



**Weatherford**<sup>®</sup>

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

COMPANY

**DORADO E&P PARTNERS LLC**

WELL

**TOEWS 25-9-4 1H**

FIELD

**UNKNOWN**

PROVINCE/COUNTRY

**RENO**

COUNTRY/STATE

**USA / KANSAS**

LOCATION

**SHL: 150' FNL & 450' FWL**

SEC

TWP

RGE

Other Services  
MAI/MFE  
CMI

4

25S

9W

API Number

15-155-21592-01

Permit Number

Permanent Datum G.L., Elevation 1698 feet  
Log Measured From KB  
Drilling Measured From K.B. @ 12 FEET

Date

14-OCT-2012

Run Number

ONE

Depth Driller

9346.00

Depth Logger

9340.00

First Reading

9277.00

Last Reading

4467.00

Casing Driller

4467.00

Casing Logger

4467.00

Bit Size

6.125

Hole Fluid Type

WATER

Density / Viscosity

8.50 lb/USg

PH / Fluid Loss

8.00

Sample Source

FLOWLINE

Rm @ Measured Temp

0.96 @ 68.0

Rmf @ Measured Temp

0.77 @ 68.0

Rmc @ Measured Temp

1.15 @ 68.0

Source Rmf / Rmc

CALC

Rm @ BHT

0.51 @129.0

Time Since Circulation

0 HOURS

Max Recorded Temp

129.00

Equipment Name

COMPACT

Equipment / Base

18006

Recorded By

D. ROWELL

Witnessed By

D. WHEELER

S.O.# / AFE

3538630

Elevations:  
KB 1710.00  
DF 1708.00  
GL 1698.00

### BOREHOLE RECORD

Last Edited: 14-OCT-2012 20:08

Bit Size inches	Depth From feet	Depth To feet
6.125	4467.00	9346.00

### CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	4467.00	26.00

### REMARKS

LOGGED WITH WLS VER 13.02.6600 SOFTWARE

WELL LOGGED USING MESSENGER METHOD OF DEPLOYMENT, AND MEMORY LOGGING SYSTEM

HARDWARE: MAI: ISA STANDOFF BELOW

MPD: 4"PROFILE PLATE, MIS-A SINGLE SPRING DECENTRALIZER BELOW

MDN: MISD DOUBLE SPRING DECENTRALIZER RAN ABOVE

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

LOGS WERE PUT BACK TO DEPTH USING MWD GAMMA RAY PROVIDED BY CUSTOMER

DRILL PIPE DEPTH DURING DEPLOYMENT - 9240

LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9340

CHLORIDES = 400

SERVICE ORDER # 3538630

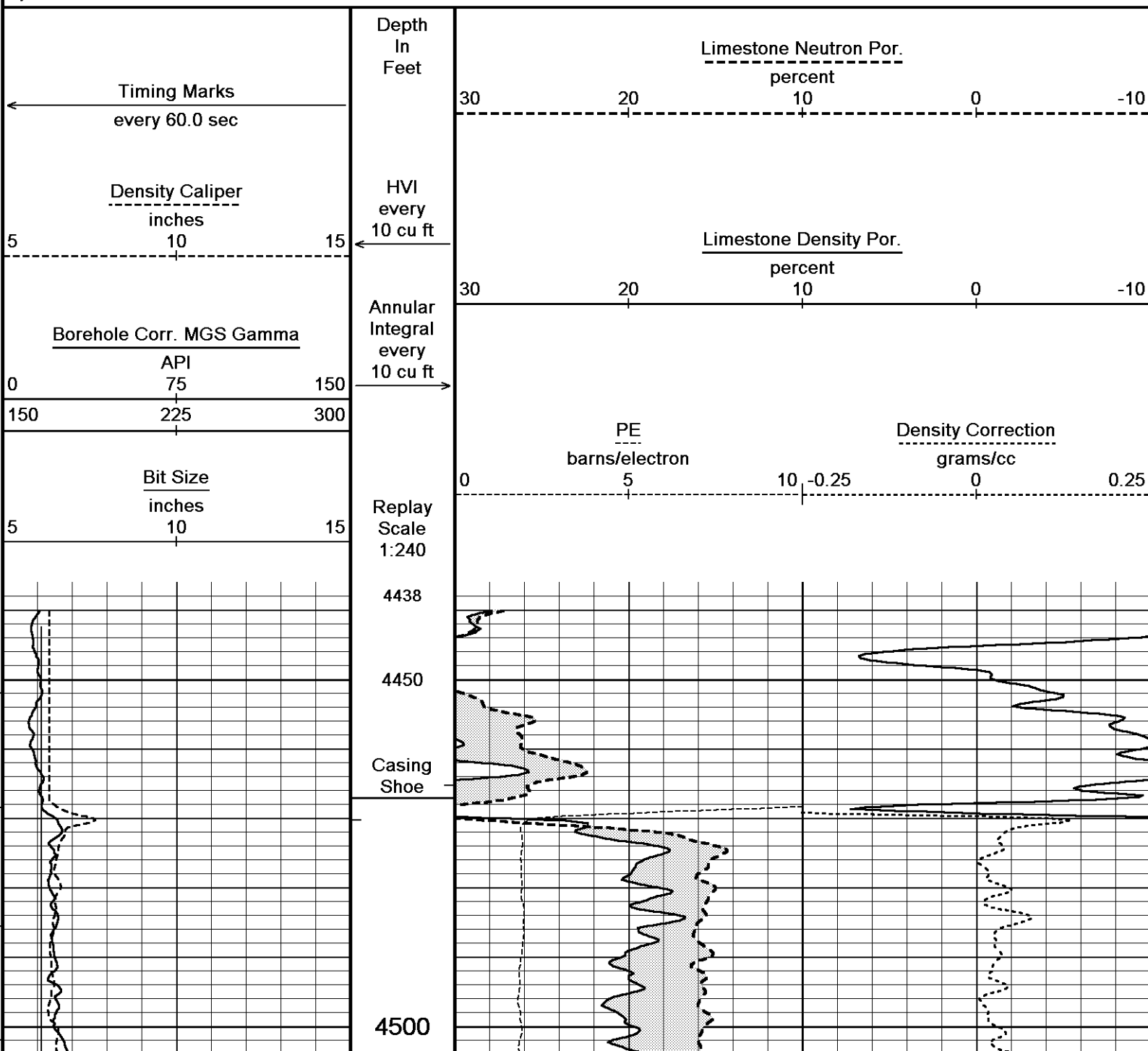
RIG: DUKE 20

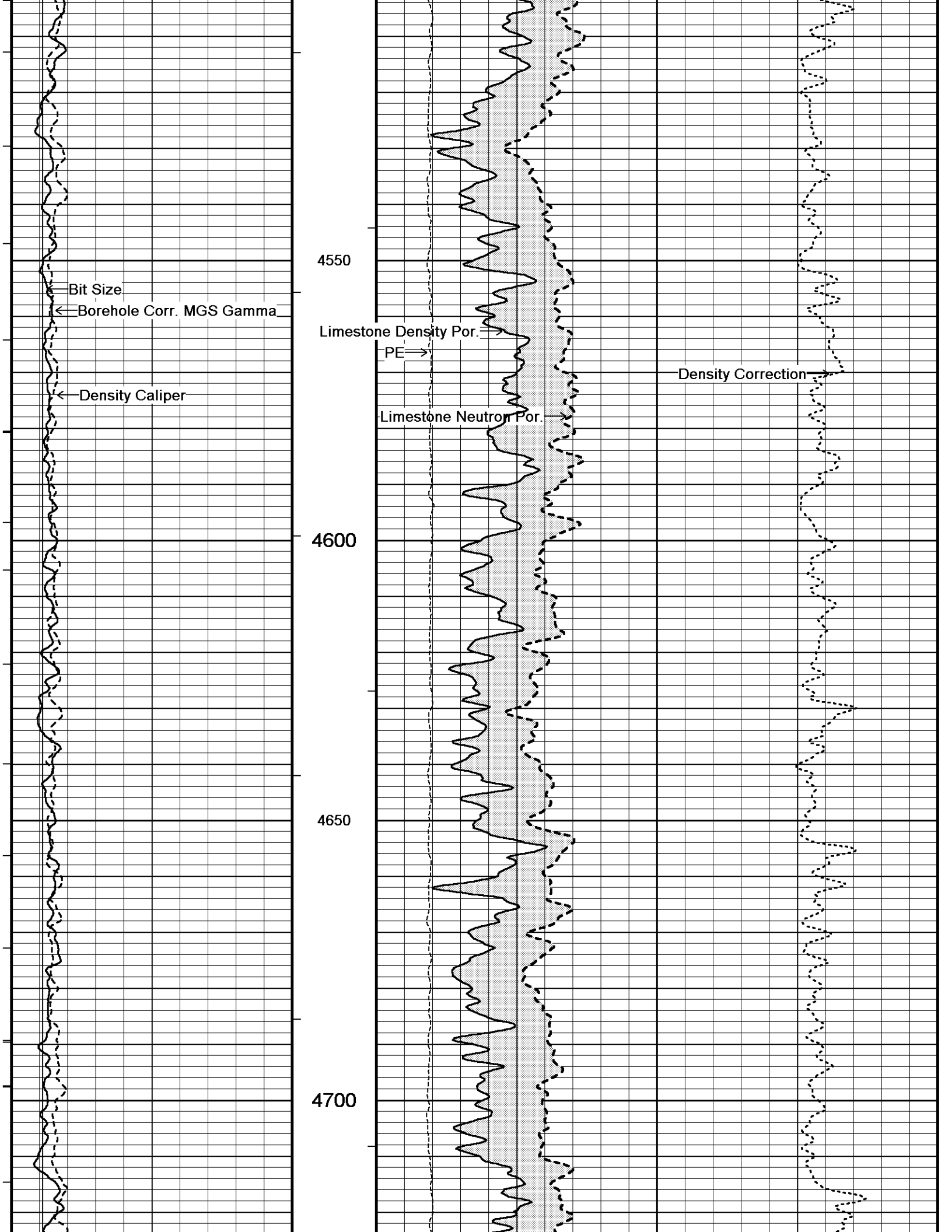
OPERATORS: S. WORLEY, J. TURNER

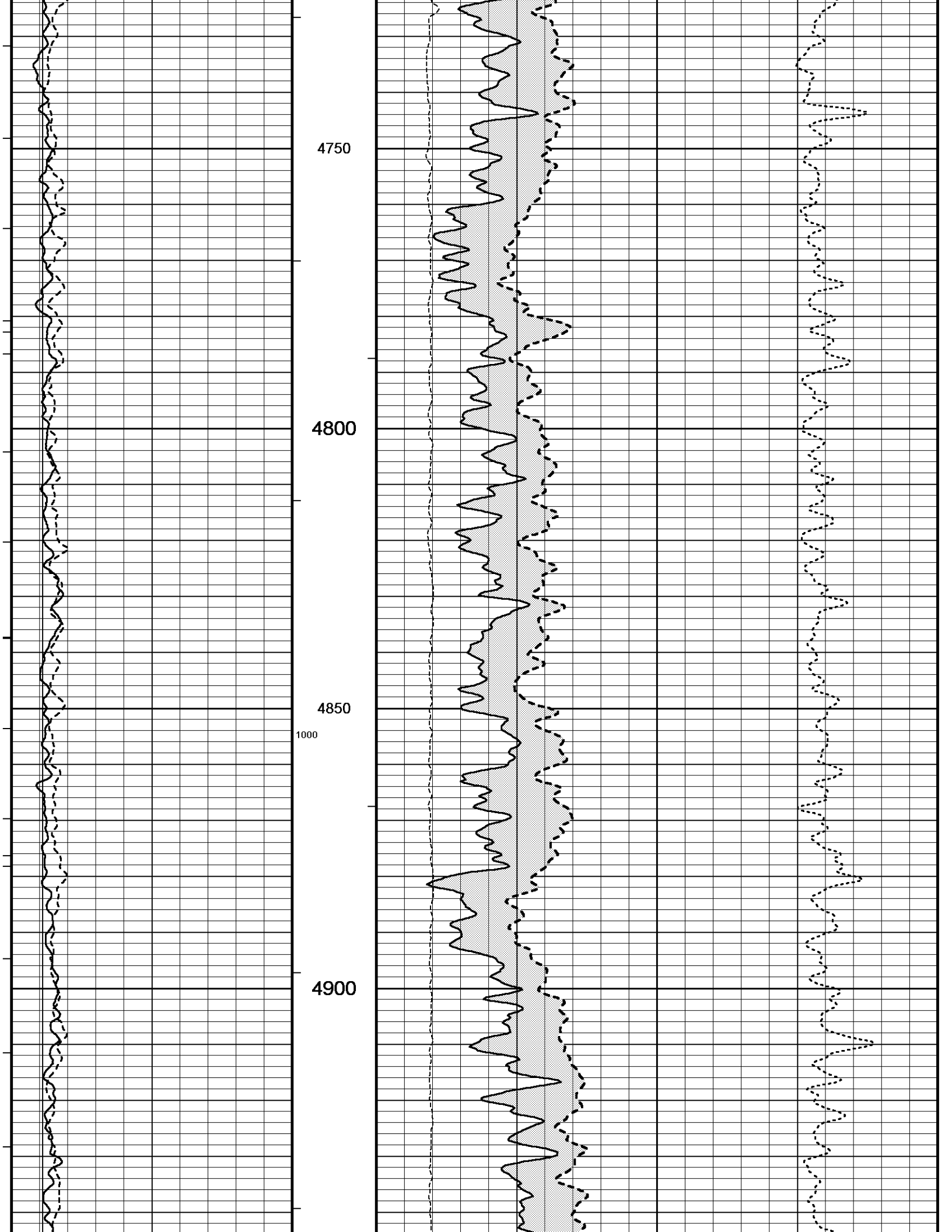
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

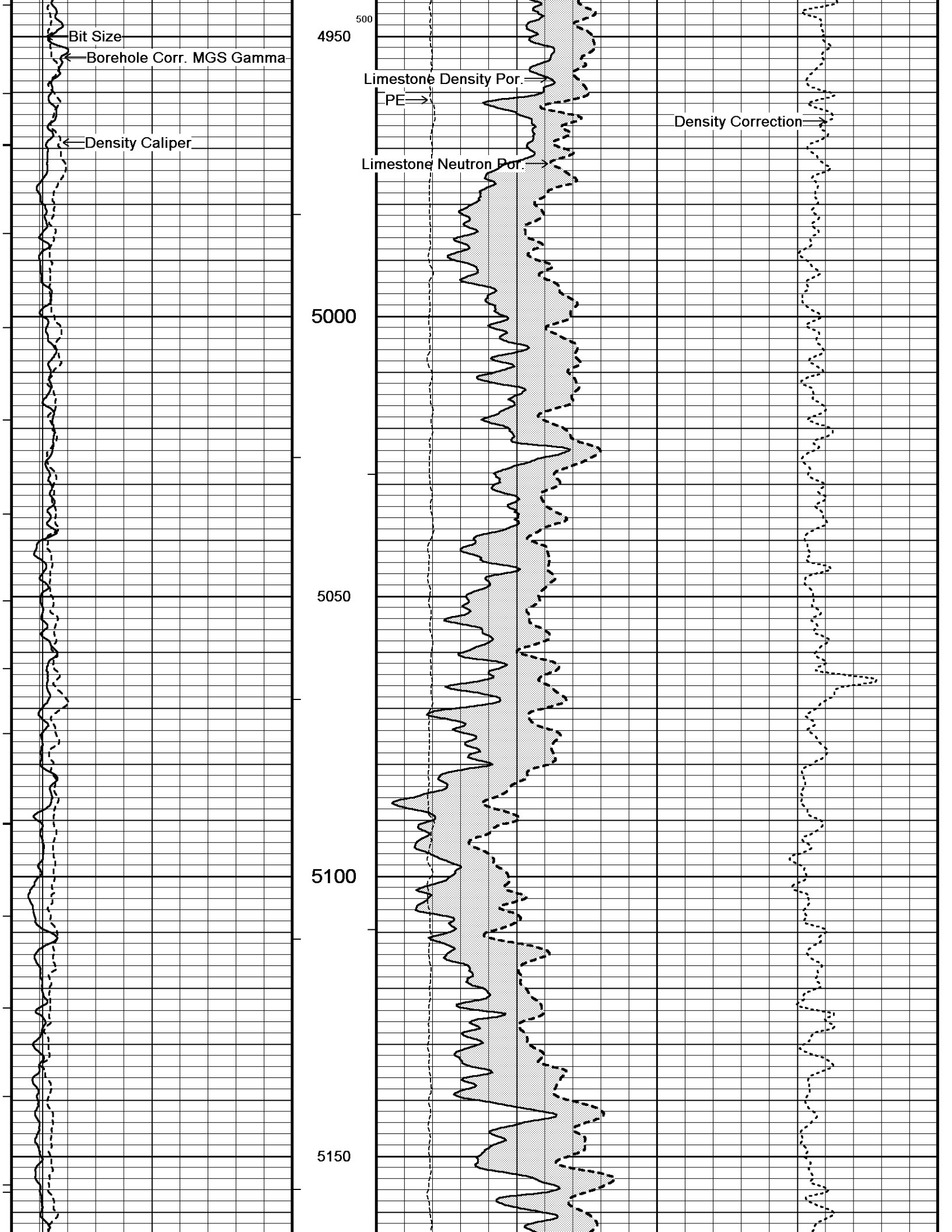
**5 INCH MAIN LOG DSC**

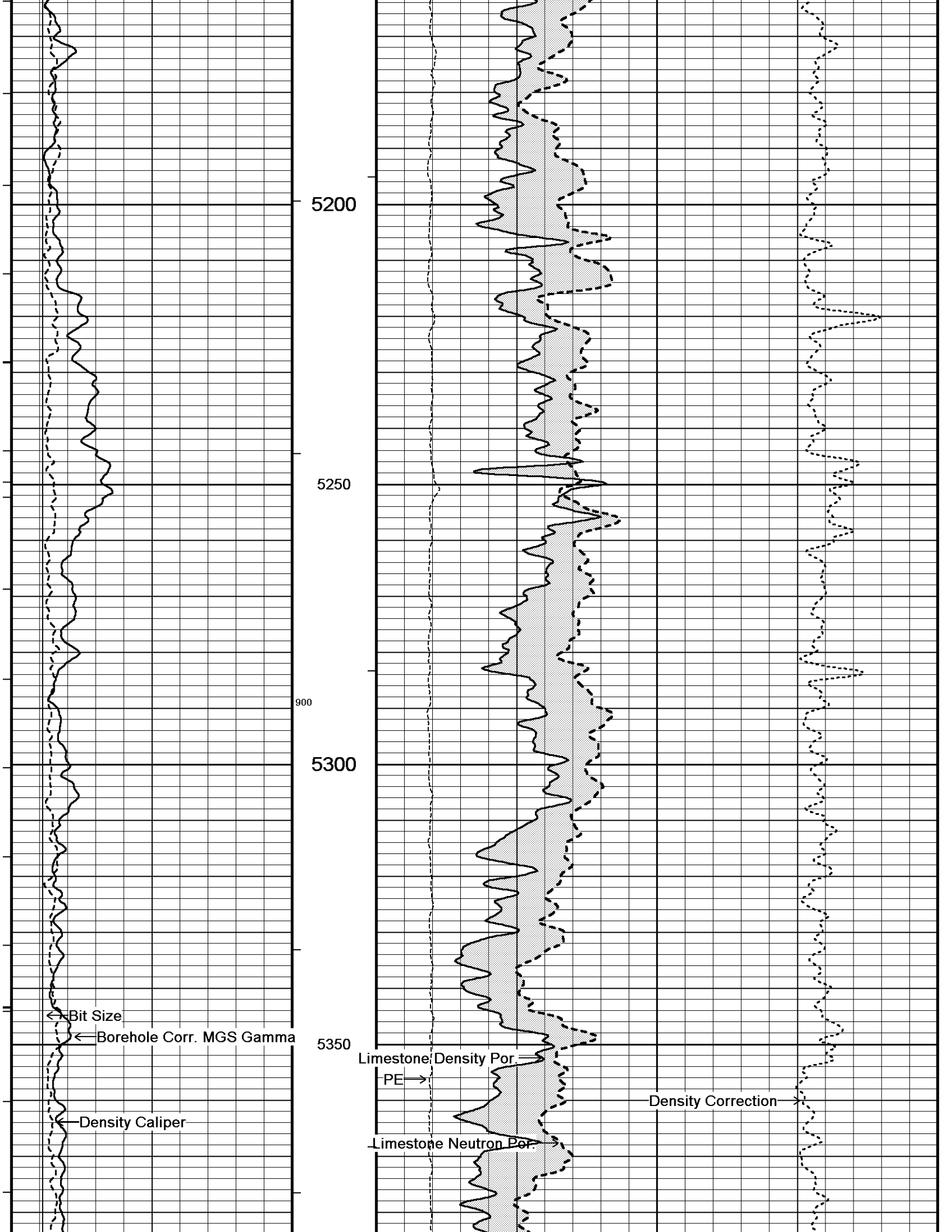
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 15-OCT-2012 10:00  
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 System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

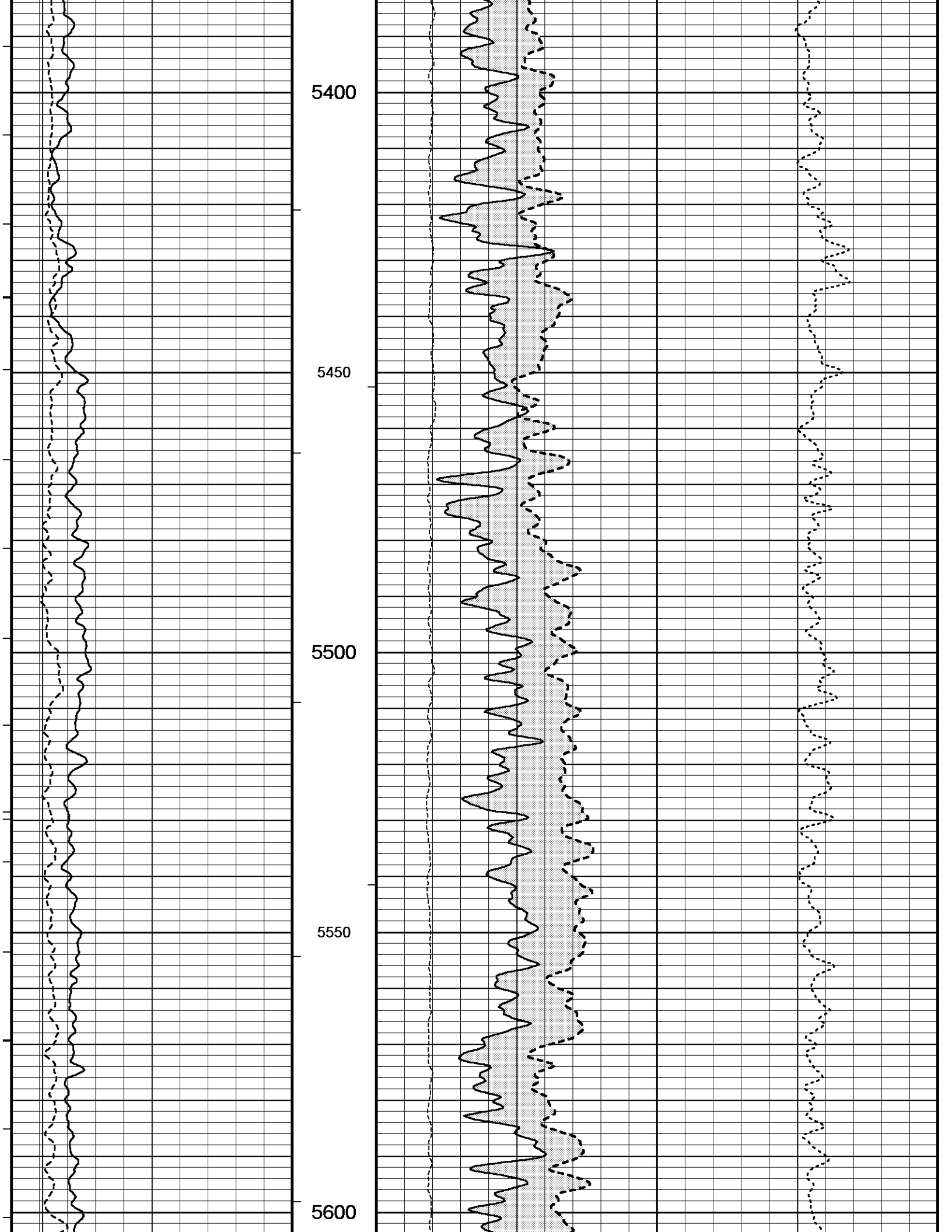


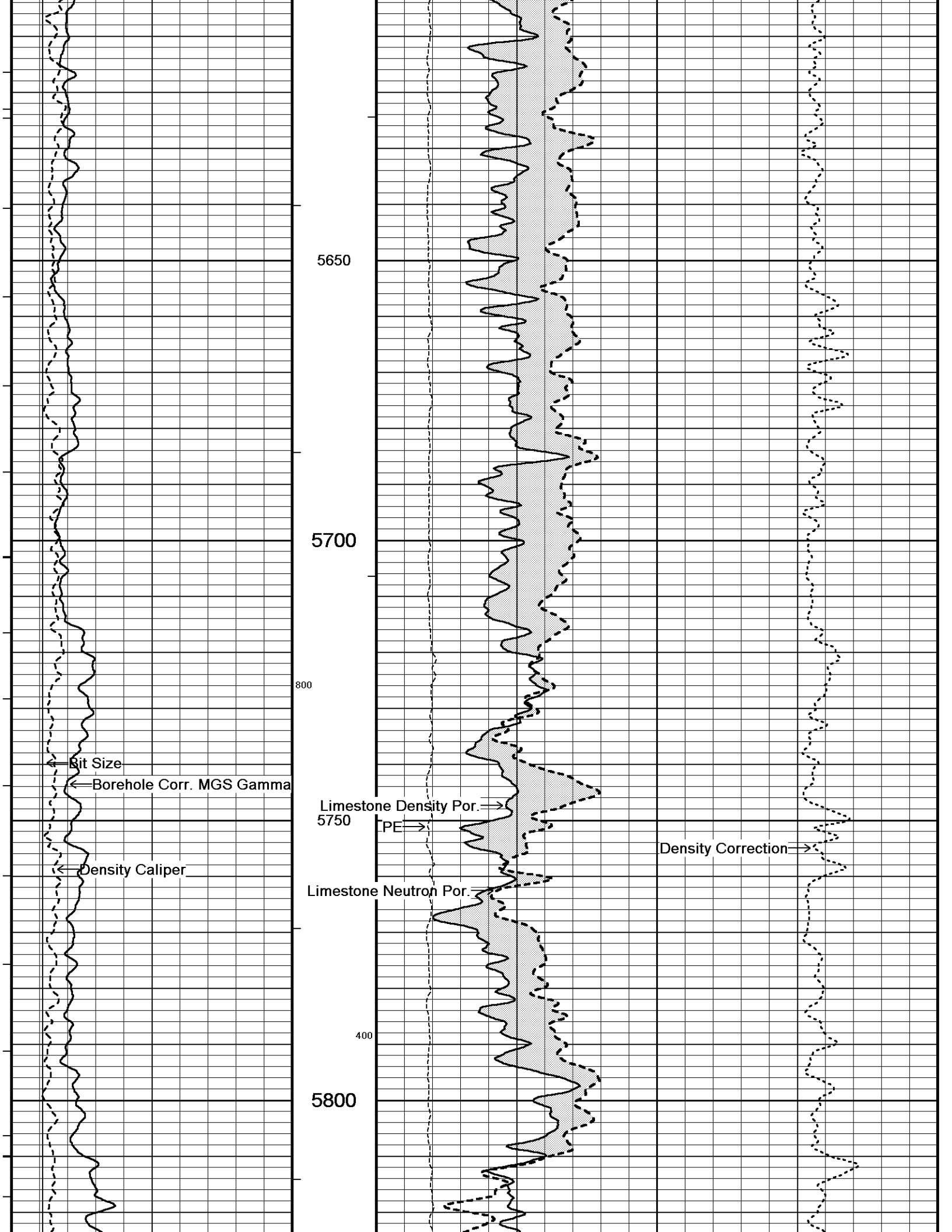




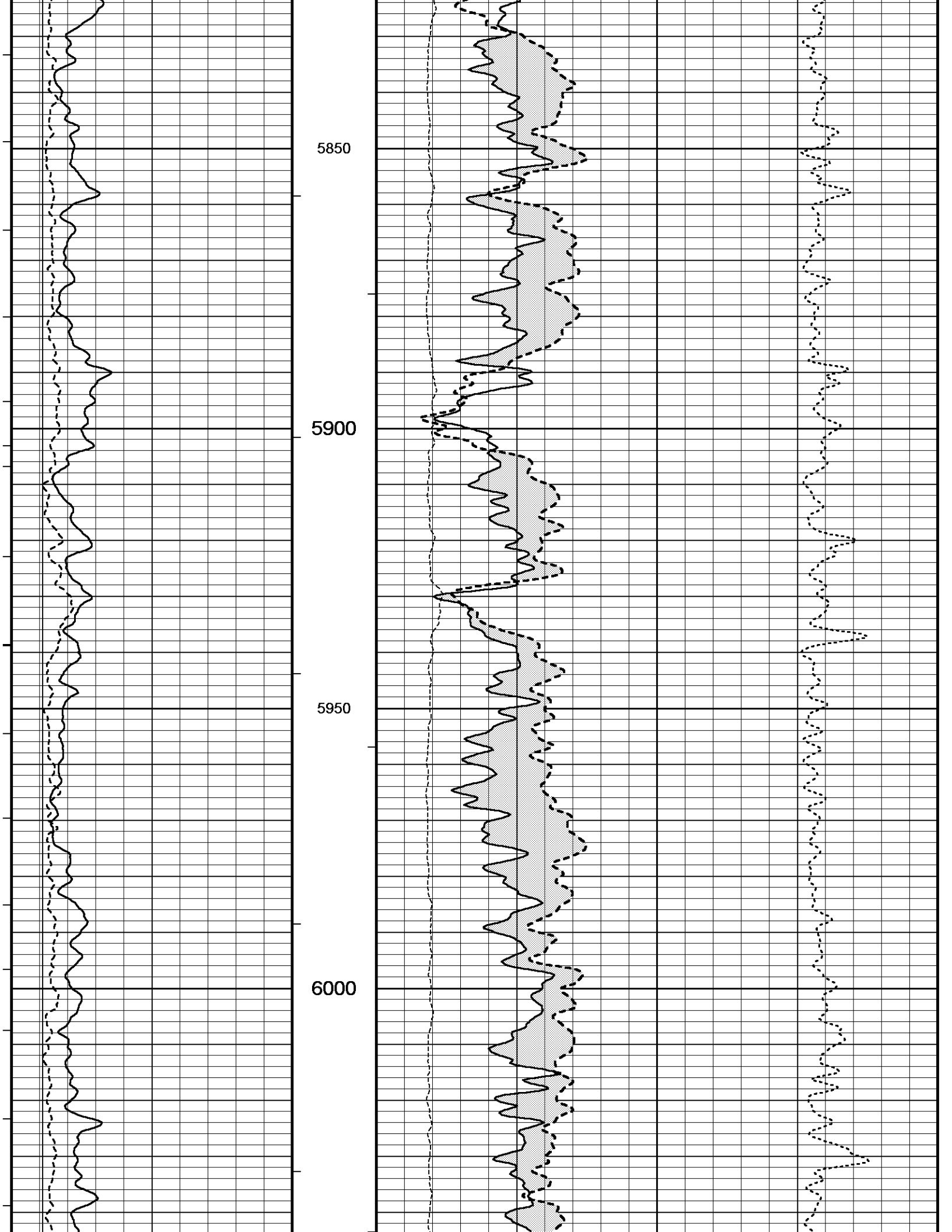


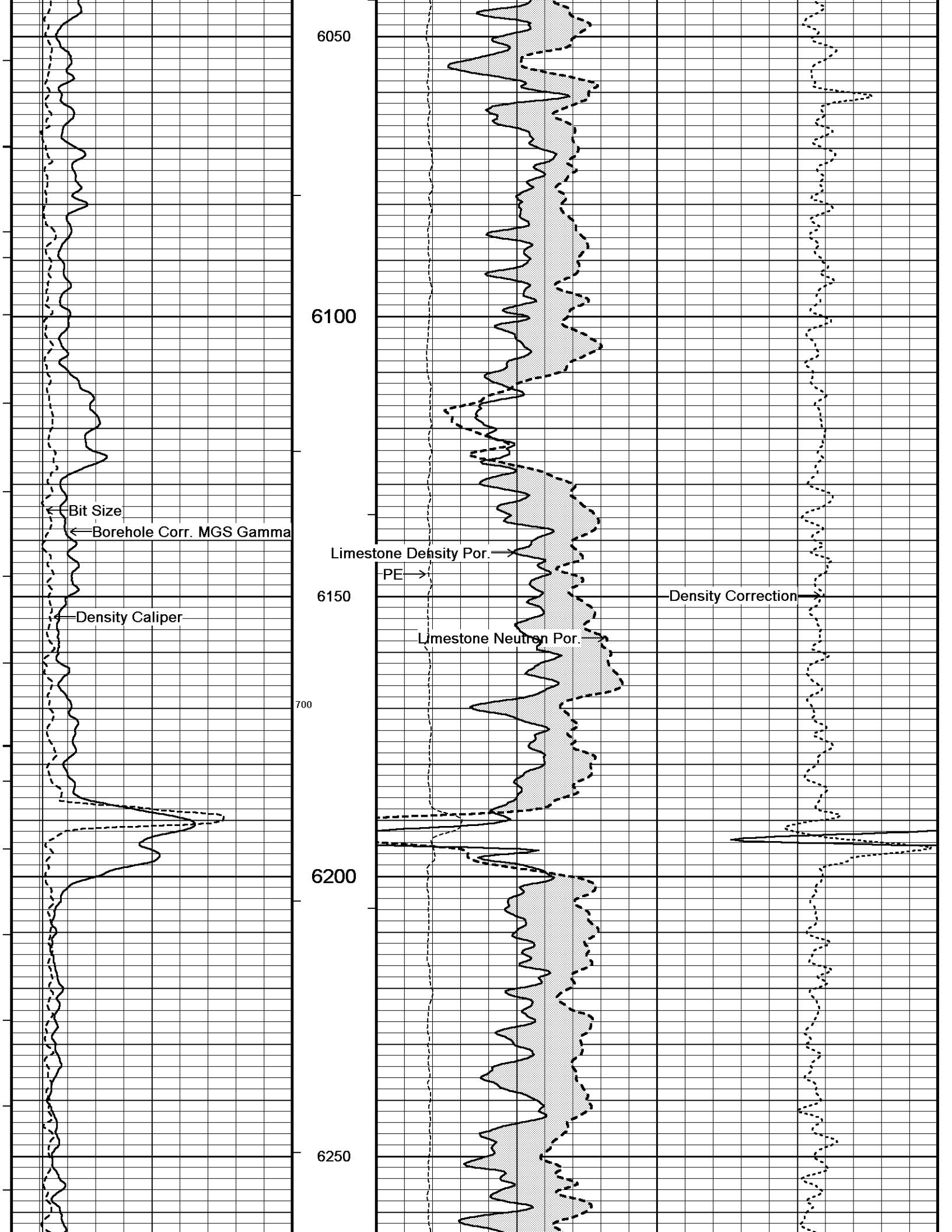


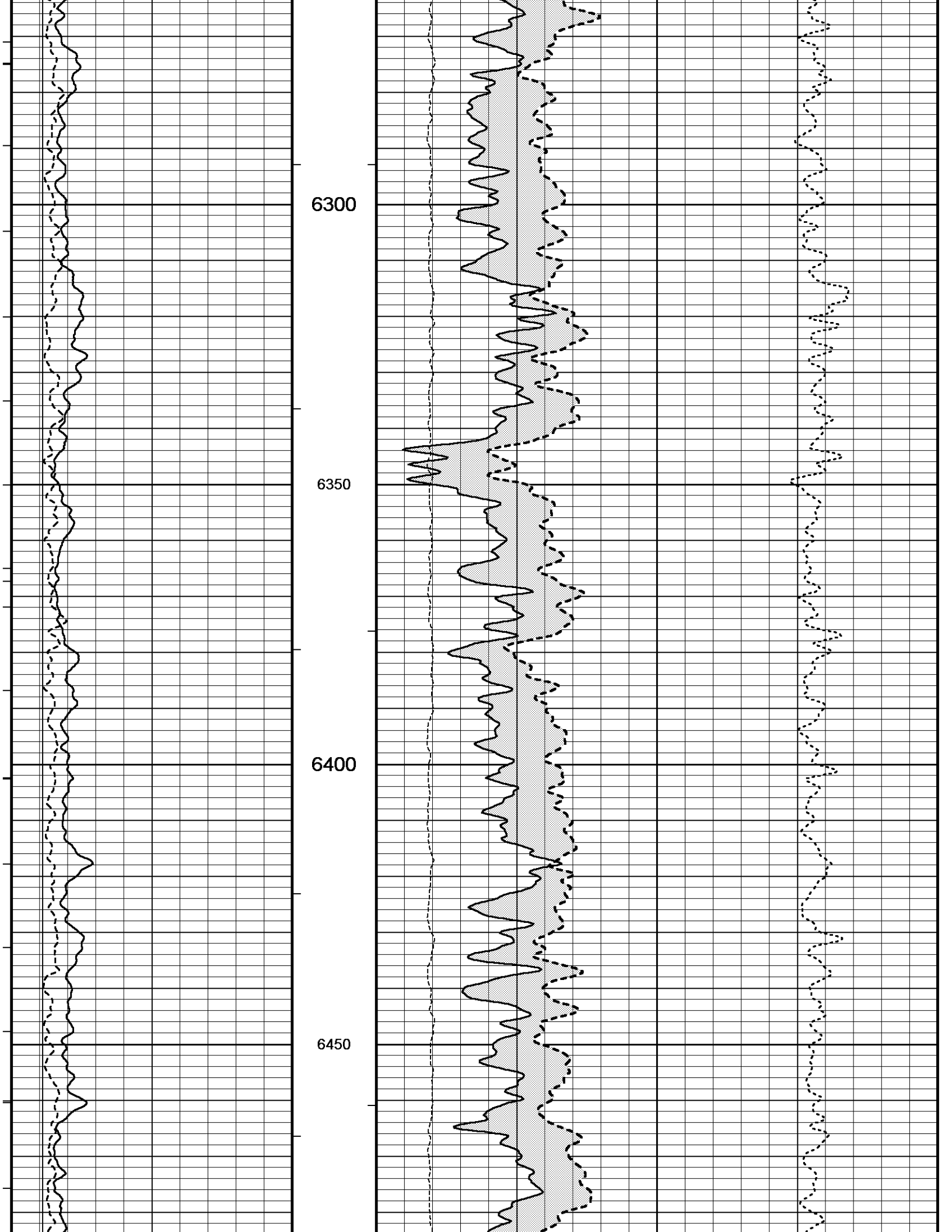


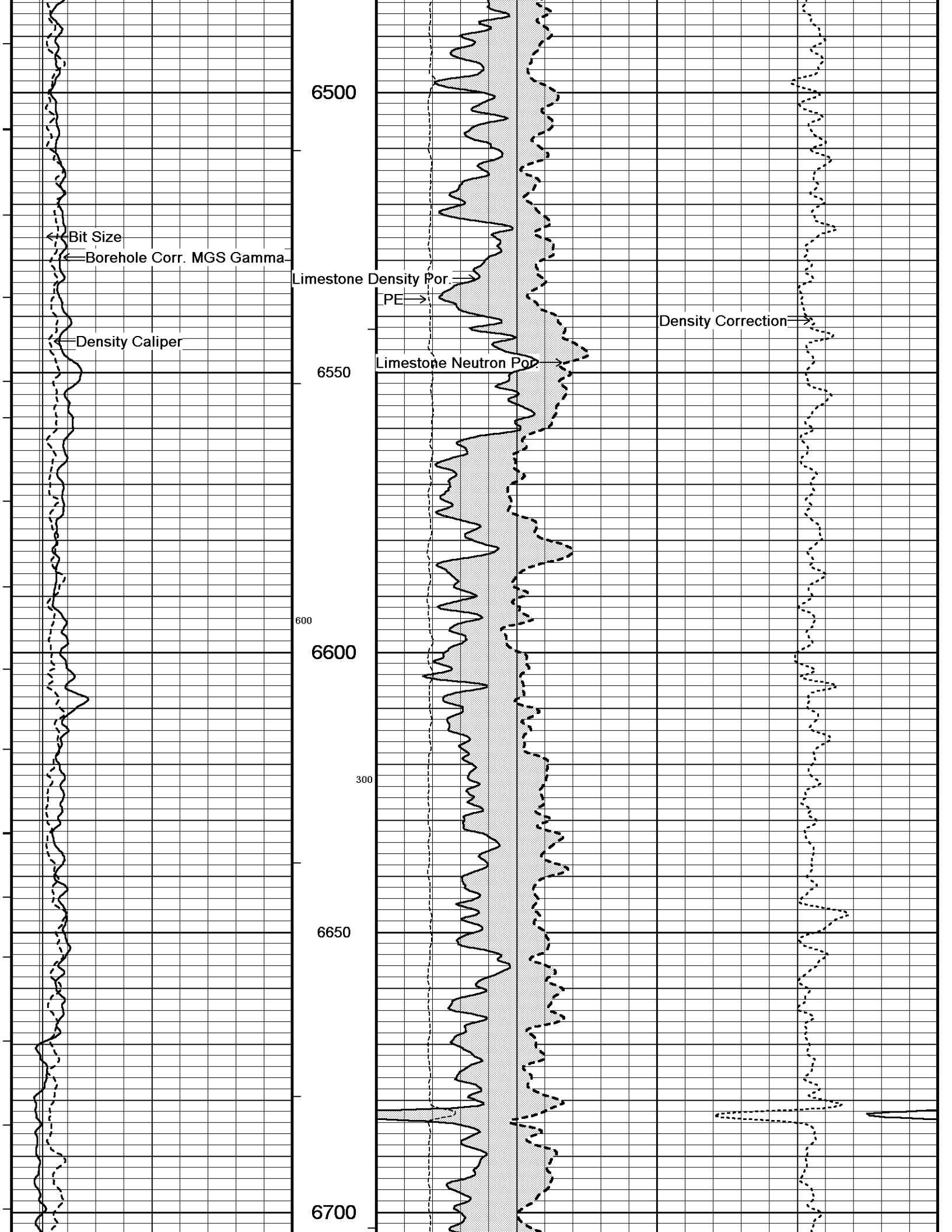


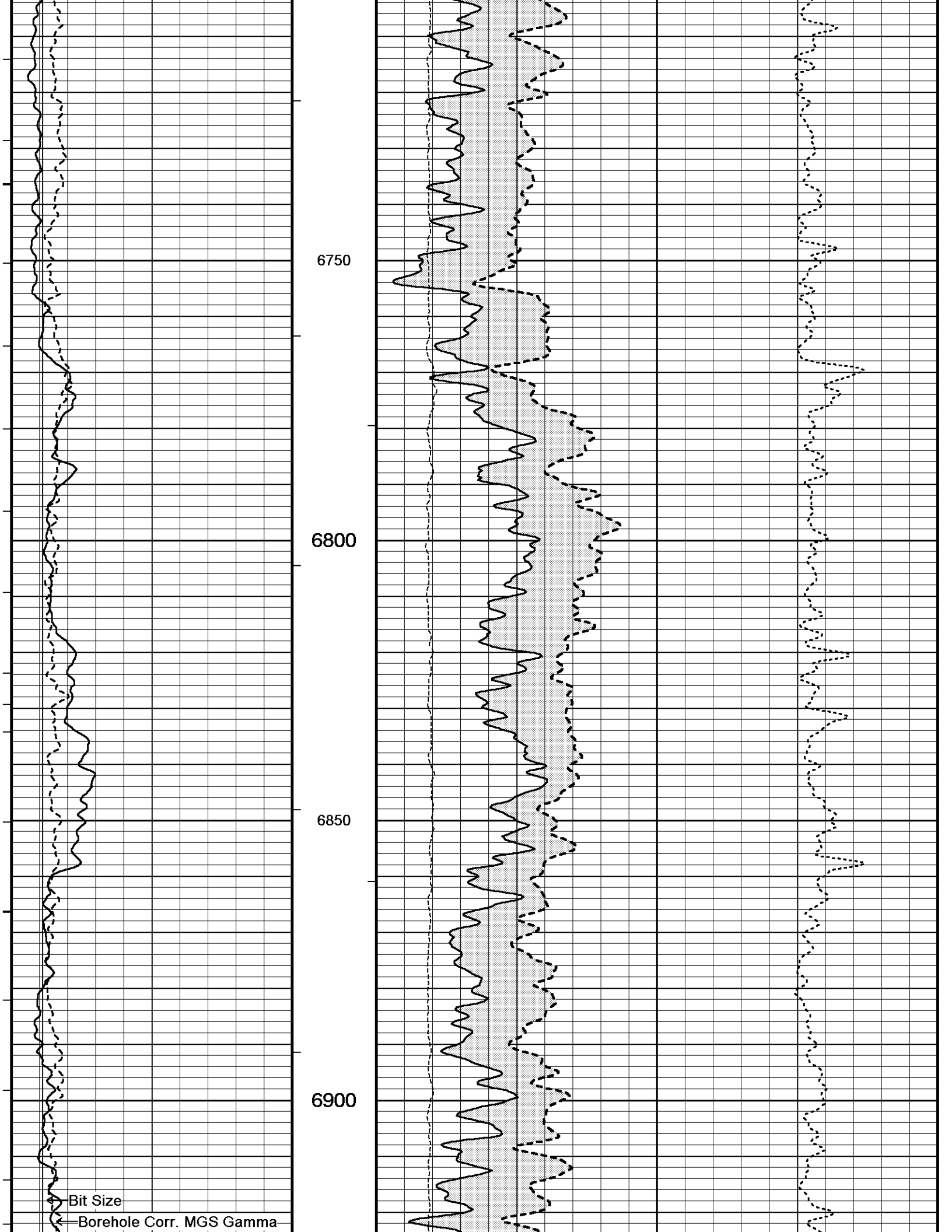


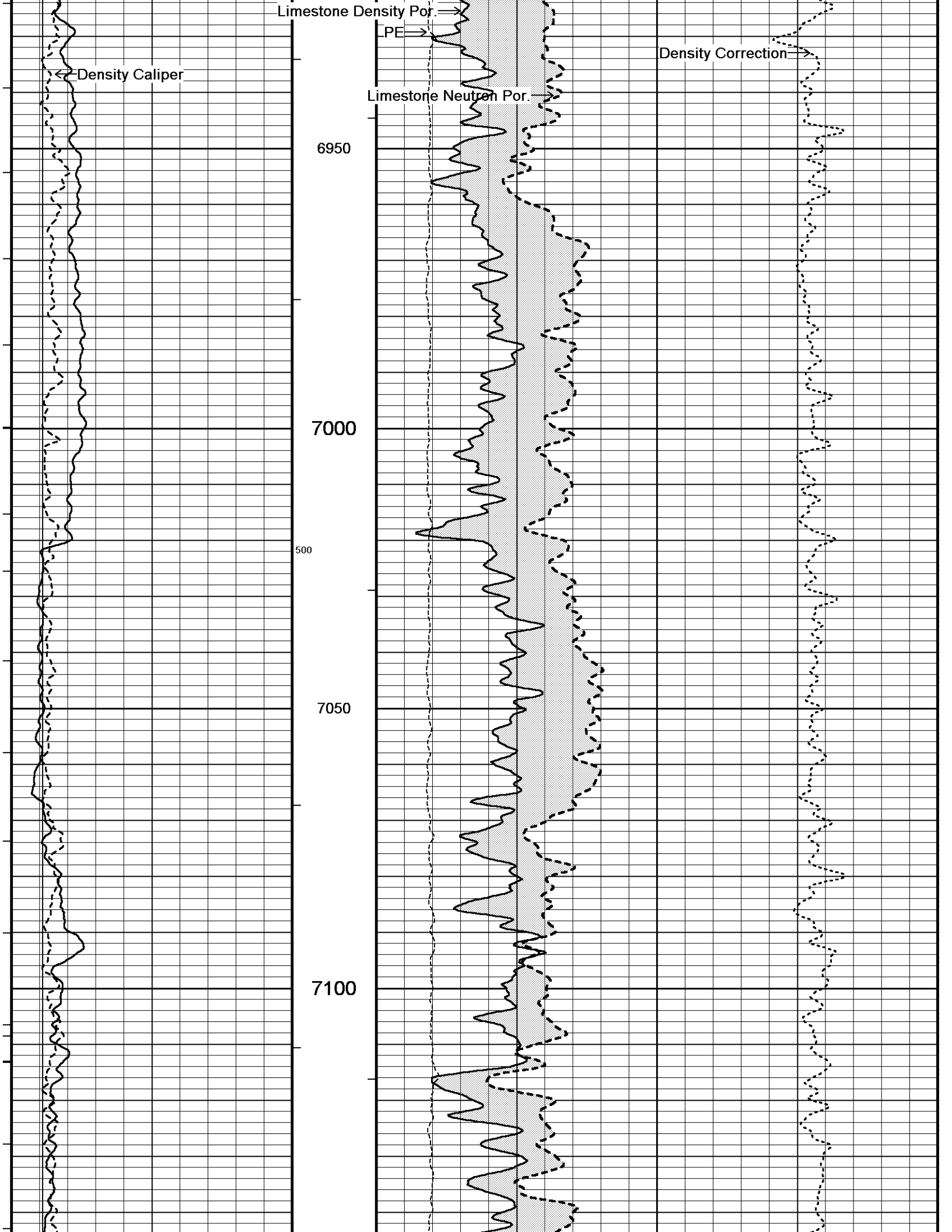


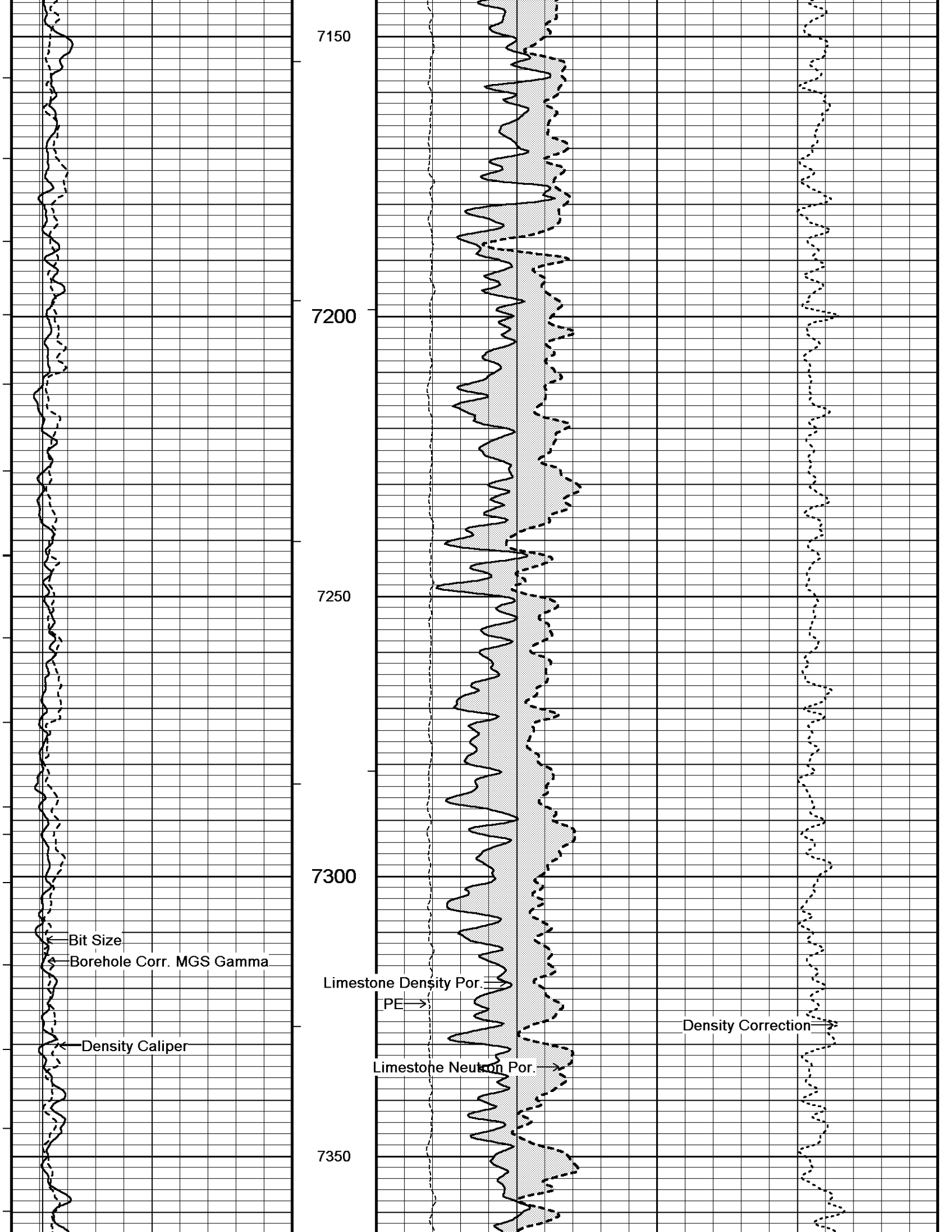


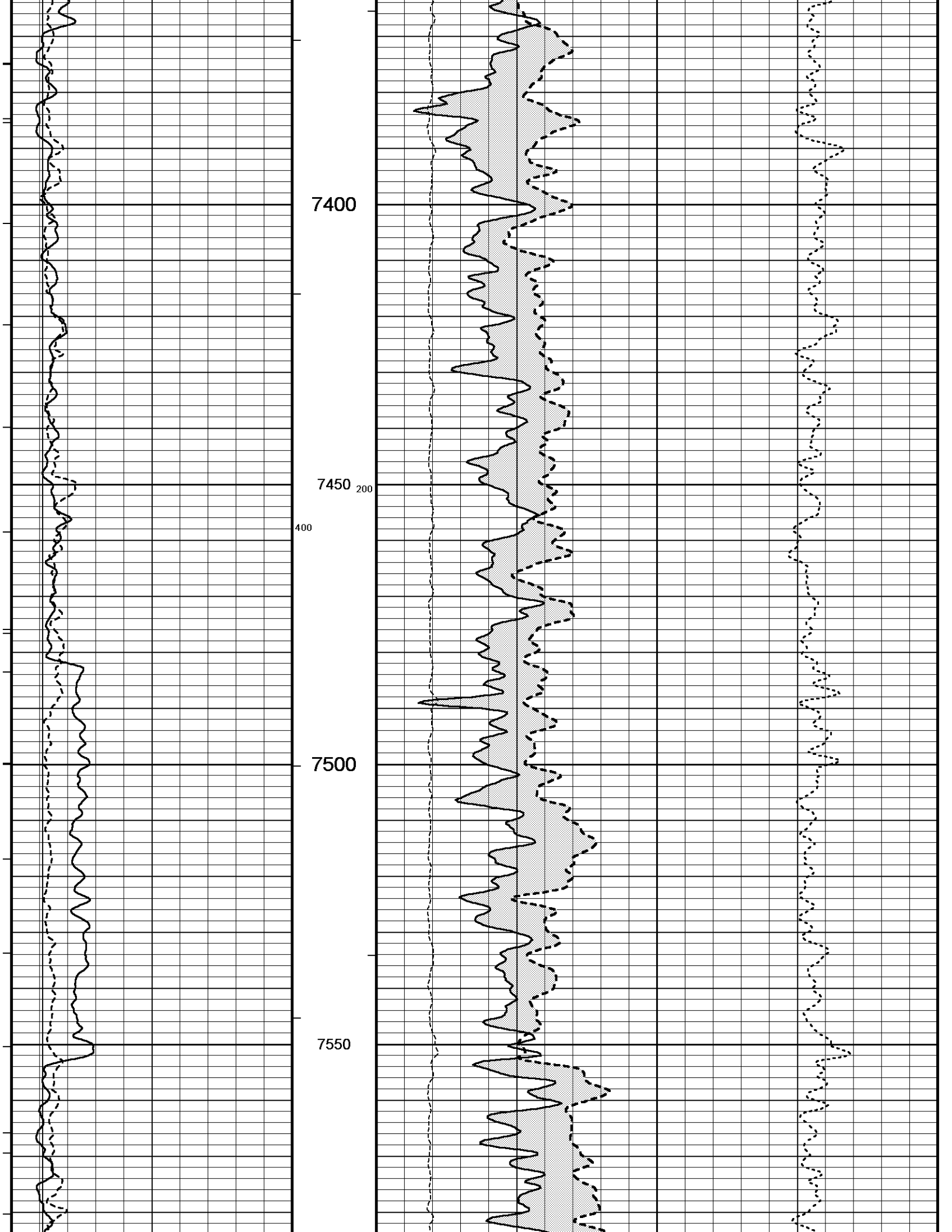




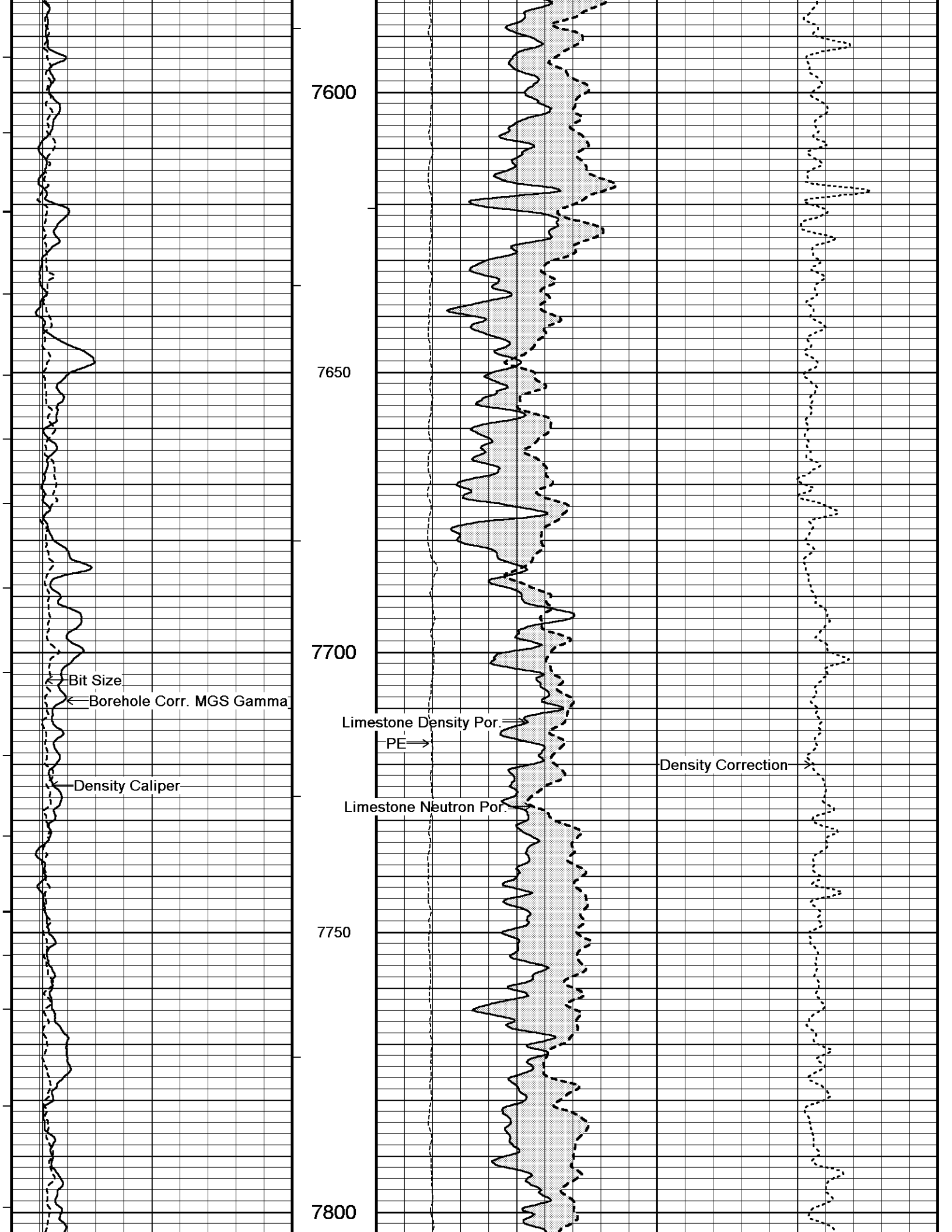


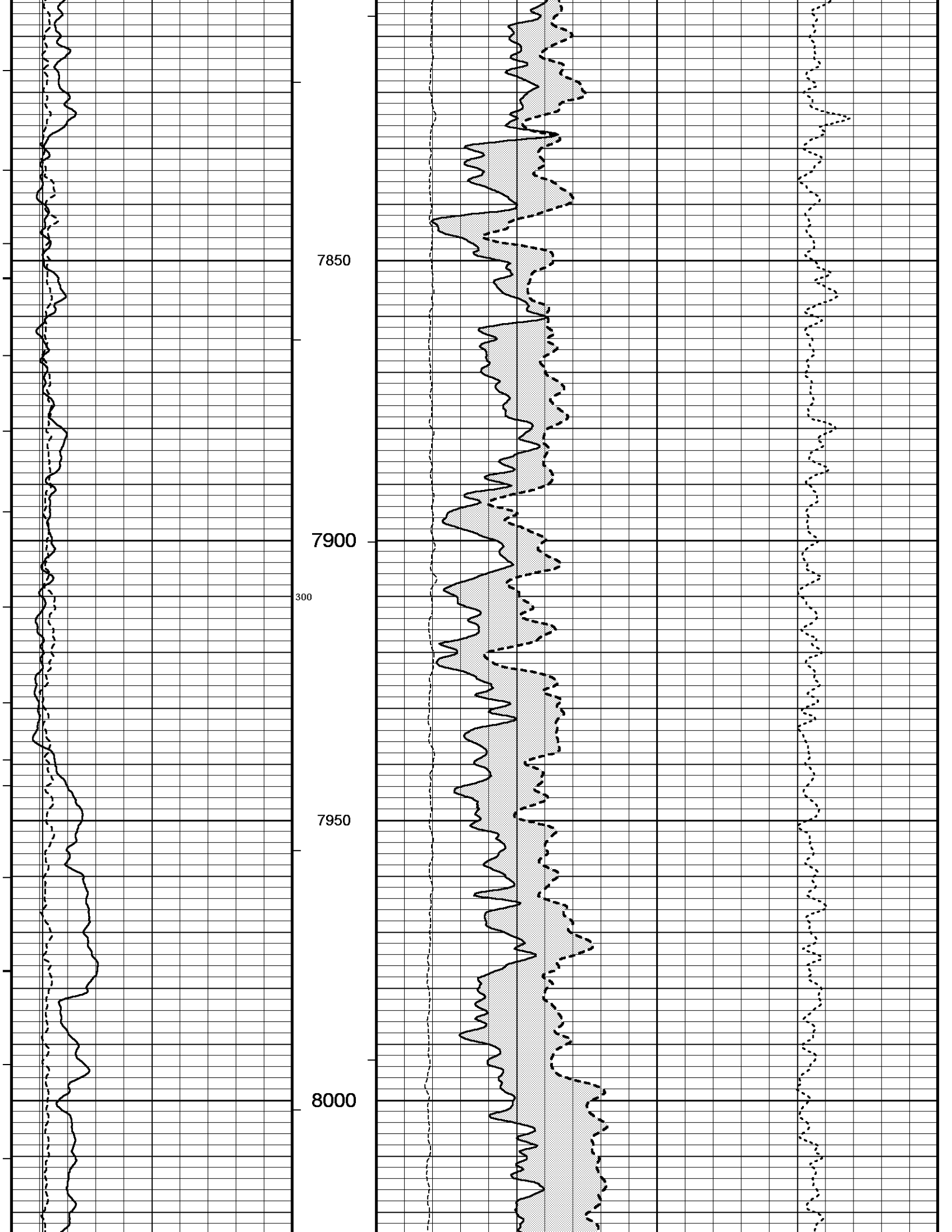


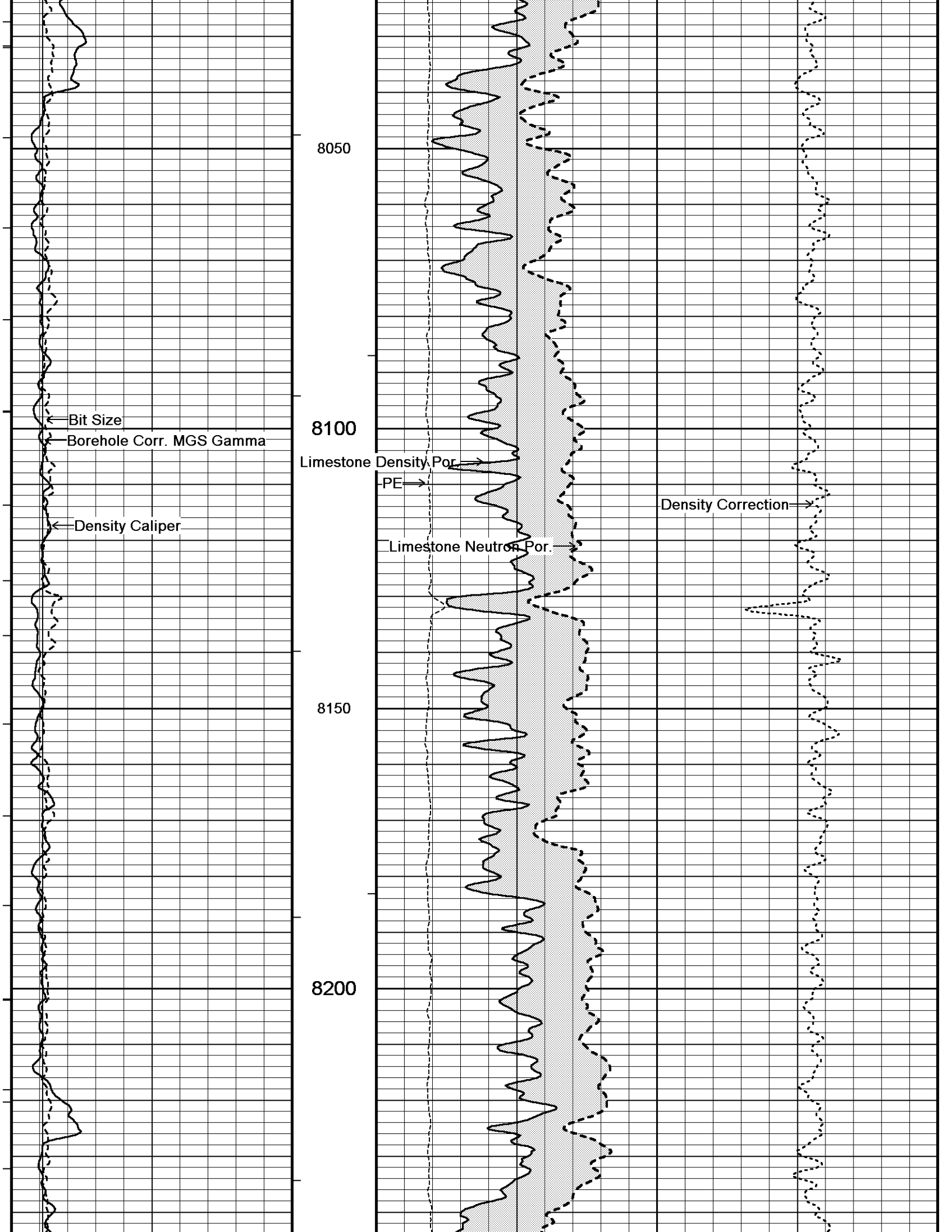


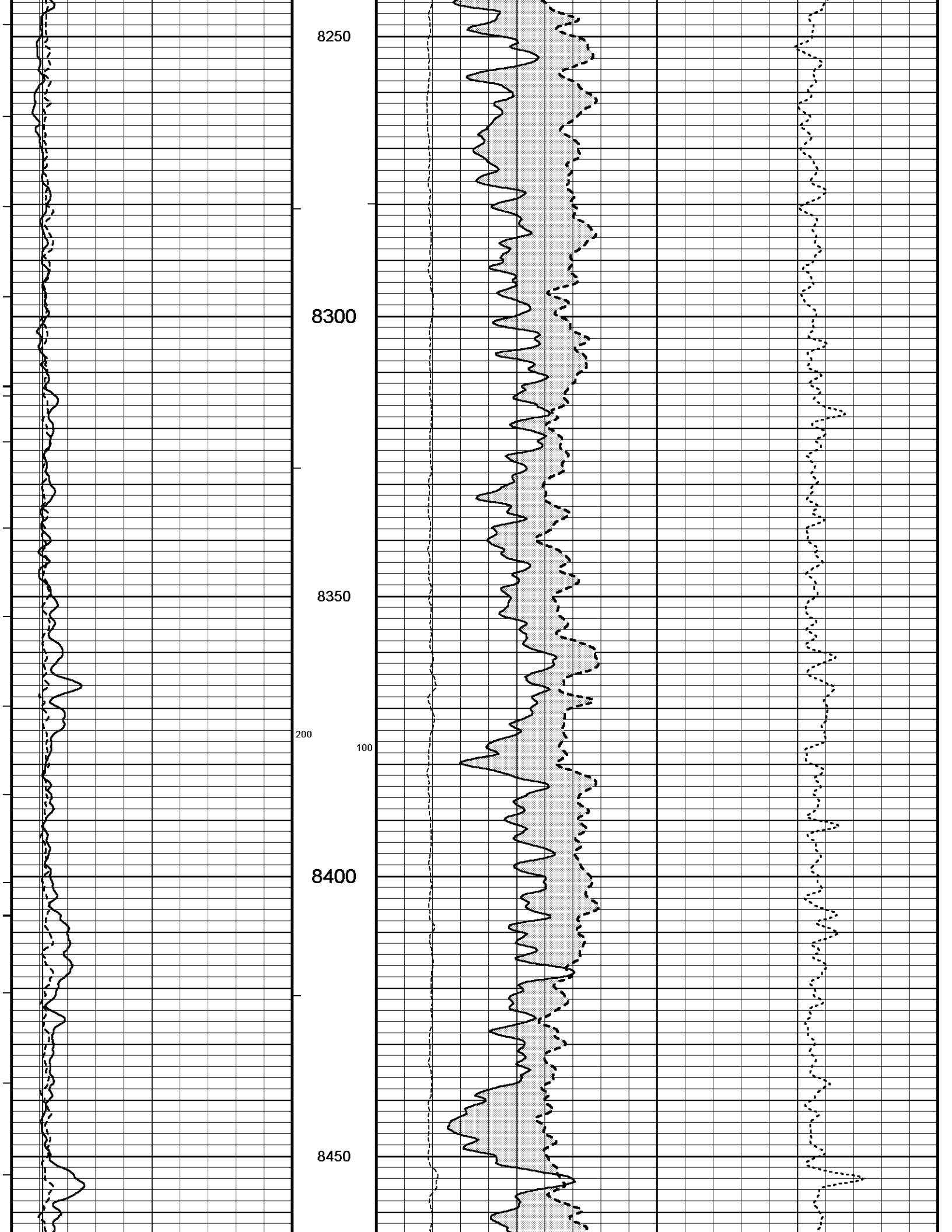


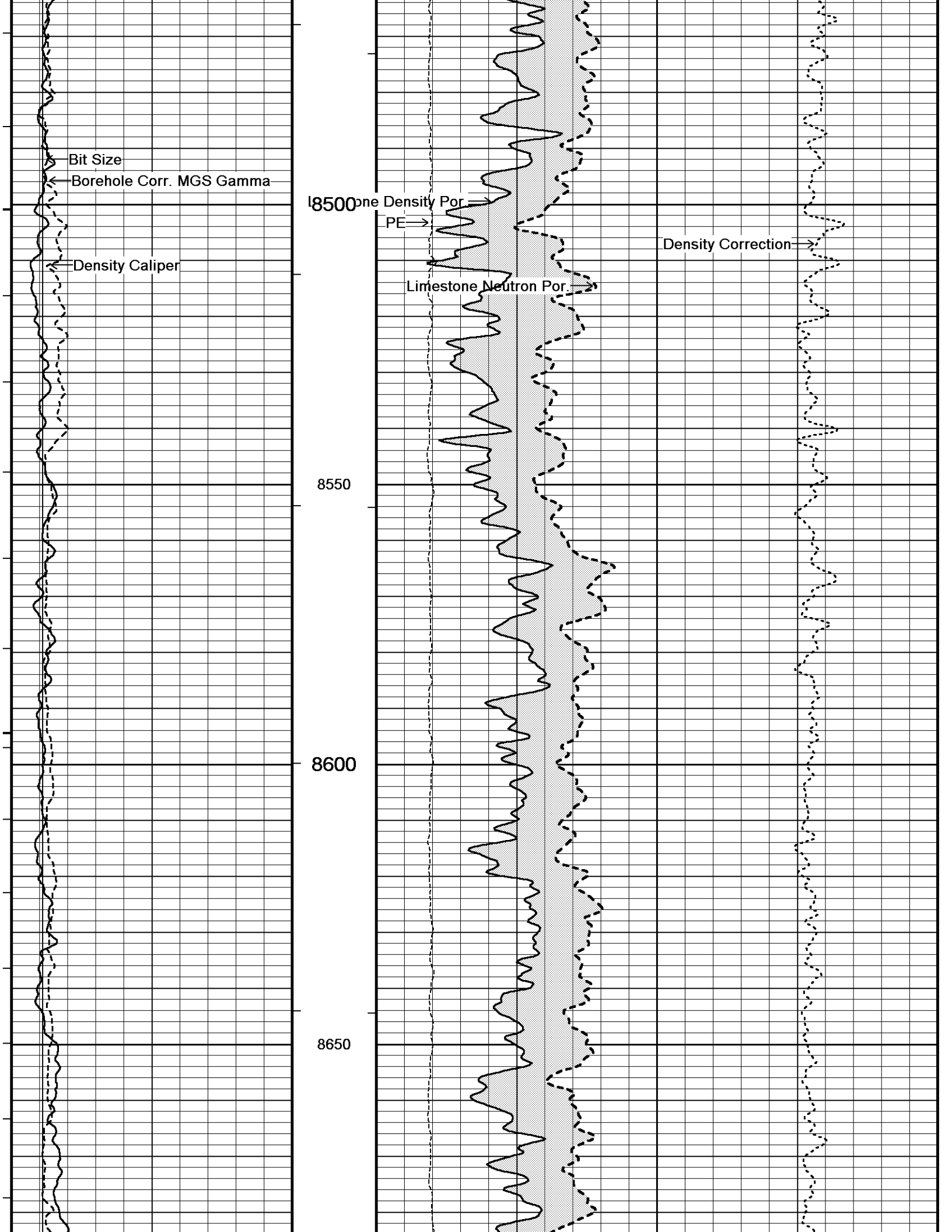


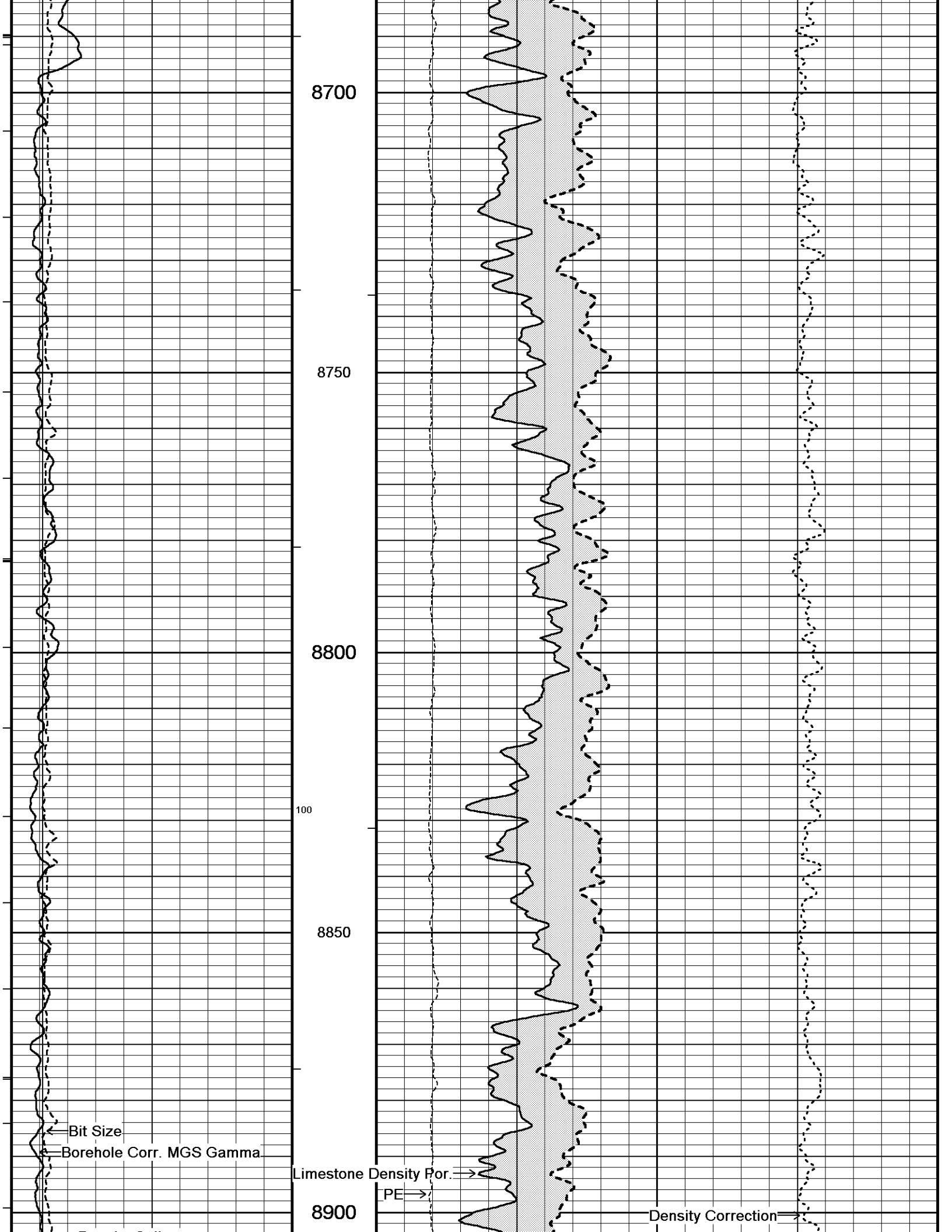


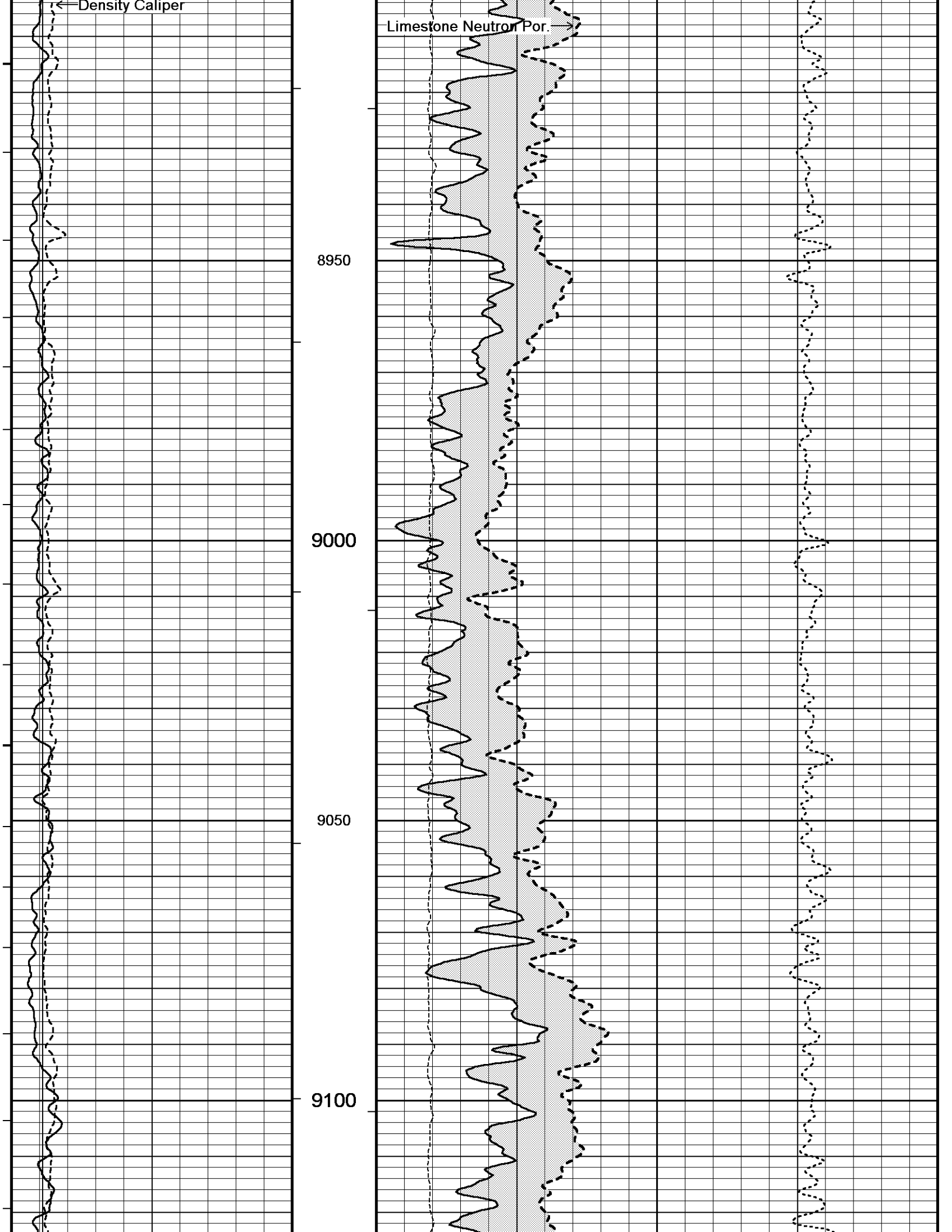


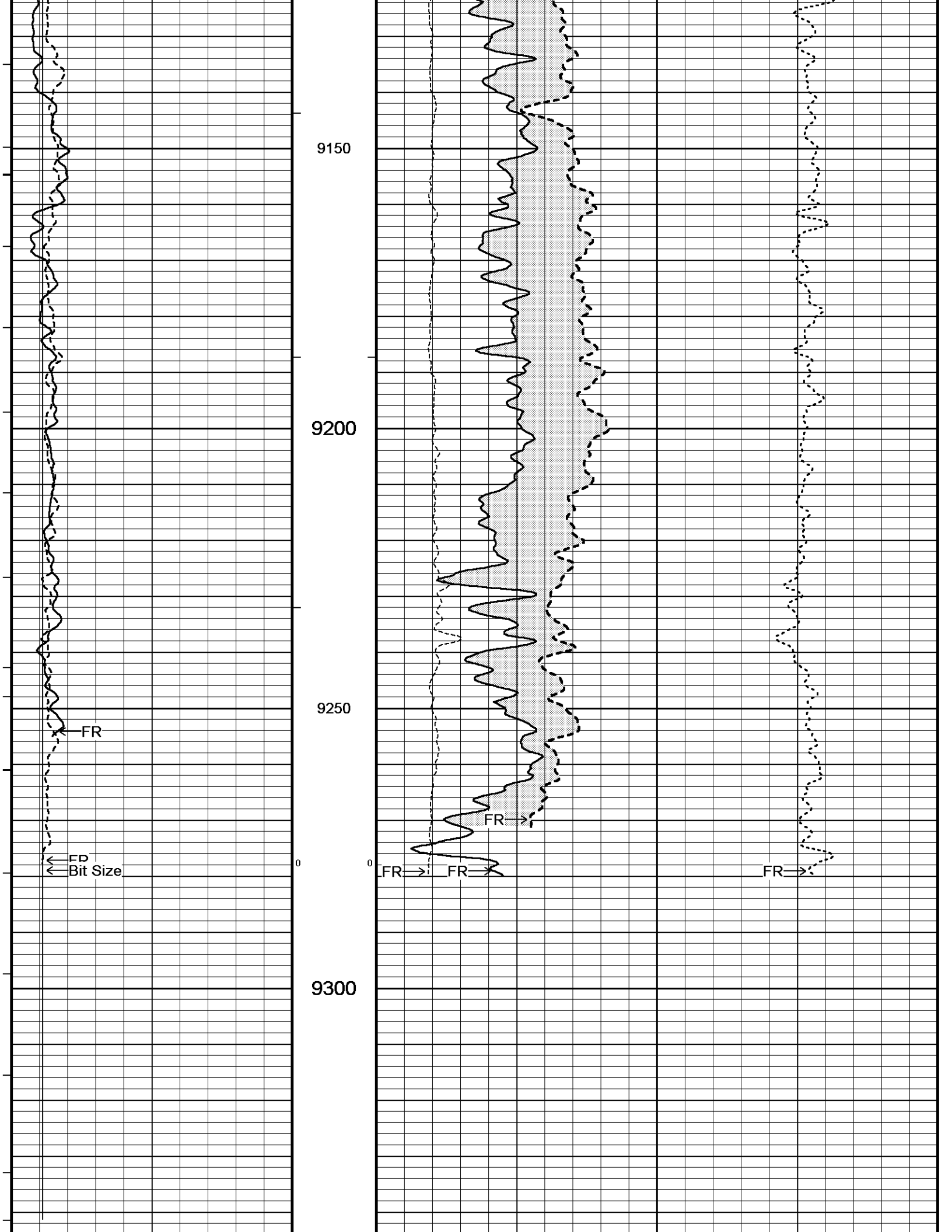




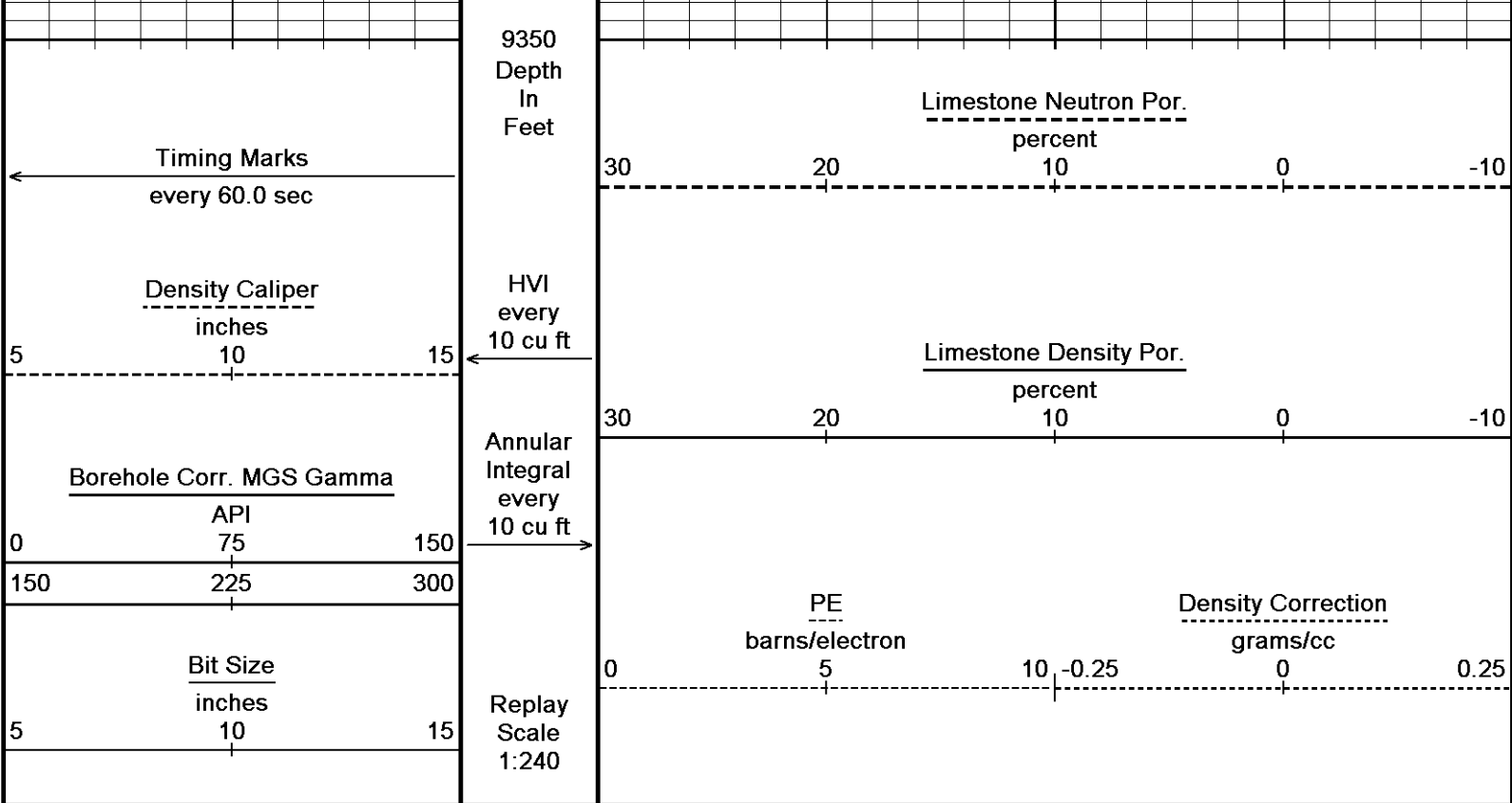










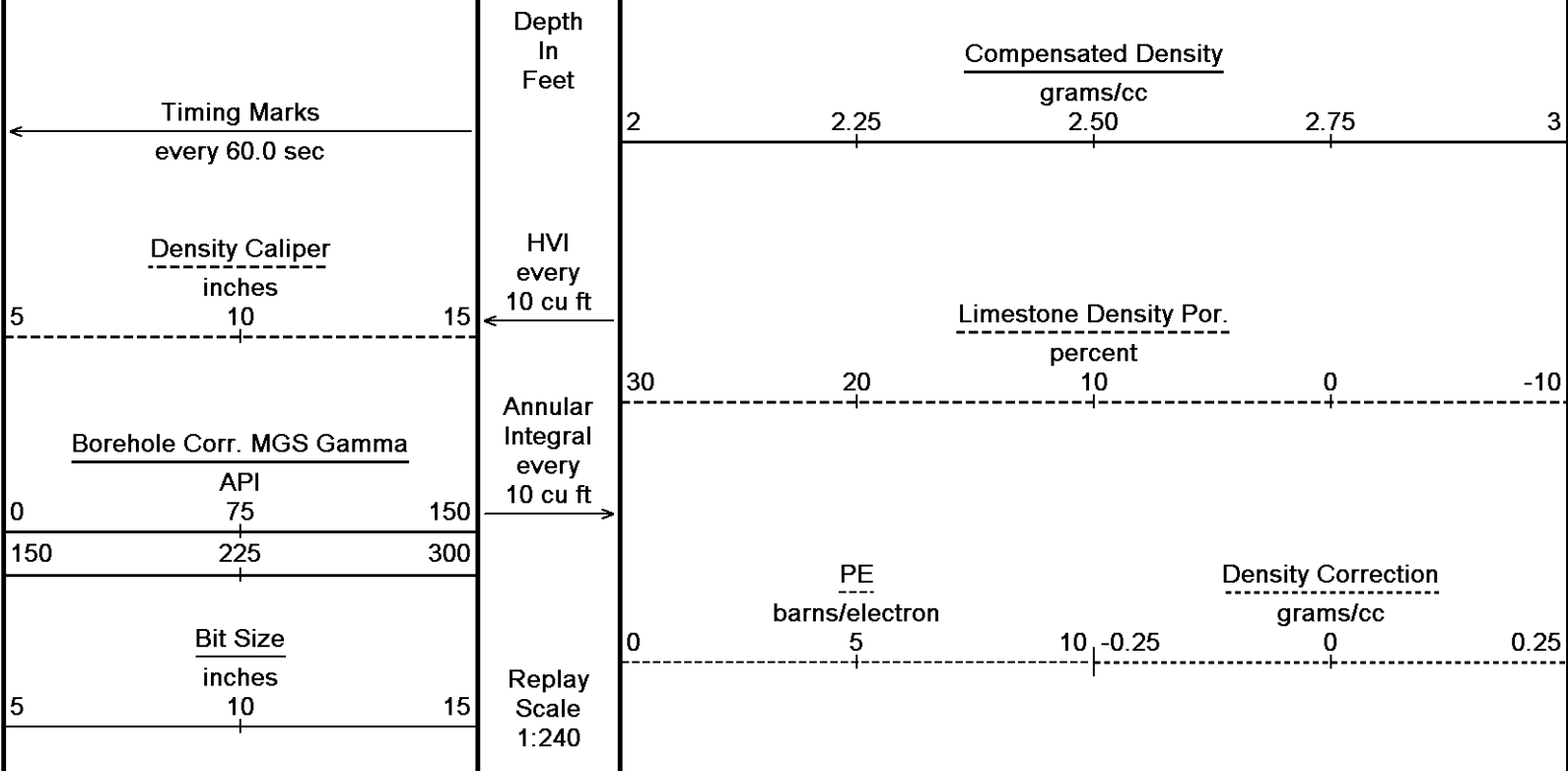


Depth Based Data - Maximum Sampling Increment 10.0cm  
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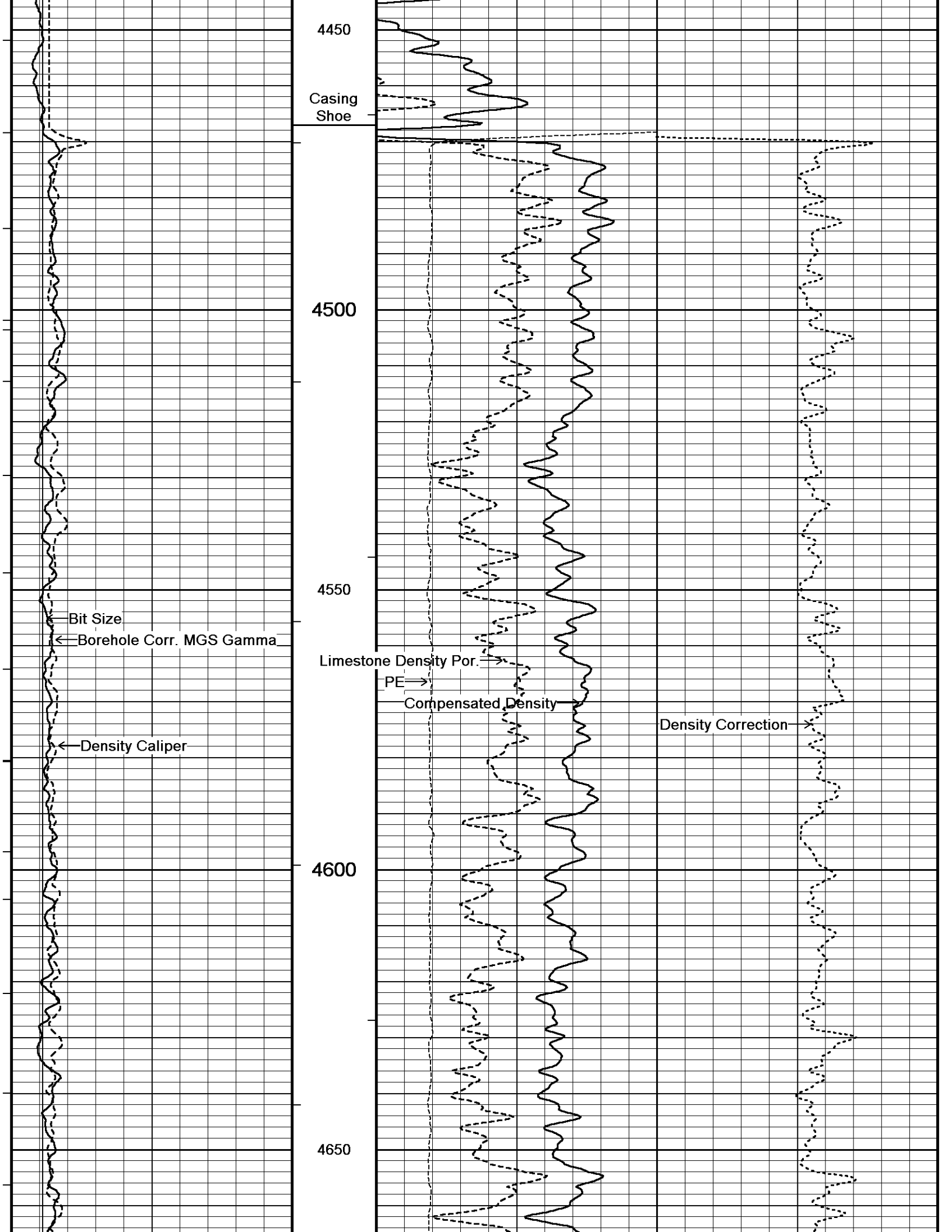
5 INCH MAIN LOG DSC

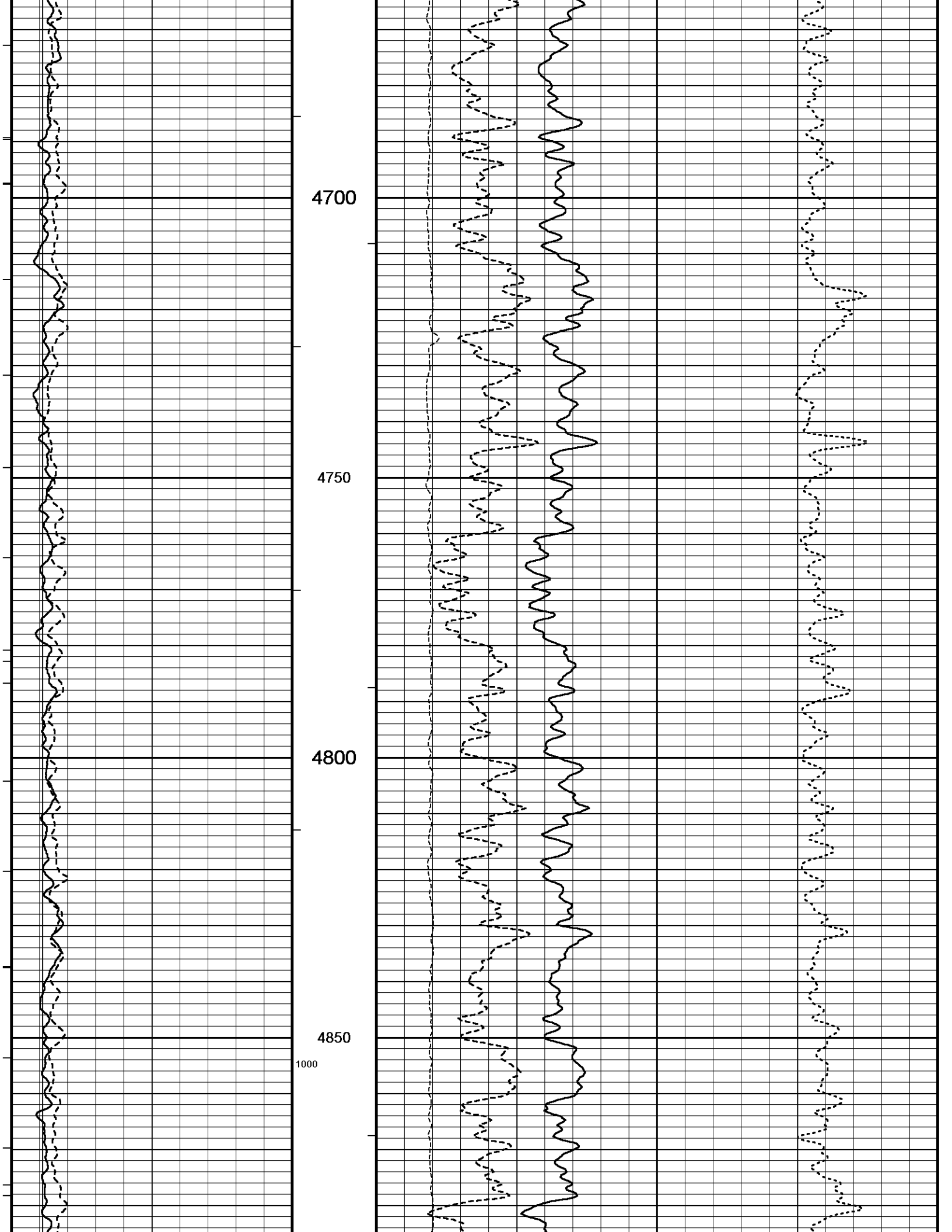
5 INCH BULK DENSITY LOG DSC

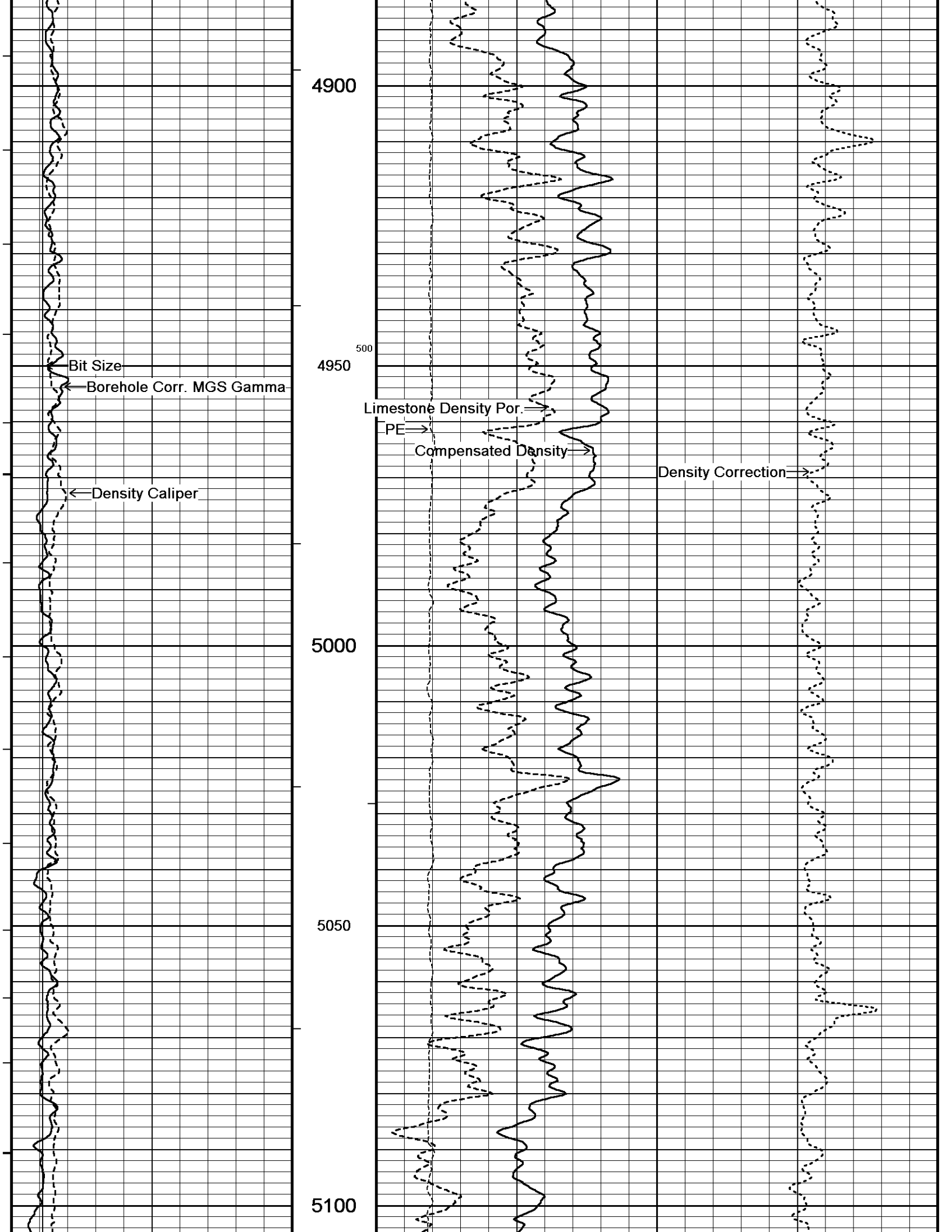
Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 15-OCT-2012 10:00  
 Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta  
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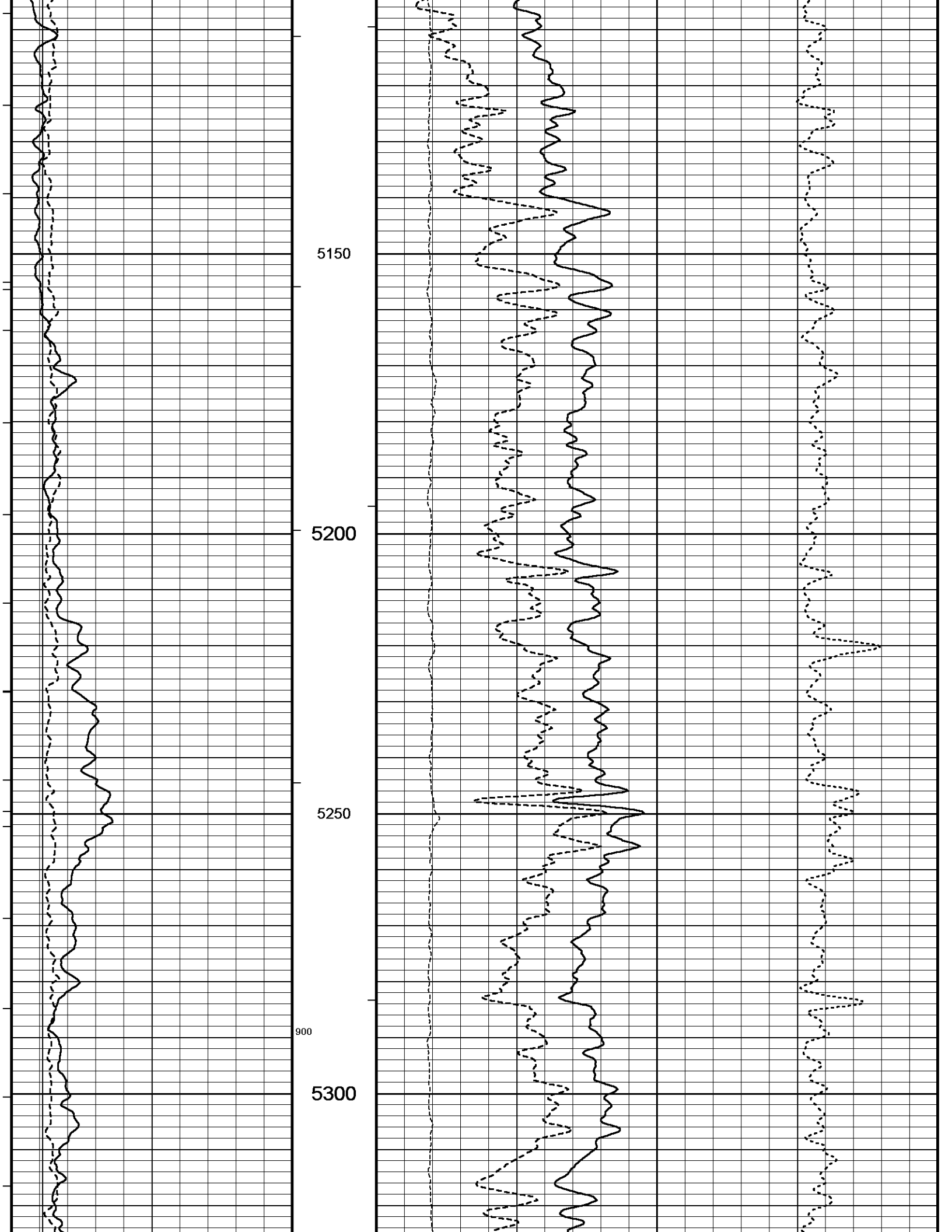


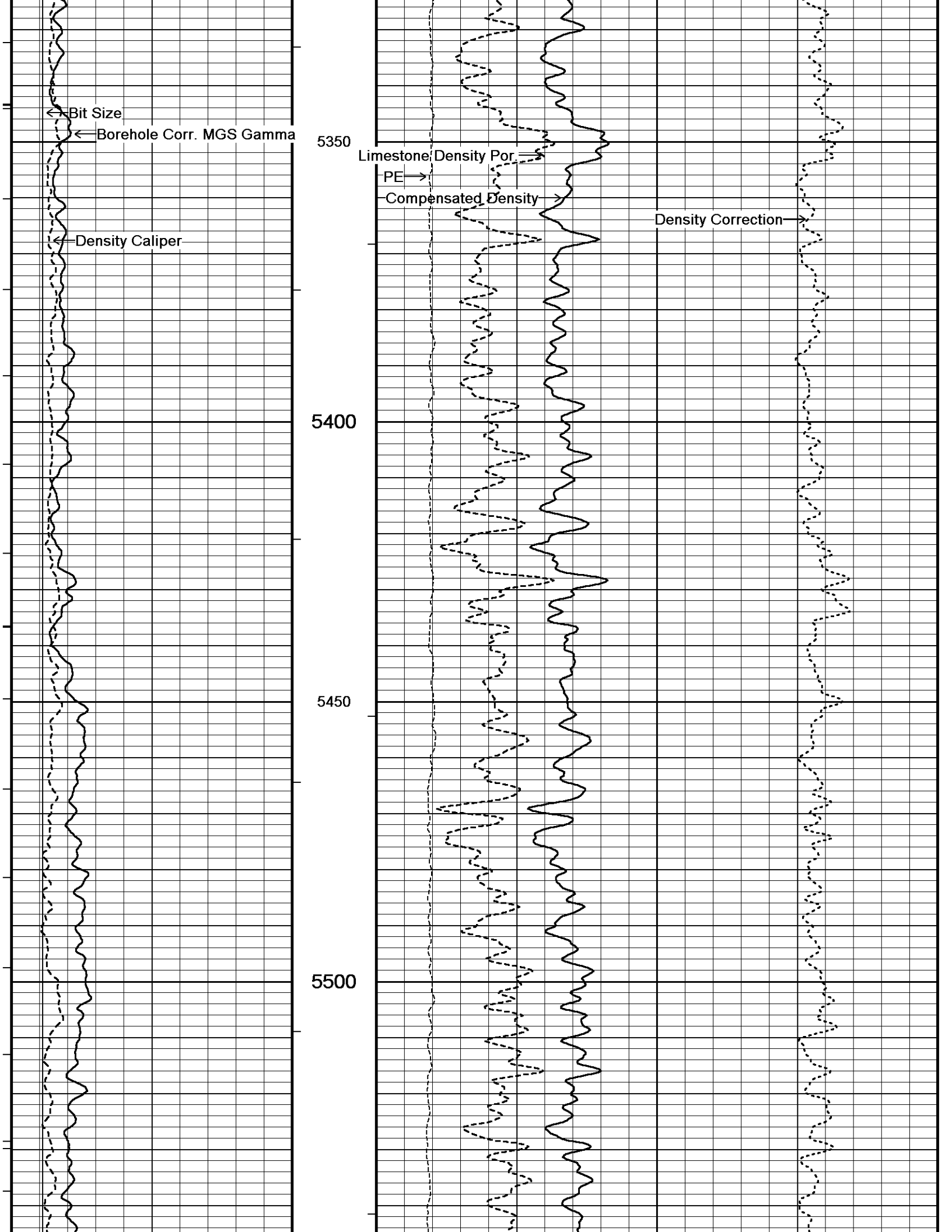
4438

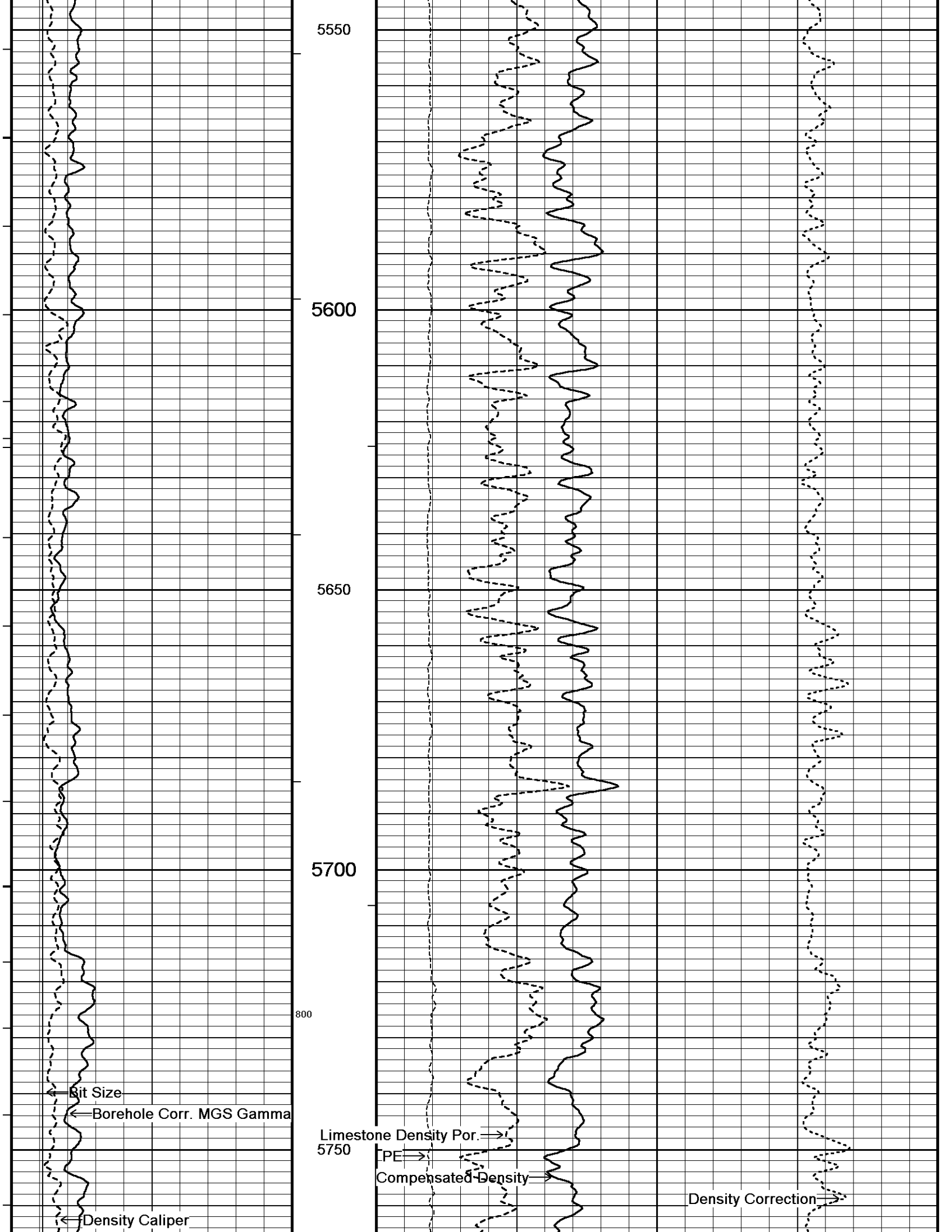


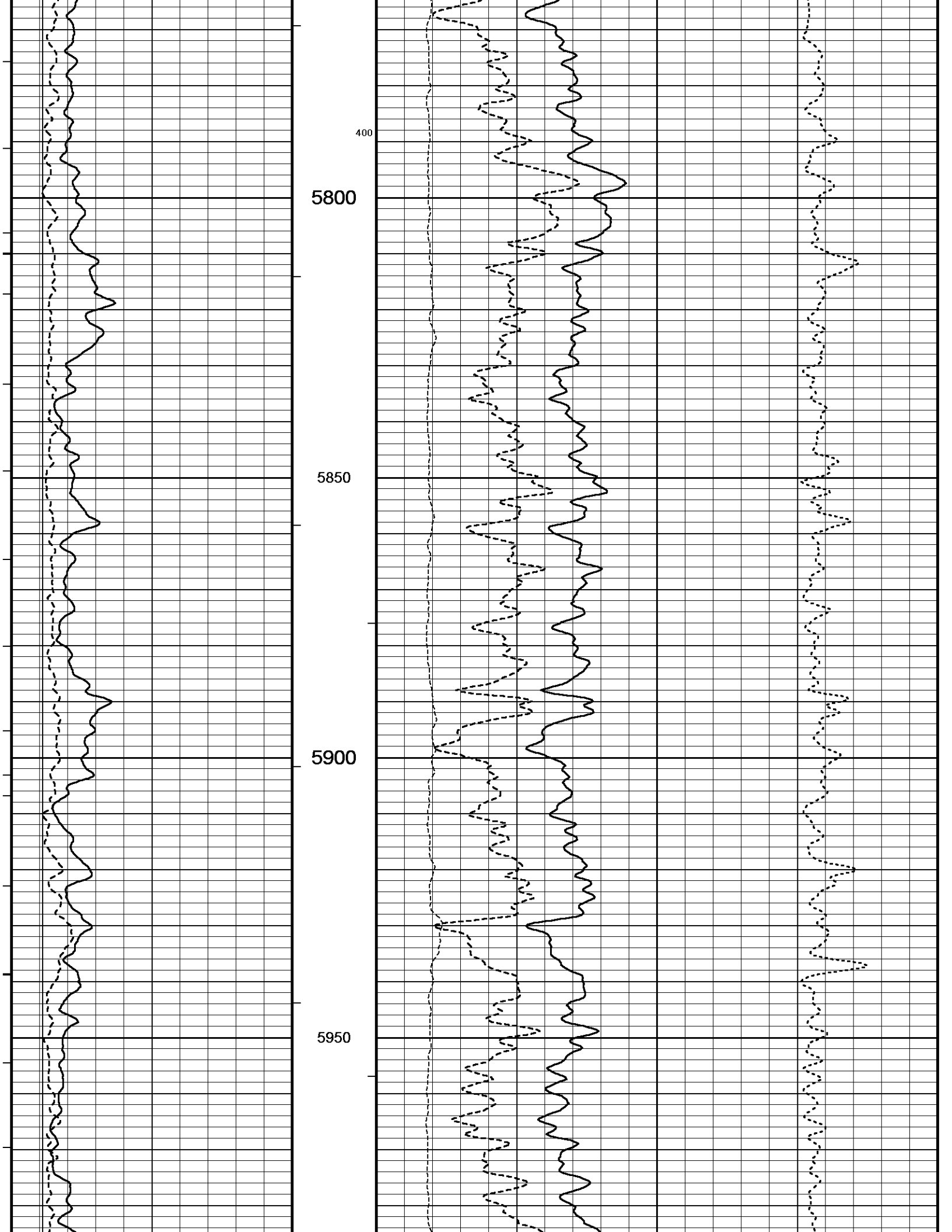




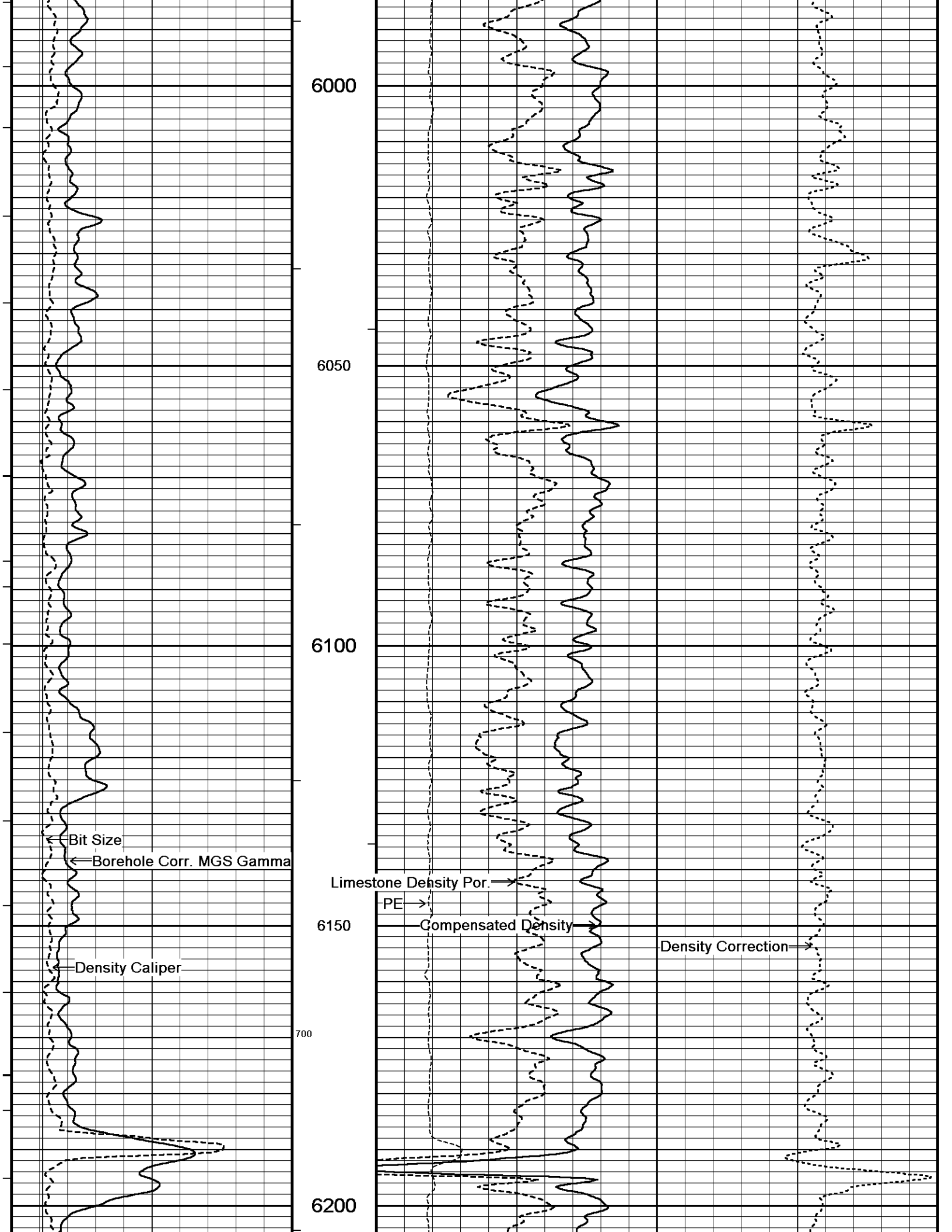


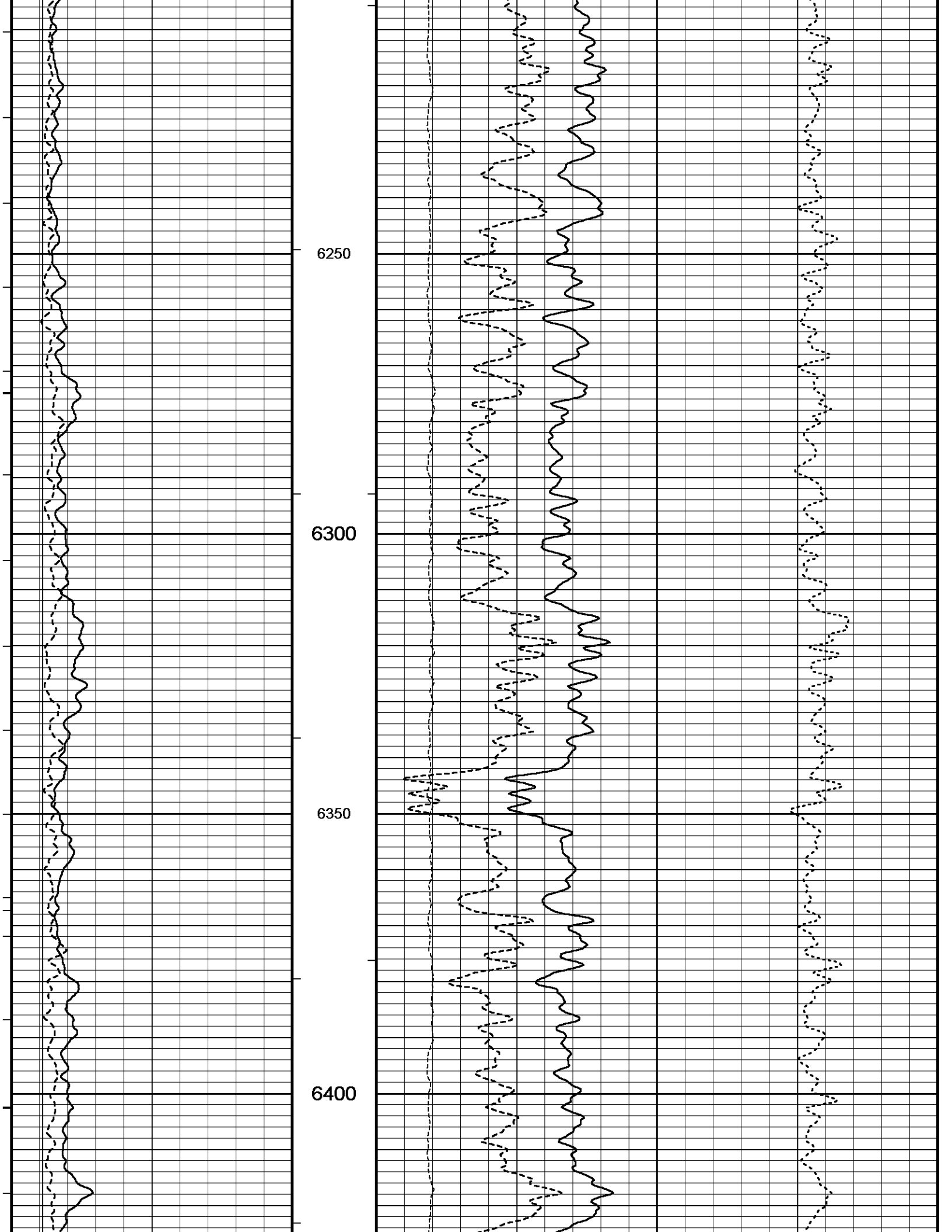


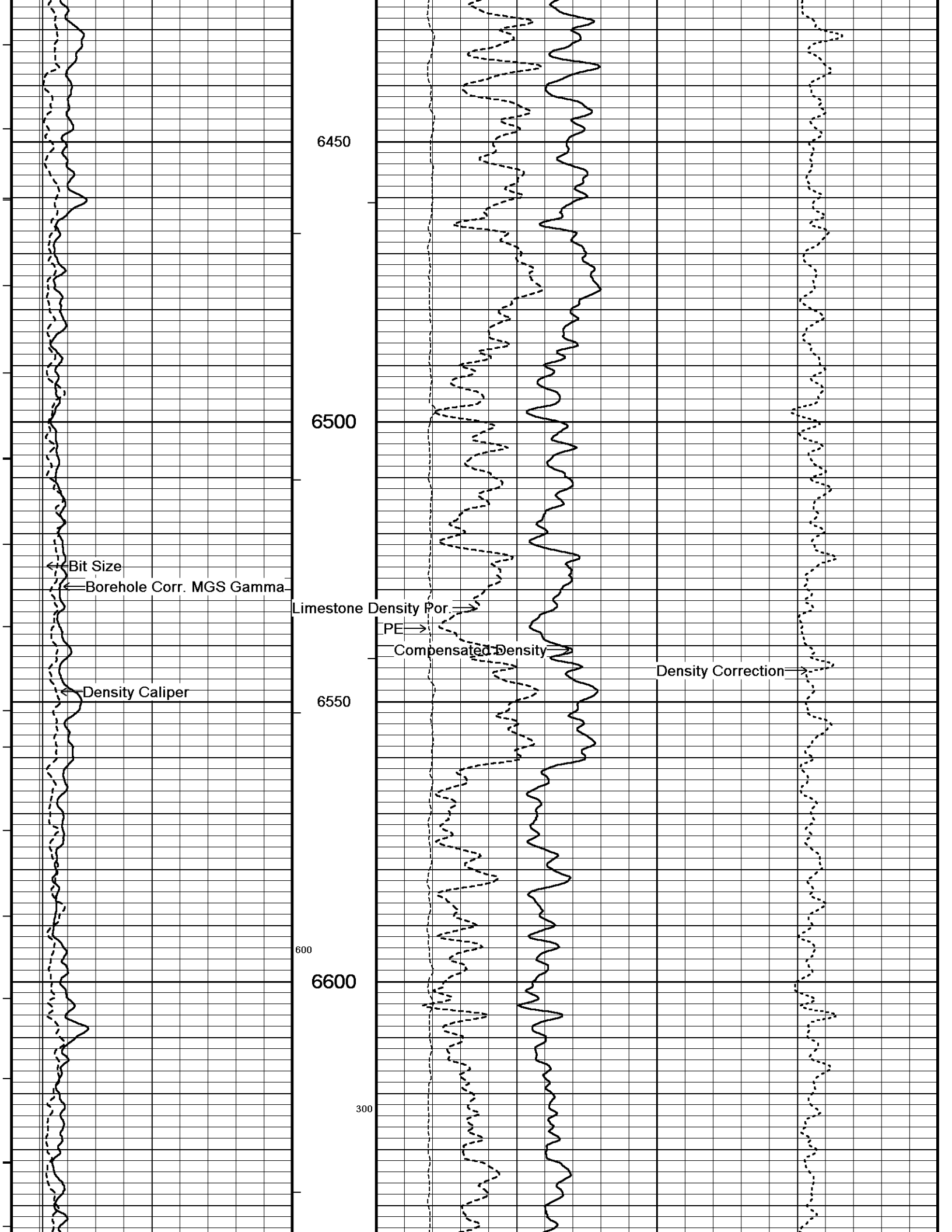


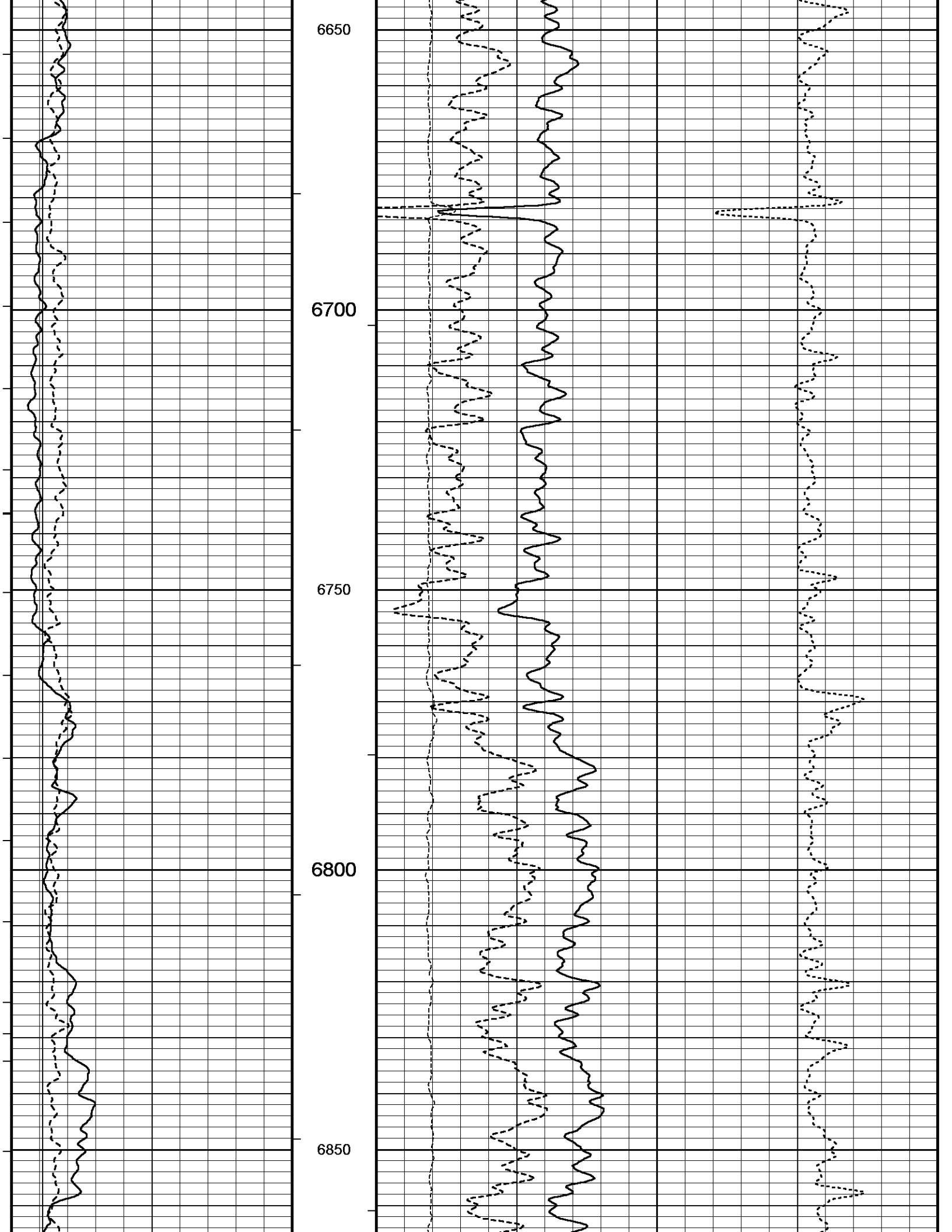


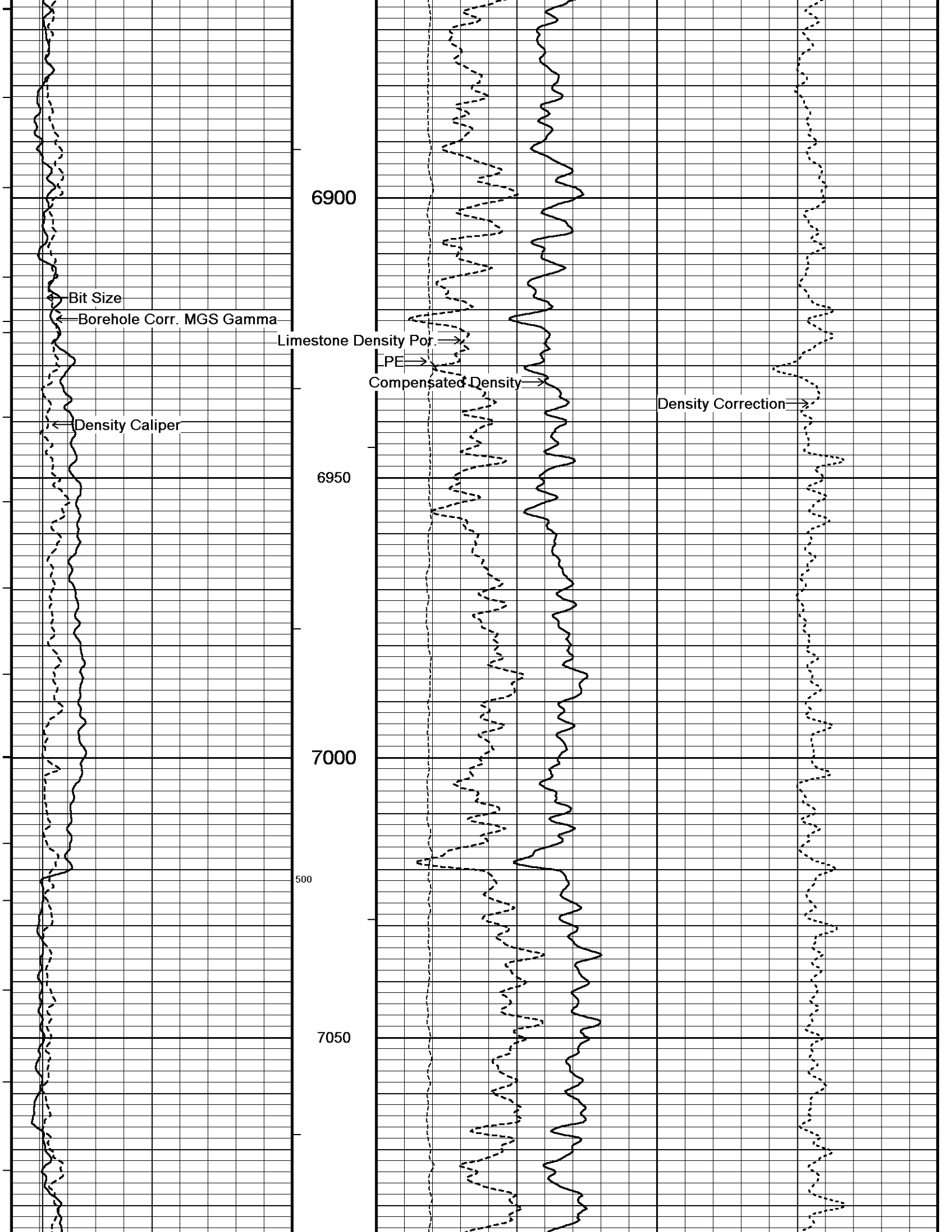


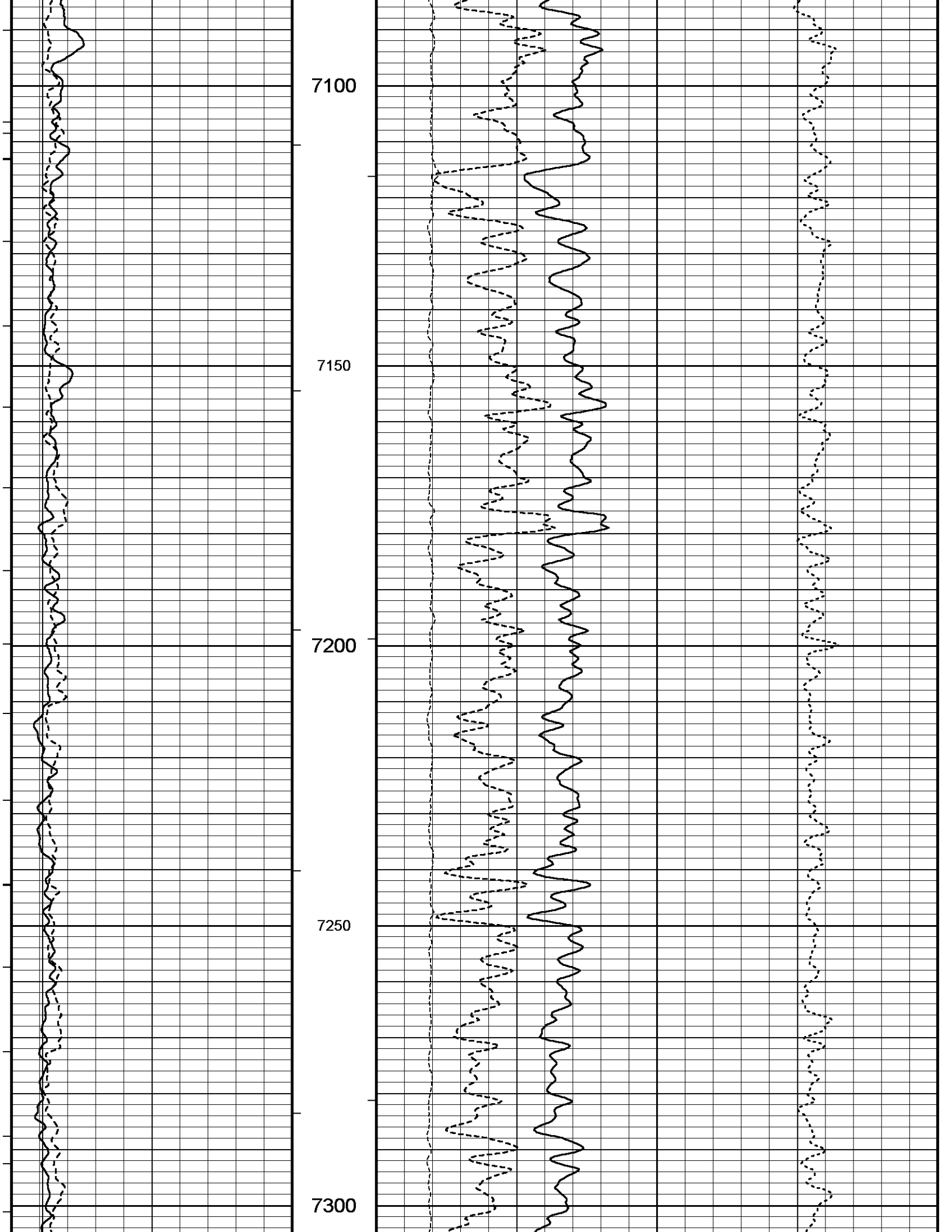


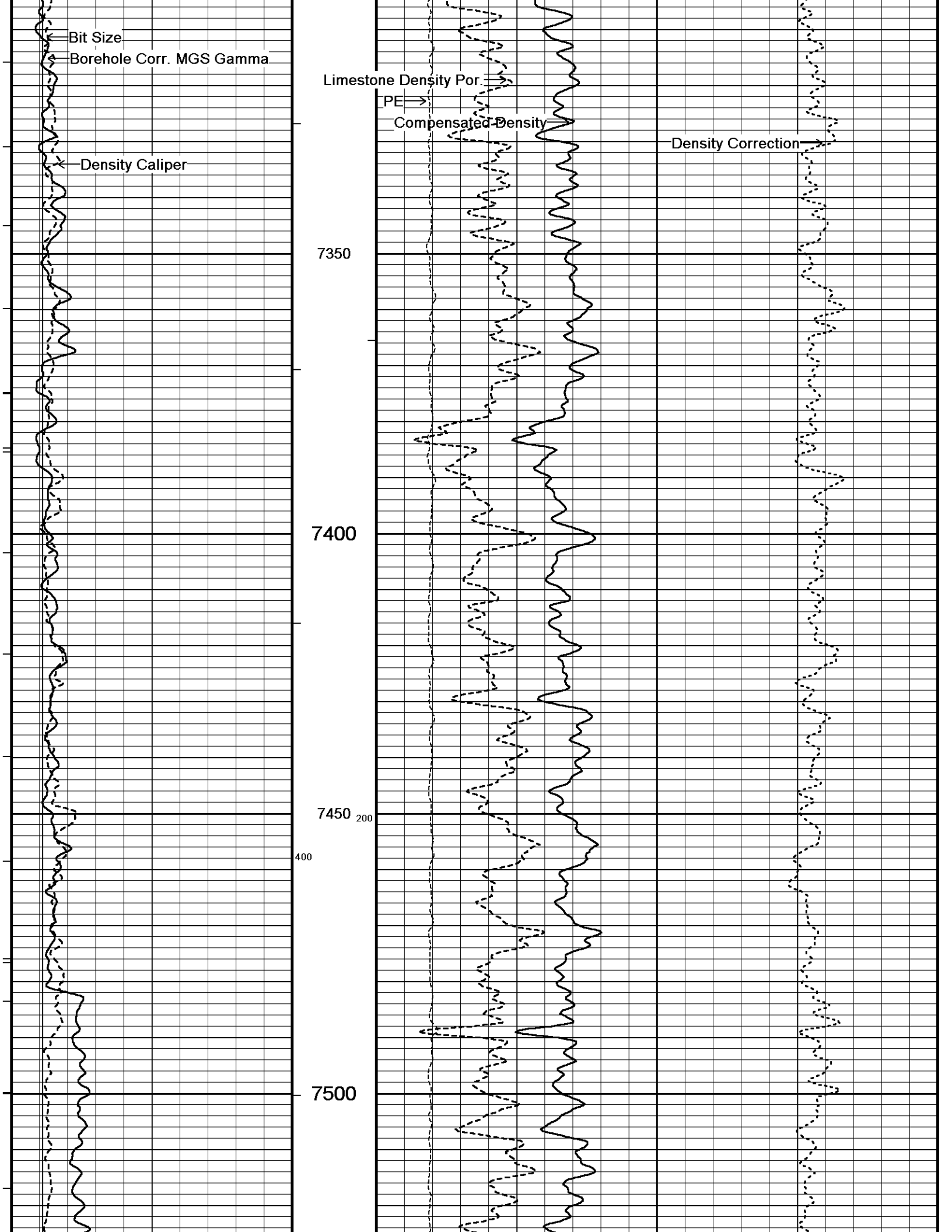


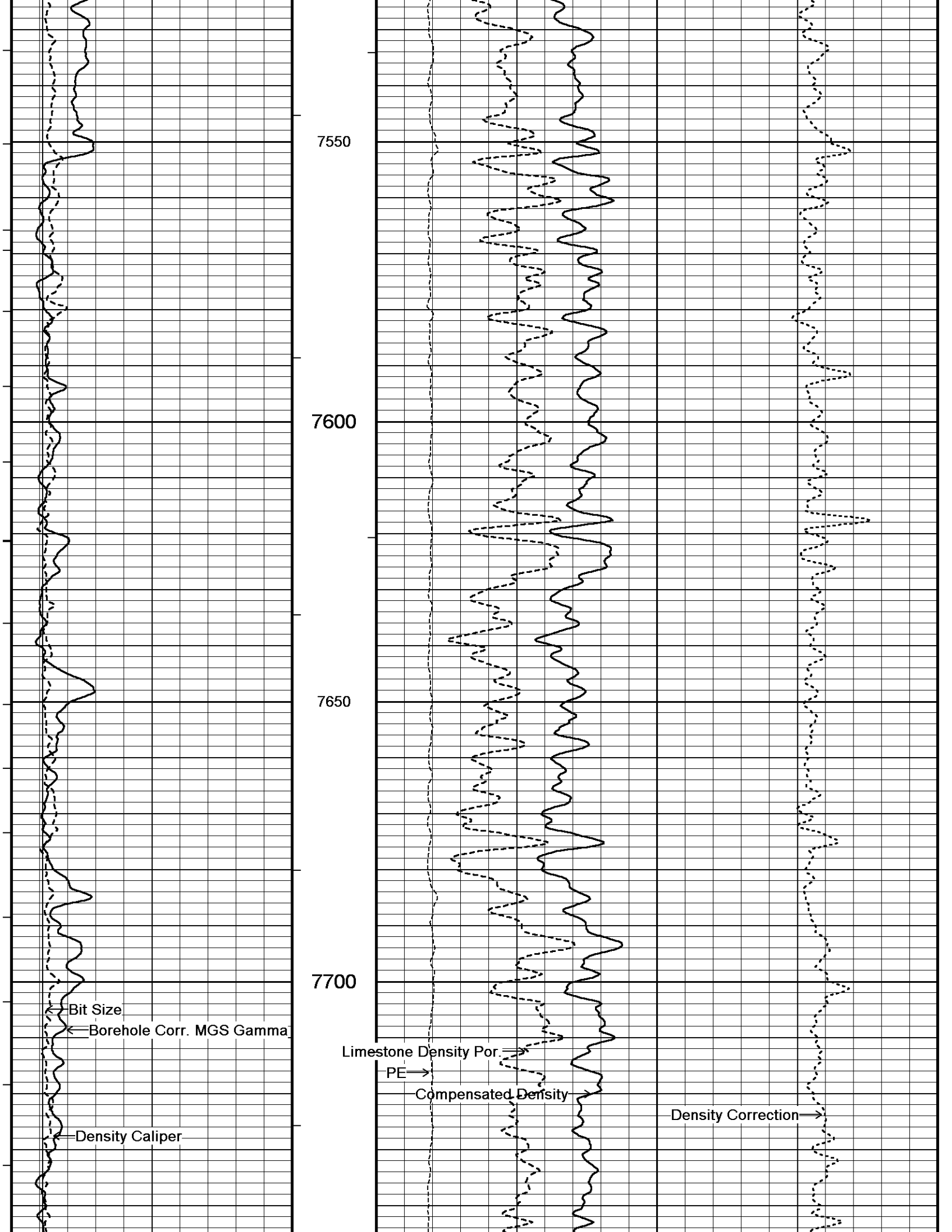




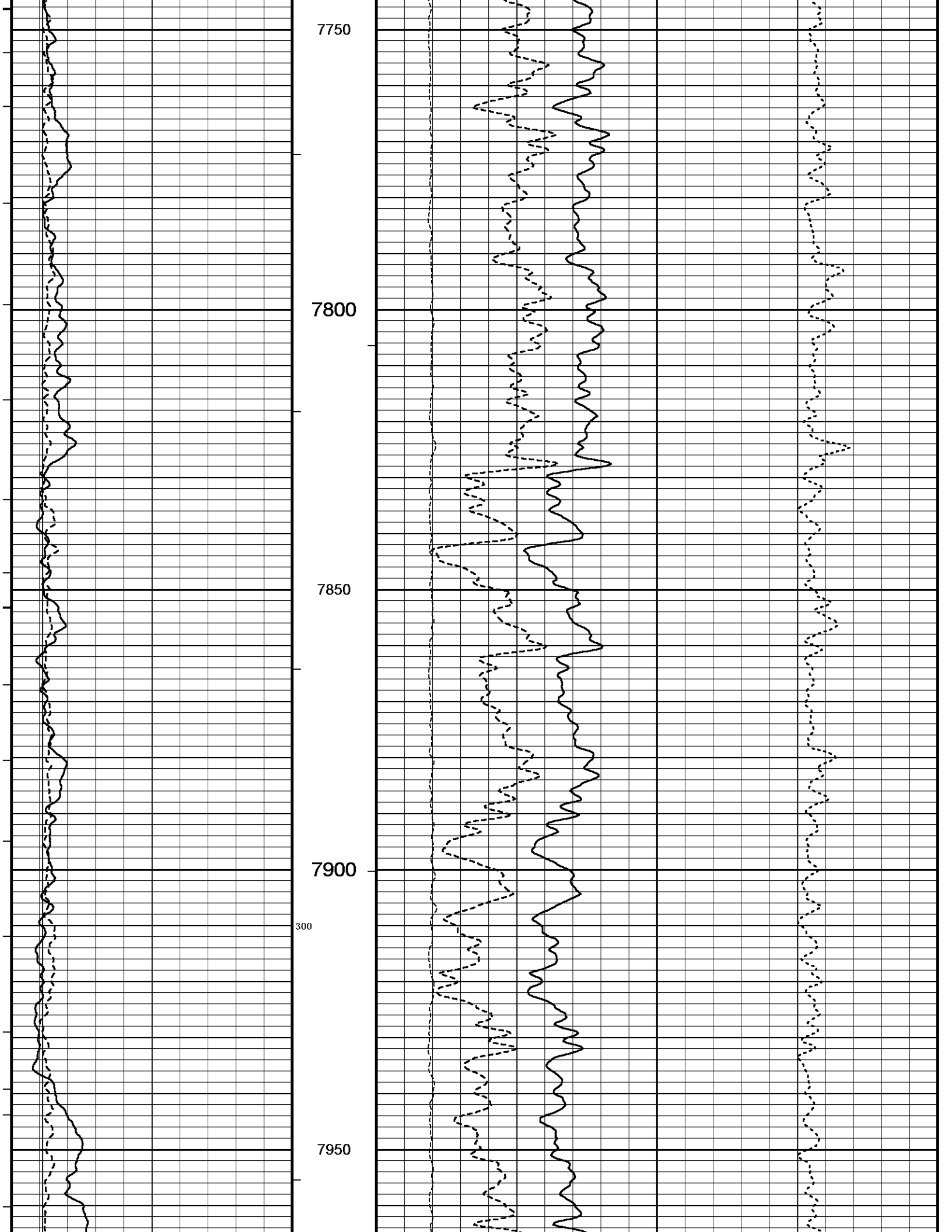


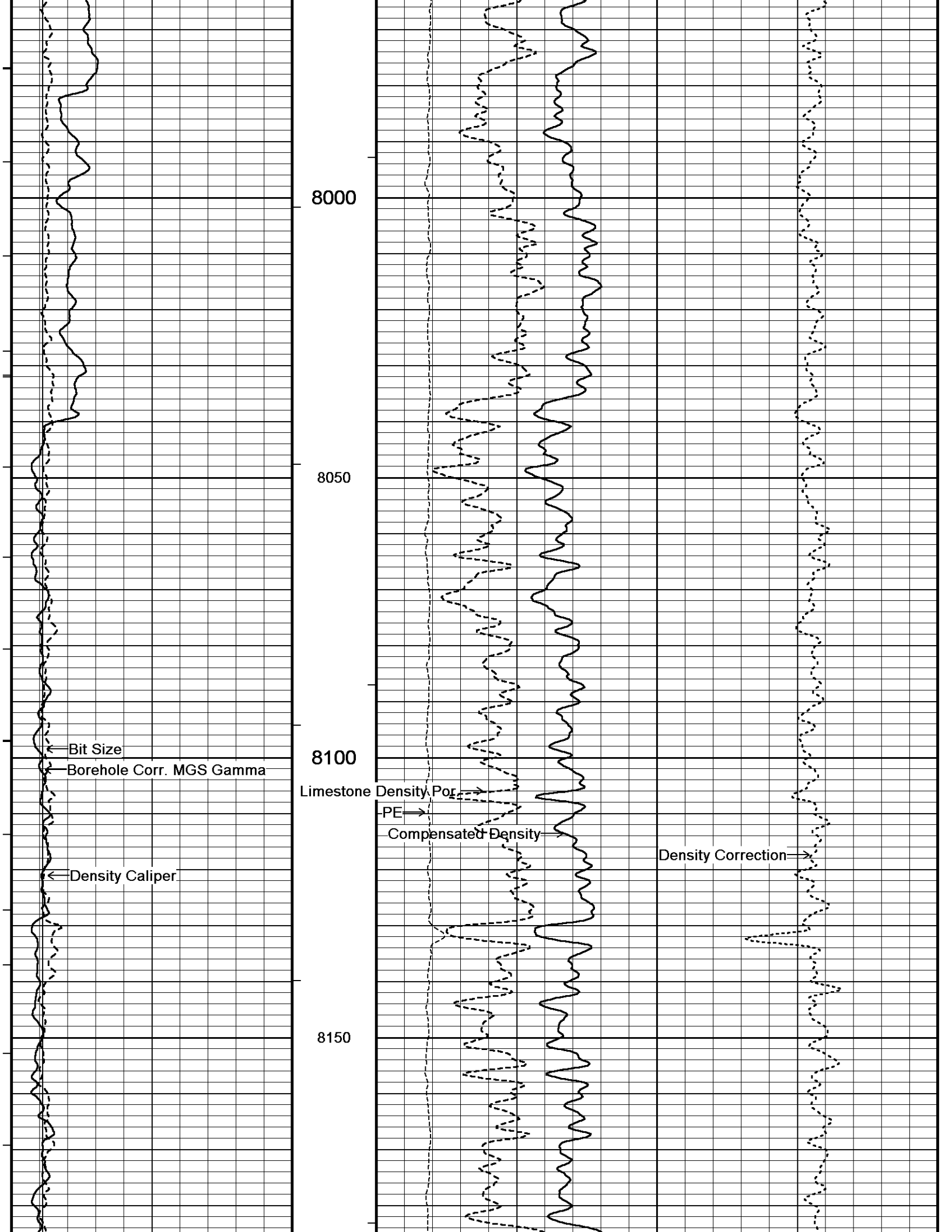


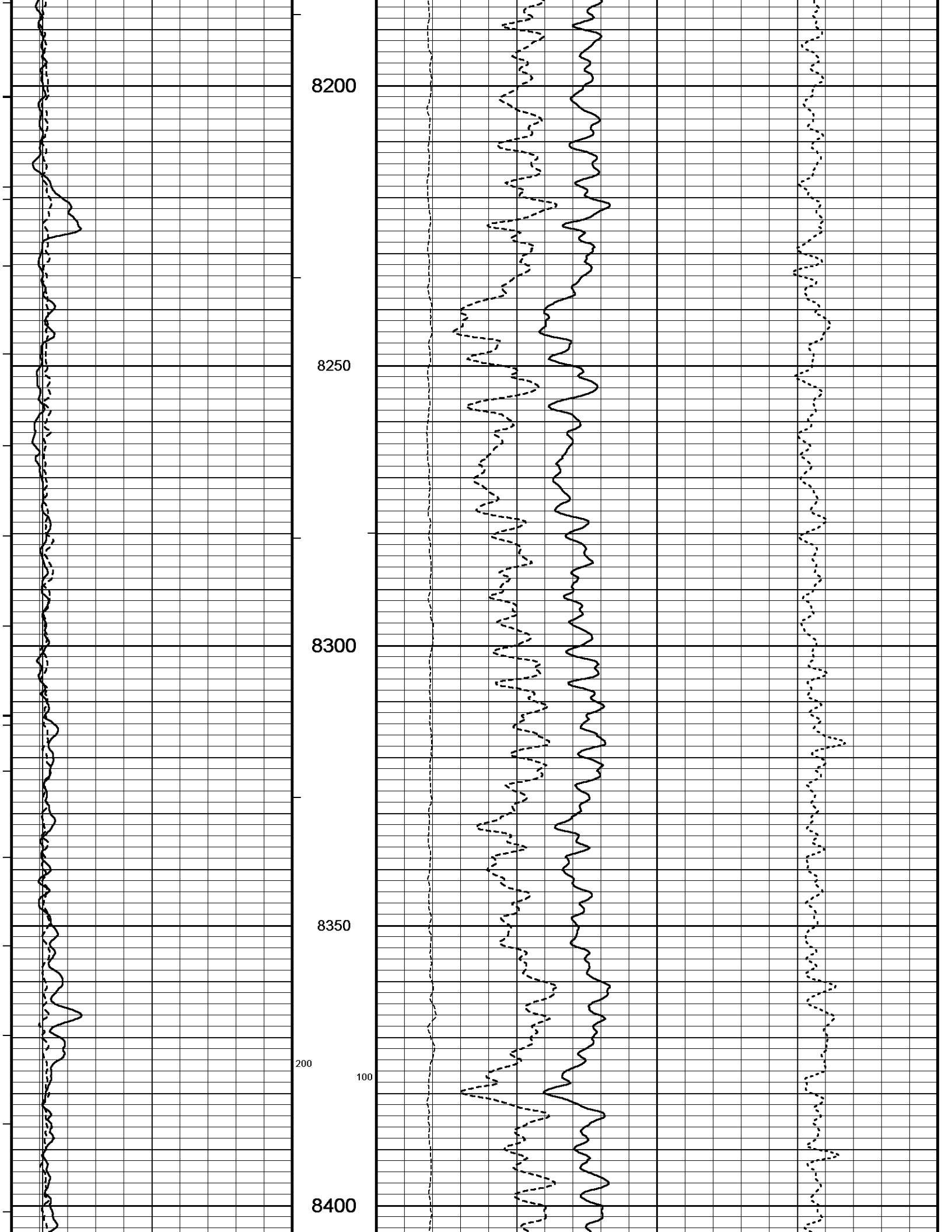


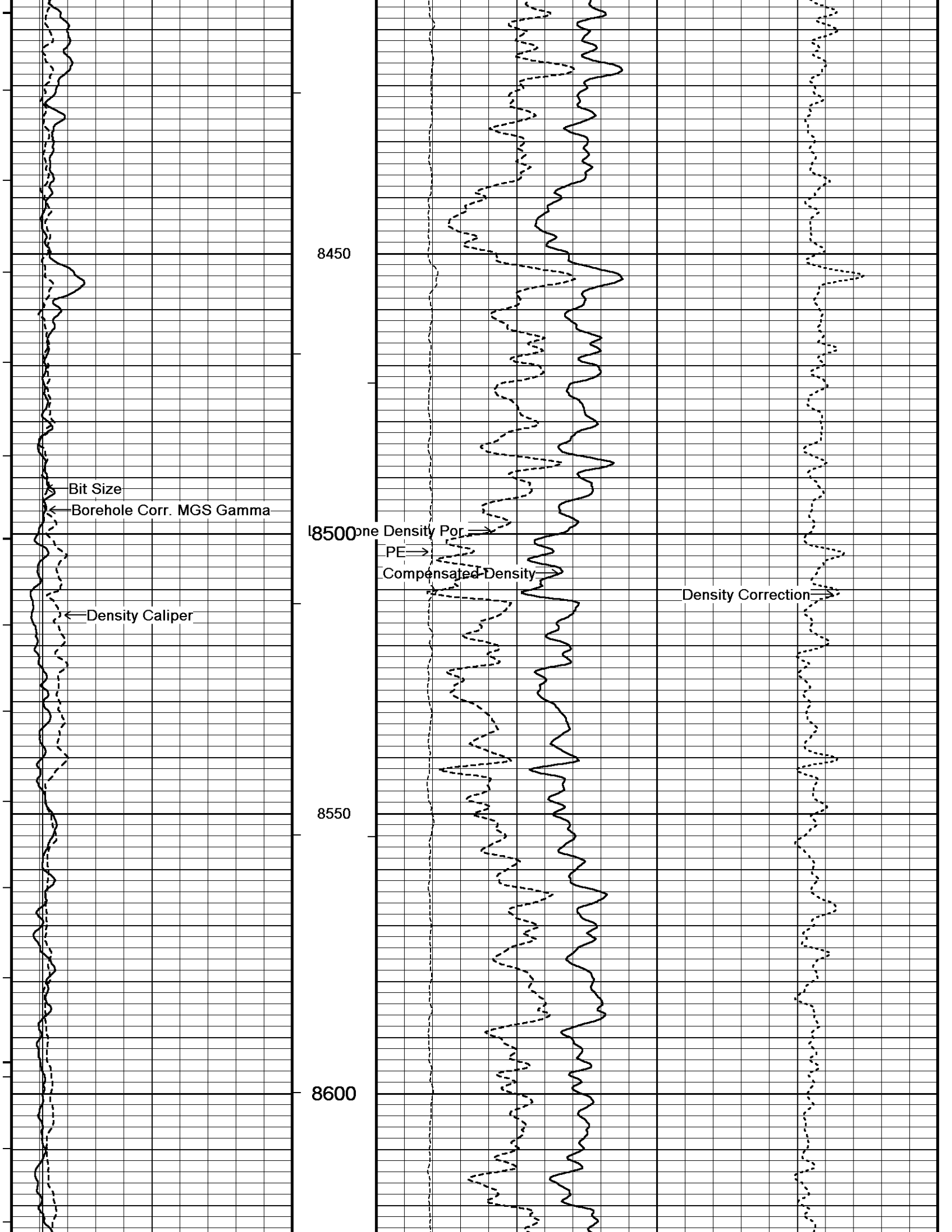


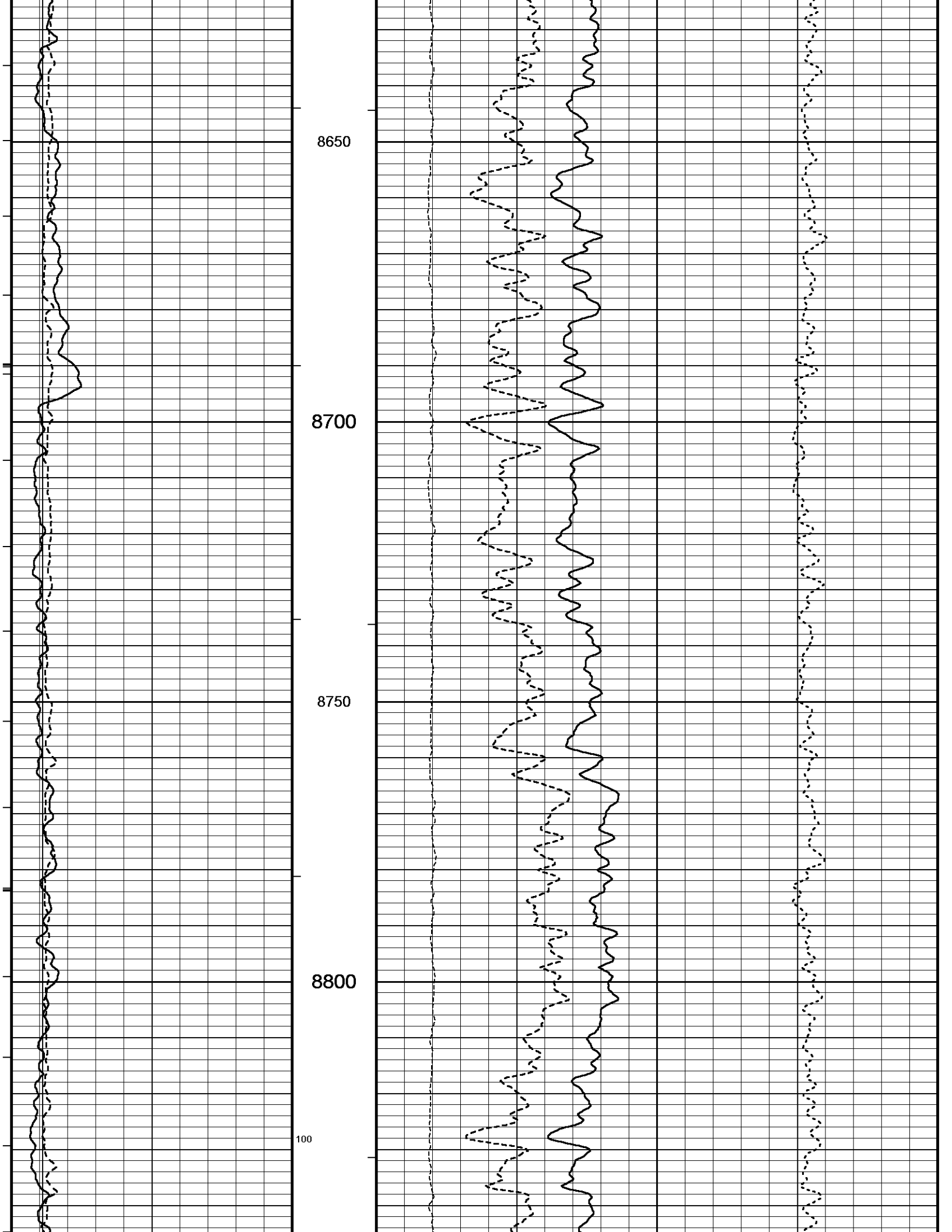


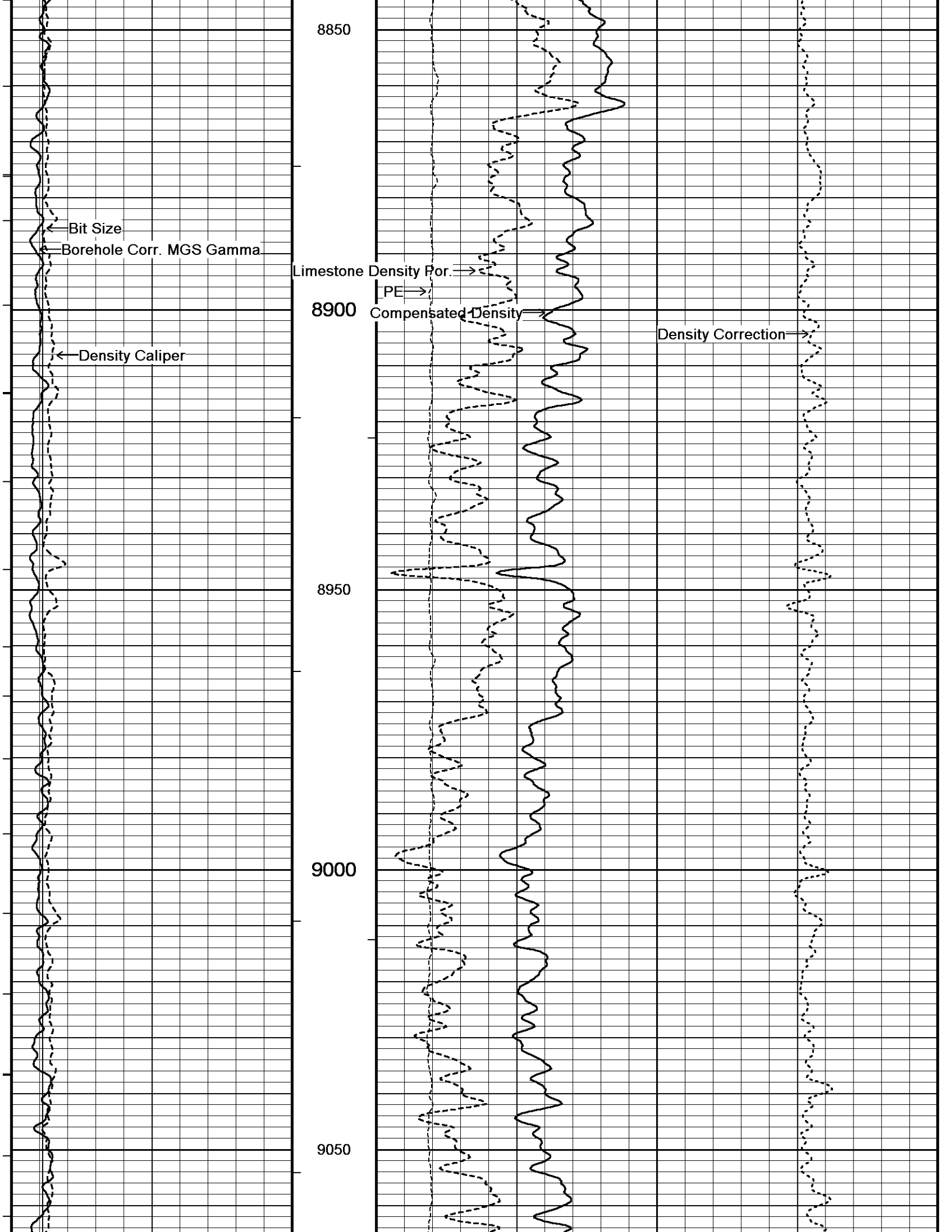


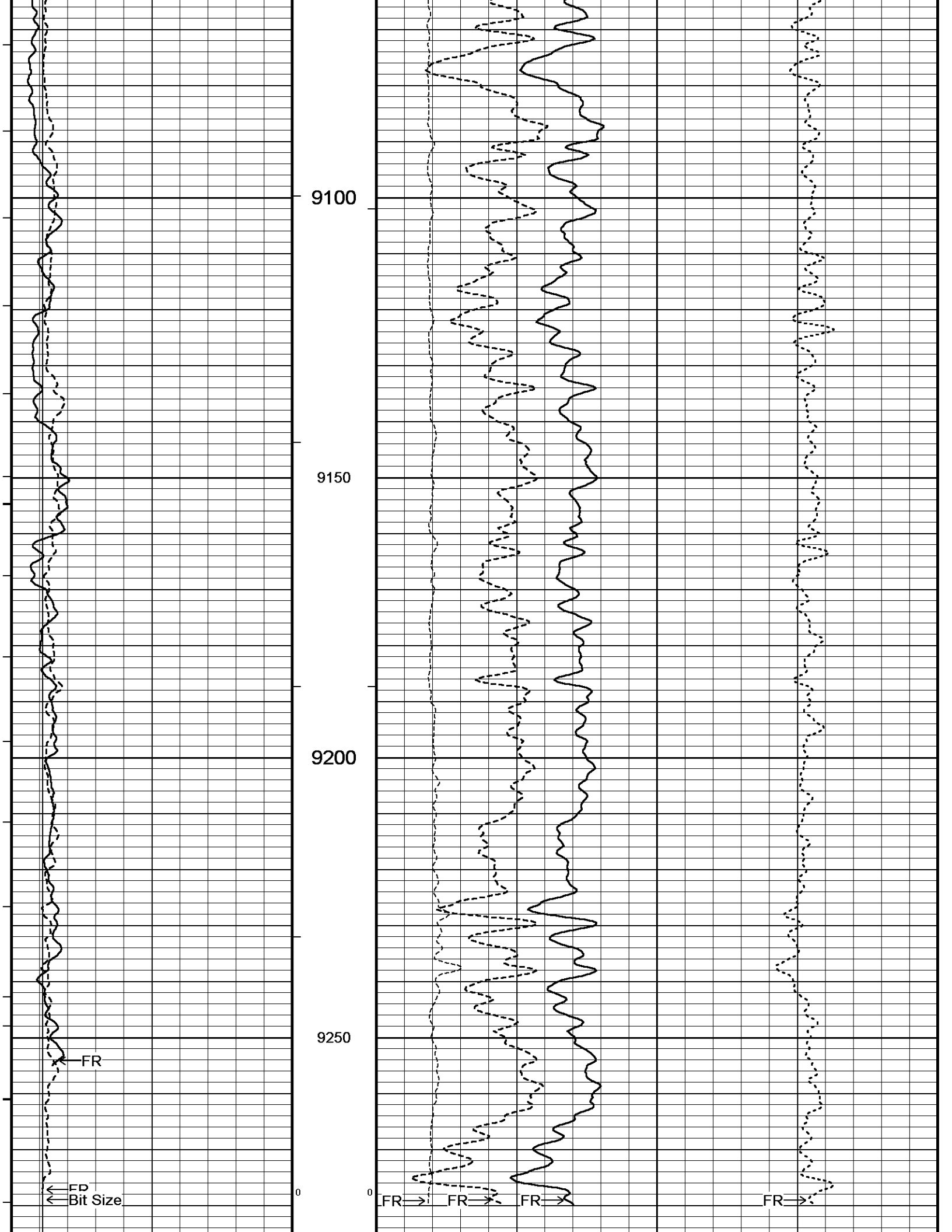












9300

9350  
Depth  
In  
Feet

Timing Marks  
every 60.0 sec

Compensated Density  
grams/cc

2 2.25 2.50 2.75 3

Density Caliper  
inches

5 10 15

HVI  
every  
10 cu ft

Limestone Density Por.  
percent

30 20 10 0 -10

Borehole Corr. MGS Gamma

API

0 75 150

Annular  
Integral  
every  
10 cu ft

150 225 300

Bit Size  
inches

5 10 15

Replay  
Scale  
1:240

PE  
barns/electron

0 5 10 -0.25 0 0.25

Density Correction  
grams/cc

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 15-OCT-2012 10:00

Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta

Recorded on 15-OCT-2012 09:21

System Versions: Processed with 13.02.6600 Plotted with 13.02.6600



### 5 INCH BULK DENSITY LOG DSC



### BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta

#### Down-hole Tension Calibration All 000

Field Calibration on 24-FEB-2009 00:00

Reading No	Measured	
1	14953.75	0.00
2	17846.38	1500.00

#### General Constants All 000

Last Edited on 15-OCT-2012,08:23

##### General Parameters

Mud Resistivity	0.960	ohm-metres
Mud Resistivity Temperature	68.000	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	
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
	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	
Pressure psia									
0.0	0.000	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	0.000
4000.0	0.000	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	0.000
8000.0	0.000	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		

MMS Parameters MMS-E.B 167

Last Edited on 14-OCT-2012 09:58

Logging Parameters

Firmware Version 2v40  
 Caliper Open On MAI  
 Caliper Open Delay 0.0 minutes  
 Caliper Closed On Unknown  
 Caliper Closed Delay N/A minutes  
 Sample Rate 1.00 seconds  
 Use Deep Sleep 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 8.0

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 96.0 seconds  
 Pulse Pressure Discriminator 213.0 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

Bad Status Reply	00.0	seconds
Status Pulse To	80.0	seconds
Caliper Close To	0.0	seconds
Caliper Open To	210.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MIM,MIE,MAI

Gamma Calibration MGS-C.J 135

Field Calibration on 23-SEP-2012 00:33

	Measured	Calibrated (API)
Background	141	97
Calibrator (Gross)	1972	1358
Calibrator (Net)	1831	1261

Gamma Constants MGS-C.J 135

Last Edited on 15-OCT-2012,08:24

Gamma Calibrator Number	BLUE	
Mud Density	1.02	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
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Neutron Calibration MDN-B.J 390

Base Calibration on 11-SEP-2012 09:59

Field Check on 20-SEP-2012 20:41

Base Calibration	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3051	92	3714	110
Ratio	33.011		33.764	
Field Calibrator at Base			Calibrated (cps)	
			1253	1859
Ratio			0.674	
Field Check			Calibrated (cps)	
			1244	1880
Ratio			0.662	

Neutron Constants MDN-B.J 390

Last Edited on 15-OCT-2012,08:24

Neutron Source Id	P31112B	
Neutron Jig Number	EC13 BLUE	
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	Constant Value	
Temperature	20.00	degrees F
Mud Salinity	0.50	kppm
Salinity Correction	Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

Caliper Calibration MIE-A.J 233

Base Calibration on 03-JUL-2012 16:05

Field Calibration on 12-JUL-2012 11:59

Base Calibration				
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)	
1	25479	25668	5.96	
2	36118	36010	7.97	
3	45775	45499	9.84	
4	57747	57059	11.91	
5	0	0	0.00	

Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24613	24005	24629	24615	5.96
2	33696	32386	33383	33850	7.97
3	41885	40590	41925	42007	9.84
4	51911	50551	51787	51761	11.91
5	0	0	0	0	0.00

Field Calibration					
	Measured	Measured		Actual	
	Pads 1-5 Caliper(in)	Pads 3-7 Caliper(in)		Caliper(in)	
	6.03	6.02		5.96	
	Measured	Measured	Measured	Measured	Actual
	Pad 2 Caliper(in)	Pad 4 Caliper(in)	Pad 6 Caliper(in)	Pad 8 Caliper(in)	Caliper(in)
	3.06	3.01	3.04	3.03	5.96

Caliper Constants MIE-A.J 233 Last Edited on

Caliper Difference for BRKT 3.000 mm

Accelerometer Parameters MIE-A.J 233

Date Of Last Accelerometer Calibration 18-NOV-2011,14:08

	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.106957	-1.101597	-1.096051
Offset	0.006667	0.007744	-0.005892

Accelerometer Constants MIE-A.J 233 Last Edited on 03-JUL-2012 15:41

Accelerometer Calibrator Number 000

Accelerometer Temperature Characterisation

X Accelerometer

Serial Number 1057

Calibration Date 27-Apr-2011

	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.82020e-006	-3.02029e-008	1.94332e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.77285e-004	1.89104e-007	1.67186e-009

Y Accelerometer

Serial Number 1073

Calibration Date 02-May-2011

	B0	B1	B2	B3
Bias(g)	0.00000e+000	-1.04005e-005	2.19294e-008	-1.31489e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.69223e-004	2.39527e-007	9.12553e-010

Z Accelerometer

Serial Number 977

Calibration Date 20-Jan-2011

	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.86594e-005	1.00709e-008	3.83419e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.74913e-004	2.75506e-007	1.29284e-009

Magnetometer Parameters MIE-A.J 233

Date Of Last Magnetometer Calibration 03-JUL-2012,16:01

	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.002341	-0.997182
Offset	0.005318	-0.018938	0.000387

Magnetometer Constants MIE-A.J 233 Last Edited on

Magnetometer Calibrator Number 000

Navigation Constants MIE-A.J 233 Last Edited on

Magnetic Declination 0.00 degrees East

Imager Pad Check MIE-A.J 233 Field Check on

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.J 233**

Last Edited on 14-JUL-2012,15:28

Sonde Configuration	Imager Mode	degrees
Arm-Pad Kit	Normal Pads (12.25 in)	
Centre Pad 1 Rotational Offset	0.00	
Image/Borehole Ovality Reference	Azimuth of Pad 1	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	

**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
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**Induction Calibration MAI-B.J 389**

Base Calibration on 01-SEP-2012,07:44

Field Check on 23-SEP-2012 00:23

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	3895.8	
2	0.0	0.0	29.3	3506.4	
3	0.0	0.0	29.3	3047.1	
4	0.0	0.0	19.6	2061.5	
Deep	0.0	0.0	19.1	2011.4	
Medium	0.0	0.0	42.2	4000.8	
Shallow	0.0	0.0	41.9	5148.8	
Array Temperature		0.0	77.5	Deg F	

**Induction Constants MAI-B.J 389**

Last Edited on 15-OCT-2012,08:23

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	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 435

Base Calibration on 31-AUG-2012 15:14  
Field Calibration on 23-SEP-2012 00:38

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16672	4.01
2	26192	5.96
3	36288	7.98
4	46016	9.86
5	56865	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.92	5.96

Photo Density Calibration MPD-C.J 435

Base Calibration on 31-AUG-2012 17:03  
Field Check on 23-SEP-2012 00:29

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	56922	28137	59869	31110
Reference 2	23873	2636	24557	2522

Field Check at Base

1304.9	1353.6
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Field Check

1298.0	1349.4
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PE Calibration

Base Calibration	WS	Measured		Calibrated Ratio
		WH	Ratio	
Background	238	1169		
Reference 1	22710	56709	0.405	0.369
Reference 2	6509	23724	0.278	0.271

Field Check at Base

237.7	1169.4
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Field Check

237.0	1162.5
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Density Constants MPD-C.J 435

Last Edited on 15-OCT-2012,08:24

Density Source Id	p31112b
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	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
0.00	0.00

## DOWNHOLE EQUIPMENT

C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta

### RUNNING TOOL

MLK-A 1 LG: 4.87 ft WT: 30.9 lb OD: 2.24 in

### SKJ-D.A Compact Knuckle Joint

SKJ-D.A 81 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 3 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

### 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 62 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

### SKJ-D.A Compact Knuckle Joint

SKJ-D.A 42 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

### SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 454 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

### MIS-D.B Compact Inline Bowspring sub

MIS-D.B 596 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

### Compact Neutron

MDN-B.J 390 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

### Compact Density/Caliper

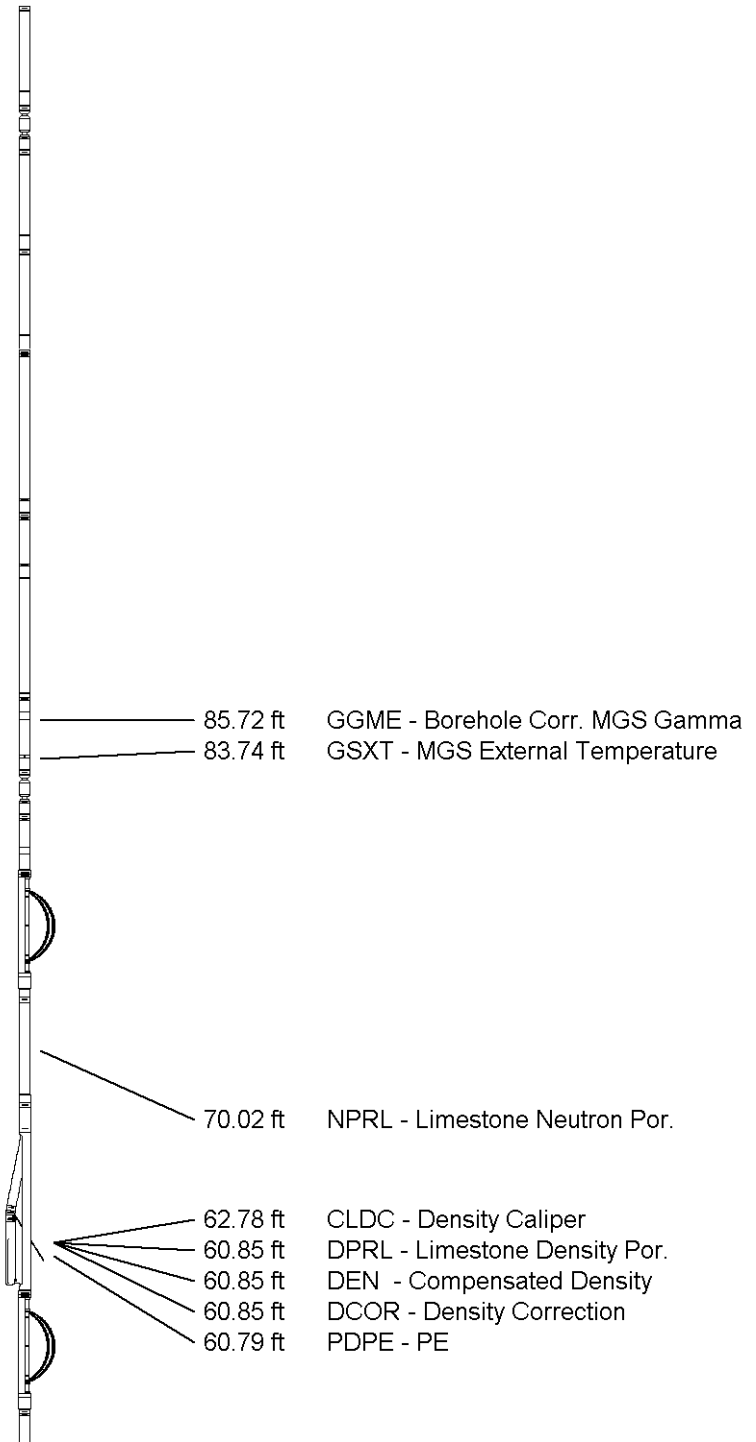
MPD-C.J 435 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

### MIS-D.A Compact Inline Bowspring sub

MIS-D.A 609 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

### SHA-F Compact Swivel Head Adaptor

SHA-F 221 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in



SHA-F 33 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 137 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub  
MIS-E.B 565 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor  
SHA-F 34 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub  
MIS-D.A 390 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section  
MIM-A.A 209 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

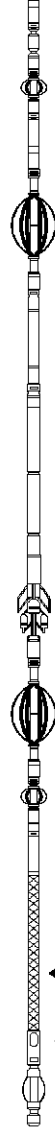
Compact MMI Electrode Section  
MIE-A.J 233 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

MIS-A.A Compact Inline Bowspring sub  
MIS-A.A 91 LG: 5.70 ft WT: 33.1 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: 147.65 ft Weight: 917.1 lb



20.89 ft IECY - MIE Caliper Y  
20.89 ft IECX - MIE Caliper X

3.34 ft CTAS - Array Ind. Six Cond Ct  
3.34 ft R40S - Array Ind. Six Res 40  
3.34 ft R30S - Array Ind. Six Res 30  
3.34 ft R20S - Array Ind. Six Res 20  
3.34 ft R60S - Array Ind. Six Res 60  
3.34 ft R85S - Array Ind. Six Res 85  
3.34 ft RTAS - Array Ind. Six Res Rt  
Tool Zero (1.84ft from bottom)  
All measurements relative to tool zero.

COMPANY DORADO E&P PARTNERS LLC  
WELL TOEWS 25-9-4 1H  
FIELD UNKNOWN  
PROVINCE/COUNTY RENO  
COUNTRY/STATE USA / KANSAS

Elevation Kelly Bushing	1710.00	feet	First Reading	9277.00	feet
Elevation Drill Floor	1708.00	feet	Depth Driller	9346.00	feet
Elevation Ground Level	1698.00	feet	Depth Logger	9340.00	feet



**Weatherford**<sup>®</sup>

CML MESSENGER SHUTTLE  
COMPACT PHOTO DENSITY  
COMPENSATED NEUTRON LOG