



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY SHAKESPEARE OIL COMPANY, INC.
 WELL ZERR TRUST #3-23
 FIELD WILDCAT
 PROVINCE/COUNTY GOVE
 COUNTRY/STATE U.S.A. / KANSAS
 LOCATION 335' FSL & 1500' FWL
 NW SW SE SW

SEC	TWP	RGE	Other Services
23	13S	31W	MA/MFE
API Number	15-063-22016		MML
Permit Number	MSS		

Permanent Datum G.L., Elevation 2864 feet
 Log Measured From KB
 Drilling Measured From K.B.

Date	29-JUL-2012		Elevations:
Run Number	ONE		KB 2874.00
Depth Driller	4630.00		DF 2872.00
Depth Logger	4632.00		GL 2864.00
First Reading	4600.00		
Last Reading	3600.00		
Casing Driller	251.00		
Casing Logger	251.00		
Bit Size	7.875		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.40 g/cc	56.00 CP	
PH / Fluid Loss	10.50	8.80 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.58 @ 93.0	ohm-m	
Rmf @ Measured Temp	0.46 @ 93.0	ohm-m	
Rmc @ Measured Temp	0.70 @ 93.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.45 @ 121.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	121.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13057	LIB	
Recorded By	L. SCOTT		
Witnessed By	TIM PRIEST		
S.O. / JOB #	3534564		LB12-193

BOREHOLE RECORD			Last Edited: 29-JUL-2012 11:10
Bit Size inches	Depth From feet	Depth To feet	
7.875	251.00	4632.00	
CASING RECORD			
Type	Size inches	Depth From feet	Shoe Depth feet
SURFACE	8.625	0.00	251.00
			Weight pounds/ft
			24.00

REMARKS

Tools Ran: MCG, MML, MDN, MPD, MFE, MSS, MAI.
 Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE, MSS and MAI 0.5 inch standoffs used.
 2.71 g/cc Limestone Density Matrix used to calculate porosity.
 Sonic porosity calculated using a Limestone scale (47.5 usec/ft).
 All intervals logged and scaled per customer's request.
 Tight pulls, washouts and borehole rugosity will affect data quality.
 Annular volume with 4.5 inch production casing= 258 cu. ft.
 Total hole volume from TD to Surface casing= 1900 cu. ft.
 Service order: #3534564
 Rig: HD Drilling #2
 Engineer: L. Scott
 Operator(s): K. Rinehart, J. LaPoint

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.

5 INCH MAIN

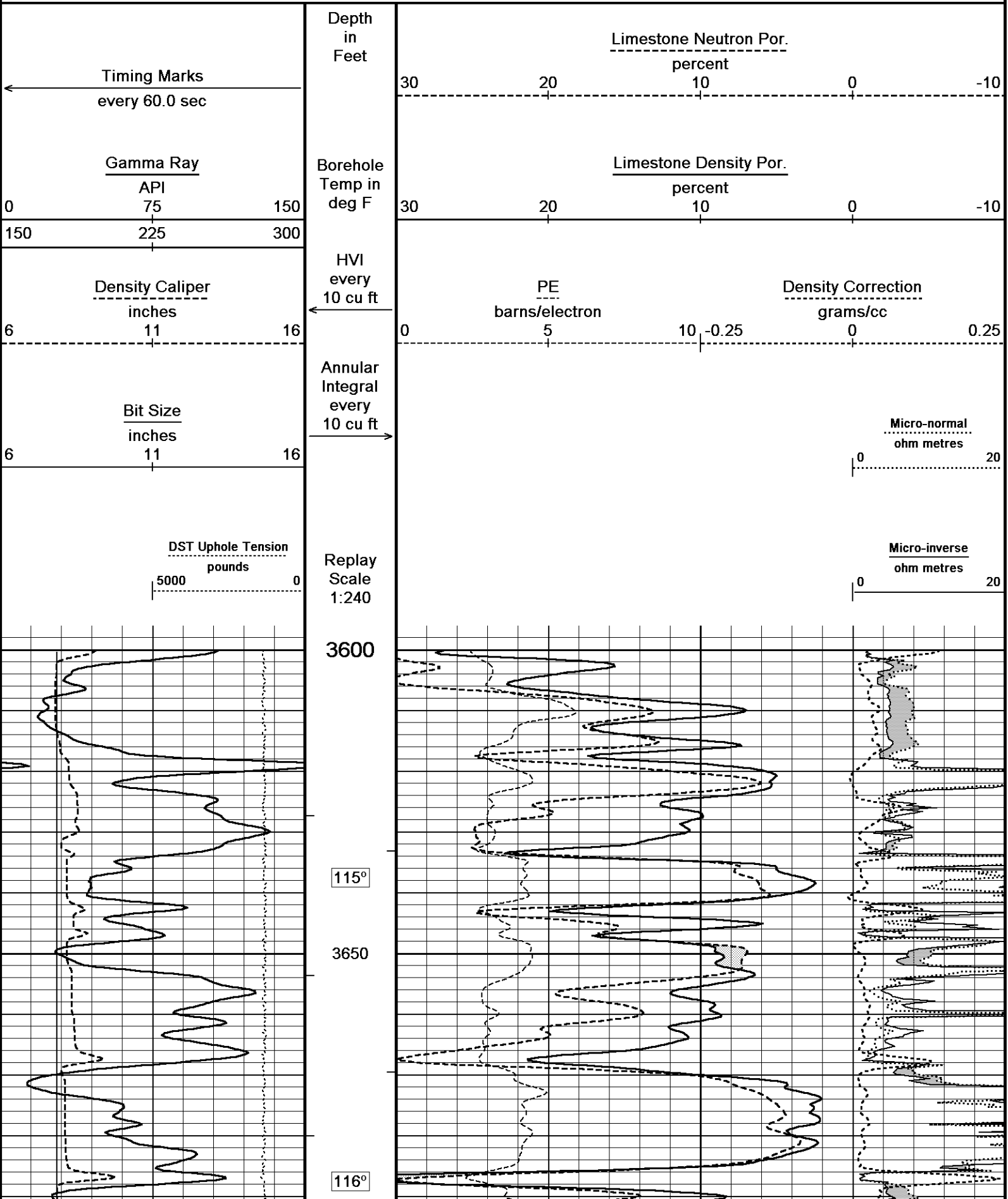
Depth Based Data - Maximum Sampling Increment 10.0cm

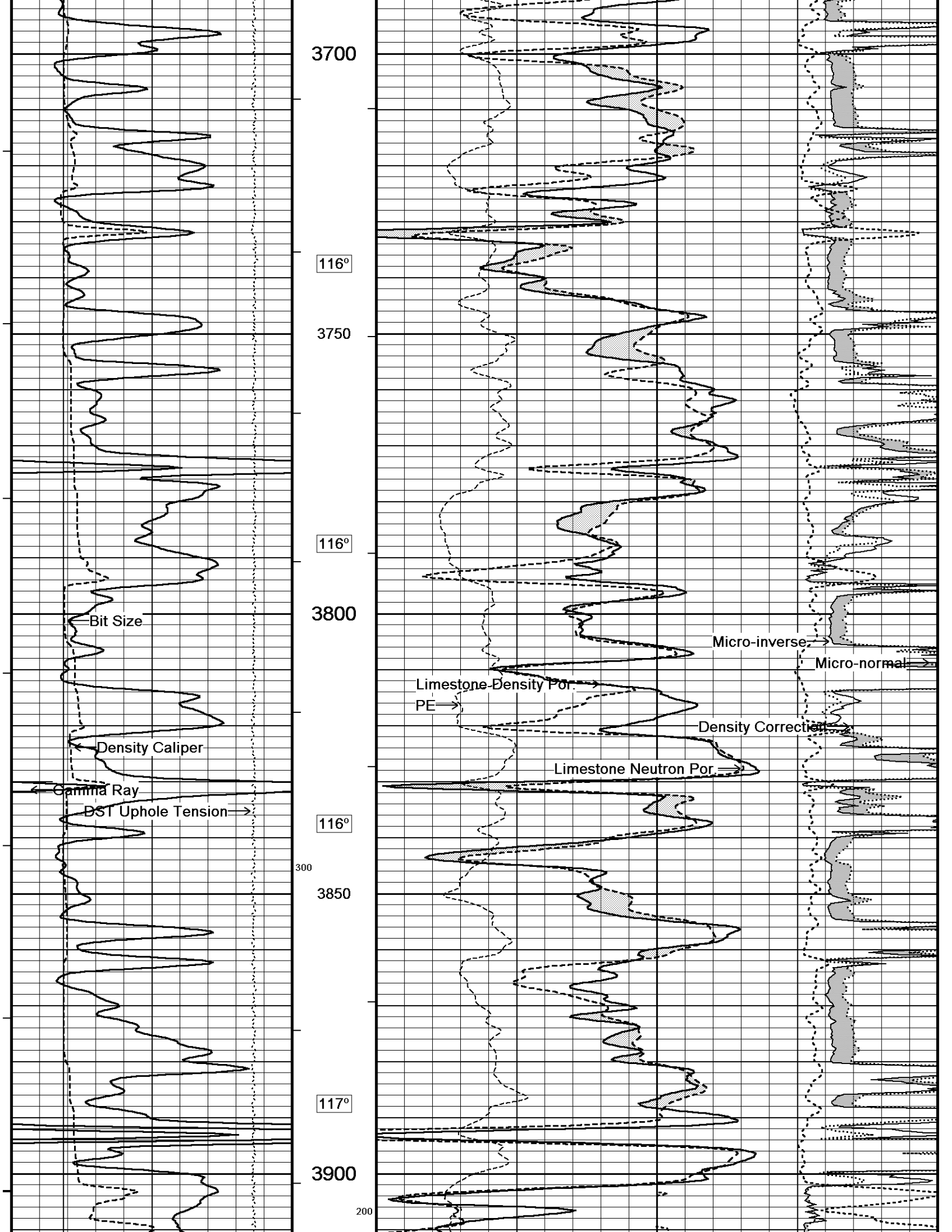
Plotted on 29-JUL-2012 12:08

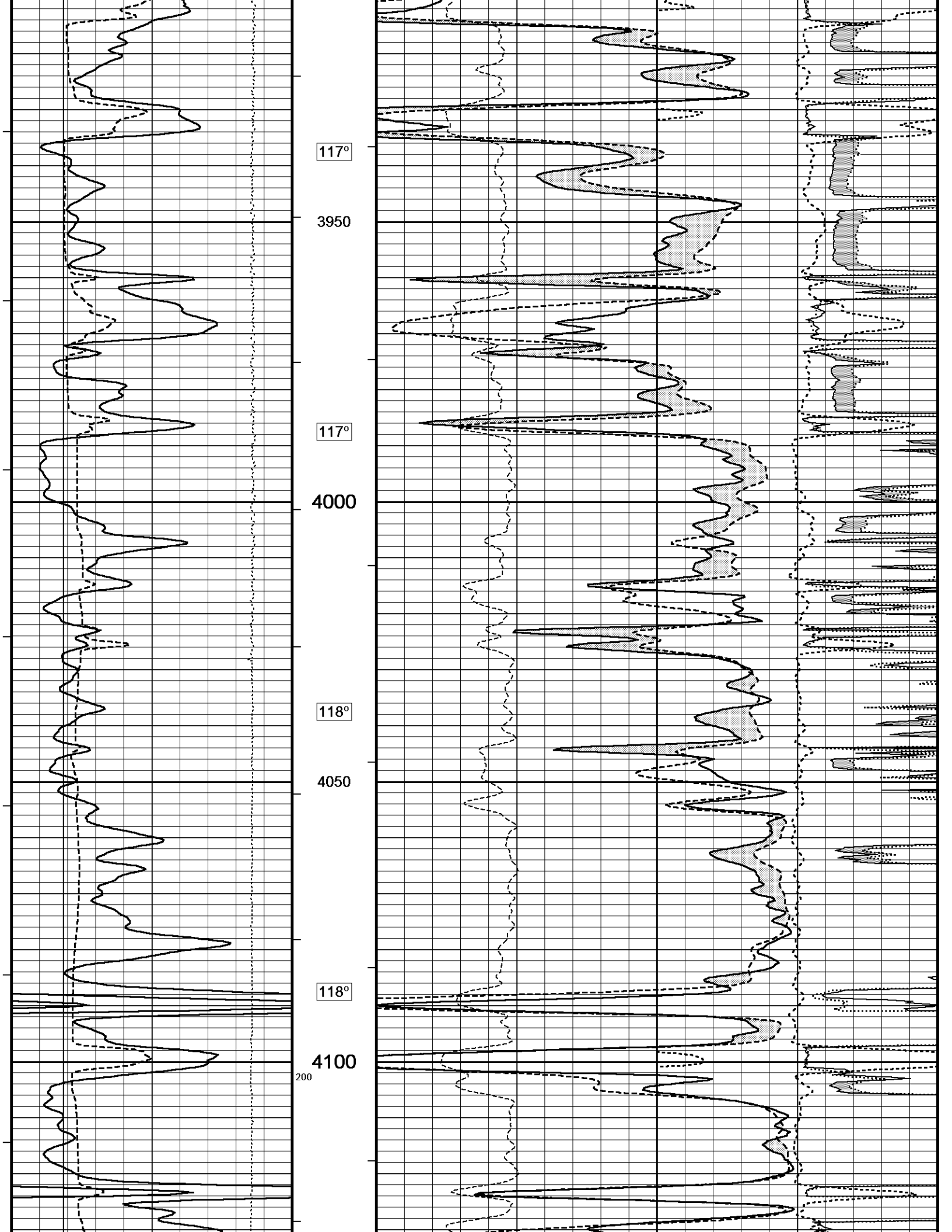
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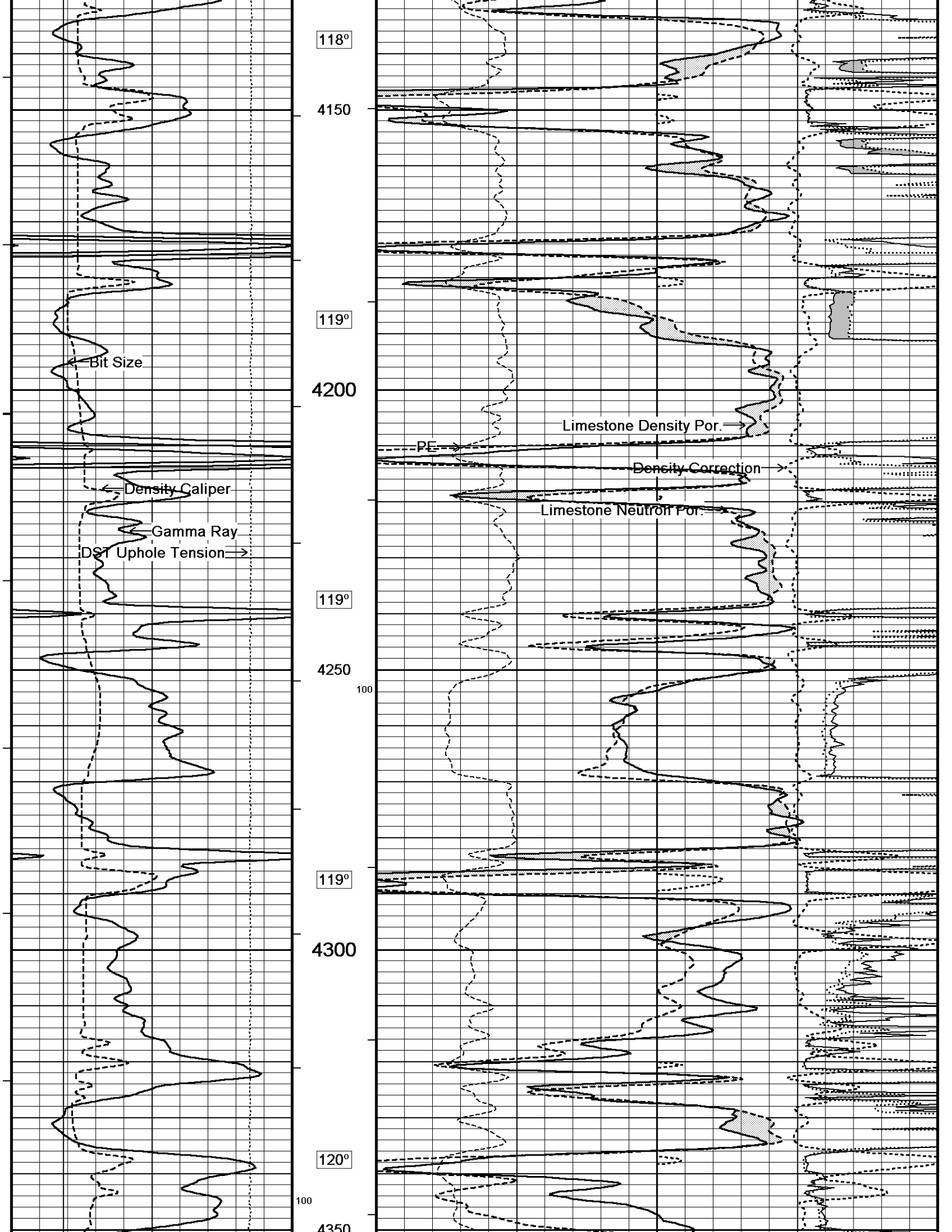
Recorded on 29-JUL-2012 09:36

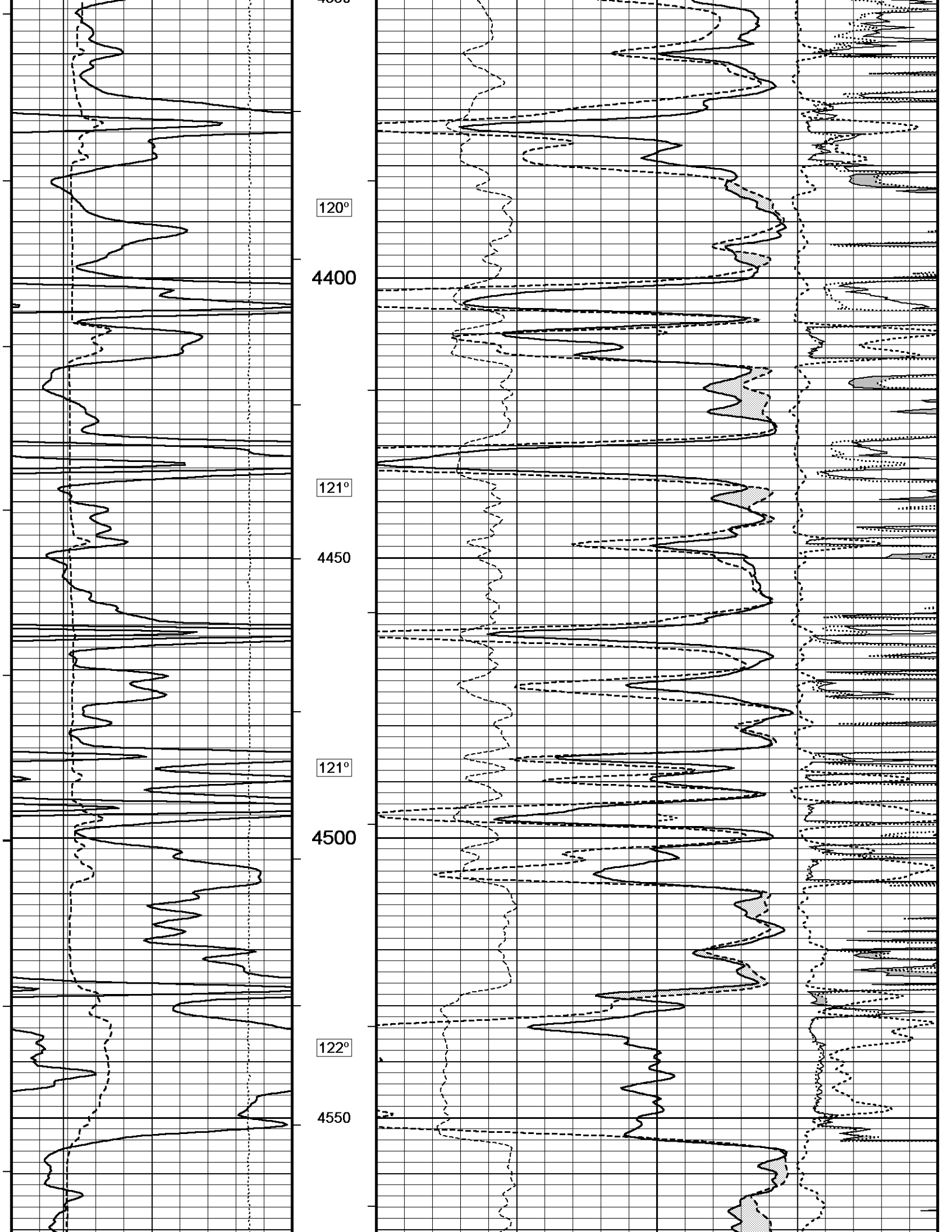
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

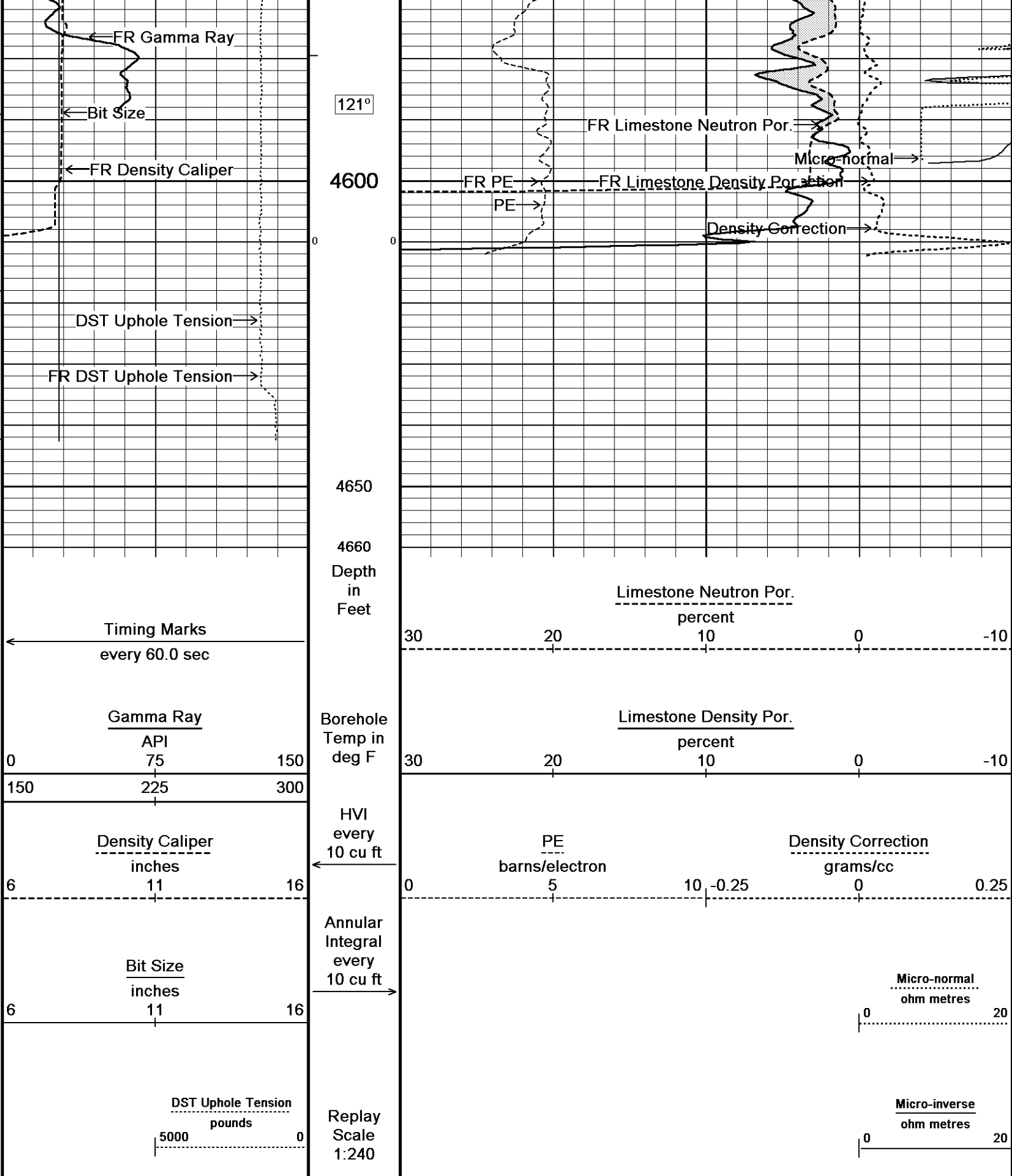








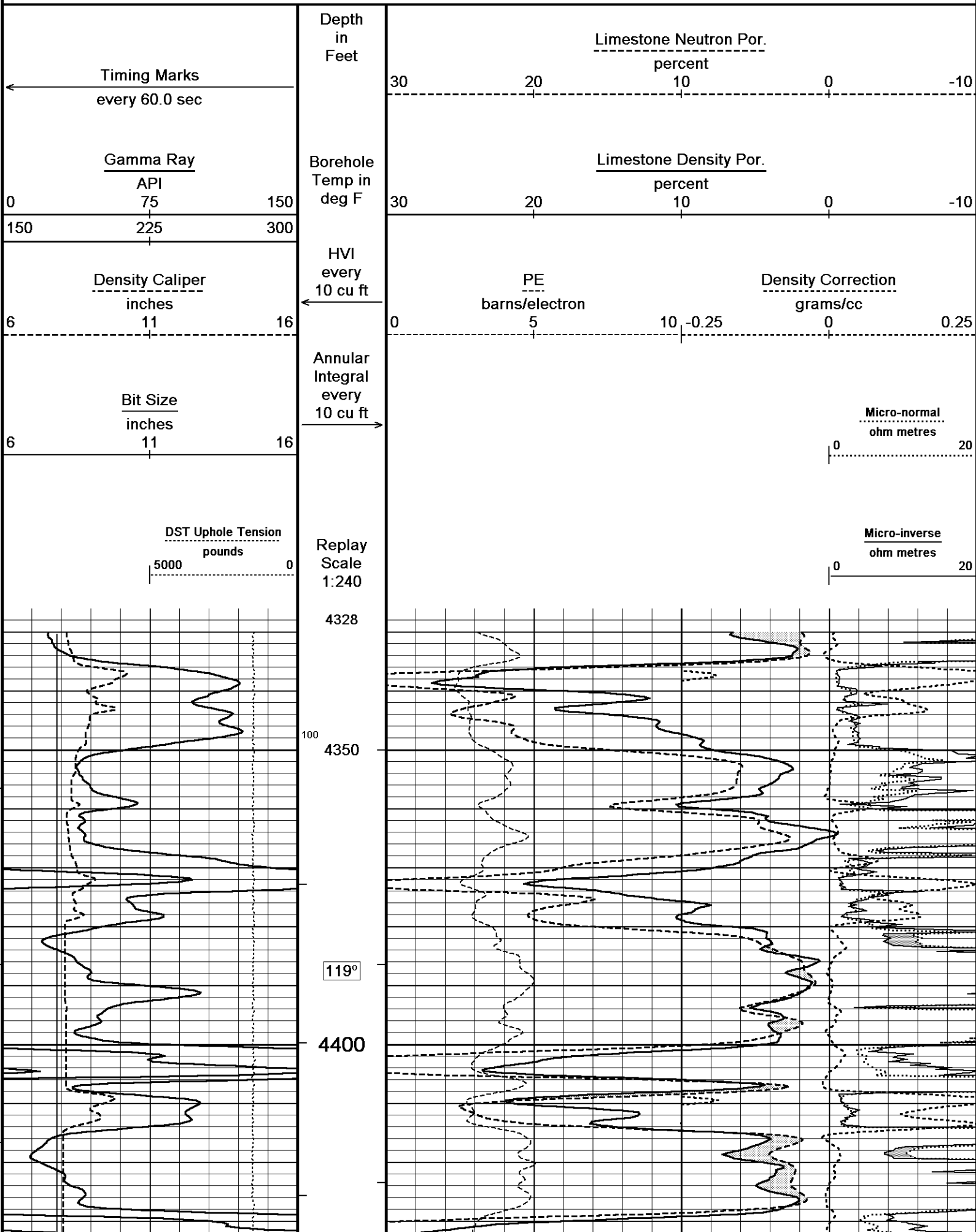


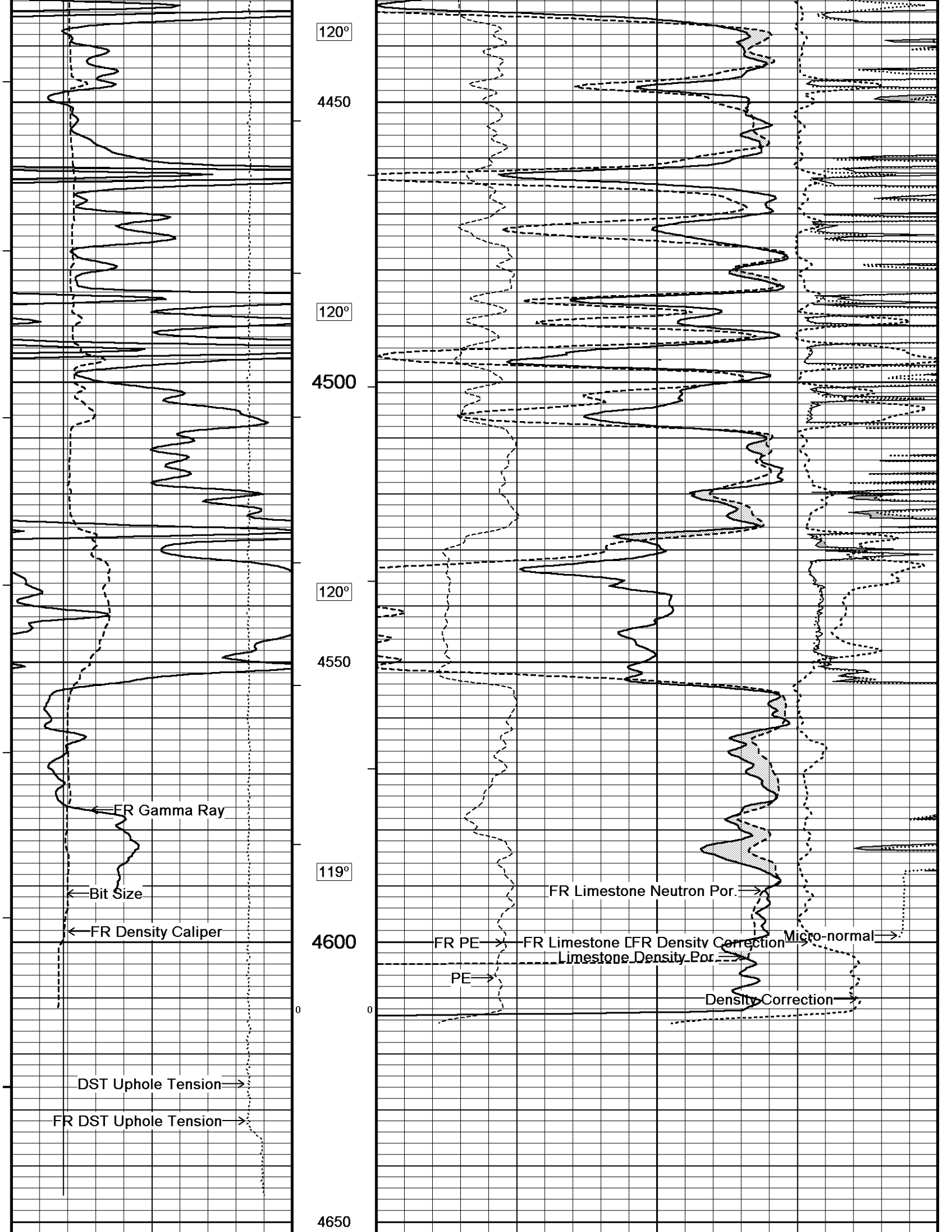


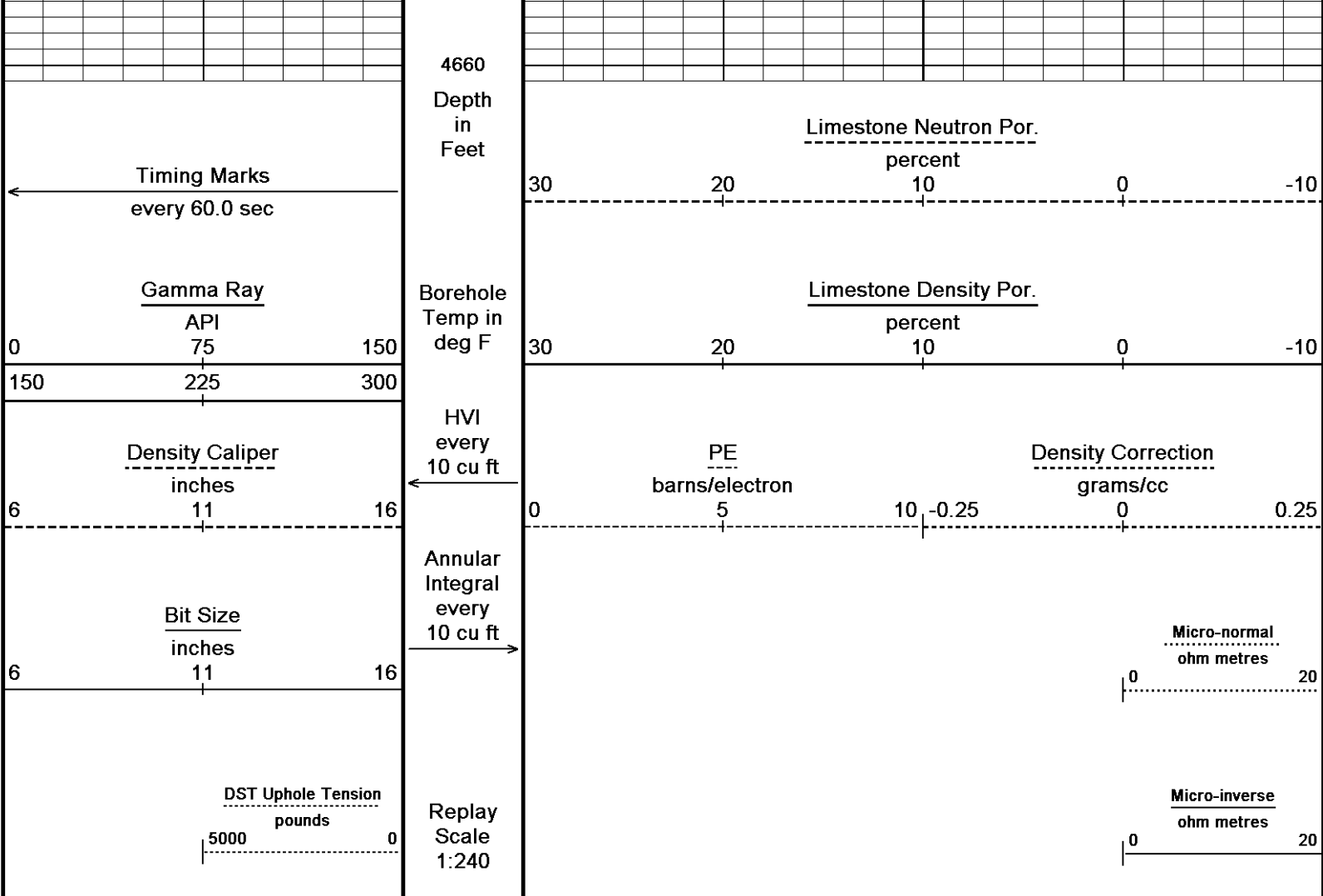
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 29-JUL-2012 12:08
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Zerr Tru...Shakespeare Zerr Trust #3-23_002.dta
 Recorded on 29-JUL-2012 09:36
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

5 INCH MAIN

REPEAT SECTION





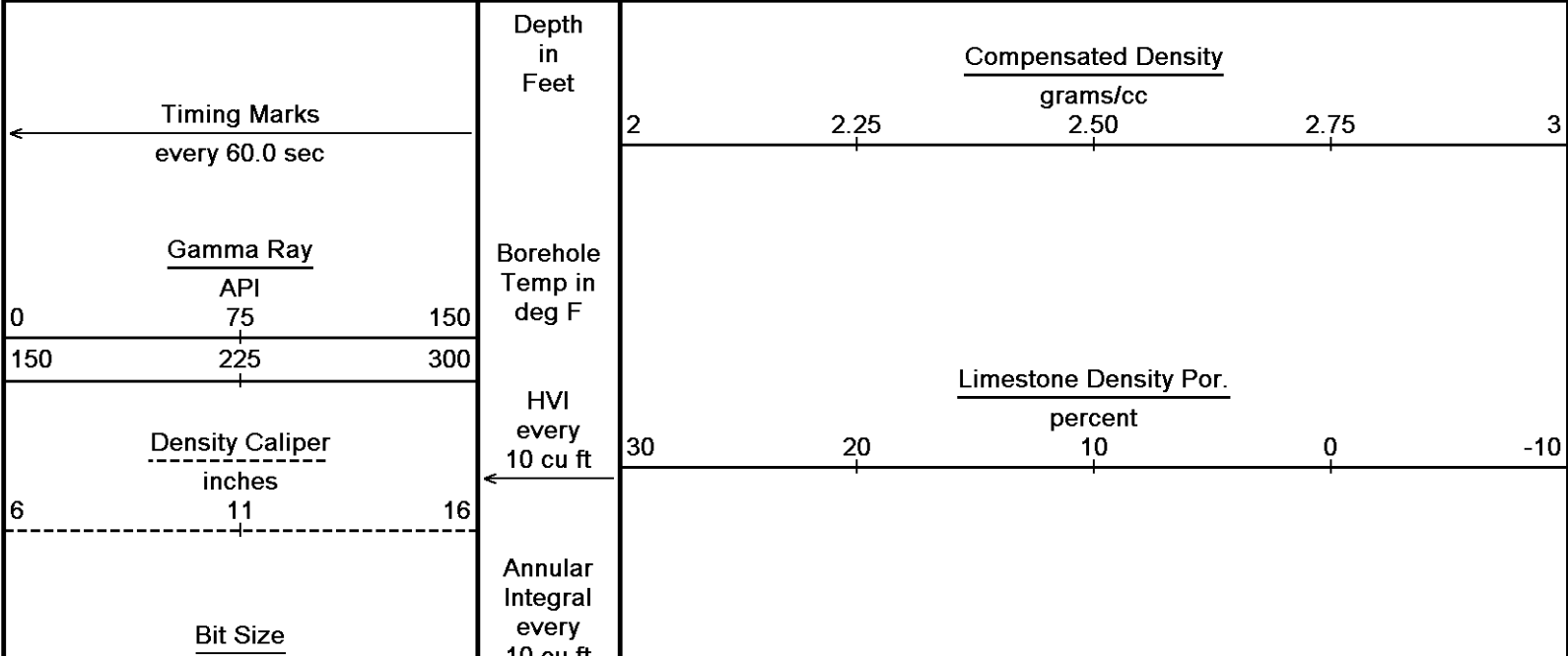


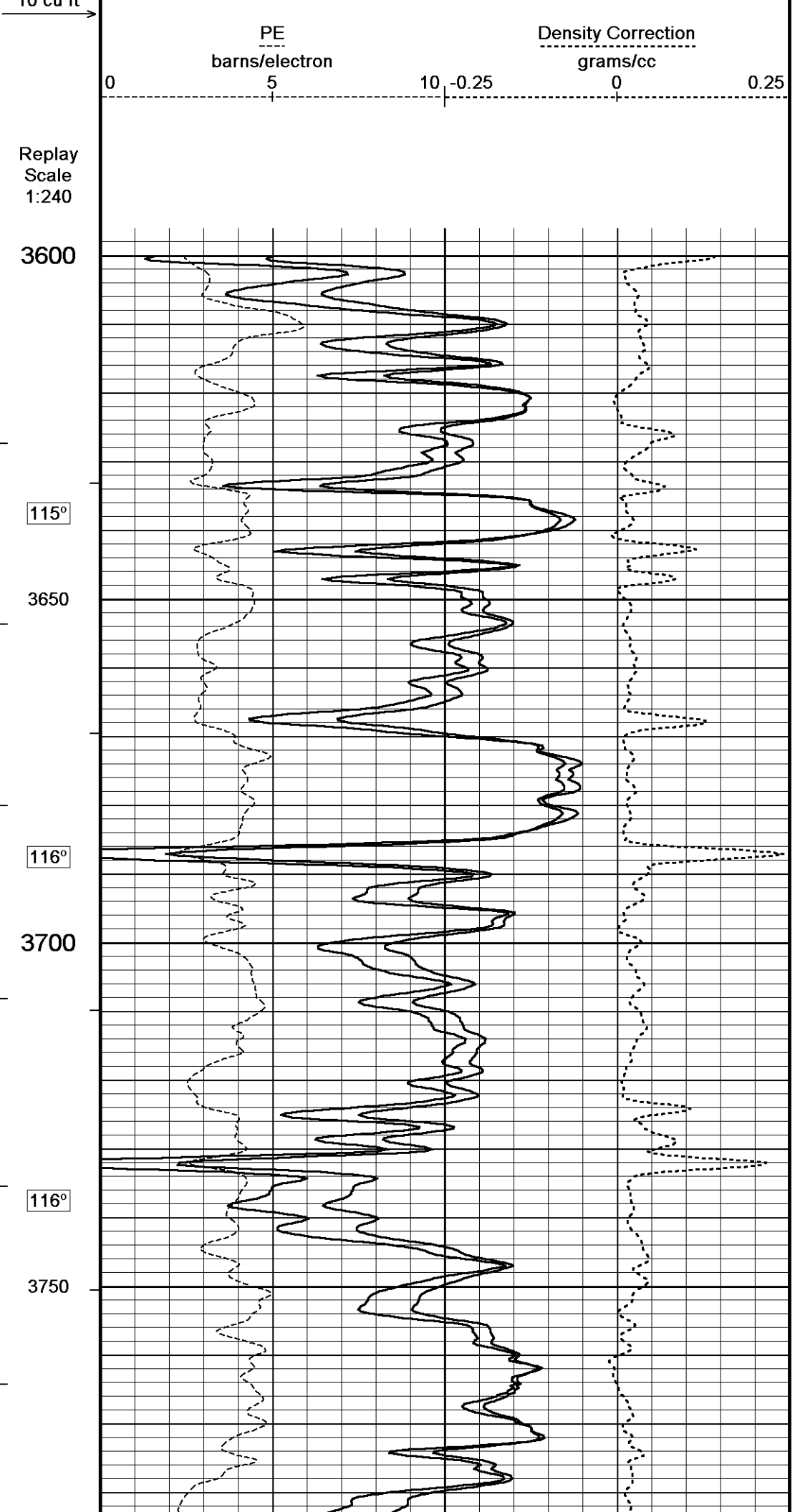
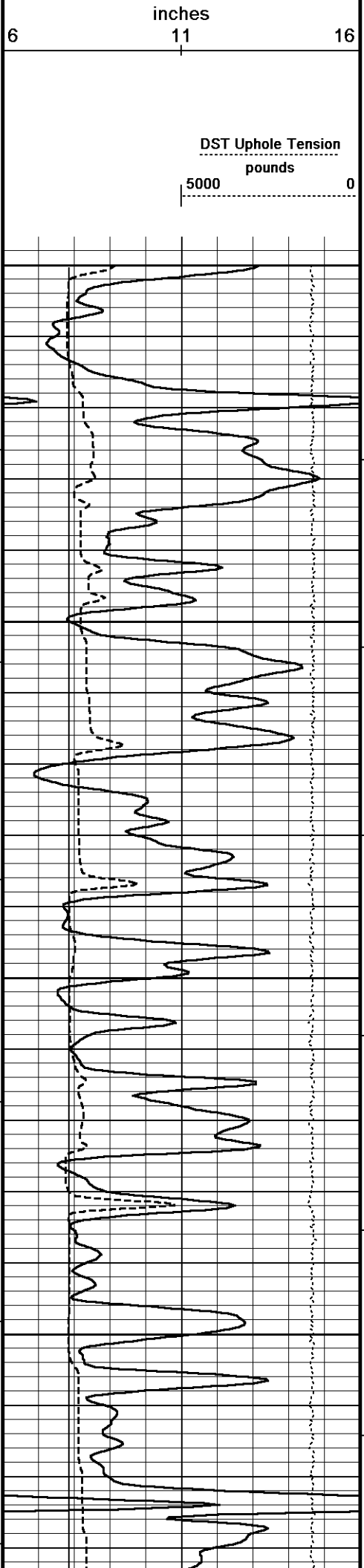
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 29-JUL-2012 12:08
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 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

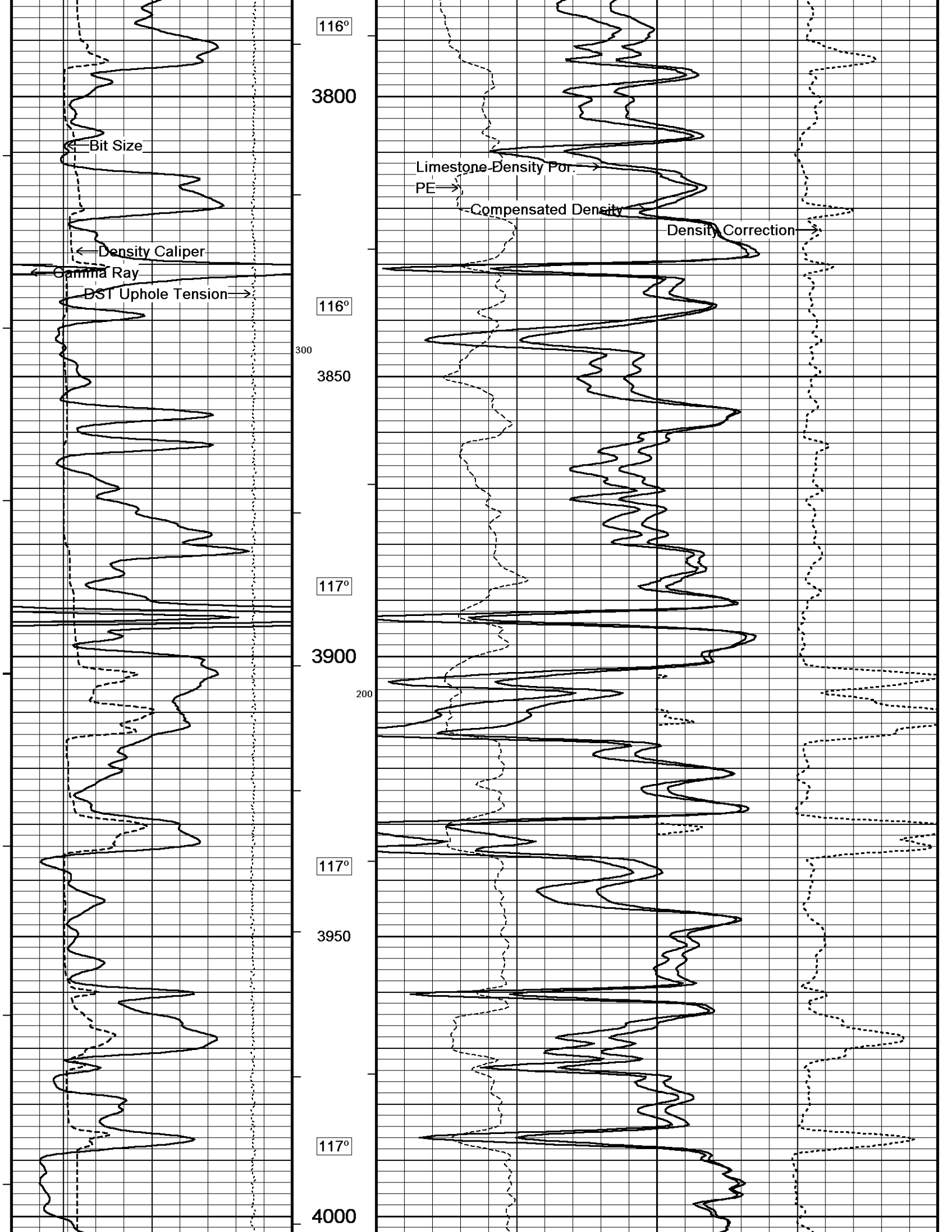
↑ REPEAT SECTION ↑

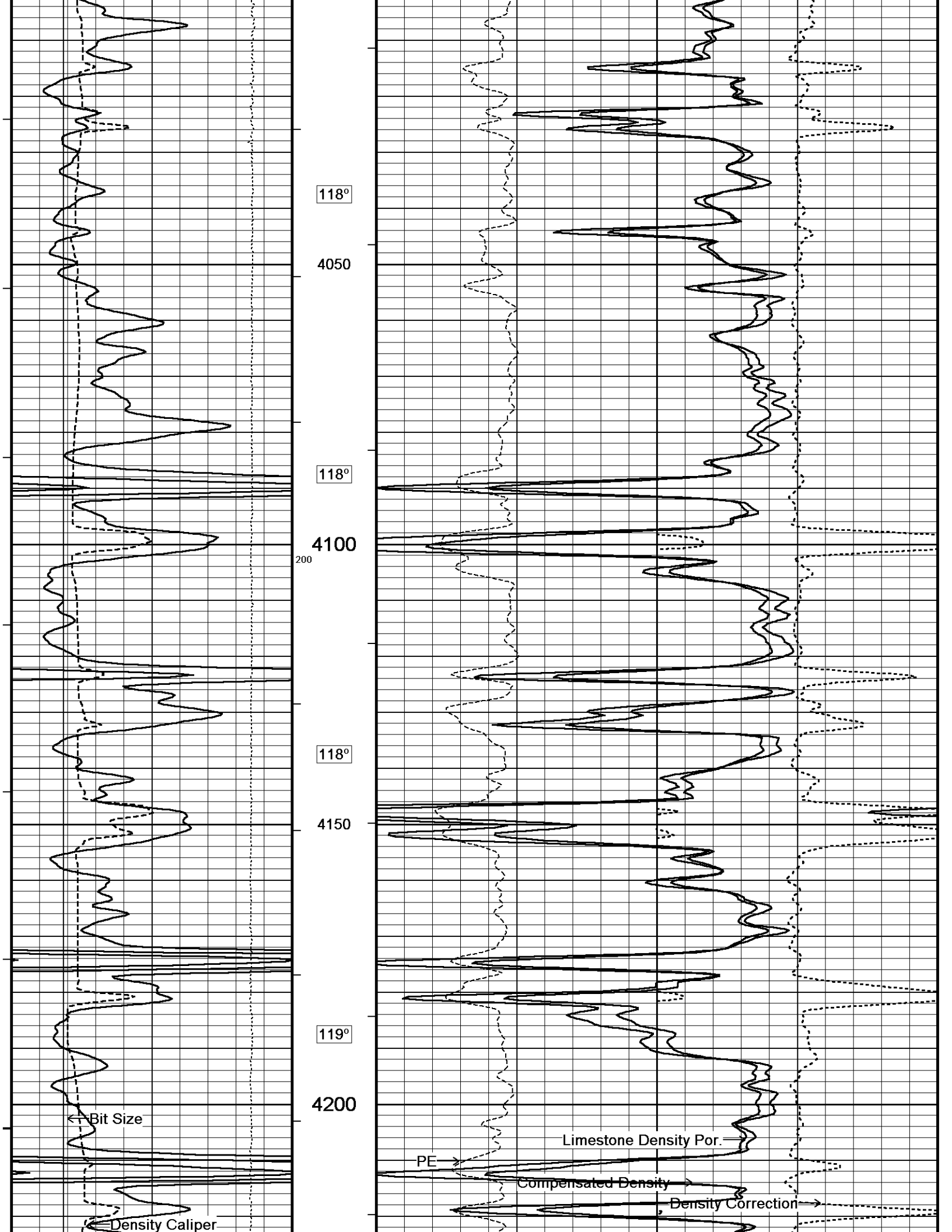
↓ 5 INCH MAIN ↓

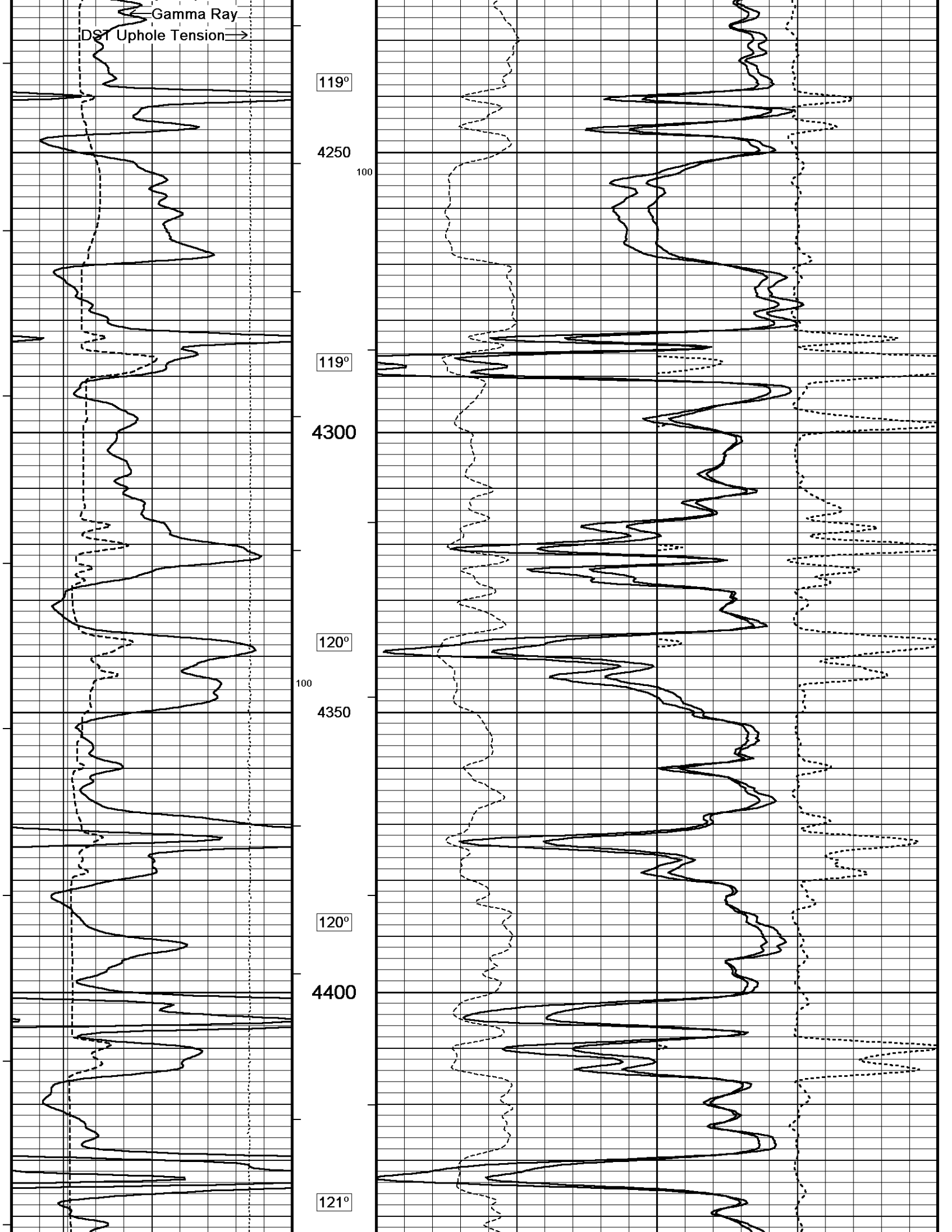
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 29-JUL-2012 12:08
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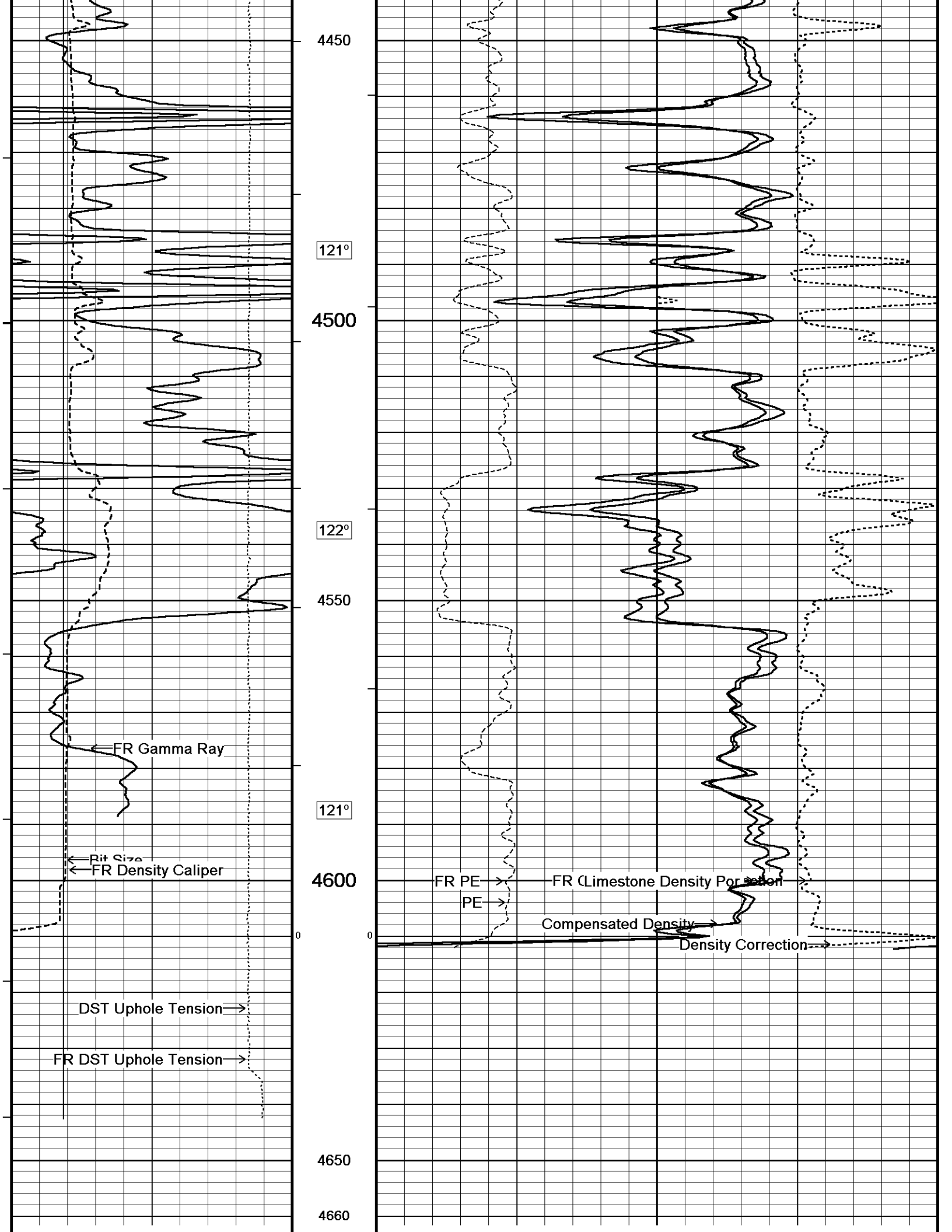


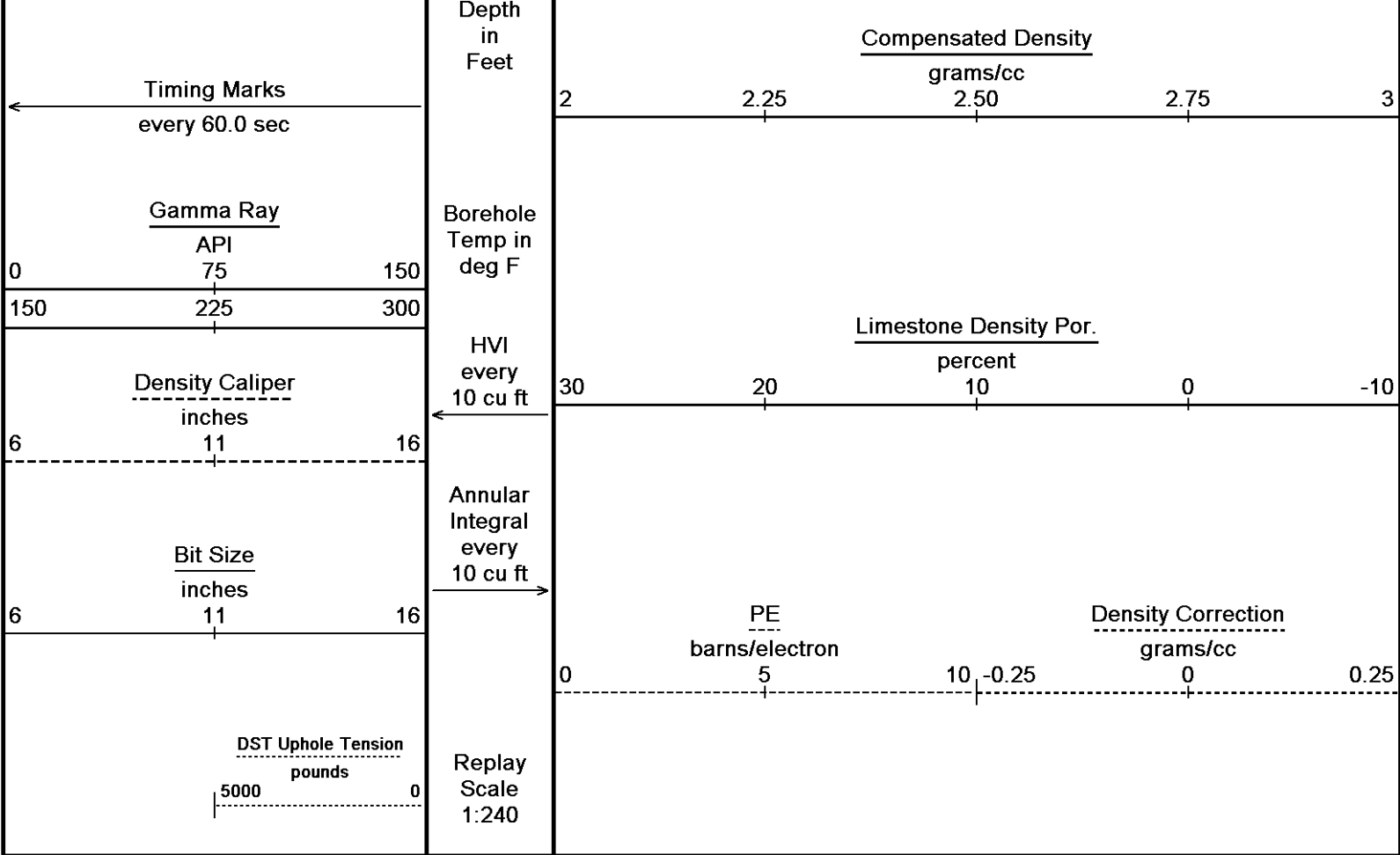










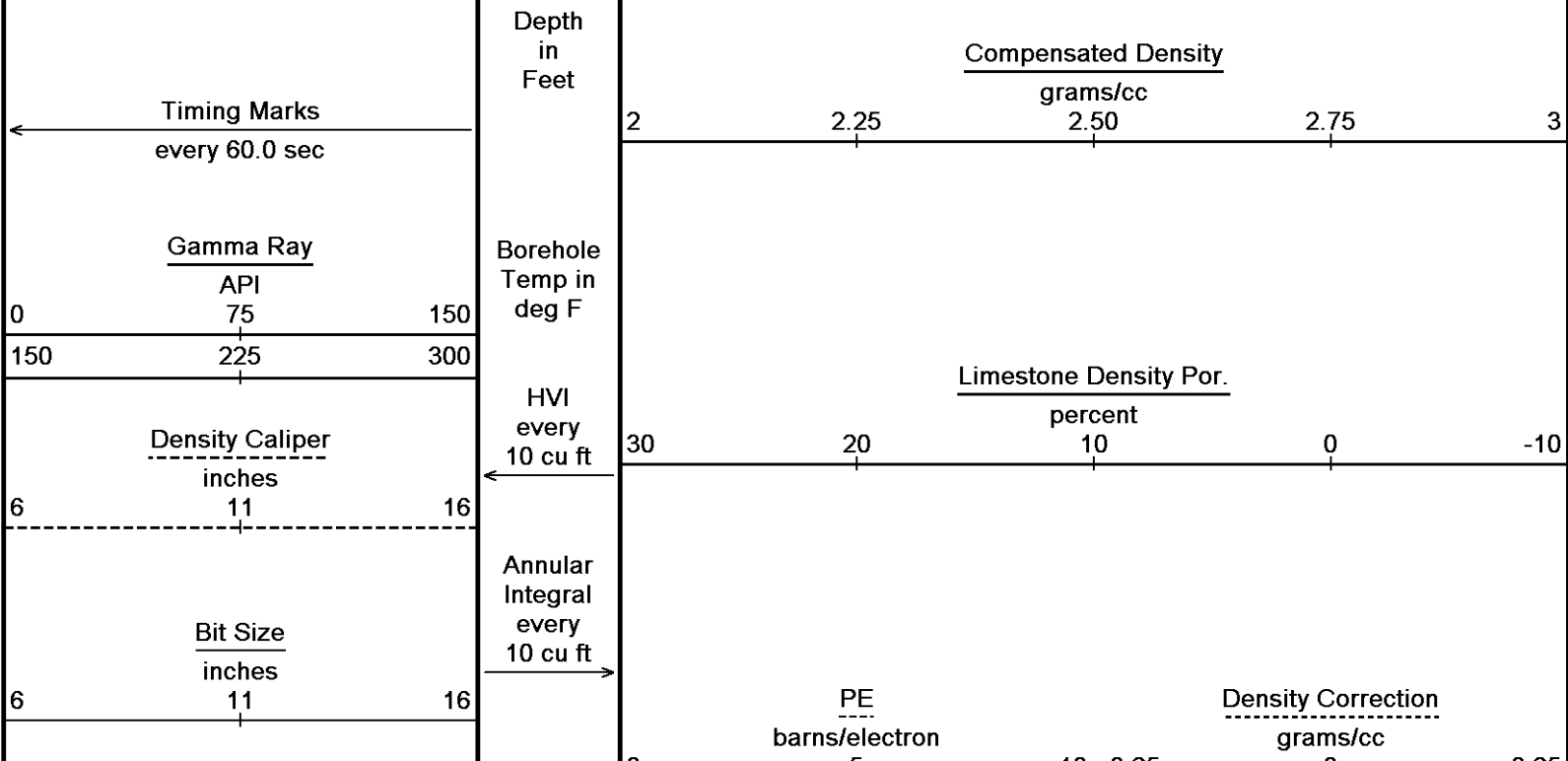


Depth Based Data - Maximum Sampling Increment 10.0cm
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 Recorded on 29-JUL-2012 09:36
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

↑ **5 INCH MAIN** ↑

↓ **REPEAT SECTION** ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 29-JUL-2012 12:08
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Zerr Tru...\Shakespeare Zerr Trust #3-23_001.dta
 Recorded on 29-JUL-2012 09:09
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



DST Uphole Tension
pounds

5000 0

Replay
Scale
1:240

4328

100

4350

119°

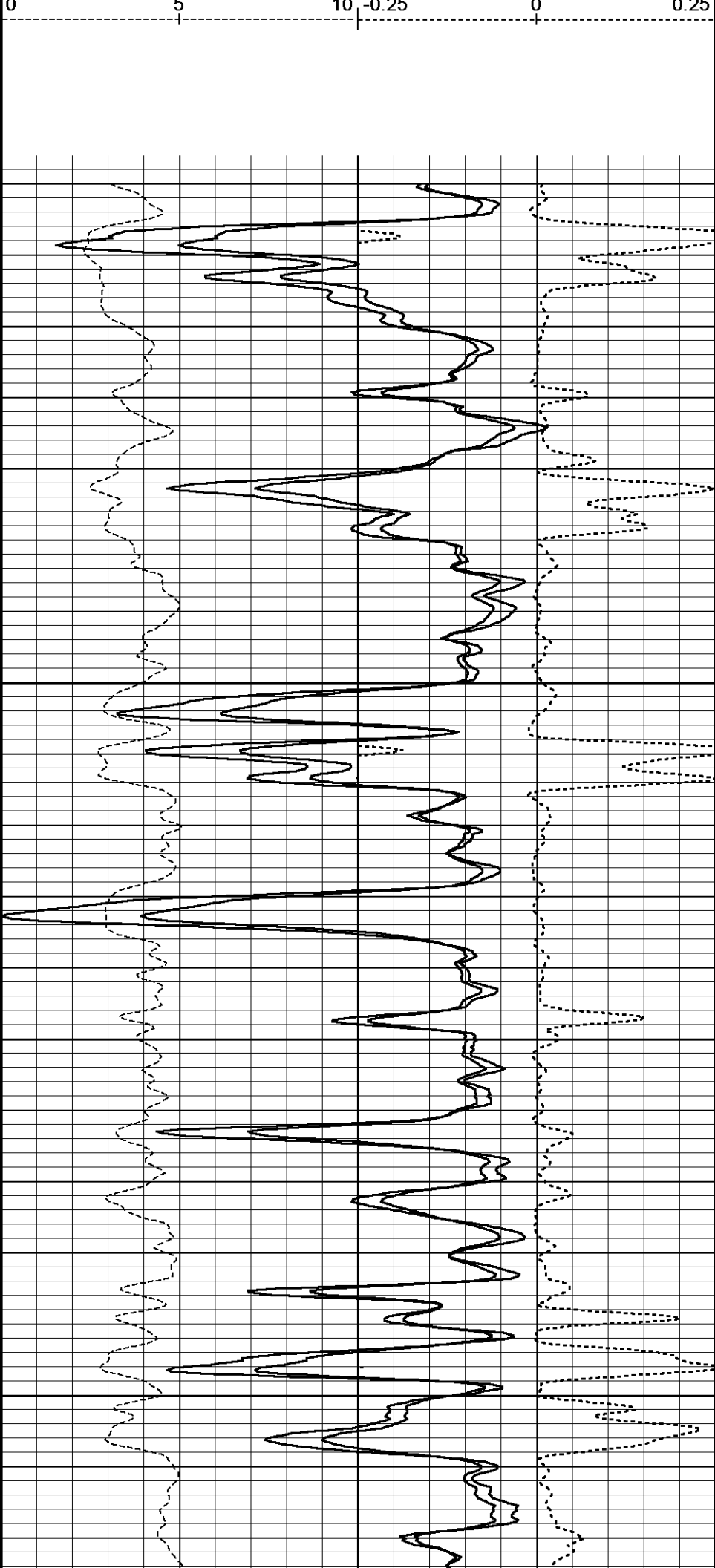
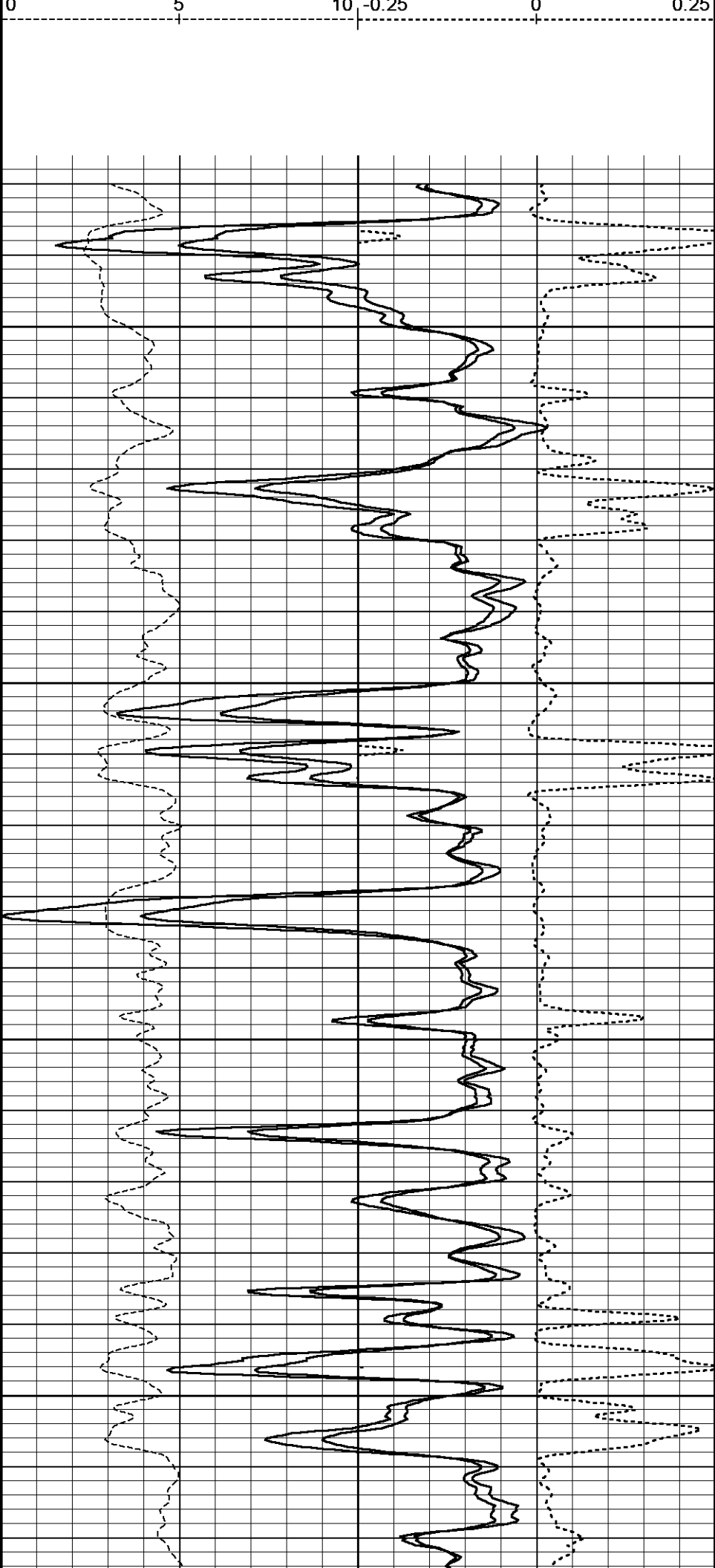
4400

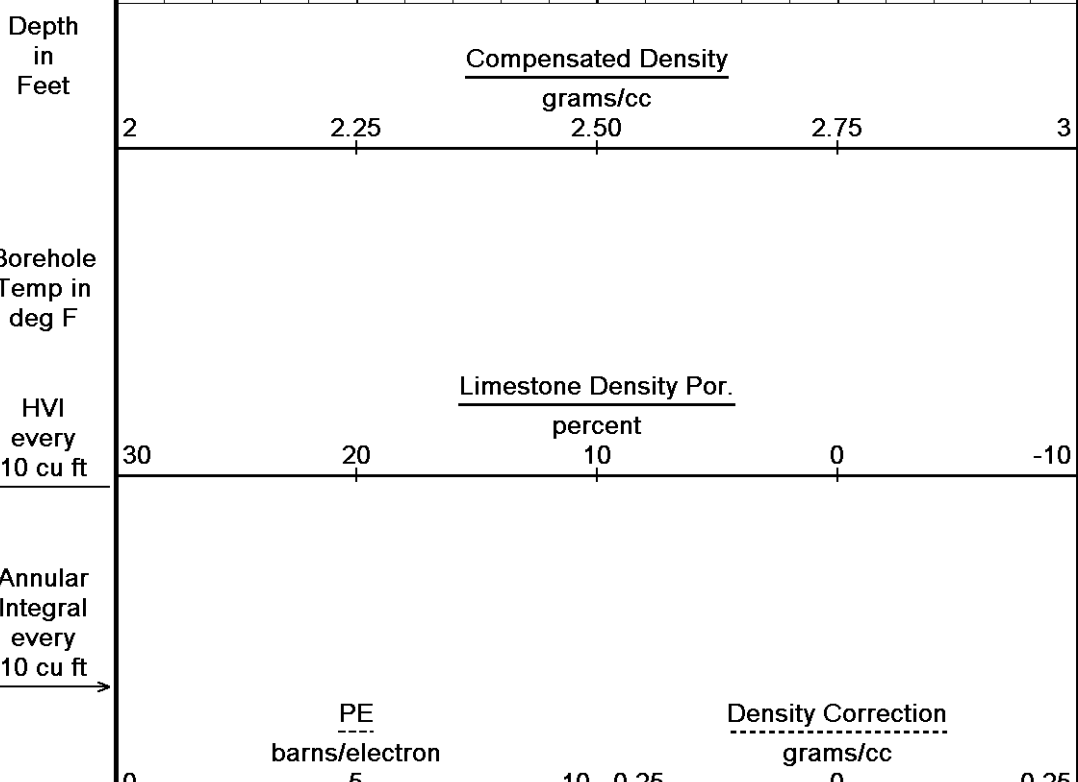
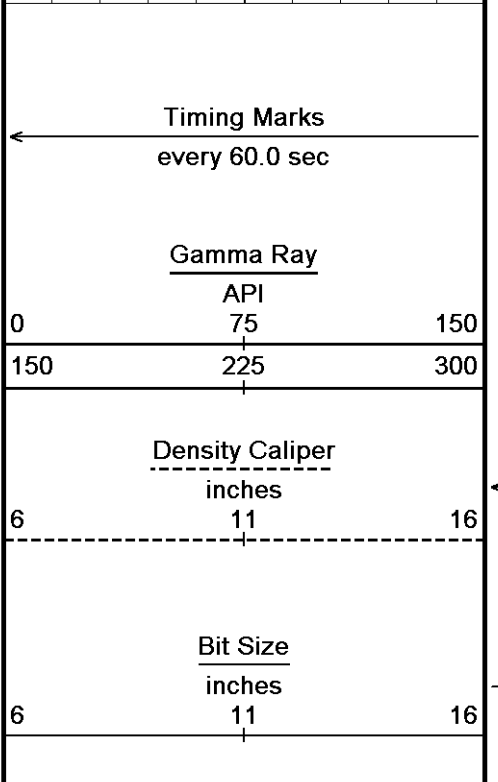
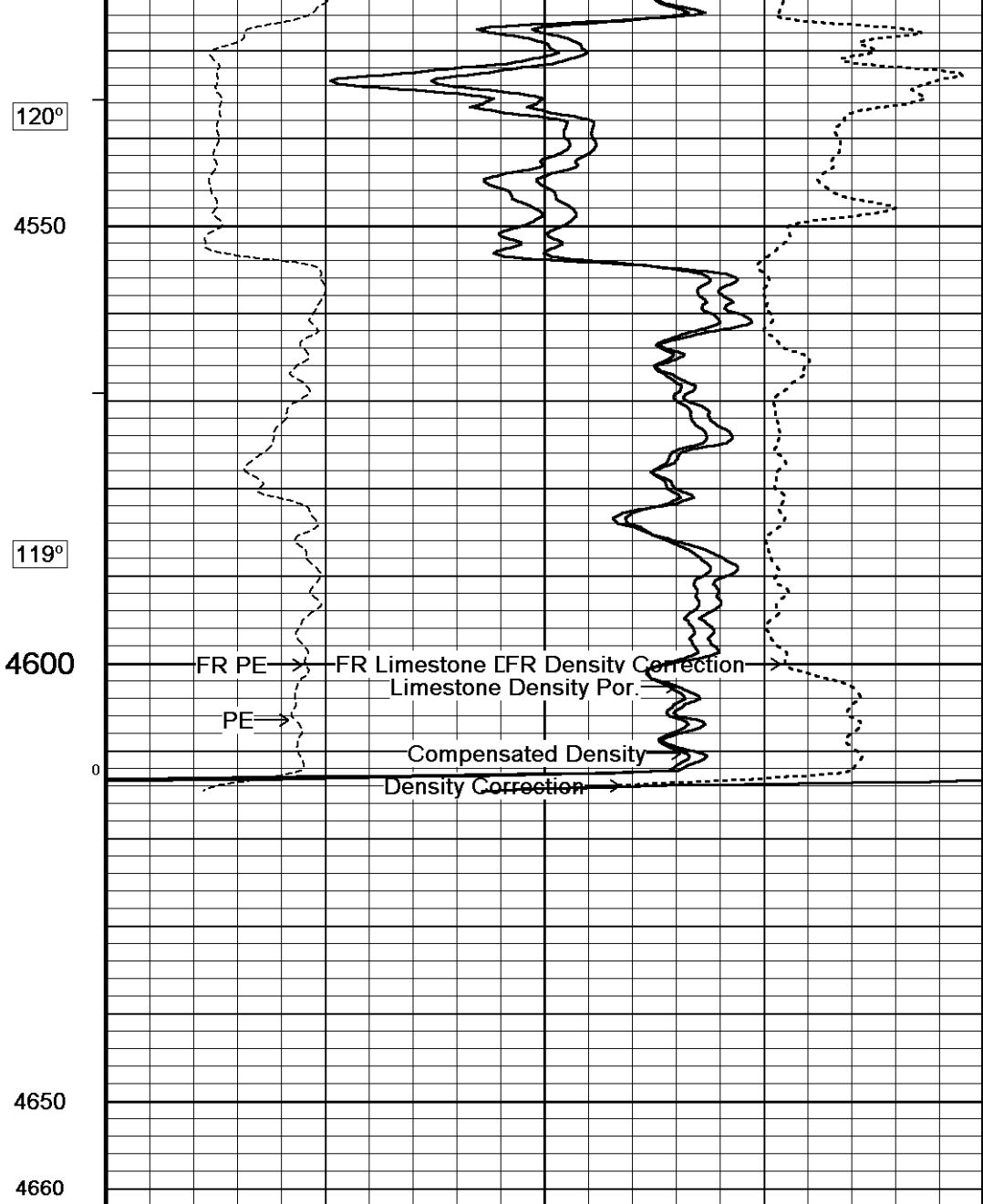
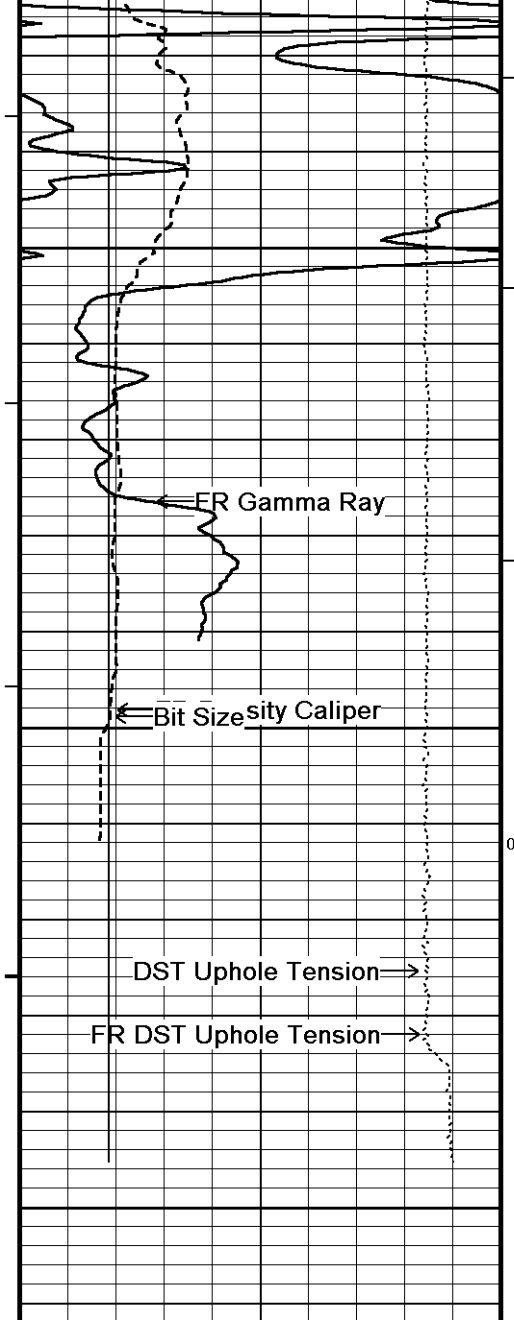
120°

4450

120°

4500





Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 29-JUL-2012 12:08

Filename: C:\Minimus 13.02.6600\Data\Shakespeare Zerr Tru...\Shakespeare Zerr Trust #3-23_001.dta

Recorded on 29-JUL-2012 09:09

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Shakespeare Zerr Trust #3-23\Shakespeare Zerr Trust #3-23_001.dta

General Constants All 000

Last Edited on 29-JUL-2012,07:18

General Parameters

Mud Resistivity	0.580	ohm-metres
Mud Resistivity Temperature	93.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	Density 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

Gamma Calibration MCG-C 84

Field Calibration on 29-JUL-2012 02:56

	Measured	Calibrated (API)
Background	71	48
Calibrator (Gross)	1147	773
Calibrator (Net)	1075	725

Gamma Constants MCG-C 84

Last Edited on 29-JUL-2012,07:13

Gamma Calibrator Number	GR38	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-C 84

Field Calibration on 24-JUL-2012,09:07

	Measured	Calibrated (mV)
Reference 1	105.6	101.0
Reference 2	-96.1	-101.0

High Resolution Temperature Calibration MCG-C 84

Field Calibration on 23-JUL-2012,09:56

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-C 84

Last Edited on 23-JUL-2012,09:56

Pre-filter Length	11
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Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:59

Field Check on 26-JUL-2012 13:26

Base Calibration	Measured	Calibrated (ohm-m)
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Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	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 4

Last Edited on 29-JUL-2012,07:14

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	

Caliper Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:53

Field Calibration on 26-JUL-2012 13:29

Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	15504	5.98	
2	18771	7.97	
3	22124	9.86	
4	25894	11.92	
5	0	0.00	
6	N/A	N/A	

Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.96	5.98	

Neutron Calibration MDN-A.B 65

Base Calibration on 26-JUL-2012 11:25

Field Check on 29-JUL-2012 03:01

Base Calibration					
	Measured		Calibrated (cps)		Ratio
	Near	Far	Near	Far	
	3179	99	3714	110	
	32.263		33.764		

Field Calibrator at Base			
	Calibrated (cps)		Ratio
	1621	2347	0.691

Field Check			
	Calibrated (cps)		Ratio
	1622	2345	0.692

Neutron Constants MDN-A.B 65

Last Edited on 29-JUL-2012,07:14

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	Constant Value		
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	Constant Value		
Formation Fluid Salinity	0.00	kppm	
Barite Mud Correction	Not Applied		

FE Calibration MFE-A.A 55

Base Calibration on 24-JUL-2012 09:23

Field Check on 29-JUL-2012 02:44

Base Calibration			
Reference 1	Measured	Calibrated (ohm-m)	
	0.0	0.0	

Reference 2	968.0	126.8
Base Check		276.7
Field Check		276.7

FE Constants MFE-A.A 55

Last Edited on 29-JUL-2012,07:09

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 27-JUL-2012,20:15

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	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	0.00	micro-sec
MX3FT	1500.00	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	0.0000	0.0000
Free Pipe	0.0000	0.0000
Peak Amplitude Source		0

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	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)	Depth (ft)	
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	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Full Waveform Parameters

Use 3' Waveform to derive TR	No
Use 4' Waveform to derive TR	No
Use 5' Waveform to derive TR	No
Use 6' Waveform to derive TR	No
3' Waveform Discriminator Level	0.30 mV
4' Waveform Discriminator Level	0.30 mV
5' Waveform Discriminator Level	0.15 mV
6' Waveform Discriminator Level	0.15 mV
3' Waveform Filter	0
4' Waveform Filter	0
5' Waveform Filter	0
6' Waveform Filter	0

Semblance Level	0.50
Semblance Window Width	120.00 micro-sec

Compliance Window Width 120.00 micro-sec
 Sonic 1 Despiker 100.00 micro-sec/ft
 Sonic 2 Despiker 100.00 micro-sec/ft

Induction Calibration MAI-A.A 45

Base Calibration on 26-JUL-2012,09:22
 Field Check on 29-JUL-2012 02:43

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature 78.4 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	20.1	3854.1
2	0.0	0.0	32.2	3630.6
3	0.0	0.0	28.9	3050.2
4	0.0	0.0	18.5	2079.4
Deep	0.0	0.0	16.3	1911.4
Medium	0.0	0.0	42.7	4061.6
Shallow	0.0	0.0	50.4	5485.5

Array Temperature 0.0 86.9 Deg F

Induction Constants MAI-A.A 45

Last Edited on 29-JUL-2012,07:09

Induction Model RtAP-WBM
 Caliper for Borehole Corr. Density Caliper
 Hole Size for Borehole Correction N/A inches
 Tool Centred Yes
 Stand-off Type N/A
 Stand-off N/A inches
 Number of Fins on Stand-off N/A
 Stand-off Fin Angle N/A degrees
 Stand-off Fin Width N/A 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 45

Field Calibration on 26-JUL-2012,09:09

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Shakespeare Zerr Trust #3-23\Shakespeare Zerr Trust #3-23_001.dta

Compact Comms Gamma
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

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

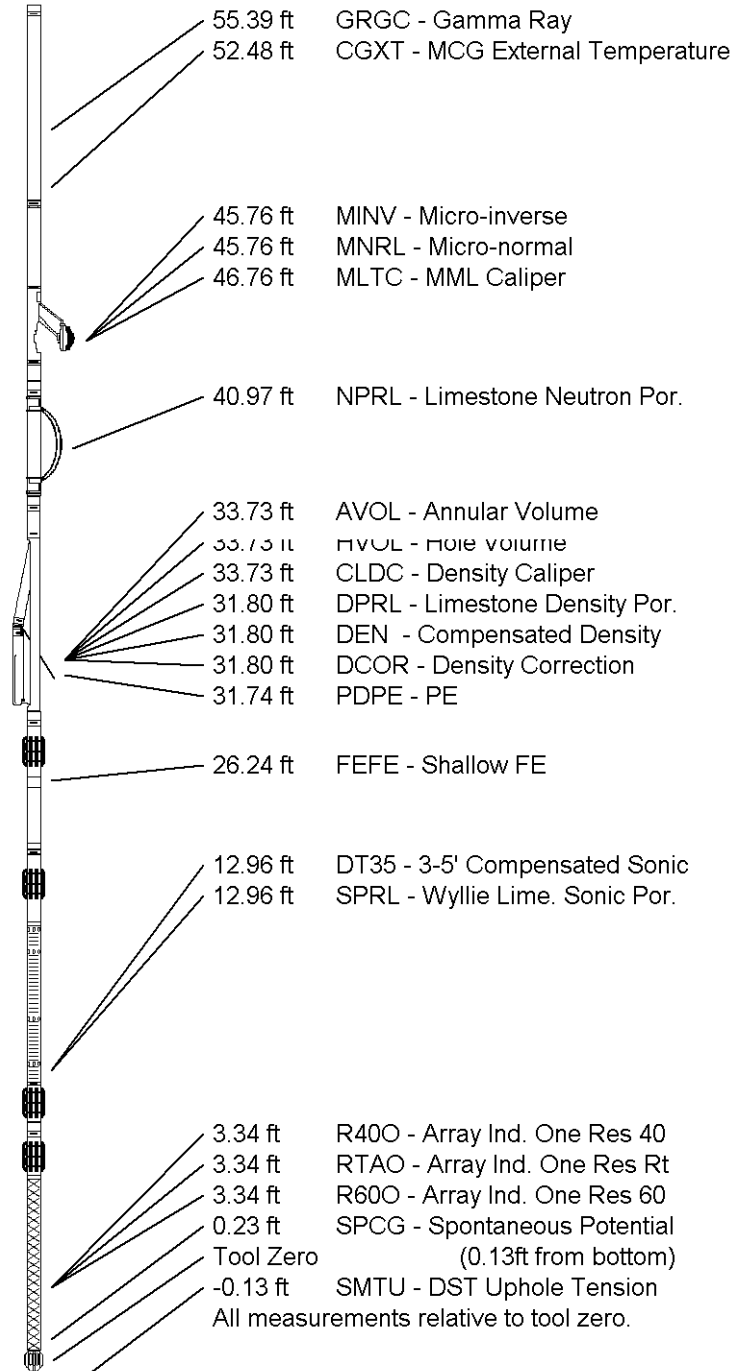
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focused 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 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 60.68 ft Weight: 456.4 lb



COMPANY	SHAKESPEARE OIL COMPANY, INC.
WELL	ZERR TRUST #3-23
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2874.00	feet	First Reading	4600.00	feet
Elevation Drill Floor	2872.00	feet	Depth Driller	4630.00	feet
Elevation Ground Level	2864.00	feet	Depth Logger	4632.00	feet



COMPACT PHOTO DENSITY

Weatherford[®]

COMPENSATED NEUTRON
MICRORESISTIVITY LOG