



Weatherford

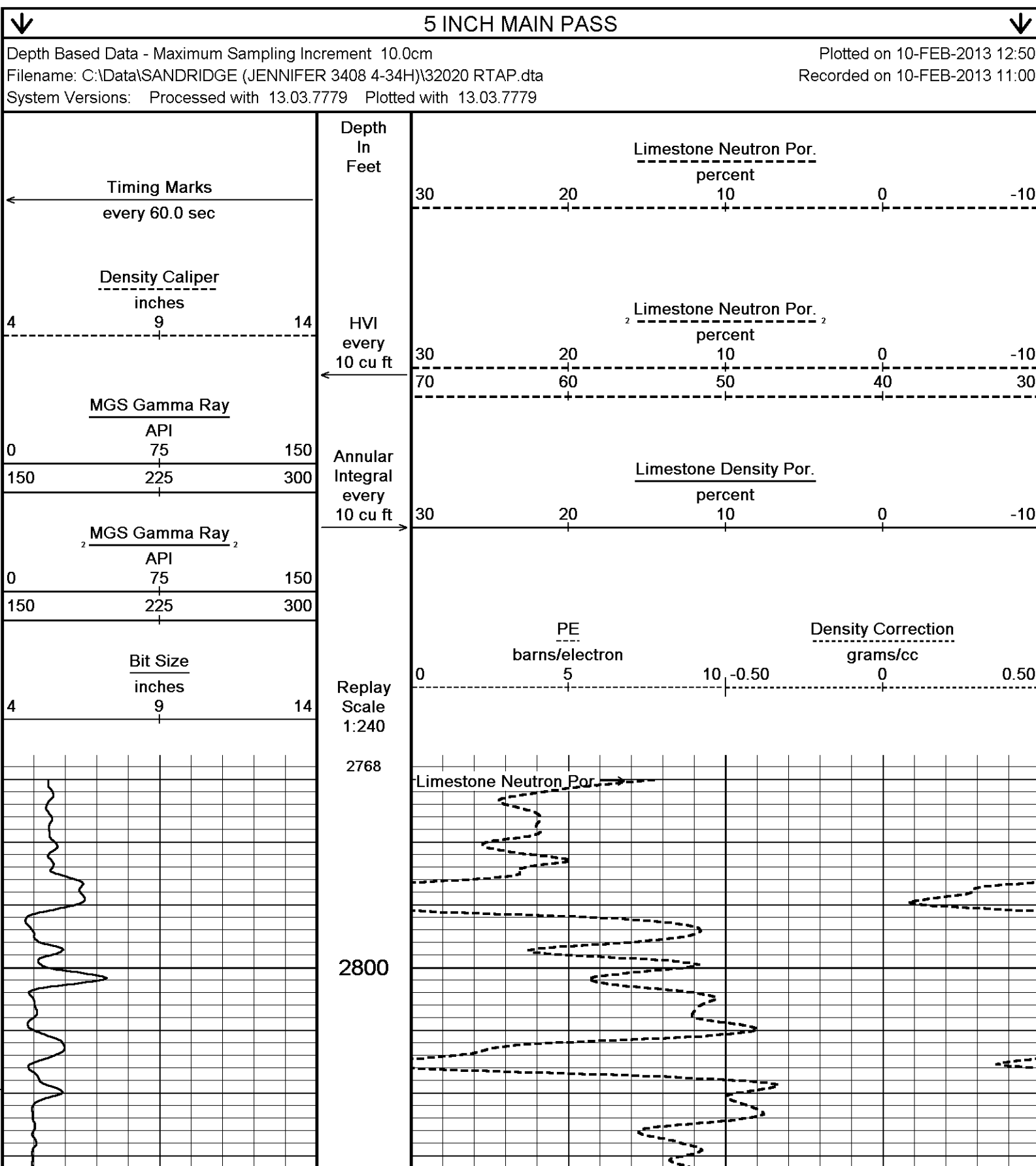
**CML MESSENGER SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG**

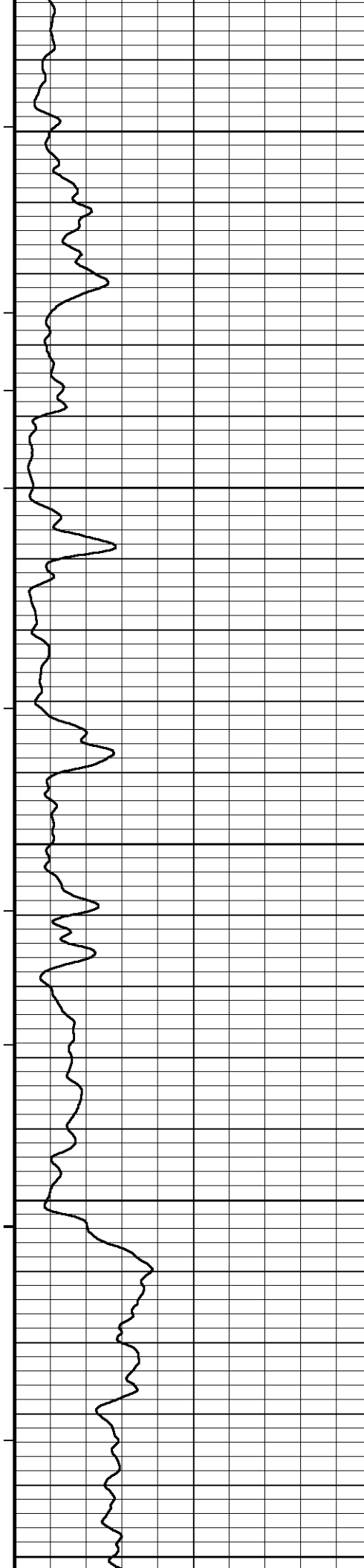
COMPANY	SANDRIDGE ENERGY		
WELL	JENNIFER 3408 4-34H		
FIELD	STRANATHAN		
PROVINCE/COUNTY	HARPER		
COUNTRY/STATE	USA / KANSAS		
LOCATION	225' FSL & 660' FEL		
SEC	TWP	RGE	Other Services
34	34S	8W	MAI
API Number	15-077-21902		
Permit Number			
Permanent Datum G.L., Elevation 1270 feet			Elevations: feet
Log Measured From DF			KB 1286.00
Drilling Measured From DF @ 16 FEET			DF 1286.00
			GL 1270.00
Date	09-FEB-2013		
Run Number	ONE		
Depth Driller	9142.00	feet	
Depth Logger	9142.00	feet	
First Reading	9082.00	feet	
Last Reading	2800.00	feet	
Casing Driller	5252.00	feet	
Casing Logger	5252.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER		
Density / Viscosity	8.40 lb/USg	27.00 CP	
PH / Fluid Loss	10.00	100.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.40 @ 77.0	ohm-m	
Rmf @ Measured Temp	1.12 @ 77.0	ohm-m	
Rmc @ Measured Temp	1.68 @ 77.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.79 @ 135.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	135.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18064	OKC	
Recorded By	B.ALLEN		
Witnessed By	T. ALCORN		
AFE #/ S.O.	DC12262		3539588

BOREHOLE RECORD			Last Edited: 09-FEB-2013 13:18
Bit Size inches	Depth From feet	Depth To feet	
12.250	0.00	780.00	
8.750	780.00	5252.00	
6.125	5252.00	9142.00	

REMARKS
LOGGED WITH WLS VER 13.03.7779 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
DRILL PIPE DEPTH DURING DEPLOYMENT - 9033 LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9116
RIG PUMPED A SUITE PRIOR TO LOGGING BC OF A STICKY POINT 200 FEET ABOVE TD.
4.5" CASING USED TO CALCULATE AHV
3539588 ORDER # 05305100

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.





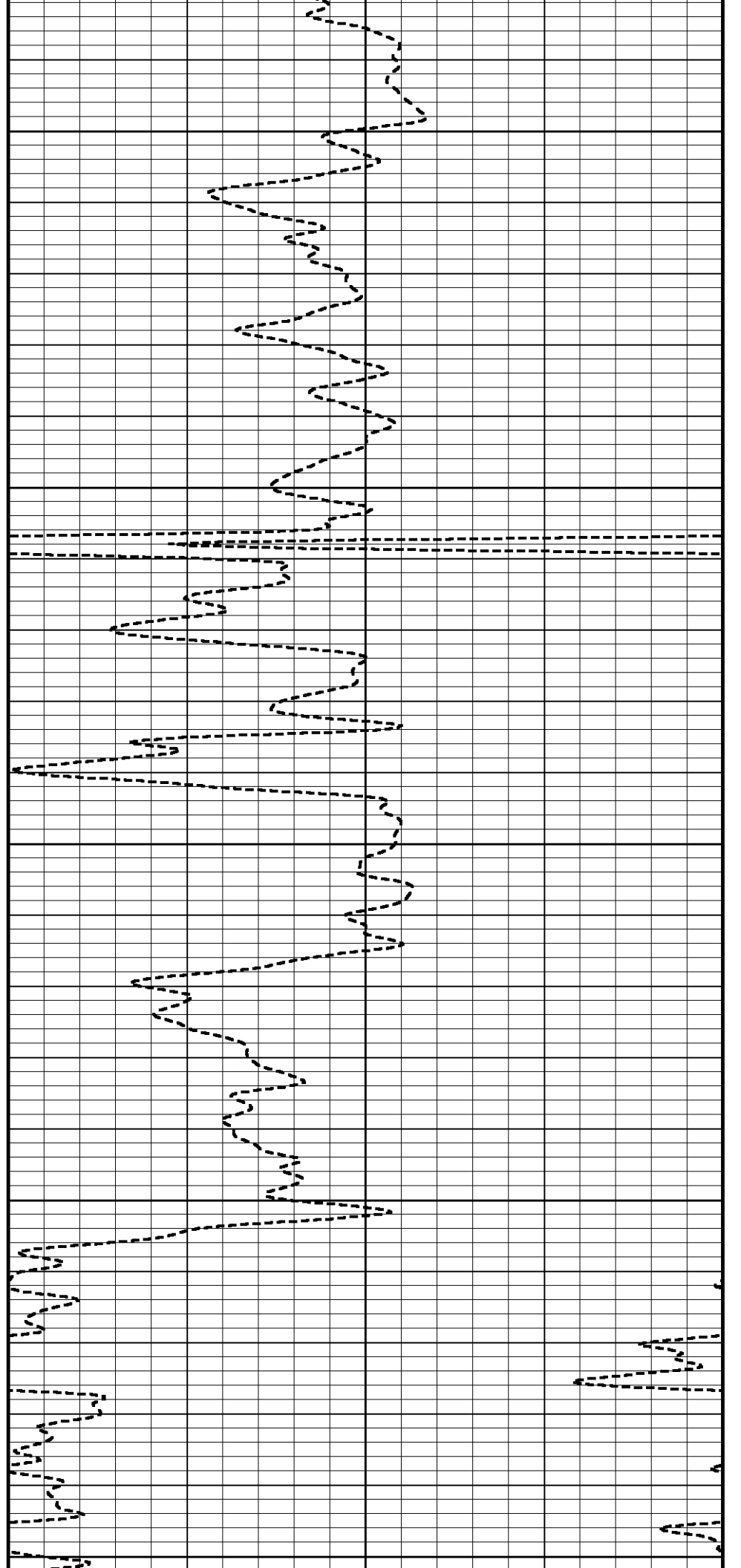
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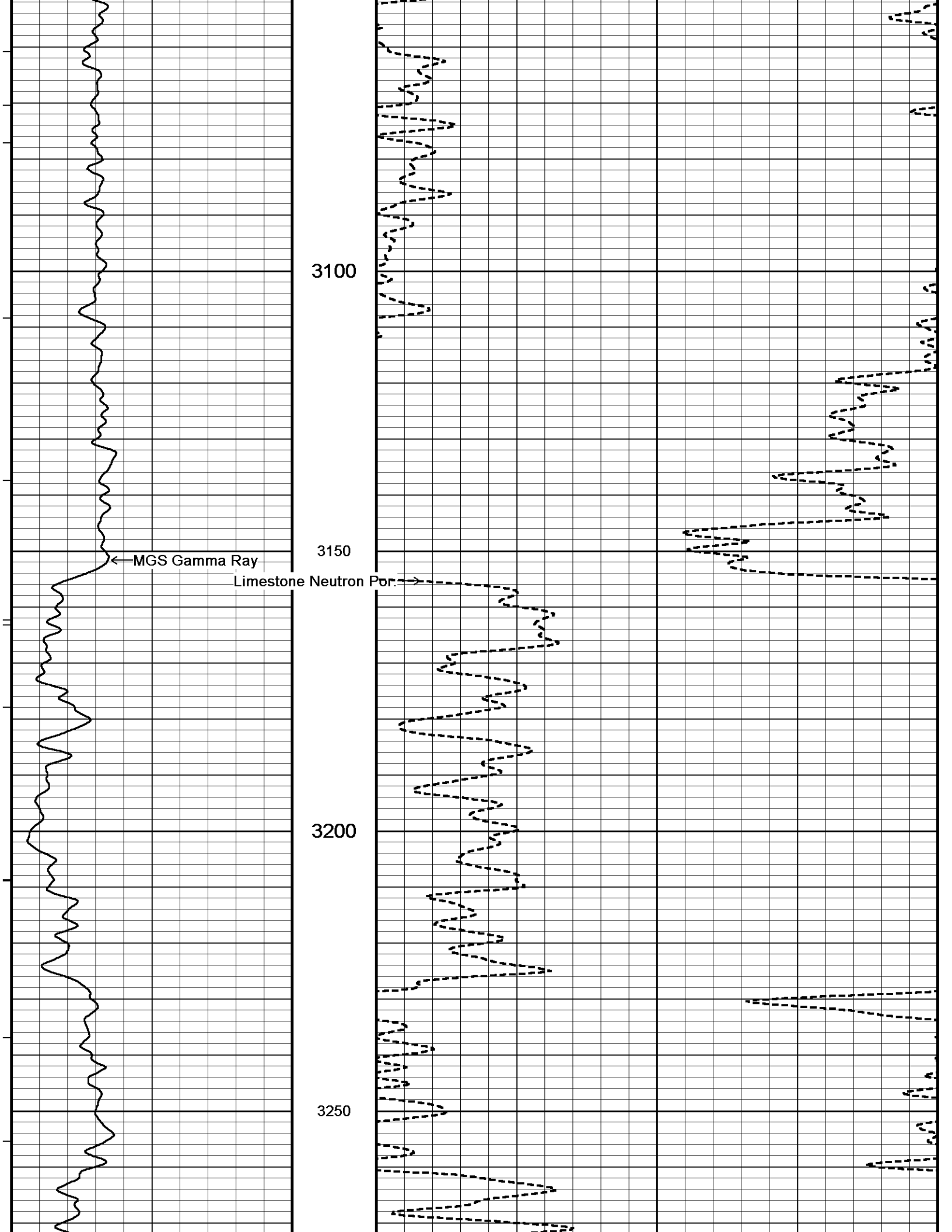
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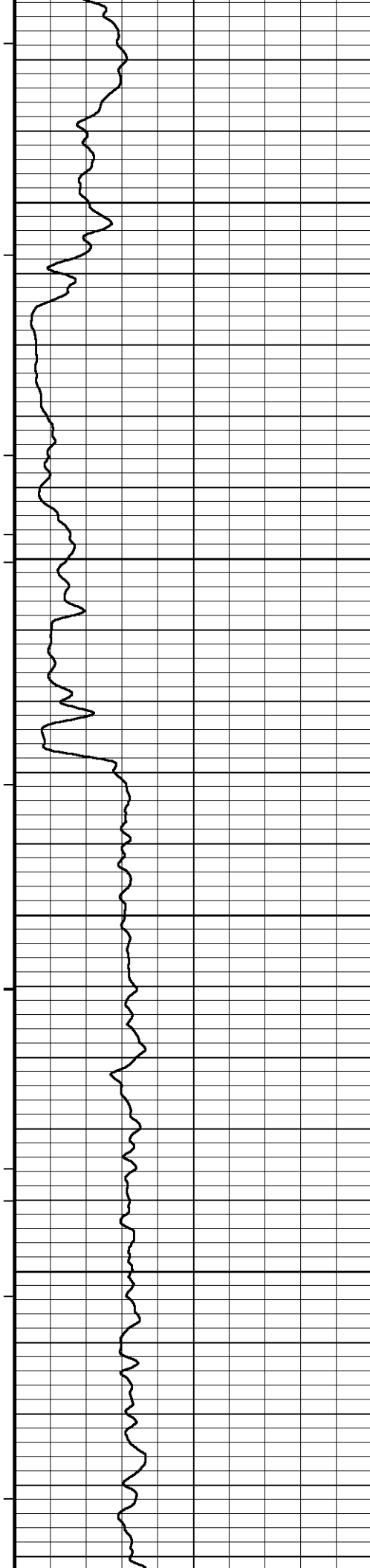
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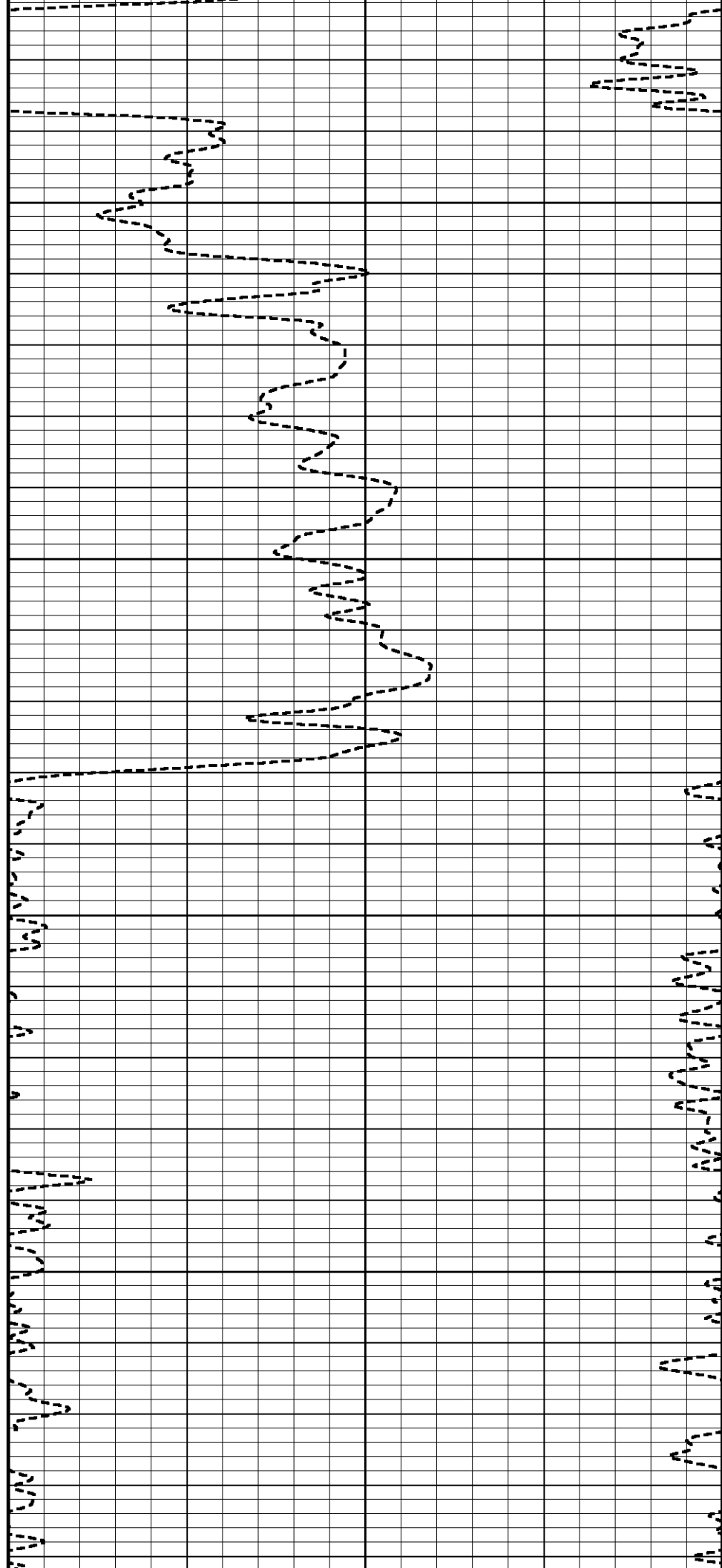


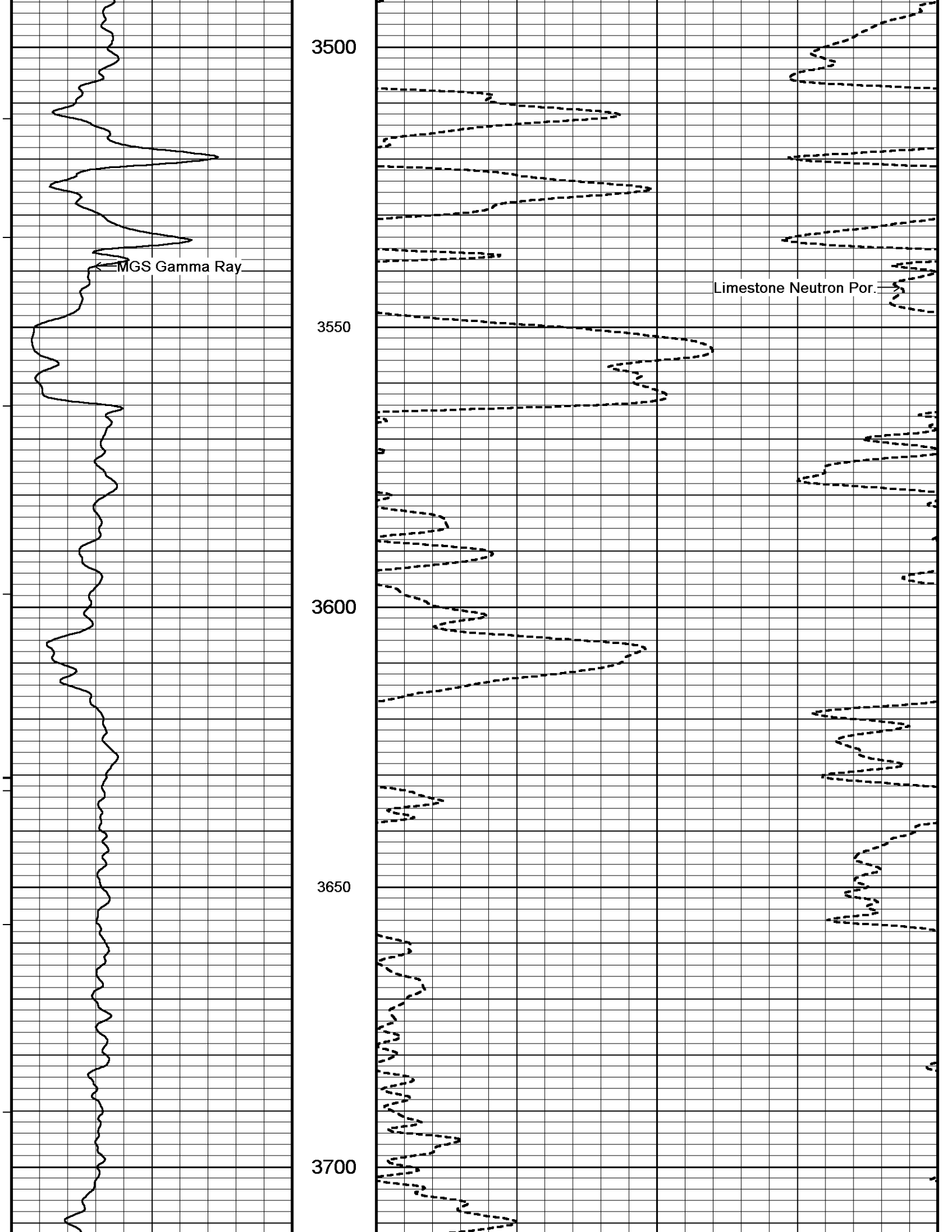
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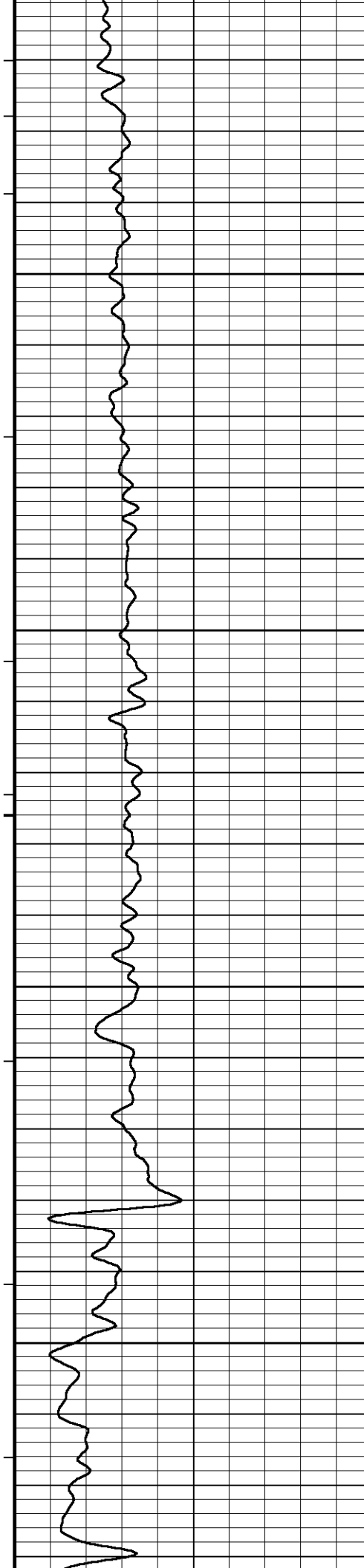
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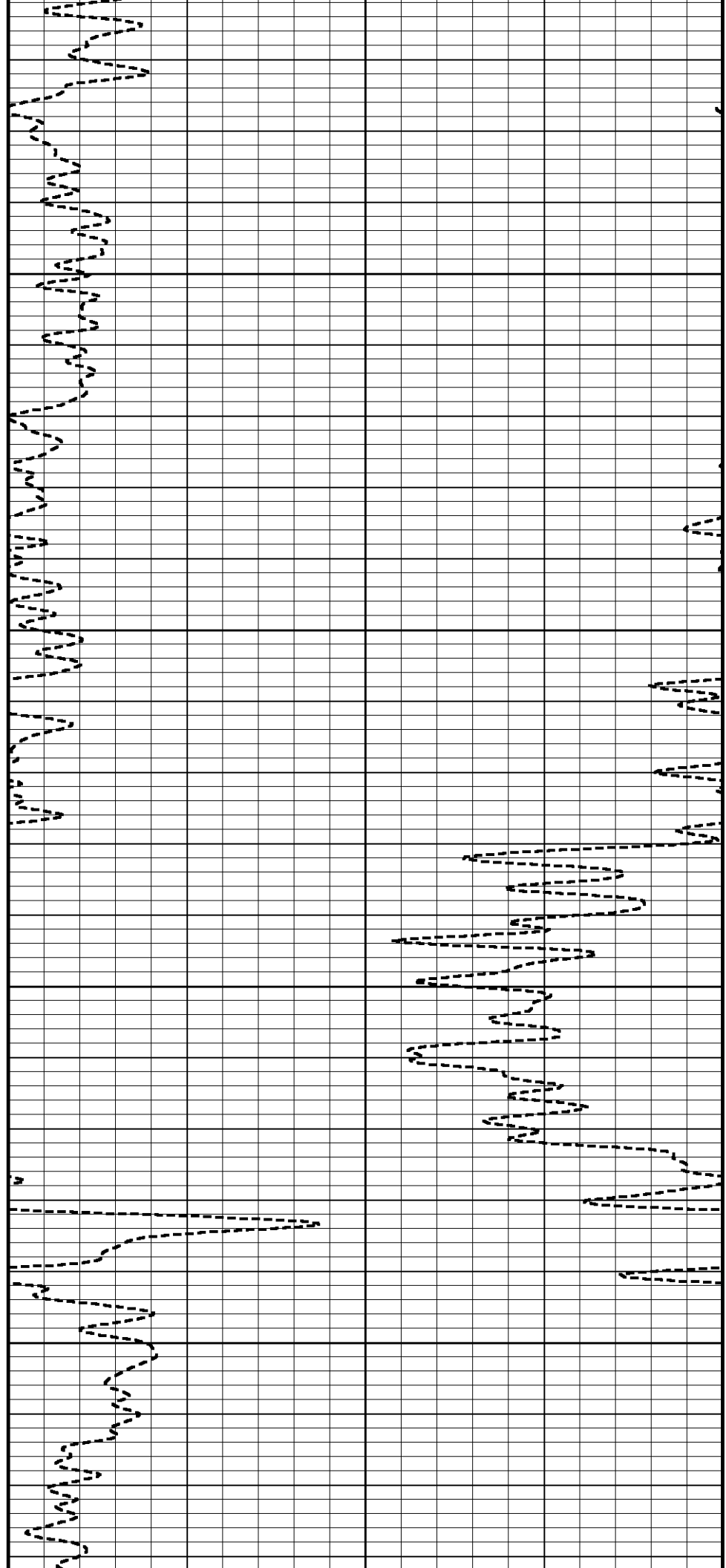


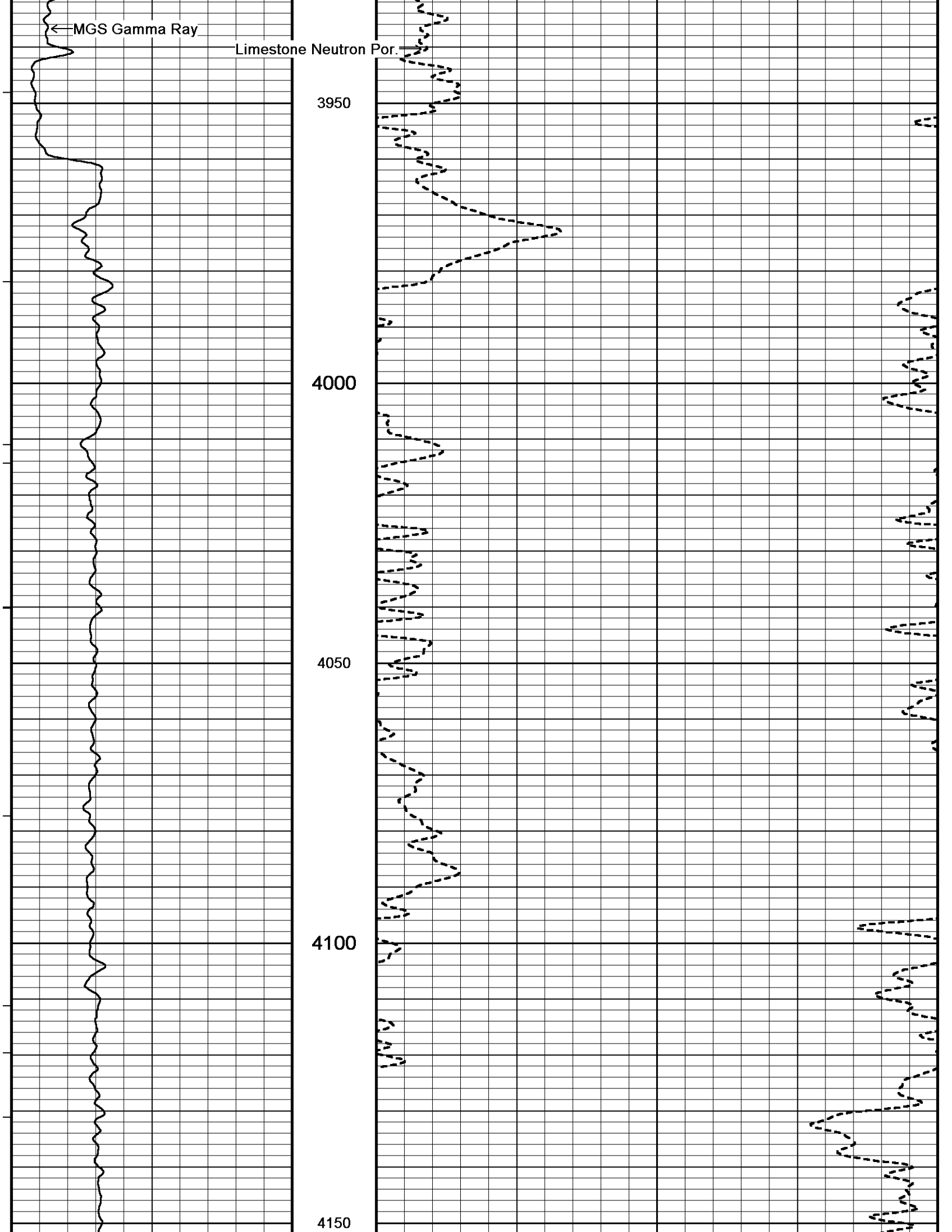
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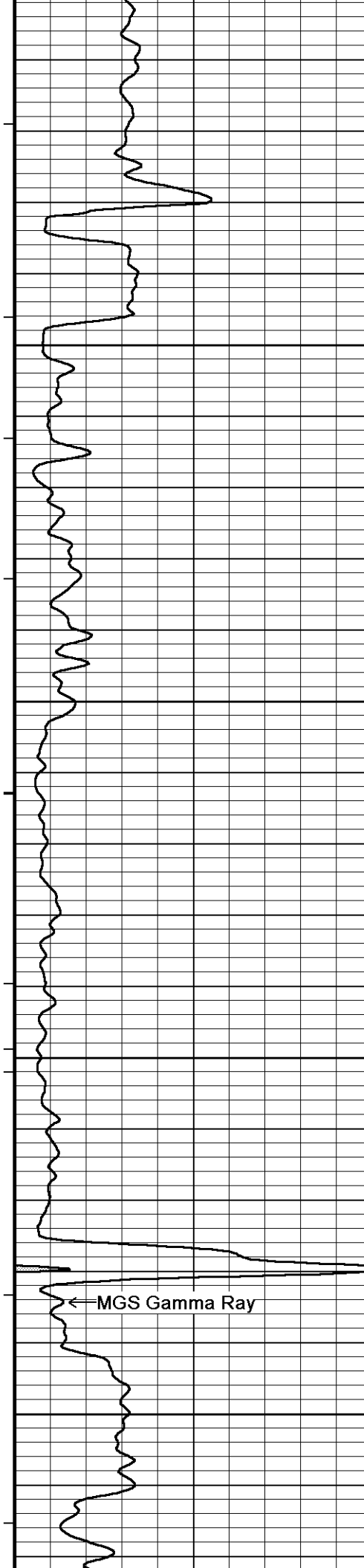
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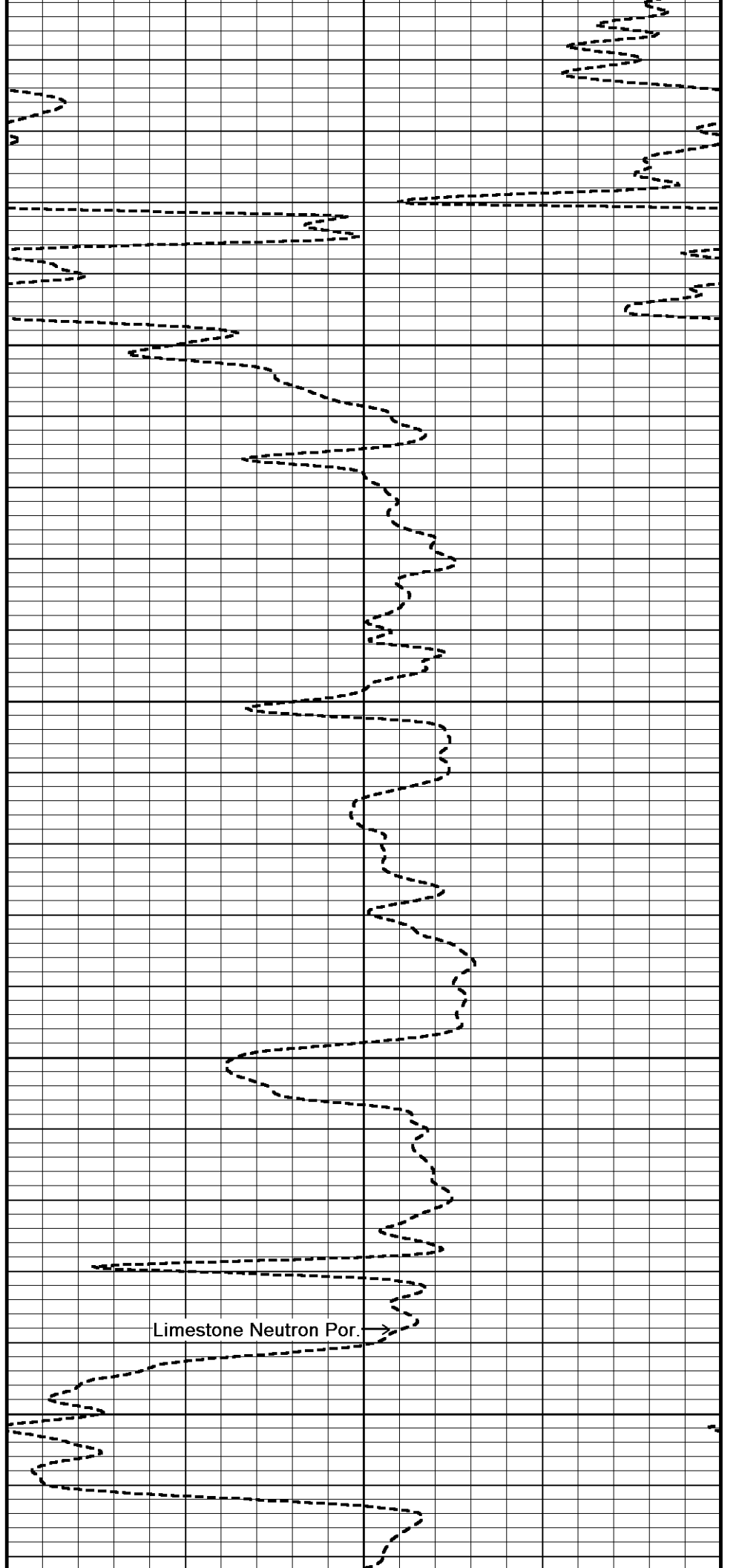
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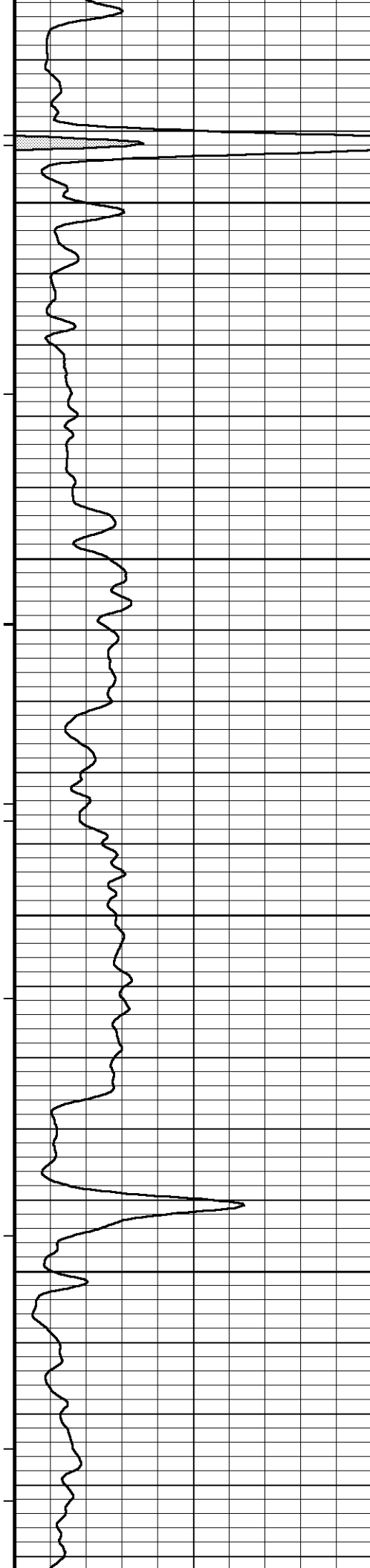
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Limestone Neutron Por.



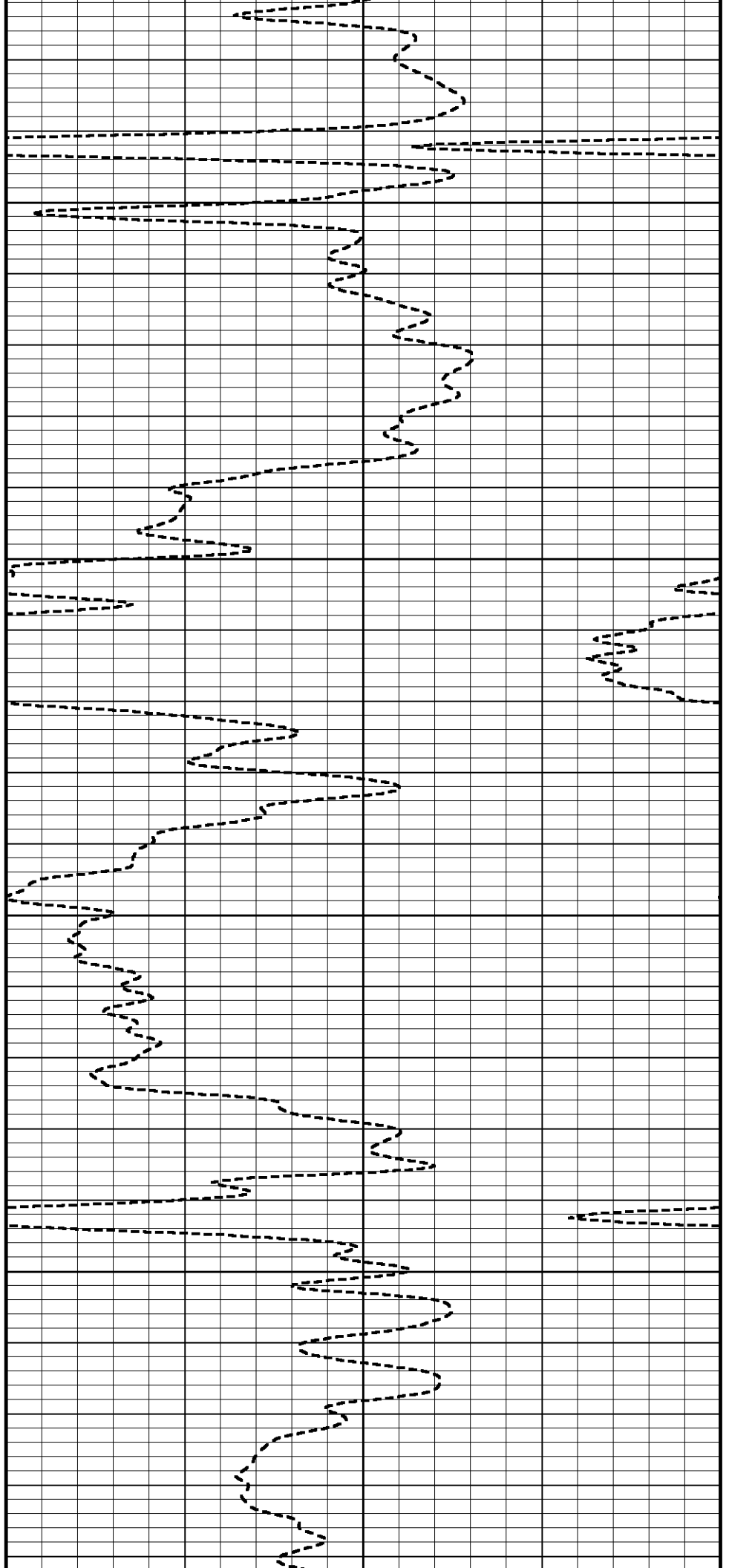


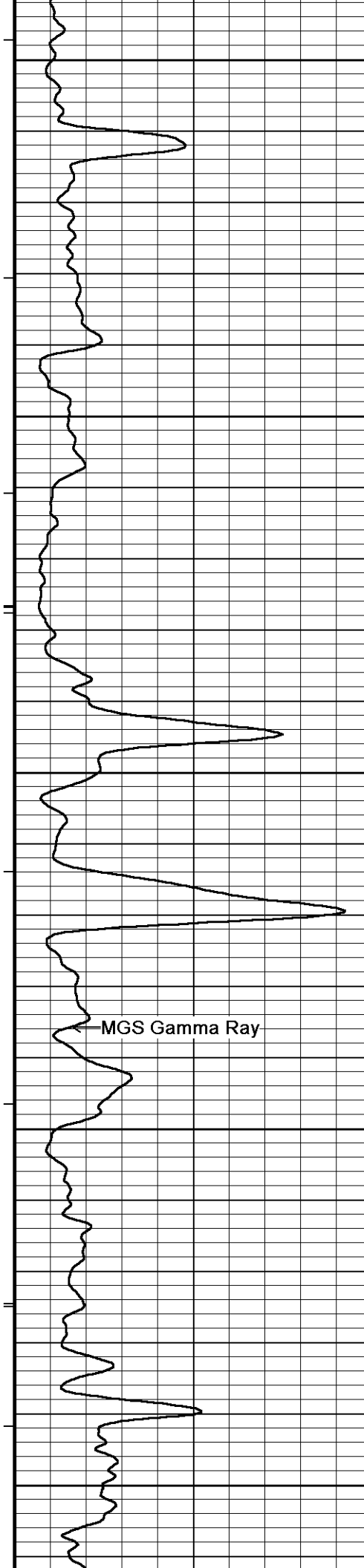
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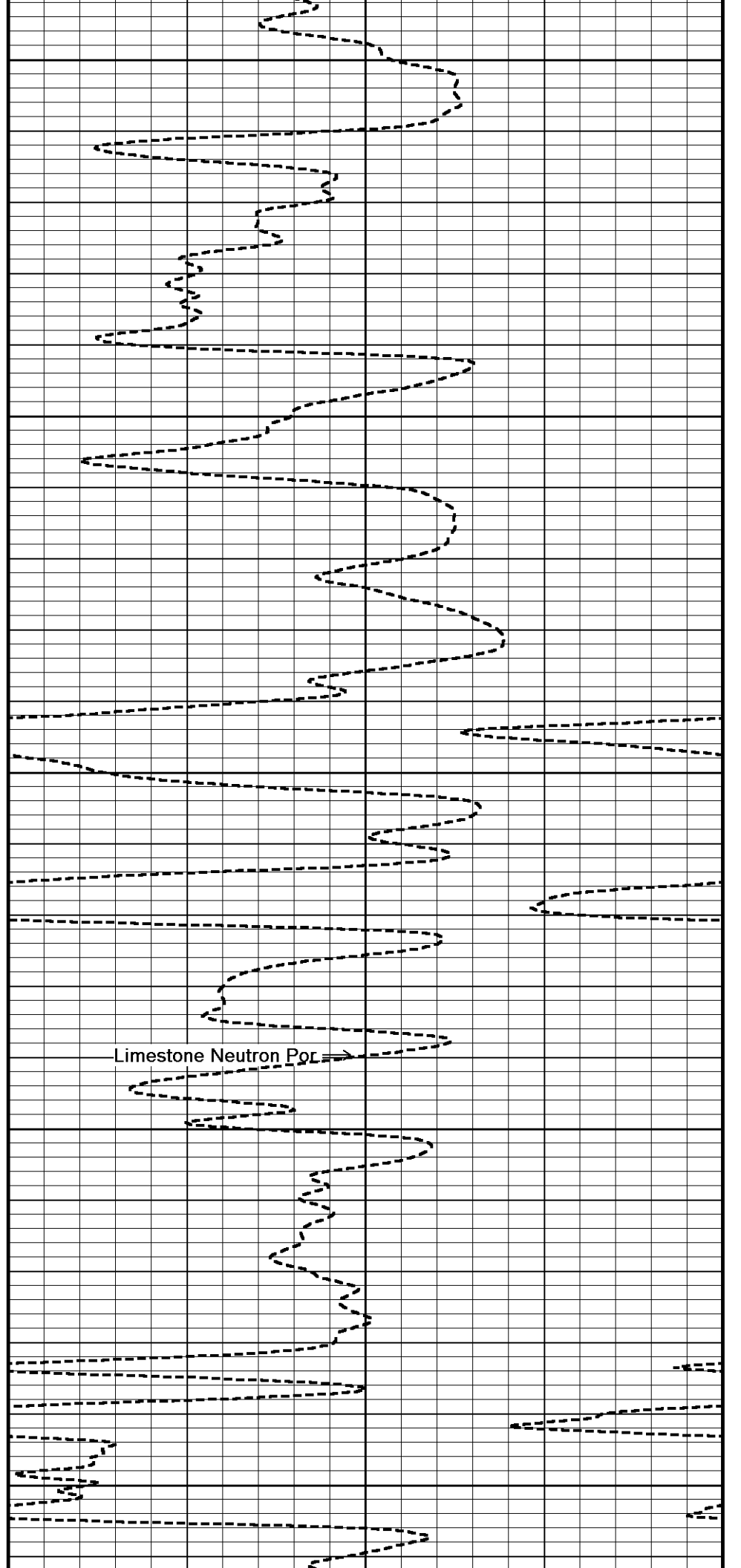
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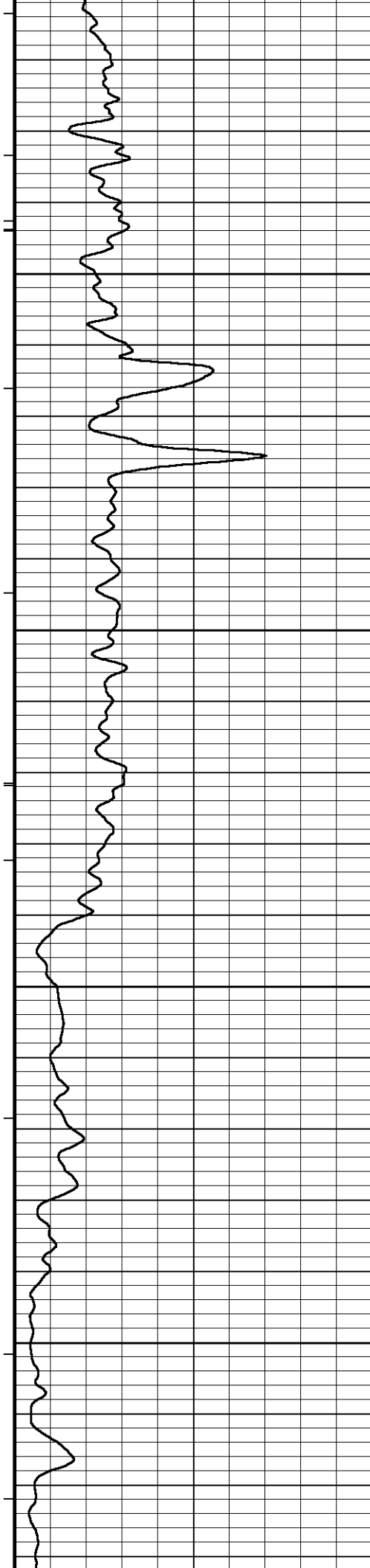
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← MGS Gamma Ray



Limestone Neutron Por →

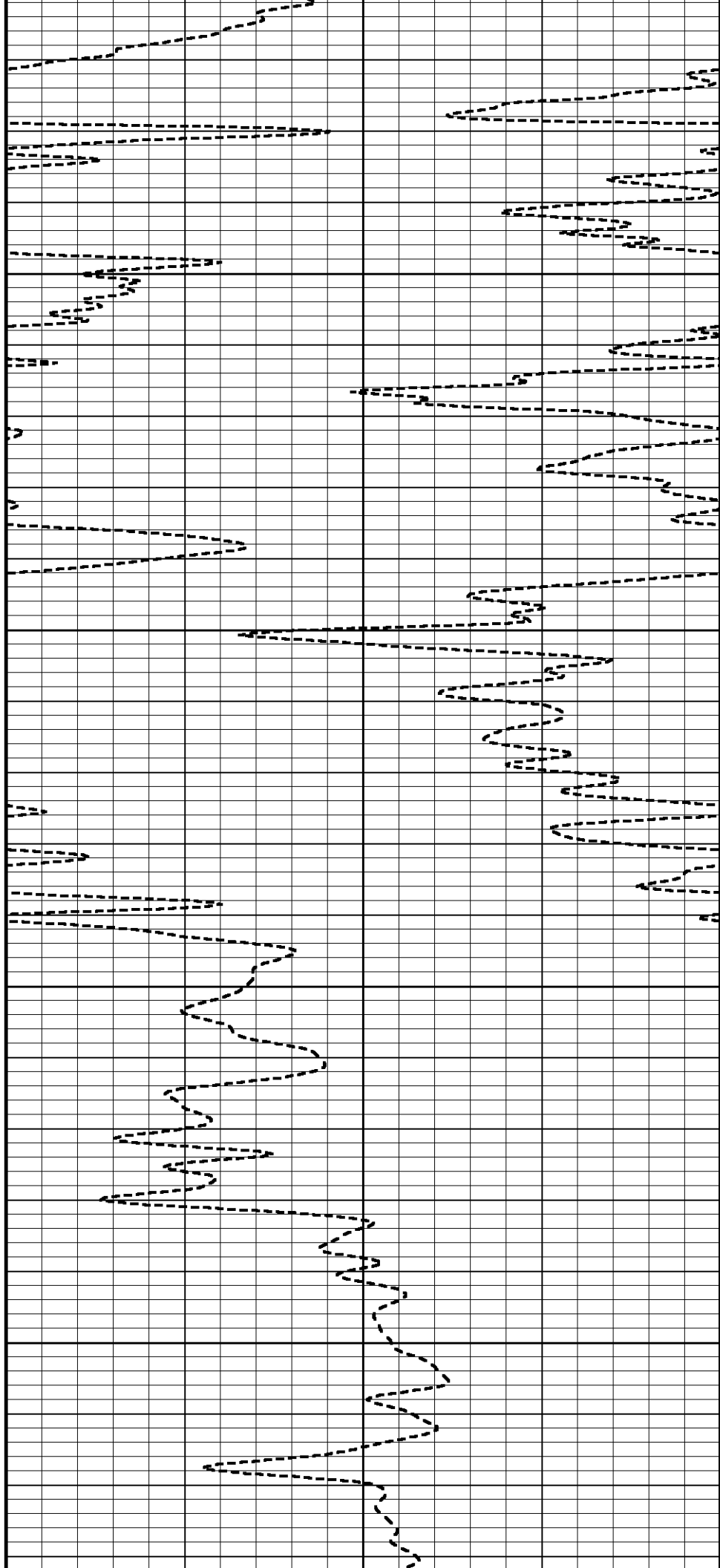


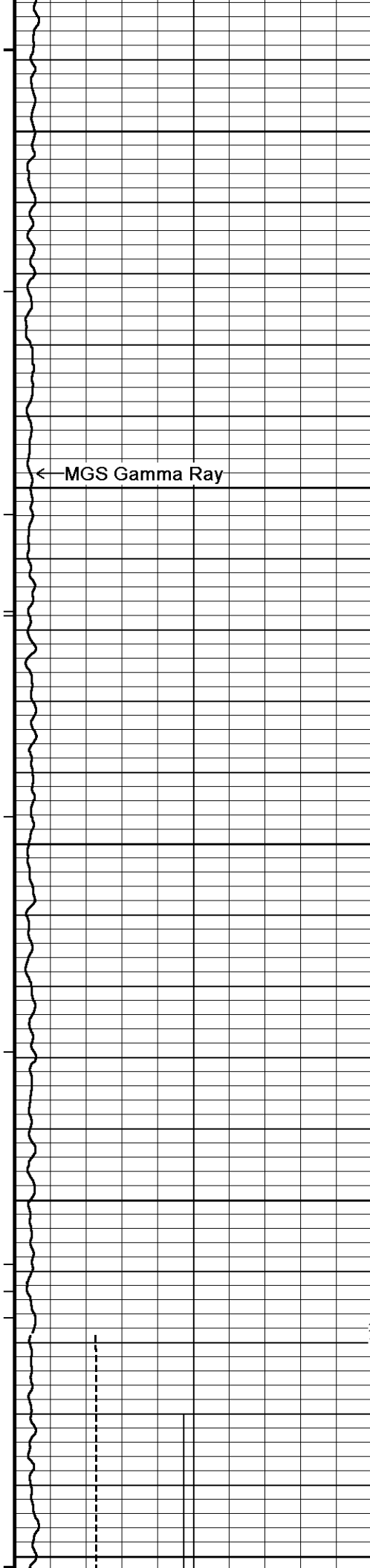
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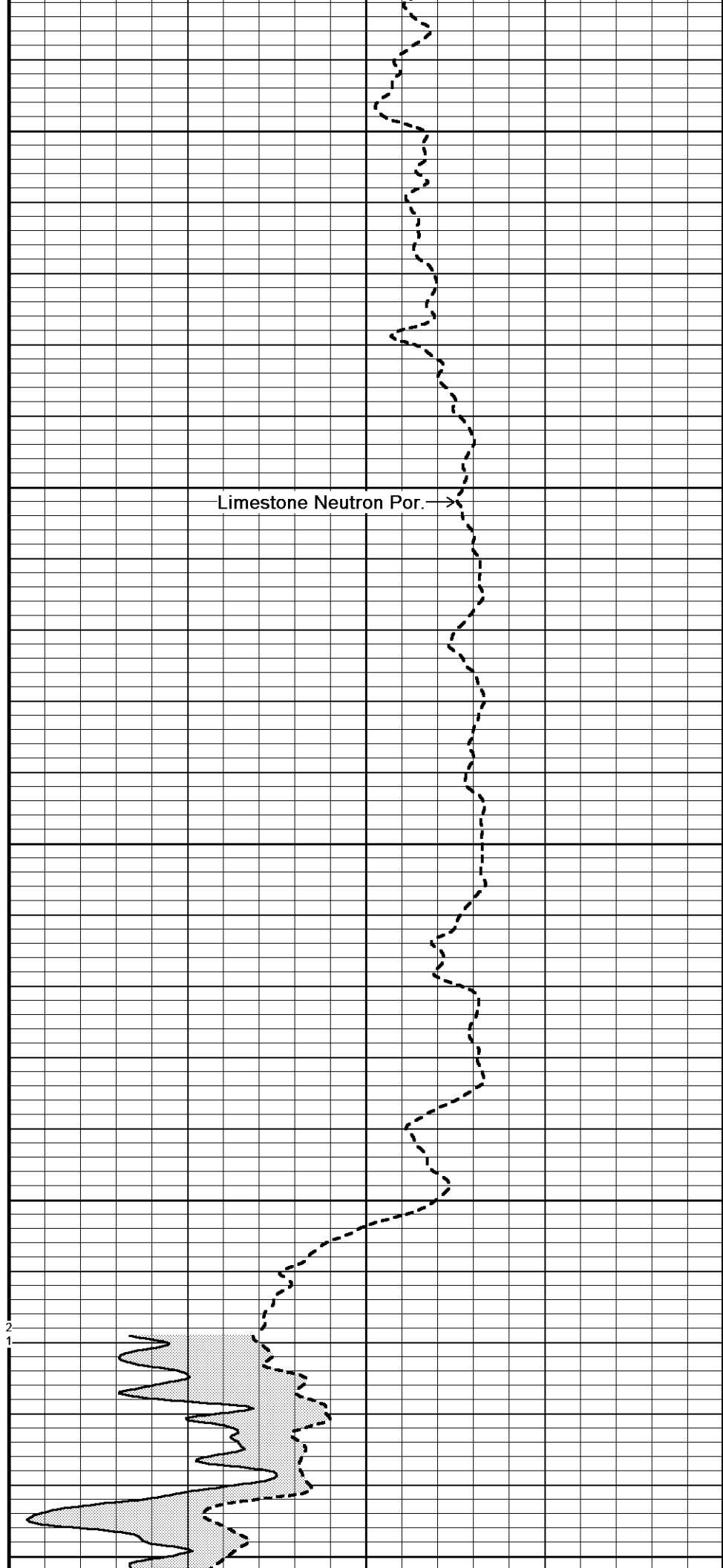
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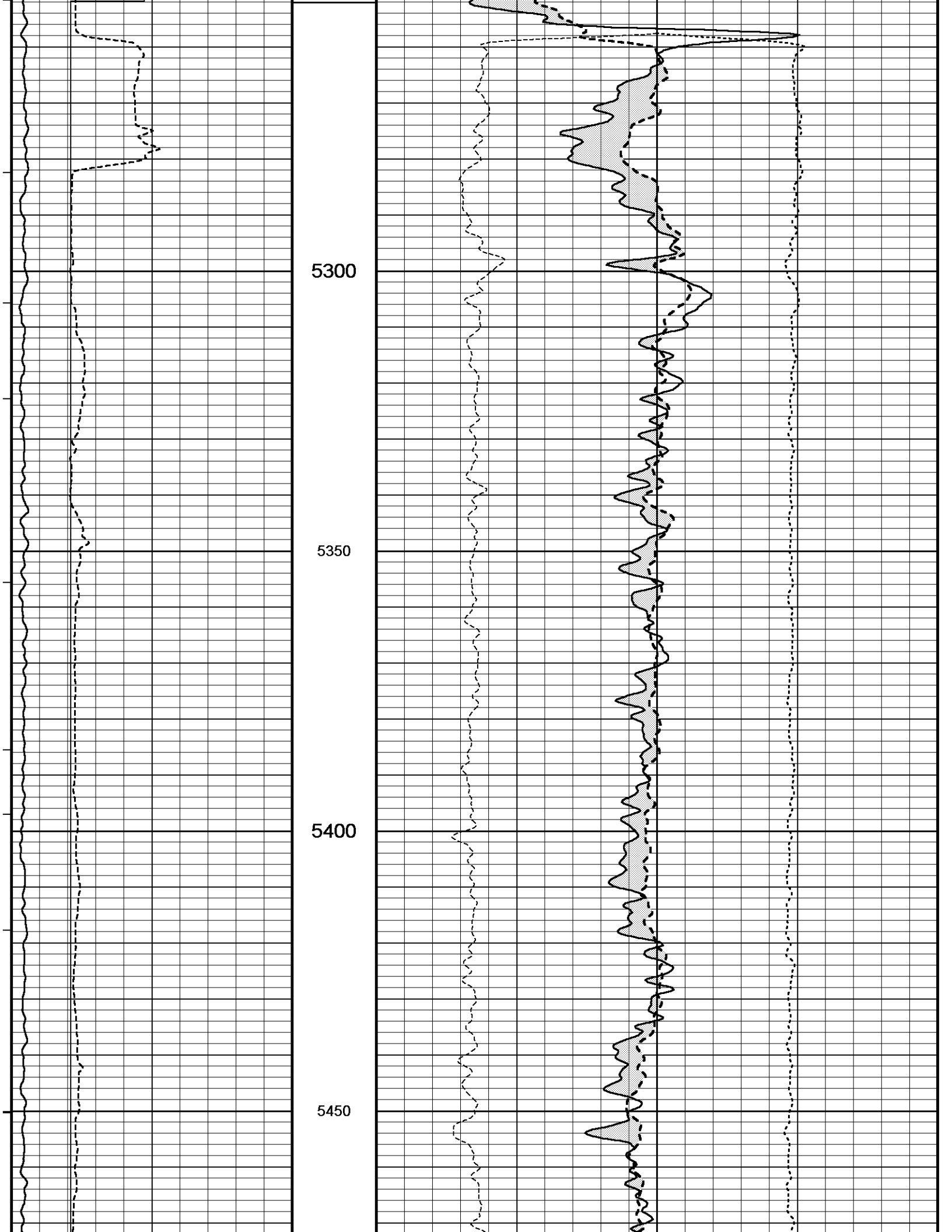
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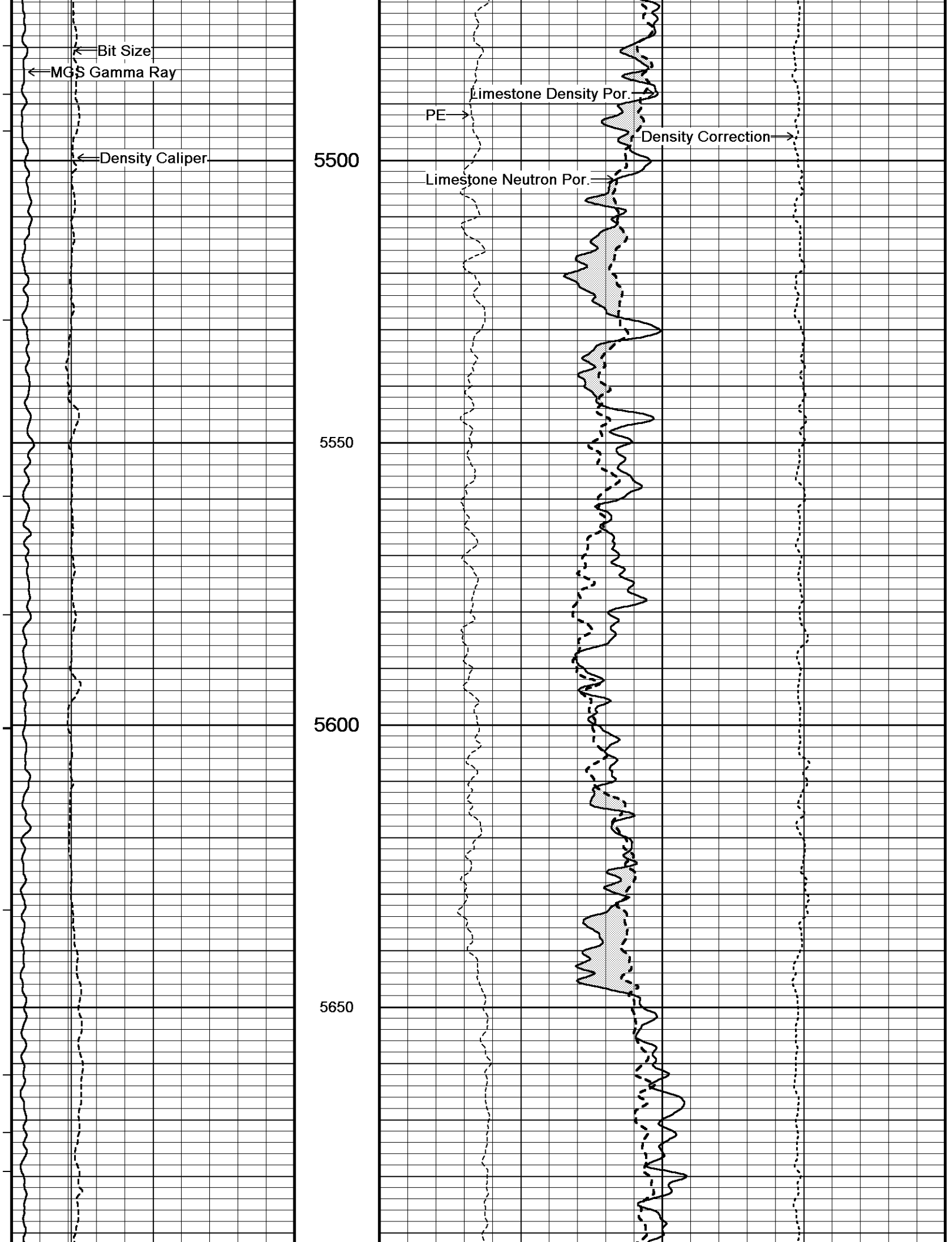
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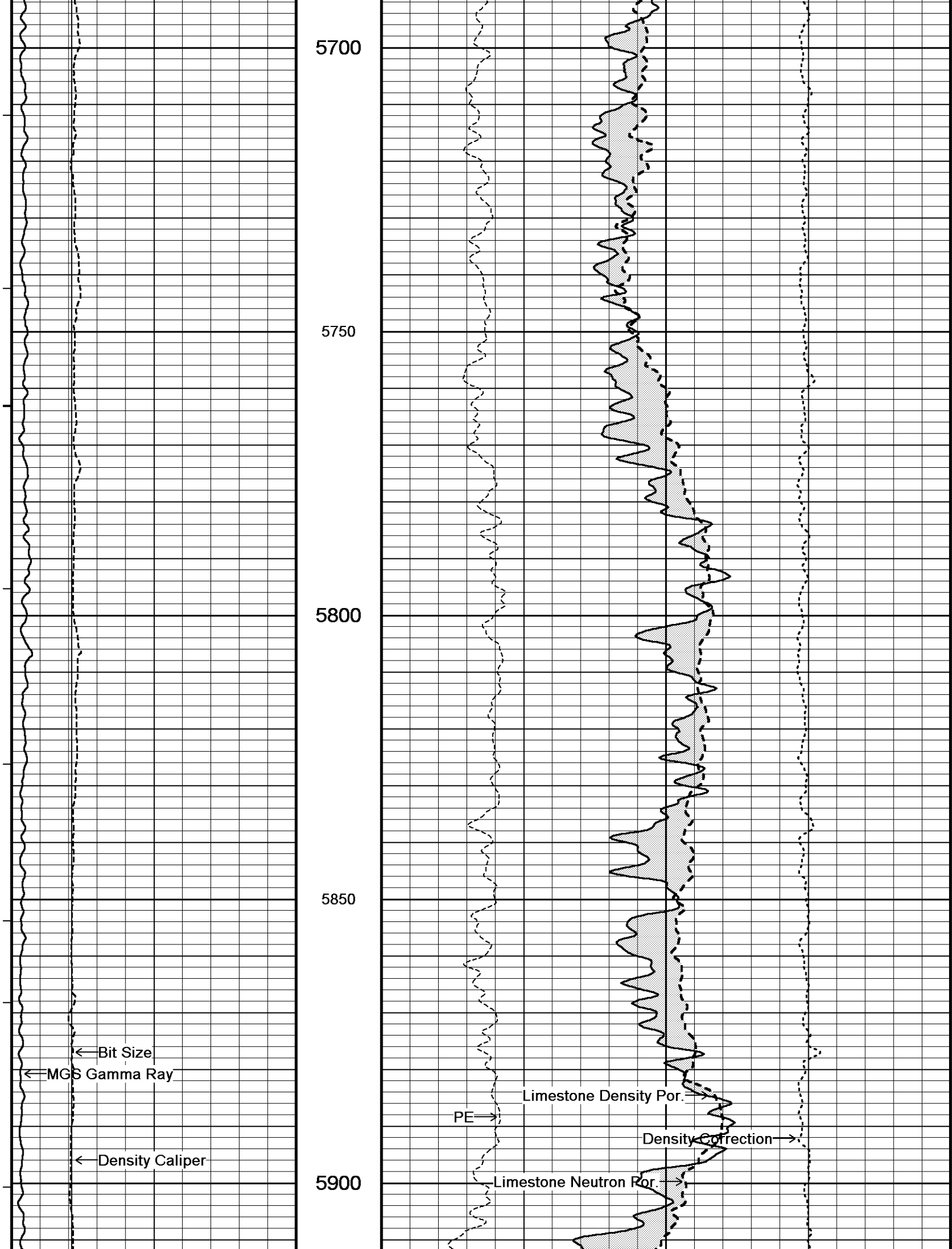
Casing
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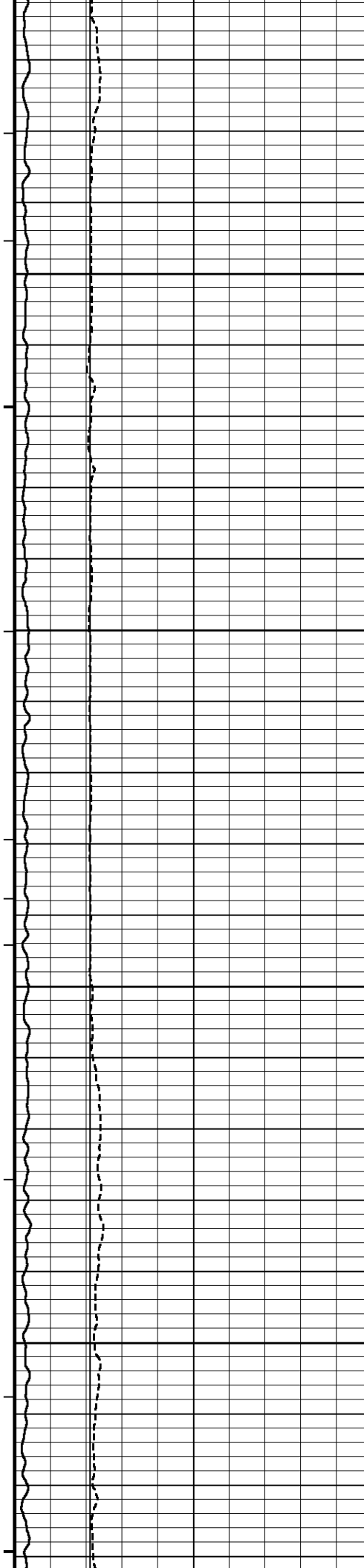


Limestone Neutron Por.







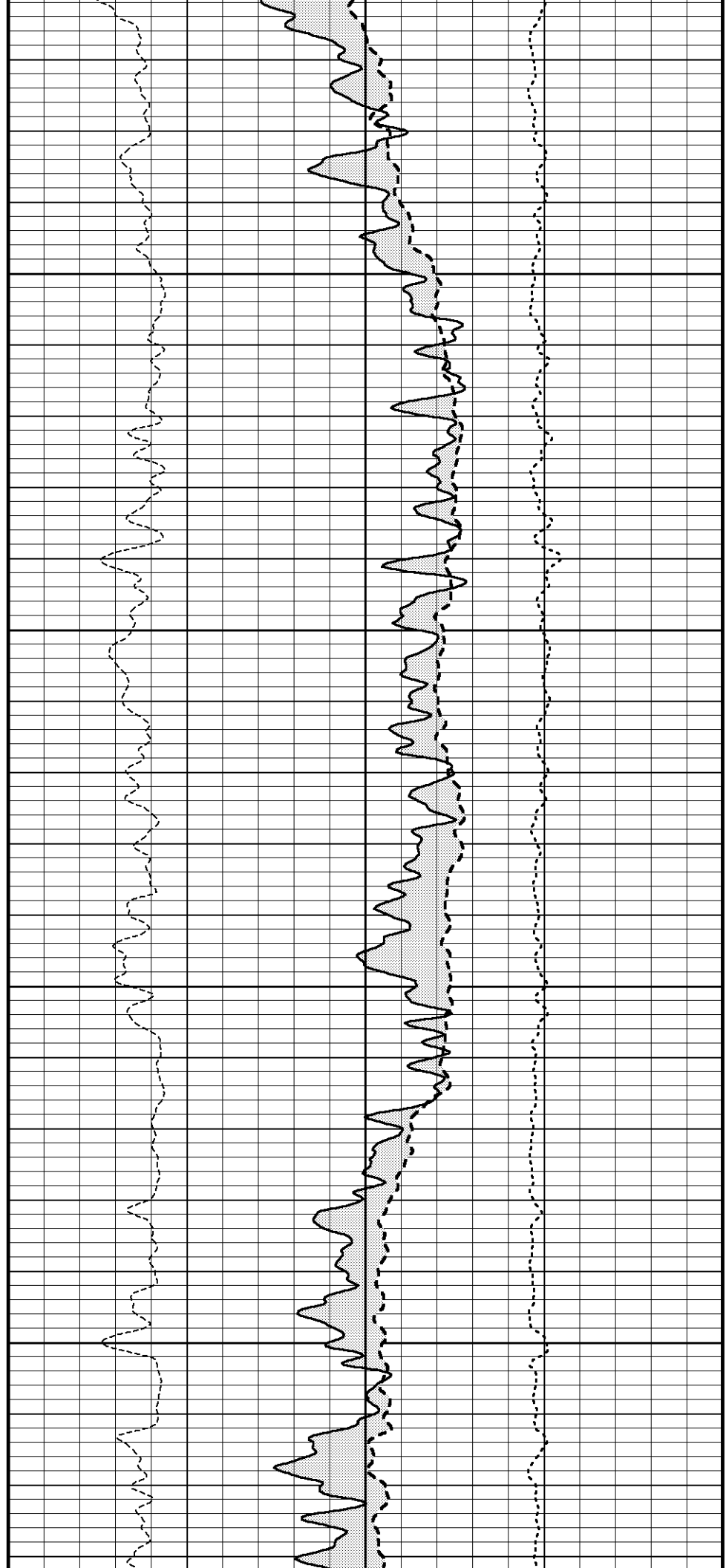


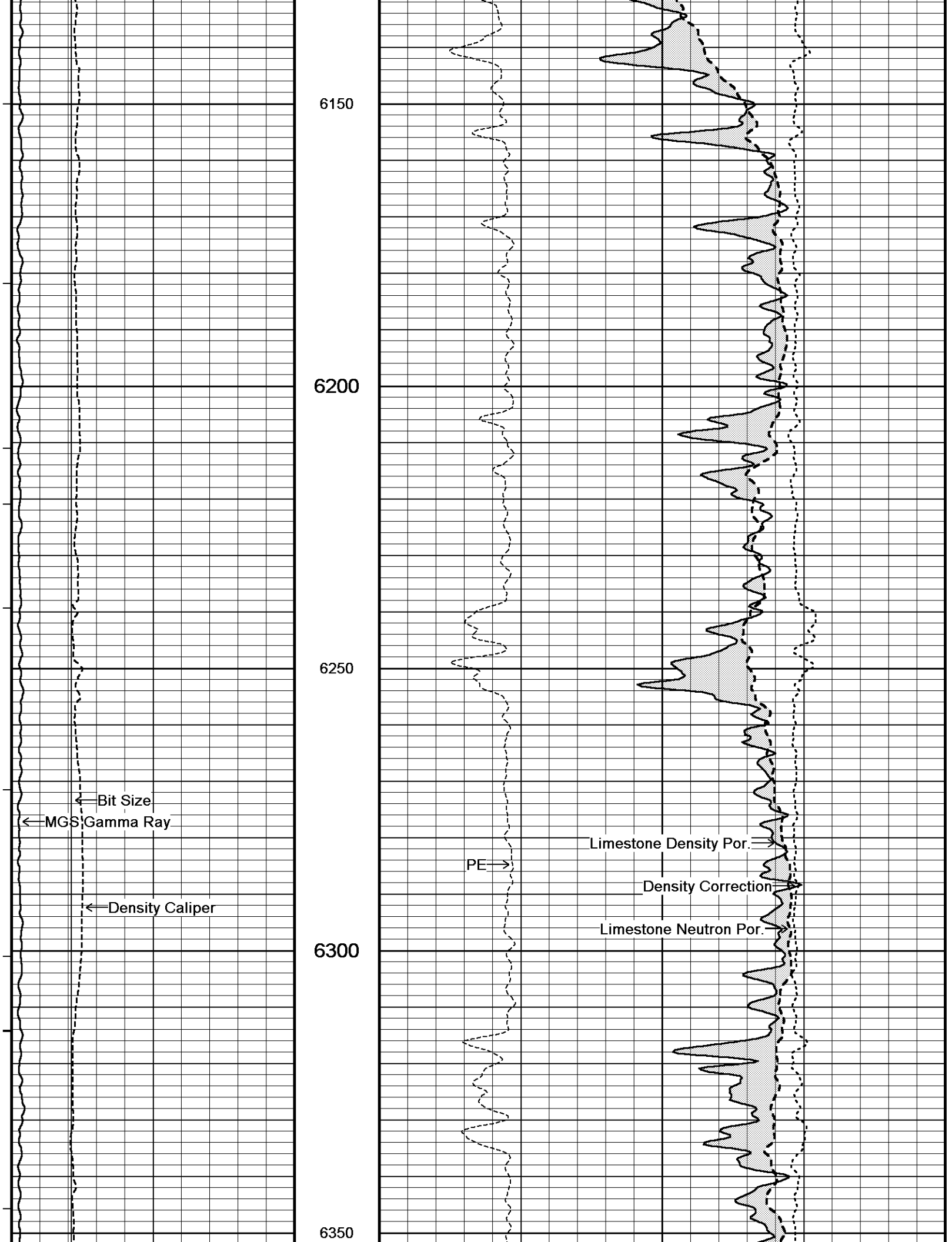
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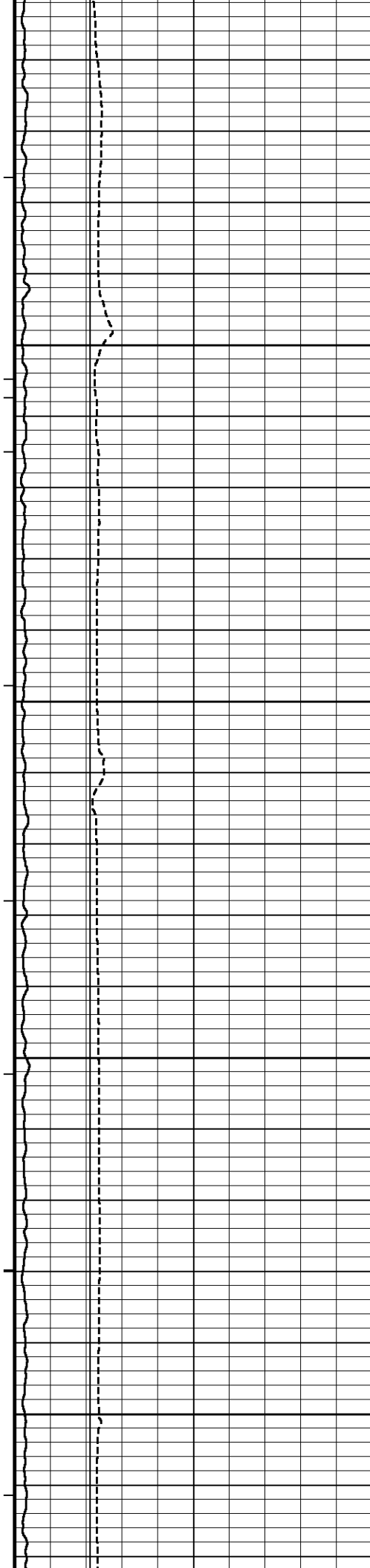
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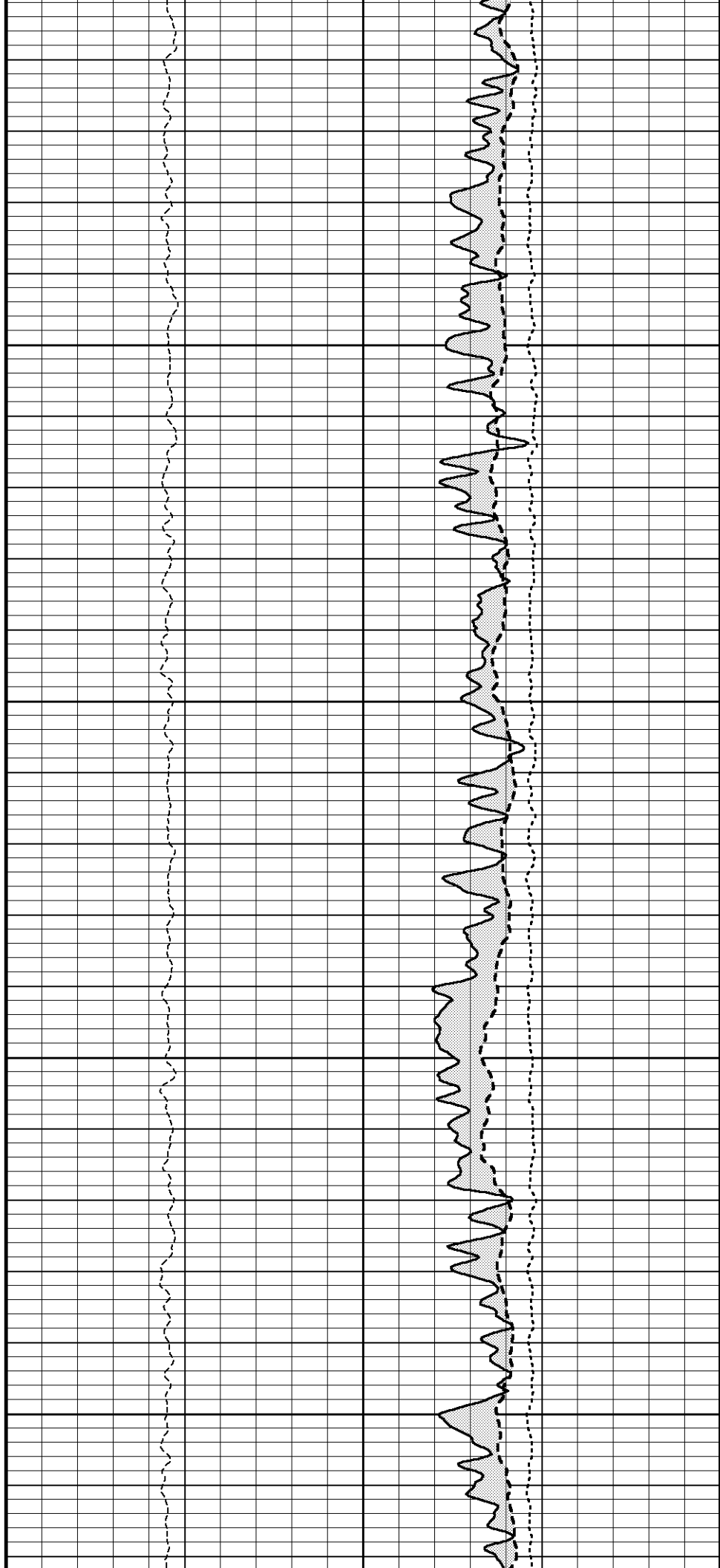


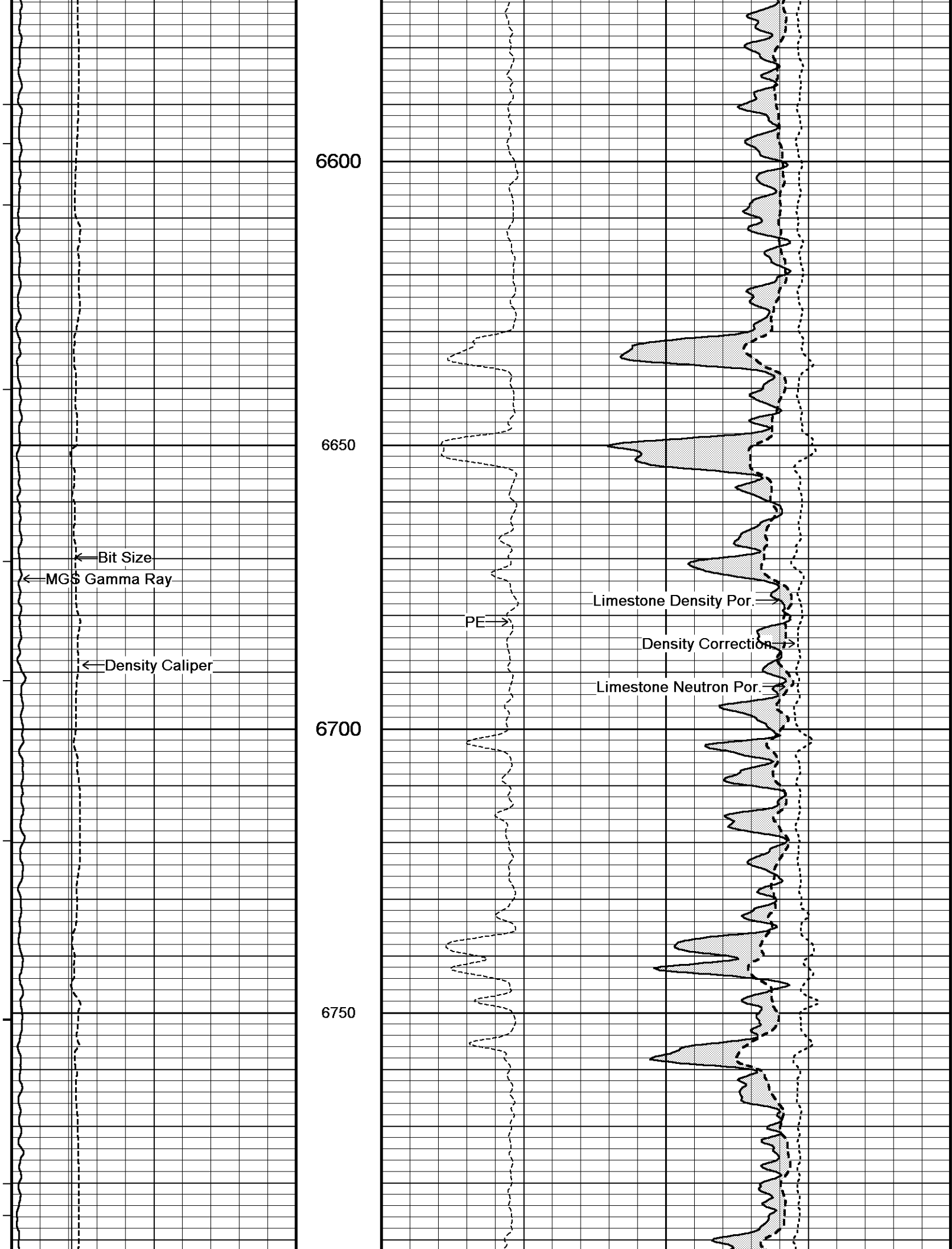
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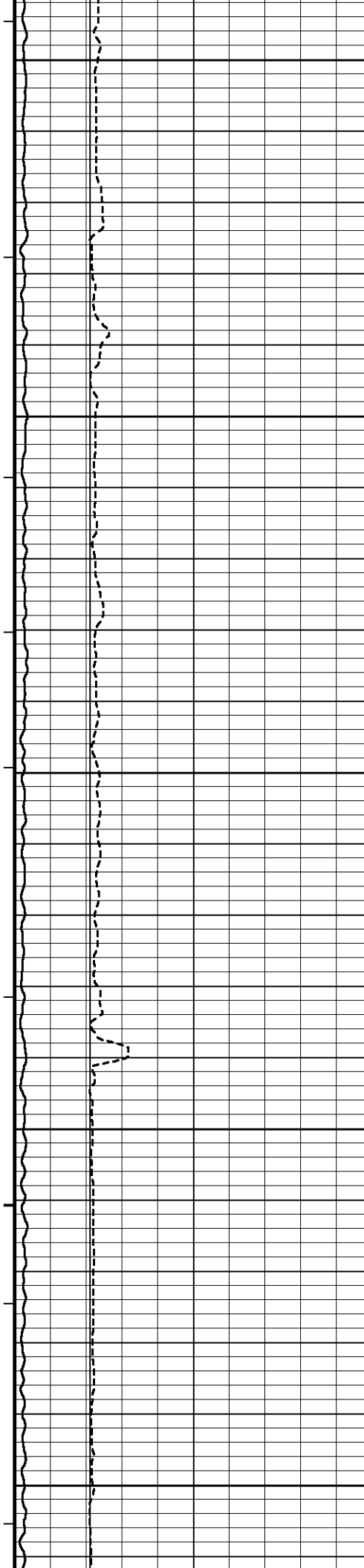
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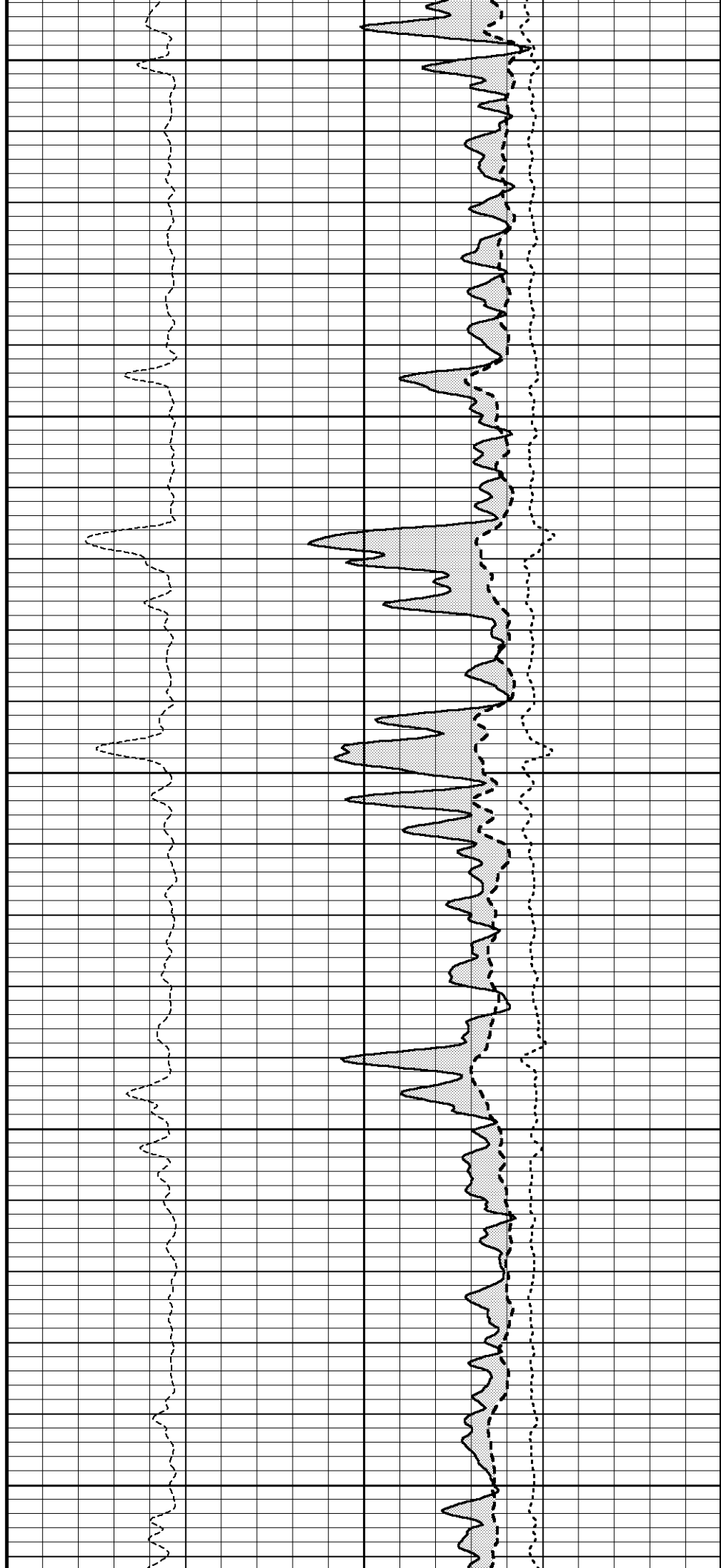
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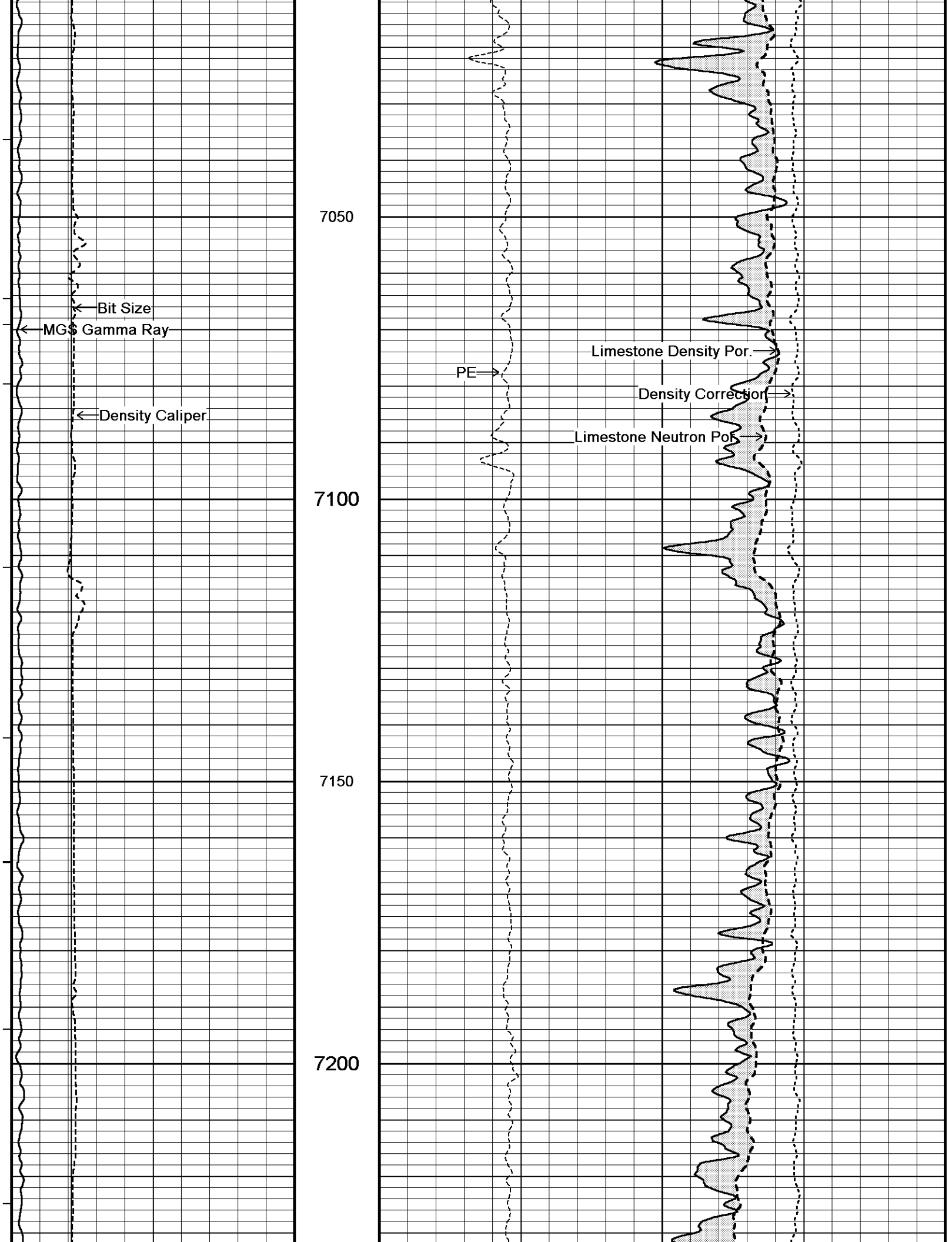
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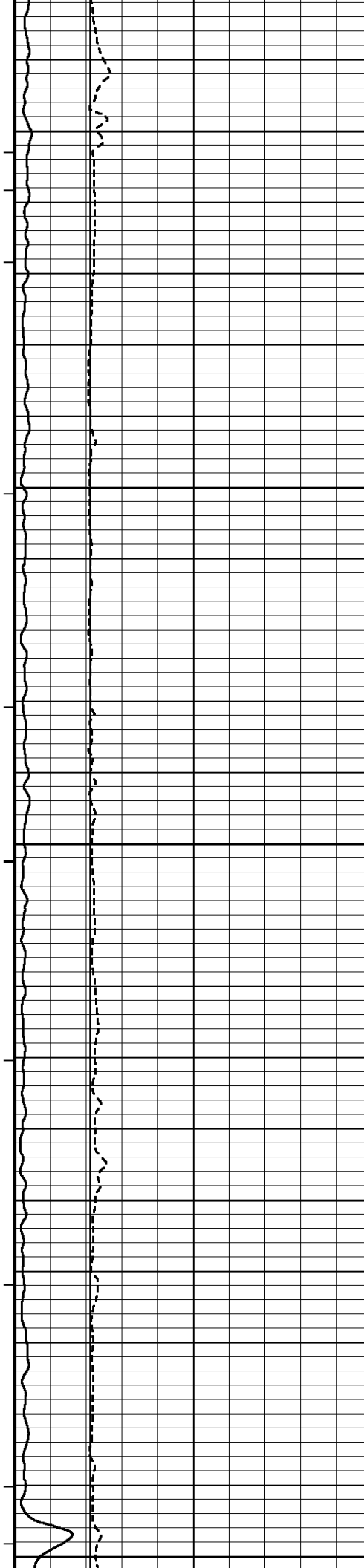
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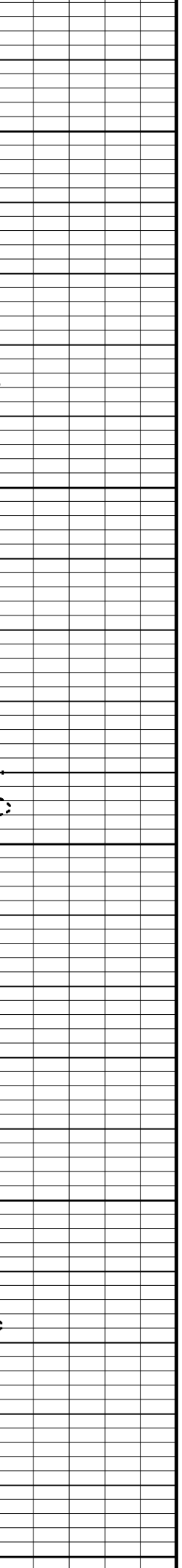
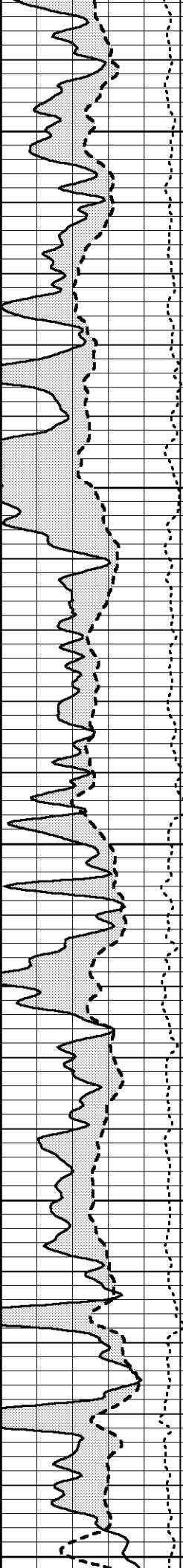
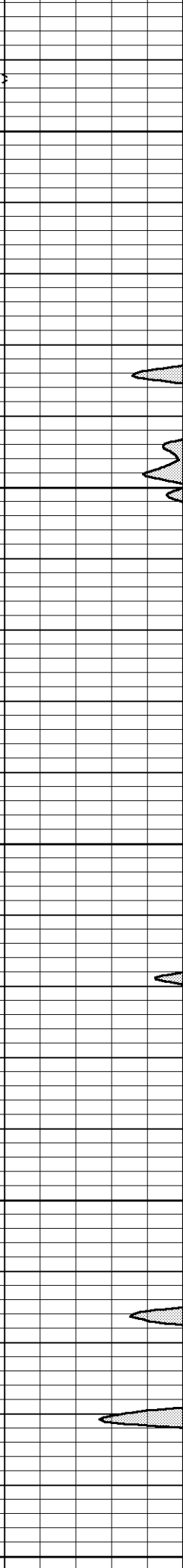
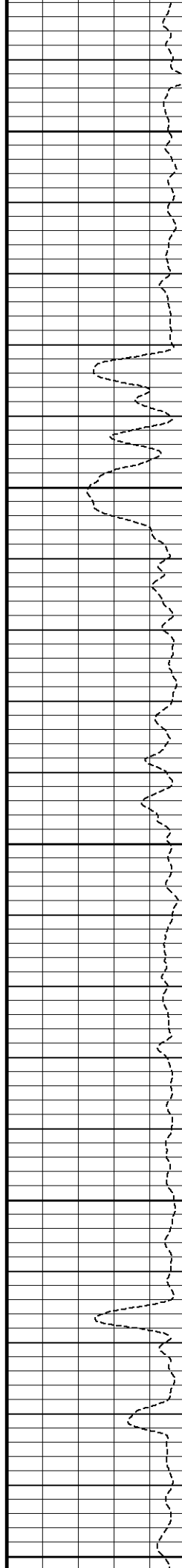
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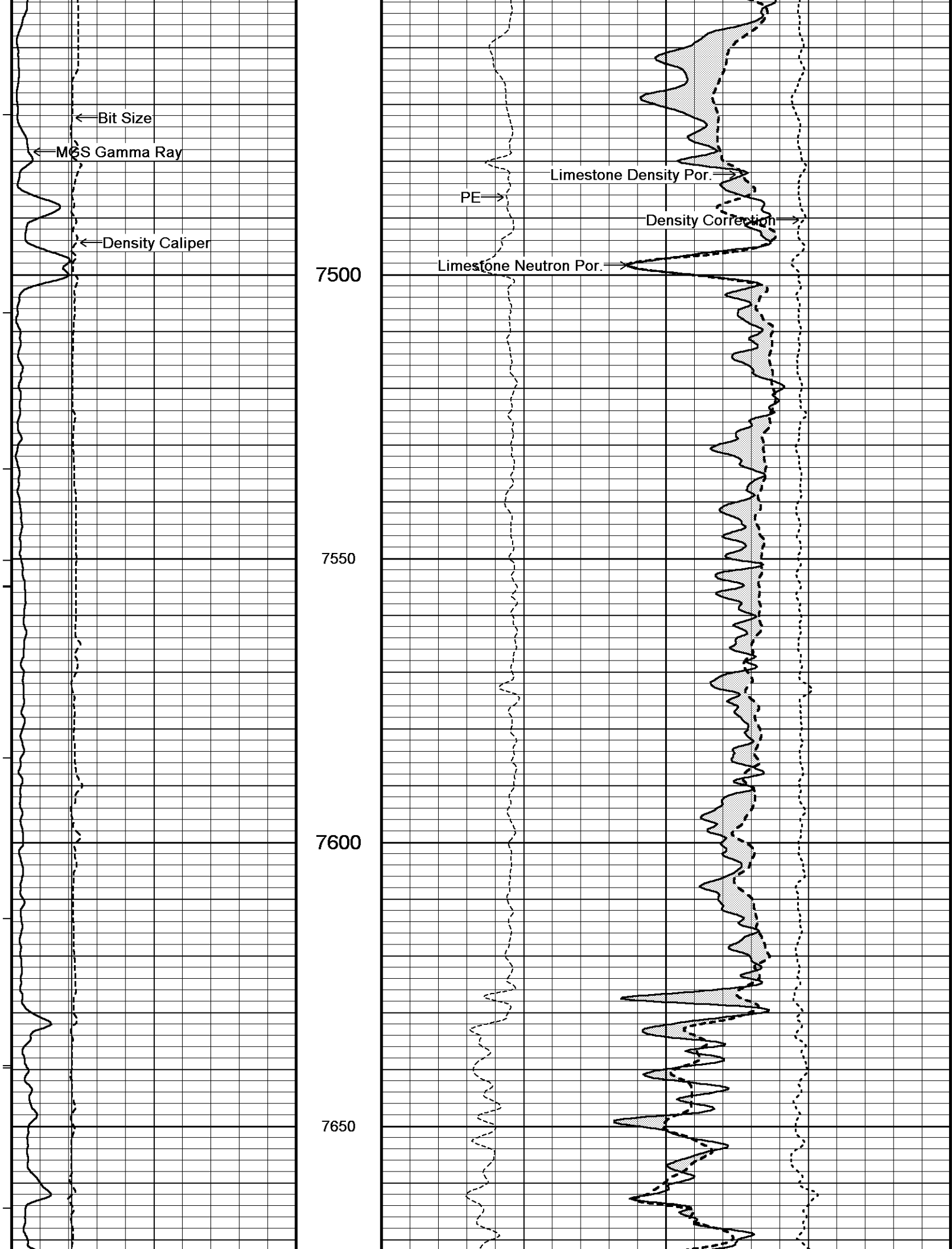
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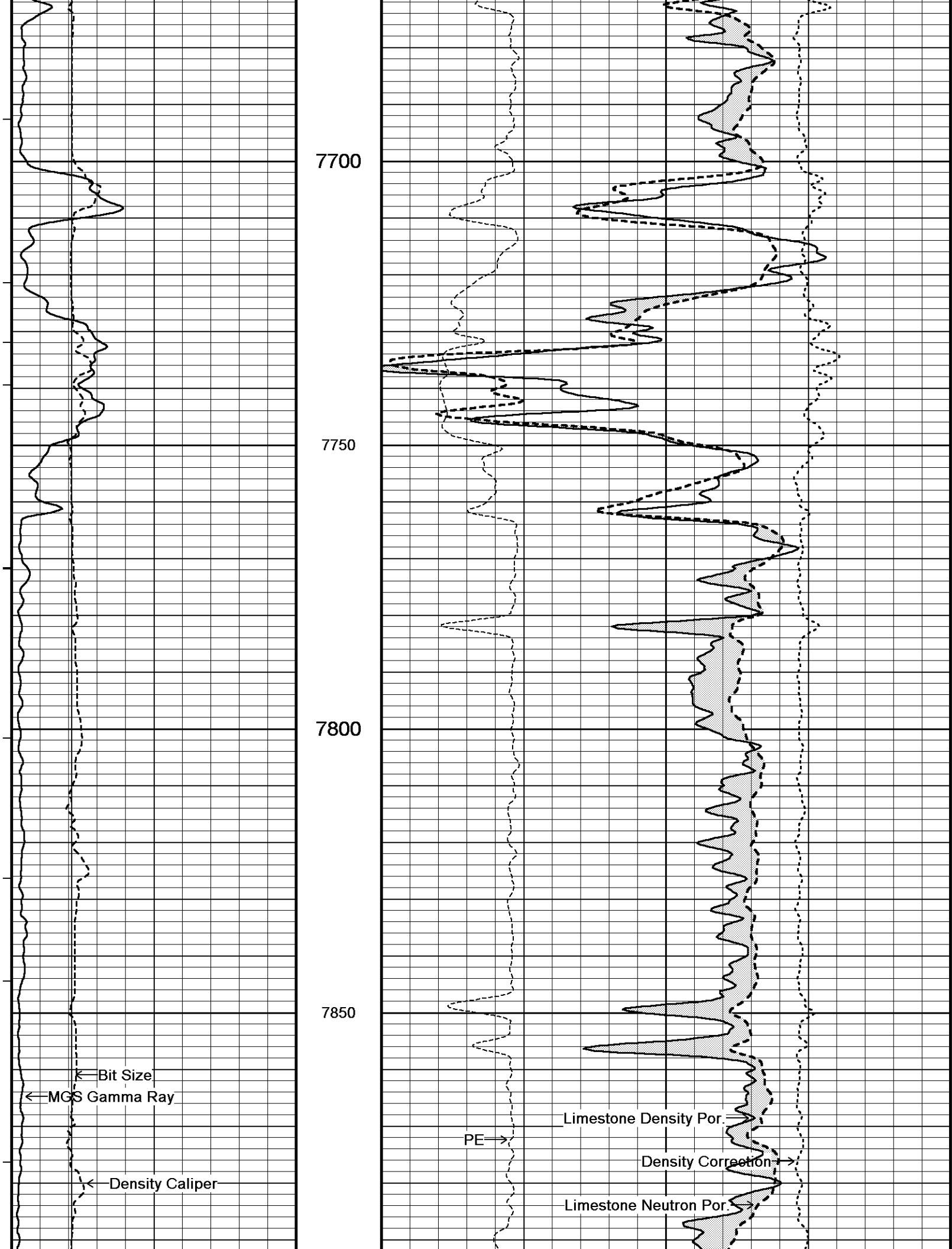
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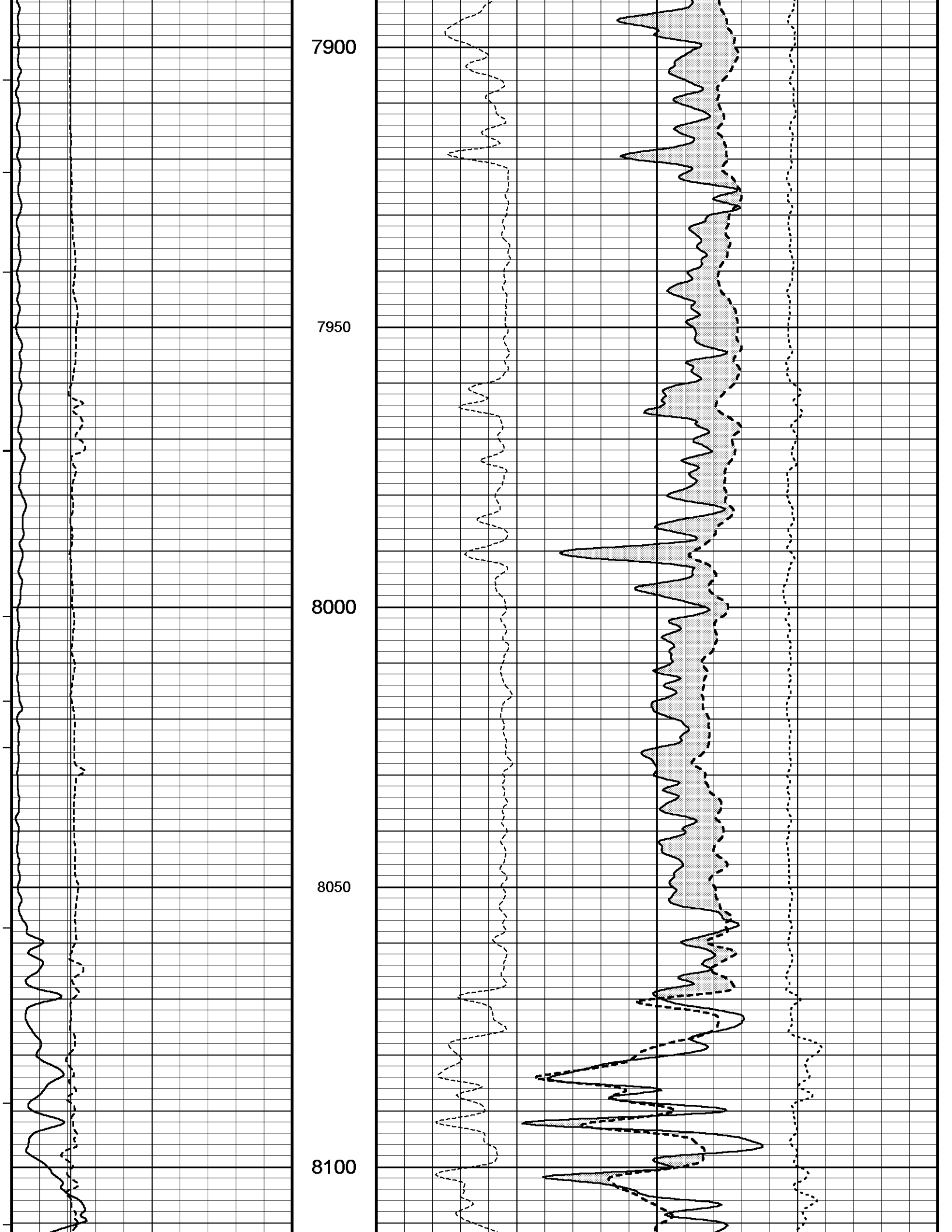
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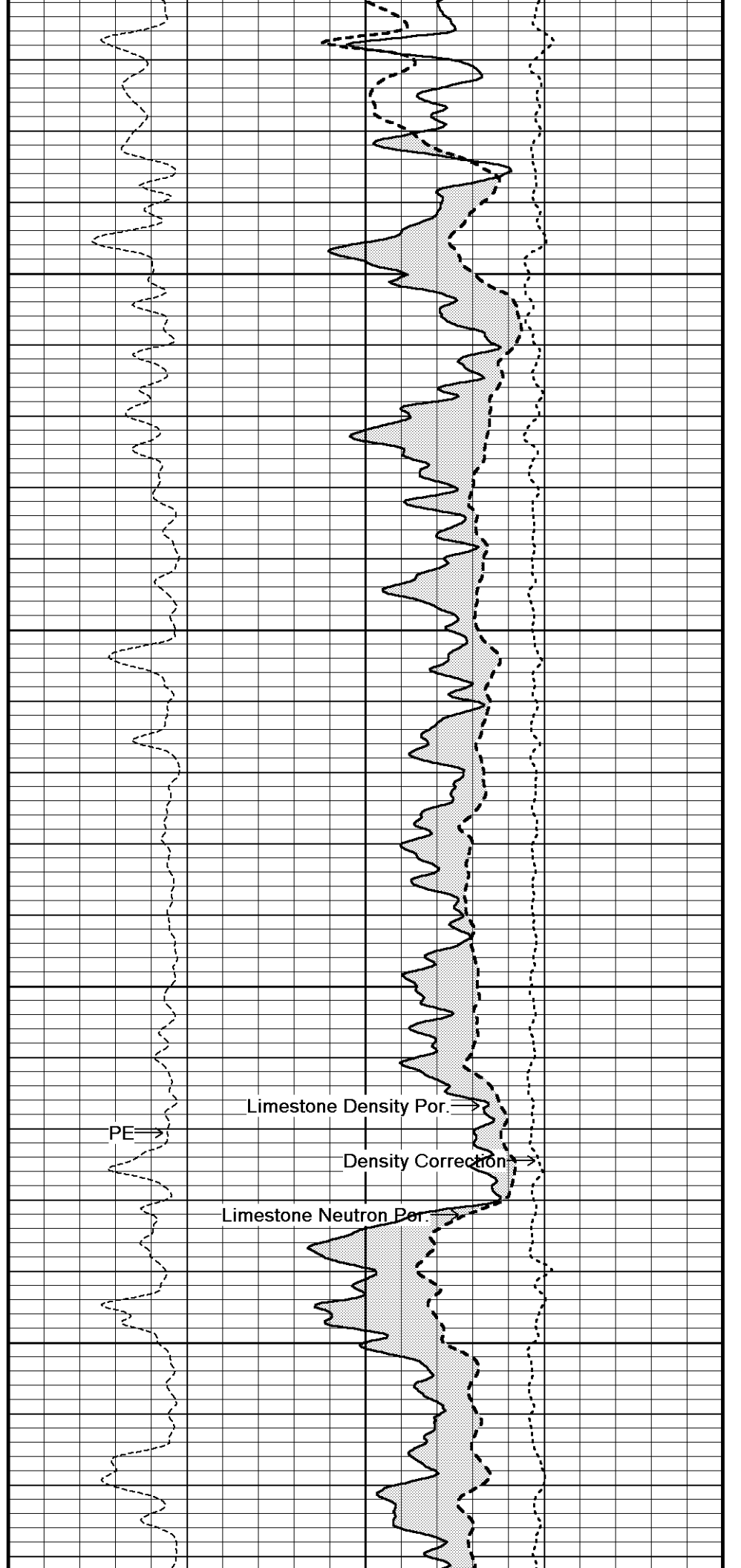
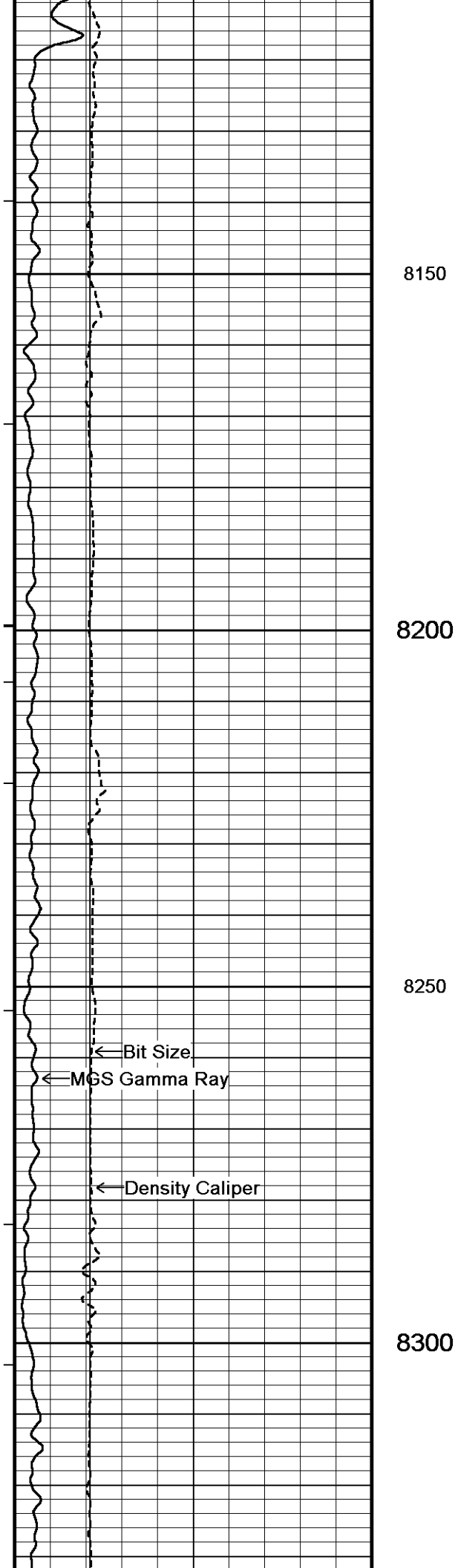
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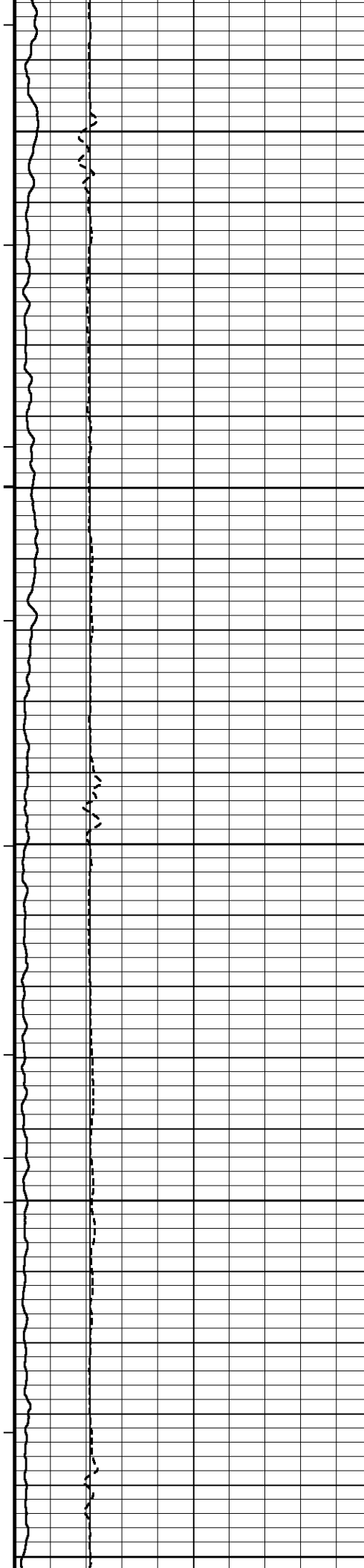












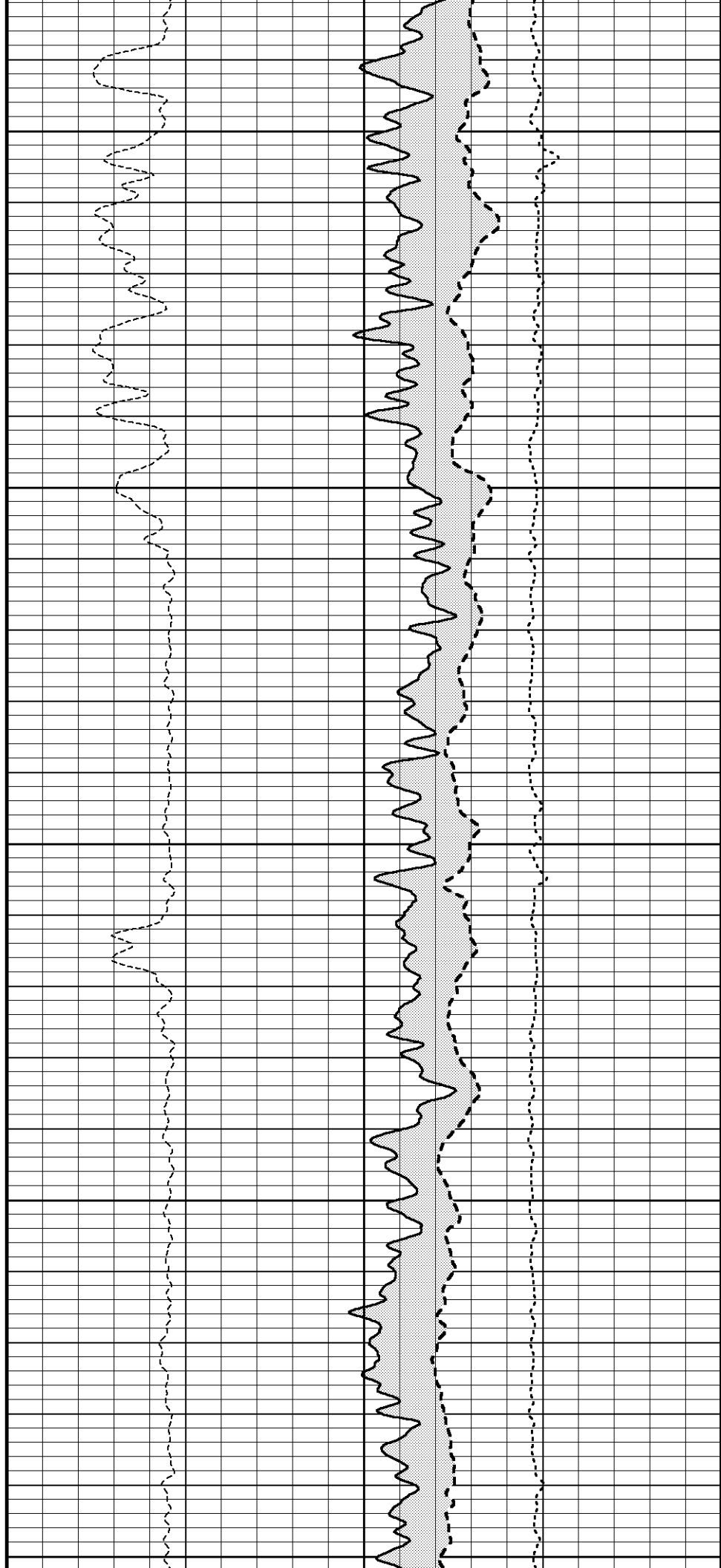
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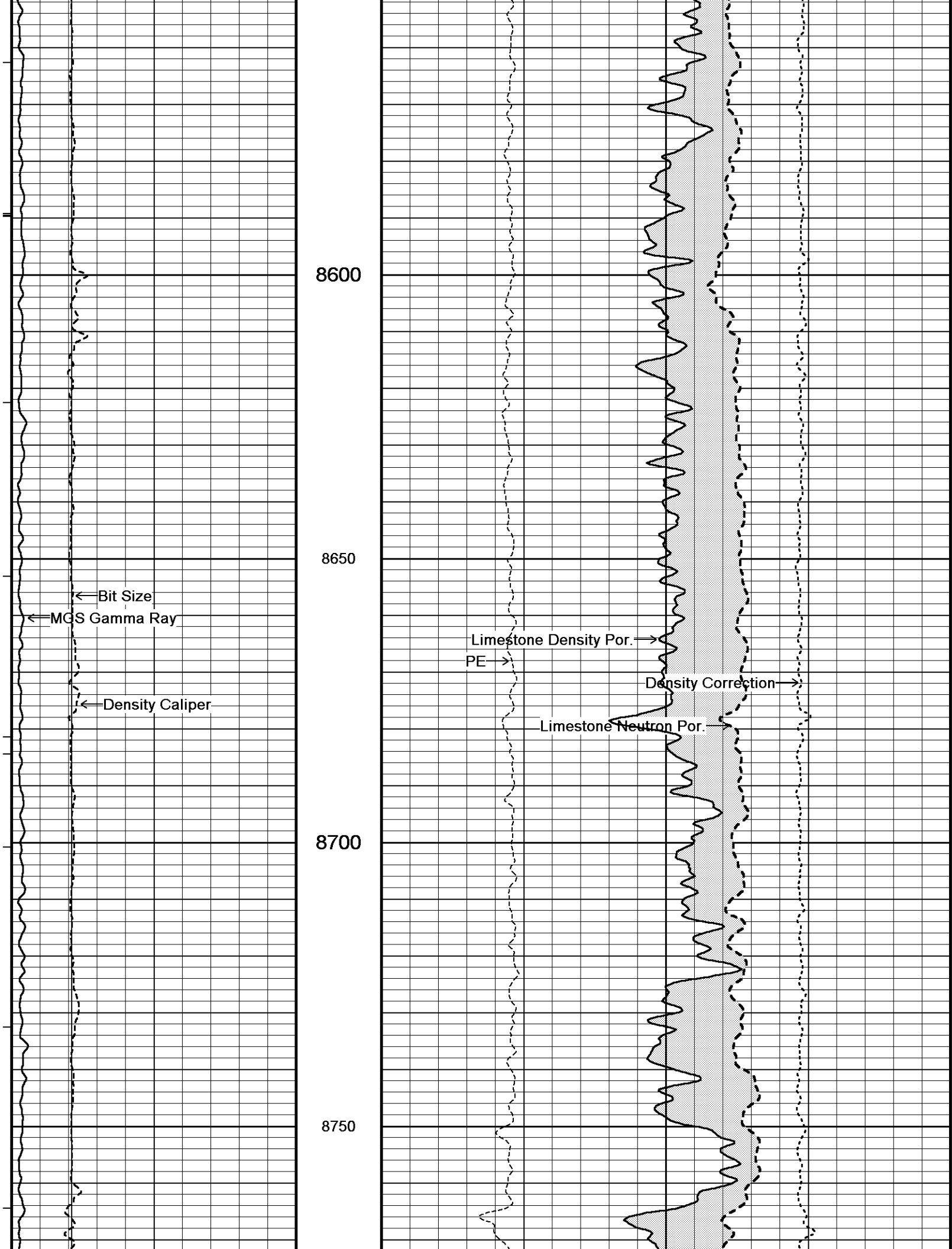
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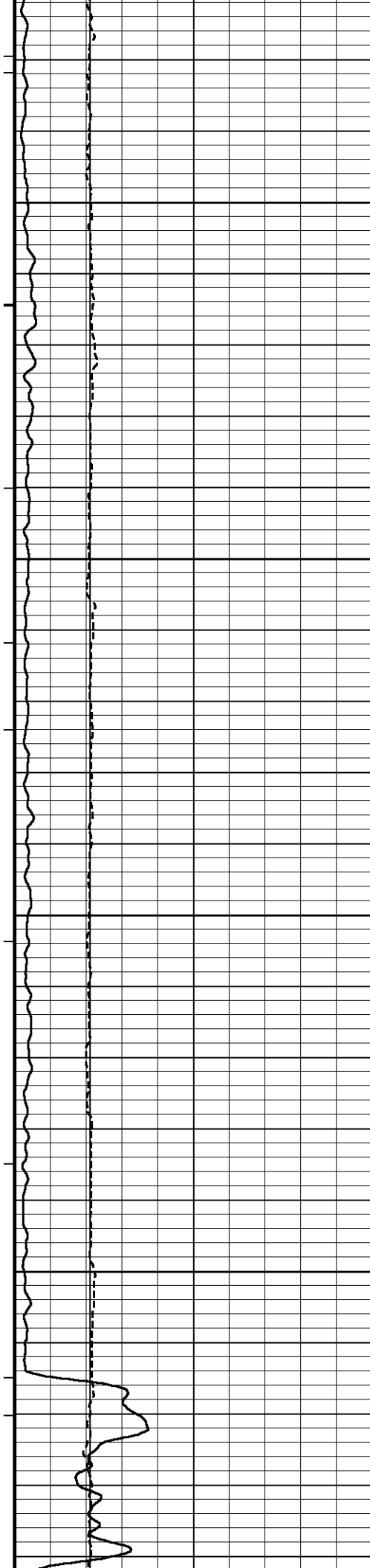
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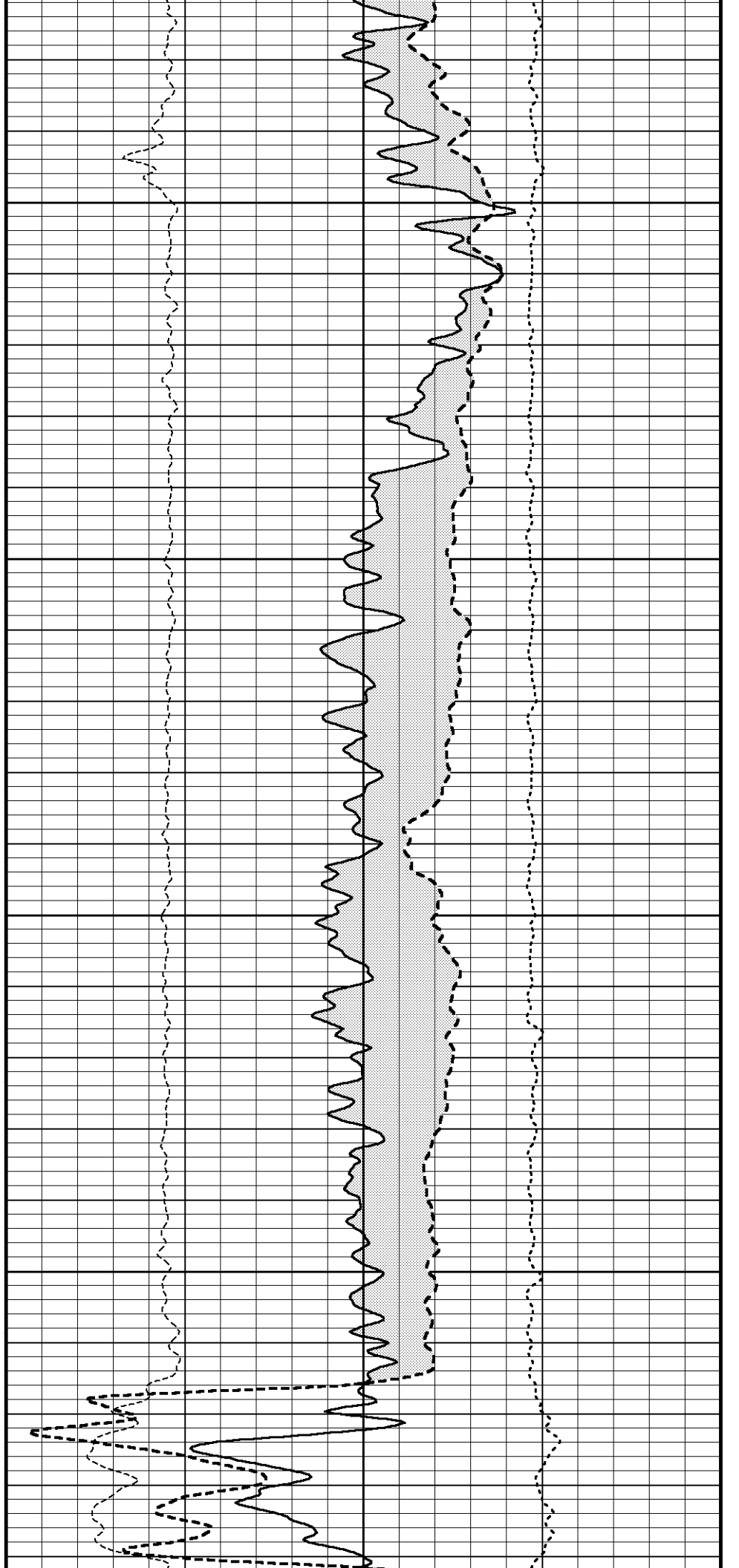


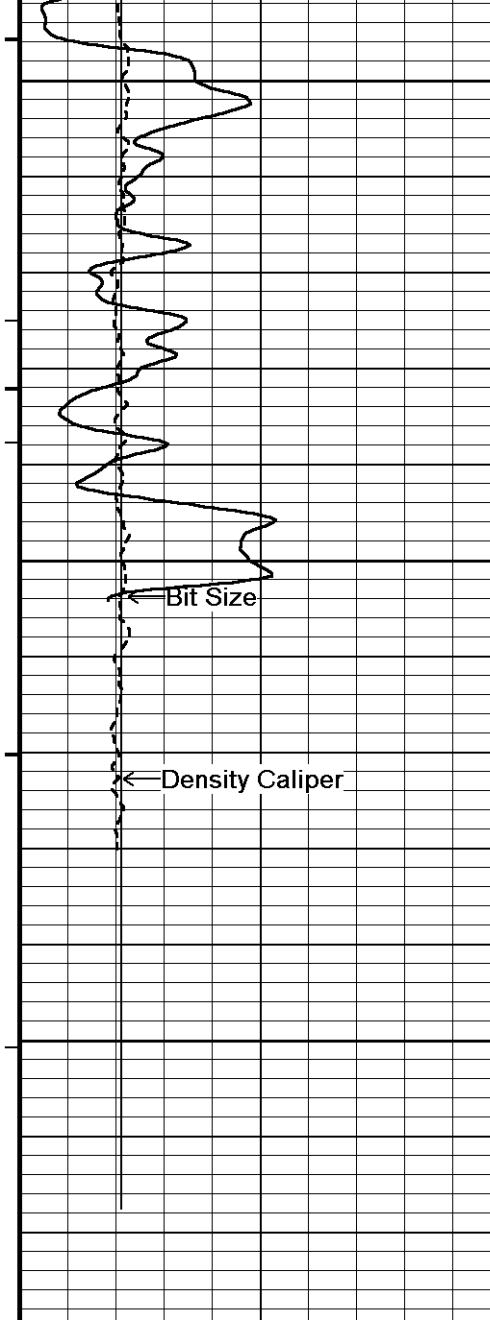
8800

8850

8900

8950





9000

9050

9100

9128

Depth
In
Feet

Timing Marks
every 60.0 sec

Density Caliper
inches

4 9 14

MGs Gamma Ray

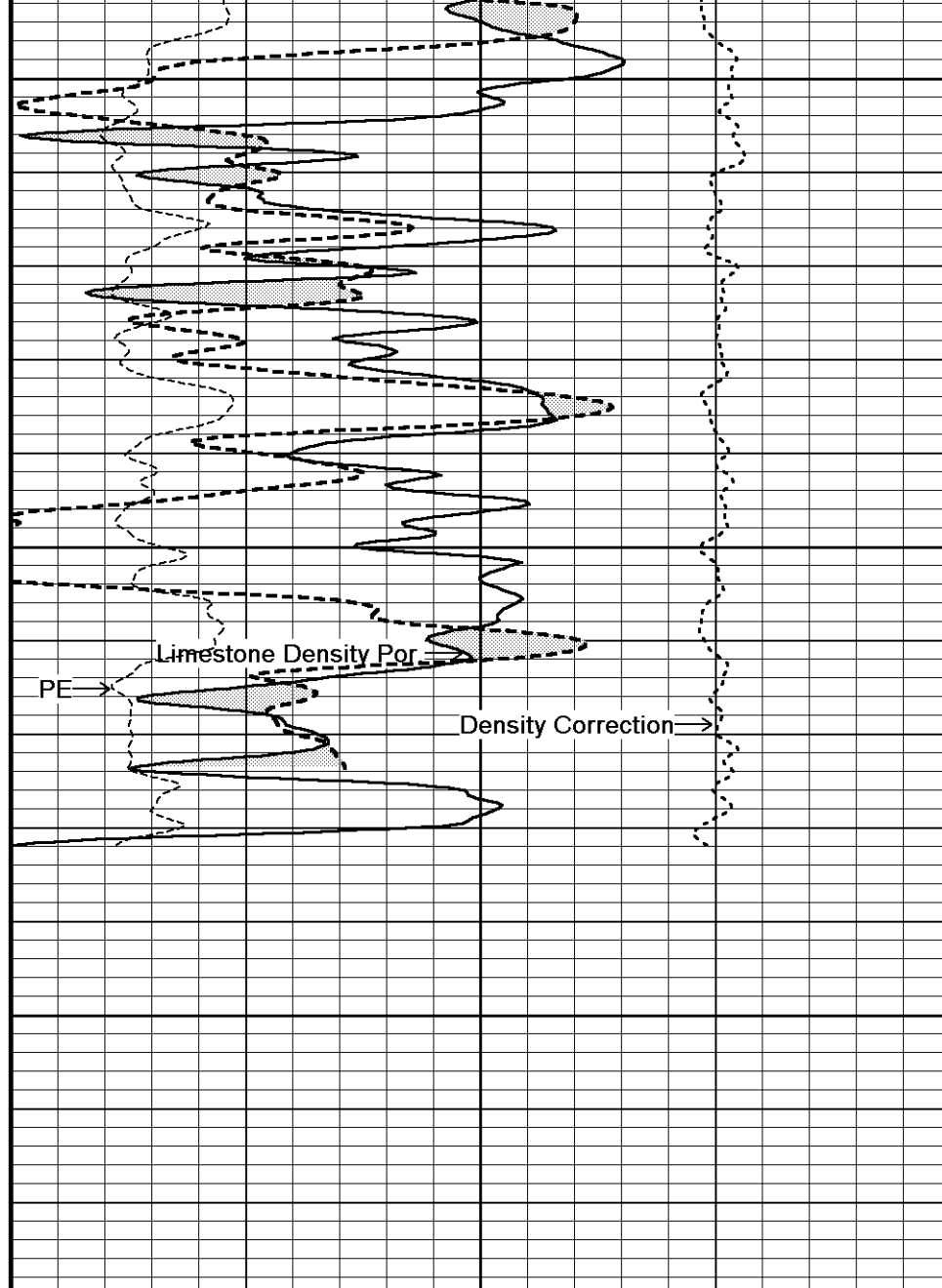
0	API	150
	75	
150	225	300

MGs Gamma Ray₂

0	API	150
	75	
150	225	300

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft



Limestone Neutron Por.
percent

30 20 10 0 -10

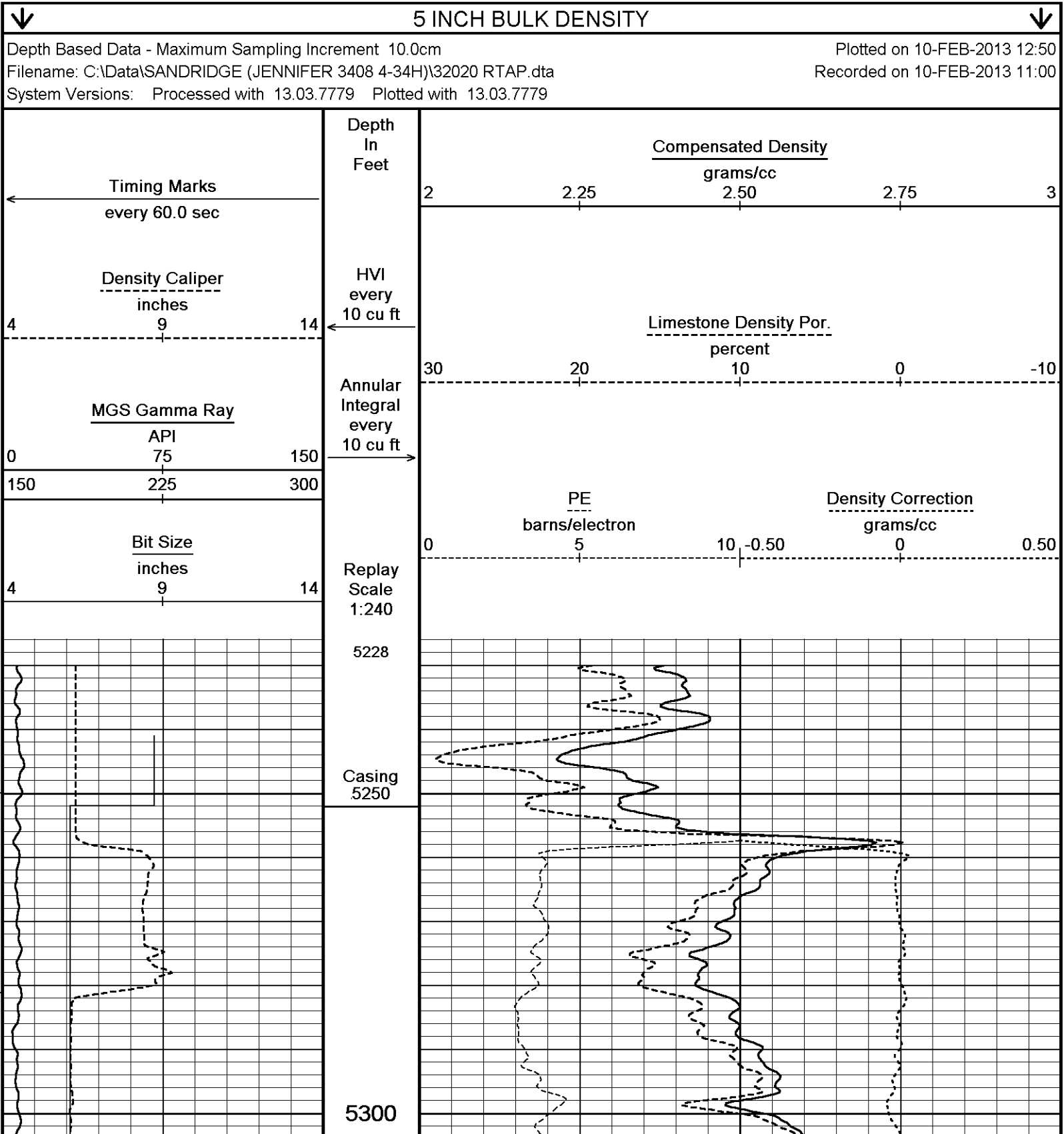
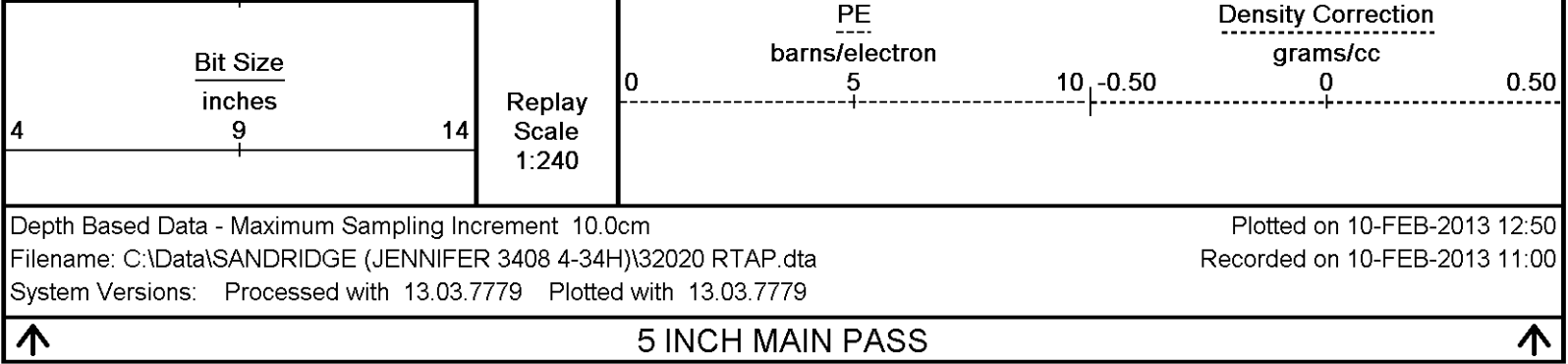
Limestone Neutron Por.₂
percent

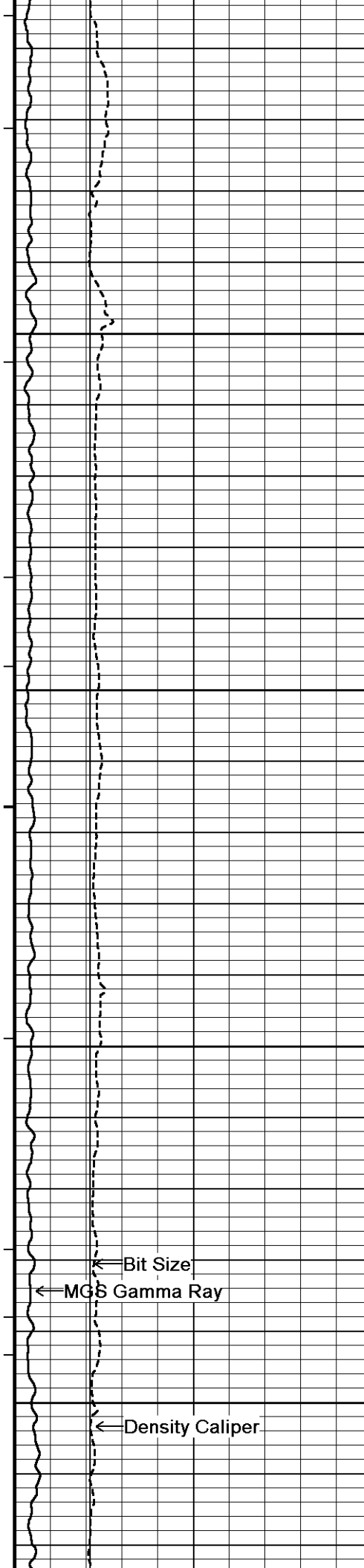
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70 60 50 40 30

Limestone Density Por.
percent

30 20 10 0 -10



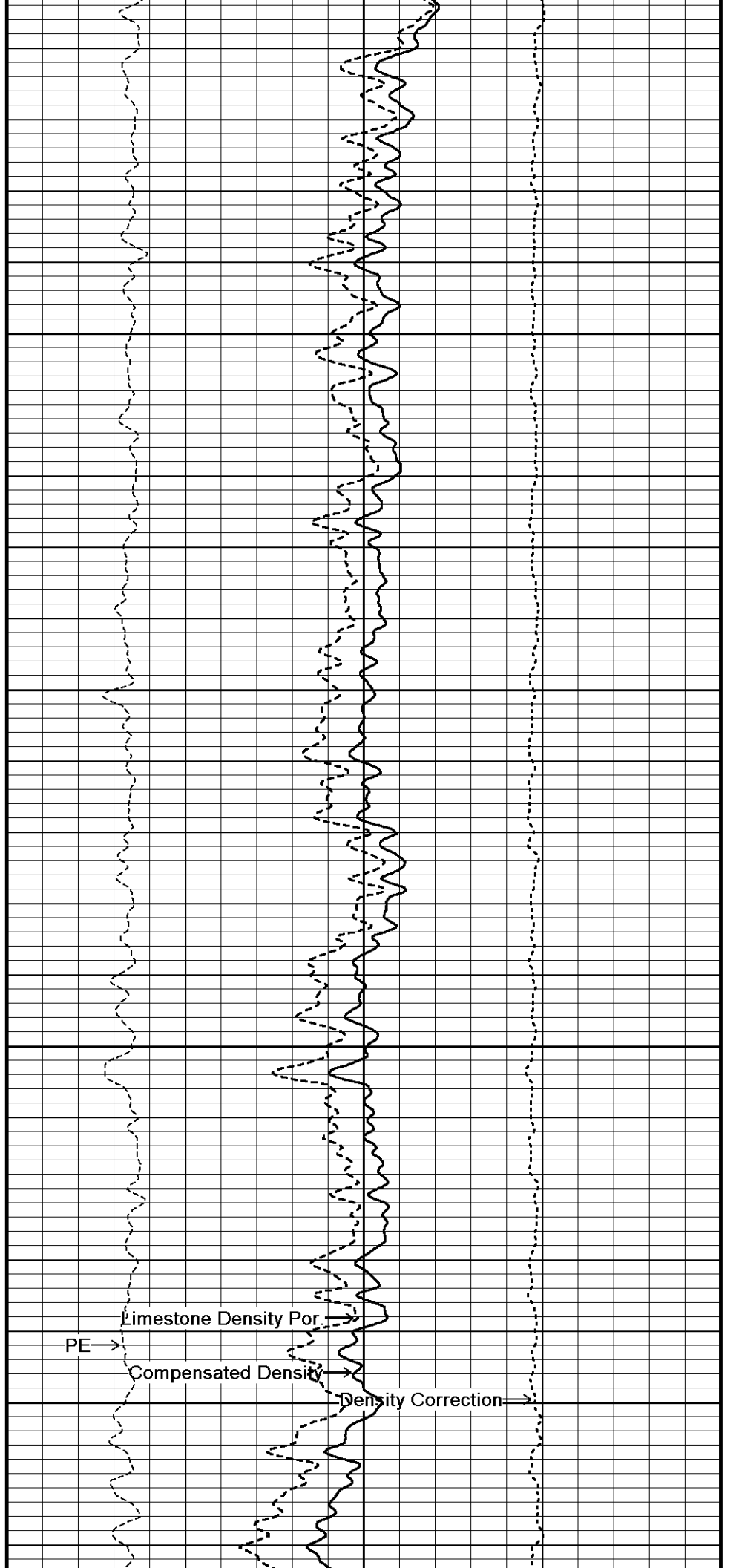


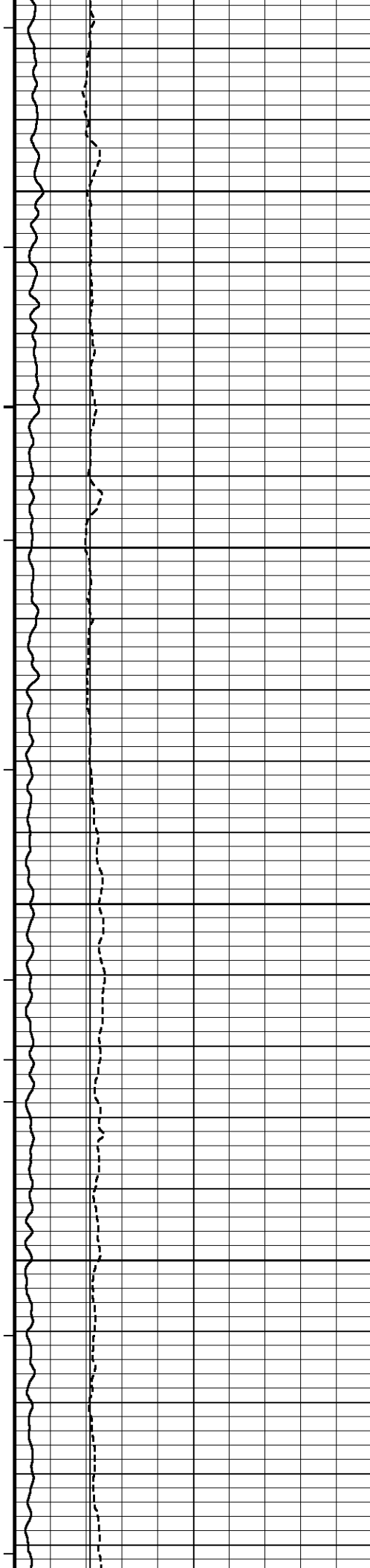
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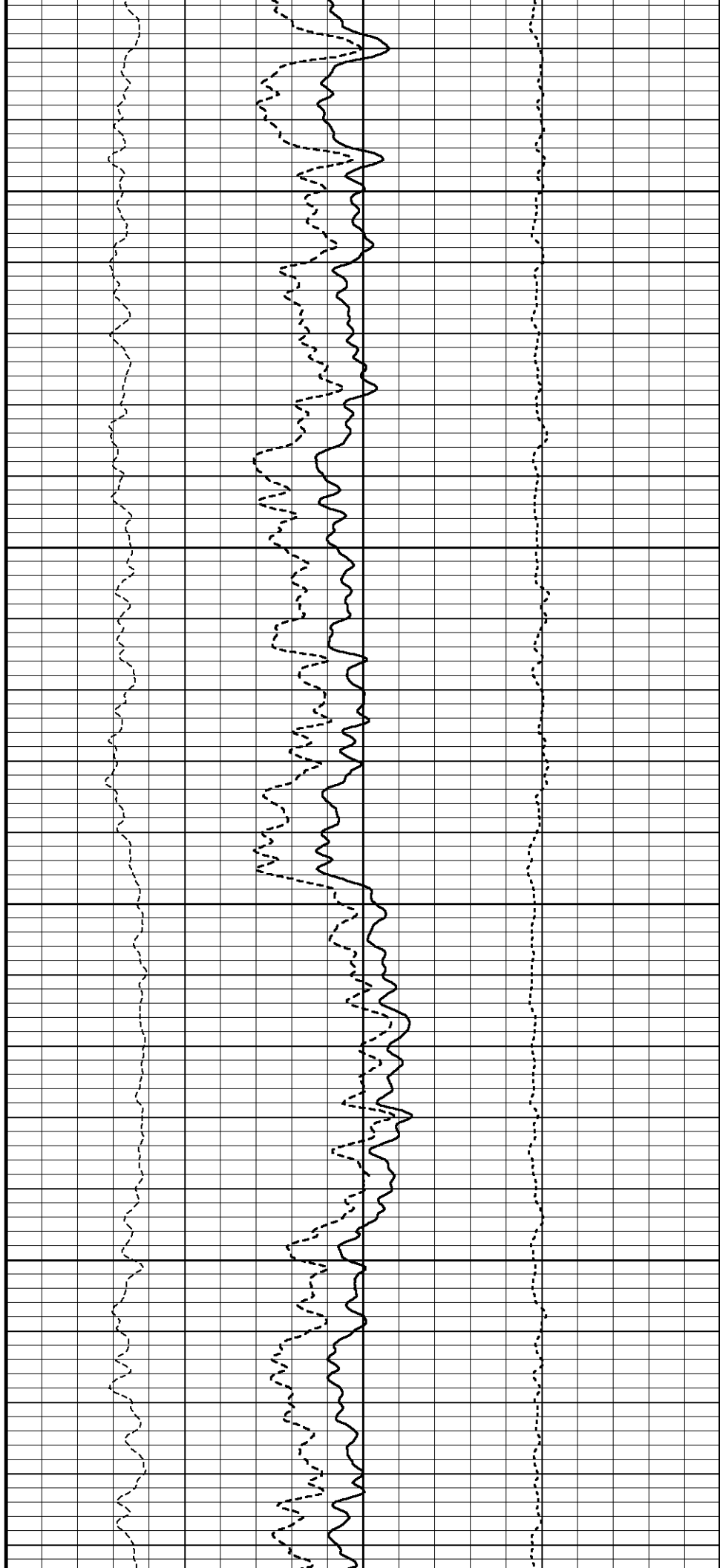


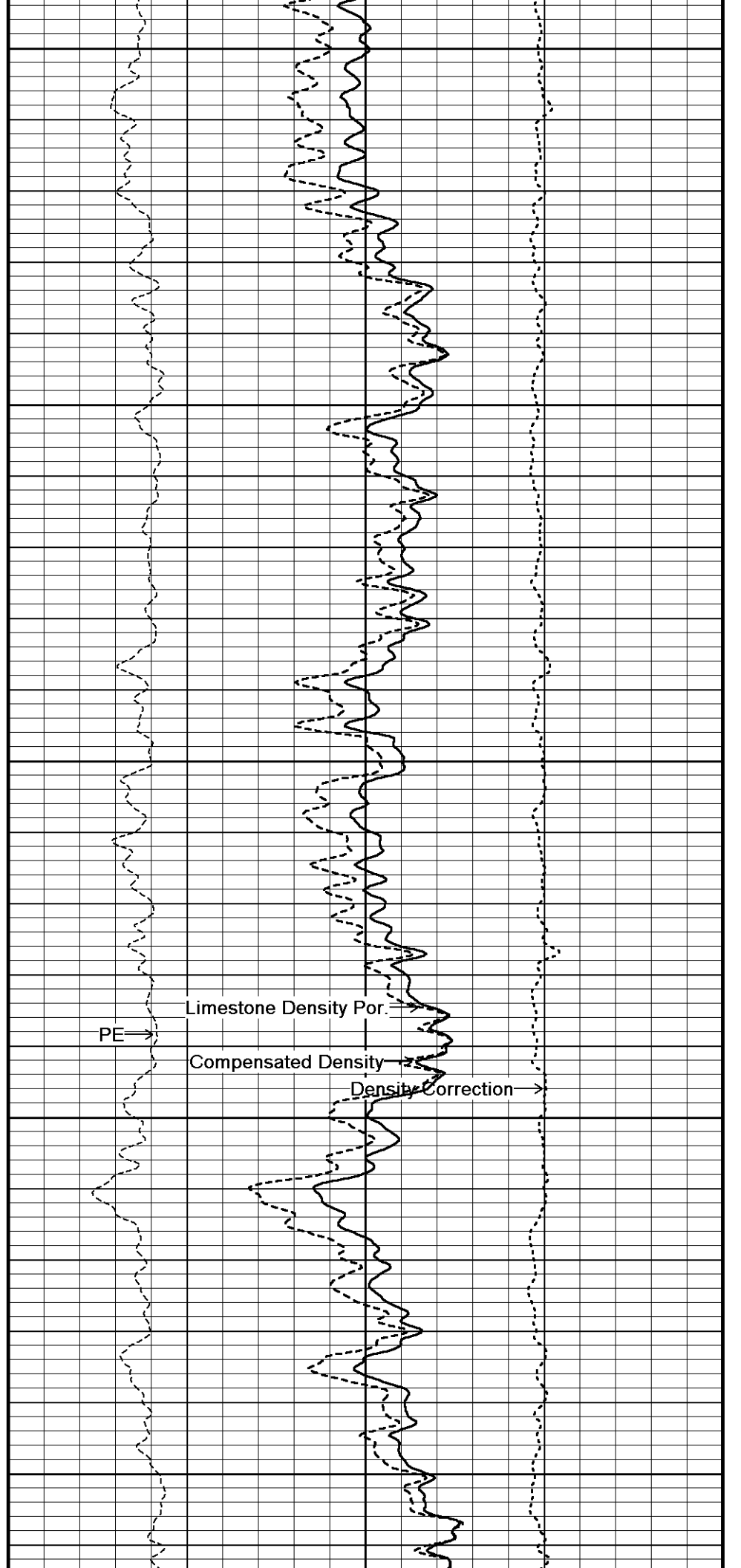
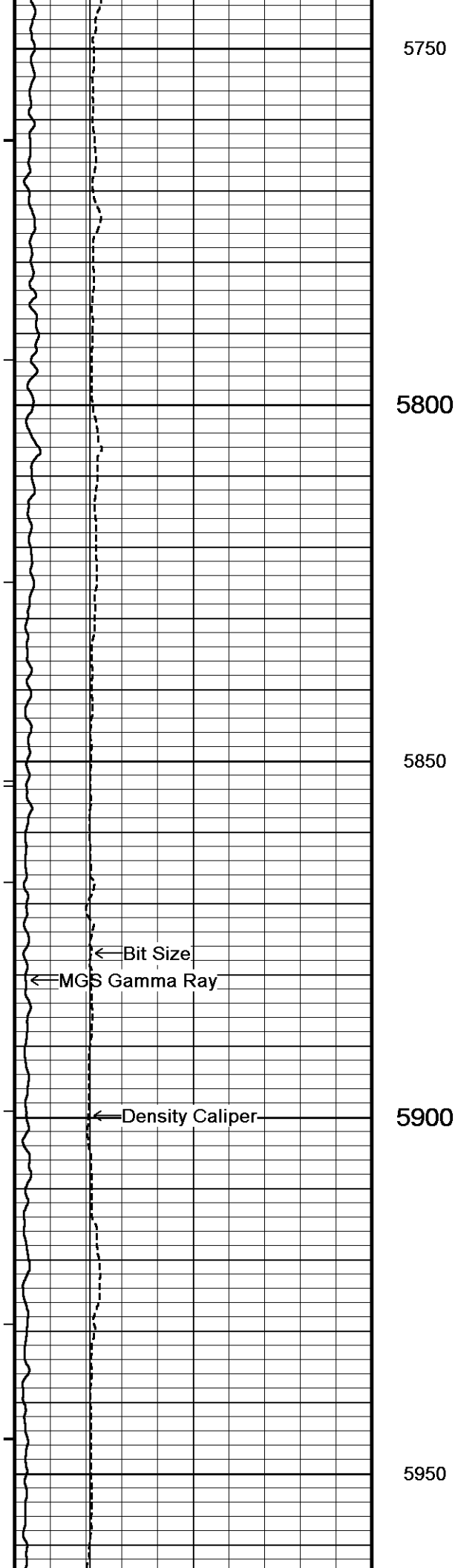
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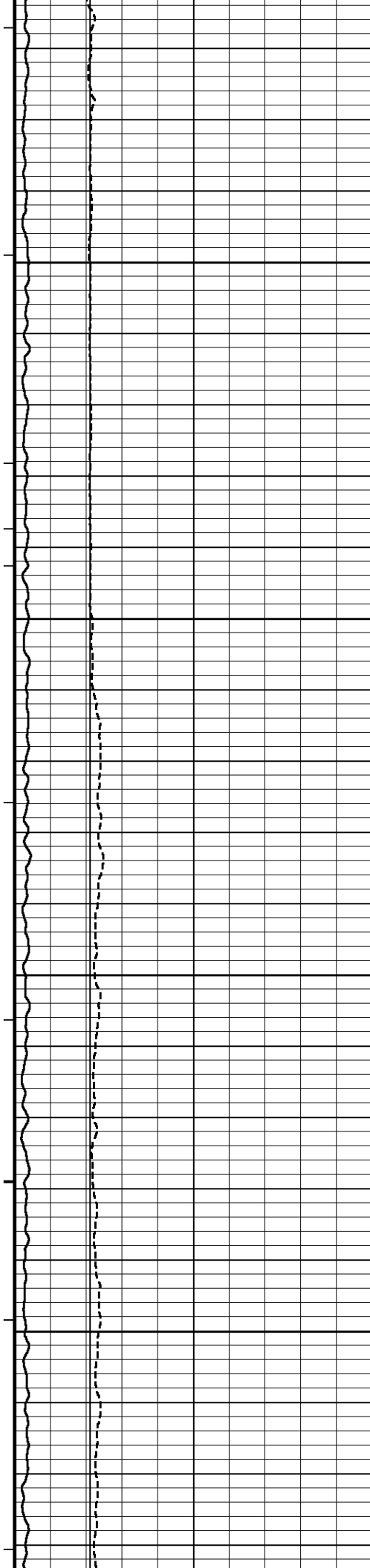
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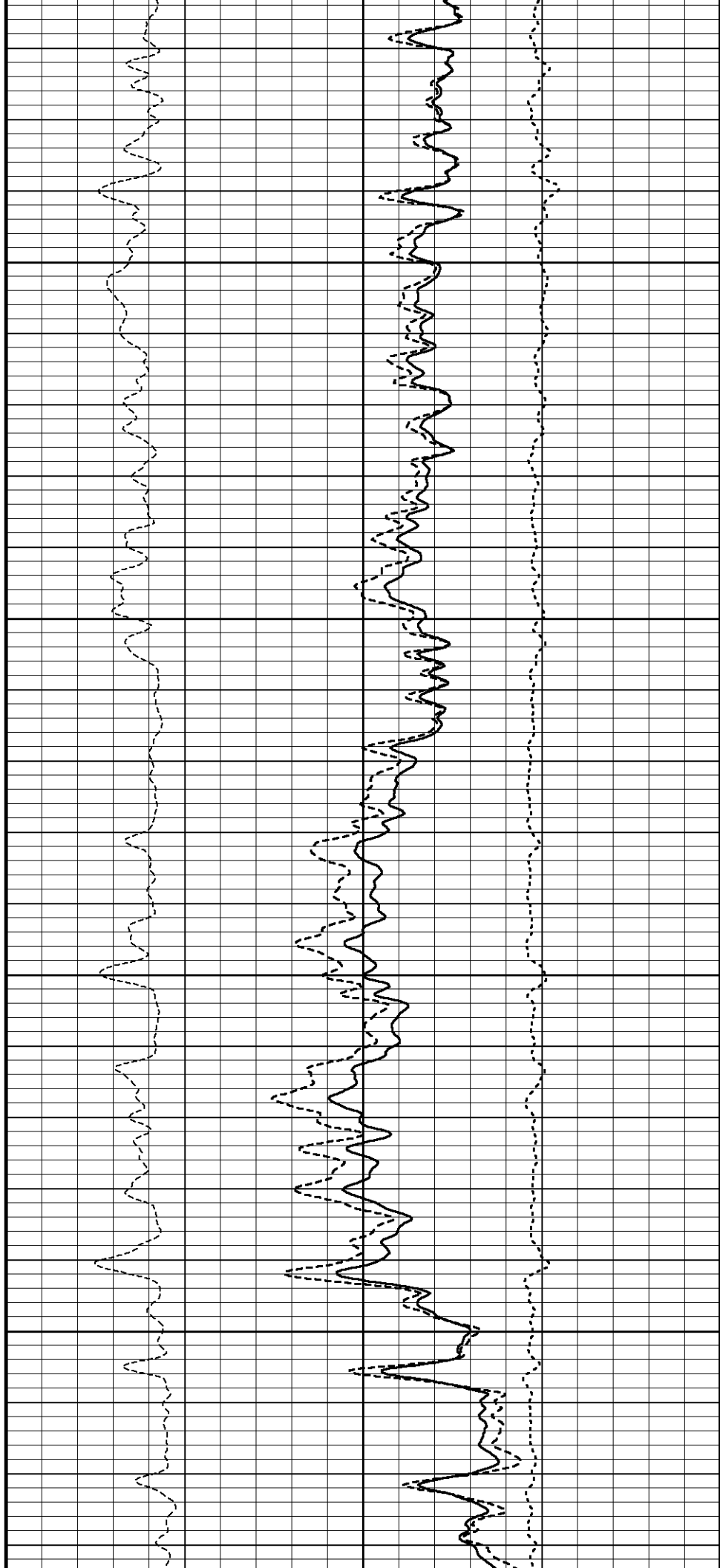


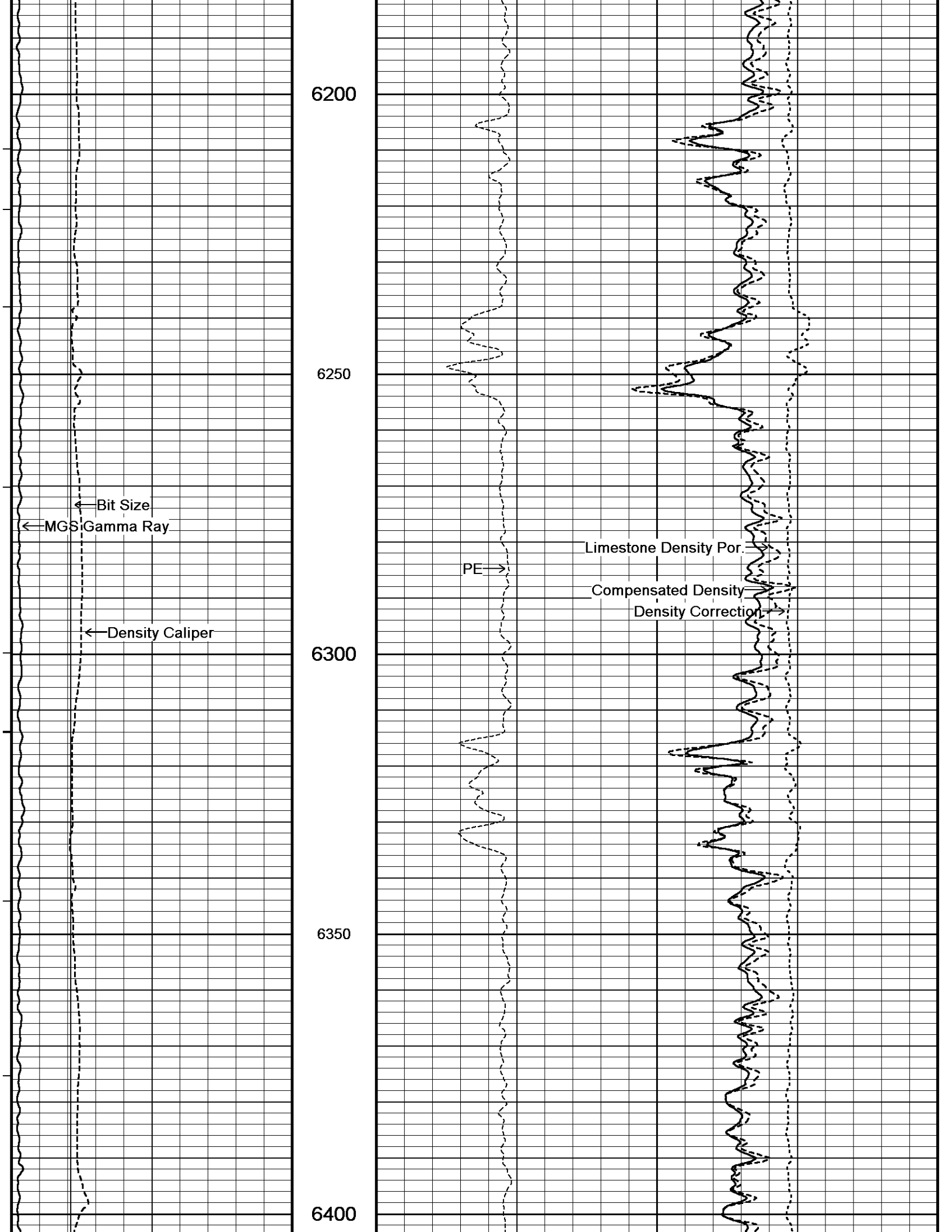
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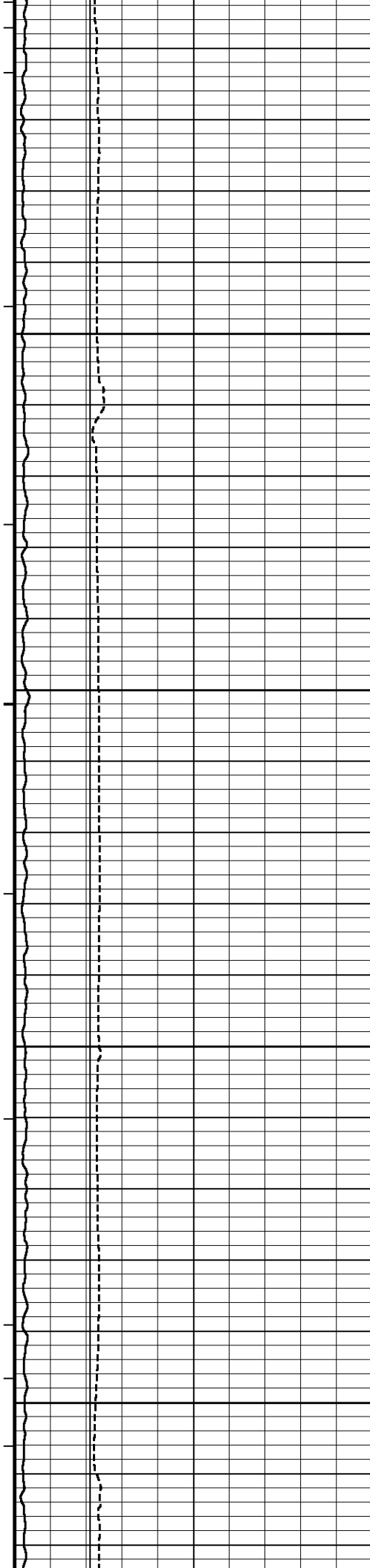
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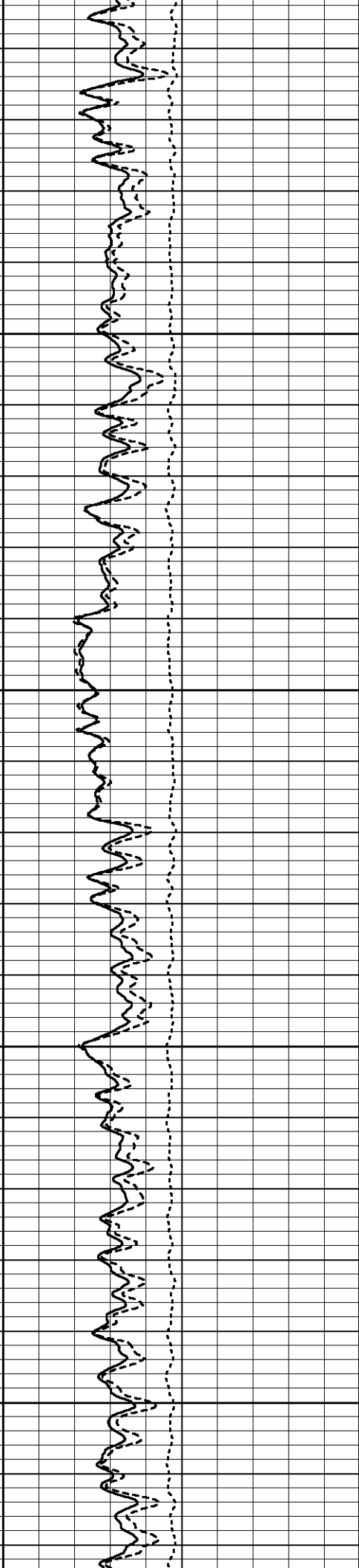
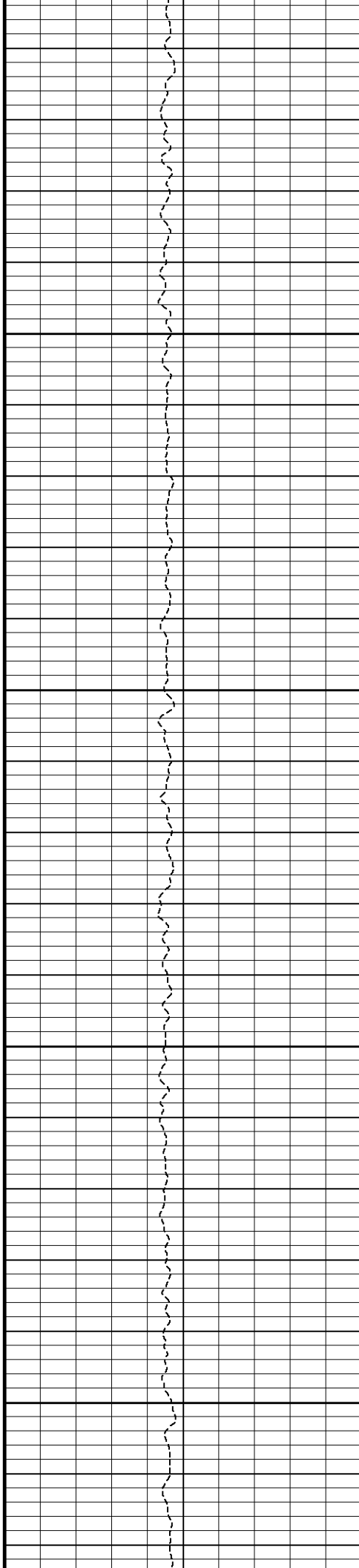


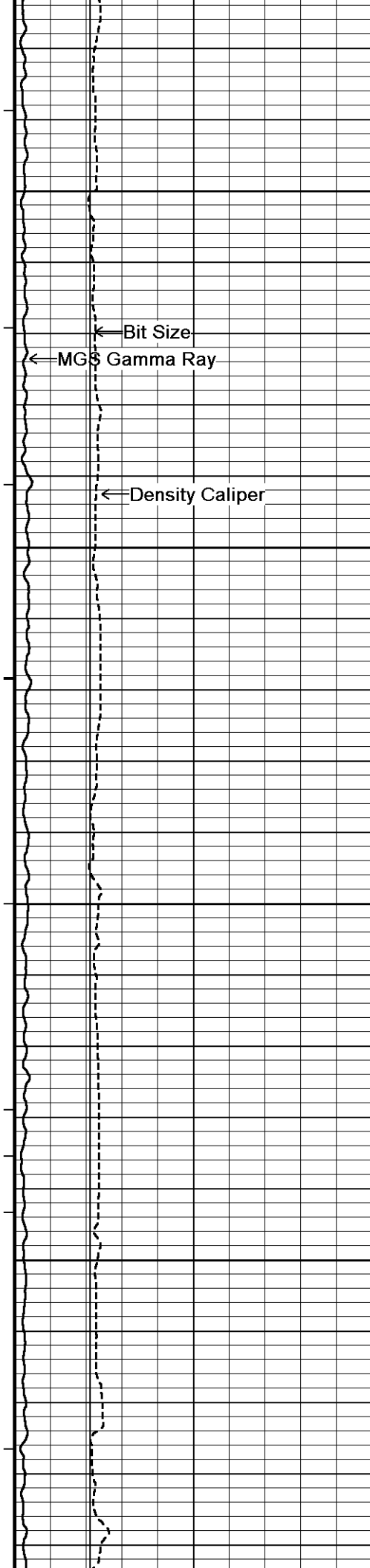
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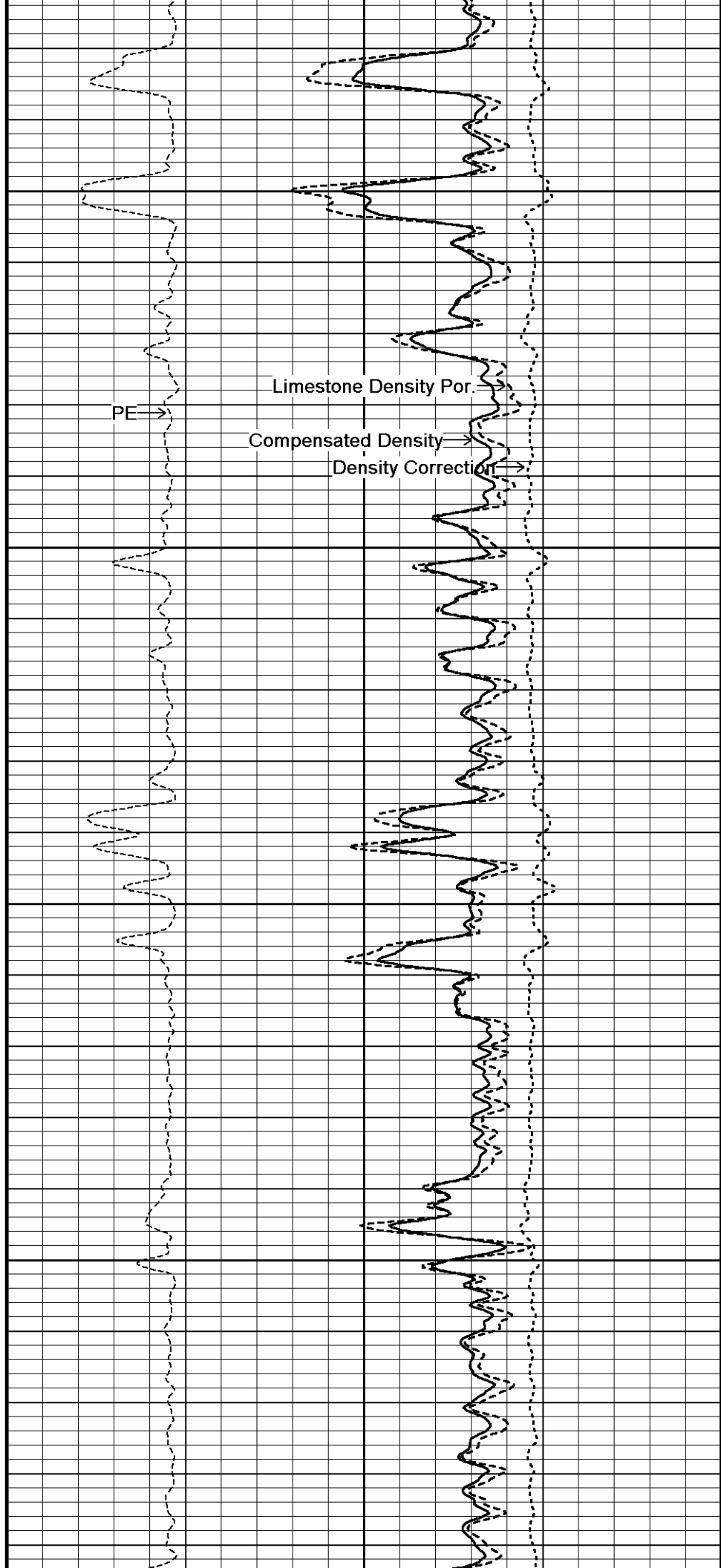


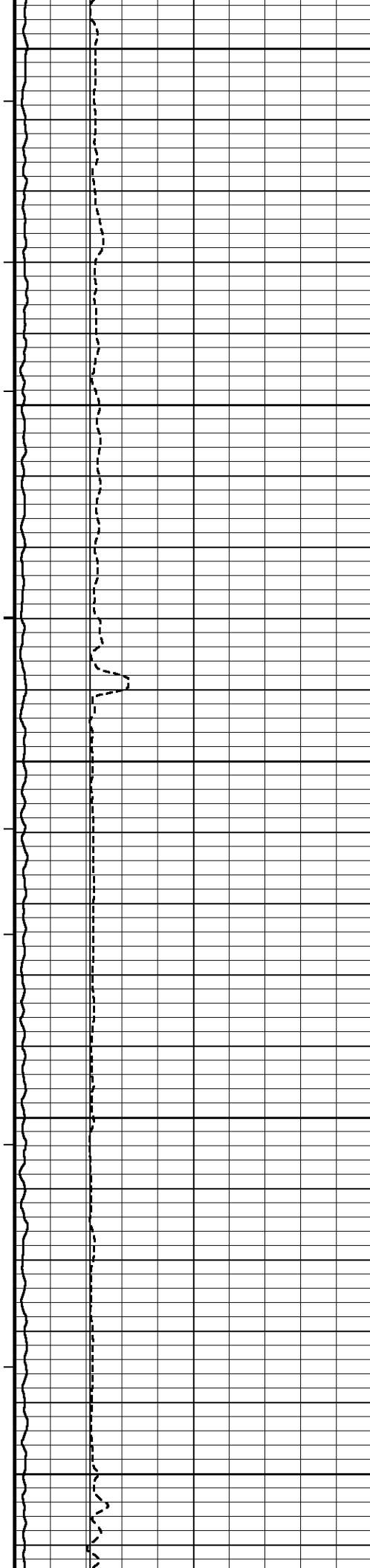
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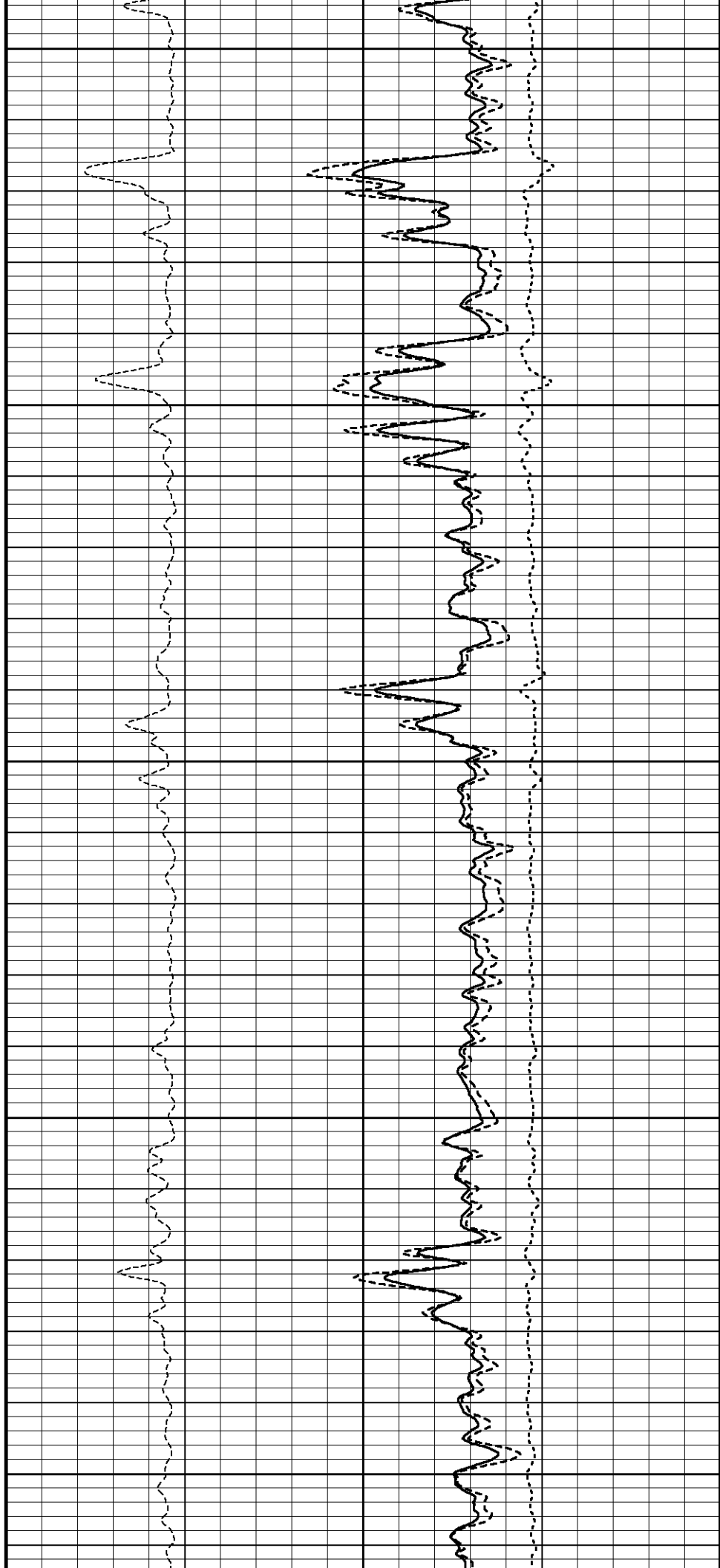
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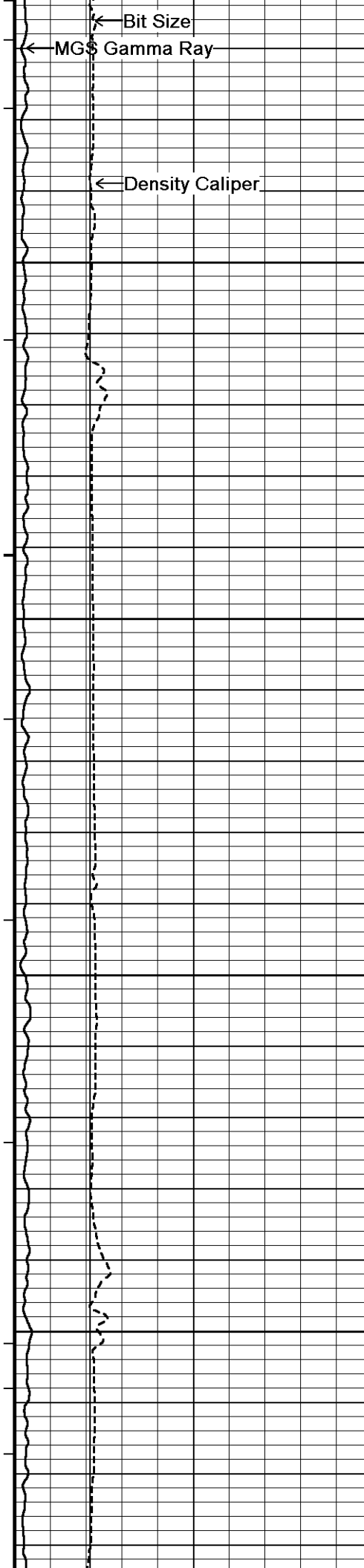
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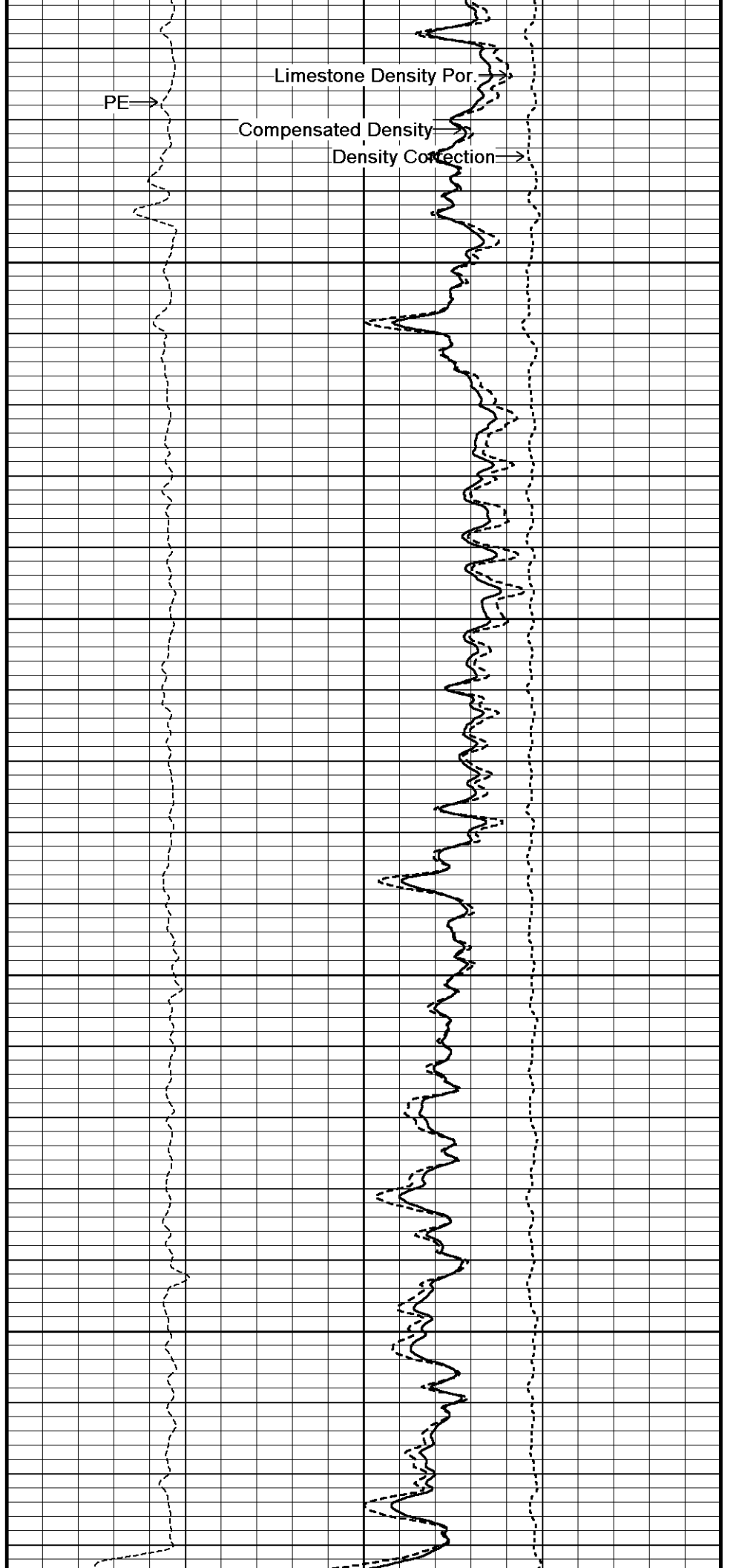


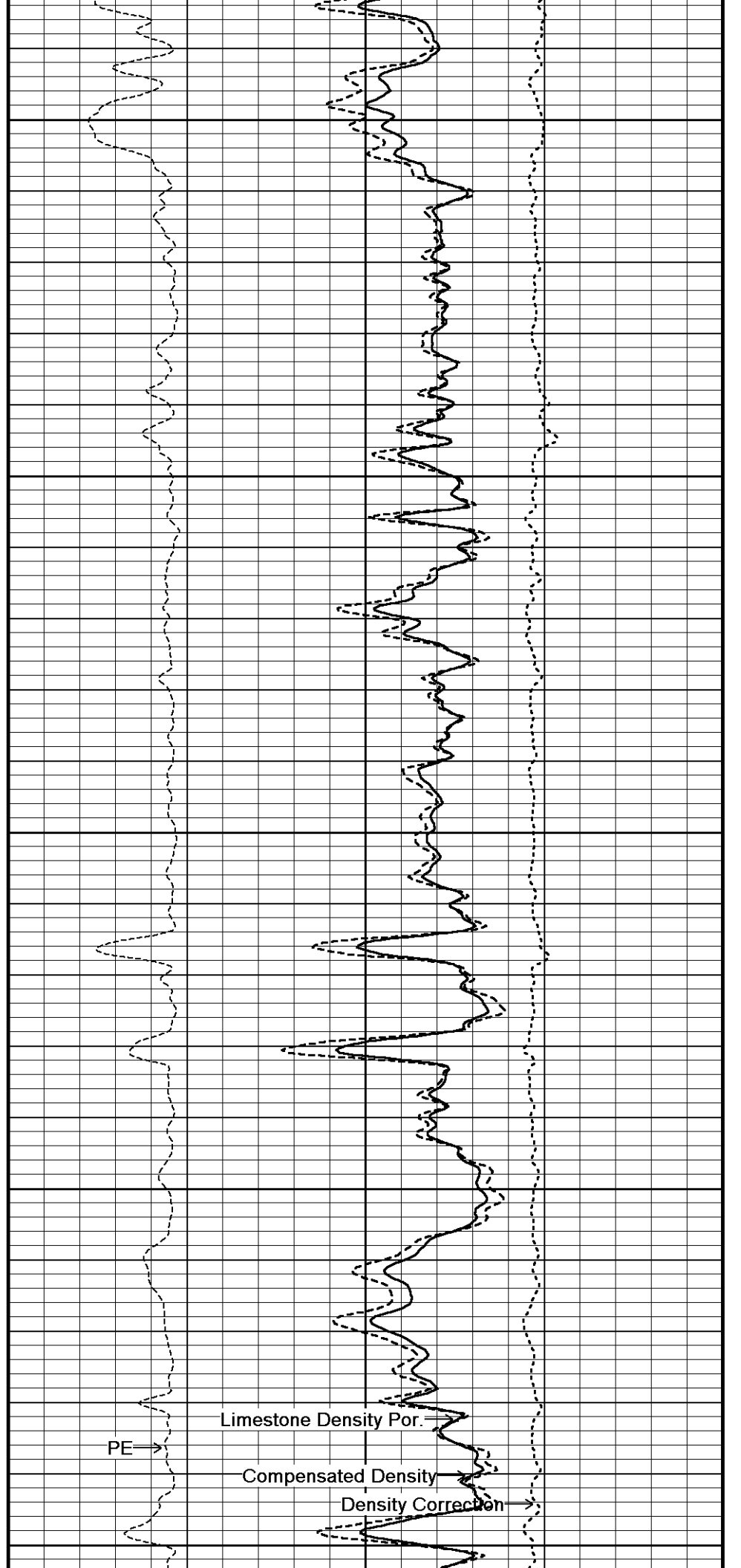
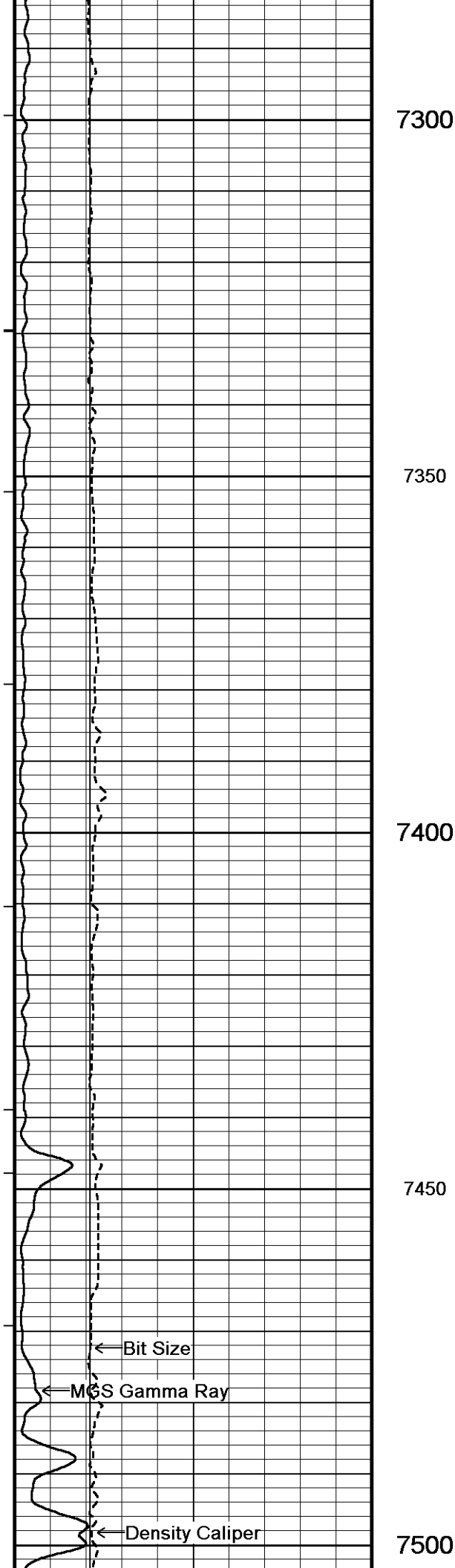
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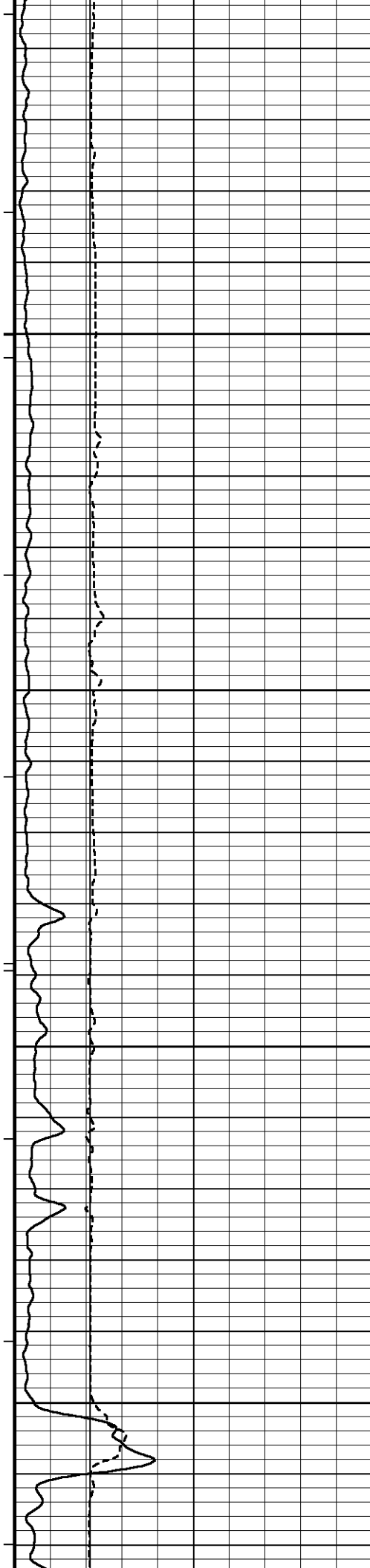
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7200

7250





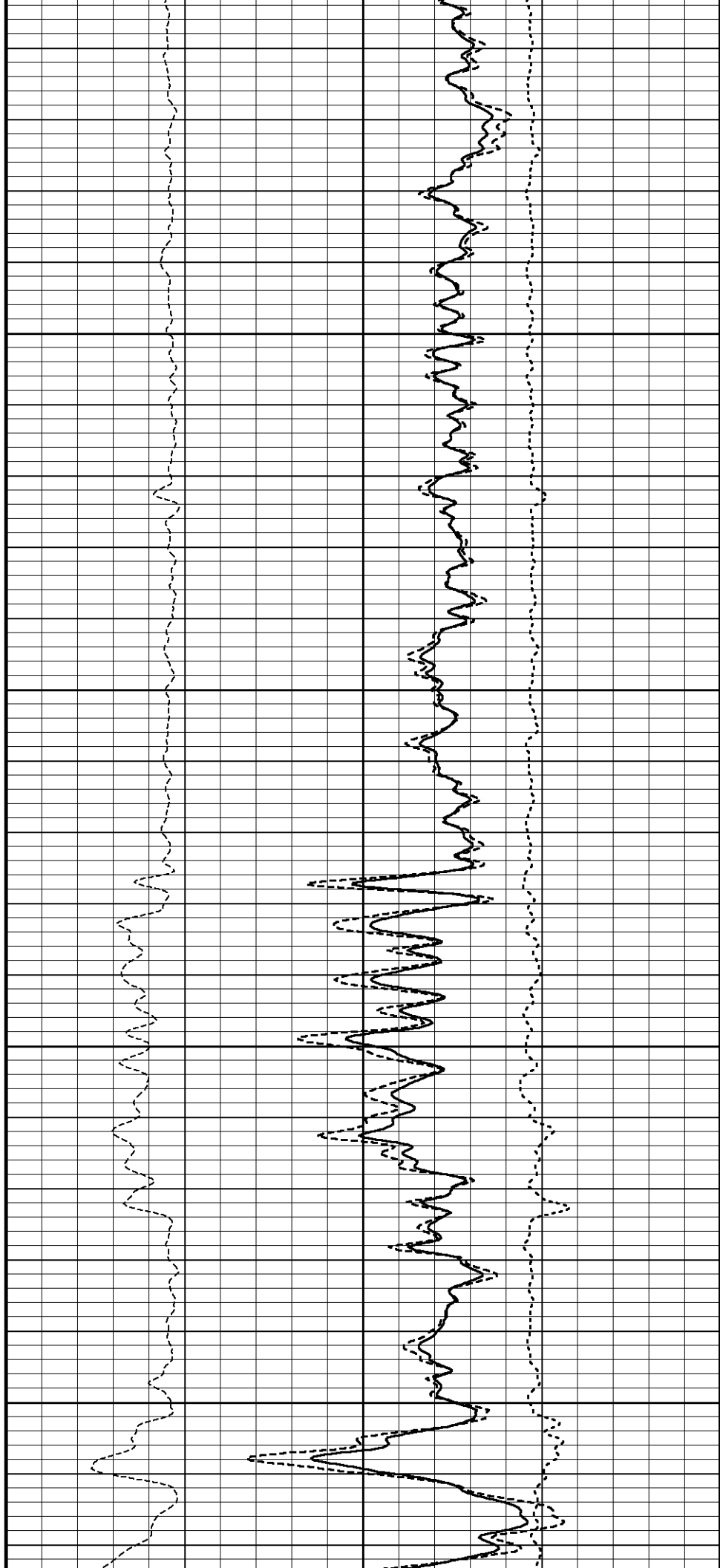


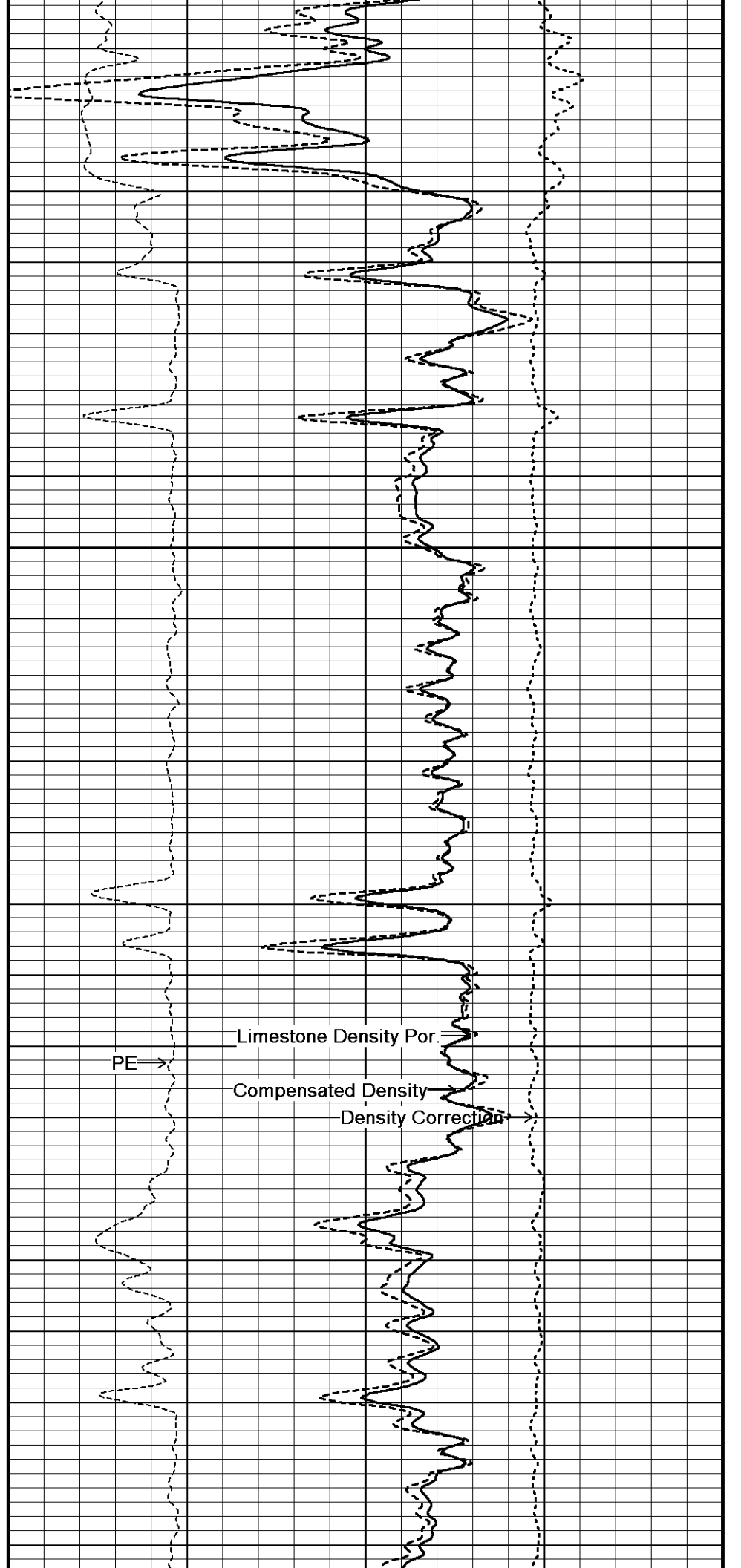
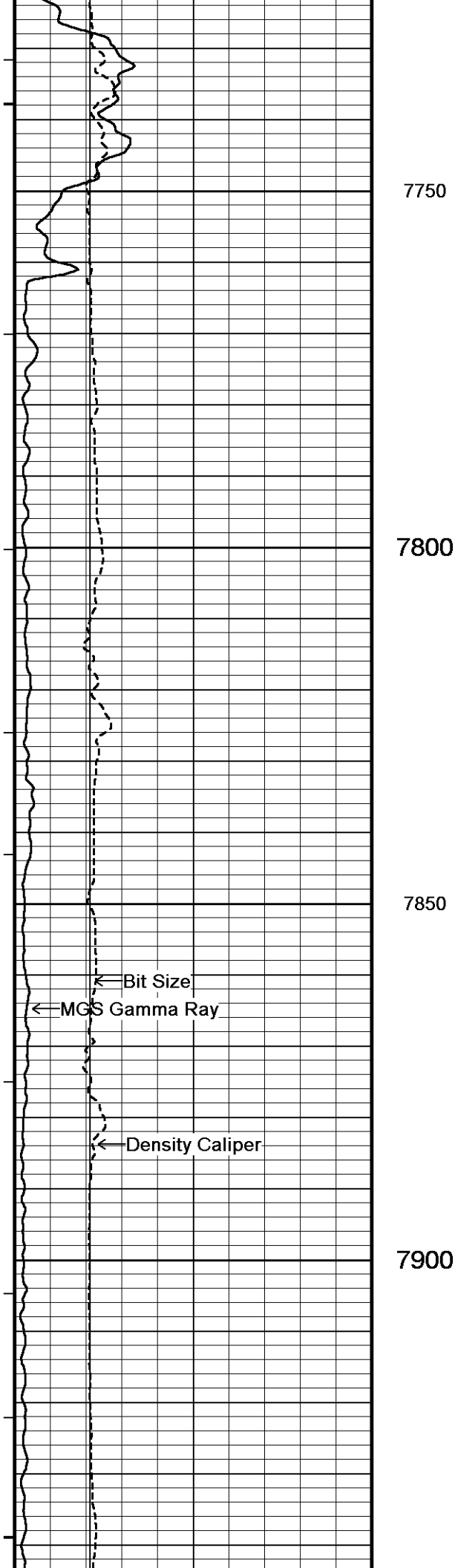
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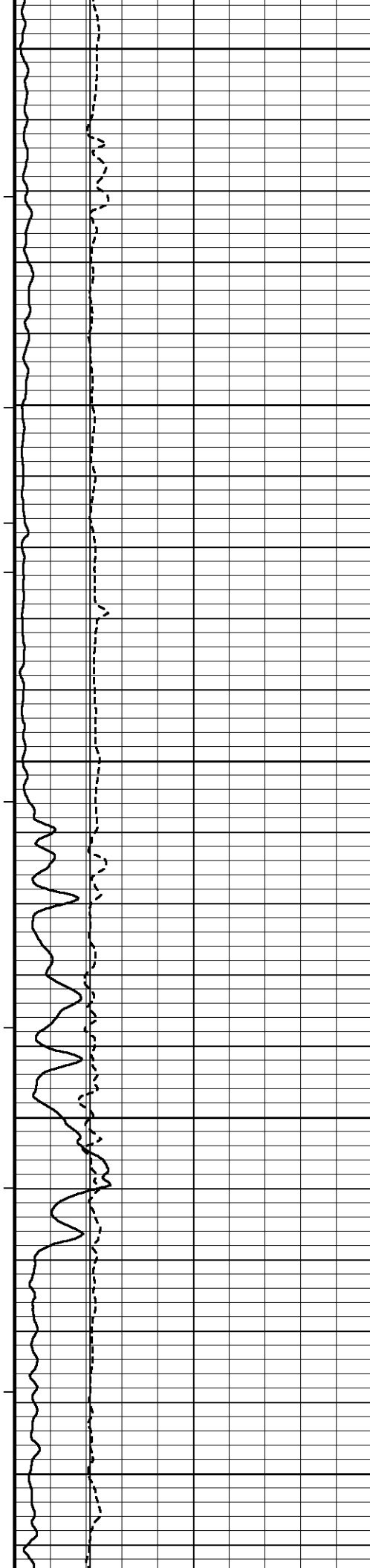
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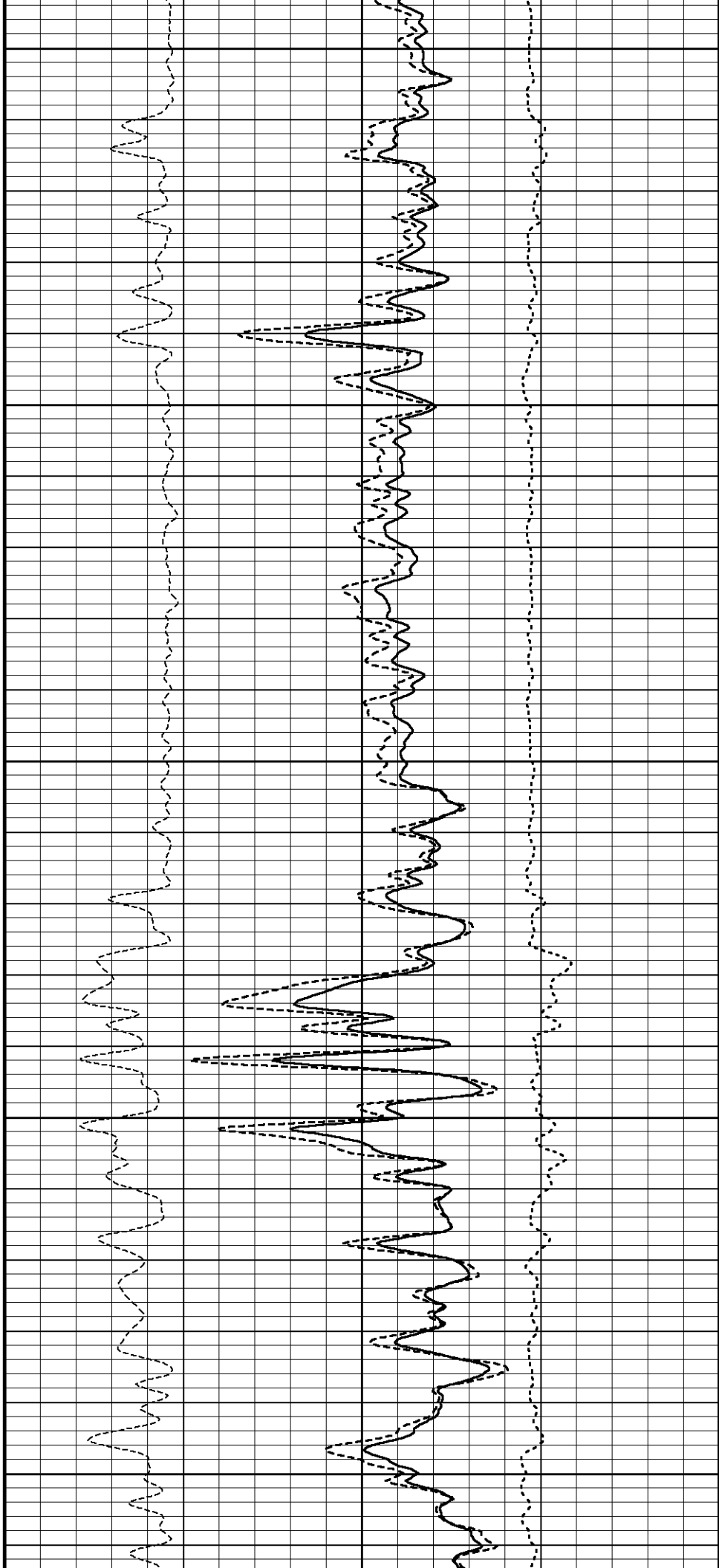
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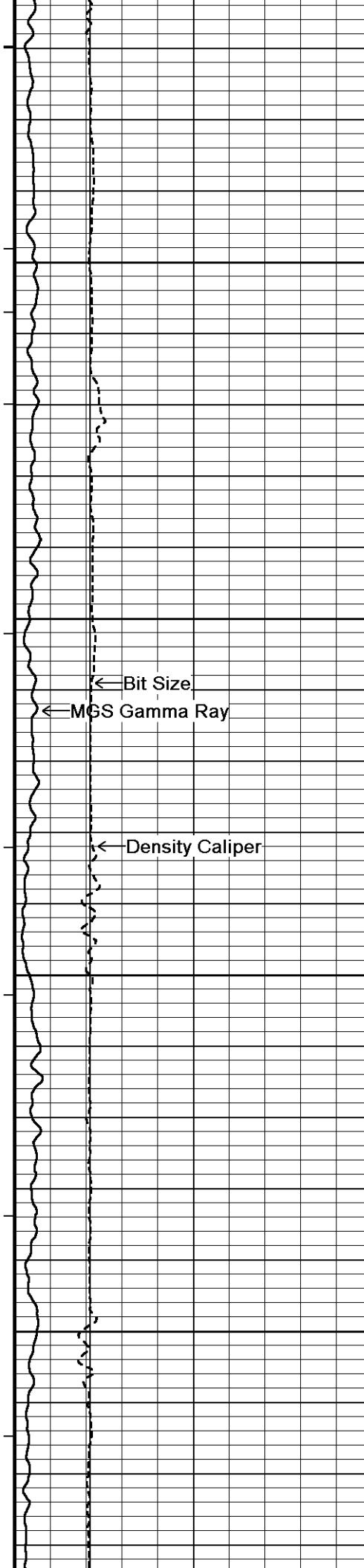
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8050

8100

8150



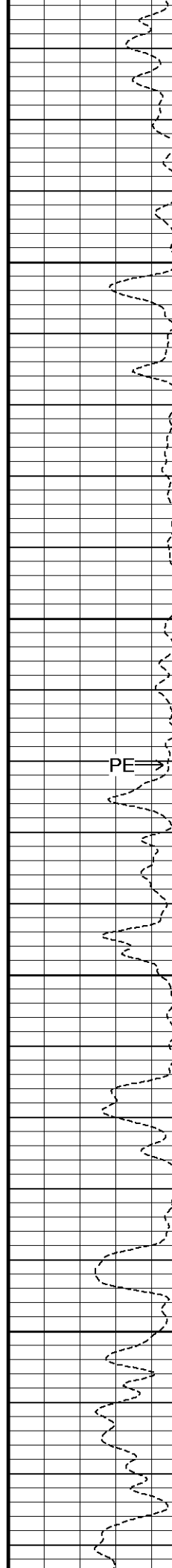


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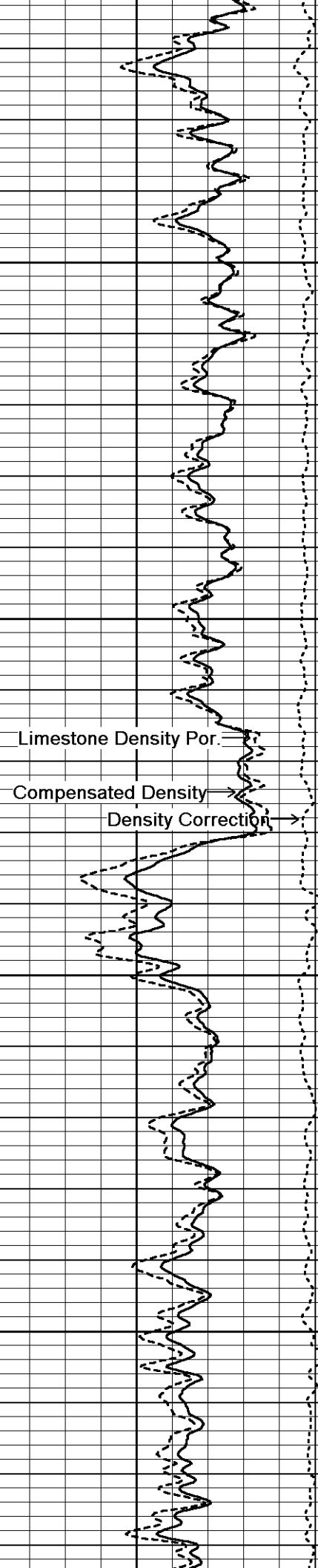
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8350



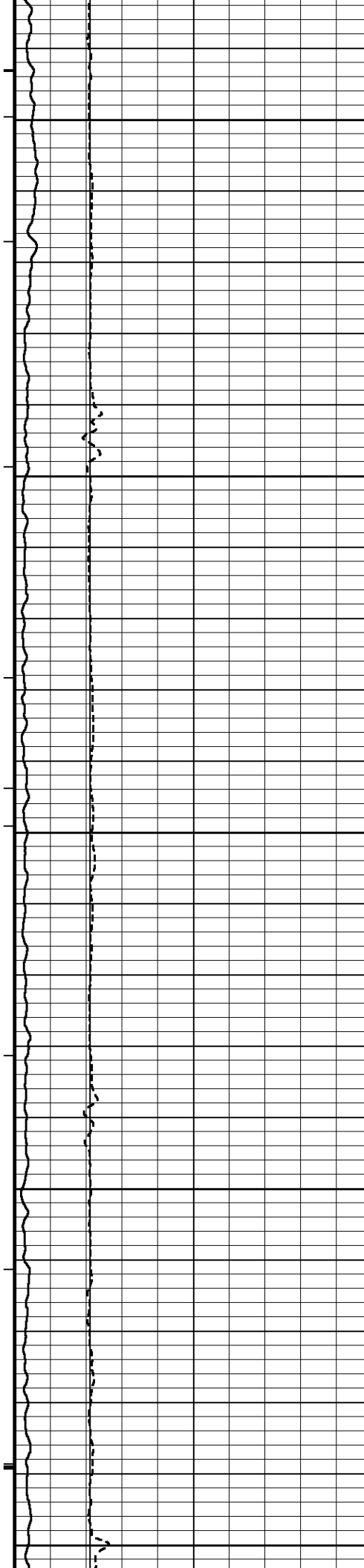
PE



Limestone Density Por.

Compensated Density

Density Correction



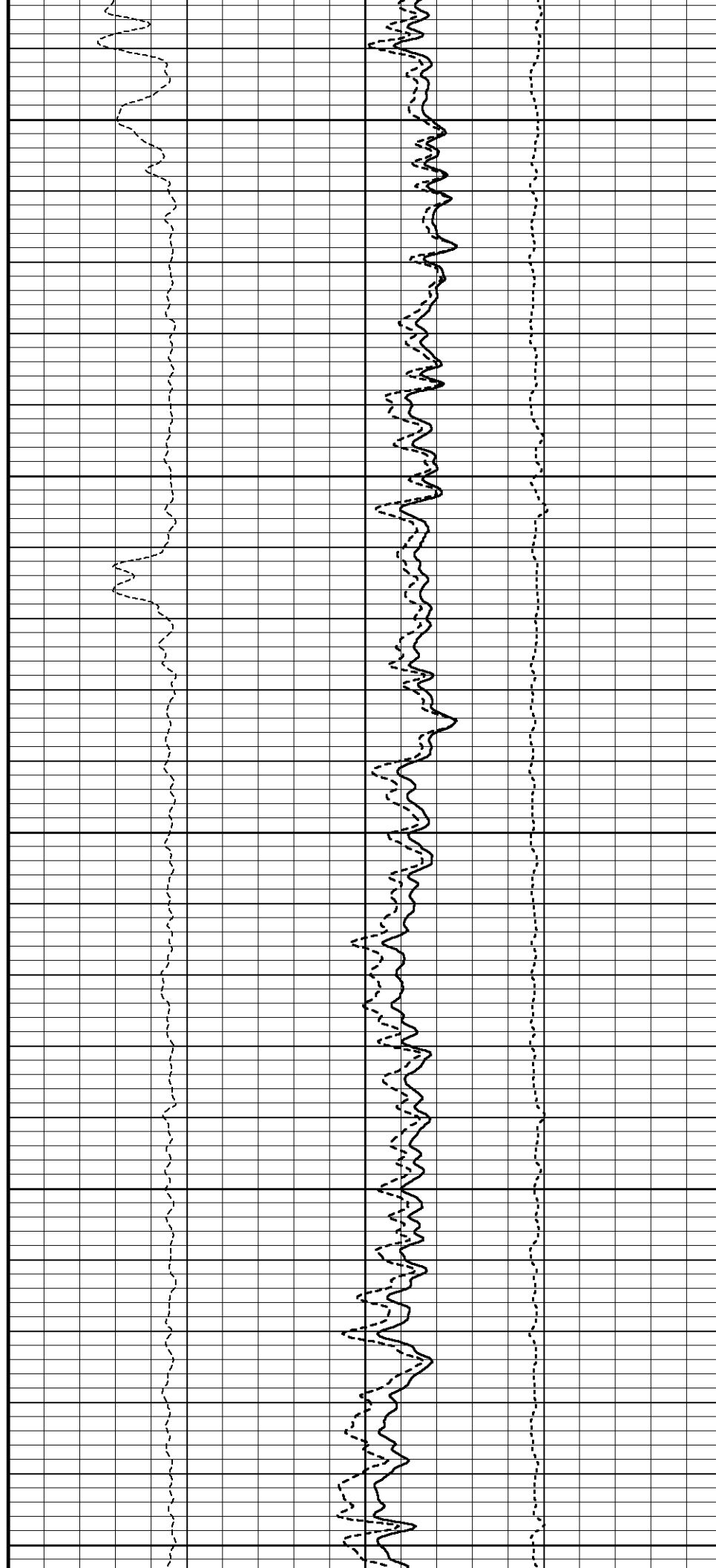
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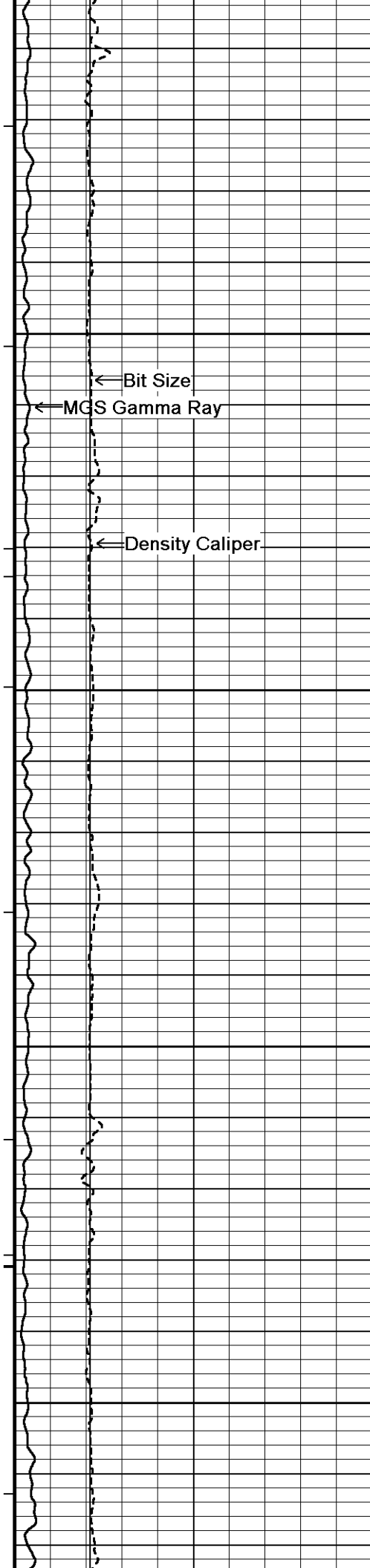
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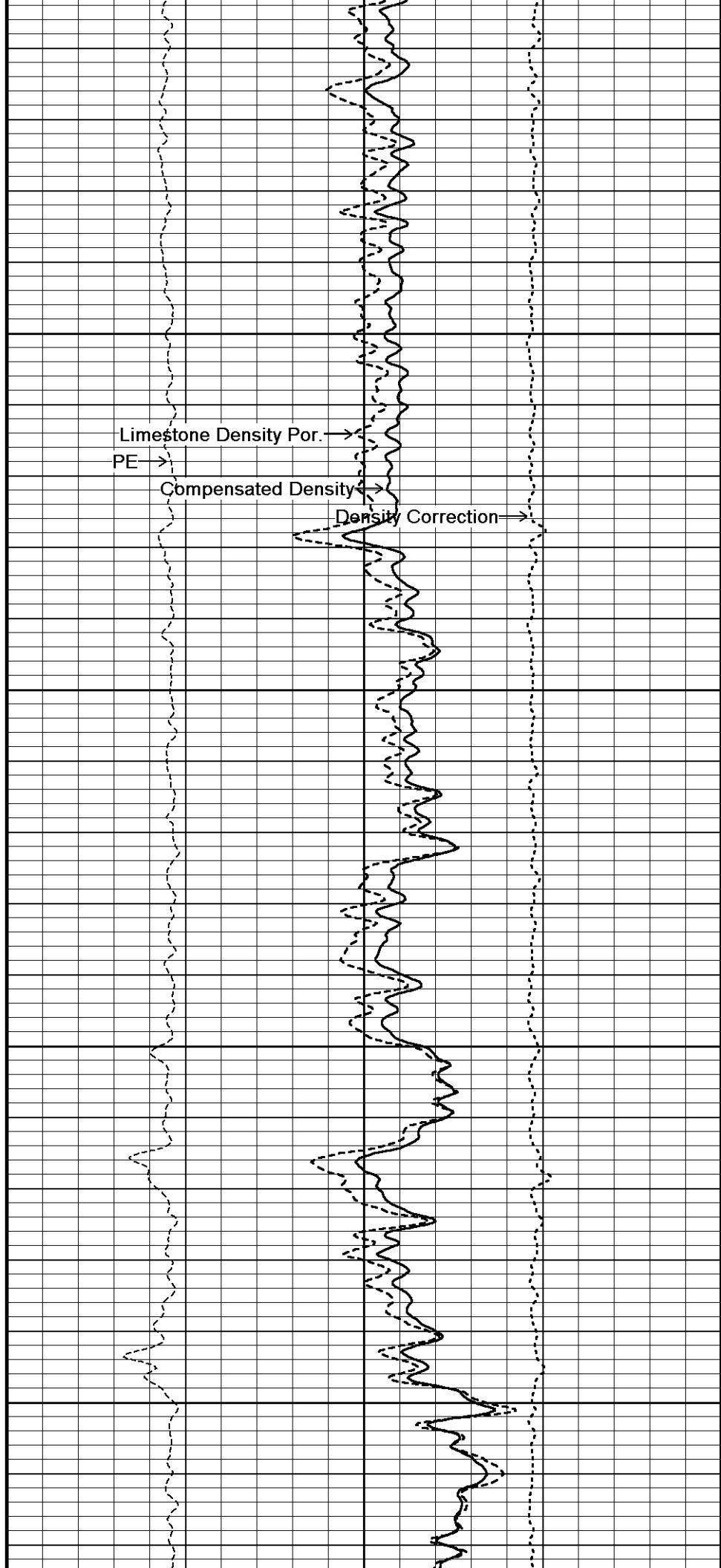


8650

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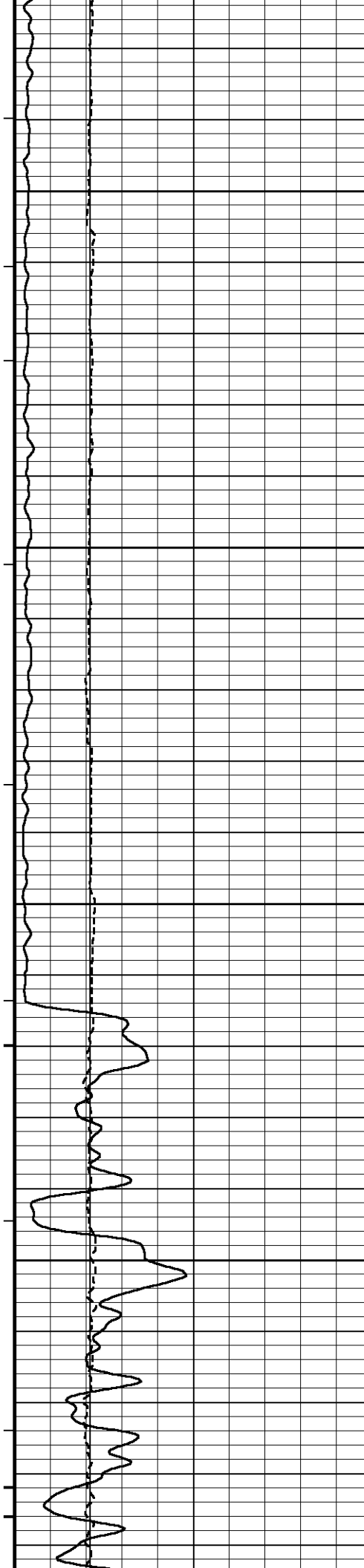


Limestone Density Por.

PE

Compensated Density

Density Correction

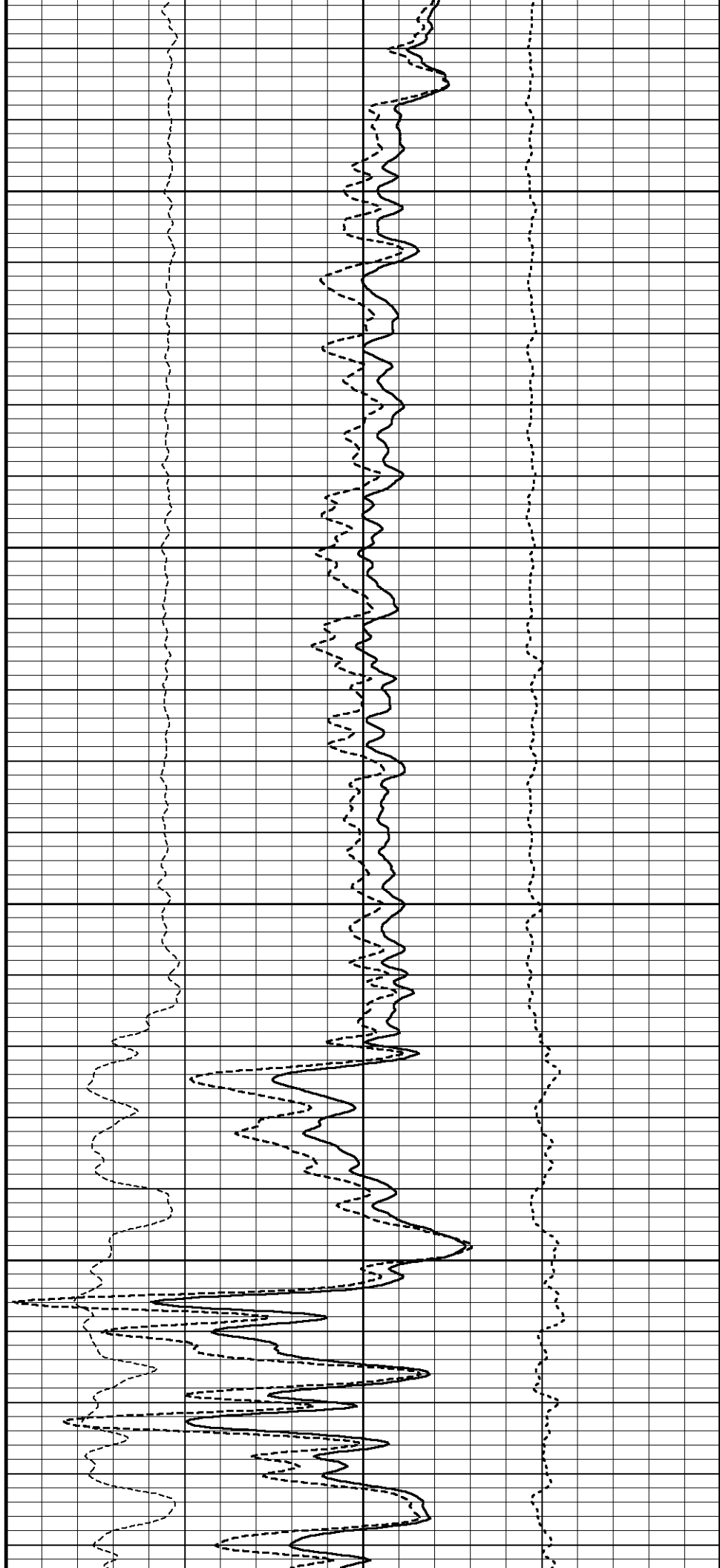


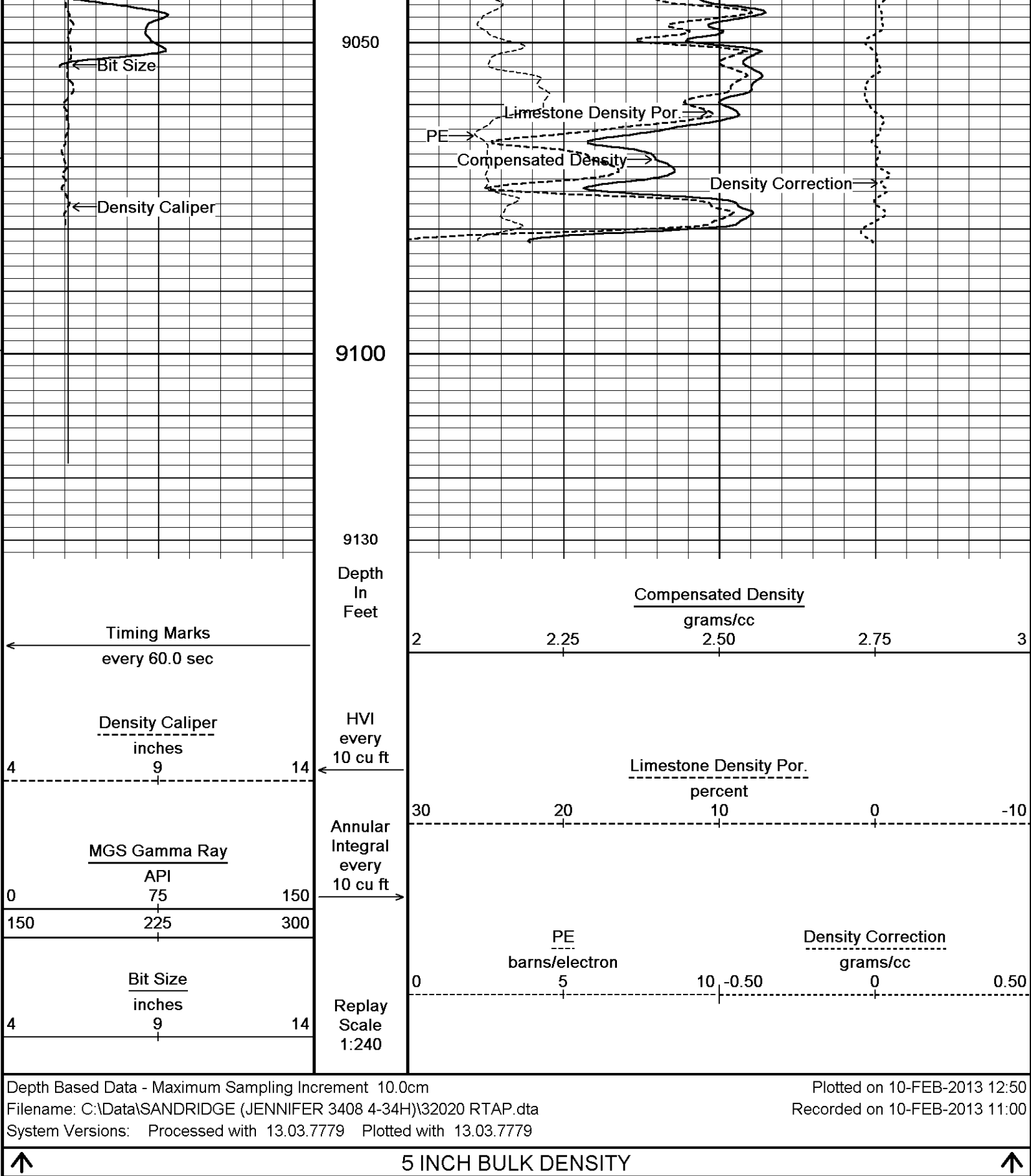
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9000





BEFORE SURVEY CALIBRATION		
C:\Data\SANDRIDGE (JENNIFER 3408 4-34H)\32020 RTAP.dta		
General Constants All 000		Last Edited on 10-FEB-2013,11:13
General Parameters		
Mud Resistivity	1.400	ohm-metres
Mud Resistivity Temperature	77.000	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	None	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
Down-hole Tension Calibration SMS 0		
		Field Calibration on 05-SEP-2012,13:01
Reading No	Measured	Calibrated (lbs)
1	15152.07	0.00
2	18386.74	2000.00
Strain Gauge Constants MMS-E.B 158		
		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
Pressure psia	Inc.	Dec.
0.0	0.000	0.000
2000.0	0.000	0.000
4000.0	0.000	0.000
6000.0	0.000	0.000
8000.0	0.000	0.000
10000.0	0.000	0.000
Gamma Calibration MGS-C.J 133		
		Field Calibration on 09-FEB-2013 08:02
	Measured	Calibrated (API)
Background	37	14
Calibrator (Gross)	1836	710
Calibrator (Net)	1800	696
Gamma Constants MGS-C.J 133		
		Last Edited on 09-FEB-2013,12:46
Gamma Calibrator Number	036	
Mud Density	1.01	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm
SP Calibration MGS-C.J 133		
		Field Calibration on 07-FEB-2013,10:52
	Measured	Calibrated (mV)
Reference 1	-100.0	-100.0
Reference 2	100.0	100.0
High Resolution Temperature Calibration MGS-C.J 133		
		Field Calibration on 09-FEB-2013,12:46
	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	0.00	0.00
High Resolution Temperature Constants MGS-C.J 133		
		Last Edited on 09-FEB-2013,12:46
Pre-filter Length	11	
Neutron Calibration MDN-B.J 423		
		Base Calibration on 21-JAN-2013 09:28
		Field Check on 09-FEB-2013 07:55
Base Calibration		

		Measured		Calibrated (cps)	
		Near	Far	Near	Far
		2797	85	3714	110
Ratio		32.949		33.764	
Field Calibrator at Base				Calibrated (cps)	
				2242	3339
Ratio				0.671	
Field Check				Calibrated (cps)	
				2206	3107
Ratio					

Neutron Constants MDN-B.J 423			Last Edited on 09-FEB-2013,12:46	
Neutron Source Id		000		
Neutron Jig Number		000		
Epithermal Neutron		No		
Caliper Source for Processing	Density Caliper			
Stand-off		0.00	inches	
Mud Density		0.99	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		None		
Temperature		N/A	degrees F	
Mud Salinity		0.00	kppm	
Salinity Correction		Not Applied		
Formation Fluid Salinity Source		None		
Formation Fluid Salinity		N/A	kppm	
Barite Mud Correction		Not Applied		

FE Calibration MFE-B.A 247			Base Calibration on 07-DEC-2012 09:33 Field Check on 09-FEB-2013 07:40	
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	973.7	126.8		
Base Check		278.9		
Field Check		288.4		

FE Constants MFE-B.A 247			Last Edited on 09-FEB-2013,12:49	
Running Mode		No Sleeve		
MFE K Factor		0.1268		
Caliper Source for FE correction	Density Caliper			
Caliper Value for FE correction		N/A	inches	
Rm Source for FE correction	Temperature Corr			
Temp. for Rm Corr.	MGS External Temperature			
Stand-off		0.5	inches	

High Resolution Temperature Calibration MAI-C.A 427			Field Calibration on 07-FEB-2013,10:52	
	Measured	Calibrated(Deg F)		
Lower	10.00	10.00		
Upper	100.00	100.00		

High Resolution Temperature Constants MAI-C.A 427			Last Edited on 07-FEB-2013,10:51	
Pre-filter Length		11		

Induction Calibration MAI-C.A 427			Base Calibration on 27-JAN-2013,14:35 Field Check on 09-FEB-2013 07:39	
Base Calibration				
Test Loop Calibration				
Channel	Low	High	Low	High
1	14.4	434.9	9.3	966.2
2	5.8	355.4	7.6	821.4
3	2.7	244.4	5.2	566.0

4	1.8	129.3	2.6	279.2
Array Temperature		22.9	Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			17.1	4141.0
2			31.9	3771.5
3			31.3	3210.4
4			20.0	2124.5
Deep			19.5	2019.8
Medium			45.9	4289.8
Shallow			47.1	5681.3
Array Temperature			37.9	Deg F

Induction Constants MAI-C.A 427				Last Edited on 10-FEB-2013,11:13	
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			

Photo Density Calibration MPD-D.A 471				Base Calibration on 04-FEB-2013 13:31	
				Field Check on 09-FEB-2013 07:45	
Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
	Near	Far	Near	Far	
Reference 1	54416	27473	59869	31110	
Reference 2	22802	2732	24557	2522	
Field Check at Base					
	1278.8	1479.3			
Field Check					
	1279.8	1470.5			
PE Calibration					

Base Calibration	WS	WH	Measured Ratio	Calibrated Ratio
Background	247	1133		
Reference 1	24125	54197	0.450	0.369
Reference 2	7025	22646	0.315	0.271

Field Check at Base
247.3 1133.4

Field Check
244.9 1135.2

Density Constants MPD-D.A 471

Last Edited on 09-FEB-2013,12:47

Density Source Id	243	
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	1.01	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	

Caliper Calibration MPD-D.A 471

Base Calibration on 04-FEB-2013 23:20

Field Calibration on 09-FEB-2013 07:48

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	19168	3.99
2	28887	5.97
3	38925	7.99
4	48364	9.86
5	59511	11.93
6	N/A	N/A

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

DOWNHOLE EQUIPMENT

C:\Data\SANDRIDGE (JENNIFER 3408 4-34H)\32020 RTAP.dta

Shuttle Running Tool 3.5")
SRT-A.A 40 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 112 LG: 10.61 ft WT: 70.5 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 158 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 63 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in



Compact Short Gamma
MGS-C.J 133 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 72 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 458 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 432 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 247 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 423 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-D.A 471 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 315 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 477 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

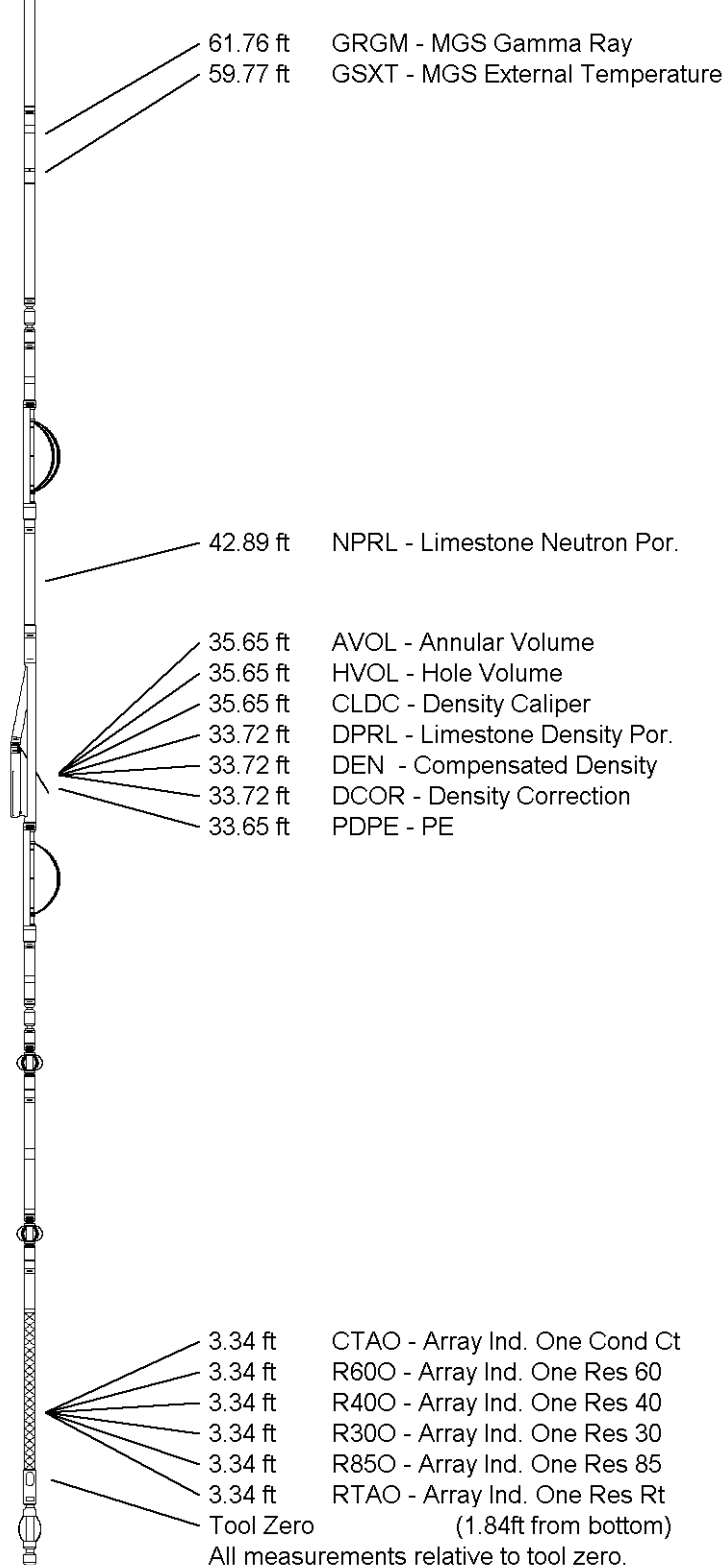
MIS-B Compact Inline Standoff sub
MIS-B 102 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-B.A 247 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 336 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-C.A 427 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 88.36 ft Weight: 637.1 lb



COMPANY	SANDRIDGE ENERGY
WELL	JENNIFER 3408 4-34H
FIELD	STRANATHAN
PROVINCE/COUNTY	HARPER
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1286.00	feet	First Reading	9082.00	feet
Elevation Drill Floor	1286.00	feet	Depth Driller	9142.00	feet
Elevation Ground Level	1270.00	feet	Depth Logger	9142.00	feet



CML MESSENGER SHUTTLE

Weatherford®

COMPACT PHOTO DENSITY

COMPENSATED NEUTRON LOG