

**Weatherford****COMPACT PHOTO DENSITY
COMPENSATED NEUTRON**

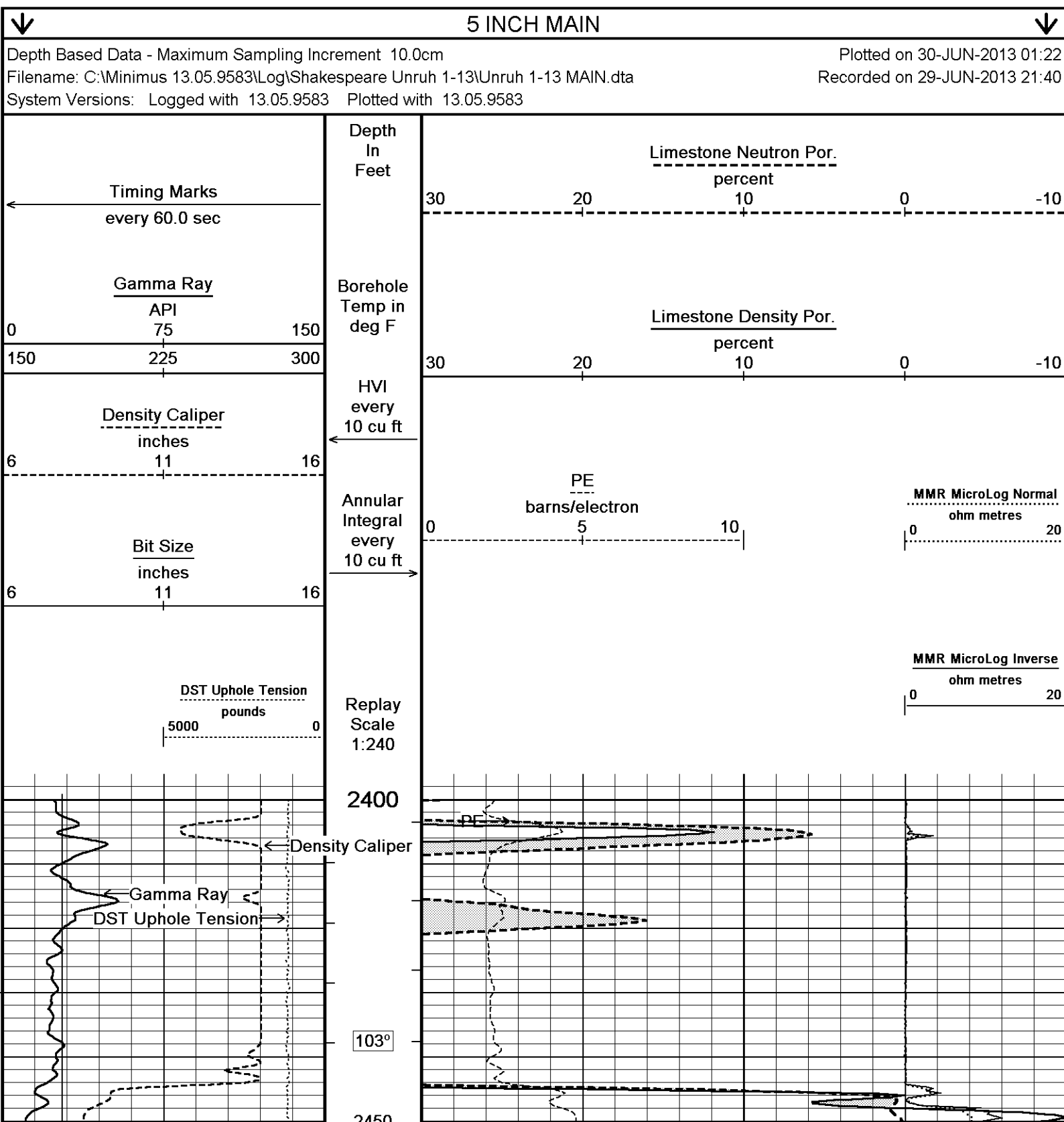
COMPANY										SHAKESPEARE OIL COMPANY									
WELL										UNRUH 1-13									
FIELD										WILDCAT									
PROVINCE/COUNTY										SCOTT									
COUNTRY/STATE										UNITED STATES / KANSAS									
LOCATION										2540' FNL & 520' FWL									
										SE SW SW NW									
SEC		TWP		RGE		Other Services				MML									
13		16S		34W		MA/ MFE													
API Number				15-171-20950				MSS											
Permit Number																			
Permanent Datum G.L., Elevation 3106 feet																			
Log Measured From KB																			
Drilling Measured From K.B. @ 7 FEET																			
Date		29-JUN-2013																	
Run Number		ONE																	
Service Order		3539945																	
Depth Driller		4850.00								feet									
Depth Logger		4848.00								feet									
First Reading		4816.00								feet									
Last Reading		3800.00								feet									
Casing Driller		262.00								feet									
Casing Logger		260.00								feet									
Bit Size		7.875								inches									
Hole Fluid Type		CHEMICAL																	
Density / Viscosity		9.30				lb/USg				53.00		CP							
PH / Fluid Loss		10.00								8.80		ml/30Min							
Sample Source		FLOW LINE																	
Rm @ Measured Temp		0.55 @ 78.0								ohm-m									
Rmf @ Measured Temp		0.44 @ 78.0								ohm-m									
Rmc @ Measured Temp		0.66 @ 78.0								ohm-m									
Source Rmf / Rmc		CALC								CALC									
Rm @ BHT		0.37 @115.0								ohm-m									
Time Since Circulation		4 HOURS																	
Max Recorded Temp		115.00								deg F									
Equipment / Base		13096				LIB													
Recorded By		D. COLE																	
Witnessed By		S. DAVIS																	
IOB#		LB13-188																	

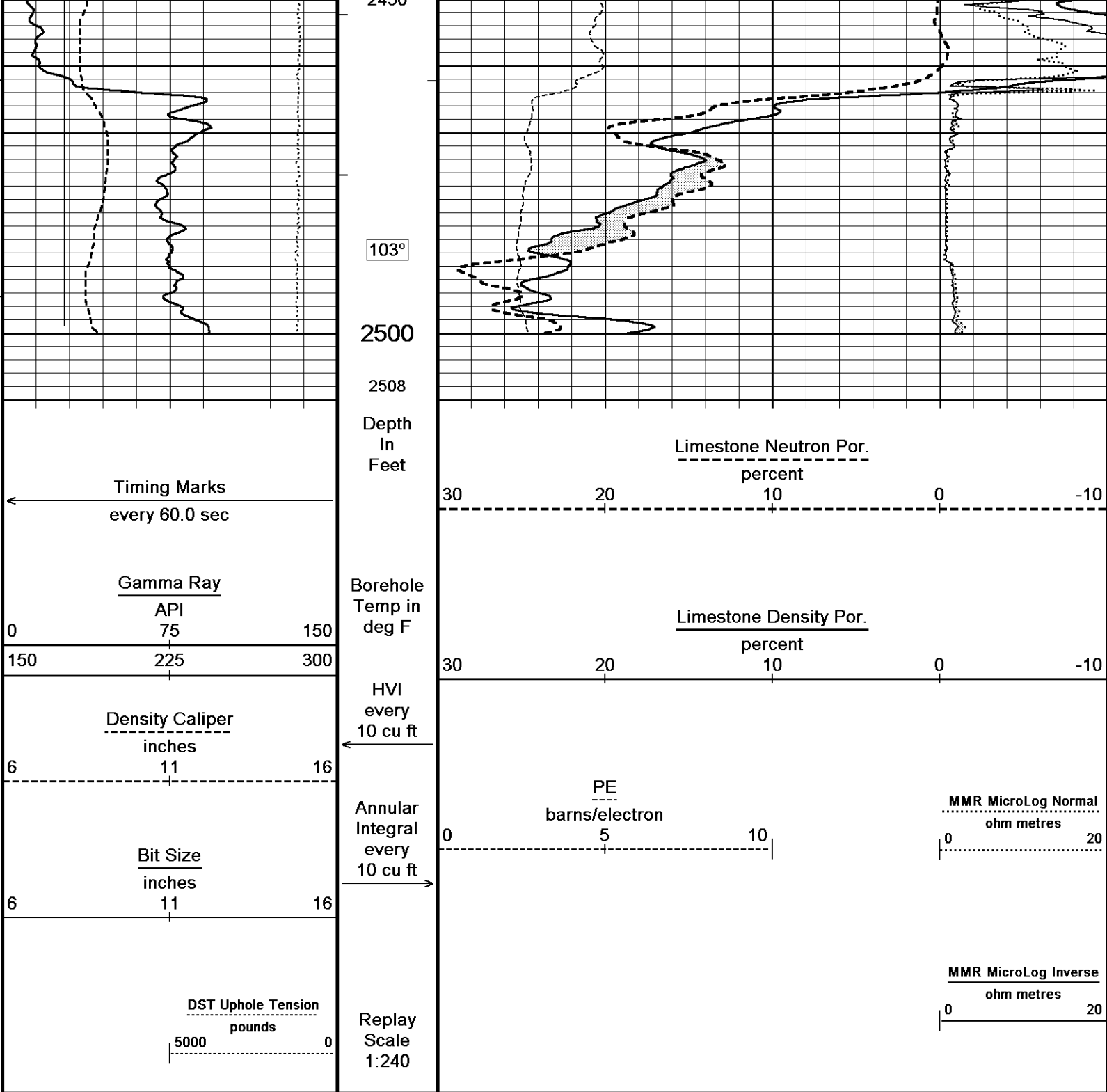
BOREHOLE RECORD					Last Edited: 29-JUN-2013 20:04
Bit Size inches		Depth From feet		Depth To feet	
7.875		262.00		4850.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	262.00	23.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 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: 2210 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO SURFACE CASING: 1450 CU. FT.

- OPERATOR(S): B. REEVES AND C. RIMEREZ

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.



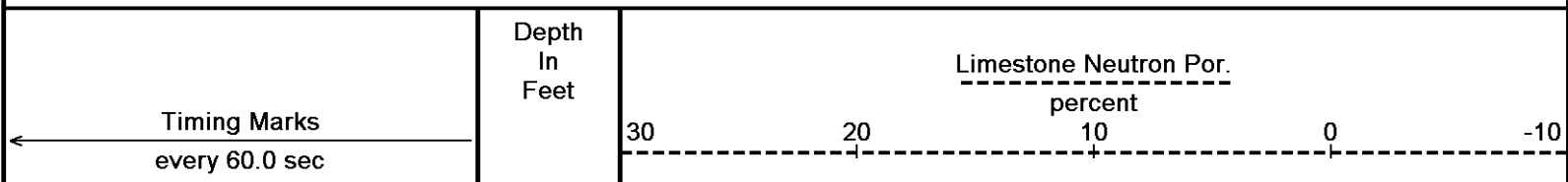


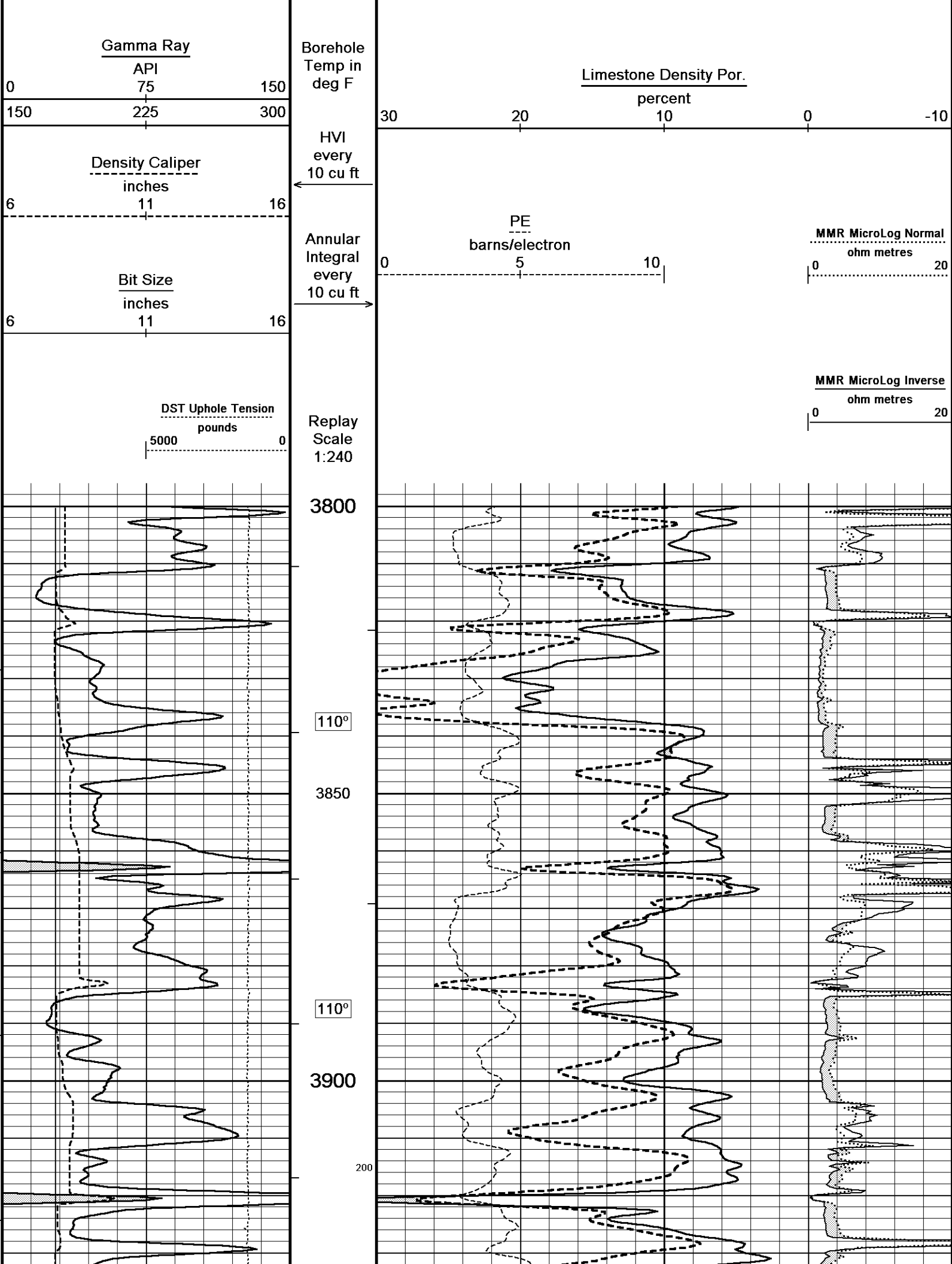
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 MAIN.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

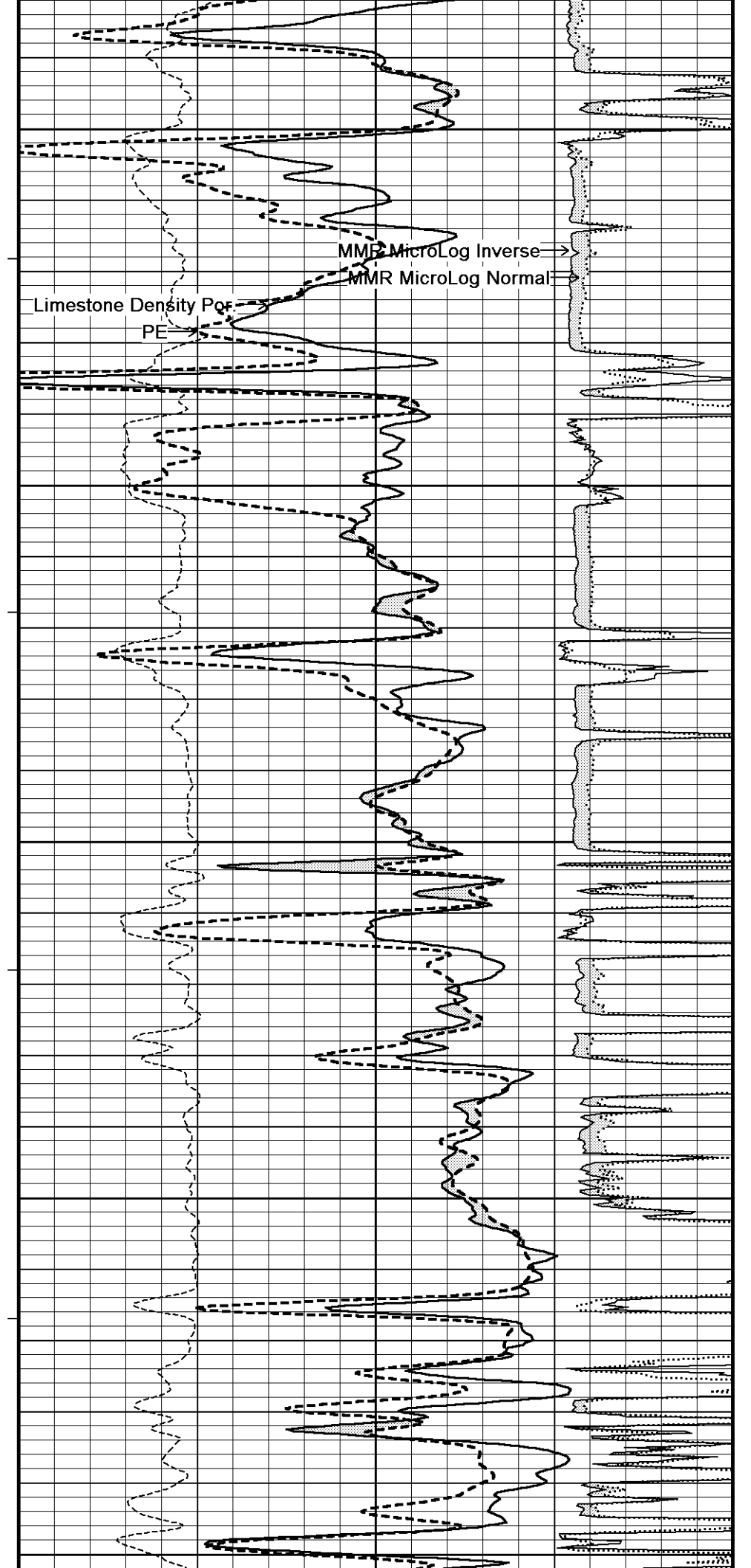
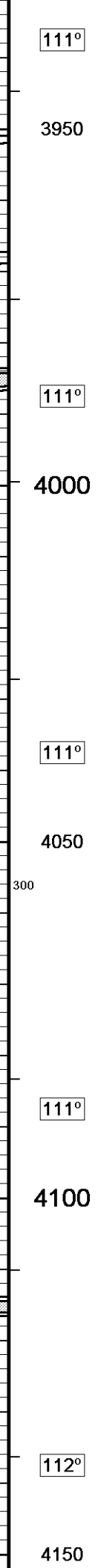
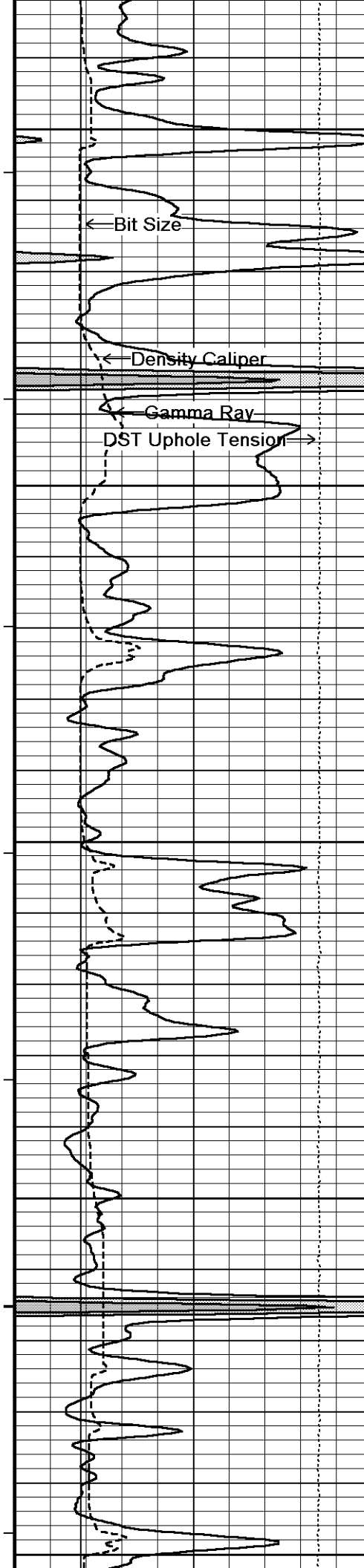
5 INCH MAIN

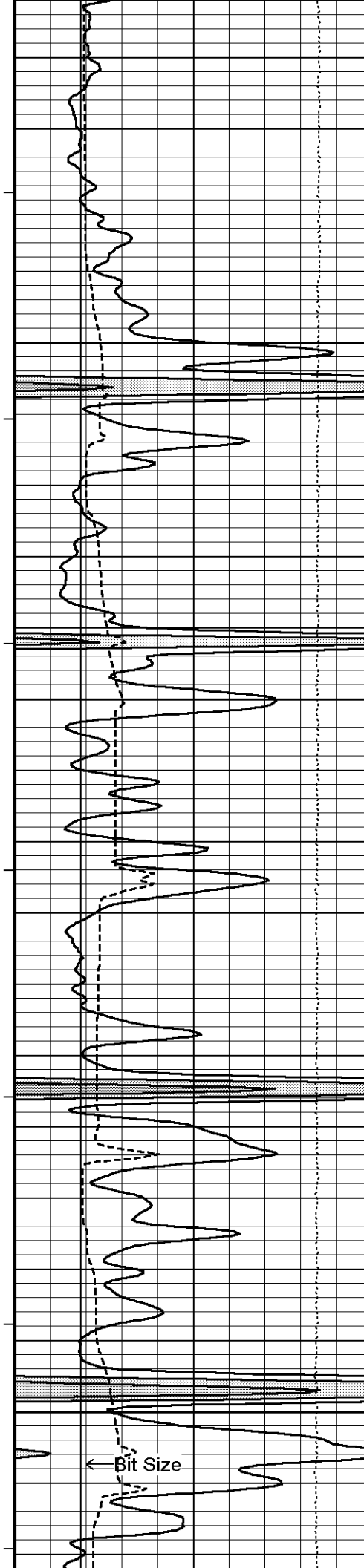
5 INCH MAIN

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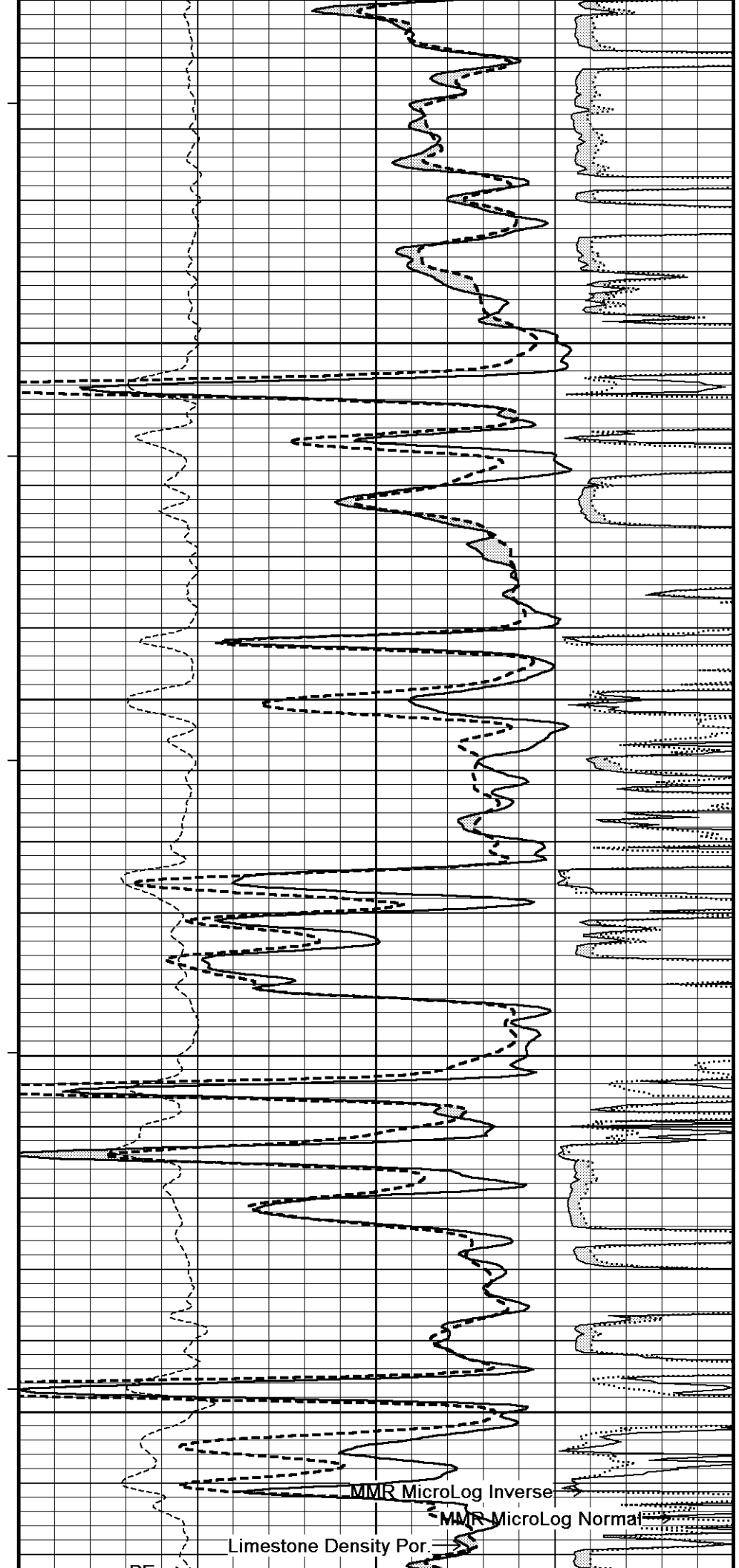








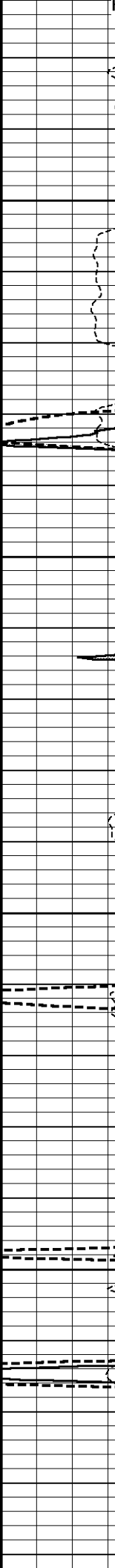
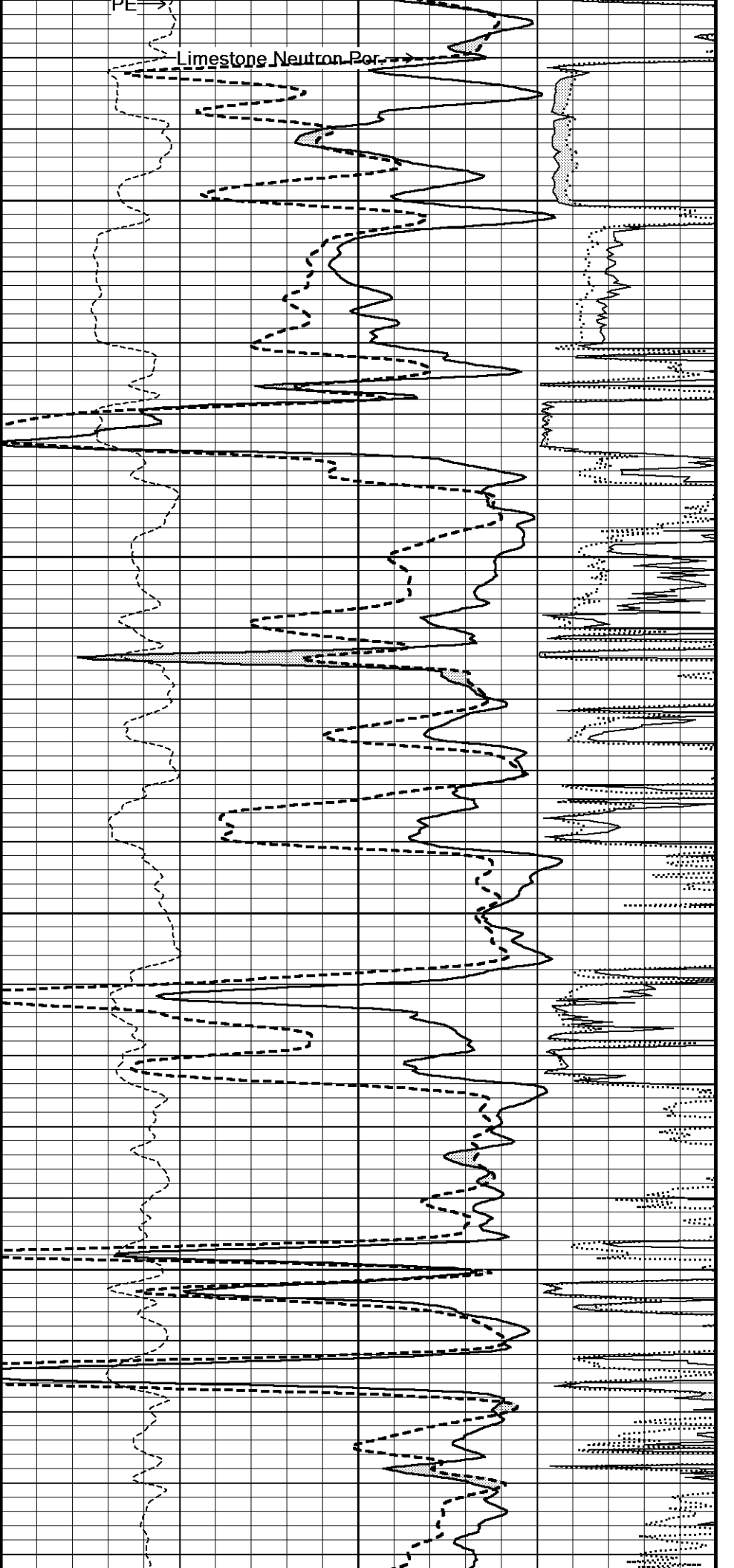
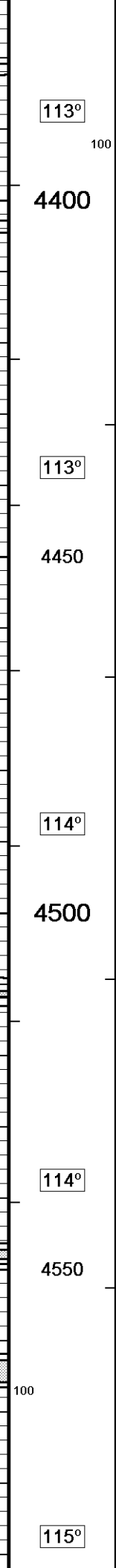
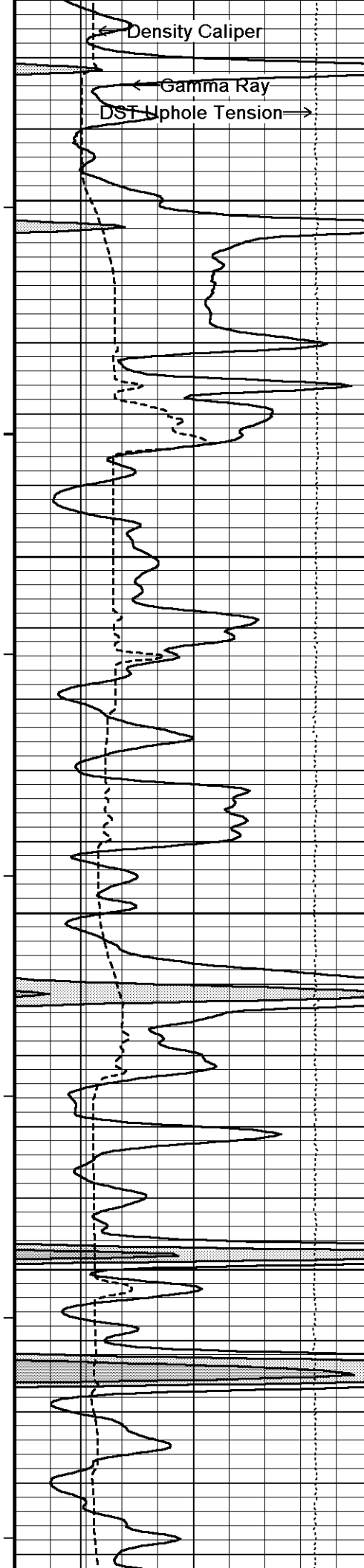
112°
4200
112°
4250
113°
4300
200
113°
4350

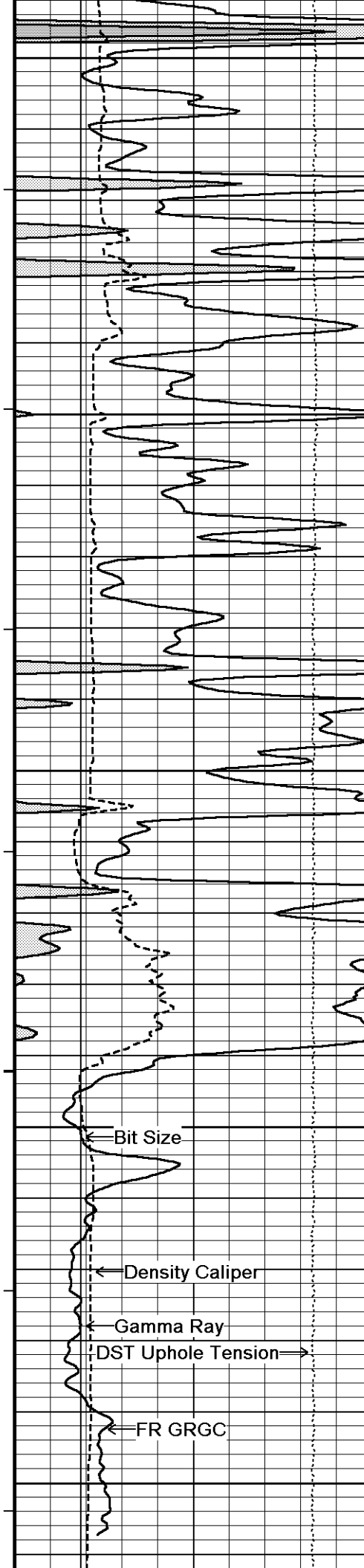


MMR MicroLog Inverse

MMR MicroLog Normal

Limestone Density Por.





4600

115°

4650

115°

4700

114°

4750

114°

4800

Bit Size

Density Caliper

Gamma Ray

DST Uphole Tension

FR GRGC

PE

MMR MicroLog Inverse

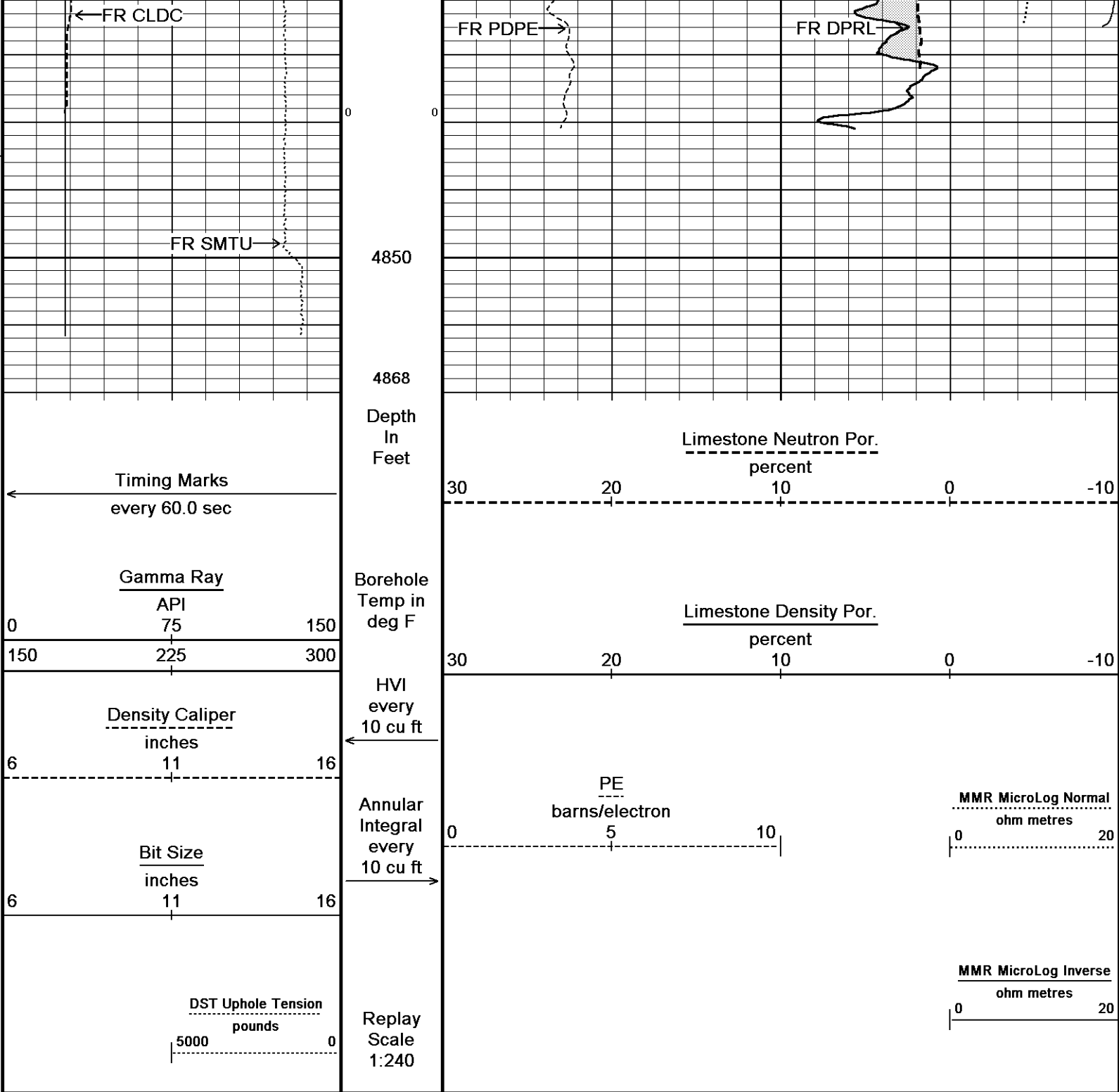
MMR MicroLog Normal

Limestone Density Por.

Limestone Neutron Por.

FR NPRK

FR MNRL-FR MINV



Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 30-JUN-2013 01:22
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 MAIN.dta	Recorded on 29-JUN-2013 21:40
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583	

↑

5 INCH MAIN

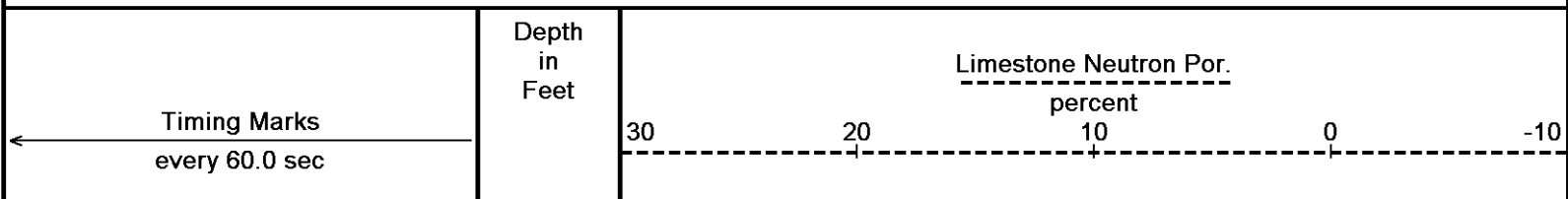
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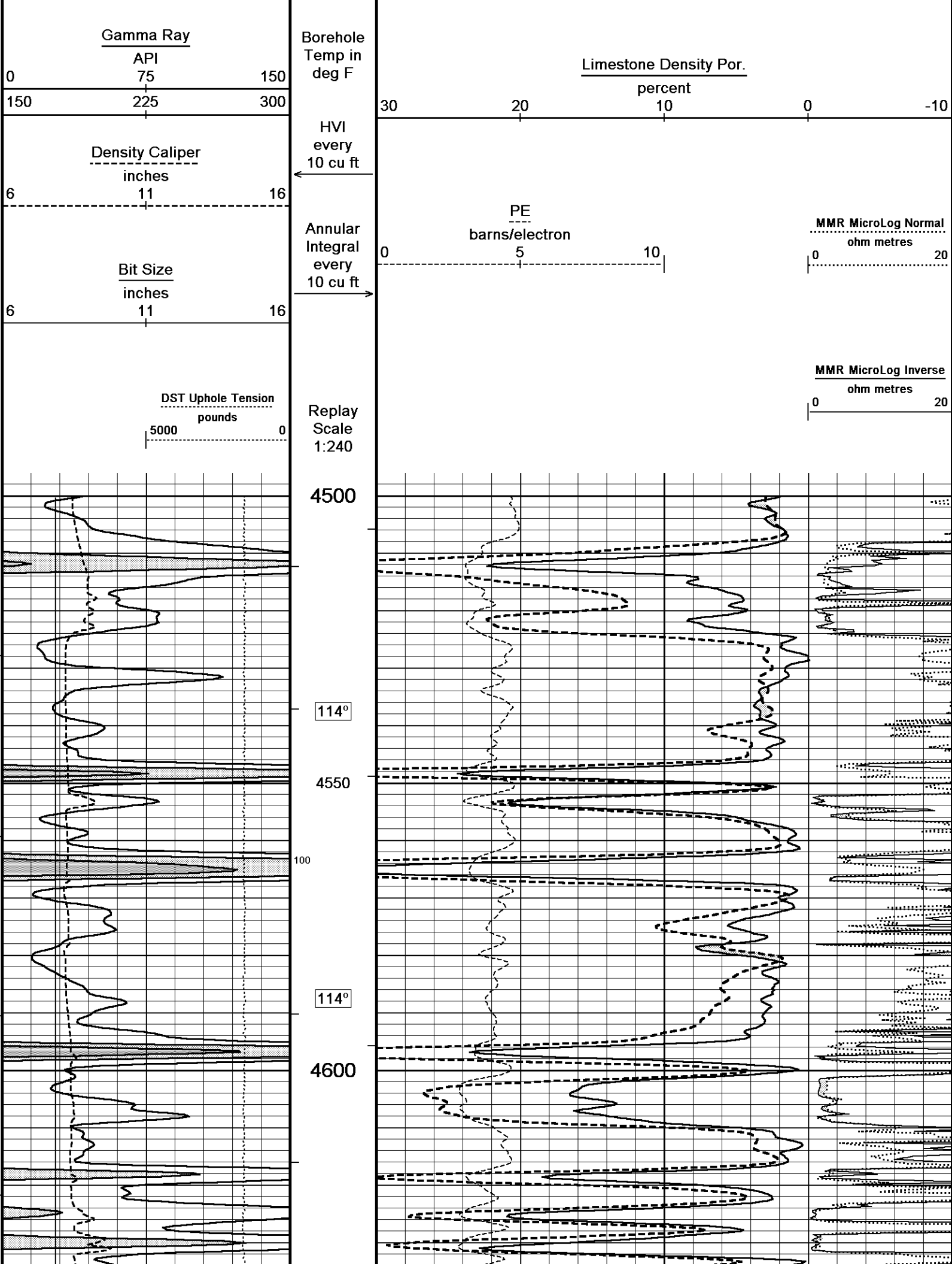
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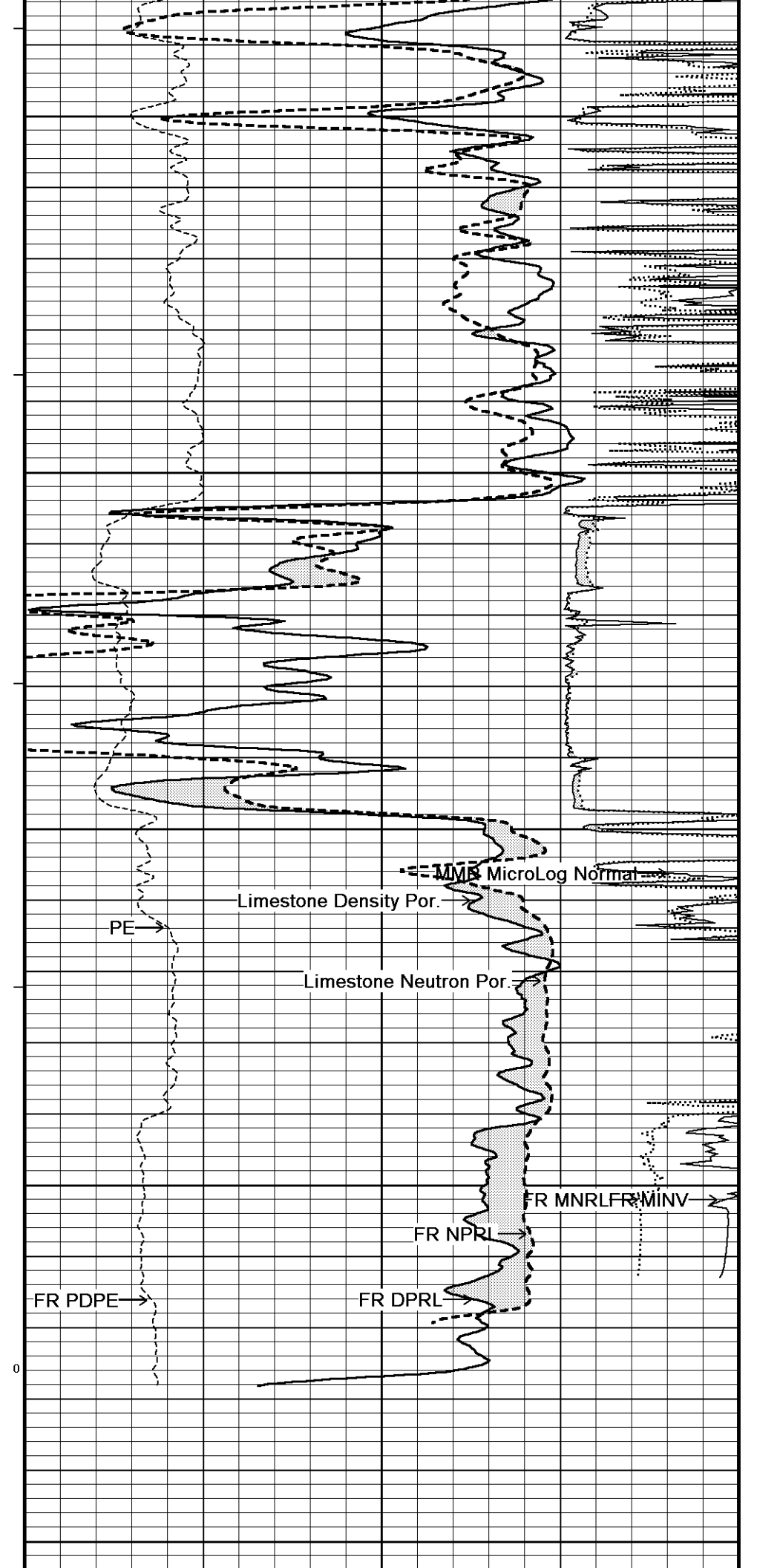
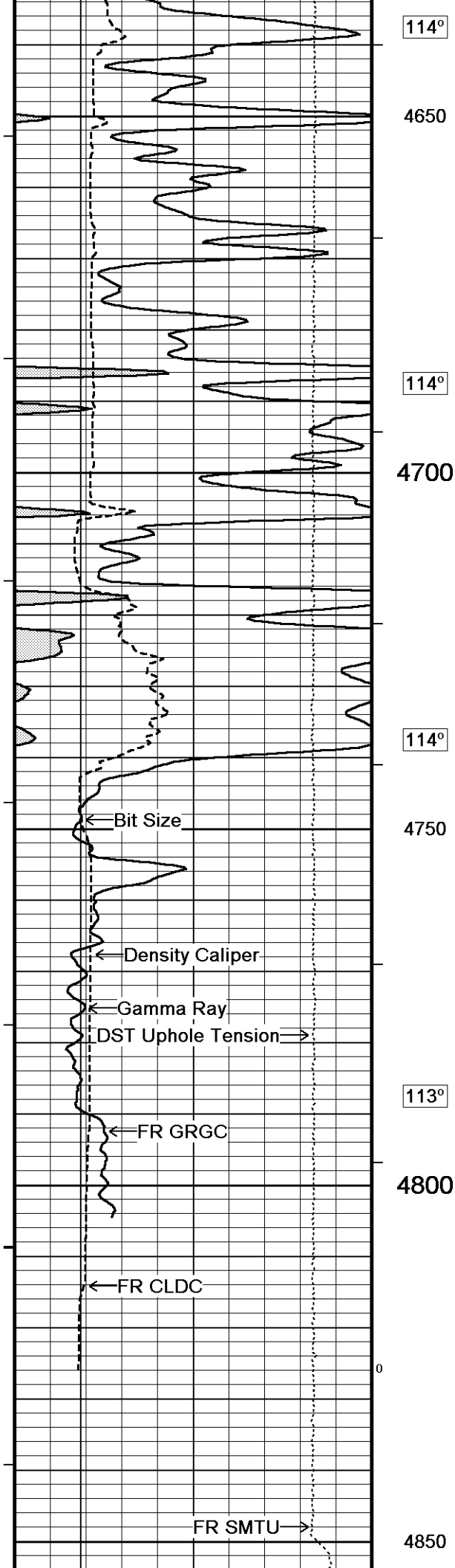
REPEAT SECTION

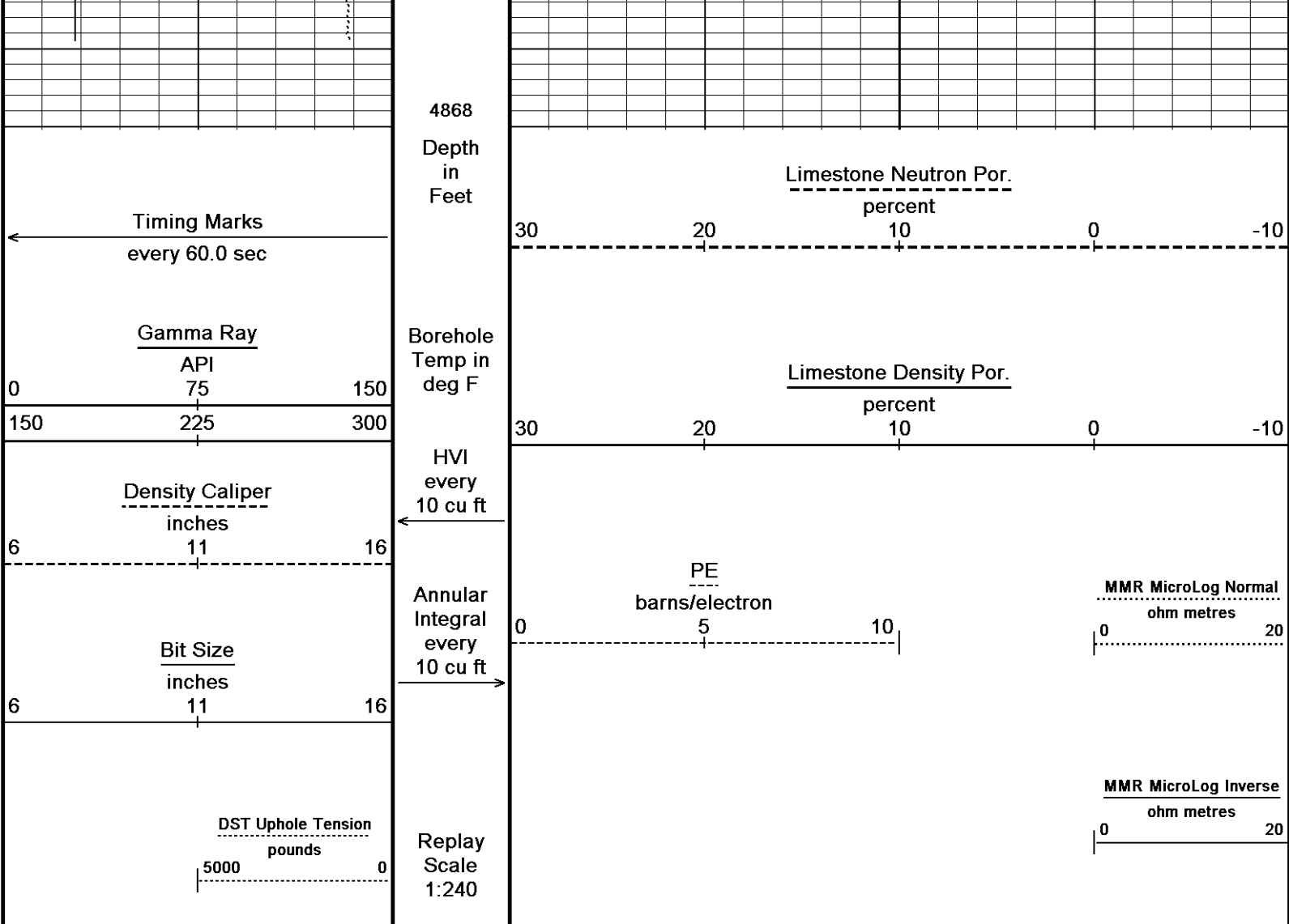
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 30-JUN-2013 01:22
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 REPEAT.dta	Recorded on 29-JUN-2013 21:21
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583	









Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 REPEAT.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

Plotted on 30-JUN-2013 01:22
Recorded on 29-JUN-2013 21:21

↑

REPEAT SECTION

↑

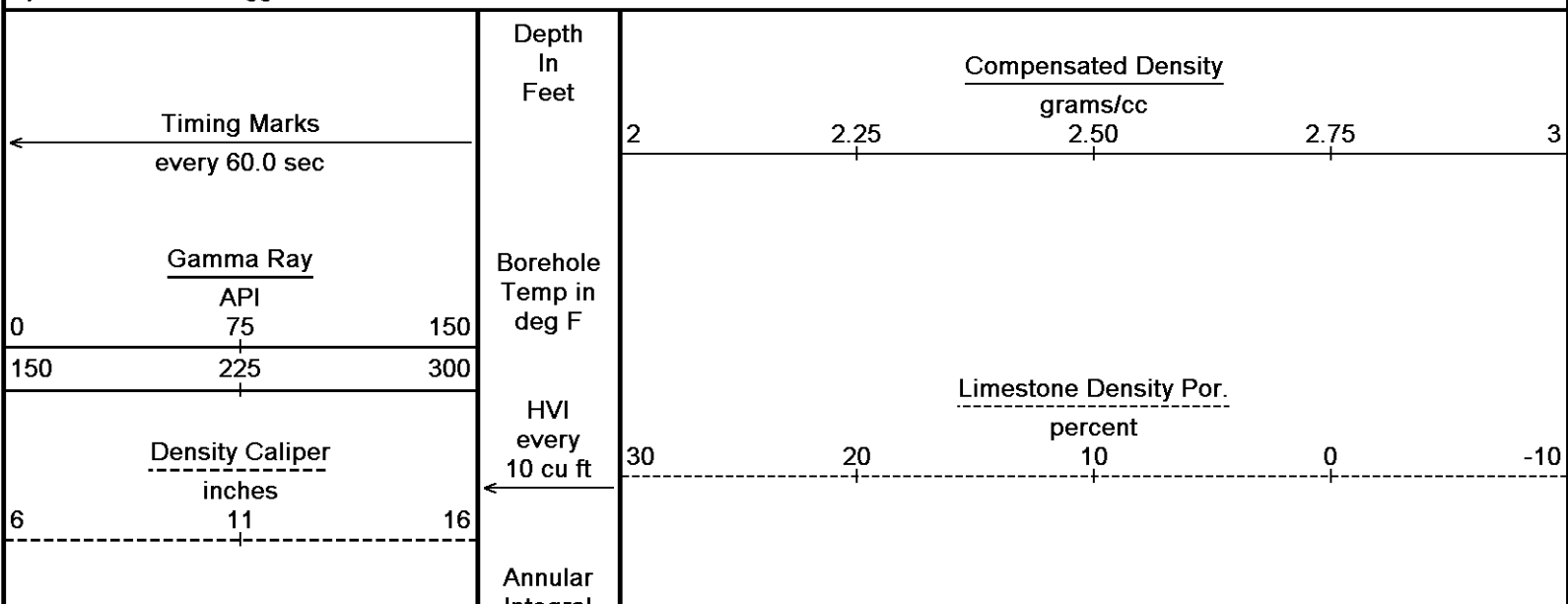
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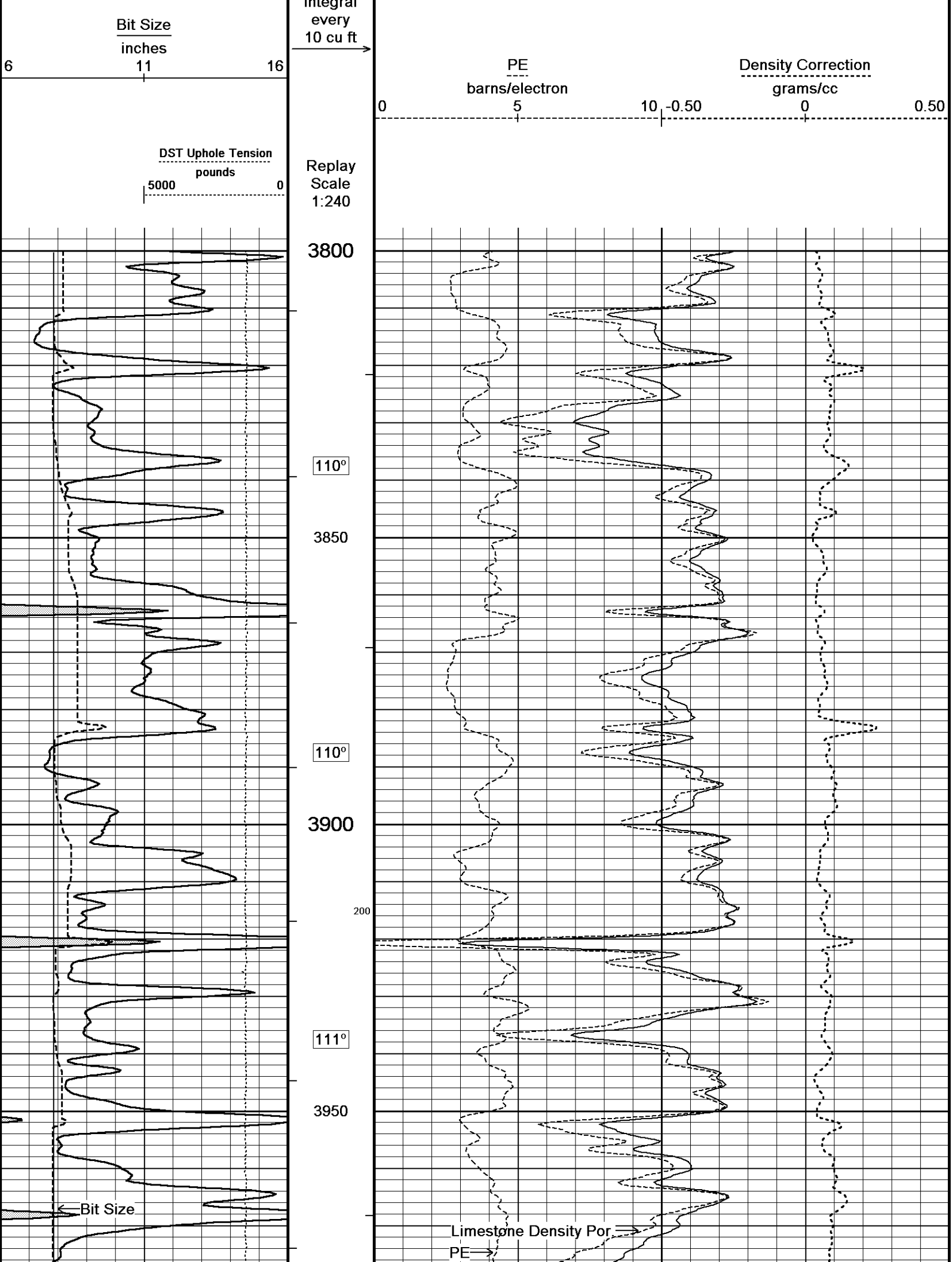
5 INCH MAIN

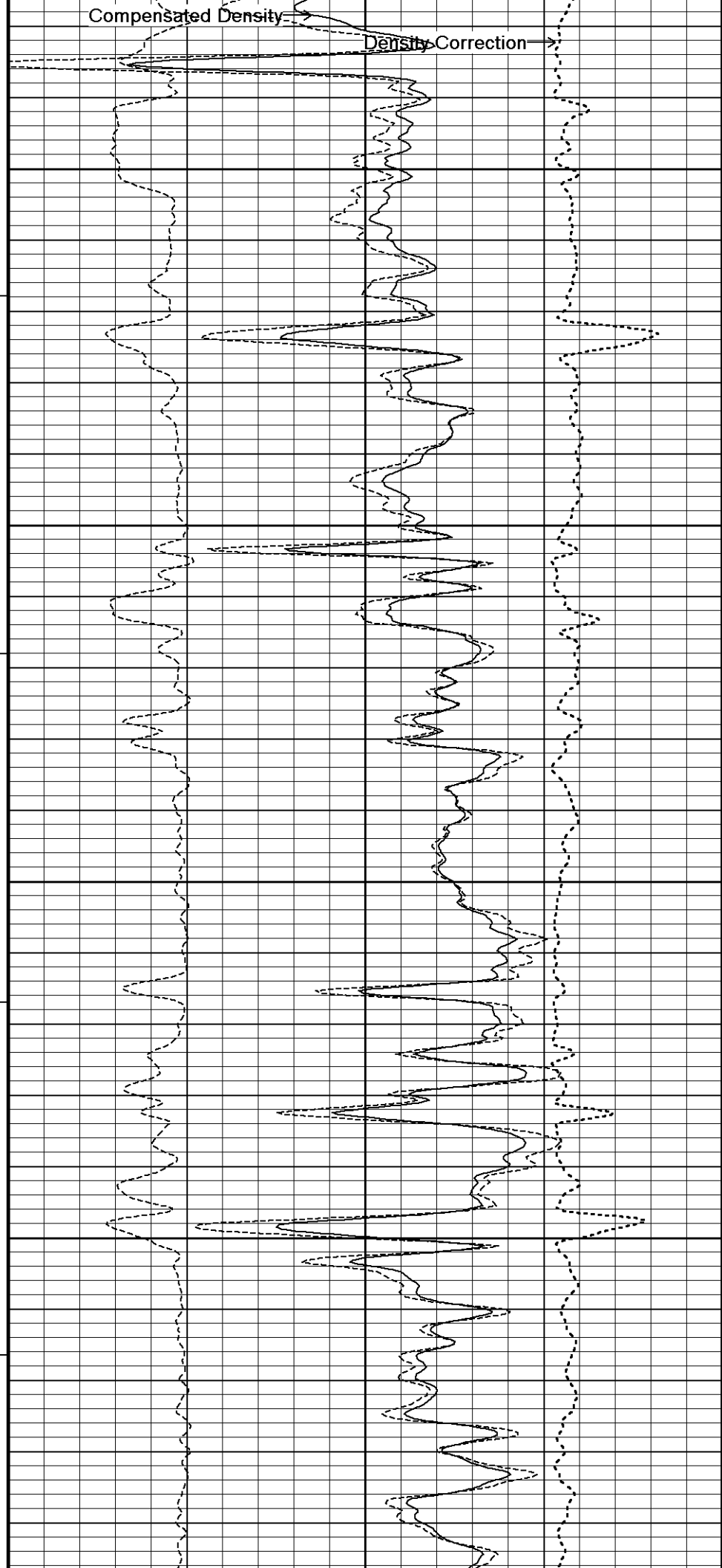
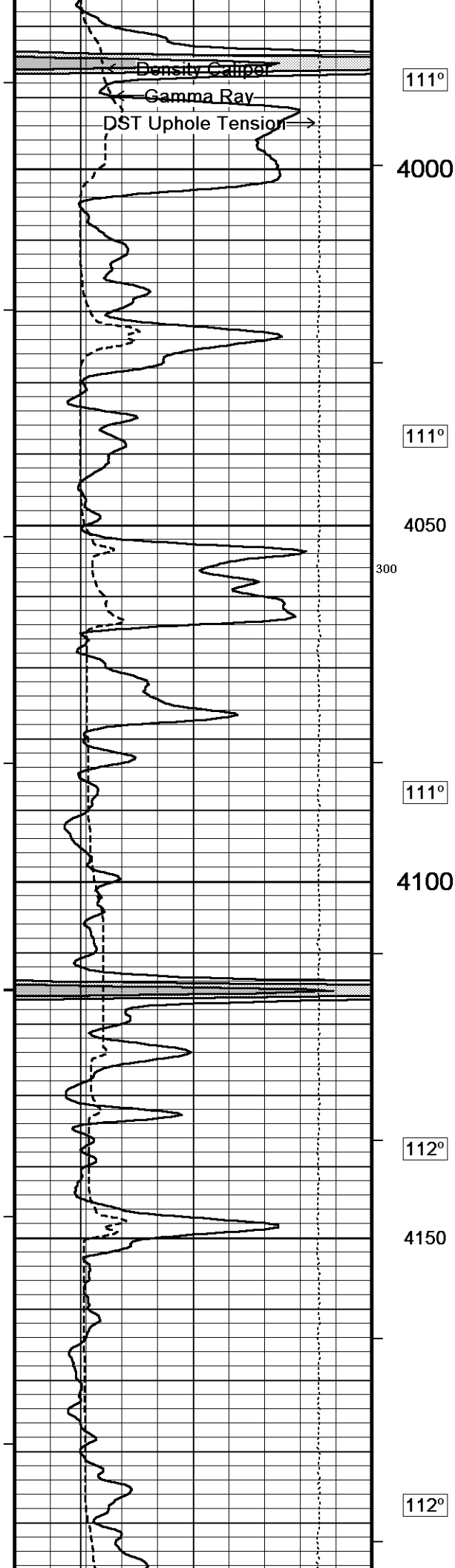
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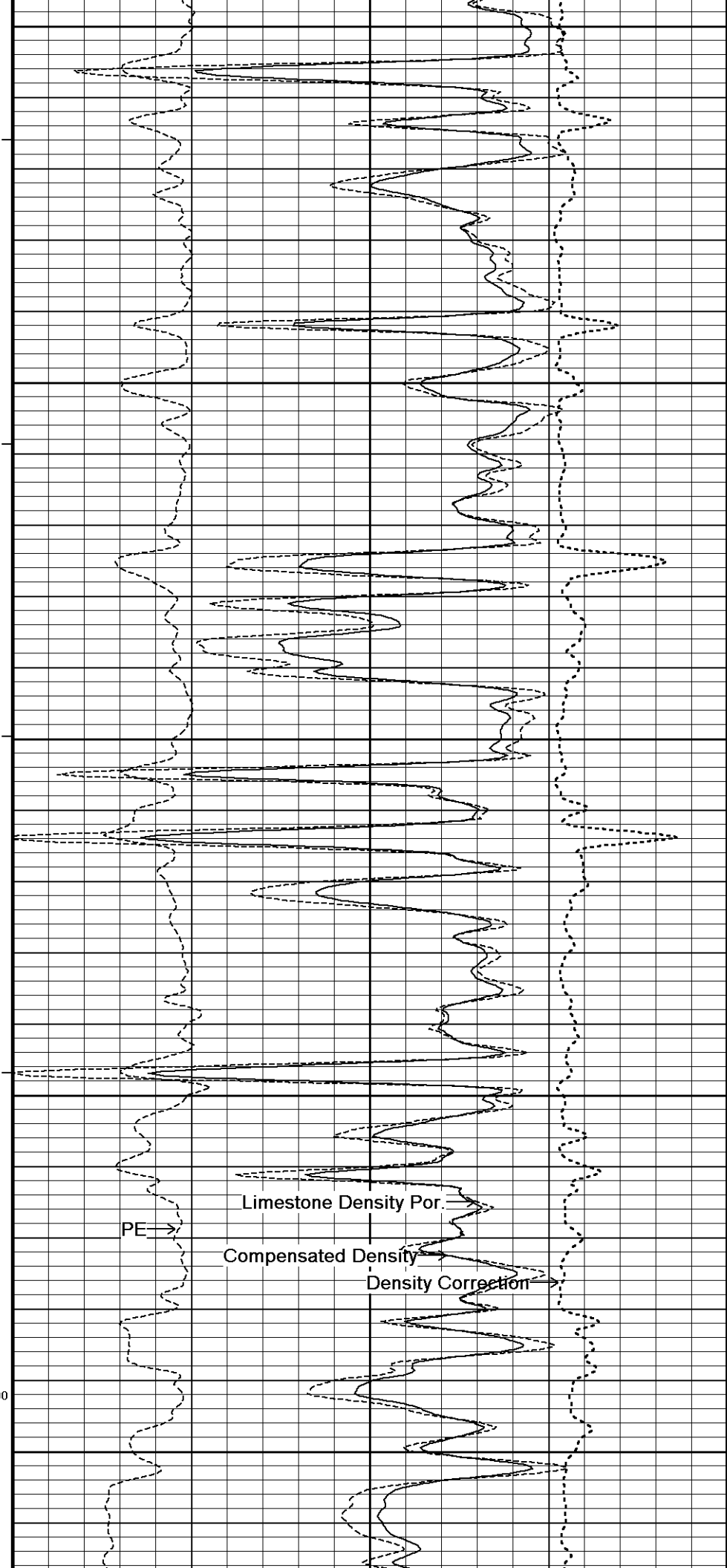
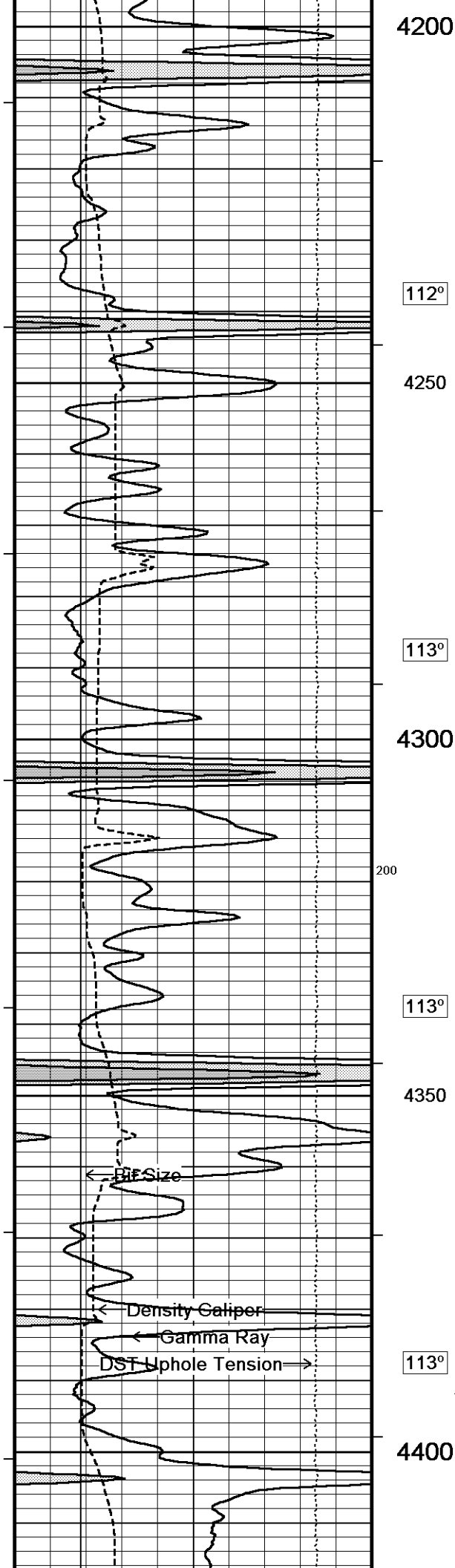
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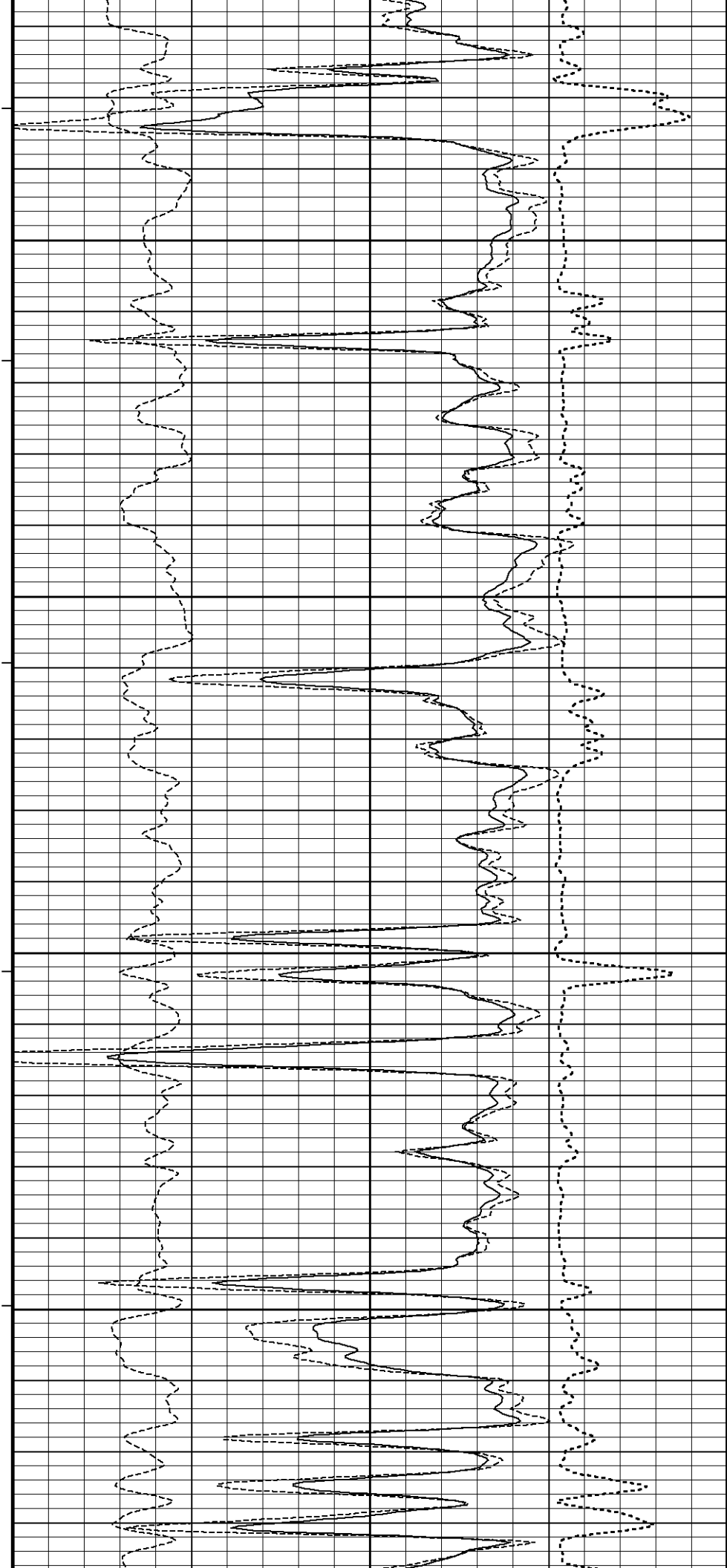
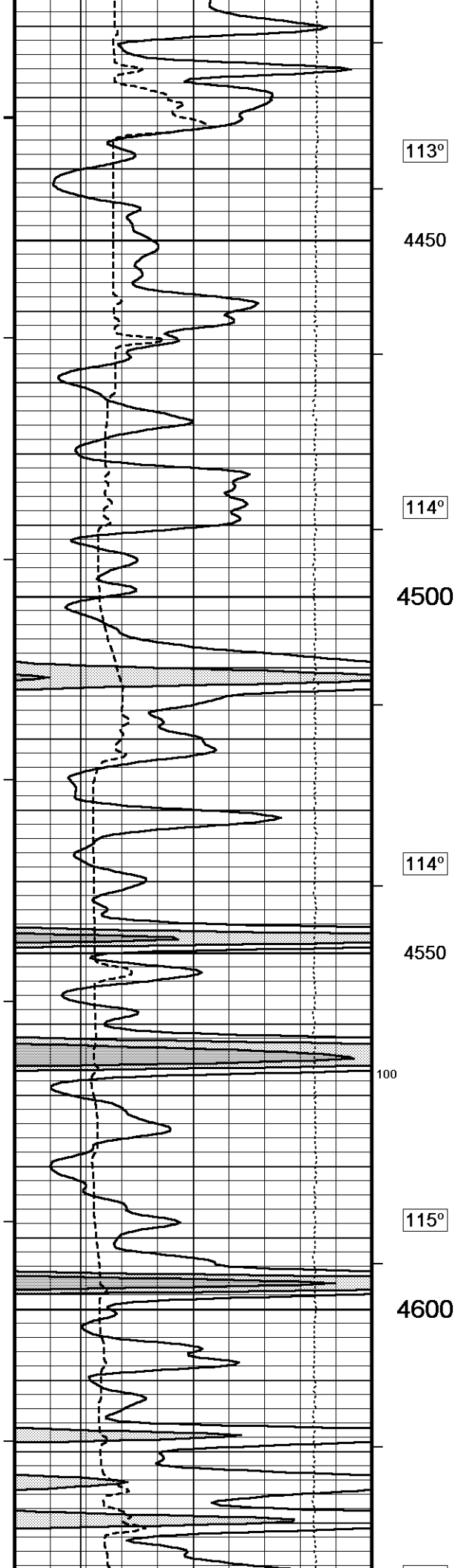
Plotted on 30-JUN-2013 01:22
Recorded on 29-JUN-2013 21:40

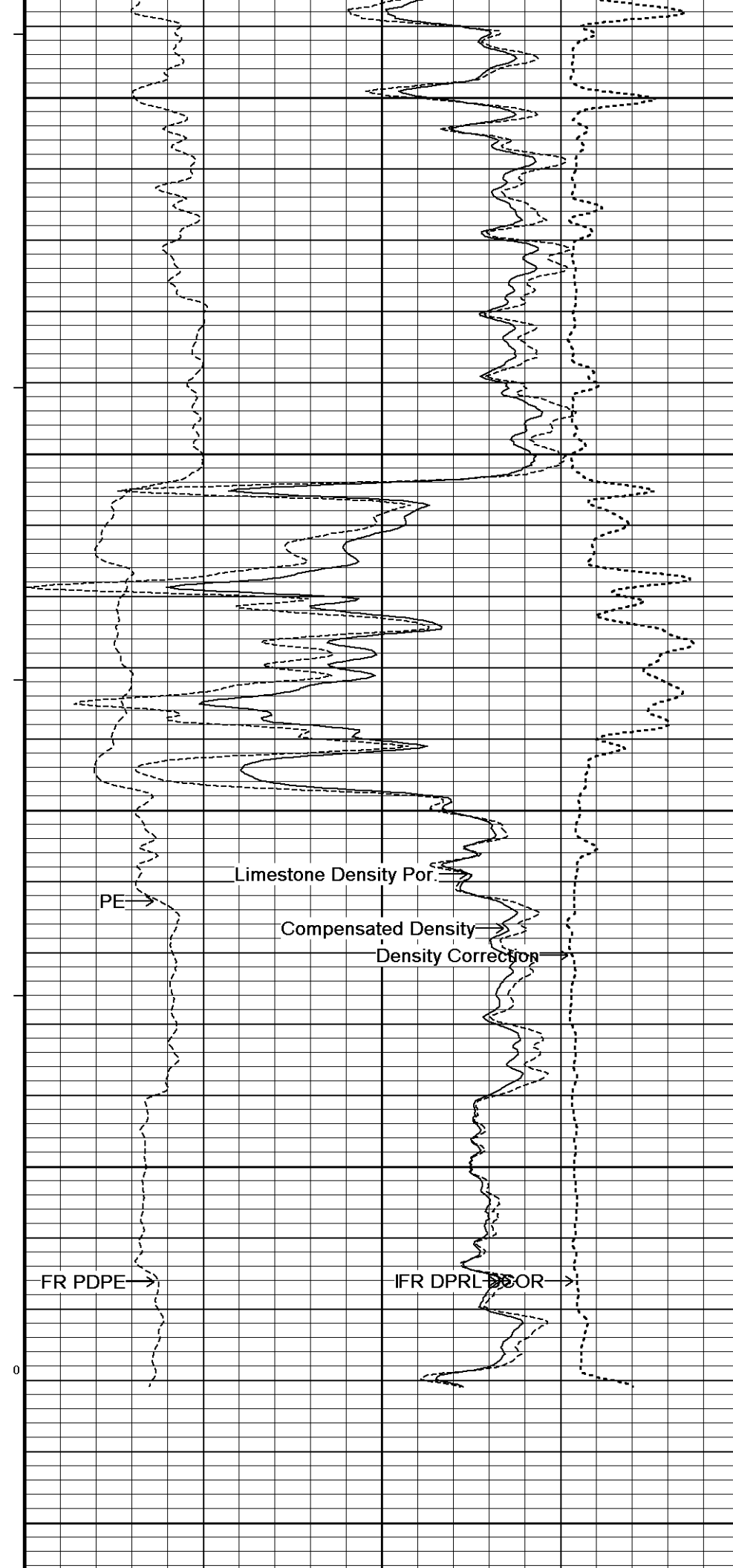
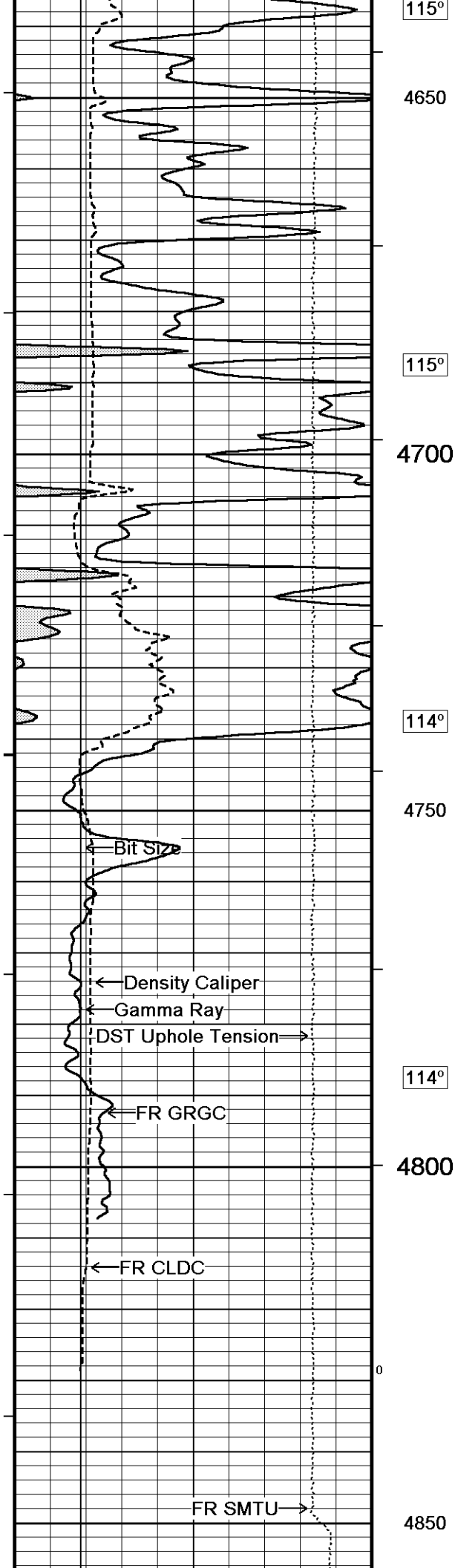


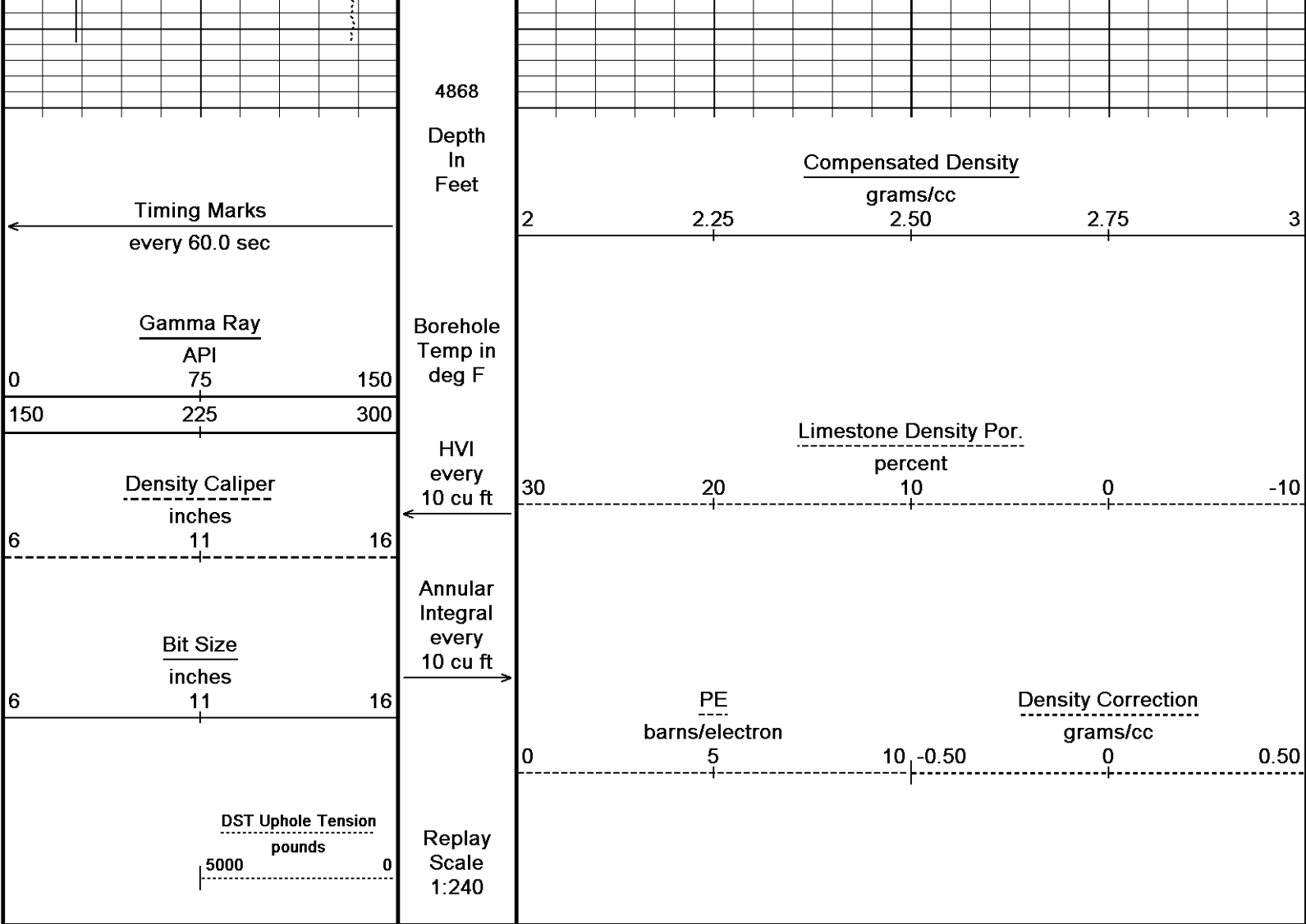










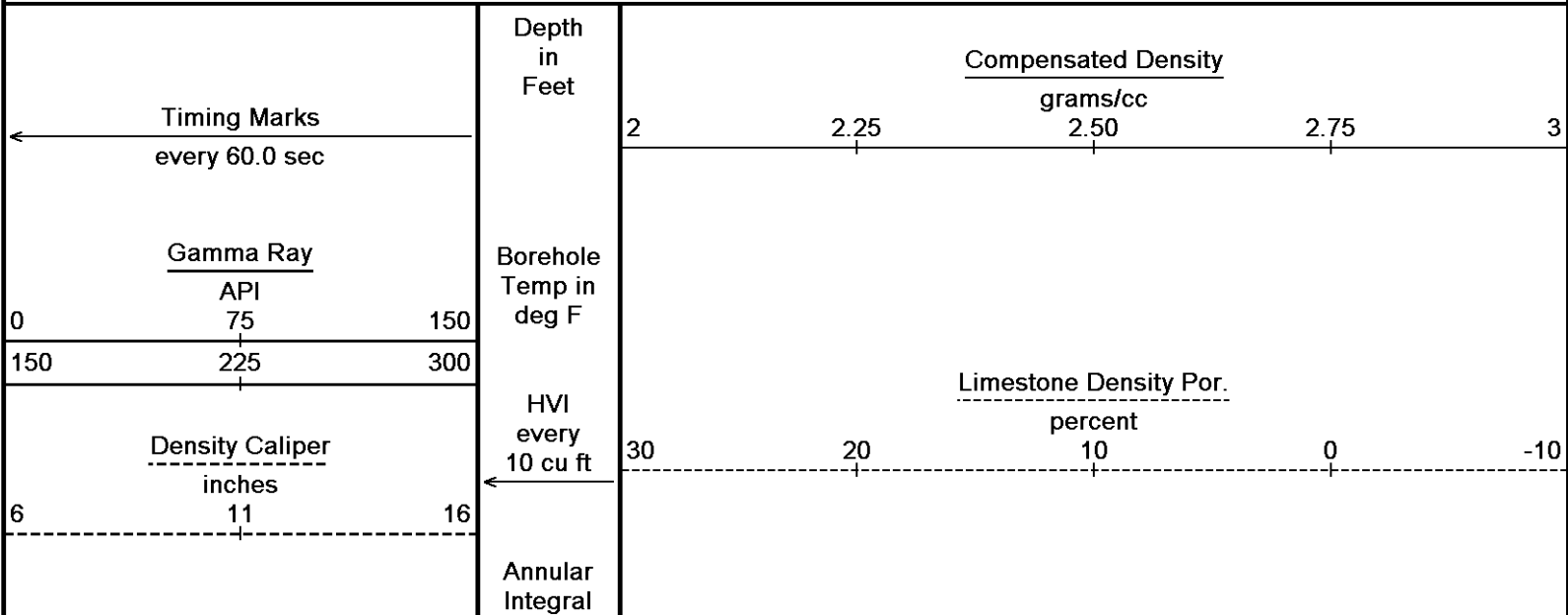


Depth Based Data - Maximum Sampling Increment 10.0cm		Plotted on 30-JUN-2013 01:22
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System Versions: Logged with 13.05.9583 Plotted with 13.05.9583		

↑	5 INCH MAIN	↑
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↓	REPEAT SECTION	↓
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Filename: C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 REPEAT.dta		Recorded on 29-JUN-2013 21:21
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583		



Bit Size
inches

6 11 16

every
10 cu ft

DST Uphole Tension
pounds

5000 0

Replay
Scale
1:240

4500

114°

4550

100

114°

4600

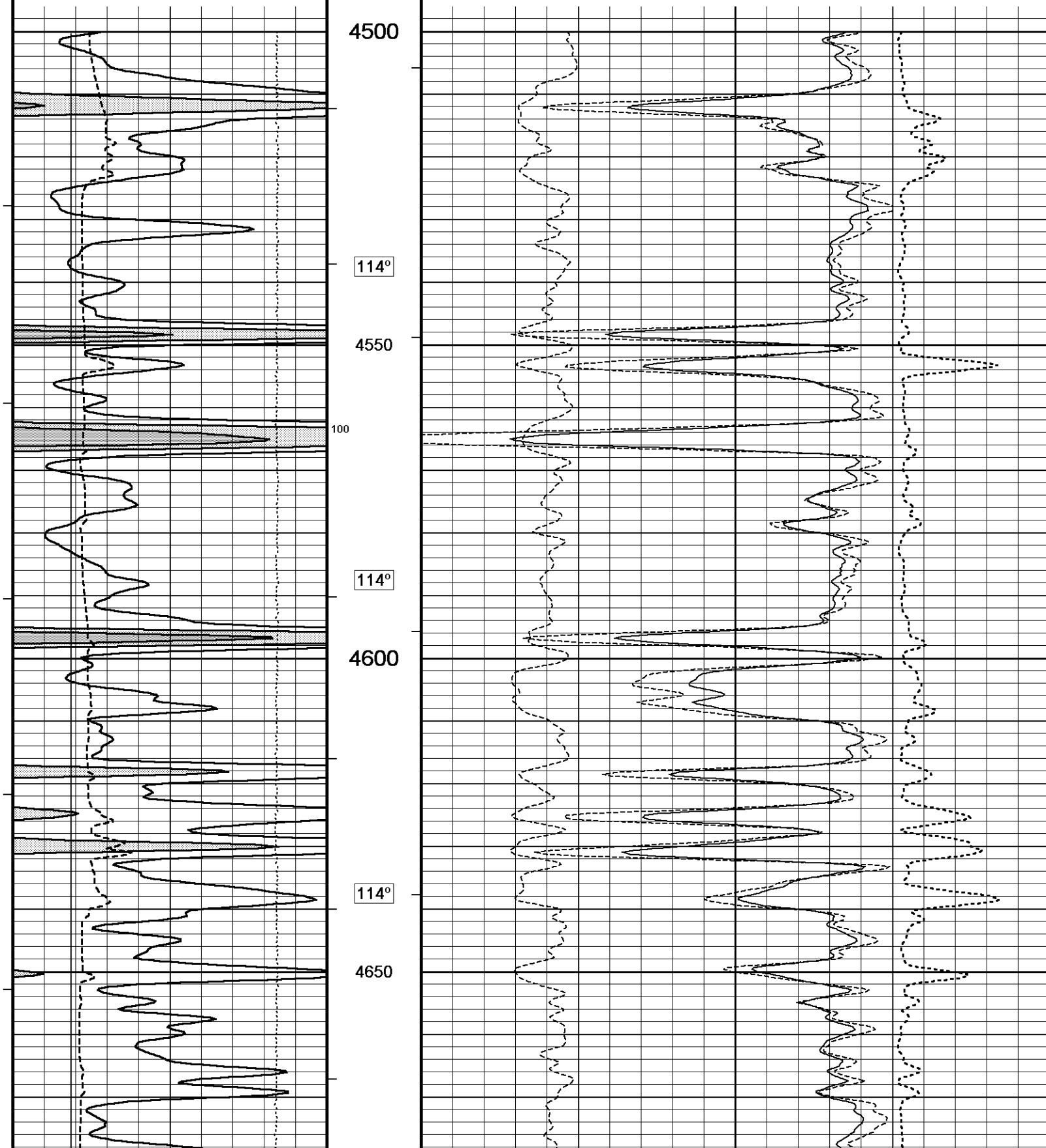
114°

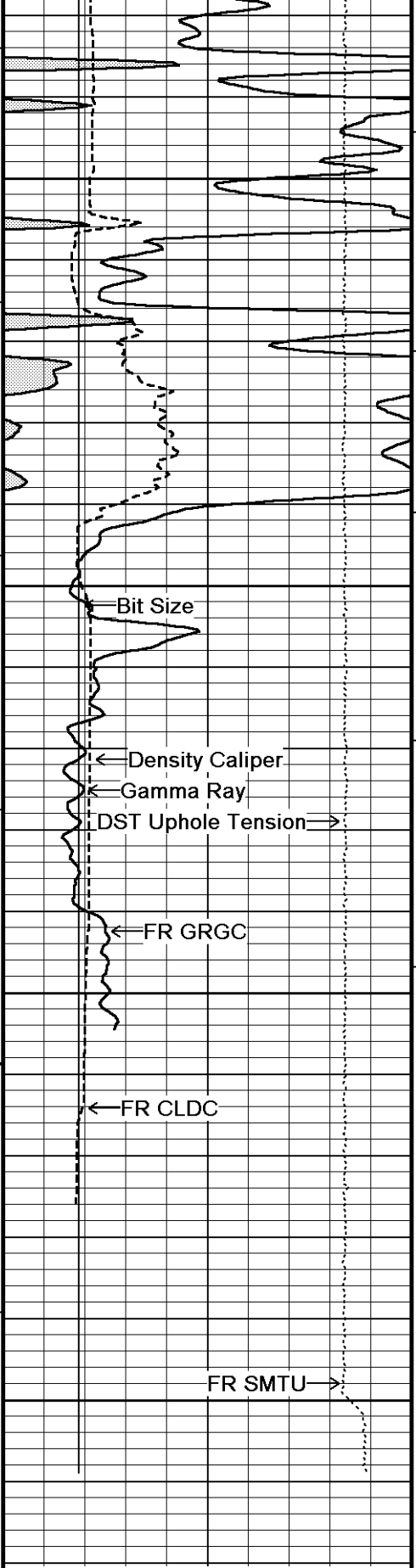
4650

PE
barns/electron

Density Correction
grams/cc

0 5 10 -0.50 0 0.50



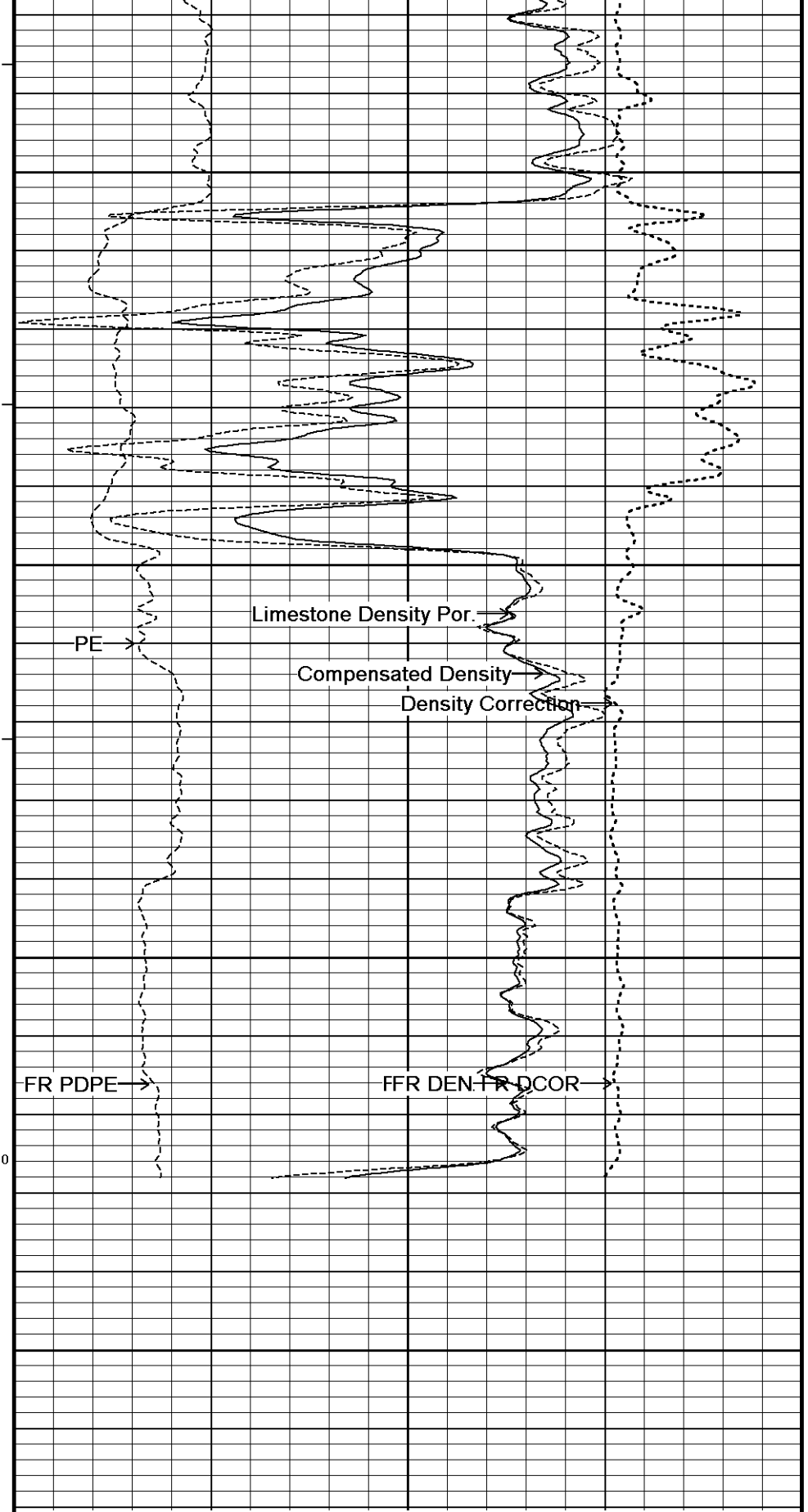


114°
4700
114°
4750
113°
4800
0
4850
4868
Depth
in
Feet

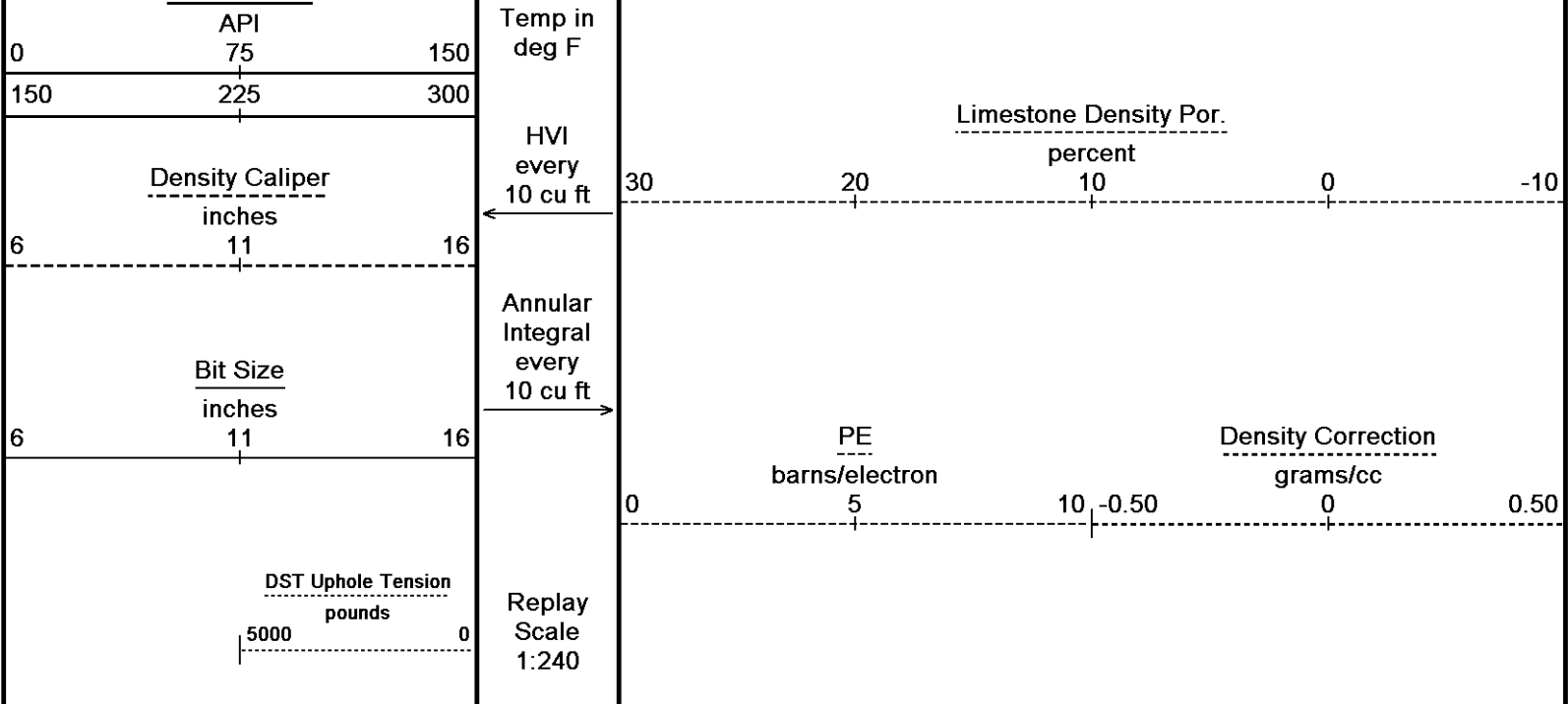
Timing Marks
every 60.0 sec

Gamma Ray

Borehole



Compensated Density
grams/cc
2 2.25 2.50 2.75 3



Depth Based Data - Maximum Sampling Increment 10.0cm
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Plotted on 30-JUN-2013 01:22
 Recorded on 29-JUN-2013 21:21

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REPEAT SECTION

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BEFORE SURVEY CALIBRATION			
C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 REPEAT.dta			
General Constants All 000		Last Edited on 29-JUN-2013,19:31	
General Parameters			
Mud Resistivity	0.550	ohm-metres	
Mud Resistivity Temperature	78.000	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	MML Caliper		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. Six Res Rt		
RWA Constant A	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 469		Field Calibration on 28-JUN-2013 10:15	
	Measured	Calibrated (API)	
Background	78	54	
Calibrator (Gross)	1127	779	
Calibrator (Net)	1049	725	
Gamma Constants MCG-D.K 469		Last Edited on 29-JUN-2013,19:15	
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				
		Measured	Calibrated(Deg F)	
Lower		50.00	50.00	
Upper		100.00	100.00	
High Resolution Temperature Constants MCG-D.K 469				
Pre-filter Length		11		
Caliper Calibration MPD-B 64				
Base Calibration on 21-MAY-2013 17:34				
Field Calibration on 28-JUN-2013 10:03				
Base Calibration				
Reading No		Measured	Calibrator Size (in)	
1		14464	3.99	
2		23406	5.98	
3		32206	7.97	
4		40368	9.86	
5		50018	11.92	
6		N/A	N/A	
Field Calibration				
		Measured Caliper (in)	Actual Caliper (in)	
		6.02	5.98	
Photo Density Calibration MPD-B 64				
Base Calibration on 21-MAY-2013 17:55				
Field Check on 28-JUN-2013 10:00				
Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
		Near Far	Near Far	
Reference 1		60105 33685	59556 30836	
Reference 2		25286 2917	24941 2541	
Field Check at Base				
		1165.8	1353.6	
Field Check				
		1166.1	1349.7	
PE Calibration				
Base Calibration		Measured	Calibrated	
		WS WH Ratio	Ratio	
Background		210 1037		
Reference 1		22619 59903 0.381	0.371	
Reference 2		6846 25146 0.275	0.272	
Field Check at Base				
		210.2	1037.2	
Field Check				
		209.6	1037.1	
Density Constants MPD-B 64				
Last Edited on 29-JUN-2013,19:32				
Density Source Id		18235B		
Nylon Calibrator Number		DNCE695		
Aluminium Calibrator Number		DACD698		
Density Shoe Profile		8 inch		
Caliper Source for Processing		Density Caliper		
PE Correction to Density		Not Applied		
Mud Density		1.11	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 (m)		
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	0.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Shakespeare Unruh 1-13\Unruh 1-13 REPEAT.dta

CBH-C, Cablehead, 11 pin

CBH-CA 900 LG: 2.40 ft WT: 24.3 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

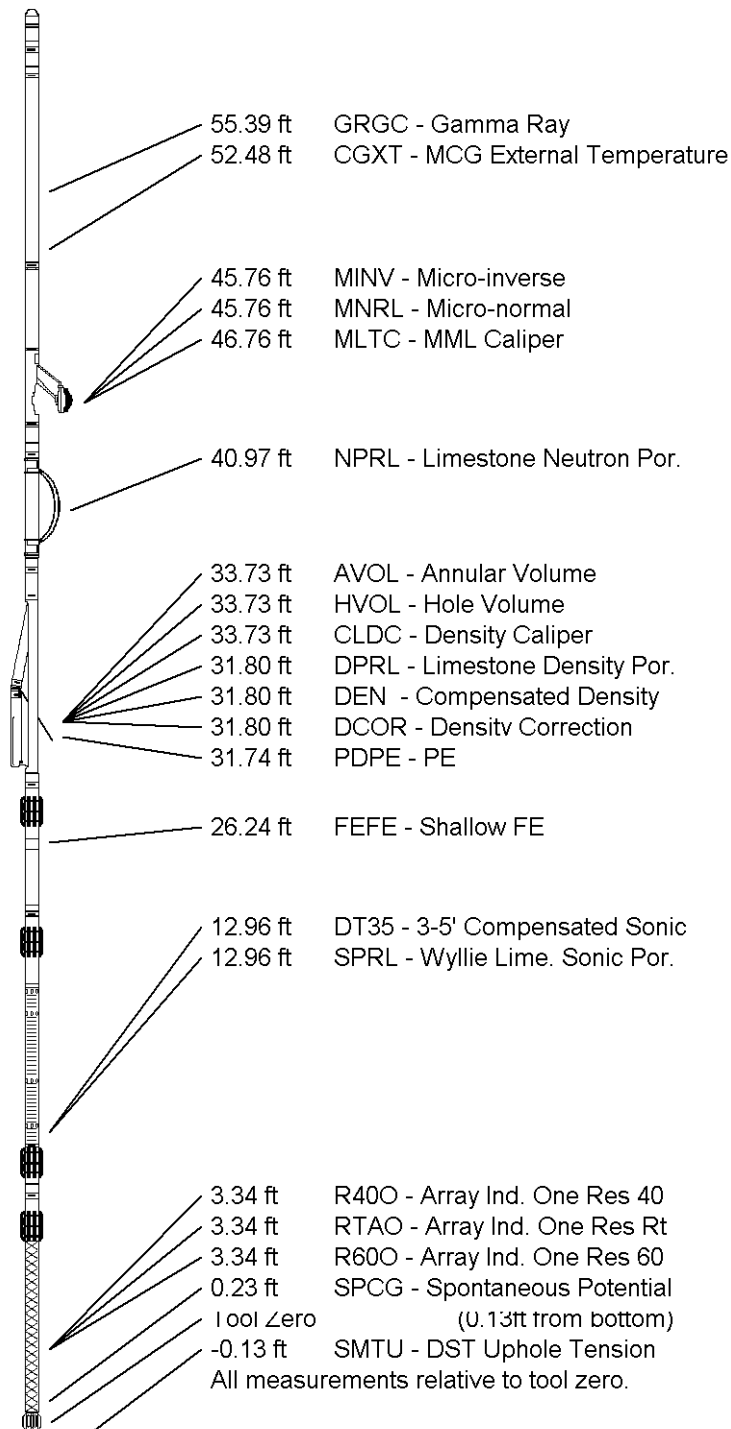
Compact Sonic

MSS-C.K 330 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: 63.07 ft Weight: 480.6 lb



COMPANY

SHAKESPEARE OIL COMPANY

WELL

UNRUH 1-13

FIELD

WILDCAT

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE			UNITED STATES / KANSAS			
Elevation Kelly Bushing	3113.00	feet	First Reading	4816.00	feet	
Elevation Drill Floor	3112.00	feet	Depth Driller	4850.00	feet	
Elevation Ground Level	3106.00	feet	Depth Logger	4848.00	feet	



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON