



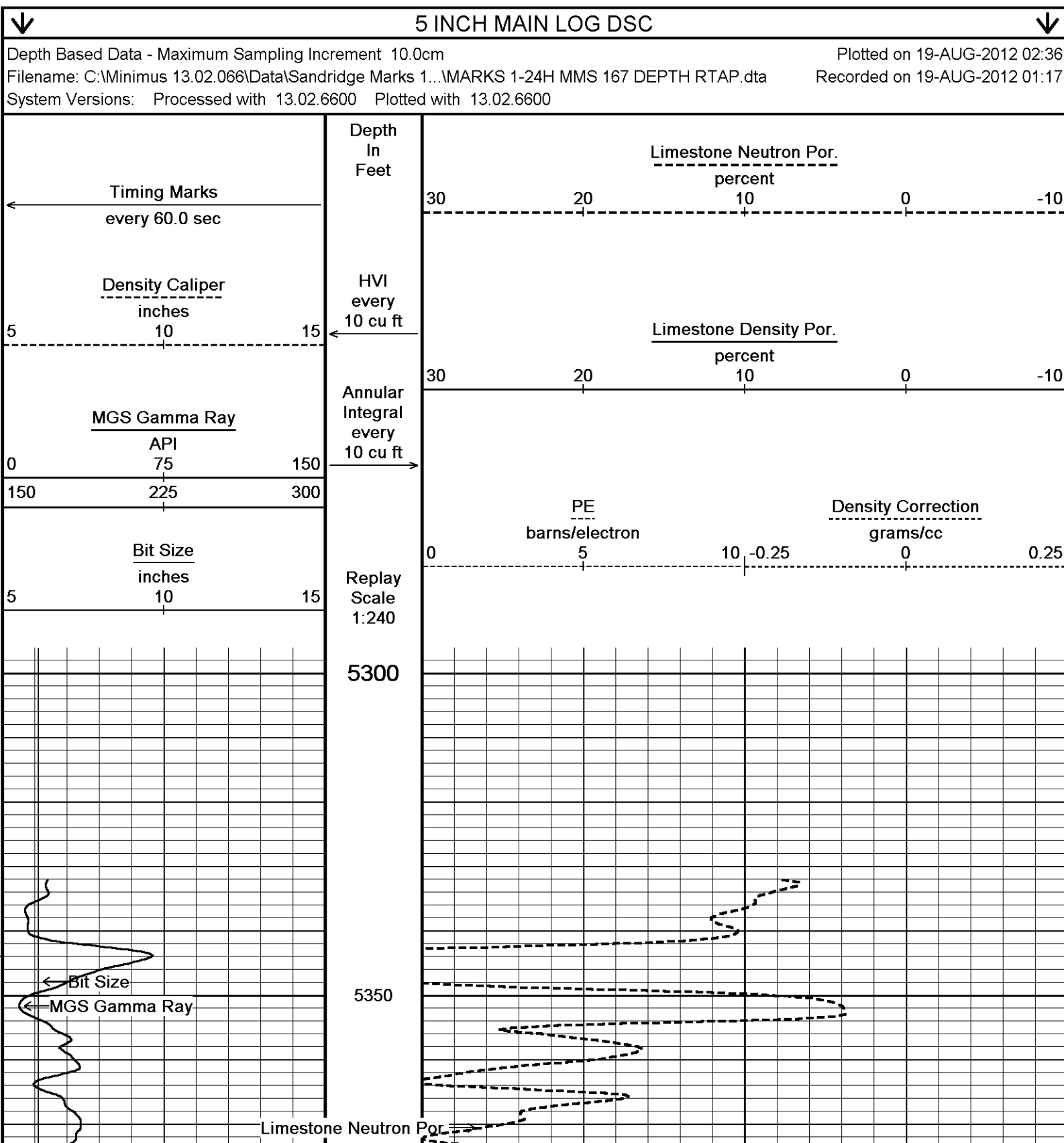
Weatherford

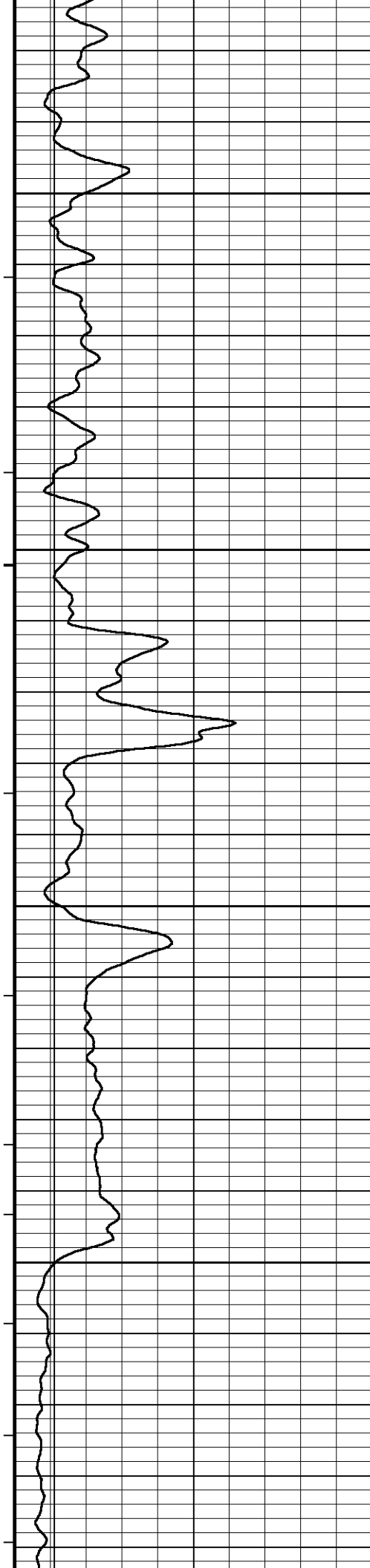
**CML MESSENGER SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG**

COMPANY	SANDRIDGE ENERGY		
WELL	MARKS 1-24H		
FIELD	MINNEOLA		
PROVINCE/COUNTY	FORD		
COUNTRY/STATE	U.S.A. / OKLAHOMA		
LOCATION	250' FNL & 520' FEL		
SEC	TWP	RGE	Other Services
24	29S	25W	MAI/MFE
API Number	15-057-20820		CMI
Permit Number			
Permanent Datum G.L., Elevation 2618 feet			Elevations: feet
Log Measured From KB			KB 2638.50
Drilling Measured From K.B. @ 18.5 FEET			DF 2637.50
			GL 2618.00
Date	17-AUG-2012		
Run Number	ONE		
Depth Driller	9803.00	feet	
Depth Logger	9803.00	feet	
First Reading	9684.00	feet	
Last Reading	5695.00	feet	
Casing Driller	5695.00	feet	
Casing Logger	5695.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WBM		
Density / Viscosity	9.40 g/cc	43.00 CP	
PH / Fluid Loss	9.50	4.50 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.18 @ 78.0	ohm-m	
Rmf @ Measured Temp	0.94 @ 78.0	ohm-m	
Rmc @ Measured Temp	1.42 @ 78.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.74 @ 124.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	124.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18006	OKC	
Recorded By	STEVEN TOTTEY		
Witnessed By	J. CLARK		
S.O. # / JOB #	3531686		

BOREHOLE RECORD					Last Edited: 18-AUG-2012 08:57
Bit Size inches		Depth From feet		Depth To feet	
6.125		5695.00		9803.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
INTER	7.000	0.00	5695.00	26.00	

REMARKS
LOGGED WITH WLS VER 13.02.6600 SOFTWARE
WELL LOGGED USING MESSENGER METHOD OF DEPLOYMENT, AND MEMORY LOGGING SYSTEM
HARDWARE: MPD: 4"PROFILE PLATE, MIS-A SINGLE SPRING DECENTRALIZER BELOW MDN: MISD DOUBLE SPRING DECENTRALIZER RAN ABOVE
2.71 G/CC DENSITY MATRIX USED TOCALCULATE POROSITY ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST
DRILL PIPE DEPTH DURING DEPLOYMENT - 9635 LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9738
4.5 INCH CASING USED TO CALCULATE AHV
2600 CHLORIDES BOREHOLE VOLUME TD TO INTERMEDIATE CASING = 820 CUFT



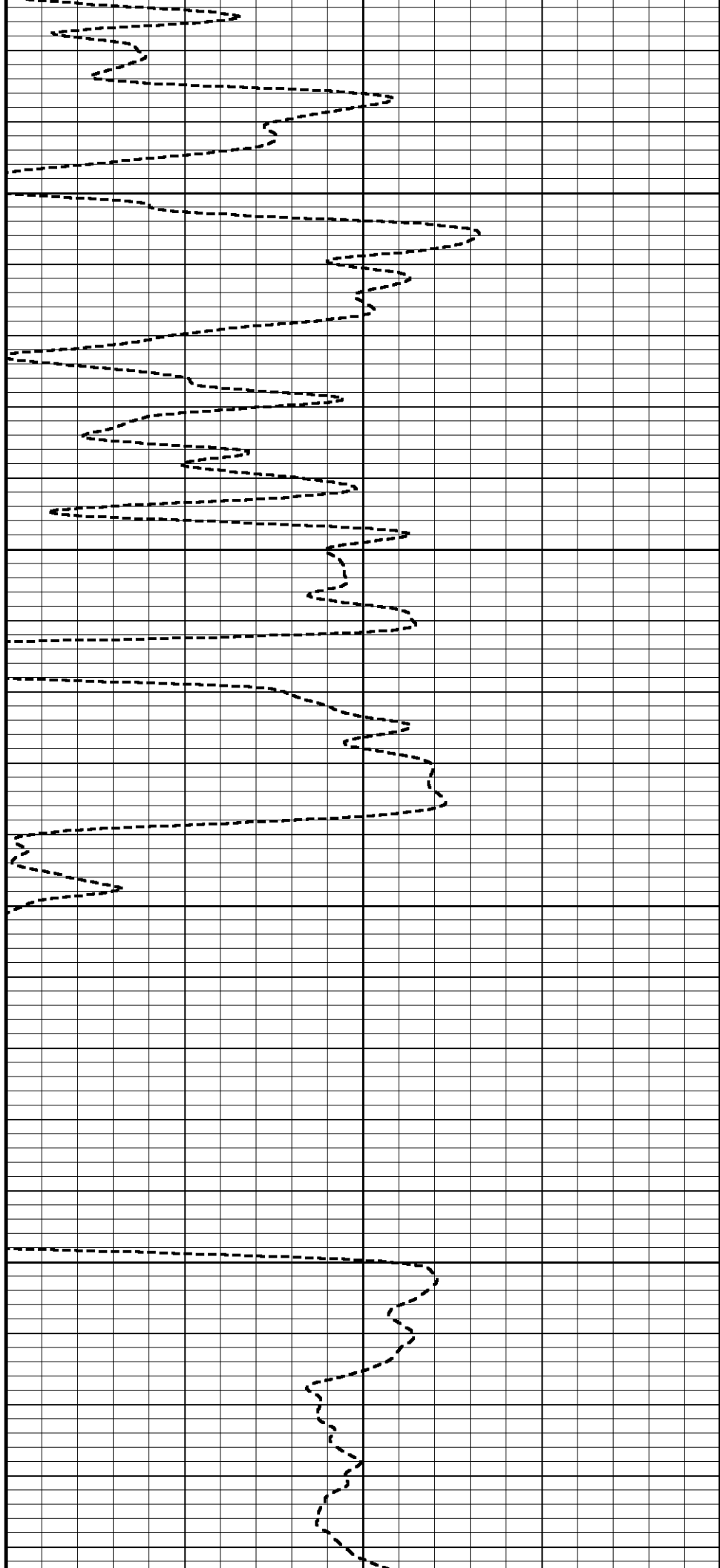


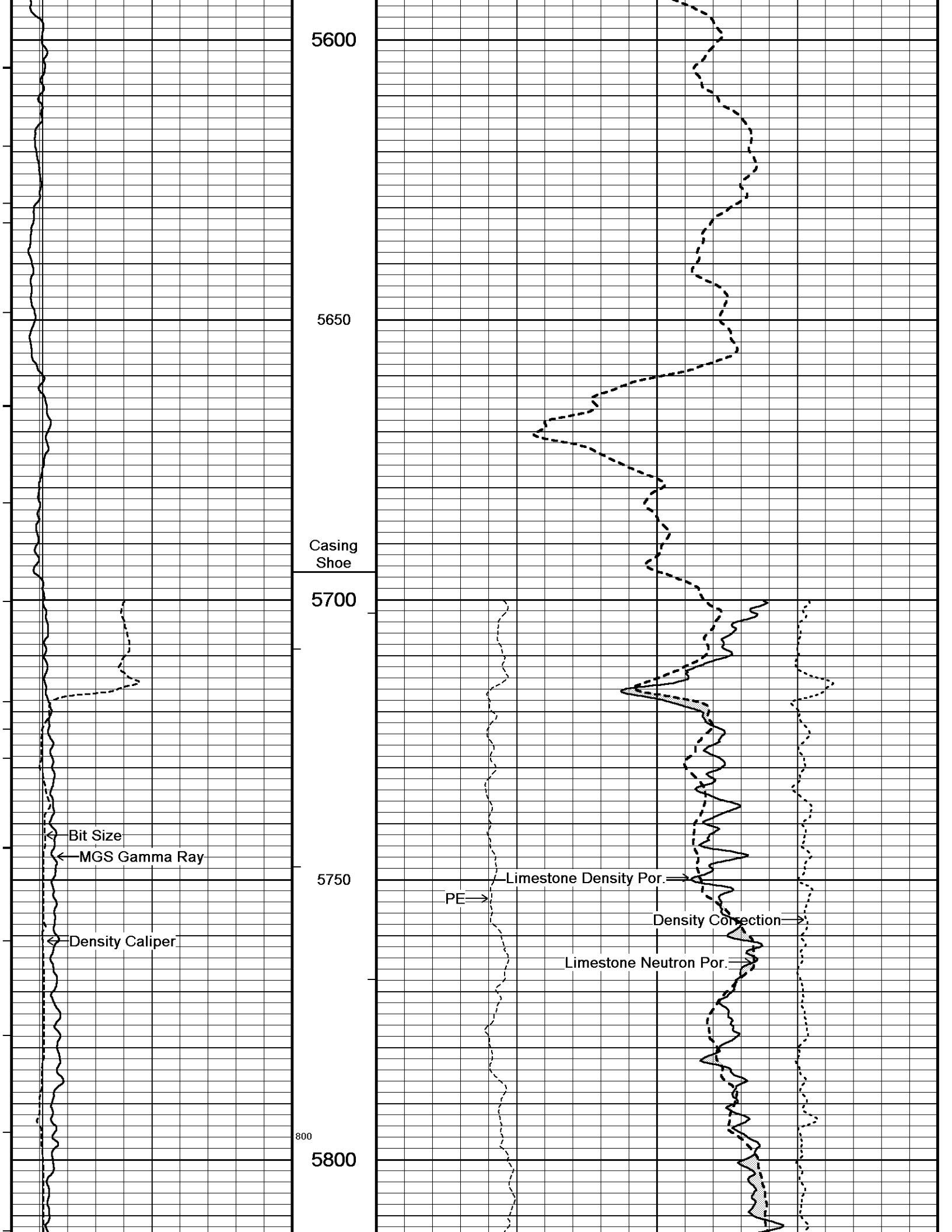
5400

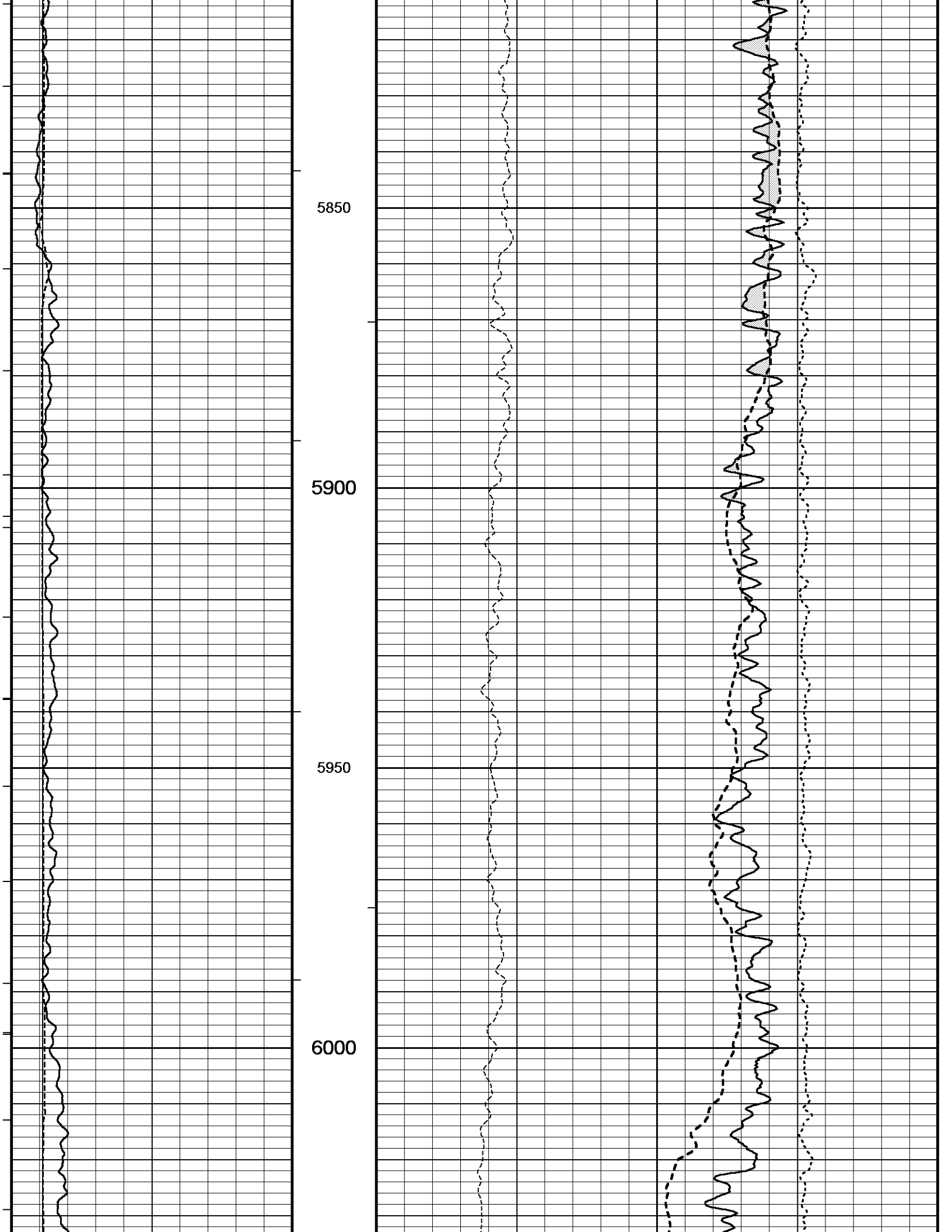
5450

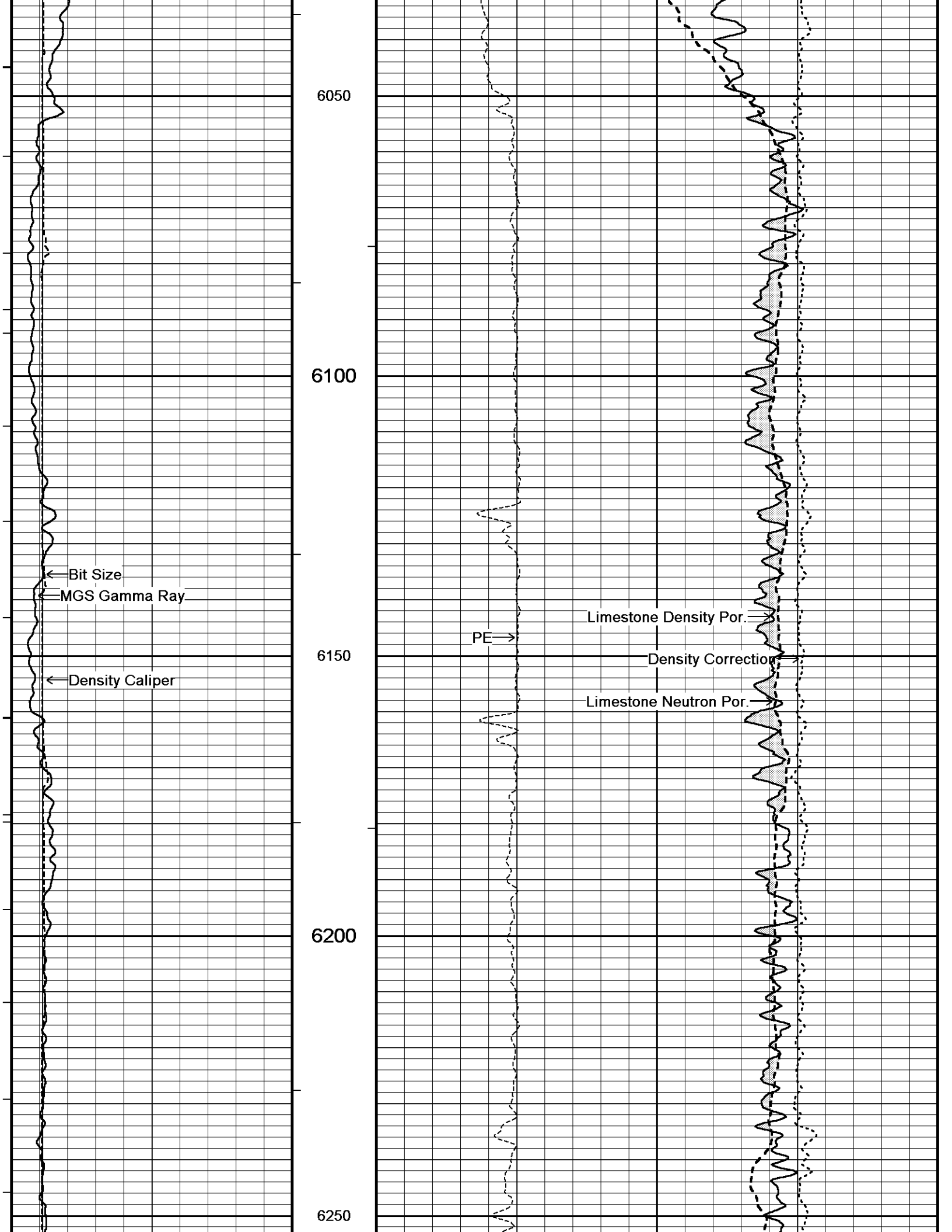
5500

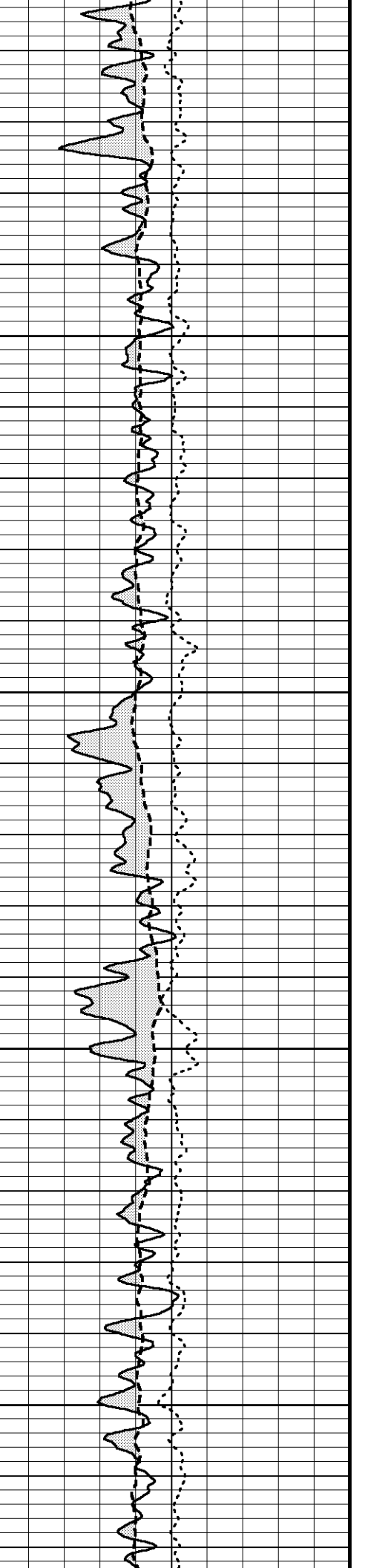
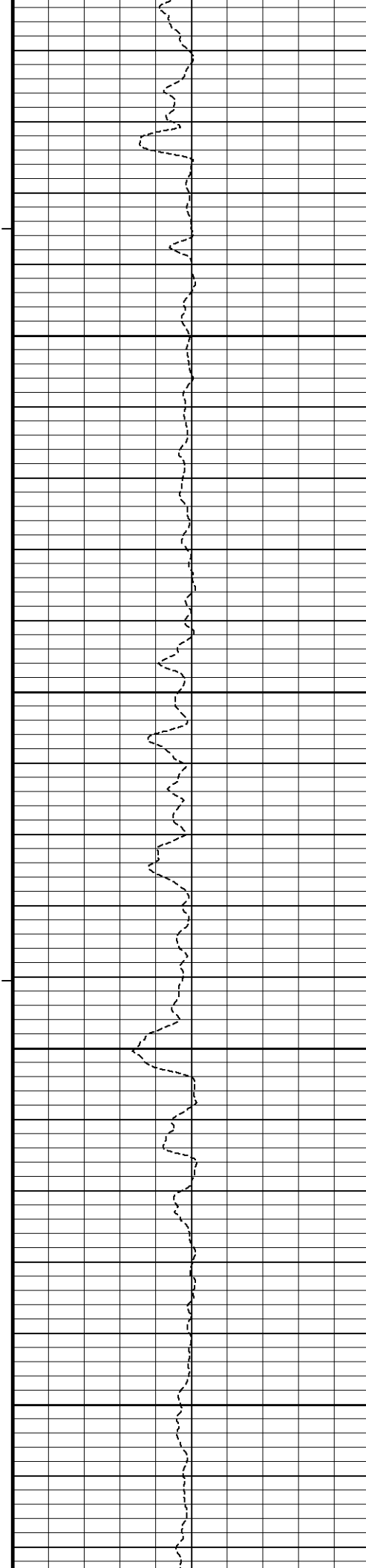
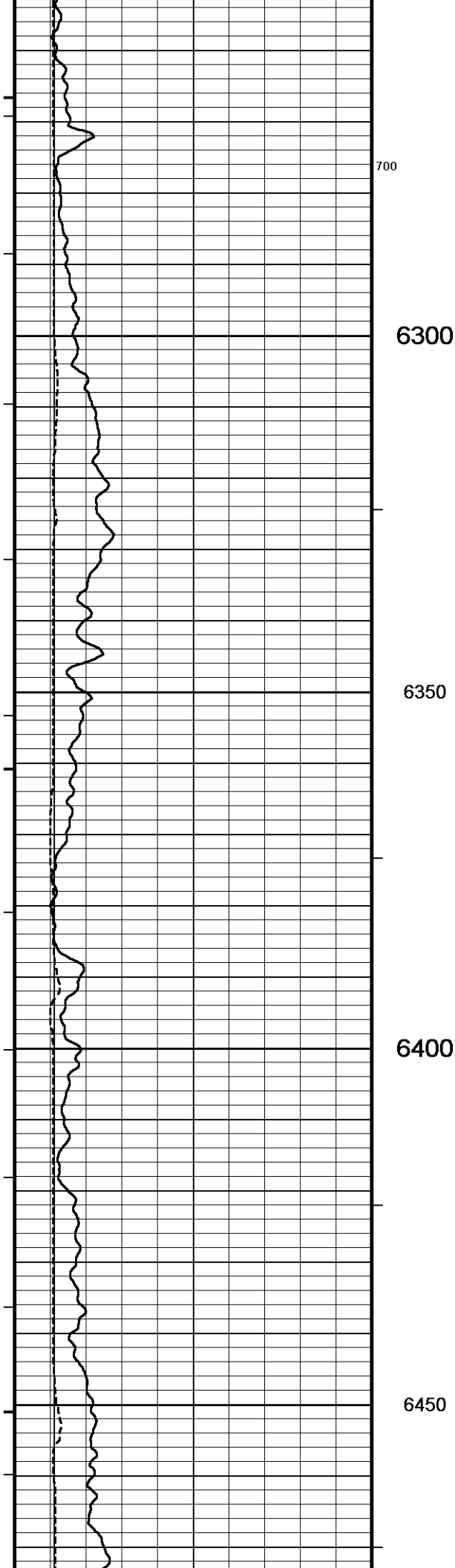
5550

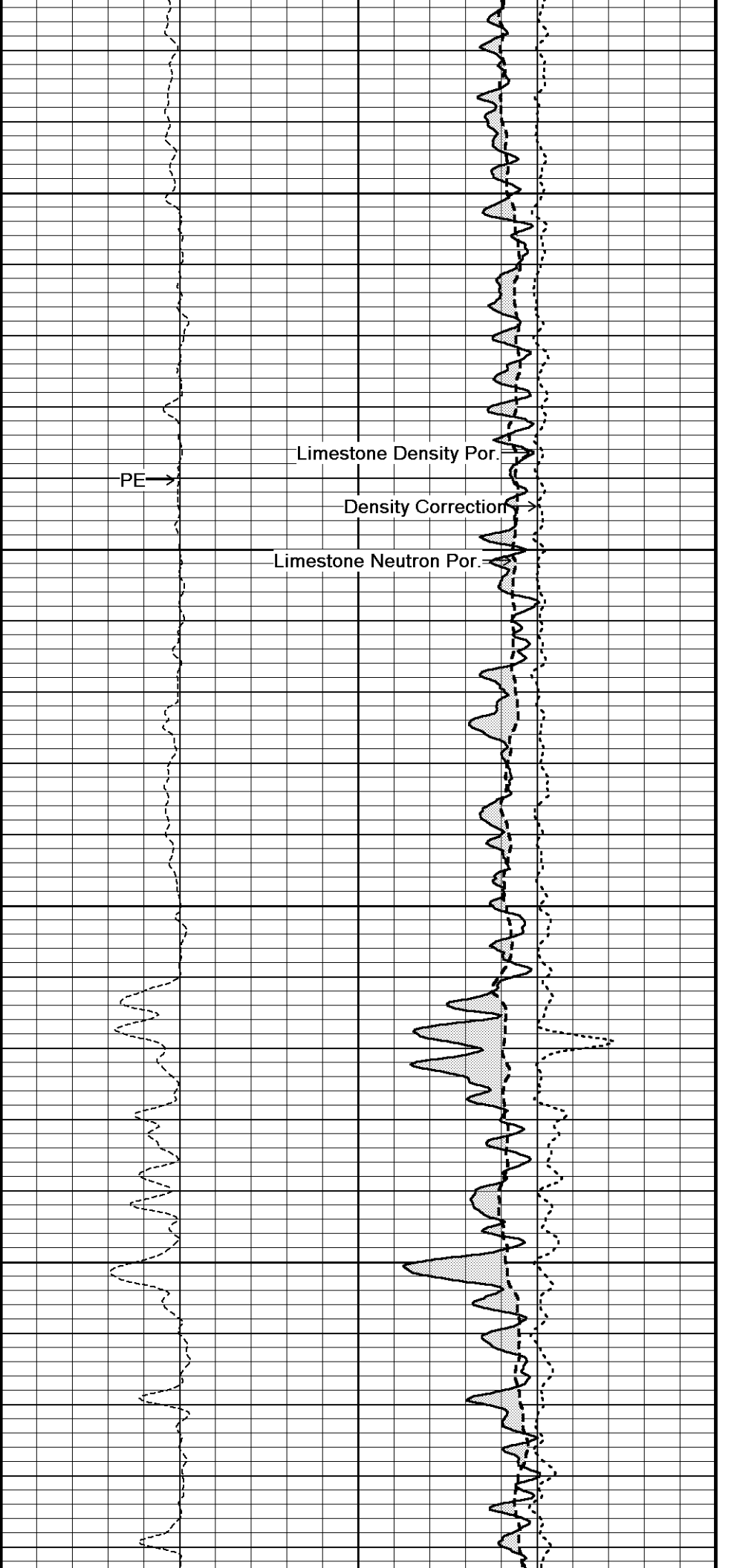
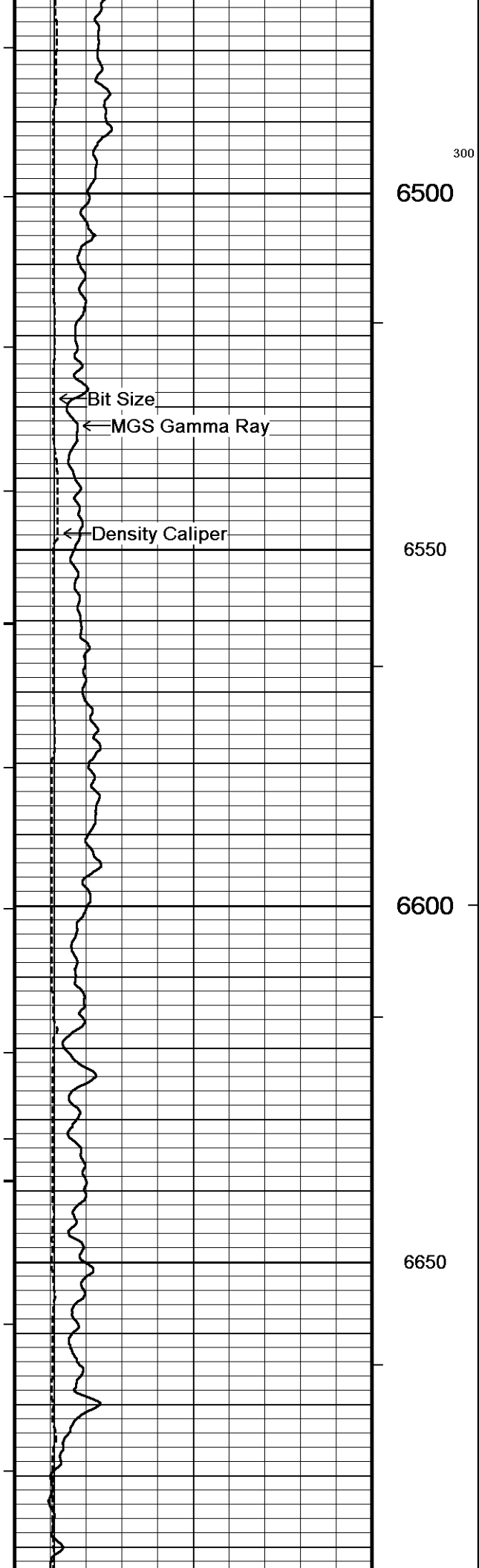


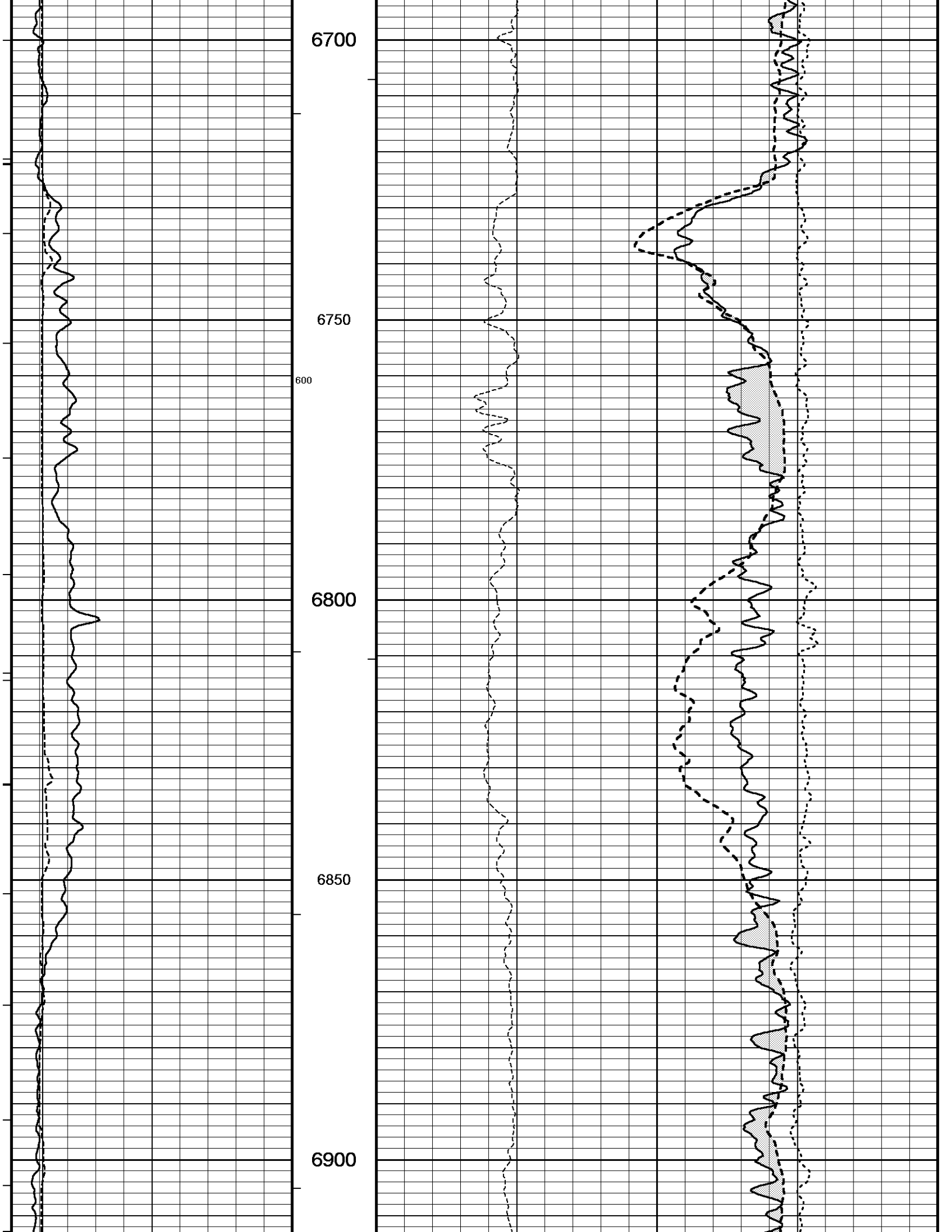


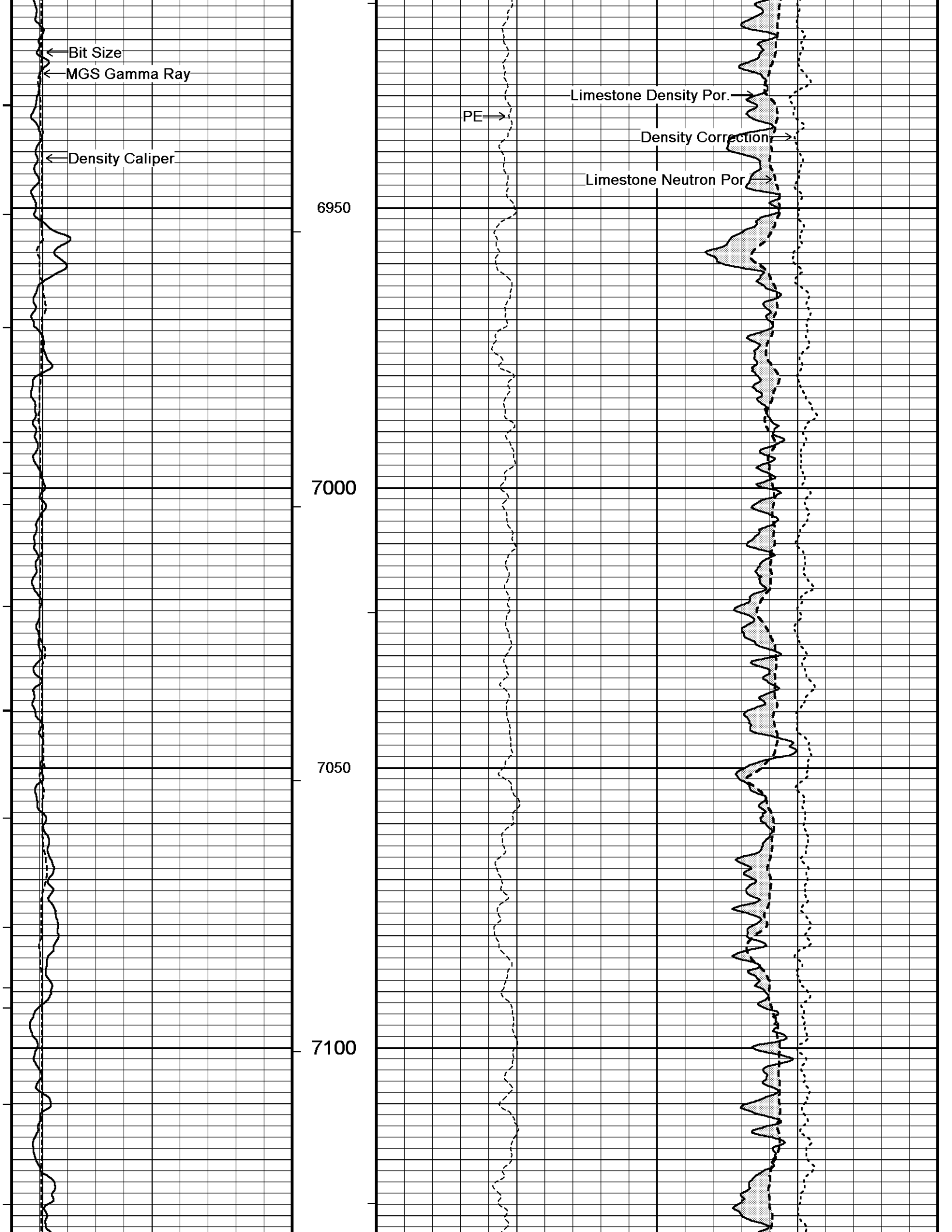


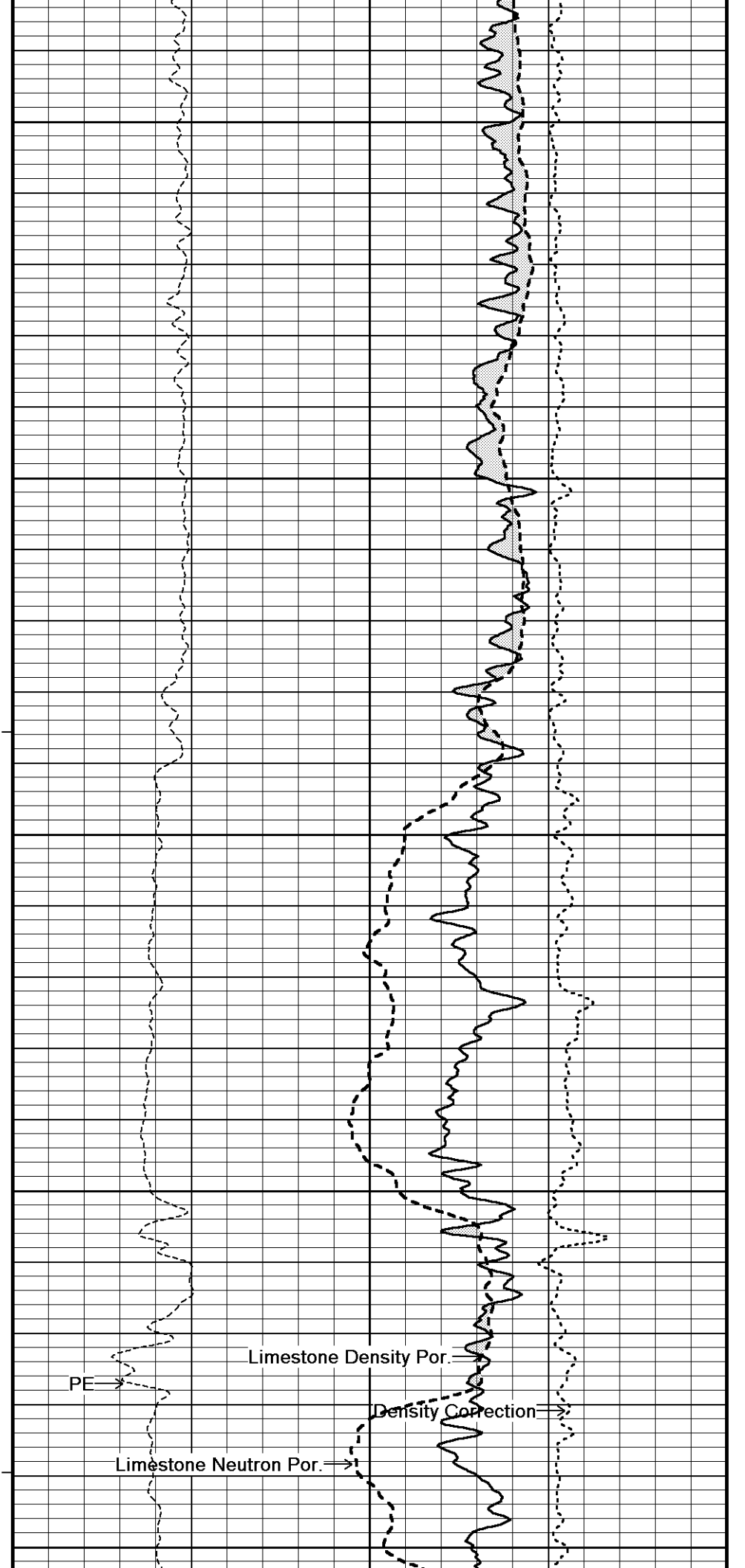
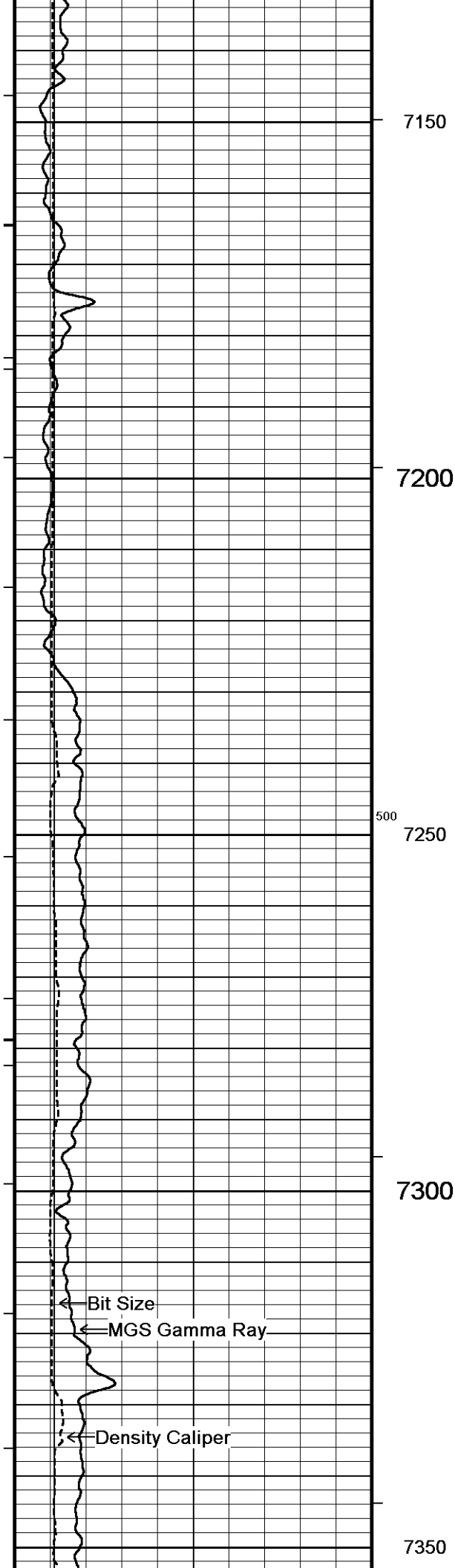


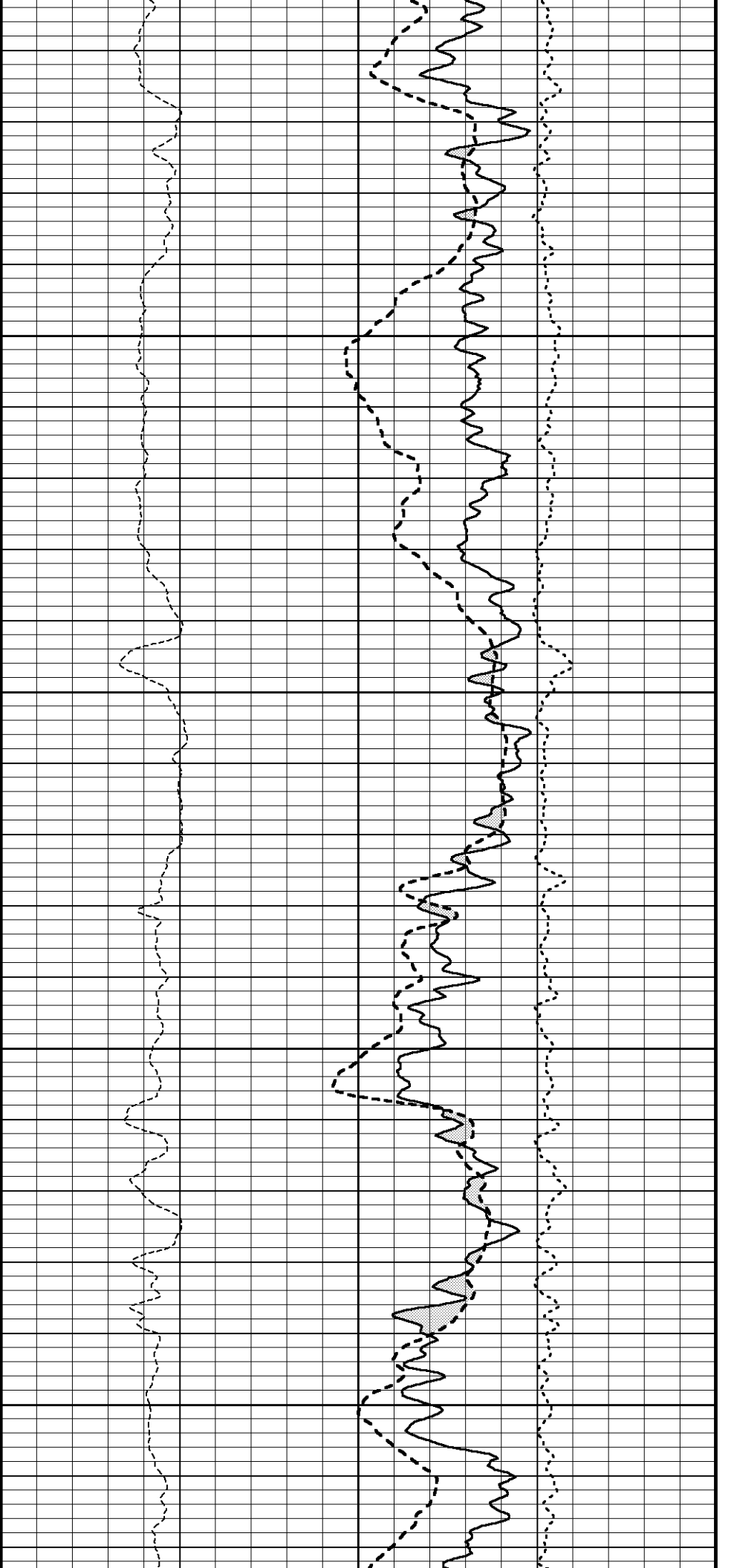
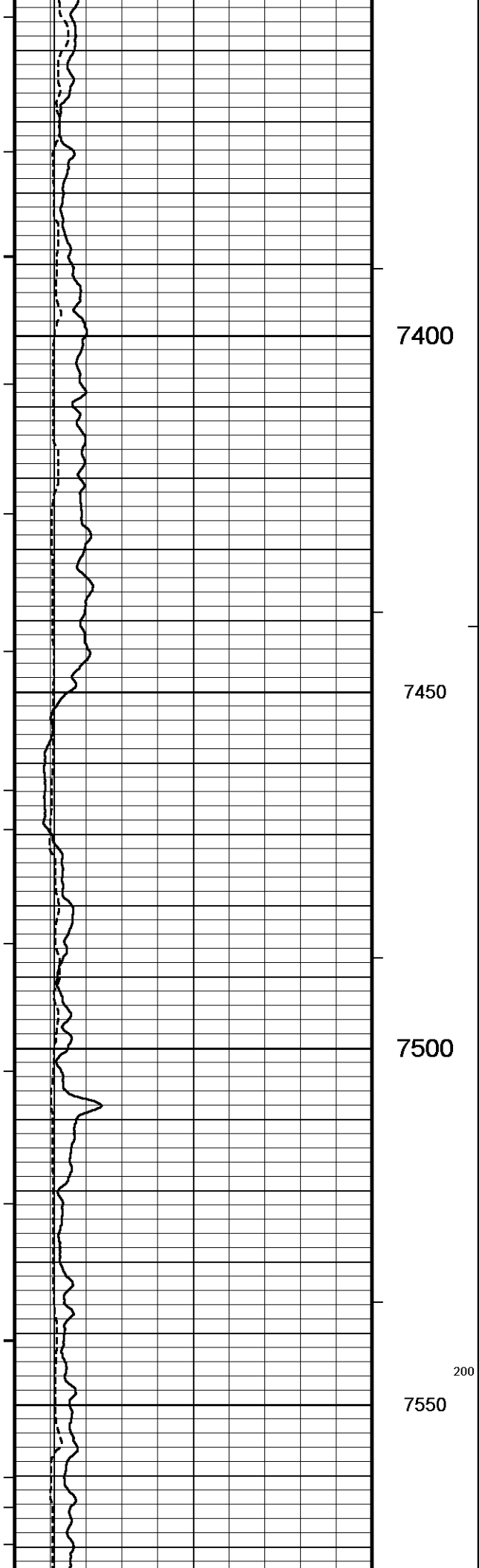


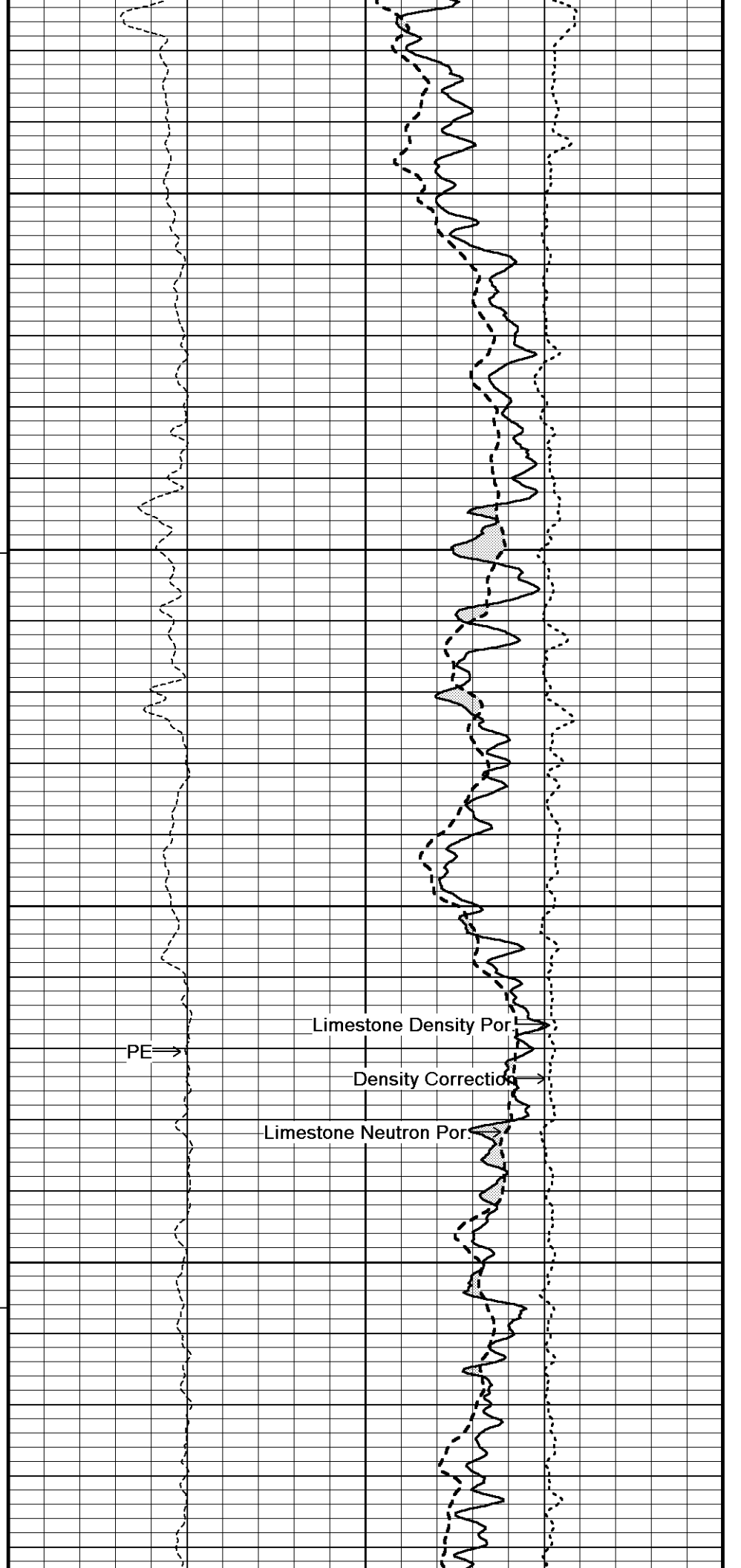
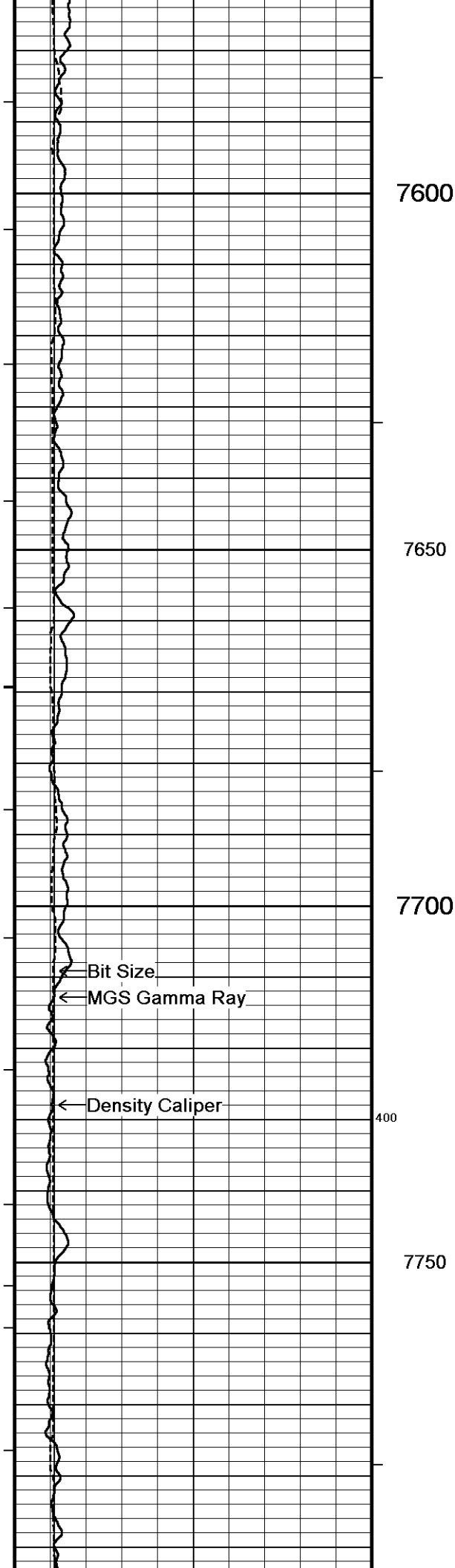


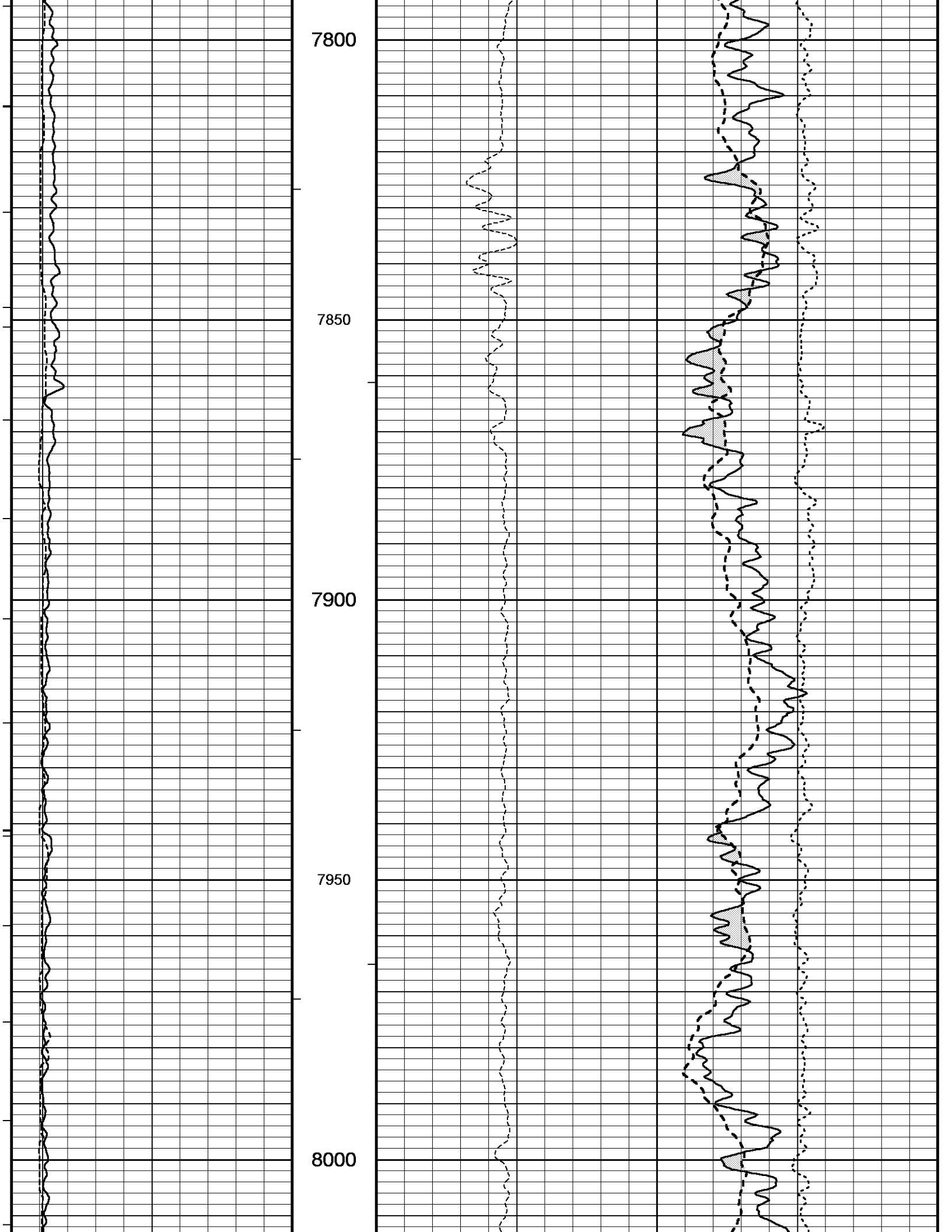


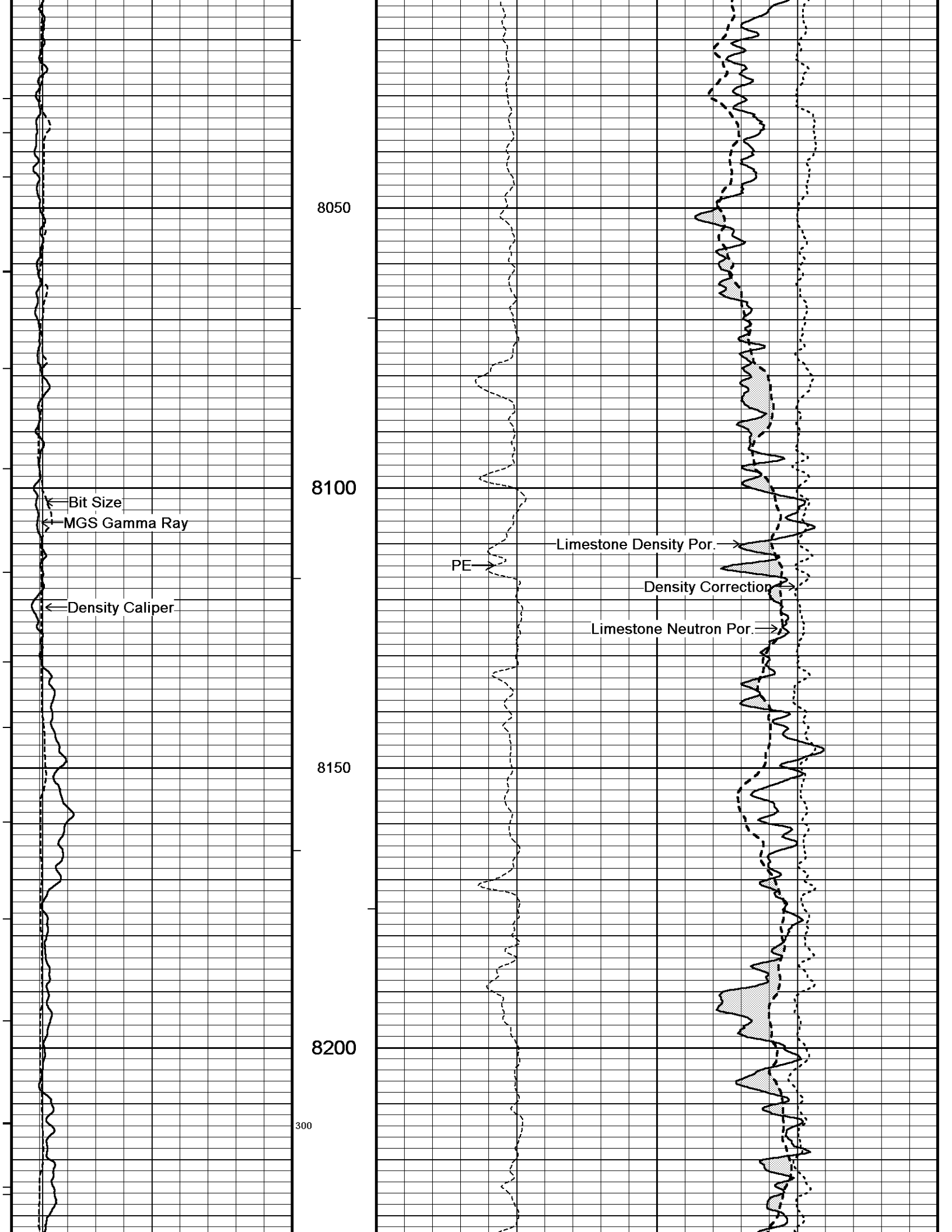


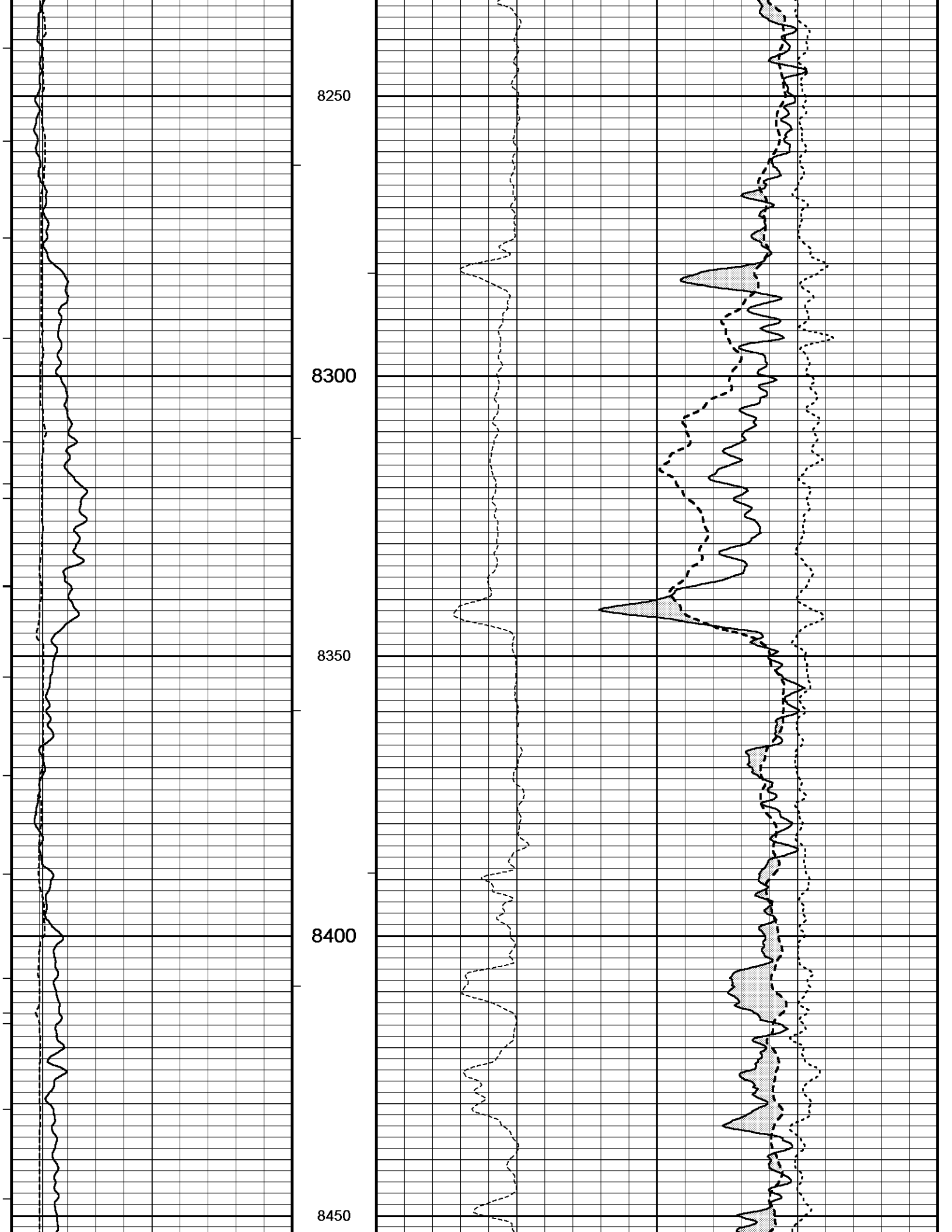


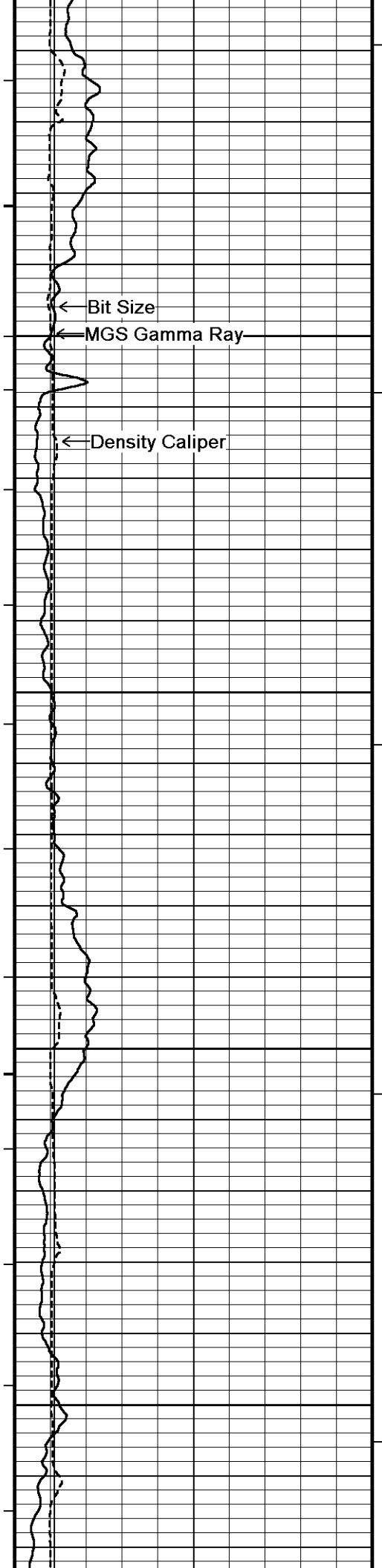












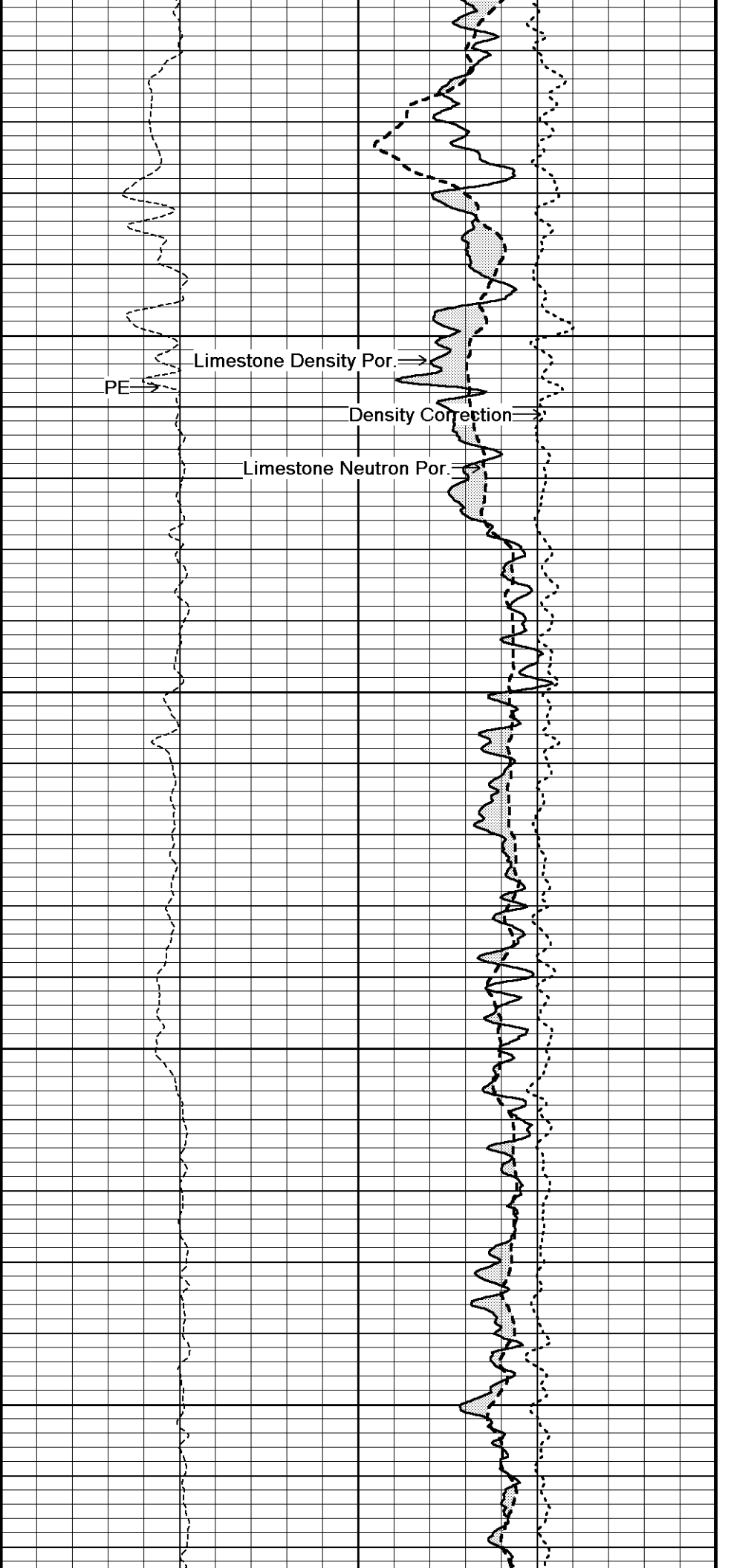
8500

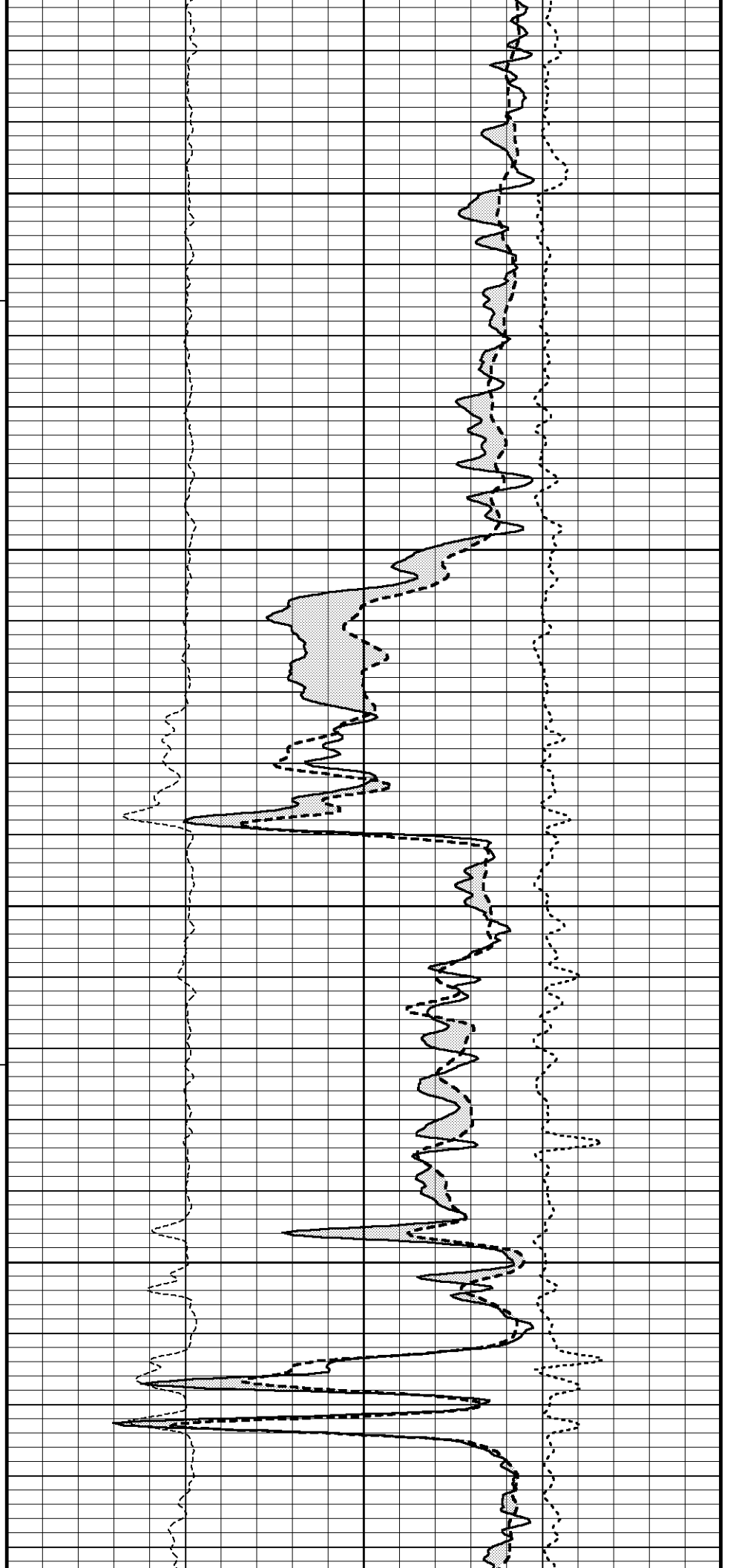
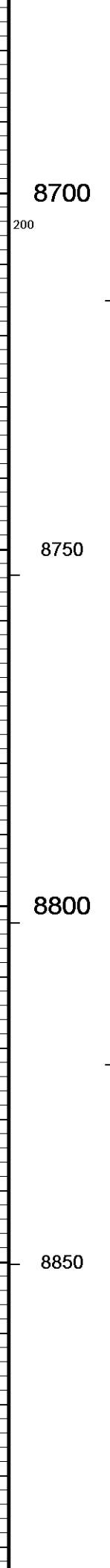
8550

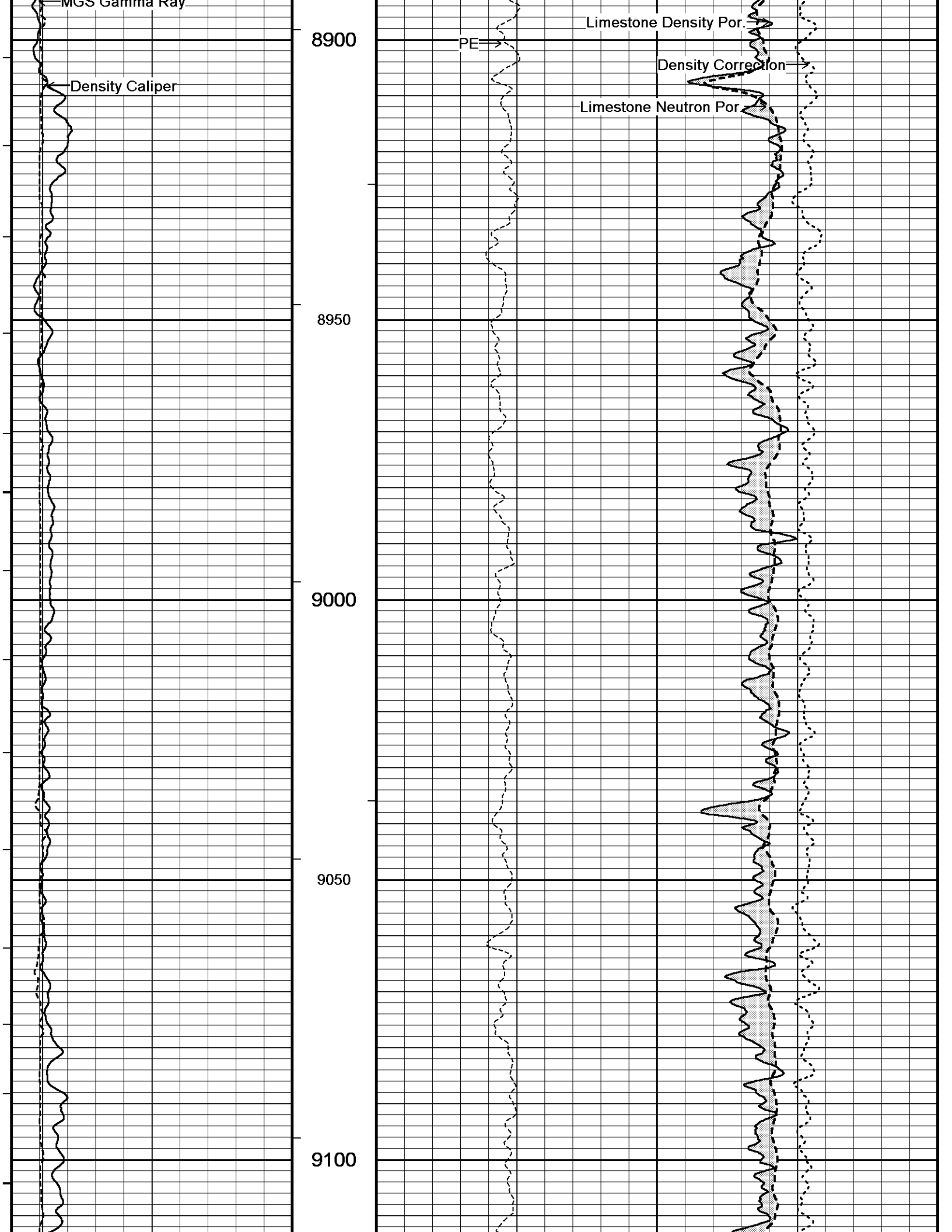
8600

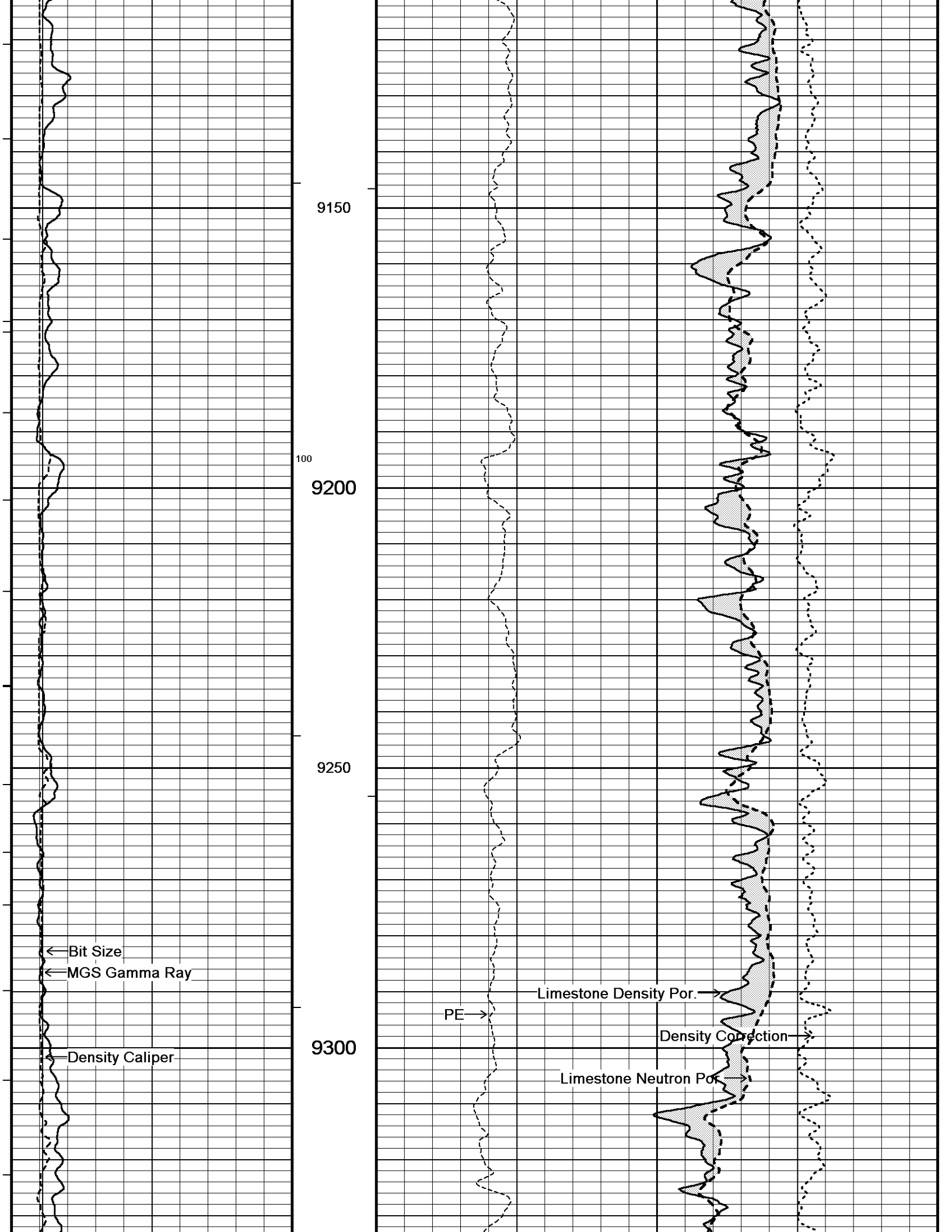
100

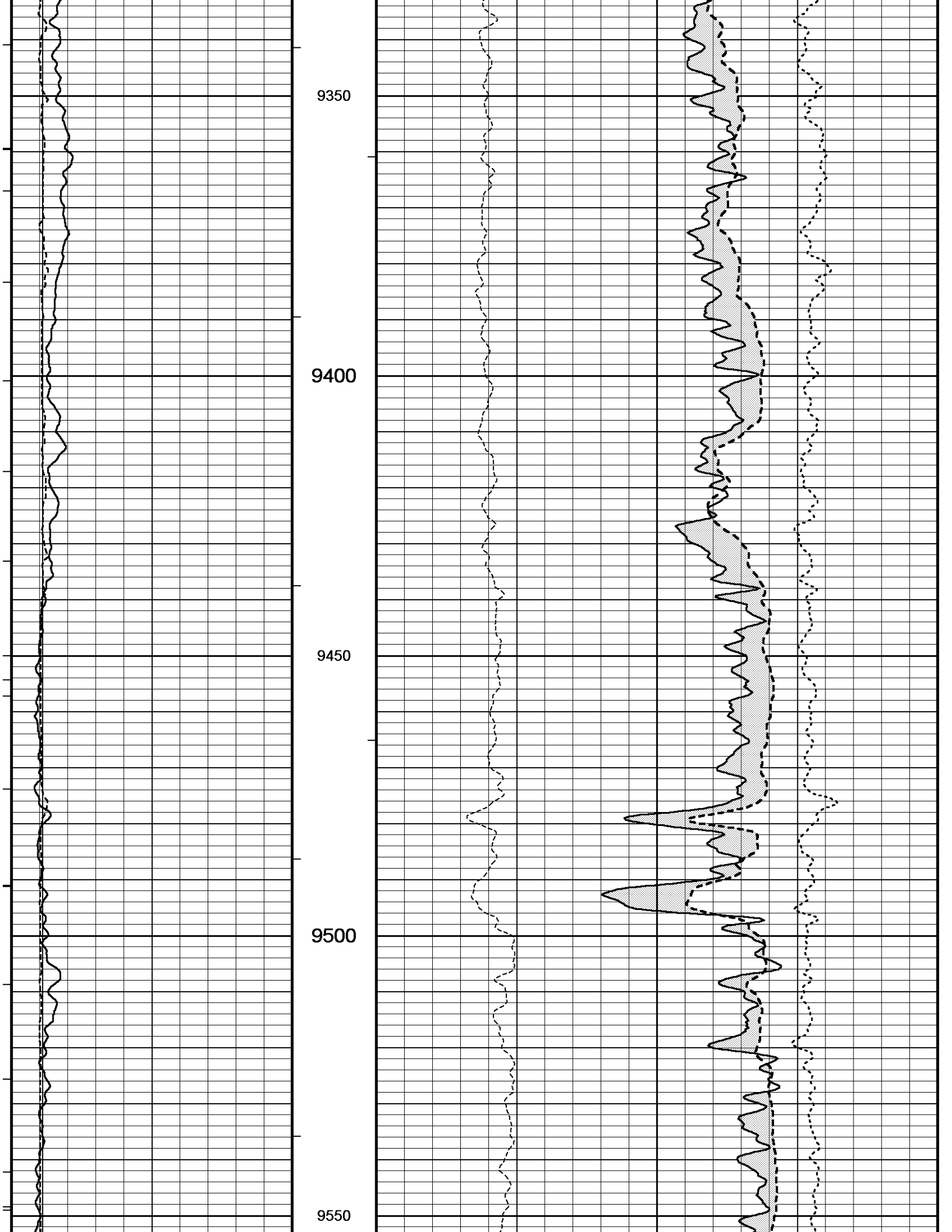
8650

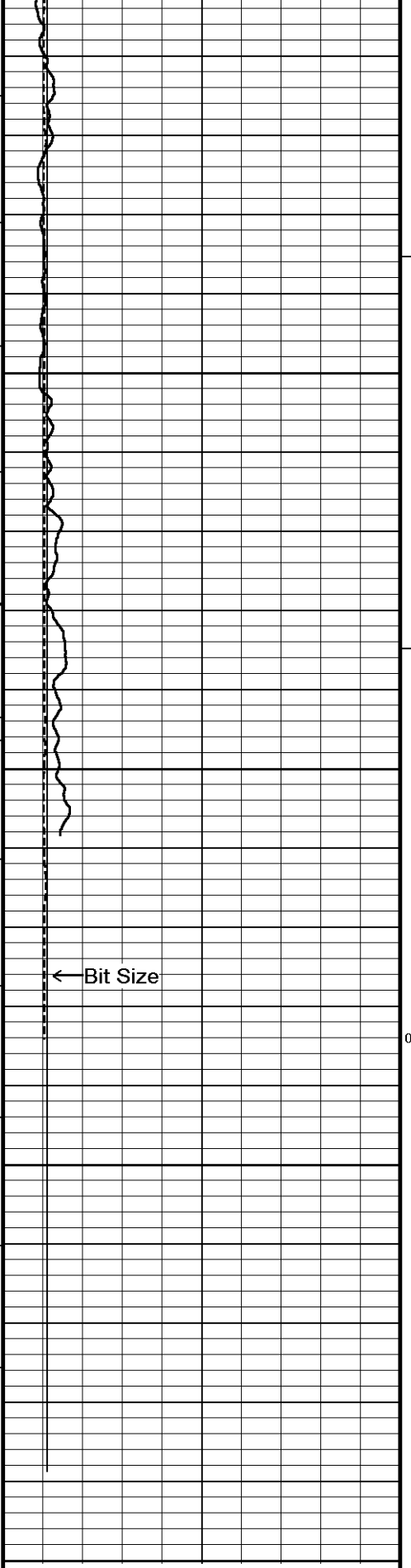










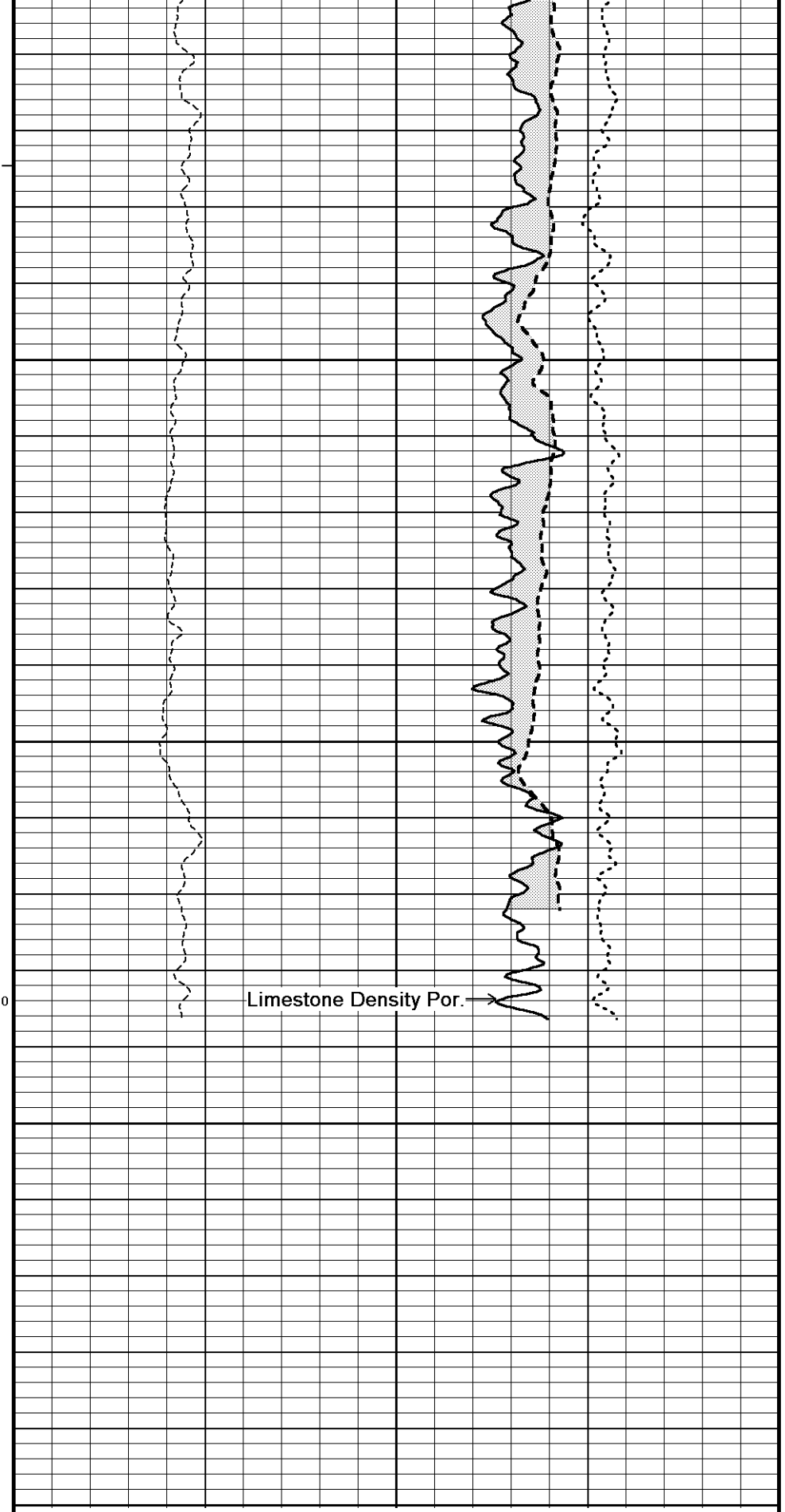


9600

9650

9700

9750
Depth
In
Feet

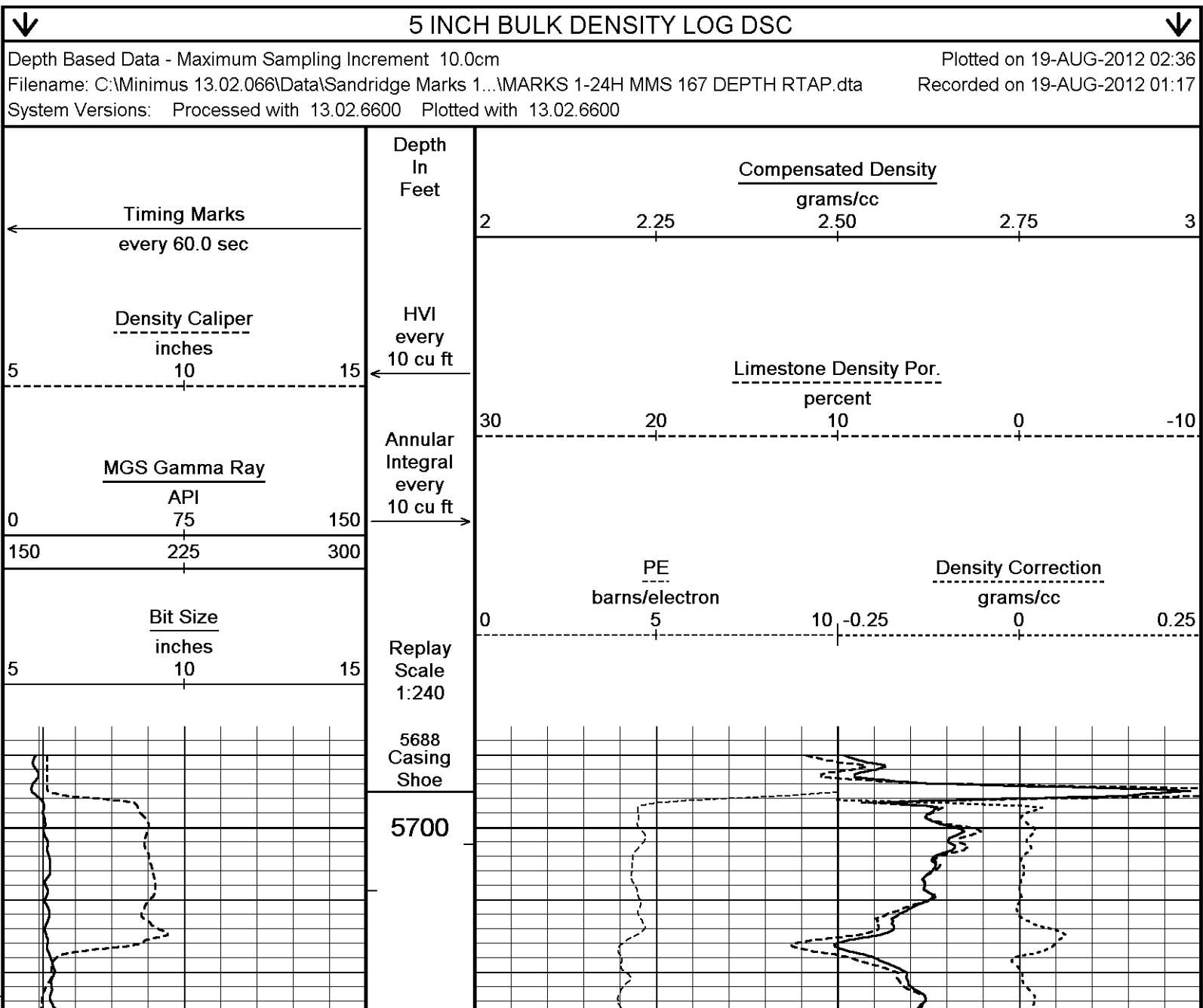
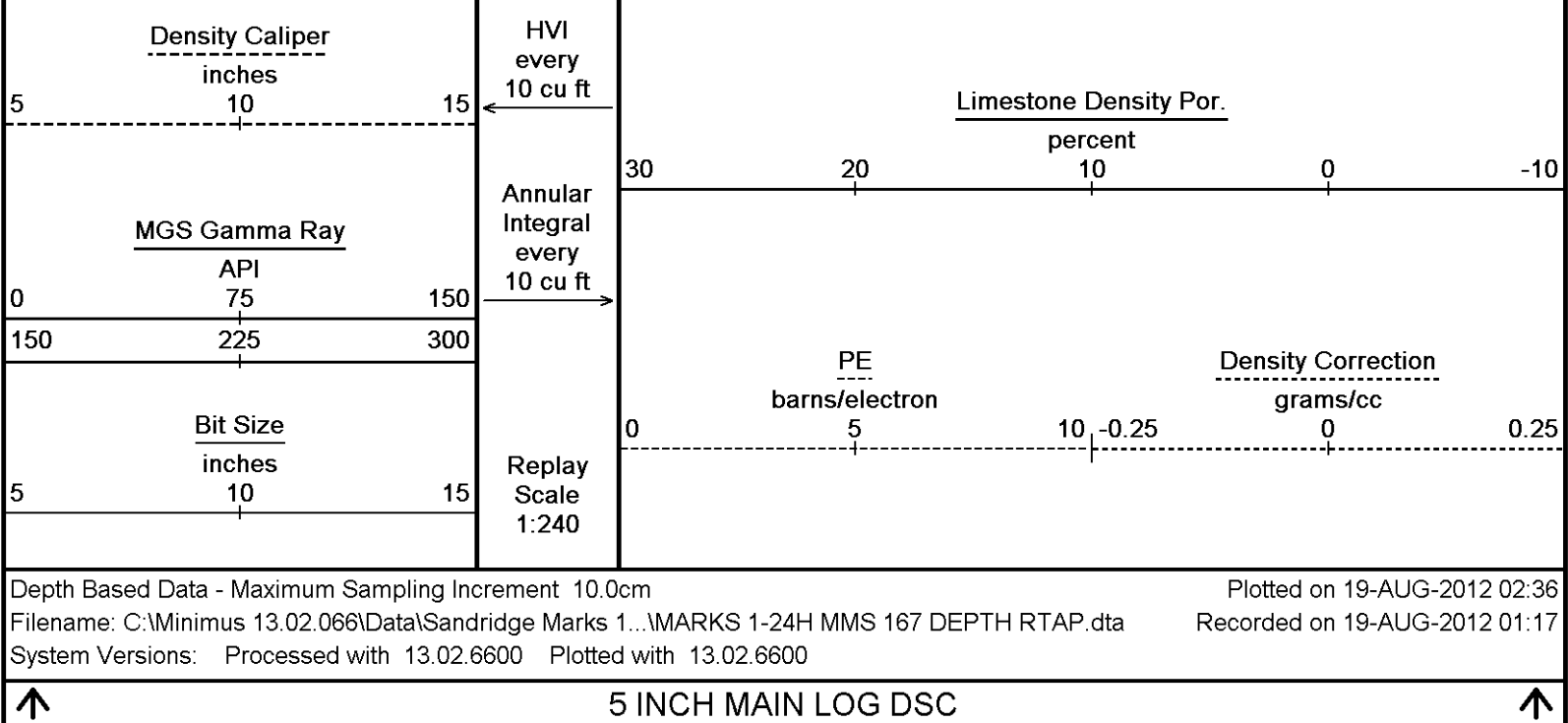


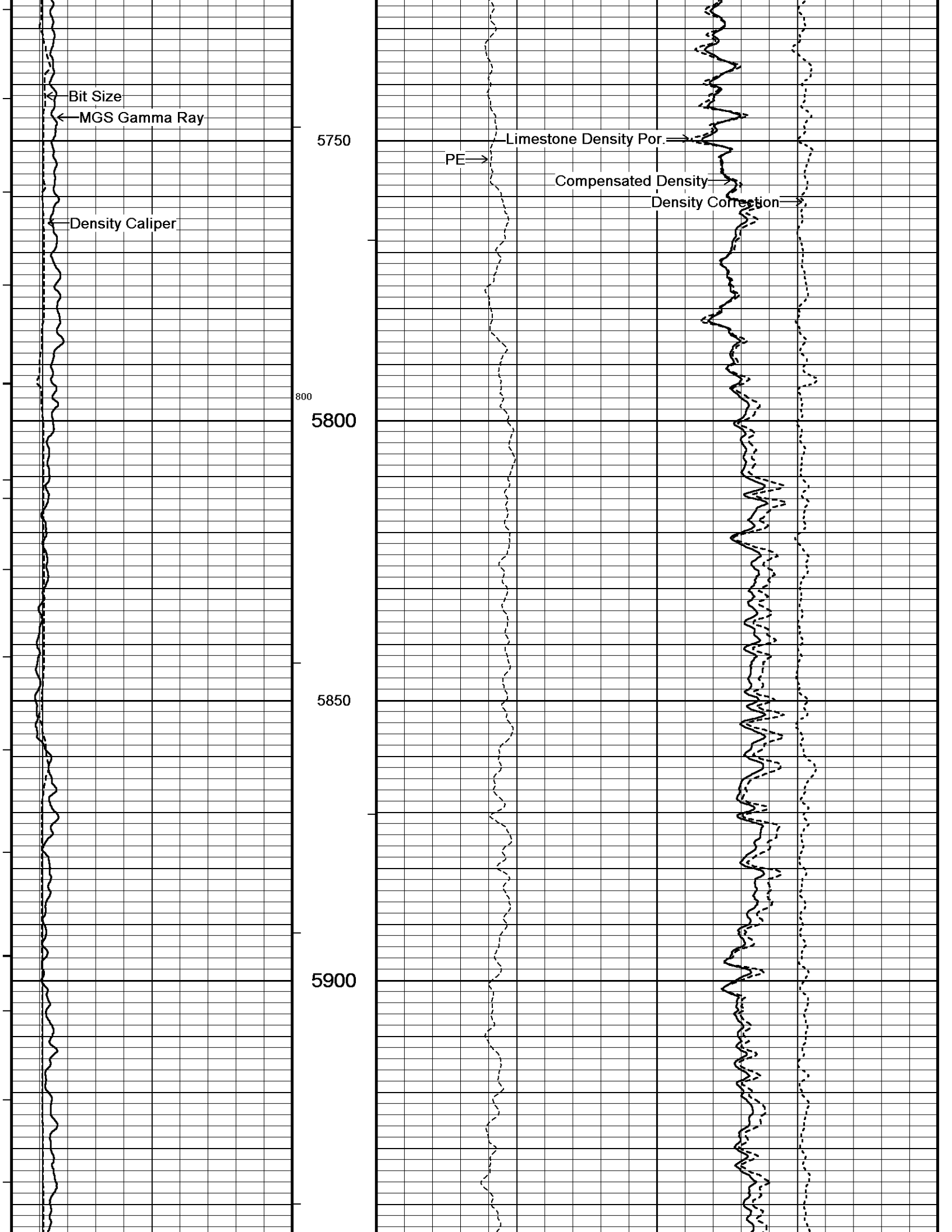
Limestone Density Por.

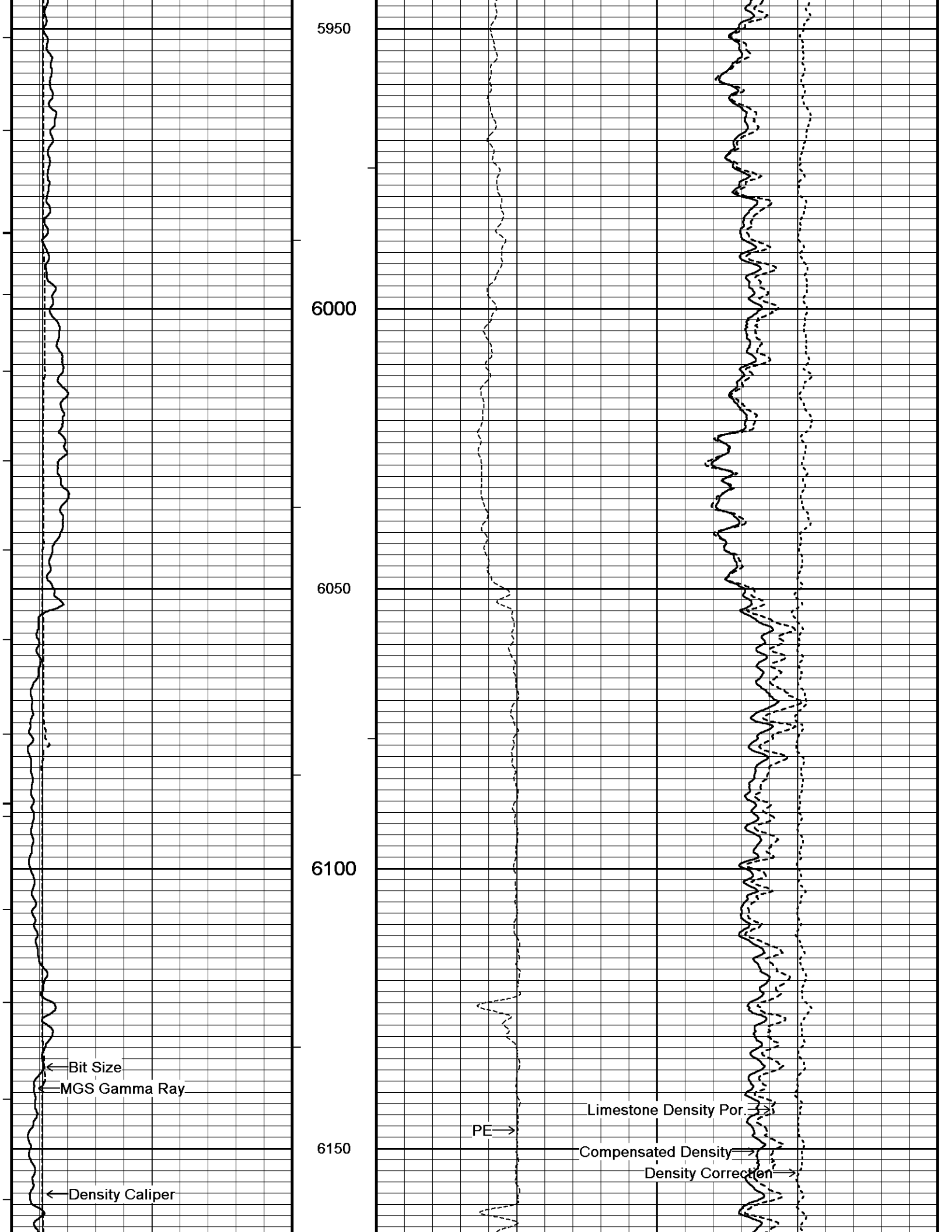
Limestone Neutron Por.

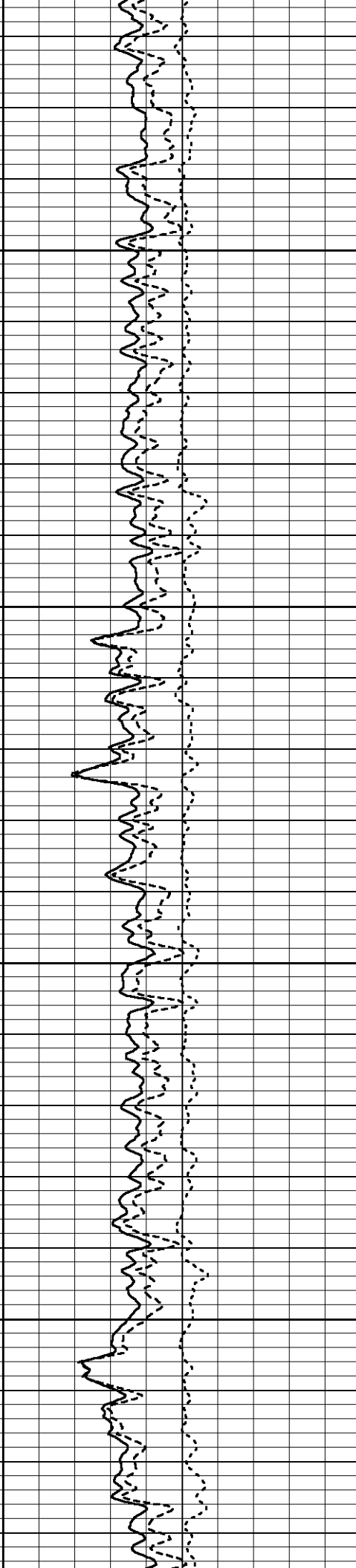
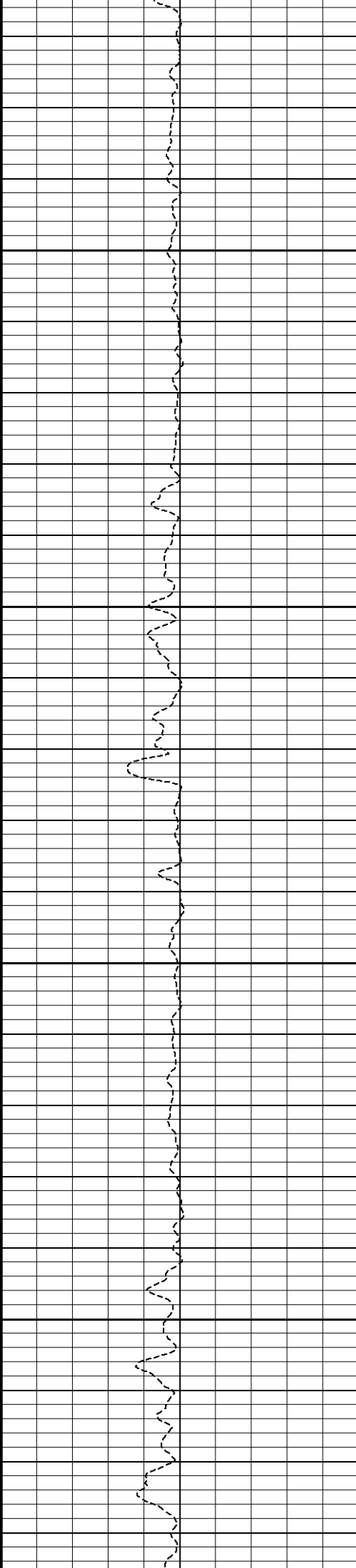
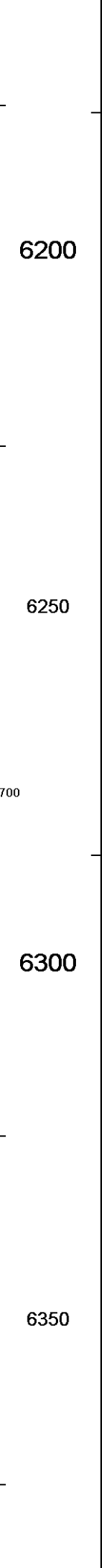
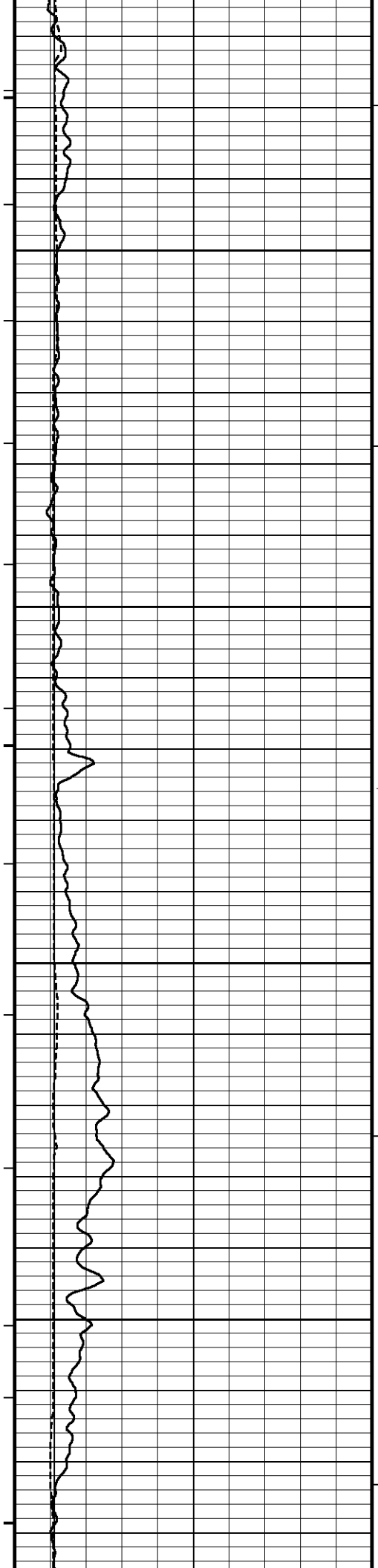
percent

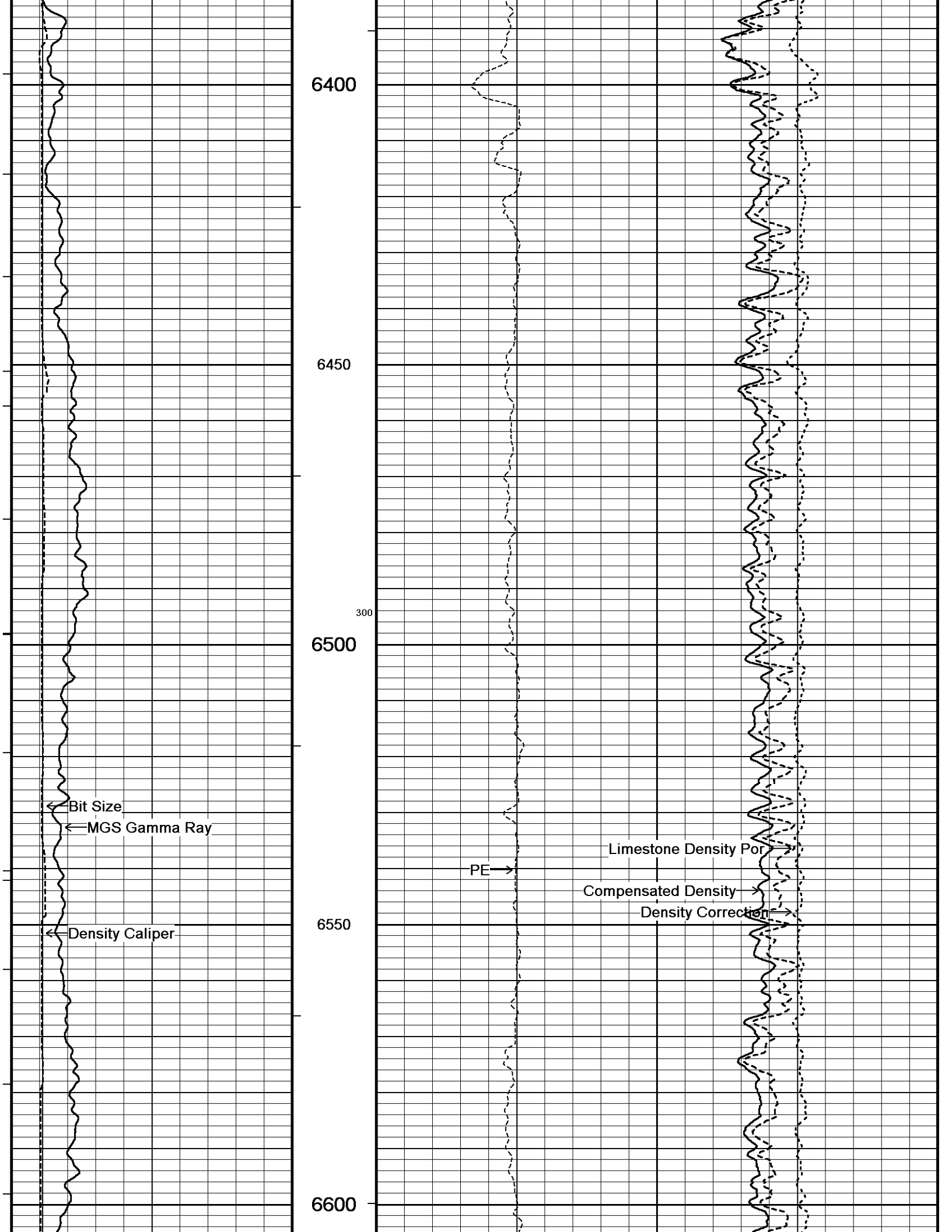
30 20 10 0 -10

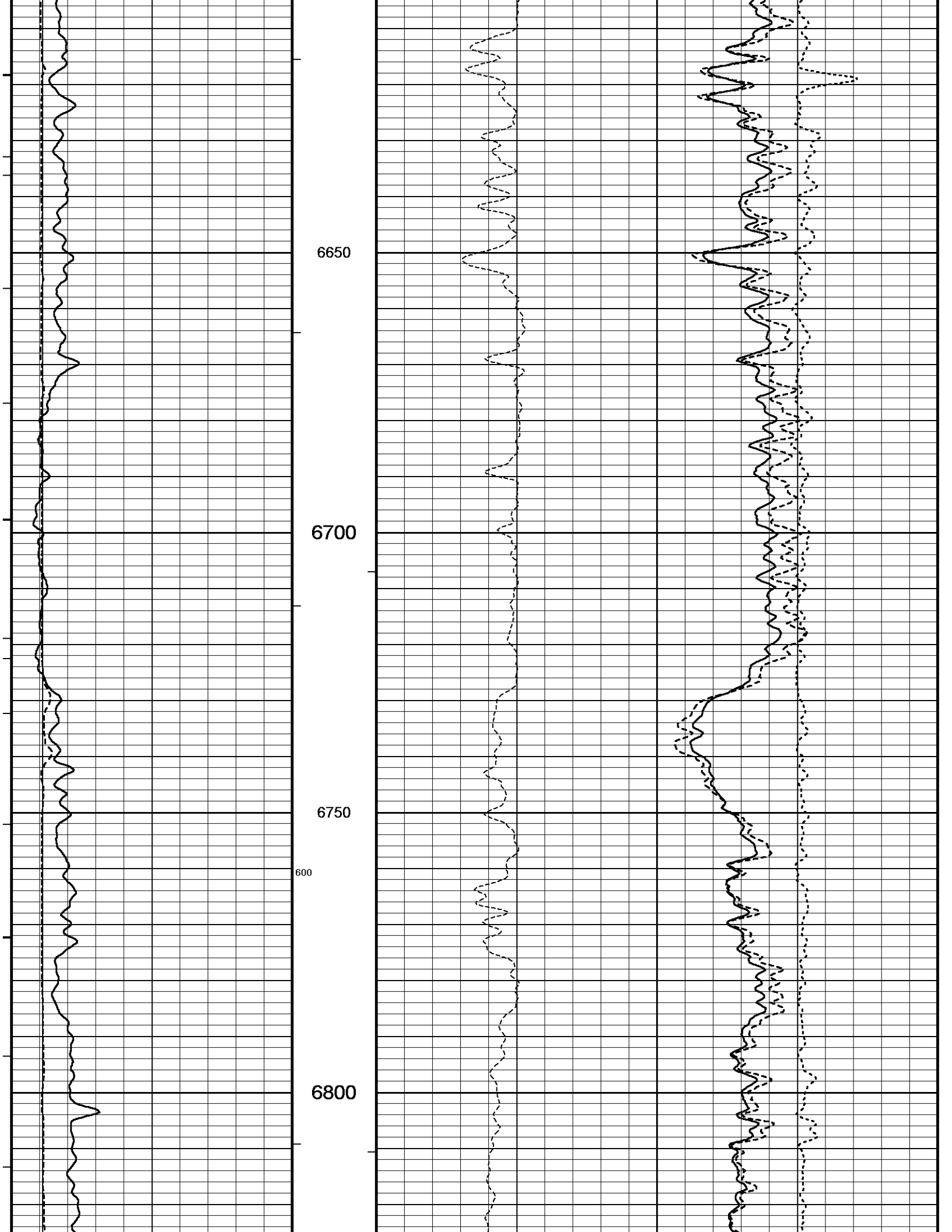


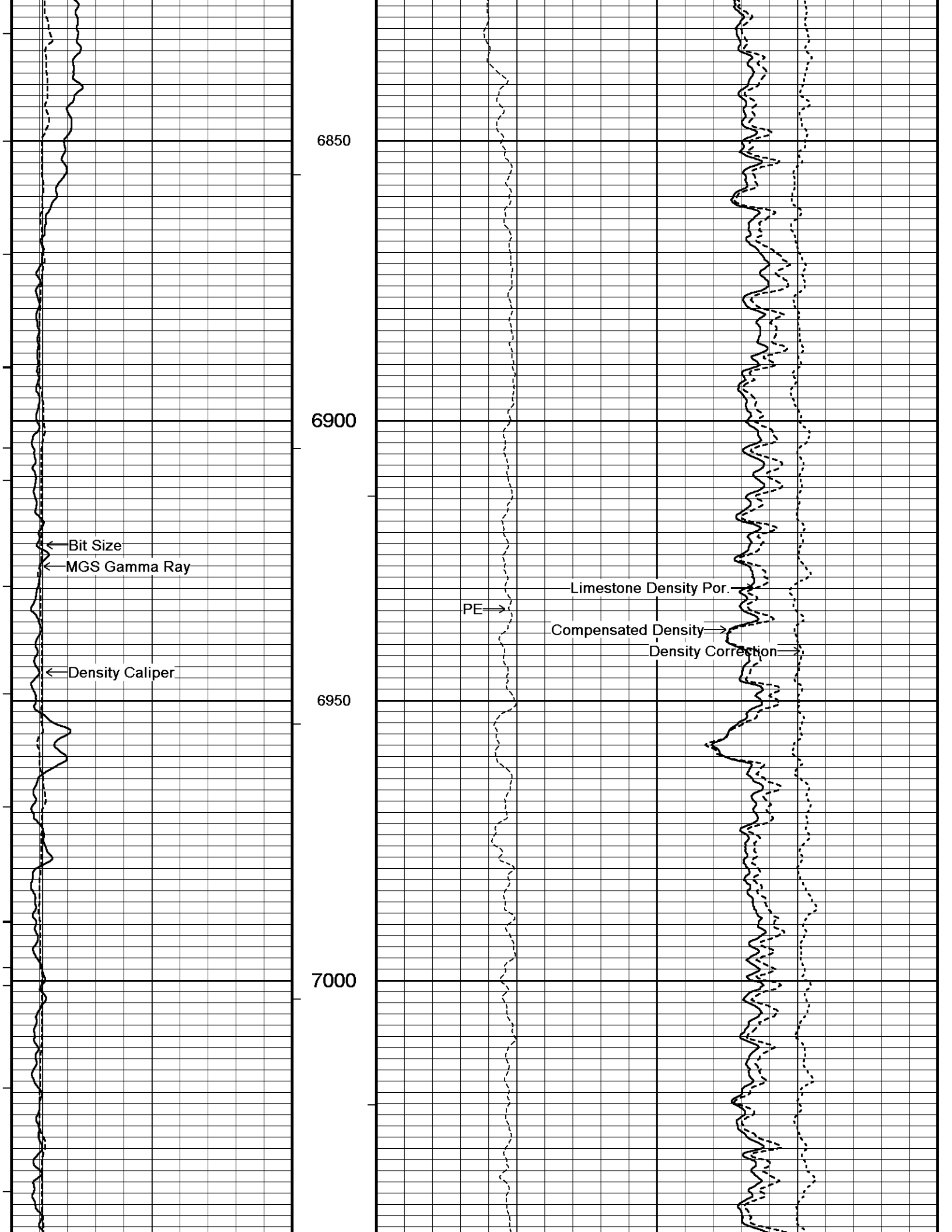


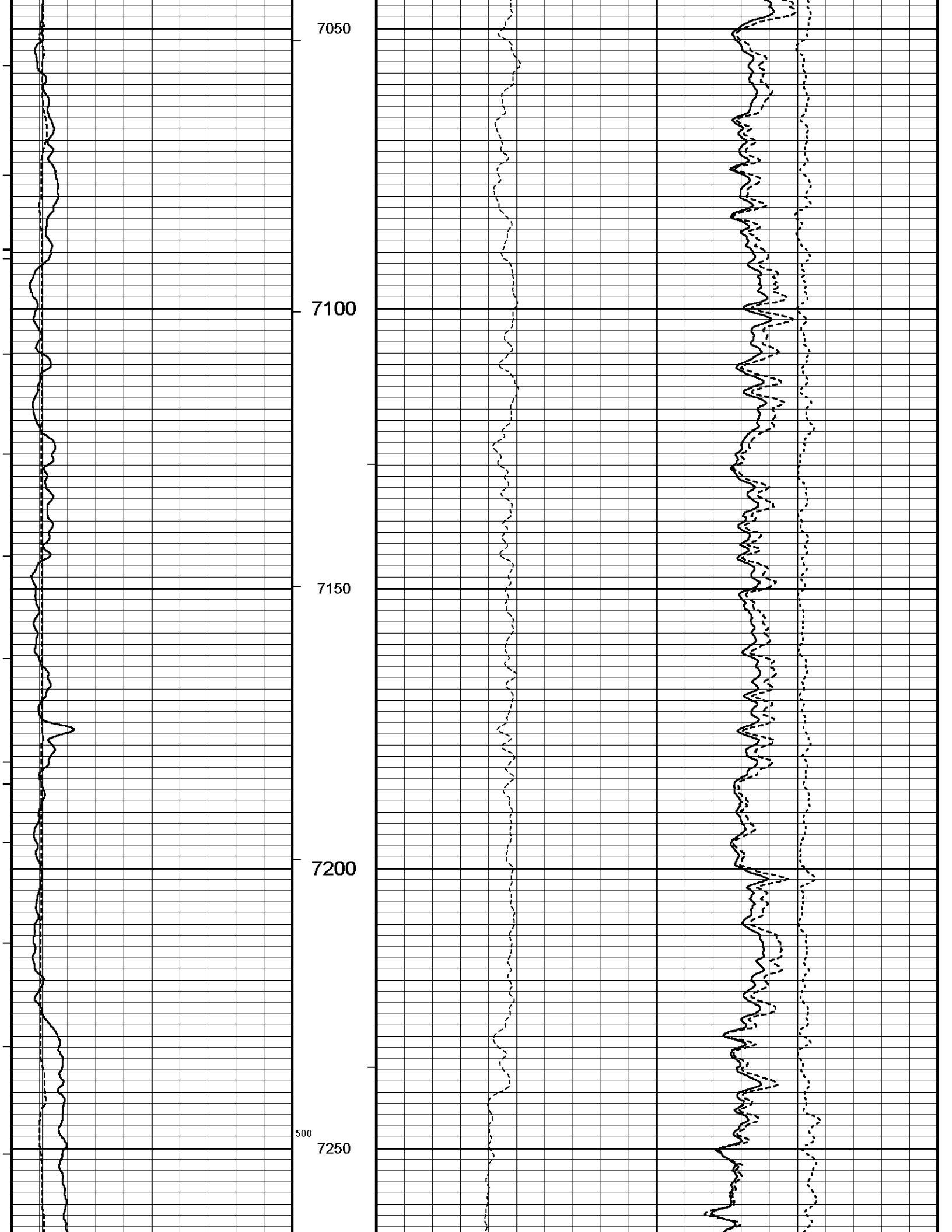


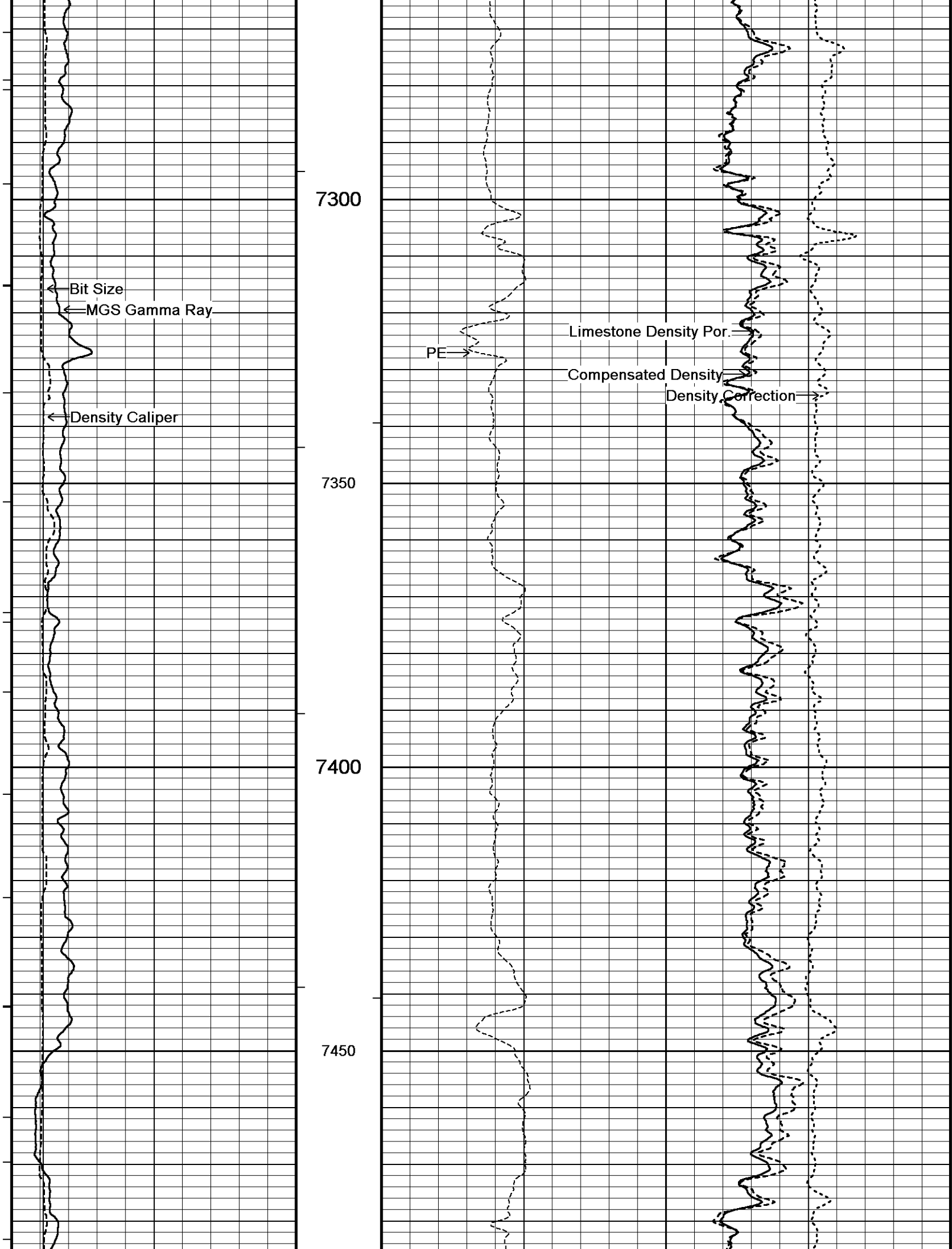


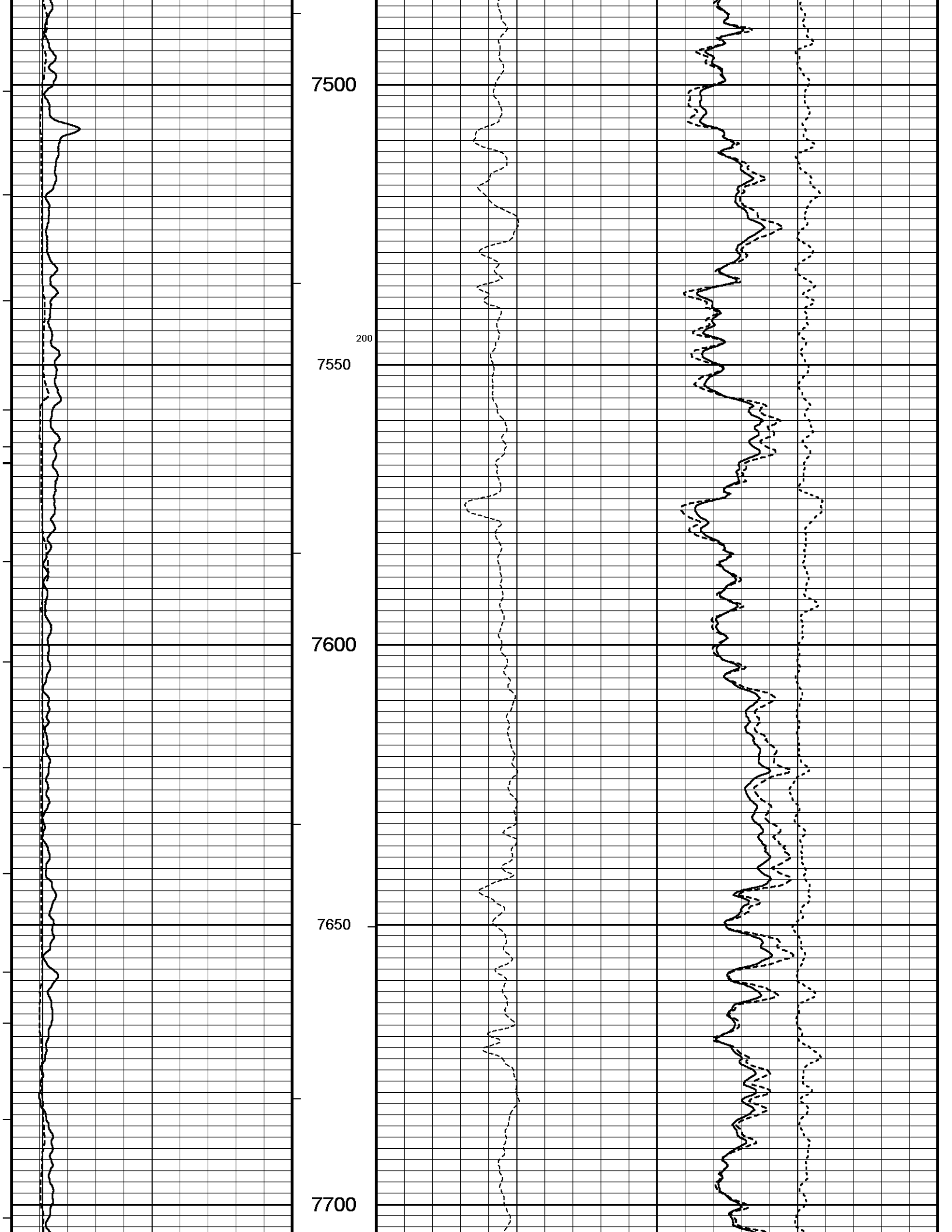


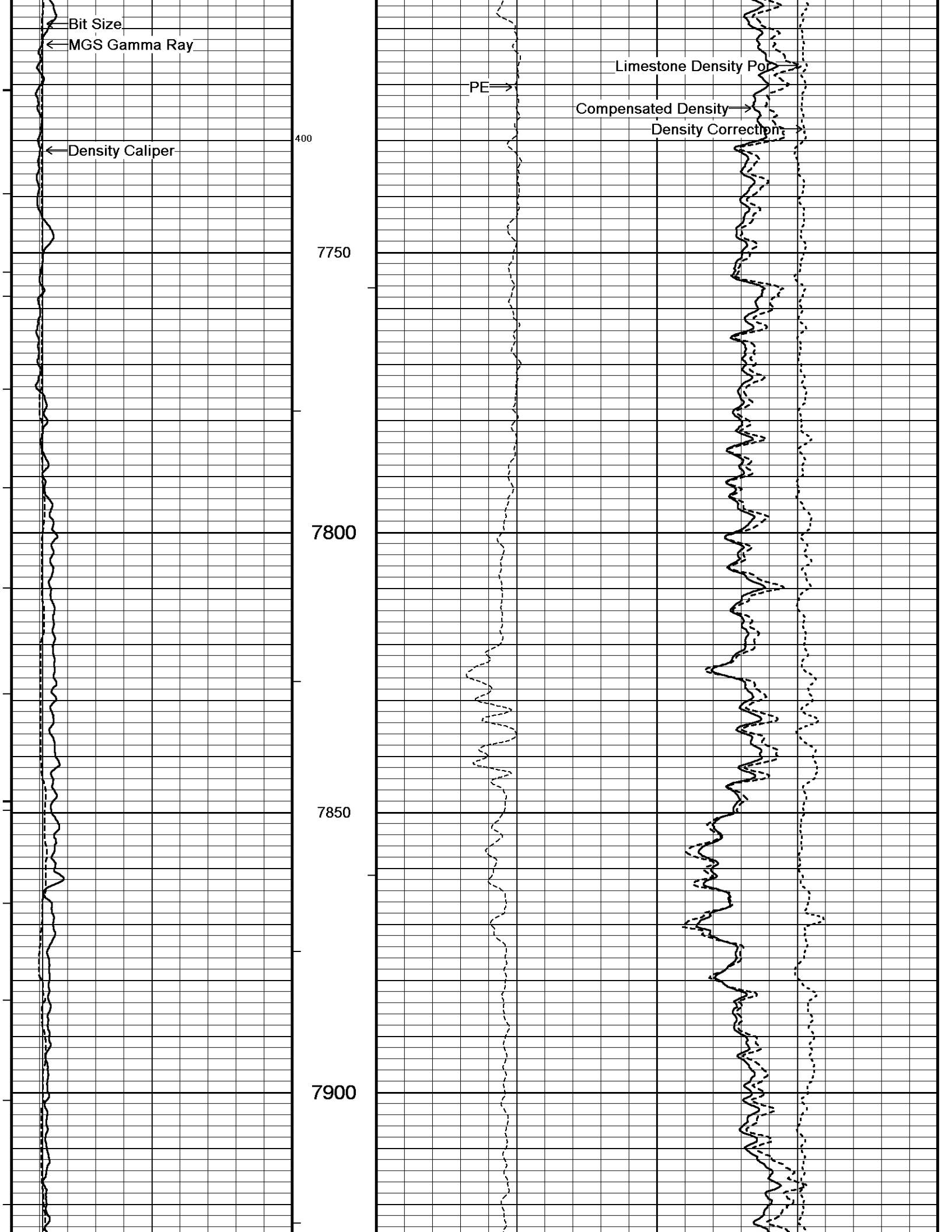


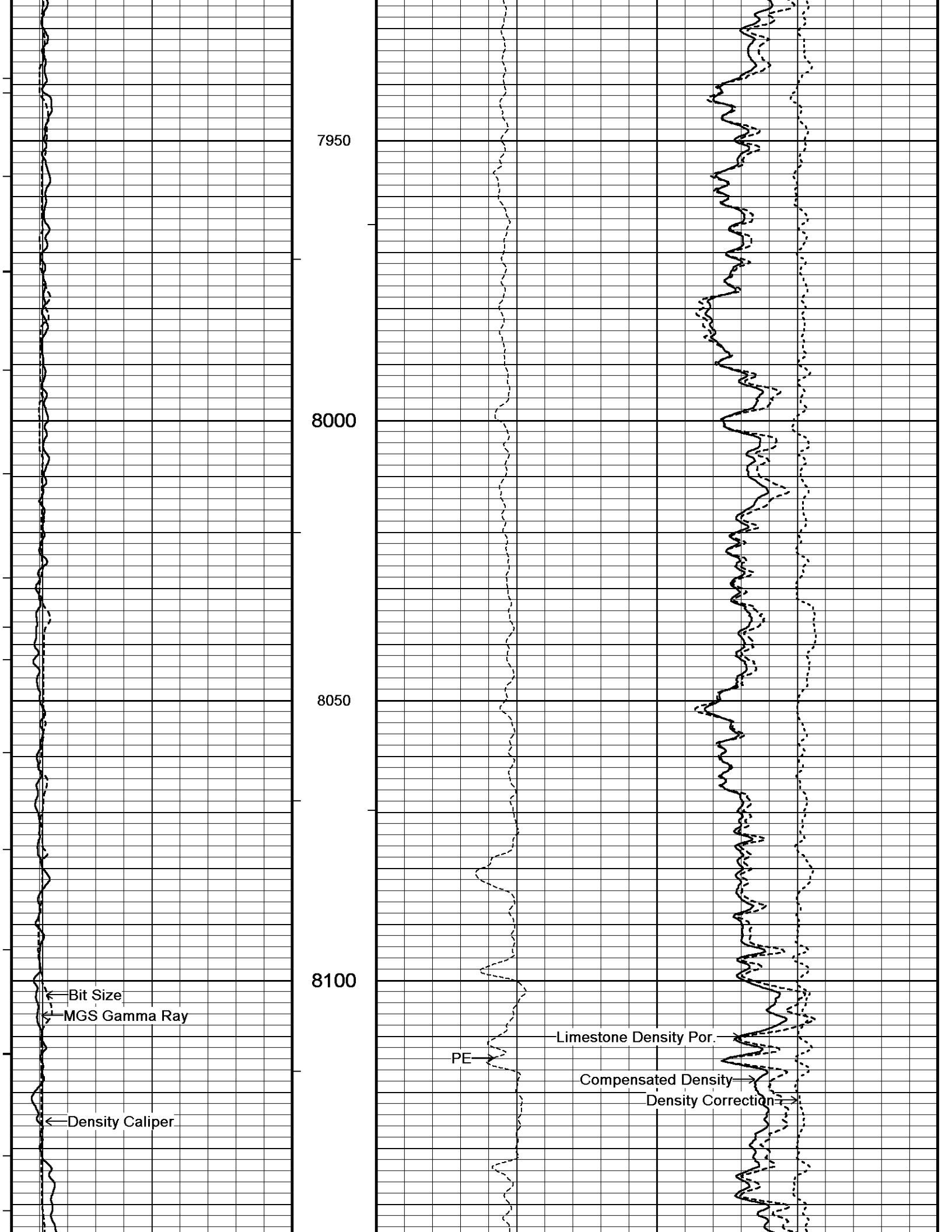


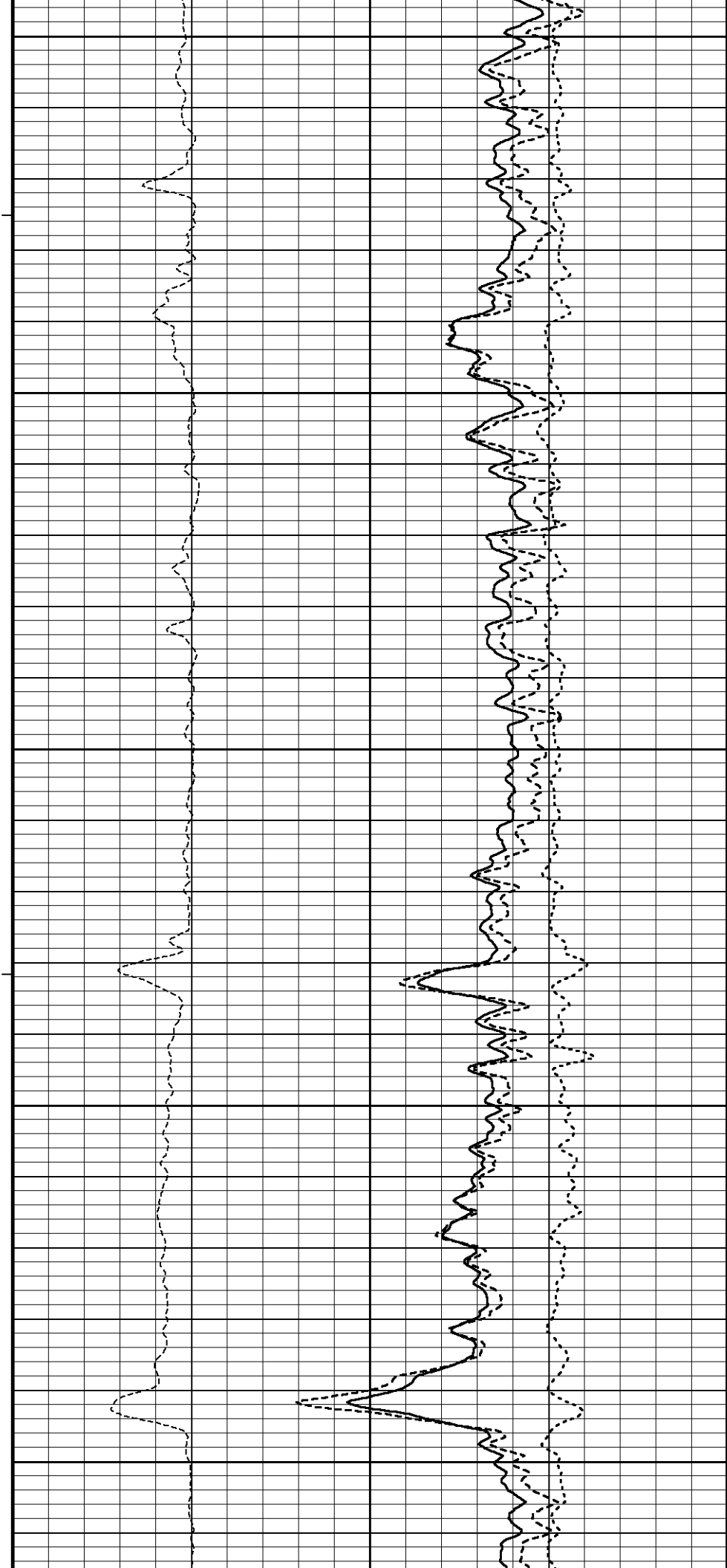
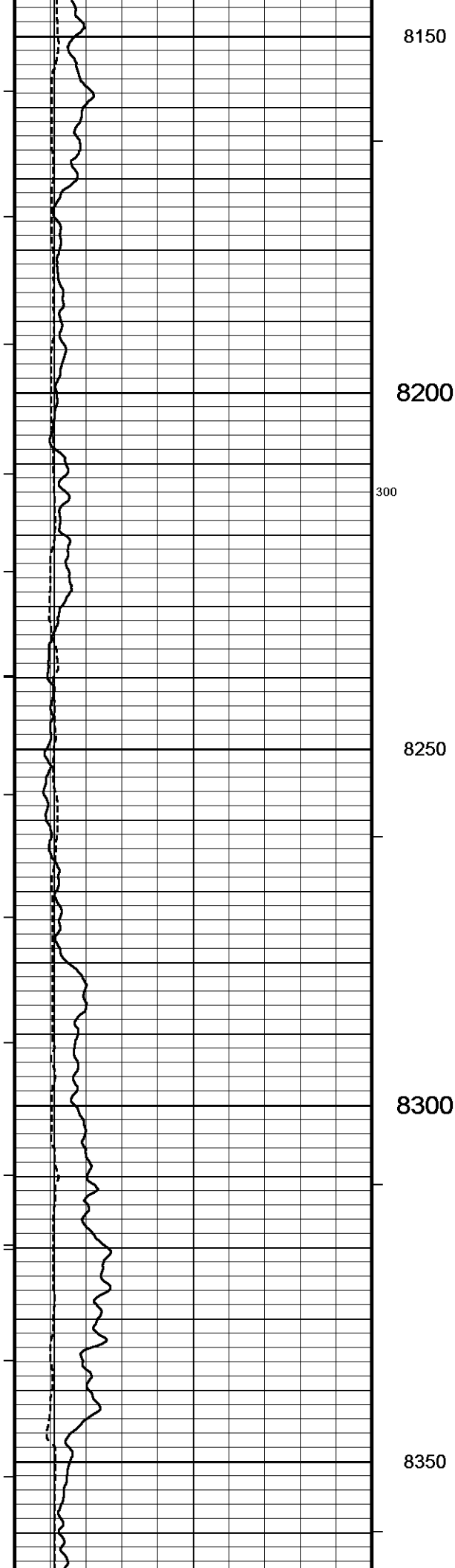


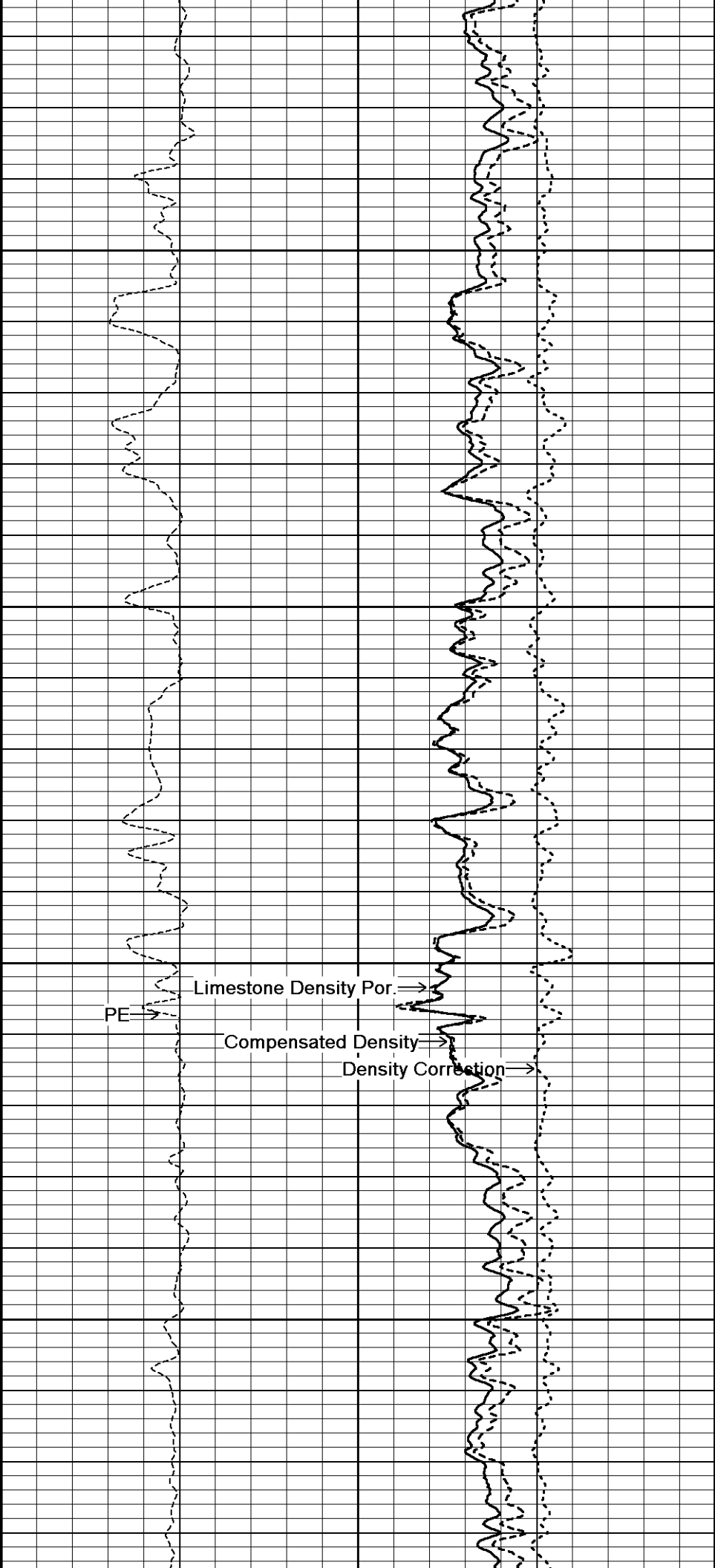
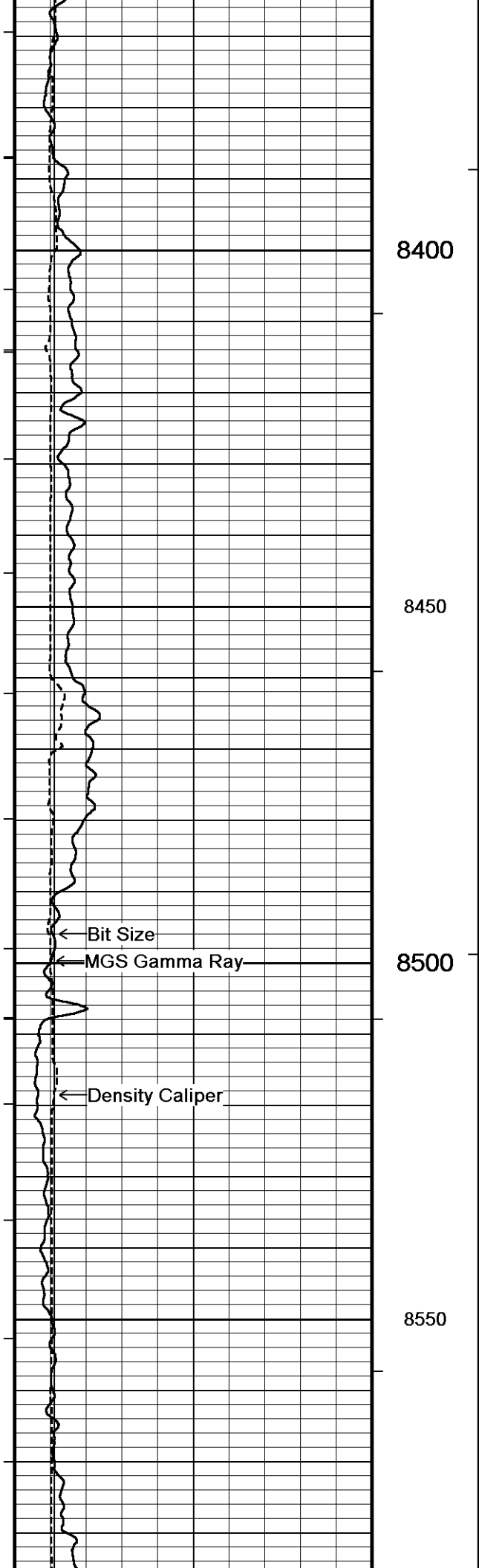


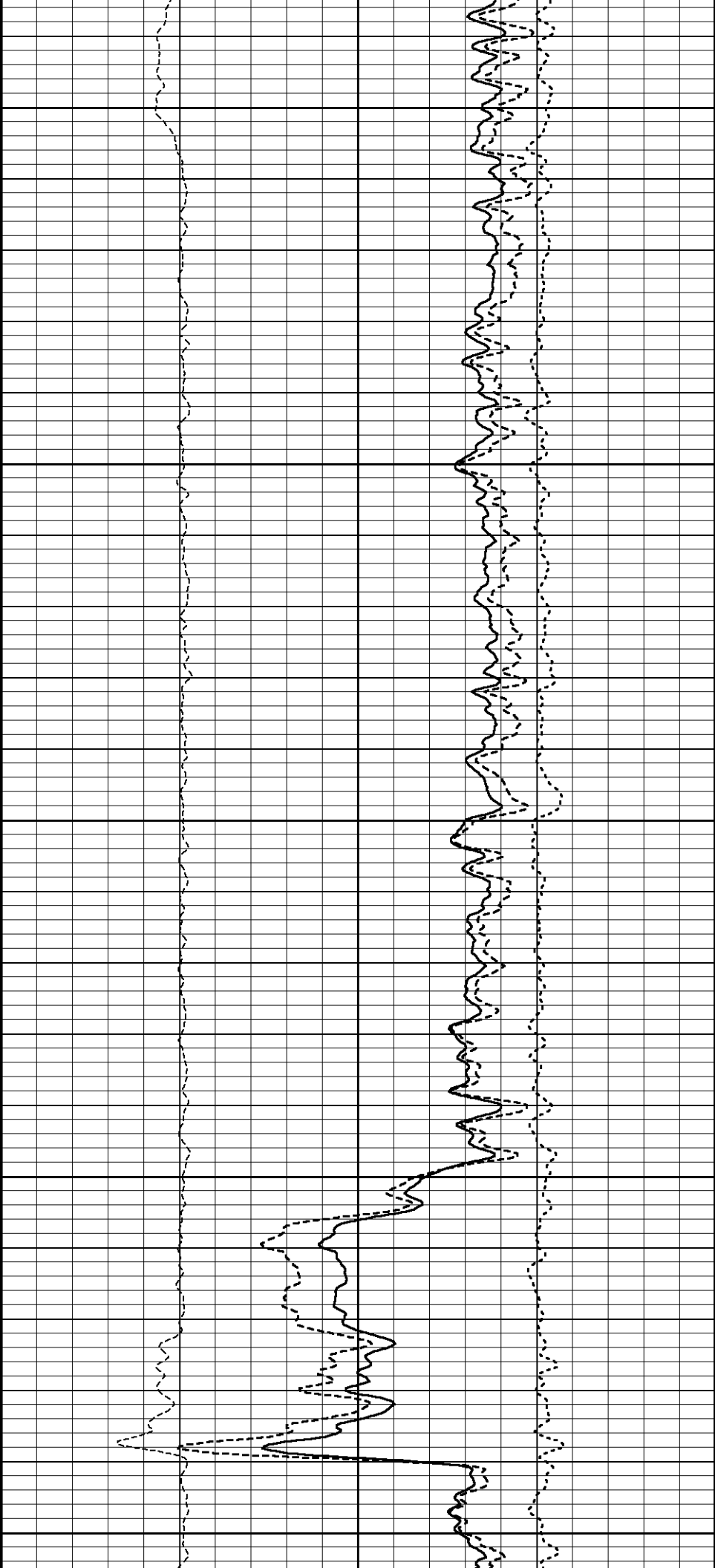
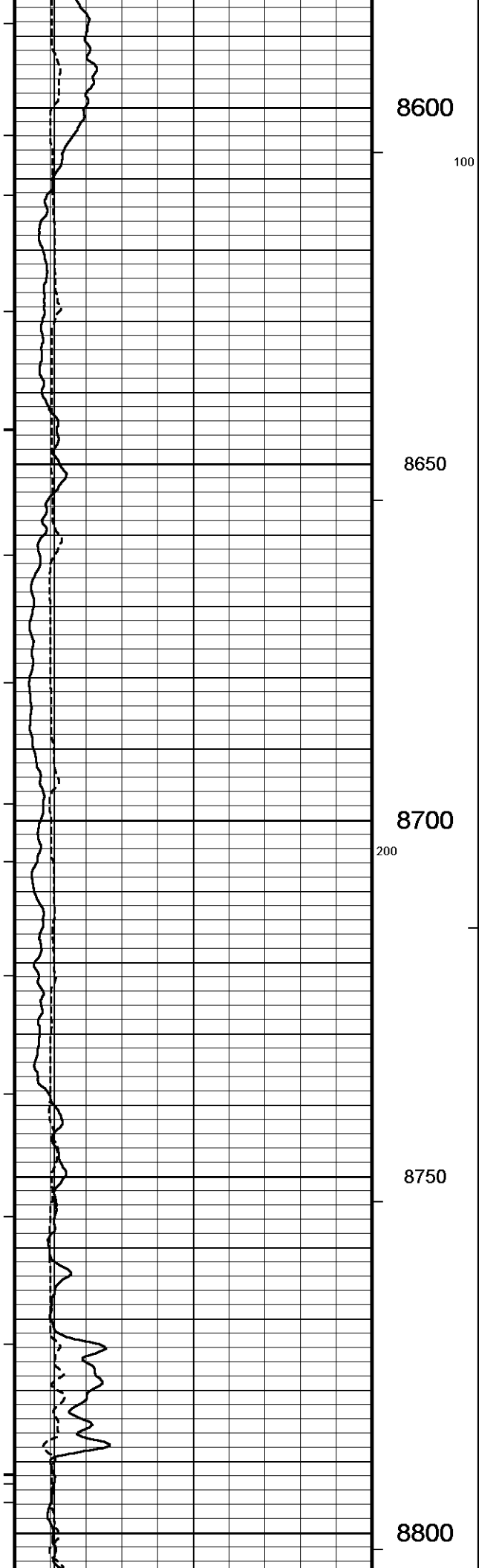


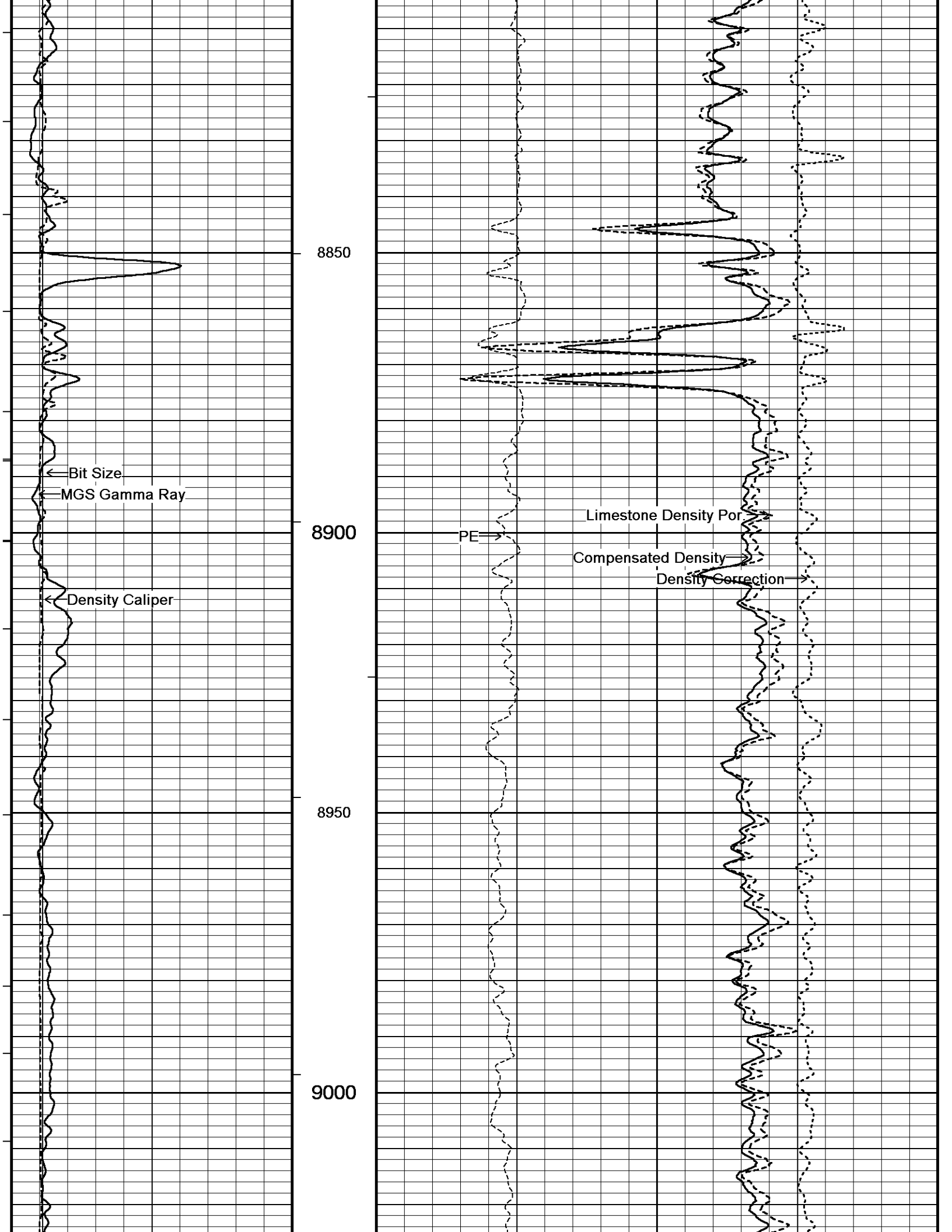


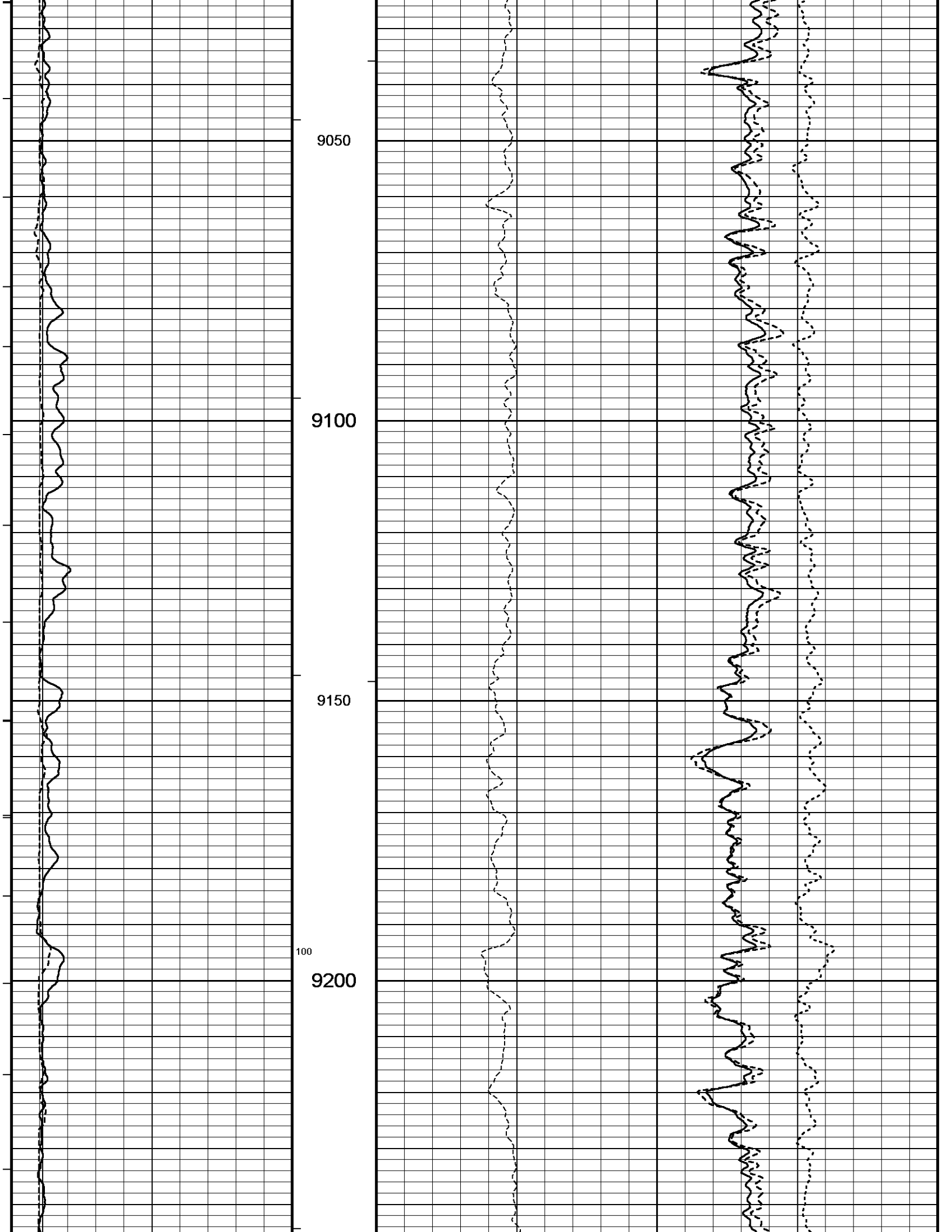


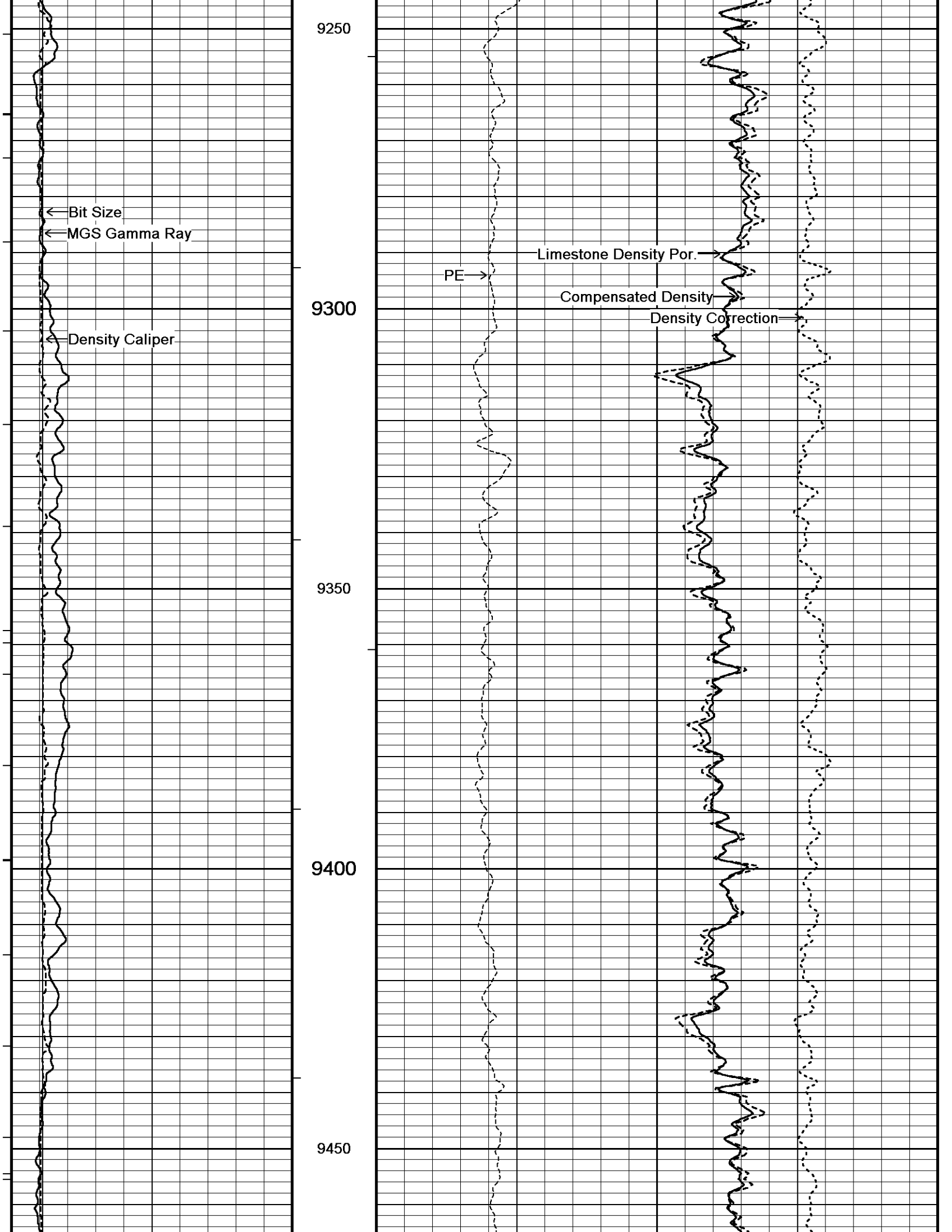


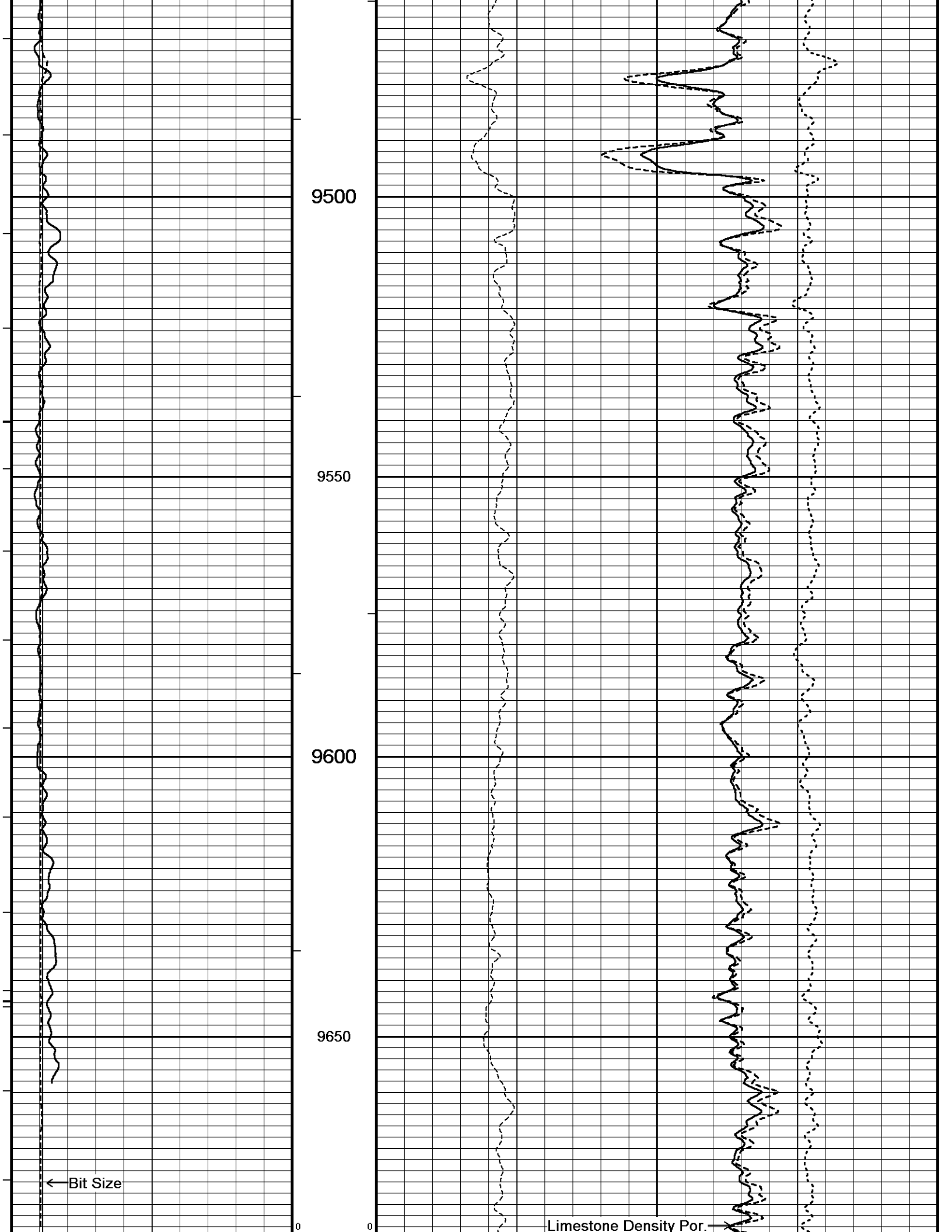


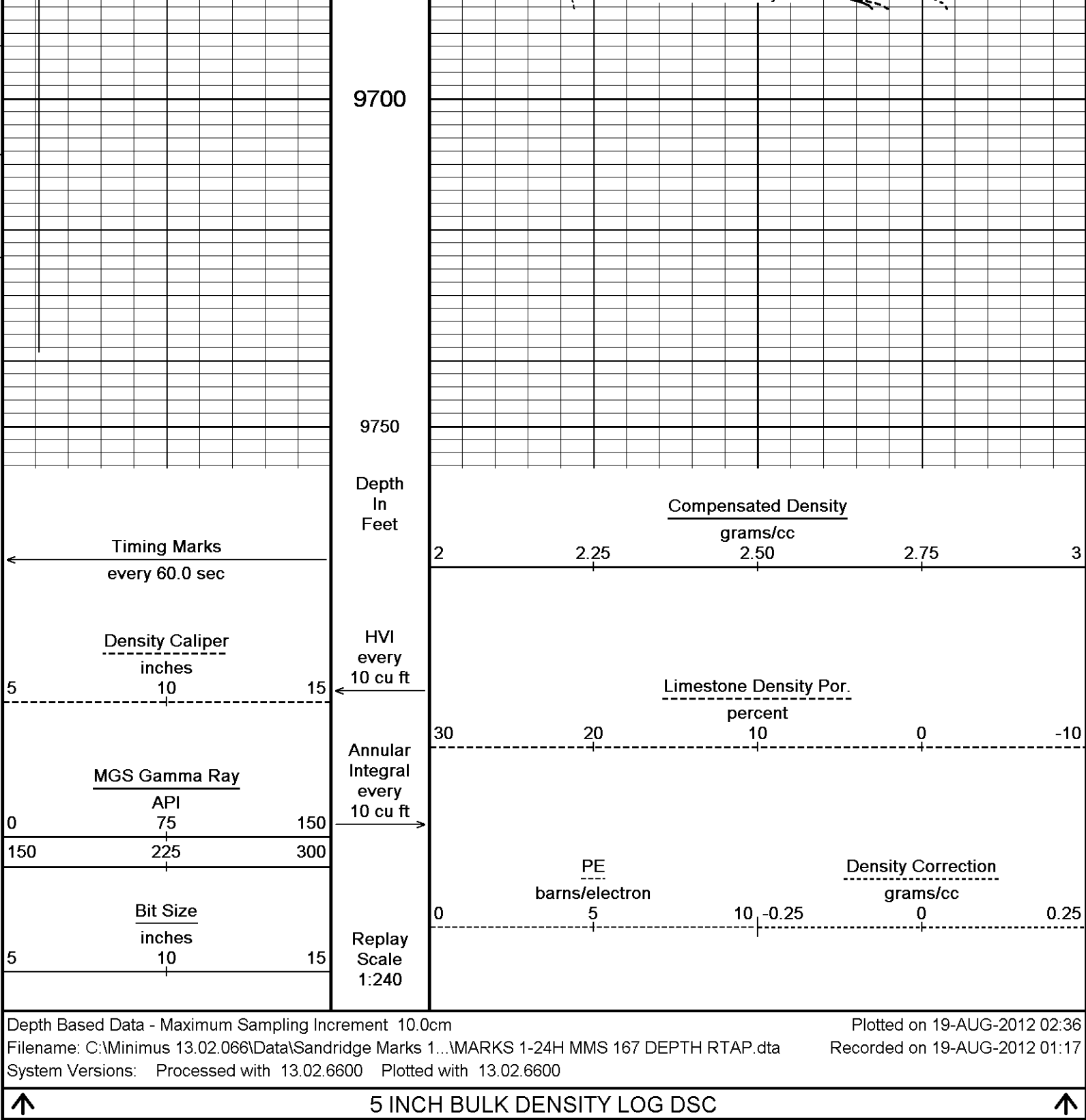












BEFORE SURVEY CALIBRATION		
C:\Minimus 13.02.066\Data\Sandridge Marks 1-24H\MARKS 1-24H MMS 167 DEPTH RTAP.dta		
Down-hole Tension Calibration All 000		
		Field Calibration on 24-FEB-2009 00:00
Reading No	Measured	0
1	14953.75	0.00
2	17846.38	1500.00
General Constants All 000		
Last Edited on 16-AUG-2012,11:00		
General Parameters		
Mud Resistivity	1.200	ohm-metres
Mud Resistivity Temperature	96.000	degrees F

Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. Six Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0			Field Calibration on 29-MAR-2011 00:00
Reading No	Measured		0
1	15152.07		0.00
2	19175.97		2000.00

Strain Gauge Constants MMS-E.B 167					Last Edited on 03-AUG-2012 11:54				
Atmospheric Pressure		14.70		psi					
Serial Number		0							
Calibration Date		000000000000							
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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
10000.0	0.000		0.000		0.000		0.000		

Gamma Calibration MGS-C.J 135			Field Calibration on 17-AUG-2012,22:28	
	Measured	Calibrated (API)		
Background	42	14		
Calibrator (Gross)	1203	403		
Calibrator (Net)	1160	389		

Gamma Constants MGS-C.J 135			Last Edited on 22-JUN-2012 20:19		
Gamma Calibrator Number		389			
Mud Density		1.13	gm/cc		
Caliper Source for Processing		Density Caliper			
Tool Position		Eccentred			
Concentration of KCl		0.00	kppm		

High Resolution Temperature Constants MGS-C.J 135		Last Edited on
Pre-filter Length	11	

Neutron Calibration MDN-B.J 390				Base Calibration on 10-AUG-2012 02:10	
				Field Check on 16-AUG-2012,11:36	
Base Calibration					
		Measured		Calibrated (cps)	
	Near	Far		Near	Far
	2974	91		3714	110
Ratio	32.653			33.764	
Field Calibrator at Base					
				Calibrated (cps)	
				1236	1843
Ratio				0.671	
Field Check					
				Calibrated (cps)	
				1290	1898
Ratio				0.682	

Neutron Constants MDN-B.J 390

Last Edited on 10-AUG-2012 02:05

Neutron Source Id	P31112B		
Neutron Jig Number	5917NC		
Epithermal Neutron	No		
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.03	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	Constant Value		
Temperature	20.00	degrees F	
Mud Salinity	1.00	kppm	
Salinity Correction	Applied		
Formation Fluid Salinity Source	None		
Formation Fluid Salinity	N/A	kppm	
Barite Mud Correction	Not Applied		

Imager Pad Check MIE-A.A 113

Field Check on 16-AUG-2008,11:45

Pad 1	Pad Not Tested	Pad 5	Pad Not Tested
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested

Compact Micro Imager Constants MIE-A.A 113

Last Edited on 19-AUG-2012,01:29

Sonde Configuration	Imager Mode	degrees
Arm-Pad Kit	Normal Pads (12.25 in)	
Centre Pad 1 Rotational Offset	0.00	
Image/Borehole Ovality Reference	Relative Bearing	degrees
Non Active Buttons	Omit	feet
Search Angle	0.00	feet
Correlation Interval	3.28	mAmp
Correlation Step	1.64	mAmp
Current Offset	0.0000	
Squasher Start	N/A	
Image Processing	Enabled	

Navigation Constants MIE-A.A 113

Last Edited on 29-DEC-2009,15:28

Magnetic Declination	6.00	degrees	East
----------------------	------	---------	------

Magnetometer Parameters MIE-A.A 113

Date Of Last Magnetometer Calibration	01-JAN-1998		
	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.016573	-1.003898
Offset	0.006568	-0.015949	0.006438

Magnetometer Constants MIE-A.A 113

Last Edited on

Magnetometer Calibrator Number	000
--------------------------------	-----

Accelerometer Parameters MIE-A.A 113

Date Of Last Accelerometer Calibration	01-JAN-1998		
	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.105490	-1.103970	-1.107420
Offset	0.000458	0.006135	0.003353

Accelerometer Constants MIE-A.A 113

Last Edited on 11-JUN-2009,17:18

Accelerometer Calibrator Number	000
---------------------------------	-----

Accelerometer Temperature Characterisation

X Accelerometer	
Serial Number	282

Serial Number	282			
Calibration Date	18-Jul-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	3.41234e-005	-1.69705e-008	1.28660e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.70372e-004	8.31146e-007	-1.22715e-009
Y Accelerometer				
Serial Number	284			
Calibration Date	18-Jul-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.41306e-005	-2.62559e-009	9.20272e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.83655e-004	6.88154e-007	-5.98912e-010
Z Accelerometer				
Serial Number	287			
Calibration Date	20-Jul-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.30753e-005	-5.40650e-010	3.42223e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.66160e-004	7.47858e-007	-1.03559e-009

Caliper Calibration MIE-A.A 113				Base Calibration on 23-JUN-2008,12:29	
				Field Calibration on	
Base Calibration					
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)		
1	24856	25276	5.97		
2	35545	35312	7.99		
3	44370	44687	9.86		
4	55326	56381	11.93		
5	0	0	0.00		
Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	23517	25136	25351	23970	5.97
2	32111	33147	34289	33287	7.99
3	39601	41110	42395	41619	9.86
4	49214	50836	52775	51339	11.93
5	0	0	0	0	0.00
Field Calibration					
	Measured	Measured	Actual		
	Pads 1-5 Caliper(in)	Pads 3-7 Caliper(in)	Caliper(in)		
	0.00	0.00	0.00		
	Measured	Measured	Measured	Measured	Actual
	Pad 2 Caliper(in)	Pad 4 Caliper(in)	Pad 6 Caliper(in)	Pad 8 Caliper(in)	Caliper(in)
	0.00	0.00	0.00	0.00	0.00

Caliper Constants MIE-A.A 113			Last Edited on 19-AUG-2012,01:29		
Caliper Difference for BRKT			0.120	inches	

High Resolution Temperature Calibration MAI-B.J 389			Field Calibration on 19-OCT-2011 09:44
	Measured	Calibrated(Deg F)	
Lower	10.00	50.00	
Upper	100.00	212.00	

High Resolution Temperature Constants MAI-B.J 389		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-B.J 389				Base Calibration on 10-AUG-2012 01:34	
				Field Check on 17-AUG-2012 22:27	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	16.7	465.5	9.3	966.2	
2	6.4	384.0	7.6	821.4	
3	3.1	258.9	5.2	566.0	
4	1.8	133.7	2.6	279.2	
Array Temperature		78.1	Deg F		

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	14.1	3896.4
2	0.0	0.0	29.7	3508.2
3	0.0	0.0	29.6	3049.1
4	0.0	0.0	19.9	2063.0
Deep	0.0	0.0	19.2	2012.9
Medium	0.0	0.0	42.8	4003.7
Shallow	0.0	0.0	42.6	5151.3
Array Temperature		0.0	68.4	Deg F

Induction Constants MAI-B.J 389			Last Edited on 19-AUG-2012,01:32	
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.	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		

Caliper Calibration MPD-C.J 393			Base Calibration on 10-AUG-2012 02:02	
			Field Calibration on 10-AUG-2012 02:04	
Base Calibration				
Reading No		Measured	Calibrator Size (in)	
1		18800	4.01	
2		26177	5.96	
3		34564	7.98	
4		42768	9.86	
5		51949	11.88	
6		N/A	N/A	
Field Calibration				
		Measured Caliper (in)	Actual Caliper (in)	
		5.94	5.96	

Photo Density Calibration MPD-C.J 393				Base Calibration on 10-AUG-2012 01:56			
				Field Check on 16-AUG-2012 11:35			
Density Calibration							
Base Calibration							
		Measured		Calibrated (sdu)			
	Near	Far		Near	Far		

Reference 1	54678	26470	59869	31110
Reference 2	23479	2726	24557	2522

Field Check at Base

1229.7 1344.0

Field Check

1225.0 1338.6

PE Calibration

Base Calibration

Measured

Calibrated

WS

WH

Ratio

Ratio

Background

227

1110

Reference 1

22306

54489

0.414

0.369

Reference 2

6605

23344

0.287

0.271

Field Check at Base

227.5

1110.5

Field Check

224.8

1104.5

Density Constants MPD-C.J 393

Last Edited on 14-AUG-2012,10:35

Density Source Id

p21137b

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

1.05

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

-0.03

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

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.066\Data\Sandridge Marks 1-24H\MARKS 1-24H MMS 167 DEPTH RTAP.dta

Shuttle Running Tool 3.5")

SRT-A.A 70 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 480 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Spacer - Empty Battery

MLK-A 2 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

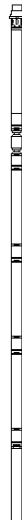
Spacer - Empty Battery

MLK-A 250 LG: 6.05 ft WT: 30.9 lb OD: 2.24 in

Spacer - Empty Battery

MLK-A 3 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

MRS G A 200x Compact Battery Sub



MBS-G.A 200V Compact Battery Sub
MBS-G.A 115 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 167 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 67 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 135 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 60 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-H Compact Swivel Head Adaptor
SHA-H 167 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Neutron
MDN-B.J 390 LG: 5.04 ft WT: 50.7 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

Compact Density/Caliper
MPD-C.J 393 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

SHA-H Compact Swivel Head Adaptor
SHA-H 185 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 472 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 603 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 157 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

Compact MMI Electrode Section
MIE-A.A 113 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

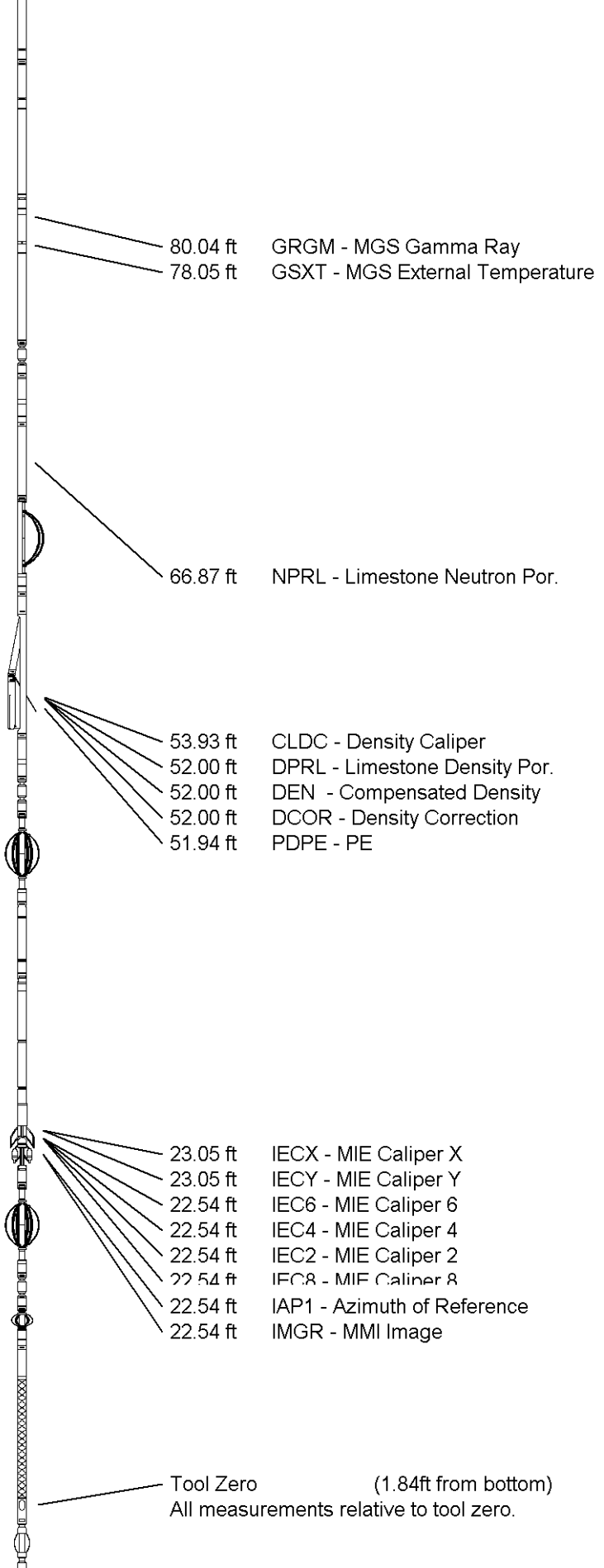
MIS-D.B Compact Inline Bowspring sub
MIS-D.B 593 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

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 573 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 389 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 149.76 ft Weight: 925.9 lb



COMPANY
WELL

SANDRIDGE ENERGY
MARKS 1-24H

FIELD	MINNEOLA
PROVINCE/COUNTY	FORD
COUNTRY/STATE	U.S.A. / OKLAHOMA

Elevation Kelly Bushing	2638.50	feet	First Reading	9684.00	feet
Elevation Drill Floor	2637.50	feet	Depth Driller	9803.00	feet
Elevation Ground Level	2618.00	feet	Depth Logger	9803.00	feet



Weatherford®

CML MESSENGER SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG