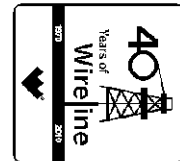




Weatherford[®]

**CML IMPULSE SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON**

**COMPANY SANDRIDGE EXPLORATION & PRODUCTIO
WELL RUBY 3119 1A-20H
FIELD SIX MOONS
PROVINCE/COUNTY COMANCHE
COUNTRY/STATE U.S.A./KANSAS
LOCATION SL: 200' FNL & 7600' FWL OF THE NW/4
BHL: 330' FSL & 760' FWL OF THE SW/4**



SEC	TWP	RGE	Other Services
20	315	19W	MA/MI/FE
API Number	15-033-21630100		
Permit Number			
Permanent Datum GL, Elevation	2174 feet		
Log Measured From	DF	Elevations:	KB 2194.00
Drilling Measured From	DF		DF 2194.00
			GL 2174.00

Date	23-MAY-2012		
Run Number	ONE		
Depth Driller	9665.00	feet	
Depth Logger	9640.00	feet	
First Reading	9607.00	feet	
Last Reading	4950.00	feet	
Casing Driller	5655.00	feet	
Casing Logger	5655.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WBM		
Density / Viscosity	8.50 g/c3	38.00 CP	
PH / Fluid Loss	9.50		
Sample Source	MUD TANK		
Rm @ Measured Temp	0.90 @ 84.0	ohm-m	
Rmf @ Measured Temp	0.72 @ 84.0	ohm-m	
Rmc @ Measured Temp	1.08 @ 84.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.56 @ 134.0	ohm-m	
Time Since Circulation	2 HOURS		
Max Recorded Temp	127.00	deg C	
Equipment Name	COMPACT		
Equipment / Base	18006	OKC	
Recorded By	MIKE GARRISON		
Witnessed By	KATHY GENTRY		
	3535158		DC12090

BOREHOLE RECORD

Last Edited: 23-MAY-2012 13:03

Bit Size inches	Depth From feet	Depth To feet
6.125	5656.00	9665.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTER	7.000	0.00	5655.00	26.00

REMARKS

WLS LOGGING SOFTWARE VERSION 12.02.4401 WAS USED

TOOLS RAN: SMR-154,SER-162, MBS-113,MMS-167, MGS-136,MCL-69,MTI 61 SKJ-55, SHA-48, MIS-603, MDN-390, MPD-214, MIS-279, SHA-208, SKJ-170, MIS-E 577, MFE-389, MIS-B 597, MAI-391,ISA

ALL LOGS WERE CORRECTED BACK TO PIPE STRAP

DRILL PIPE DEPTH DURING DEPLOYMENT: 9549.07
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9642.07

4.5 INCH PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES

OPERATOR: D. TURNER, R. POGUE
S.O: 3535158

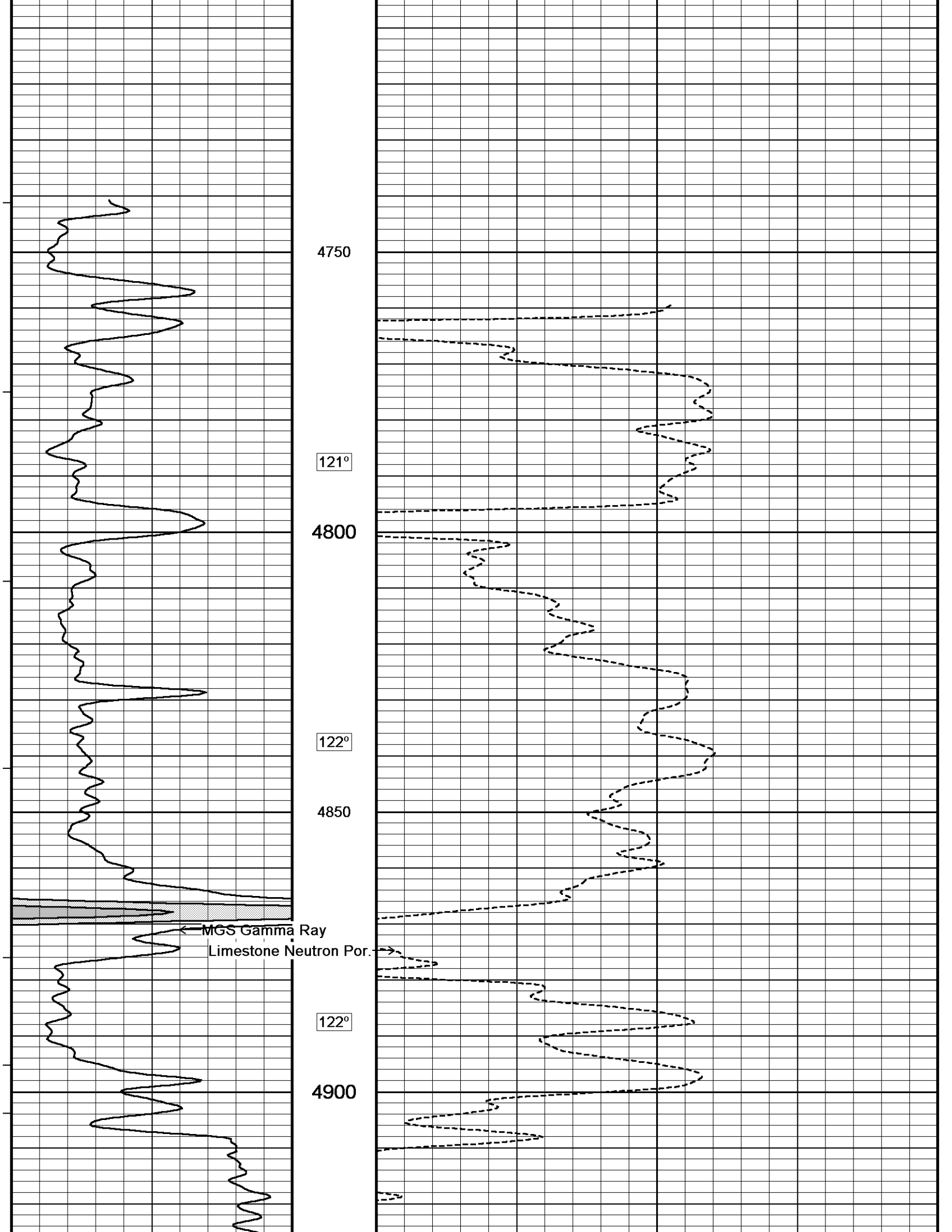
RIG: LARIAT 38

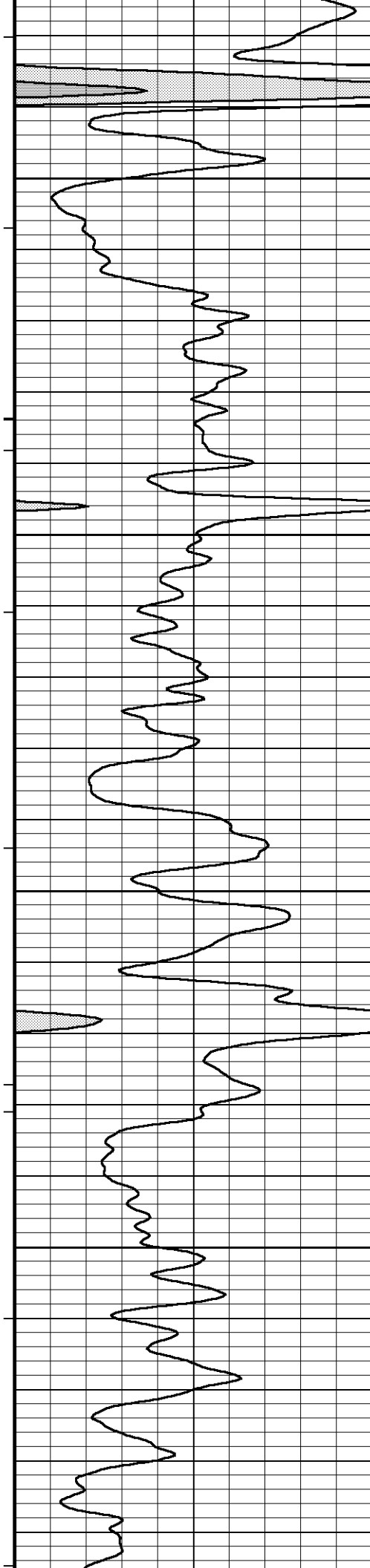
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 24-MAY-2012 01:51
 Filename: C:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 31...\RUBY MAIN LOGS5.dta Recorded on 23-MAY-2012 23:49
 System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

	Depth In Feet	
Timing Marks every 60.0 sec <hr/> Density Caliper inches 4 9 14	Borehole Temp in deg F HVI every 10 cu ft	Limestone Neutron Por. percent 30 20 10 0 -10
MGS Gamma Ray API 0 75 150 150 225 300	Annular Integral every 10 cu ft	Limestone Density Por. percent 30 20 10 0 -10
Bit Size inches 4 9 14	Replay Scale 1:240	PE barns/electron 0 5 10 -0.25 0 0.25 Density Correction grams/cc
	4616	
	4650	
	4700	





123°

4950

123°

5000

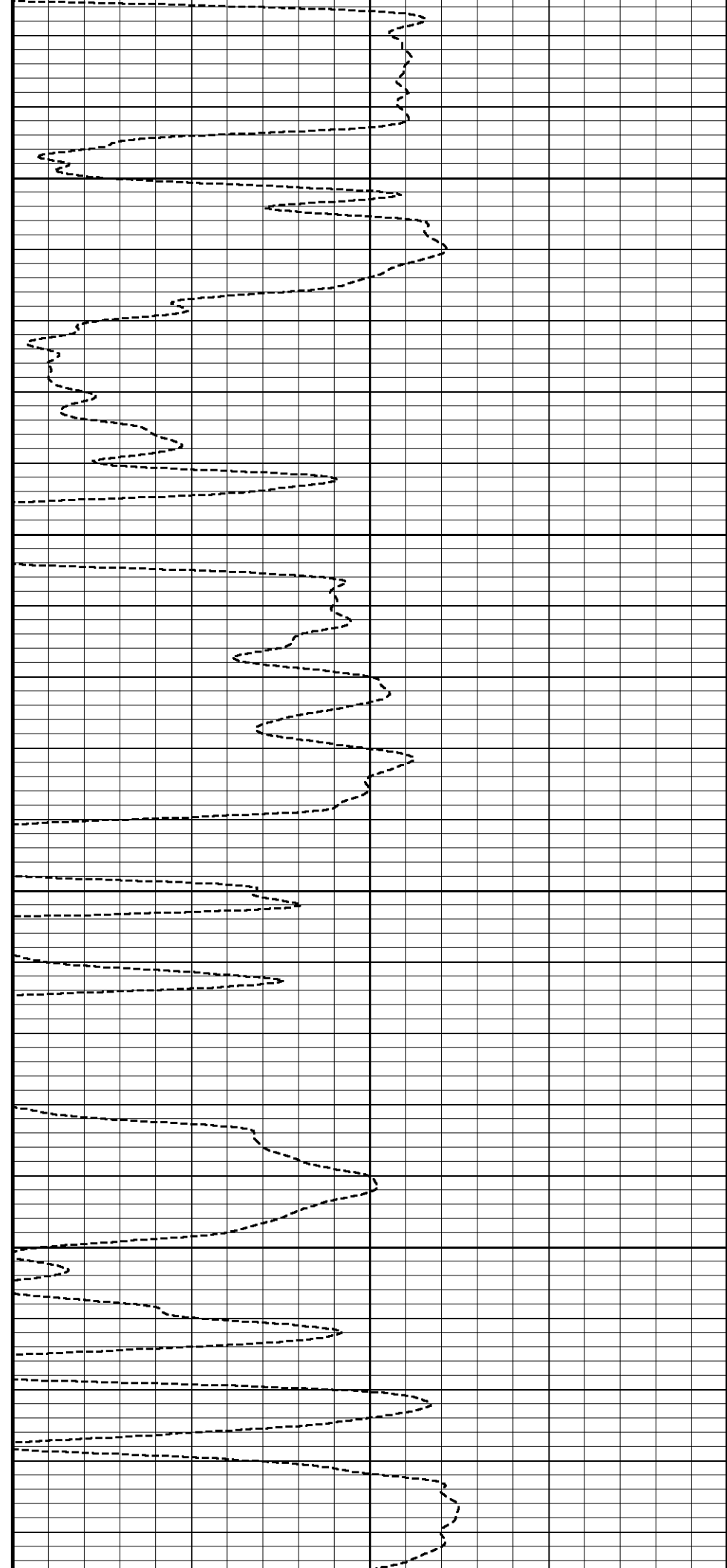
123°

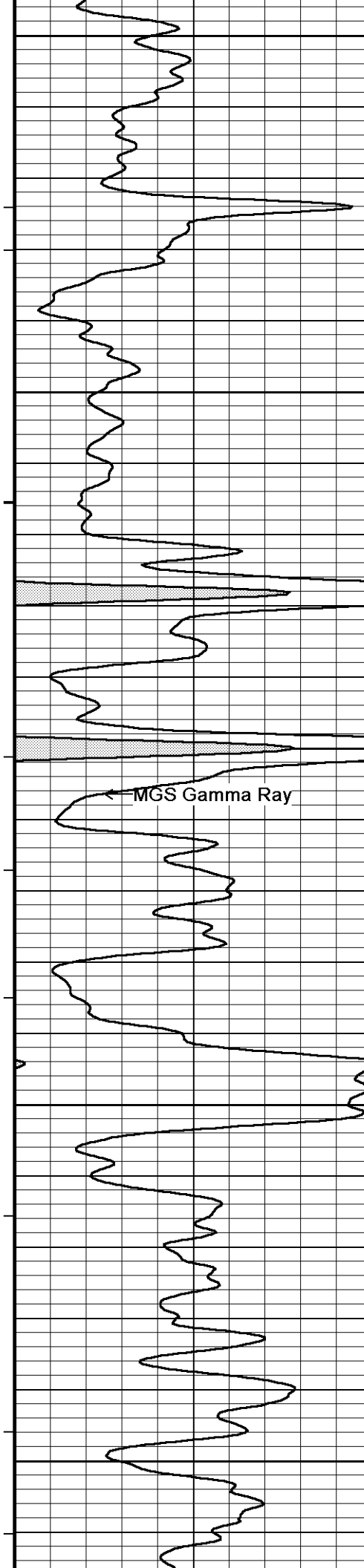
5050

124°

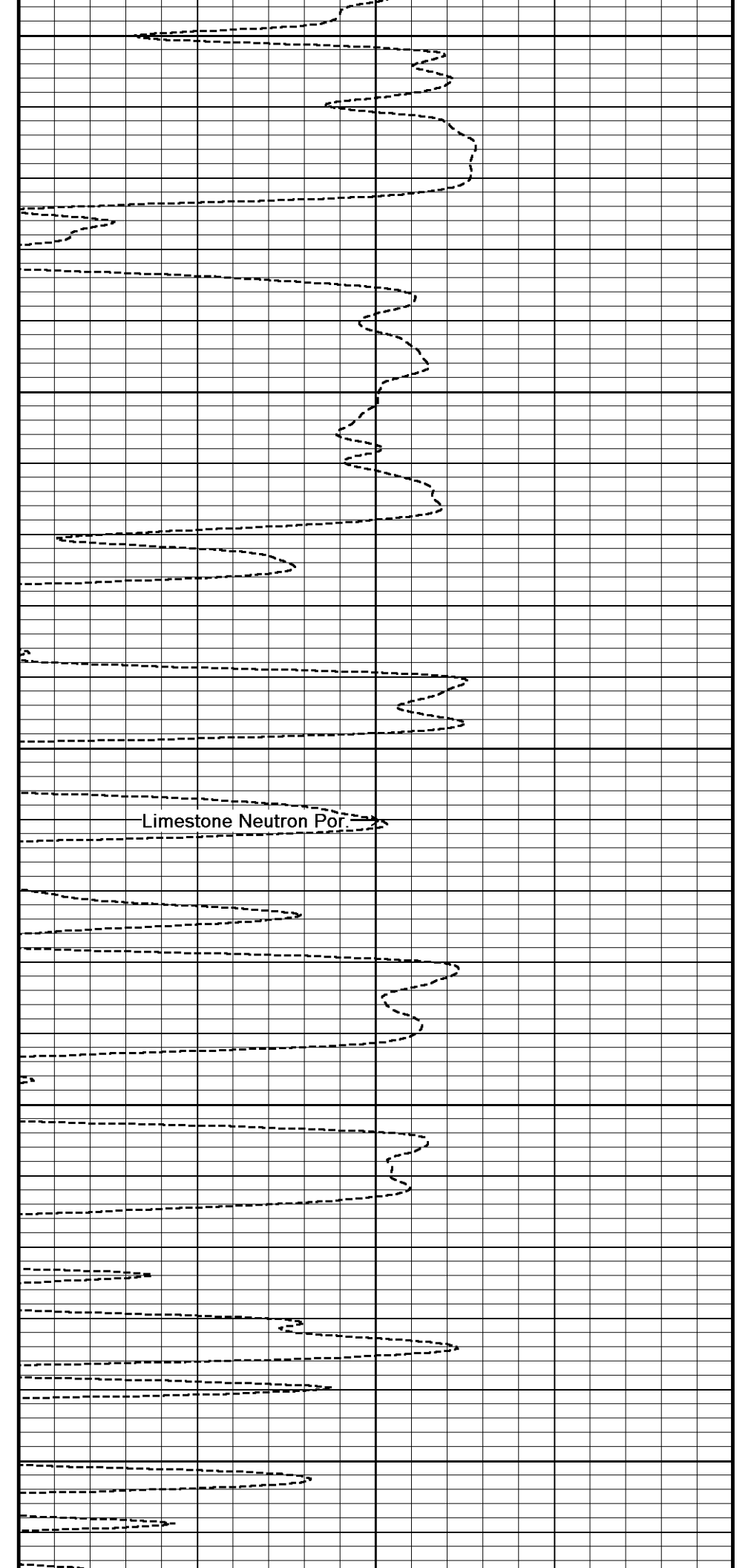
5100

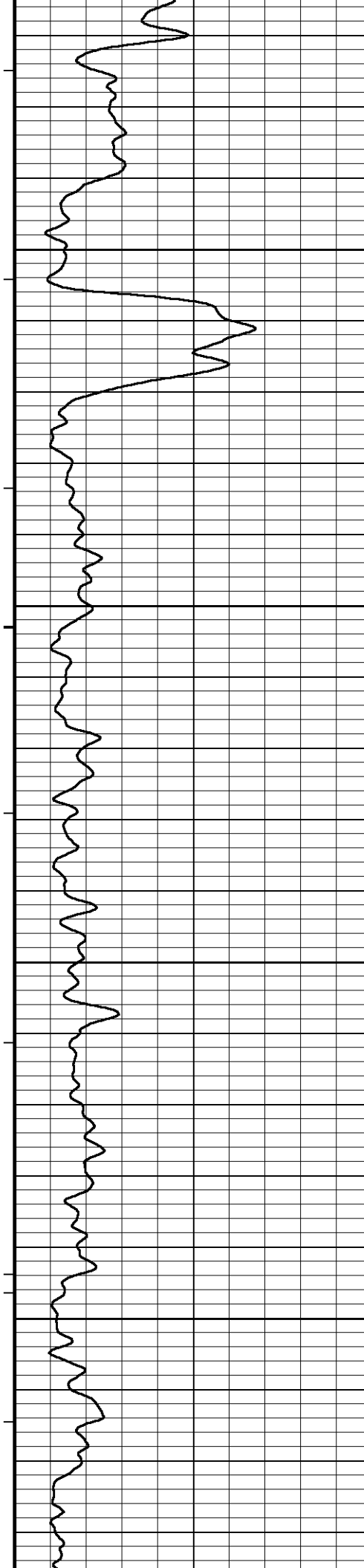
124°





5150
124°
5200
124°
5250
125°
5300
125°
5350





125°

5400

126°

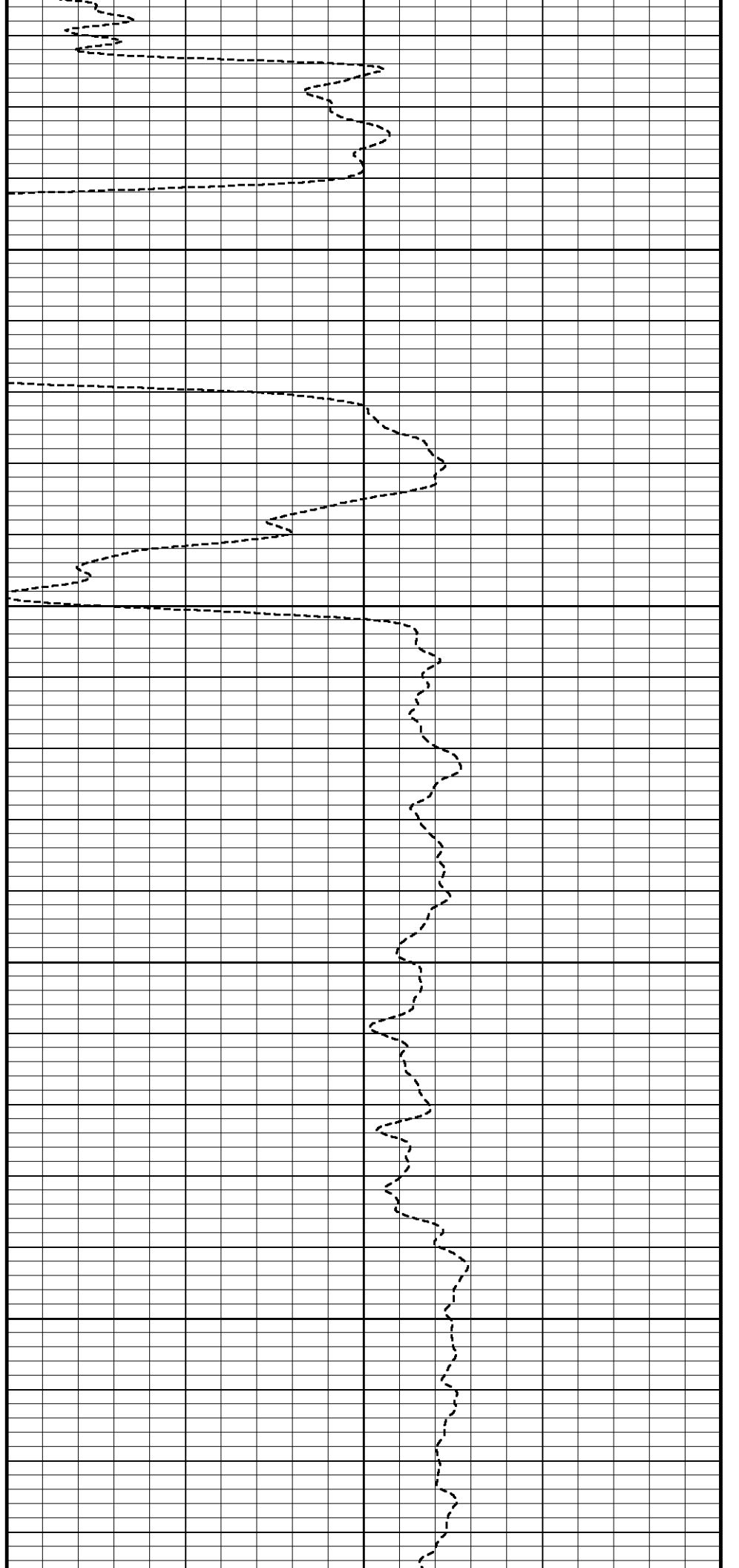
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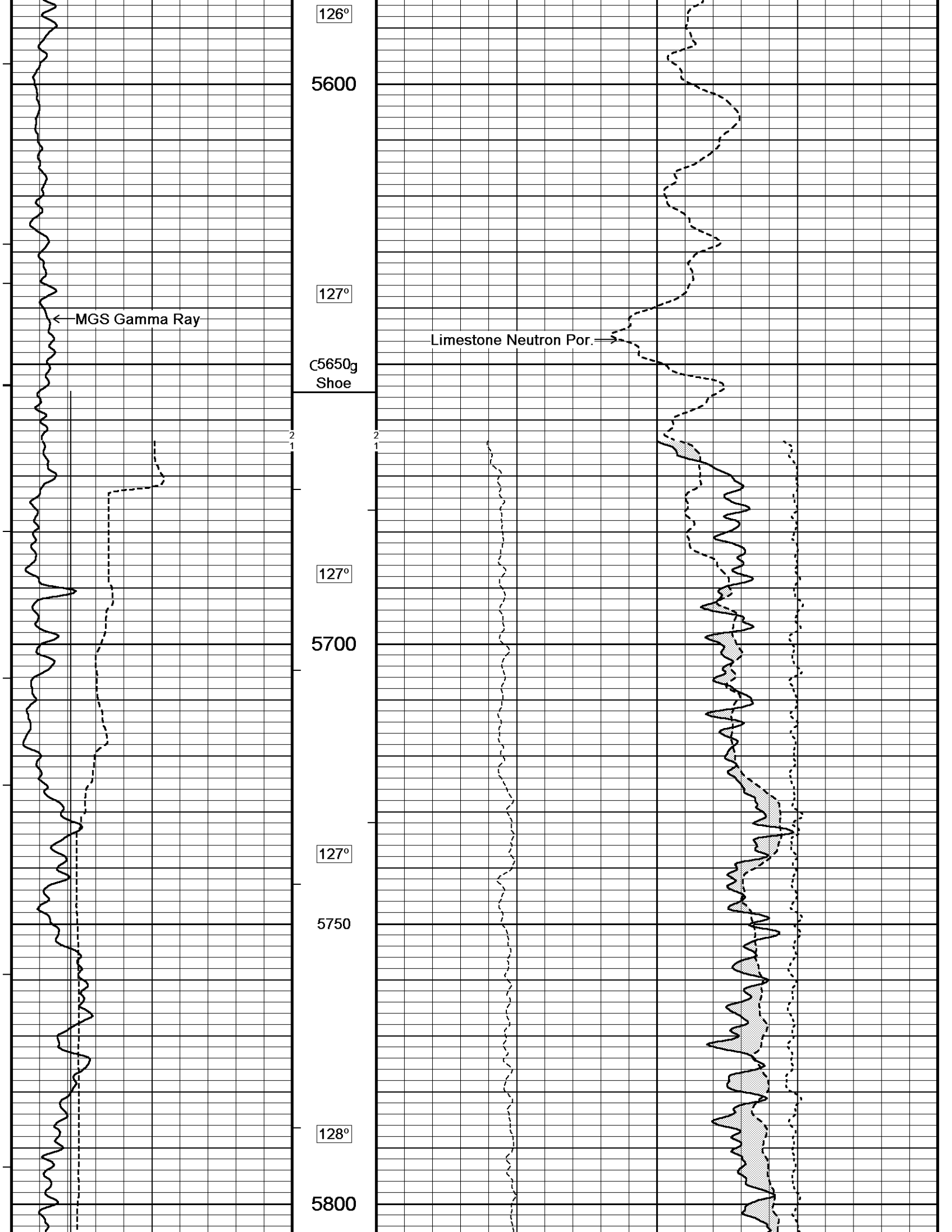
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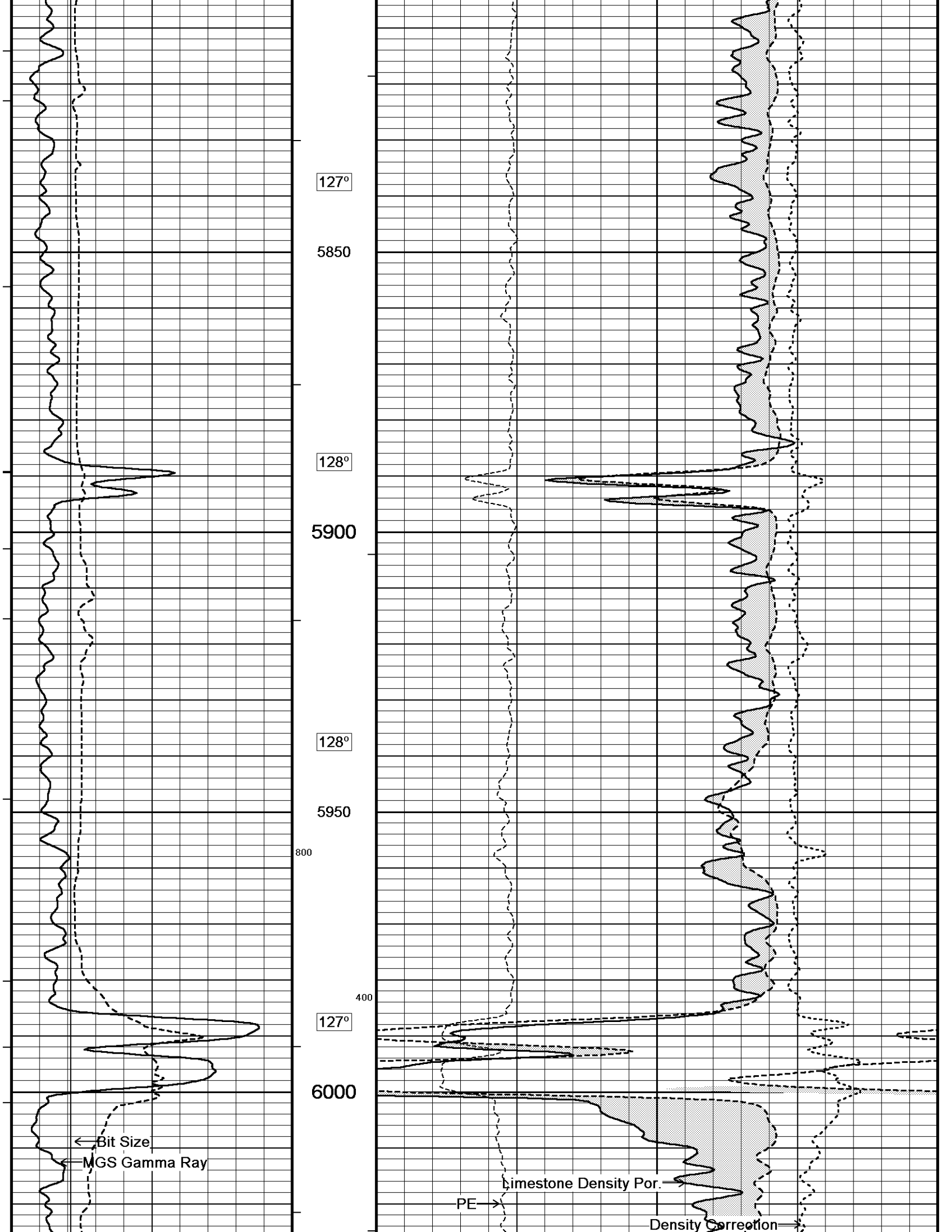
5500

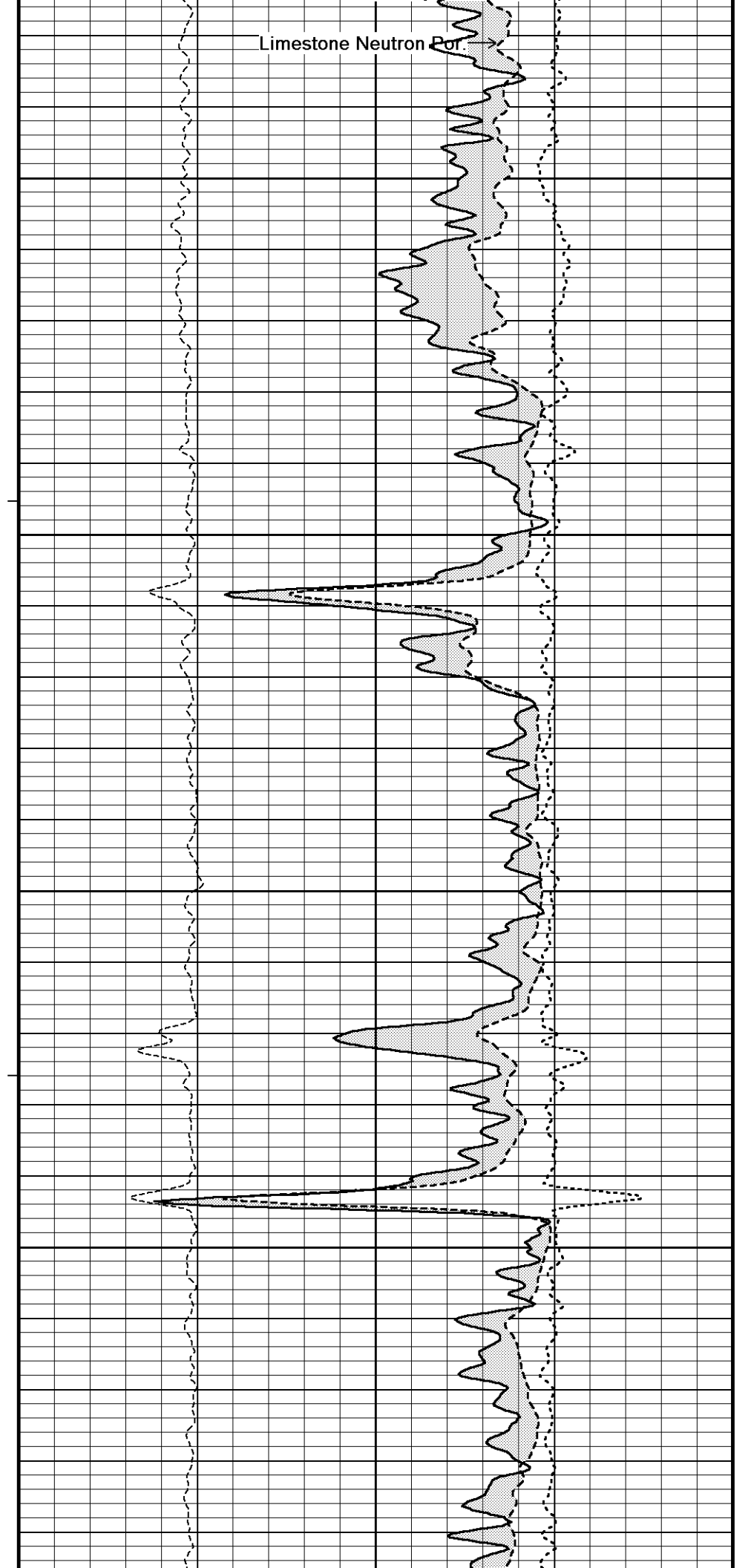
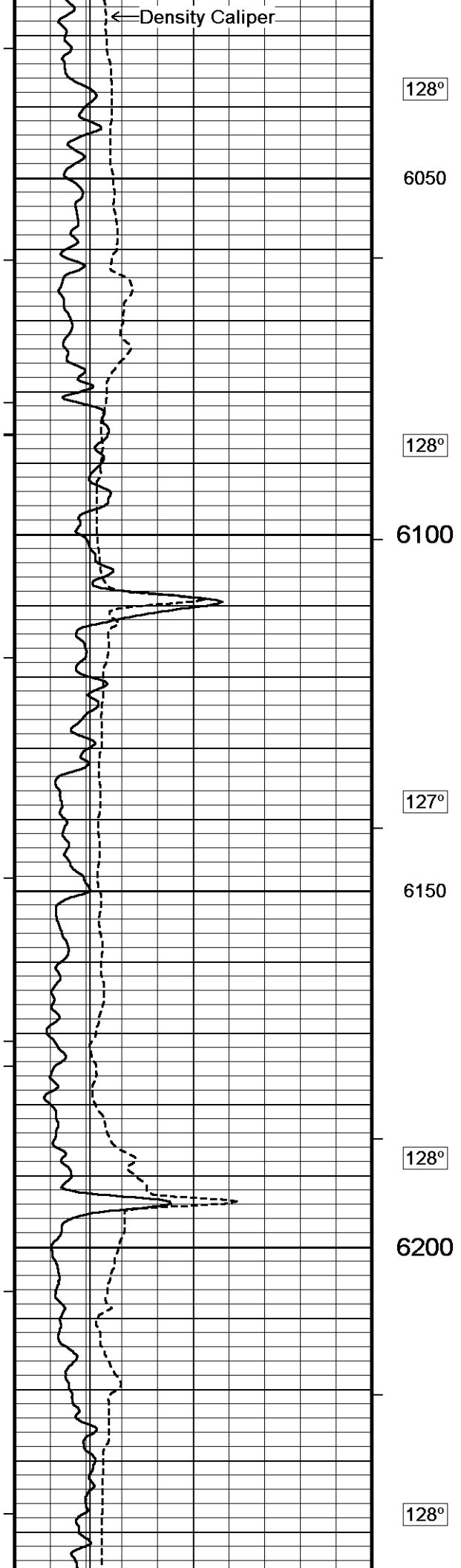
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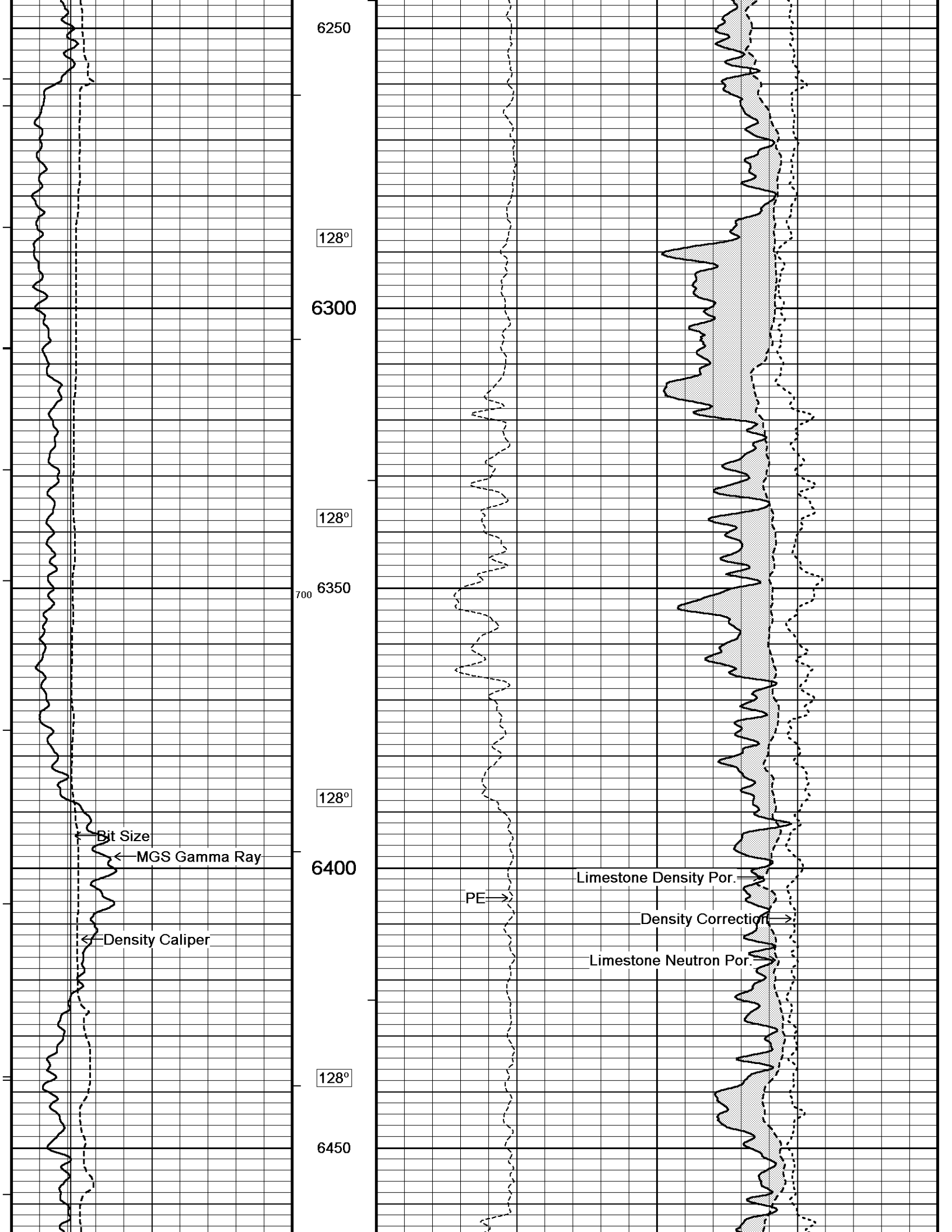
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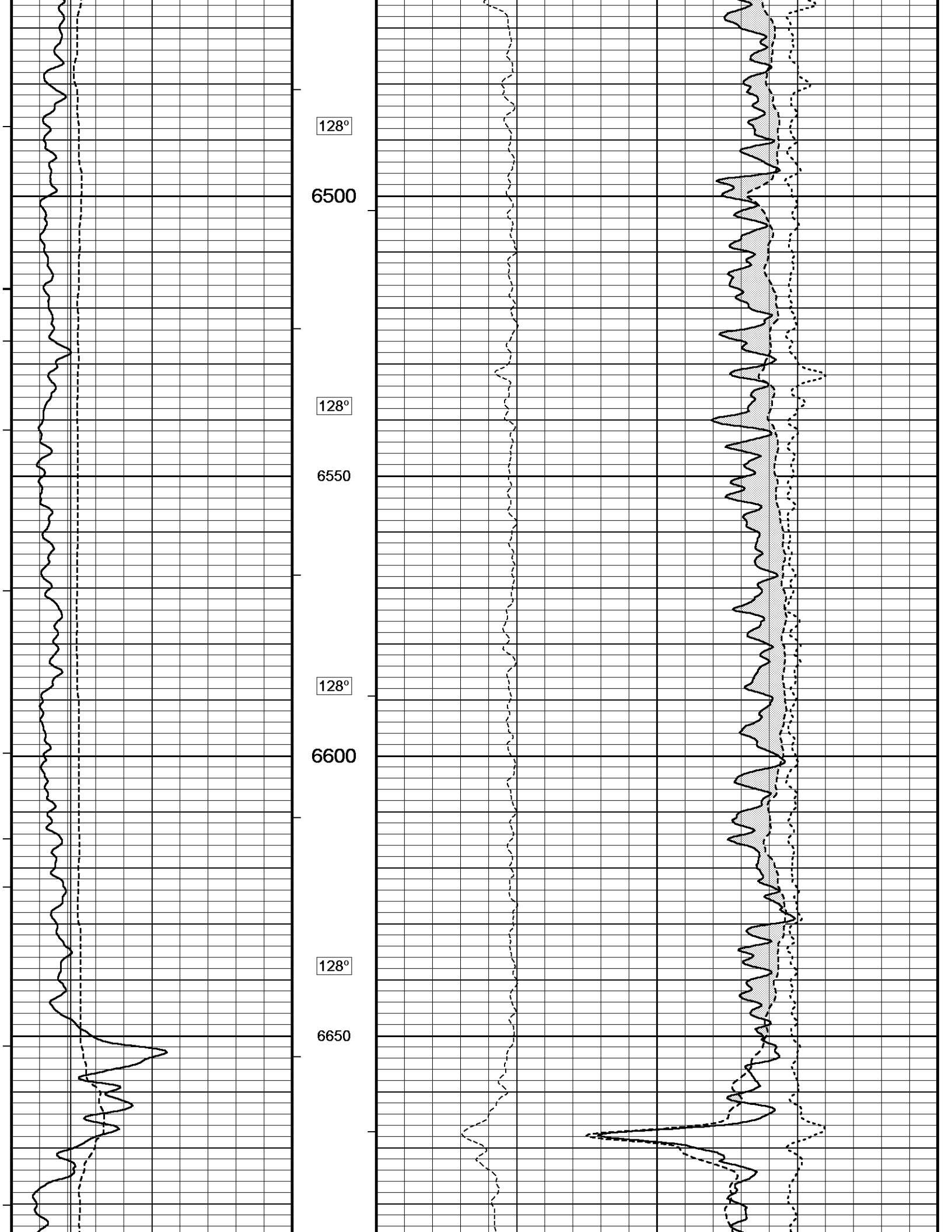


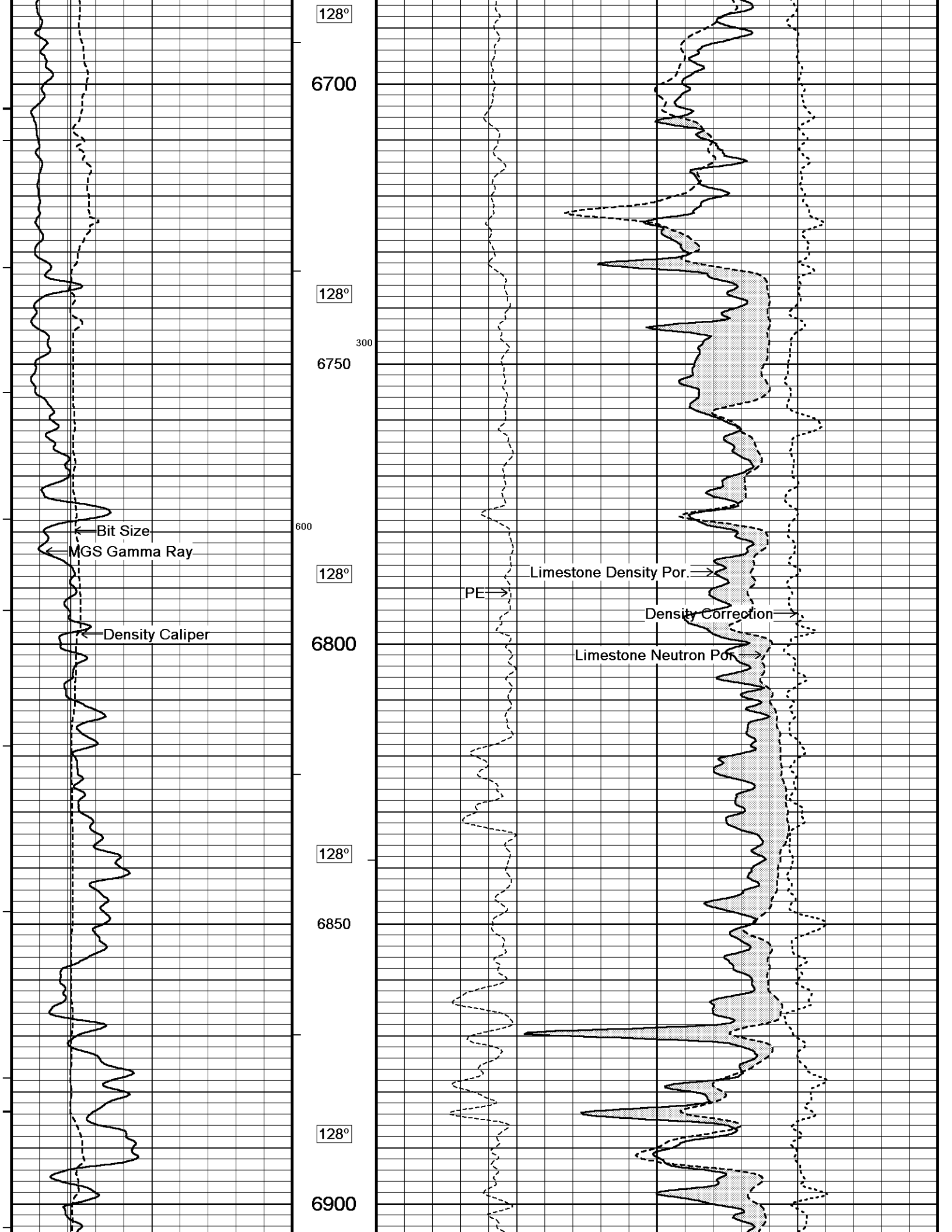












128°

6700

128°

6750

128°

6800

128°

6850

128°

6900

300

600

Bit Size
MGS Gamma Ray

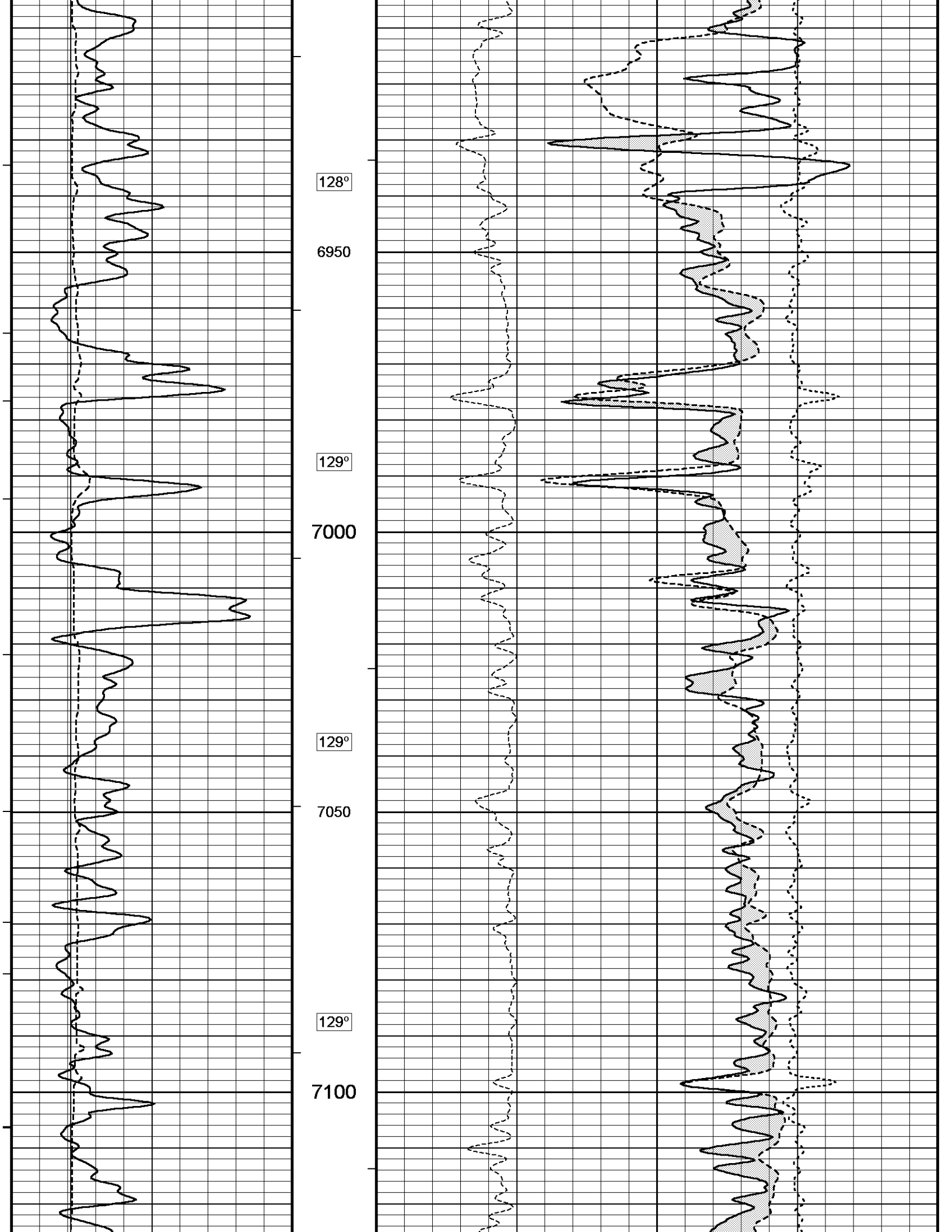
Density Caliper

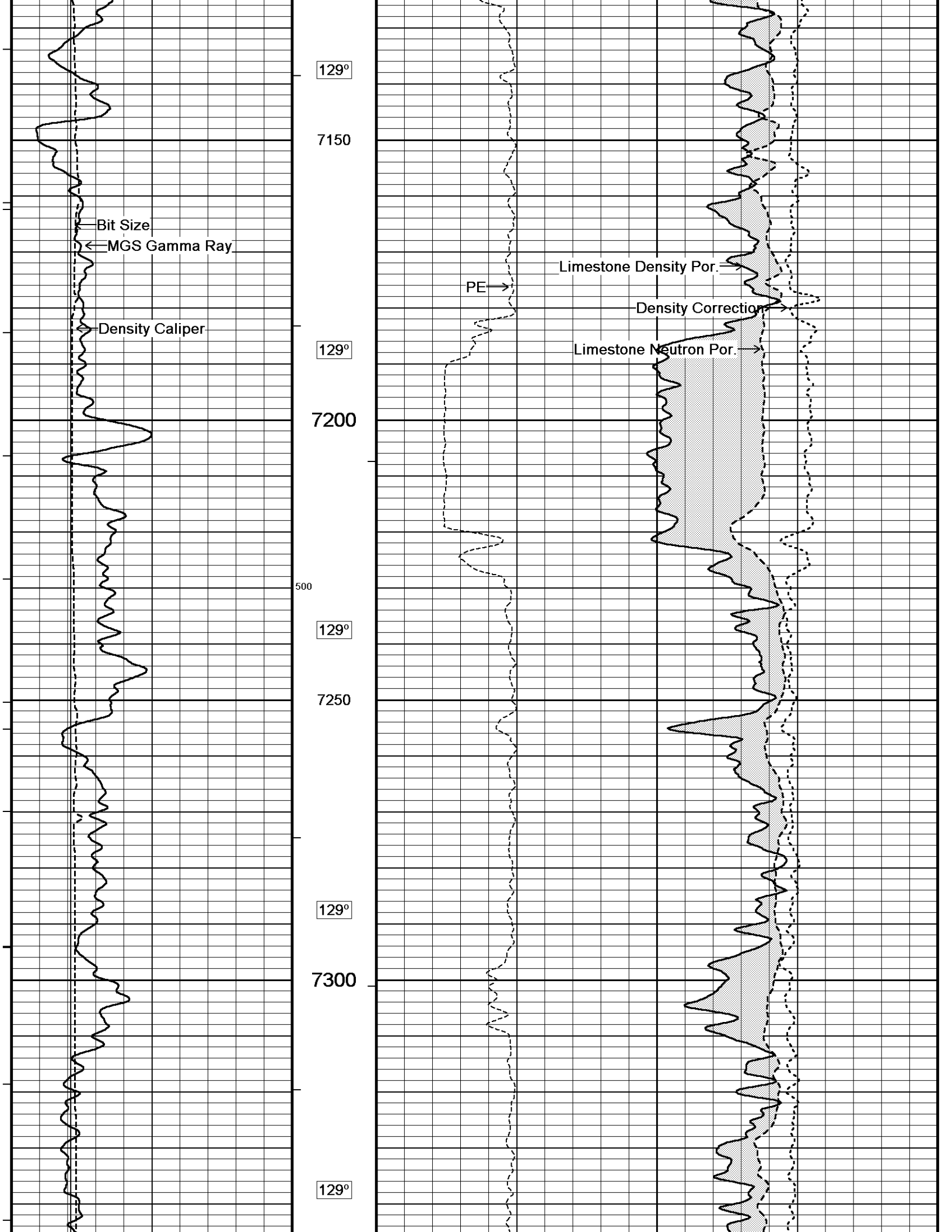
PE

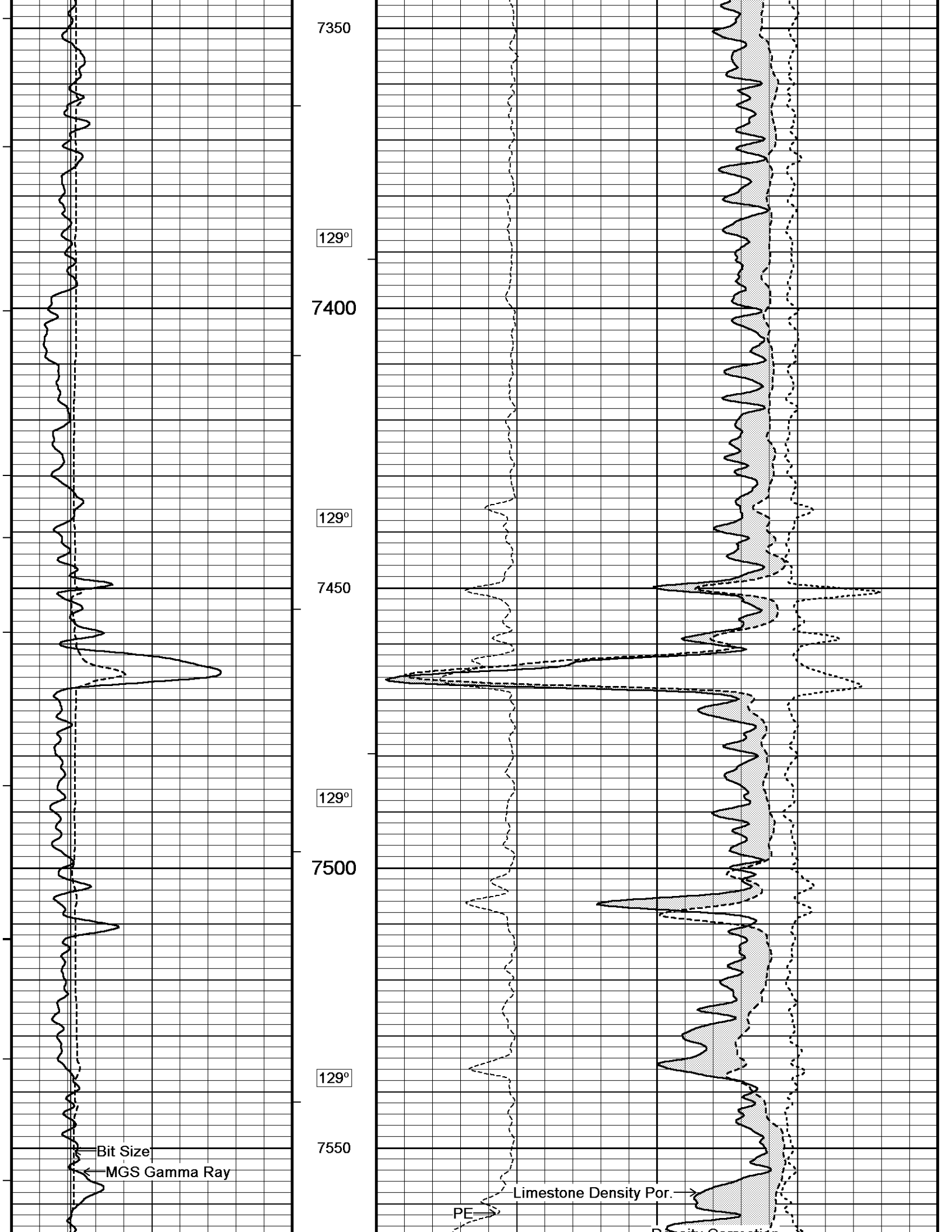
Limestone Density Por.

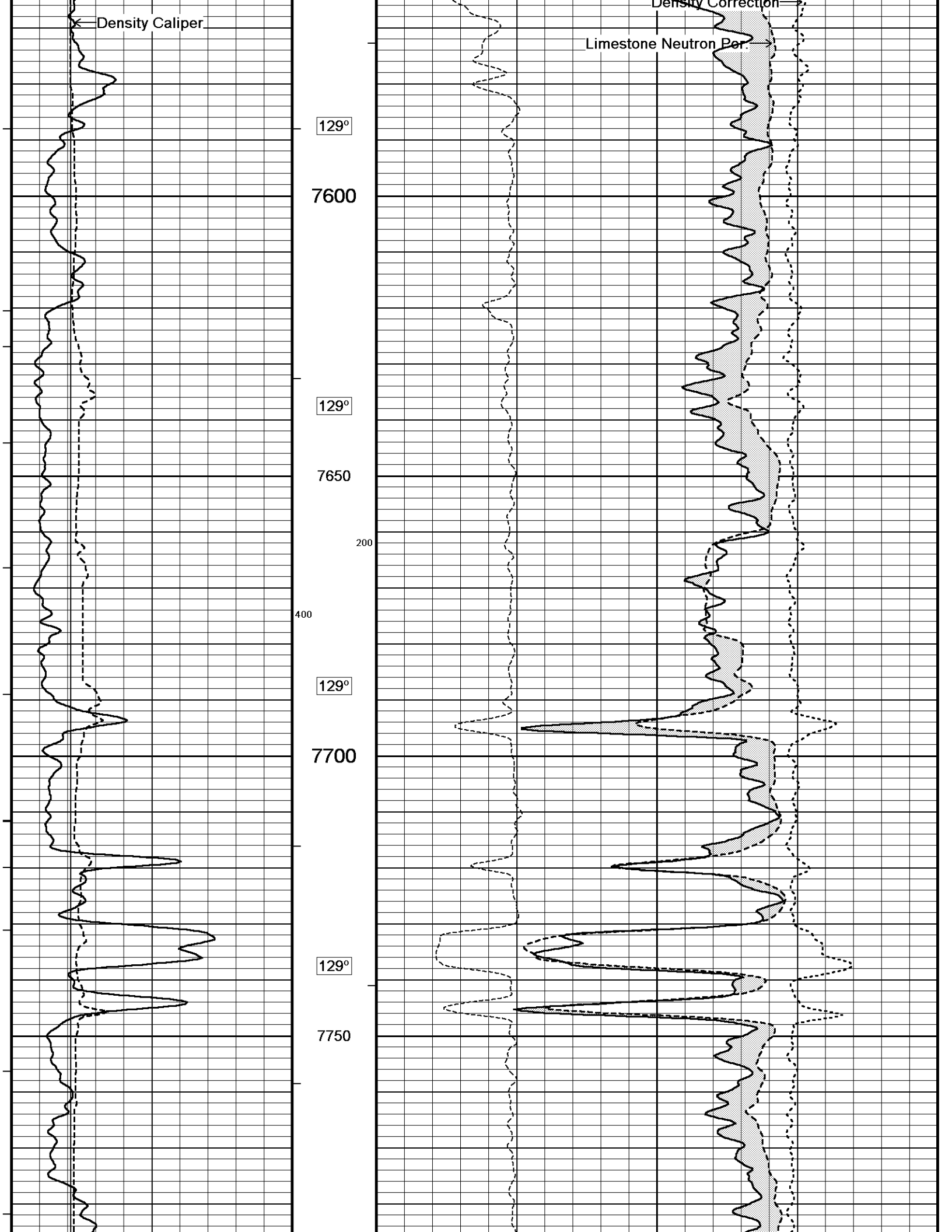
Density Correction

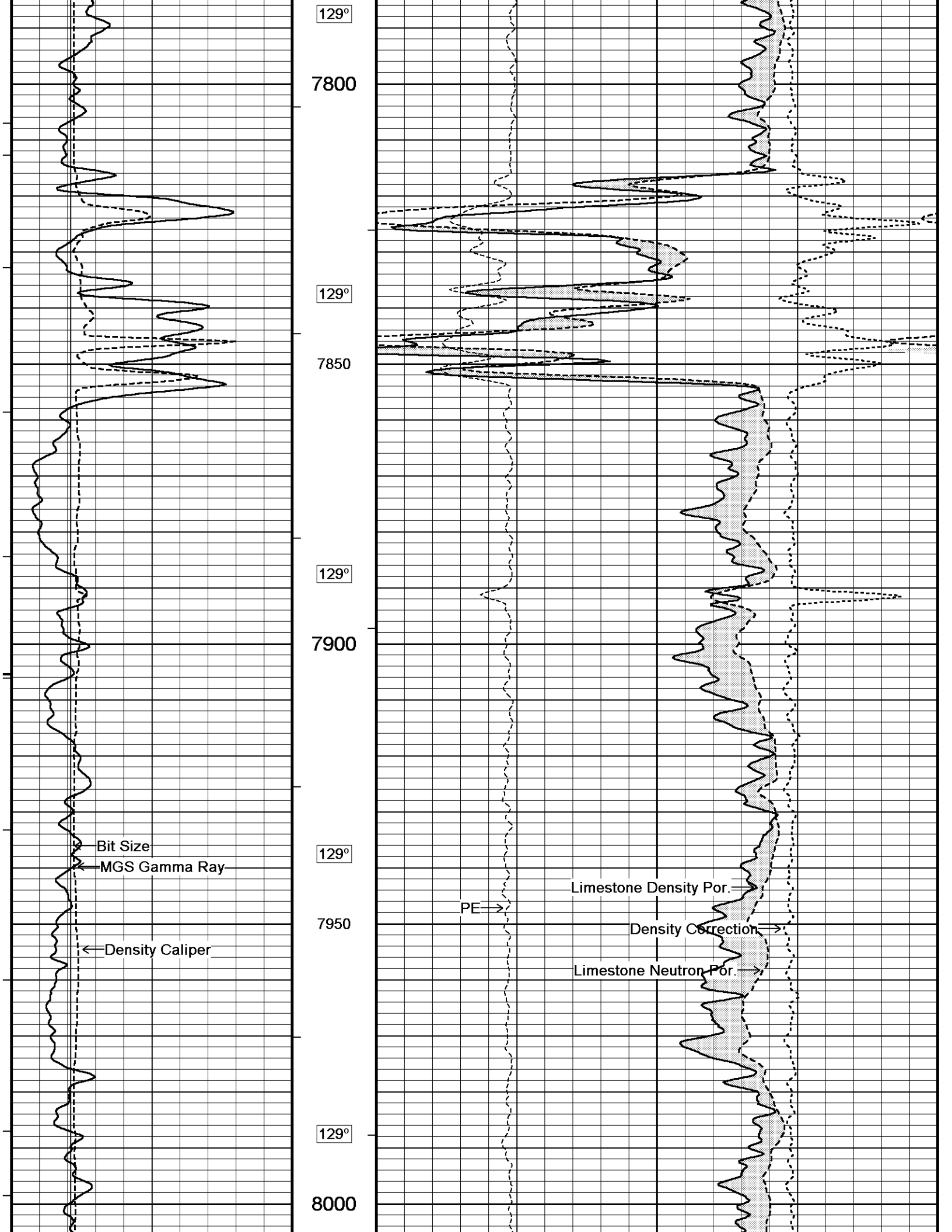
Limestone Neutron Por.

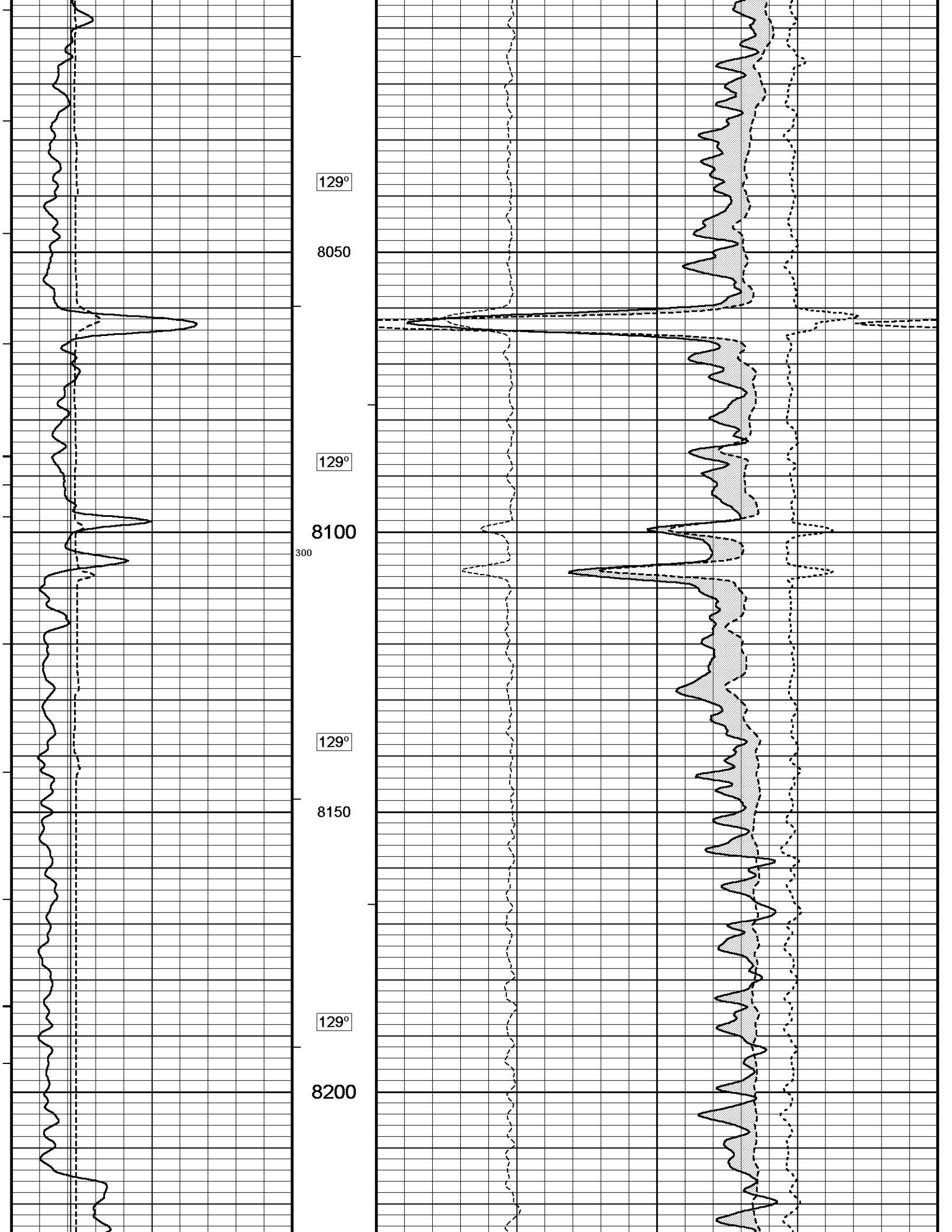


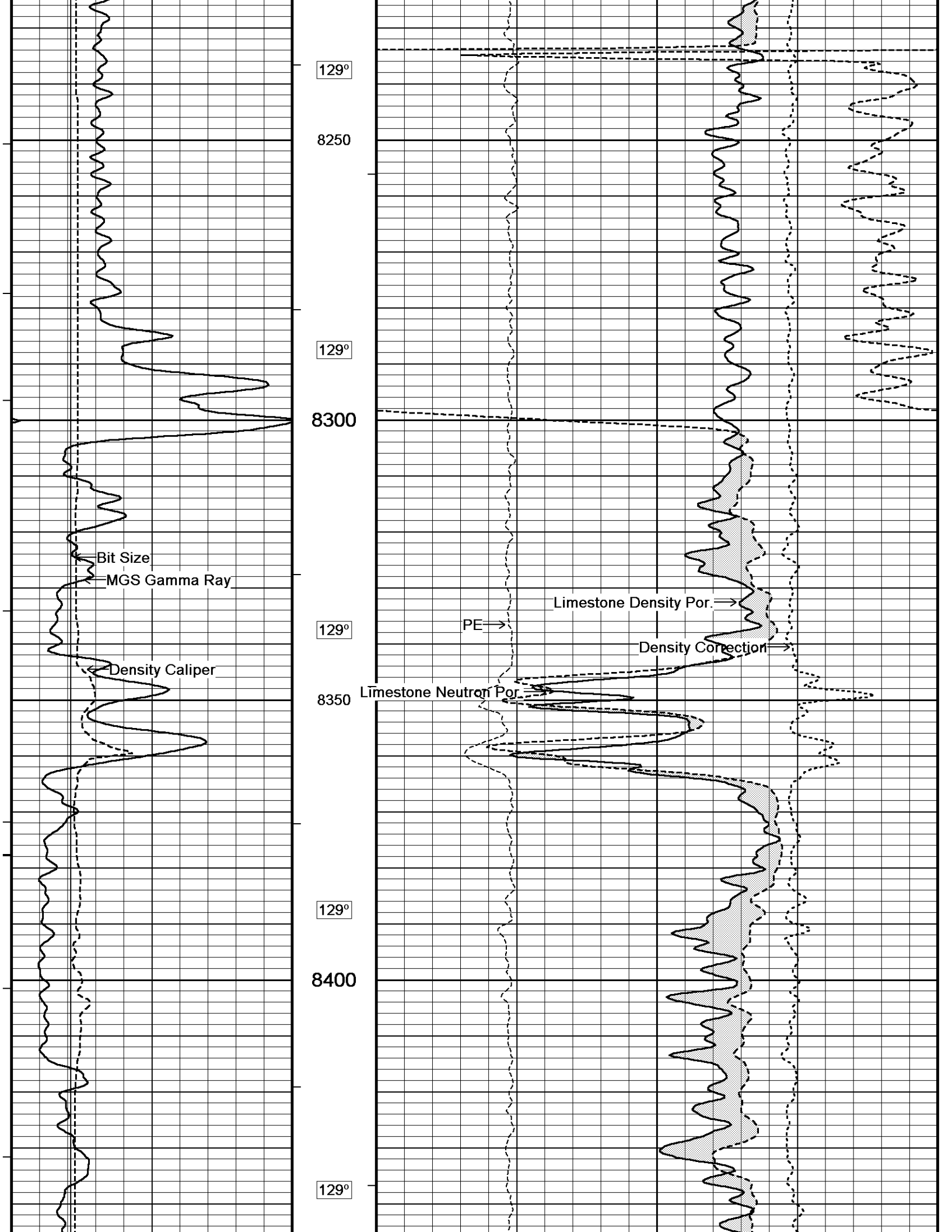


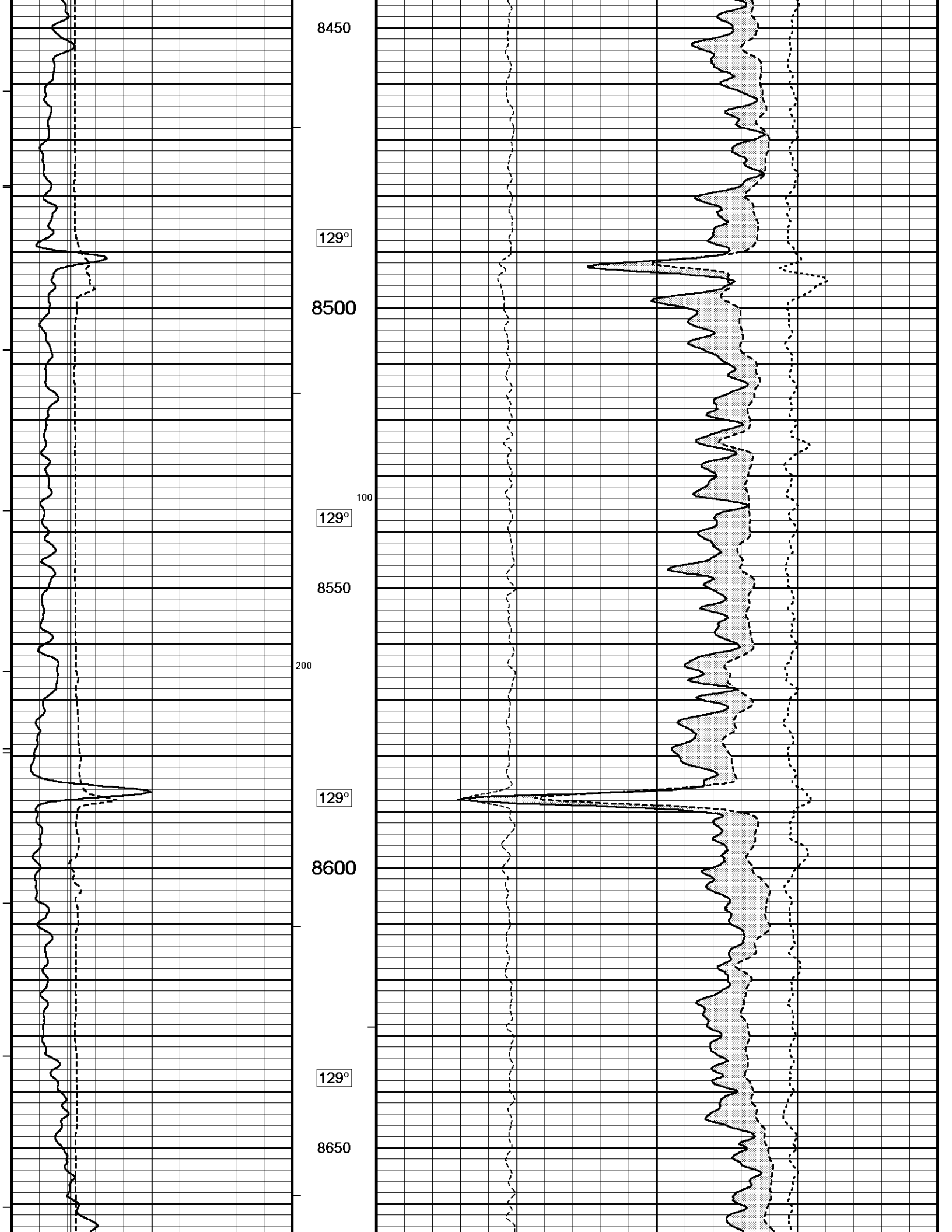


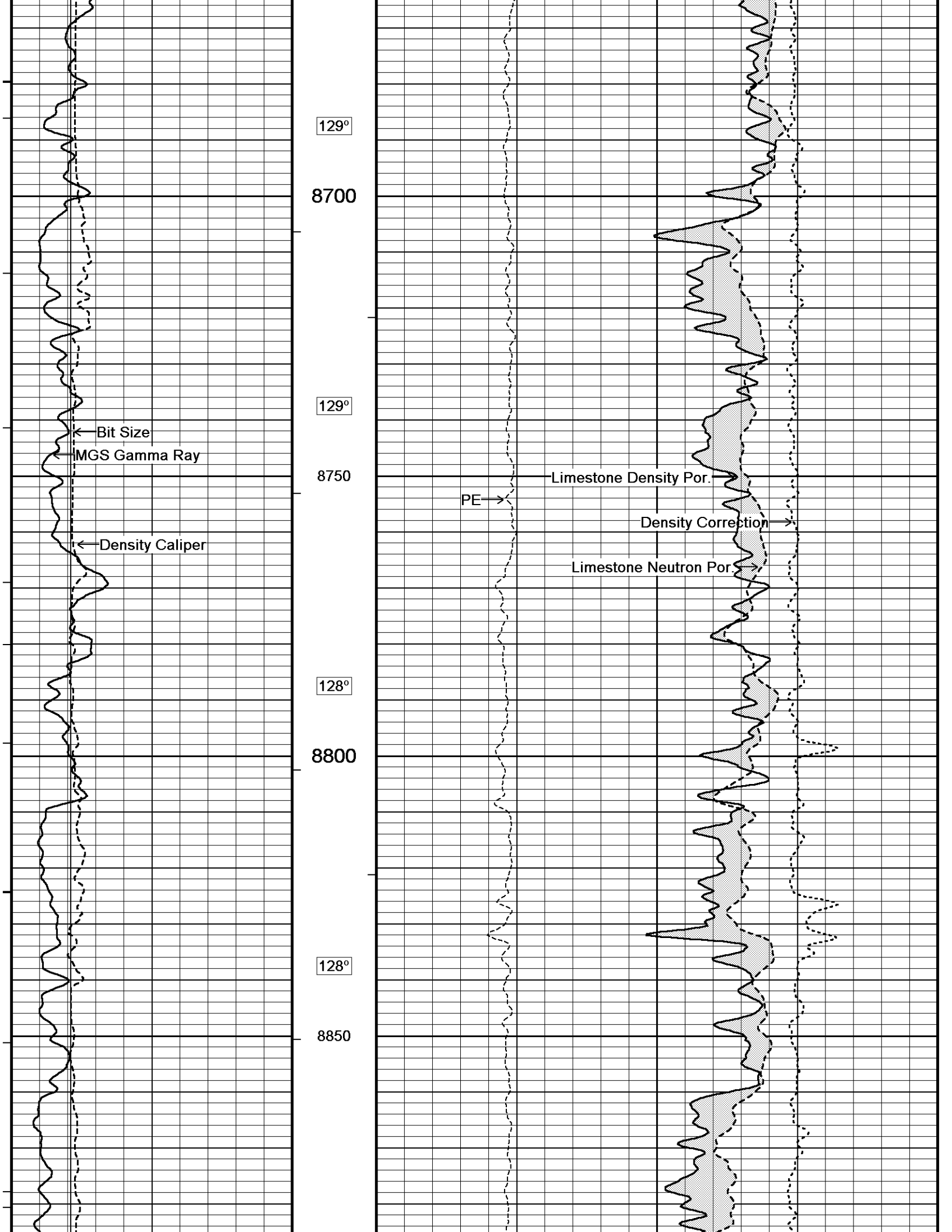


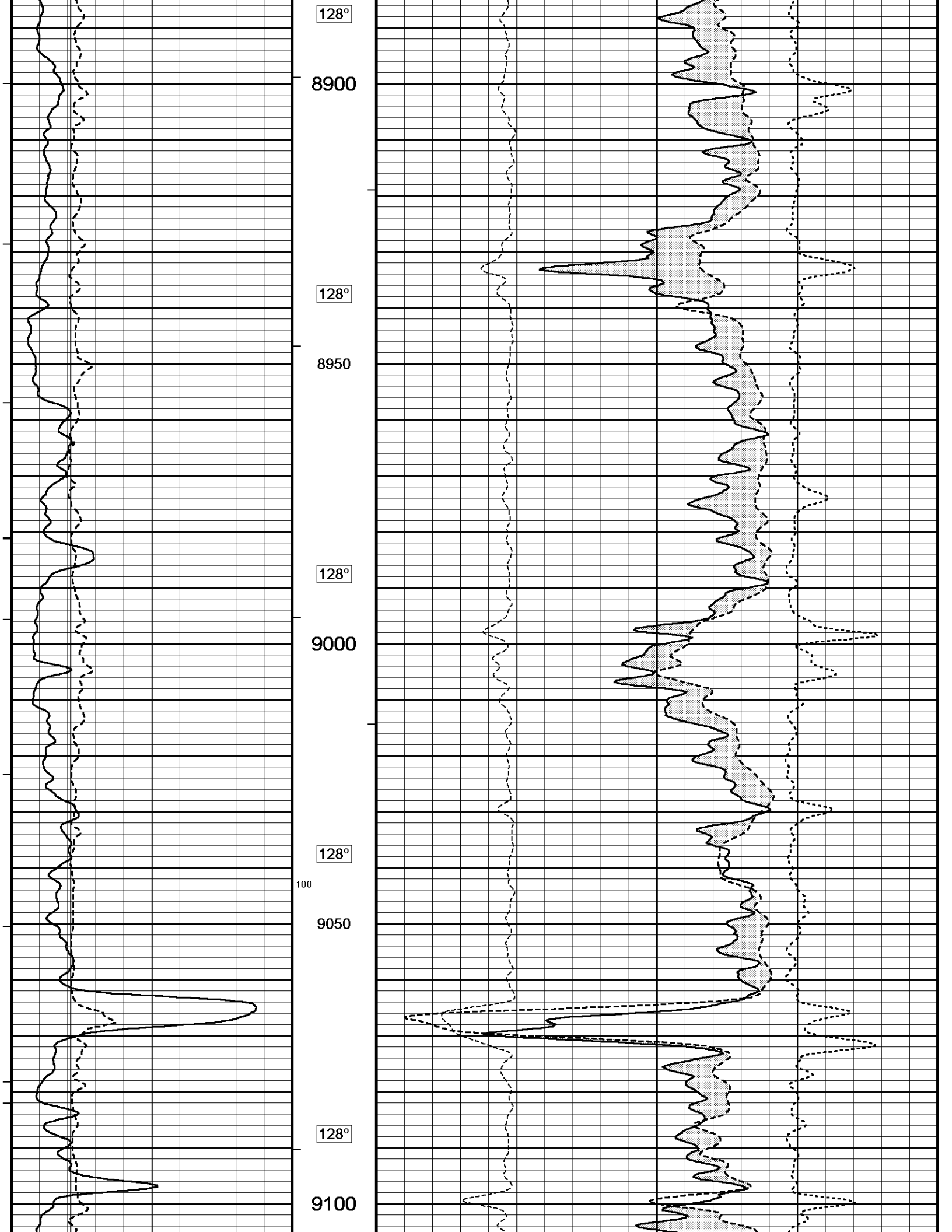


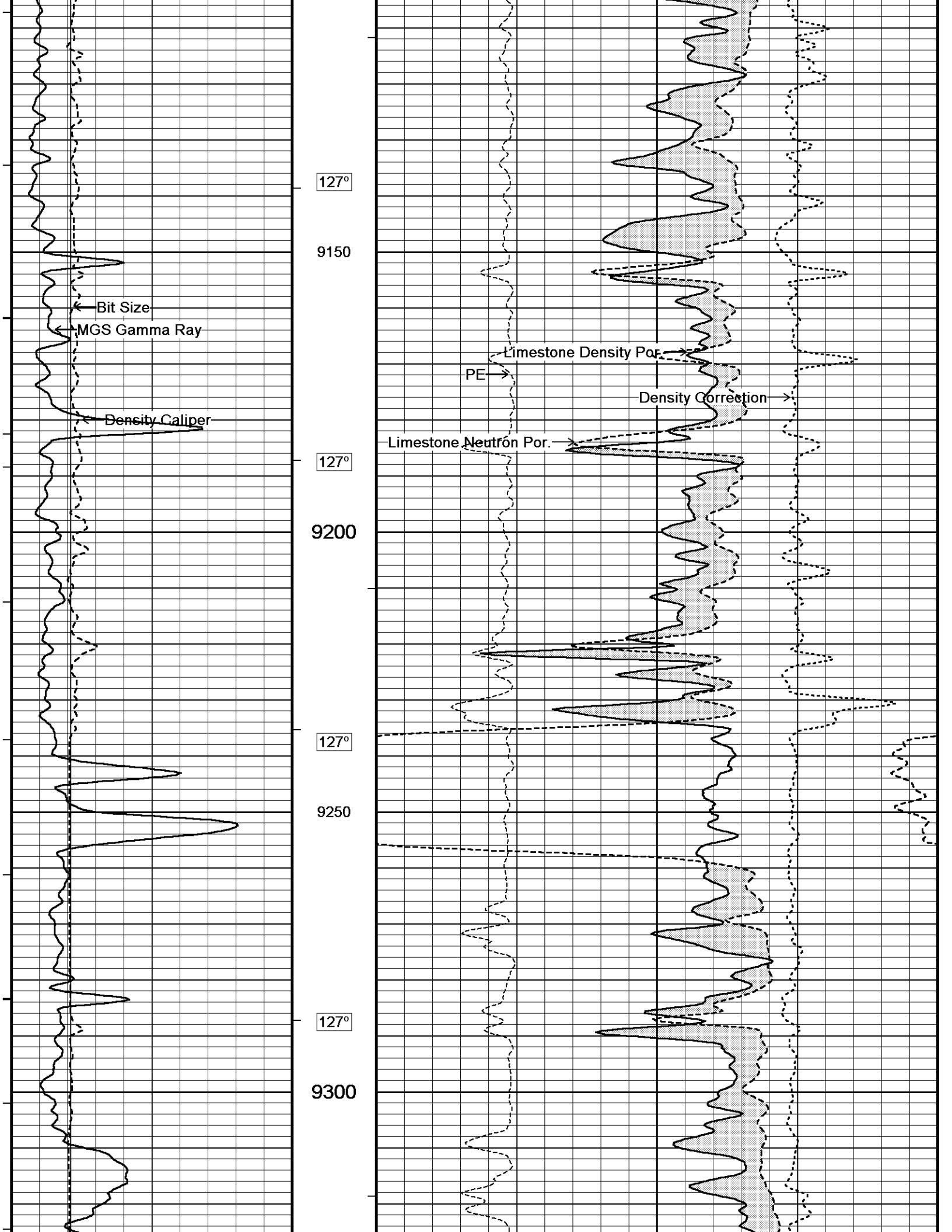


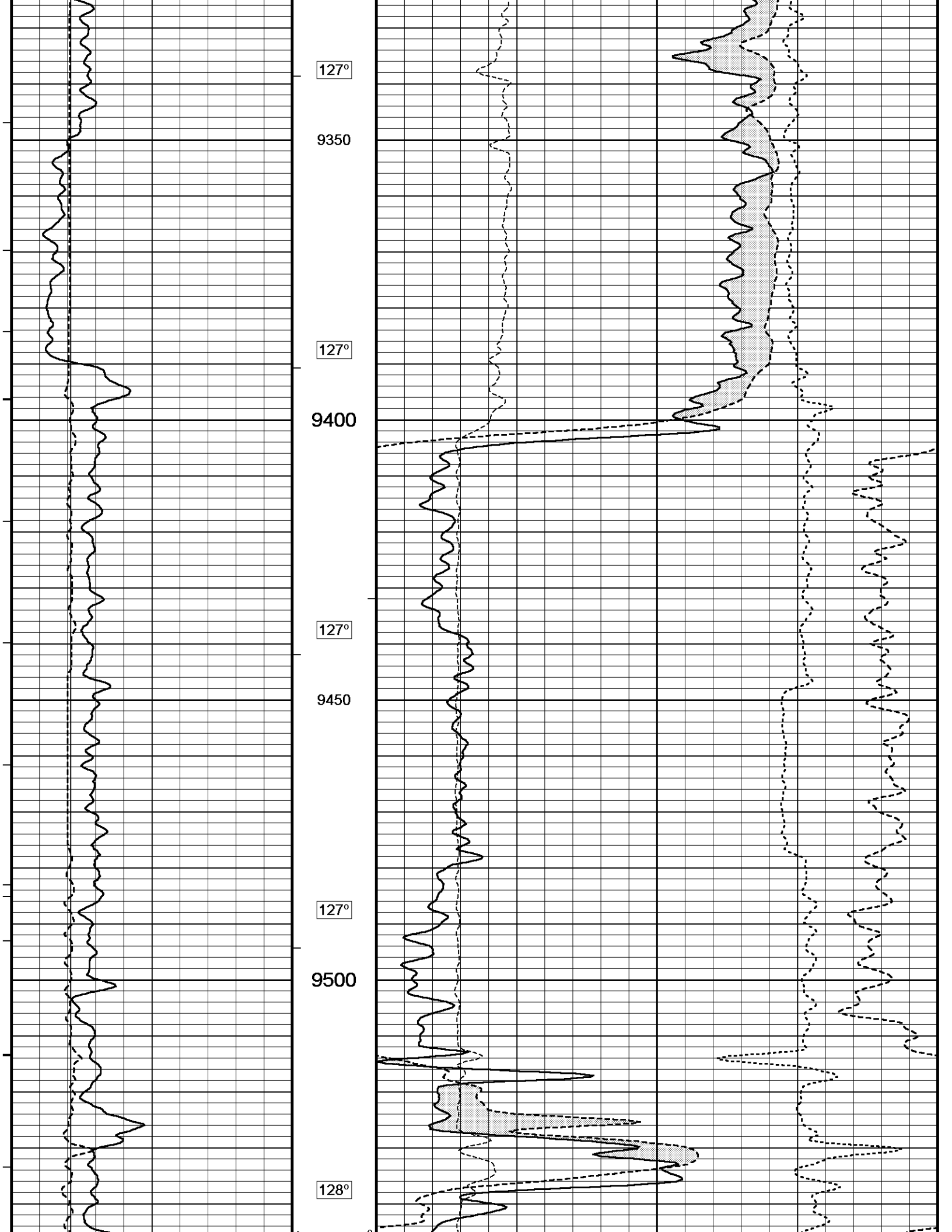


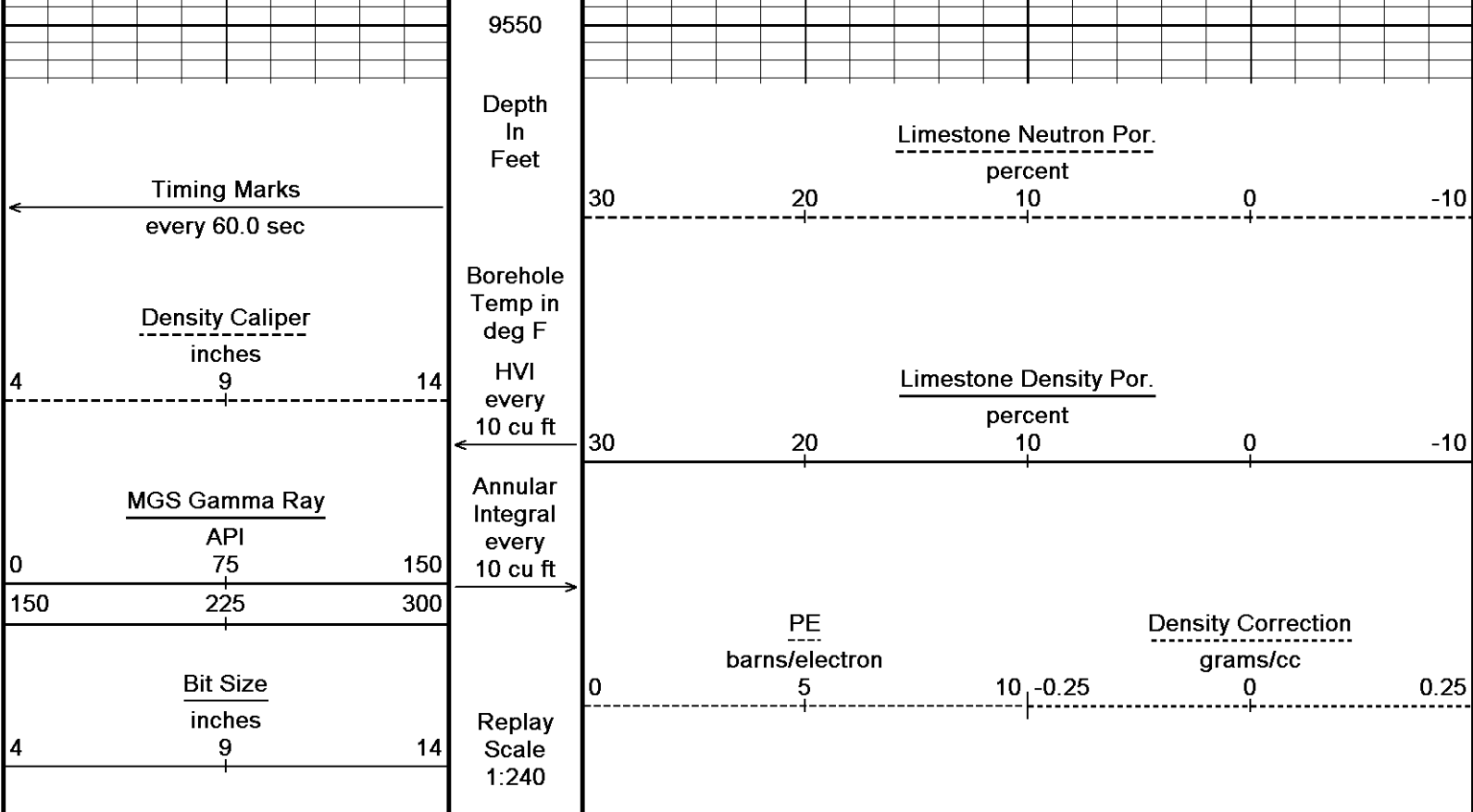










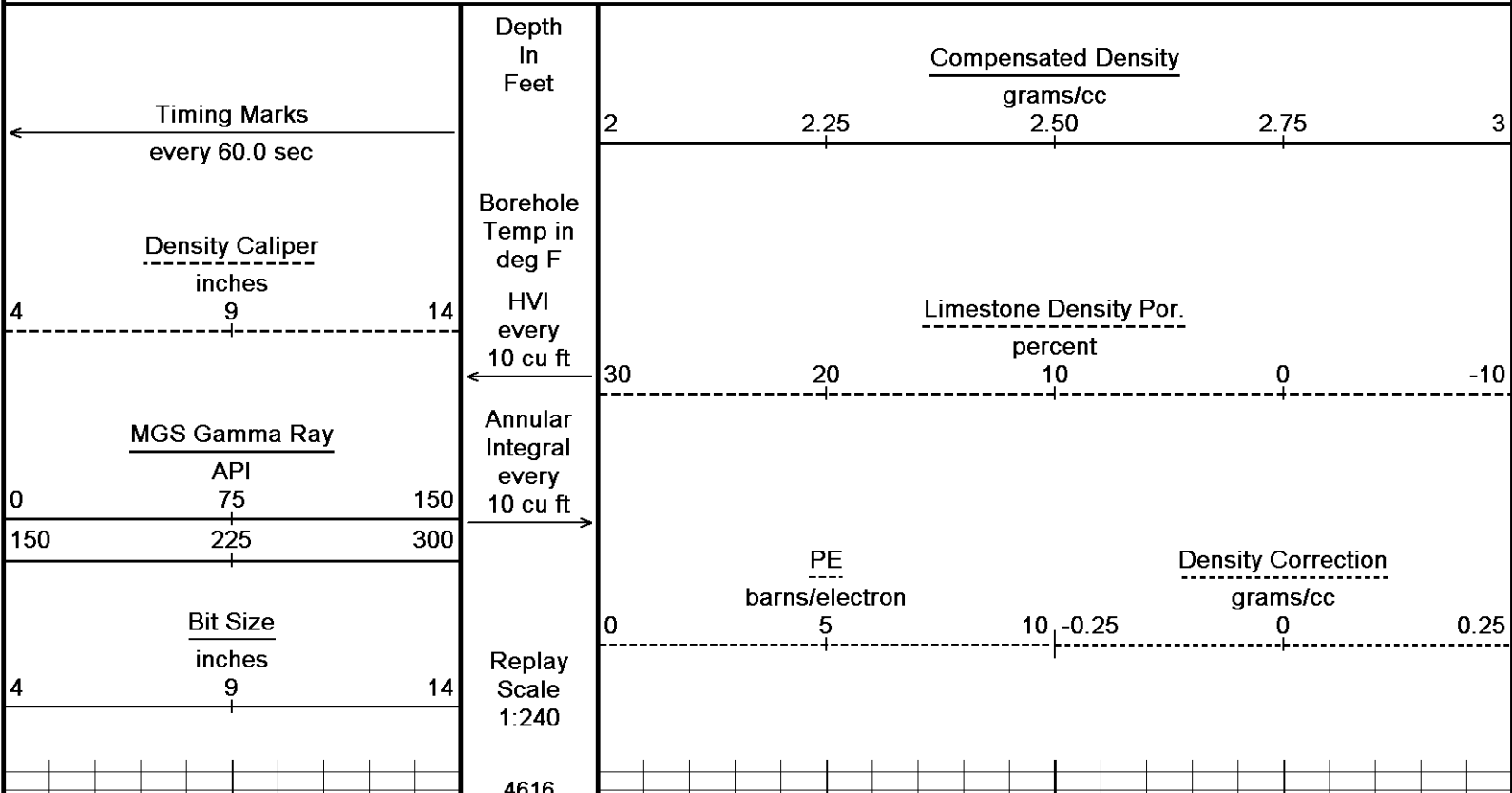


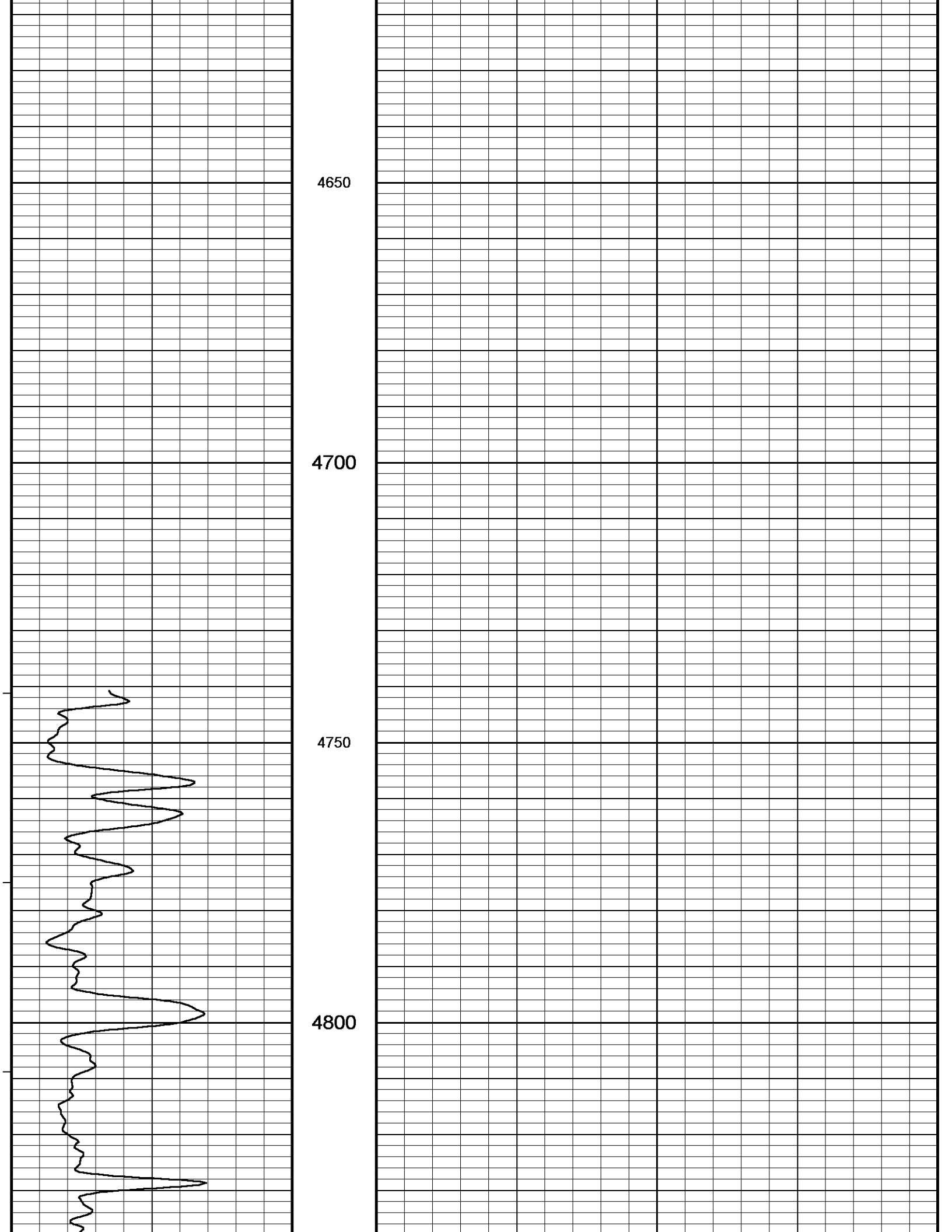
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 24-MAY-2012 01:51
 Filename: C:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 31...\RUBY MAIN LOGS5.dta Recorded on 23-MAY-2012 23:49
 System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

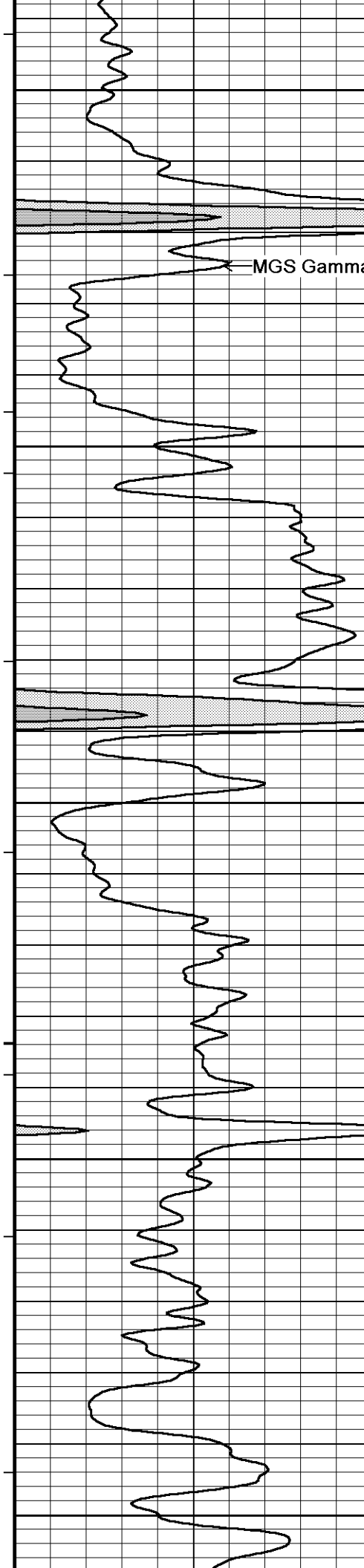
↑ 5 INCH POROSITY LOG ↑

↓ 5 INCH BULK DENSITY ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 24-MAY-2012 01:51
 Filename: C:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 31...\RUBY MAIN LOGS5.dta Recorded on 23-MAY-2012 23:49
 System Versions: Processed with 12.02.4401 Plotted with 12.02.4401







4850

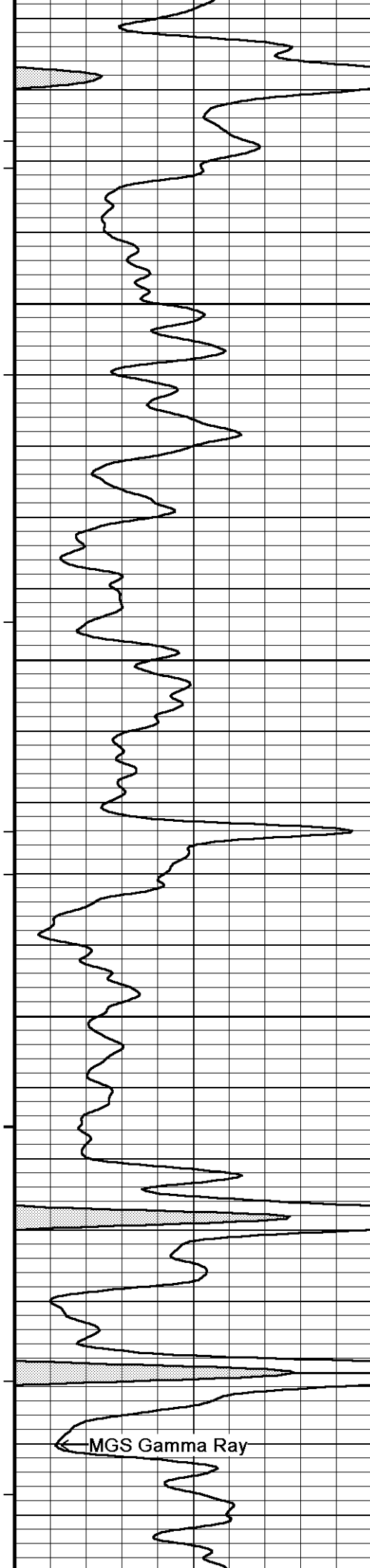
MGS Gamma Ray

4900

4950

5000

5050



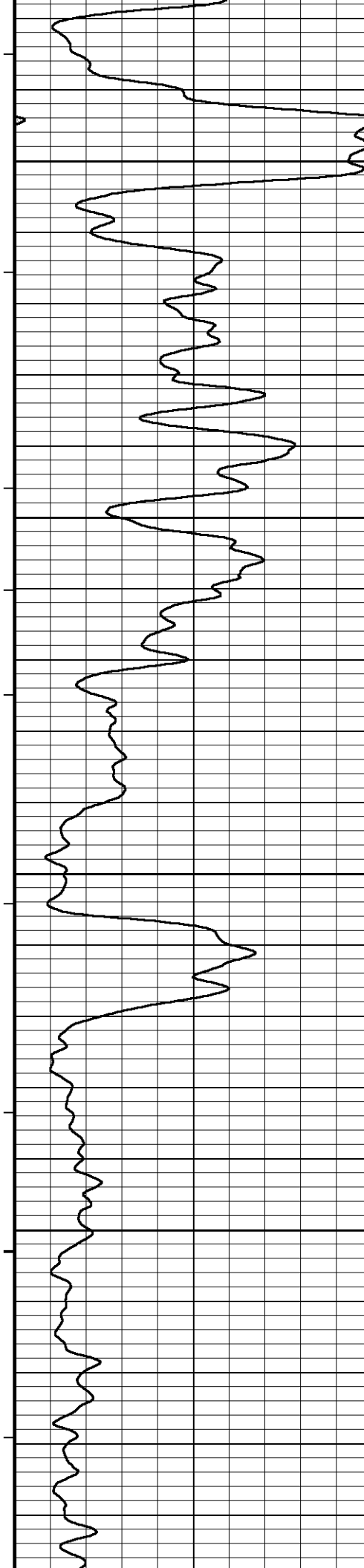
5100

5150

5200

5250

← MGS Gamma Ray

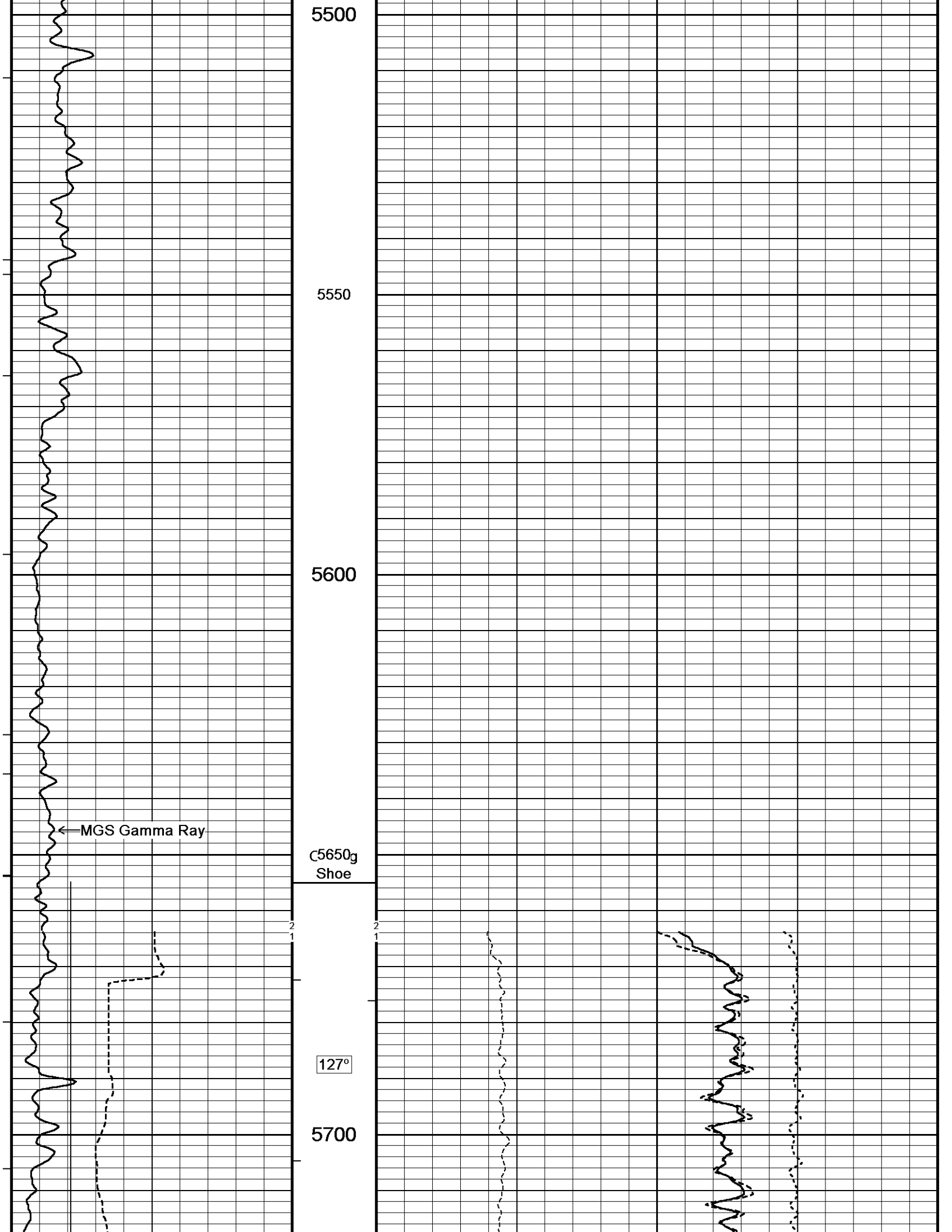


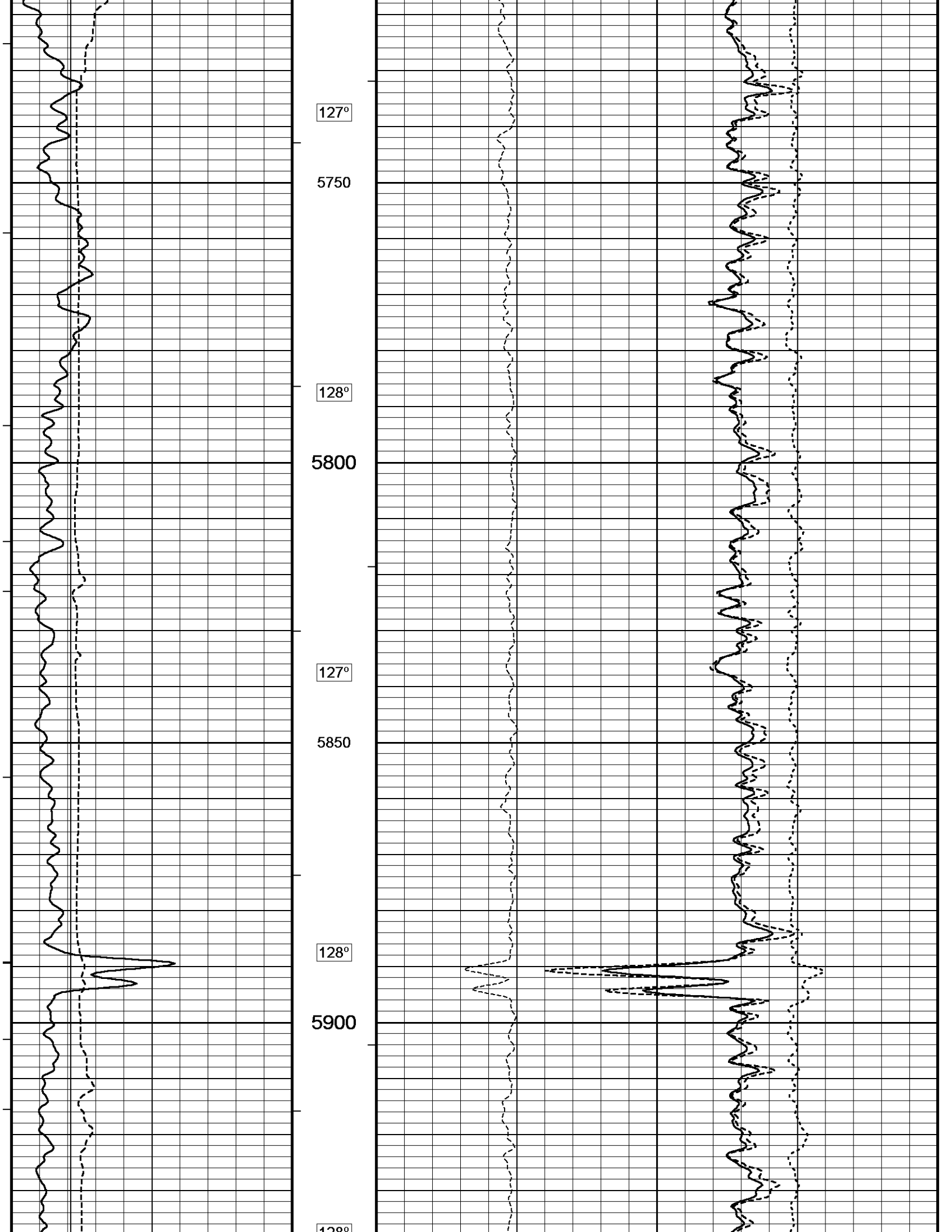
5300

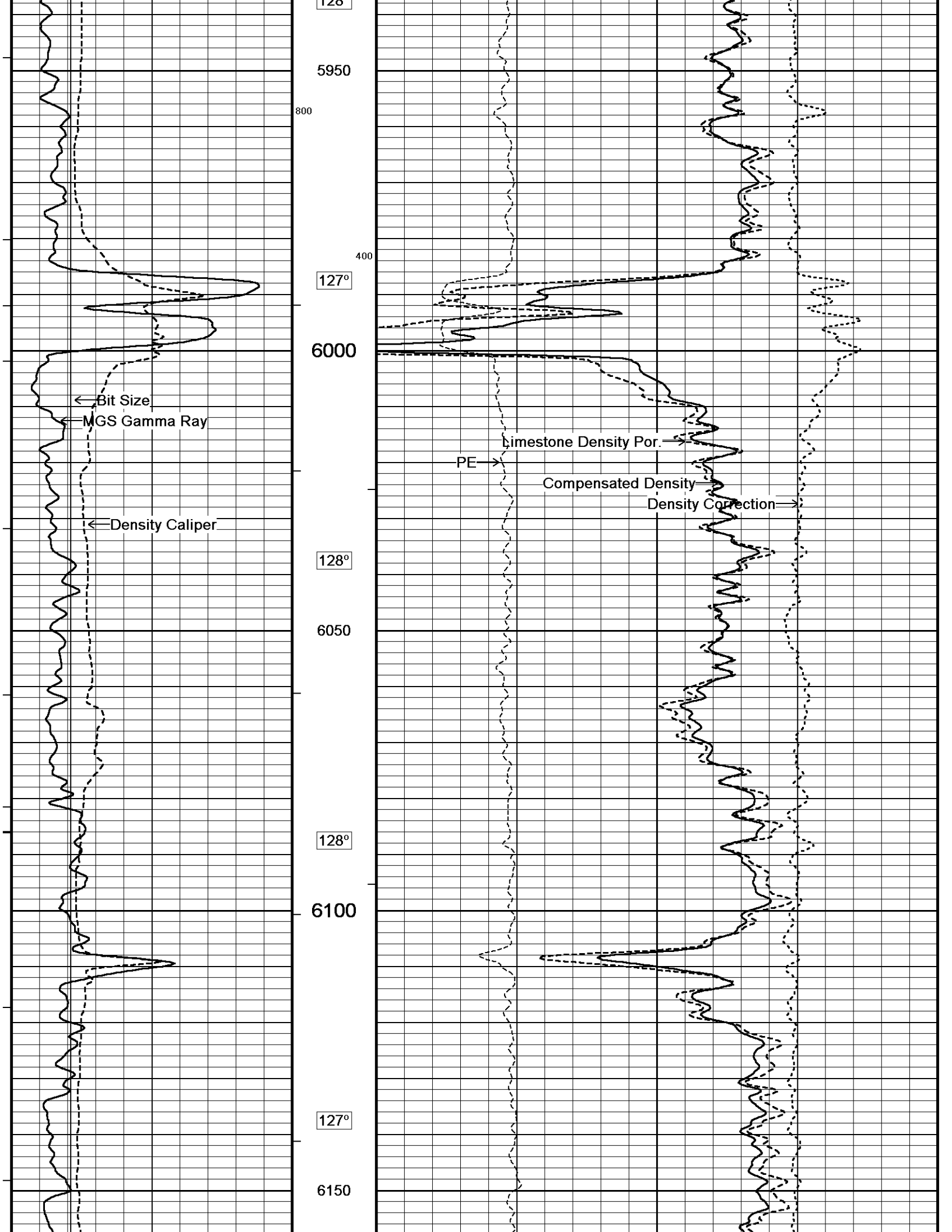
5350

5400

5450







128

5950

800

400

127°

6000

← Bit Size

← MGS Gamma Ray

← Density Caliper

PE →

Limestone Density Por. →

Compensated Density

Density Correction →

128°

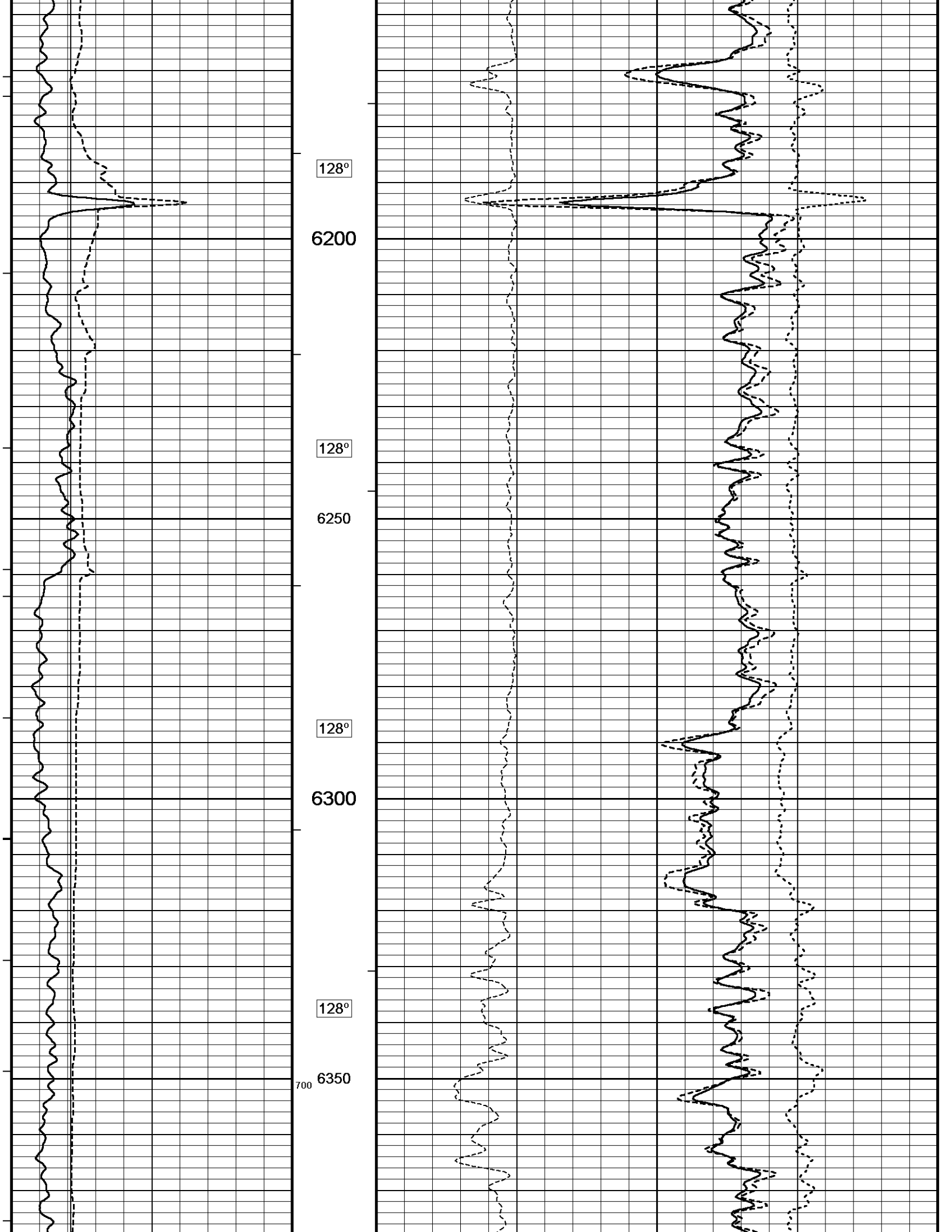
6050

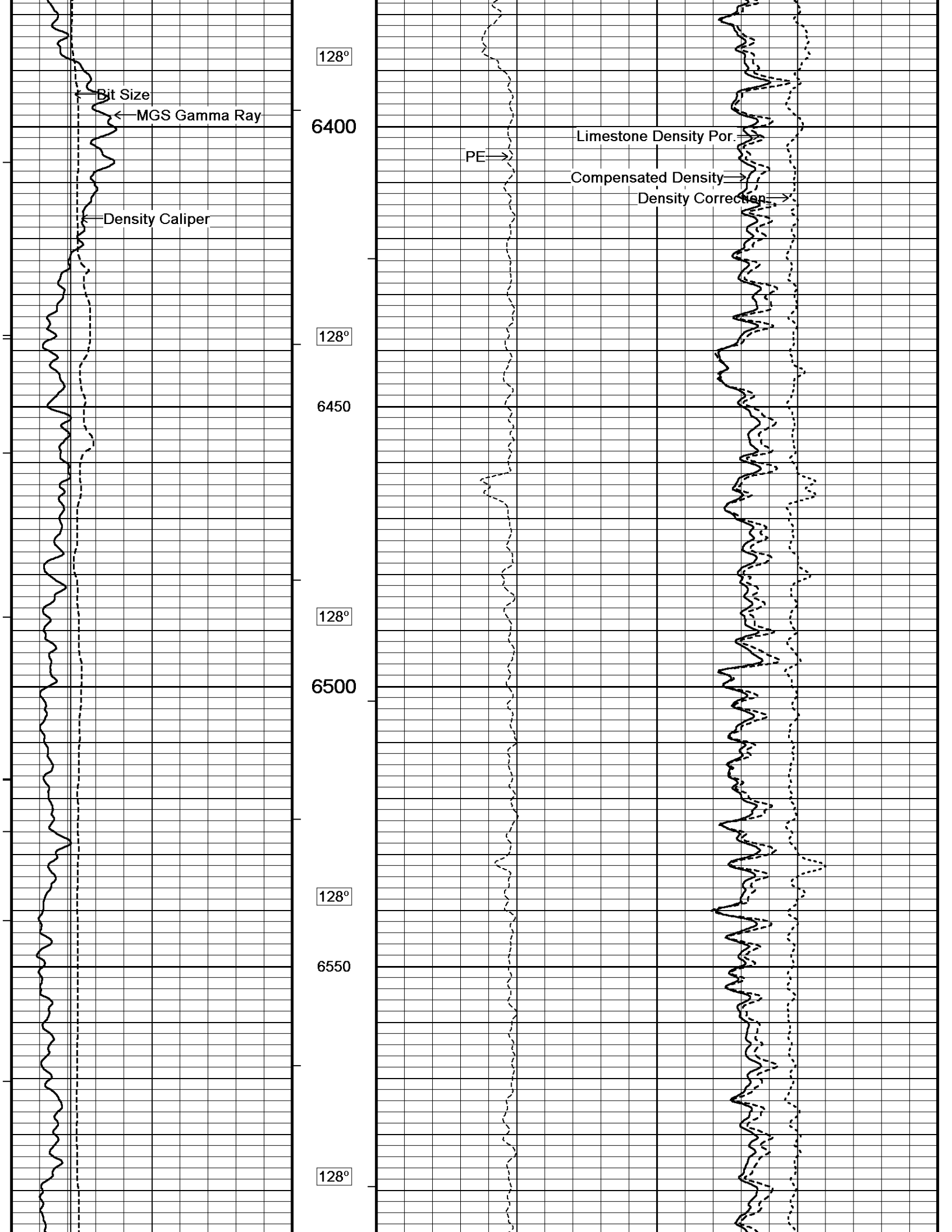
128°

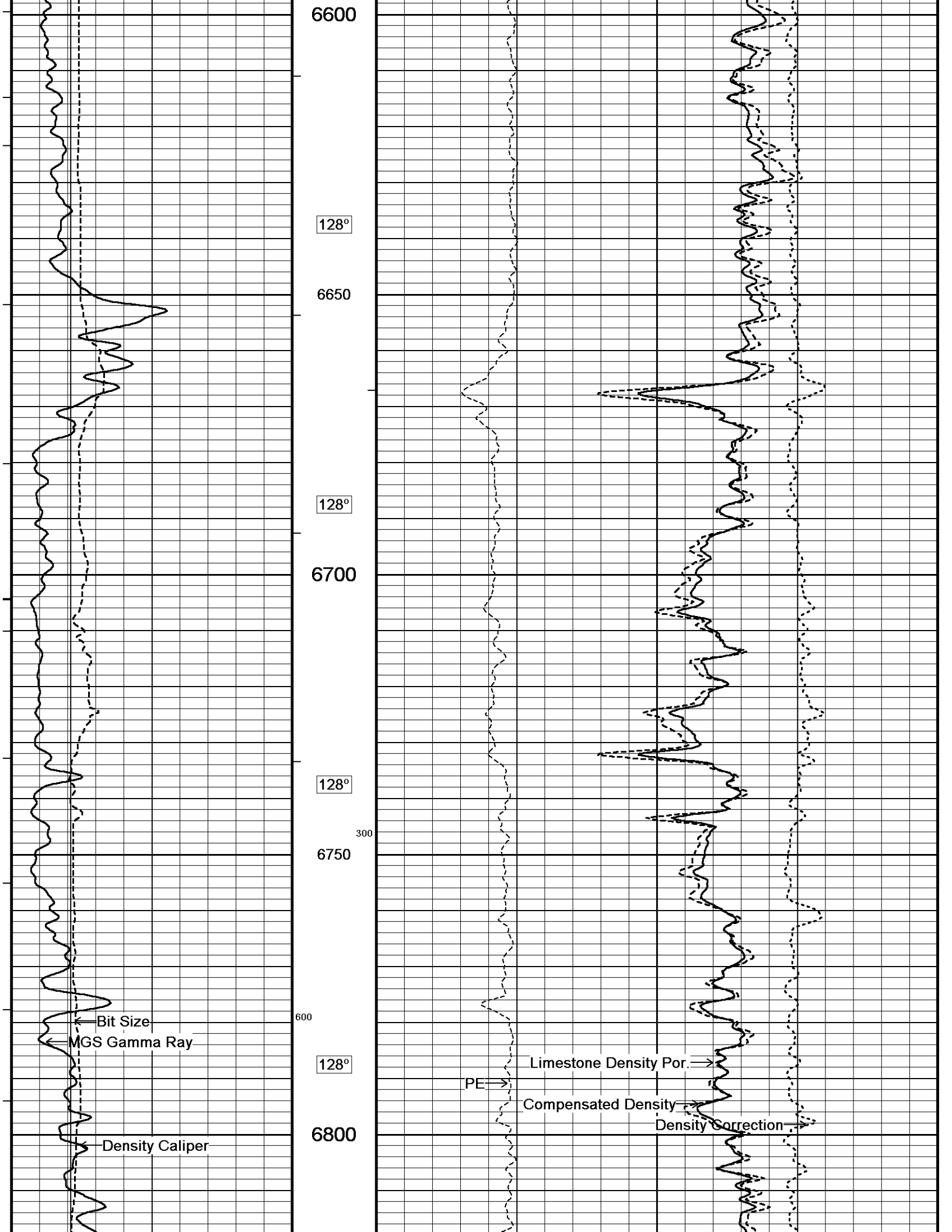
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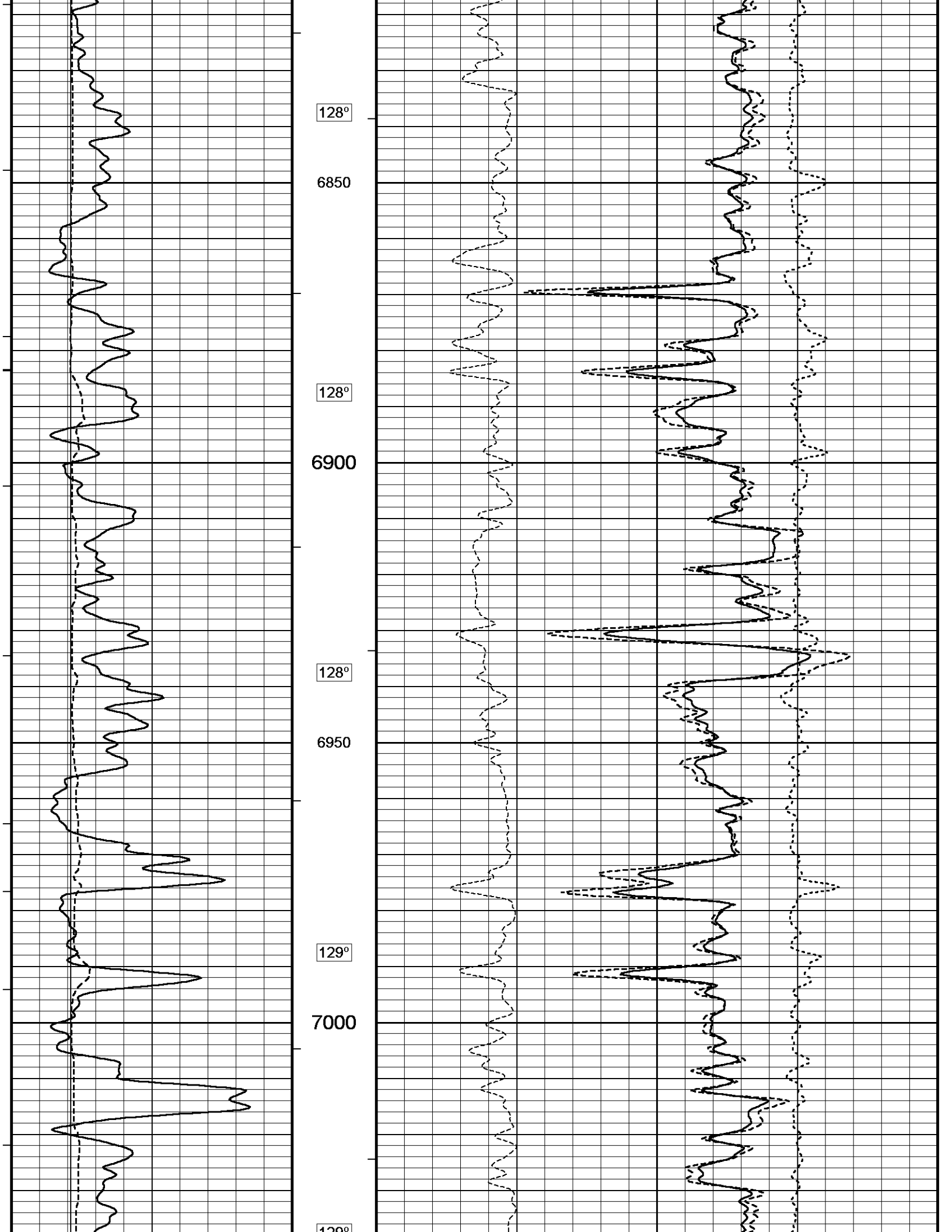
127°

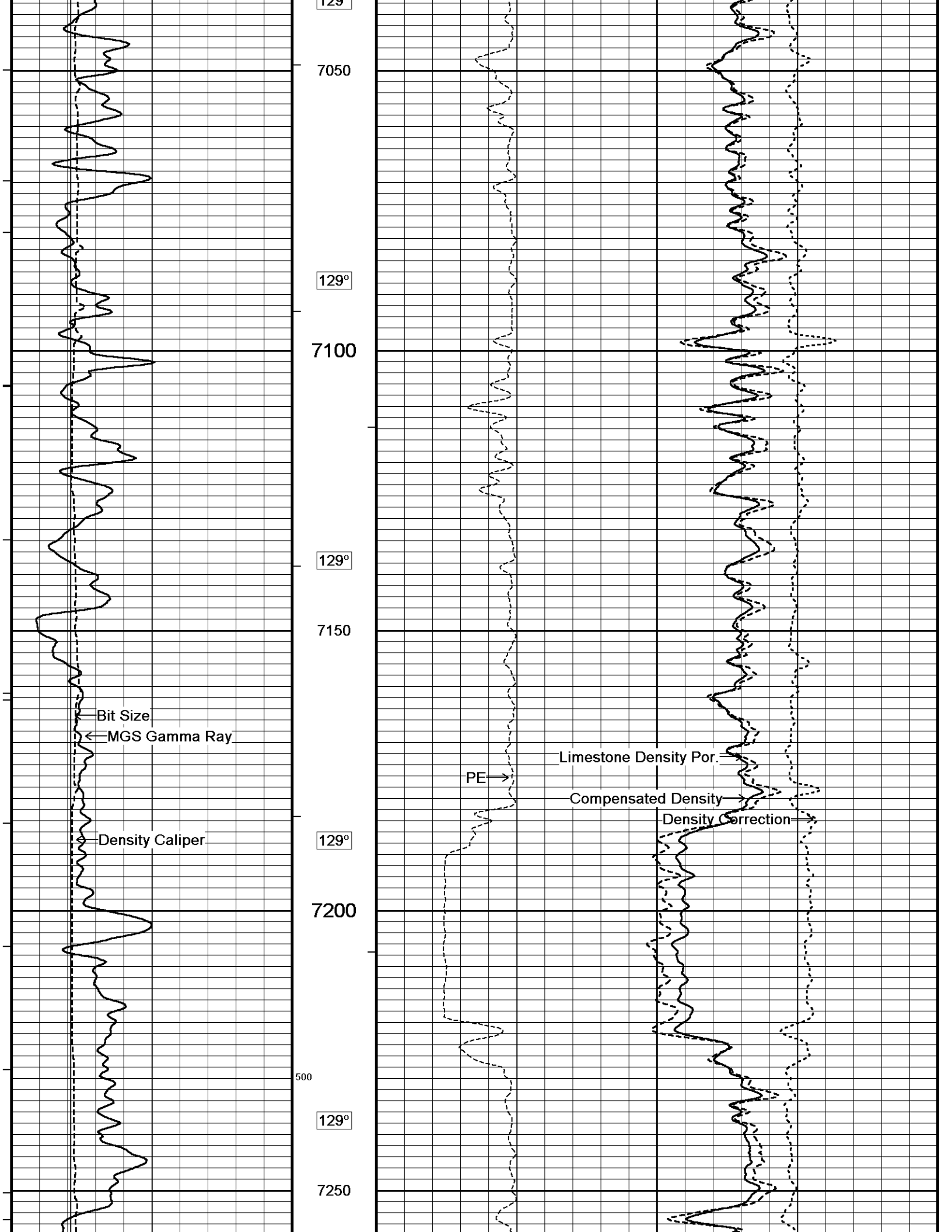
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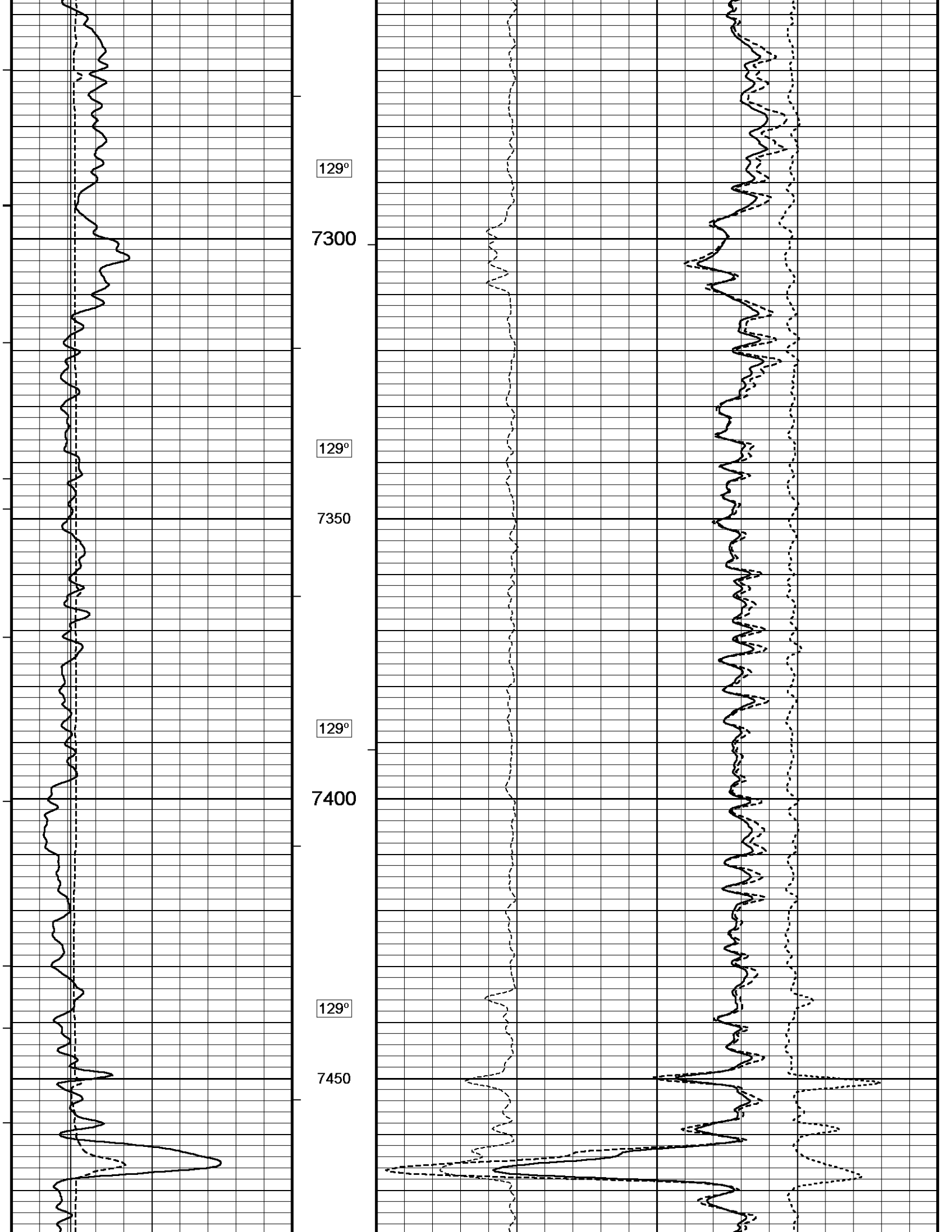


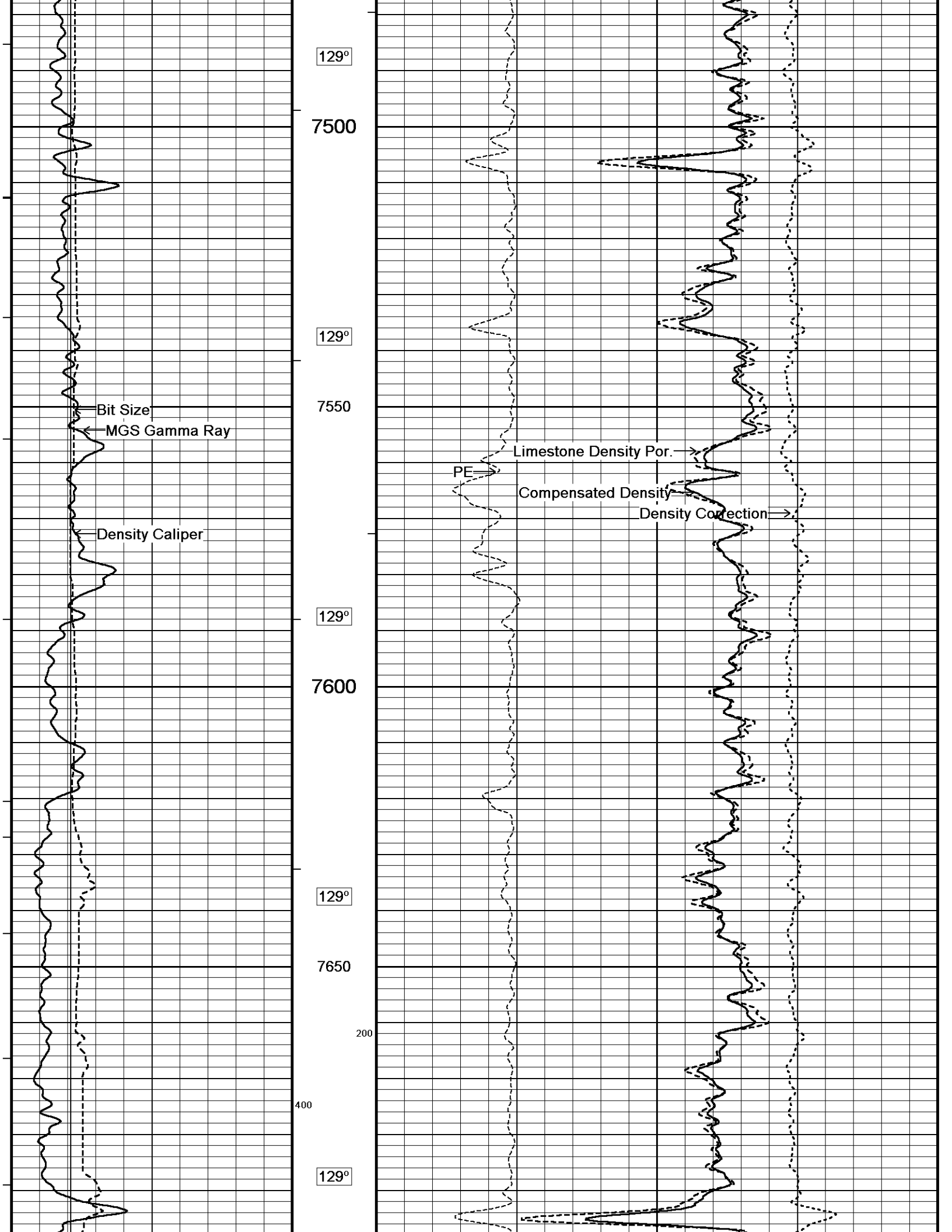


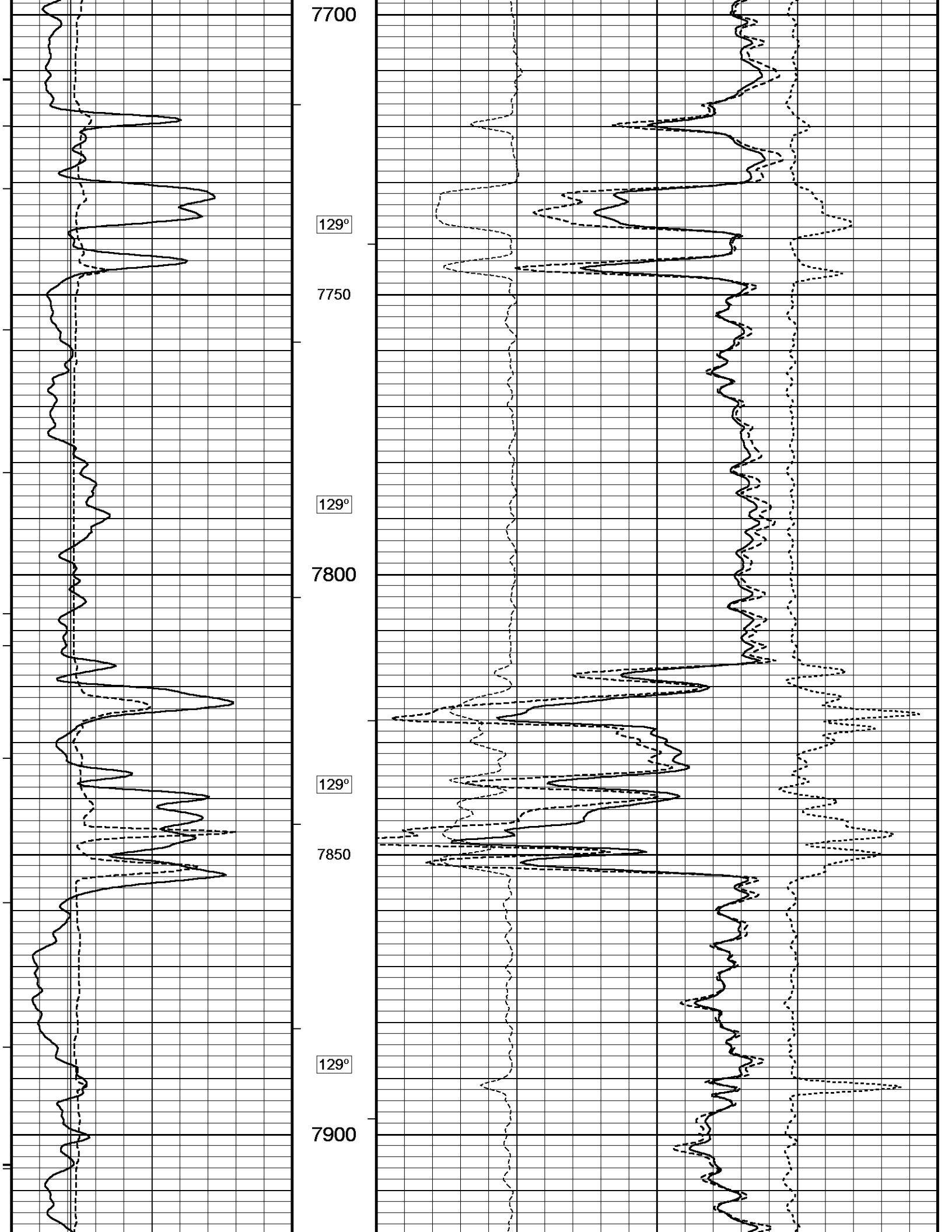


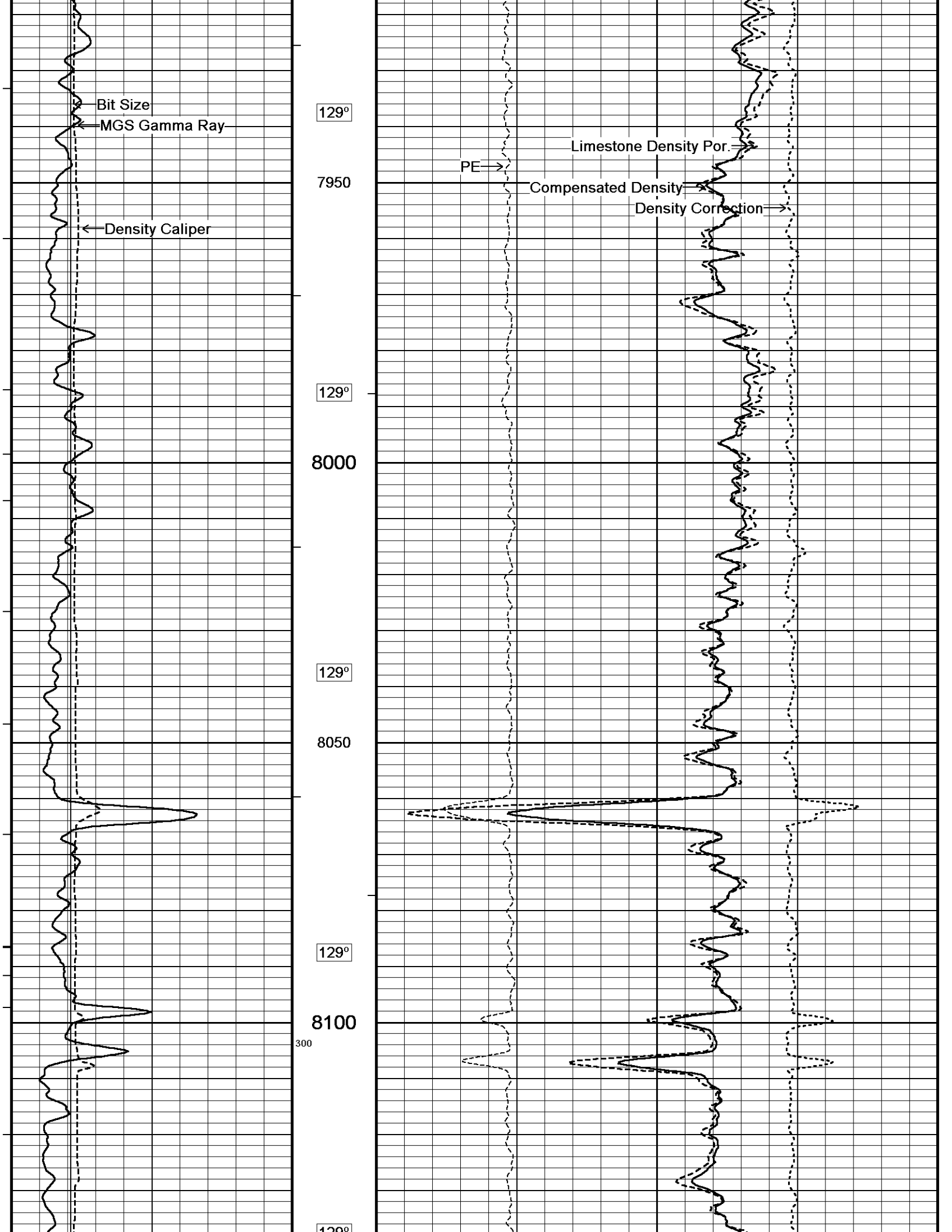


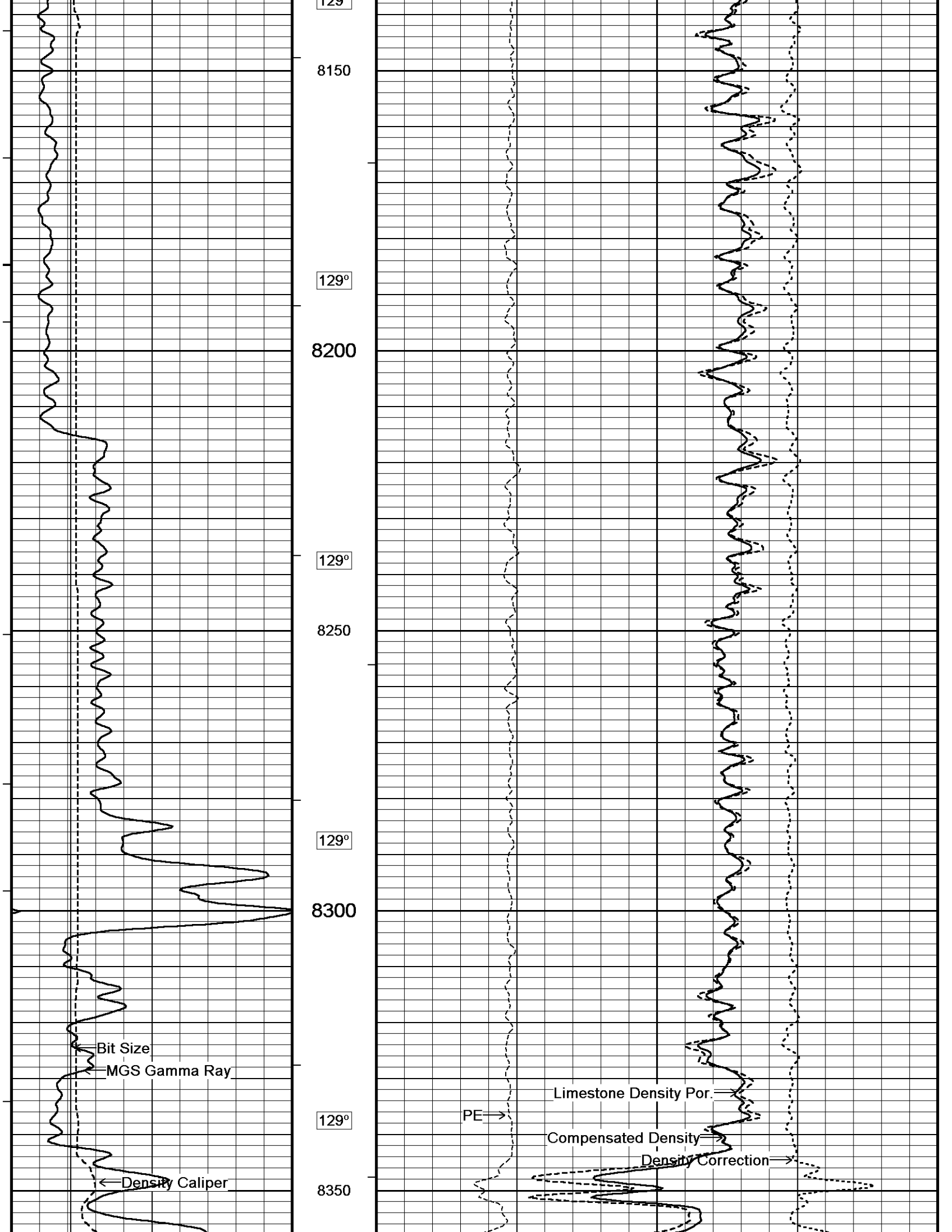


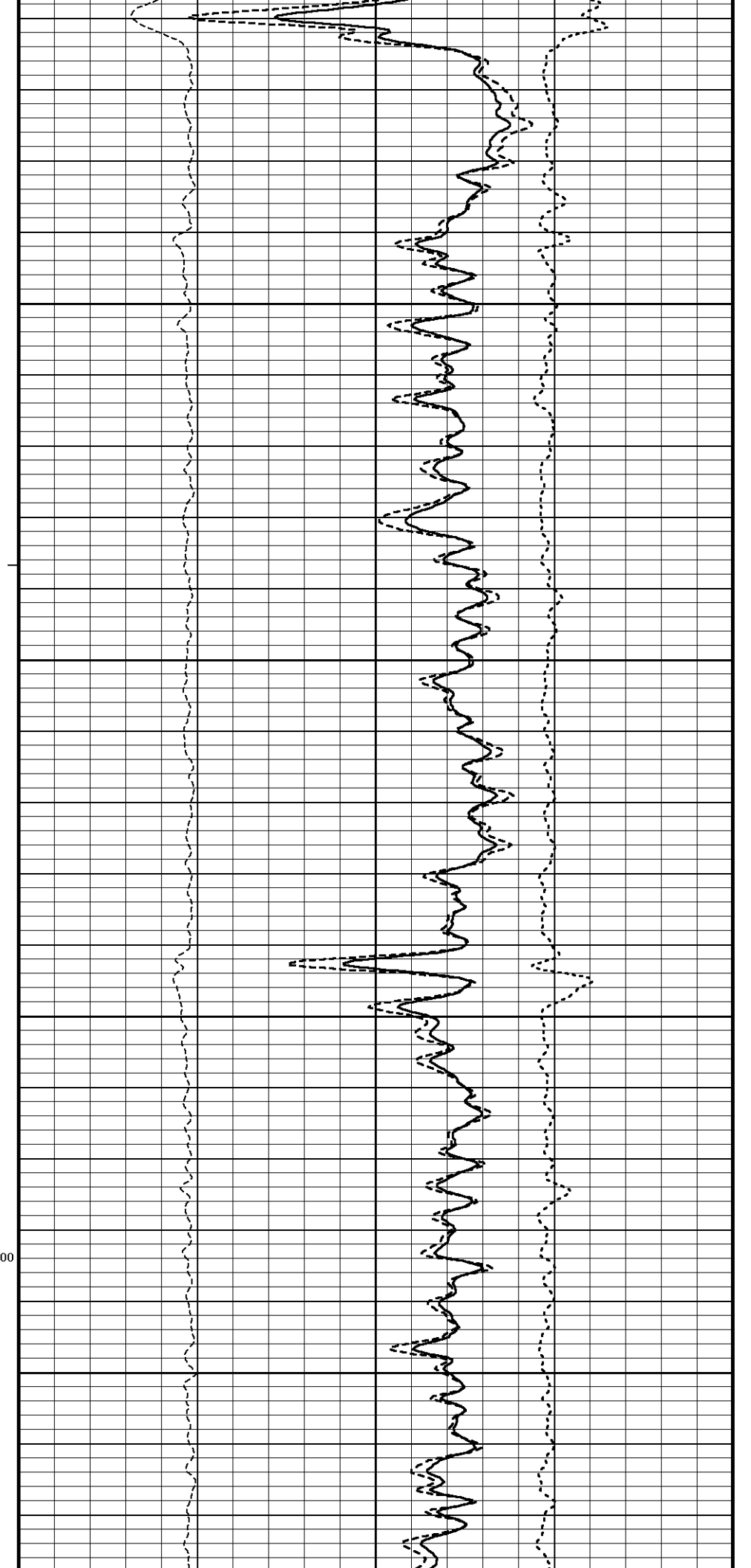
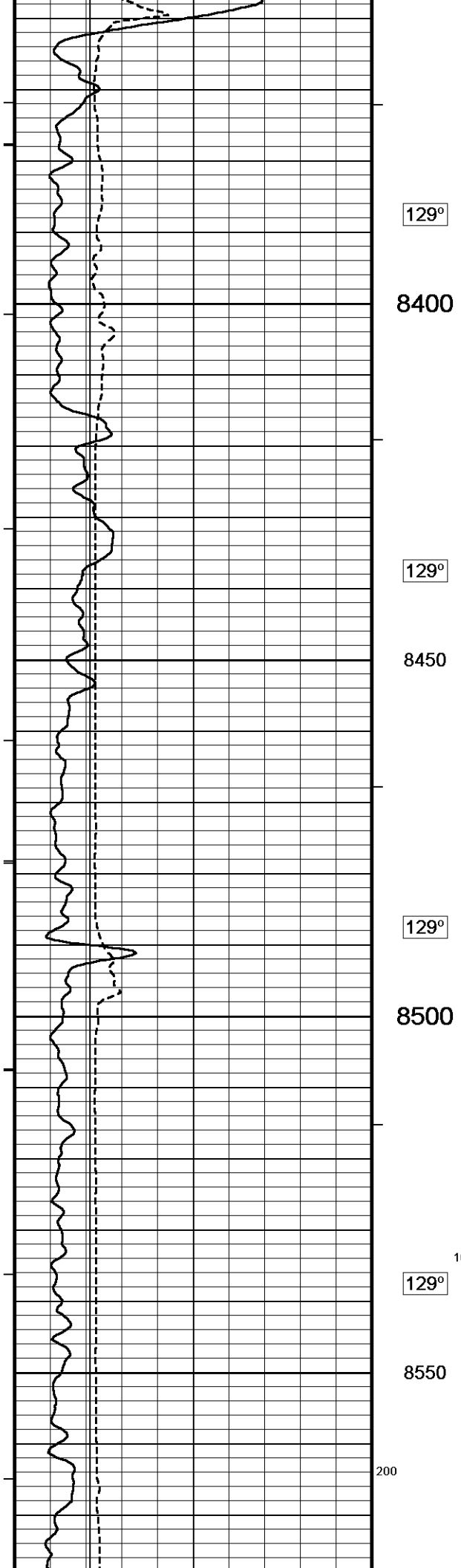


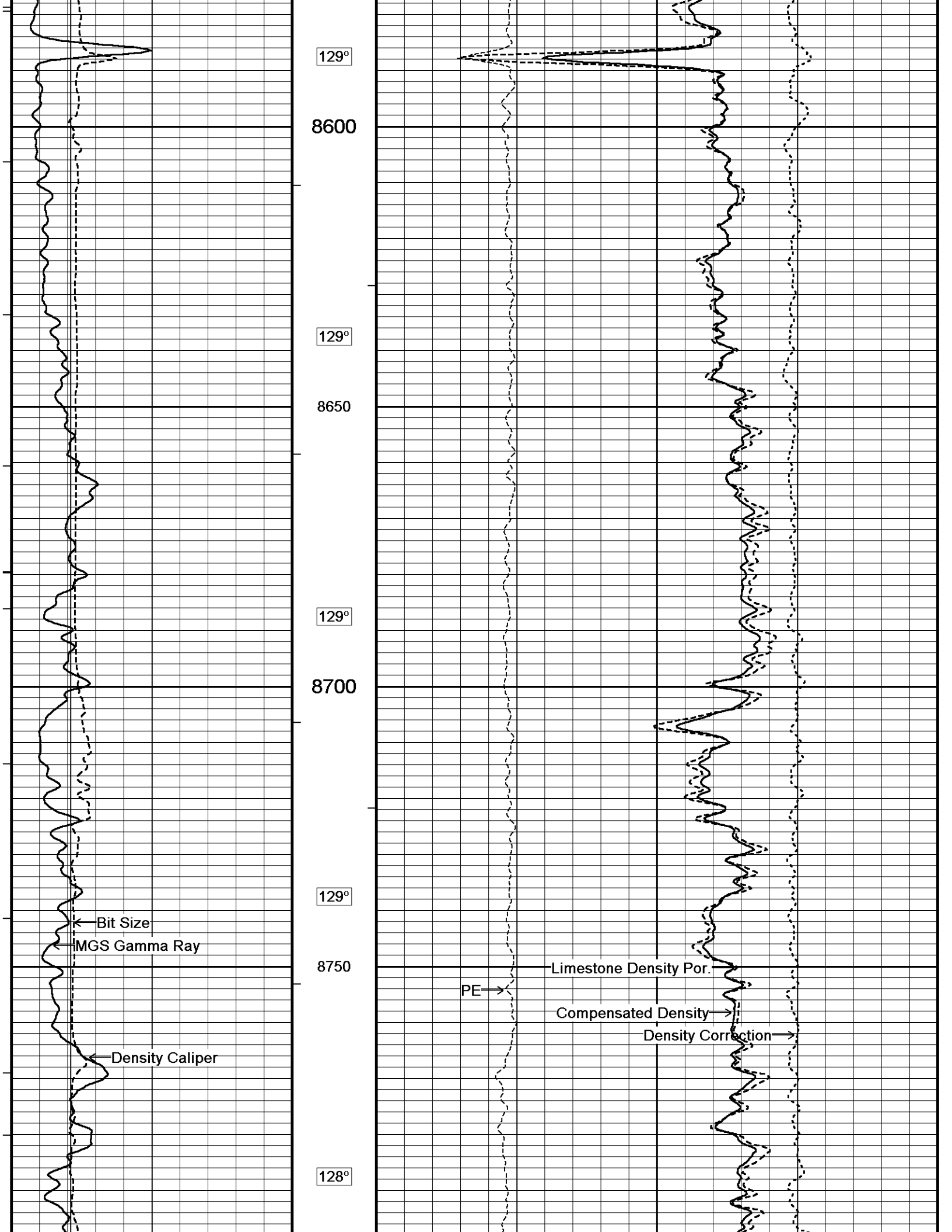


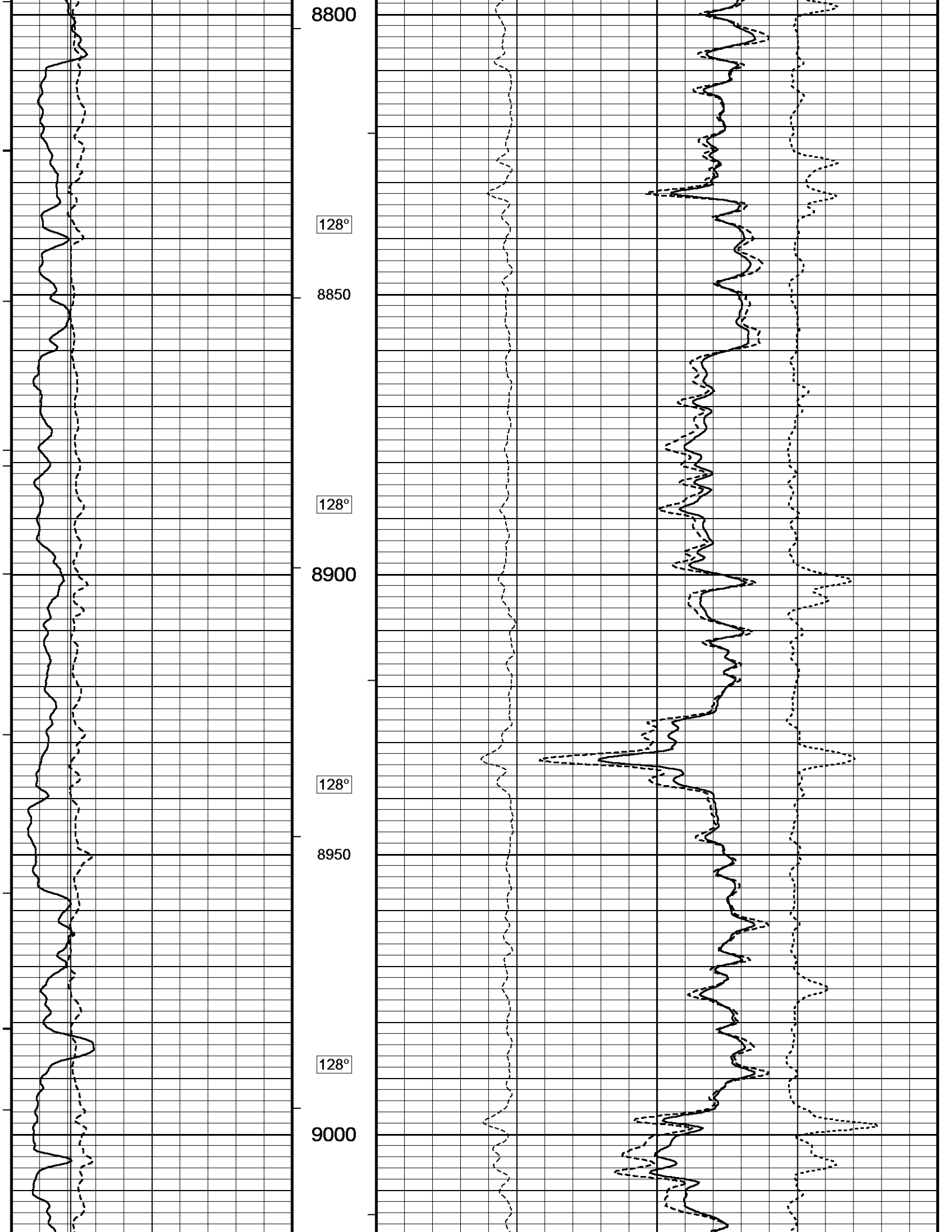


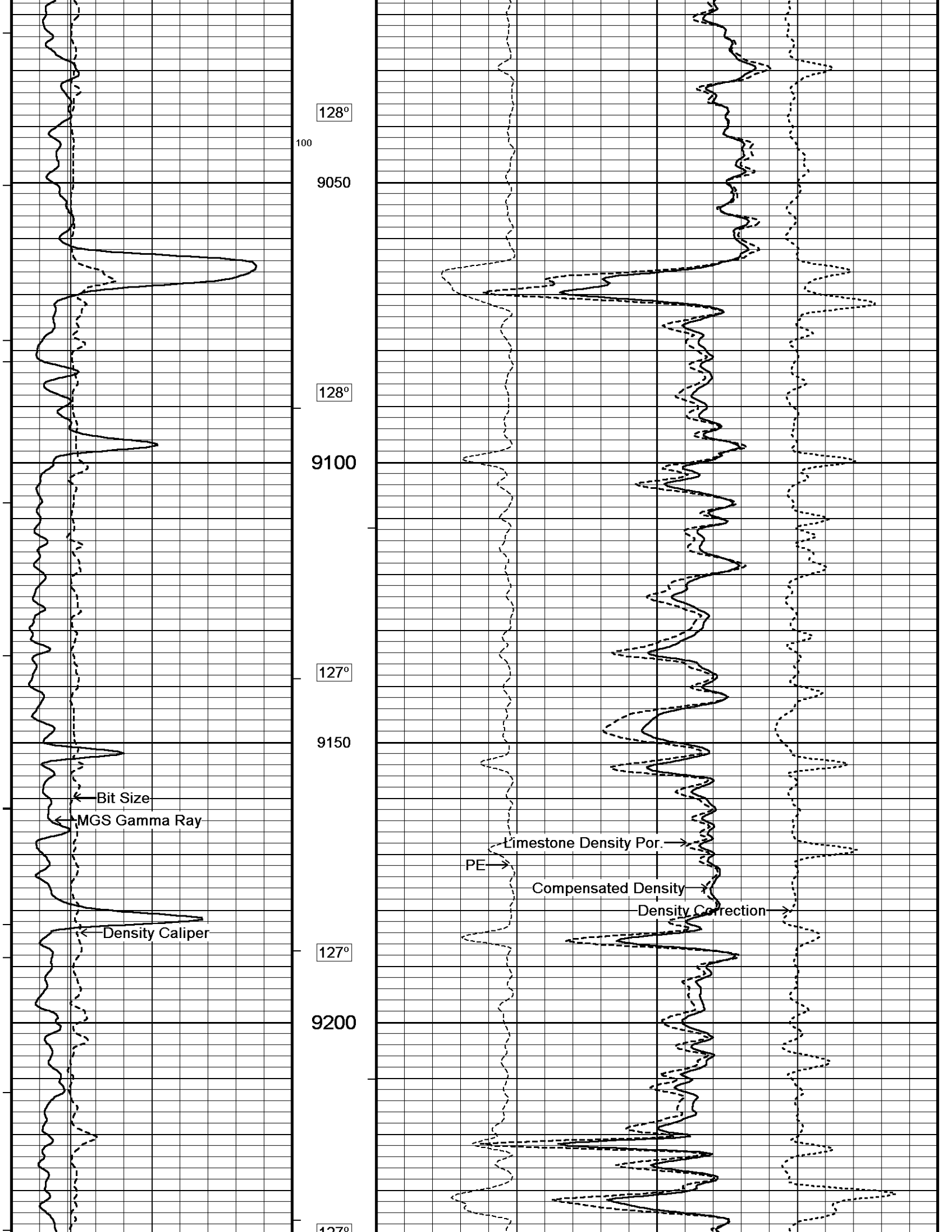


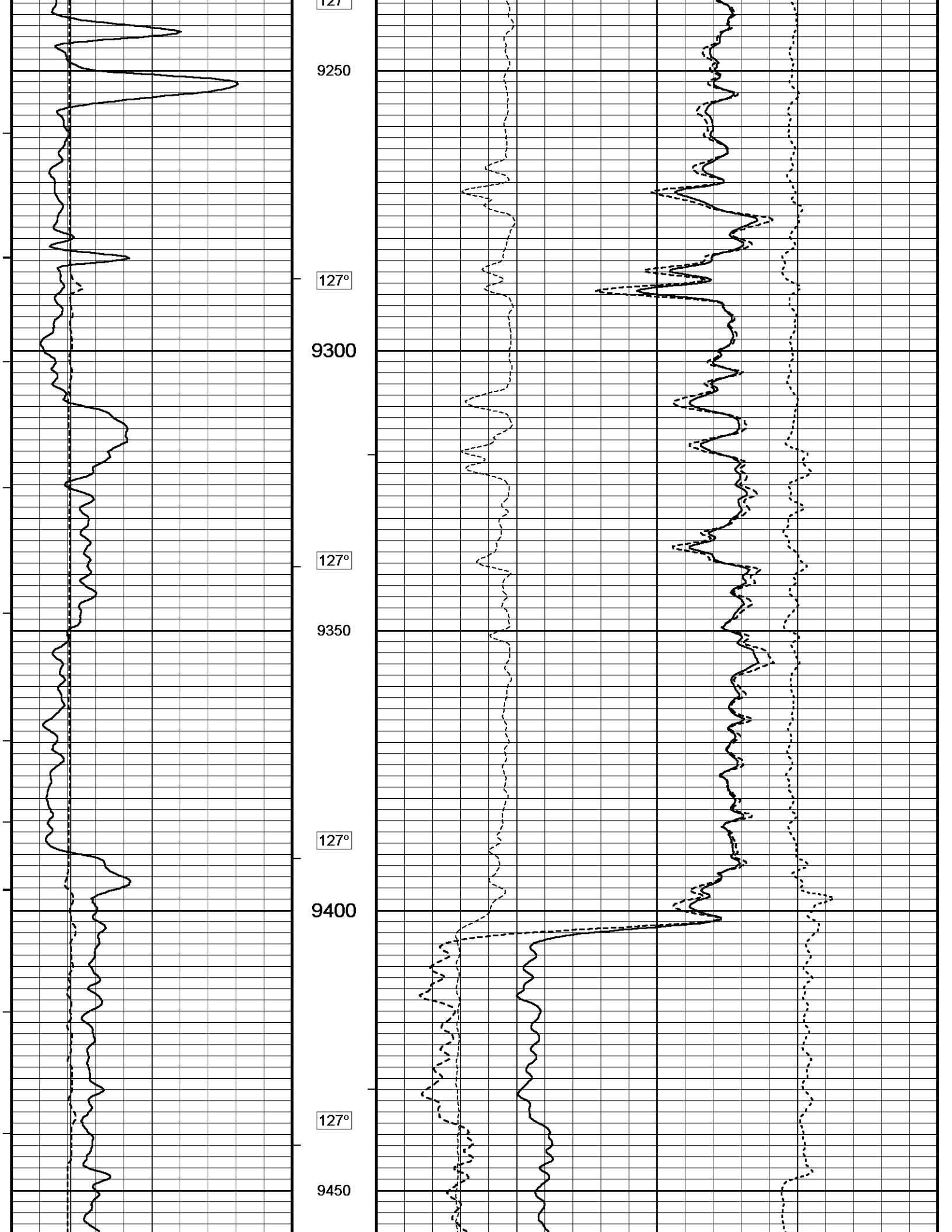


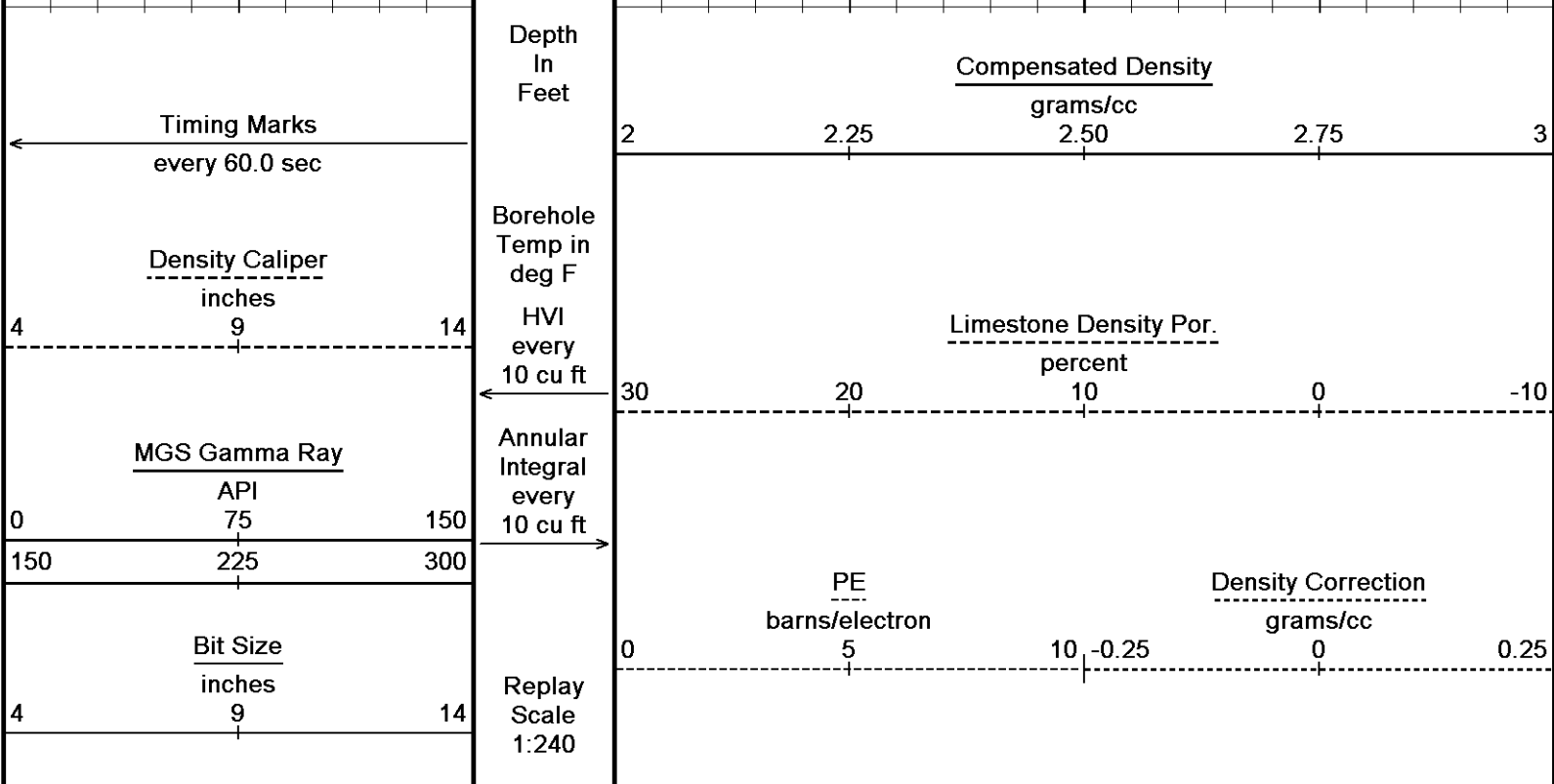
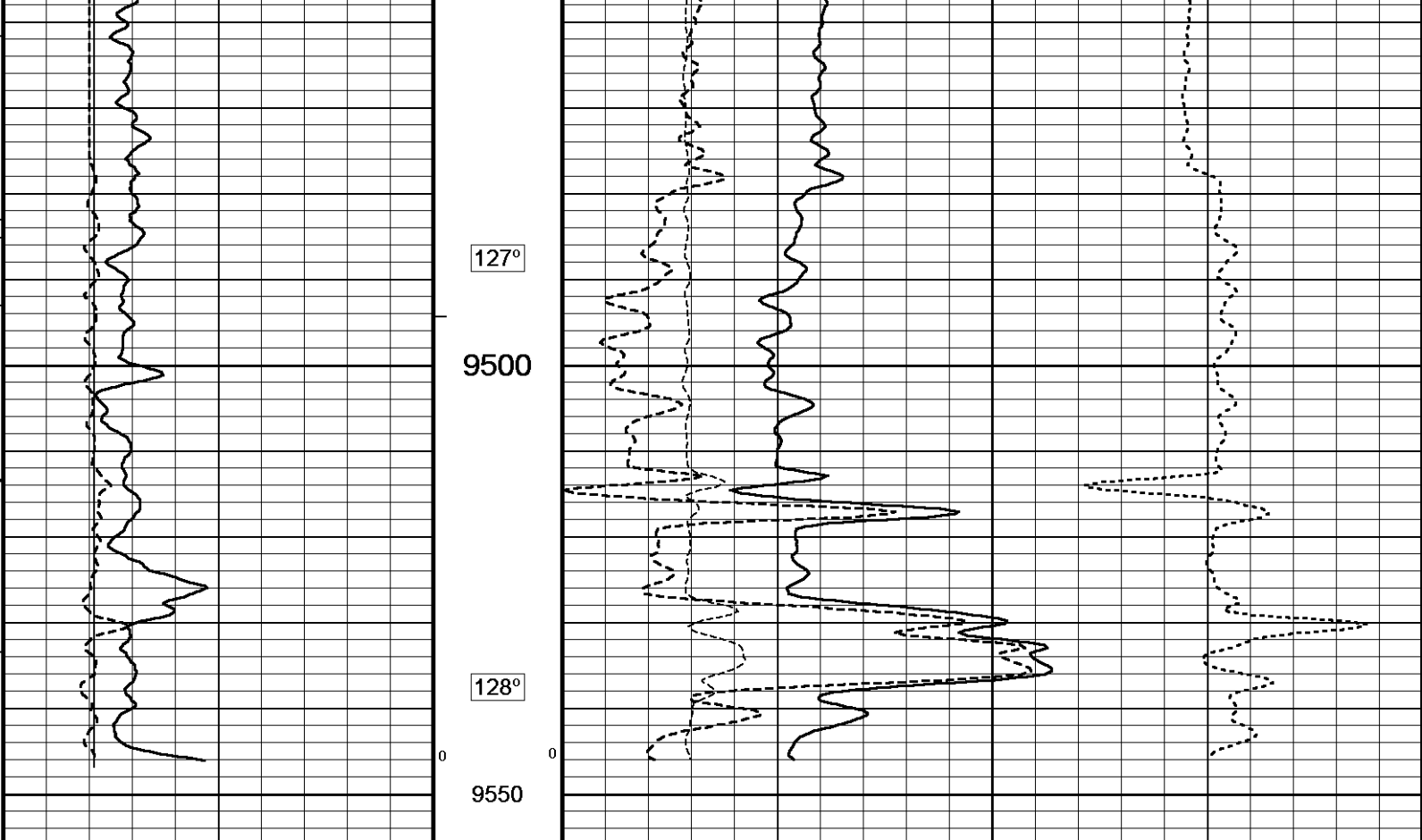












Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 24-MAY-2012 01:51
 Filename: C:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 31...)\RUBY MAIN LOGS5.dta
 Recorded on 23-MAY-2012 23:49
 System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

5 INCH BULK DENSITY

BEFORE SURVEY CALIBRATION

C:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 3119 1A-20H)\TOOL CHECK 2.dta

Down-hole Tension Calibration All 000
 Field Calibration on 24-FFB-2009 00:00

Reading No	Measured	Calibrated (lbs)
1	14953.75	0.00
2	17846.38	1500.00

General Constants All 000

Last Edited on 12-MAY-2012 01:51

General Parameters

Mud Resistivity	1.500	ohm-metres
Mud Resistivity Temperature	78.000	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	Deep Induction
RWA Constant A	0.610
RWA Constant M	2.150

Down-hole Tension Calibration SMS 0

Field Calibration on 07-FEB-2006 14:19

Reading No	Measured	Calibrated (lbs)
1	16292.42	0.00
2	17072.79	420.00

Strain Gauge Constants SER-B.A 162

Last Edited on

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	

MMS Parameters MMS-E.B 167

Last Edited on 22-MAY-2012 21:21

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	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	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
Status Pulse To	80.0	seconds
Caliper Close To	0.0	seconds
Caliper Open To	210.0	seconds

Configuration

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

Neutron Calibration MDN-B.J 388

Base Calibration on 09-APR-2012 15:23

Field Check on 09-APR-2012 15:24

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	2961	90	3714	110
	33.000		33.764	

Field Calibrator at Base

	Calibrated (cps)	
Ratio	2455	3622
	0.678	

Field Check

	Calibrated (cps)	
Ratio	1694	2569
	0.659	

Neutron Constants MDN-B.J 388

Last Edited on 18-MAR-2012 15:40

Neutron Source Id	P31112B	
Neutron Jig Number	N639	
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	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	None	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	
Salinity Correction	Not Applied	

FE Calibration MFE-B.J 329

Base Calibration on 08-MAR-2012 10:58

Field Check on 11-MAY-2012 09:02

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.2	126.8

Base Check 281.9

Field Check 281.6

FE Constants MFE-B.J 329

Last Edited on 02-APR-2012 21:09

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches

Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	Borehole Temp. Unfilt.	
Stand-off	0.5	inches

High Resolution Temperature Calibration MAI-B.J 391

Field Calibration on 07-DEC-2011 09:23

	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-B.J 391

Last Edited on

Pre-filter Length 11

Induction Calibration MAI-B.J 391

Base Calibration on 09-APR-2012 15:26
Field Check on 11-MAY-2012 09:01

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.1	473.5	9.3	966.2
2	6.0	381.9	7.6	821.4
3	3.8	262.4	5.2	566.0
4	2.3	133.8	2.6	279.2

Array Temperature 76.6 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	12.5	3820.9
2	0.0	0.0	29.8	3515.9
3	0.0	0.0	27.0	3009.2
4	0.0	0.0	18.4	2062.9
Deep	0.0	0.0	15.3	1956.1
Medium	0.0	0.0	40.2	3958.6
Shallow	0.0	0.0	46.4	5212.1

Array Temperature 0.0 67.3 Deg F

Induction Constants MAI-B.J 391

Last Edited on 11-MAY-2012 20:56

Induction Model	VECTAR	
Caliper for Borehole Corr.	Constant Value	
Hole Size for Borehole Correction	6.125	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	0.0060	mhos/metre
Squasher Offset	0.0000	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 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 MGS-C.J 136			Field Calibration on 26-FEB-2012 00:47
	Measured	Calibrated(Deg F)	
Lower	0.00	0.00	
Upper	0.00	0.00	

High Resolution Temperature Constants MGS-C.J 136			Last Edited on
Pre-filter Length	11		

SP Calibration MGS-C.J 136			Field Calibration on 26-FEB-2012 00:47
	Measured	Calibrated (mV)	
Reference 1	100.0	100.0	
Reference 2	-100.0	-100.0	

Gamma Calibration MGS-C.J 136			Field Calibration on 26-FEB-2012 00:48
	Measured	Calibrated (API)	
Background	43	37	
Calibrator (Gross)	1017	894	
Calibrator (Net)	974	857	

Gamma Constants MGS-C.J 136			Last Edited on 27-FEB-2012 09:34
Gamma Calibrator Number	857		
Mud Density	1.01	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

Caliper Calibration MPD-C.A 214			Base Calibration on 24-APR-2012 16:14	Field Calibration on
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	17504	4.01		
2	26928	5.96		
3	36576	7.98		
4	46497	9.86		
5	57302	11.88		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	0.00	0.00		

Photo Density Calibration MPD-C.A 214			Base Calibration on 24-APR-2012 16:14	Field Check on 11-MAY-2012 09:08
Density Calibration				
Base Calibration				
		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	56441	26176	59869	31110
Reference 2	23271	2549	24557	2522
Field Check at Base				
	1251.9	1317.8		
Field Check				
	1241.9	1295.8		

PE Calibration				
Base Calibration				
	WS	Measured	Calibrated	
		WH	Ratio	
		Ratio	Ratio	
Background	228	1117		
Reference 1	23553	56236	0.423	
Reference 2	6613	23124	0.290	
			0.369	
			0.271	

Field Check at Base 227.6 1116.6

Field Check 225.3 1105.8

Density Constants MPD-C.A 214

Last Edited on 11-MAY-2012 20:58

Density Source Id	P31112B	
Nylon Calibrator Number		
Aluminium Calibrator Number		
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.01	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:\Program Files\Weatherford\WLS 12.02\DATA\SDRG(RUBY 3119 1A-20H)\RUBY MAIN LOGS.dta

Shuttle Mechanical Release (SMR A)
SMR-A 154 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-B.A 162 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 113 LG: 10.22 ft WT: 81.6 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 61 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

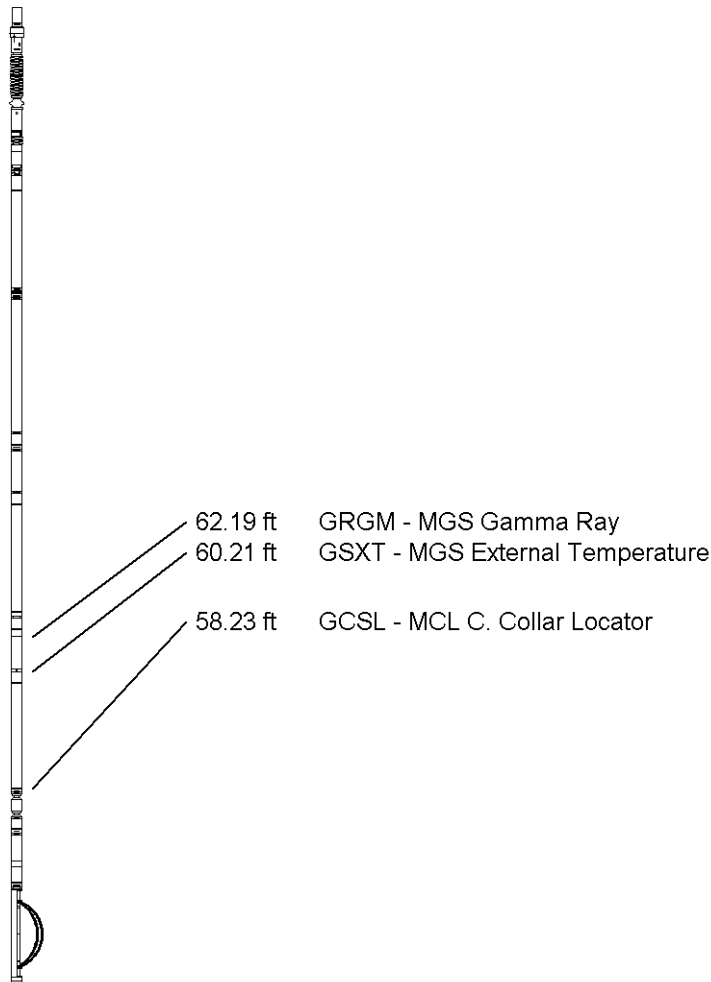
Compact Short Gamma
MGS-C.J 136 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 69 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 55 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor
SHA-F 48 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 259 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in



Compact Neutron
MDN-B.J 388 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 214 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 470 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 208 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 279 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

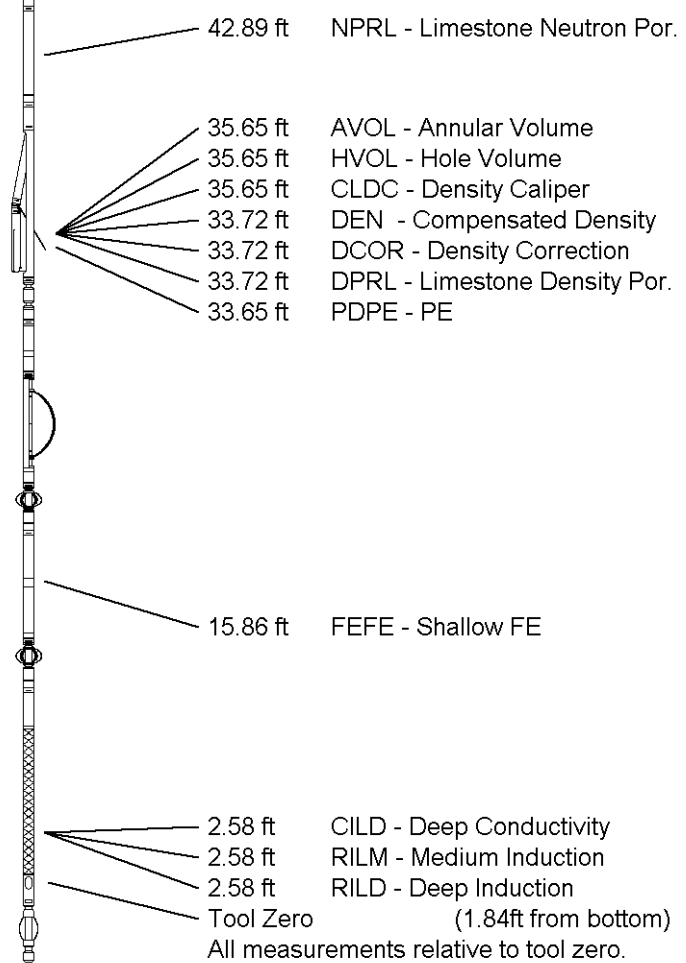
MIS-E.B Compact Inline Standoff sub
MIS-E.B 573 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-B.J 329 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 184 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 391 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 97.22 ft Weight: 743.0 lb



COMPANY	SANDRIDGE EXPLORATION & PRODUCTION LLC
WELL	RUBY 3119 1A-20H
FIELD	SIX MOONS
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2194.00	feet	First Reading	9607.00	feet
Elevation Drill Floor	2194.00	feet	Depth Driller	9665.00	feet
Elevation Ground Level	2174.00	feet	Depth Logger	9640.00	feet



**CML IMPULSE SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON**

