



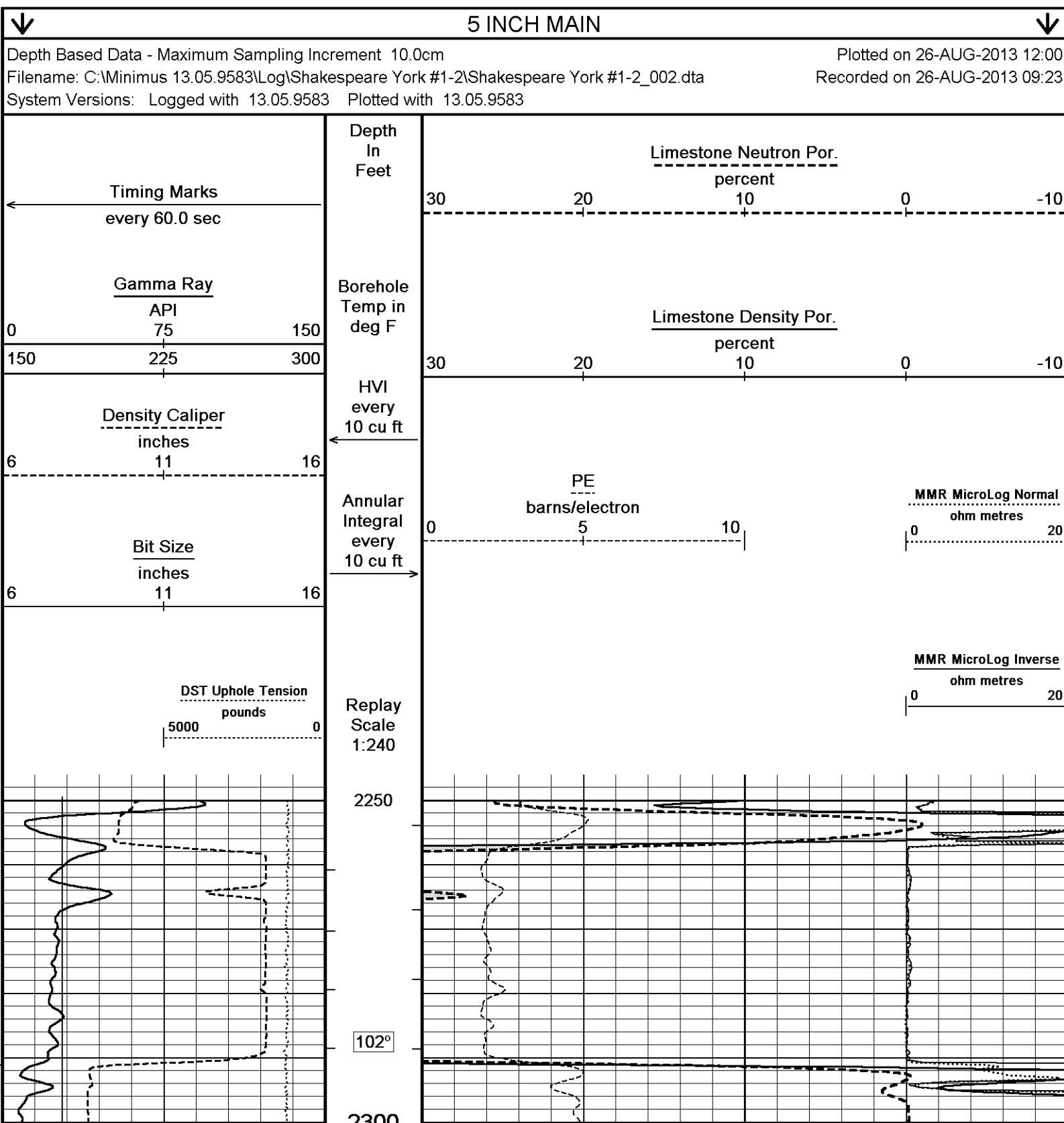
Weatherford

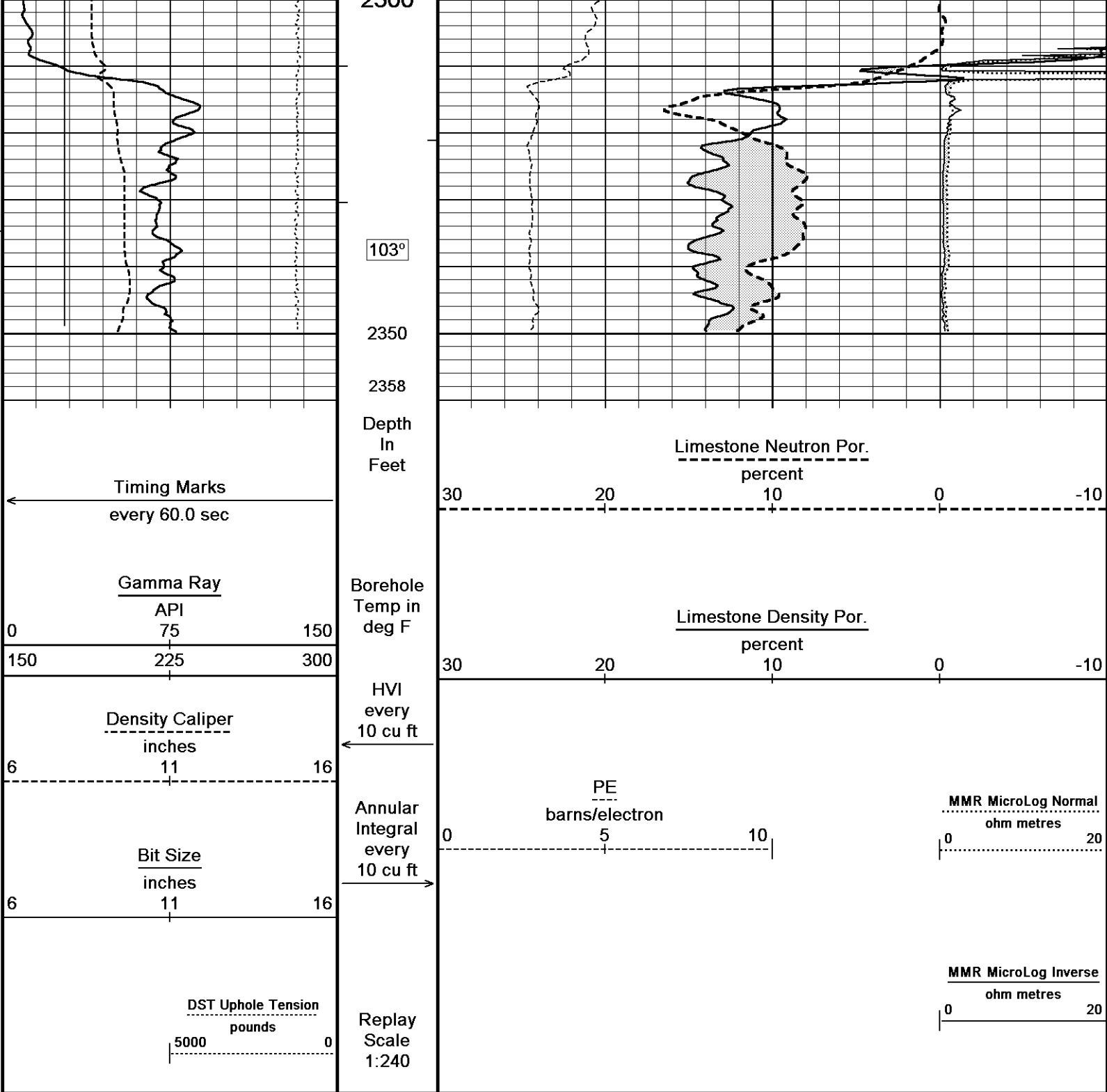
**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY				SHAKESPEARE OIL CO, INC.			
WELL				YORK #1-2			
FIELD				WILDCAT			
PROVINCE/COUNTY				SCOTT			
COUNTRY/STATE				UNITED STATES / KANSAS			
LOCATION				1734' FSL & 1348' FEL			
SEC	TWP	RGE	Other Services				
2	16S	31W	MAI/MFE				
API Number		15-171-20967		MML			
Permit Number				MSS			
Permanent Datum G.L., Elevation 2866 feet					Elevations:		
Log Measured From KB					KB		
Drilling Measured From K.B. @ 10 FEET					DF		
					GL		
Date	26-AUG-2013						
Run Number	ONE						
Service Order	3541074						
Depth Driller	4630.00				feet		
Depth Logger	4629.00				feet		
First Reading	4597.00				feet		
Last Reading	3700.00				feet		
Casing Driller	226.00				feet		
Casing Logger	222.00				feet		
Bit Size	7.880				inches		
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.30 lb/USg		52.00 CP				
PH / Fluid Loss	10.50		7.60 ml/30Min				
Sample Source	MUDPIT						
Rm @ Measured Temp	1.62 @ 75.0				ohm-m		
Rmf @ Measured Temp	1.29 @ 75.0				ohm-m		
Rmc @ Measured Temp	1.94 @ 75.0				ohm-m		
Source Rmf / Rmc	CALC			CALC			
Rm @ BHT	1.06 @ 115.0				ohm-m		
Time Since Circulation	4 HOURS						
Max Recorded Temp	115.00				deg F		
Equipment / Base	13096		LIB				
Recorded By	W. STAMBAUGH						
Witnessed By	TIM PRIEST						
JOBS#	LB13-235						

BOREHOLE RECORD				Last Edited: 26-AUG-2013 09:51
Bit Size inches		Depth From feet		Depth To feet
7.880		222.00		4629.00
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	222.00	24.00

REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE: - MDN: DUAL BOWSPRING ECCENTRALIZER - MFE 1 x 0.5 INCH STANDOFF - MSS 2x 0.5 INCH STANDOFF - MAI 1 x 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING AT 226 FEET : 1980 CU. FT



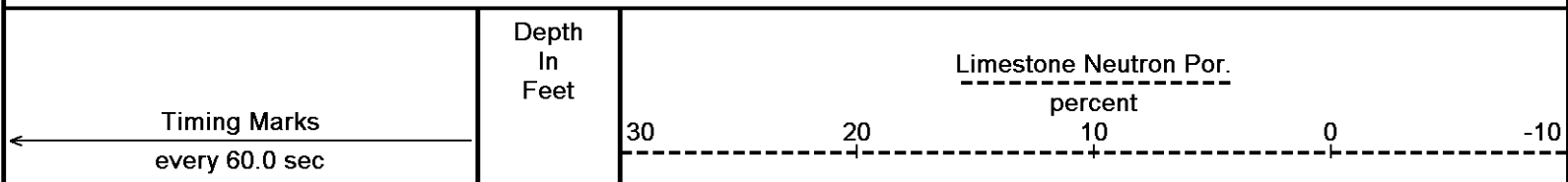


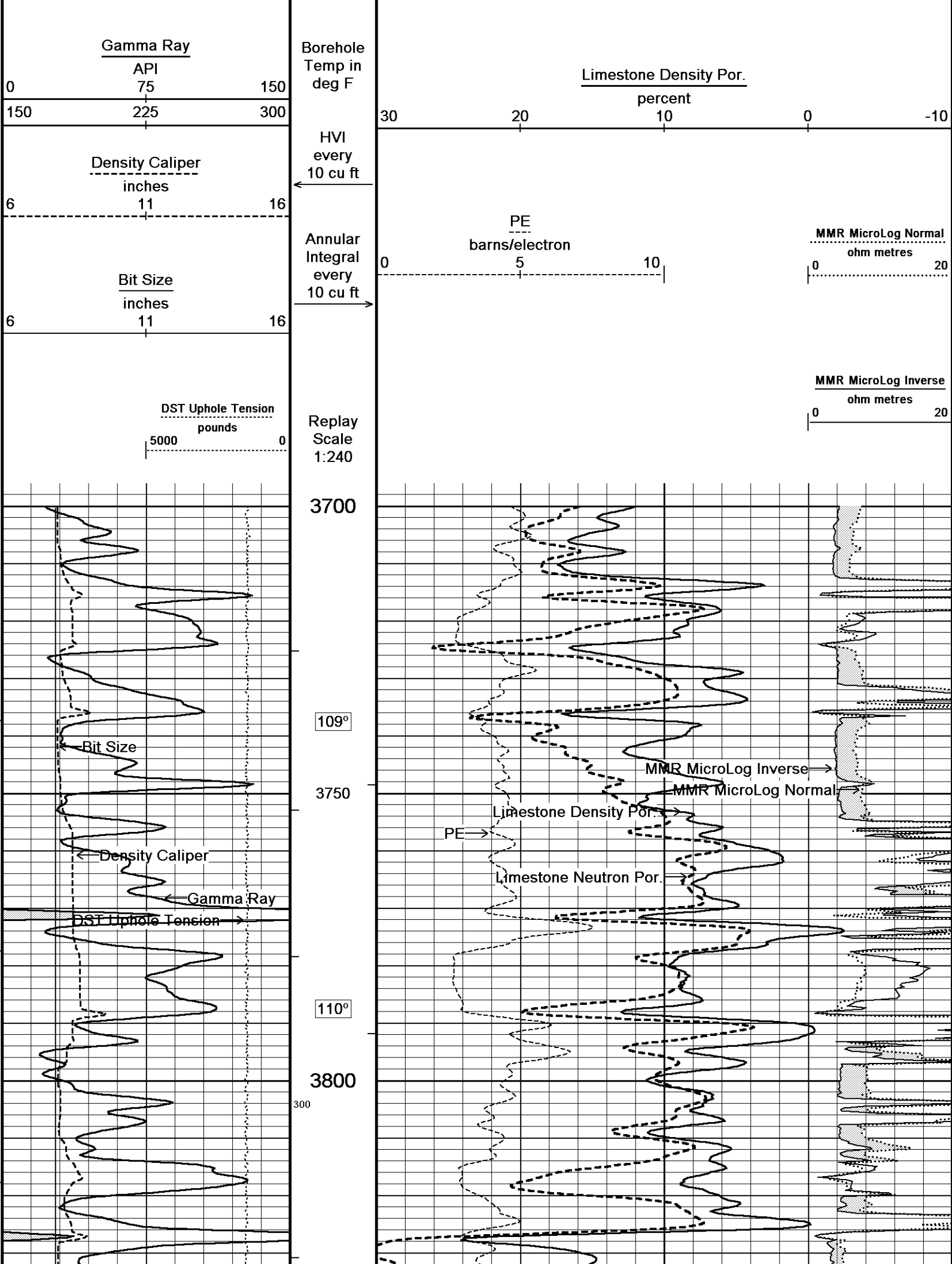
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Filename: C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_002.dta	Recorded on 26-AUG-2013 09:23
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583	

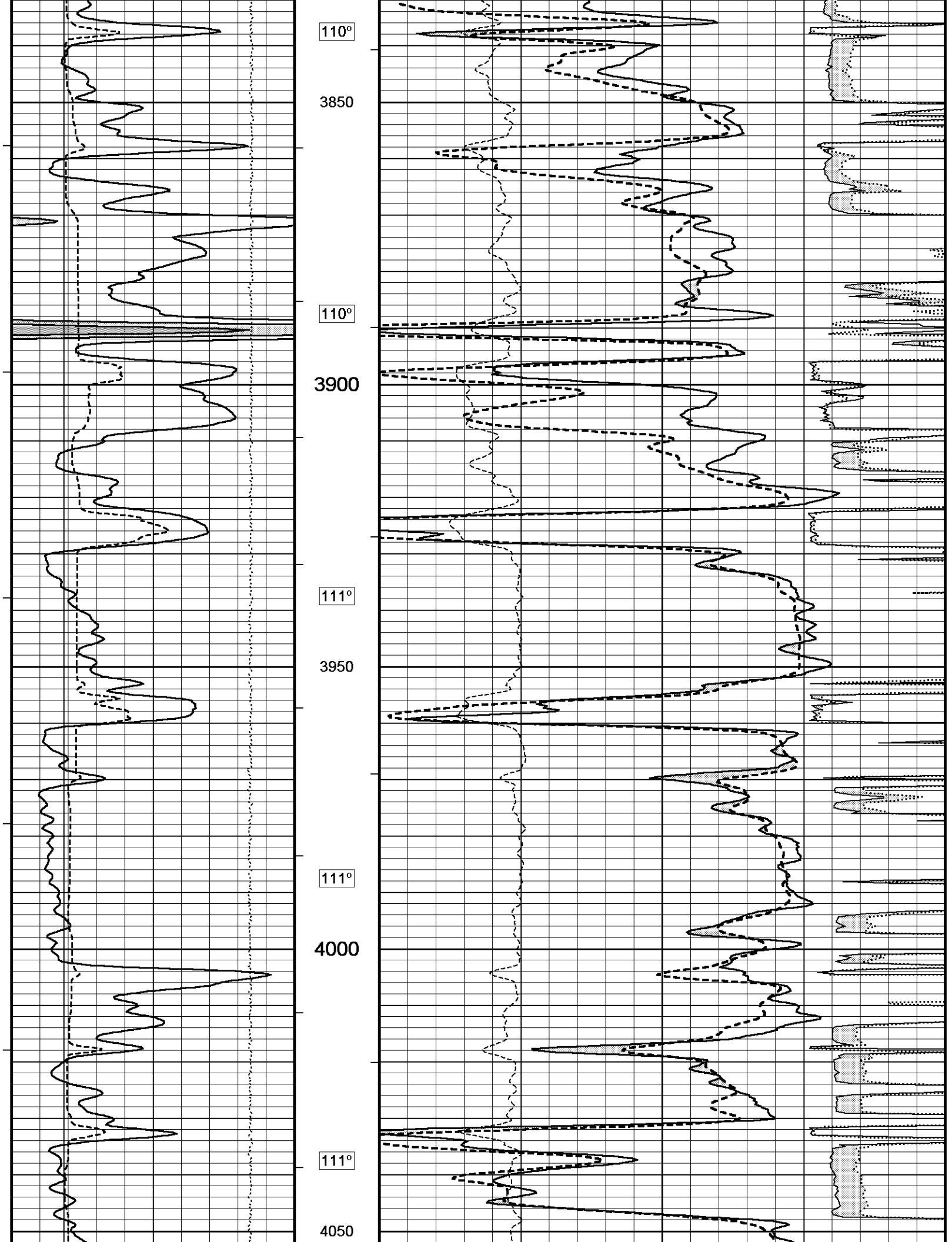
↑ 5 INCH MAIN ↑

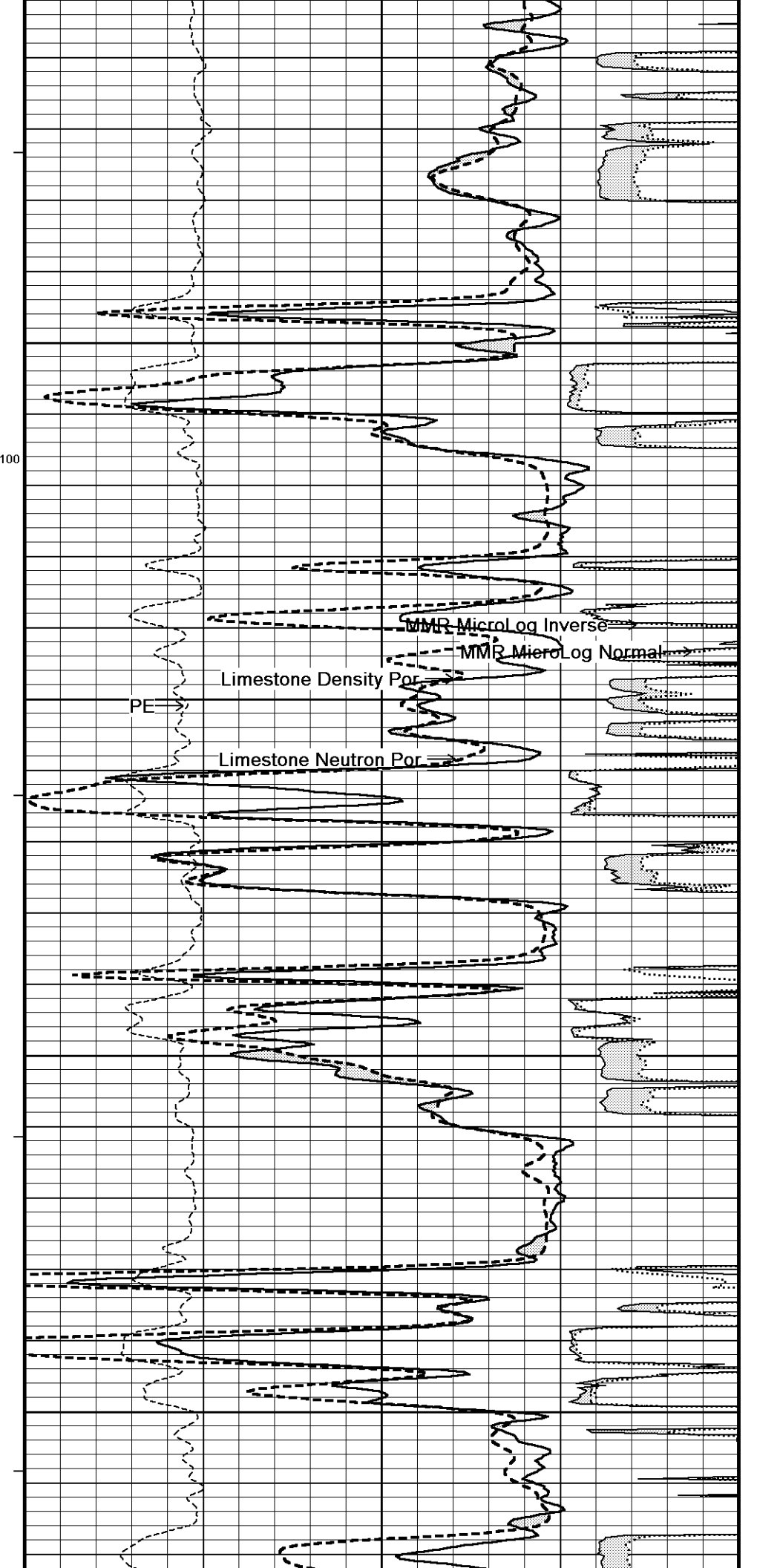
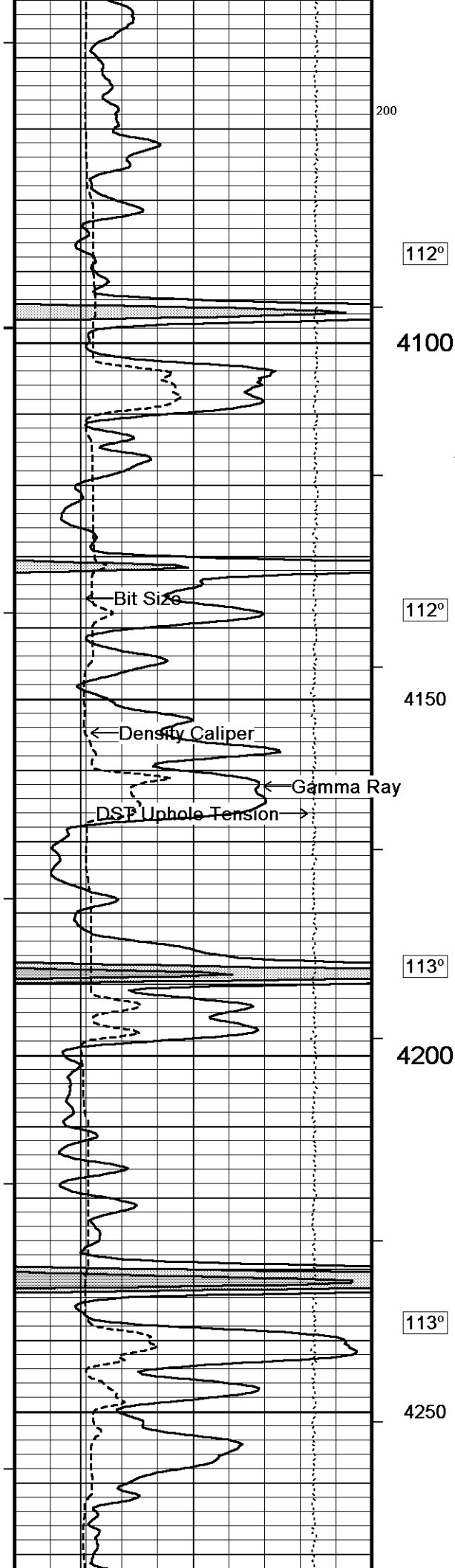
↓ 5 INCH MAIN ↓

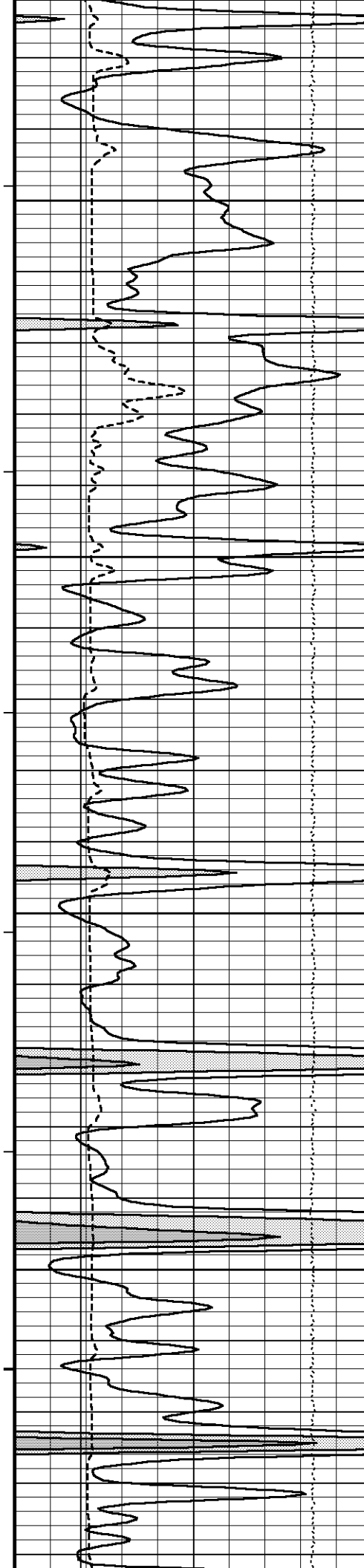
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Filename: C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_002.dta	Recorded on 26-AUG-2013 09:23
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583	



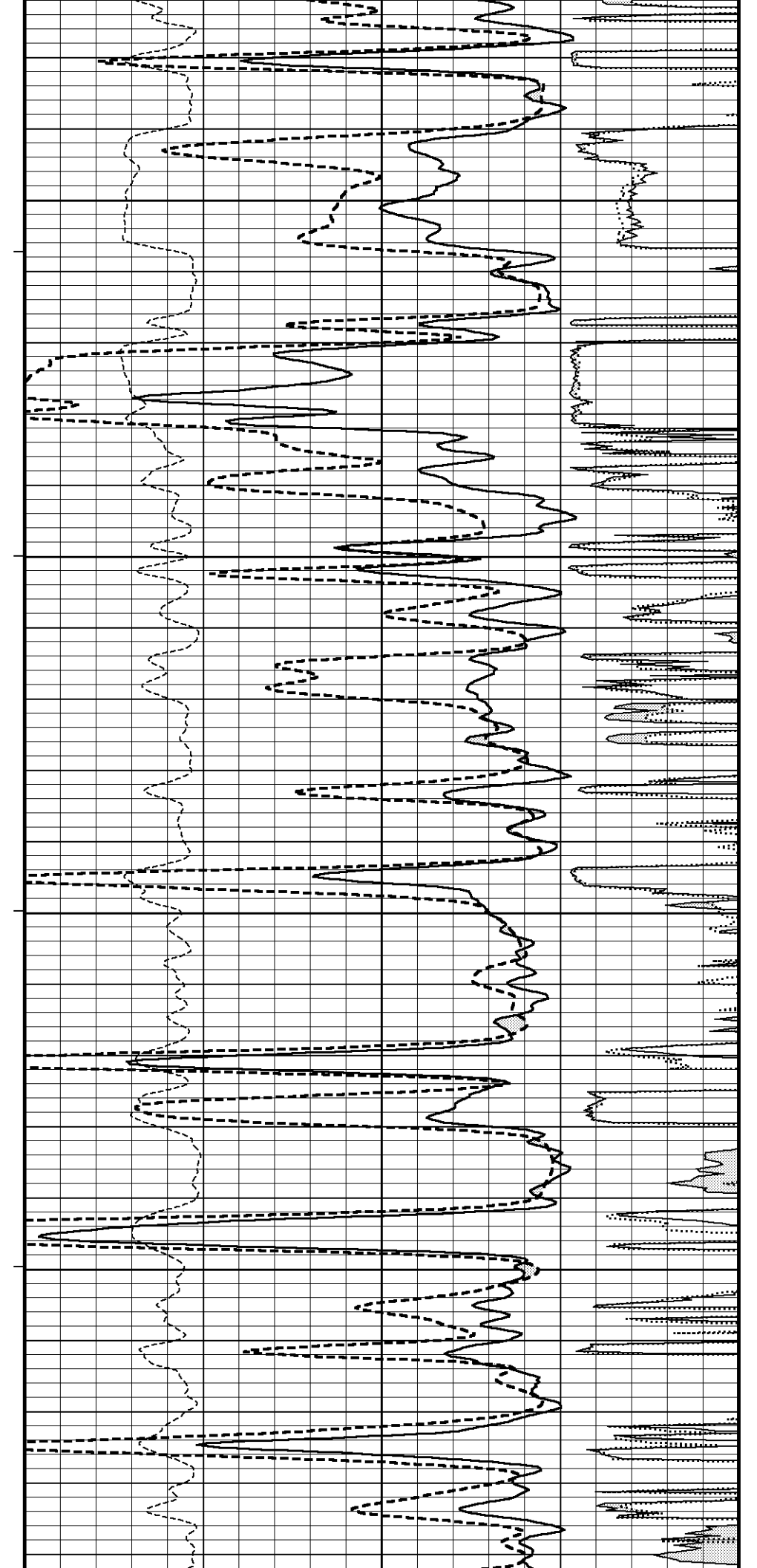


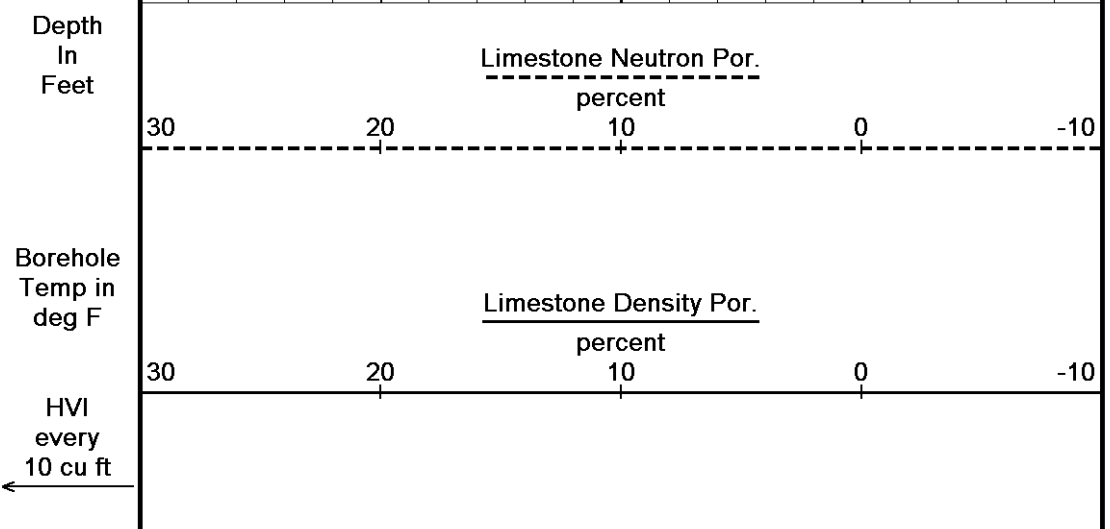
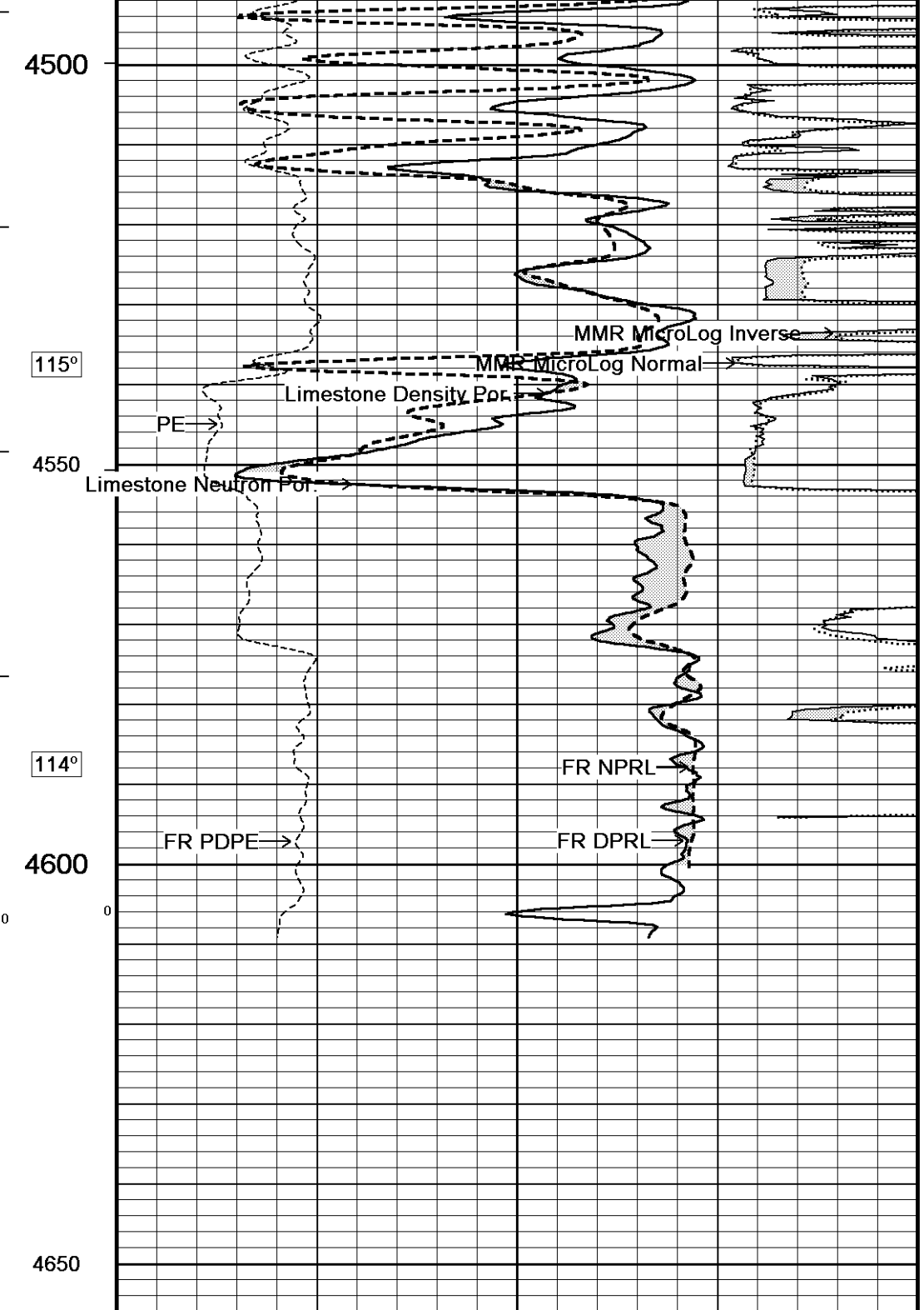
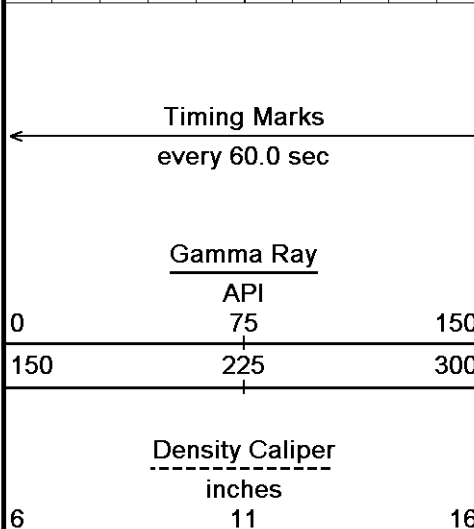
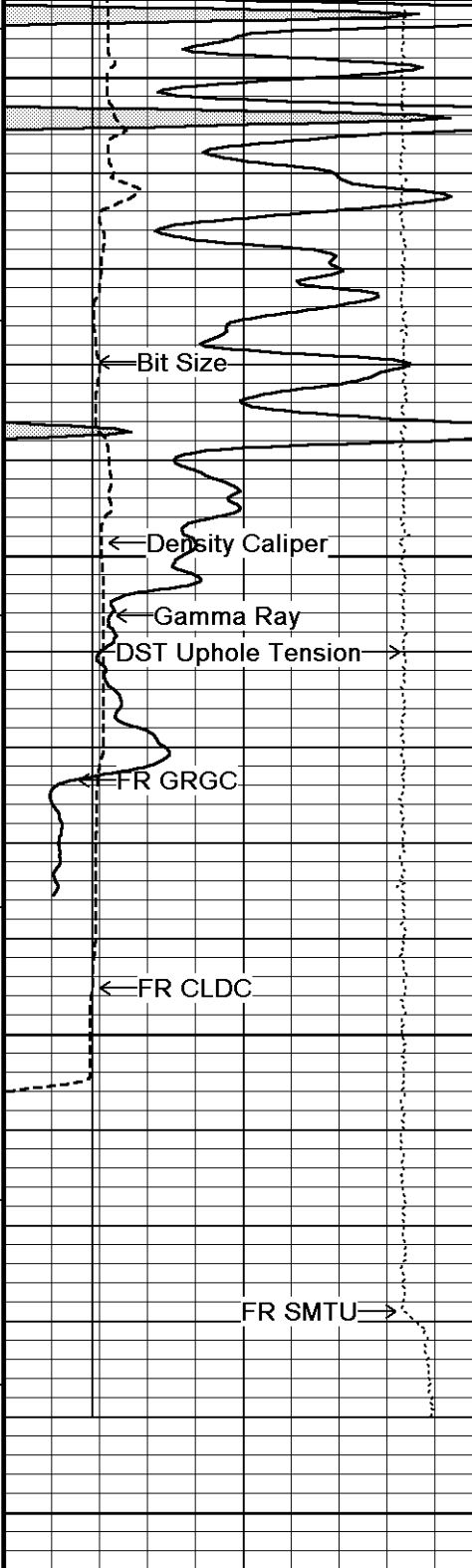


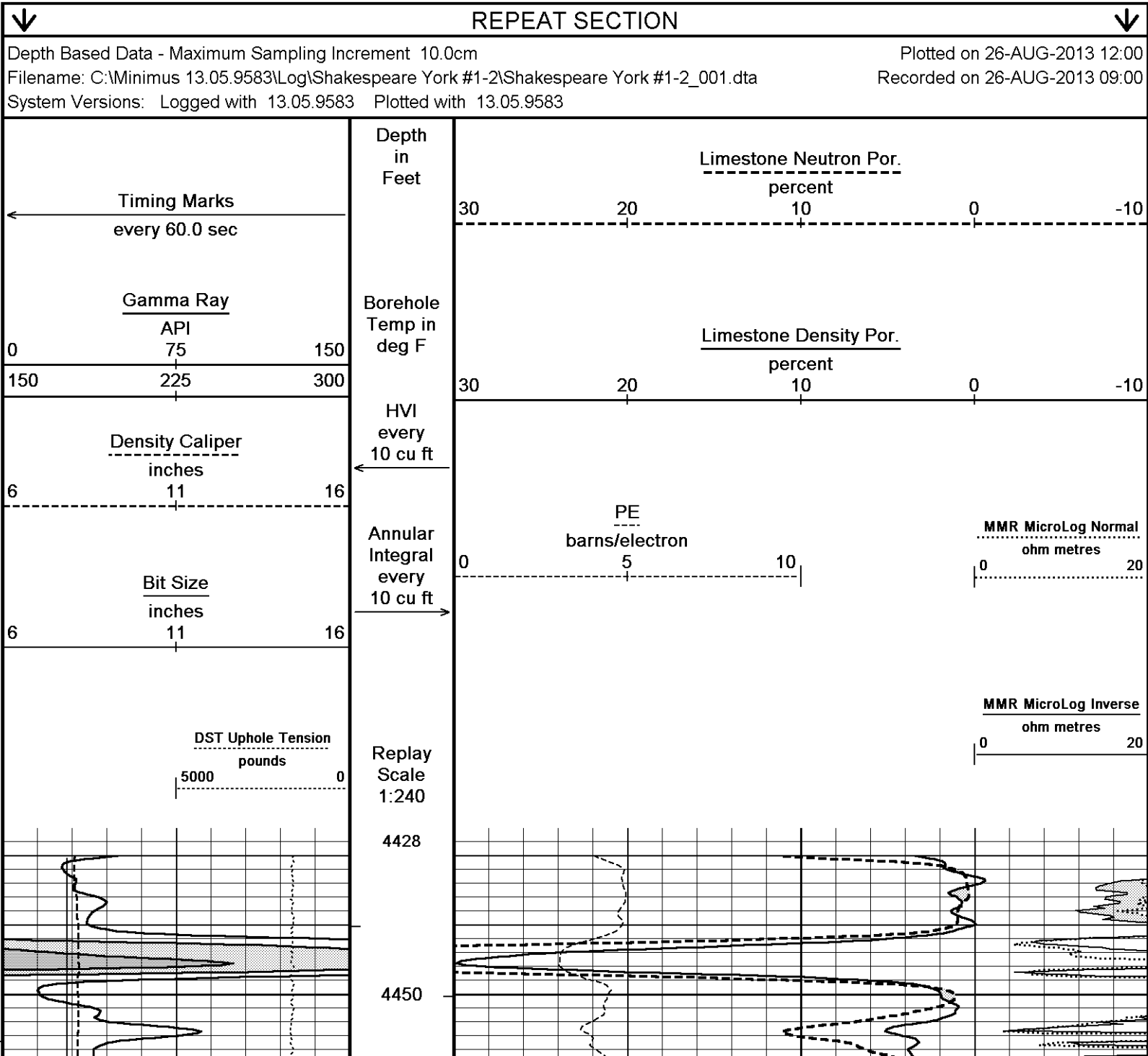
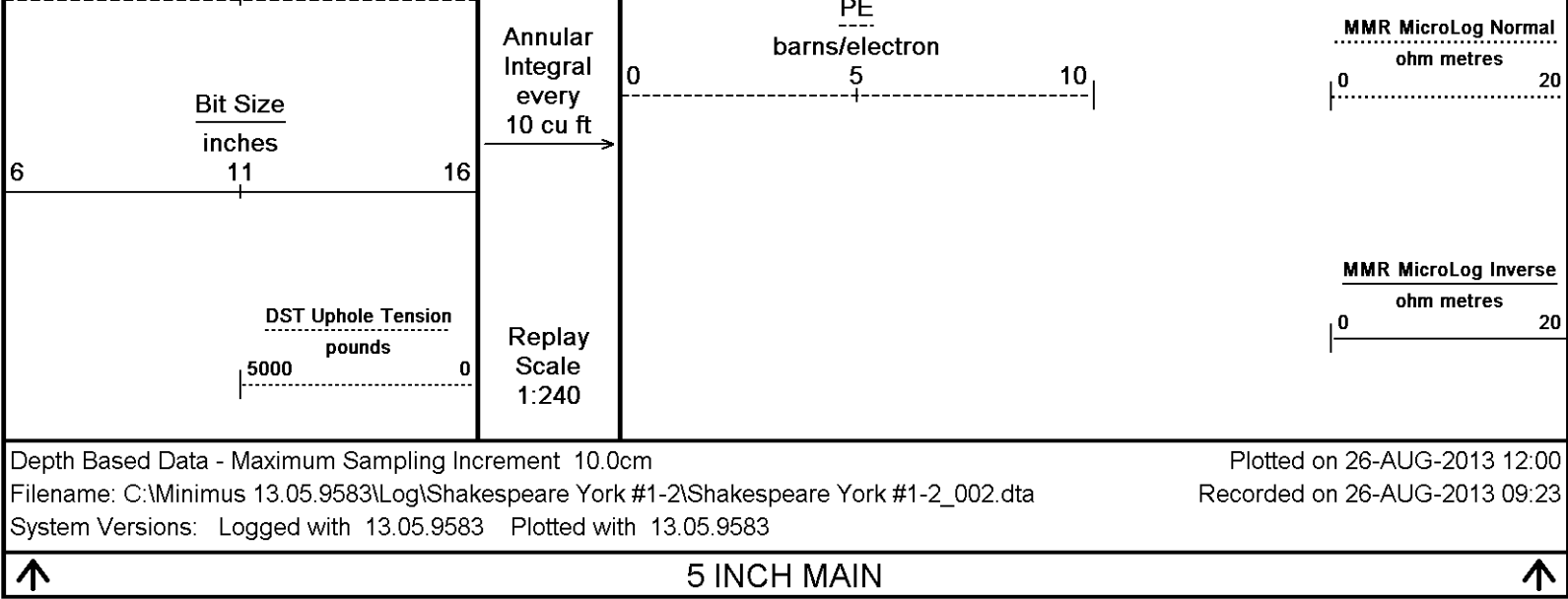


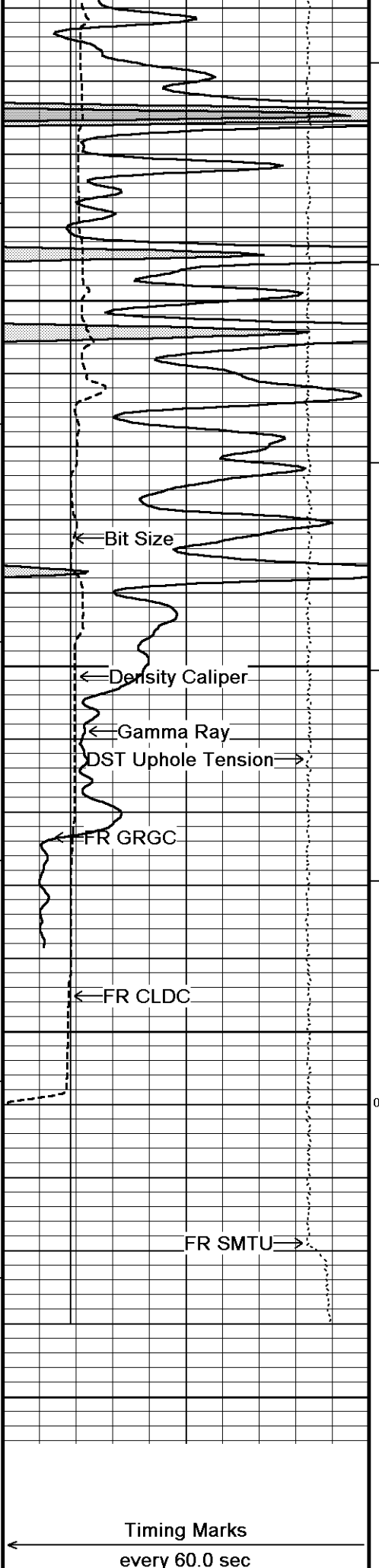


112°
4300
100
113°
4350
114°
4400
114°
4450
115°









114°

4500

115°

4550

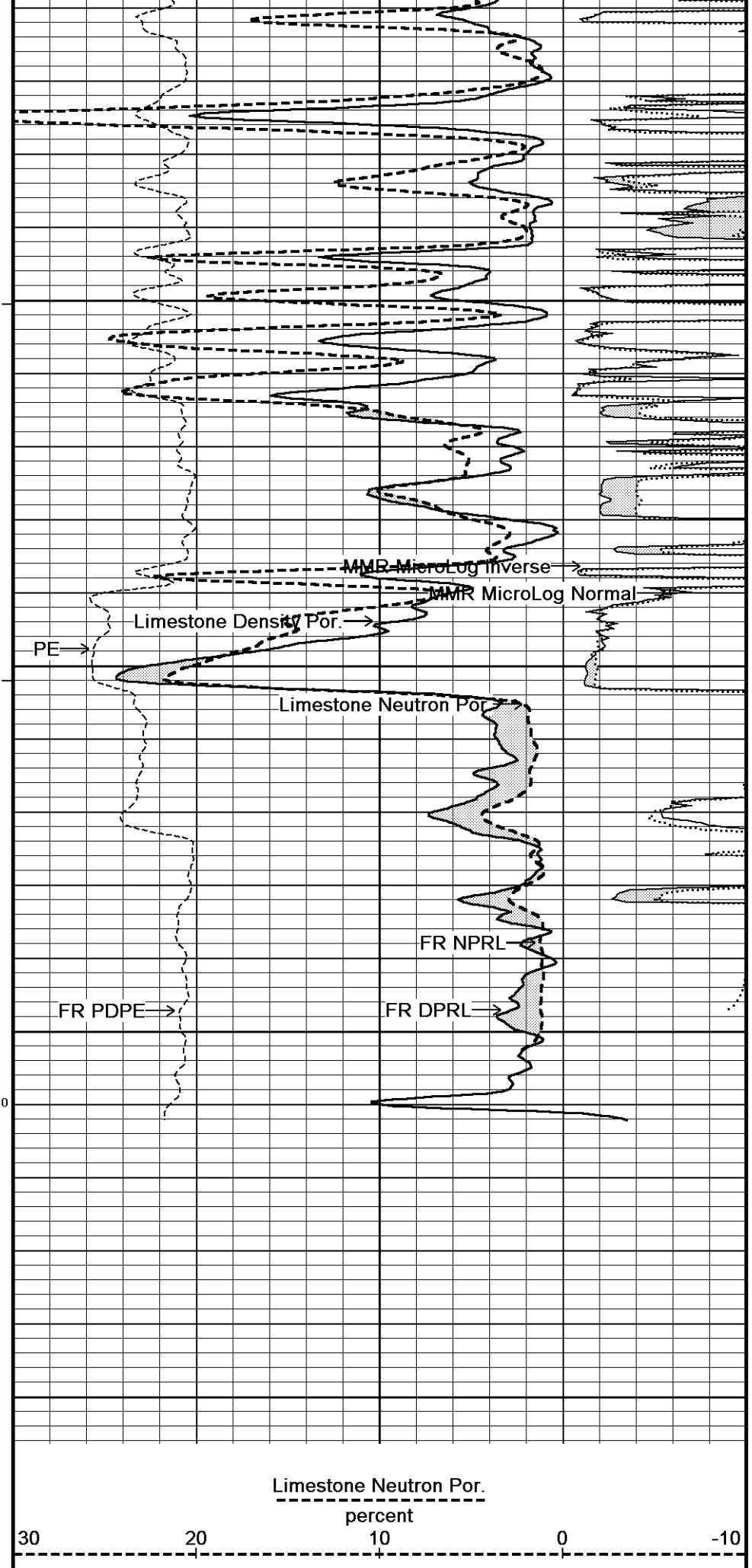
114°

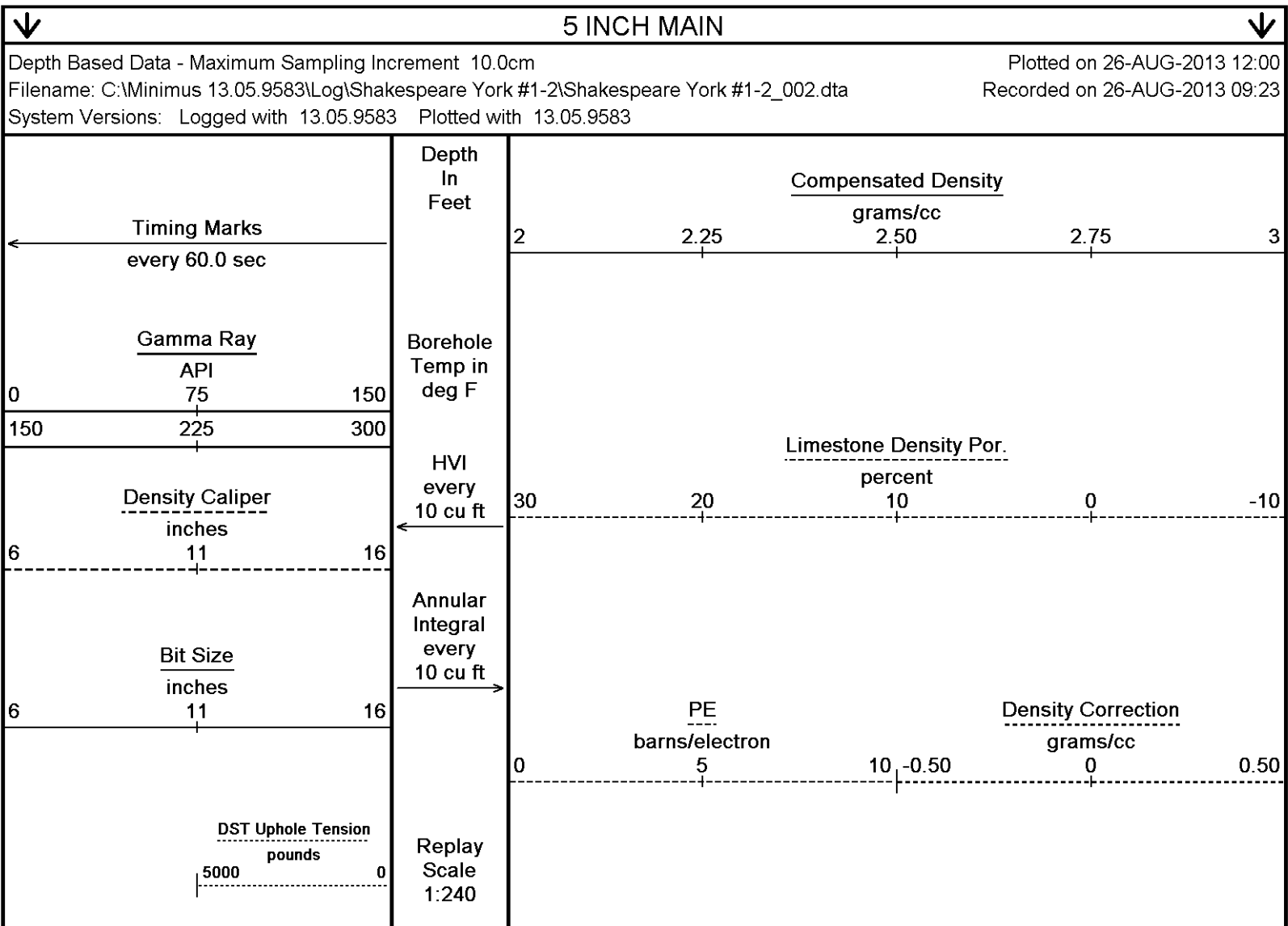
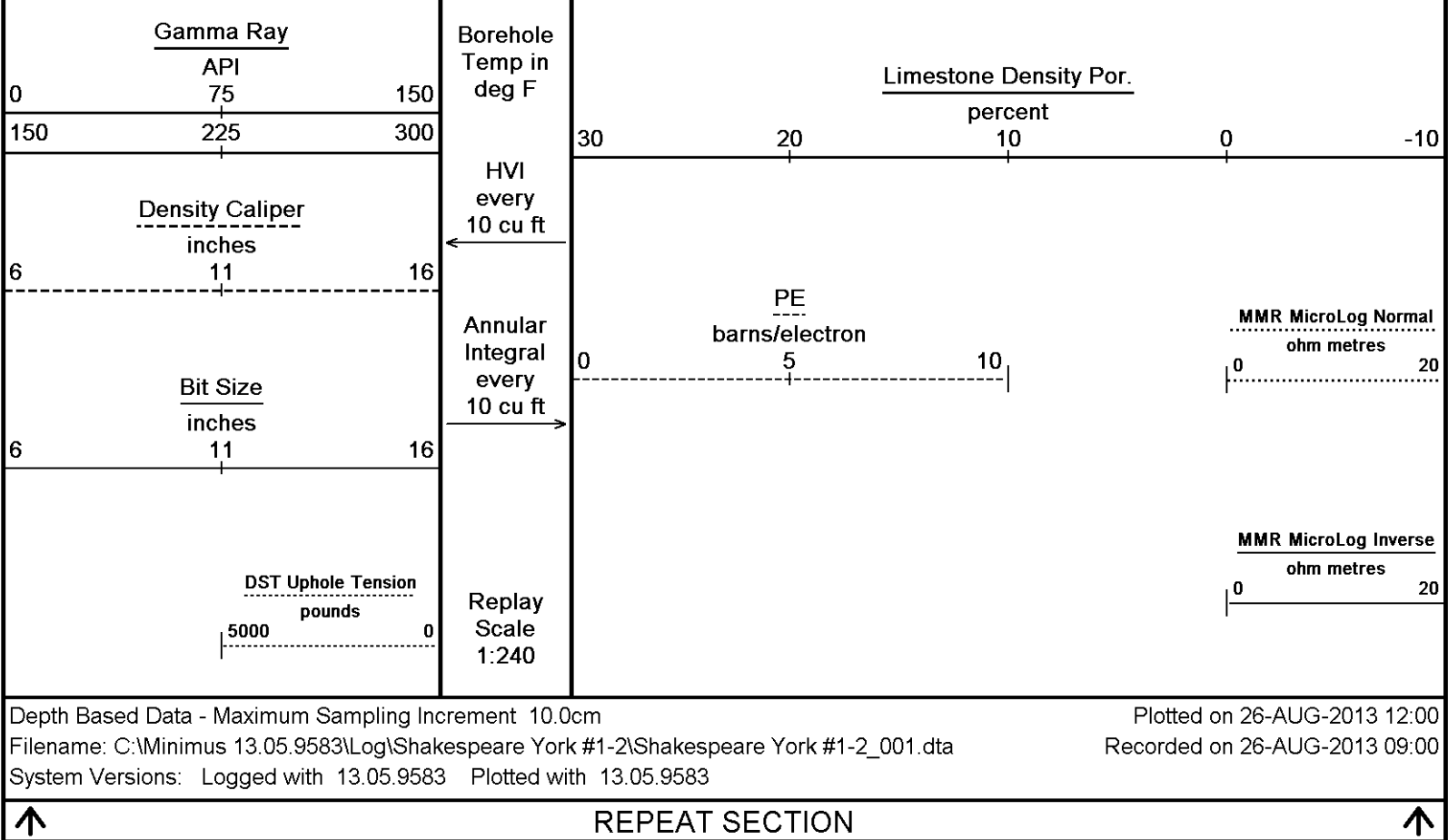
4600

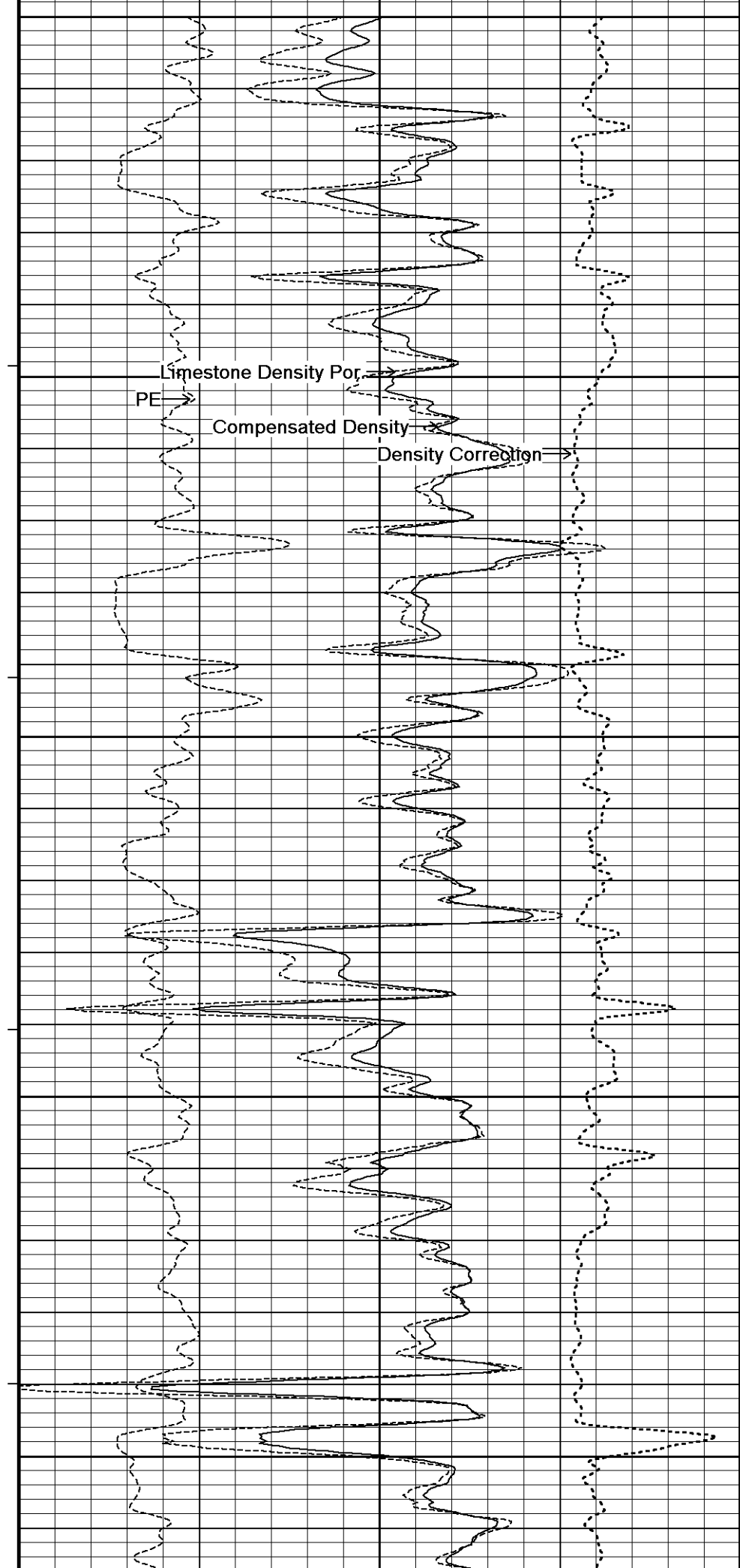
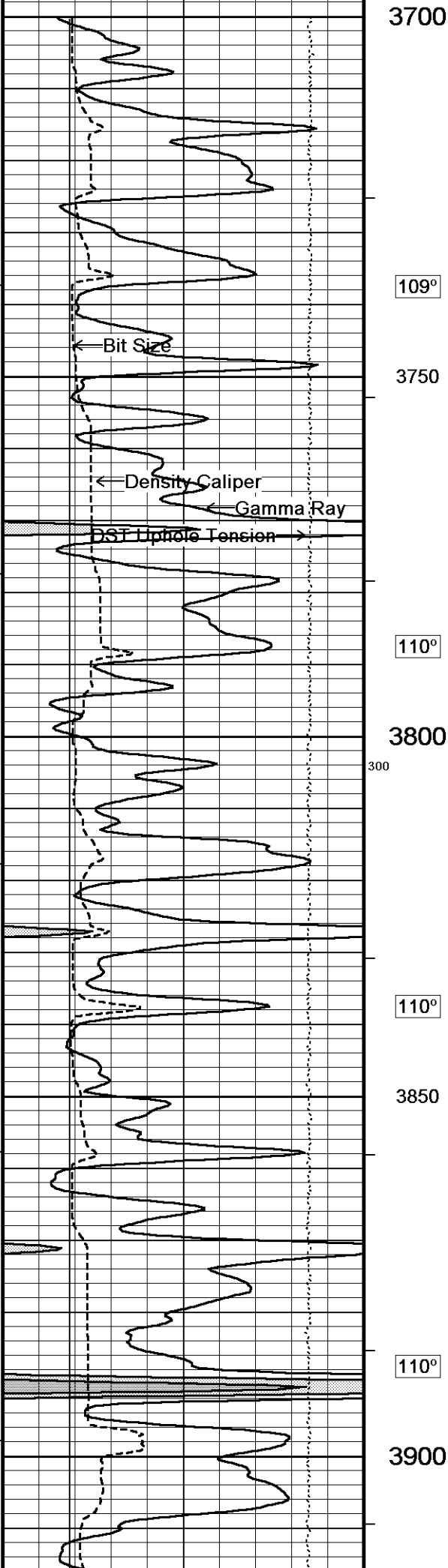
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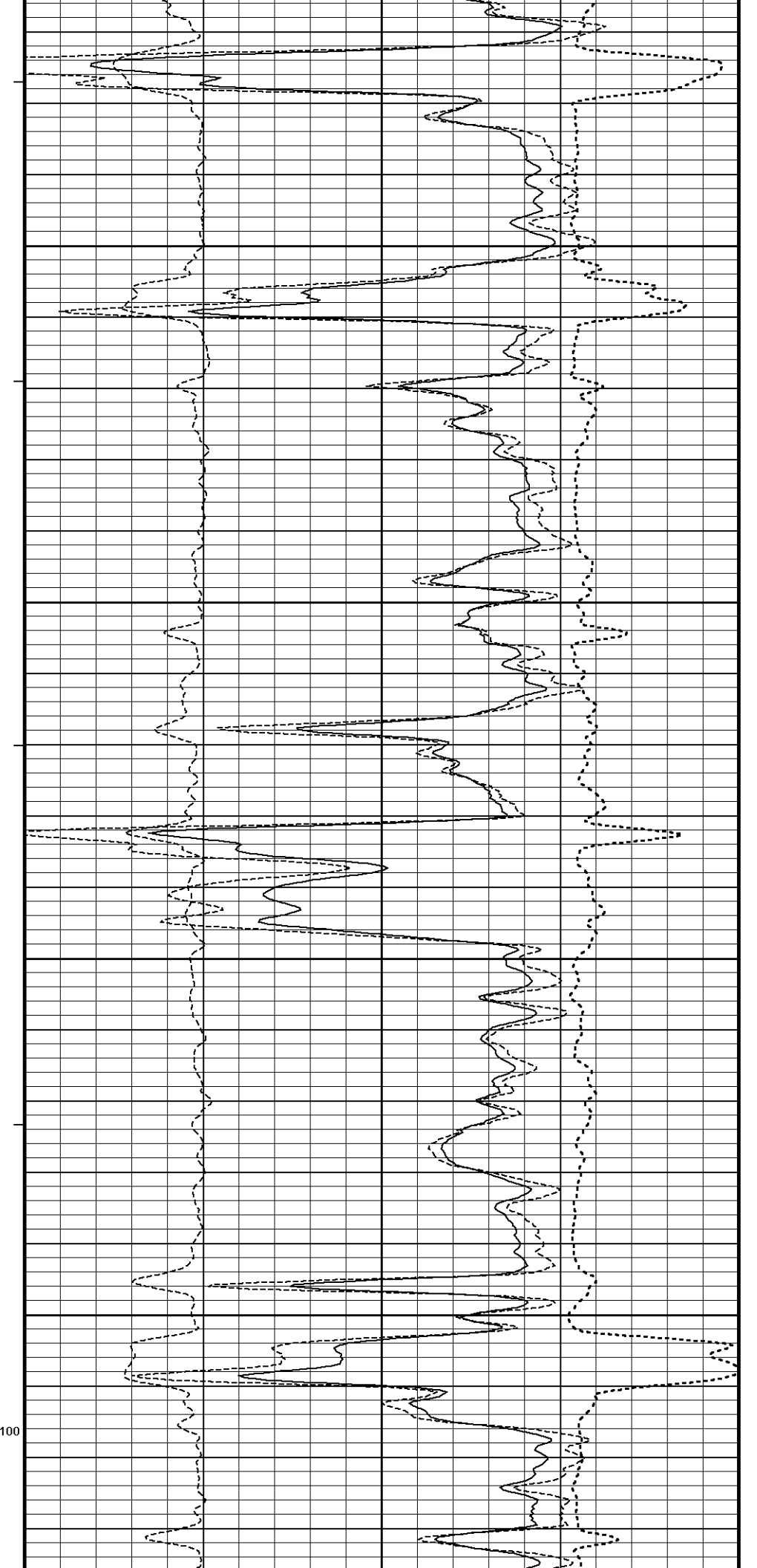
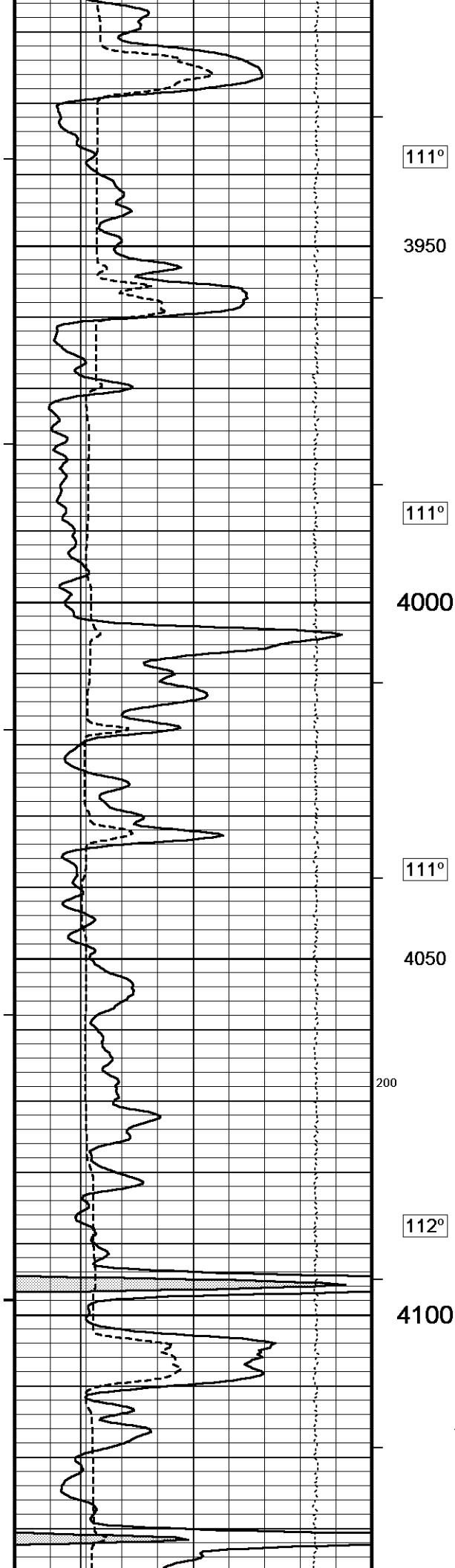
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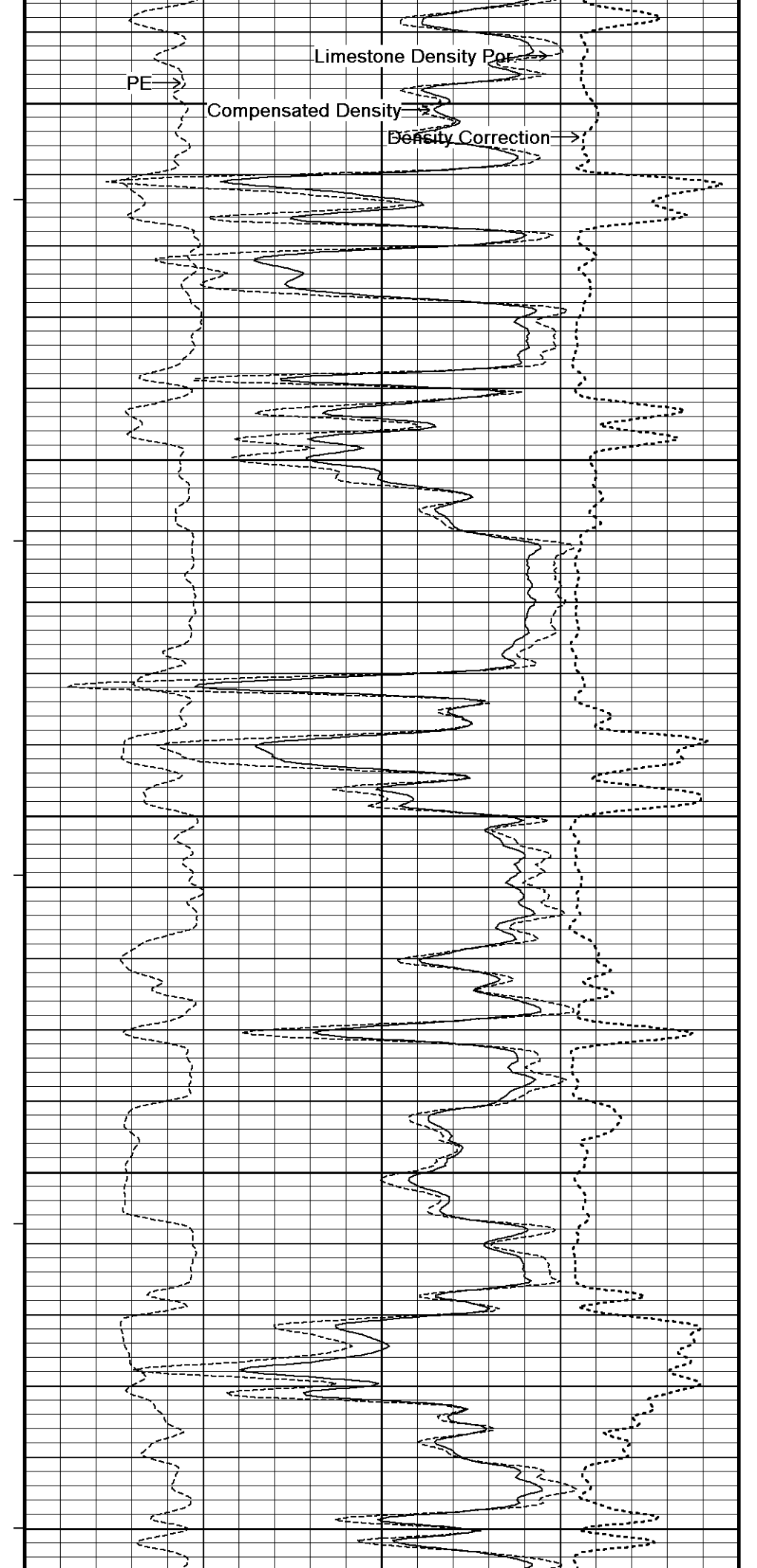
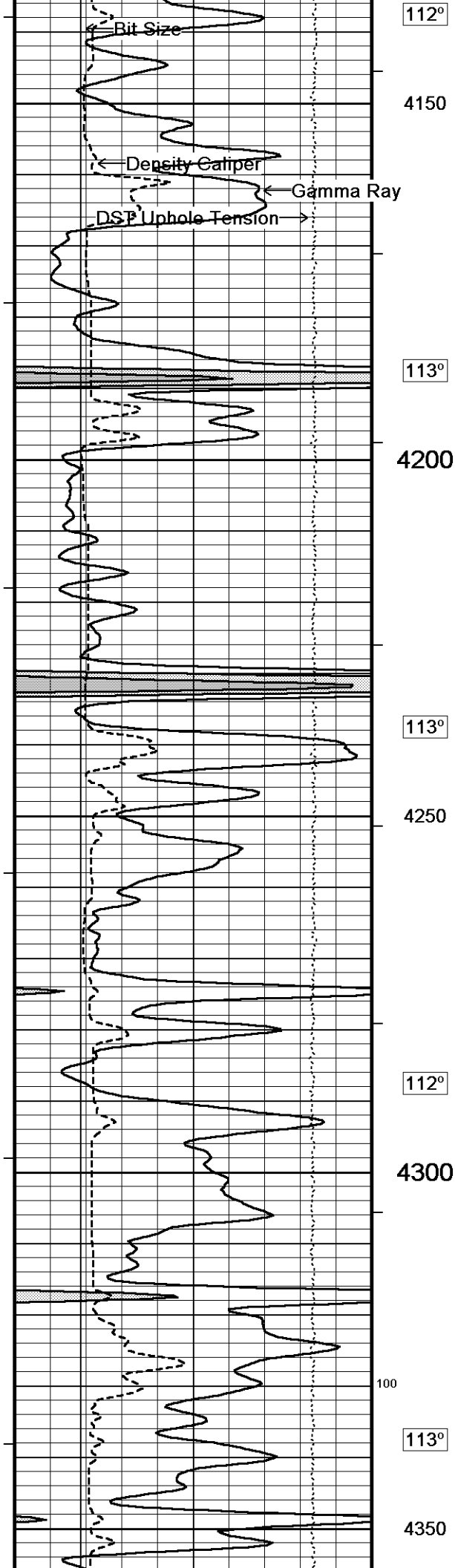
Depth
in
Feet

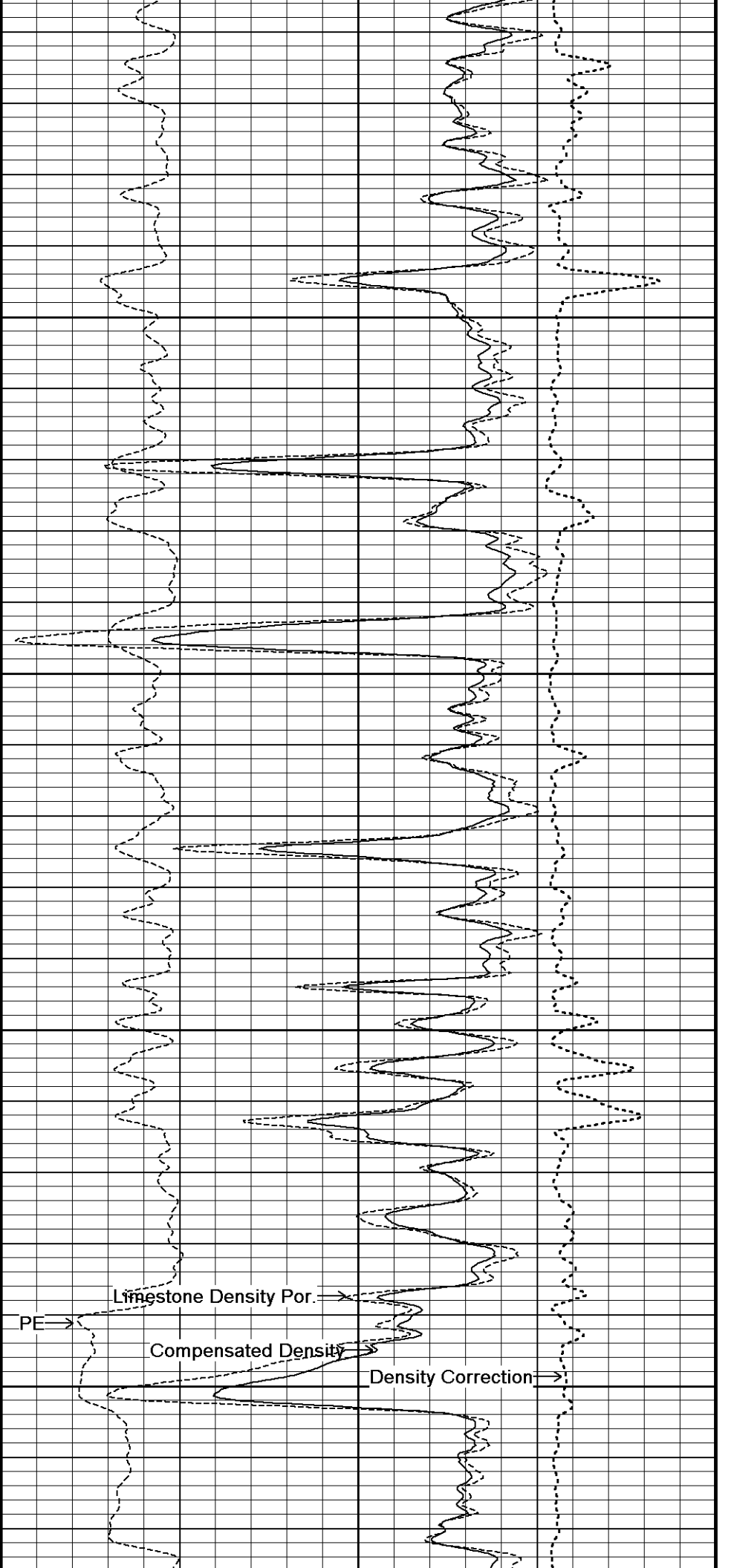
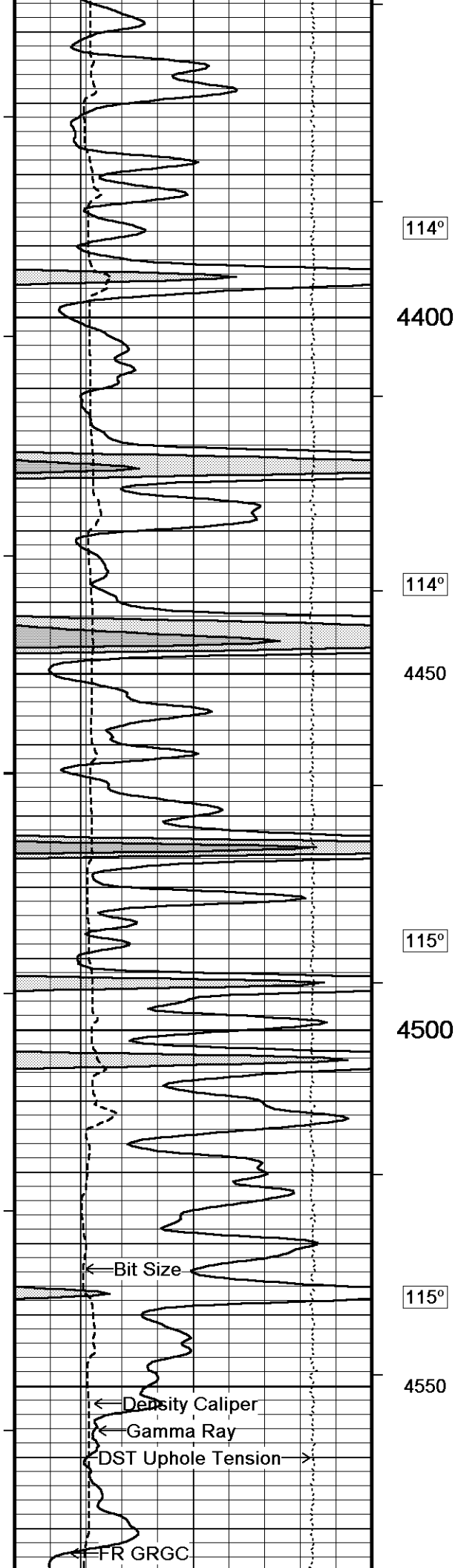


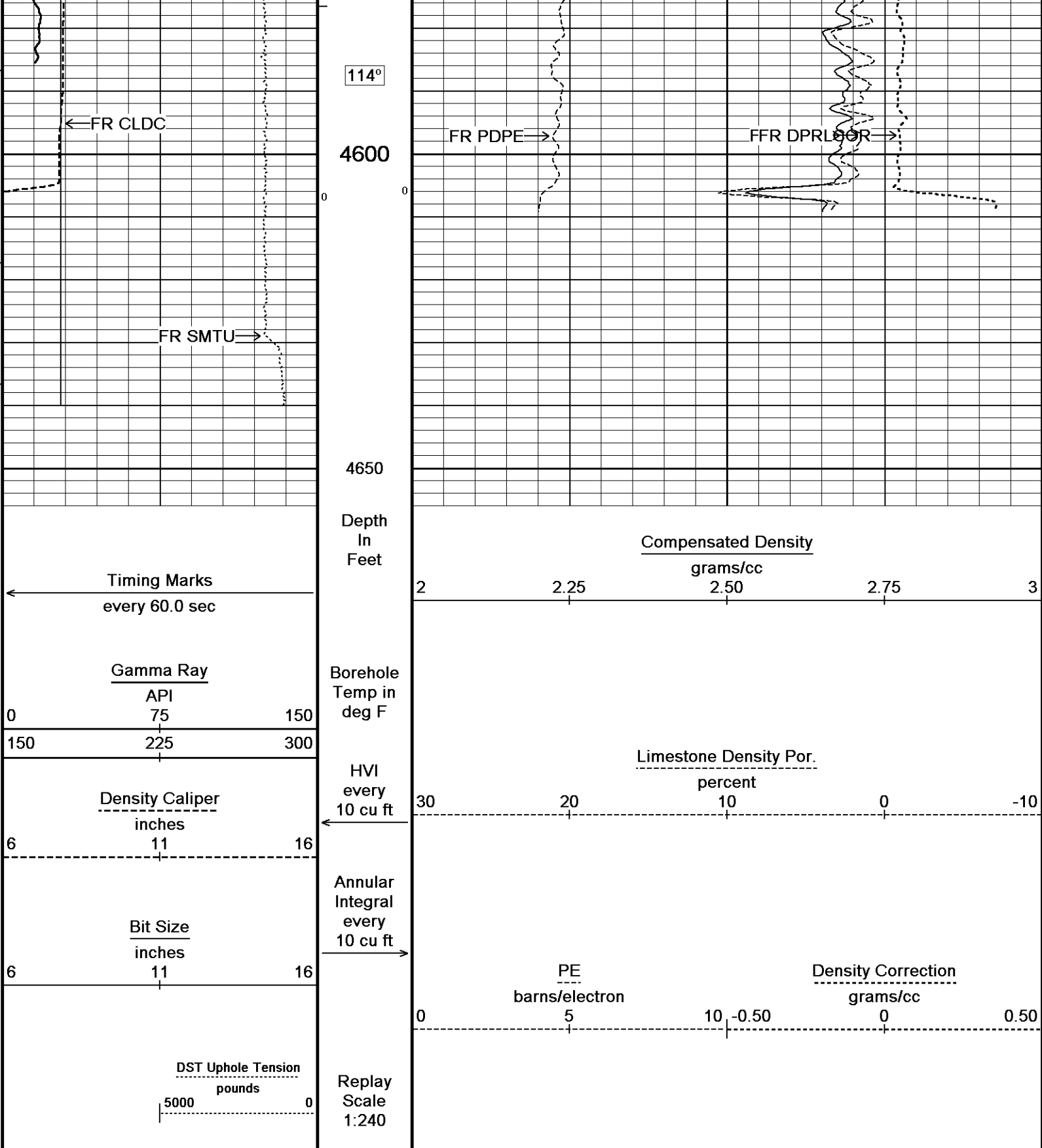










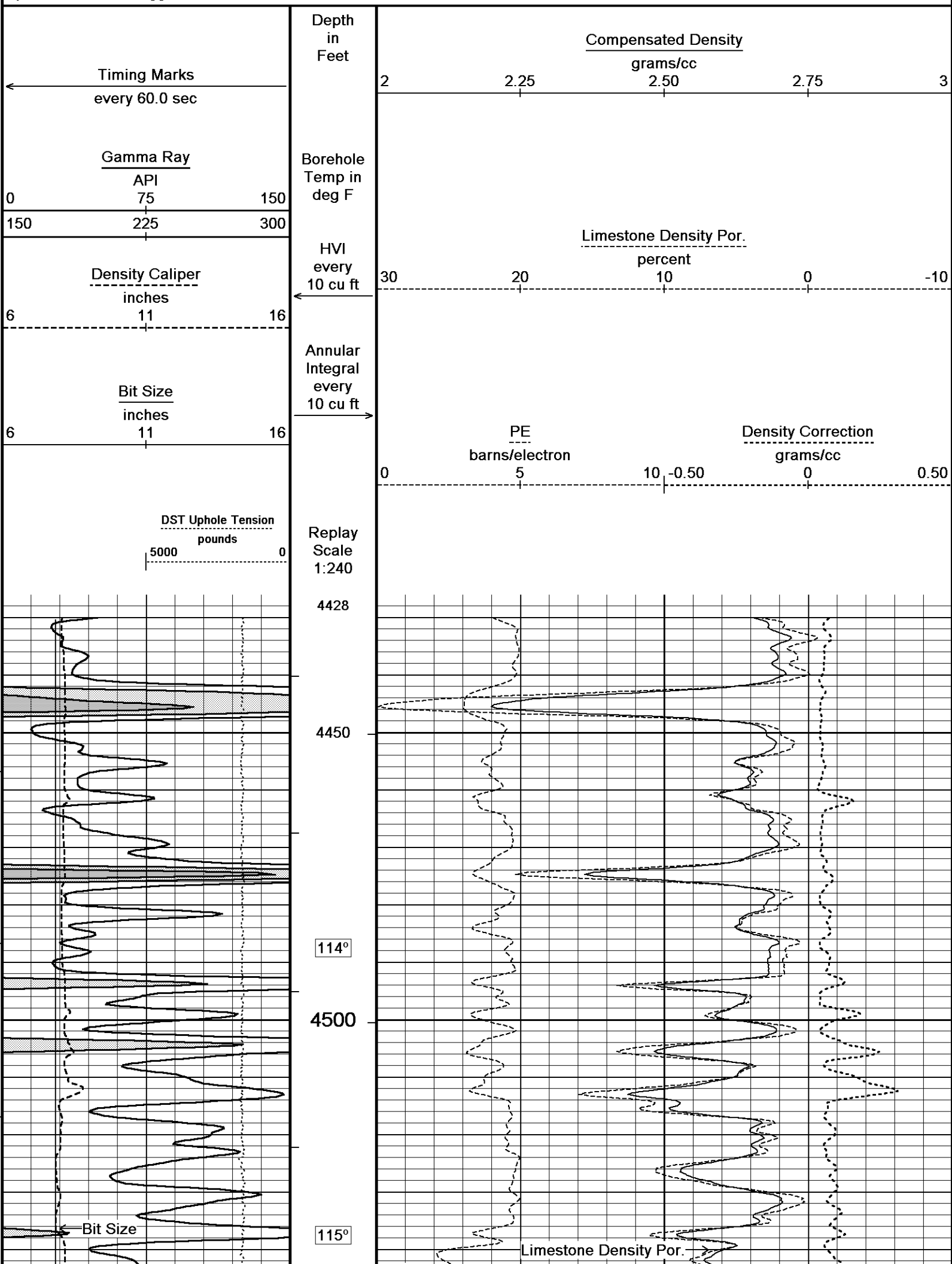


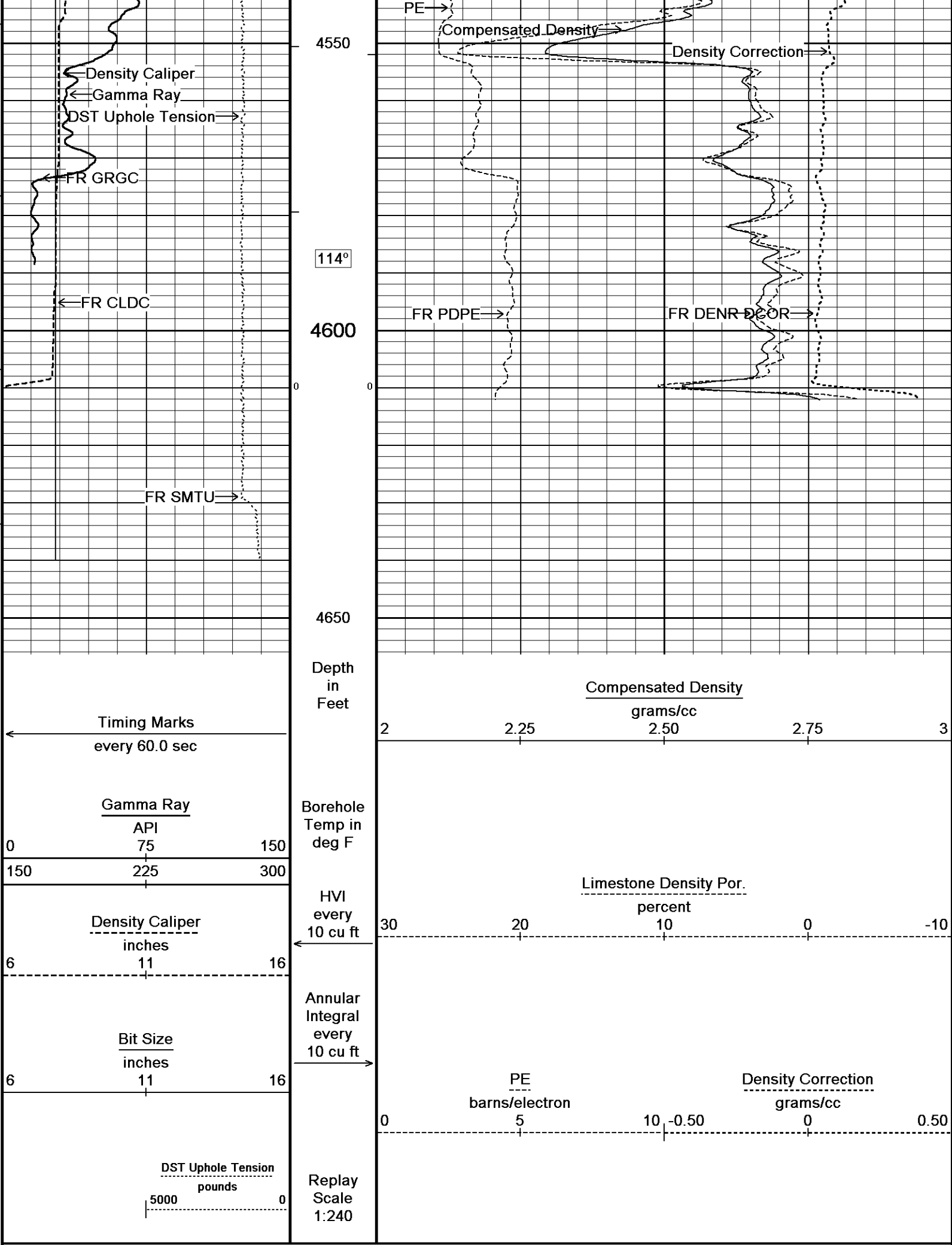
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 26-AUG-2013 12:00
Filename: C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_002.dta Recorded on 26-AUG-2013 09:23
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 26-AUG-2013 12:00
Filename: C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_001.dta Recorded on 26-AUG-2013 09:00
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583







REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_002.dta

General Constants All 000

Last Edited on 26-AUG-2013,08:25

General Parameters

Mud Resistivity	1.620	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Borehole Fluid 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	Base Density Porosity	
Resistivity used	Array Ind. Six Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 26-AUG-2013 07:59

Reading No	Measured	Calibrated (lbs)
1	13268.39	0.00
2	13791.97	471.80

Gamma Calibration MCG-D.K 469

Field Calibration on 20-AUG-2013 09:30

	Measured	Calibrated (API)
Background	71	48
Calibrator (Gross)	1141	773
Calibrator (Net)	1070	725

Gamma Constants MCG-D.K 469

Last Edited on 23-AUG-2013,22:32

Gamma Calibrator Number	GRC38	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 18-AUG-2013,02:35

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

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 18-AUG-2013,02:35

Pre-filter Length	11
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SP Calibration MCG-D.K 469

Field Calibration on 18-AUG-2013,02:35

	Measured	Calibrated (mV)
Reference 1	105.8	100.0
Reference 2	-94.3	-100.0

Caliper Calibration MML-A 3

Base Calibration on 15-AUG-2013 08:50

Field Calibration on 20-AUG-2013 09:51

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14887	5.98
2	18120	7.97
3	21042	9.86
4	25322	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.97	5.98

Micro Normal and Micro Inverse Calibration MML-A 3					Base Calibration on 15-AUG-2013 09:16 Field Check on 20-AUG-2013 09:19	
Base Calibration						
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m)	Resistor 1	Resistor 2	
Micro Normal	12.3	60.3	5.0	25.0		
Micro Inverse	15.7	78.4	5.0	25.0		
Channel	Base Check (ohm-m)		Field Check (ohm-m)			
Micro Normal	62.9		62.9			
Micro Inverse	48.2		48.2			

Micro Normal and Micro Inverse Constants MML-A 3					Last Edited on 20-AUG-2013,09:17	
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					

Neutron Calibration MDN-A.B 66					Base Calibration on 31-JUL-2013 10:25 Field Check on 20-AUG-2013 09:35	
Base Calibration						
	Measured		Calibrated (cps)			
	Near	Far	Near	Far		
	3180	99	3714	110		
Ratio	32.180		33.764			
Field Calibrator at Base			Calibrated (cps)			
			1617	2323		
Ratio			0.696			
Field Check			Calibrated (cps)			
			1624	2337		
Ratio			0.694			

Neutron Constants MDN-A.B 66					Last Edited on 20-AUG-2013,09:30	
Neutron Source Id	P0204NN					
Neutron Jig Number	5824NE					
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	None					
Formation Pressure	0.00	kpsi				
Temperature Source	Constant Value					
Temperature	68.00	degrees F				
Mud Salinity	0.00	kppm				
Salinity Correction	Not Applied					
Formation Fluid Salinity Source	None					
Formation Fluid Salinity	0.00	kppm				
Barite Mud Correction	Not Applied					

FE Calibration MFE-B.J 353					Base Calibration on 15-AUG-2013 09:33 Field Check on 20-AUG-2013 09:12	
Base Calibration						
Reference 1	Measured	Calibrated (ohm-m)				
	0.0	0.0				

Reference 1	0.0	0.0
Reference 2	964.1	126.8
Base Check		280.9
Field Check		281.0

FE Constants MFE-B.J 353		Last Edited on 20-AUG-2013,09:11	
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-A.A 55		Last Edited on 18-AUG-2013,09:24	
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	Not 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	Compensated		
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
3'	N/A	N/A	N/A
4'	N/A	N/A	N/A
5'	N/A	N/A	N/A
6'	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)	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	N/A
N/A	N/A	N/A	N/A
Full Waveform Parameters			
Use 3' Waveform to derive TR	N/A		
Use 4' Waveform to derive TR	N/A		
Use 5' Waveform to derive TR	N/A		
Use 6' Waveform to derive TR	N/A		
3' Waveform Discriminator Level	N/A	mV	
4' Waveform Discriminator Level	N/A	mV	
5' Waveform Discriminator Level	N/A	mV	
6' Waveform Discriminator Level	N/A	mV	
3' Waveform Filter	N/A		
4' Waveform Filter	N/A		
5' Waveform Filter	N/A		
6' Waveform Filter	N/A		
Semblance Level	N/A		

Semblance Error:	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

Induction Calibration MAI-A.A 167				Base Calibration on 19-APR-2013,13:41	
				Field Check on 20-AUG-2013 09:11	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.3	474.2	9.3	966.2	
2	6.3	388.4	7.6	821.4	
3	3.3	259.4	5.2	566.0	
4	1.9	133.0	2.6	279.2	
Array Temperature		76.8	Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			13.2	3838.4	
2			29.6	3476.1	
3			29.2	3052.2	
4			19.8	2081.0	
Deep			18.6	2048.3	
Medium			42.3	3990.2	
Shallow			43.0	5053.0	
Array Temperature			76.3	Deg F	

Induction Constants MAI-A.A 167			Last Edited on 22-AUG-2013,16:31	
Induction Model		RtAP-NC		
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		8.0000		
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		

High Resolution Temperature Calibration MAI-A.A 167			Field Calibration on 18-AUG-2013,02:21	
		Measured	Calibrated(Deg F)	
Lower		50.00	50.00	

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Shakespeare York #1-2\Shakespeare York #1-2_002.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log

MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric

MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

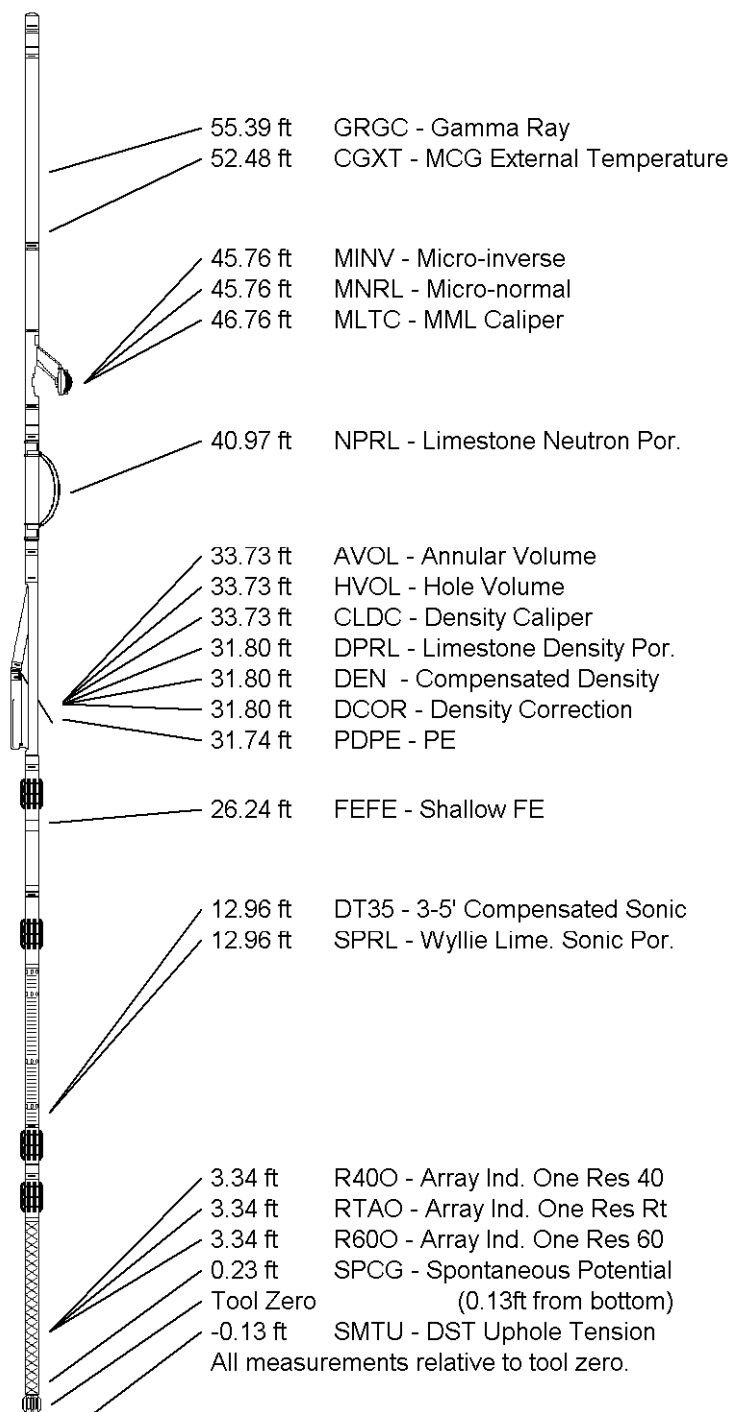
Compact Sonic

MSS-A.A 55 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction

MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.25 ft Weight: 471.8 lb



COMPANY

SHAKESPEARE OIL CO, INC.

WELL

YORK #1-2

FIELD

WILDCAT

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE

UNITED STATES / KANSAS

Elevation Kelly Bushing 2876.00 feet

Elevation Drill Floor 2874.00 feet

Elevation Ground Level 2866.00 feet

First Reading 4597.00 feet

Depth Driller 4630.00 feet

Depth Logger 4629.00 feet



Weatherford[®]

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG