

**Weatherford****COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY		SHAKESPEARE OIL CO. INC		
WELL		CARSON 1-26		
FIELD		PENCE EAST		
PROVINCE/COUNTY		SCOTT		
COUNTRY/STATE		U.S.A. / KANSAS		
LOCATION		649' FNL & 1371' FEL SE NE NW NE		
SEC	TWP	RGE	Other Services	
26	16S	34W	MA/MFE	
API Number		15-171-20969	MML	
Permit Number			MSS	
Permanent Datum GL, Elevation 3114 feet				Elevations:
Log Measured From KB				KB 3124.00
Drilling Measured From KB AT 10 FEET				DF 3122.00
				GL 3114.00
Date	07-SEP-2013			
Run Number	ONE			
Service Order	3541037			
Depth Driller	4890.00			feet
Depth Logger	4889.00			feet
First Reading	4857.00			feet
Last Reading	3800.00			feet
Casing Driller	267.00			feet
Casing Logger	267.00			feet
Bit Size	7.875			inches
Hole Fluid Type	CHEM			
Density / Viscosity	9.10 lb/USg			60.00 CP
PH / Fluid Loss	10.00			10.80 ml/30Min
Sample Source	PIT			
Rm @ Measured Temp	0.30 @ 91.0			ohm-m
Rmf @ Measured Temp	0.24 @ 91.0			ohm-m
Rmc @ Measured Temp	0.36 @ 91.0			ohm-m
Source Rmf / Rmc	CALC			CALC
Rm @ BHT	0.24 @ 113.0			ohm-m
Time Since Circulation	4 HRS			
Max Recorded Temp	113.00			deg F
Equipment / Base	13244			KANSAS
Recorded By	D. COLE			
Witnessed By	S. DAVIS			
IOB#	LB 13 - 251			

BOREHOLE RECORD

Last Edited: 07-SEP-2013 09:46

Bit Size inches	Depth From feet	Depth To feet
7.875	267.00	4890.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	267.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MSS, MAI
- HARDWARE:
 - MDN: DUAL BOWSPRING ECCENTRALIZER
 - MFE: 1 X 0.5 INCH STANDOFF
 - MSS: 2 X 0.5 INCH STANDOFF
 - MAI: 2 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 3800 FEET: 410 CU.FT.

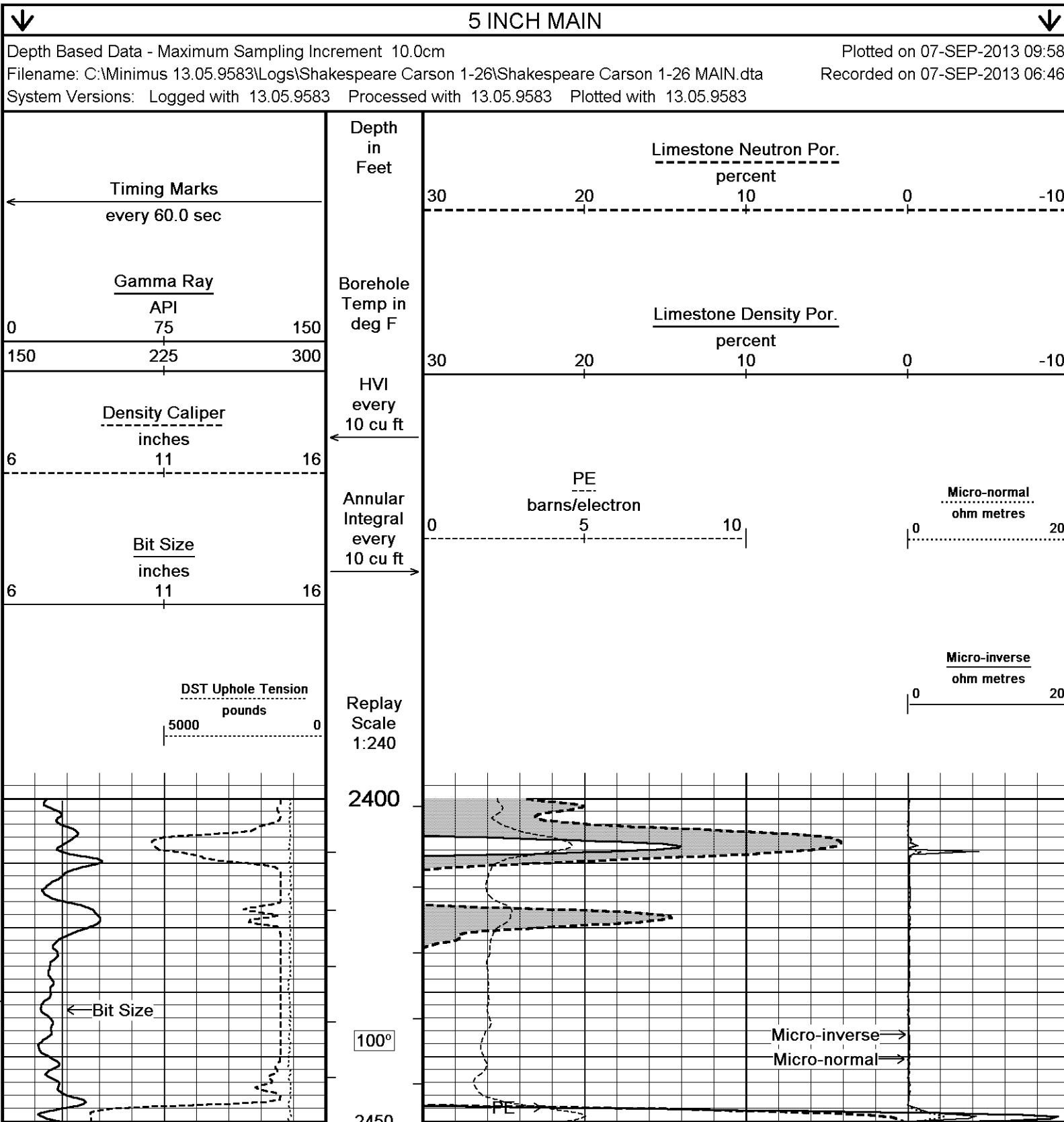
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3800 FEET: 230 CU.FT.

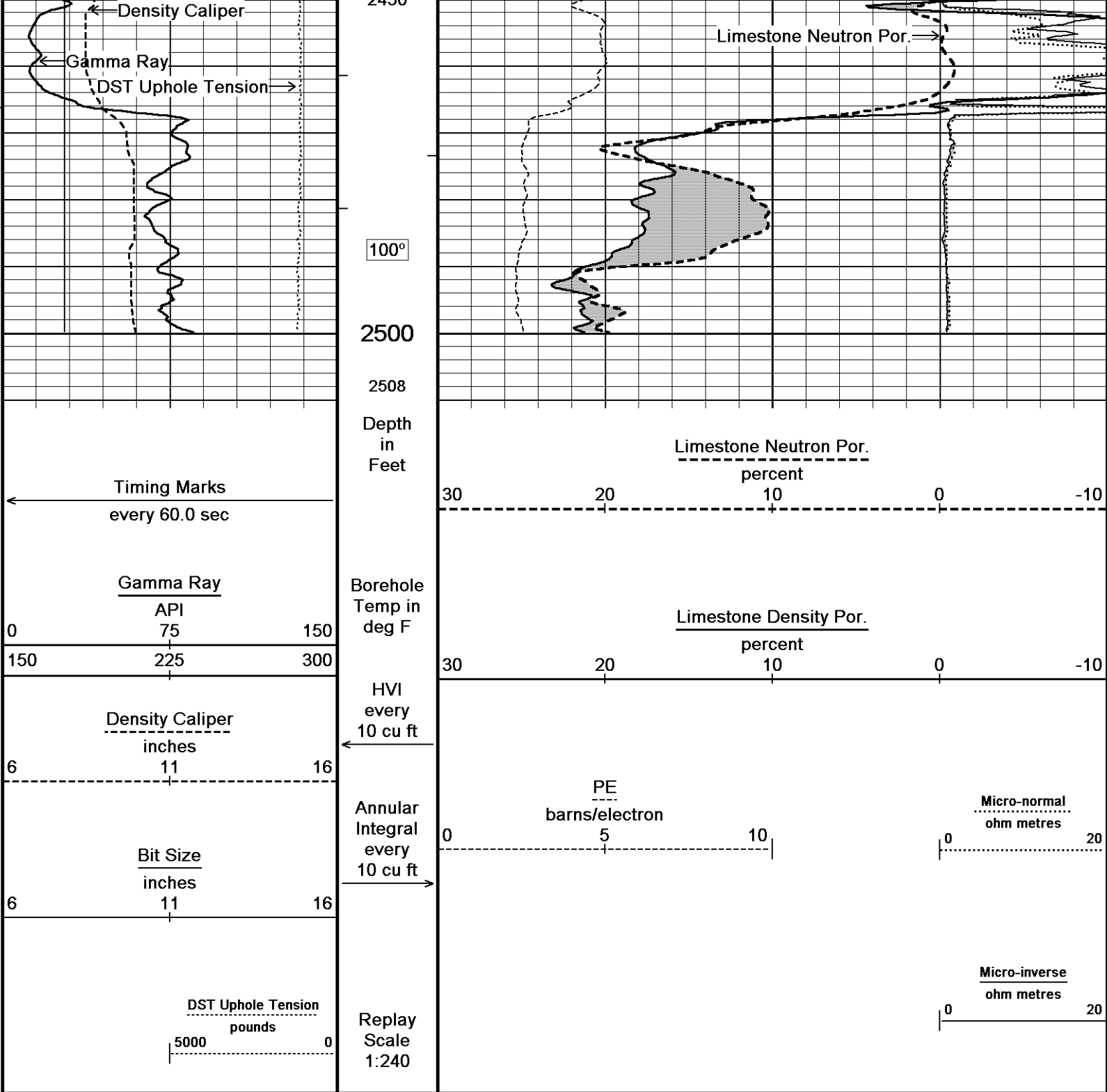
- RIG: HD #2

- ENGINEER: D. COLE

- OPERATOR: C. RAMIREZ

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\Logs\Shakespeare Carson 1-26\Shakespeare Carson 1-26 MAIN.dta
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

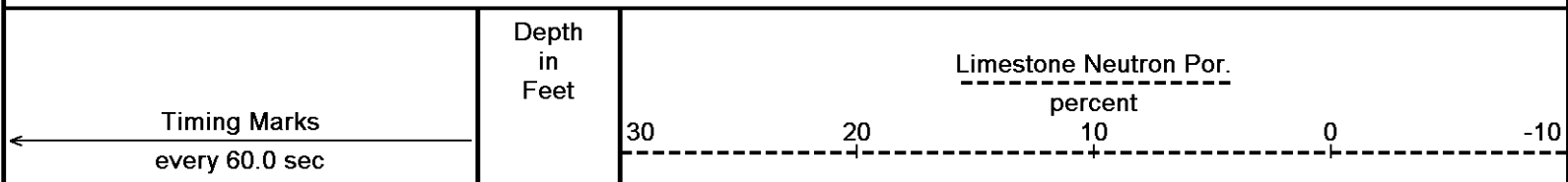
Plotted on 07-SEP-2013 09:58
Recorded on 07-SEP-2013 06:46

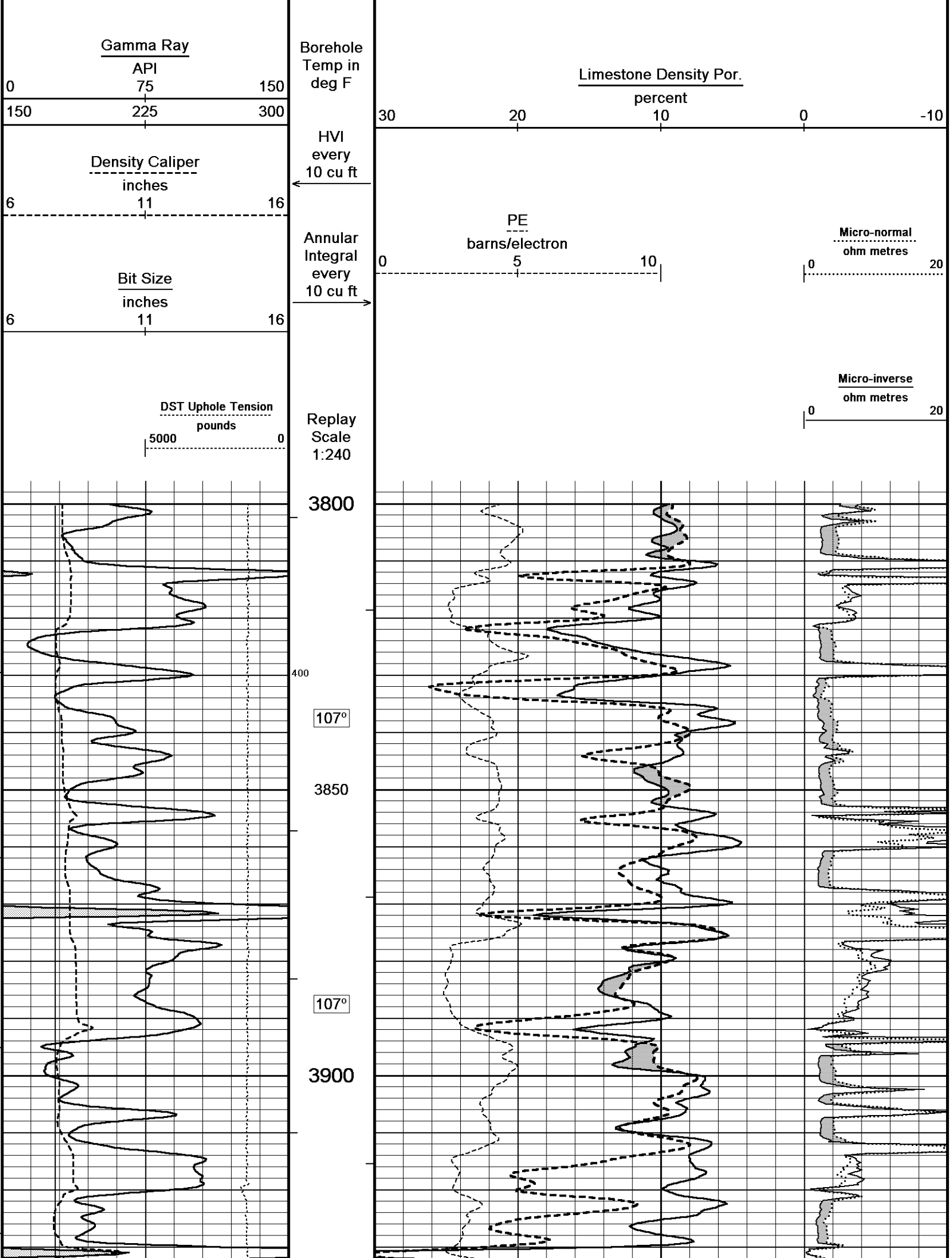
5 INCH MAIN

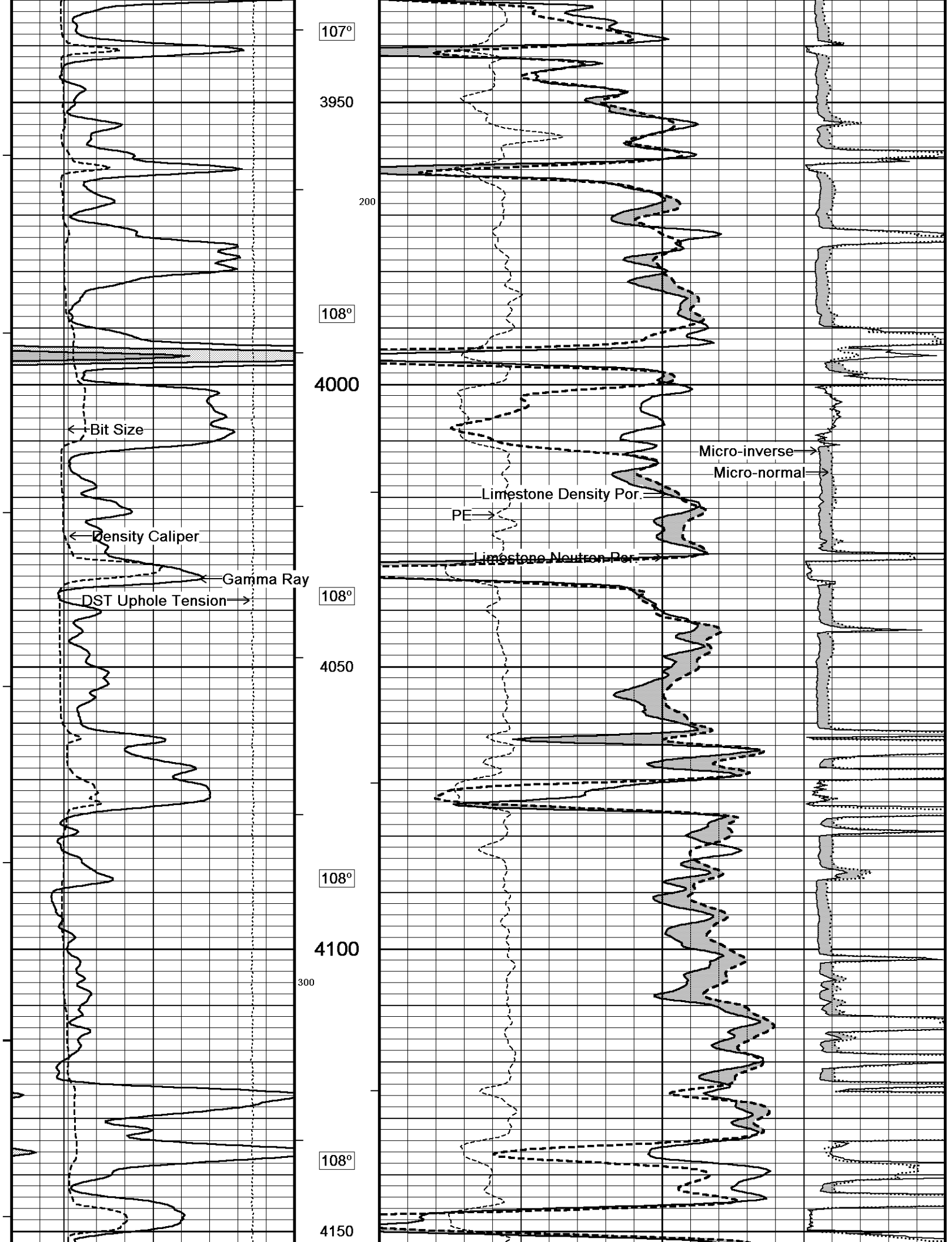
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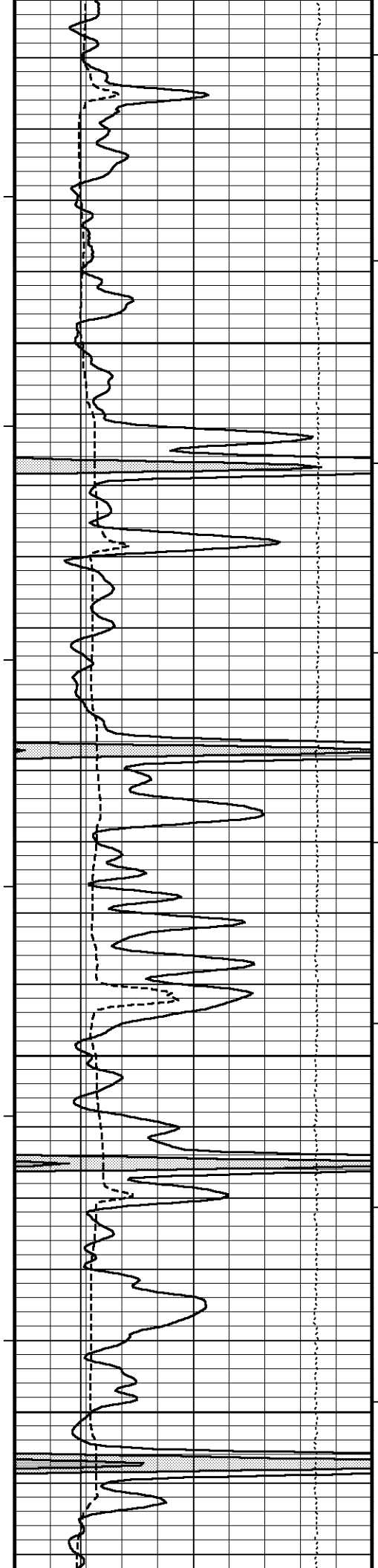
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Recorded on 07-SEP-2013 06:46









109°

4200

109°

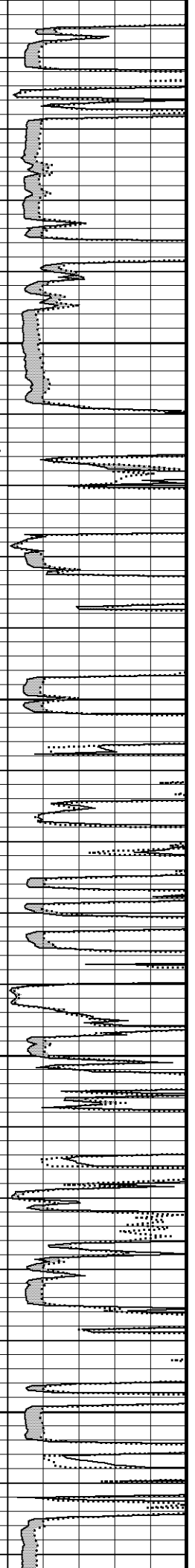
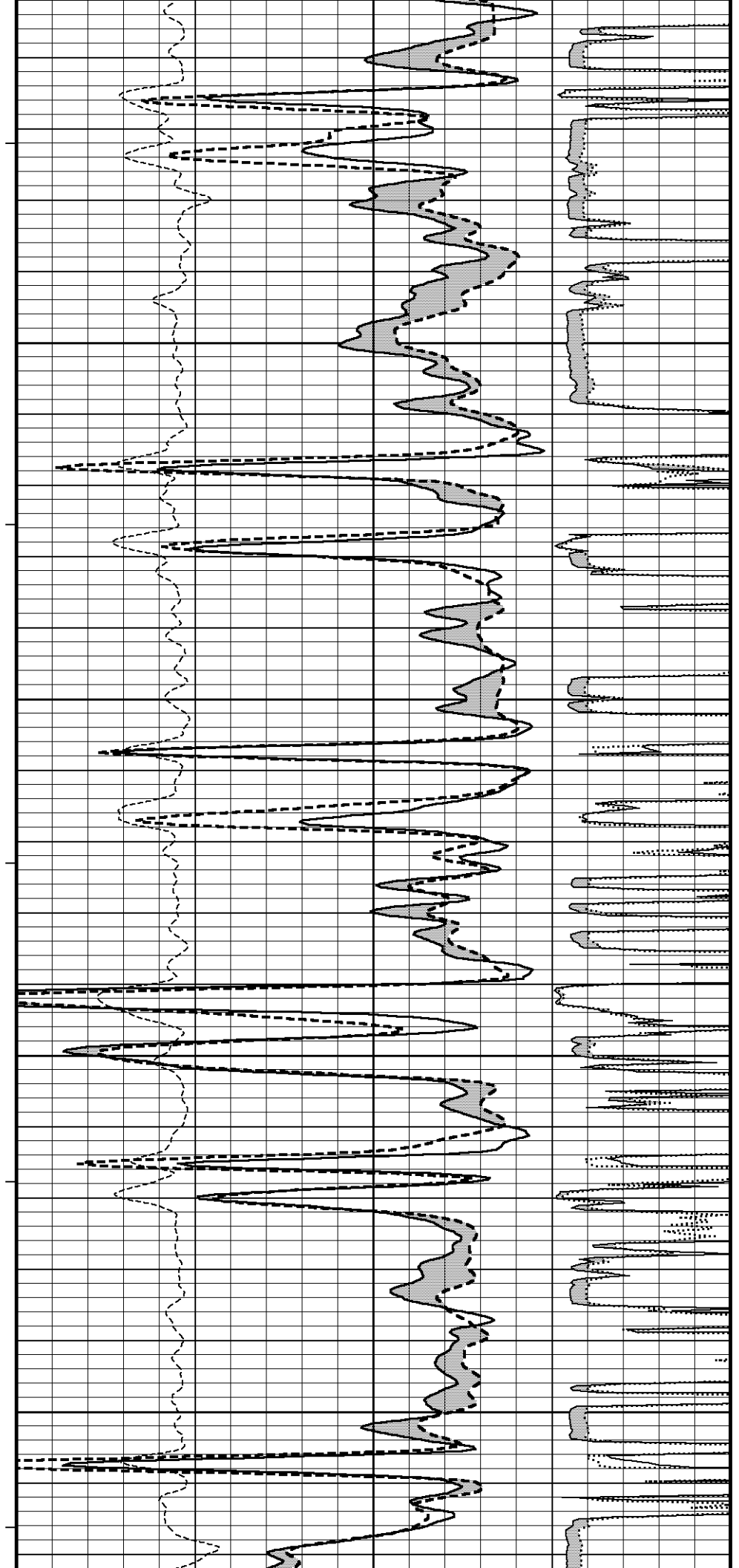
4250

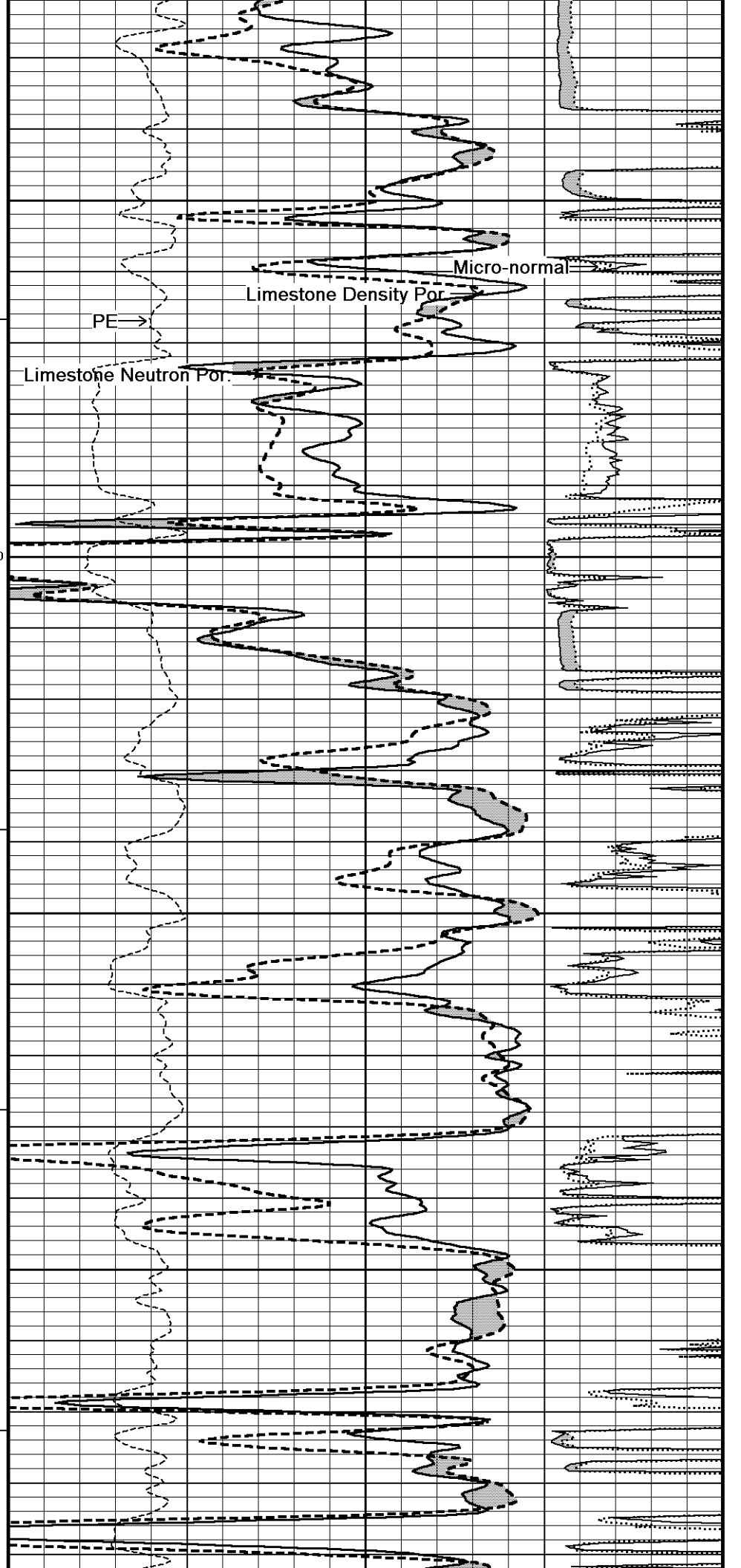
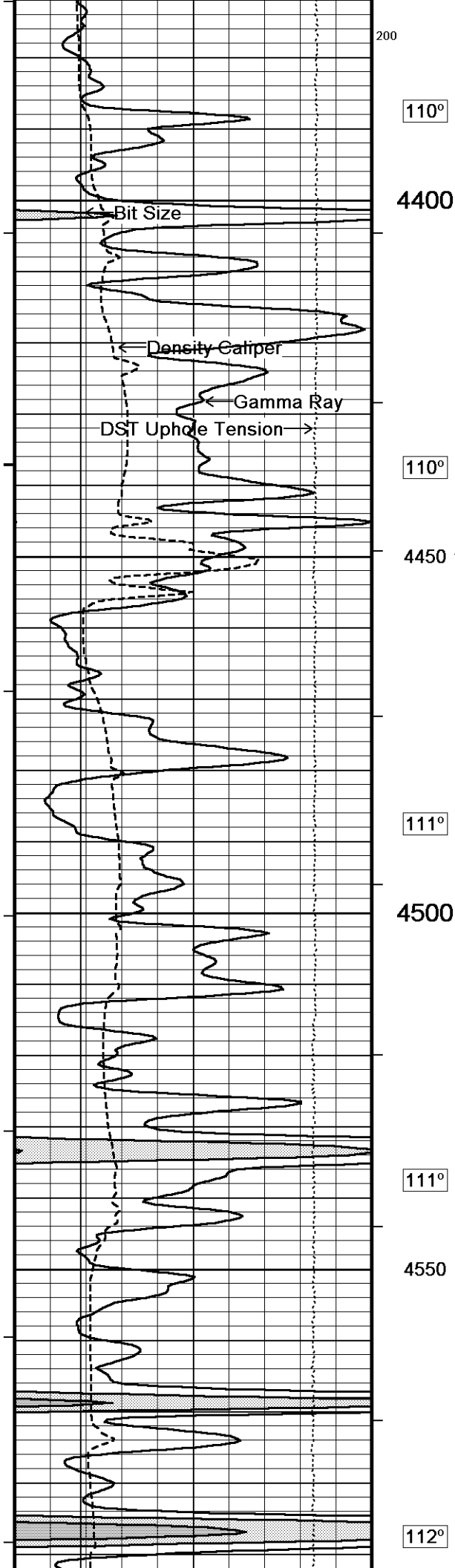
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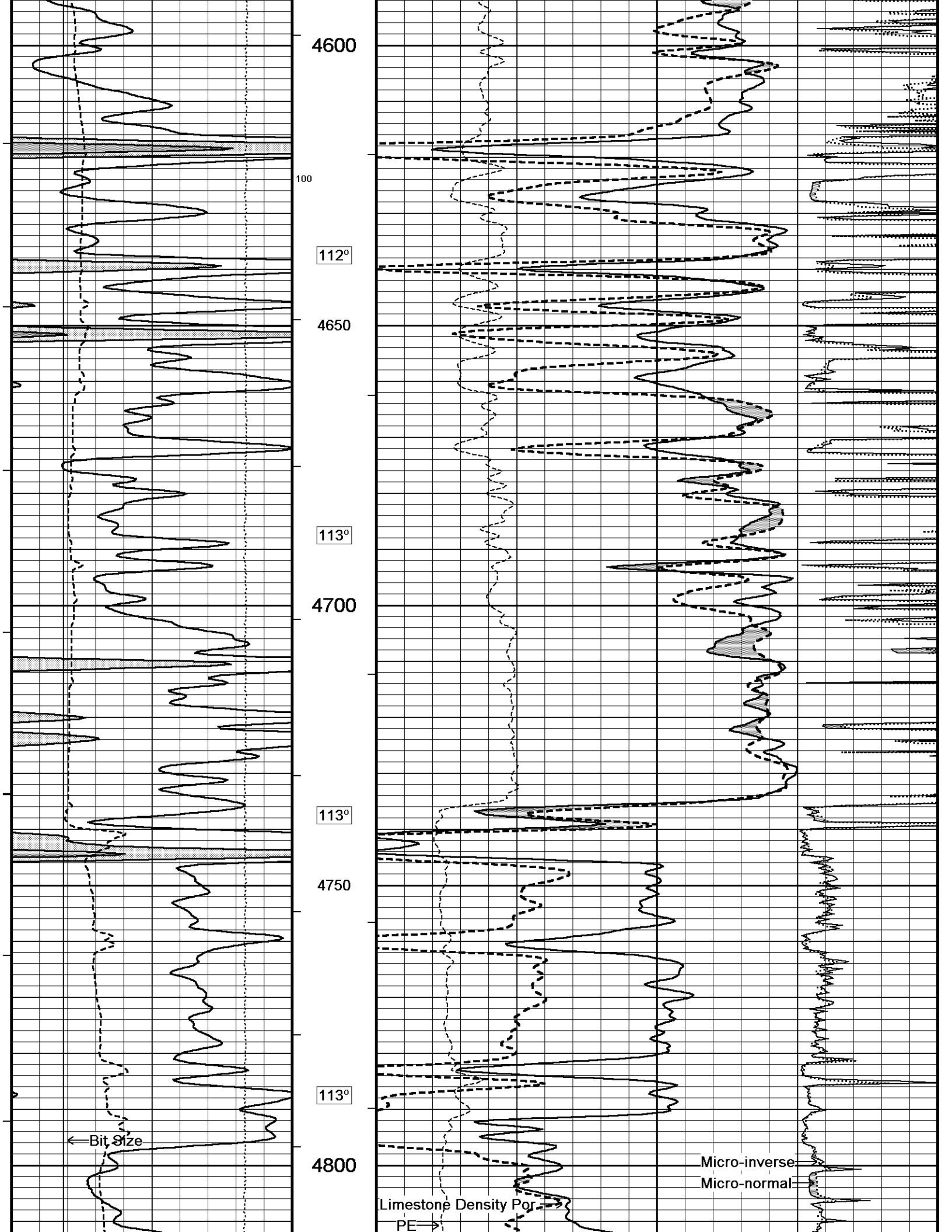
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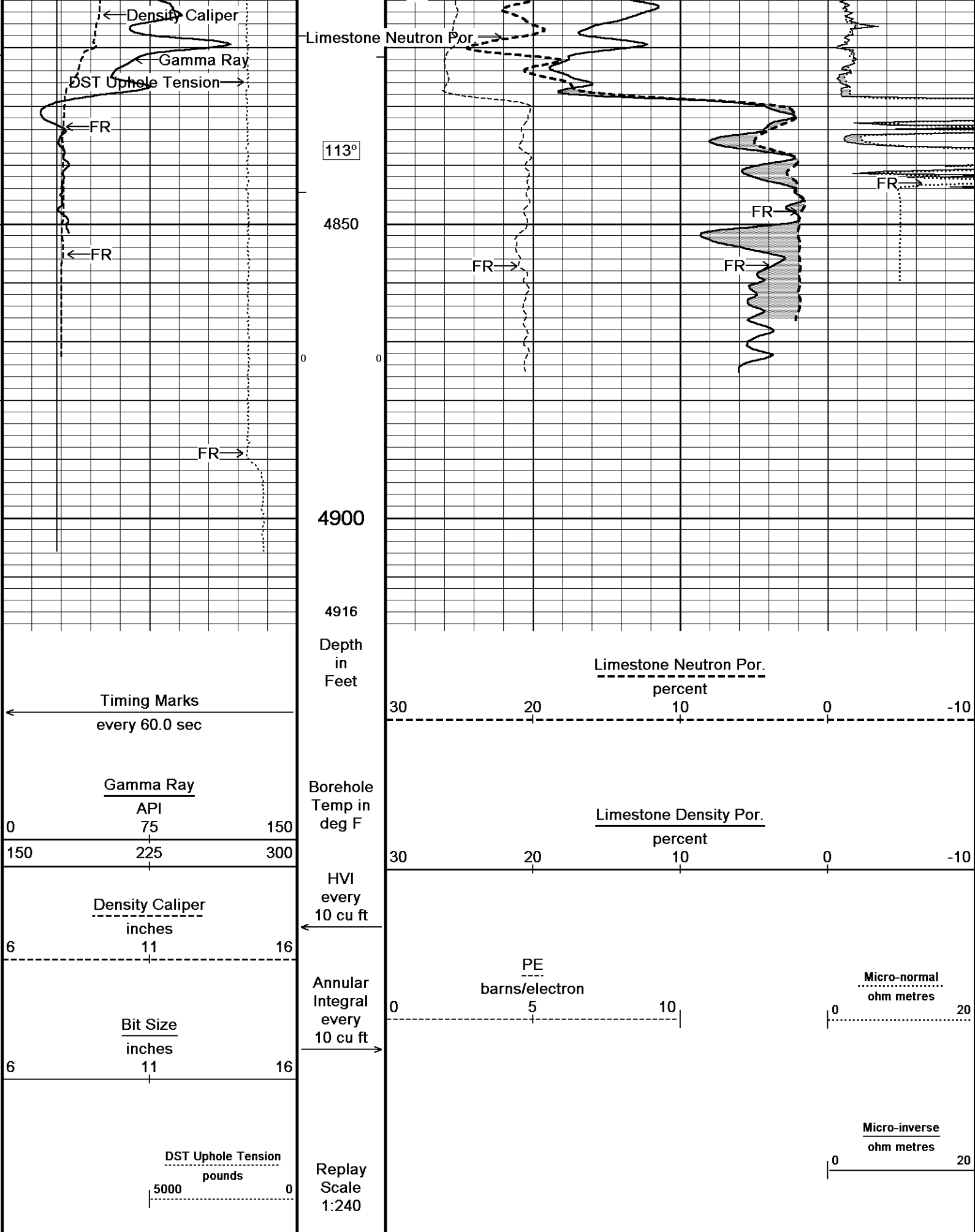
109°

4350









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REPEAT SECTION

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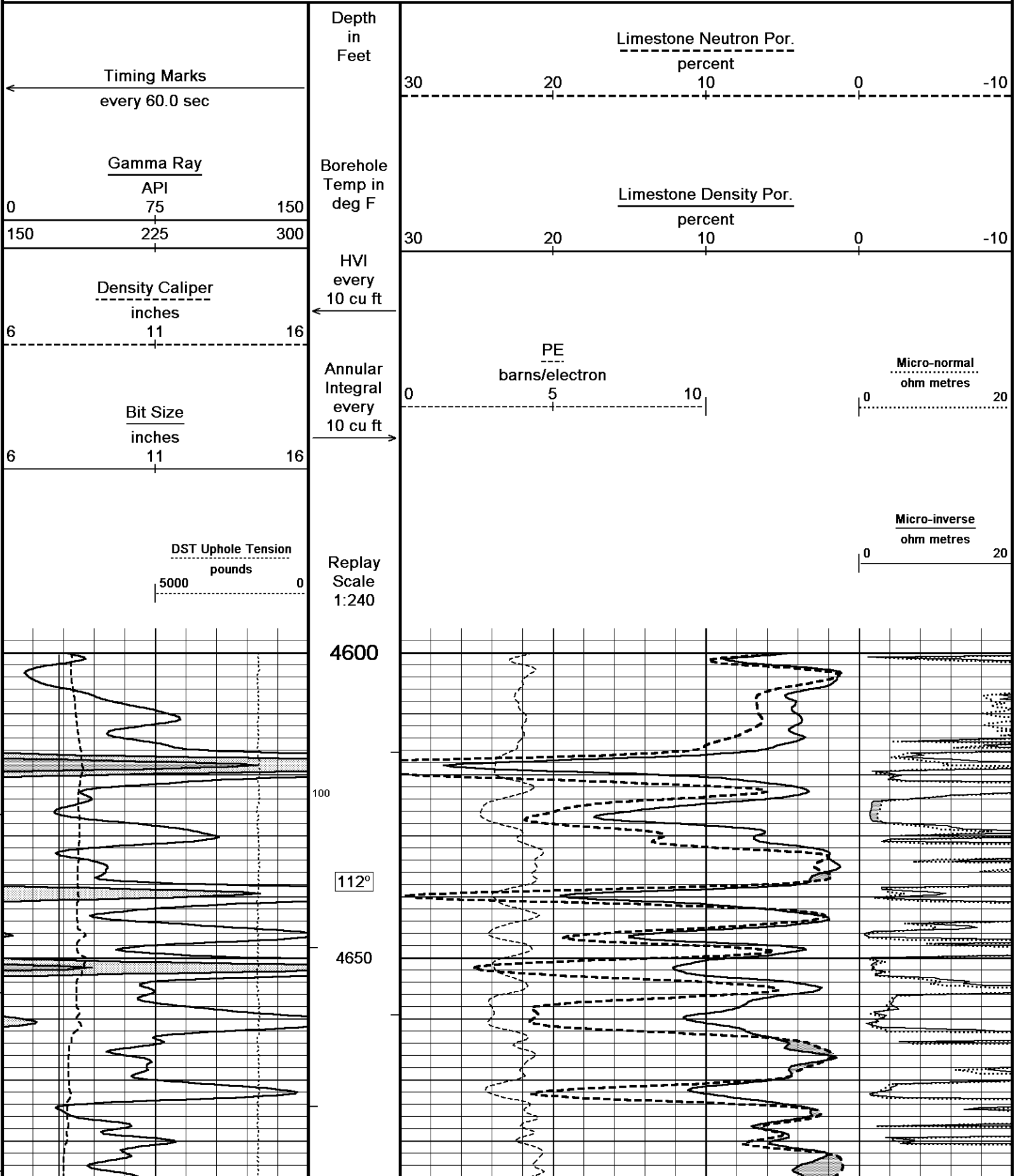
Depth Based Data - Maximum Sampling Increment 10.0cm

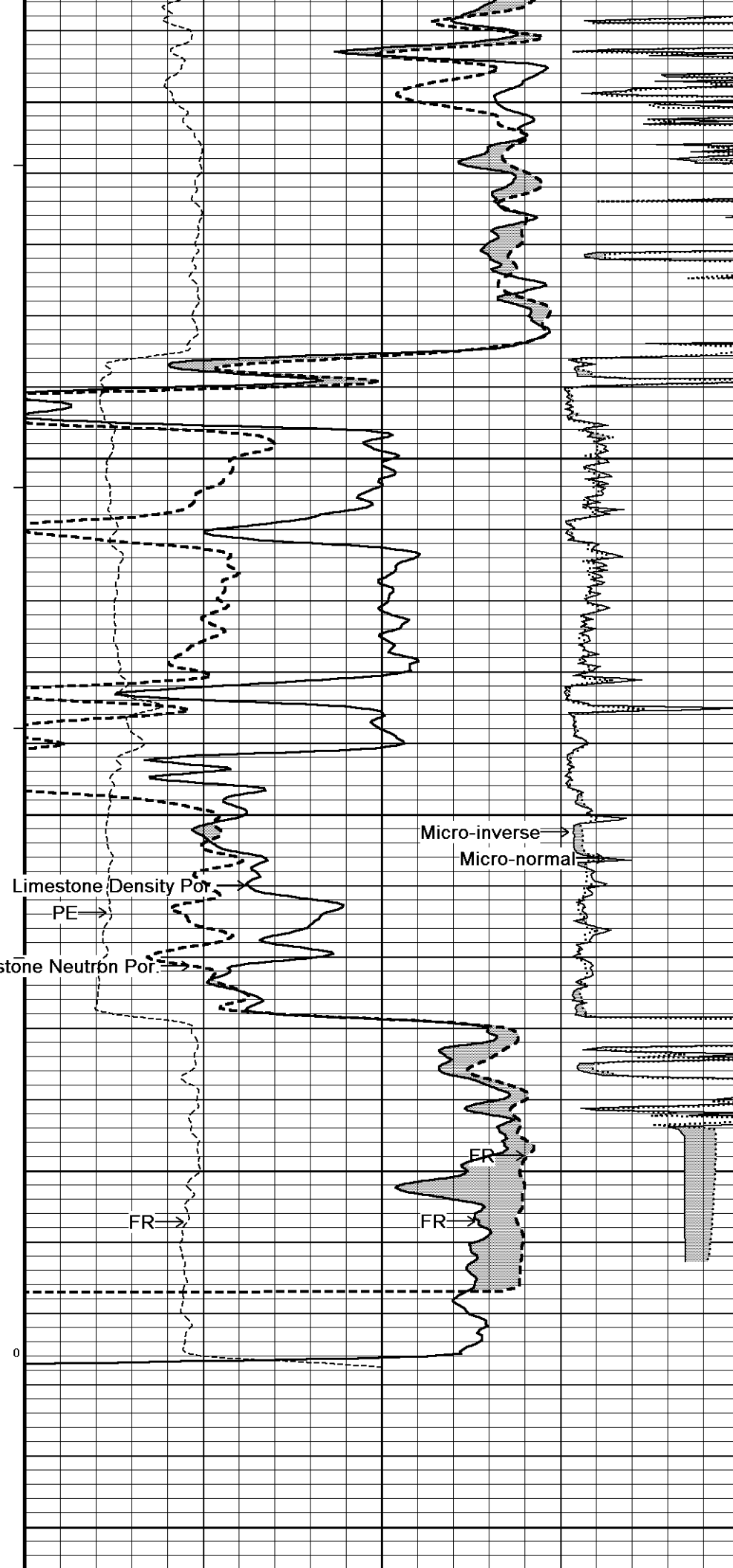
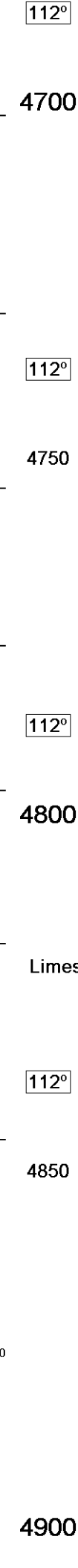
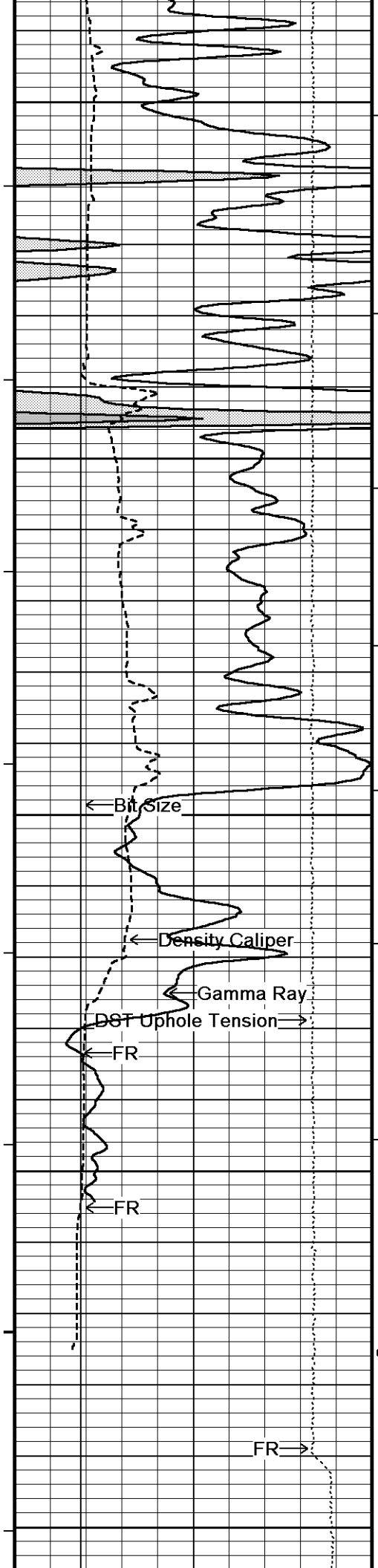
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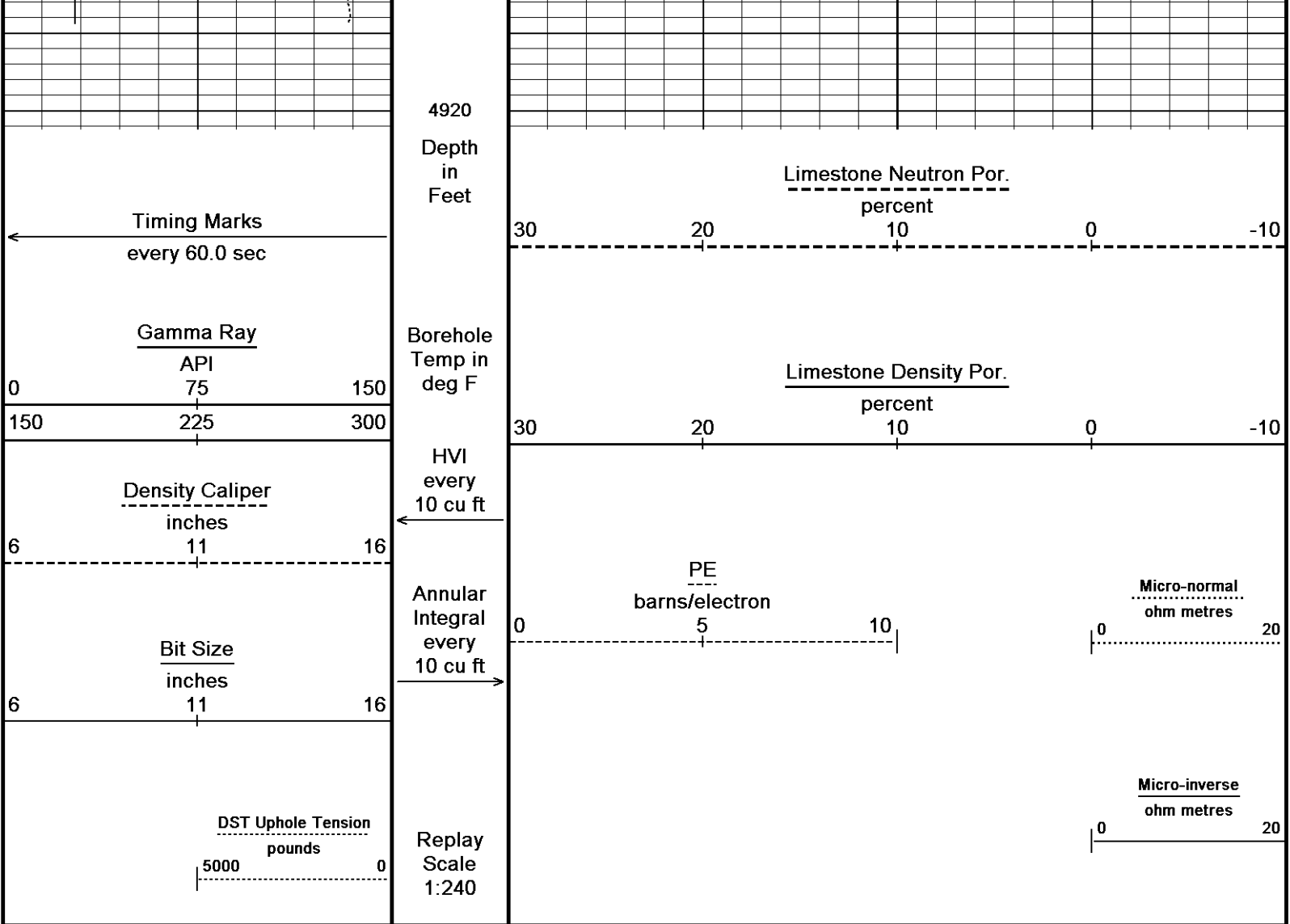
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Carson ...\Shakespeare Carson 1-26 REPEAT.dta

Recorded on 07-SEP-2013 06:26

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583







Depth Based Data - Maximum Sampling Increment 10.0cm
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Plotted on 07-SEP-2013 09:58
Recorded on 07-SEP-2013 06:26

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REPEAT SECTION

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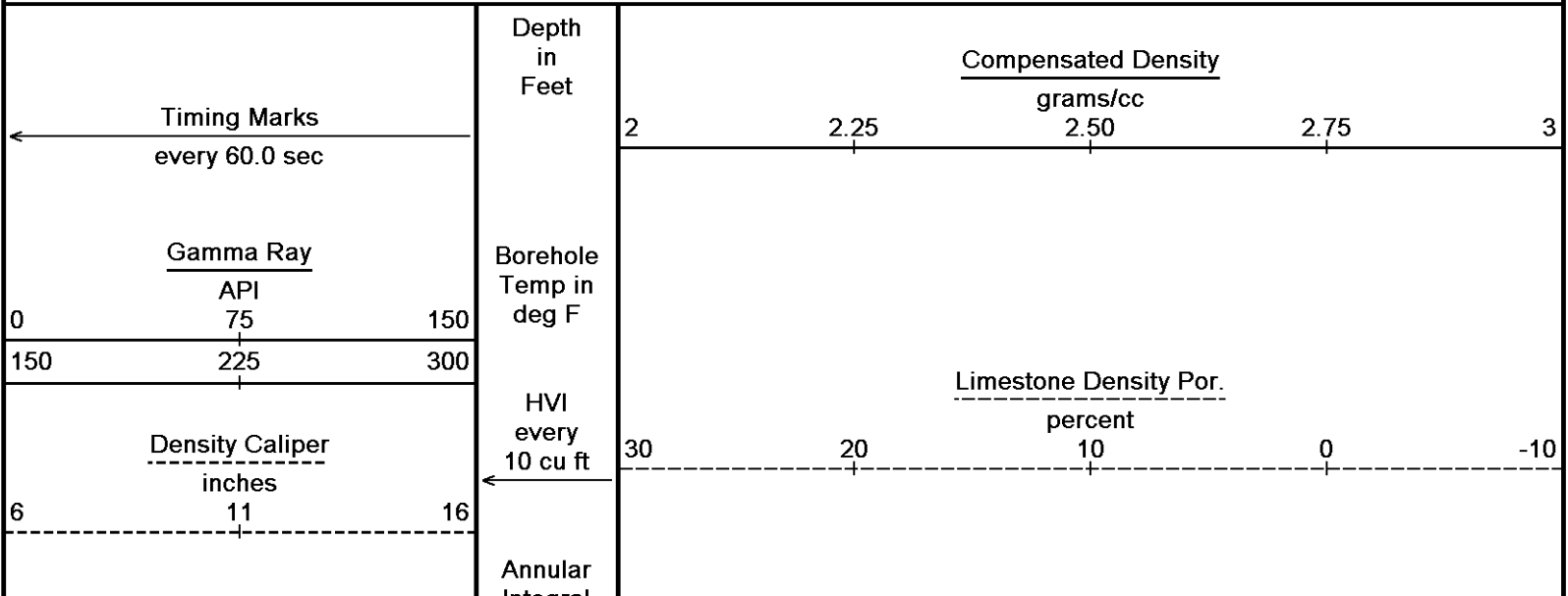
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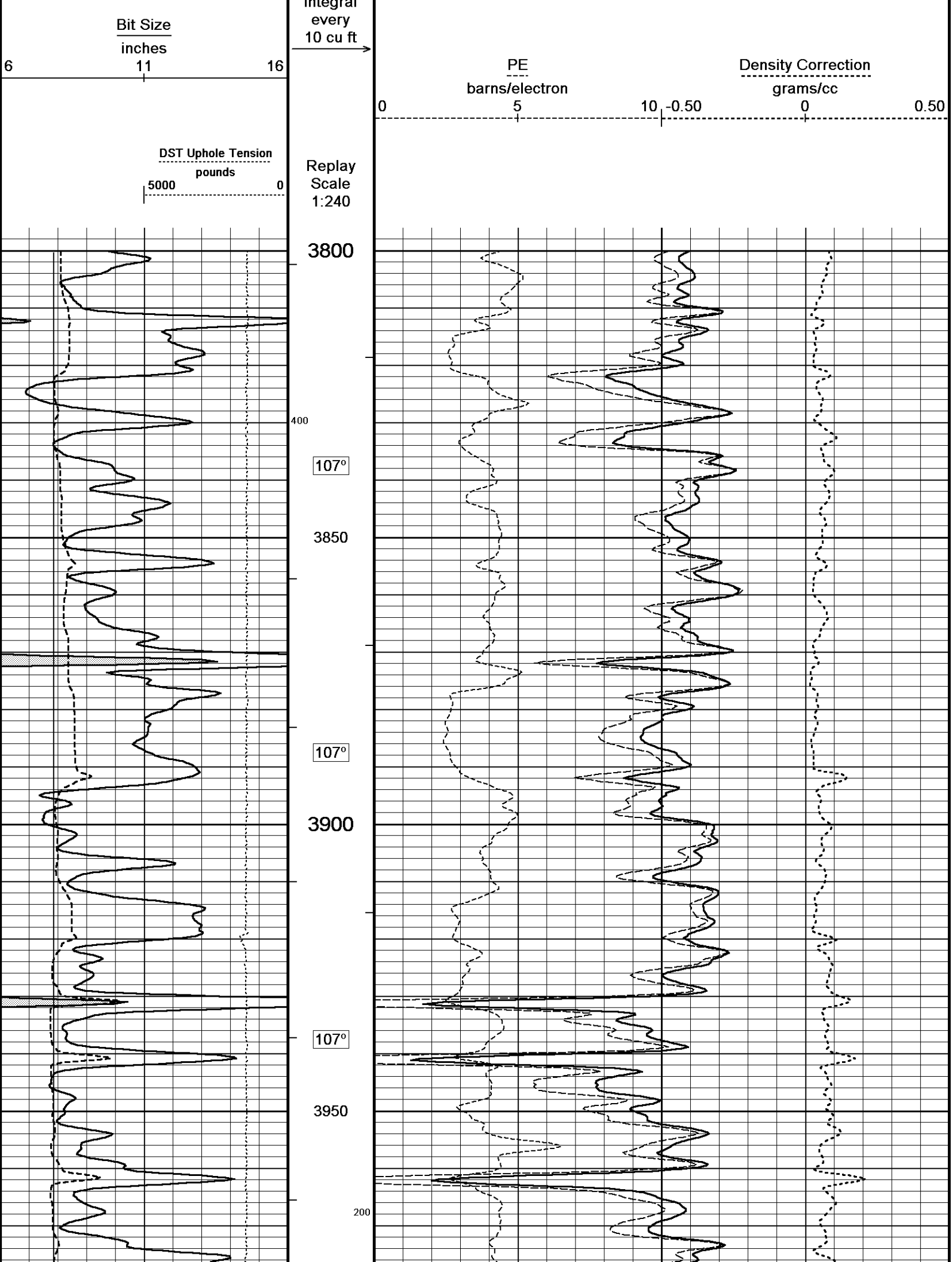
5 INCH MAIN

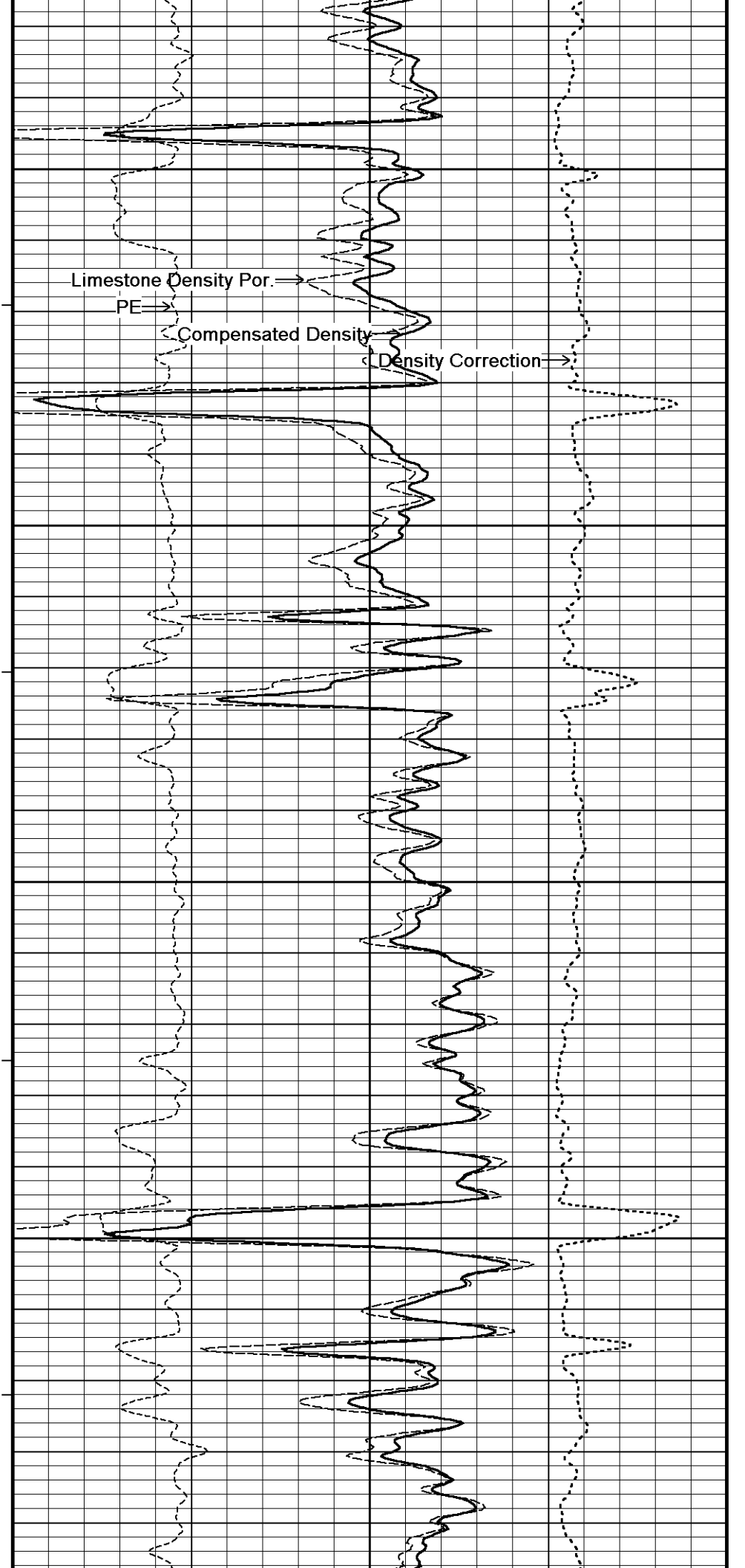
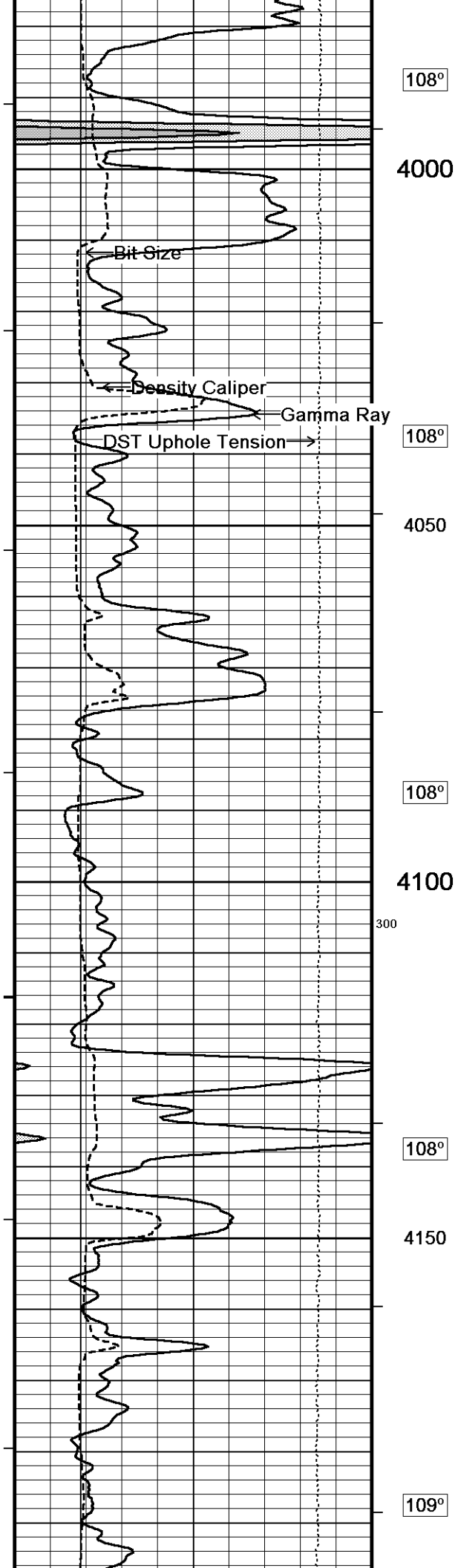
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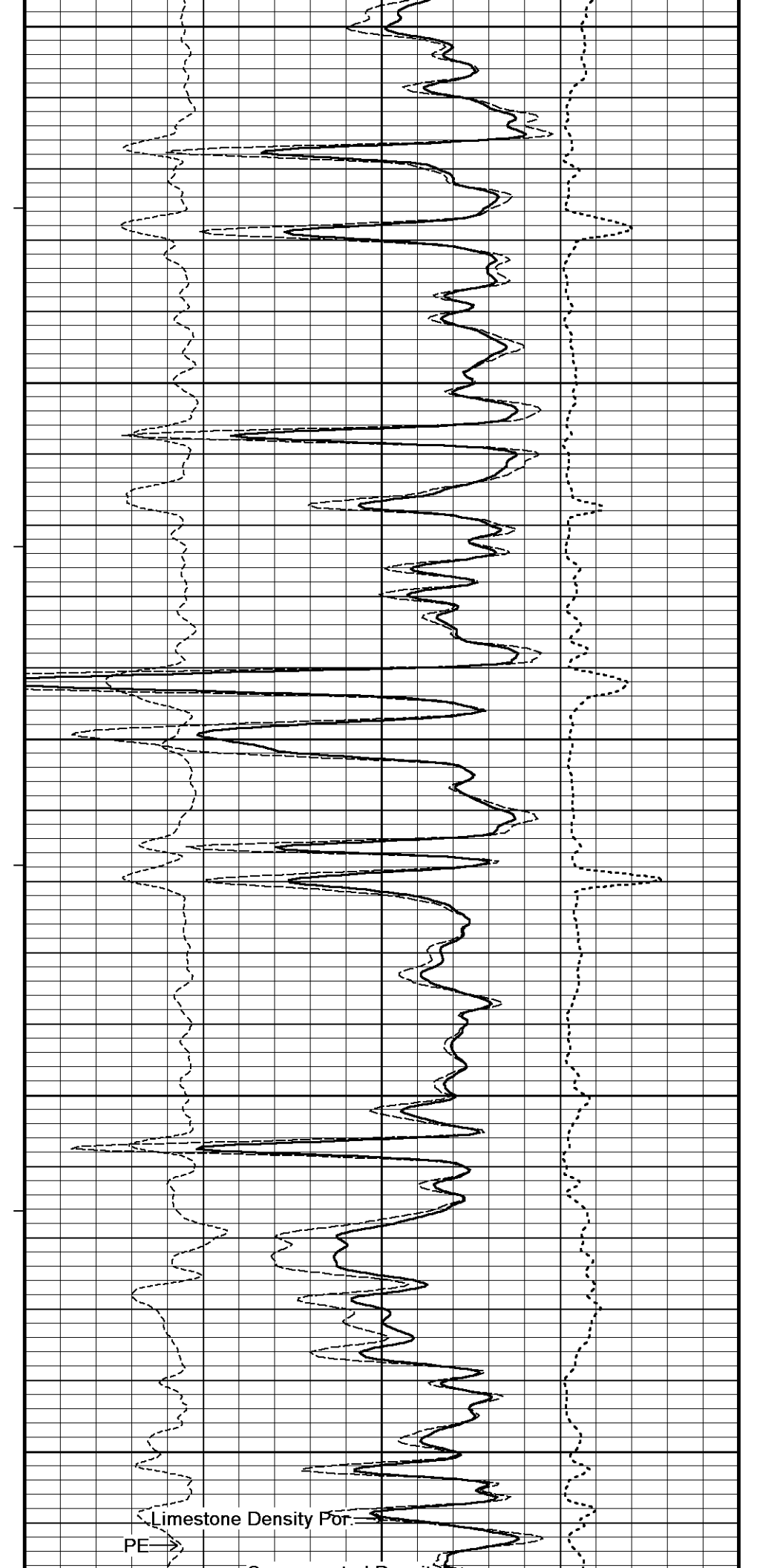
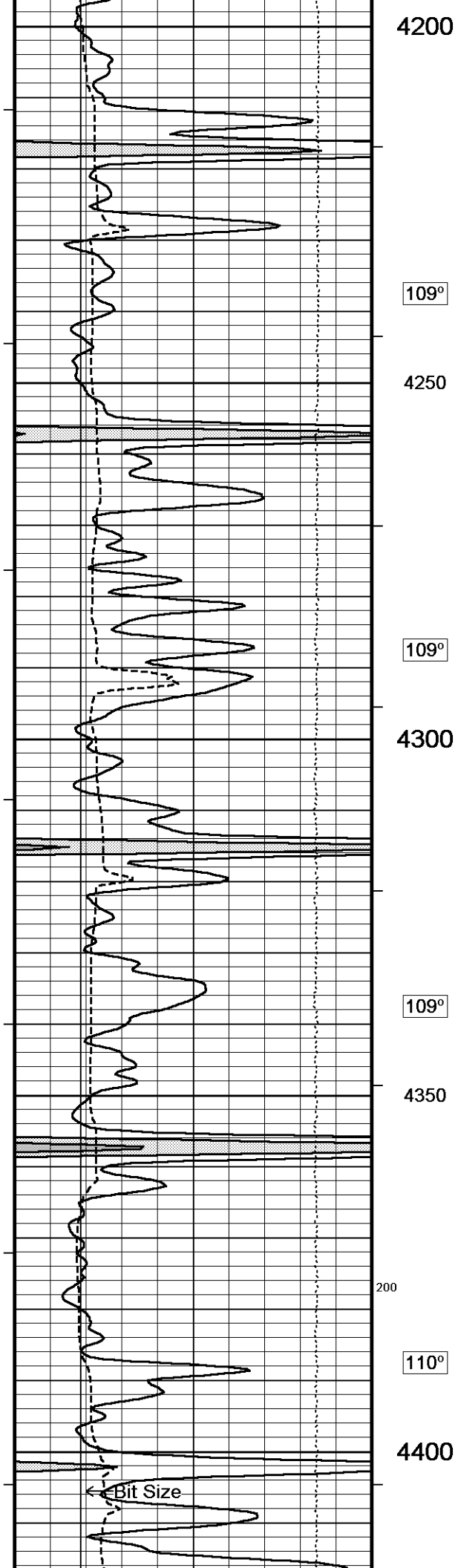
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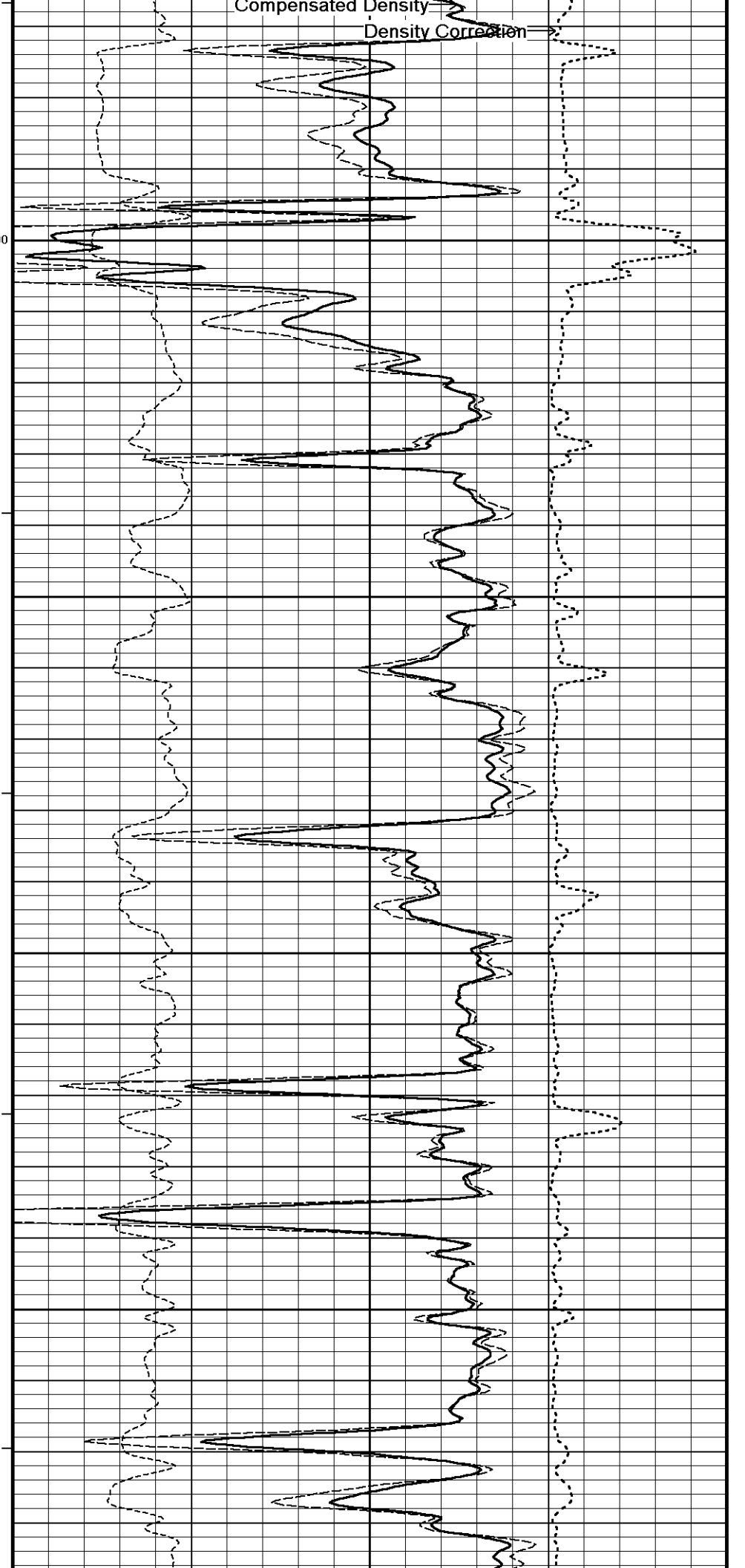
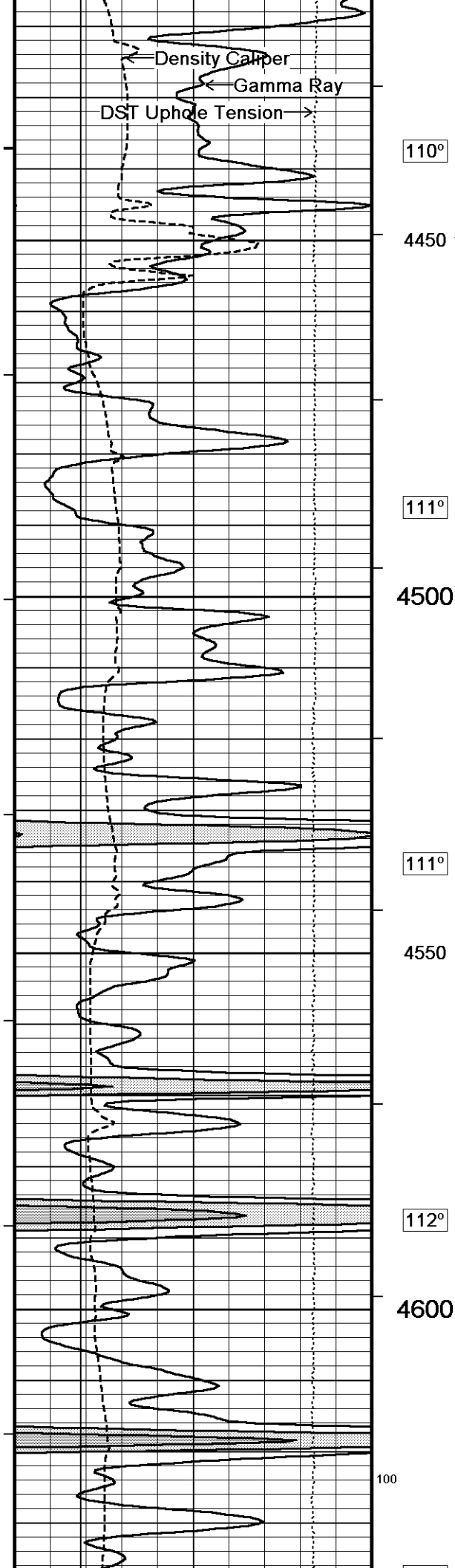
Plotted on 07-SEP-2013 09:58
Recorded on 07-SEP-2013 06:46

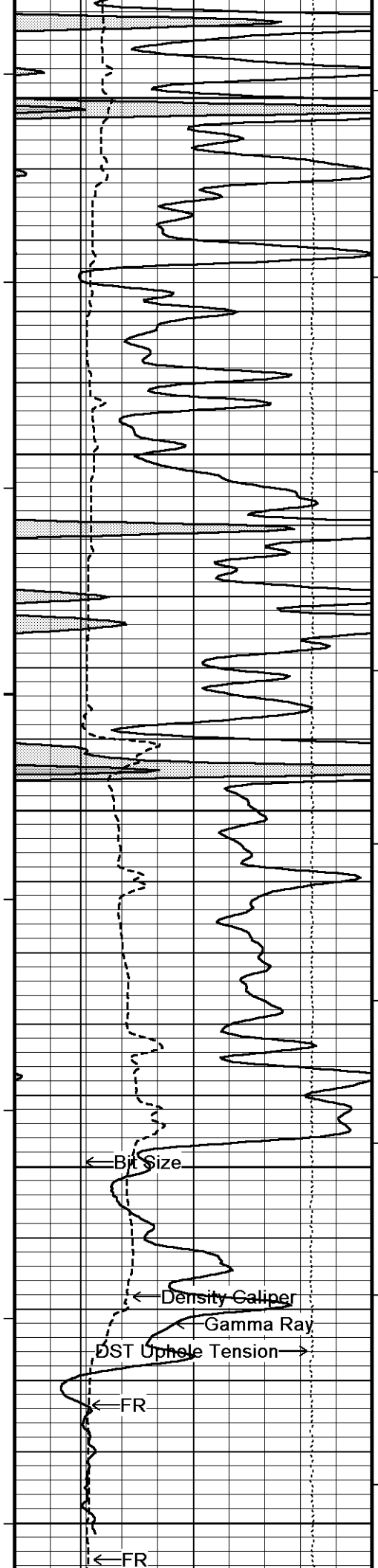












112°

4650

113°

4700

113°

4750

113°

4800

113°

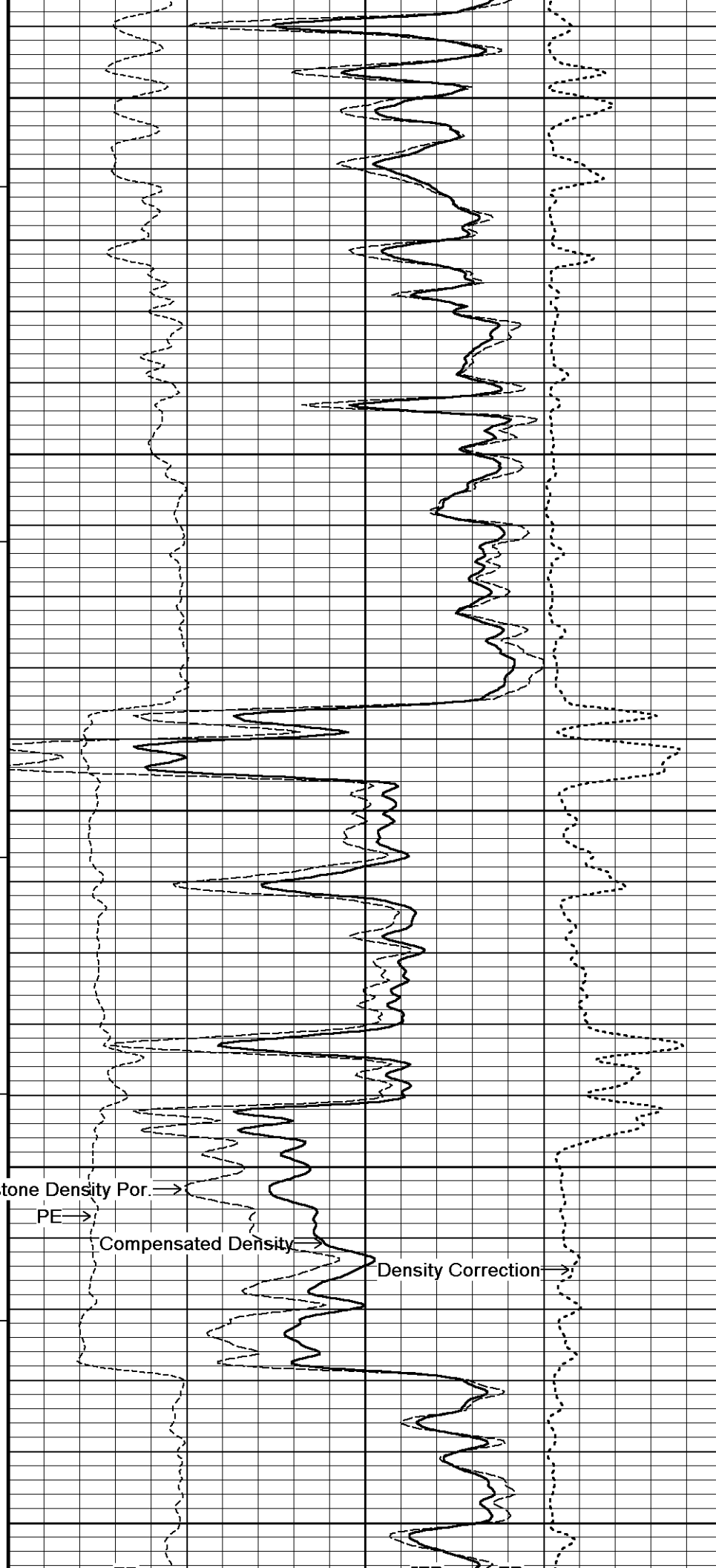
4850

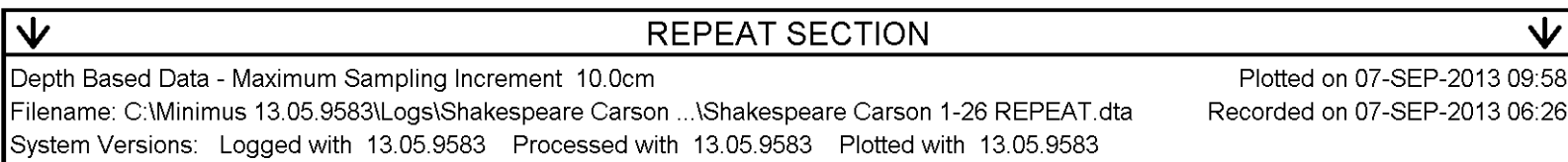
Limestone Density Por. →

PE →

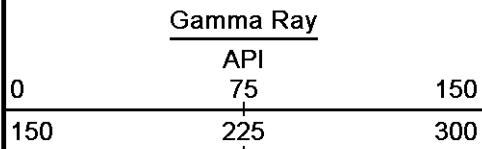
Compensated Density →

Density Correction →

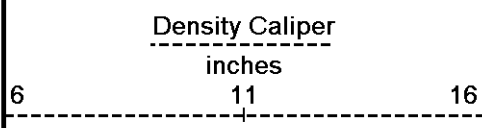




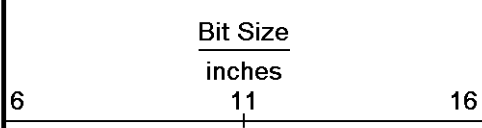
every 50.0 sec



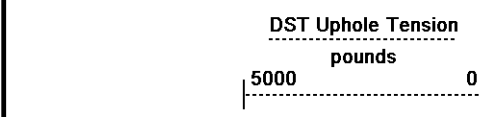
Borehole
Temp in
deg F



HVI
every
10 cu ft



Annular
Integral
every
10 cu ft



Replay
Scale
1:240



4600

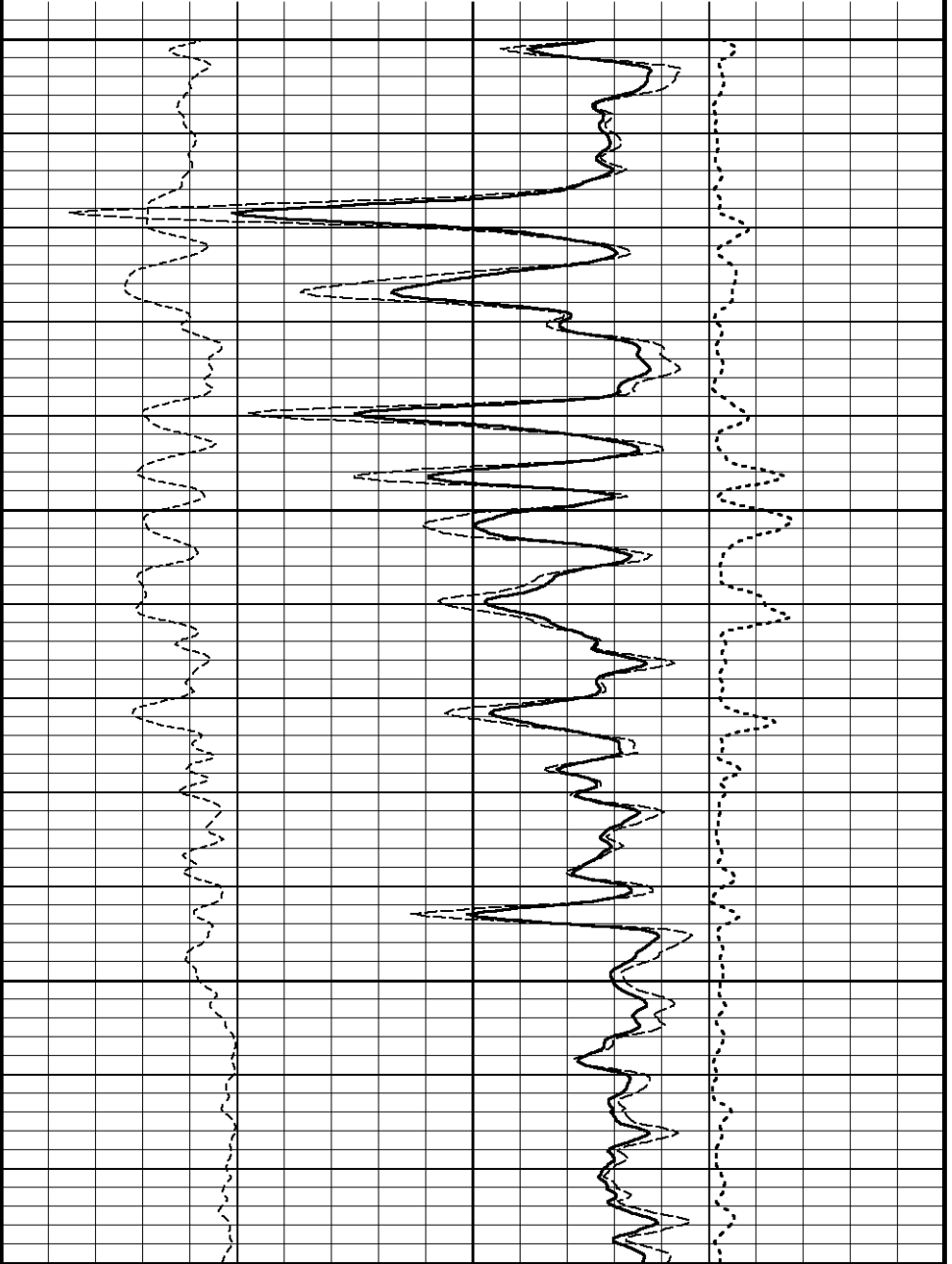
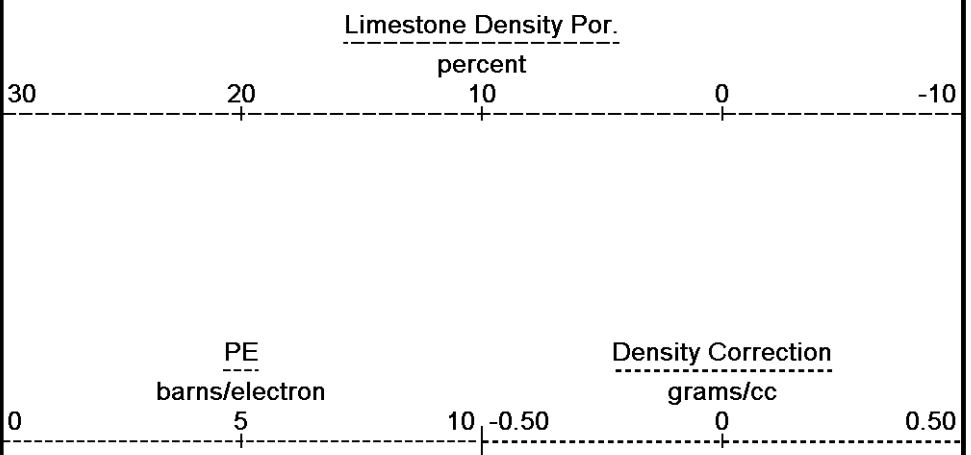
100

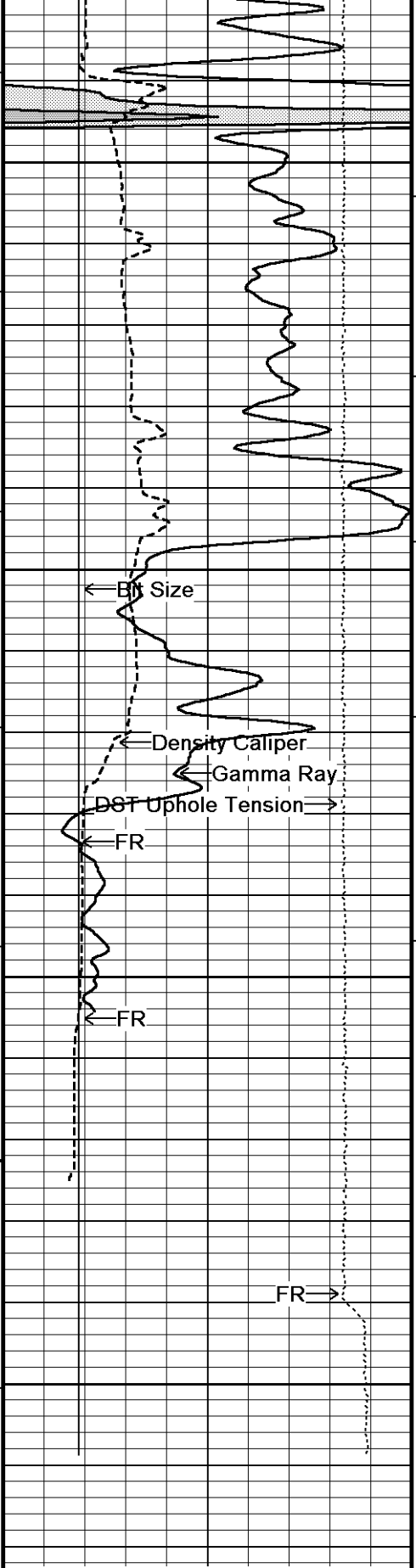
112°

4650

112°

4700





112°

4750

112°

4800

112°

4850

0

4900

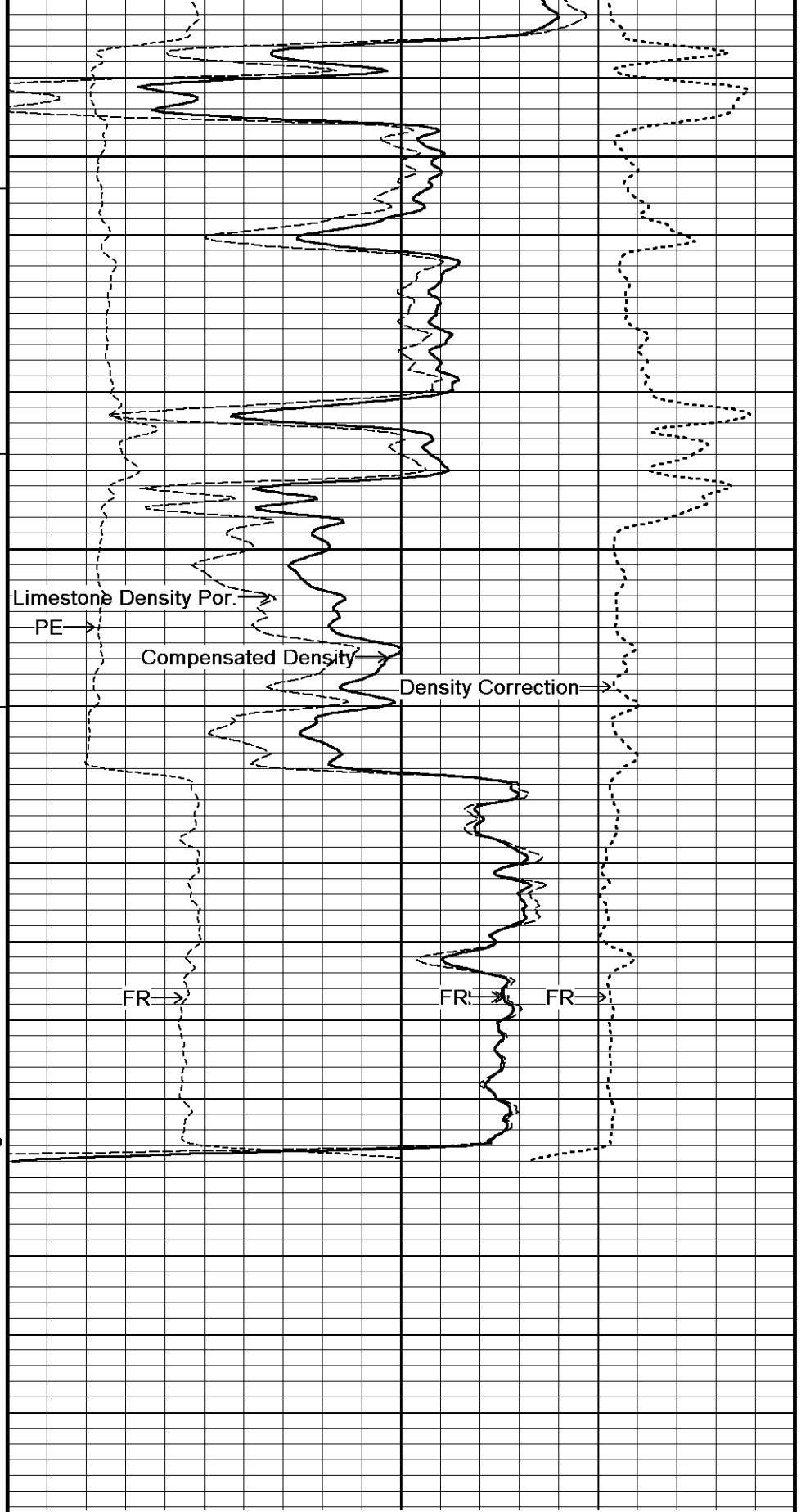
4920

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

Borehole



112°

4750

112°

4800

112°

4850

0

4900

4920

Depth
in
Feet

2

2.25

2.50

2.75

3

Compensated Density

grams/cc

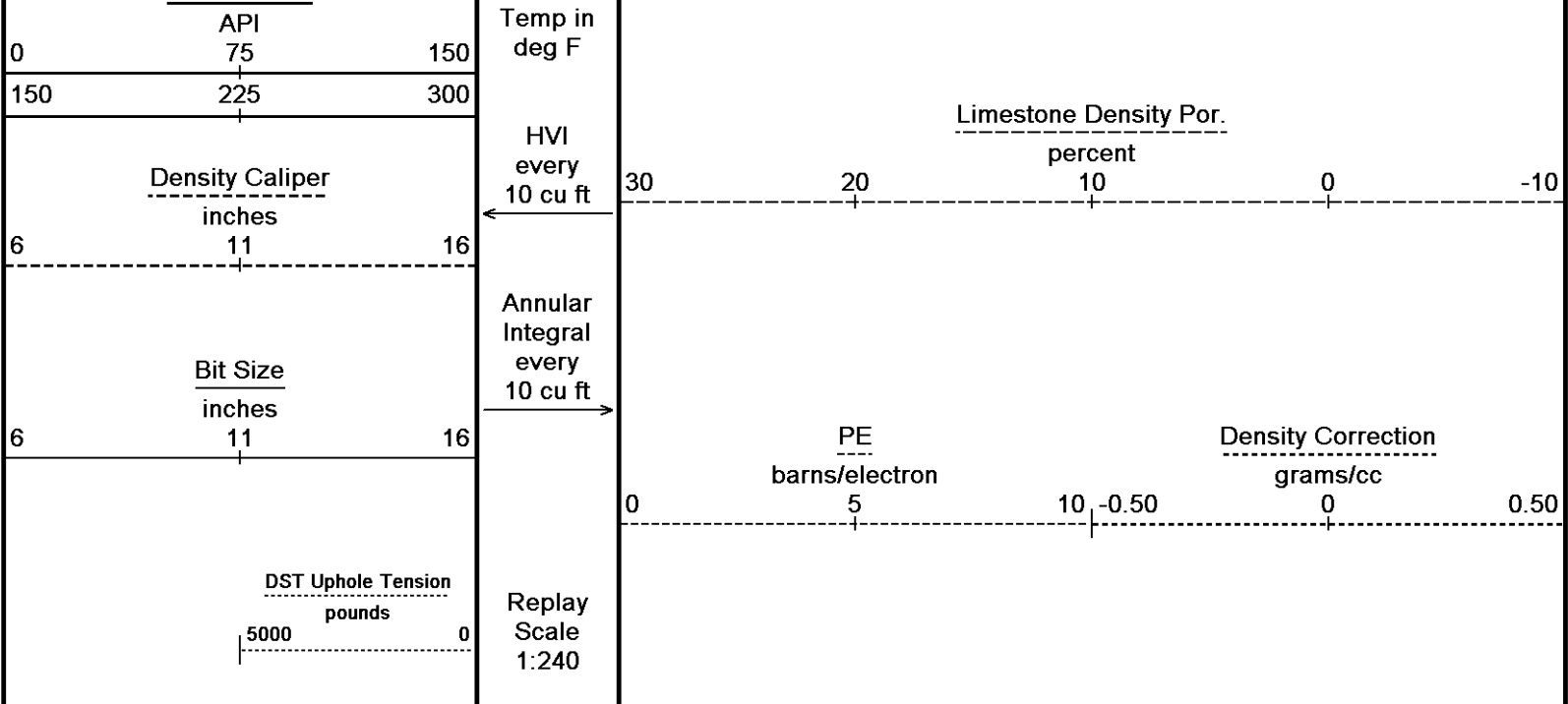
2

2.25

2.50

2.75

3



Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 07-SEP-2013 09:58

Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Carson 1-26 REPEAT.dta
 Recorded on 07-SEP-2013 06:26

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

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 REPEAT SECTION
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BEFORE SURVEY CALIBRATION
 C:\Minimus 13.05.9583\Logs\Shakespeare Carson 1-26\Shakespeare Carson 1-26 REPEAT.dta

General Constants All 000			Last Edited on 07-SEP-2013,05:52
General Parameters			
Mud Resistivity	0.300	ohm-metres	
Mud Resistivity Temperature	91.000	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. One Res Rt		
RWA Constant A	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		

Gamma Calibration MCG-D.K 443		Field Calibration on 28-AUG-2013 04:17	
	Measured	Calibrated (API)	
Background	53	36	
Calibrator (Gross)	1112	761	
Calibrator (Net)	1059	725	

Gamma Constants MCG-D.K 443		Last Edited on 07-SEP-2013,05:52	
Gamma Calibrator Number	GRC38		
Mud Density	1.09	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 443				Field Calibration on 28-AUG-2013,04:08
		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 28-AUG-2013,04:08
Pre-filter Length		11		
Photo Density Calibration MPD-B 59				Base Calibration on 23-AUG-2013 11:44 Field Check on 28-AUG-2013 04:02
Density Calibration				
Base Calibration		Measured		Calibrated (sdu)
		Near	Far	Near Far
Reference 1		58612	28481	59556 30836
Reference 2		23605	2511	24941 2541
Field Check at Base				
		1186.0	1254.6	
Field Check				
		1184.1	1248.9	
PE Calibration				
Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background		217	1063	
Reference 1		21648	58418	0.374 0.371
Reference 2		6282	23469	0.271 0.272
Field Check at Base				
		216.6	1062.7	
Field Check				
		216.8	1062.3	
Density Constants MPD-B 59				Last Edited on 07-SEP-2013,05:52
Density Source Id		P50557B		
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		1.09	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		0.00		
Caliper Calibration MPD-B 59				Base Calibration on 23-AUG-2013 11:17 Field Calibration on 06-SEP-2013,15:20
Base Calibration				
Reading No		Measured	Calibrator Size (in)	
1		16284	3.99	
2		23984	5.98	
3		31584	7.97	
4		39888	9.86	

4
5
633888
49152
N/A3.88
11.92
N/A

Field Calibration

Measured Caliper (in)
7.93Actual Caliper (in)
7.77

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\Shakespeare Carson 1-26\Shakespeare Carson 1-26 REPEAT.dta

CBH-C, Cablehead, 11 pin

CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log

MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 59 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric

MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

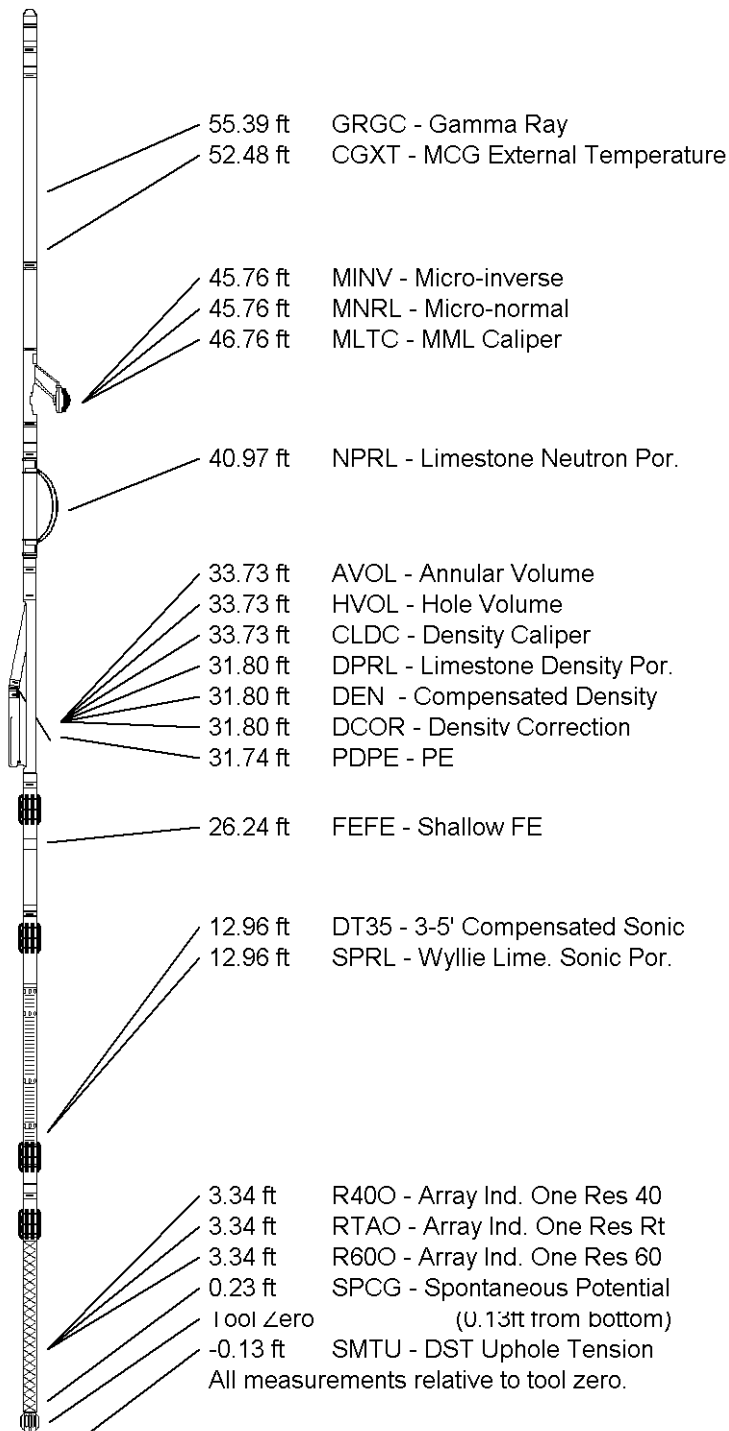
Compact Sonic

MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction

MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 63.07 ft Weight: 480.6 lb



COMPANY

SHAKESPEARE OIL CO. INC

WELL

CARSON 1-26

FIELD

PENCE EAST

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE			U.S.A. / KANSAS		
Elevation Kelly Bushing	3124.00	feet	First Reading	4857.00	feet
Elevation Drill Floor	3122.00	feet	Depth Driller	4890.00	feet
Elevation Ground Level	3114.00	feet	Depth Logger	4889.00	feet
			COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG		