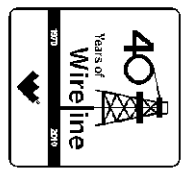




Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY GRAND MESA OPERATING COMPANY
 WELL DALE #2-34
 FIELD WILDCAT
 PROVINCE/COUNTY LOGAN
 COUNTRY/STATE U.S.A. / KANSAS
 LOCATION 478' FNL & 357' FEL



SEC TWP RGE Other Services
 34 12S 32W MAI/MFE
 API Number 15-109-21012
 Permit Number
 Permanent Datum G.L., Elevation 2990 feet
 Log Measured From K.B. @ 5 FEET above Permanent Datum
 Drilling Measured From K.B.

Elevations: feet
 KB 2995.00
 DF 2993.00
 GL 2990.00

Date	02-JUL-2011
Run Number	ONE
Depth Driller	4730.00 feet
Depth Logger	4728.00 feet
First Reading	4705.00 feet
Last Reading	3700.00 feet
Casing Driller	222.00 feet
Casing Logger	220.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.30 lb/USg 63.00 CP
PH / Fluid Loss	10.00 8.00 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	1.22 @ 93.0 ohm-m
Rmf @ Measured Temp	0.98 @ 93.0 ohm-m
Rmc @ Measured Temp	1.46 @ 93.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.95 @ 121.0 ohm-m
Time Since Circulation	5 HOURS
Max Recorded Temp	121.00 deg F
Equipment Name	COMPACT
Equipment / Base	13057 LIB
Recorded By	A. GIAMBALVO
Witnessed By	KENT MATSON
S.O. / JOB #	3531098 LB11-150

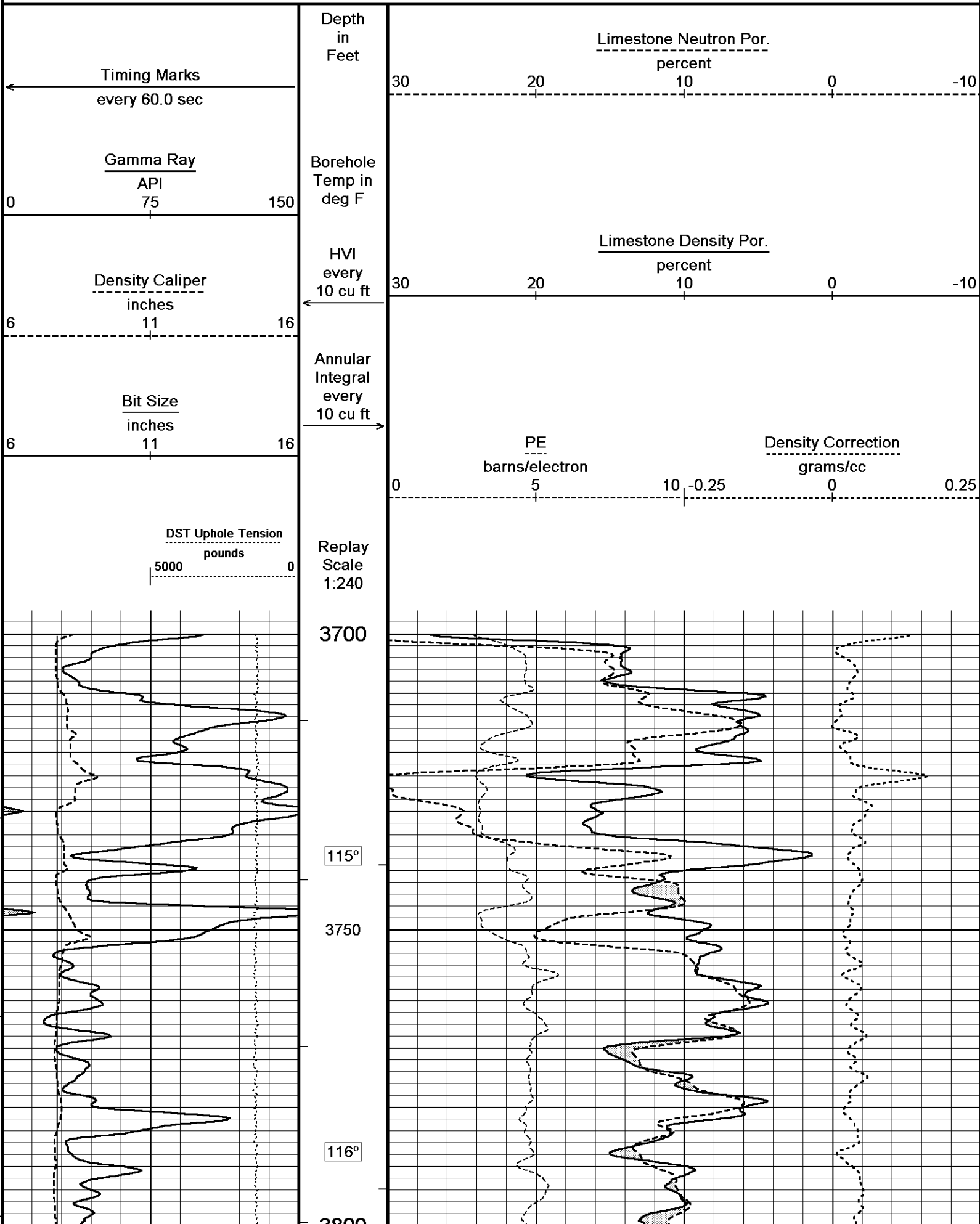
BOREHOLE RECORD			Last Edited: 02-JUL-2011 16:54	
Bit Size	Depth From	Depth To		
inches	feet	feet		
7.875	220.00	4728.00		
CASING RECORD				
Type	Size	Depth From	Shoe Depth	Weight
	inches	feet	feet	pounds/ft
SURFACE	8.625	0.00	220.00	24.00

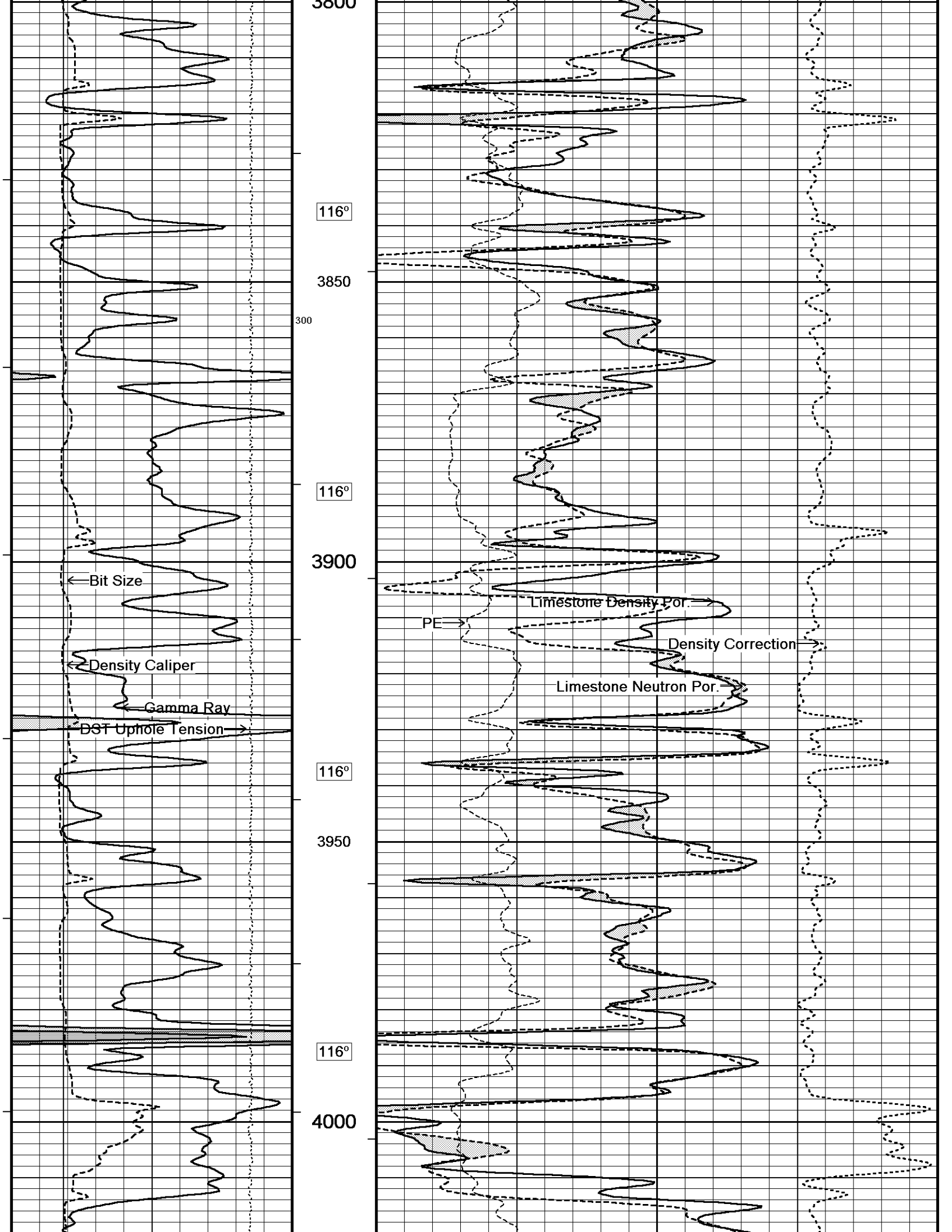
REMARKS

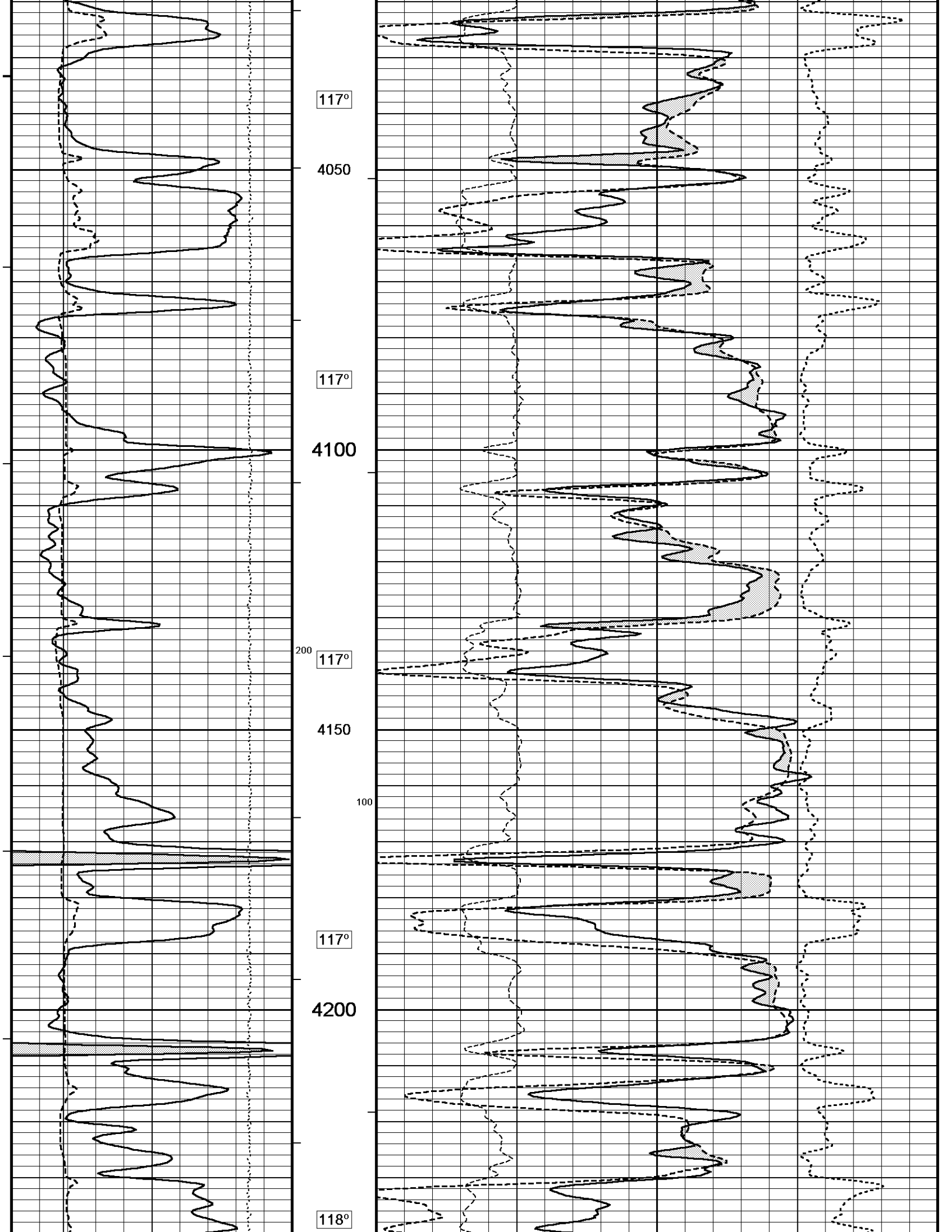
Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MAI.
 Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE and MAI 0.5 inch standoffs used.
 2.71 g/cc Limestone Density Matrix used to calculate porosity.
 All intervals logged and scaled per customer's request.
 Annular volume with 5.5 inch production casing = 188 cu. ft.
 Service order #3531098
 Rig: Murfin Drilling Rig #24
 Engineer: A. Giambalvo
 Operator(s): M. Stegman

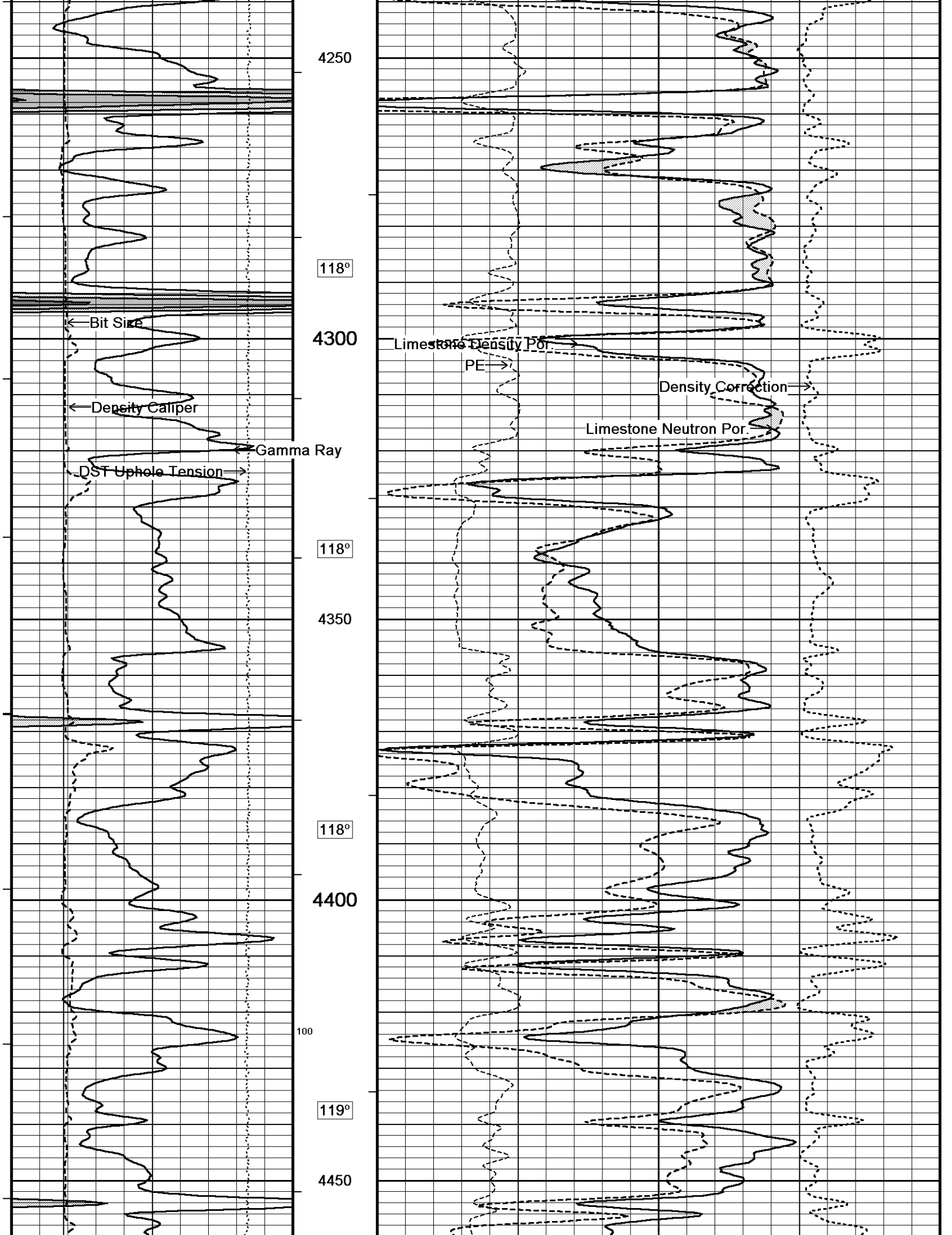
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

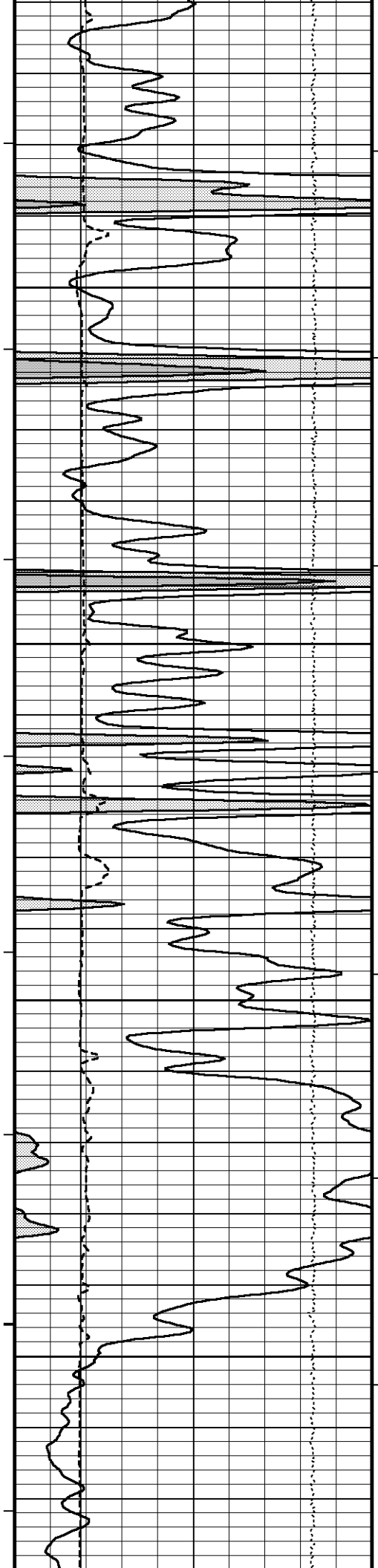
5 INCH MAIN PASS











120°

4500

120°

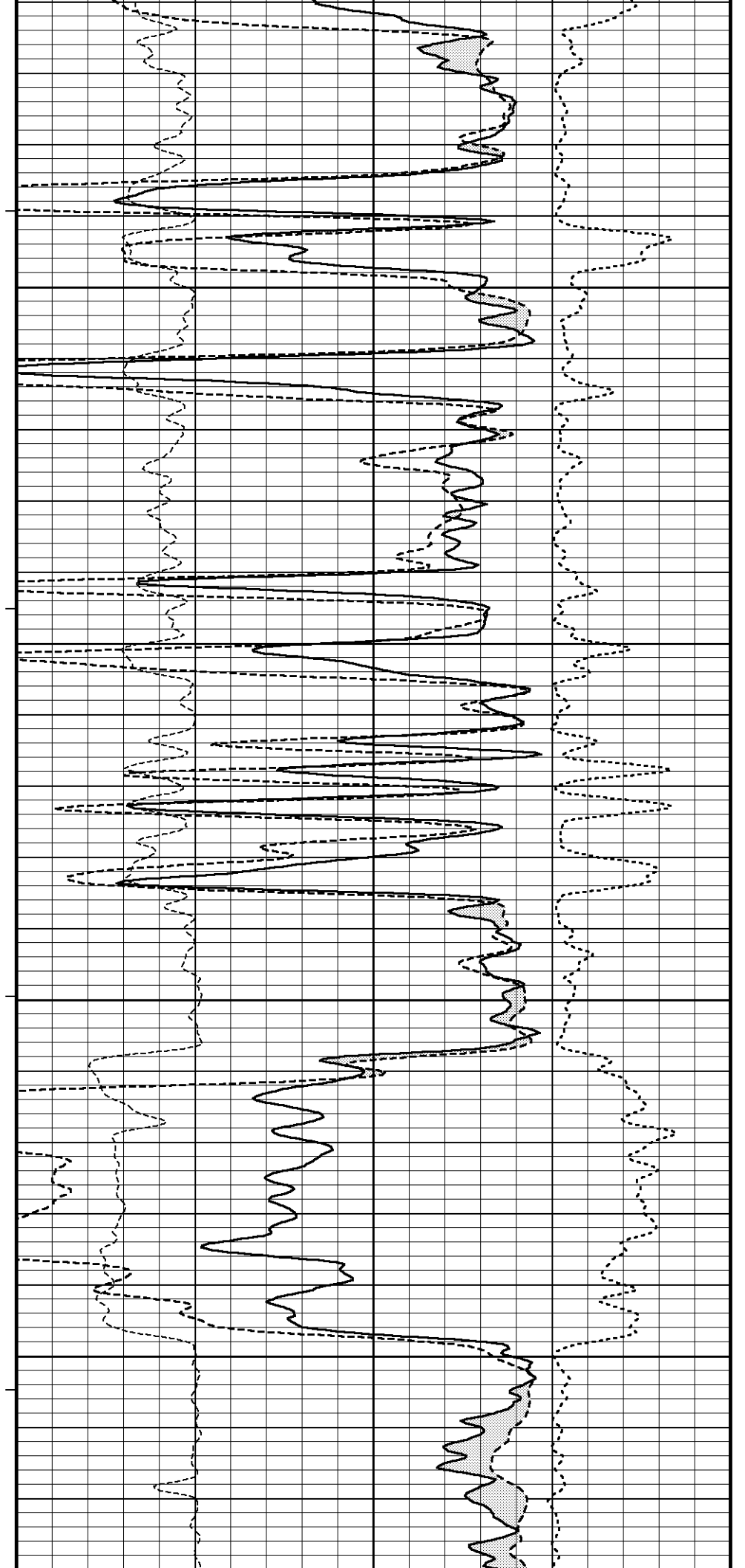
4550

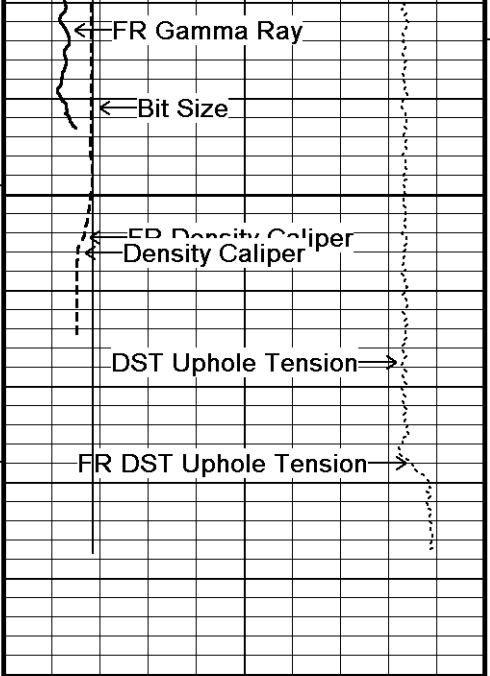
121°

4600

121°

4650



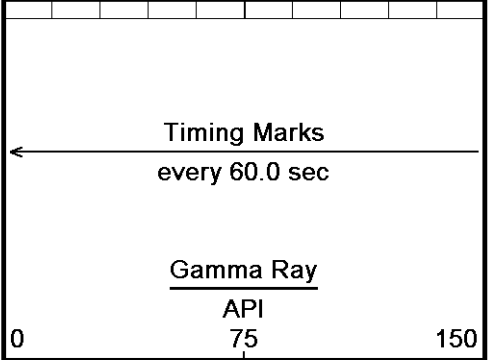
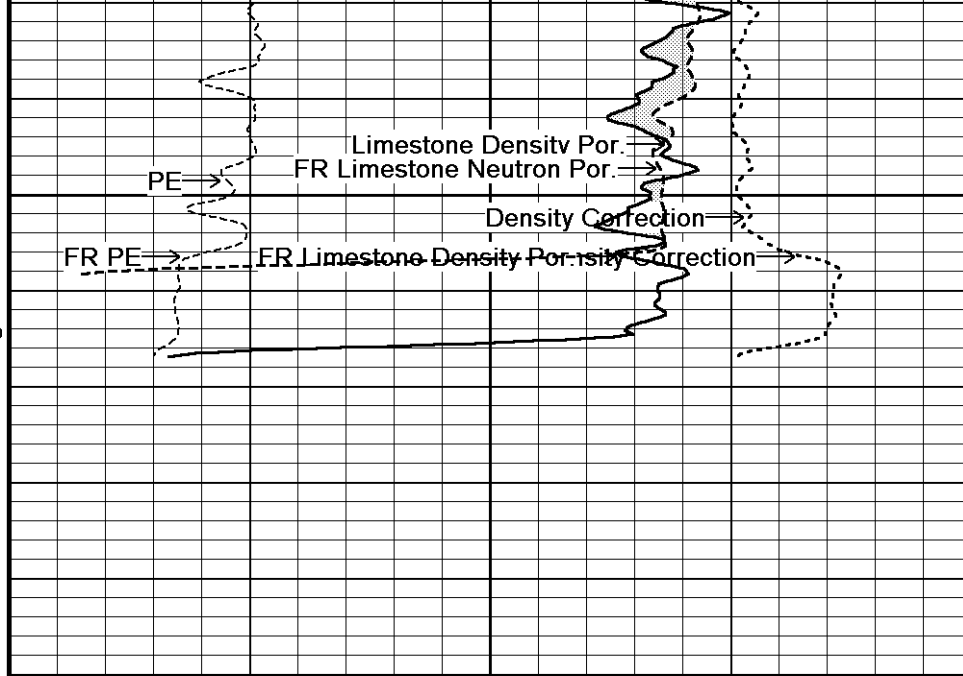


121°

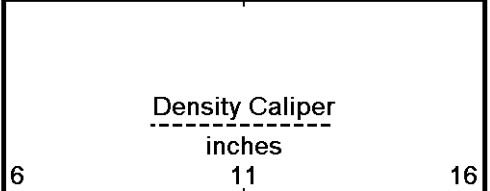
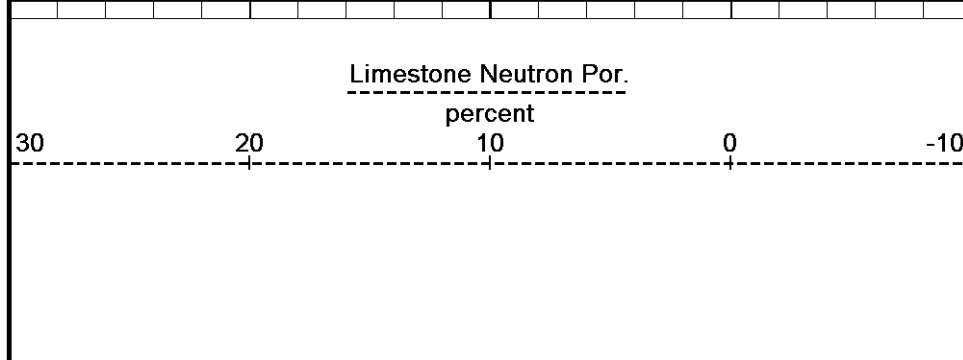
4700

4750

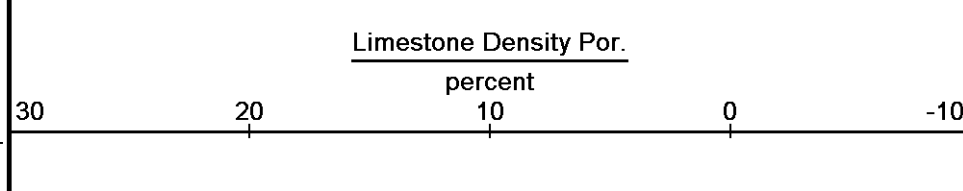
Depth in Feet



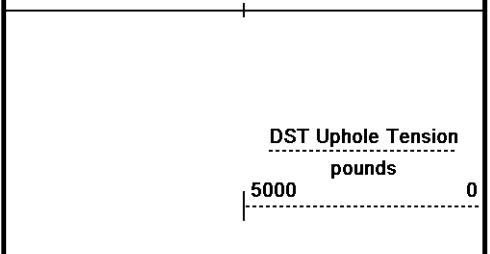
Borehole Temp in deg F



HVI every 10 cu ft



Annular Integral every 10 cu ft



Replay Scale 1:240

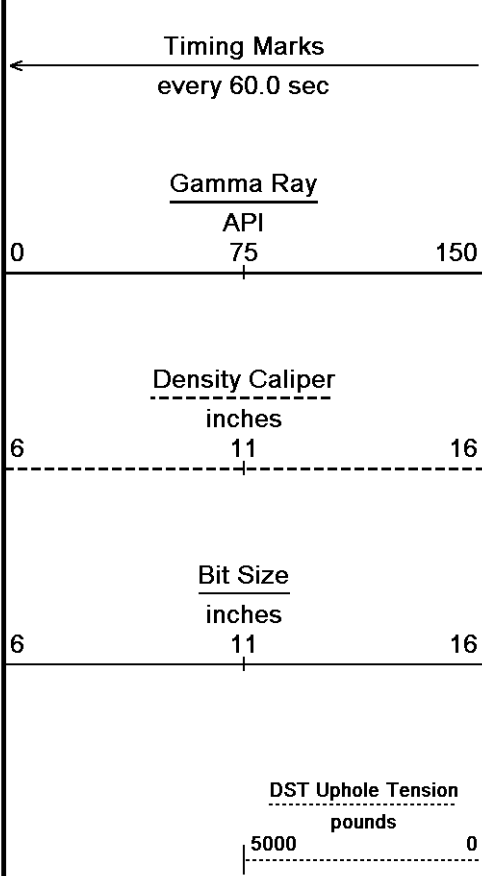
Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_003.dta
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186
 Plotted on 02-JUL-2011 16:57
 Recorded on 02-JUL-2011 14:52

↑ 5 INCH MAIN PASS ↑

↓ 5 INCH REPEAT PASS ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_002.dta
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186
 Plotted on 02-JUL-2011 16:57
 Recorded on 02-JUL-2011 14:32

Depth in	Limestone Neutron Por.



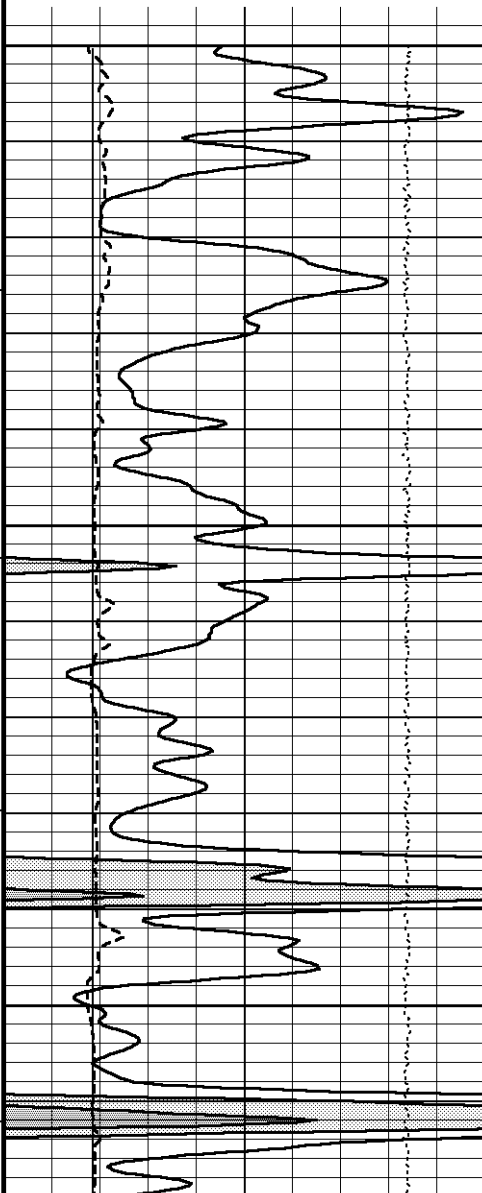
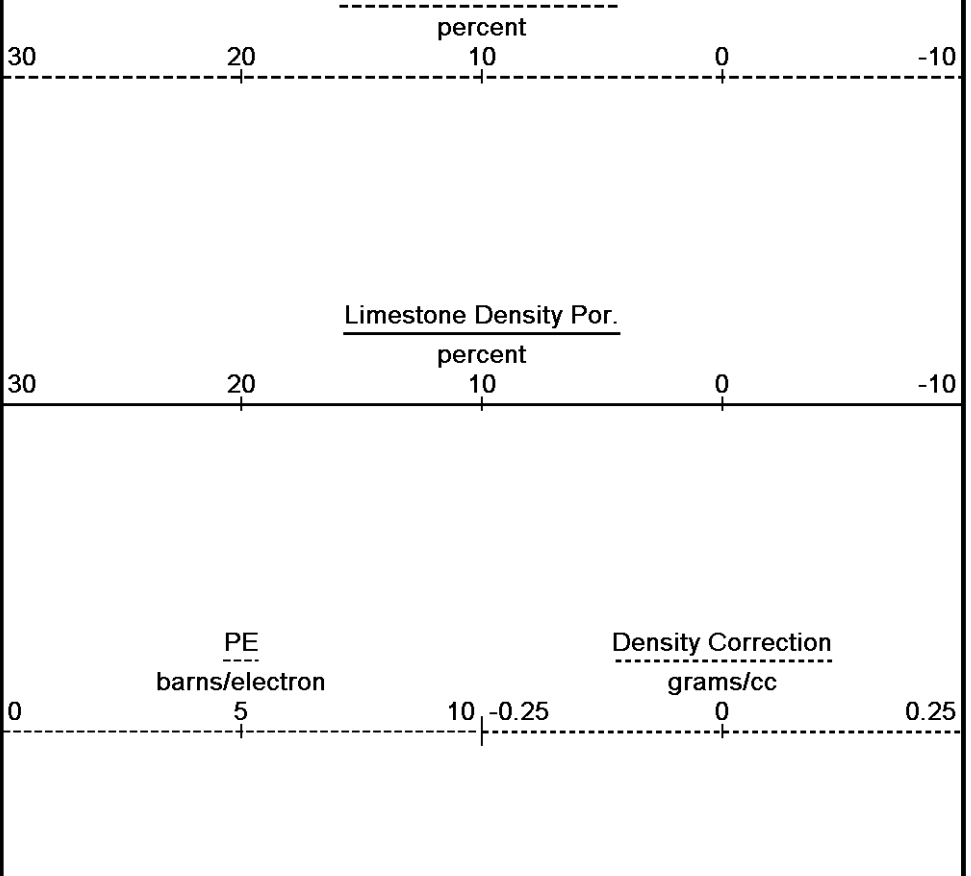
Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



4400

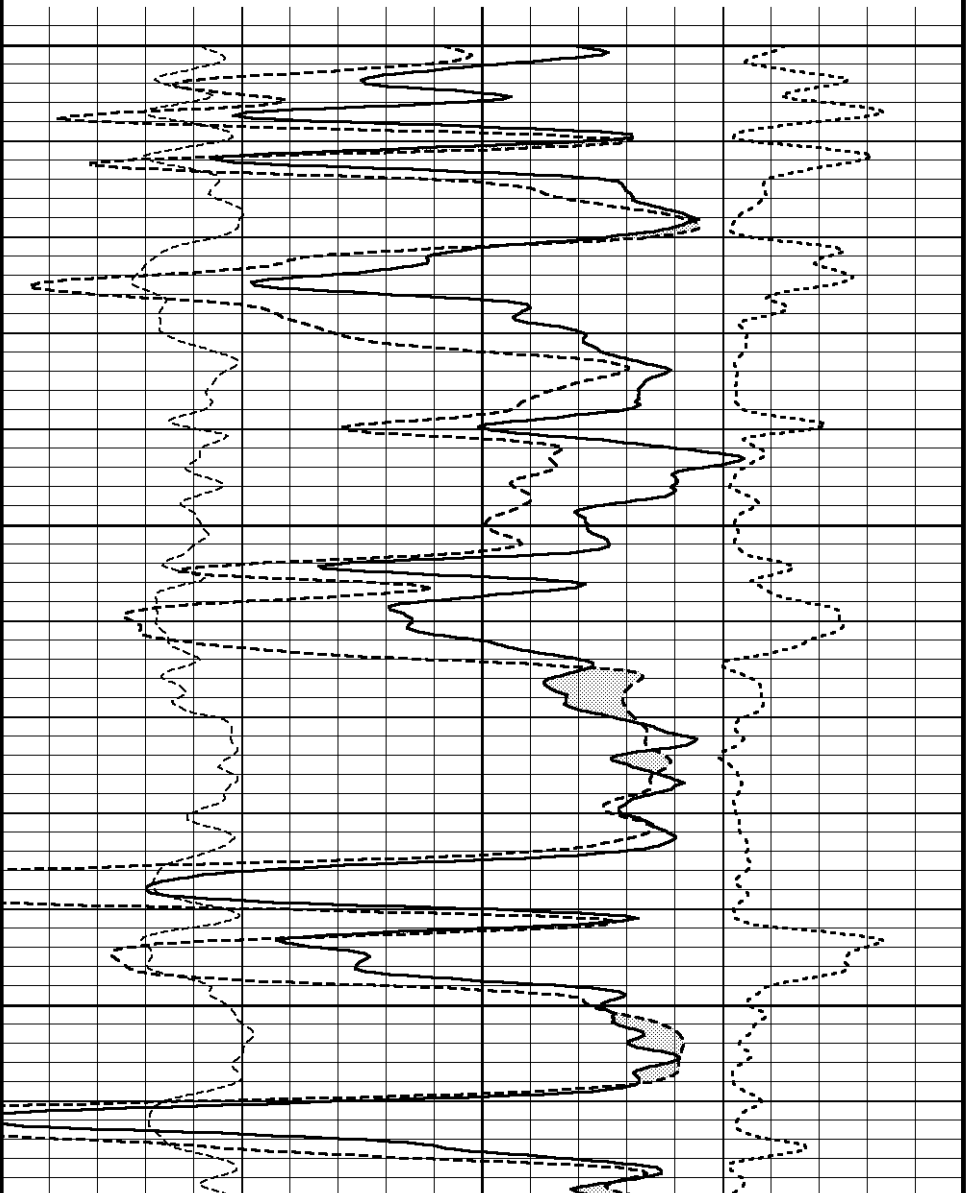
100

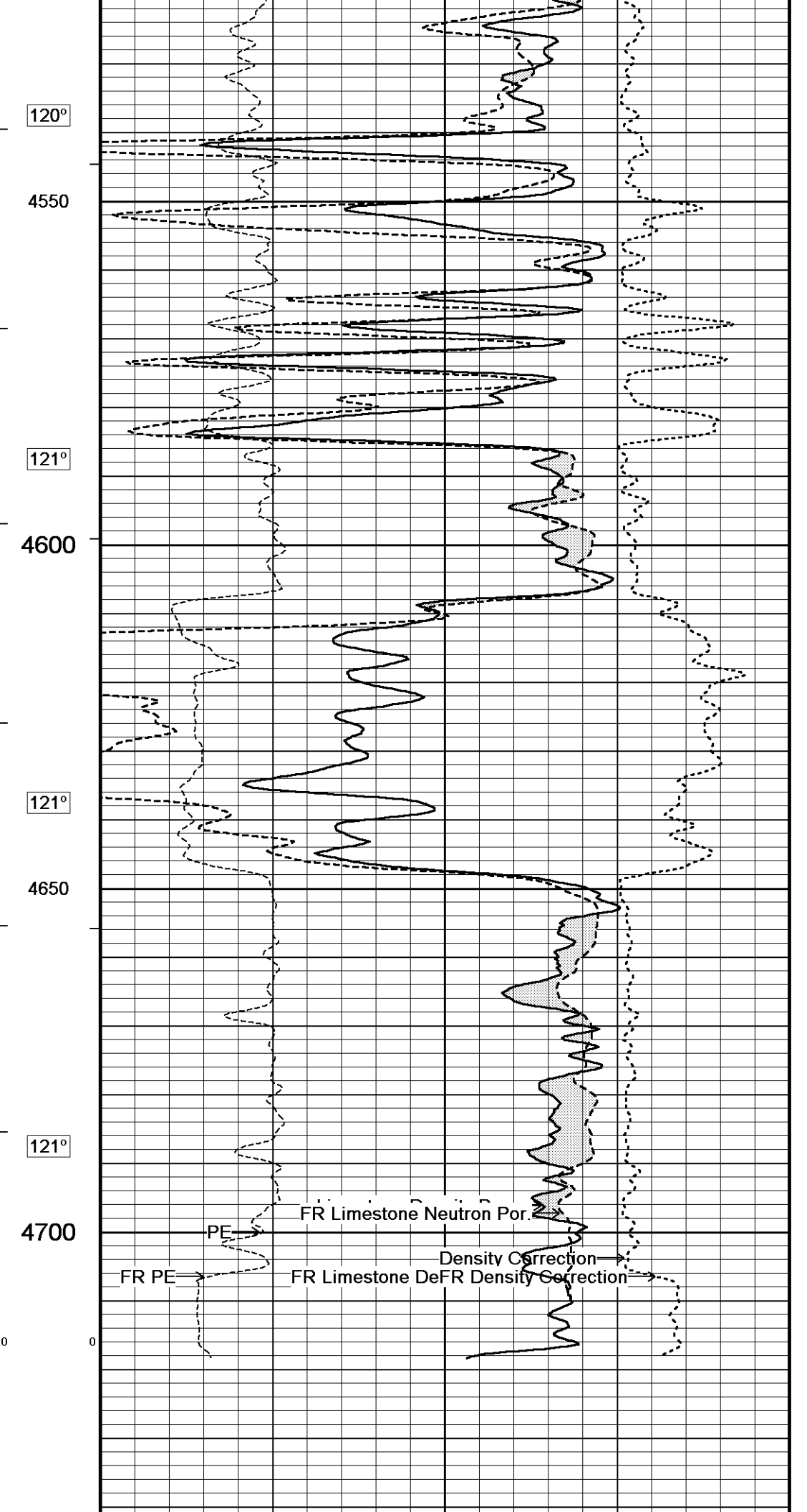
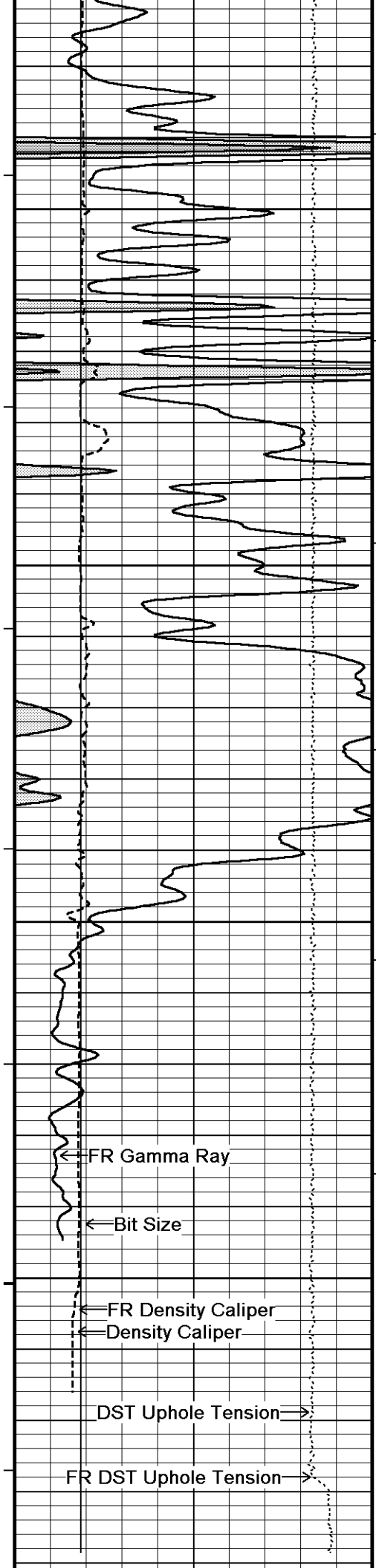
118°

4450

119°

4500





120°

4550

121°

4600

121°

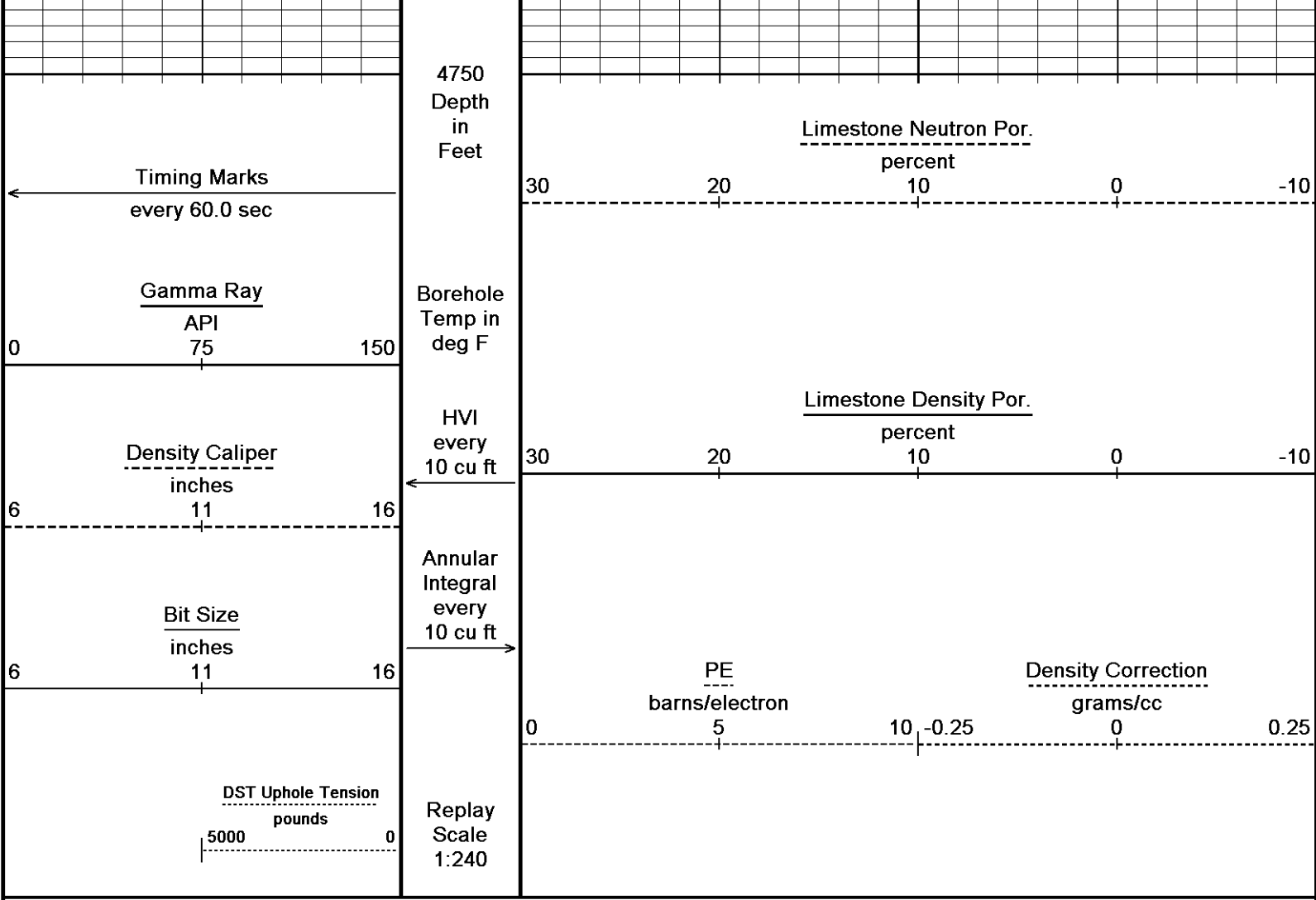
4650

121°

4700

0

0

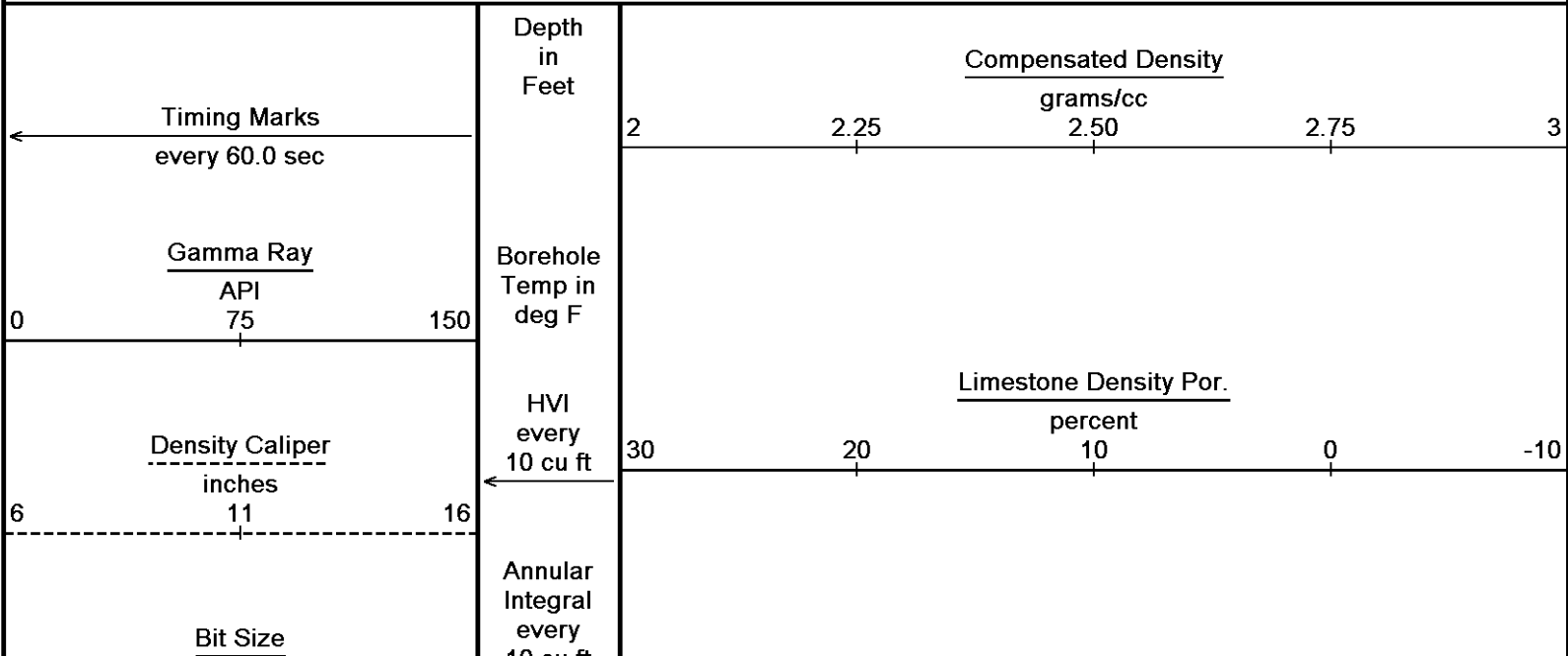


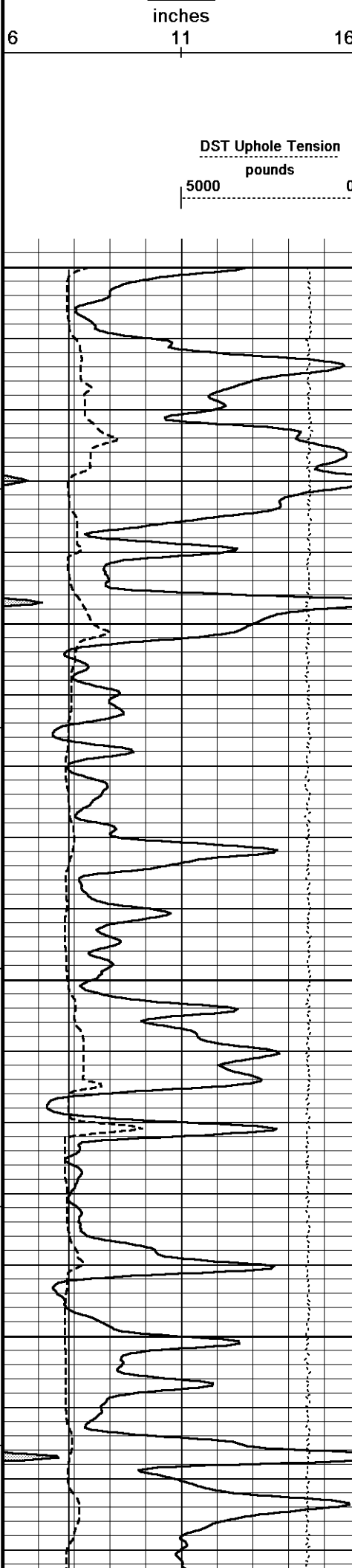
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 02-JUL-2011 16:57
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_002.dta Recorded on 02-JUL-2011 14:32
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186

↑ 5 INCH REPEAT PASS ↑

↓ 5 INCH MAIN PASS ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 02-JUL-2011 16:57
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_003.dta Recorded on 02-JUL-2011 14:52
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186





10 cu ft

Replay
Scale
1:240

3700

115°

3750

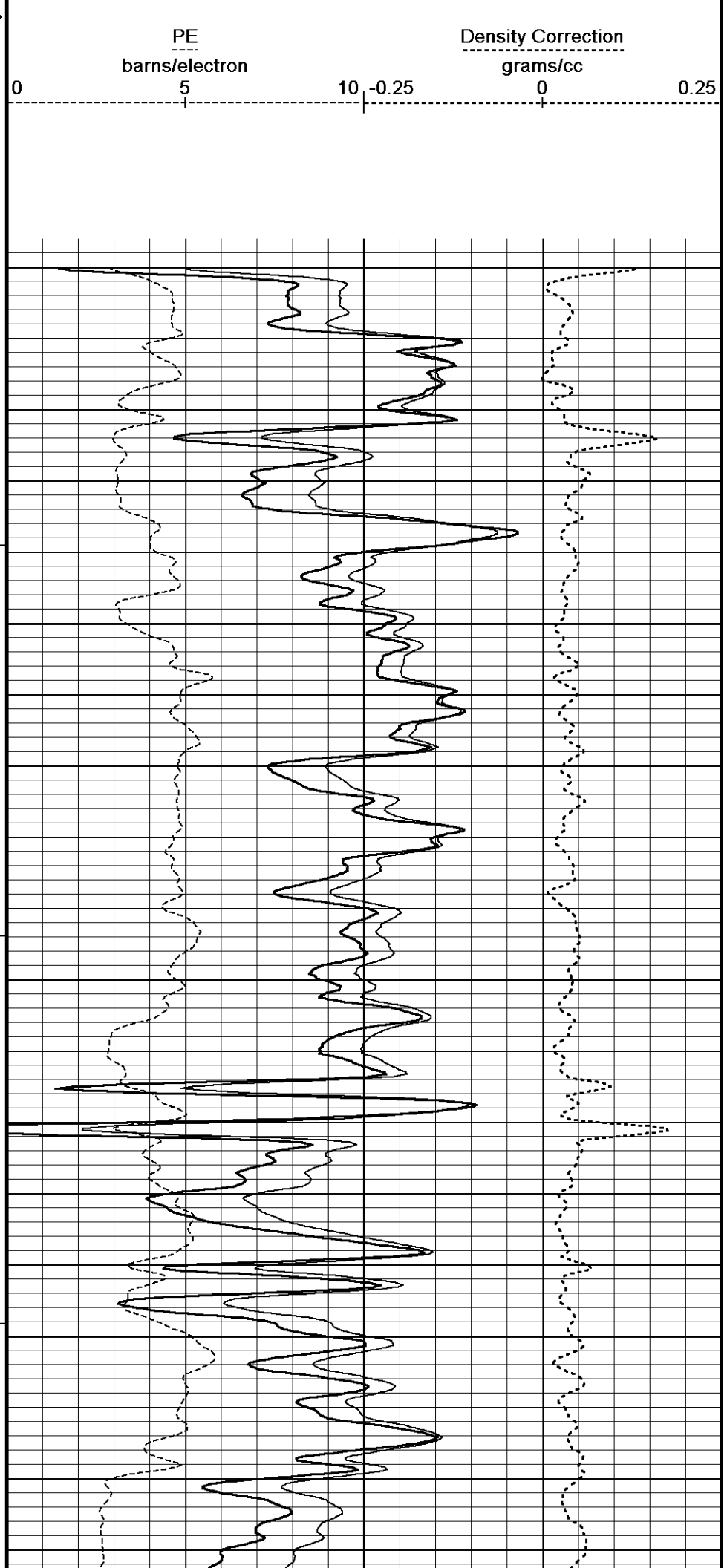
116°

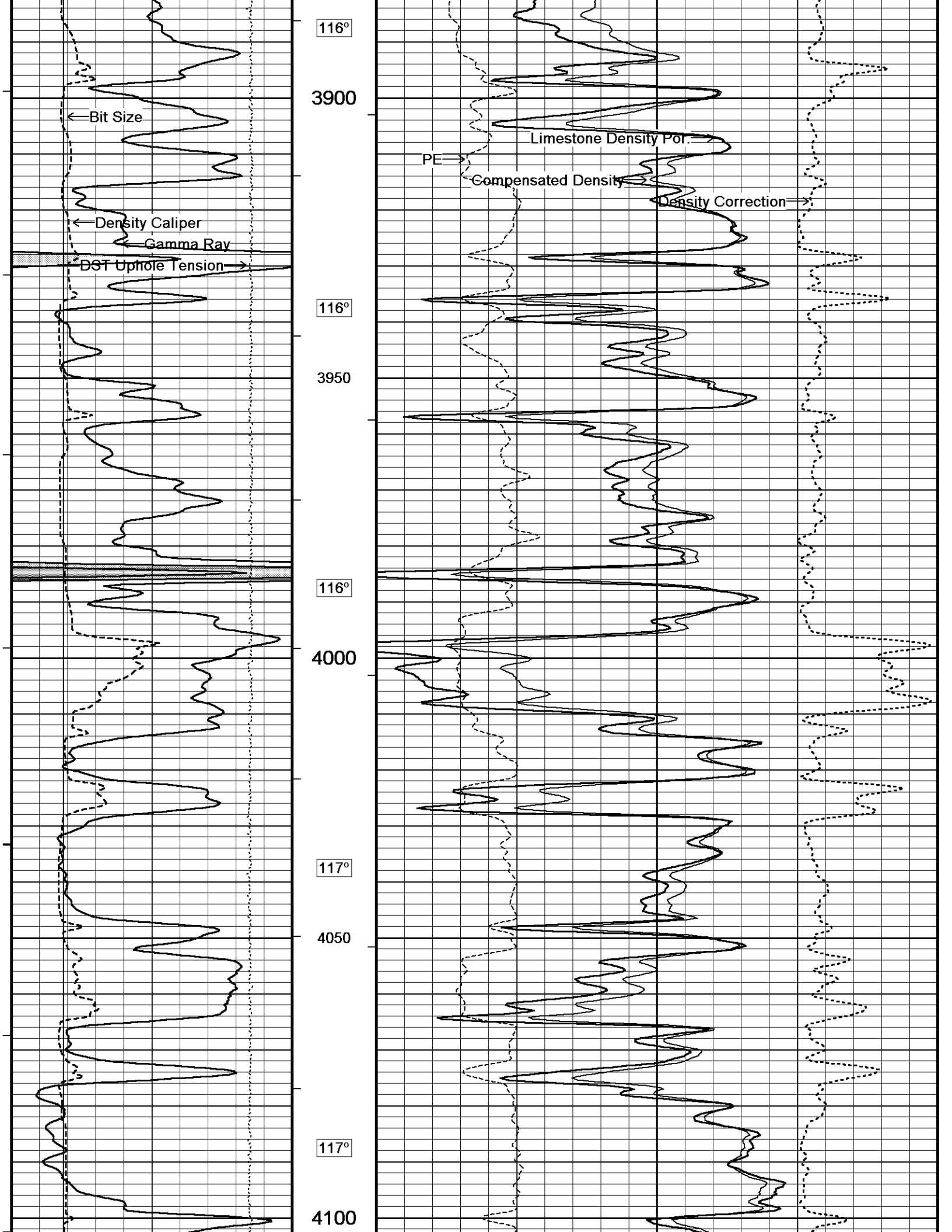
3800

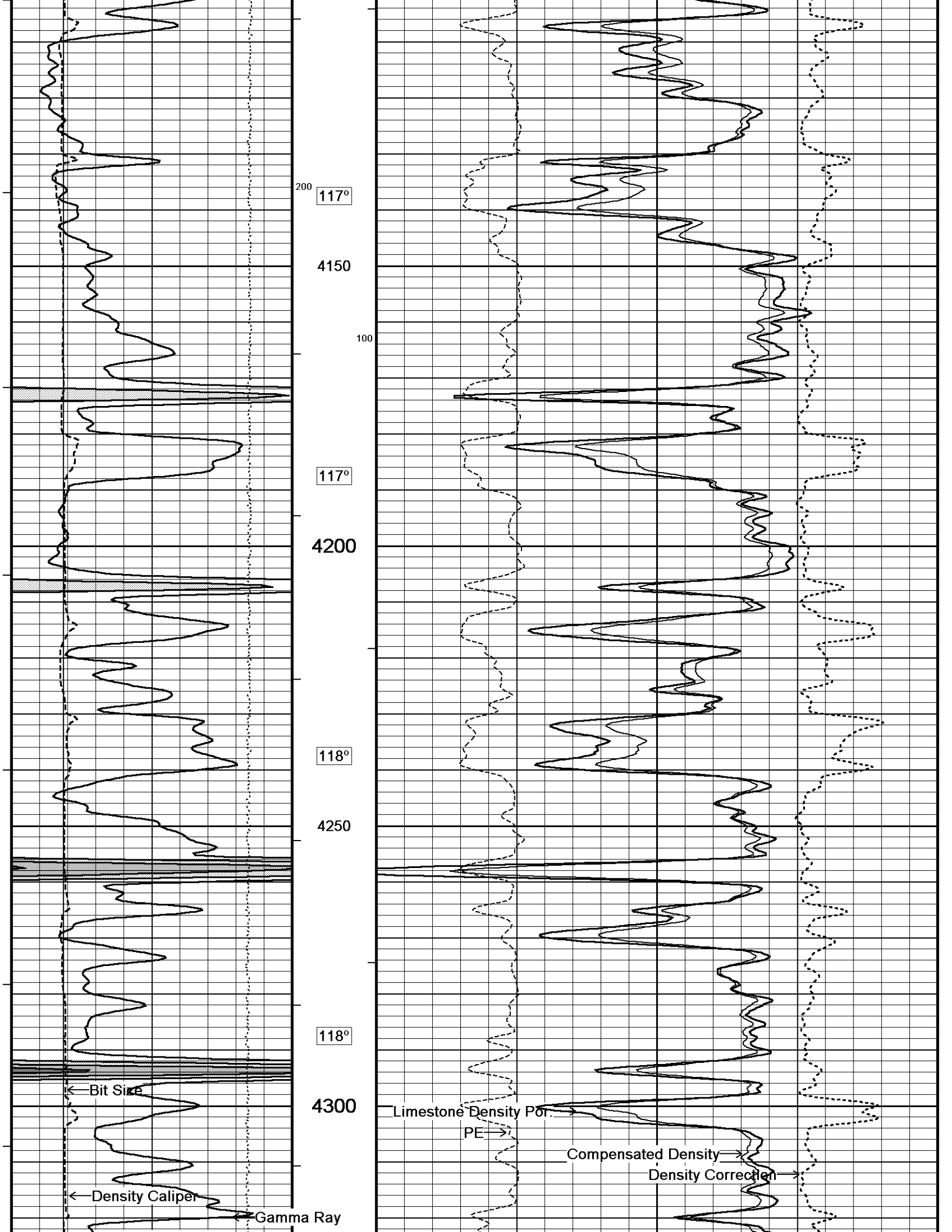
116°

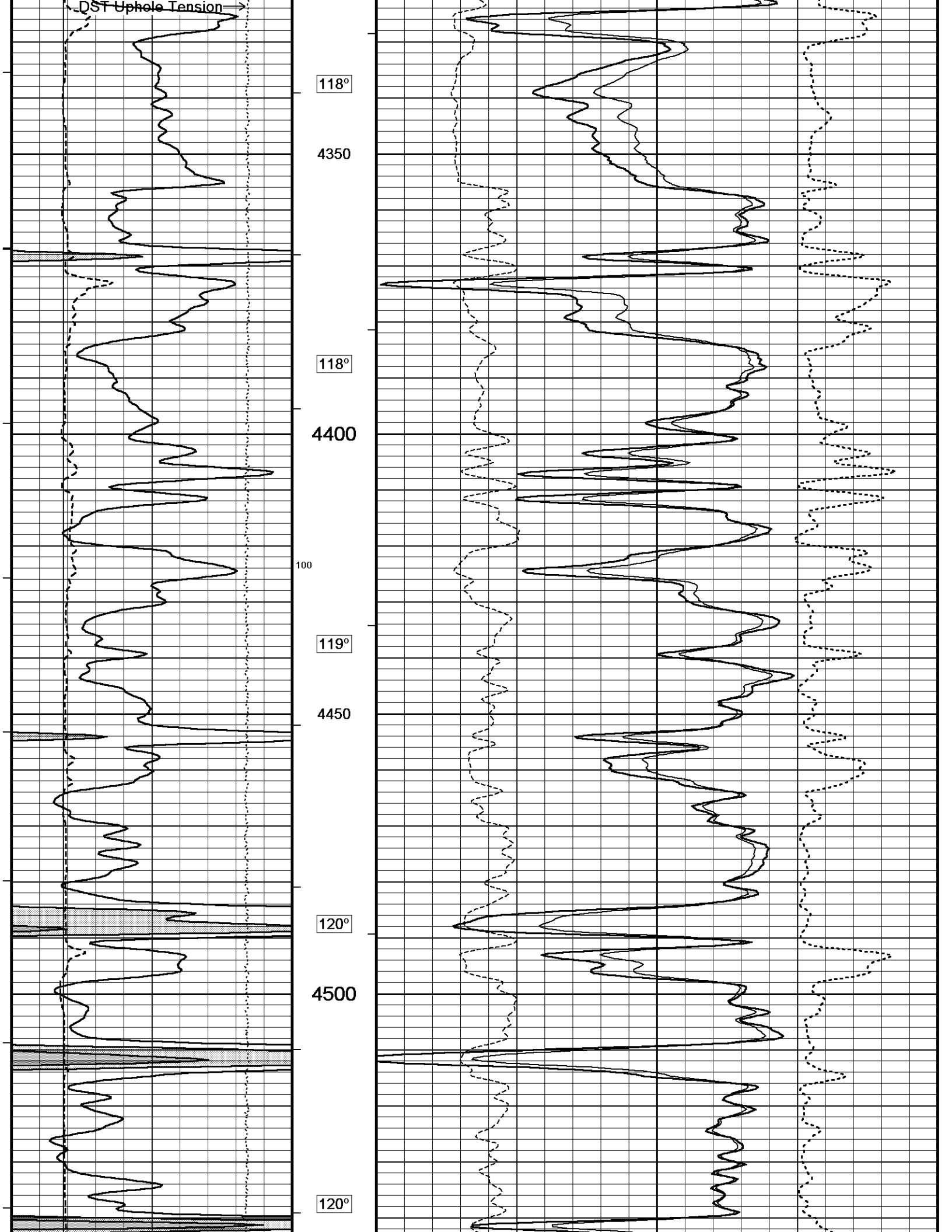
3850

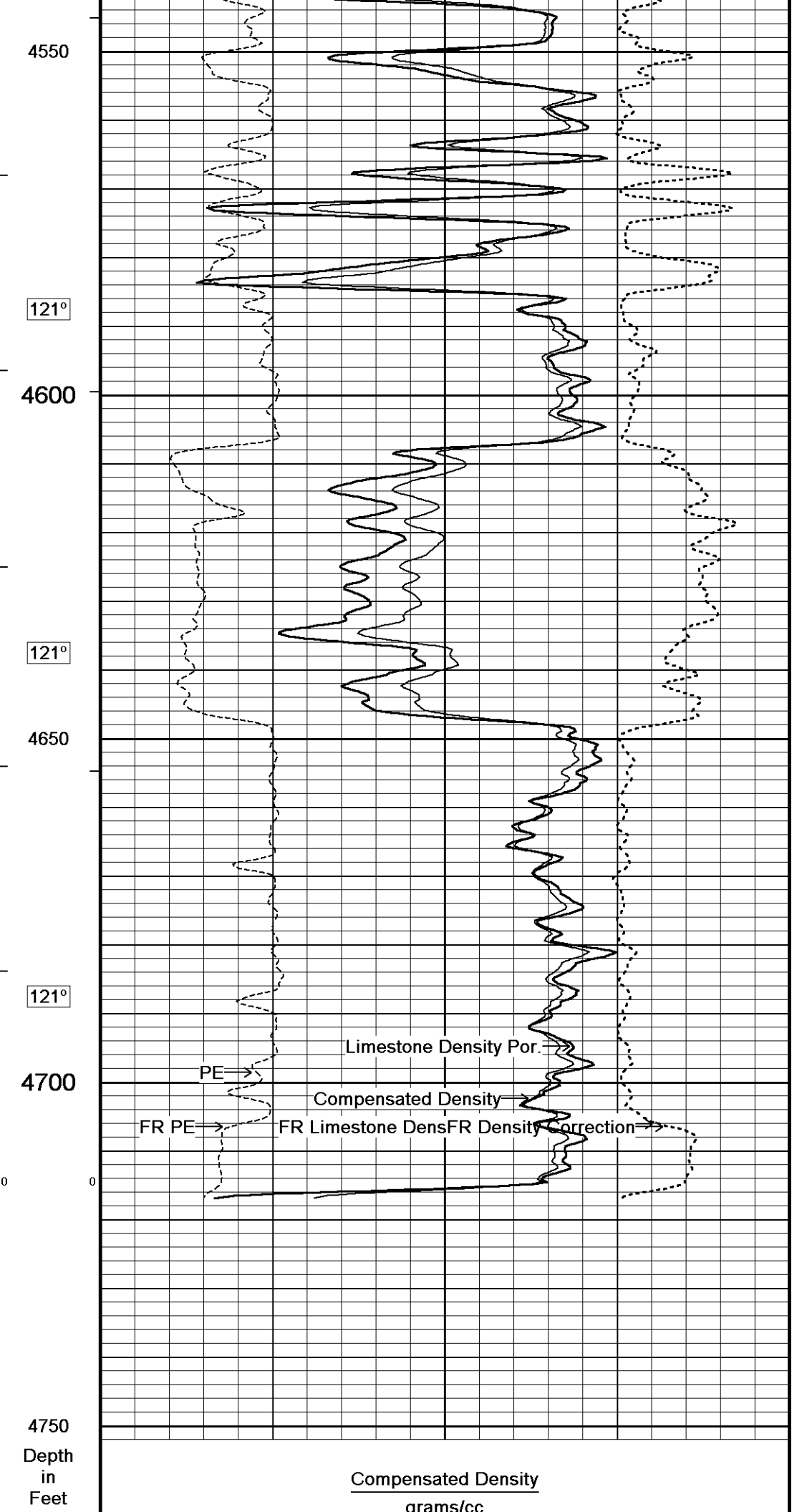
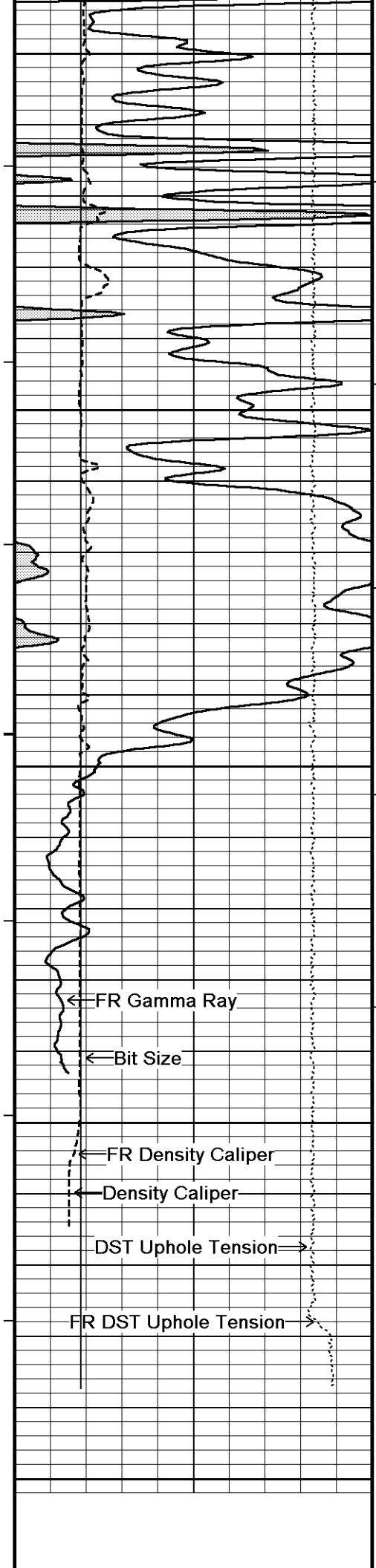
300

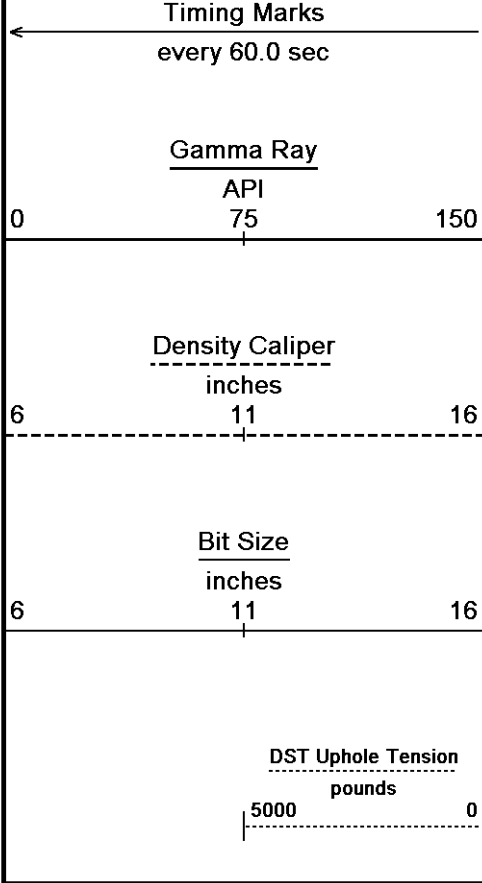










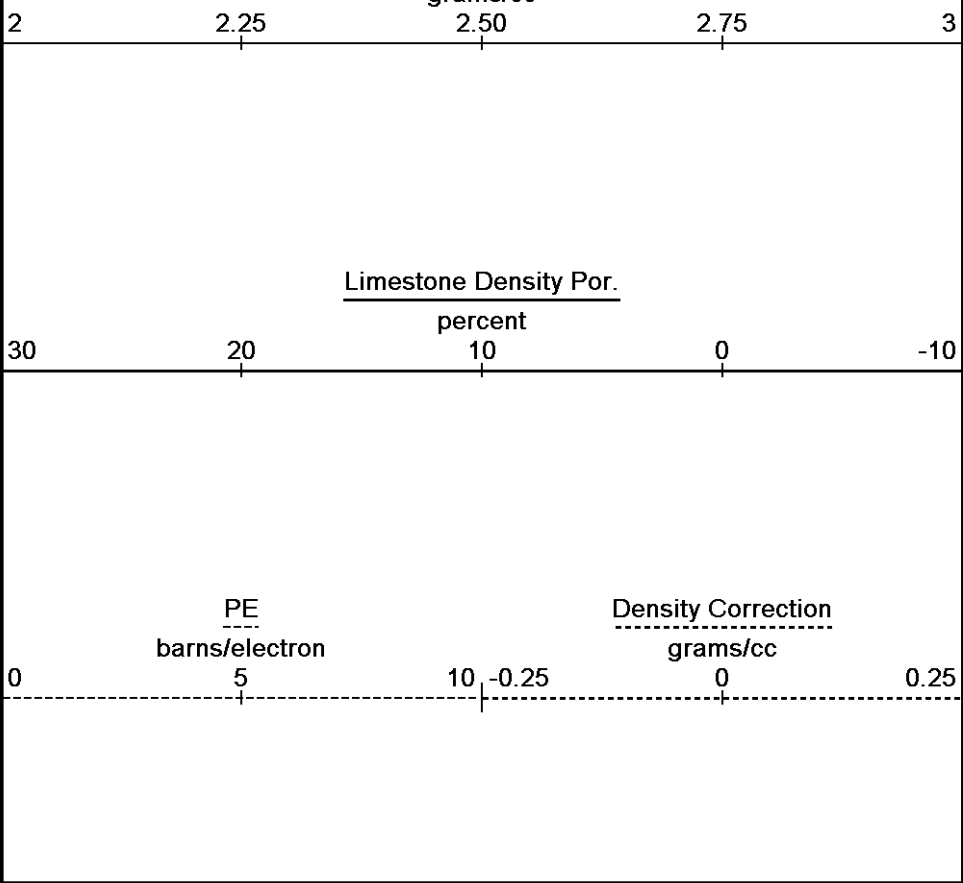


Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

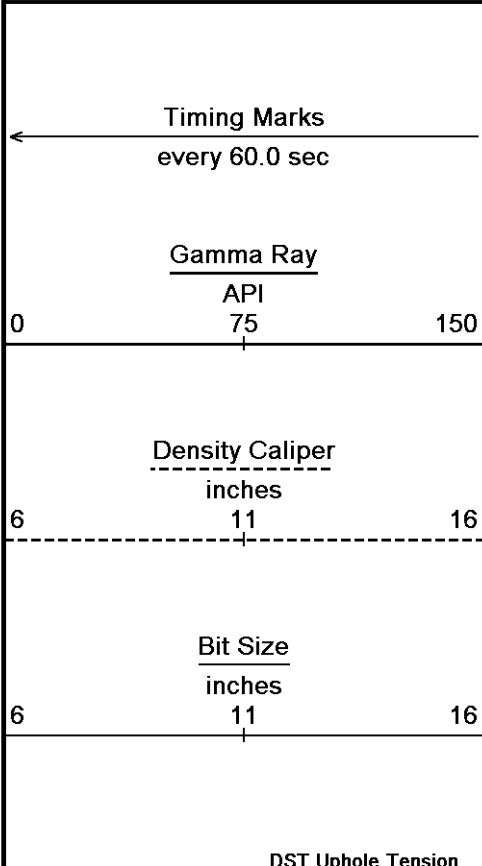
Replay
Scale
1:240



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 02-JUL-2011 16:57
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_003.dta Recorded on 02-JUL-2011 14:52
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186

5 INCH MAIN PASS

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 02-JUL-2011 16:57
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_002.dta Recorded on 02-JUL-2011 14:32
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186

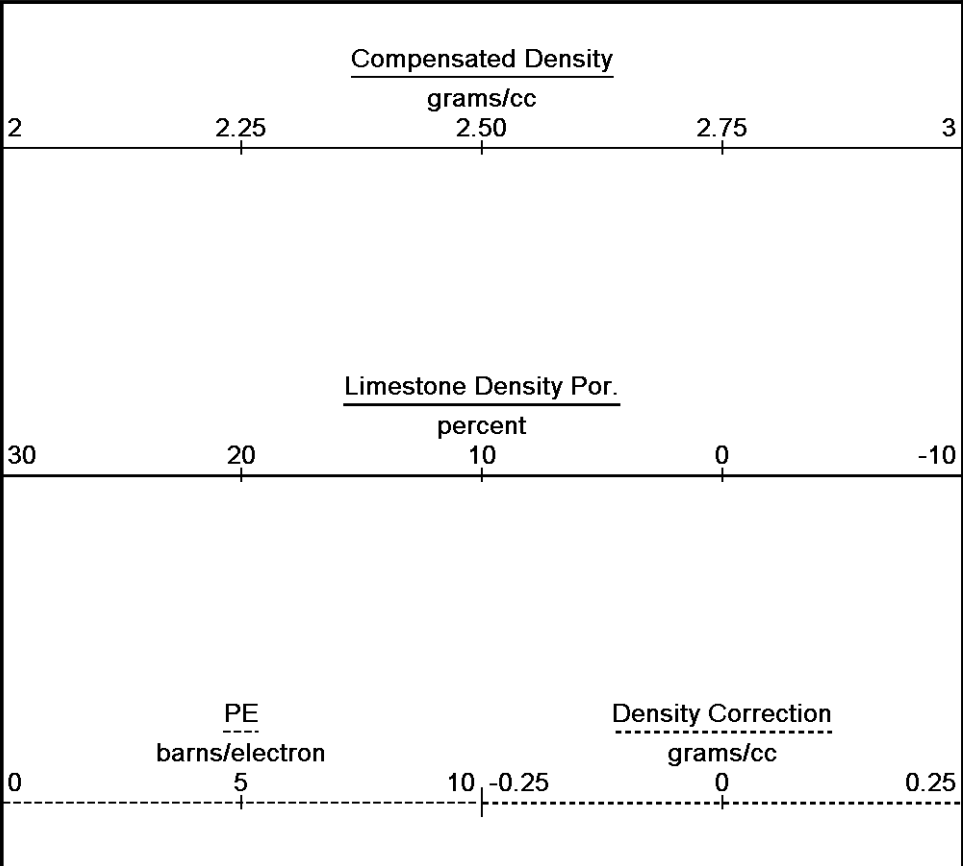


Depth
in
Feet

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft



pounds

5000

0

Replay
Scale
1:240

4400

100

118°

4450

119°

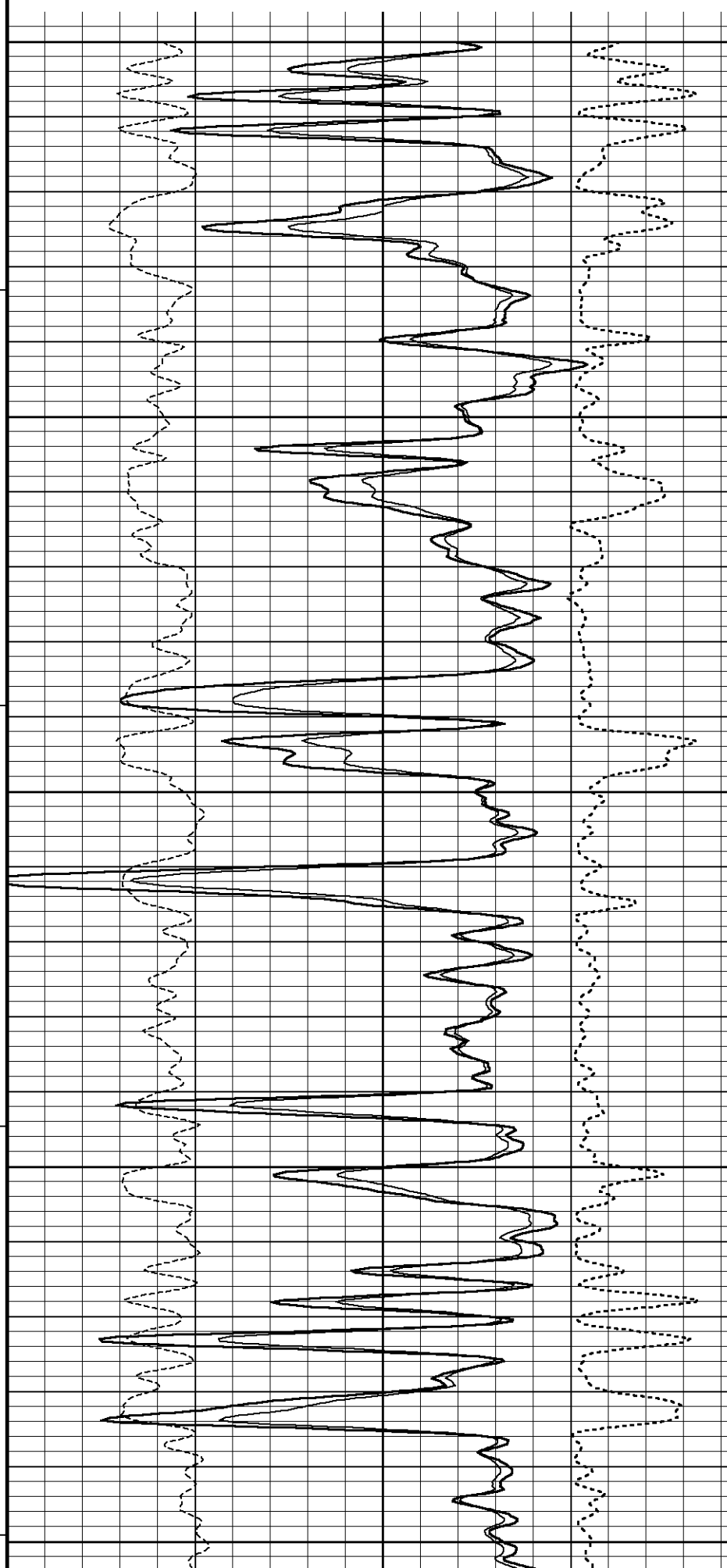
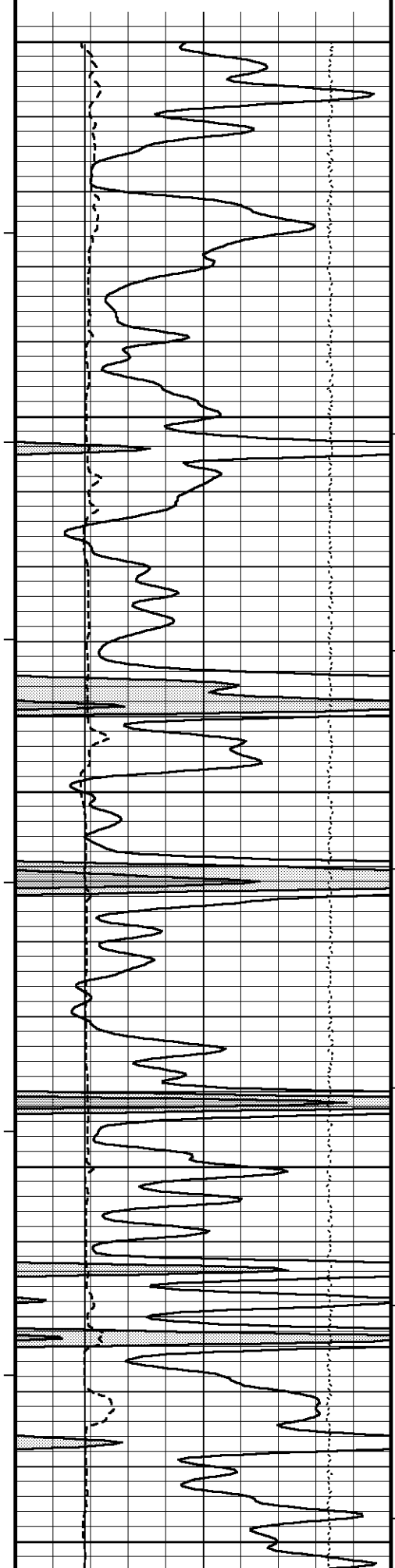
4500

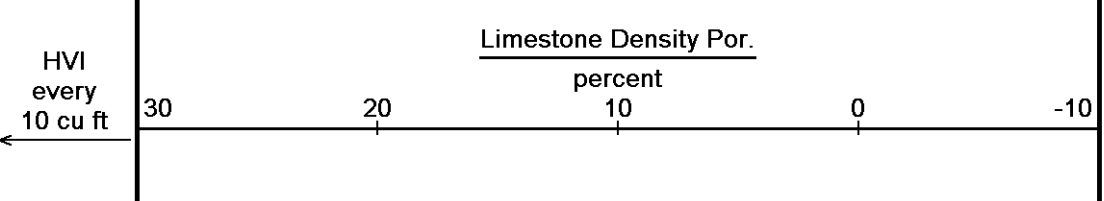
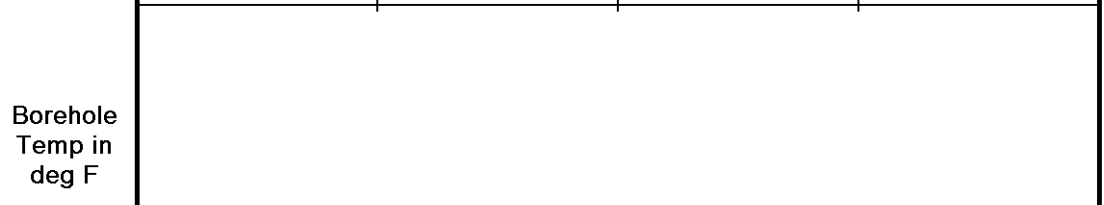
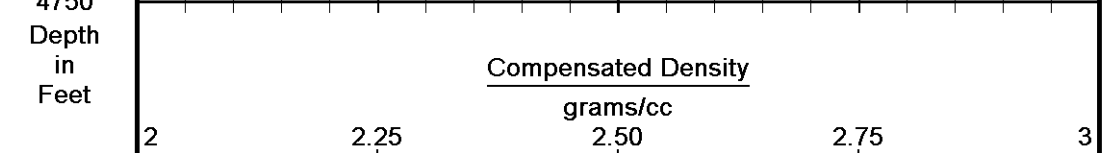
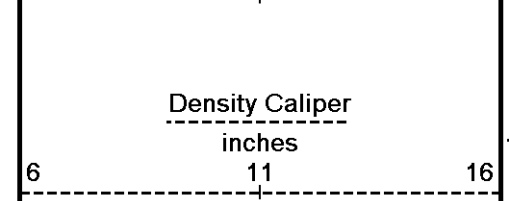
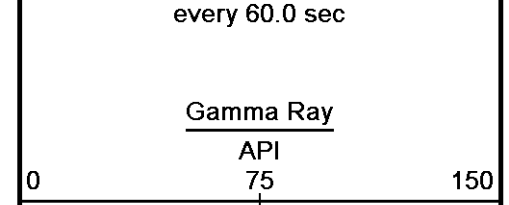
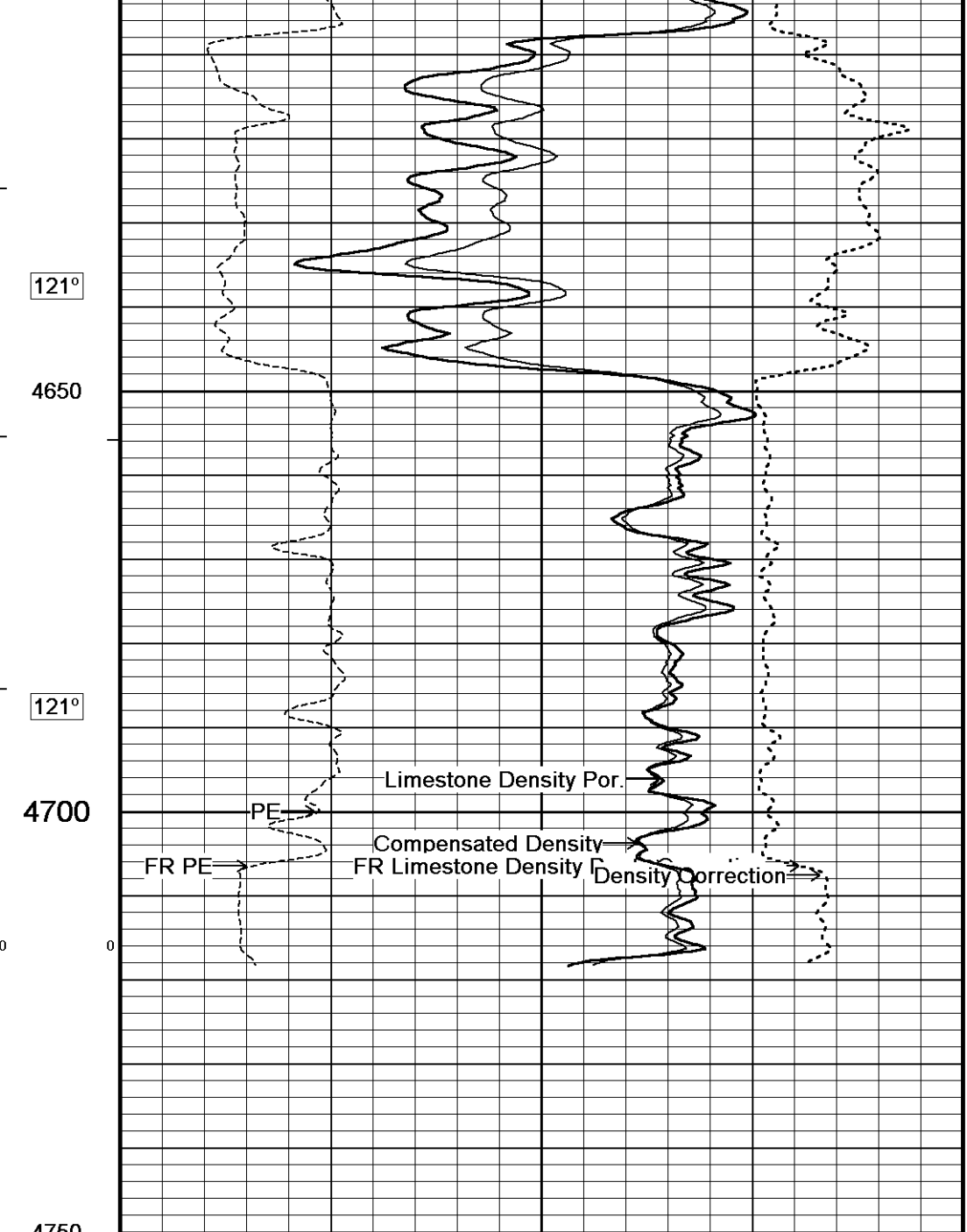
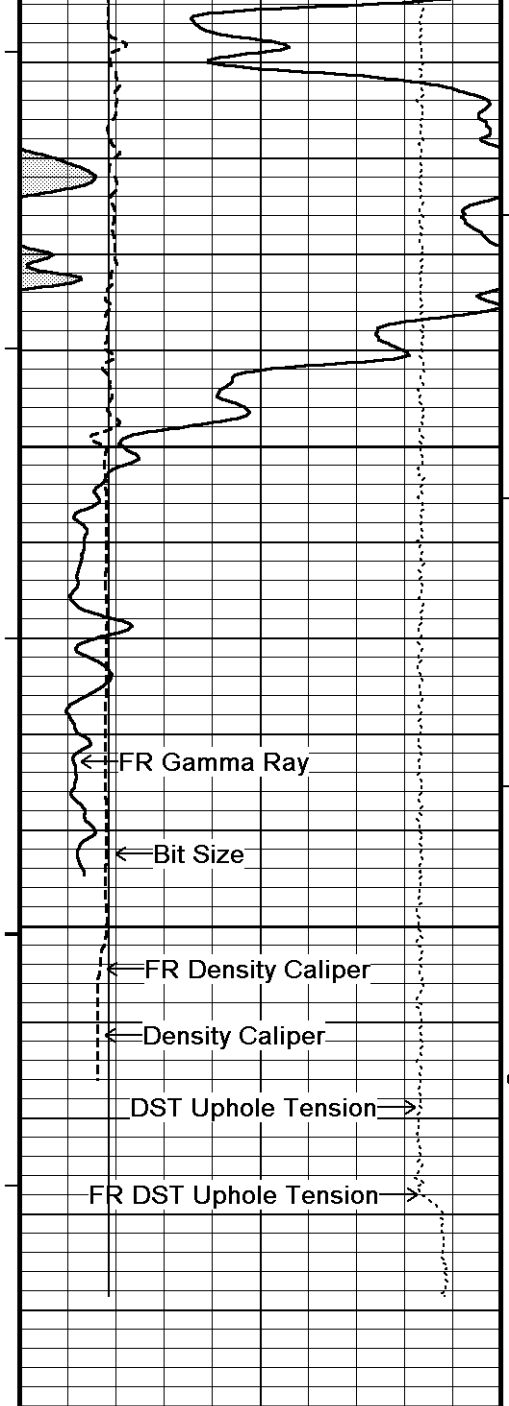
120°

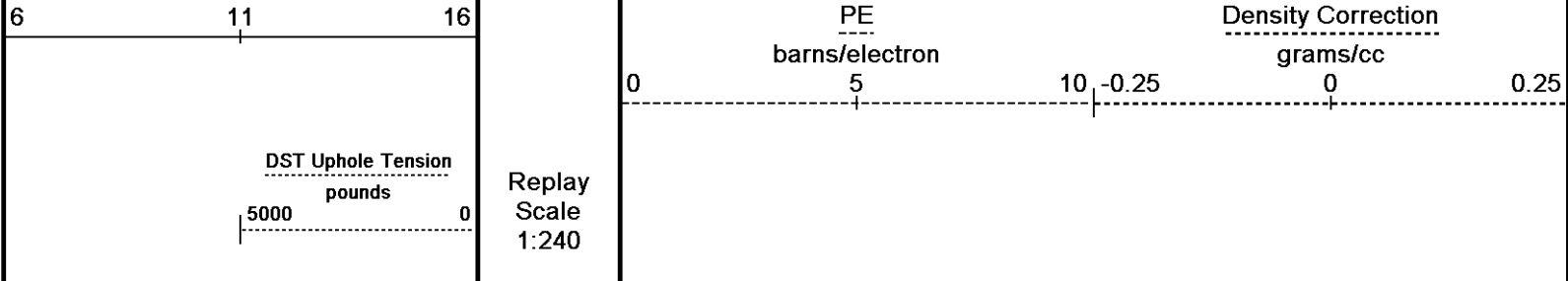
4550

121°

4600







Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 02-JUL-2011 16:57
 Filename: C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34_002.dta Recorded on 02-JUL-2011 14:32
 System Versions: Logged with 11.02.3186 Plotted with 11.02.3186

↑ **5 INCH REPEAT PASS** ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34.dta

General Constants All 000 Last Edited on 02-JUL-2011,13:28

General Parameters

Mud Resistivity	1.220	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	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

Down-hole Tension Calibration SMS 0 Field Calibration on 05-JUN-2011 04:37

Reading No	Measured	Calibrated (lbs)
1	13499.89	0.00
2	14983.70	496.00

High Resolution Temperature Calibration MCG-B 34 Field Calibration on 05-MAR-2011,23:56

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

High Resolution Temperature Constants MCG-B 34 Last Edited on

Pre-filter Length	11
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SP Calibration MCG-B 34 Field Calibration on 20-APR-2011 14:53

	Measured	Calibrated (mV)
Reference 1	106.7	100.0
Reference 2	-95.0	-100.0

Gamma Calibration MCG-B 34 Field Calibration on 01-JUL-2011 17:19

	Measured	Calibrated (API)
Background	68	47
Calibrator (Gross)	1102	772
Calibrator (Net)	1034	725

Gamma Constants MCG-B 34 Last Edited on 02-JUL-2011,13:06

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

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 16-MAY-2011 09:23
Field Check on 26-JUN-2011 03:14

Base Calibration

Channel	Resistor 1	Measured		Calibrated (ohm-m)	
		Resistor 2	Resistor 1	Resistor 2	Resistor 2
Micro Normal	12.1	60.1	2.6	12.8	
Micro Inverse	15.6	78.3	1.7	8.4	

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.2	32.2
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 02-JUL-2011,13:17

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 16-MAY-2011 09:38
Field Calibration on 26-JUN-2011 03:13

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14953	5.98
2	18280	7.97
3	21656	9.86
4	25588	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.01	5.98

Neutron Calibration MDN-A.B 65

Base Calibration on 16-MAY-2011 11:23
Field Check on 01-JUL-2011 18:26

Base Calibration

Ratio	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3166	99	3714	110
	31.935		33.764	

Field Calibrator at Base

Ratio	Calibrated (cps)
	1629 2336
	0.697

Field Check

Ratio	Calibrated (cps)
	1626 2342
	0.694

Neutron Constants MDN-A.B 65

Last Edited on 02-JUL-2011,13:28

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	None	
Formation Pressure	N/A	kpsi
Temperature Source	MCG External Temperature	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
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 21-JUN-2011 10:19 Field Check on 26-JUN-2011 03:06	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	953.6	126.8	
Base Check		281.3	
Field Check		281.3	

FE Constants MFE-A.A 55		Last Edited on 02-JUL-2011,13:21	
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	

High Resolution Temperature Calibration MAI-A.A 45		Field Calibration on 13-AUG-2010,13:31	
	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		

Induction Calibration MAI-A.A 45		Base Calibration on 13-AUG-2010,13:32 Field Check on 26-JUN-2011 03:04			
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	14.5	473.5	9.3	966.2	
2	5.2	373.4	7.6	821.4	
3	2.8	260.6	5.2	566.0	
4	1.6	132.2	2.6	279.2	
Array Temperature	86.2		Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	19.6	3845.3	
2	0.0	0.0	33.1	3631.5	
3	0.0	0.0	30.0	3050.3	
4	0.0	0.0	20.4	2093.9	
Deep	0.0	0.0	18.0	1920.7	
Medium	0.0	0.0	43.2	4050.7	
Shallow	0.0	0.0	50.2	5475.0	
Array Temperature	0.0		87.3		Deg F

Induction Constants MAI-A.A 45		Last Edited on 02-JUL-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 Rt	0.00	
Source for Rxo	0.00	

Caliper Calibration MPD-B 65

Base Calibration on 01-JUL-2011 18:46
Field Calibration on 01-JUL-2011 18:48

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13710	3.99
2	22224	5.98
3	30784	7.97
4	39184	9.86
5	48352	11.92
6	N/A	N/A

Field Calibration

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

Photo Density Calibration MPD-B 65

Base Calibration on 16-MAY-2011 10:48
Field Check on 01-JUL-2011 18:37

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	51543	24465	59556	30836
Reference 2	20910	2298	24941	2541

Field Check at Base

1247.1	1201.6
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Field Check

1246.2	1194.6
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PE Calibration

Base Calibration	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	227	1108		
Reference 1	19826	51340	0.390	0.371
Reference 2	5731	20764	0.280	0.272

Field Check at Base

226.6	1107.8
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Field Check

225.0	1112.1
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Density Constants MPD-B 65

Last Edited on 02-JUL-2011,13:19

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	

DOWNHOLE EQUIPMENT

C:\Minimus 11.02.3186\Data\Grand Mesa Dale #2-34\Grand Mesa Dale #2-34.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 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 Neutron
 MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

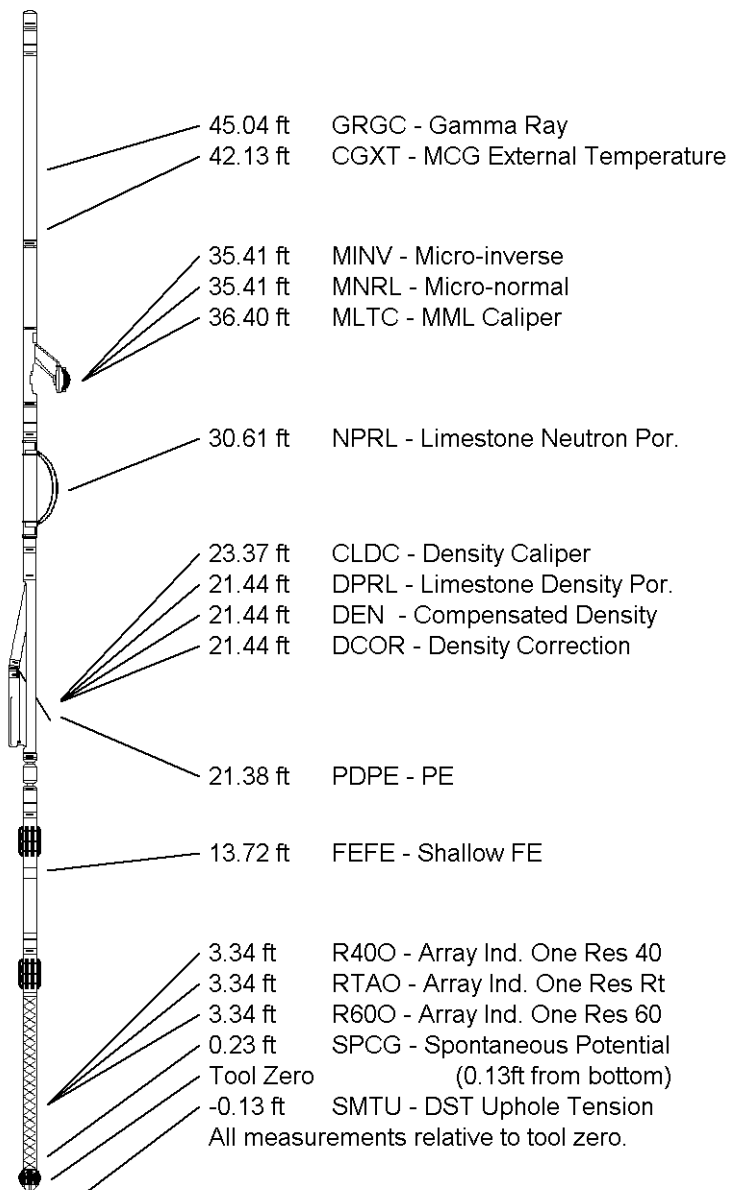
Compact Density/Caliper
 MPD-B 65 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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

Compact Focussed Electric
 MFE-A.A 55 LG: 6.05 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: 51.90 ft Weight: 423.3 lb



WELL DALE #2-34
FIELD WILDCAT
PROVINCE/COUNTY LOGAN
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2995.00	feet	First Reading	4705.00	feet
Elevation Drill Floor	2993.00	feet	Depth Driller	4730.00	feet
Elevation Ground Level	2990.00	feet	Depth Logger	4728.00	feet



COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

