CML IMPULSE SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG

Weatherford®

COMPANY	SANDRIDGE E&P LLC
WELL	BROCK 3418 1-24H
FIELD	HAAS WEST
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS
LOCATION	SHL: 200' FSL & 1000' FEL
	BHL: 330' FNL & 1000' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
24	34S	18W	MAI

API Number 15-033-21639-01
Permit Number

Permanent Datum G.L., Elevation 1864 feet
Log Measured From DF
Drilling Measured From DF @ 19.5 FEET

Elevations:	feet
KB	1883.50
DF	1883.50
GL	1864.00

Date	16-JUN-2012			
Run Number	ONE			
Depth Driller	9747.00	feet		
Depth Logger	9747.00	feet		
First Reading	9694.00	feet		
Last Reading	3500.00	feet		
Casing Driller	5840.00	feet		
Casing Logger	5840.00	feet		
Bit Size	6.125	inches		
Hole Fluid Type	WATER			
Density / Viscosity	8.30 lb/USg	33.00 CP		
PH / Fluid Loss	10.00	60.00 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.60 @ 98.0	ohm-m		
Rmf @ Measured Temp	0.48 @ 98.0	ohm-m		
Rmc @ Measured Temp	0.72 @ 98.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.43 @135.0	ohm-m		
Time Since Circulation	0 HOURS			
Max Recorded Temp	135.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	18006	OKC		
Recorded By	D. ROWELL			
Witnessed By	K. GENTRY			
S.O.# AFE	3535163 / DC12080			

BOREHOLE RECORD

Last Edited: 17-JUN-2012 14:54

Bit Size inches	Depth From feet	Depth To feet
6.125	5840.00	9747.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	5840.00	26.00

REMARKS

WLS SOFTWARE VERSION 12.02.4401 USED.
200V COMPACT MEMORY LOGGING - SHUTTLE IMPULSE SYSTEM

HARDWARE: BHA: SMS, SLS, SSS, 3 JOINTS OF 3.5" IF GARAGE PIPE, SLL, SUL, 3.5" DP, SFV, 3.5" DP

MPD: ECCENTRALISED SINGLE MIS.D, SHA, SKJ (BOTTOM)
MDN: SKJ, SHA, ECCENTRALISED DOUBLE MIS.D (TOP)
MFE: 0.5" STANDOFF - MIS.E INLINE STANDOFF (TOP), MIS.E INLINE STANDOFF (BOTTOM)
MAI: 0.5" STANDOFF- MIS.E INLINE STANDOFF (TOP), INDUCTION STANDOFF ASSEMBLY (BOTTOM)

DEPTH MEASURED USING ADVANTAGE RIG DEPTH SYSTEM CORRECTED TO PIPE STRAP. VERIFIED WITH MWD LOGS.

TOOLS DEPLOYED WITH END OF BHA AT : 9643FT.
AFTER DEPLOYMENT LOGGING TOOL WAS AT: 9730FT.

4.5 INCH PRODUCTION CASING WAS USED TO CALCULATE ANNULAR HOLE VOLUMES

TOTAL HOLE VOLUME FROM TD TO CASING = 850 CU FT

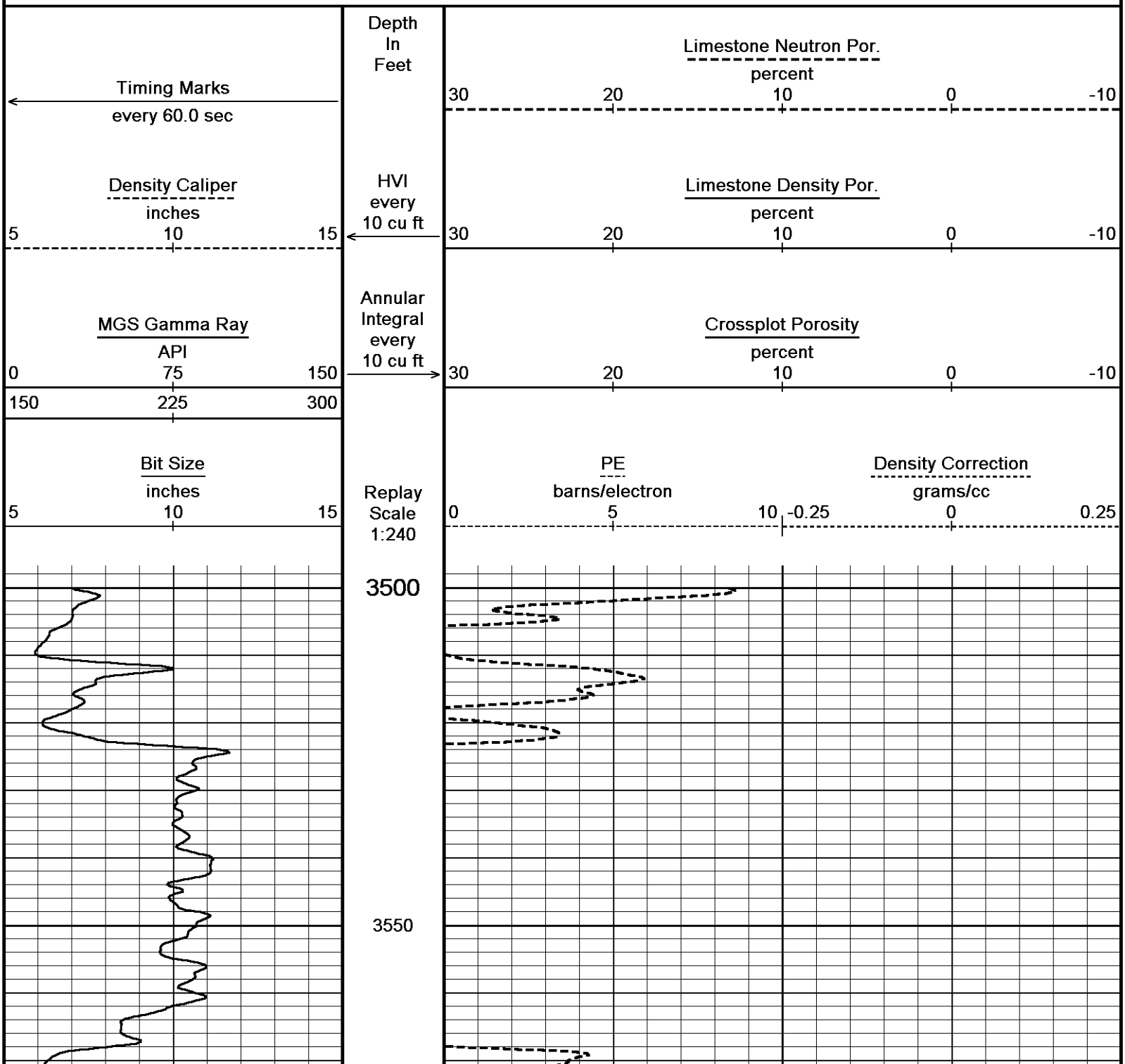
TOTAL HOLE VOLUME FROM TD TO CASING = 300 CU.FT.
ANNULAR VOLUME WITH X.X INCH PRODUCTION CASING = 420 CU.FT.

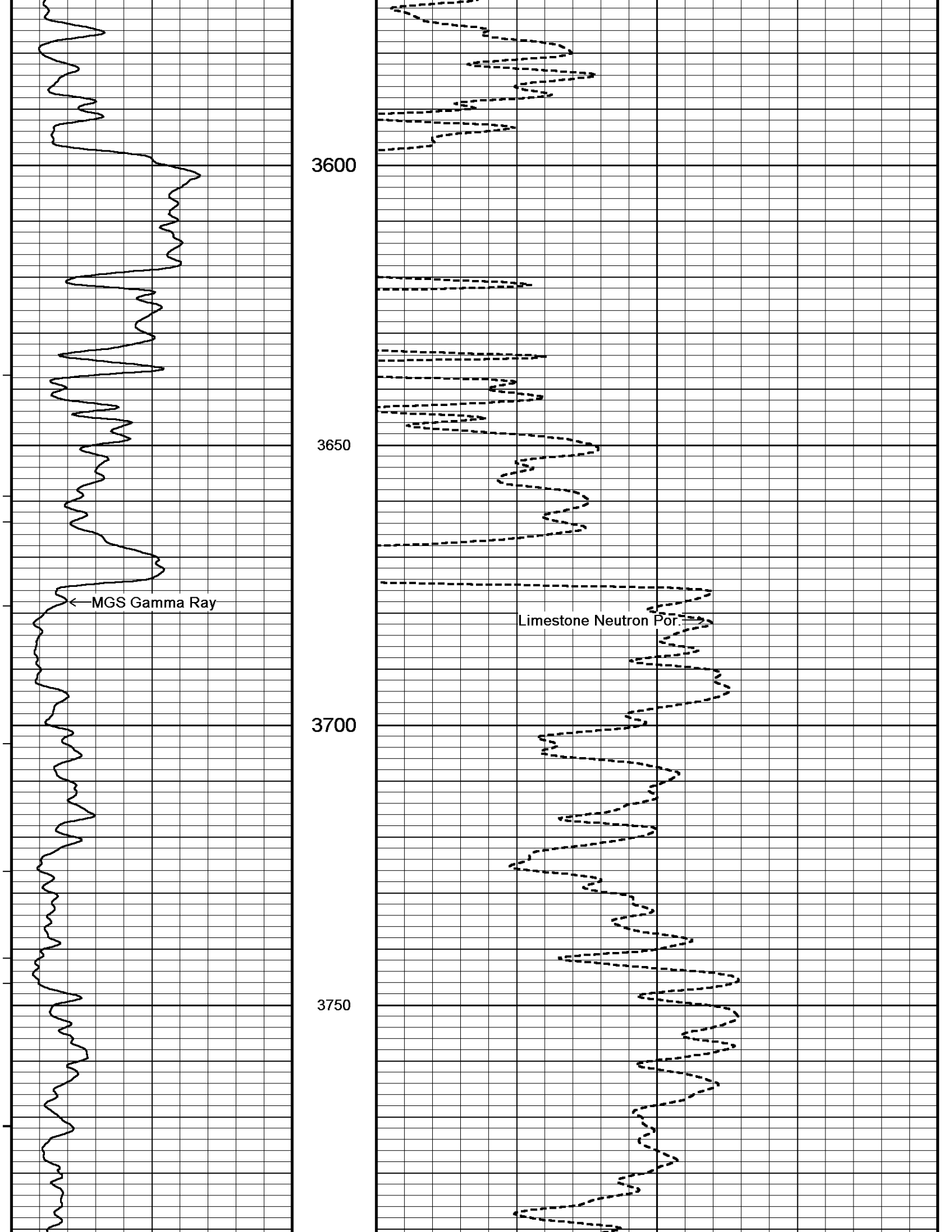
CHOLORIDES 10000 Mg/L

OPERATORS: G. GARCIA, D. TURNER
SERVICE ORDER # 3535163
RIG: LARIAT 38

5 INCH MAIN LOG DSC

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 17-JUN-2012 14:57
Filename: C:\Minimus 12.02.4401\Data\SDRGE (BROCK 3418 1-24H)\32543 RTAP GOOD.dta — Recorded on 17-JUN-2012 13:40
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401




3600
3650
3700
3750
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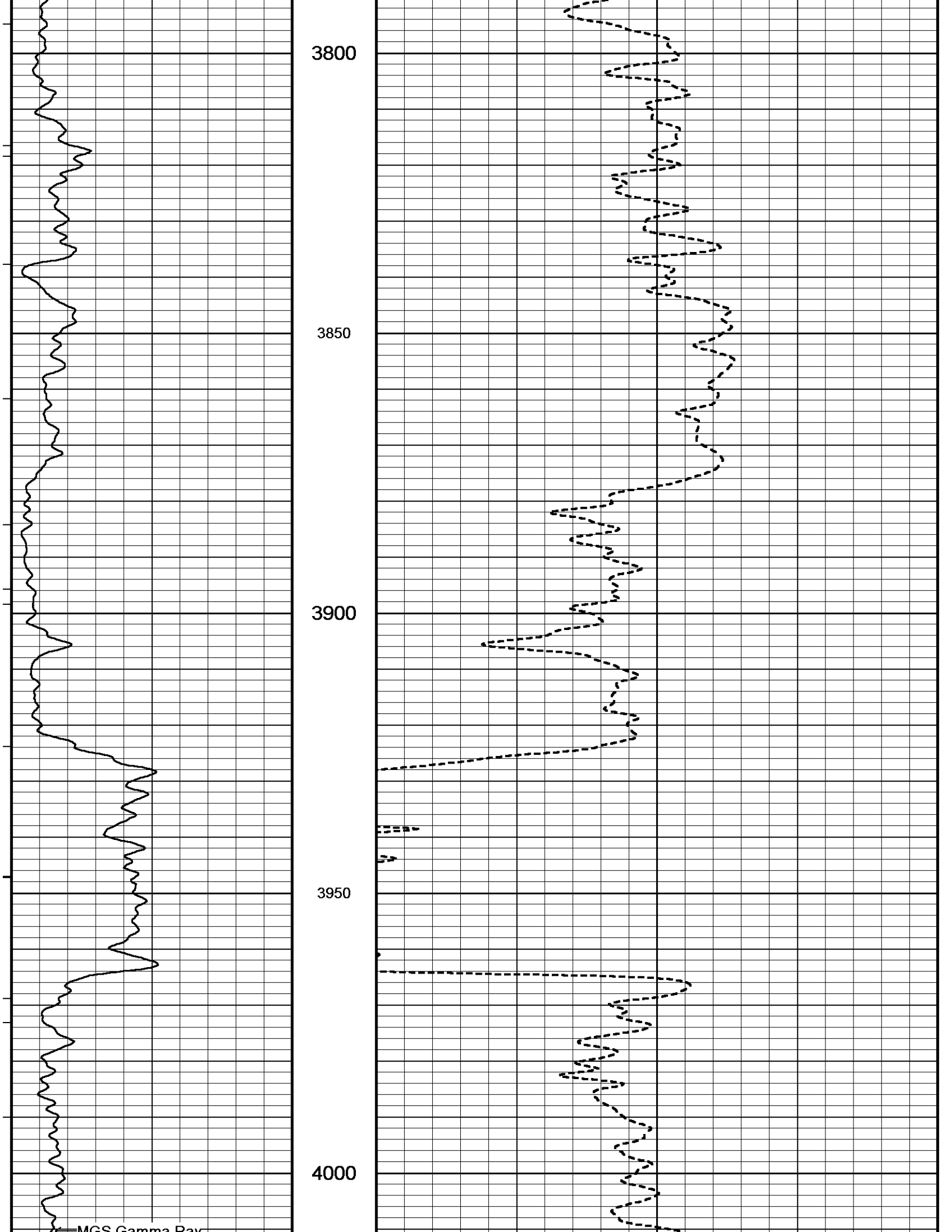
Limestone Neutron Por.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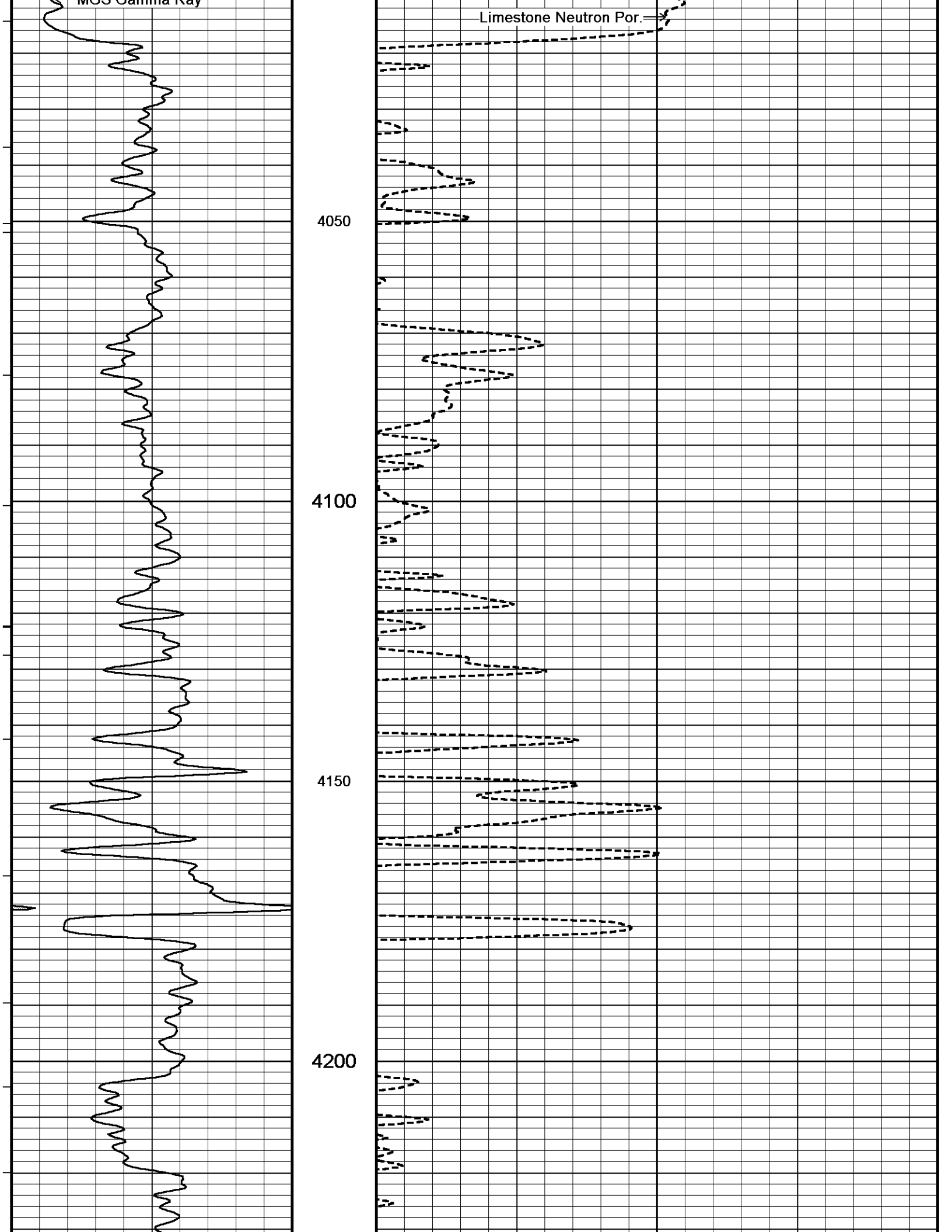
3850
3900
3950
4000
←MGS Gamma Ray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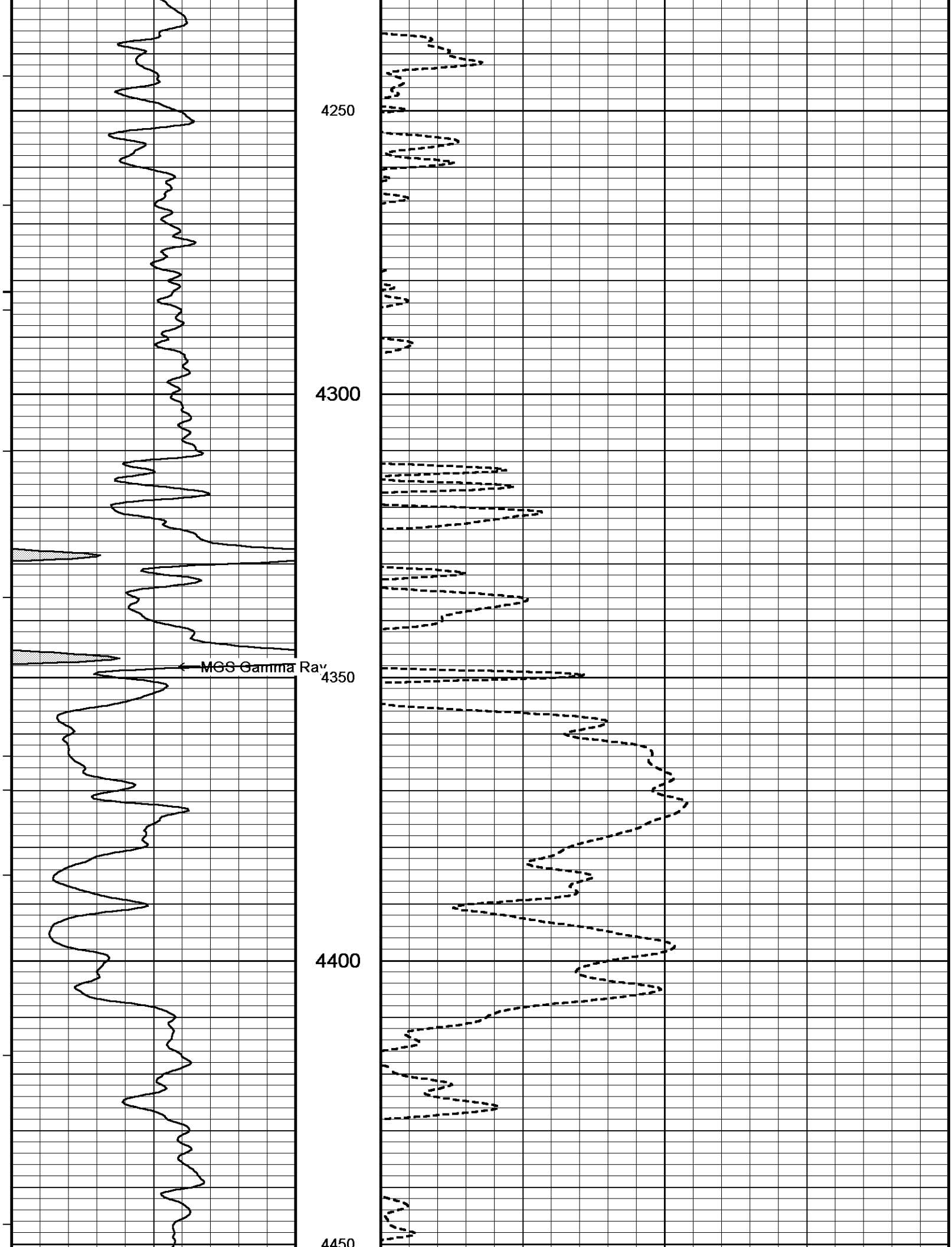
4100
4150
4200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4300
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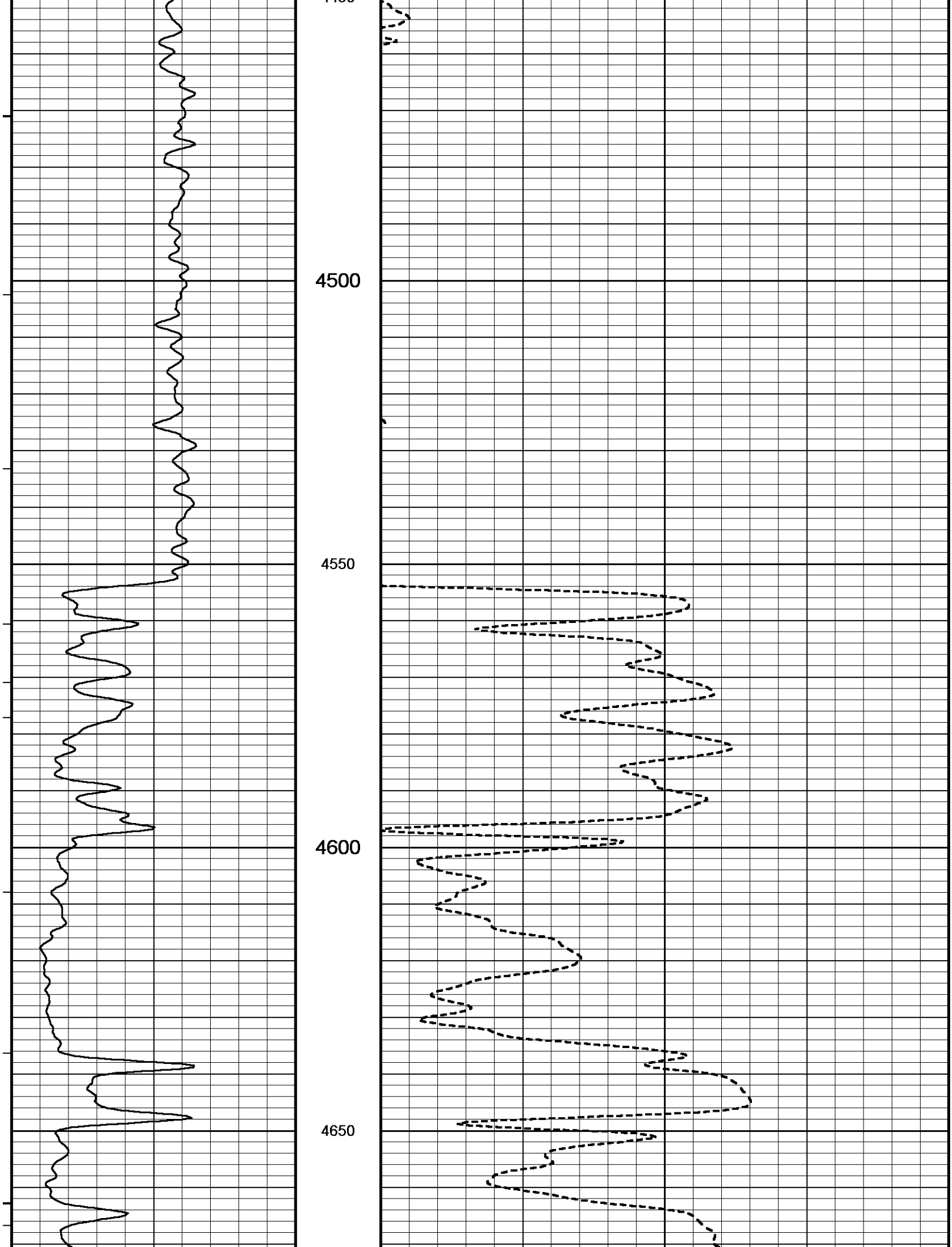
4350
4400
4450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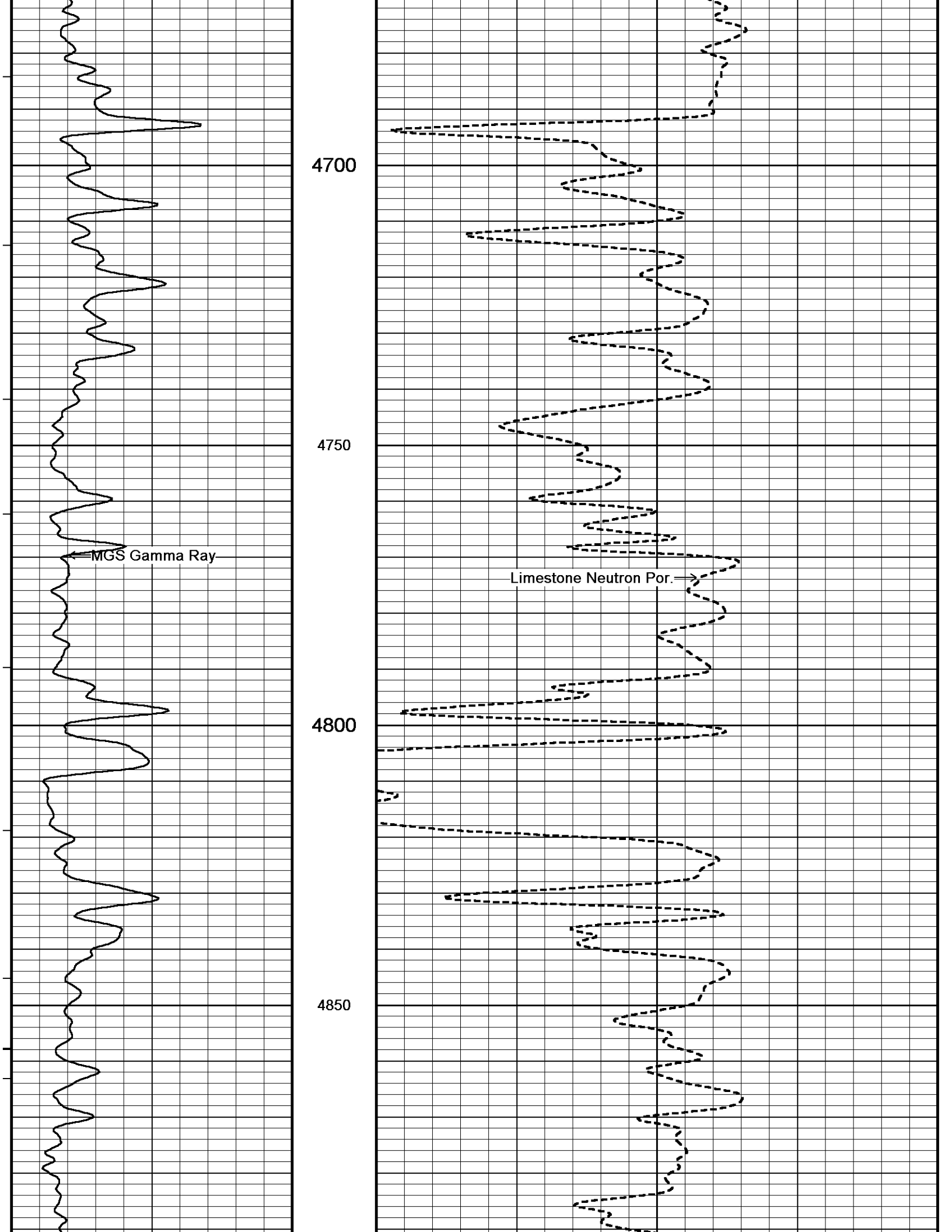
4600
4650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4800
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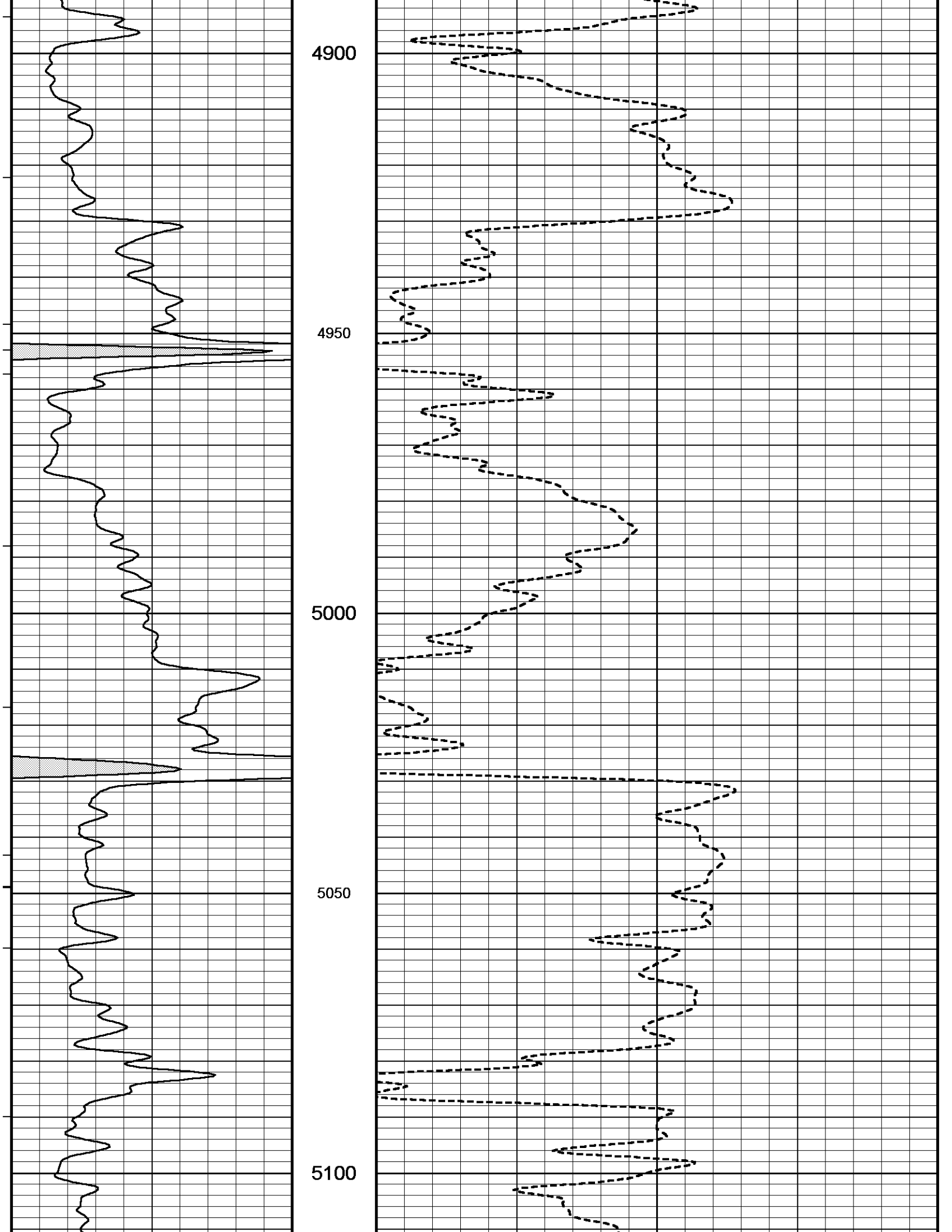
Limestone Neutron Por.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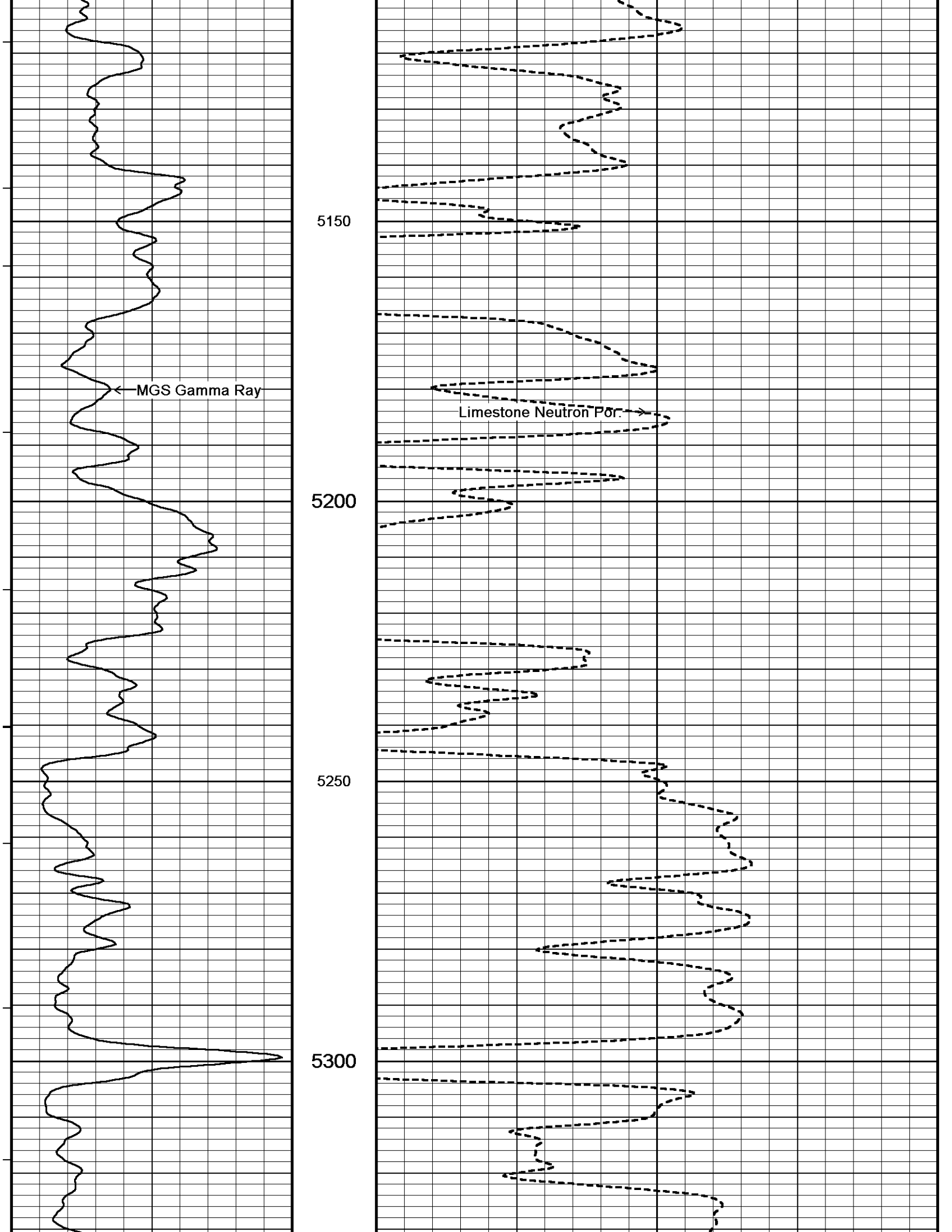
4950
5000
5050
5100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5250
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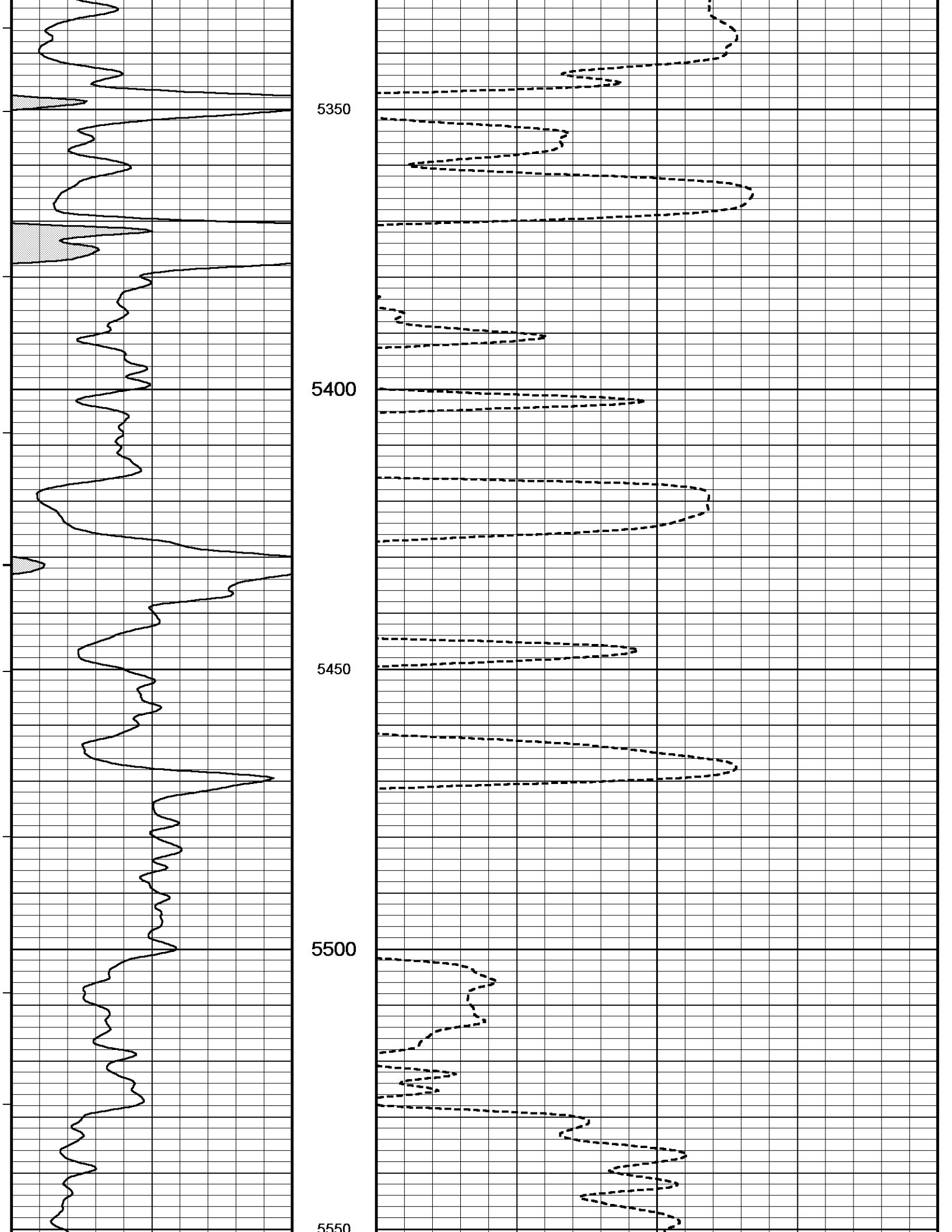
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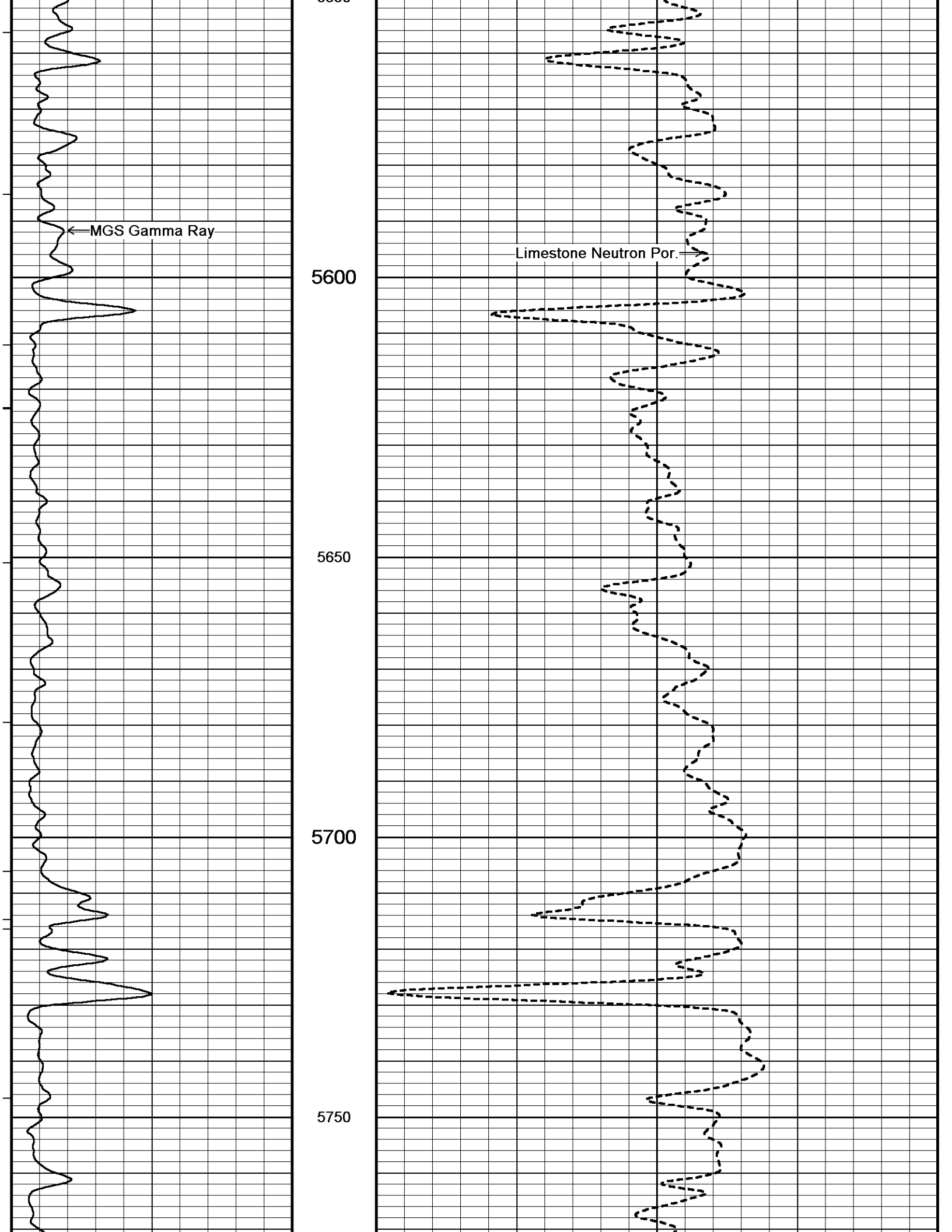
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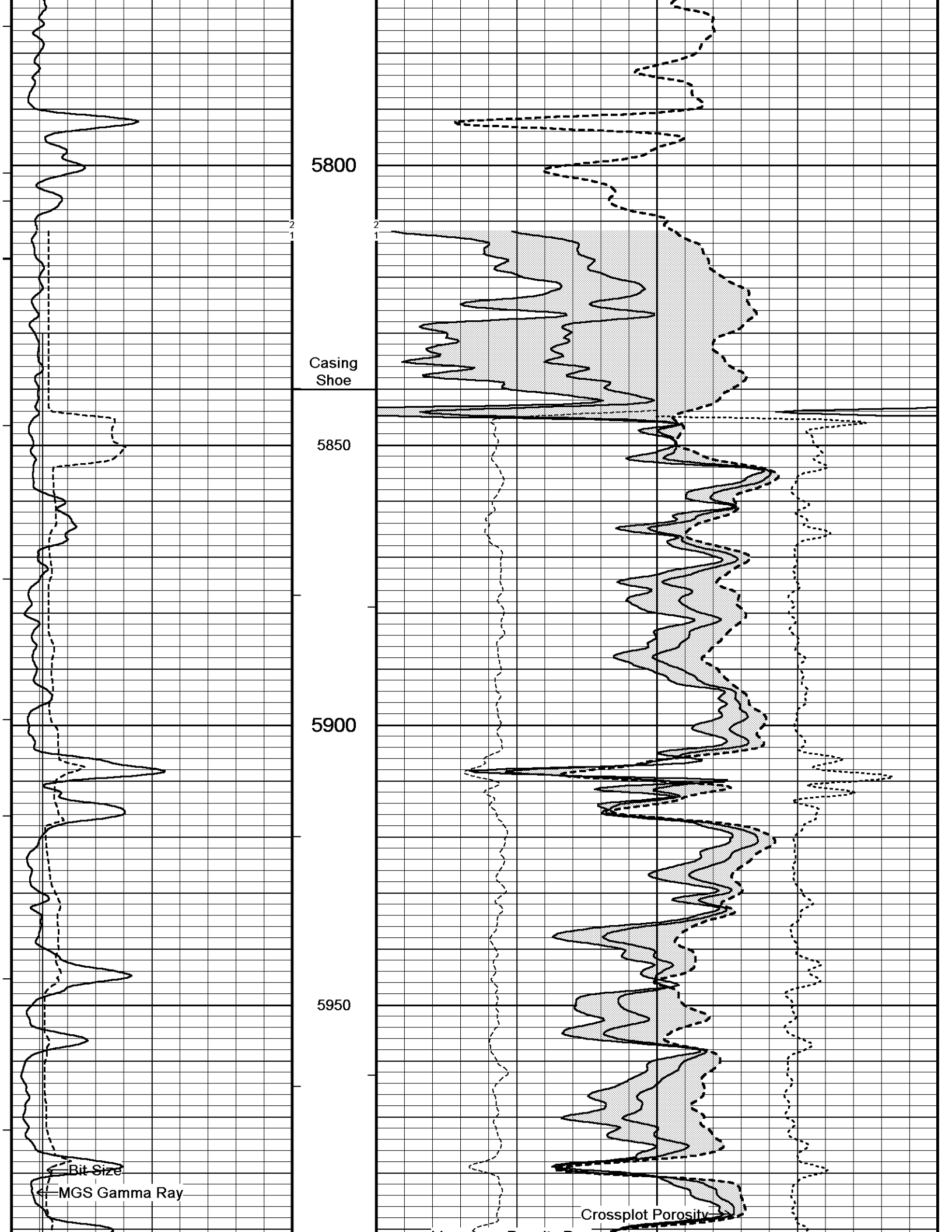
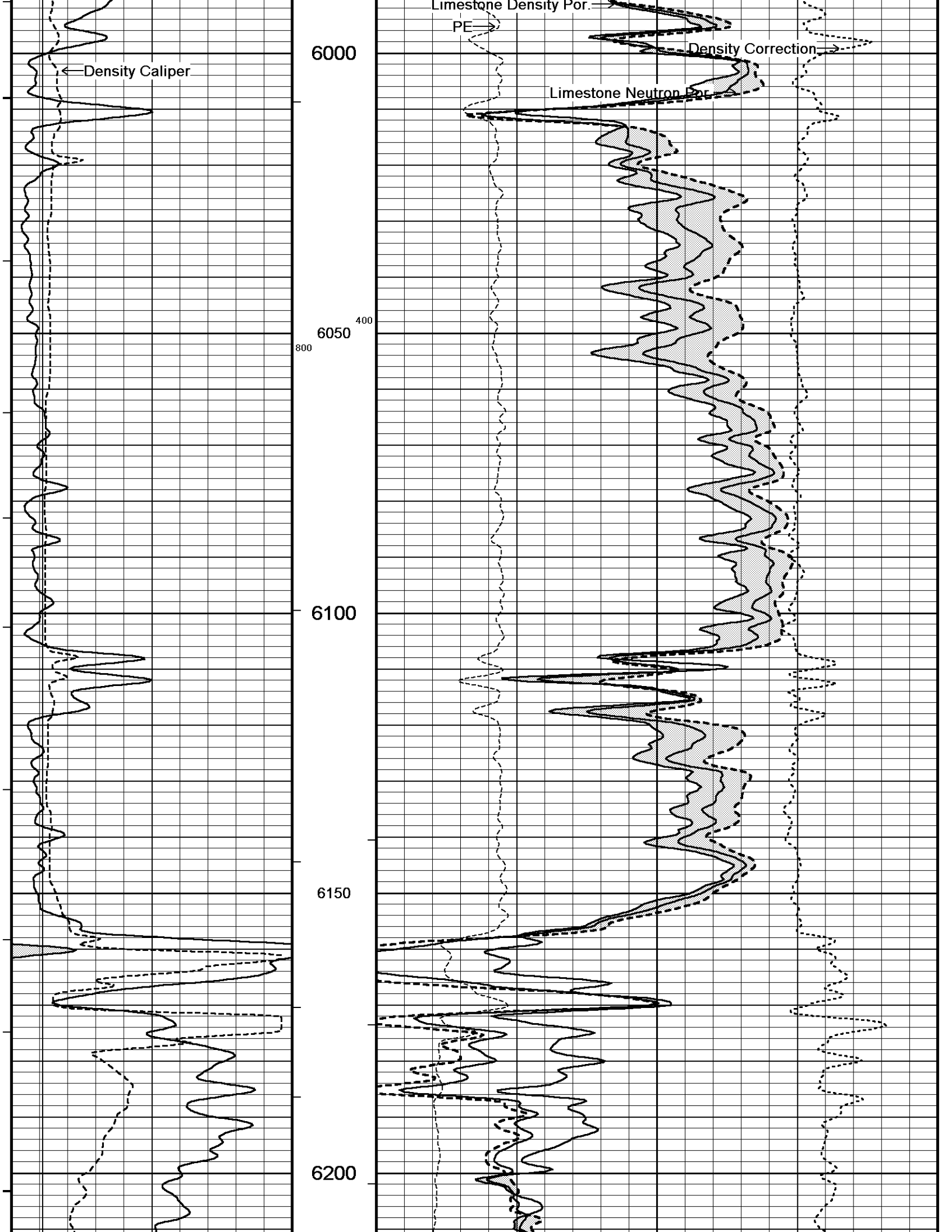
Limestone Neutron Por.
5600
5650
5700
5750


5800
Casing
Shoe
5850
5900
5950
Bit Size
MGS Gamma Ray
Crossplot Porosity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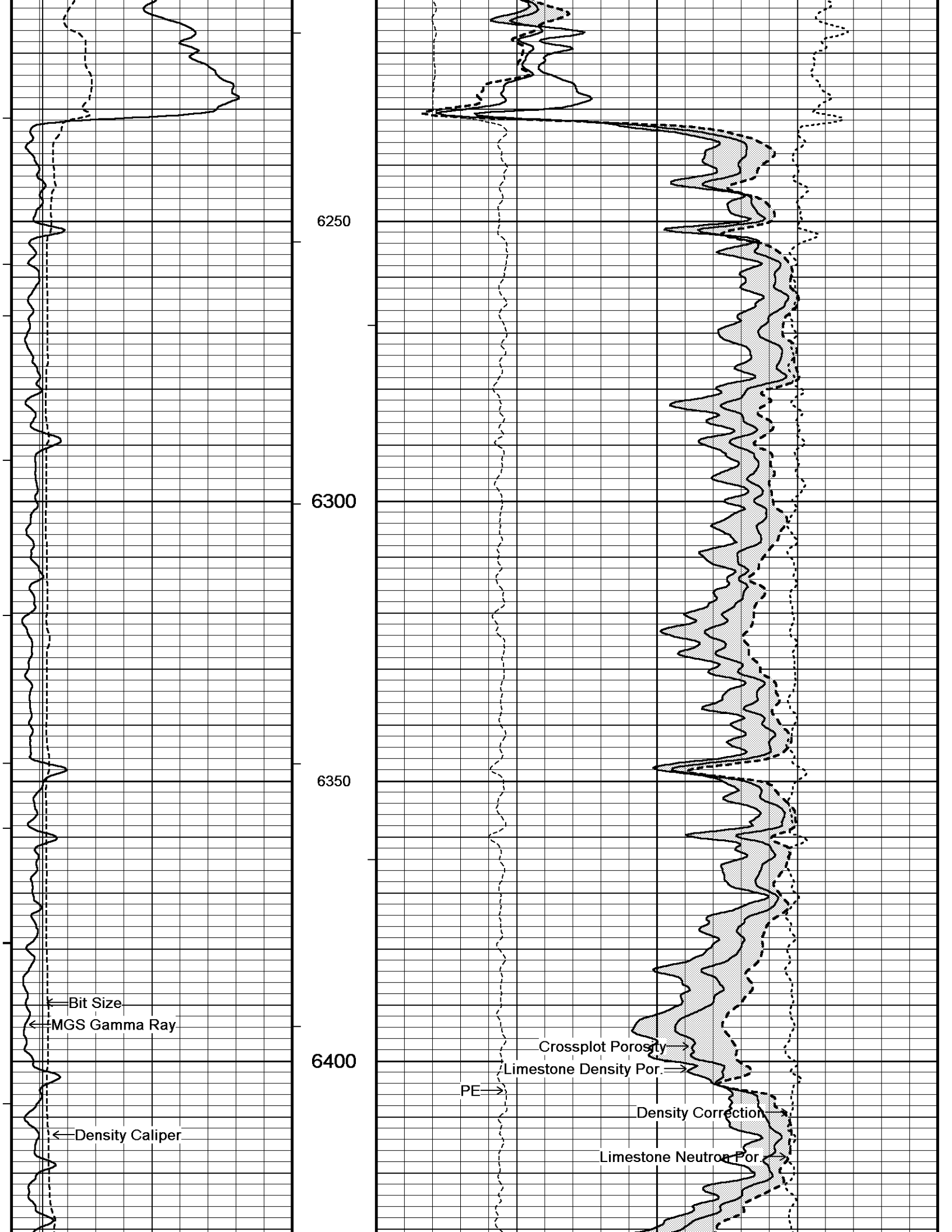
6000
6050
6100
6150
6200
800
400
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.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6300
6350
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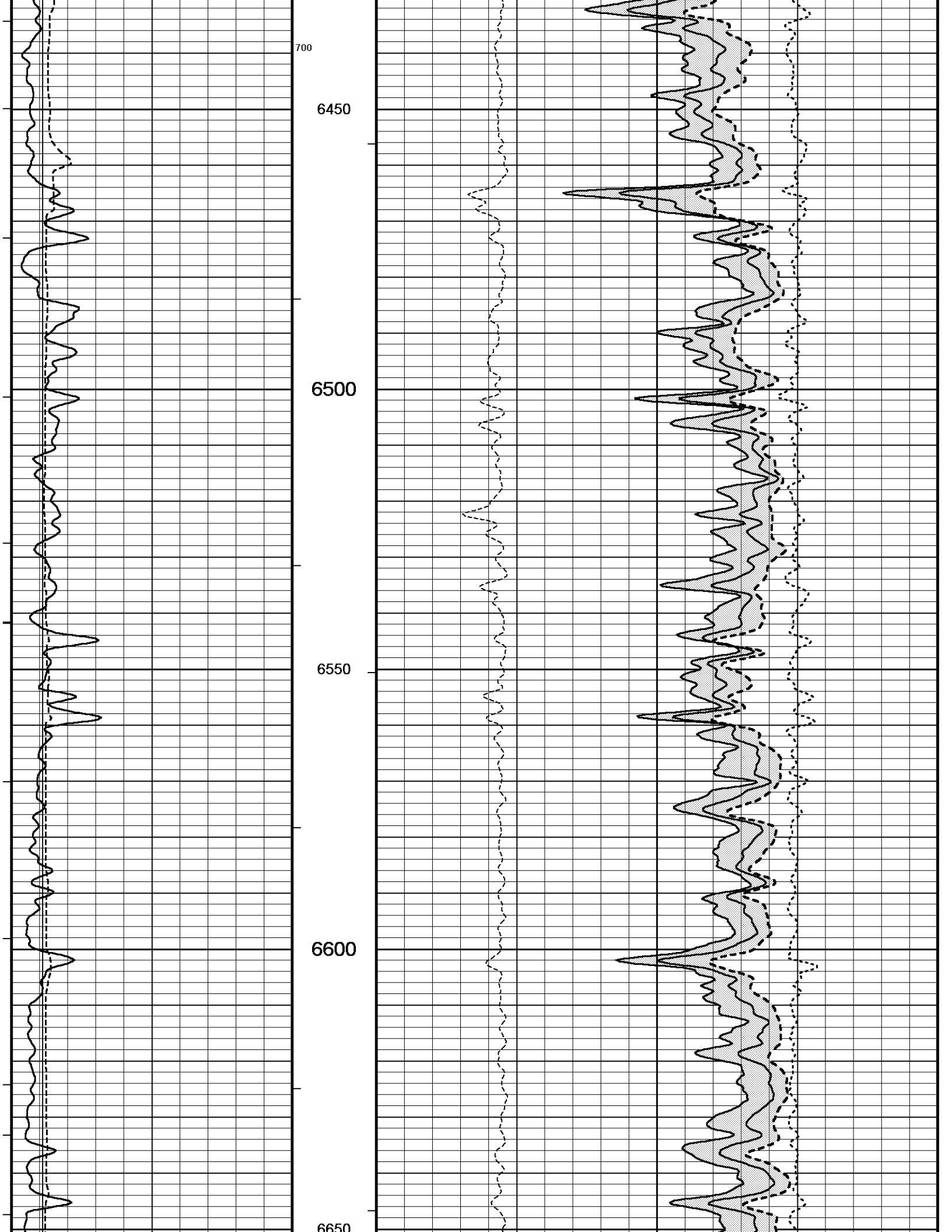
Density Caliper
Crossplot Porosity
Limestone Density Por
PE
Density Correction
Limestone Neutron Por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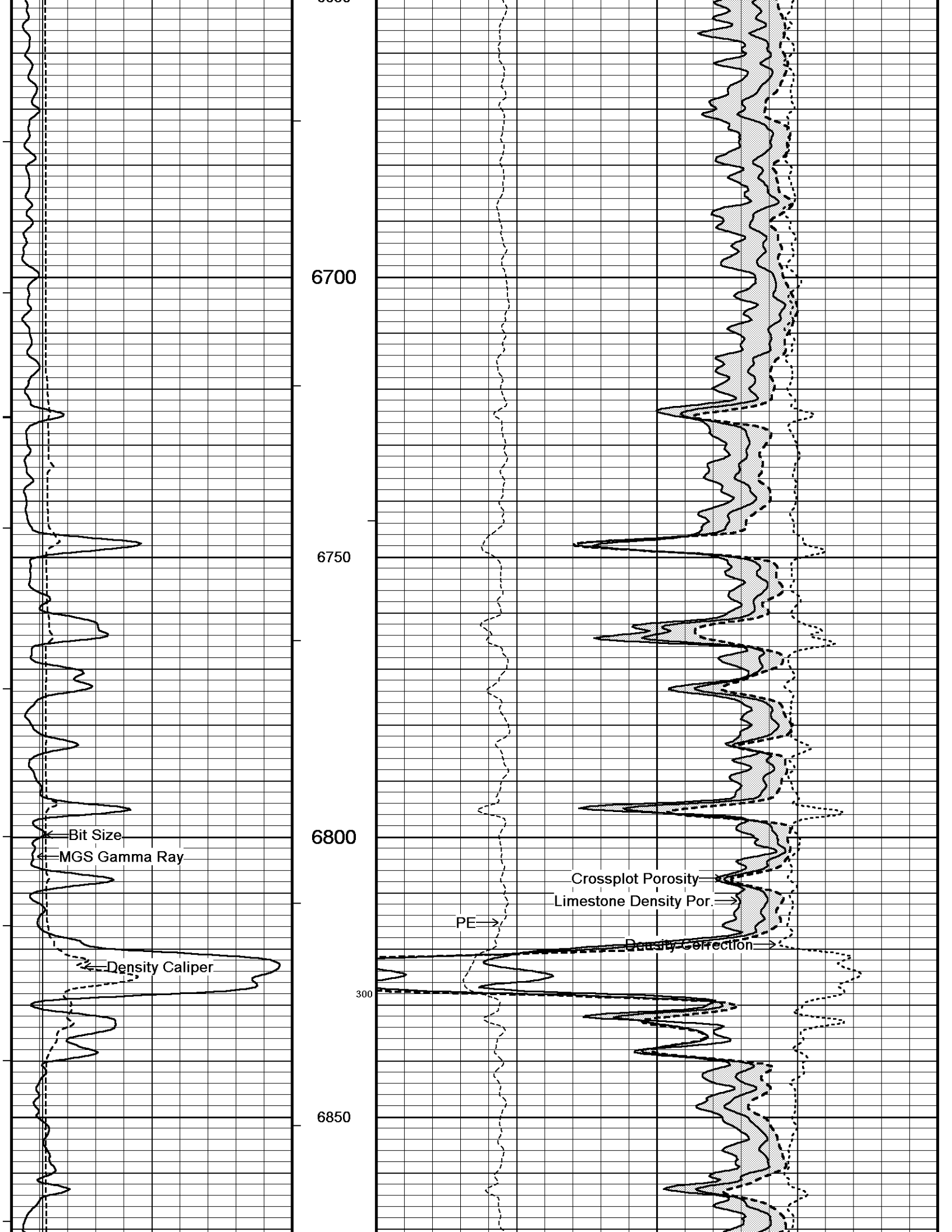
6450
6500
6550
6600
6650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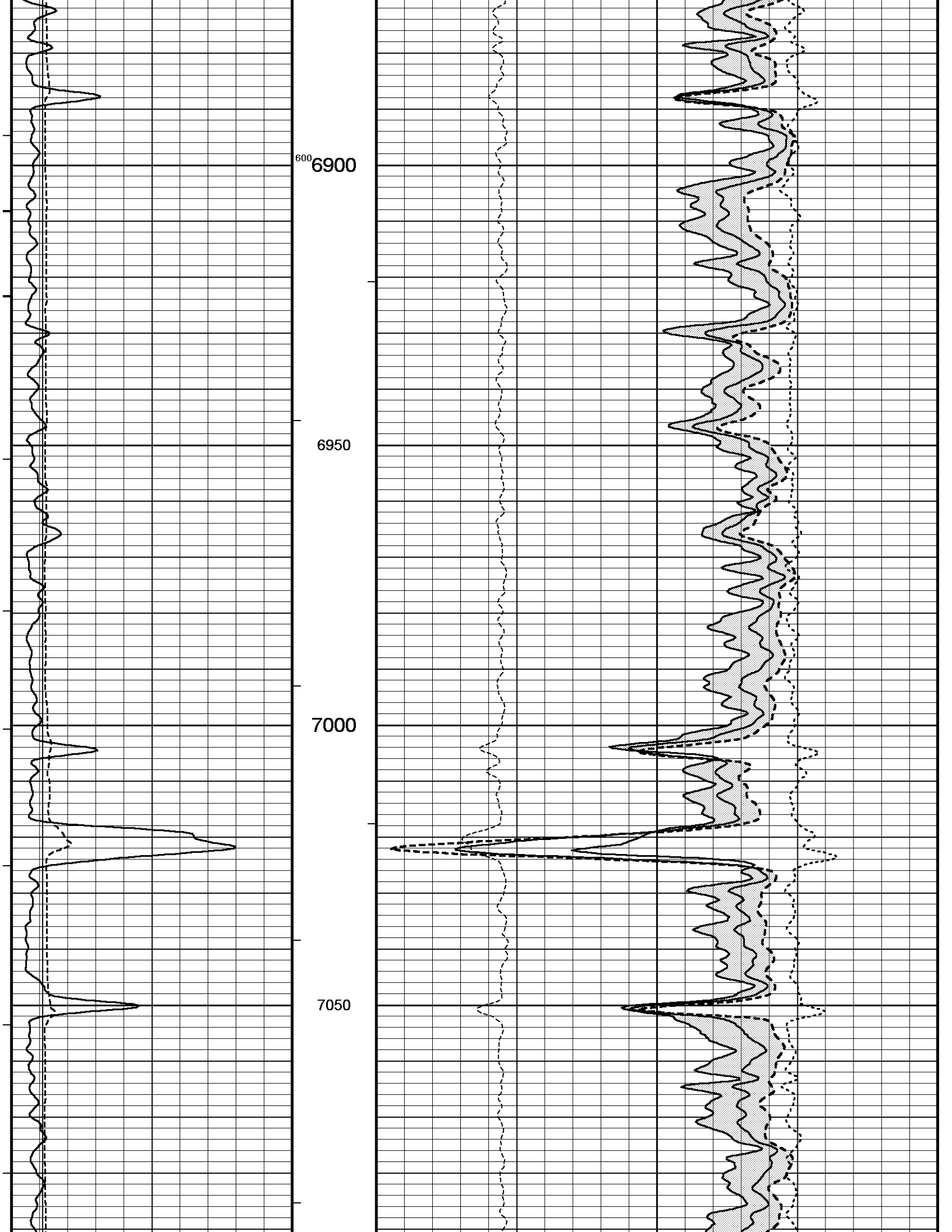
6750
6800
6850
Bit Size
MGS Gamma Ray
Density Caliper
PE
Crossplot Porosity
Limestone Density Por.
Density Correction
300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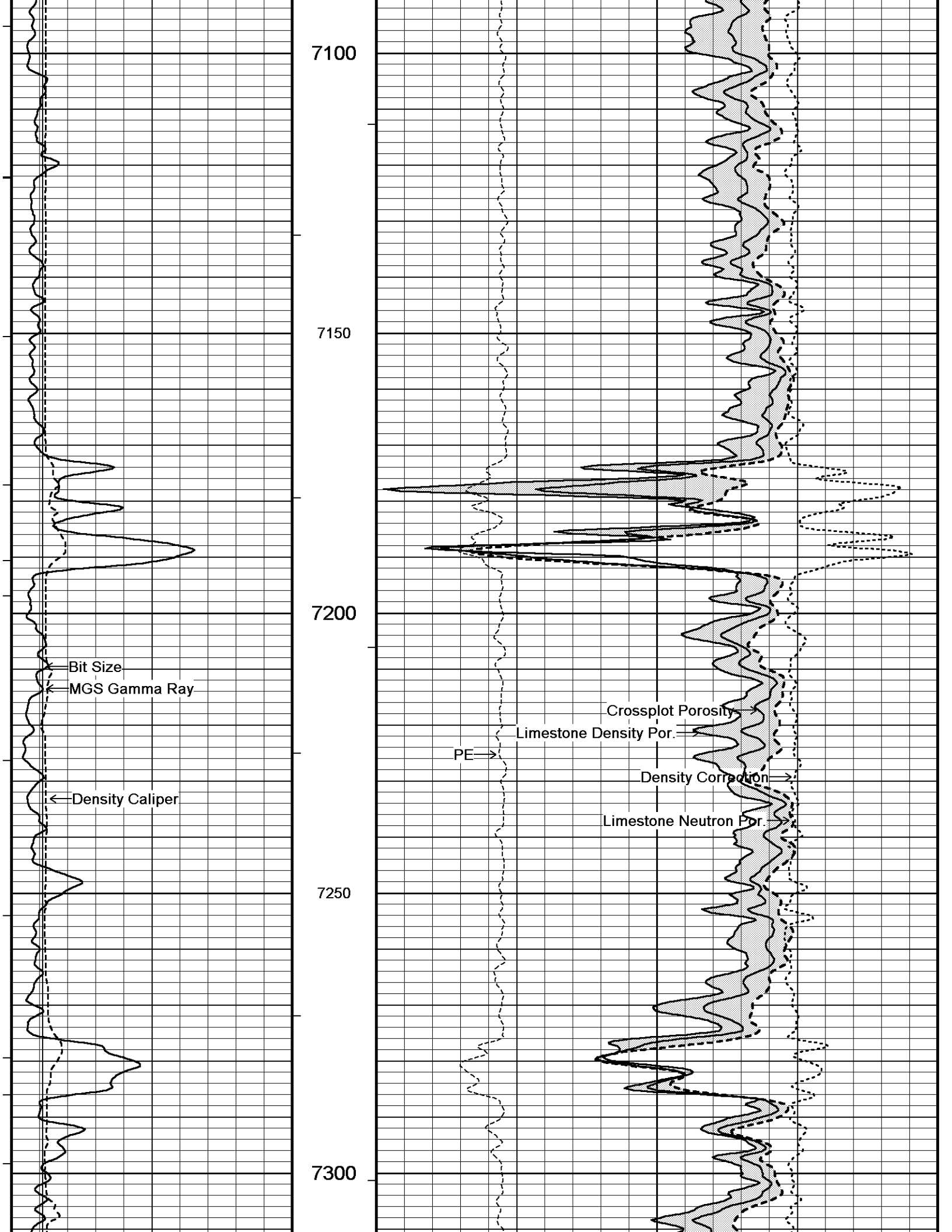
6900
6950
7000
7050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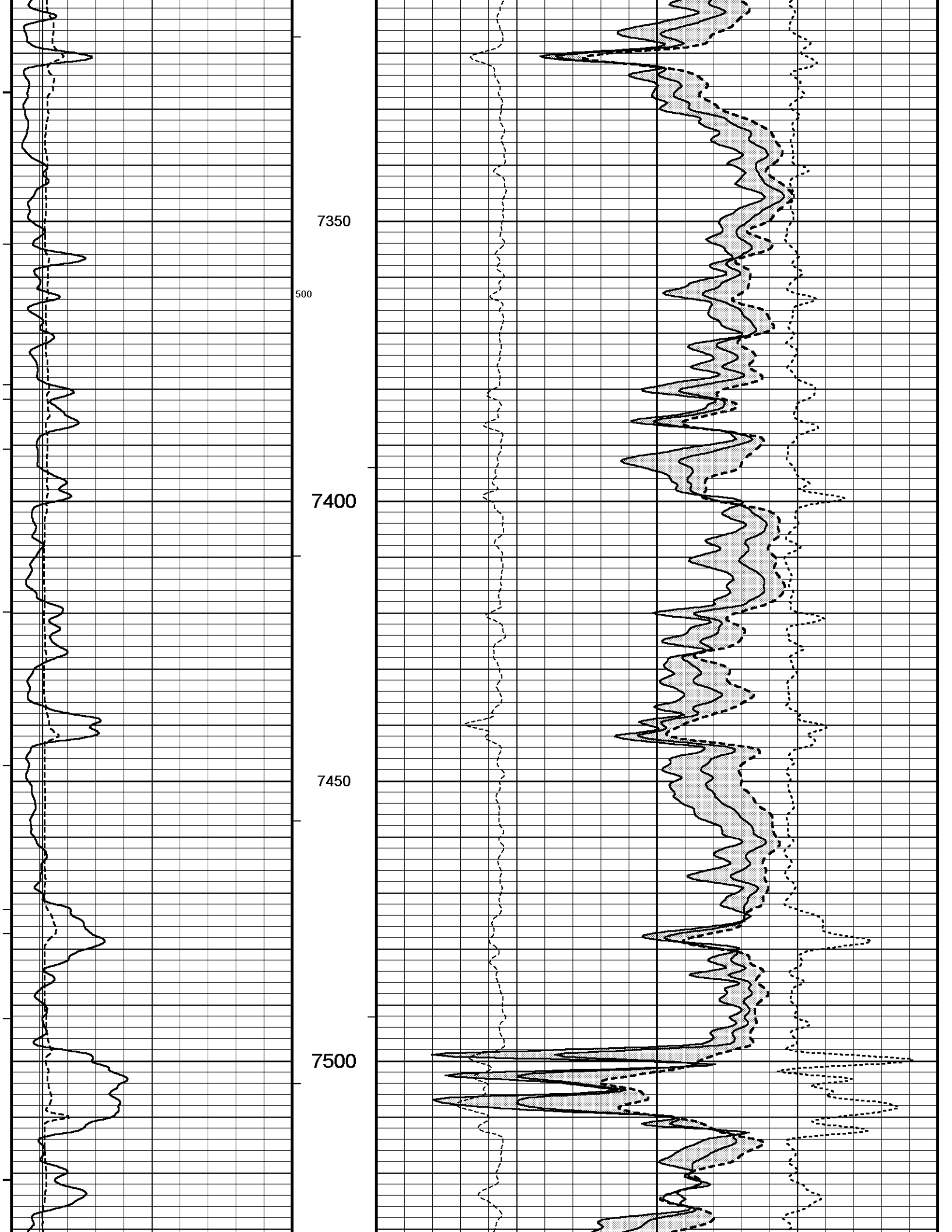
7150
7200
7250
7300
Bit Size
MGS Gamma Ray
Density Caliper
Crossplot Porosity
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.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500
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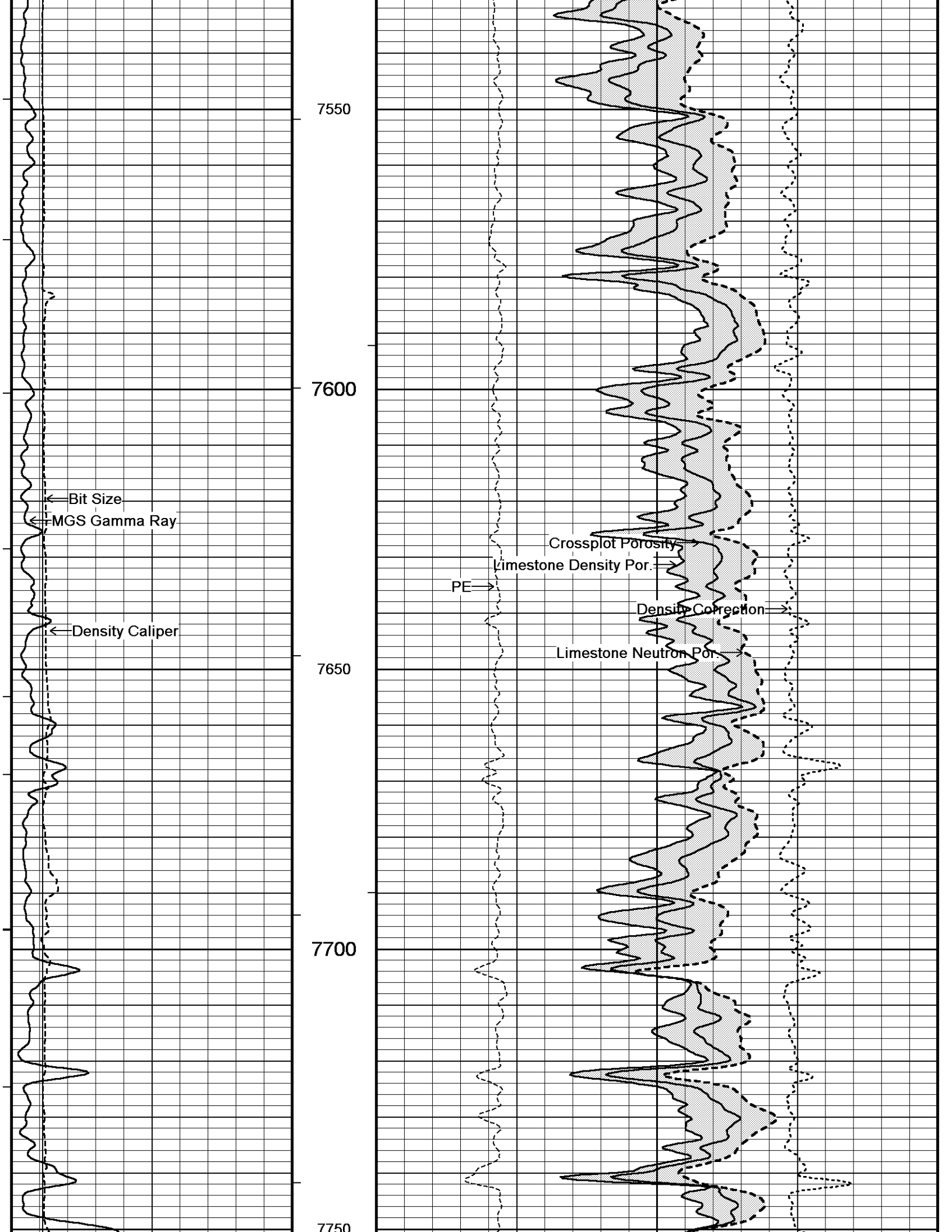
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Crossplot Porosity
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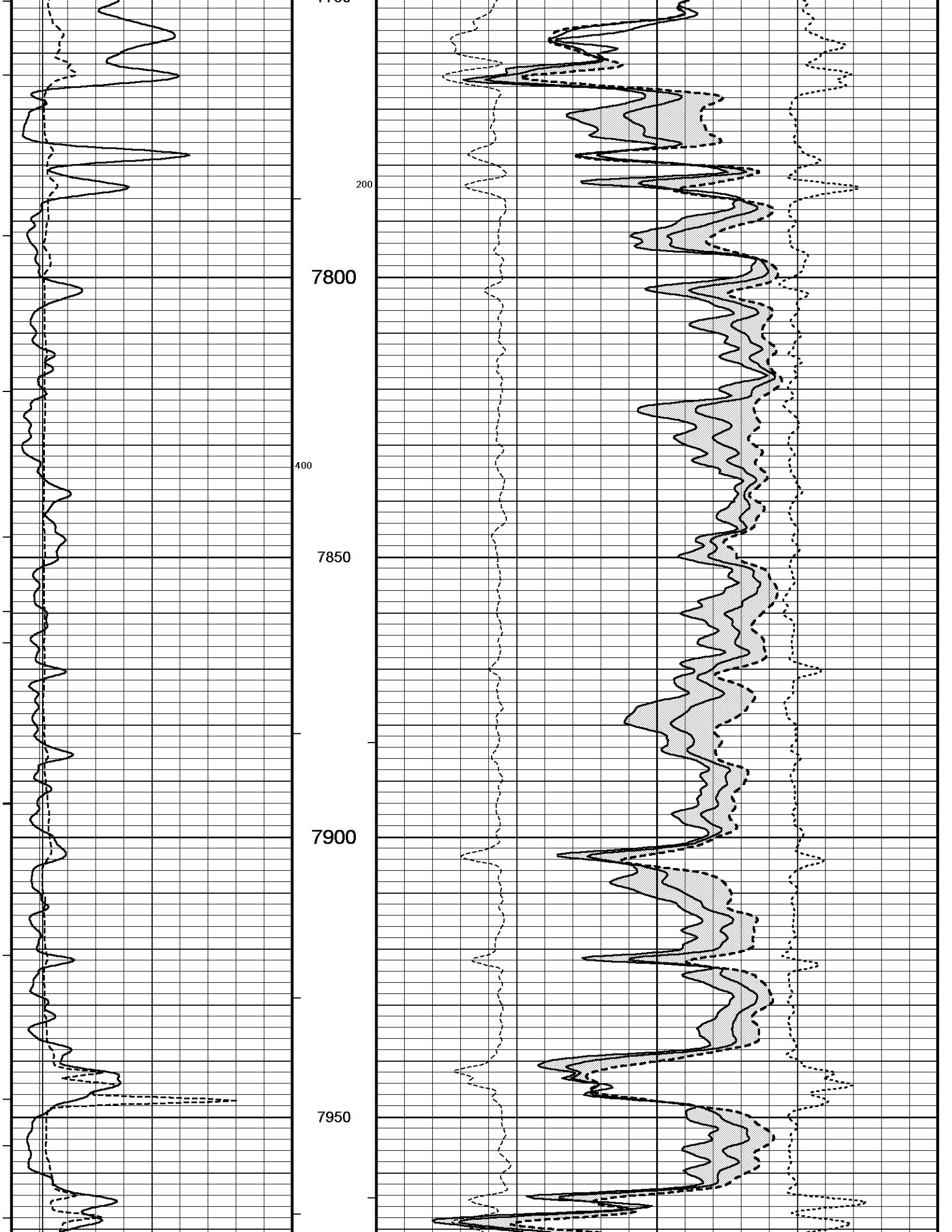
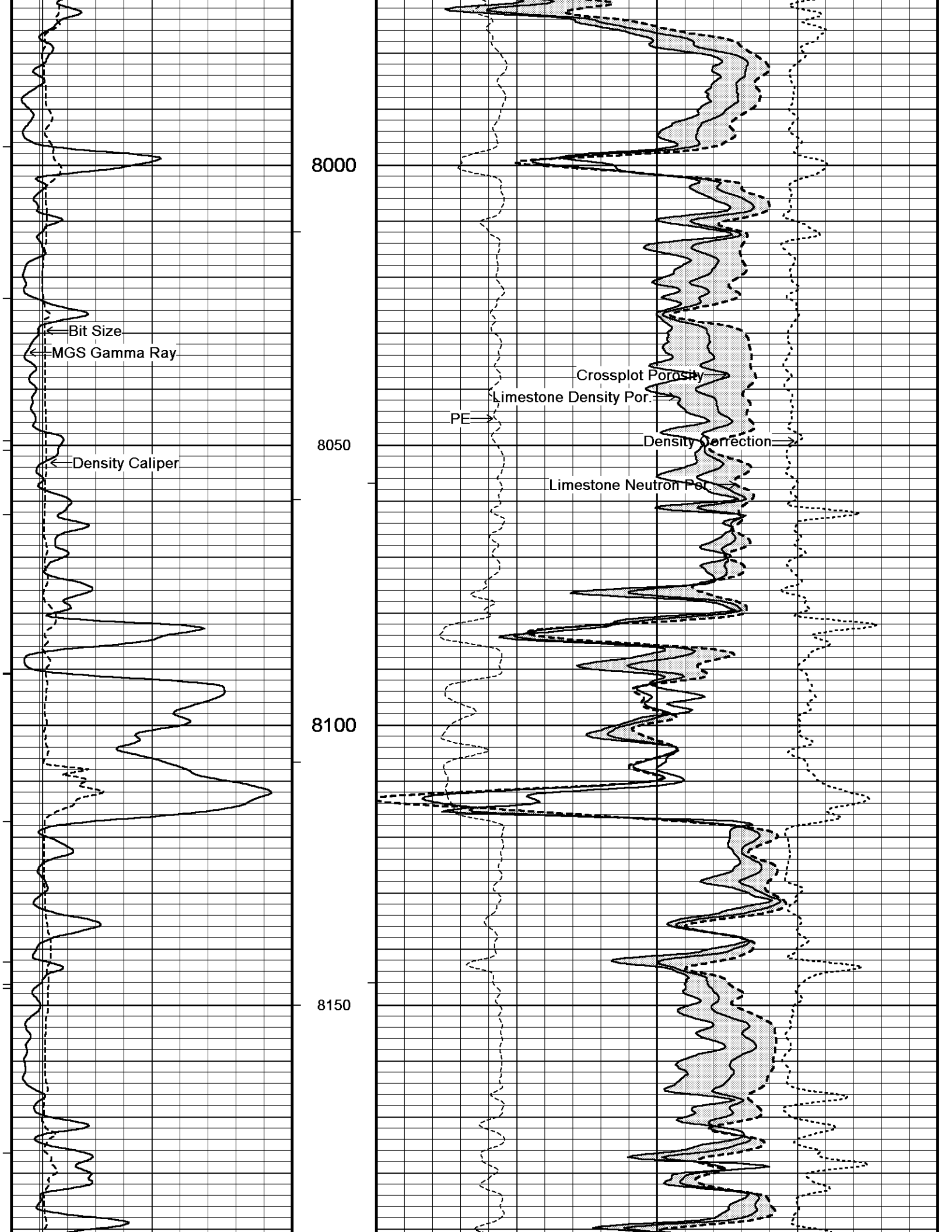
PE
Density Correction
Limestone Neutron Por.


200
7800
400
7850
7900
7950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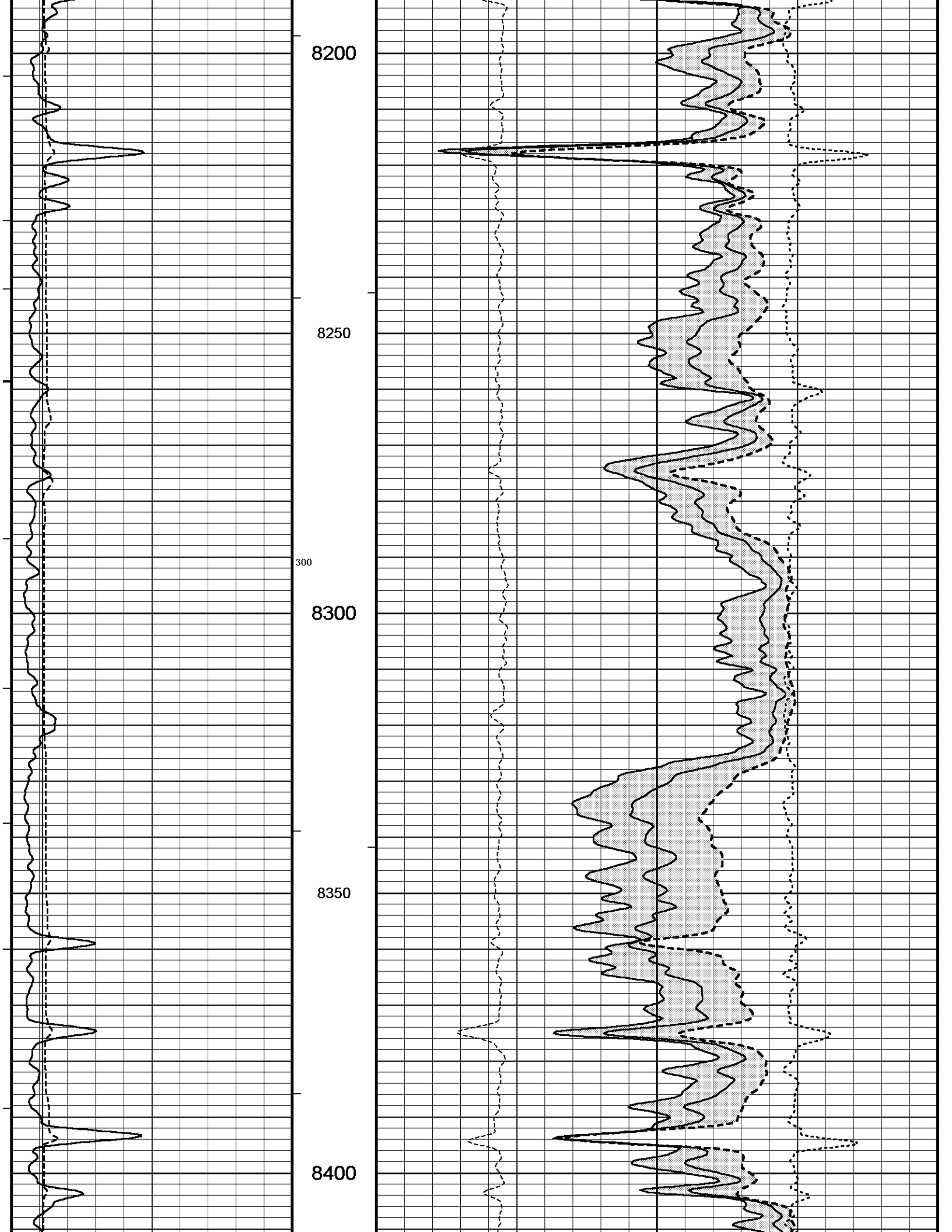
8050
8100
8150
Bit Size
MGS Gamma Ray
Density Caliper
Crossplot Porosity
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.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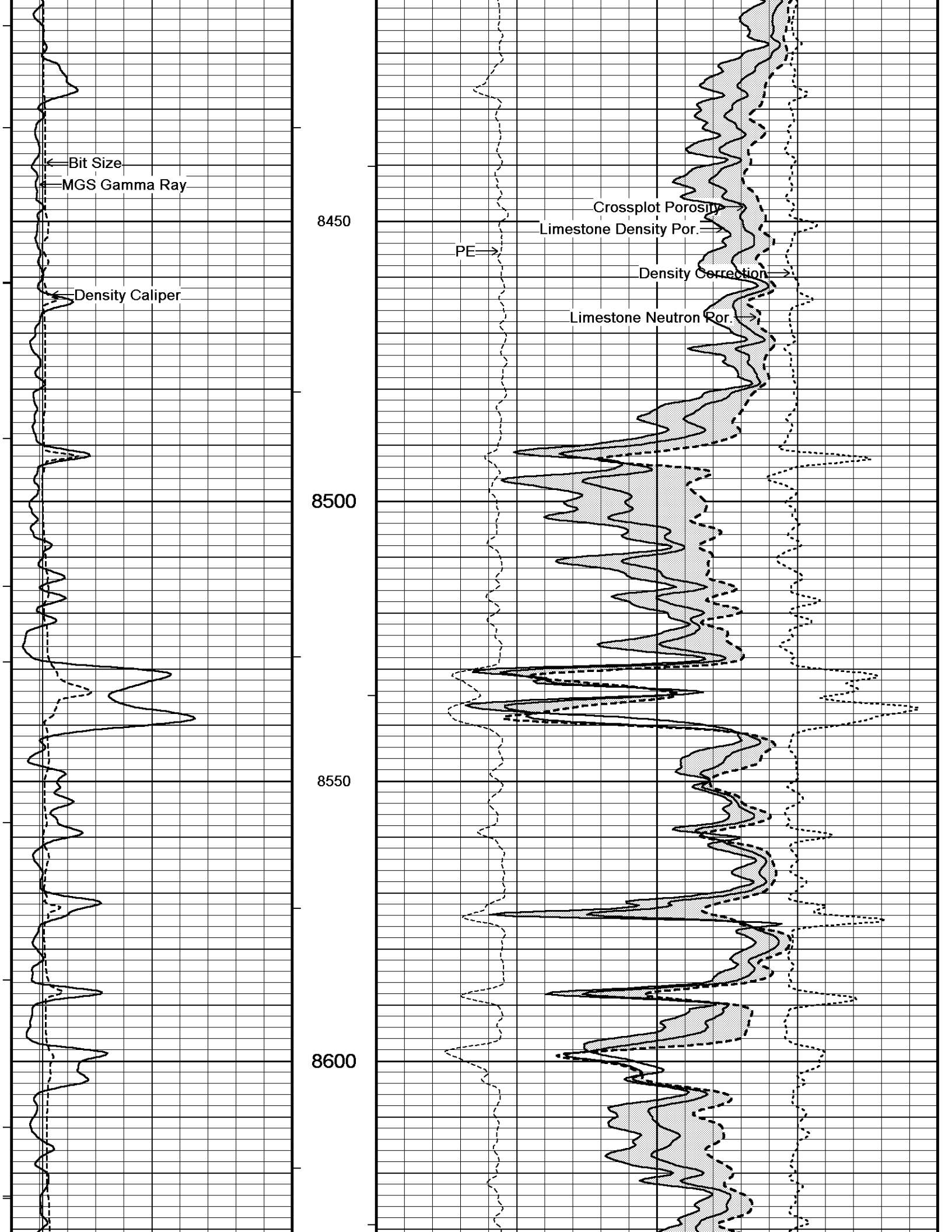
8250
300
8300
8350
8400


Bit Size
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Density Caliper
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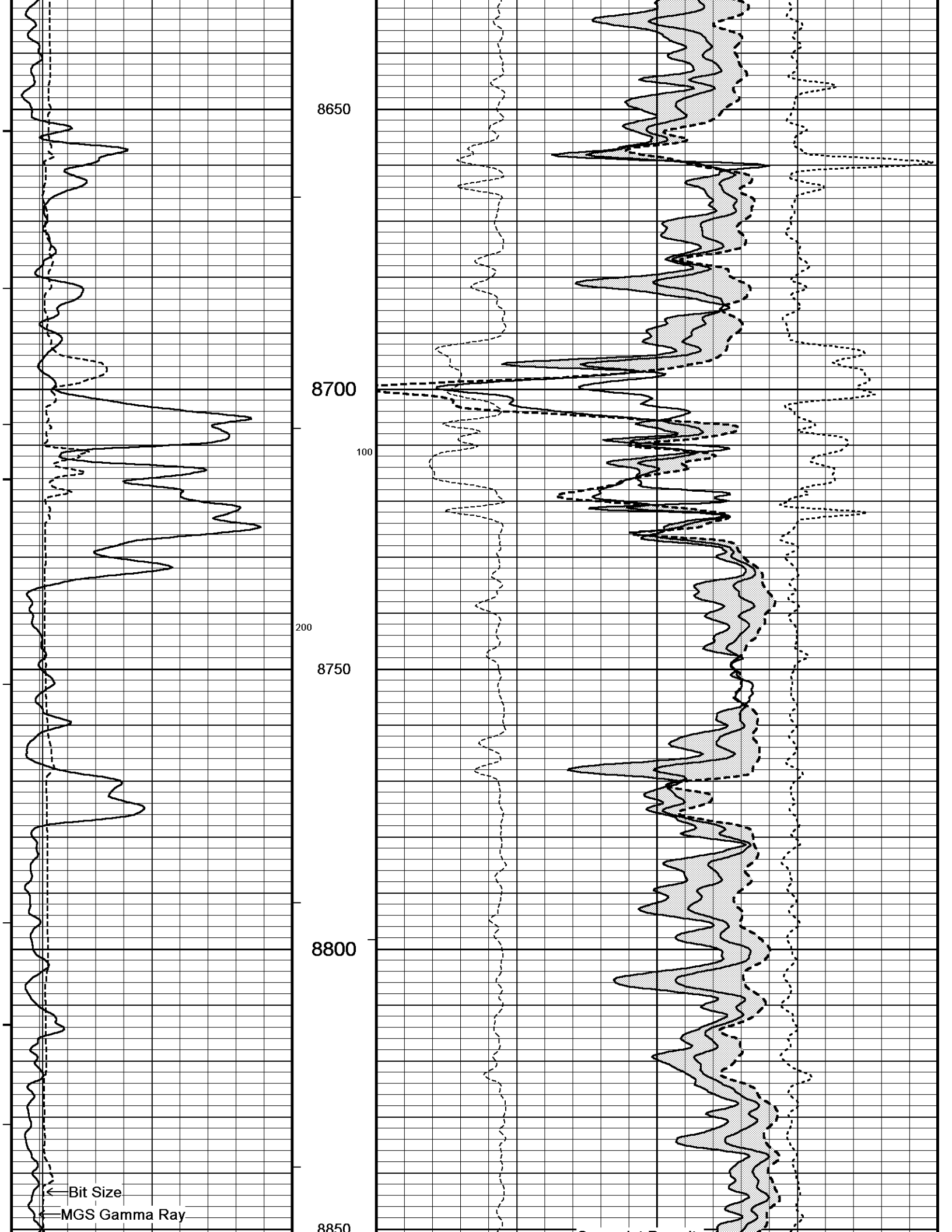
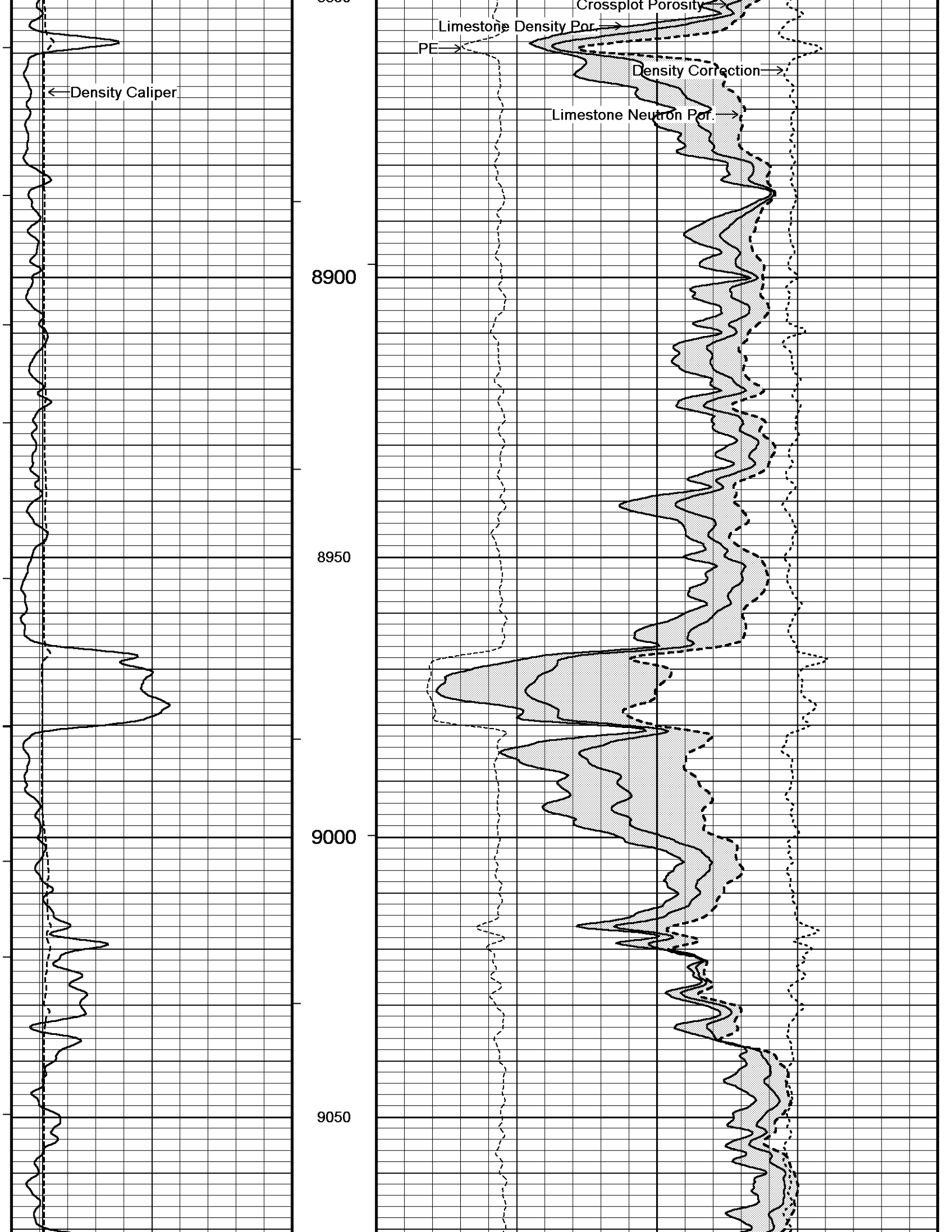
Crossplot Porosity
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.


8650
8700
100
200
8750
8800
8850
←Bit Size
←MGS Gamma Ray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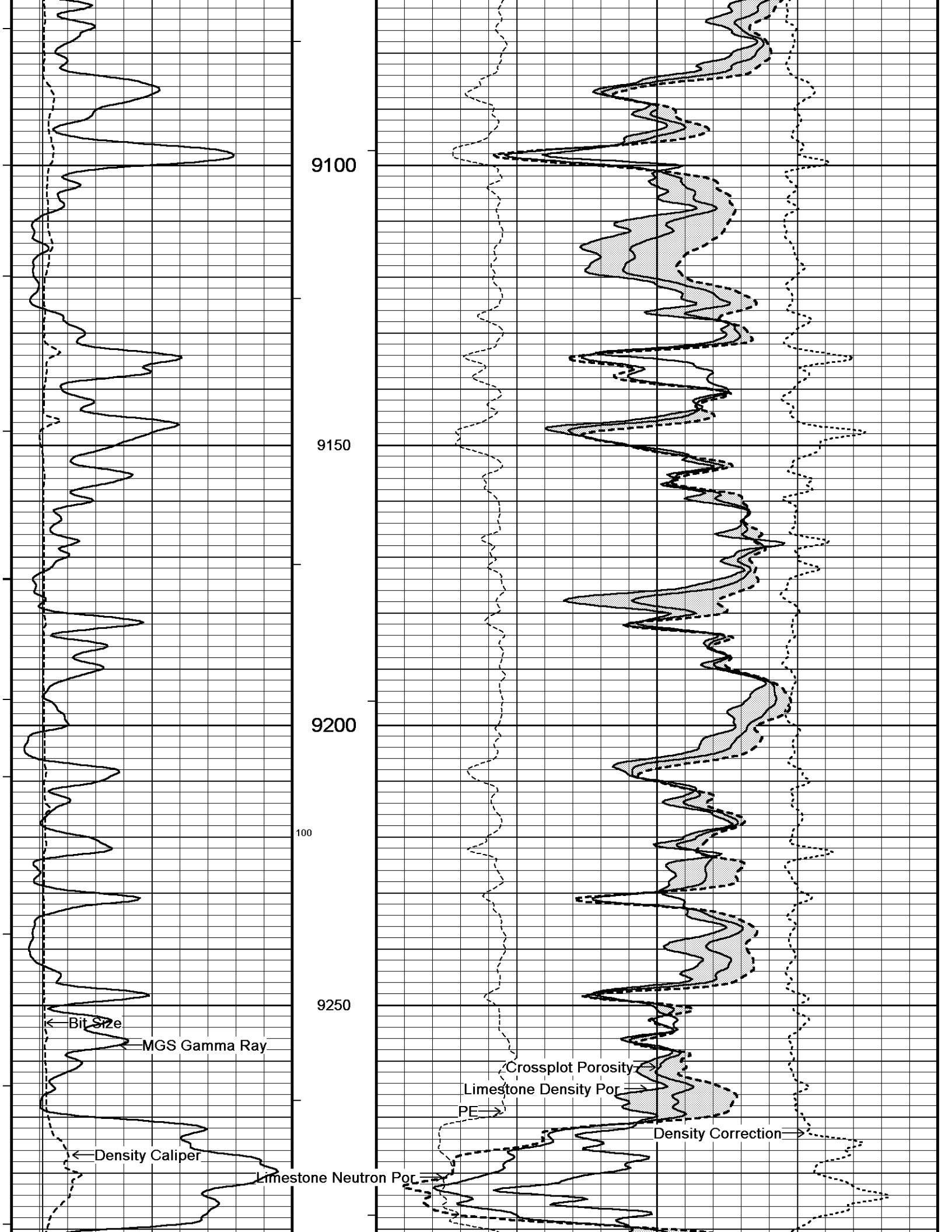
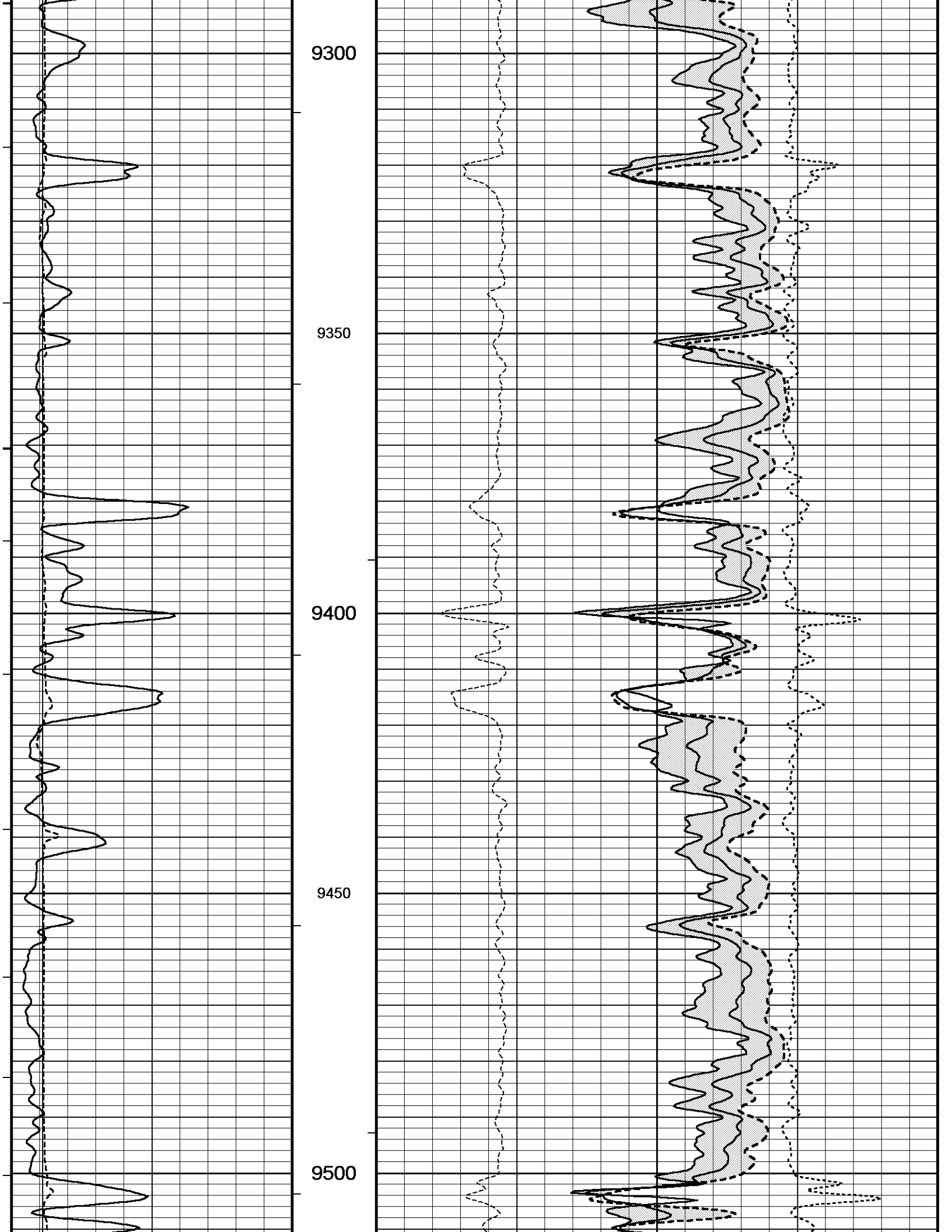
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.
Density Caliper
8900
8950
9000
9050


9100
9150
9200
100
9250
Bit Size
MGS Gamma Ray
Density Caliper
Limestone Neutron Por
Crossplot Porosity
Limestone Density Por
PE
Density Correction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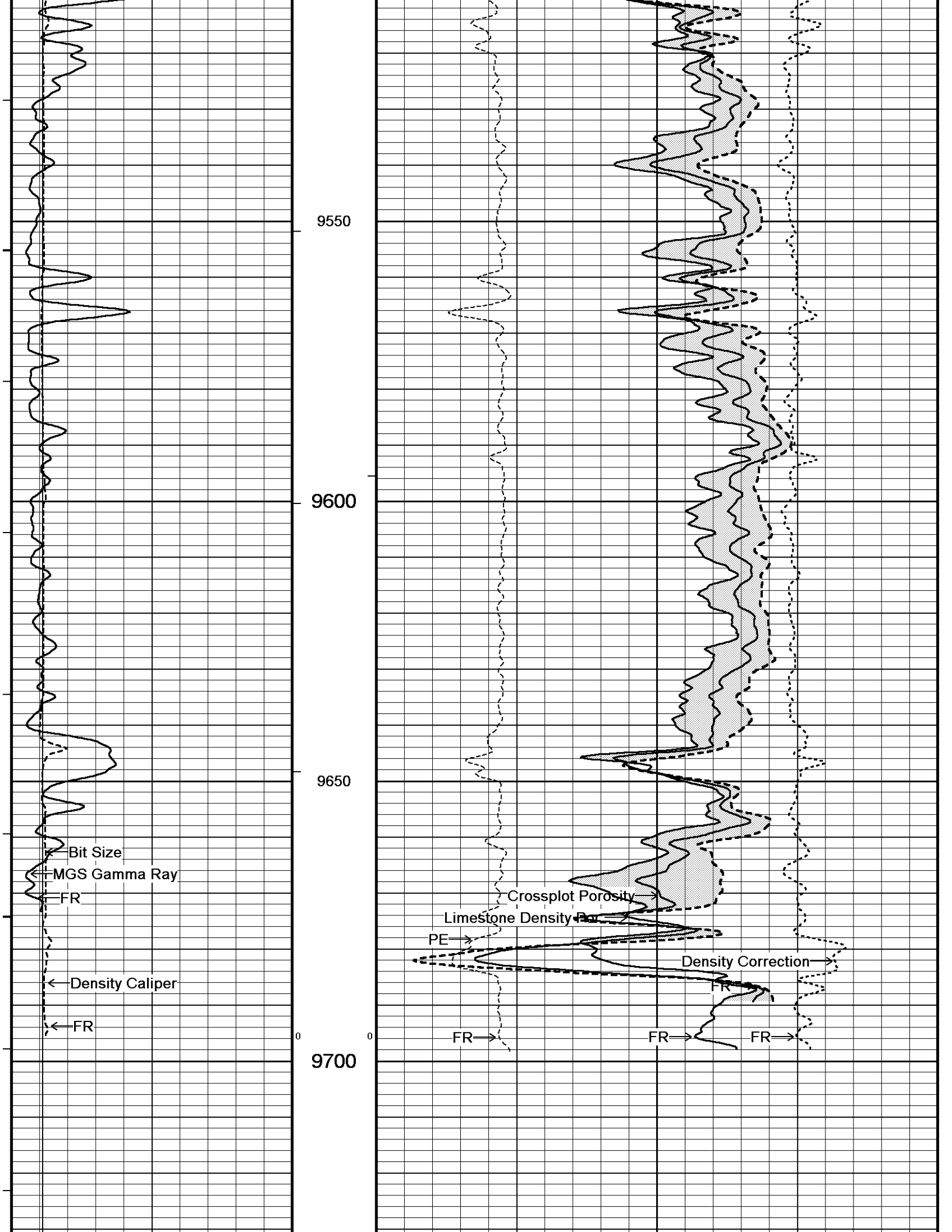
9550
9600
9650
9700
Bit Size
MGS Gamma Ray
FR
Density Caliper
FR
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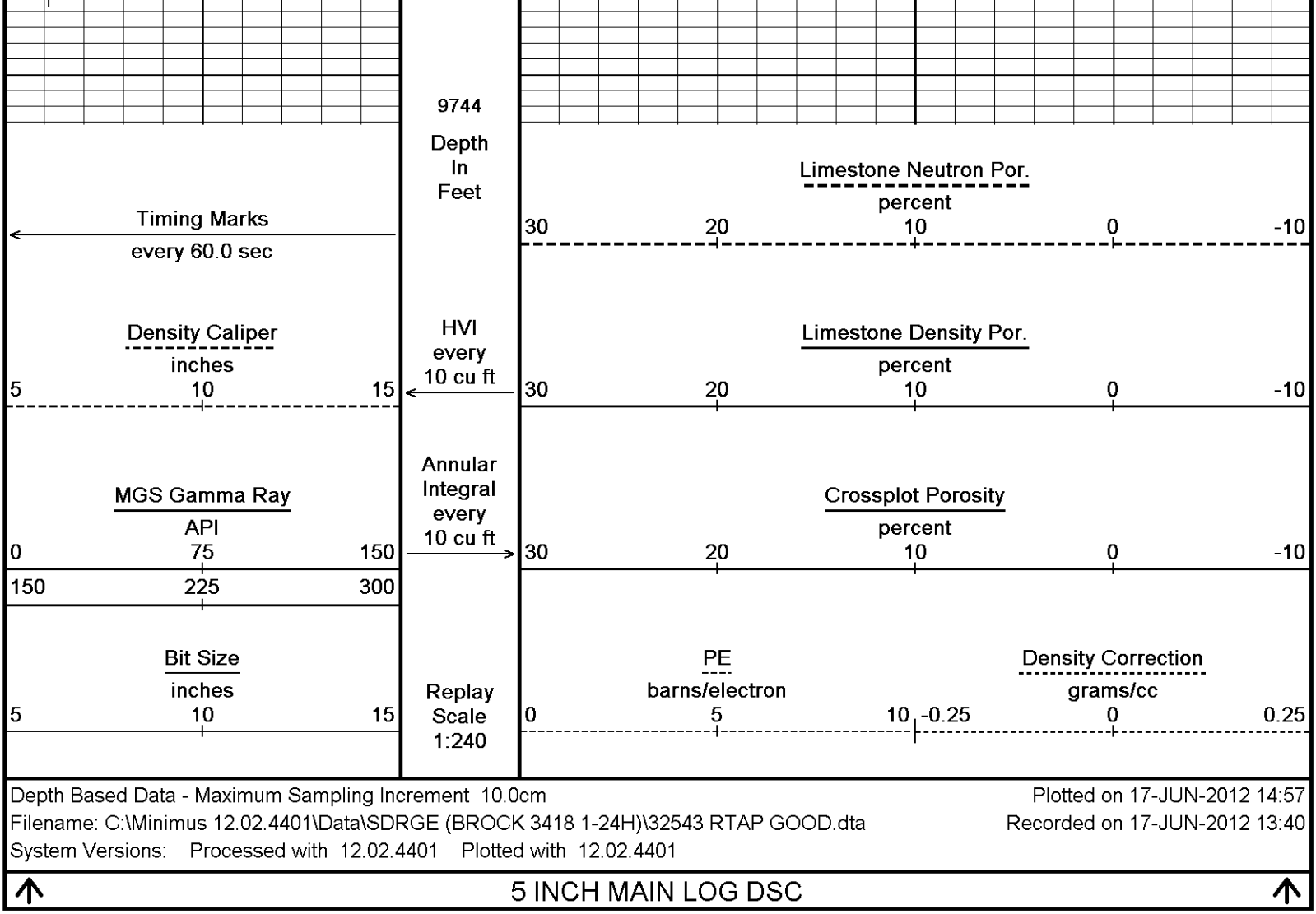
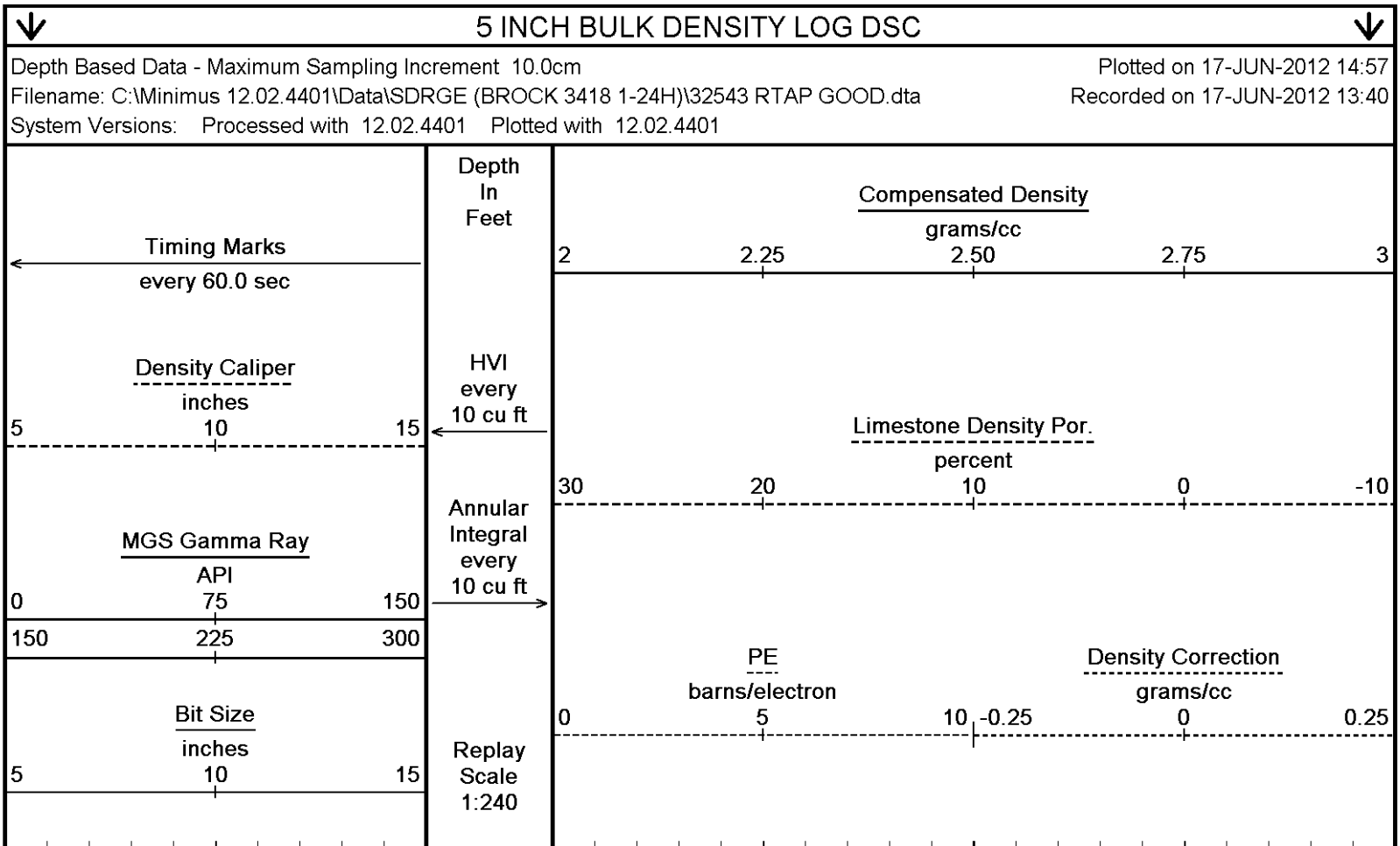
Limestone Density Por
PE
Density Correction
FR
FR
FR
FR
0


9744
Depth
In
Feet
Timing Marks
every 60.0 sec
Limestone Neutron Por.
percent
30 20 10 0 -10
Density Caliper
inches
5 10 15
HVI
every
10 cu ft
Limestone Density Por.
percent
30 20 10 0 -10
MGS Gamma Ray
API
0 75 150
150 225 300
Annular
Integral
every
10 cu ft
Crossplot Porosity
percent
30 20 10 0 -10
Bit Size
inches
5 10 15
Replay
Scale
1:240
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.25 0 0.25
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 17-JUN-2012 14:57
Filename: C:\Minimus 12.02.4401\Data\SDRGE (BROCK 3418 1-24H)\32543 RTAP GOOD.dta
Recorded on 17-JUN-2012 13:40
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401
5 INCH MAIN LOG DSC


5 INCH BULK DENSITY LOG DSC
Depth Based Data - Maximum Sampling Increment 10.0cm
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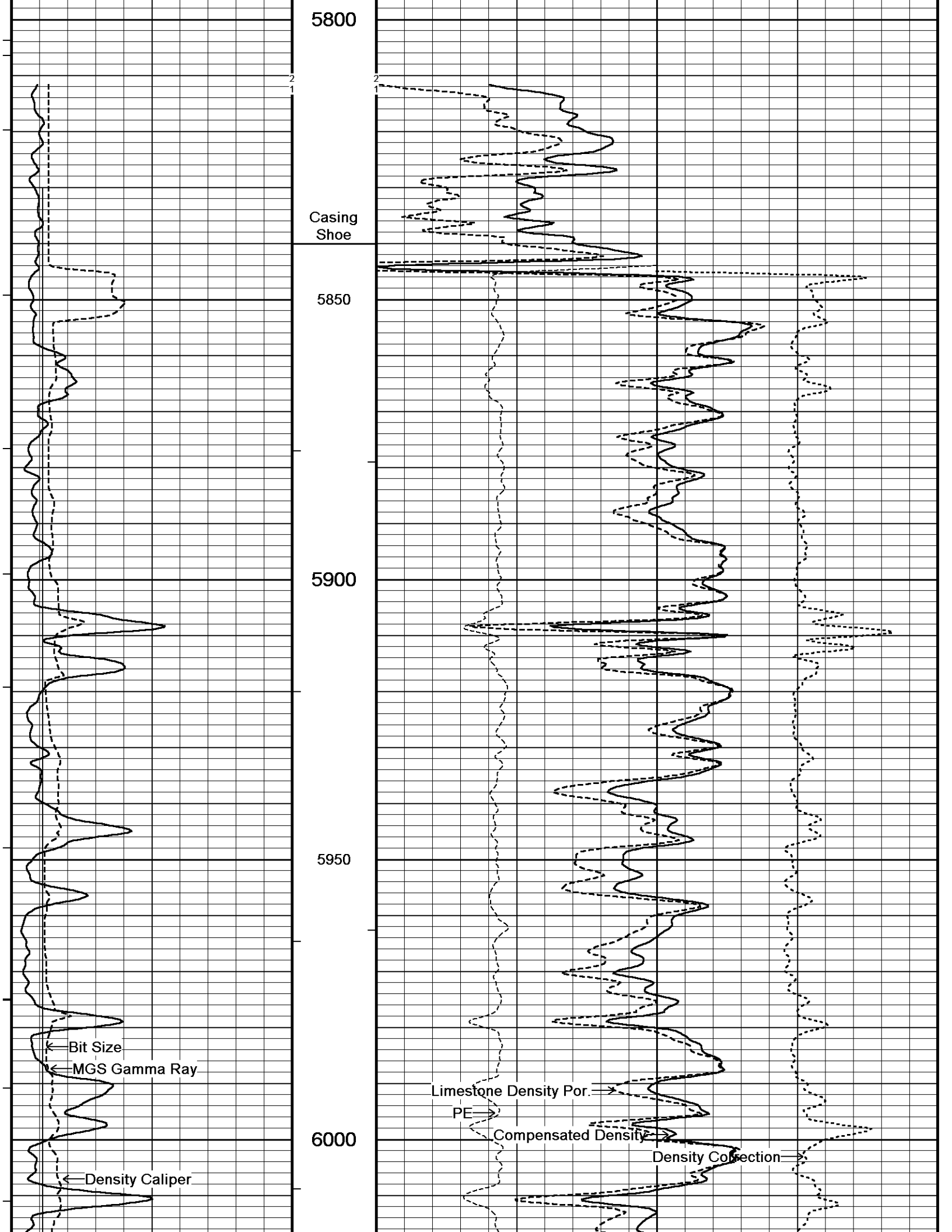
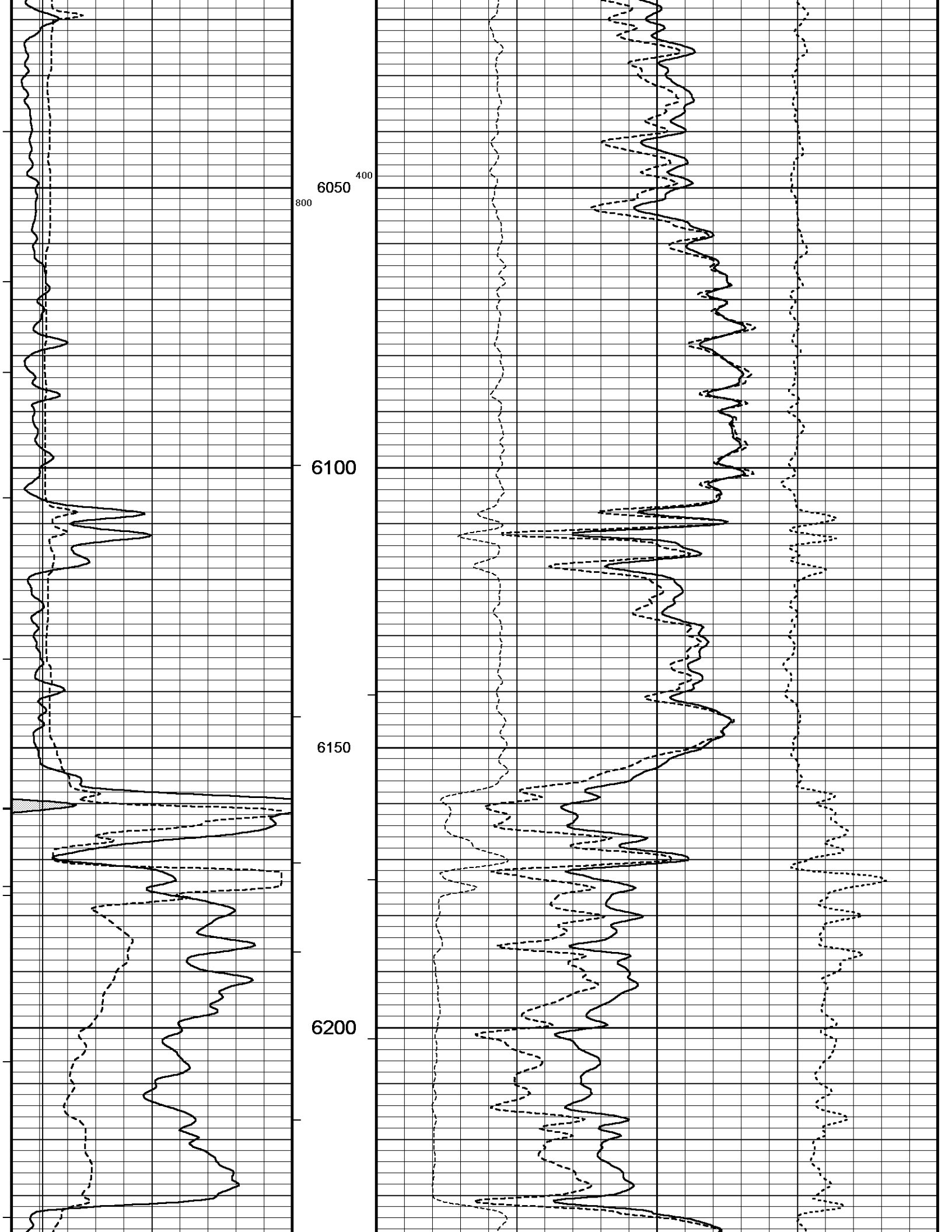
Recorded on 17-JUN-2012 13:40
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401
Depth
In
Feet
Compensated Density
grams/cc
2 2.25 2.50 2.75 3
Timing Marks
every 60.0 sec
Density Caliper
inches
5 10 15
HVI
every
10 cu ft
Limestone Density Por.
percent
30 20 10 0 -10
MGS Gamma Ray
API
0 75 150
150 225 300
Annular
Integral
every
10 cu ft
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.25 0 0.25
Bit Size
inches
5 10 15
Replay
Scale
1:240


5800
Casing
Shoe
5850
5900
5950
6000
Bit Size
MGS Gamma Ray
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction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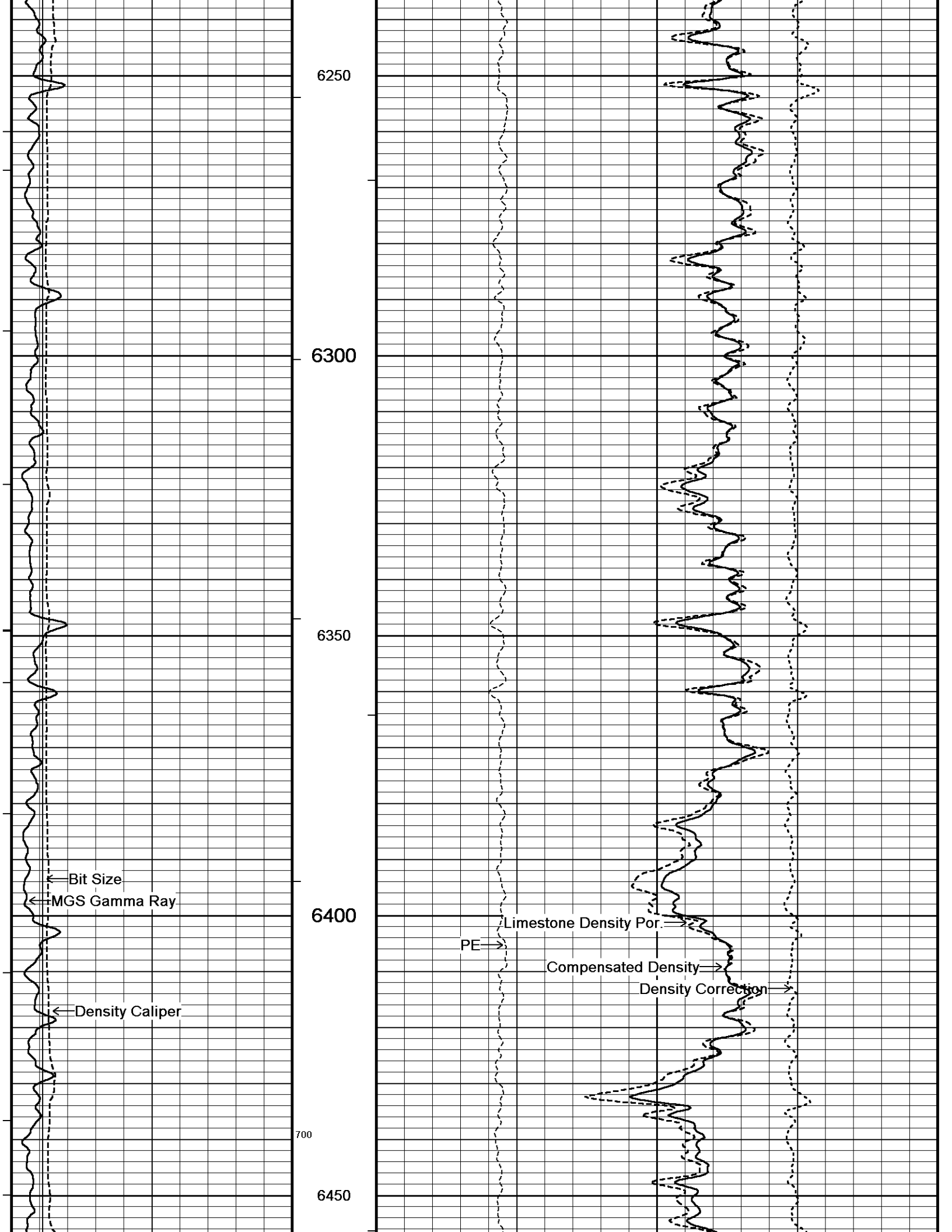
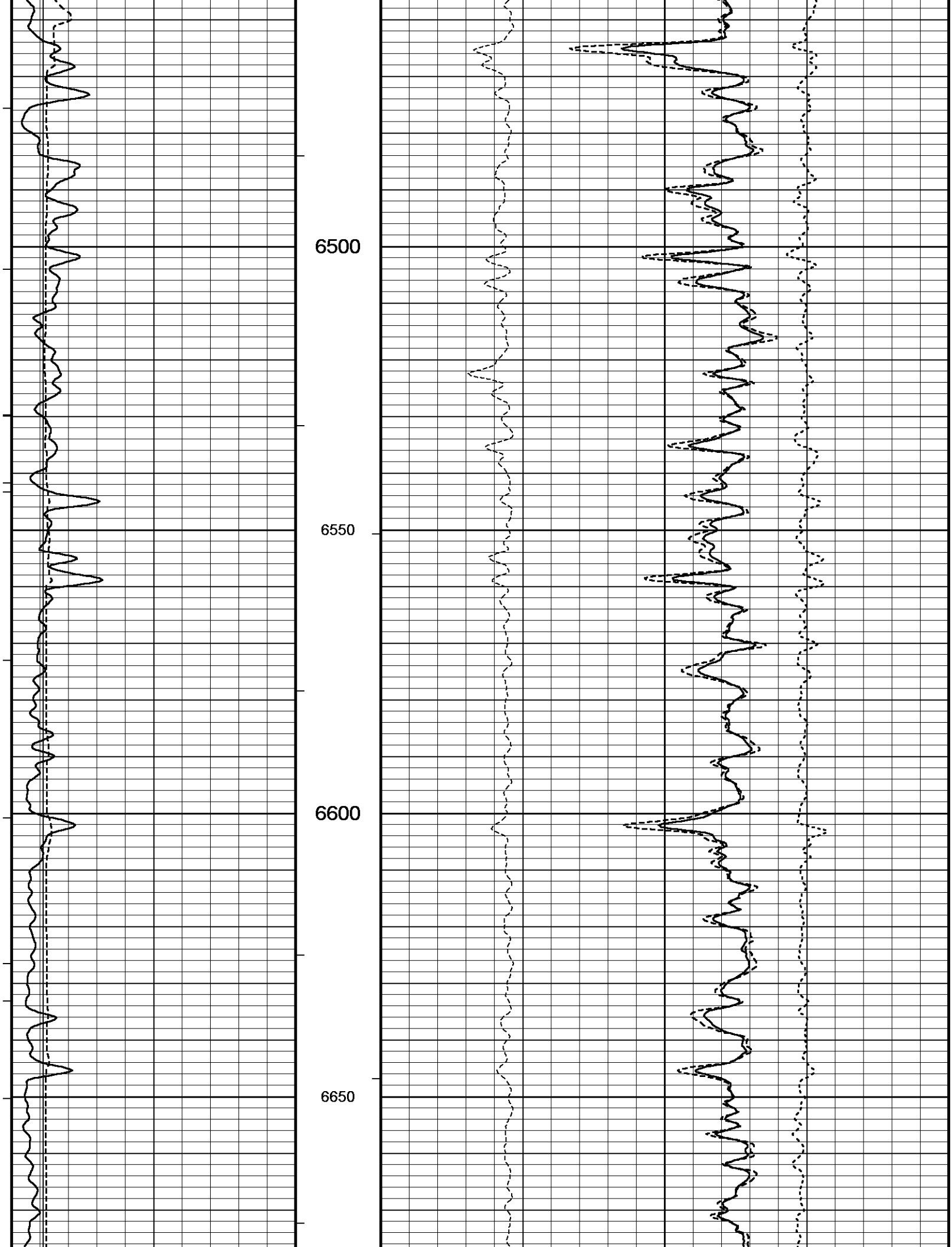
400
6050
6100
6150
6200


6250
6300
6350
6400
6450
700
Bit Size
MGS Gamma Ray
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction


6500
6550
6600
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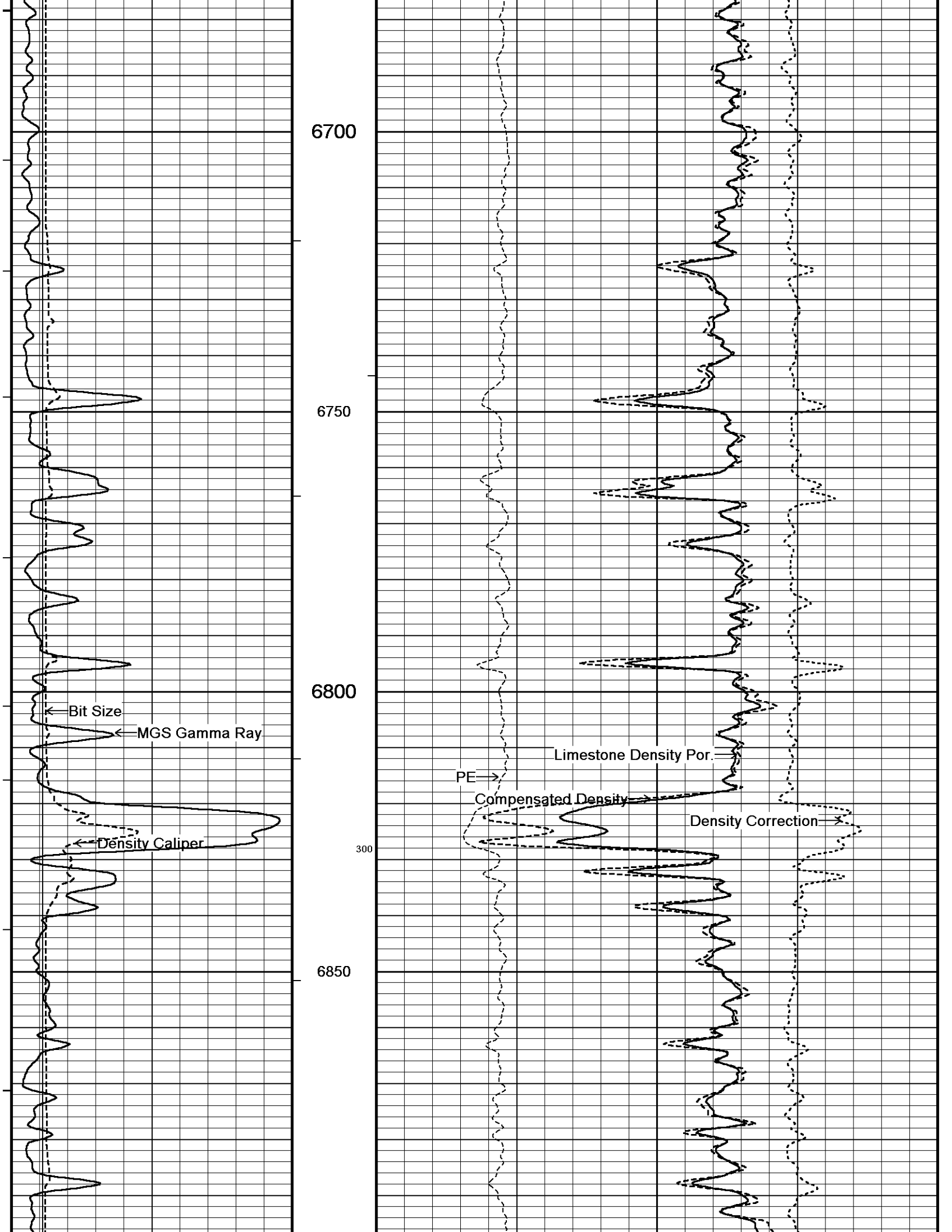
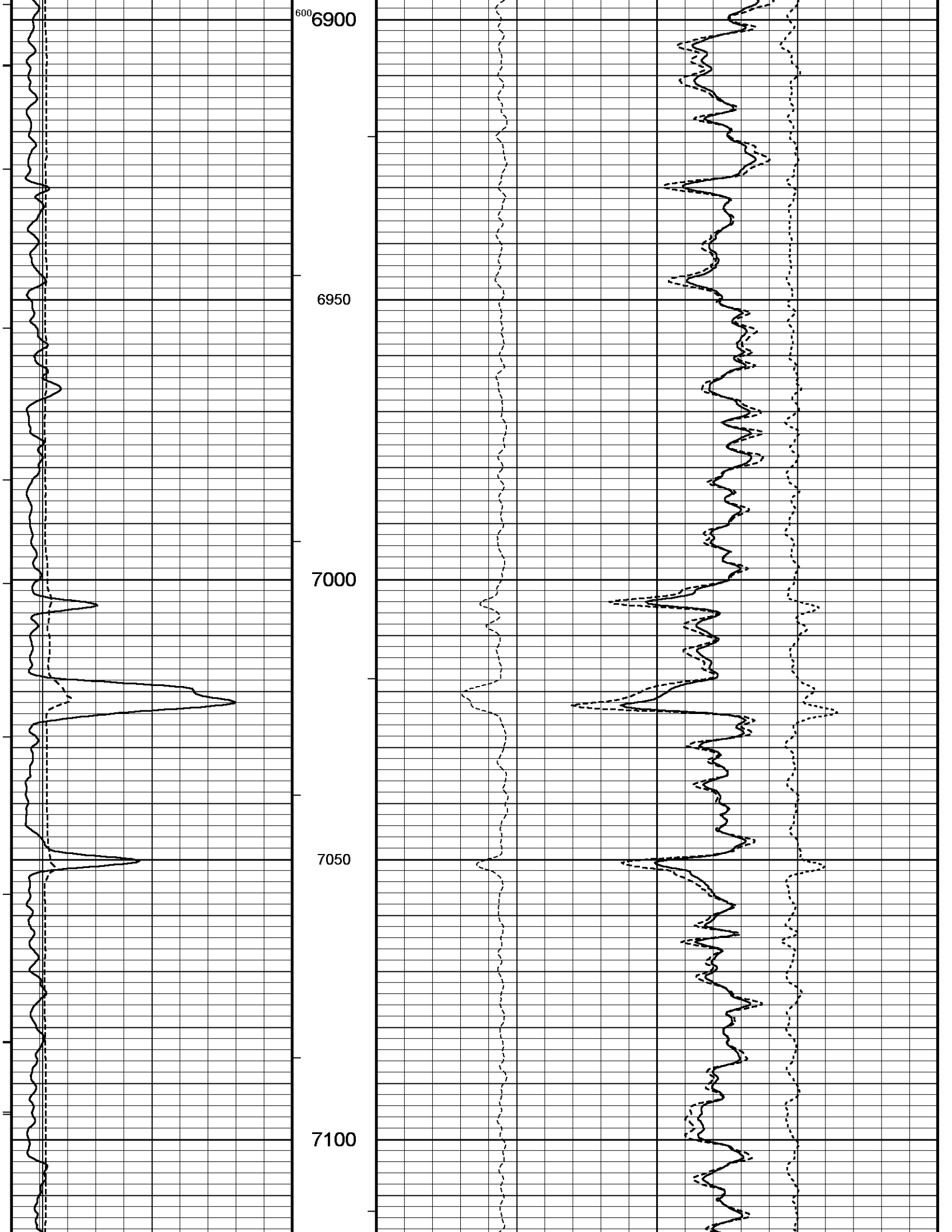
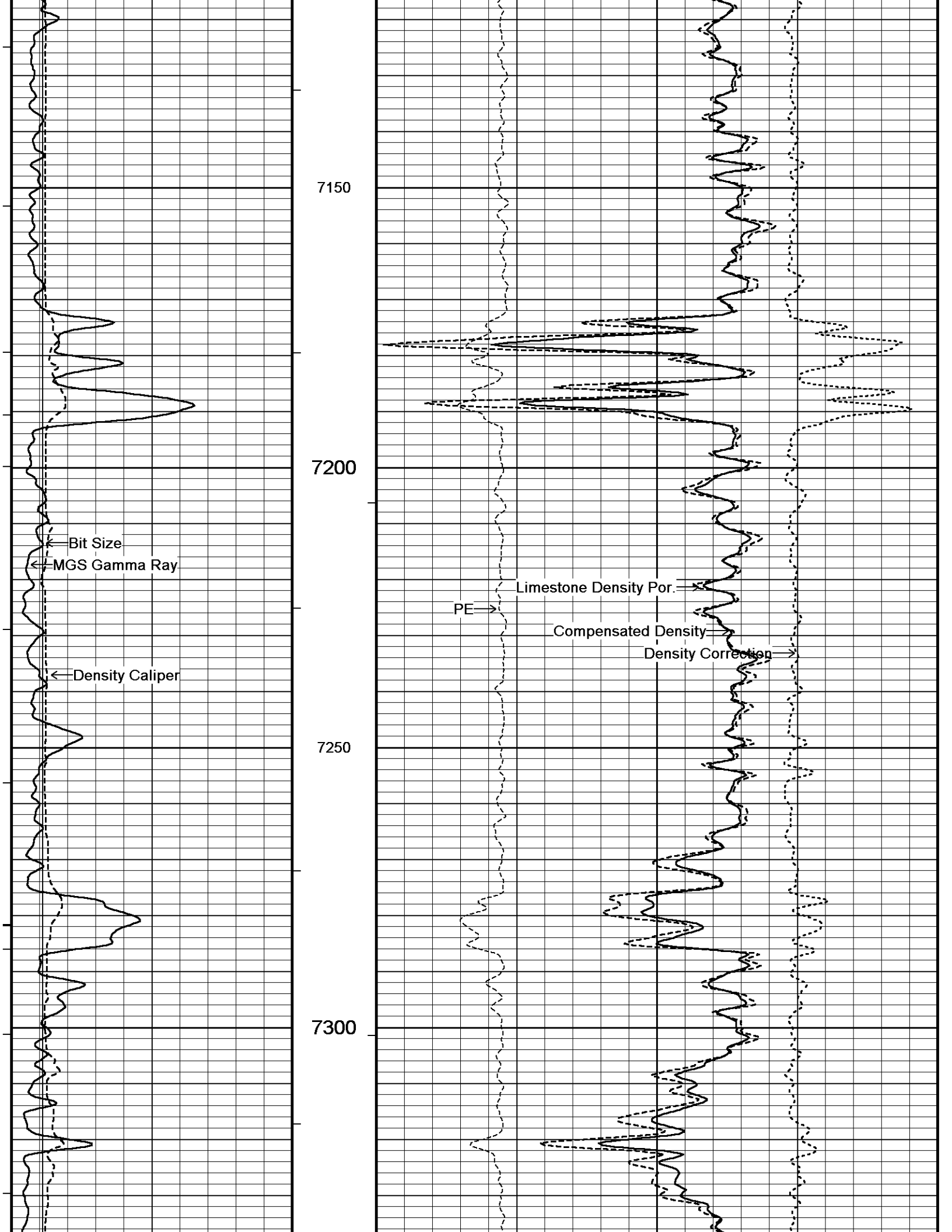
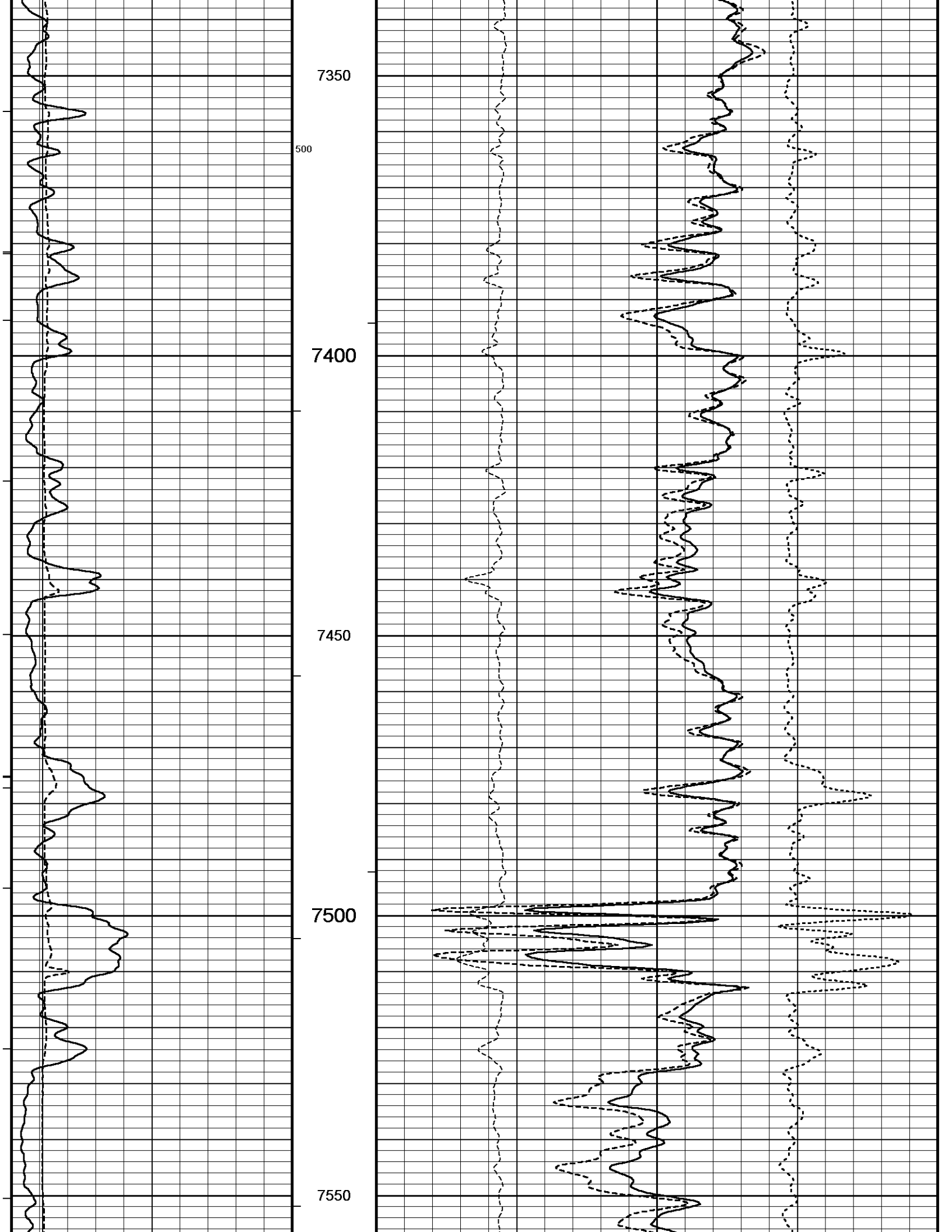

6700
6750
6800
6850
Bit Size
MGS Gamma Ray
Density Caliper
PE
Limestone Density Por.
Compensated Density
Density Correction
300


600
6900
6950
7000
7050
7100


7150
7200
7250
7300
Bit Size
MGS Gamma Ray
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction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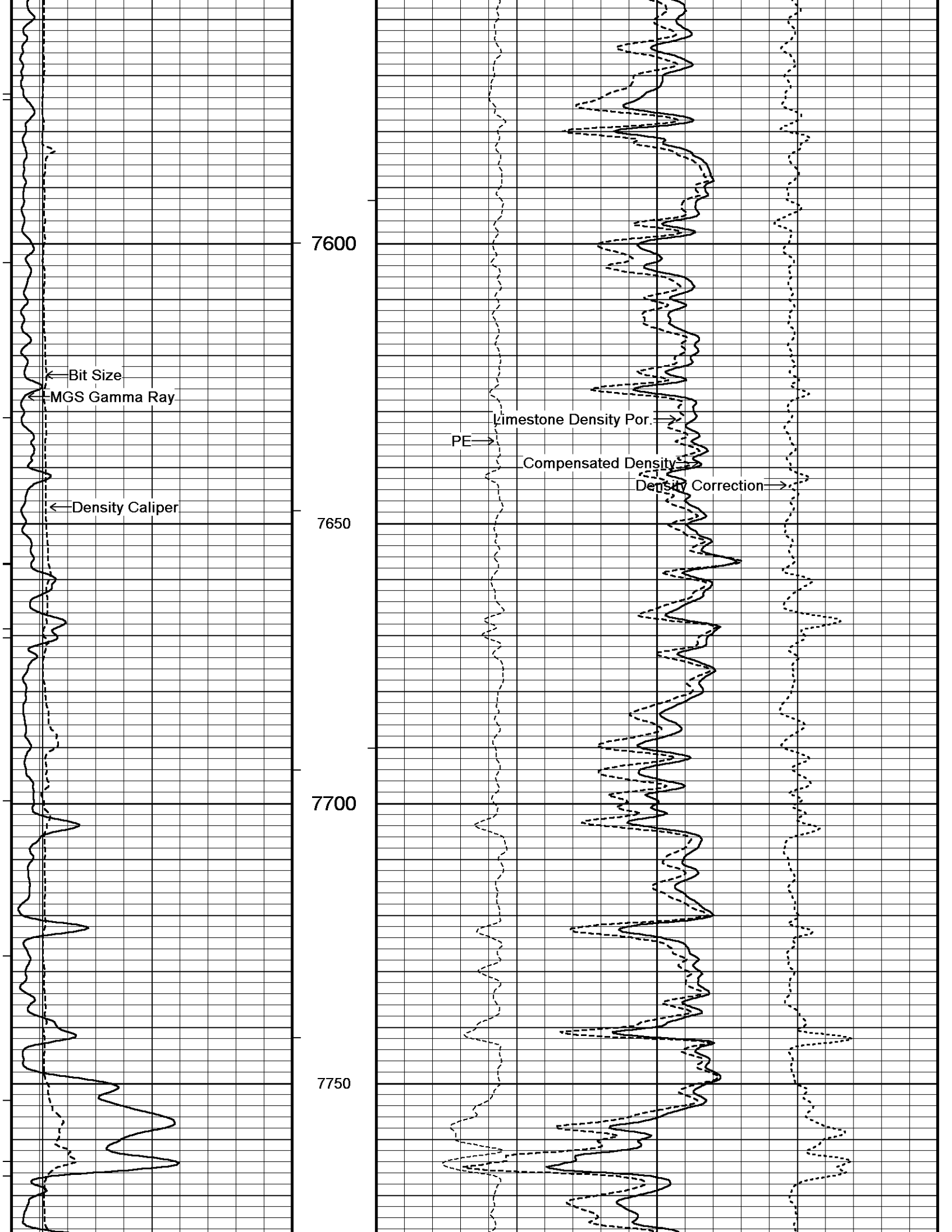
7450
7500
7550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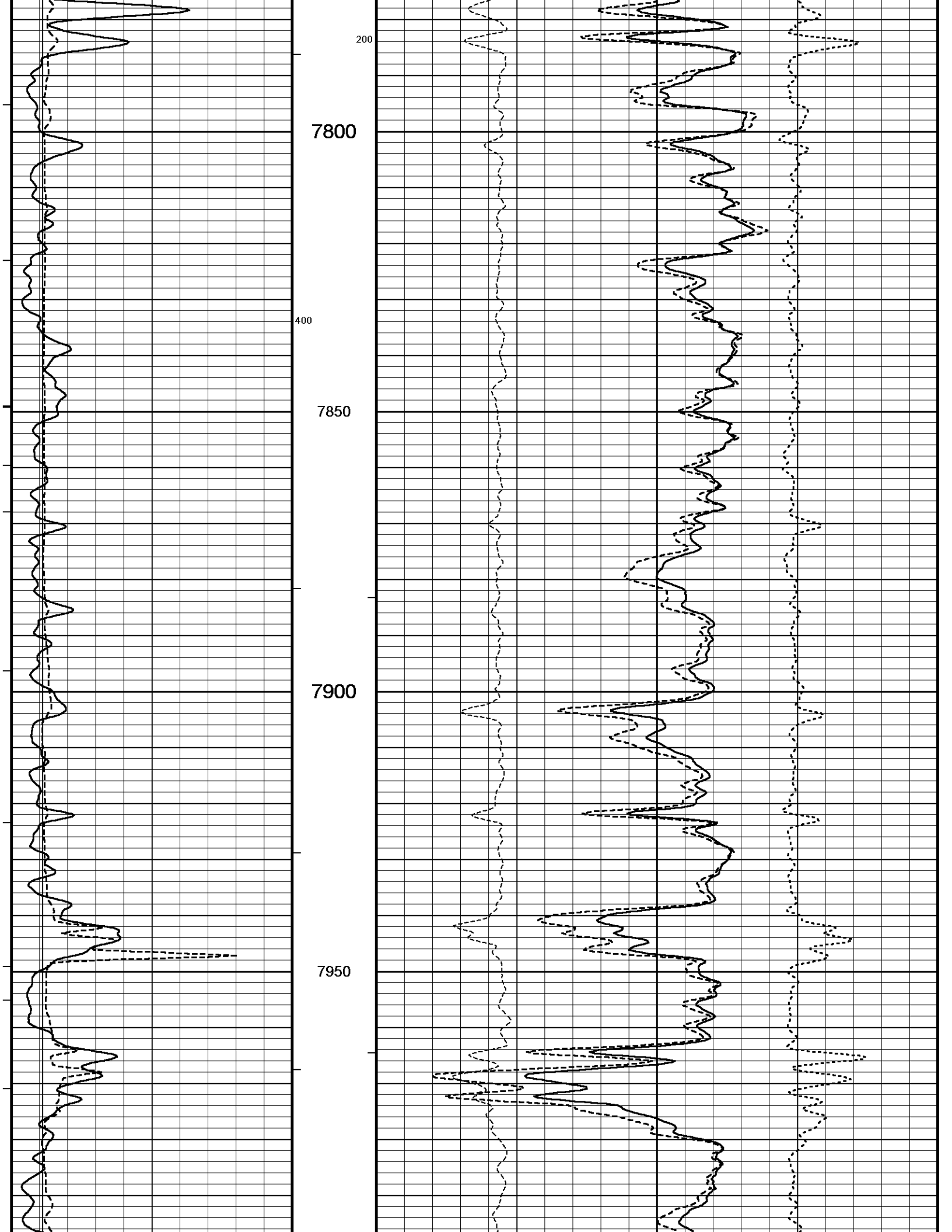
MGS Gamma Ray
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction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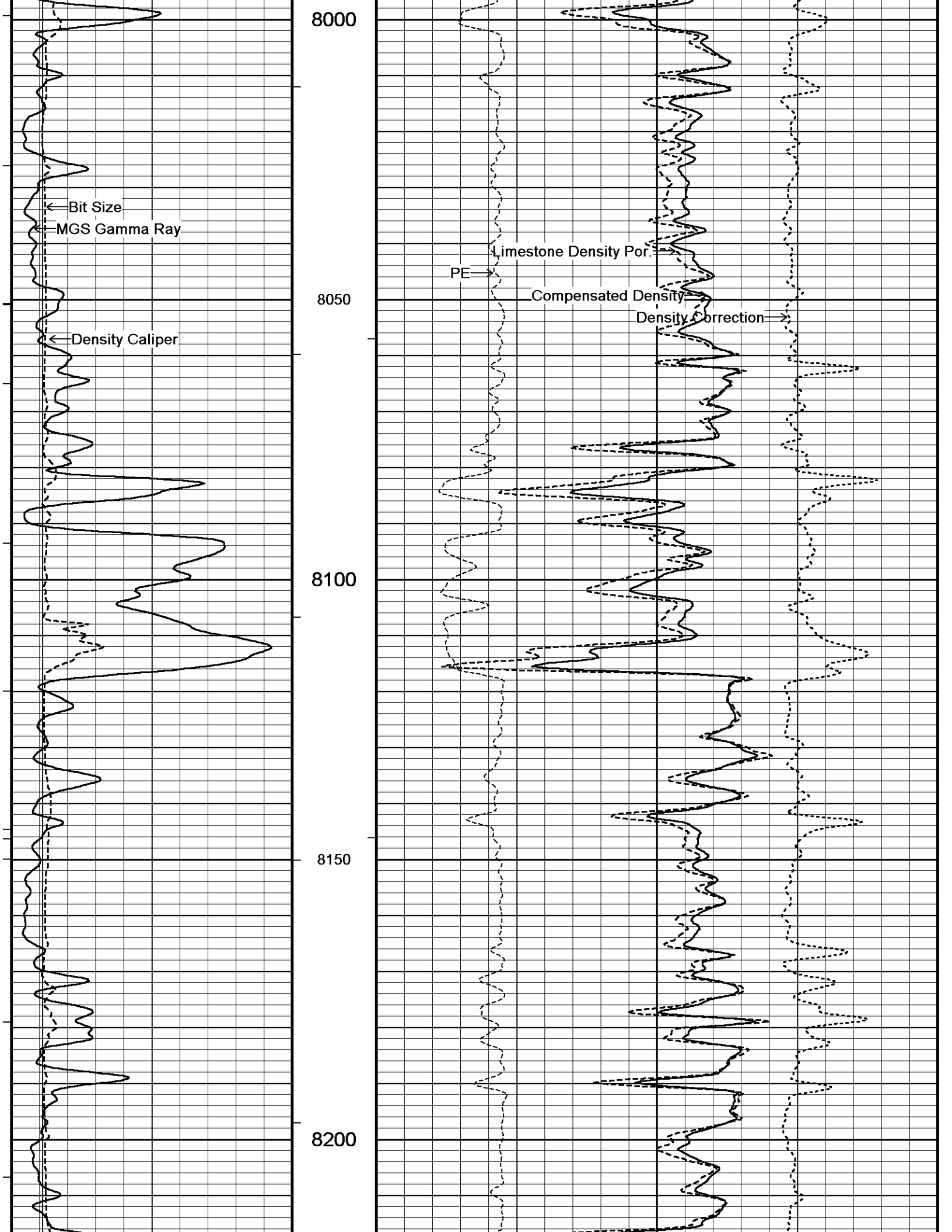
400
7850
7900
7950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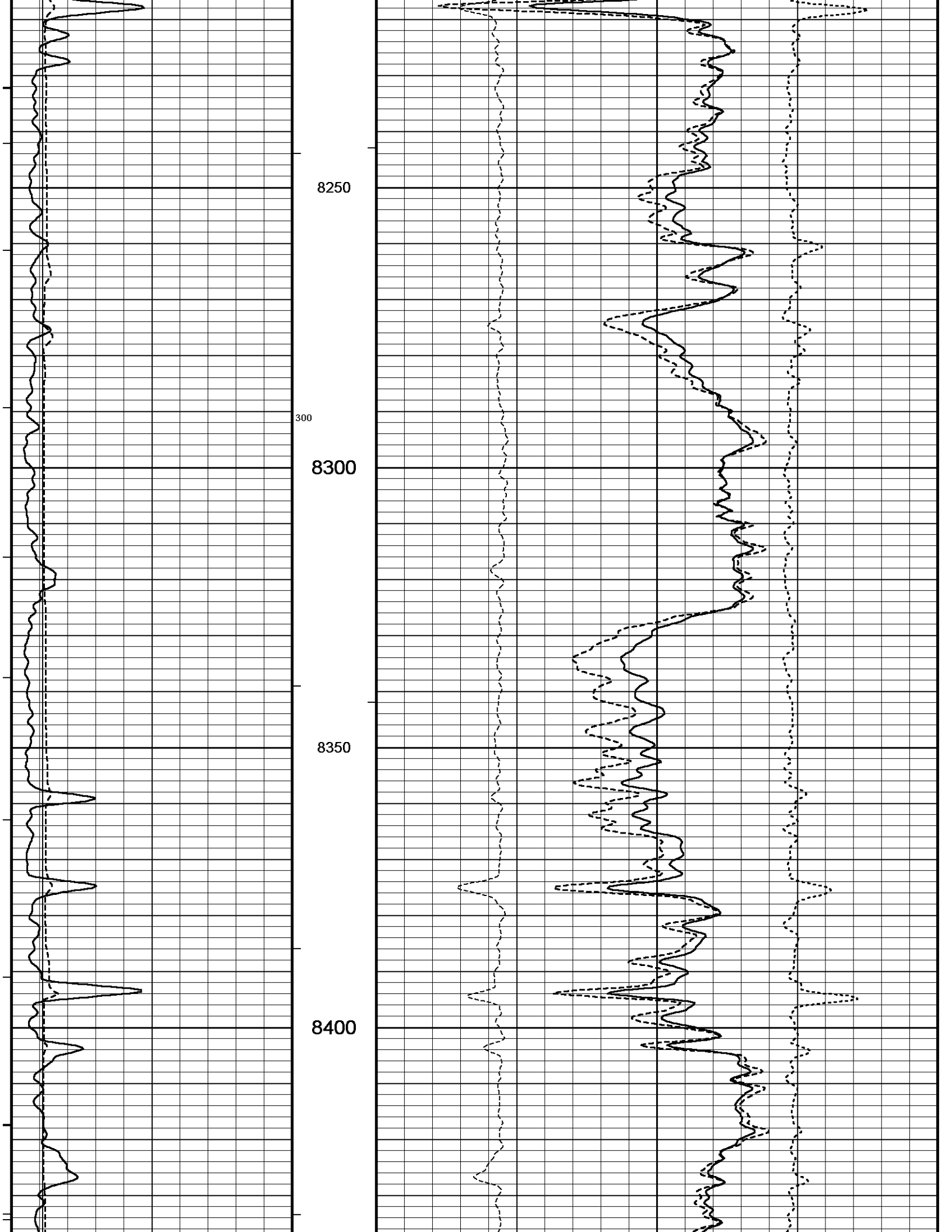
MGS Gamma Ray
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction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300
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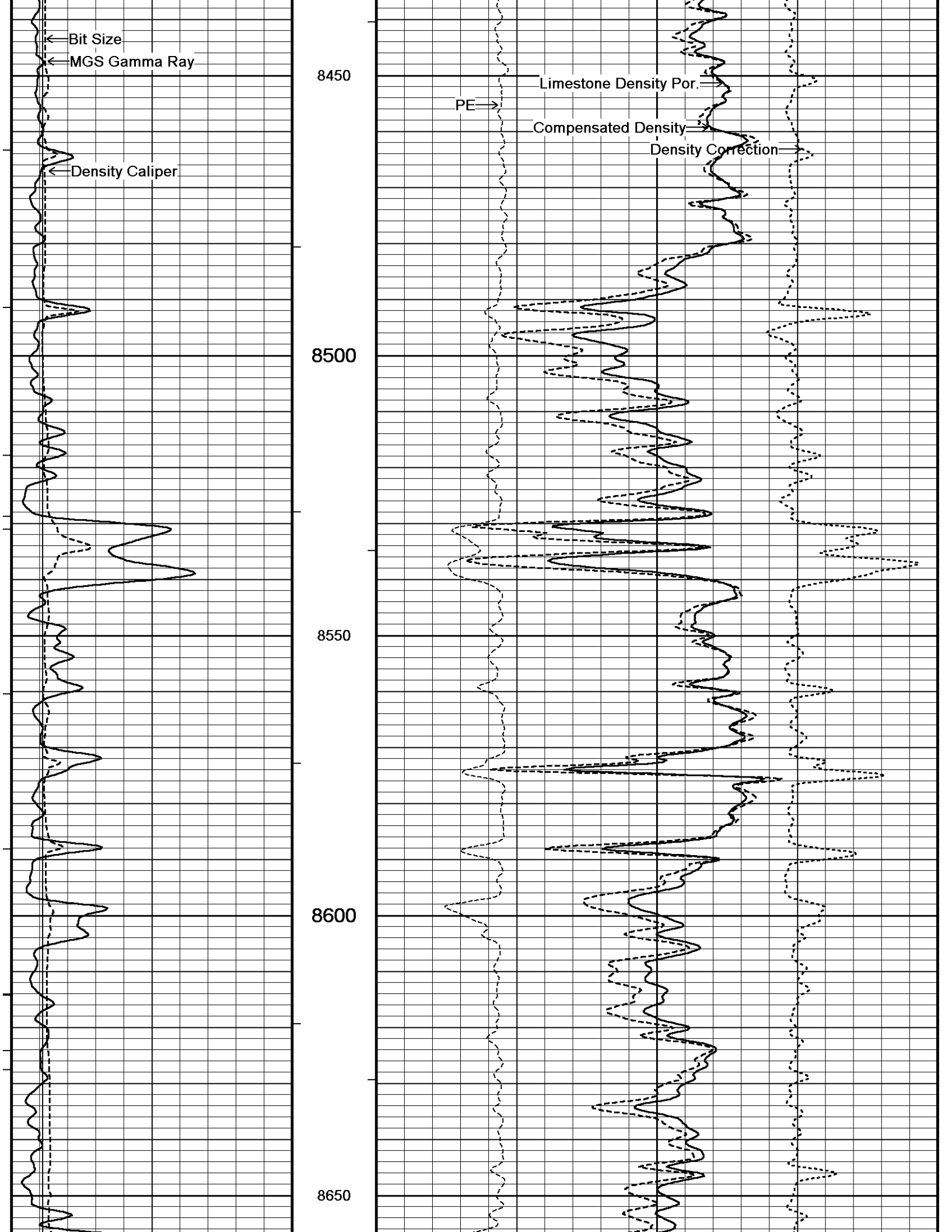
8350
8400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MGS Gamma Ray
Density Caliper
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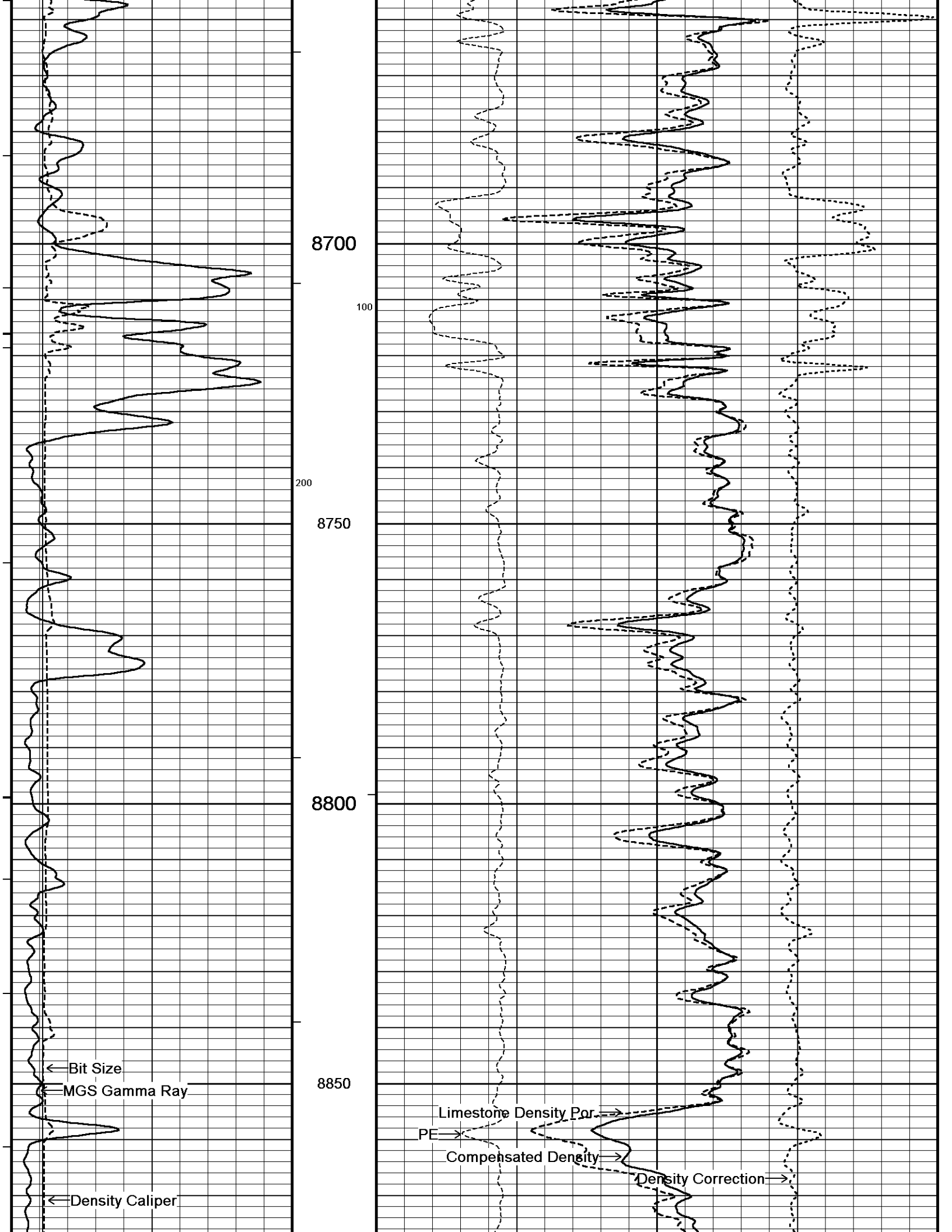
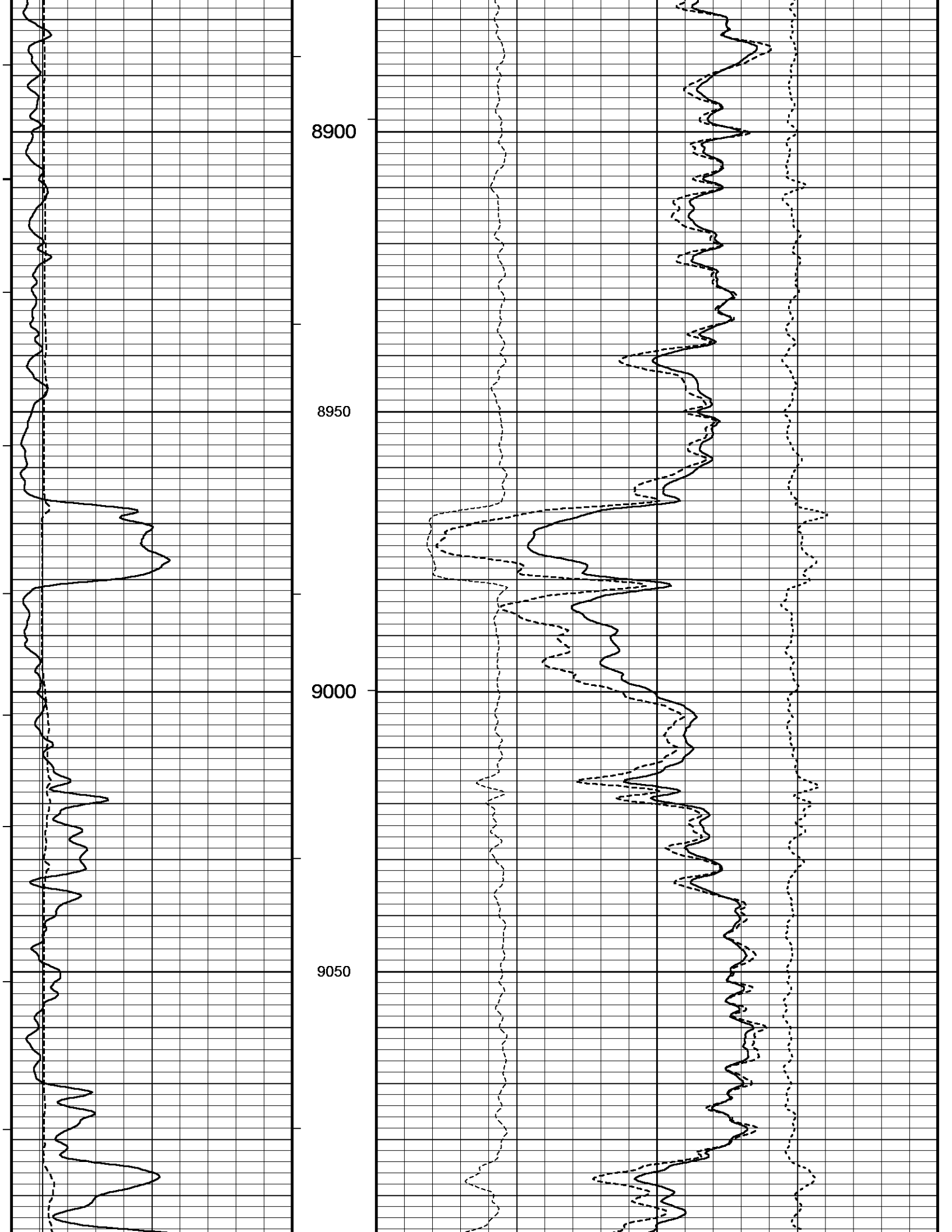
8500
8550
8600
8650
Limestone Density Por.
PE
Compensated Density
Density Correction


8700
8750
8800
8850
100
200
←Bit Size
←MGS Gamma Ray
←Density Caliper
Limestone Density Por→
PE→
Compensated Density→
Density Correction→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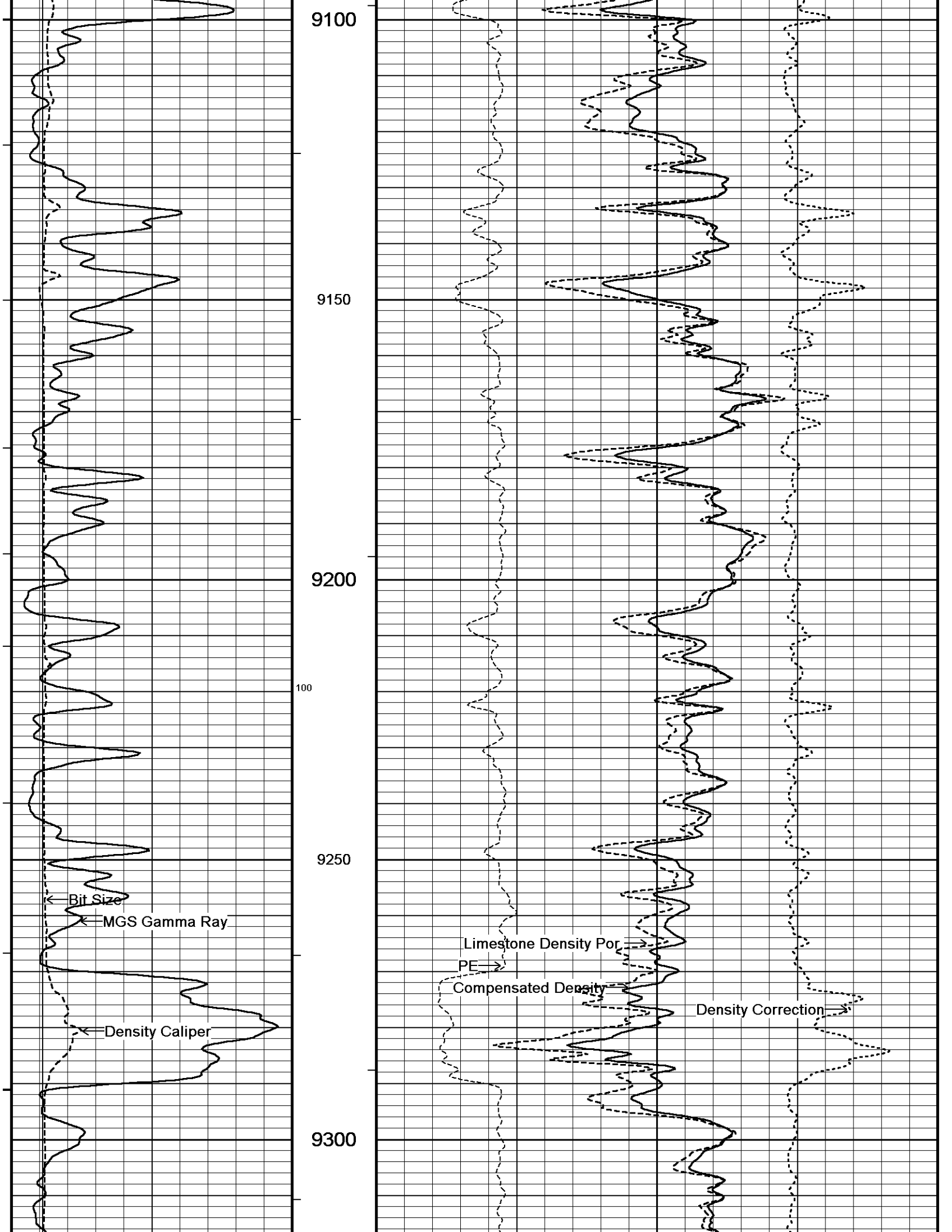
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9150
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100
9250
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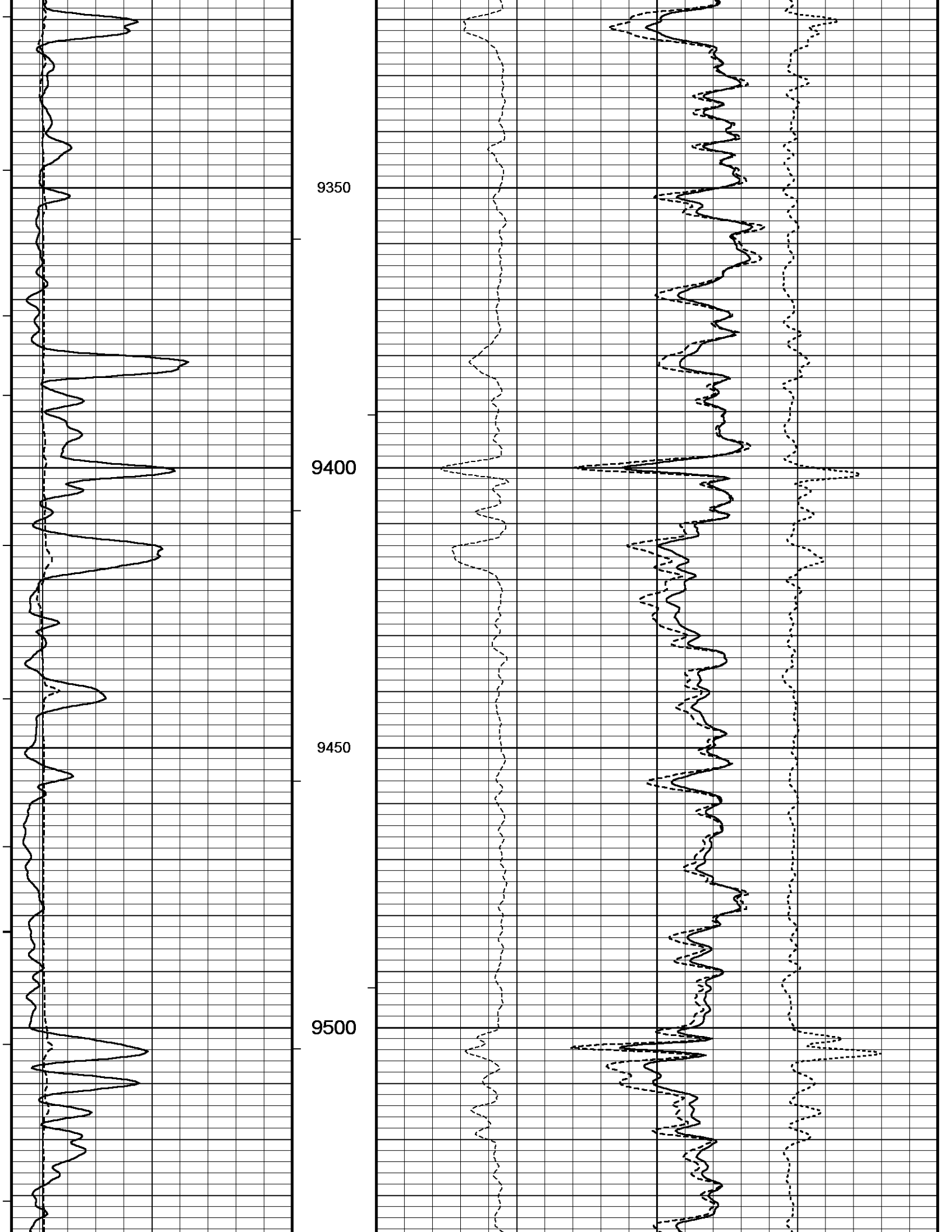
MGS Gamma Ray
Density Caliper
Limestone Density Por
PE
Compensated Density
Density Correction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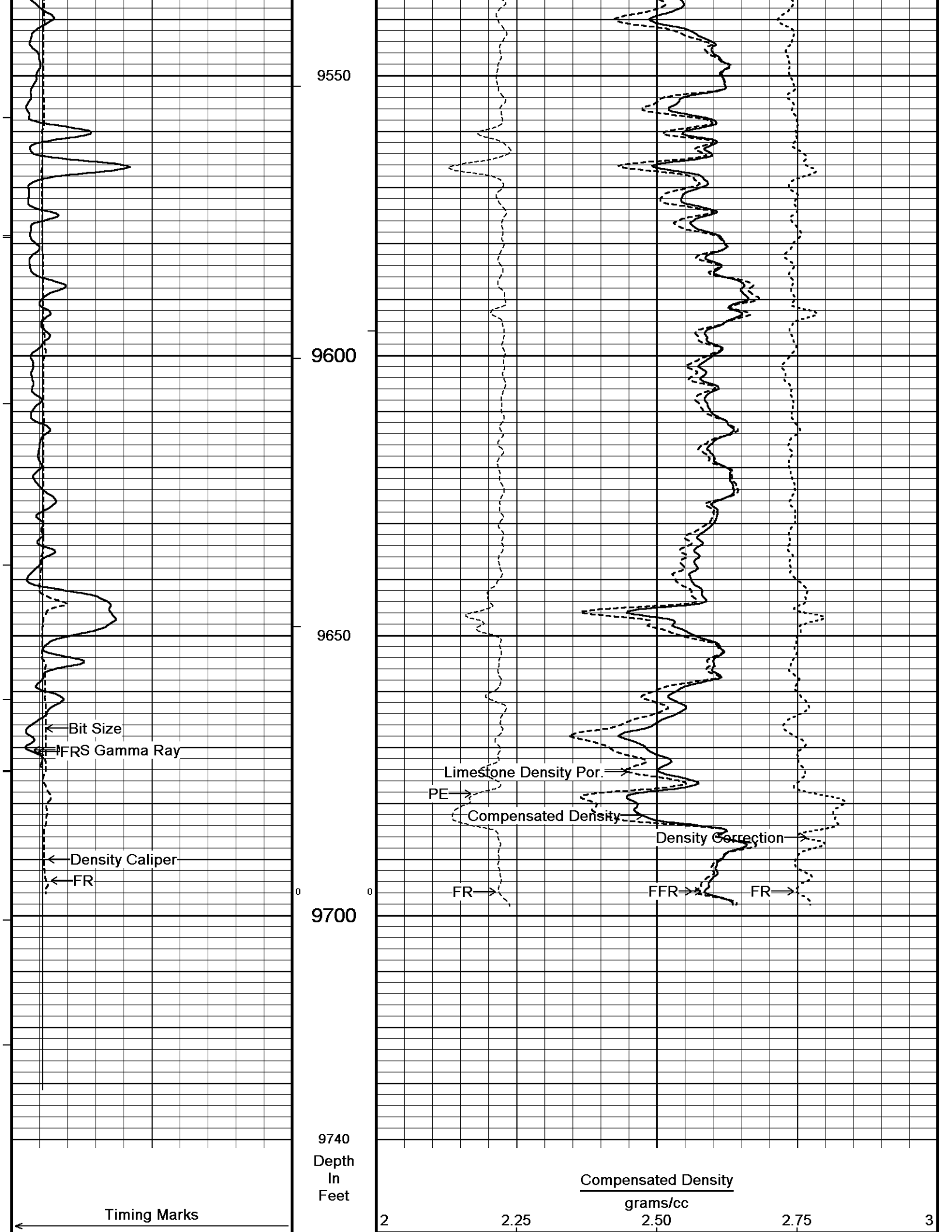
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9600
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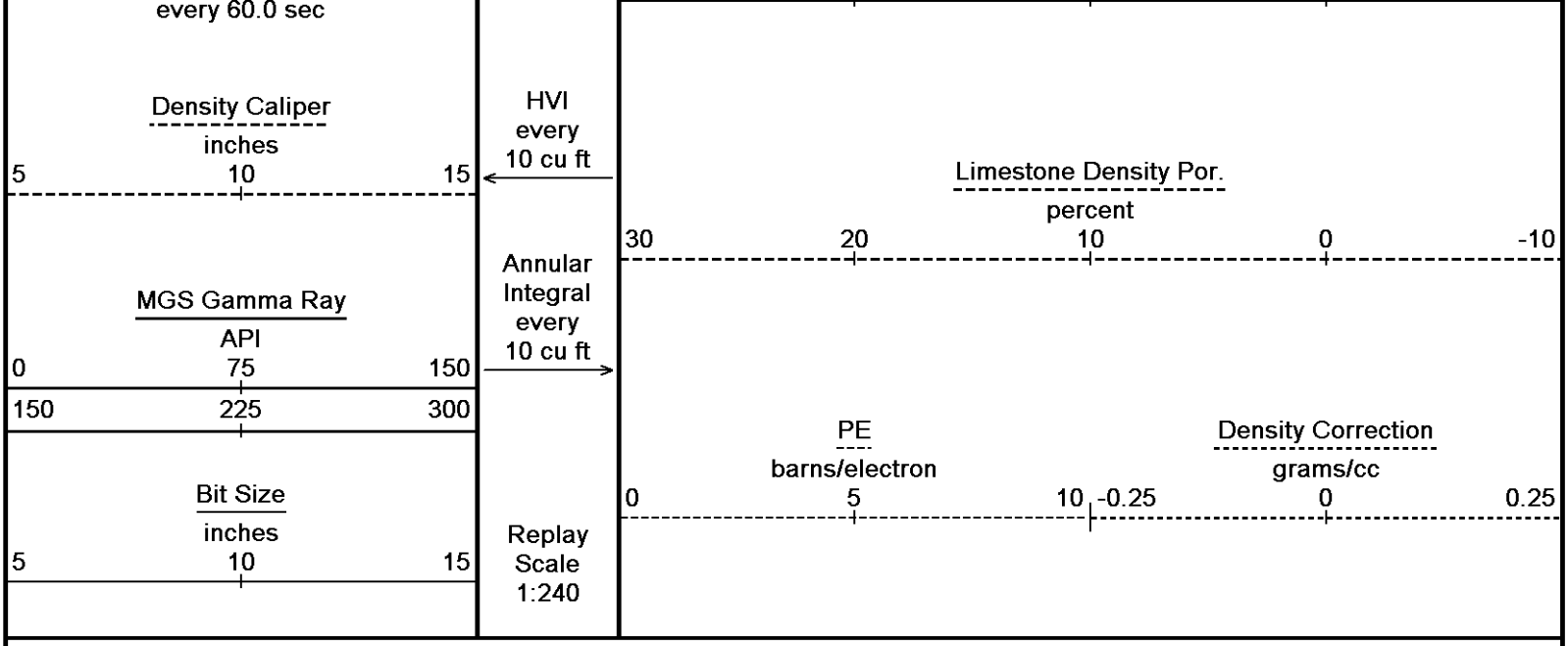
9700
9740
Bit Size
FRS Gamma Ray
Density Caliper
FR
0
0
Limestone Density Por.
PE
Compensated Density
Density Correction
FR
FFR
FR
Depth
In
Feet
Timing Marks
Compensated Density
grams/cc
2
2.25
2.50
2.75
3



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 17-JUN-2012 14:57
Filename: C:\Minimus 12.02.4401\Data\SDRGE (BROCK 3418 1-24H)\32543 RTAP GOOD.dta — Recorded on 17-JUN-2012 13:40
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

5 INCH BULK DENSITY LOG DSC

BEFORE SURVEY CALIBRATION

C:\Minimus 12.02.4401\Data\SDRGE (BROCK 3418 1-24H)\32543 RTAP GOOD.dta

Down-hole Tension Calibration All 000

Field Calibration on 24-FEB-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 17-JUN-2012 14:42

General Parameters		
Mud Resistivity	0.600	ohm-metres
Mud Resistivity Temperature	125.000	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. One 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	Calibrated (lbs)
1	15152.07	0.00
2	19175.97	2000.00

Strain Gauge Constants SER-B.A 150

Last Edited on 16-JUN-2012 14:16

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	000000000000	
Base Check Date		
Dead Weight Serial Number	0	

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	

High Resolution Temperature Calibration MGS-C.J 136

Field Calibration on 17-JUN-2012 14:39

	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 07-DEC-2011 09:21

	Measured	Calibrated (mV)
Reference 1	102.2	98.7
Reference 2	-94.7	-98.3

Gamma Calibration MGS-C.J 136

Field Calibration on 07-DEC-2011 09:21

	Measured	Calibrated (API)
Background	41	29
Calibrator (Gross)	1250	886
Calibrator (Net)	1209	857

Gamma Constants MGS-C.J 136

Last Edited on 16-JUN-2012 22:37

Gamma Calibrator Number	000	
Mud Density	0.99	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

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 19-OCT-2011 09:44
Field Check on 26-JAN-2012 08:55

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) 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) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	0.0	0.0	13.3	3897.9
2	0.0	0.0	29.6	3510.2
3	0.0	0.0	29.8	3051.0
4	0.0	0.0	20.0	2064.1
Deep	0.0	0.0	19.4	2014.0
Medium	0.0	0.0	43.1	4006.5
Shallow	0.0	0.0	42.5	5154.2

Array Temperature	0.0	51.8	Deg F

Induction Constants MAI-B.J 389

Last Edited on 17-JUN-2012 14:42

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.	Borehole Temp. Unfilt.	
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	

FE Calibration MFE-B.J 329

Base Calibration on 08-MAR-2012 10:58
Field Check on 08-MAR-2012 11:13

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.2	126.8
Base Check		281.9
Field Check		281.9

FE Constants MFE-B.J 329

Last Edited on 16-JUN-2012 22:37

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

Neutron Calibration MDN-B.J 390

Base Calibration on 24-APR-2012 16:14
Field Check on

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2974	91	3714	110
Ratio	32.653		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	Near	Far

	1236	1843
Ratio		0.671

Field Check	Calibrated (cps)	
	0	0
Ratio		0.000

Neutron Constants MDN-B.J 390

Last Edited on 16-JUN-2012 14:17

Neutron Source Id	P31112B	
Neutron Jig Number	5917NC	
Epithermal Neutron	No	
Caliper Source for Processing	Bit Size	
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	Constant Value	
Temperature	68.00	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	

Caliper Calibration MPD-C.J 393

Base Calibration on 09-APR-2012 15:26
Field Calibration on 09-APR-2012 15:26

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16224	4.01
2	24416	5.96
3	32900	7.98
4	41094	9.86
5	50128	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 393

Base Calibration on 09-APR-2012 15:24
Field Check on 09-APR-2012 15:25

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58016	27308	59869	31110
Reference 2	24483	2694	24557	2522

Field Check at Base

1260.5	1380.6

Field Check

1239.6	1366.0

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	235	1137		
Reference 1	23358	57816	0.408	0.369
Reference 2	6927	24347	0.288	0.271

Field Check at Base

235.4	1137.5

Field Check

229.1	1117.2

Density Constants MPD-C.J 393

Last Edited on 16-JUN-2012 22:37

Density Source Id	p31112b	
Nylon Calibrator Number	18006	
Aluminium Calibrator Number	18006	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	0.99	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

DOWNHOLE EQUIPMENT

C:\Minimus 12.02.4401\Data\SDRGE (BROCK 3418 1-24H)\32543 RTAP GOOD.dta

Shuttle Mechanical Release (SMR A)
SMR-A 149 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-B.A 150 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 135 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

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 417 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

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

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 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 393 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 277 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor

59.03 ft	GRGM - MGS Gamma Ray
57.04 ft	GSXT - MGS External Temperature
43.33 ft	NPRL - Limestone Neutron Por.
36.09 ft	AVOL - Annular Volume
36.09 ft	HVOL - Hole Volume
36.09 ft	CLDC - Density Caliper
34.16 ft	DPRL - Limestone Density Por.
34.16 ft	DEN - Compensated Density
34.16 ft	DCOR - Density Correction
34.09 ft	PDPE - PE

SHA-F 48 LG: 2.74 ft WT: 26.5 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

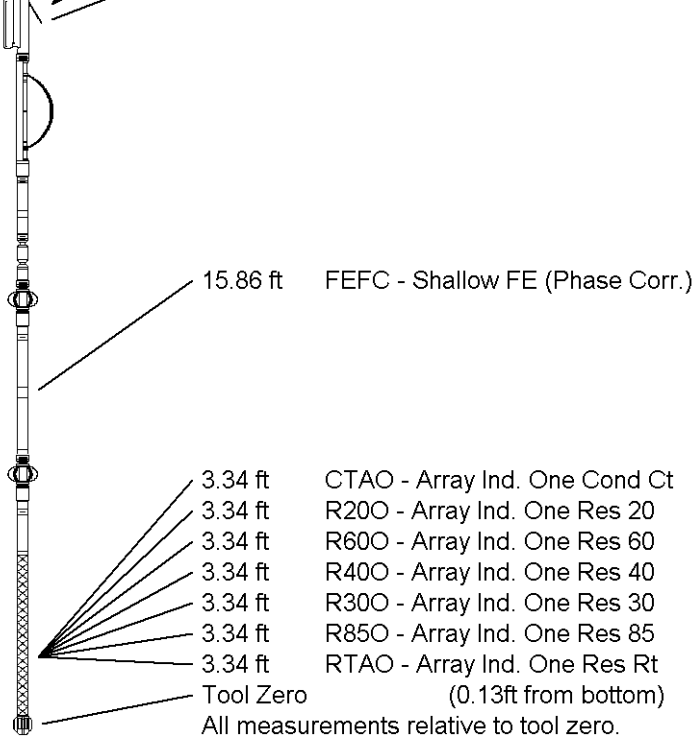
MIS-E.B Compact Inline Standoff sub
MIS-E.B 565 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

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

MIS-E.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: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 92.34 ft Weight: 716.5 lb



COMPANY	SANDRIDGE E&P LLC
WELL	BROCK 3418 1-24H
FIELD	HAAS WEST
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1883.50	feet	First Reading	9694.00	feet
Elevation Drill Floor	1883.50	feet	Depth Driller	9747.00	feet
Elevation Ground Level	1864.00	feet	Depth Logger	9747.00	feet

Weatherford®

CML IMPULSE SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG

40 Years of Wireline 1970 2010