



Weatherford

**COMPENSATED NEUTRON
COMPENSATED SONIC
POROSITY LOG**

COMPANY				SHAKESPEARE OIL COMPANY			
WELL				TUCKER #1-9			
FIELD				WILDCAT			
PROVINCE/COUNTY				SCOTT			
COUNTRY/STATE				UNITED STATES / KANSAS			
LOCATION				400' FSL & 600' FEL SE/4			
SEC	TWP	RGE	Other Services		MSS		
9	16S	34W	MPD/MDN				
API Number		15-171-20947		MA/MFE			
Permit Number				MML			
Permanent Datum G.L., Elevation 3130 feet							
Log Measured From KB							
Drilling Measured From K.B. @ 10 FEET							
Date	12-JUN-2013						
Run Number	ONE						
Service Order	3537763						
Depth Driller	4864.00			feet			
Depth Logger	4863.00			feet			
First Reading	4850.00			feet		2500.00	
Last Reading	3800.00			feet		2400.00	
Casing Driller	267.00			feet			
Casing Logger	264.00			feet			
Bit Size	7.880			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.40 lb/USg		56.00 CP				
PH / Fluid Loss	9.50		9.60 ml/30Min				
Sample Source	MUDPIT						
Rm @ Measured Temp	0.66 @ 85.0			ohm-m			
Rmf @ Measured Temp	0.53 @ 85.0			ohm-m			
Rmc @ Measured Temp	0.79 @ 85.0			ohm-m			
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	0.48 @ 116.0			ohm-m			
Time Since Circulation	4 HOURS						
Max Recorded Temp	116.00		deg F				
Equipment / Base	13096		LIB				
Recorded By	W. STAMBAUGH						
Witnessed By	TIM PRIEST						
IOB#	LB13-173						

BOREHOLE RECORD					Last Edited: 12-JUN-2013 21:41
Bit Size inches		Depth From feet		Depth To feet	
7.875		264.00		4863.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	264.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583.
- 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 SURFACE CASING: 2370 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO SURFACE CASING: 1610 CU. FT.

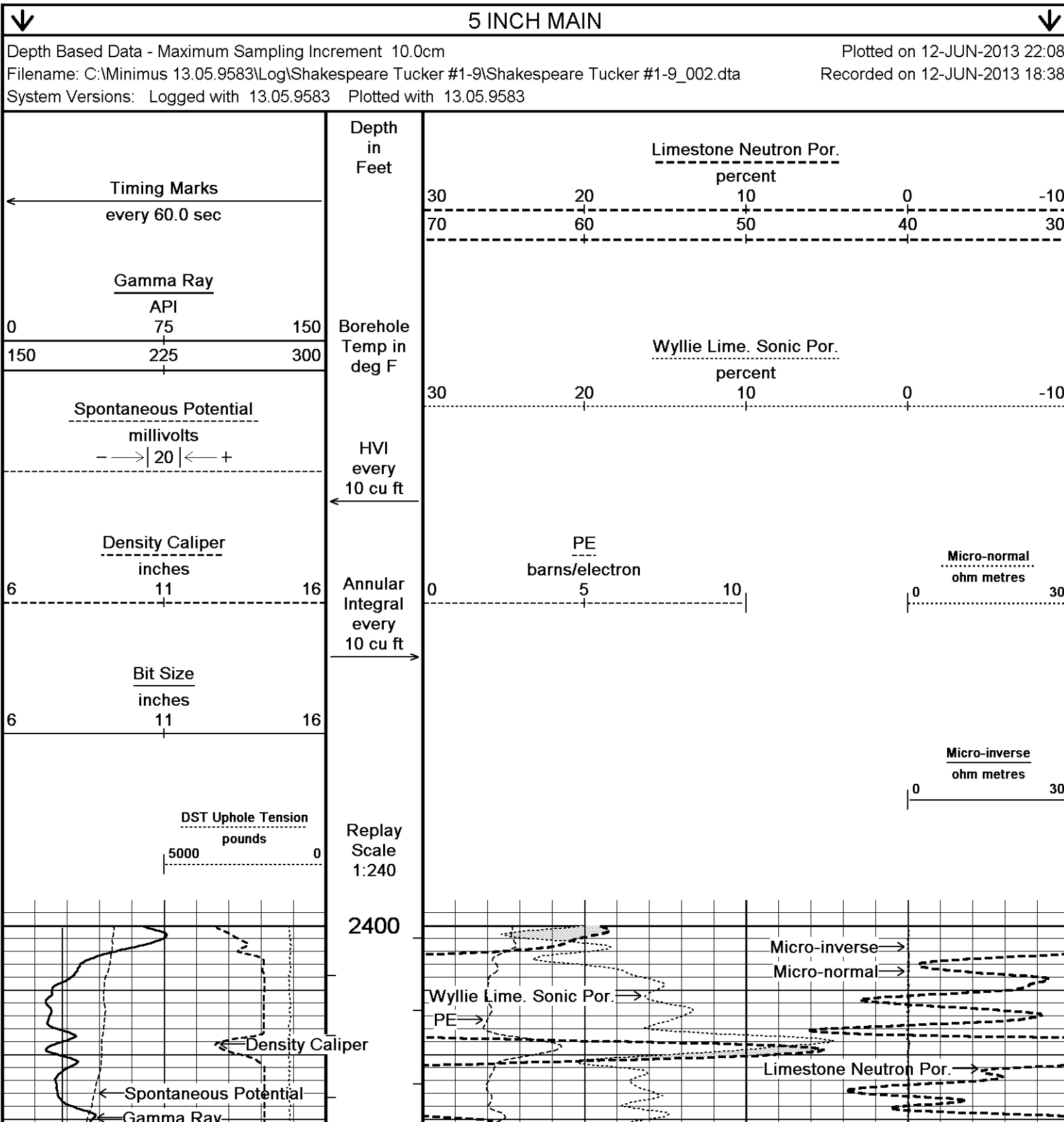
- SERVICE ORDER # 3537763.

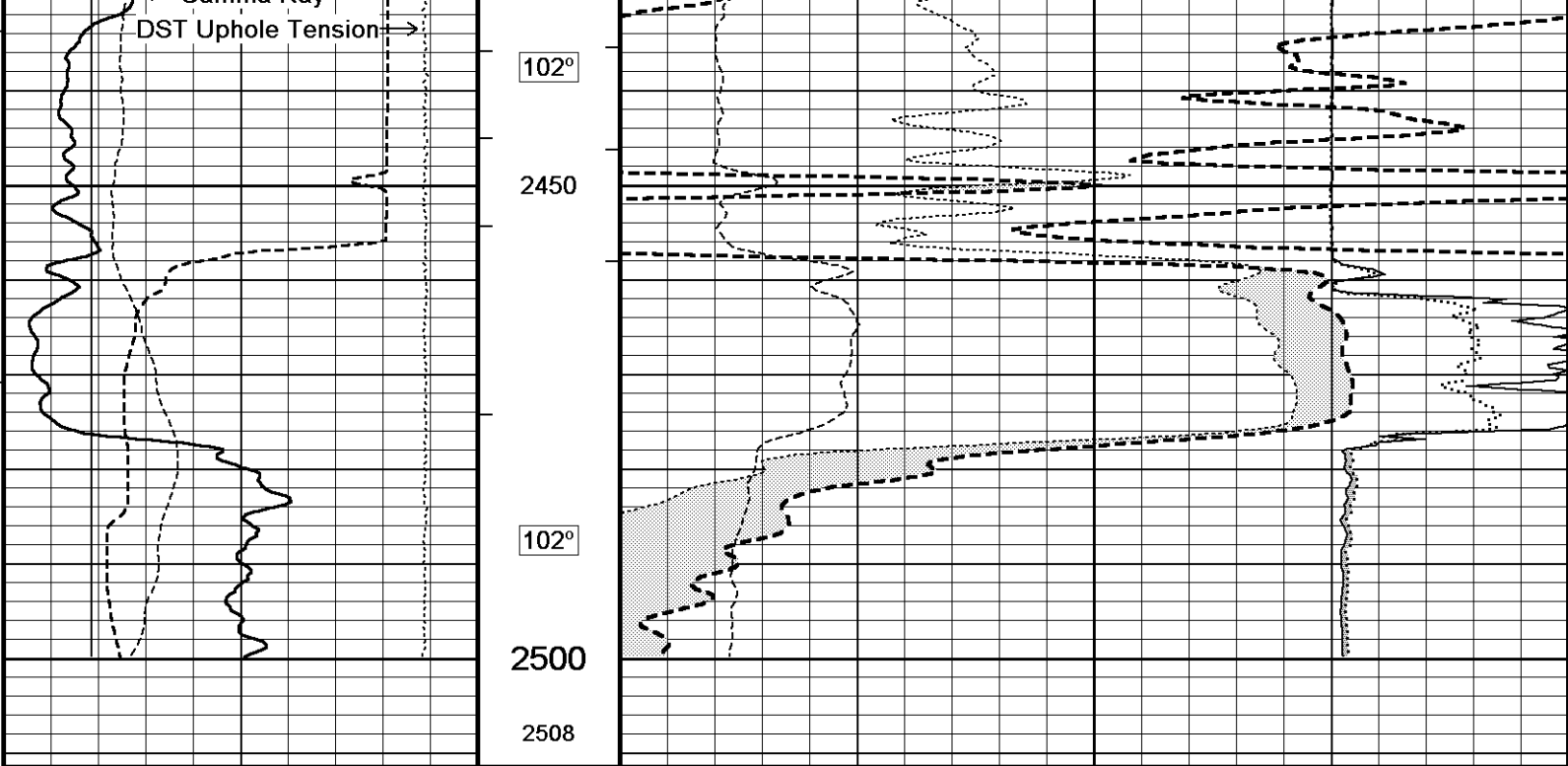
- RIG: HD DRILLING #2.

- ENGINEER: WILLIAM STAMBAUGH

- OPERATOR(S): K. RINEHART, M. HERNANDEZ

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\Log\Shakespeare Tucker #1-9\Shakespeare Tucker #1-9_002.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

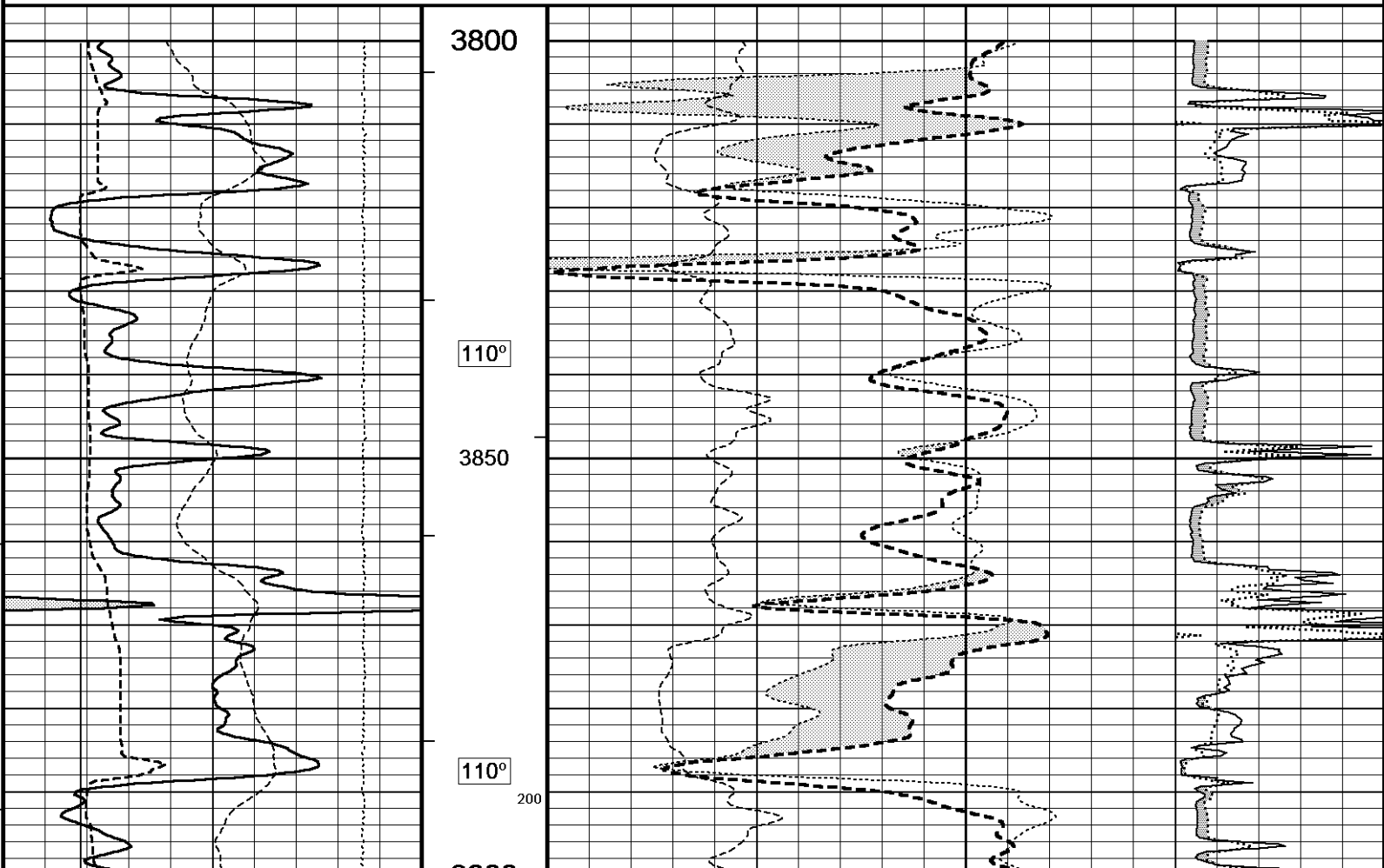
Plotted on 12-JUN-2013 22:08
Recorded on 12-JUN-2013 18:38

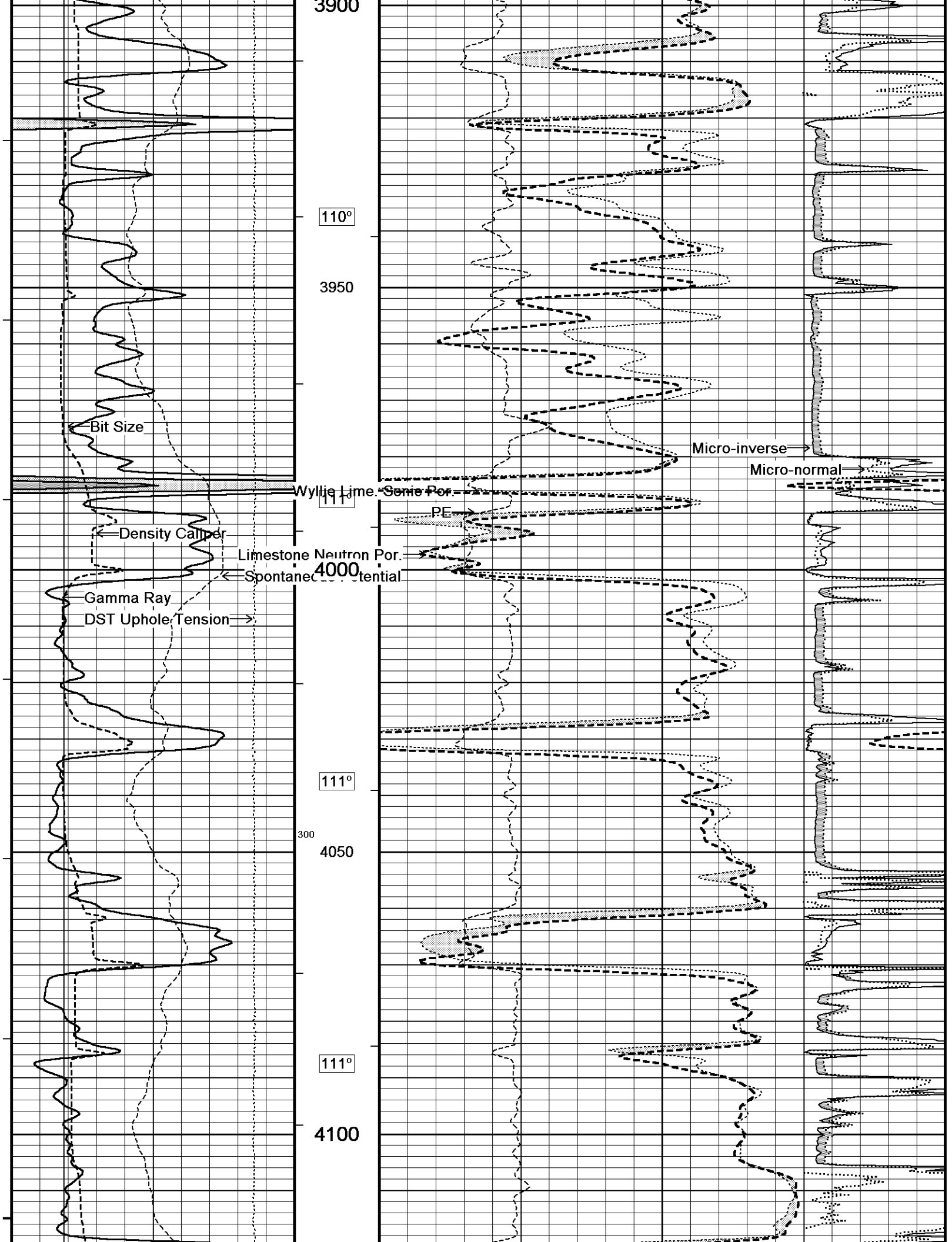
↑ 5 INCH MAIN ↑

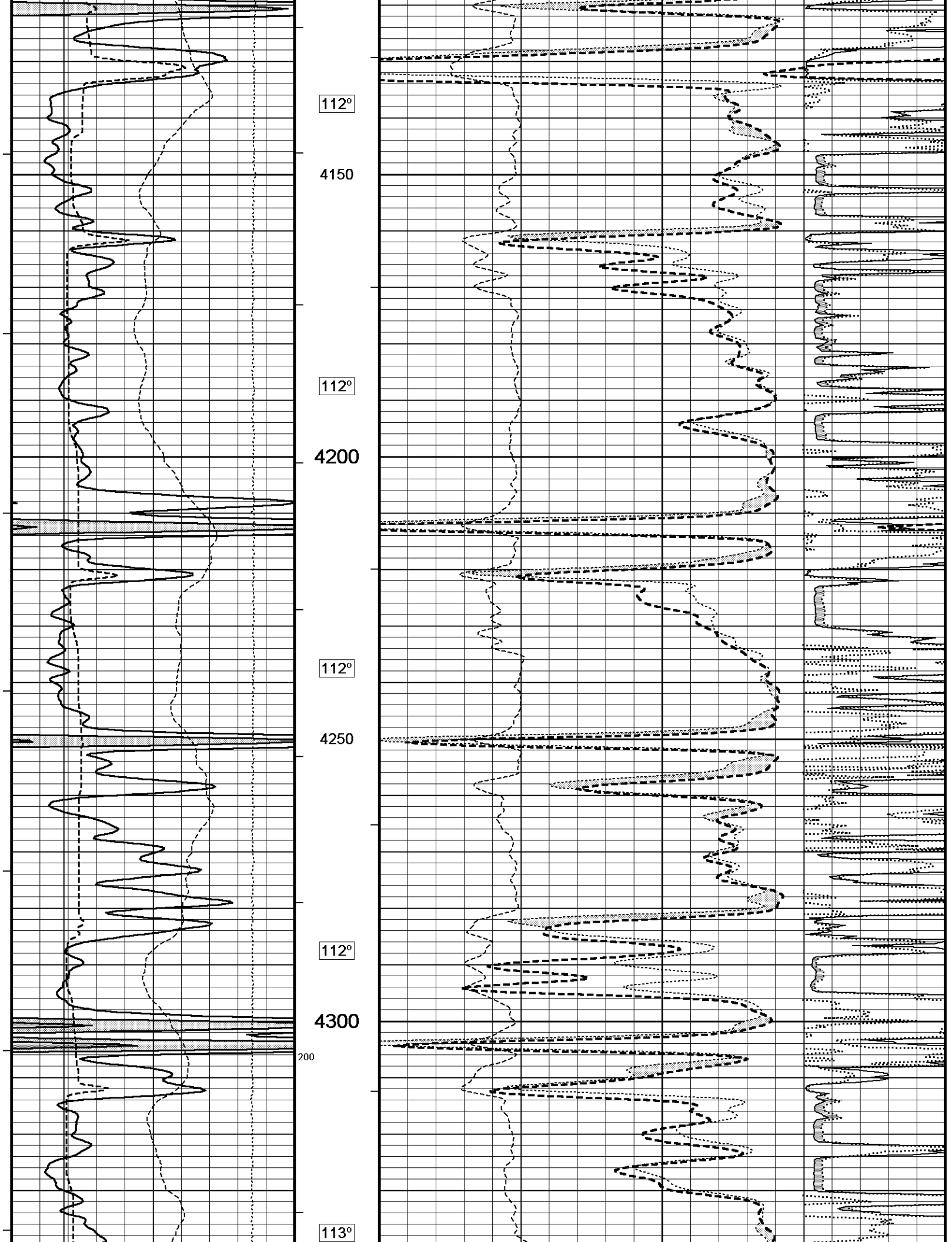
↓ 5 INCH MAIN ↓

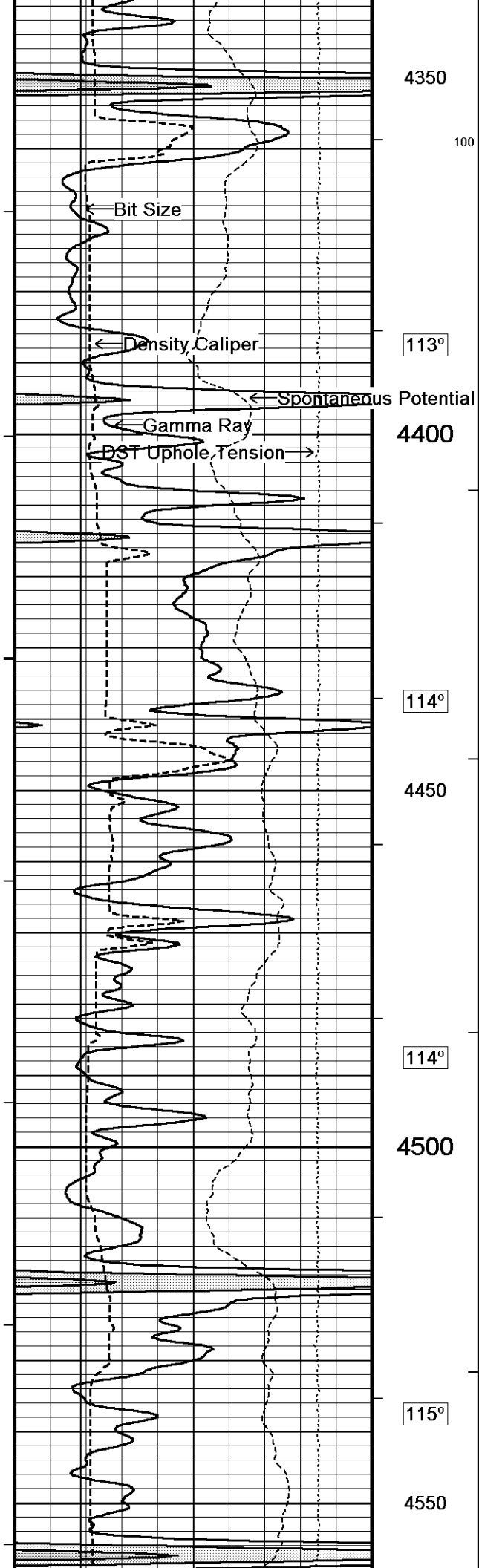
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Tucker #1-9\Shakespeare Tucker #1-9_002.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

Plotted on 12-JUN-2013 22:08
Recorded on 12-JUN-2013 18:38









4350

100

113°

4400

114°

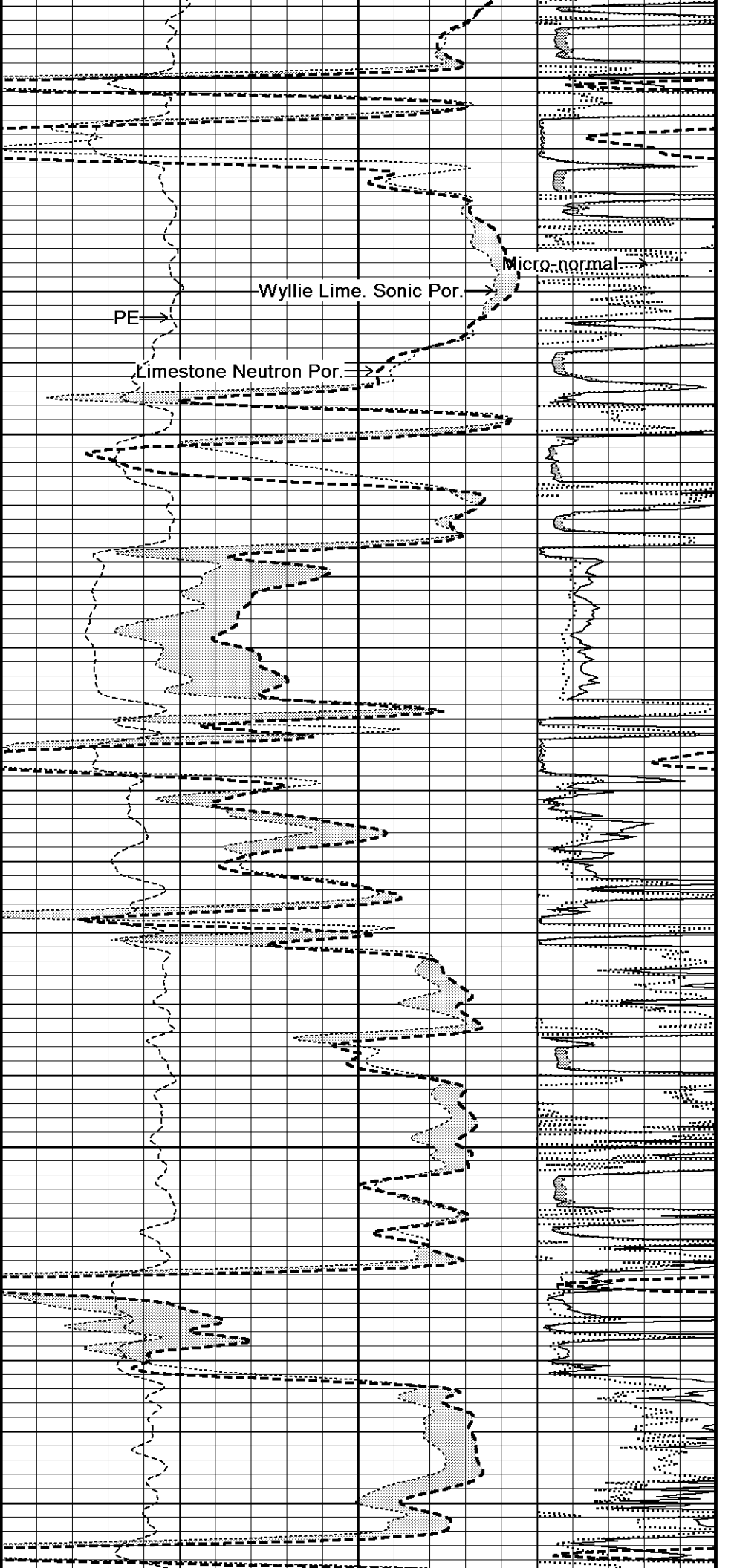
4450

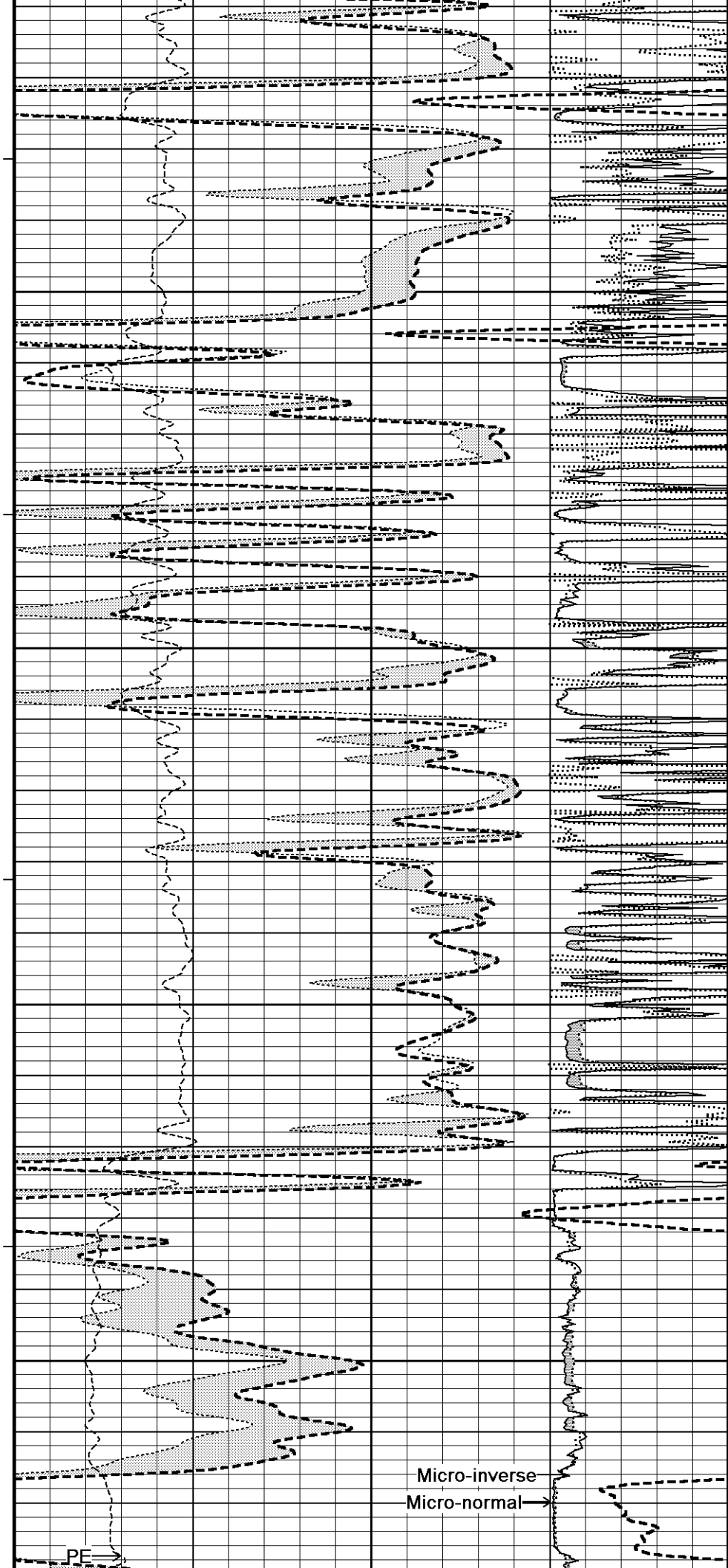
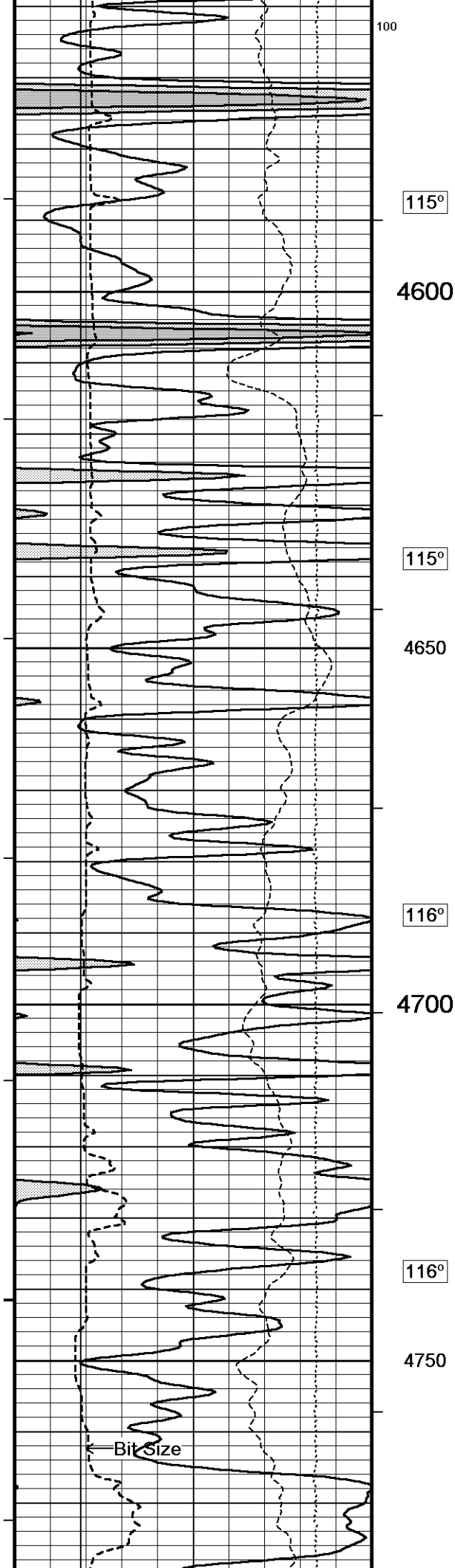
114°

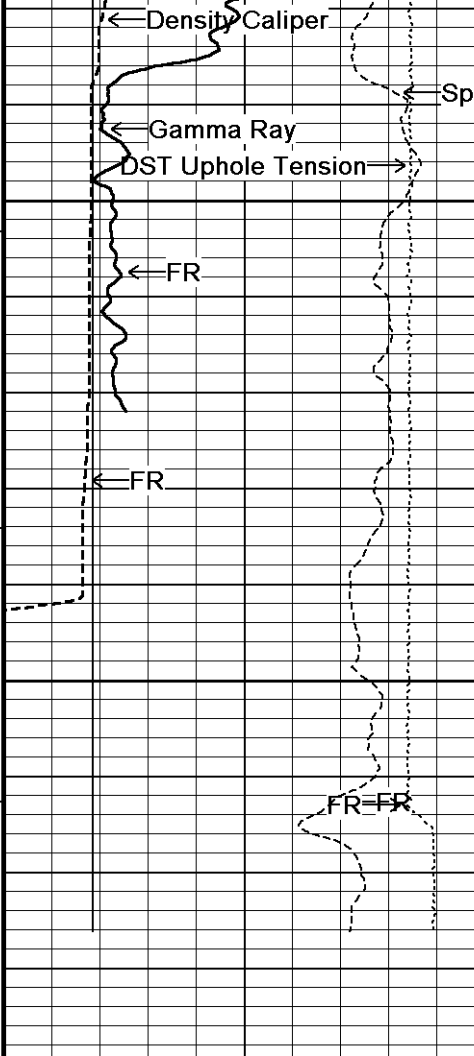
4500

115°

4550







116°

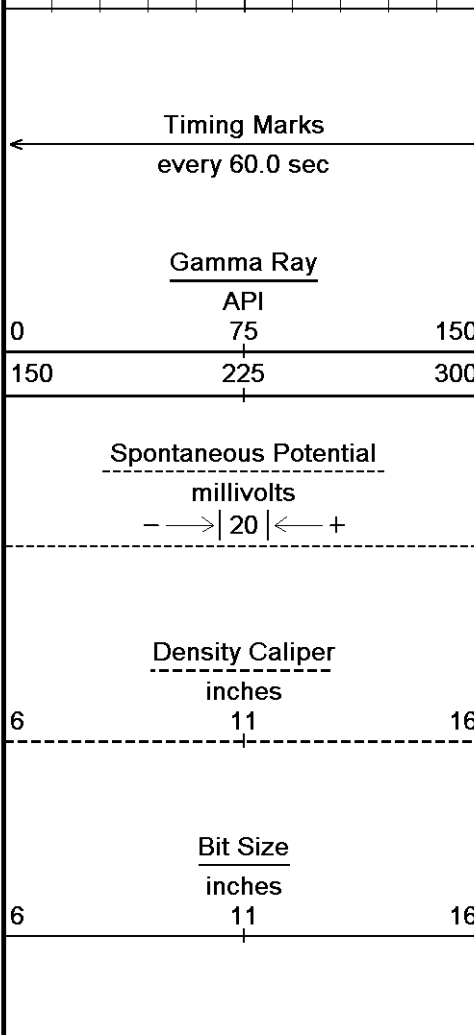
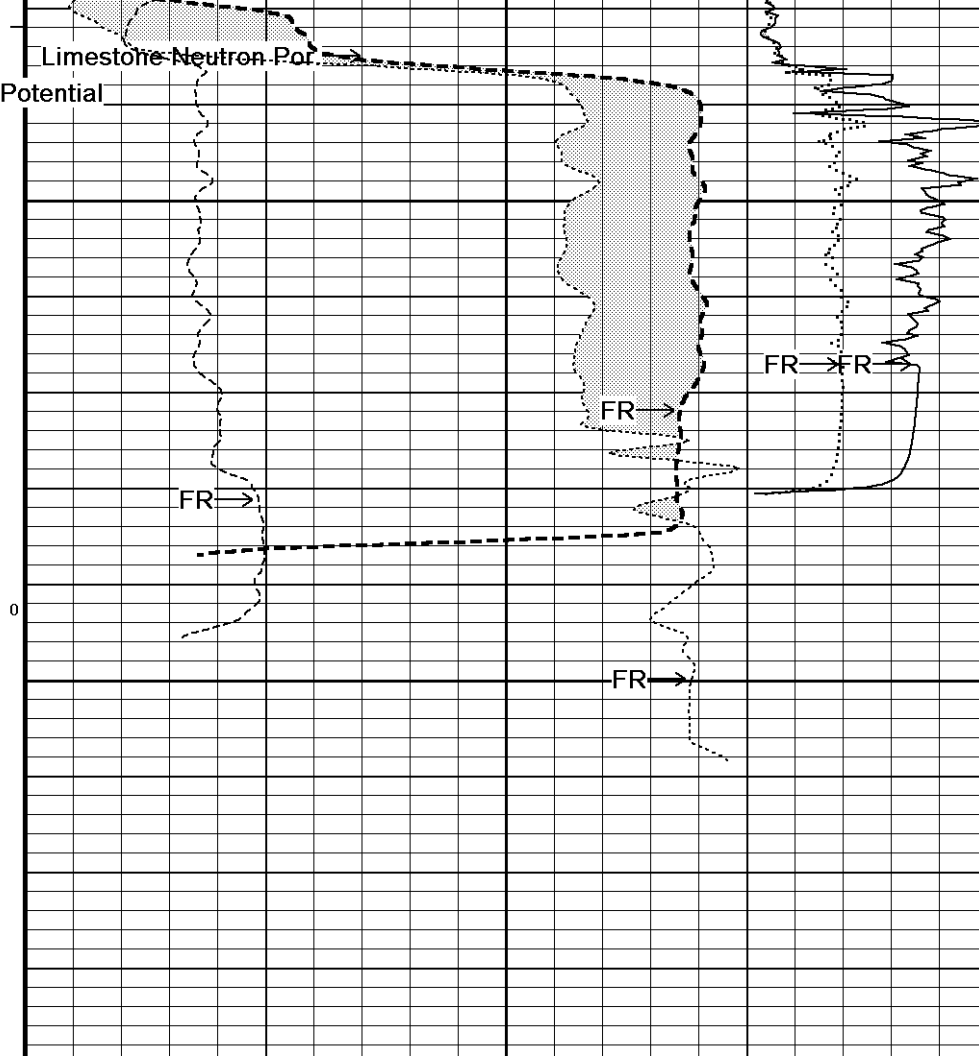
Spontaneous Potential

4800

4850

4888

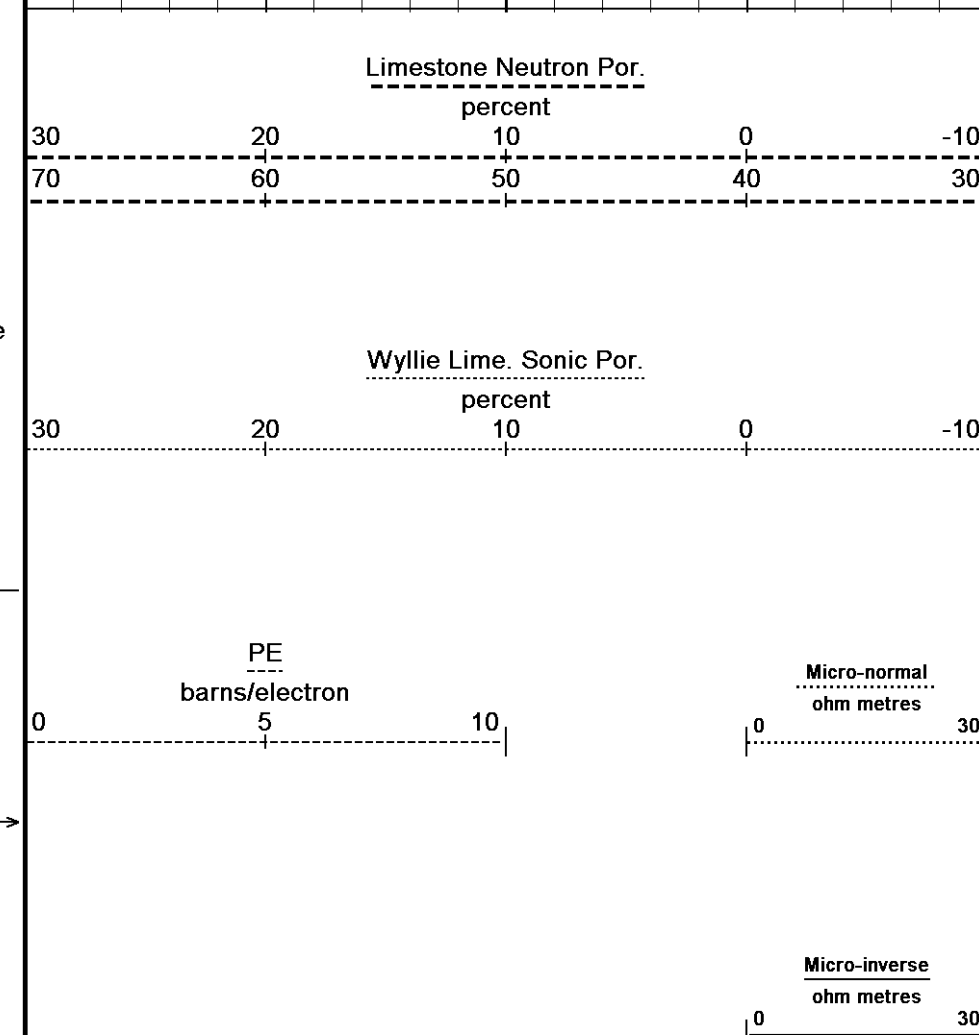
Depth in Feet



Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft



DS1 Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 12-JUN-2013 22:08
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Tucker #1-9\Shakespeare Tucker #1-9_002.dta
Recorded on 12-JUN-2013 18:38
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↑ 5 INCH MAIN ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Log\Shakespeare Tucker #1-9\Shakespeare Tucker #1-9.dta

General Constants All 000

Last Edited on 12-JUN-2013,17:30

General Parameters

Mud Resistivity	0.660	ohm-metres
Mud Resistivity Temperature	85.000	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	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
SW/APOR Tool Source	0.000

Gamma Calibration MCG-B 39

Field Calibration on 11-JUN-2013 10:19

	Measured	Calibrated (API)
Background	64	43
Calibrator (Gross)	1144	768
Calibrator (Net)	1080	725

Gamma Constants MCG-B 39

Last Edited on 12-JUN-2013,00:38

Gamma Calibrator Number	GRC38	
Mud Density	1.13	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-B 39

Field Calibration on 11-JUN-2013,10:13

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

High Resolution Temperature Constants MCG-B 39

Last Edited on 11-JUN-2013,10:13

Pre-filter Length 11

Micro Normal and Micro Inverse Calibration MML-A 3

Base Calibration on 05-JUN-2013 15:36

Field Check on 11-JUN-2013 10:11

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	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
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Micro Normal	63.0	63.0				
Micro Inverse	48.2	48.2				
Micro Normal and Micro Inverse Constants MML-A 3			Last Edited on 11-JUN-2013,10:06			
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 66			Base Calibration on 22-MAY-2013 15:00 Field Check on 11-JUN-2013 10:25			
Base Calibration						
		Measured	Calibrated (cps)			
	Near	Far	Near	Far		
	3145	98	3714	110		
Ratio	32.215		33.764			
Field Calibrator at Base						
			Calibrated (cps)			
			1654	2365		
Ratio			0.699			
Field Check						
			Calibrated (cps)			
			1626	2372		
Ratio			0.696			
Neutron Constants MDN-A.B 66			Last Edited on 11-JUN-2013,10:19			
Neutron Source Id	P0204NN					
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					
Sonic Constants MSS-A.A 126			Last Edited on 27-MAY-2013,04:34			
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						
Hole Type	Compensated Open Hole					
Sonde Parameters						
	Measured	Calibrated				
Offset	0.0000	0.0000				
Free Pipe	0.0000					
Peak Amplitude Source						
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		
4' Waveform Filter		
5' Waveform Filter		
6' Waveform Filter		
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

Caliper Calibration MPD-B 64

Base Calibration on 21-MAY-2013 17:34
Field Calibration on 11-JUN-2013 10:02

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14464	3.99
2	23406	5.98
3	32206	7.97
4	40368	9.86
5	50018	11.92
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.97	5.98

Photo Density Calibration MPD-B 64

Base Calibration on 21-MAY-2013 17:55
Field Check on 11-JUN-2013 10:06

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	60105	33685	59556	30836
Reference 2	25286	2917	24941	2541
Field Check at Base				
	1165.8	1353.6		
Field Check				
	1164.4	1354.5		

PE Calibration

Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	210	1037		
Reference 1	22619	59903	0.381	0.371
Reference 2	6846	25146	0.275	0.272

Field Check at Base

210.2 1037.2

Field Check

211.3 1036.2

Density Constants MPD-B 64

Last Edited on 12-JUN-2013,00:37

Density Source Id	18235B	
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	1.11	
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	

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Shakespeare Tucker #1-9\Shakespeare Tucker #1-9.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-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

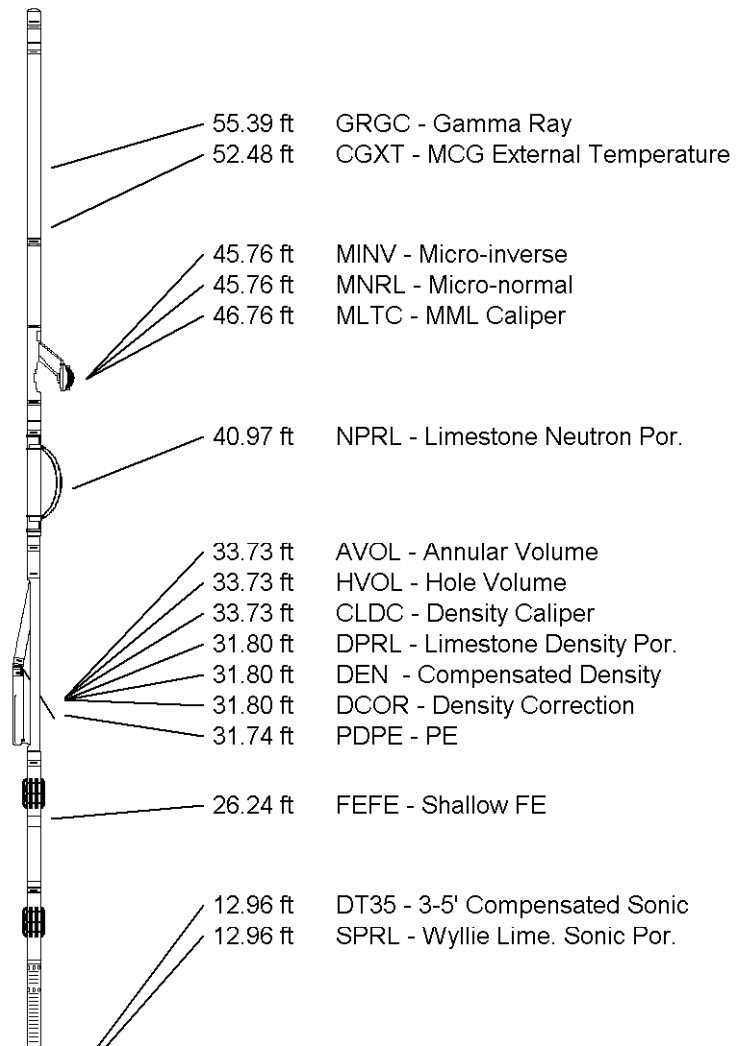
Compact Micro-log
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

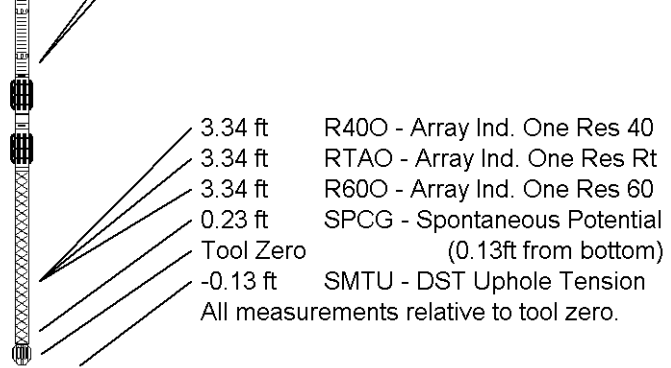
Compact Focussed Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

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



Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.25 ft Weight: 471.8 lb



COMPANY	SHAKESPEARE OIL COMPANY
WELL	TUCKER #1-9
FIELD	WILDCAT
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	UNITED STATES / KANSAS

Elevation Kelly Bushing	3140.00	feet	First Reading	4850.00	feet
Elevation Drill Floor	3139.00	feet	Depth Driller	4864.00	feet
Elevation Ground Level	3130.00	feet	Depth Logger	4863.00	feet



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