



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY			SHAKESPEARE OIL CO., INC		
WELL			JANZEN 6-36		
FIELD			PENCE EAST		
PROVINCE/COUNTY			SCOTT		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			950' FNL & 450' FWL NE SW NW NW		
SEC 36	TWP 16S	RGE 34W	Other Services		
Latitude			MPD/MDN	MML	
Longitude			MAI/MFE		
API Number	15-171-21043		MSS		
Permanent Datum GL, Elevation 3104 feet					
Log Measured From KB					
Drilling Measured From KB @ 12 FEET					
Date	08-APR-2014				
Run Number	ONE				
Service Order	5872-84189232				
Depth Driller	4850.00		feet		
Depth Logger	4849.00		feet		
First Reading	4528.00		feet		
Last Reading	3600.00		feet		
Casing Driller	264.00		feet		
Casing Logger	267.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEM				
Density / Viscosity	9.30 lb/USg	45.00 CP			
PH / Fluid Loss	10.00	8.80 ml/30Min			
Sample Source	PIT				
Rm @ Measured Temp	0.40 @ 86.0		ohm-m		
Rmf @ Measured Temp	0.32 @ 86.0		ohm-m		
Rmc @ Measured Temp	0.48 @ 86.0		ohm-m		
Source Rmf / Rmc	CALC	CALC			
Rm @ BHT	0.31 @109.0		ohm-m		
Time Since Circulation	4 HRS				
Max Recorded Temp	109.00		deg F		
Equipment / Base	13057	LIB			
Recorded By	D. COLE				
Witnessed By	M. HERNDON				
JOB #	LB 14-108				

BOREHOLE RECORD			Last Edited: 08-APR-2014 22:54	
Bit Size inches	Depth From feet		Depth To feet	
7.875	264.00		4850.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	264.00	24.00

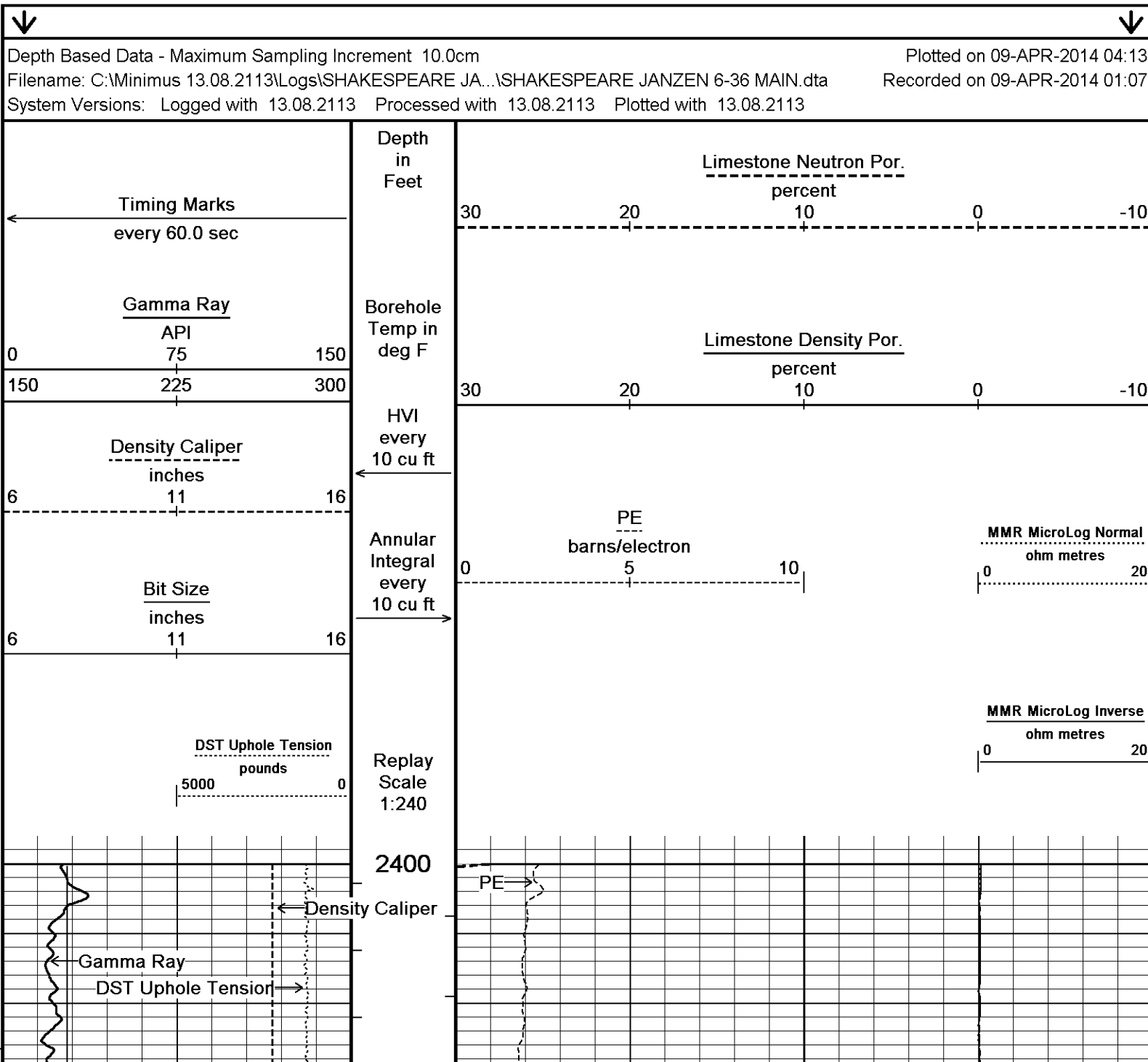
REMARKS
- SOFTWARE ISSUE: WLS 13.08.211.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- 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 3850 FEET: 340 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3850 FEET: 180 CU.FT.

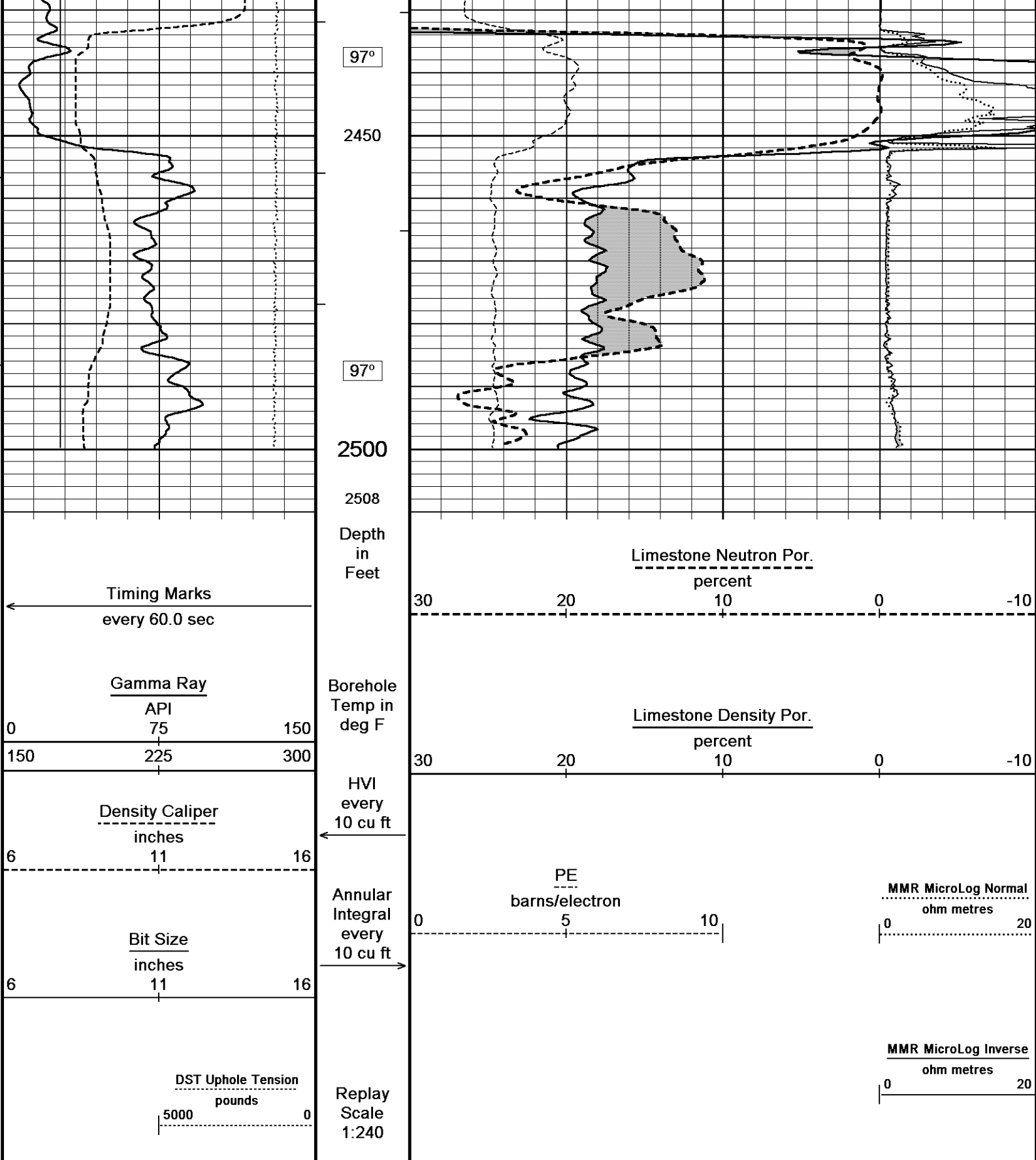
- RIG: SOUTHWIND 70

- ENGINEER: D. COLE.

- OPERATOR: J. DUNLAP

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.



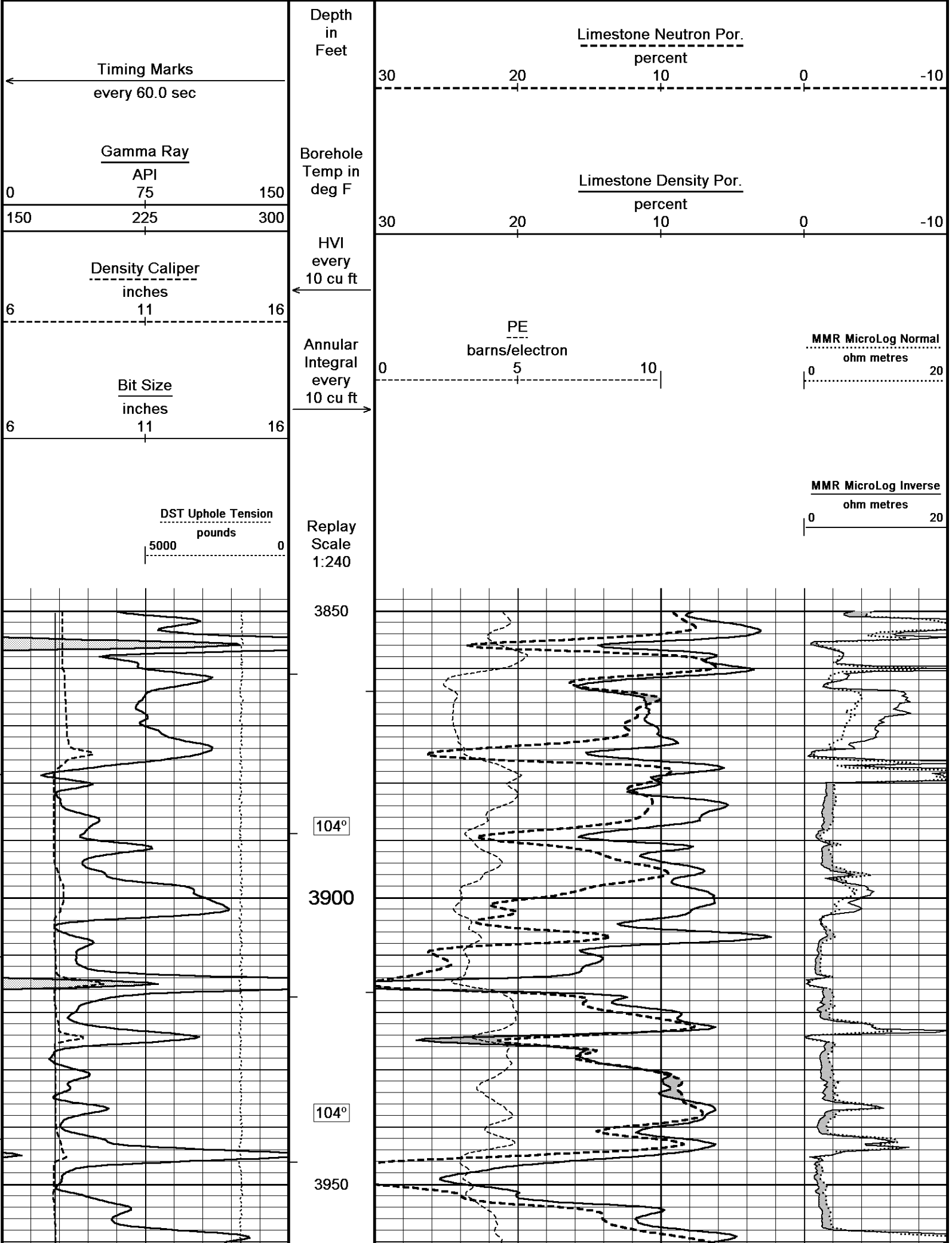


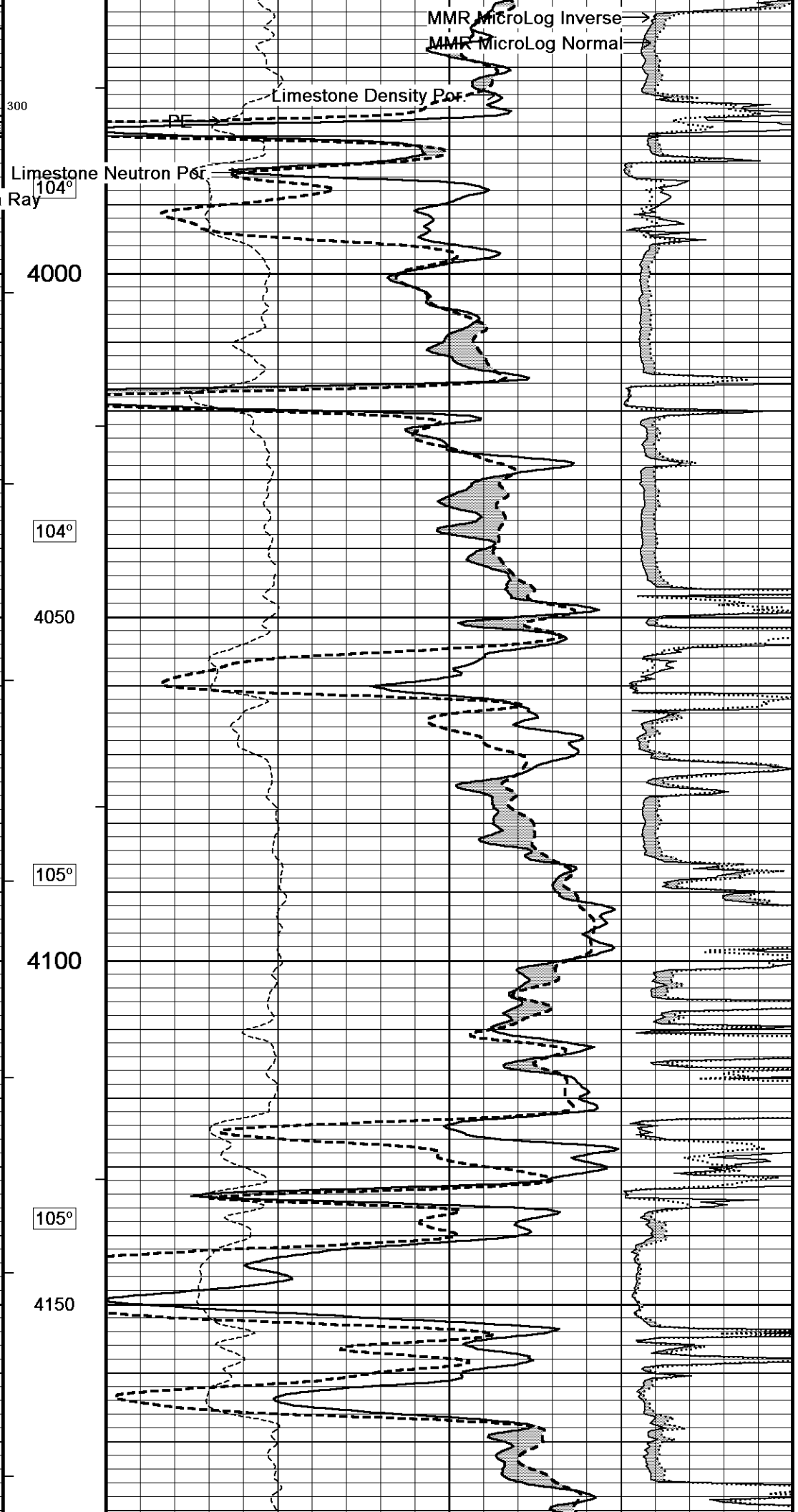
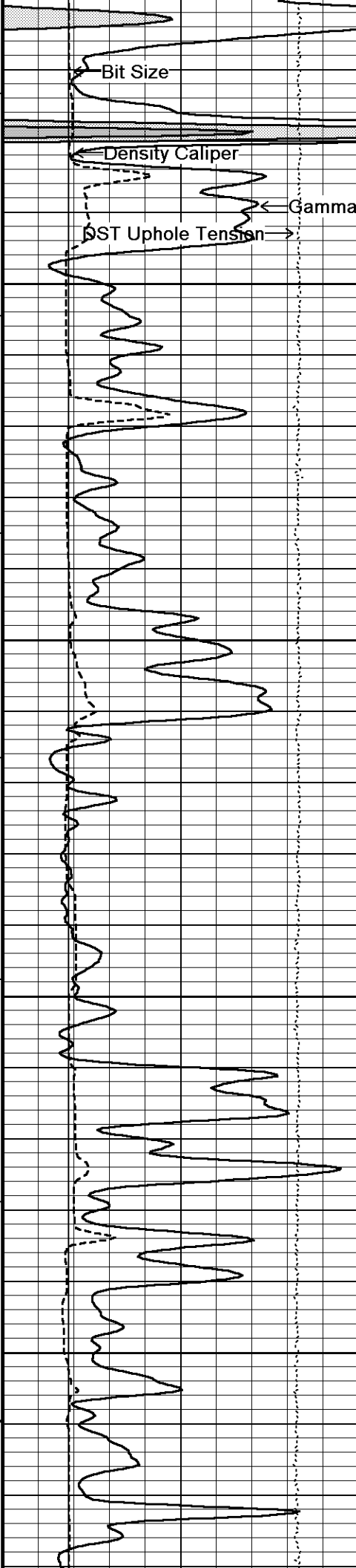
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 09-APR-2014 04:13
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE JA...\SHAKESPEARE JANZEN 6-36 MAIN.dta Recorded on 09-APR-2014 01:07
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

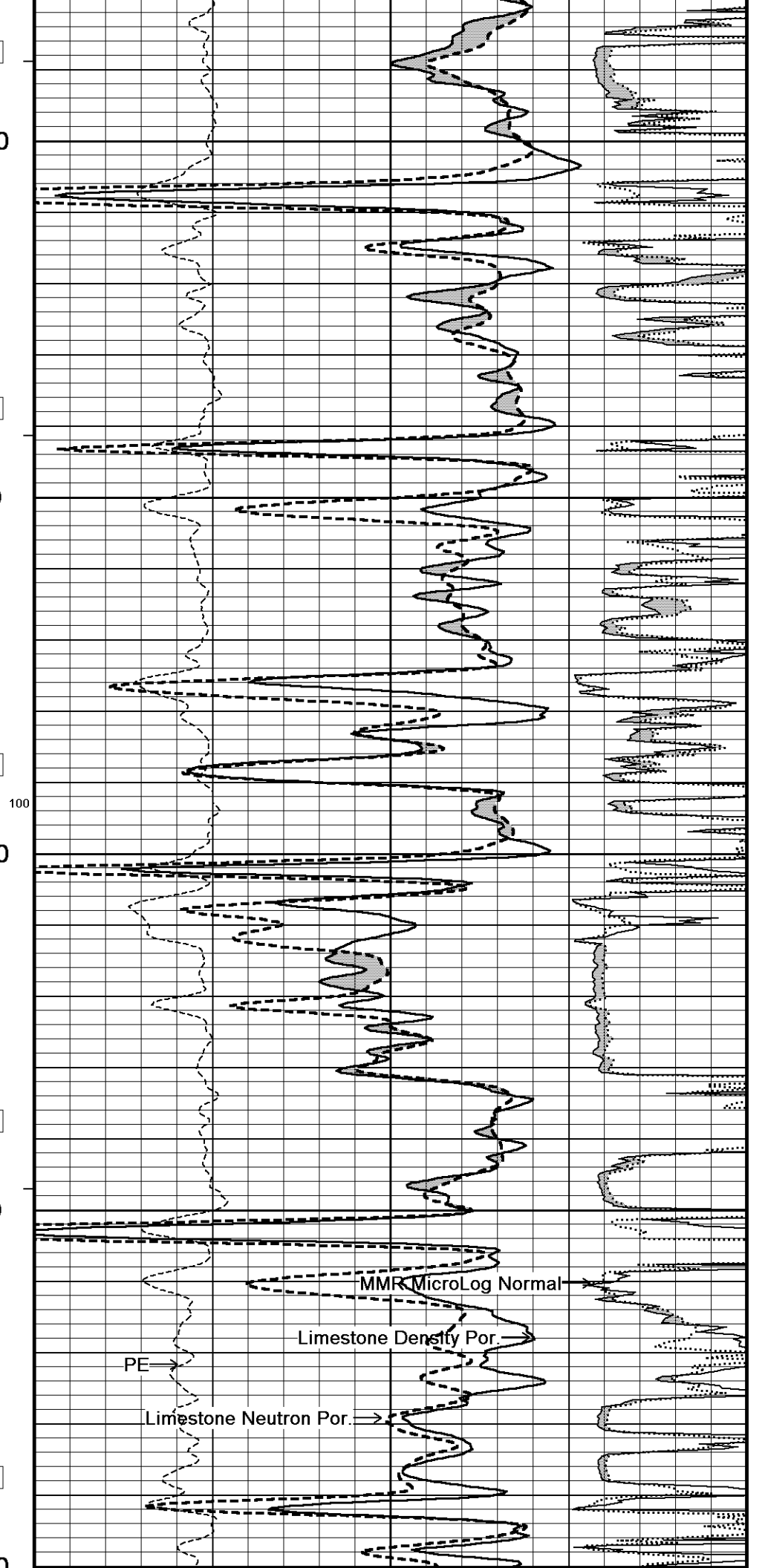
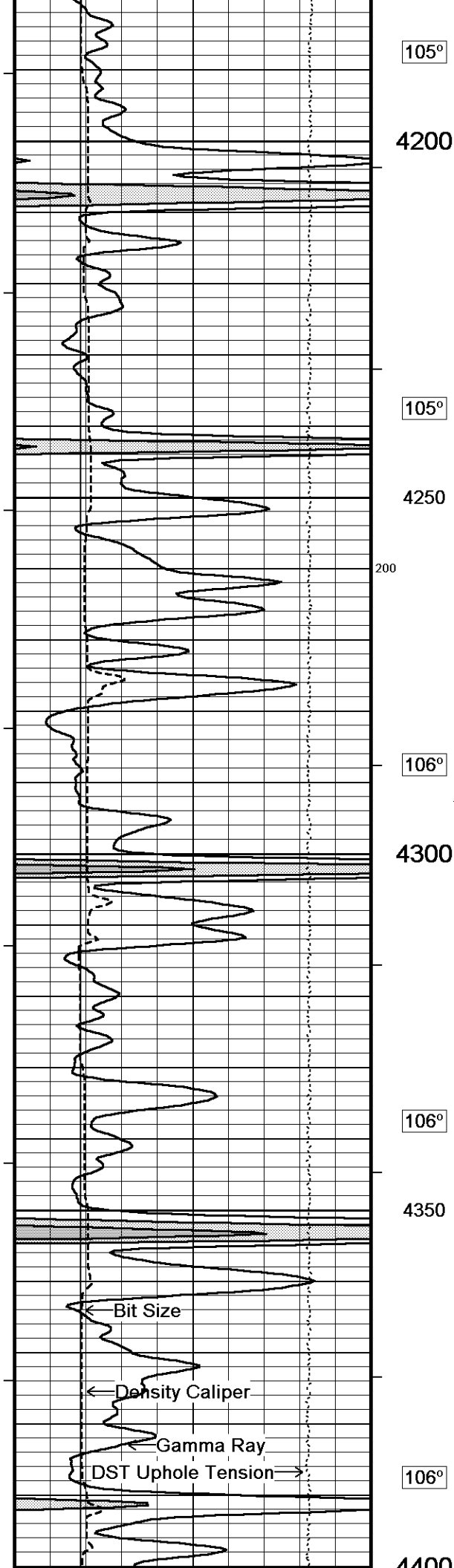


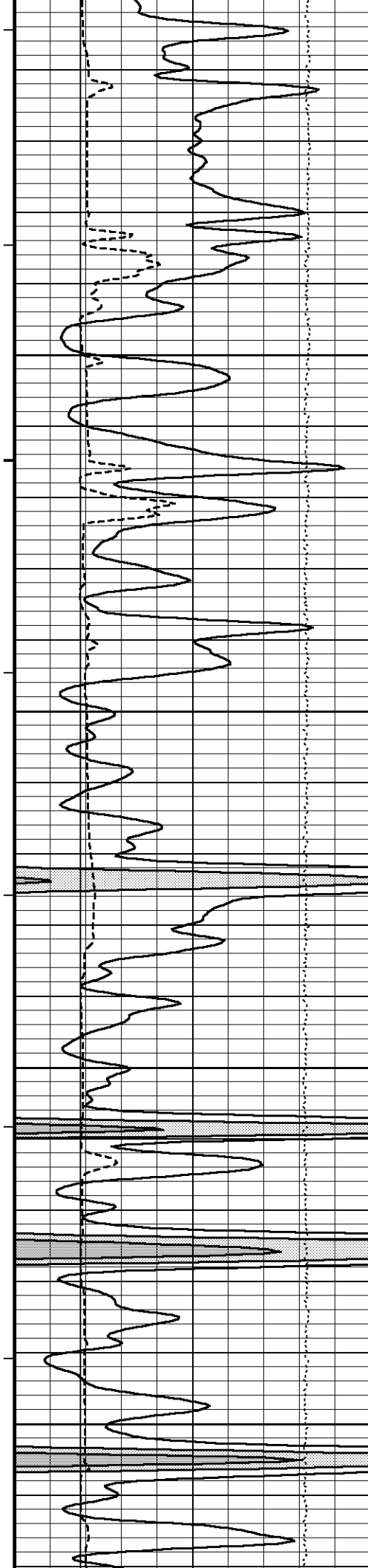
5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 09-APR-2014 04:13
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE JA...\SHAKESPEARE JANZEN 6-36 MAIN.dta Recorded on 09-APR-2014 01:07

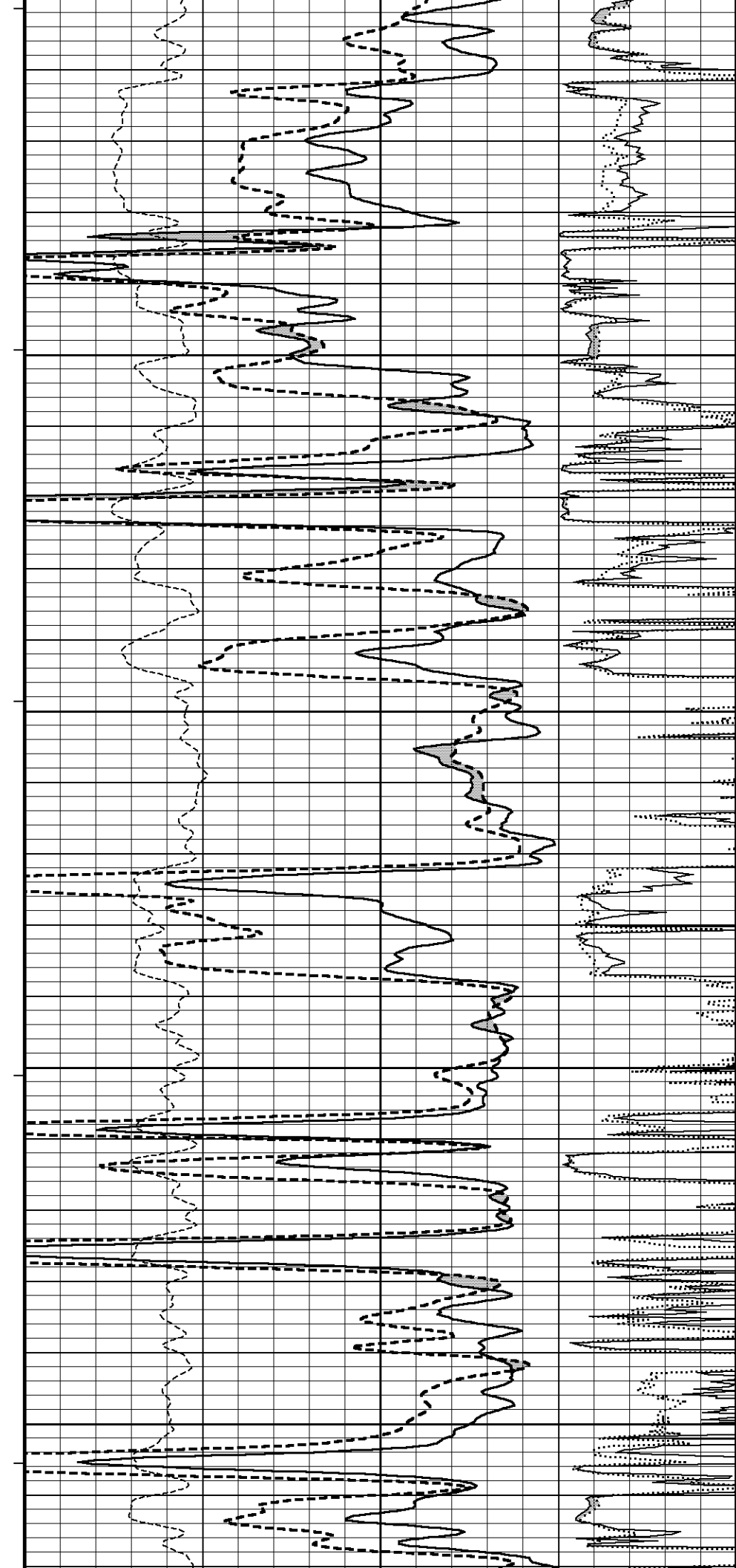


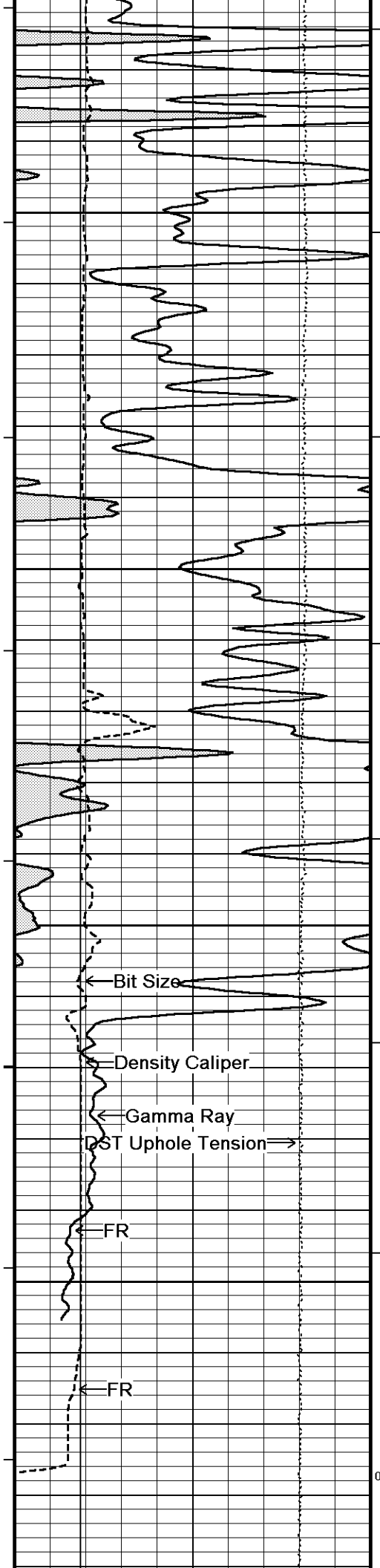






4400
107°
4450
108°
4500
100 108°
4550
108°
4600





108°

4650

109°

4700

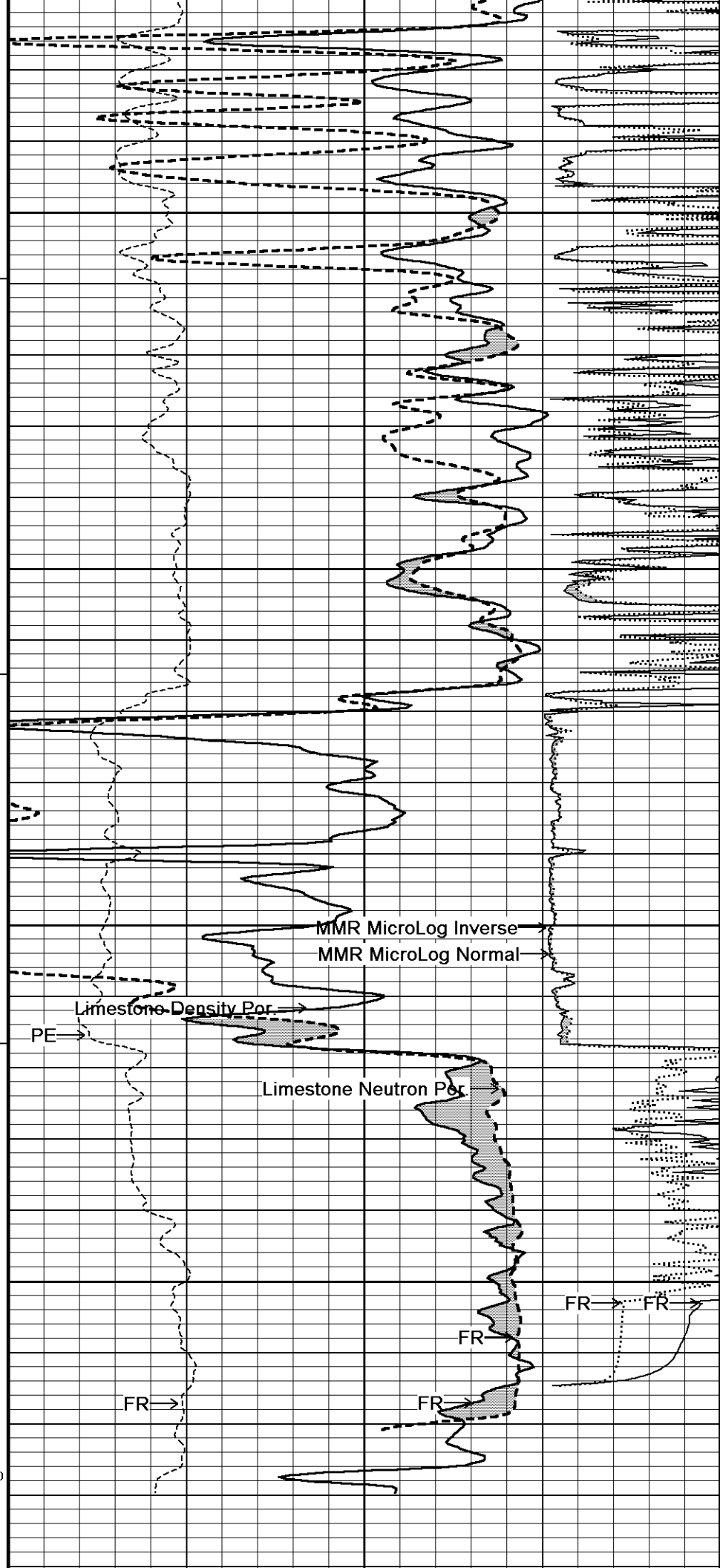
110°

4750

110°

4800

0



MMR MicroLog Inverse

MMR MicroLog Normal

Limestone Density Por

PE

Limestone Neutron Por

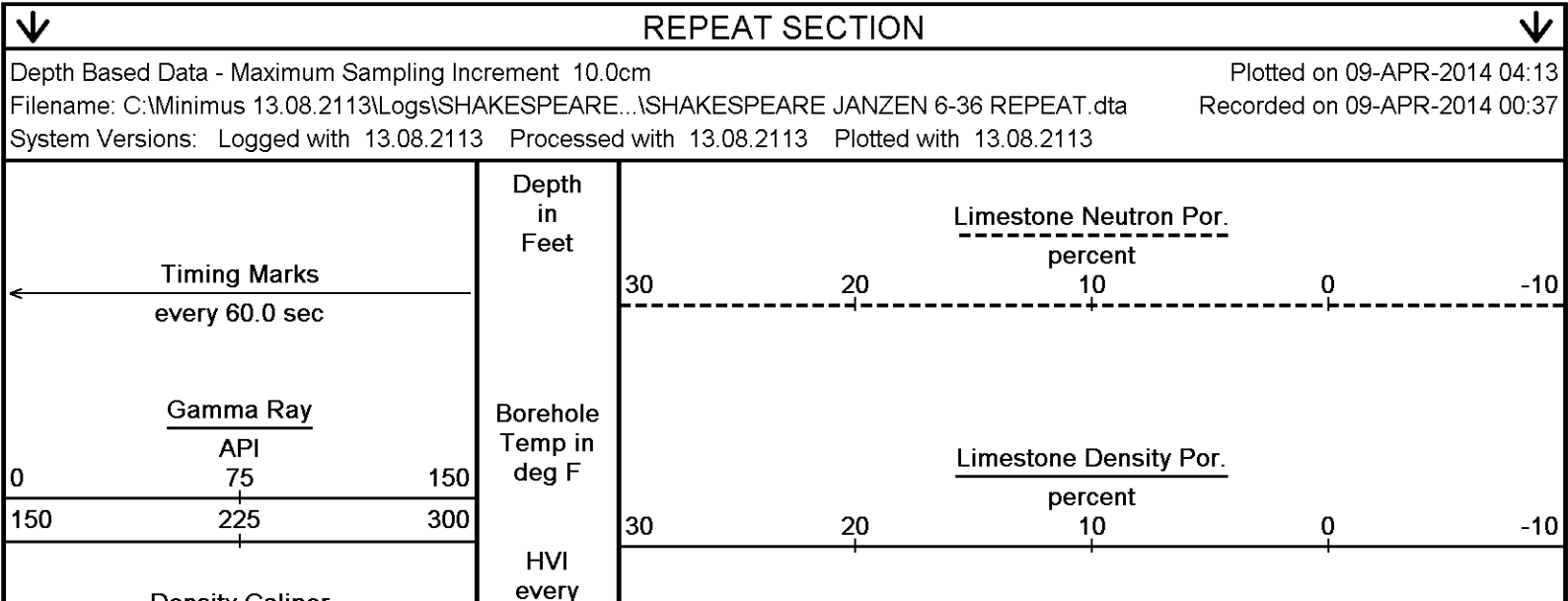
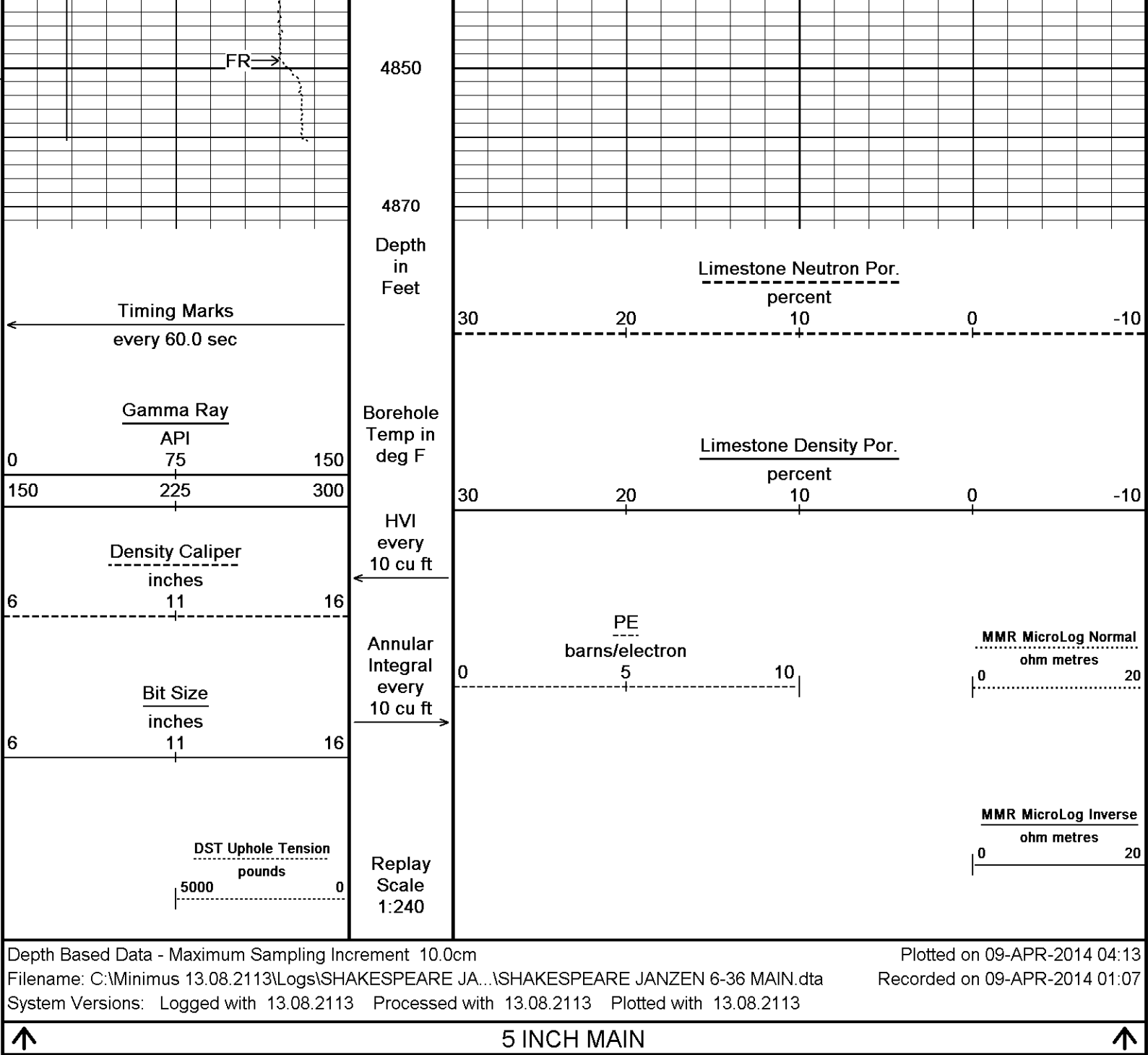
FR

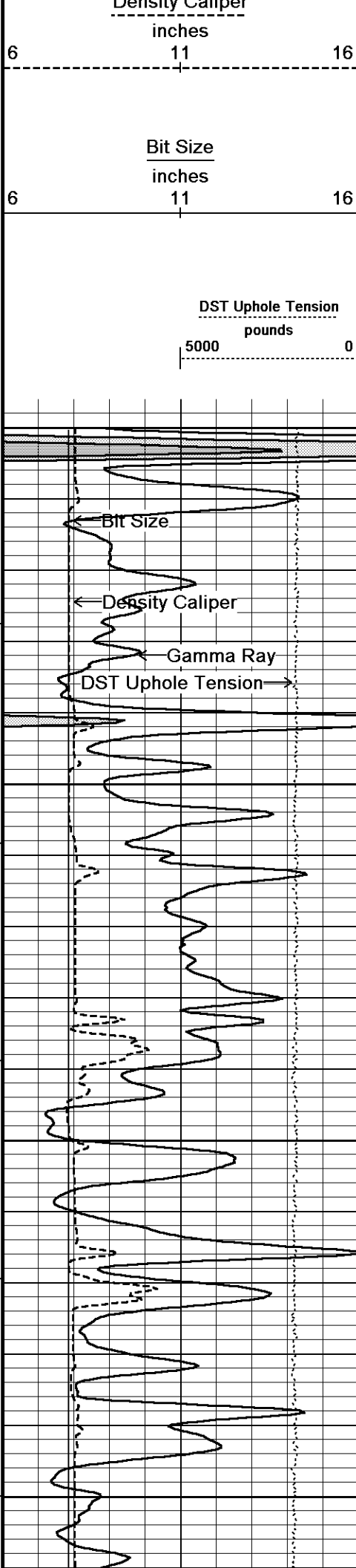
FR

FR

FR

FR





10 cu ft
Annular
Integral
every
10 cu ft

Replay
Scale
1:240

4350

106°

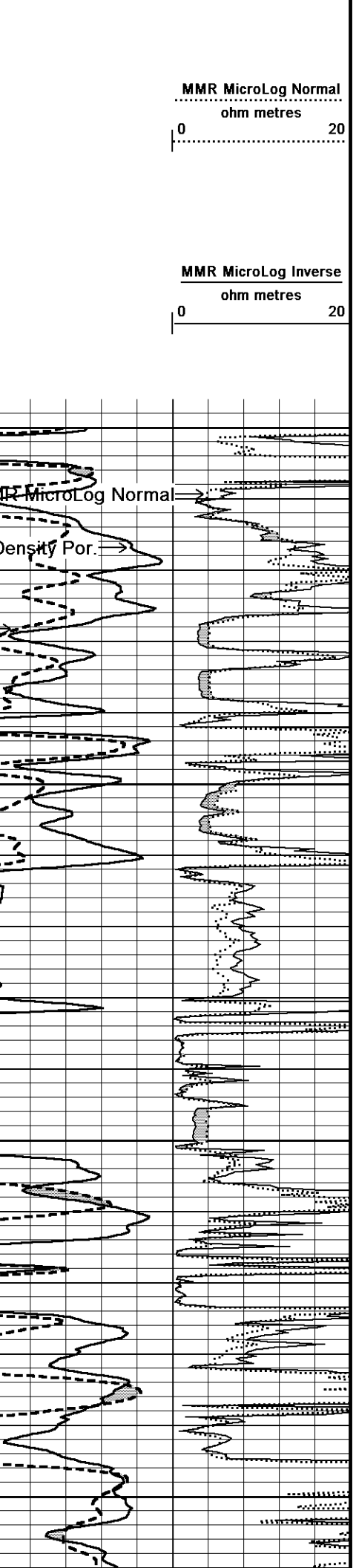
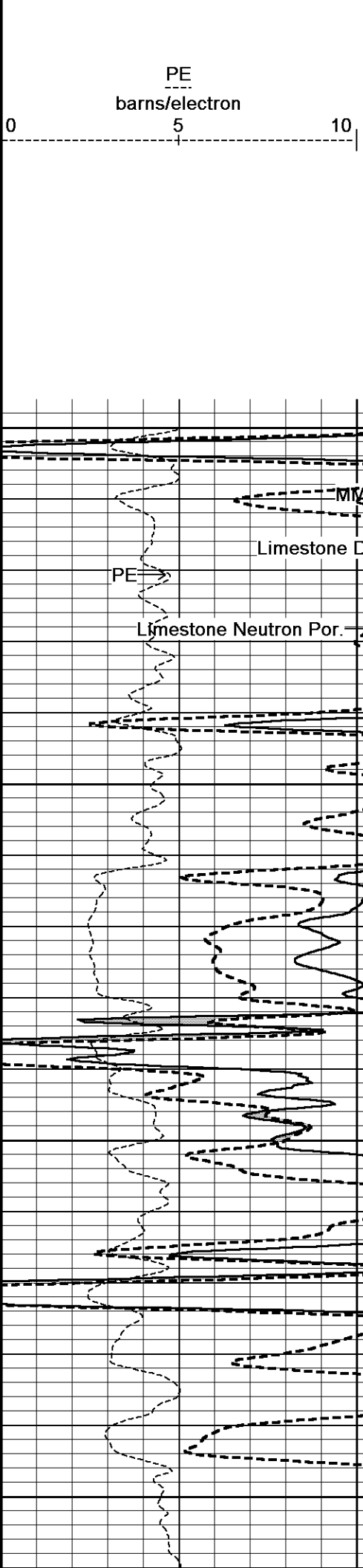
4400

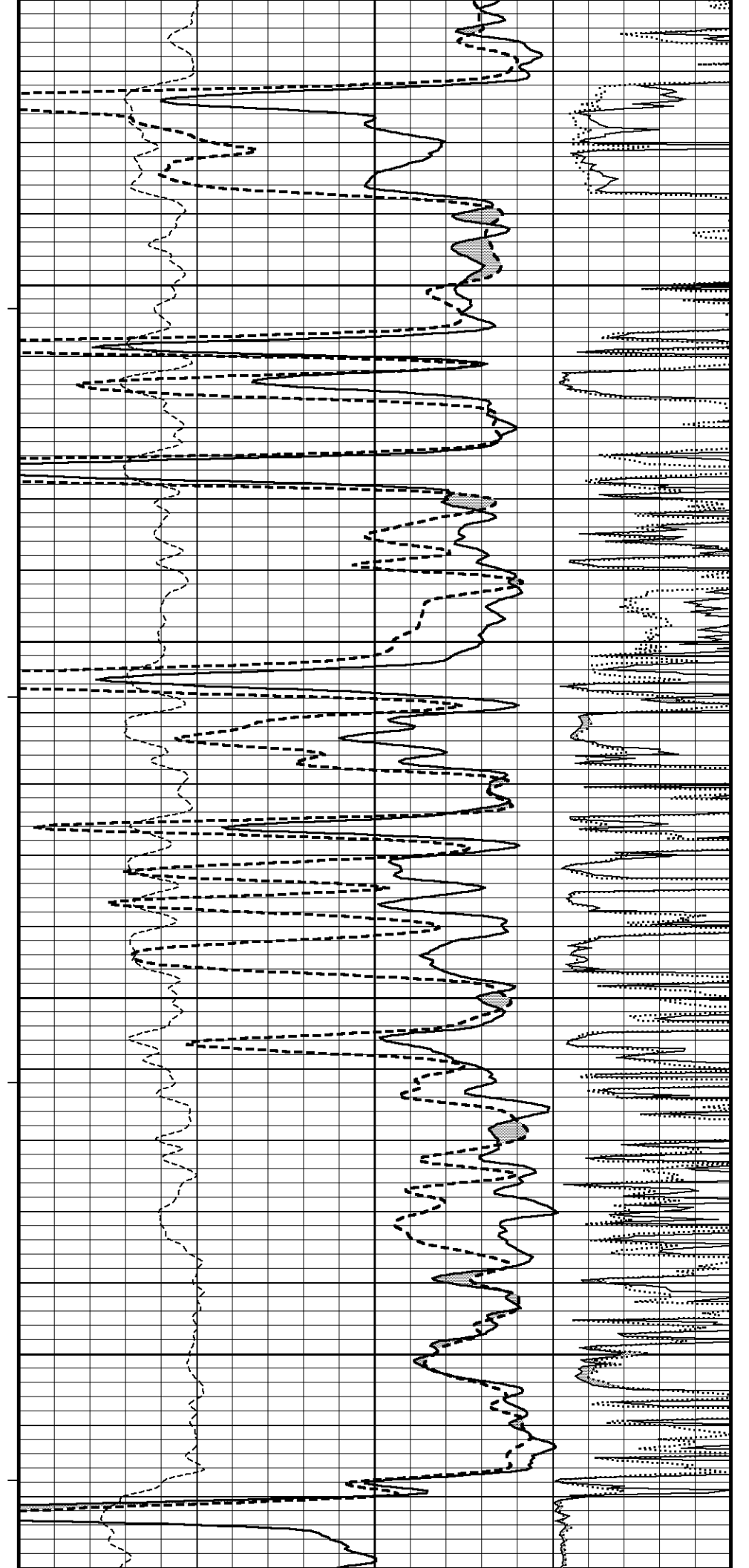
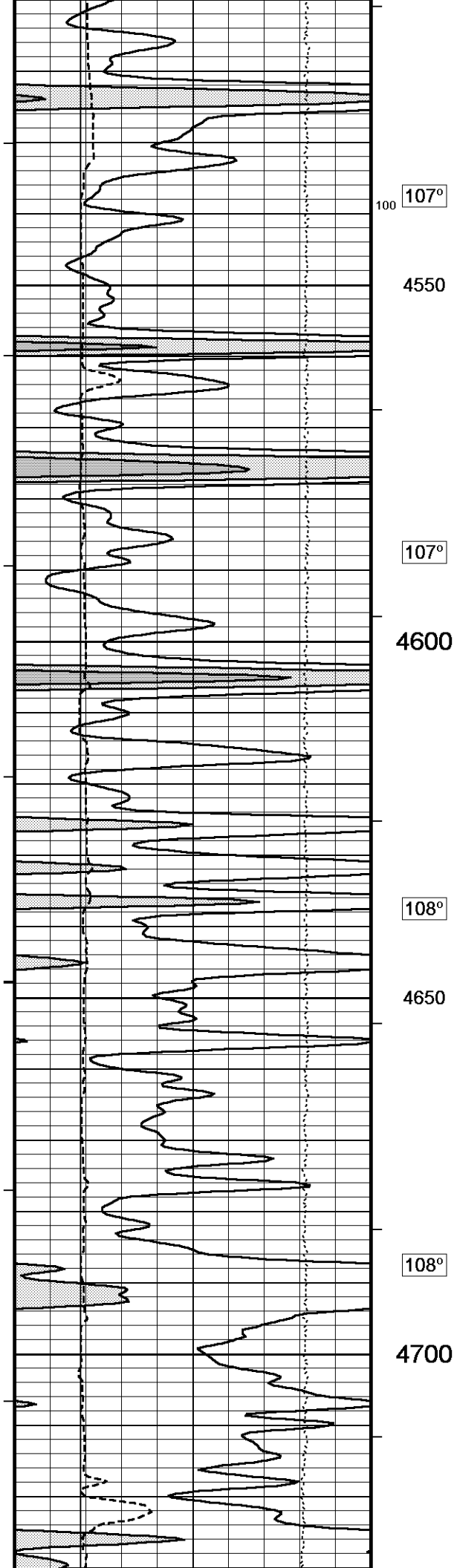
106°

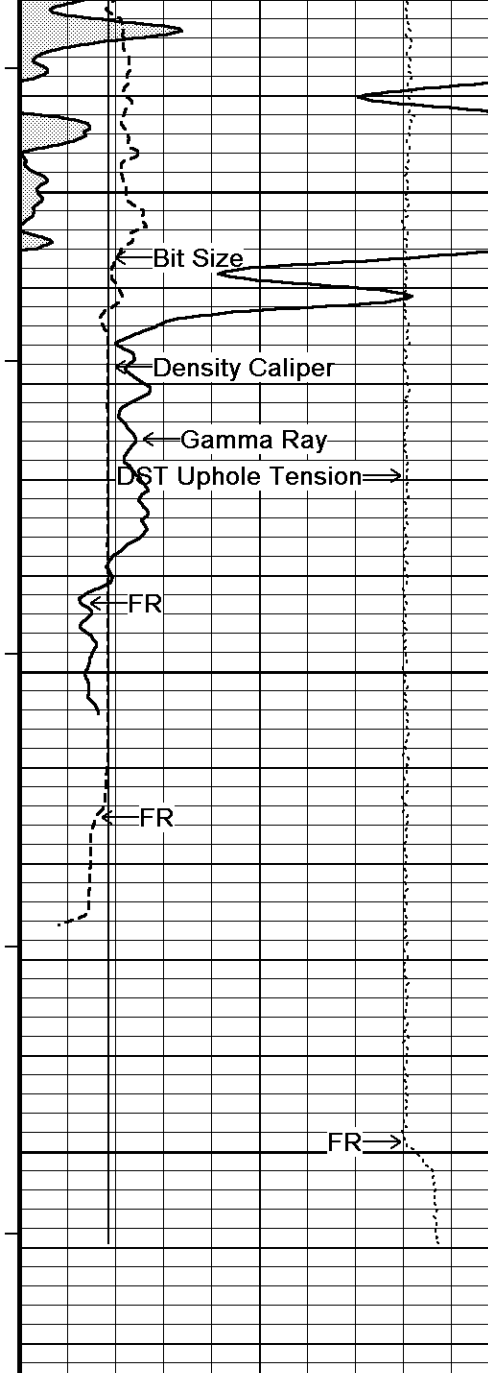
4450

107°

4500







109°

4750

108°

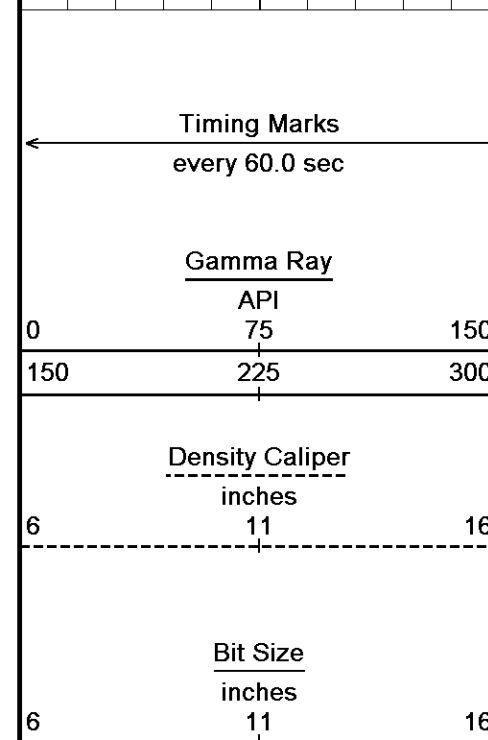
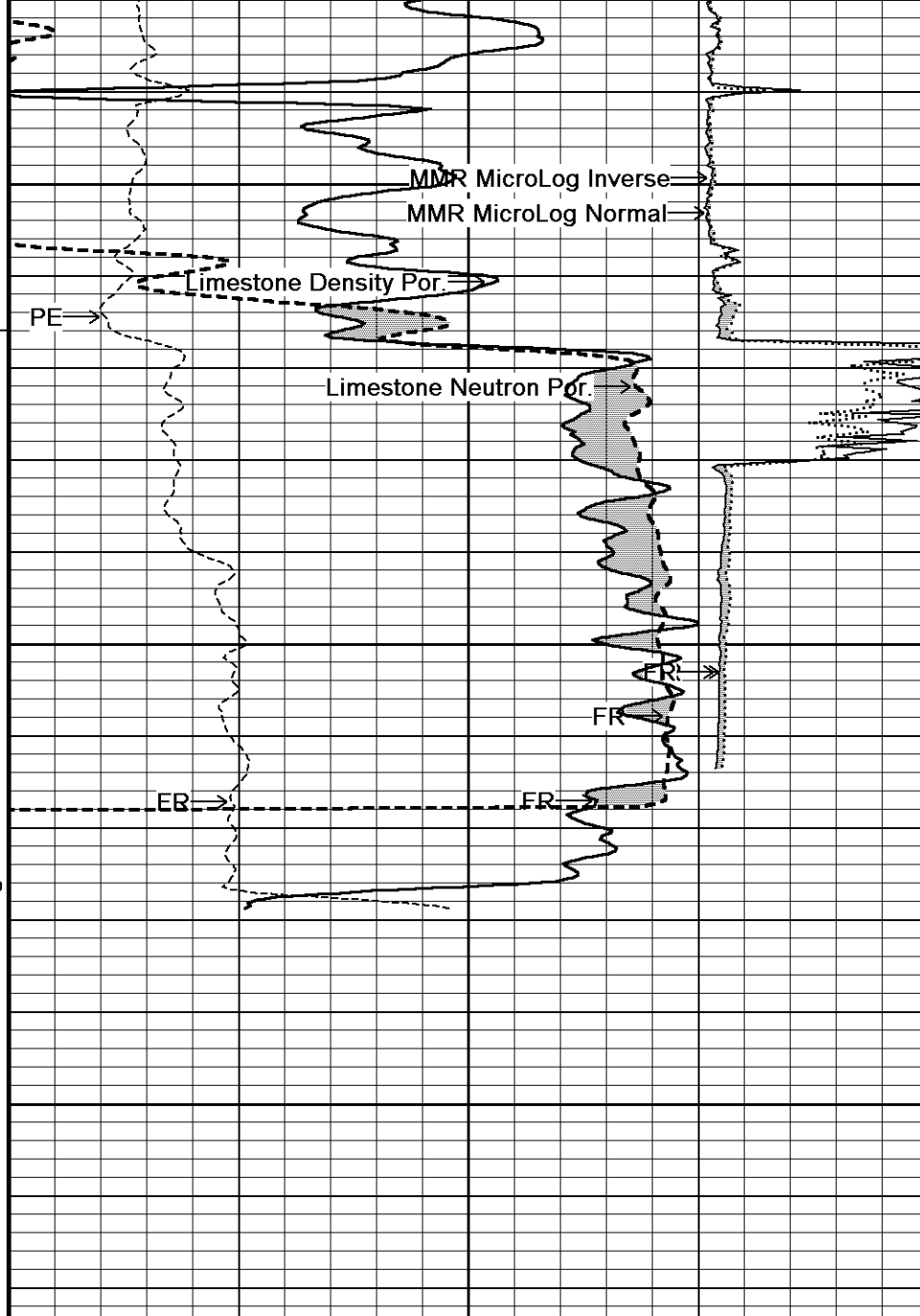
4800

0

4850

4872

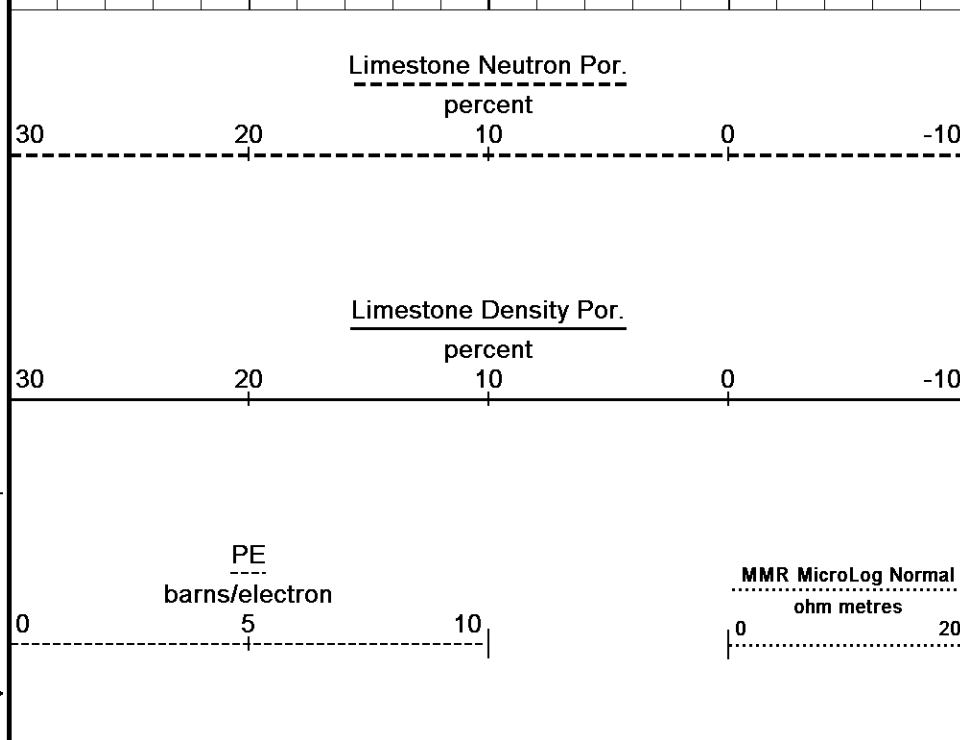
Depth in Feet



Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft



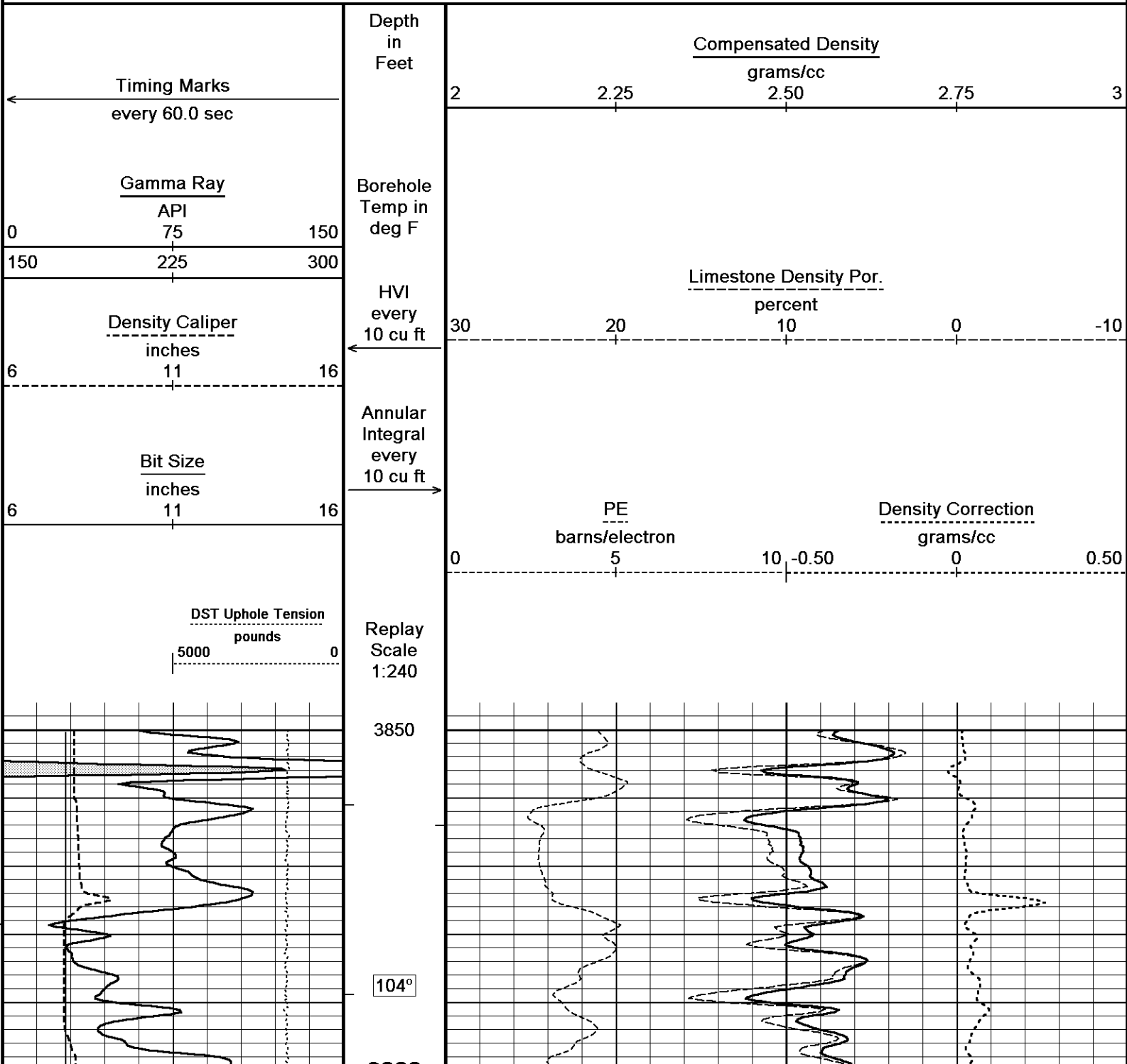
<u>DST Uphole Tension</u> pounds 5000 0	Replay Scale 1:240	MMR MicroLog Inverse ohm metres
		0 20

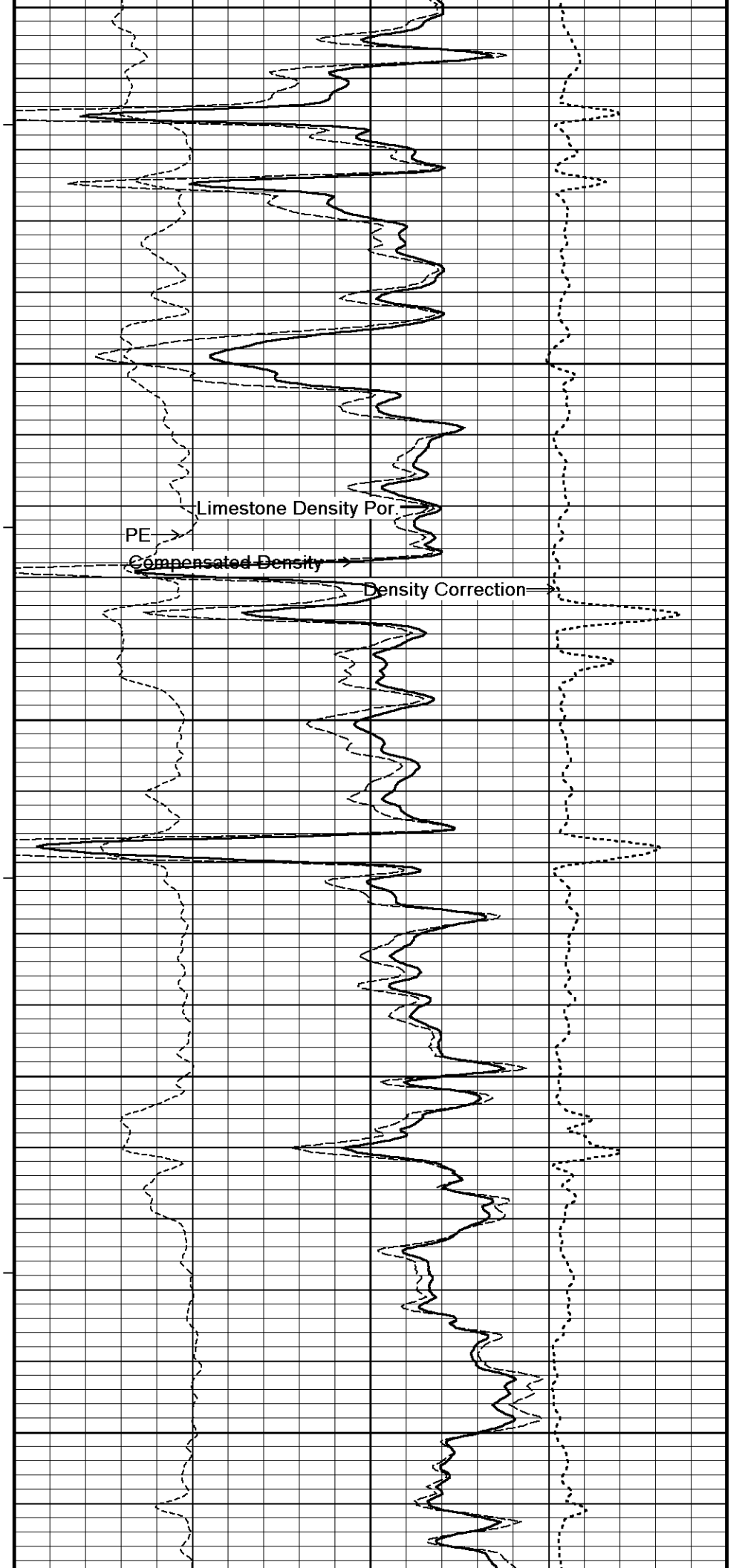
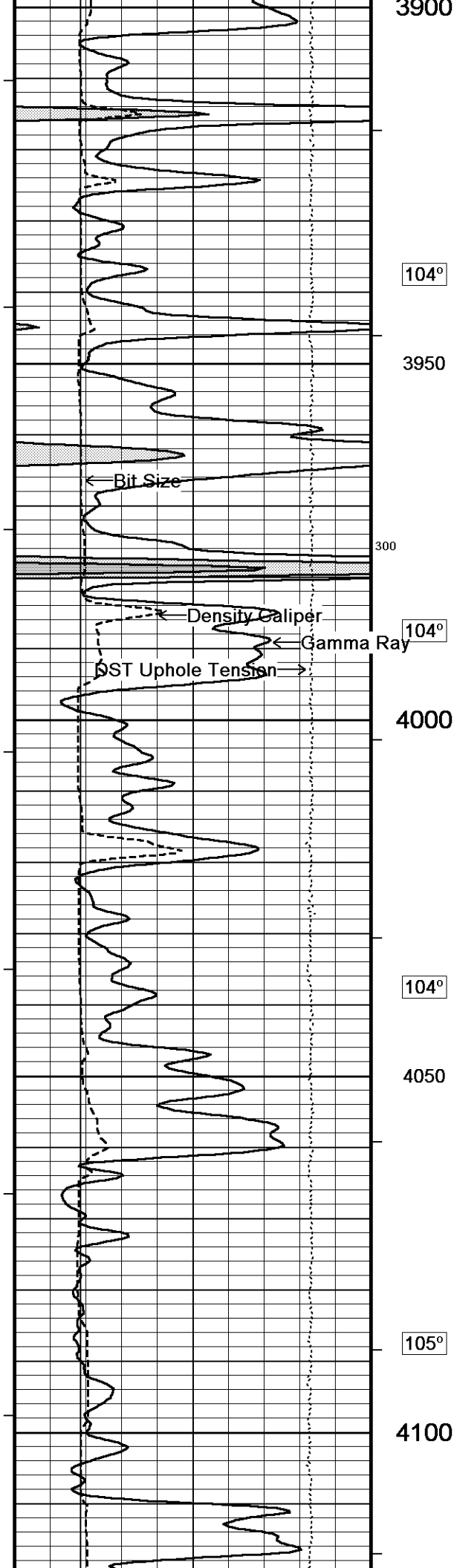
Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE...\SHAKESPEARE JANZEN 6-36 REPEAT.dta
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

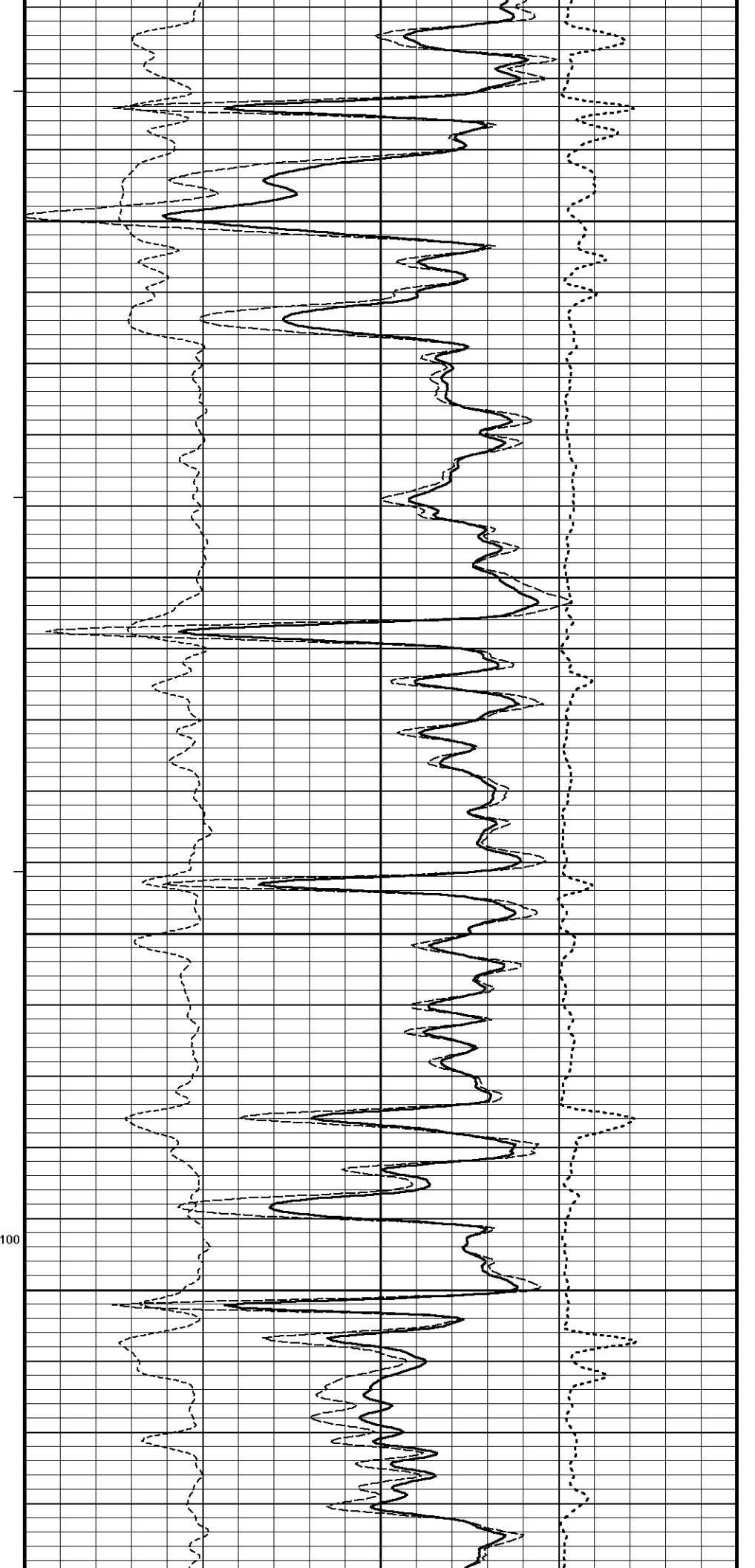
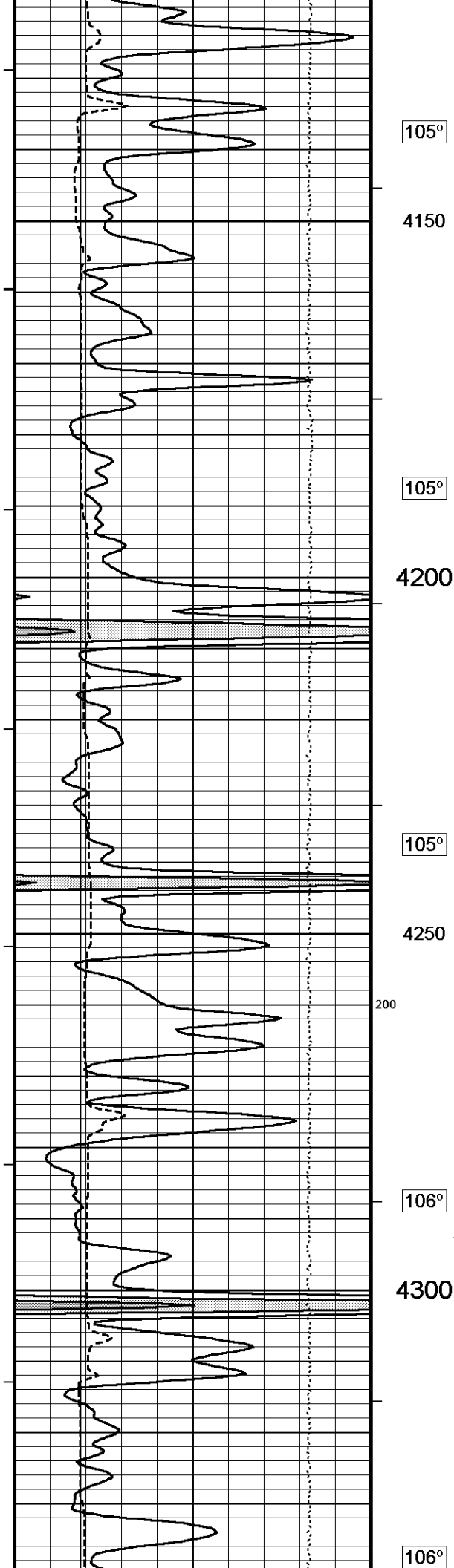
Plotted on 09-APR-2014 04:13
 Recorded on 09-APR-2014 00:37

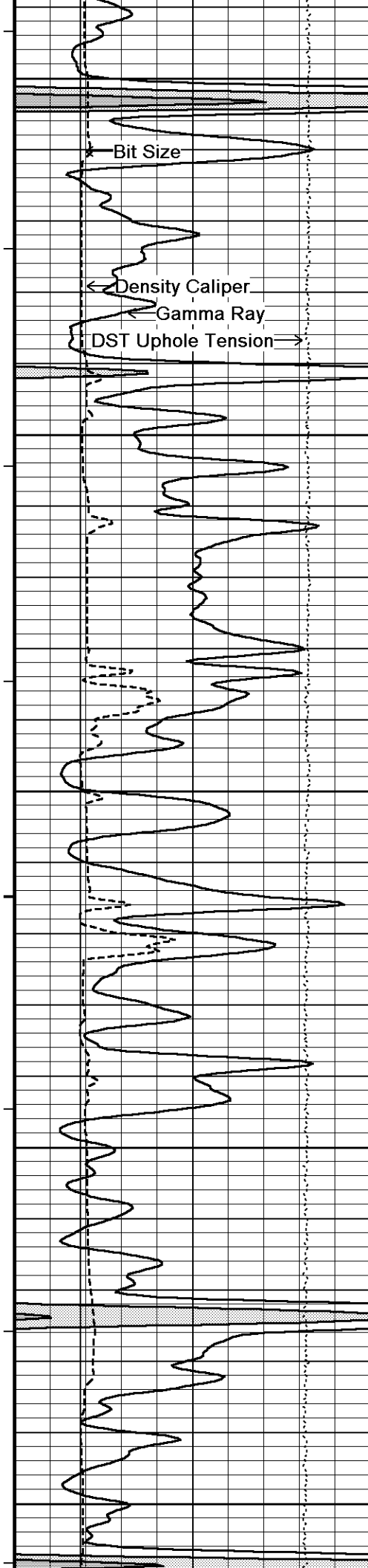
↑
REPEAT SECTION
↑

↓	5 INCH MAIN	↓
Depth Based Data - Maximum Sampling Increment 10.0cm Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE JA...\SHAKESPEARE JANZEN 6-36 MAIN.dta System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113		Plotted on 09-APR-2014 04:13 Recorded on 09-APR-2014 01:07









4350

Bit Size

Density Caliper

Gamma Ray

DST Uphole Tension

106°

4400

107°

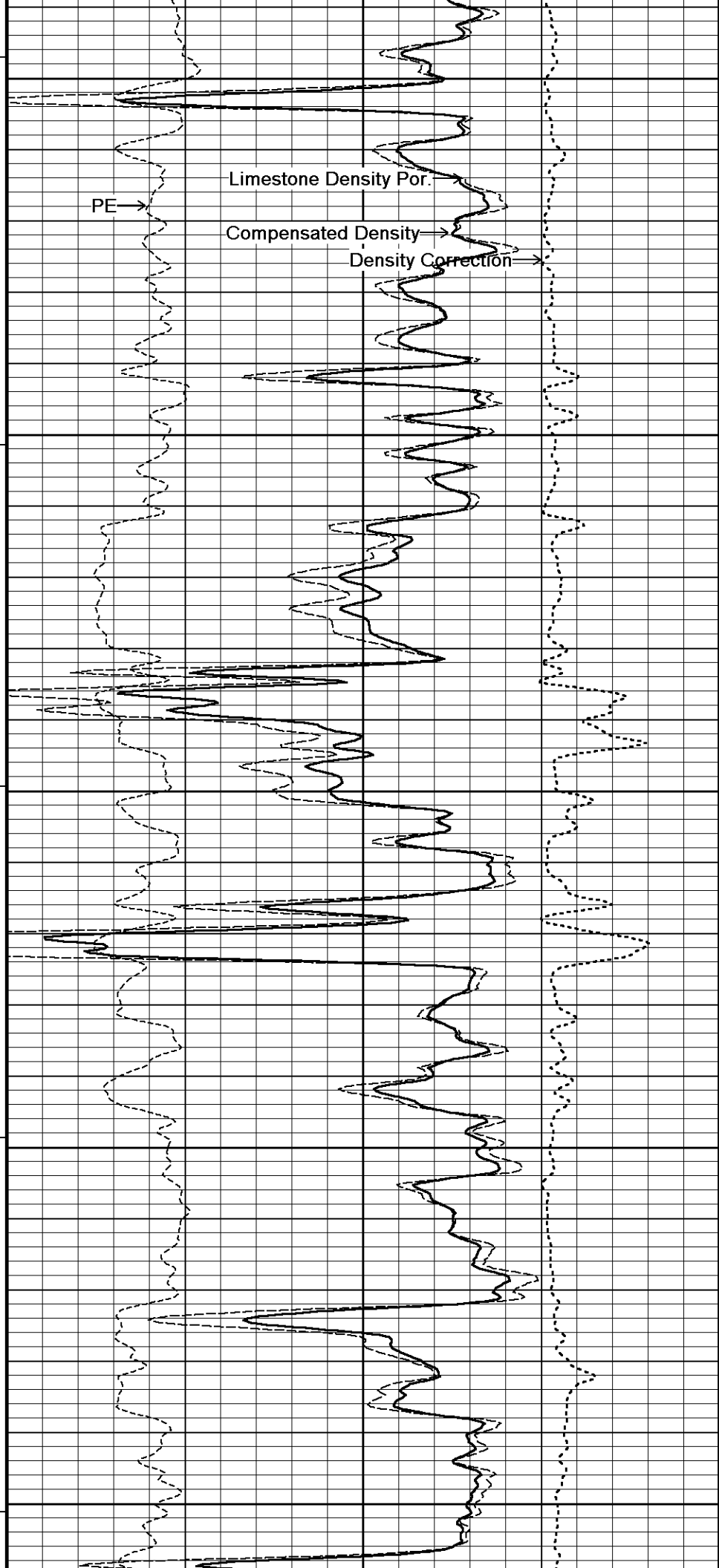
4450

108°

4500

108°

4550

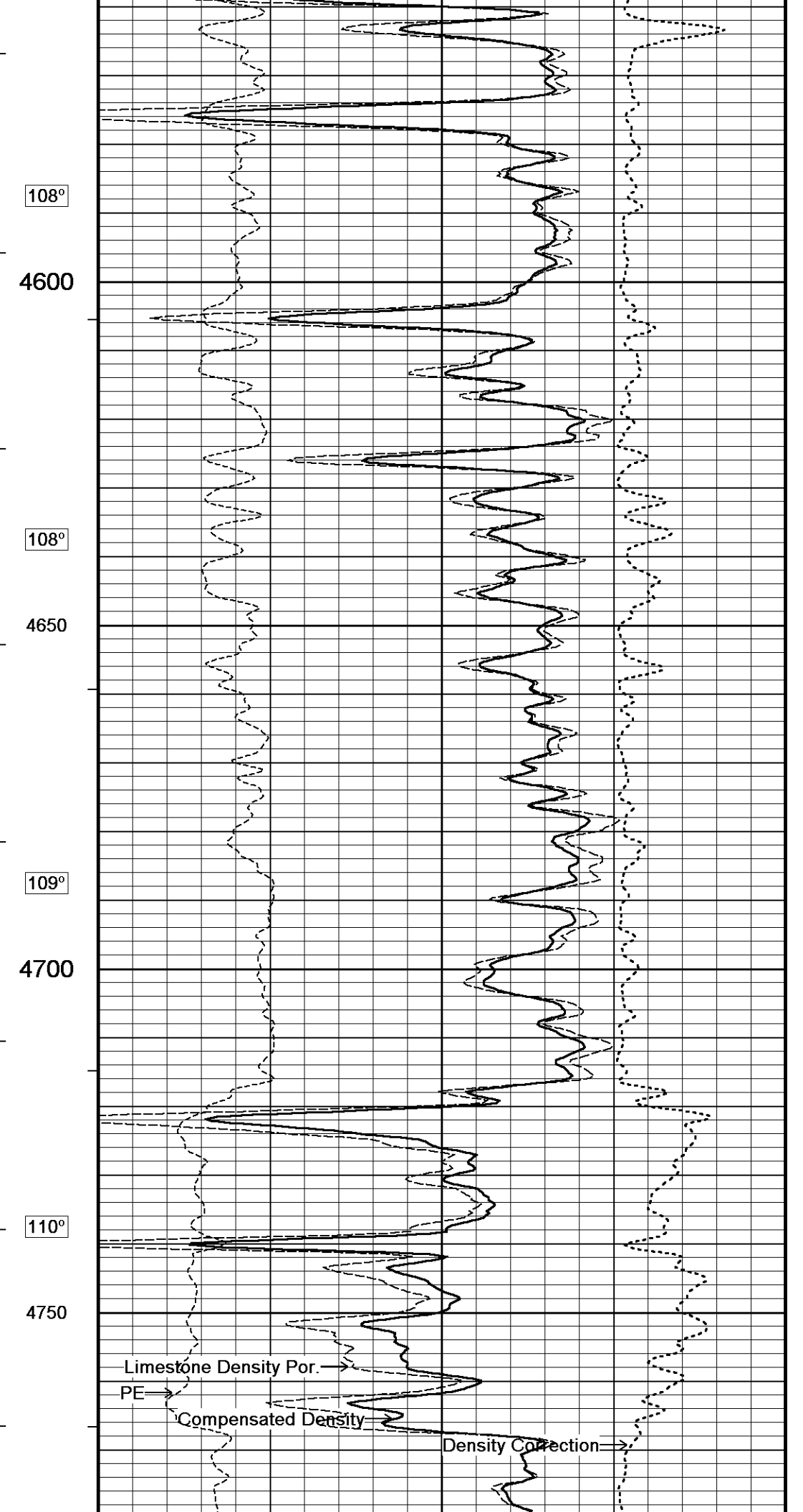
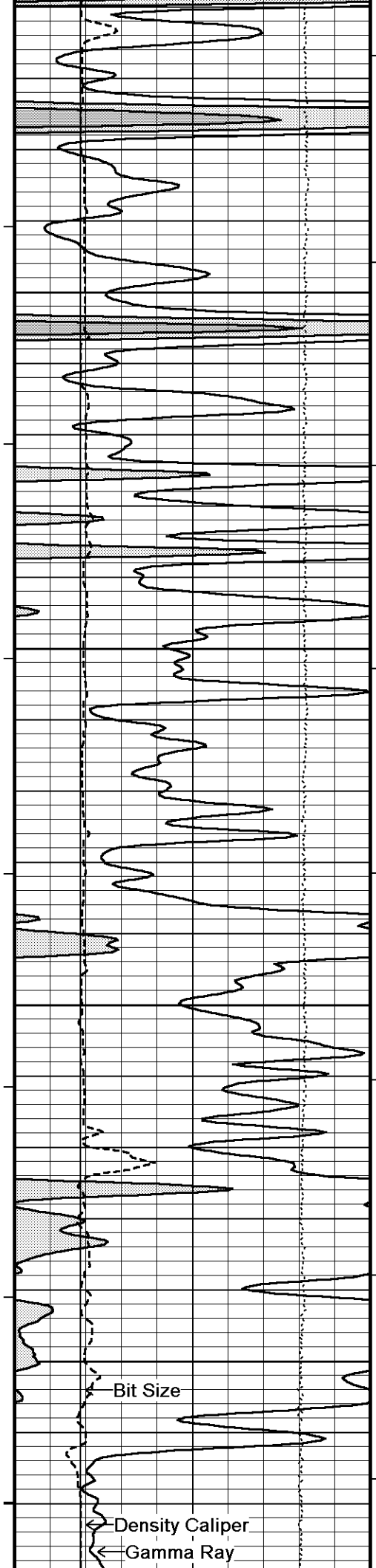


PE

Limestone Density Por.

Compensated Density

Density Correction



108°

4600

108°

4650

109°

4700

110°

4750

Bit Size

Density Caliper

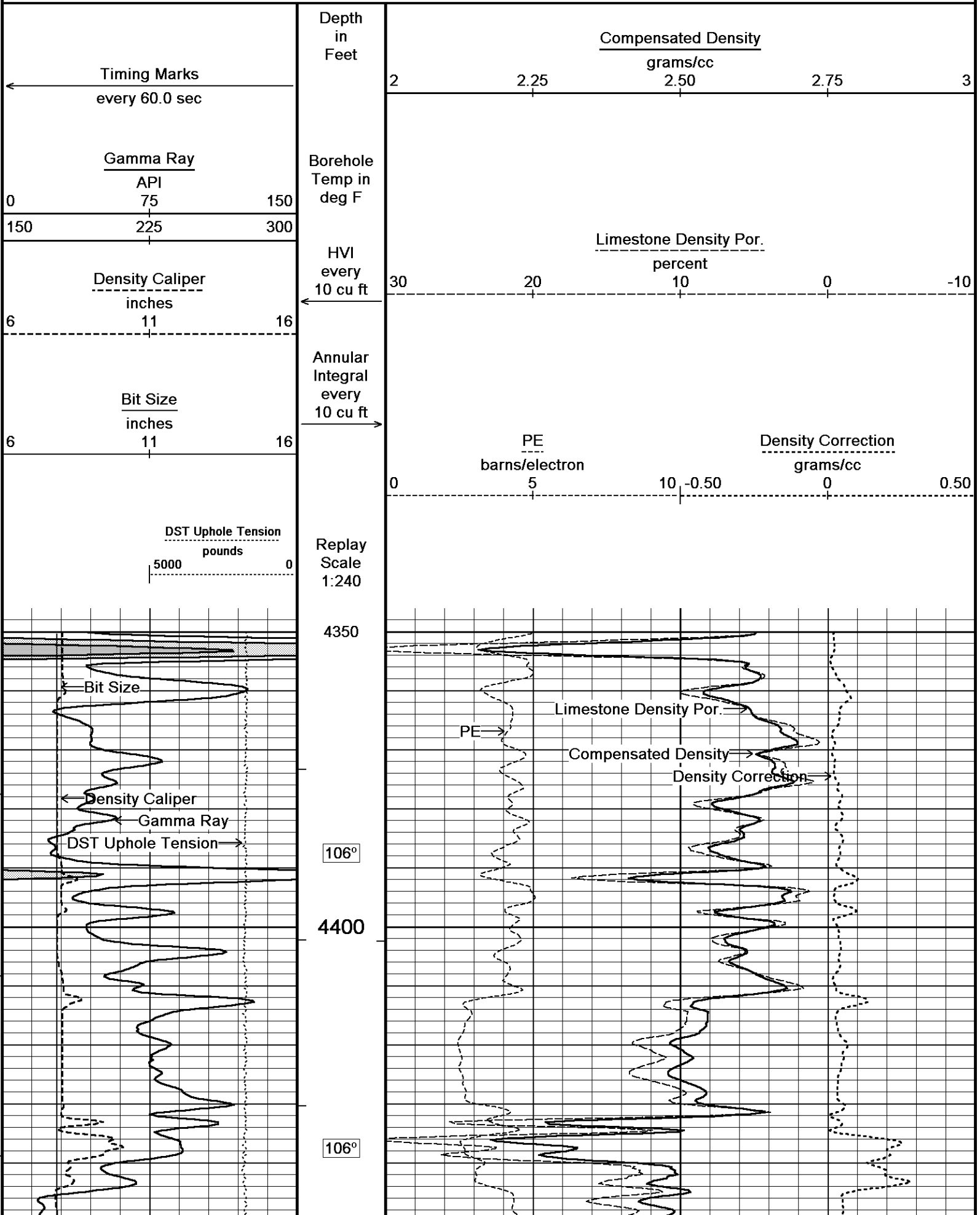
Gamma Ray

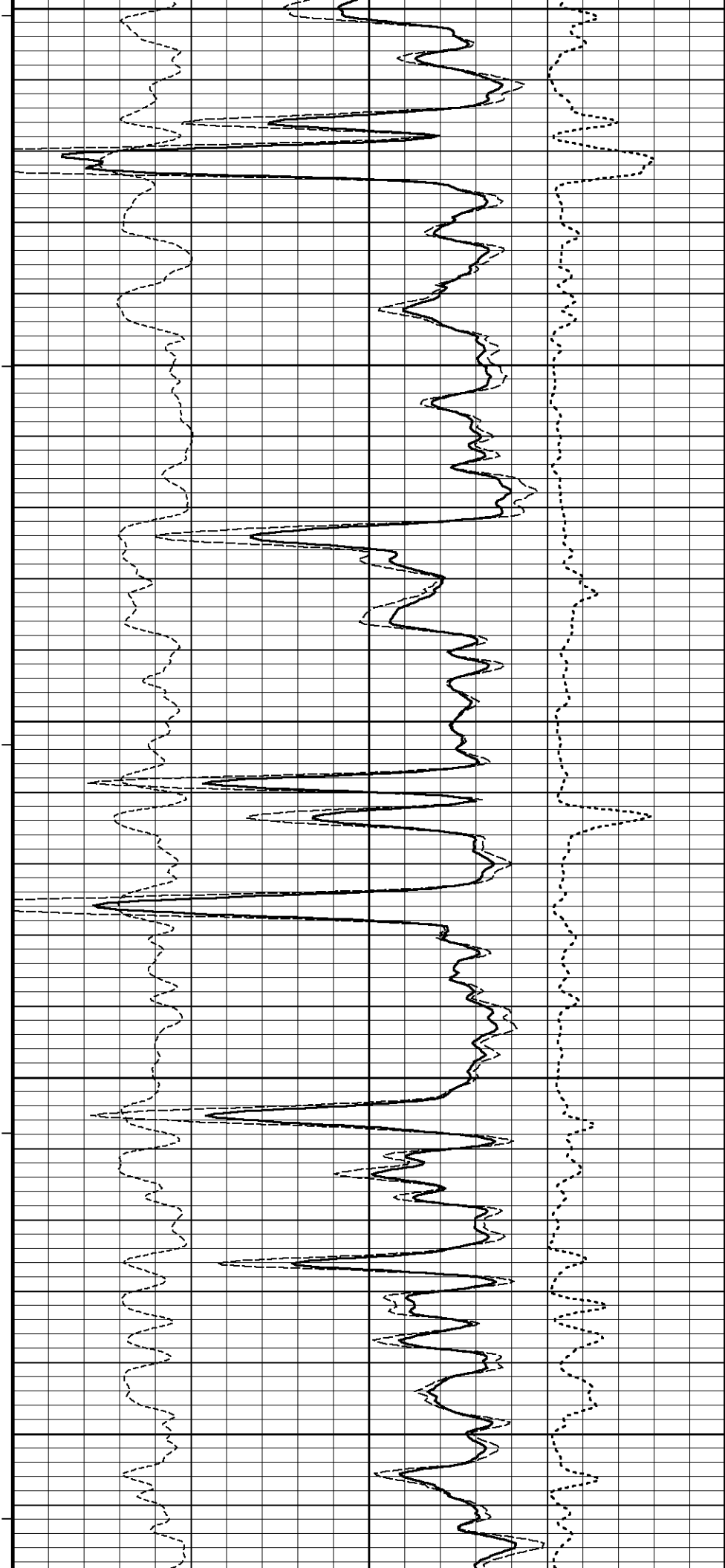
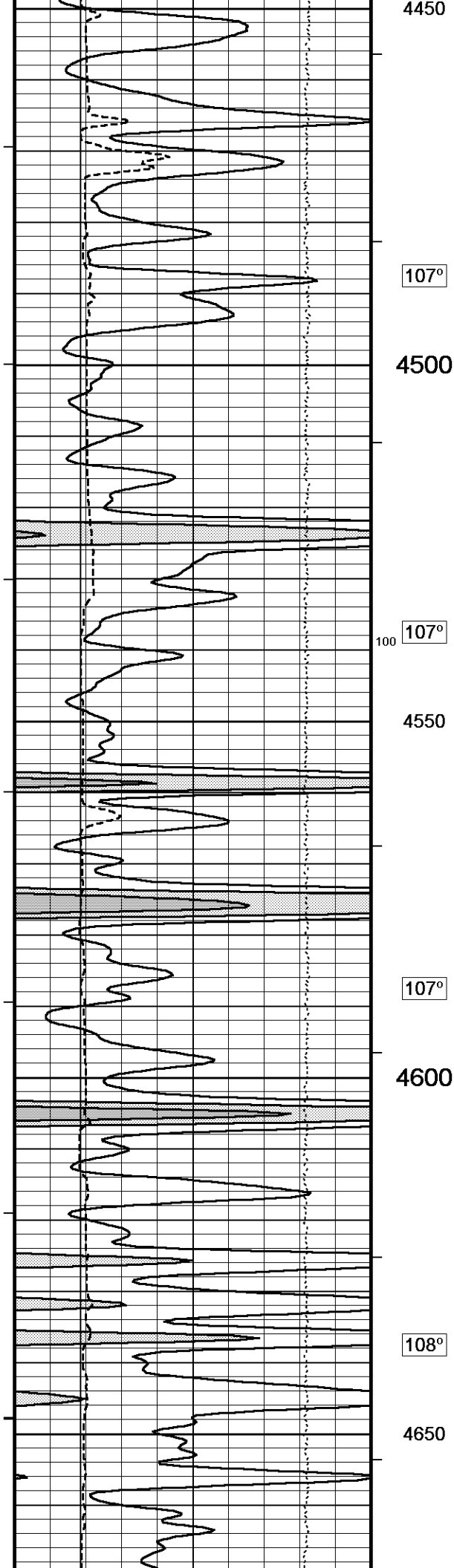
Limestone Density Por.

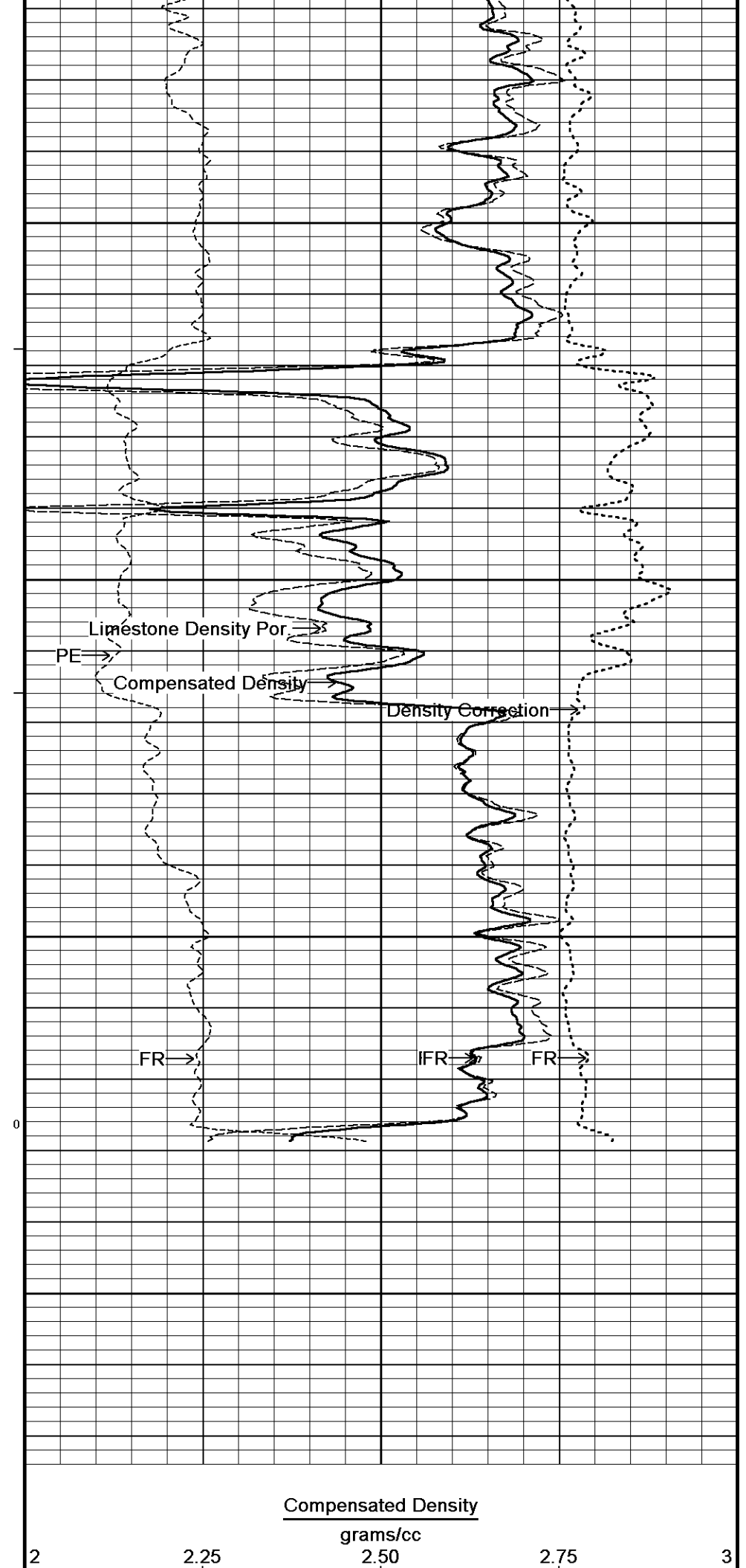
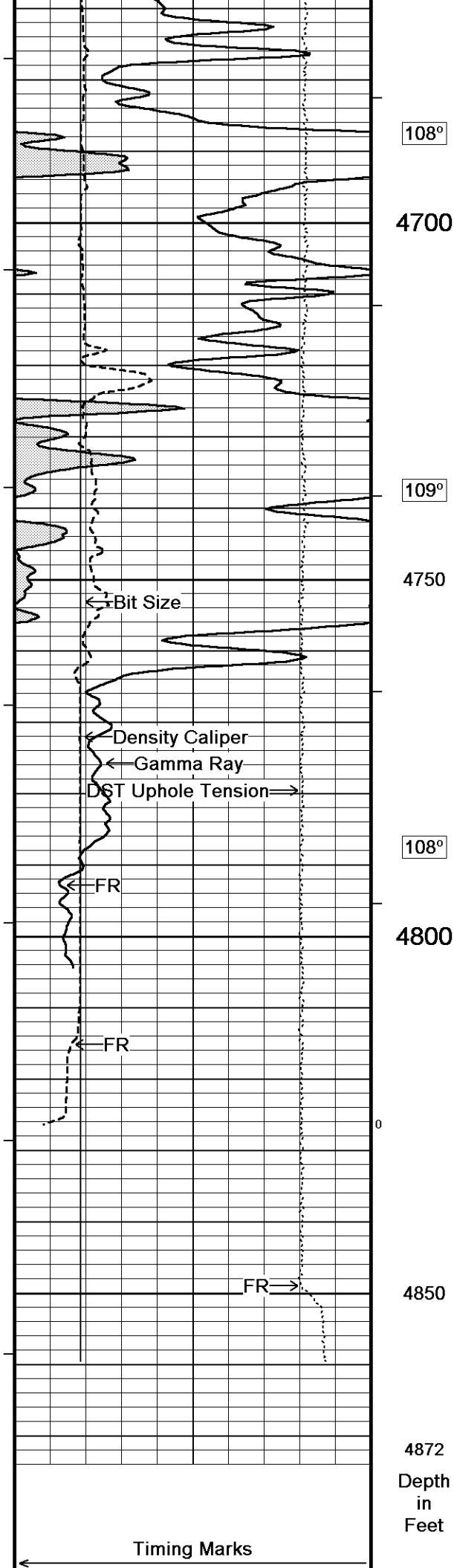
PE

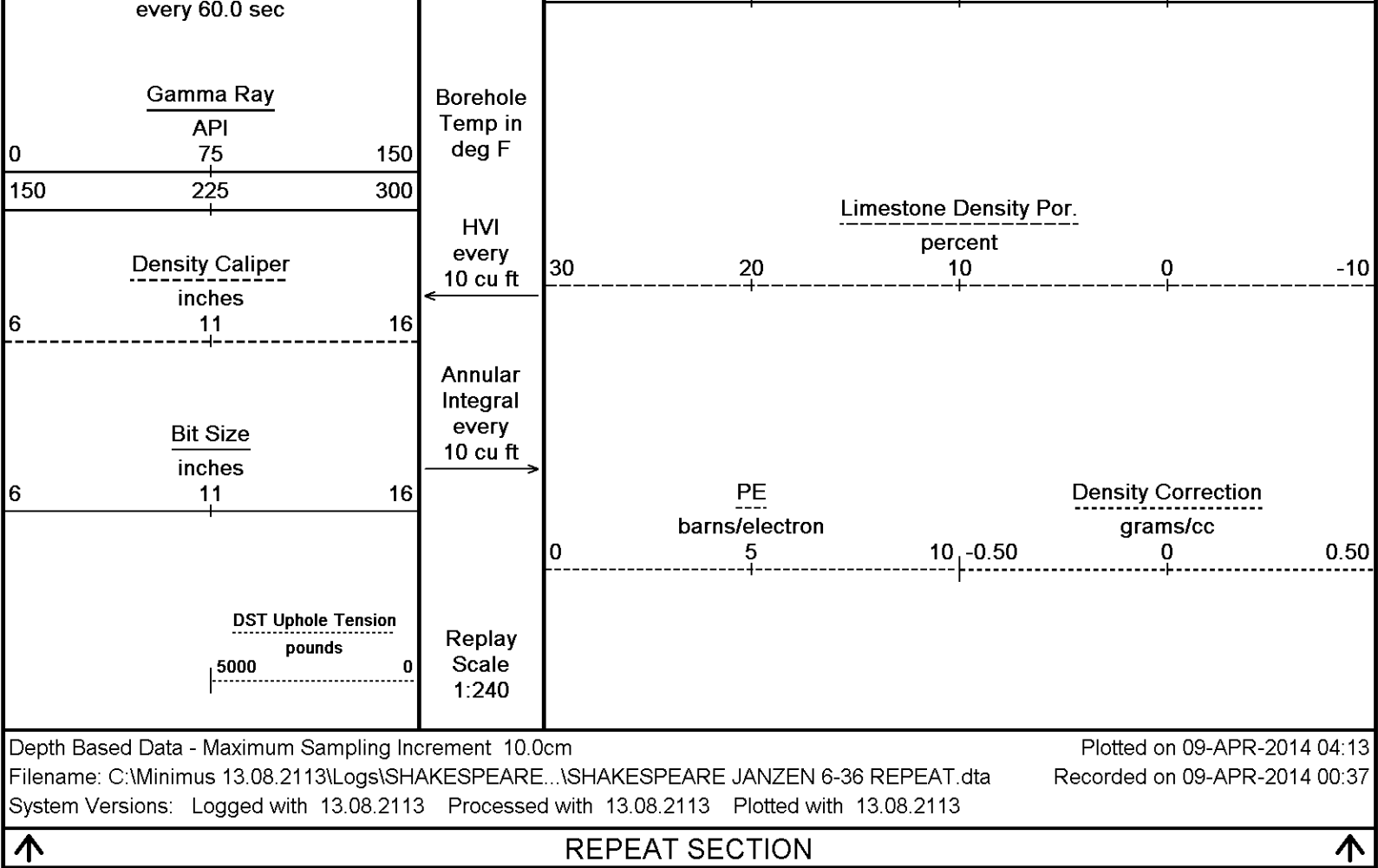
Compensated Density

Density Correction









BEFORE SURVEY CALIBRATION			
C:\Minimus 13.08.2113\Logs\SHAKESPEARE JANZEN 6-36\SHAKESPEARE JANZEN 6-36 REPEAT.dta			
General Constants All 000		Last Edited on 09-APR-2014,00:05	
General Parameters			
Mud Resistivity	0.400	ohm-metres	
Mud Resistivity Temperature	86.000	degrees F	
Water Level	0.000	feet	
Borehole Fluid Processing	Water Level Switch		
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	MMR Caliper		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. Four Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 443		Field Calibration on 05-APR-2014 15:02	
	Measured	Calibrated (API)	
Background	73	49	
Calibrator (Gross)	1158	774	
Calibrator (Net)	1085	725	
Gamma Constants MCG-D.K 443		Last Edited on 09-APR-2014,00:06	
Gamma Calibrator Number	GRC38		
Mud Density	1.11	gm/cc	

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

High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 05-MAR-2014,20:50
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-D.K 443		Last Edited on 05-MAR-2014,20:50
Pre-filter Length	11	

Photo Density Calibration MPD-B 31					Base Calibration on 02-APR-2014 10:28 Field Check on 05-APR-2014 14:34	
Density Calibration						
Base Calibration		Measured		Calibrated (sdu)		
		Near	Far	Near	Far	
	Background	661	814			
	Reference 1	43693	22248	59556	30836	
	Reference 2	17883	1854	24941	2541	
Field Check at Base						
		661.2	814.3			
Field Check						
		664.7	816.6			
PE Calibration						
Base Calibration		Measured		Calibrated		
	WS	WH	Ratio	Ratio		
	Background	122	585			
	Reference 1	18087	43581	0.418	0.371	
	Reference 2	5283	17800	0.300	0.272	
Field Check at Base						
		122.3	585.3			
Field Check						
		122.9	587.2			

Density Constants MPD-B 31		Last Edited on 09-APR-2014,00:06	
Density Source Id	254		
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		

Caliper Calibration MPD-B 31		Base Calibration on 02-APR-2014 10:39 Field Calibration on 05-APR-2014 14:29
Base Calibration		

Base Calibration

Reading No
1
2
3
4
5
6

Measured
18192
27035
35696
44016
53216
N/A

Calibrator Size (in)
3.99
5.98
7.97
9.86
11.92
N/A

Field Calibration

Measured Caliper (in)
7.94

Actual Caliper (in)
7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Log\SHAKESPEARE JANZEN 6-36\SHAKESPEARE JANZEN 6-36 REPEAT.dta

Compact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-B.A 98 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

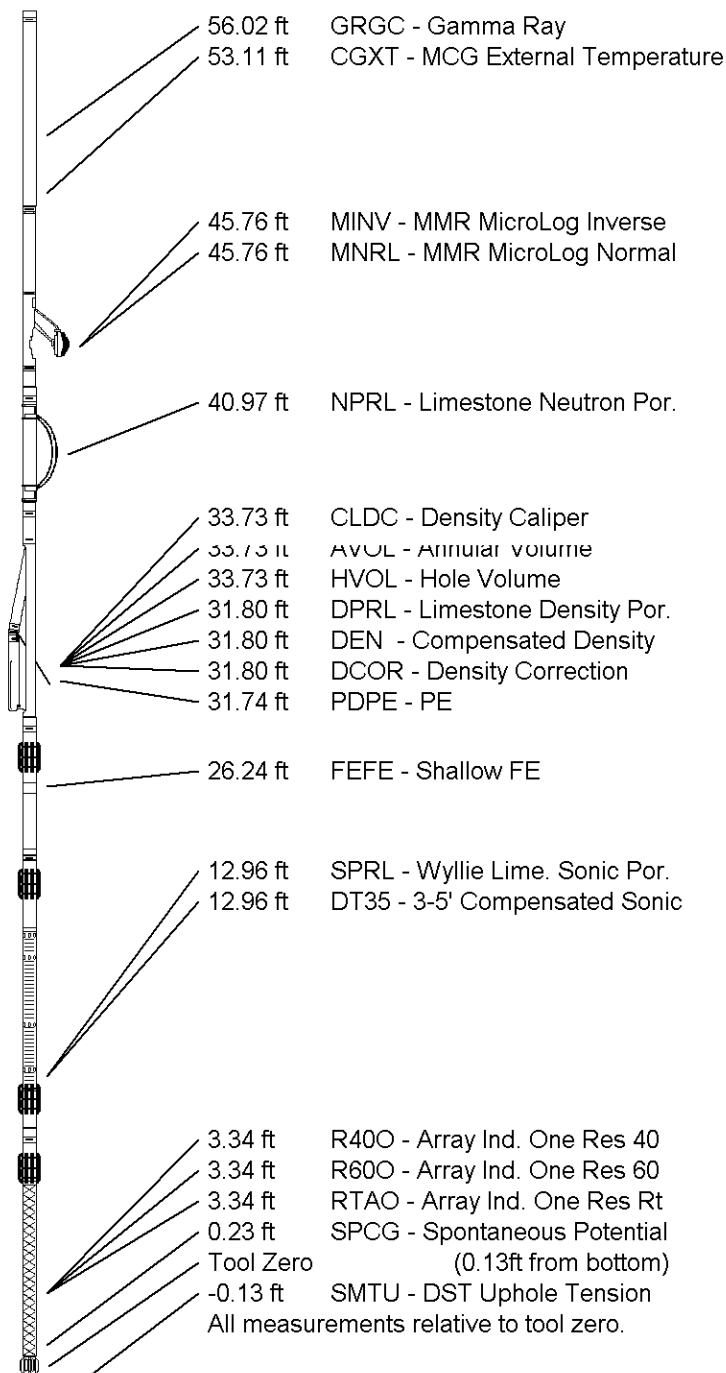
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 61.30 ft Weight: 456.4 lb



COMPANY
WELL

SHAKESPEARE OIL CO., INC
JANZEN 6-36

FIELD	PENCE EAST
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3116.00	feet	First Reading	4528.00	feet
Elevation Drill Floor	3114.00	feet	Depth Driller	4850.00	feet
Elevation Ground Level	3104.00	feet	Depth Logger	4849.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG