



Weatherford

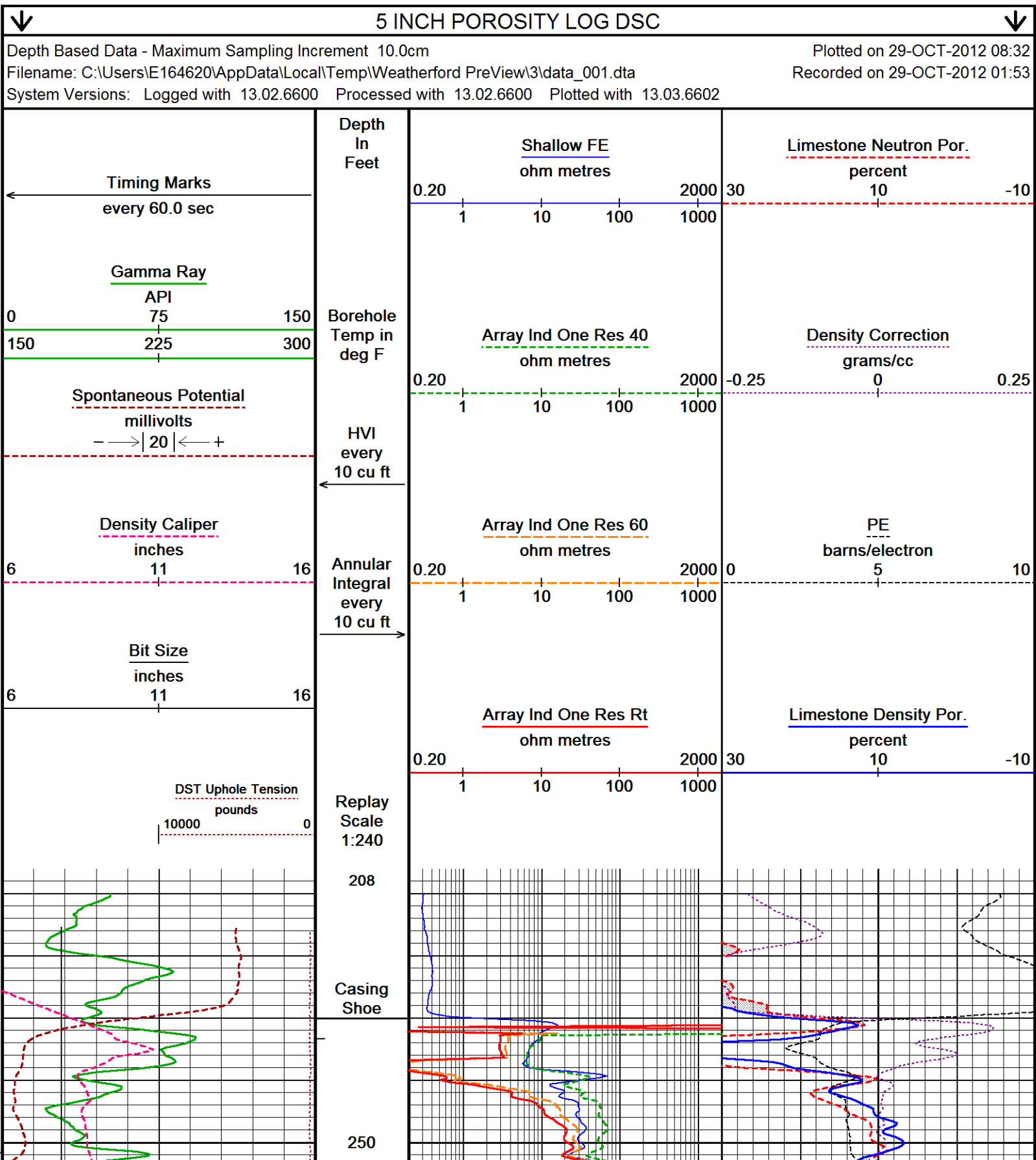
**PHOTO DENSITY / NEUTRON
ARRAY INDUCTION
SHALLOW FOCUSED LOG**

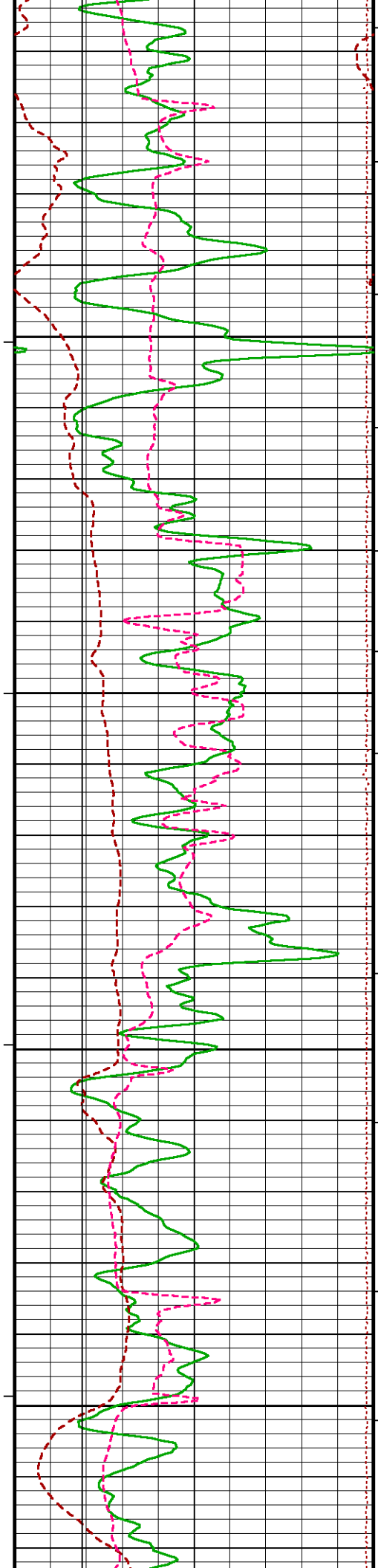
COMPANY			FUTURE PETROLEUM COMPANY LLC.		
WELL			WMU #8		
FIELD			MADDIX NORTH		
PROVINCE/COUNTY			COWLEY		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			2783' FSL & 1403' FEL SE SE SW NE		
SEC	TWP	RGE	Other Services		
3	33S	5E	MML		
API Number			15-035-24484		
Permit Number			MSS		
Permanent Datum GL, Elevation 1281 feet					
Log Measured From KB					
Drilling Measured From KB					
Date	29-OCT-2012				Elevations: KB 1290.00 DF 1288.00 GL 1281.00
Run Number	ONE				
Depth Driller	3668.00				feet
Depth Logger	3682.00				feet
First Reading	3679.00				feet
Last Reading	230.00				feet
Casing Driller	200.00				feet
Casing Logger	230.00				feet
Bit Size	7.875				inches
Hole Fluid Type	CHEM				
Density / Viscosity	9.30		lb/USg	37.00	SEC/QT
PH / Fluid Loss	9.50			8.60	ml/30Min
Sample Source	MUD PIT				
Rm @ Measured Temp	0.80 @ 53.0			ohm-m	
Rmf @ Measured Temp	0.64 @ 53.0			ohm-m	
Rmc @ Measured Temp	0.96 @ 53.0			ohm-m	
Source Rmf / Rmc	CALC			CALC	
Rm @ BHT	0.37 @ 112.0			ohm-m	
Time Since Circulation	4 HOURS				
Max Recorded Temp	112.00			deg F	
Equipment Name	COMPACT				
Equipment / Base	13226			OKC	
Recorded By	G. HUTCHINSON				
Witnessed By	M. SEELY				T. MADDEN

BOREHOLE RECORD					Last Edited: 29-OCT-2012 03:39
Bit Size inches		Depth From feet		Depth To feet	
7.875		200.00		3668.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	200.00	24.00	

REMARKS	
TOOLS RAN: SHA, MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION	
HARDWARE: MAI: TWO 0.5 INCH STANDOFFS USED. MDN: DUAL NEUTRON BOW SPRINGS USED. MPD: 8 INCH PROFILE PLATE USED. MFE: ONE 0.5 INCH STANDOFF USED. MSS: THREE 0.5 INCH STANDOFFS USED.	
2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.	
TOTAL HOLE VOLUME FROM TD TO 230' = 1370 CU.FT. ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 230' = 810 CU.FT.	
SERVICE ORDER # 3538548 RIG: BERENTZ DRILLING #1	

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.





800

87°

300

89°

350

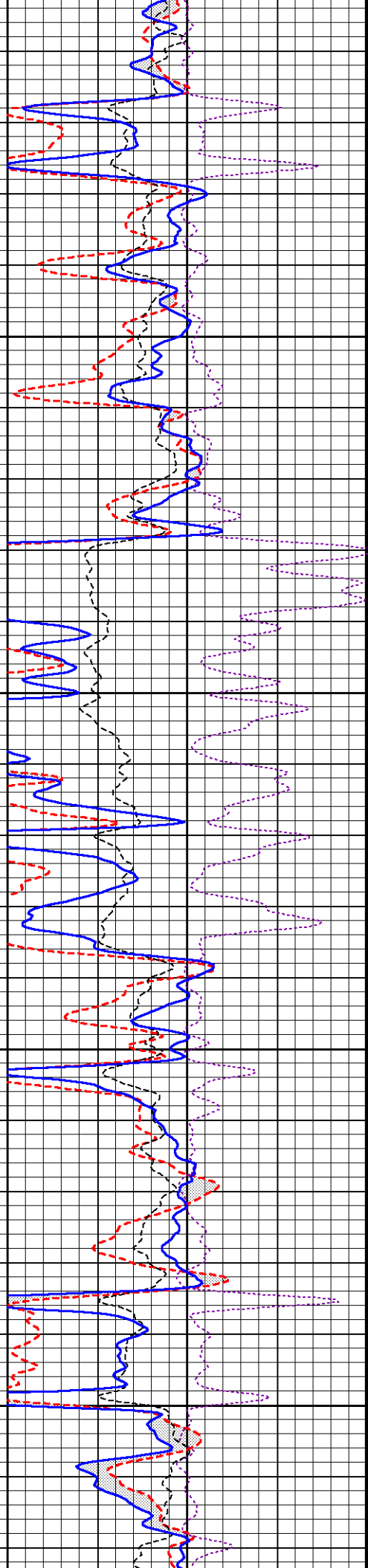
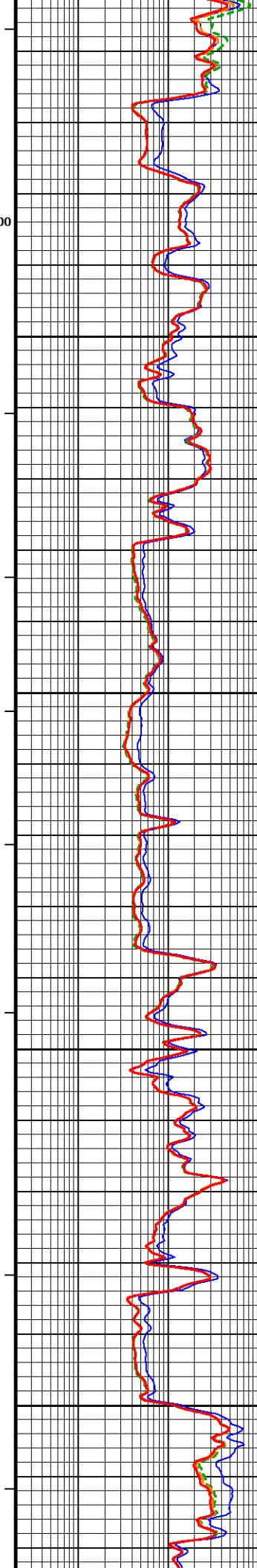
1300

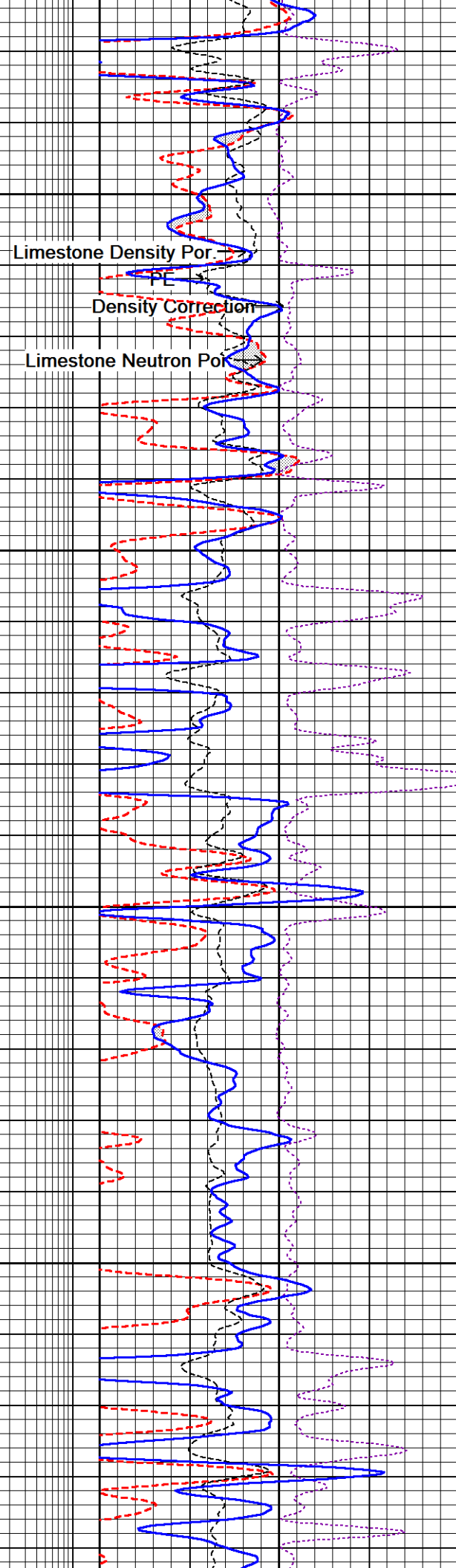
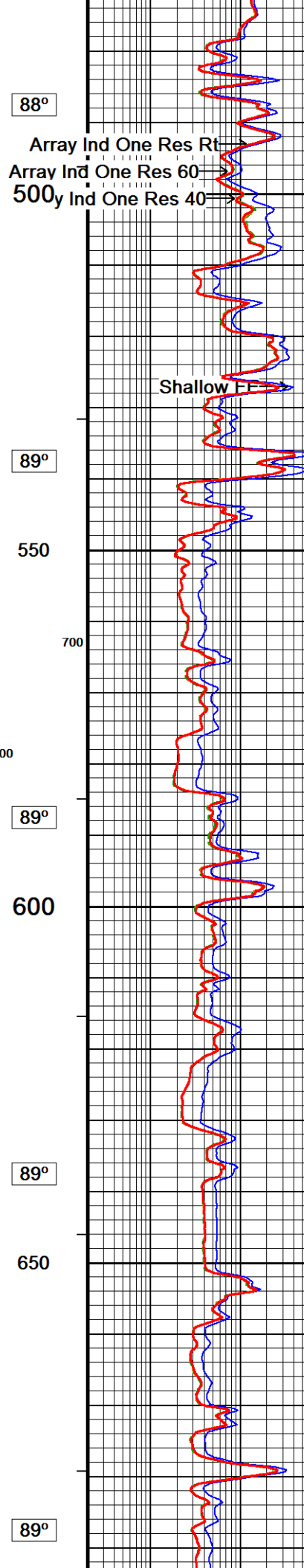
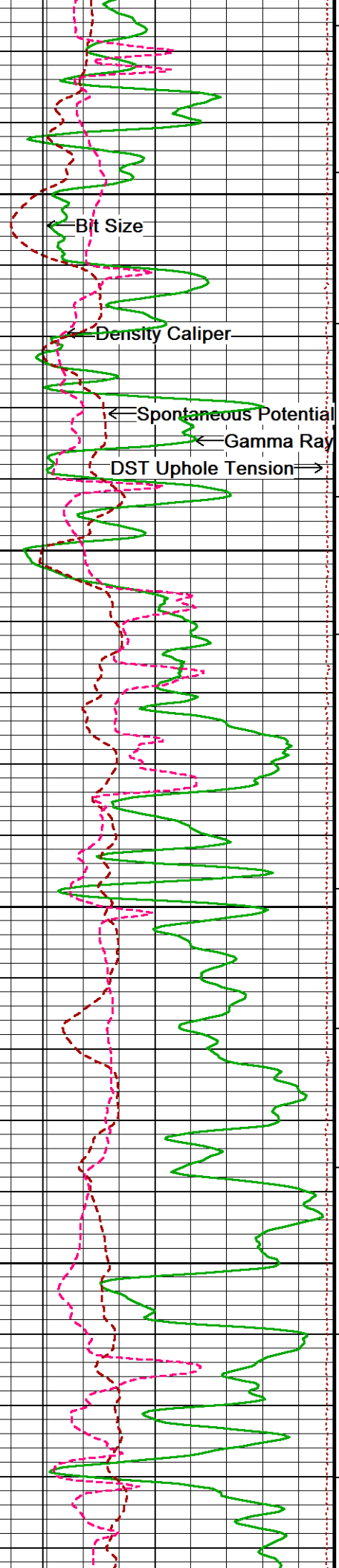
87°

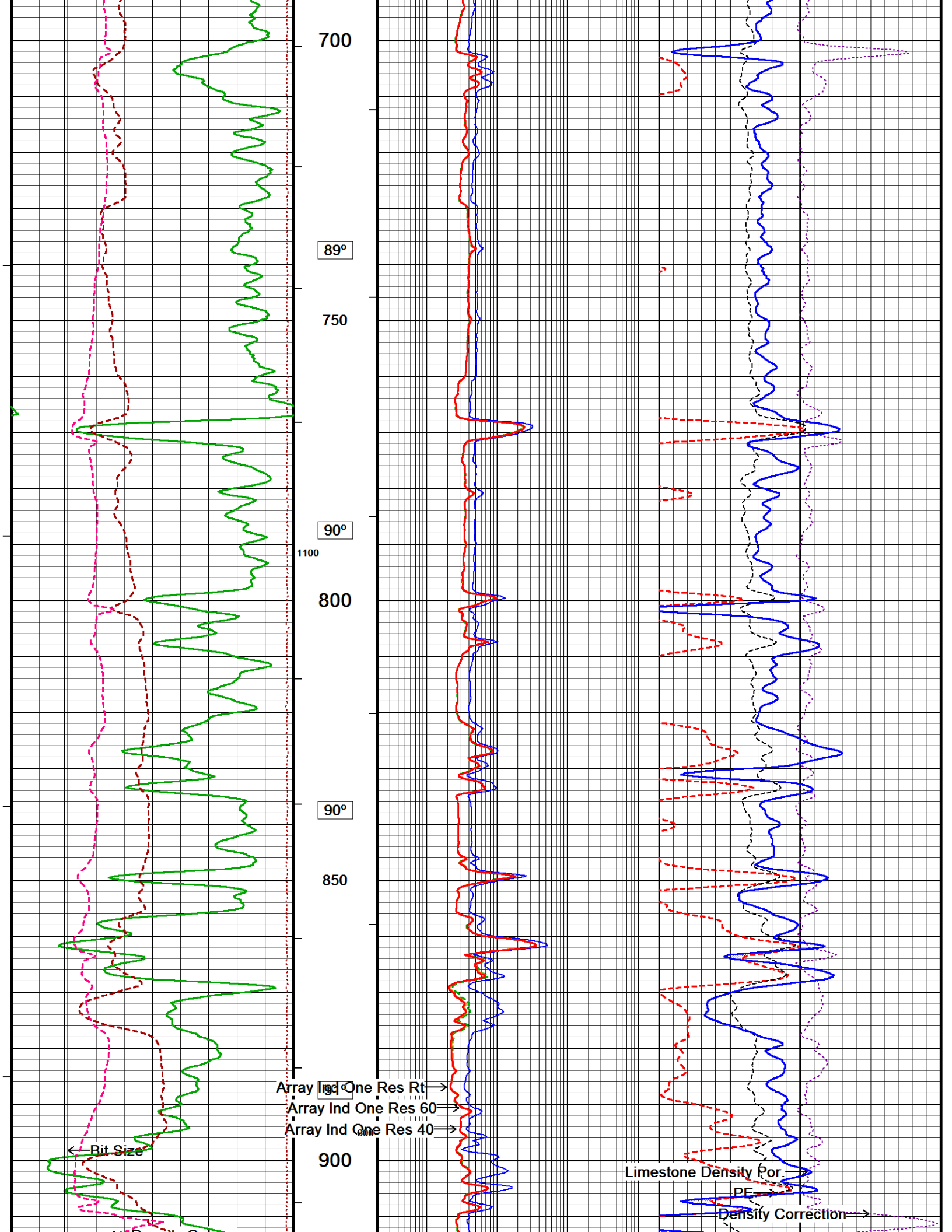
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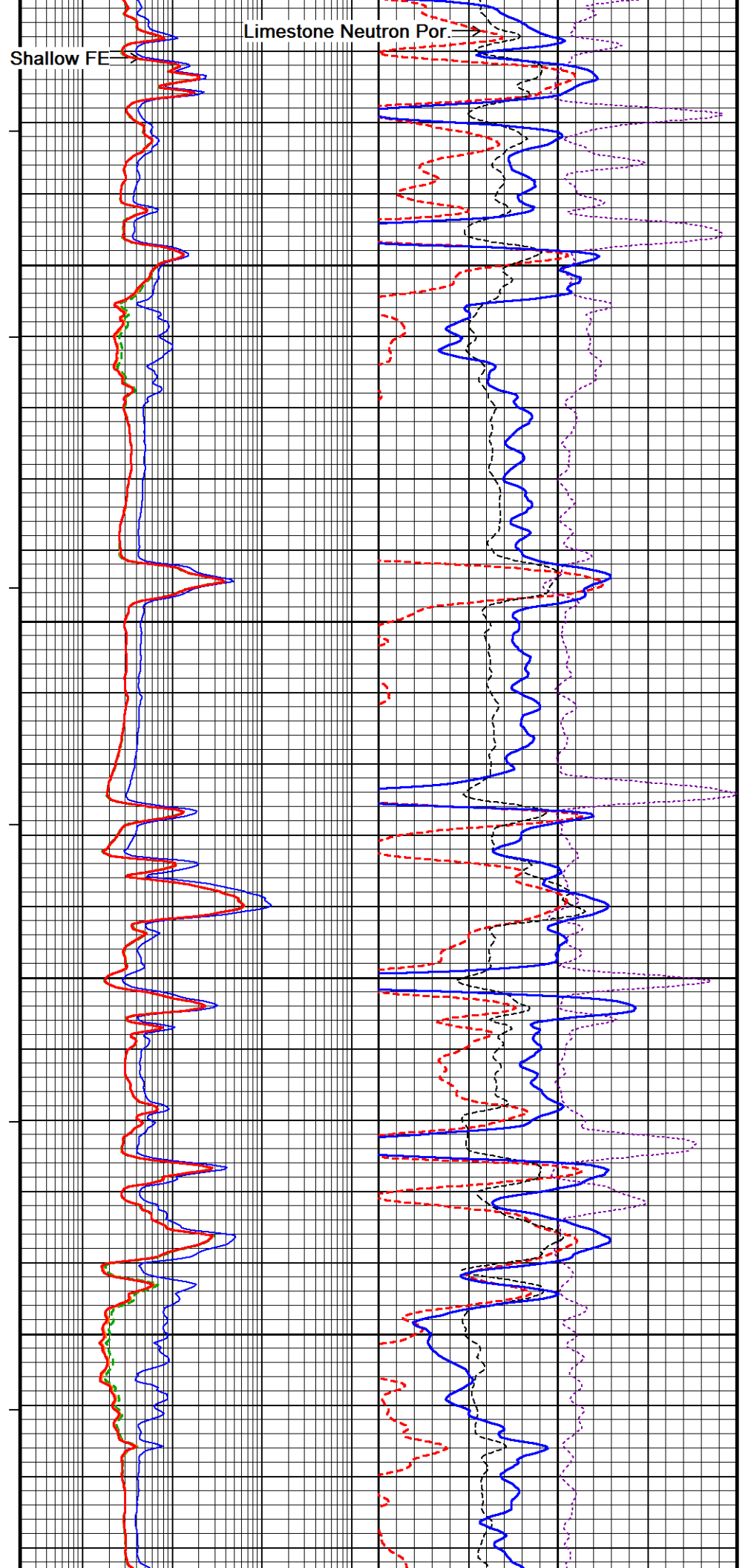
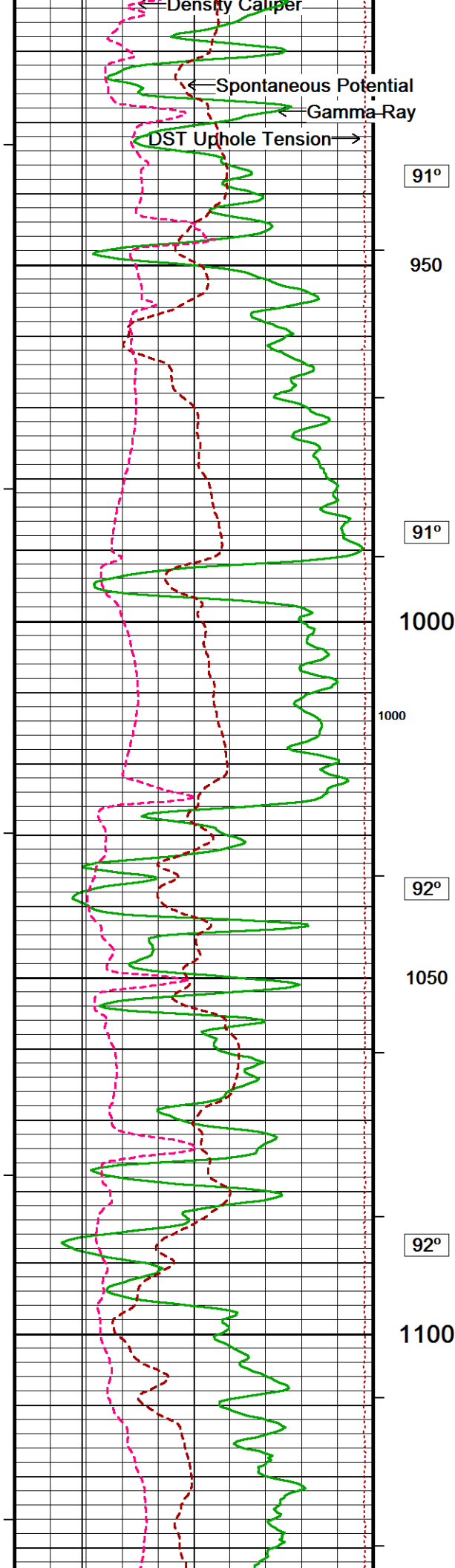
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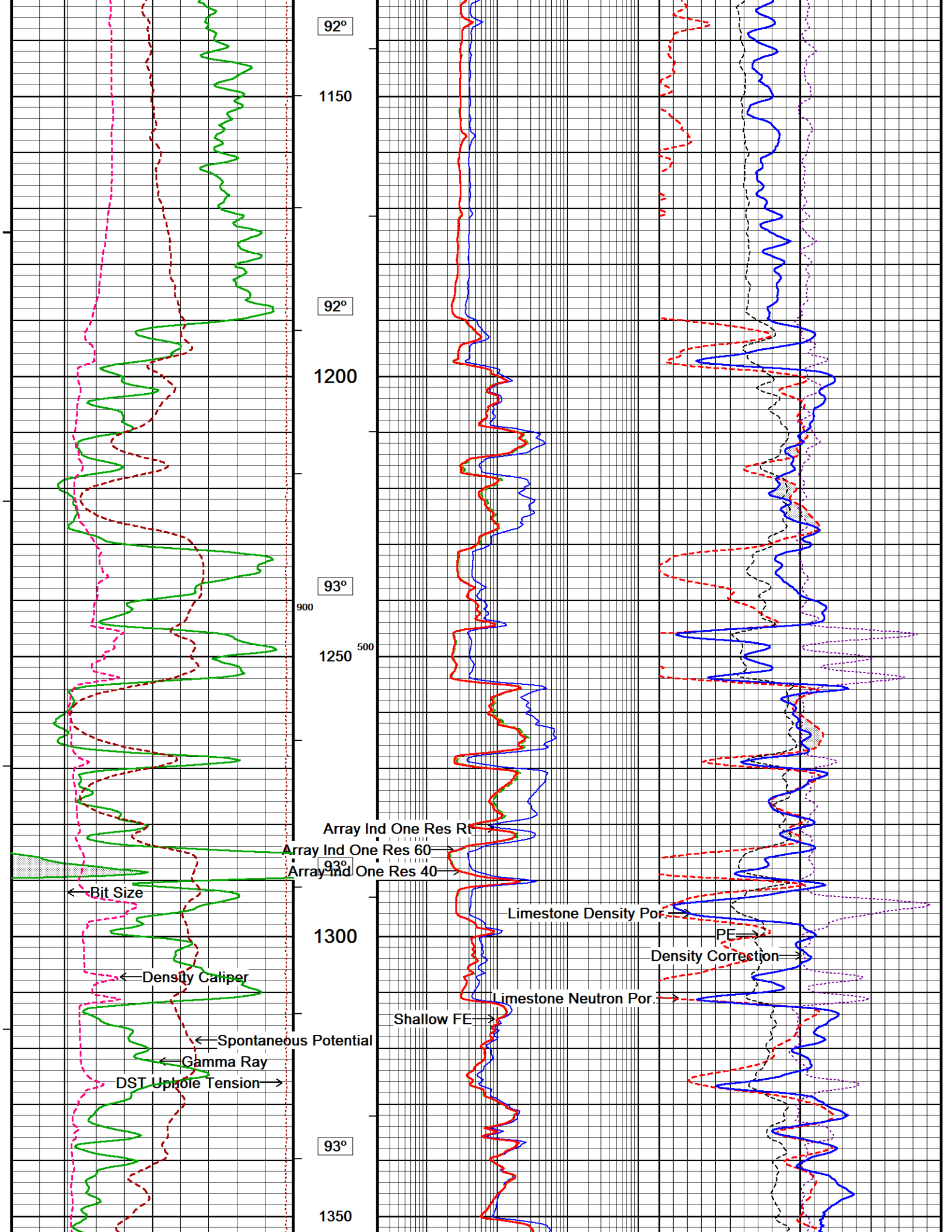
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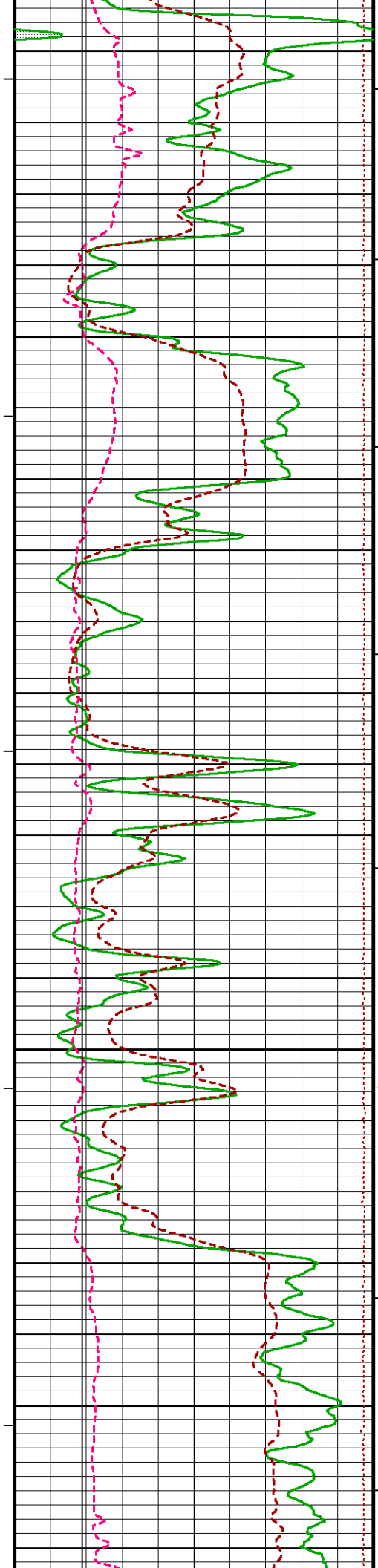












93°

1400

93°

1450

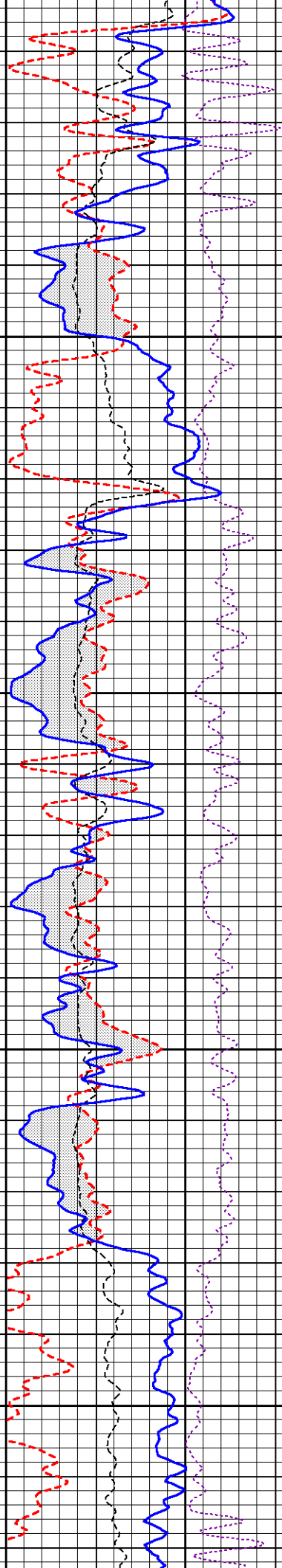
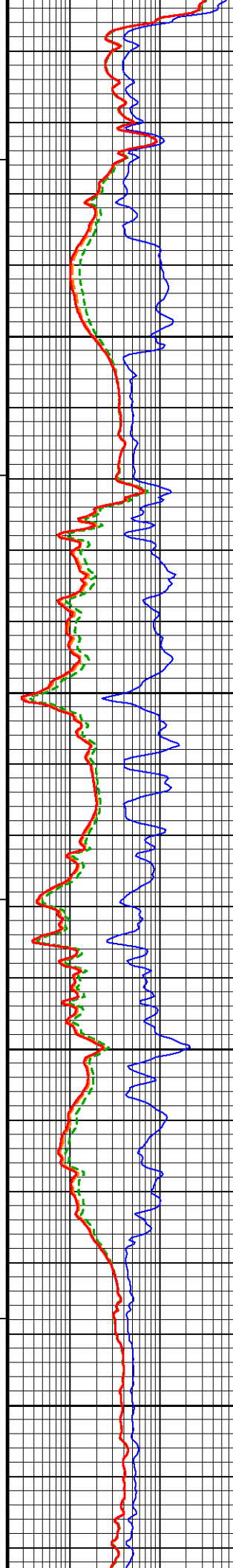
94°

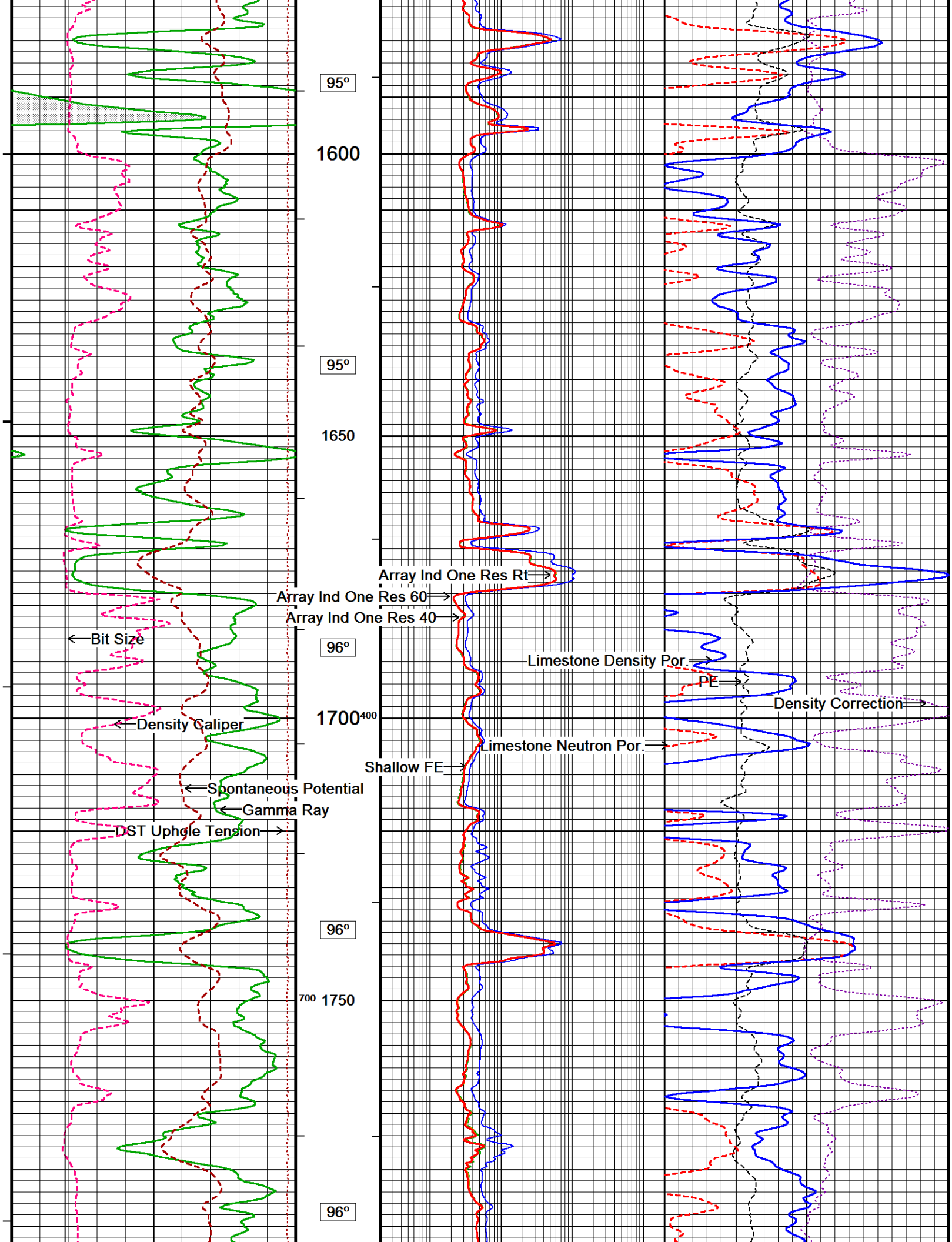
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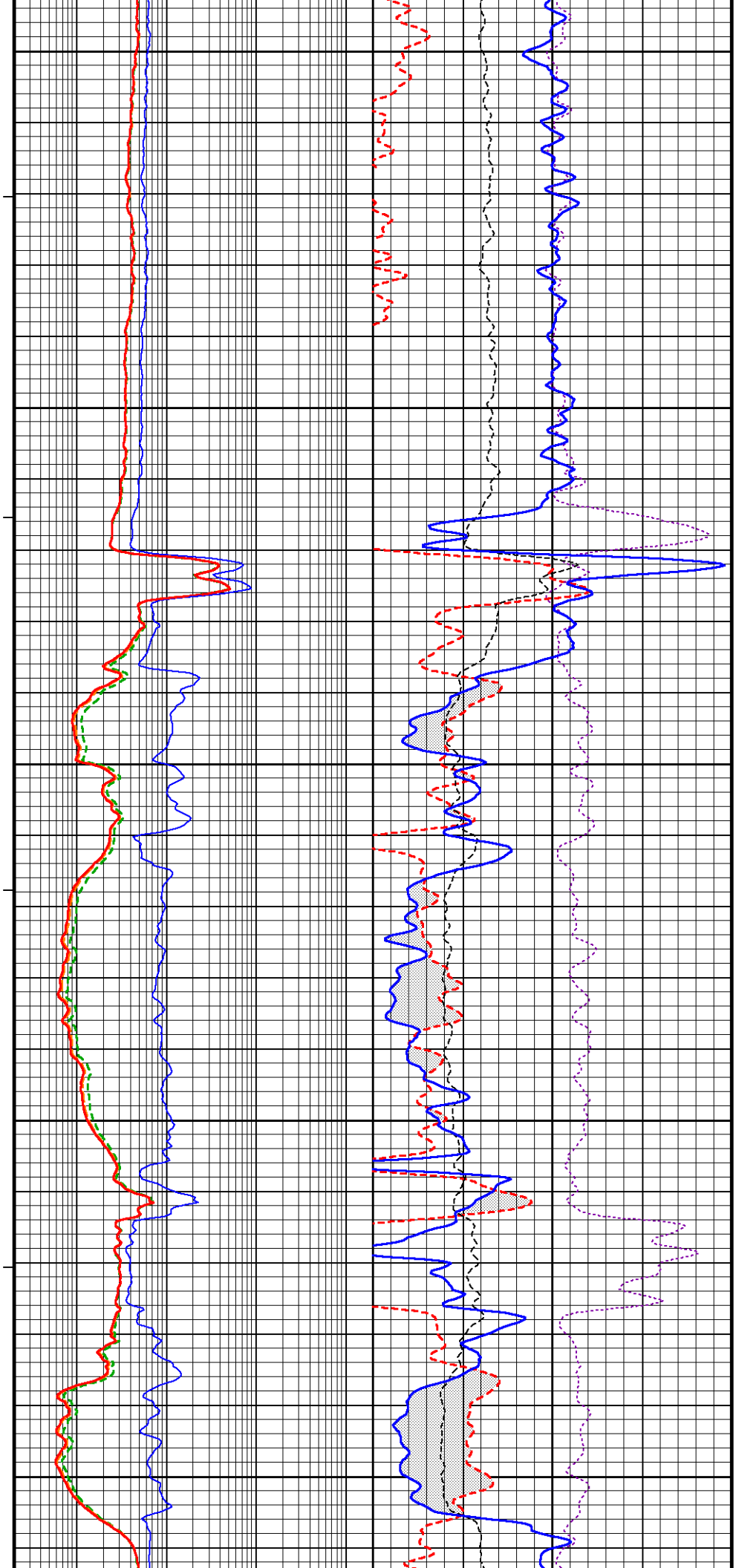
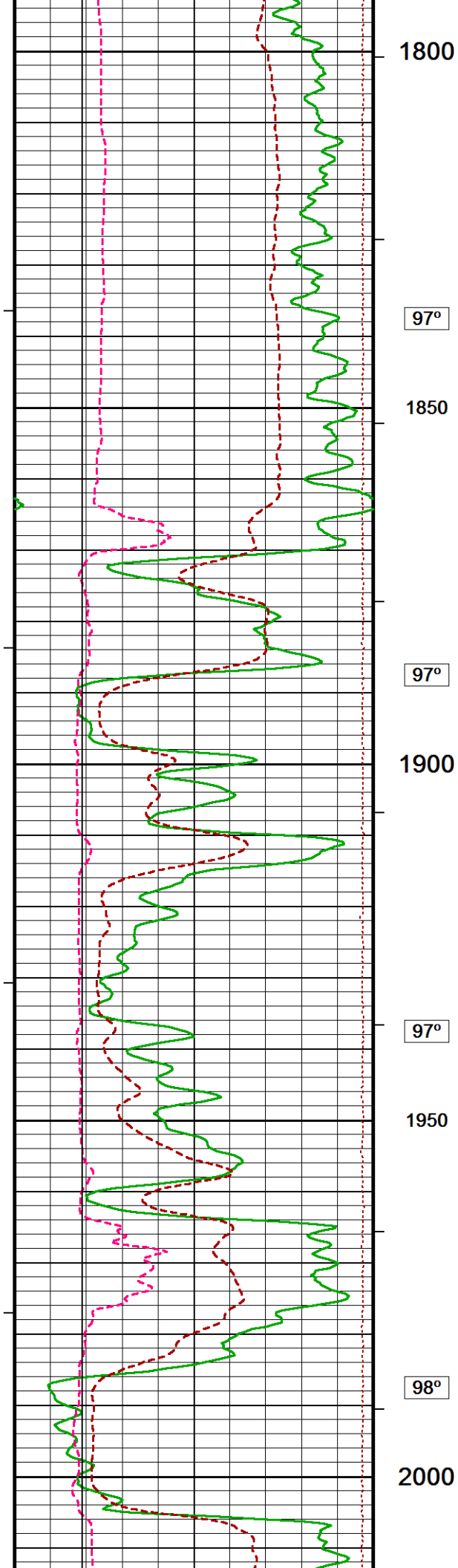
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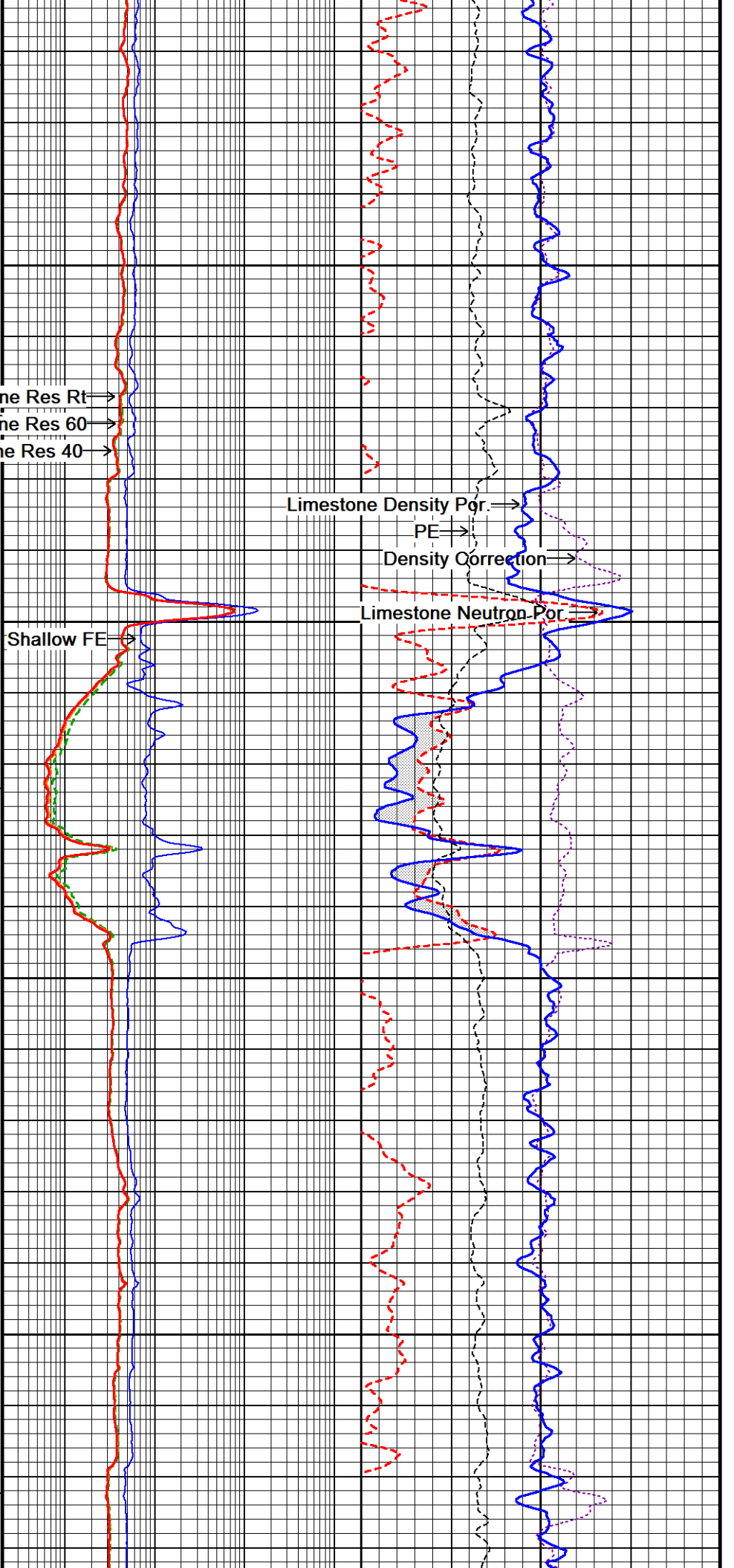
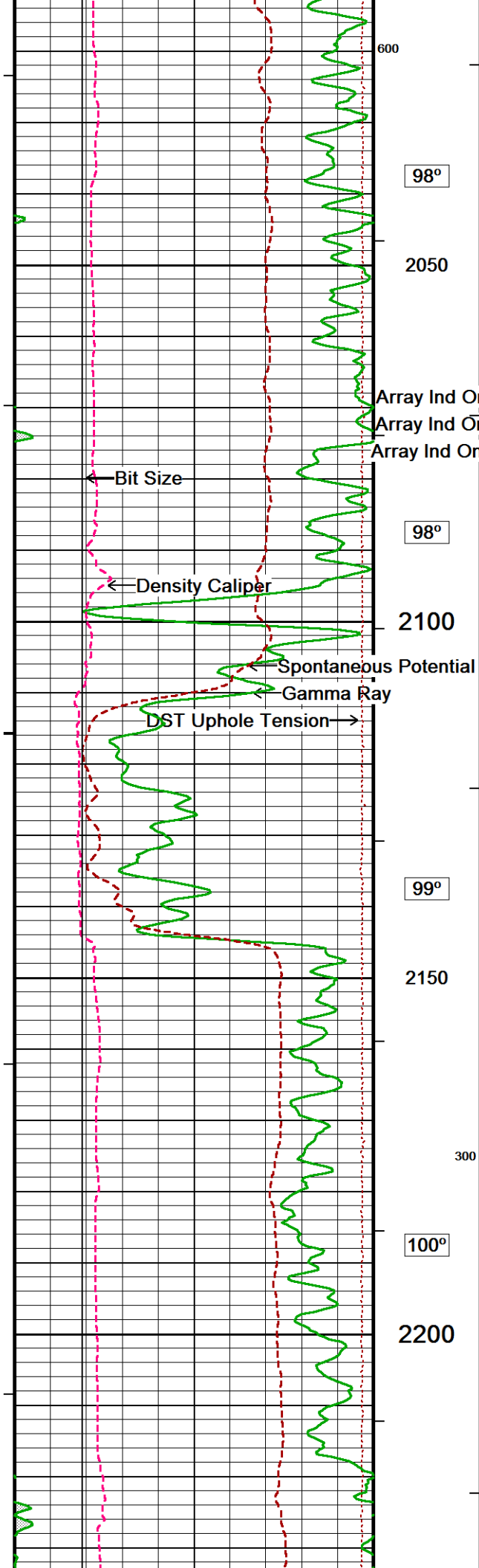
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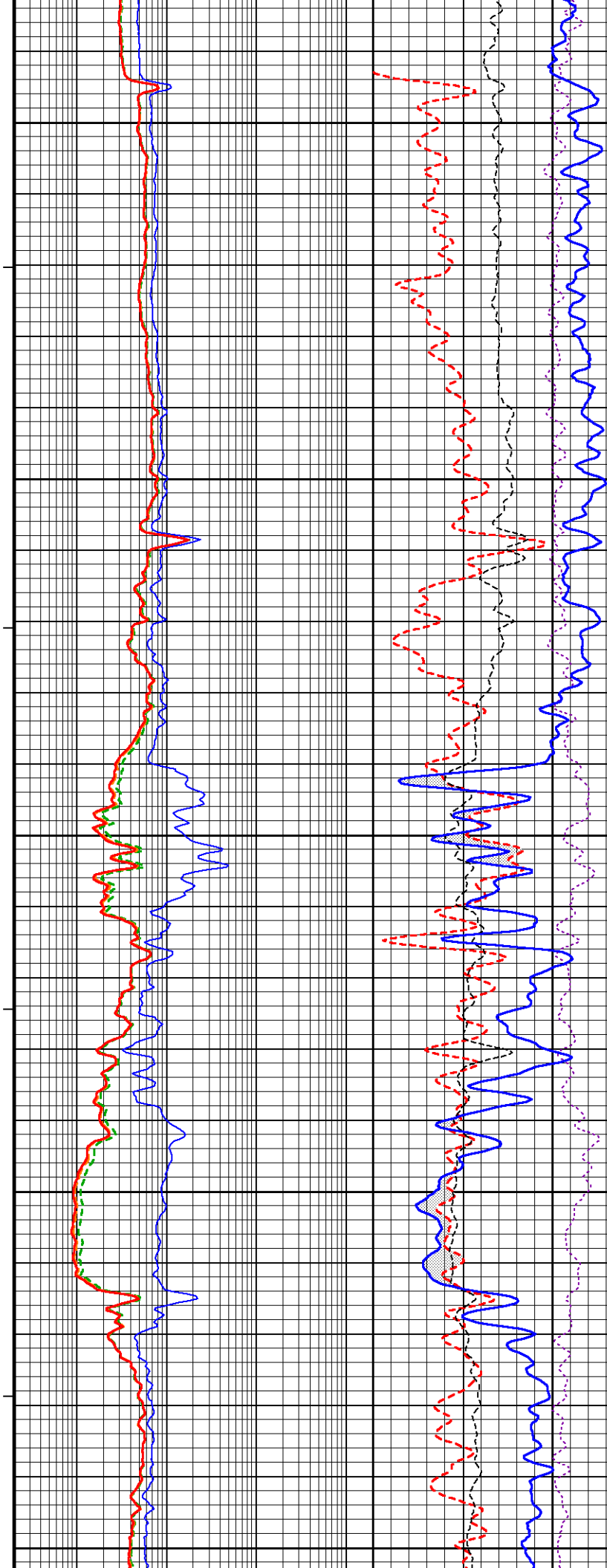
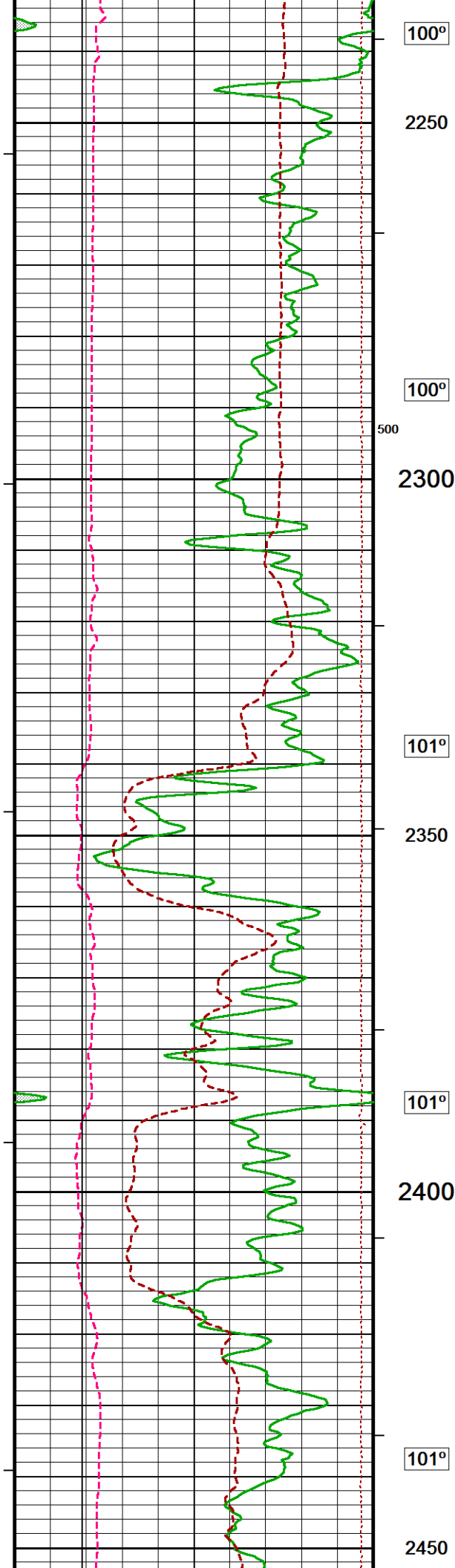
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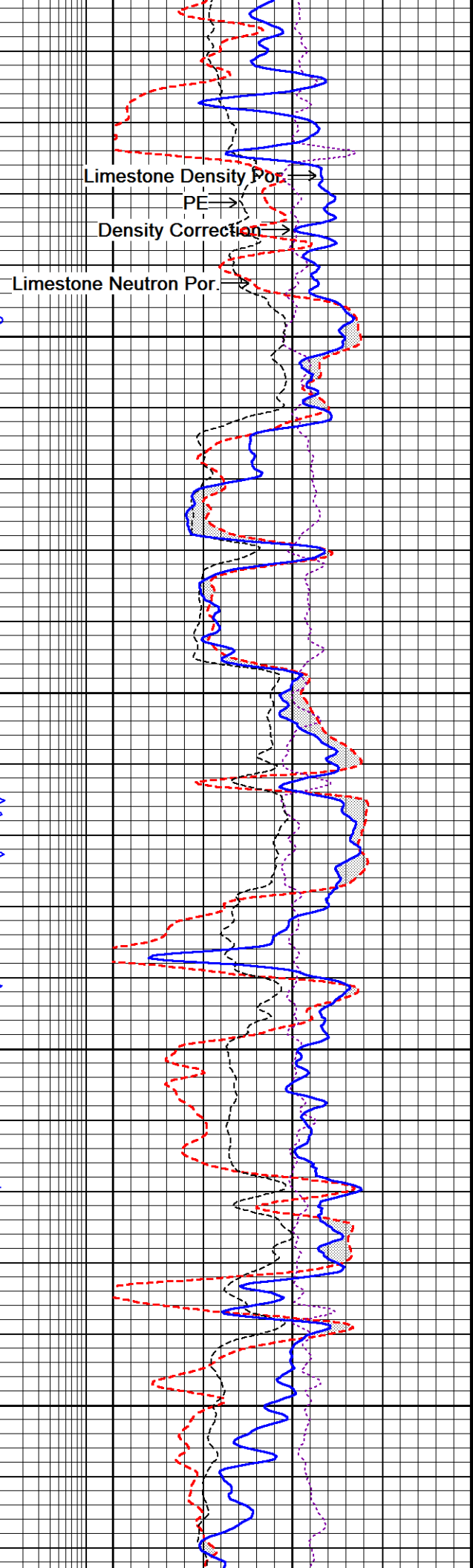
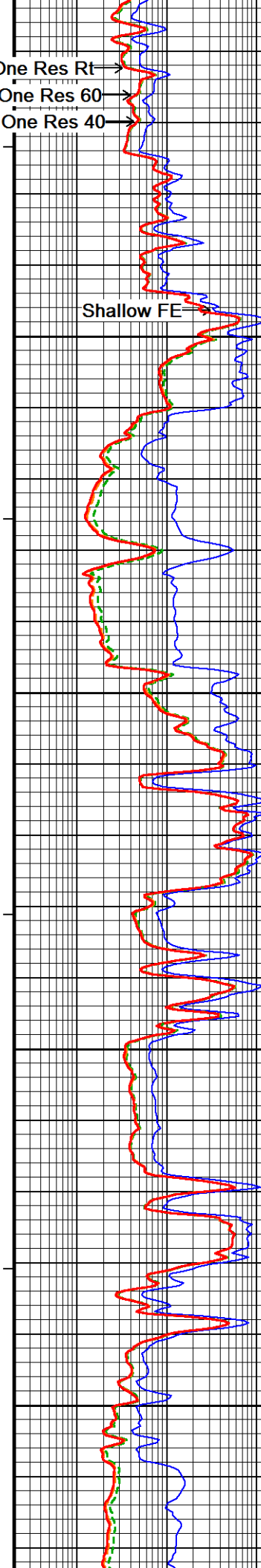
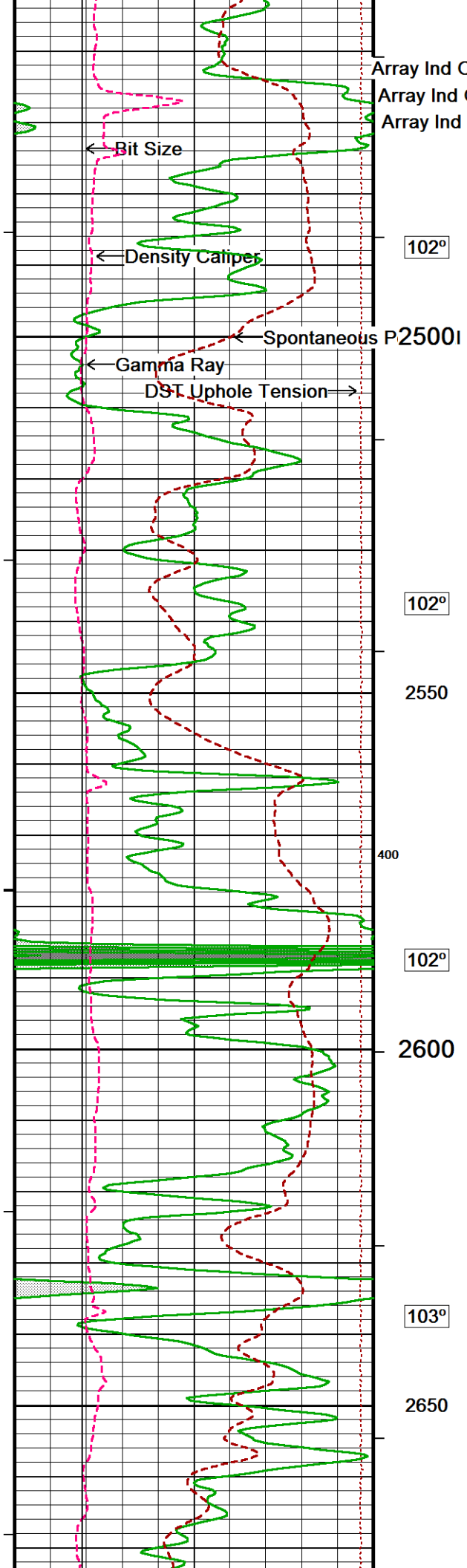


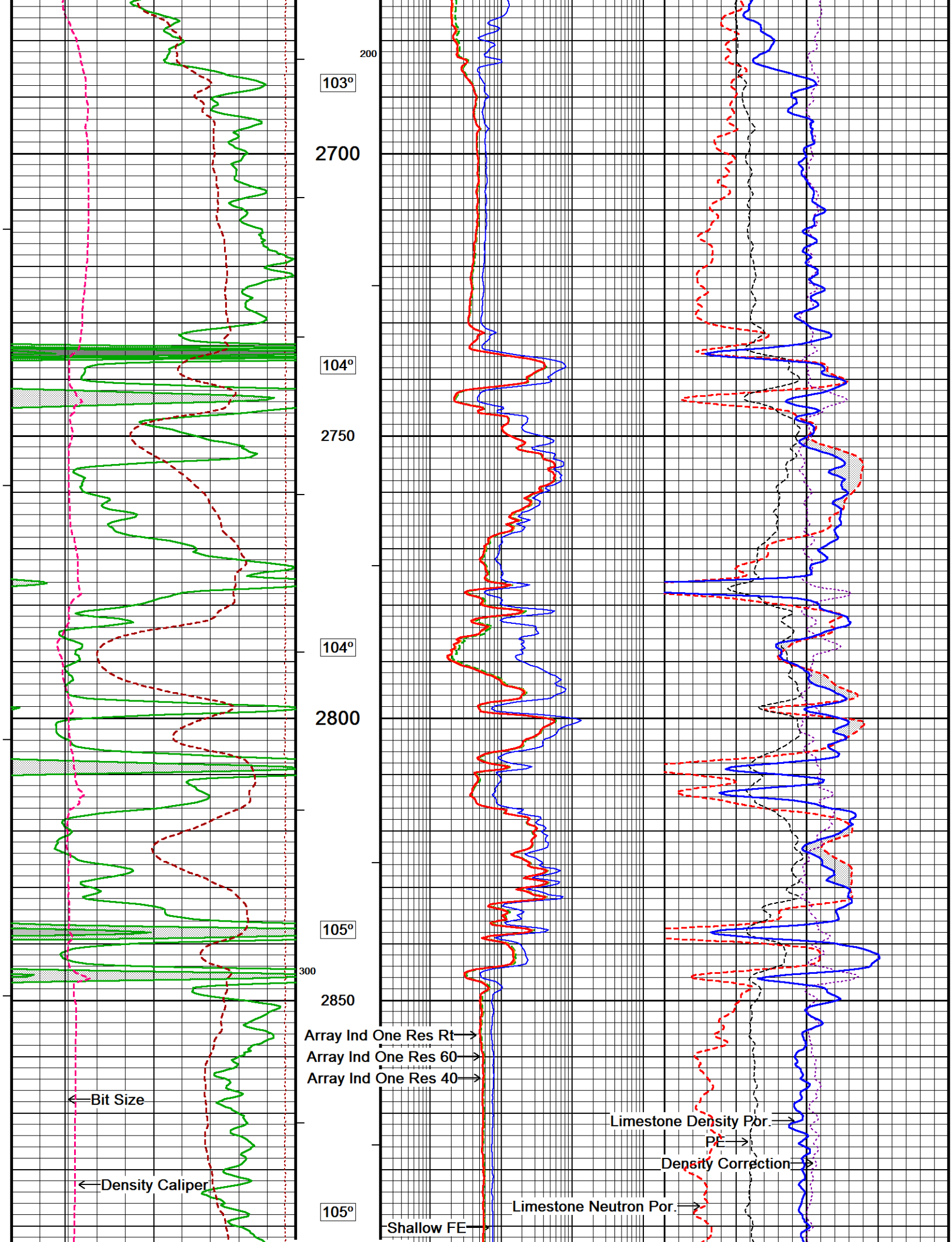


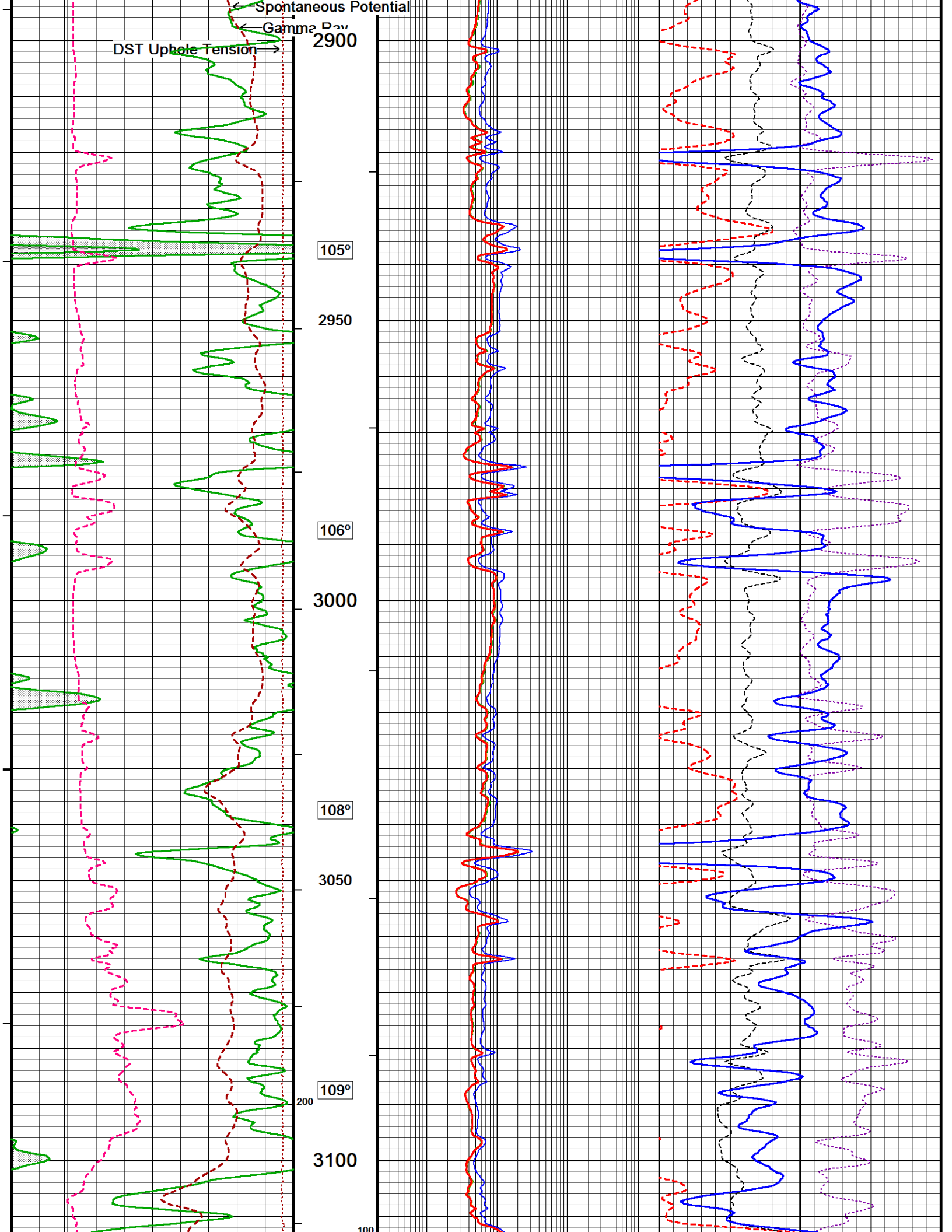


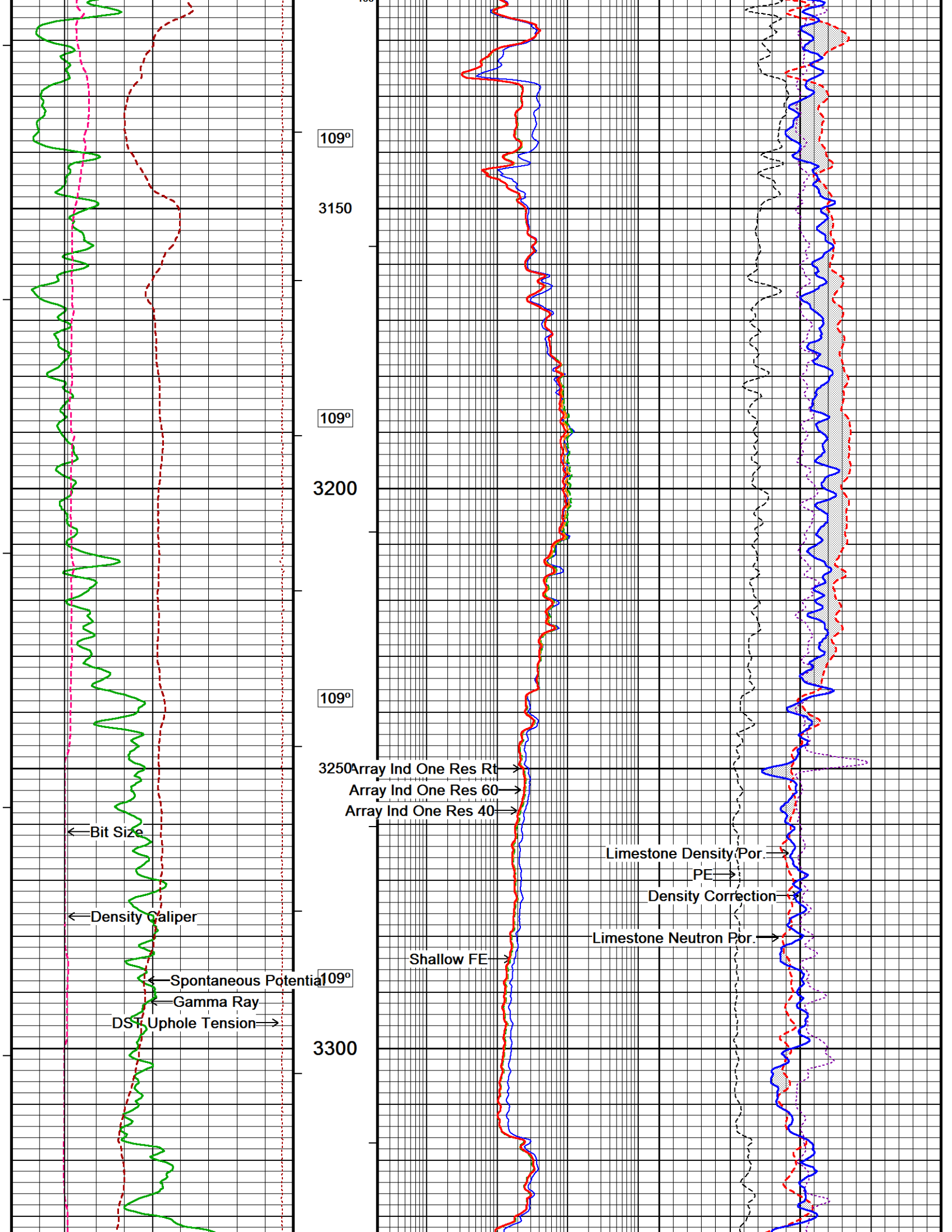


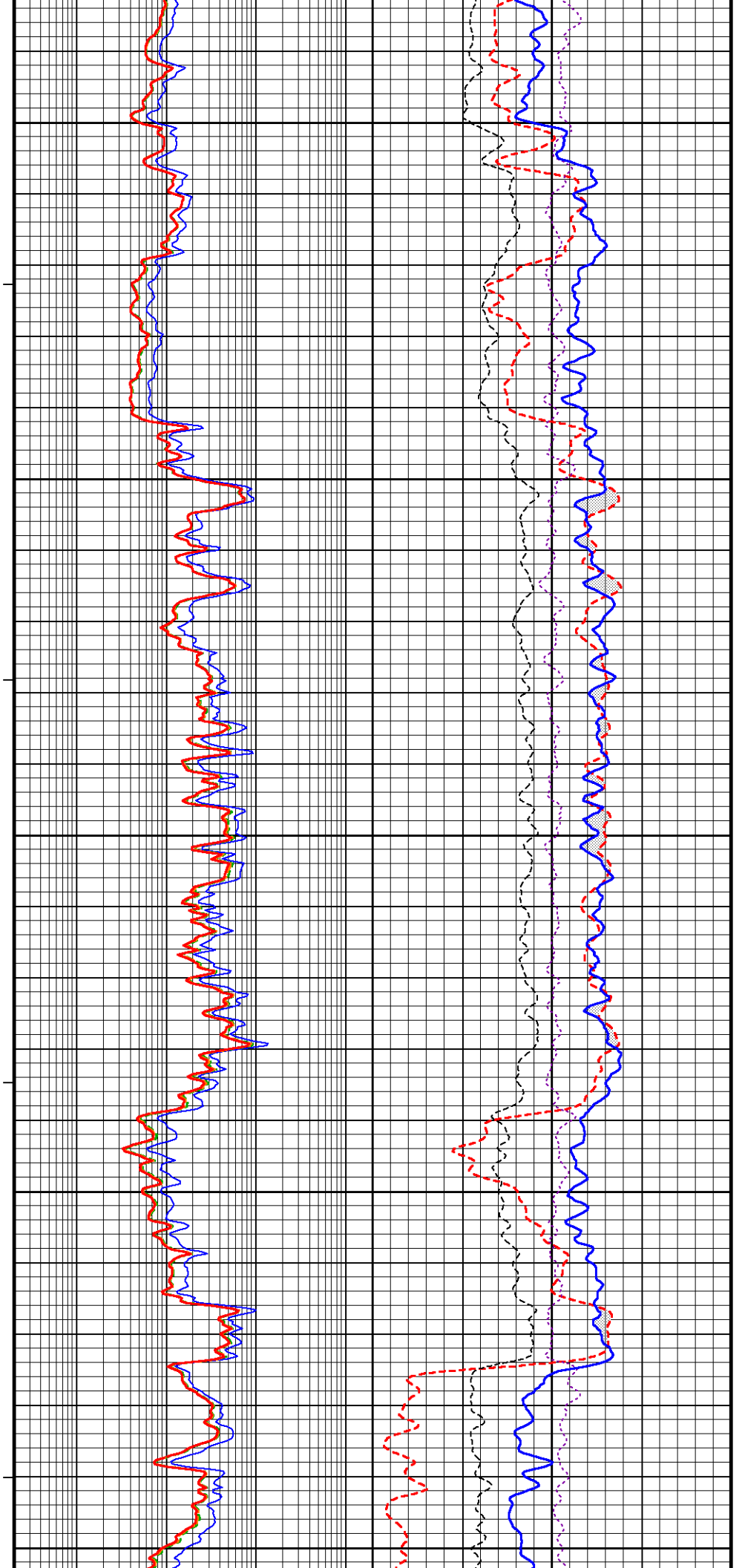
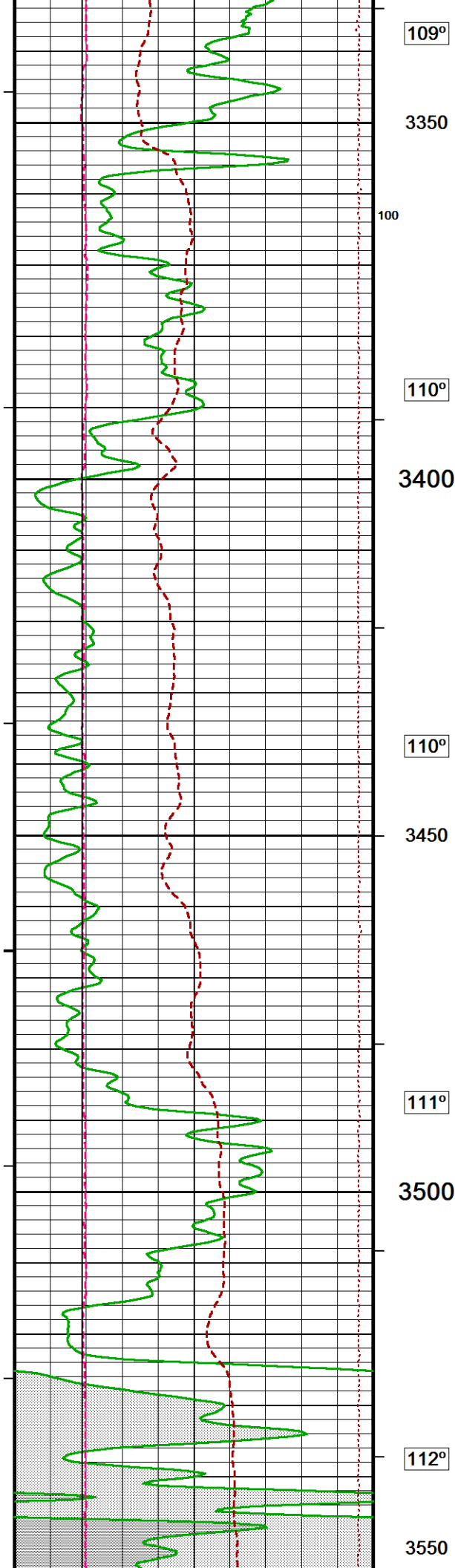


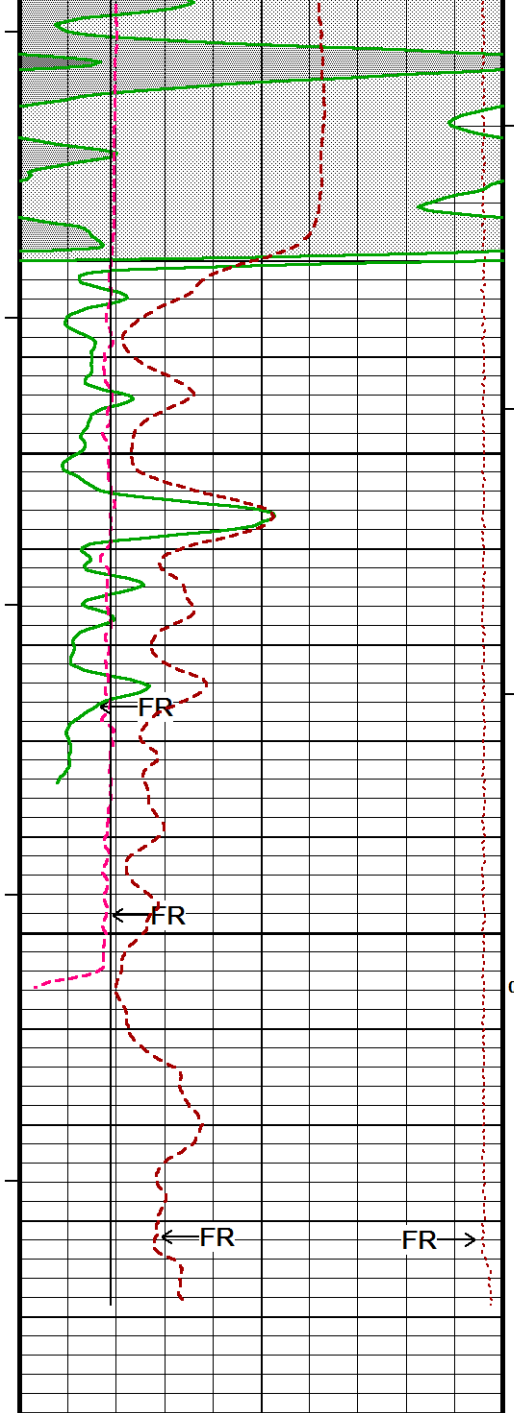












112°

3600

3650

0

3700
Depth
In
Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

75

150

150

225

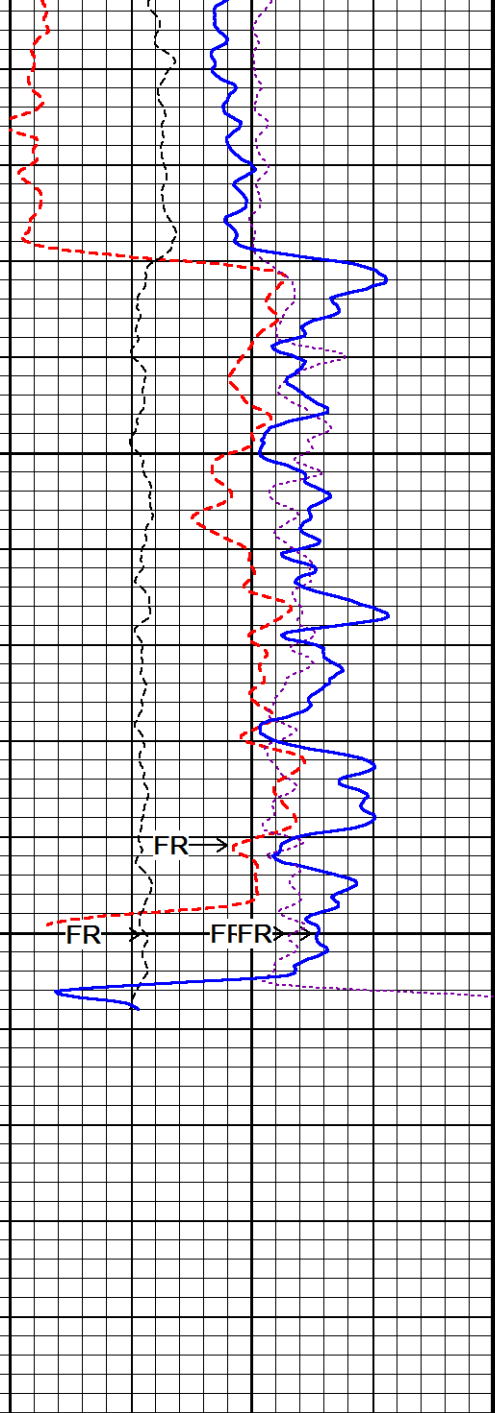
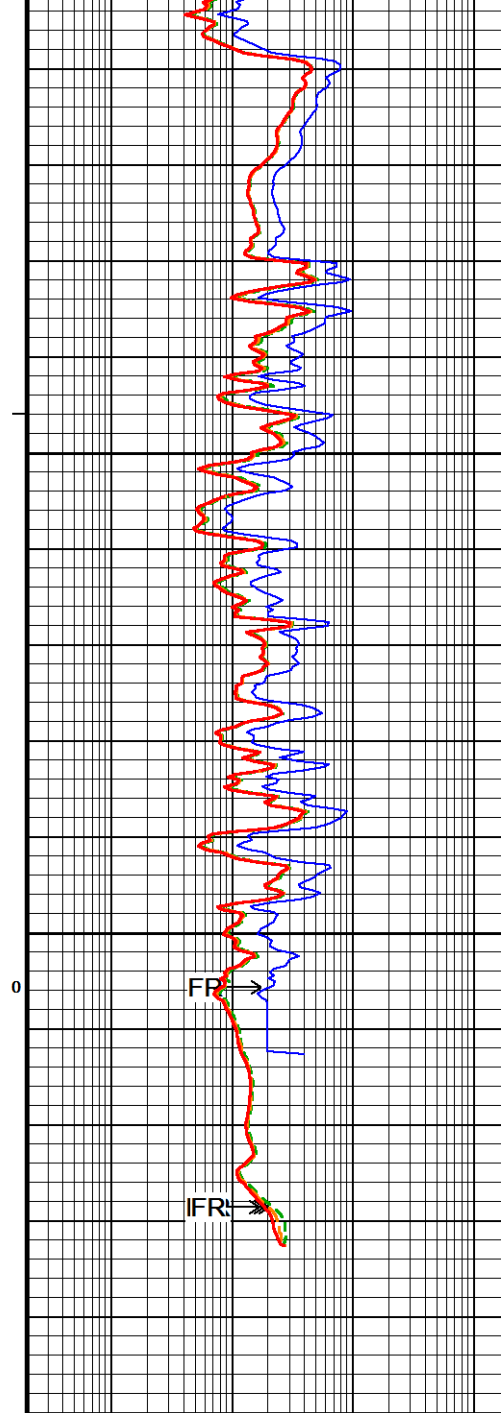
300

Borehole
Temp in
deg F

Spontaneous Potential
millivolts
- -> | 20 | <- +

Density Caliper
inches

HVI
every
10 cu ft



Shallow FE
ohm metres

0.20 1 10 100 1000 2000

Limestone Neutron Por.
percent

30 10 -10

Array Ind One Res 40
ohm metres

0.20 1 10 100 1000 2000

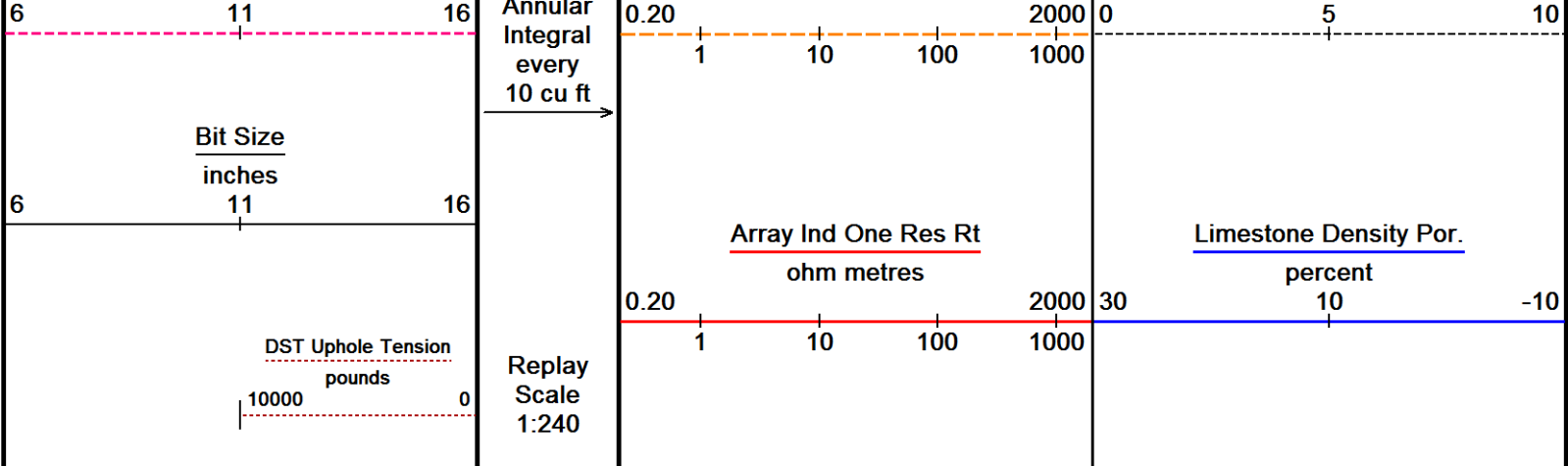
Density Correction
grams/cc

-0.25 0 0.25

Array Ind One Res 60
ohm metres

PE

barns/electron



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 29-OCT-2012 08:32

Filename: C:\Users\E164620\AppData\Local\Temp\Weatherford PreView\3\data_001.dta

Recorded on 29-OCT-2012 01:53

System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.03.6602

5 INCH POROSITY LOG DSC

5 INCH REPEAT

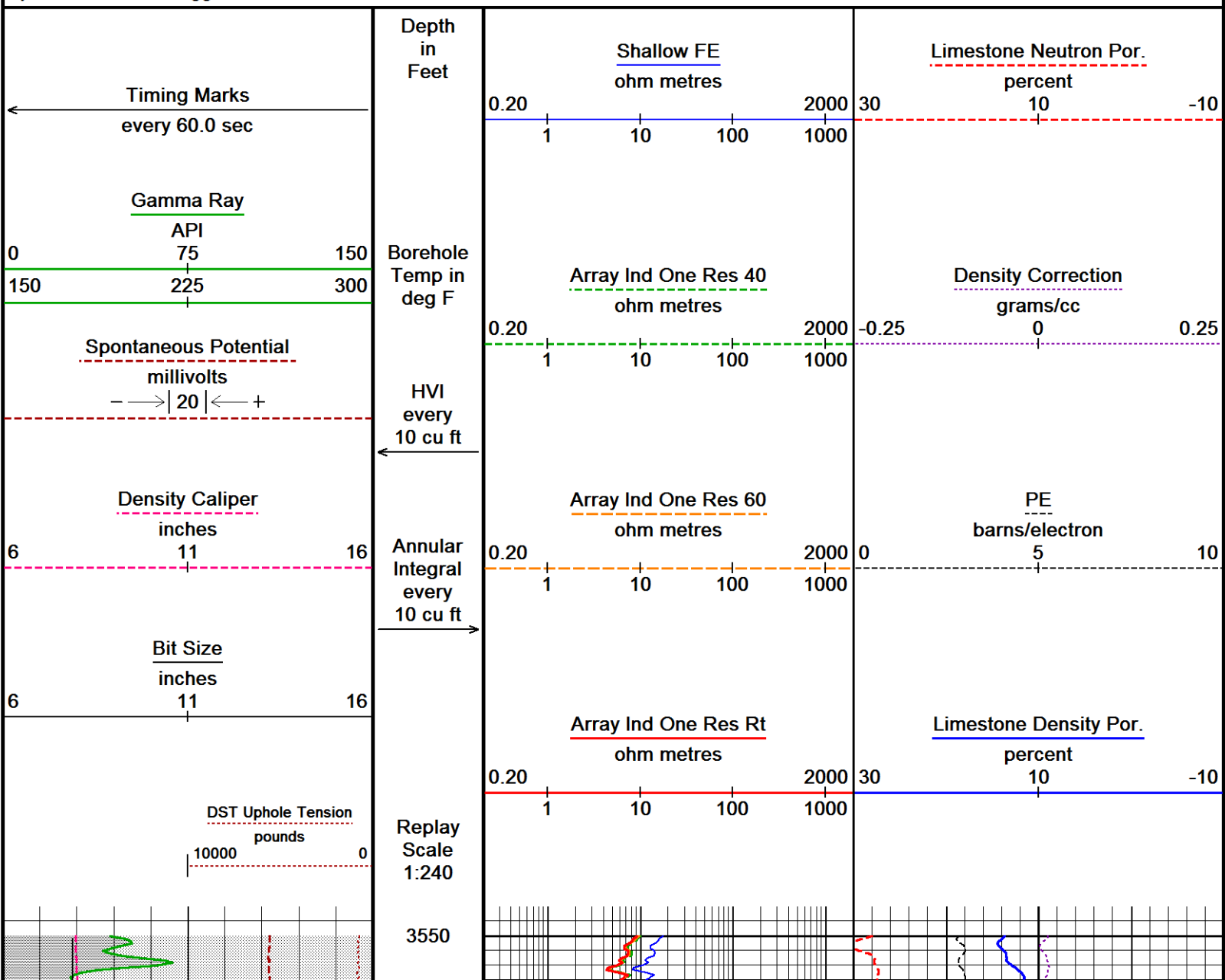
Depth Based Data - Maximum Sampling Increment 10.0cm

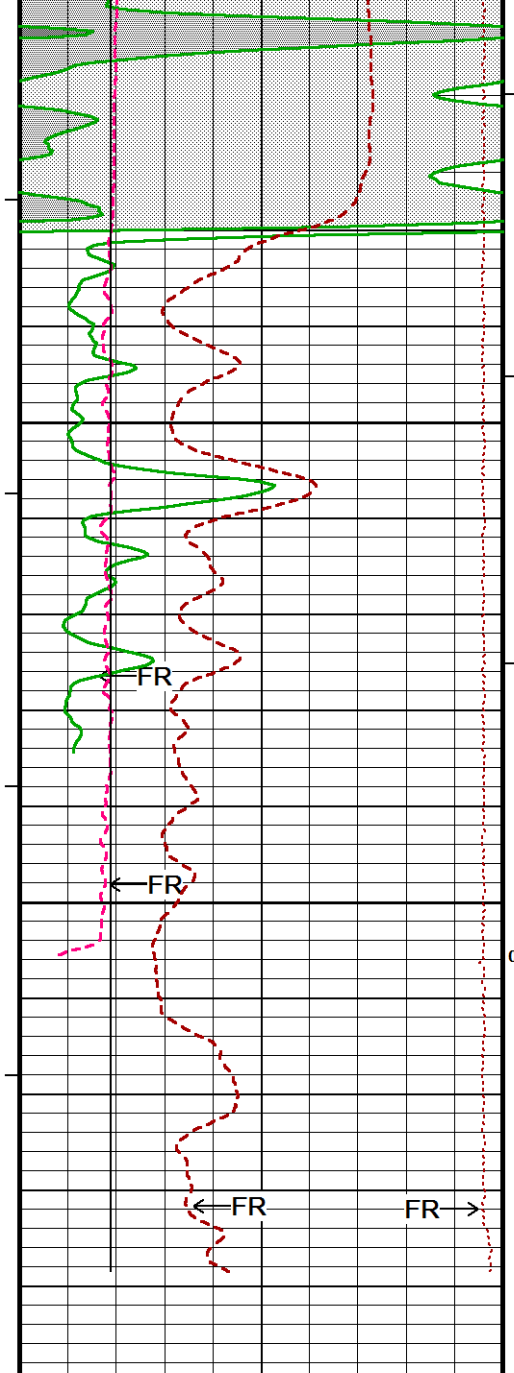
Plotted on 29-OCT-2012 08:32

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Recorded on 29-OCT-2012 01:39

System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.03.6602





111°

3600

3650

3698

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

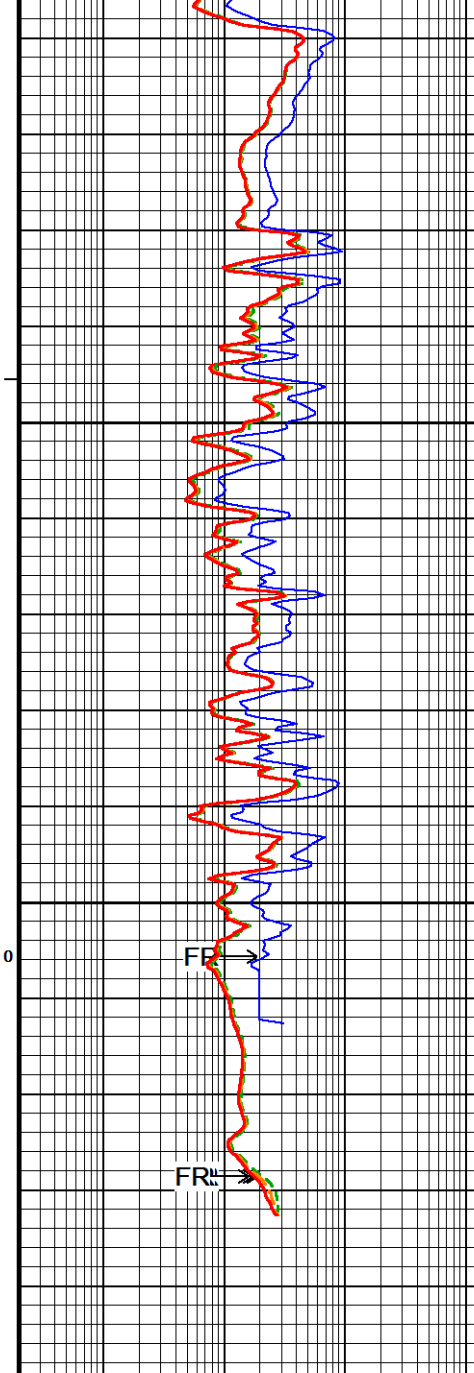
Spontaneous Potential
millivolts
- - - - - 20 - - - - - +

Density Caliper
inches
6 11 16

Borehole
Temp in
deg F

HVI
every
10 cu ft

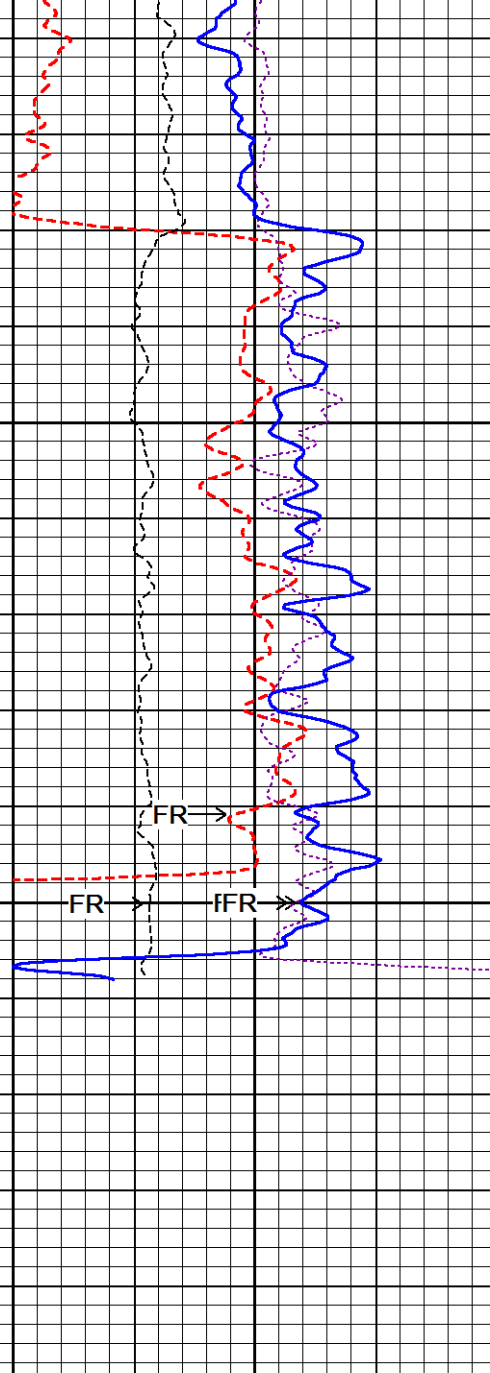
Annular
Integral



Shallow FE
ohm metres

Array Ind One Res 40
ohm metres

Array Ind One Res 60
ohm metres



Limestone Neutron Por.
percent

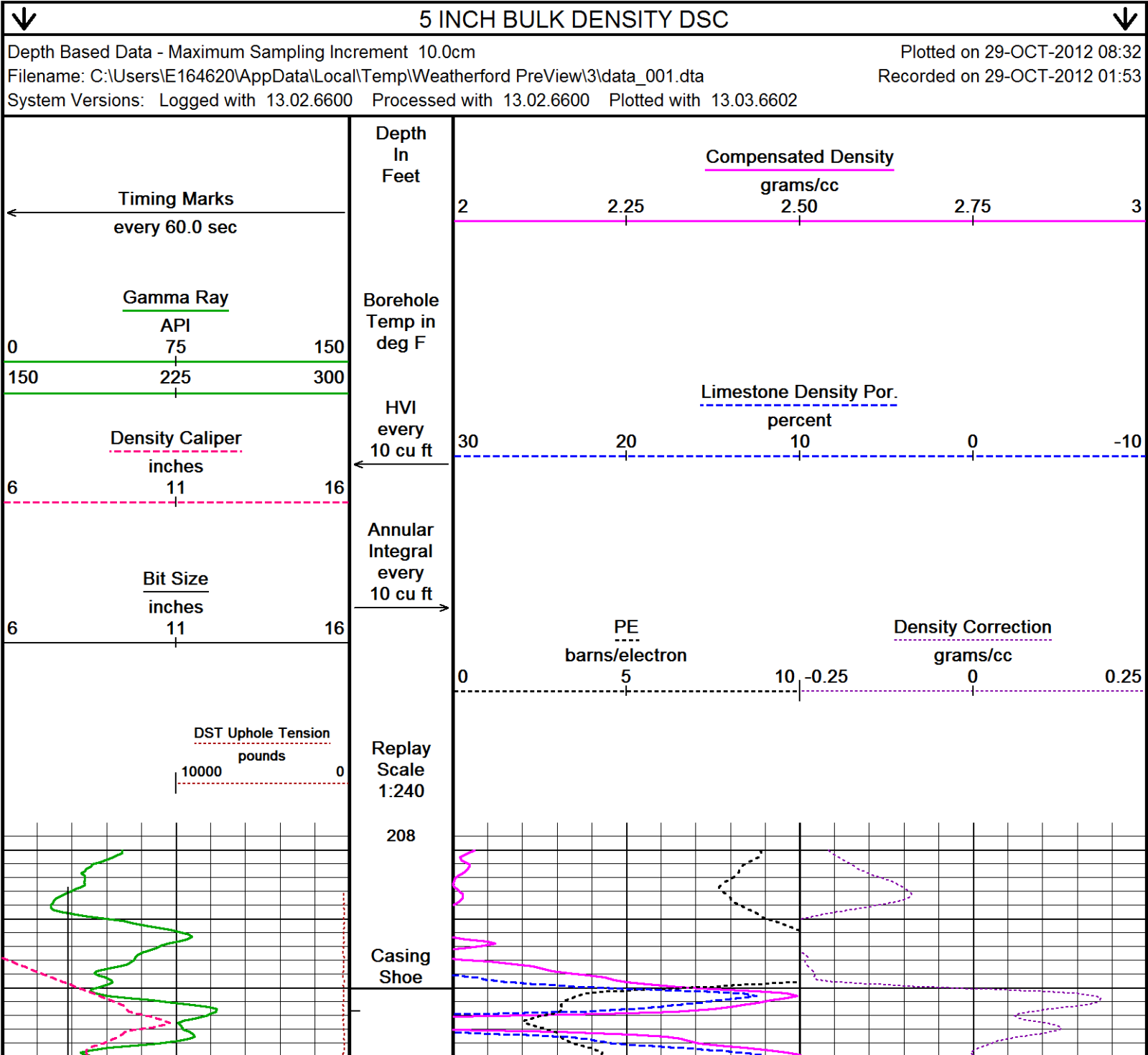
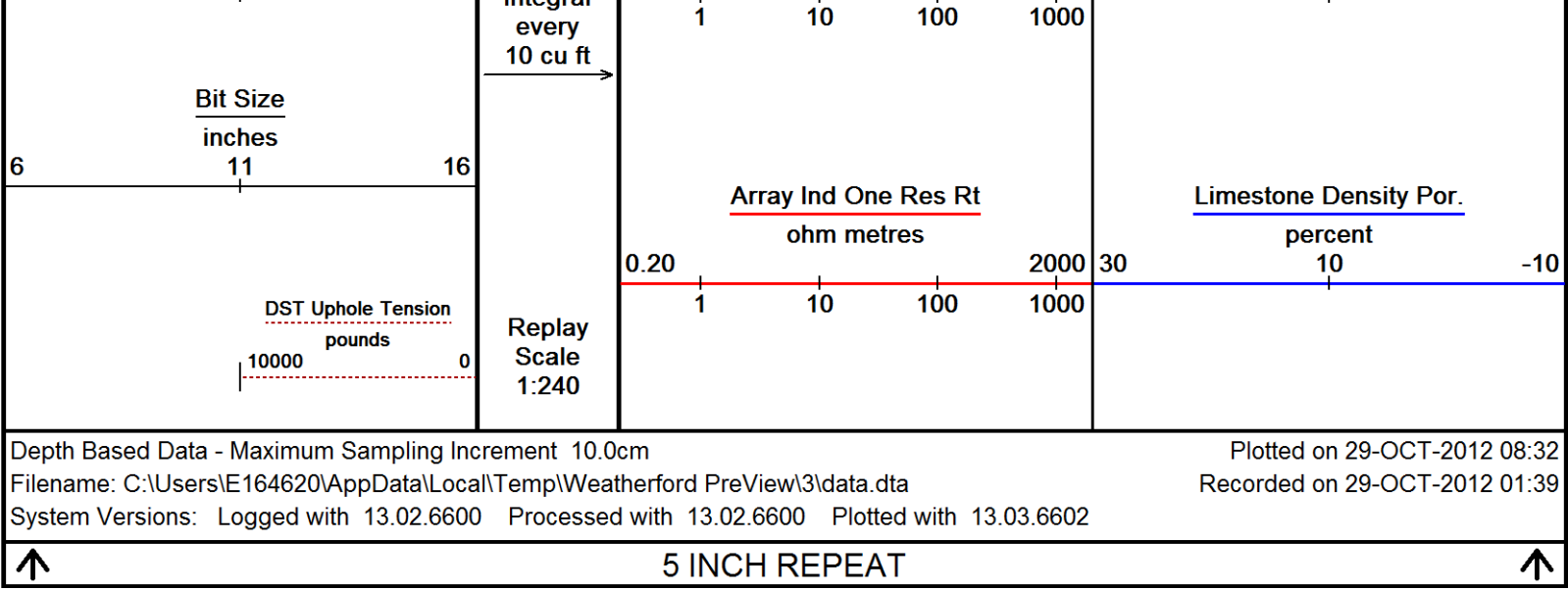
Density Correction
grams/cc

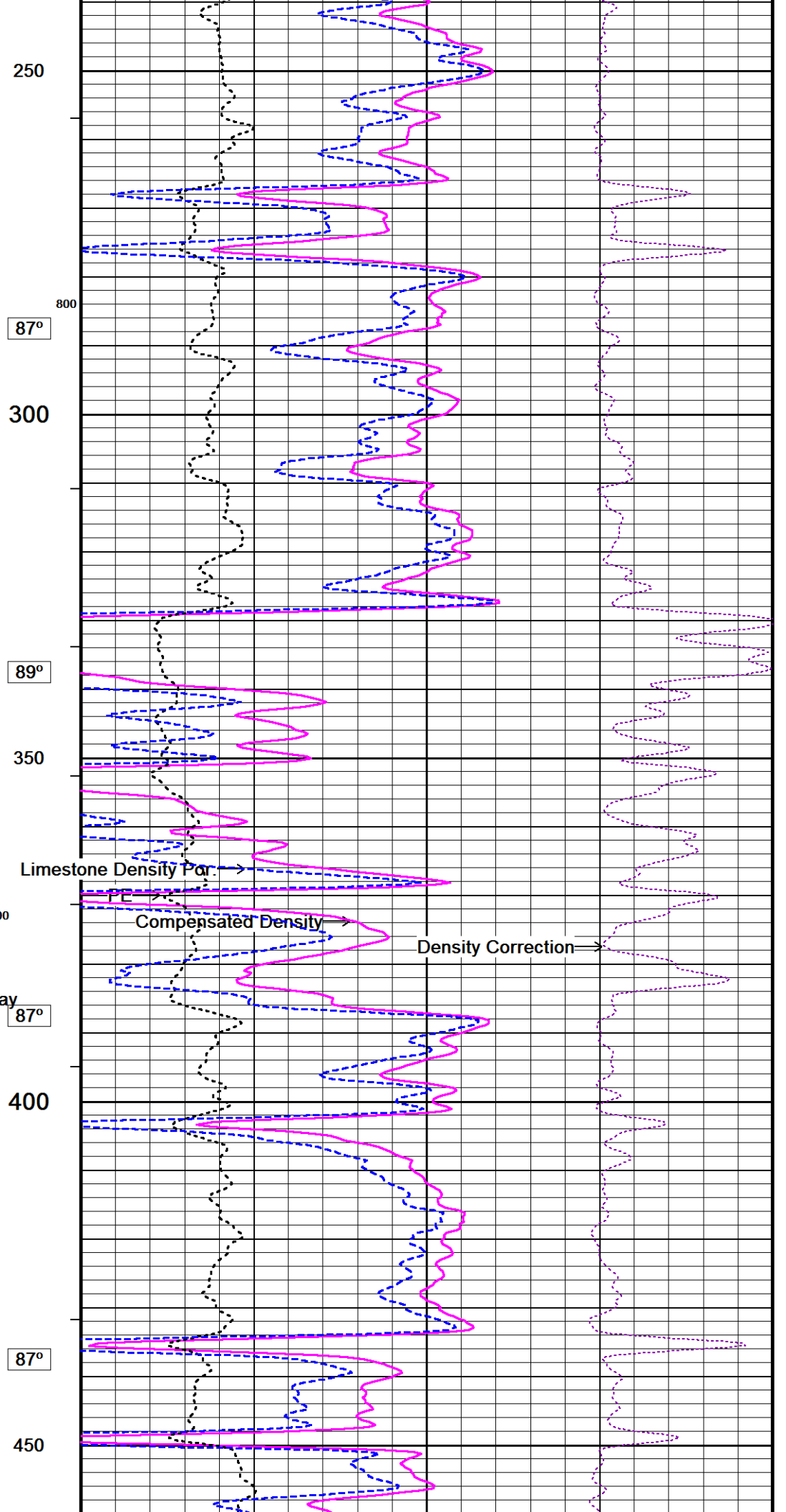
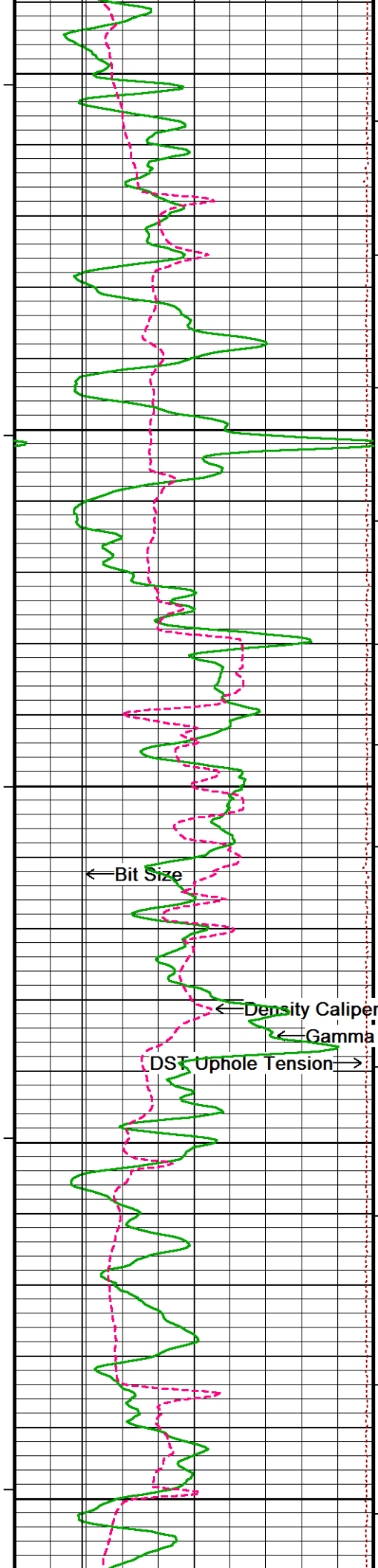
PE
barns/electron

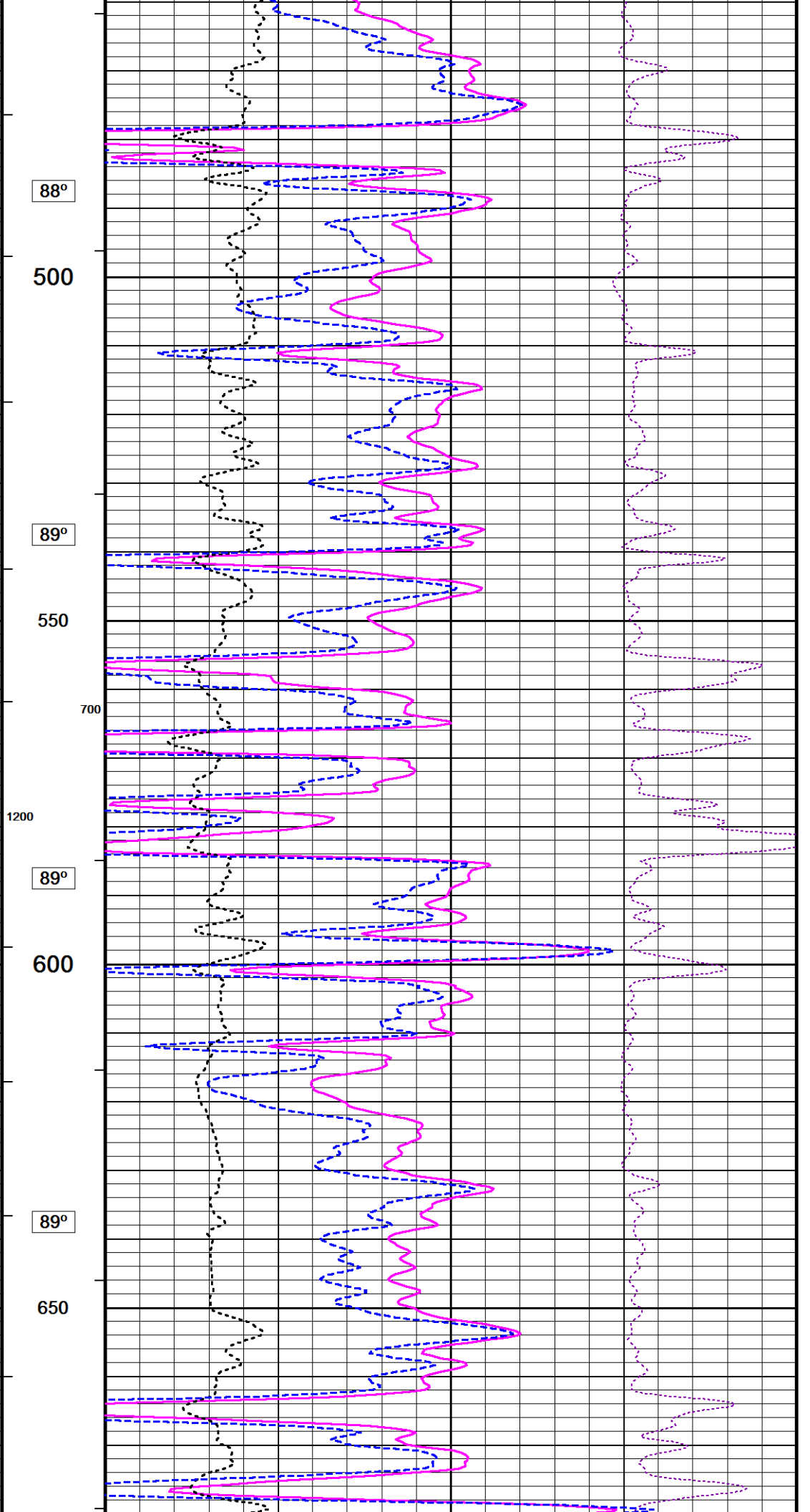
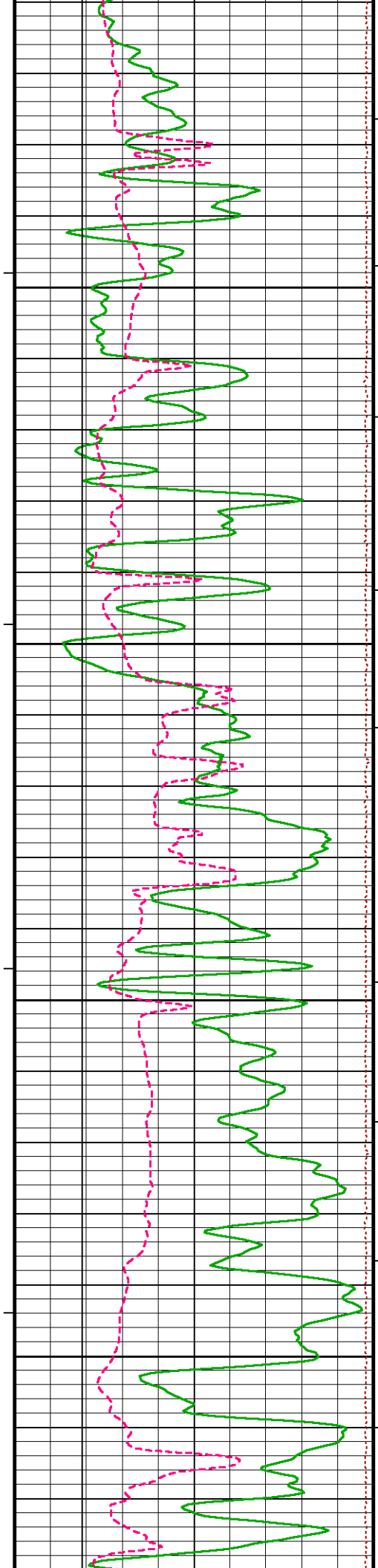
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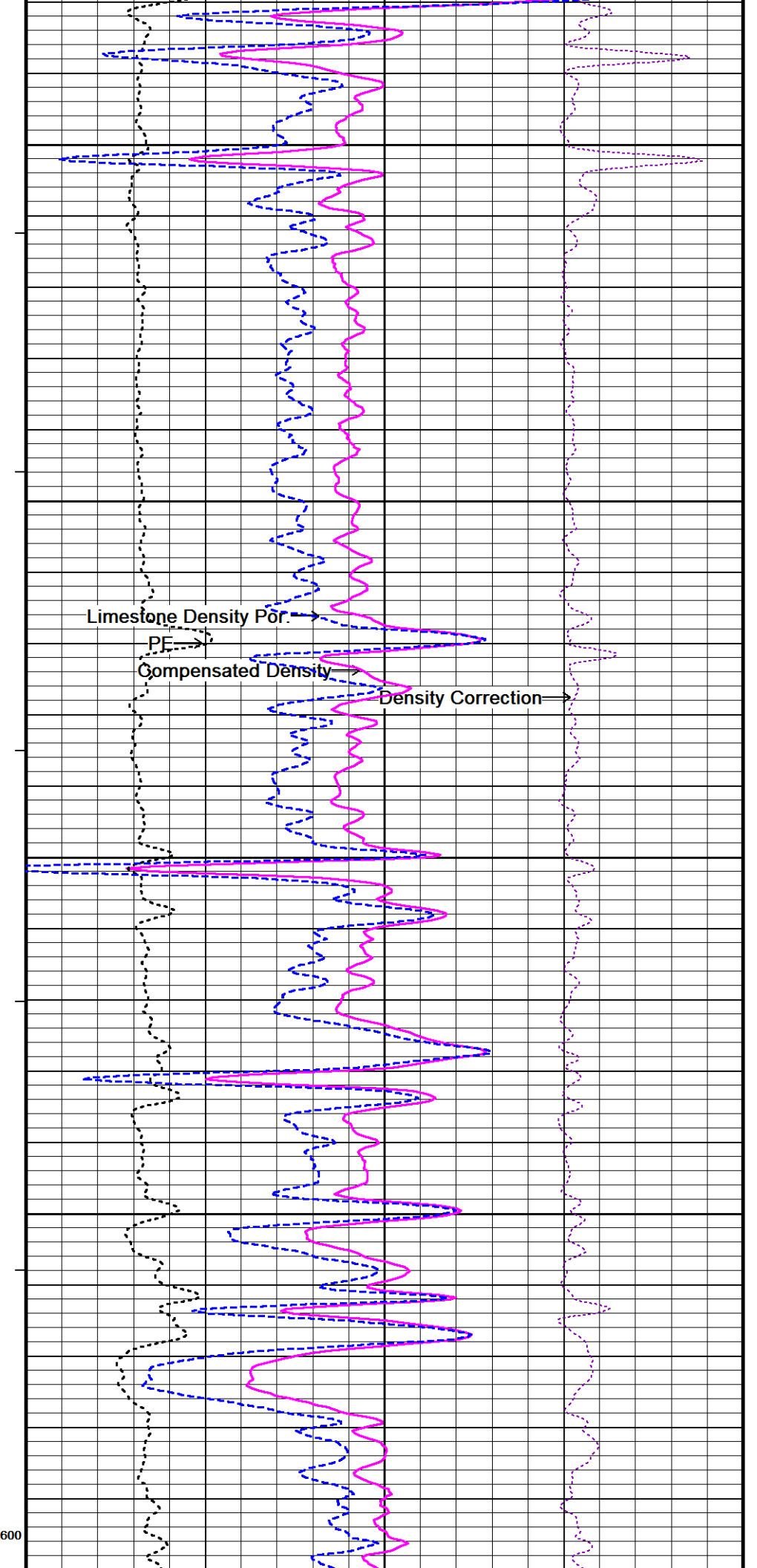
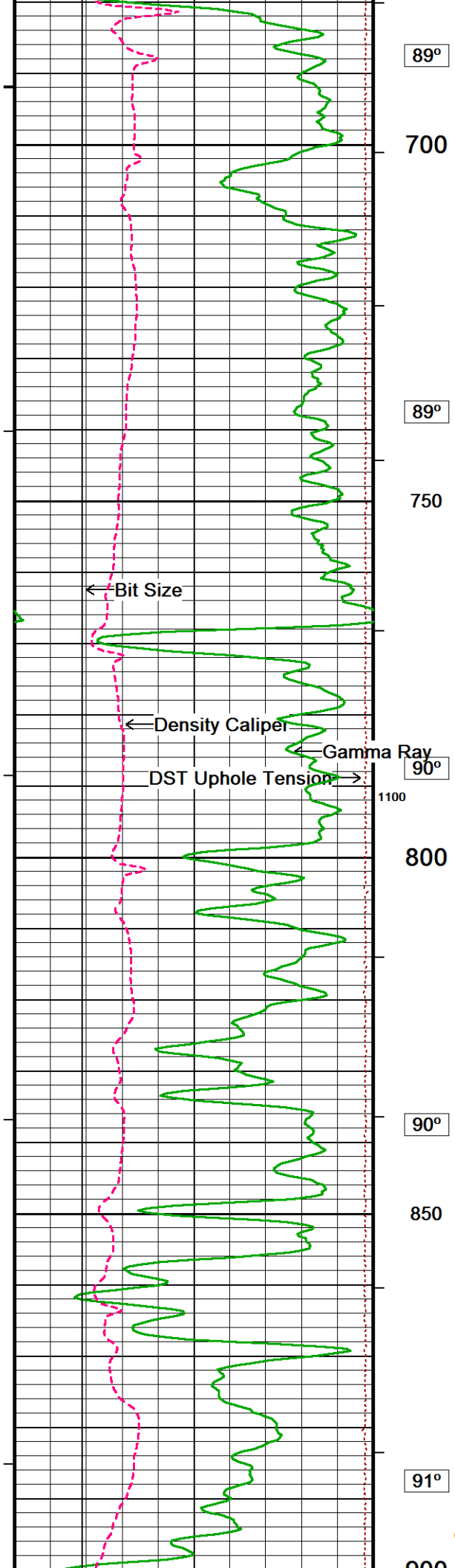
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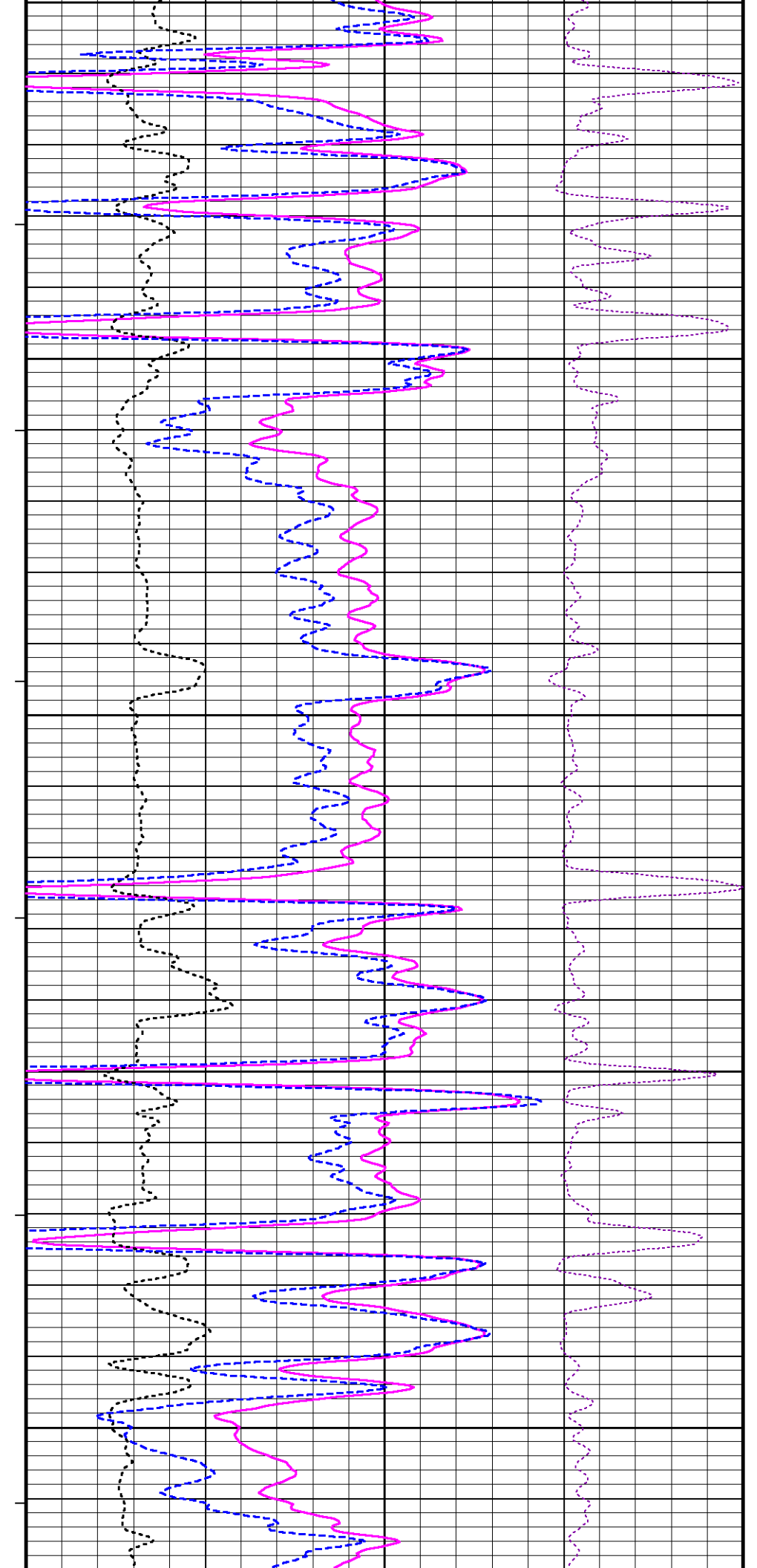
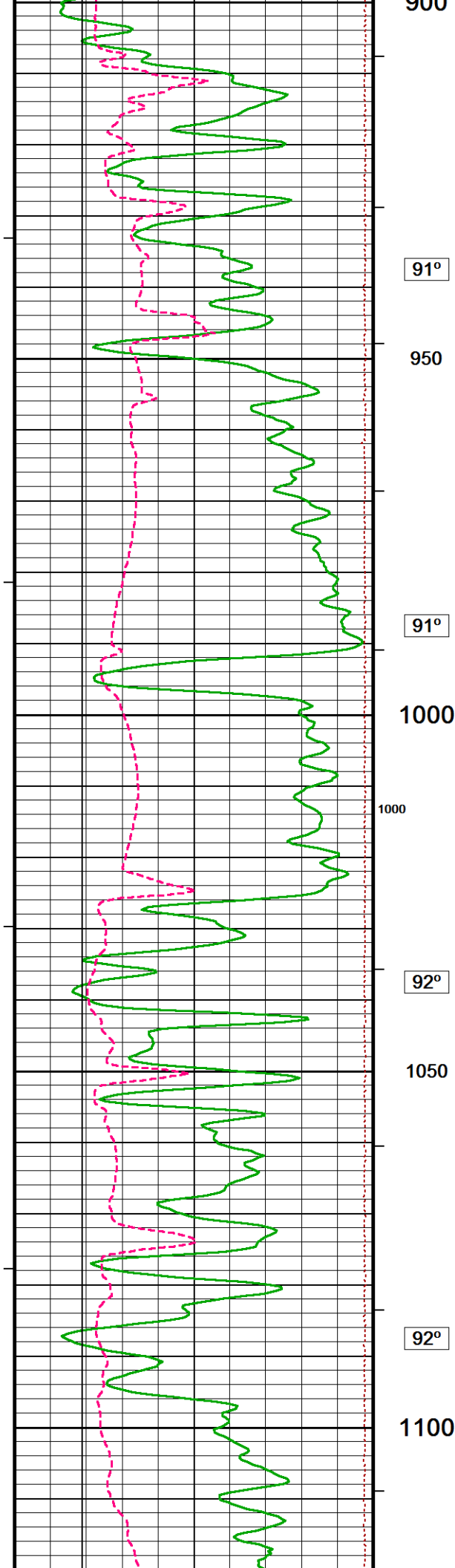
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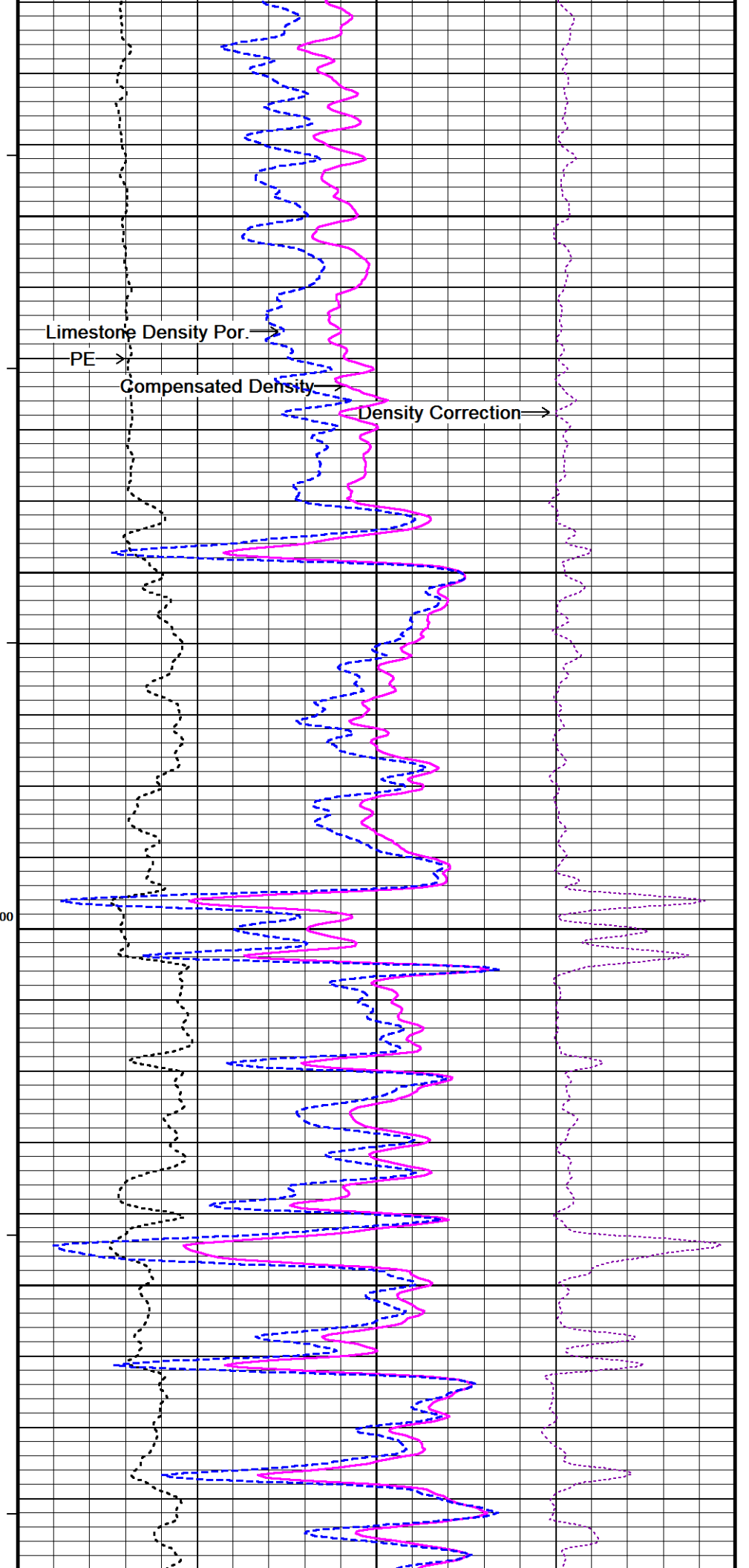
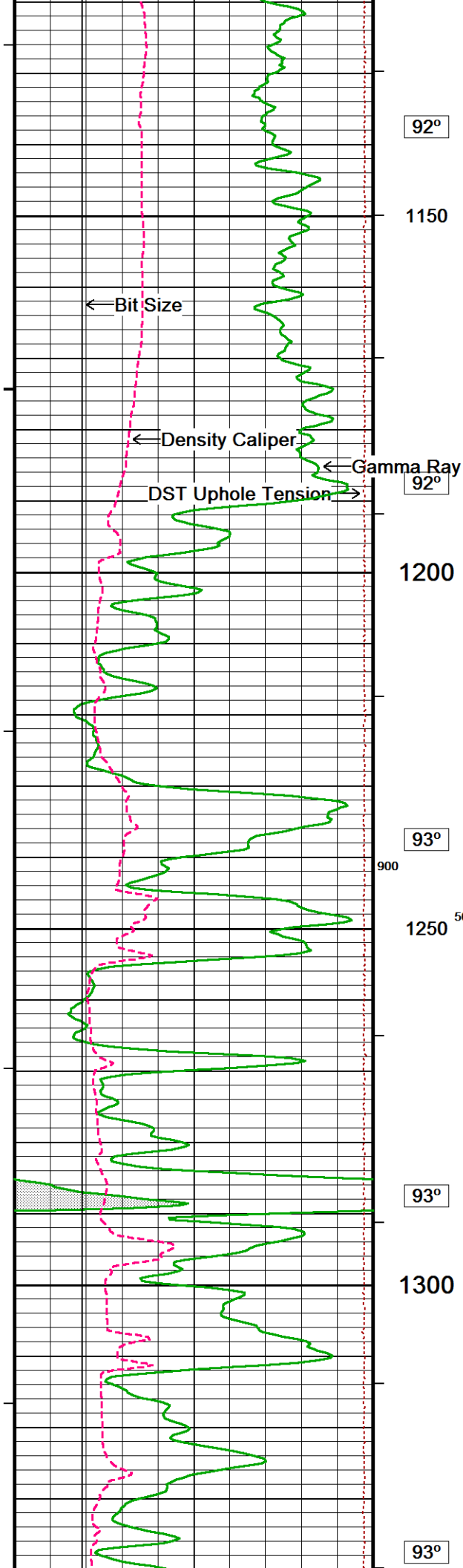


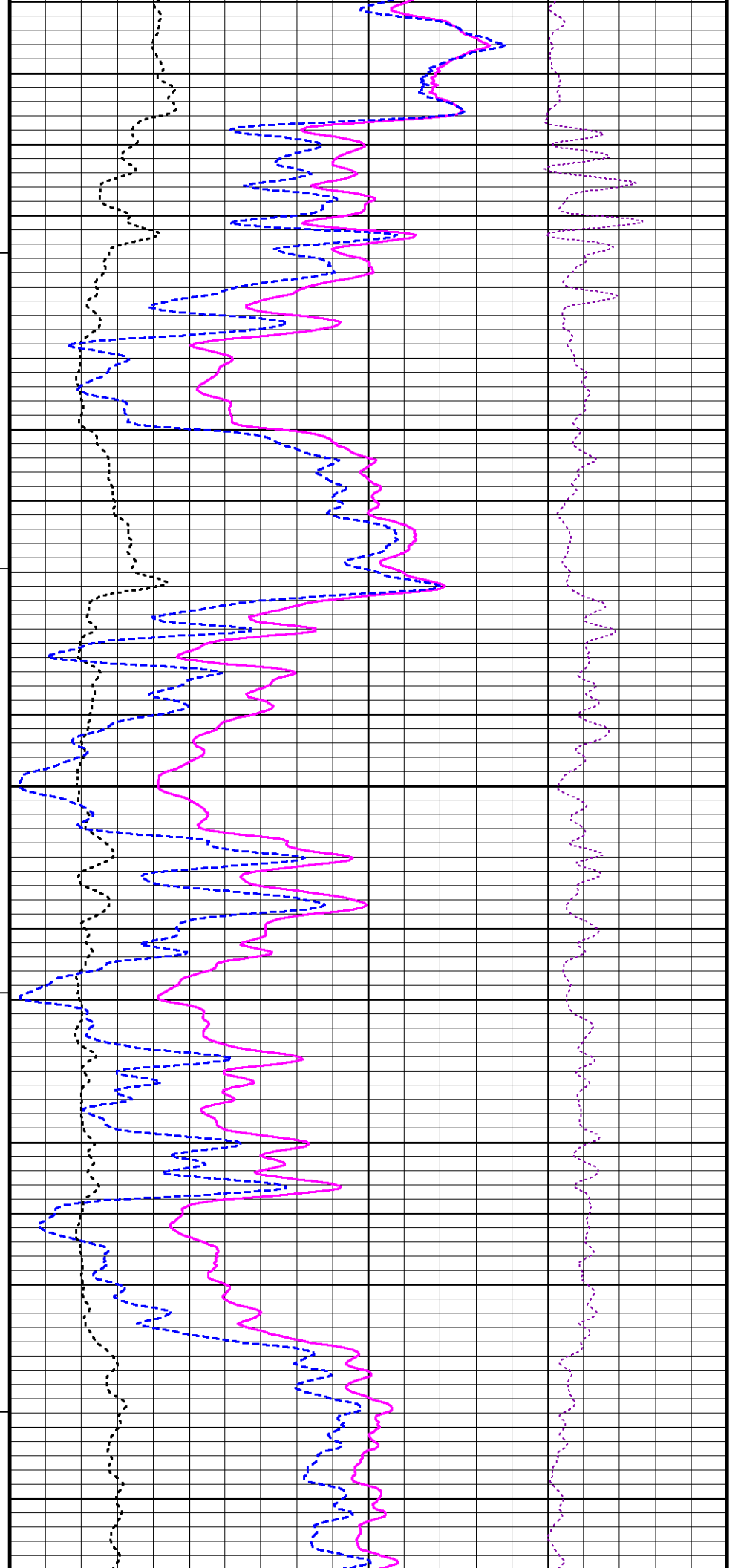
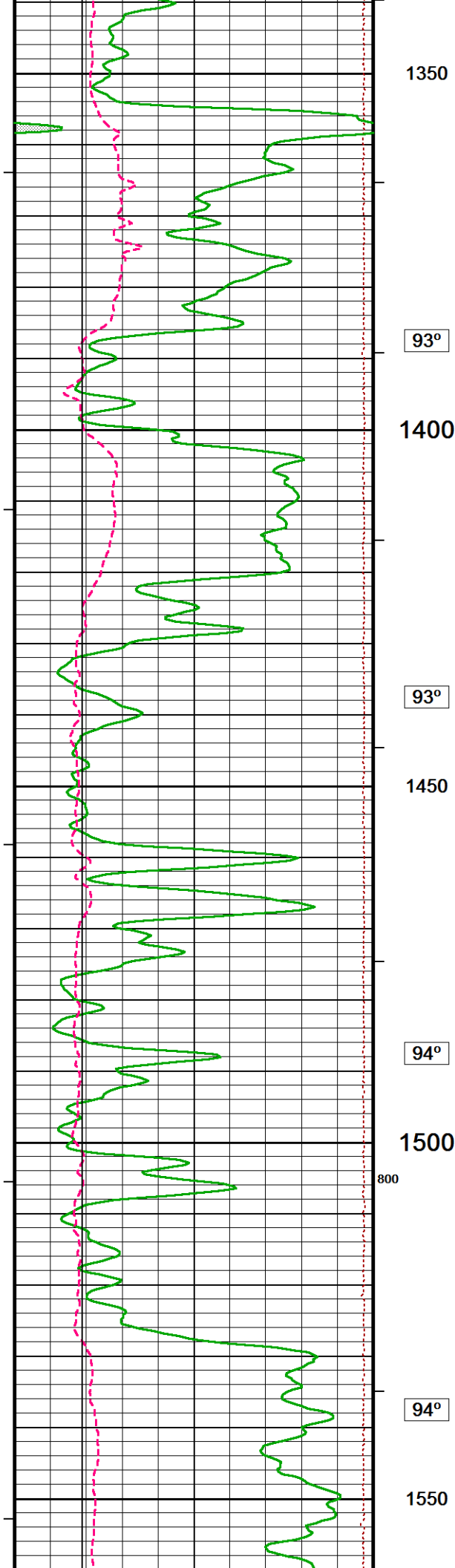


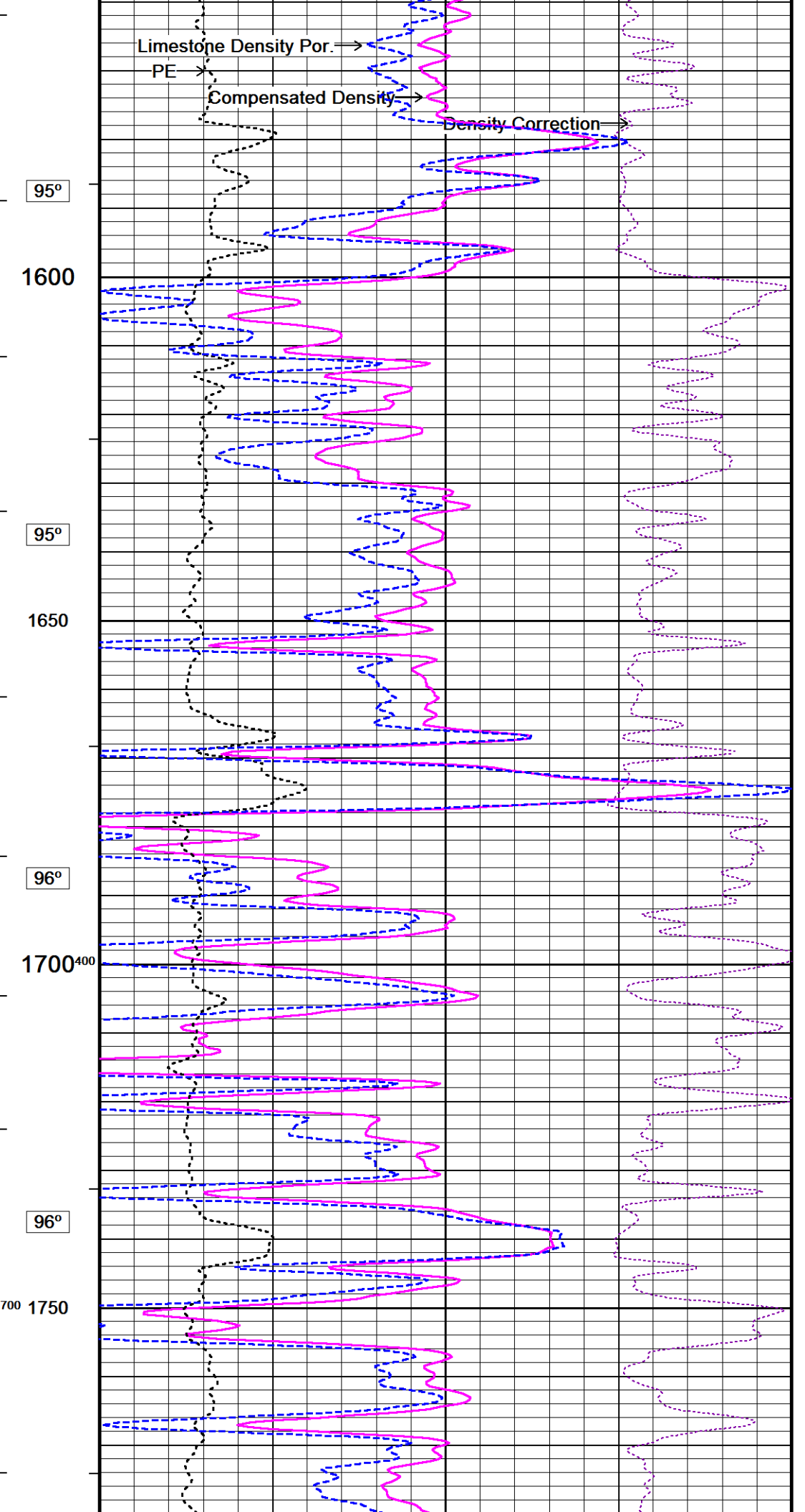
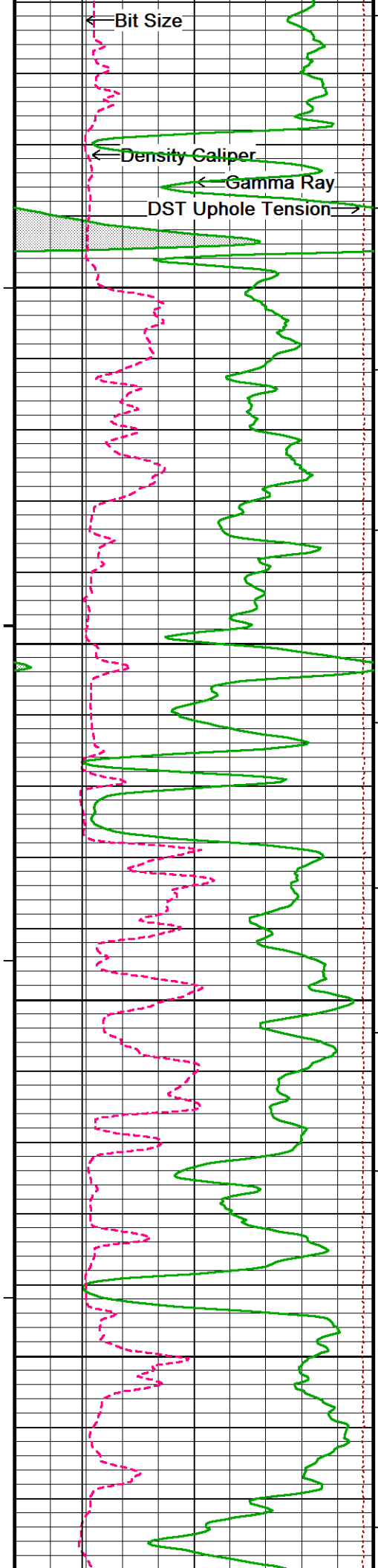


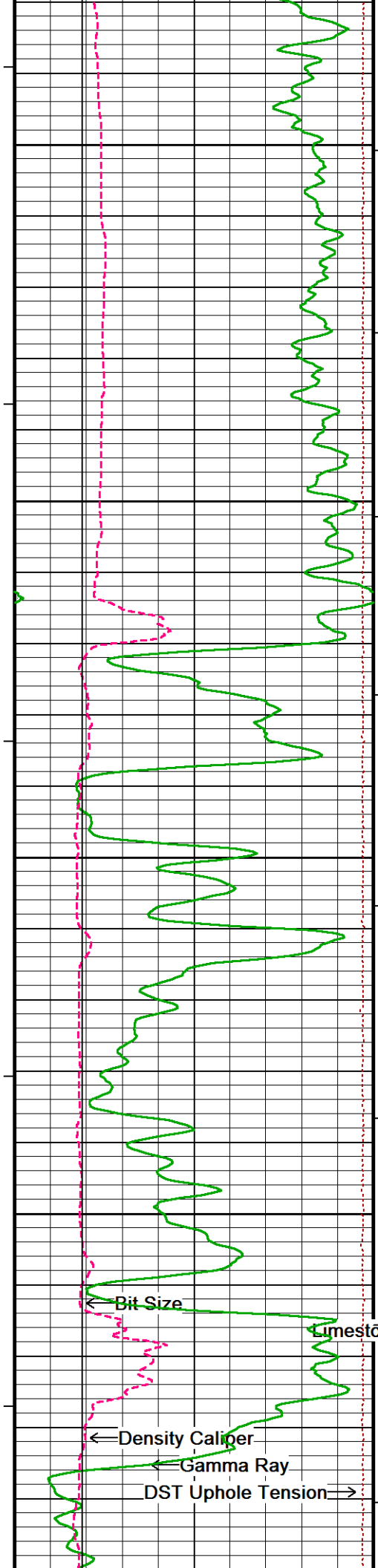












96°

1800

97°

1850

97°

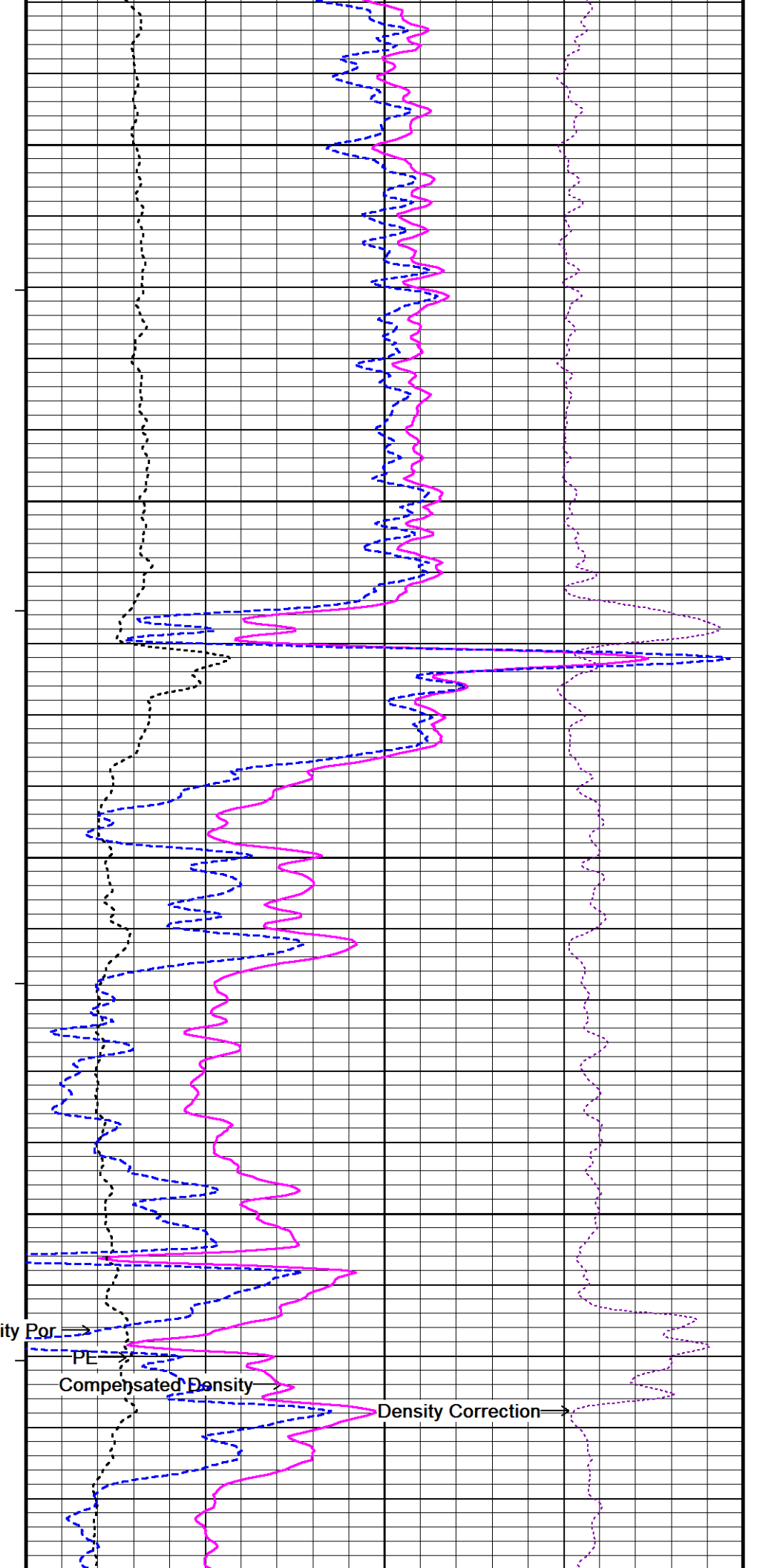
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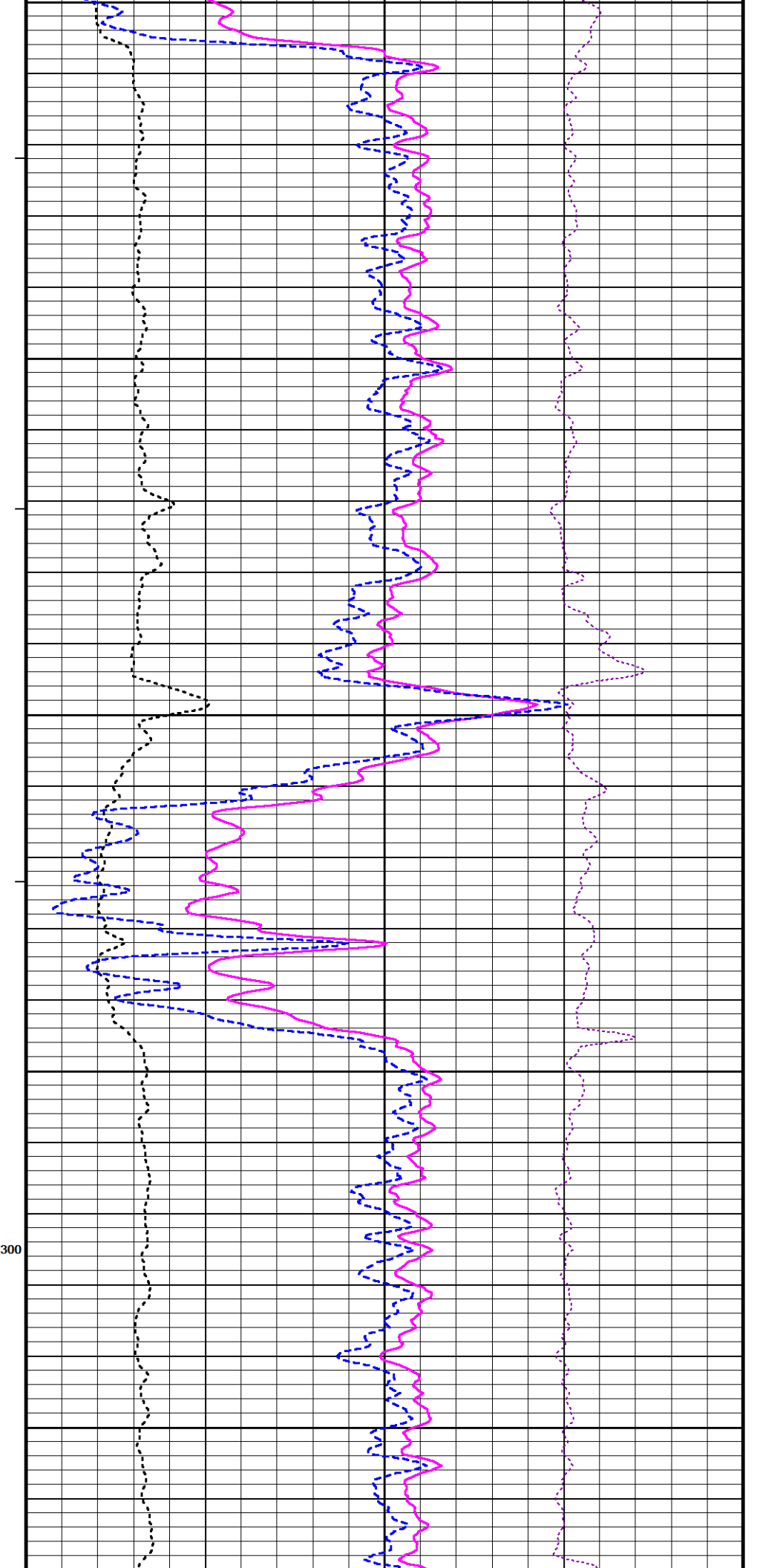
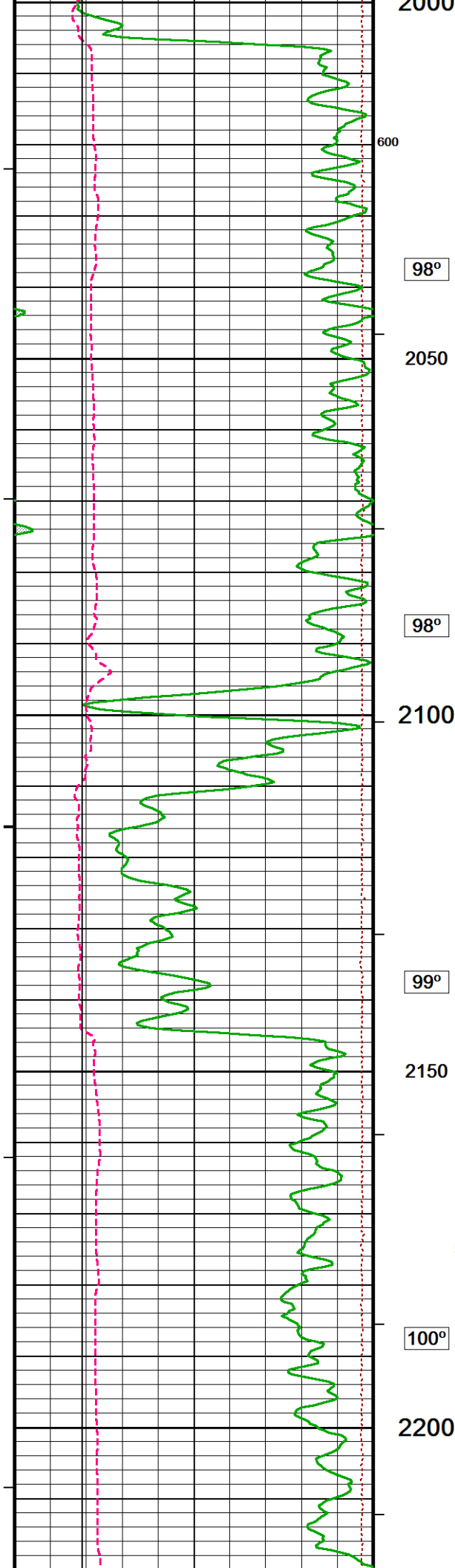
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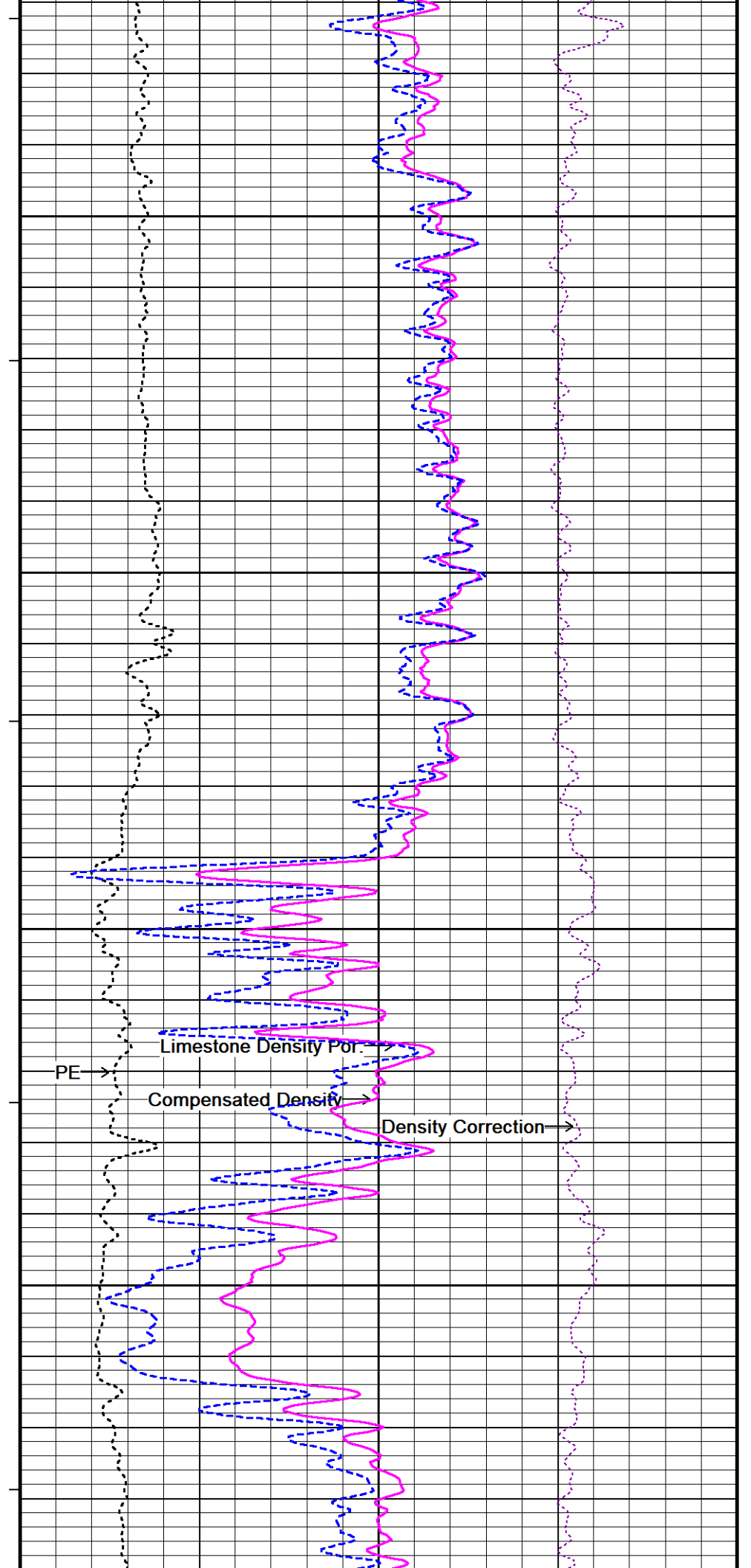
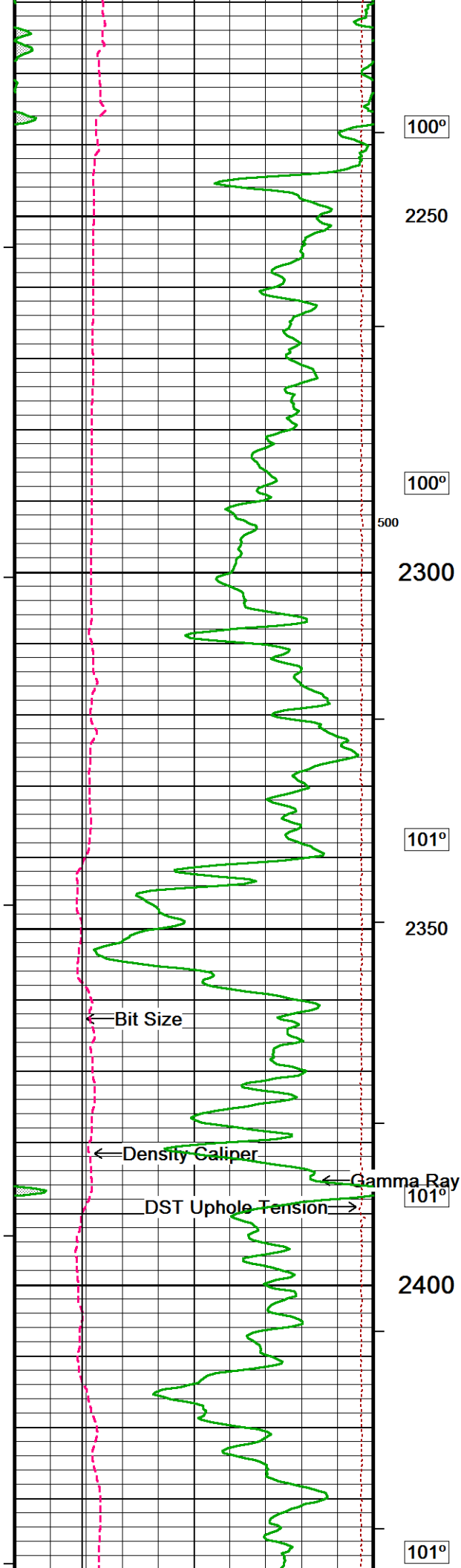
1950

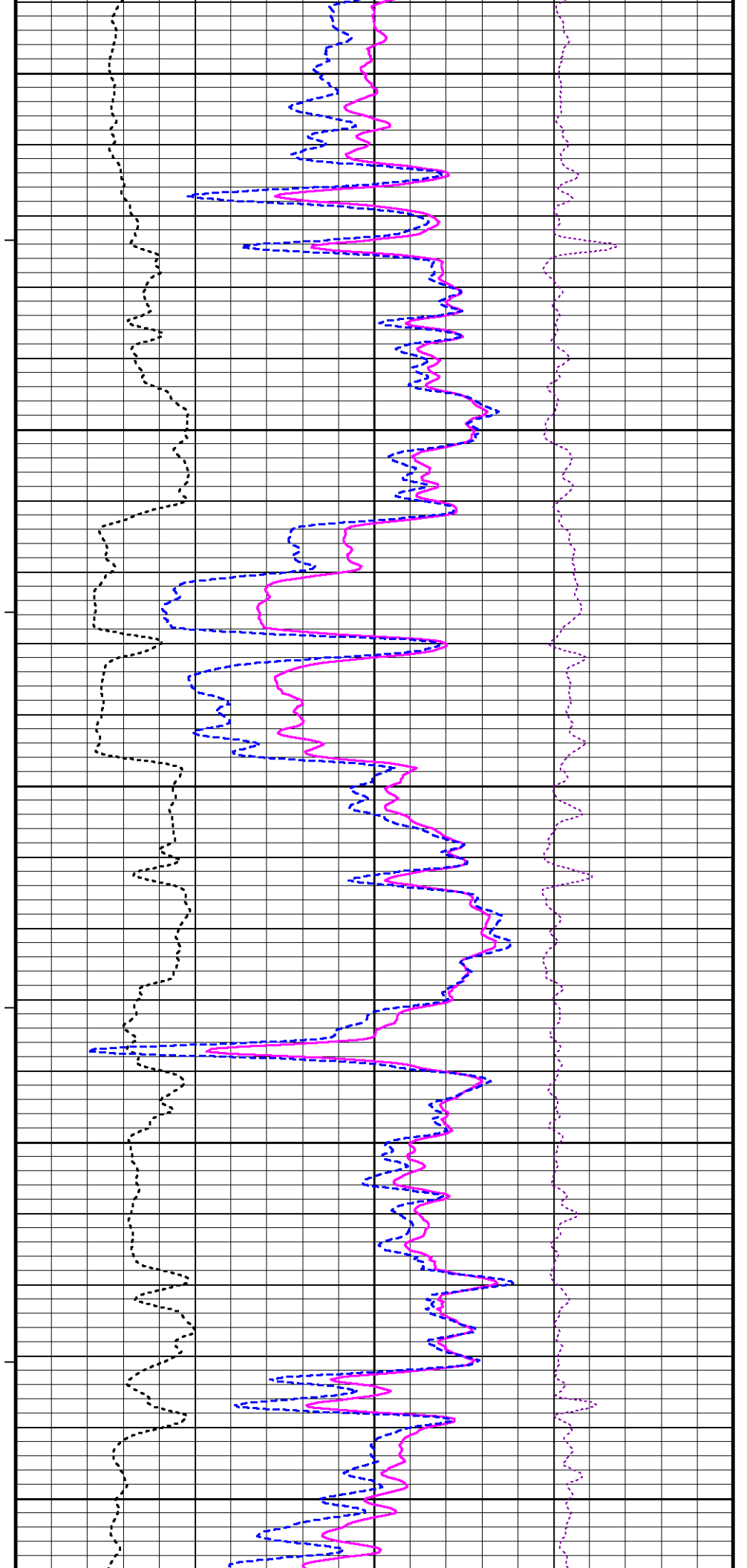
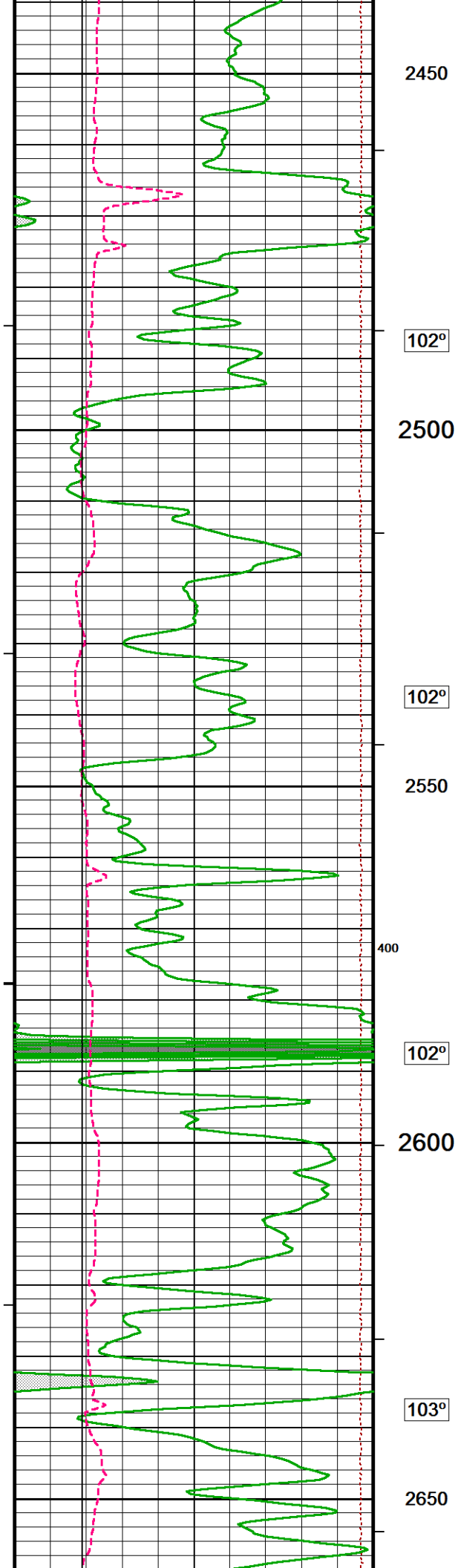
98°

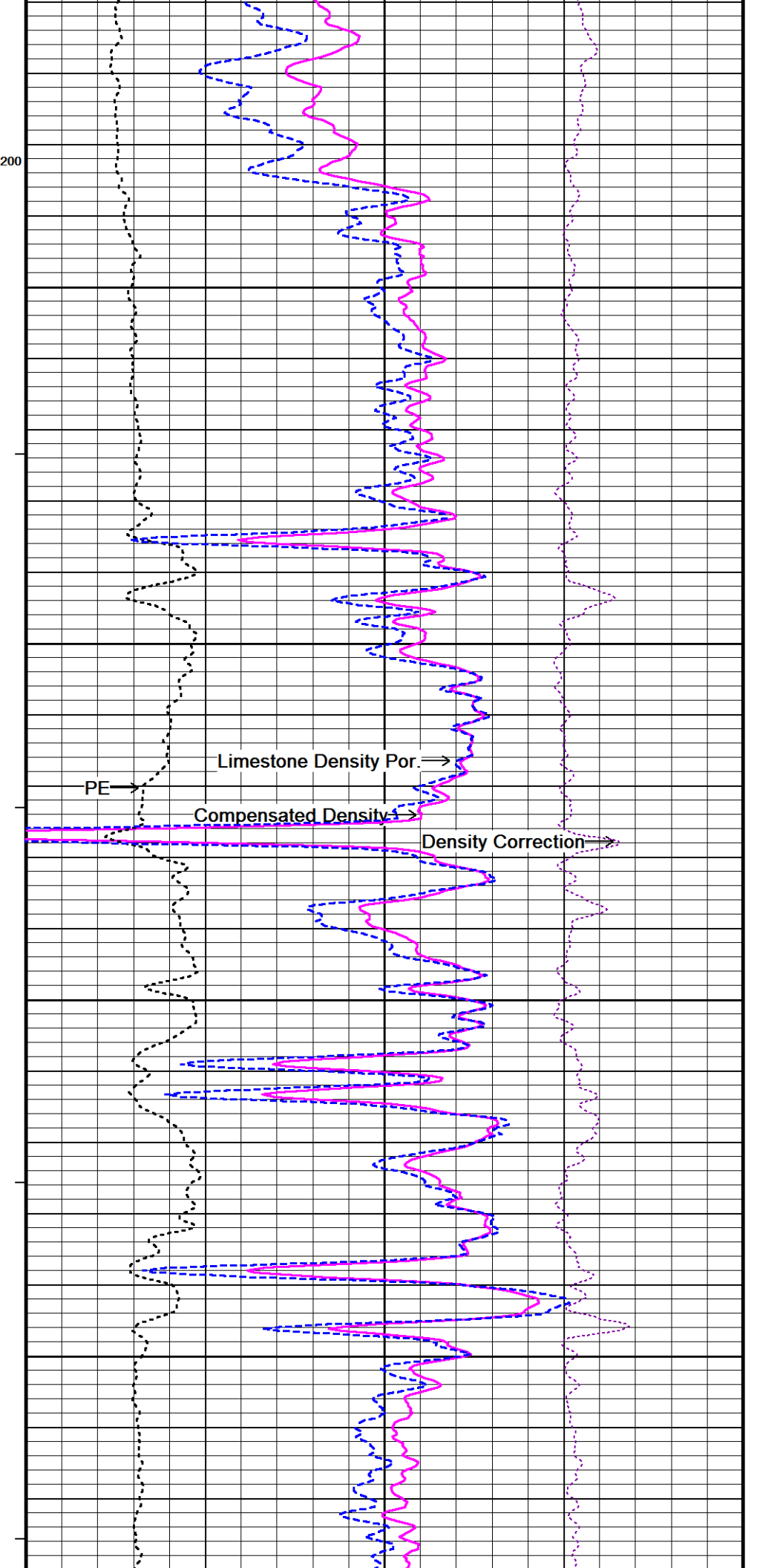
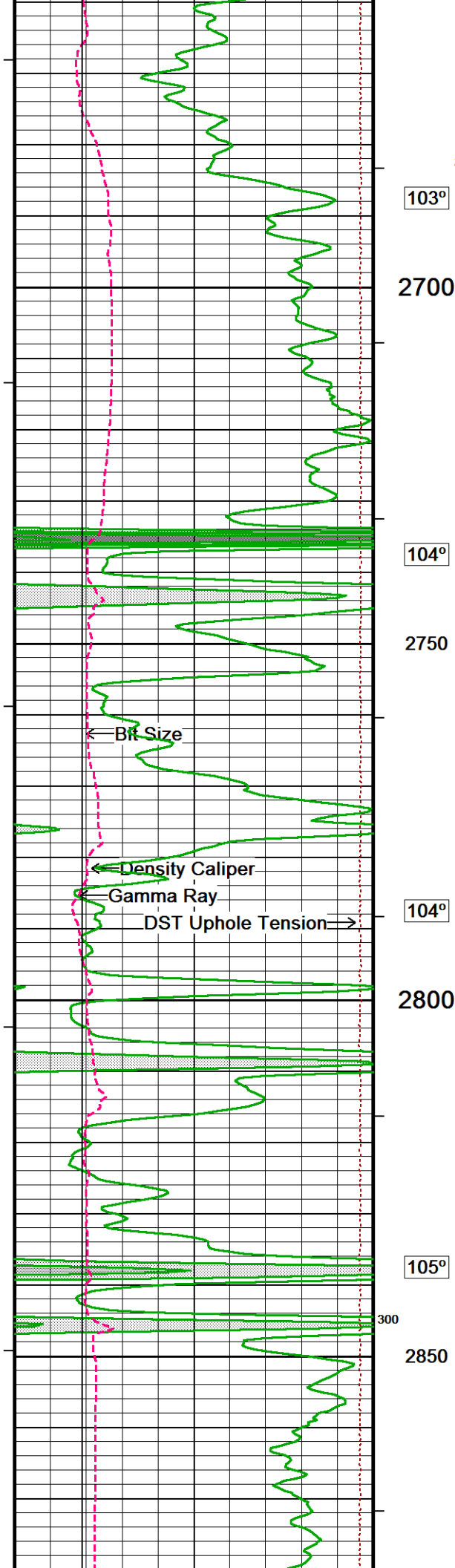
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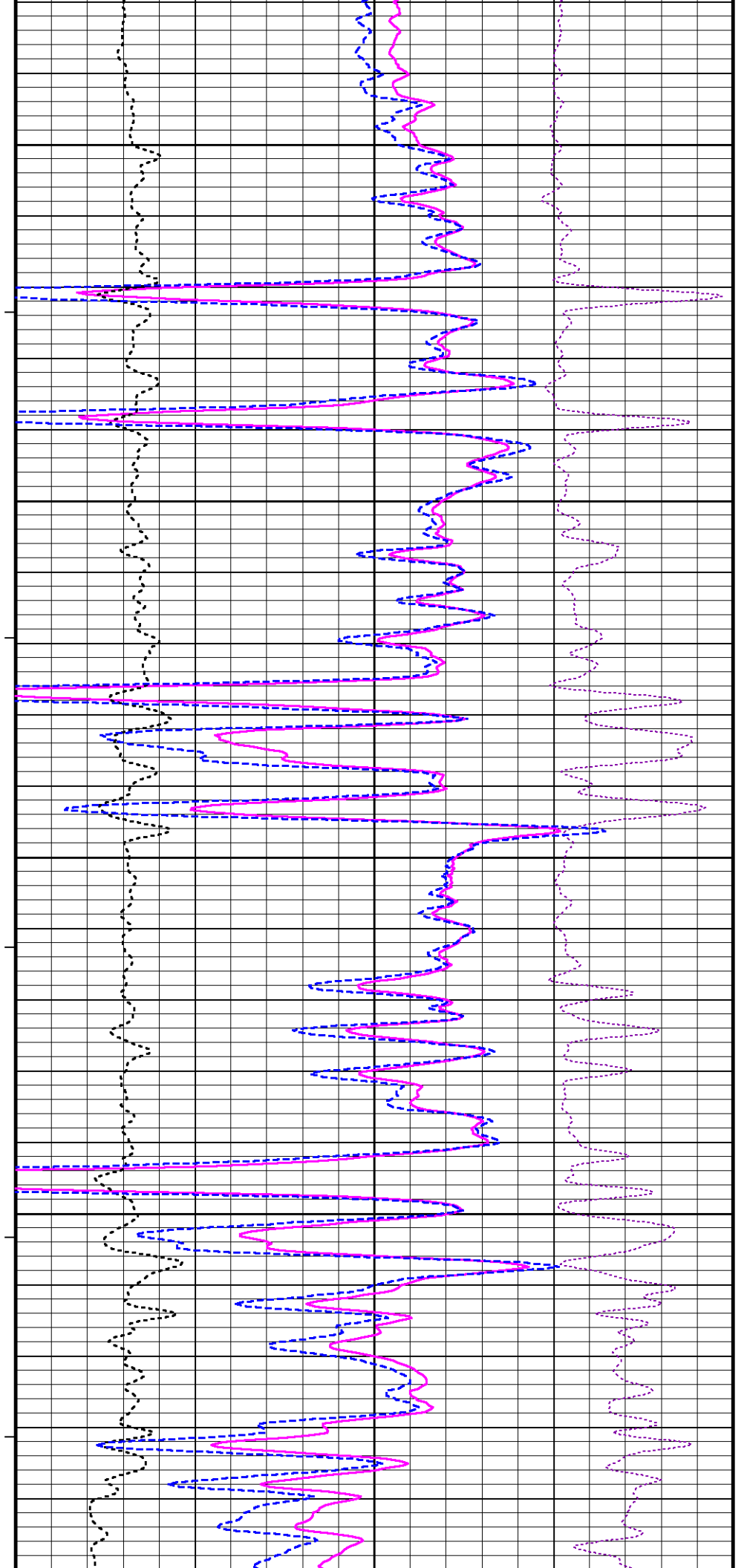
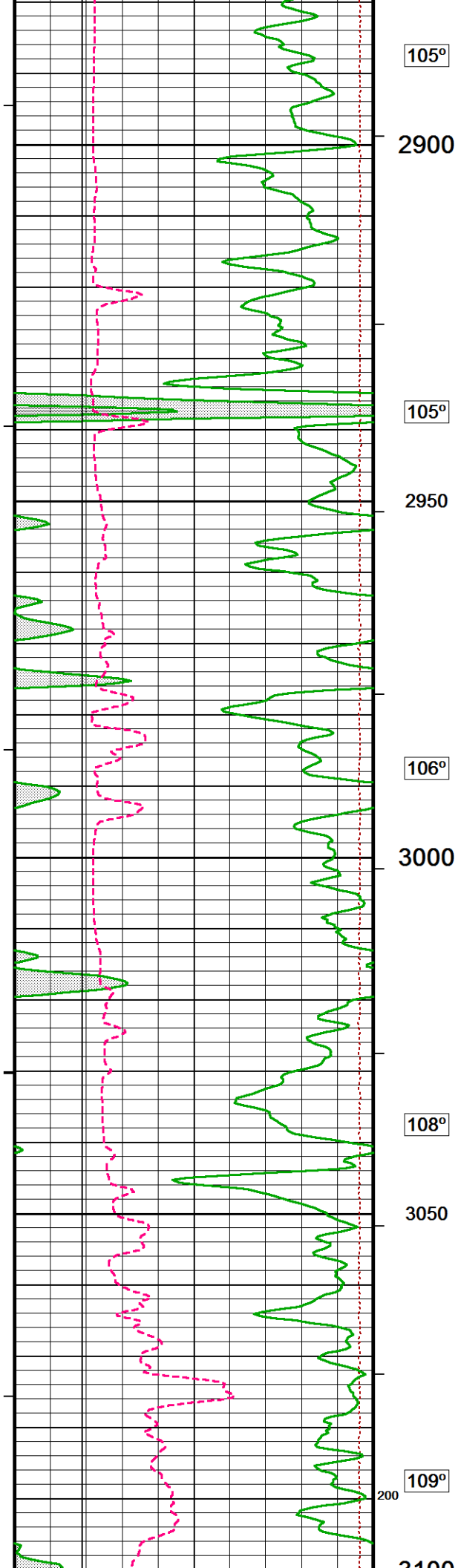


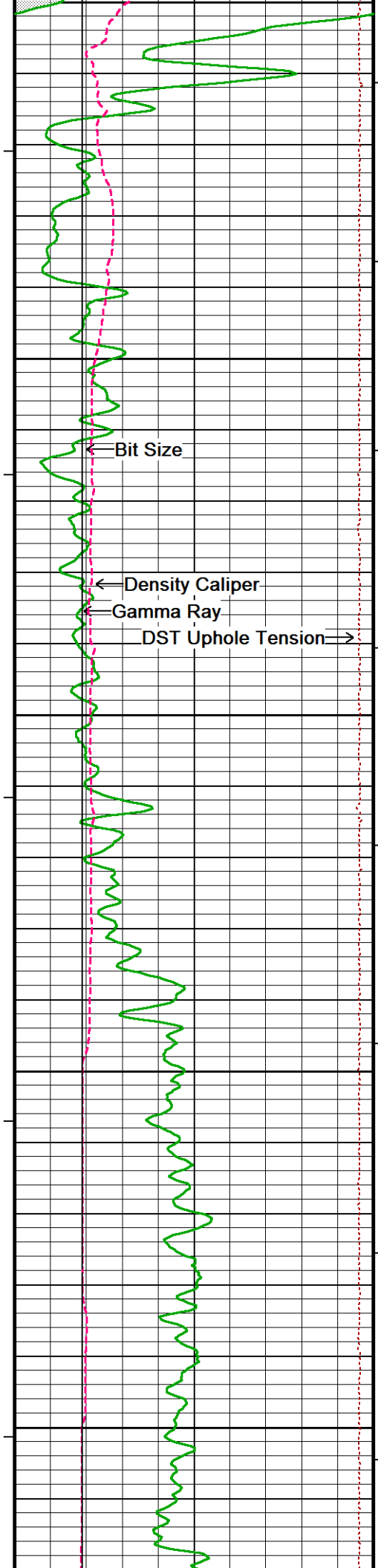












3100

109°

3150

109°

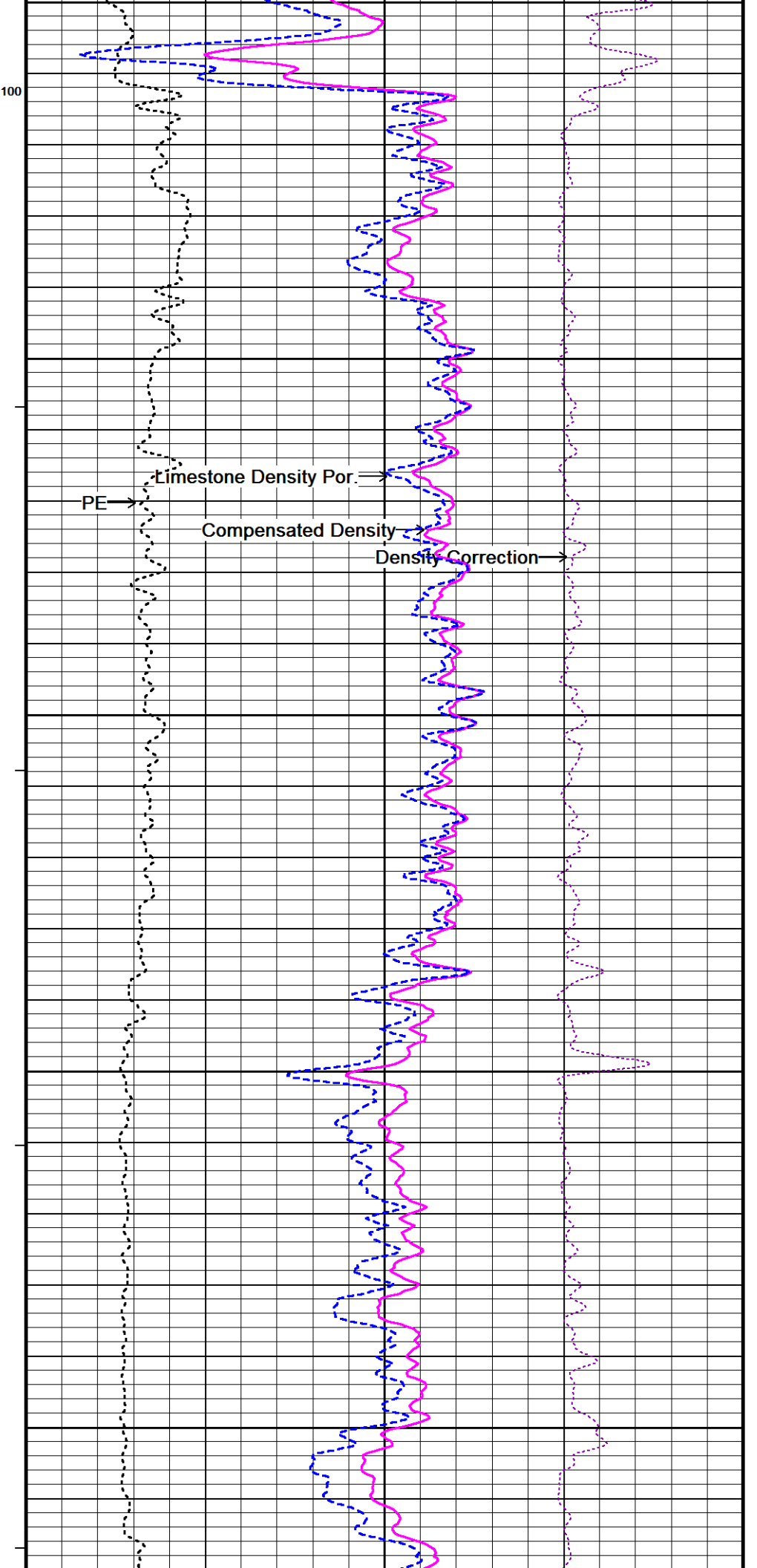
3200

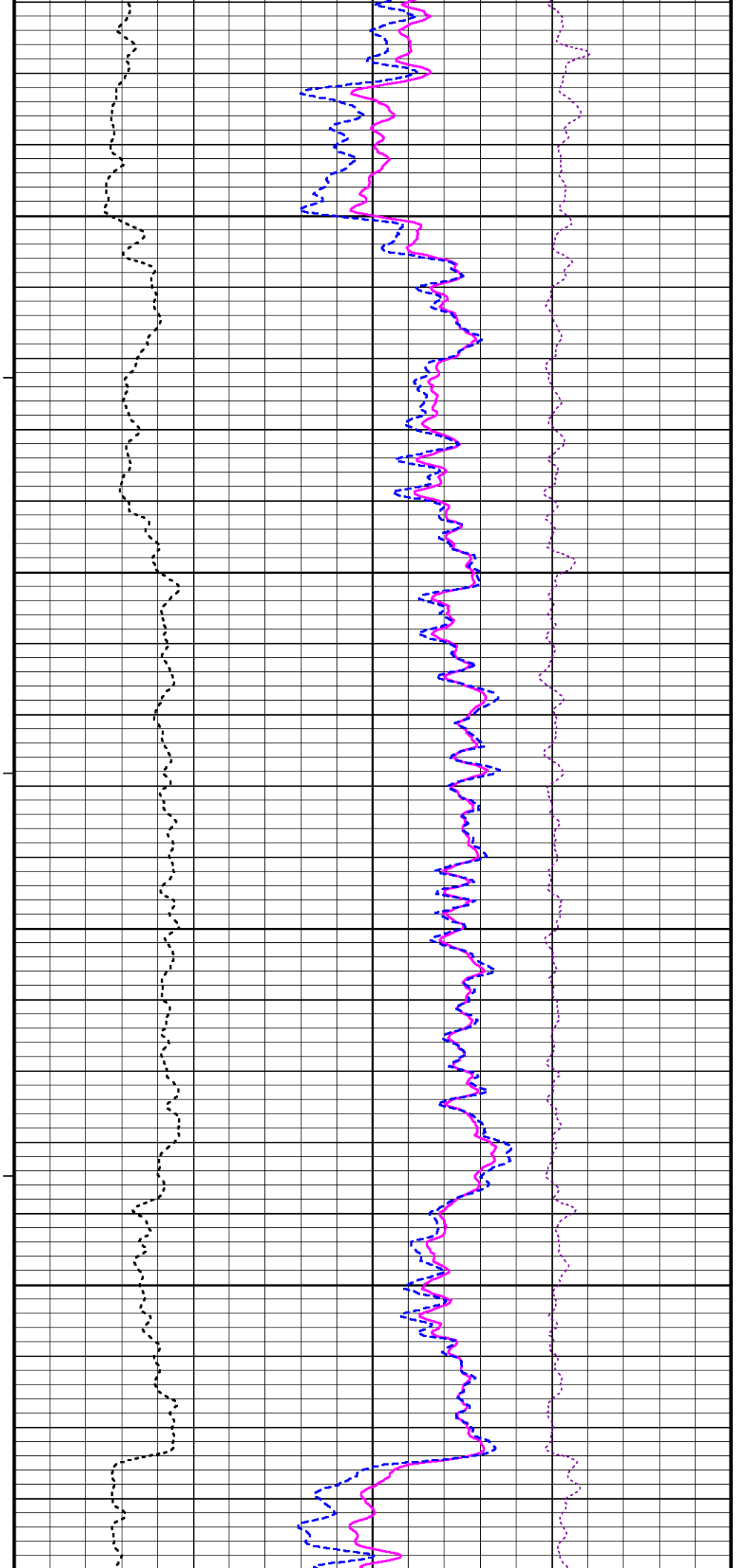
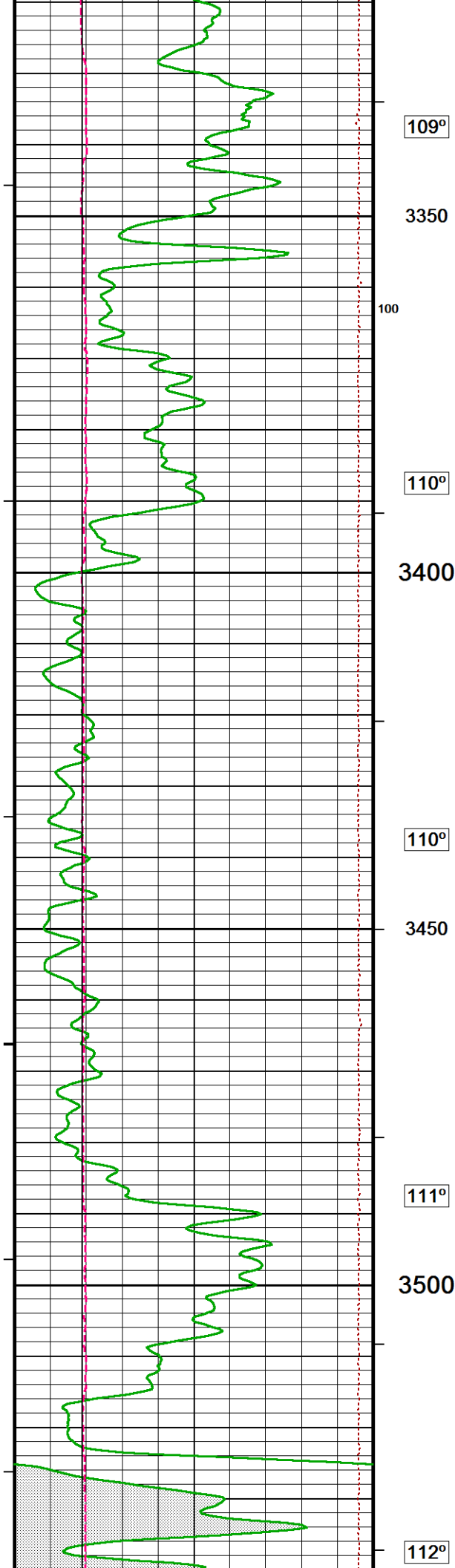
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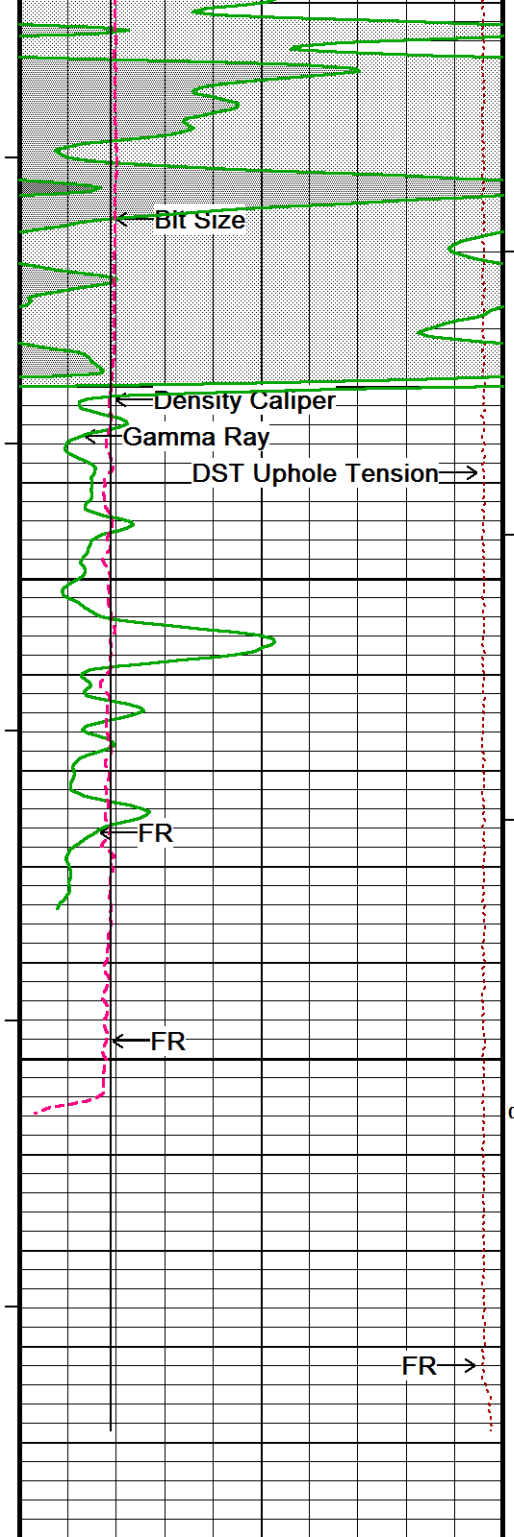
3250

109°

3300







3550

112°

3600

3650

3700
Depth
In
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Borehole
Temp in
deg F

HVI
every
10 cu ft

Limestone Density Por.

PE

Compensated Density

Density Correction

FR

IFR

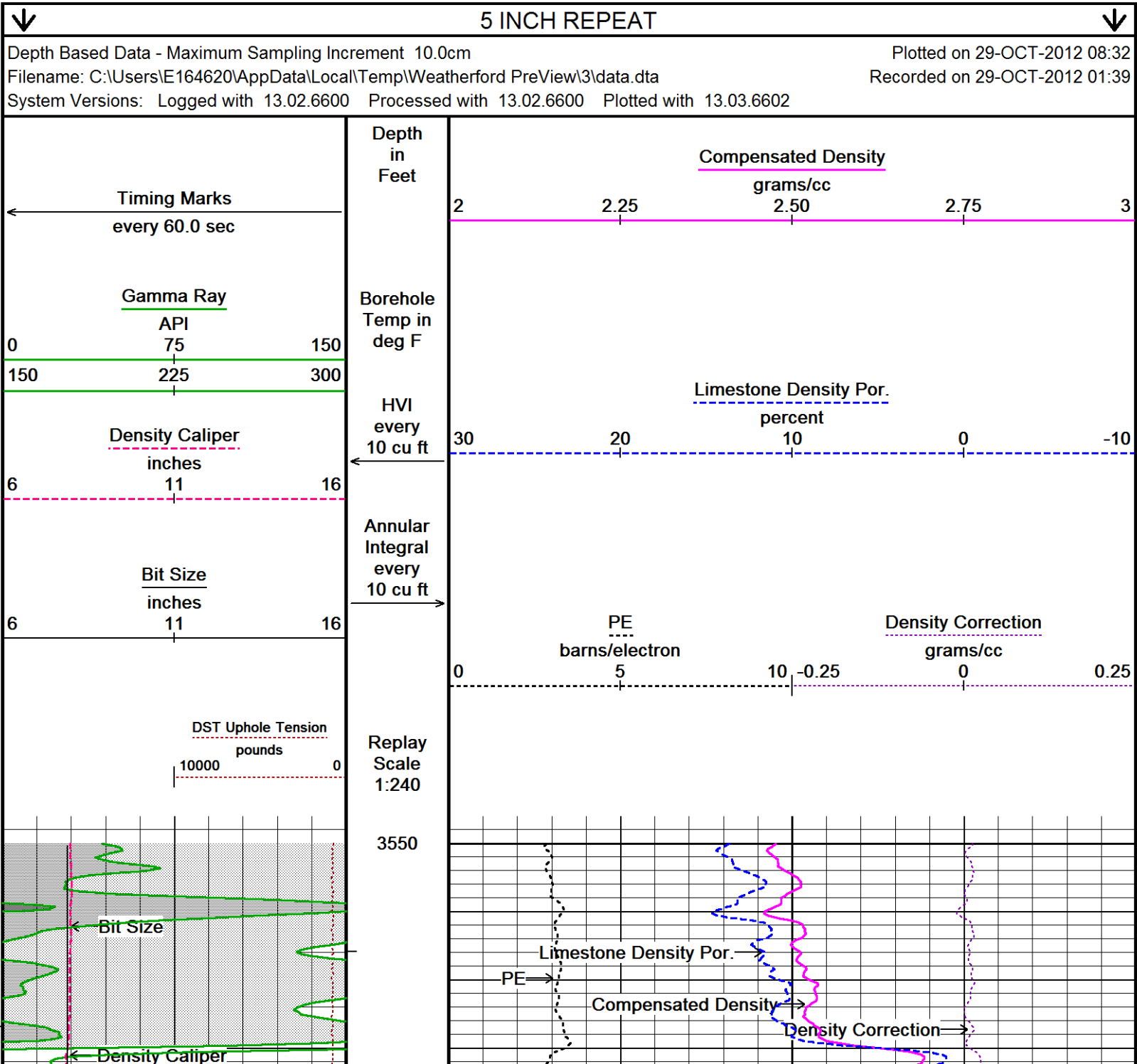
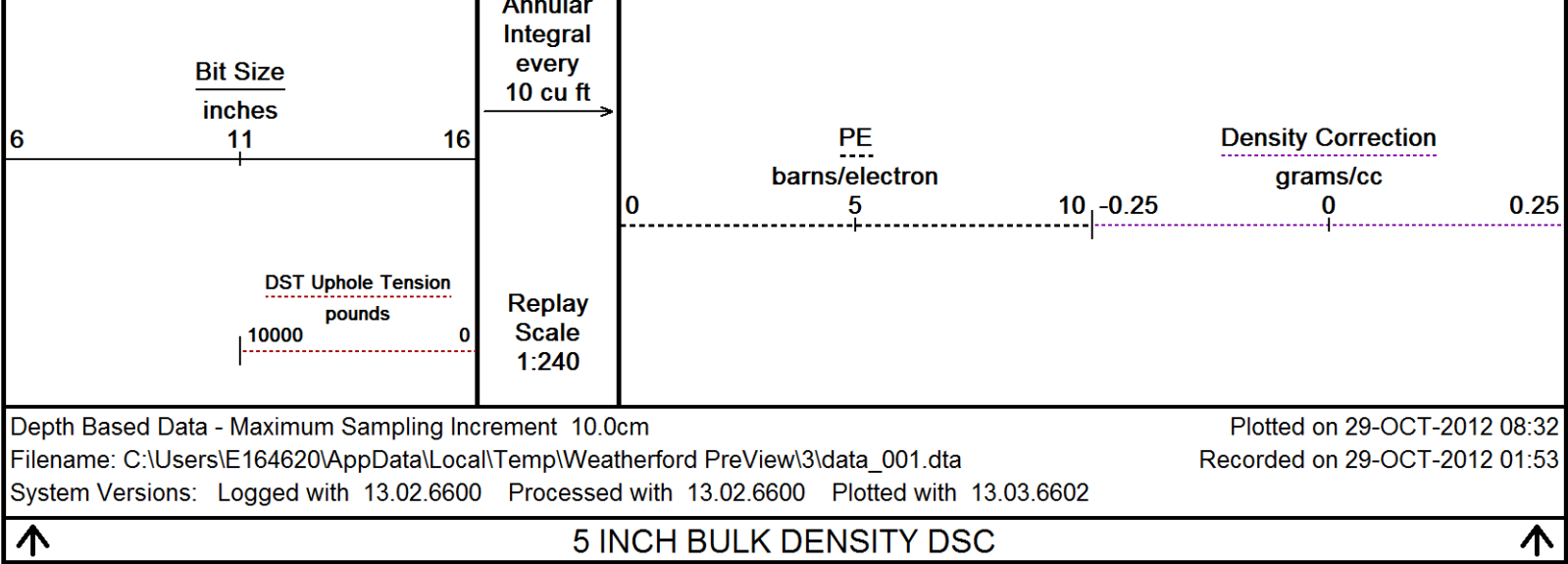
FR

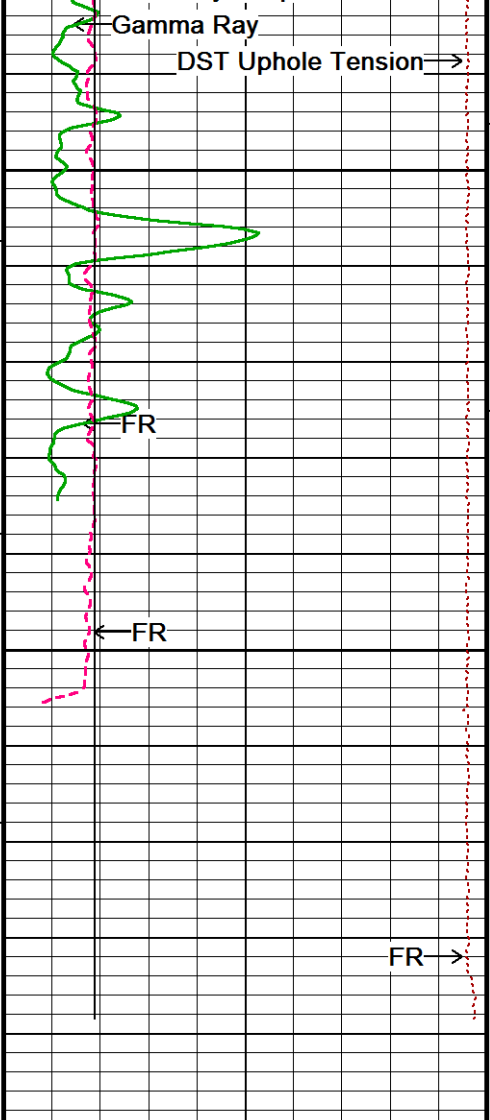
Compensated Density
grams/cc

2 2.25 2.50 2.75 3

Limestone Density Por.
percent

30 20 10 0 -10





111°

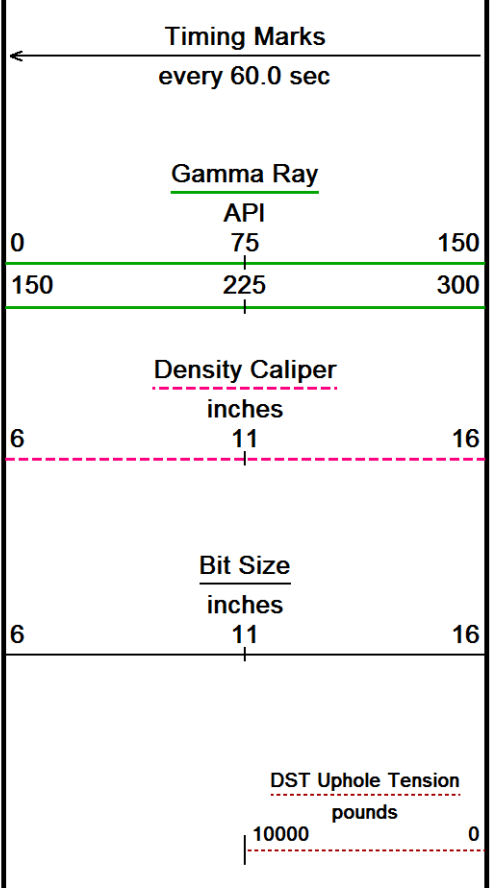
3600

3650

0

3698

Depth in Feet

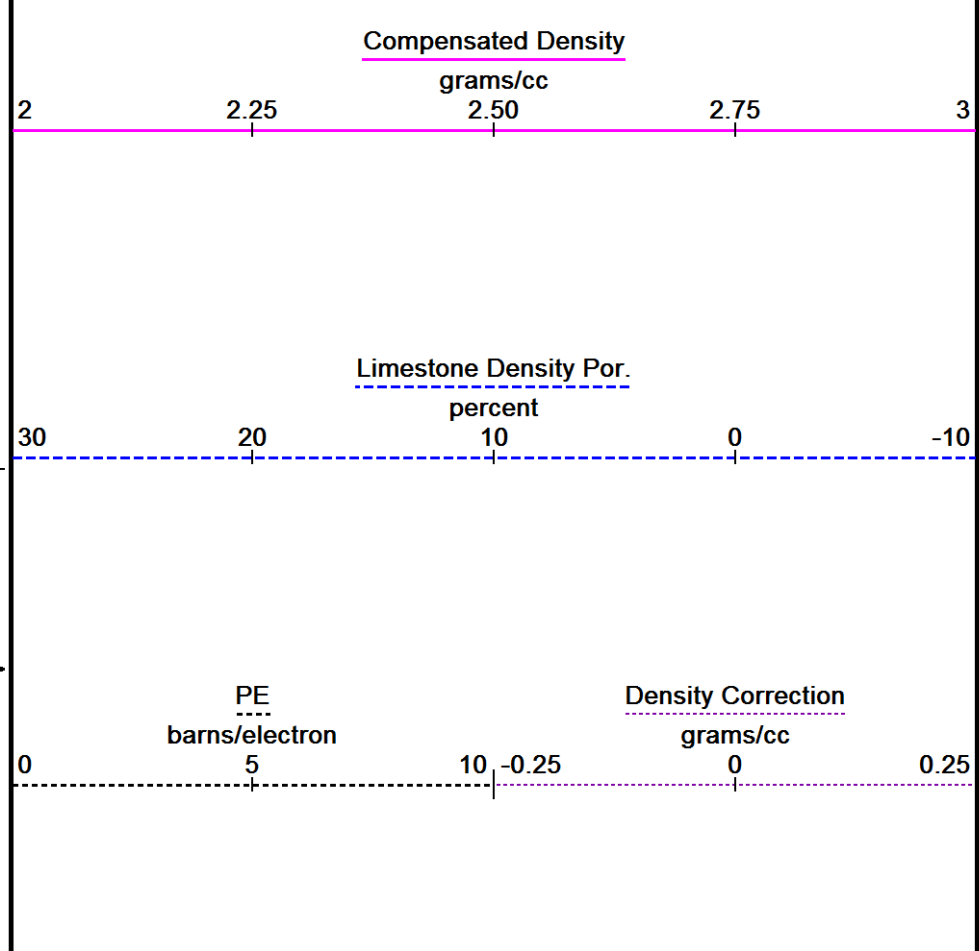
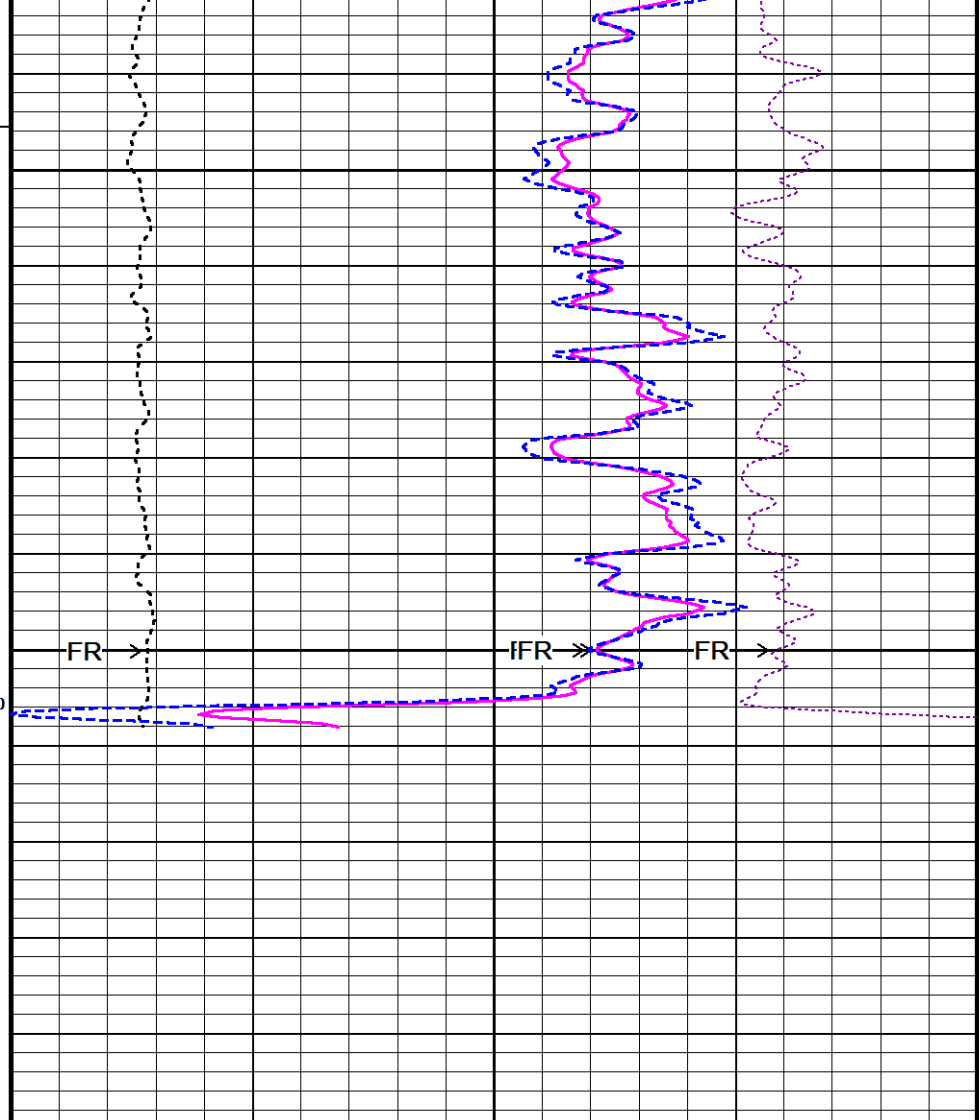


Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240





5 INCH REPEAT



BEFORE SURVEY CALIBRATION

C:\Users\E164620\AppData\Local\Temp\Weatherford PreView\3\data.dta

General Constants All 000

Last Edited on 29-OCT-2012,00:56

General Parameters

Mud Resistivity	0.800	ohm-metres
Mud Resistivity Temperature	53.000	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	5.500	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 21-AUG-2012 05:35

Reading No	Measured	Calibrated (lbs)
1	12830.13	0.00
2	12830.39	400.00

High Resolution Temperature Calibration MCG-C 86

Field Calibration on 21-SEP-2012,12:30

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

High Resolution Temperature Constants MCG-C 86

Last Edited on 16-AUG-2012 03:54

Pre-filter Length	11
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SP Calibration MCG-C 86

Field Calibration on 09-OCT-2012,19:48

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

Gamma Calibration MCG-C 86

Field Calibration on 28-OCT-2012,23:40

	Measured	Calibrated (API)
Background	39	28
Calibrator (Gross)	1820	1289
Calibrator (Net)	1781	1261

Gamma Constants MCG-C 86

Last Edited on 28-OCT-2012,23:40

Gamma Calibrator Number	46	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 1

Base Calibration on 10-SEP-2012 14:34

Field Check on 28-OCT-2012,23:40

Base Calibration

Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Resistor 2

Micro Normal	12.0	59.3	5.0	25.0
Micro Inverse	15.6	77.9	5.0	25.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	63.8		63.8	
Micro Inverse	48.5		48.5	
Micro Normal and Micro Inverse Constants MML-A 1			Last Edited on 28-OCT-2012,23:40	
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159			
Micro Normal K Factor	1.0000			
Micro Inverse K Factor	1.0000			
Standoff Offset	N/A inches			
Caliper Calibration MML-A 1			Base Calibration on 10-SEP-2012 14:58 Field Calibration on 29-OCT-2012 00:54	
Base Calibration				
Reading No	Measured		Calibrator Size (in)	
1	14837		5.96	
2	18026		7.97	
3	21376		9.94	
4	25163		11.91	
5	0		0.00	
6	N/A		N/A	
Field Calibration				
	Measured Caliper (in)		Actual Caliper (in)	
	8.21		8.10	
Neutron Calibration MDN-A.A 10			Base Calibration on 16-FEB-2012 21:39 Field Check on 28-OCT-2012,23:40	
Base Calibration				
	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3130	98	3714	110
Ratio	31.818		33.764	
Field Calibrator at Base				
			Calibrated (cps)	
			1248	1792
Ratio			0.696	
Field Check				
			Calibrated (cps)	
			1227	1808
Ratio			0.679	
Neutron Constants MDN-A.A 10			Last Edited on 28-OCT-2012,23:40	
Neutron Source Id	P14033B			
Neutron Jig Number	13226			
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	
Salinity Correction	Not Applied			
Formation Fluid Salinity Source	Constant Value			
Formation Fluid Salinity	0.00		kppm	
Barite Mud Correction	Not Applied			
FE Calibration MFE-A.A 65			Base Calibration on 31-AUG-2012 13:54 Field Check on 28-OCT-2012,23:38	
Base Calibration				
	Measured		Calibrated (ohm-m)	
Reference 1	9.7		1.3	
Reference 2	964.0		126.8	

Base Check	279.8				
Field Check	279.9				
FE Constants MFE-A.A 65					Last Edited on 28-OCT-2012,23:38
Running Mode	No Sleeve				
MFE K Factor	0.1268				
Caliper Source for FE correction	Bit Size				
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-C.K 368					Last Edited on
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				
Correction for Sonde Skew	Applied				
Cycle Stretch Algorithm	Applied				
MN3FT	0.00				micro-sec
MX3FT	1500.00				micro-sec
Hunt-Raymer Constant	83.13				micro-sec/ft
Sonde Mode	Compensated				
Hole Type	Open Hole				
Sonde Parameters					
	Measured	Calibrated			
Offset	0.0000	0.0000			
Free Pipe	0.0000	0.0000			
Peak Amplitude Source	0				
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	N/A				
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)		Depth (m)	
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	0.00	0.00		0.00	
Full Waveform Parameters					
Use 3' Waveform to derive TR	No				
Use 4' Waveform to derive TR	No				
Use 5' Waveform to derive TR	No				
Use 6' Waveform to derive TR	No				
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	0				
4' Waveform Filter	0				
5' Waveform Filter	0				
6' Waveform Filter	0				
Semblance Level	0.50				
Semblance Window Width	120.00	micro-sec			
Sonic 1 Despiker	100.00	micro-sec/ft			

Sonic 1 Despiker	100.00	micro-sec/ft
High Resolution Temperature Calibration MAI-A.A 11		
	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00
High Resolution Temperature Constants MAI-A.A 11		
Pre-filter Length	11	
Induction Calibration MAI-A.A 11		
Base Calibration		Base Calibration on 06-MAR-2011,12:55
Test Loop Calibration		Field Check on 28-OCT-2012,23:38
Channel	Measured	Calibrated (mmho/m)
	Low	High
1	14.9	441.9
2	5.1	355.2
3	3.0	242.9
4	1.5	126.7
Array Temperature	70.3	Deg F
Channel	Base Check (mmho/m)	Field Check (mmho/m)
	Low	High
1	19.4	4104.9
2	34.5	3788.7
3	31.3	3254.6
4	21.3	2174.9
Deep	18.5	2079.0
Medium	45.5	4334.7
Shallow	52.8	5659.6
Array Temperature	90.2	90.4 Deg F
Induction Constants MAI-A.A 11		
Last Edited on 28-OCT-2012,23:38		
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	0.0060	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-B 39

Base Calibration on 23-OCT-2012 12:53
Field Check on 29-OCT-2012,01:34

Density Calibration

Base Calibration

	Measured	Calibrated (sdu)
	Near	Far
Reference 1	49114	24125
Reference 2	20489	2496

Field Check at Base

1174.8	1403.0
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Field Check

1174.6	1398.8
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PE Calibration

Base Calibration

	Measured	Calibrated
	WH	Ratio
Background	216	1047
Reference 1	19869	48931
Reference 2	5846	20356

Field Check at Base

215.8	1047.3
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Field Check

215.5	1054.4
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Density Constants MPD-B 39

Last Edited on 29-OCT-2012,01:34

Density Source Id	260
Nylon Calibrator Number	dnce633
Aluminium Calibrator Number	dacd633
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.11
Mud Density Z/A Multiplier	1.11
Mud Filtrate Density	1.00
Dry Hole Mud Filtrate Density	1.00
DNCT	0.00
CRCT	0.00
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-B 39

Base Calibration on 23-OCT-2012 13:05
Field Calibration on 29-OCT-2012,01:34

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17920	4.01
2	27394	5.96
3	37312	7.97
4	47520	9.94
5	58080	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.93	7.97

DOWNHOLE EQUIPMENT

C:\Users\E164620\AppData\Local\Temp\Weatherford PreView\3\data.dta

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 433 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma
MCG-C 86 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 1 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.A 10 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

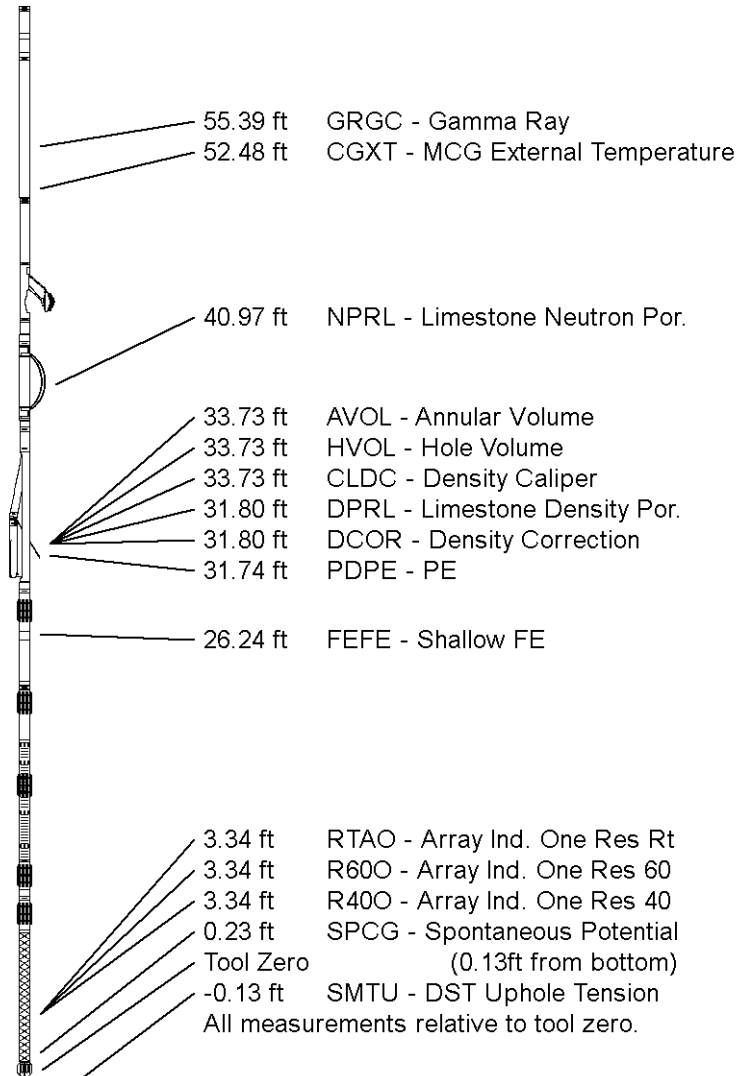
Compact Density/Caliper
MPD-B 39 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-A.A 65 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-C.K 368 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 11 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.98 ft Weight: 478.4 lb



COMPANY	FUTURE PETROLEUM COMPANY LLC.
WELL	WMU #8
FIELD	MADDIX NORTH
PROVINCE/COUNTY	COWLEY
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1290.00	feet	First Reading	3679.00	feet
Elevation Drill Floor	1288.00	feet	Depth Driller	3668.00	feet
Elevation Ground Level	1281.00	feet	Depth Logger	3682.00	feet



Weatherford®

PHOTO DENSITY / NEUTRON
ARRAY INDUCTION
SHALLOW FOCUSED LOG

