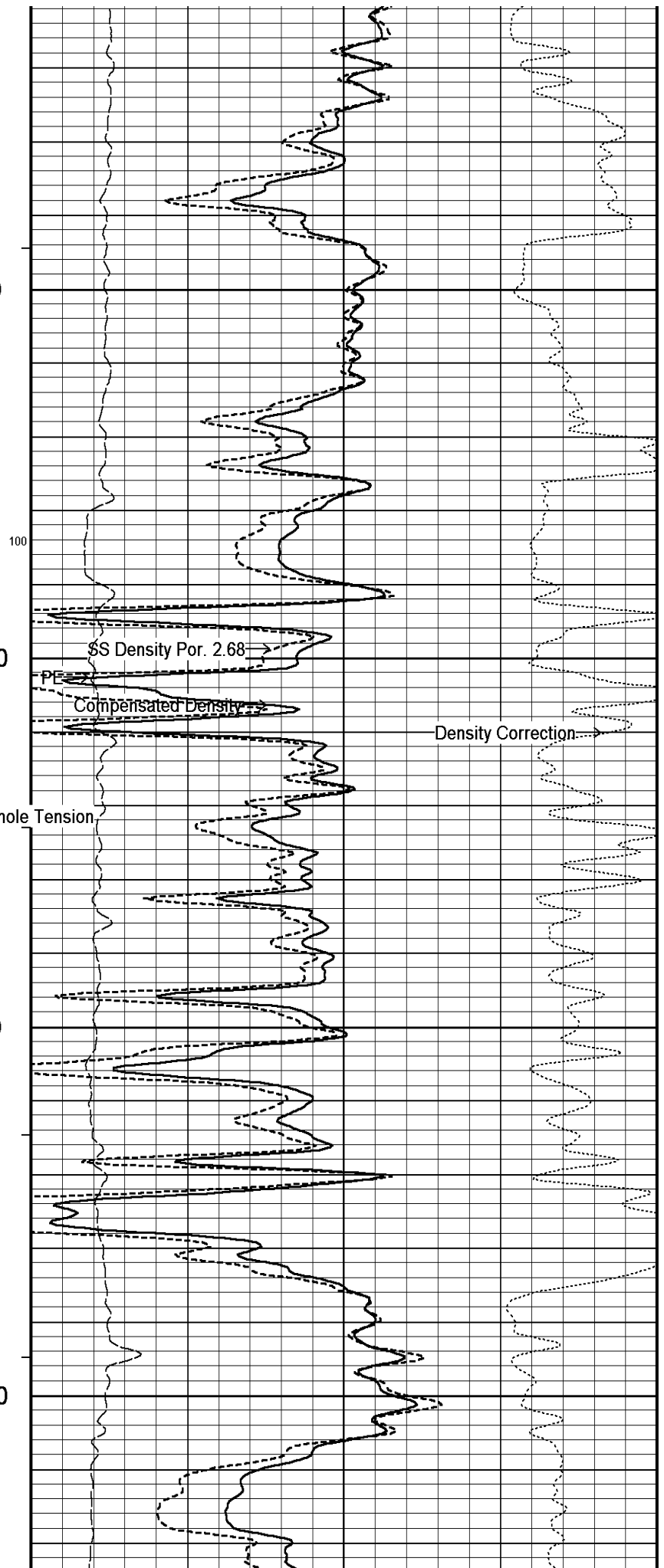


3150

3200

3250

3300



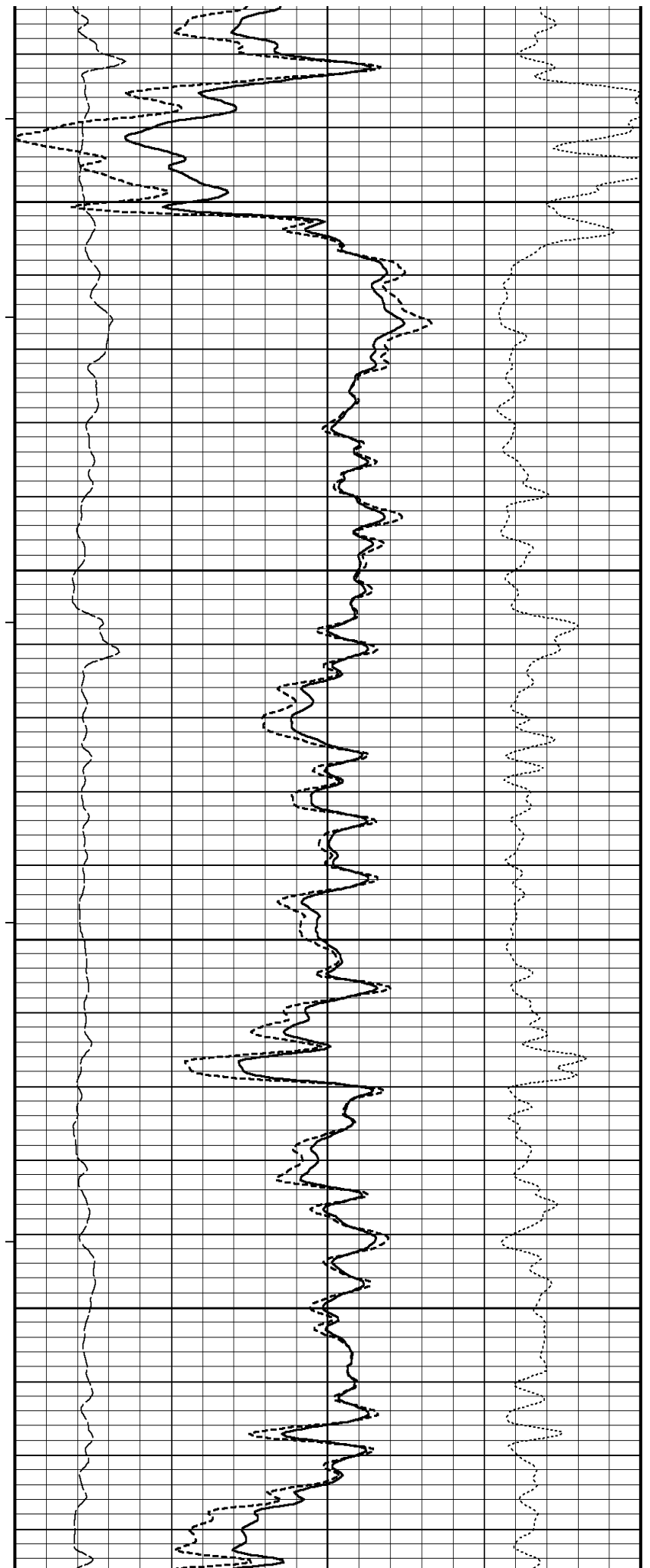
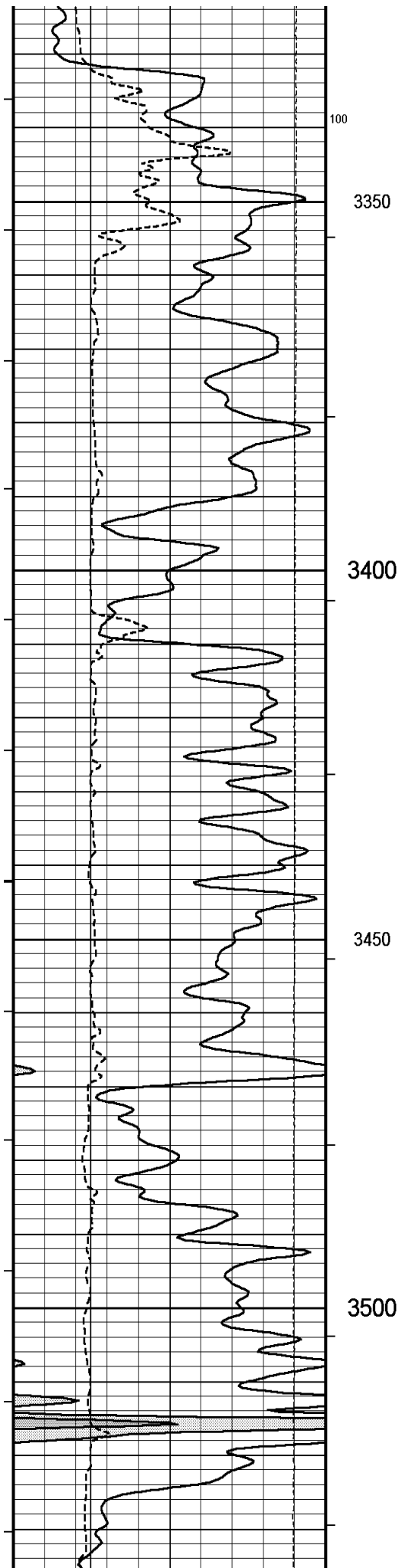
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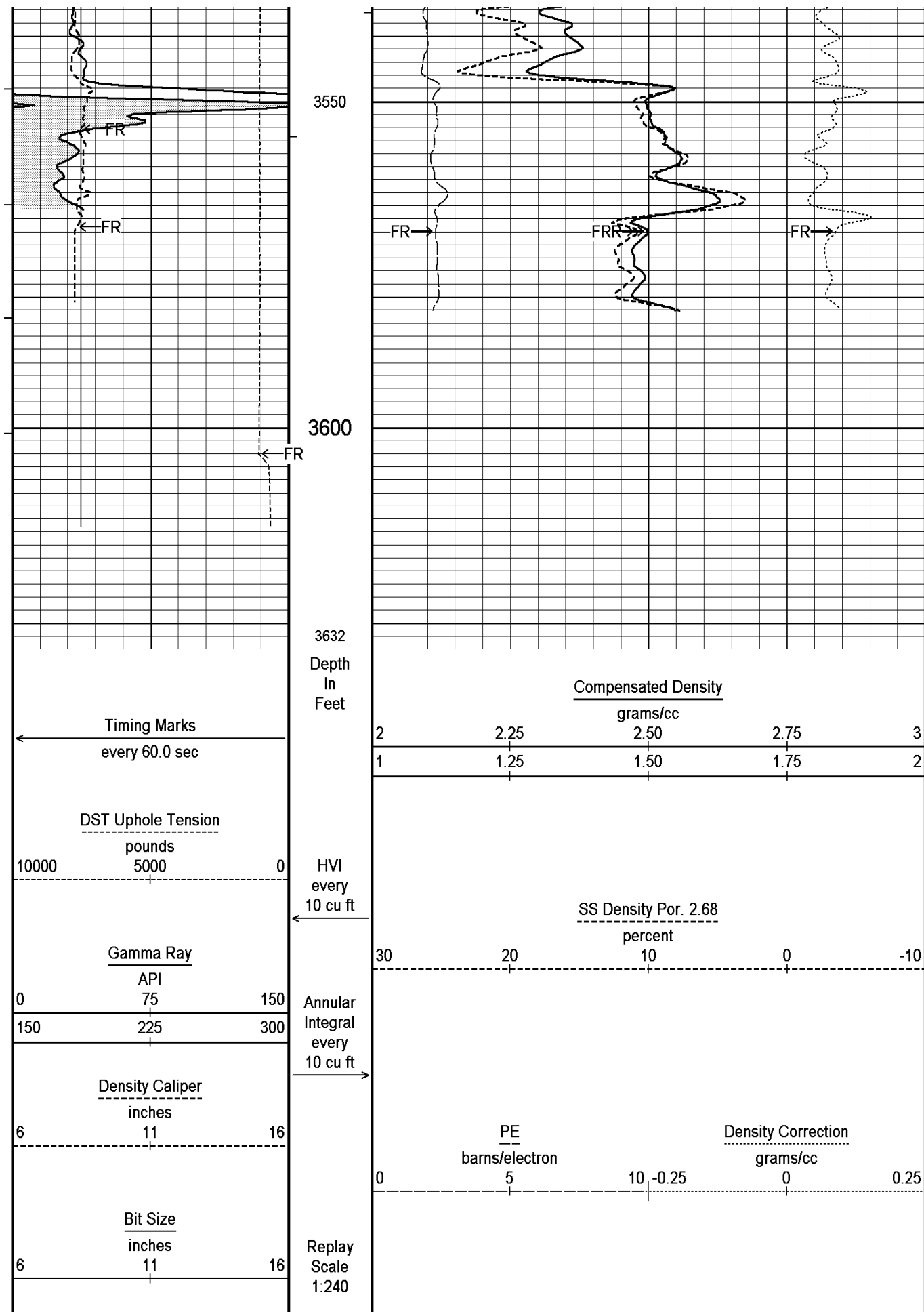
SS Density Por. 2.68

PE

Compensated Density

Density Correction





Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\LOGS\GJ10-131\MS1.dta

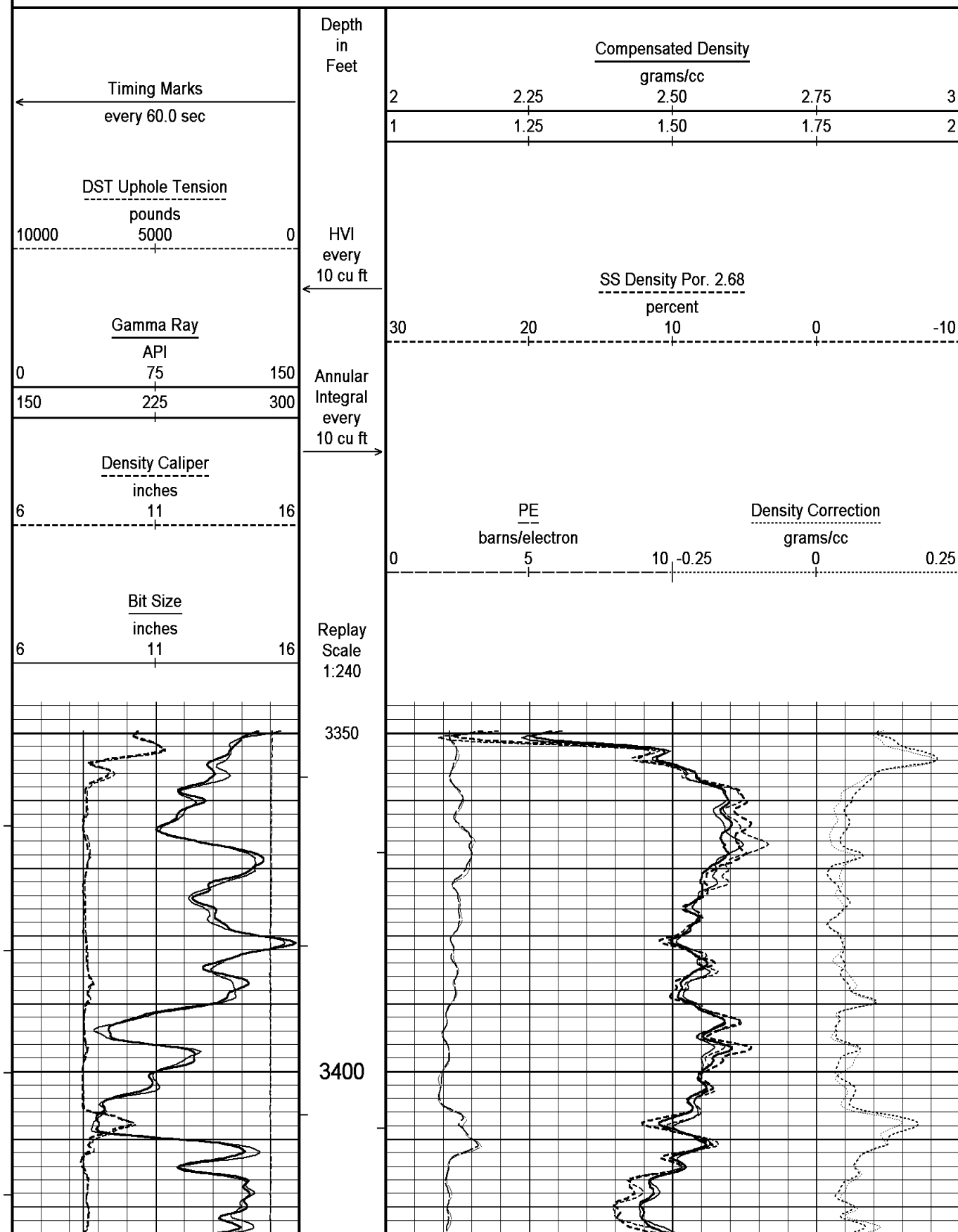
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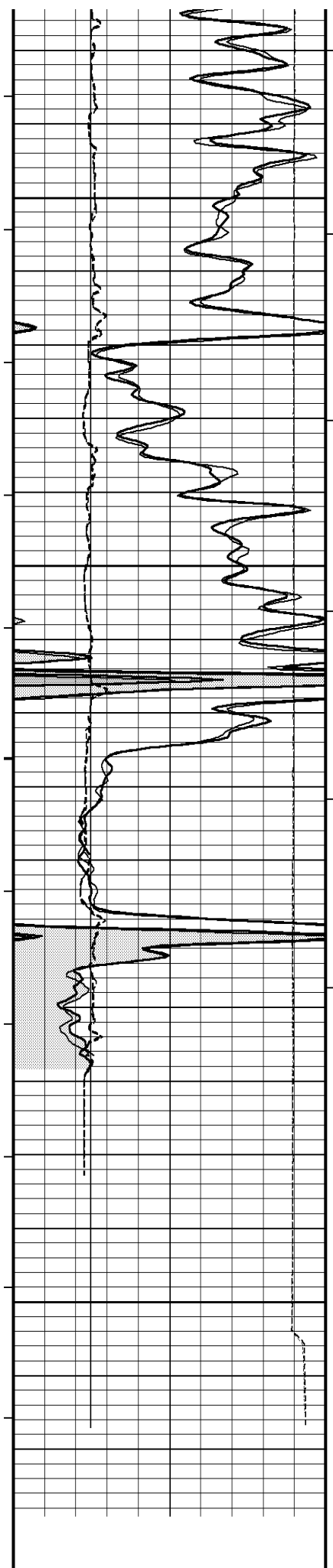
Plotted on 13-JUN-2010 20:01

Recorded on 13-JUN-2010 08:13

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System Versions: Logged with 10.07.0791 Plotted with 10.08.1568





3450

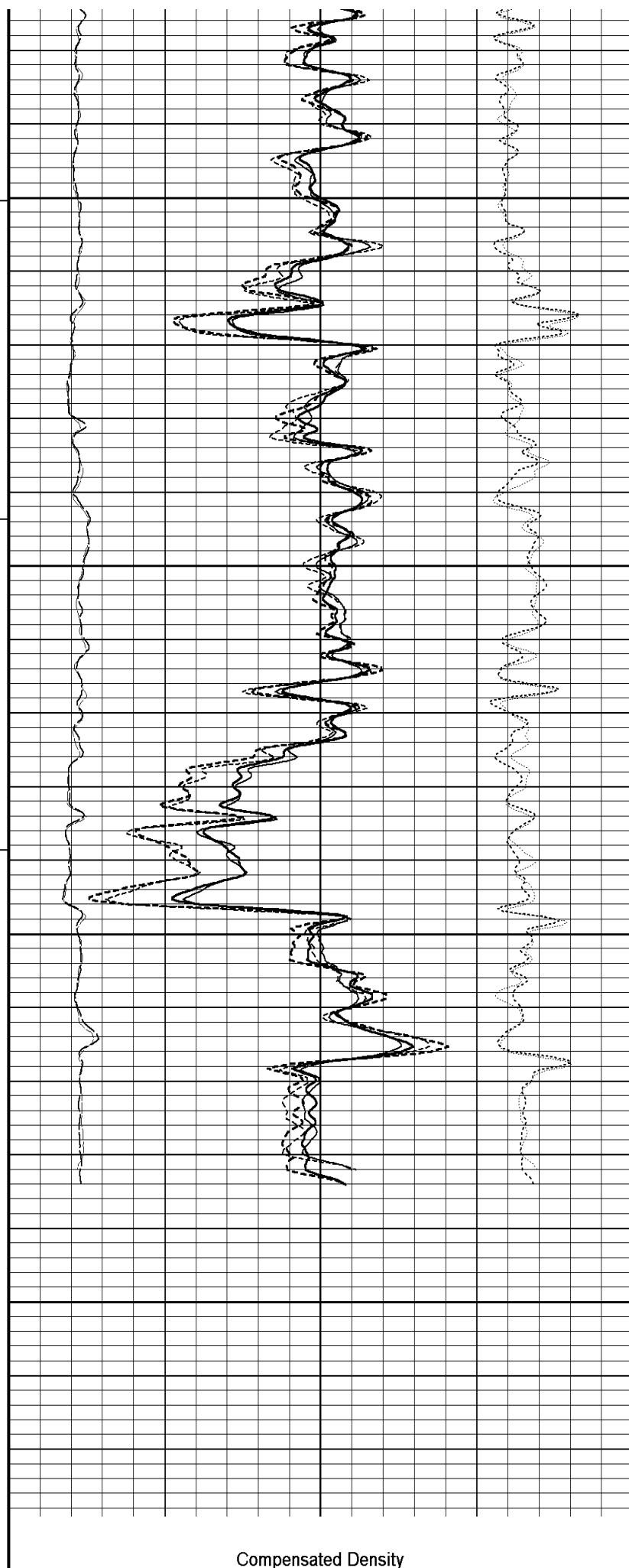
3500

3550

3600

3626

Depth
in



Compensated Density

Gamma Calibration MCG 342				Field Calibration on 13-JUN-2010 04:34	
	Measured	Calibrated (API)			
Background	127	84			
Calibrator (Gross)	1075	710			
Calibrator (Net)	948	626			
Gamma Constants MCG 342				Last Edited on 13-JUN-2010,04:30	
Gamma Calibrator Number	GRC-005				
Mud Density	1.00	gm/cc			
Caliper Source for Processing	Bit Size				
Tool Position	Eccentred				
Concentration of KCl	0.00	kppm			
High Resolution Temperature Calibration MCG 342				Field Calibration on 13-JUN-2010,05:00	
	Measured	Calibrated(Deg F)			
Lower	10.00	10.00			
Upper	100.00	100.00			
High Resolution Temperature Constants MCG 342				Last Edited on 8-DEC-2009,15:54	
Pre-filter Length	11				
SP Calibration MCG 342				Field Calibration on 13-JUN-2010,05:00	
	Measured	Calibrated (mV)			
Reference 1	106.0	100.0			
Reference 2	-95.1	-100.0			
Neutron Calibration MDN 216				Base Calibration on 18-MAR-2010,09:46 Field Check on 13-JUN-2010 04:49	
Base Calibration					
	Measured		Calibrated (cps)		
	Near	Far	Near	Far	
	2974	93	3714	110	
Ratio	31.877		33.764		
Field Calibrator at Base				Calibrated (cps)	
			1429	2036	
Ratio			0.702		
Field Check				Calibrated (cps)	
			1631	2318	
Ratio			0.704		
Neutron Constants MDN 216				Last Edited on 14-APR-2010,08:21	
Neutron Source Id	755				
Neutron Jig Number	6532				
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	Constant Value				
Formation Pressure	0.00	kpsi			
Temperature Source	MCG External Temperature				
Temperature	20.00	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 136				Base Calibration on 20-APR-2010 11:57 Field Check on 13-JUN-2010 04:30	
Base Calibration					


Base Calibration		Measured	Calibrated (ohm-m)		
Reference 1		0.0	0.0		
Reference 2		964.1	126.8		
Base Check			281.4		
Field Check			281.8		
FE Constants MFE 136			Last Edited on 13-JUN-2010,05:02		
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 221			Last Edited on 13-JUN-2010,05:02		
Maximum Boundary Contrast	60.00	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	Full Waveform				
Hole Type	Open Hole				
Sonde Parameters					
	Measured	Calibrated			
Offset	0.0000	0.0000			
Free Pipe	0.0000	0.0000			
Peak Amplitude Source	0				
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	3 foot				
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (ft)		
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	0.00	0.00	0.00		
Full Waveform Parameters					
Use 3' Waveform to derive TR	Yes				
Use 4' Waveform to derive TR	Yes				
Use 5' Waveform to derive TR	Yes				
Use 6' Waveform to derive TR	Yes				
3' Waveform Discriminator Level	0.30	mV			
4' Waveform Discriminator Level	0.30	mV			
5' Waveform Discriminator Level	0.15	mV			
6' Waveform Discriminator Level	0.15	mV			
3' Waveform Filter	None				
4' Waveform Filter	None				

4' waveform Filter	none	
5' Waveform Filter	None	
6' Waveform Filter	None	
Semblance Level	0.50	
Semblance Window Width	120.00	micro-sec
Sonic 1 Despiker	30.48	micro-sec/ft
Sonic 2 Despiker	30.48	micro-sec/ft
High Resolution Temperature Calibration MAI 300		
	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00
High Resolution Temperature Constants MAI 300		
Pre-filter Length	11	
Induction Calibration MAI 300		
		Base Calibration on Field Check on 13-JUN-2010 04:28
Base Calibration		
Test Loop Calibration		
Channel	Measured	Calibrated (mmho/m)
	Low High	Low High
1	17.5 483.3	9.3 966.2
2	6.3 392.3	7.6 821.4
3	3.9 268.6	5.2 566.0
4	2.4 133.7	2.6 279.2
Array Temperature	71.4	Deg F
Channel Base Check (mmho/m) Field Check (mmho/m)		
	Low High	Low High
1	11.8 3757.4	11.8 3757.3
2	29.2 3436.9	29.2 3436.9
3	27.1 2948.0	27.1 2947.8
4	18.8 2072.9	18.7 2072.9
Deep	16.0 1966.3	16.0 1966.2
Medium	39.9 3821.5	39.9 3821.2
Shallow	44.5 5030.3	44.5 5030.2
Array Temperature	56.9	56.4 Deg F
Induction Constants MAI 300		
		Last Edited on 13-JUN-2010,05:02
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	
Photo Density Calibration MPD 297		
		Base Calibration on 20-APR-2010 11:31
		Field Check on 13-JUN-2010 04:44
Density Calibration		
Base Calibration	Measured	Calibrated (sdu)
	Near	Far
Reference 1	48942	17059
Reference 2	23222	2656
		53115
		19186
Reference 2	23222	2656
		25026
		2536
Field Check at Base		
	1222.3	1439.3
Field Check		
	1222.4	1437.3
PE Calibration		
Base Calibration	Measured	Calibrated
	WS	WH
	Ratio	Ratio
Background	223	1085
Reference 1	14256	48745
Reference 2	5845	23065
		0.294
		0.320
		0.256
		0.272
Field Check at Base		
	222.5	1085.1
Field Check		
	223.0	1080.4
Density Constants MPD 297		
		Last Edited on 13-JUN-2010,05:01
Density Source Id	271	
Nylon Calibrator Number	507	
Aluminium Calibrator Number	507	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	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	
Caliper Calibration MPD 297		
		Base Calibration on 20-APR-2010 11:39
		Field Calibration on 13-JUN-2010,05:02
Base Calibration		
Reading Me	Measured	Calibrated
Size (in)	Size (in)	Size (in)

Reading No	measured	Calibrator Size (in)
1	16384	4.00
2	24959	5.96
3	32976	7.98
4	41248	9.86
5	50416	11.88
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.97	7.98

DOWNHOLE EQUIPMENT			C:\LOGS\GJ10-131\MS1.dta	
3/8" Triple Cone Cable Head (MCB C A) MCB 5 Length: 1.58 ft Weight: 15.4 lb SHA-F Compact Swivel Head Adaptor SHA 82 Length: 2.74 ft Weight: 26.5 lb Compact Gamma MCG 342 Length: 8.70 ft Weight: 63.9 lb Compact Neutron MDN 216 Length: 5.04 ft Weight: 50.7 lb Compact Density/Caliper MPD 297 Length: 9.59 ft Weight: 90.4 lb SKJ-D.A Compact Knuckle Joint SKJ 90 Length: 2.17 ft Weight: 24.3 lb Compact Focussed Electric MFE 136 Length: 6.03 ft Weight: 48.5 lb Compact Sonic MSS 221 Length: 12.52 ft Weight: 72.8 lb Compact Induction MAI 300 Length: 10.81 ft Weight: 48.5 lb Total Length: 59.17 ft Weight: 440.9 lb			 <div> 49.57 ft GRGC - Gamma Ray 46.66 ft CGXT - MCG External Temperature 43.11 ft NPRS - Sandstone Neutron Por. 34.64 ft AVOL - Annular Volume 34.64 ft HVOL - Hole Volume 34.64 ft CLDC - Density Caliper 33.94 ft DPOR - Base Density Porosity 33.94 ft DCOR - Density Correction 33.88 ft PDPE - PE 26.22 ft FEFC - Shallow FE (Phase Corr.) 3.34 ft R400 - Array Ind. One Res 40 3.34 ft R300 - Array Ind. One Res 30 3.34 ft RTAO - Array Ind. One Res Rt 3.34 ft R850 - Array Ind. One Res 85 3.34 ft R600 - Array Ind. One Res 60 Tool Zero (0.13ft from bottom) 0.23 ft SPCG - Spontaneous Potential -0.13 ft SMTU - DST Uphole Tension All measurements relative to tool zero. </div>	

COMPANY	FRAM OPERATING LLC				
WELL	MANSUR 33-1-K				
FIELD	WHITEWATER				
PROVINCE/COUNTY	MESA				
COUNTRY/STATE	U.S.A. / COLORADO				
Elevation Kelly Bushing	6094.00	feet	First Reading		feet
Elevation Drill Floor	6093.00	feet	Depth Driller	3610.00	feet
Elevation Ground Level	6083.00	feet	Depth Logger	3604.00	feet



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