Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON LOG

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	HULL #2-11
FIELD	ADAMS RANCH
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	660' FNL & 1650' FEL

40 Years of Wireline 1979 2019

SEC	TWP	RGE
11	34S	30W

Other Services
MAI/MFE
MML

API Number 15-119-21280
Permit Number

Permanent Datum G.L., Elevation 2668 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2680.00
DF	2678.00
GL	2668.00

Date	13-FEB-2011		
Run Number	ONE		
Depth Driller	6387.00 feet		
Depth Logger	6383.00 feet		
First Reading	6361.00 feet		
Last Reading	3000.00 feet		
Casing Driller	1489.00 feet		
Casing Logger	1489.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.20 lb/USg	62.00 CP	
PH / Fluid Loss	10.50	5.80 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.05 @ 73.0 ohm-m		
Rmf @ Measured Temp	0.84 @ 73.0 ohm-m		
Rmc @ Measured Temp	1.26 @ 73.0 ohm-m		
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.65 @118.0 ohm-m		
Time Since Circulation	5 HOURS		
Max Recorded Temp	118.00 deg F		
Equipment Name	COMPACT		
Equipment / Base	13057	LIB	
Recorded By	L. SCOTT		
Witnessed By	ROGER PEARSON		PETER DEBENHAM
S.O.# / JOB#	3529057		LB11-028

BOREHOLE RECORD

Last Edited: 13-FEB-2011 20:38

Bit Size inches	Depth From feet	Depth To feet
7.875	1489.00	6383.00

CASING RECORD

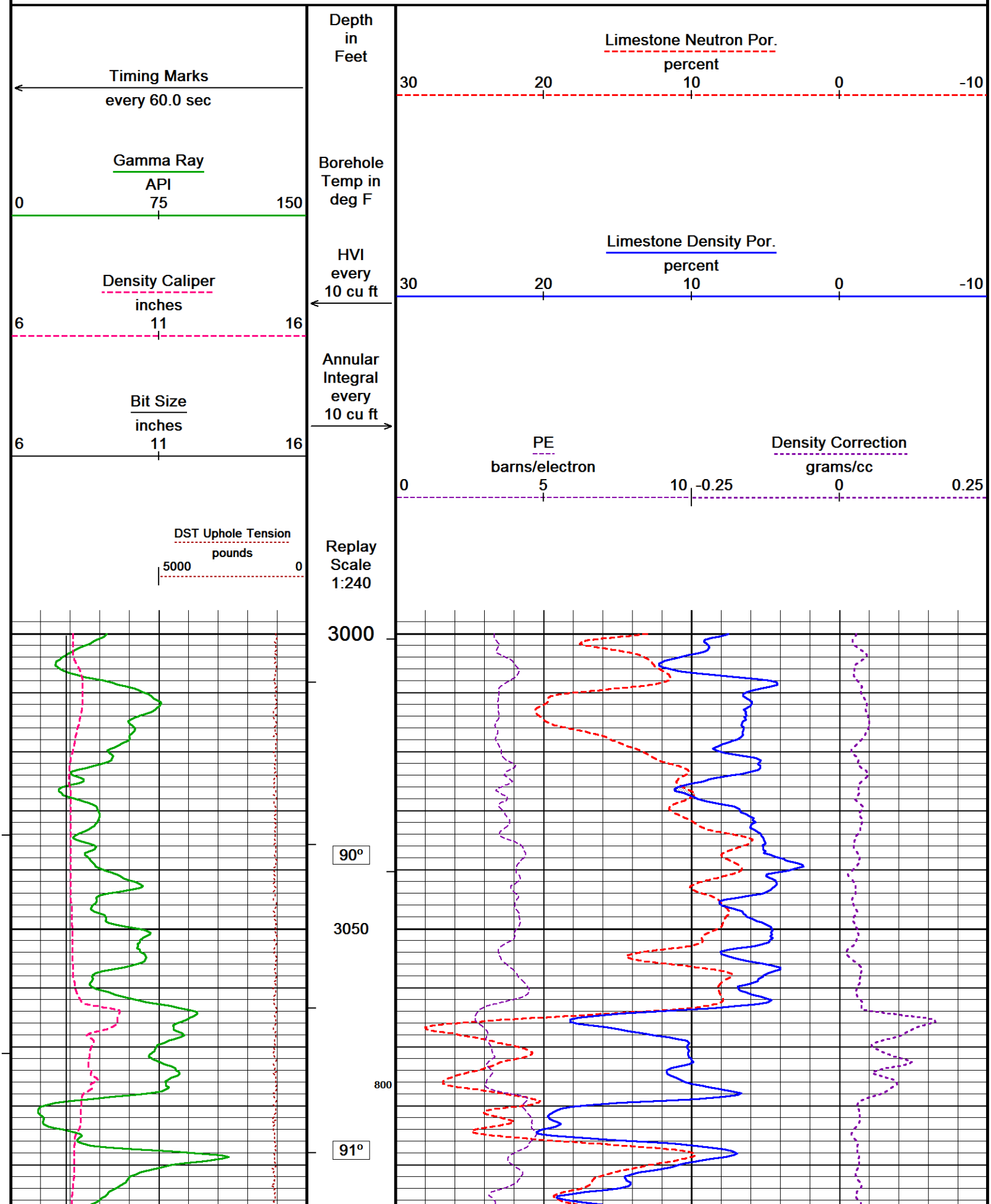
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1489.00	24.00

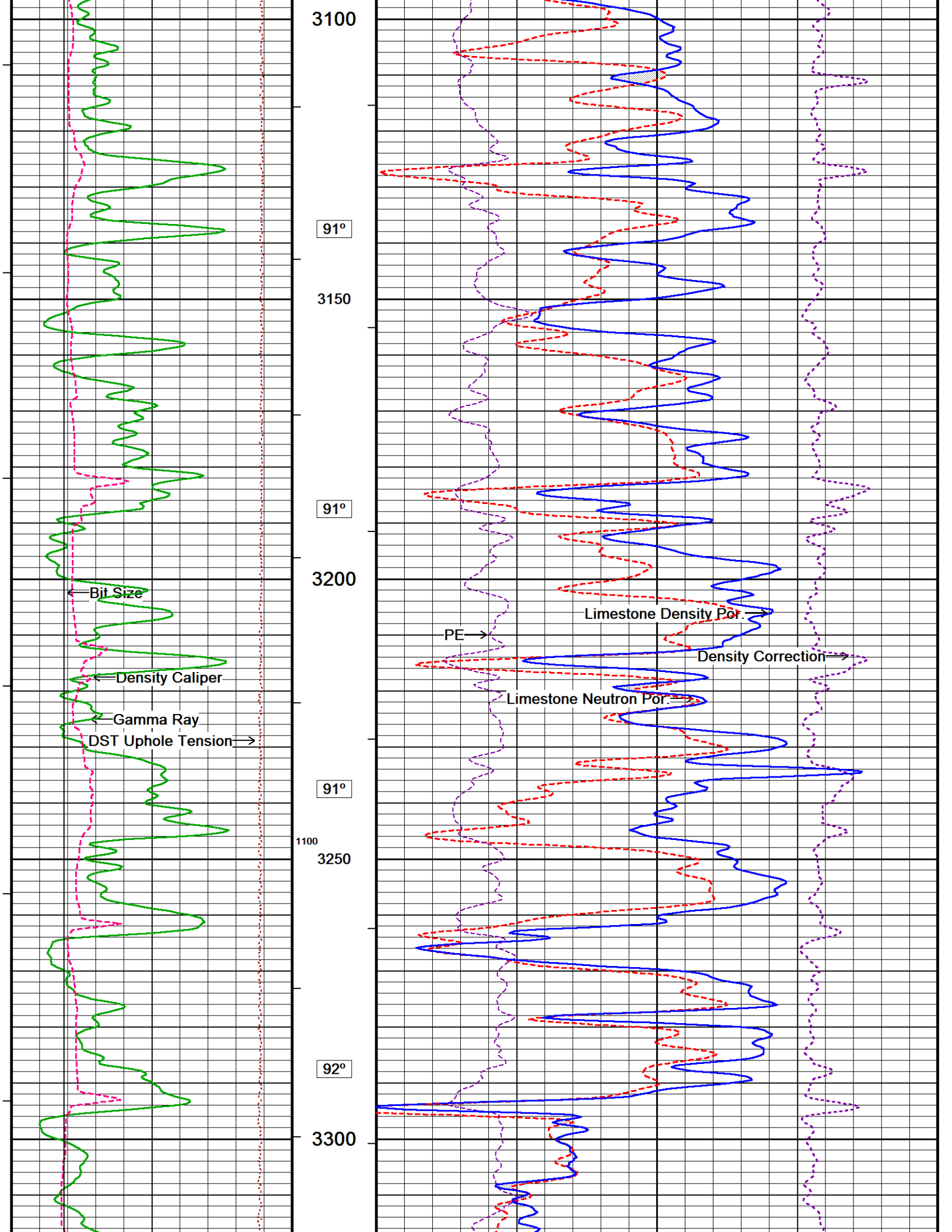
REMARKS

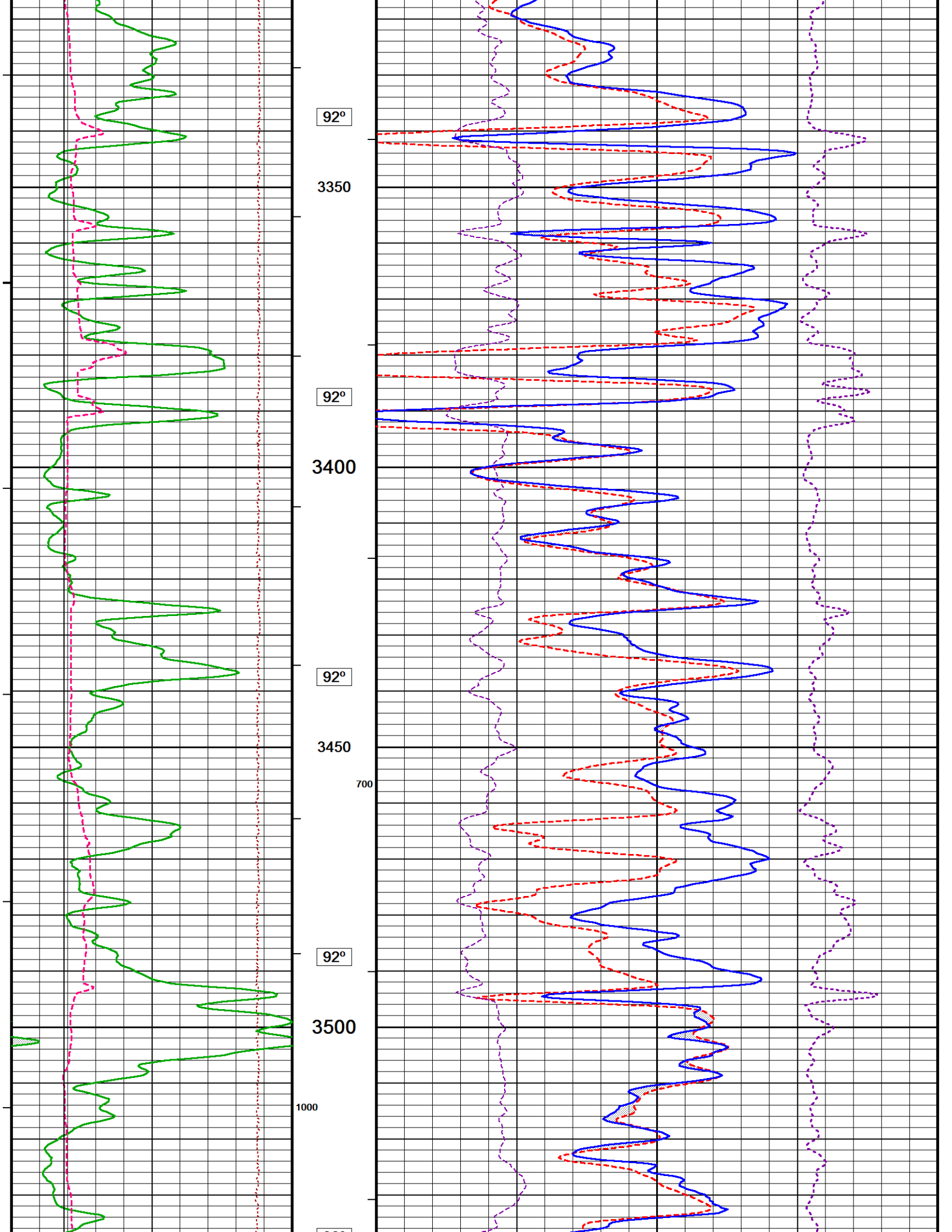
Tools Used: MCG, MML, MDN, MPD, SKJ, MFE, MAI
Hardware: MPD: 8 inch profile plate. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borehole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= 821 cu. ft.
Service order #3529057
Rig: Duke #6
Engineer: L. Scott
Operator(s): J. LaPoint, N. Adame

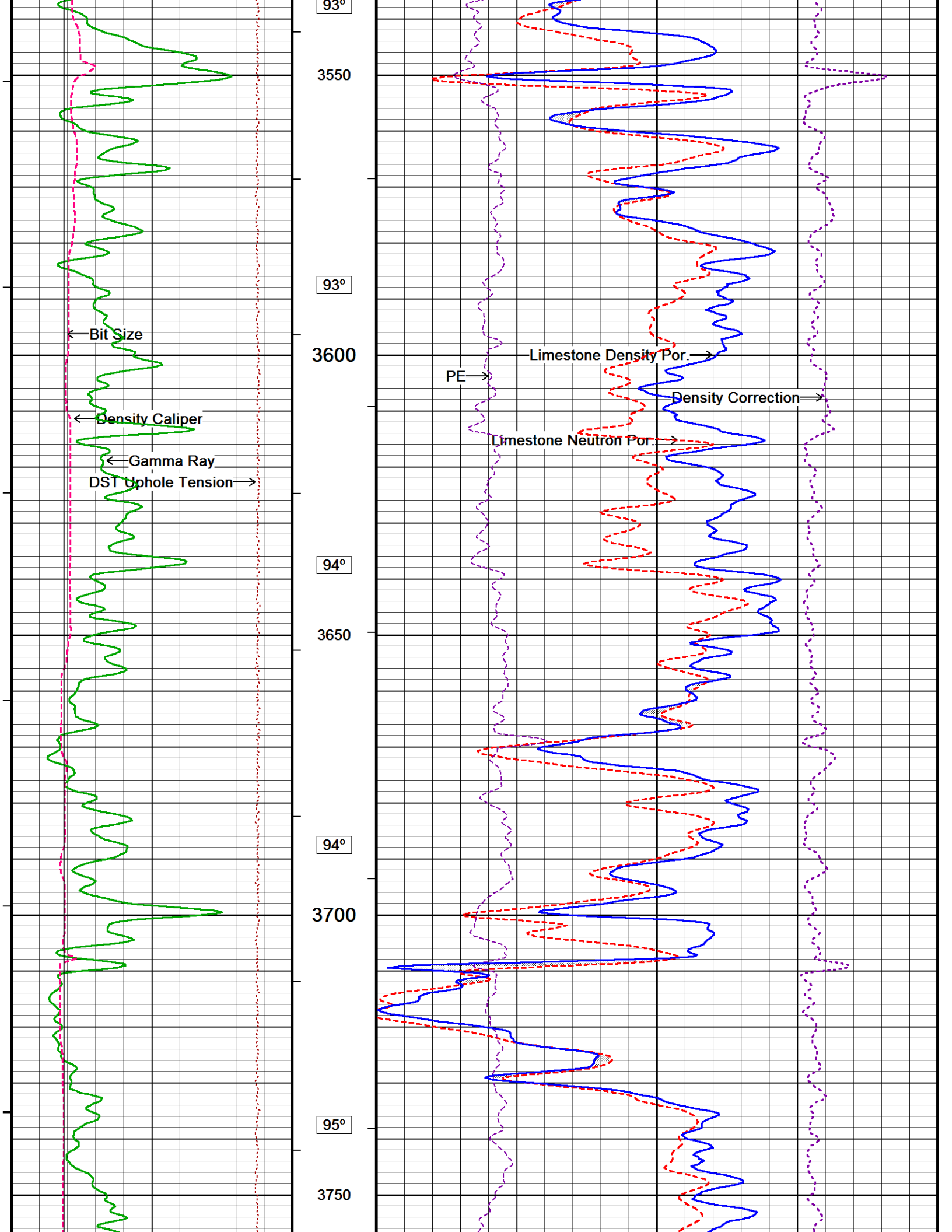
5 INCH MAIN PASS

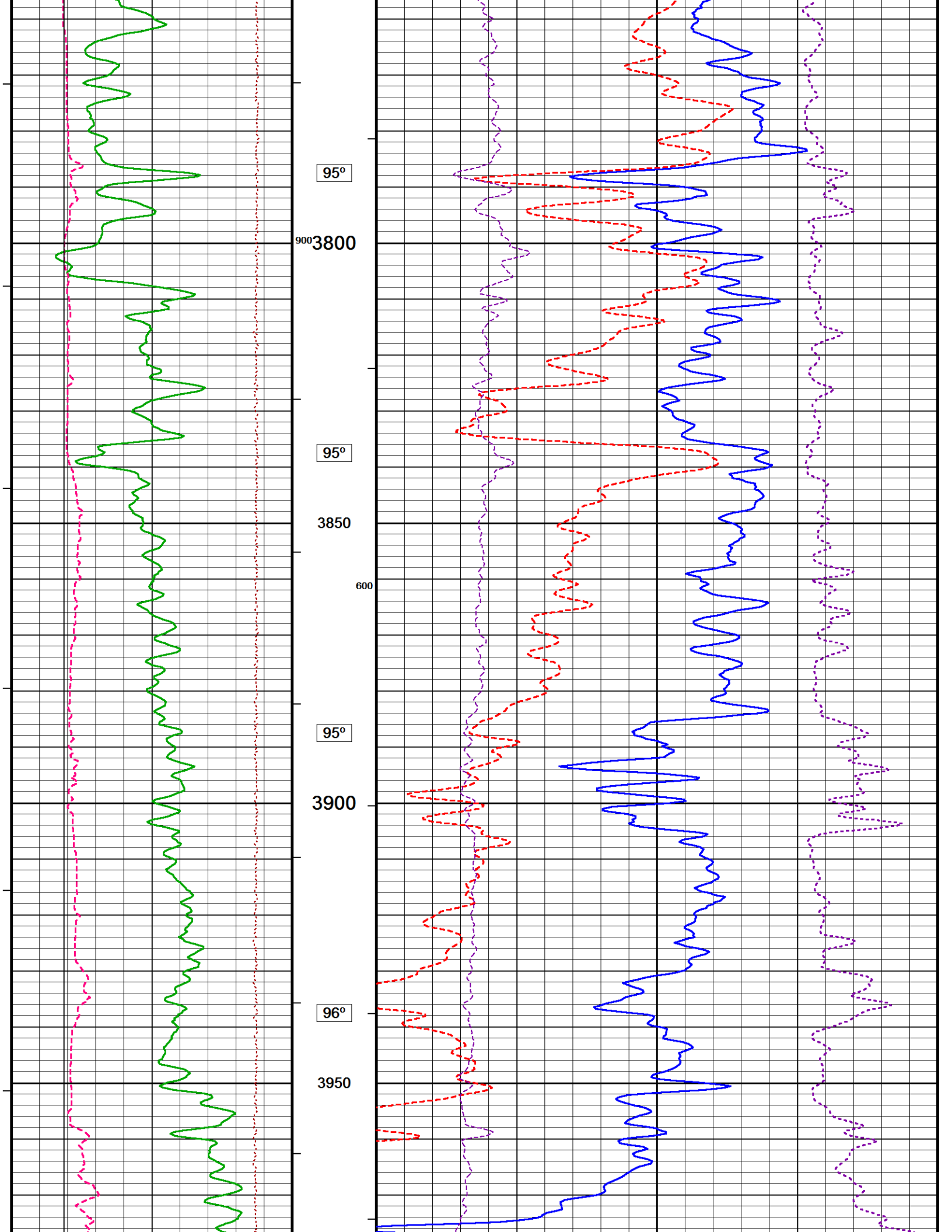
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'Brien Hull #2-11 Splice2.dta
Recorded on 13-FEB-2011 18:15
System Versions: Plotted with 11.02.2164

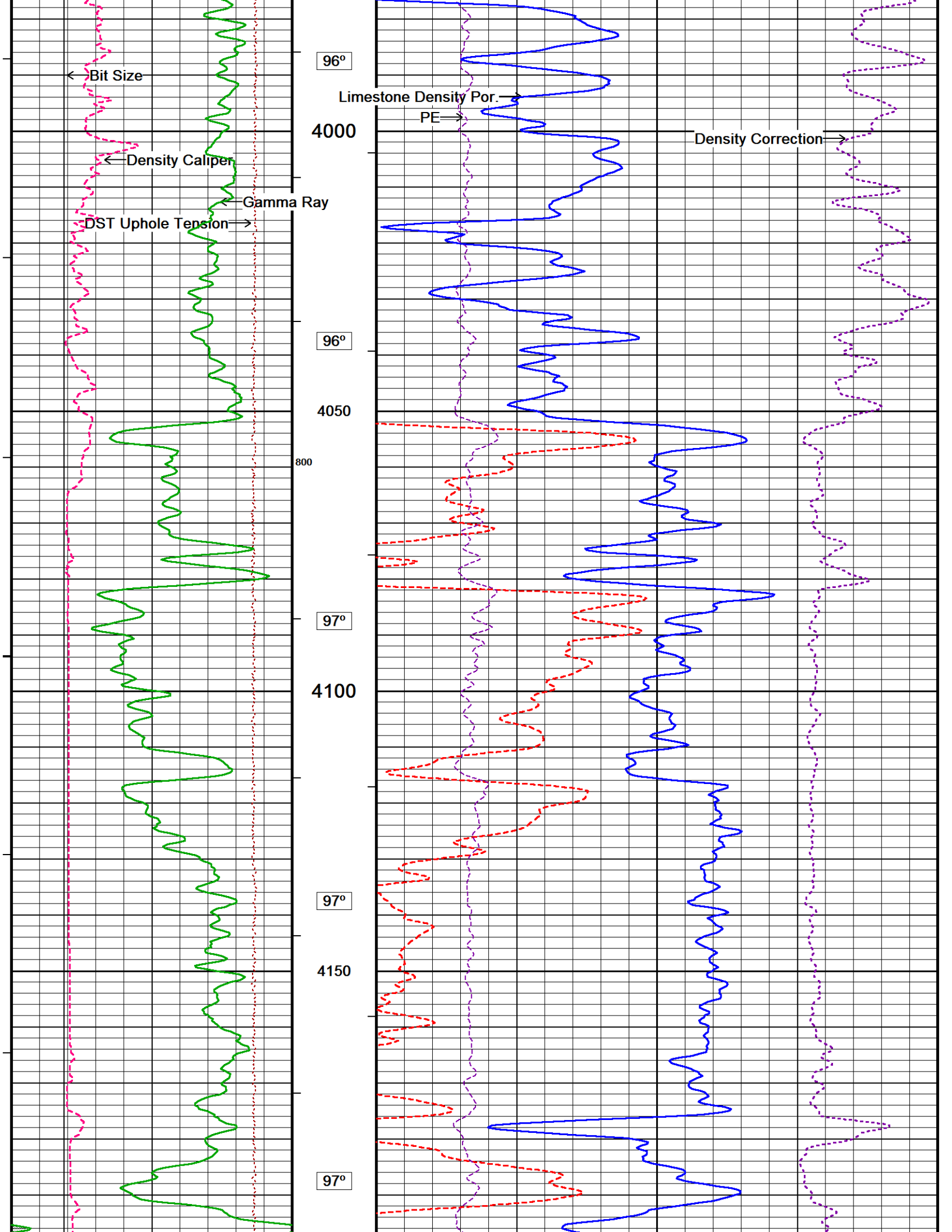


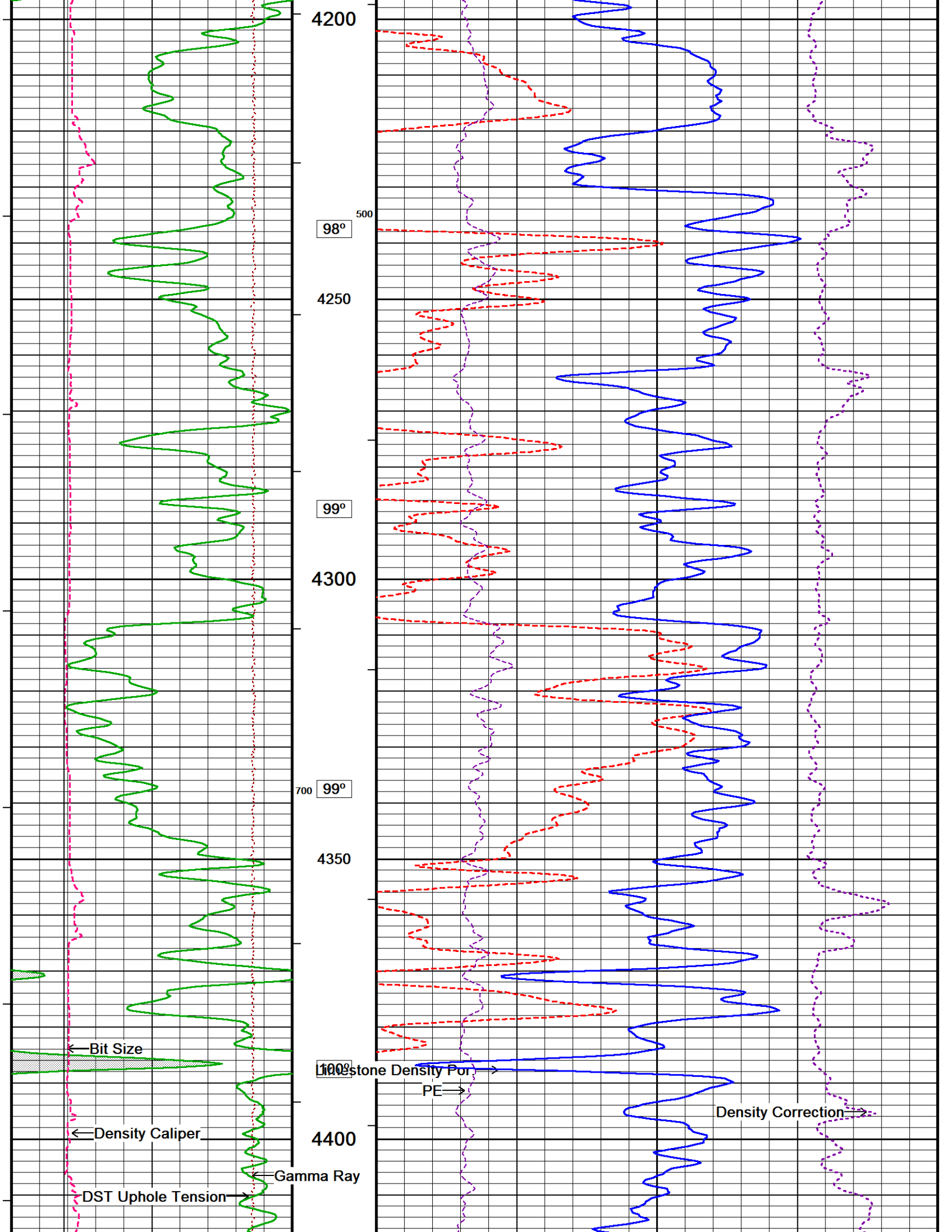

3100
91°
3150
91°
3200
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.
91°
1100
3250
92°
3300

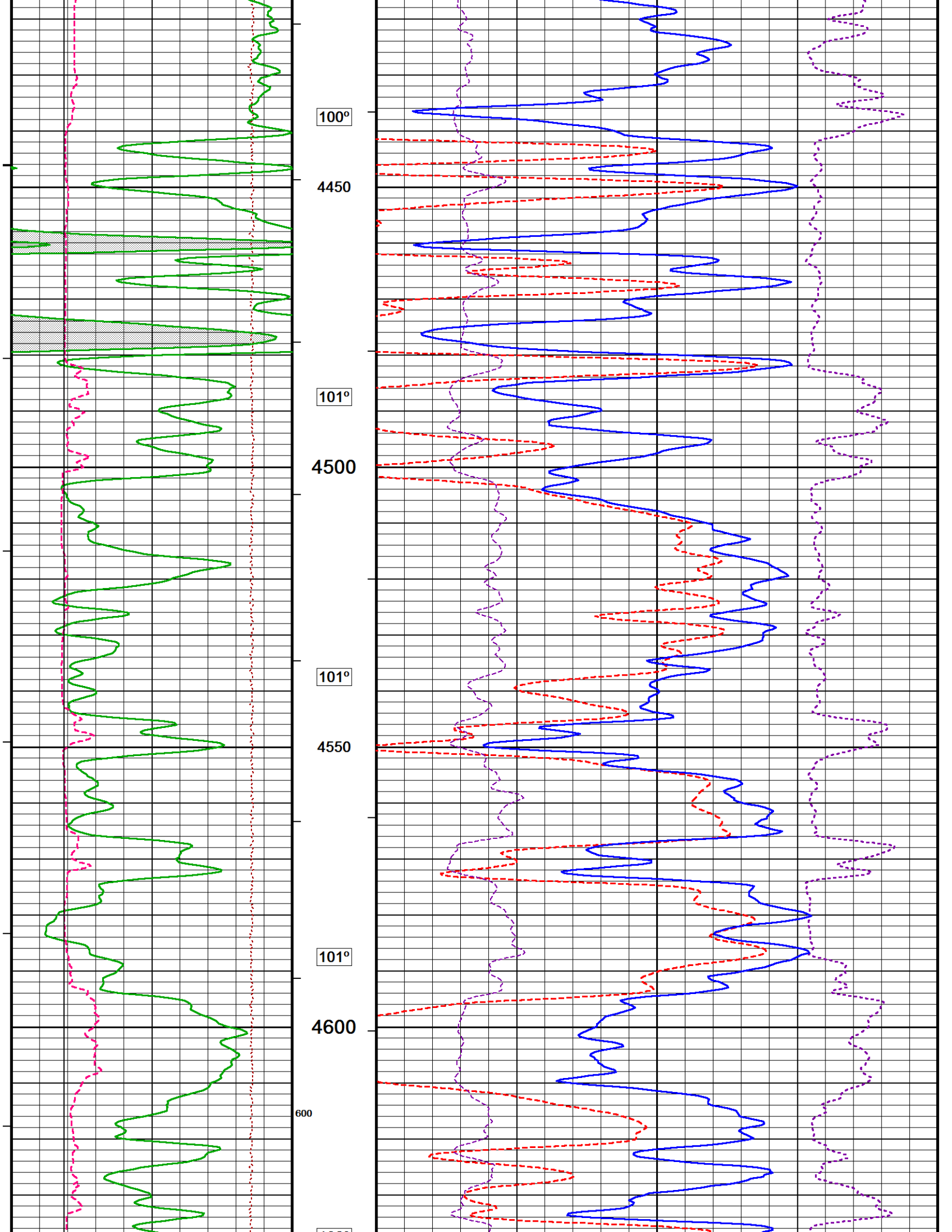

92°
3350
92°
3400
92°
3450
700
92°
3500
1000

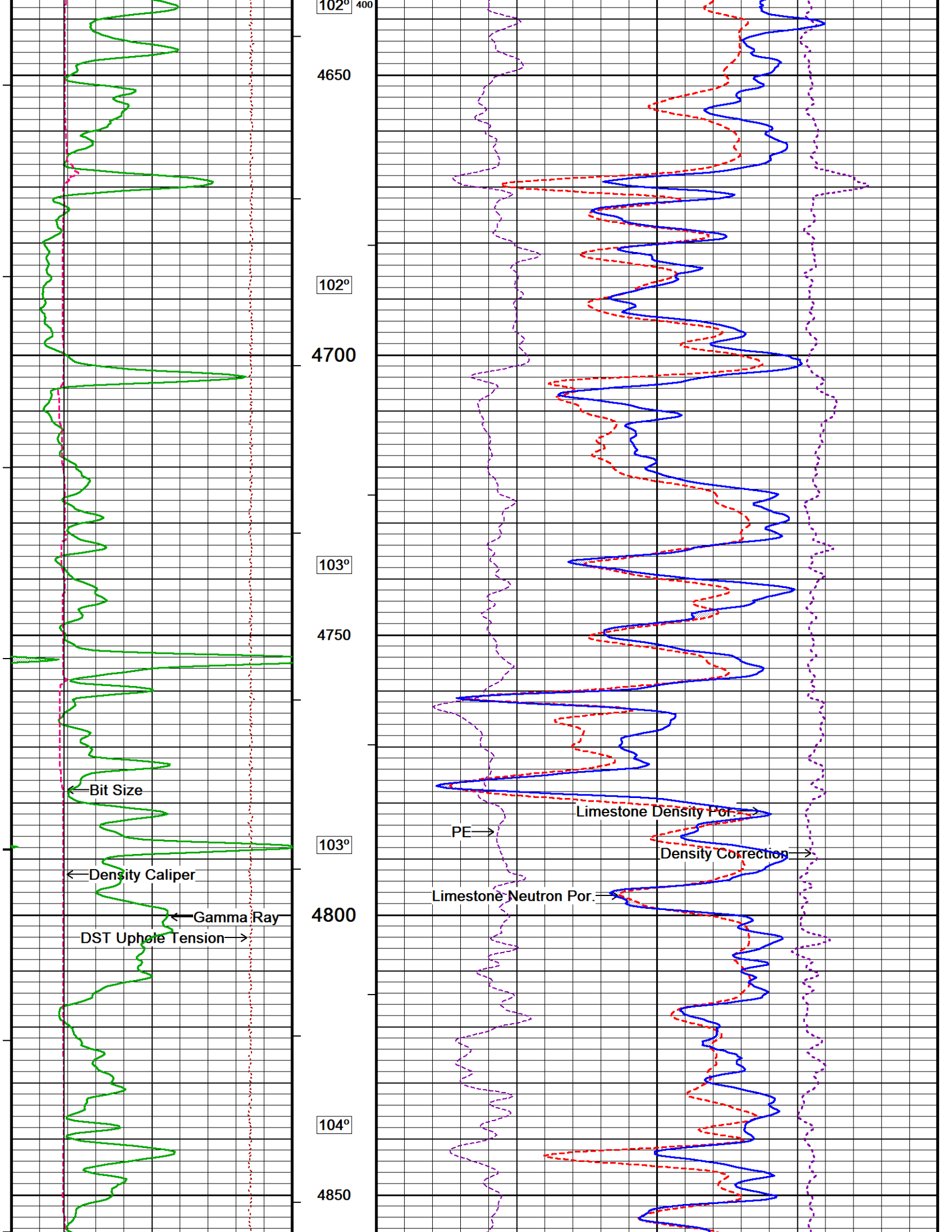

93°
3550
93°
Bit Size
3600
Limestone Density Por.
PE
Density Correction
Density Caliper
Limestone Neutron Por.
Gamma Ray
DST Uphole Tension
94°
3650
94°
3700
95°
3750

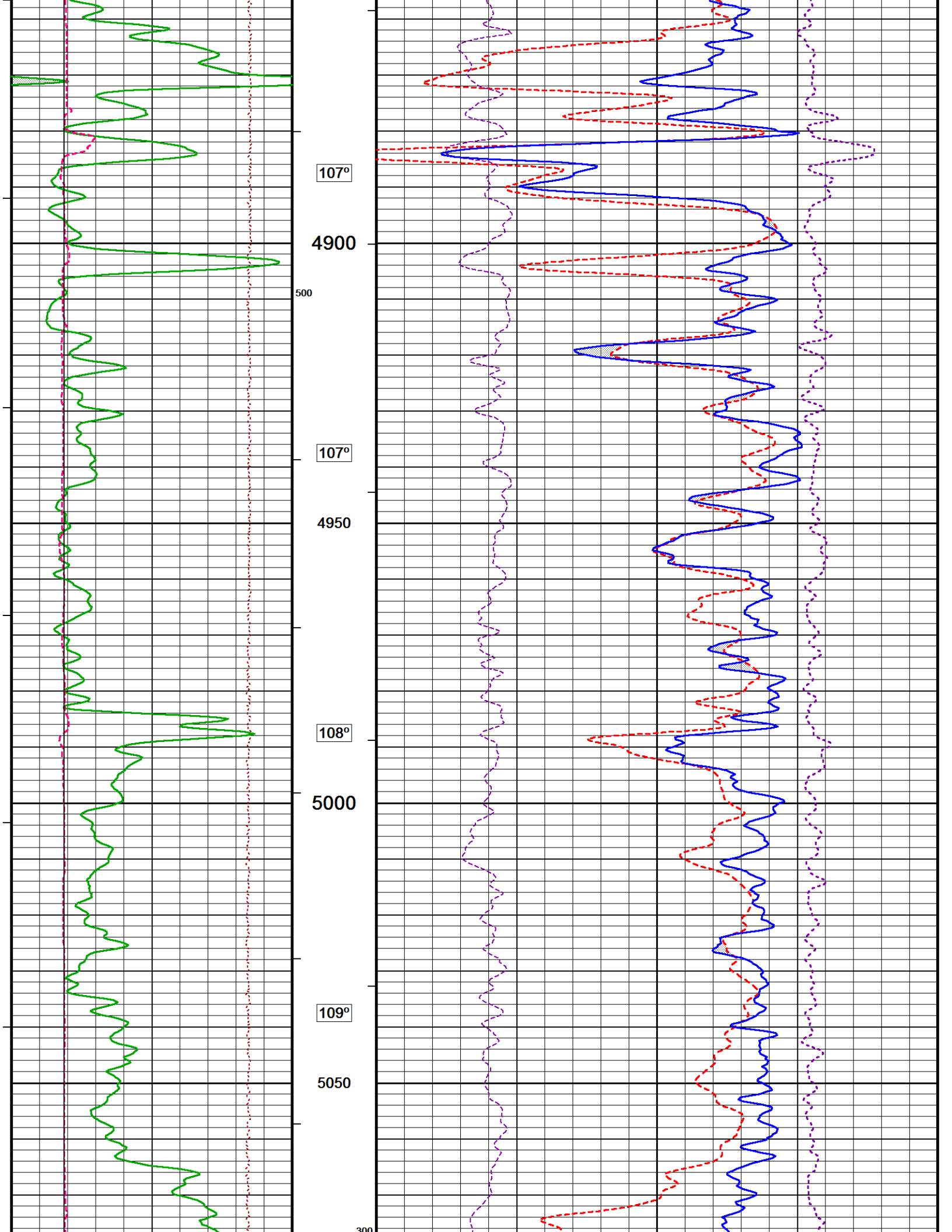

95°
900
3800
95°
3850
600
95°
3900
96°
3950

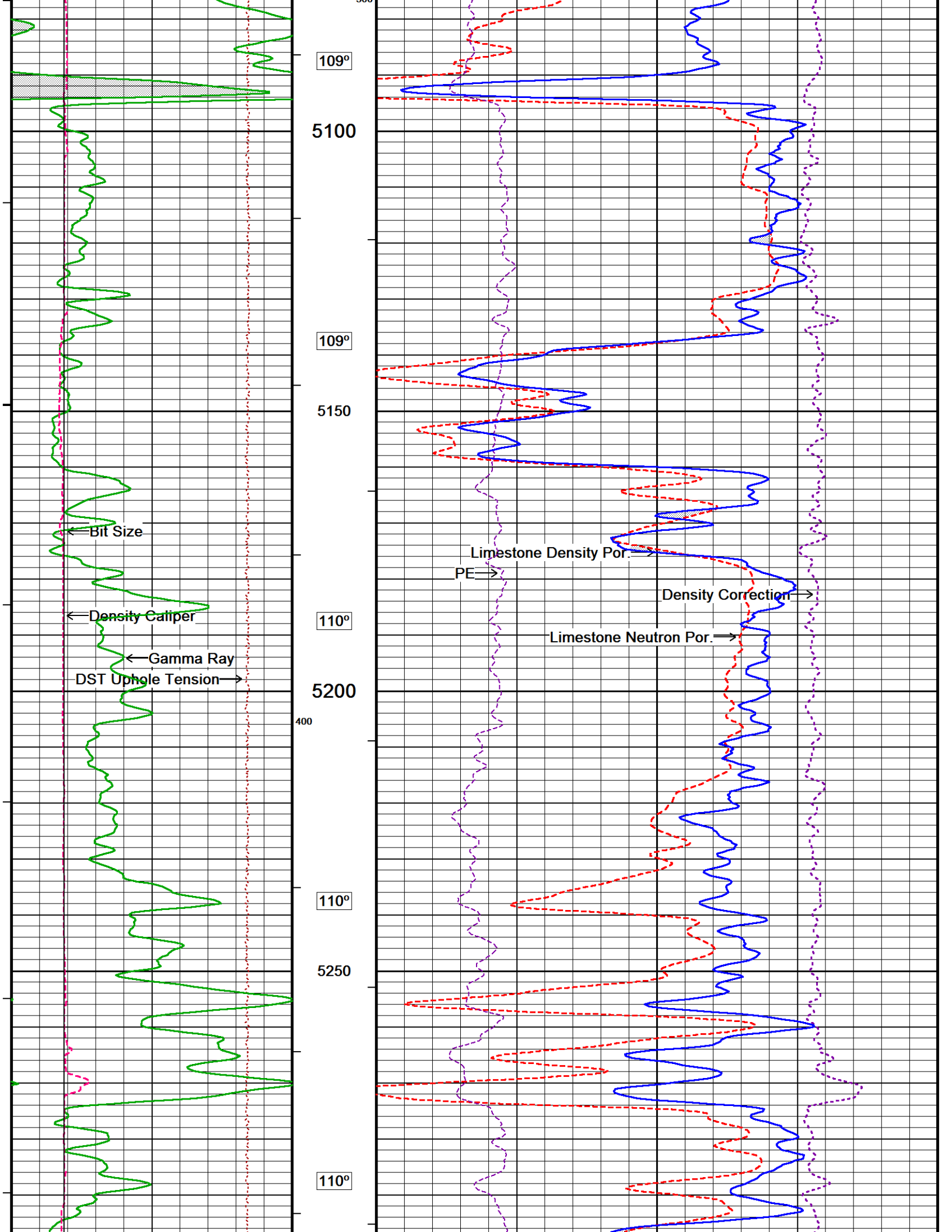

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
96°
4000
96°
4050
800
97°
4100
97°
4150
97°
Limestone Density Por.
PE
Density Correction

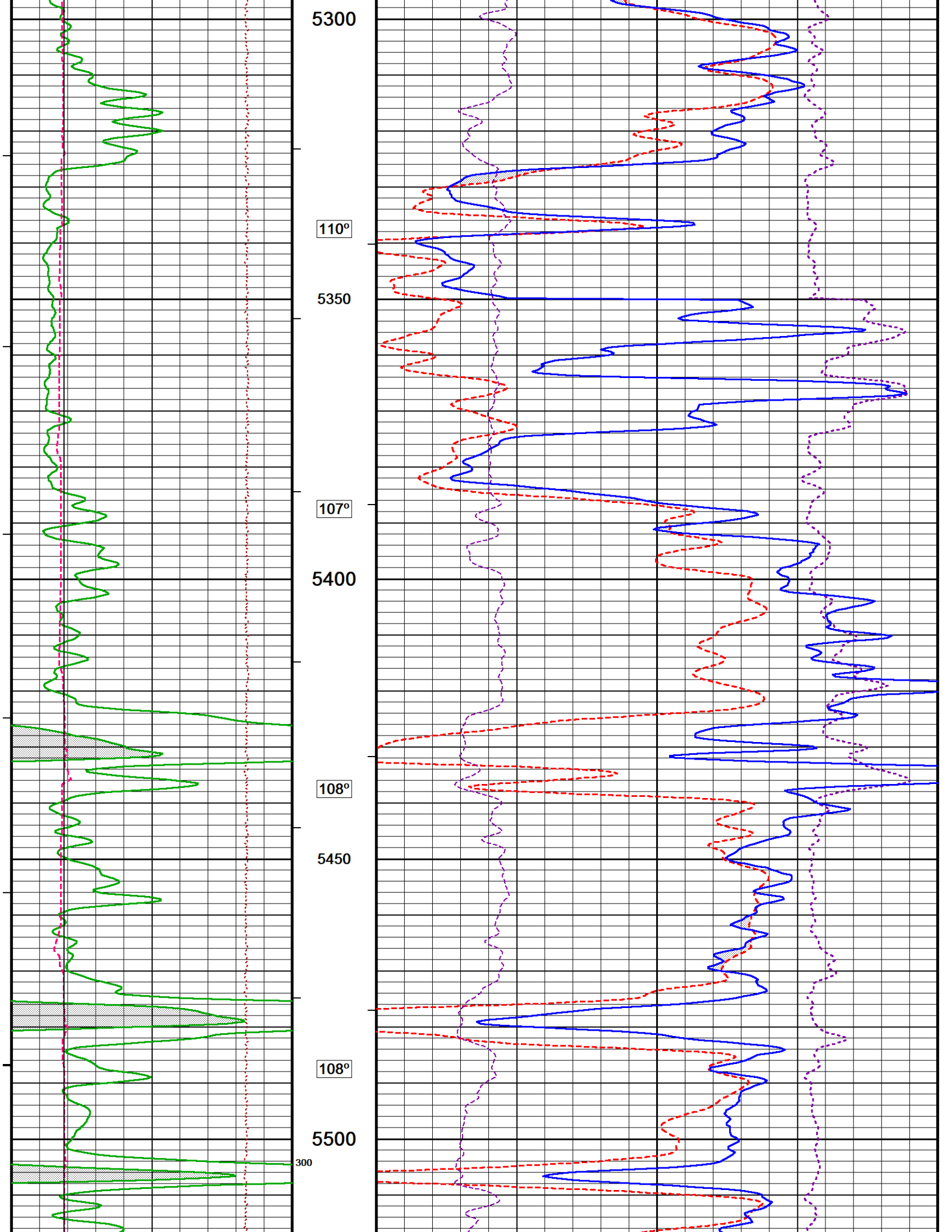

4200
500
98º
4250
99º
4300
700
99º
4350
100º
4400
Bit Size
Density Caliper
DST Uphole Tension
Gamma Ray
Limestone Density Por
PE
Density Correction

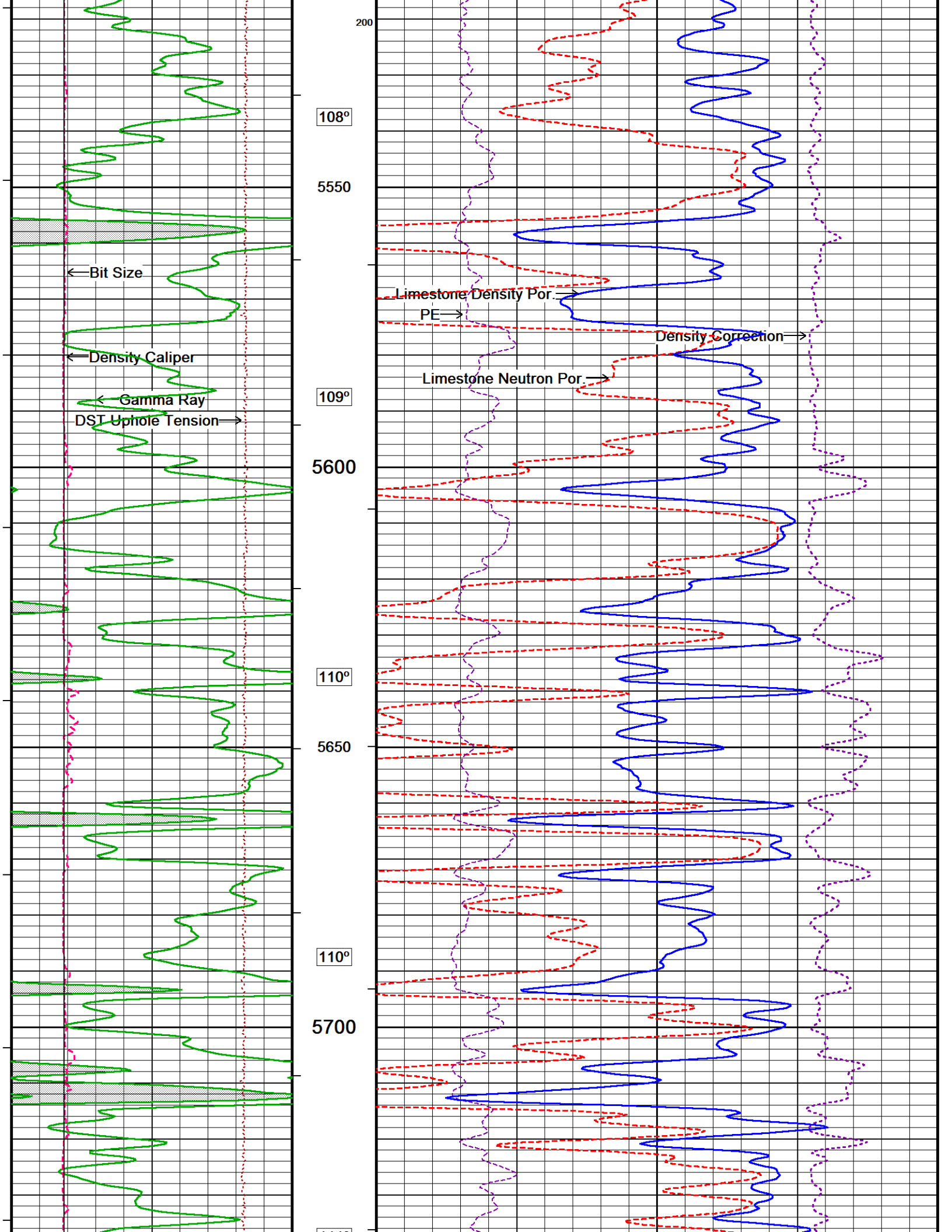

100°
4450
101°
4500
101°
4550
101°
4600
600

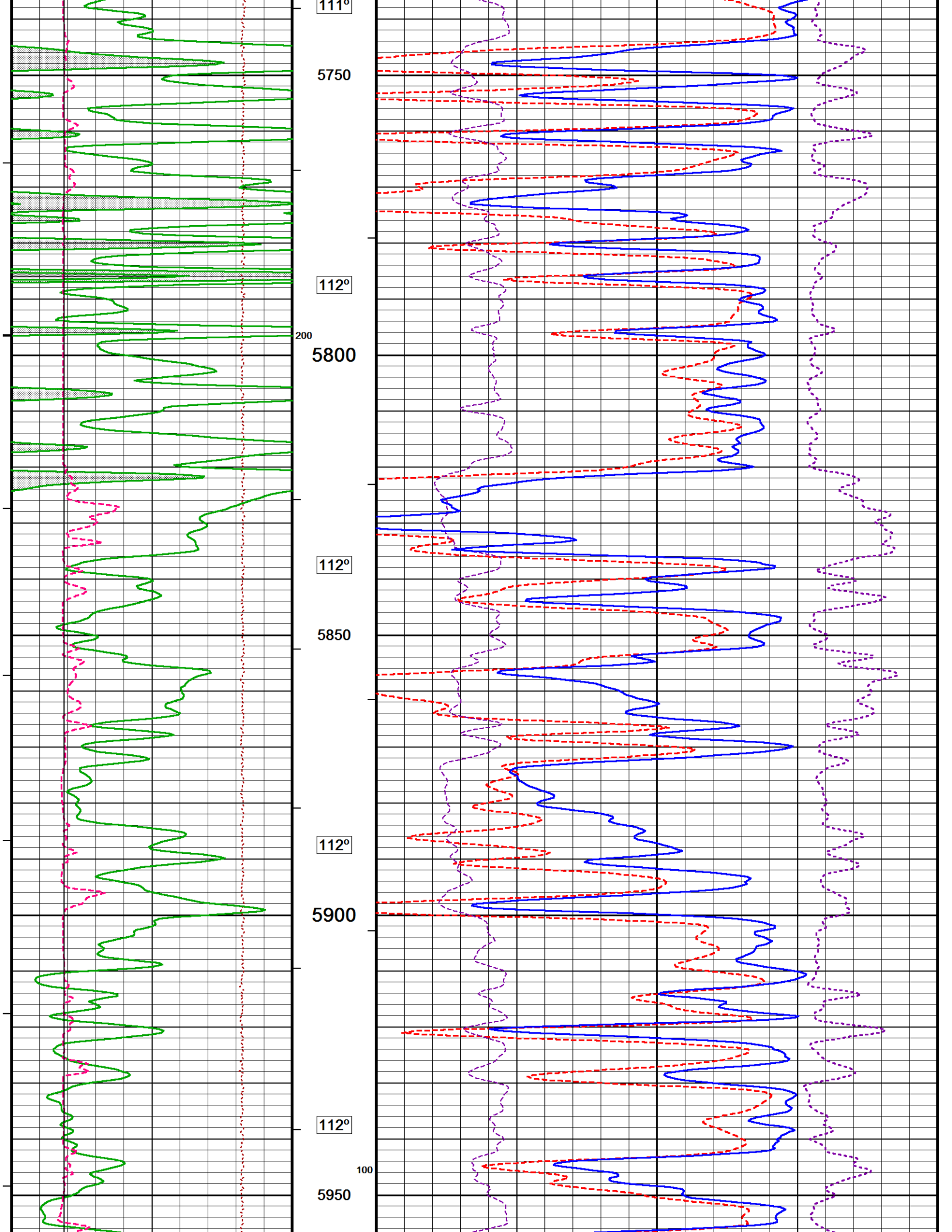

102°
400
4650
102°
4700
103°
4750
103°
4800
104°
4850
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Density Por.
Density Correction
Limestone Neutron Por.

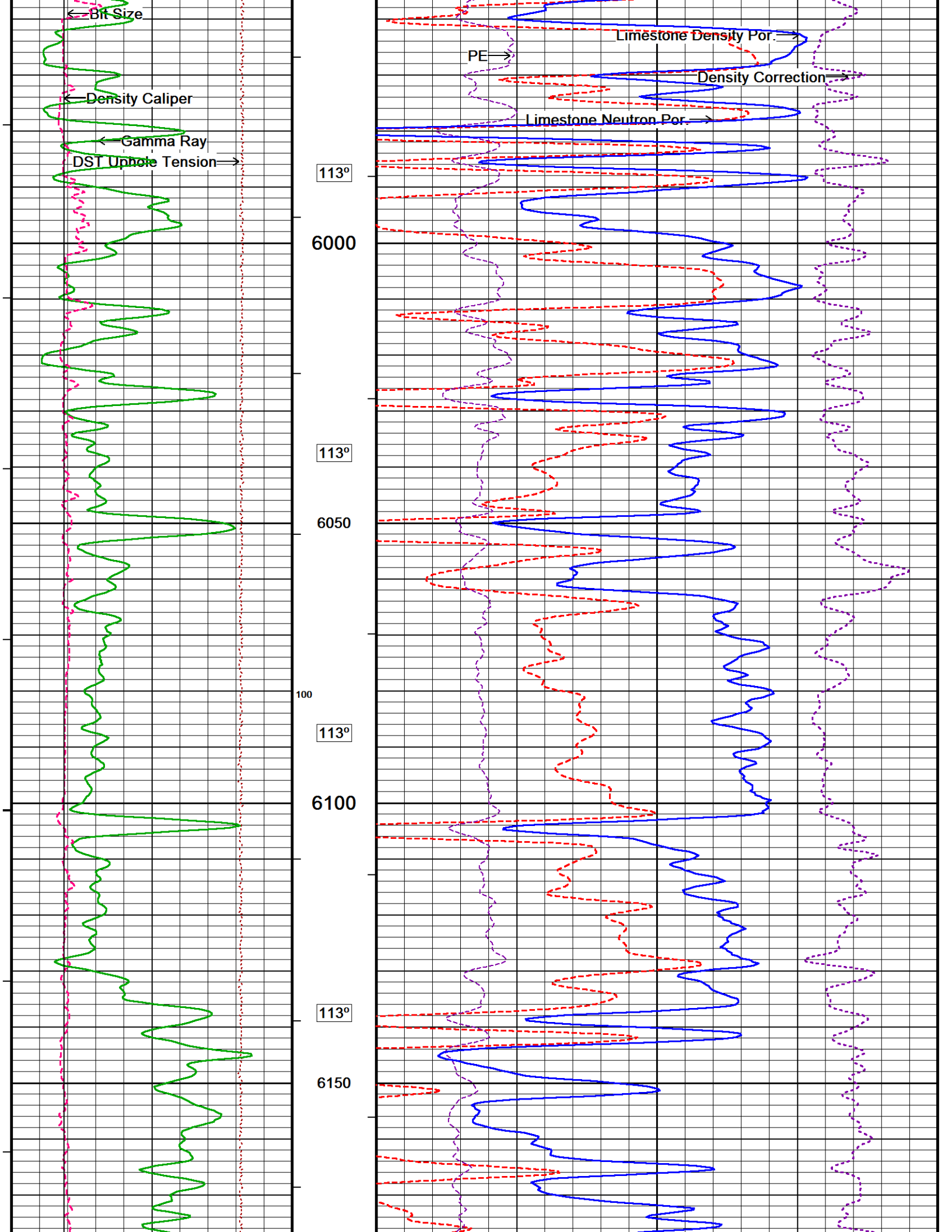

107°
4900
500
107°
4950
108°
5000
109°
5050
300

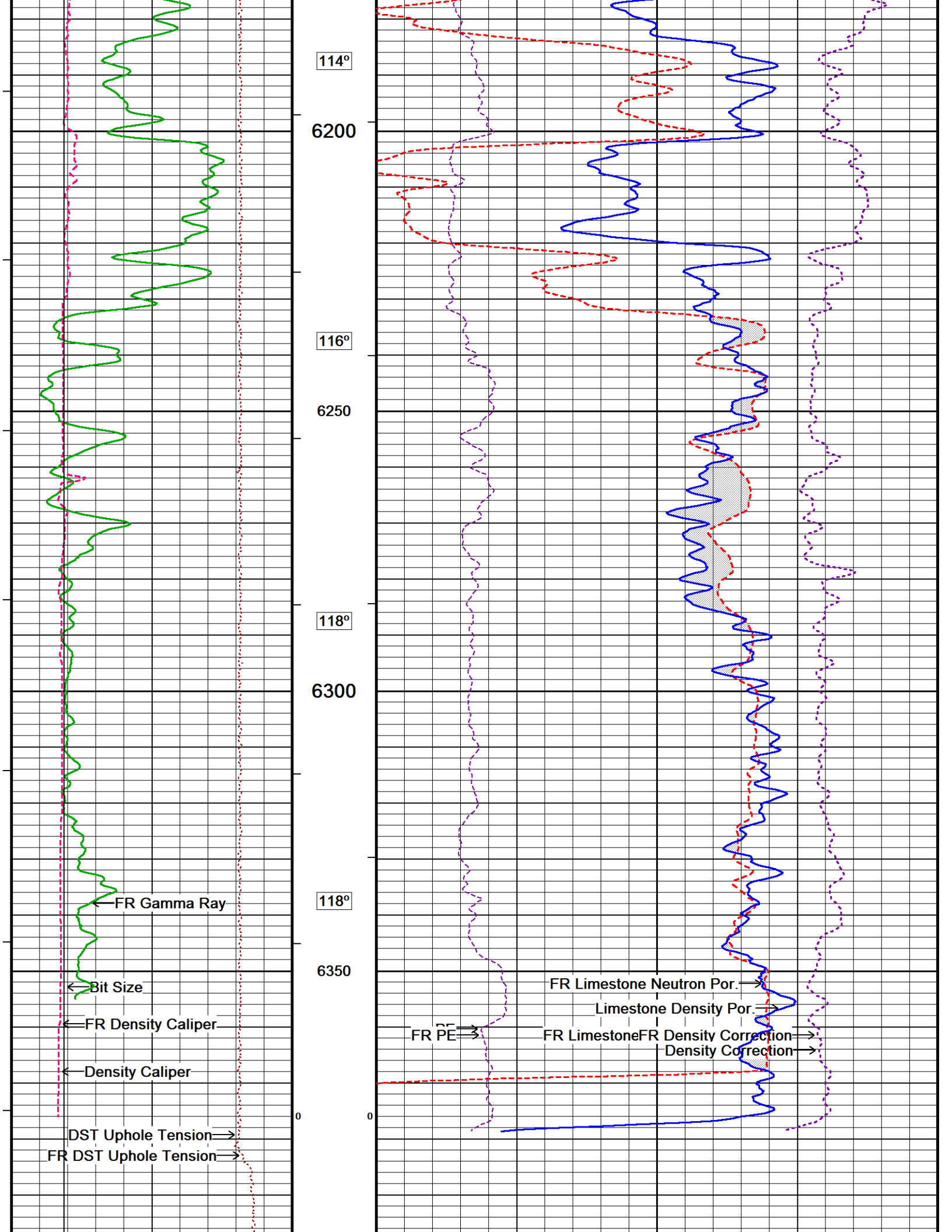

109°
5100
109°
5150
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
110°
5200
400
110°
5250
110°
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

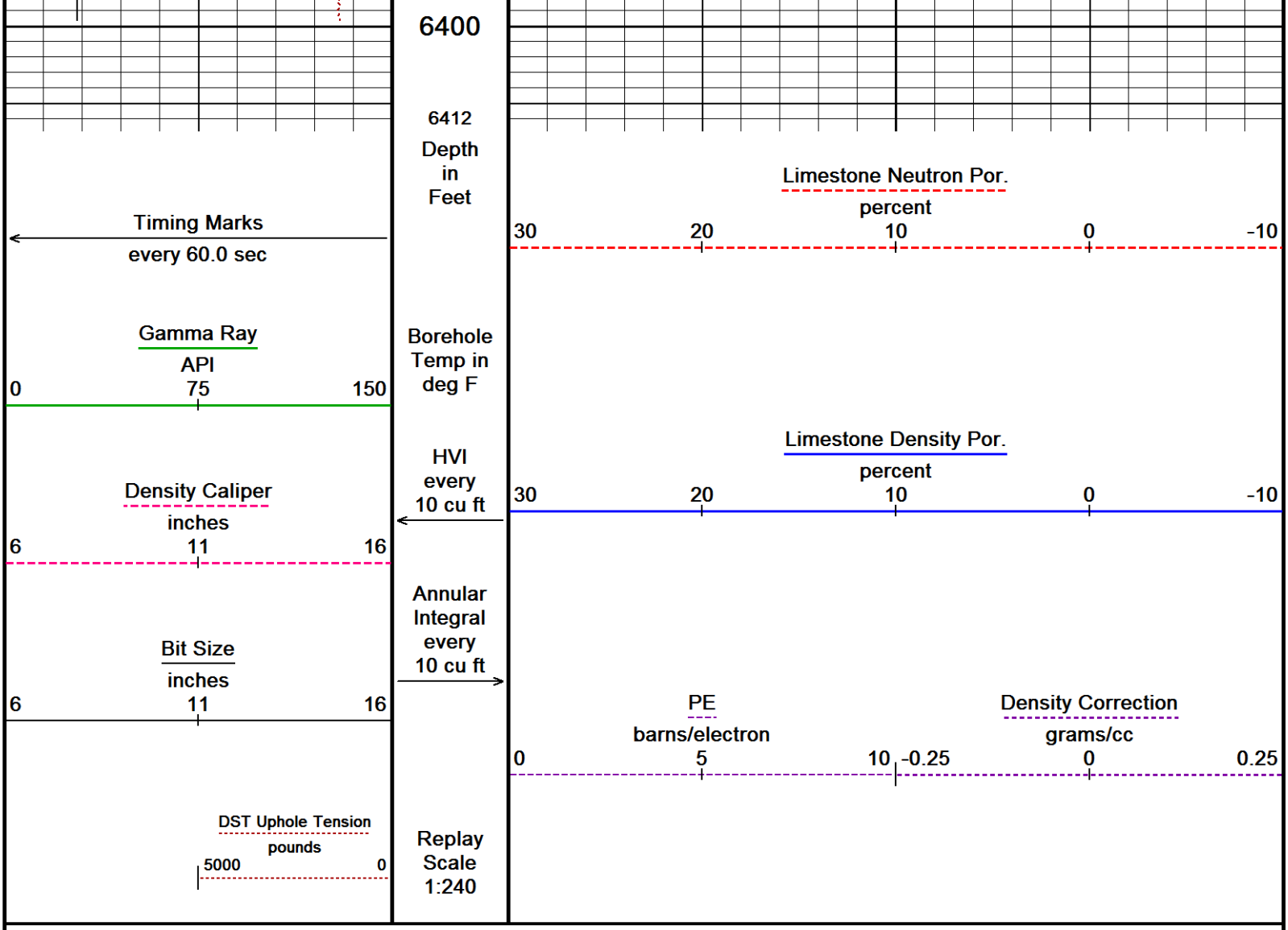

5300
110°
5350
107°
5400
108°
5450
108°
5500
300


200
108°
5550
Bit Size
Limestone Density Por.
PE
Density Correction
Density Caliper
Limestone Neutron Por.
109°
Gamma Ray
DST Uphole Tension
5600
110°
5650
110°
5700


111°
5750
112°
200
5800
112°
5850
112°
5900
112°
100
5950


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Density Por.
Density Correction
Limestone Neutron Por.
113°
6000
113°
6050
100
113°
6100
113°
6150


114°
6200
116°
6250
118°
6300
118°
6350
FR Gamma Ray
Bit Size
FR Density Caliper
Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
FR PE
FR Limestone Neutron Por.
Limestone Density Por.
FR LimestoneFR Density Correction
Density Correction

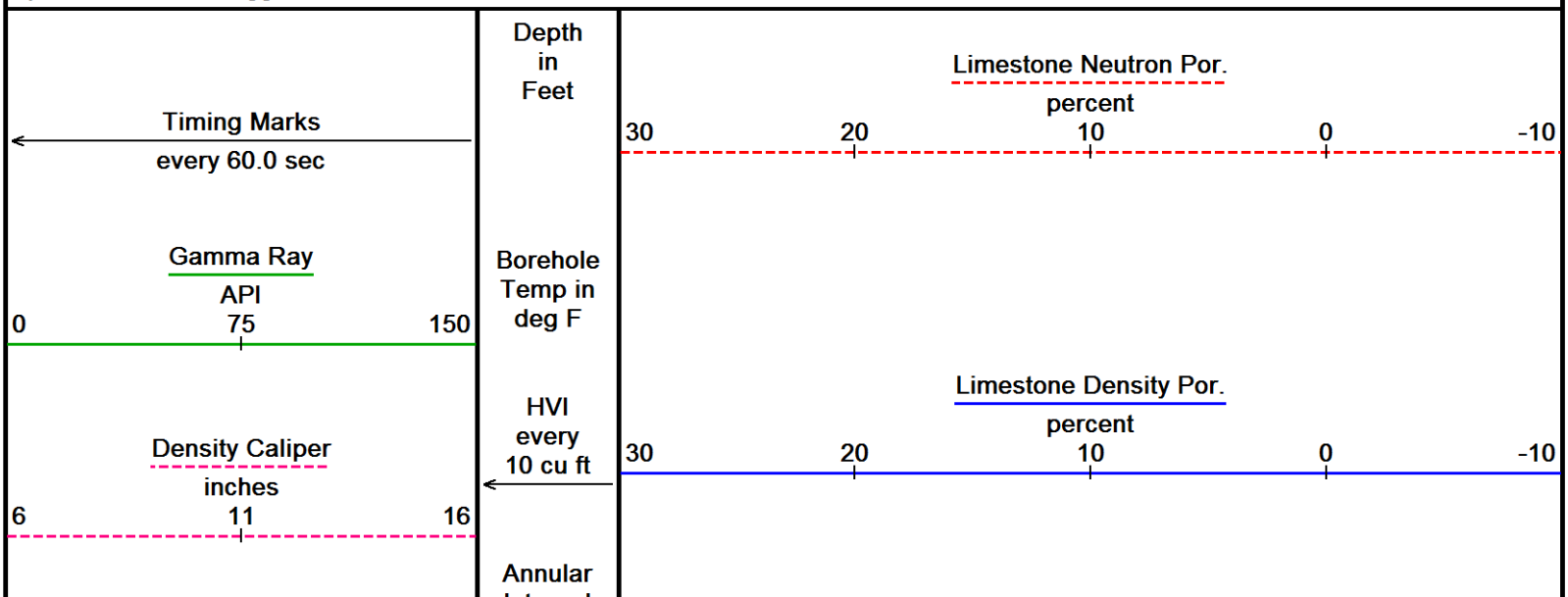


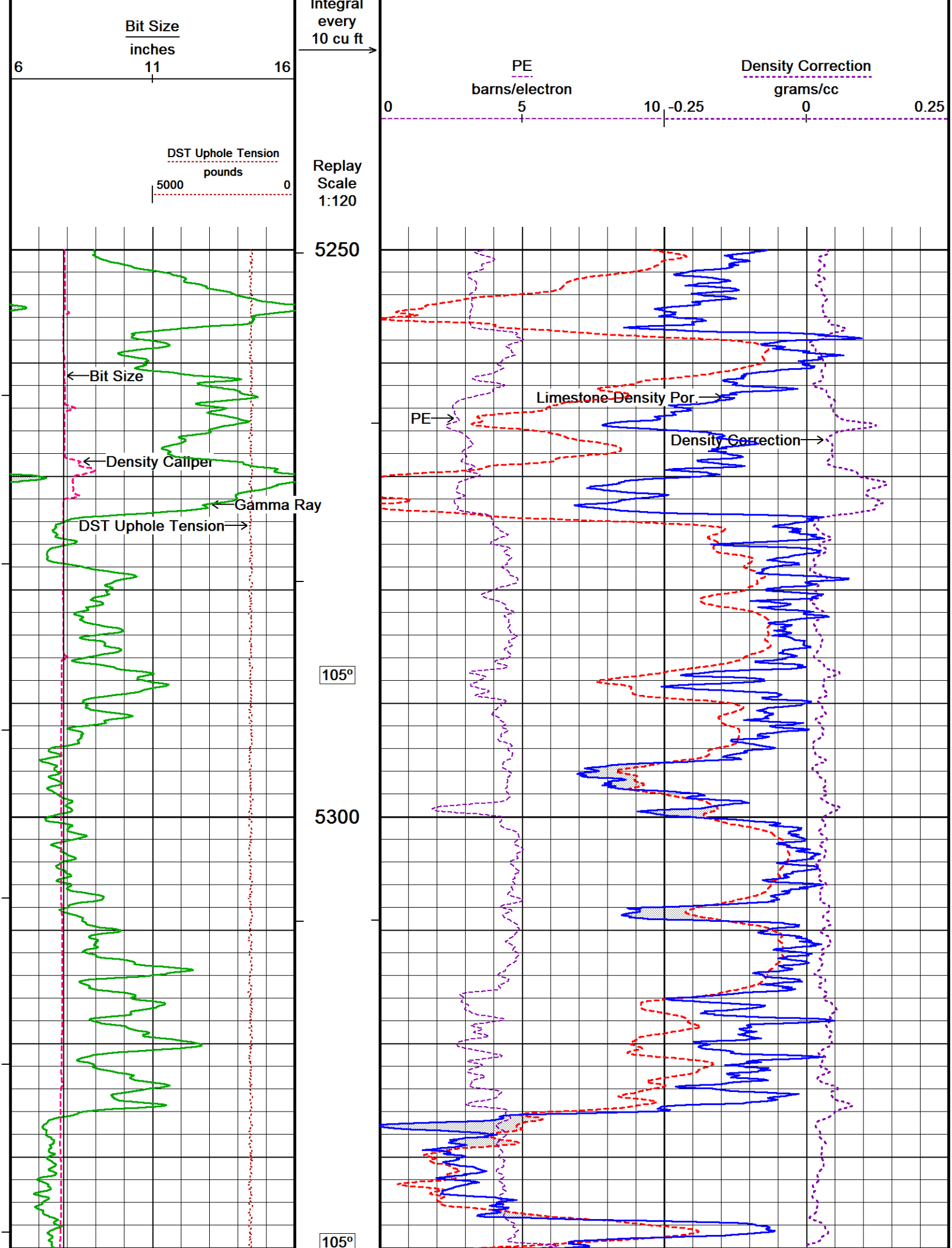
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'Brien Hull #2-11 Splice2.dta
Recorded on 13-FEB-2011 18:15
System Versions: Plotted with 11.02.2164

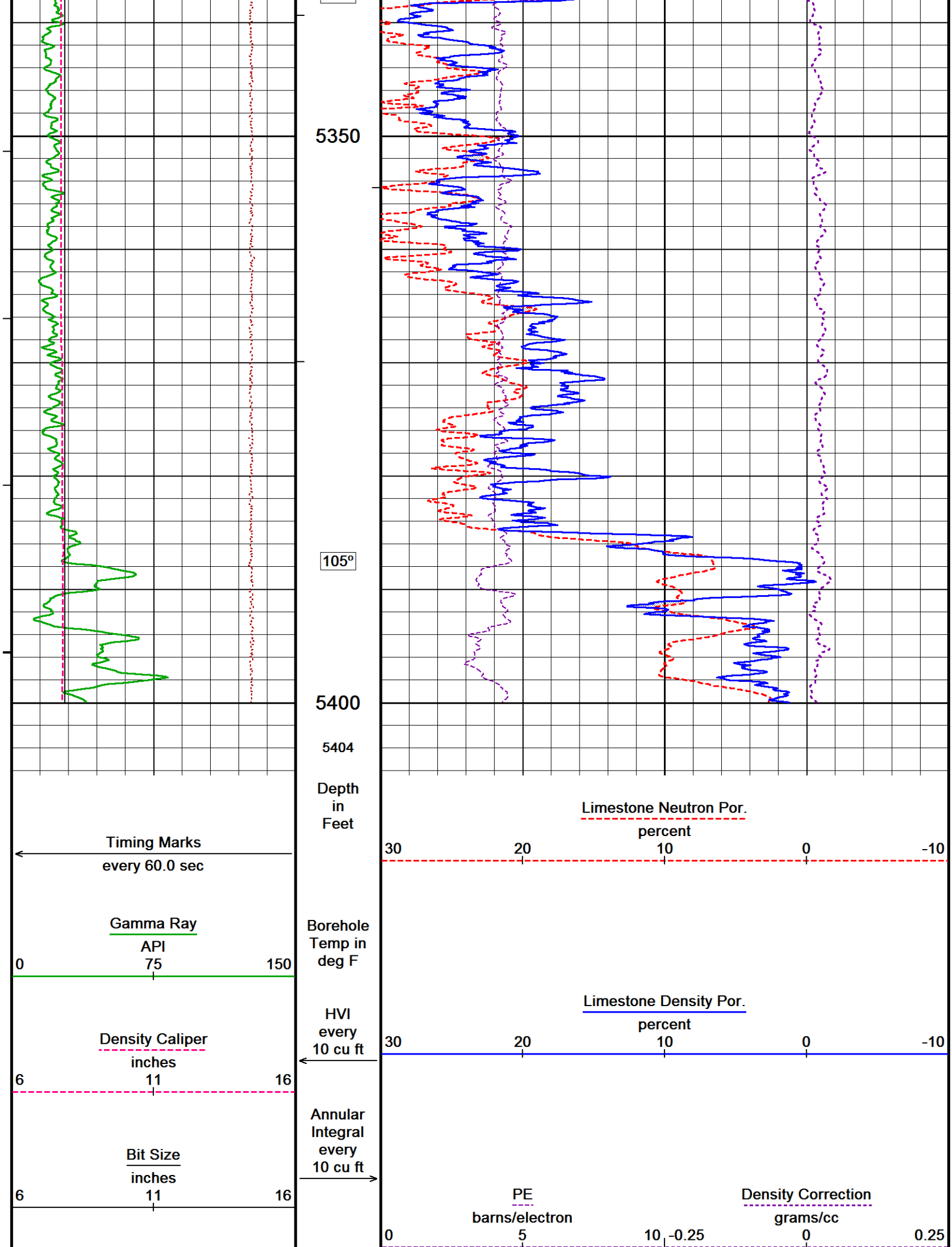
5 INCH MAIN PASS

10 INCH HI-RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_004.dta
Recorded on 13-FEB-2011 17:48
System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164




Bit Size
inches
6
11
16
Integral
every
10 cu ft
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:120
5250
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Density Por.
Density Correction
105°
5300
105°


5350
105°
5400
5404
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
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
-0.25
0
0.25

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_004.dta
System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164

Plotted on 08-MAR-2011 15:39
Recorded on 13-FEB-2011 17:48

10 INCH HI-RES

10 INCH HI-RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_002.dta
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

Plotted on 08-MAR-2011 15:39
Recorded on 13-FEB-2011 17:17

Timing Marks
every 60.0 sec

Depth
in
Feet

Limestone Neutron Por.
percent
30 20 10 0 -10

Gamma Ray
API
0 75 150

Borehole
Temp in
deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI
every
10 cu ft

Density Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Bit Size
inches
6 11 16

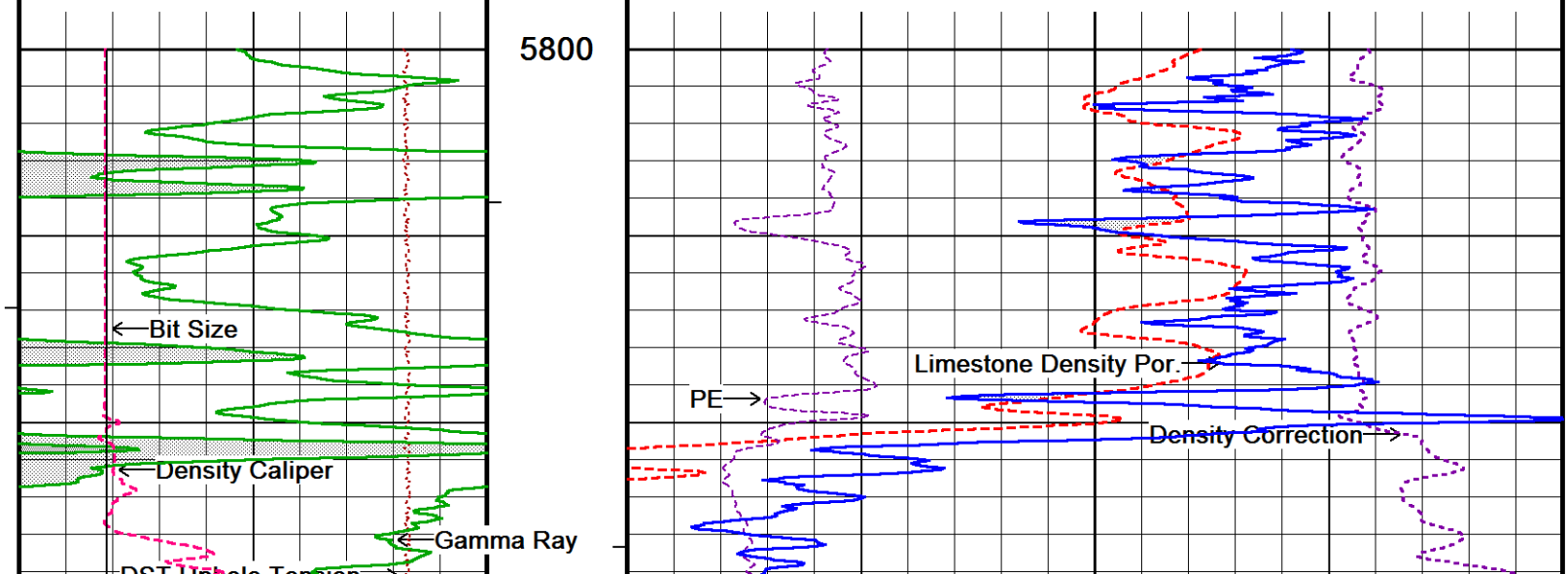
PE
barns/electron
0 5 10

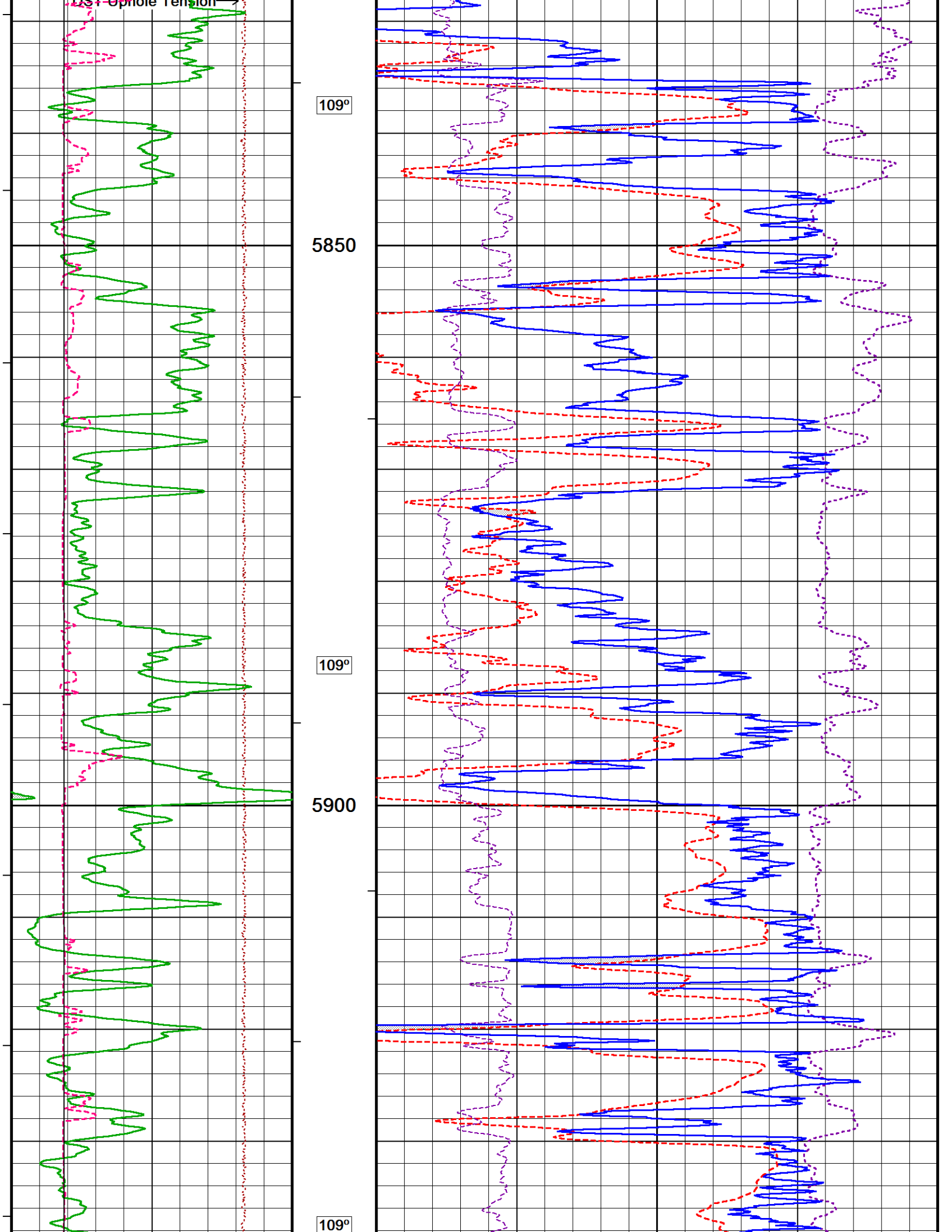
Density Correction
grams/cc
-0.25 0 0.25

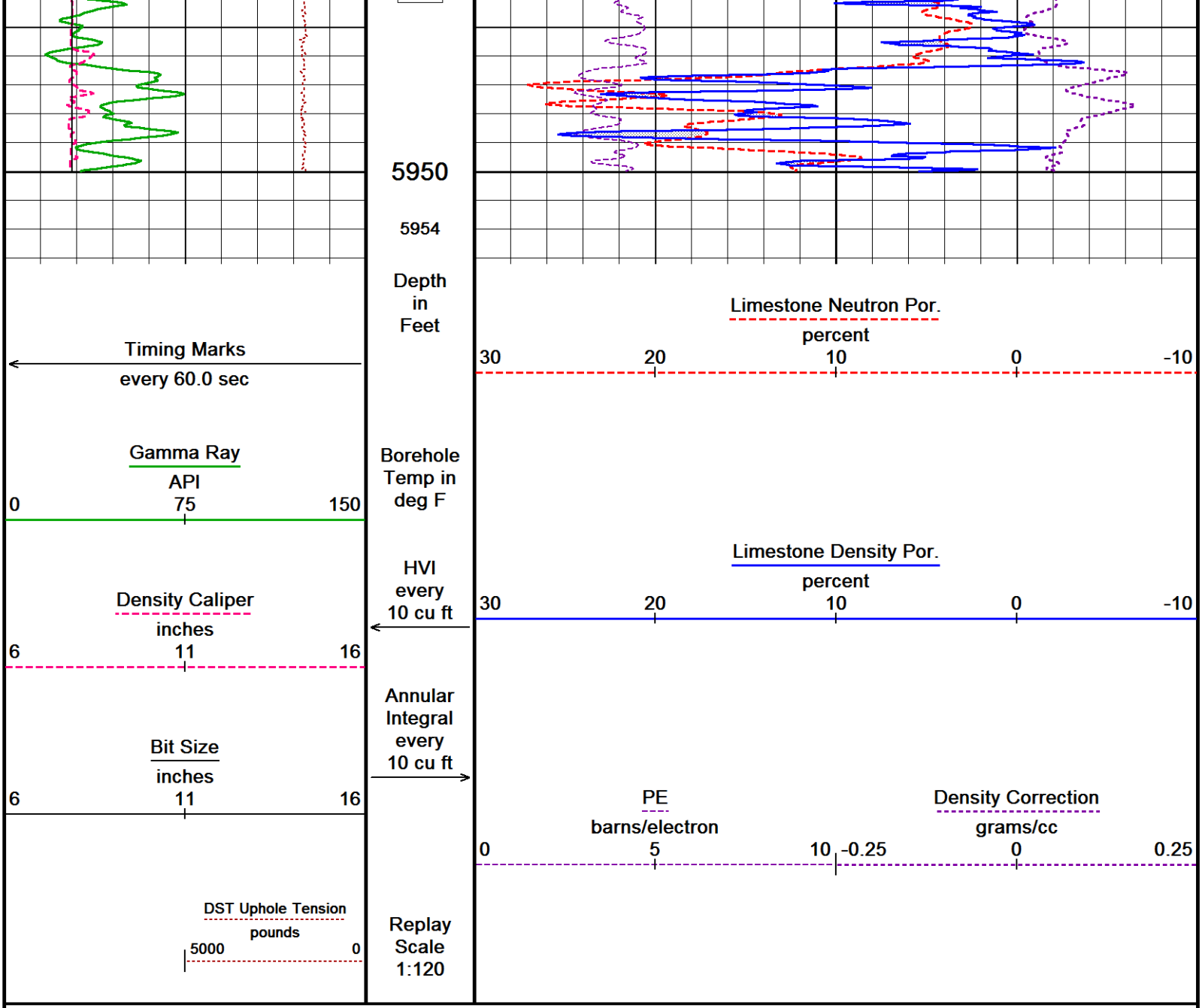
DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

5800




DS1 Uphole Tension
109°
5850
109°
5900
109°



Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_002.dta
Recorded on 13-FEB-2011 17:17
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

10 INCH HI-RES

5 INCH REPEAT PASS

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-MAR-2011 15:39
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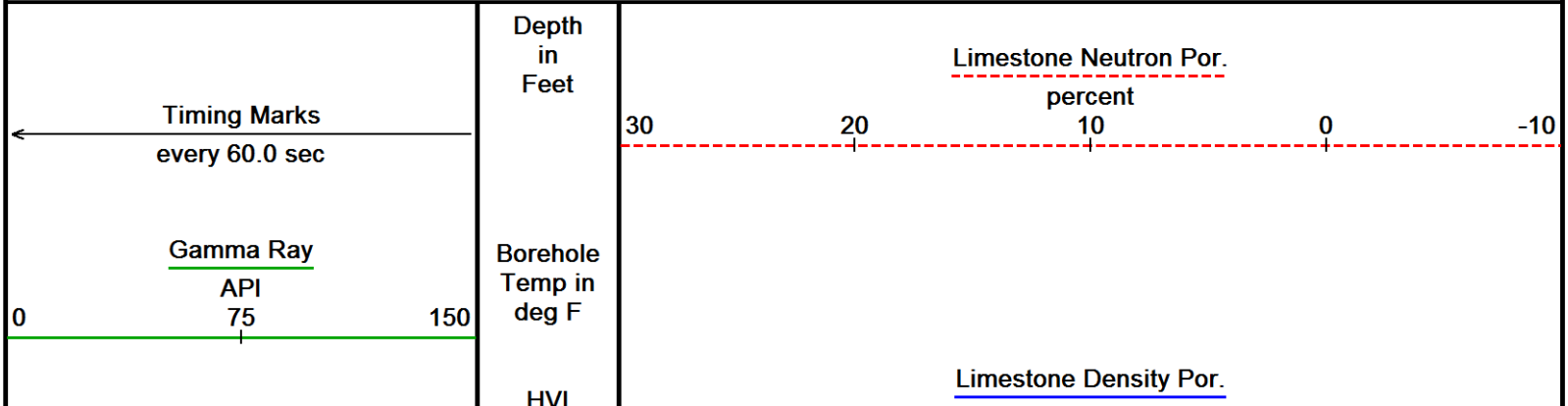
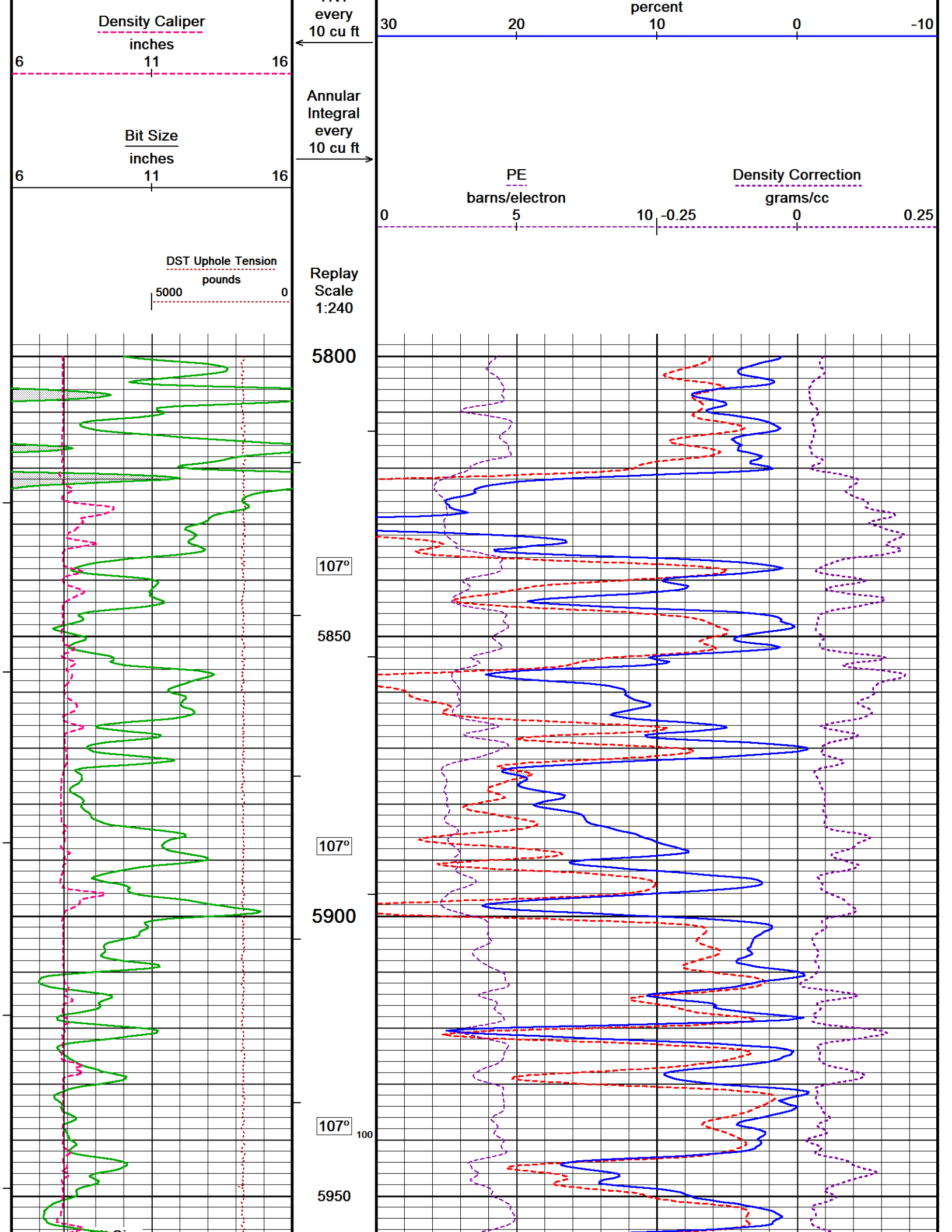
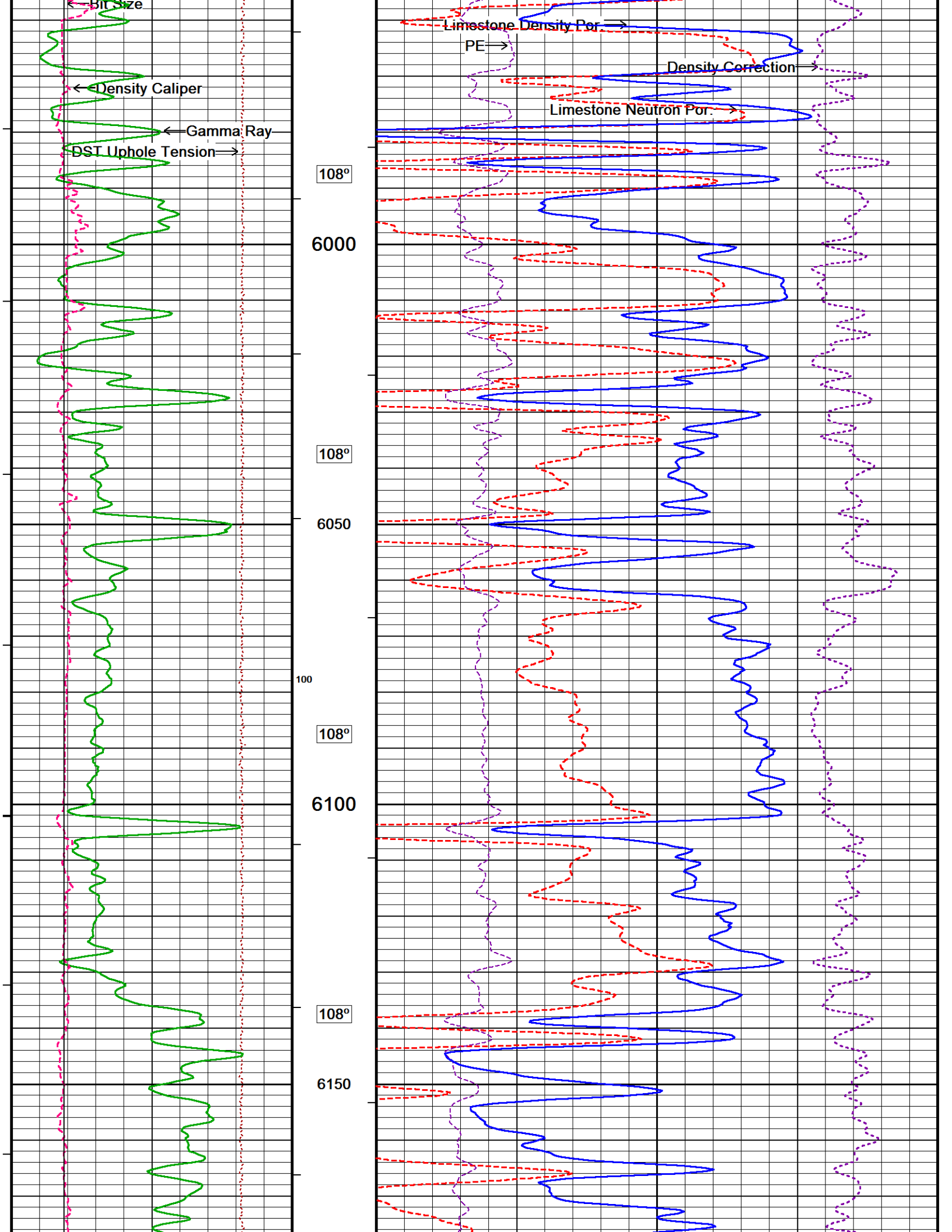
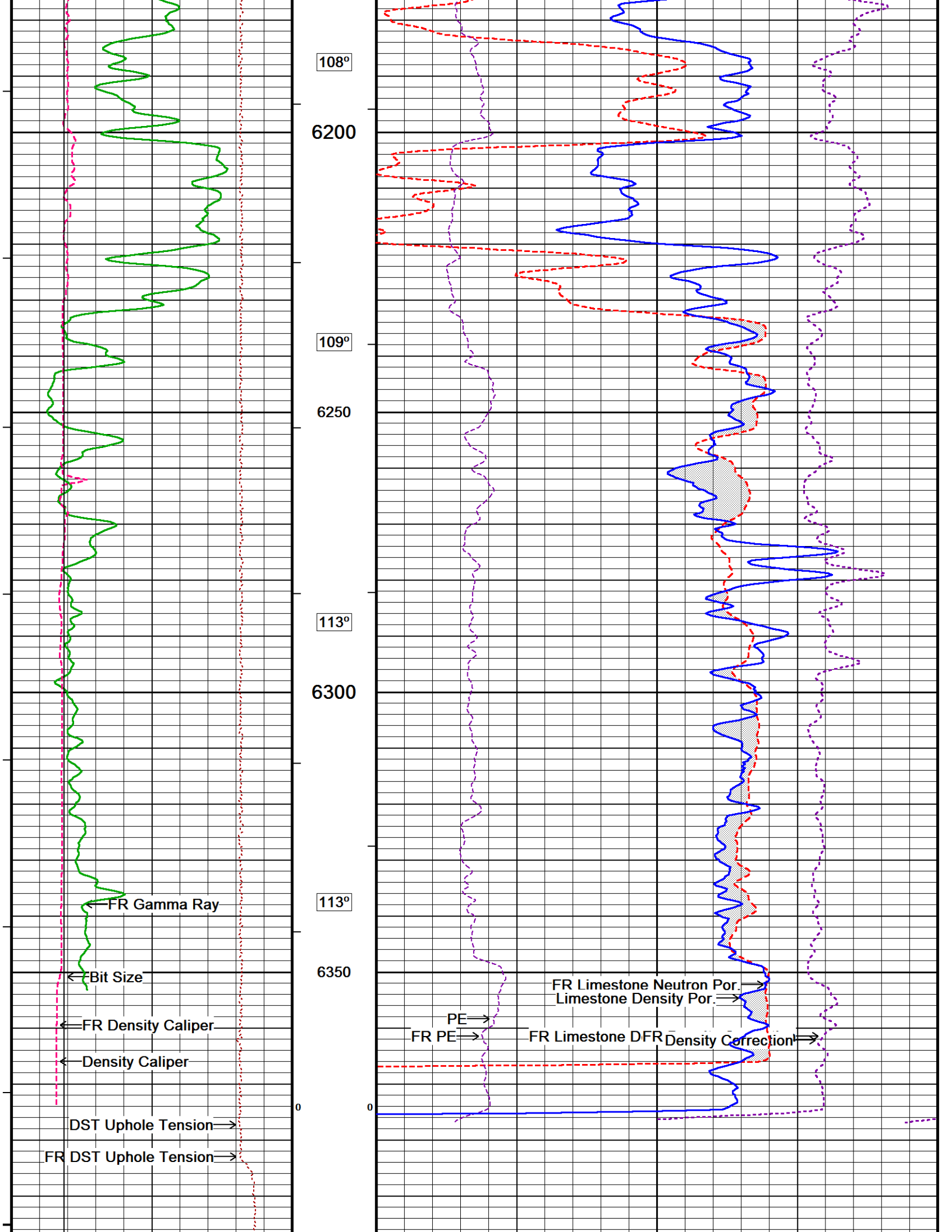
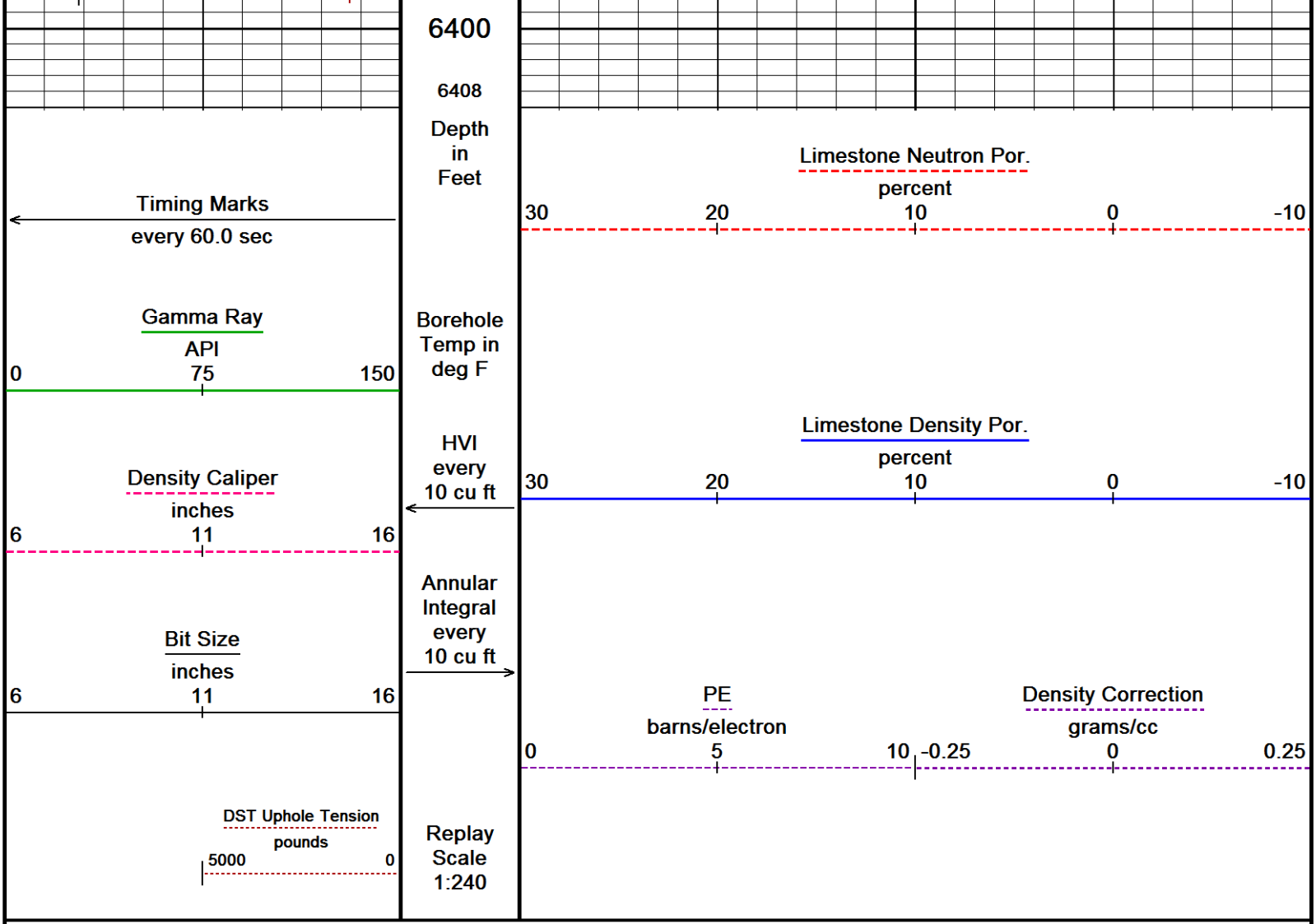



Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:240
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
5800
107°
5850
107°
5900
107°
100
5950


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por
PE
Density Correction
Limestone Neutron Por
108°
6000
108°
6050
100
108°
6100
108°
6150


108°
6200
109°
6250
113°
6300
113°
6350
FR Gamma Ray
Bit Size
FR Density Caliper
Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
PE
FR PE
FR Limestone Neutron Por.
Limestone Density Por.
FR Limestone DFR
Density Correction

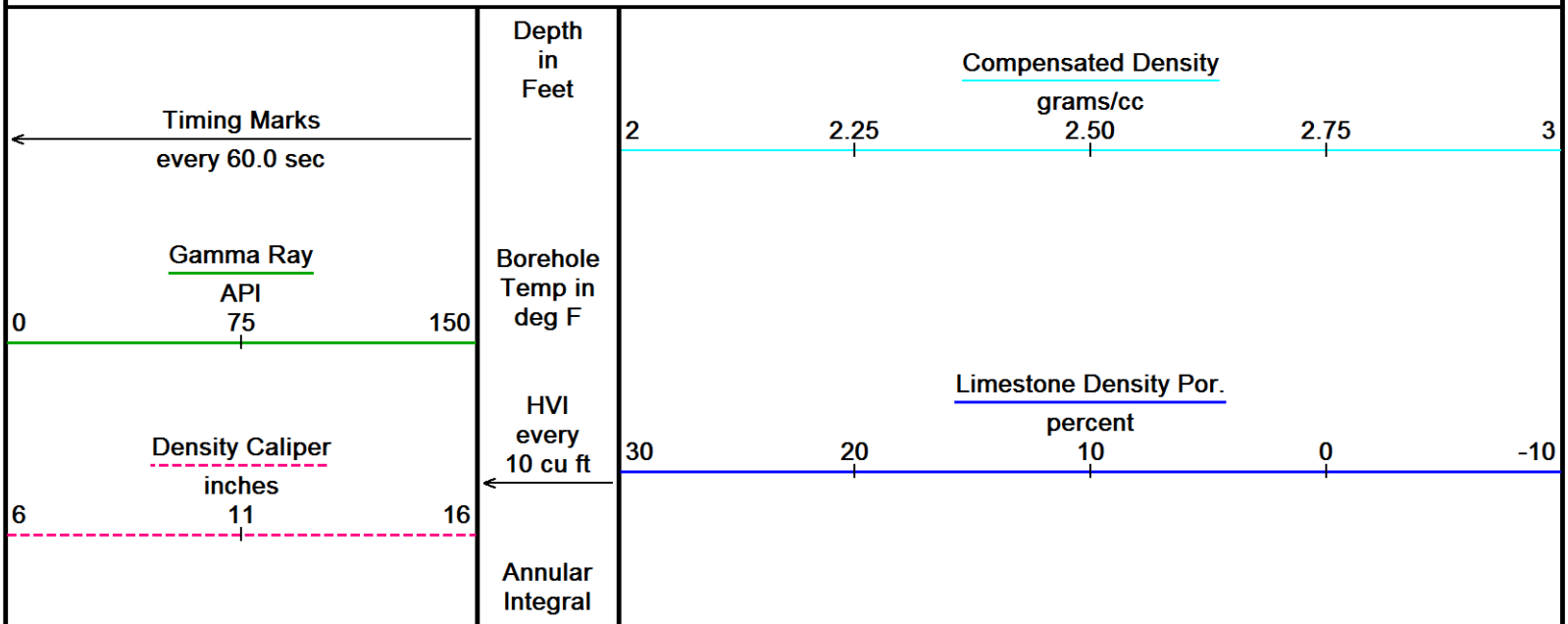


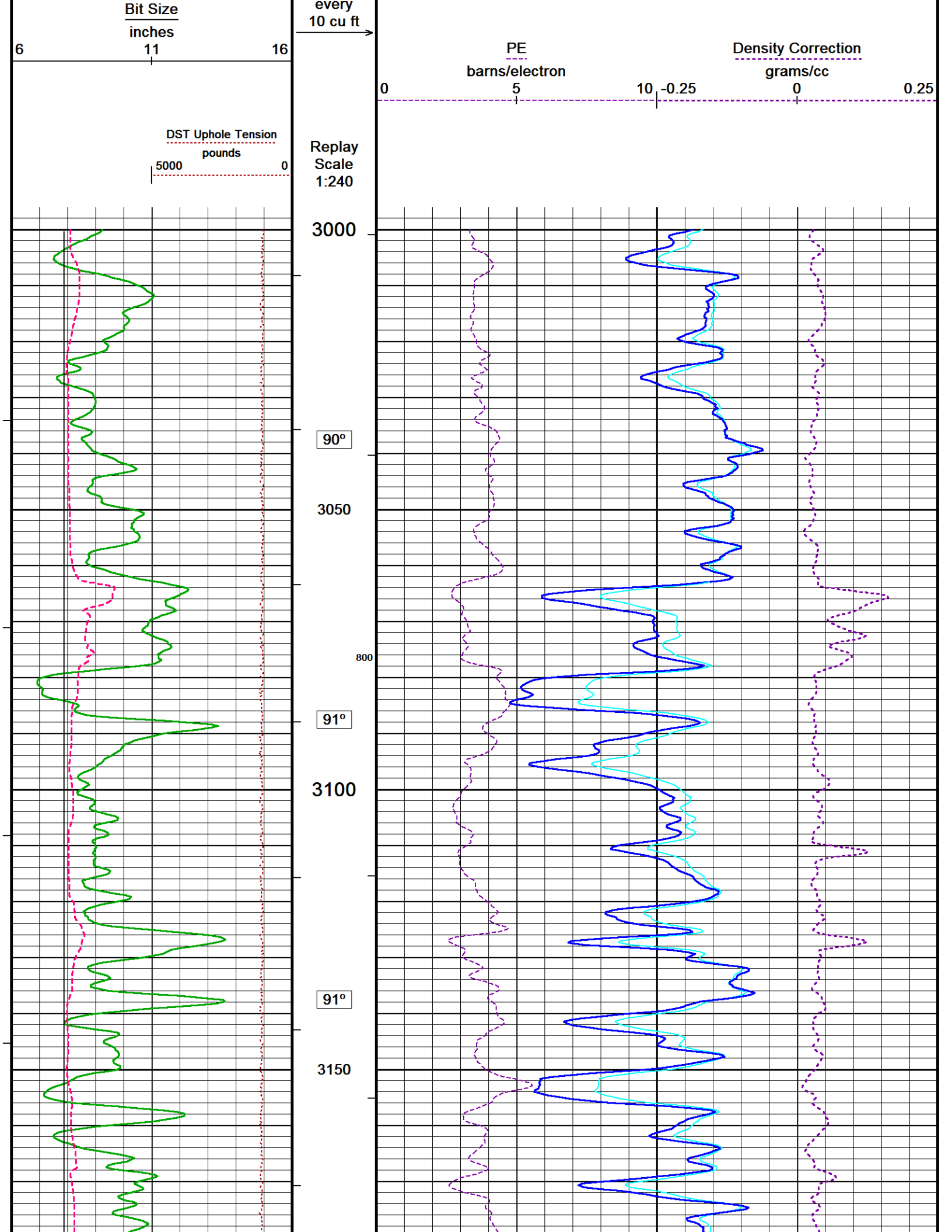
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_001.dta
Recorded on 13-FEB-2011 16:44
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

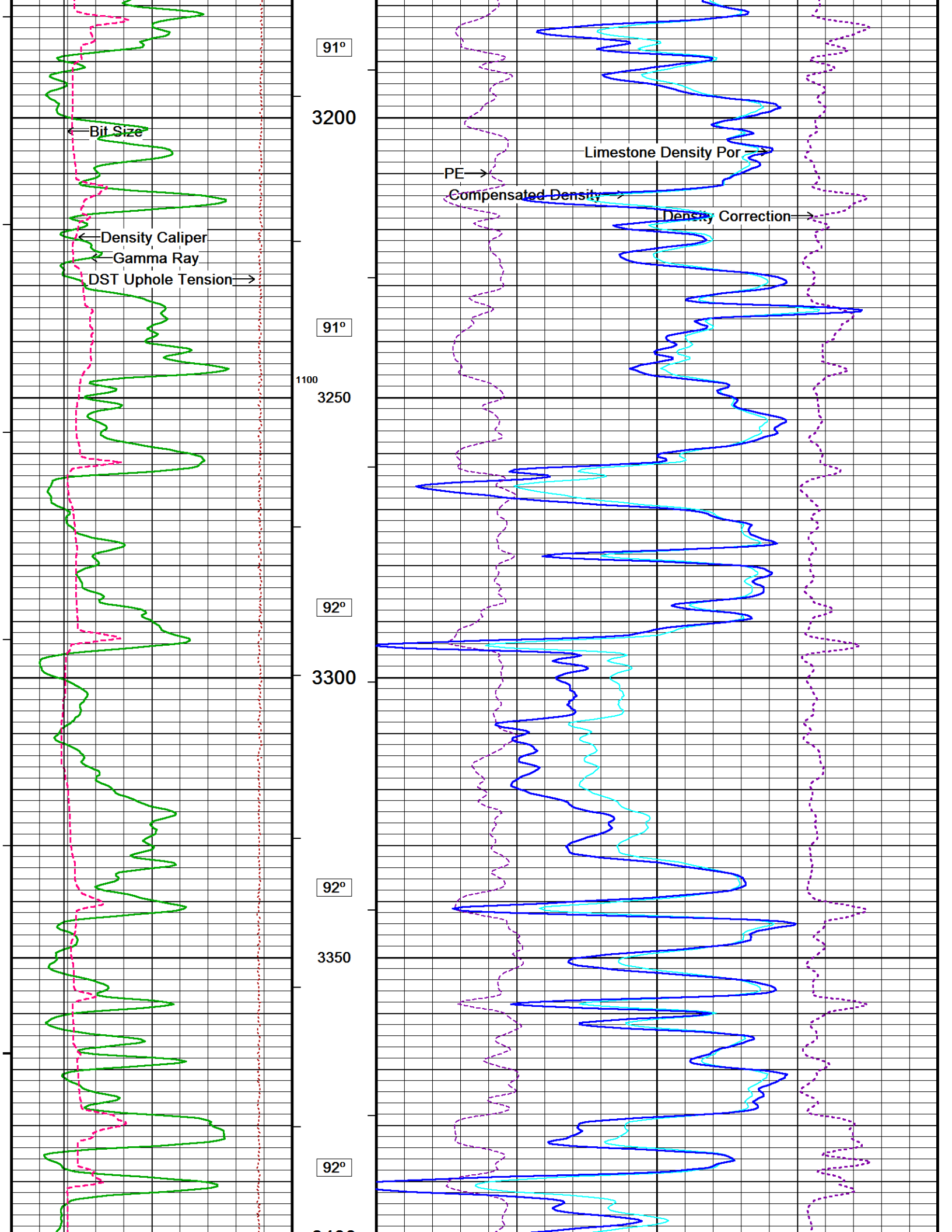
5 INCH REPEAT PASS

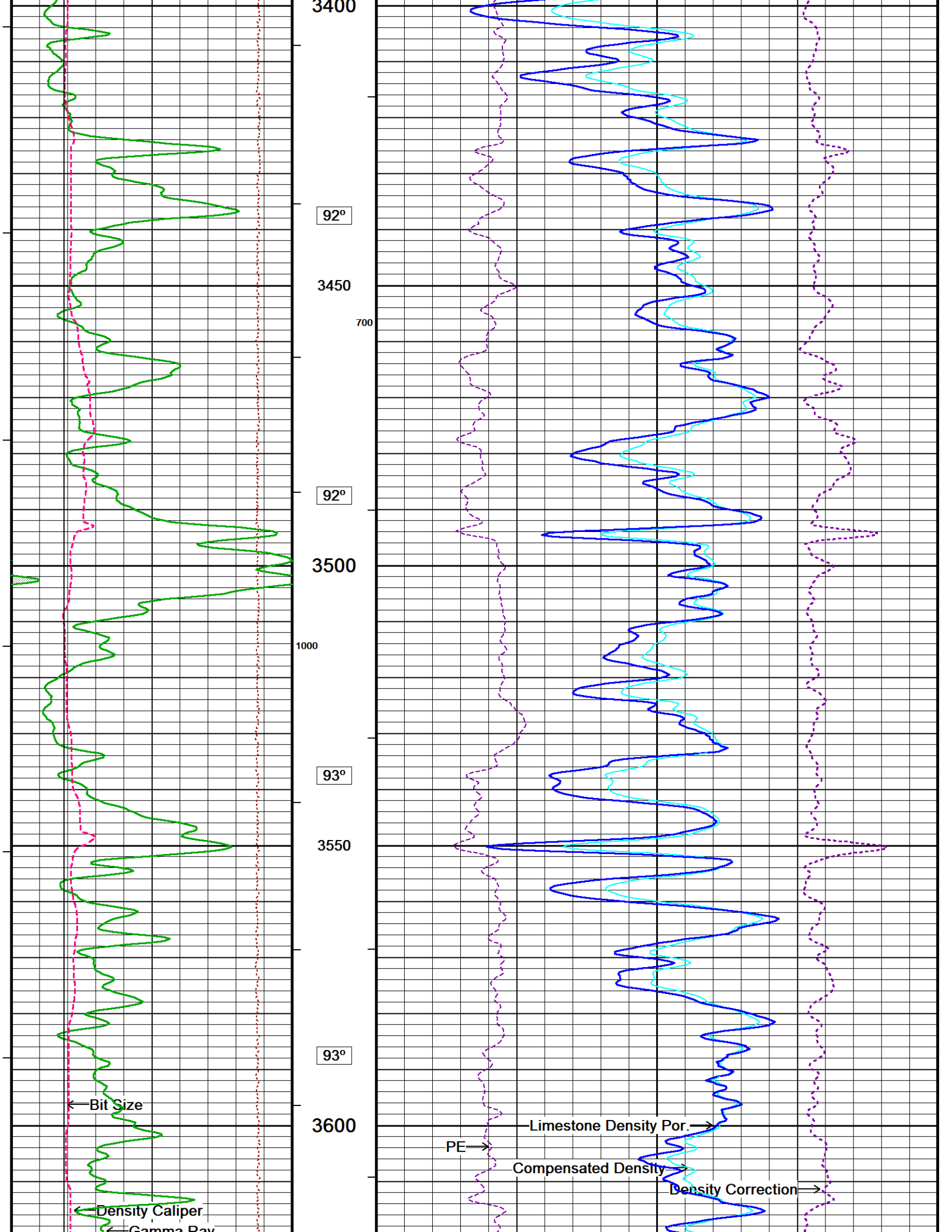
5 INCH MAIN PASS

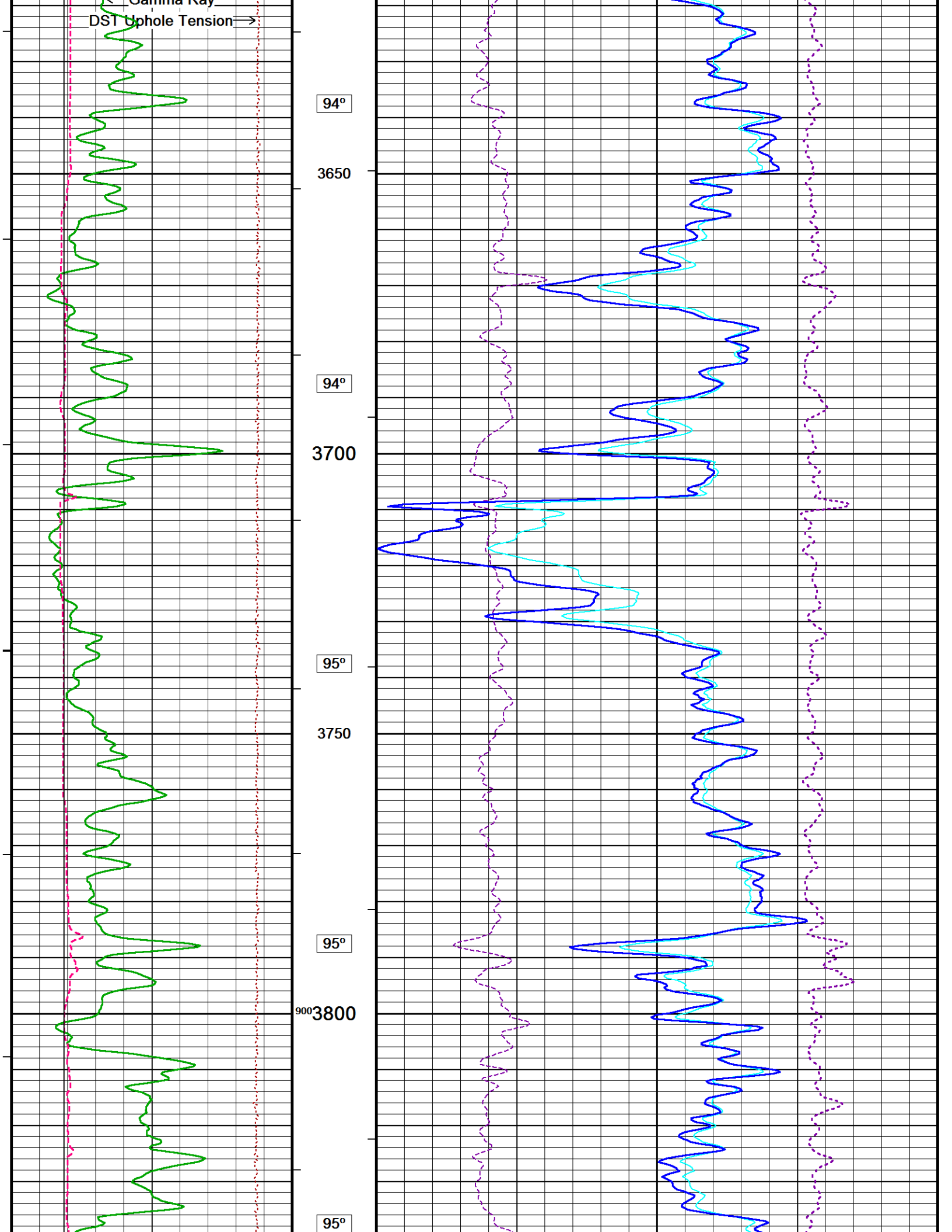
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'Brien Hull #2-11 Splice2.dta
Recorded on 13-FEB-2011 18:15
System Versions: Plotted with 11.02.2164

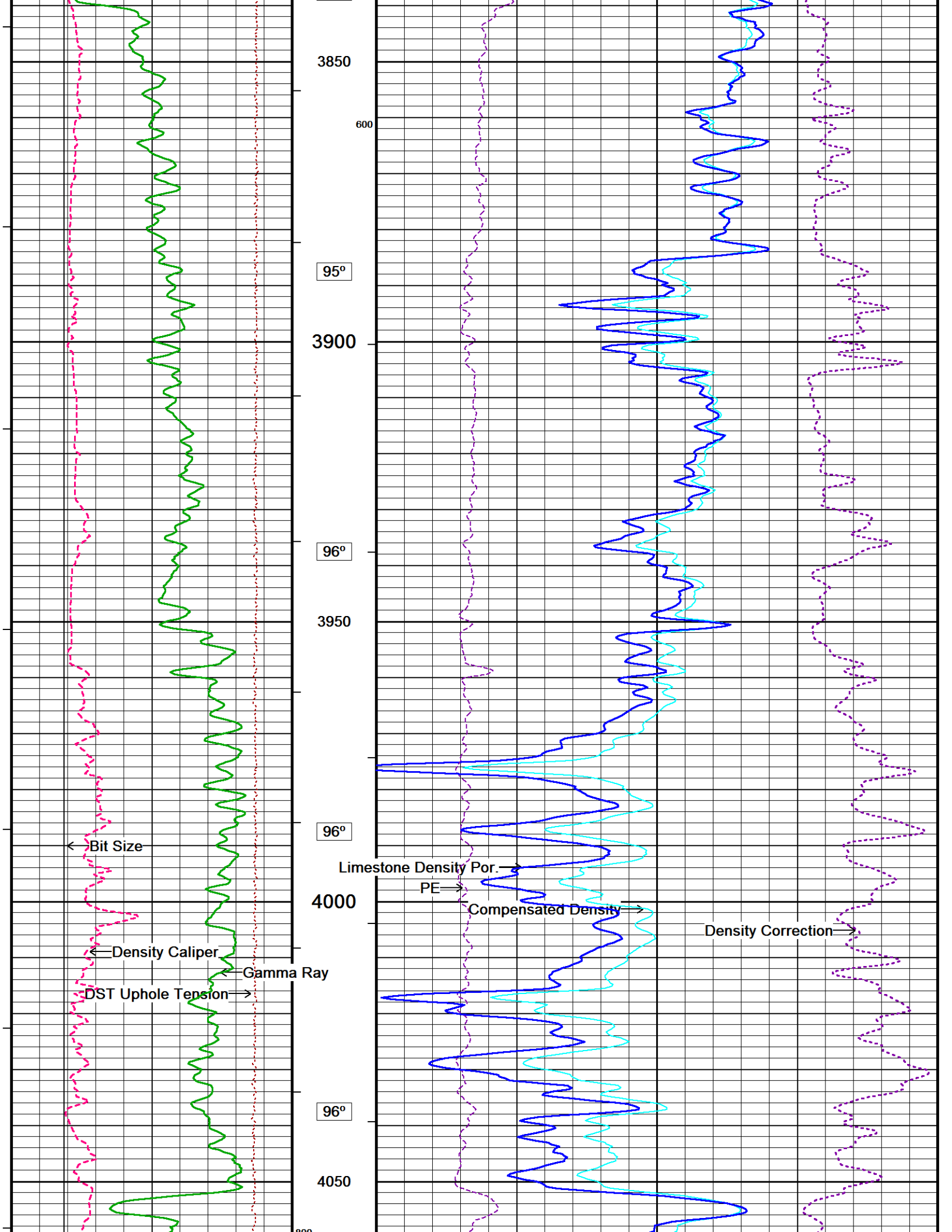


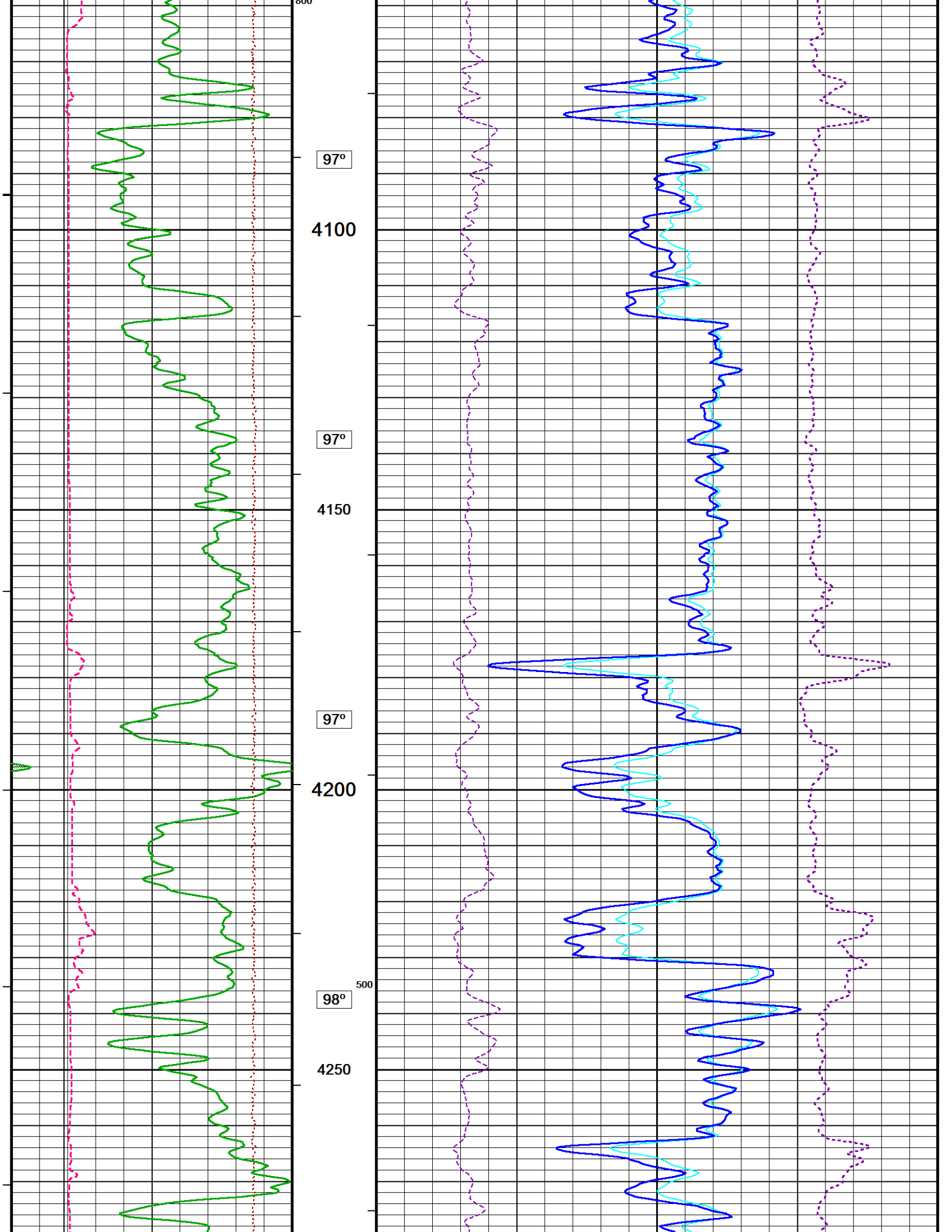

Bit Size
inches
6
11
16
every
10 cu ft
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
3000
90°
3050
800
91°
3100
91°
3150

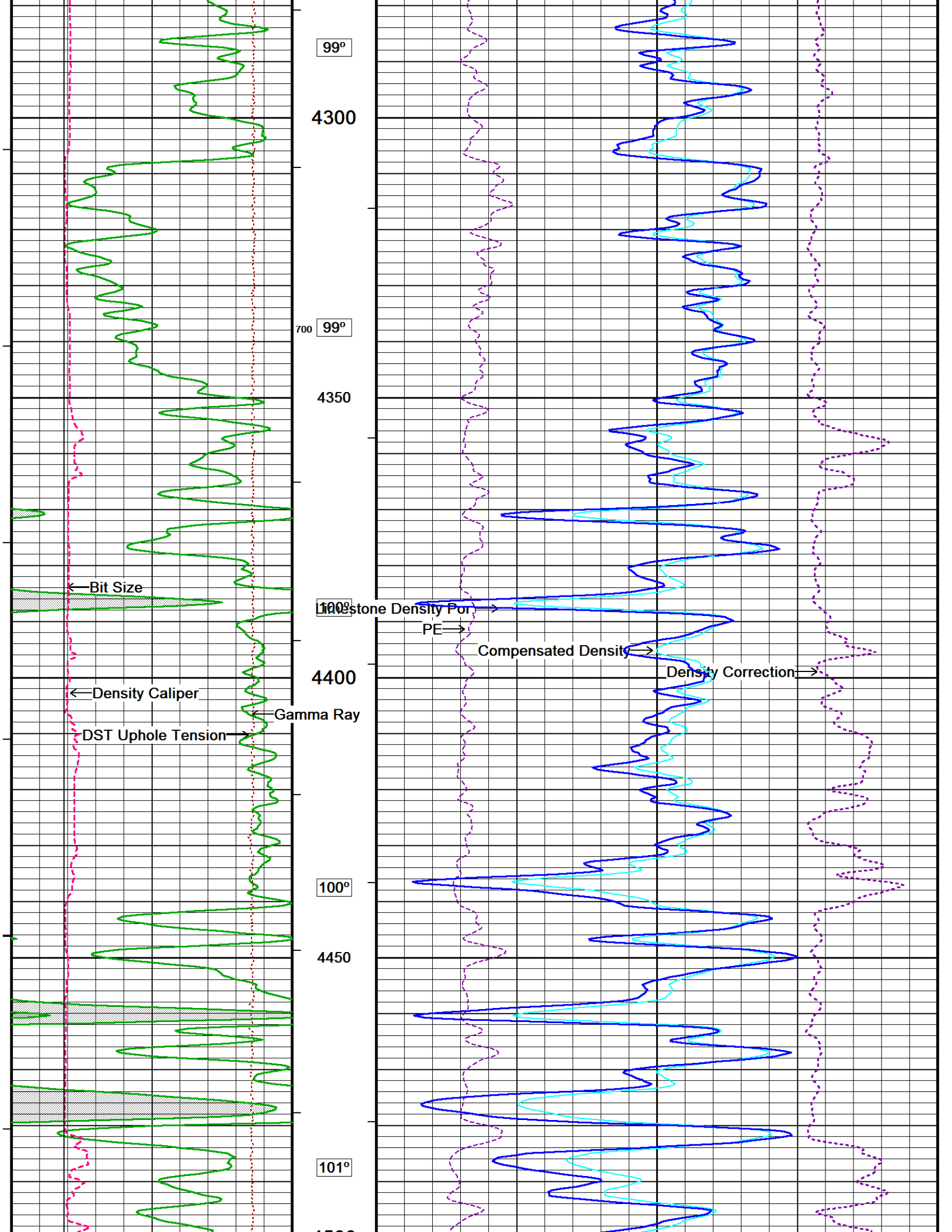

91°
3200
Bit Size
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
91°
1100
3250
92°
3300
92°
3350
92°

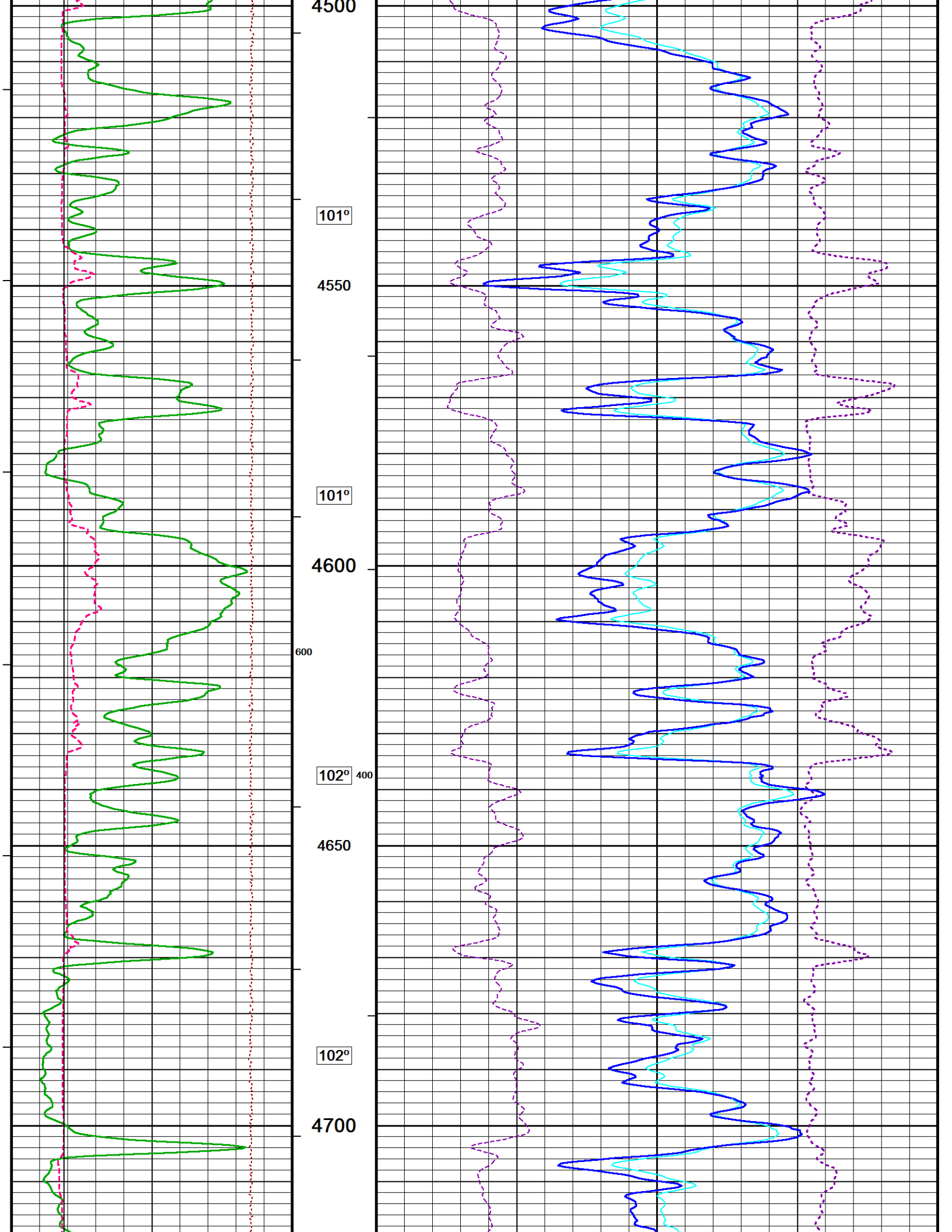

3400
92°
3450
700
92°
3500
1000
93°
3550
93°
3600
Bit Size
Density Caliper
Gamma Ray
PE
Limestone Density Por.
Compensated Density
Density Correction

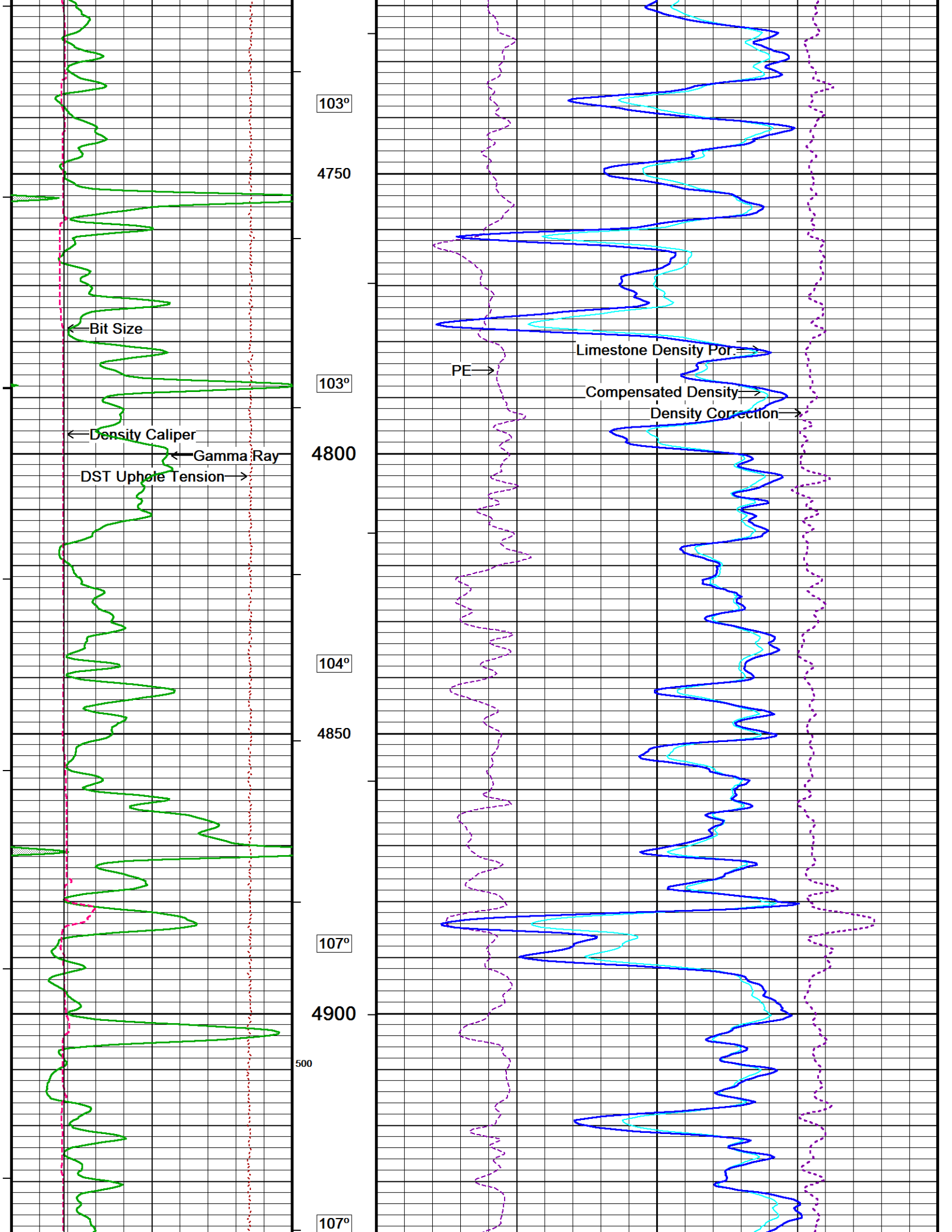

Gamma Ray
DST Uphole Tension
94°
3650
94°
3700
95°
3750
95°
900 3800
95°

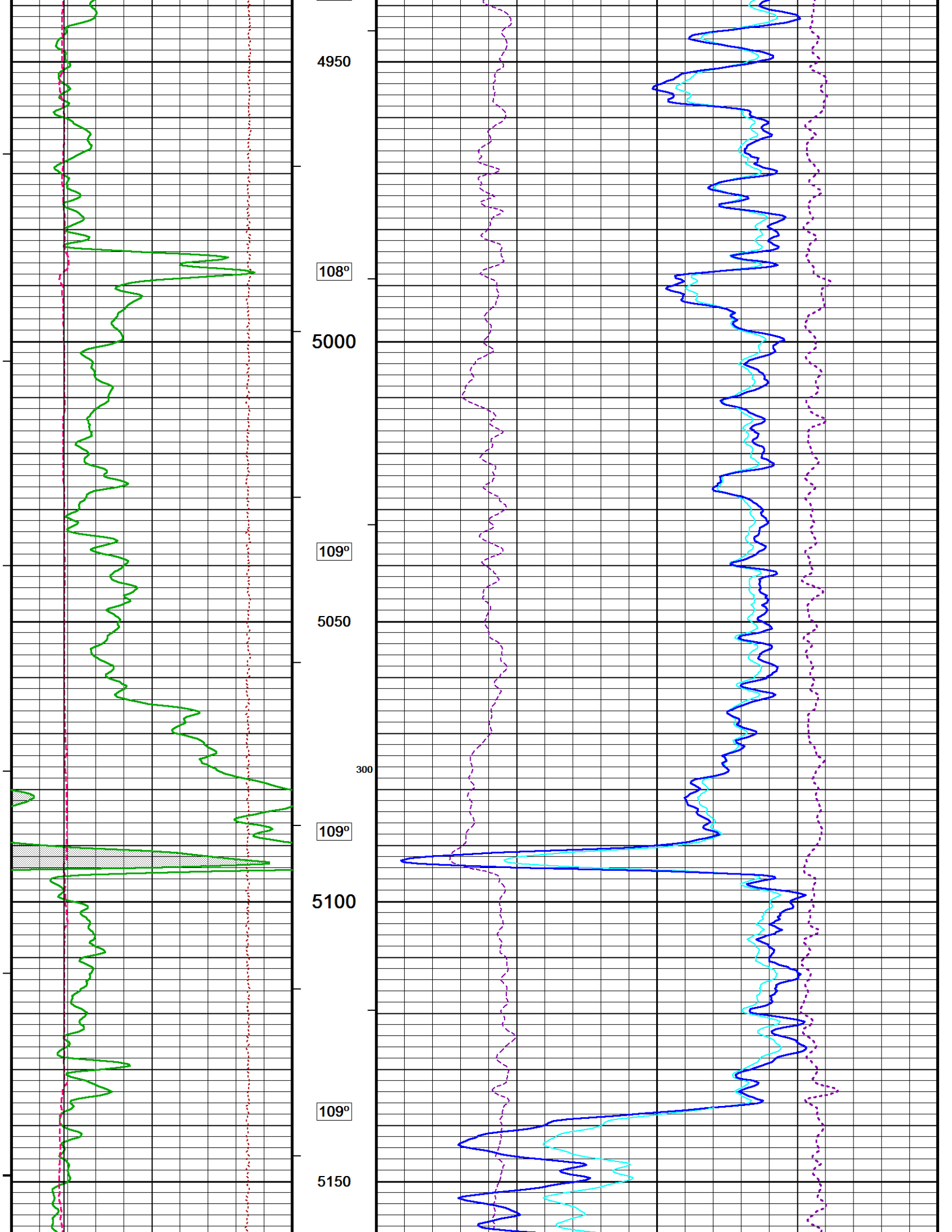

3850
600
95º
3900
96º
3950
96º
Bit Size
Limestone Density Por.
PE
4000
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
96º
4050

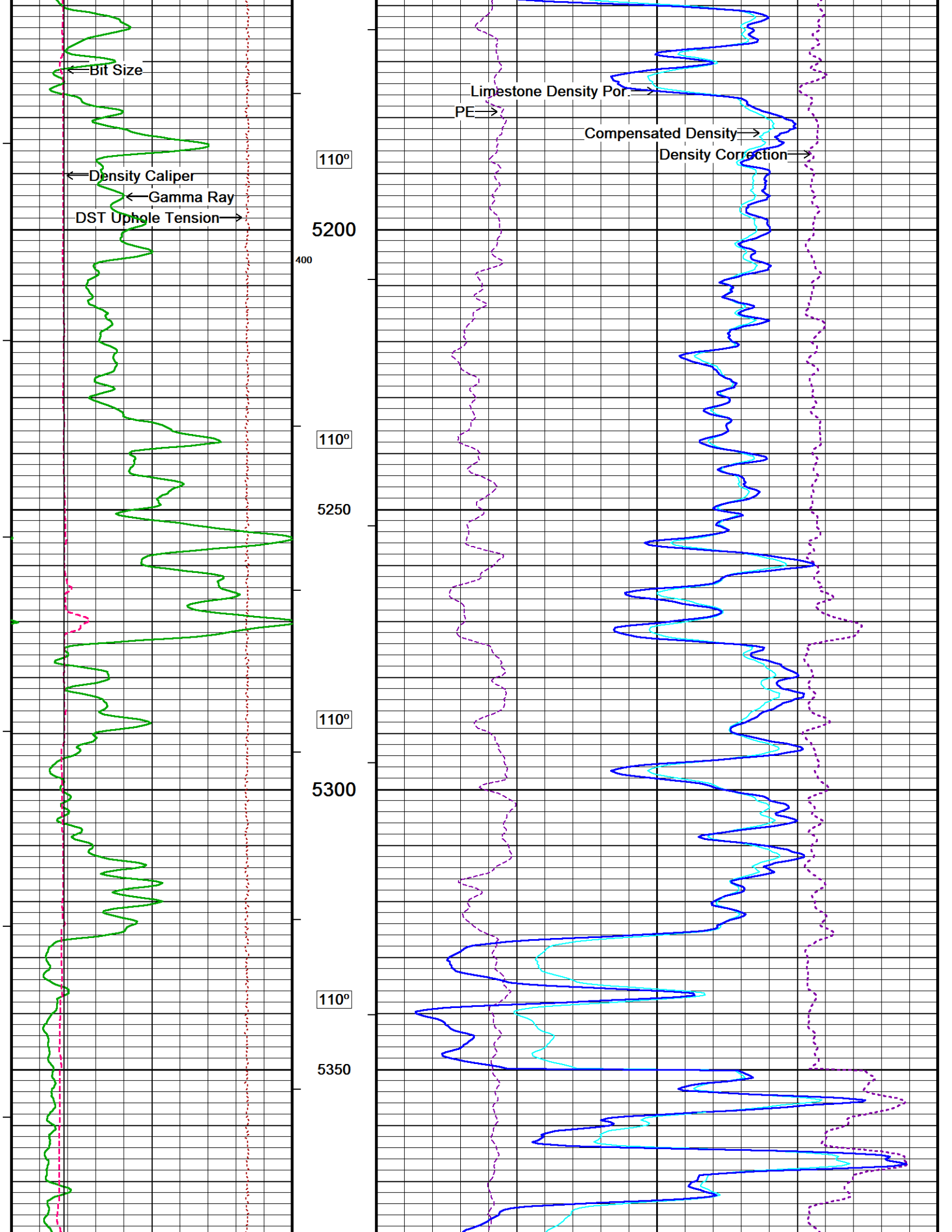

800
97°
4100
97°
4150
97°
4200
500
98°
4250

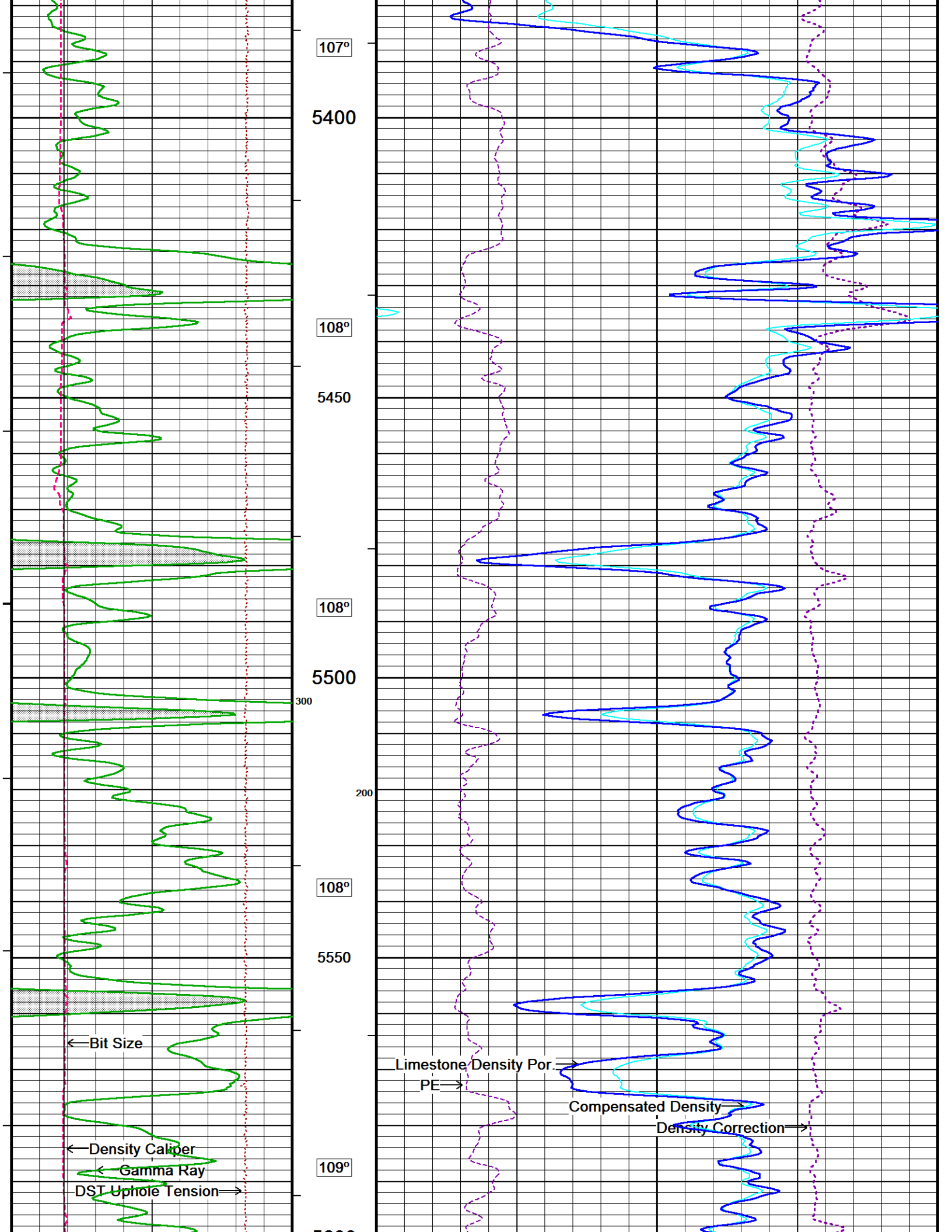

99º
4300
700
99º
4350
Bit Size
100º
Limestone Density Por
PE
Compensated Density
Density Correction
4400
Density Caliper
Gamma Ray
DST Uphole Tension
100º
4450
101º

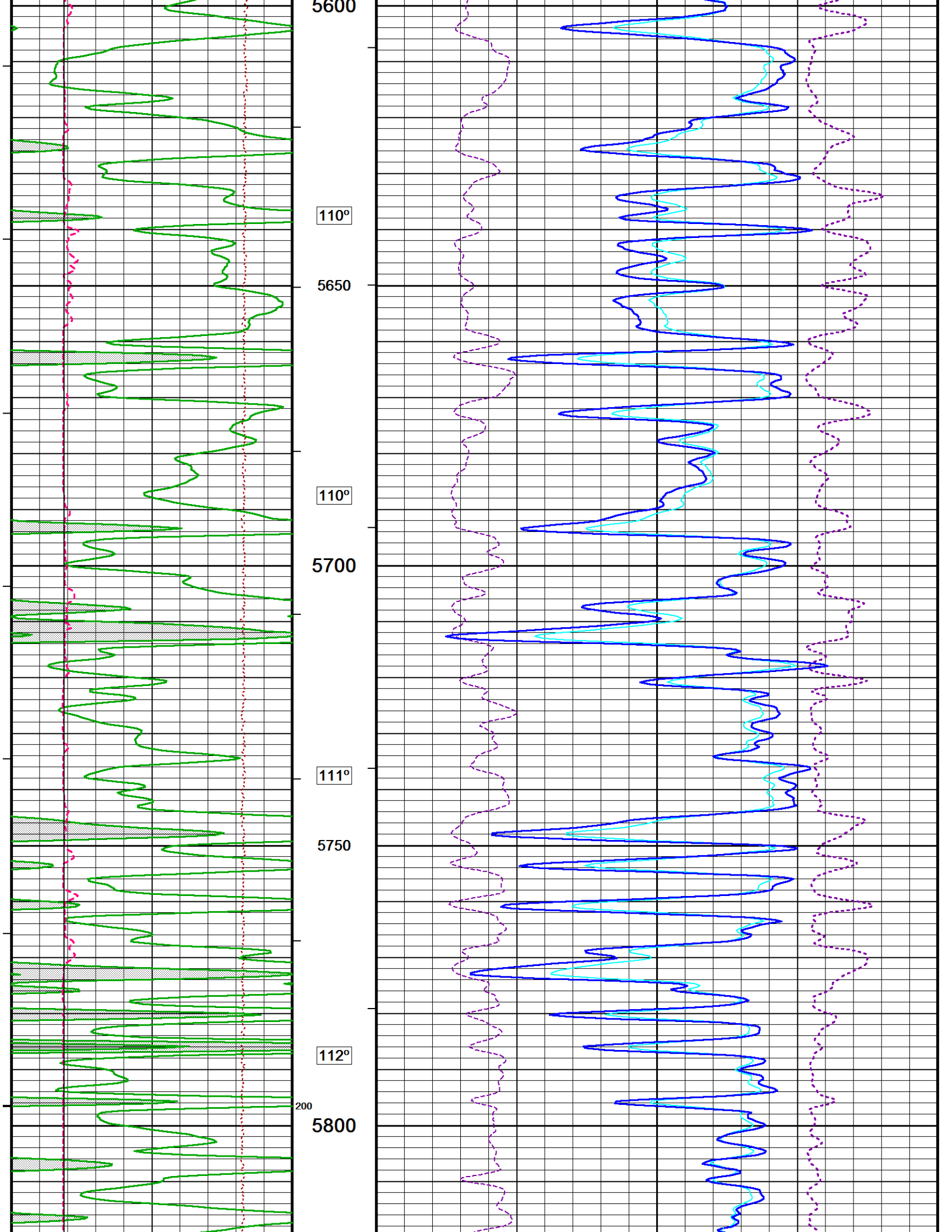

4500
101°
4550
101°
4600
600
102°
400
4650
102°
4700

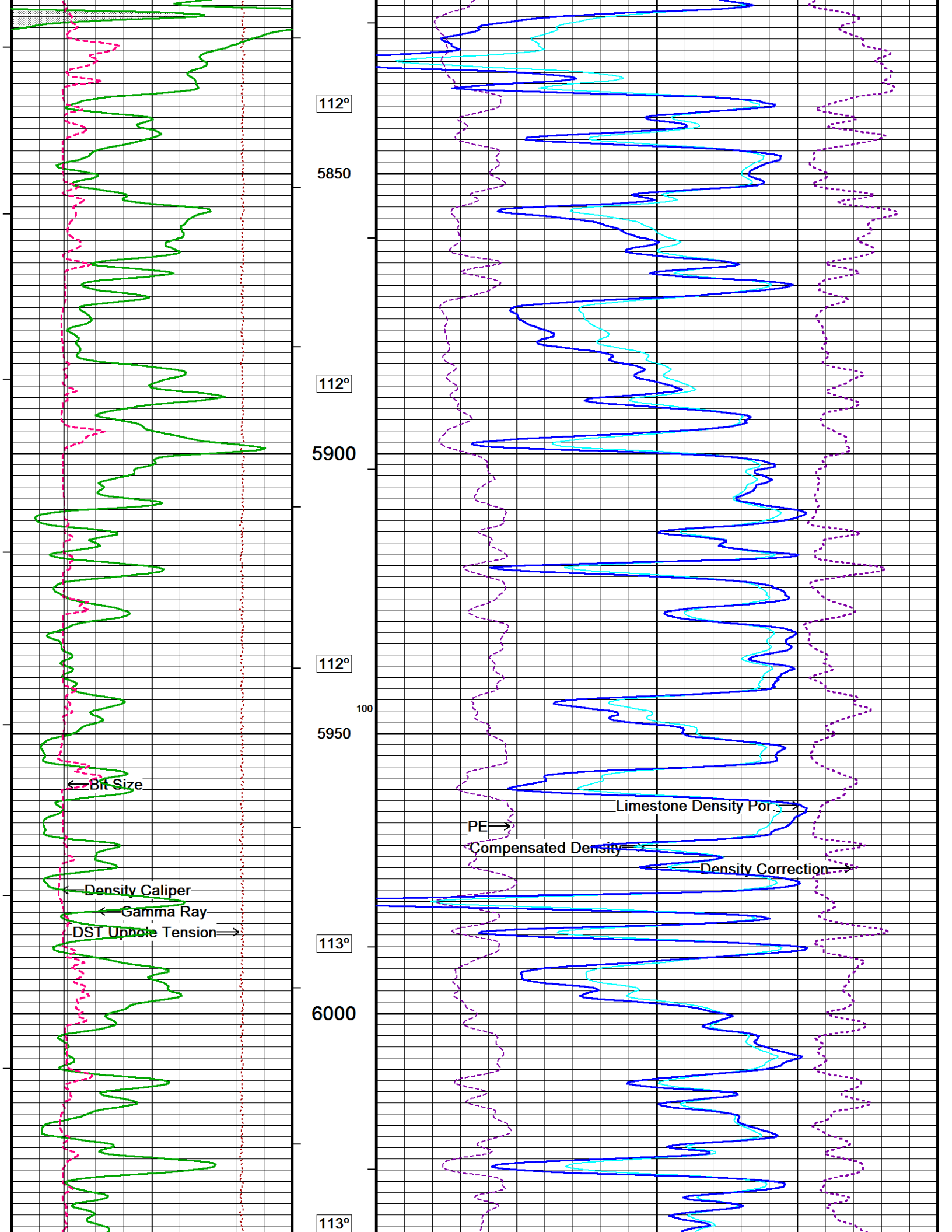

103°
4750
Bit Size
103°
Density Caliper
Gamma Ray
DST Uphole Tension
4800
104°
4850
107°
4900
500
107°
PE
Limestone Density Por
Compensated Density
Density Correction

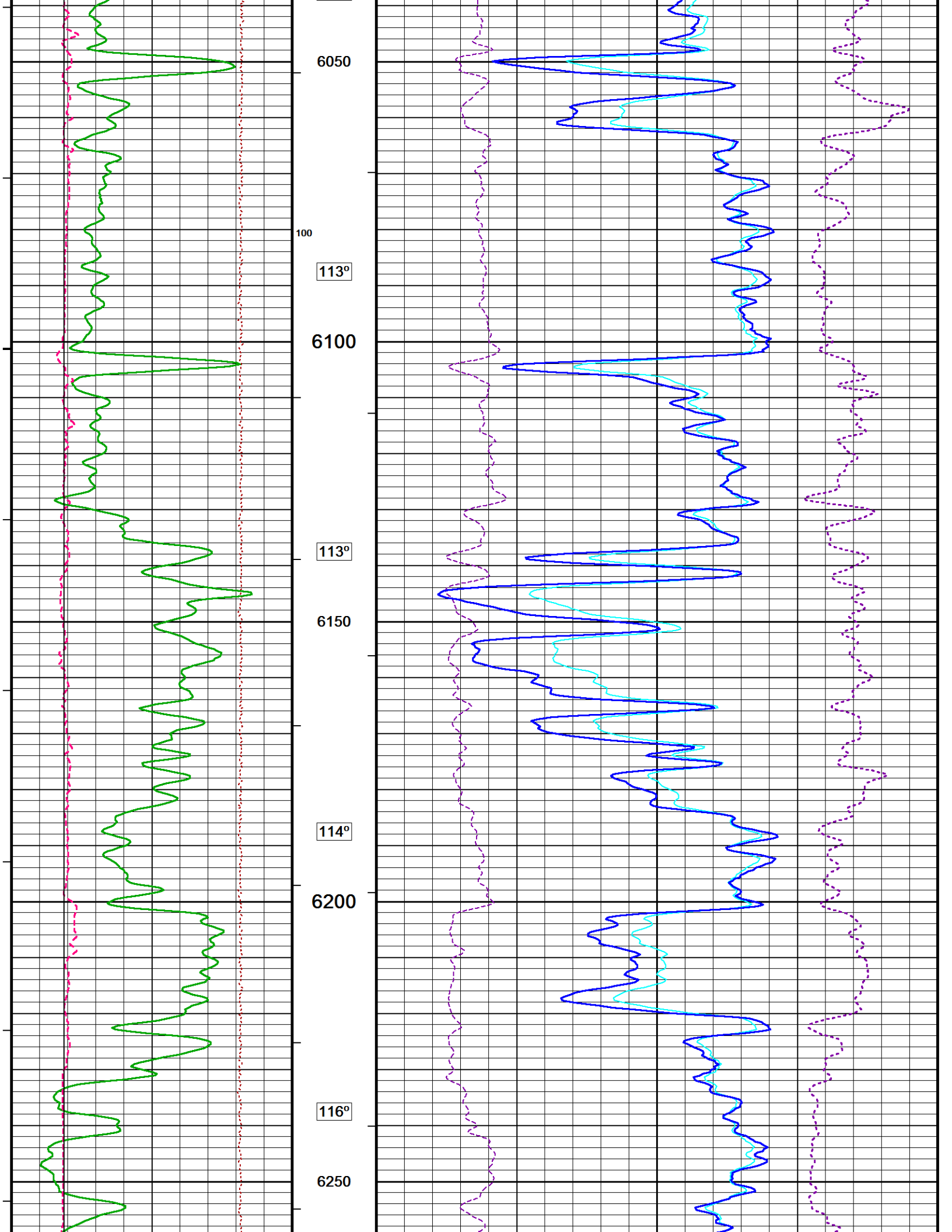

4950
108°
5000
109°
5050
300
109°
5100
109°
5150

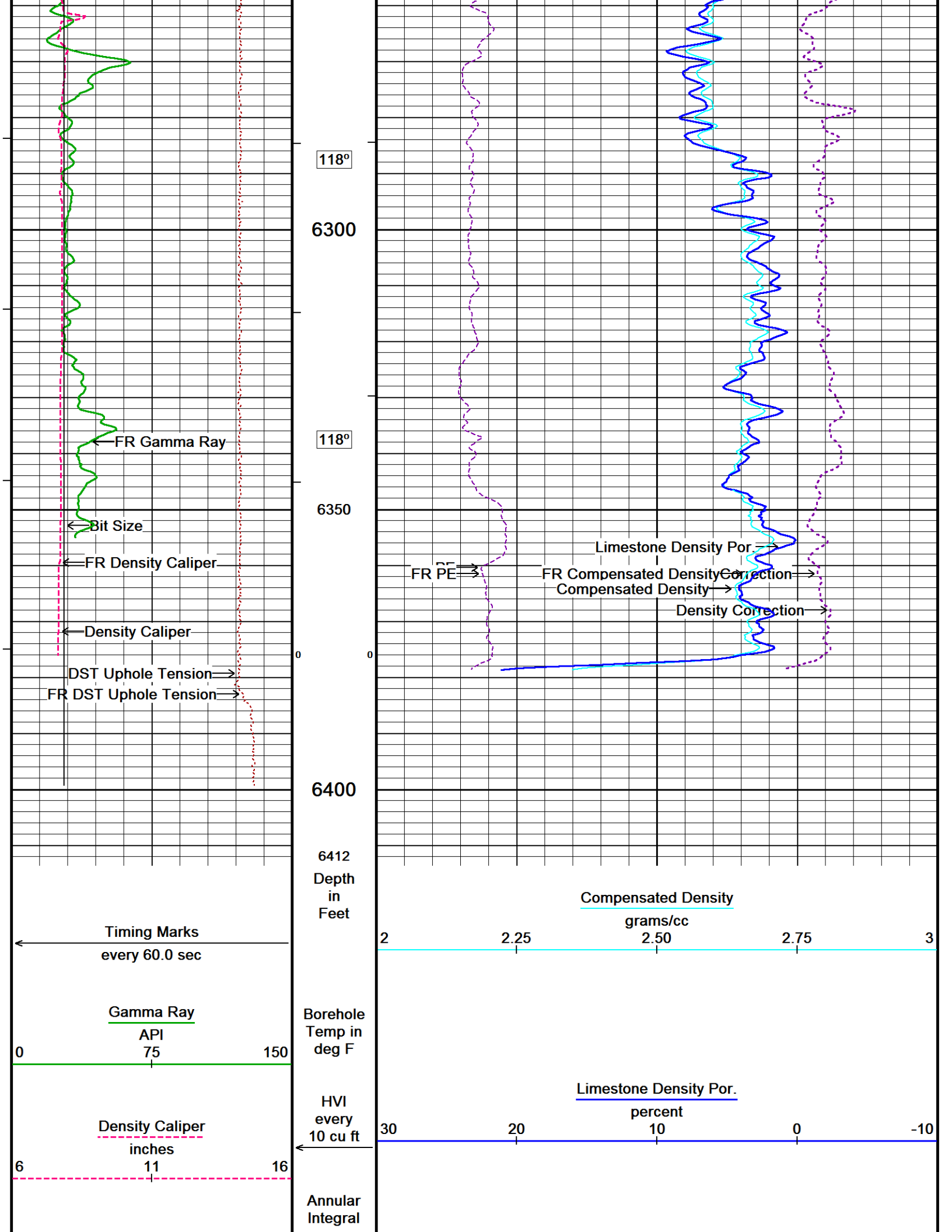

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por
PE
Compensated Density
Density Correction
110°
5200
400
110°
5250
110°
5300
110°
5350


107°
5400
108°
5450
108°
5500
300
200
108°
5550
109°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por
PE
Compensated Density
Density Correction


5600
110°
5650
110°
5700
111°
5750
112°
200
5800


112°
5850
112°
5900
112°
100
5950
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
113°
6000
113°


6050
100
113°
6100
113°
6150
114°
6200
116°
6250


118°
6300
118°
FR Gamma Ray
6350
Bit Size
FR Density Caliper
Density Caliper
0
DST Uphole Tension
FR DST Uphole Tension
6400
6412
Depth in Feet
FR PE
Limestone Density Por.
FR Compensated Density Correction
Compensated Density
Density Correction
0
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
Borehole Temp in deg F
Limestone Density Por.
percent
30
20
10
0
-10
Density Caliper
inches
6
11
16
HVI every 10 cu ft
Annular Integral

Bit Size
inches
6 11 16

every
10 cu ft

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'Brien Hull #2-11 Splice2.dta
System Versions: Plotted with 11.02.2164

Plotted on 08-MAR-2011 15:39
Recorded on 13-FEB-2011 18:15

5 INCH MAIN PASS

10 INCH HI-RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_004.dta
System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164

Plotted on 08-MAR-2011 15:39
Recorded on 13-FEB-2011 17:48

Depth
in
Feet

Timing Marks
every 60.0 sec

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Gamma Ray
API
0 75 150

Borehole
Temp in
deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI
every
10 cu ft

Density Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Bit Size
inches
6 11 16

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

5250

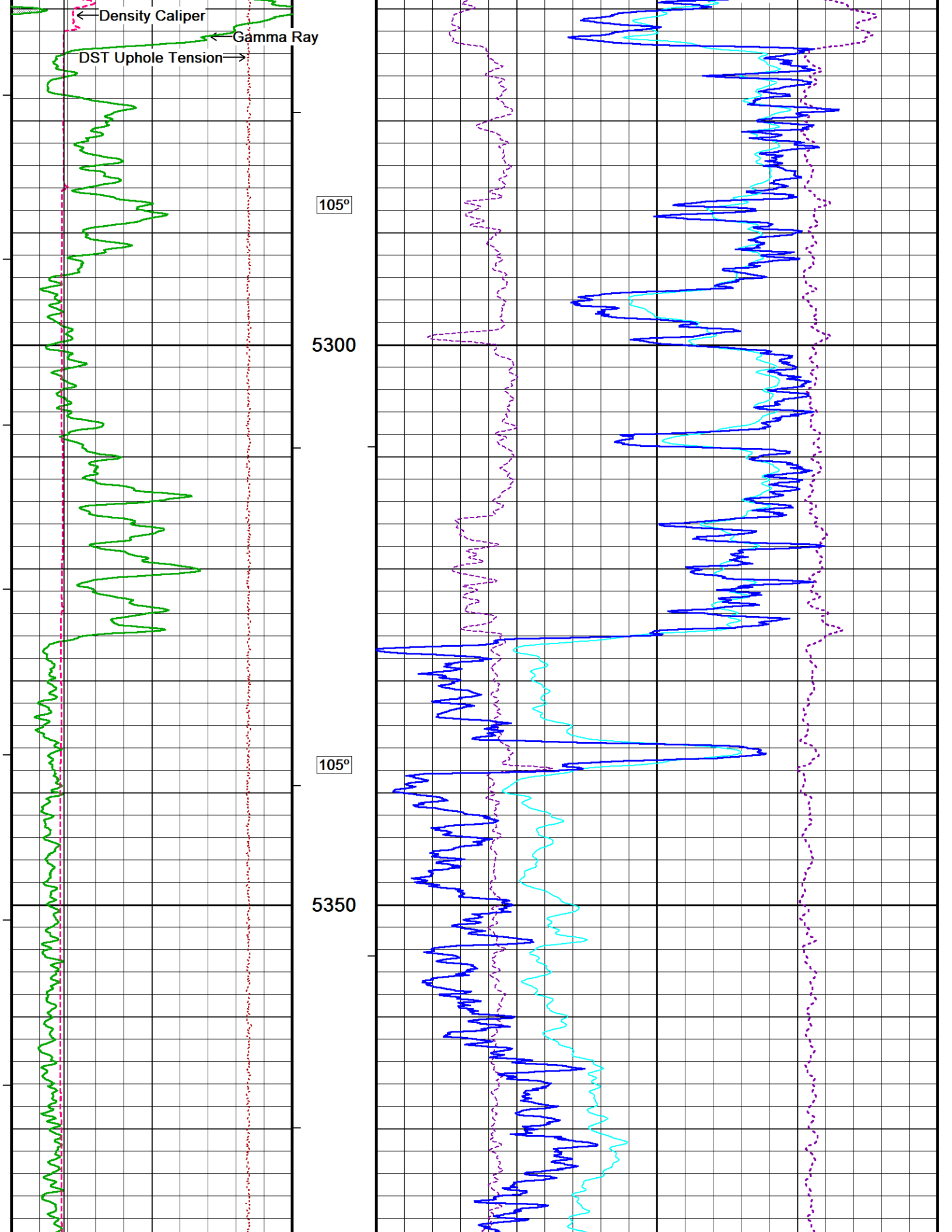
Bit Size

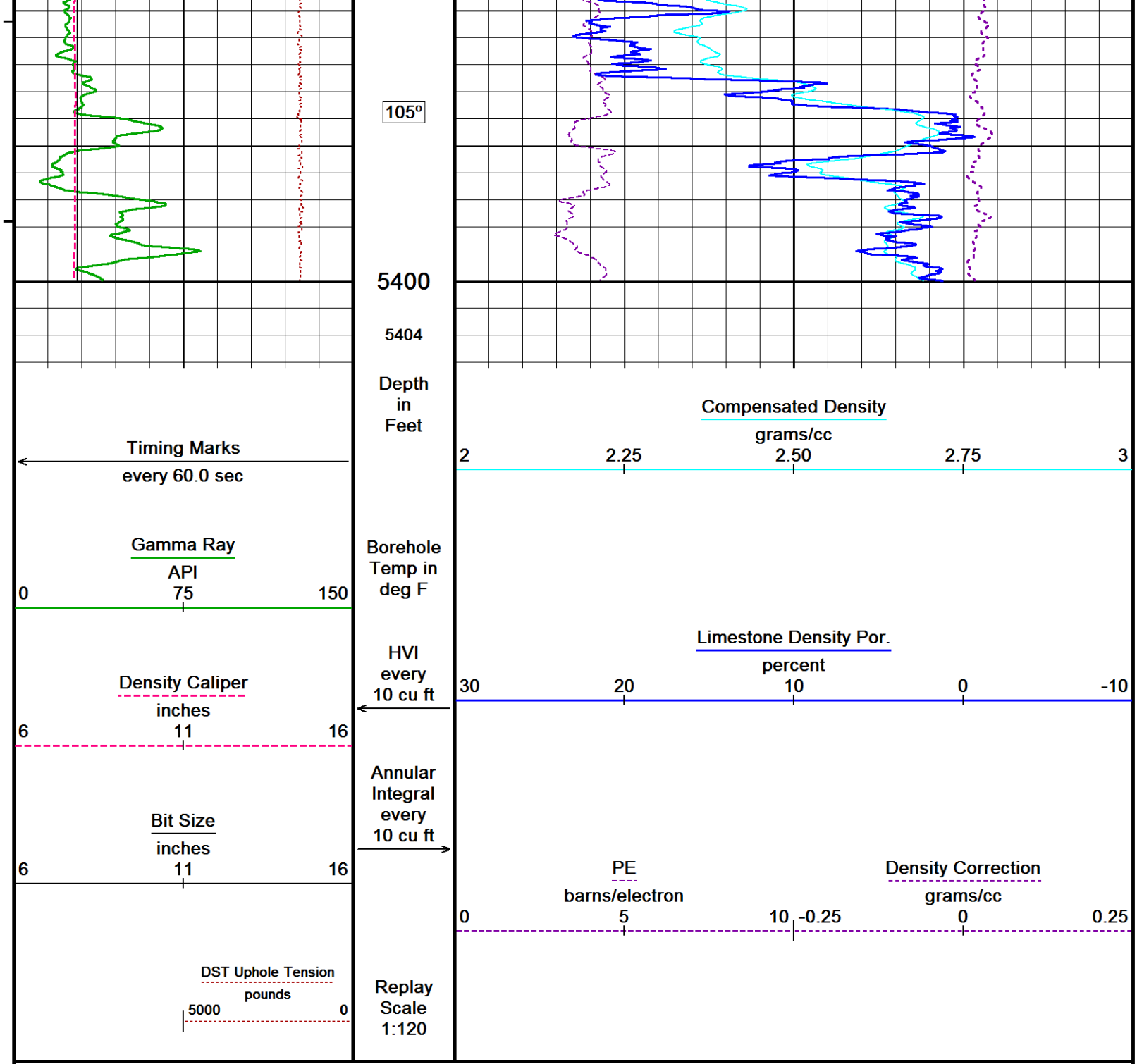
PE

Limestone Density Por.

Compensated Density

Density Correction


Density Caliper
Gamma Ray
DST Uphole Tension
105°
5300
105°
5350

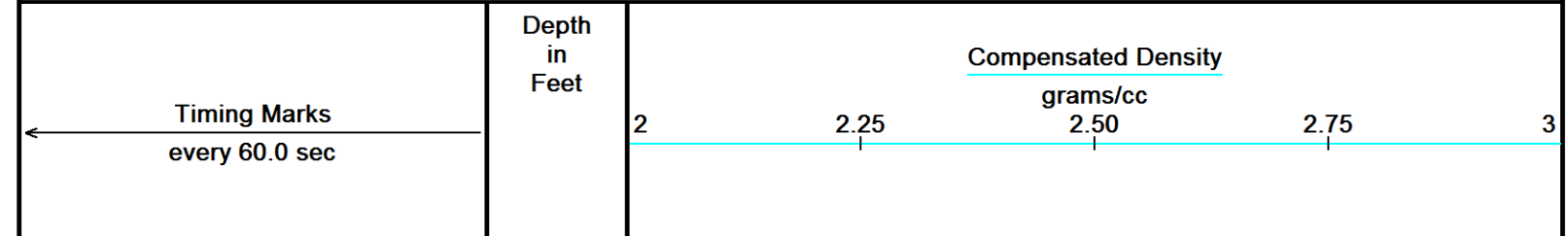


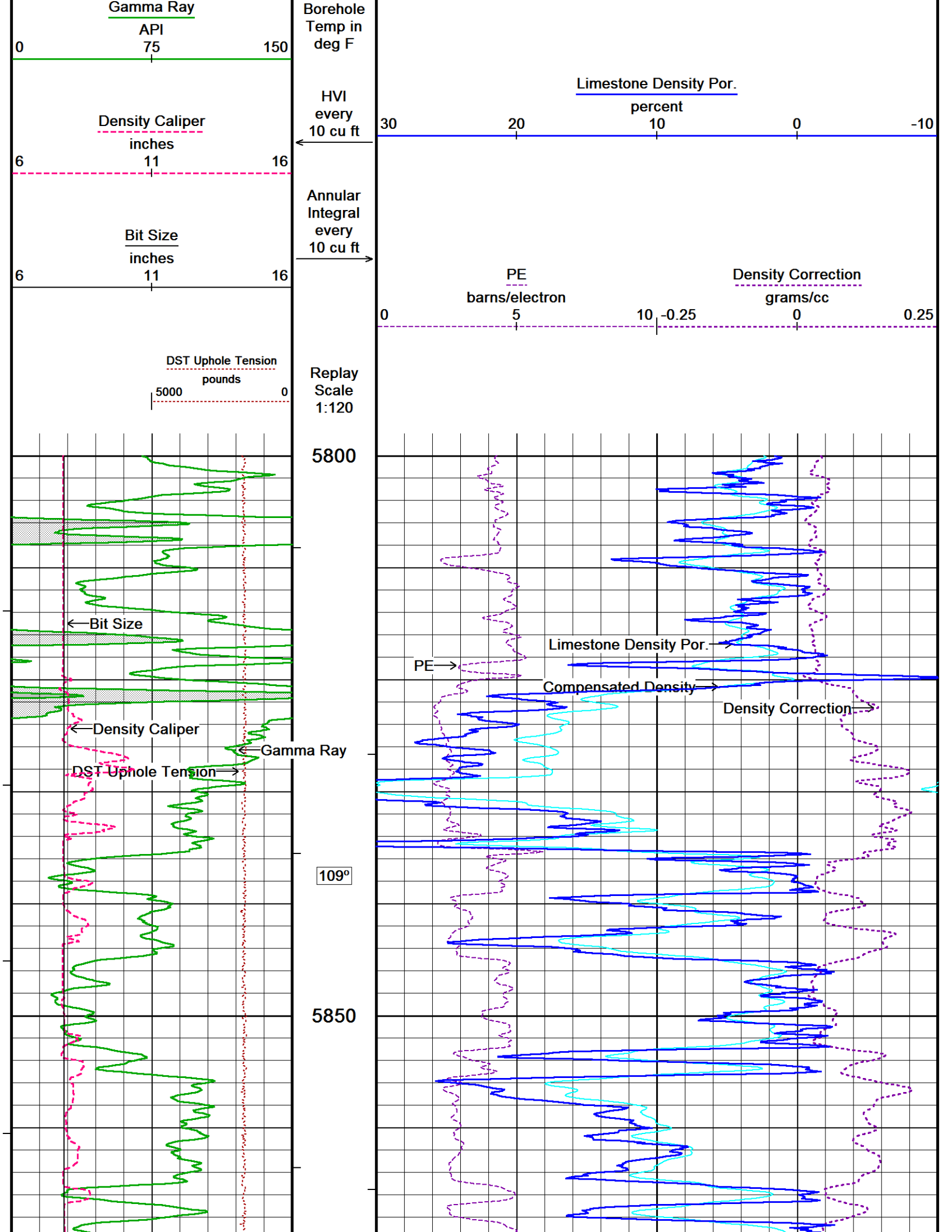
Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_004.dta
Recorded on 13-FEB-2011 17:48
System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164

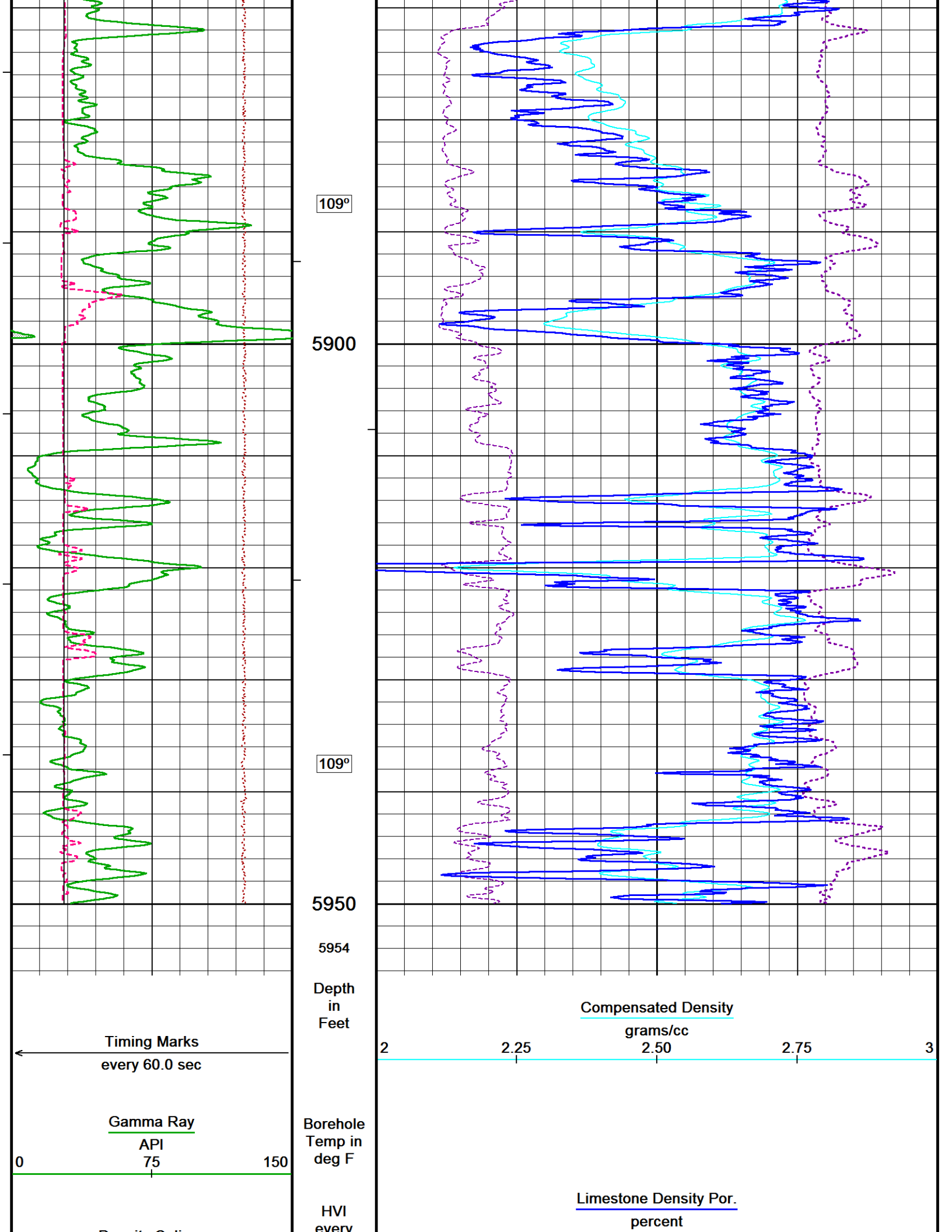
10 INCH HI-RES

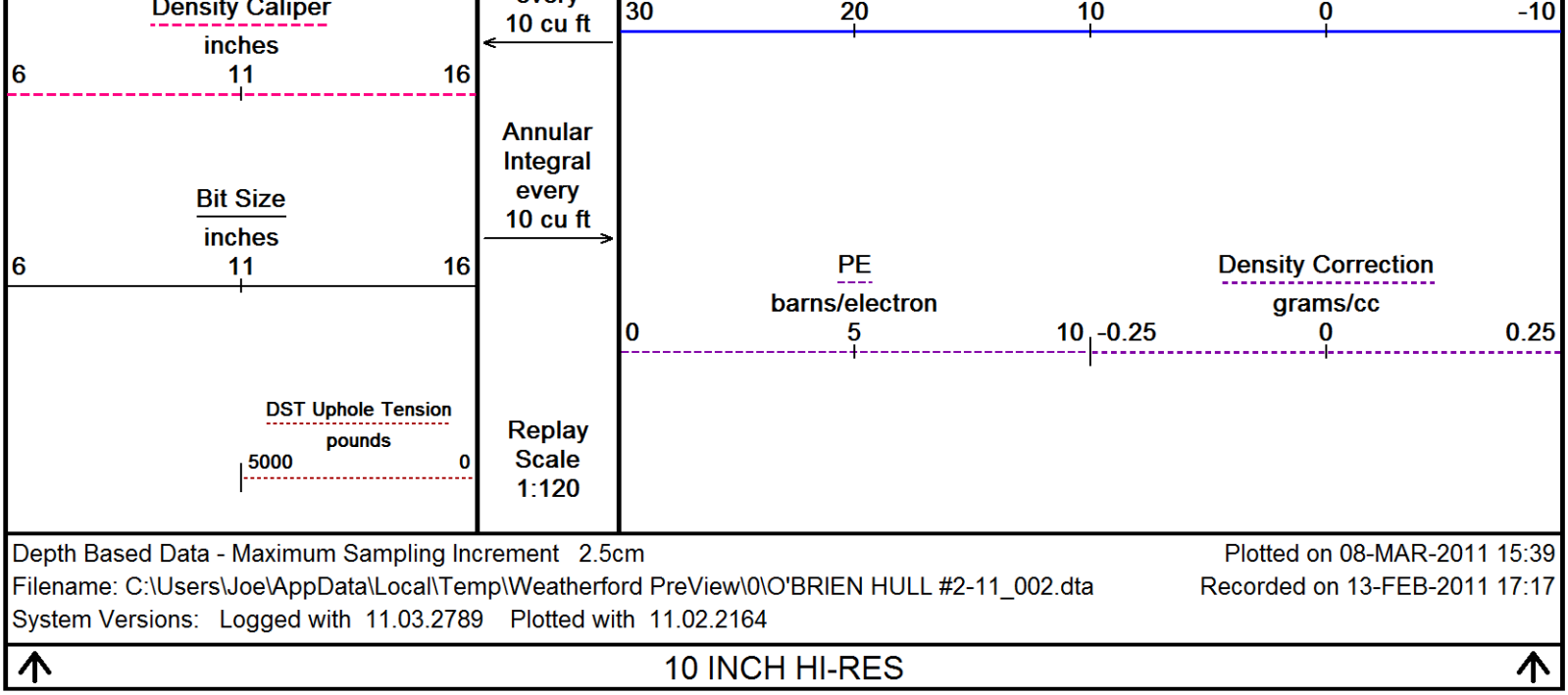
10 INCH HI-RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_002.dta
Recorded on 13-FEB-2011 17:17
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164




Gamma Ray
API
0
75
150
Borehole Temp in deg F
HVI every 10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
Density Caliper
inches
6
11
16
Annular Integral every 10 cu ft
Bit Size
inches
6
11
16
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
DST Uphole Tension
pounds
5000
0
Replay Scale 1:120
5800
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
109°
5850


109°
5900
109°
5950
5954
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
Borehole
Temp in
deg F
HVI
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Limestone Density Por.
percent

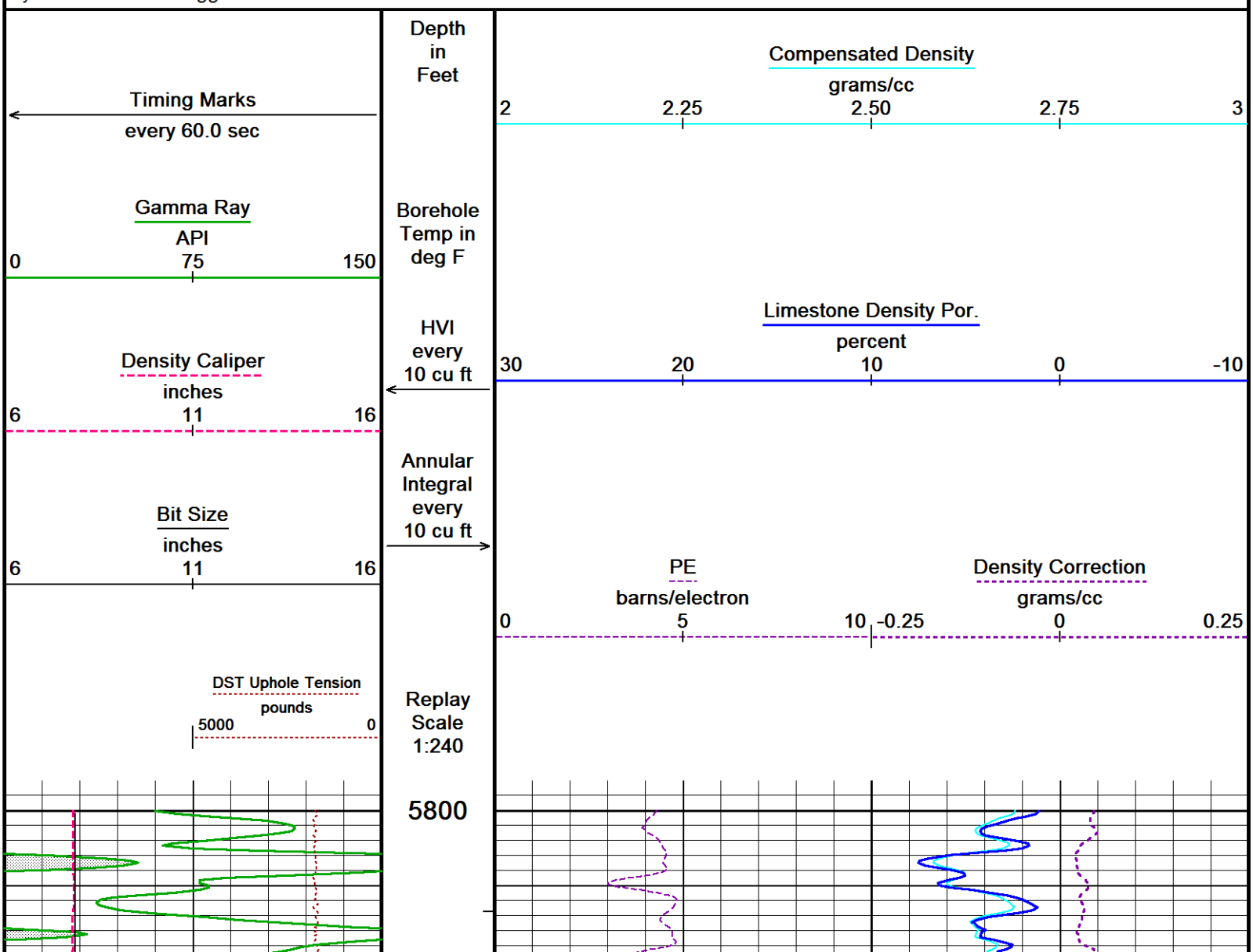


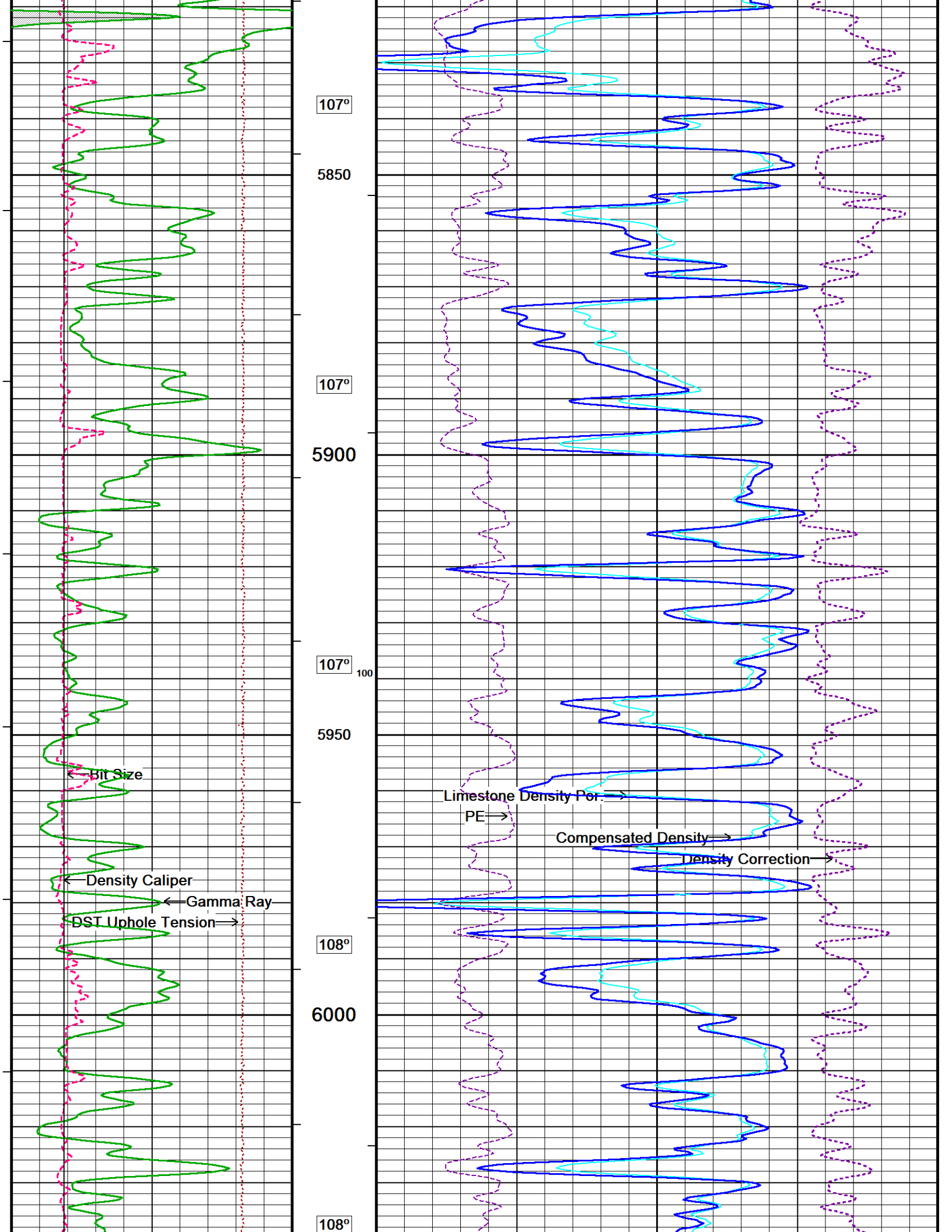
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_002.dta — Recorded on 13-FEB-2011 17:17
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

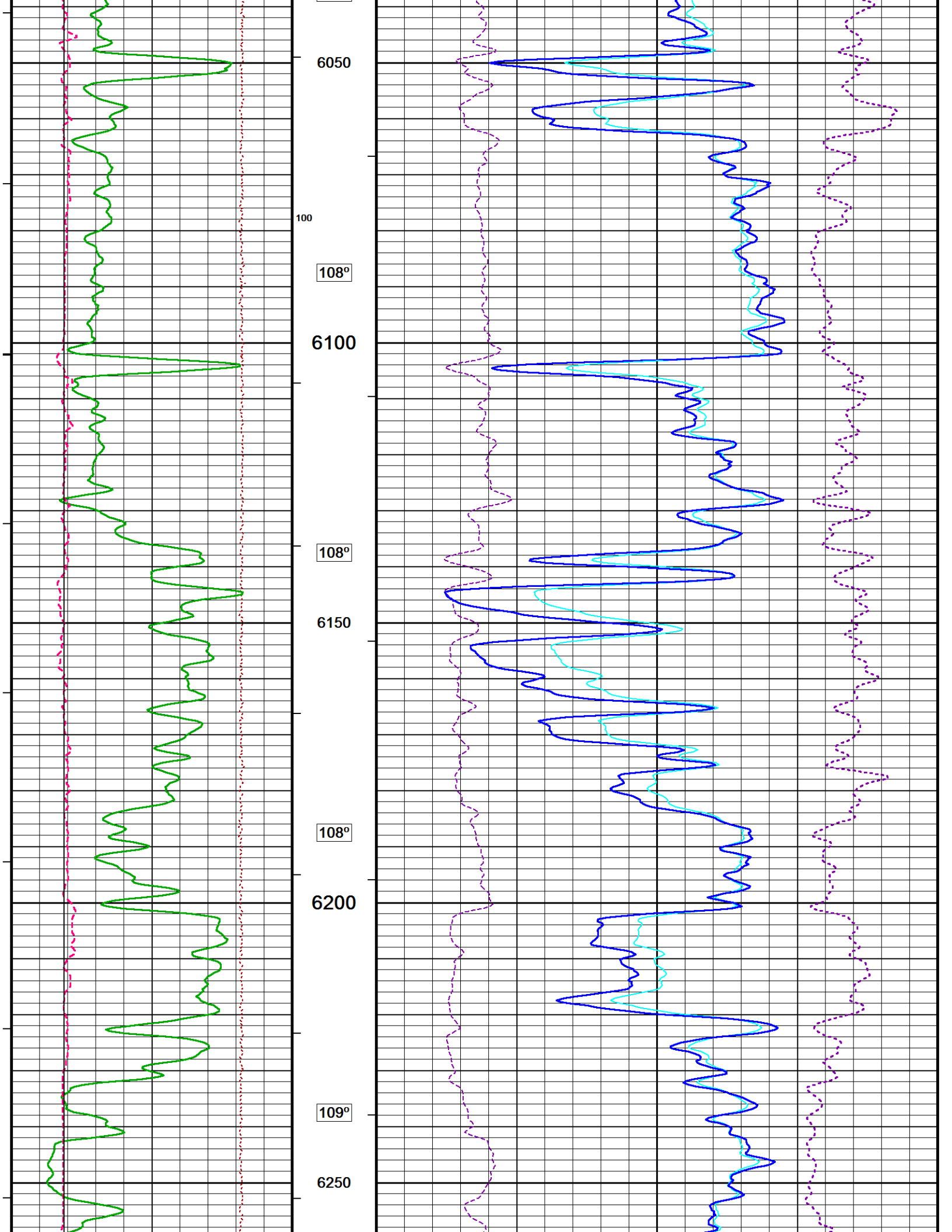
10 INCH HI-RES

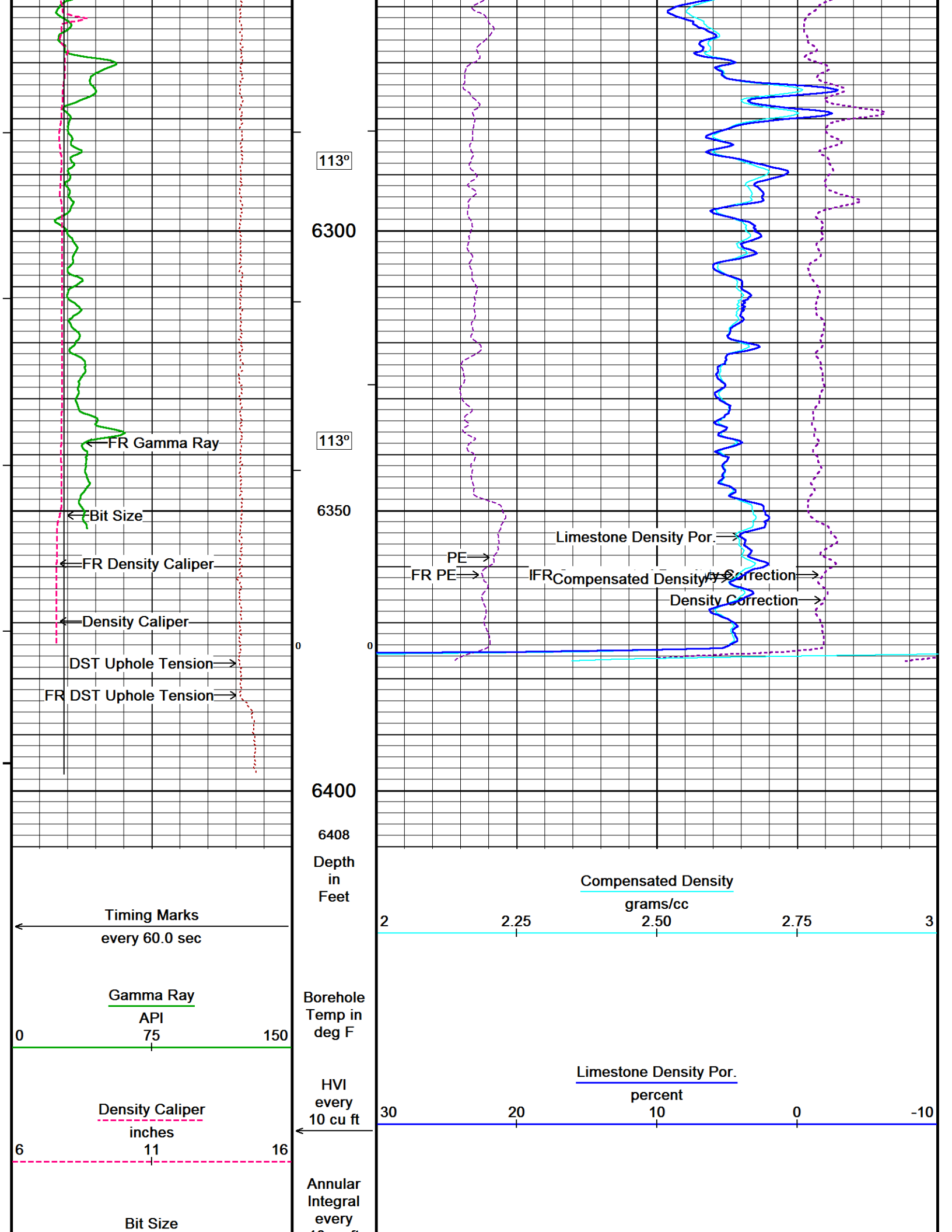
5 INCH REPEAT PASS

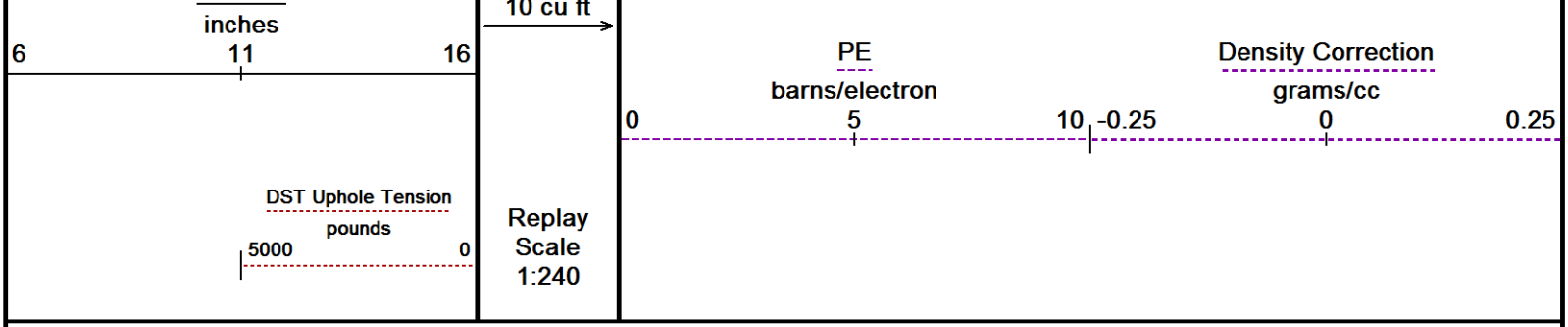
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_001.dta — Recorded on 13-FEB-2011 16:44
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164




107°
5850
107°
5900
107°
100
5950
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por.
PE
Compensated Density
Density Correction
108°
6000
108°


6050
100
108°
6100
108°
6150
108°
6200
109°
6250


113°
6300
113°
FR Gamma Ray
6350
Bit Size
FR Density Caliper
Density Caliper
0
DST Uphole Tension
FR DST Uphole Tension
6400
6408
Depth in Feet
PE
FR PE
IFR
Limestone Density Por.
Compensated Density
Density Correction
0
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Gamma Ray
API
0
75
150
Borehole Temp in deg F
HVI
every 10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
Density Caliper
inches
6
11
16
Annular Integral
every
Bit Size



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-MAR-2011 15:39
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11_001.dta — Recorded on 13-FEB-2011 16:44
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

5 INCH REPEAT PASS

BEFORE SURVEY CALIBRATION

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11.dta

General Constants All 000

Last Edited on 13-FEB-2011,14:20

General Parameters		
Mud Resistivity	1.050	ohm-metres
Mud Resistivity Temperature	73.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-C 84

Field Calibration on 24-JUN-2010,13:02

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

High Resolution Temperature Constants MCG-C 84

Last Edited on

Pre-filter Length	11

SP Calibration MCG-C 84

Field Calibration on 28-DEC-2010 11:28

	Measured	Calibrated (mV)
Reference 1	100.3	100.0
Reference 2	-99.7	-100.0

Gamma Calibration MCG-C 84

Field Calibration on 13-FEB-2011 11:17

	Measured	Calibrated (API)
Background	66	45
Calibrator (Gross)	1136	770
Calibrator (Net)	1070	725

Gamma Constants MCG-C 84

Last Edited on 13-FEB-2011,14:21

Gamma Calibrator Number	grc38	
Mud Density	1.10	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 9

Base Calibration on 17-JAN-2011 13:45
Field Check on 13-FEB-2011 10:58

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	12.1	59.8	2.6	12.8
Micro Inverse	15.6	78.1	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.4	32.4
Micro Inverse	16.4	16.4

Micro Normal and Micro Inverse Constants MML-A 9

Last Edited on 13-FEB-2011,10:57

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 9

Base Calibration on 17-JAN-2011 13:36
Field Calibration on 13-FEB-2011 11:05

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14751	5.96
2	18323	7.98
3	21735	9.95
4	25522	11.91
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.06	5.98

Neutron Calibration MDN-A.B 65

Base Calibration on 17-JAN-2011 15:12
Field Check on 13-FEB-2011 11:12

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	3079	97	3714	110
Ratio	31.797		33.764	

Field Calibrator at Base	Calibrated (cps)	
	1654	2338
Ratio	0.708	

Field Check	Calibrated (cps)	
	1657	2354
Ratio	0.704	

Neutron Constants MDN-A.B 65

Last Edited on 13-FEB-2011,14:21

Neutron Source Id	757	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.10	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	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 17-JAN-2011 13:58
Field Check on 13-FEB-2011 10:56

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	954.8	126.8
Base Check		281.8
Field Check		281.4

FE Constants MFE-A.A 55

Last Edited on 13-FEB-2011,14:21

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 178

Field Calibration on 28-MAR-2010,00:50

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.80

High Resolution Temperature Constants MAI-A.A 178

Last Edited on

Pre-filter Length	11

Induction Calibration MAI-A.A 178

Base Calibration on 17-JAN-2011,15:37
Field Check on 13-FEB-2011 10:54

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.6	484.7	9.3	966.2
2	6.2	391.4	7.6	821.4
3	4.0	264.5	5.2	566.0
4	2.3	135.1	2.6	279.2
Array Temperature		77.0	Deg F	

Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	11.9	3762.7	
2	0.0	0.0	29.6	3466.5	
3	0.0	0.0	27.1	3015.0	
4	0.0	0.0	18.7	2063.8	
Deep	0.0	0.0	15.7	1995.9	
Medium	0.0	0.0	40.2	3957.5	
Shallow	0.0	0.0	45.5	5080.8	
Array Temperature		0.0		67.5	Deg F

Induction Constants MAI-A.A 178

Last Edited on 13-FEB-2011,14:22

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 17-JAN-2011 14:40
Field Calibration on 13-FEB-2011 10:57

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	12872	4.01
2	21339	5.96
3	30048	7.98
4	38622	9.95
5	47408	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	5.98

Photo Density Calibration MPD-B 65

Base Calibration on 17-JAN-2011 14:55
Field Check on 13-FEB-2011 11:04

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	50201	24995	59556	30836
Reference 2	20201	1952	24941	2541

Field Check at Base

645.0	771.4

Field Check

643.2	771.8

PE Calibration

Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	117	570		
Reference 1	19746	50081	0.396	0.371
Reference 2	5656	20120	0.283	0.272

Field Check at Base

117.0	570.5

Field Check

117.2	568.8

Density Constants MPD-B 65

Last Edited on 13-FEB-2011,14:21

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	

DOWNHOLE EQUIPMENT

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11.dta

Compact Comms Gamma
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 9 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

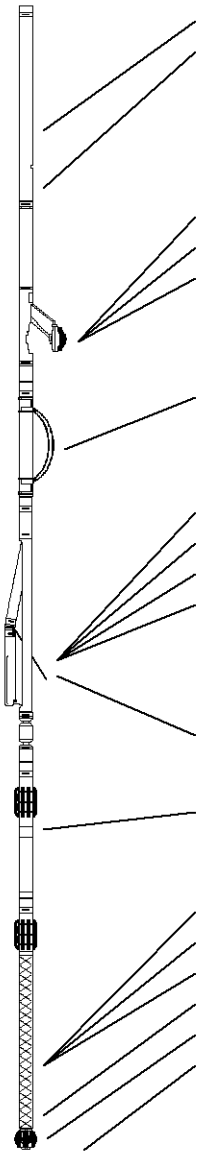
Compact Density/Caliper
MPD-B 65 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.32 ft Weight: 407.9 lb



45.04 ft	GRGC - Gamma Ray
42.13 ft	CGXT - MCG External Temperature
35.41 ft	MINV - Micro-inverse
35.41 ft	MNRL - Micro-normal
36.40 ft	MLTC - MML Caliper
30.61 ft	NPRL - Limestone Neutron Por.
23.37 ft	CLDC - Density Caliper
21.44 ft	DPRL - Limestone Density Por.
21.44 ft	DEN - Compensated Density
21.44 ft	DCOR - Density Correction
21.38 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	HULL #2-11
FIELD	ADAMS RANCH
PROVINCE/COUNTY	MEADE

COUNTRY/STATE			U.S.A. / KANSAS		
Elevation Kelly Bushing	2680.00	feet	First Reading	6361.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6387.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6383.00	feet

Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON LOG

40 Years of Wireline 1970 2010