



Weatherford

**COMPACT WELL SHUTTLE
COMPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON LOG**

COMPANY **EXXON MOBIL CORPORATION**
WELL **NORTH PICEANCE CREEK 196-19B1**
FIELD **PICEANCE CREEK**
PROVINCE/COUNTY **RIO BLANCO**
COUNTRY/STATE **U.S.A. / COLORADO**
LOCATION **SHL: 2493' FNL & 423' FEL**



LSD		SEC	TWP	RGE	Other Services		
		19	1S	96W	RESISTIVITY		
API Number		05-103-1108100			SONIC		
Permit Number		05-103-1108100					
Permanent Datum					G.L., Elevation 6882.5 feet		
Log Measured From K.B. @					30 FEET above Permanent Datum		
Drilling Measured From K.B.							
Date				29-OCT-2010		Elevations: KB 6912.50 DF 6911.50 GL 6882.50	
Run Number				ONE			
Depth Driller				14761.00		feet	
Depth Logger				14761.00		feet	
First Reading				14685.00		feet	
Last Reading				11154.00		feet	
Casing Driller				11164.00		feet	
Casing Logger				11154.00		feet	
Bit Size				6.125		inches	
Hole Fluid Type				GEL CHEM			
Density / Viscosity				12.10 lb/USg		58.00 CP	
PH / Fluid Loss				9.60		8.60 ml/30Min	
Sample Source				FLOWLINE			
Rm @ Measured Temp				2.52 @ 97.5		ohm-m	
Rmf @ Measured Temp				2.02 @ 97.5		ohm-m	
Rmc @ Measured Temp				3.02 @ 97.5		ohm-m	
Source Rmf / Rmc				CALC		CALC	
Rm @ BHT				0.93 @270.0		ohm-m	
Time Since Circulation				0.5 HOURS			
Max Recorded Temp				270.00		deg F	
Equipment Name				COMPACT			
Equipment / Base				13038		GDUCT	
Recorded By				B. ROSSER			
Witnessed By				M. SAURBORN		R. OWENS	

BOREHOLE RECORD

Last Edited: 28-OCT-2010 11:59

Bit Size inches	Depth From feet	Depth To feet
6.125	11164.00	14761.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERM	7.000	0.00	11164.00	26.00

REMARKS

TOOLS: COMPACT DROP OFF, GAMMA RAY, NEUTRON, DENSITY, FOCUSED ELECTRIC, SONIC, AND INDUCTION RAN IN COMBINATION.

HARDWARE: DENSITY: 4 INCH PROFILE PLATE USED.
FOCUSED ELECTRIC: INLINE CENTRALIZERS USED.
SONIC: INLINE CENTRALIZERS USED.
INDUCTION: INLINE CENTRALIZERS USED.
SINGLE BOWSPRINGS USED FOR ECENTRALIZATION OF POROSITY TOOLS.

2.65 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

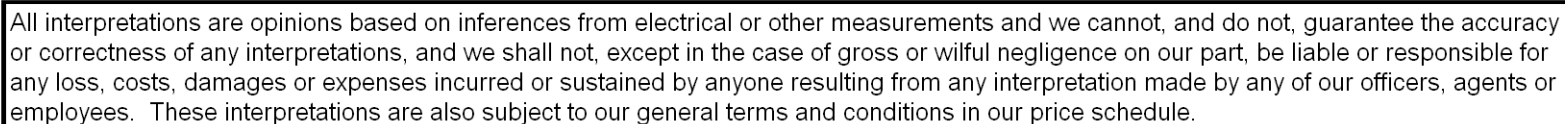
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

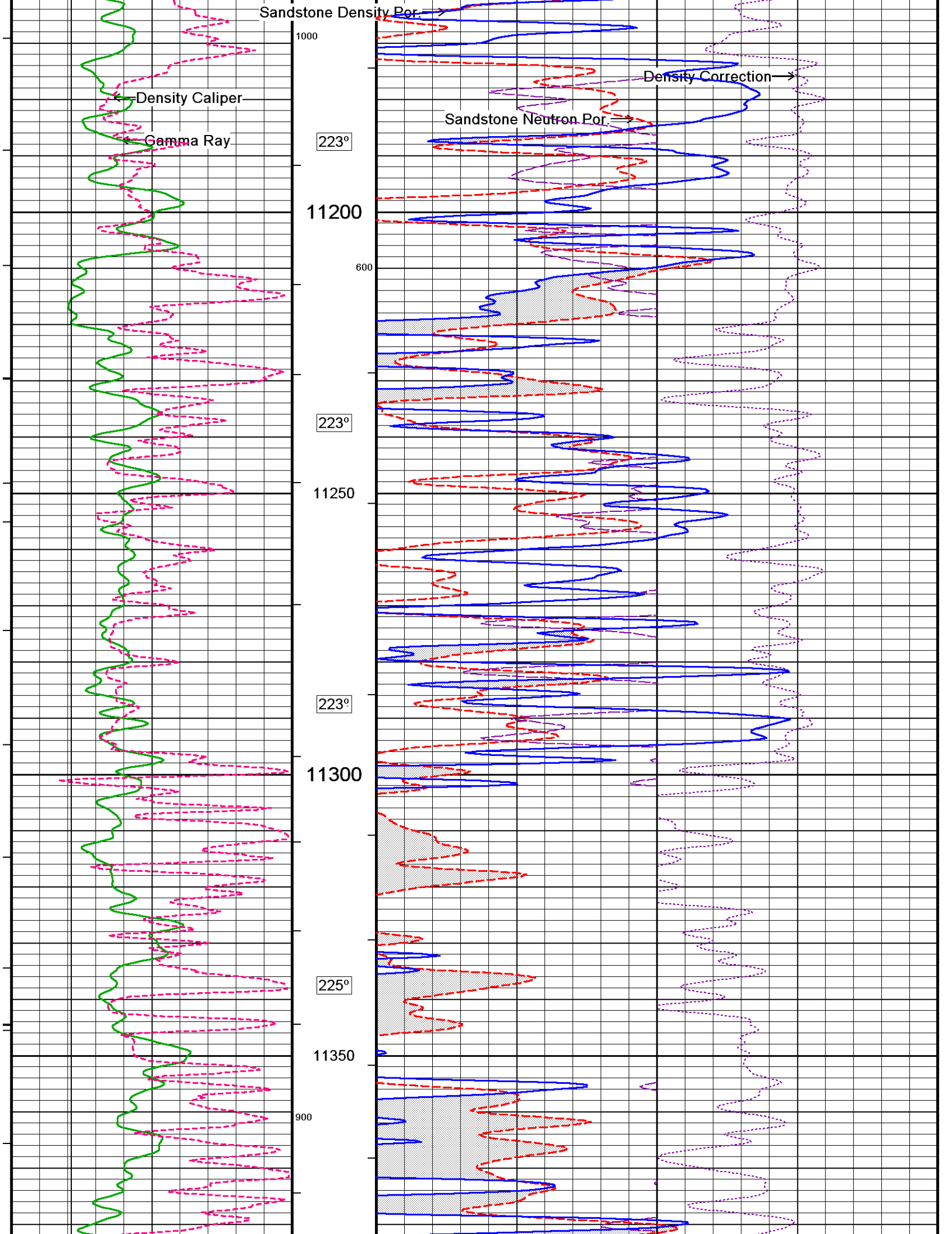
DEPTH CONTROL TAKEN FROM PIPE STRAP AND TIED INTO INTERMEDIATE LOGS.

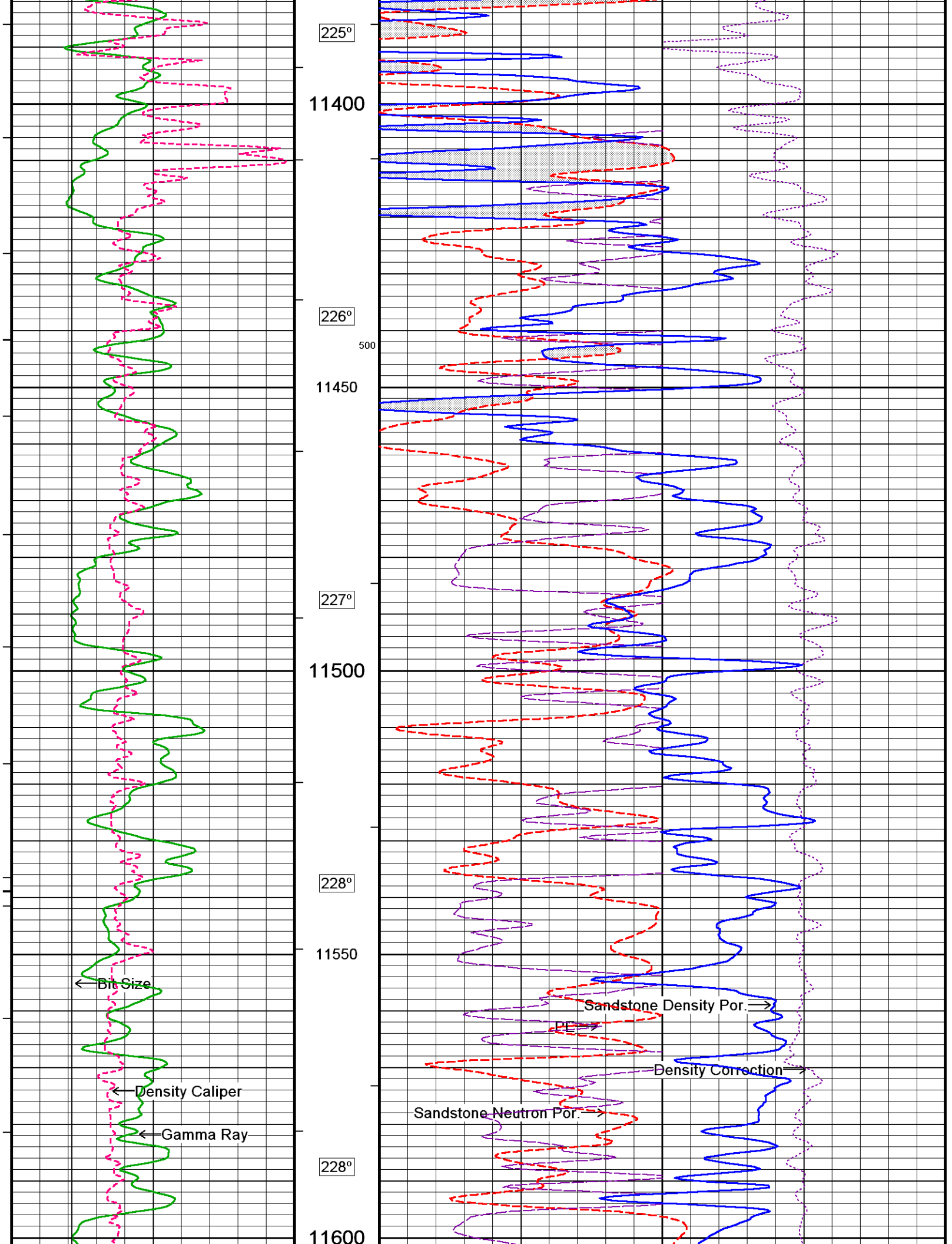
MFE NOT WORKING PROPERLY AND THEREFOR NOT SHOWN.

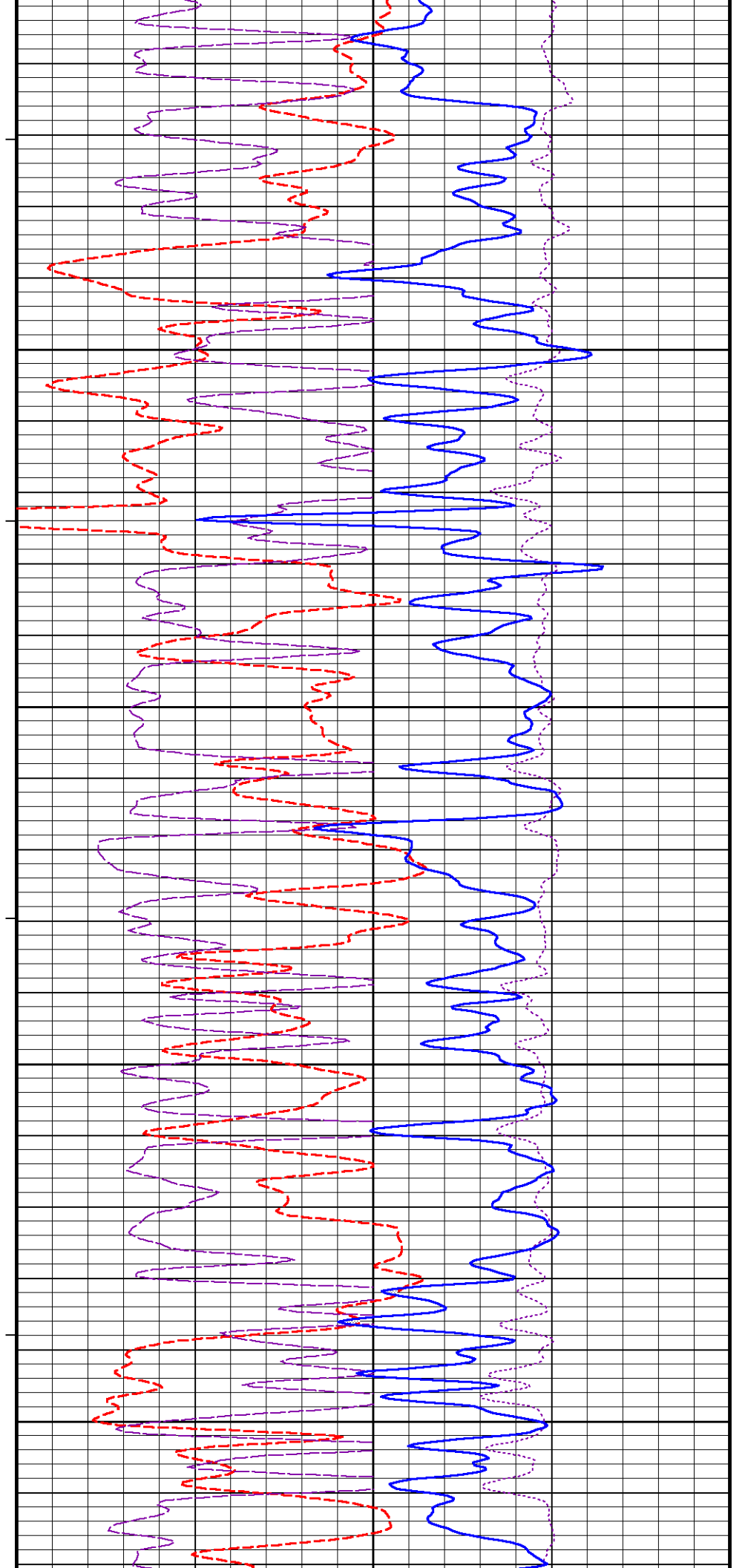
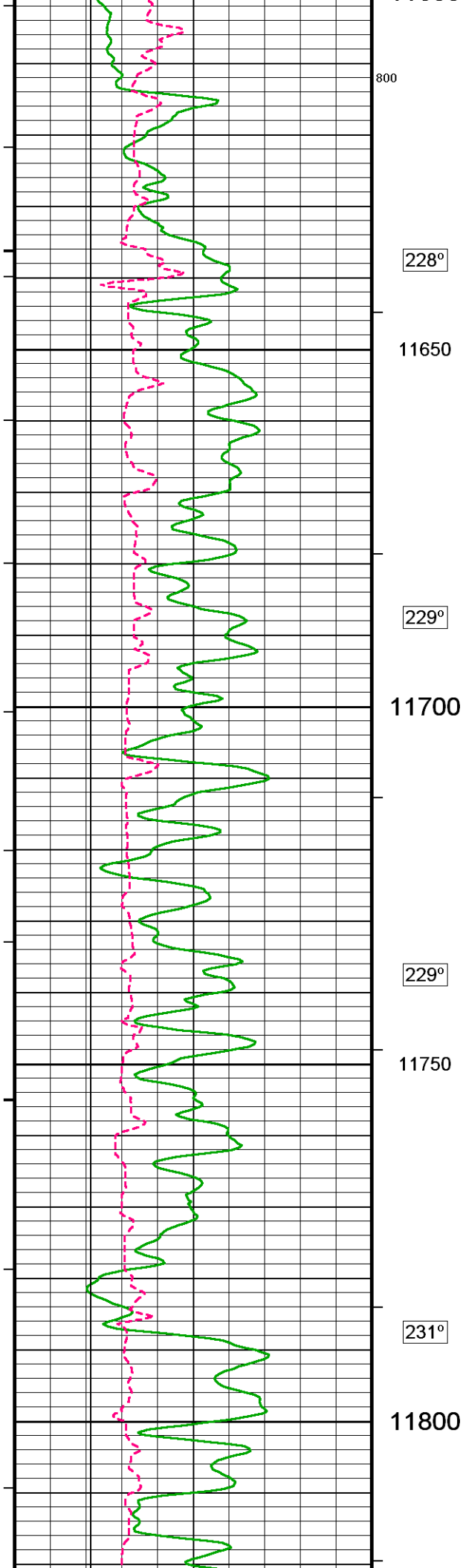
TWO FOOT RESOLUTION CURVES USE FOR INDUCTION DUE TO MFE NOT WORKING PROPERLY.

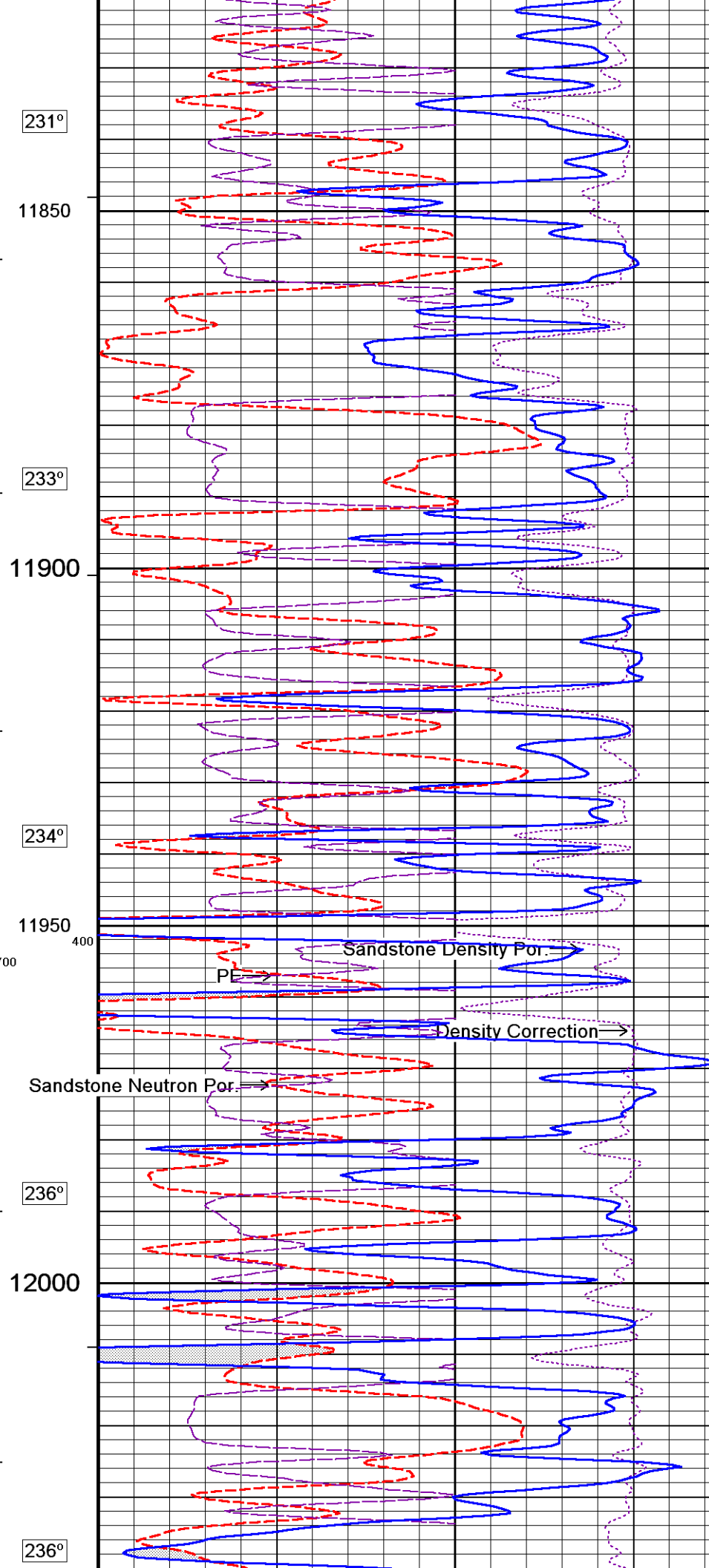
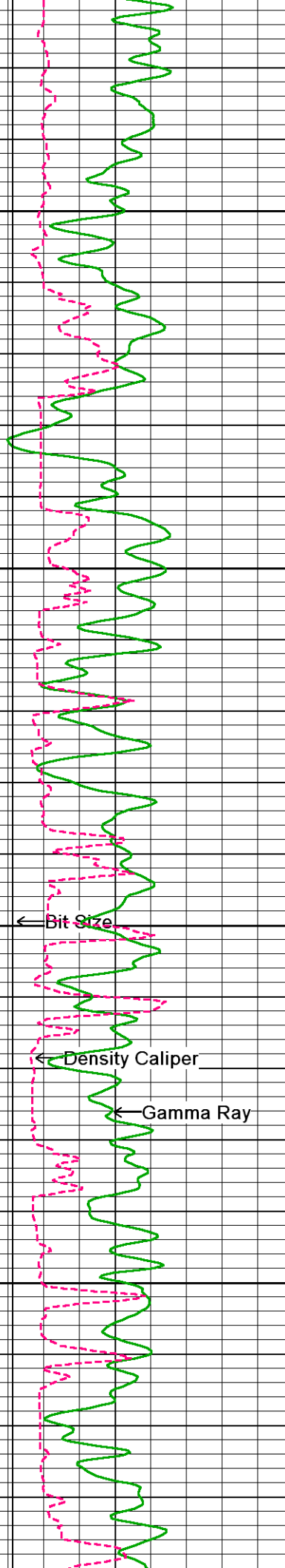
EEEC IS SHOWN ONLY AS ALTHOUGH IT IS NOT RELIABLE











231°

11850

233°

11900

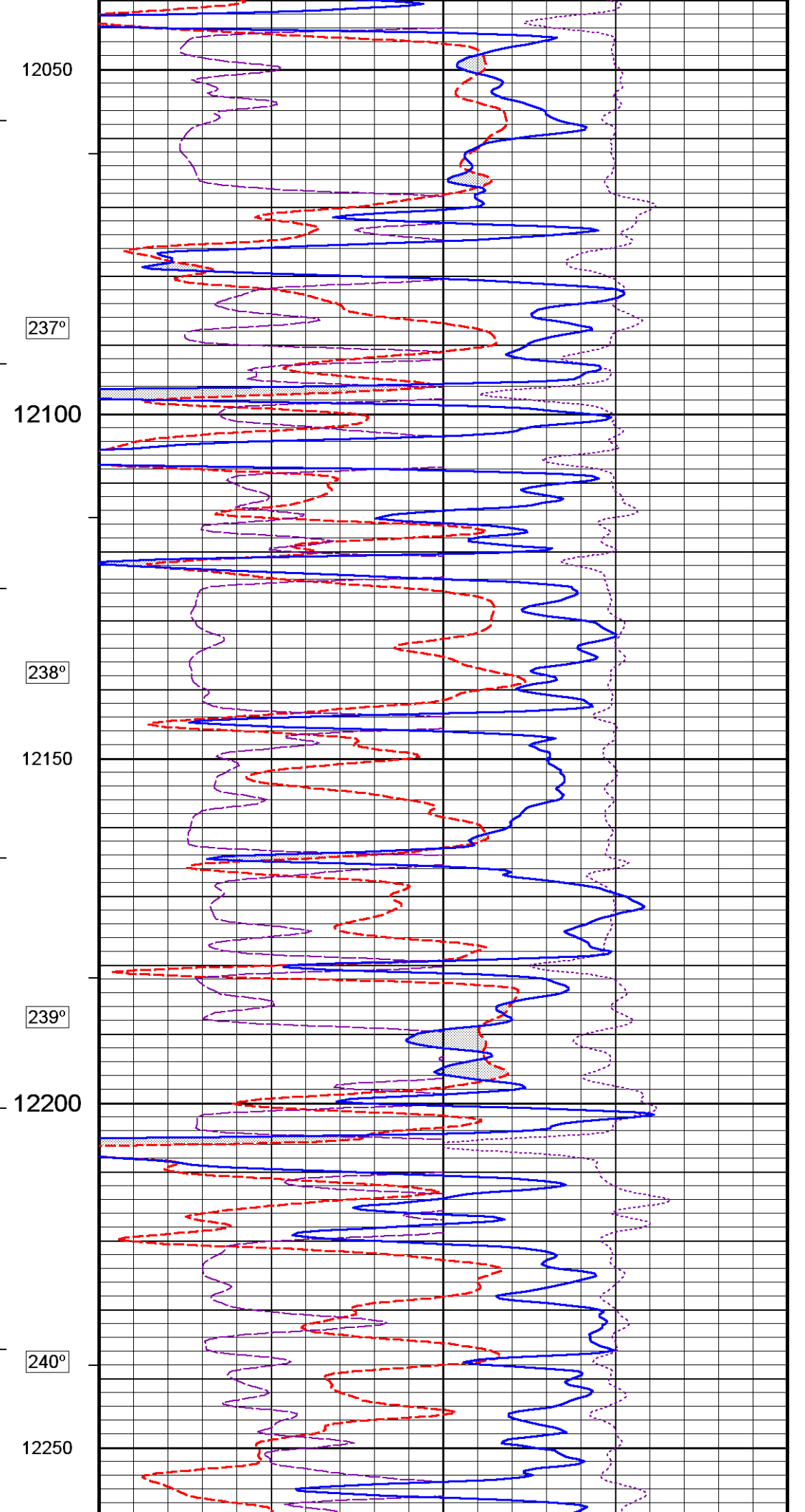
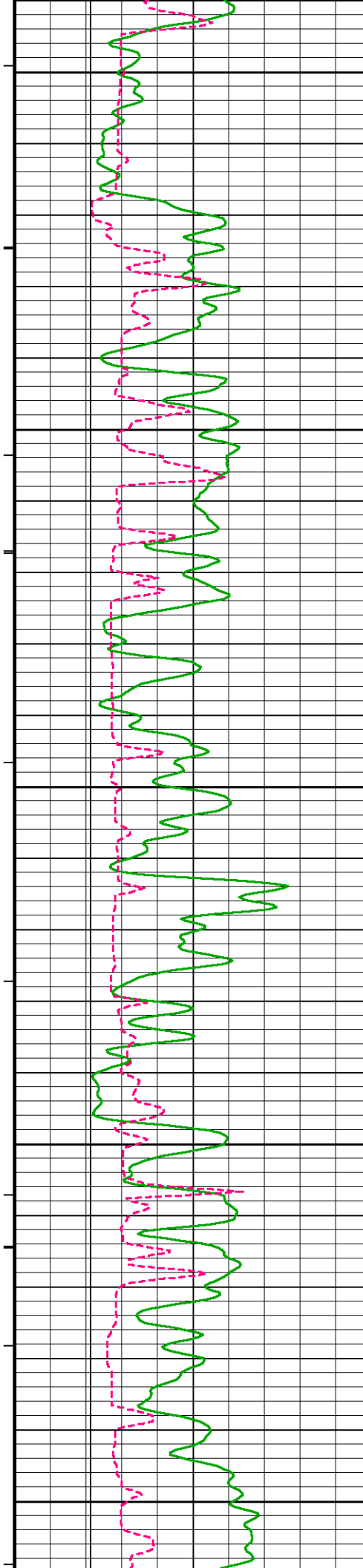
234°

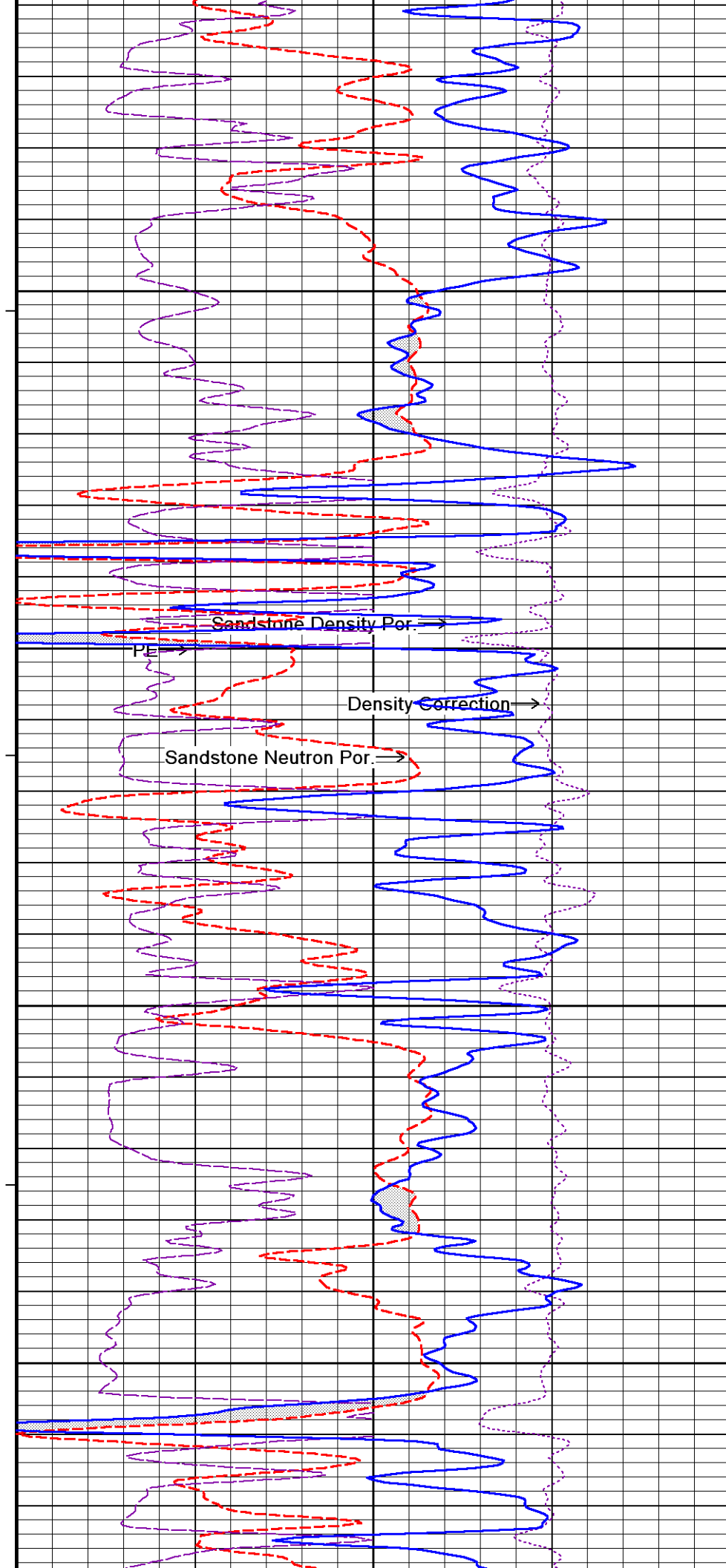
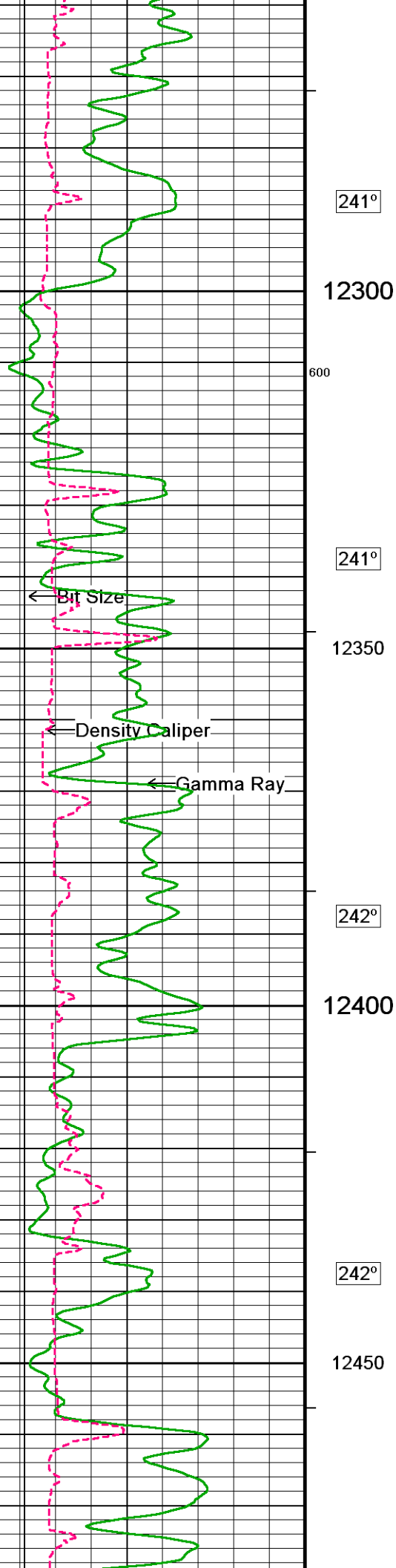
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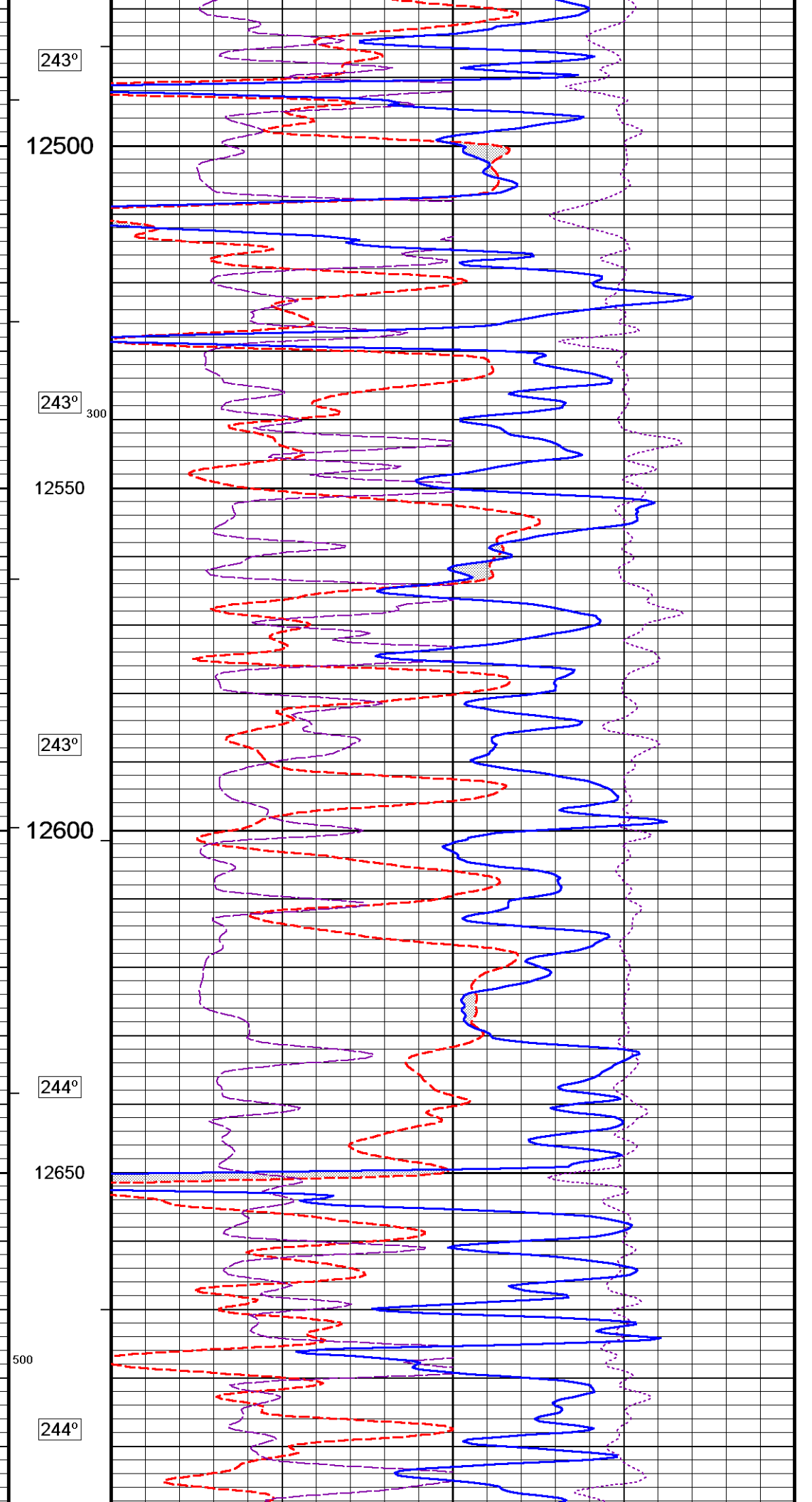
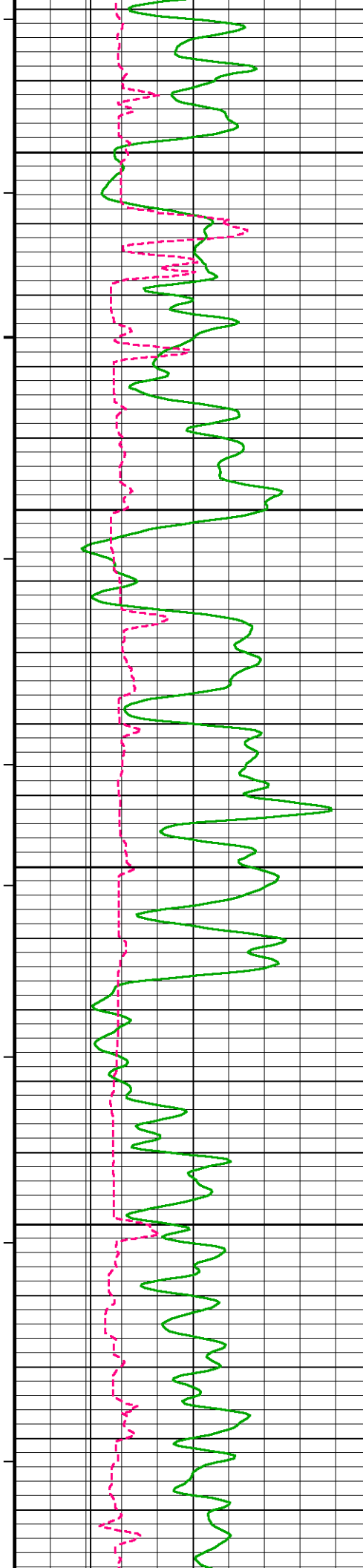
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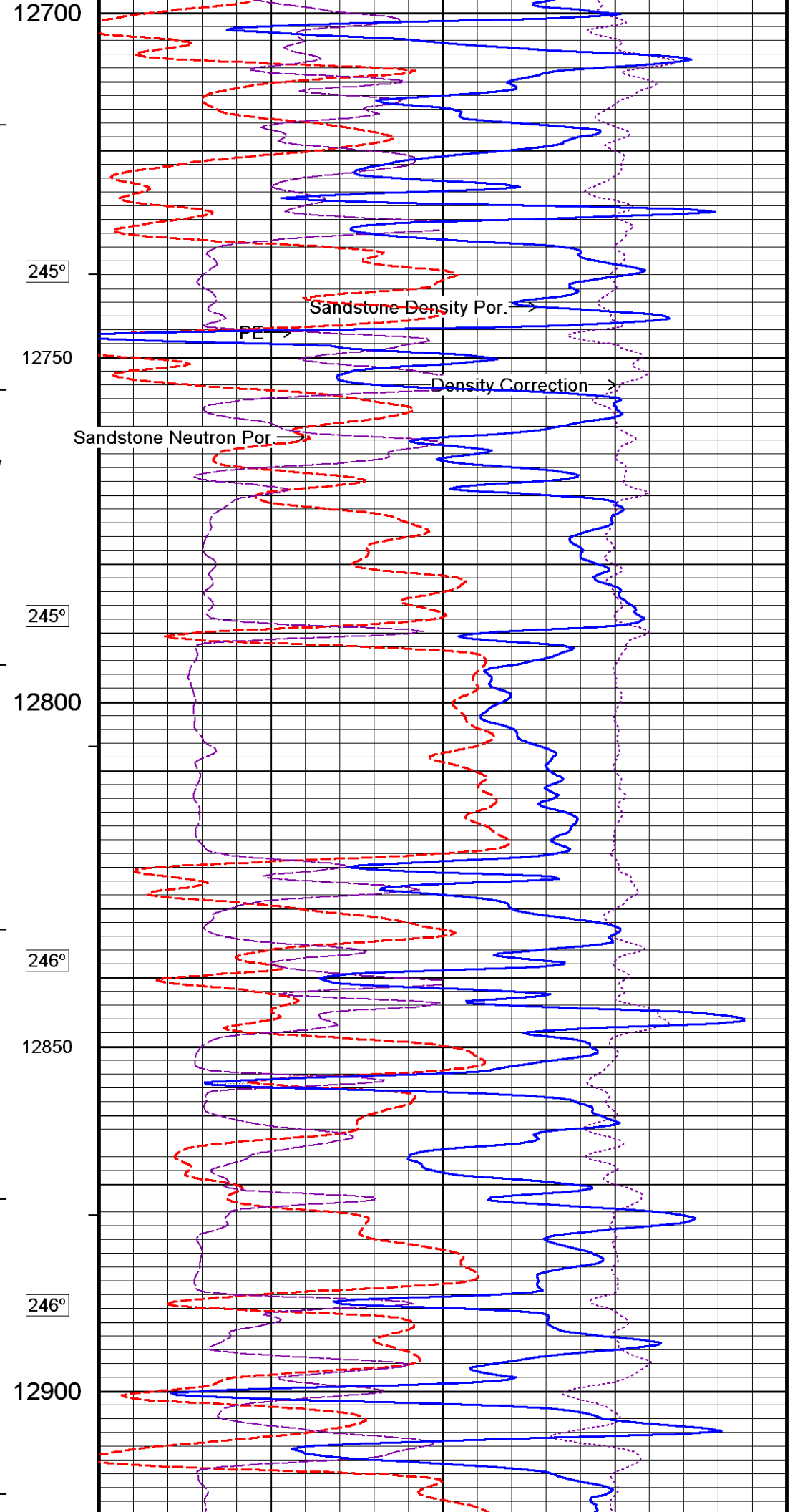
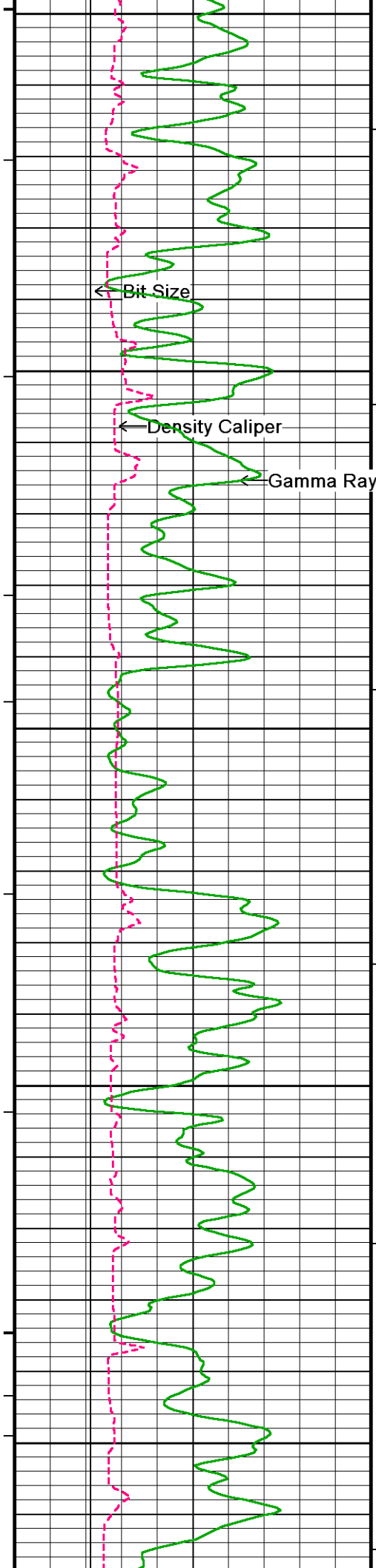
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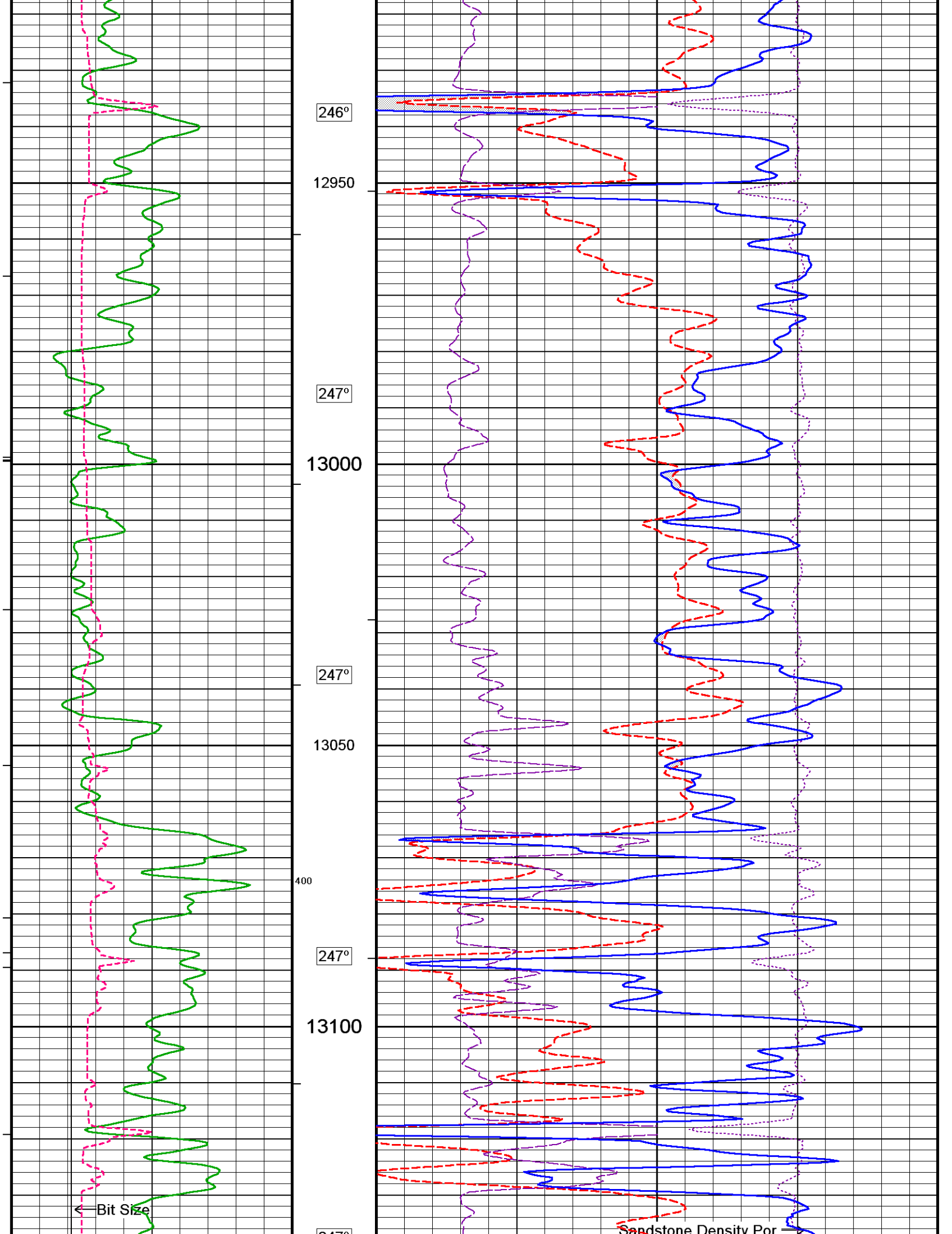
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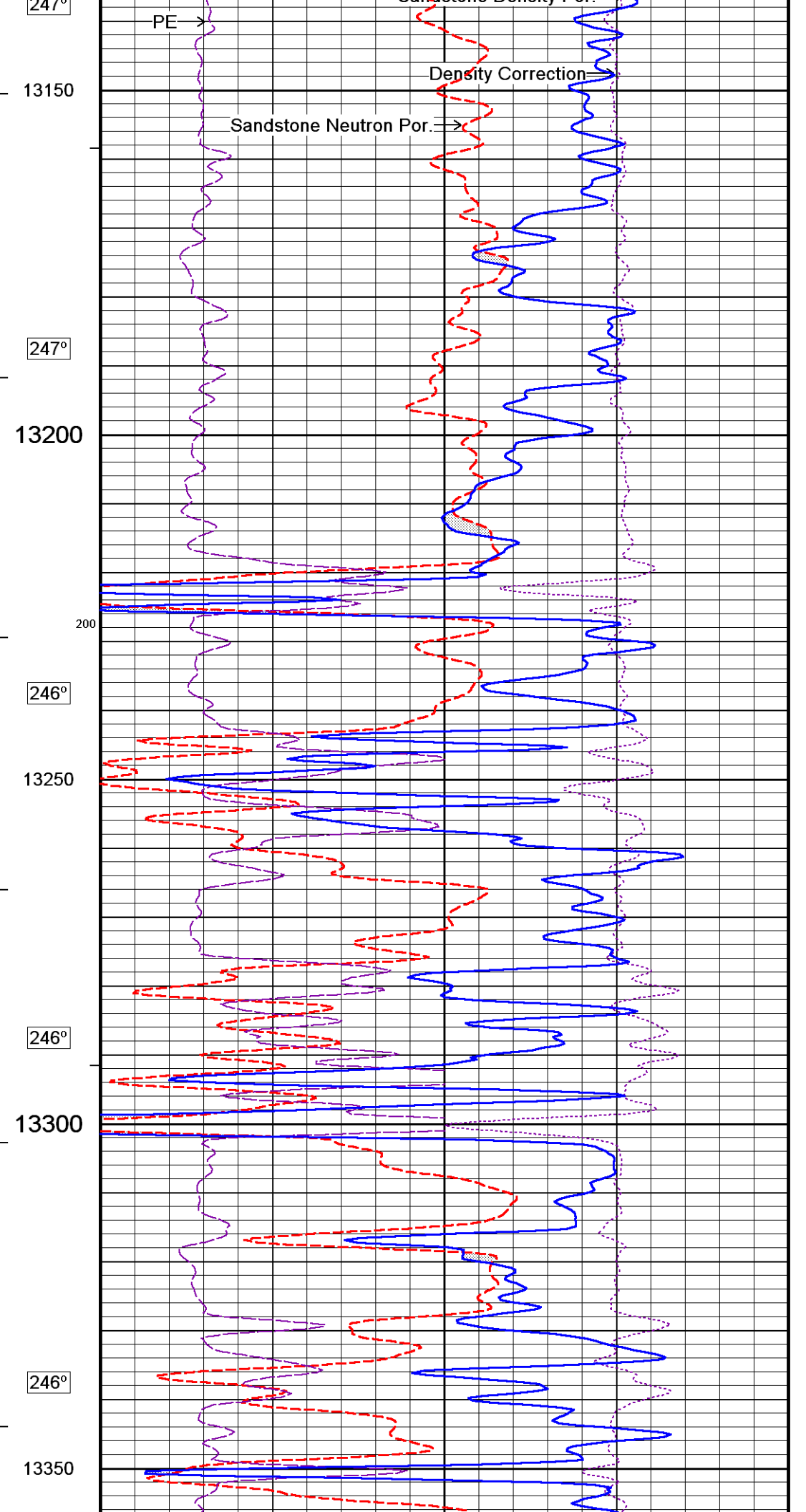
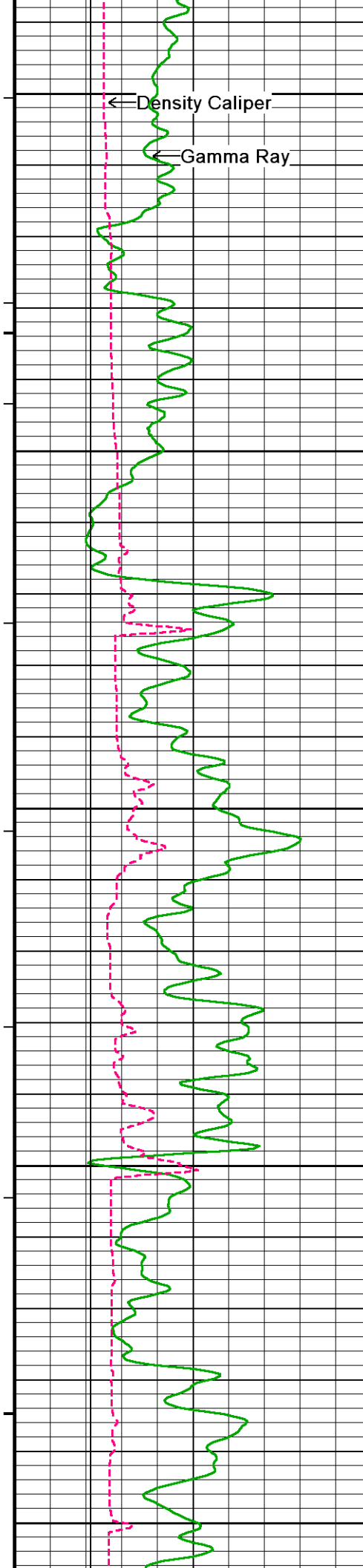


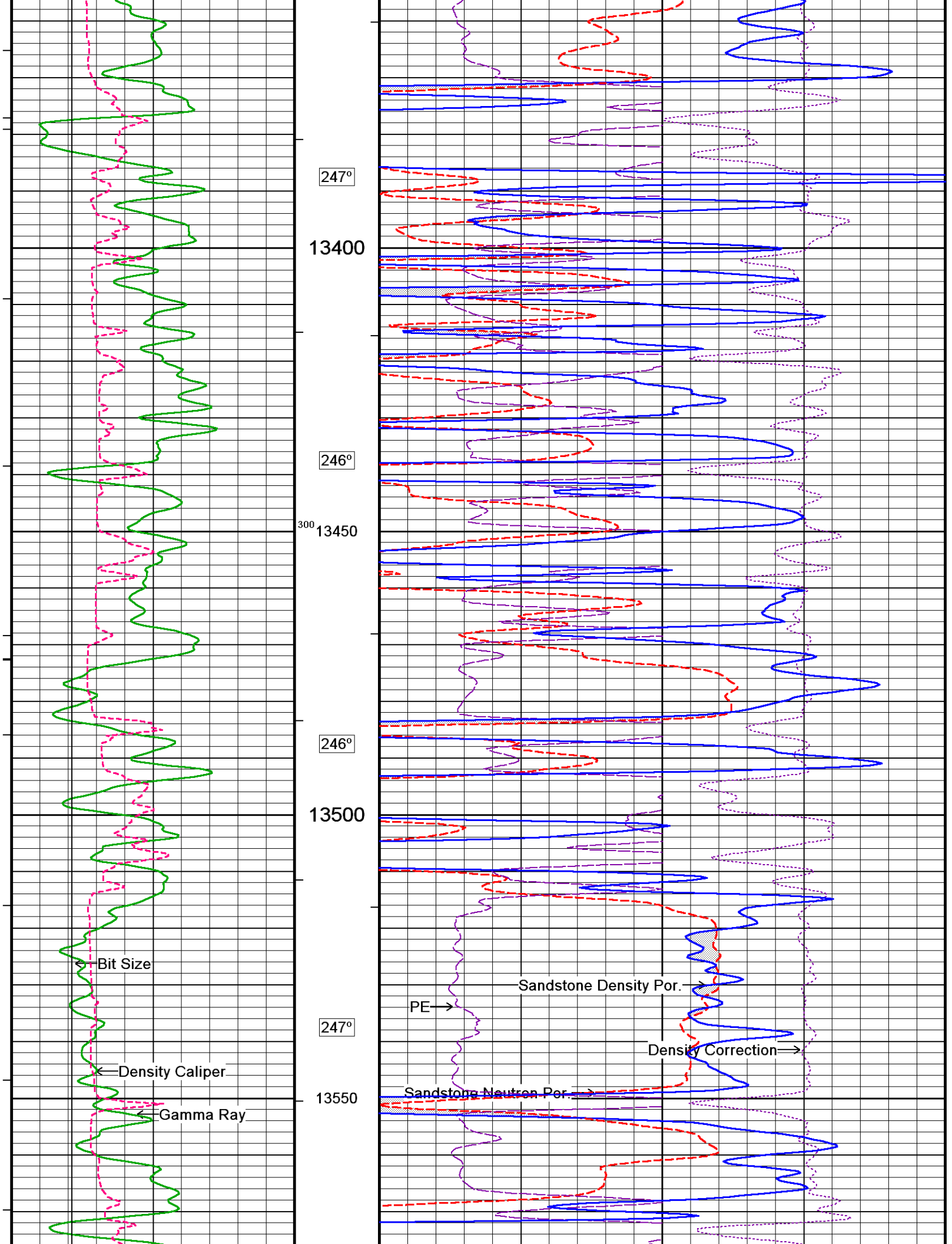












247°

13600

248°

13650

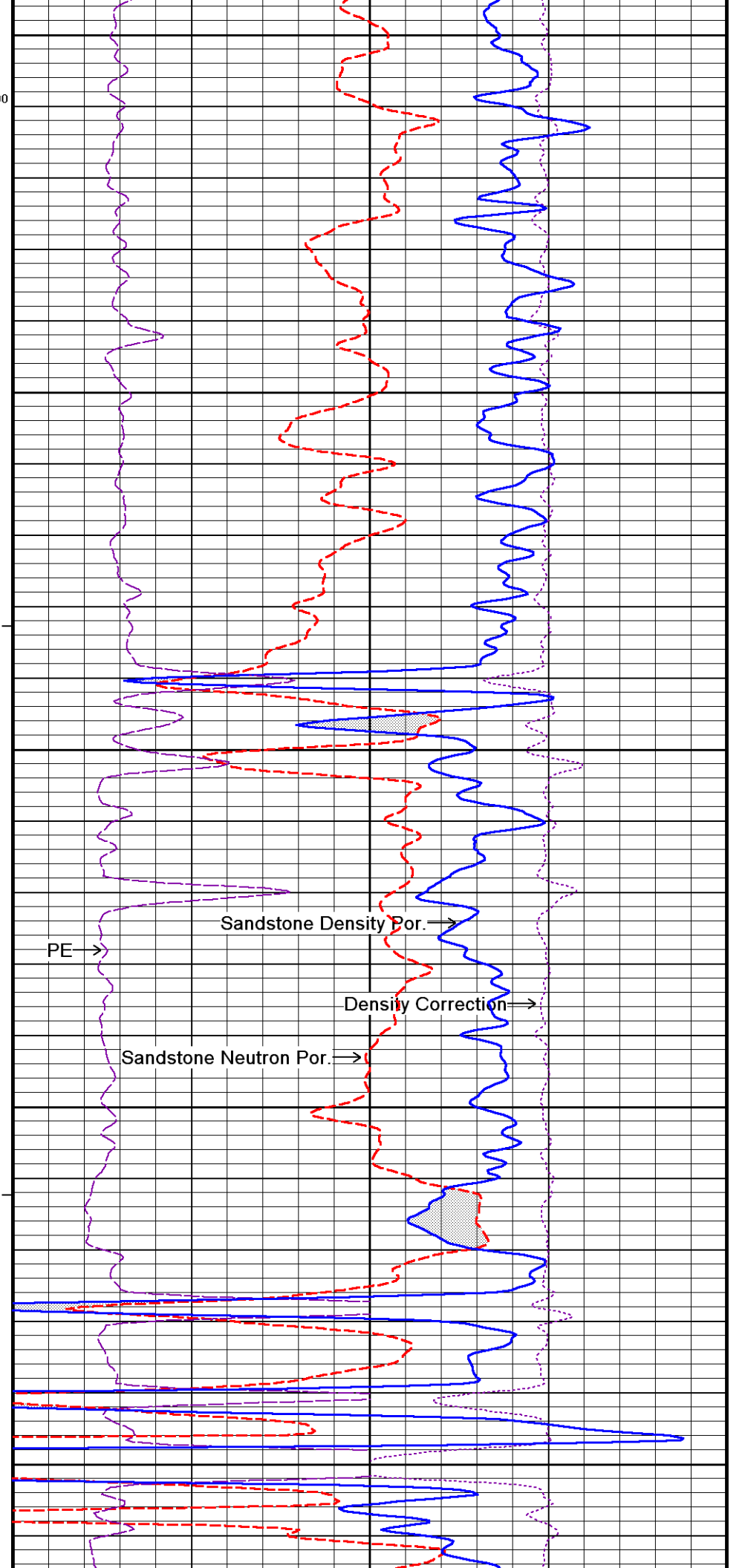
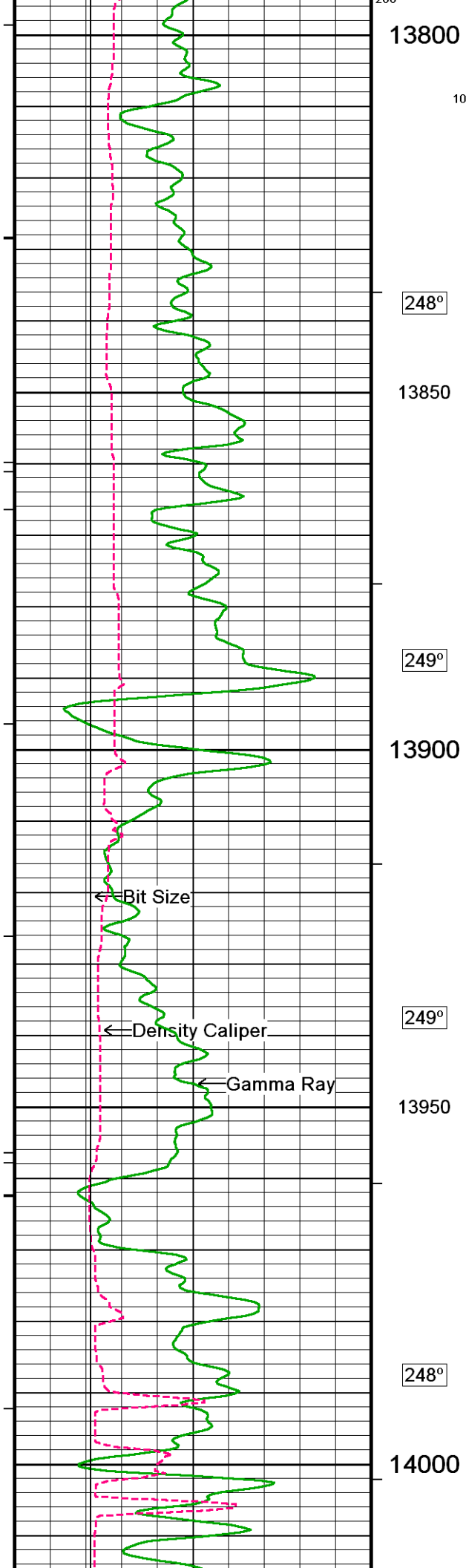
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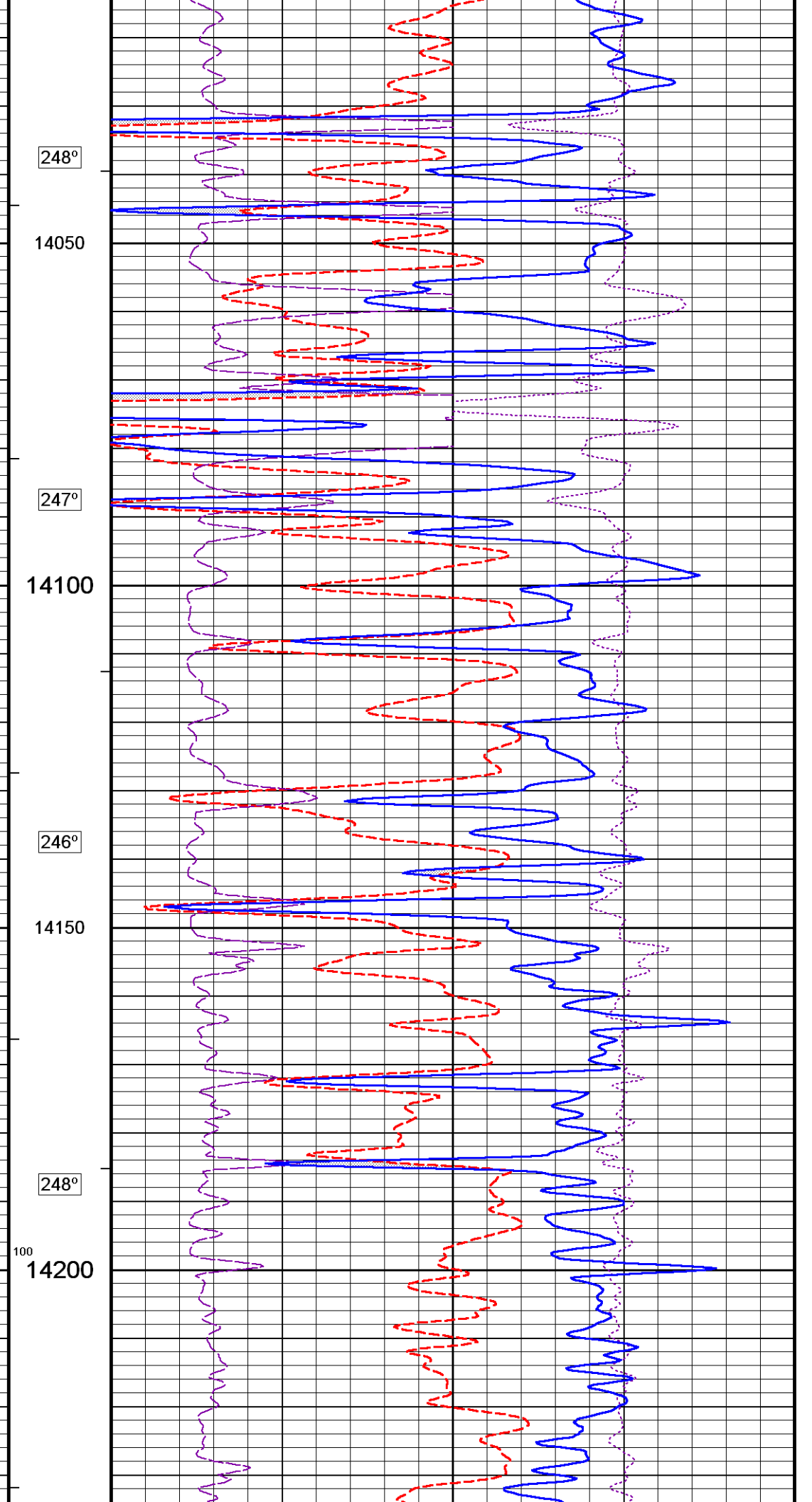
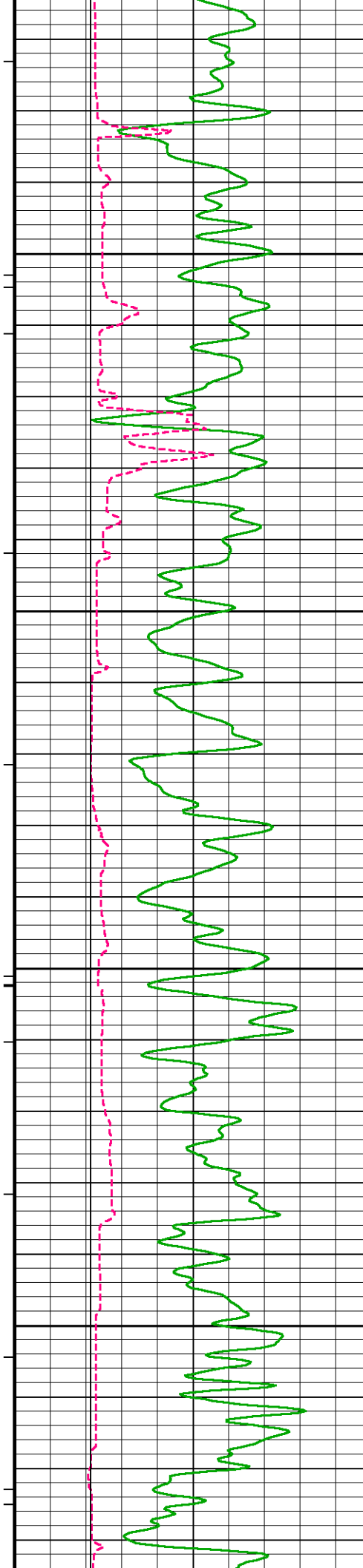
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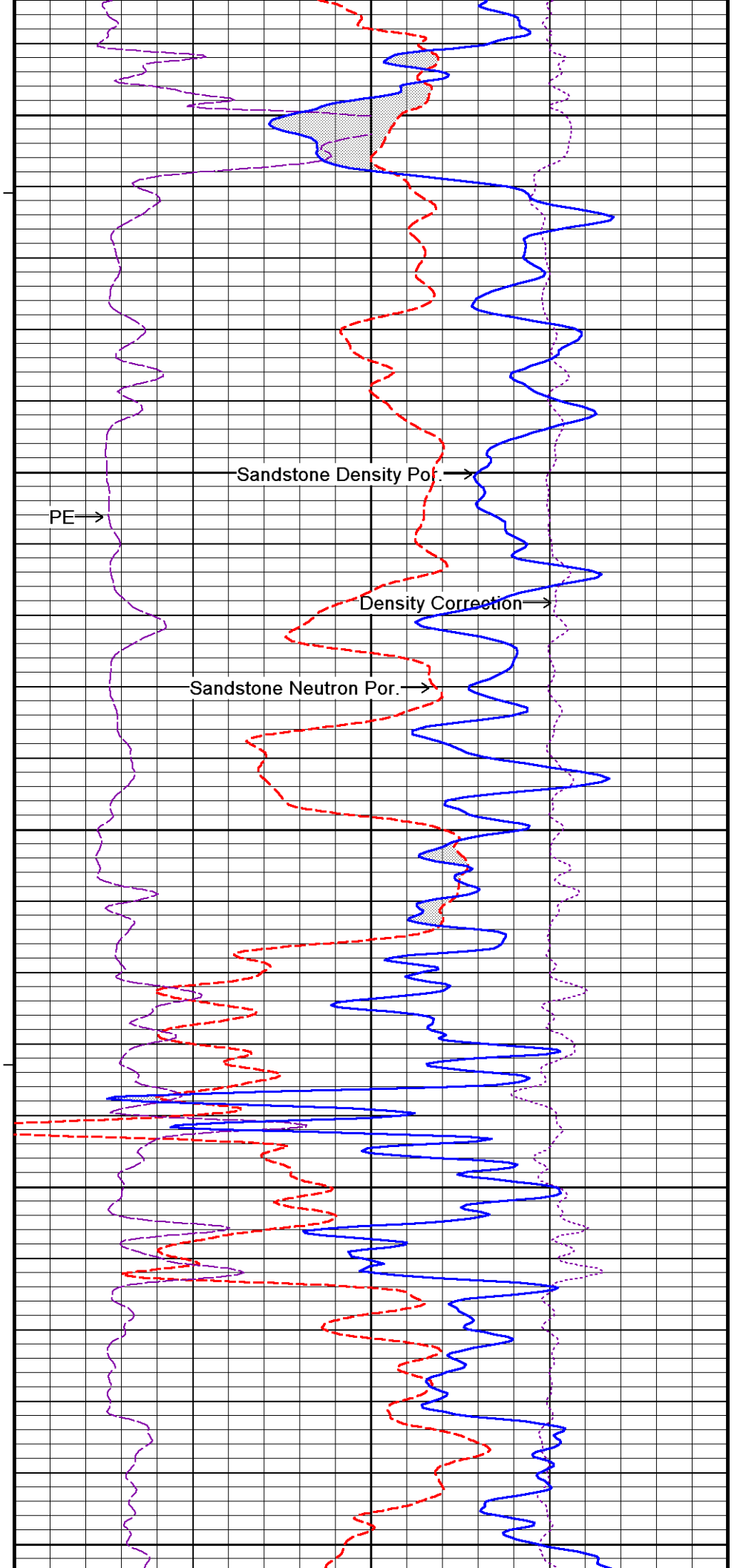
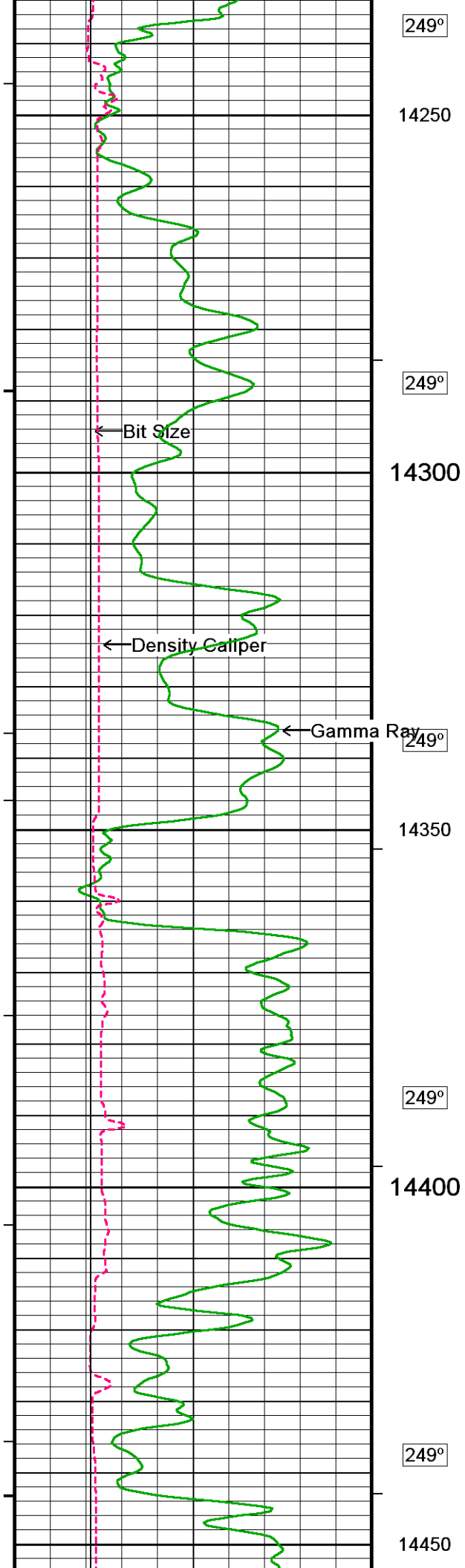
248°

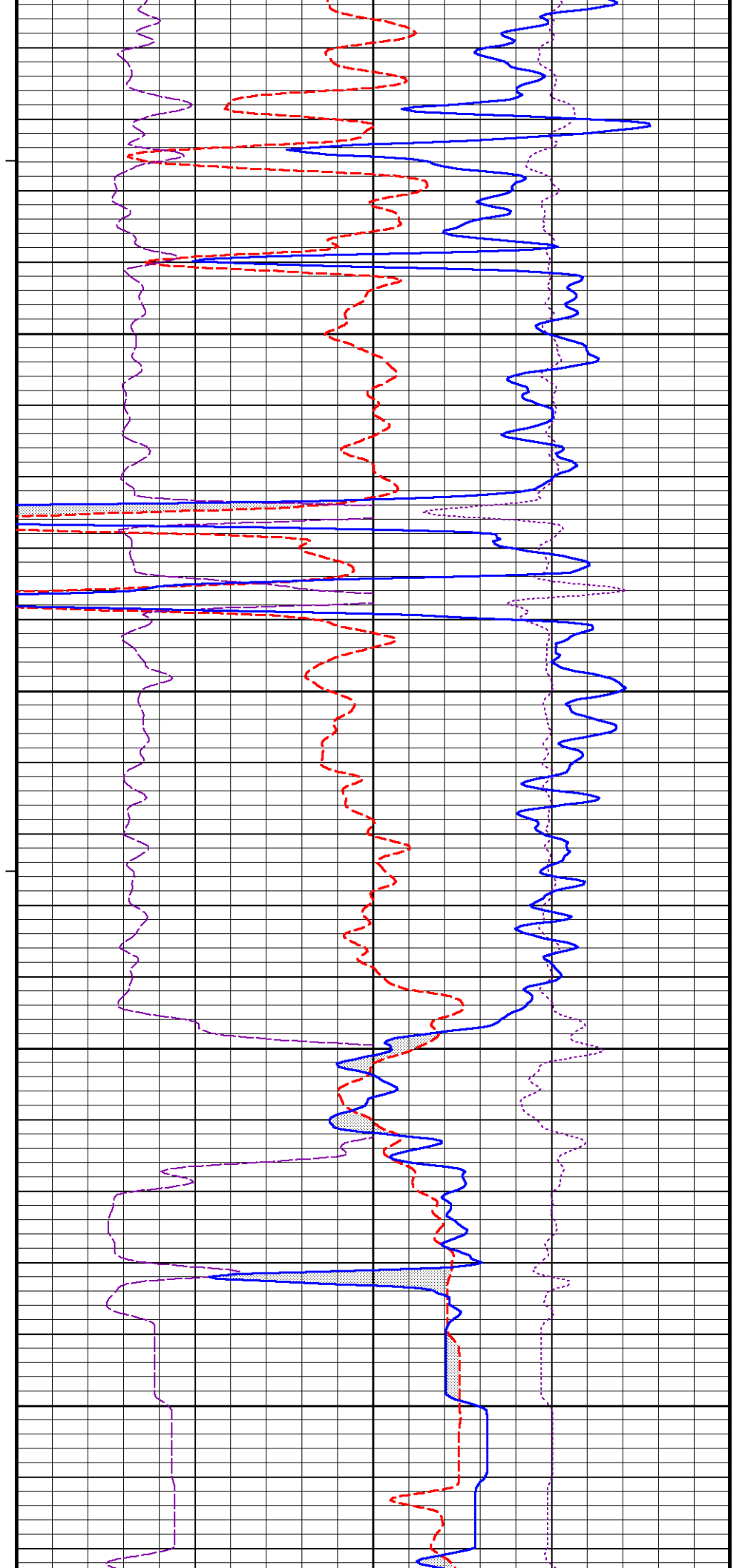
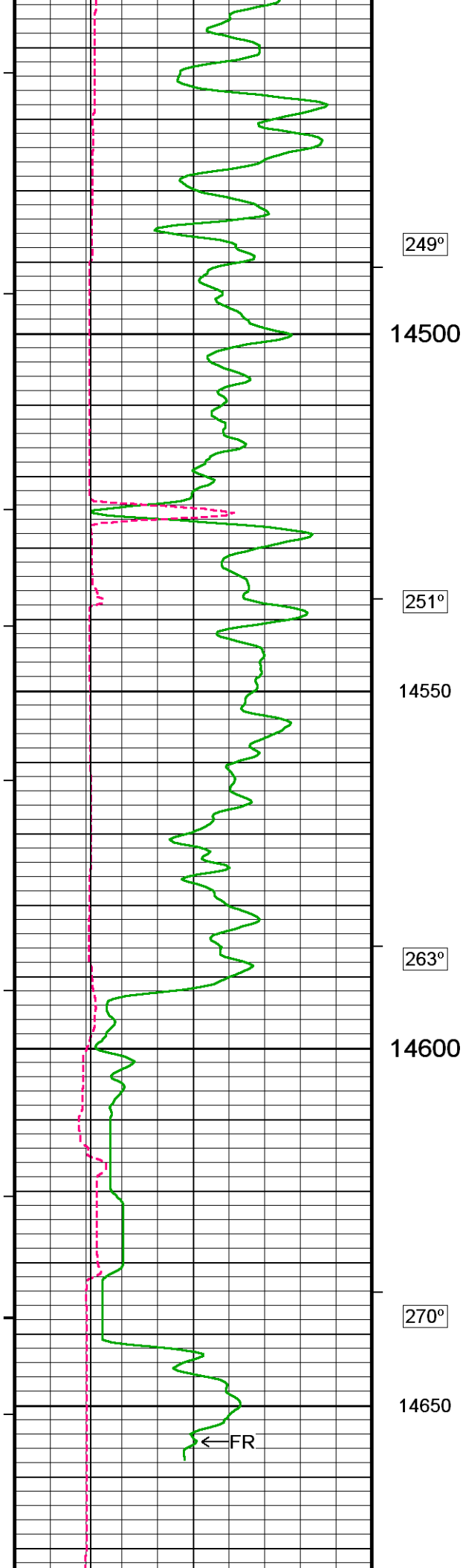
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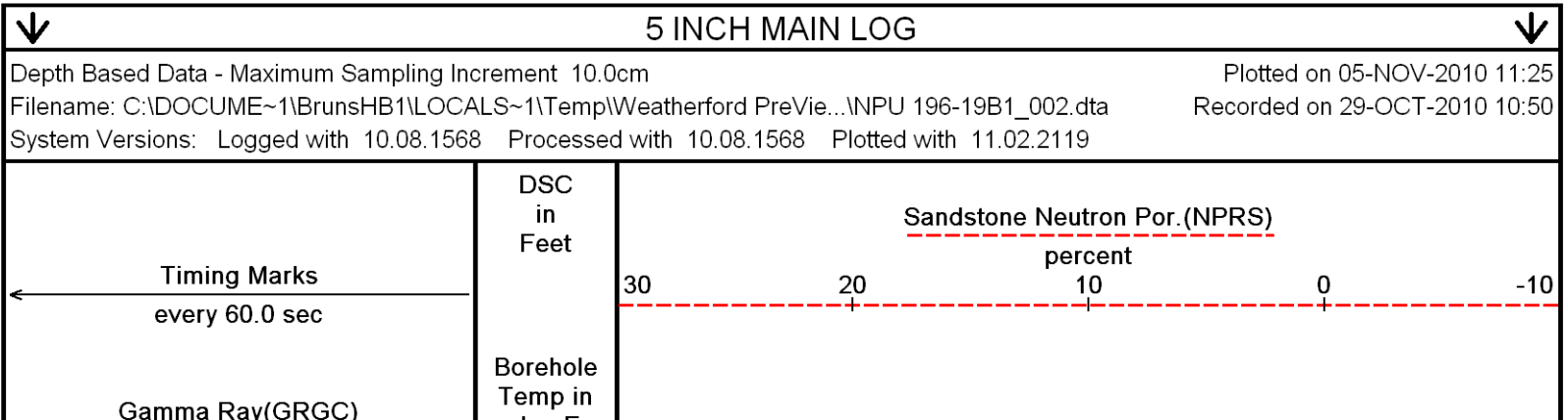
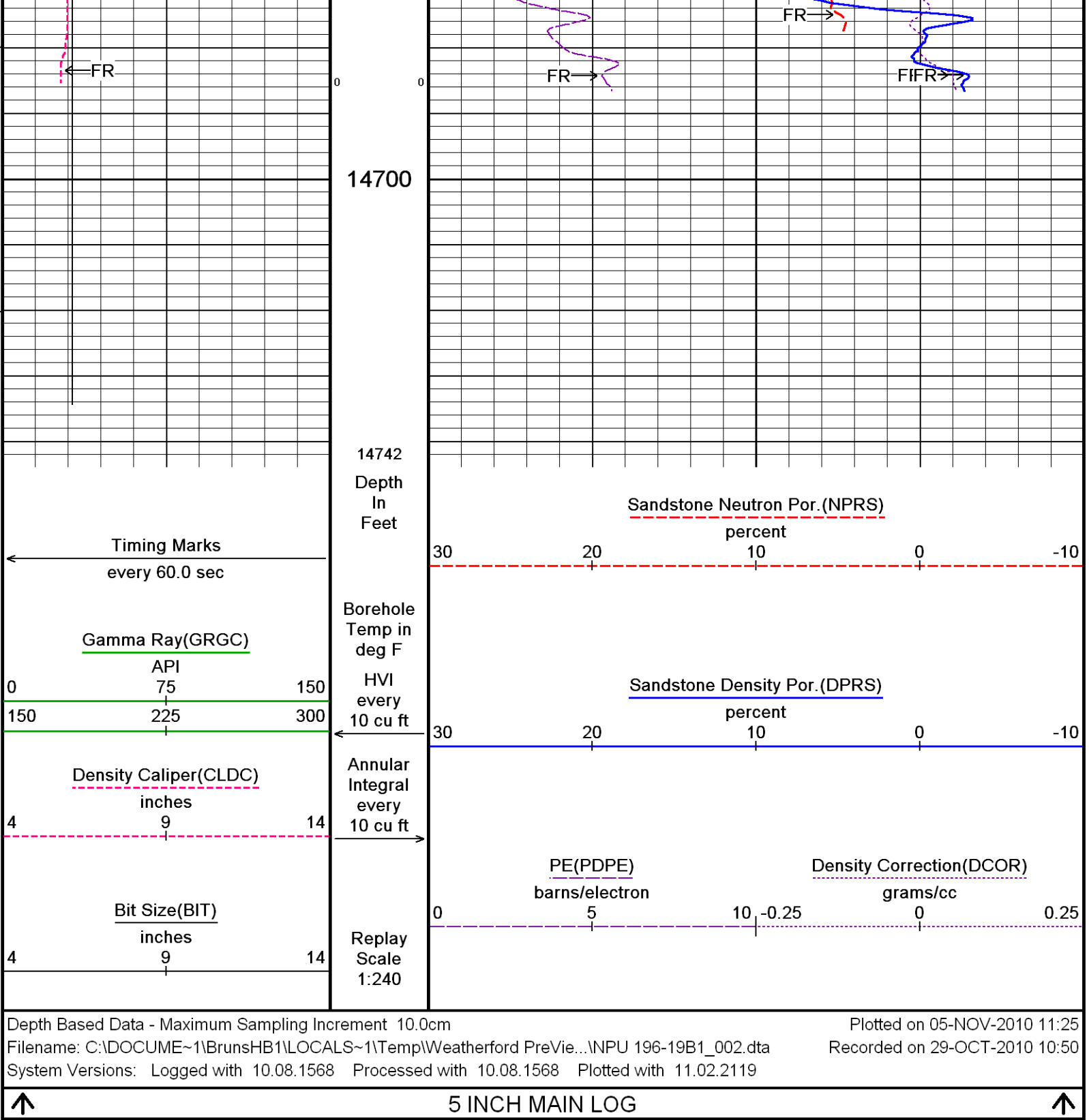
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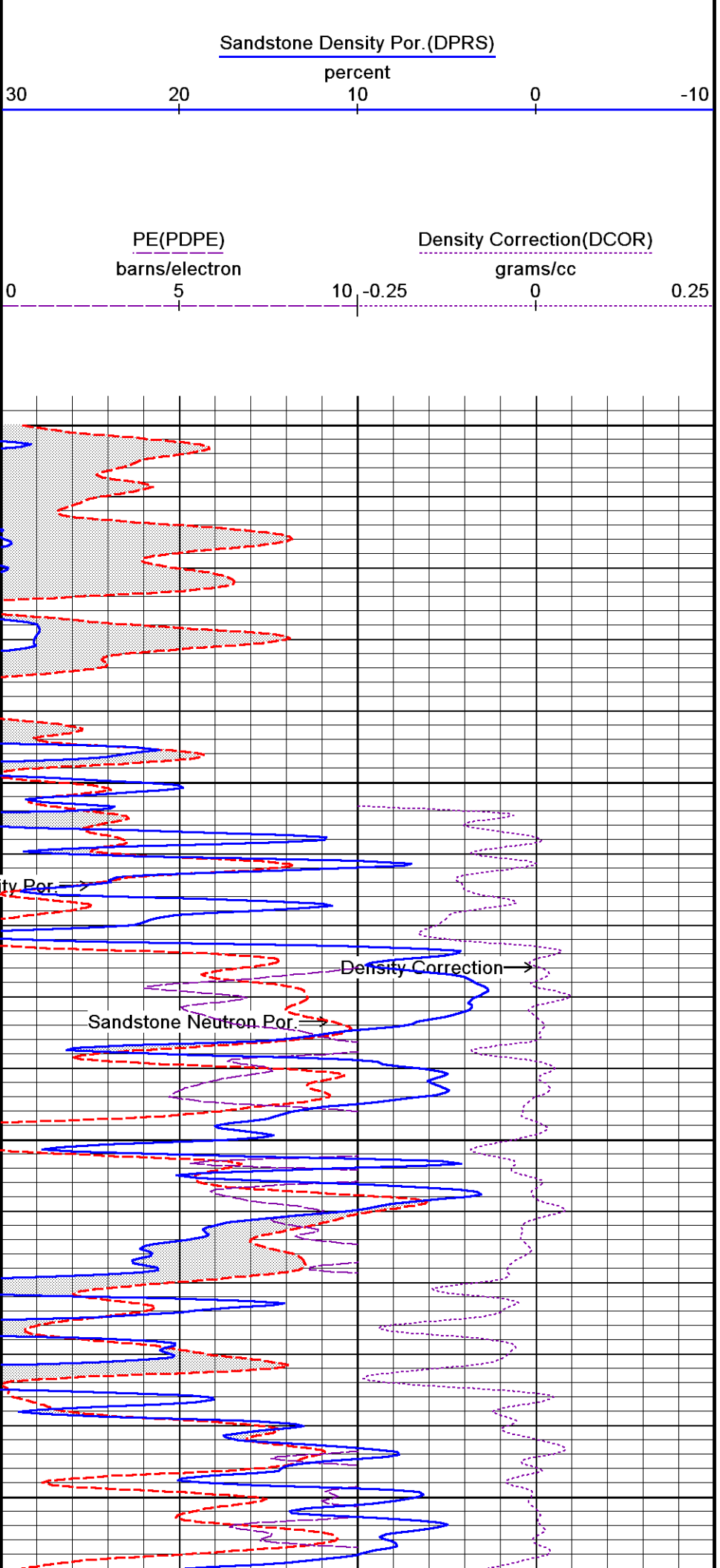
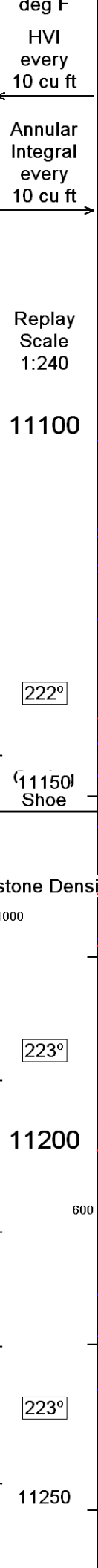
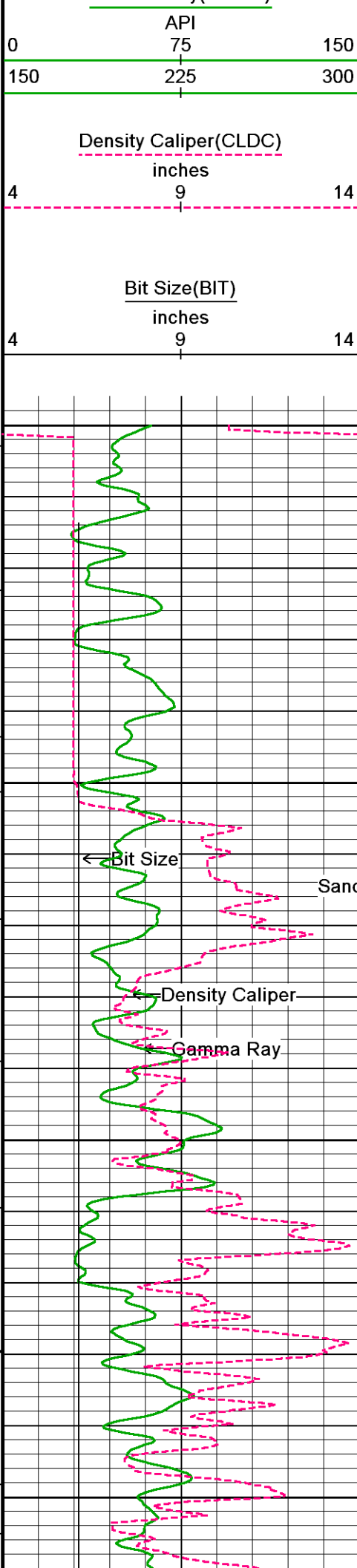


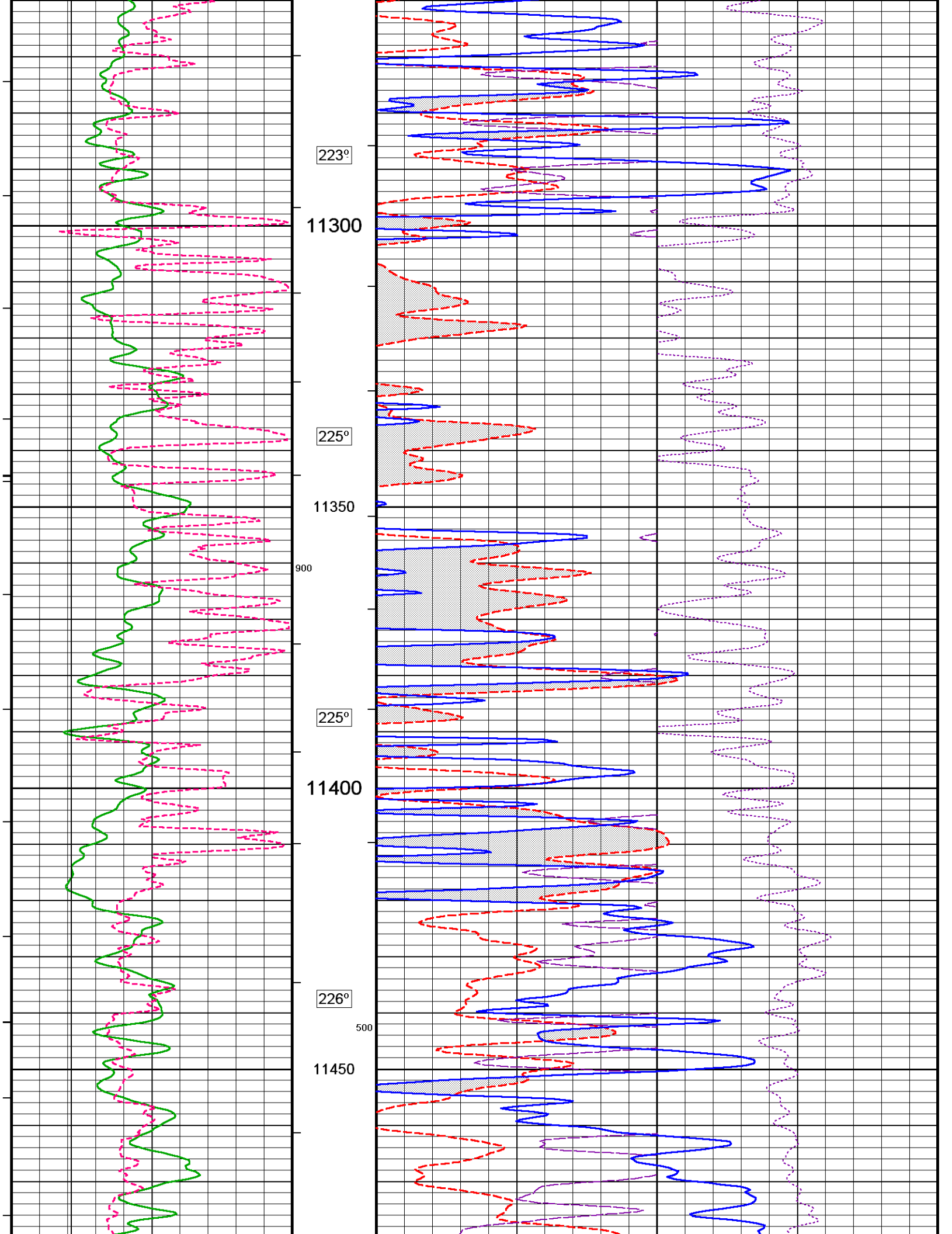


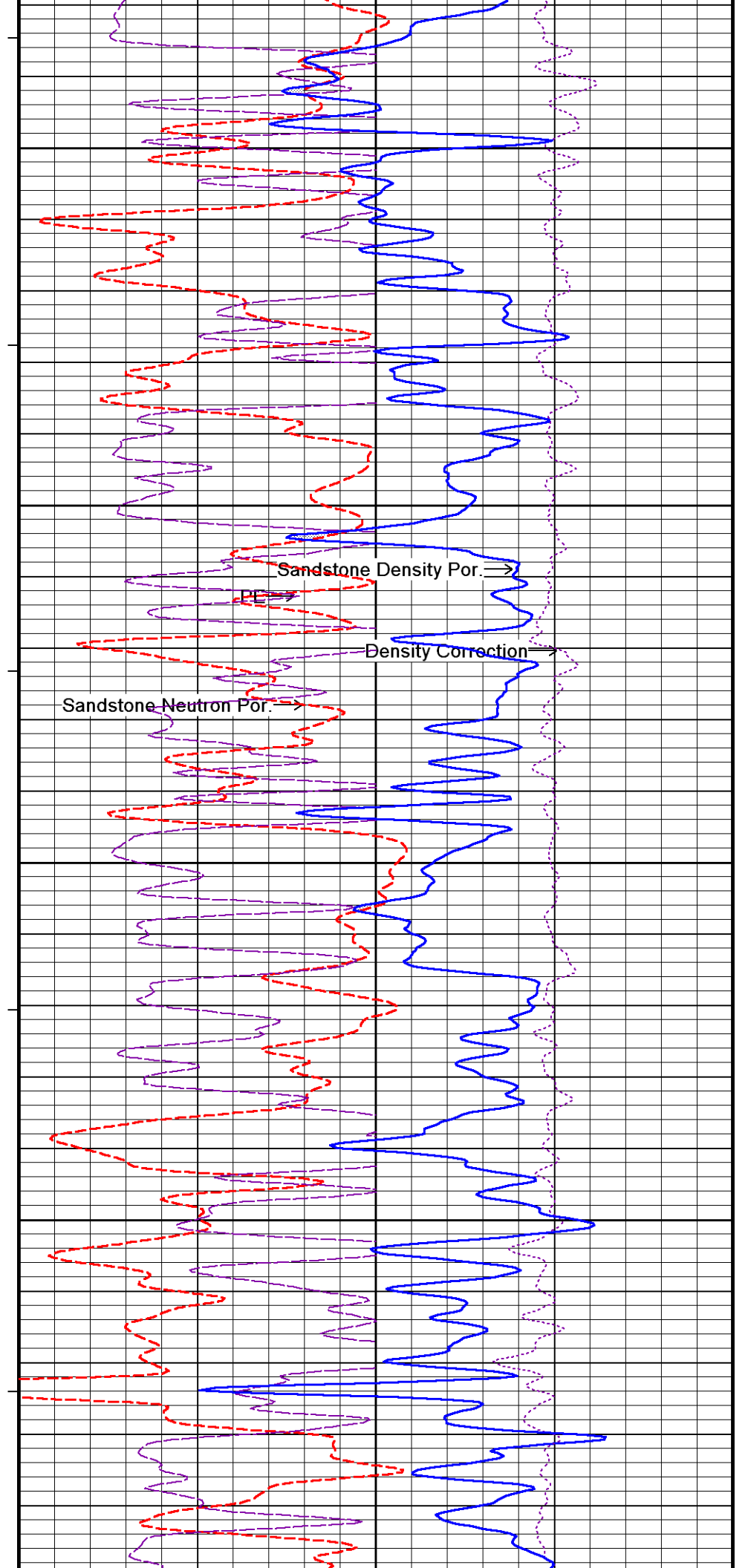
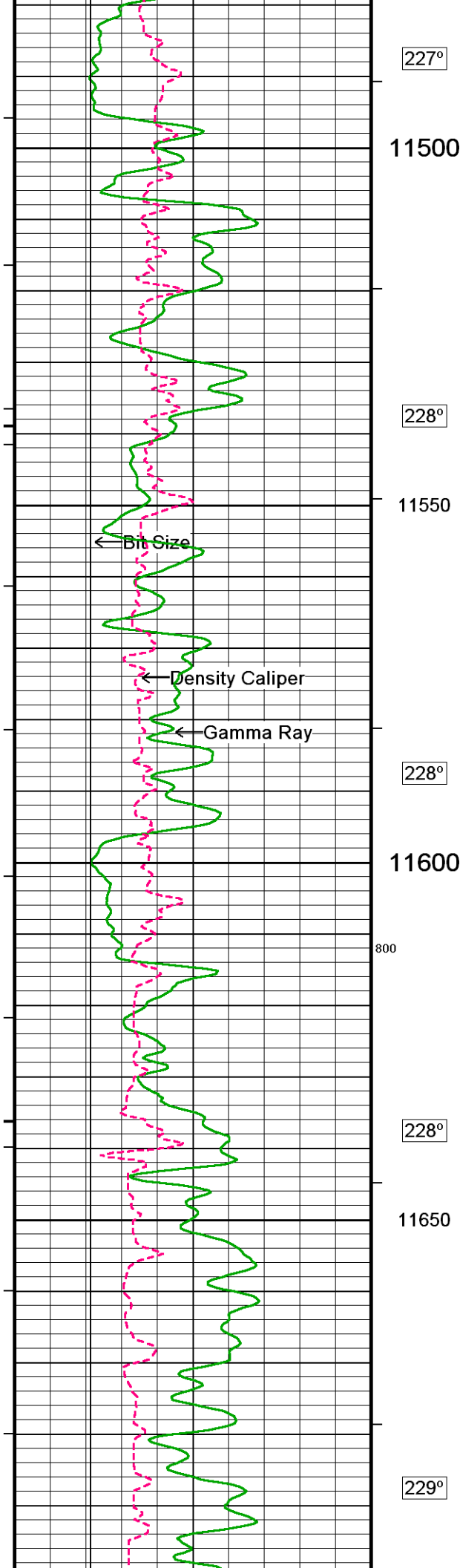


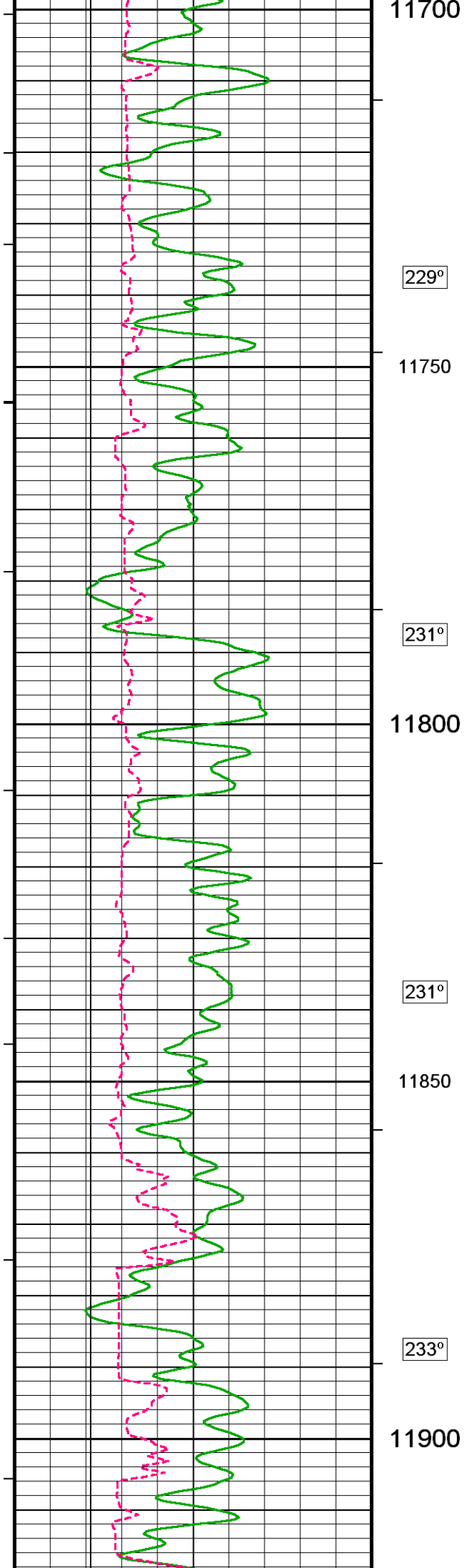












11700

229°

11750

231°

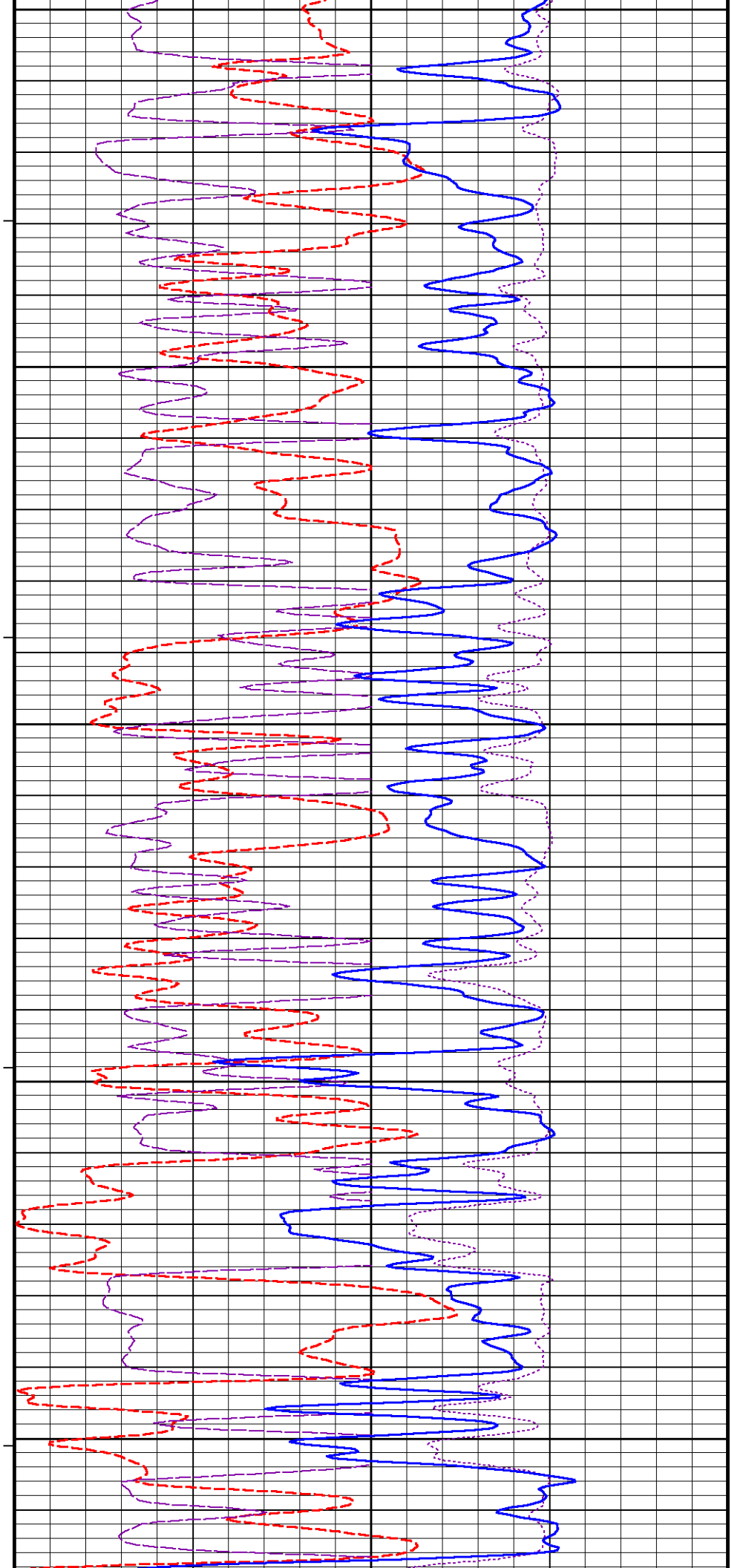
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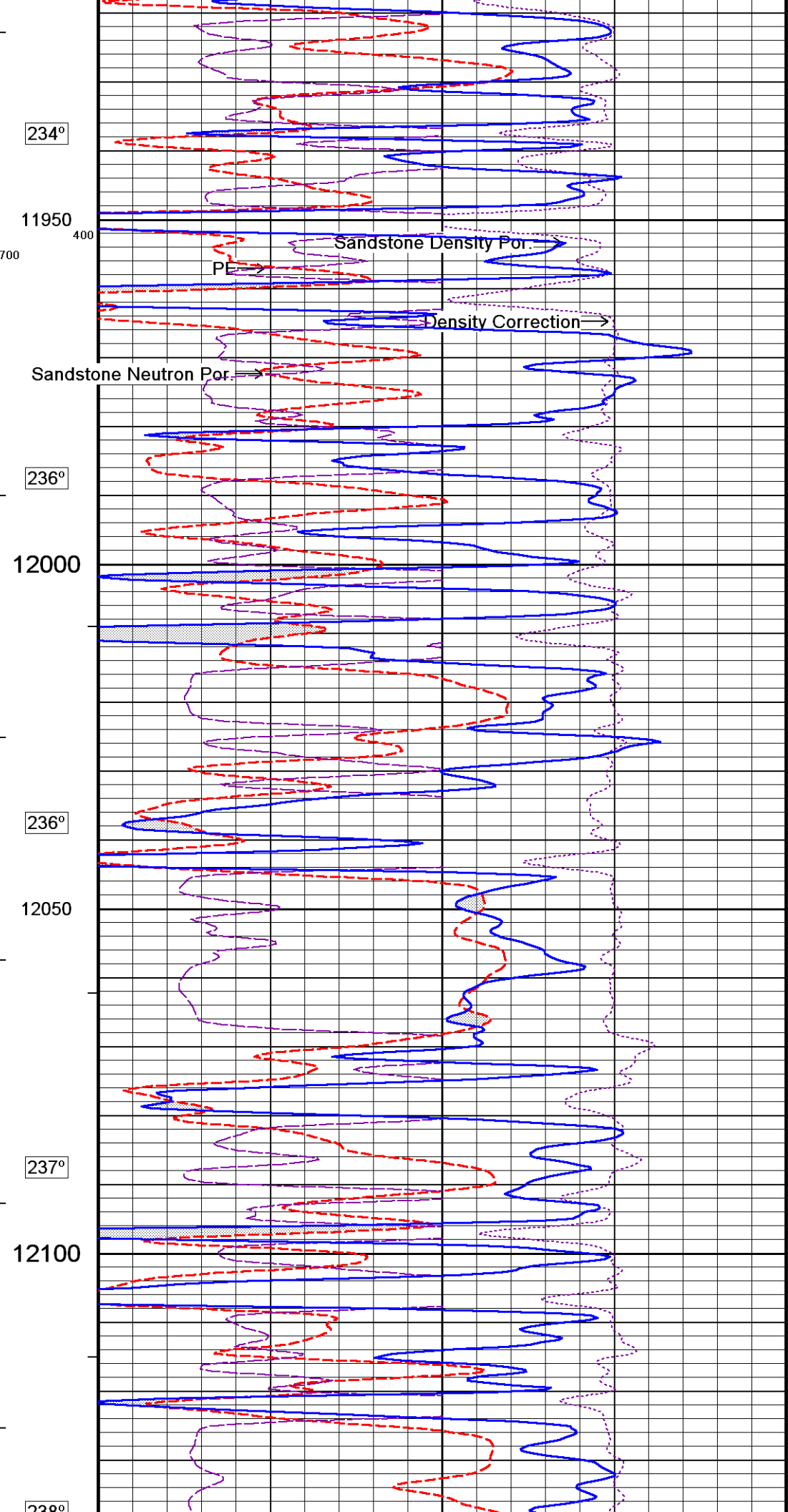
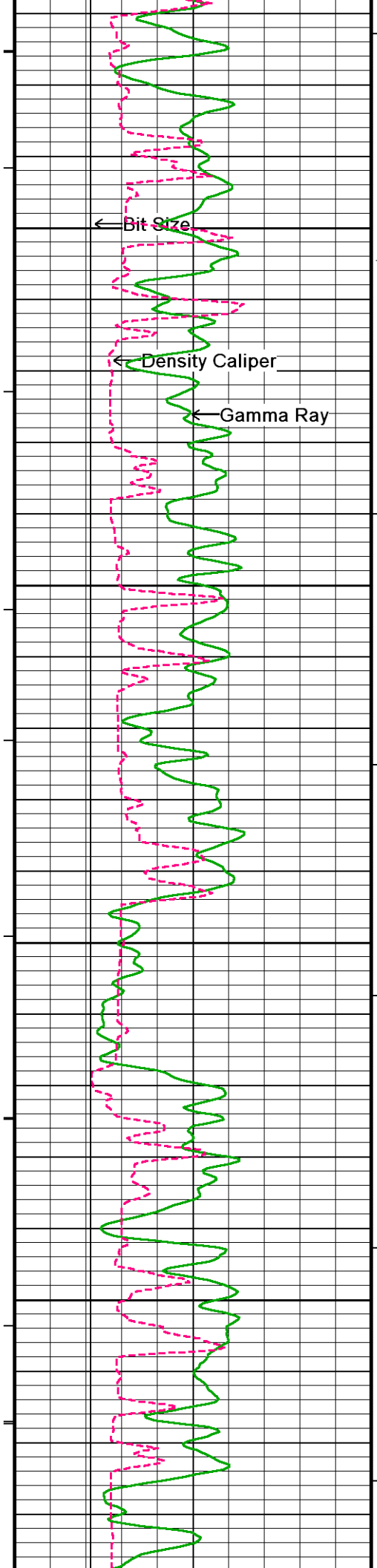
231°

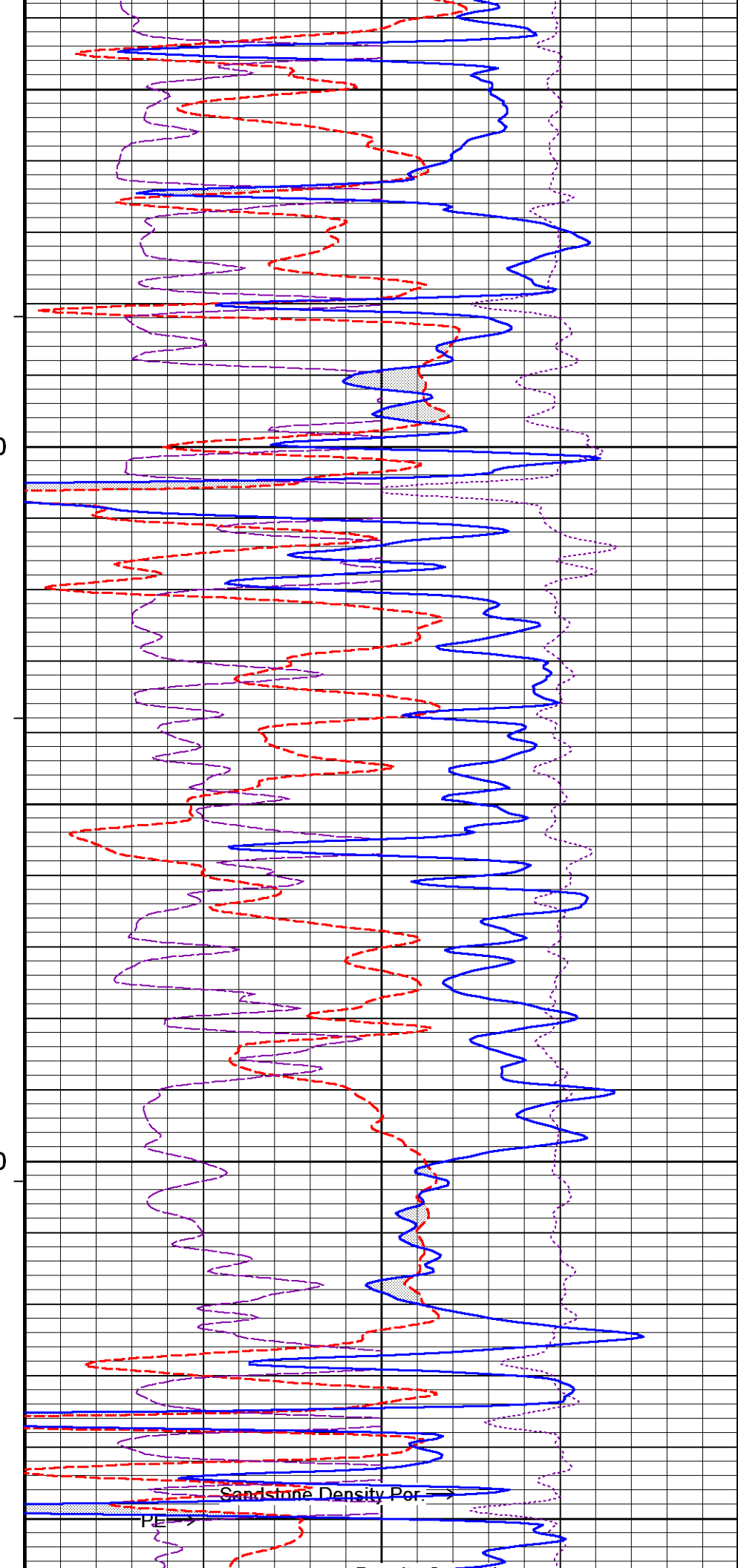
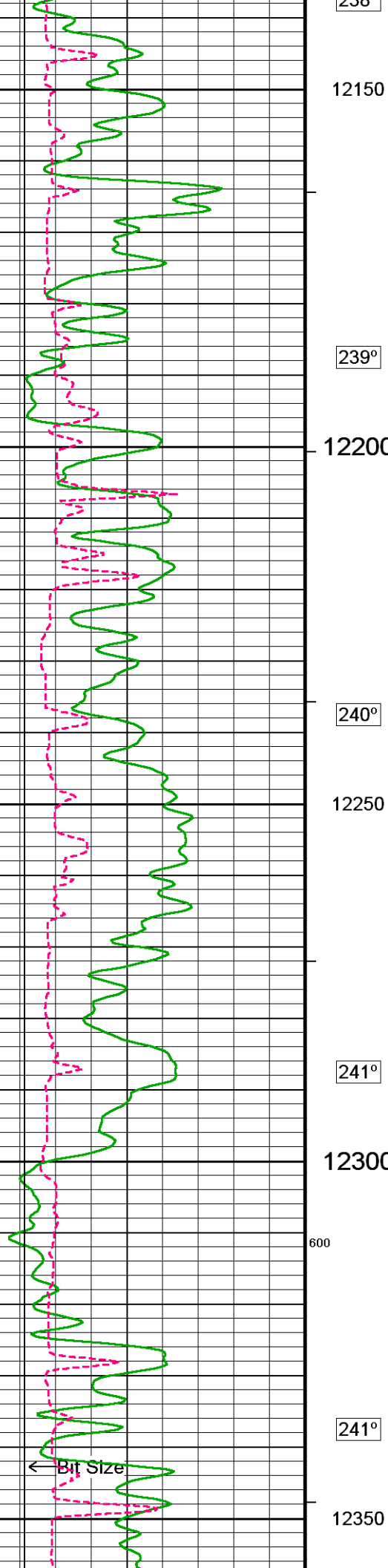
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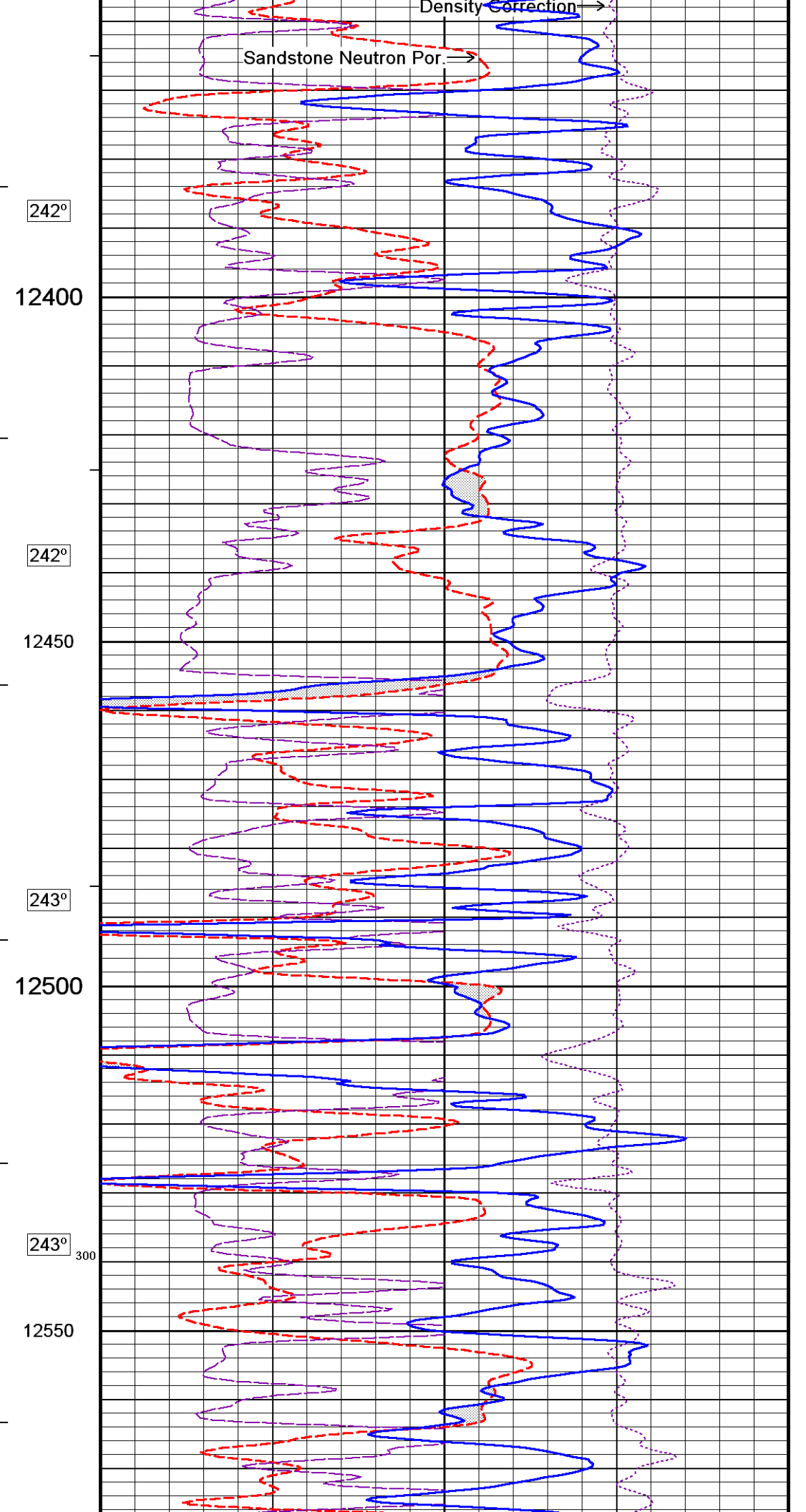
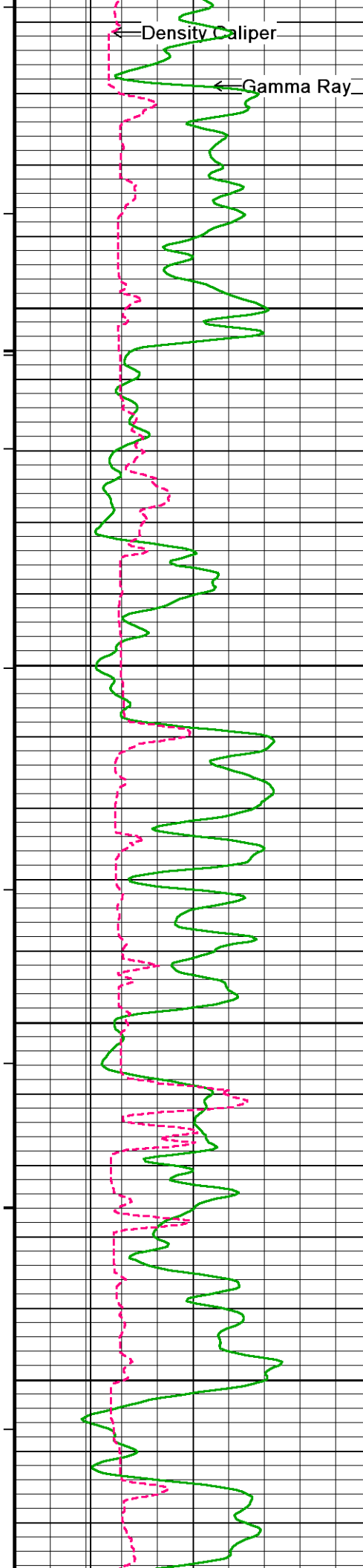
233°

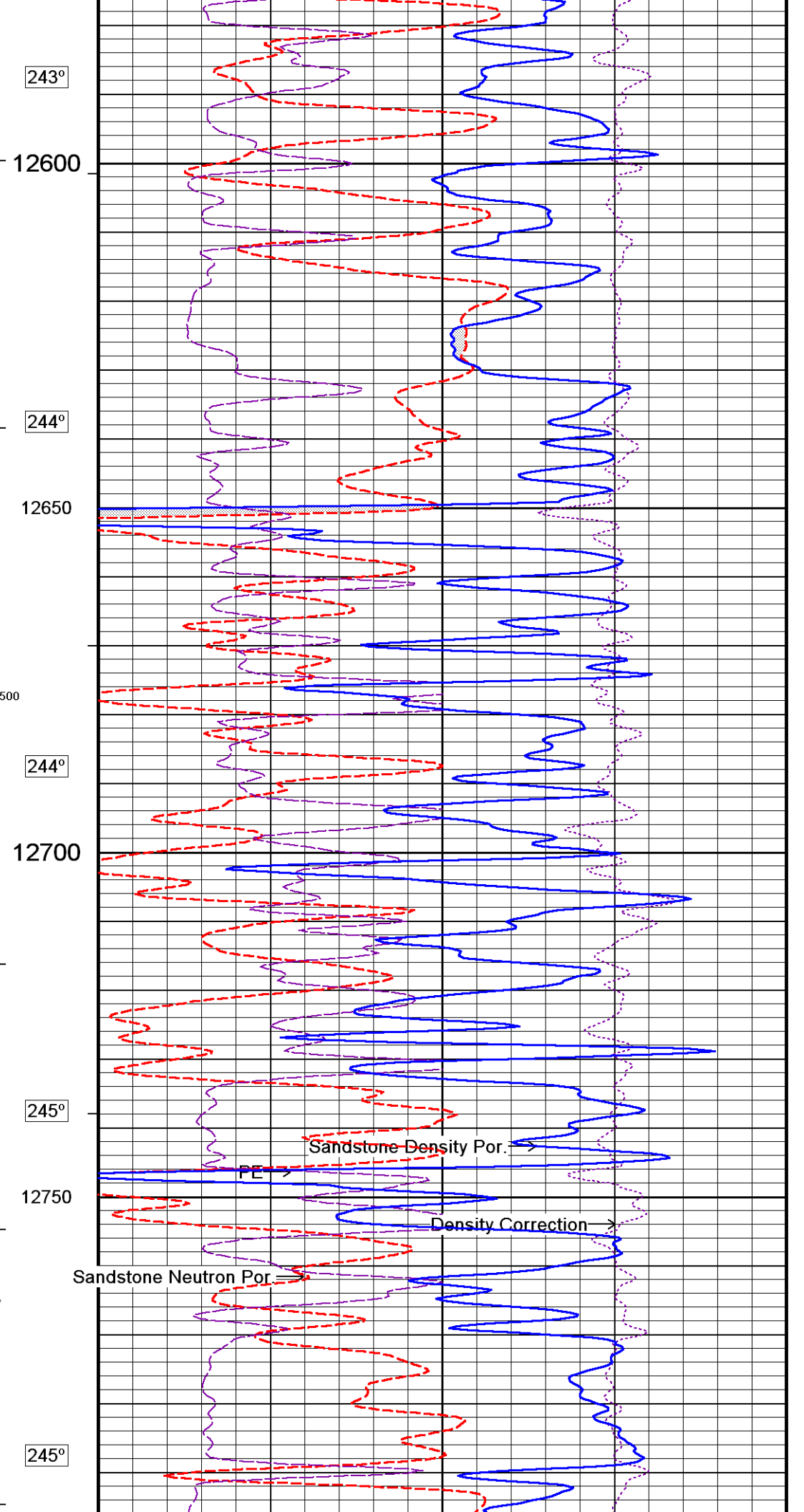
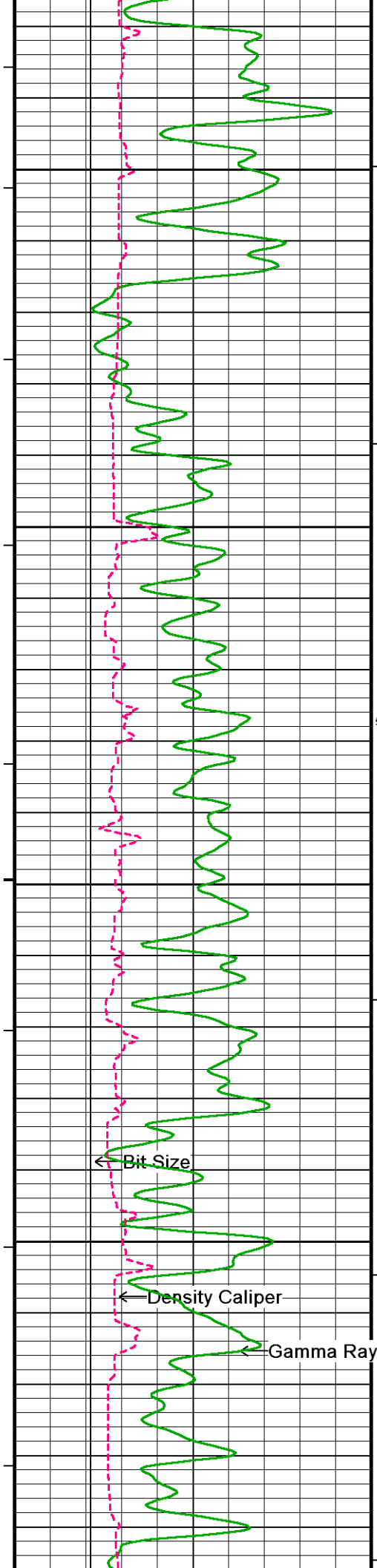
11900

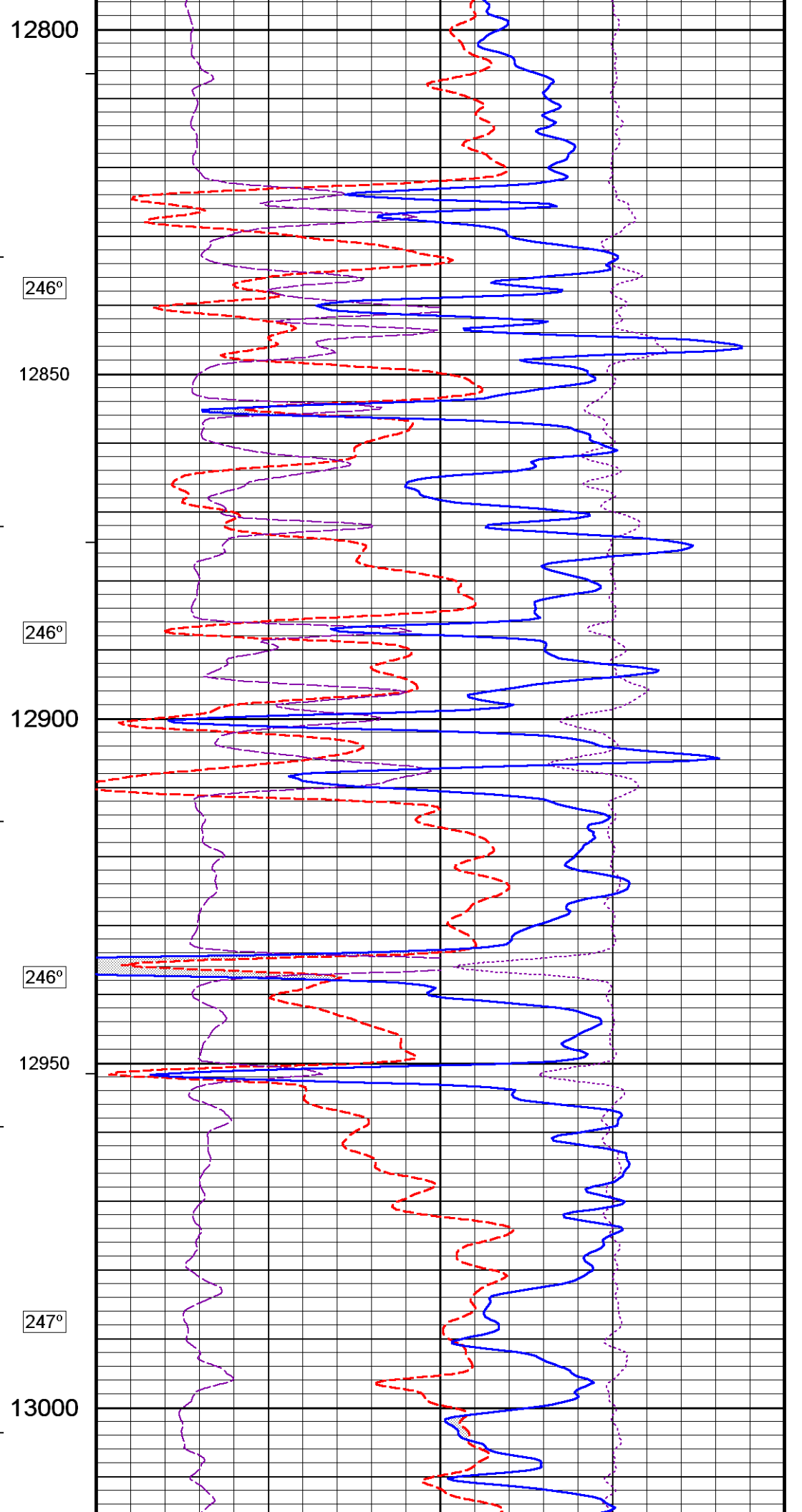
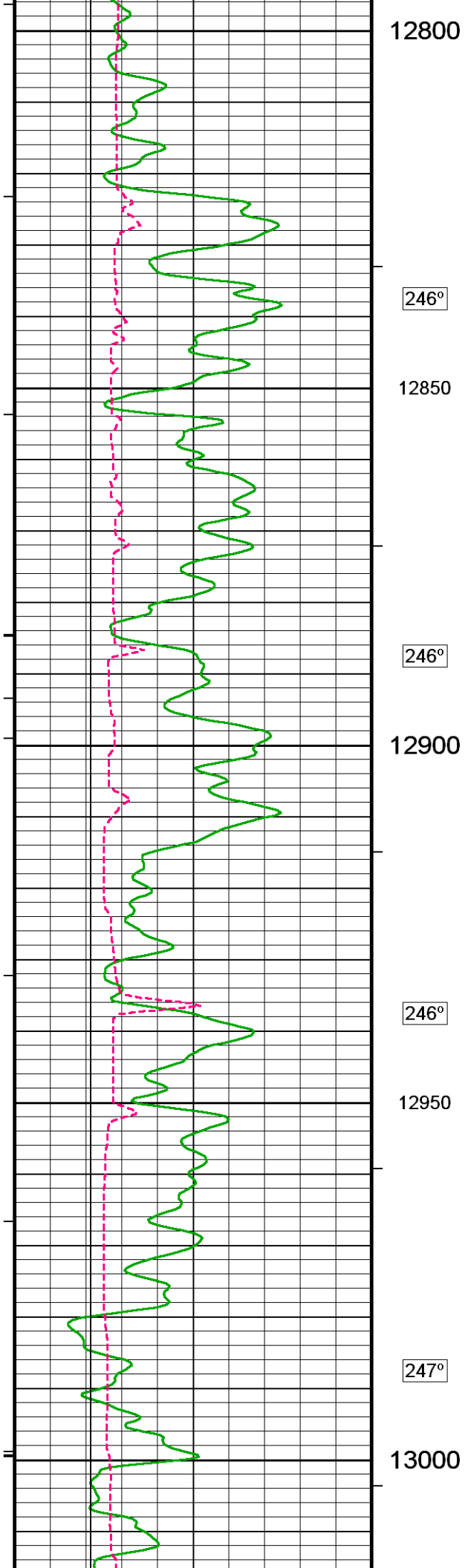


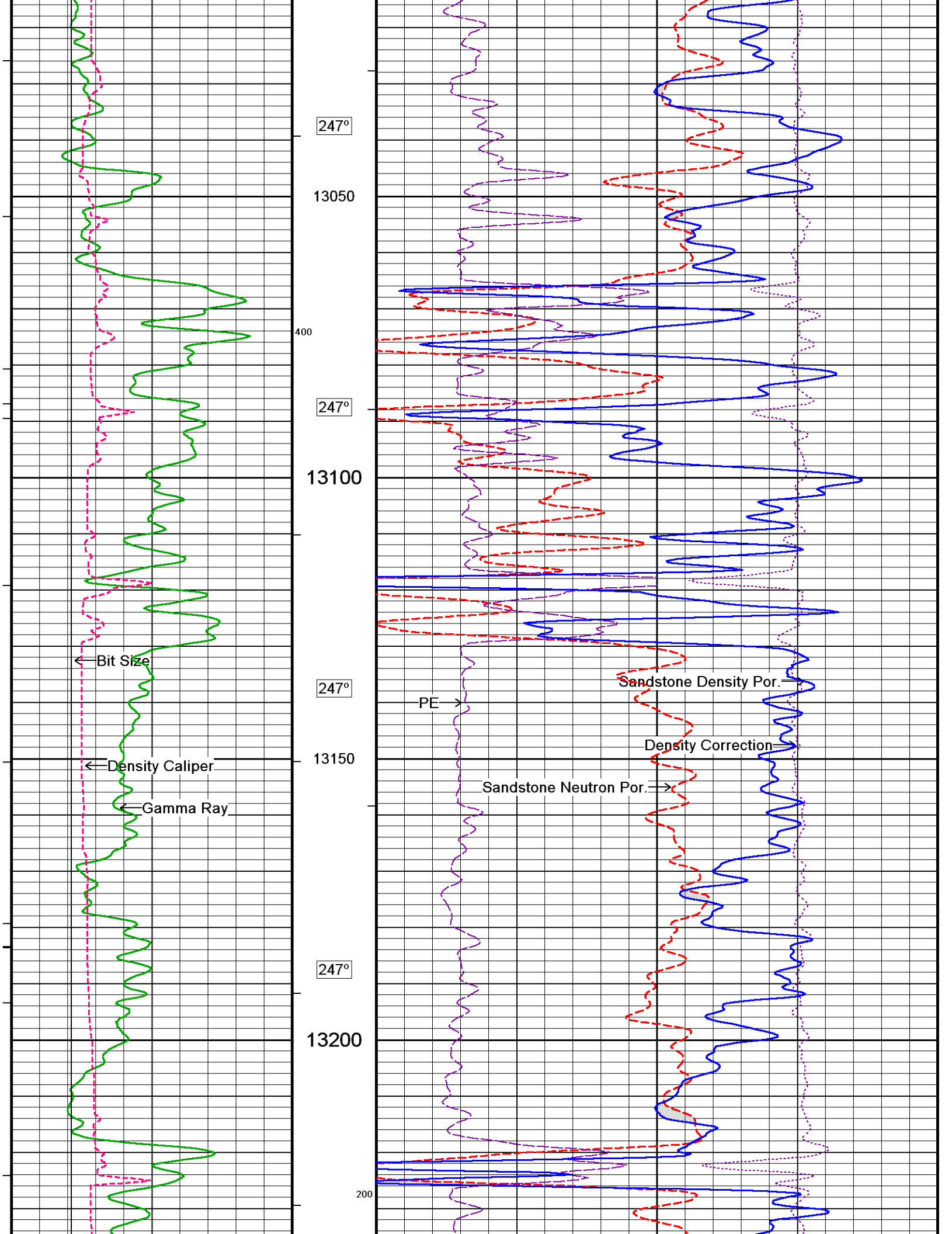


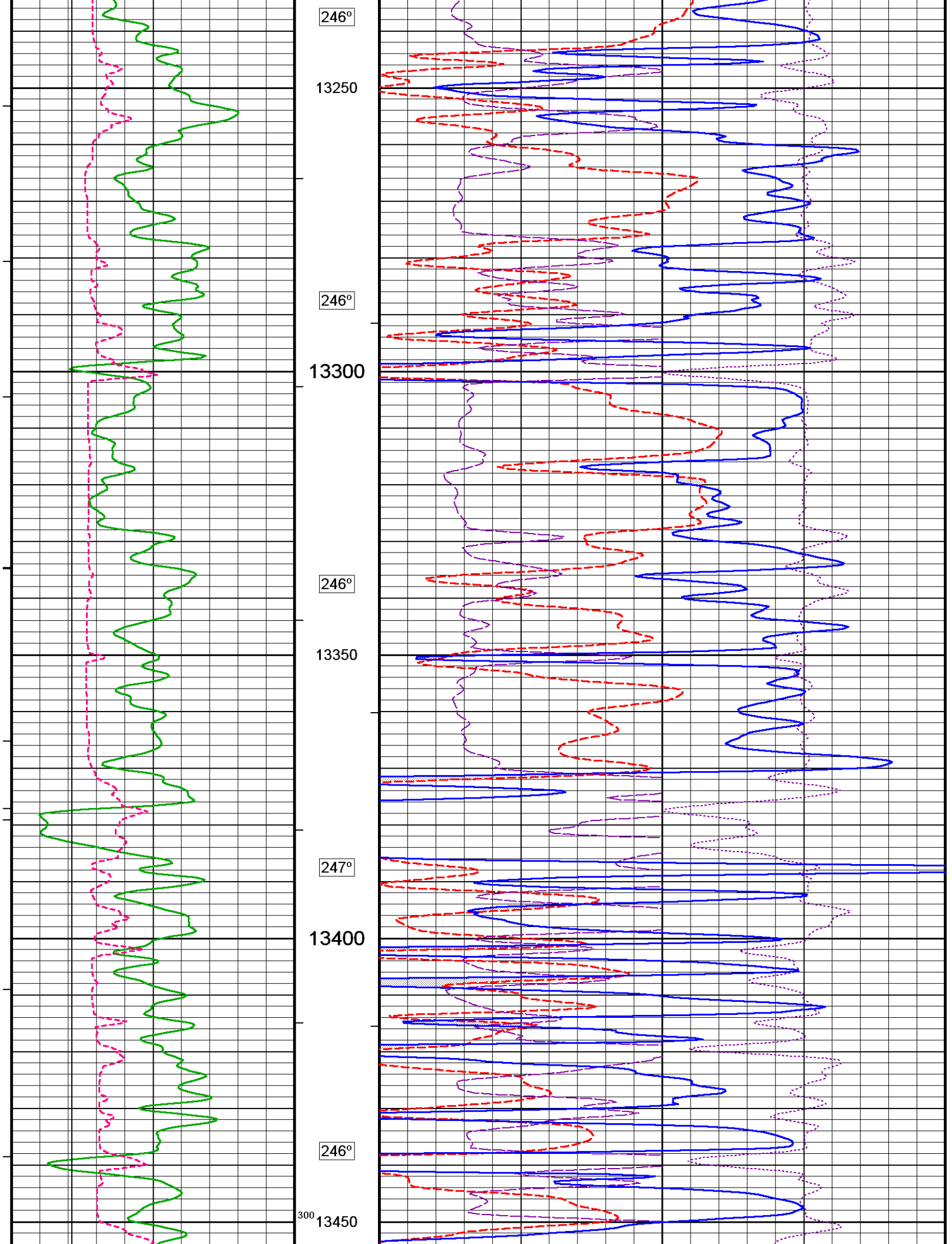


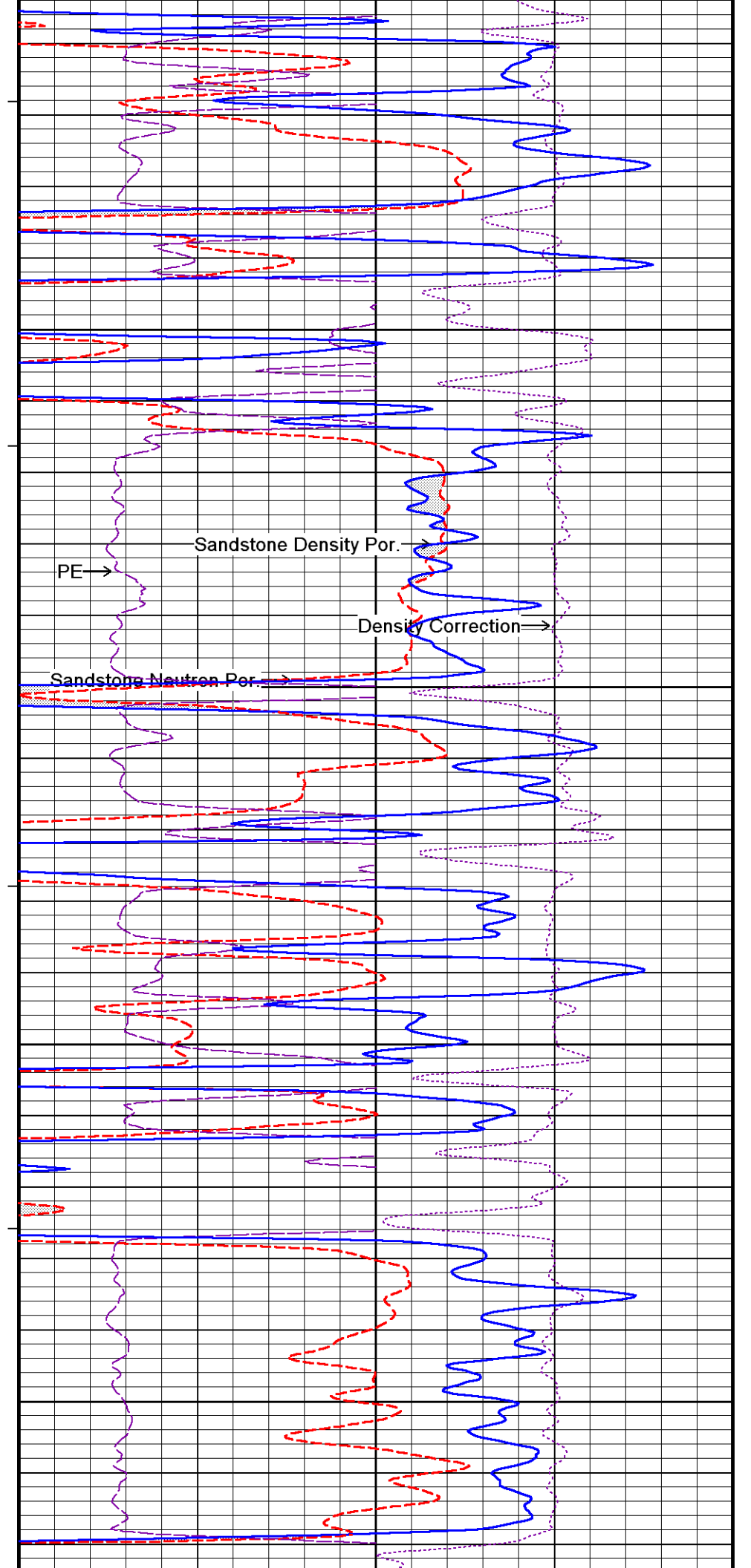
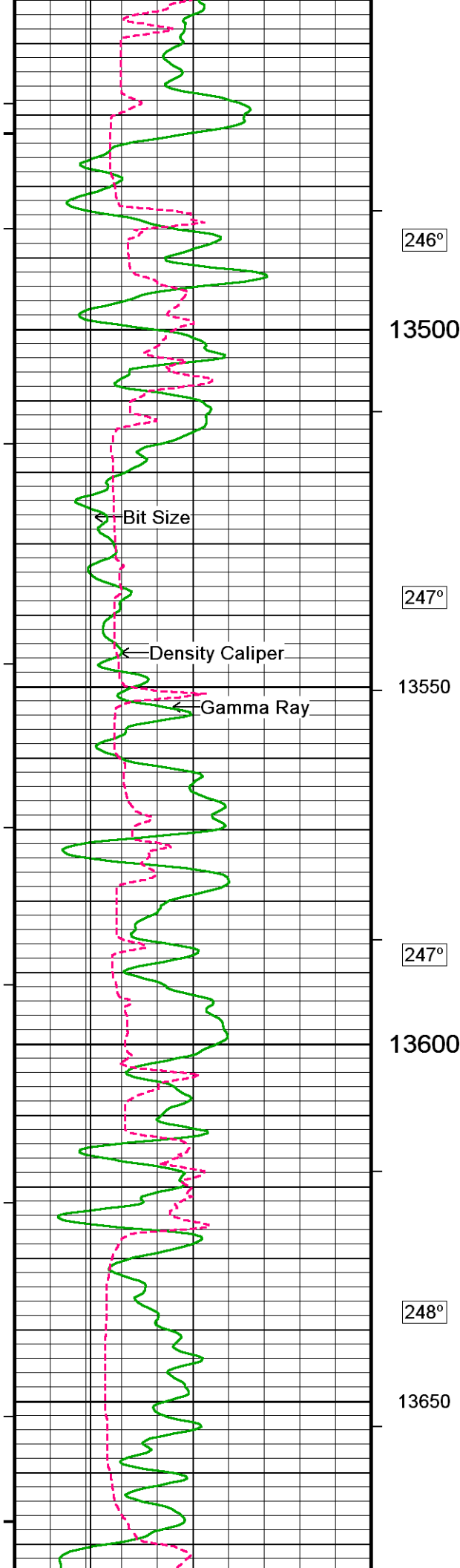


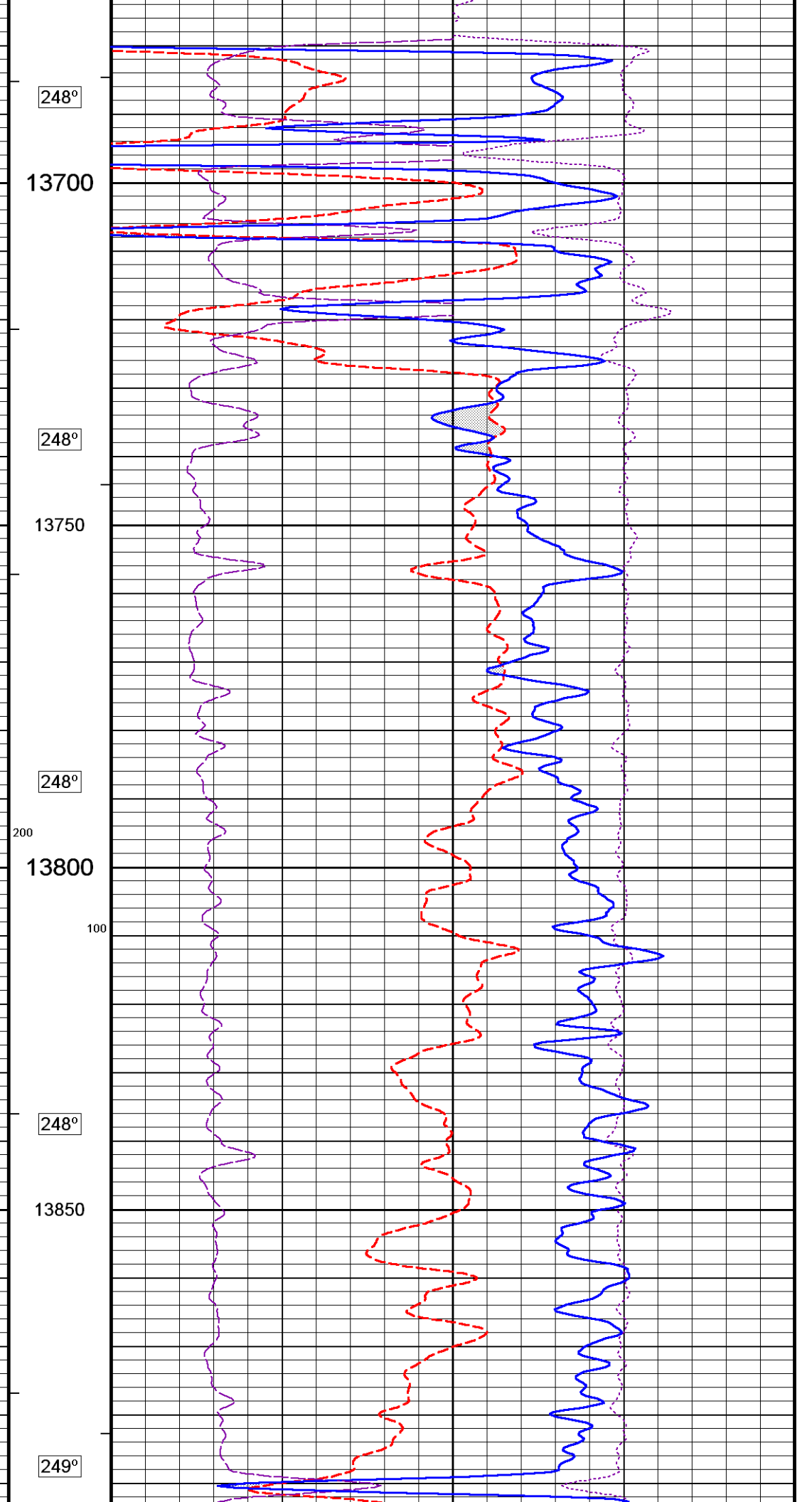
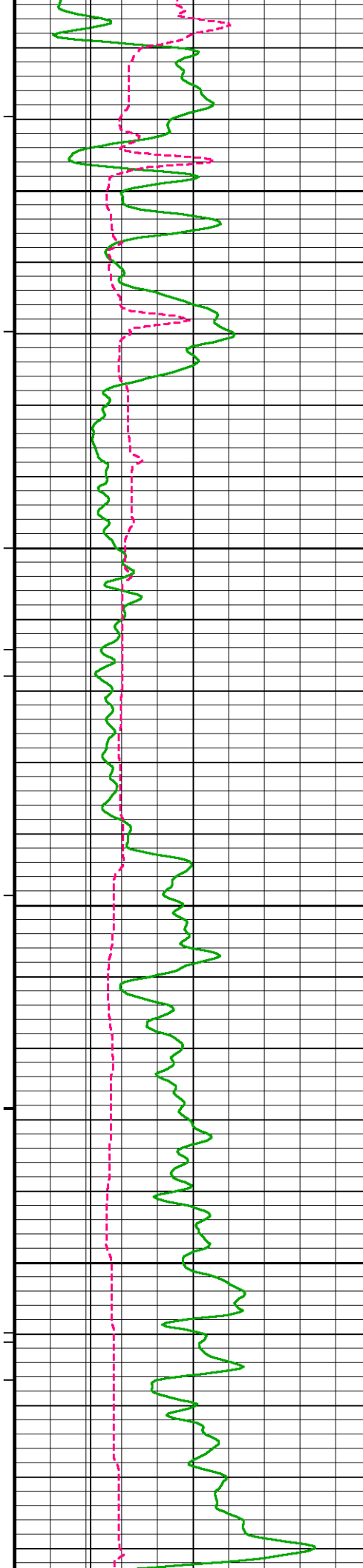


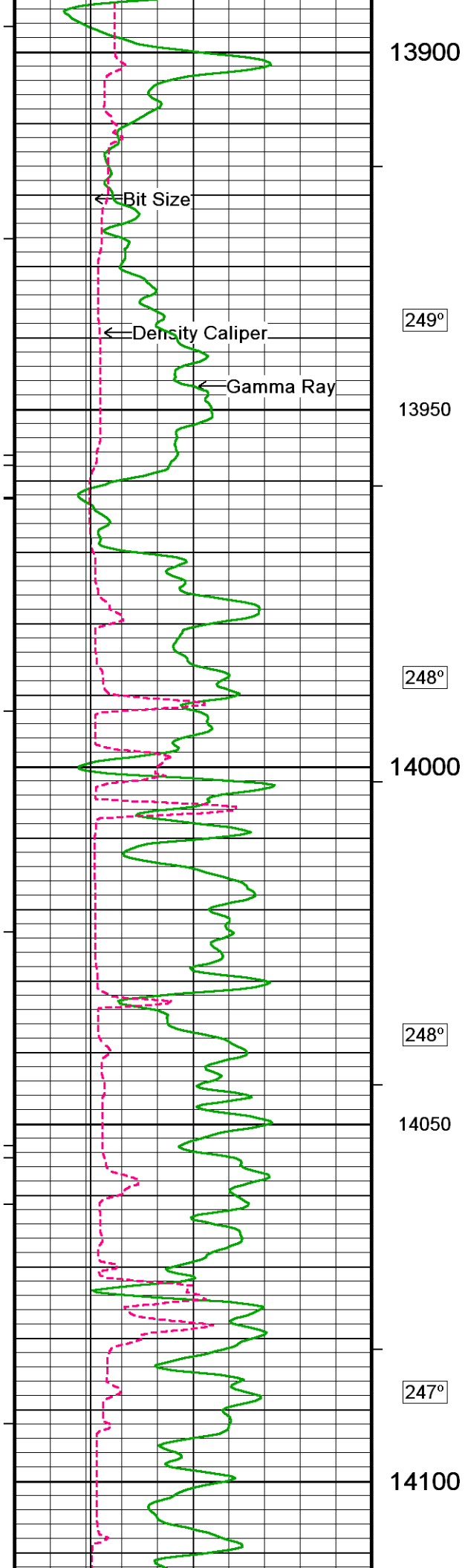












13900

249°

13950

248°

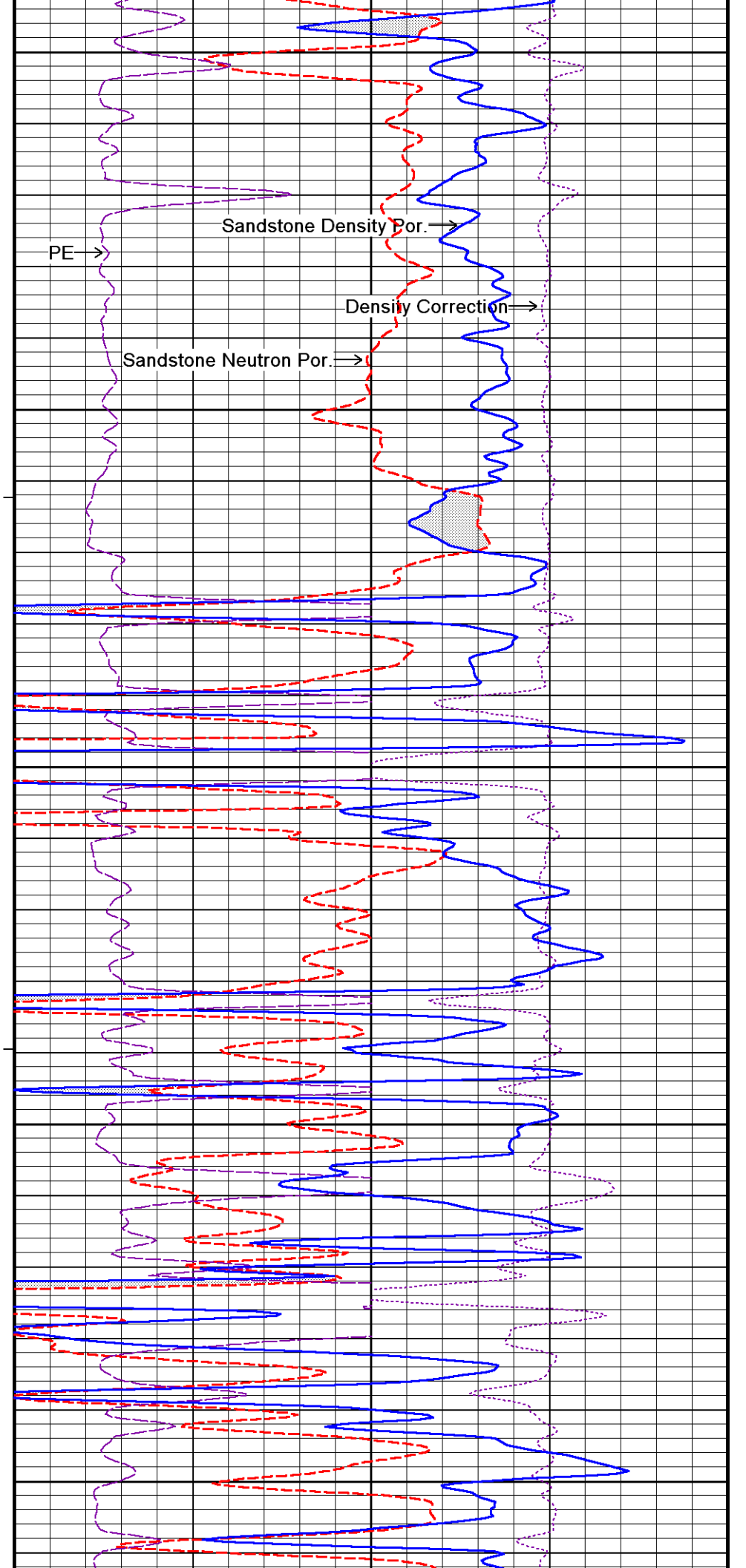
14000

248°

14050

247°

14100

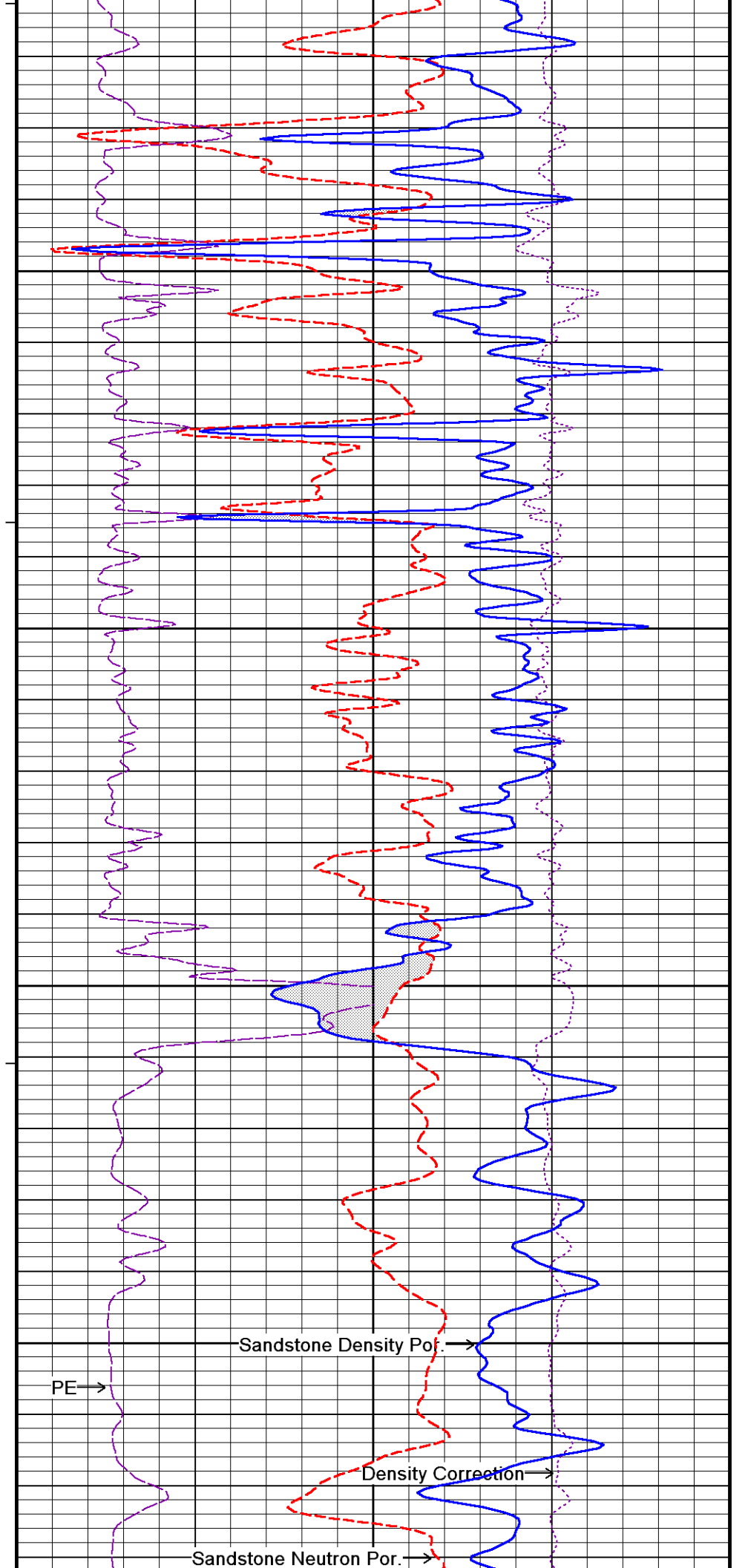
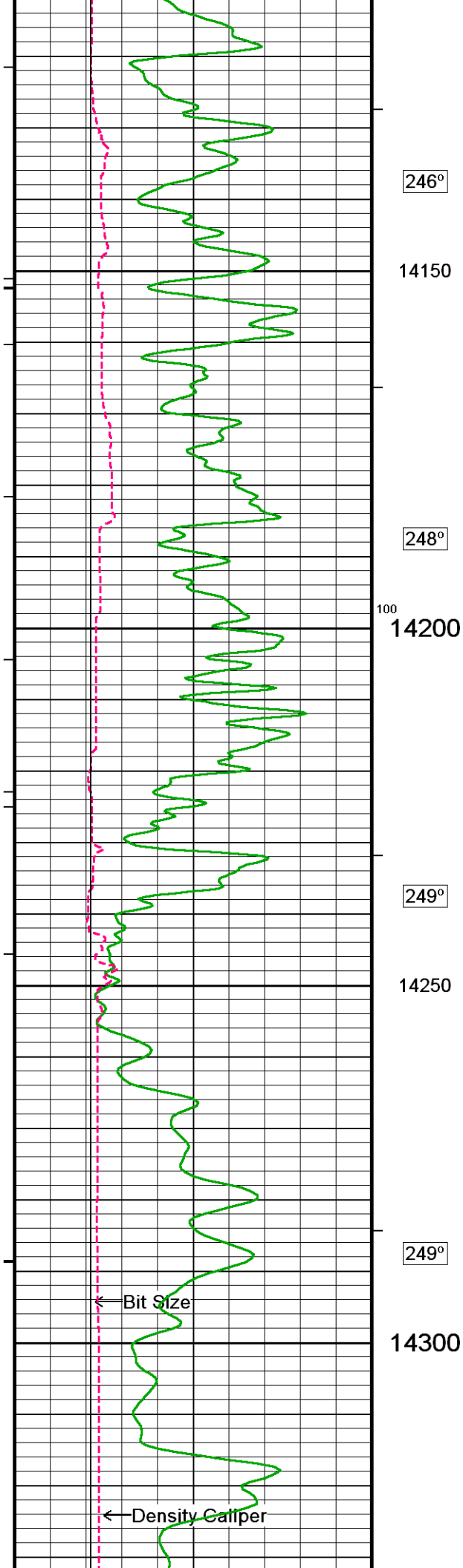


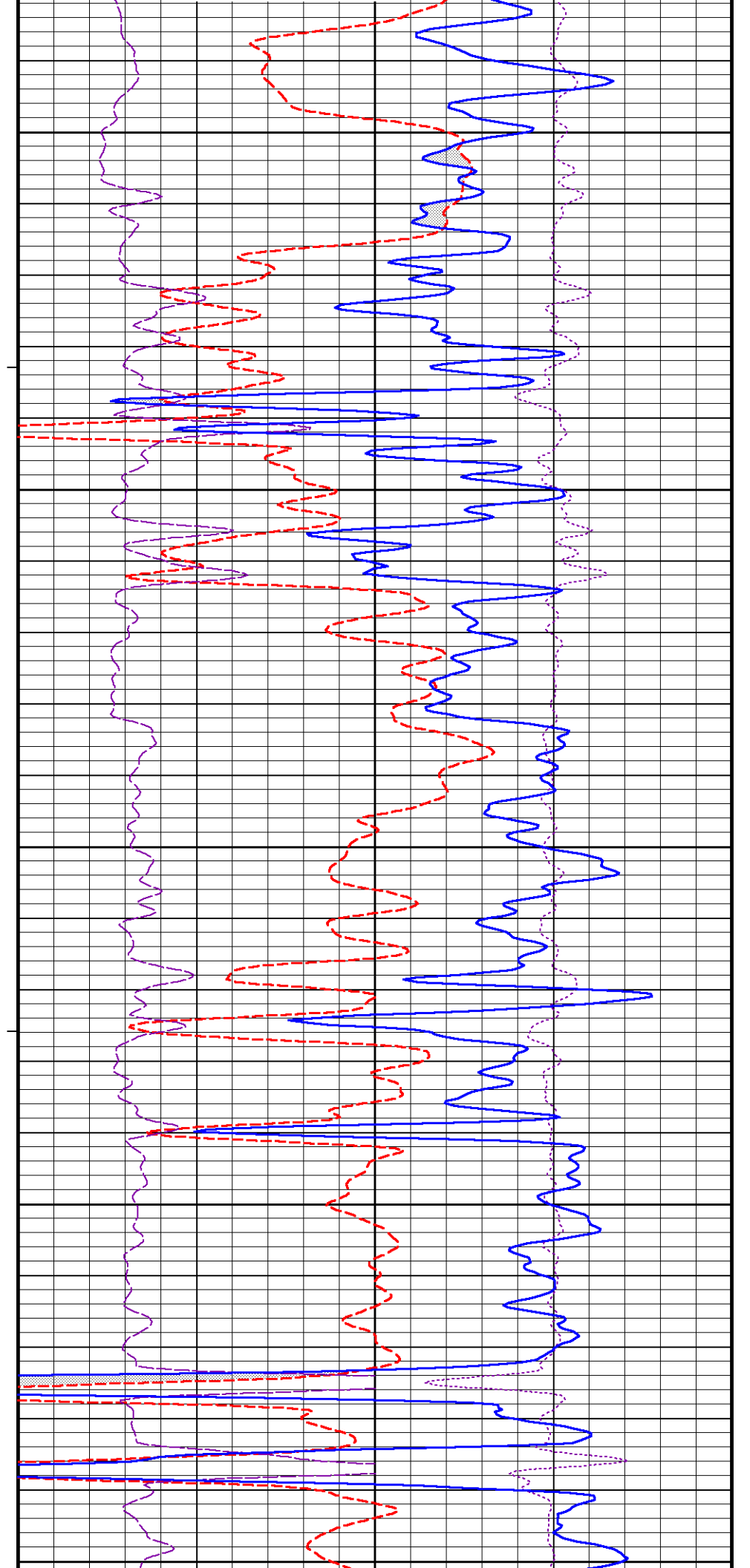
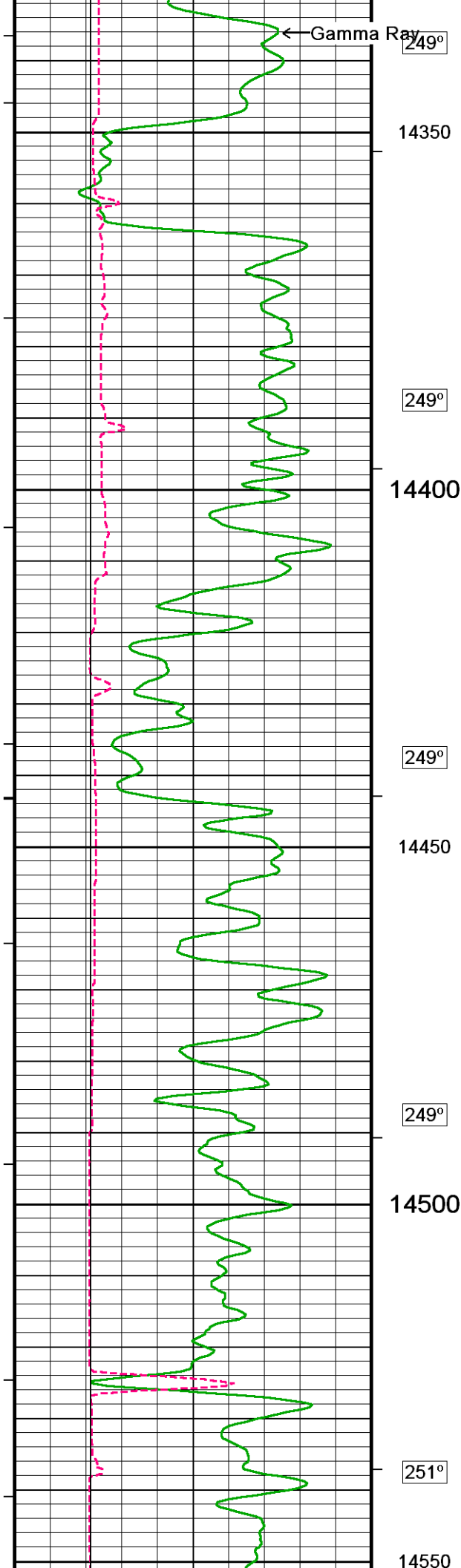
PE

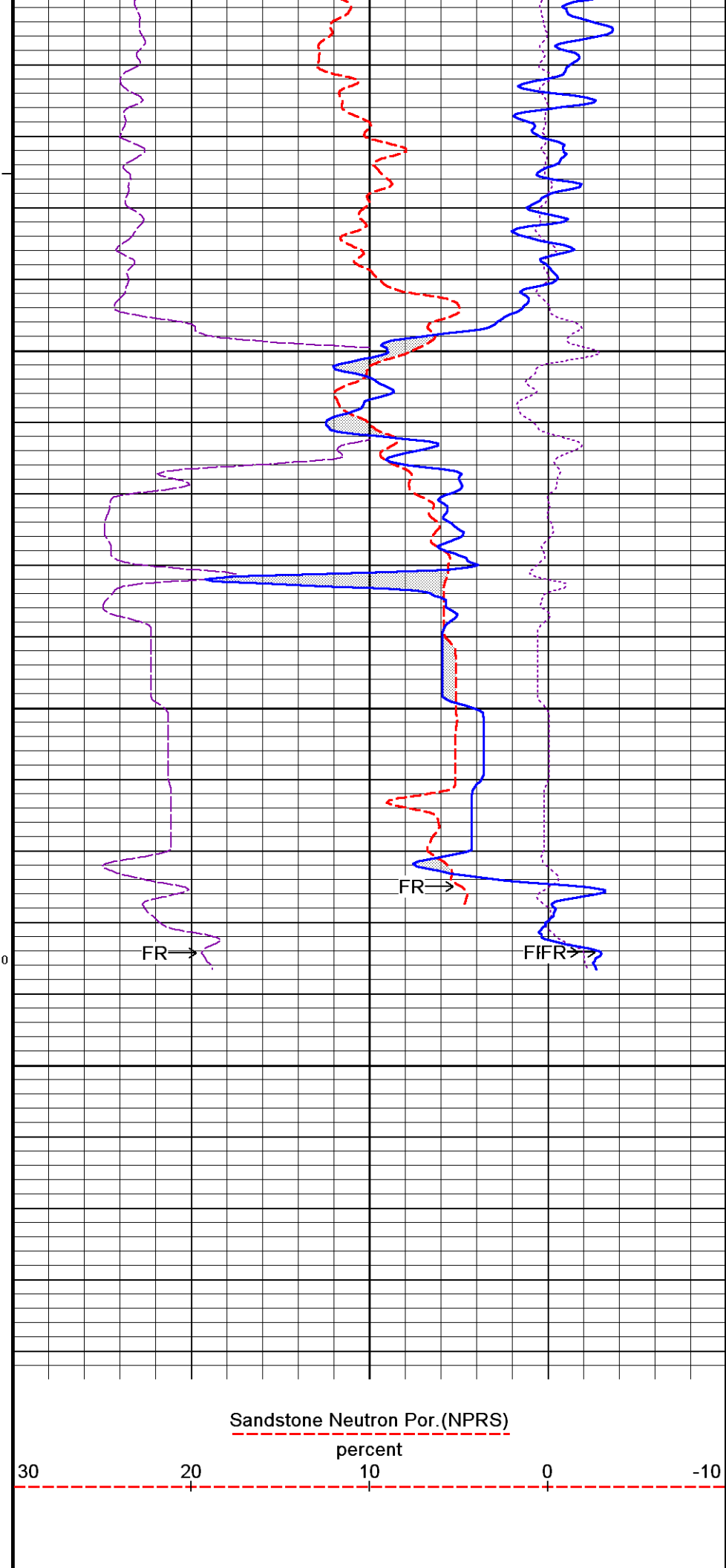
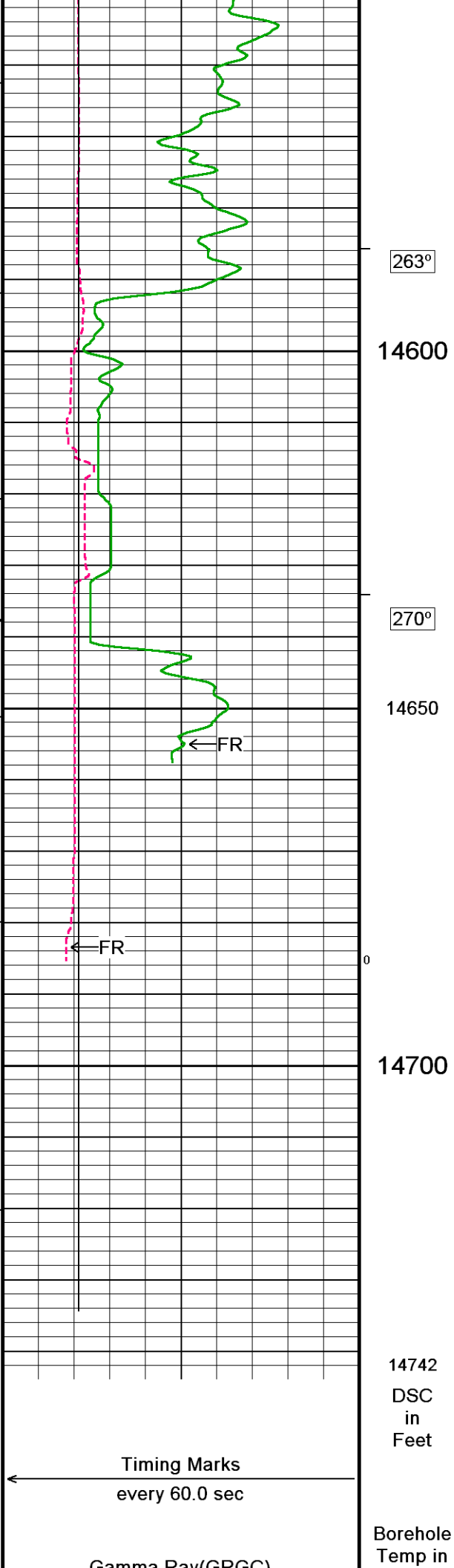
Sandstone Density Por.

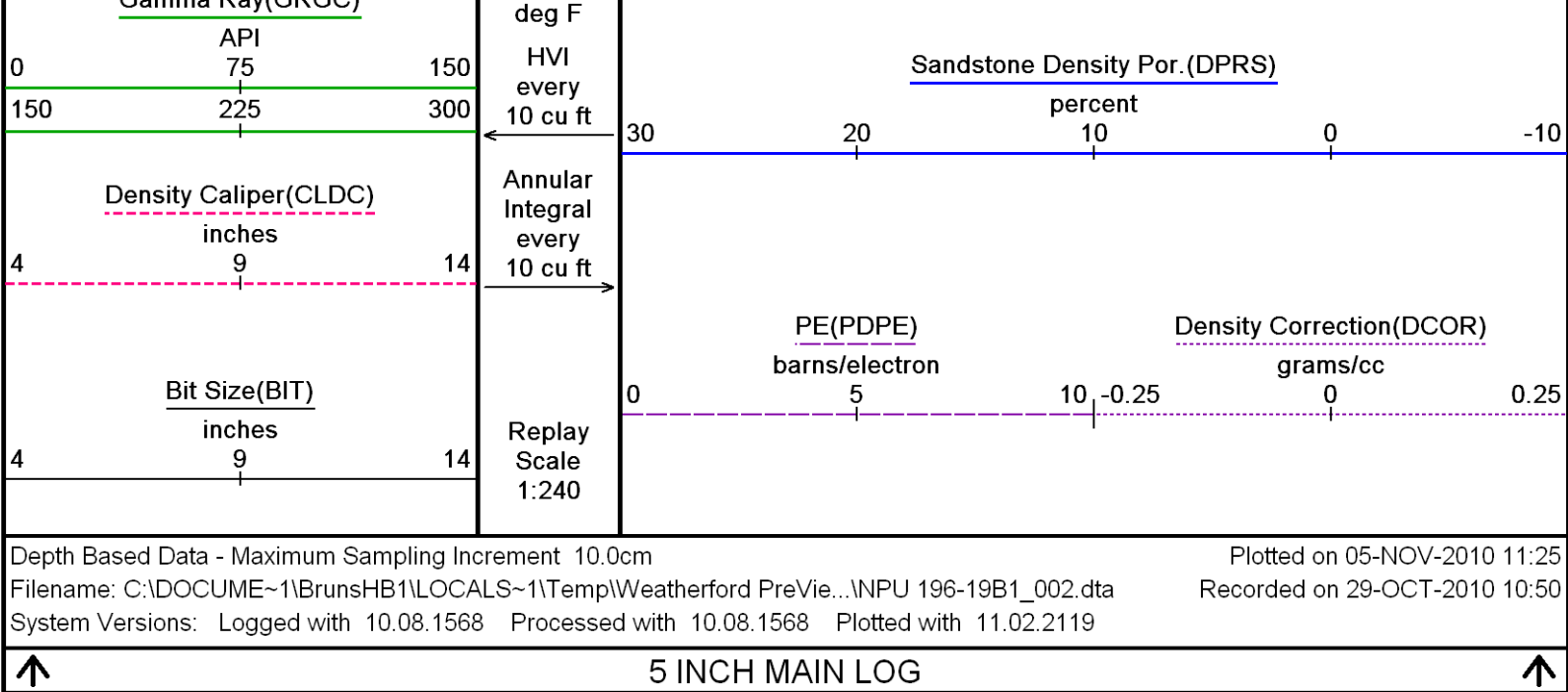
Density Correction

Sandstone Neutron Por.









BEFORE SURVEY CALIBRATION			
C:\DOCUME~1\BrunsHB1\LOCALS~1\Temp\Weatherford PreView\0\NPU 196-19B1_001.dta			
General Constants All 000		Last Edited on 28-OCT-2010,12:02	
General Parameters			
Mud Resistivity	2.520	ohm-metres	
Mud Resistivity Temperature	97.500	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	None		
Rwa Parameters			
Porosity used	Base Neutron Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
Down-hole Tension Calibration SMS 000		Field Calibration on 20-OCT-2010 09:59	
Reading No	Measured	Calibrated (lbs)	
1	15939.04	0.00	
2	16579.22	345.00	
Gamma Calibration MCG 342		Field Calibration on 26-OCT-2010 10:44	
	Measured	Calibrated (API)	
Background	140	94	
Calibrator (Gross)	1074	720	
Calibrator (Net)	934	626	
Gamma Constants MCG 342		Last Edited on 20-OCT-2010,03:41	
Gamma Calibrator Number GRC-005			
Mud Density	1.20	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
SP Calibration MCG 342			

	Measured	Calibrated (mV)
Reference 1	100.0	100.0
Reference 2	-100.0	-100.0

High Resolution Temperature Calibration MCG 342

Field Calibration on 26-OCT-2010,10:46

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG 342

Last Edited on 13-SEP-2010,08:11

Pre-filter Length 11

Neutron Calibration MDN 250

Base Calibration on 03-SEP-2010 16:24

Field Check on 26-OCT-2010 10:02

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3043	93	3714	110
Ratio	32.551		33.764	

Field Calibrator at Base

	Calibrated (cps)
	1588 2313
Ratio	0.687

Field Check

	Calibrated (cps)
	1587 2321
Ratio	0.684

Neutron Constants MDN 250

Last Edited on 21-SEP-2010,09:21

Neutron Source Id	755	
Neutron Jig Number	6532	
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	7.00	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	

FE Calibration MFE 236

Base Calibration on 03-SEP-2010 14:10

Field Check on 26-OCT-2010 10:25

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.2	126.8

Base Check 281.2

Field Check 281.5

FE Constants MFE 236

Last Edited on 28-OCT-2010,12:03

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.	MCG External Temperature	
Stand-off	0.5	inches

Sonic Constants MSS 095

Last Edited on 26-OCT-2010,10:49

Maximum Boundary Contrast	100.00	micro-sec/ft			
Fluid Transit Time	189.00	micro-sec/ft			
Limestone Transit Time	47.50	micro-sec/ft			
Sandstone Transit Time	55.50	micro-sec/ft			
Dolomite Transit Time	43.50	micro-sec/ft			
Sonic used for Porosities	3-5' Compensated Sonic				
Correction for Sonde Skew	Applied				
Cycle Stretch Algorithm	Applied				
MN3FT	N/A	micro-sec			
MX3FT	N/A	micro-sec			
Hunt-Raymer Constant	83.13	micro-sec/ft			
Sonde Mode	Full Waveform				
Hole Type	Open Hole				
Sonde Parameters					
	Measured	Calibrated			
Offset	N/A	0.0000			
Free Pipe	N/A	N/A			
Peak Amplitude Source		N/A			
Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A
Processed Fixed Gate Parameters					
Waveform Used For Processing	3 foot				
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)		N/A	
	N/A	N/A			
	N/A	N/A		N/A	
	N/A	N/A		N/A	
	N/A	N/A		N/A	
	N/A	N/A		N/A	
Full Waveform Parameters					
Use 3' Waveform to derive TR		Yes			
Use 4' Waveform to derive TR		Yes			
Use 5' Waveform to derive TR		Yes			
Use 6' Waveform to derive TR		Yes			
3' Waveform Discriminator Level		0.30	mV		
4' Waveform Discriminator Level		0.30	mV		
5' Waveform Discriminator Level		0.15	mV		
6' Waveform Discriminator Level		0.15	mV		
3' Waveform Filter		None			
4' Waveform Filter		None			
5' Waveform Filter		None			
6' Waveform Filter		None			
Semblance Level		0.50			
Semblance Window Width		120.00	micro-sec		
Sonic 1 Despiker		30.48	micro-sec/ft		
Sonic 2 Despiker		30.48	micro-sec/ft		
High Resolution Temperature Calibration MAI 286					
	Measured	Calibrated(Deg F)		Field Calibration on 26-OCT-2010,10:50	
Lower	10.00	50.00			
Upper	100.00	212.00			
High Resolution Temperature Constants MAI 286					
				Last Edited on	
Pre-filter Length		11			
Induction Calibration MAI 286					
				Base Calibration on 30-AUG-2010,13:58	
				Field Check on 26-OCT-2010 10:27	
Base Calibration					
Test Loop Calibration	Measured	Calibrated (mmho/m)			

Channel	Low	High	Low	High
1	17.8	471.4	9.3	966.2
2	6.8	387.0	7.6	821.4
3	3.2	259.6	5.2	566.0
4	2.0	136.1	2.6	279.2
Array Temperature	75.2		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	9.6	3856.3
2	0.0	0.0	28.0	3484.9
3	0.0	0.0	28.8	3044.8
4	0.0	0.0	18.9	2029.3
Deep	0.0	0.0	18.5	1996.0
Medium	0.0	0.0	42.7	4026.7
Shallow	0.0	0.0	40.3	5130.2
Array Temperature	0.0		40.1	Deg F

Induction Constants MAI 286

Last Edited on 28-OCT-2010,12:04

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.	MCG 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 297

Base Calibration on 07-SEP-2010,20:52

Field Check on 26-OCT-2010 10:17

Density Calibration				
Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	48641	17016	53115	19186
Reference 2	23254	2648	25020	2536
Field Check at Base				
	1217.4	1425.1		

Field Check

1209.8

1422.5

PE Calibration

Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	223	1081		
Reference 1	14027	48449	0.291	0.320
Reference 2	5796	23096	0.253	0.272

Field Check at Base

222.6 1080.8

Field Check

218.6 1067.0

Density Constants MPD 297

Last Edited on 28-OCT-2010,12:03

Density Source Id	271
Nylon Calibrator Number	507
Aluminium Calibrator Number	507
Density Shoe Profile	4 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.45 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)
2.68	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 297

Base Calibration on 06-SEP-2010 15:20

Field Calibration on 26-OCT-2010,10:49

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16944	4.00
2	25504	5.96
3	33088	7.98
4	41248	9.86
5	50304	11.88
6	N/A	N/A

Field Calibration

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

DOWNHOLE EQUIPMENT

C:\DOCUME~1\BrunsHB1\LOCALS~1\Temp\Weatherford PreView\0\NPU 196-19B1_001.dta

Shuttle Running Tool 3.5" (SRT A)

SRT 5 Length: 1.00 ft Weight: 37.5 lb

MBS-A 400v Compact Battery Sub

MBS 5 Length: 14.24 ft Weight: 105.8 lb

Compact Gamma

MCG 342 Length: 8.70 ft Weight: 63.9 lb



77.26 ft

74.36 ft

GRGC - Gamma Ray

CGXT - MCG External Temperature

MOS 342 Length: 3.70 ft Weight: 53.9 lb

Compact Memory Sub D.A
MMS 106 Length: 3.12 ft Weight: 30.9 lb

SKJ-E.A Compact Knuckle Joint
SKJ 143 Length: 2.17 ft Weight: 24.3 lb

SHA-H Compact Swivel Head Adaptor
SHA 170 Length: 2.30 ft Weight: 22.0 lb

MIS-D.A Compact Inline Bowspring sub
MIS 438 Length: 5.70 ft Weight: 33.1 lb

Compact Neutron
MDN 250 Length: 5.04 ft Weight: 50.7 lb

Compact Density/Caliper
MPD 297 Length: 9.59 ft Weight: 90.4 lb

MIS-D.A Compact Inline Bowspring sub
MIS 439 Length: 5.70 ft Weight: 33.1 lb

SHA-J.A Compact Swivel Head Adaptor
SHA 316 Length: 2.30 ft Weight: 22.0 lb

SKJ-D.A Compact Knuckle Joint
SKJ 260 Length: 2.17 ft Weight: 24.3 lb

MIS-E.A Compact Inline Standoff sub
MIS 182 Length: 2.14 ft Weight: 15.4 lb

Compact Focussed Electric
MFE 236 Length: 6.03 ft Weight: 48.5 lb

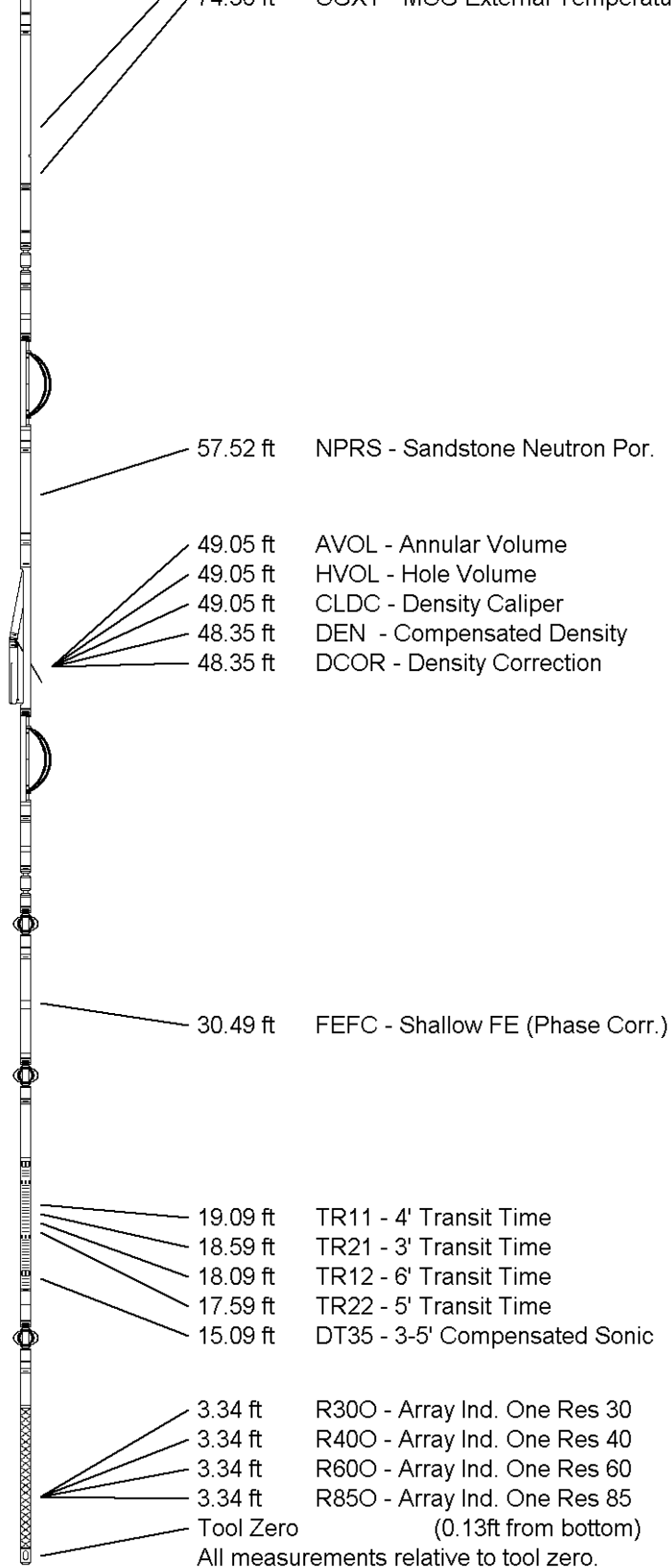
MIS-E.A Compact Inline Standoff sub
MIS 277 Length: 2.14 ft Weight: 15.4 lb

Compact Sonic
MSS 95 Length: 12.52 ft Weight: 72.8 lb

MIS-E.A Compact Inline Standoff sub
MIS 183 Length: 2.14 ft Weight: 15.4 lb

Compact Induction
MAI 286 Length: 10.81 ft Weight: 48.5 lb

Total Length: 97.79 ft Weight: 754.0 lb



COMPANY	EXXON MOBIL CORPORATION
WELL	NORTH PICEANCE CREEK 196-19B1
FIELD	PICEANCE CREEK
PROVINCE/COUNTY	RIO BLANCO
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	6912.50	feet	First Reading	14685.00	feet
Elevation Drill Floor	6911.50	feet	Depth Driller	14761.00	feet
Elevation Ground Level	6882.50	feet	Depth Logger	14761.00	feet



Weatherford®

COMPACT WELL SHUTTLE

COMPENSATED PHOTO DENSITY

COMPENSATED DUAL NEUTRON LOG

