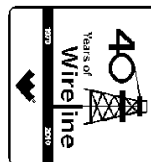




Weatherford

COMPENSATED PHOTO DENSITY COMPENSATED DUAL NEUTRON LOG

COMPANY LARAMIE ENERGY II
WELL BRUNTON 30-02B
FIELD VEGA
PROVINCE/COUNTY MESA
COUNTRY/STATE U.S.A. / COLORADO
LOCATION SHL: 828' FSL & 1745' FWL
BHL: 493' FNL & 1961' FEL



SEC TWP RGE Other Services
19 9S 93W MAI
API Number 50-077-10092
Permit Number

Permanent Datum G.L., Elevation 7345 feet
Log Measured From K.B. @ 21 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:
KB 7366.00
DF 7365.00
GL 7345.00

Date	15-JAN-2011	
Run Number	ONE	
Depth Driller	7910.00	feet
Depth Logger	7913.00	feet
First Reading	7891.00	
Last Reading	1522.00	
Casing Driller	1524.00	feet
Casing Logger	1522.00	feet
Bit Size	7.875	inches
Hole Fluid Type	GEL/CHEM	
Density / Viscosity	10.90 lb/USg	50.00 CP
PH / Fluid Loss	9.00	7.00 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	2.73 @ 65.0	ohm-m
Rmf @ Measured Temp	2.18 @ 65.0	ohm-m
Rmc @ Measured Temp	3.28 @ 65.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.90 @203.0	ohm-m
Time Since Circulation	8 HOURS	
Max Recorded Temp	203.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13037	RK SPR
Recorded By	J. PAULSON	
Witnessed By	K. CLAUSSEN	

BOREHOLE RECORD

Last Edited: 15-JAN-2011 09:42

Bit Size inches	Depth From feet	Depth To feet
7.875	1530.00	7910.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1530.00	32.00

REMARKS

SOFTWARE VERSION: 11.01.2198

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

HARDWARE: MPD: 8 INCH DENSITY SKID PLATE
MDN: BOWSPRINGS
MFE: ONE INCH STANDOFF
MAI: 2 X ONE INCH STANDOFFS

TOTAL HOLE VOLUME TO SURFACE CASING = 2870 CU FT

TOTAL WELL VOLUME TO SURFACE CASING = 2010 CU. FT.

ANNULAR VOLUME WITH 4.5 INCH PRODUCTION CASING TO SURFACE CASING = 1960 CU. FT.

2.65 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY

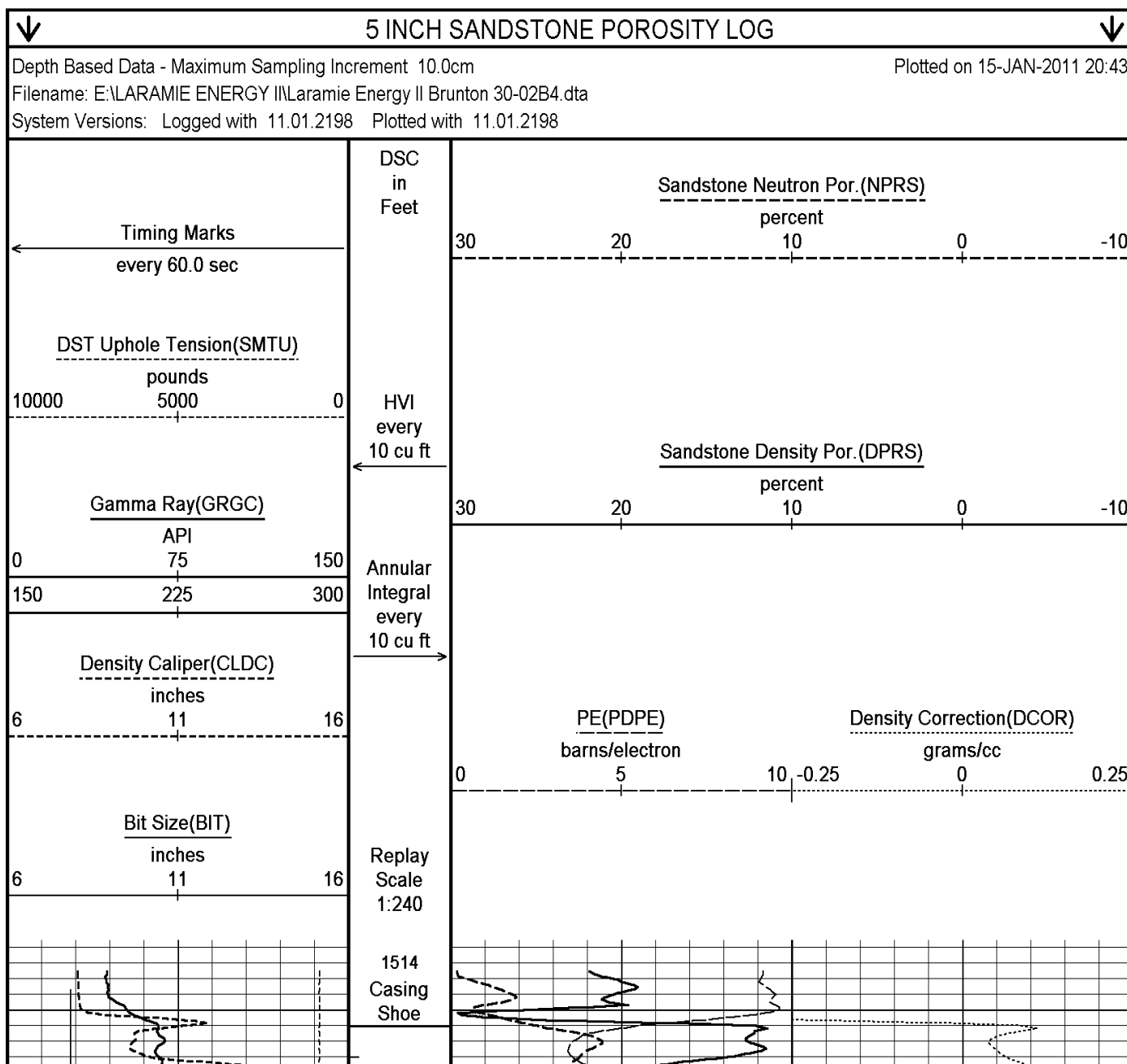
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST

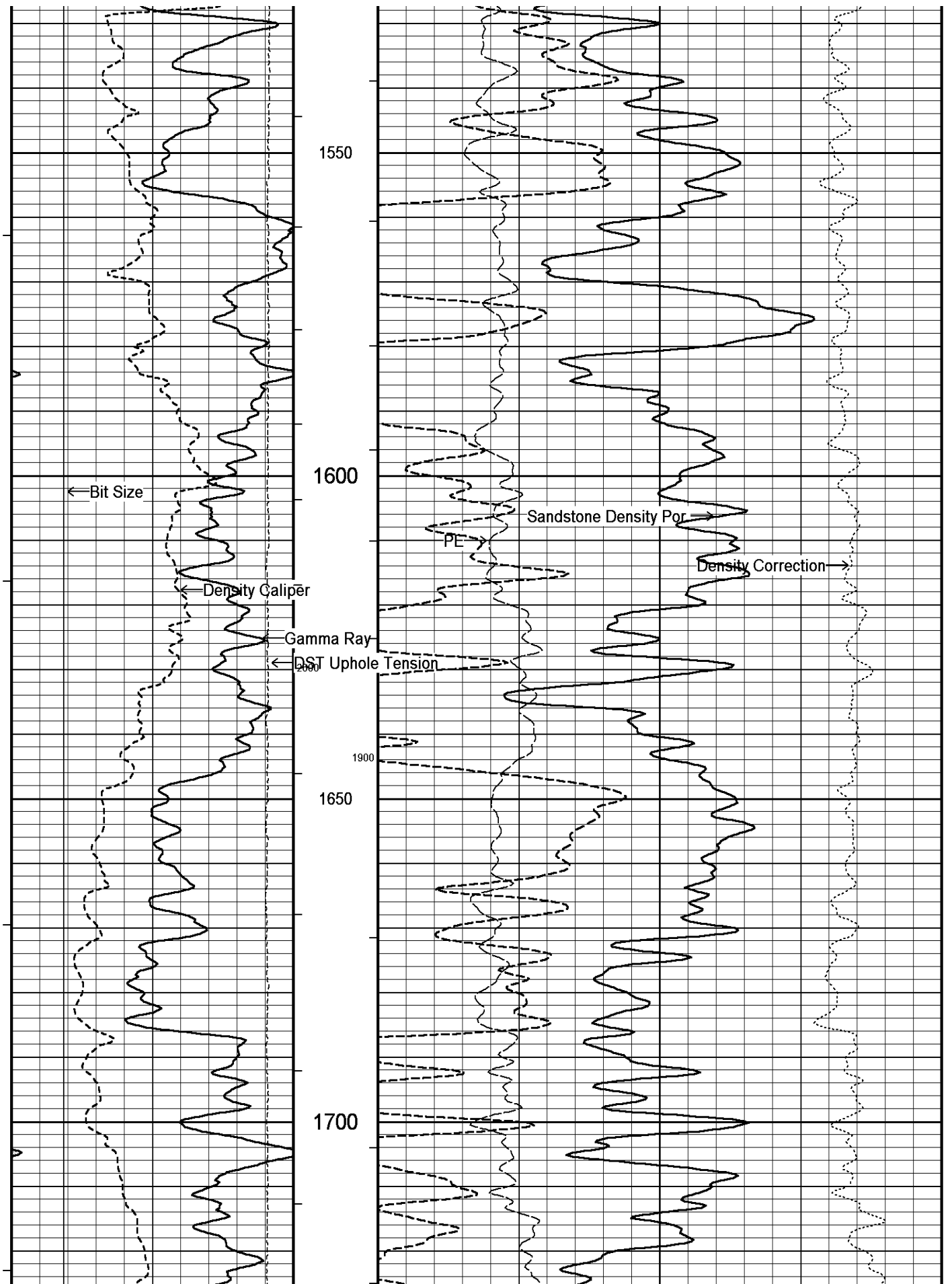
THE DENSITY READINGS CYCLED AT THE BOTTOM DUE TO BOREHOLE RUGOSITY

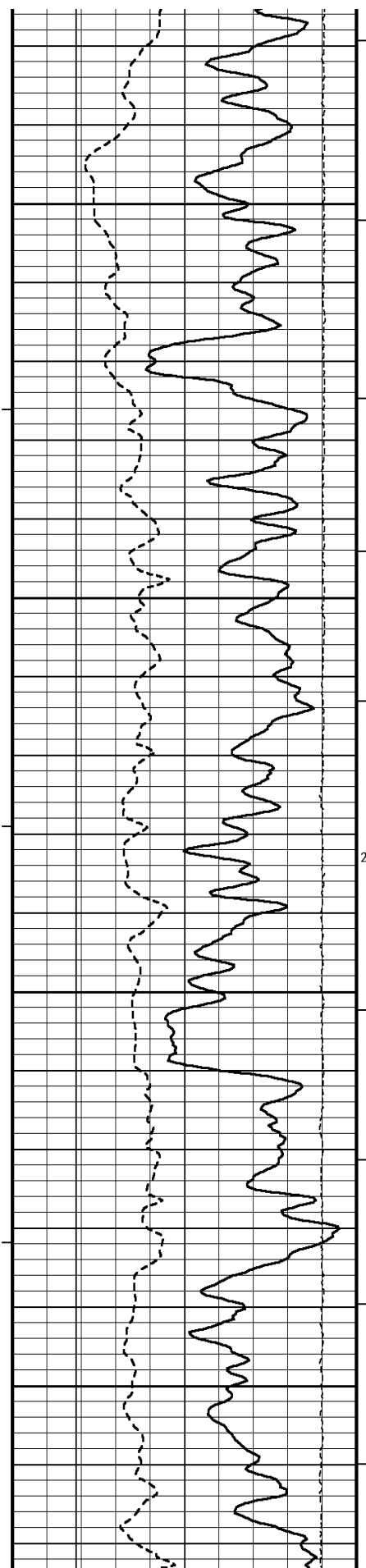
SERVICE ORDER: #3526688

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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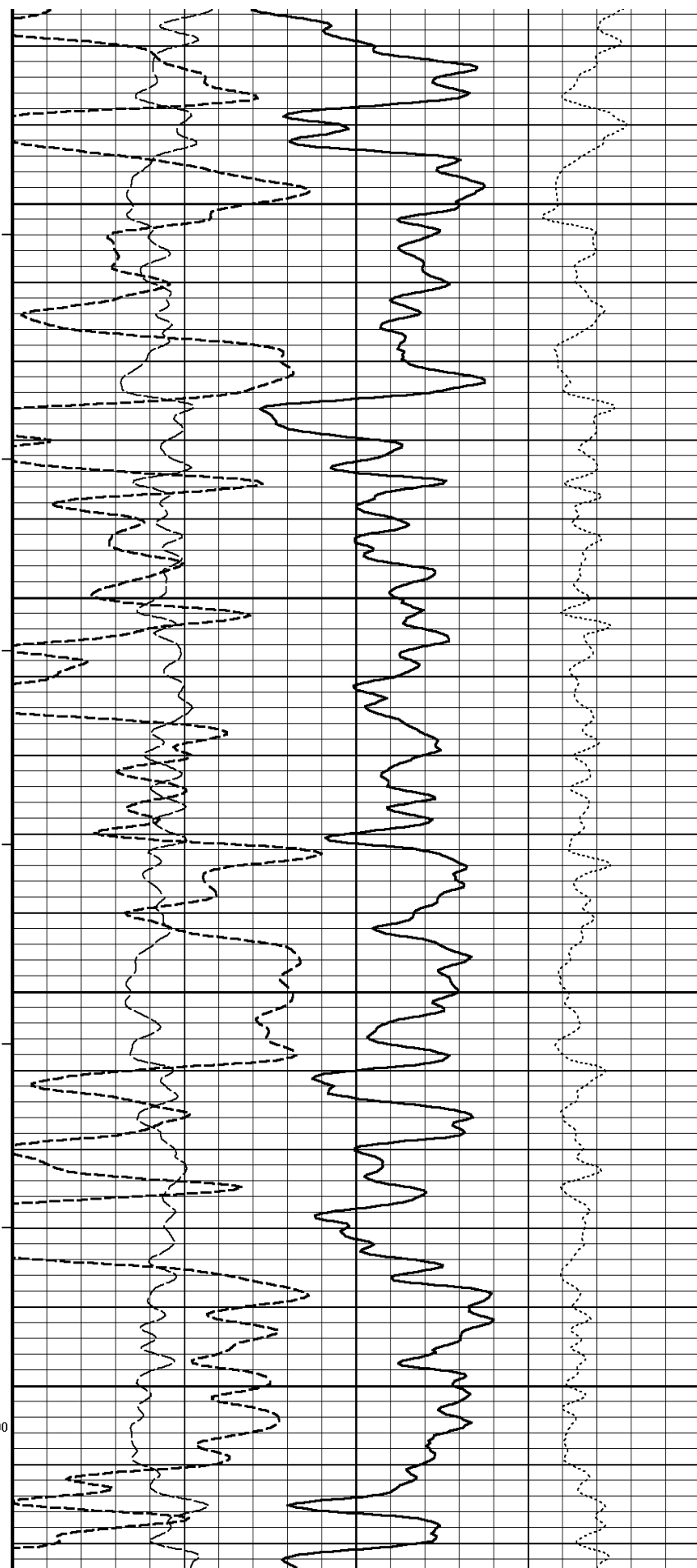
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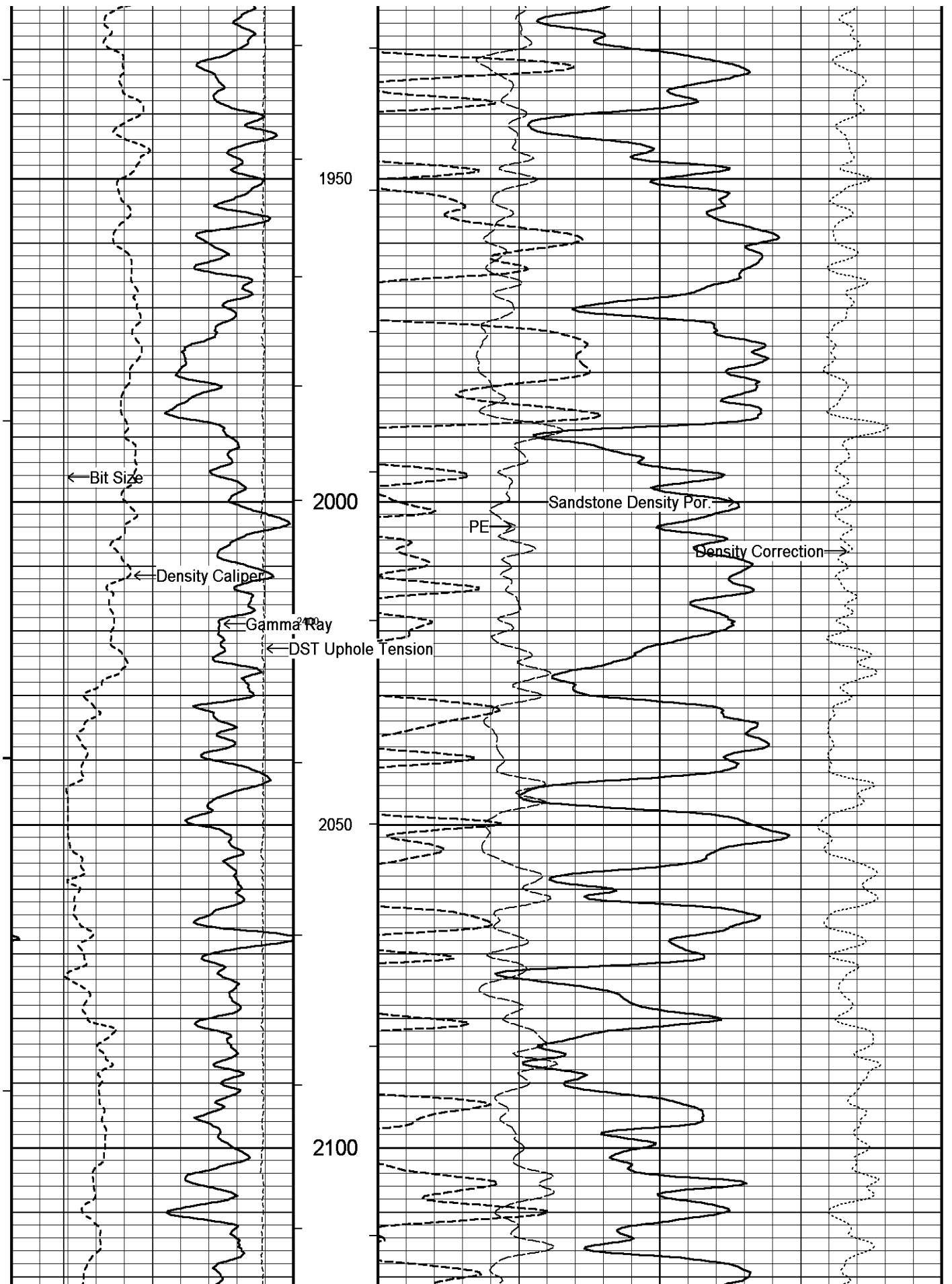
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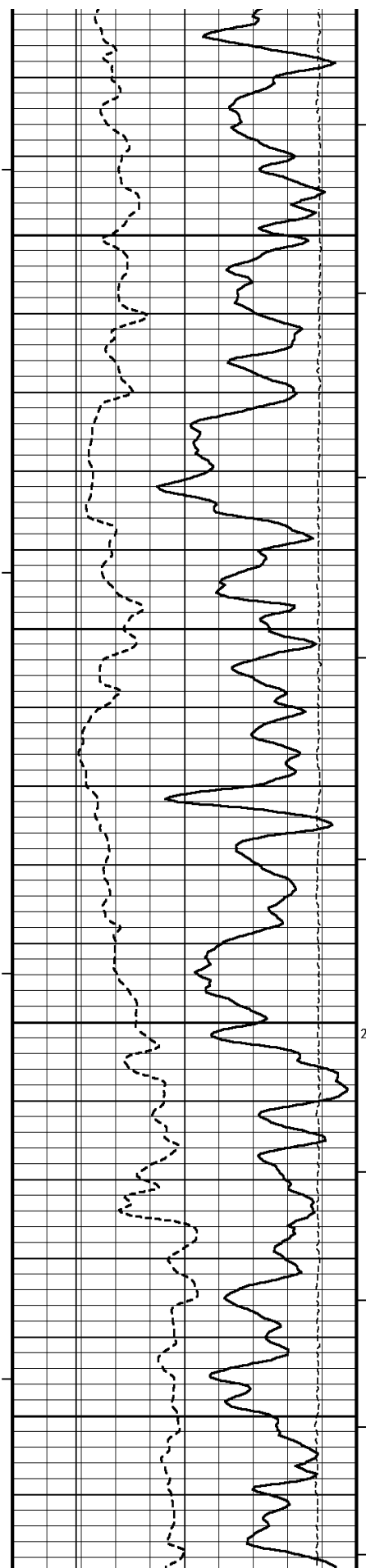
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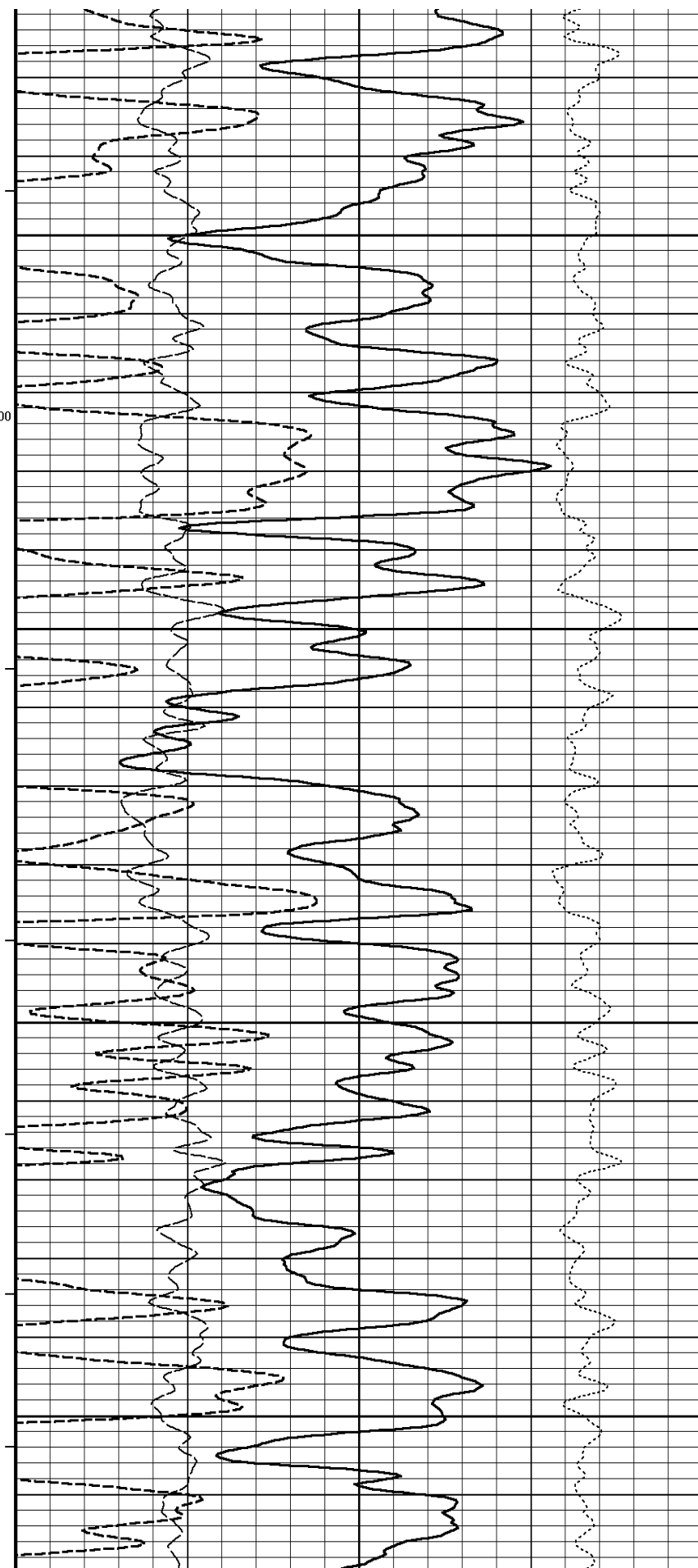
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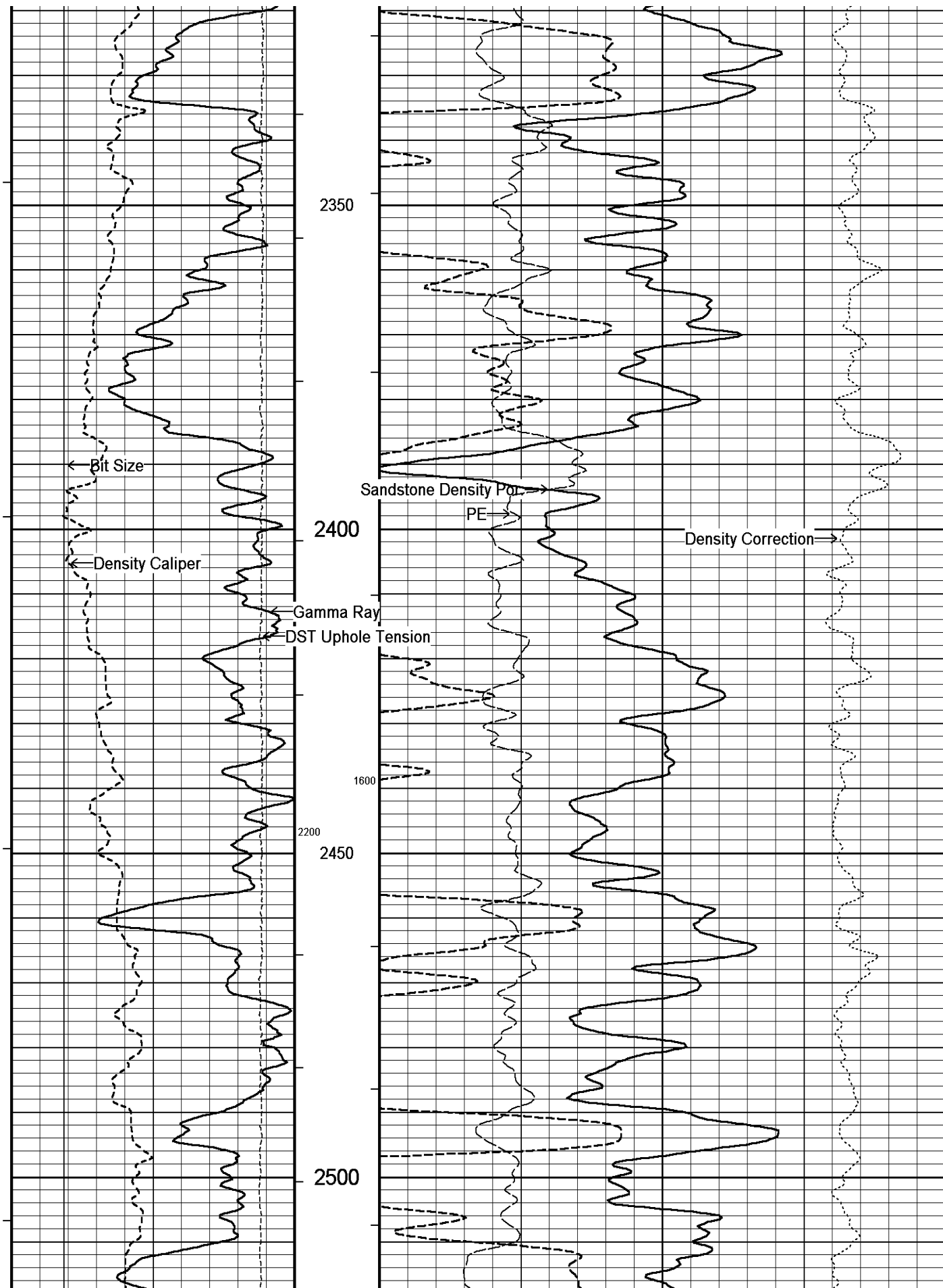
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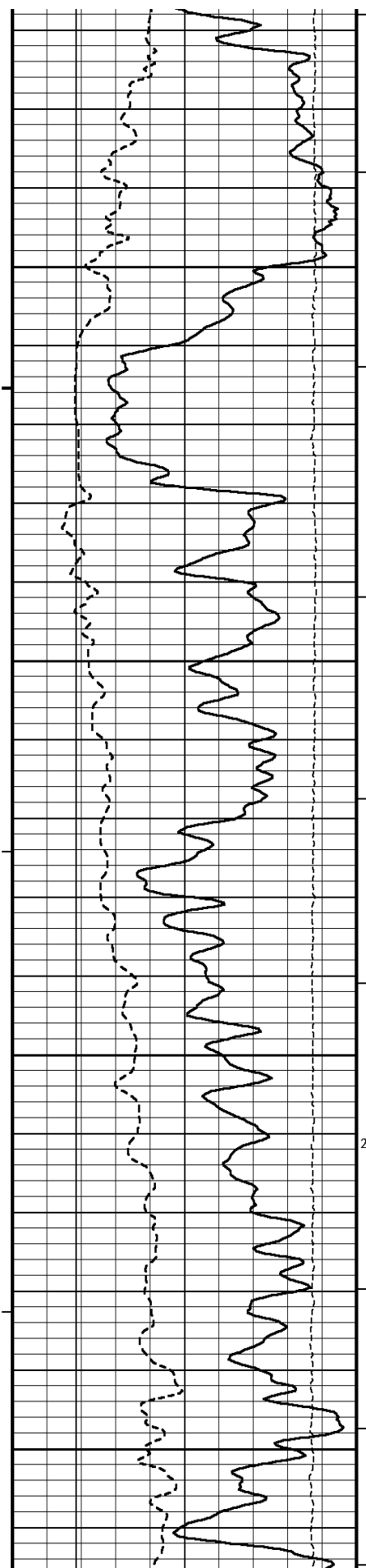
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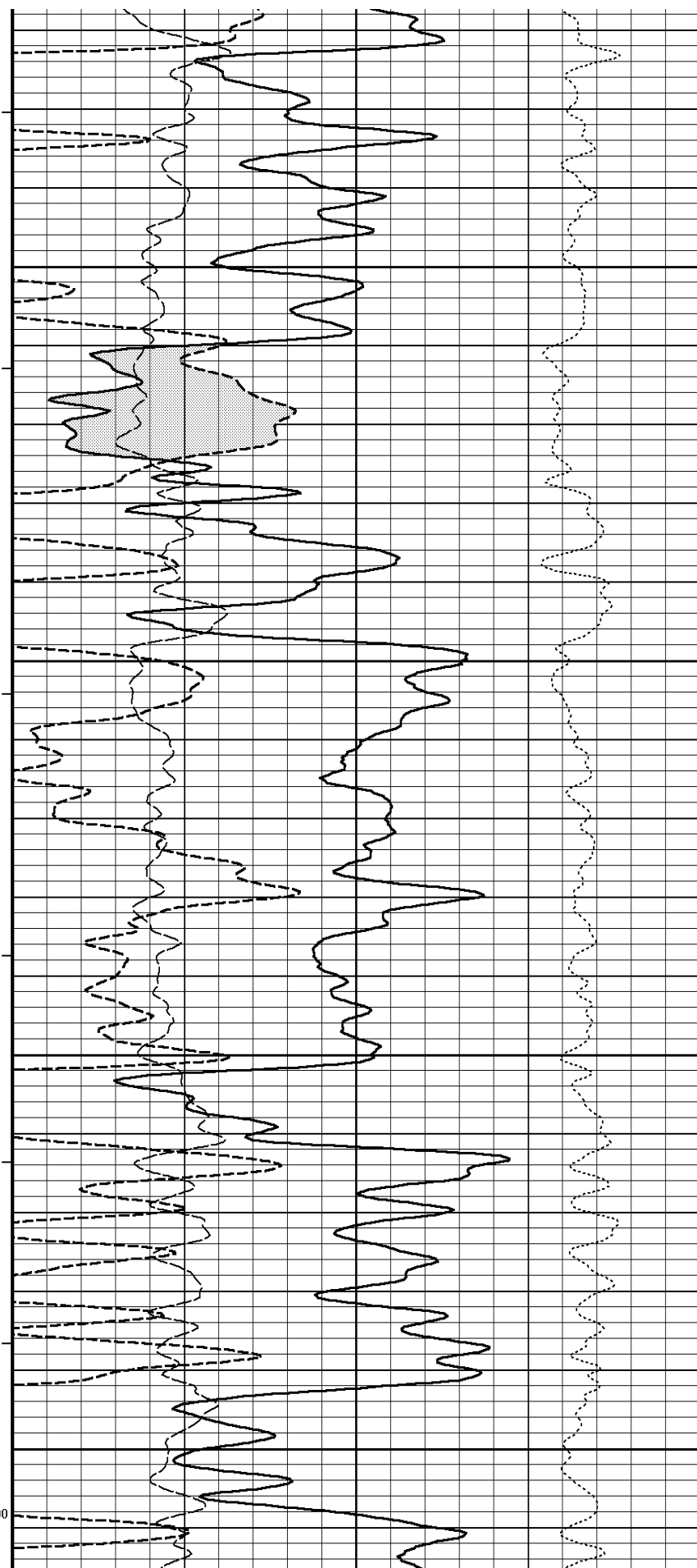
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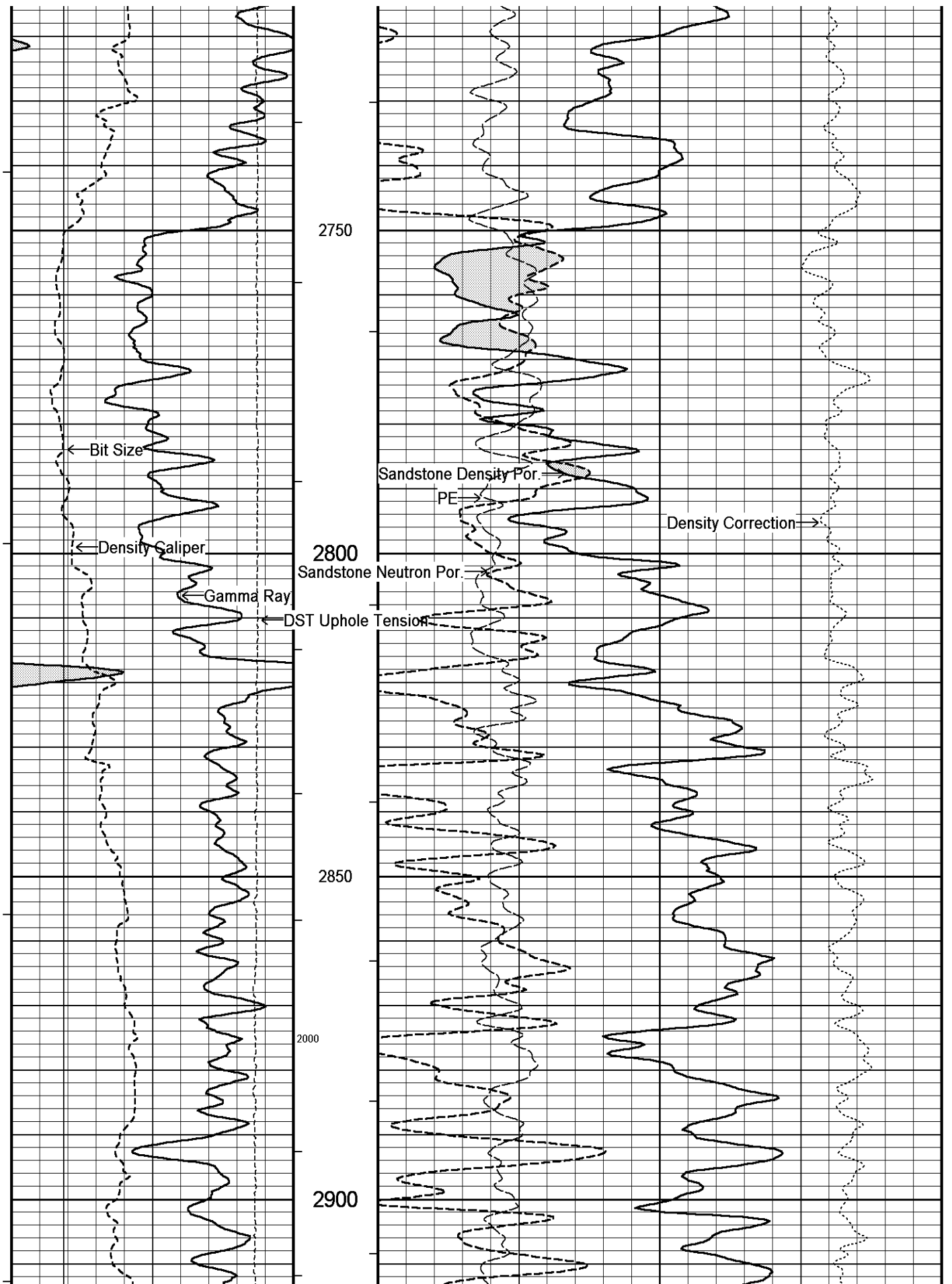
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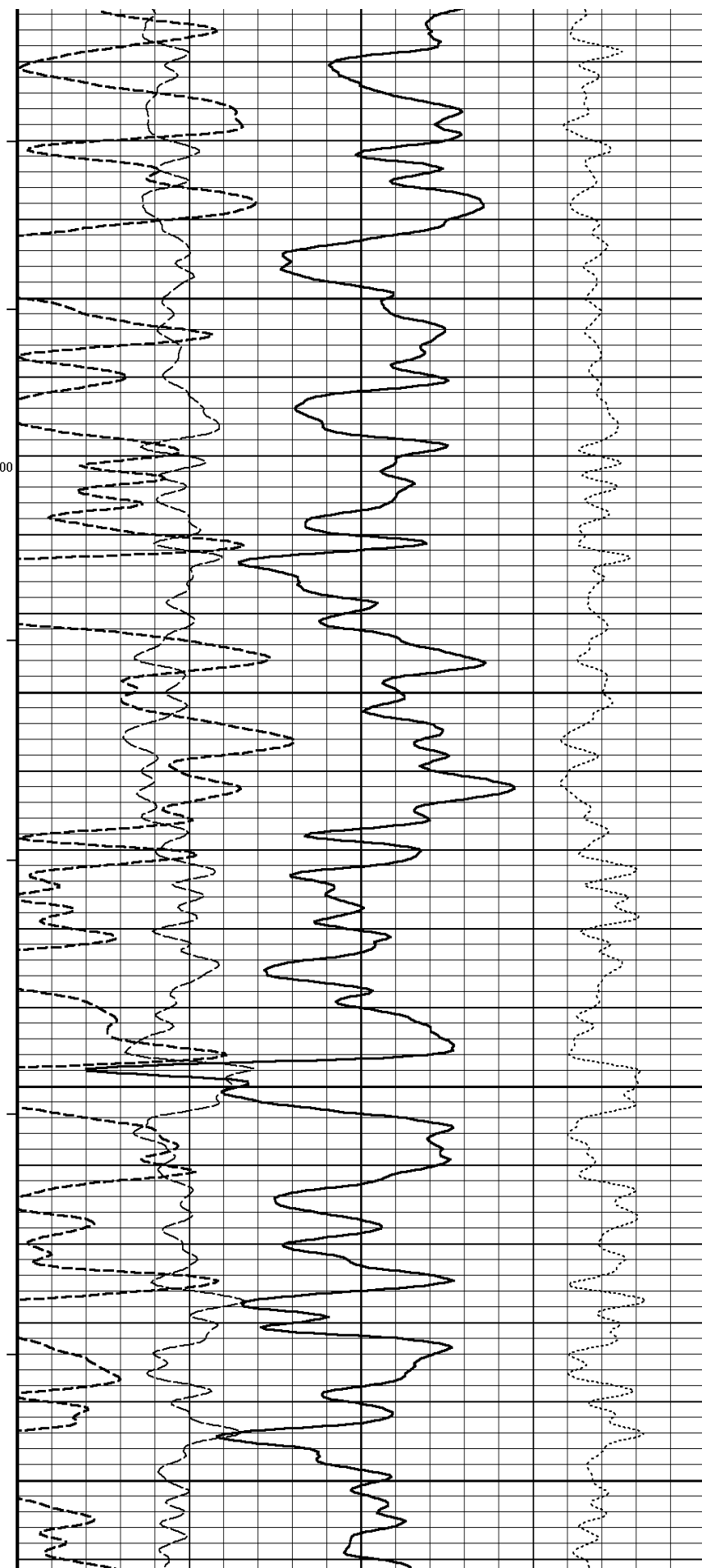
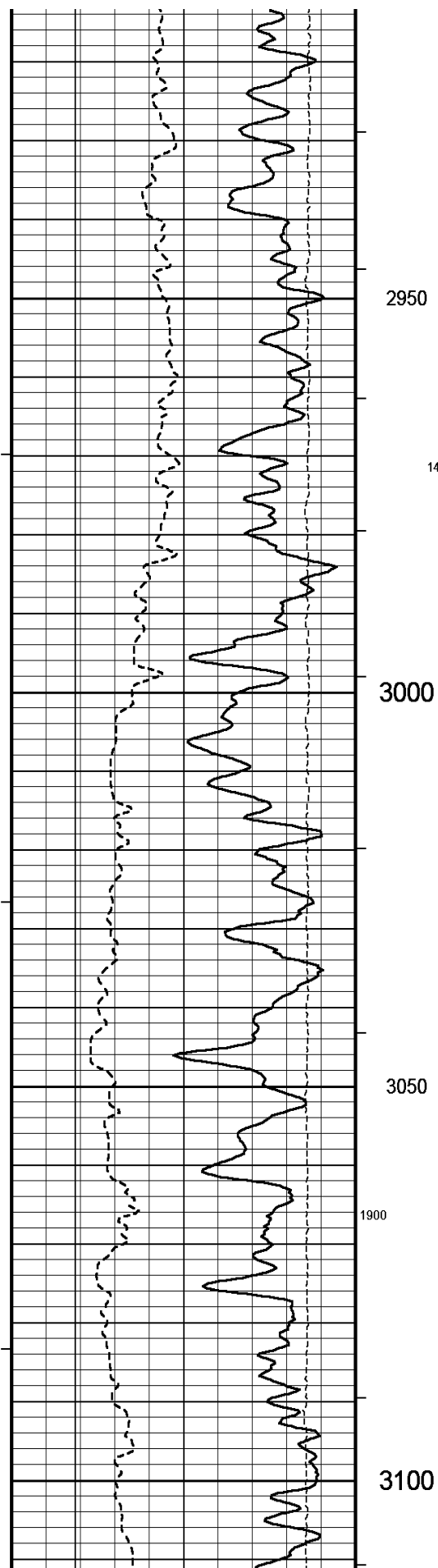
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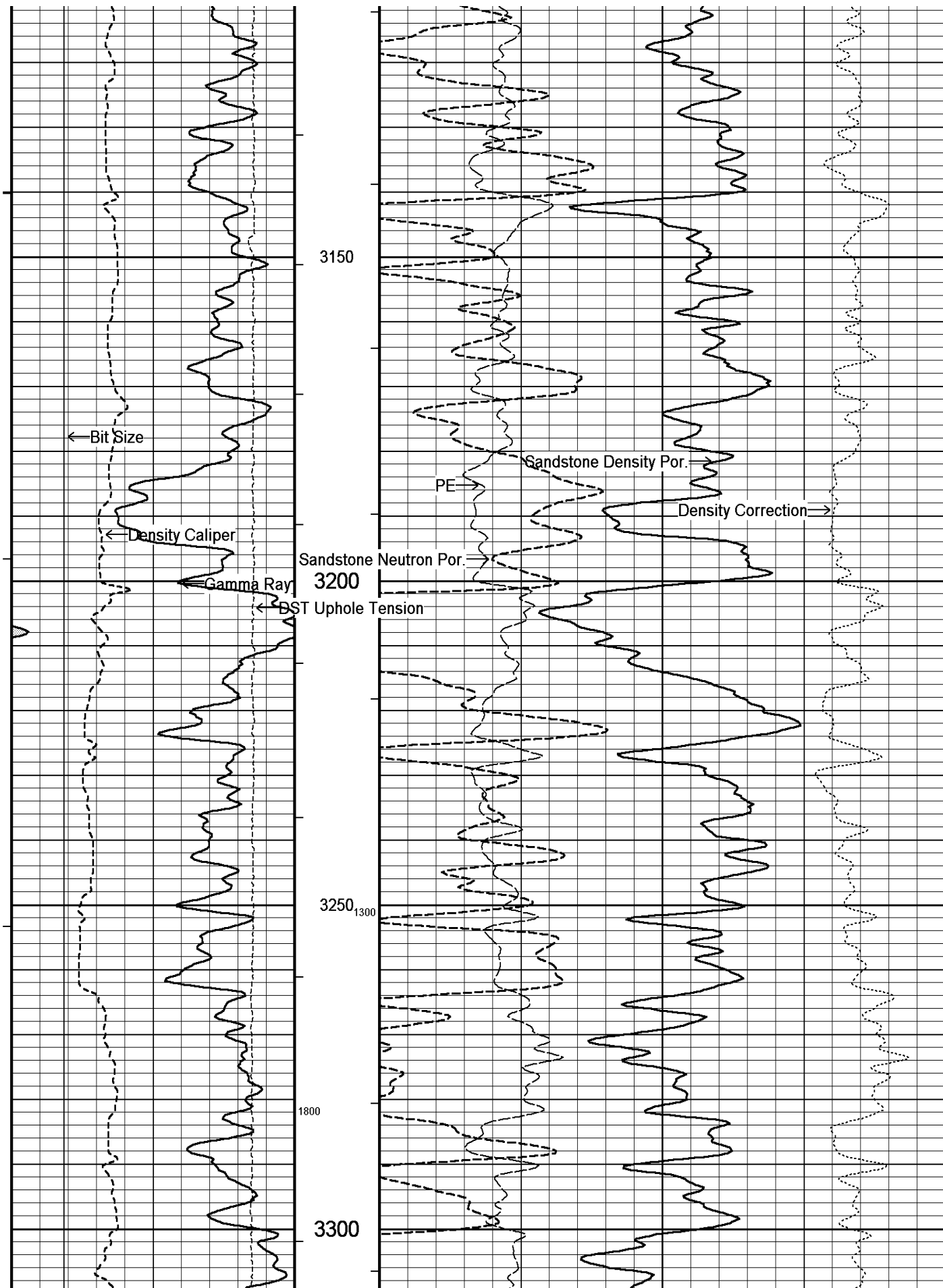
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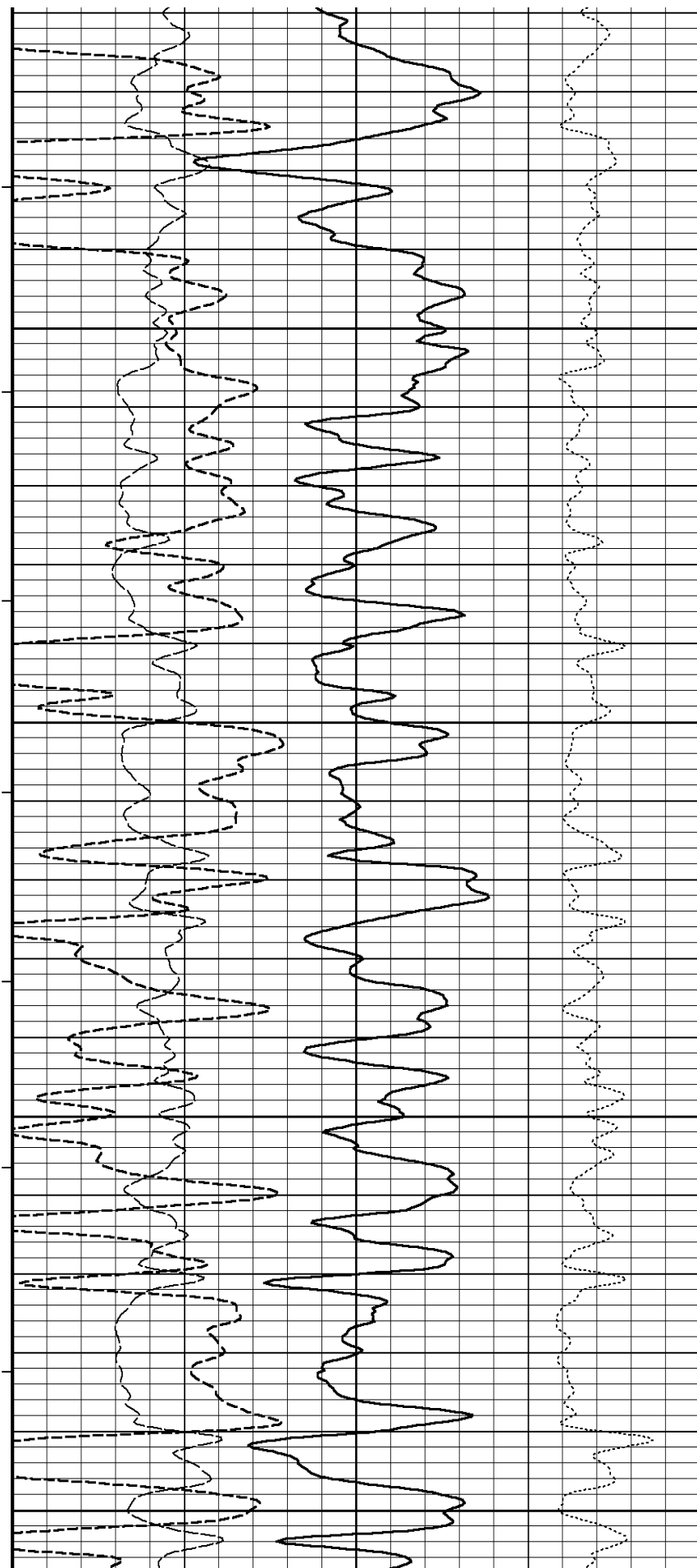
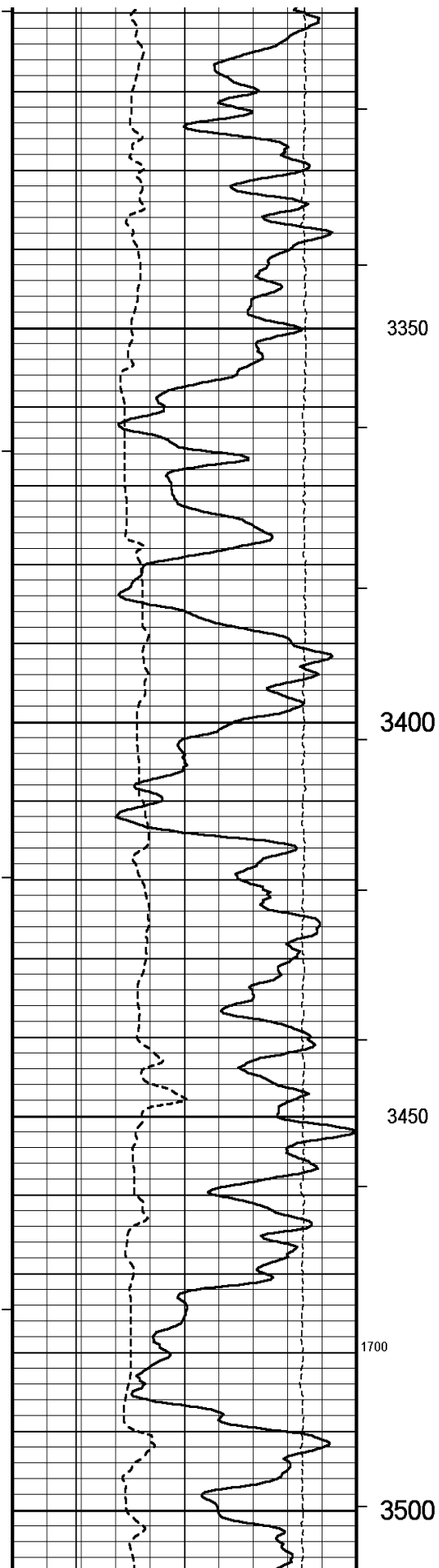
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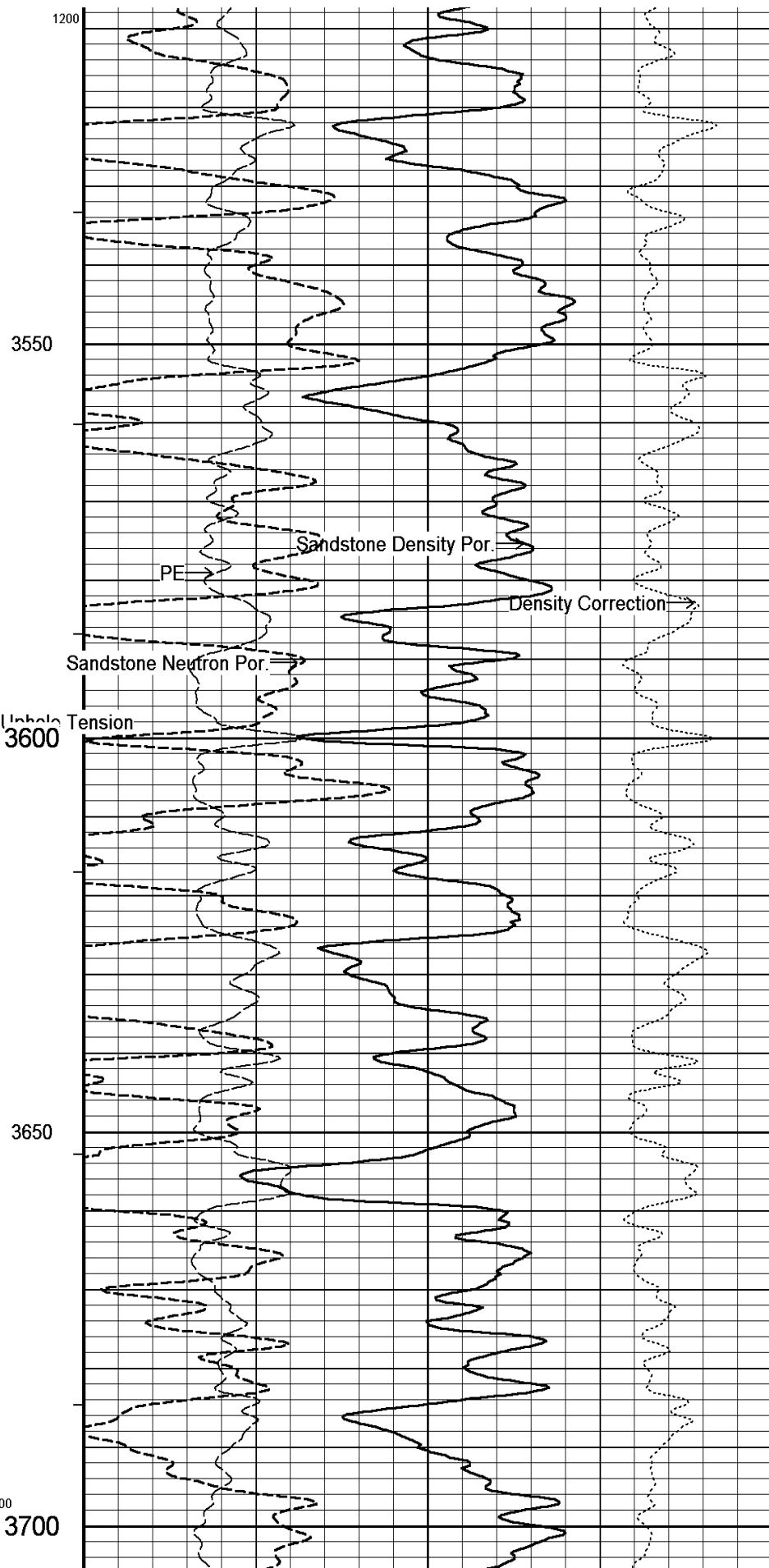
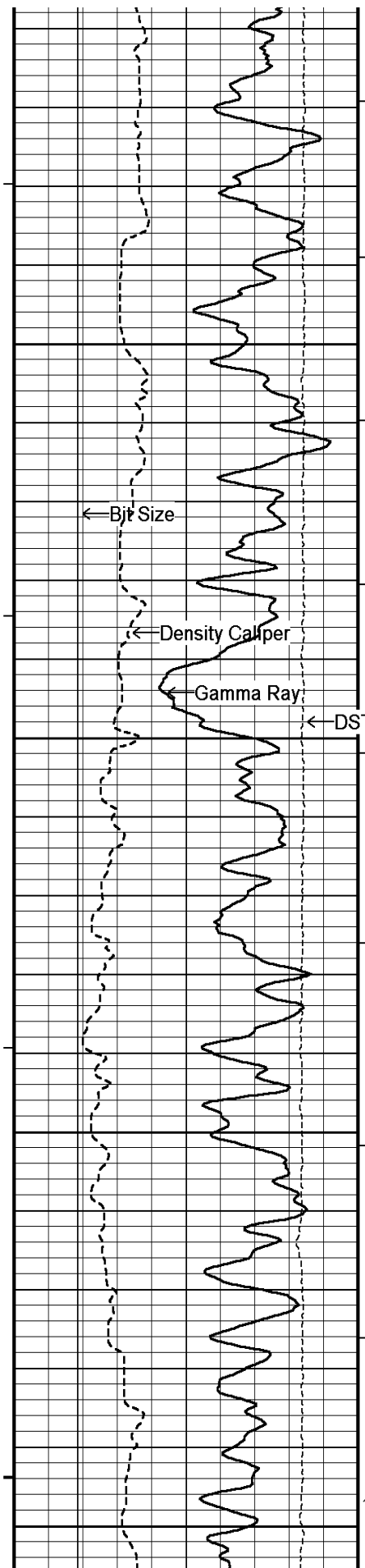


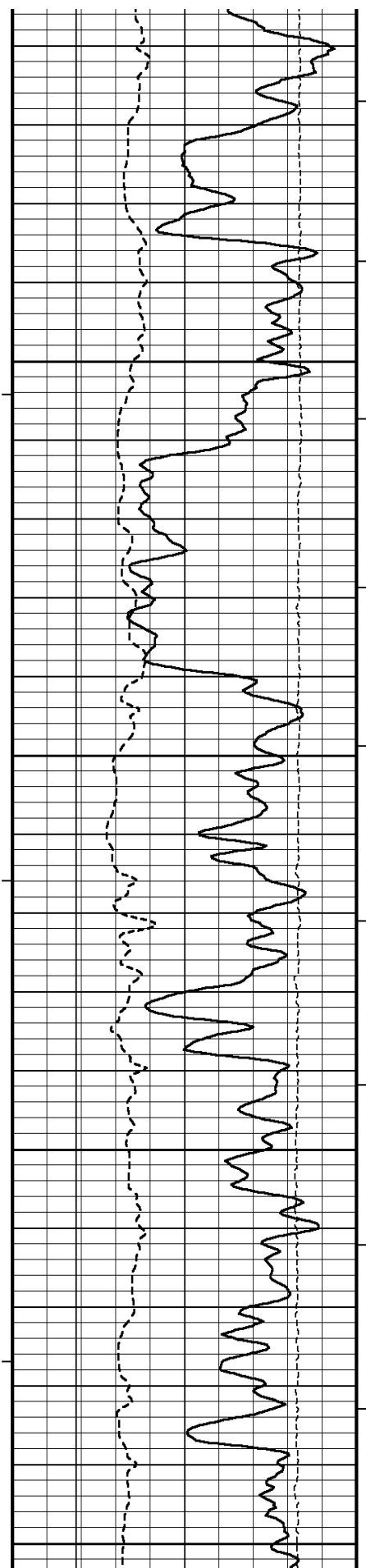












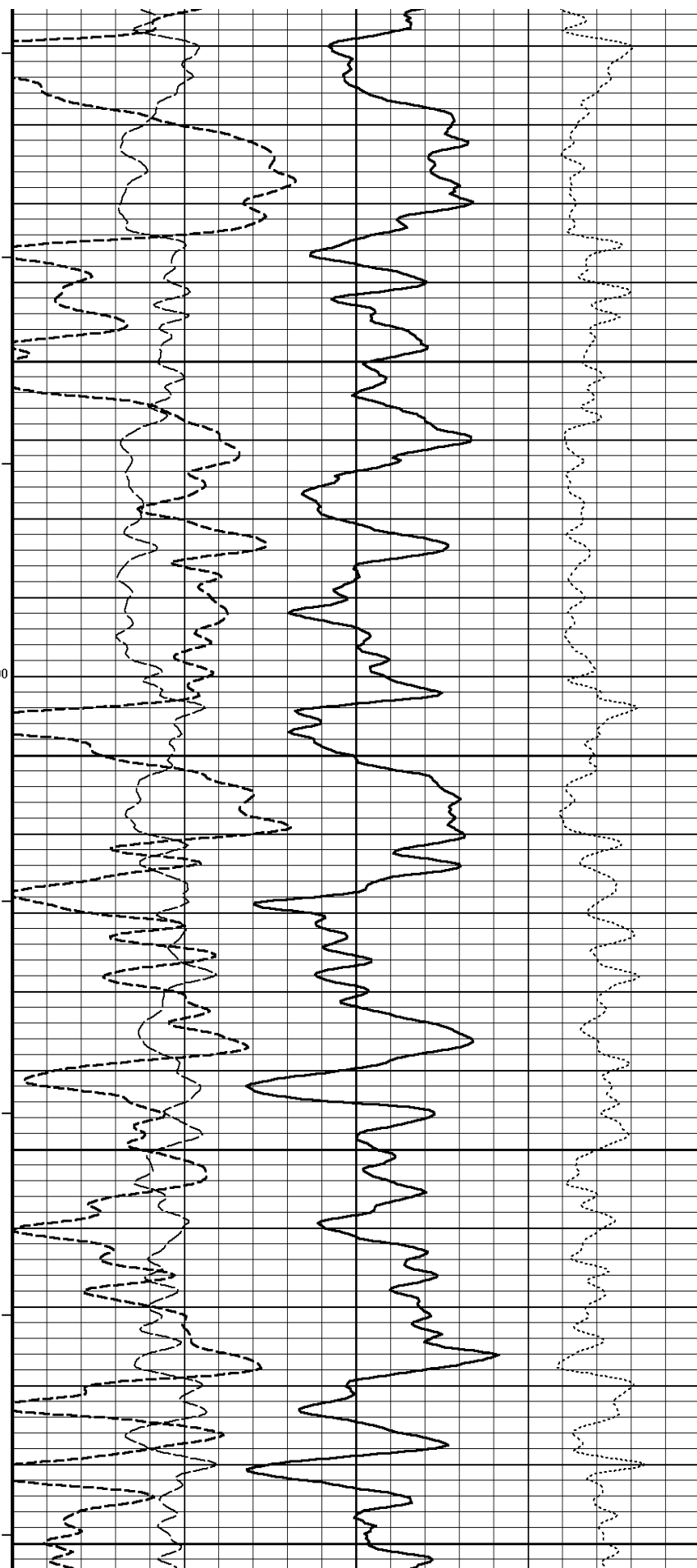
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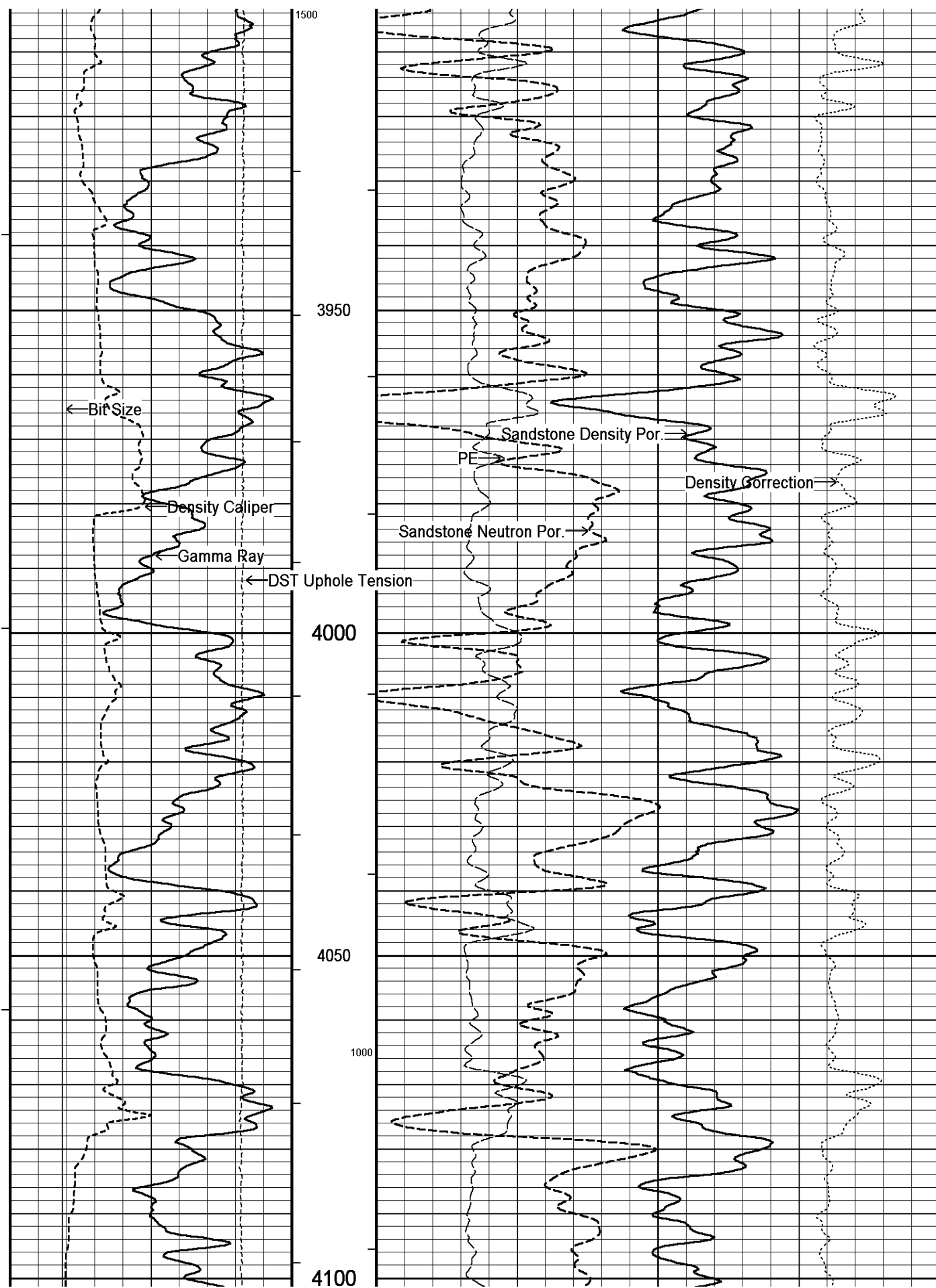
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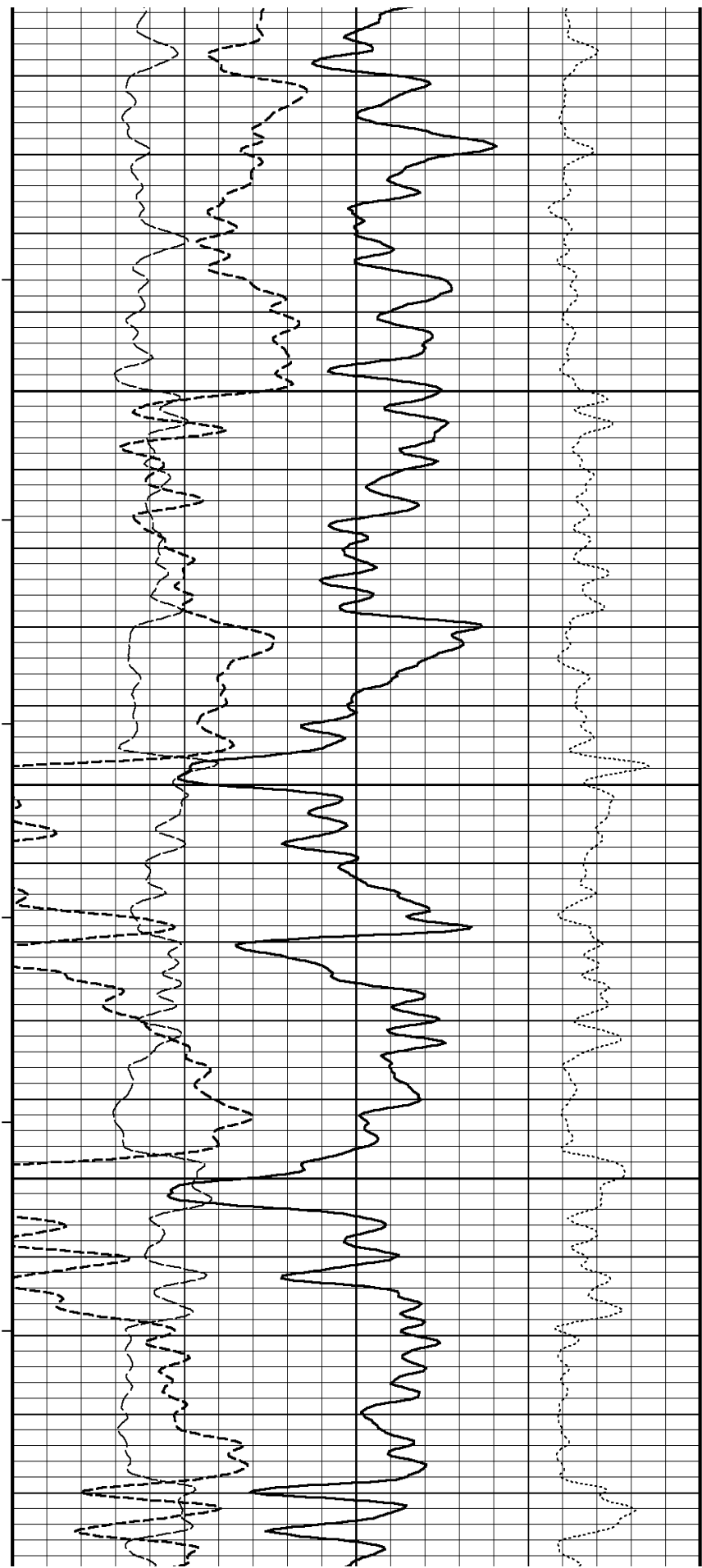
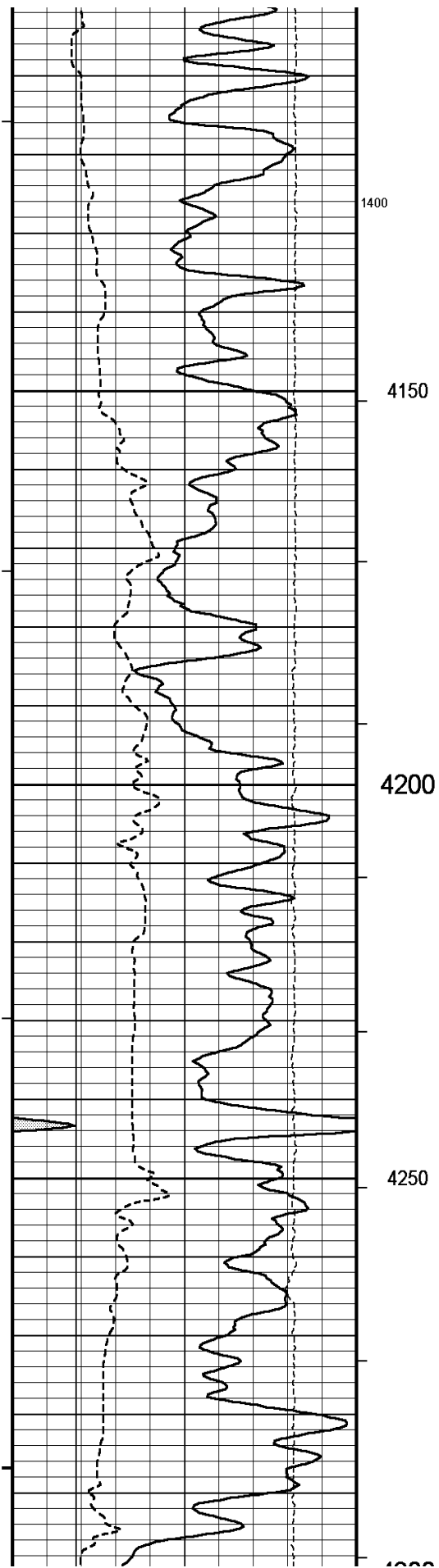
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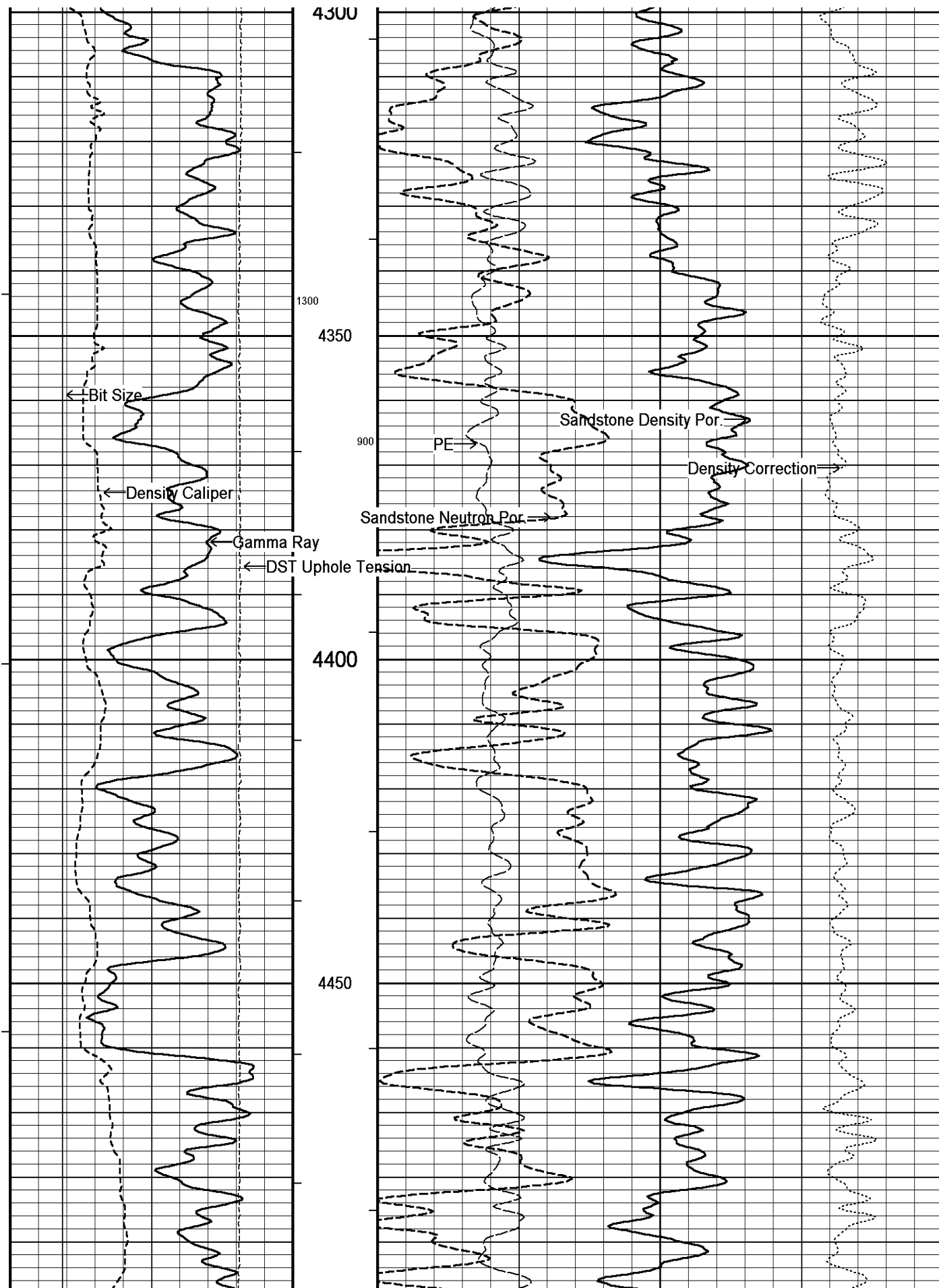
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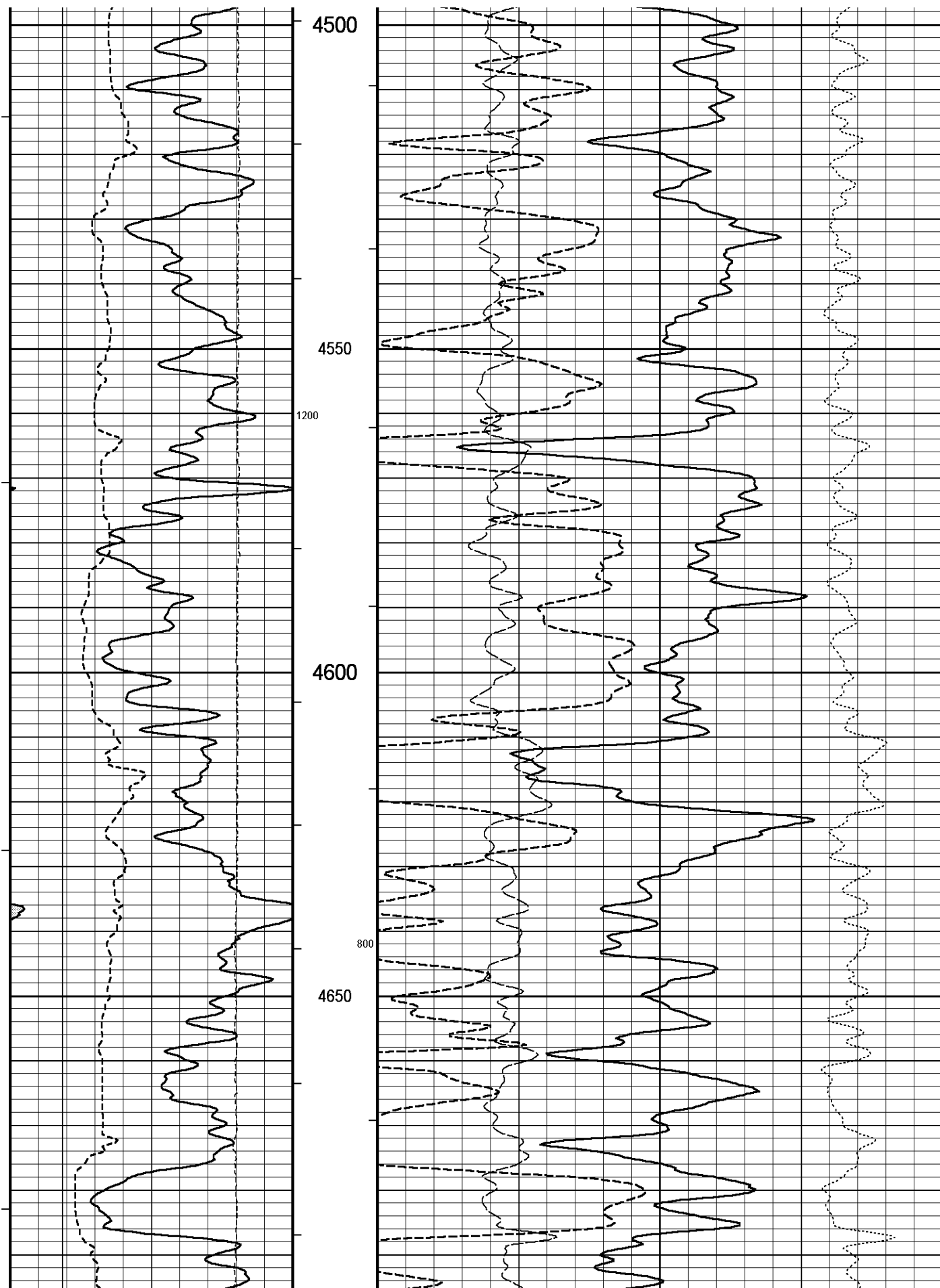
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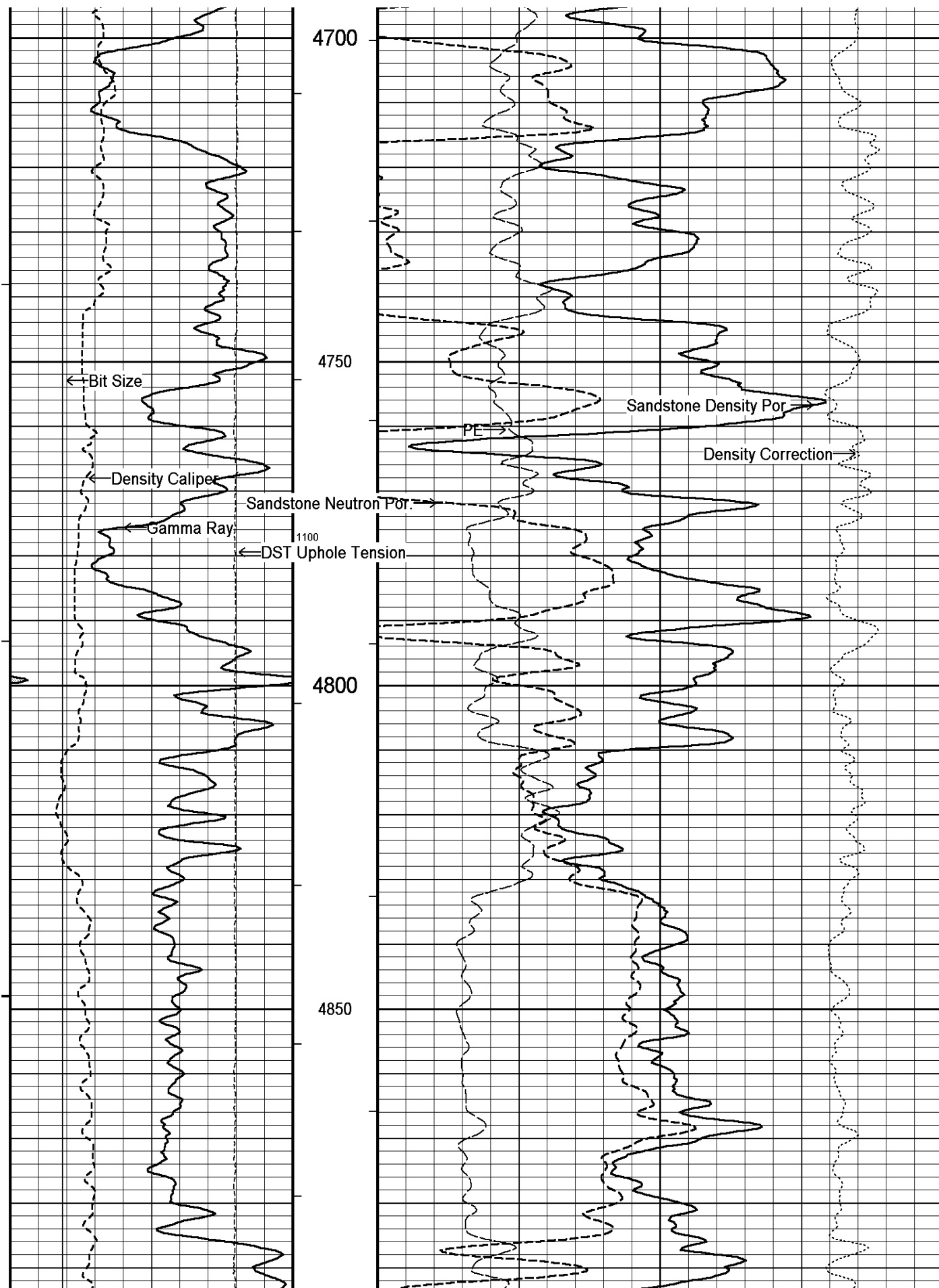


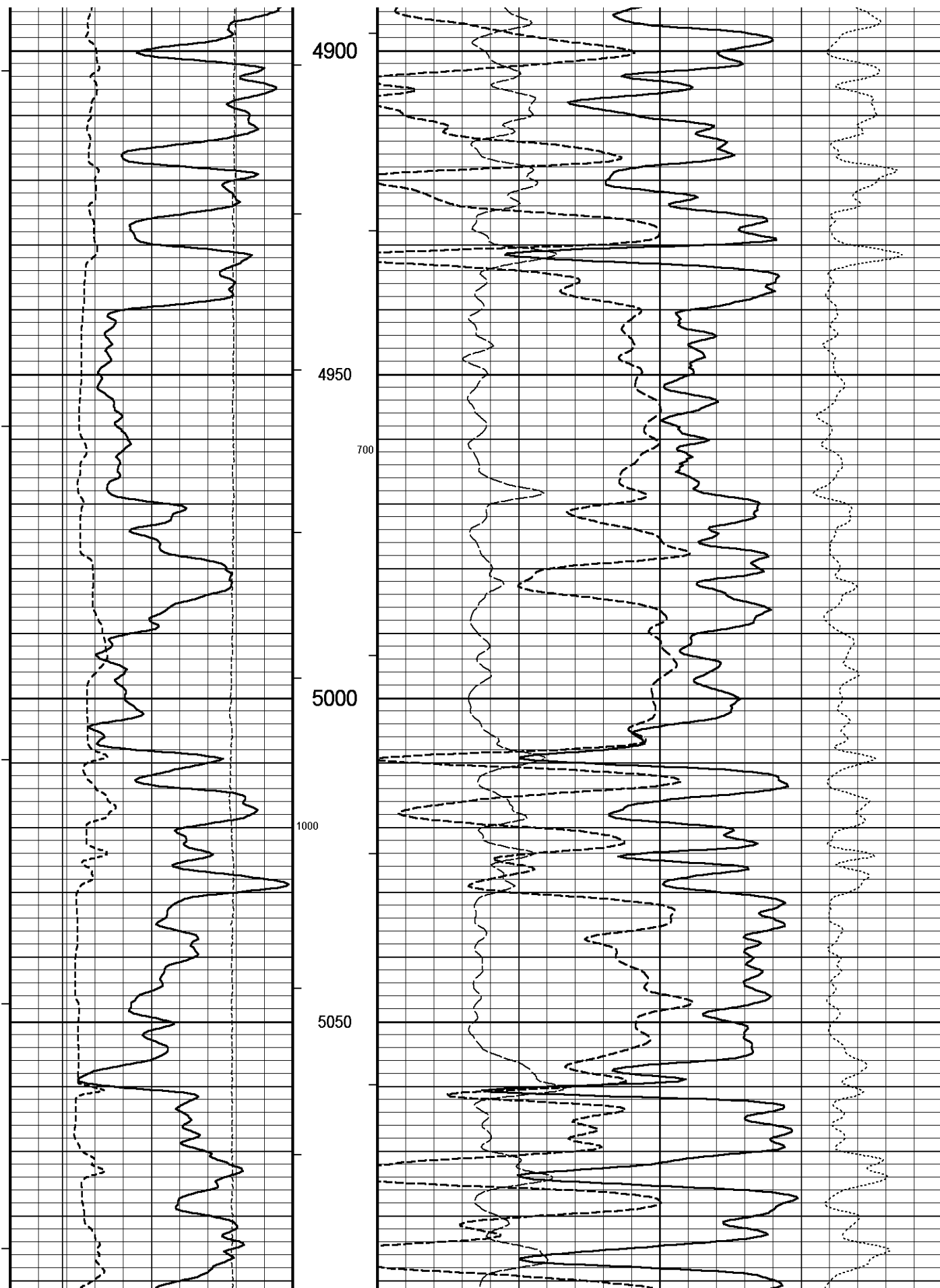


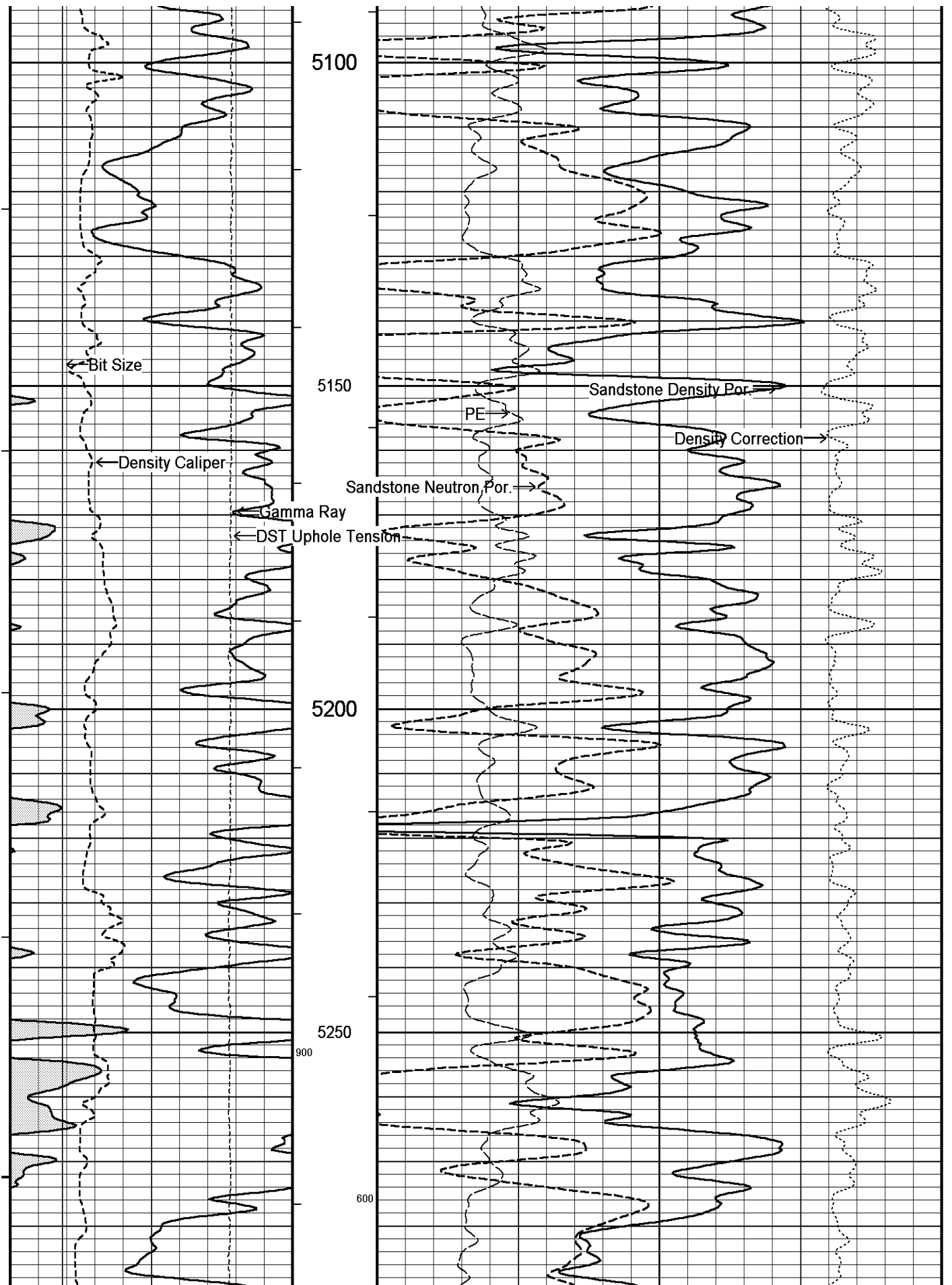


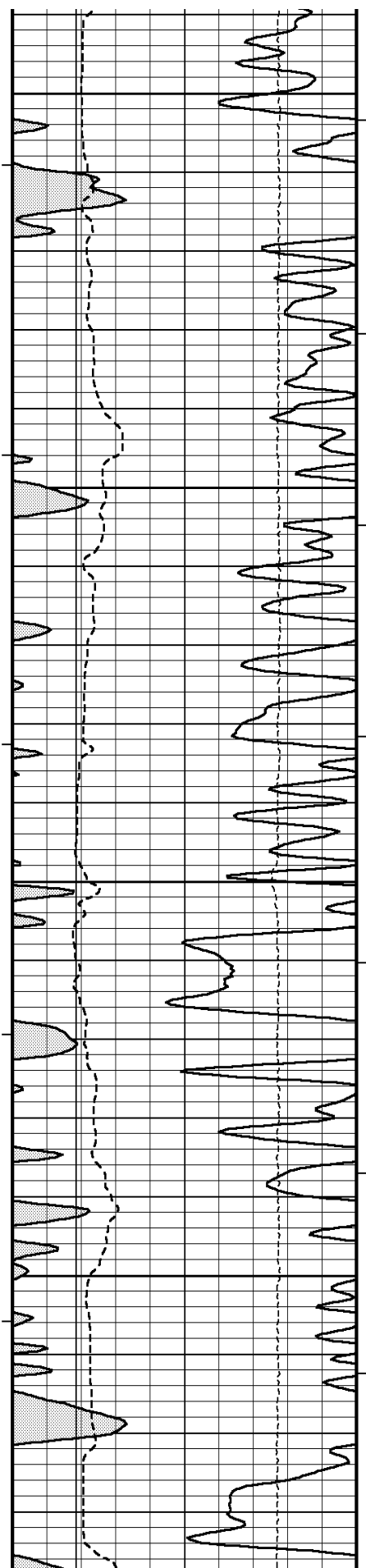










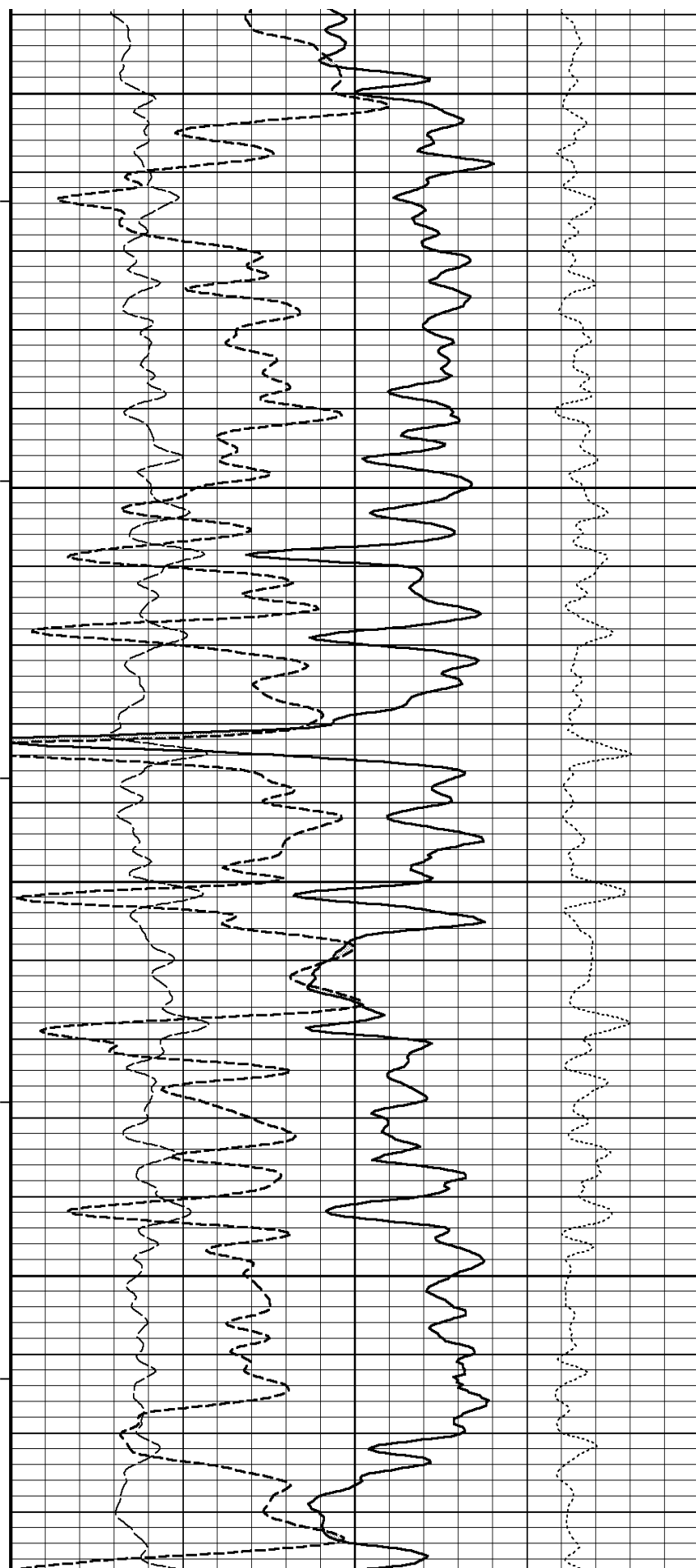


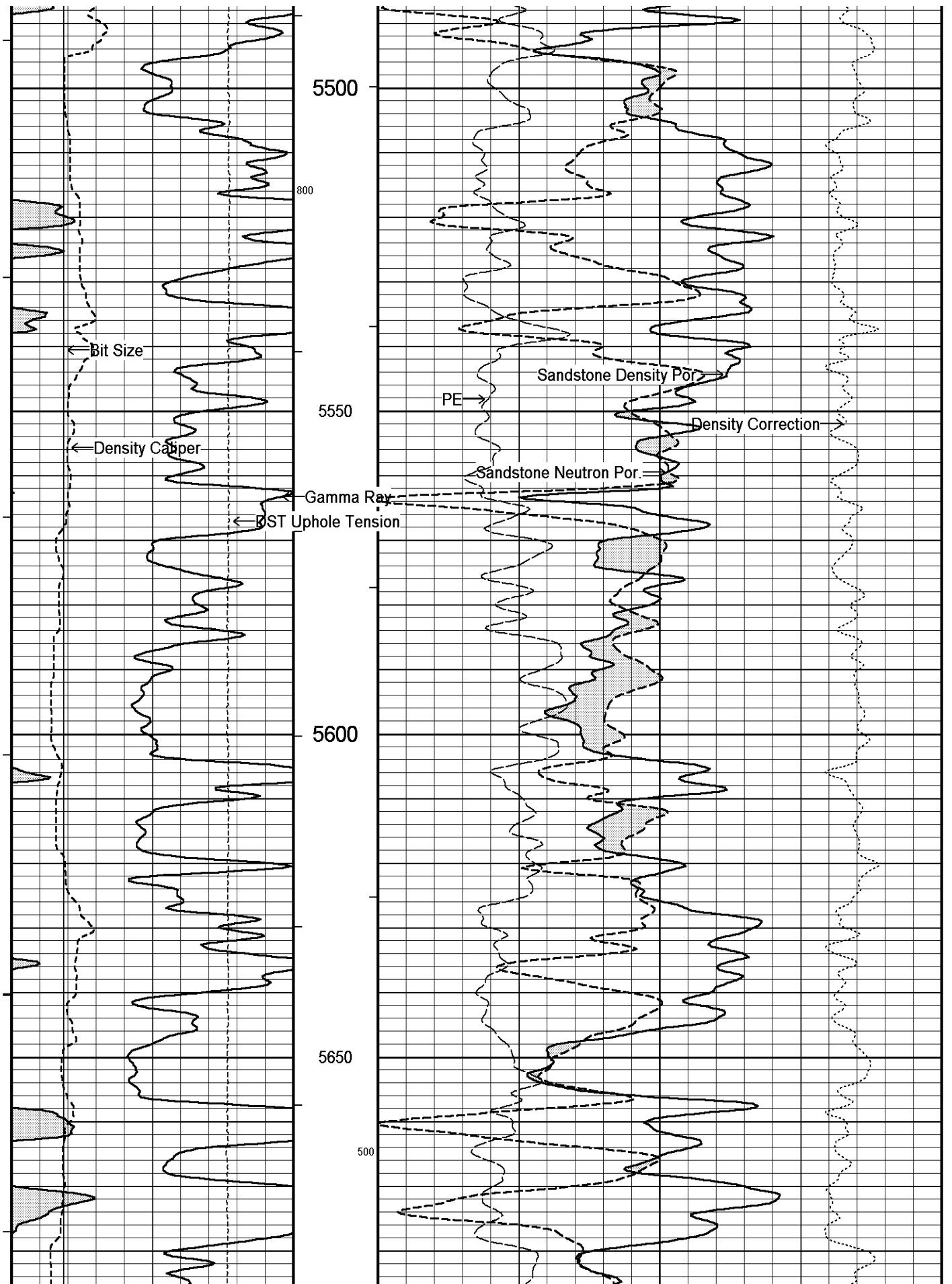
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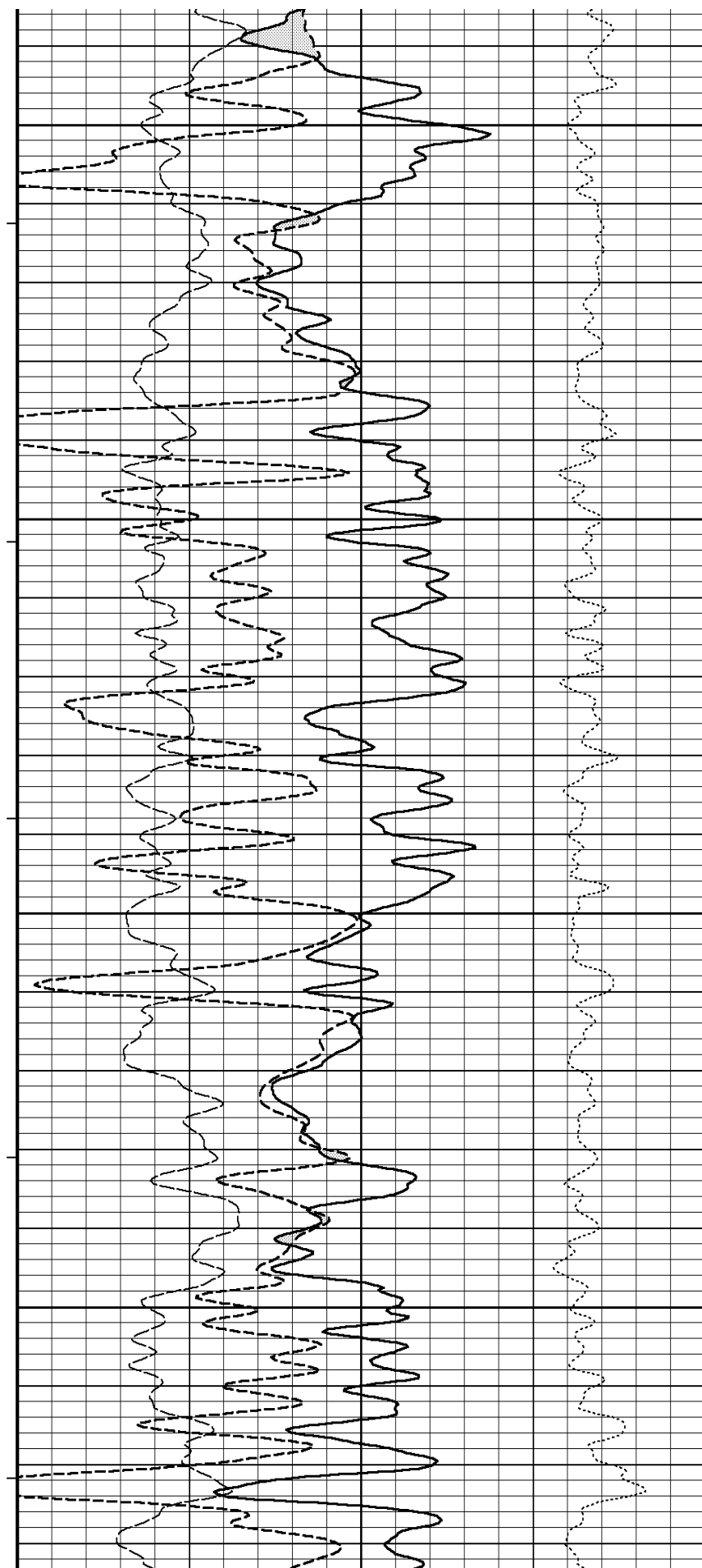
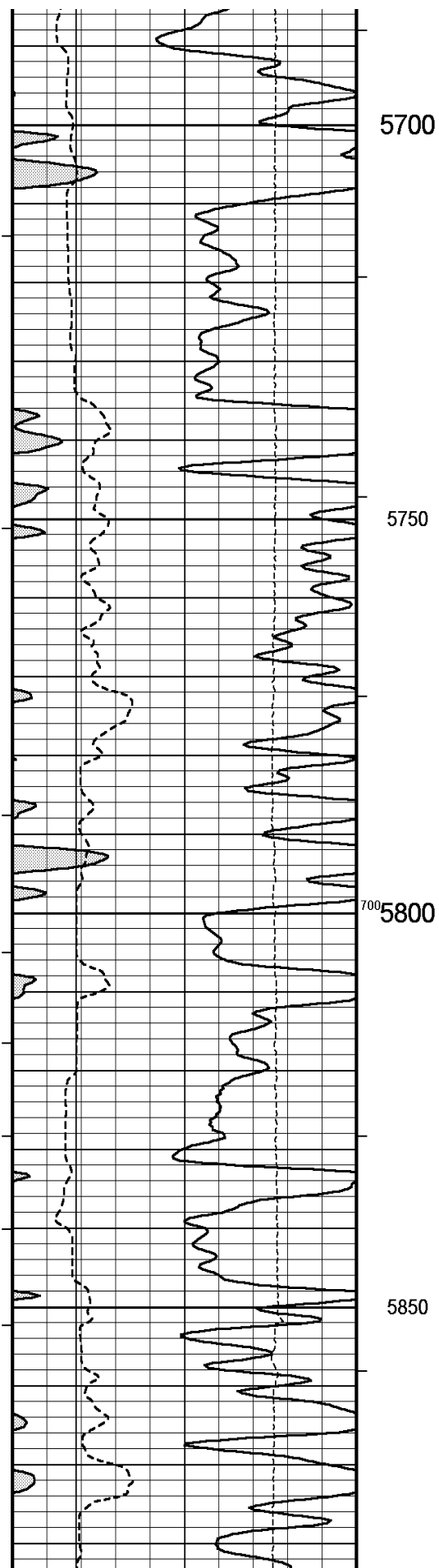
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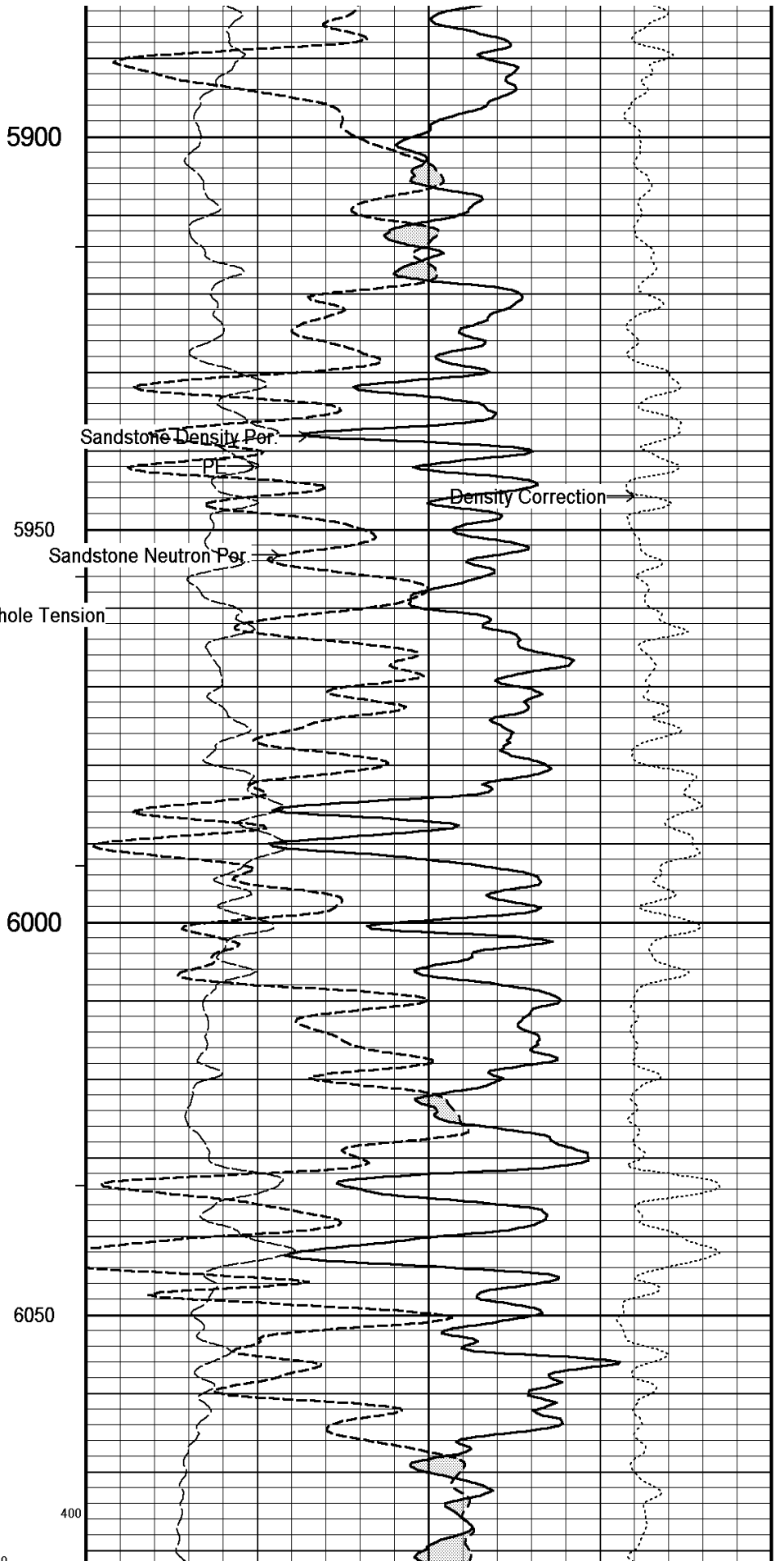
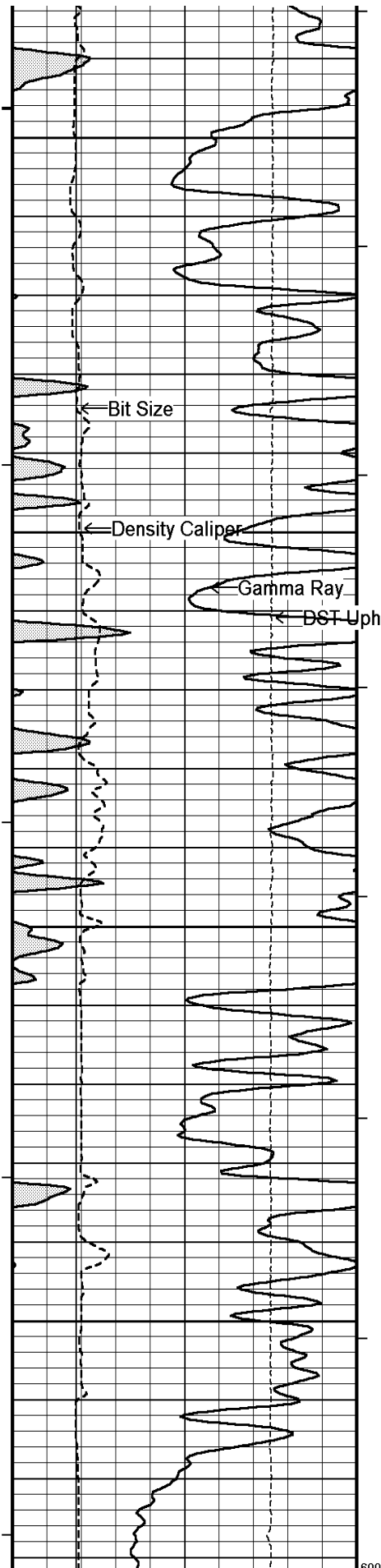
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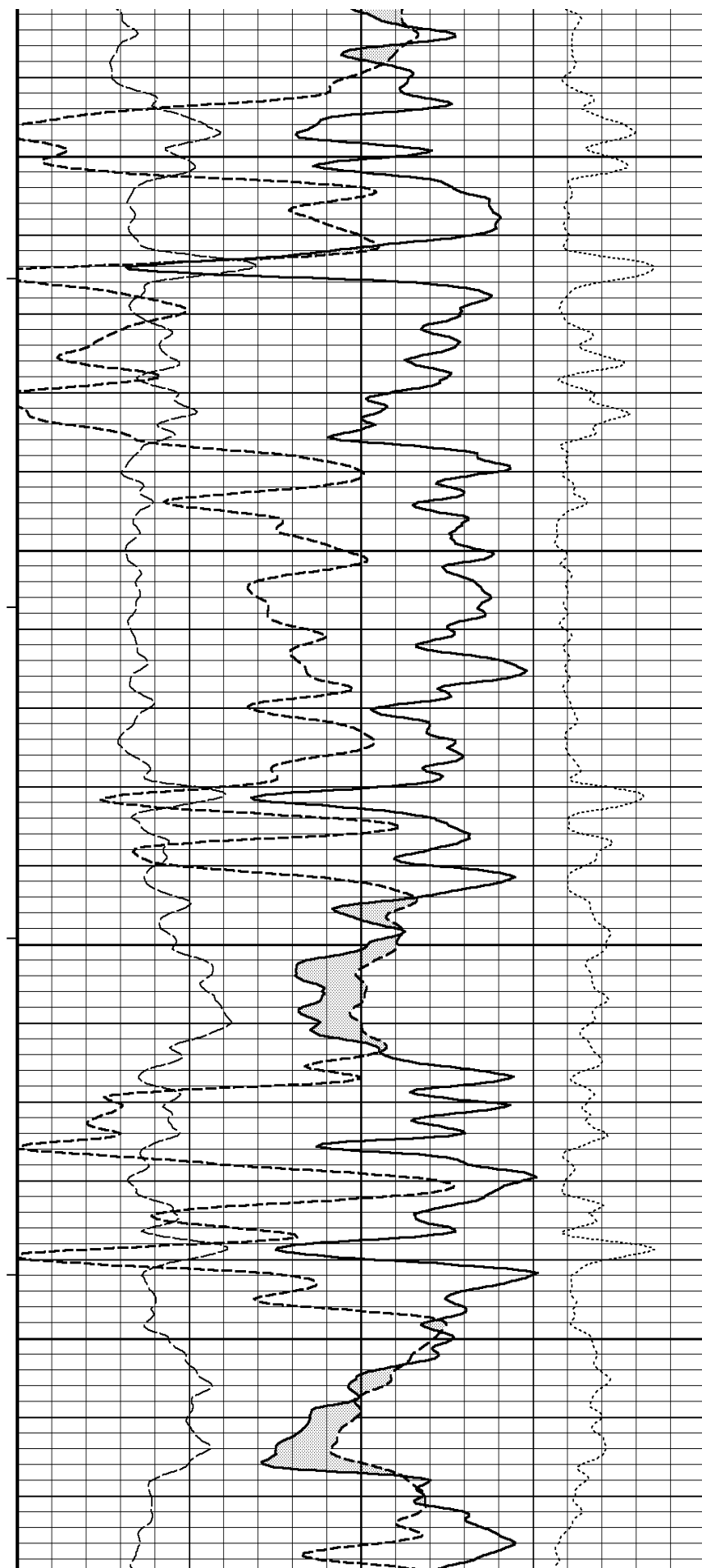
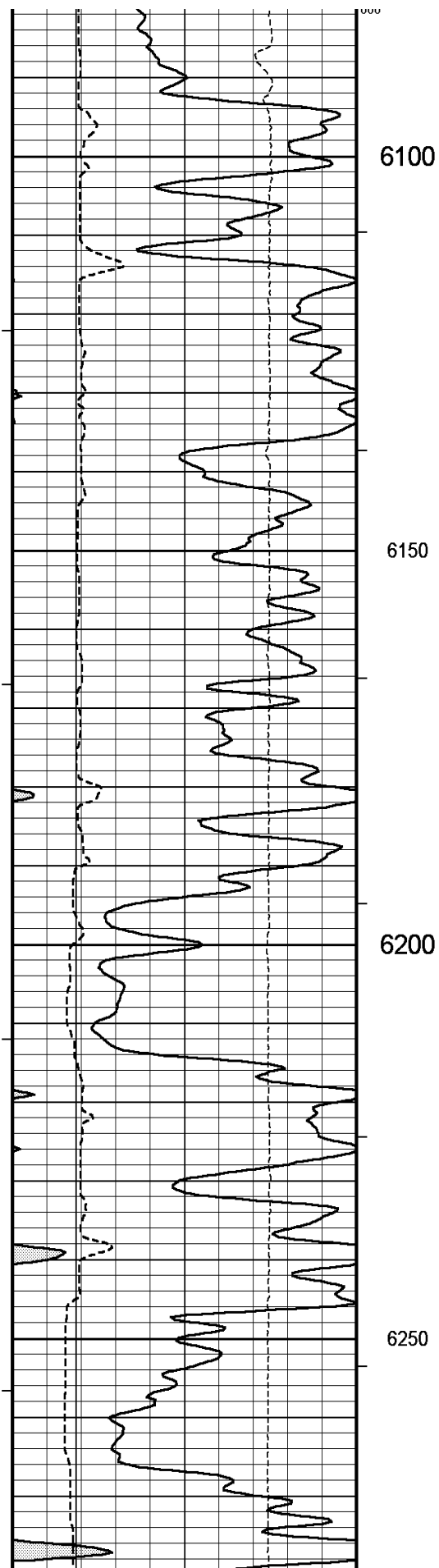
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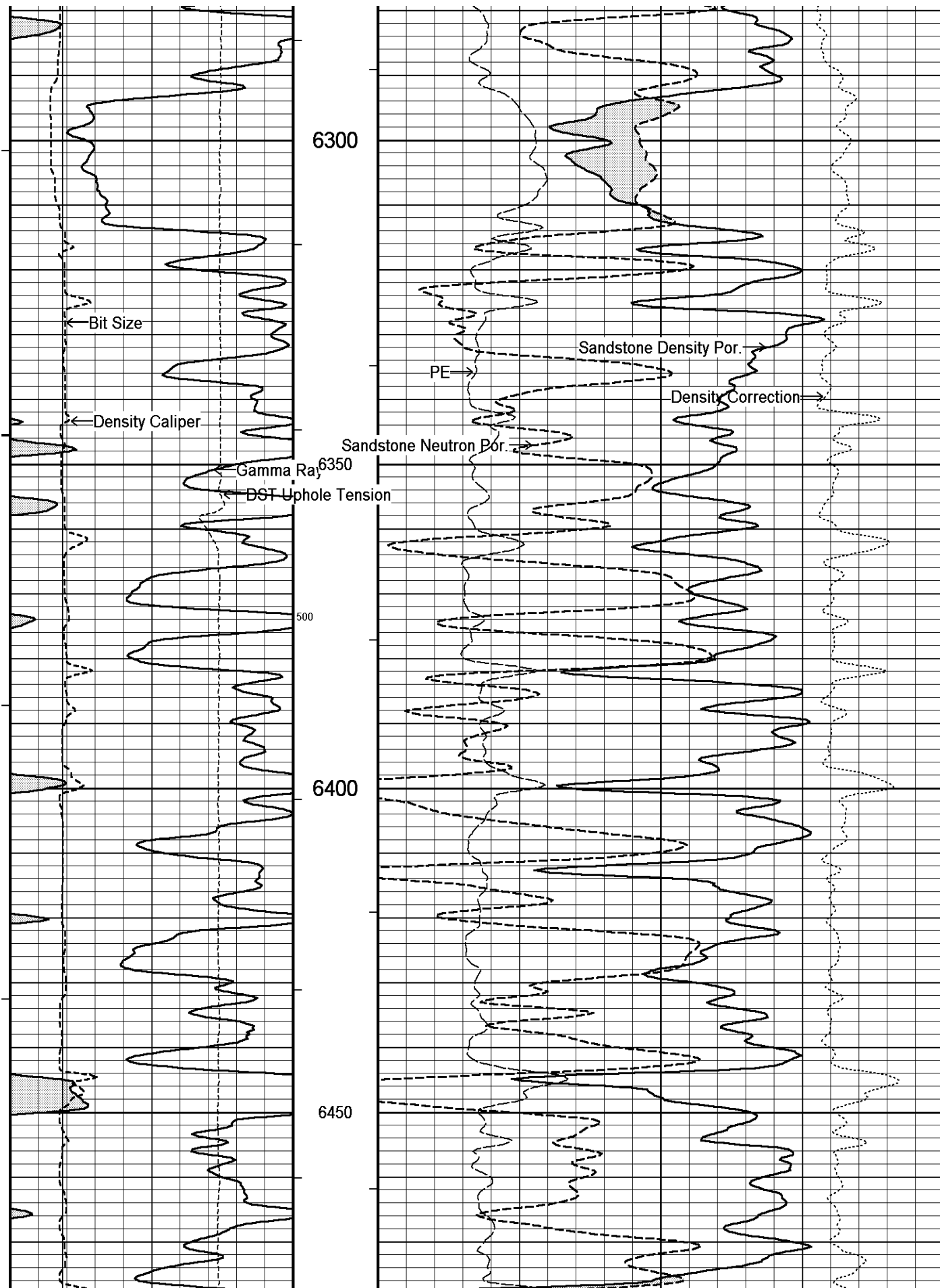


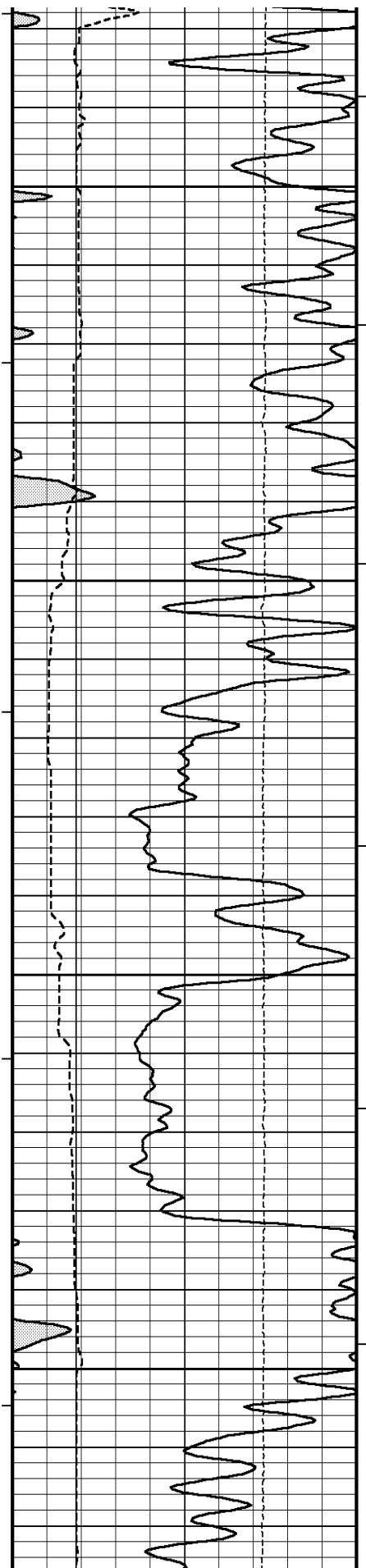












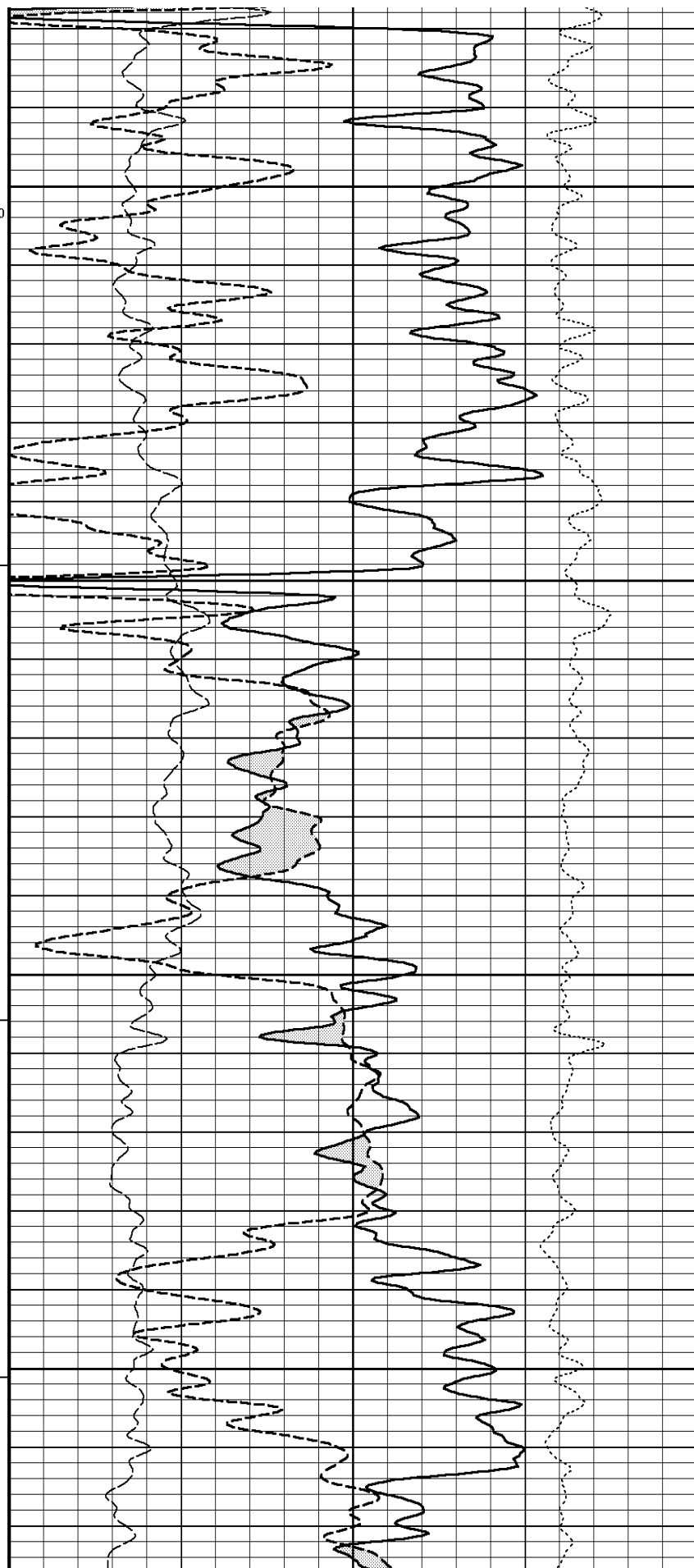
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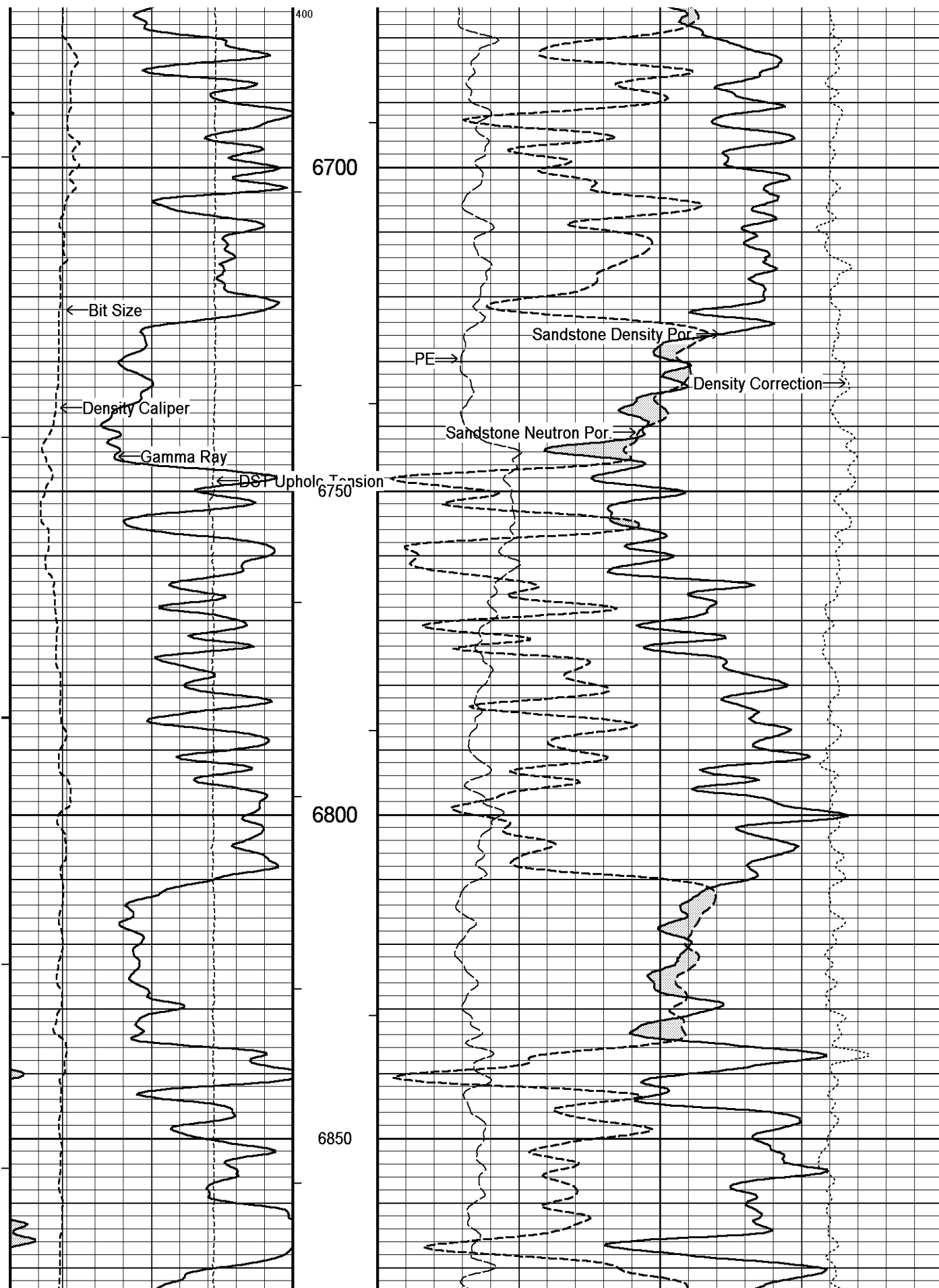
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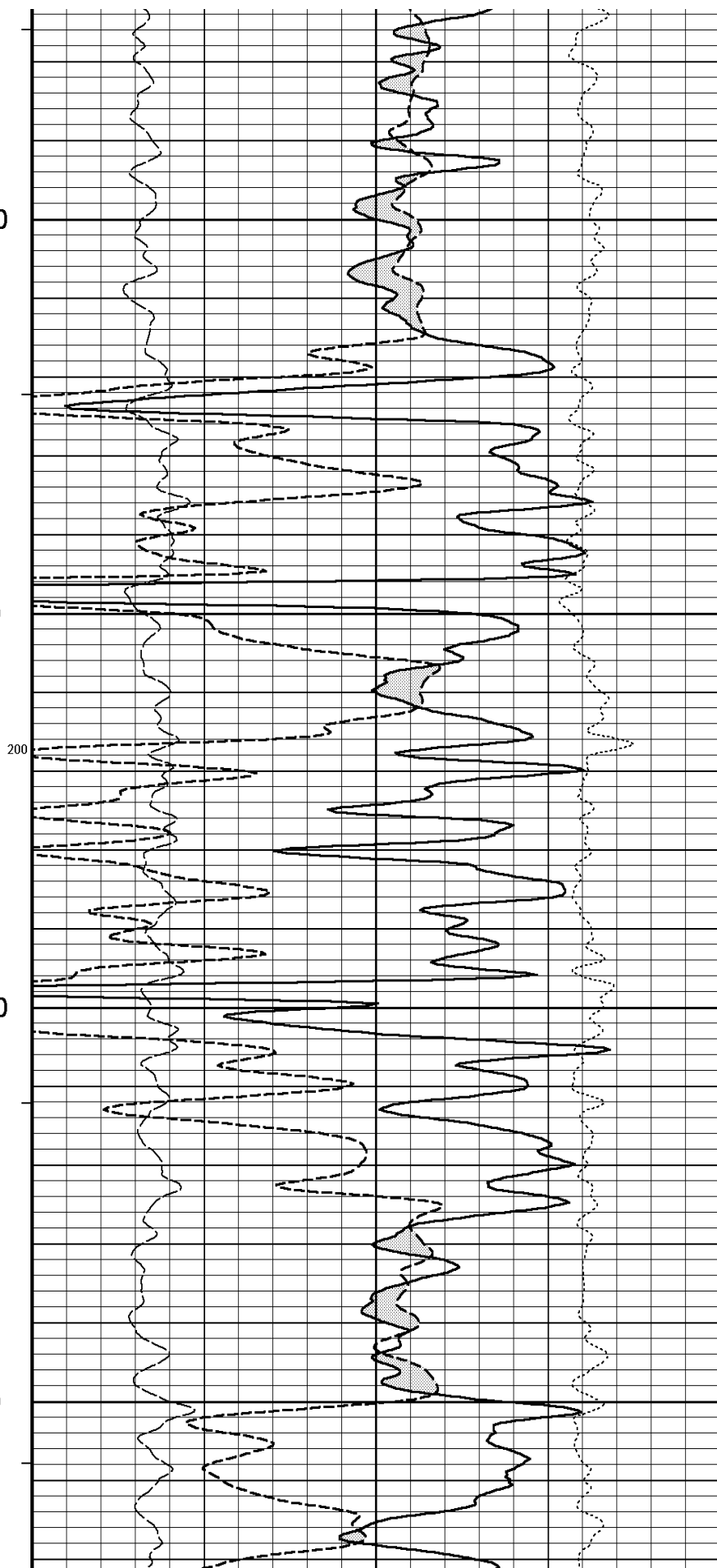
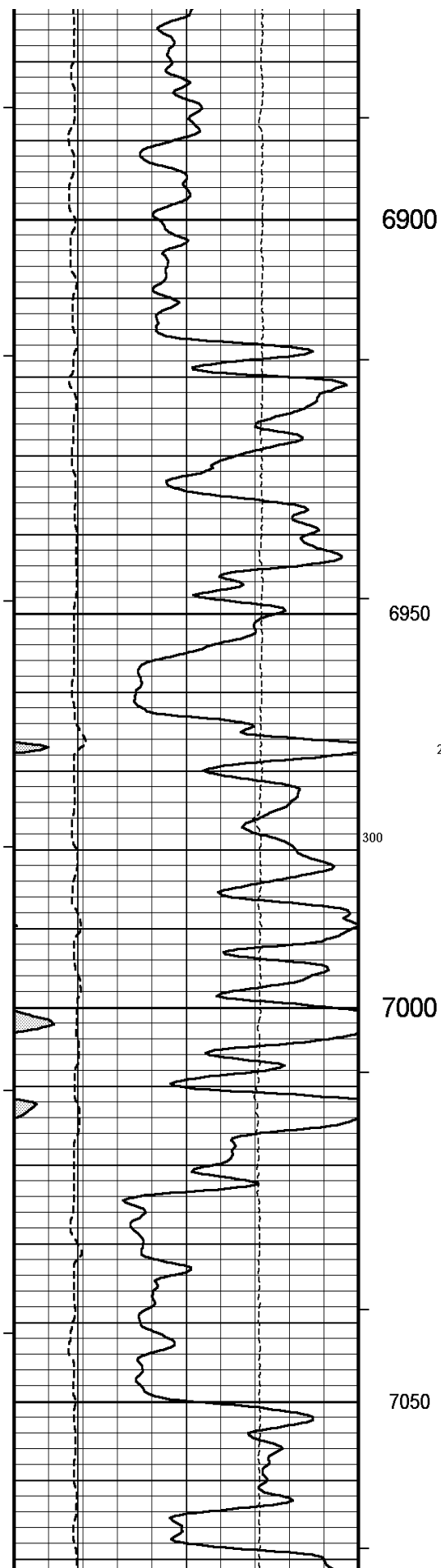
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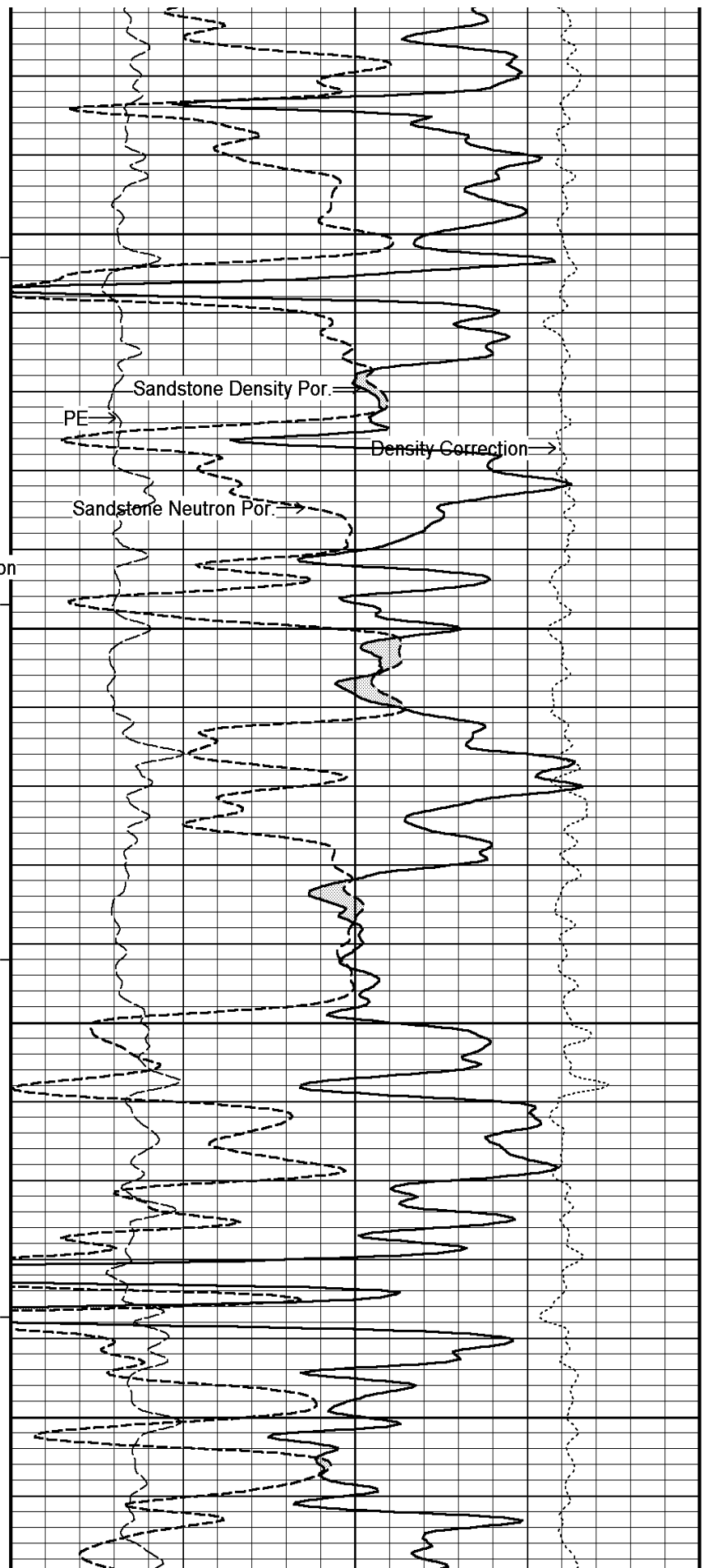
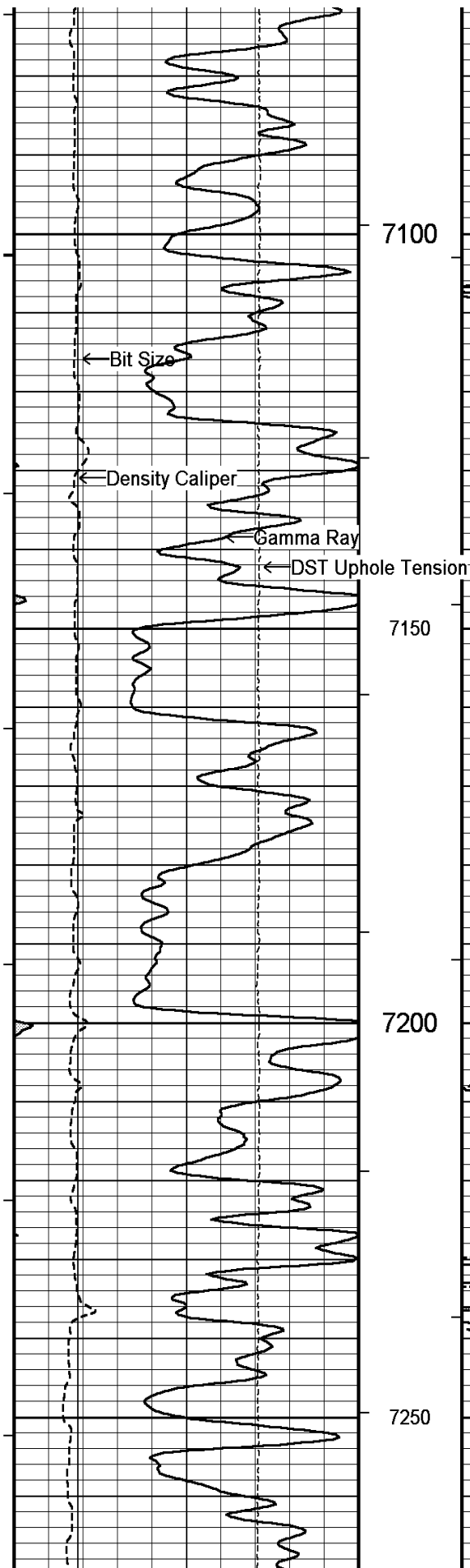
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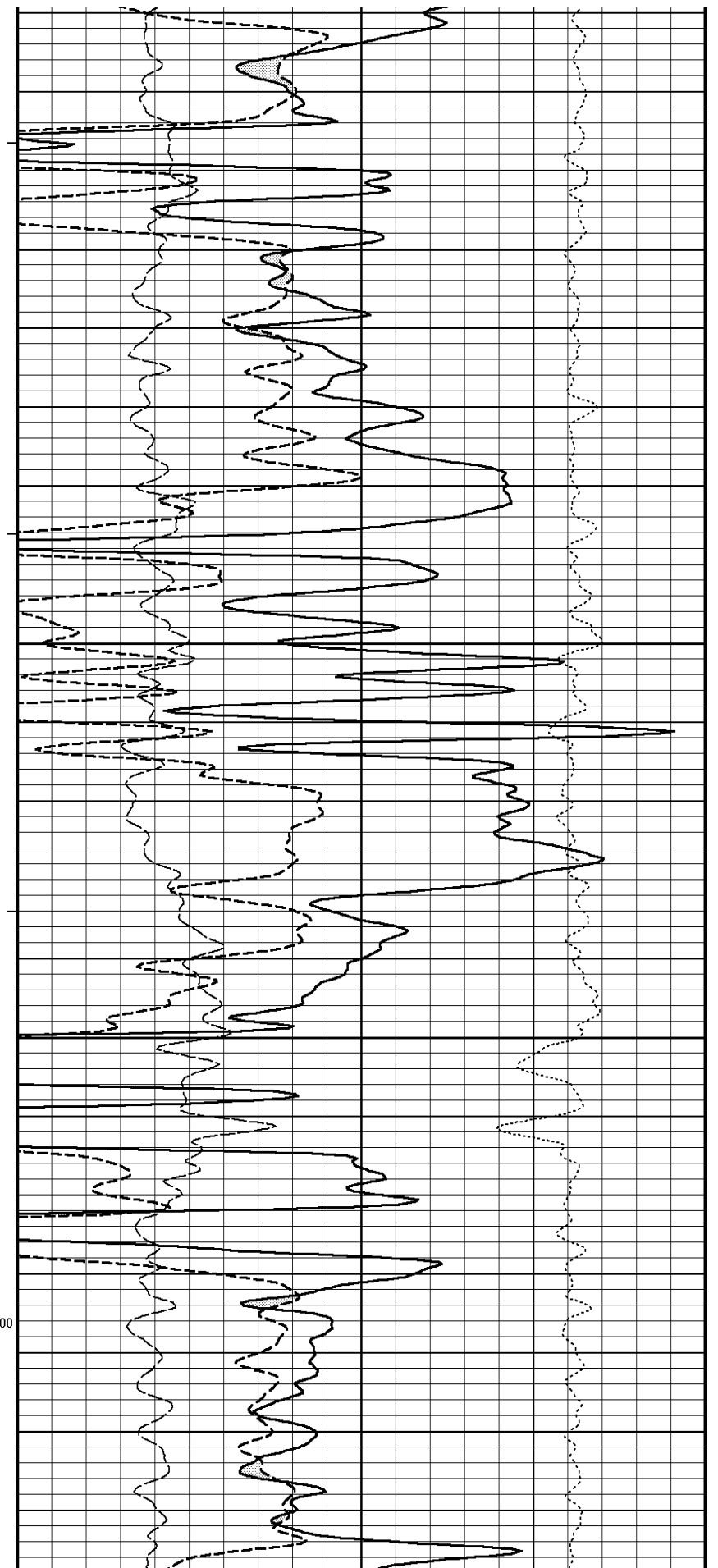
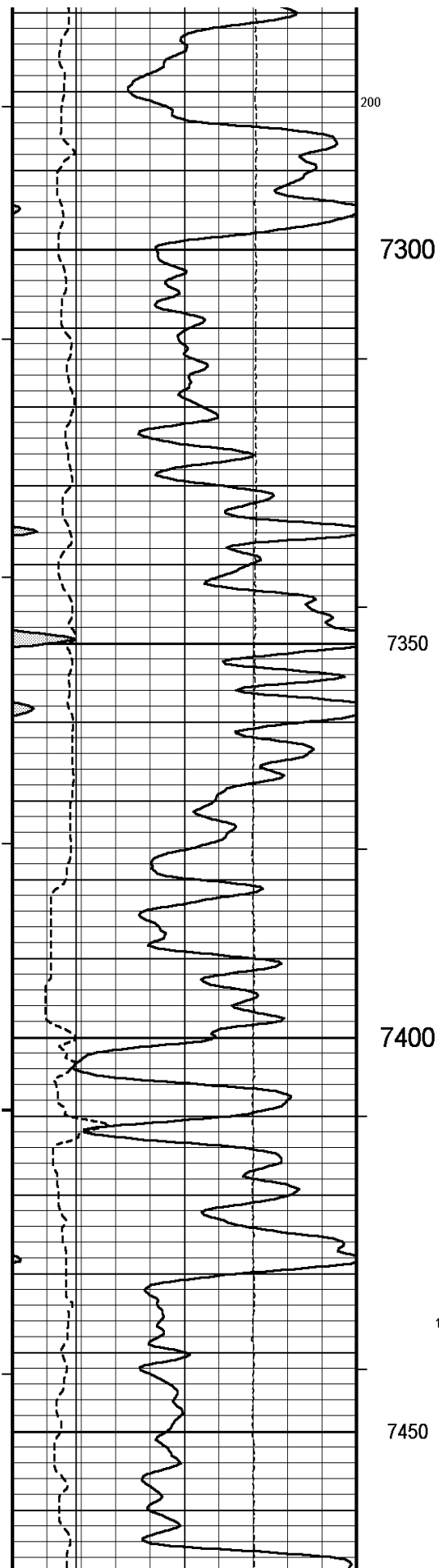
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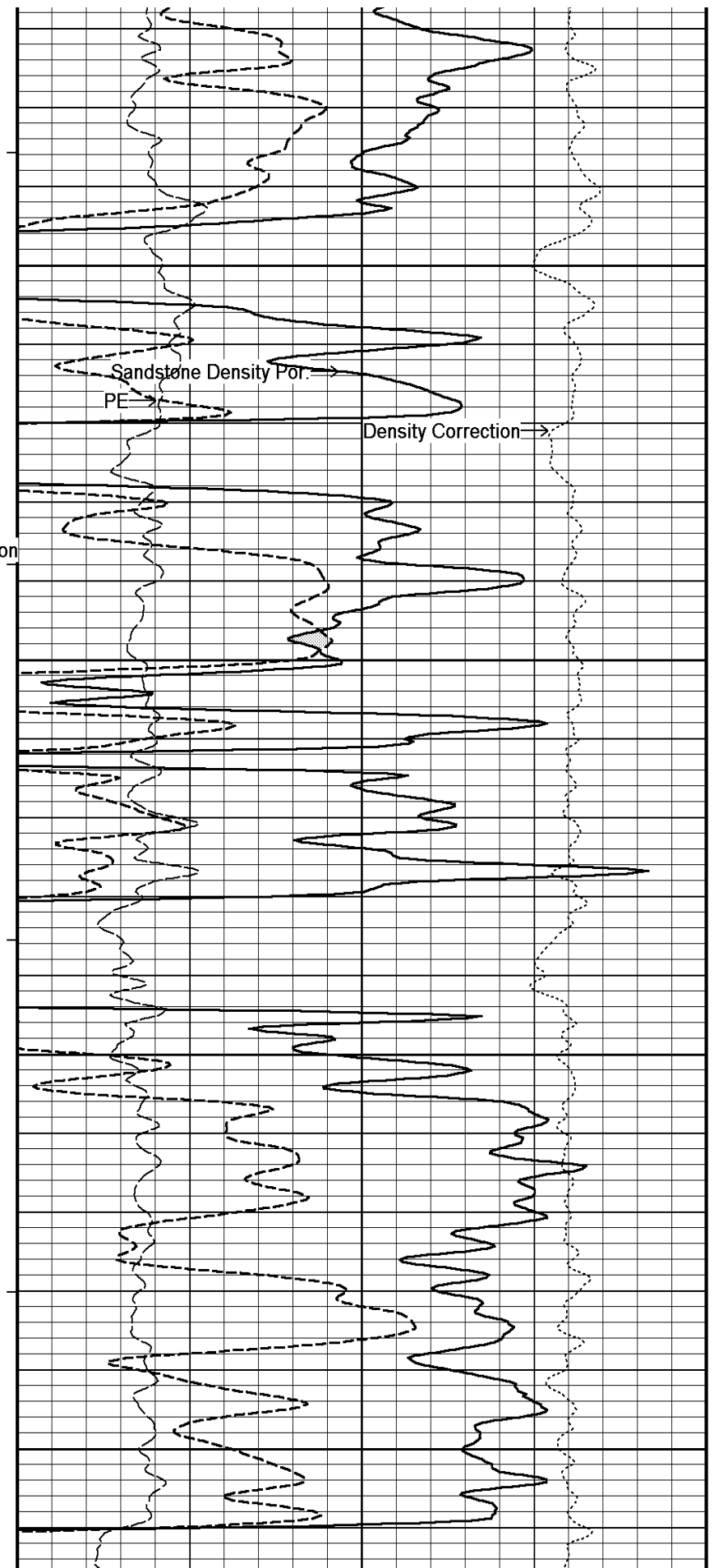
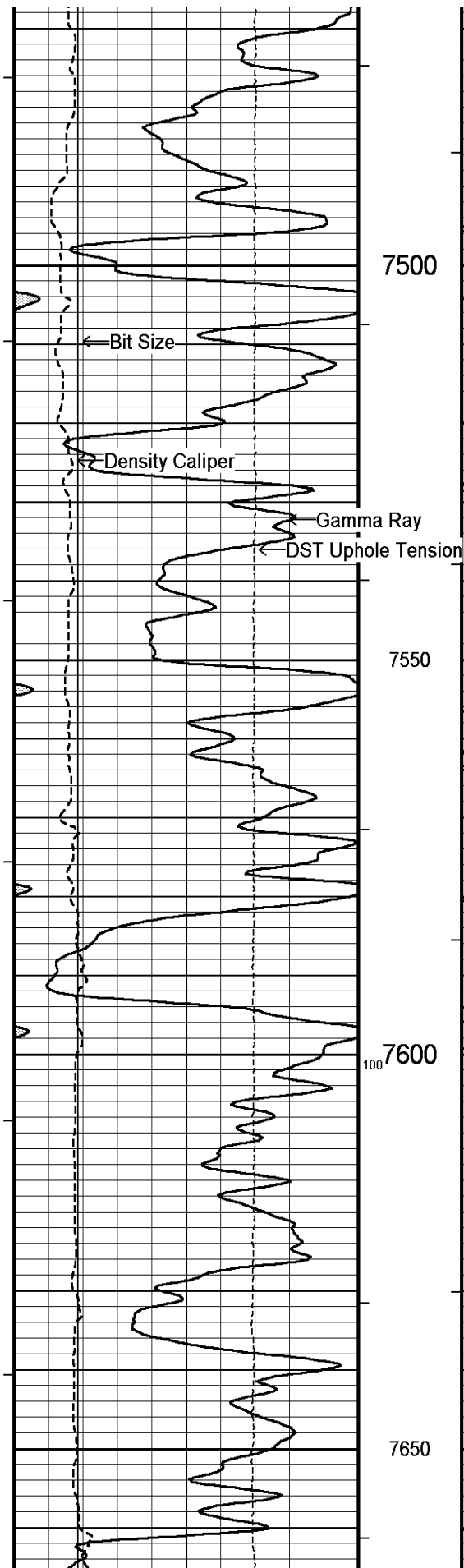


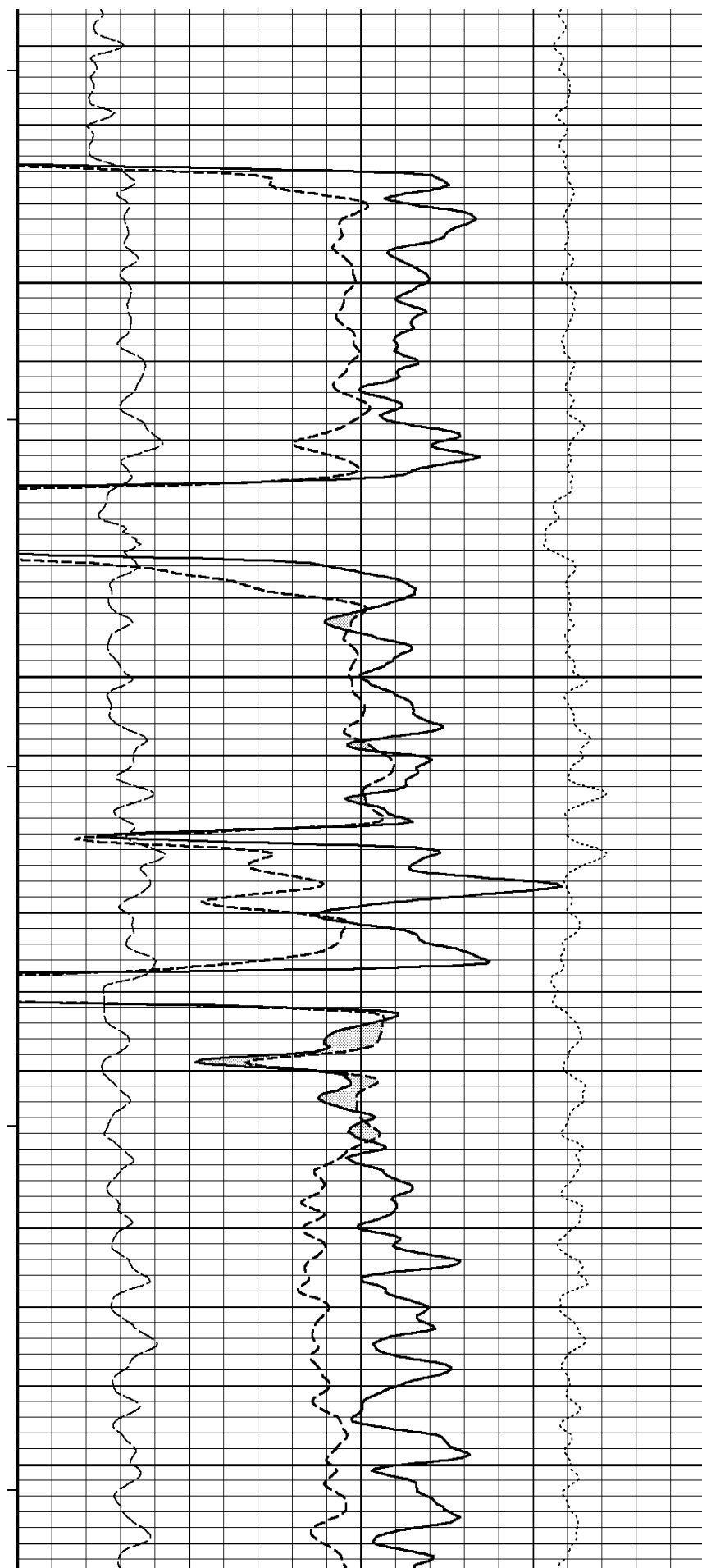
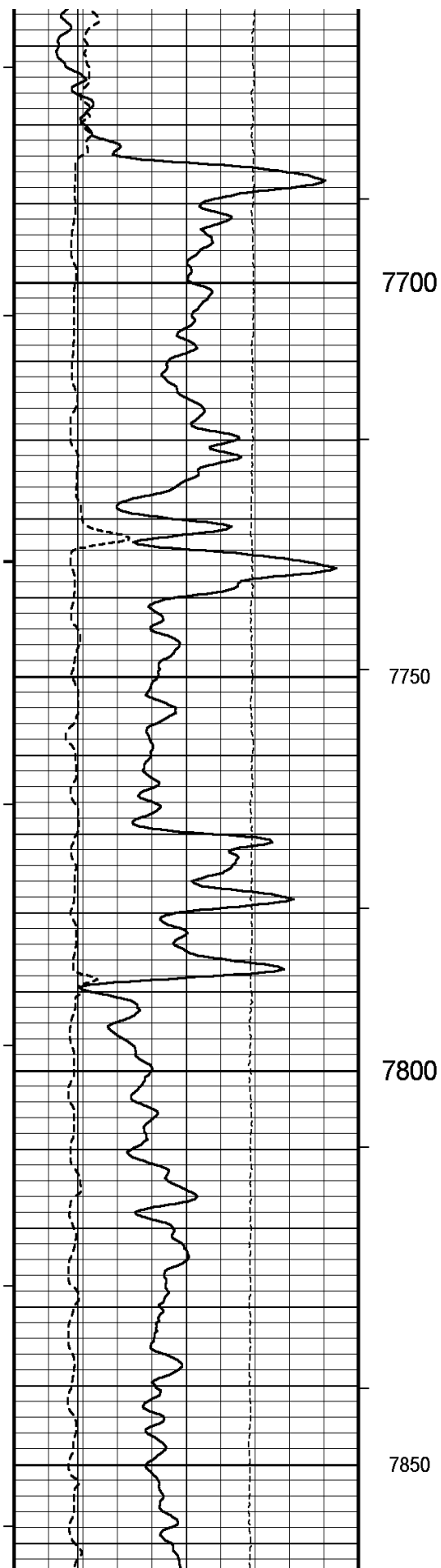


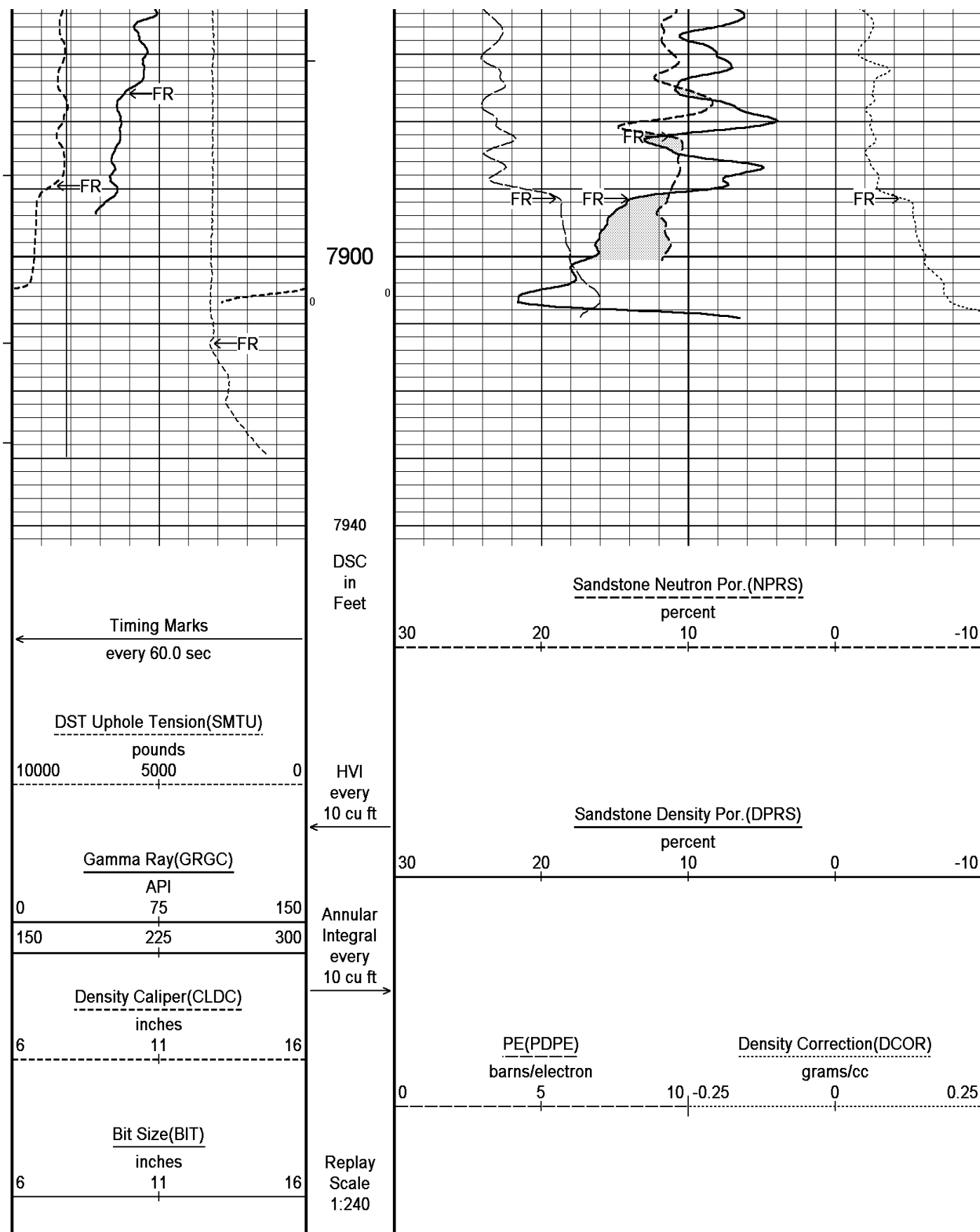












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B4.dta
System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

Plotted on 15-JAN-2011 20:43

5 INCH SANDSTONE POROSITY LOG

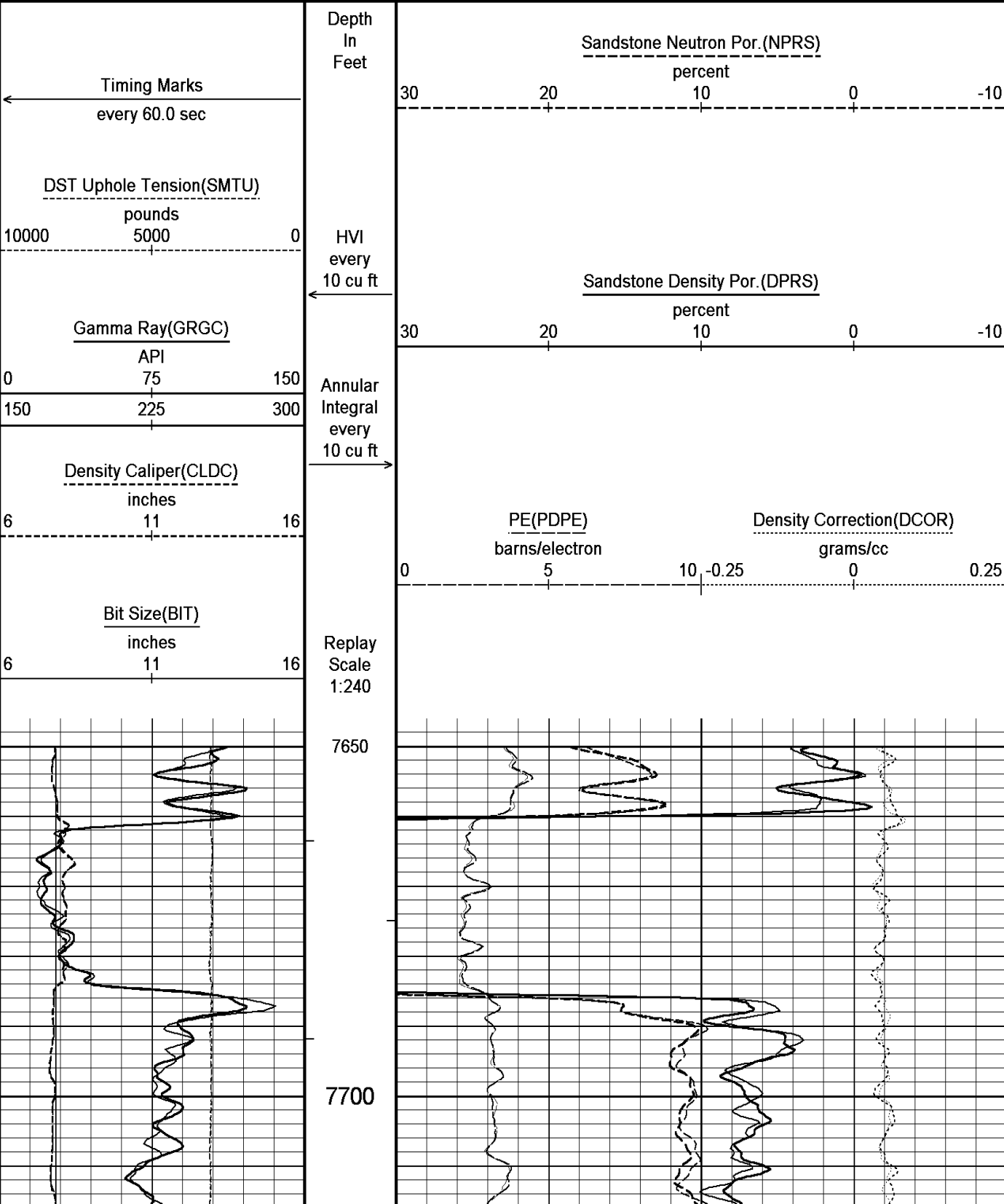
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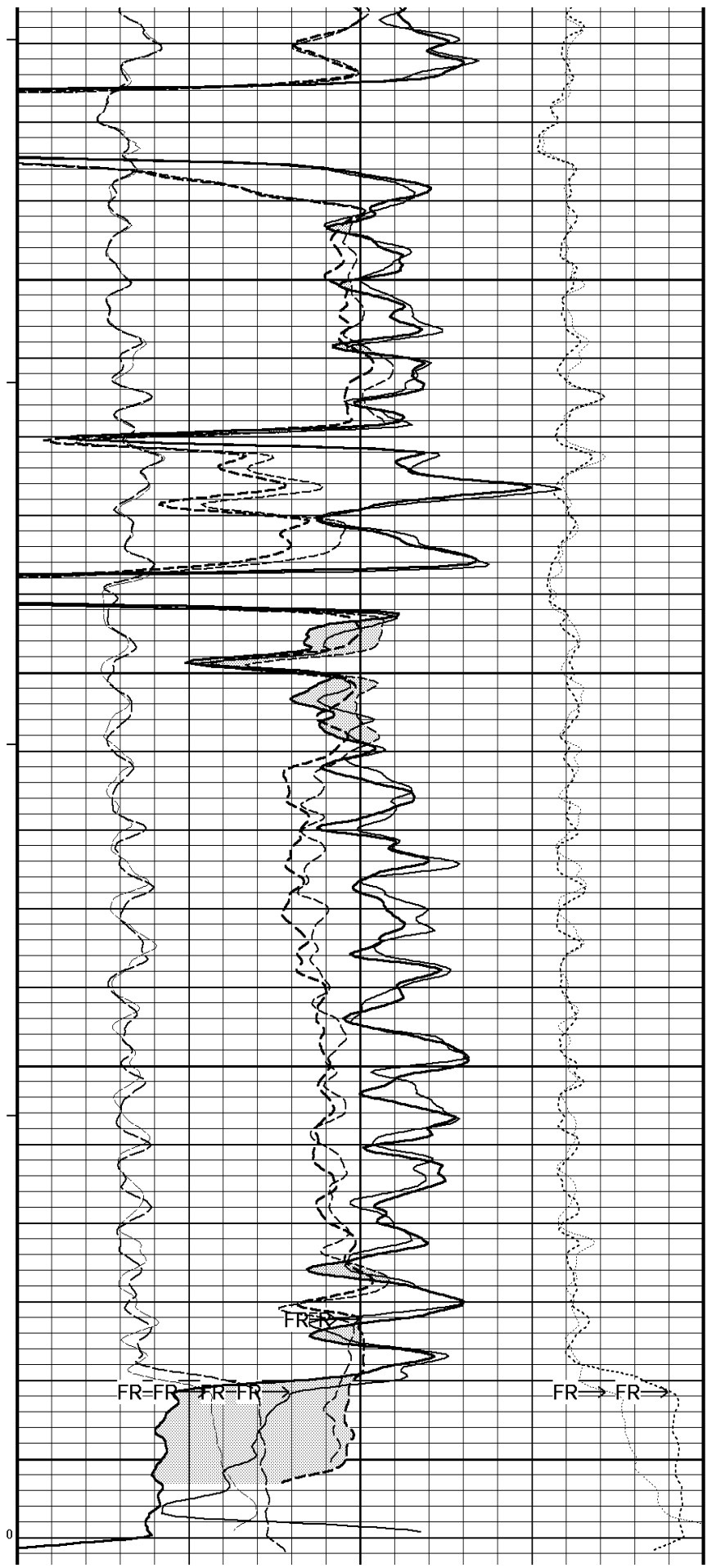
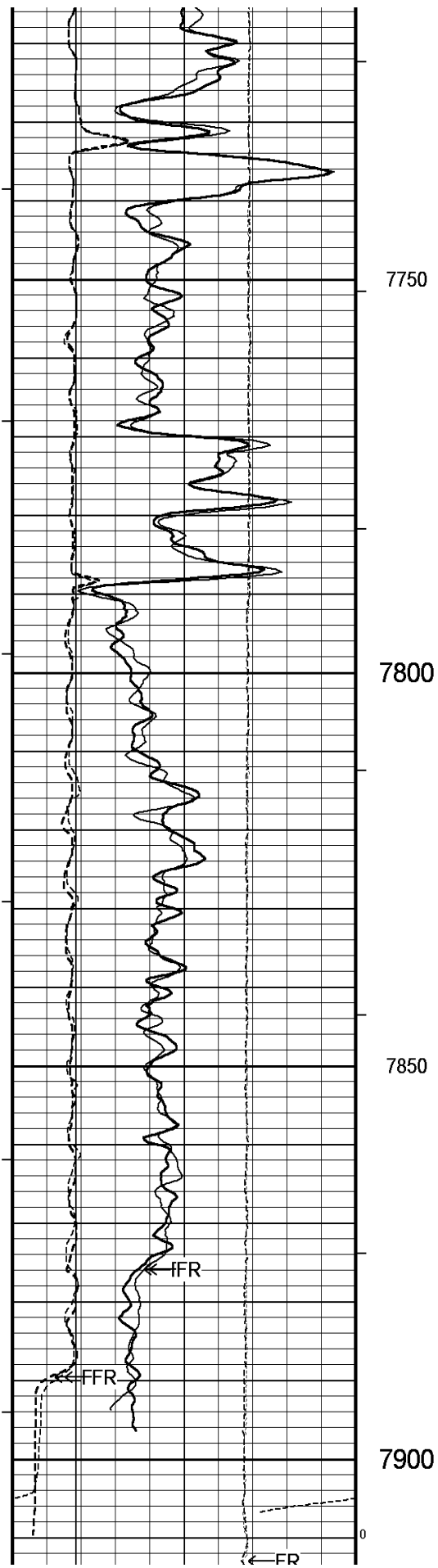
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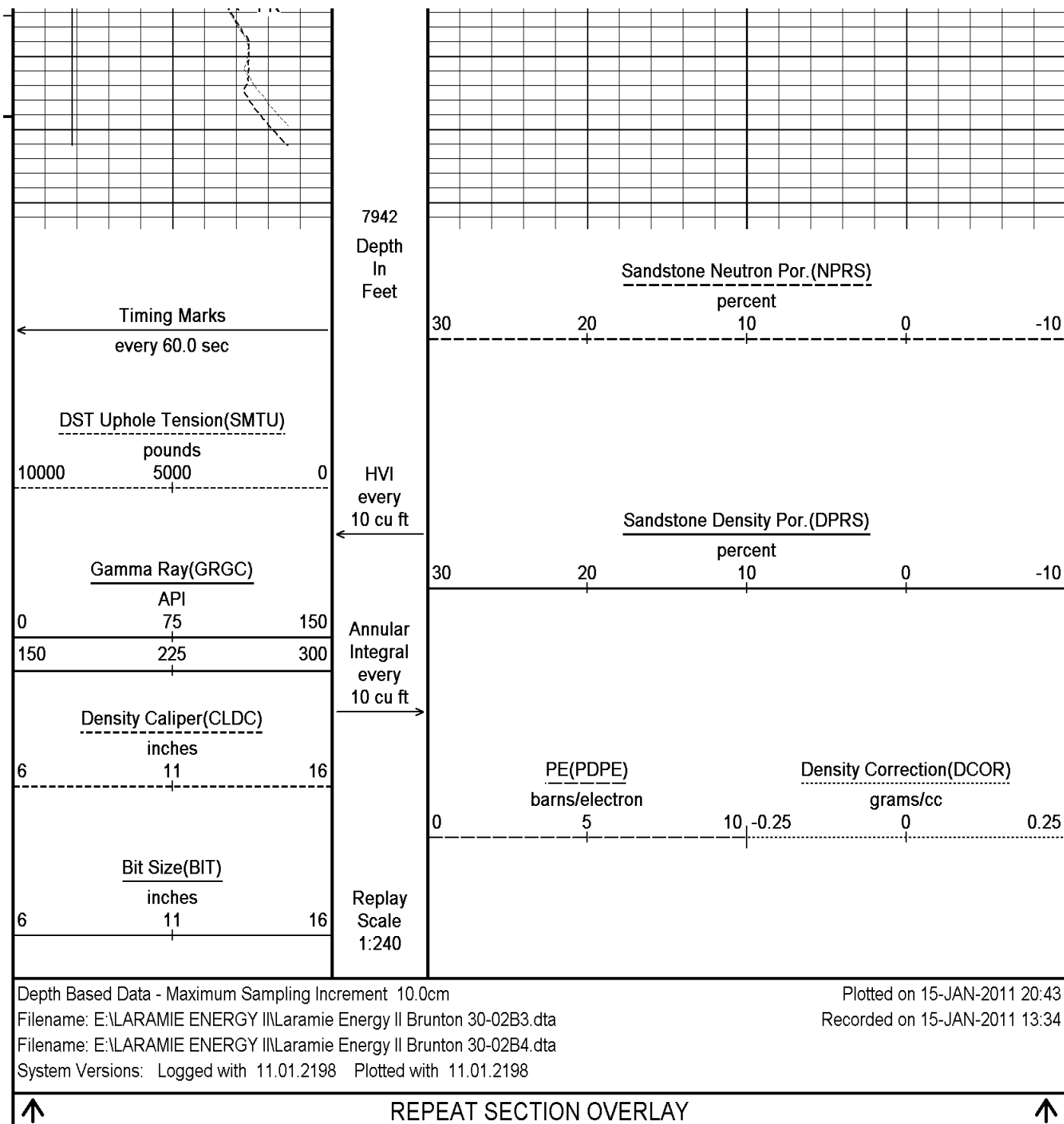
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Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B3.dta
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 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

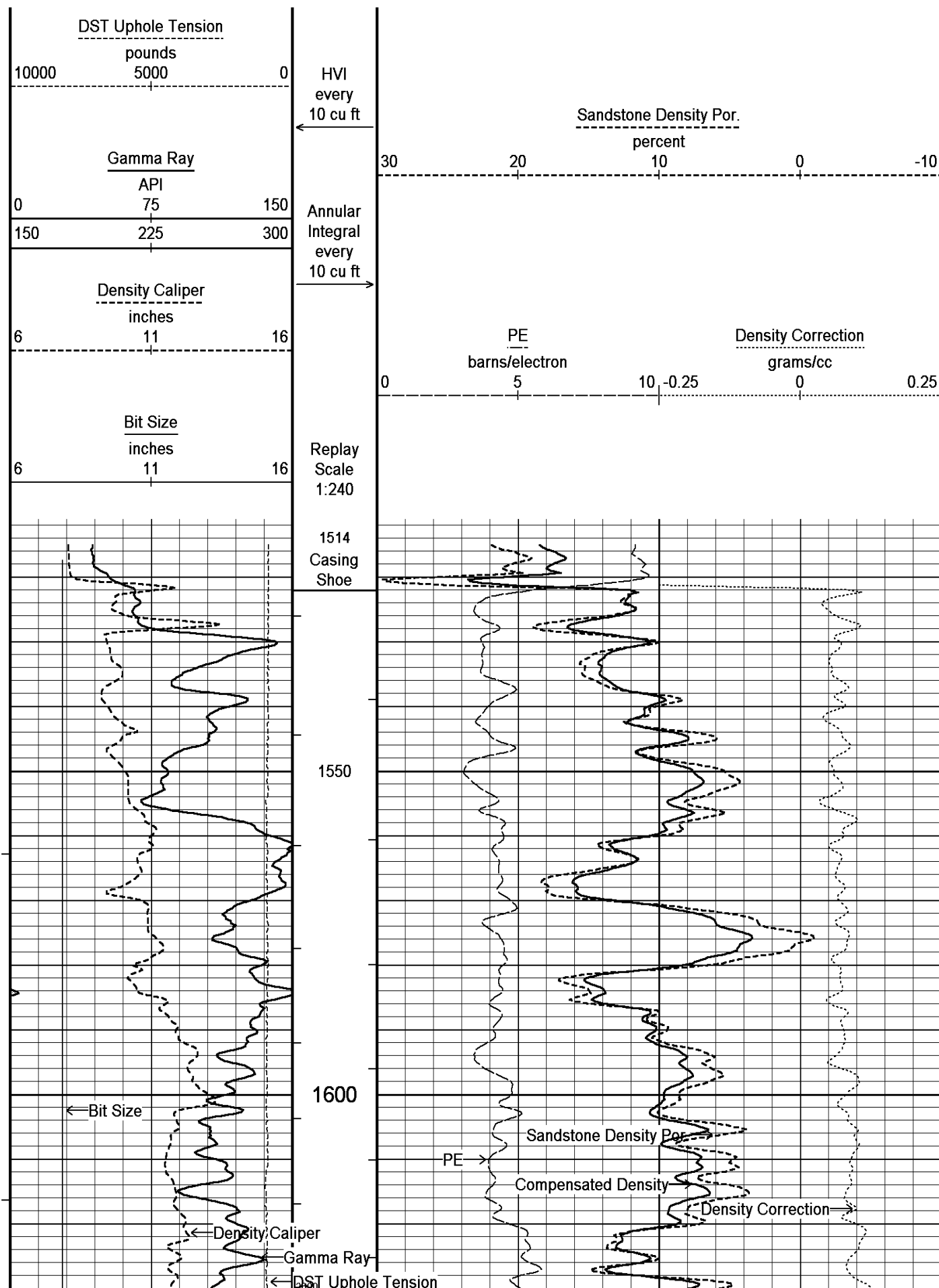
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 Recorded on 15-JAN-2011 13:34

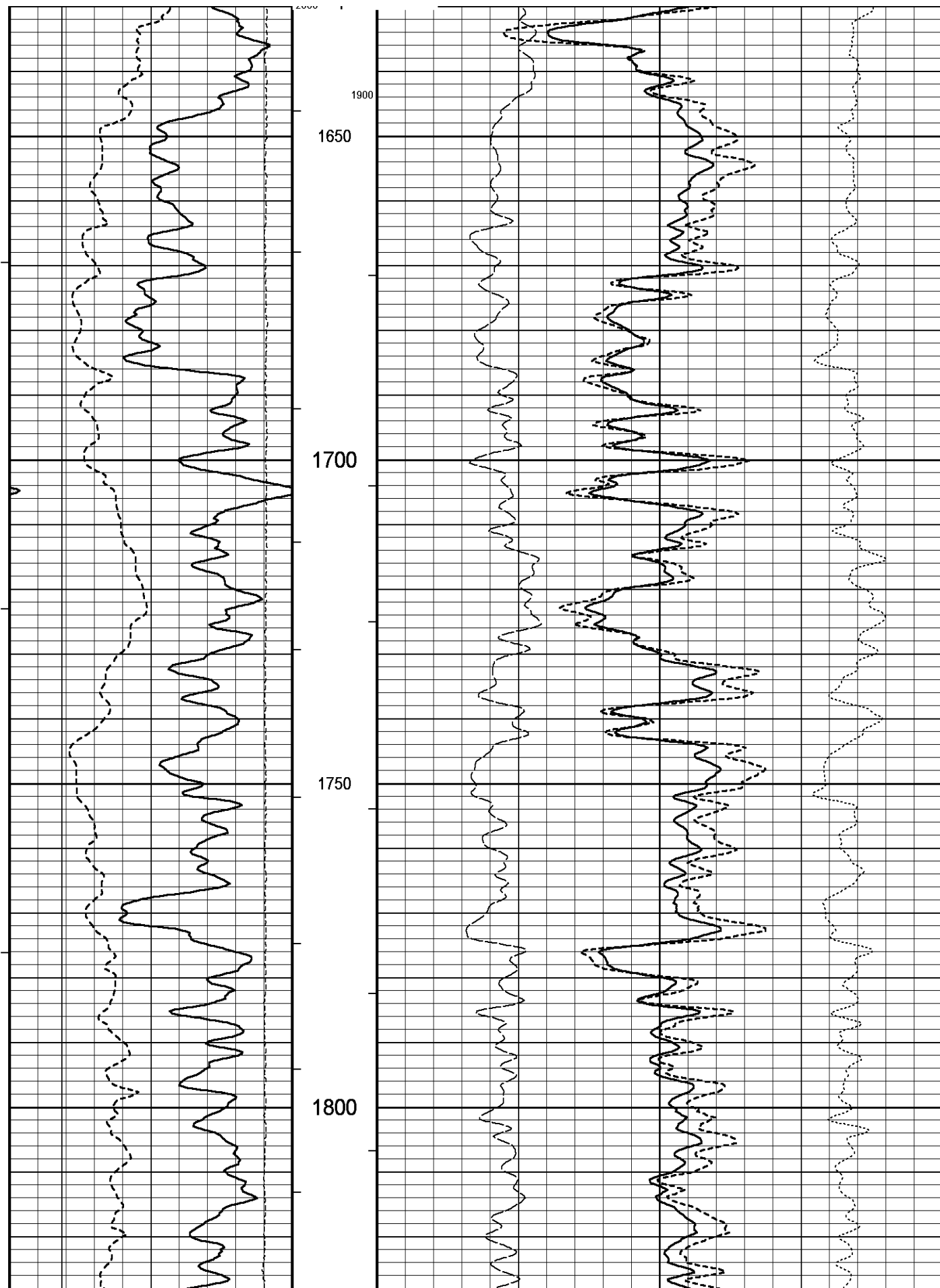


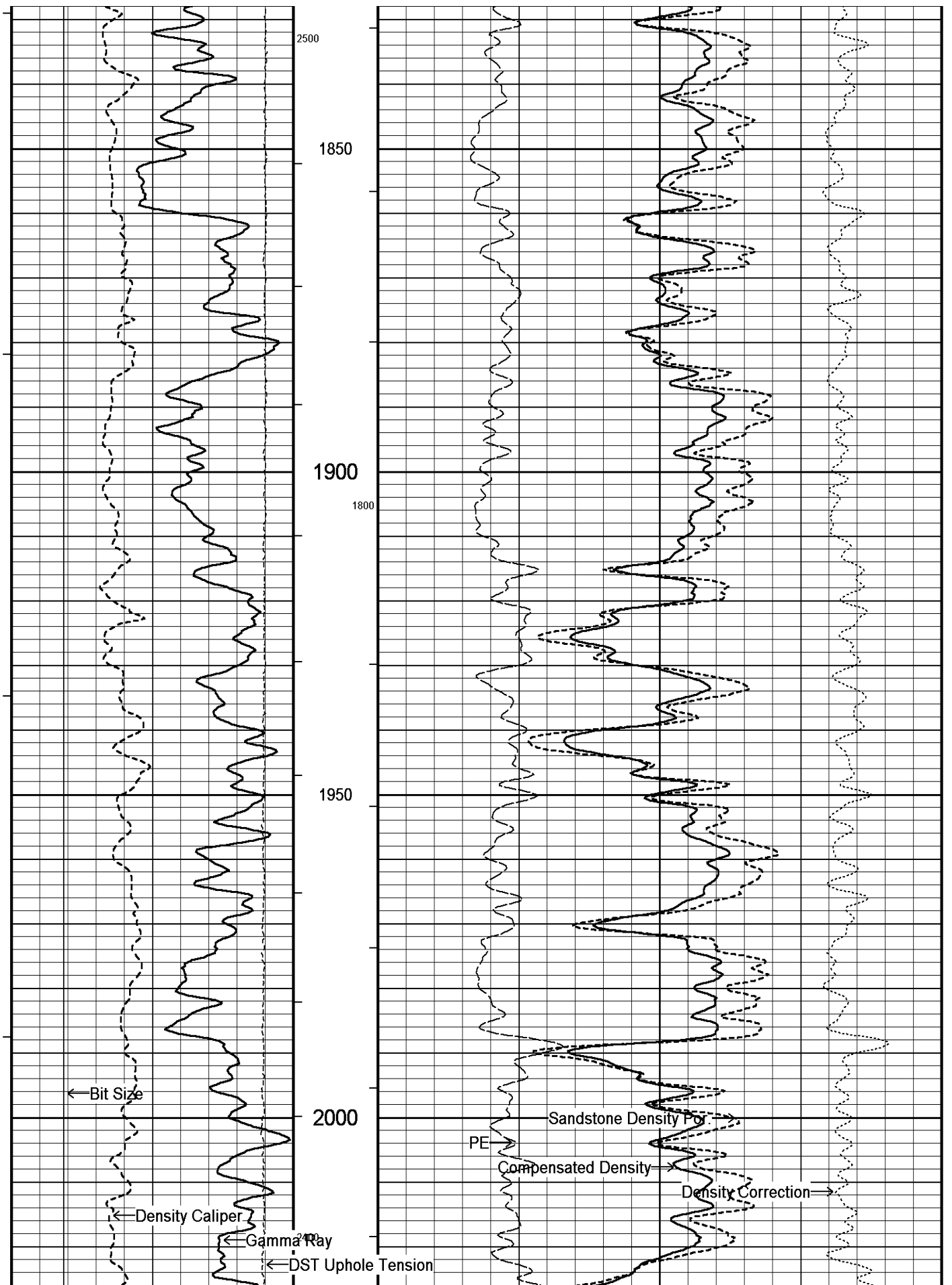


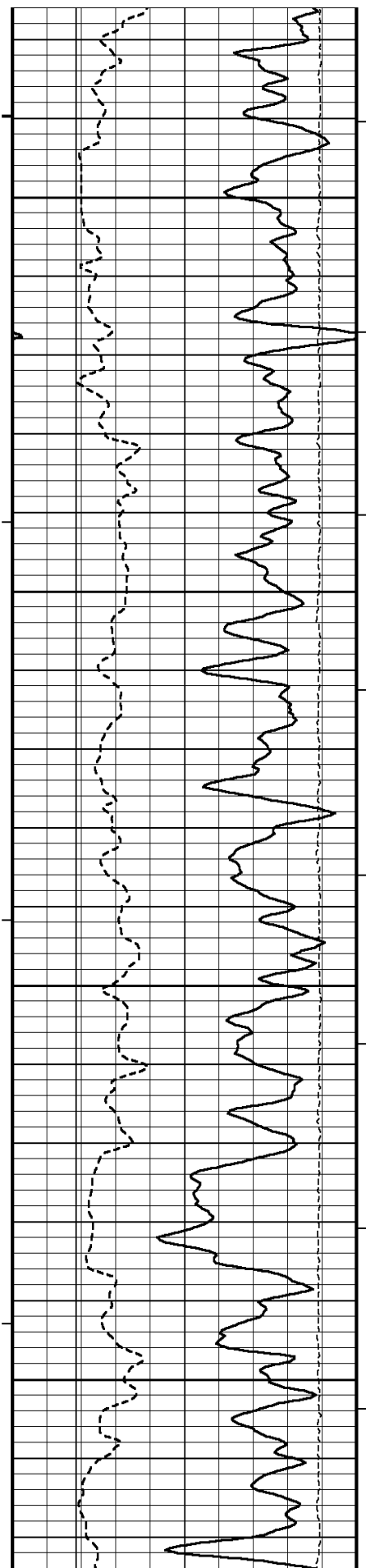


5 INCH BULK DENSITY LOG				
<div style="display: flex; justify-content: space-between;"> Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 15-JAN-2011 20:43 </div> <div style="display: flex; justify-content: space-between;"> Filename: E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B4.dta </div> <div style="display: flex; justify-content: space-between;"> System Versions: Logged with 11.01.2198 Plotted with 11.01.2198 </div>				
Timing Marks every 60.0 sec	DSC in Feet	Compensated Density grams/cc		
		2	2.25	2.50
		1	1.25	1.50
			2.75	3
			1.75	2









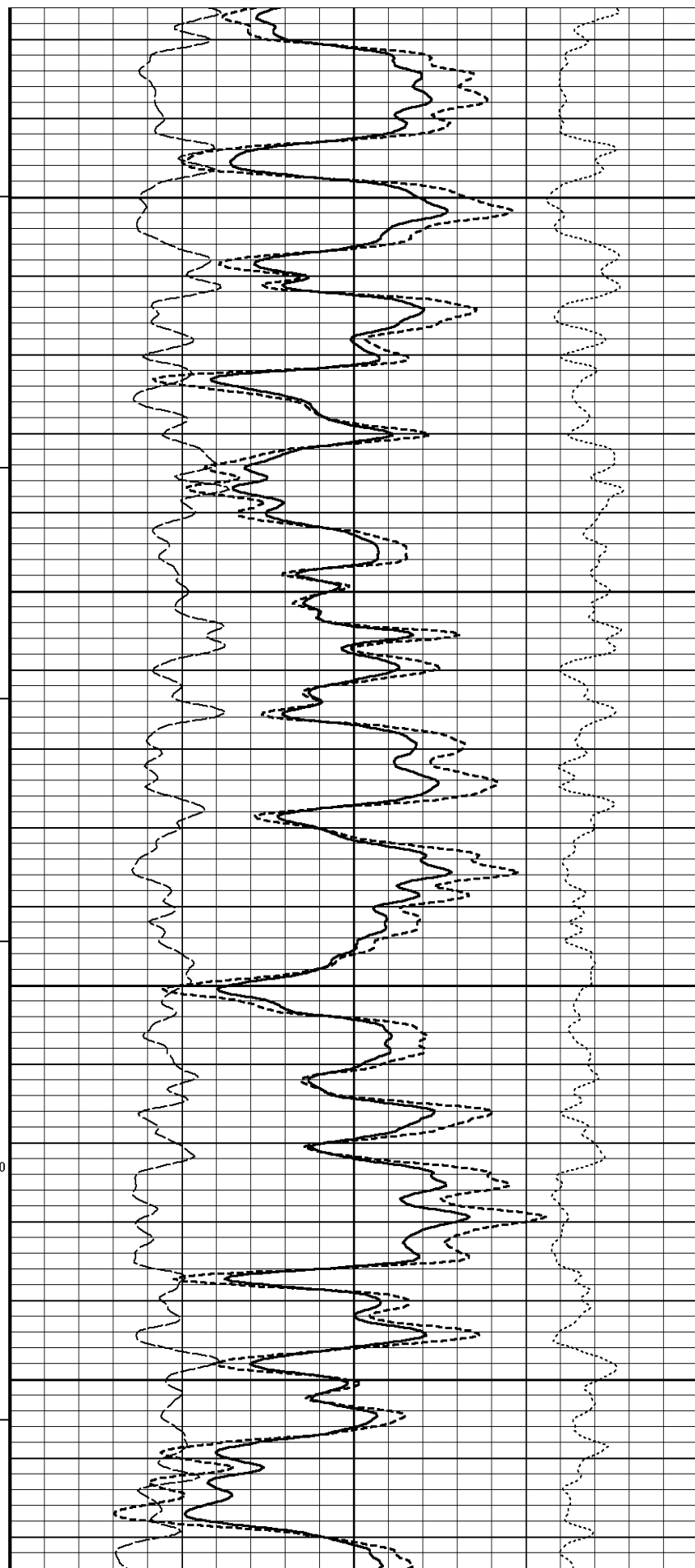
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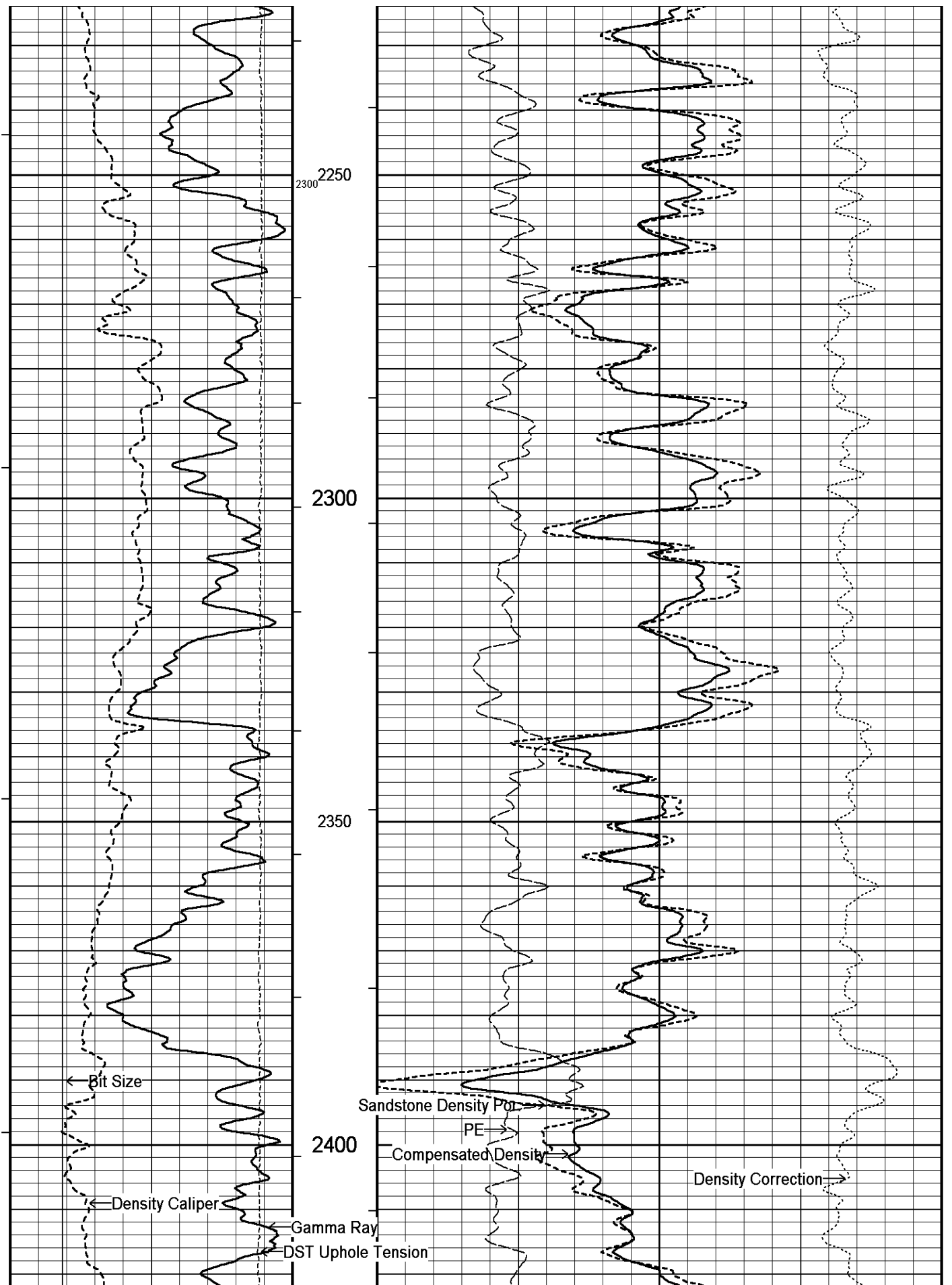
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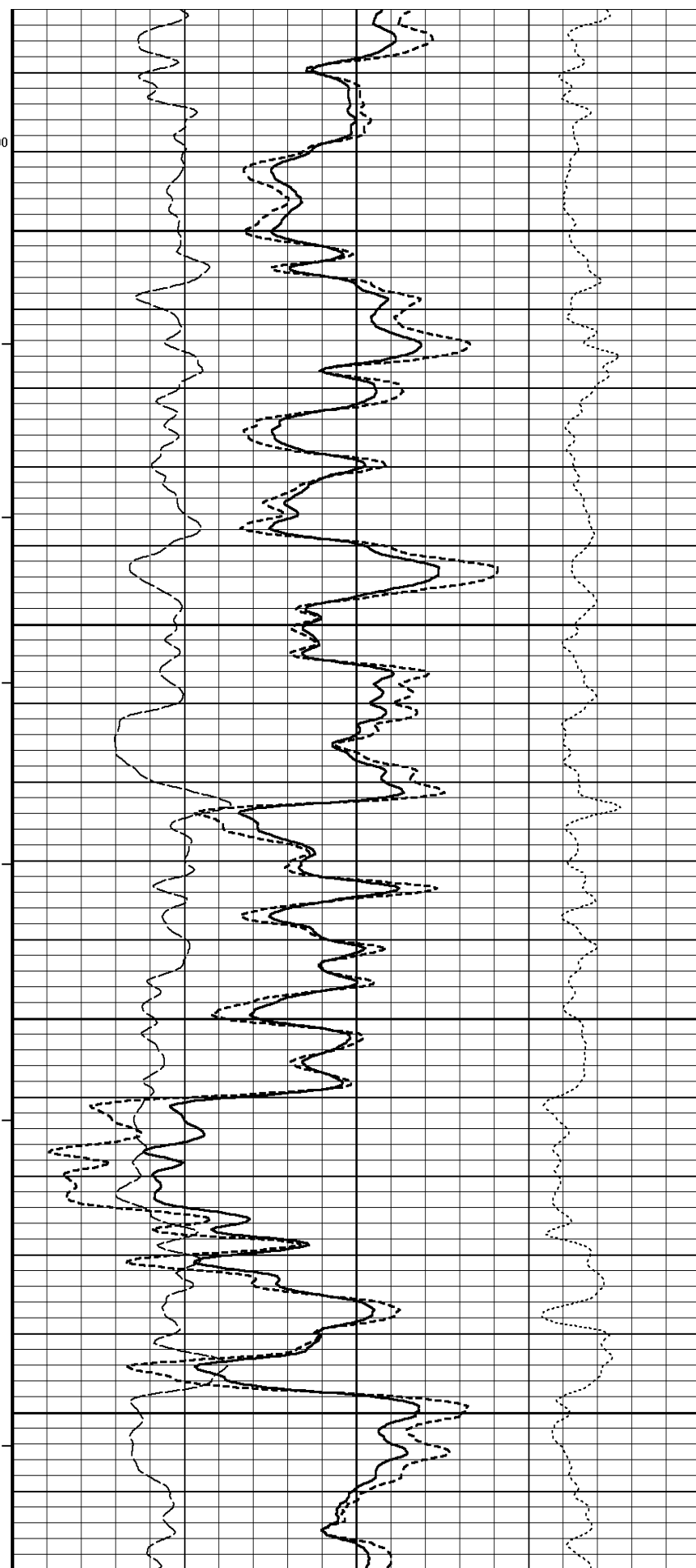
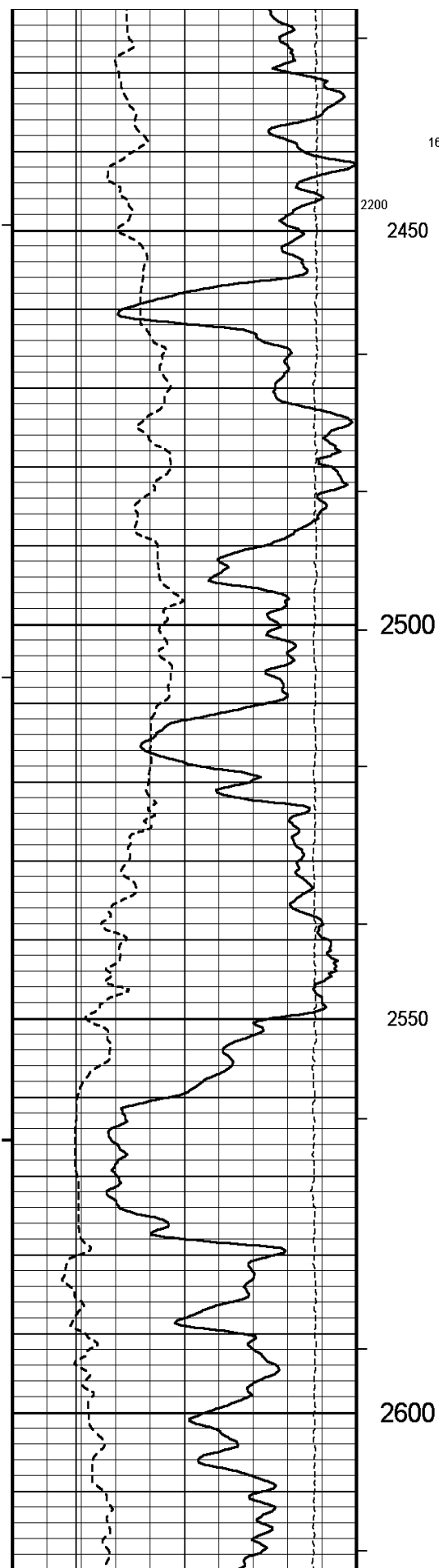
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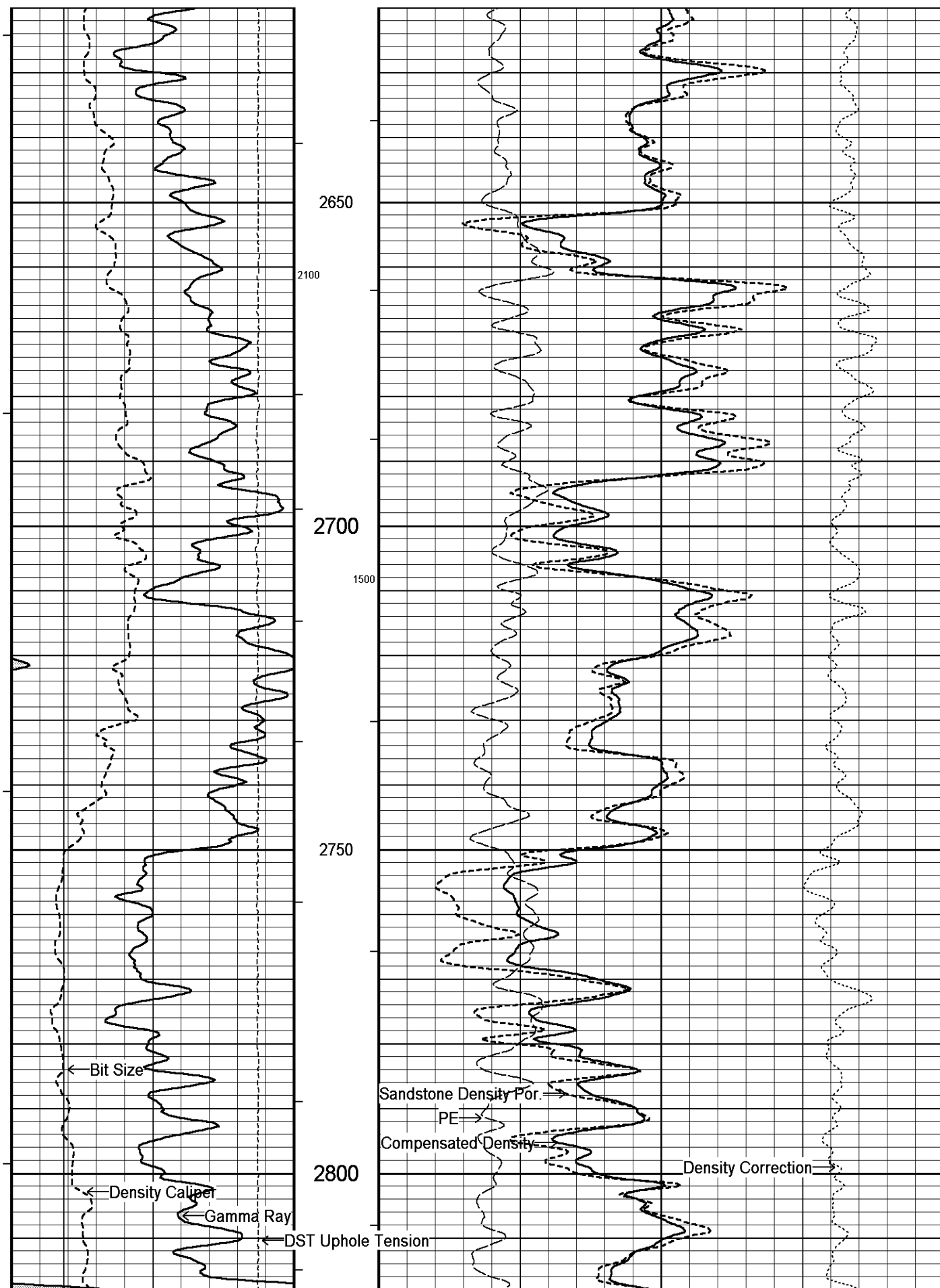
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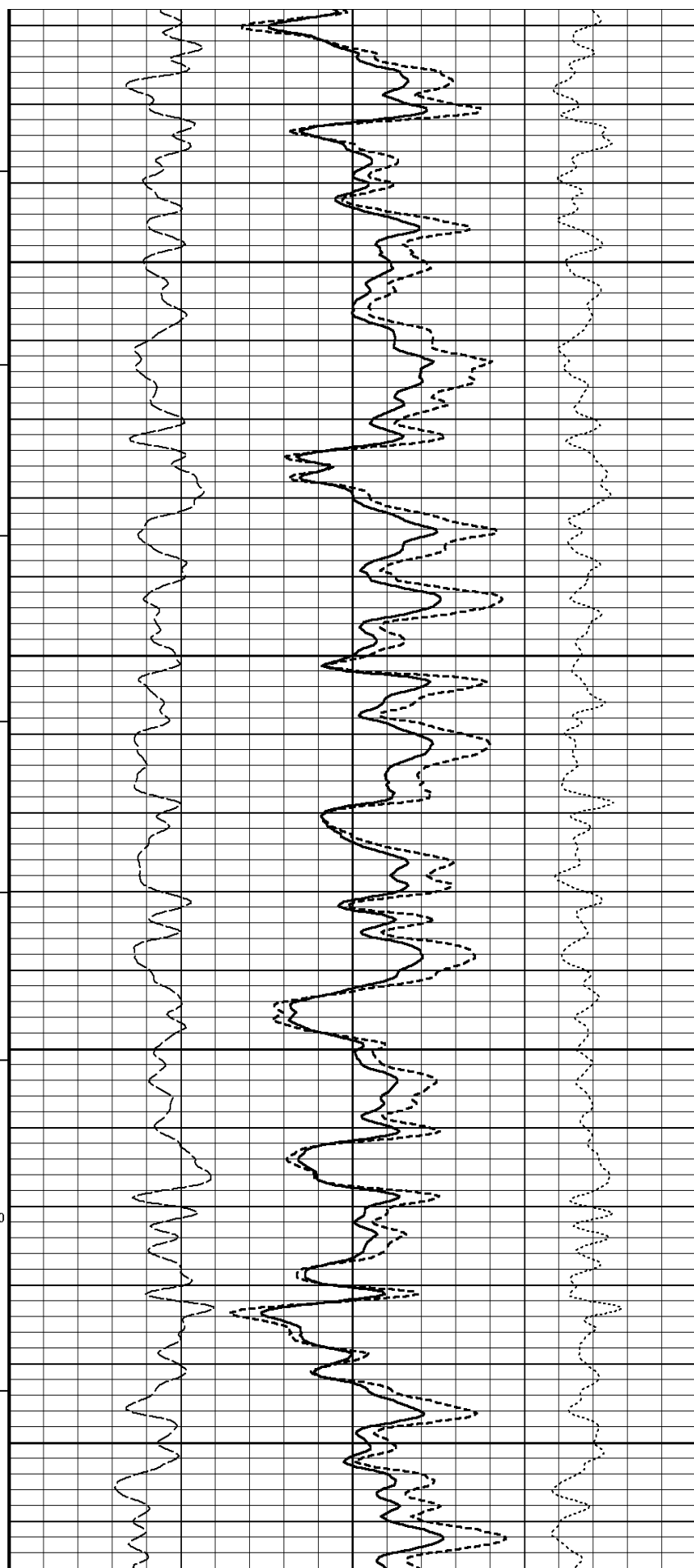
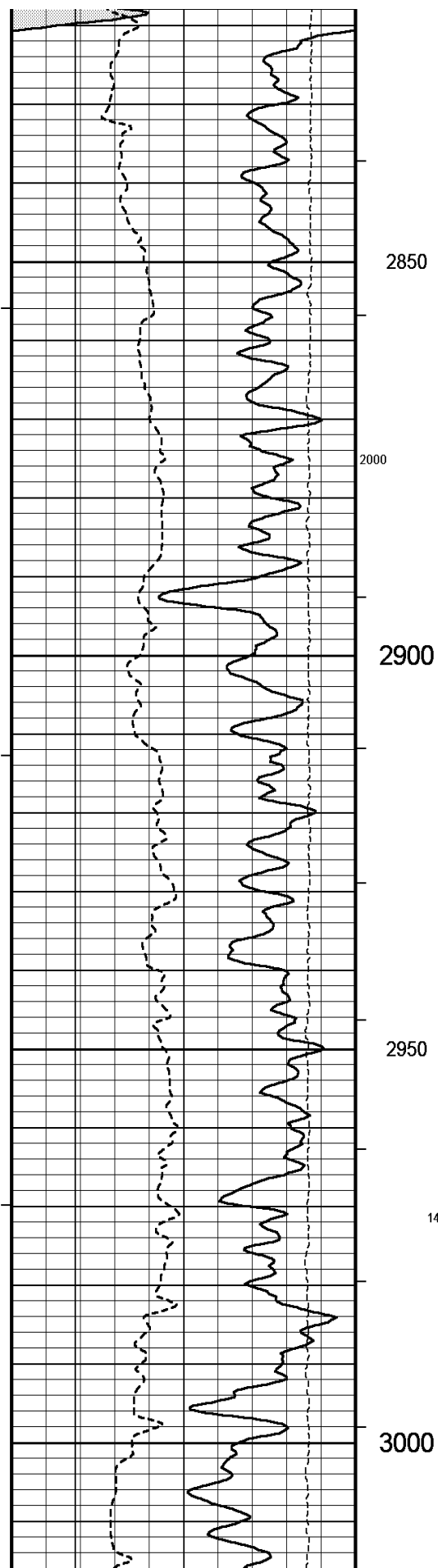
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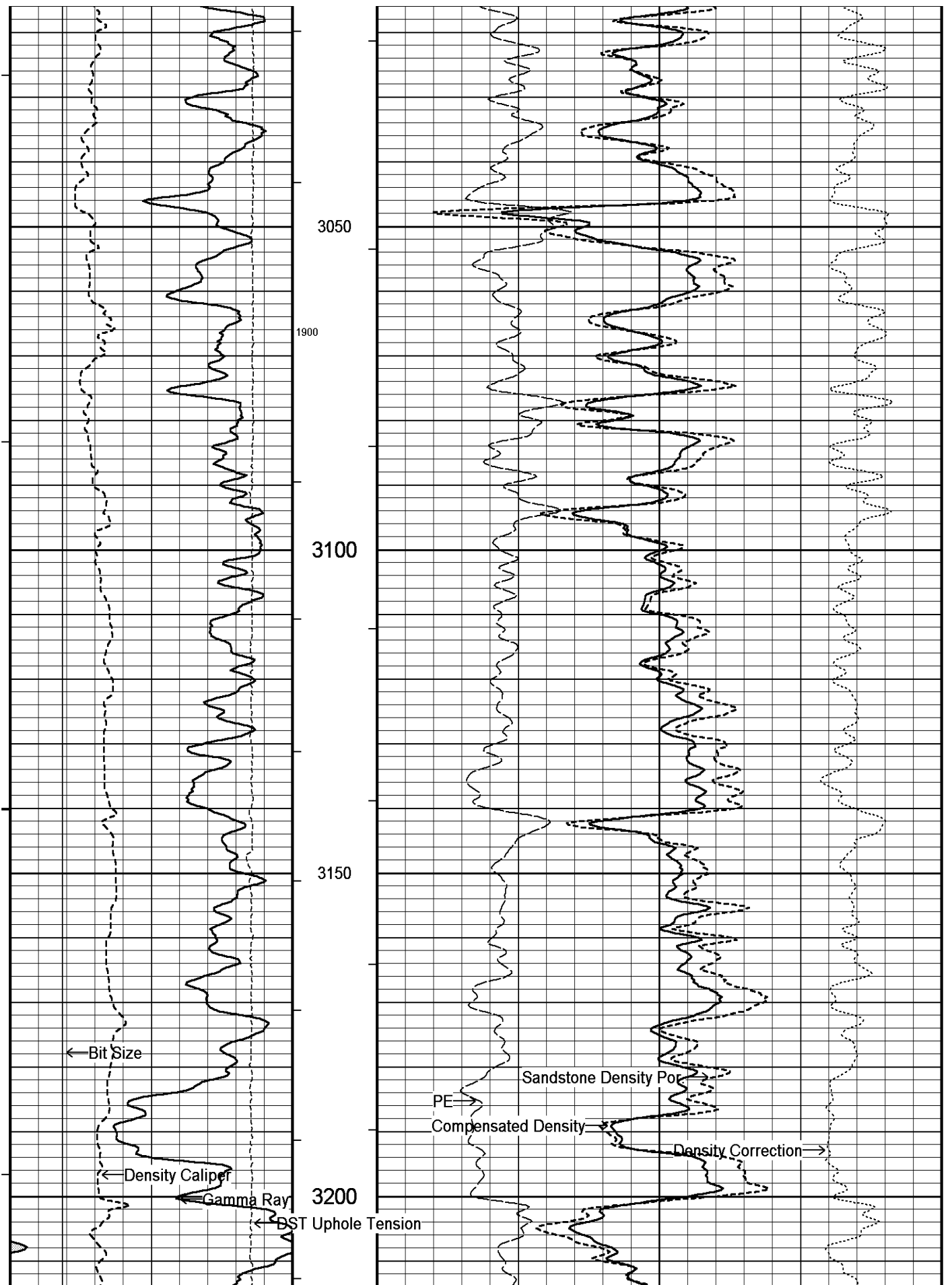


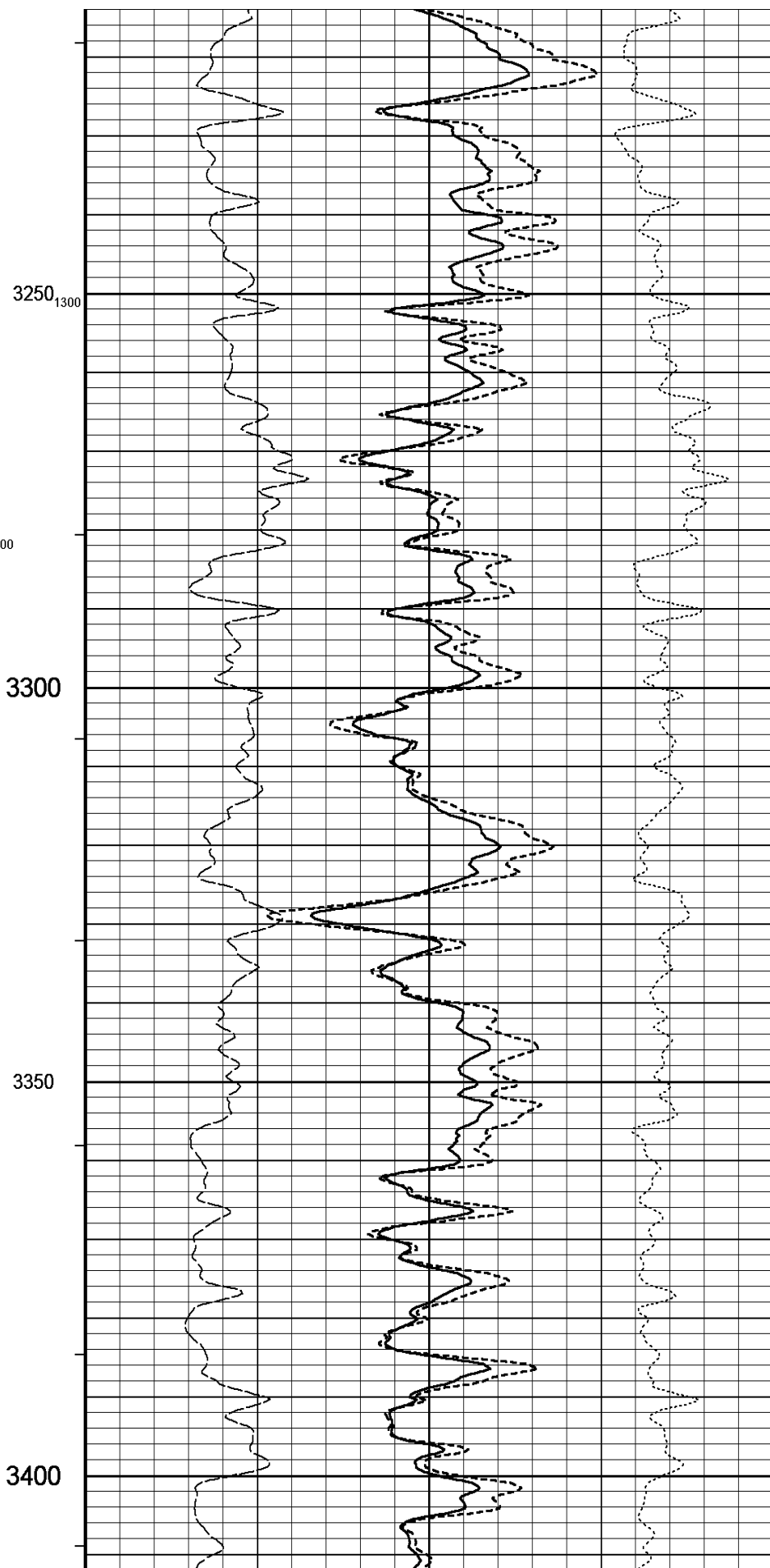
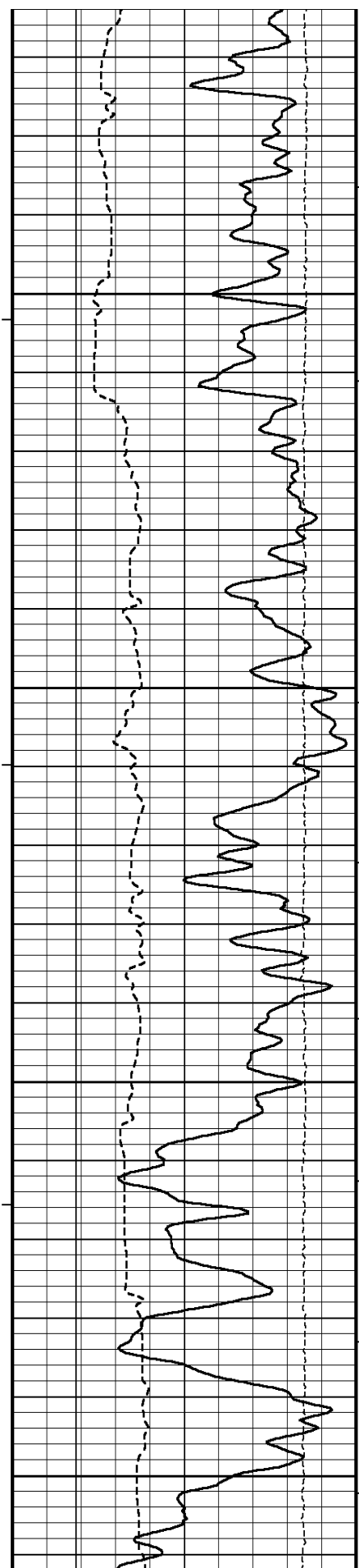


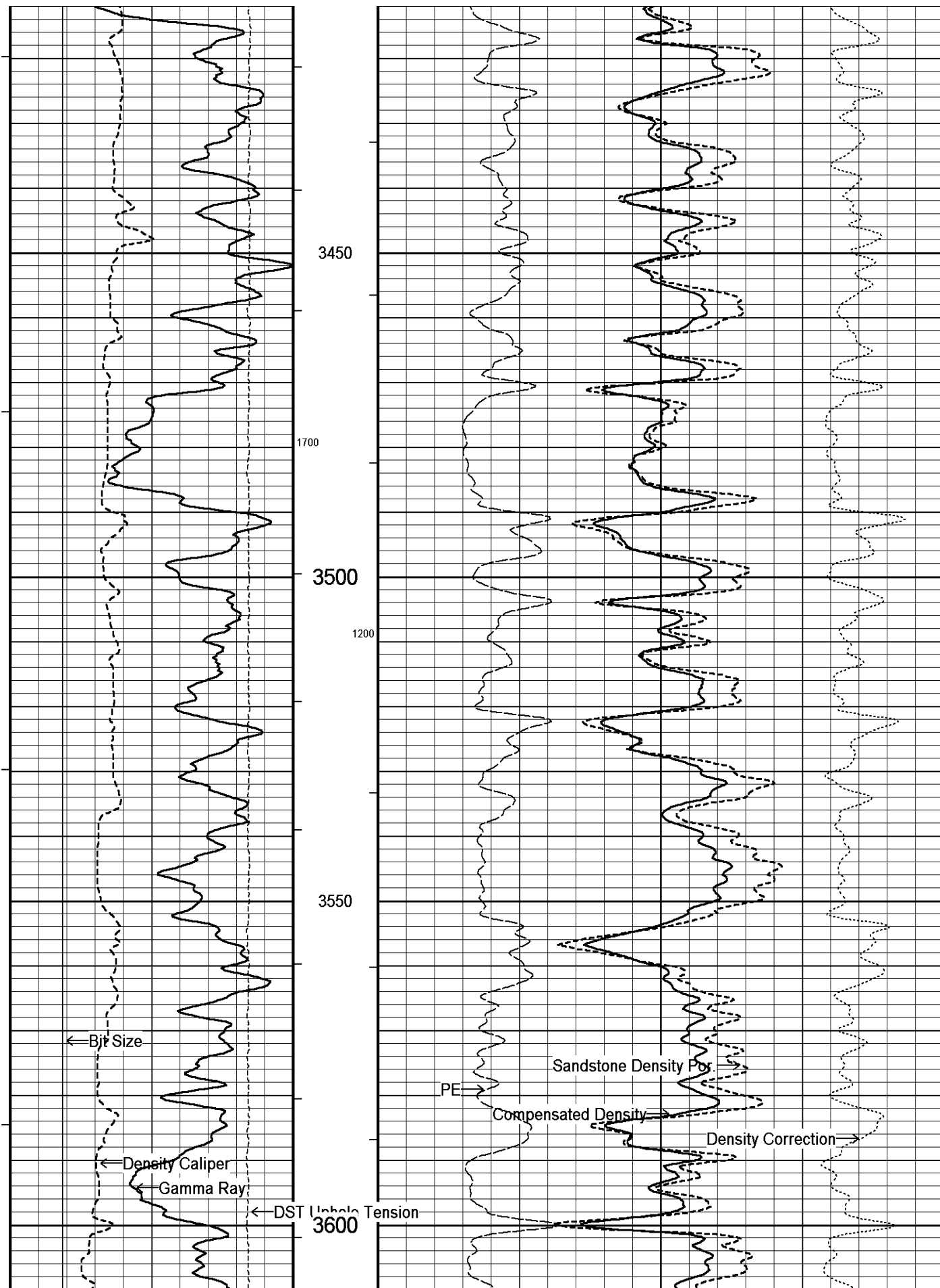


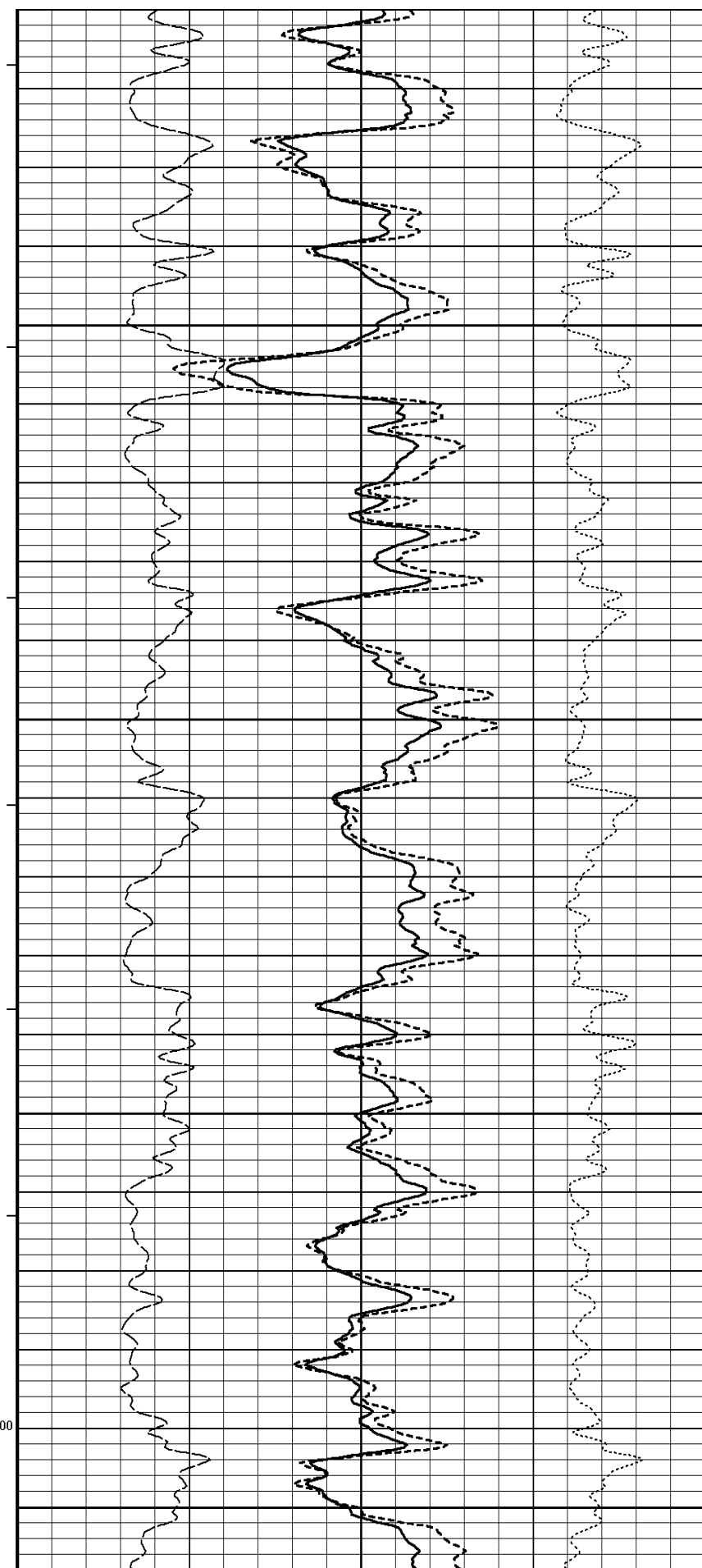
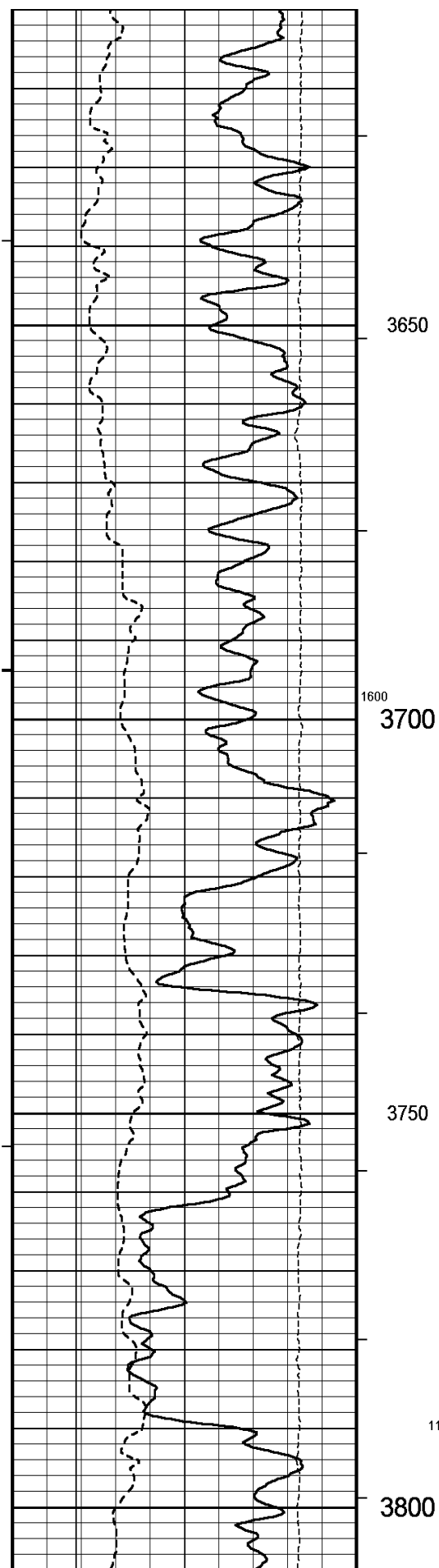


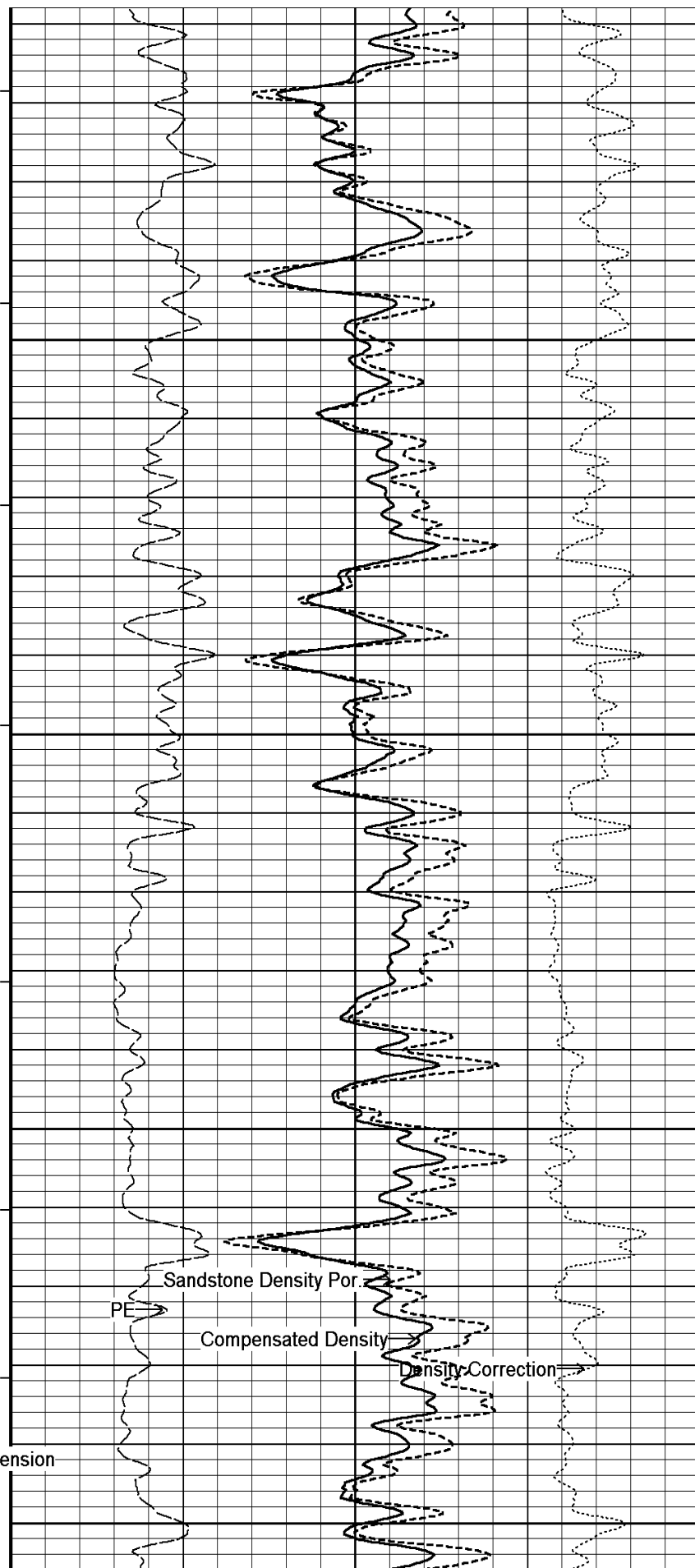
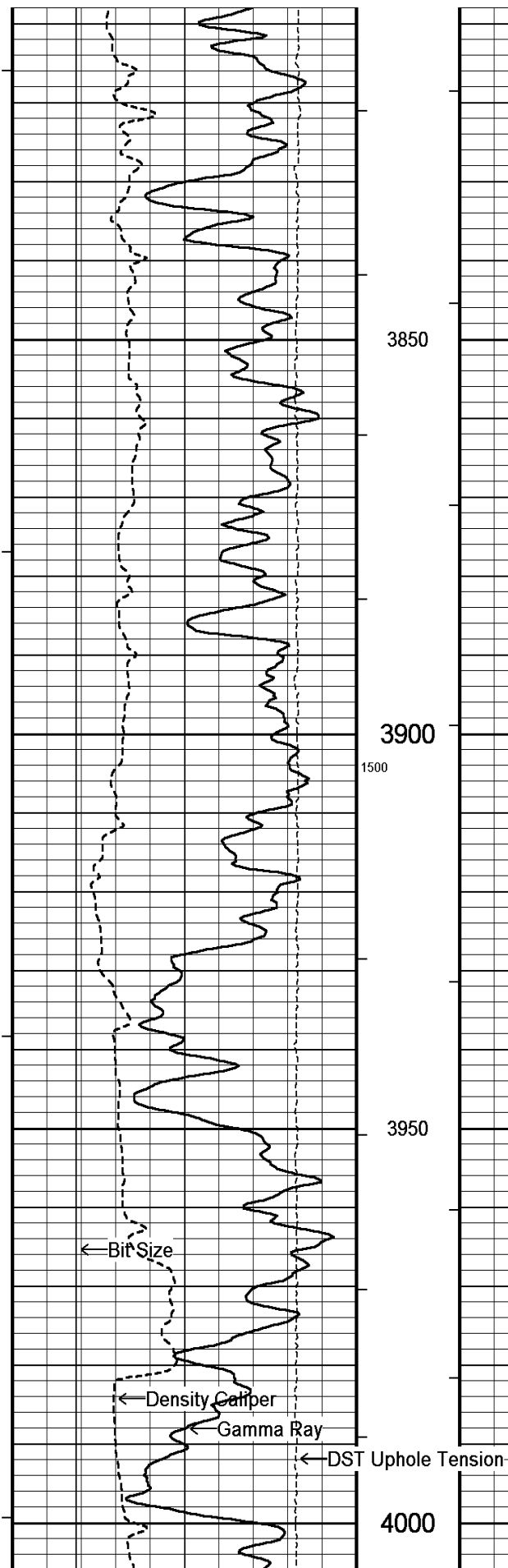


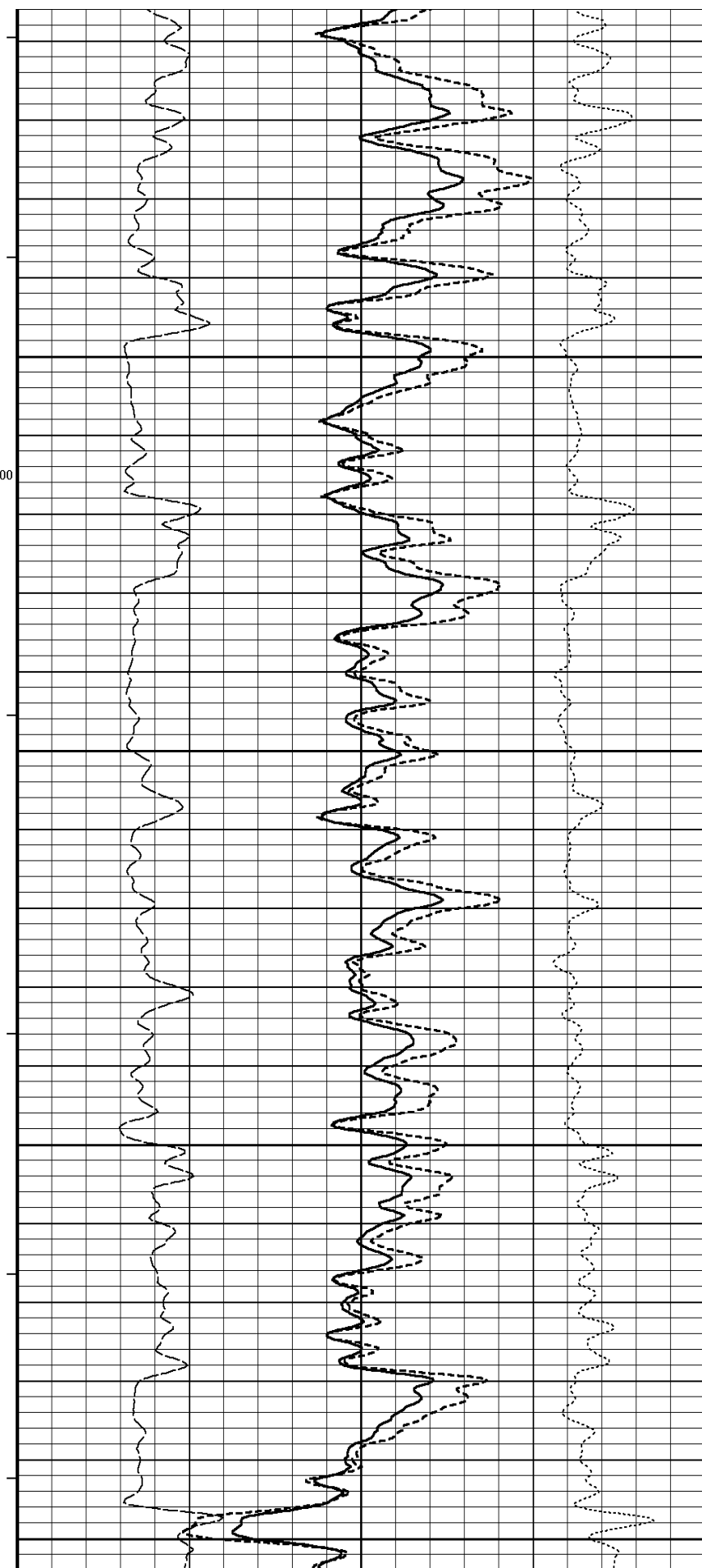
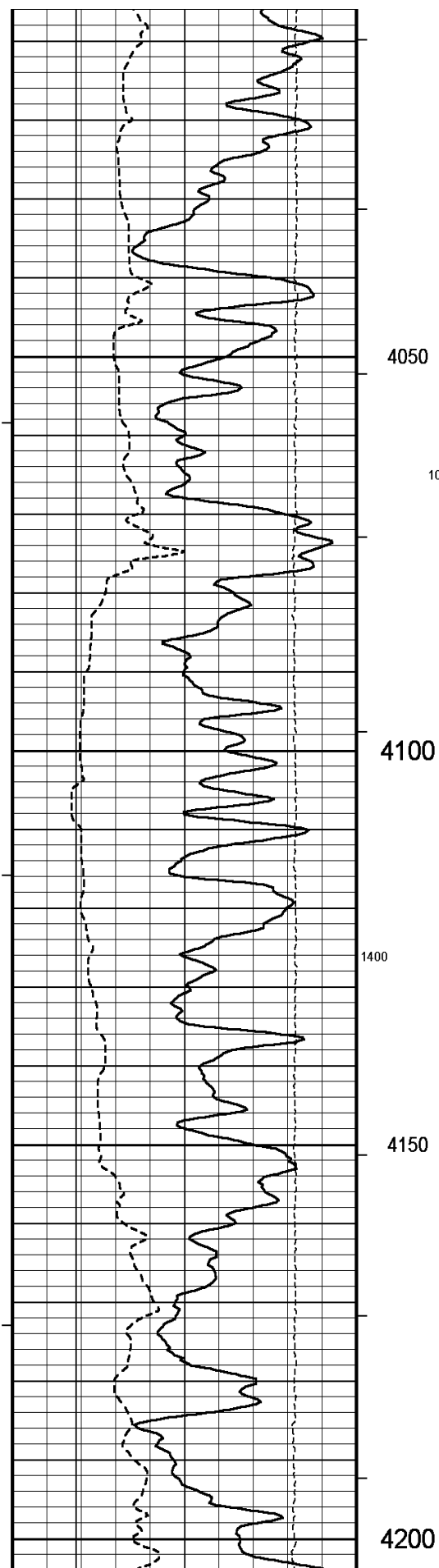


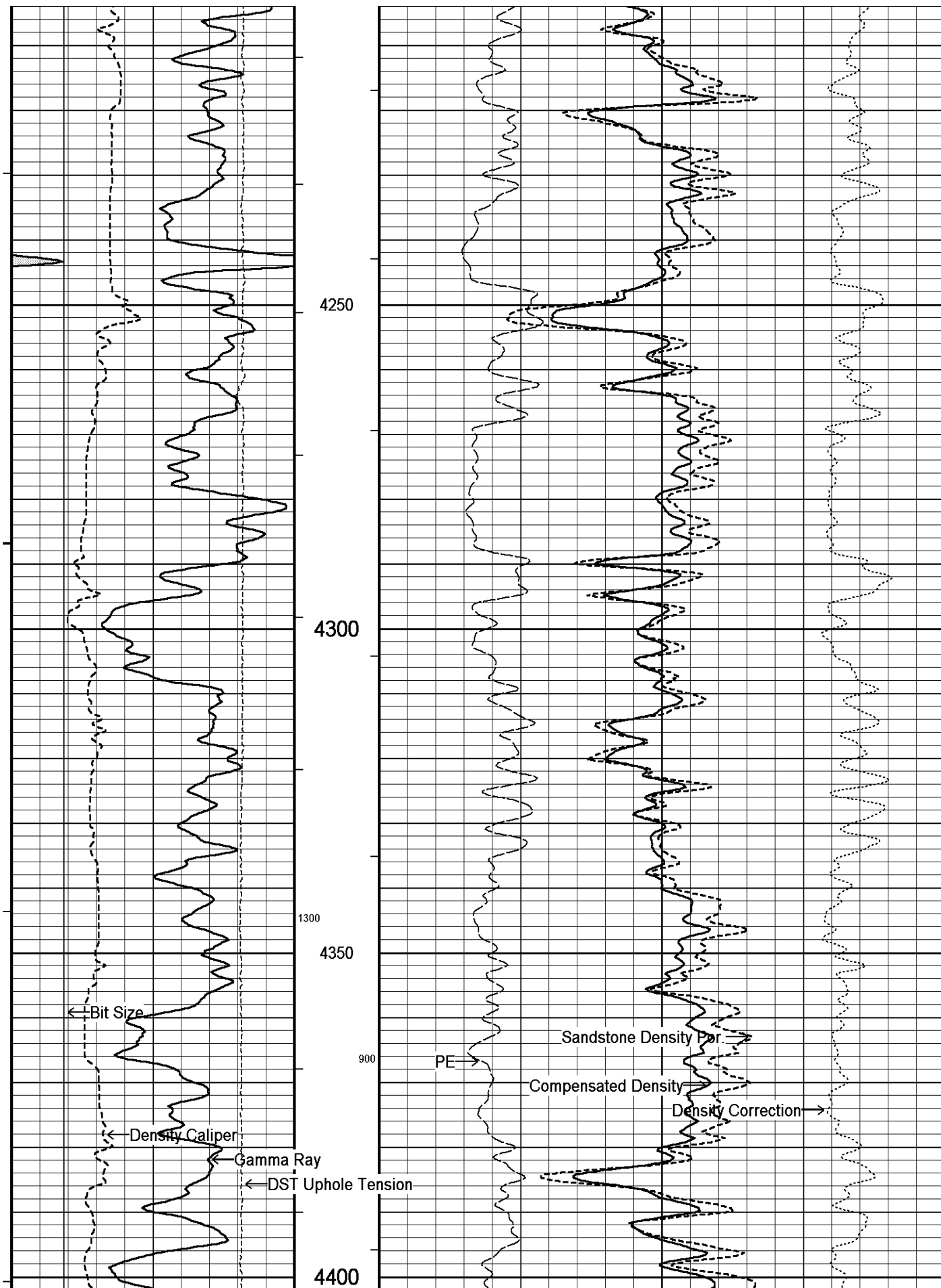


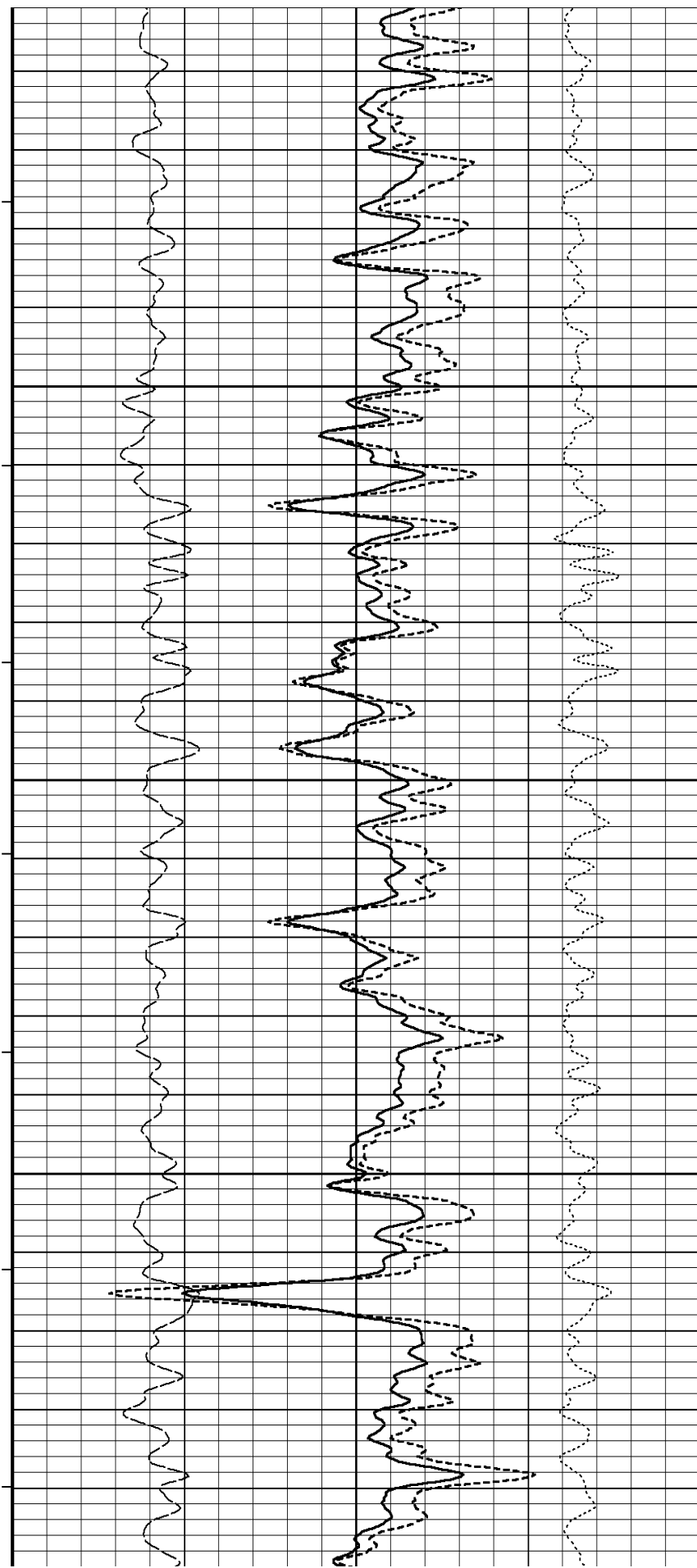
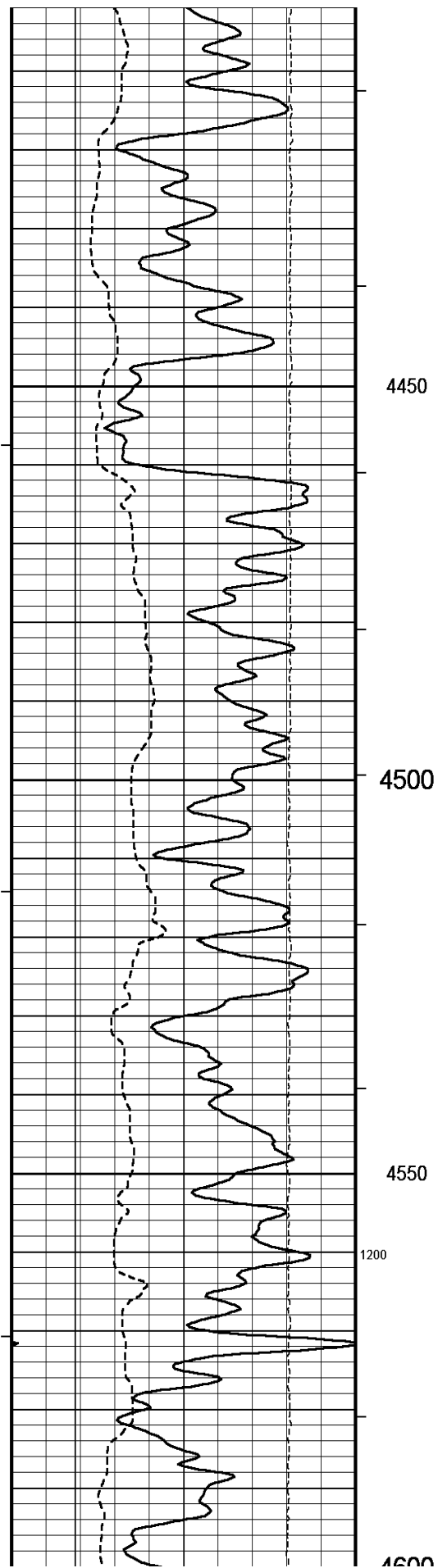


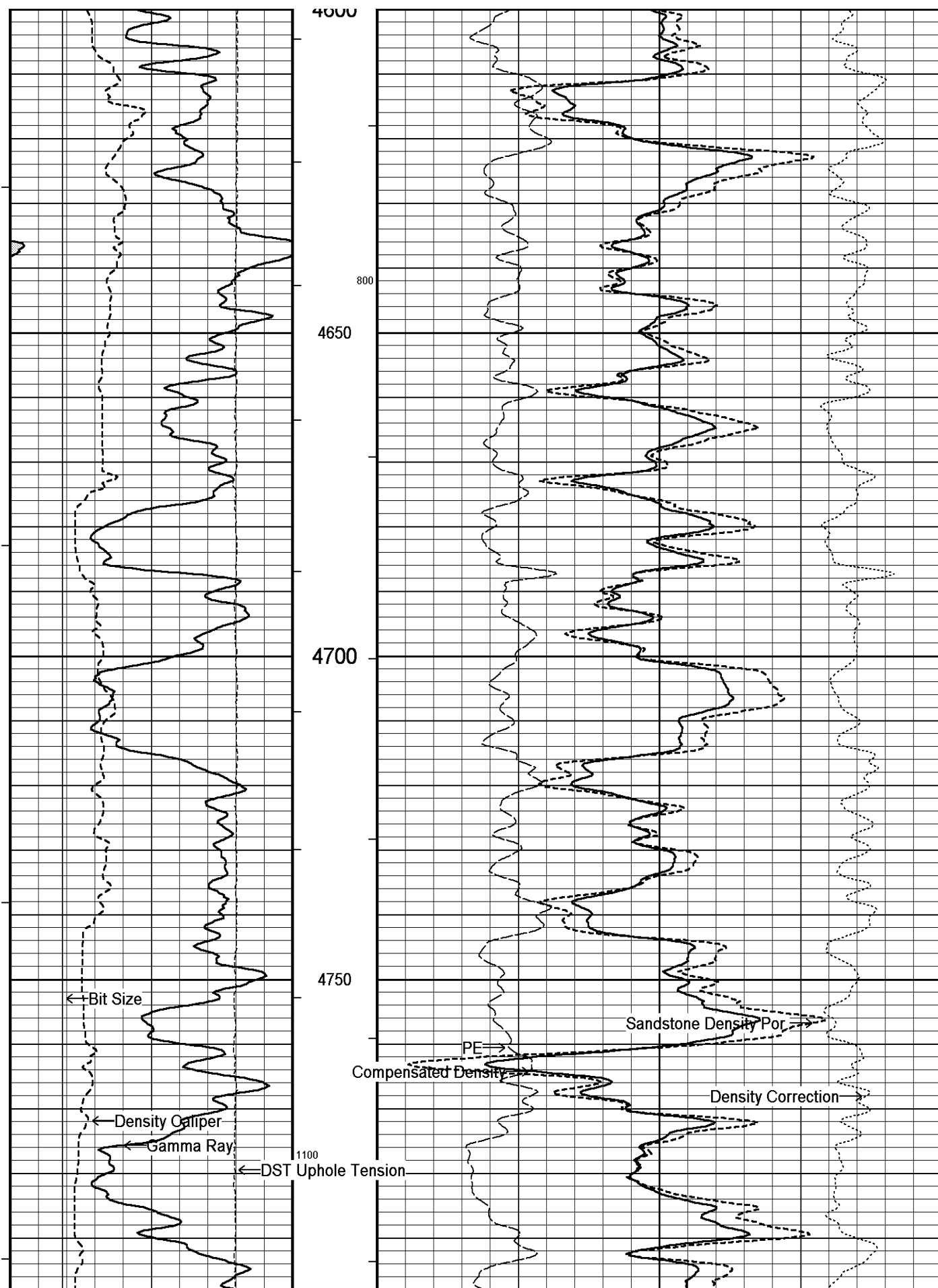


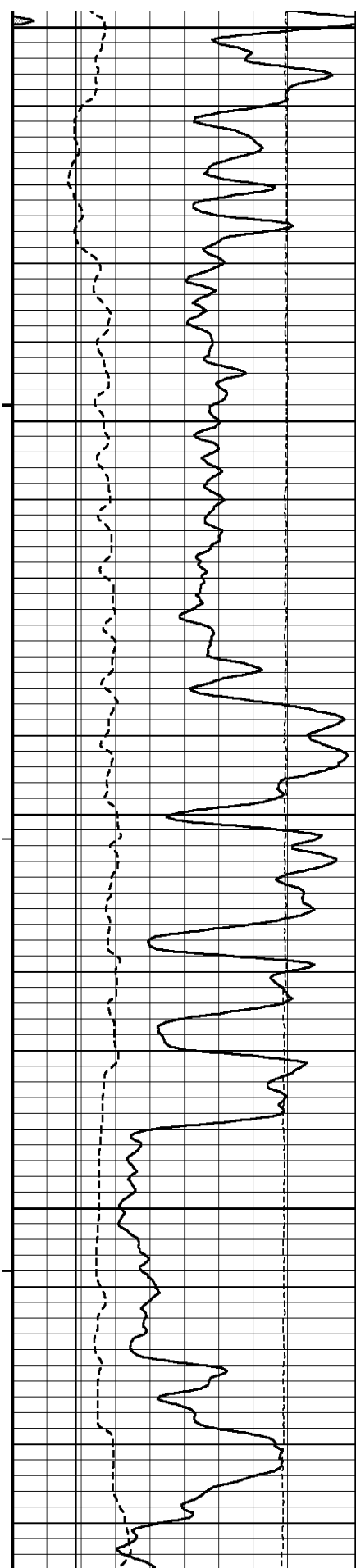












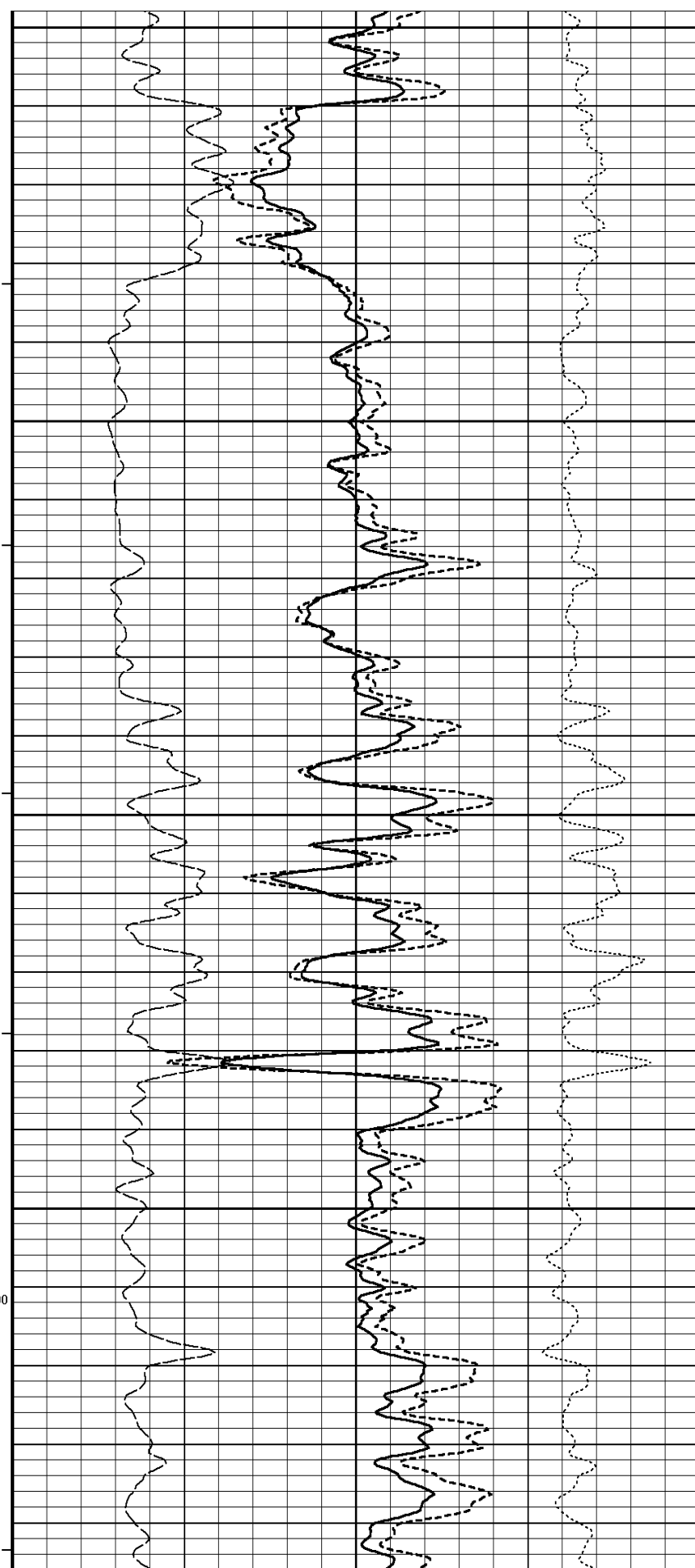
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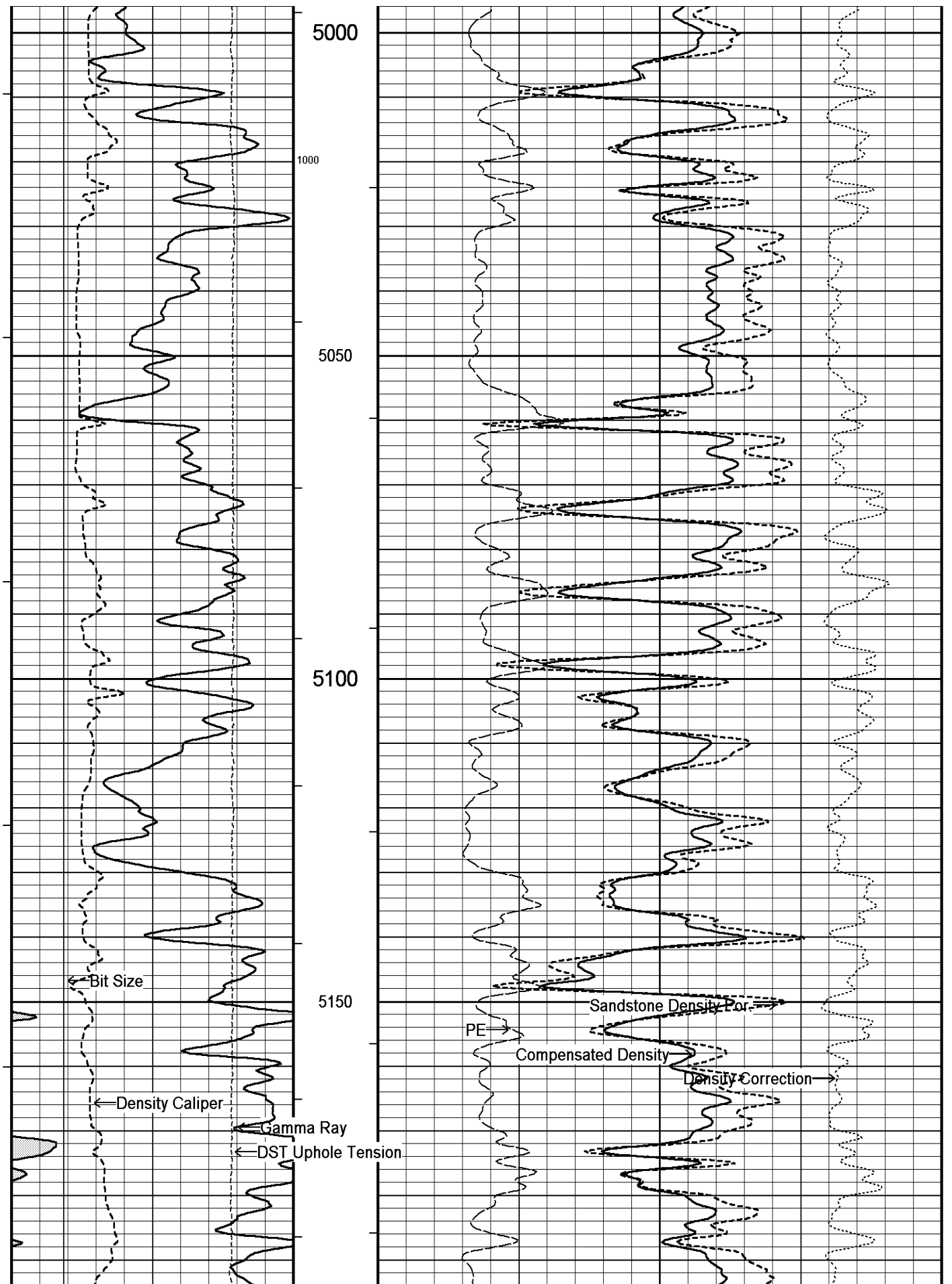
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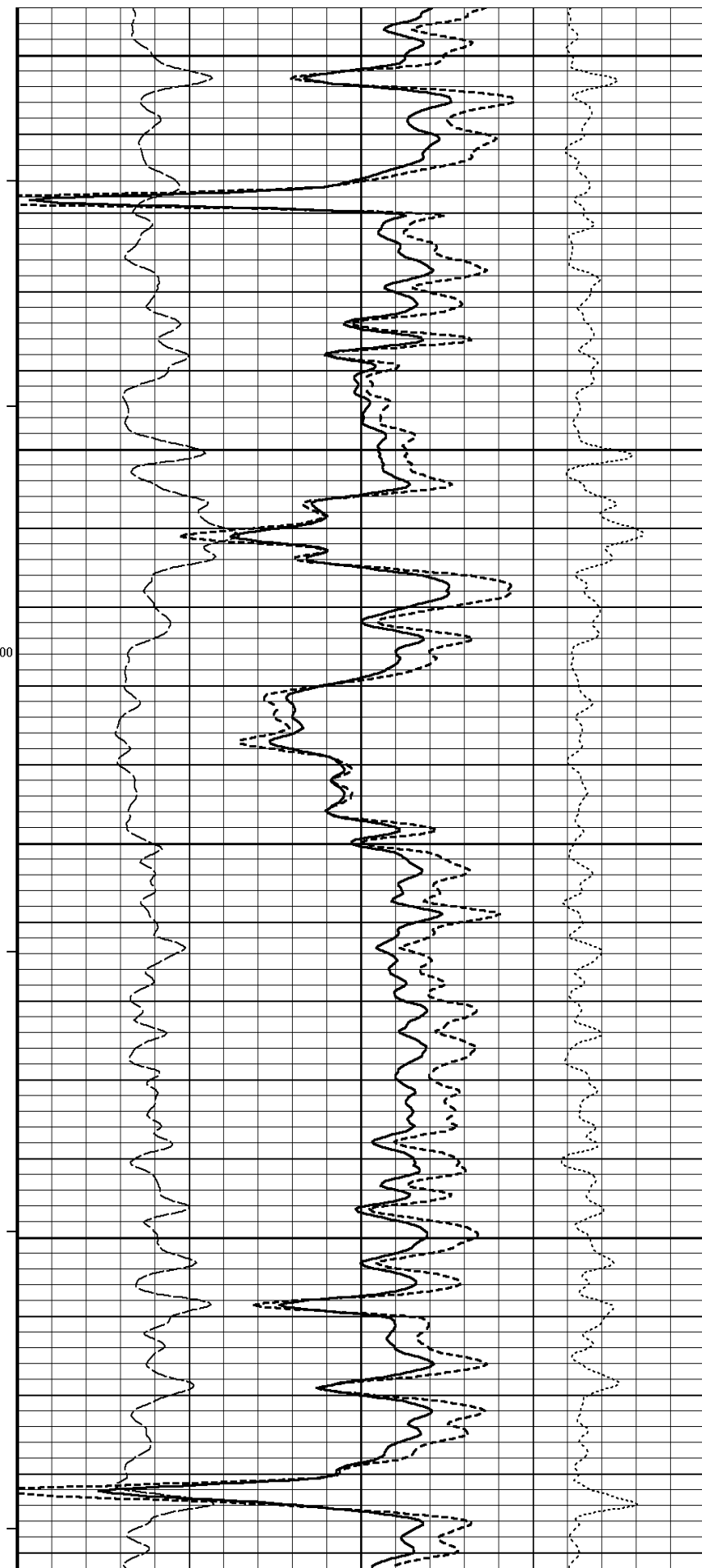
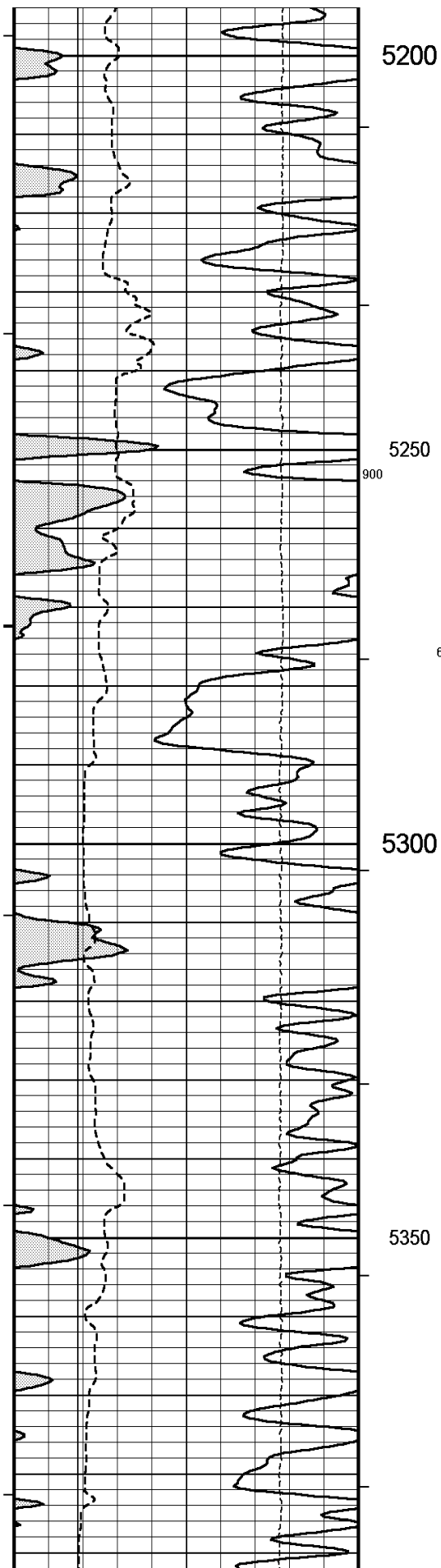
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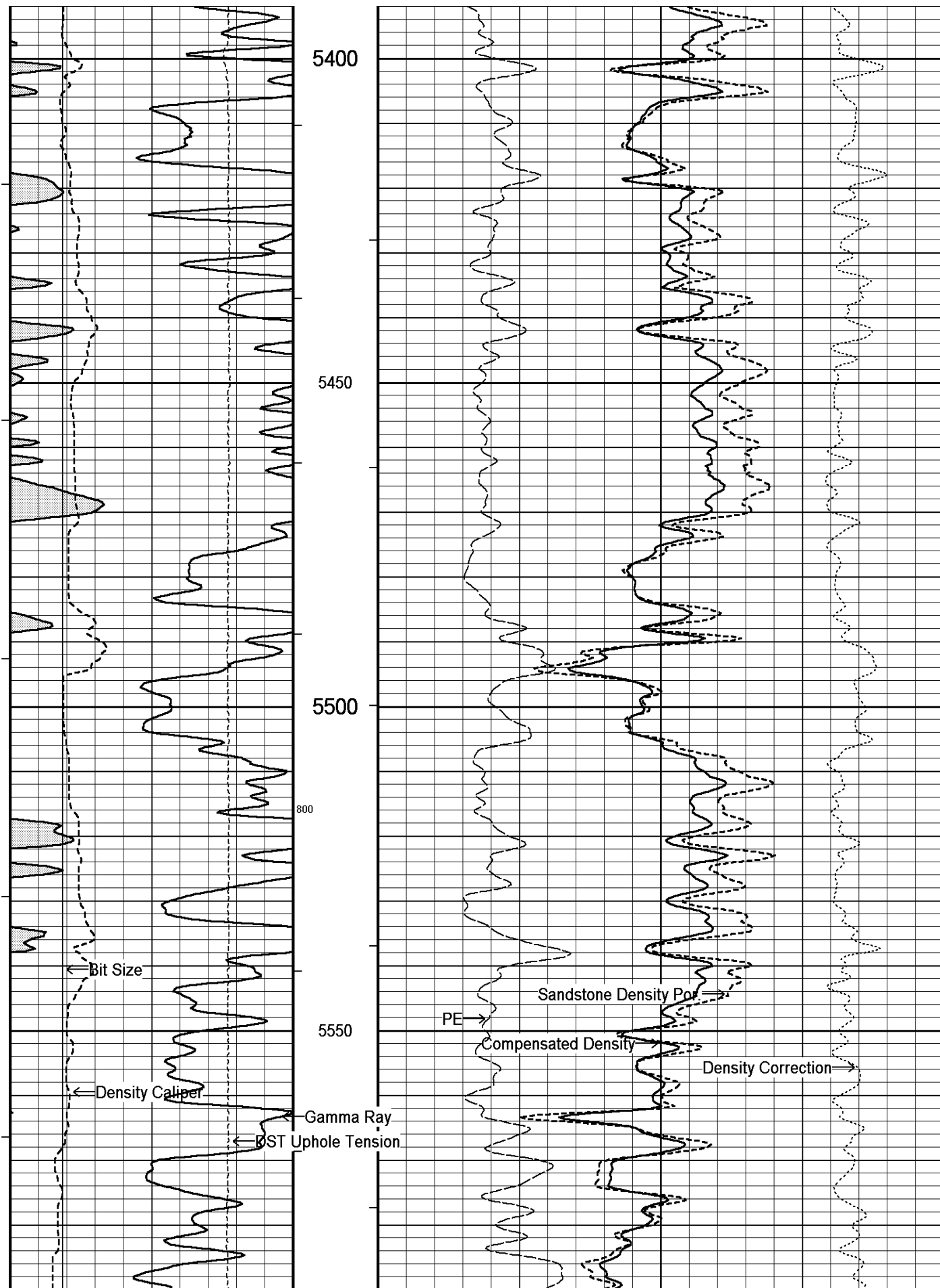
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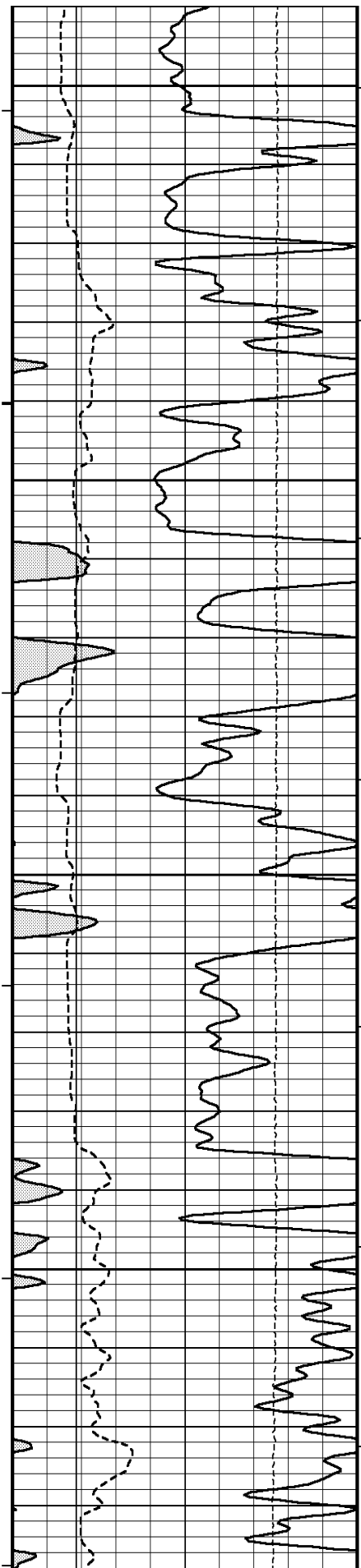
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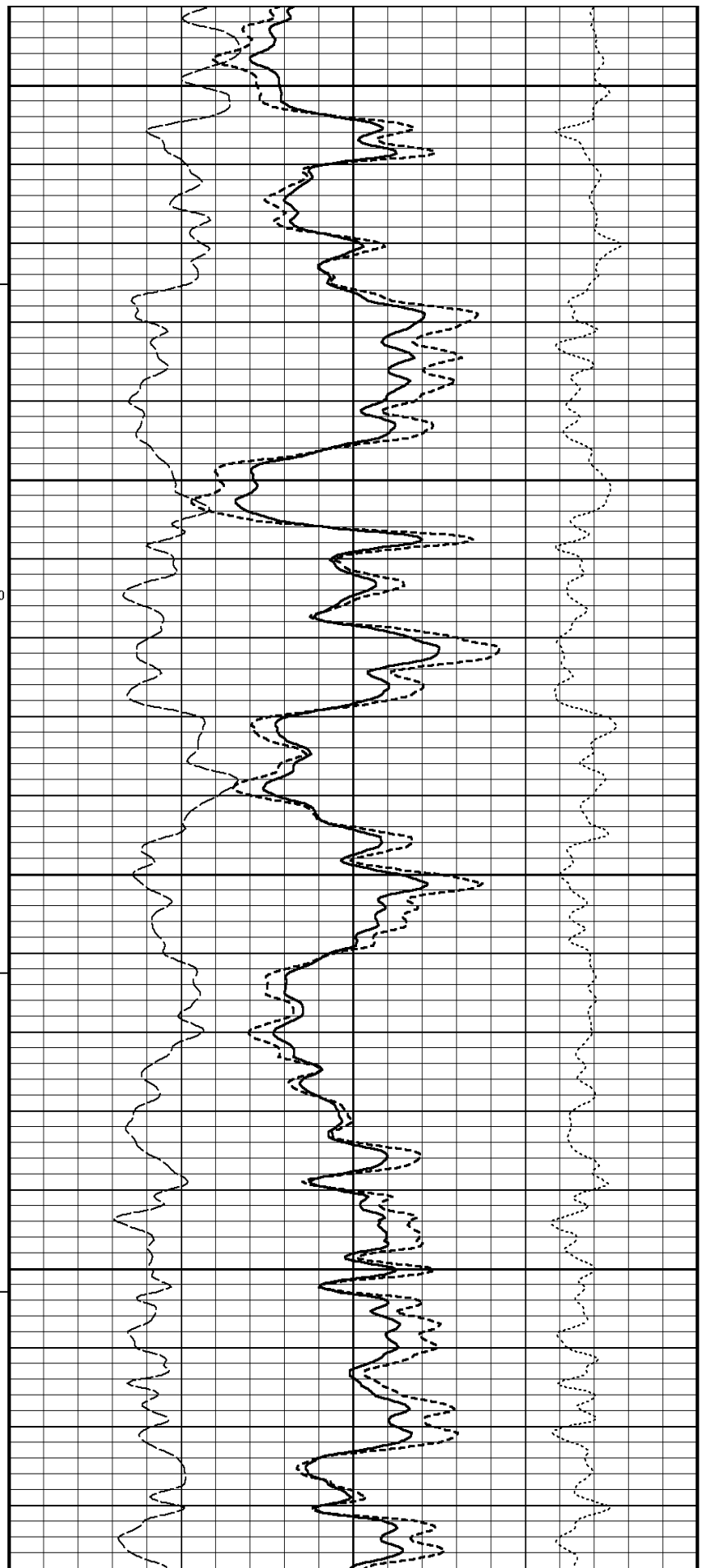
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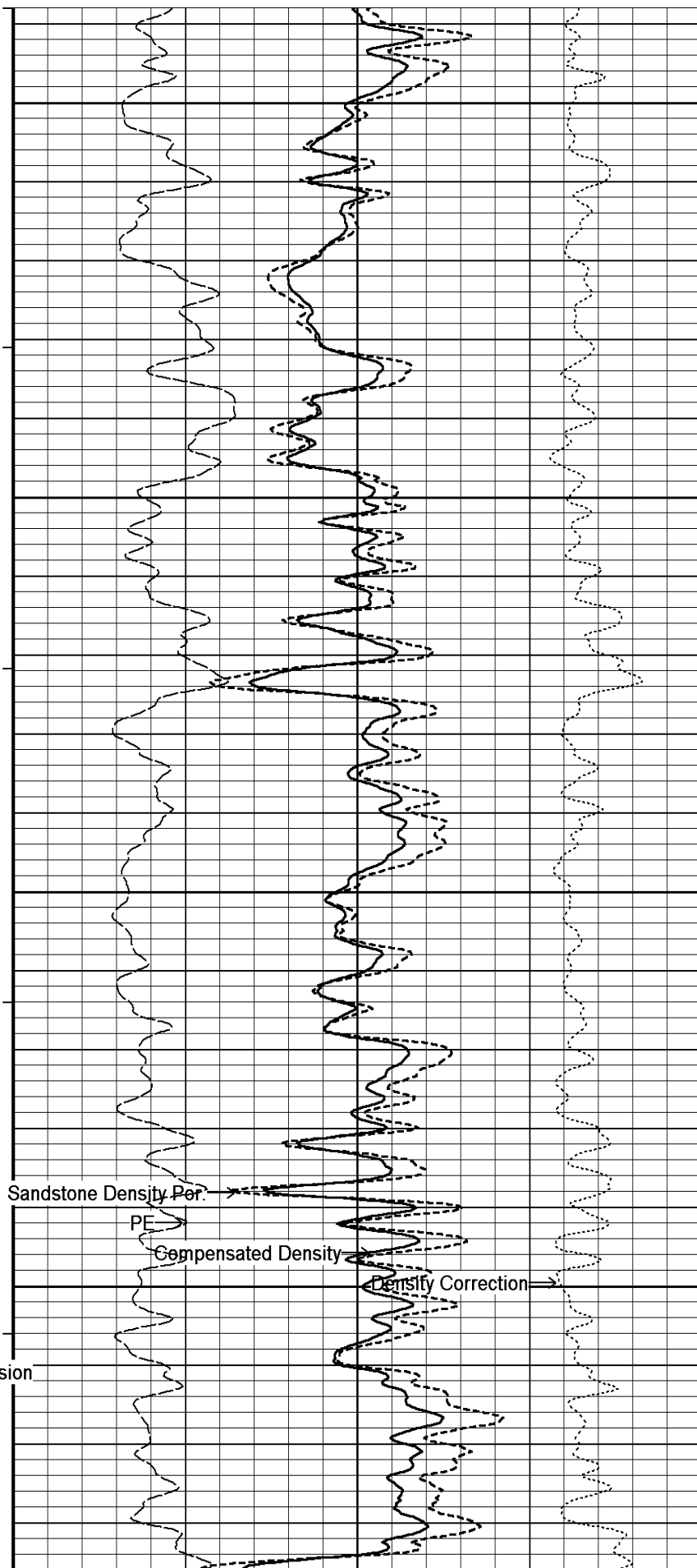
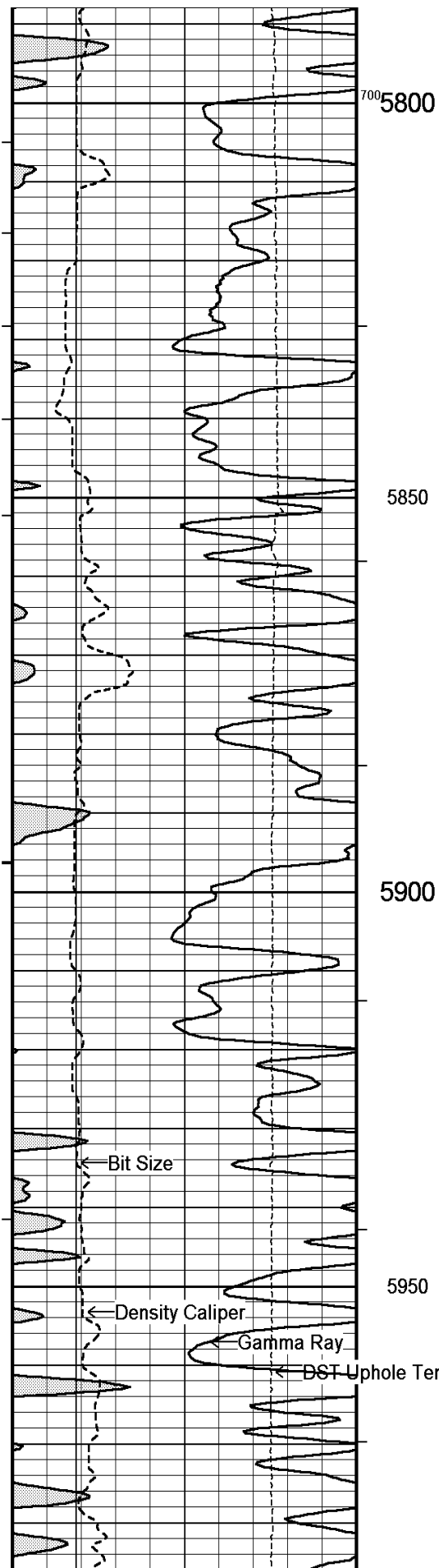
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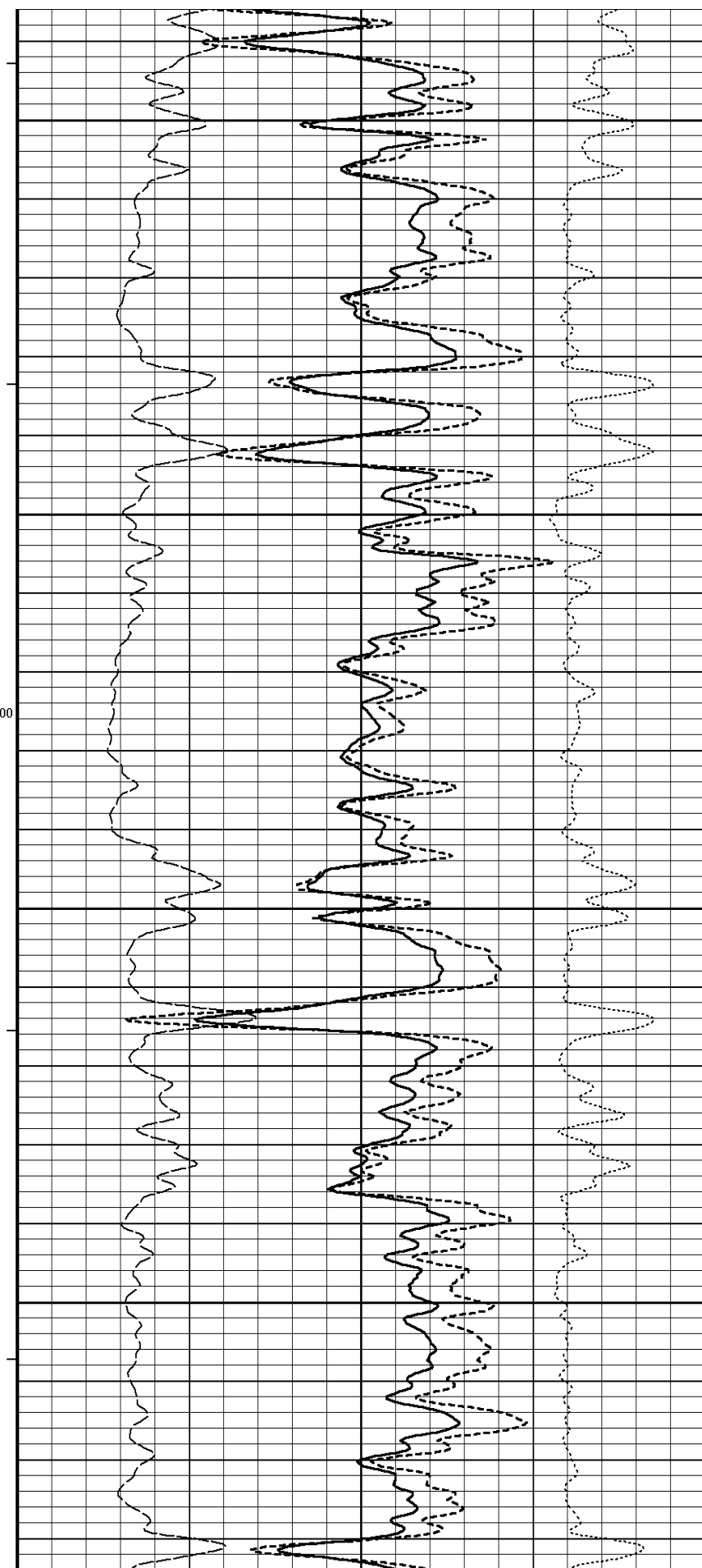
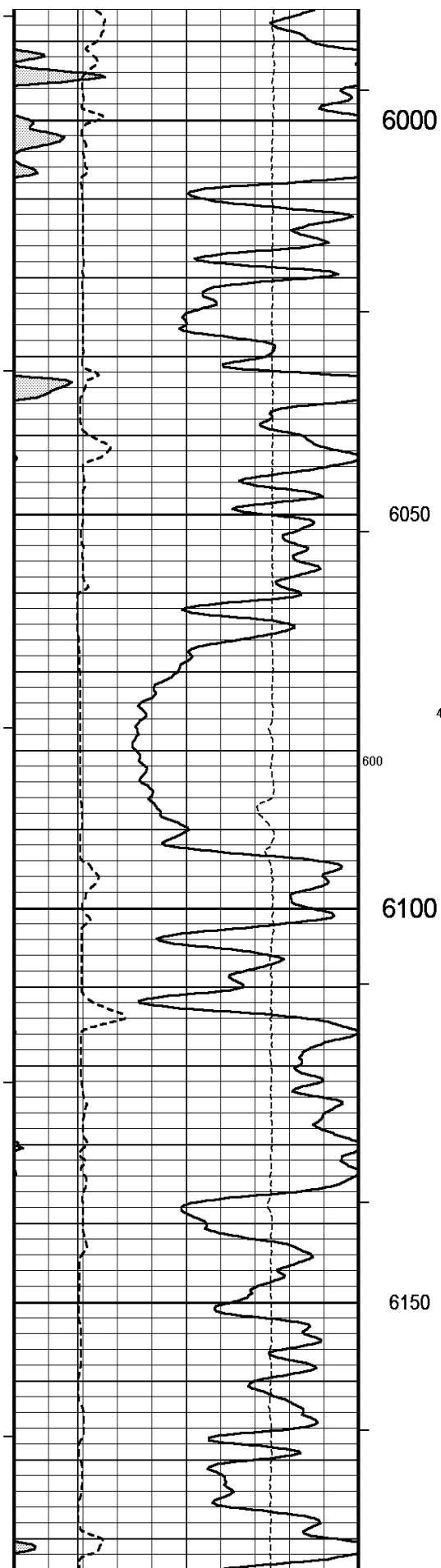
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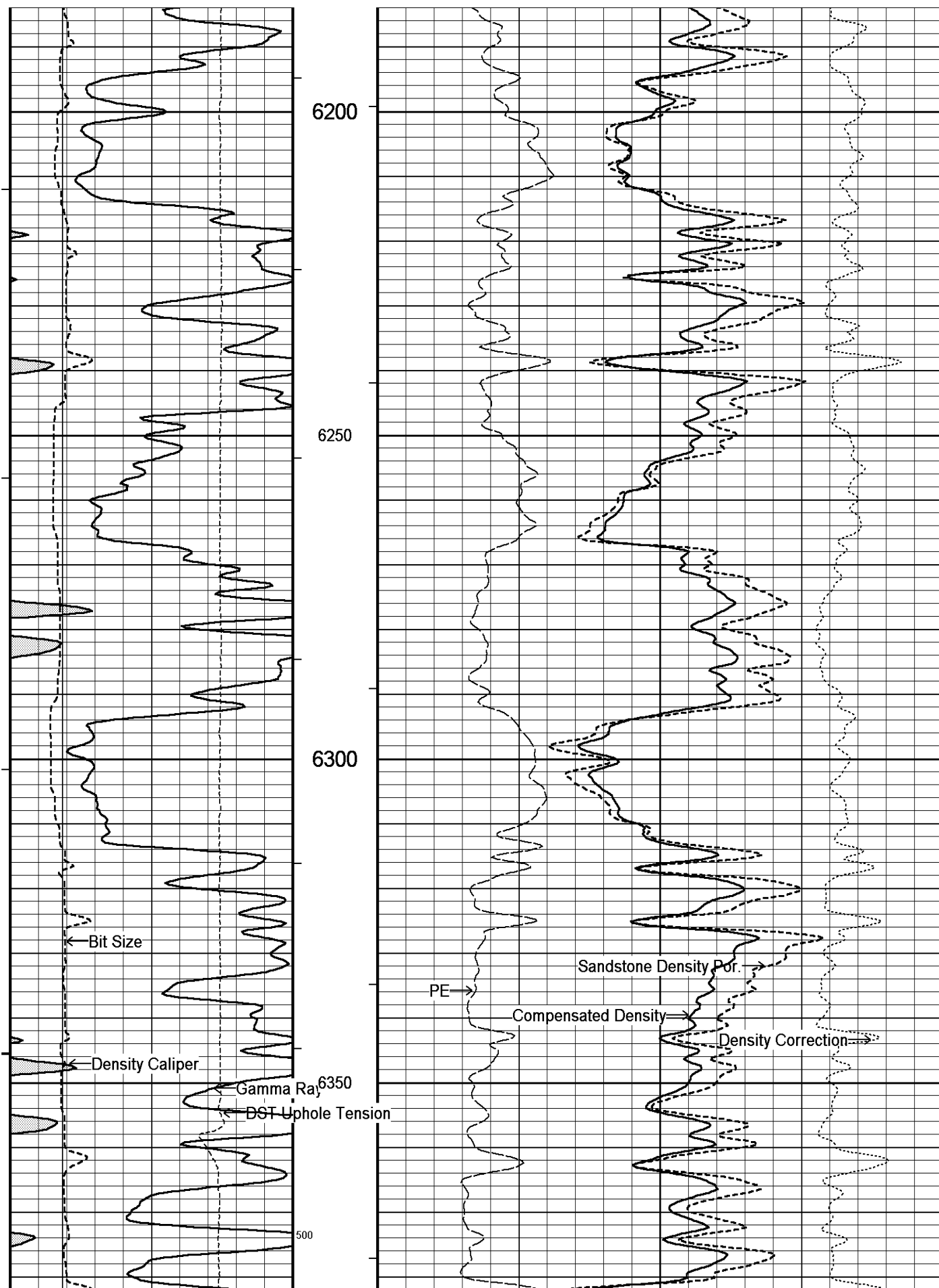
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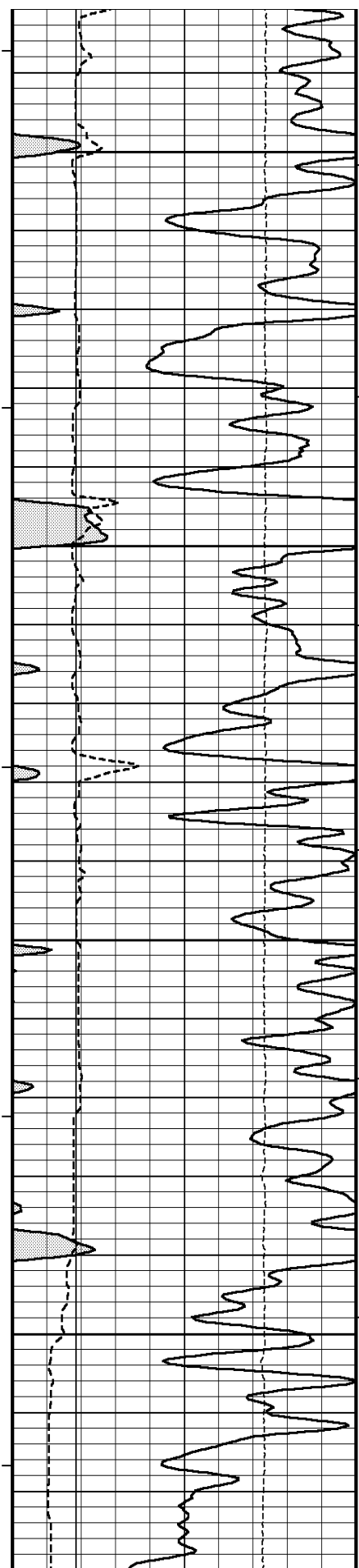
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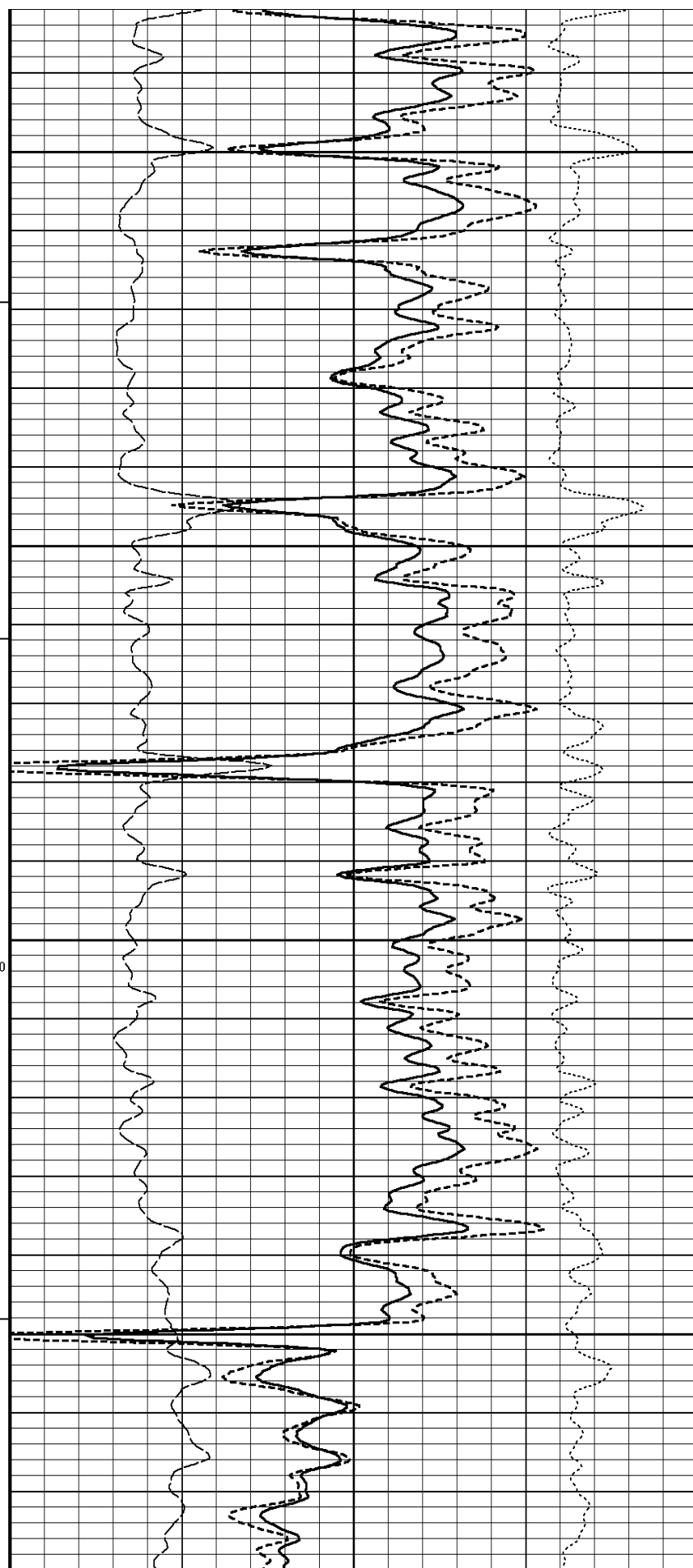


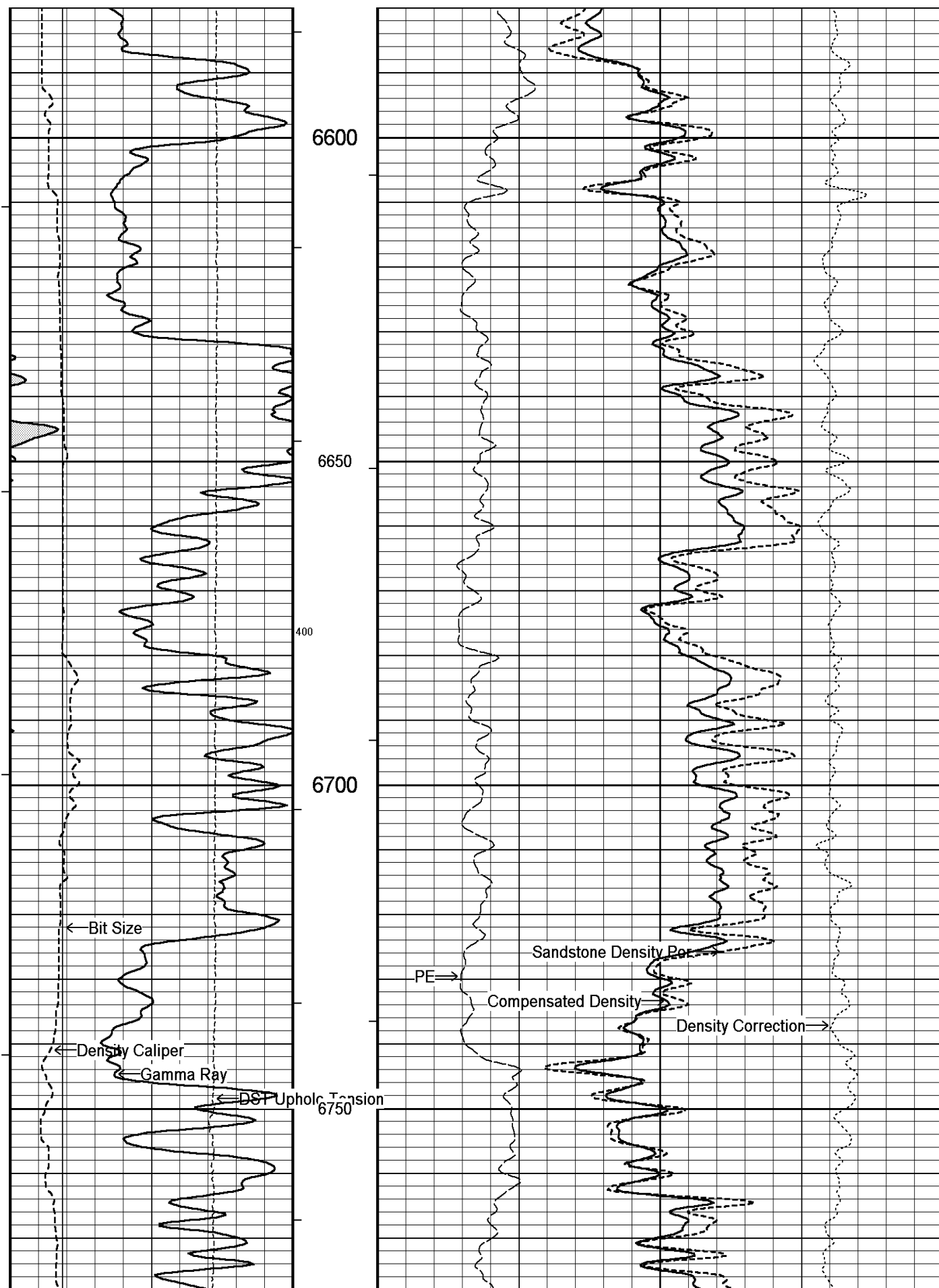
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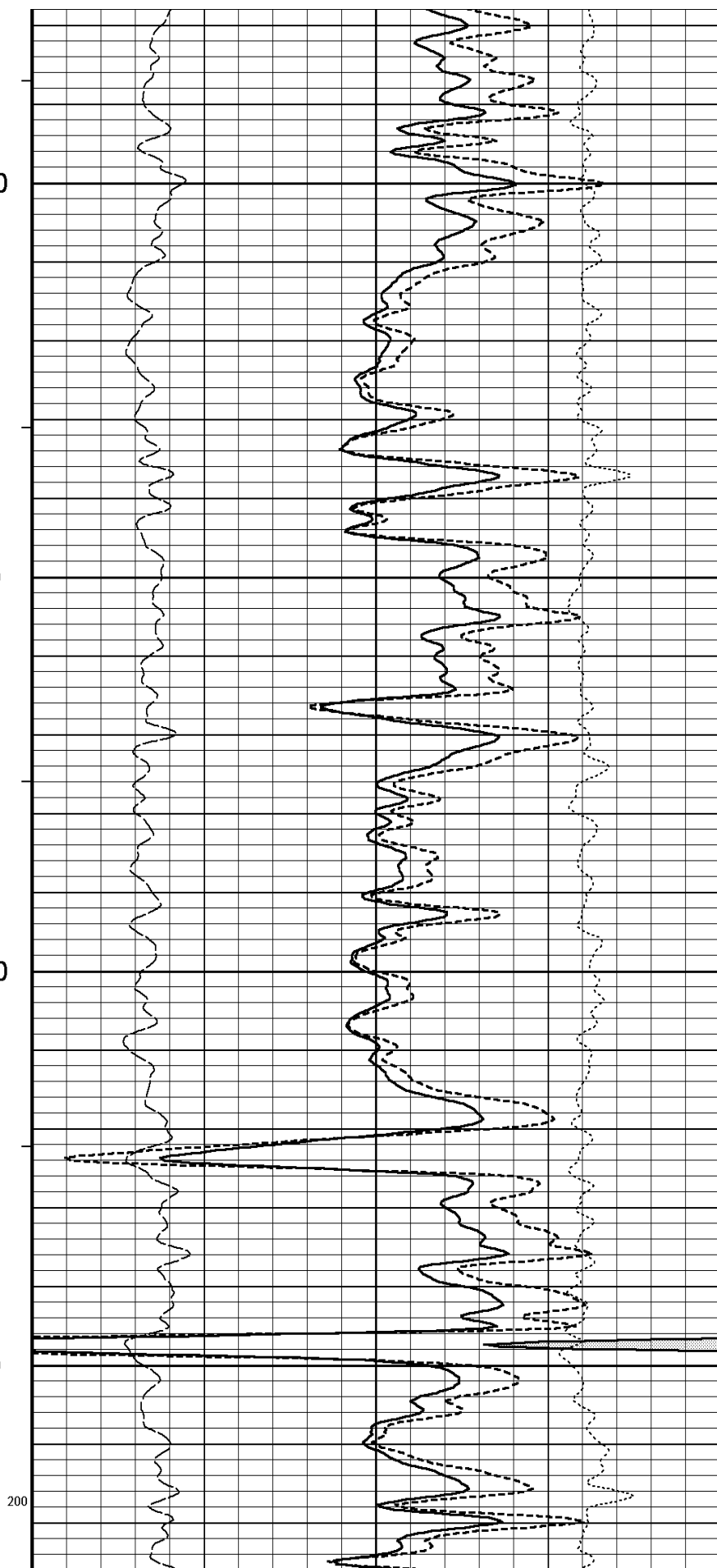
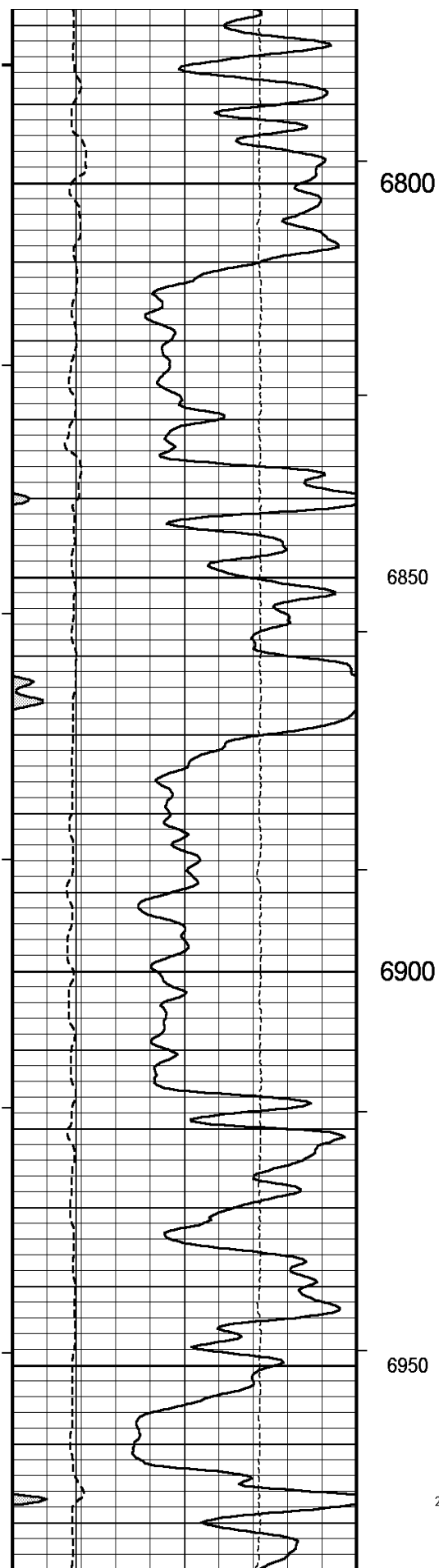
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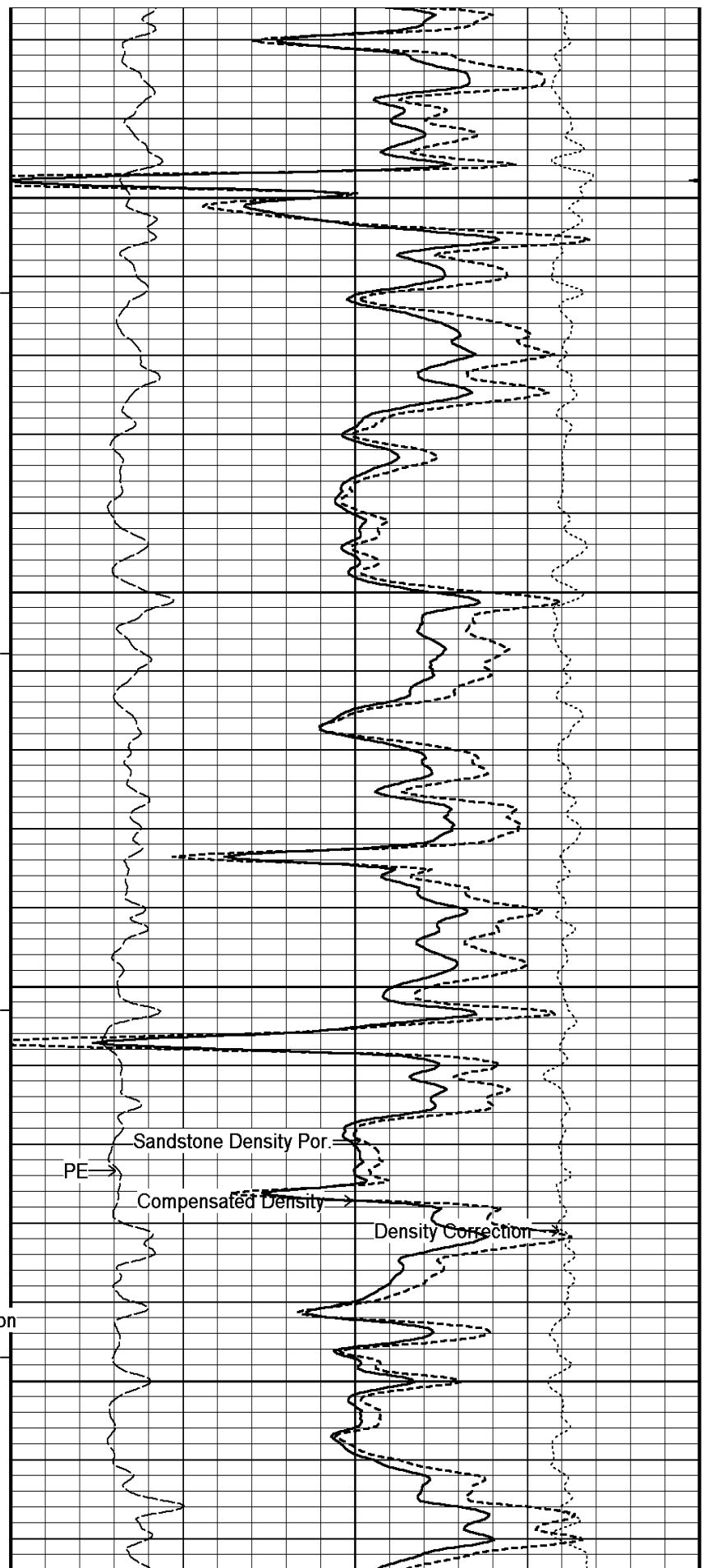
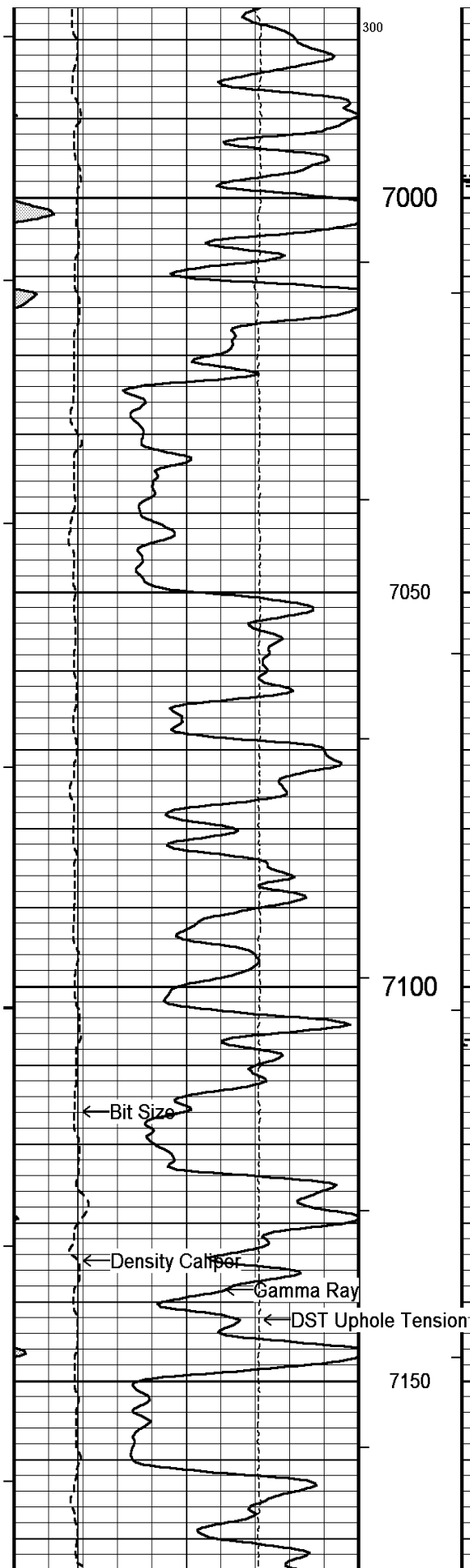
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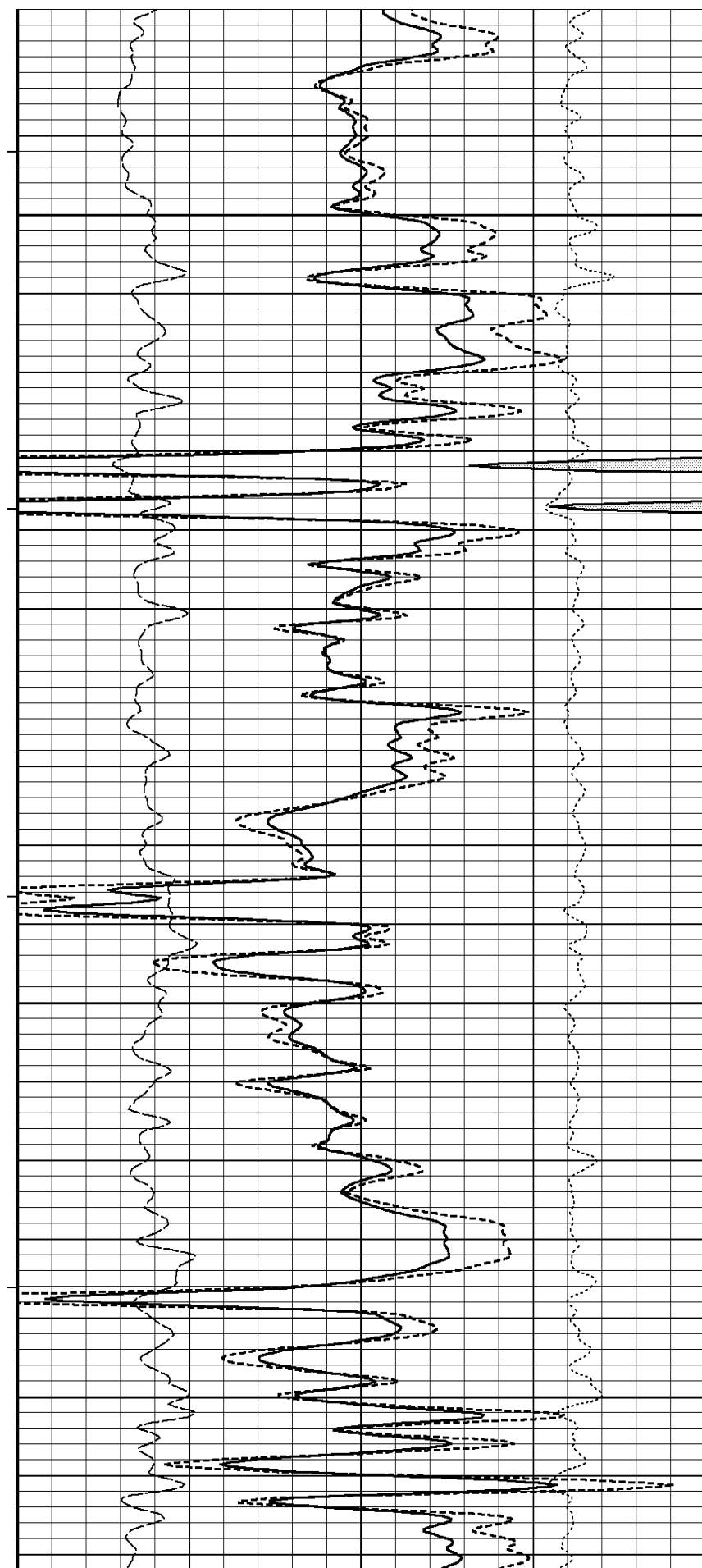
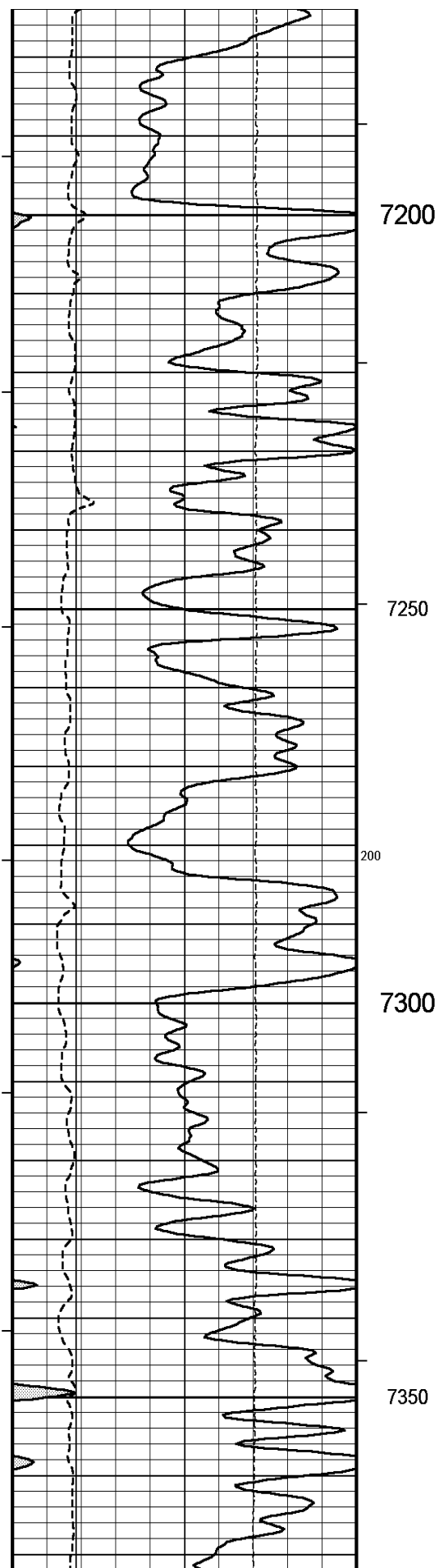
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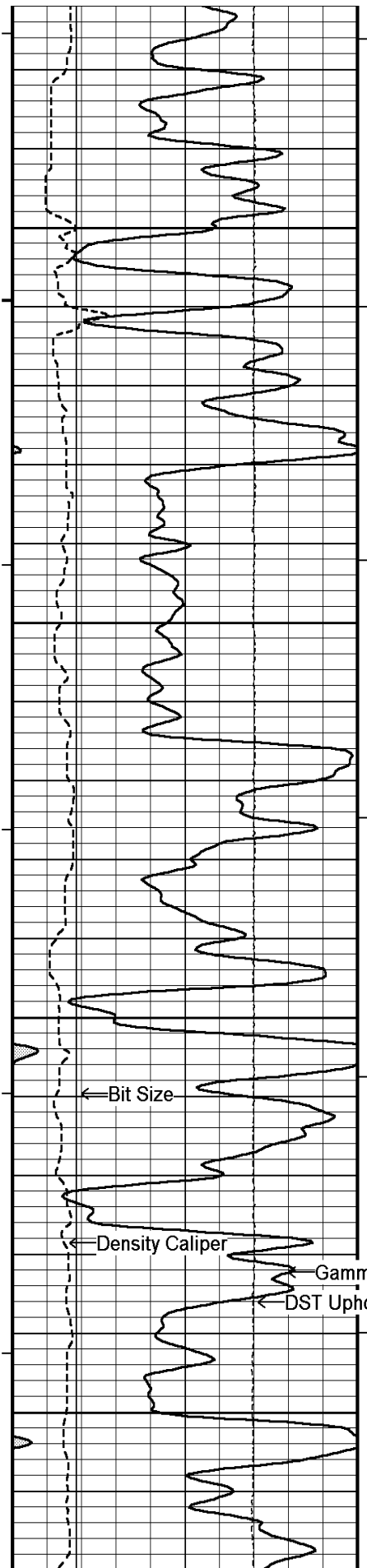












7400

100

7450

7500

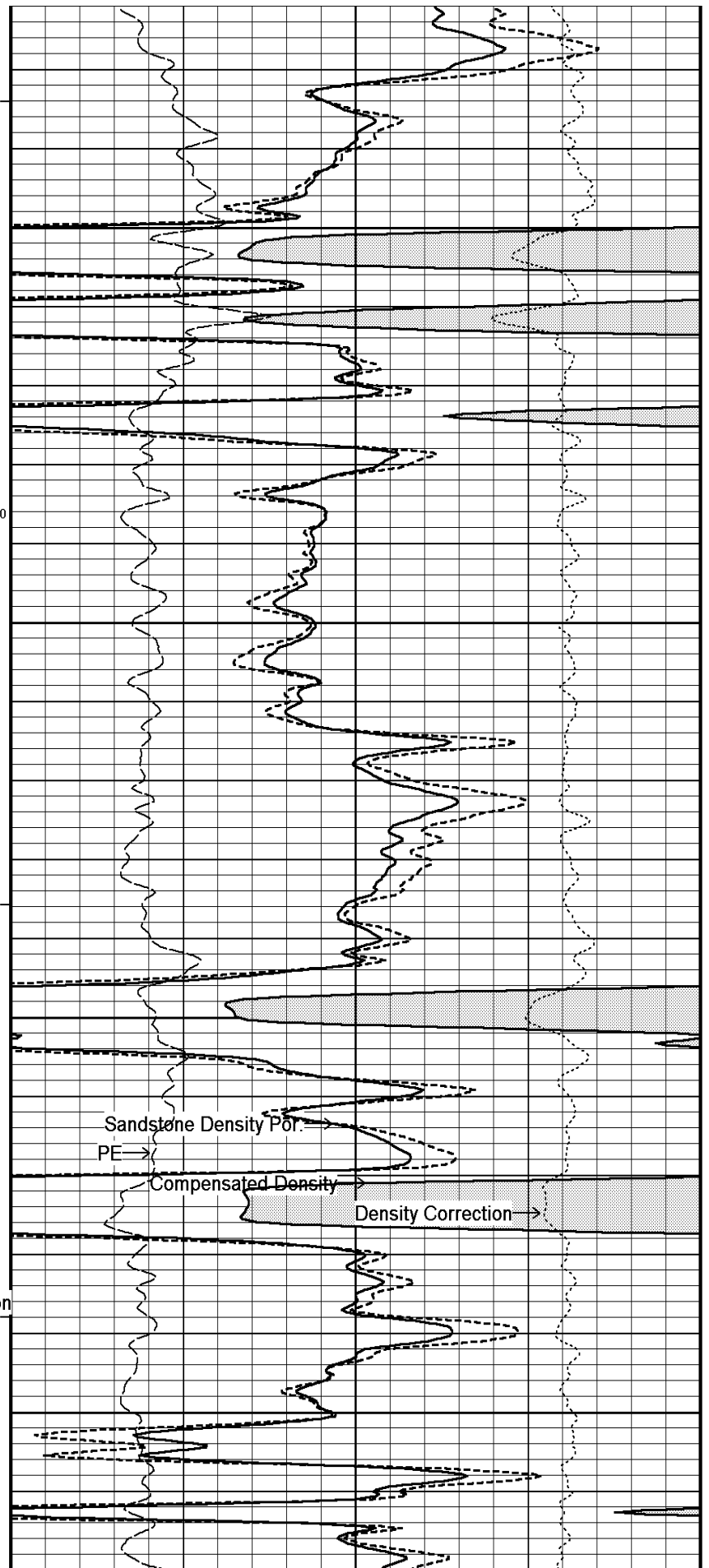
7550

← Bit Size

← Density Caliper

← Gamma Ray

← DST Uphole Tension

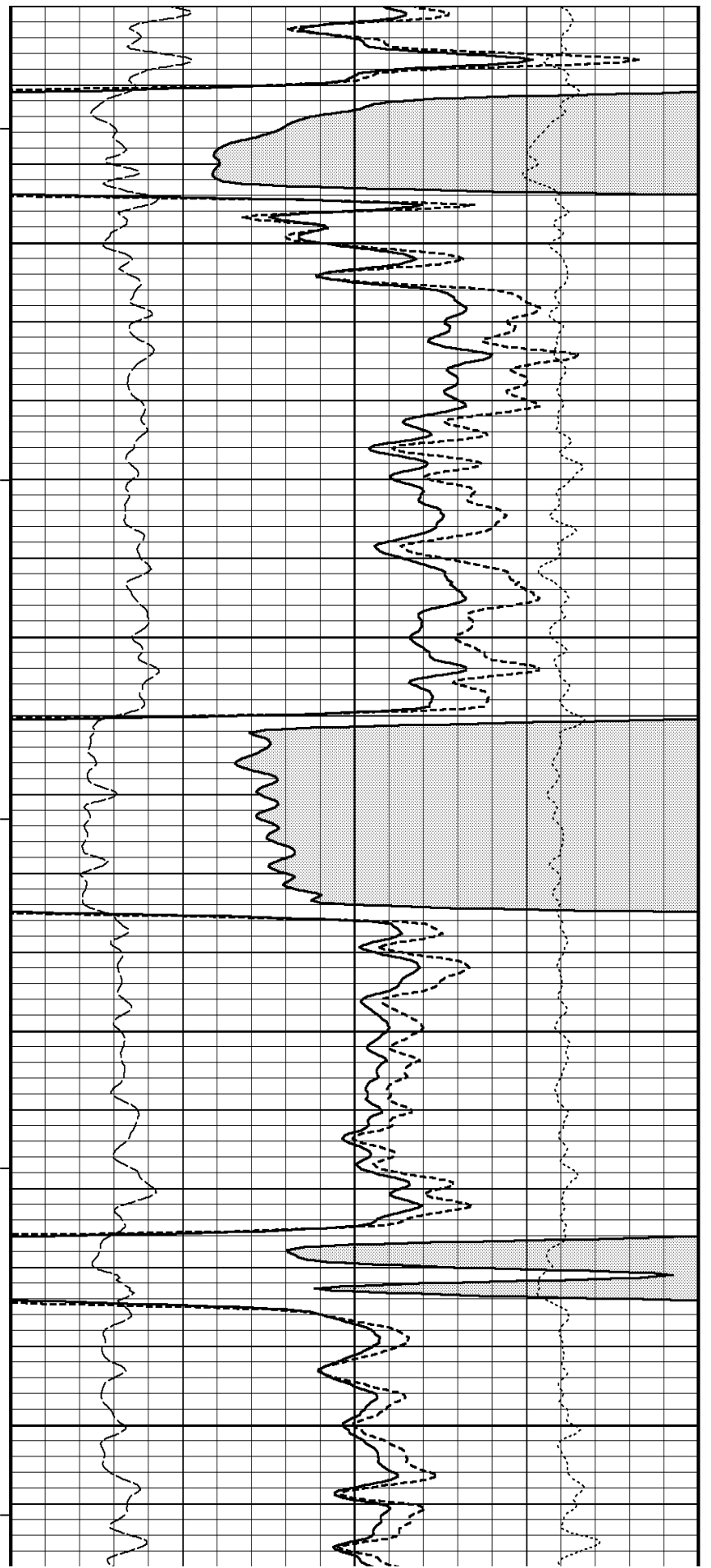
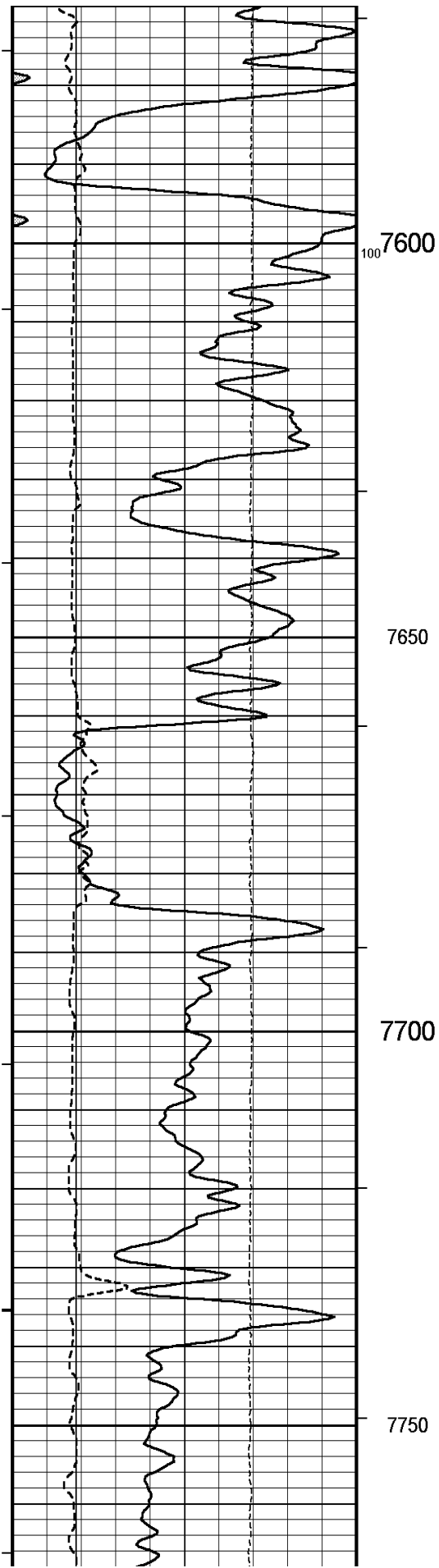


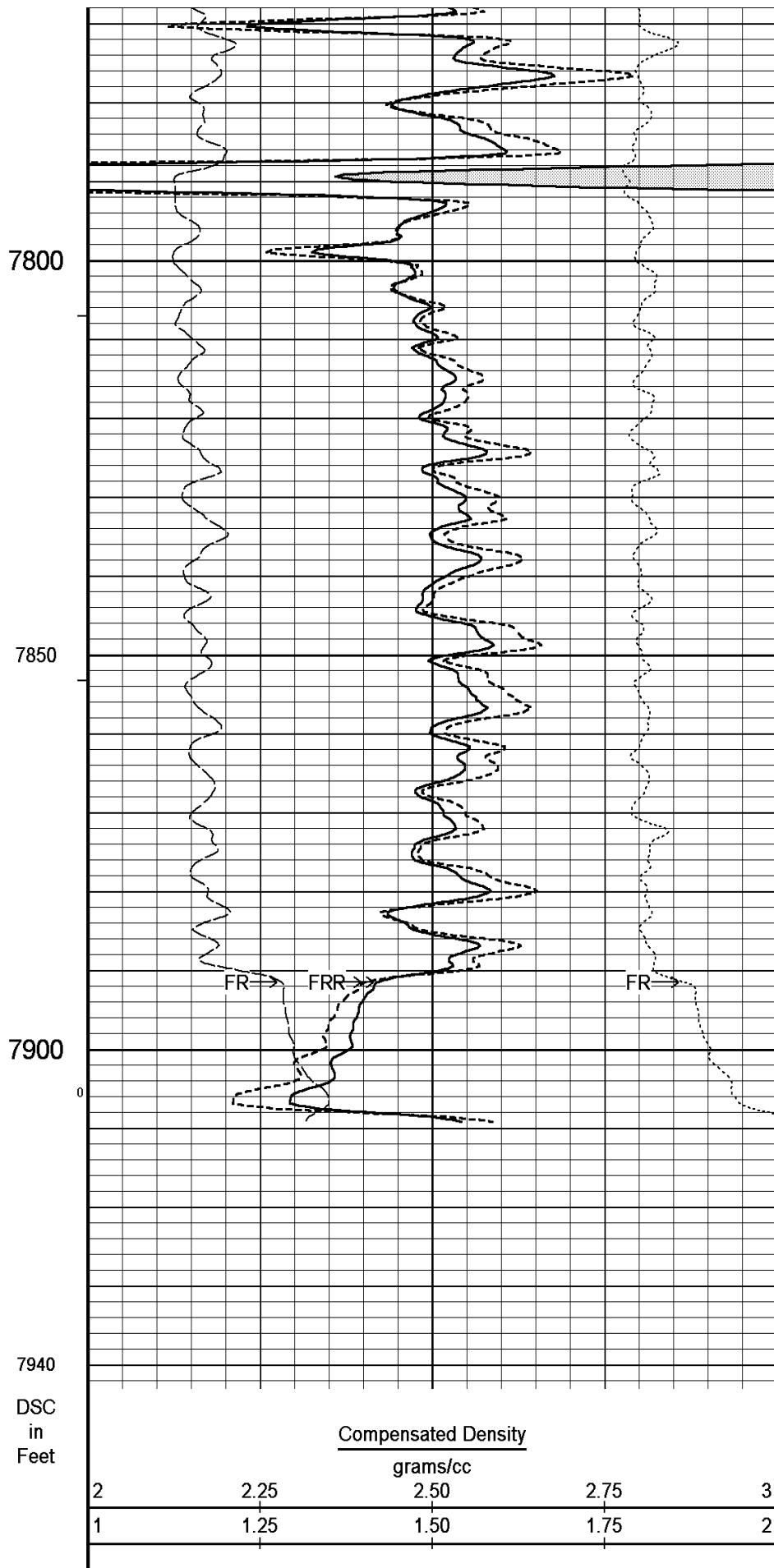
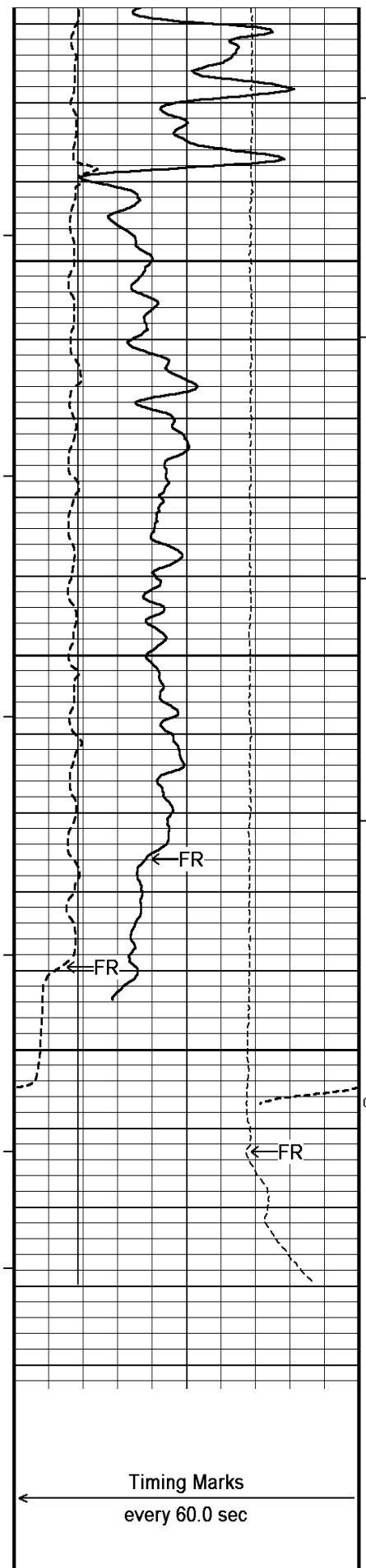
Sandstone Density Por. →

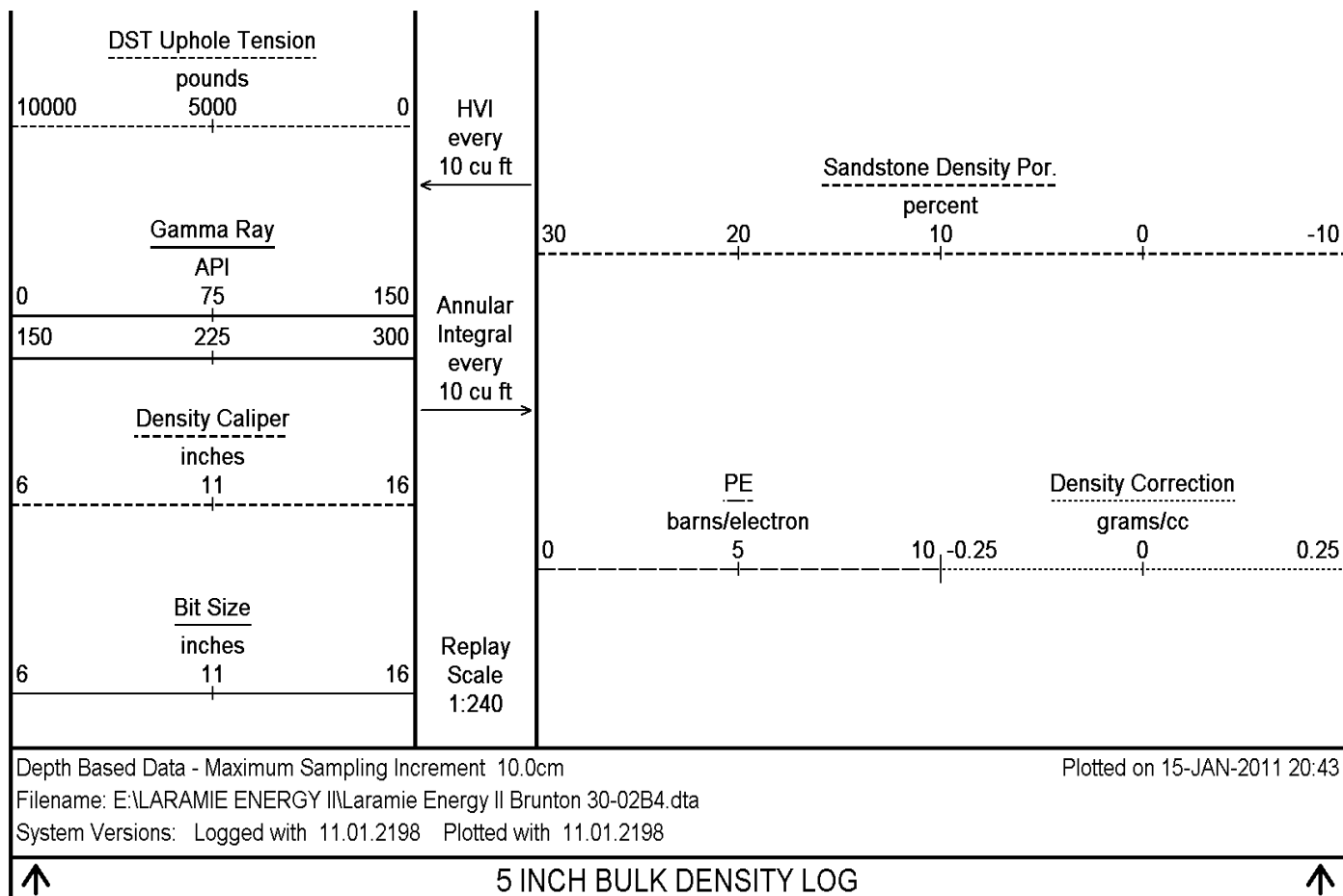
PE →

Compensated Density →

Density Correction →







BEFORE SURVEY CALIBRATION			
E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B.dta			
General Constants All 000		Last Edited on 15-JAN-2011,10:00	
General Parameters			
Mud Resistivity	2.730	ohm-metres	
Mud Resistivity Temperature	65.000	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 0		Field Calibration on 15-JAN-2011 12:18	
Reading No	Measured	Calibrated (lbs)	
1	14531.91	0.00	
2	16112.13	370.00	
High Resolution Temperature Calibration MCG-C 145			

			Field Calibration on 17-NOV-2010,12:09	
Lower	Measured	50.00	Calibrated(Deg F)	50.00
Upper		75.00		75.00
High Resolution Temperature Constants MCG-C 145			Last Edited on 24-NOV-2009,08:49	
Pre-filter Length		11		
SP Calibration MCG-C 145			Field Calibration on 27-DEC-2010 14:53	
	Measured		Calibrated (mV)	
Reference 1	103.2		100.1	
Reference 2	-96.7		-100.1	
Gamma Calibration MCG-C 145			Field Calibration on 12-JAN-2011 11:33	
	Measured		Calibrated (API)	
Background	81		58	
Calibrator (Gross)	753		538	
Calibrator (Net)	672		480	
Gamma Constants MCG-C 145			Last Edited on 15-JAN-2011,08:50	
Gamma Calibrator Number	GRCC 112			
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 191			Base Calibration on 22-DEC-2010 16:27	
			Field Check on 12-JAN-2011 11:40	
Base Calibration				
	Measured		Calibrated (cps)	
	Near Far	Near Far		
	2878 90	3714 110		
Ratio	32.150		33.764	
Field Calibrator at Base			Calibrated (cps)	
			1662 2415	
Ratio			0.688	
Field Check			Calibrated (cps)	
			1658 2417	
Ratio			0.686	
Neutron Constants MDN-B.A 191			Last Edited on 15-JAN-2011,08:49	
Neutron Source Id	P44382B			
Neutron Jig Number	6531NK			
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			

Micro Normal and Micro Inverse Calibration MDN-B.A 191

Base Calibration on 3-MAY-2007 19:21

Field Check on

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	8.2	41.0	10.0	50.0
Micro Inverse	8.2	41.2	10.0	50.0

Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal		0.0		0.0
Micro Inverse		0.0		0.0

Micro Normal and Micro Inverse Constants MDN-B.A 191

Last Edited on 13-FEB-2007,11:14

Pad Type	0
Micro Normal K Factor	1.0000
Micro Inverse K Factor	1.0000
Standoff Offset	N/A inches

FE Calibration MFE-B.A 220

Base Calibration on 27-DEC-2010 16:26

Field Check on 12-JAN-2011 11:28

Base Calibration

	Measured		Calibrated (ohm-m)	
	Reference 1	Reference 2		
		0.0		0.0
		964.5		126.8

Base Check	280.9
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Field Check	281.1
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FE Constants MFE-B.A 220

Last Edited on 15-JAN-2011,08:49

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	1.0 inches

Induction Calibration MAI-B.J 362

Base Calibration on 27-DEC-2010,15:17

Field Check on 12-JAN-2011 11:25

Base Calibration

Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel		Low	High	Low	High
1		16.0	468.7	9.3	966.2
2		6.2	374.5	7.6	821.4
3		3.6	258.3	5.2	566.0
4		1.8	133.1	2.6	279.2

Array Temperature	74.8	Deg F
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Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	14.0	3874.1	14.6	3875.2
2	30.3	3606.6	30.4	3606.9
3	28.3	3070.1	28.4	3070.1
4	19.7	2079.7	19.7	2079.7
Deep	17.4	1954.7	17.4	1954.7
Medium	41.1	4078.2	41.1	4078.1
Shallow	45.3	5402.0	45.3	5402.4

Array Temperature	46.1	56.4	Deg F
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Induction Constants MAI-B.J 362

Last Edited on 15-JAN-2011,08:47

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	1.00	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		
High Resolution Temperature Calibration MAI-B.J 362			
	Measured	Calibrated(Deg F)	Field Calibration on 17-NOV-2010,12:11
Lower	10.00	50.00	
Upper	100.00	212.00	
High Resolution Temperature Constants MAI-B.J 362			
			Last Edited on
Pre-filter Length	11		
Caliper Calibration MPD-C.A 215			
			Base Calibration on 07-JAN-2011 01:06
			Field Calibration on 12-JAN-2011 11:19
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	15212	3.99	
2	23984	5.96	
3	32799	7.99	
4	40800	9.86	
5	50187	11.93	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	7.93	7.99	
Photo Density Calibration MPD-C.A 215			
			Base Calibration on 07-JAN-2011 01:23
			Field Check on 12-JAN-2011 11:17

Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
		Near	Far	Near	Far
	Reference 1	43536	15059	52994	19128
	Reference 2	20646	2470	25185	2558
Field Check at Base					
		1316.1	1398.6		
Field Check					
		1314.3	1384.5		
PE Calibration					
Base Calibration		Measured		Calibrated	
	WS	WH	Ratio	Ratio	
	Background	239	1177		
	Reference 1	14681	43360	0.342	0.309
	Reference 2	5763	20497	0.286	0.274
Field Check at Base					
	239.0	1176.6			
Field Check					
	240.0	1176.9			

Density Constants MPD-C.A 215			Last Edited on 15-JAN-2011,08:48		
Density Source Id			2859GW		
Nylon Calibrator Number			DNC-E-527		
Aluminium Calibrator Number			DAC-D-527		
Density Shoe Profile			8 inch		
Caliper Source for Processing			Density Caliper		
PE Correction to Density			Not Applied		
Mud Density			1.31	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		

DOWNHOLE EQUIPMENT	
E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B.dta	
<div> <div> <div>MCB-A.A 11B Tension Cablehead</div> <div>MCB-A.A 102 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in</div> </div> <div> <div>SHA-F Compact Swivel Head Adaptor</div> <div>SHA-F 38 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in</div> </div> </div>	

Compact Comms Gamma

MCG-C 145 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Neutron

MDN-B.A 191 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-C.A 215 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint

SKJ-D.A 66 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

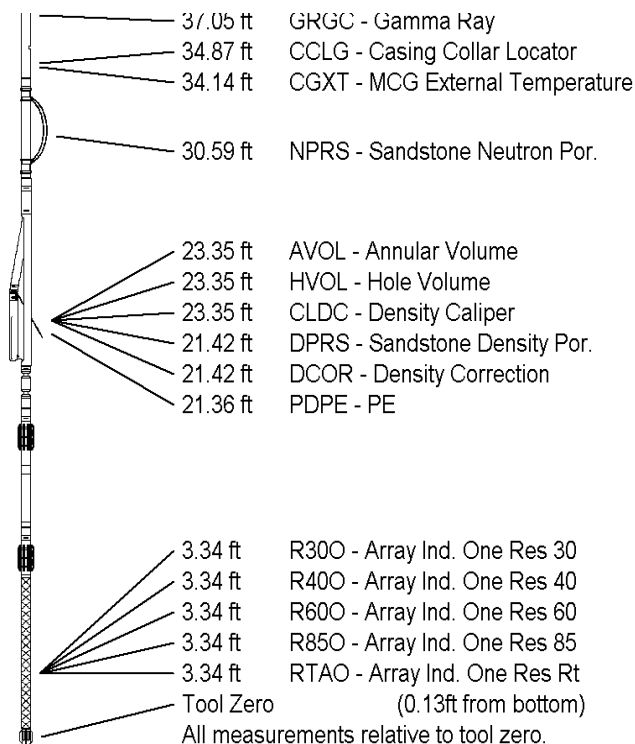
Compact Focussed Electric

MFE-B.A 220 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-B.J 362 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 47.47 ft Weight: 372.6 lb



COMPANY LARAMIE ENERGY II
WELL BRUNTON 30-02B
FIELD VEGA
PROVINCE/COUNTY MESA
COUNTRY/STATE U.S.A. / COLORADO

Elevation Kelly Bushing	7366.00	feet	First Reading	7891.00	
Elevation Drill Floor	7365.00	feet	Depth Driller	7910.00	feet
Elevation Ground Level	7345.00	feet	Depth Logger	7913.00	feet



Weatherford®

COMPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON
LOG

