

**Weatherford****CML MESSENGER SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG**

COMPANY SANDRIDGE ENERGY

WELL SEAN 3119 3-18H

FIELD ARLIE NE

PROVINCE/COUNTY COMANCHE

COUNTRY/STATE U.S.A. / KANSAS

LOCATION 225' FNL & 1980' FEL

SEC TWP RGE Other Services
19 31S 18W MAI

API Number 15-033-21686

Permit Number

Permanent Datum G.L., Elevation 2142 feet

Log Measured From KB

Drilling Measured From K.B. @ 20 FEET

Date 02-FEB-2013

Run Number ONE

Service Order 3539535

Depth Driller 9971.00 feet

Depth Logger 9971.00 feet

First Reading 9918.00 feet

Last Reading 5050.00 feet

Casing Driller 5493.00 feet

Casing Logger 5493.00 inches

Bit Size 6.125

Hole Fluid Type WBM lb/USg

Density / Viscosity 8.60 lb/USg 28.00 CP

PH / Fluid Loss 9.50 9.50

Sample Source FLOWLINE

Rm @ Measured Temp 0.67 @ 74.0 ohm-m

Rmf @ Measured Temp 0.54 @ 74.0 ohm-m

Rmc @ Measured Temp 0.80 @ 74.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 0.38 @ 129.0 ohm-m

Time Since Circulation 1 HOUR

Max Recorded Temp 129.00 deg F

Equipment / Base 18077 OKC

Recorded By STEVEN TOTTEY

Witnessed By JOE HILEMAN

Elevations:
KB 2156.00
DF 2156.00
GL 2136.00**BOREHOLE RECORD**

Last Edited: 02-FEB-2013 11:51

Bit Size inches	Depth From feet	Depth To feet
8.750	0.00	5493.00
6.125	5493.00	9971.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	7.000	0.00	5493.00	24.00

REMARKS

LOGGED WITH WLS 13.04.8492

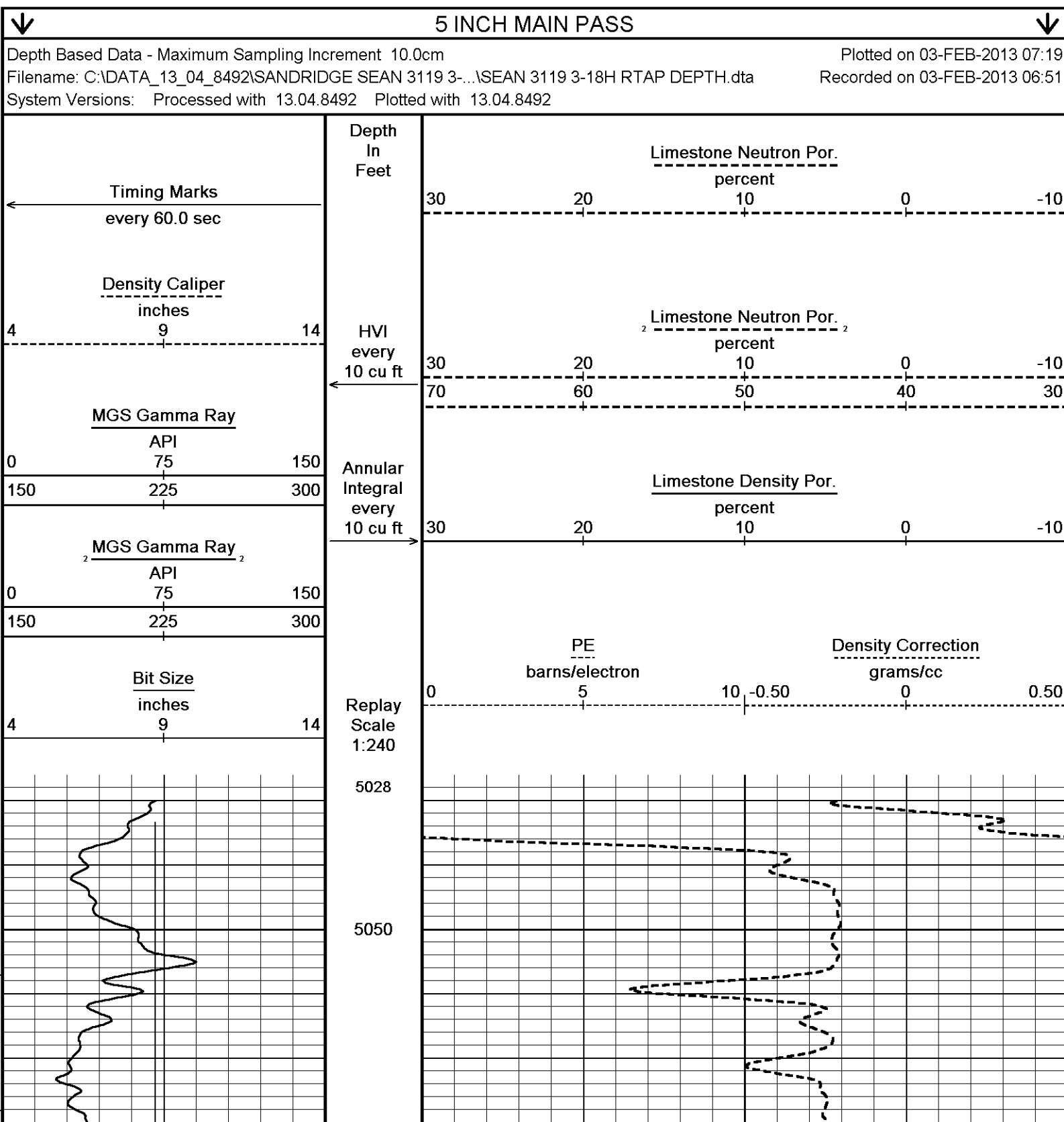
LOGGED USING MESSENGER SHUTTLE METHOD OF DEPLOYMENT AND MEMORY LOGGING SYSTEM
DEPTHS SET BACK TO PIPE STRAP DEPTH AND COMPARED TO MWD DEPTHSTOOLS RAN: SRT-69,SKJ-472,200V MBS-117,MMSE-133,MTI-076, MGS-142,MCL-063,SKJ-479,SHA-451,MIS-608, MDN-391,
MPD-166,MIS-607, SHA-438, SKJ-479,MISB-597, MFE134,MISB 575, MAI-170 RAN IN COMBINATIONHARDWARE: MAI: MIS-B 0.5" STANDOFF USED ABOVE MAI, 0.5" STAND-OFF RAN BELOW MAI
MDN: MIS-A DOUBLE BOWSPRING USED ABOVE MDN.
MPD: 4INCH PROFILE PLATE USED, MIS-A SINGLE BOWSPRING USED BELOW MPDDRILL PIPE DEPTH DURING DEPLOYMENT : 9874
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 99572.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST

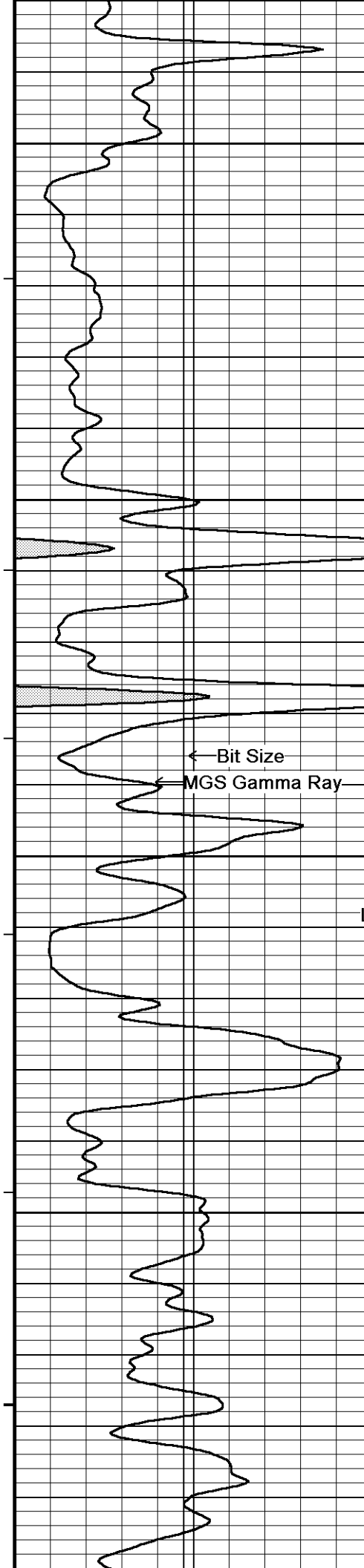
OPERATORS: M SLOBODKIN AND GIL GARCIA

RIG: LARIAT #38

LOG RESPONSES EFFECTED BY HOLE RUGOSITY

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.





5100

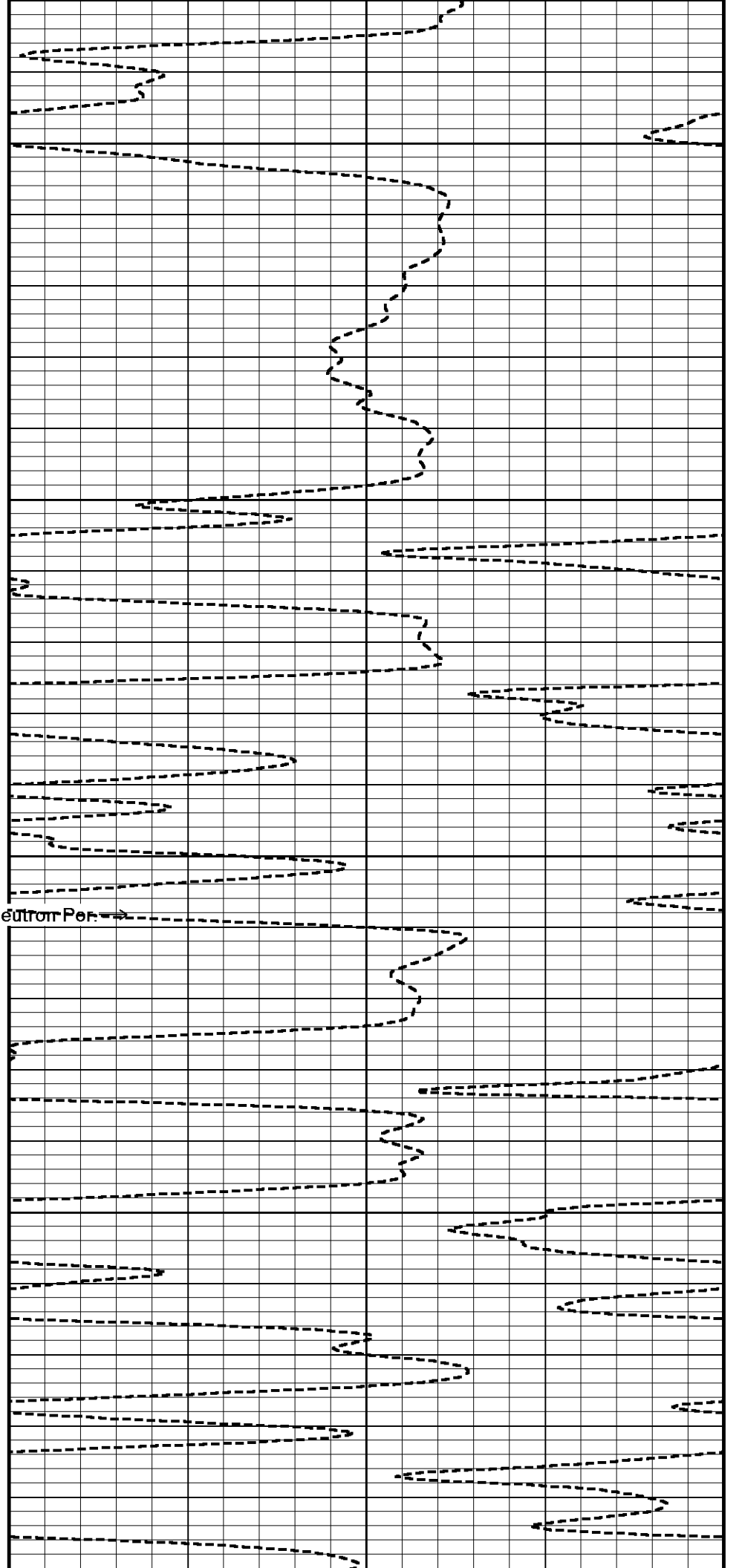
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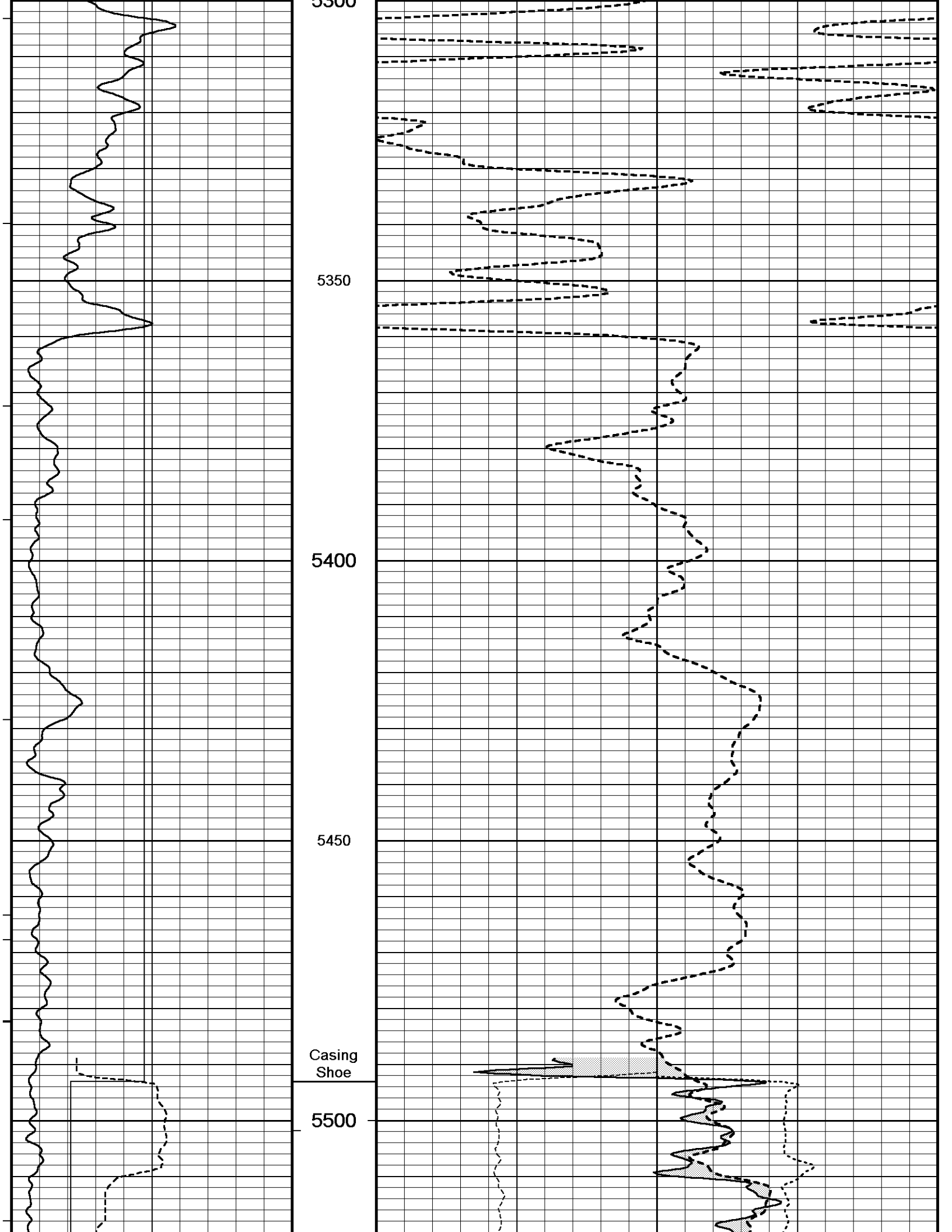
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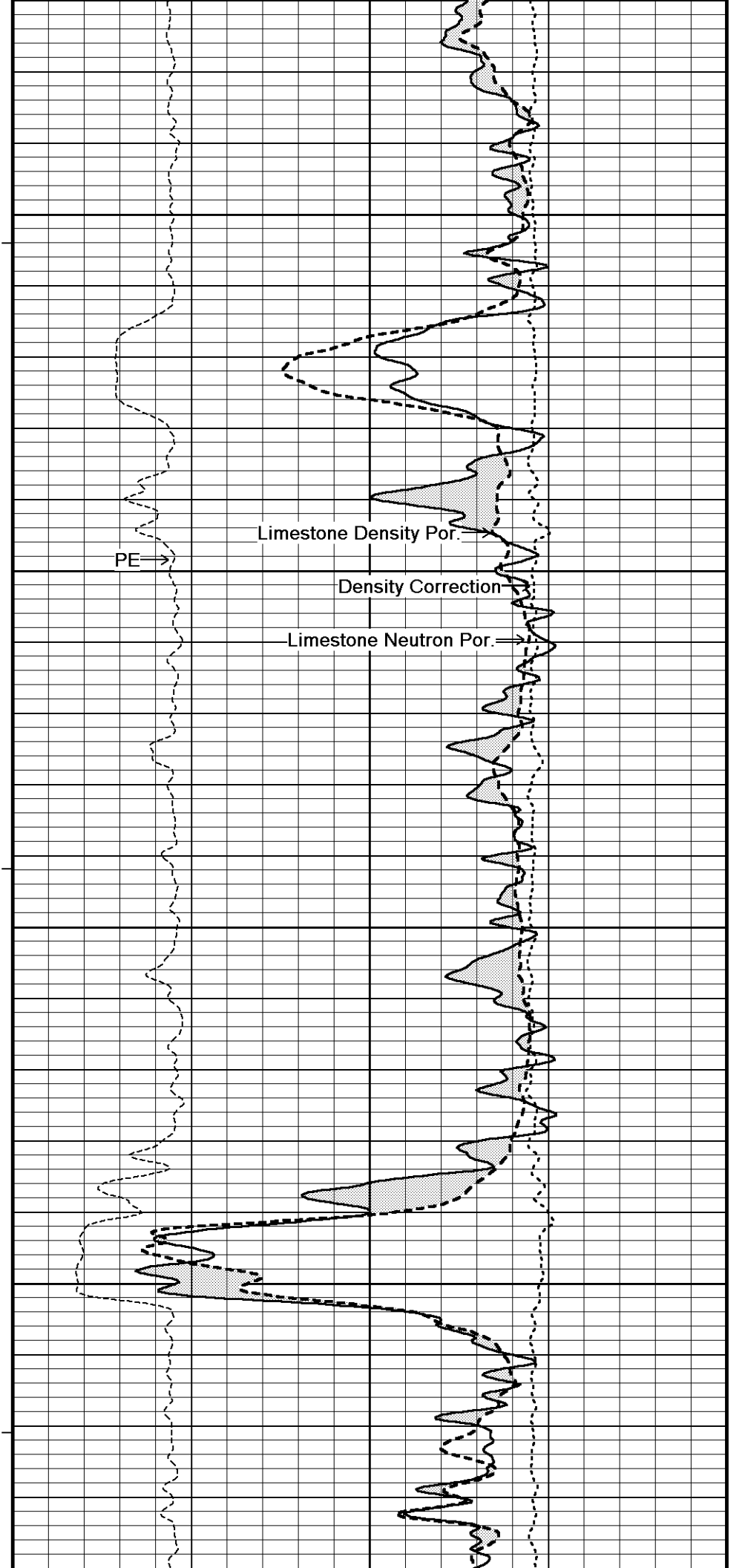
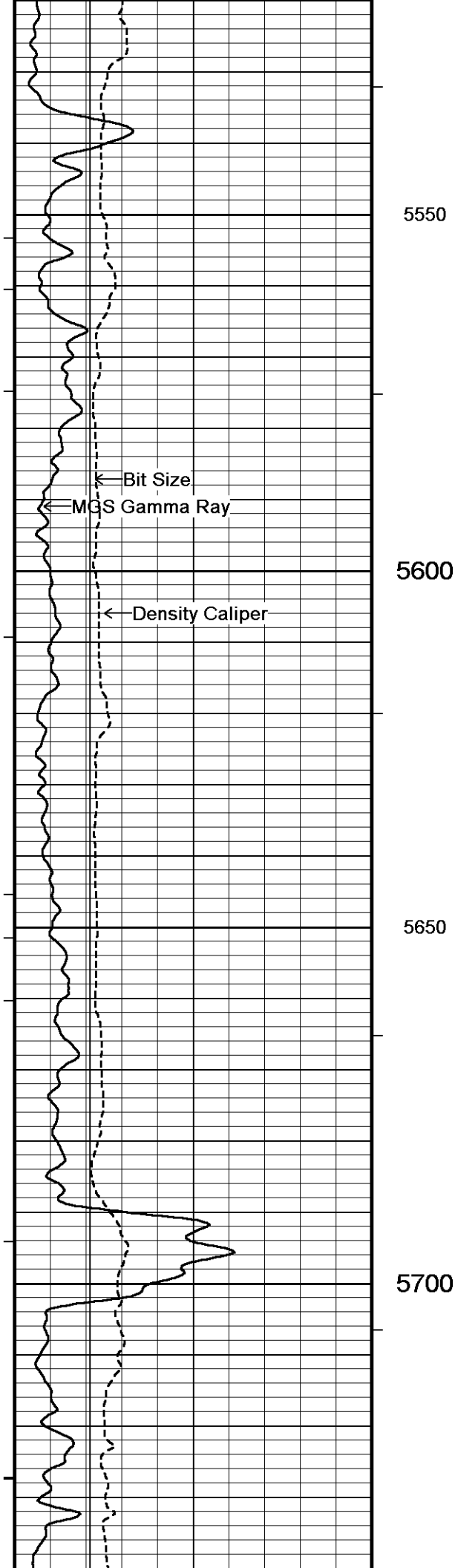
Limestone Neutron Porosity

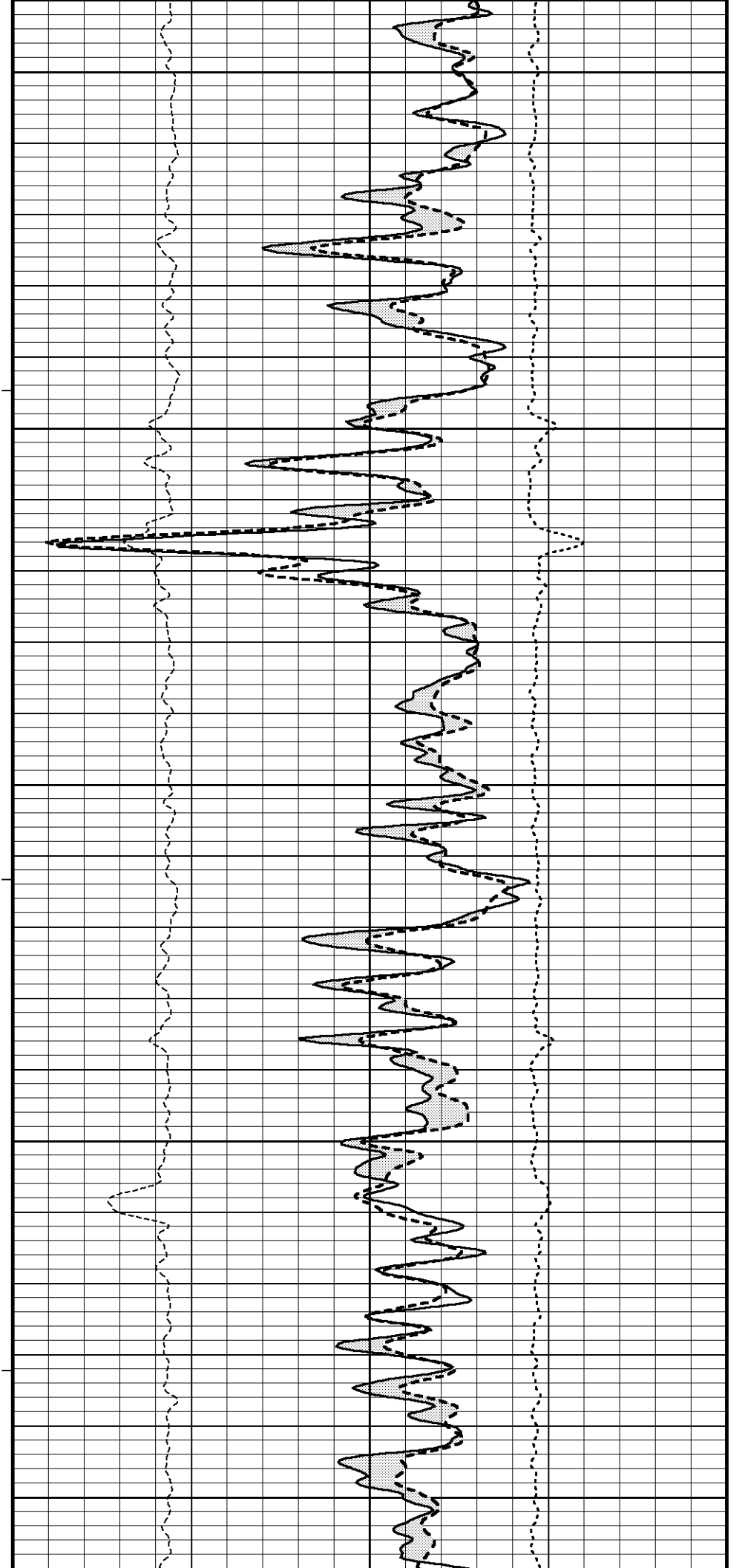
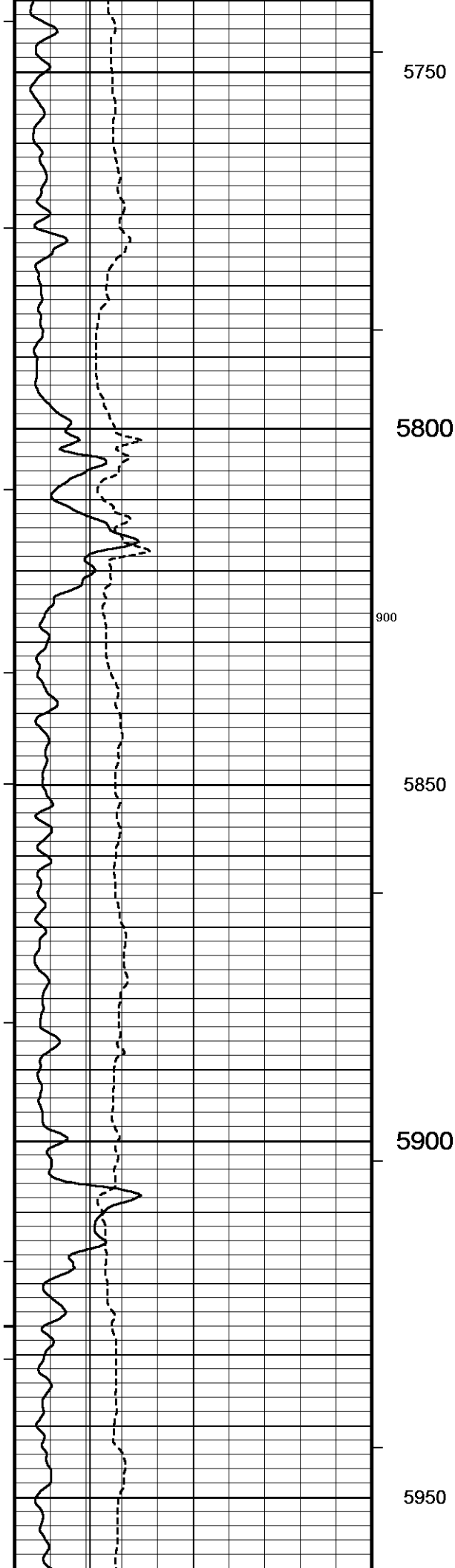
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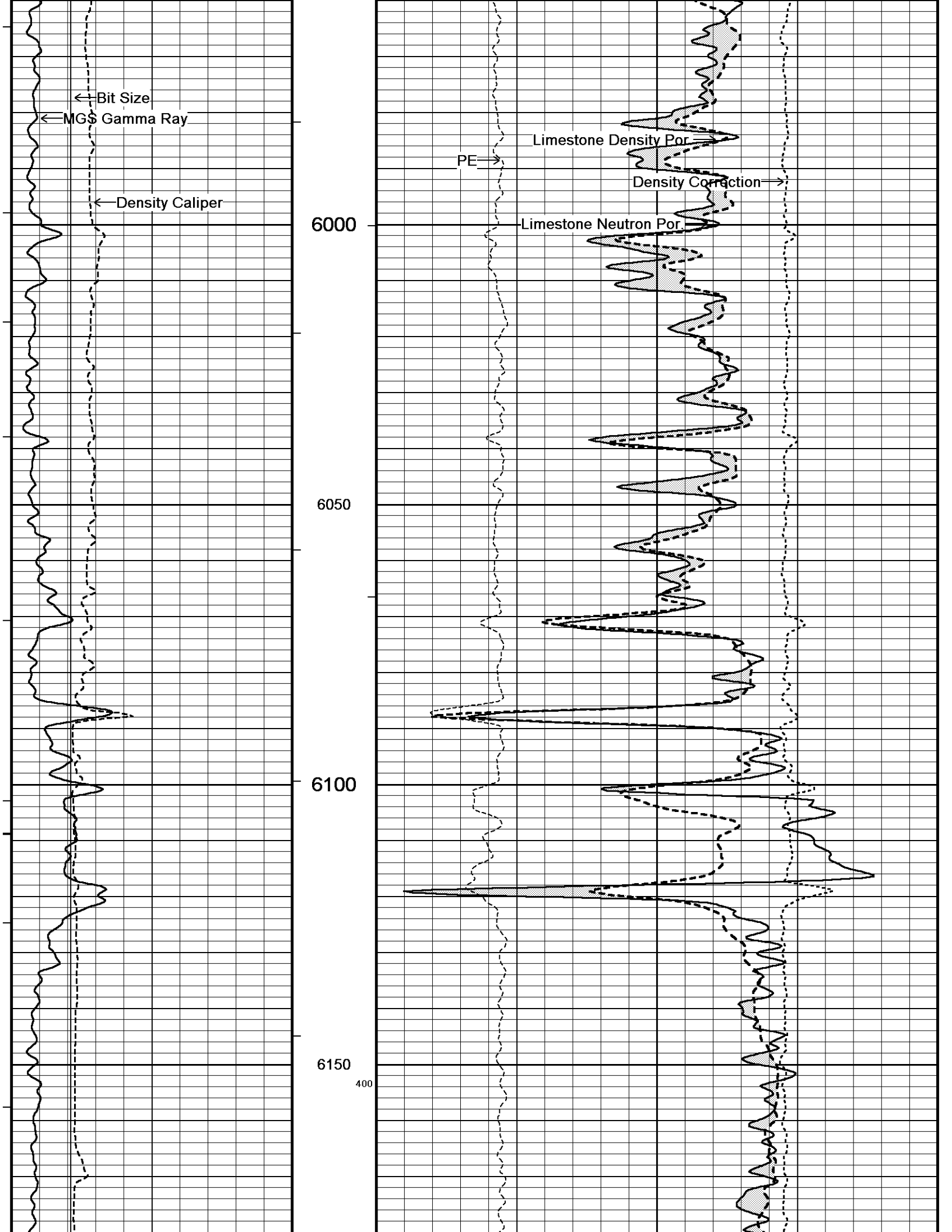
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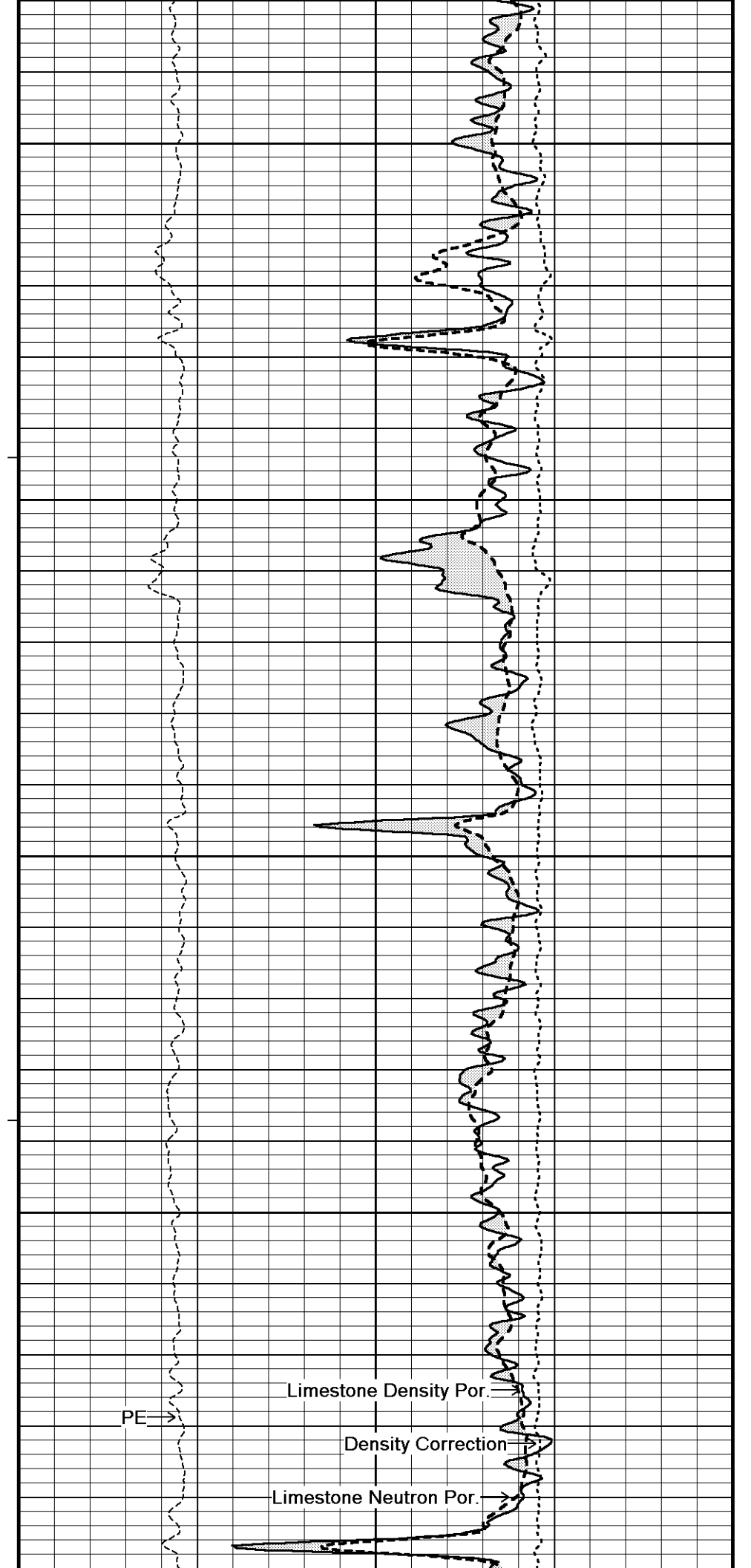
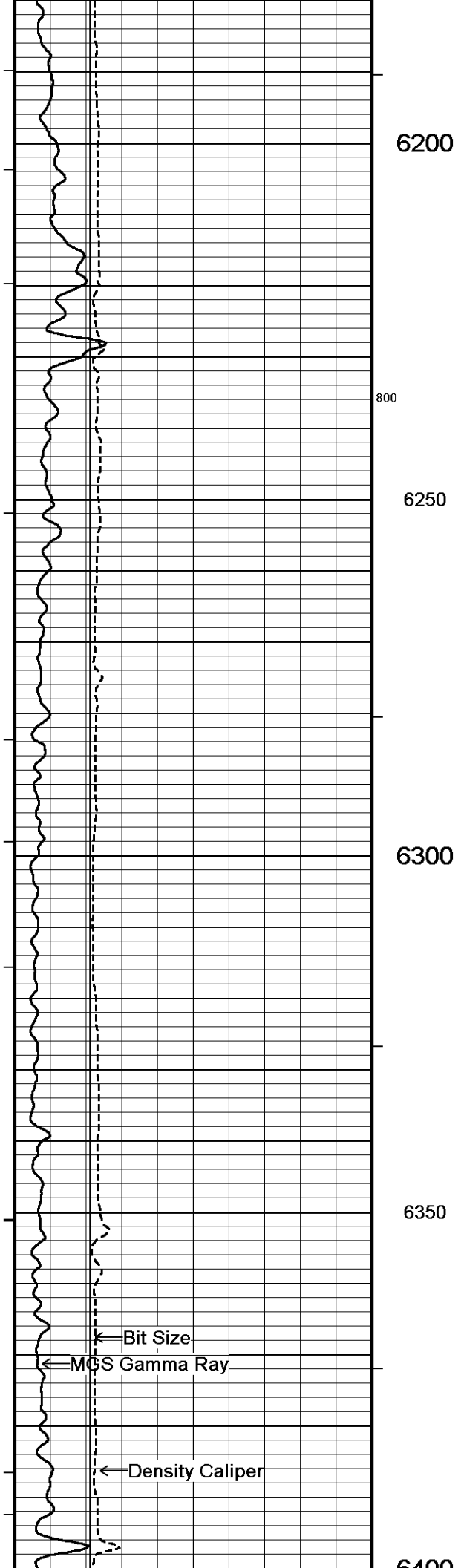


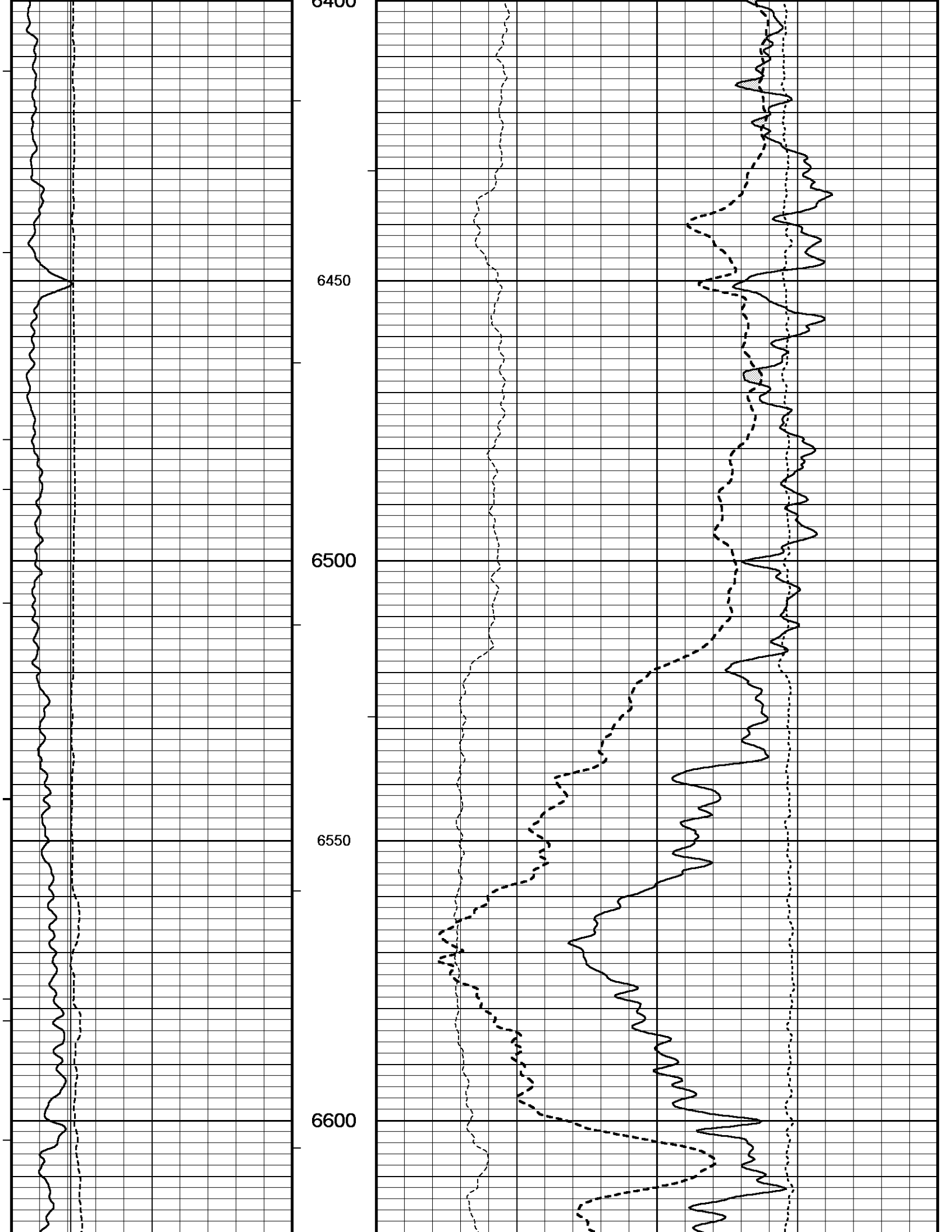


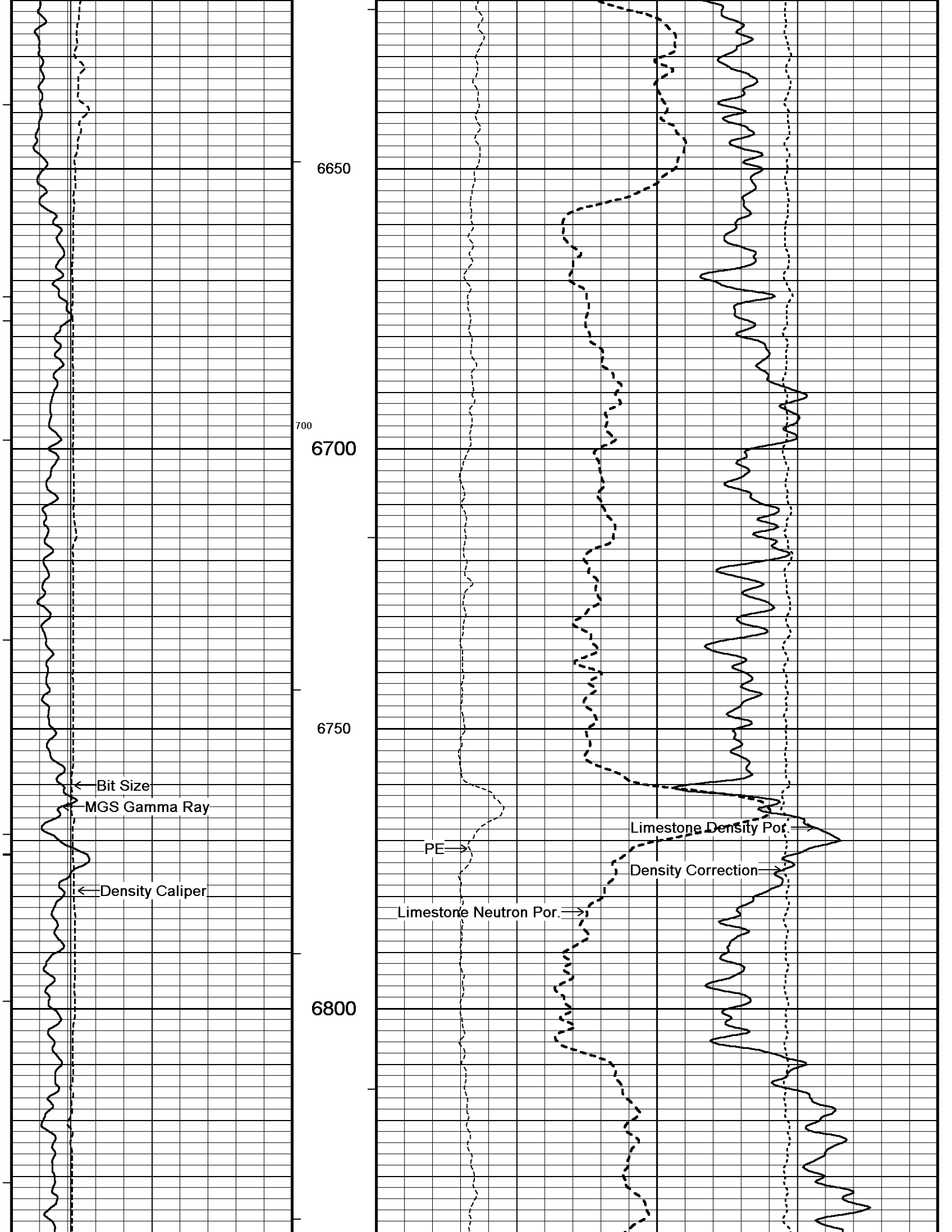


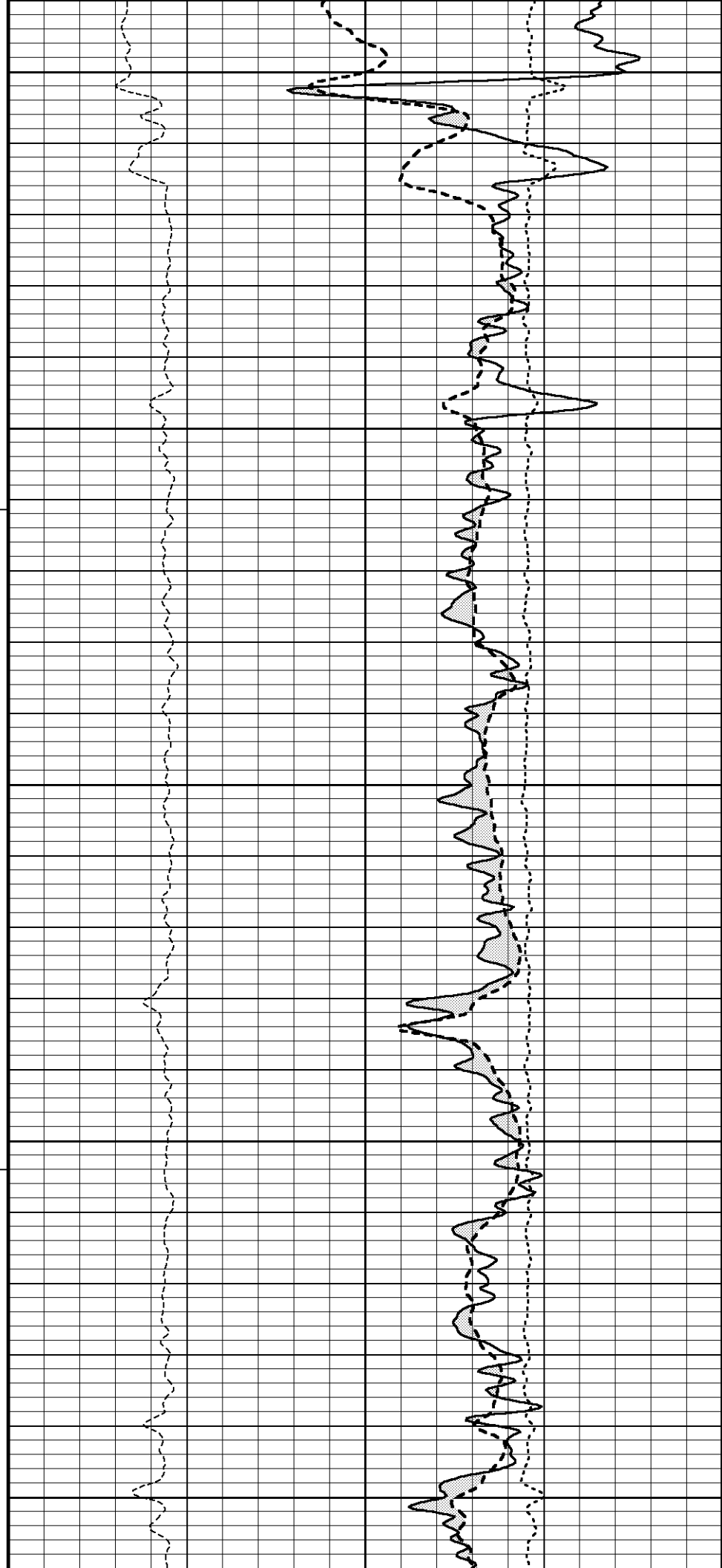
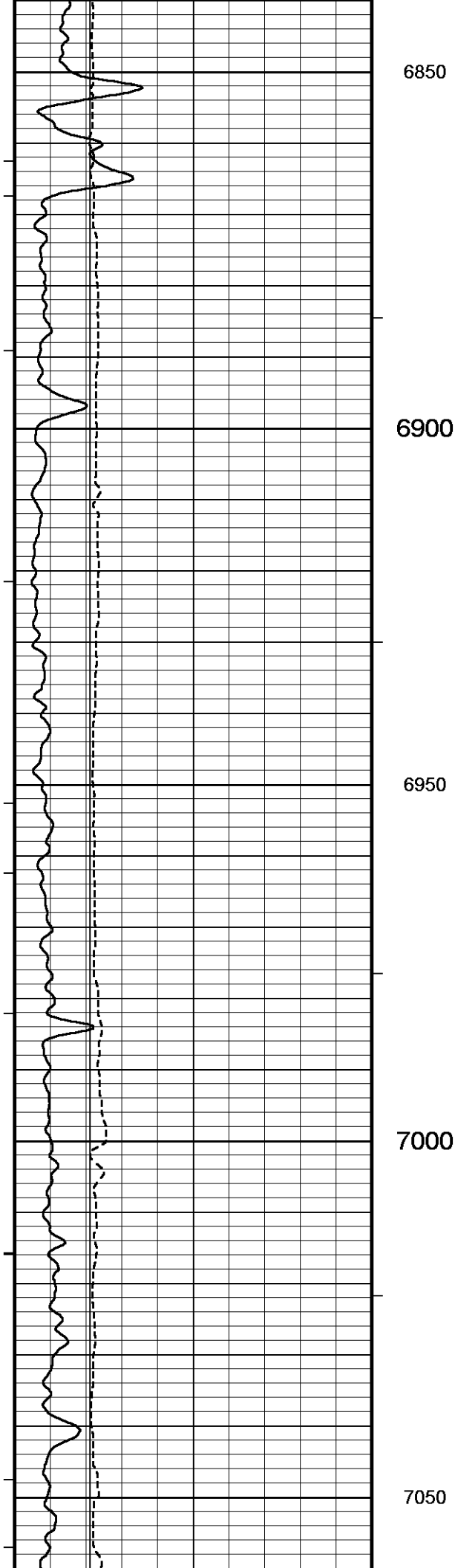


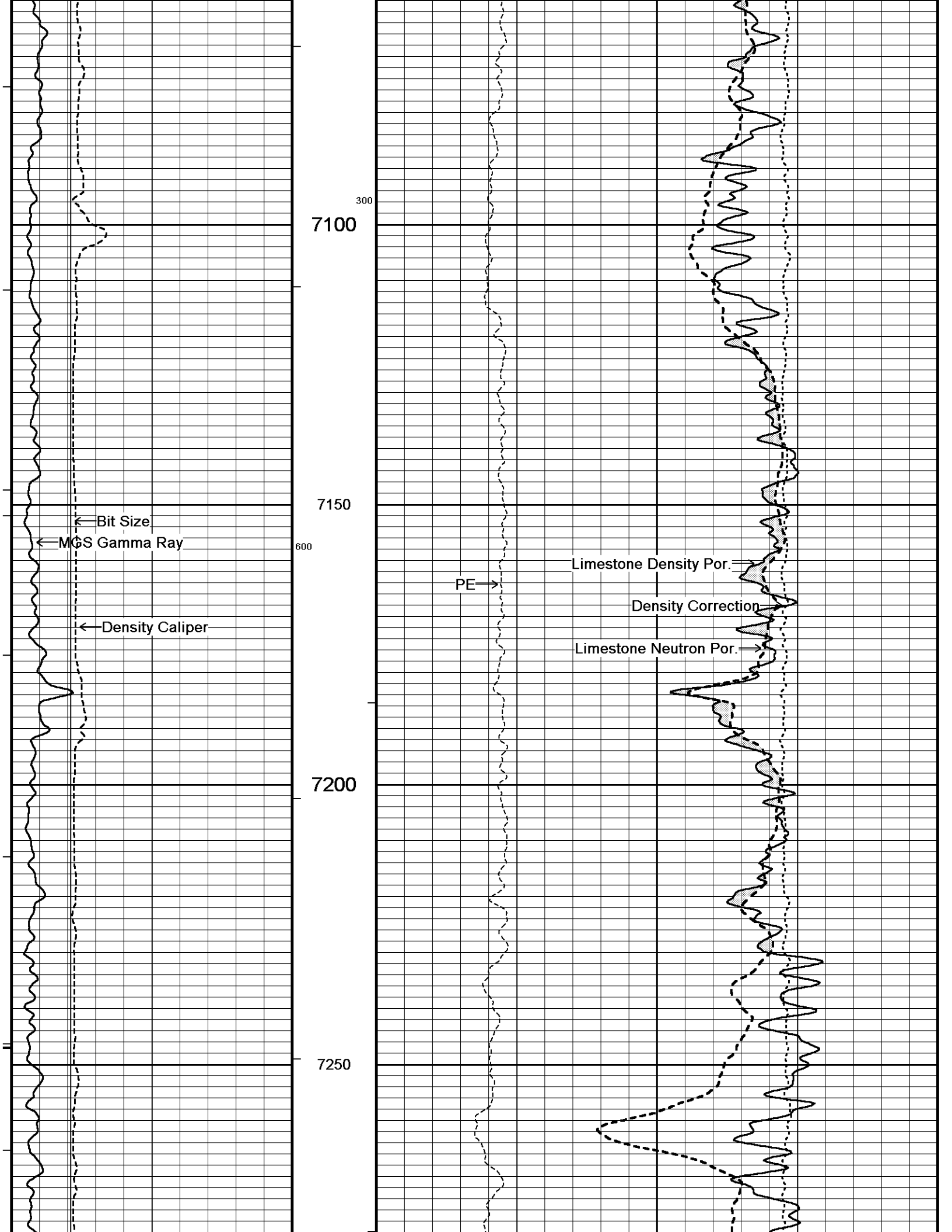


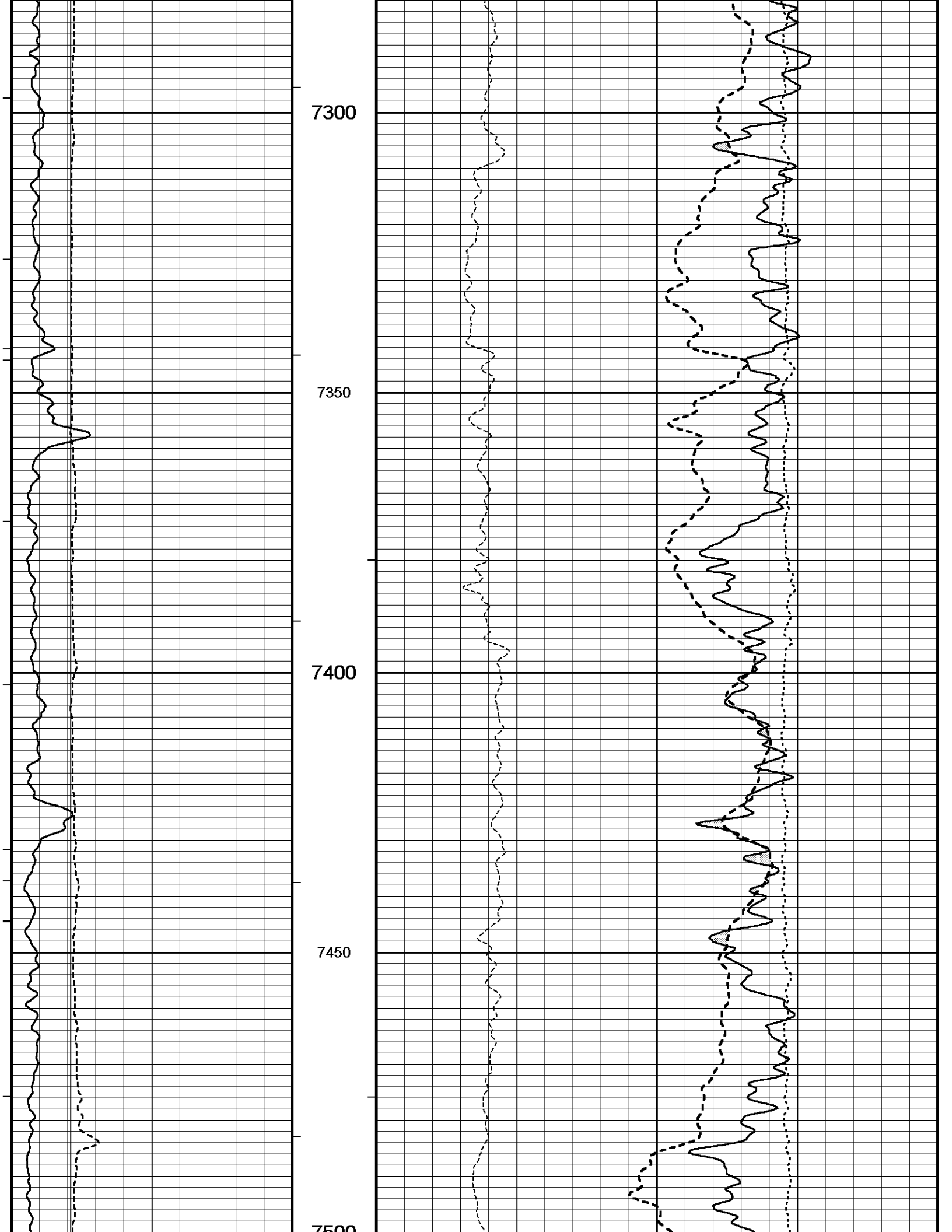


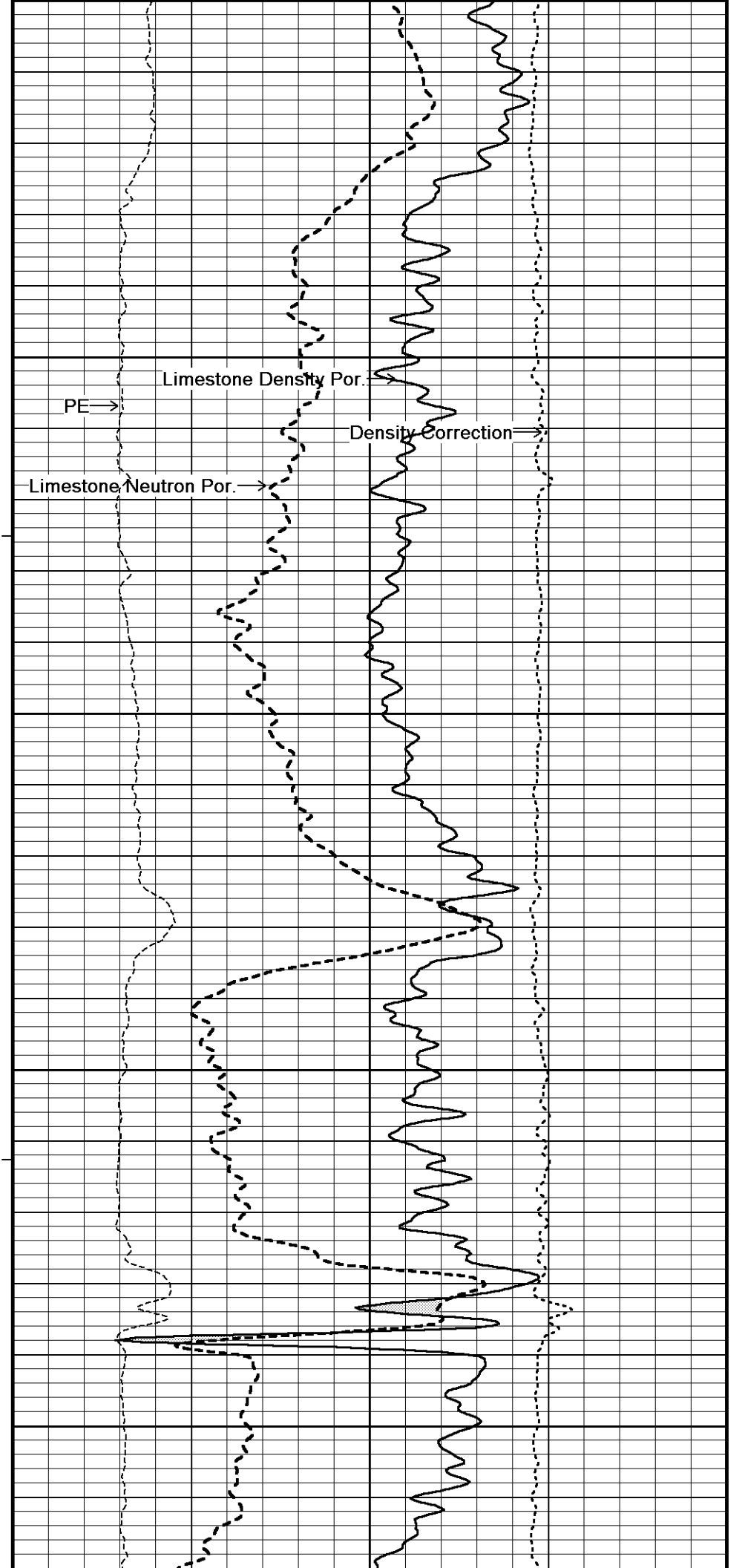
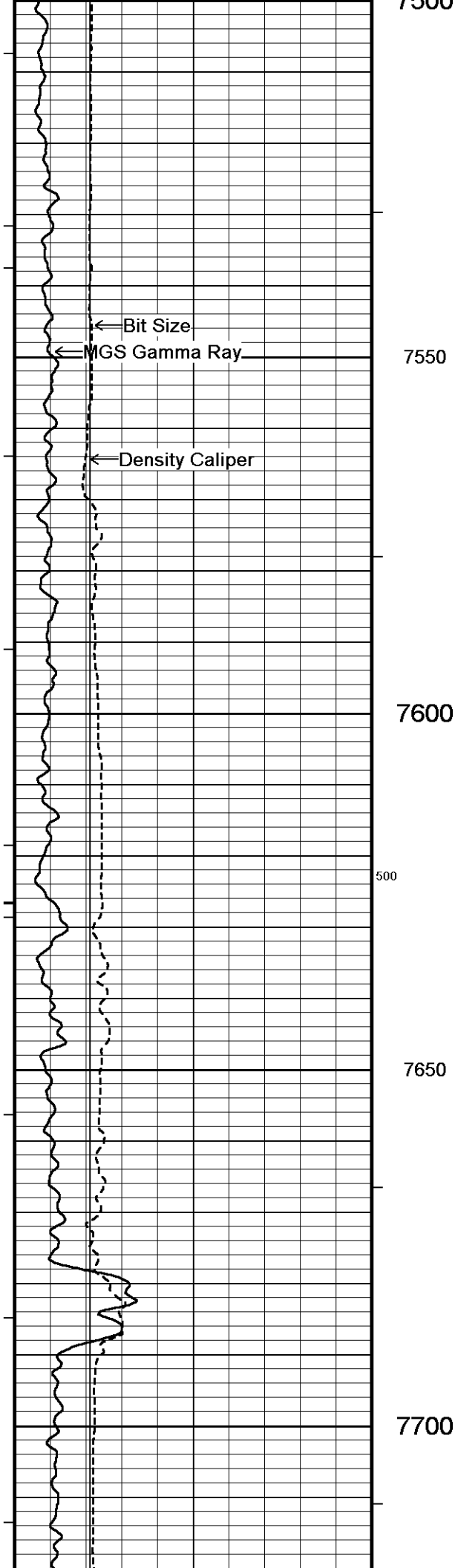


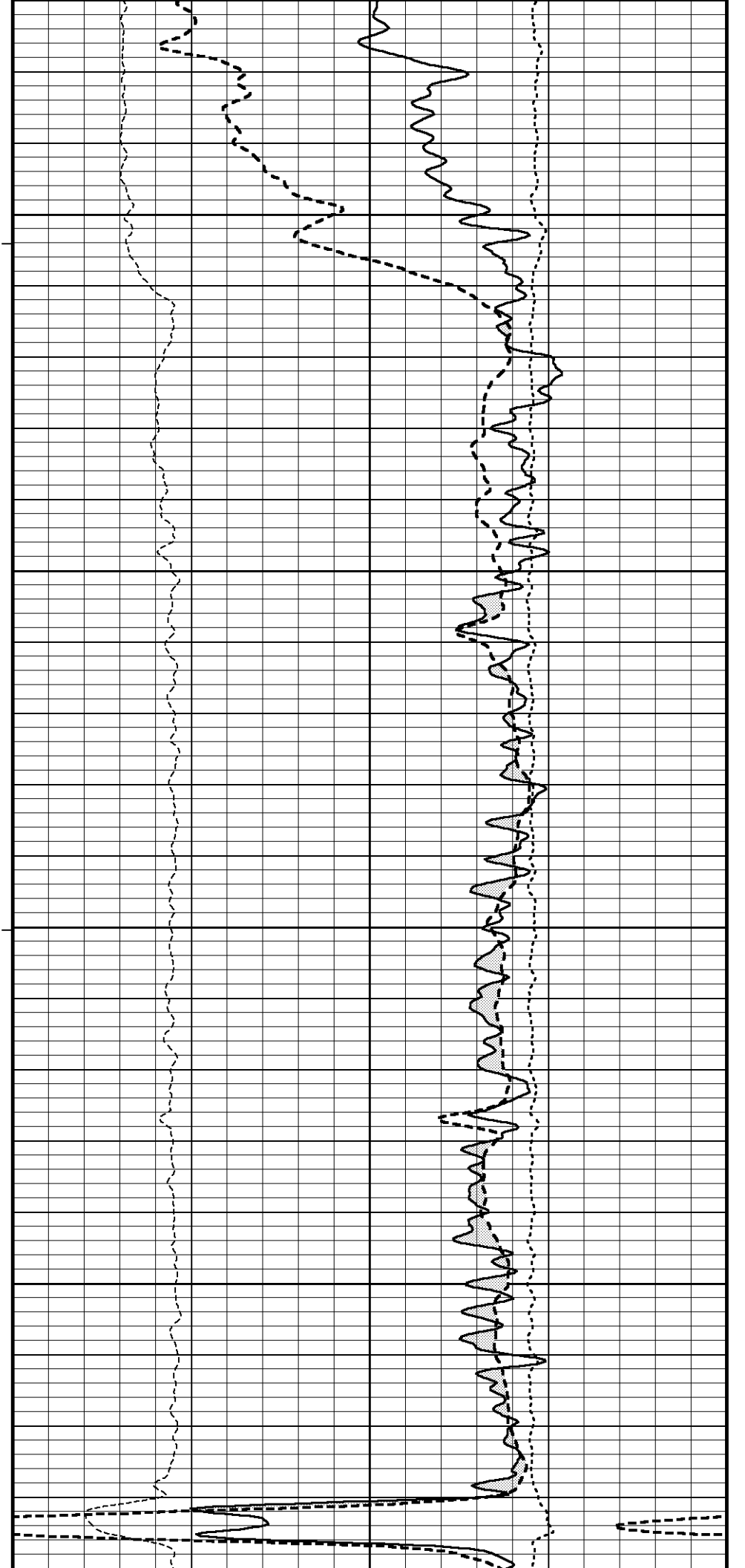
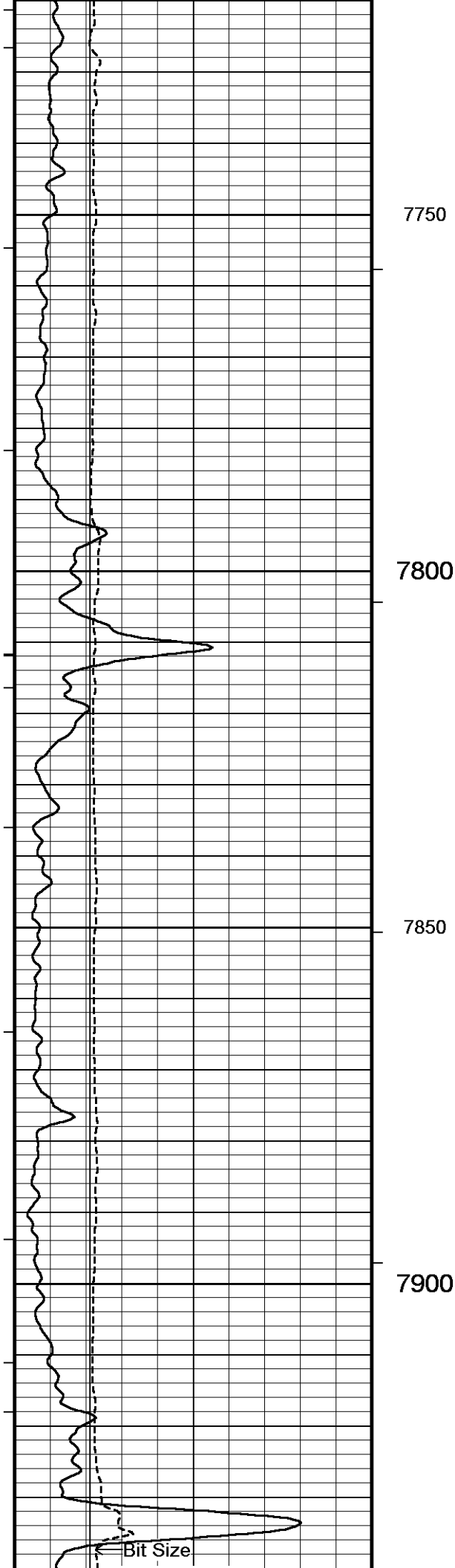


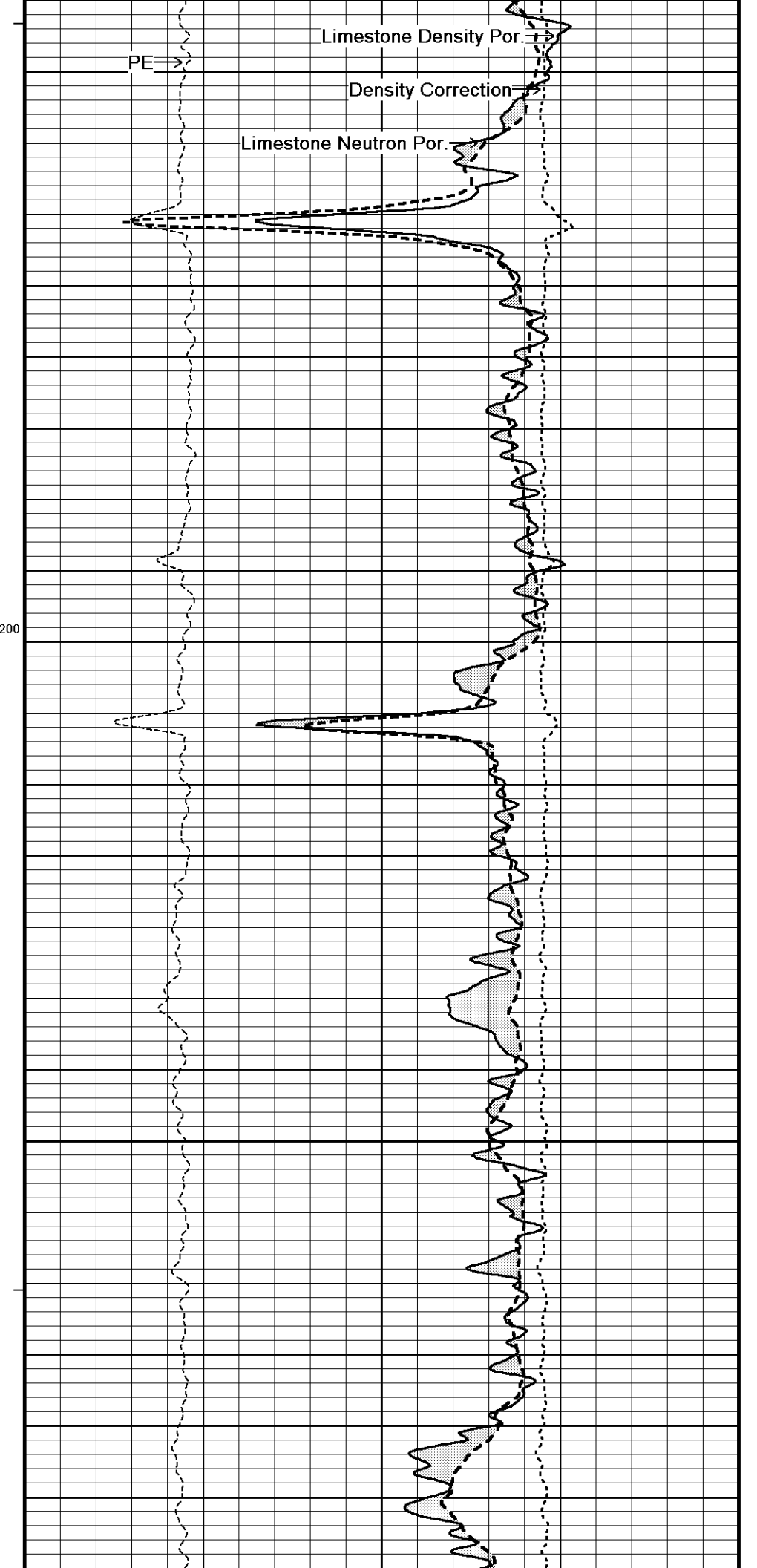
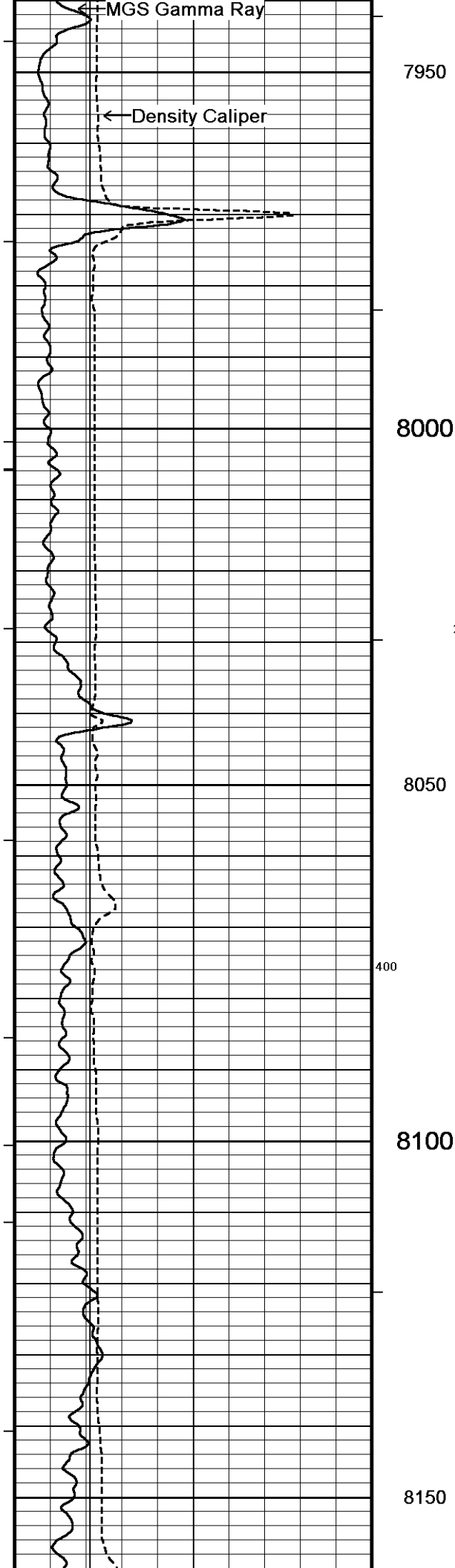


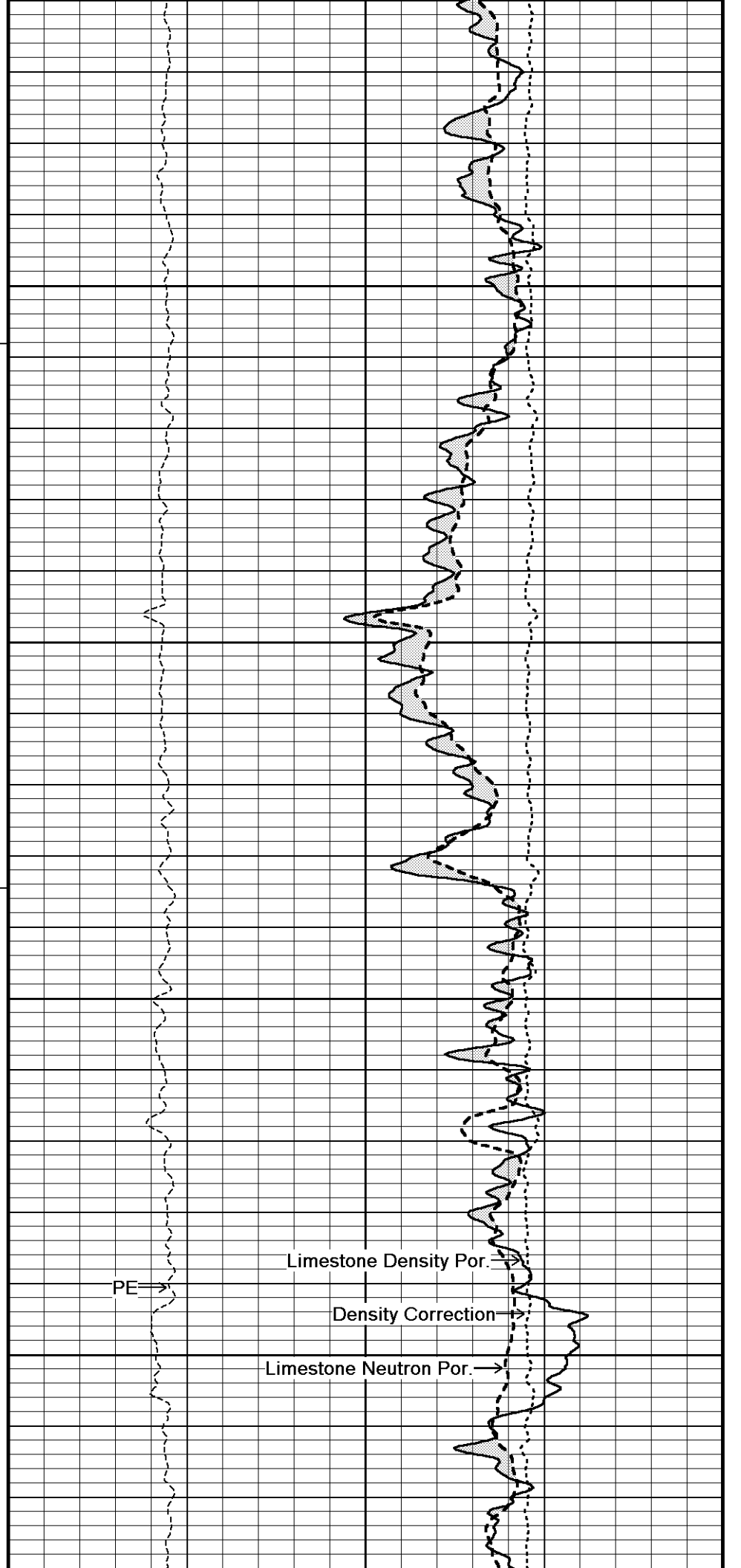
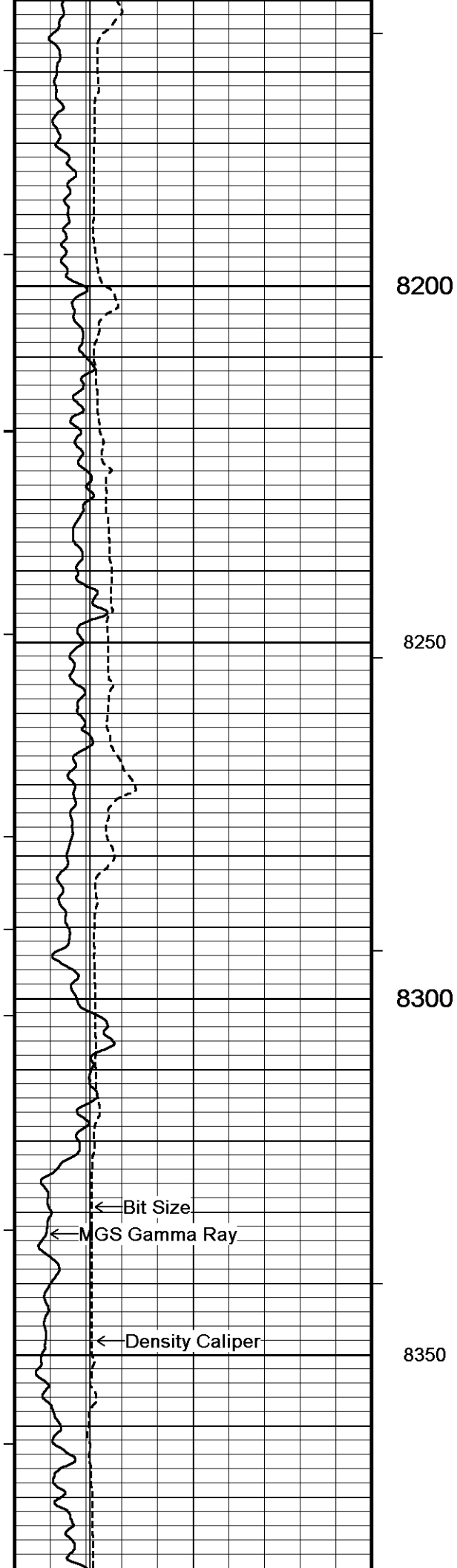


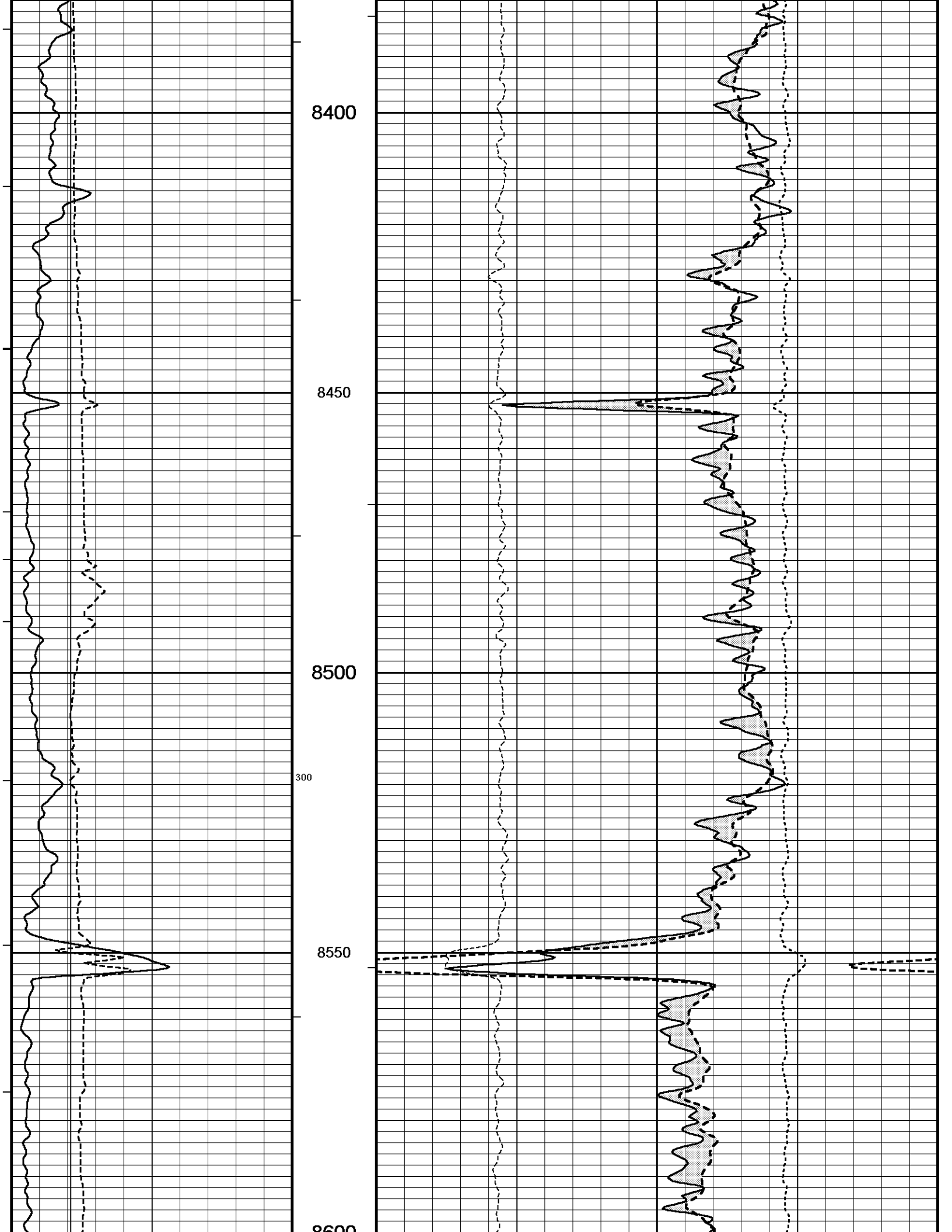


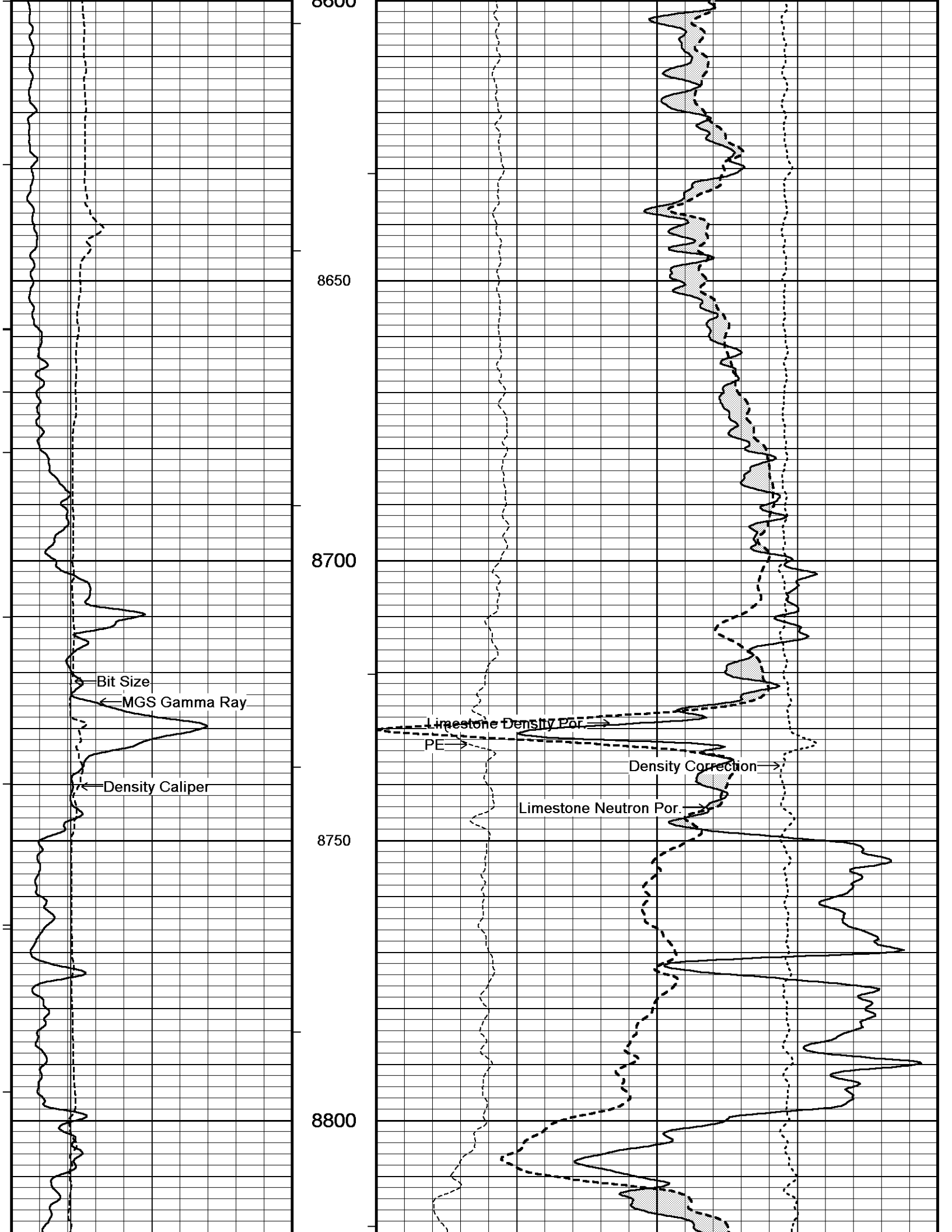


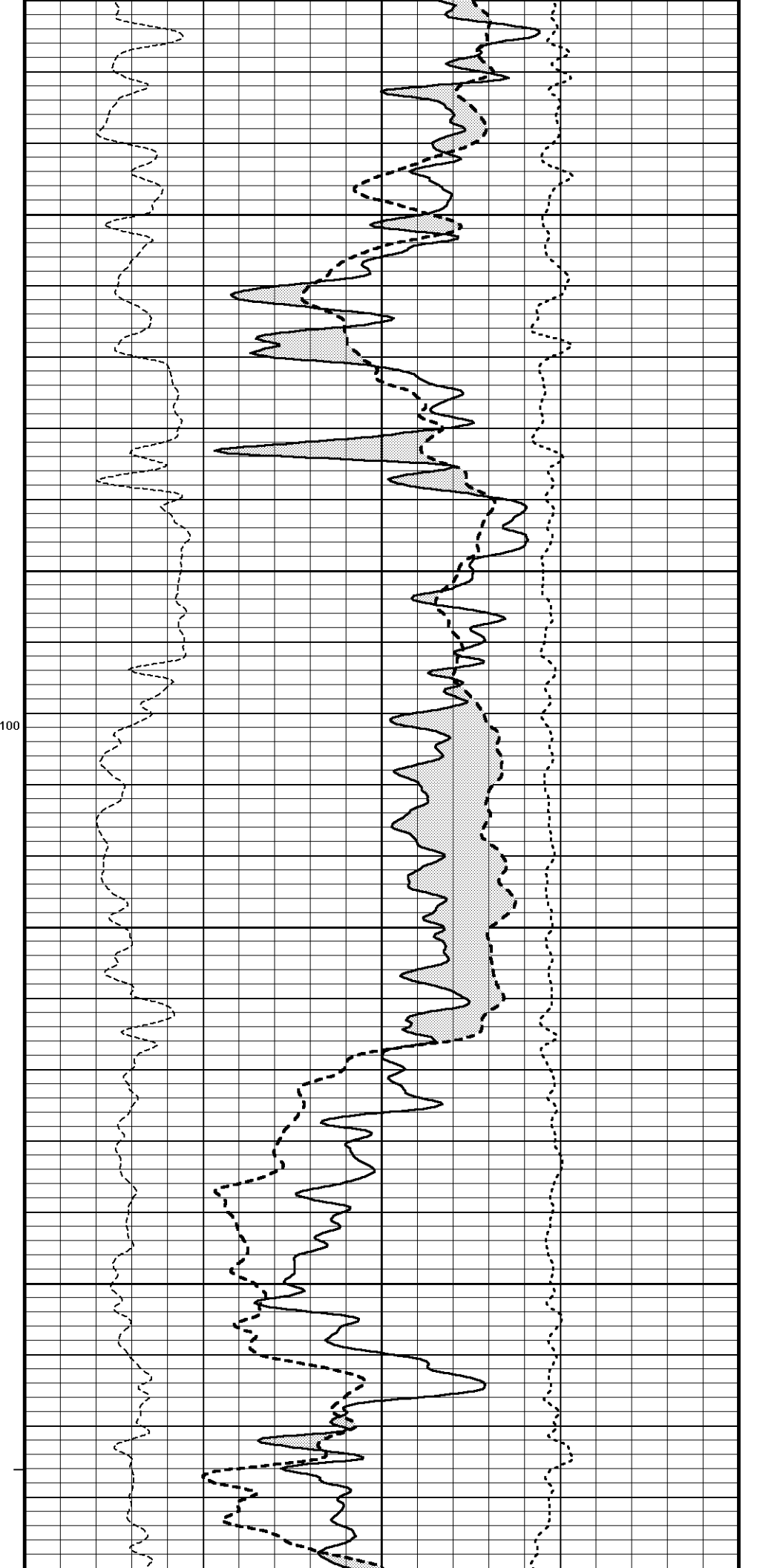
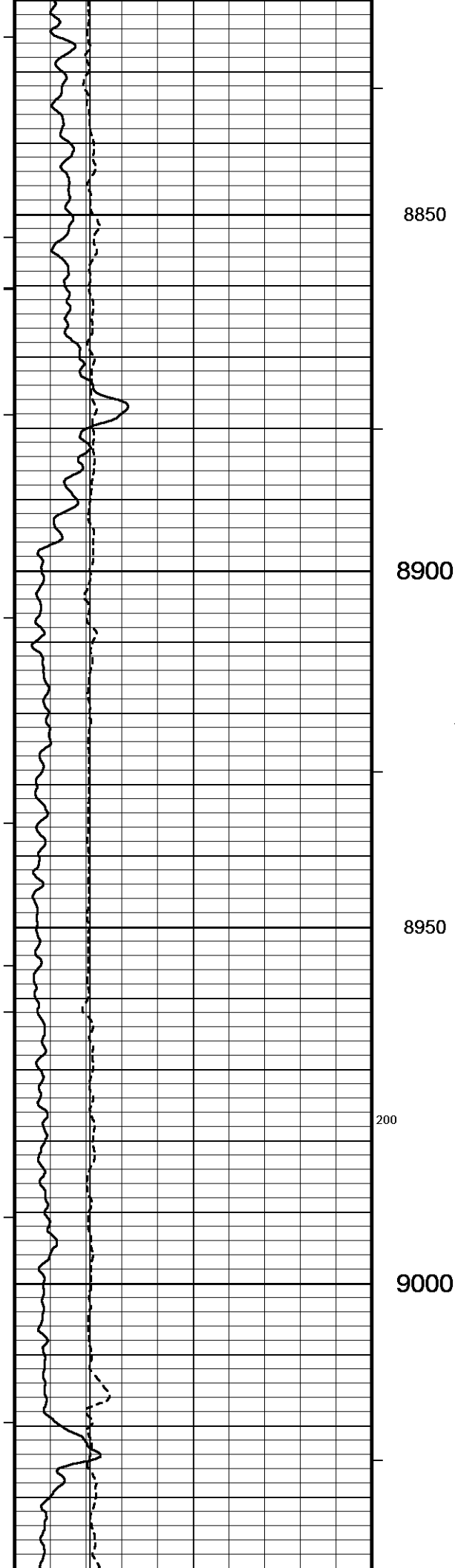


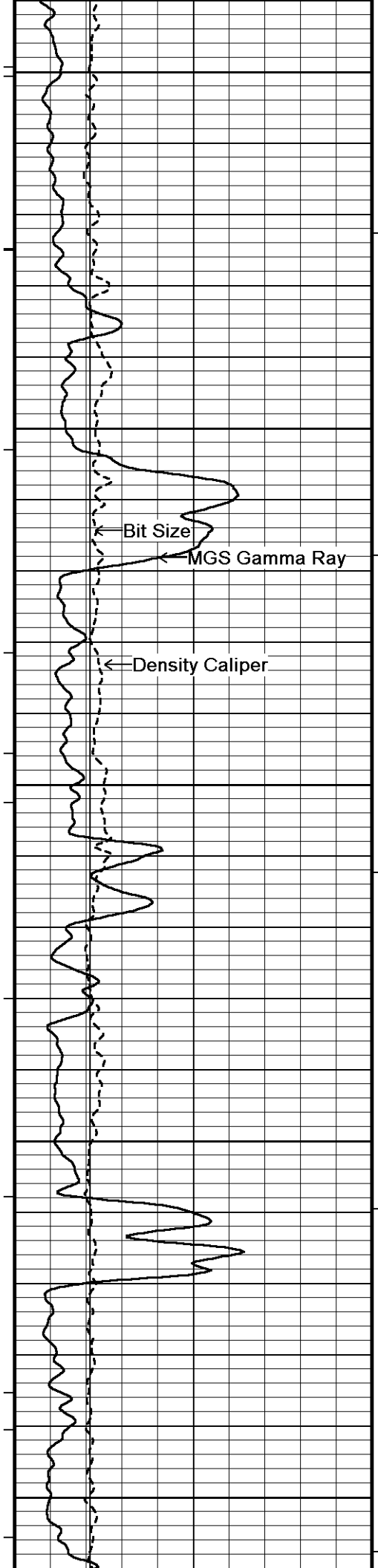












9050

9100

9150

9200

9250

Bit Size

MGS Gamma Ray

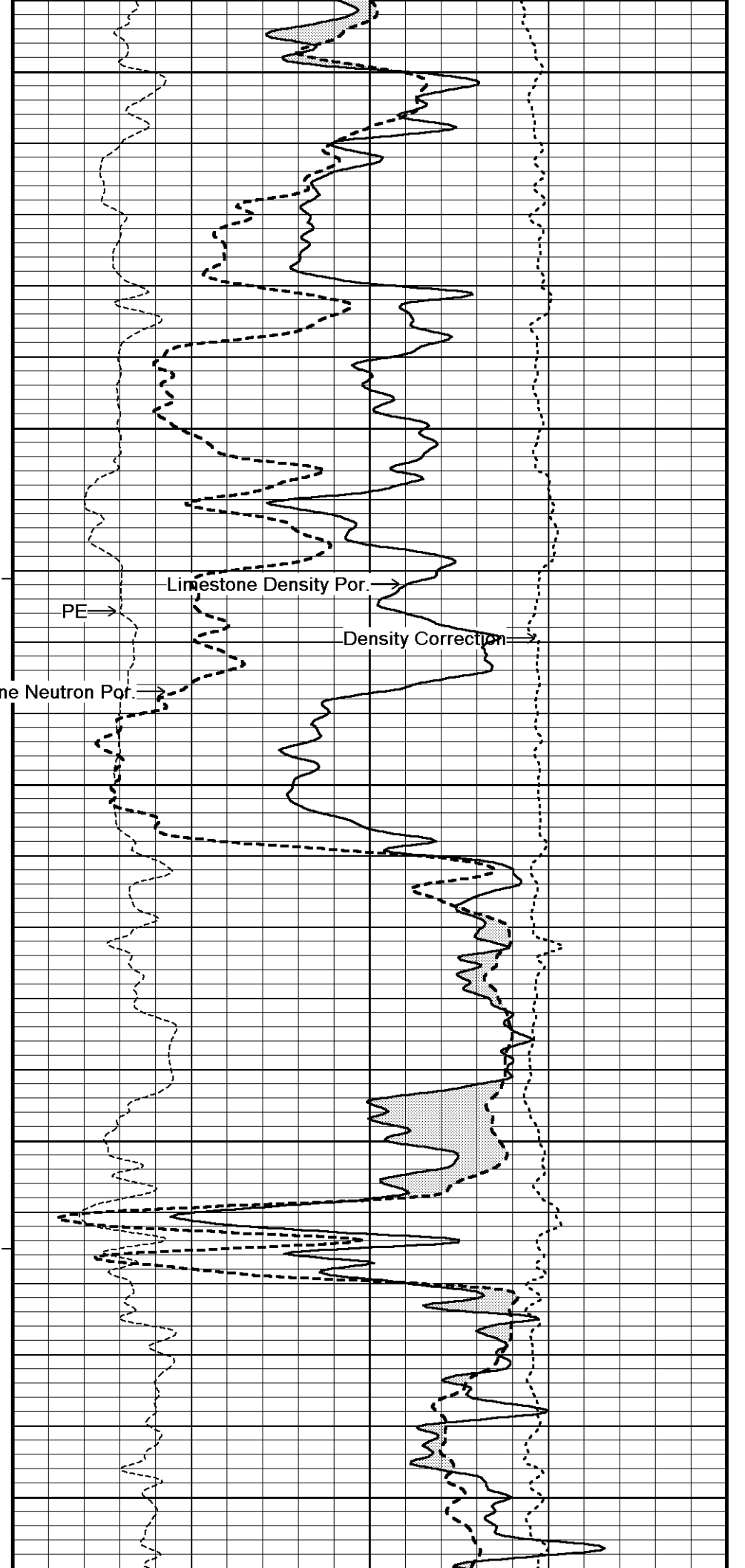
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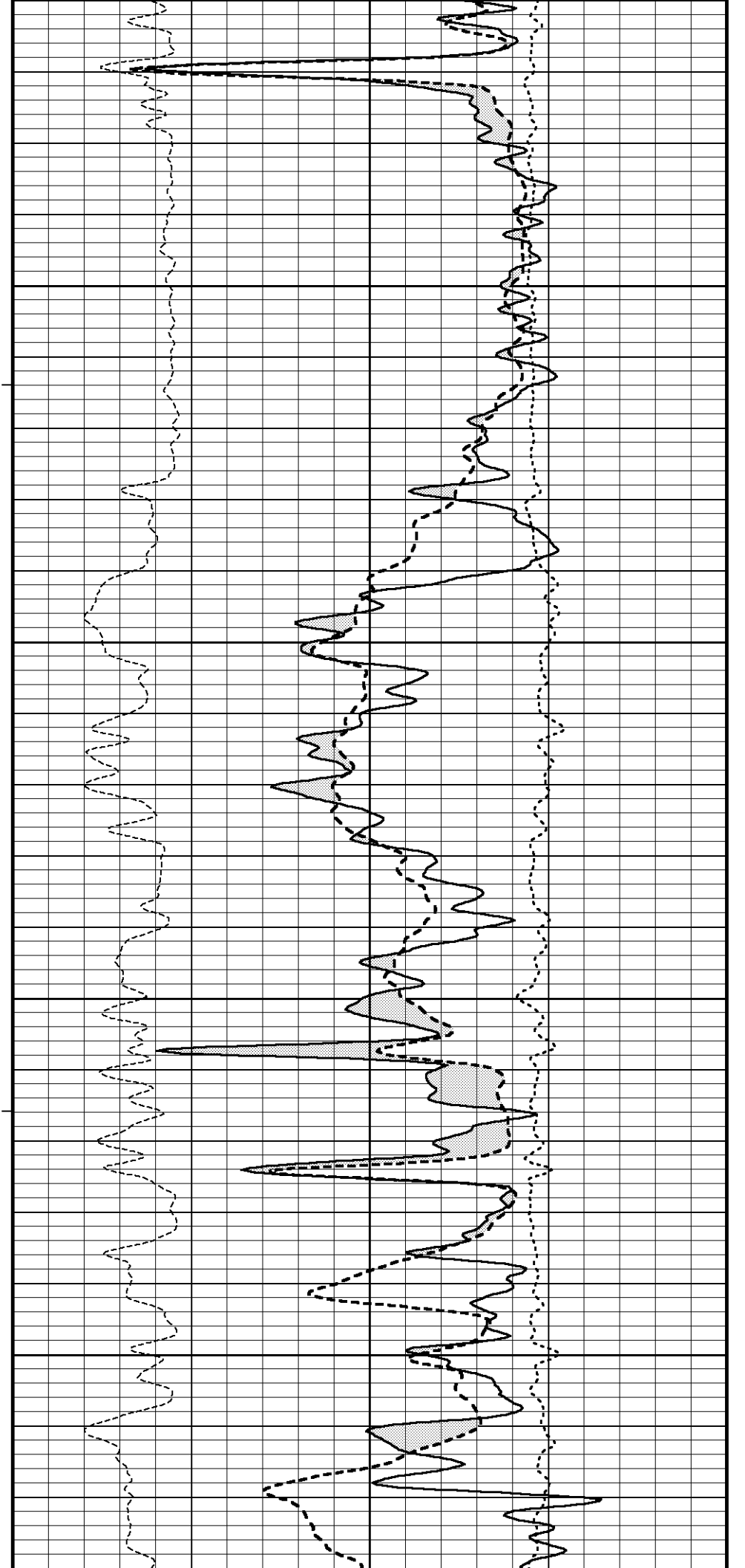
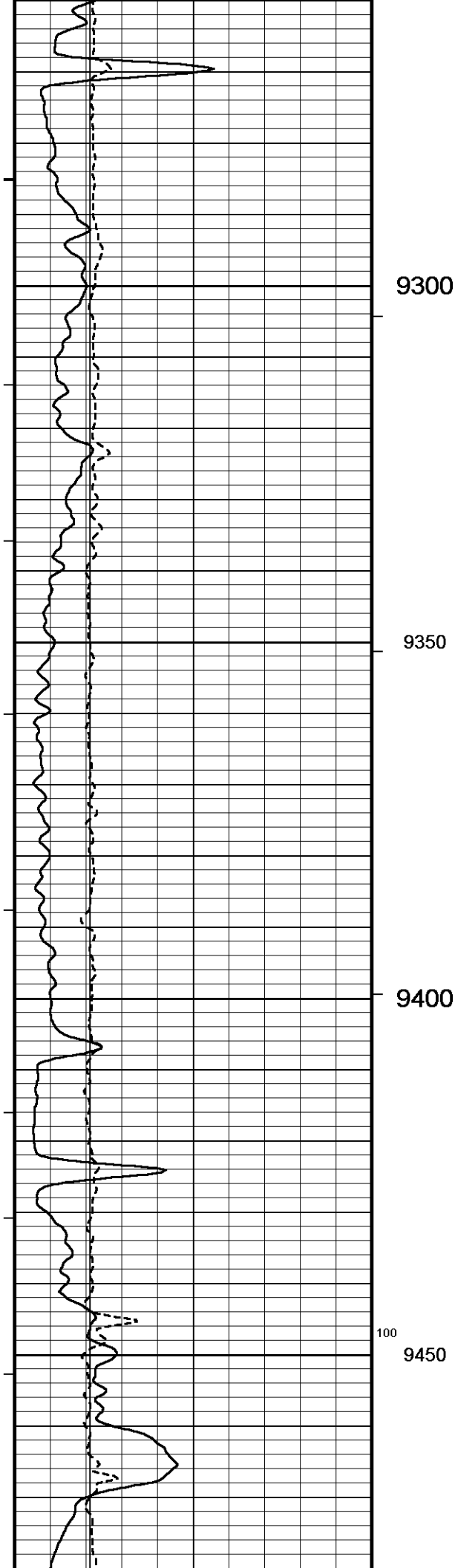
Limestone Neutron Por.

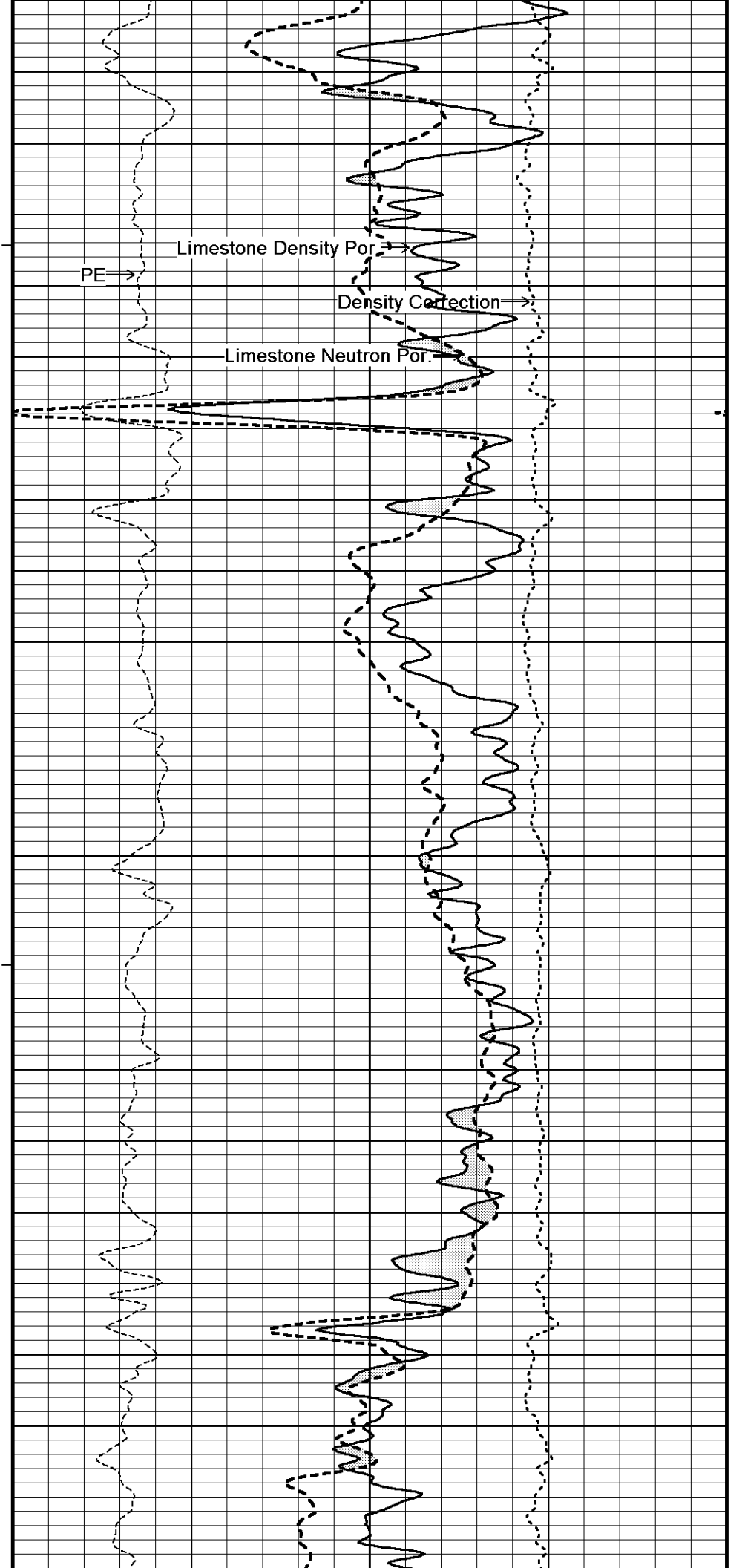
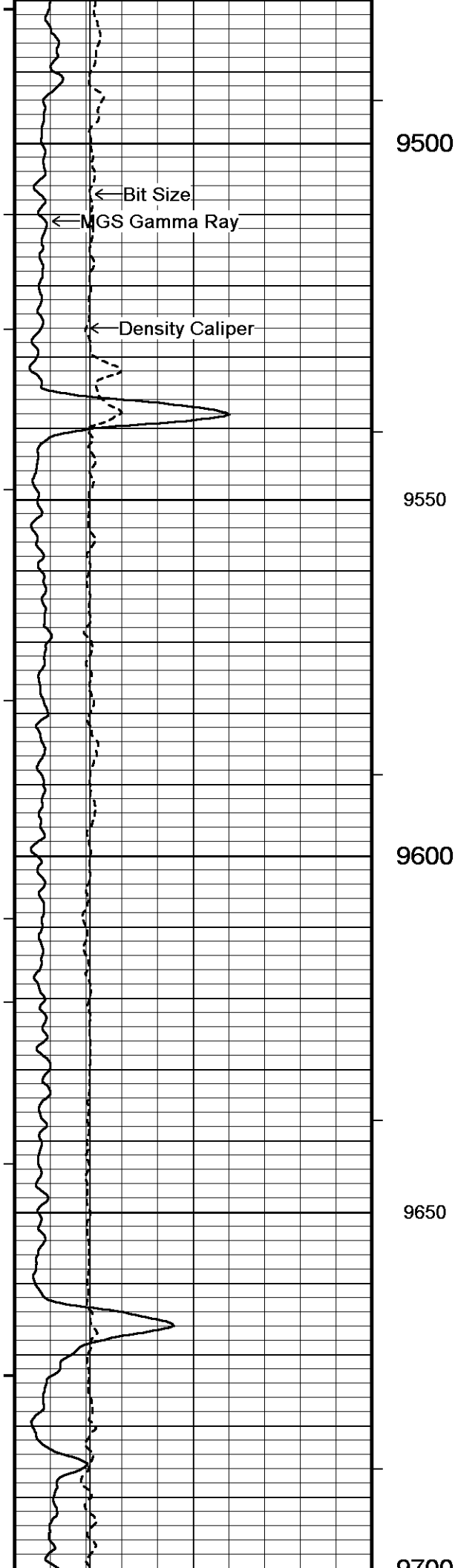
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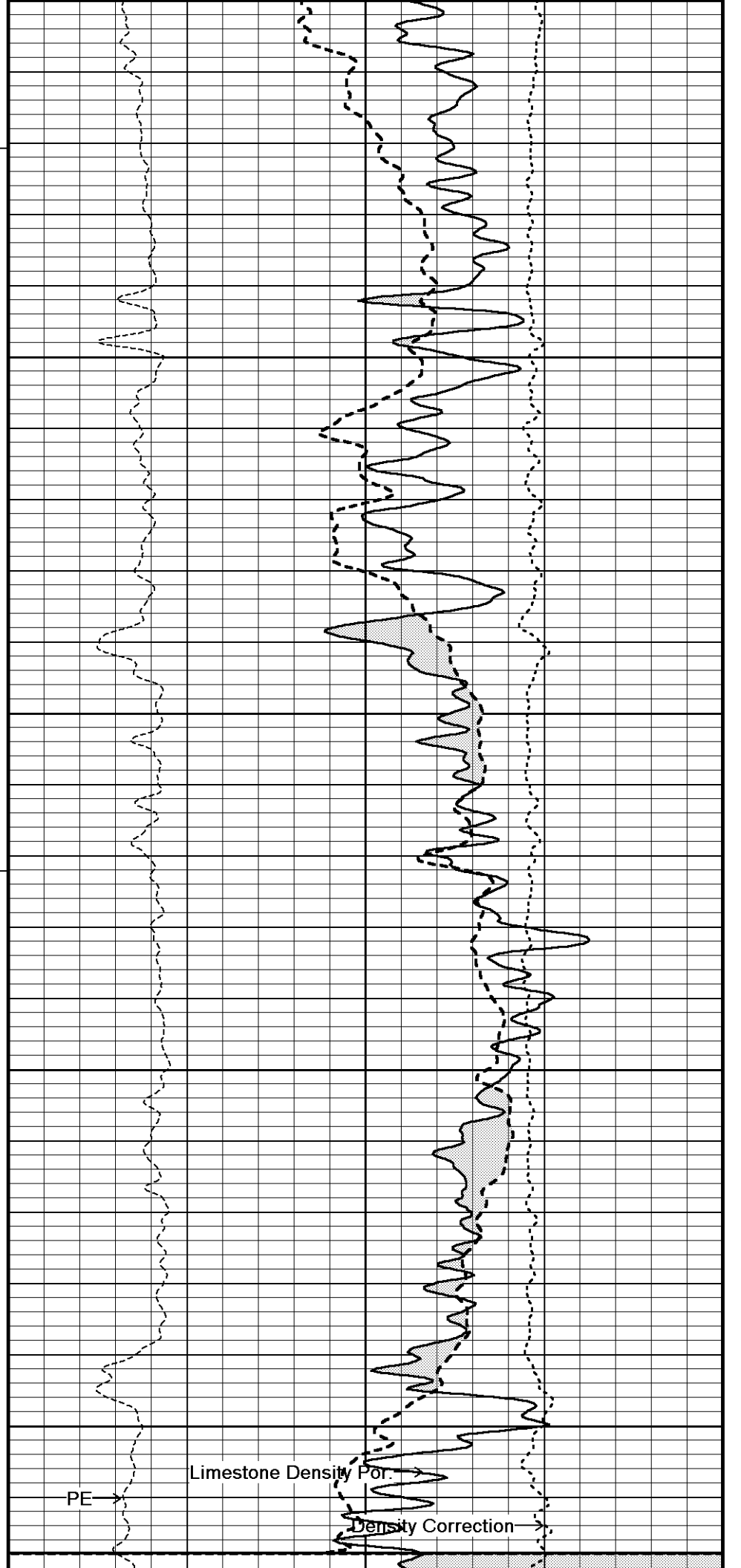
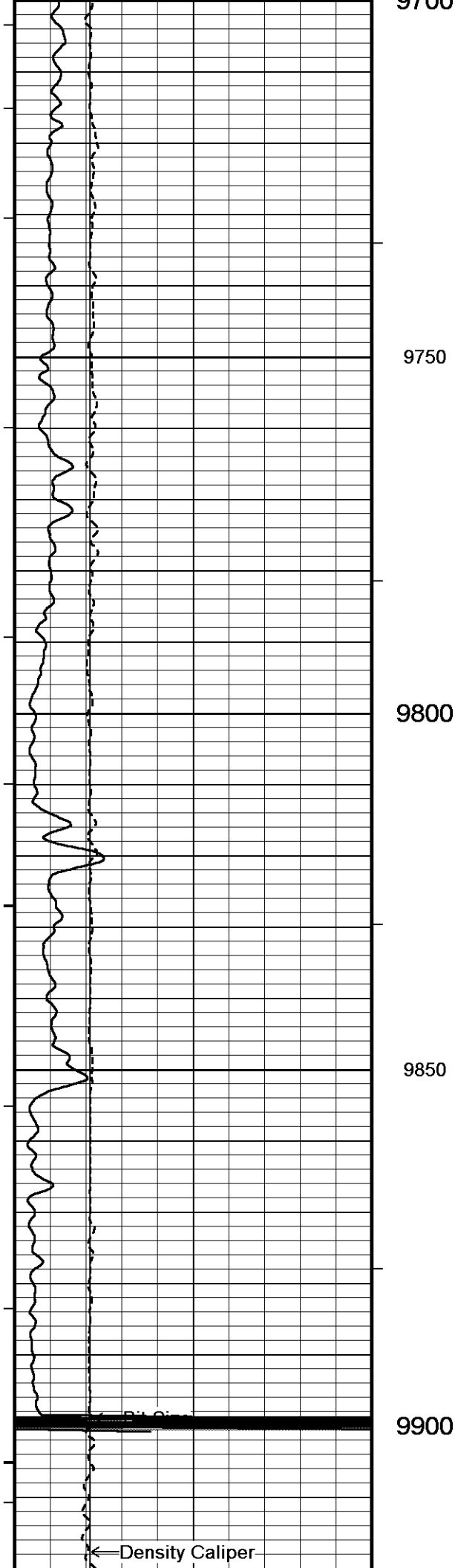
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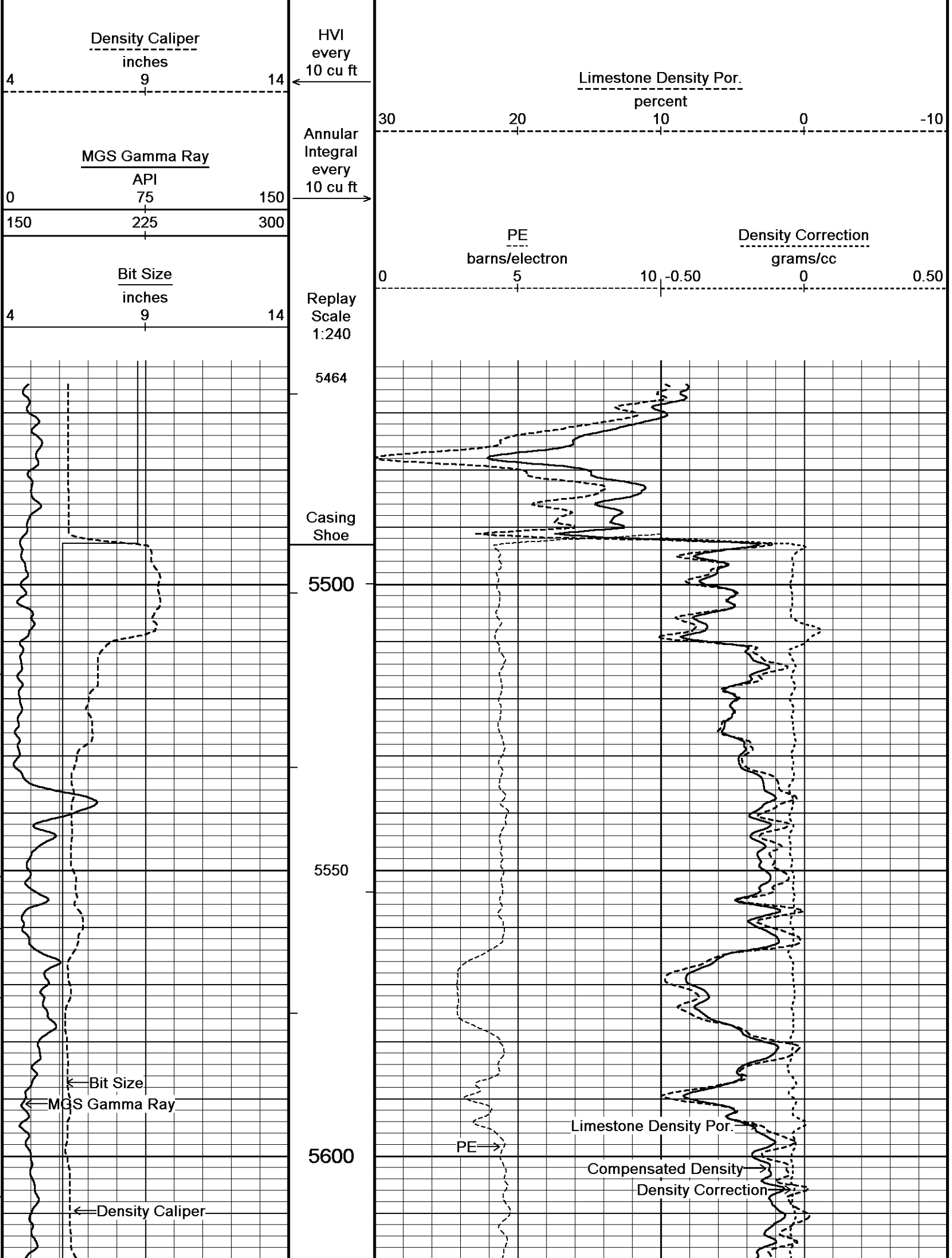
Density Correction

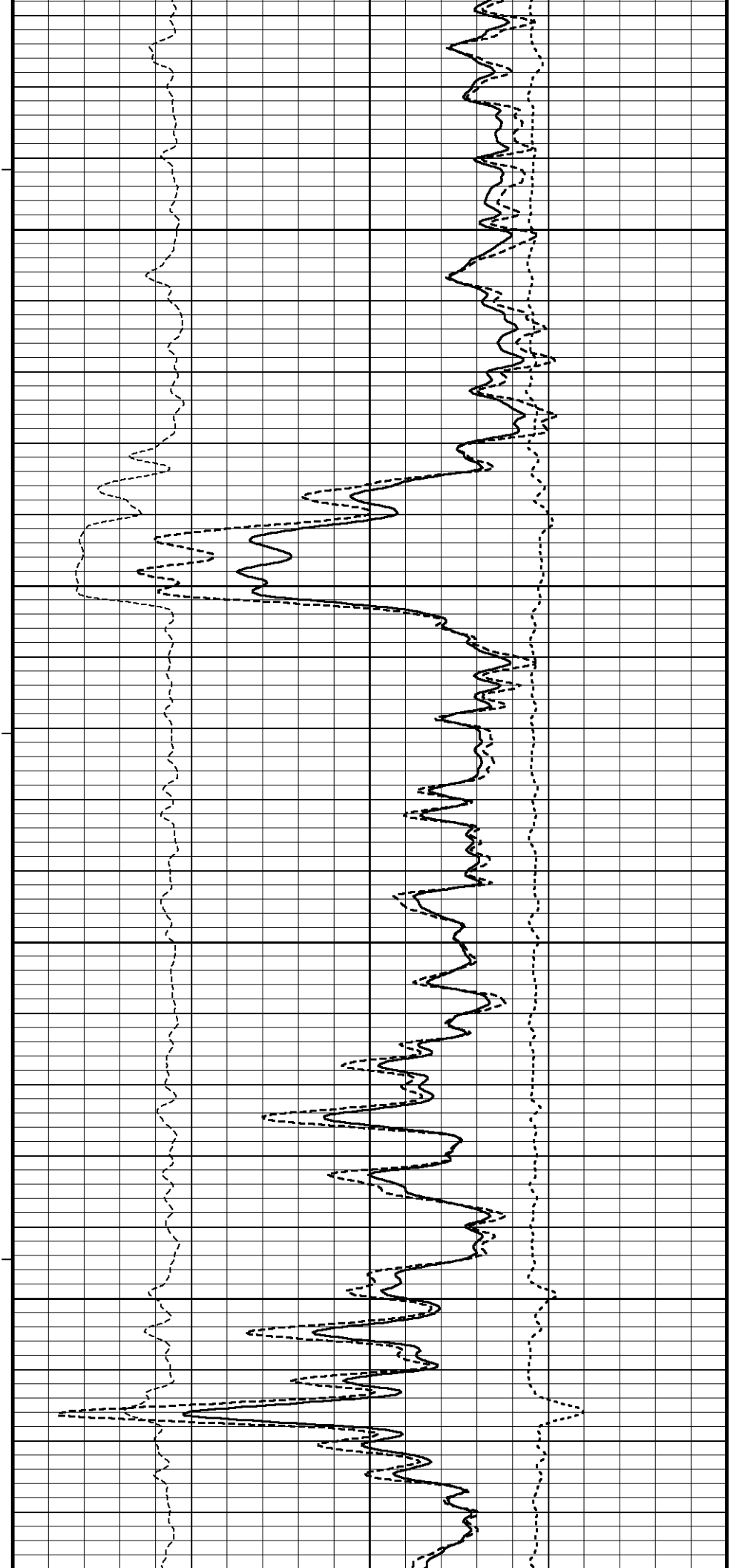
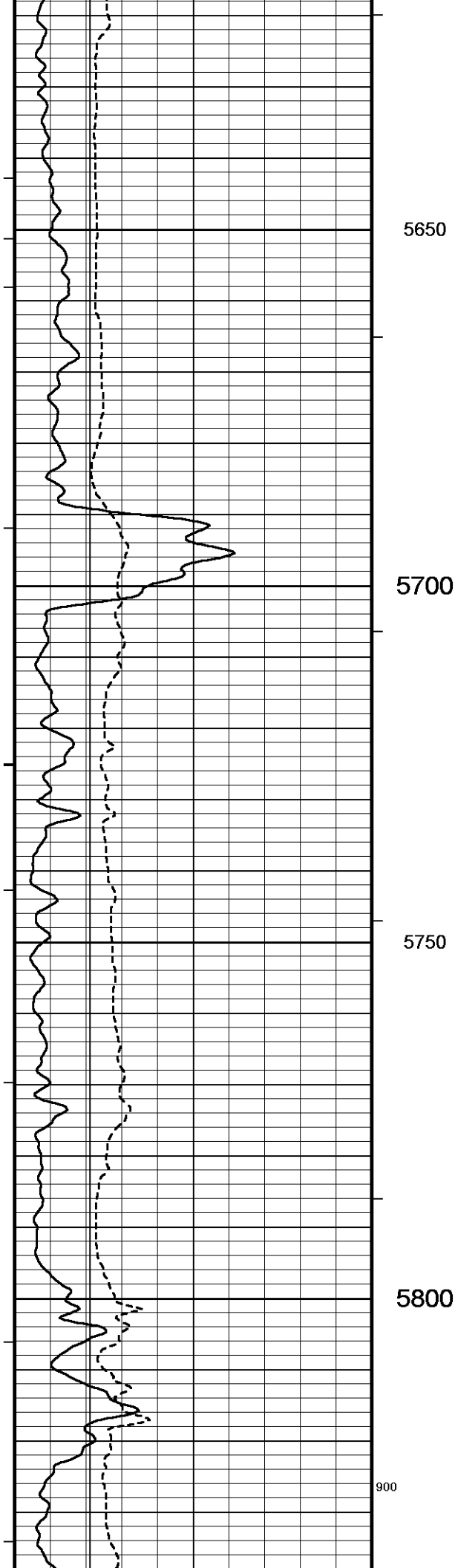


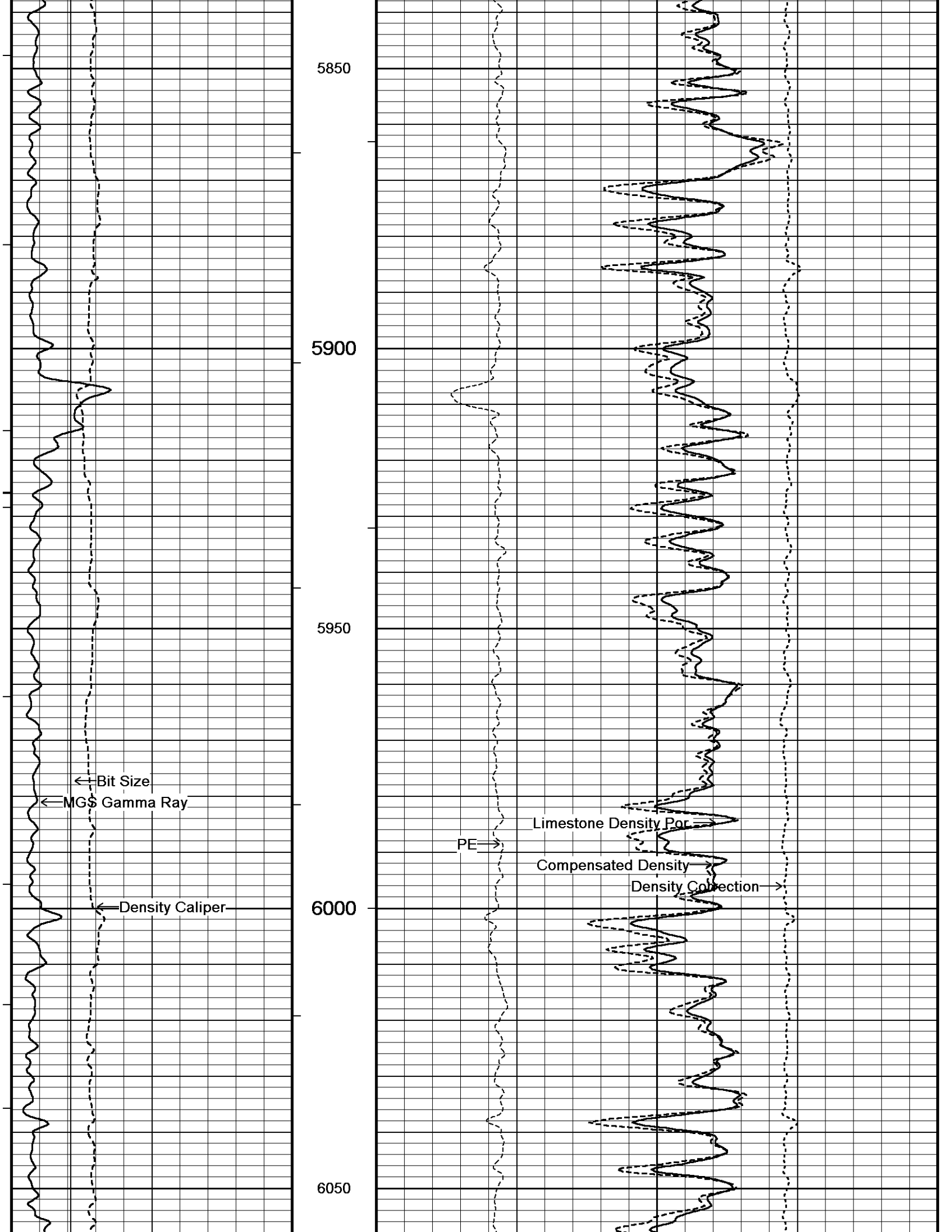


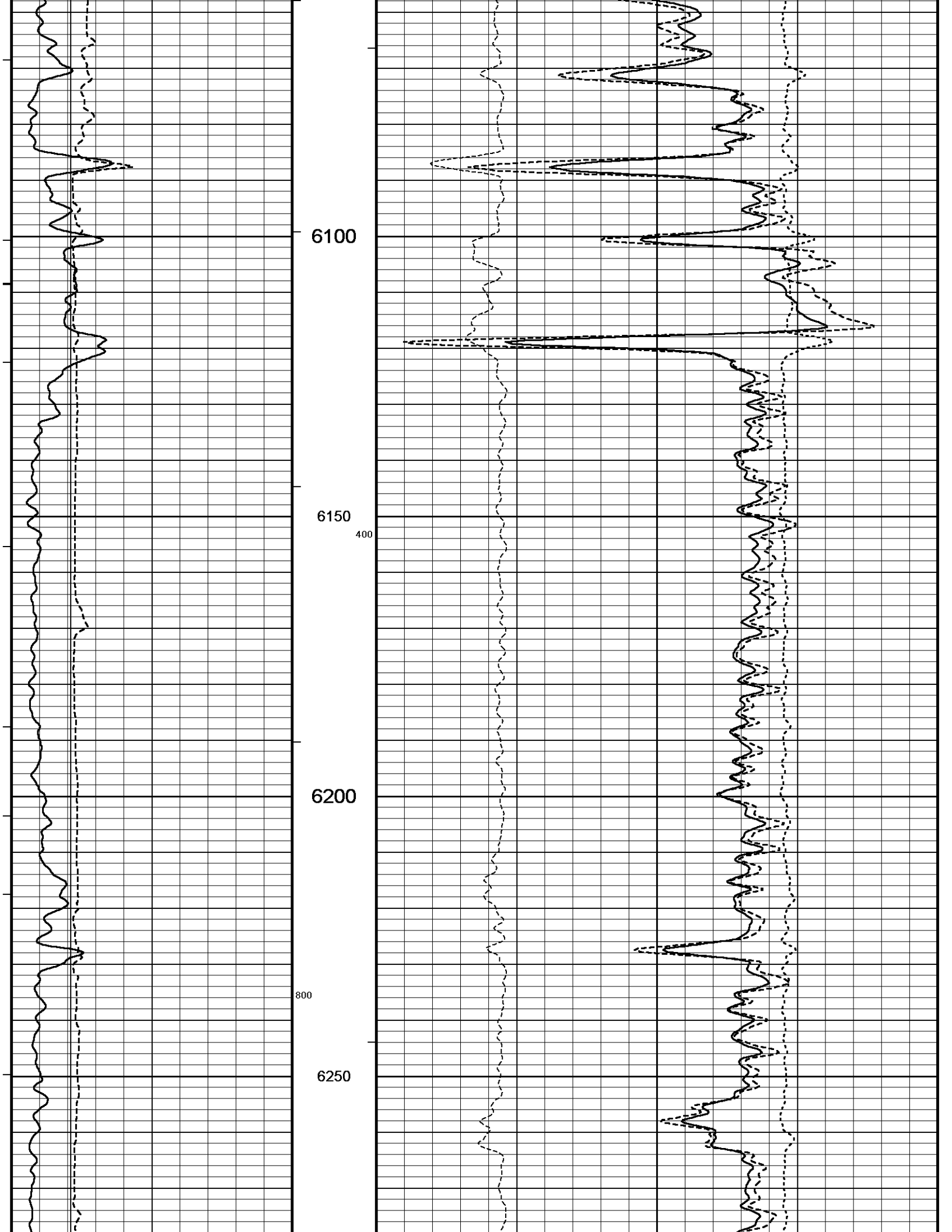


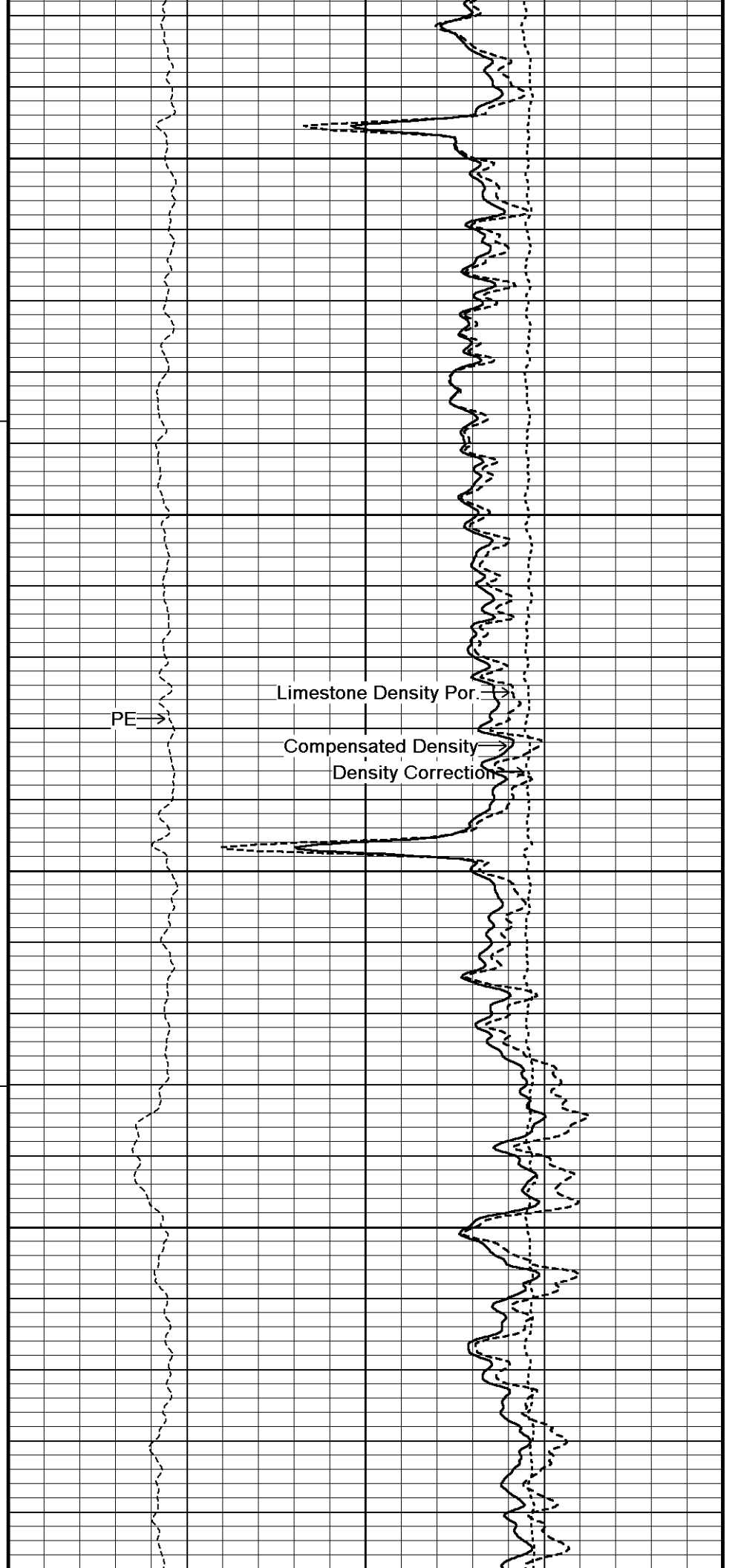
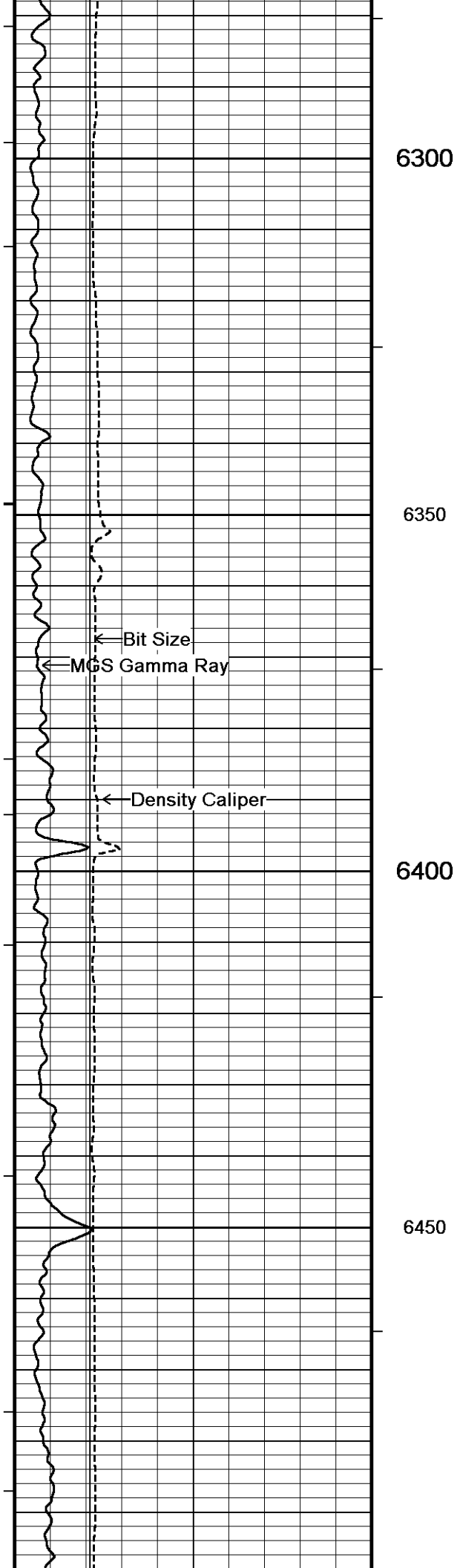


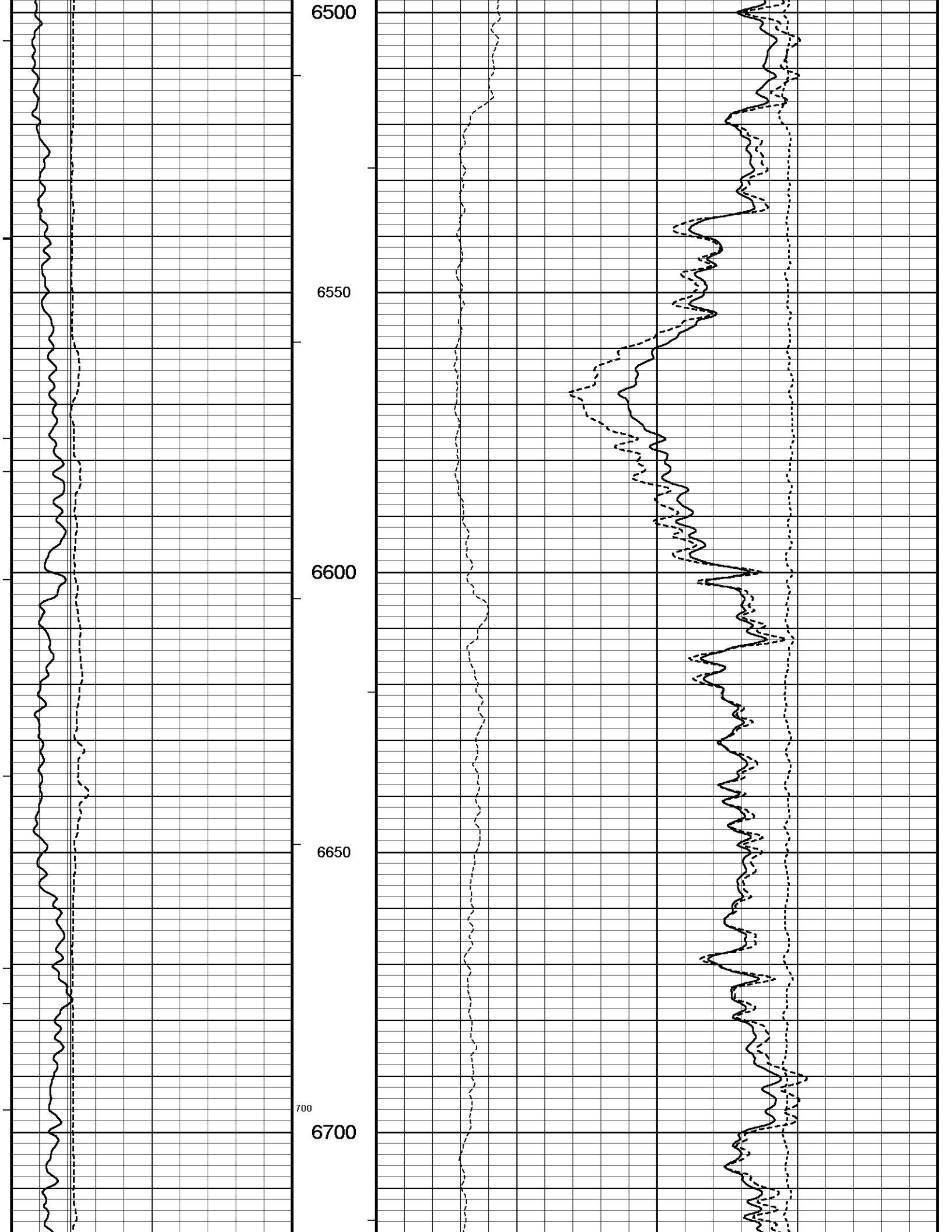


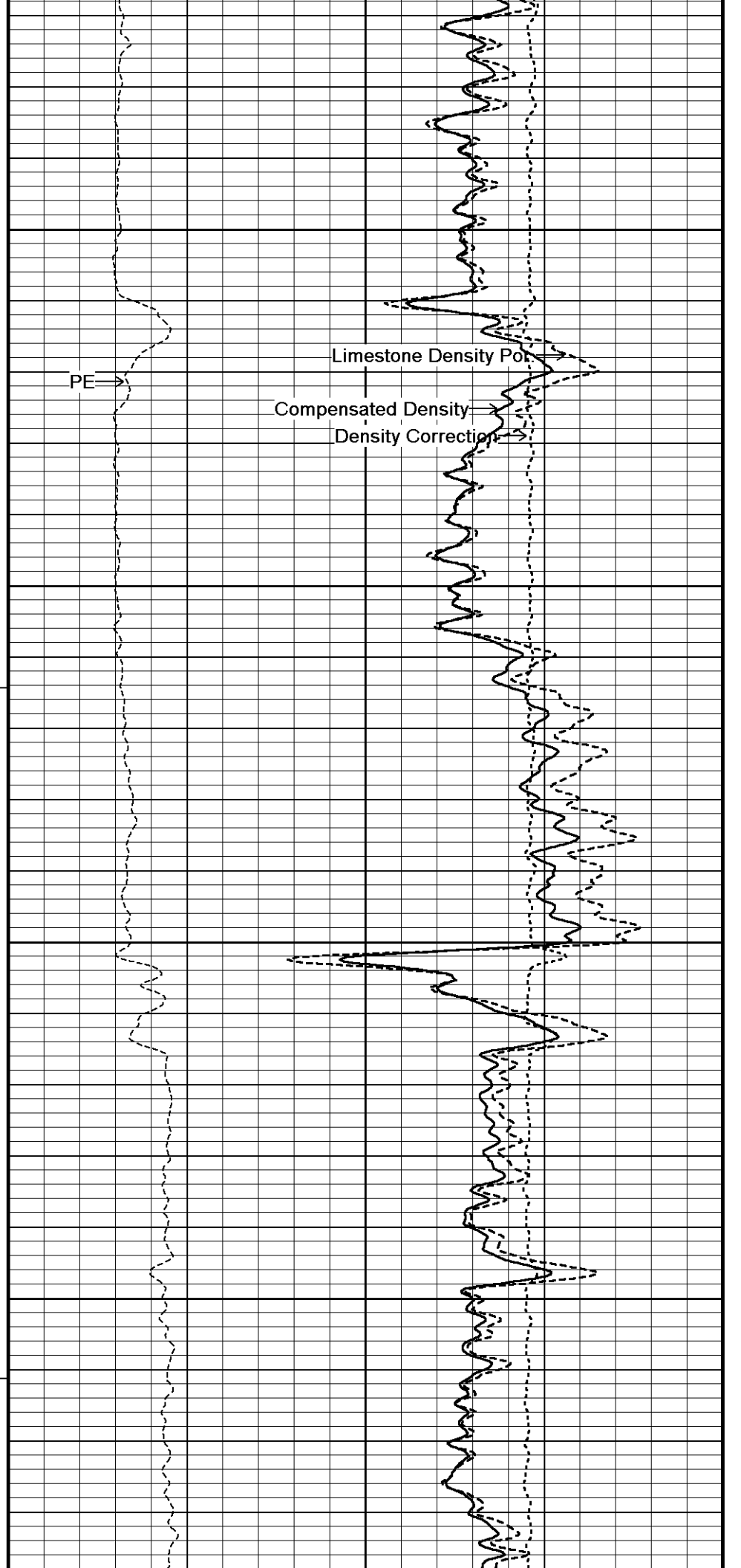
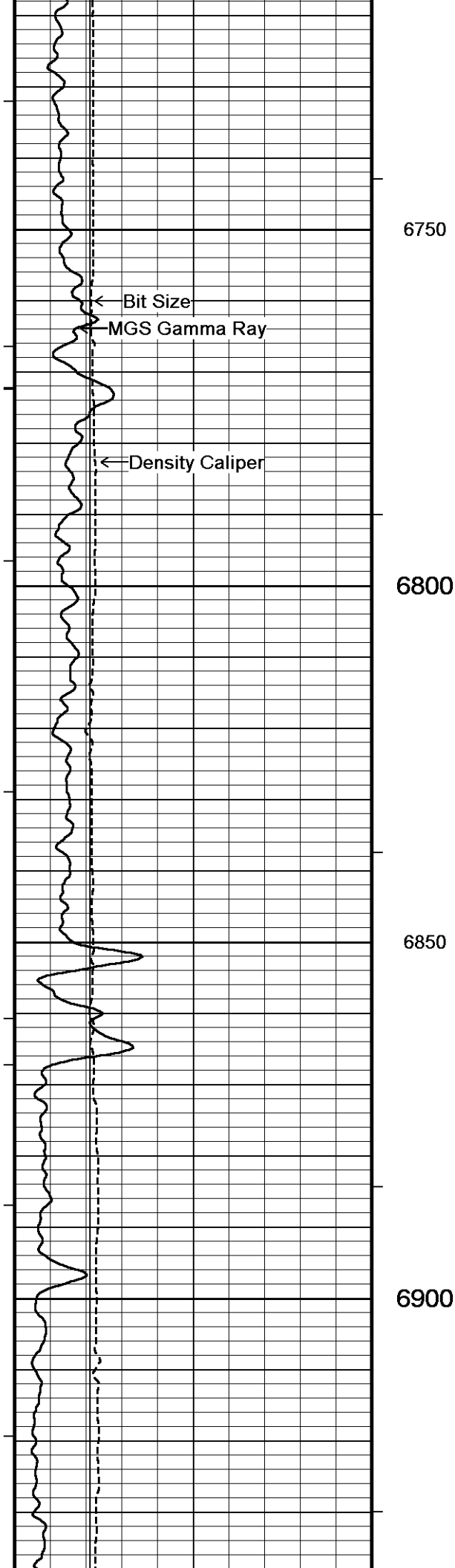


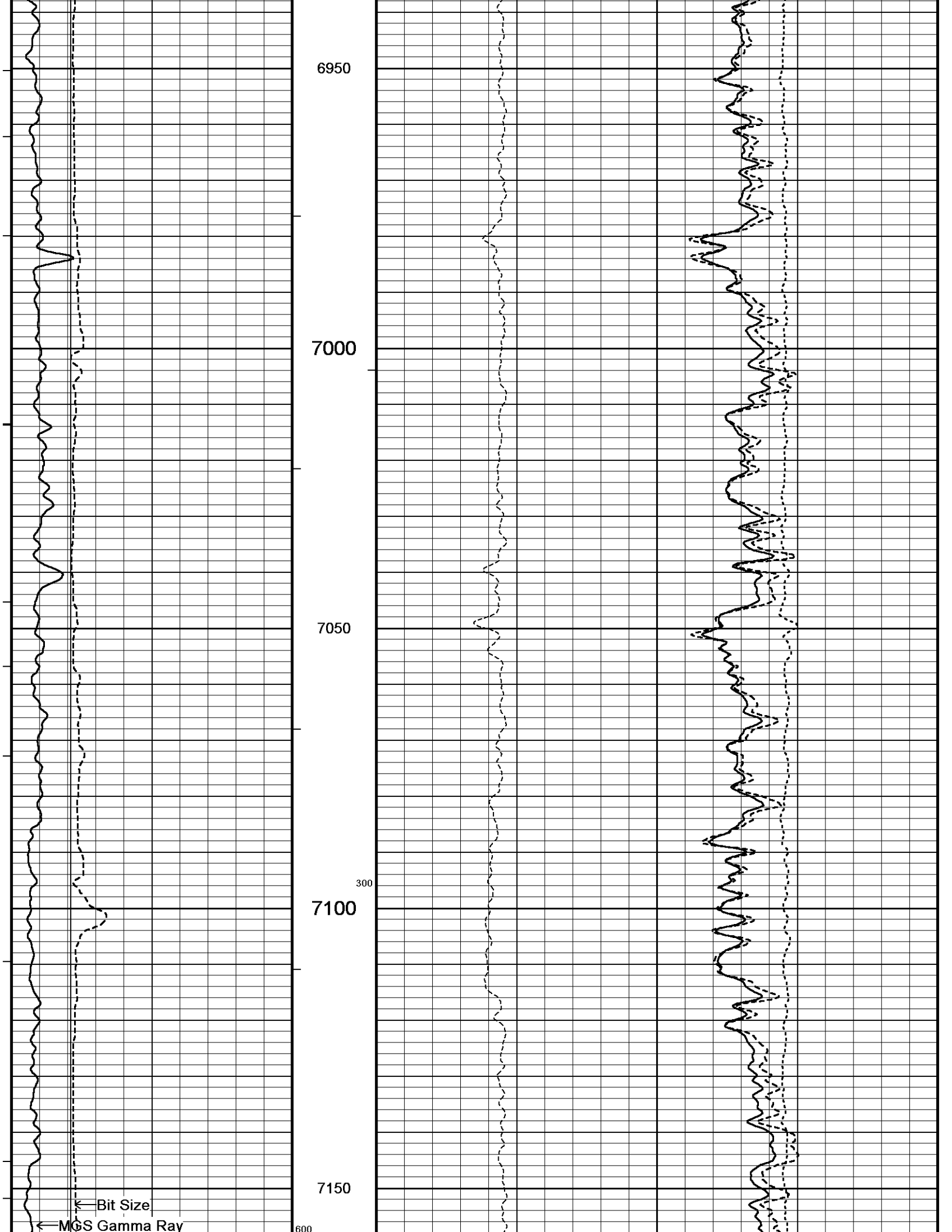


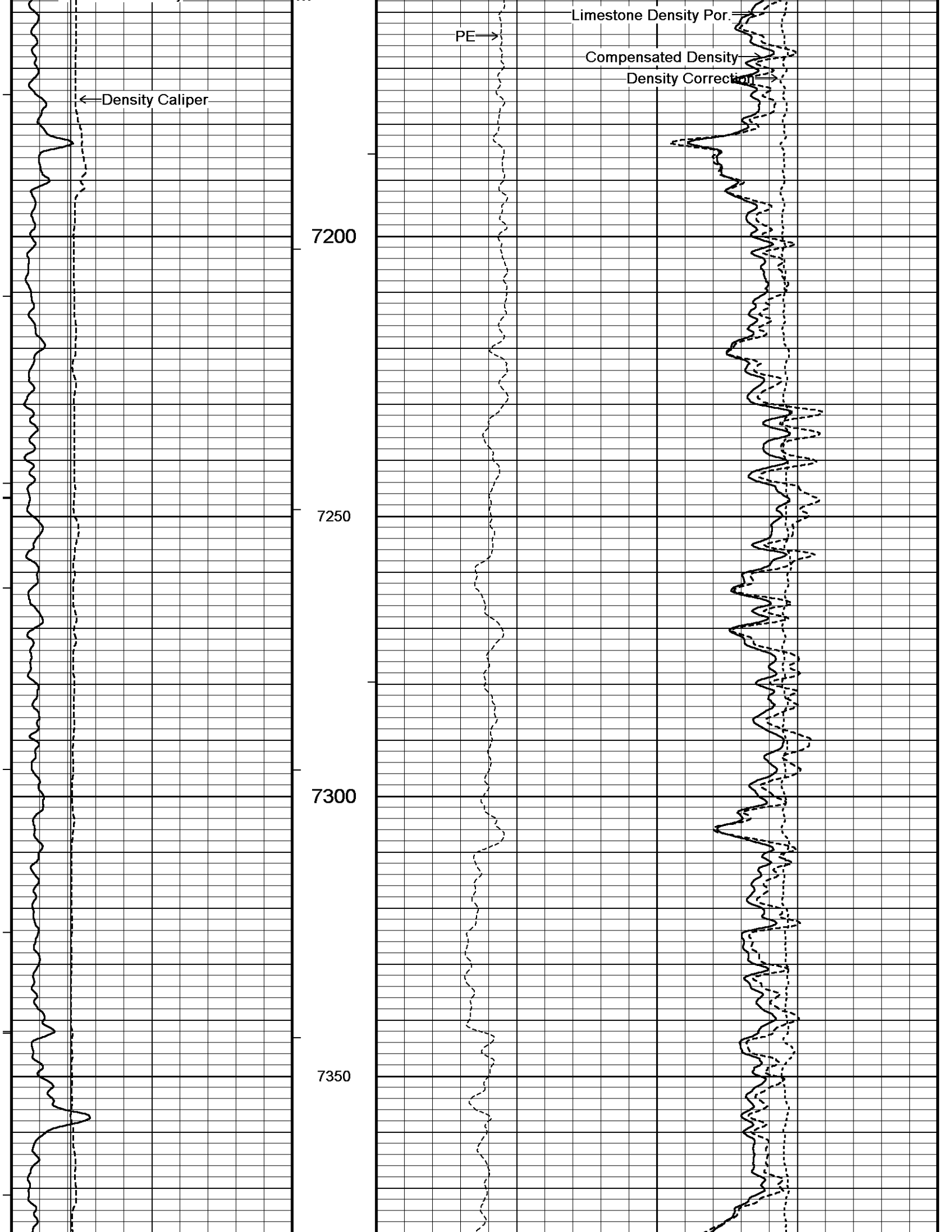


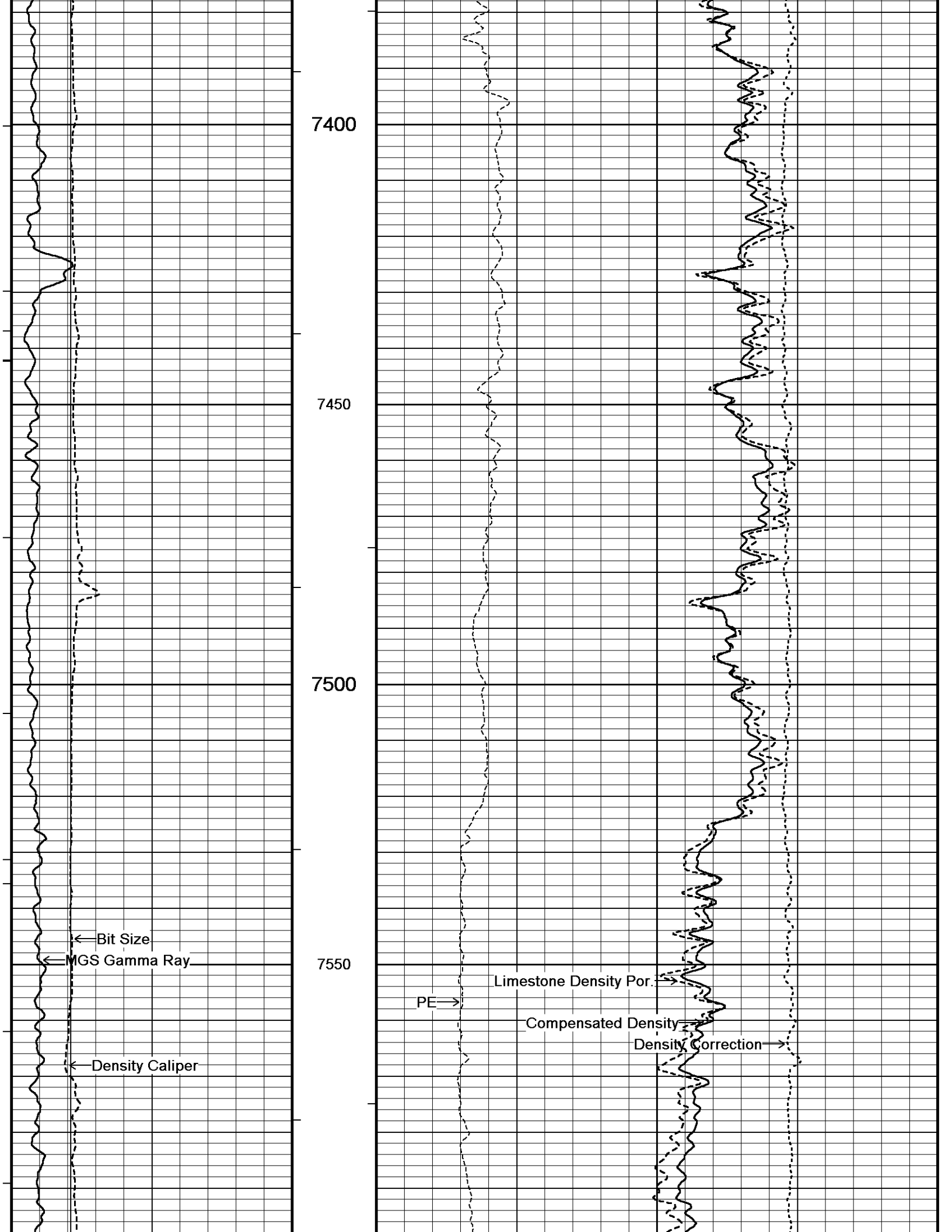


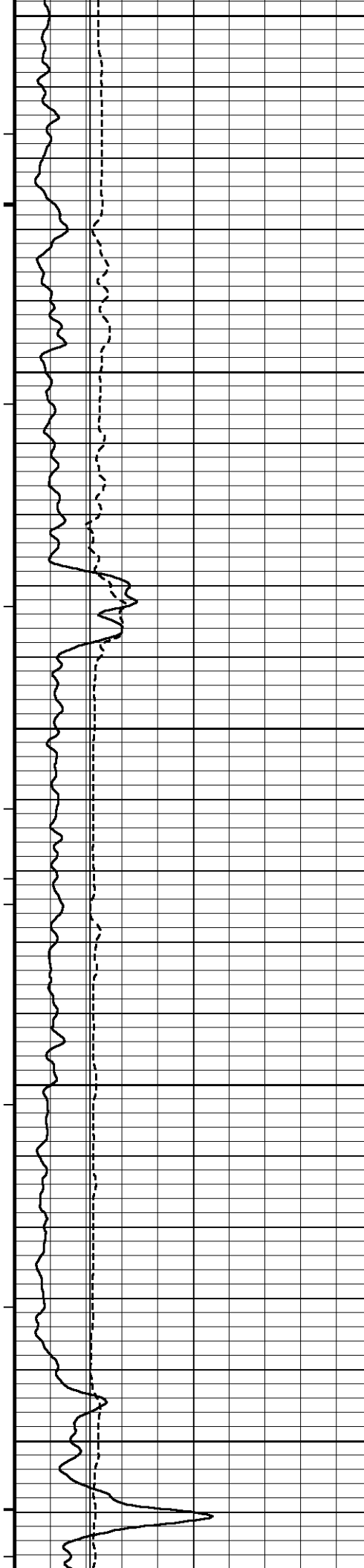




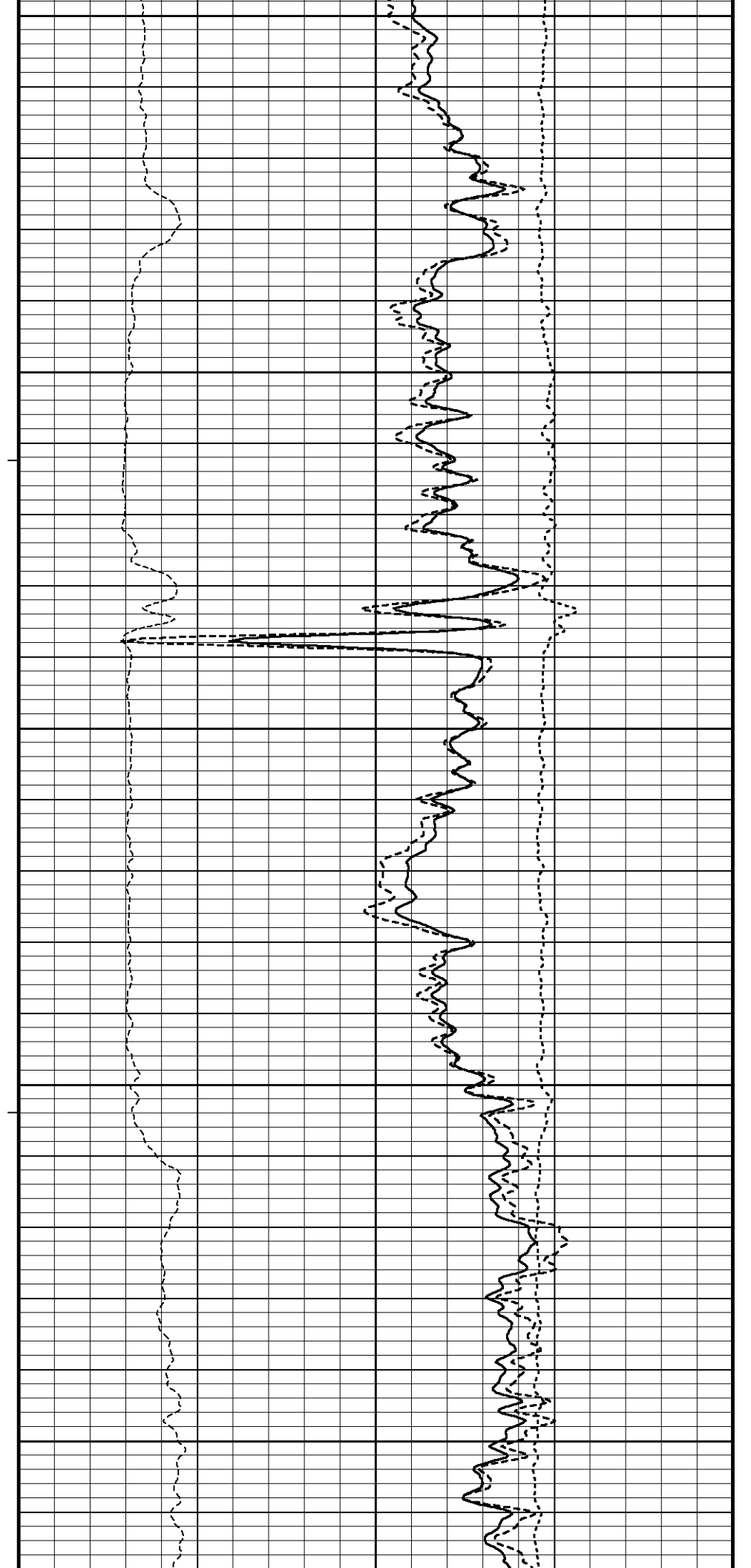


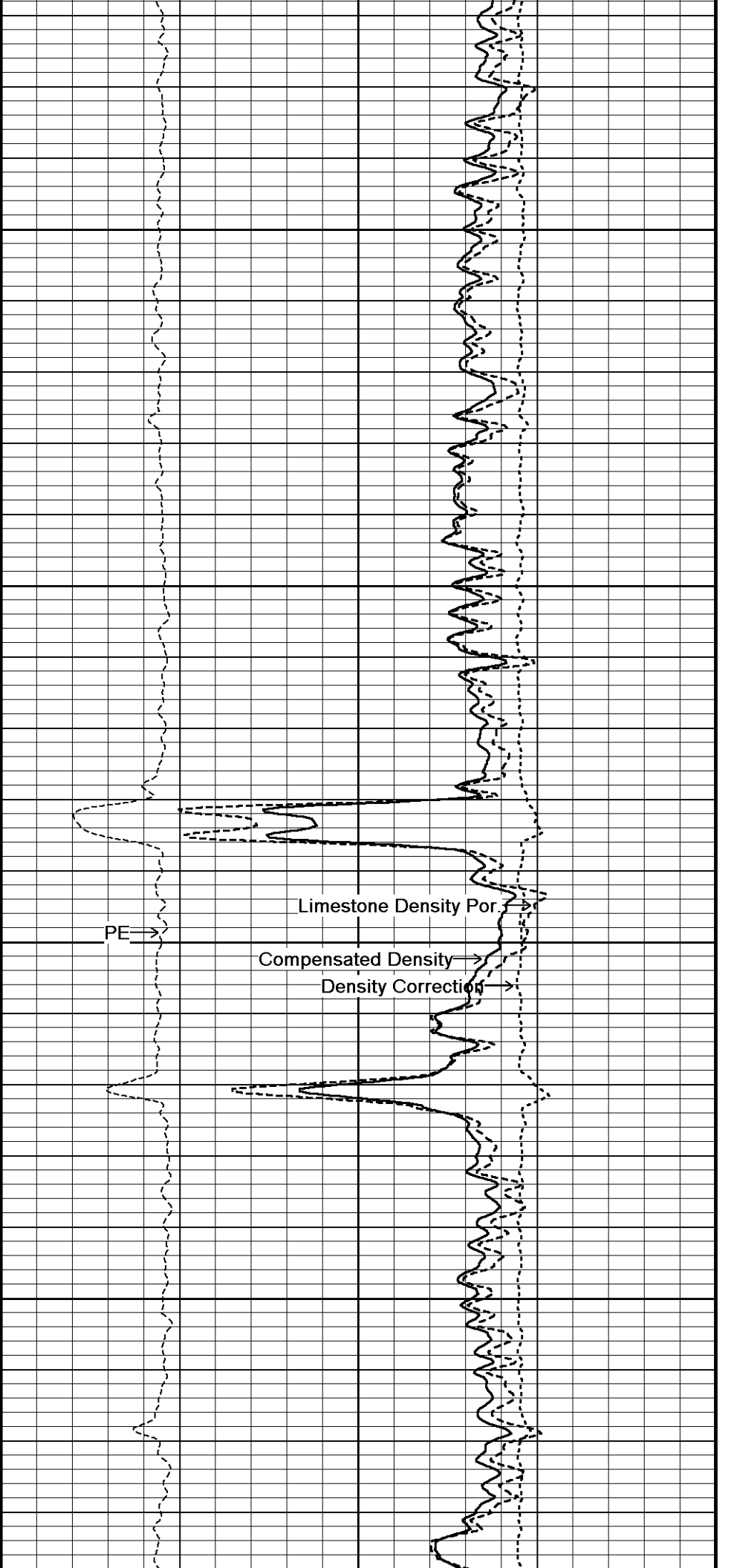
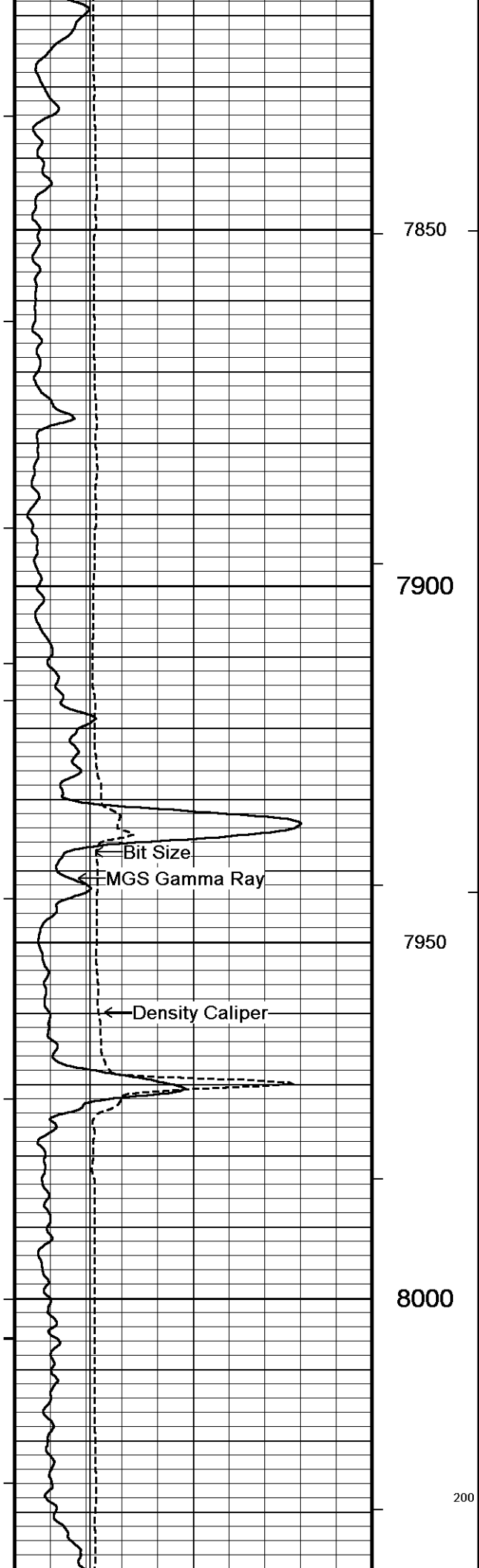


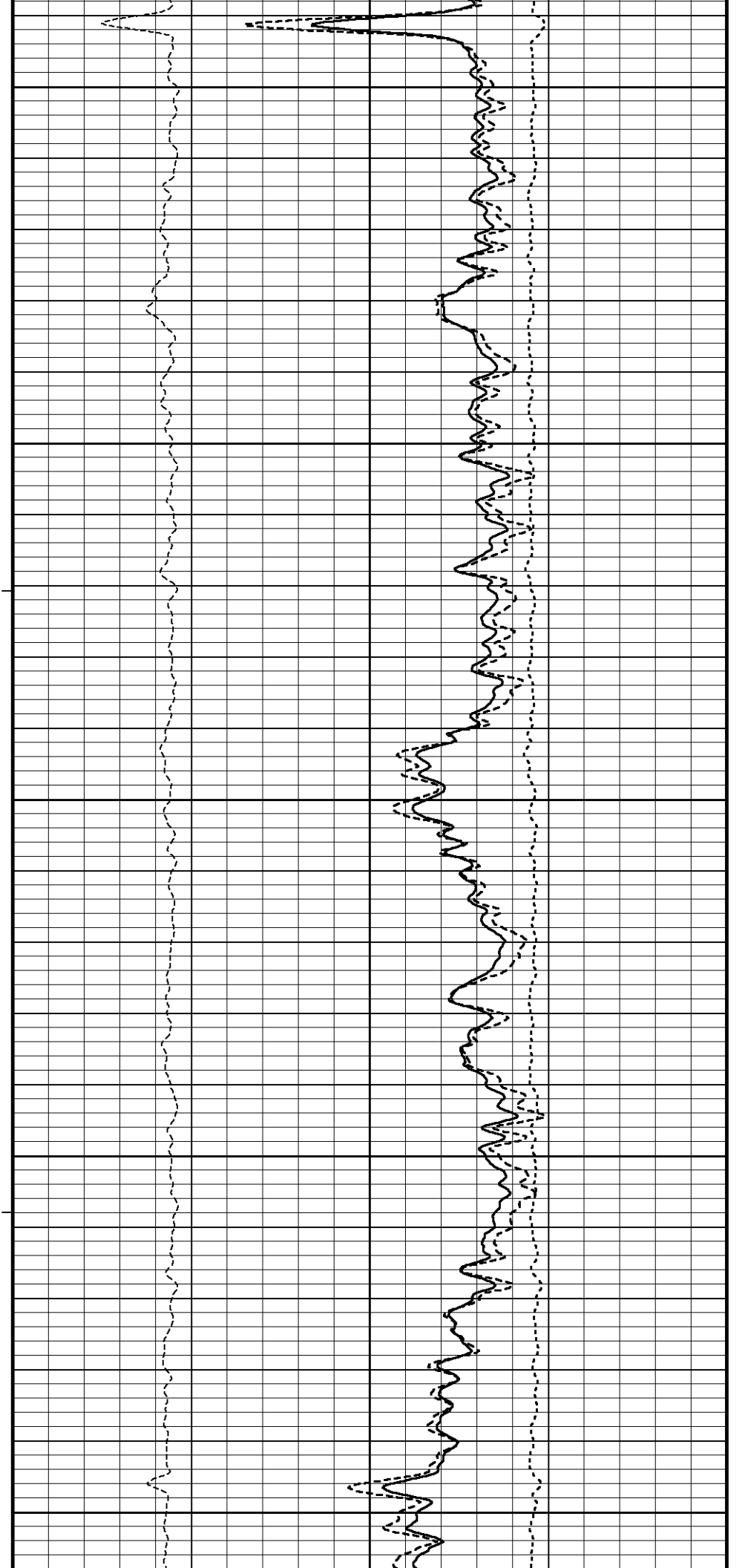
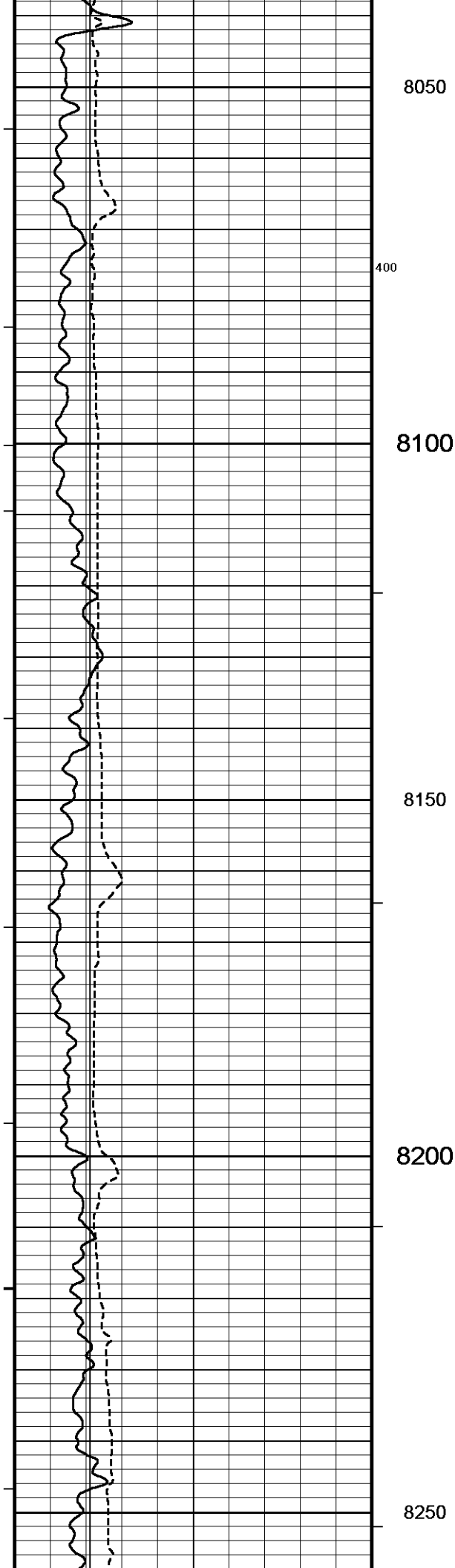


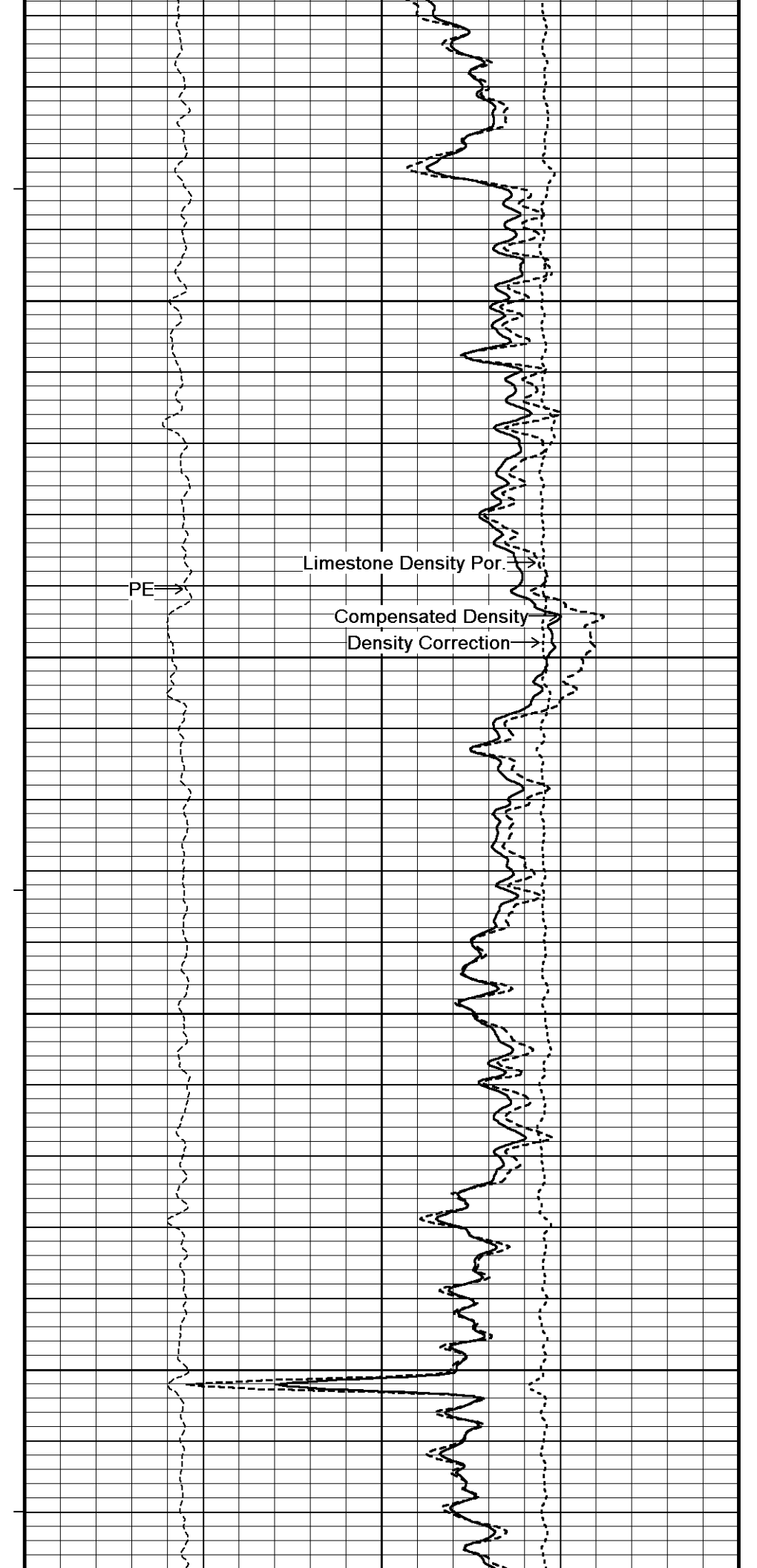
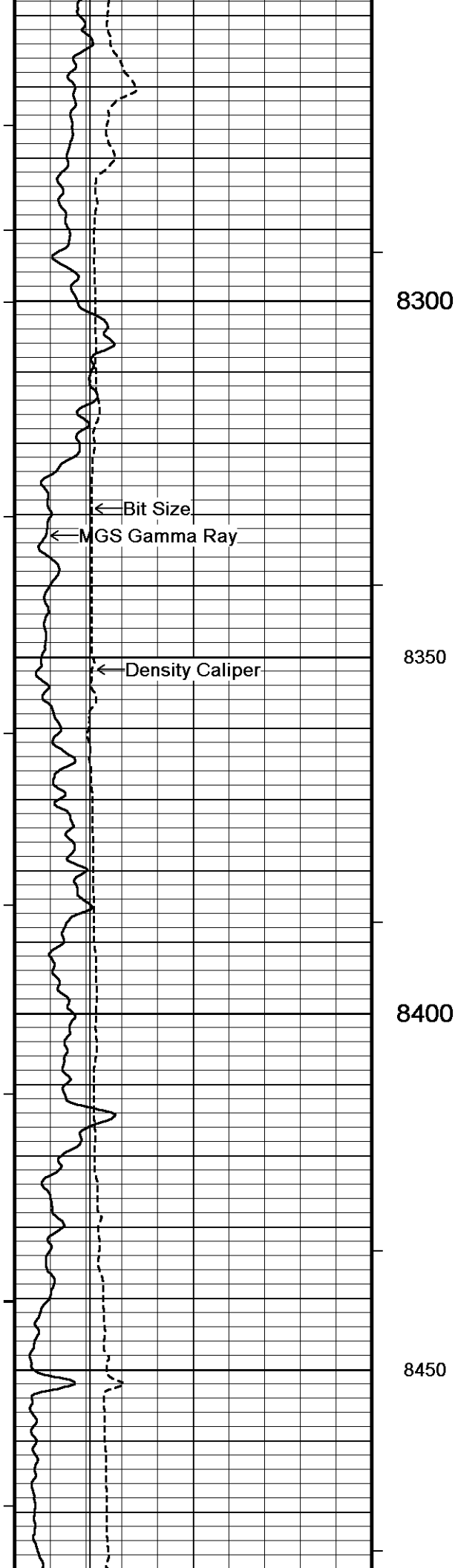


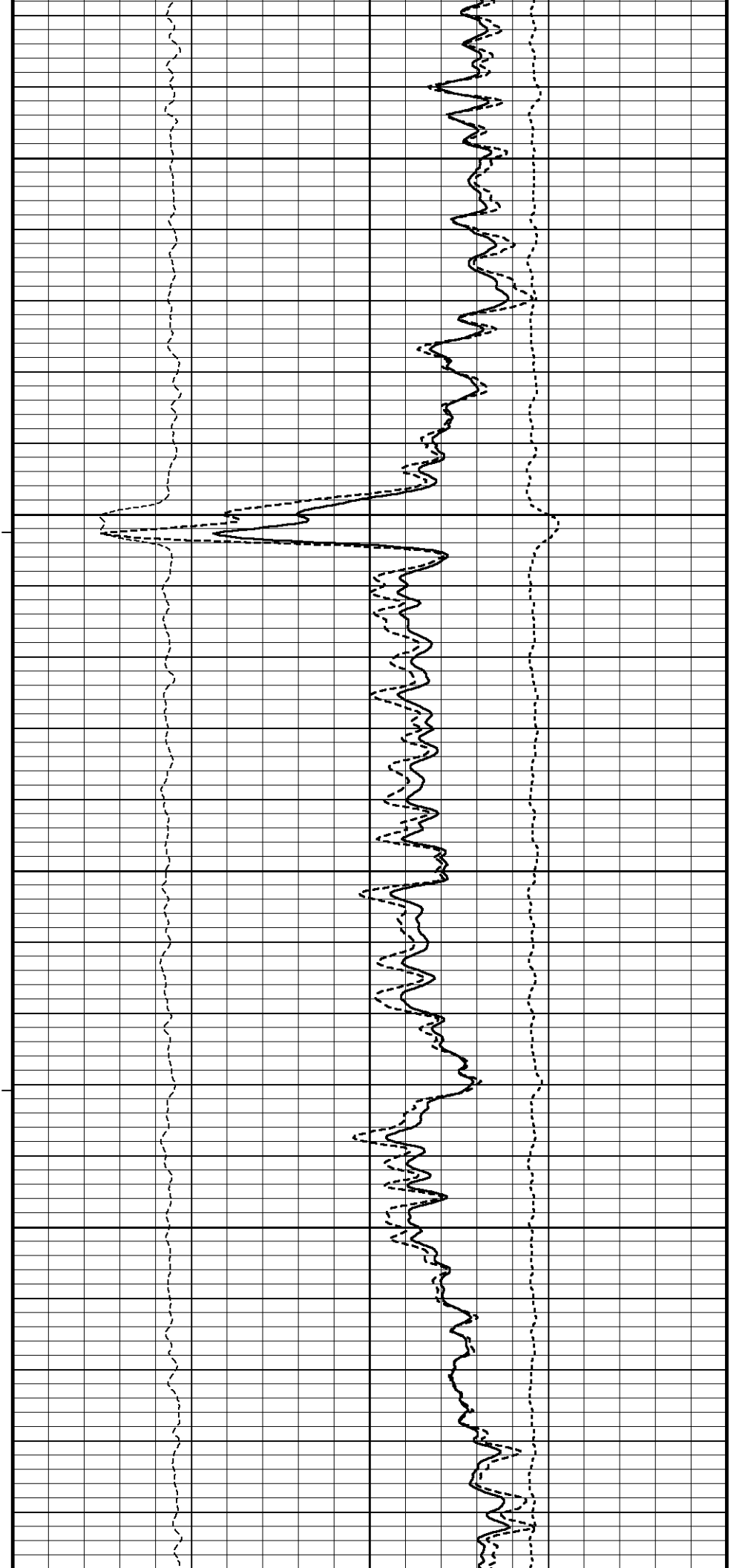
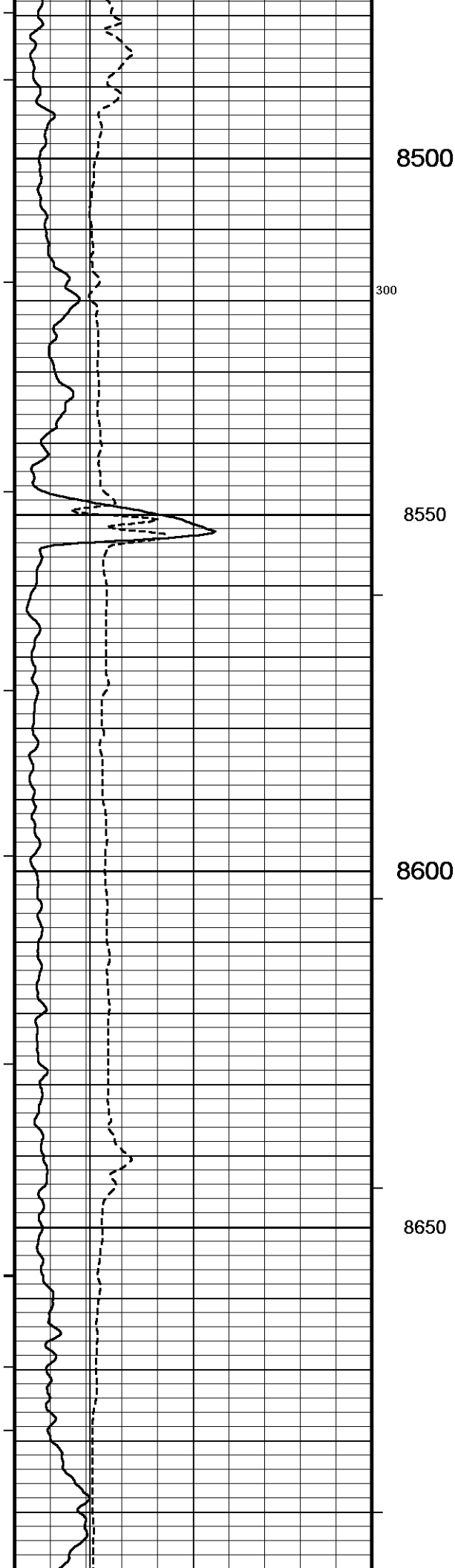
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500
7650
7700
7750
7800

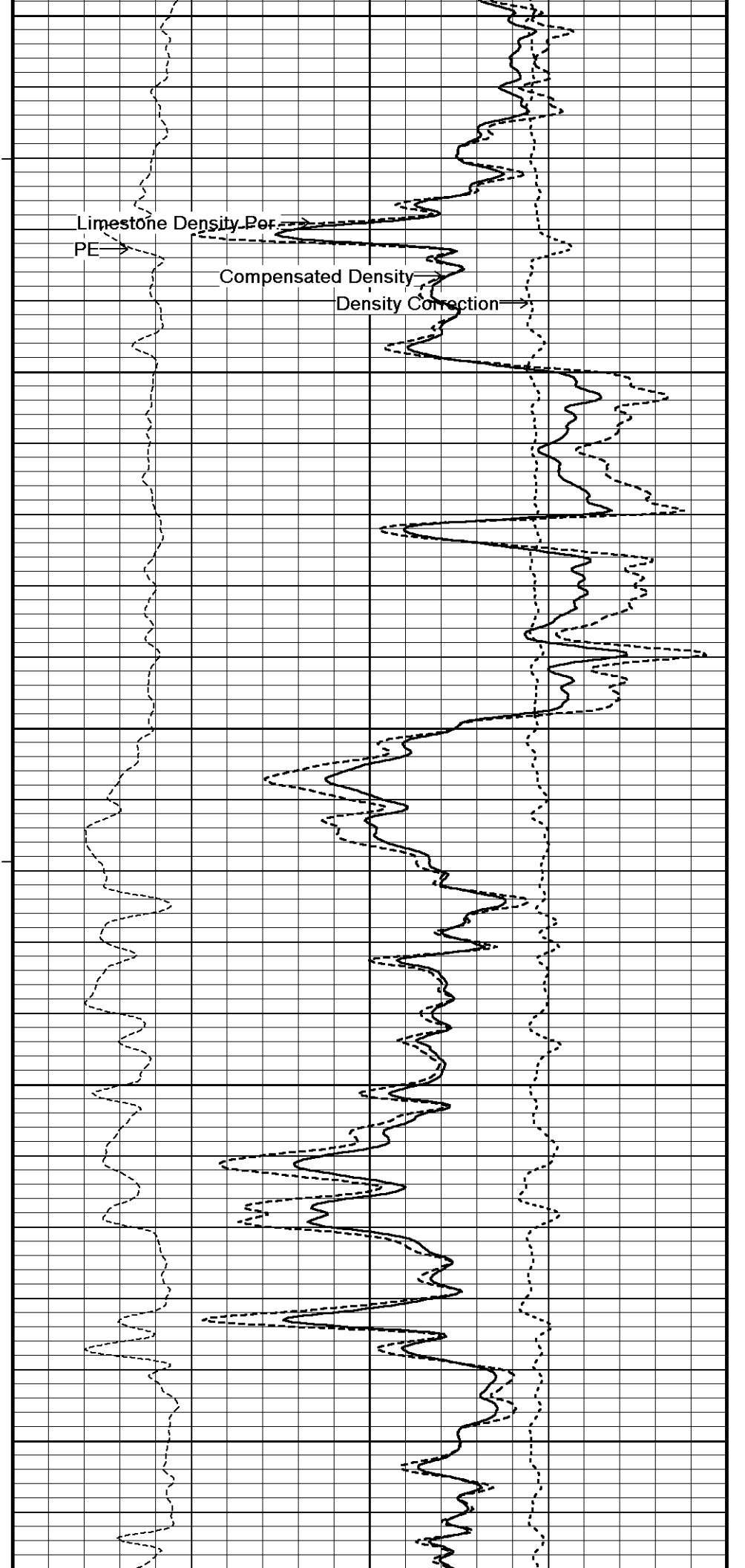
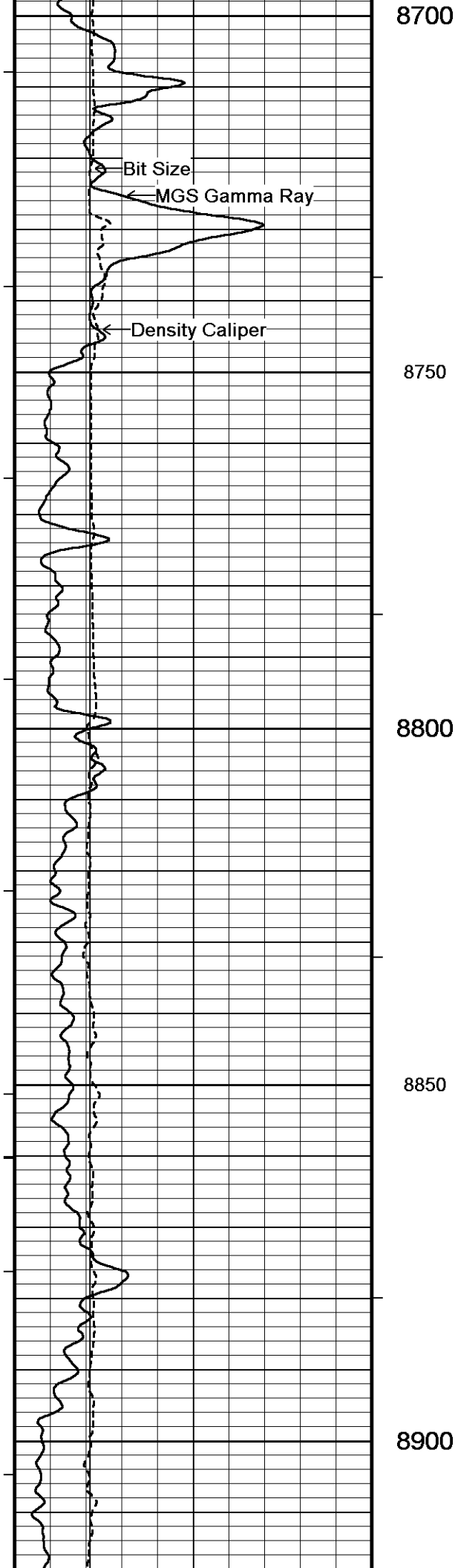


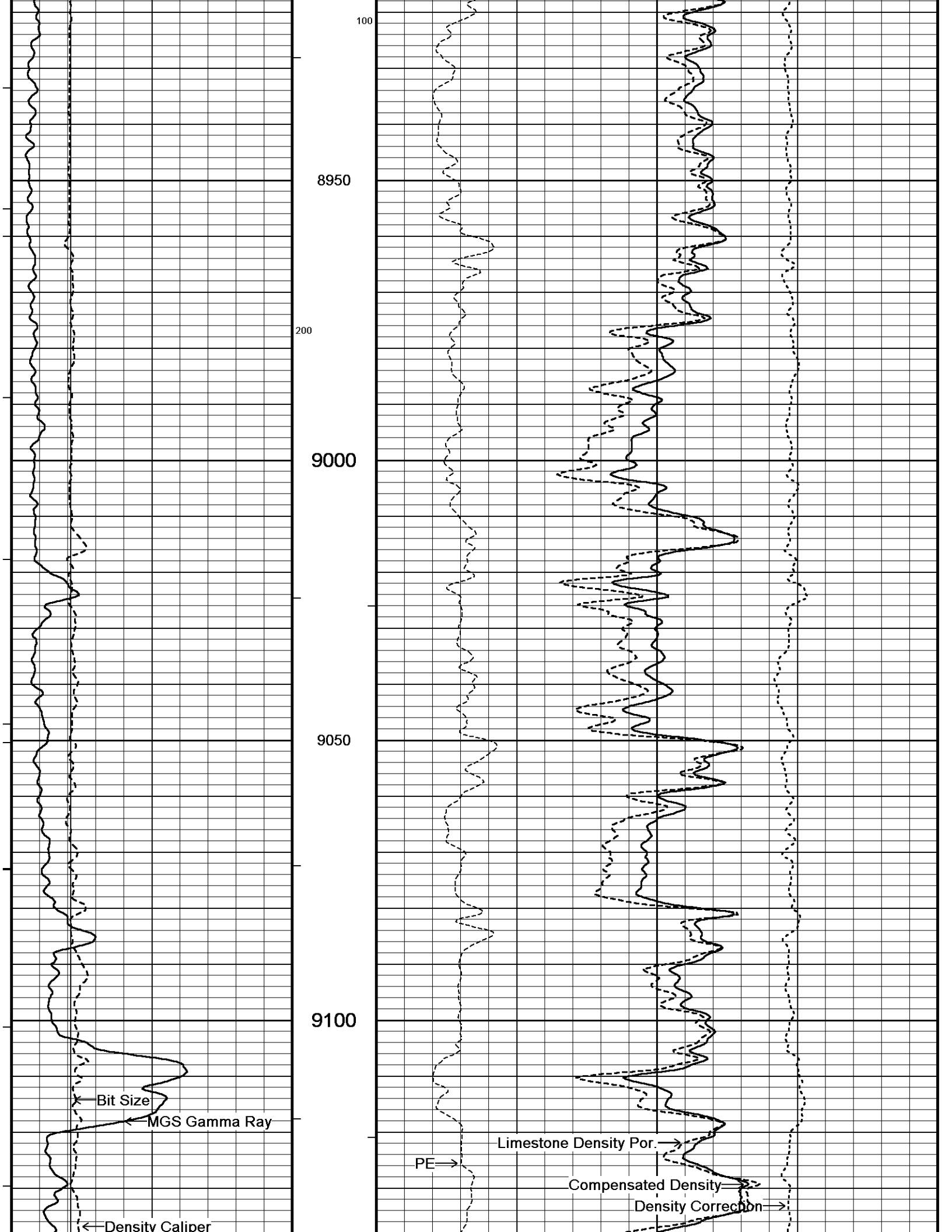


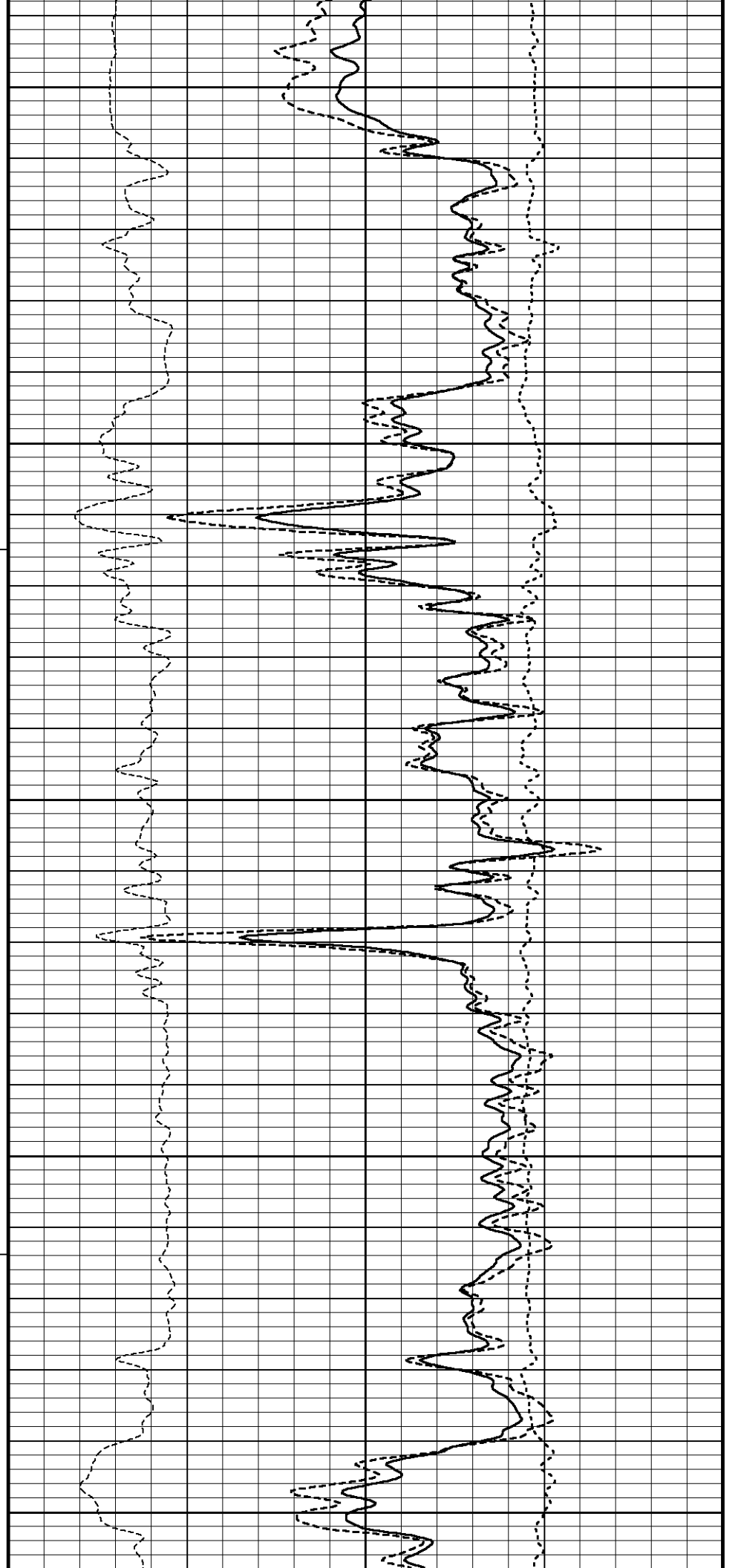
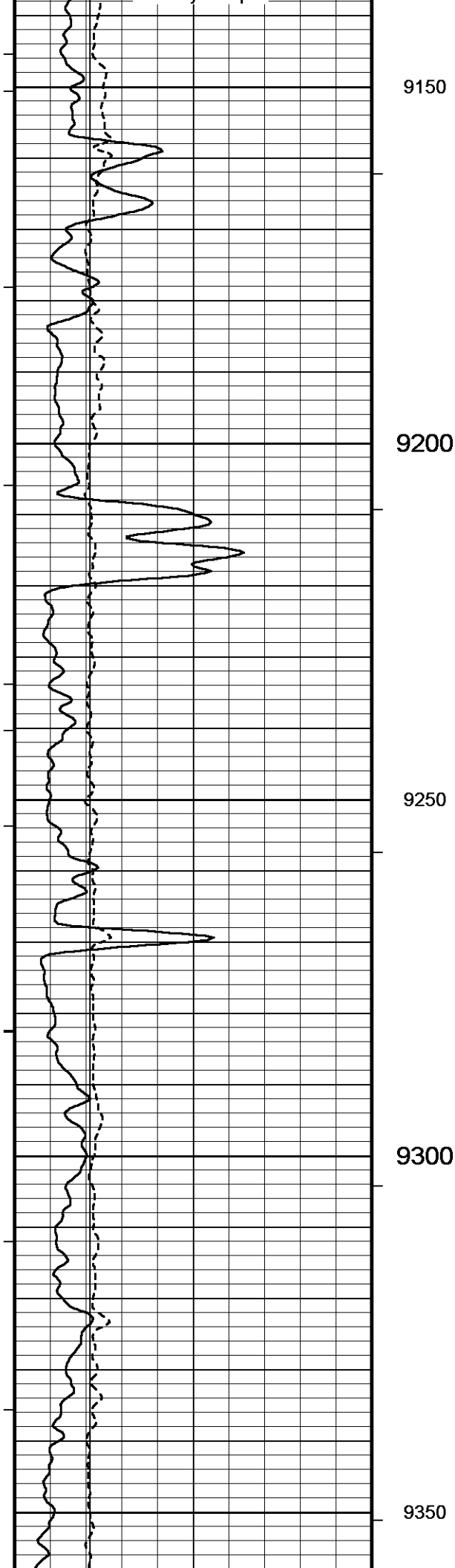


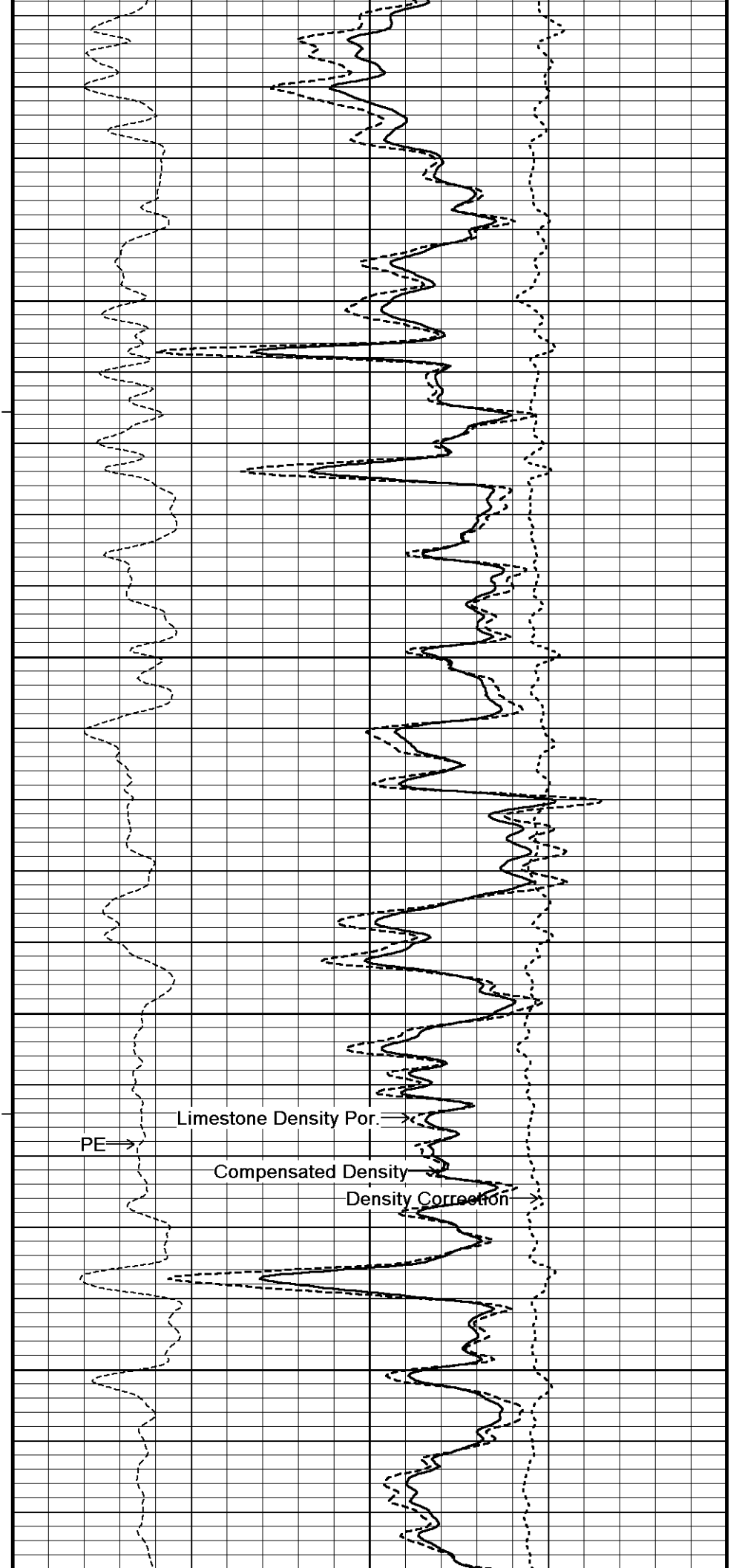
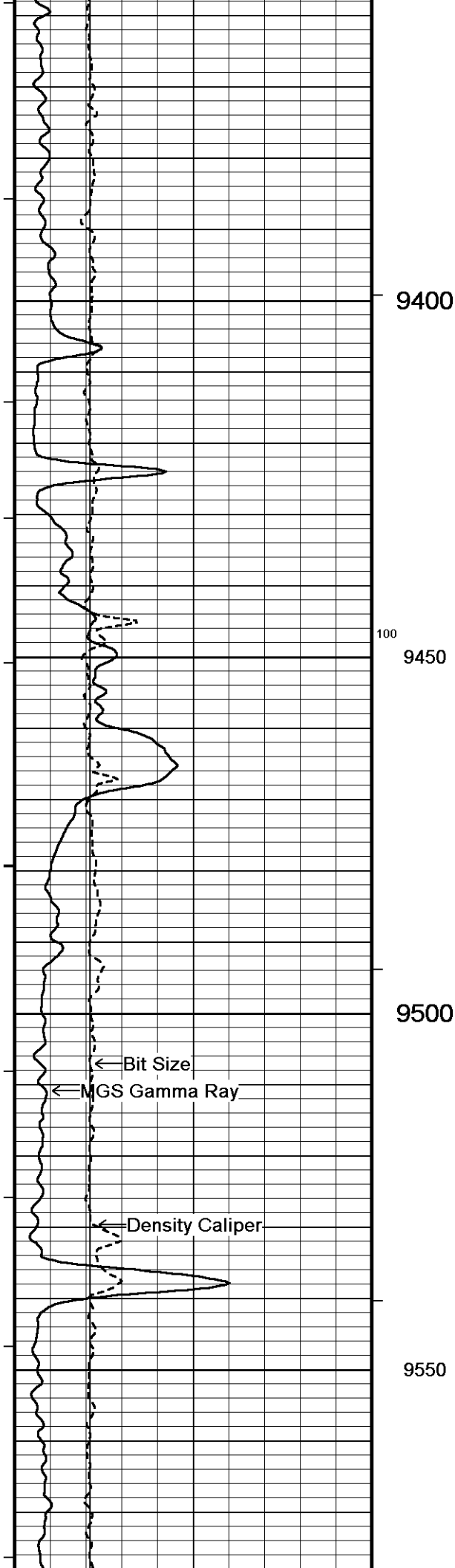


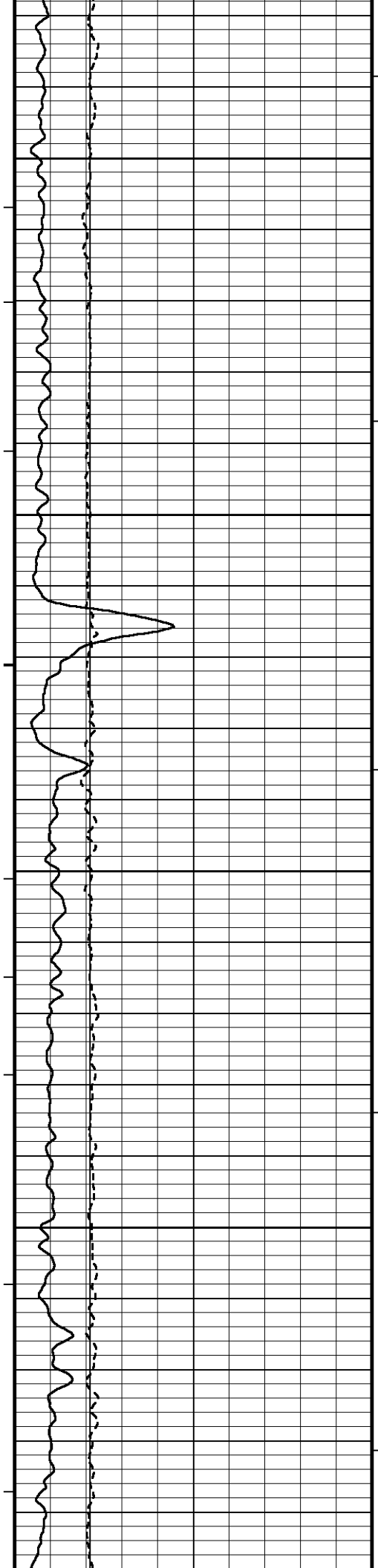










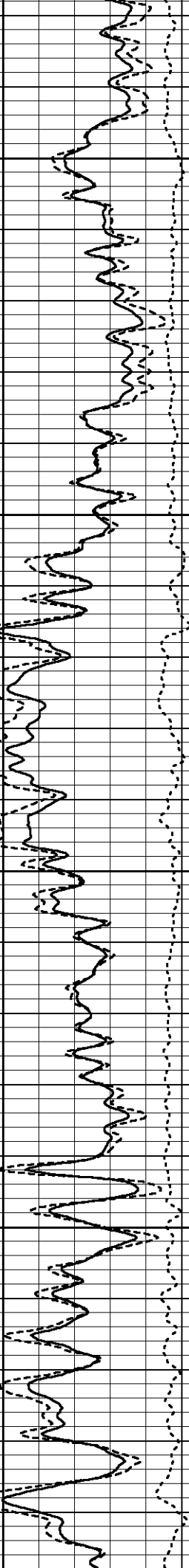
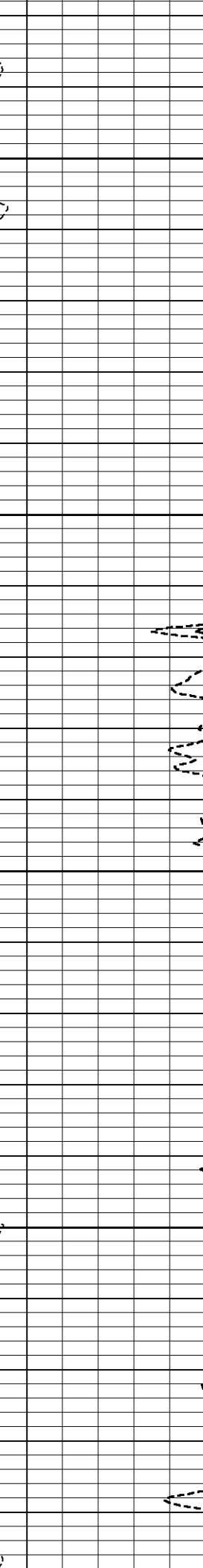
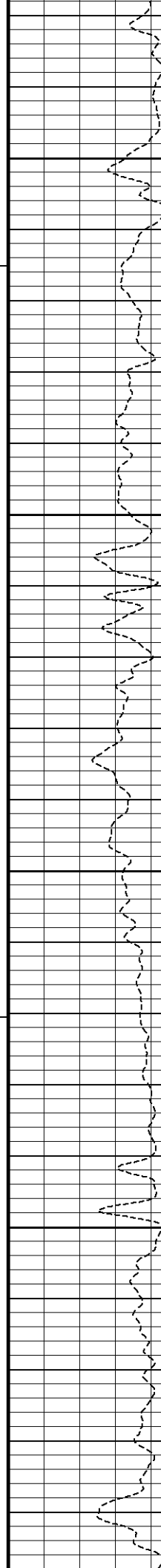


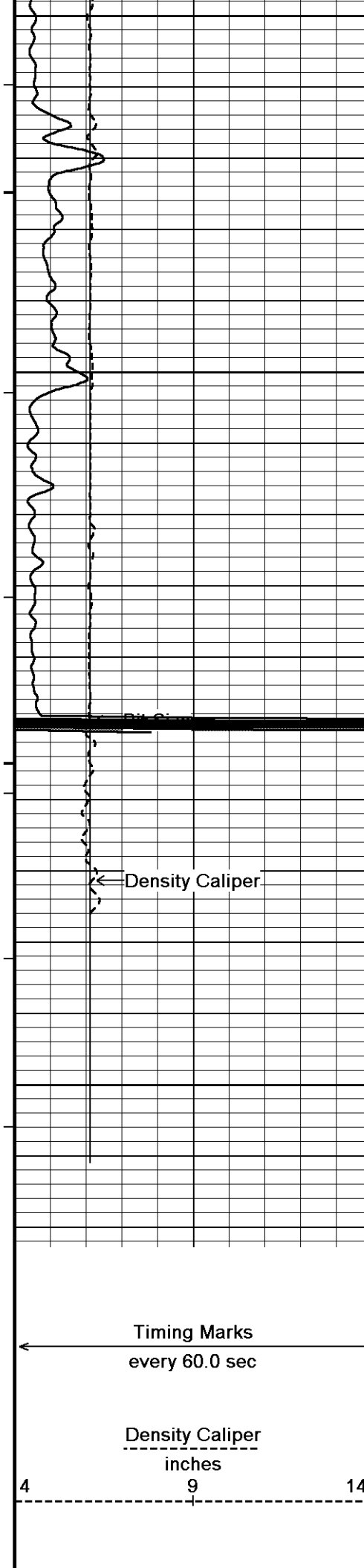
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9650

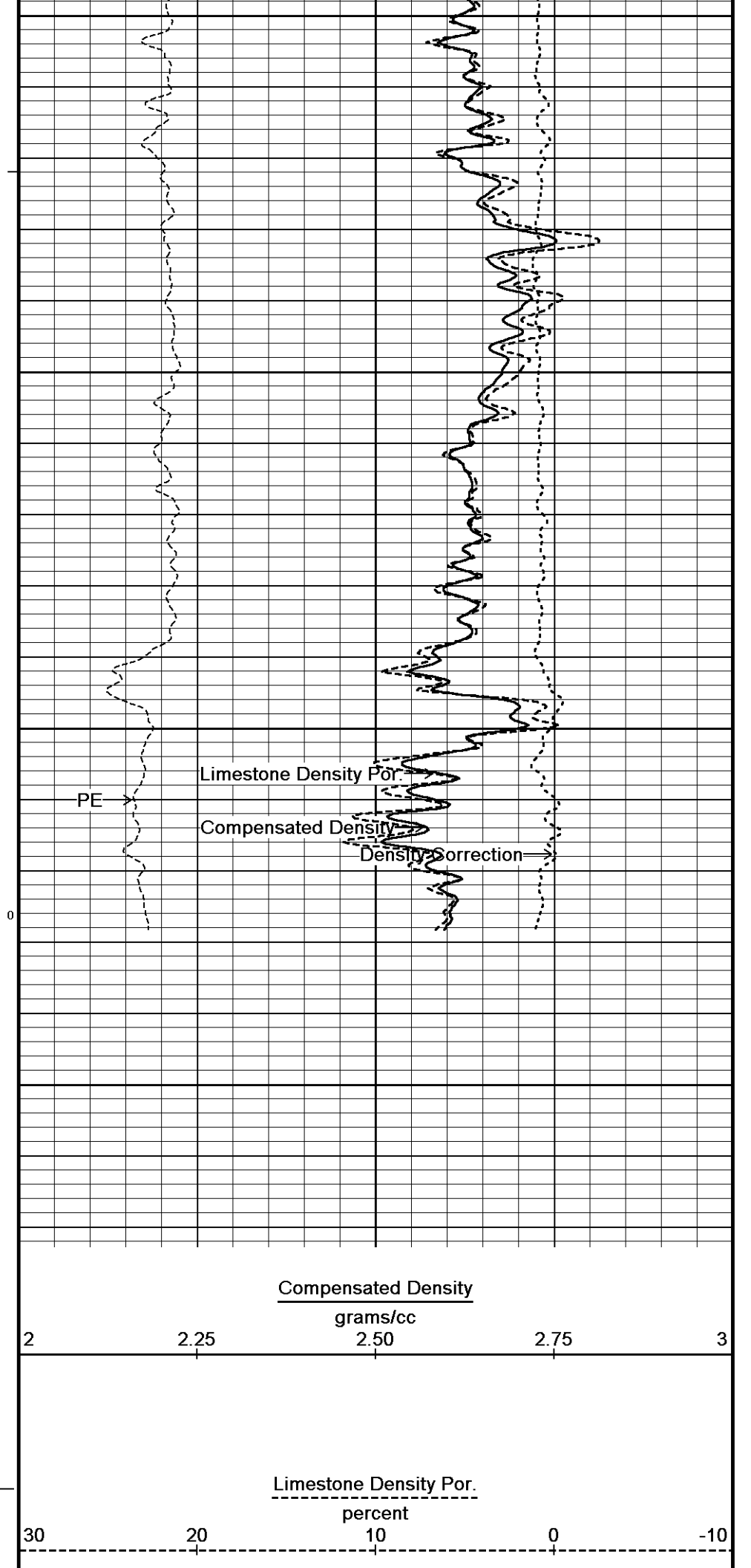
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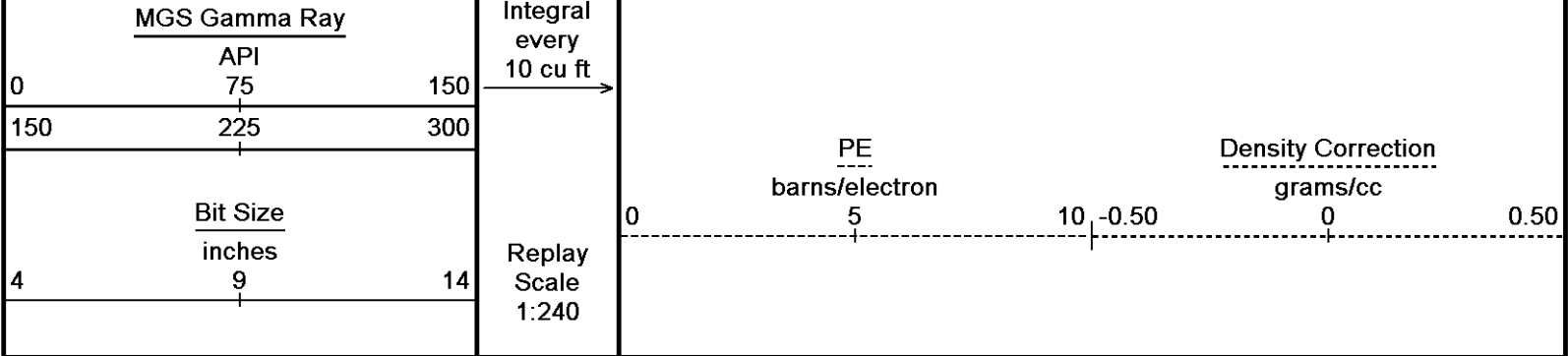
9750





9800
9850
9900
9950
9970
Depth
In
Feet
Timing Marks
every 60.0 sec
Density Caliper
inches
4 9 14
HVI
every
10 cu ft
Annular





Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\DATA_13_04_8492\SANDRIDGE SEAN 3119 3-18H RTAP DEPTH.dta
 System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

Plotted on 03-FEB-2013 07:19
 Recorded on 03-FEB-2013 06:51

↑

5 INCH BULK DENSITY

↑

BEFORE SURVEY CALIBRATION

C:\DATA_13_04_8492\SANDRIDGE SEAN 3119 3-18H\SEAN 3119 3-18H RTAP DEPTH.dta

General Constants All 000			Last Edited on 03-FEB-2013,06:56		
General Parameters					
Mud Resistivity	0.670		ohm-metres		
Mud Resistivity Temperature	74.000		degrees F		
Water Level	0.000		feet		
Borehole Fluid 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	Density Caliper				
Rwa Parameters					
Porosity used	Base Density Porosity				
Resistivity used	Array Ind. One Res Rt				
RWA Constant A	0.610				
RWA Constant M	2.150				

Strain Gauge Constants MMS-E.B 133					Last Edited on 07-DEC-2012,11:16				
Atmospheric Pressure		14.70		psi					
Serial Number		241946							
Calibration Date		09-JUL-08							
Base Check Date									
Dead Weight Serial Number		0							
Dead Weight Gravitational Correction		1.0							
Temperature		75.0		150.0		250.0		350.0 degrees F	
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	
0.0	0.069	0.073	0.062	0.063	0.042	0.042	0.021	0.021	
3000.0	5.240	5.253	5.235	5.245	5.219	5.228	5.199	5.209	
6000.0	10.422	10.442	10.421	10.439	10.408	10.425	10.388	10.406	
9000.0	15.616	15.637	15.619	15.638	15.609	15.627	15.593	15.610	
12000.0	20.827	20.839	20.834	20.843	20.828	20.838	20.815	20.823	
15000.0	26.051		26.060		26.056		26.046		

MMS Parameters MMS-E.B 133			Last Edited on 02-FEB-2013 11:44		
Logging Parameters					
Firmware Version	2v40				
Caliper Open On	MAI				
Caliper Open Delay			minutes		
Caliper Closed On	Unknown				
Caliper Closed Delay	N/A		minutes		
Sample Rate	1.00		seconds		
Use Deep Sleep	No				

Use Deep Sleep	N/A	No
Delay Deep Sleep	N/A	
Deep Sleep Wake Time	N/A	minutes
Deep Sleep Wake on Temperature	N/A	
Deep Sleep Wake Temperature	N/A	degrees C
Deep Sleep Wake on Pressure	N/A	
Deep Sleep Wake Pressure	N/A	psi
MMI Pad Pressure	0.0	

Release Parameters

Pulse Duration Base Level	10.0	seconds
Pulse Duration Transition Time	60.0	seconds
Pulse Duration Status Pulse From	20.0	seconds
Pulse Duration Caliper Close From	145.0	seconds
Pulse Duration Caliper Open From	150.0	seconds
Pulse Duration Release Pulse From	215.0	seconds
Pulse Duration Release Pulse To	280.0	seconds
Pulse Release Duration	240.0	seconds
Pulse Discriminator Pressure Band	8625.0	seconds
Pulse Pressure Discriminator	19768.0	seconds
Use Negative Pulsing	No	
Good Status Reply Open Hole	65535.0	seconds
Good Status Reply Cased Hole	20.0	seconds
Bad Status Reply	60.0	seconds
Status Pulse To	80.0	seconds
Caliper Close To		seconds
Caliper Open To	210.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MFE,MAI

SP Calibration MGS-C.J 142

Field Calibration on 18-JAN-2013,11:54

	Measured	Calibrated (mV)
Reference 1	100.0	100.0
Reference 2	-100.0	-100.0

High Resolution Temperature Calibration MGS-C.J 142

Field Calibration on 18-JAN-2013,11:54

	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	0.00	0.00

High Resolution Temperature Constants MGS-C.J 142

Last Edited on 18-JAN-2013,11:54

Pre-filter Length	11
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Gamma Calibration MGS-C.J 142

Field Calibration on 31-JAN-2013,15:26

	Measured	Calibrated (API)
Background	45	32
Calibrator (Gross)	1033	728
Calibrator (Net)	988	696

Gamma Constants MGS-C.J 142

Last Edited on 31-JAN-2013,15:26

Gamma Calibrator Number	036	
Mud Density	1.02	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Neutron Calibration MDN-B.J 391

Base Calibration on 02-JAN-2013 14:51

Field Check on 31-JAN-2013,15:26

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3090	94	3714	110
	32.975		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2305	2968

Ratio	0.777			
Field Check	Calibrated (cps)			
Ratio	2045 3097			
	0.660			
Neutron Constants MDN-B.J 391				
Last Edited on 02-FEB-2013,10:36				
Neutron Source Id	N1055			
Neutron Jig Number	N639			
Epithermal Neutron	No			
Caliper Source for Processing	Density Caliper			
Stand-off	0.00	inches		
Mud Density	1.02	gm/cc		
Limestone Sigma	7.10	cu		
Sandstone Sigma	4.26	cu		
Dolomite Sigma	4.70	cu		
Formation Pressure Source	None			
Formation Pressure	N/A	kpsi		
Temperature Source	MGS External Temperature			
Temperature	N/A	degrees F		
Mud Salinity	4.40	kppm		
Salinity Correction	Not Applied			
Formation Fluid Salinity Source	None			
Formation Fluid Salinity	N/A	kppm		
Barite Mud Correction	Not Applied			
FE Calibration MFE-A.A 134				
Base Calibration on 06-JAN-2013,21:47				
Field Check on 31-JAN-2013 15:22				
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	972.5	126.8		
Base Check		279.1		
Field Check		278.5		
FE Constants MFE-A.A 134				
Last Edited on 31-JAN-2013,15:21				
Running Mode	No Sleeve			
MFE K Factor	0.1268			
Caliper Source for FE correction	Density Caliper			
Caliper Value for FE correction	N/A	inches		
Rm Source for FE correction	Temperature Corr			
Temp. for Rm Corr.	MGS External Temperature			
Stand-off	0.5	inches		
High Resolution Temperature Calibration MAI-A.A 170				
Field Calibration on 14-JAN-2013,12:49				
	Measured	Calibrated(Deg F)		
Lower	0.00	10.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MAI-A.A 170				
Last Edited on 14-JAN-2013,12:49				
Pre-filter Length	11			
Induction Calibration MAI-A.A 170				
Base Calibration on 02-FEB-2012 17:42				
Field Check on 31-JAN-2013 15:20				
Base Calibration				
Test Loop Calibration		Measured	Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.7	487.1	9.3	966.2
2	6.2	384.7	7.6	821.4
3	3.7	266.1	5.2	566.0
4	2.2	136.5	2.6	279.2
Array Temperature	72.1		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			12.0	3756.3
2			30.1	3532.5

2	30.1	3332.3
3	27.6	2999.7
4	18.7	2044.5
Deep	15.7	1907.1
Medium	41.3	3984.5
Shallow	46.7	5295.6
Array Temperature	66.3	Deg F

Induction Constants MAI-A.A 170

Last Edited on 03-FEB-2013,06:56

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Bit Size		
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.	MGS 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-C.J 394

Base Calibration on 02-JAN-2013 13:20

Field Check on 31-JAN-2013 15:26

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	52312	25766	59869	31110
Reference 2	21569	2501	24557	2522

Field Check at Base

1066.7 1302.0

Field Check

1058.7 1311.0

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	192	947		
Reference 1	20819	52122	0.403	0.369
Reference 2	5899	21442	0.278	0.271

Field Check at Base

100.4 240.7

192.4 946.7

Field Check

189.9

941.0

Density Constants MPD-C.J 394

Last Edited on 20-JAN-2013,18:20

Density Source Id	236	
Nylon Calibrator Number	633	
Aluminium Calibrator Number	633	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.02	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Matrix Density (gm/cc)	Depth (ft)	
2.71	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	

Caliper Calibration MPD-C.J 394

Base Calibration on 02-JAN-2013 13:28

Field Calibration on 20-JAN-2013 05:10

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	16928	4.02
2	25088	6.00
3	33568	8.03
4	41376	10.02
5	50656	12.01
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	6.00

DOWNHOLE EQUIPMENT

C:\DATA_13_04_8492\SANDRIDGE SEAN 3119 3-18H\SEAN 3119 3-18H RTAP DEPTH.dta

Shuttle Running Tool 3.5")
 SRT-A.A 69 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MBS-G.A 200v Compact Battery Sub
 MBS-G.A 115 LG: 10.61 ft WT: 70.5 lb OD: 2.24 in

Compact Memory Sub E.B
 MMS-E.B 133 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
 MTI-B.A 76 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
 MGS-C.J 142 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
 MCL-B.J 63 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in



61.76 ft

GRGM - MGS Gamma Ray

59.77 ft

GSXT - MGS External Temperature

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 479 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 451 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 608 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 391 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 394 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 607 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 478 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

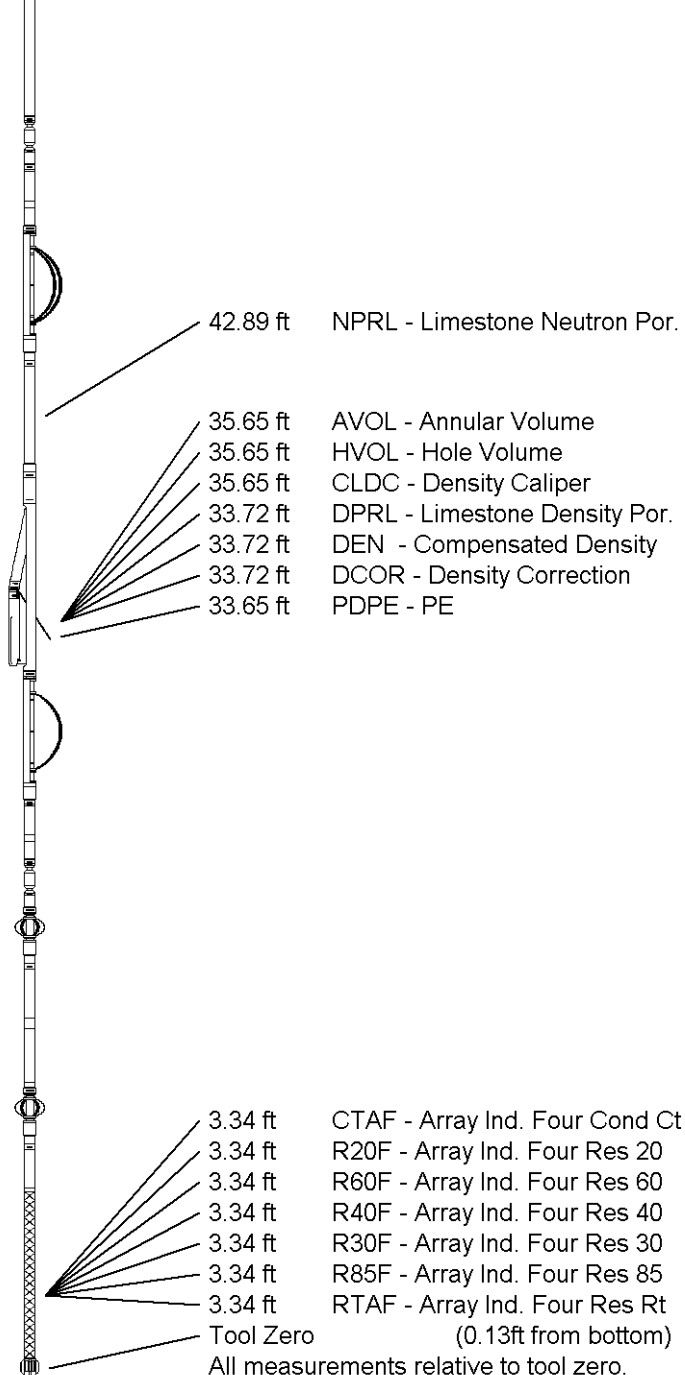
MIS-E.B Compact Inline Standoff sub
MIS-E.B 597 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 134 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 596 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-A.A 170 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 86.65 ft Weight: 637.1 lb



COMPANY	SANDRIDGE ENERGY
WELL	SEAN 3119 3-18H
FIELD	ARLIE NE
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2156.00	feet	First Reading	9918.00	feet
Elevation Drill Floor	2156.00	feet	Depth Driller	9971.00	feet
Elevation Ground Level	2136.00	feet	Depth Logger	9971.00	feet



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