



Weatherford[®]

**COMPENSATED NEUTRON
SONIC POROSITY
OVERLAY**

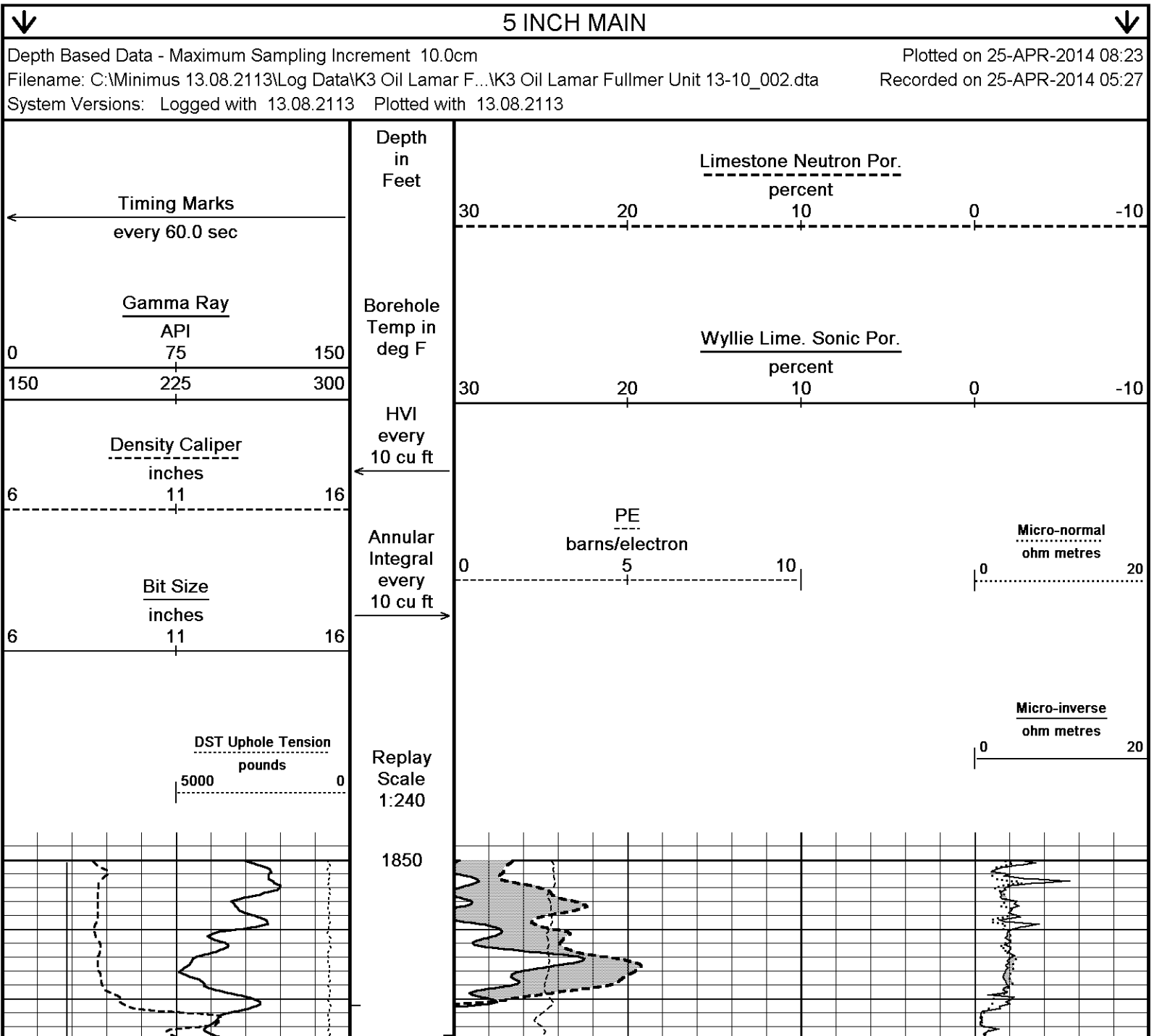
COMPANY		K3 OIL & GAS OPERATING COMPANY			
WELL		LAMAR FULLMER UNIT 13-10			
FIELD		WILDCAT			
PROVINCE/COUNTY		GOVE			
COUNTRY/STATE		U.S.A. / KANSAS			
LOCATION		1824' FSL & 1921' FEL			
SEC 13	TWP 15S	RGE 29W	Other Services		
Latitude					
Longitude					
API Number		15-063-22199			
Permanent Datum GL, Elevation 2448 feet					
Log Measured From KB					
Drilling Measured From KB					
Date	25-APR-2014			Elevations:	feet
Run Number	ONE			KB	2456.00
Service Order	4558-85583672			DF	2454.00
Depth Driller	4421.00	feet		GL	2448.00
Depth Logger	4421.00	feet			
First Reading	4408.00	feet			
Last Reading	265.00	feet			
Casing Driller	270.00	feet			
Casing Logger	265.00	feet			
Bit Size	7.875	inches			
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.30 lb/USg	48.00 CP			
PH / Fluid Loss	9.00	8.00 ml/30Min			
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.77 @ 92.0	ohm-m			
Rmf @ Measured Temp	0.62 @ 92.0	ohm-m			
Rmc @ Measured Temp	0.92 @ 92.0	ohm-m			
Source Rmf / Rmc	CALC	CALC			
Rm @ BHT	0.58 @123.0	ohm-m			
Time Since Circulation	4 HOURS				
Max Recorded Temp	123.00	deg F			
Equipment / Base	13096	LIB			
Recorded By	ADAM SILL				
Witnessed By	PAT DEENIHAN				
JOB #	LB14-128				

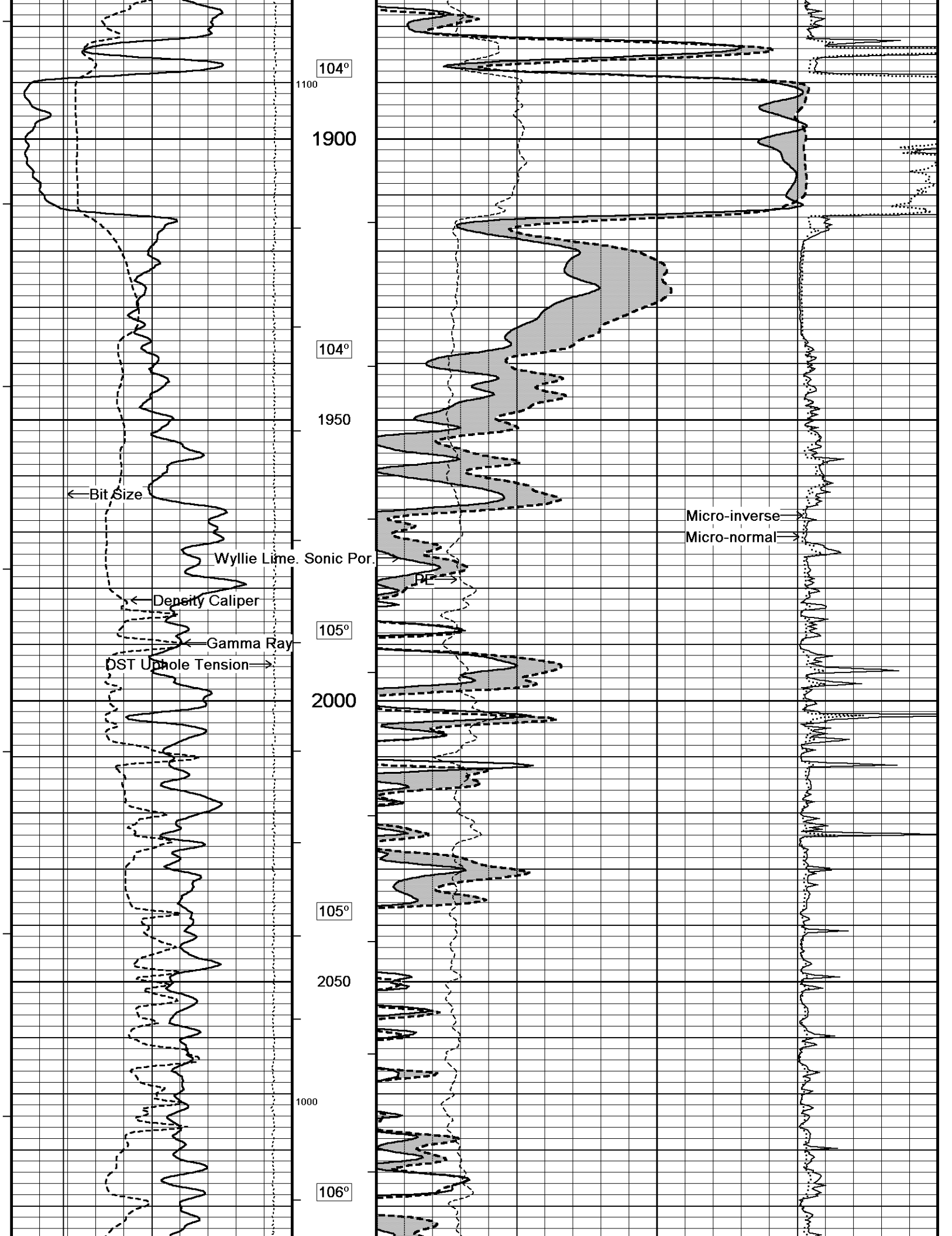
BOREHOLE RECORD					Last Edited: 25-APR-2014 02:45
Bit Size inches		Depth From feet		Depth To feet	
7.875		270.00		4421.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	270.00	24.00	

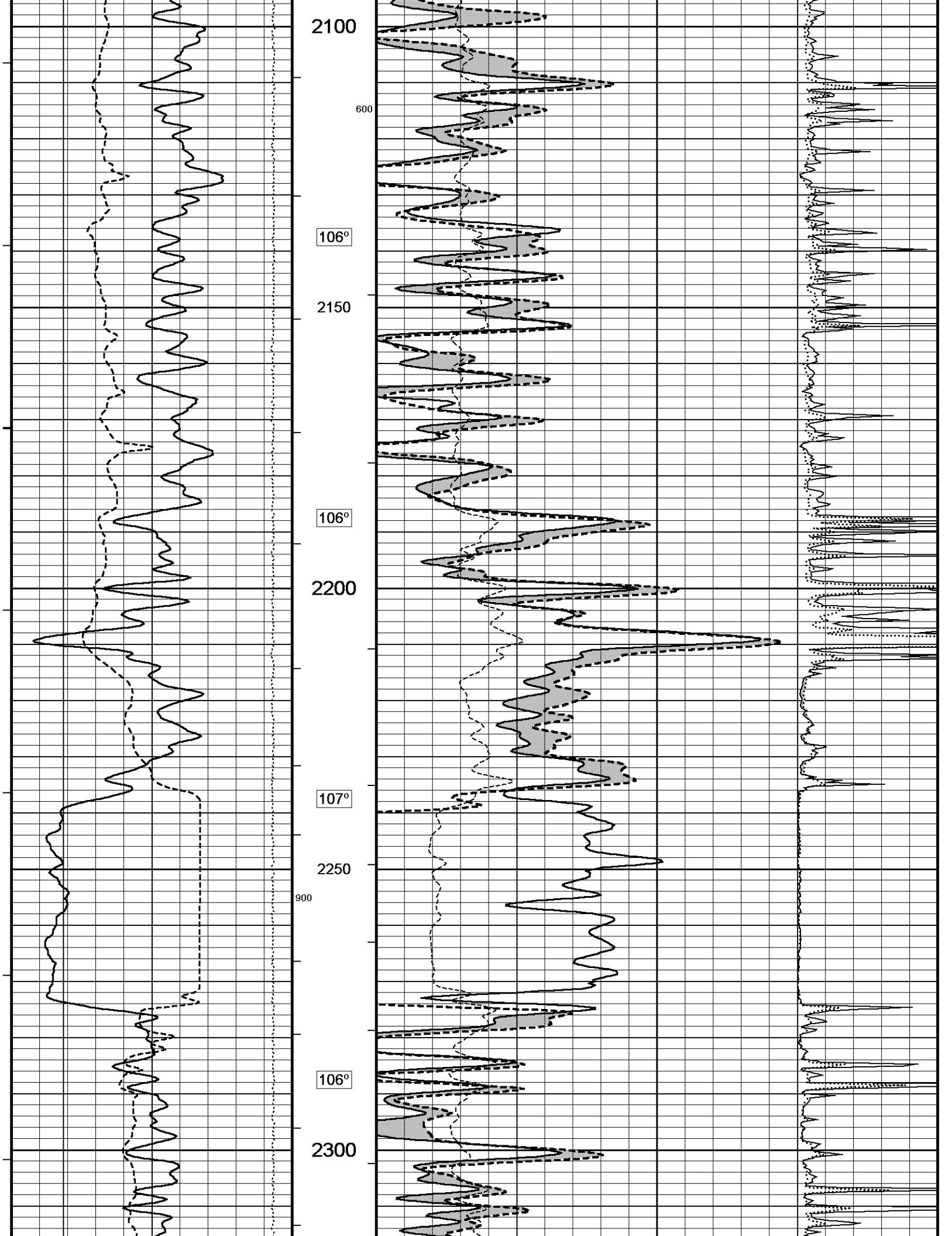
REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE: DUAL BOWSPRING ECCENTRALIZER USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED 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: 1841 CU. FT.
- ANNUAL HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 3300 FEET: 191 CU. FT.

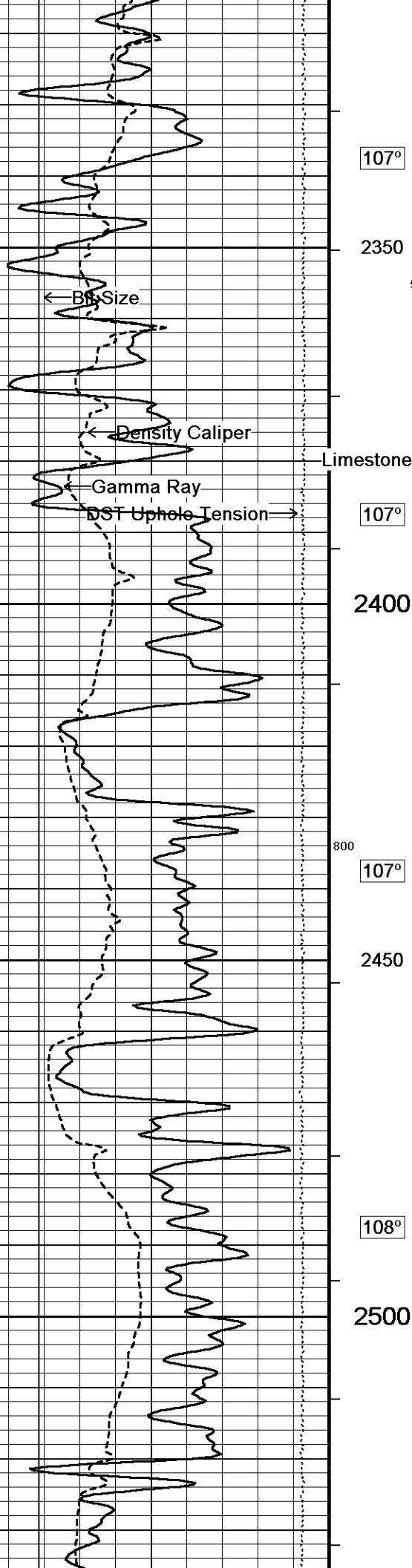
- RIG: DUKE #8.
- ENGINEER: A. SILL.
- OPERATORS: J. LaPOINT.

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.









107°

2350

500

107°

2400

Limestone Neutron Por.

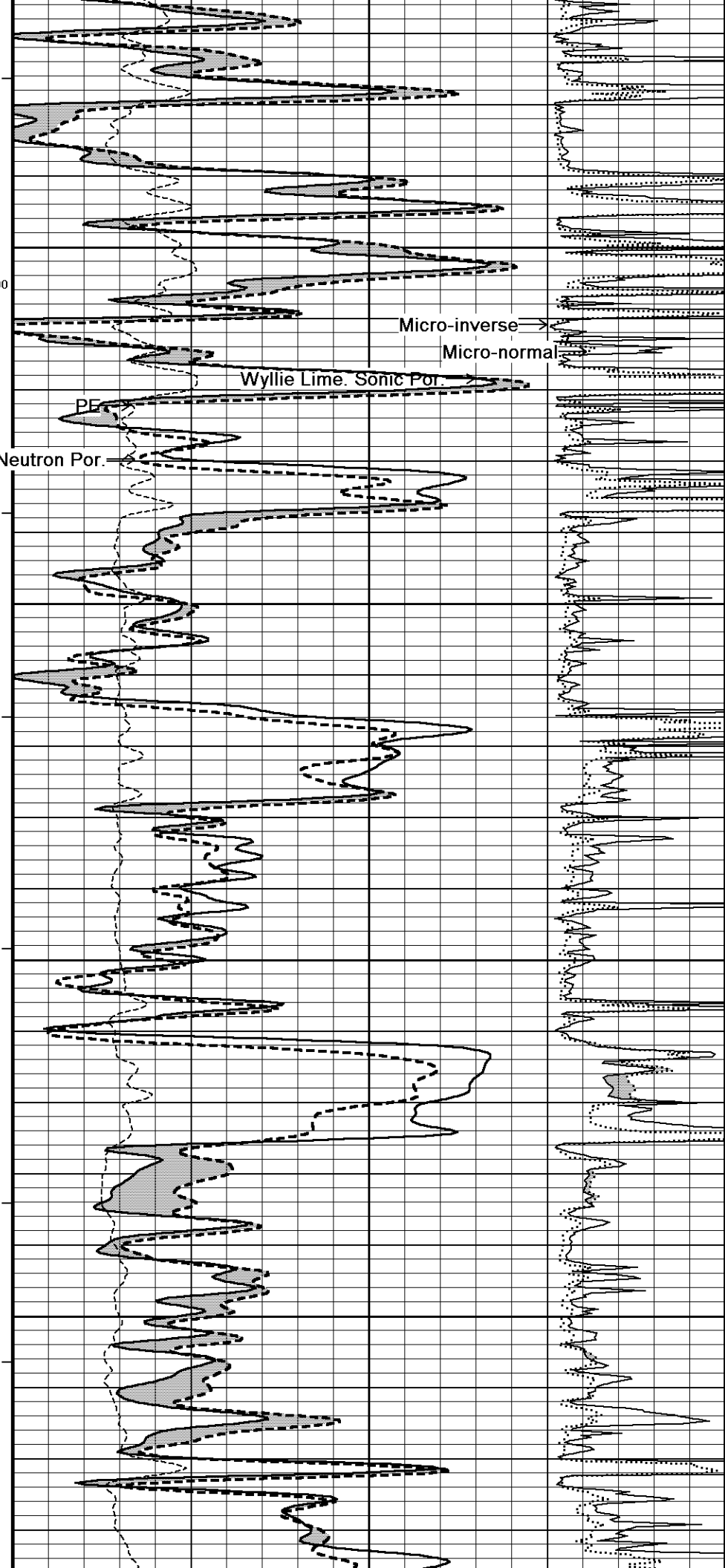
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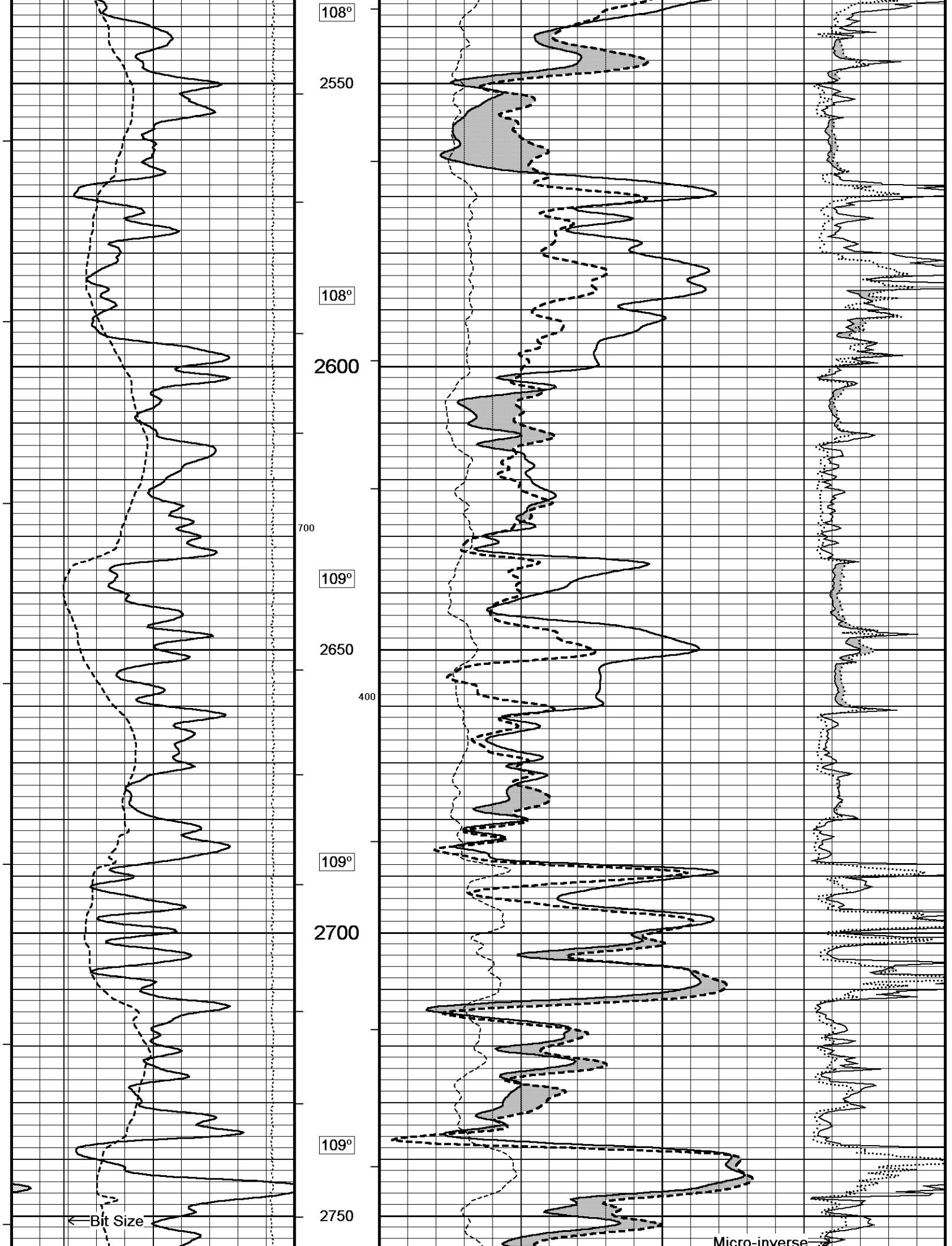
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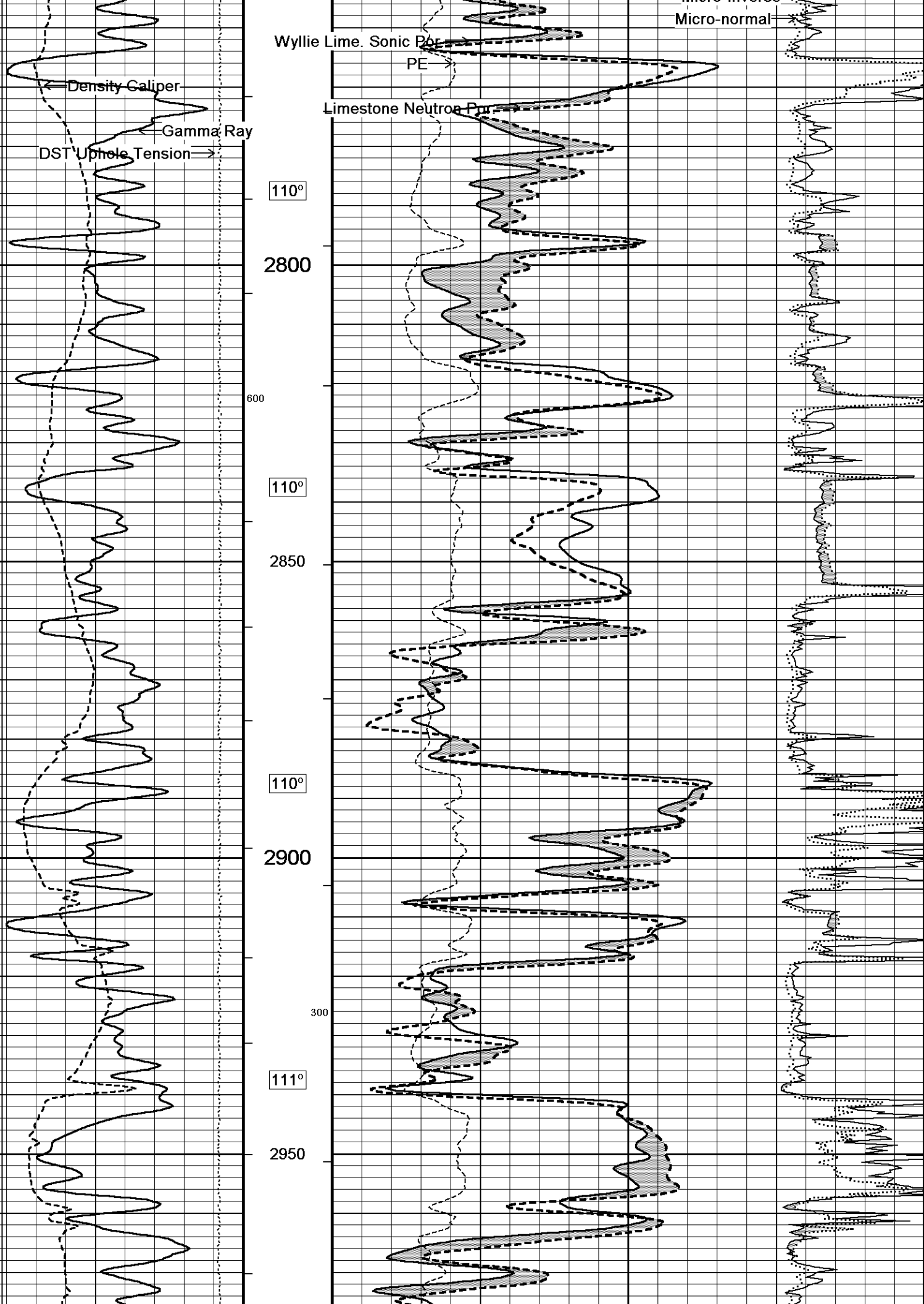
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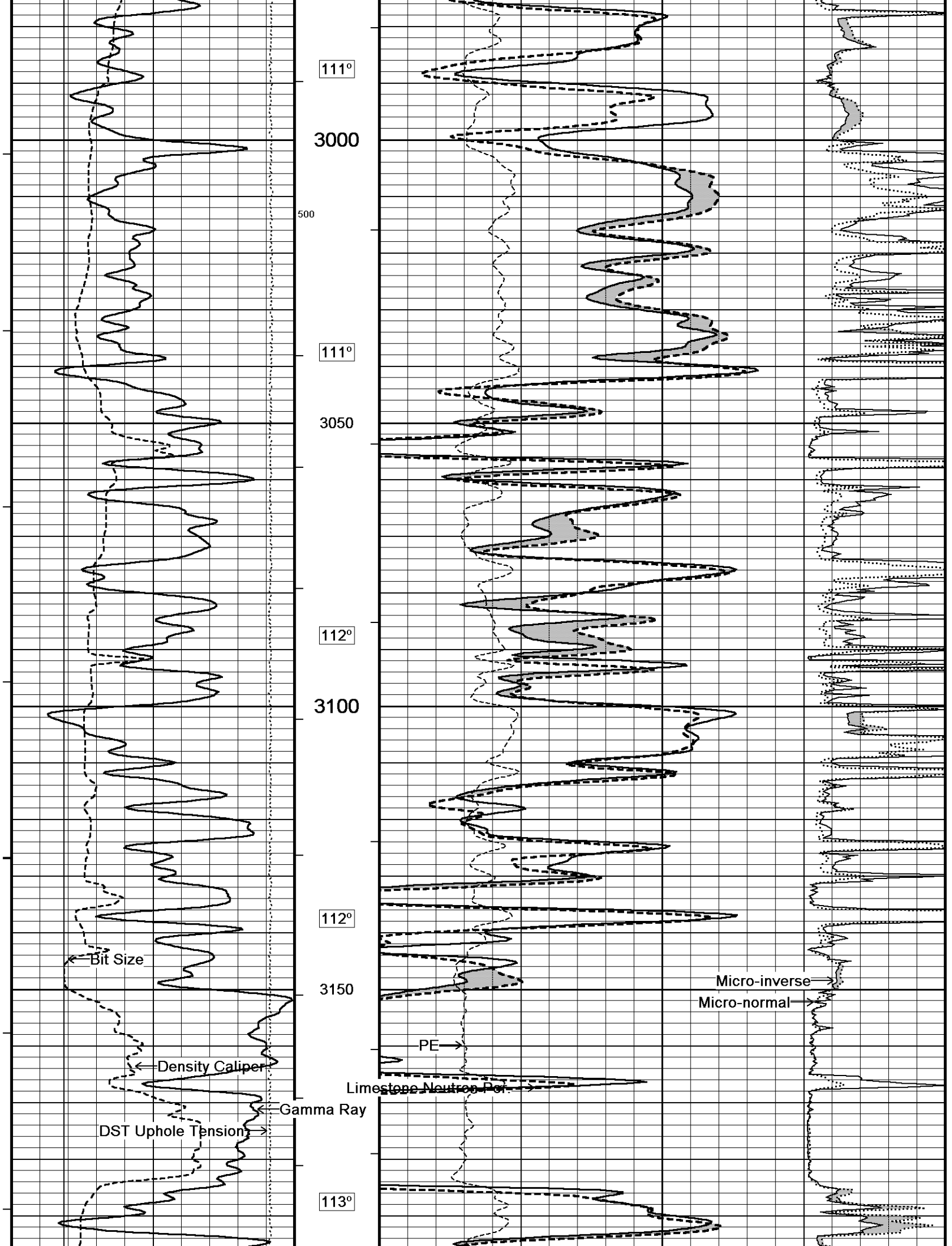
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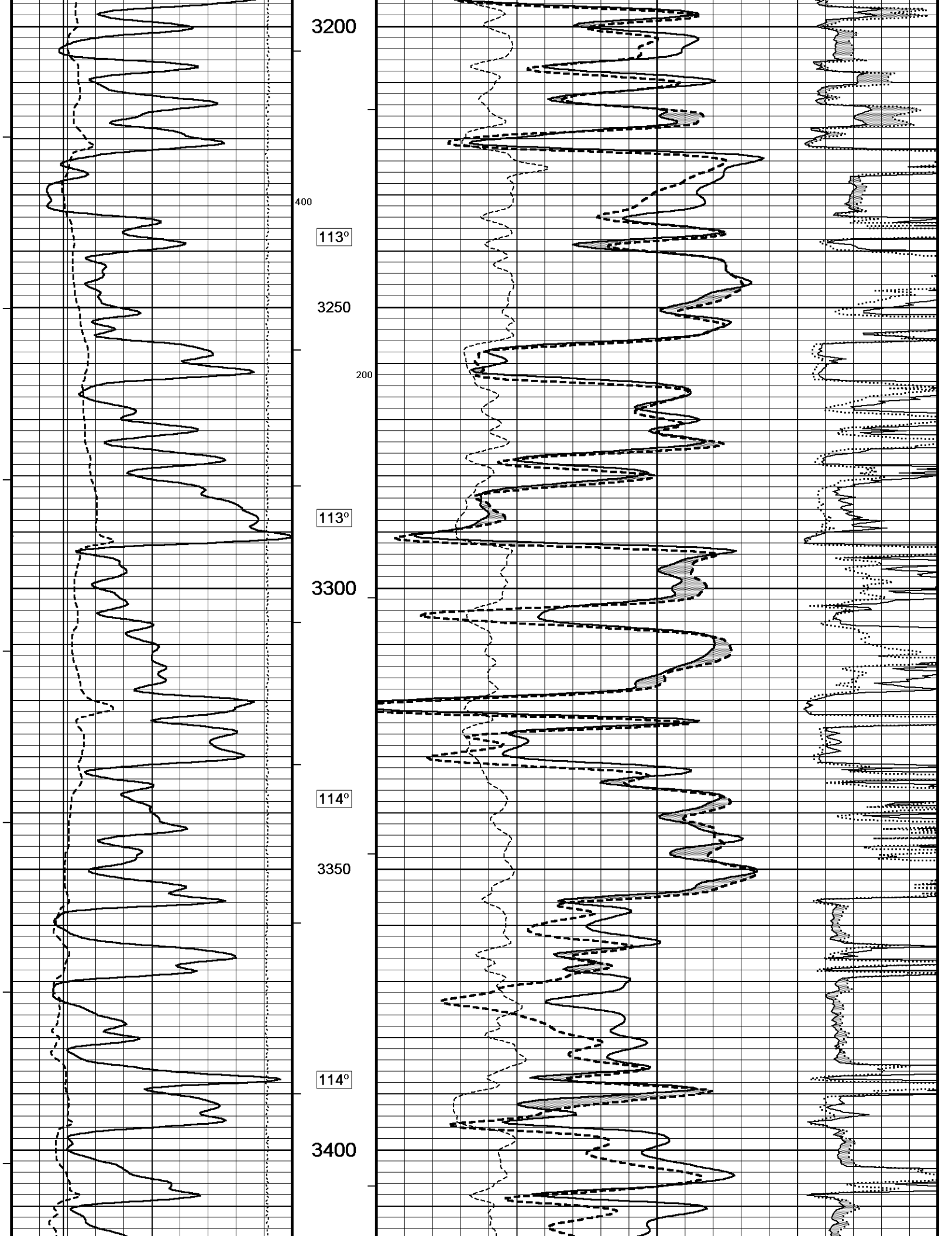
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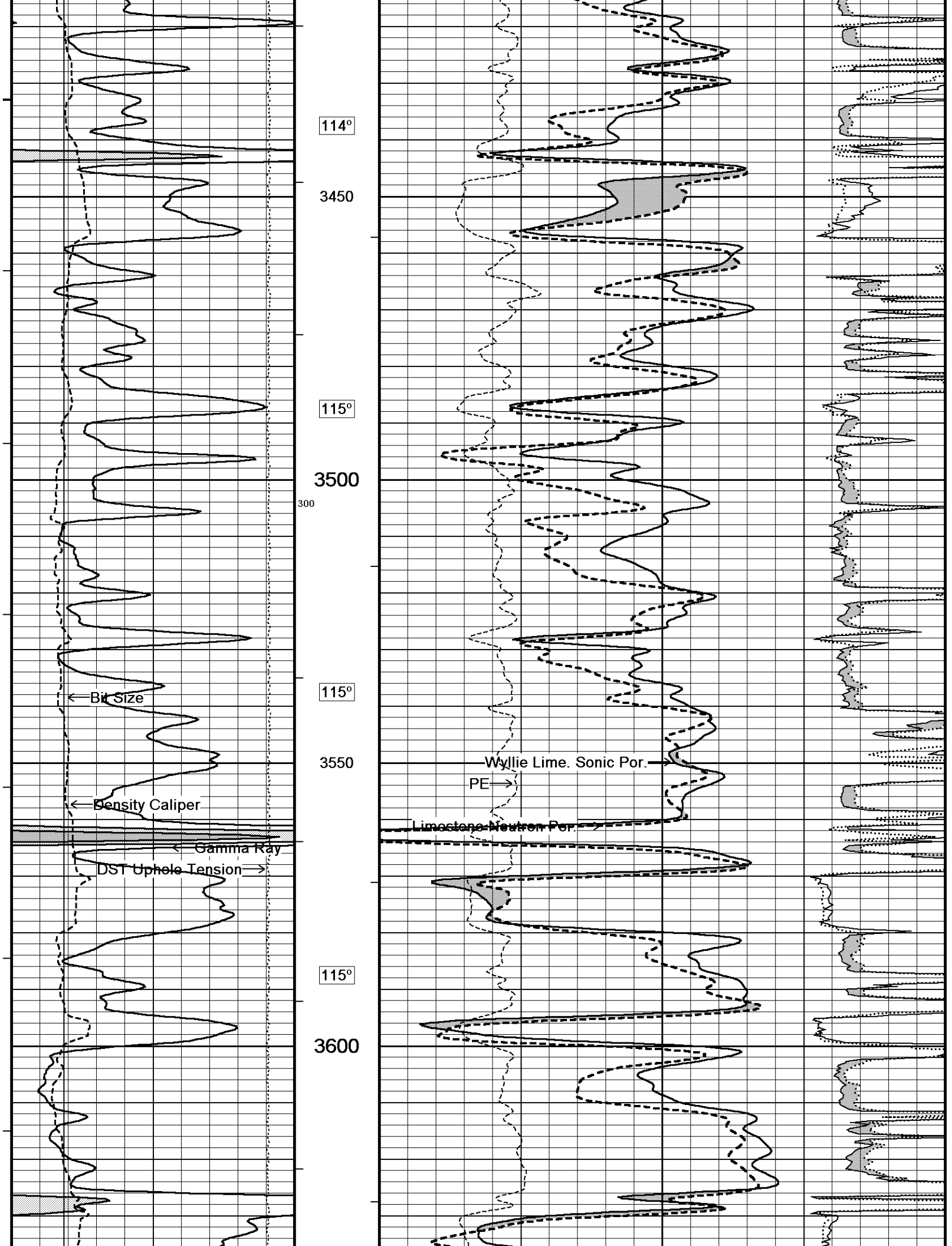


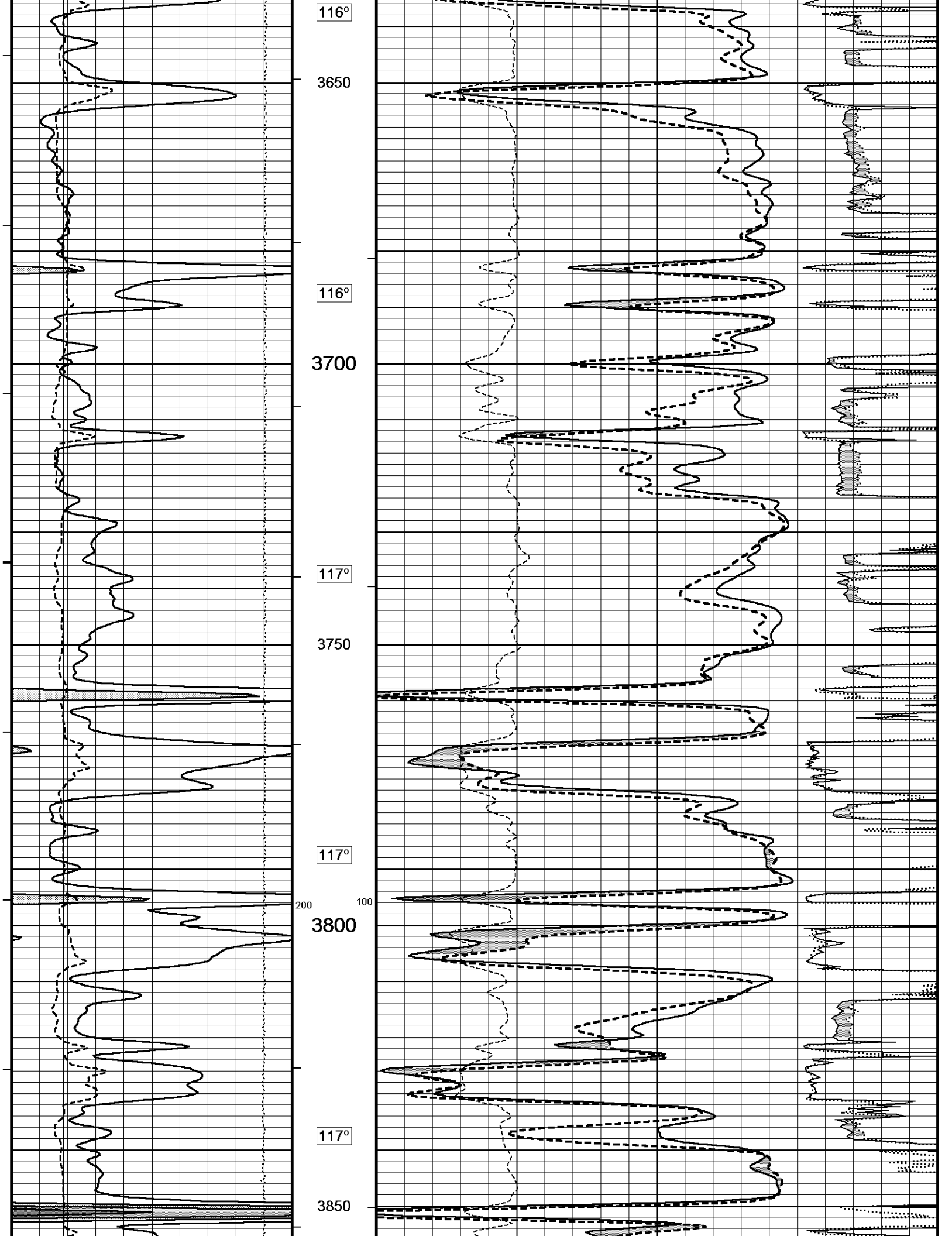


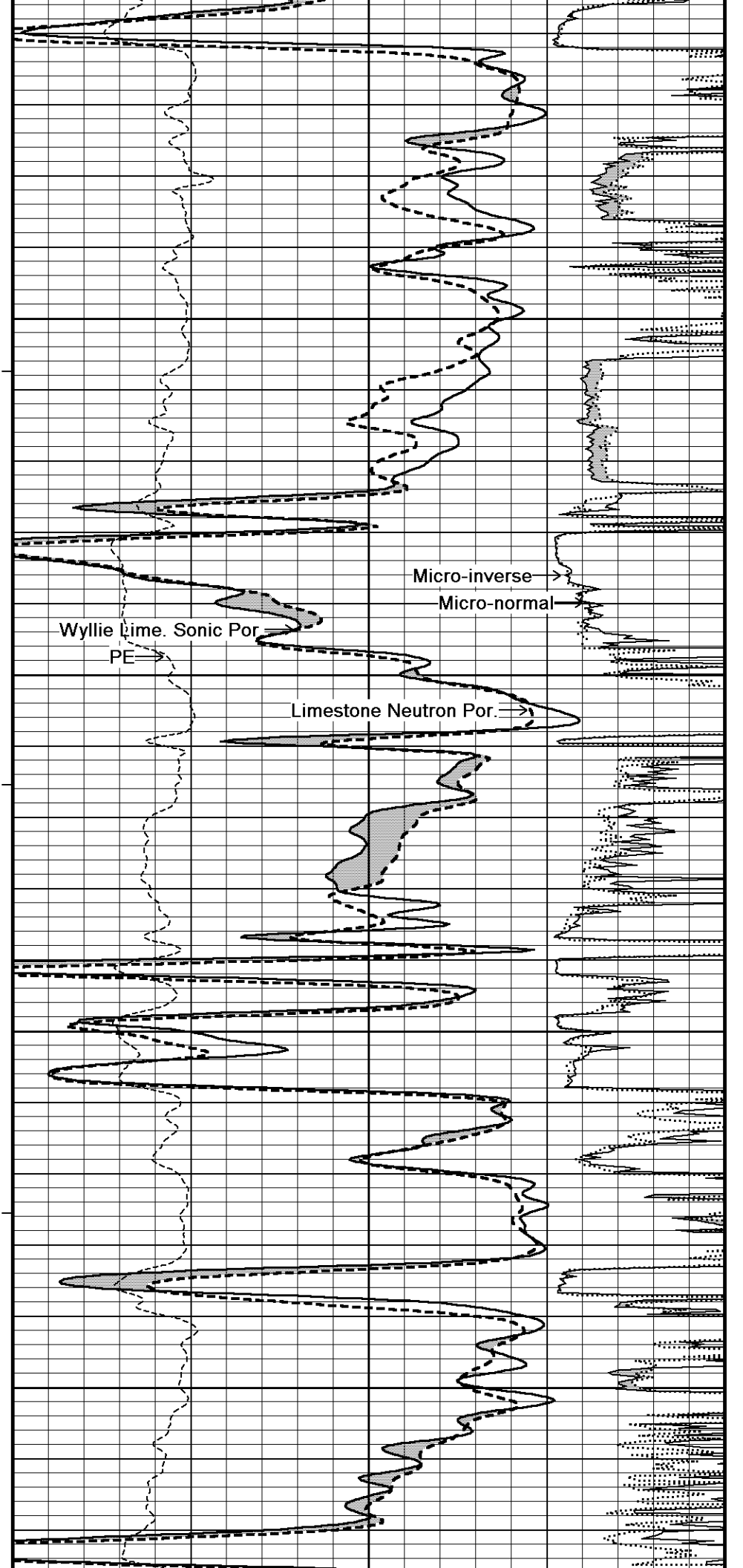
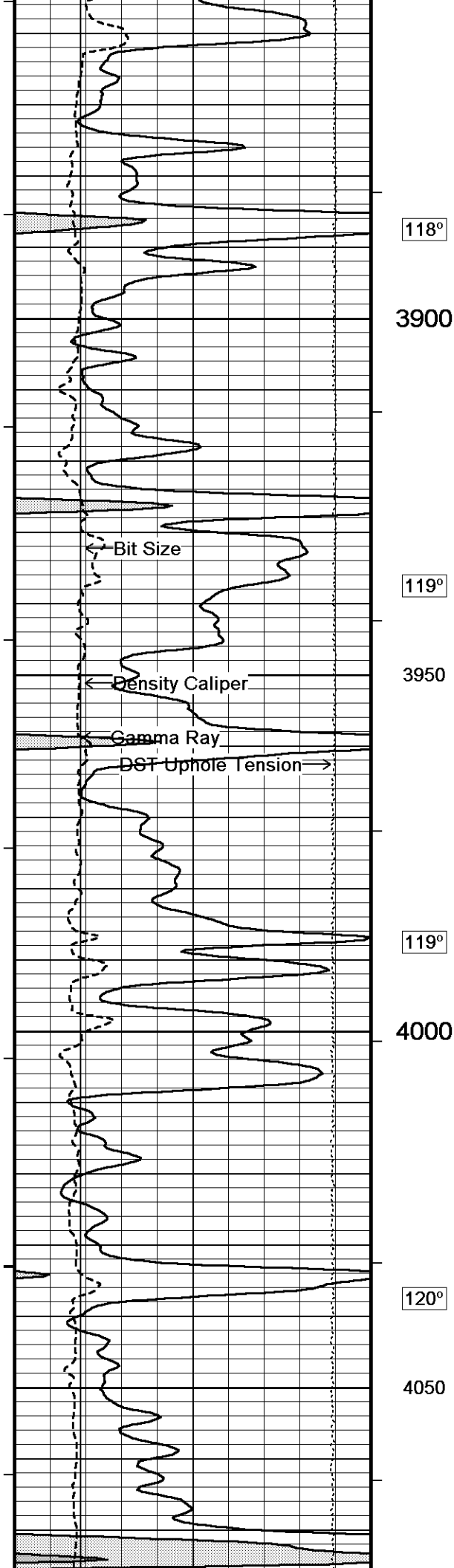


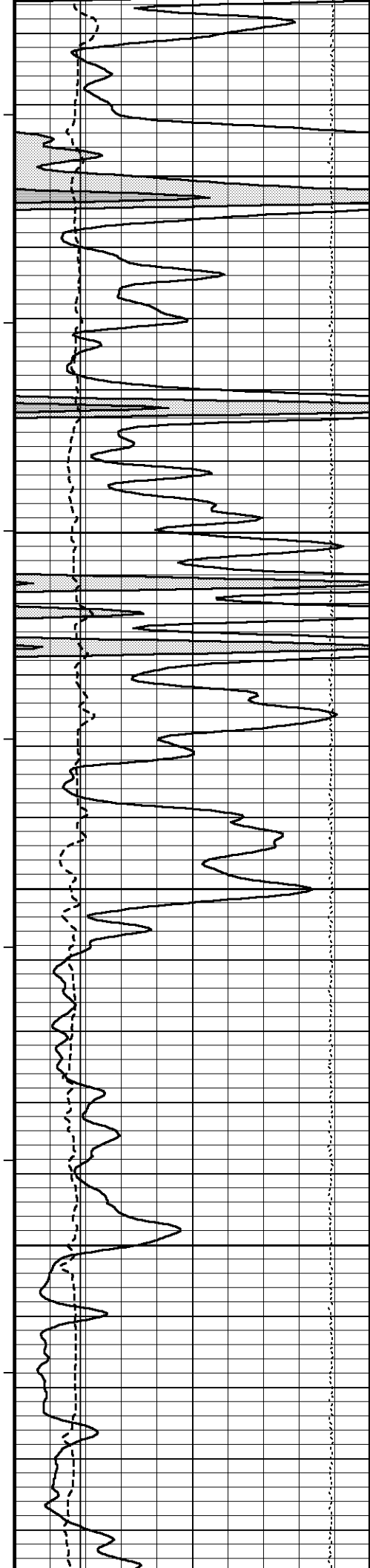












121°

100

4100

121°

4150

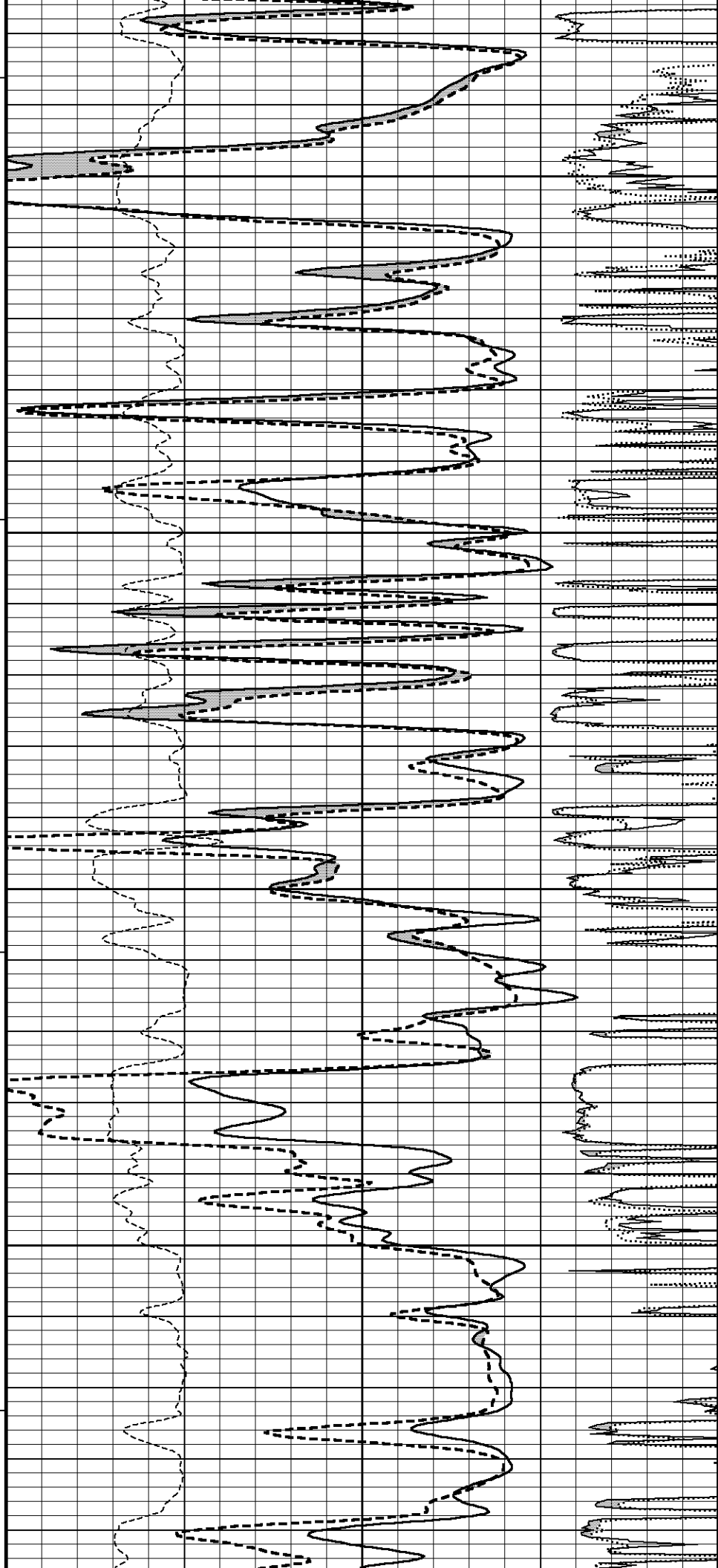
122°

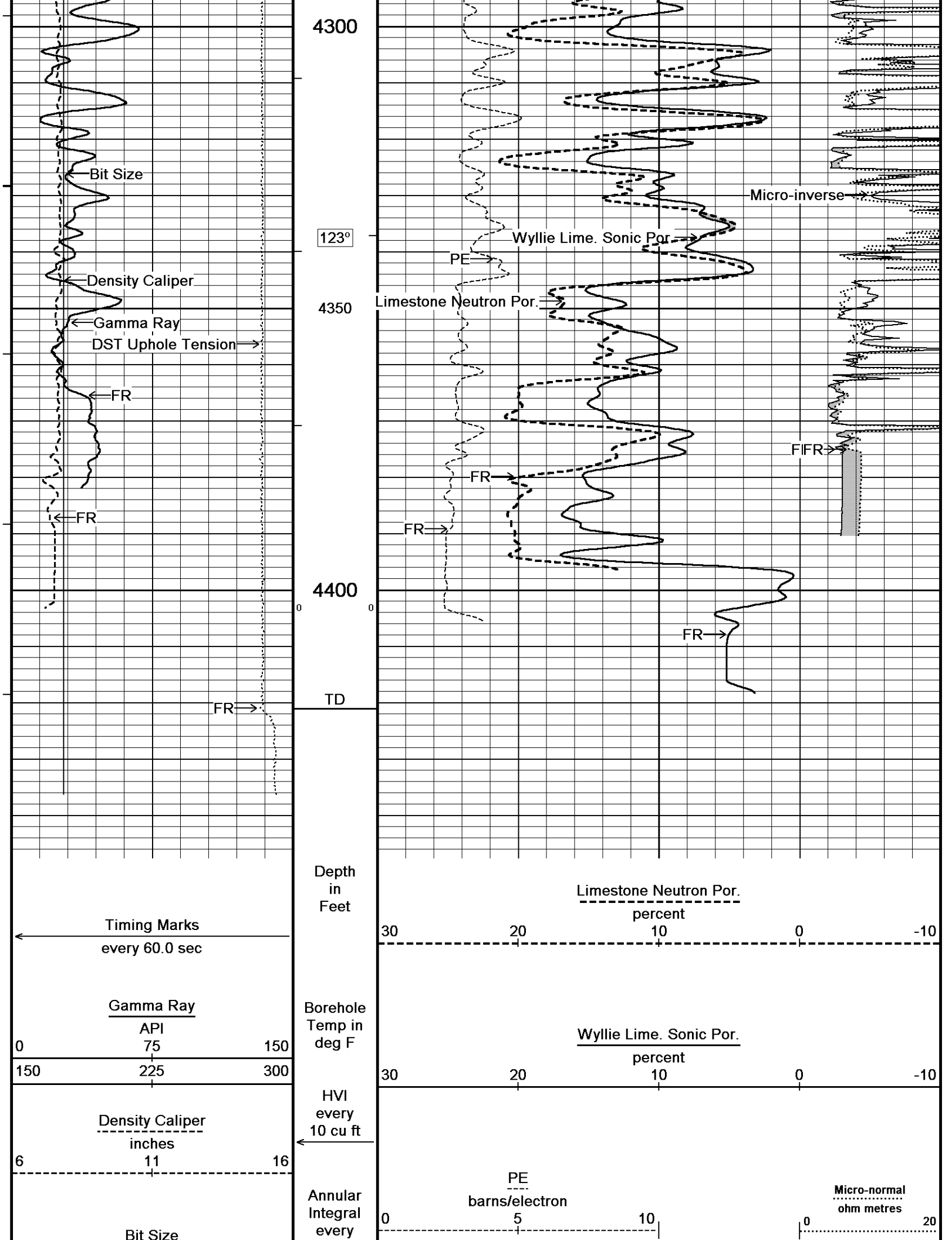
4200

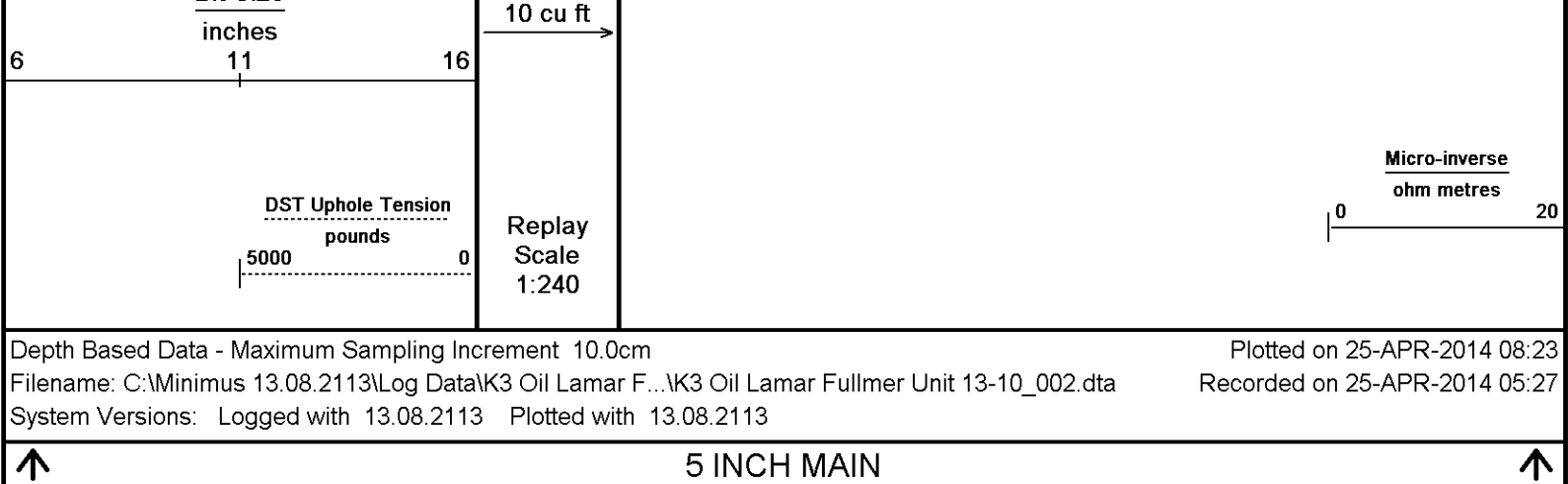
123°

4250

123°







BEFORE SURVEY CALIBRATION			
C:\Minimus 13.08.2113\Log Data\K3 Oil Lamar Fullmer Unit 13-10\K3 Oil Lamar Fullmer Unit 13-10_001.dta			
General Constants All 000		Last Edited on 25-APR-2014,04:42	
General Parameters			
Mud Resistivity	0.770	ohm-metres	
Mud Resistivity Temperature	92.000	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		
Down-hole Tension Calibration SMS 0		Field Calibration on 23-APR-2014 20:17	
Reading No	Measured	Calibrated (lbs)	
1	15076.45	0.00	
2	16570.90	577.60	
Gamma Calibration MCG-D.K 469		Field Calibration on 18-APR-2014 19:23	
	Measured	Calibrated (API)	
Background	73	50	
Calibrator (Gross)	1115	775	
Calibrator (Net)	1042	725	
Gamma Constants MCG-D.K 469		Last Edited on 25-APR-2014,03:00	
Gamma Calibrator Number	GRC038		
Mud Density	1.12	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 469		Field Calibration on 18-APR-2014,19:10	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

Pre-filter Length	11
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SP Calibration MCG-D.K 469

Field Calibration on 17-APR-2014 09:58

	Measured	Calibrated (mV)
Reference 1	100.1	99.9
Reference 2	-99.0	-100.0

Caliper Calibration MML-A 3

Base Calibration on 25-MAR-2014 11:38

Field Calibration on 18-APR-2014 19:07

Base Calibration Reading No	Measured	Calibrator Size (in)
1	14836	5.98
2	18178	7.97
3	21362	9.86
4	25372	11.92
5	0	0.00
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.98	7.97

Micro Normal and Micro Inverse Calibration MML-A 3

Base Calibration on 25-MAR-2014 11:48

Field Check on 18-APR-2014 18:58

Base Calibration					
		Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	
Micro Normal	10.0	50.0	5.1	25.6	
Micro Inverse	10.0	49.9	3.4	16.9	

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.3	77.3
Micro Inverse	51.2	51.2

Micro Normal and Micro Inverse Constants MML-A 3

Last Edited on 25-APR-2014,03:00

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	0.5110
Micro Inverse K Factor	0.3380
Standoff Offset	N/A inches

Neutron Calibration MDN-A.B 66

Base Calibration on 24-MAR-2014 14:50

Field Check on 18-APR-2014 19:30

Base Calibration					
	Measured		Calibrated (cps)		
	Near	Far	Near	Far	
	3064	94	3714	110	
Ratio	32.437		33.764		

Field Calibrator at Base		Calibrated (cps)	
		1641	2431
Ratio		0.675	

Field Check		Calibrated (cps)	
		1667	2436
Ratio		0.684	

Neutron Constants MDN-A.B 66

Last Edited on 25-APR-2014,03:00

Neutron Source Id	P0204NN
Neutron Jig Number	5824NE
Epithermal Neutron	
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 knsi

Temperature Source	Constant Value	N/A	degrees F
Temperature	68.00		kppm
Mud Salinity	0.00		
Salinity Correction	Not Applied		
Formation Fluid Salinity Source	None		
Formation Fluid Salinity	N/A		kppm
Barite Mud Correction	Not Applied		
FE Calibration MFE-A.A 135			Base Calibration on 25-MAR-2014 12:07 Field Check on 18-APR-2014 18:56
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	963.6	126.8	
Base Check		281.2	
Field Check		281.2	
FE Constants MFE-A.A 135			Last Edited on 25-APR-2014,02:59
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 73			Last Edited on 25-APR-2014,02:58
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		
Peak Amplitude Source			
Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain
3'	N/A	N/A	N/A
4'	N/A	N/A	N/A
5'	N/A	N/A	N/A
6'	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 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

Induction Calibration MAI-A.A 167

Base Calibration on 22-FEB-2014,14:07

Field Check on 18-APR-2014 18:52

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.3	474.2	9.3	967.1
2	6.3	388.4	7.6	822.1
3	3.3	259.4	5.2	566.5
4	1.9	133.0	2.6	279.5

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			12.7	3842.1
2			29.5	3479.9
3			29.1	3056.0
4			19.8	2083.9
Deep			18.6	2051.4
Medium			42.2	3994.9
Shallow			42.8	5057.7

Array Temperature 69.0 Deg F

Induction Constants MAI-A.A 167

Last Edited on 25-APR-2014,02:58

Induction Model

Caliper for Borehole Corr.	RtAP-WBM	
Hole Size for Borehole Correction	Density Caliper	
Tool Centred	N/A	inches
Stand-off Type	No	
Stand-off	Fins	
Number of Fins on Stand-off	0.50	inches
Stand-off Fin Angle	8.0000	
Stand-off Fin Width	45.00	degrees
Borehole Corr. Rm Source	0.5000	inches
Temp. for Rm Corr.	Temperature Corr	
Squasher Start	MCG External Temperature	
Squasher Offset	0.0020	mhos/metre
	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 167			Field Calibration on 18-APR-2014,18:52
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI-A.A 167			Last Edited on 18-APR-2014,18:52
Pre-filter Length	11		

Caliper Calibration MPD-D.A 482			Base Calibration on 10-APR-2014 12:34
			Field Calibration on 17-APR-2014 10:16
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	16267	3.99	
2	26446	5.98	
3	36593	7.97	
4	46367	9.86	
5	57395	11.92	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	7.92	7.97	

Photo Density Calibration MPD-D.A 482					Base Calibration on 24-MAR-2014 13:51	
					Field Check on 17-APR-2014 10:21	
Density Calibration						
Base Calibration		Measured		Calibrated (sdu)		
		Near	Far	Near	Far	
	Background	1244	1407			
	Reference 1	59945	29818	59556	30836	
	Reference 2	25150	2828	24941	2541	
Field Check at Base						
		1243.8	1406.7			
Field Check						
		1236.7	1411.8			
PE Calibration						
Base Calibration		Measured		Calibrated		
	WS	WH	Ratio	Ratio		
	Background	235	1114			
	Reference 1	26220	59734	0.443	0.371	
	Reference 2	7692	25010	0.312	0.272	
Field Check at Base						
		235.0	1114.4			
Field Check						
		233.6	1108.6			

Density Constants MPD-D.A 482			Last Edited on 25-APR-2014,02:59
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	1.12	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	

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Log Data\K3 Oil Lamar Fullmer Unit 13-10\K3 Oil Lamar Fullmer Unit 13-10_001.dta

CBH-C, Cablehead, 11 pin

CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma

MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log

MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.240 in

Compact Neutron

MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-D.A 482 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric

MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

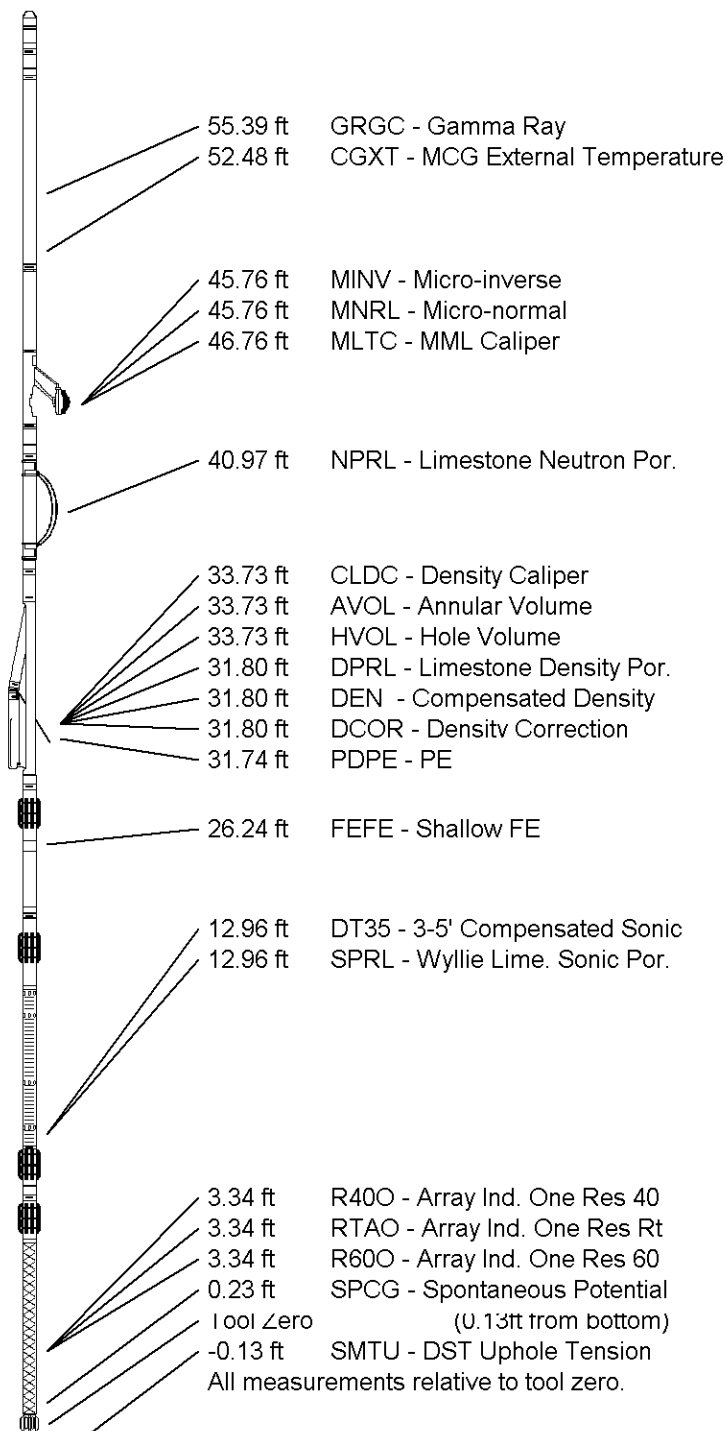
Compact Sonic

MSS-A.A 73 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction

MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 63.07 ft Weight: 480.6 lb



COMPANY	K3 OIL & GAS OPERATING COMPANY				
WELL	LAMAR FULLMER UNIT 13-10				
FIELD	WILDCAT				
PROVINCE/COUNTY	GOVE				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	2456.00	feet	First Reading	4408.00	feet
Elevation Drill Floor	2454.00	feet	Depth Driller	4421.00	feet
Elevation Ground Level	2448.00	feet	Depth Logger	4421.00	feet
			COMPENSATED NEUTRON SONIC POROSITY OVERLAY		