



Weatherford
LOG

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY					SHAKESPEARE OIL CO, INC.		
WELL					TUCKER 1-5		
FIELD					WILDCAT		
PROVINCE/COUNTY					SCOTT		
COUNTRY/STATE					U.S.A. / KANSAS		
LOCATION					2305' FSL & 2310' FEL		
SEC	TWP	RGE	Other Services				
5	16	34W	MAI/MFE				
API Number		15-171-20976		MSS			
Permit Number							
Permanent Datum GL, Elevation 3102 feet							
Log Measured From KB							
Drilling Measured From KB					Elevations: KB 3112.00 DF 3110.00 GL 3102.00		
Date	20-OCT-2013						
Run Number	ONE						
Service Order	3539909						
Depth Driller	4865.00				feet		
Depth Logger	4864.00				feet		
First Reading	4832.26				feet		
Last Reading	3800.00				feet		
Casing Driller	268.00				feet		
Casing Logger	262.00				feet		
Bit Size	7.875				inches		
Hole Fluid Type	CHEM						
Density / Viscosity	8.80 lb/USg		46.00 CP				
PH / Fluid Loss	10.50		8.80 ml/30Min				
Sample Source	MUDPIT						
Rm @ Measured Temp	0.46 @ 62.0		ohm-m				
Rmf @ Measured Temp	0.37 @ 62.0		ohm-m				
Rmc @ Measured Temp	0.55 @ 62.0		ohm-m				
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.27 @109.0		ohm-m				
Time Since Circulation	4 HRS						
Max Recorded Temp	109.00		deg F				
Equipment / Base	13057		LIB				
Recorded By	ROB HOFFMAN				DEREK CARTER		
Witnessed By	TIM PRIEST						
JOB #	LB13-297						

BOREHOLE RECORD					Last Edited: 21-OCT-2013 03:14
Bit Size inches		Depth From feet		Depth To feet	
7.875		268.00		4865.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	268.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- 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 FT.: 370 CU. FT.

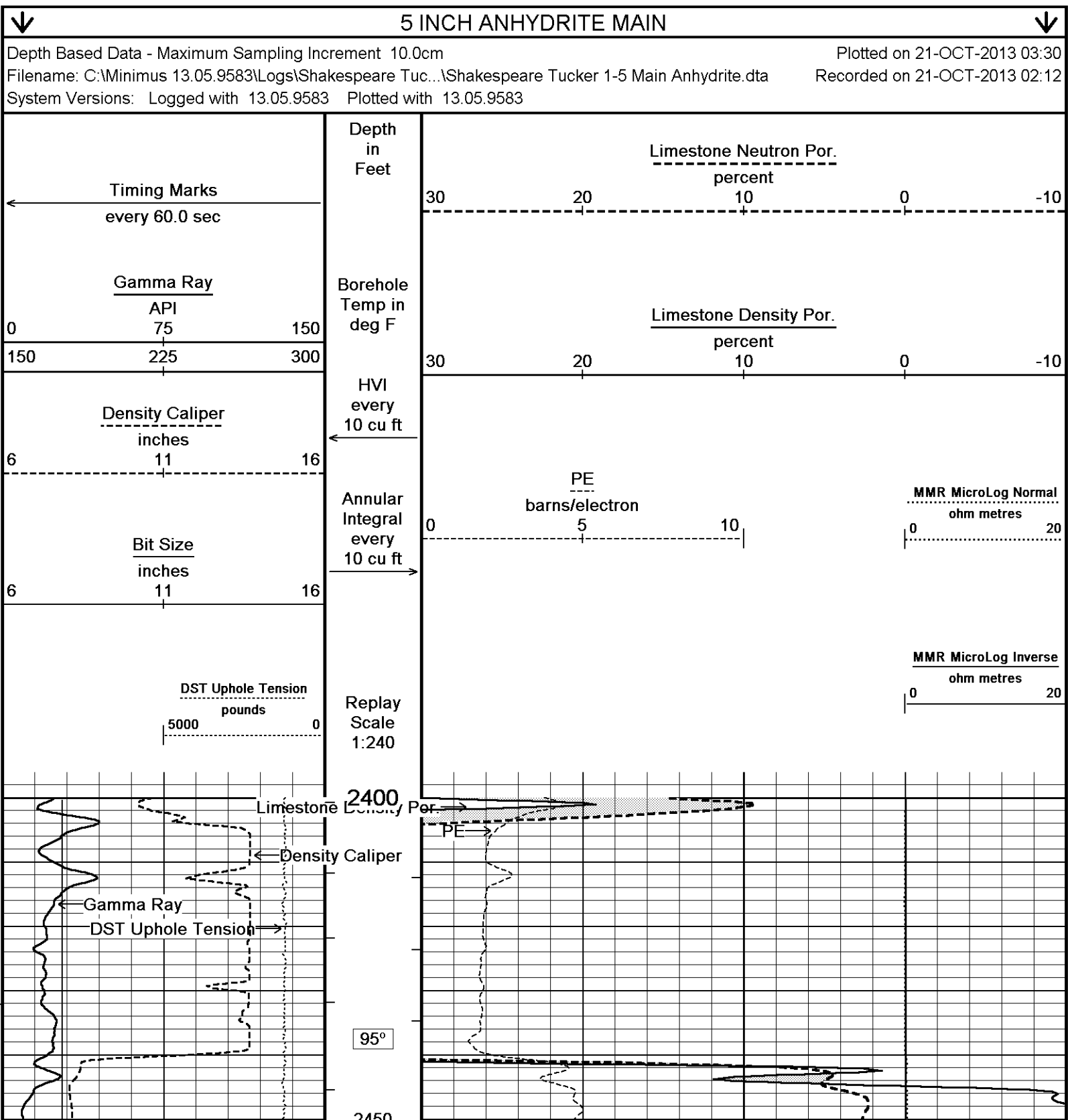
- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO 3800 FT.: 260 CU. FT.

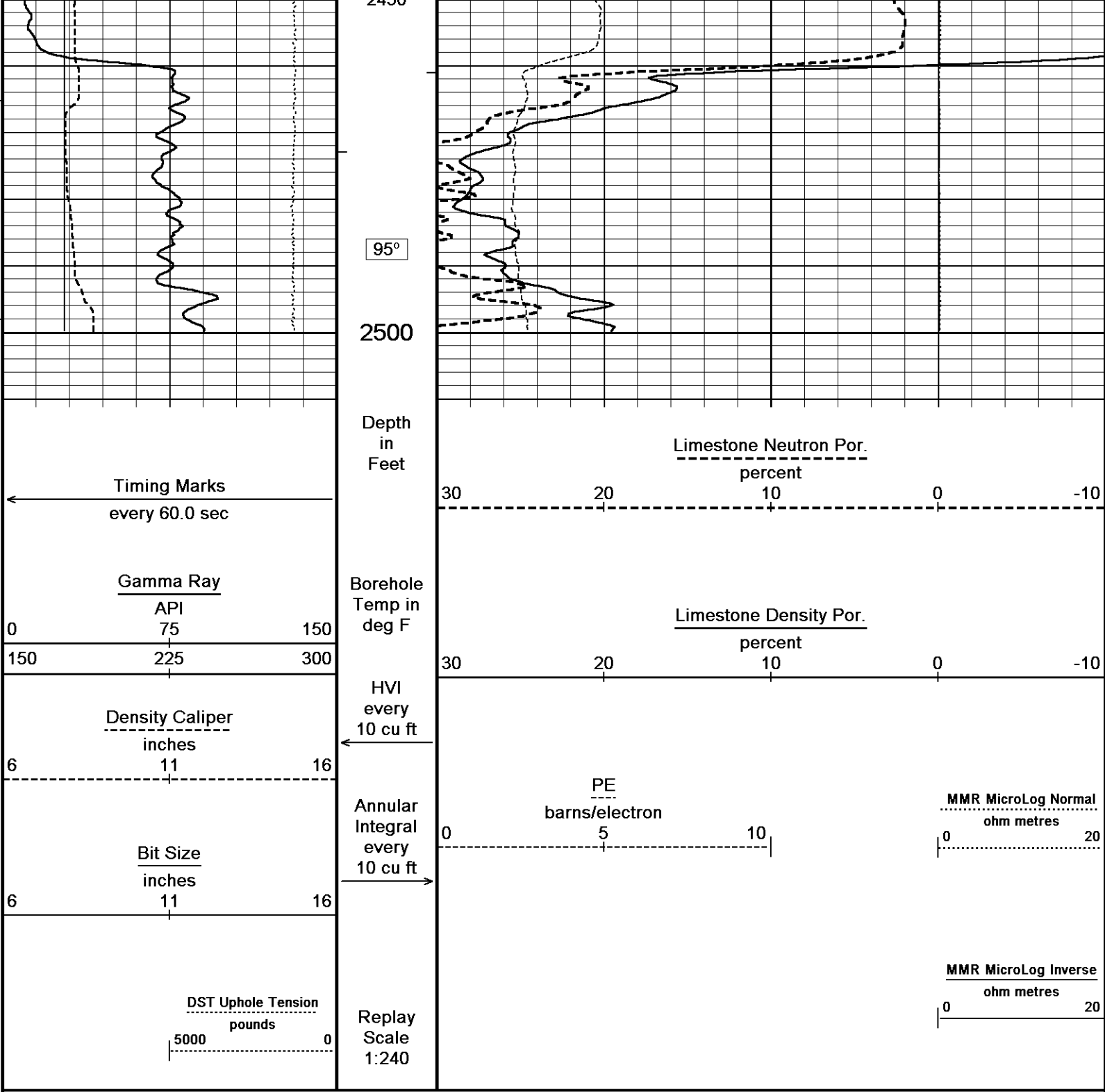
- RIG: HD DRILLING #2

- ENGINEER: ROB HOFFMAN, DEREK CARTER

- OPERATOR: OSCAR CRUZ

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.



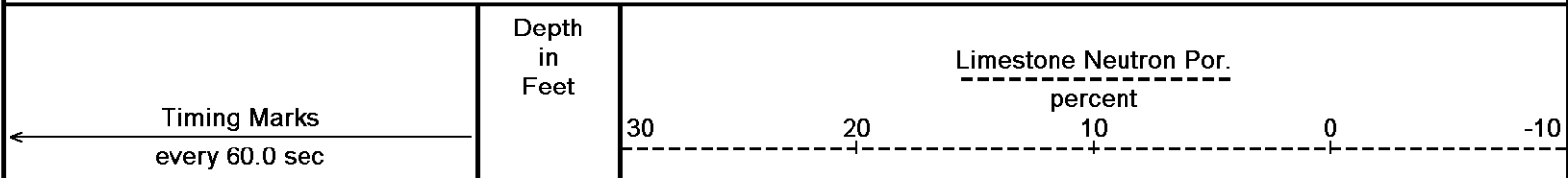


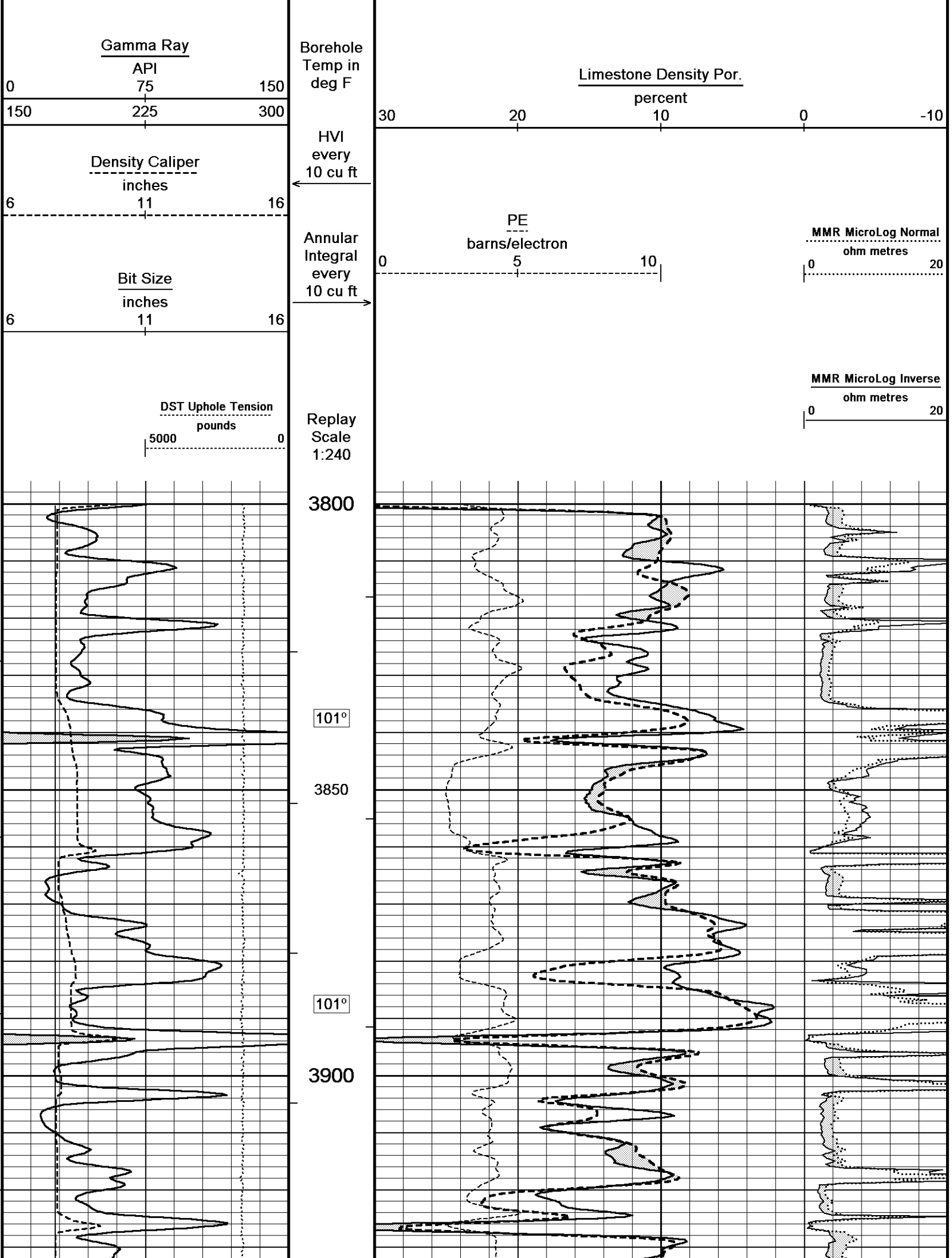
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 21-OCT-2013 03:30
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Tuc...\Shakespeare Tucker 1-5 Main Anhydrite.dta Recorded on 21-OCT-2013 02:12
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

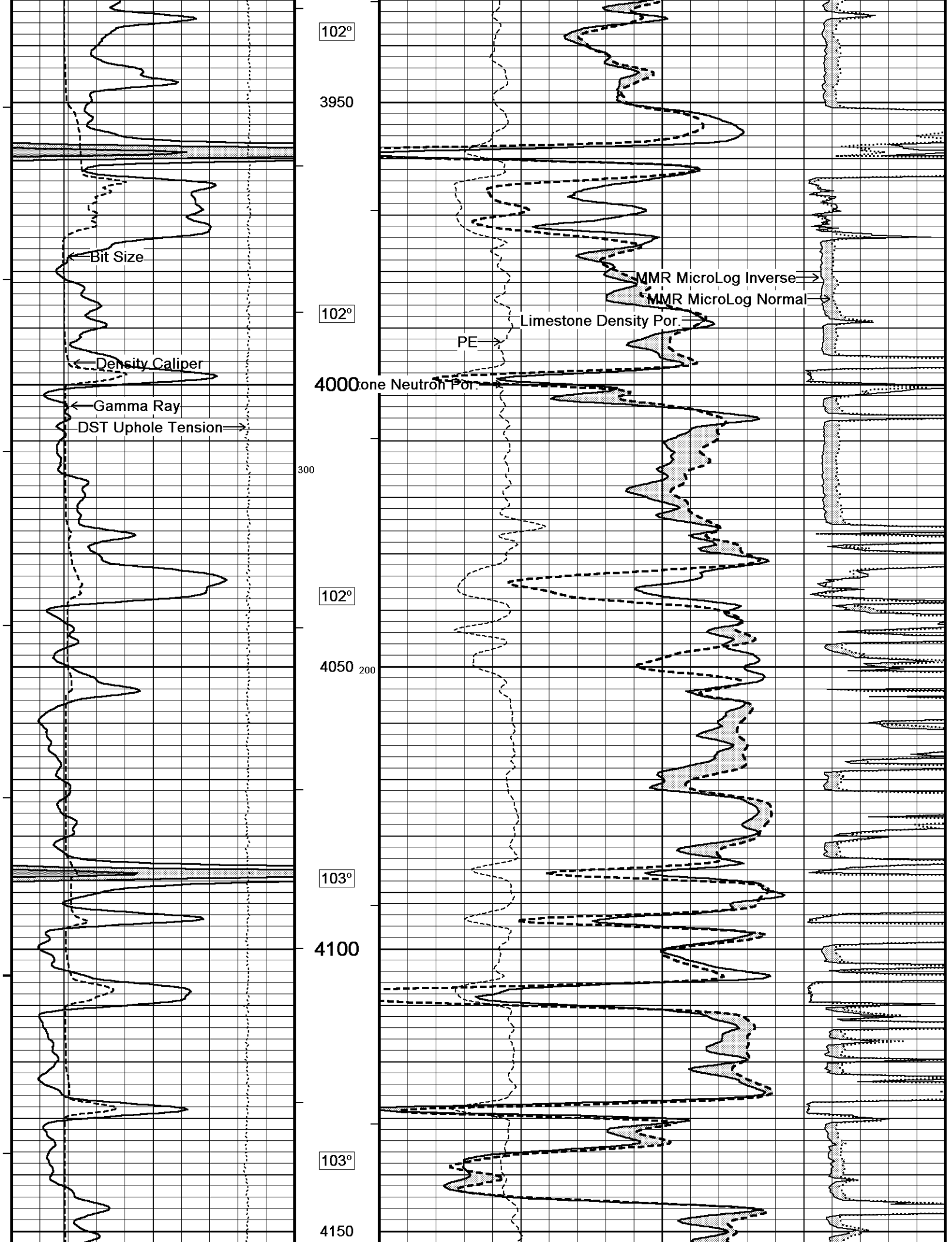
↑ 5 INCH ANHYDRITE MAIN ↑

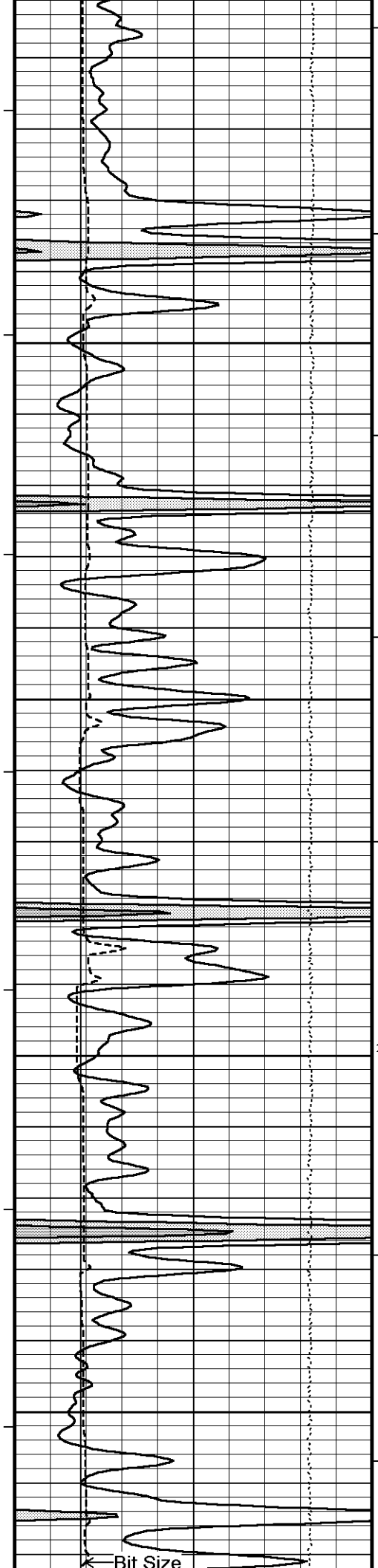
↓ 5 INCH LIMESTONE MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 21-OCT-2013 03:30
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Tucker...\Shakespeare Tucker 1-5 Main Detail.dta Recorded on 21-OCT-2013 01:17
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583









103°

4200

103°

4250

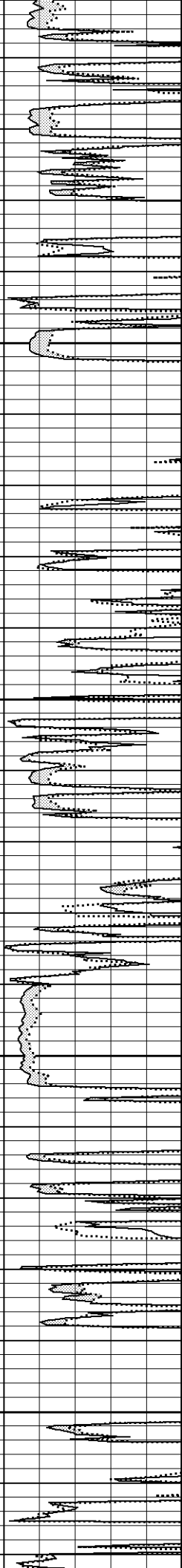
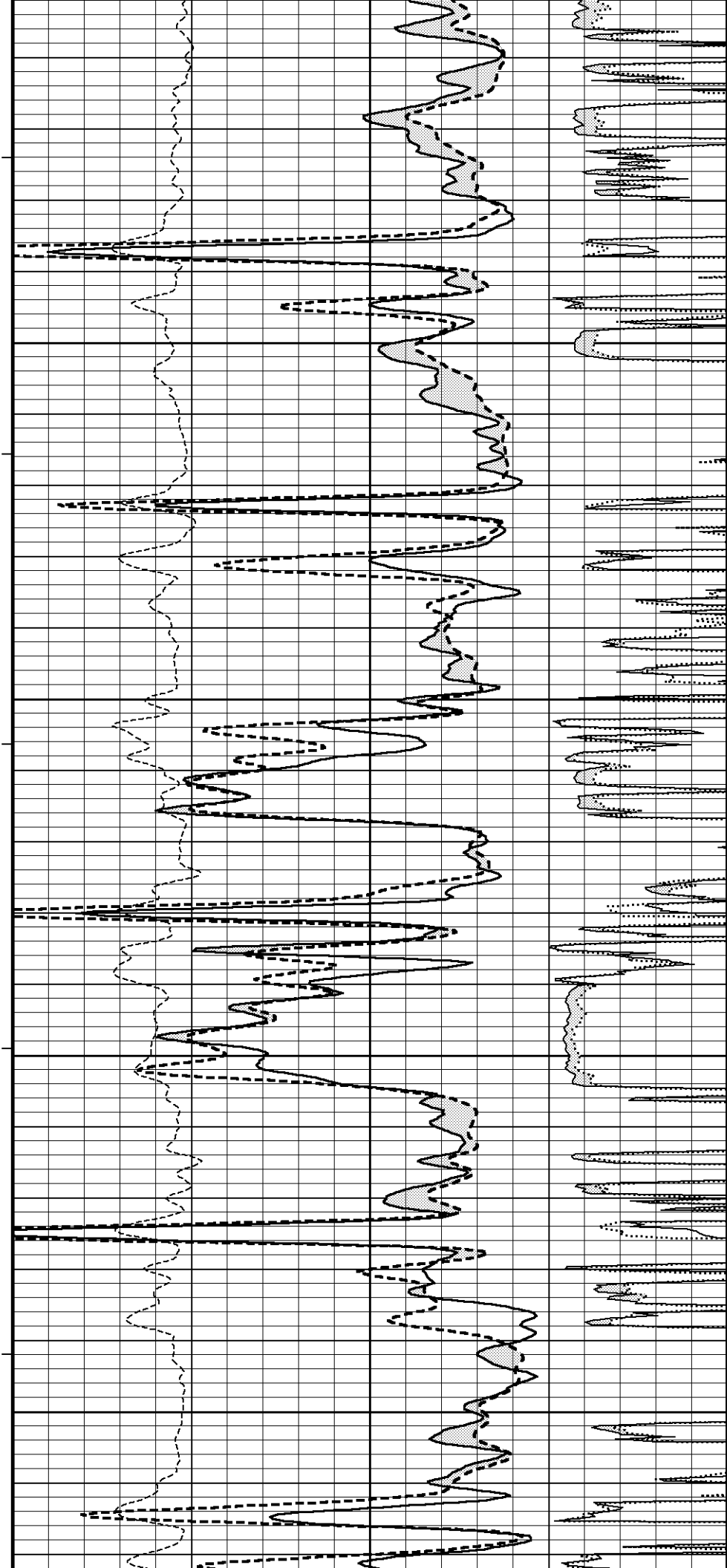
104°

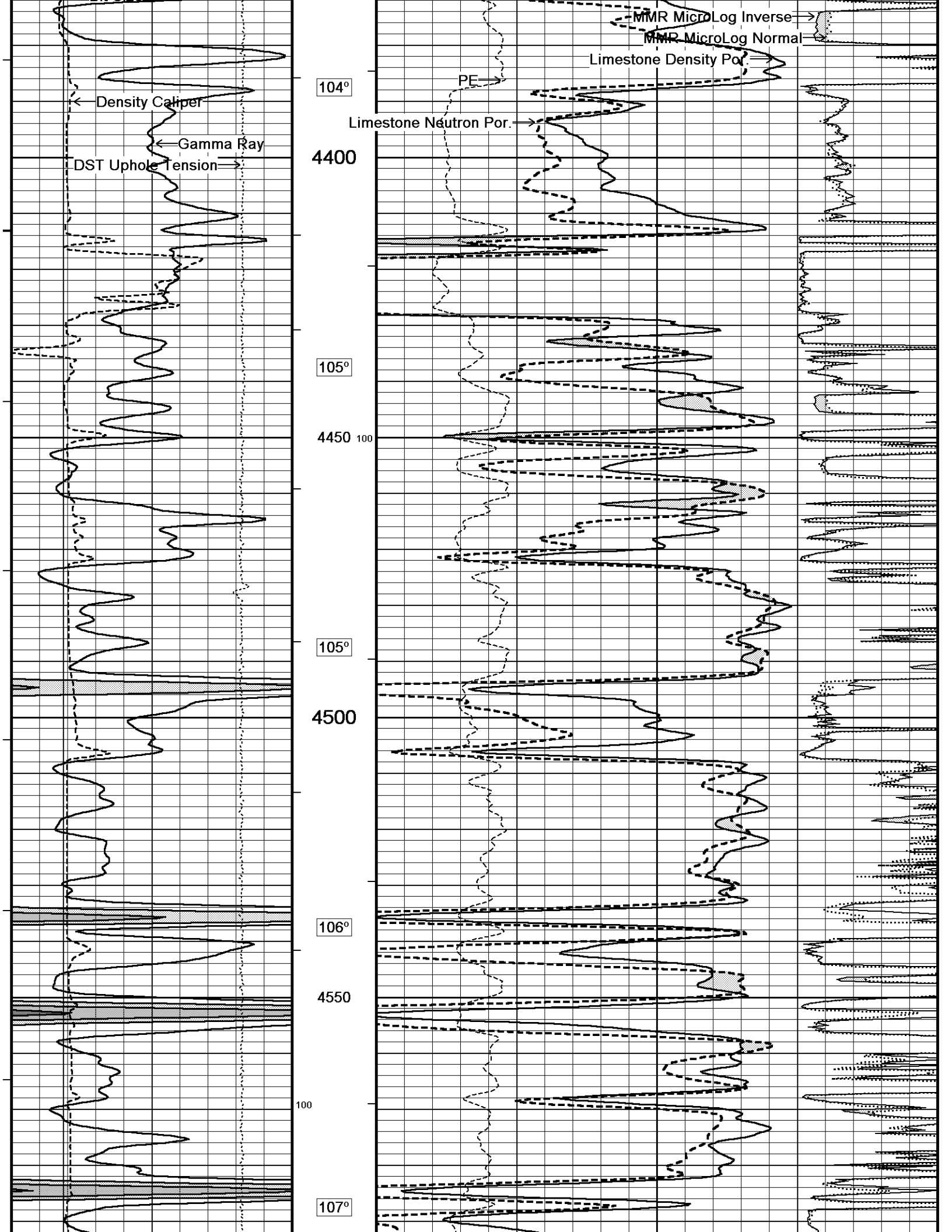
200
4300

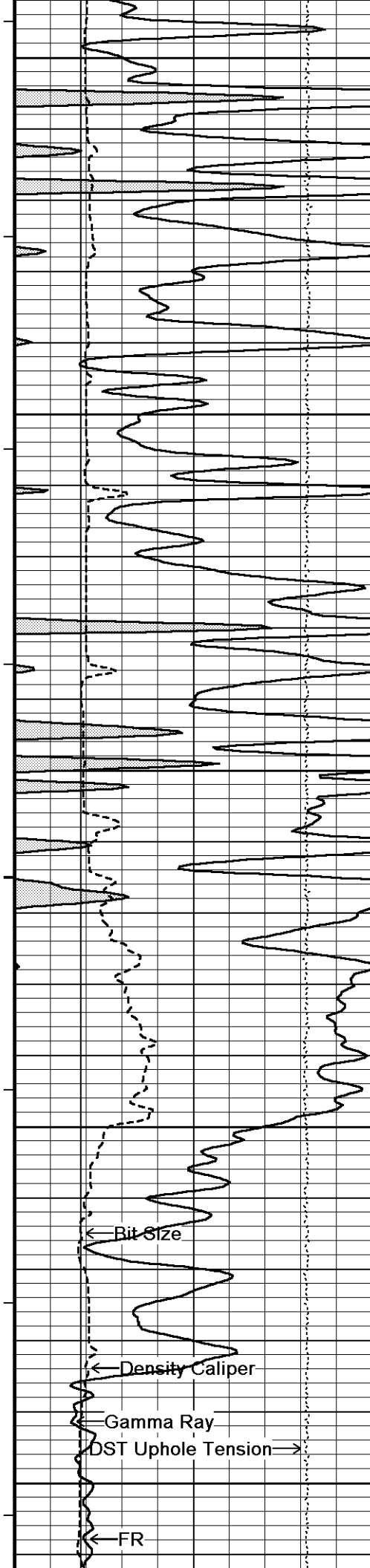
104°

4350

* Bit Size







4600

108°

4650

108°

4700

109°

4750

109°

4800

Bit Size

Density Caliper

Gamma Ray

DST Uphole Tension

FR

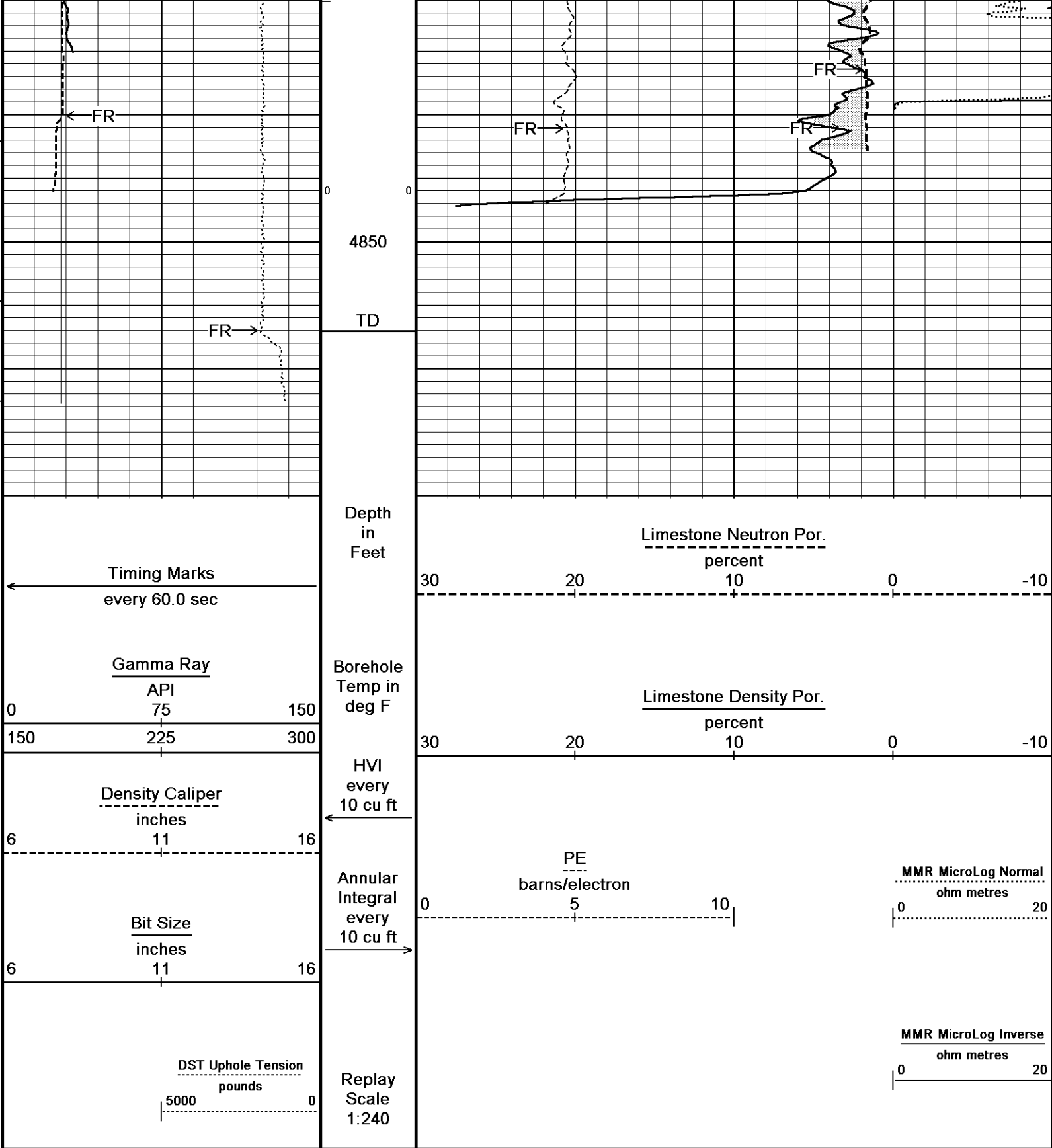
Limestone Density Por.

PE

MMR MicroLog Inverse

MMR MicroLog Normal

Limestone Neutron Por.

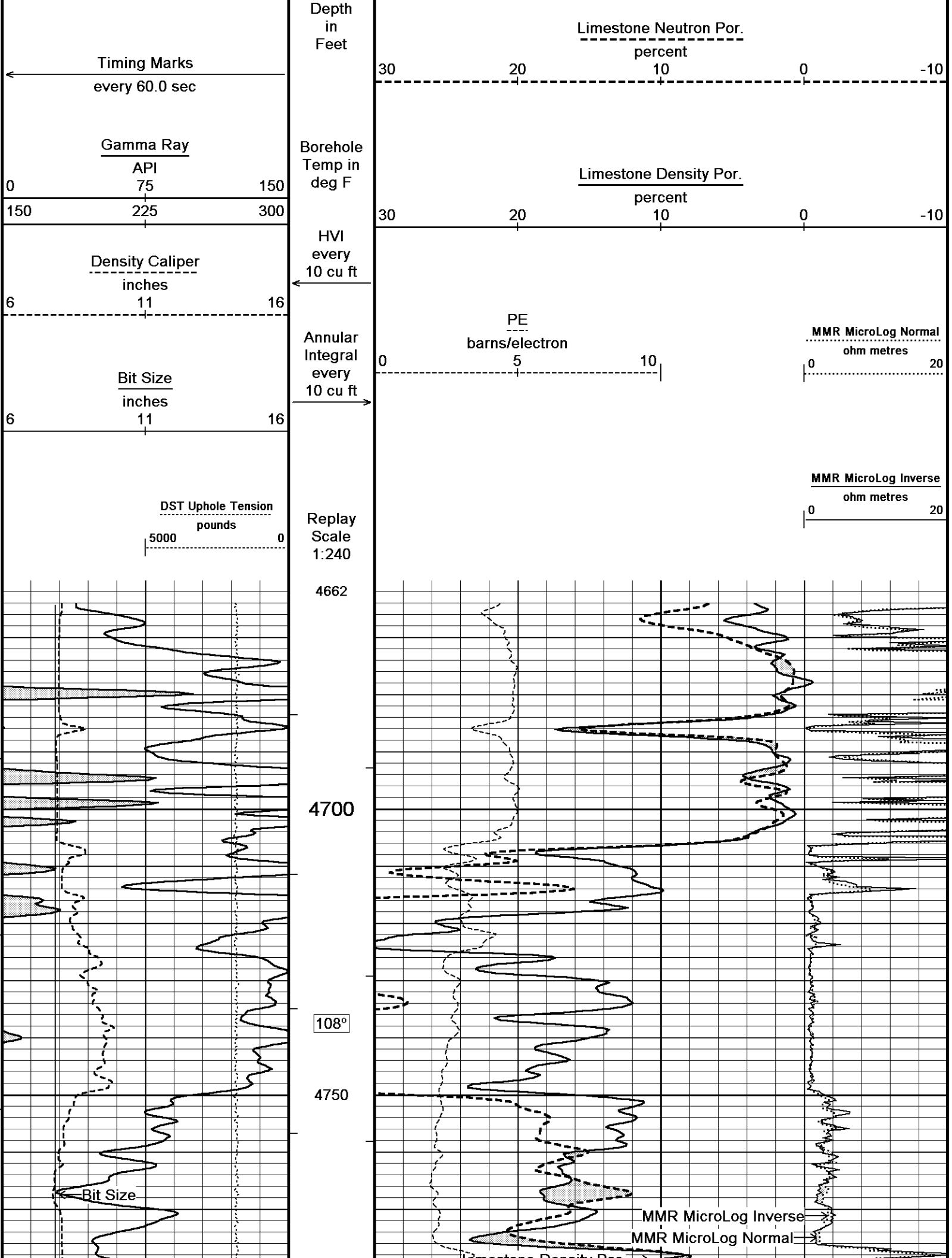


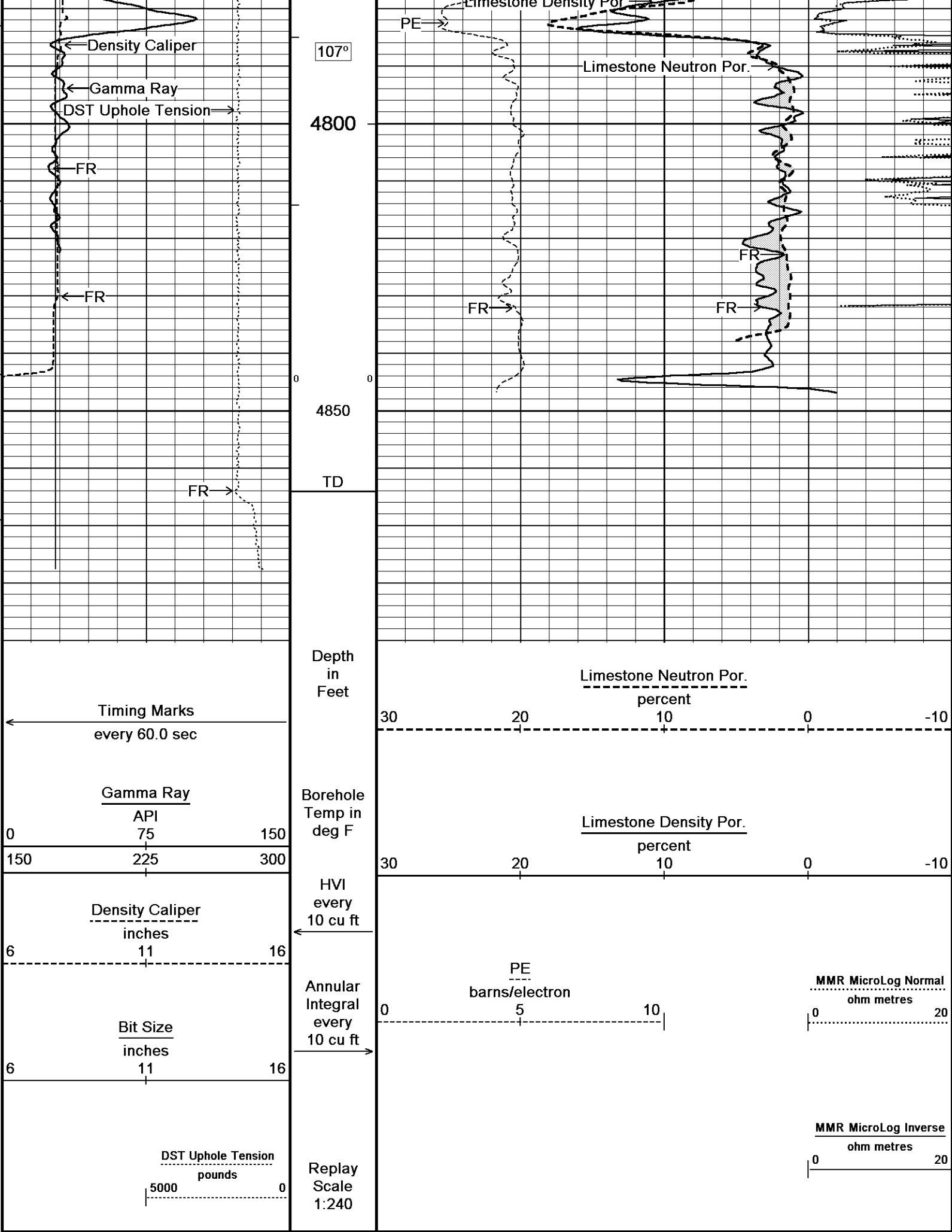
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Tucker 1-5 Main Detail.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

5 INCH LIMESTONE MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Tucker 1-5 Repeat.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583





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REPEAT SECTION

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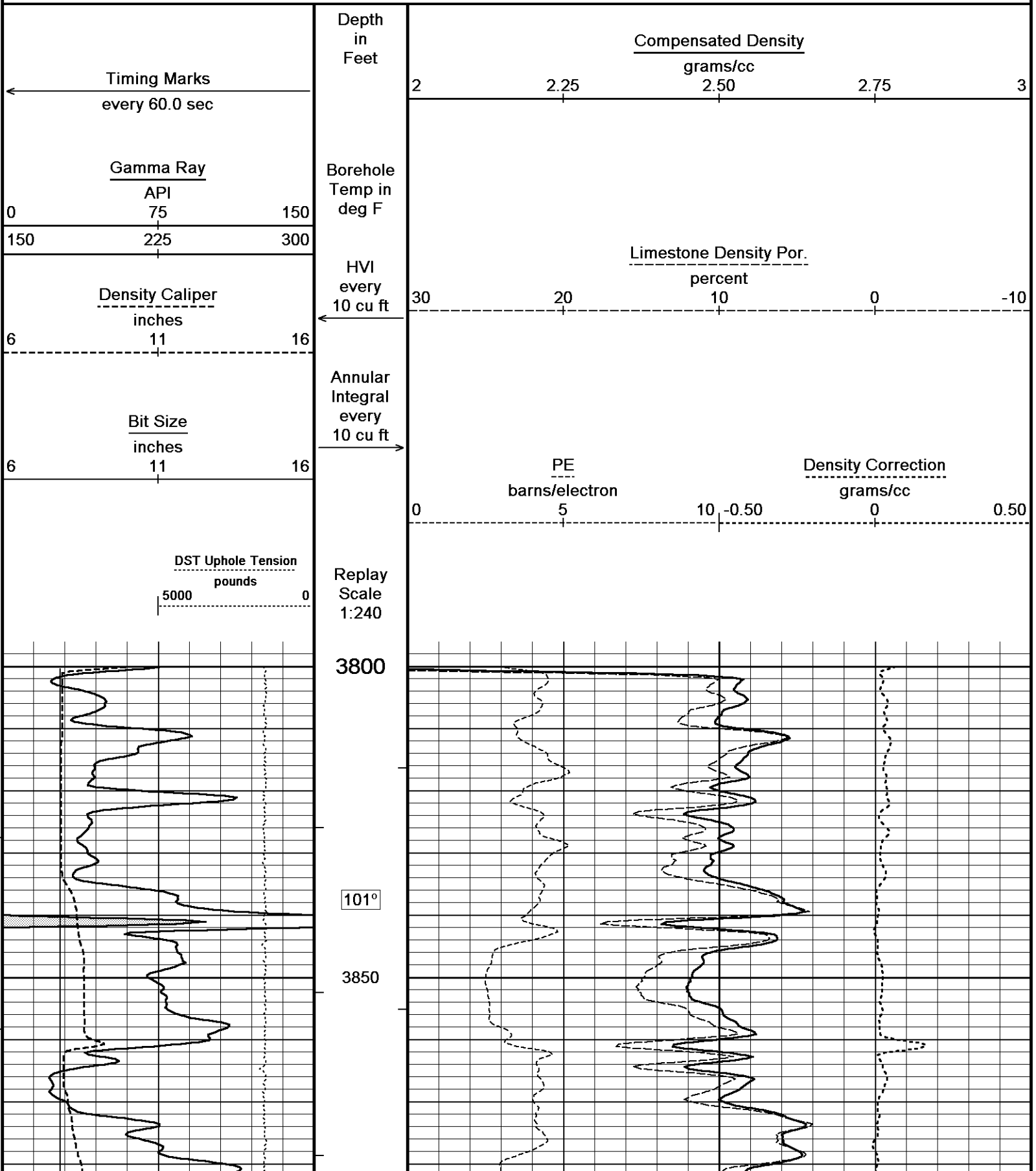
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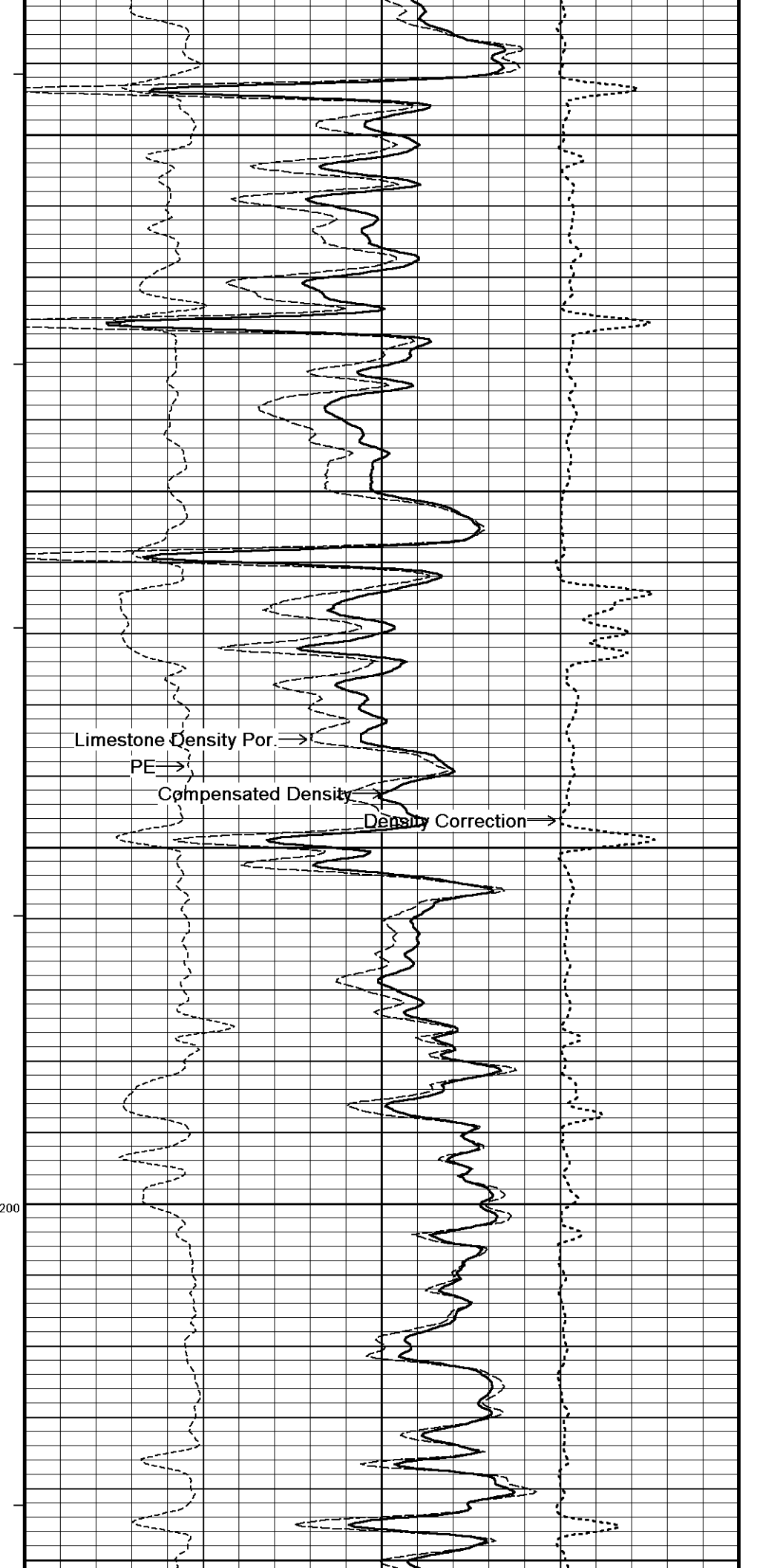
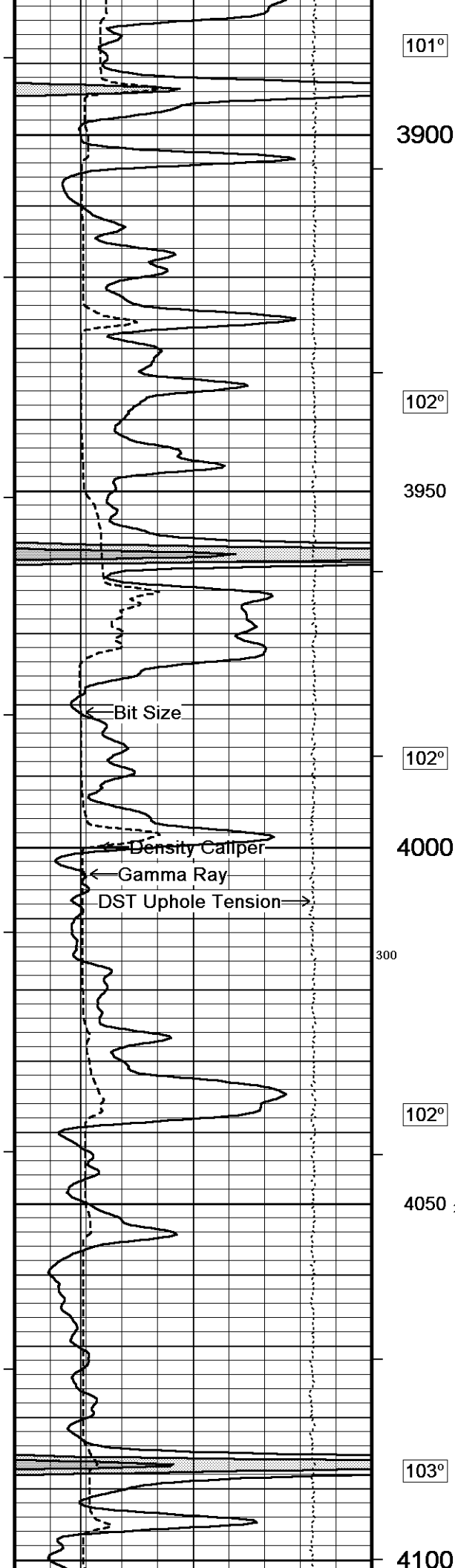
5 INCH BULK DENSITY

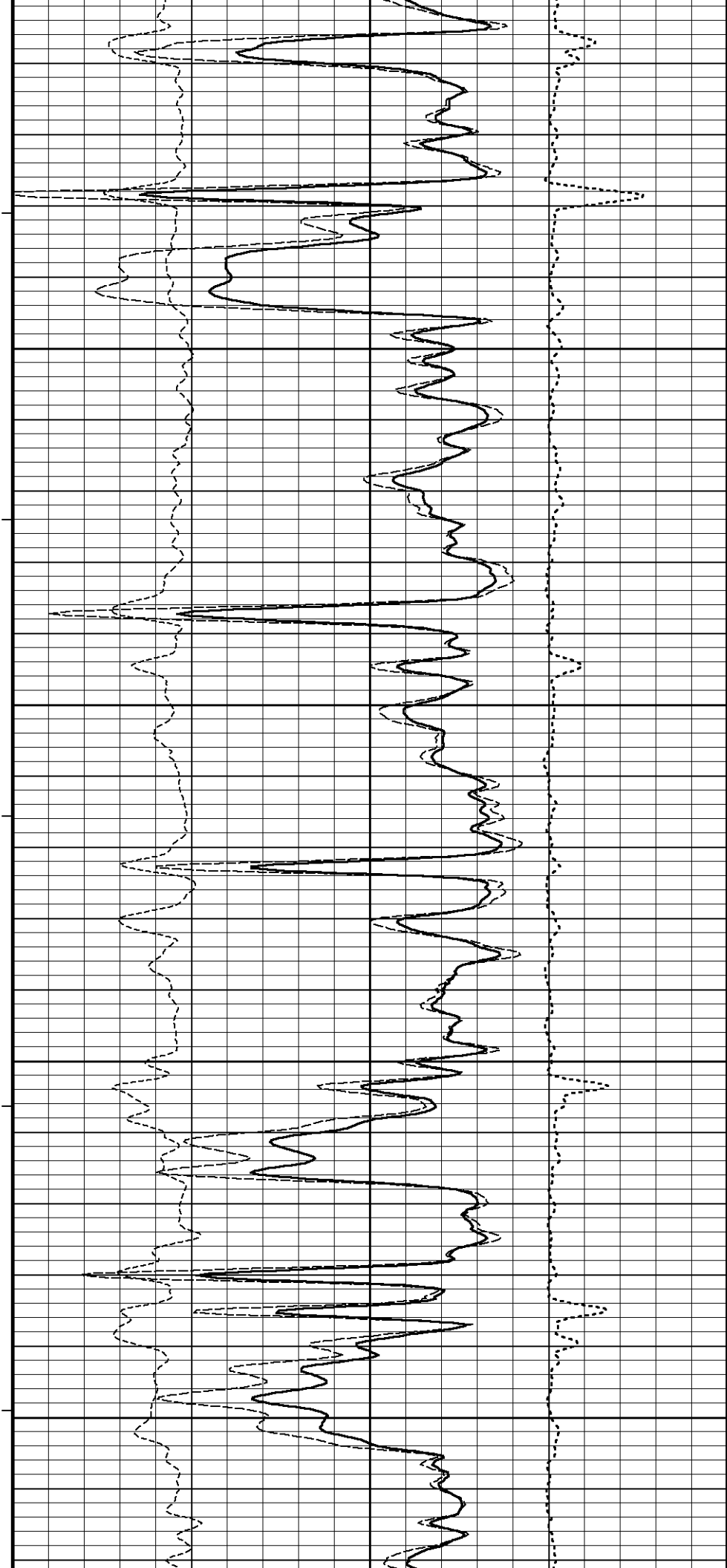
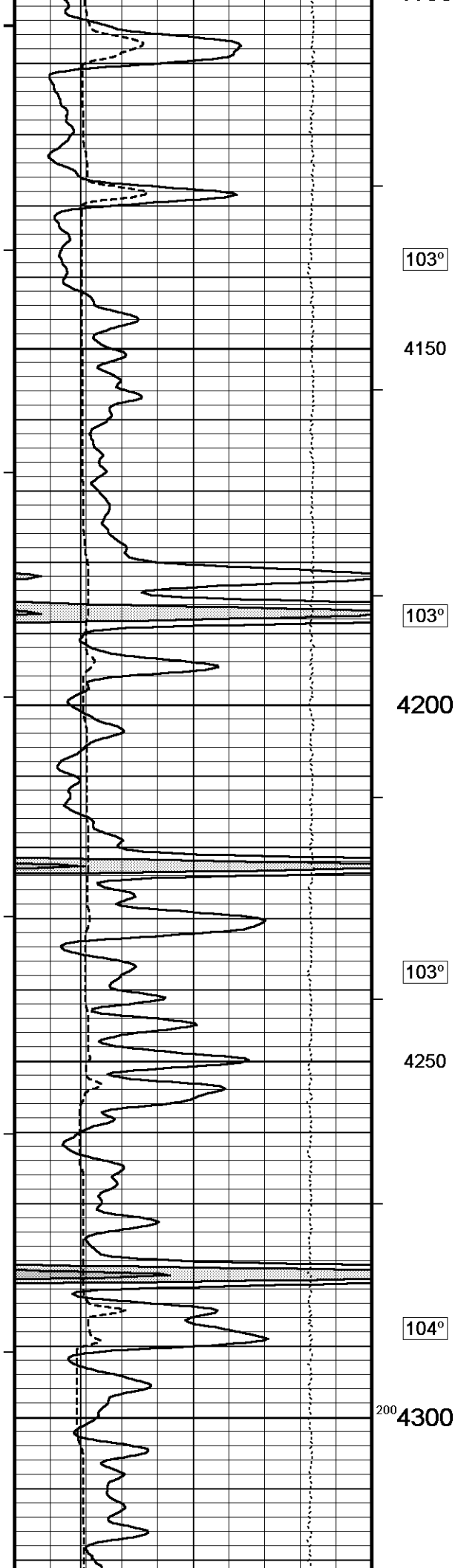
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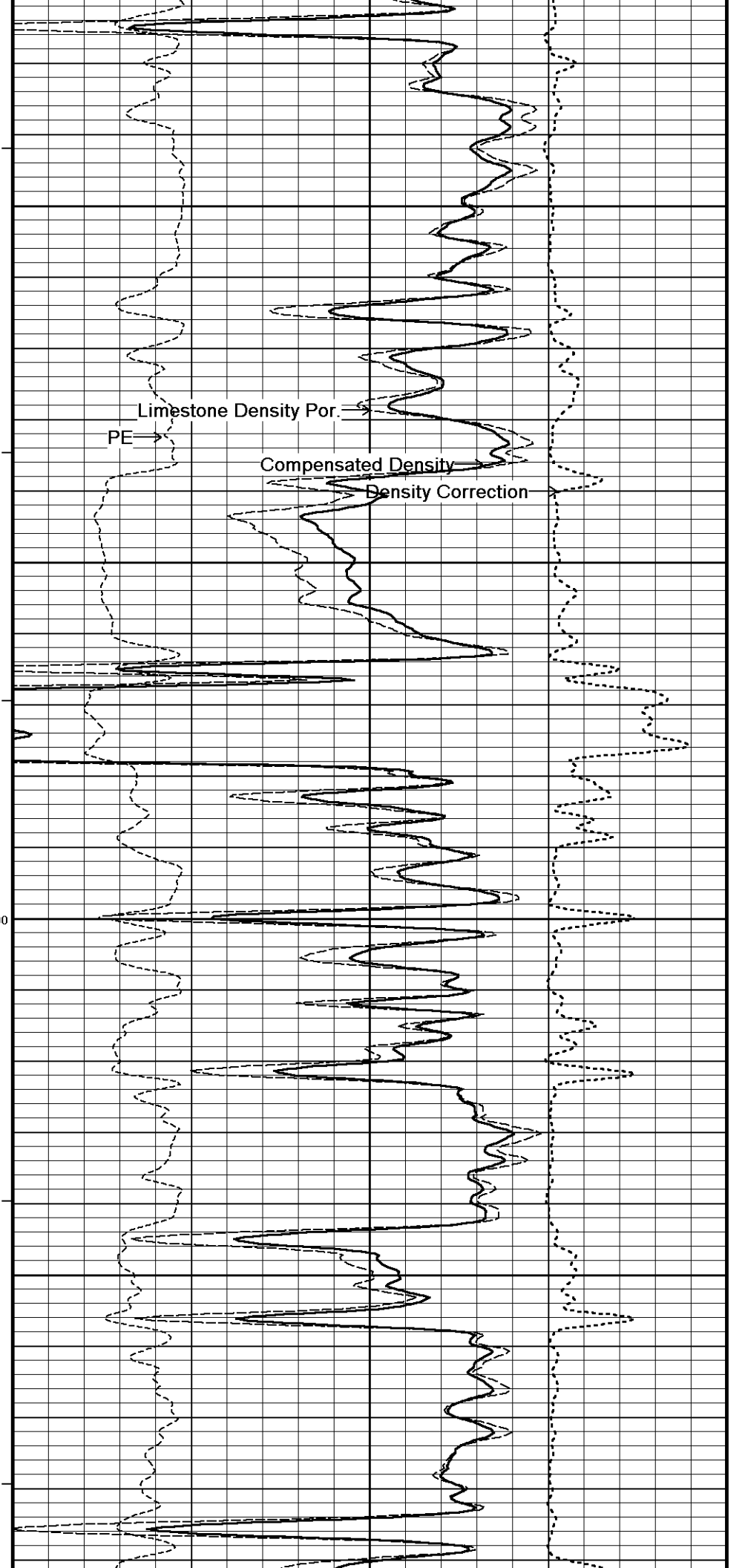
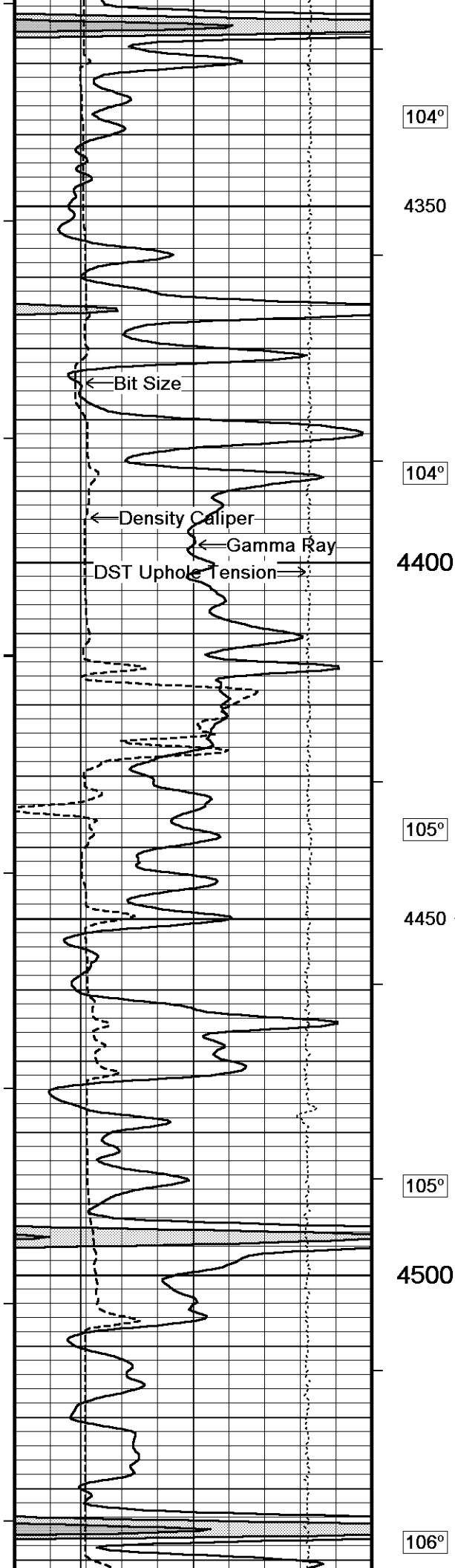
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Tucker... \Shakespeare Tucker 1-5 Main Detail.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

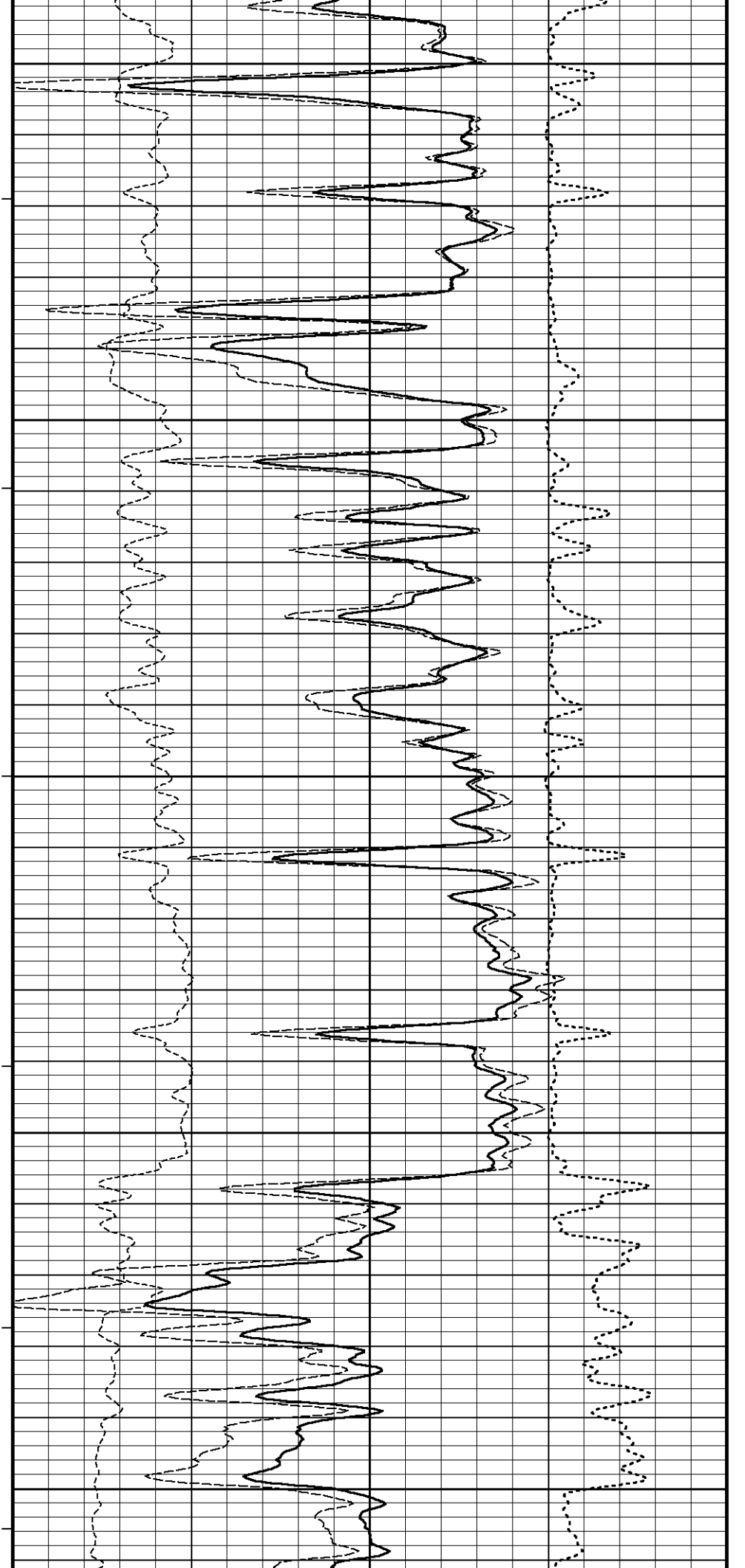
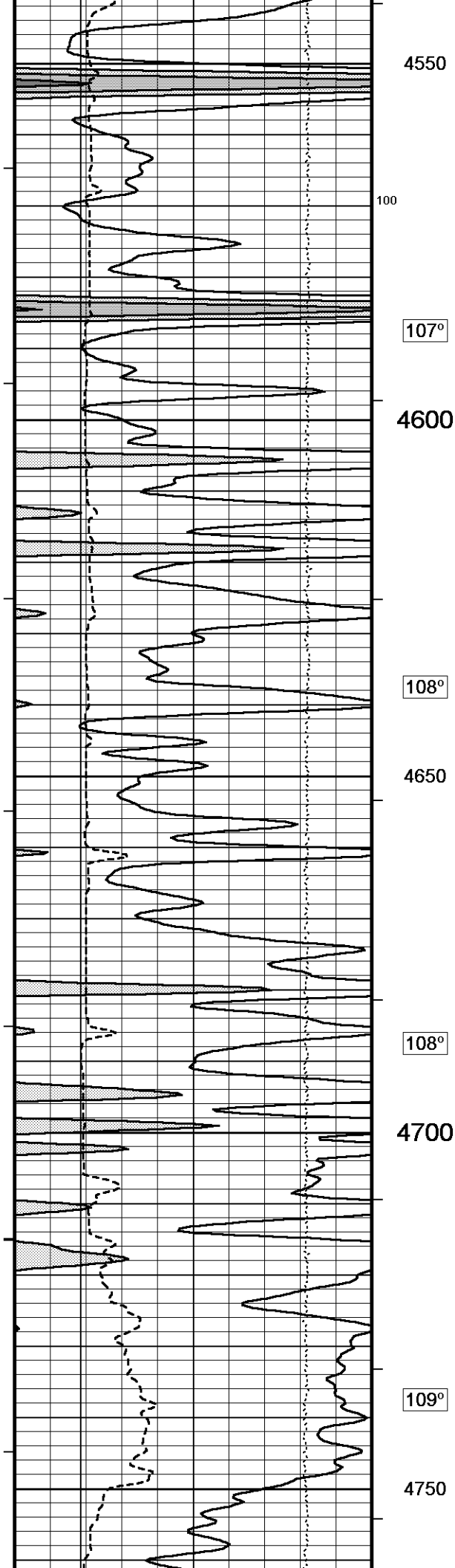
Plotted on 21-OCT-2013 03:30
Recorded on 21-OCT-2013 01:17

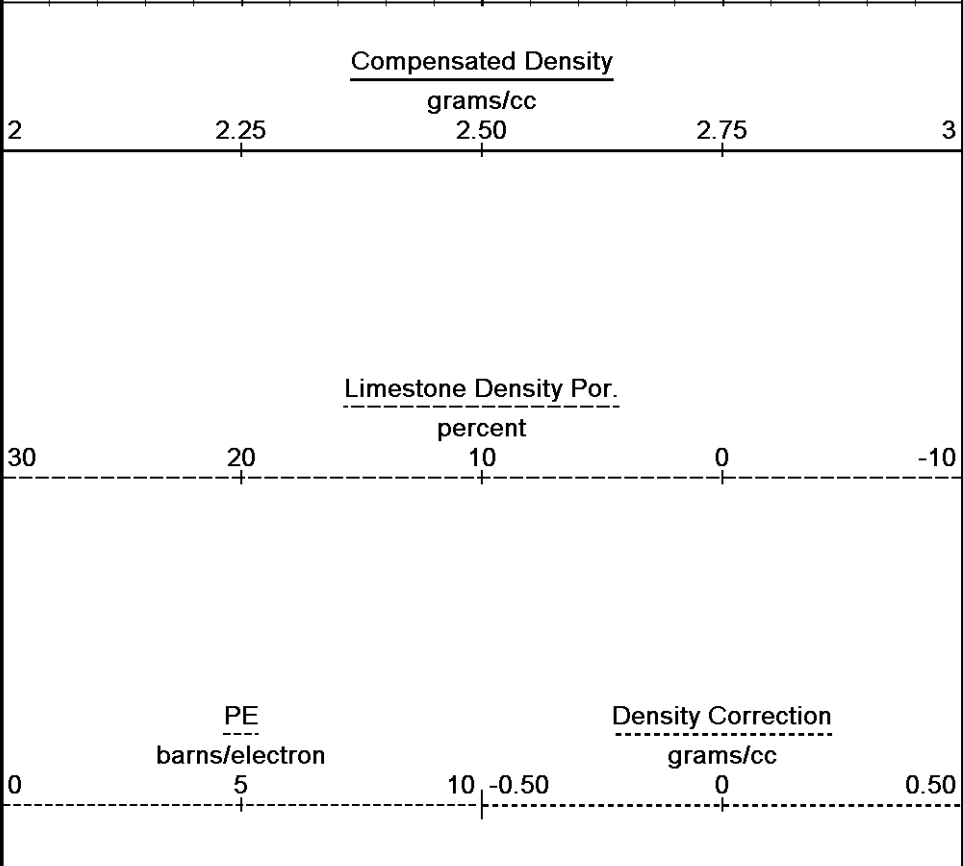
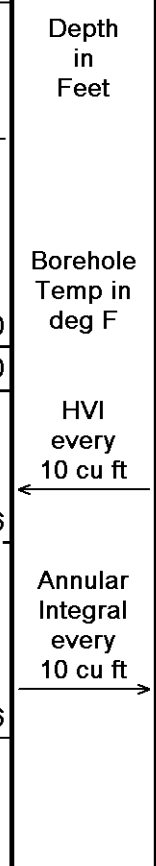
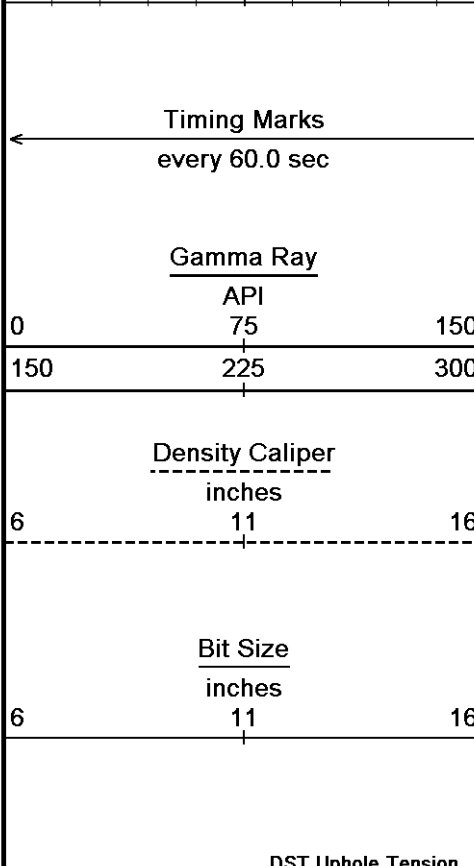
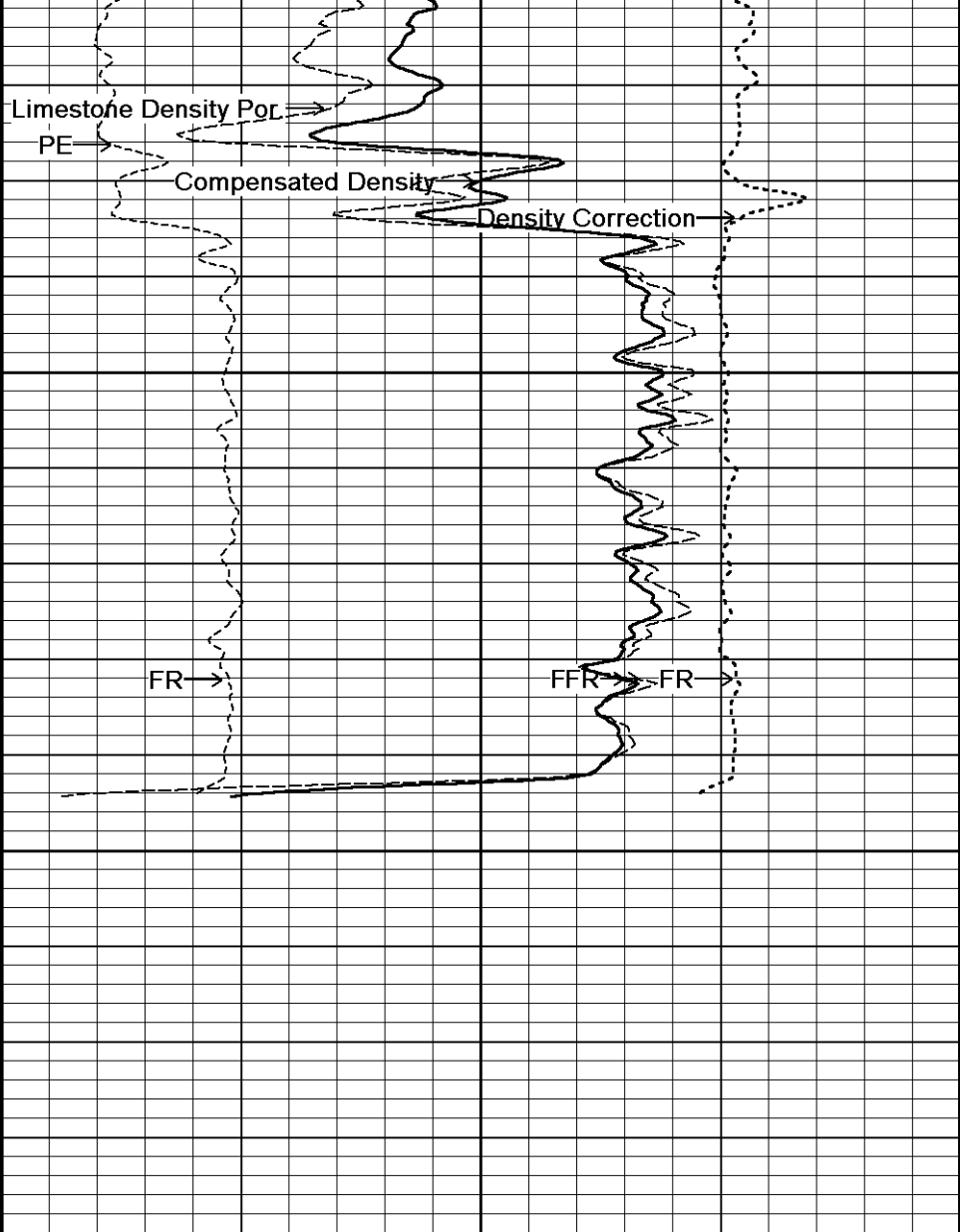
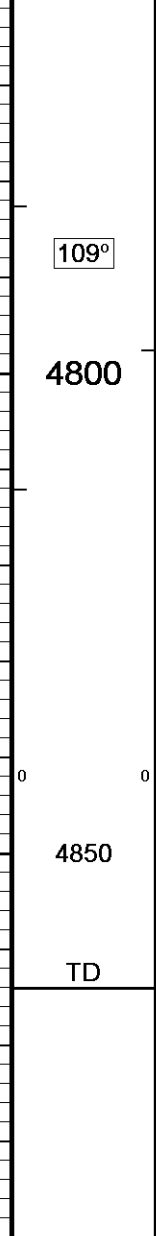
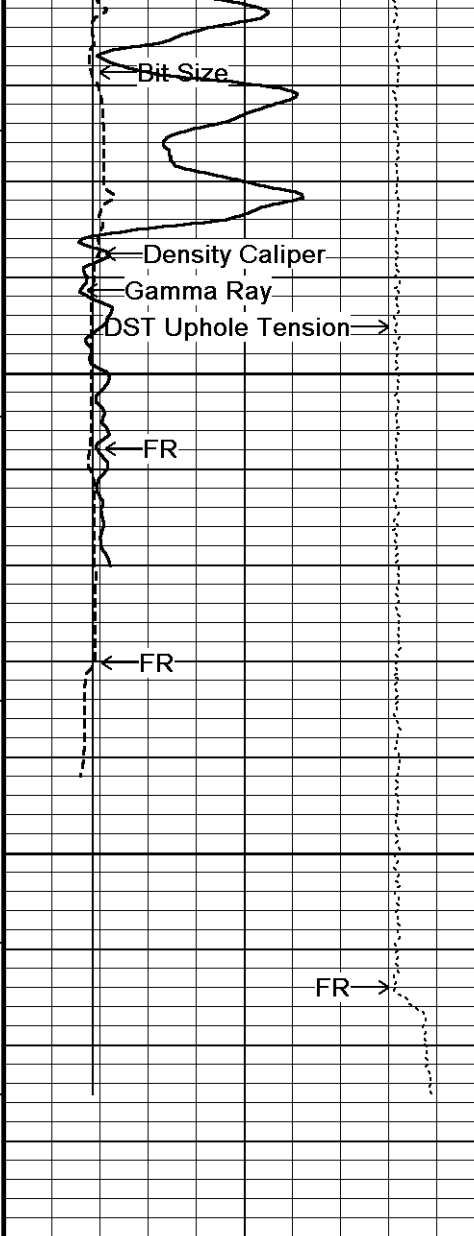


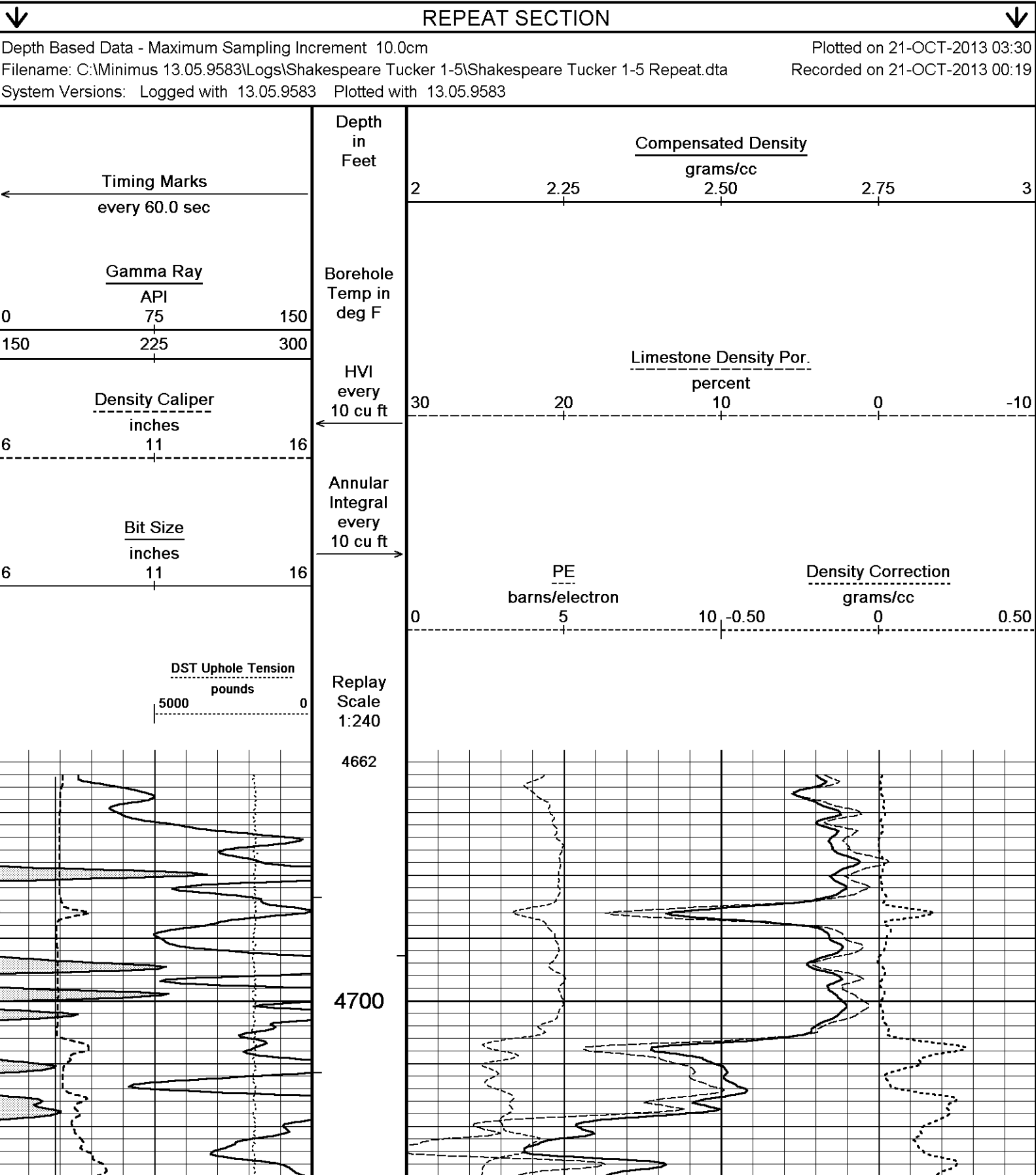


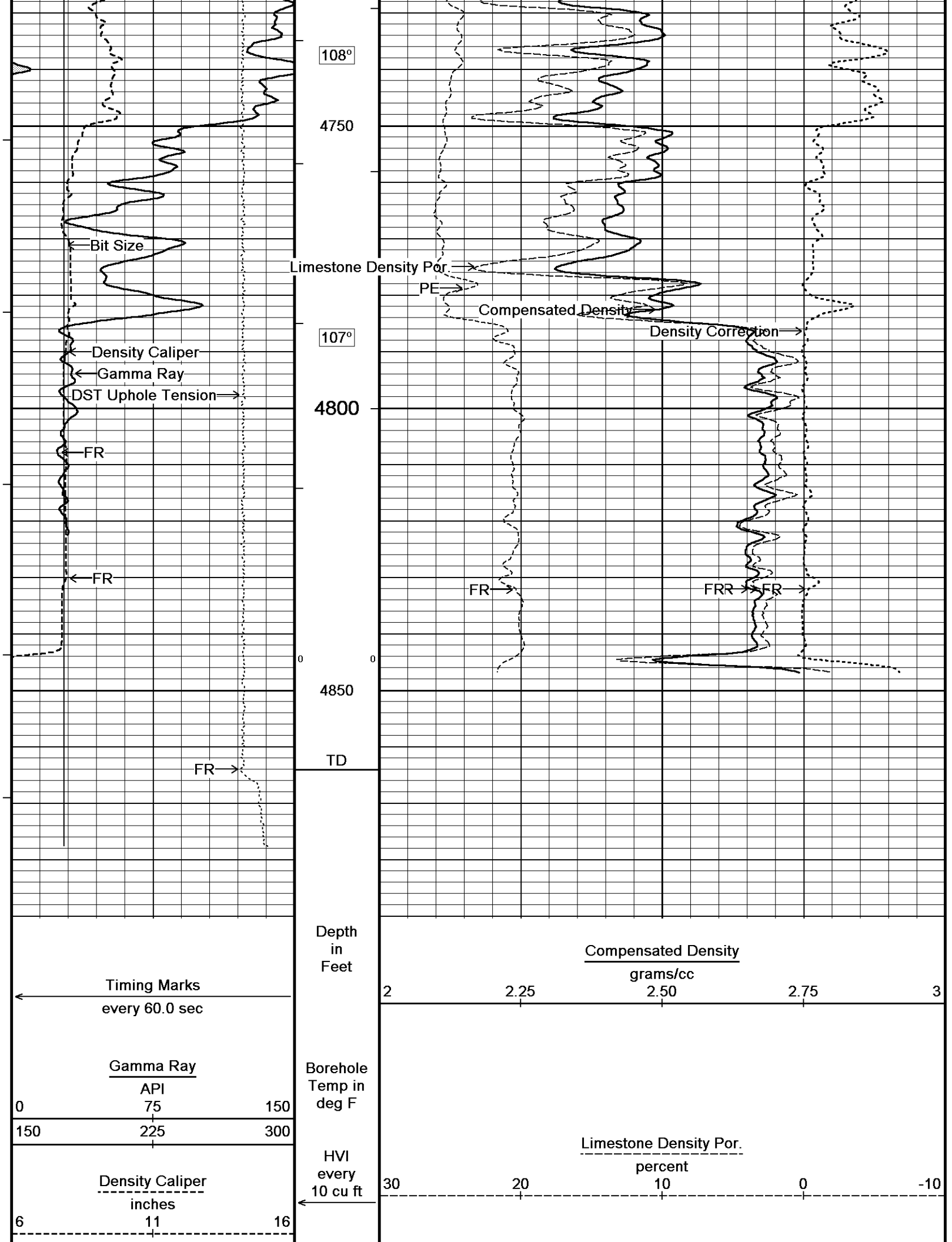


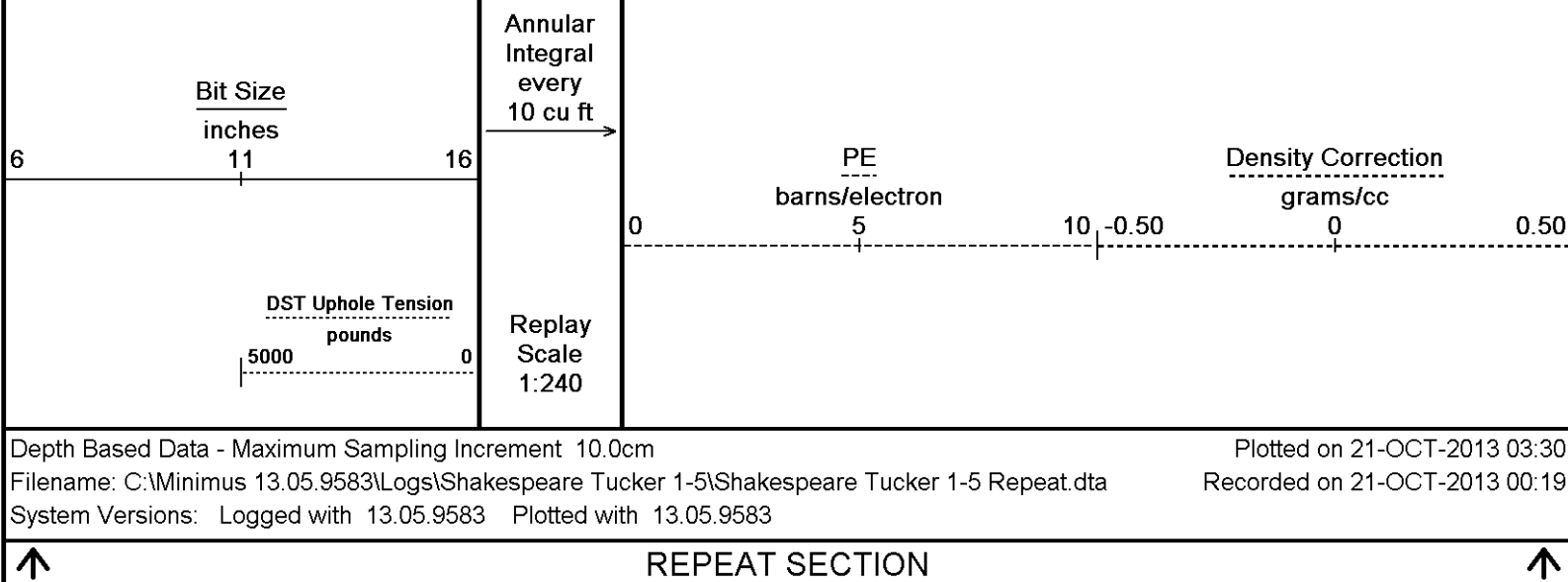












BEFORE SURVEY CALIBRATION			
C:\Minimus 13.05.9583\Logs\Shakespeare Tucker 1-5\Shakespeare Tucker 1-5 Main Detail.dta			
General Constants All 000		Last Edited on 20-OCT-2013,21:58	
General Parameters			
Mud Resistivity	0.460	ohm-metres	
Mud Resistivity Temperature	62.000	degrees F	
Water Level	0.000	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	4.500	inches	
Caliper for Differential Caliper	MMR 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		
Down-hole Tension Calibration SMS 0		Field Calibration on 20-OCT-2013 23:23	
Reading No	Measured	Calibrated (lbs)	
1	15564.19	1.00	
2	17369.66	575.00	
SP Calibration MCG-D.K 442		Field Calibration on 20-OCT-2013 18:26	
	Measured	Calibrated (mV)	
Reference 1	101.8	100.9	
Reference 2	-99.5	-100.5	
High Resolution Temperature Calibration MCG-D.K 442		Field Calibration on 20-OCT-2013,18:27	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG-D.K 442		Last Edited on 20-OCT-2013,18:27	
Pre-filter Length	11		
Gamma Calibration MCG-D.K 442		Field Calibration on 20-OCT-2013 18:30	
	Measured	Calibrated (API)	
Background	69	47	

Background	00	47
Calibrator (Gross)	1135	772
Calibrator (Net)	1067	725

Gamma Constants MCG-D.K 442			Last Edited on 20-OCT-2013,21:58		
Gamma Calibrator Number	GRC38				
Mud Density	1.06		gm/cc		
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
Concentration of KCl			kppm		
K Mud Type	Chloride				
K Mud Concentration	0.00		%		

Micro Laterolog Calibration MMR-A 11				Base Calibration on 31-DEC-1999 00:00	
				Field Check on 31-DEC-1999 00:00	
Base Calibration					
		Measured		Calibrated (ohm-m)	
	Ref 1	Ref 2		Ref 1	Ref 2
	0.0	0.0		0.0	0.0
Base Check (ohm-m)			Field Check (ohm-m)		
0.0			0.0		

Micro Laterolog Constants MMR-A 11				Last Edited on	
Pad Type	6 in Solid Nylon B23059				
Micro Laterolog K Factor	0.0128				
Standoff Offset	0.0000		inches		
Mudcake Thickness Correction Constants					
Mud Cake Source	Constant Value				
Mud Cake Thickness	0.4000		inches		
Mud Cake Thickness Caliper					
Mud Cake Resistivity	0.1500		ohm-m		
Mud Cake Resistivity Temp.	68.00		Deg F		
Mud Cake Resistivity Source	Constant Value				
Temp. Source Rmc Correc.	MCG External Temperature				

Caliper Calibration MMR-A 11			Base Calibration on 01-OCT-2013 09:07
			Field Calibration on 20-OCT-2013 18:23
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14311	5.98	
2	17410	7.97	
3	20706	9.86	
4	24667	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.91	5.98	

Micro Normal and Micro Inverse Calibration MMR-A 11					Base Calibration on 11-OCT-2013 11:00	
					Field Check on 20-OCT-2013 18:22	
Base Calibration						
		Measured		Calibrated (ohm-m)		
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2		
Micro Normal	12.1	59.0	5.0	25.0		
Micro Inverse	15.5	76.7	5.0	25.0		
Channel		Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal		77.5		77.5		
Micro Inverse		59.4		59.4		

Micro Normal and Micro Inverse Constants MMR-A 11			Last Edited on 18-APR-2013,13:52		
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	0.0000		inches		

Neutron Calibration MDN-A B 65			Base Calibration on 11-OCT-2013 14:23		
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Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3088	96	3714	110
Ratio	32.181		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1674	2387
Ratio	0.701	

Field Check

	Calibrated (cps)	
	1677	2401
Ratio	0.695	

Neutron Constants MDN-A.B 65

Last Edited on 20-OCT-2013,21:57

Neutron Source Id	PN-521		
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	N/A	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	N/A	kppm	
Barite Mud Correction	Not Applied		

FE Calibration MFE-B.J 352

Base Calibration on 11-OCT-2013 11:23

Field Check on 20-OCT-2013 18:09

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	965.0	126.8
Base Check		281.1
Field Check		281.1

FE Constants MFE-B.J 352

Last Edited on 20-OCT-2013,21:57

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 126

Last Edited on 20-OCT-2013,21:57

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	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

Deep	16.1	1910.9
Medium	42.6	4059.9
Shallow	49.8	5482.3

Array Temperature	66.3	Deg F
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Induction Constants MAI-A.A 45

Last Edited on 20-OCT-2013,21:57

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	8.0000		
Stand-off Fin Angle	45.00	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		

Photo Density Calibration MPD-B 31

Base Calibration on 11-OCT-2013 13:32

Field Check on 20-OCT-2013 18:14

Density Calibration				
Base Calibration		Measured		Calibrated (sdu)
	Near	Far	Near	Far
Reference 1	44679	22866	59556	30836
Reference 2	18345	1888	24941	2541
Field Check at Base				
	669.8	824.9		
Field Check				
	668.7	823.6		
PE Calibration				
Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	125	594		
Reference 1	18704	44569	0.422	0.371
Reference 2	5436	18261	0.301	0.272
Field Check at Base				
	124.9	594.3		
Field Check				

Density Constants MPD-B 31

Last Edited on 20-OCT-2013,21:57

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	1.06	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 (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 31

Base Calibration on 11-OCT-2013 13:50

Field Calibration on 20-OCT-2013 18:15

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	18160	3.99
2	27038	5.98
3	35584	7.97
4	43976	9.86
5	53328	11.92
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.95	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\Shakespeare Tucker 1-5\Shakespeare Tucker 1-5 Main Detail.dta

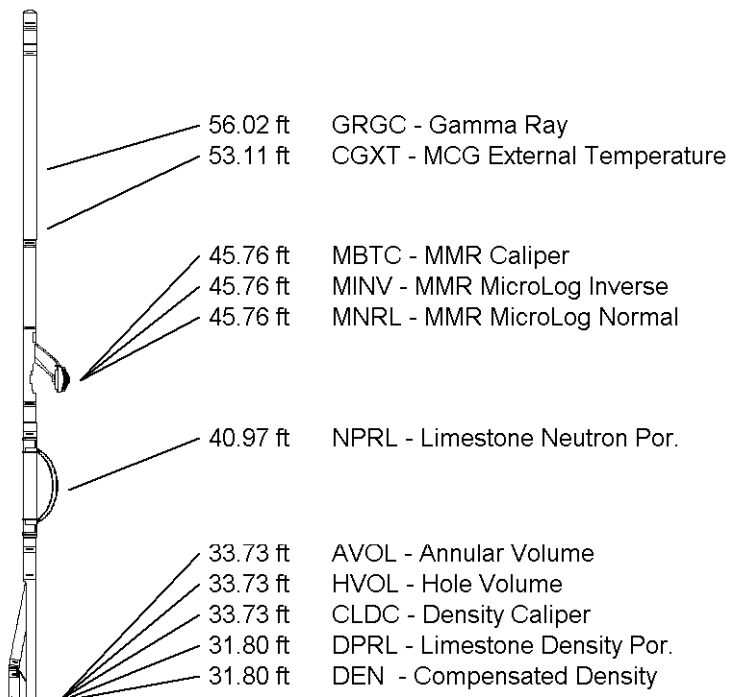
3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

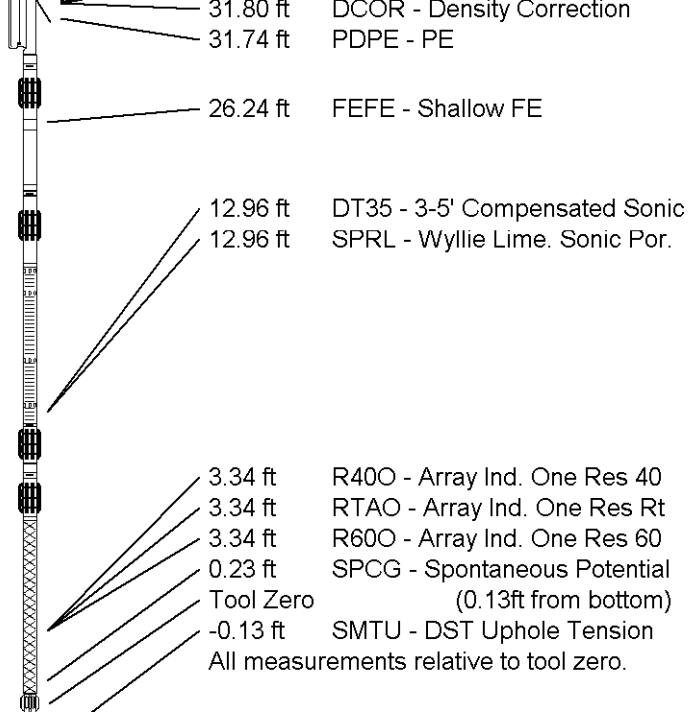


Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

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

Compact Induction
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.88 ft Weight: 471.8 lb



COMPANY	SHAKESPEARE OIL CO, INC.
WELL	TUCKER 1-5
FIELD	WILDCAT
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3112.00	feet	First Reading	4832.26	feet
Elevation Drill Floor	3110.00	feet	Depth Driller	4865.00	feet
Elevation Ground Level	3102.00	feet	Depth Logger	4864.00	feet



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COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG