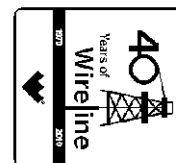




Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY **OXY U.S.A.**
WELL **SHELL B-1**
FIELD **AMAZON GULCH**
PROVINCE/COUNTY **FINNEY**
COUNTRY/STATE **U.S.A. / KANSAS**
LOCATION **2304' FNL & 1181' FWL**



SEC **TWP** **RGE** Other Services
17 **22S** **34W** **MAI/MFE**
API Number **15-055-22110** **MSS**
Permit Number

Permanent Datum G.L., Elevation 2975 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations: feet
KB 2988.00
DF 2986.00
GL 2975.00

Date	09-AUG-2011	
Run Number	ONE	
Depth Driller	4907.00	feet
Depth Logger	4910.00	feet
First Reading	4876.00	feet
Last Reading	3700.00	feet
Casing Driller	1794.00	feet
Casing Logger	1792.00	feet
Bit Size	7.875	inches
Hole Fluid Type	CHEMICAL	
Density / Viscosity	9.30 lb/USg	47.00 CP
PH / Fluid Loss	8.70	47.00 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	0.89 @ 92.0	ohm-m
Rmf @ Measured Temp	0.71 @ 92.0	ohm-m
Rmc @ Measured Temp	1.07 @ 92.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.66 @ 124.0	ohm-m
Time Since Circulation	4 HOURS	
Max Recorded Temp	124.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13057	LIB
Recorded By	R. HOFFMAN	
Witnessed By	JOHN CARROLL	ERIC BEAM
S.O. # / JOB #	3531118	LB11-193

BOREHOLE RECORD

Last Edited: 09-AUG-2011 16:53

Bit Size inches	Depth From feet	Depth To feet
7.875	1792.00	4910.00

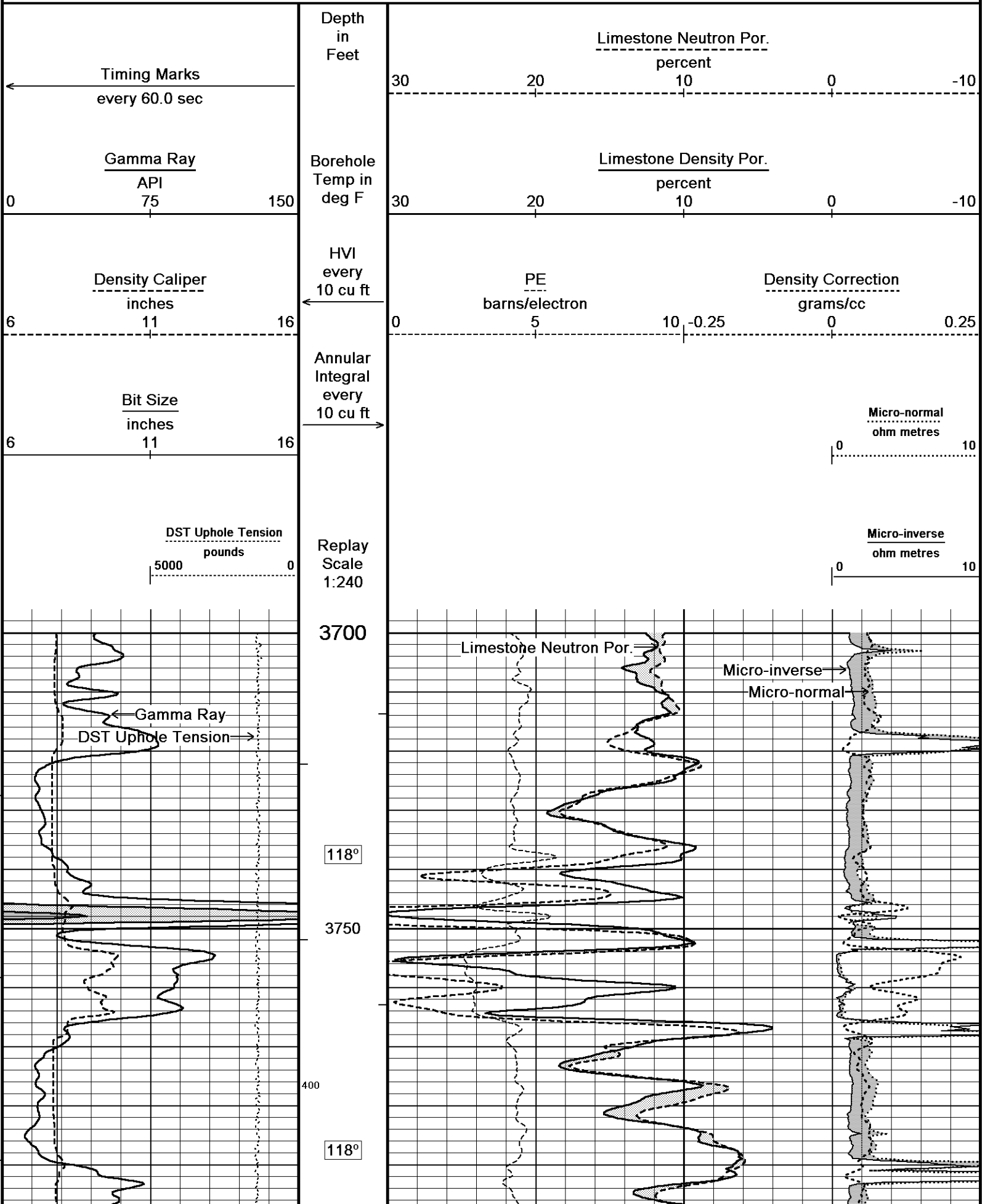
CASING RECORD

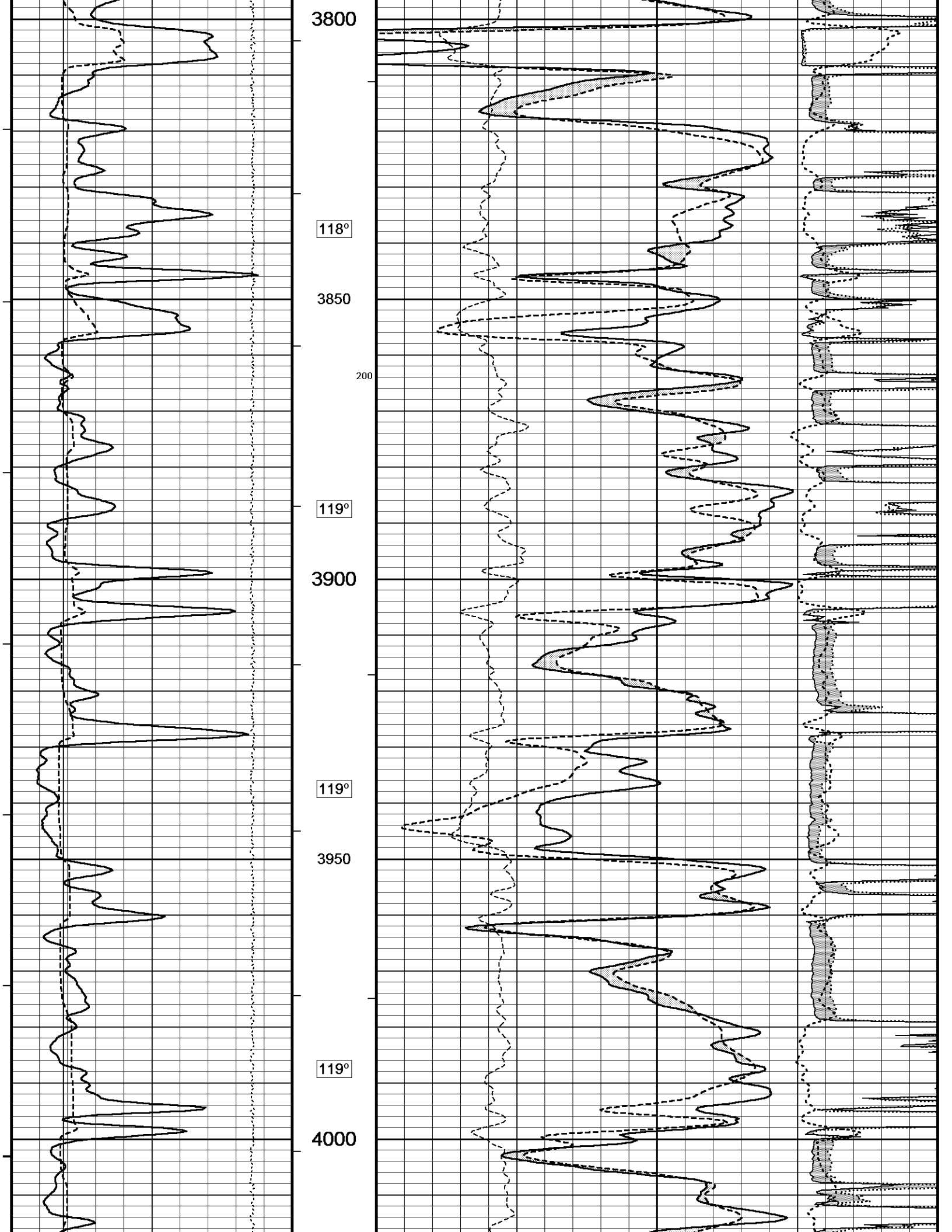
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1792.00	24.00

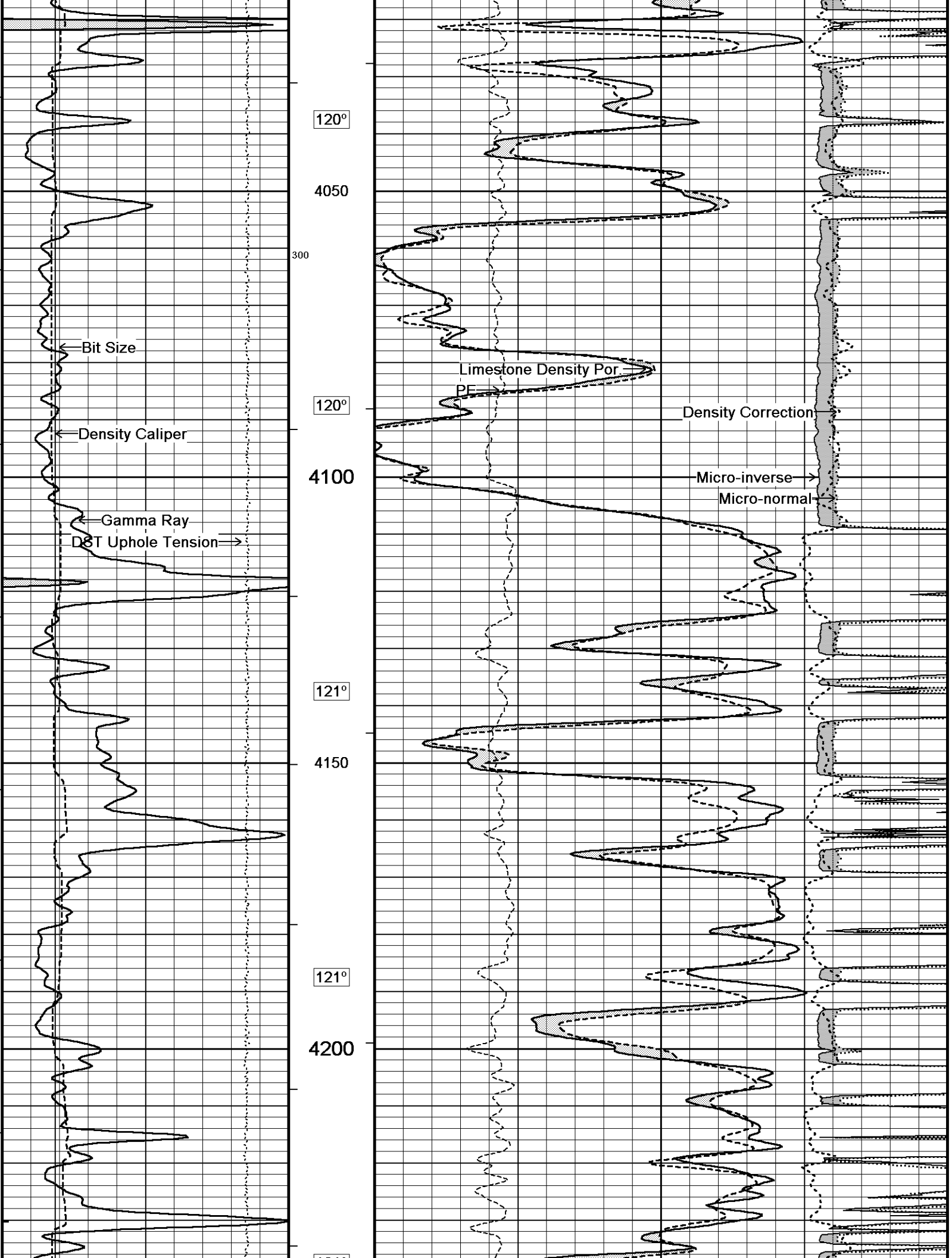
REMARKS

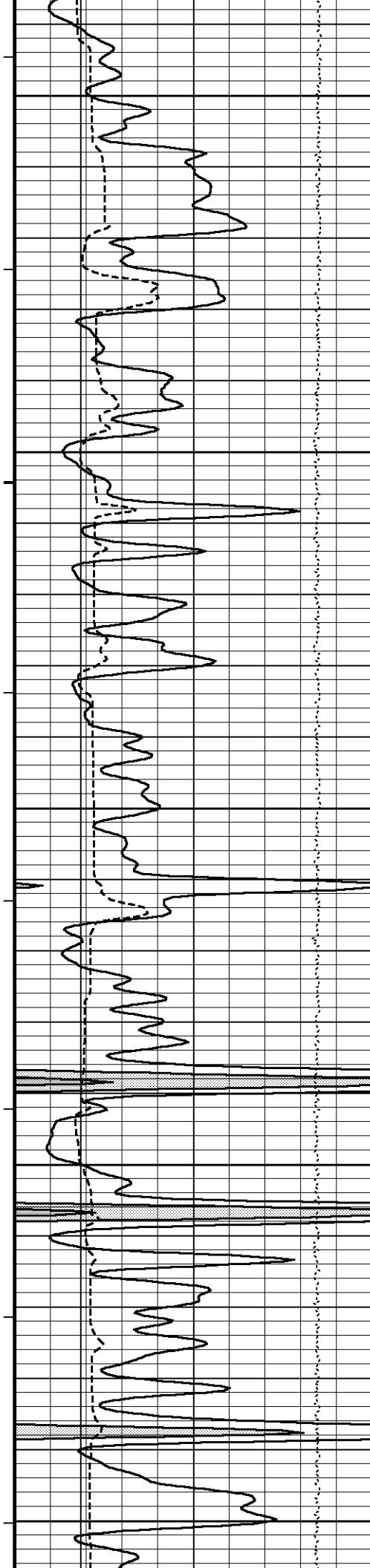
Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MSS, MAI.
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE, MSS and MAI 0.5 inch standoffs used.
2.71 g/cc Limestone Density Matrix used to calculate porosity.
Sonic porosity calculated using a Limestone scale (47.5 usec/ft).
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing calculated 0 = 235 cu. ft.
Service order #3531118
Rig: Trinidad Drilling Rig #201
Engineer: R. Hoffman
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.

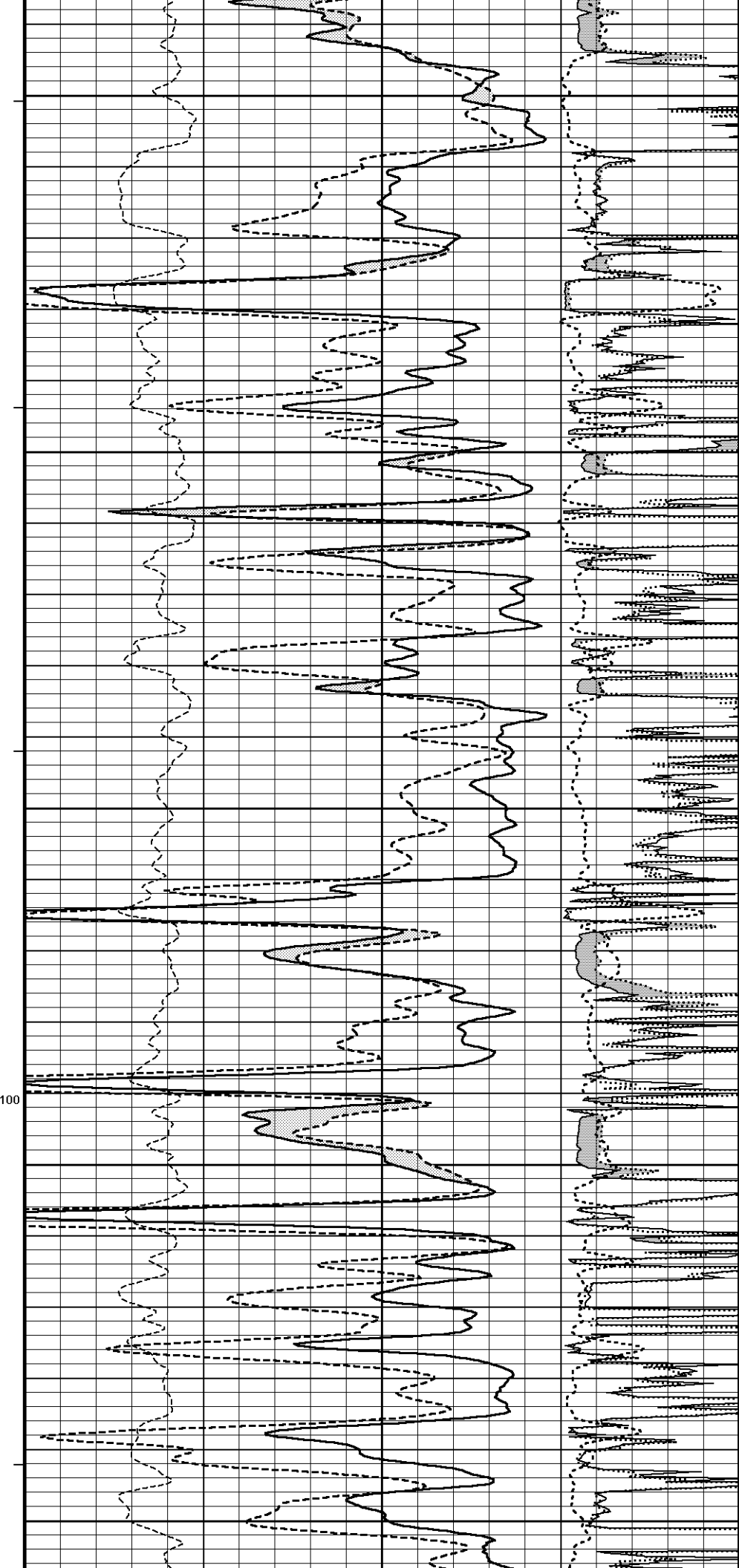


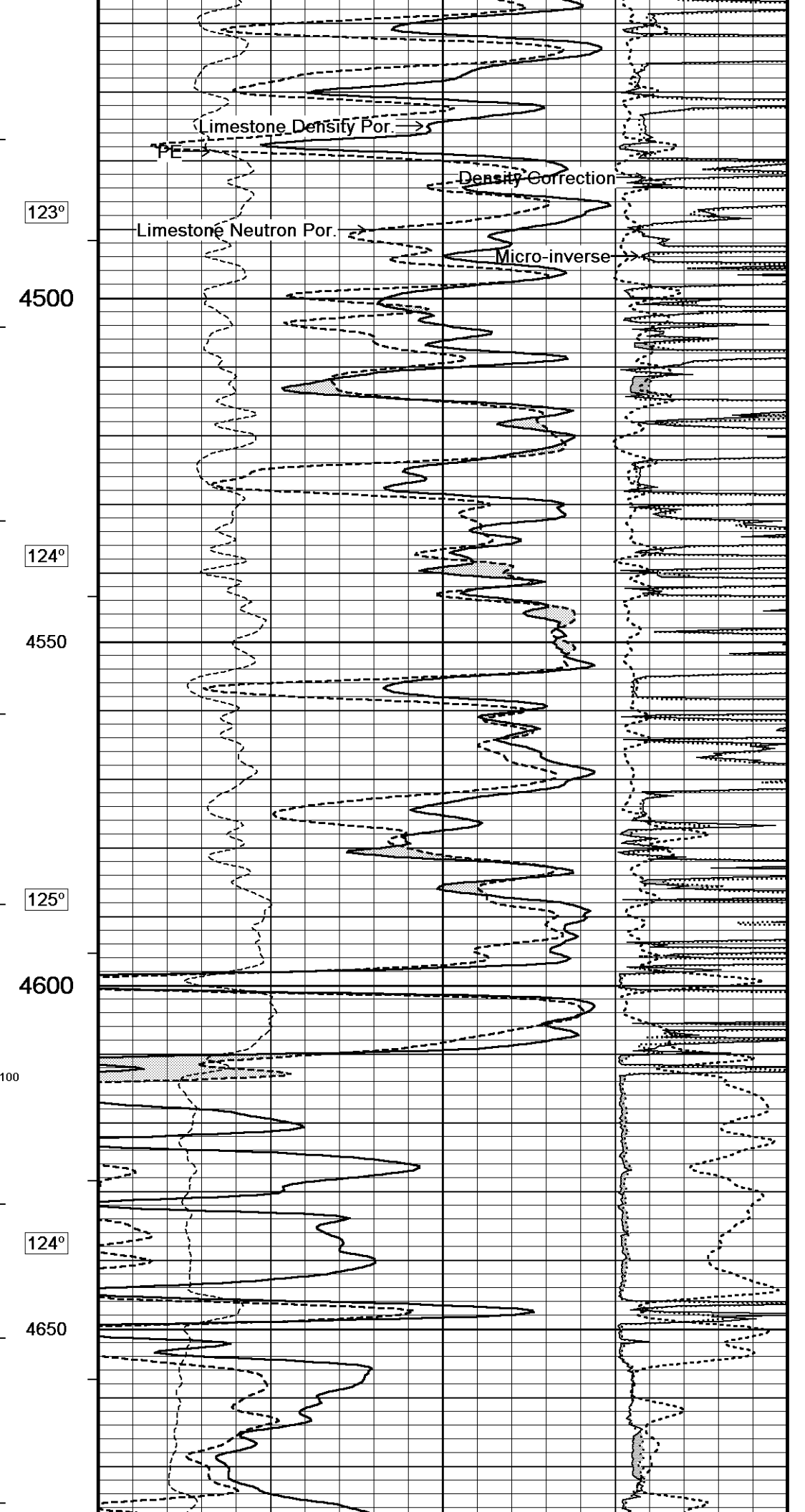
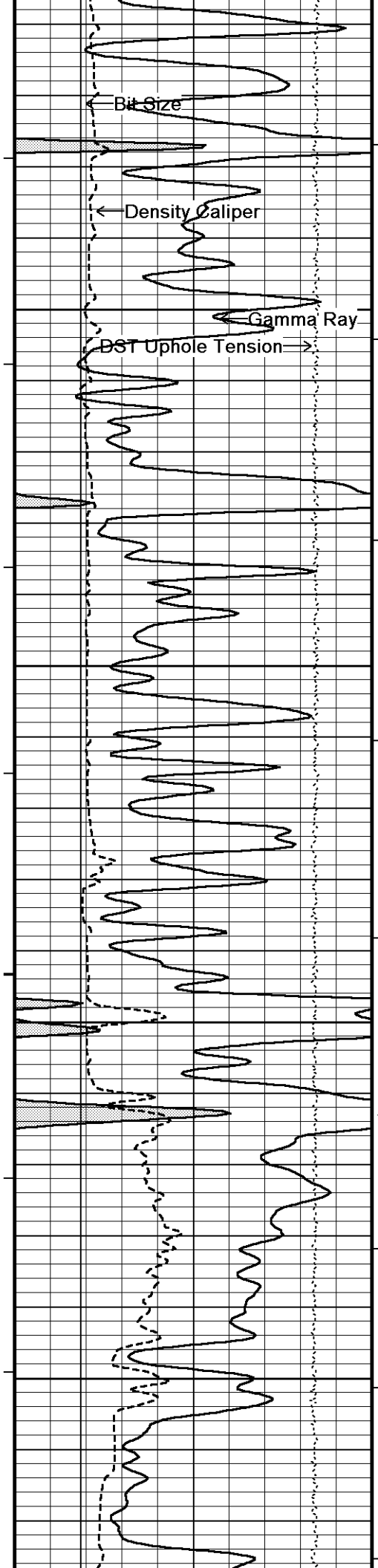


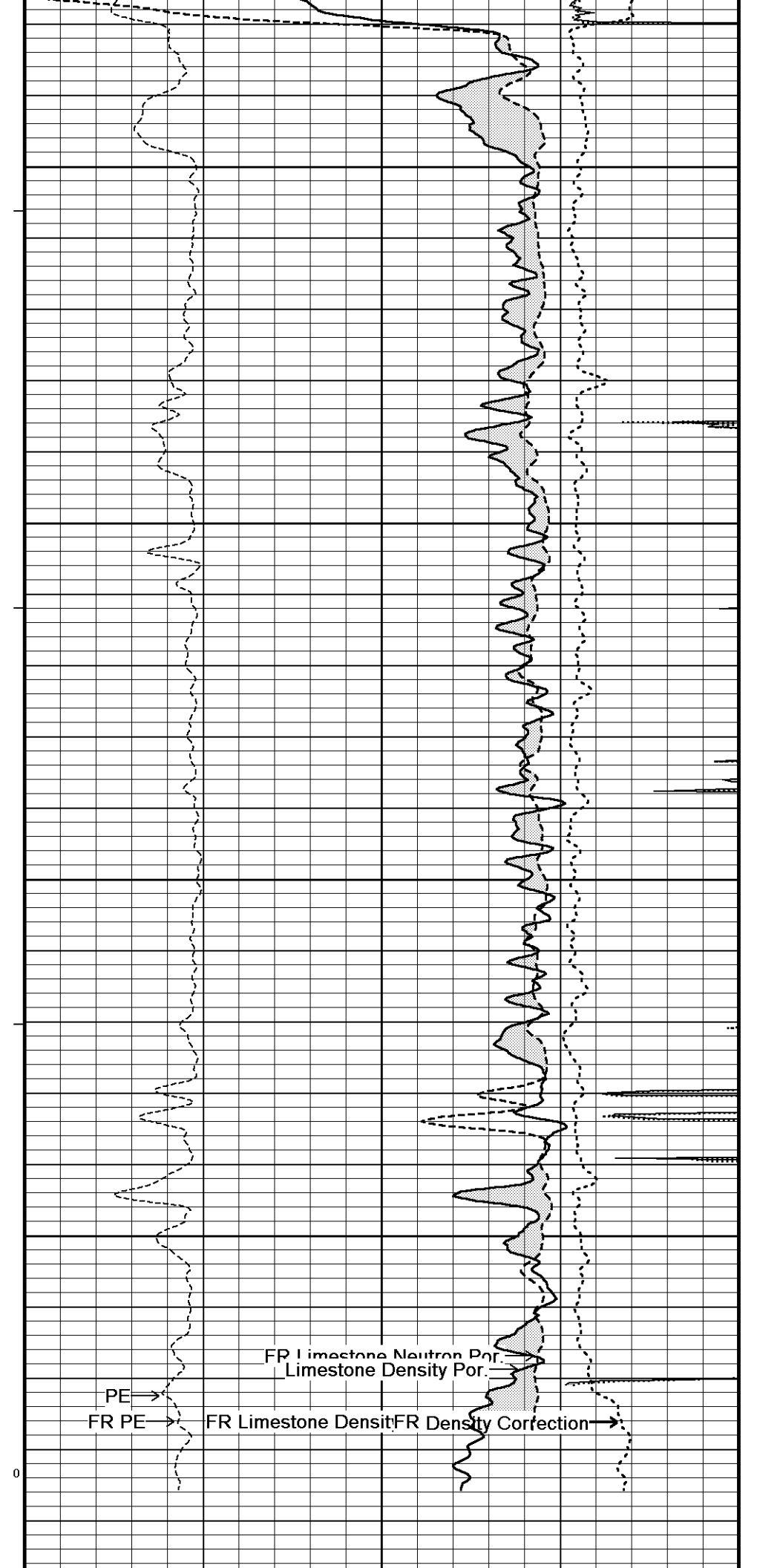
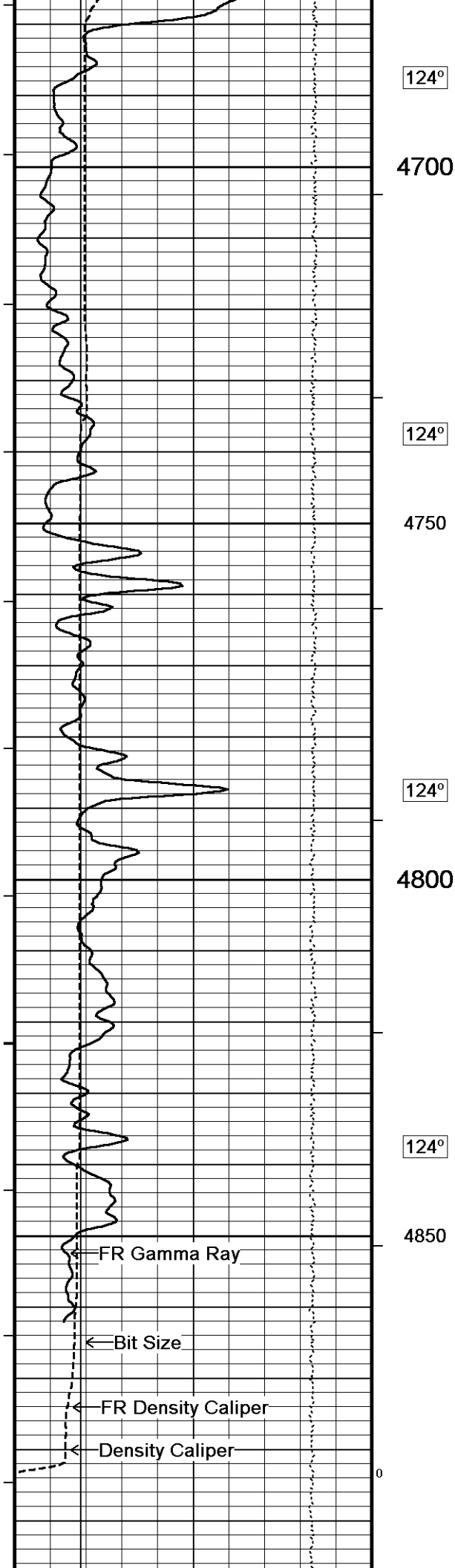


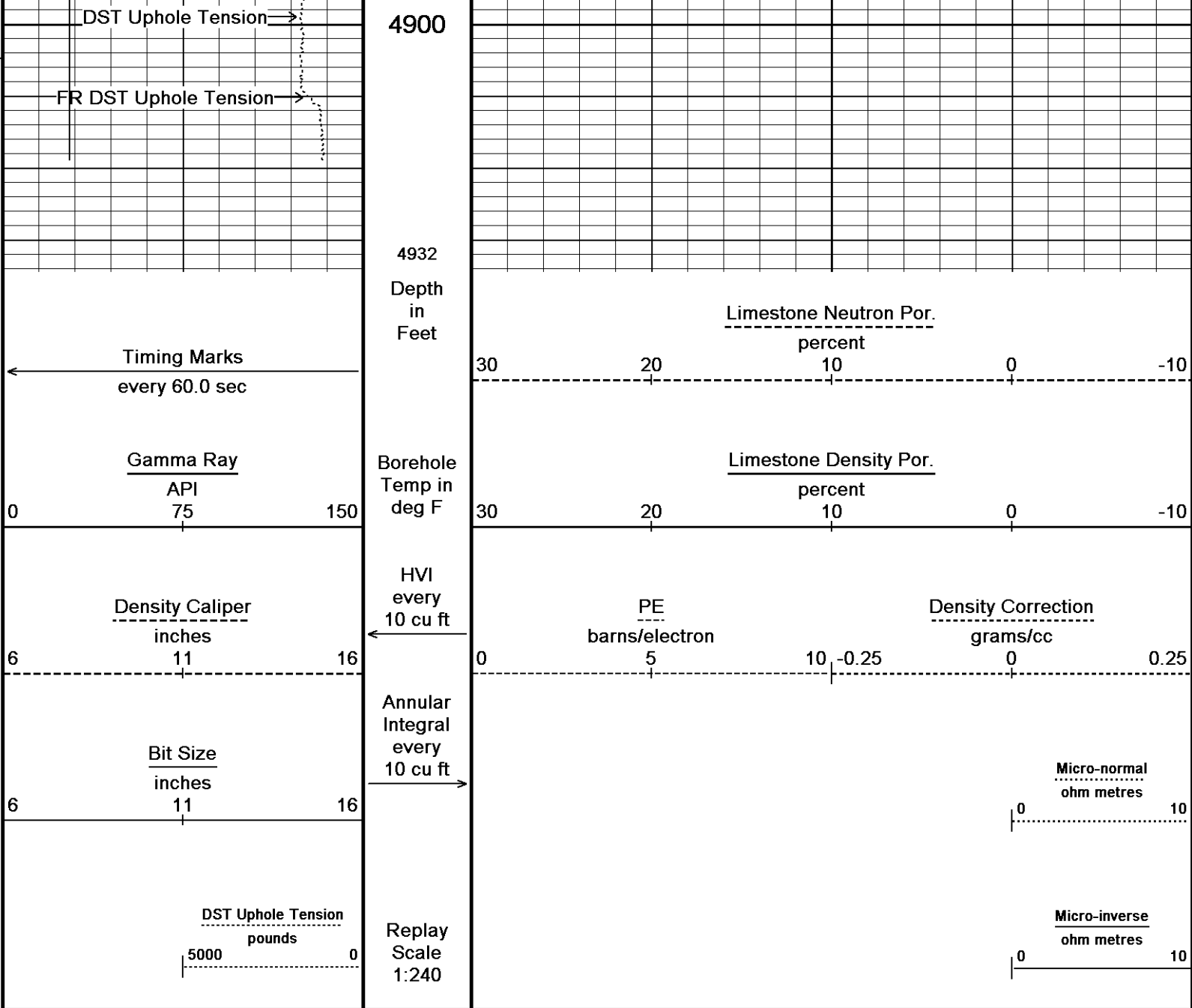


121°
4250
122°
4300
122°
200
4350
123°
100
4400
123°
4450









Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 09-AUG-2011 17:00
Filename: C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_002.dta	Recorded on 09-AUG-2011 15:07
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044	

↑

5 INCH MAIN PASS

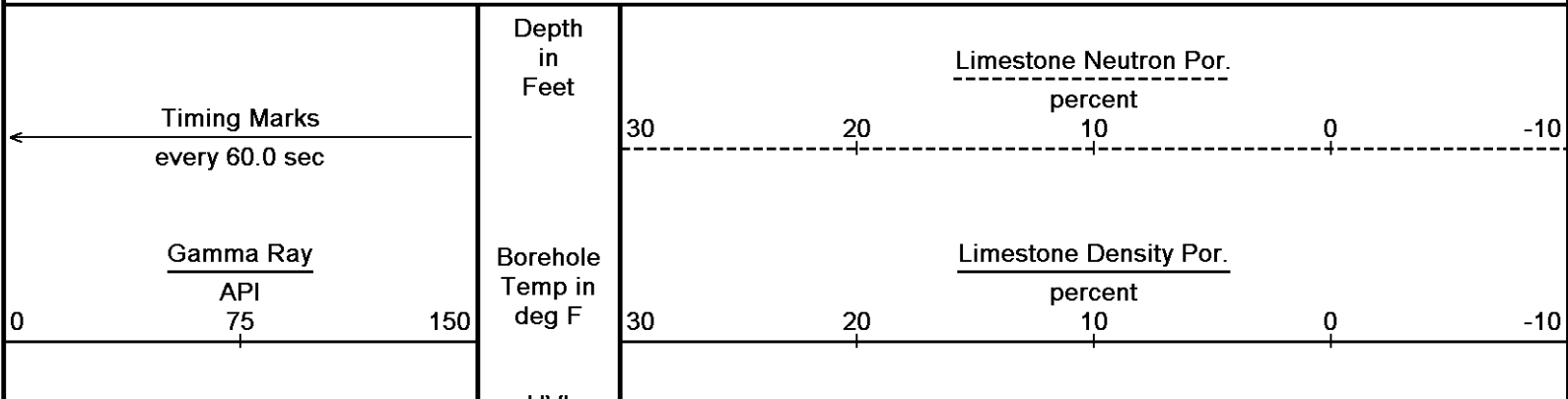
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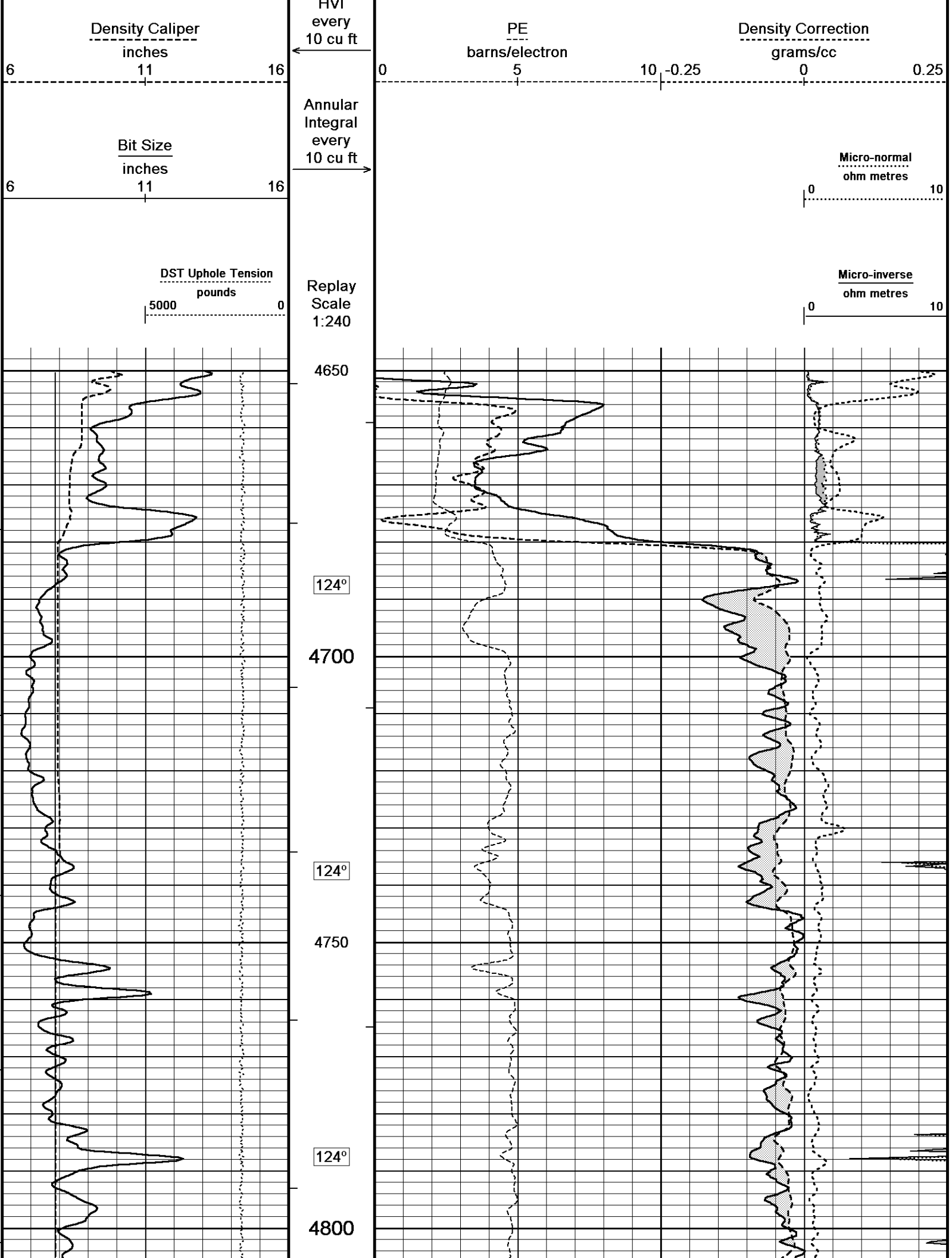
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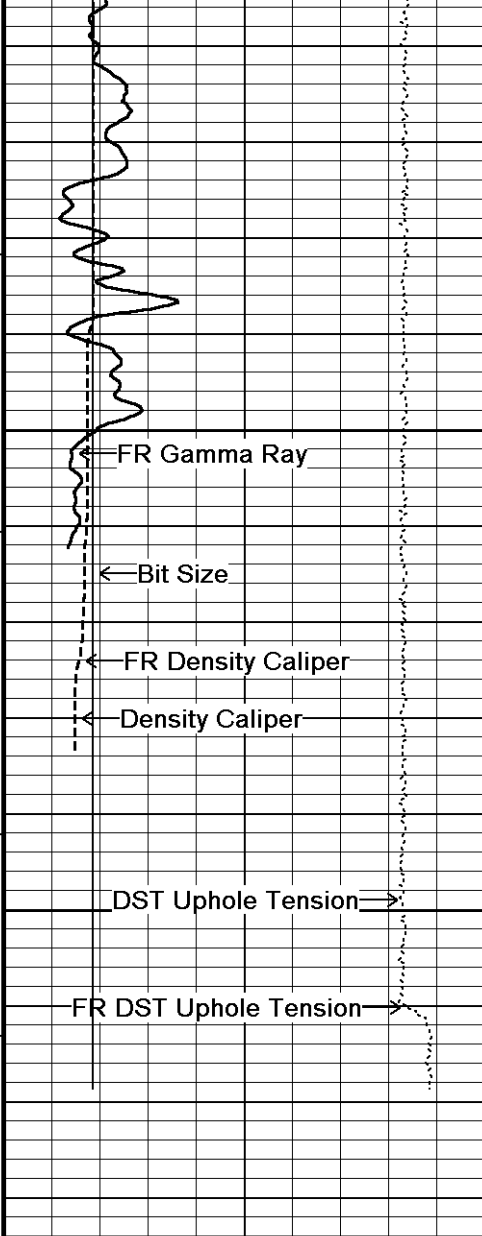
5 INCH REPEAT PASS

↓

Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 09-AUG-2011 17:00
Filename: C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_001.dta	Recorded on 09-AUG-2011 14:46
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044	







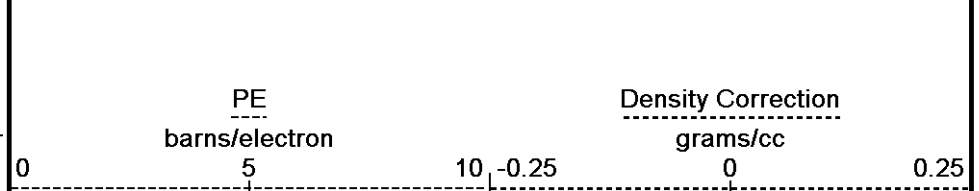
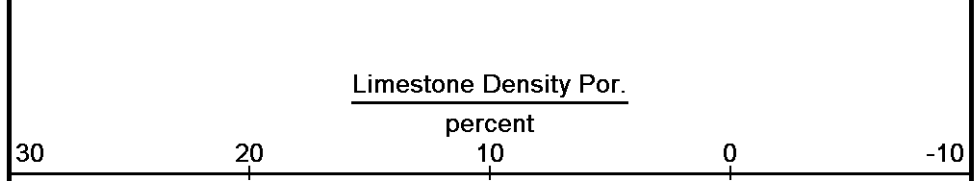
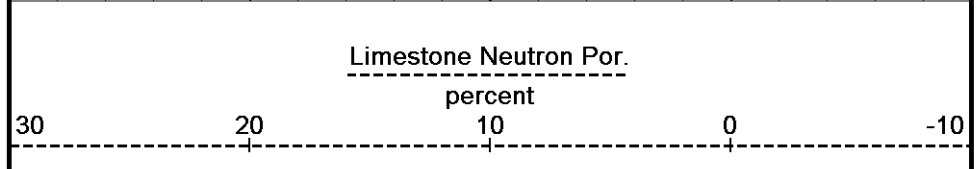
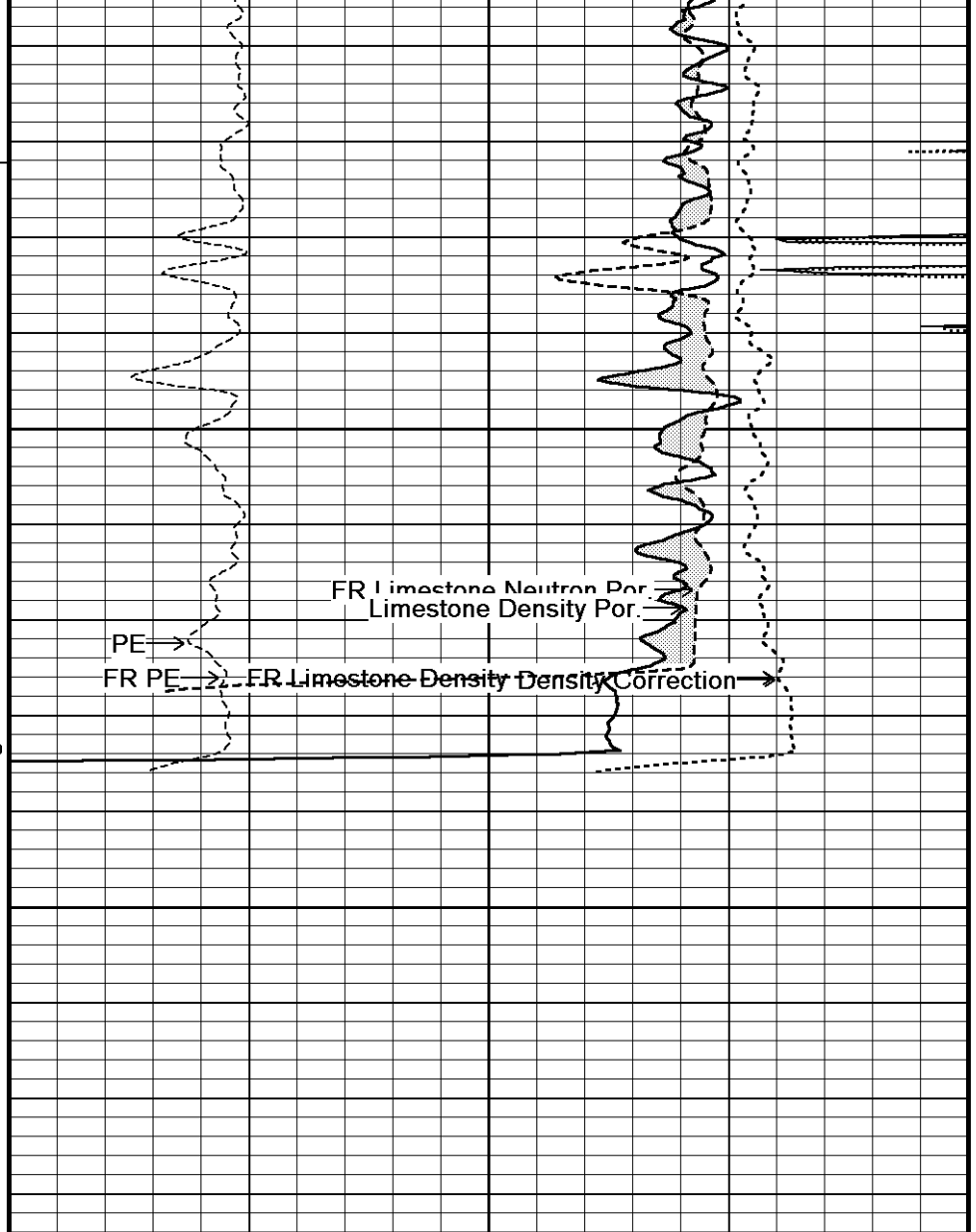
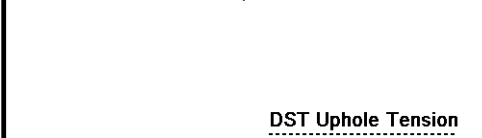
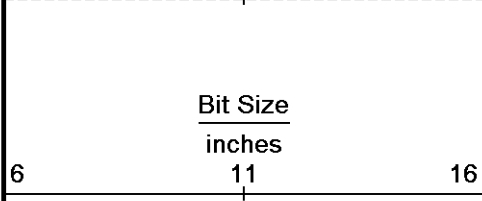
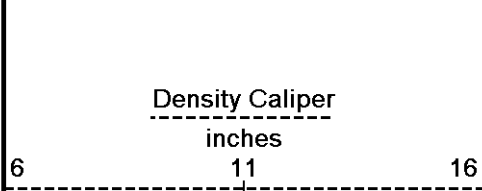
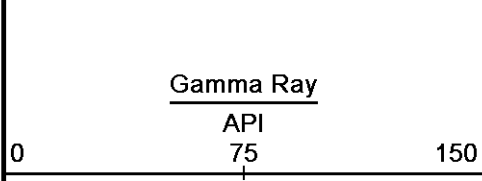
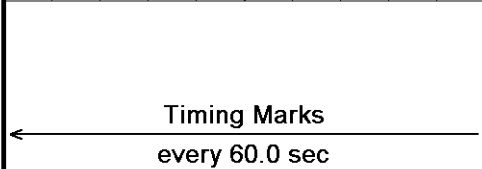
124°

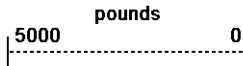
4850

4900

4932

Depth
in
Feet





Replay
Scale
1:240



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_001.dta
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

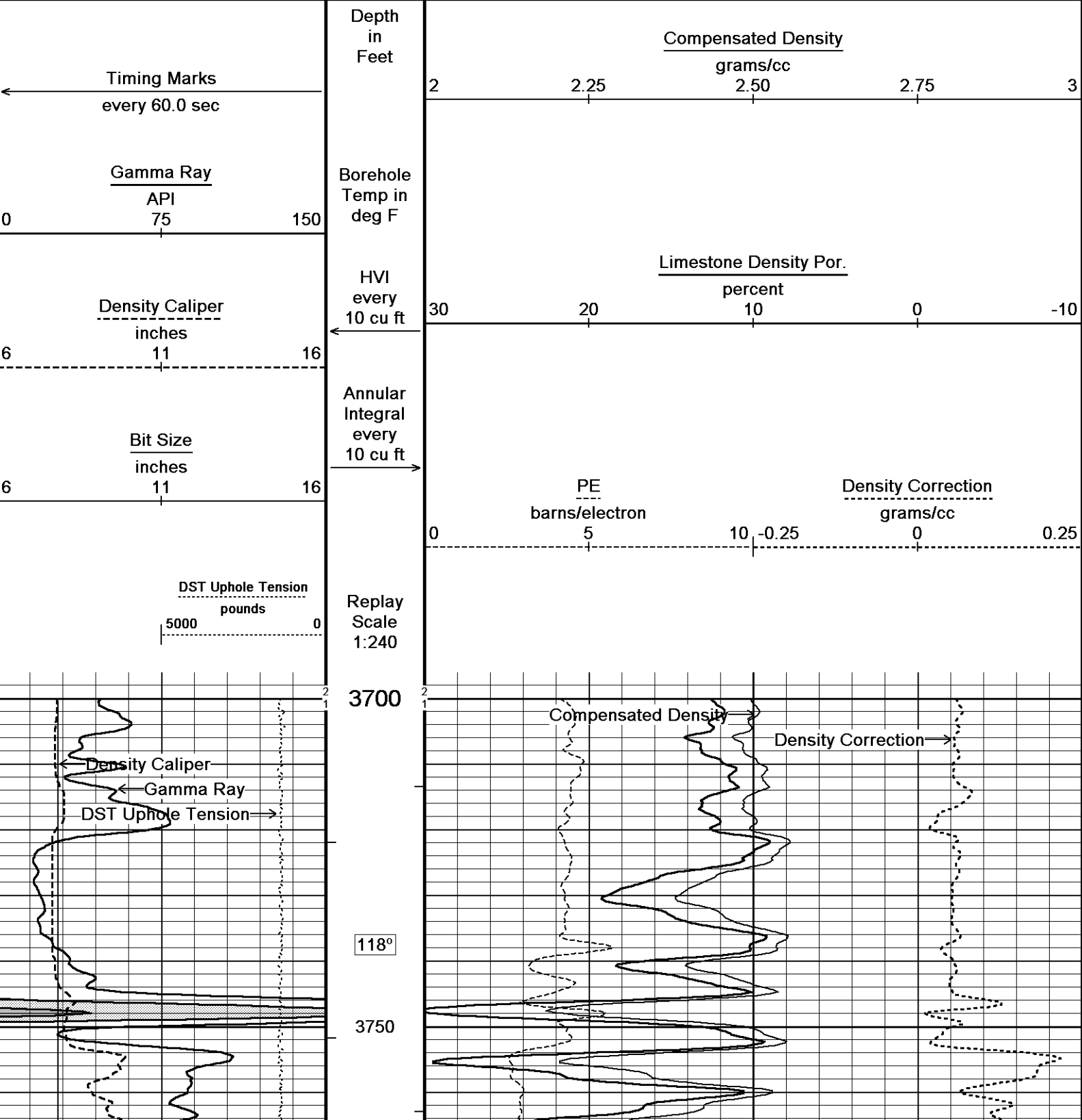
Plotted on 09-AUG-2011 17:00
Recorded on 09-AUG-2011 14:46

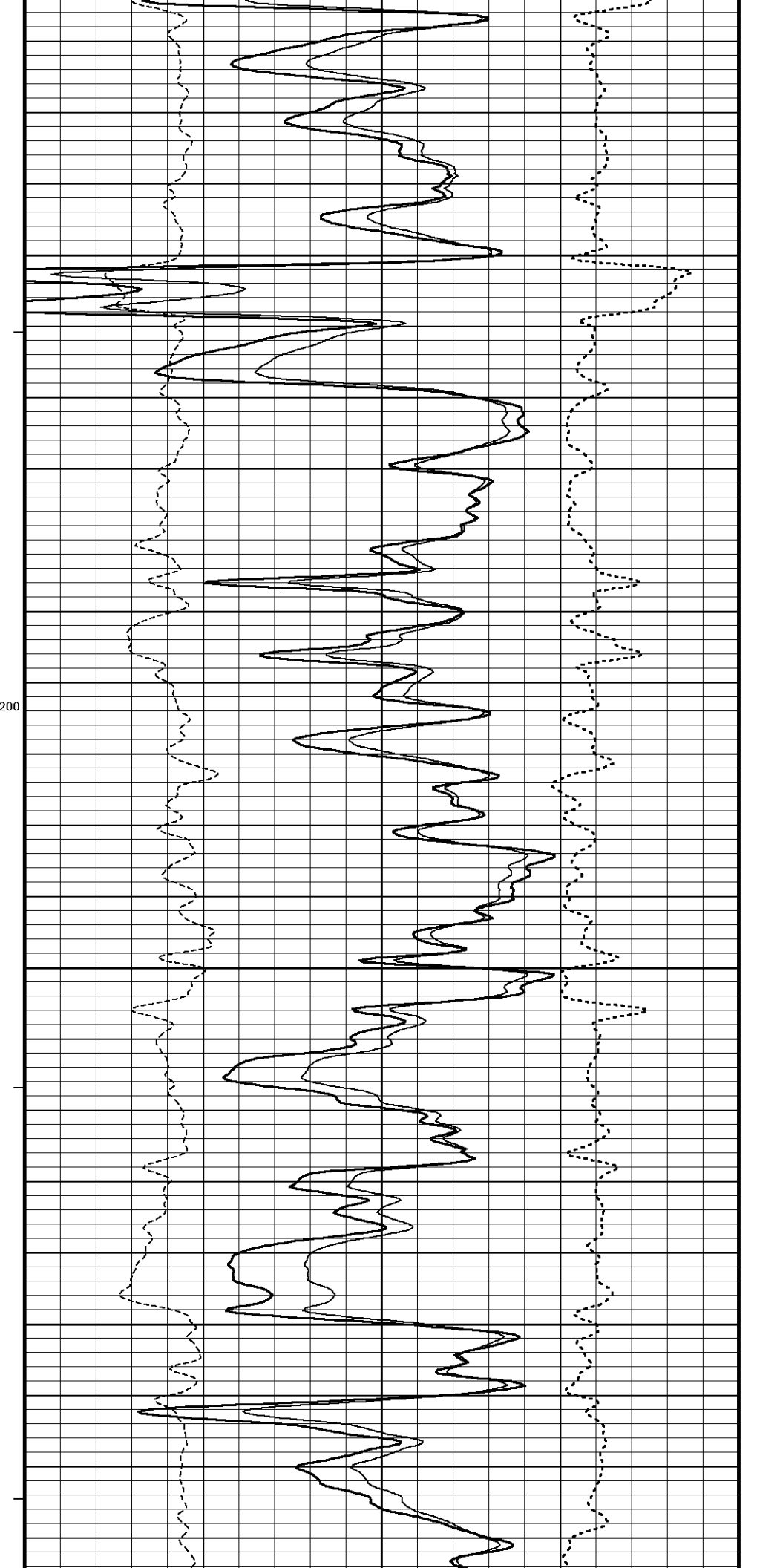
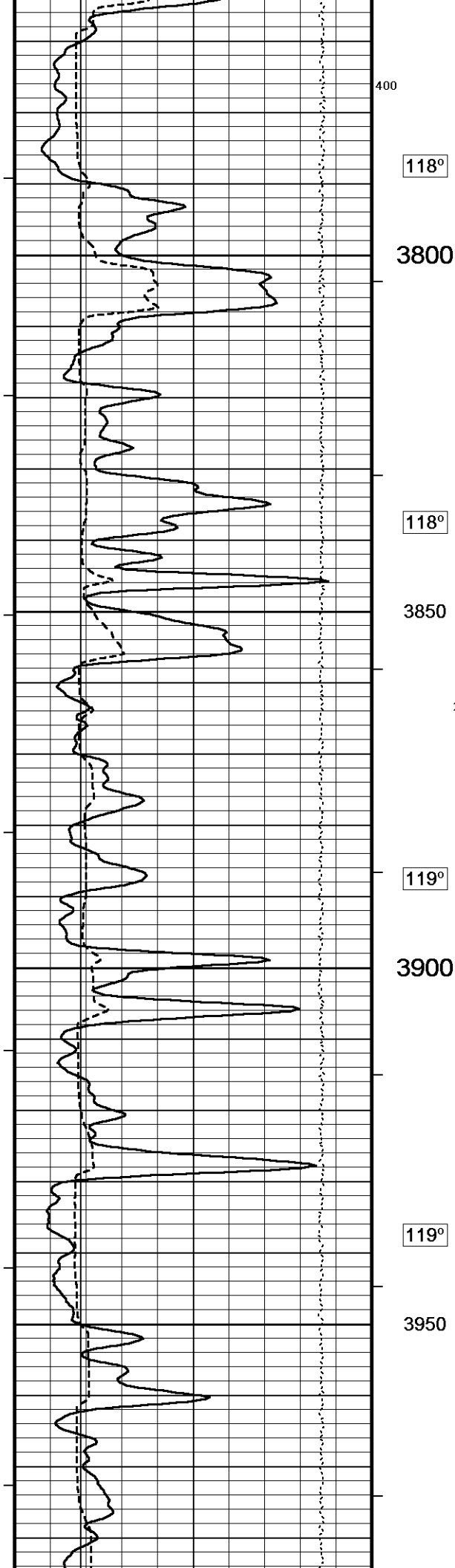
5 INCH REPEAT PASS

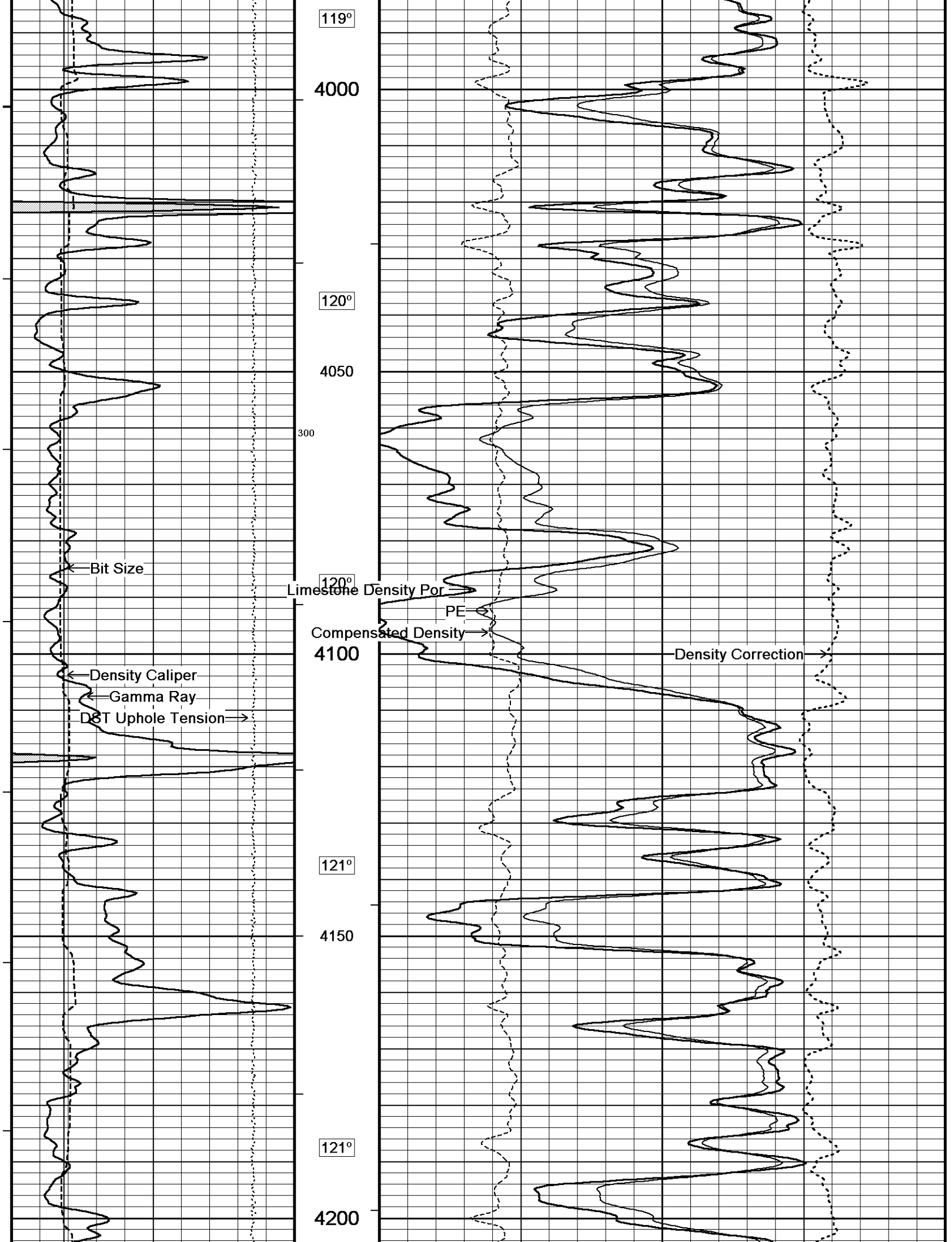
5 INCH MAIN PASS

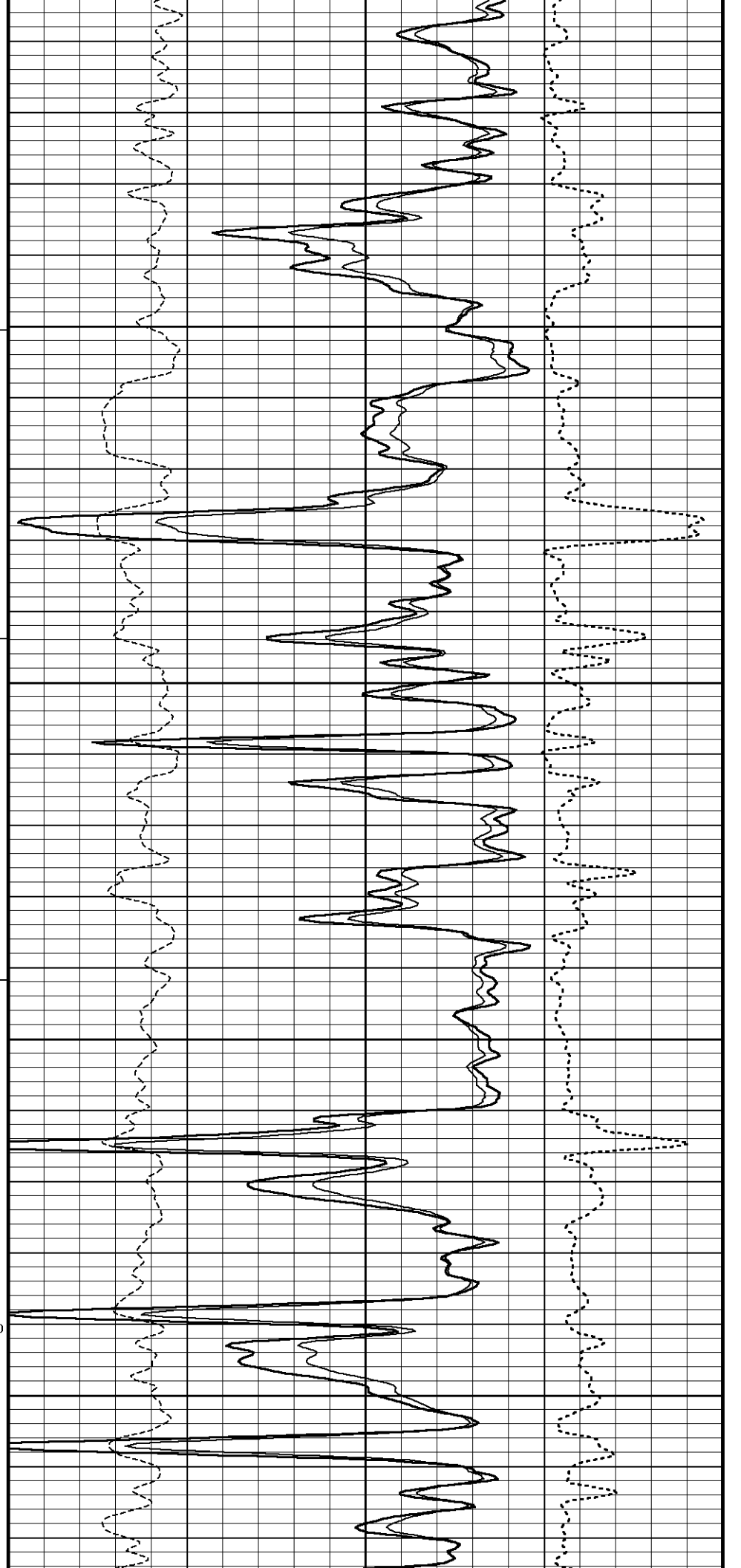
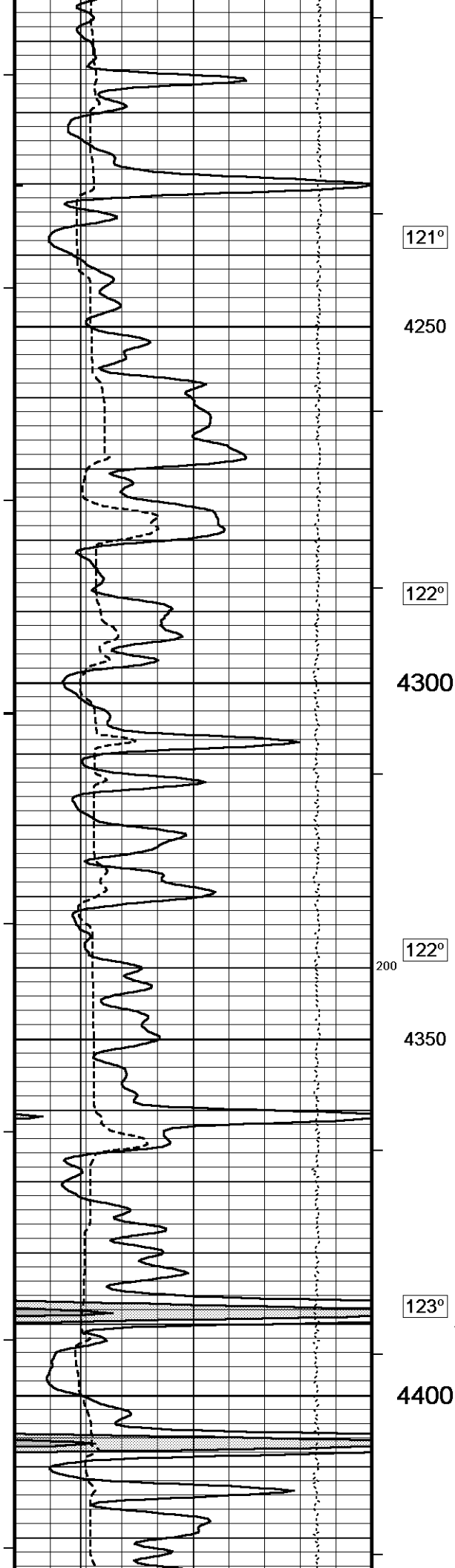
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_002.dta
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

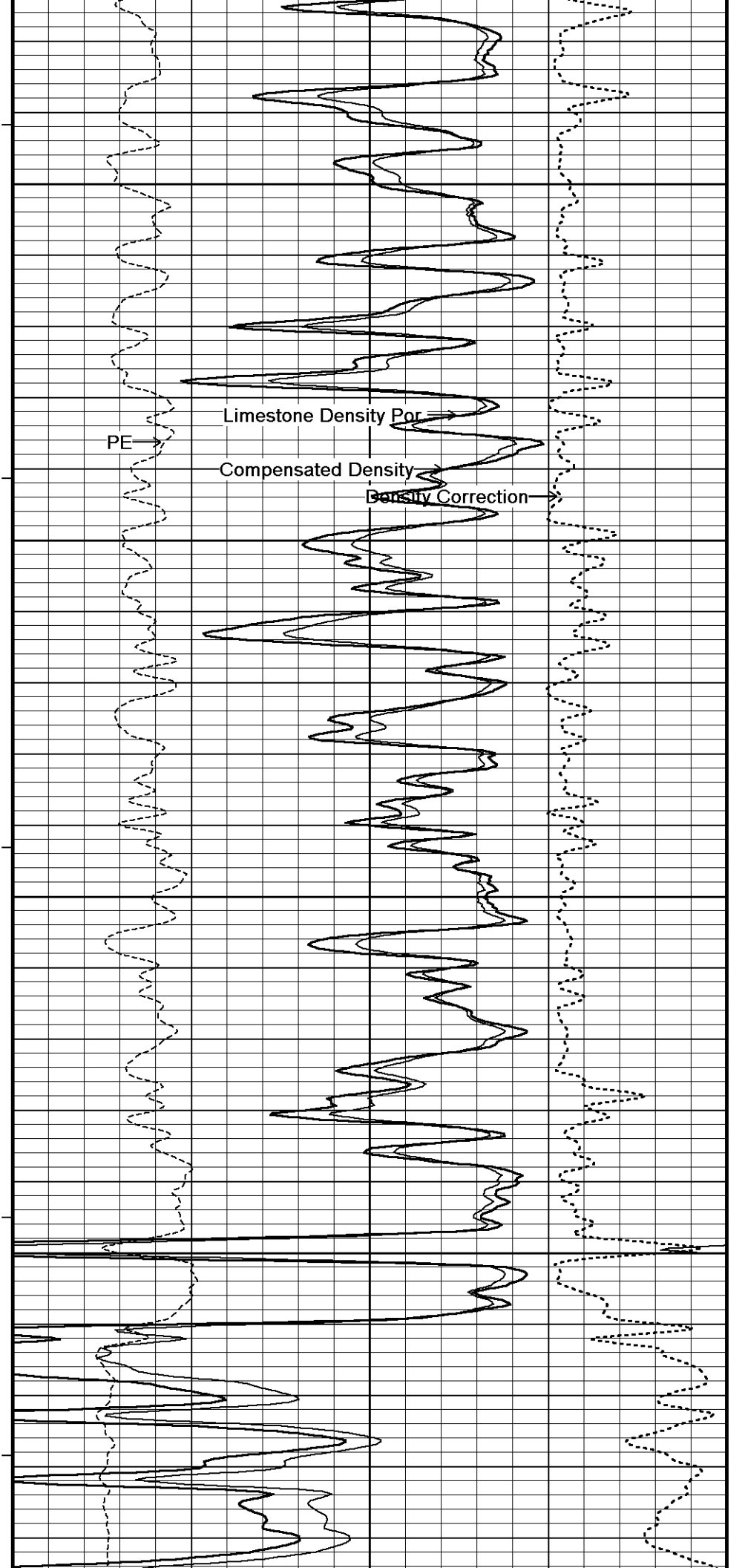
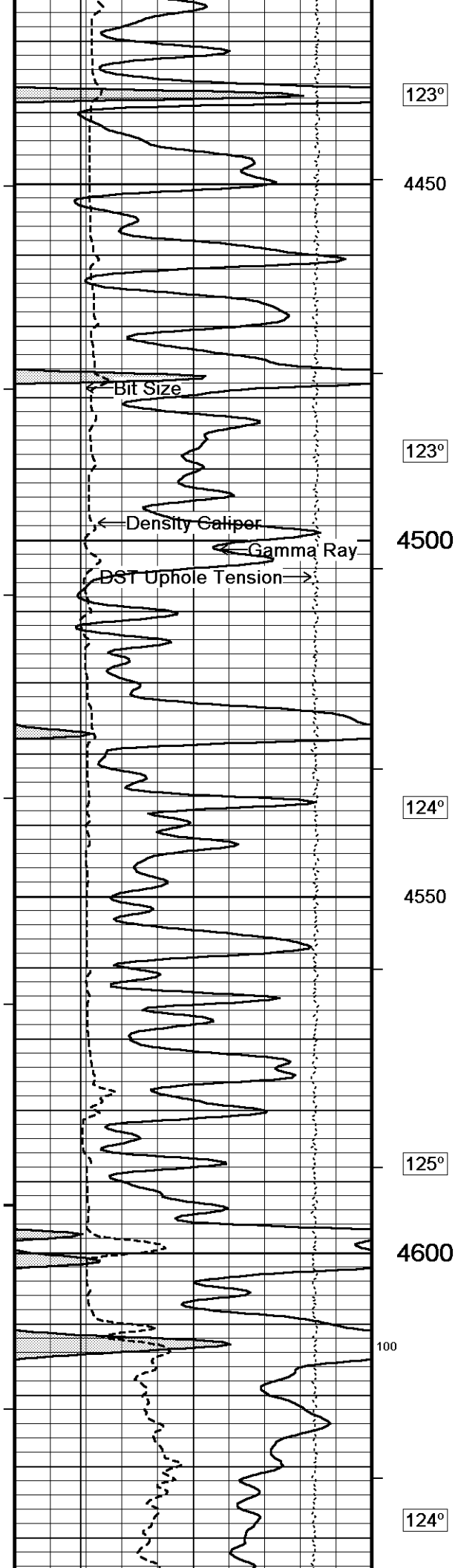
Plotted on 09-AUG-2011 17:00
Recorded on 09-AUG-2011 15:07

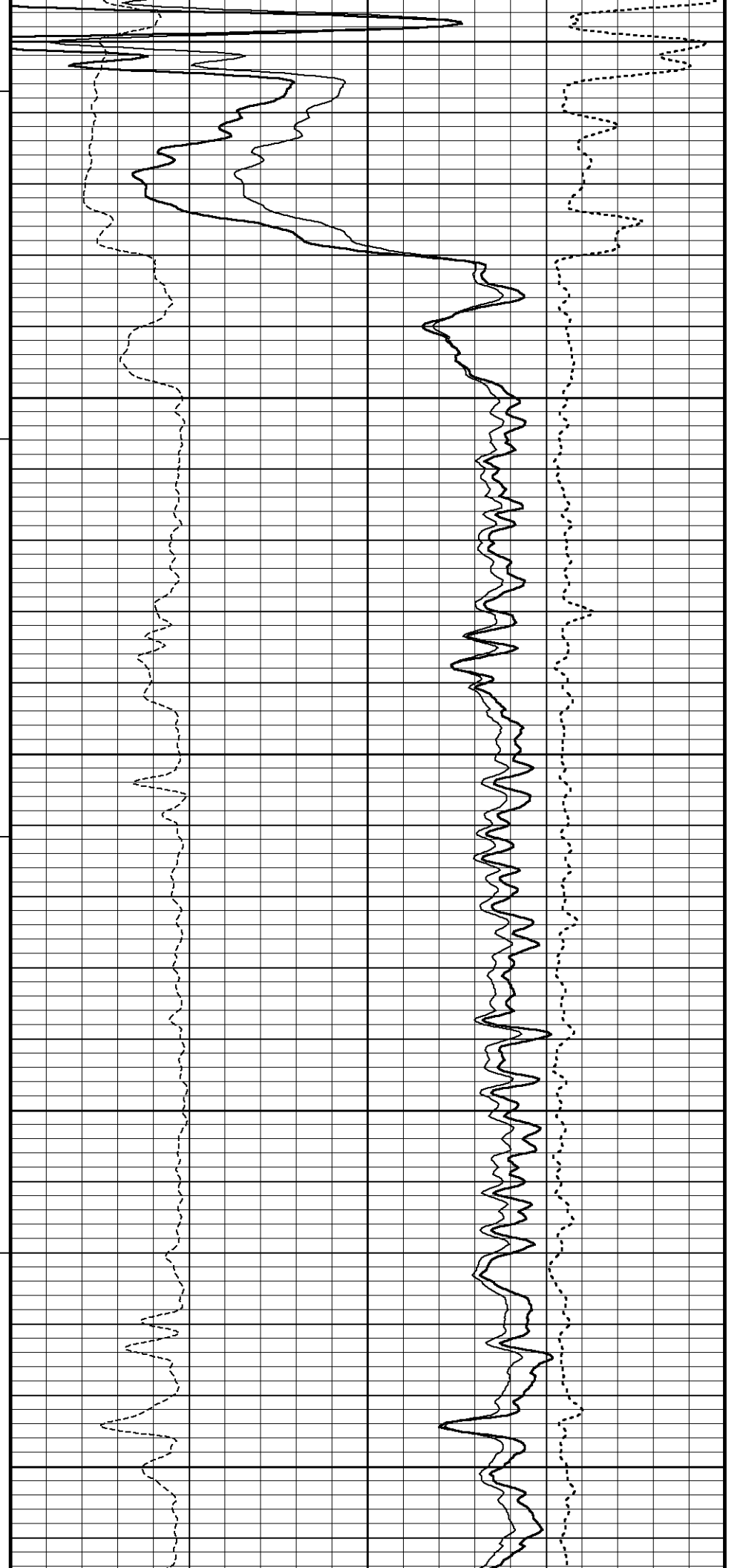
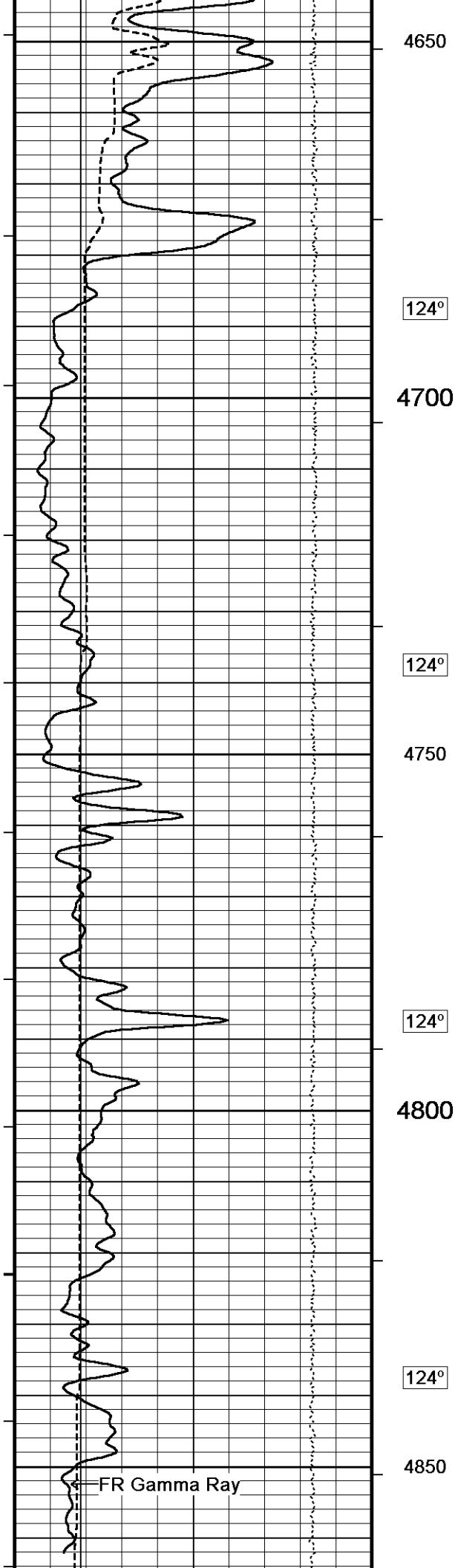


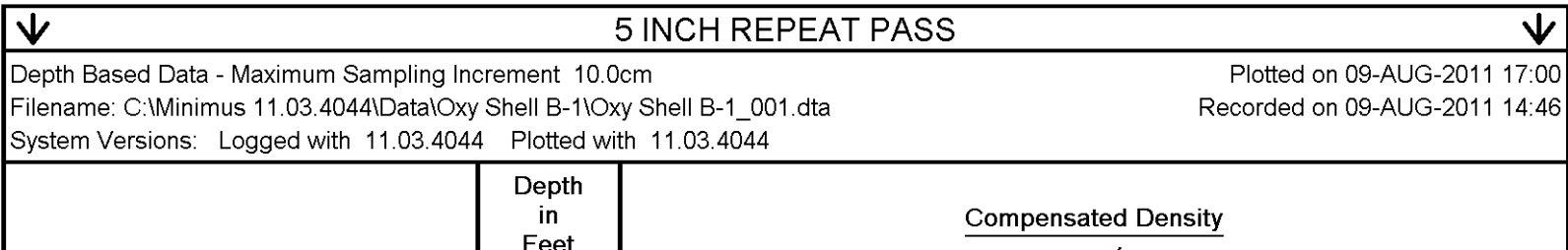
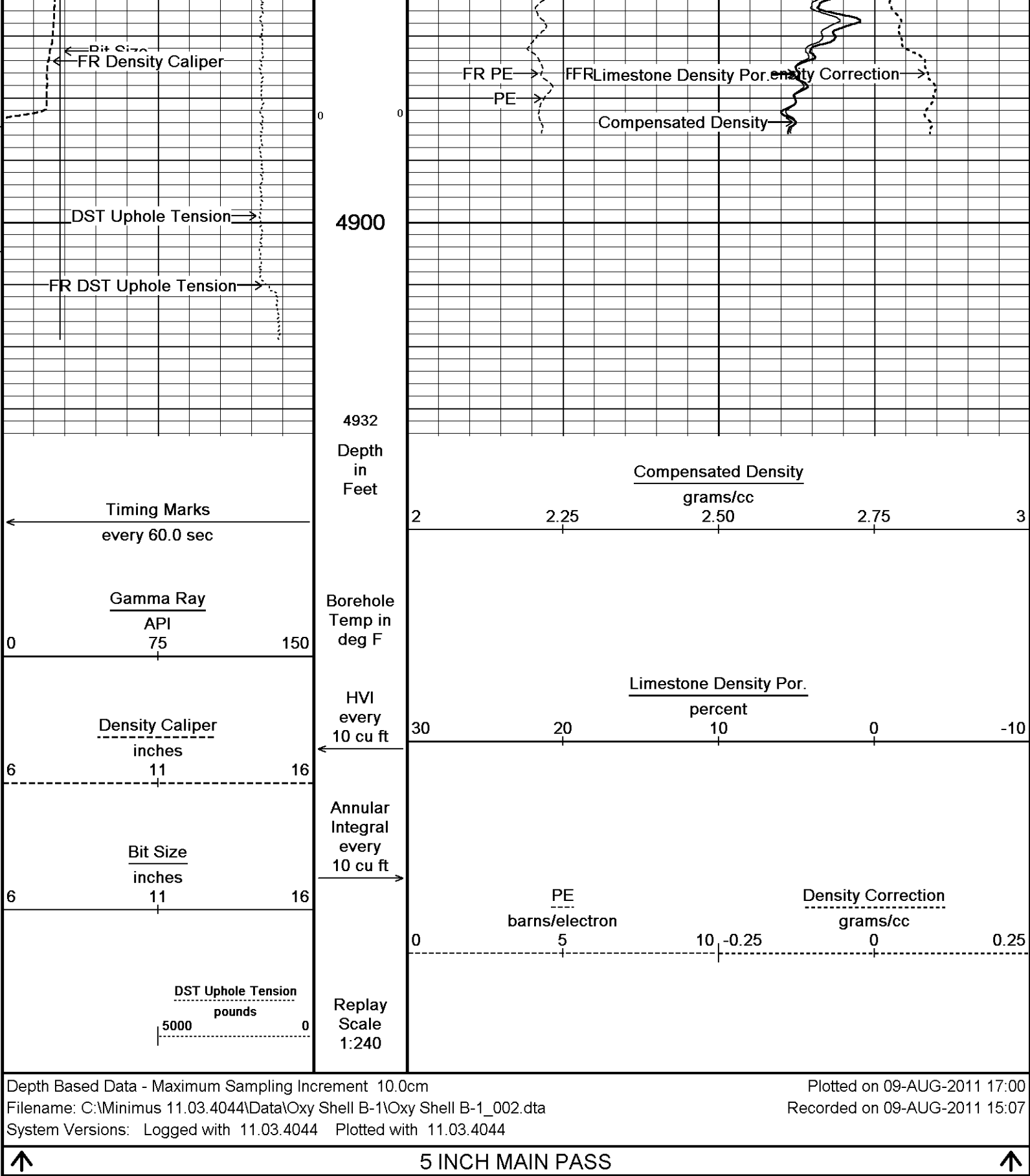


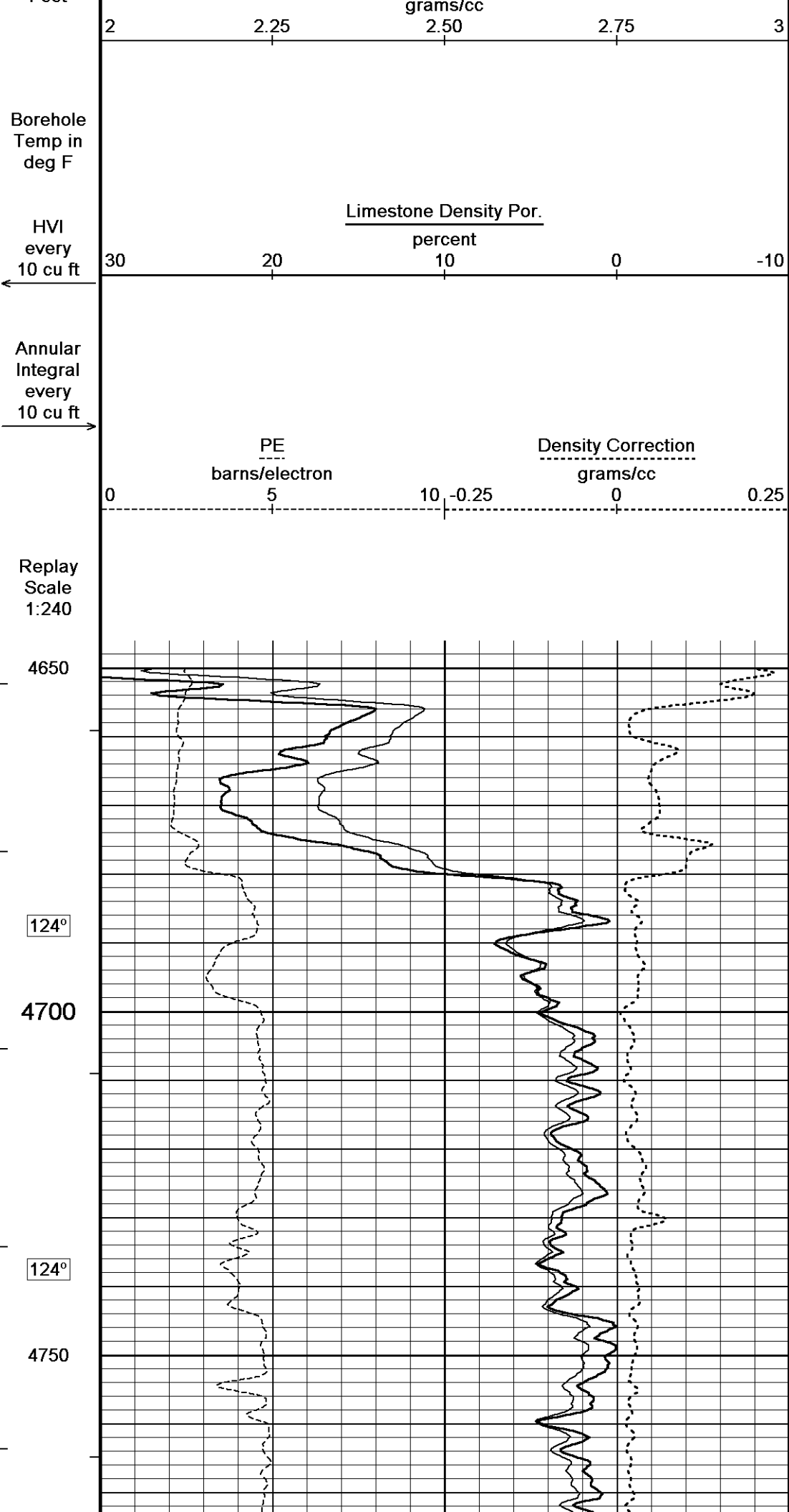
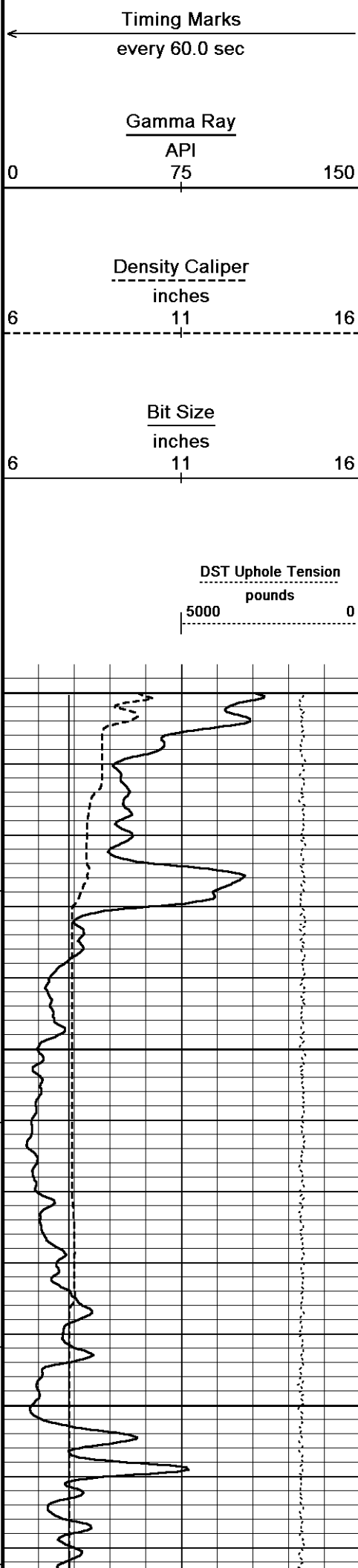


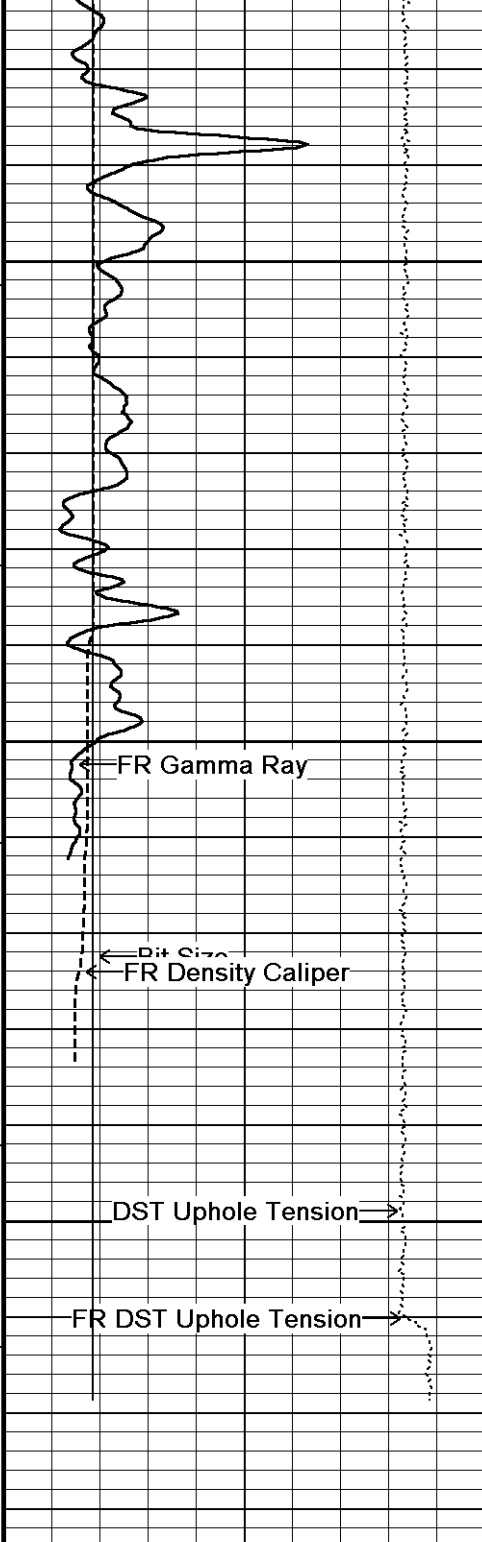












124°

4800

124°

4850

FR Gamma Ray

FR Density Caliper

DST Uphole Tension

FR DST Uphole Tension

4900

4932

Depth
in
Feet

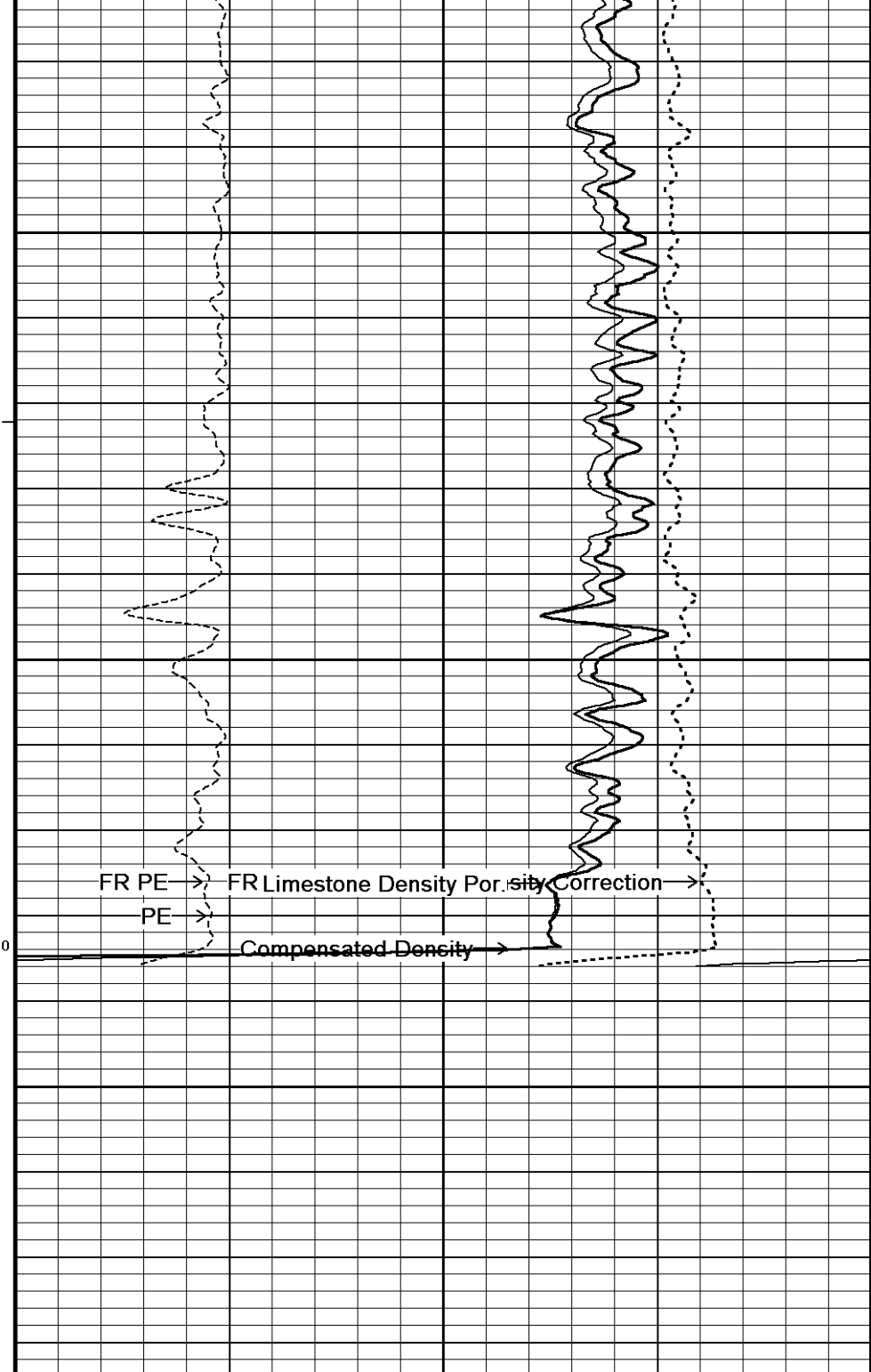
Timing Marks
every 60.0 sec

Gamma Ray
API
75

Density Caliper
inches
11

Borehole
Temp in
deg F

HVI
every
10 cu ft



FR PE

PE

FR Limestone Density Porosity Correction

Compensated Density

Compensated Density

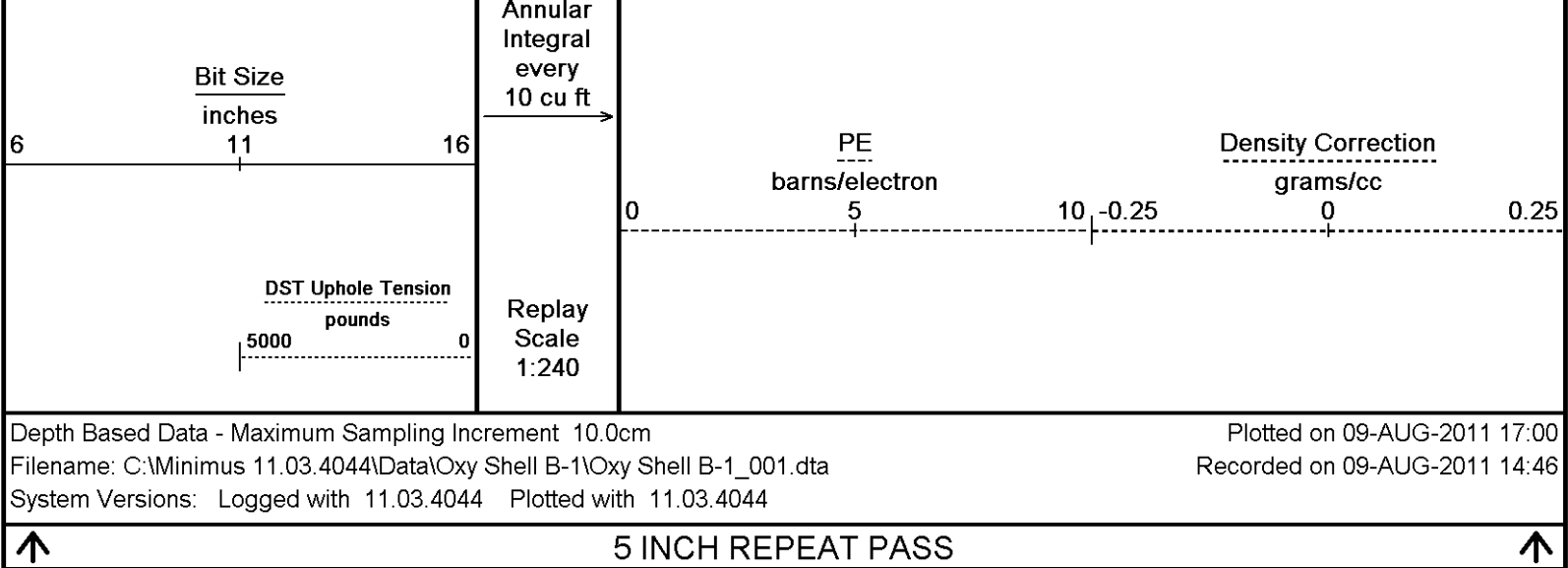
grams/cc

2 2.25 2.50 2.75 3

Limestone Density Por.

percent

30 20 10 0 -10



BEFORE SURVEY CALIBRATION			
C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_002.dta			
General Constants All 000		Last Edited on 09-AUG-2011,13:24	
General Parameters			
Mud Resistivity	0.890	ohm-metres	
Mud Resistivity Temperature	92.000	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. One Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		

Gamma Calibration MCG-B 34		Field Calibration on 08-AUG-2011 09:38	
	Measured	Calibrated (API)	
Background	67	46	
Calibrator (Gross)	1124	771	
Calibrator (Net)	1056	725	

Gamma Constants MCG-B 34		Last Edited on 09-AUG-2011,13:23	
Gamma Calibrator Number grc38			
Mud Density	1.12	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

SP Calibration MCG-B 34		Field Calibration on 03-AUG-2011,09:32	
	Measured	Calibrated (mV)	
Reference 1	103.5	100.0	
Reference 2	-96.9	-100.0	

High Resolution Temperature Calibration MCG-B 34		Field Calibration on 03-AUG-2011,22:33	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

Pre-filter Length 11

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 03-AUG-2011 09:42

Field Check on 08-AUG-2011 09:28

Base Calibration

Channel	Resistor 1	Measured	Calibrated (ohm-m)	
		Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	2.6	12.8
Micro Inverse	15.7	78.4	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.1	32.1
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 08-AUG-2011,14:39

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

Caliper Calibration MML-A 4

Base Calibration on 03-AUG-2011 09:53

Field Calibration on 08-AUG-2011 09:27

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15121	5.98
2	18479	7.97
3	21774	9.86
4	25719	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.94	5.98

Neutron Calibration MDN-A.B 65

Base Calibration on 02-AUG-2011 18:50

Field Check on 08-AUG-2011 09:33

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3295	104	3714	110
	31.664		33.764	

Field Calibrator at Base

Calibrated (cps)
1576
2237
Ratio
0.704

Field Check

Calibrated (cps)
1562
2220
Ratio
0.704

Neutron Constants MDN-A.B 65

Last Edited on 09-AUG-2011,13:23

Neutron Source Id	757	
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
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Barite Mud Correction Not Applied

FE Calibration MFE-A.A 55

Base Calibration on 03-AUG-2011 10:09
Field Check on 08-AUG-2011 09:20

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	952.6	126.8
Base Check		281.5
Field Check		281.5

FE Constants MFE-A.A 55

Last Edited on 09-AUG-2011,13:23

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 08-AUG-2011,09:38

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 03-AUG-2011,10:43

Field Check on 08-AUG-2011 09:19

Base Calibration

Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel		Low	High	Low	High
1		17.3	474.2	9.3	966.2
2		6.3	388.4	7.6	821.4
3		3.3	259.4	5.2	566.0
4		1.9	133.0	2.6	279.2

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	13.7	3857.8
2	0.0	0.0	29.8	3497.5
3	0.0	0.0	29.3	3069.2
4	0.0	0.0	19.8	2085.2
Deep	0.0	0.0	18.7	2051.7
Medium	0.0	0.0	42.4	4021.0
Shallow	0.0	0.0	43.4	5094.7

Array Temperature 0.0 83.8 Deg F

Induction Constants MAI-A.A 45

Last Edited on 09-AUG-2011,13:23

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 Pt	0.00	

Source for Rt		0.00
Source for Rxo		0.00
High Resolution Temperature Calibration MAI-A.A 45		Field Calibration on 04-AUG-2011,07:54
	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00
High Resolution Temperature Constants MAI-A.A 45		Last Edited on
Pre-filter Length	11	
Photo Density Calibration MPD-B 31		Base Calibration on 02-AUG-2011 16:24 Field Check on 08-AUG-2011 09:26
Density Calibration		
Base Calibration		
	Near	Measured Far
Reference 1	48081	24805
Reference 2	19867	2025
	Near	Calibrated (sdu) Far
	59556	30836
	24941	2541
Field Check at Base		
	707.3	871.8
Field Check		
	707.4	872.2
PE Calibration		
Base Calibration		
	WS	Measured WH Ratio
Background	131	626
Reference 1	19081	47953
Reference 2	5693	19772
		0.400
		0.291
		0.371
		0.272
Field Check at Base		
	131.3	626.1
Field Check		
	132.5	623.7
Density Constants MPD-B 31		Last Edited on 09-AUG-2011,13:23
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		1.12 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 (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
0.00		0.00
0.00		0.00
Caliper Calibration MPD-B 31		Base Calibration on 02-AUG-2011 15:38 Field Calibration on 08-AUG-2011 09:21
Base Calibration		
Reading No		Measured Calibrator Size (in)
1		16208 3.99
2		24815 5.98
3		33539 7.97
4		41224 9.96

4
5
641984
51072
N/A9.86
11.92
N/A

Field Calibration

Measured Caliper (in)
5.95Actual Caliper (in)
5.98

DOWNHOLE EQUIPMENT

C:\Minimus 11.03.4044\Data\Oxy Shell B-1\Oxy Shell B-1_002.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

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 34 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 34 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 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 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 Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

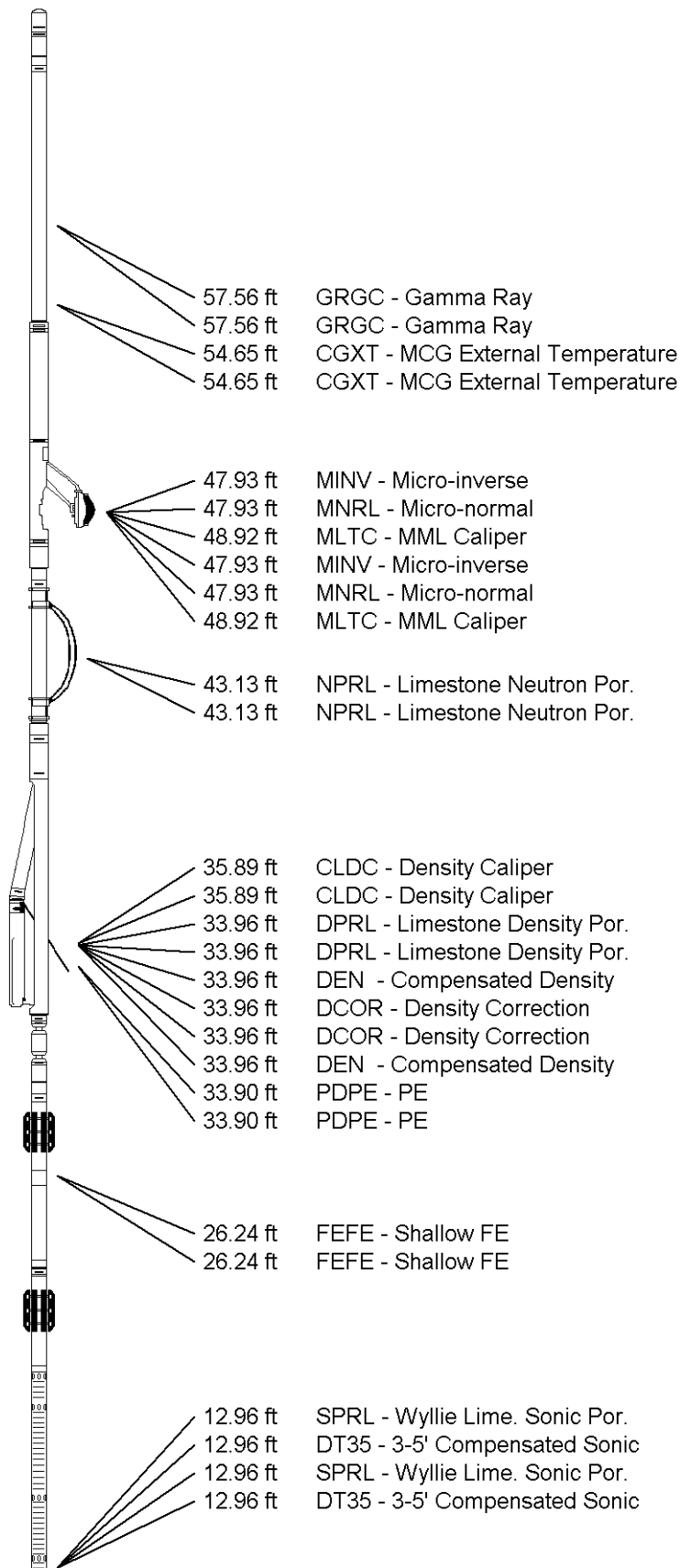
Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

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

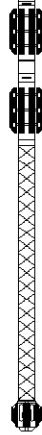
Compact Induction
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in



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

Total Length: 64.42 ft Weight: 496.0 lb

Total Length: 64.42 ft Weight: 496.0 lb



3.34 ft R60O - Array Ind. One Res 60
3.34 ft R60O - Array Ind. One Res 60
3.34 ft R40O - Array Ind. One Res 40
3.34 ft R40O - Array Ind. One Res 40
3.34 ft RTAO - Array Ind. One Res Rt
3.34 ft RTAO - Array Ind. One Res Rt
0.23 ft SPCG - Spontaneous Potential
0.23 ft SPCG - Spontaneous Potential
Tool Zero (0.13ft from bottom)
Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension
-0.13 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.
All measurements relative to tool zero.

COMPANY OXY U.S.A.
WELL SHELL B-1
FIELD AMAZON GULCH
PROVINCE/COUNTY FINNEY
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing 2988.00 feet
Elevation Drill Floor 2986.00 feet
Elevation Ground Level 2975.00 feet

First Reading 4876.00 feet
Depth Driller 4907.00 feet
Depth Logger 4910.00 feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

