



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY SHAKESPEARE OIL CO., INC.
WELL PARSONS #2-27
FIELD WILDCAT
PROVINCE/COUNTY GOVE
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 2480' FNL & 1100' FWL

SEC 27 TWP 13S RGE 31W Other Services MAI/MFE MSS
API Number 15-063-22039
Permit Number

Permanent Datum GL, Elevation 2838 feet
Log Measured From KB Elevations: KB 2848.00
Drilling Measured From KB DF 2846.00
GL 2838.00

Date	28-SEP-2012
Run Number	ONE
Depth Driller	4630.00 feet
Depth Logger	4629.00 feet
First Reading	4597.00 feet
Last Reading	3629.00 feet
Casing Driller	225.00 feet
Casing Logger	222.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.40 lb/USg 49.00 CP
PH / Fluid Loss	10.50 6.40 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	0.74 @ 89.0 ohm-m
Rmf @ Measured Temp	0.59 @ 89.0 ohm-m
Rmc @ Measured Temp	0.89 @ 89.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.56 @ 119.0 ohm-m
Time Since Circulation	4 HOURS
Max Recorded Temp	119.00 deg F
Equipment Name	COMPACT
Equipment / Base	13057 LIB
Recorded By	ADAM SILL
Witnessed By	TIM PRIEST
S.O. # / JOB #	3538930 LB12-262

BOREHOLE RECORD			Last Edited: 28-SEP-2012 19:20	
Bit Size inches	Depth From feet	Depth To feet		
7.875	225.00	4630.00		
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	225.00	24.00

REMARKS

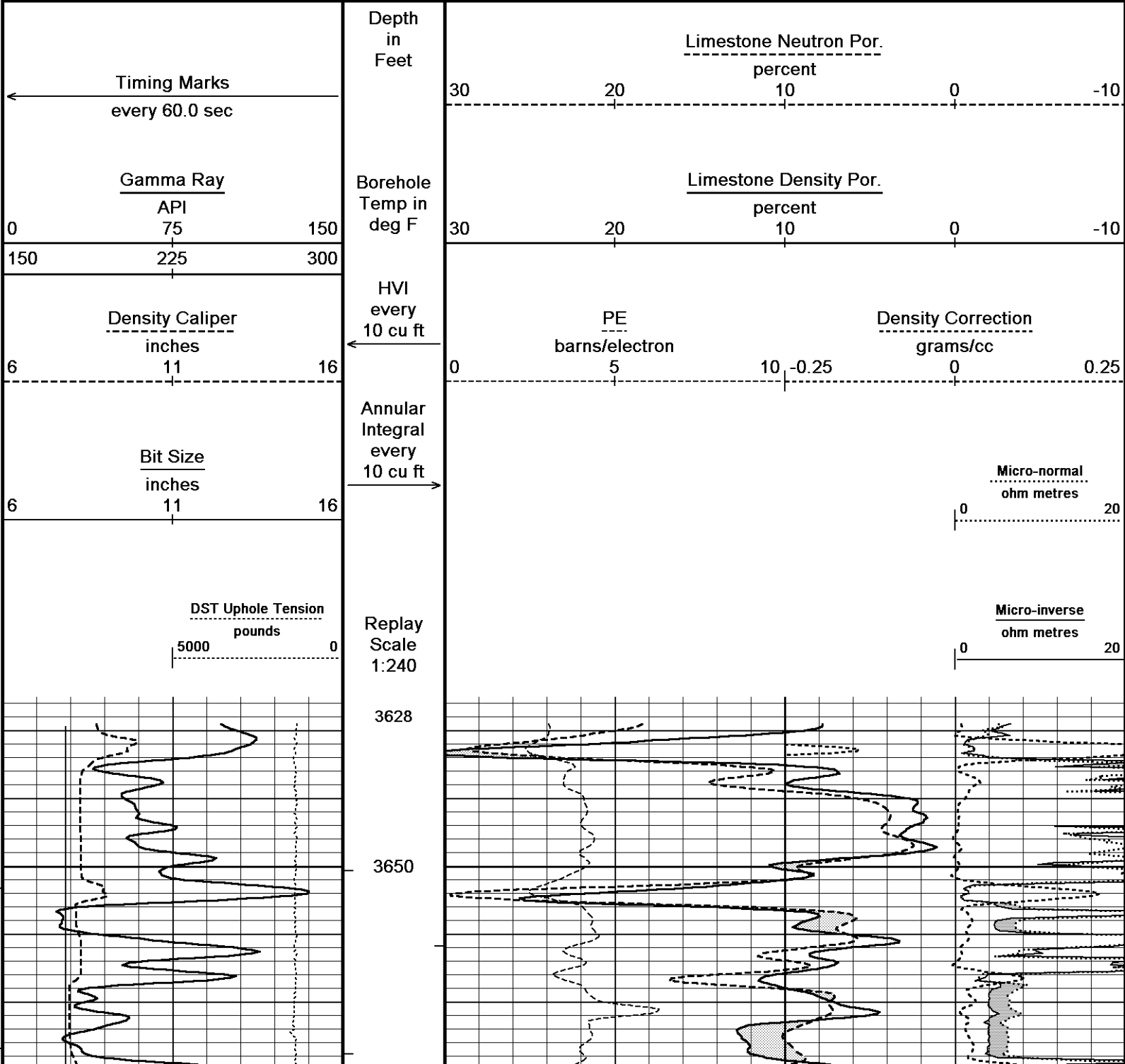
- SOFTWARE ISSUE: WLS 13.02.6600.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- 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: 1968 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3629 FEET: 237 CU. FT.

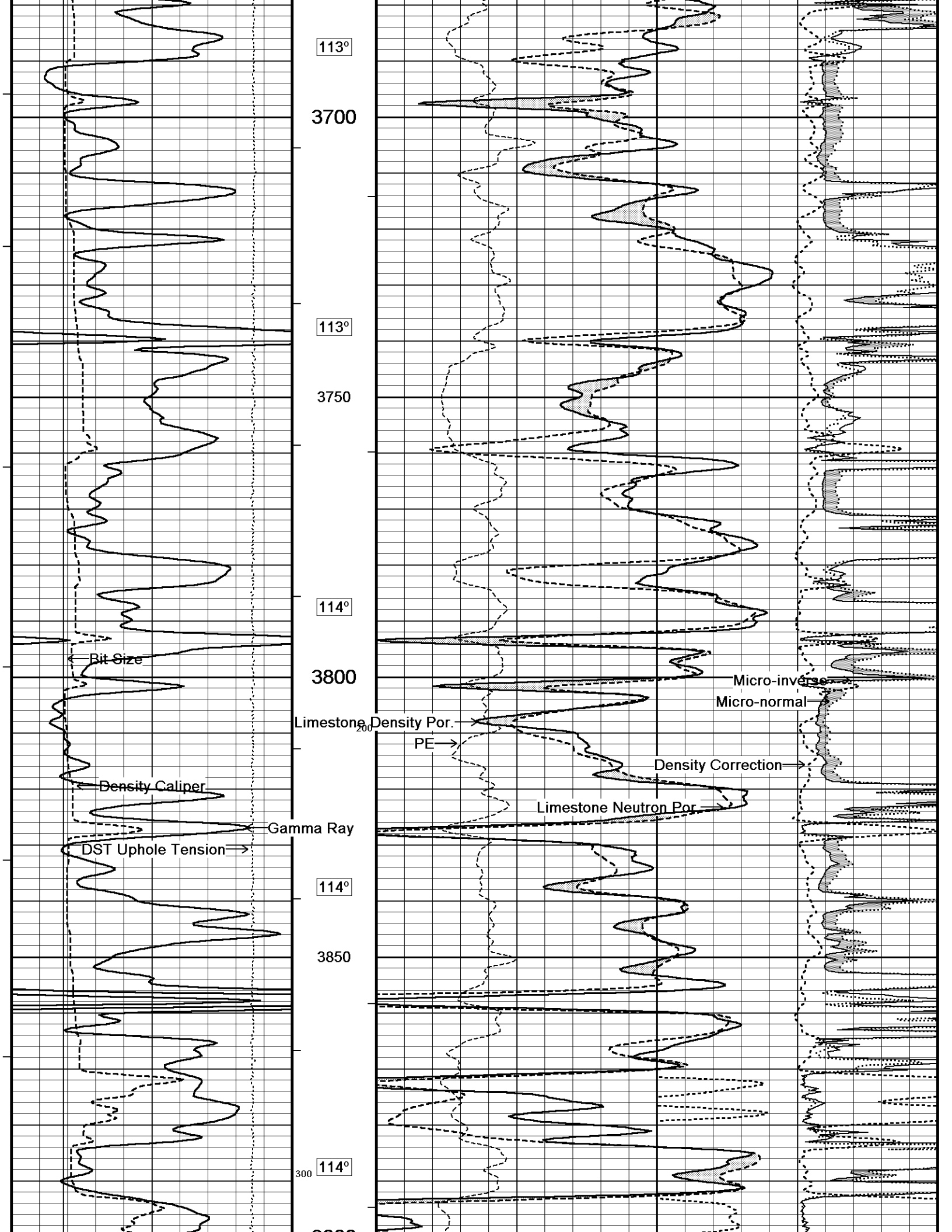
- SERVICE ORDER # 3538930.
 - RIG: H-D DRILLING #2.
 - ENGINEER: A. SILL.
 - OPERATOR(S): M. STEGMAN.

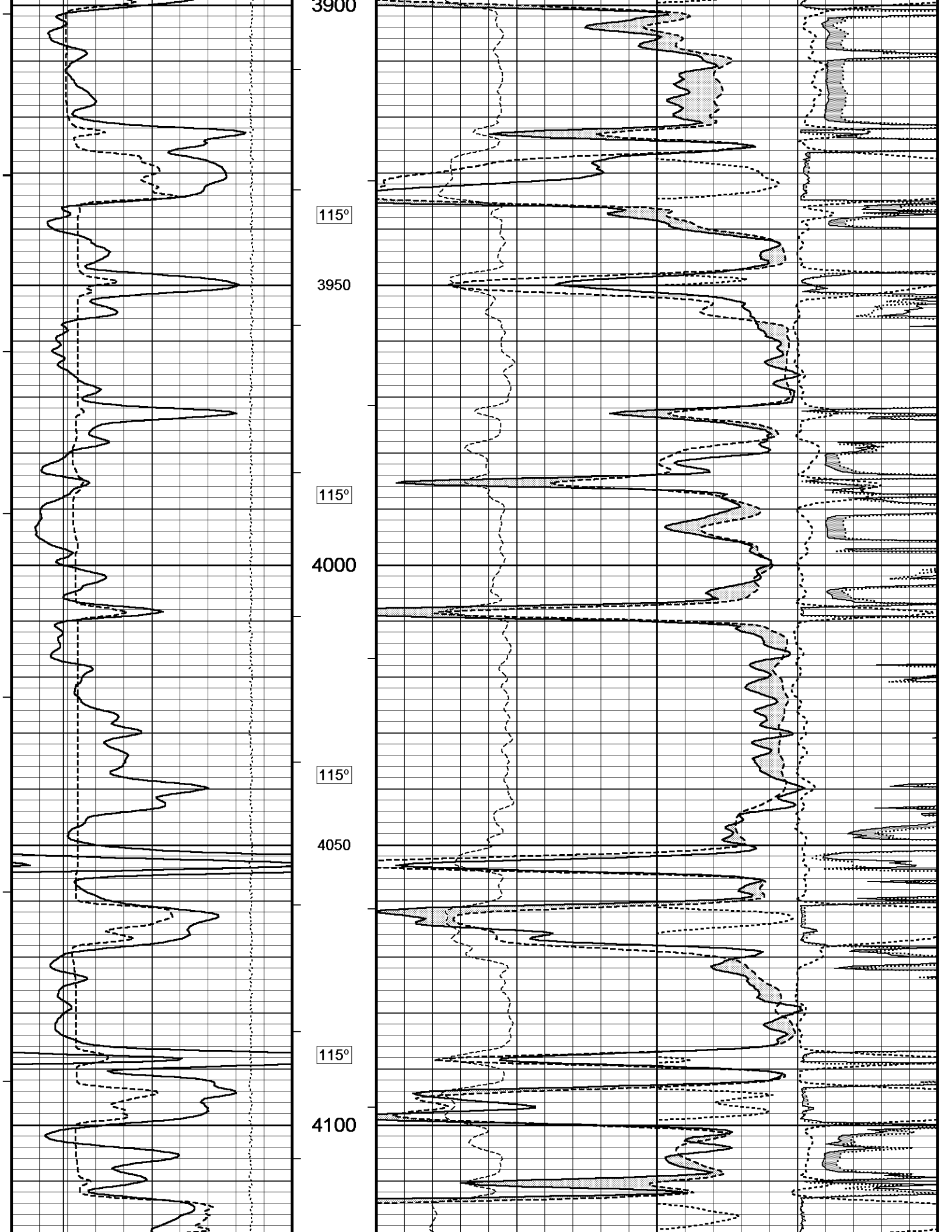
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

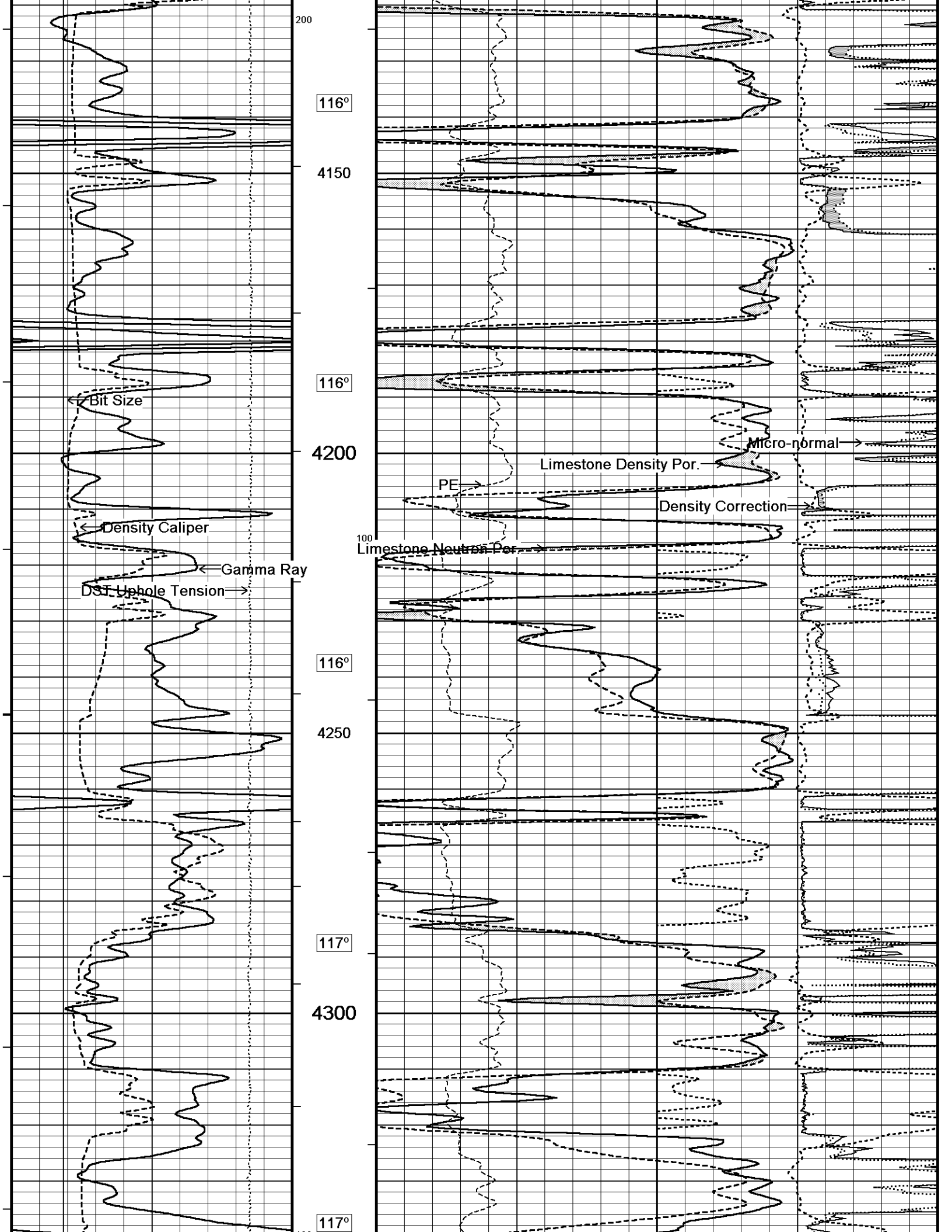
5 INCH MAIN

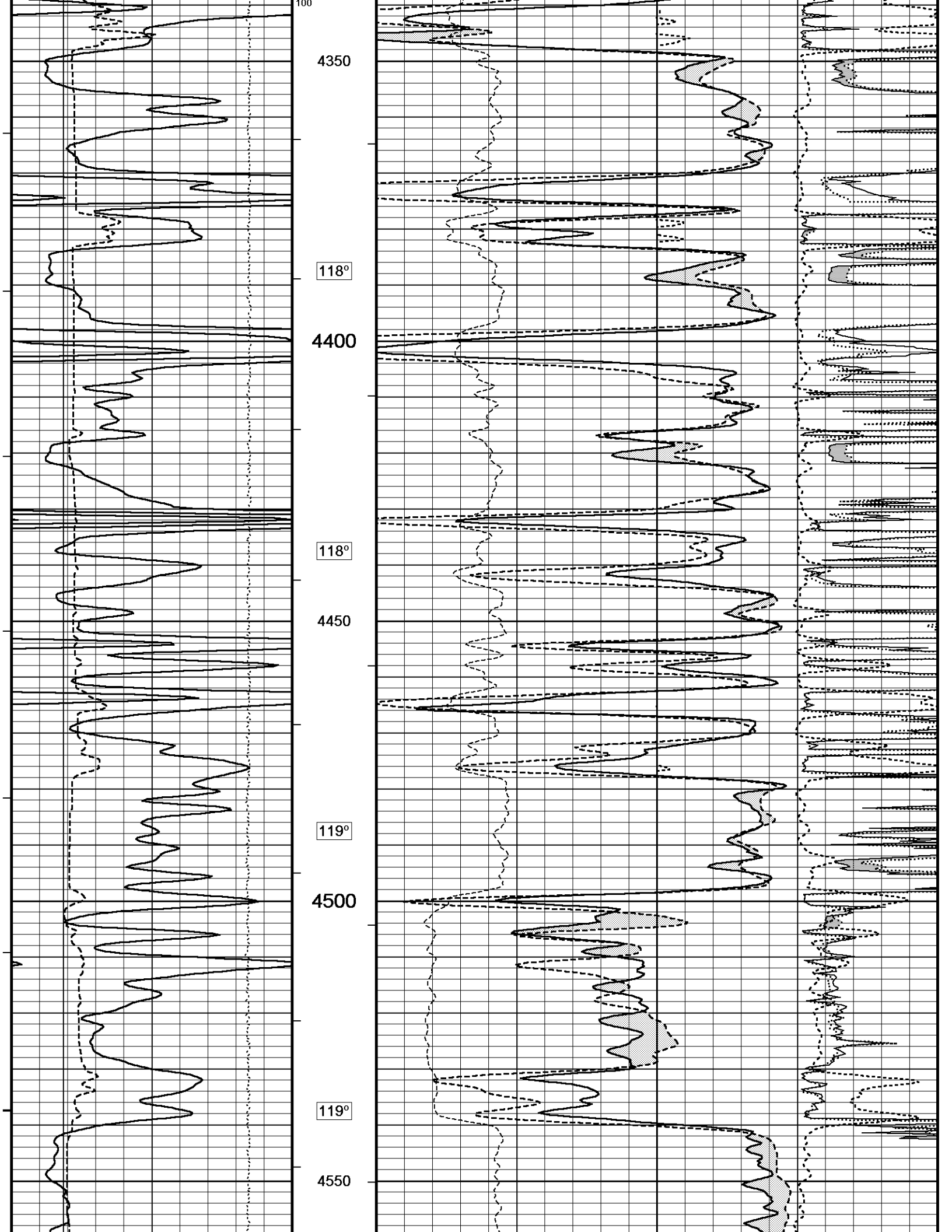
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-SEP-2012 22:31
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_002.dta Recorded on 28-SEP-2012 20:00
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

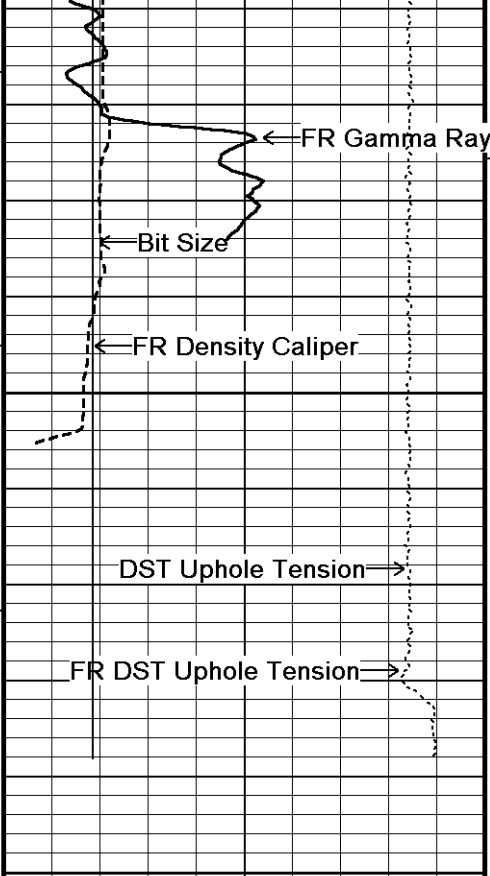




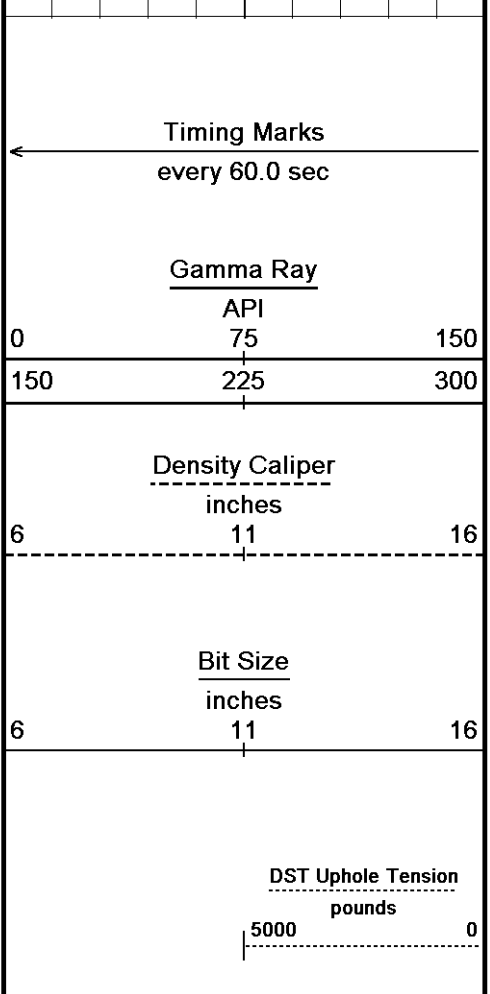
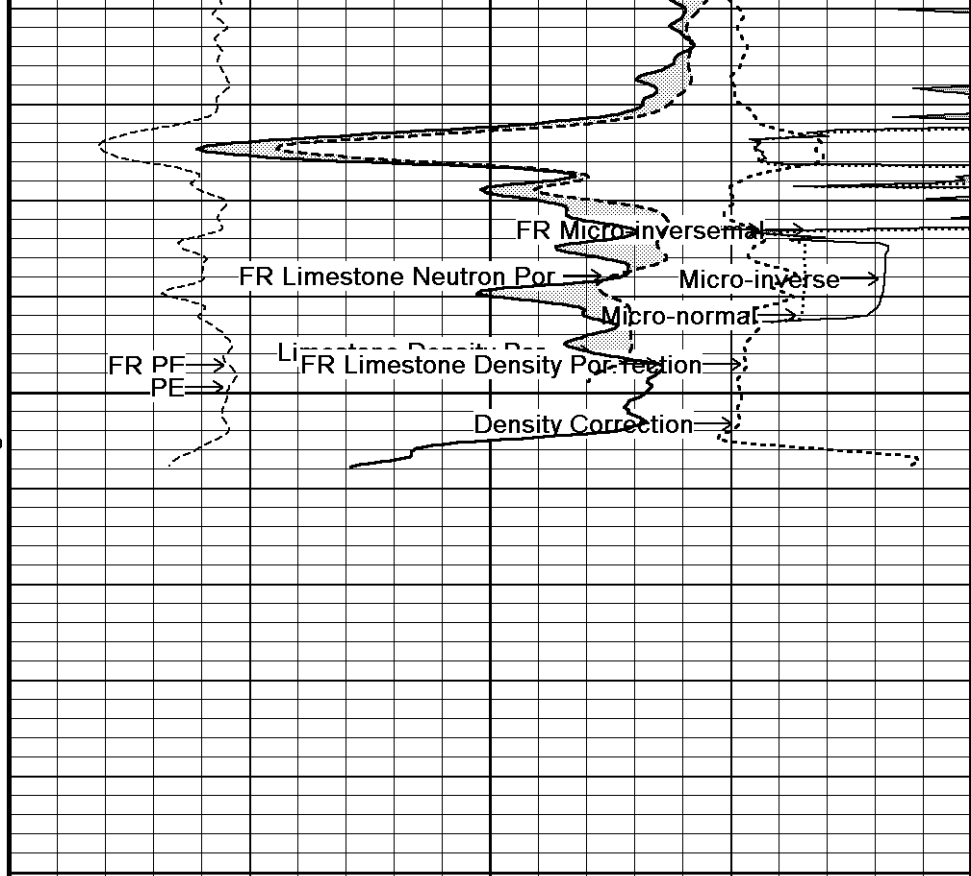








4600



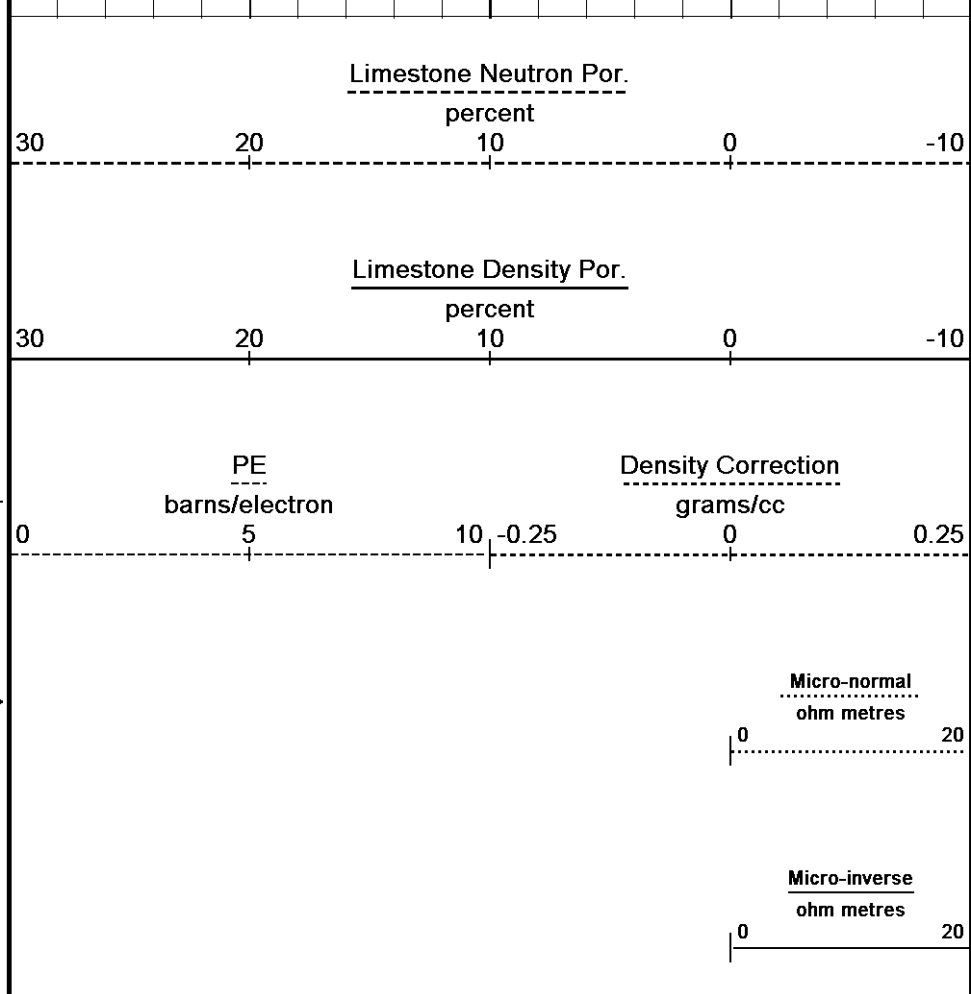
4650
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_002.dta
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600
 Plotted on 28-SEP-2012 22:31
 Recorded on 28-SEP-2012 20:00

5 INCH MAIN

REPEAT SECTION

REPEAT SECTION

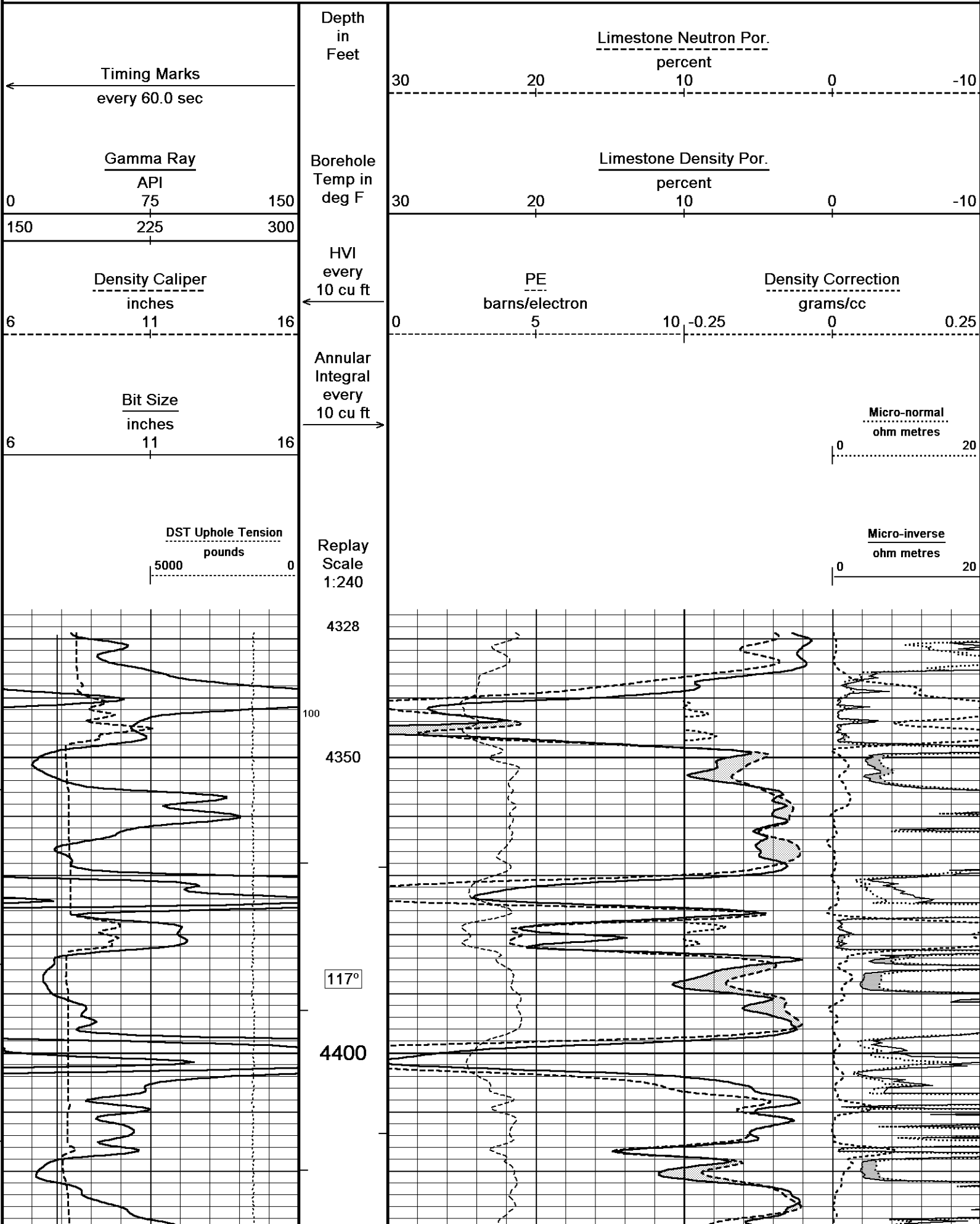
Depth Based Data - Maximum Sampling Increment 10.0cm

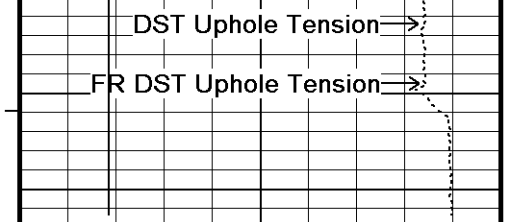
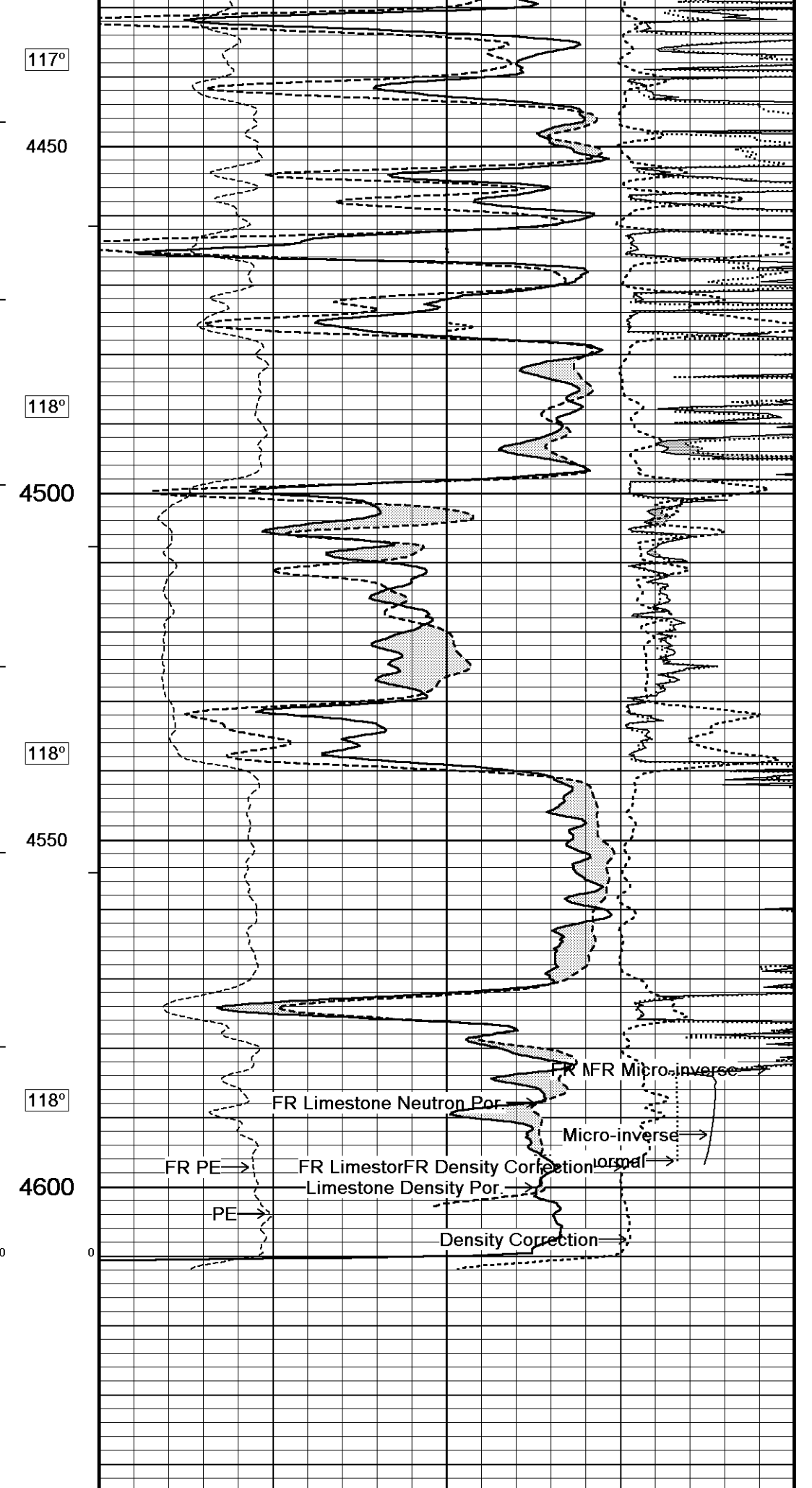
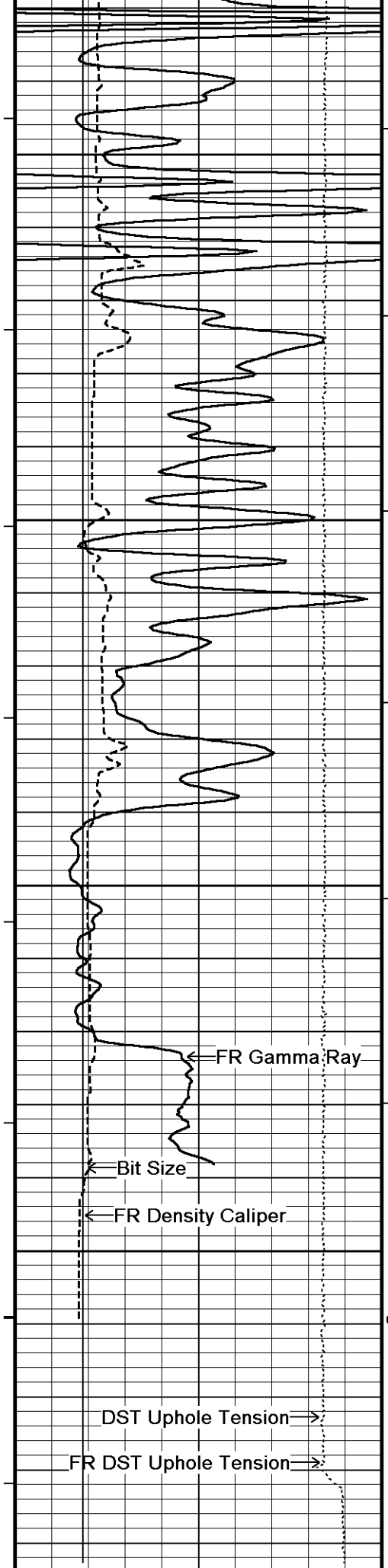
Plotted on 28-SEP-2012 22:31

Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_001.dta

Recorded on 28-SEP-2012 19:37

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600





Bit Size
inches
6 11 16

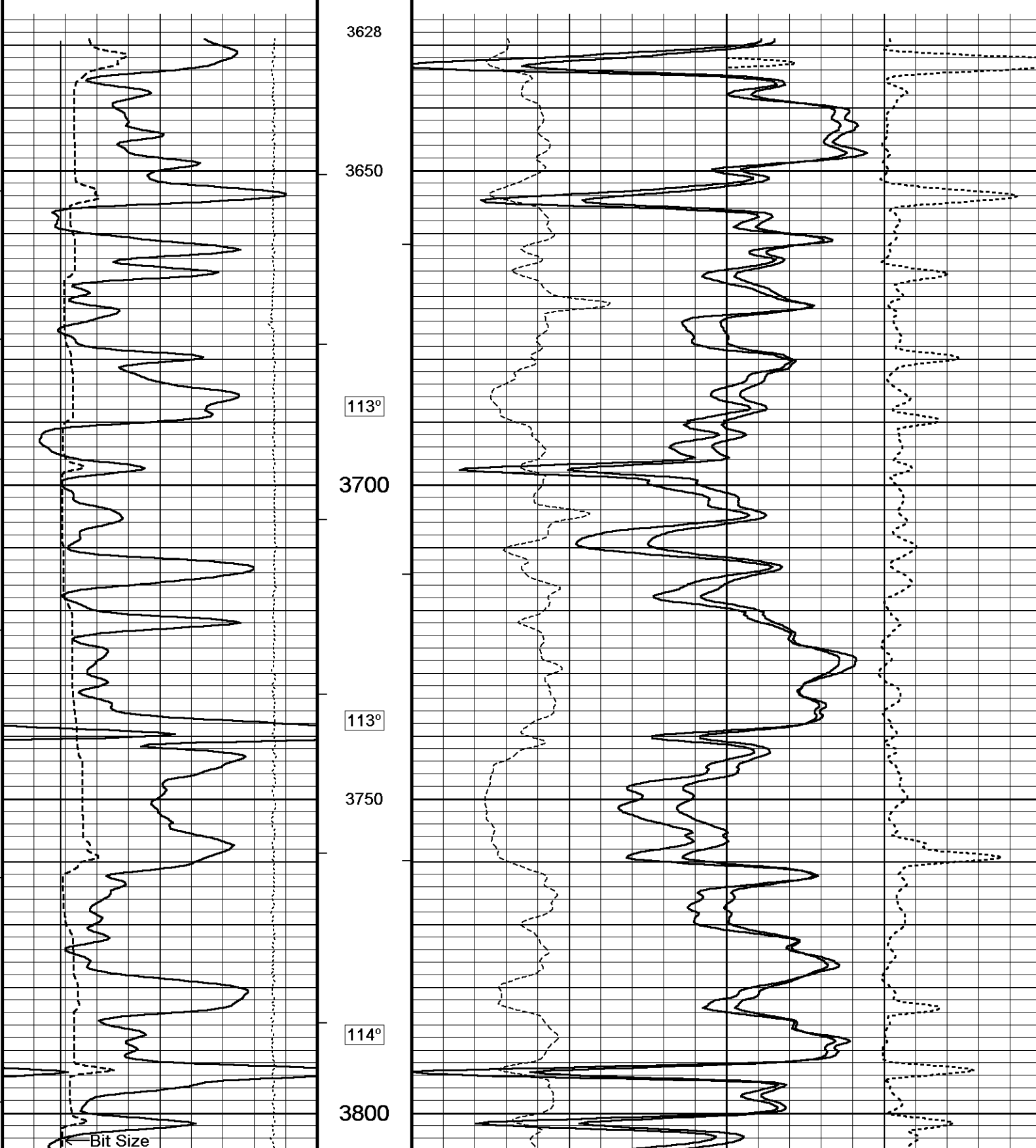
DST Uphole Tension
pounds
5000 0

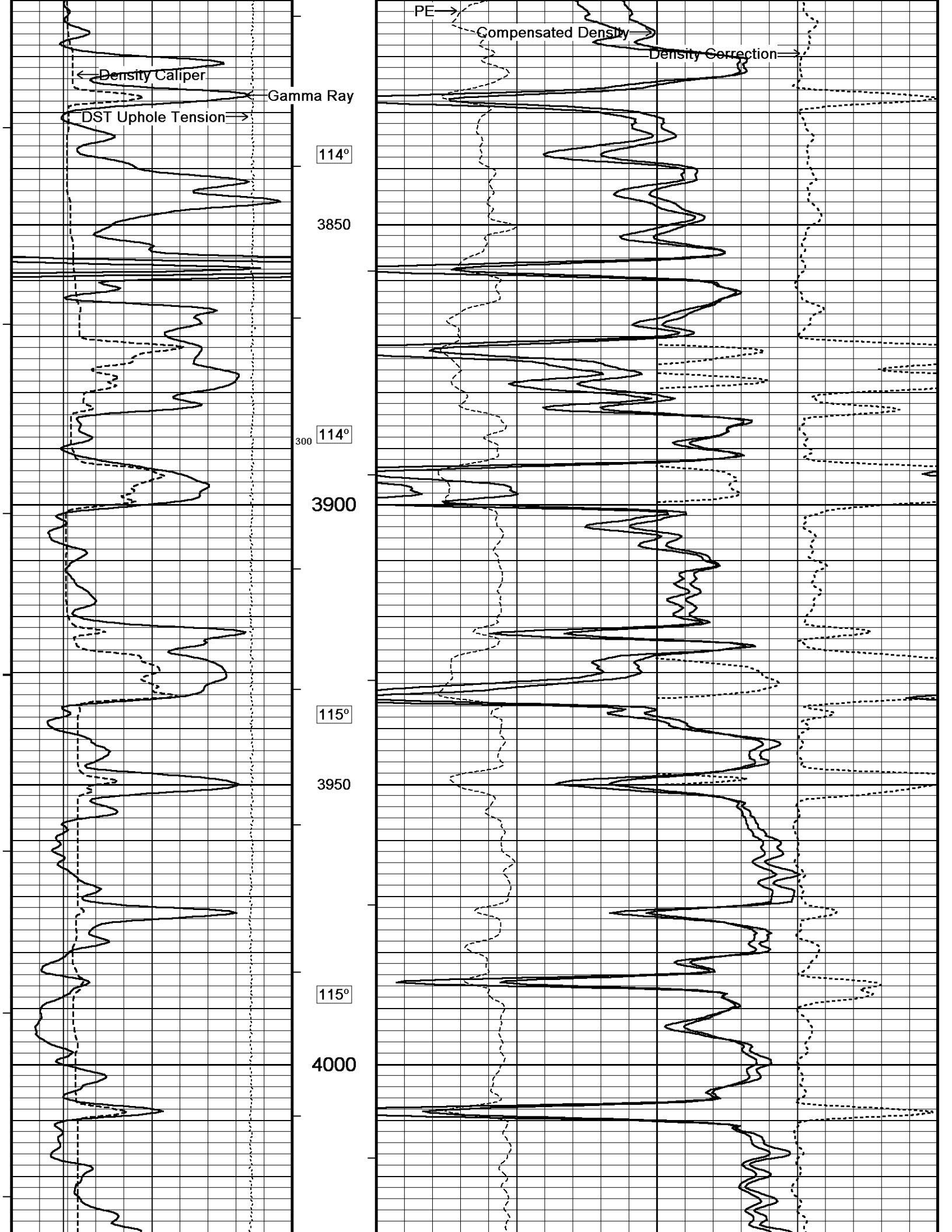
10 cu ft

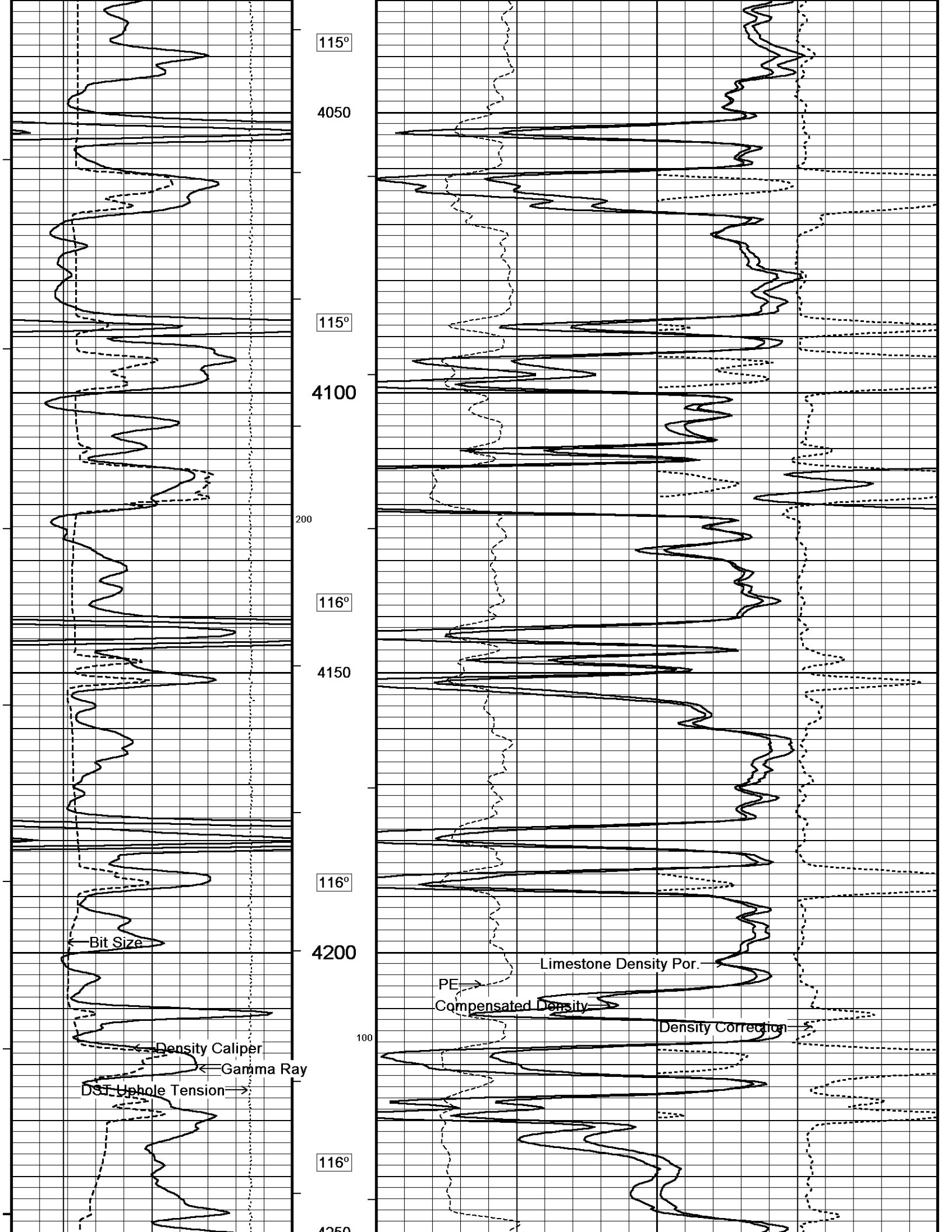
Replay
Scale
1:240

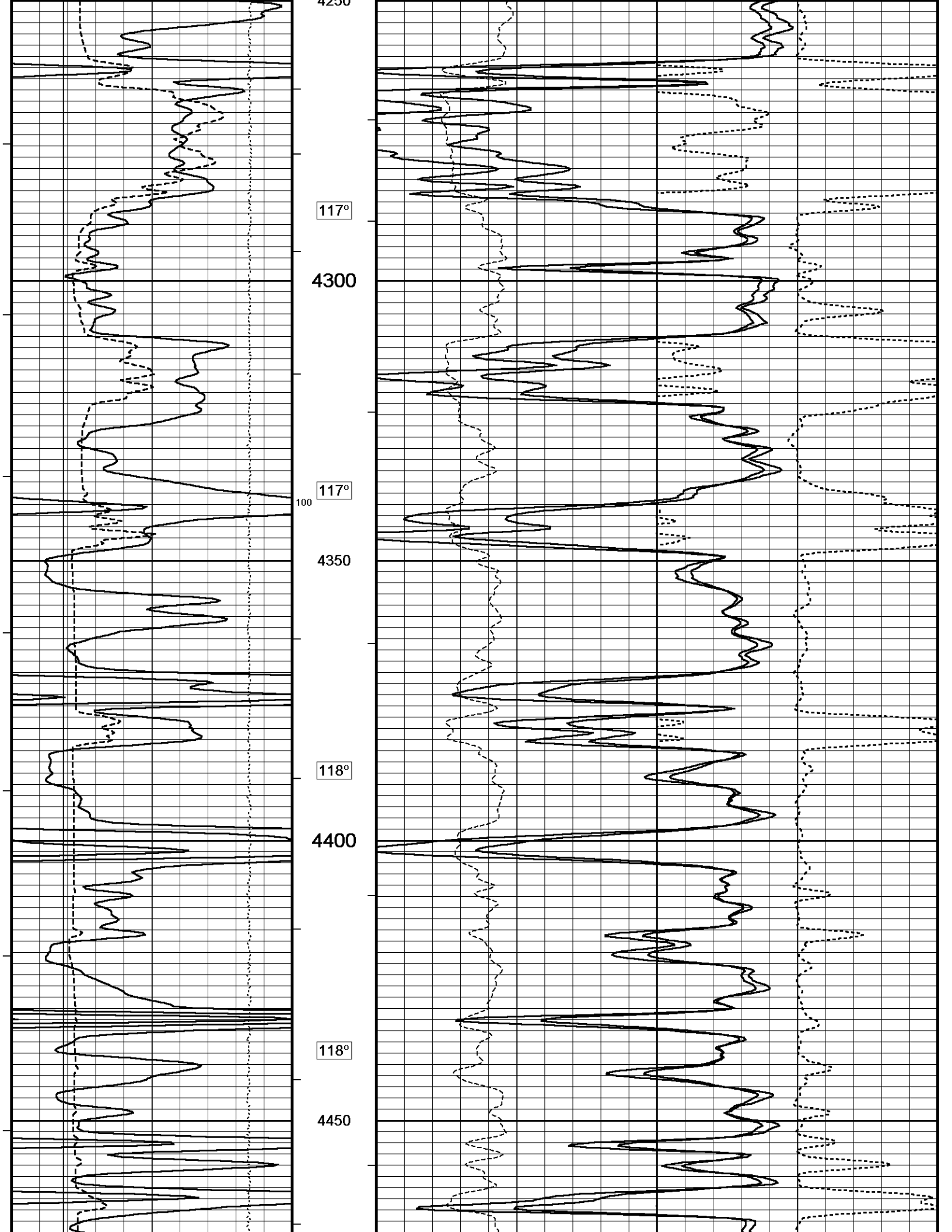
PE
barns/electron
0 5 10

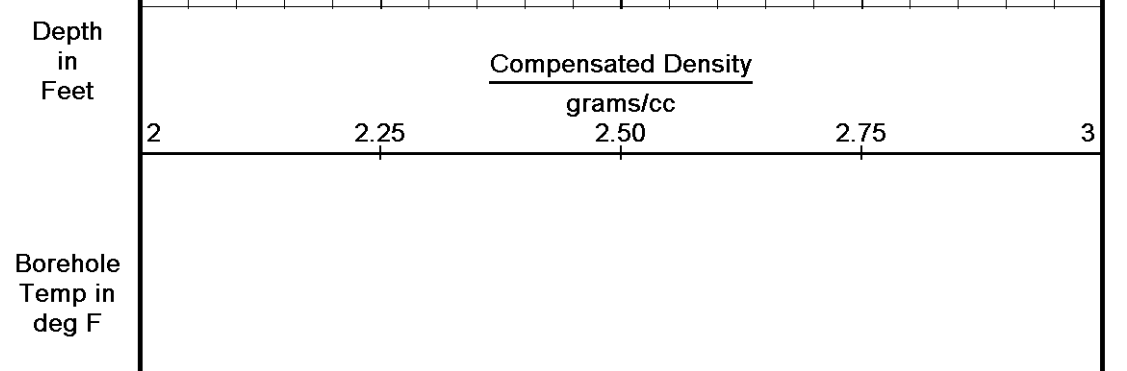
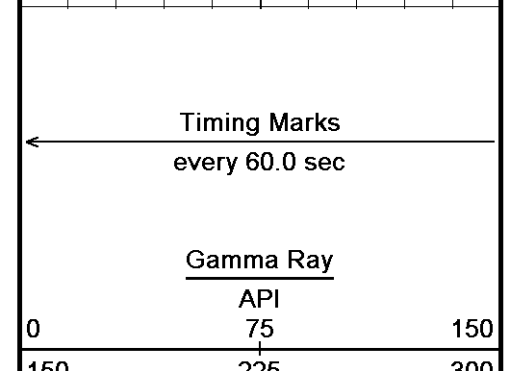
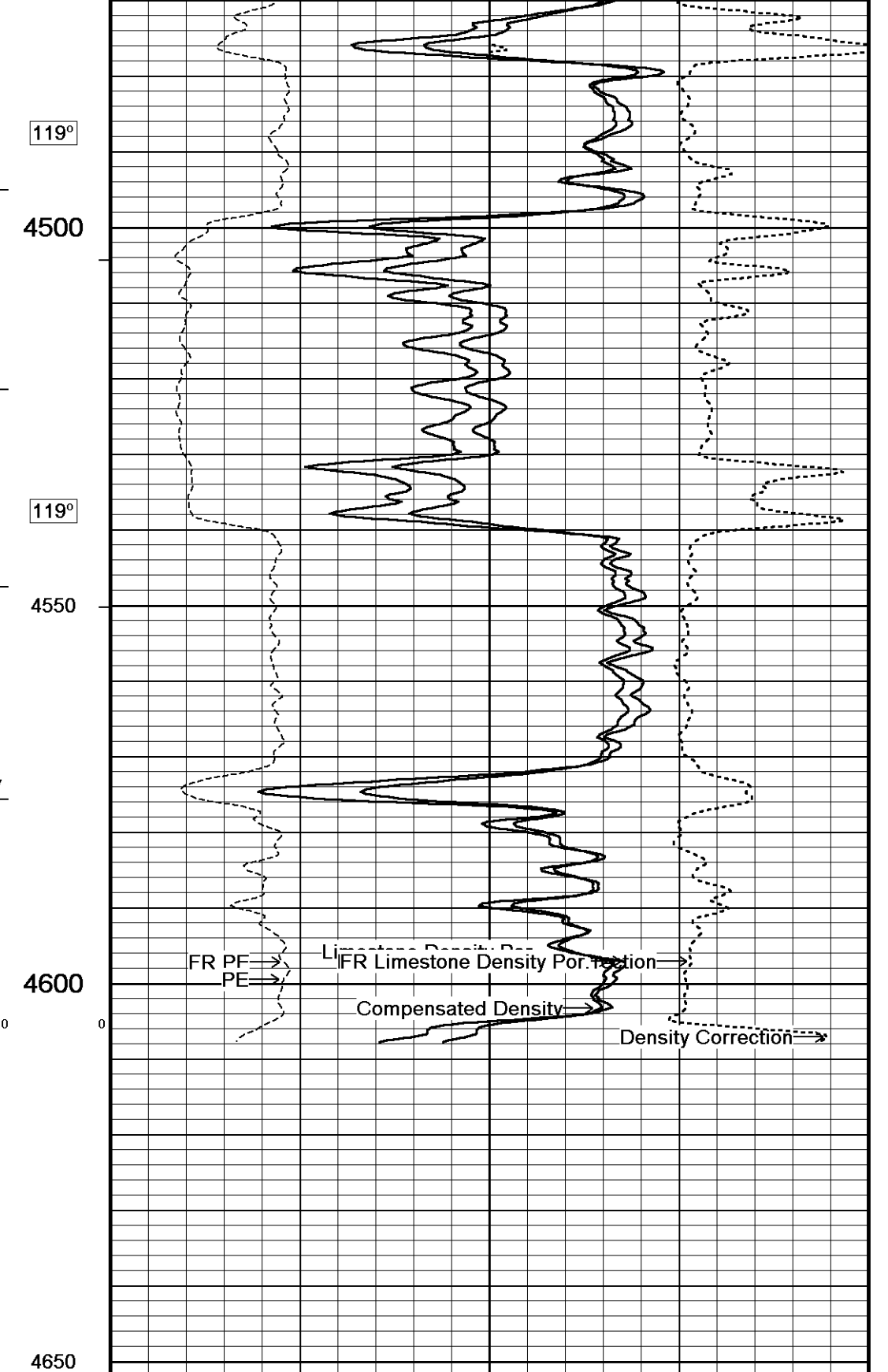
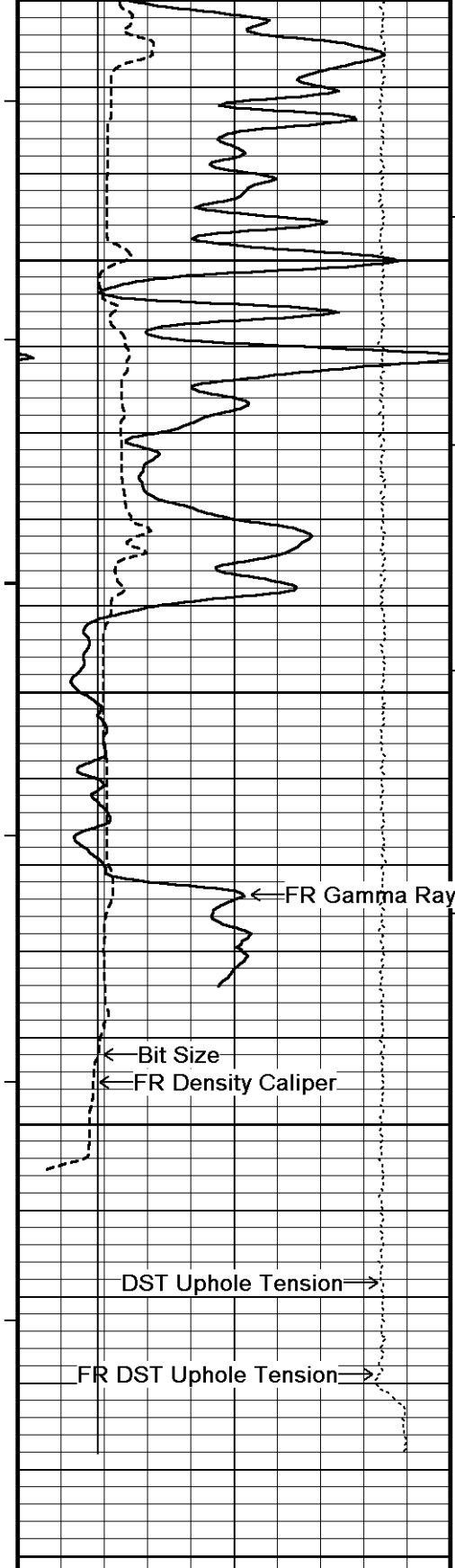
Density Correction
grams/cc
-0.25 0 0.25

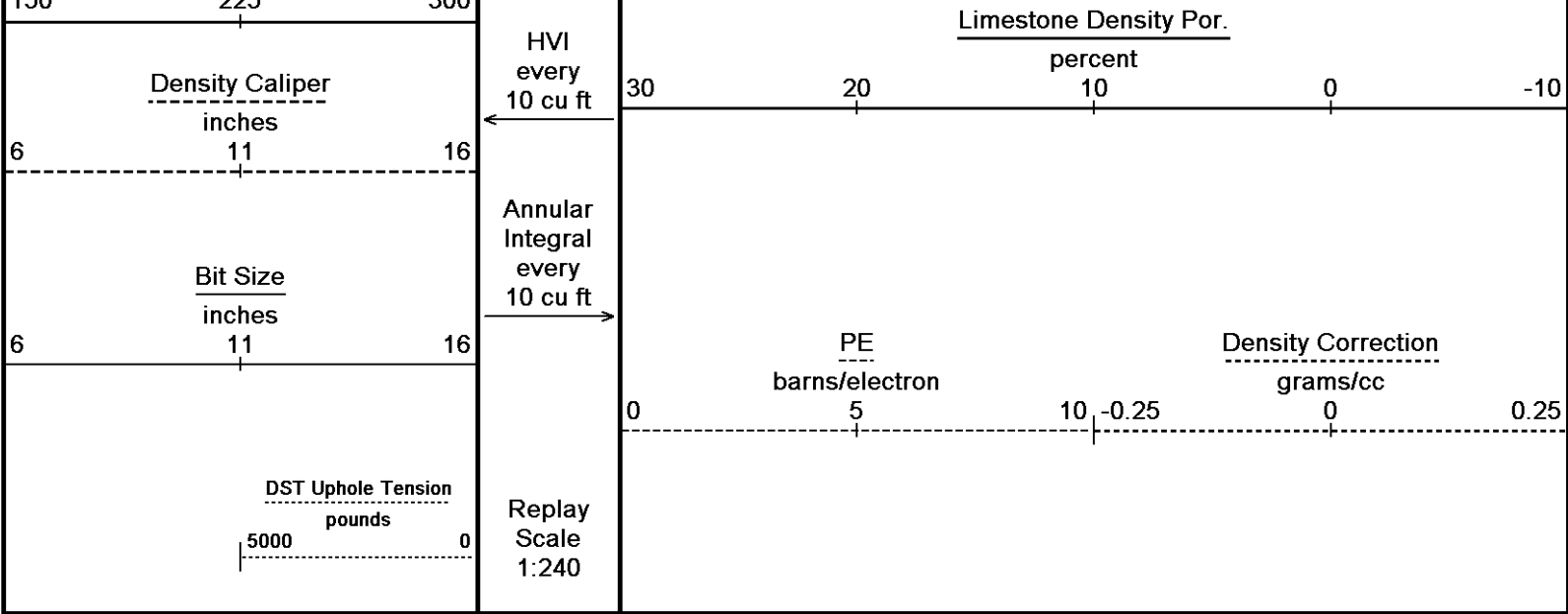






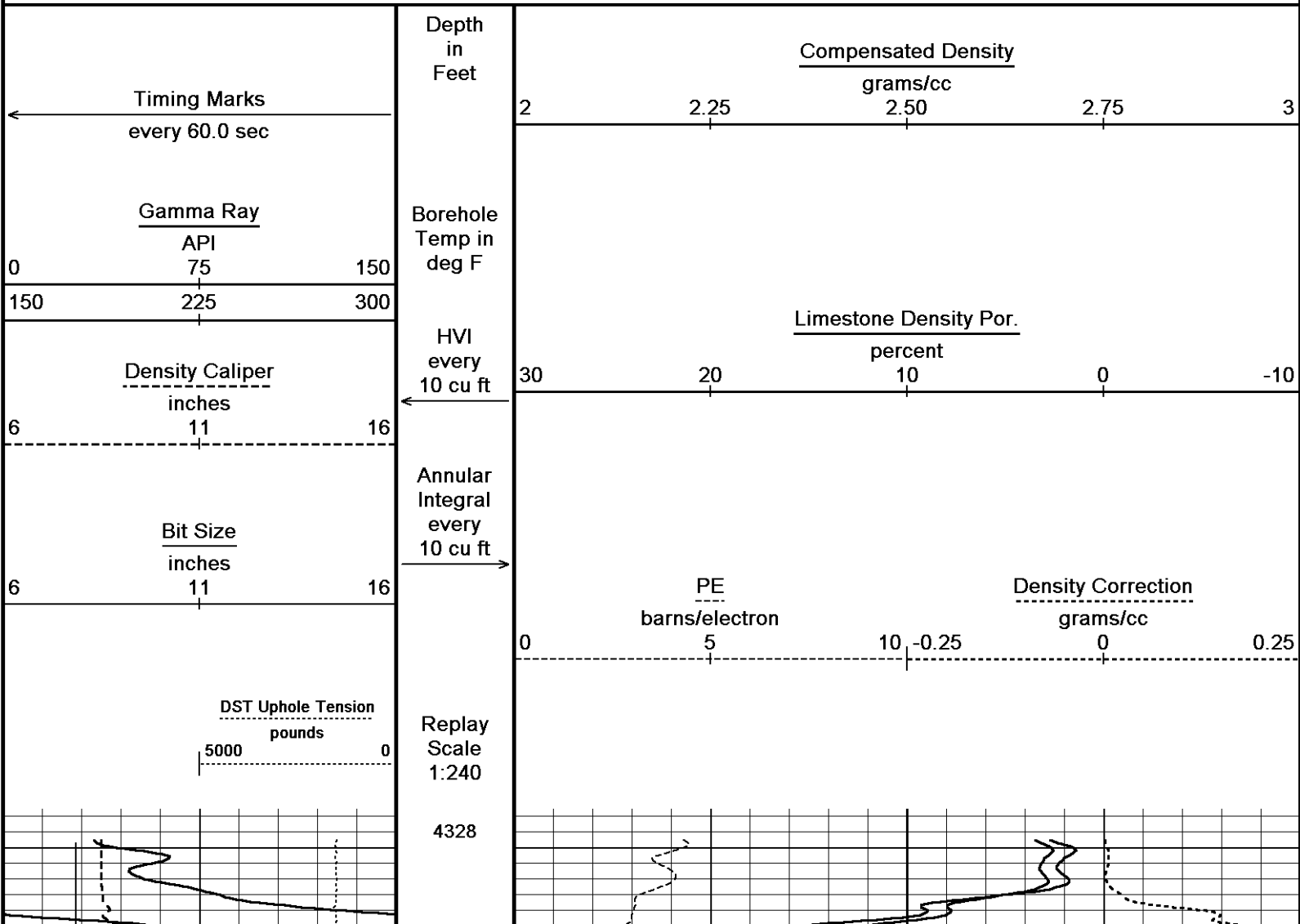


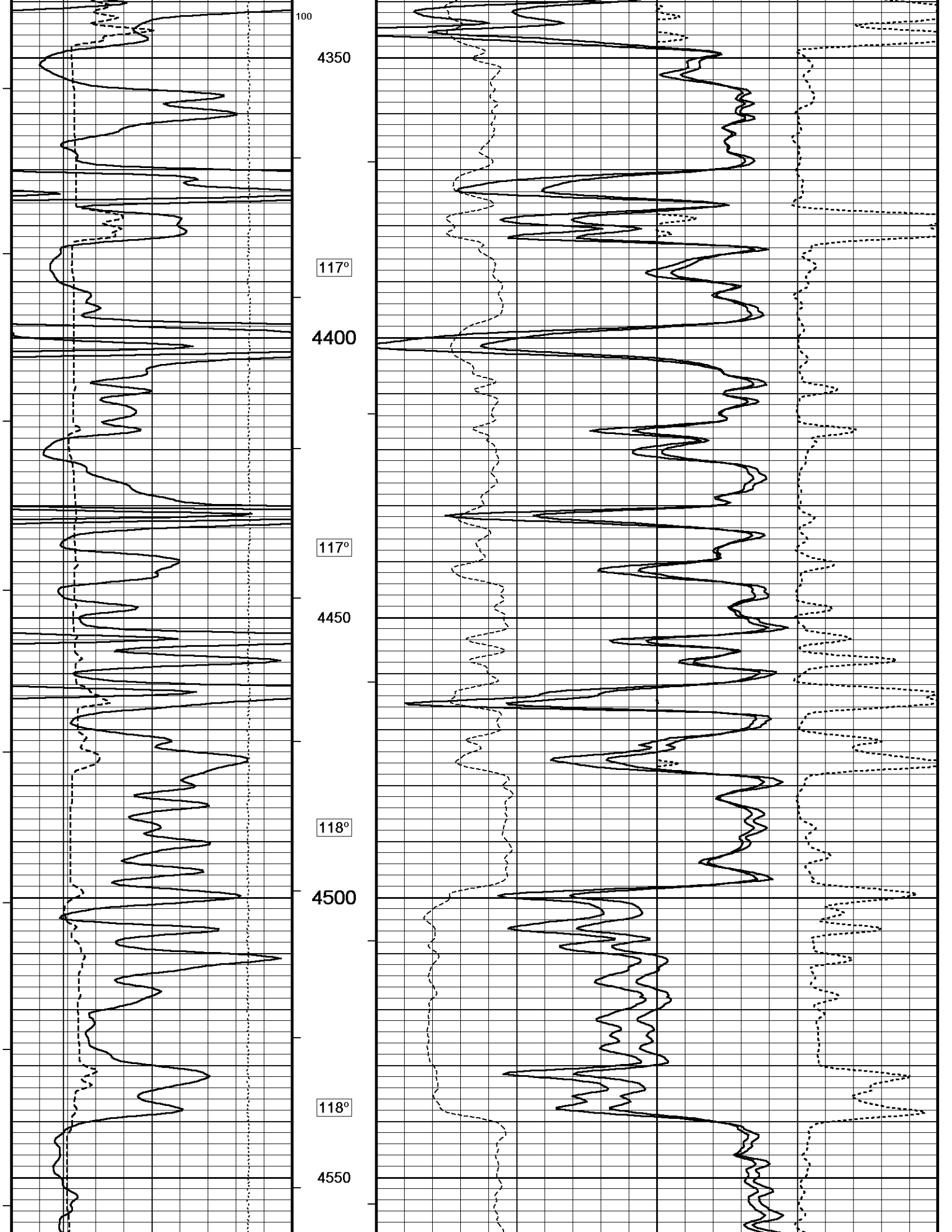


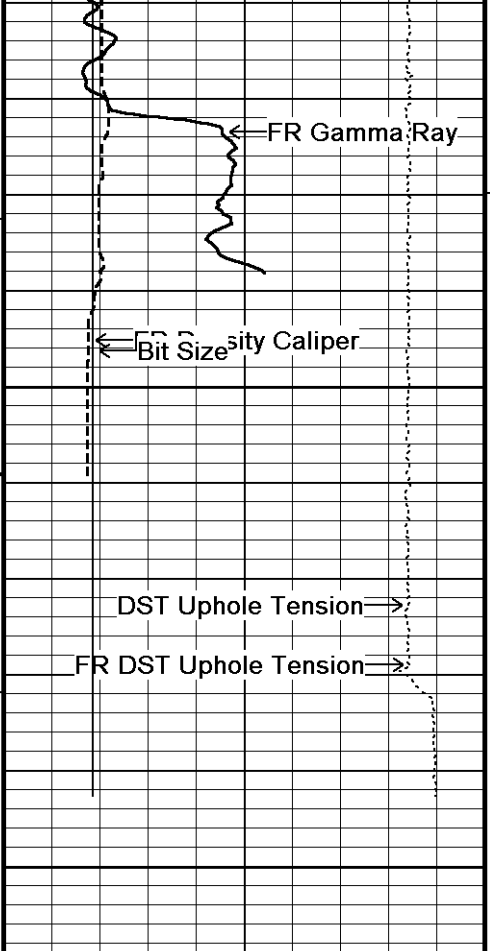


REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 28-SEP-2012 22:31
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_001.dta
 Recorded on 28-SEP-2012 19:37
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600







118°

4600

4650

4658

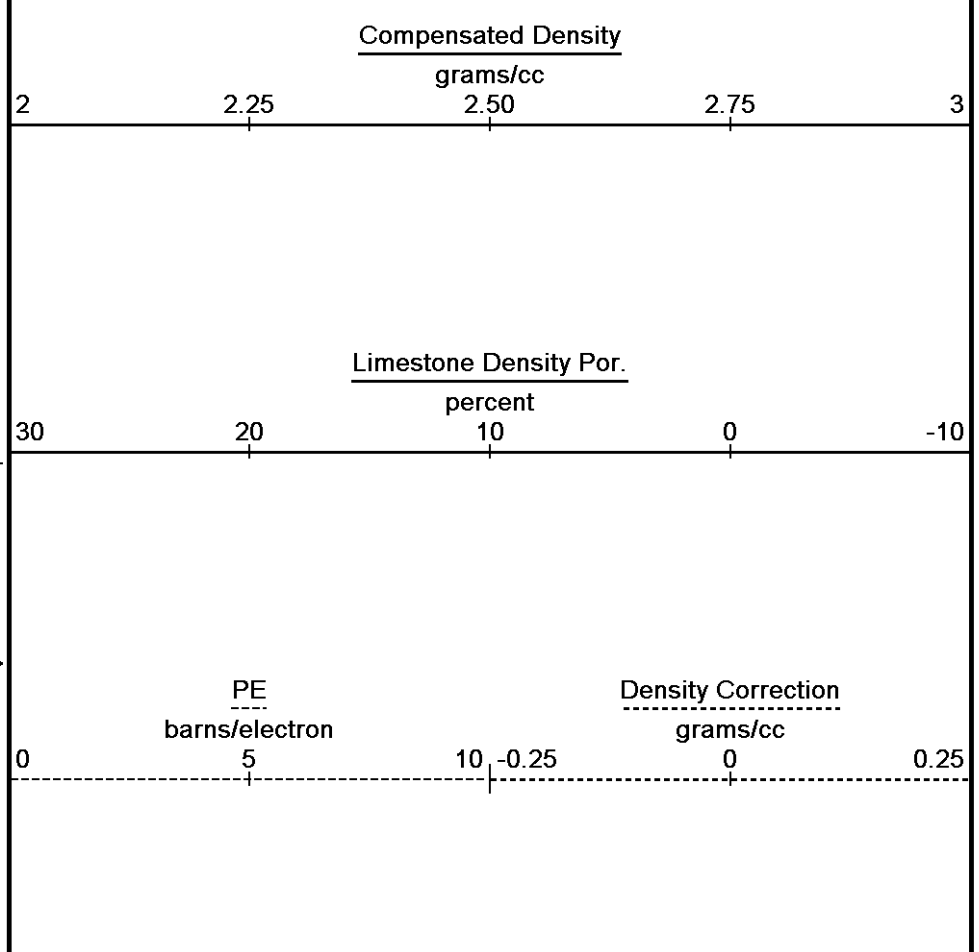
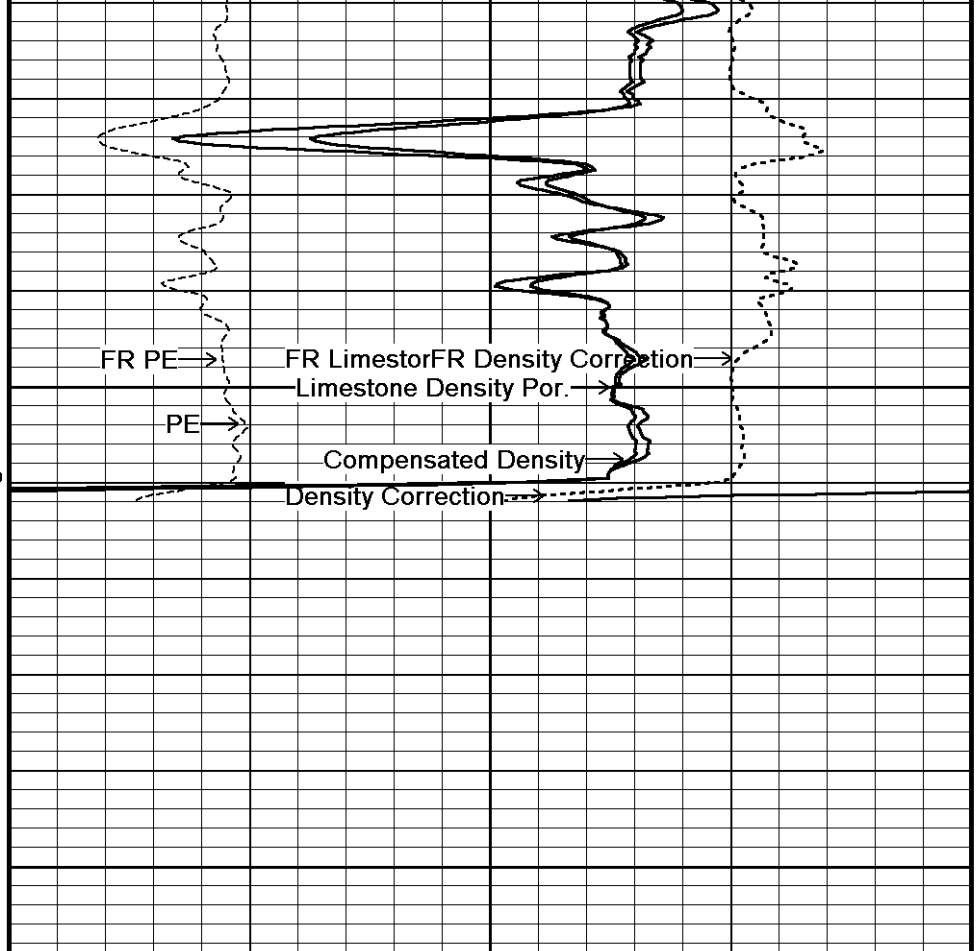
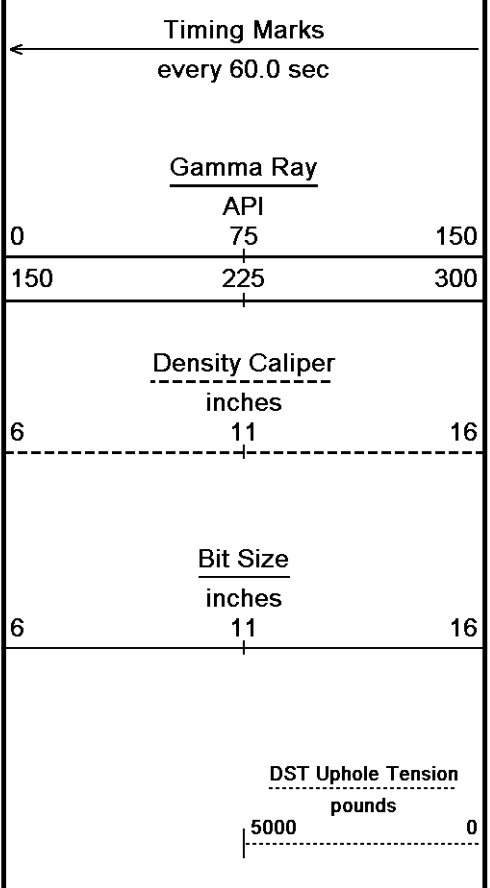
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Shakespeare Parsons #2-27\Shakespeare Parsons #2-27_001.dta

General Constants All 000

Last Edited on 28-SEP-2012,18:18

General Parameters

Mud Resistivity	0.740	ohm-metres
Mud Resistivity Temperature	89.000	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	5.500	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

Down-hole Tension Calibration SMS 0

Field Calibration on 27-SEP-2012 04:09

Reading No	Measured	Calibrated (lbs)
1	13701.85	0.00
2	13742.18	500.00

Gamma Calibration MCG-C 208

Field Calibration on 28-SEP-2012 11:20

	Measured	Calibrated (API)
Background	70	49
Calibrator (Gross)	1103	774
Calibrator (Net)	1033	725

Gamma Constants MCG-C 208

Last Edited on 28-SEP-2012,18:18

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 208

Field Calibration on 03-AUG-2012 22:37

	Measured	Calibrated (mV)
Reference 1	100.2	101.0
Reference 2	-101.3	-101.0

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 03-AUG-2012,16:18

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

High Resolution Temperature Constants MCG-C 208

Last Edited on

Pre-filter Length	11
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Caliper Calibration MML-A 4

Base Calibration on 27-AUG-2012 09:13

Field Calibration on 28-SEP-2012 11:02

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15511	5.98
2	18793	7.97
3	22115	9.86
4	26057	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.98	5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 27-AUG-2012 09:21
Field Check on 28-SEP-2012 11:04

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.5	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 28-SEP-2012,18:18

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	

Neutron Calibration MDN-A.B 65

Base Calibration on 28-AUG-2012 10:35
Field Check on 28-SEP-2012 11:25

Base Calibration

Ratio	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3134	97	3714	110
	32.240		33.764	

Field Calibrator at Base

Ratio	Calibrated (cps)
	1654 2401
	0.689

Field Check

Ratio	Calibrated (cps)
	1646 2367
	0.695

Neutron Constants MDN-A.B 65

Last Edited on 28-SEP-2012,18:18

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-B.J 352

Base Calibration on 27-AUG-2012 14:50
Field Check on 28-SEP-2012 11:01

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.9	126.8

Base Check	281.2
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Field Check	281.4
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FE Constants MFE-B.J 352

Last Edited on 28-SEP-2012,18:17

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	

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
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 28-SEP-2012 10:57

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	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	18.7	3851.6
2	0.0	0.0	31.7	3629.4
3	0.0	0.0	28.6	3049.5
4	0.0	0.0	18.3	2079.3
Deep	0.0	0.0	16.1	1911.4
Medium	0.0	0.0	42.5	4060.7
Shallow	0.0	0.0	49.6	5482.9
Array Temperature	0.0		66.0	Deg F

Induction Constants MAI-A.A 45

Last Edited on 28-SEP-2012,18:17

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		
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

High Resolution Temperature Constants MAI-A.A 45

Last Edited on

Pre-filter Length 11

Caliper Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:03

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18576	3.99
2	27056	5.98
3	35613	7.97
4	44032	9.86
5	53360	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	5.98

Photo Density Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:22

Field Check on 28-SEP-2012 11:09

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	46103	23728	59556	30836
Reference 2	19270	1960	24941	2541

Field Check at Base

688.3 844.7

Field Check

685.2 846.0

PE Calibration

Base Calibration	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	127	604		
Reference 1	18457	45978	0.404	0.371
Reference 2	5504	19174	0.290	0.272

Field Check at Base

127.0 604.2

Field Check

125.7 598.4

Density Constants MPD-B 31

Last Edited on 28-SEP-2012,18:18

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	1.13 gm/cc
Mud Density Z/A Multiplier	1.13
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

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Shakespeare Parsons #2-27\Shakespeare Parsons #2-27_001.dta

Compact Comms Gamma
MCG-C 208 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

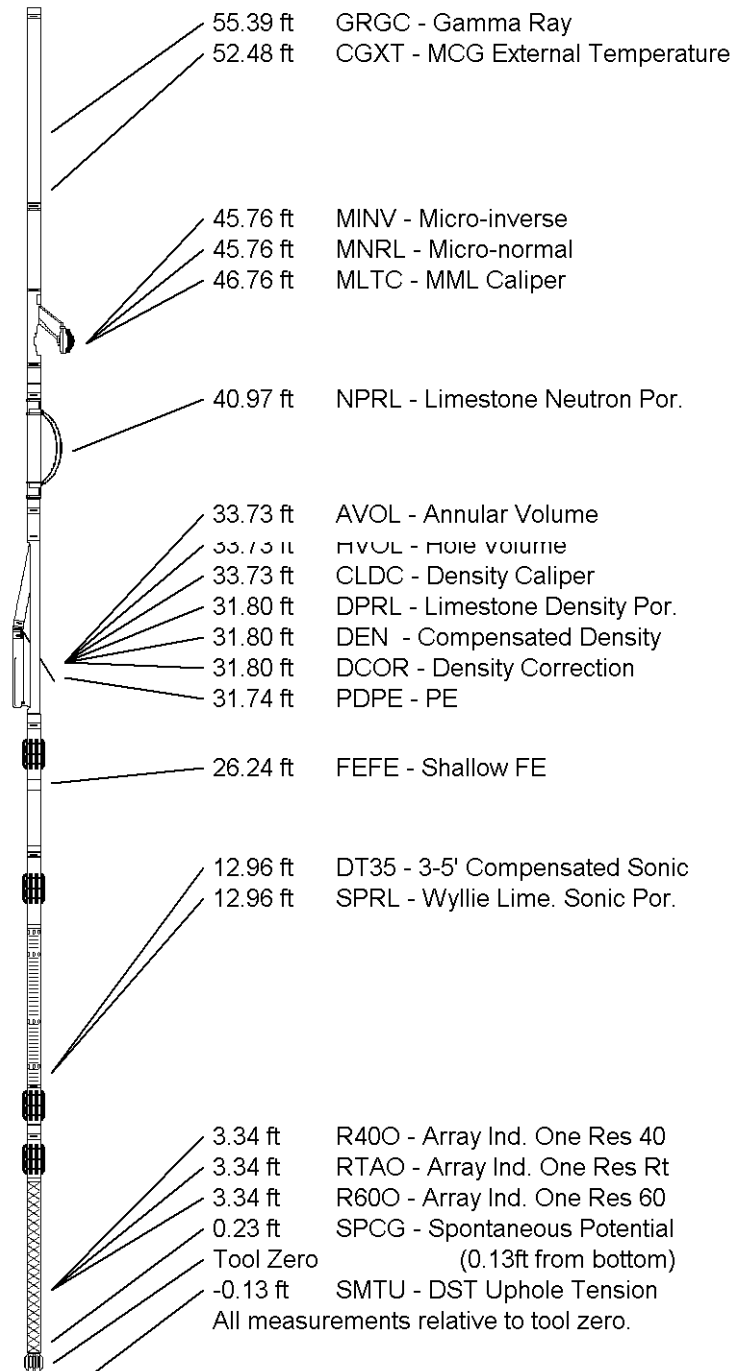
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact 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: 60.68 ft Weight: 456.4 lb



COMPANY SHAKESPEARE OIL CO., INC.
WELL PARSONS #2-27
FIELD WILDCAT
PROVINCE/COUNTY GOVE
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2848.00	feet	First Reading	4597.00	feet
Elevation Drill Floor	2846.00	feet	Depth Driller	4630.00	feet
Elevation Ground Level	2838.00	feet	Depth Logger	4629.00	feet



Weatherford[®]

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

