Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	VAIL 6-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1976' FSL & 681' FEL NE SW NE SE

SEC	TWP	RGE	Other Services
30	33S	29W	MPD/MDN MAI/MFE MML

API Number 15-119-21356
Permit Number

Permanent Datum GL, Elevation 2647 feet
Log Measured From KB
Drilling Measured From KB @ 12 FEET

Elevations:	feet
KB	2659.00
DF	2657.00
GL	2647.00

Date	22-DEC-2013				
Run Number	ONE				
Service Order	3547637				
Depth Driller	6360.00	feet			
Depth Logger	6356.00	feet			
First Reading	6337.00	feet			
Last Reading	4000.00	feet			
Casing Driller	1485.00	feet			
Casing Logger	1486.00	feet			
Bit Size	7.875	inches			
Hole Fluid Type	CHEM				
Density / Viscosity	9.20 lb/USg		61.00 CP		
PH / Fluid Loss	10.00		7.20 ml/30Min		
Sample Source	PIT				
Rm @ Measured Temp	0.50 @ 90.0	ohm-m			
Rmf @ Measured Temp	0.40 @ 90.0	ohm-m			
Rmc @ Measured Temp	0.60 @ 90.0	ohm-m			
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.37 @121.0	ohm-m			
Time Since Circulation	5 HRS				
Max Recorded Temp	121.00	deg F			
Equipment / Base	13057		LIB		
Recorded By	D. COLE				
Witnessed By	R. PEARSON			P. DEBENHAM	
JOB#					

BOREHOLE RECORD

Last Edited: 22-DEC-2013 13:26

Bit Size inches	Depth From feet	Depth To feet
7.875	1485.00	6360.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	1485.00	24.00

REMARKS

- SOFTWARE ISSUE: 13.05.9583
- MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION
- HARDWARE: DUAL BOWSPRING USED ON MDN
  0.5 INCH STANDOFF USED ON MFE_MAI
- 2.71 AND 2.65 G/CC LIMESTONE DENSTIY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL EFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMRES REQUEST
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1870 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1330 CU.FT.
- RIG: DUKE DRILLING RIG #6

- RIG: BURE DRILLING RIG #3

- ENGINEER: D. COLE

- OPERATOR: K. PHILLIPS AND J. DUNLAP

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 LIMESTONE

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05

Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VA...\Copy of Copy(2) of O'BRIEN VAIL 6-30 MAIN.dta — Recorded on 22-DEC-2013 15:39

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Limestone Neutron Por.
percent
30 20 10 0 -10

Limestone Density Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

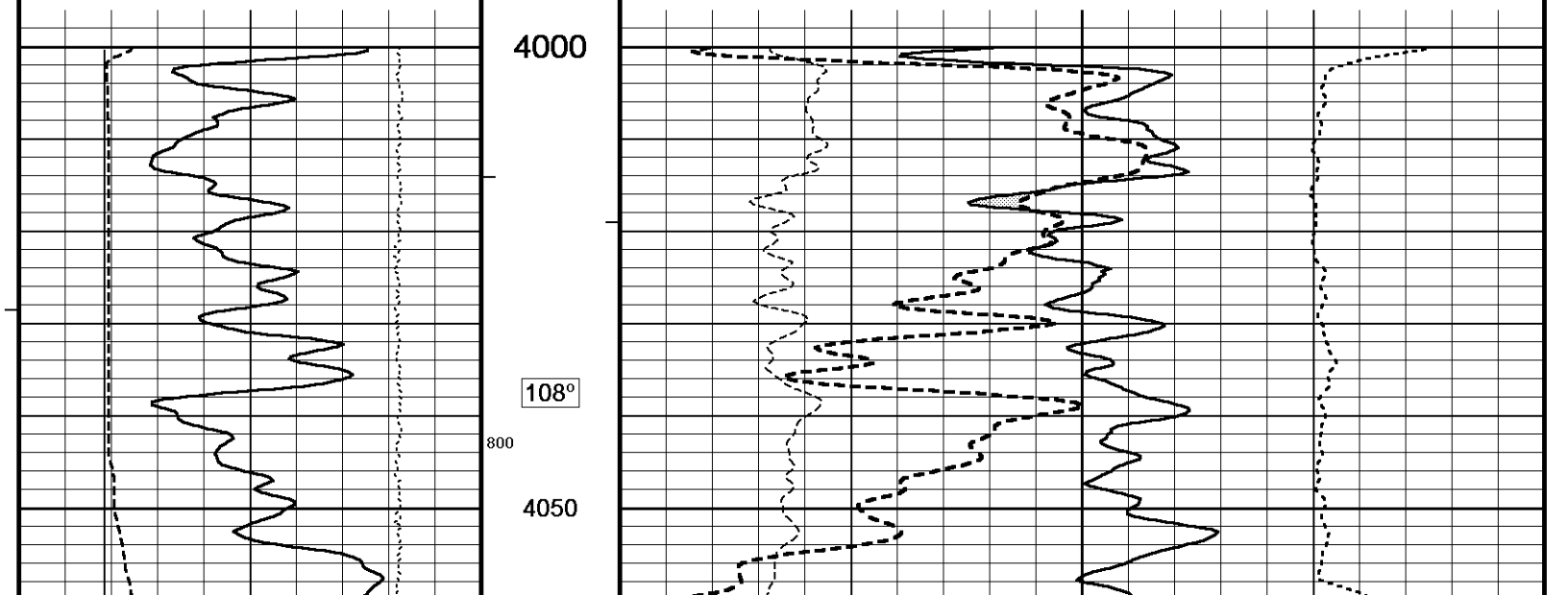
Density Correction
grams/cc
-0.50 0 0.50

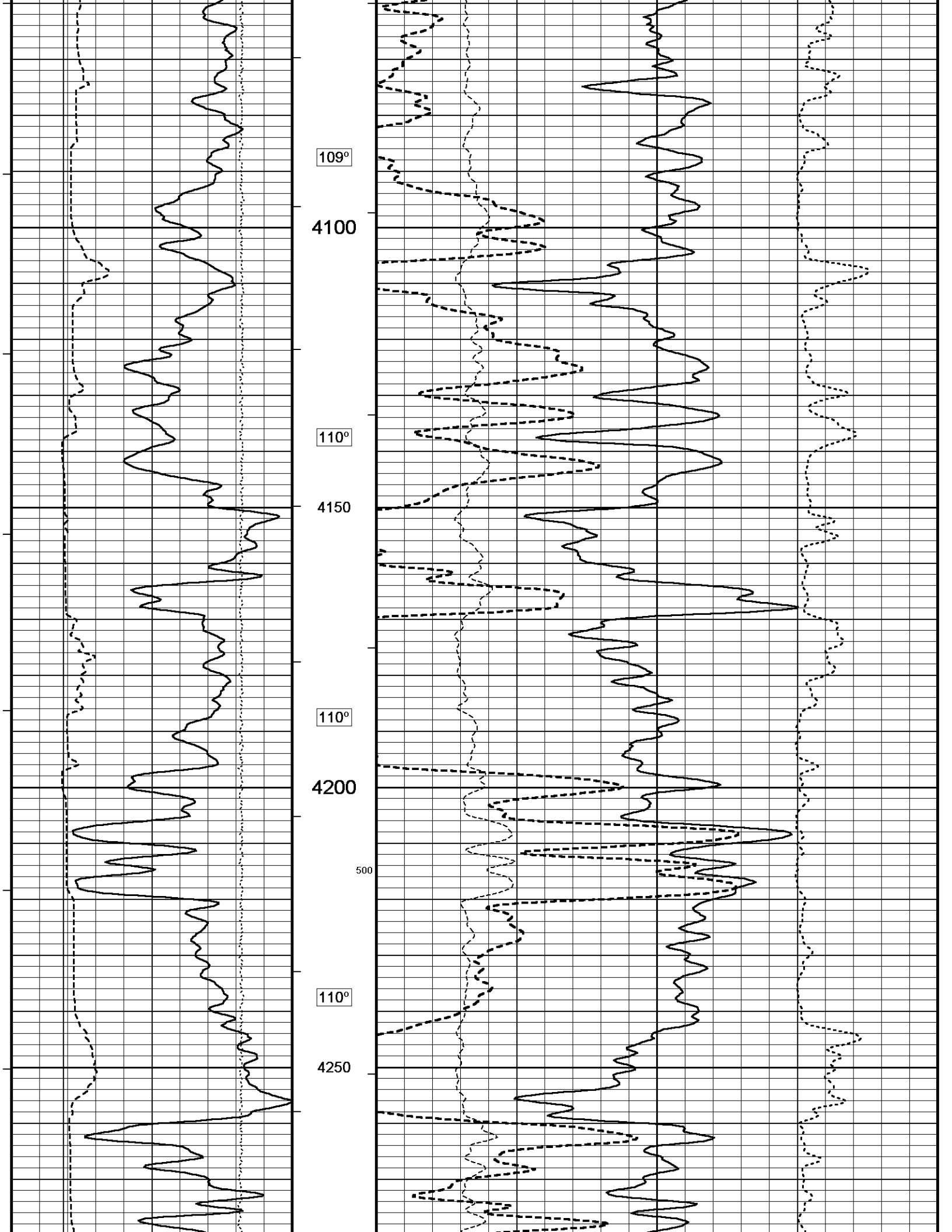
4000

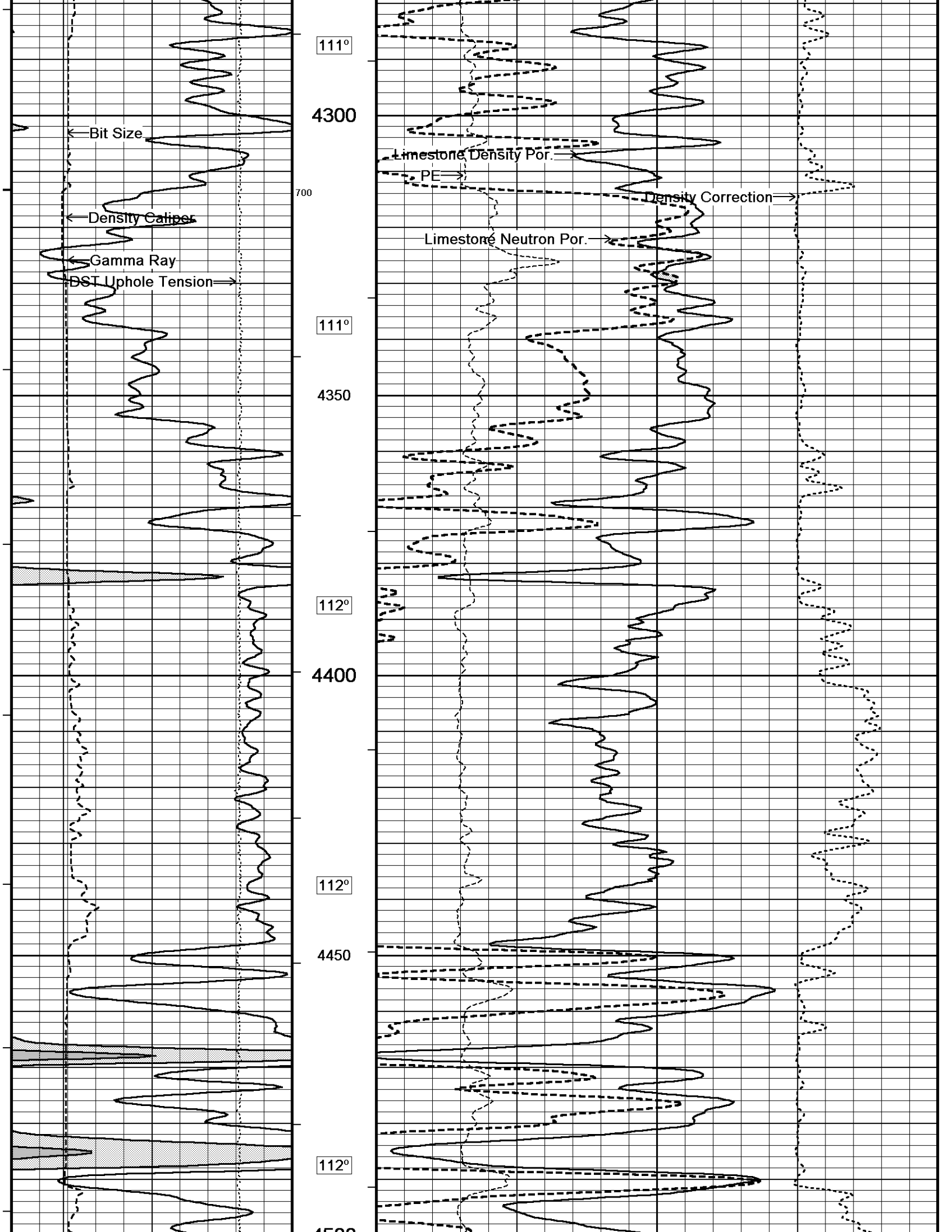
108°

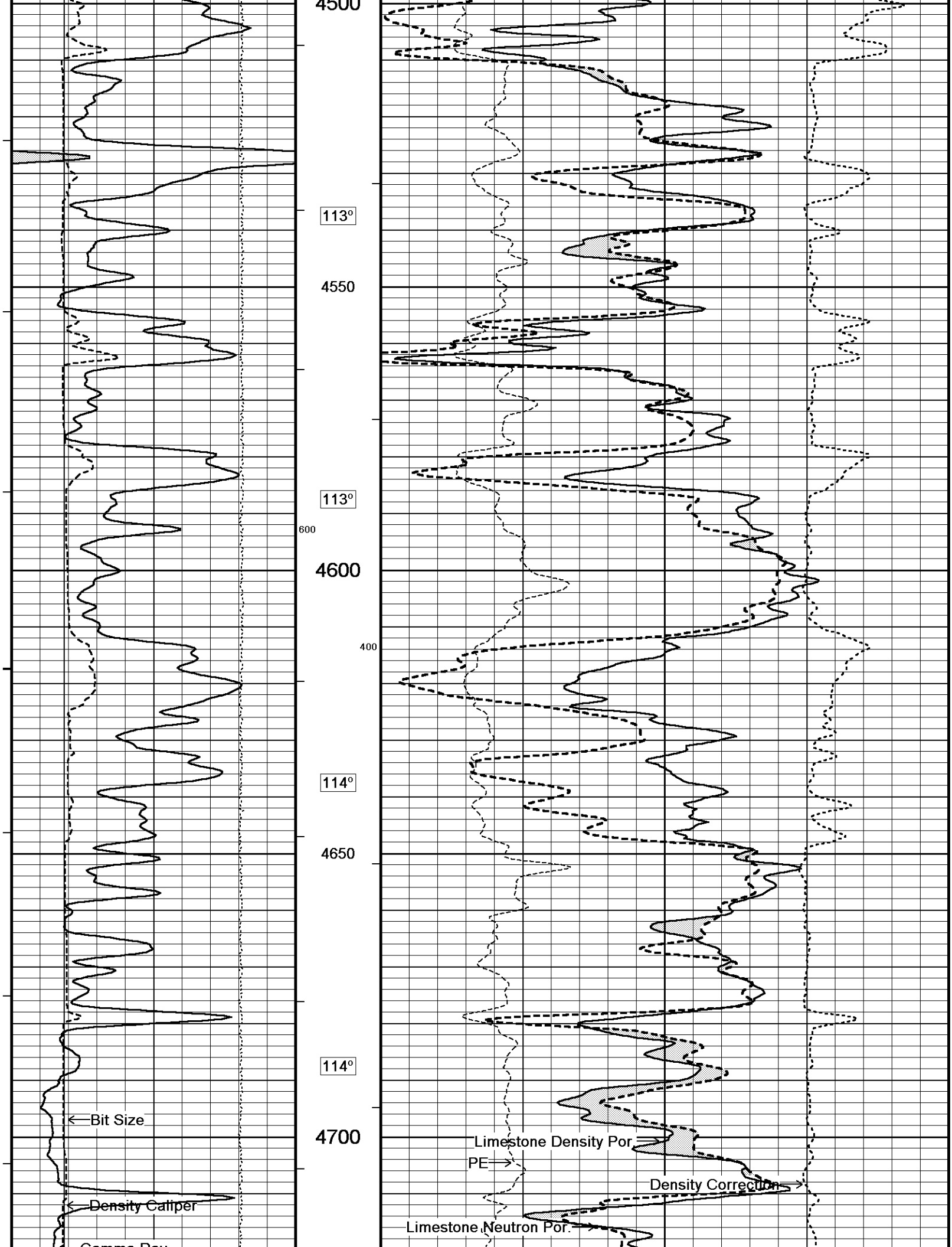
800

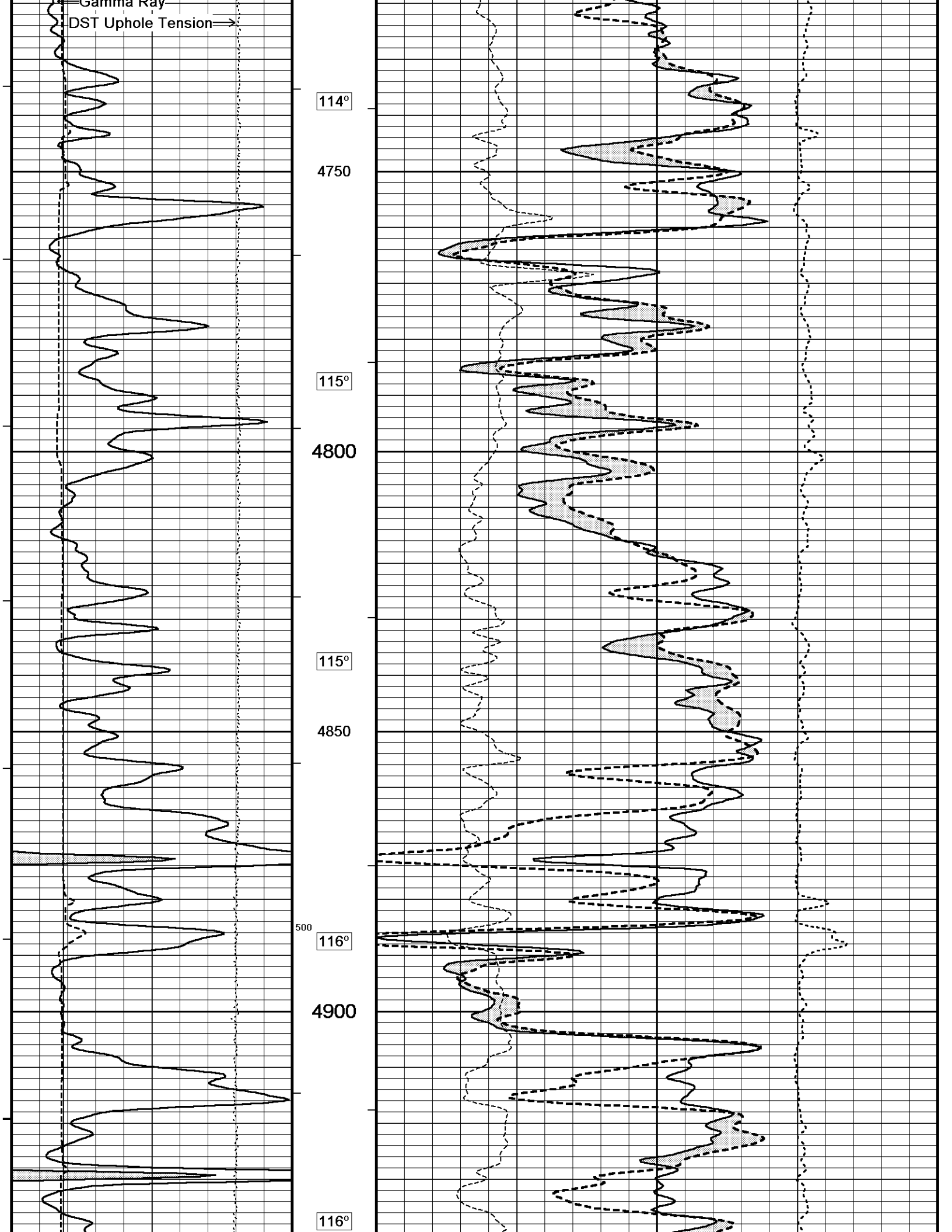
4050

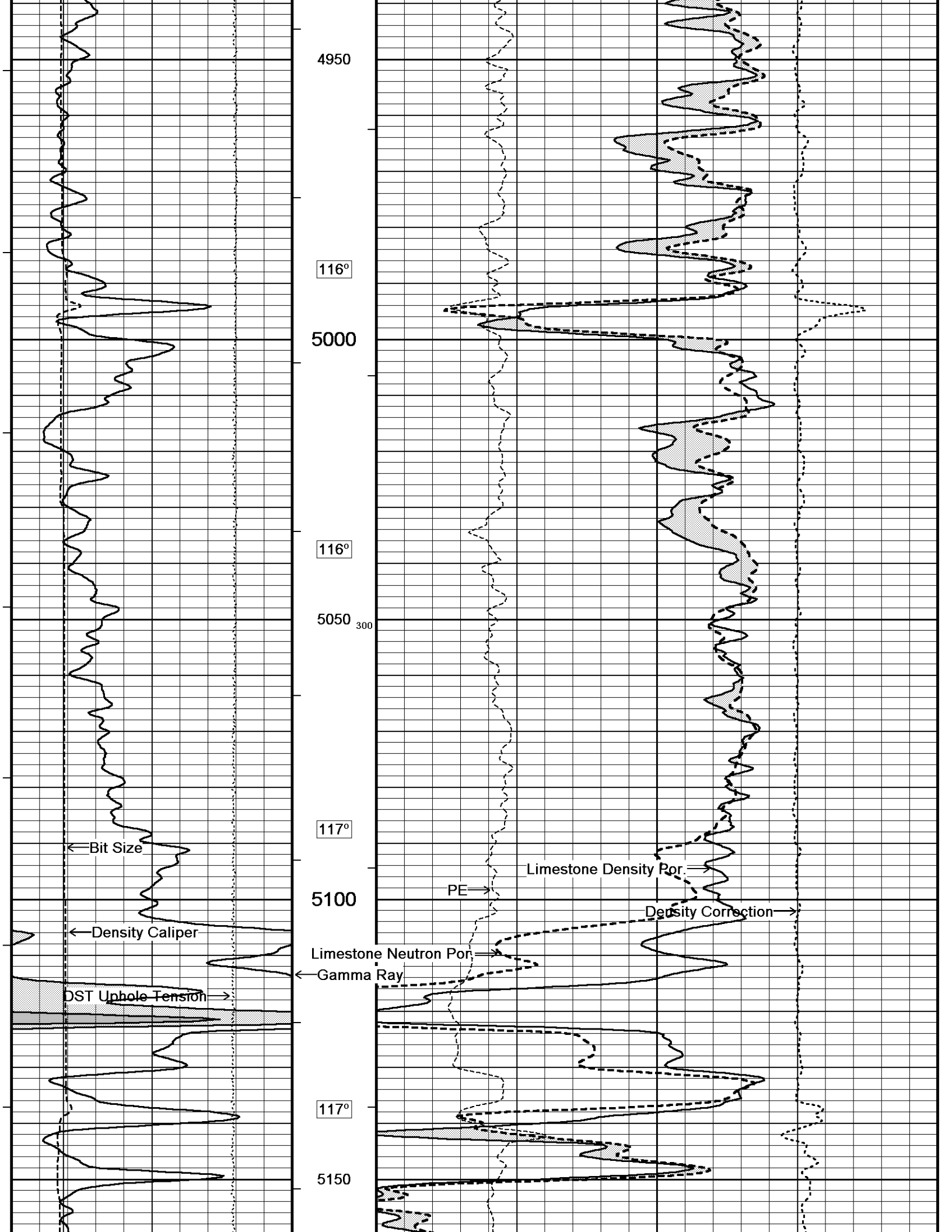


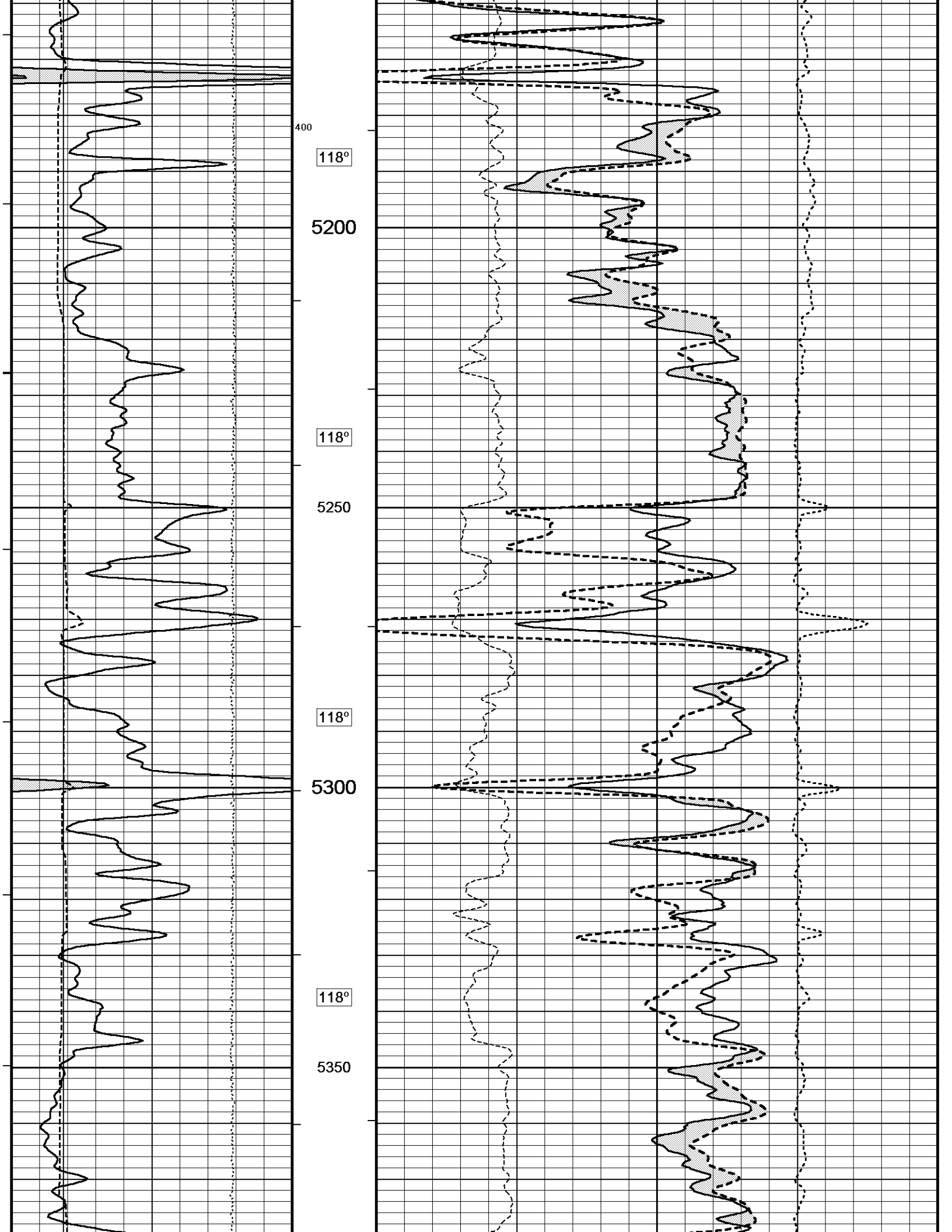

109°
4100
110°
4150
110°
4200
500
110°
4250

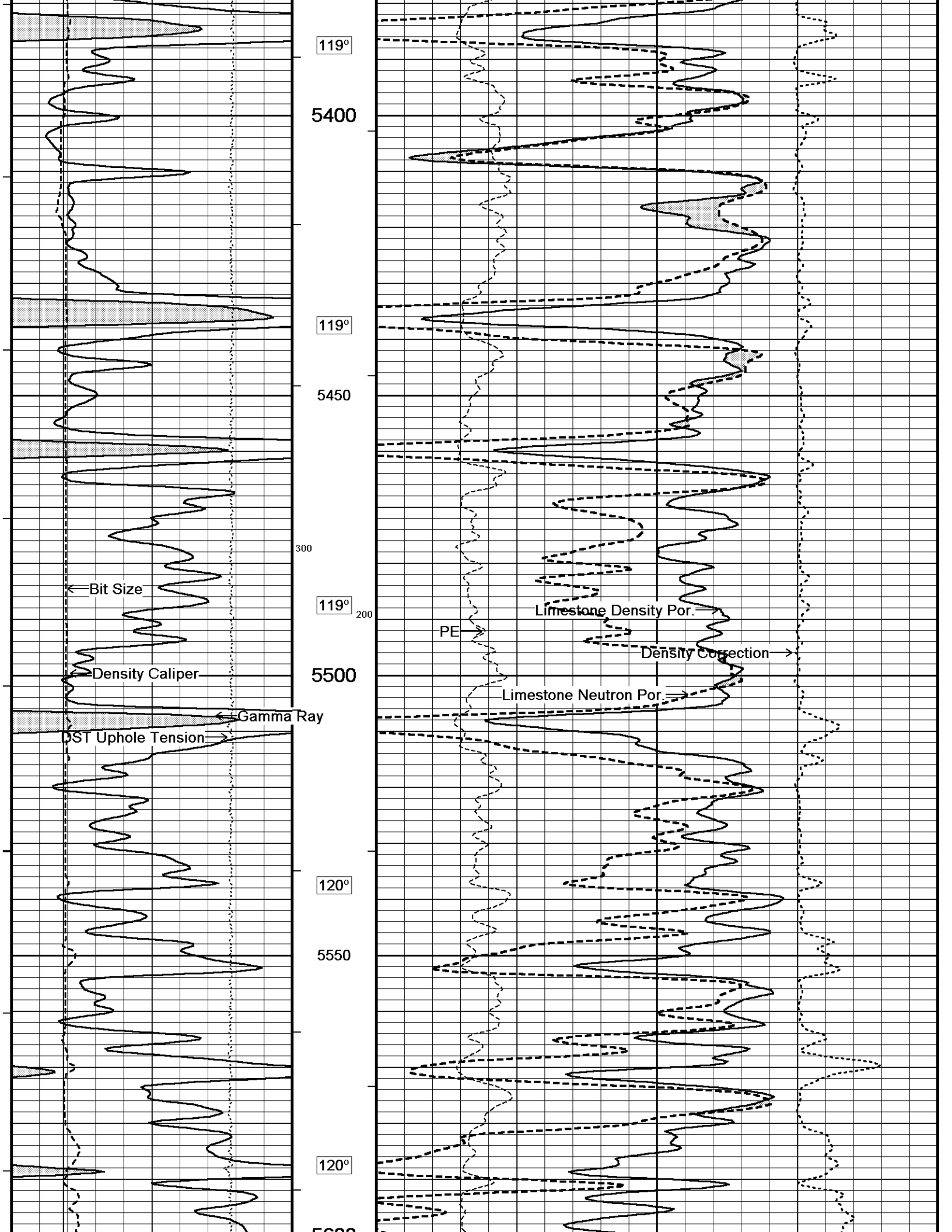

111°
4300
Bit Size
Limestone Density Por.
PE
700
Density Correction
Density Caliper
Limestone Neutron Por.
Gamma Ray
DST Uphole Tension
111°
4350
112°
4400
112°
4450
112°

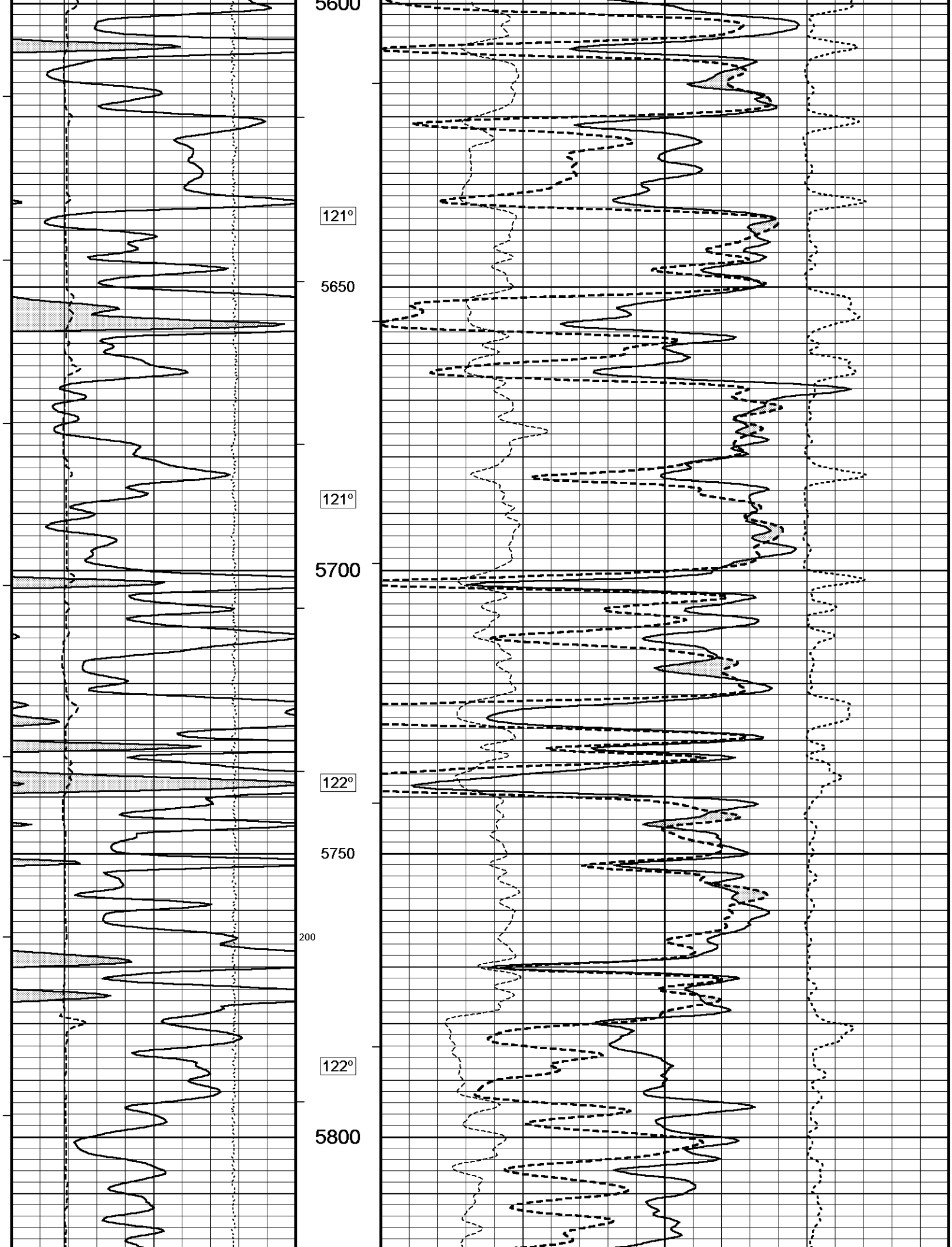

4500
113°
4550
113°
600
4600
400
114°
4650
114°
4700
Bit Size
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

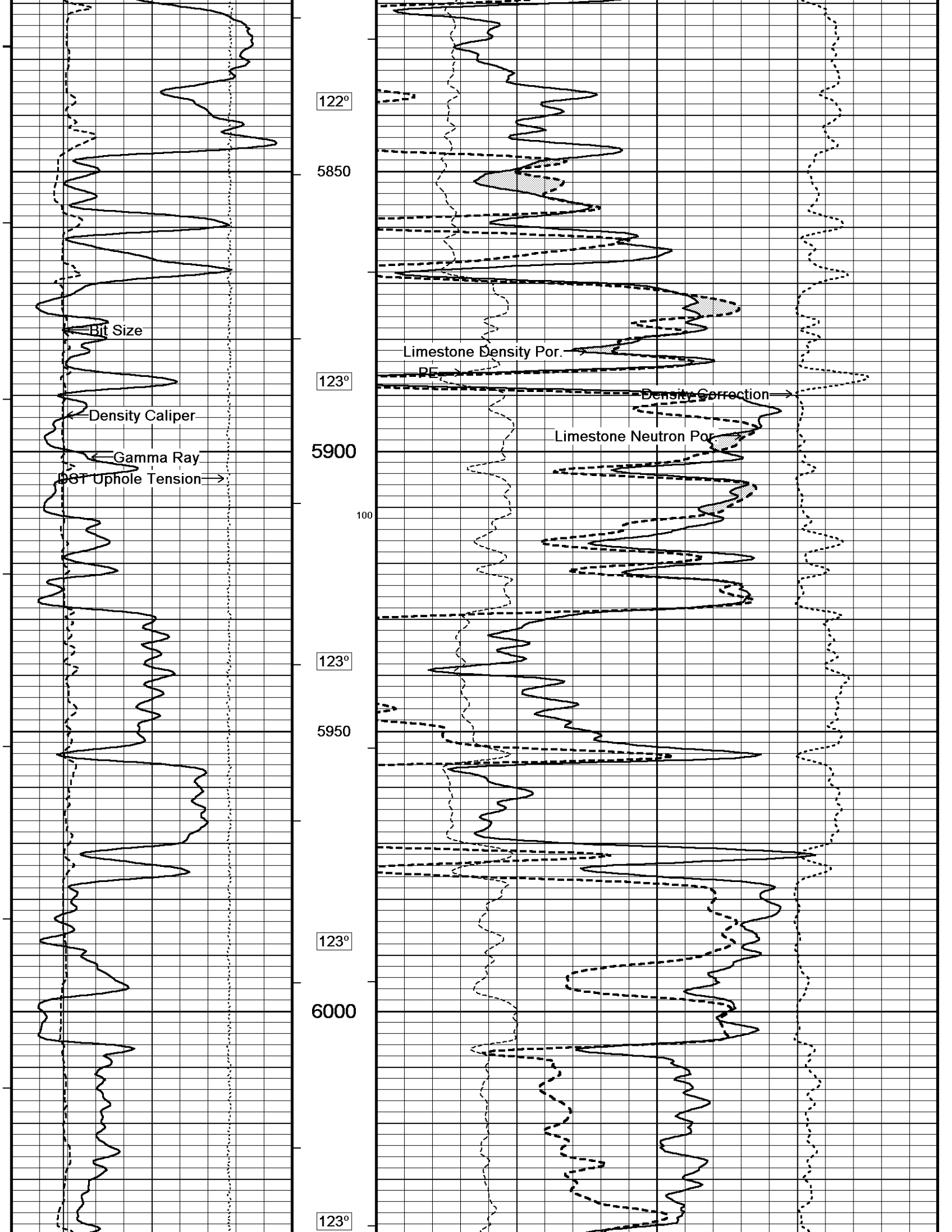

Gamma Ray
DST Uphole Tension
114°
4750
115°
4800
115°
4850
500
116°
4900
116°

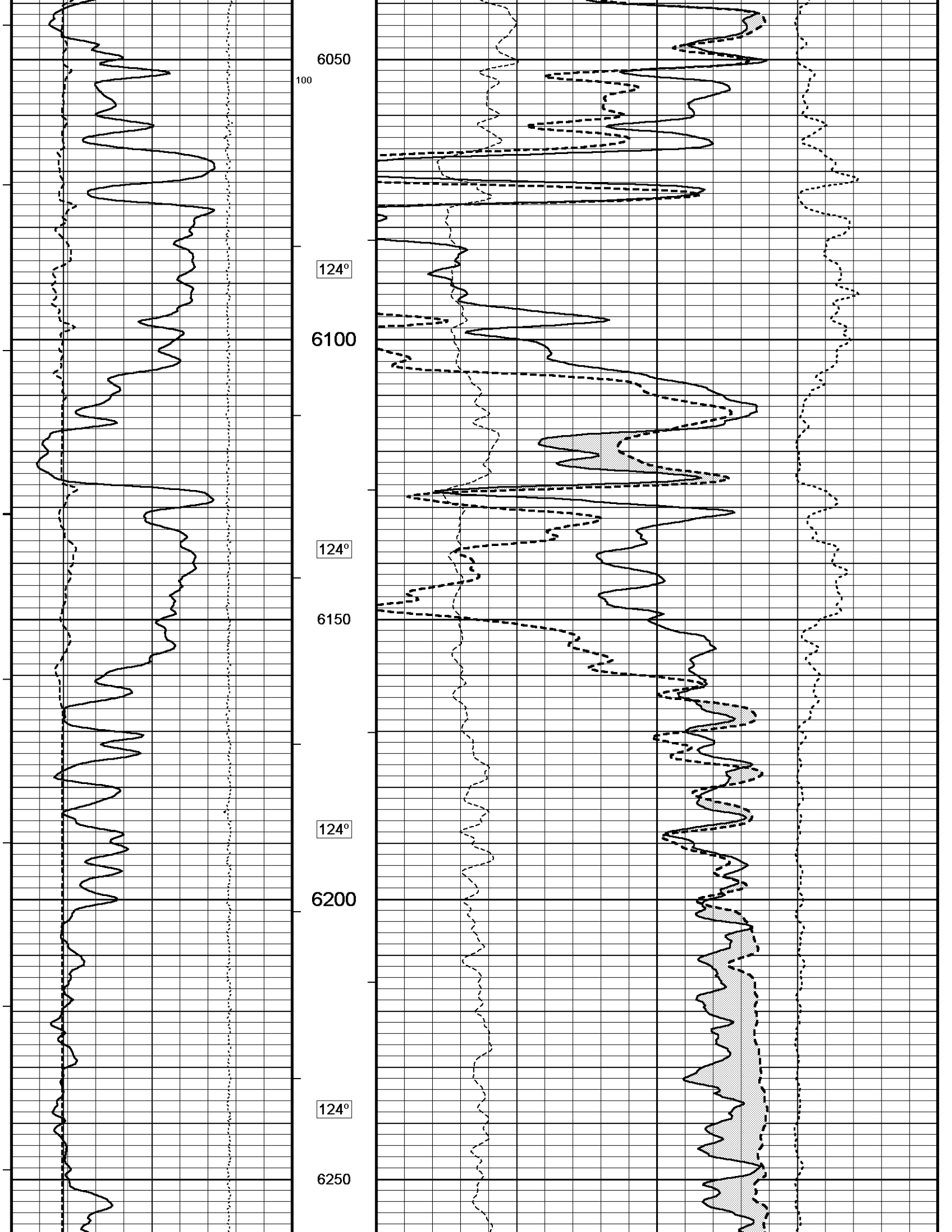

4950
116°
5000
116°
5050
300
117°
Bit Size
Limestone Density Por
PE
5100
Density Correction
Density Caliper
Limestone Neutron Por
Gamma Ray
DST Uphole Tension
117°
5150

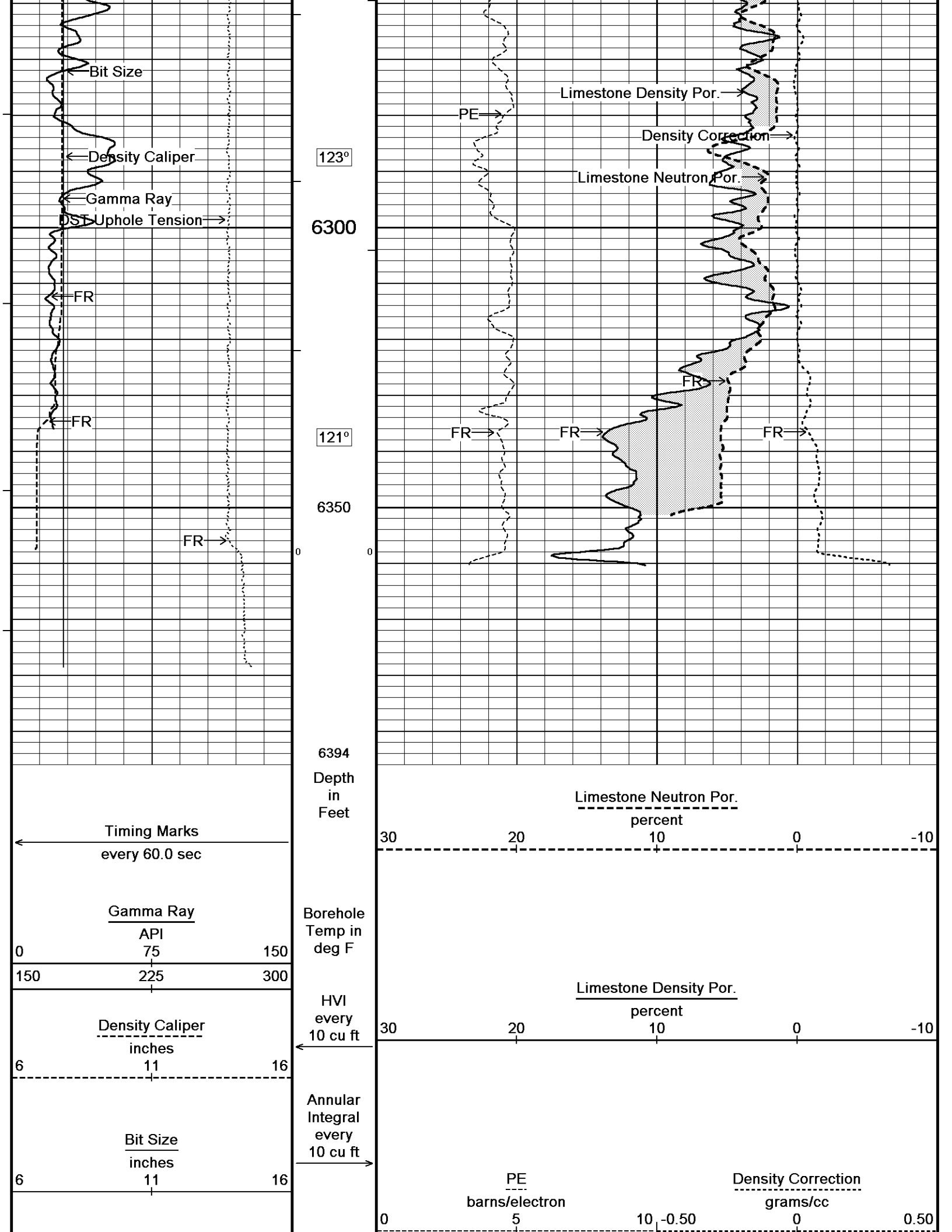

400
118°
5200
118°
5250
118°
5300
118°
5350


119°
5400
119°
5450
300
Bit Size
119°
200
PE
Limestone Density Por.
Density Correction
Density Caliper
5500
Limestone Neutron Por.
Gamma Ray
DST Uphole Tension
120°
5550
120°


5600
121°
5650
121°
5700
122°
5750
200
122°
5800


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.
122°
123°
123°
123°
123°
5850
5900
5950
6000
100


6050
100
124°
6100
124°
6150
124°
6200
124°
6250


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
FR
FR
123°
6300
121°
6350
6394
Depth in Feet
PE
Limestone Density Por.
Density Correction
Limestone Neutron Por.
FR
FR
FR
FR
0
0
Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Density Caliper
inches
6 11 16
Bit Size
inches
6 11 16
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Limestone Neutron Por.
percent
30 20 10 0 -10
Limestone Density Por.
percent
30 20 10 0 -10
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.50 0 0.50

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VA...\Copy of Copy(2) of O'BRIEN VAIL 6-30 MAIN.dta — Recorded on 22-DEC-2013 15:39
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

5 INCH LIMESTONE

10 INCH HI-RES SANDSTONE

Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH RES.dta — Recorded on 22-DEC-2013 14:20
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Depth
in
Feet

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Sandstone Neutron Por.
percent
30 20 10 0 -10

Sandstone Density Por.
percent
30 20 10 0 -10

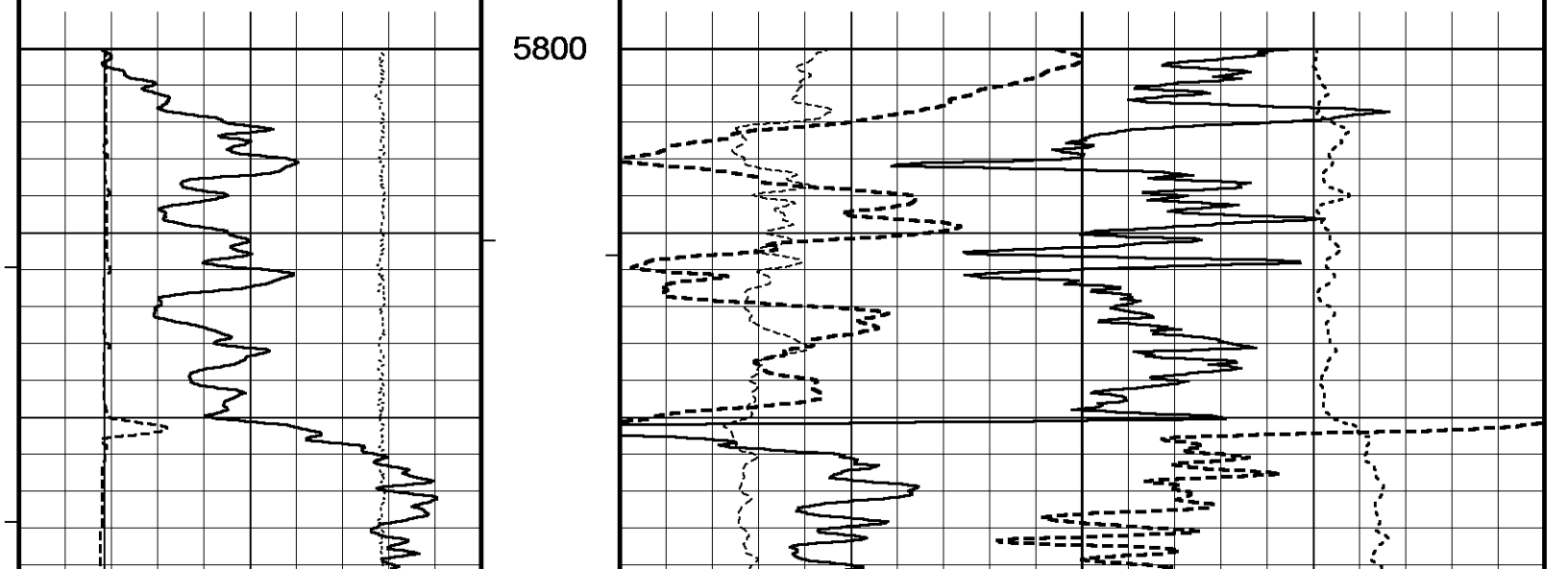
PE
barns/electron
0 5 10

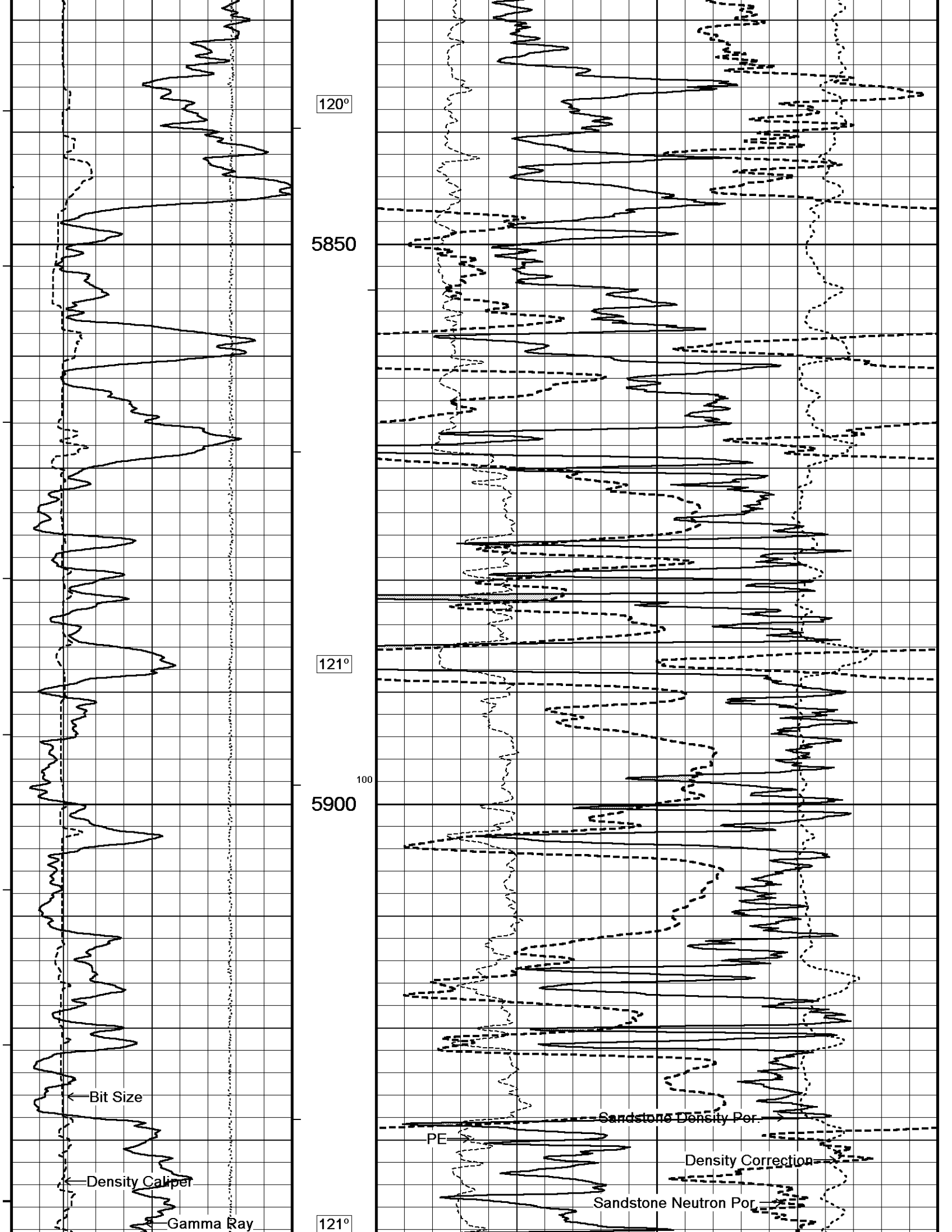
Density Correction
grams/cc
-0.50 0 0.50

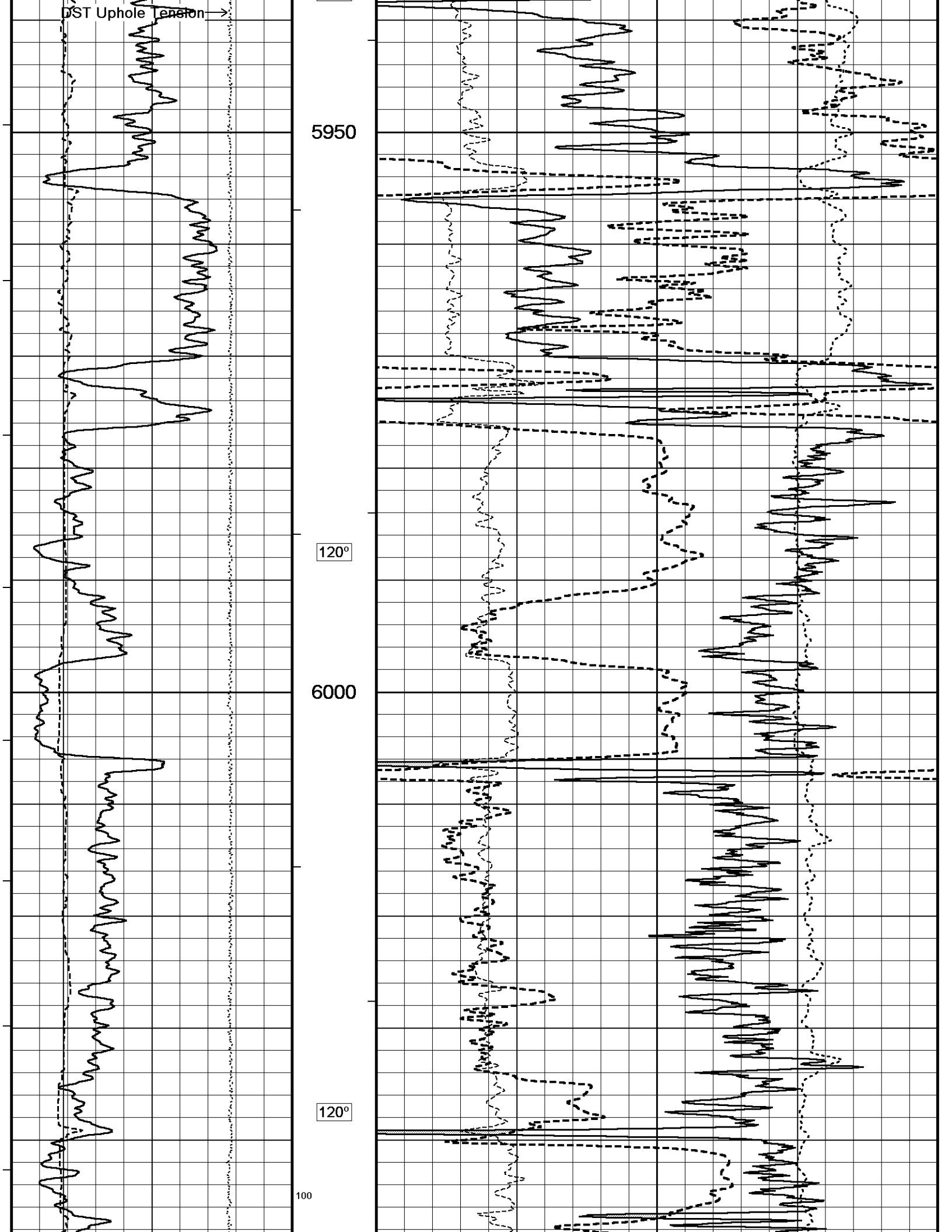
DST Uphole Tension
pounds
5000 0

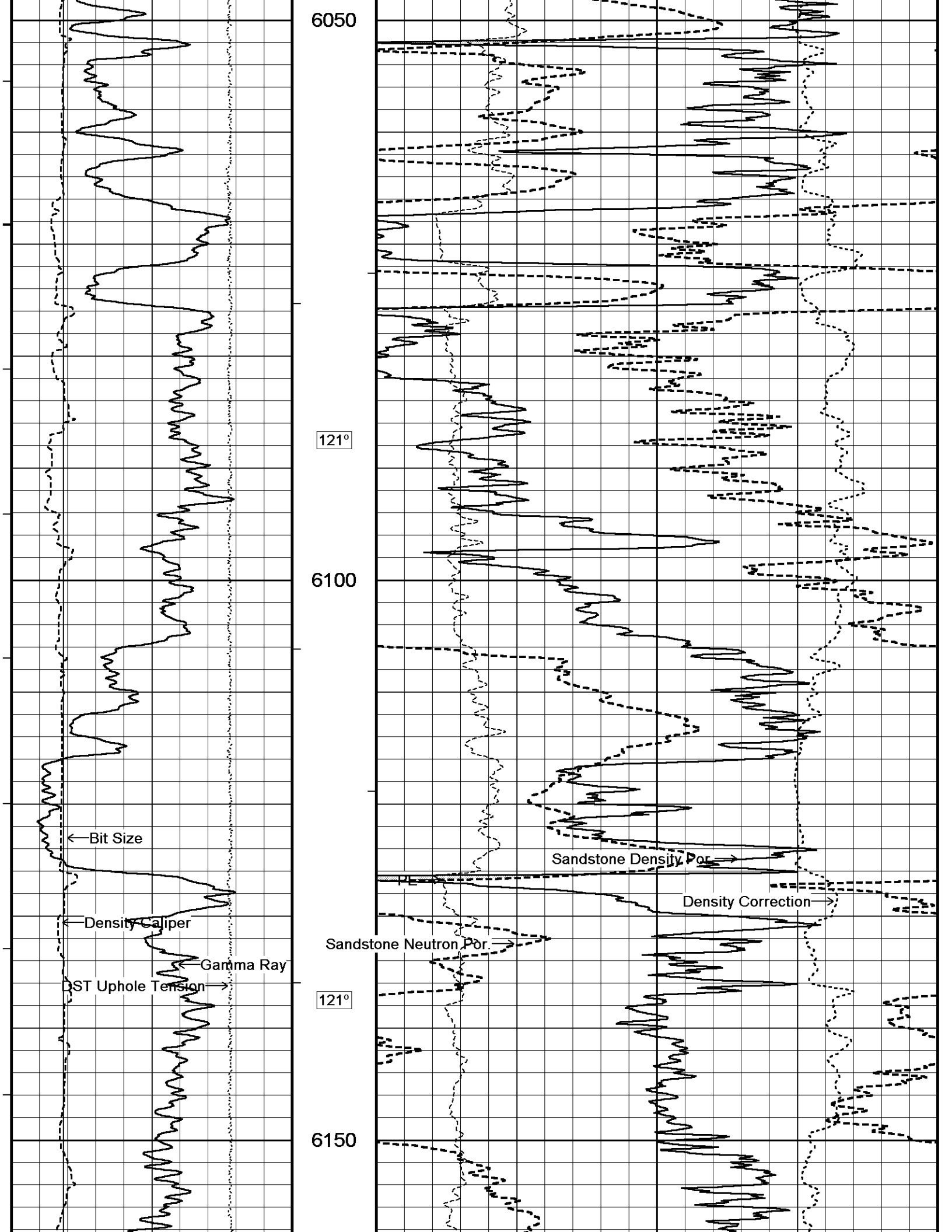
Replay
Scale
1:120

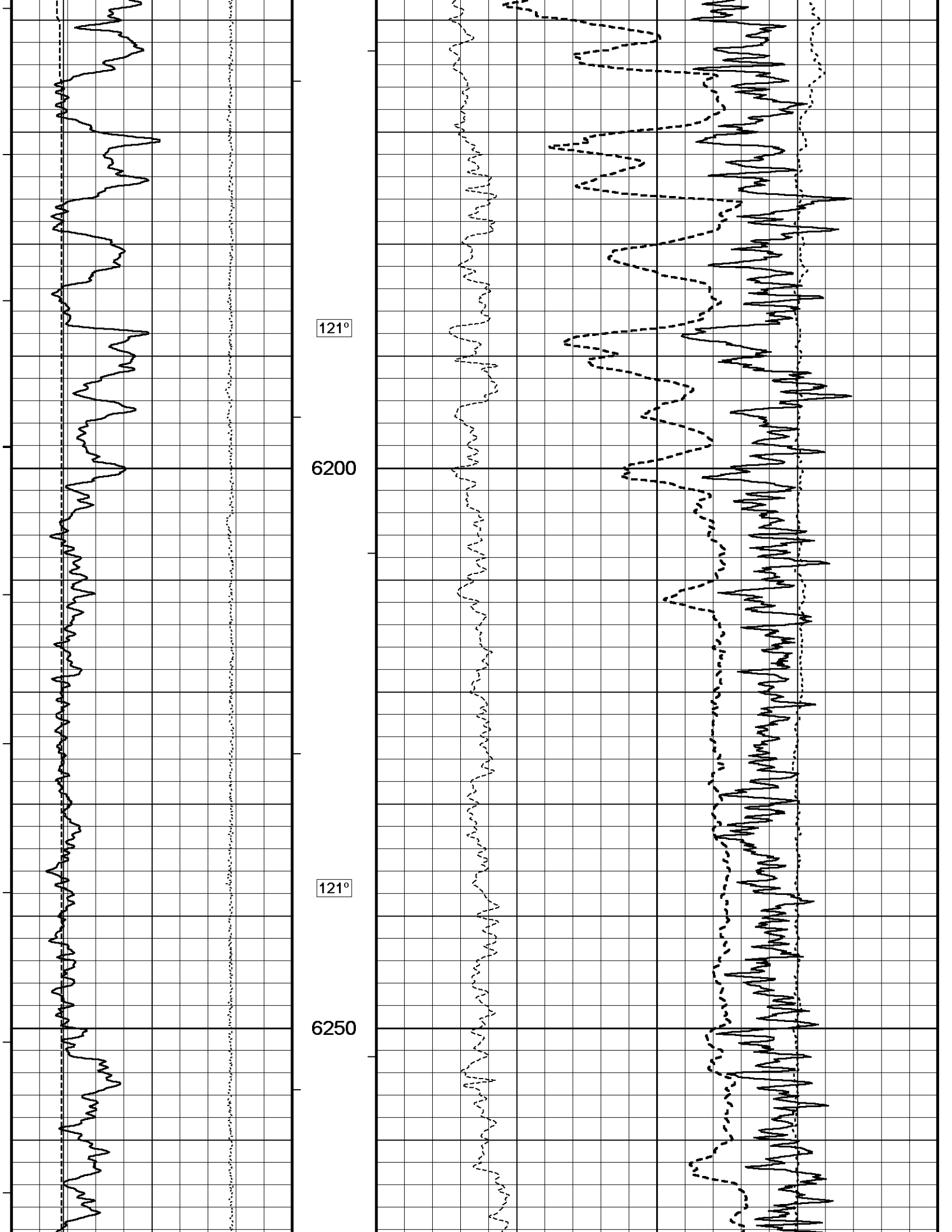
5800

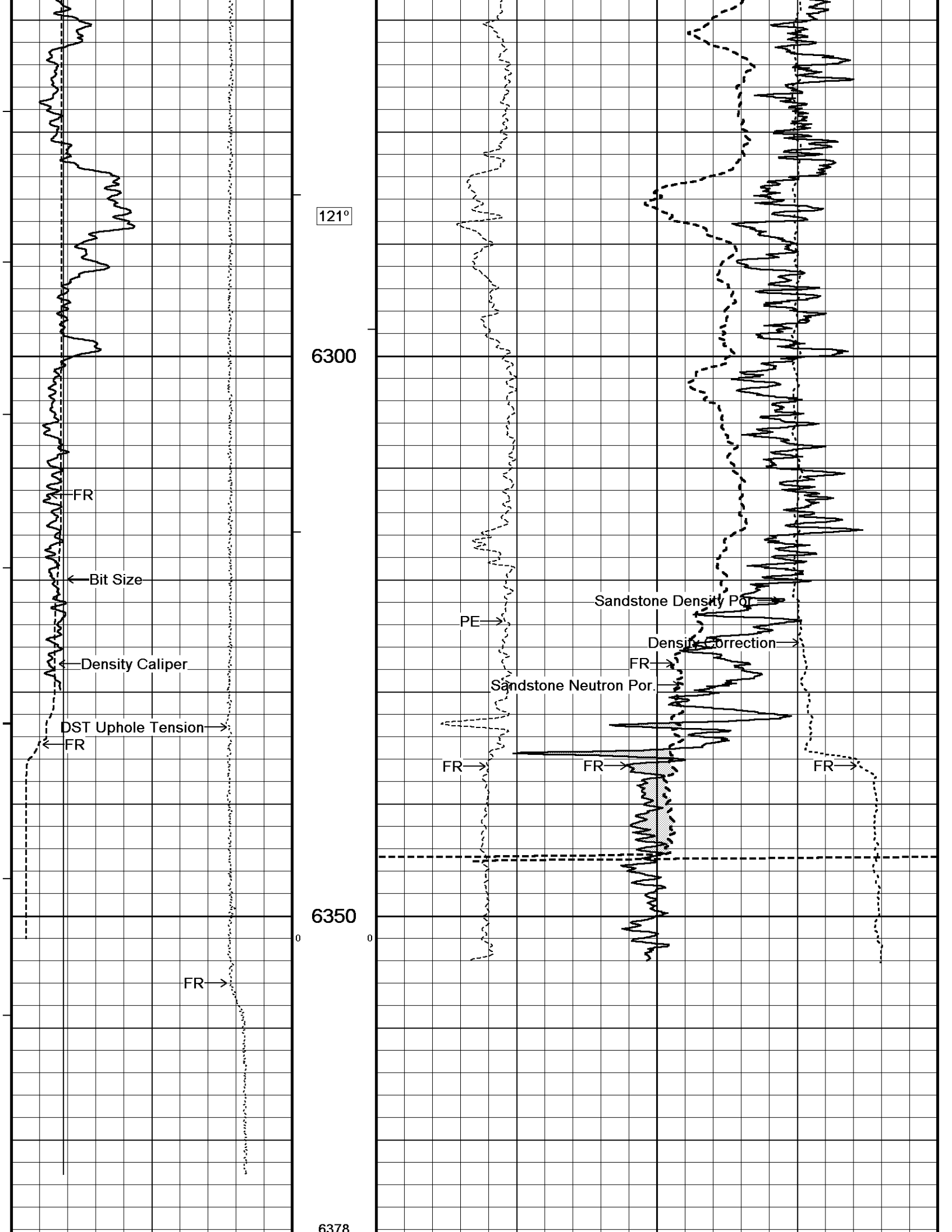


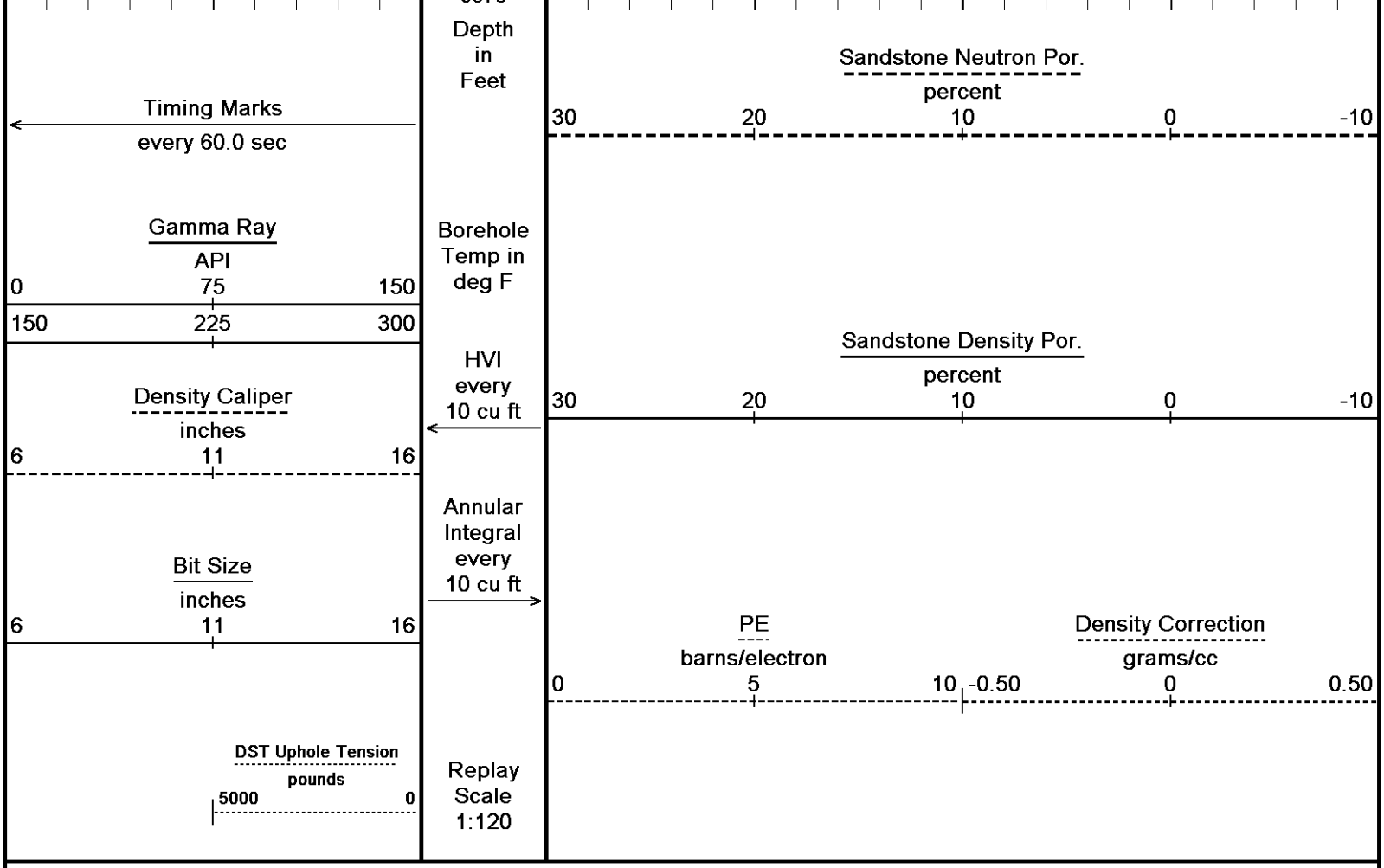

120°
5850
121°
100
5900
121°
Bit Size
Density Caliper
Gamma Ray
PE
Sandstone Density Por
Density Correction
Sandstone Neutron Por


DST Uphole Tension
5950
120°
6000
120°
100


6050
121°
6100
Bit Size
Sandstone Density Por
PE
Density Correction
Density Caliper
Sandstone Neutron Por
Gamma Ray
DST Uphole Tension
121°
6150


121°
6200
121°
6250


121°
6300
6350
6378
FR
Bit Size
Density Caliper
DST Uphole Tension
FR
FR
PE
Sandstone Density Por.
Density Correction
FR
Sandstone Neutron Por.
FR
FR
FR
0
0

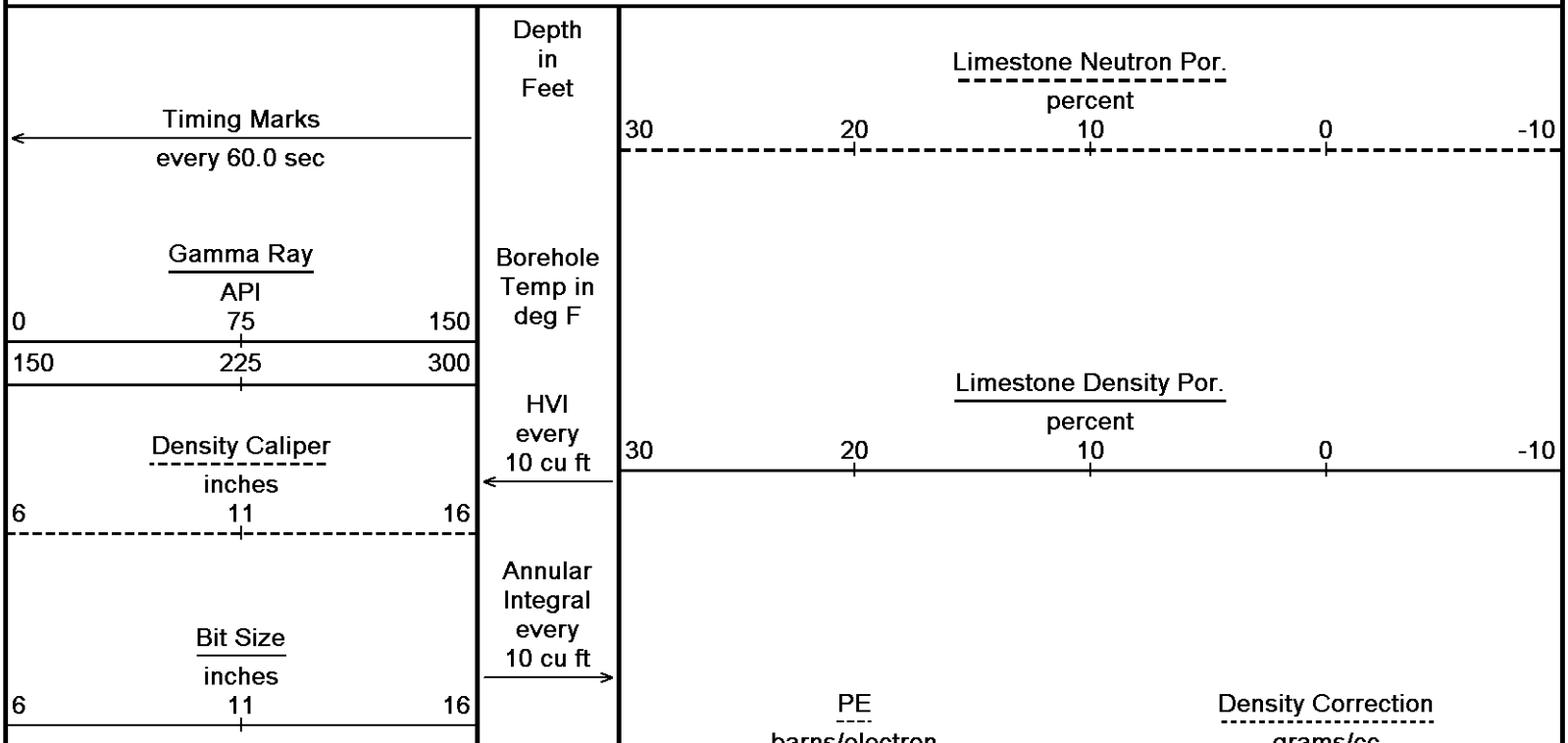


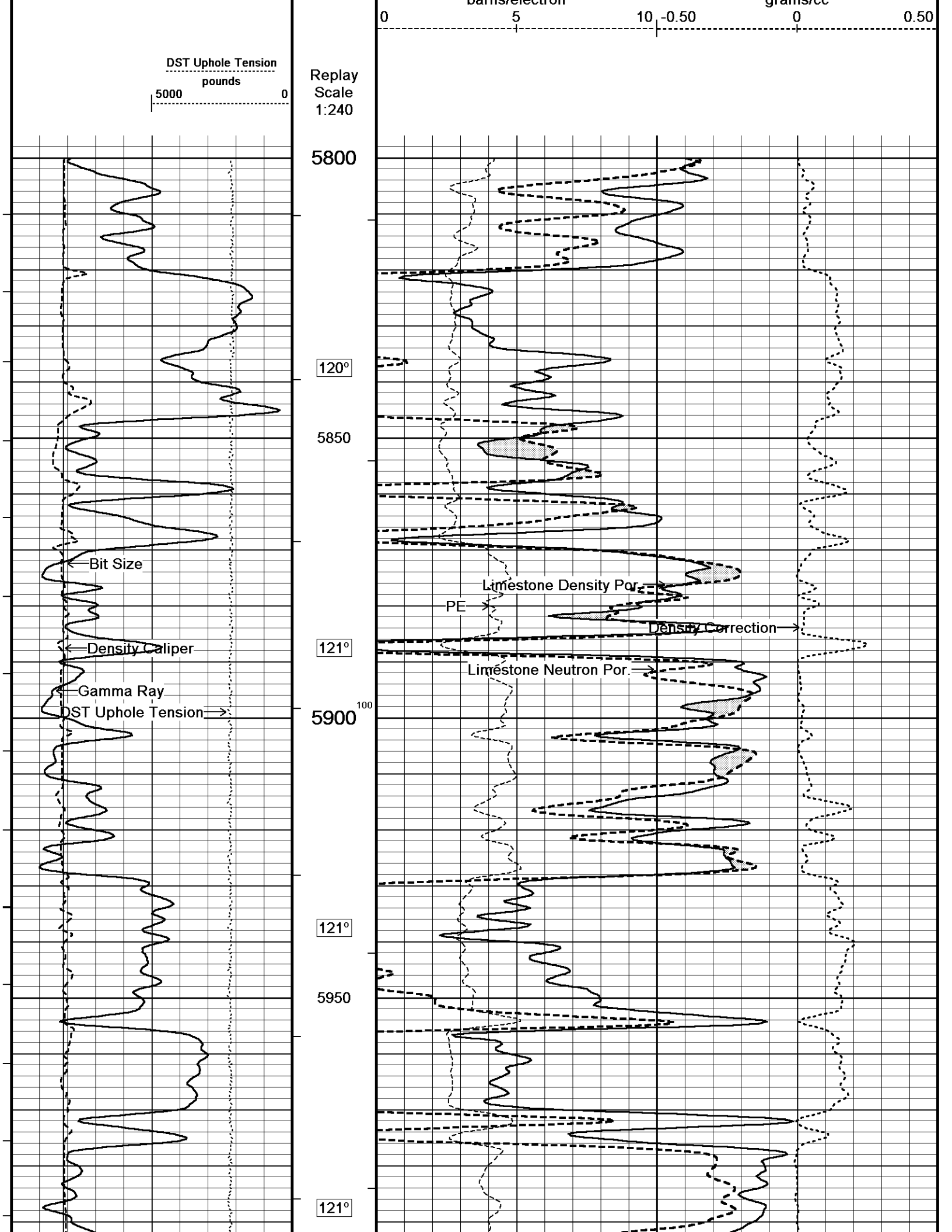
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH RES.dta — Recorded on 22-DEC-2013 14:20
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

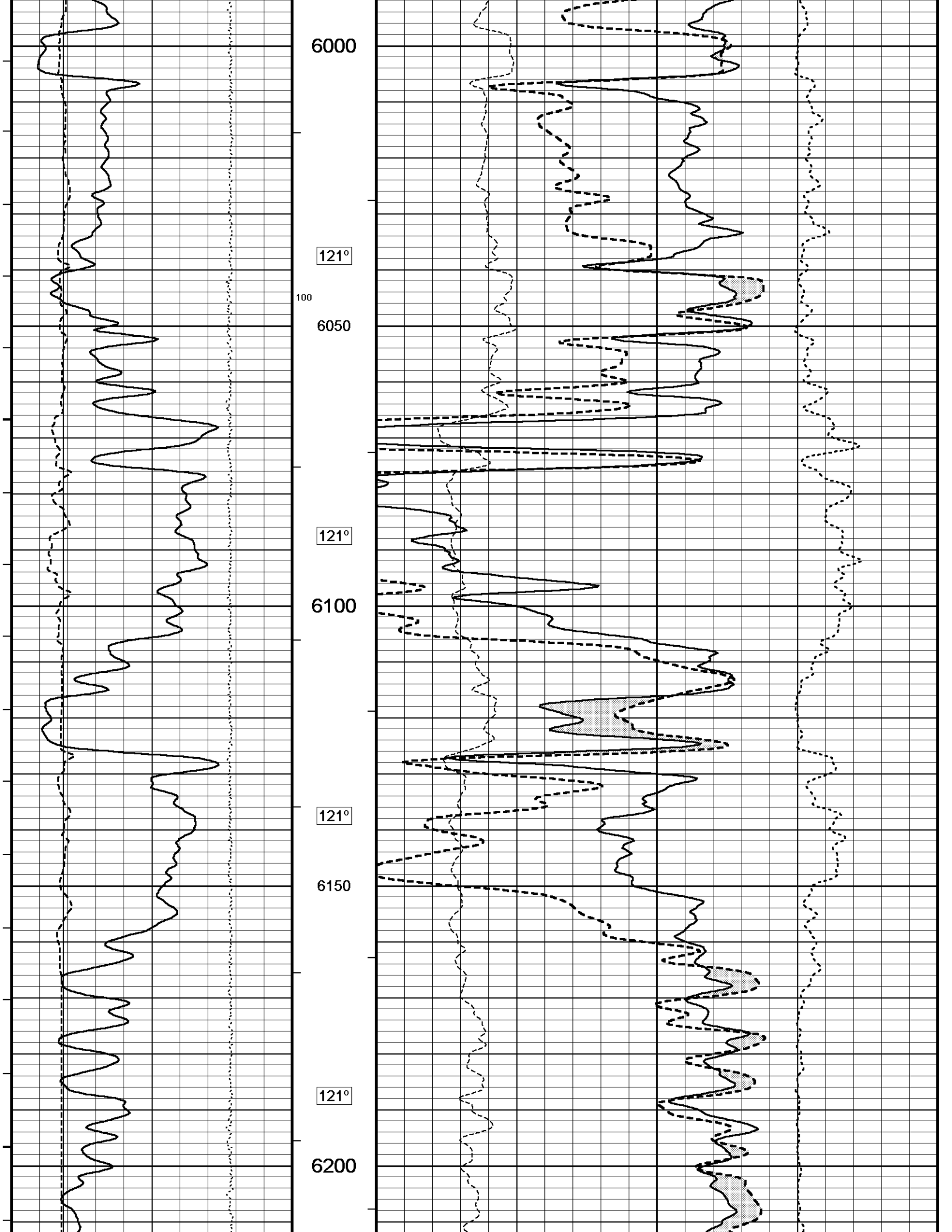
10 INCH HI-RES SANDSTONE

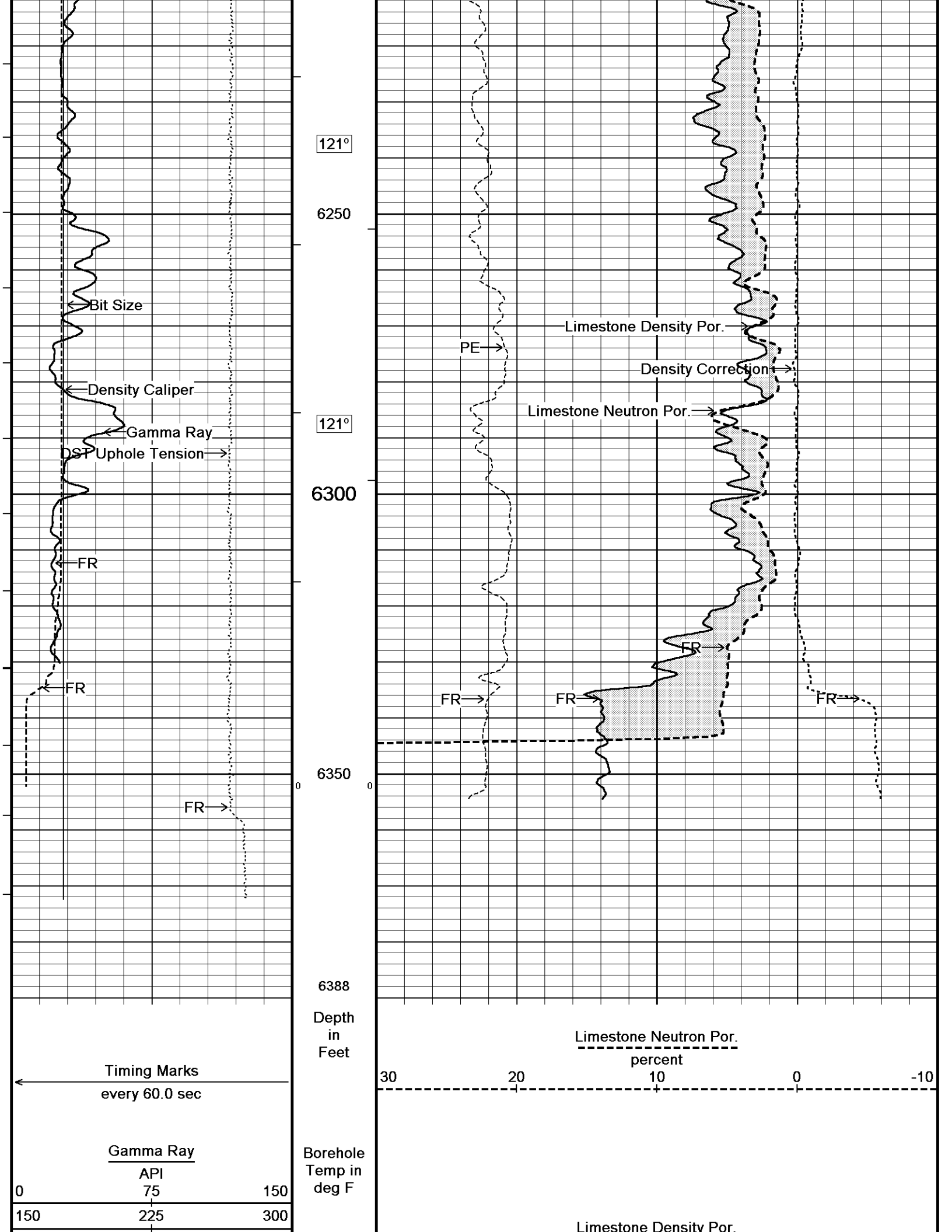
REPEAT LIMESTONE

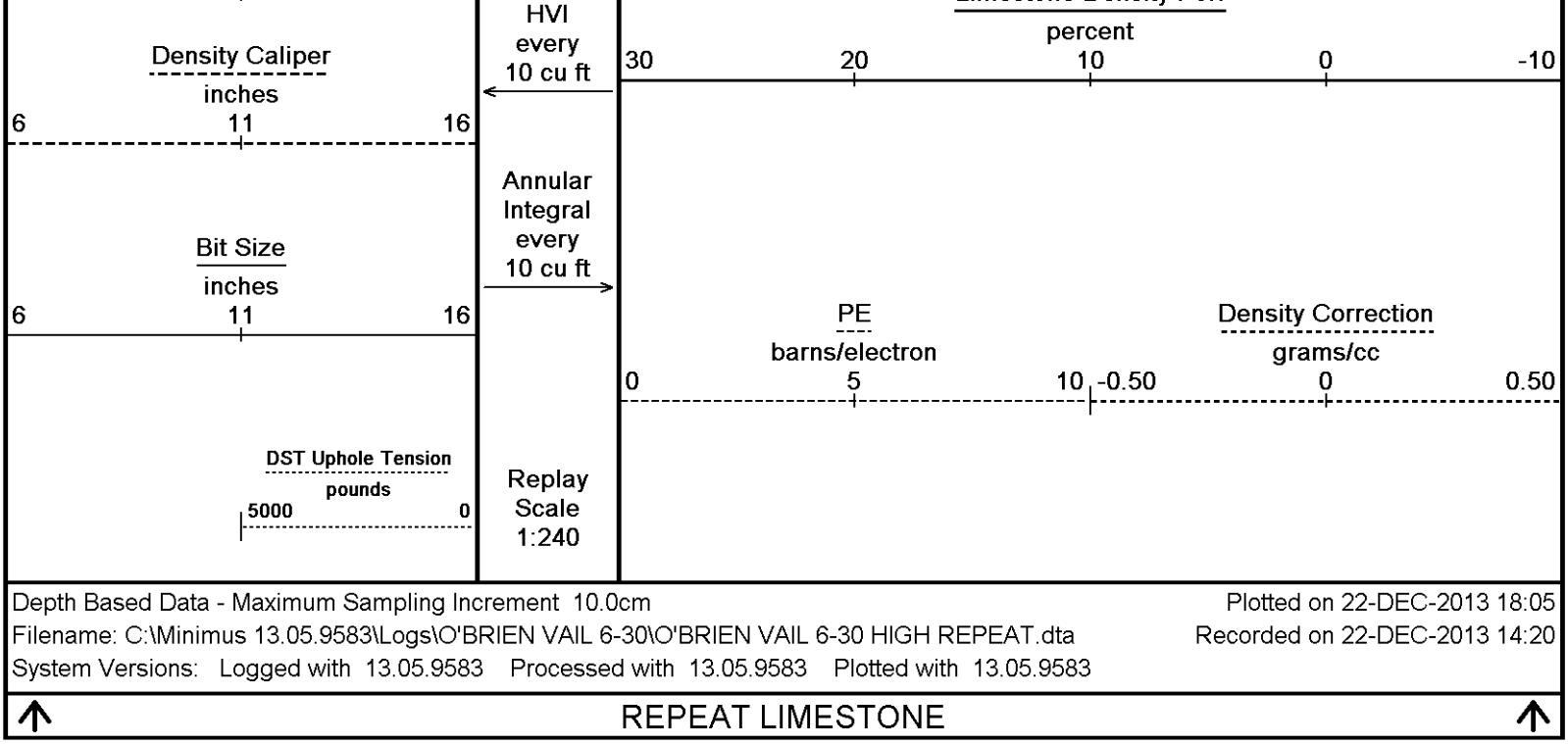
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH REPEAT.dta — Recorded on 22-DEC-2013 14:20
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583




DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
5800
120°
5850
121°
5900
100
121°
5950
121°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
barns/electron
0
5
10
-0.50
grams/cc
0
0.50
Limestone Density Por
PE
Density Correction
Limestone Neutron Por


6000
121°
100
6050
121°
6100
121°
6150
121°
6200


121°
6250
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
121°
6300
FR
FR
FR
6350
0
0
PE
Limestone Density Por.
Density Correction
Limestone Neutron Por.
FR
FR
FR
FR
6388
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
Limestone Neutron Por.
percent
30
20
10
0
-10
Limestone Density Por.



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05
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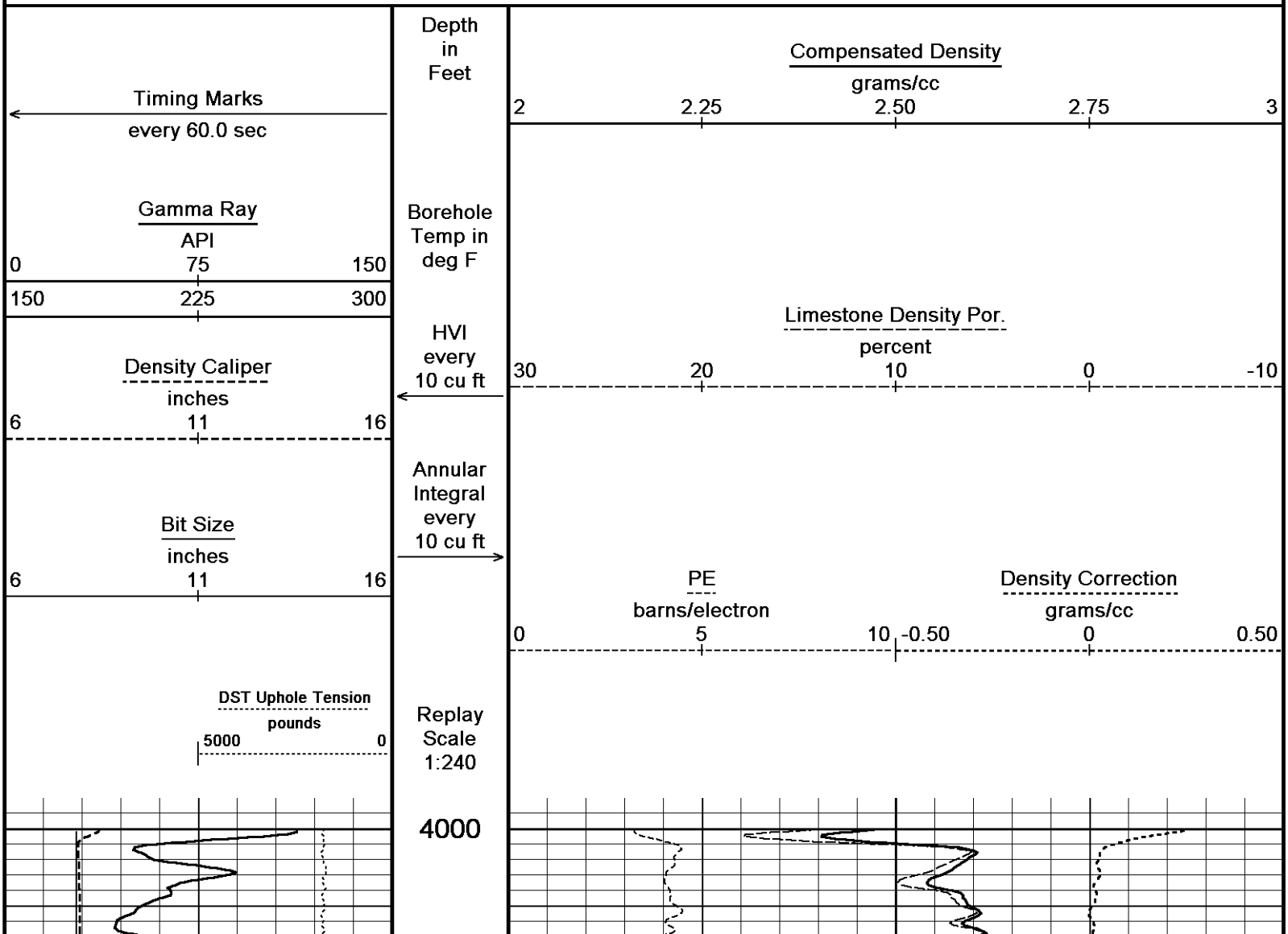
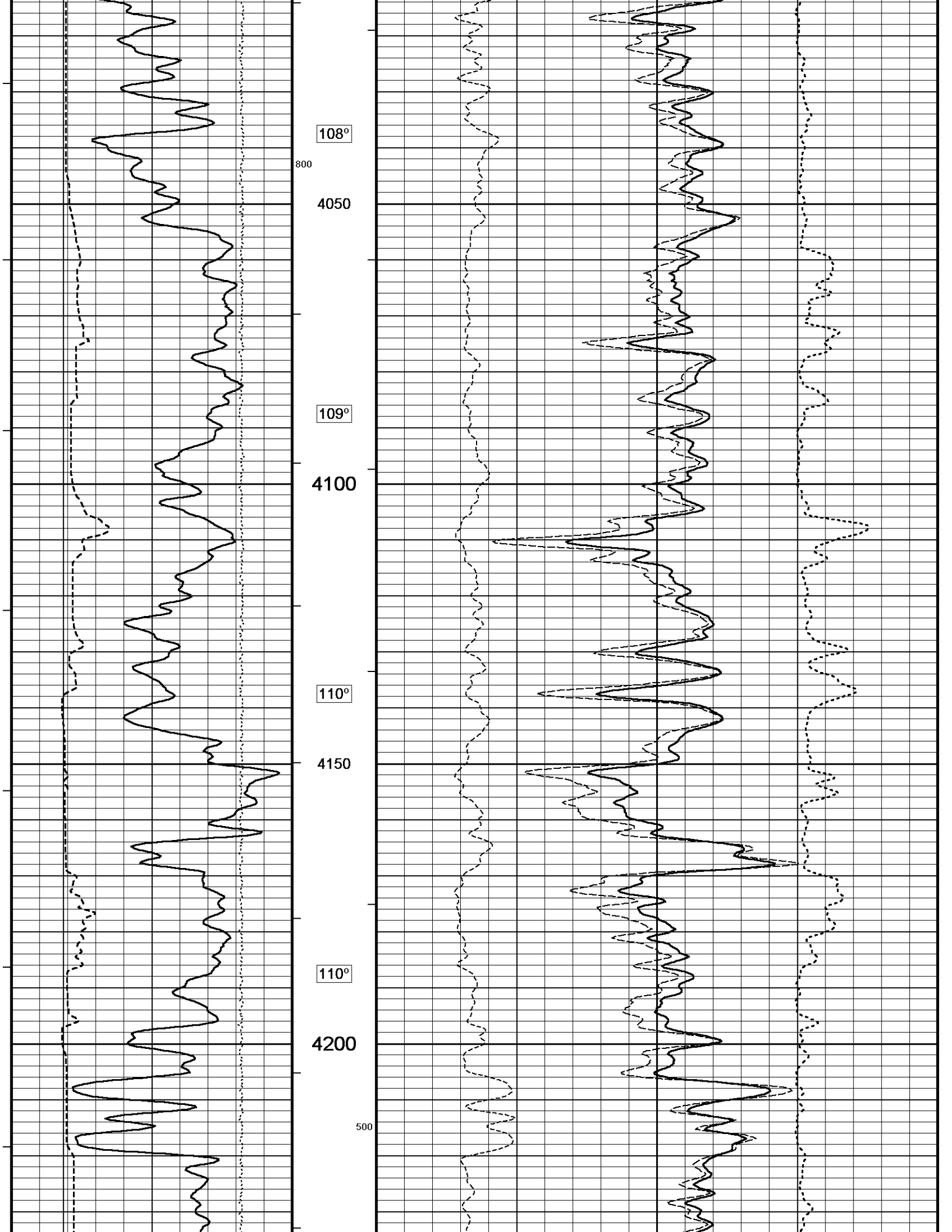
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

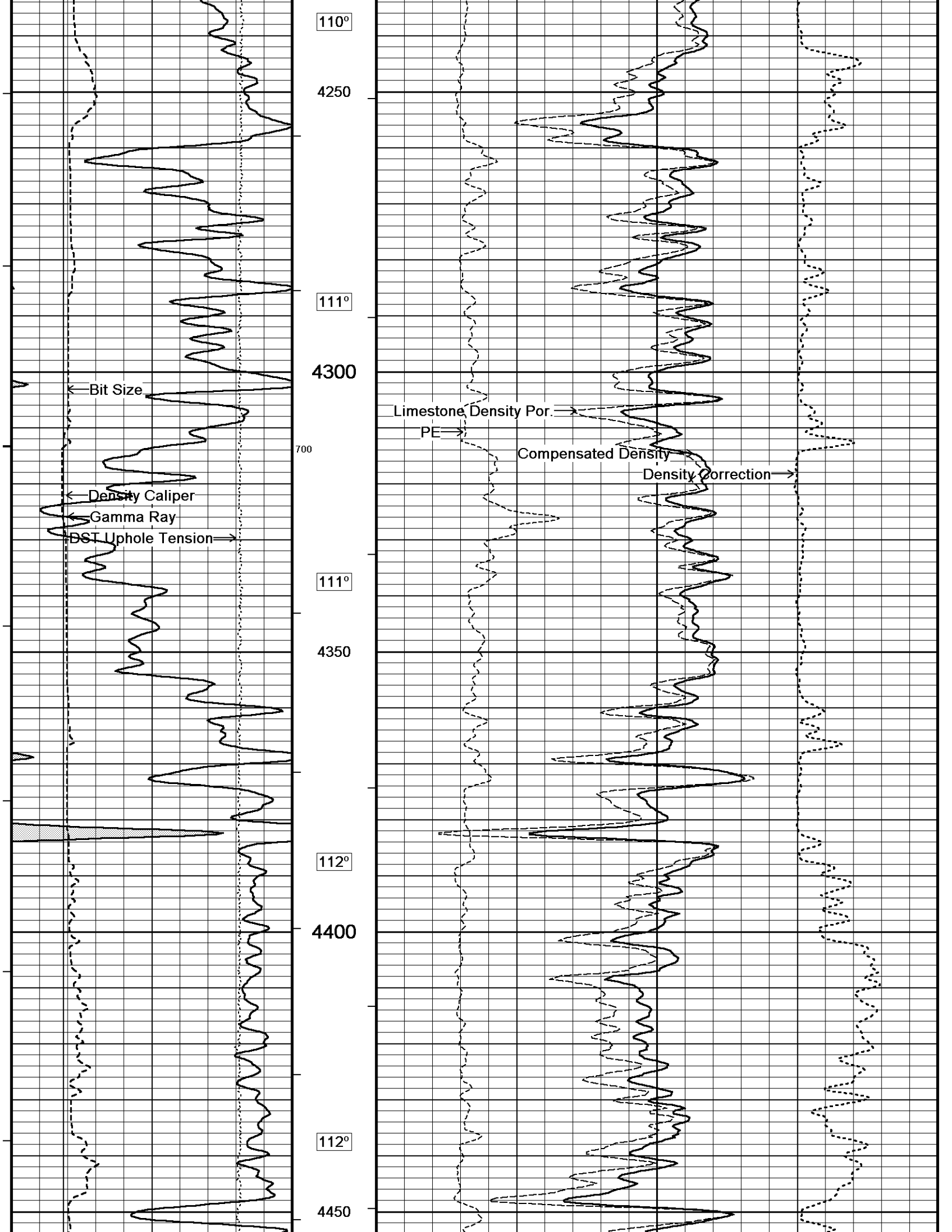
REPEAT LIMESTONE

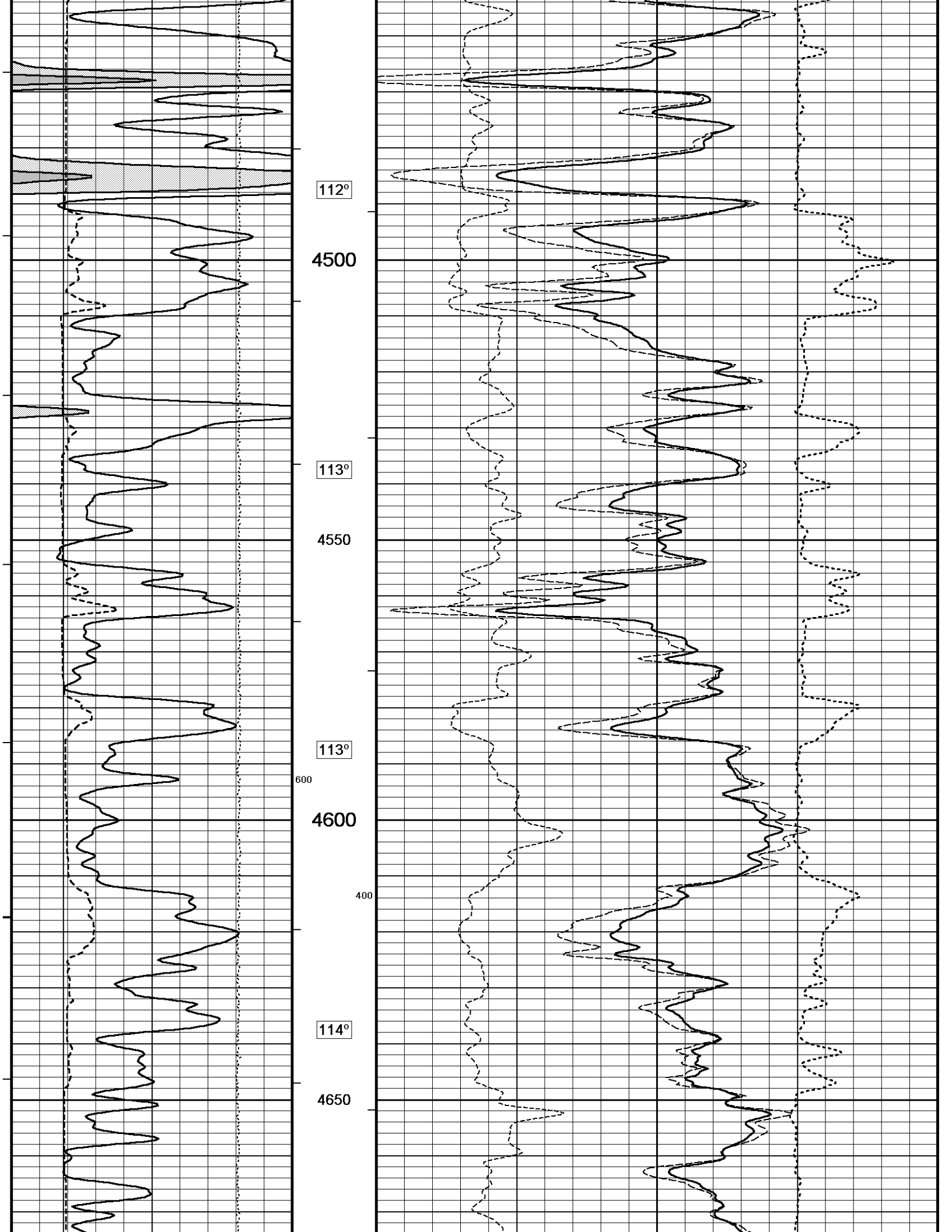
5 INCH LIMSTONE

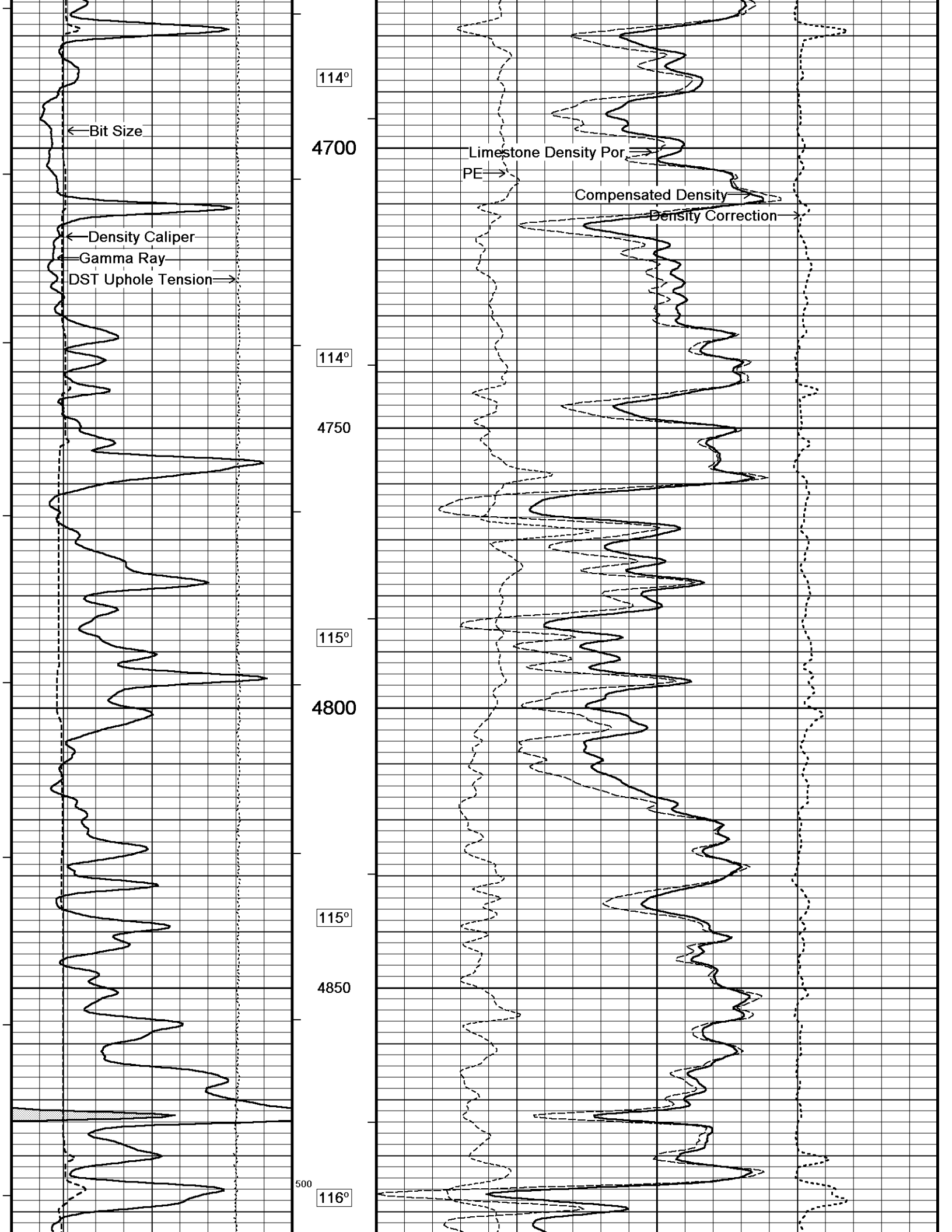
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VA...\Copy of Copy(2) of O'BRIEN VAIL 6-30 MAIN.dta — Recorded on 22-DEC-2013 15:39
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

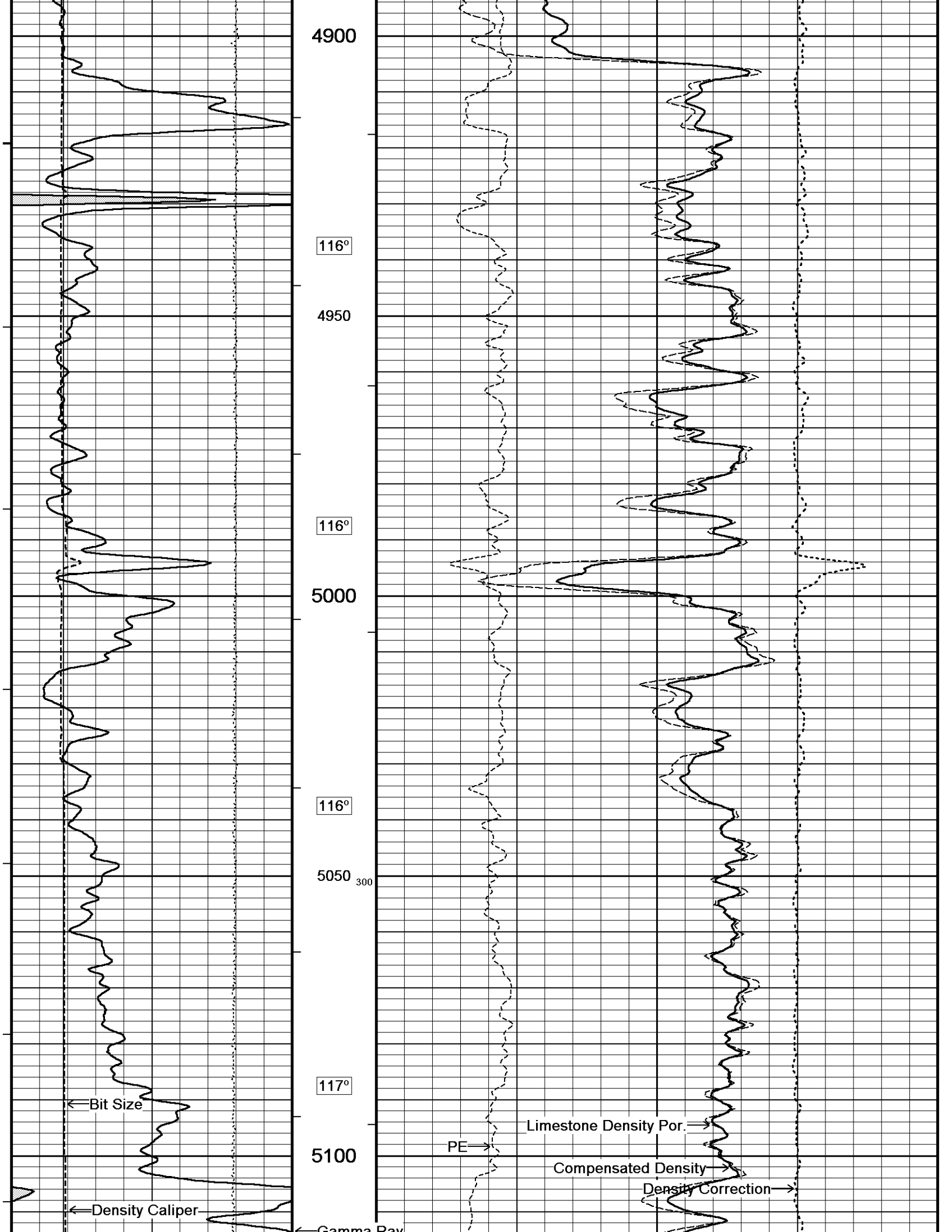


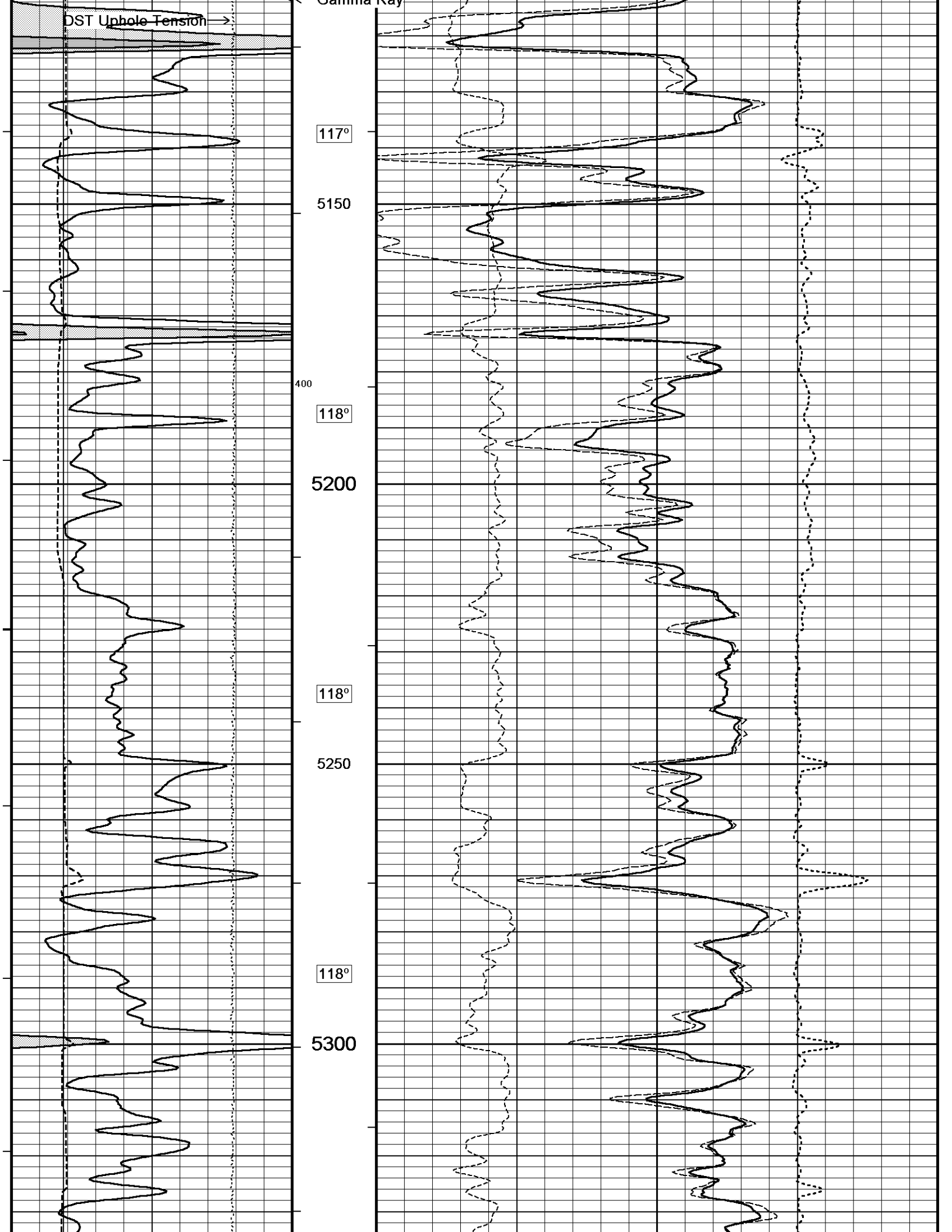

108°
800
4050
109°
4100
110°
4150
110°
4200
500

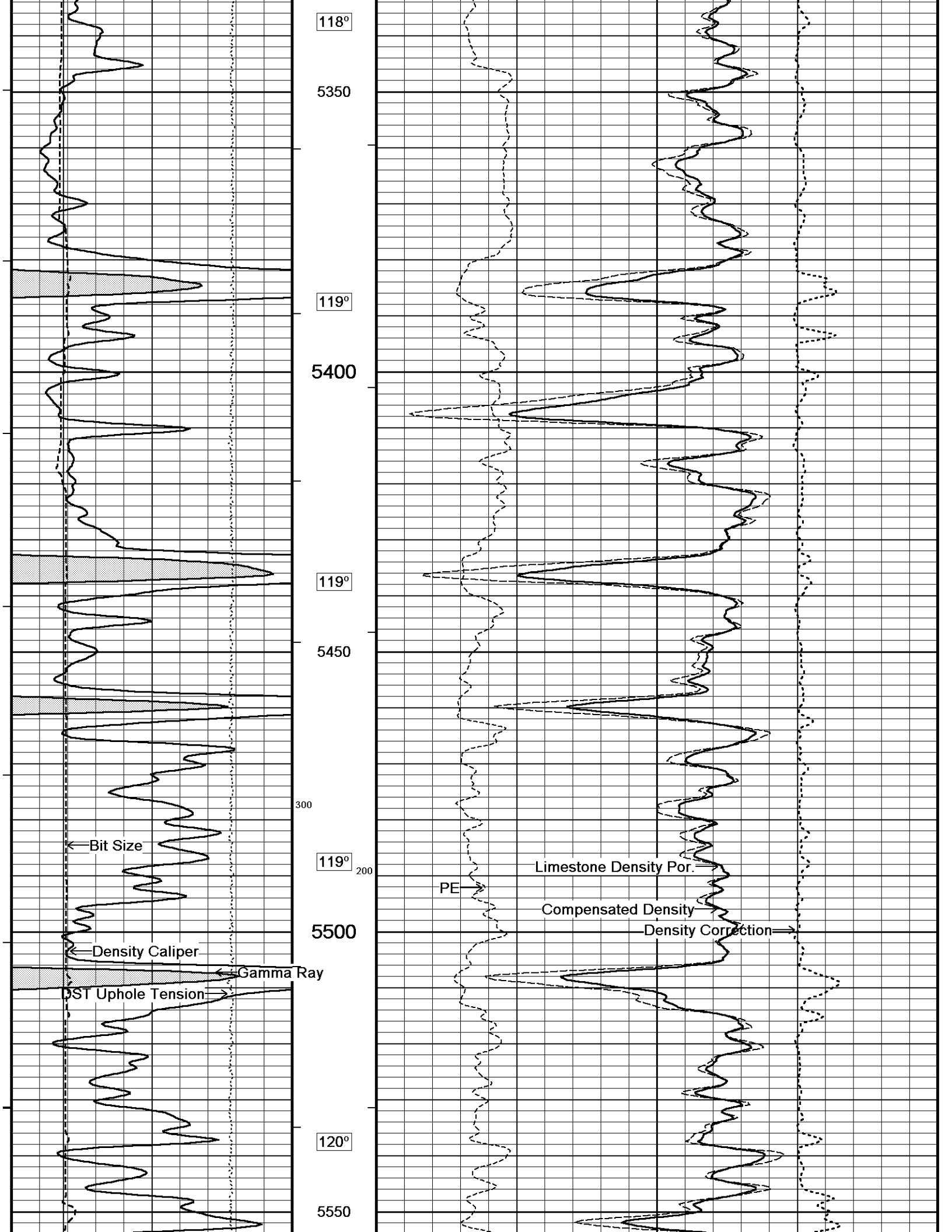

110°
4250
111°
4300
Bit Size
700
Density Caliper
Gamma Ray
DST Uphole Tension
111°
4350
112°
4400
112°
4450
Limestone Density Por.
PE
Compensated Density
Density Correction

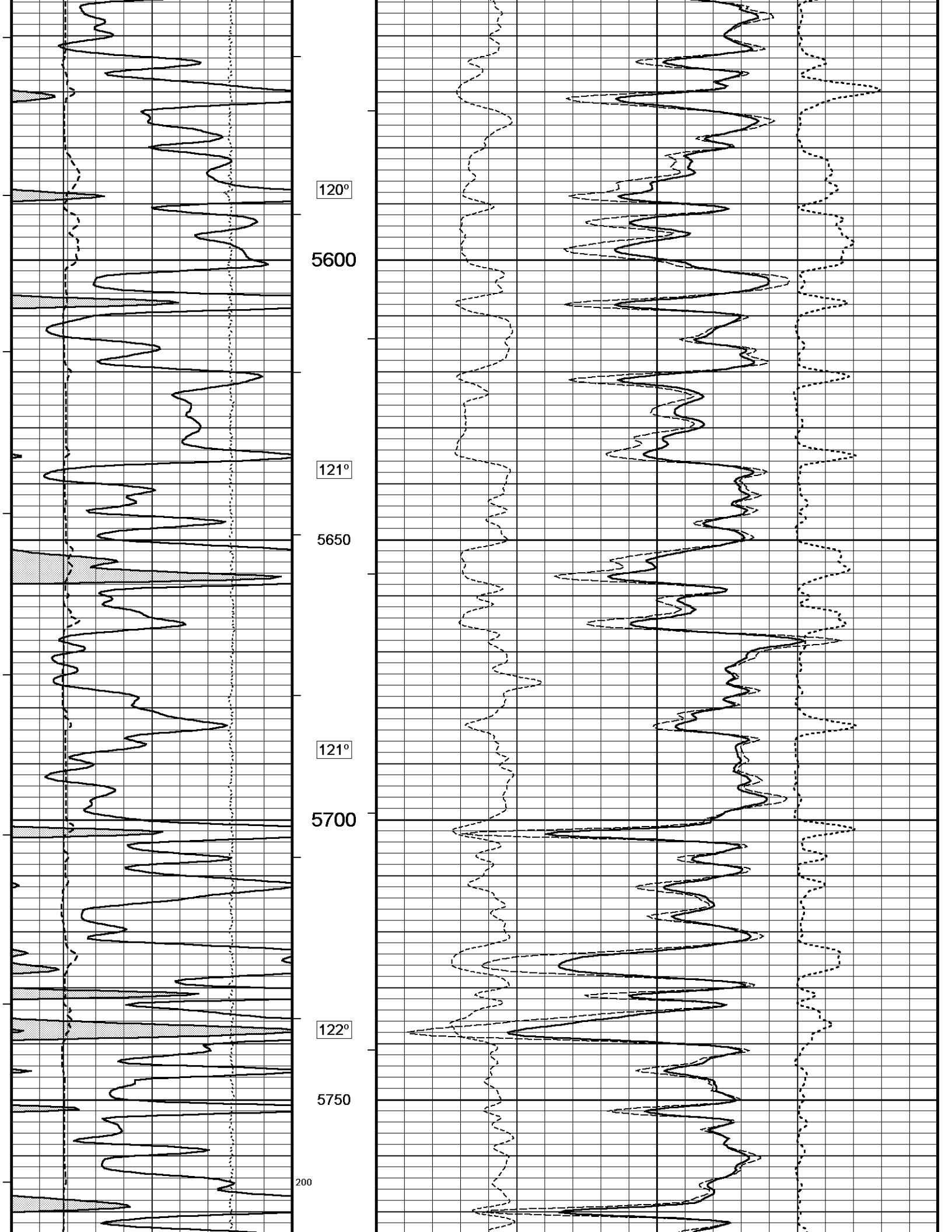

112°
4500
113°
4550
113°
600
4600
400
114°
4650

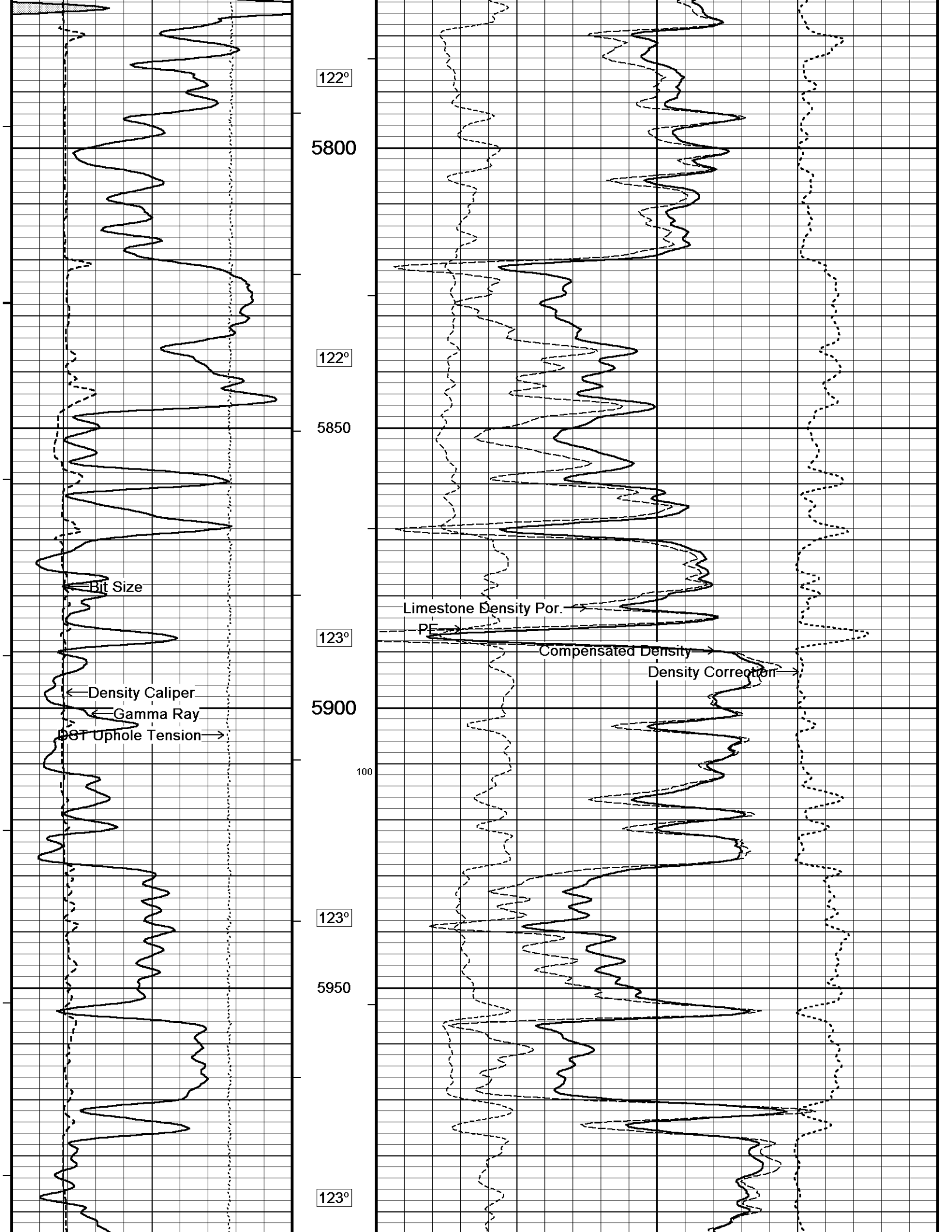

114°
Bit Size
4700
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
114°
4750
115°
4800
115°
4850
500
116°

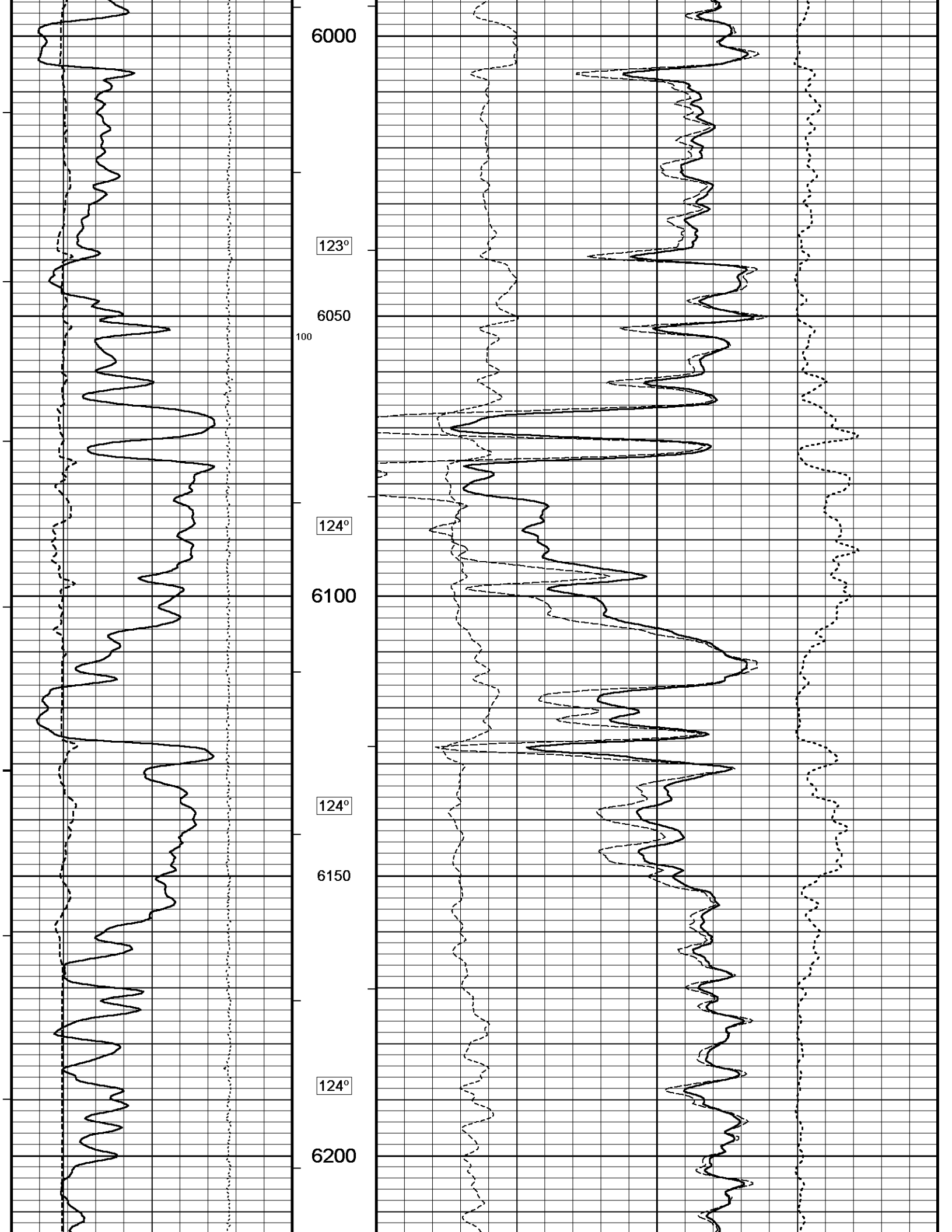

4900
116°
4950
116°
5000
116°
5050
300
117°
5100
←Bit Size
←Density Caliper
←Gamma Ray
PE→
Limestone Density Por.→
Compensated Density→
Density Correction→

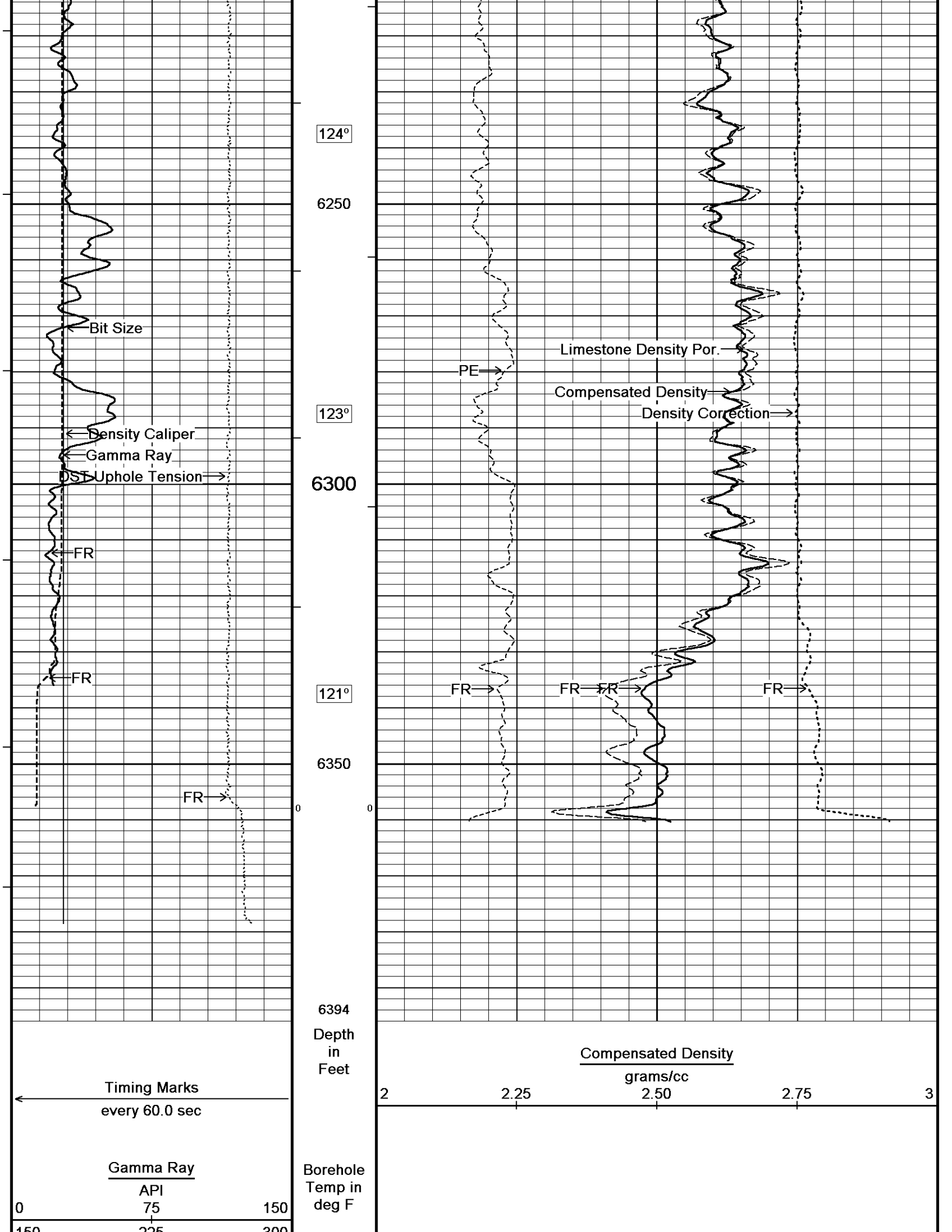

DST Uphole Tension →
Gamma Ray
117°
5150
400
118°
5200
118°
5250
118°
5300

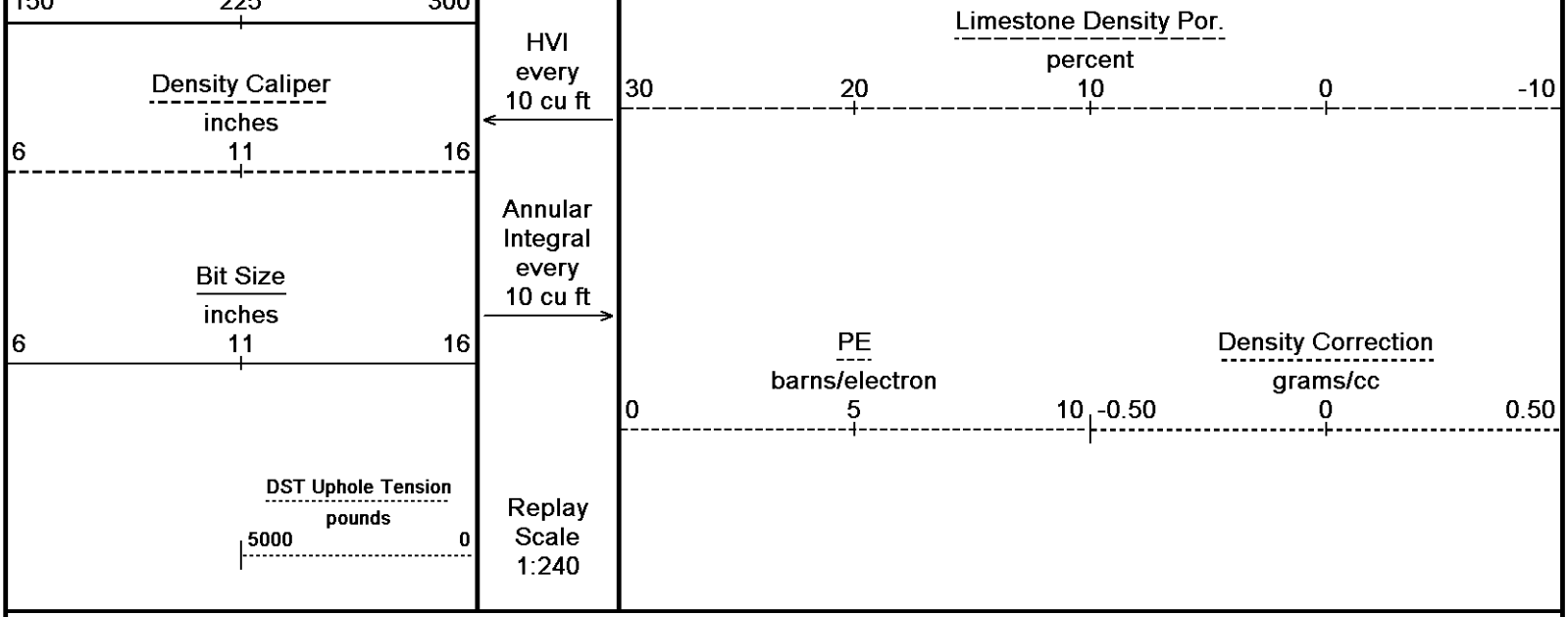

118°
5350
119°
5400
119°
5450
300
Bit Size
119°
200
5500
Density Caliper
Gamma Ray
DST Uphole Tension
120°
5550
Limestone Density Por.
PE
Compensated Density
Density Correction


120°
5600
121°
5650
121°
5700
122°
5750
200


122°
5800
122°
5850
Bit Size
Limestone Density Por.
PE
123°
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DOT Uphole Tension
5900
100
123°
5950
123°


6000
123°
6050
100
124°
6100
124°
6150
124°
6200


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
FR
FR
FR
PE
FR
FR
FR
FR
Limestone Density Por.
Compensated Density
Density Correction
124°
6250
123°
6300
121°
6350
6394
0
0
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Depth
in
Feet
Borehole
Temp in
deg F
Compensated Density
grams/cc
2
2.25
2.50
2.75
3

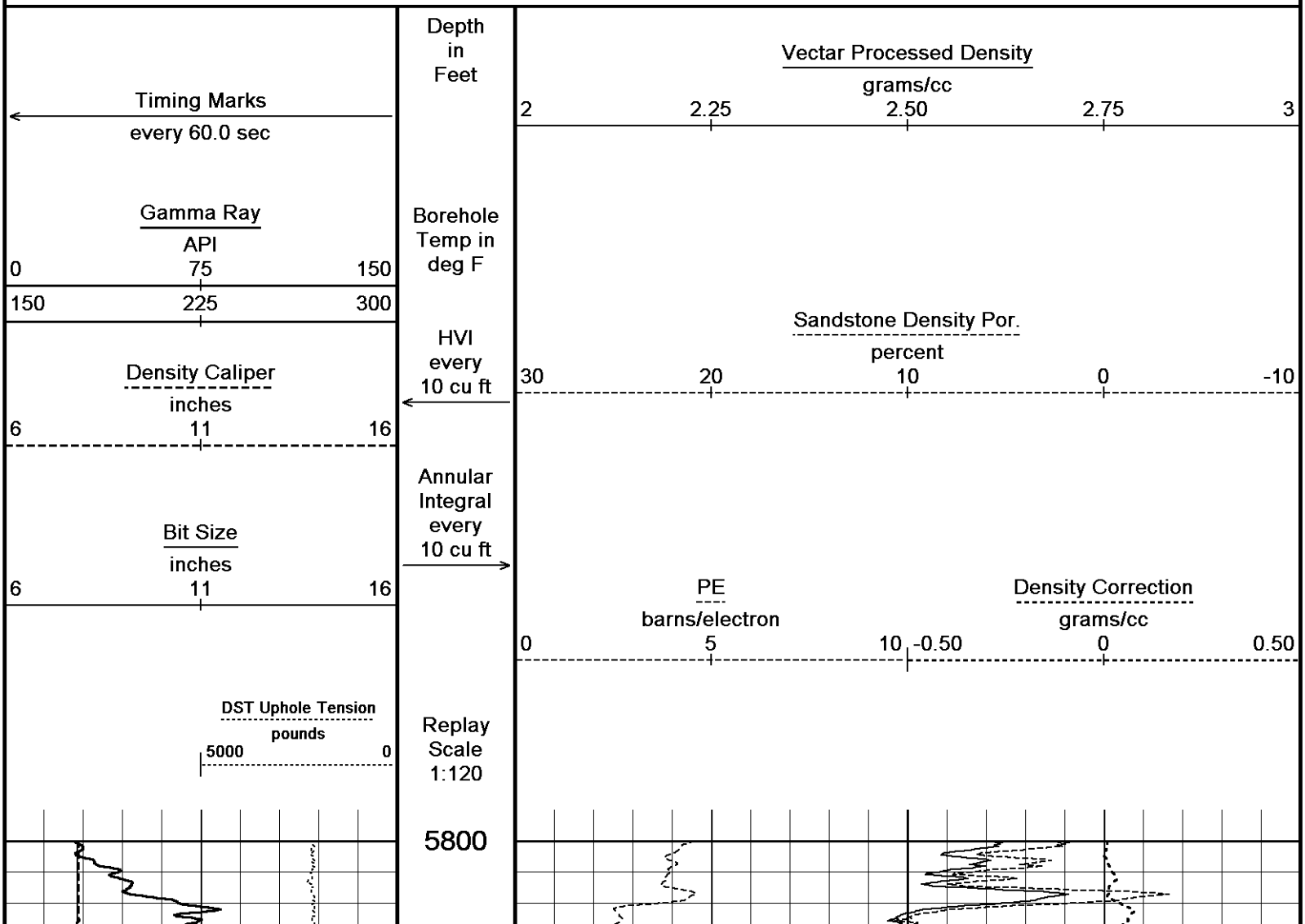


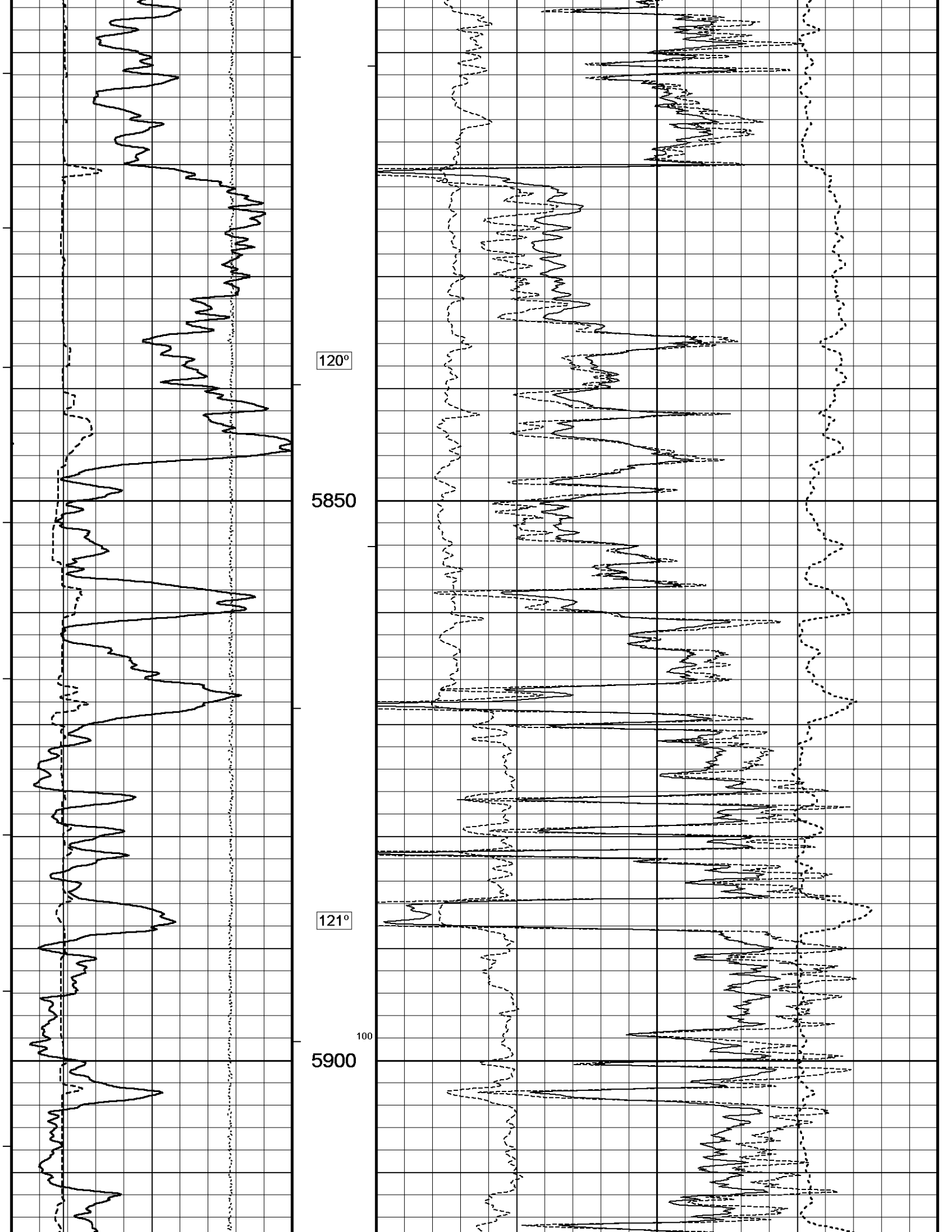
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VA...\Copy of Copy(2) of O'BRIEN VAIL 6-30 MAIN.dta — Recorded on 22-DEC-2013 15:39
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

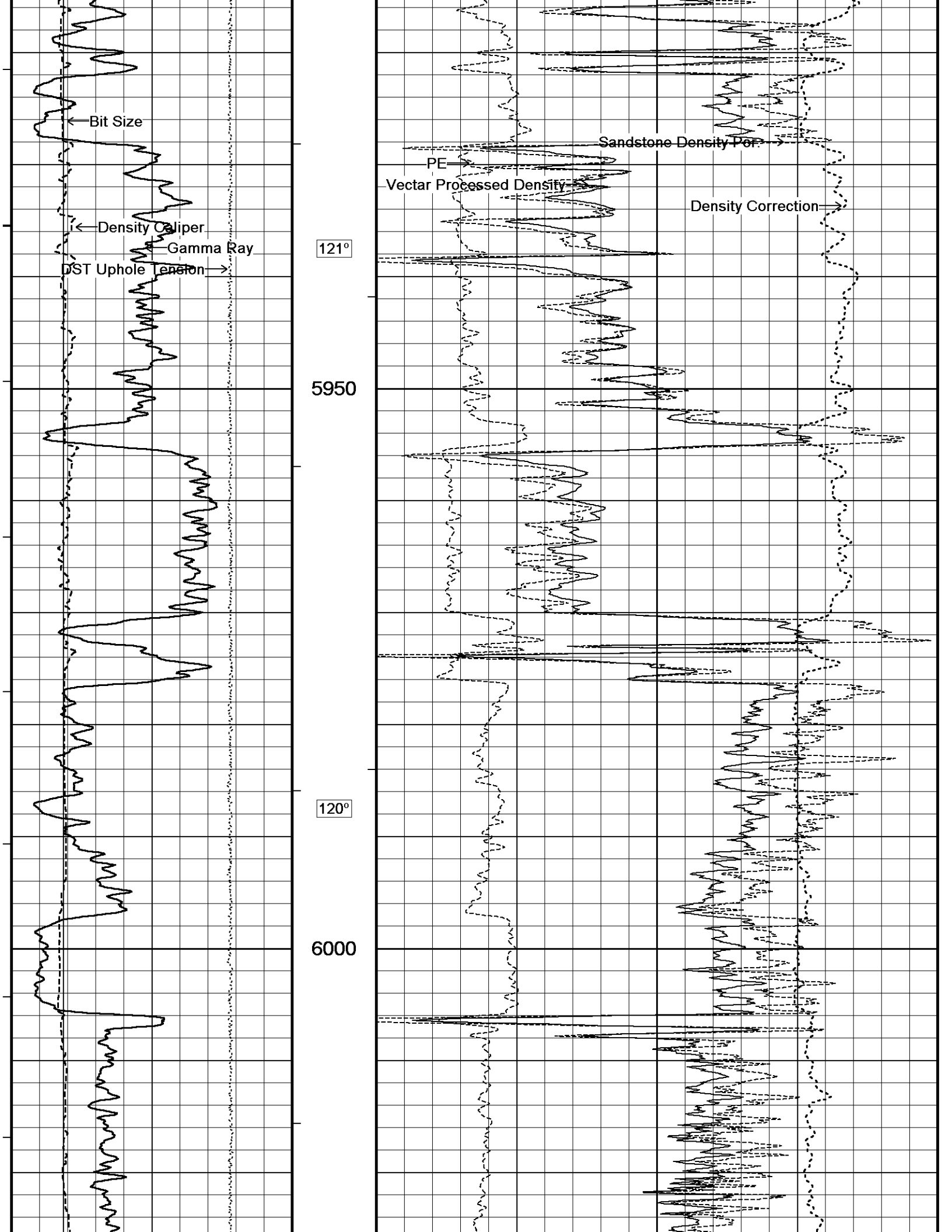
5 INCH LIMSTONE

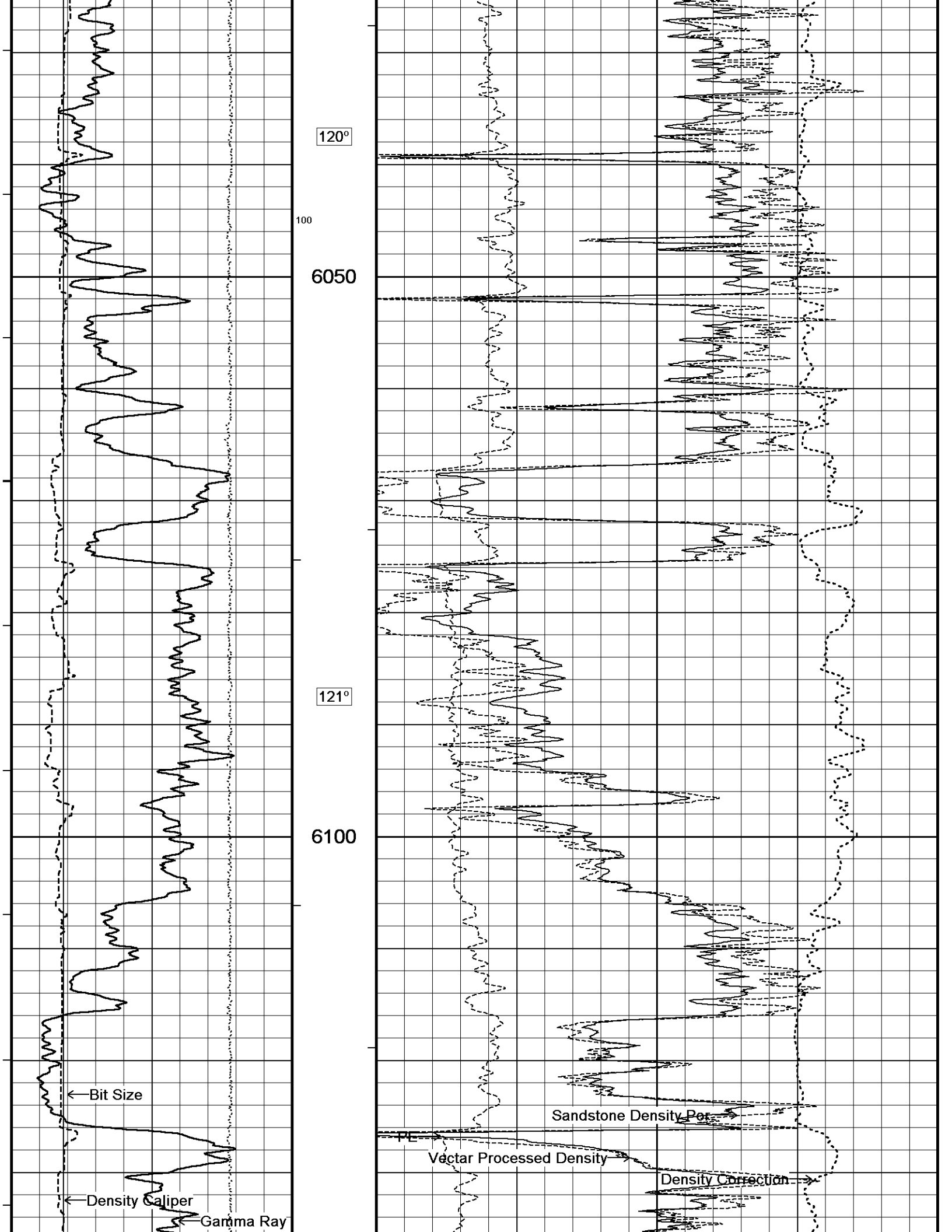
10 INCH HI-RES SANDSTONE

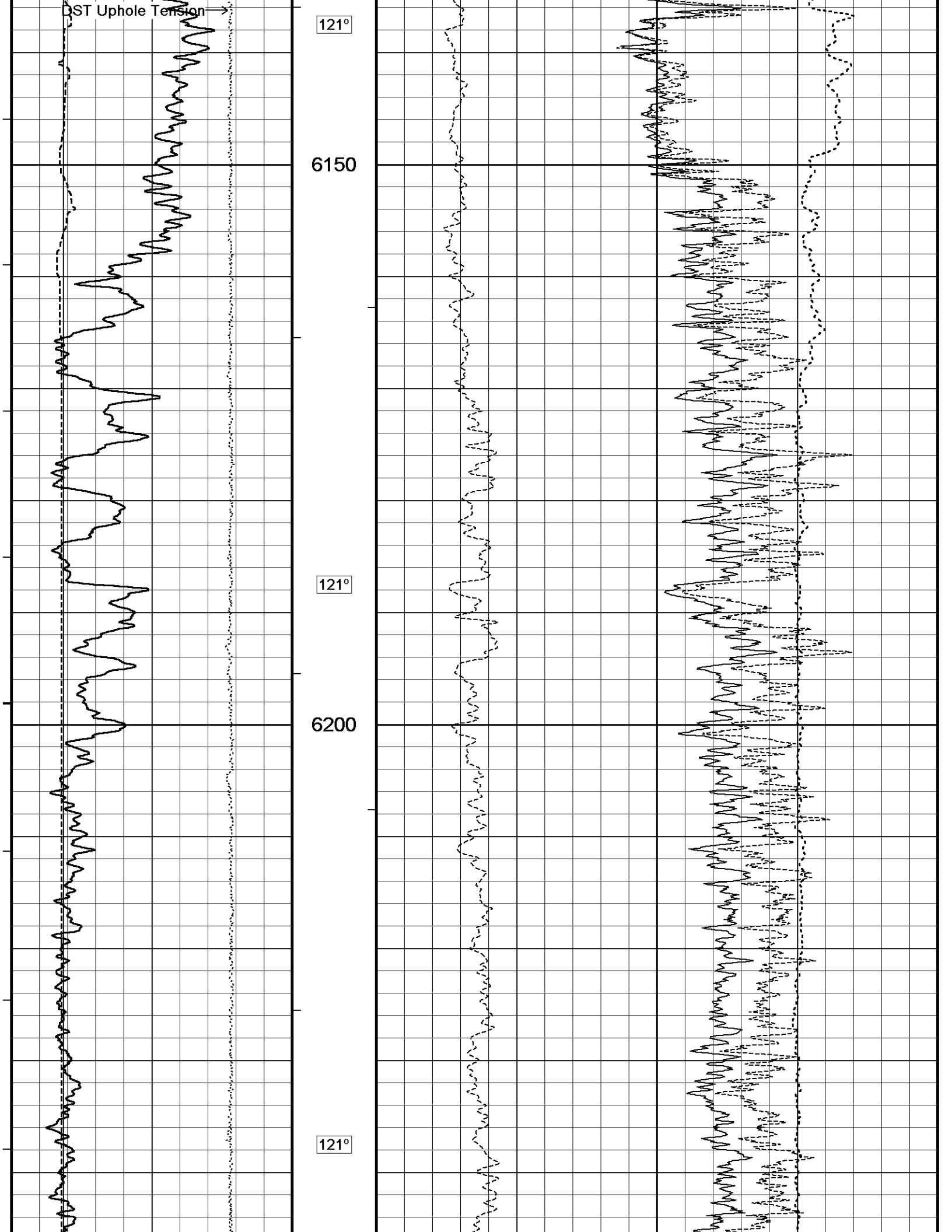
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 22-DEC-2013 18:05
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH RES.dta — Recorded on 22-DEC-2013 14:20
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

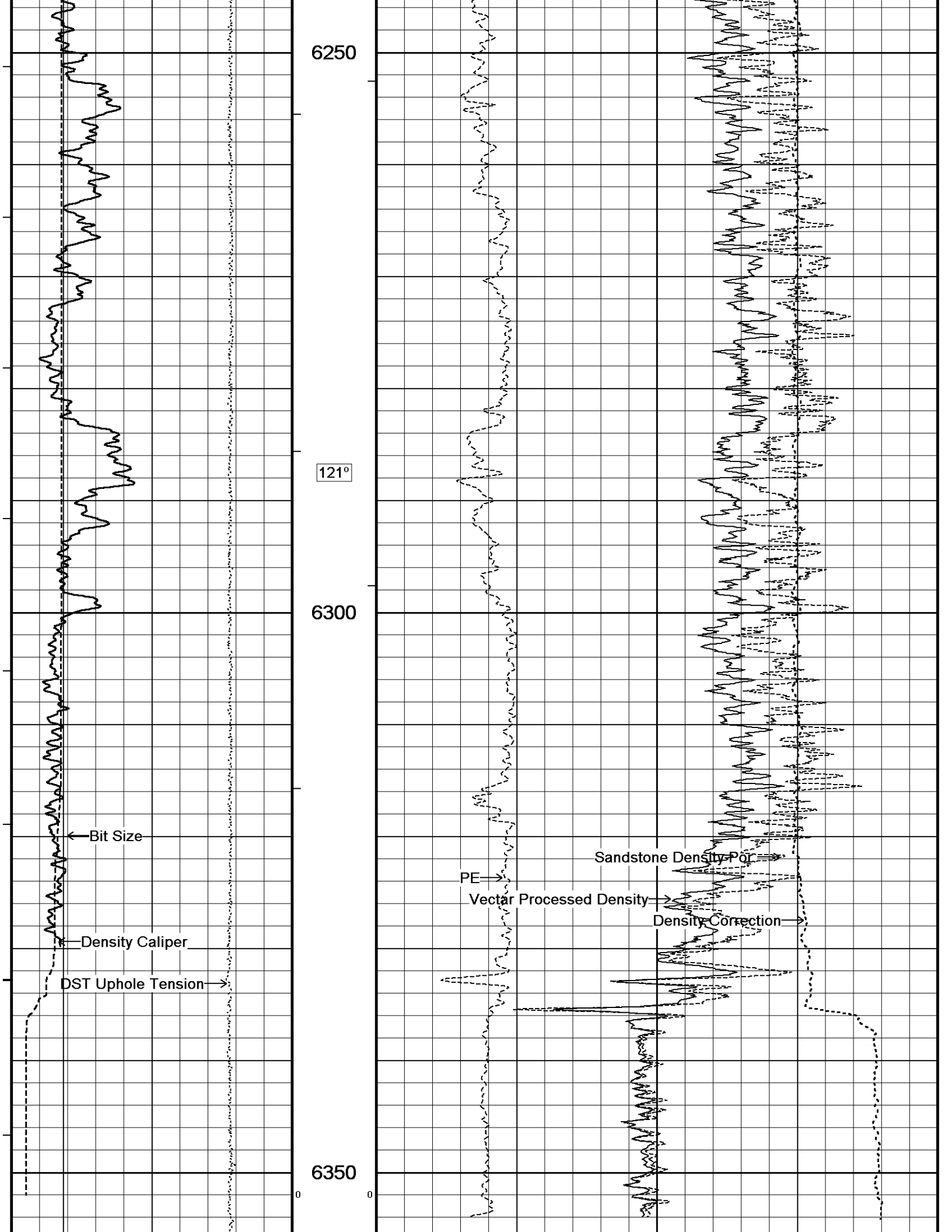


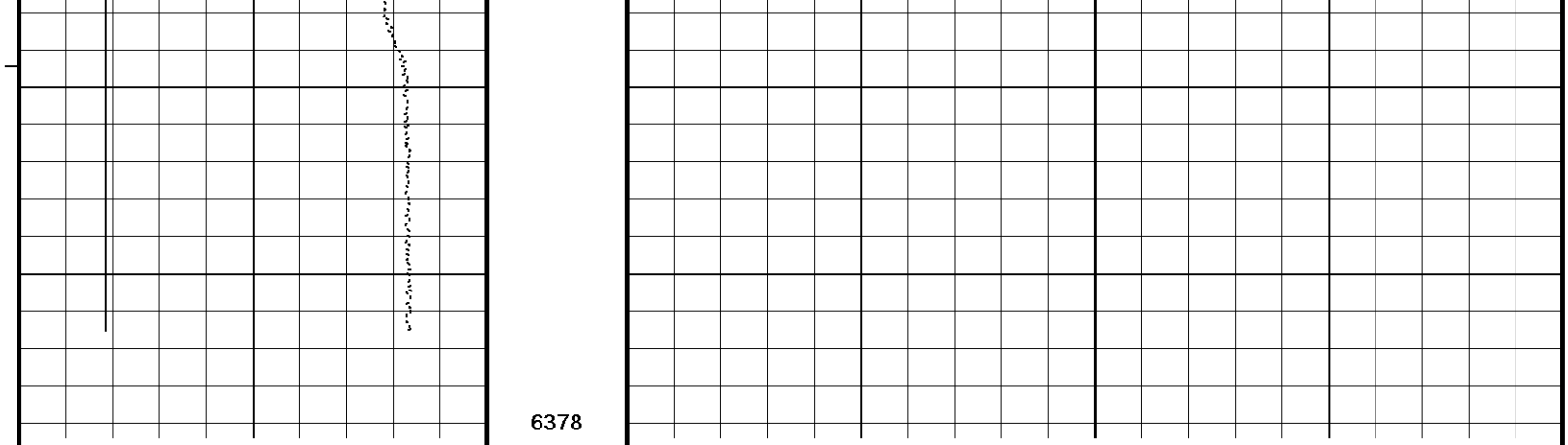

120°
5850
121°
100
5900


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
121°
5950
120°
6000
Sandstone Density Por.
PE
Vectar Processed Density
Density Correction


120°
100
6050
121°
6100
Bit Size
Density Caliper
Gamma Ray
Sandstone Density Por
PE
Vectar Processed Density
Density Correction


DST Uphole Tension
121°
6150
121°
6200
121°


6250
121°
6300
6350
Bit Size
Density Caliper
DST Uphole Tension
Sandstone Density Por
PE
Vectar Processed Density
Density Correction
0
0



6378

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:120

Vectar Processed Density
grams/cc
2 2.25 2.50 2.75 3

Sandstone Density Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH RES.dta
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Plotted on 22-DEC-2013 18:05
Recorded on 22-DEC-2013 14:20

10 INCH HI-RES SANDSTONE

REPEAT LIMESTONE

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH REPEAT.dta
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Plotted on 22-DEC-2013 18:05
Recorded on 22-DEC-2013 14:20

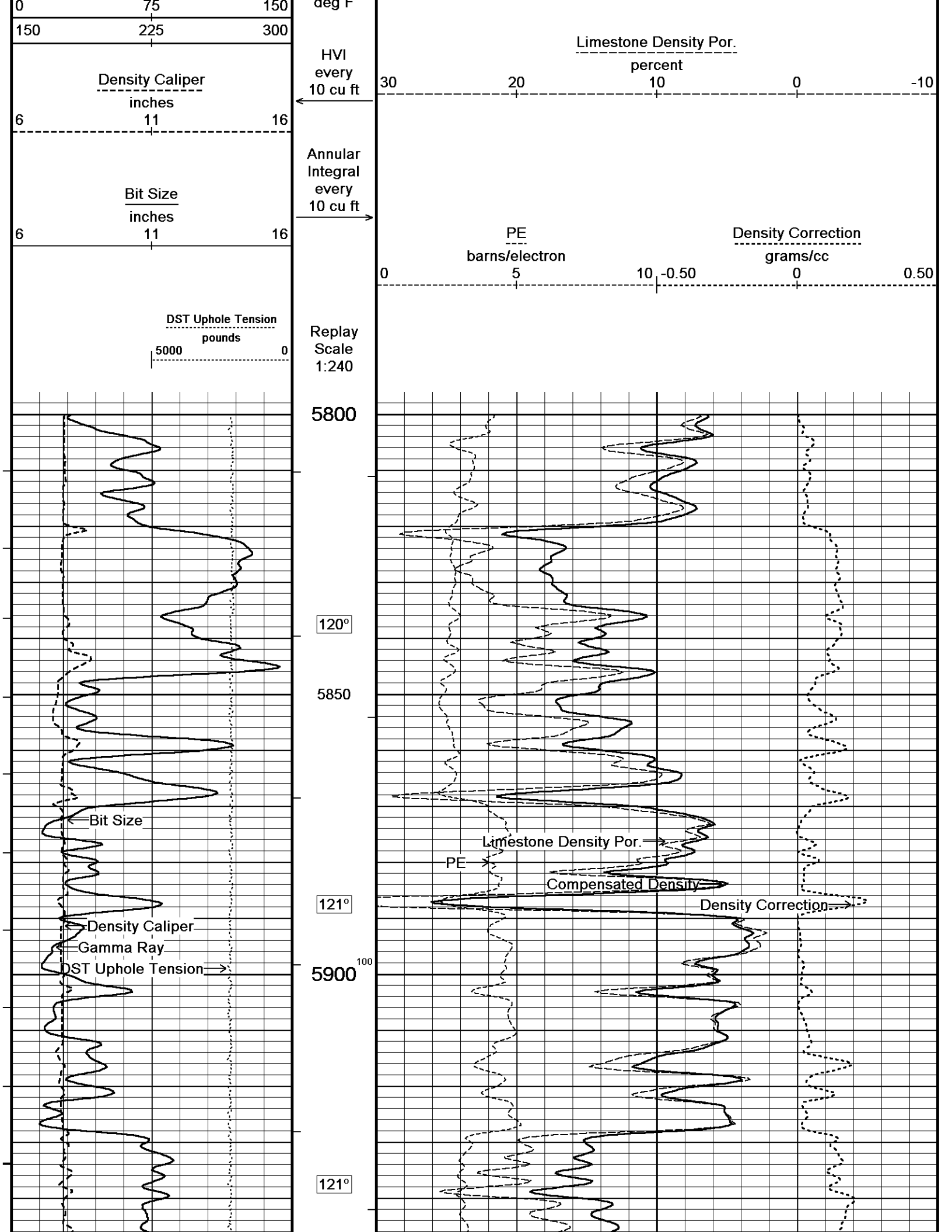
Depth in Feet

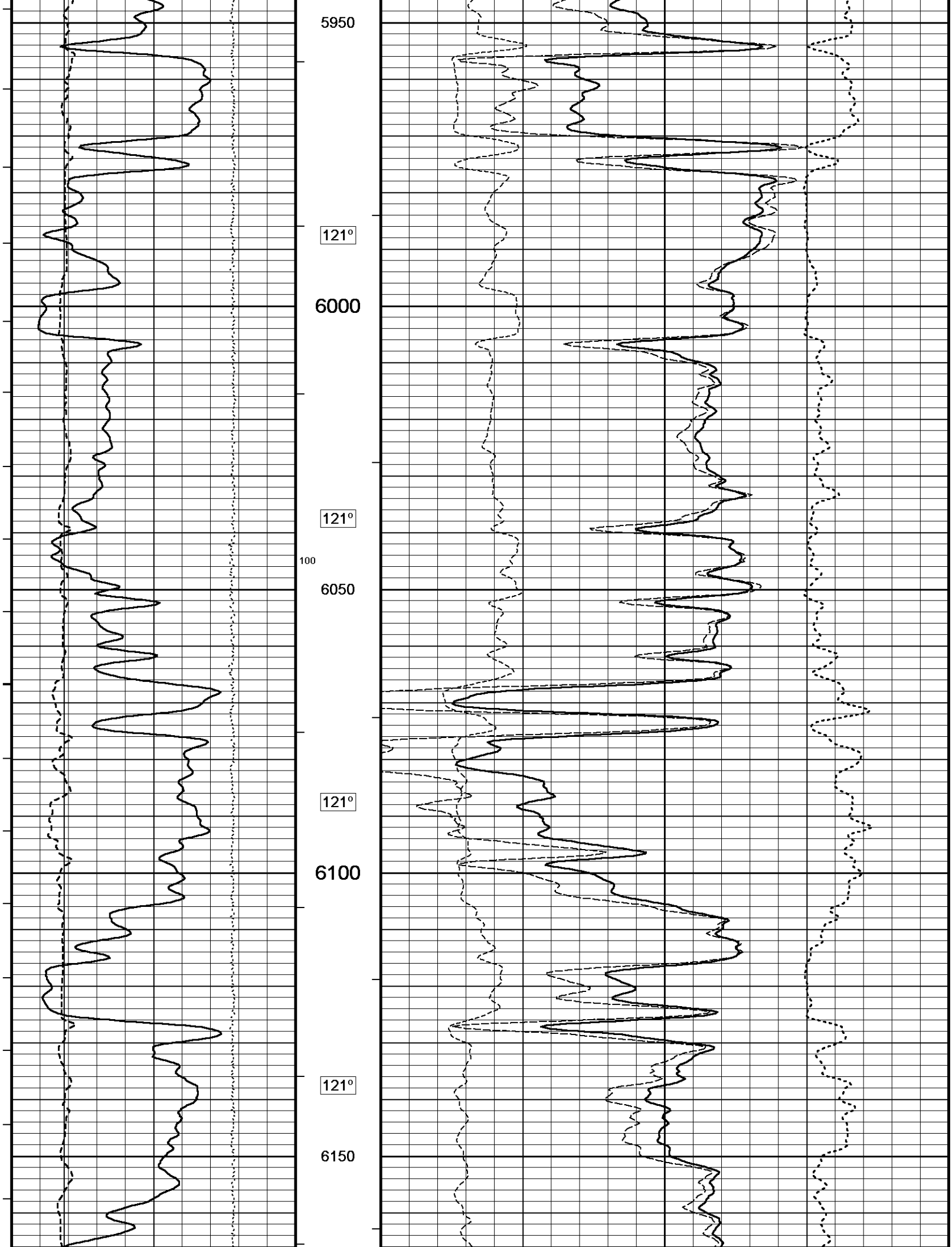
Timing Marks
every 60.0 sec

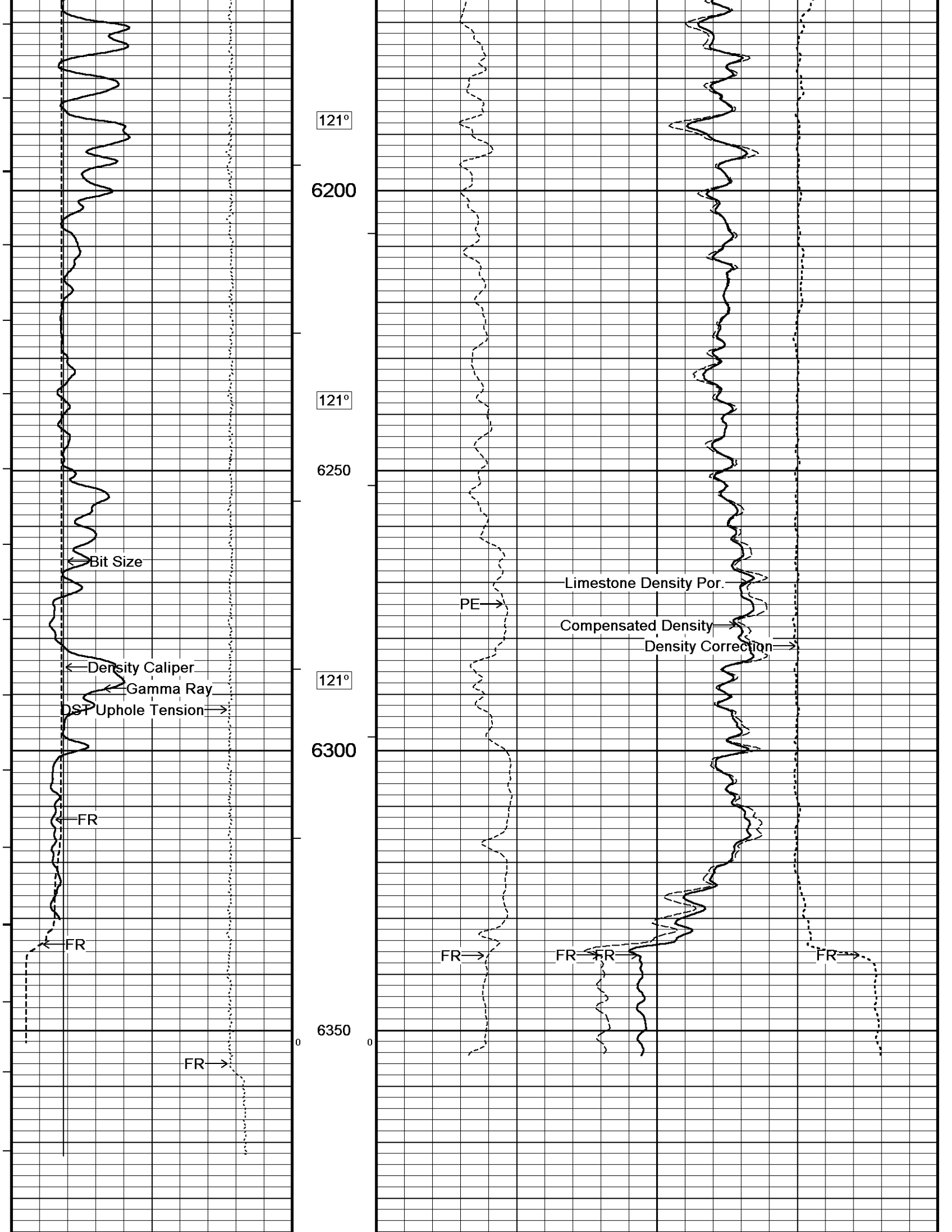
Gamma Ray
API

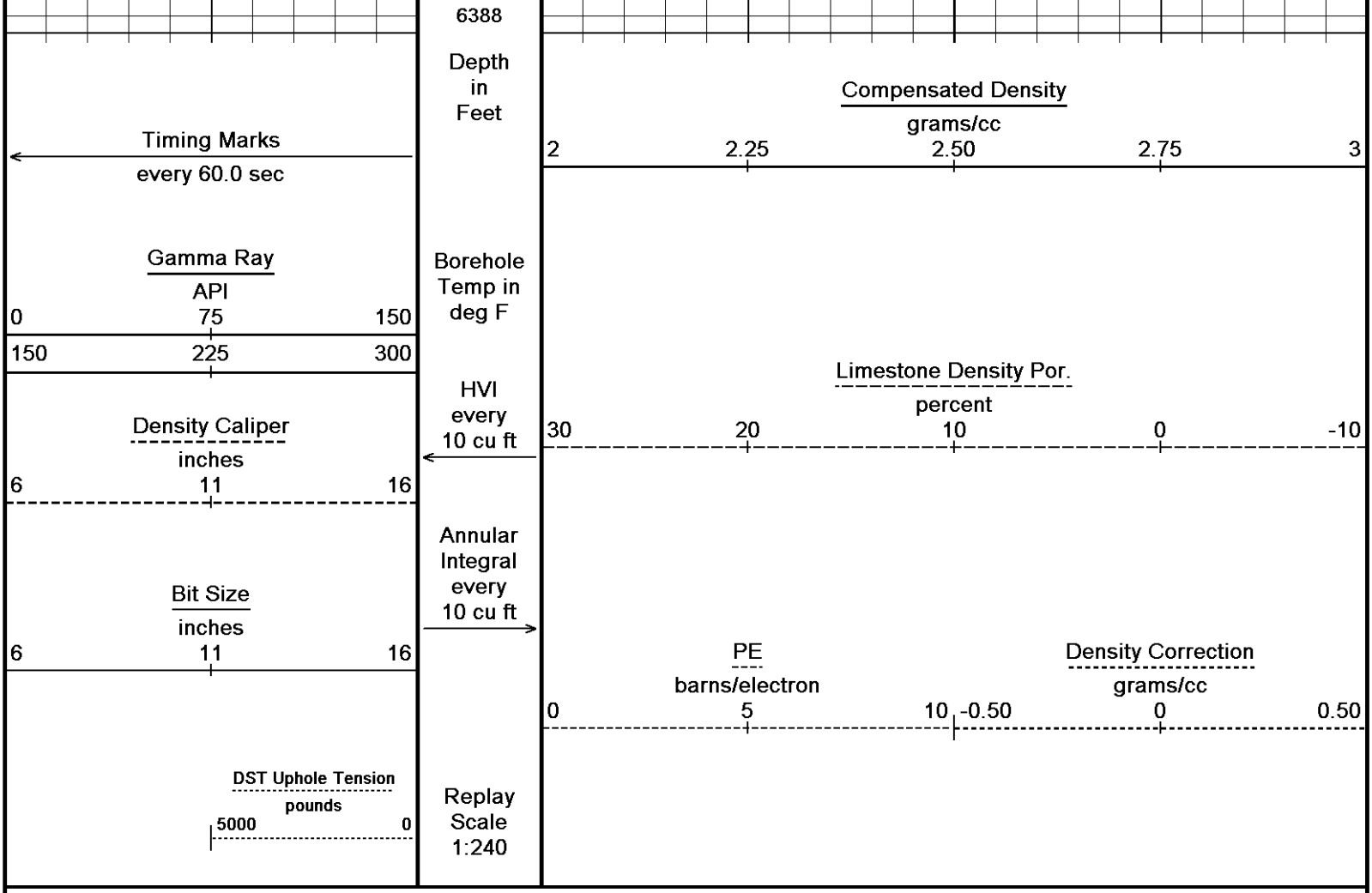
Borehole Temp in

Compensated Density
grams/cc
2 2.25 2.50 2.75 3


0
75
150
deg F
150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:240
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
5800
120°
5850
121°
5900
100
121°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por.
PE
Compensated Density
Density Correction


5950
121°
6000
121°
100
6050
121°
6100
121°
6150


121°
6200
121°
6250
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
121°
6300
FR
FR
FR
6350
0
PE
FR
Limestone Density Por.
Compensated Density
Density Correction
FR
FR
FR
0



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2013 18:05

Filename: C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH REPEAT.dta — Recorded on 22-DEC-2013 14:20

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

REPEAT LIMESTONE

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH REPEAT.dta

General Constants All 000

Last Edited on 22-DEC-2013,13:43

General Parameters		
Mud Resistivity	0.500	ohm-metres
Mud Resistivity Temperature	90.000	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	4.500	inches
Caliper for Differential Caliper	MMR 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	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 29-OCT-2013,14:34

	Measured	Calibrated(Deg F)
Lower	50.00	50.00

Upper	75.00	75.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 29-OCT-2013,14:34

Pre-filter Length	11

Gamma Calibration MCG-D.K 442

Field Calibration on 22-DEC-2013 10:12

	Measured	Calibrated (API)
Background	73	48
Calibrator (Gross)	1166	773
Calibrator (Net)	1093	725

Gamma Constants MCG-D.K 442

Last Edited on 17-DEC-2013,10:46

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Photo Density Calibration MPD-B 31

Base Calibration on 20-NOV-2013 10:41
Field Check on 22-DEC-2013 09:58

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	45885	23182	59556	30836
Reference 2	18785	1902	24941	2541

Field Check at Base

671.6	820.8

Field Check

666.5	823.0

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	123	595		
Reference 1	19304	45771	0.425	0.371
Reference 2	5624	18702	0.304	0.272

Field Check at Base

122.7	594.8

Field Check

123.5	589.7

Density Constants MPD-B 31

Last Edited on 22-DEC-2013,13:27

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	1.10	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

Caliper Calibration MPD-B 31

Base Calibration on 20-NOV-2013 10:19
Field Calibration on 22-DEC-2013 10:00

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18720	3.99
2	27472	5.98
3	36127	7.97
4	44368	9.86
5	53568	11.92
6	N/A	N/A

Field Calibration

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

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\O'BRIEN VAIL 6-30\O'BRIEN VAIL 6-30 HIGH REPEAT.dta

CBH-C, Cablehead, 11 pin
CBH-CA 170 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

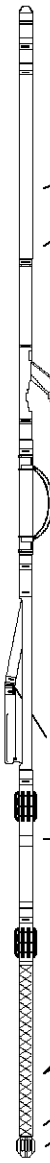
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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

Total Length: 51.18 ft Weight: 407.9 lb



43.50 ft	GRGC - Gamma Ray
40.59 ft	CGXT - MCG External Temperature
33.24 ft	MBTC - MMR Caliper
33.24 ft	MINV - MMR MicroLog Inverse
33.24 ft	MNRL - MMR MicroLog Normal
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.28 ft	DPRL - Limestone Density Por.
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	VAIL 6-30
FIELD	SINGLEY

PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2659.00	feet	First Reading	6337.00	feet
Elevation Drill Floor	2657.00	feet	Depth Driller	6360.00	feet
Elevation Ground Level	2647.00	feet	Depth Logger	6356.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG