Weatherford

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	990' FNL & 1650' FWL

SEC	TWP	RGE	Other Services
17	30S	30W	MAI/MFE

Latitude
Longitude
API Number 15-119-21378

Permanent Datum GL, Elevation 2814 feet
Log Measured From KB
Drilling Measured From KB @ 11 feet

Elevations:	feet
KB	2825.00
DF	2823.00
GL	2814.00

Date	10-NOV-2014				
Run Number	ONE				
Service Order	7577-102837829				
Depth Driller	5700.00	feet			
Depth Logger	5702.00	feet			
First Reading	5683.00	feet			
Last Reading	4000.00	feet			
Casing Driller	1857.00	feet			
Casing Logger	1858.00	feet			
Bit Size	7.875	inches			
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.25	lb/USg	48.00	CP	
PH / Fluid Loss	9.50		8.00	ml/30Min	
Sample Source	MUD PIT				
Rm @ Measured Temp	1.97 @ 75.0	ohm-m			
Rmf @ Measured Temp	1.58 @ 75.0	ohm-m			
Rmc @ Measured Temp	2.36 @ 75.0	ohm-m			
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	1.24 @122.0	ohm-m			
Time Since Circulation	3.5 HOURS				
Max Recorded Temp	122.00	deg F			
Equipment / Base	13244		LIB		
Recorded By	JEFFREY RANDLE				
Witnessed By	ZACH WIELE				
JOB #	LB14-352				

BOREHOLE RECORD

Last Edited: 10-NOV-2014 19:58

Bit Size inches	Depth From feet	Depth To feet
7.875	1857.00	5700.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1857.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 14.03.5114.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1337 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 4000 FEET: 279 CU.FT.
- RIG: STERLING #2

- ENGINEER: J. RANDLE.

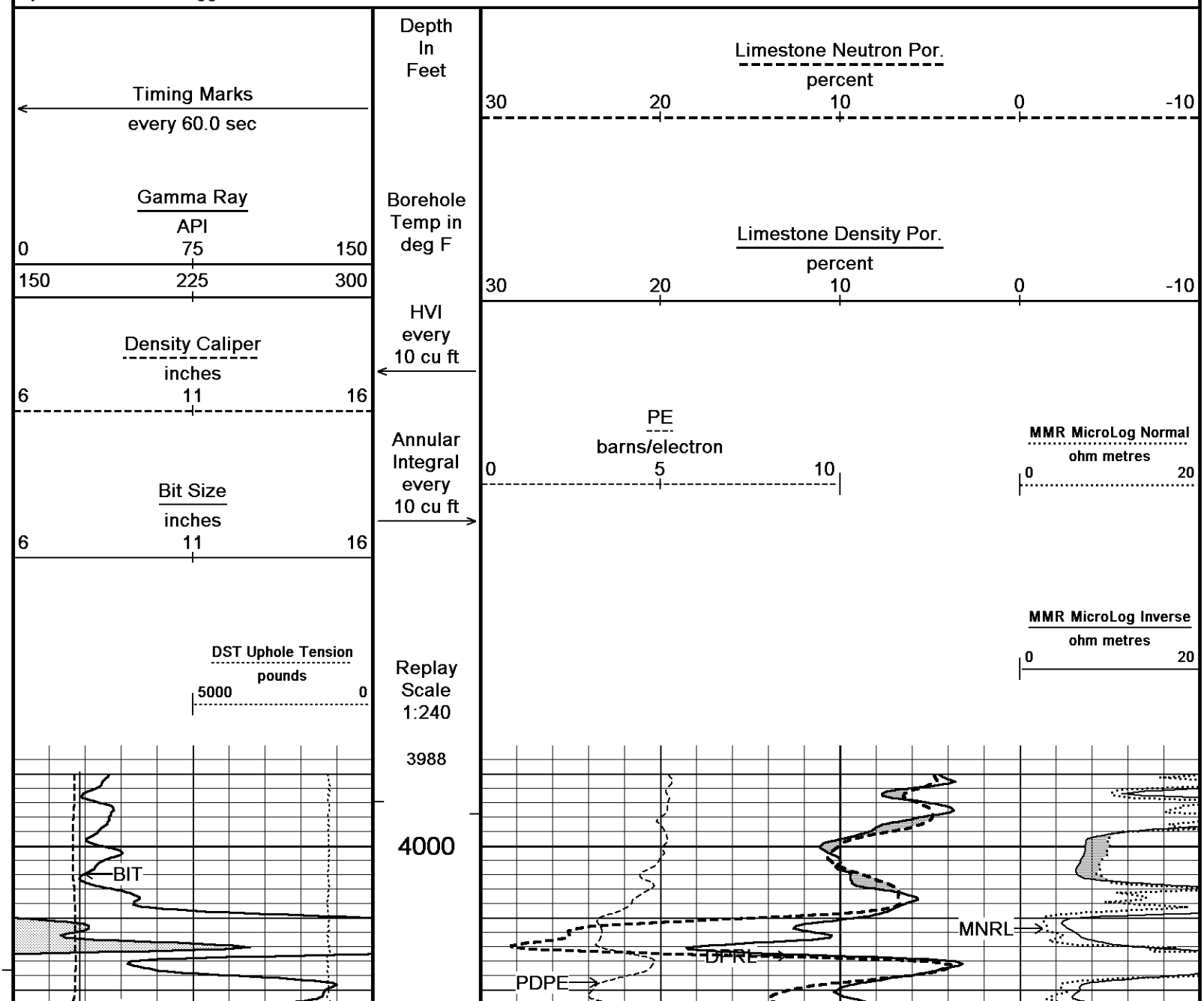
- OPERATOR: J. LaPOINT.

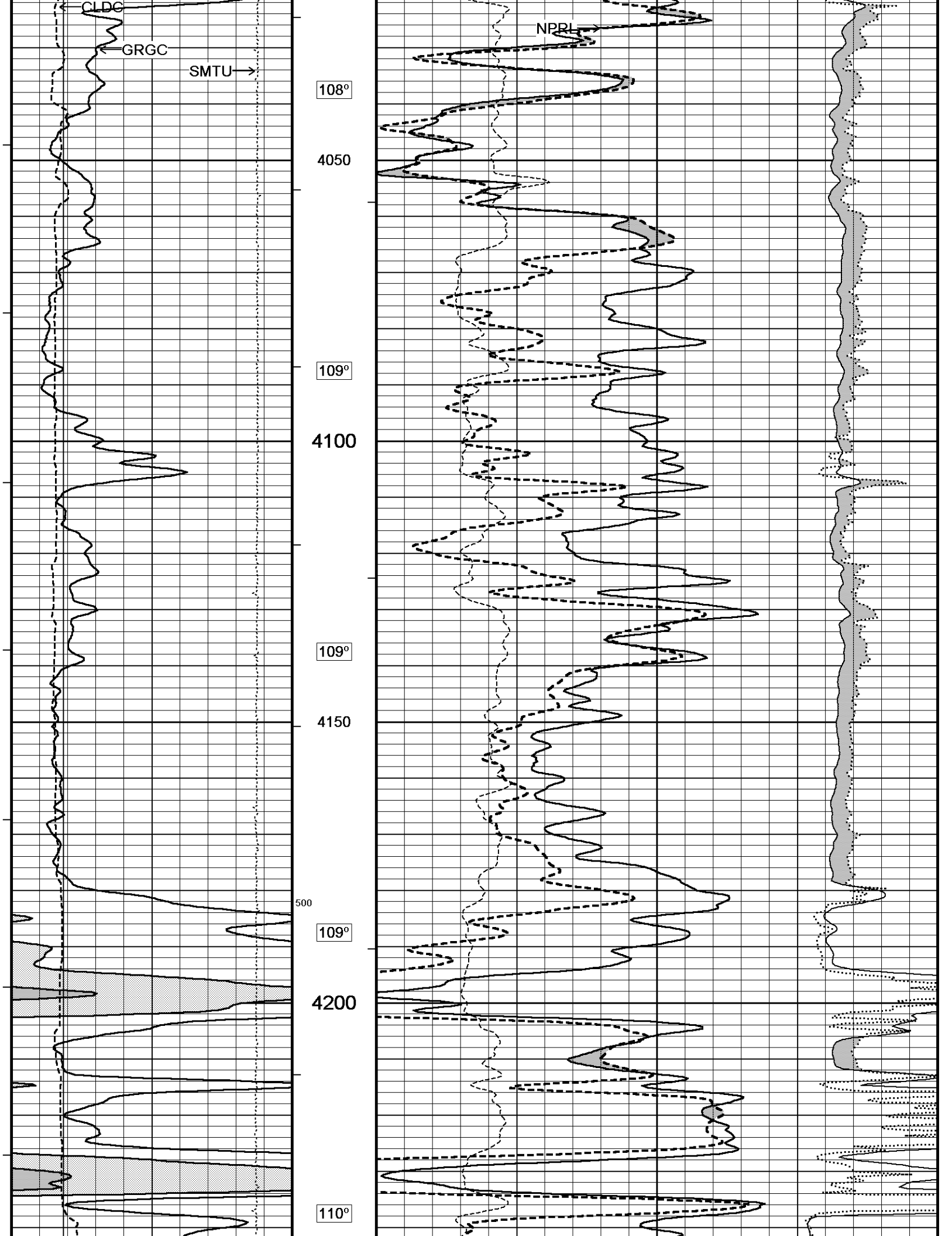
5 INCH MAIN

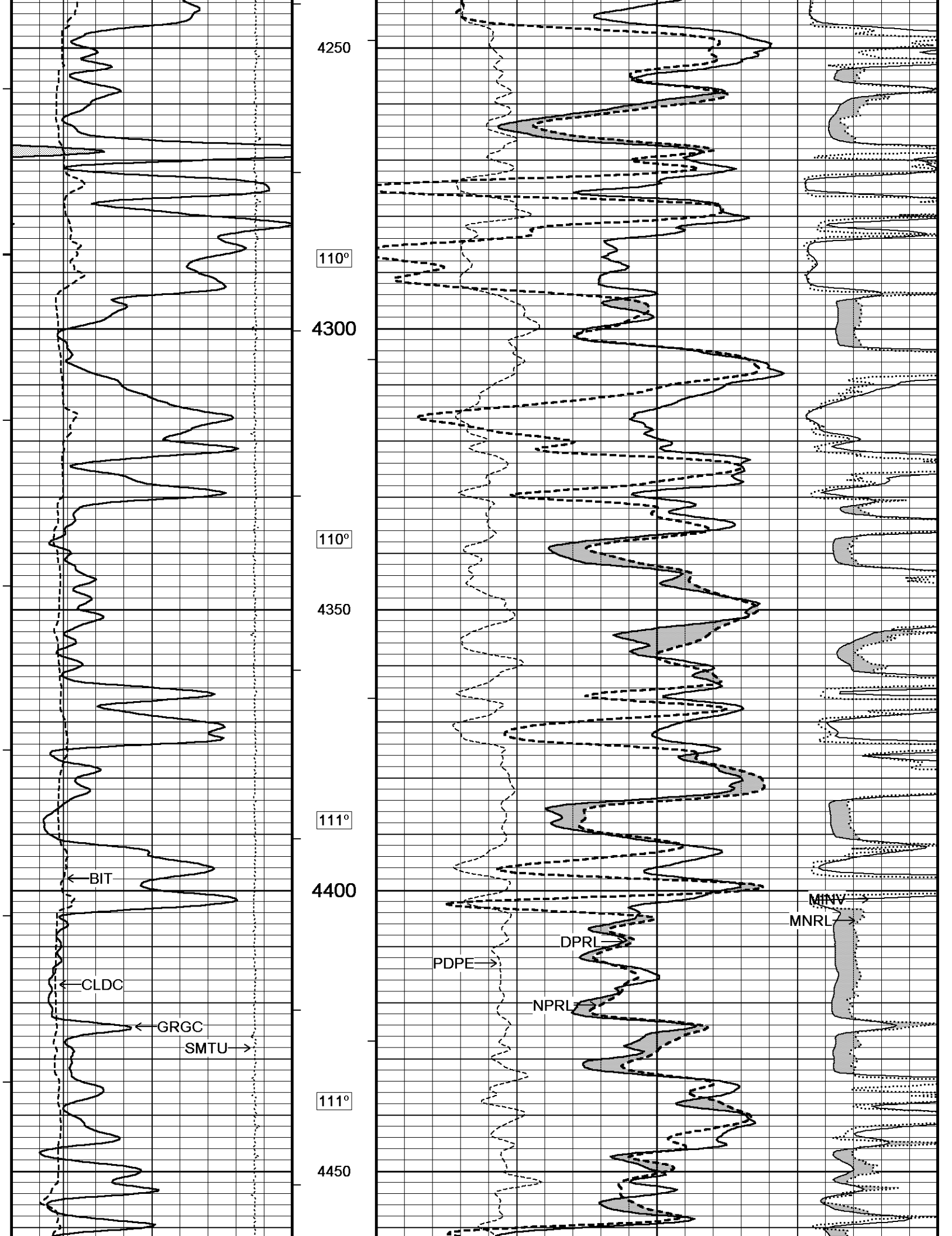
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:47

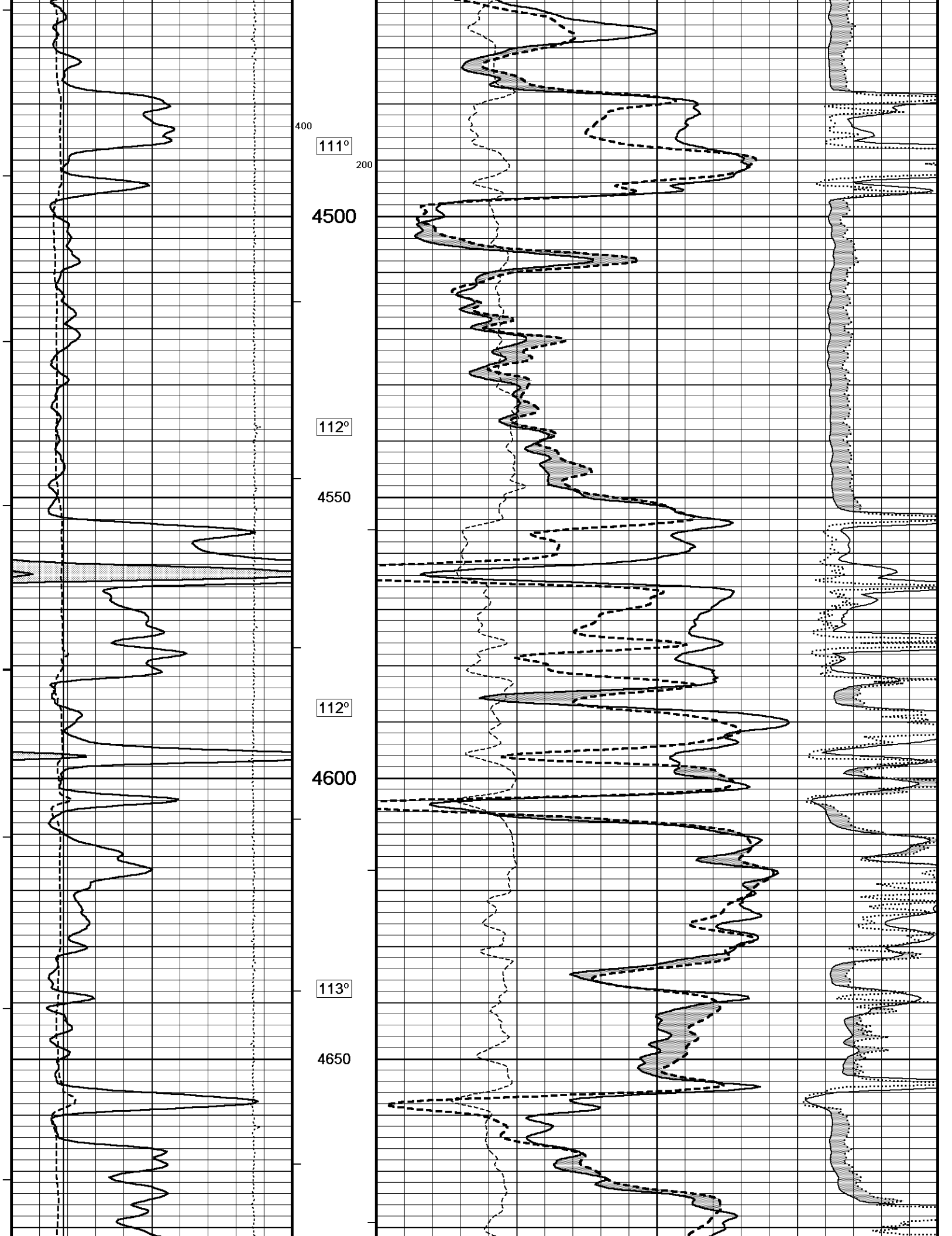
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18

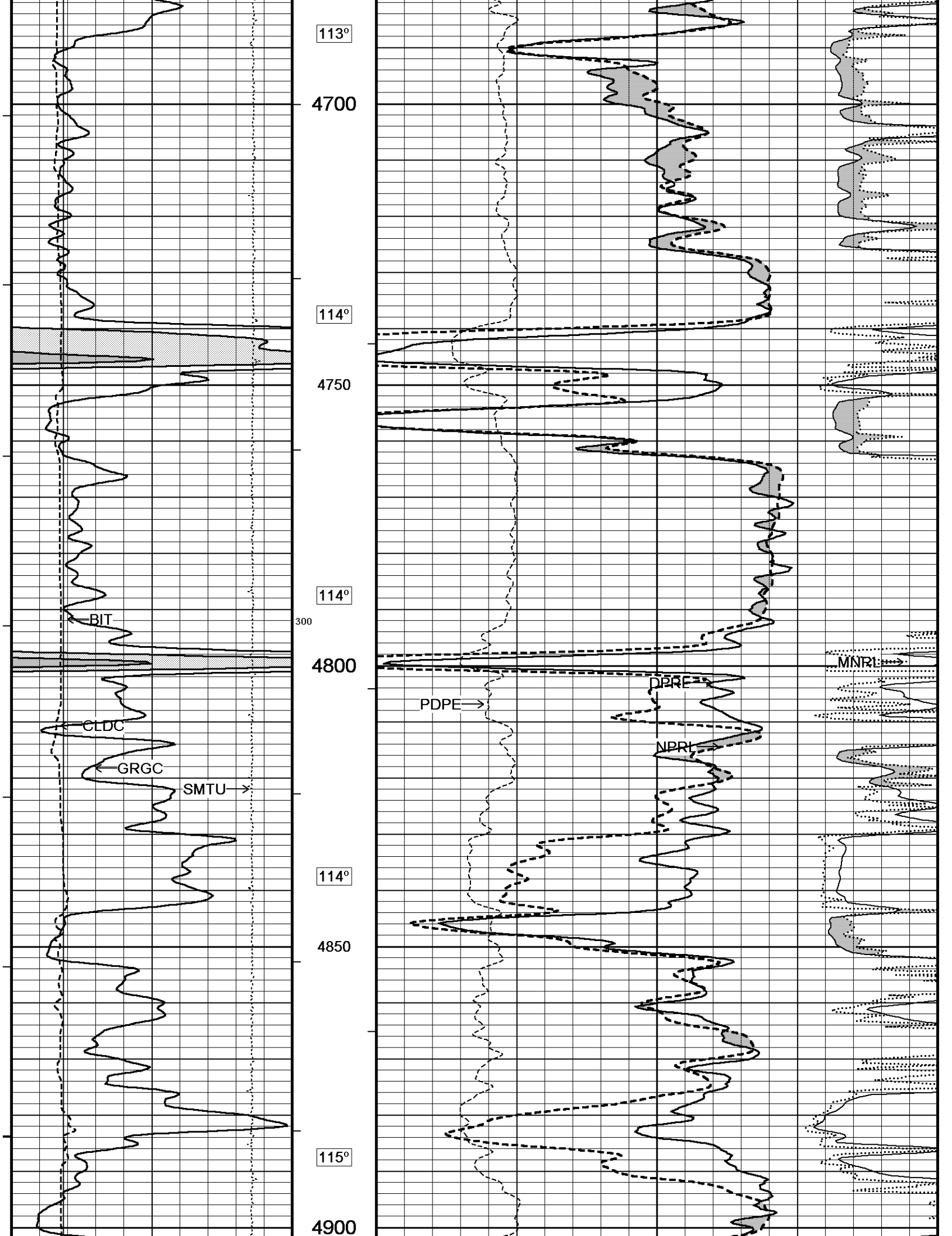
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

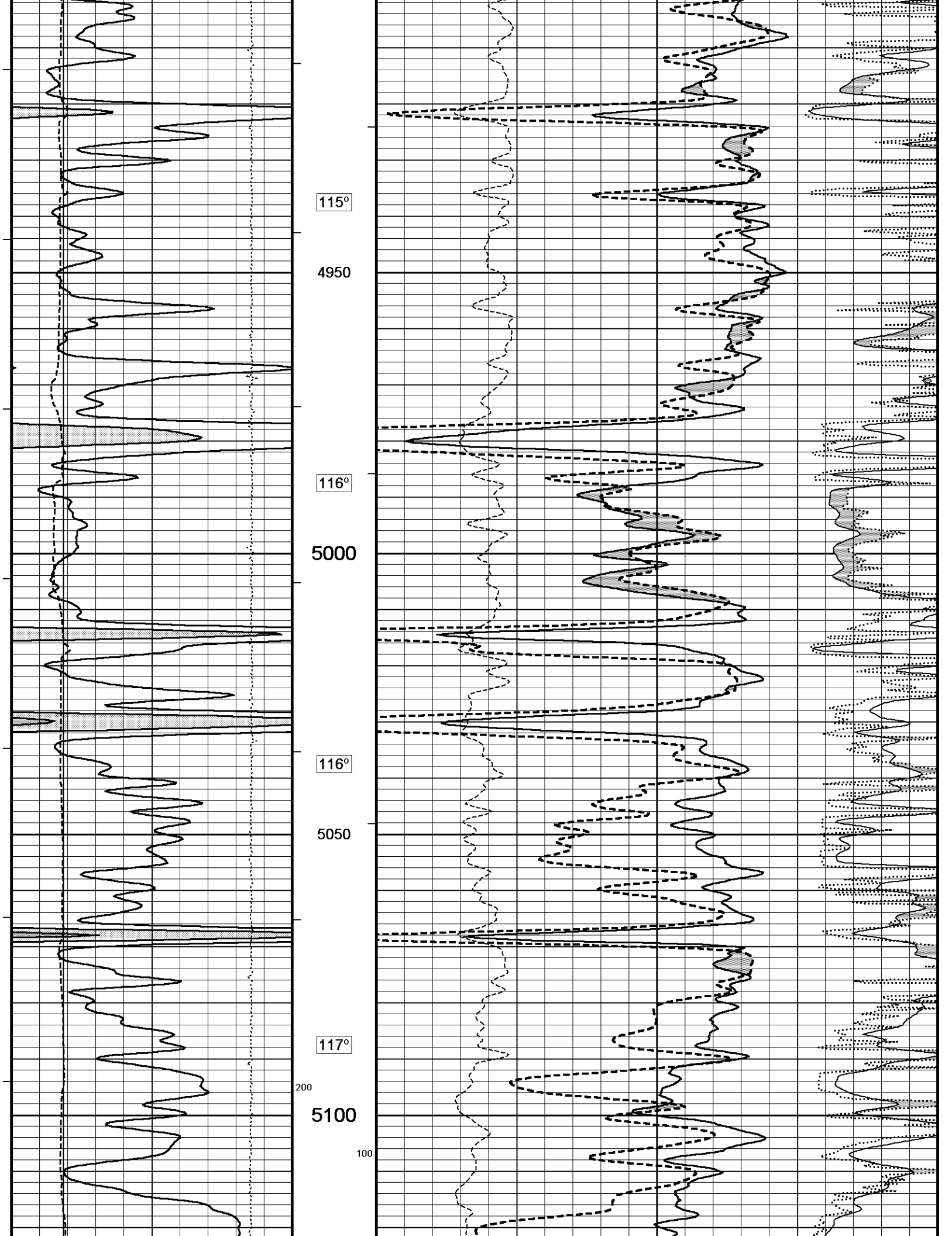


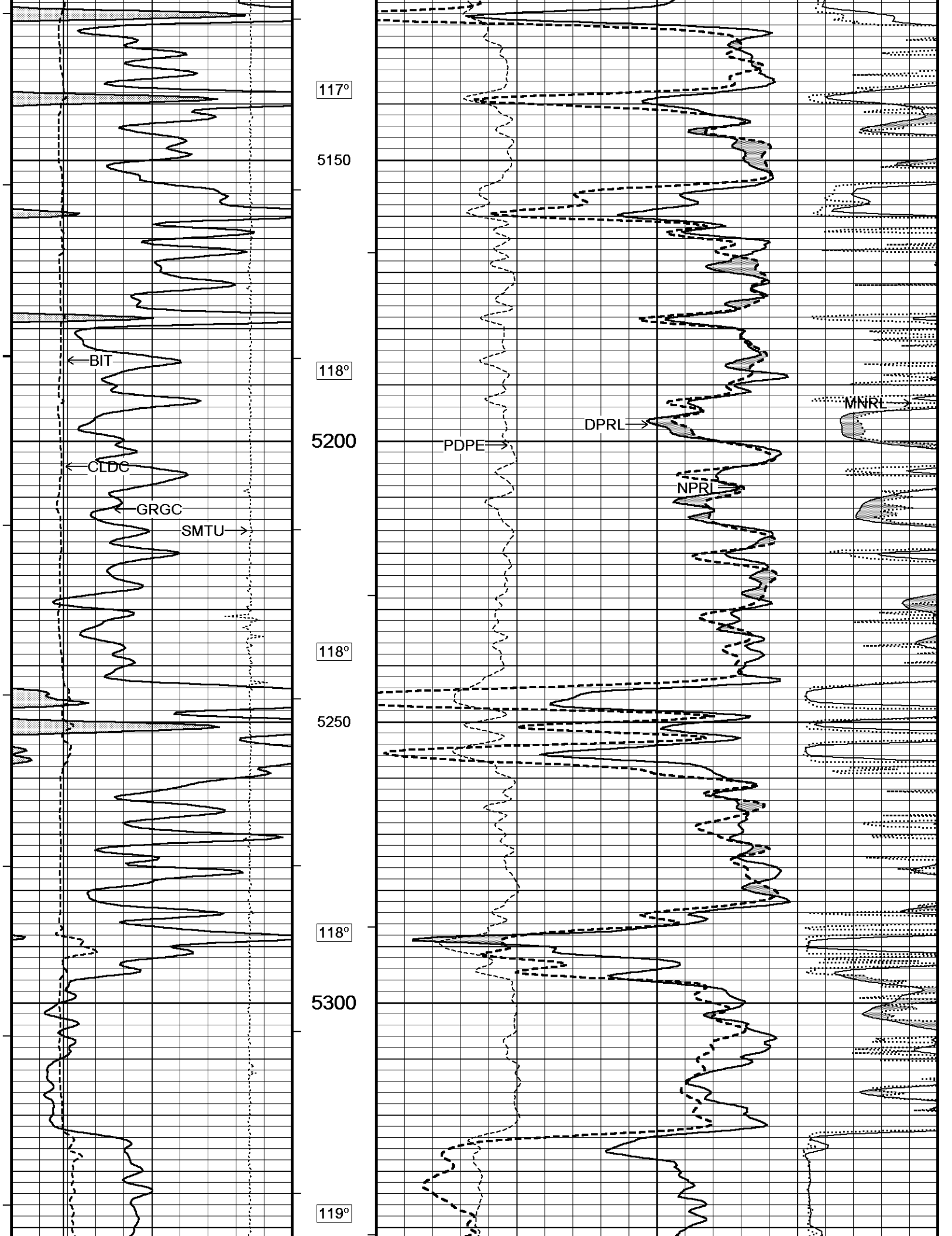

CLDC
GRGC
SMTU
NPRL
108°
4050
109°
4100
109°
4150
500
109°
4200
110°

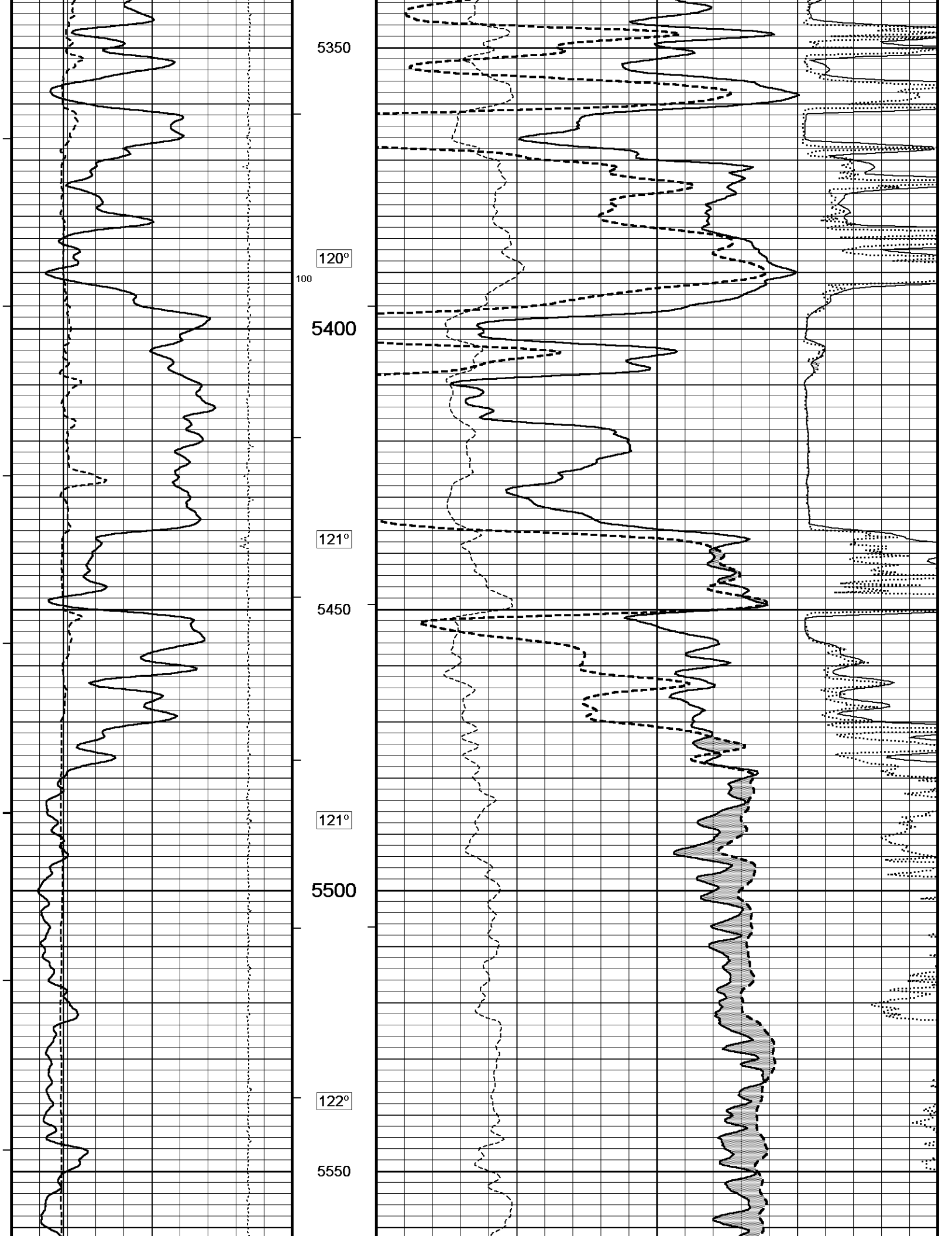

4250
110°
4300
110°
4350
111°
4400
111°
4450
BIT
CLDC
GRGC
SMTU
PDPE
DPRL
NPRL
MINV
MNRL

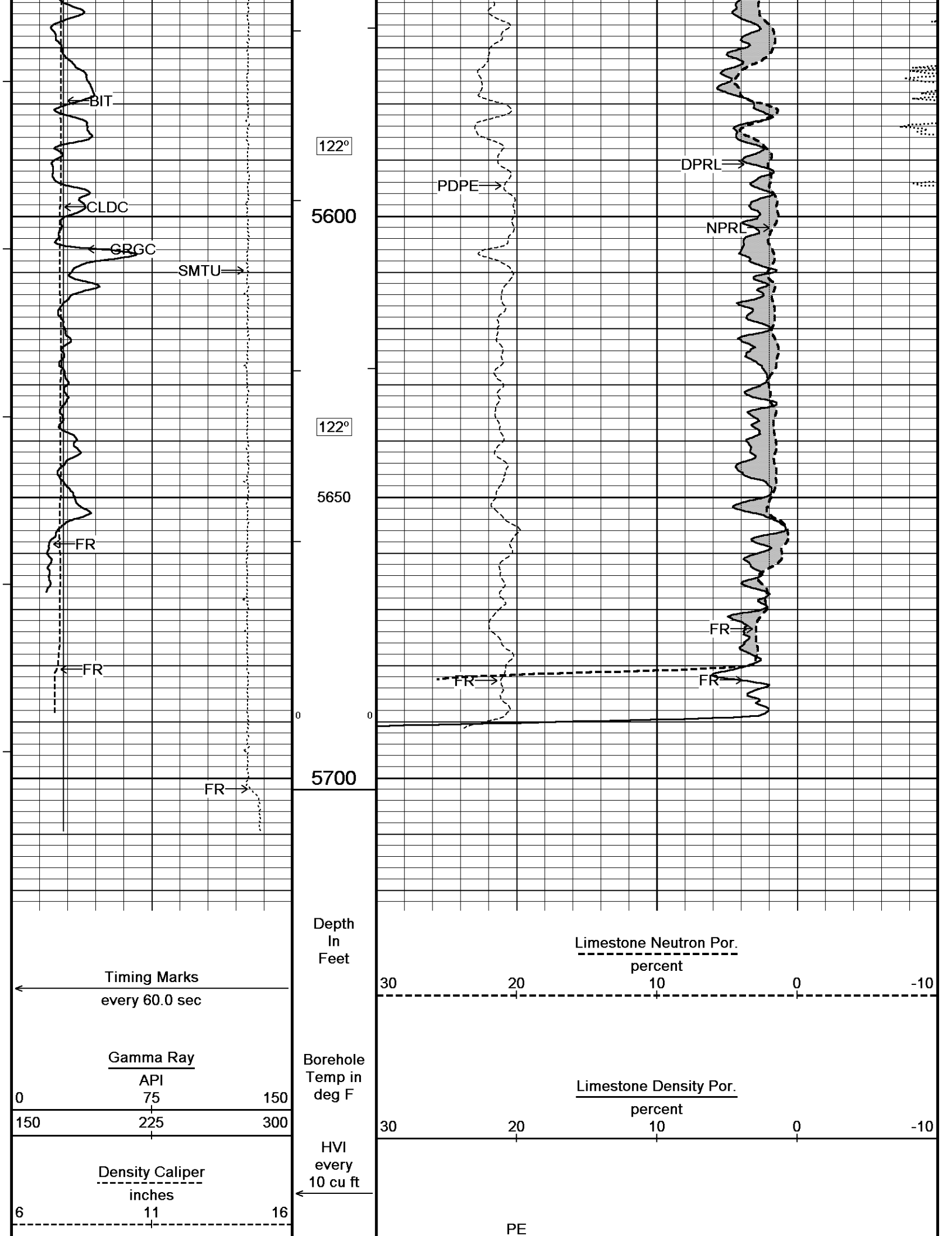

400
111°
200
4500
112°
4550
112°
4600
113°
4650

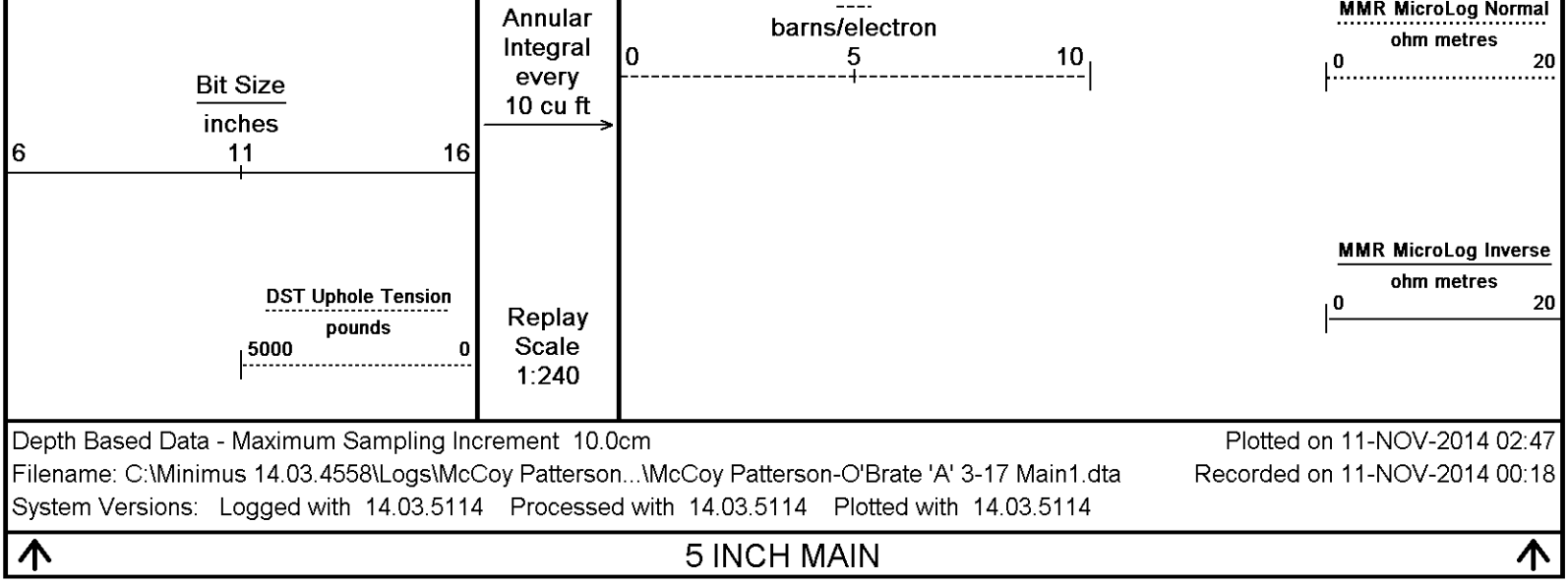

113°
4700
114°
4750
114°
BIT
300
4800
CLDC
GRGC
SMTU
114°
4850
115°
4900
PDPE
DPRE
NPRL
MNRL


115°
4950
116°
5000
116°
5050
117°
200
5100
100


117°
5150
BIT
118°
5200
CLDC
GRGC
SMTU
PDPE
DPRL
MNRL
NPRL
118°
5250
118°
5300
119°


5350
120°
100
5400
121°
5450
121°
5500
122°
5550


BIT
CLDC
GRGC
SMTU
FR
FR
FR
122°
5600
122°
5650
5700
PDPE
DPRL
NPRL
FR
FR
FR
0
0
Depth
In
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
6
11
16
Borehole
Temp in
deg F
HVI
every
10 cu ft
Limestone Neutron Por.
percent
30
20
10
0
-10
Limestone Density Por.
percent
30
20
10
0
-10
PE

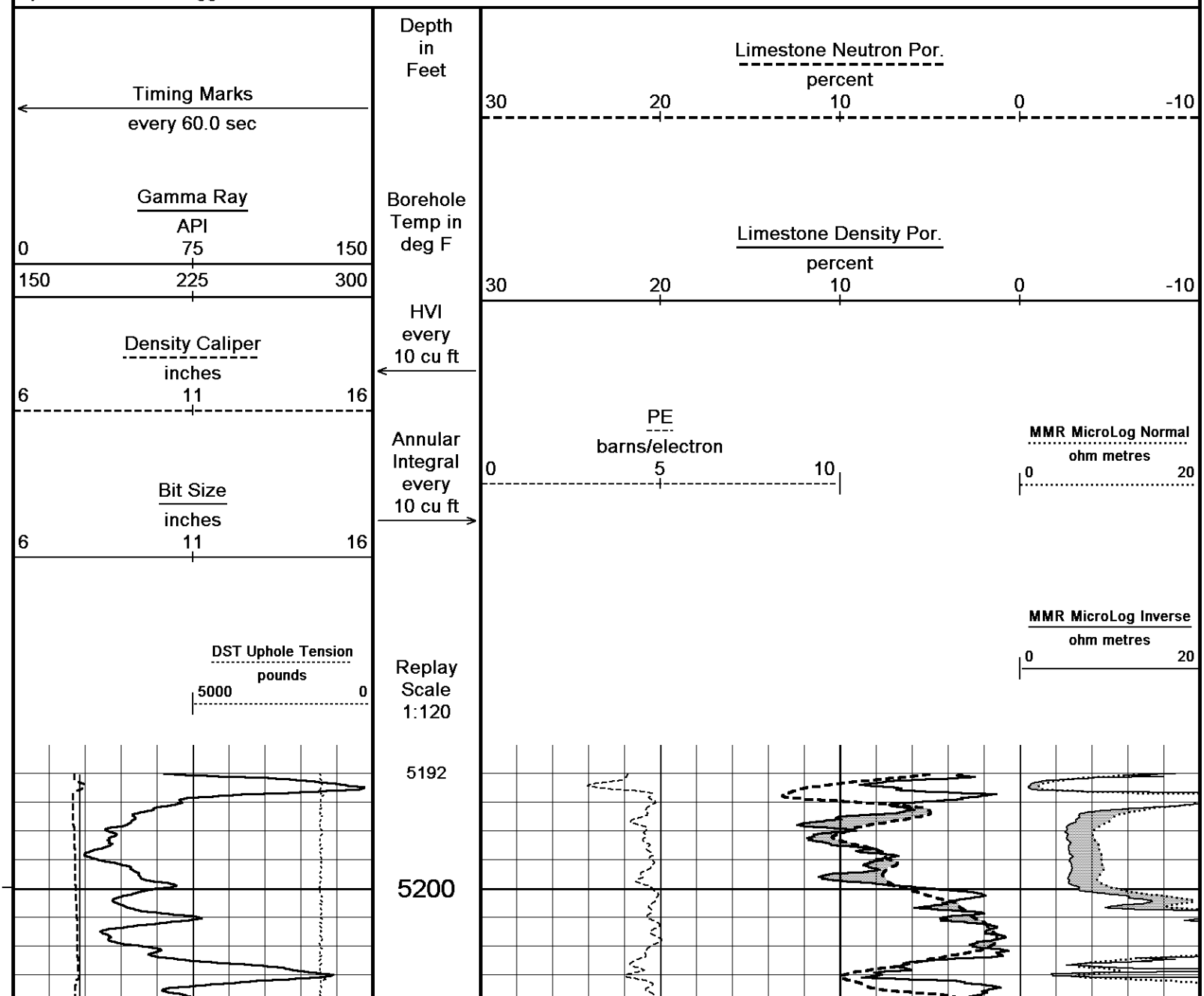


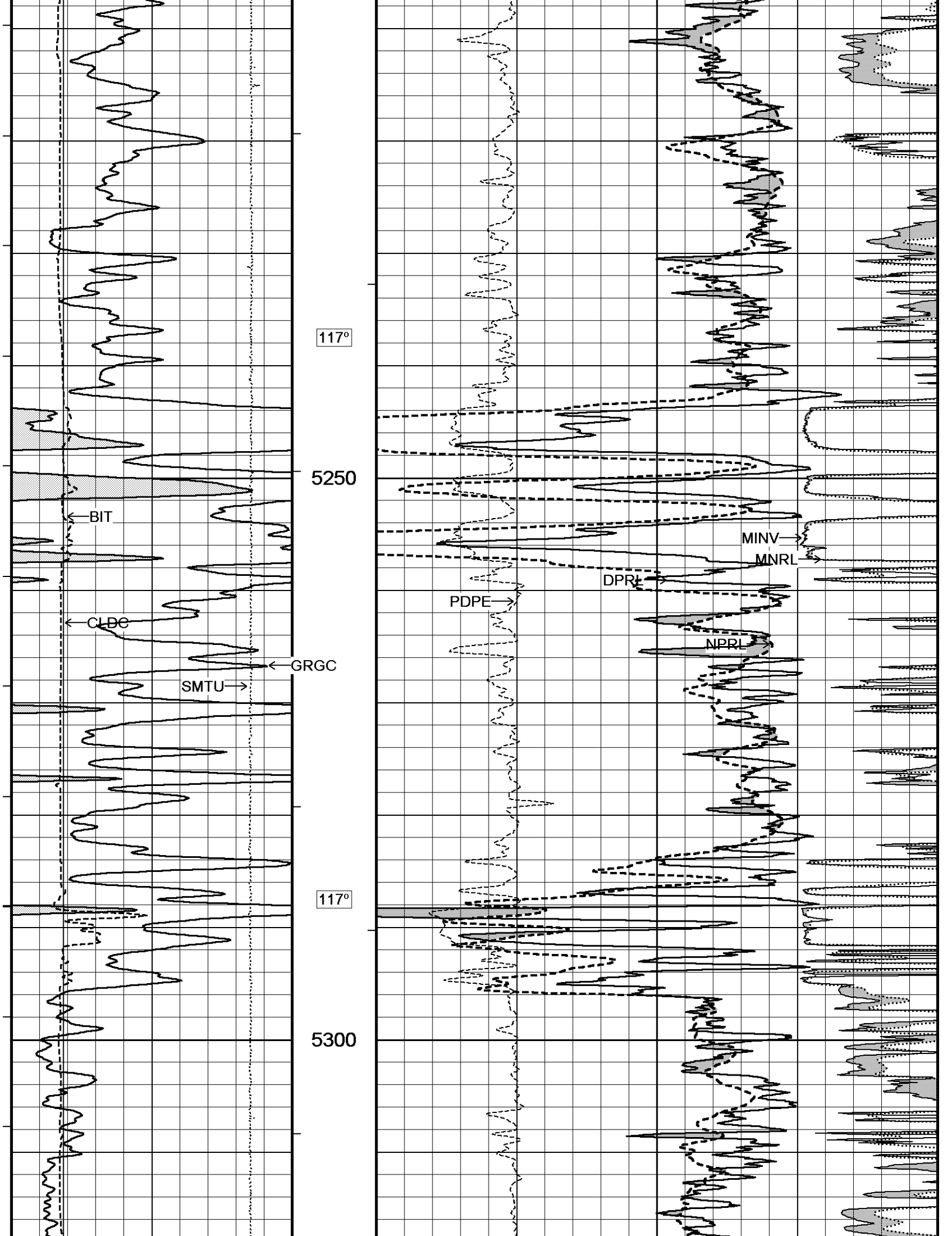
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

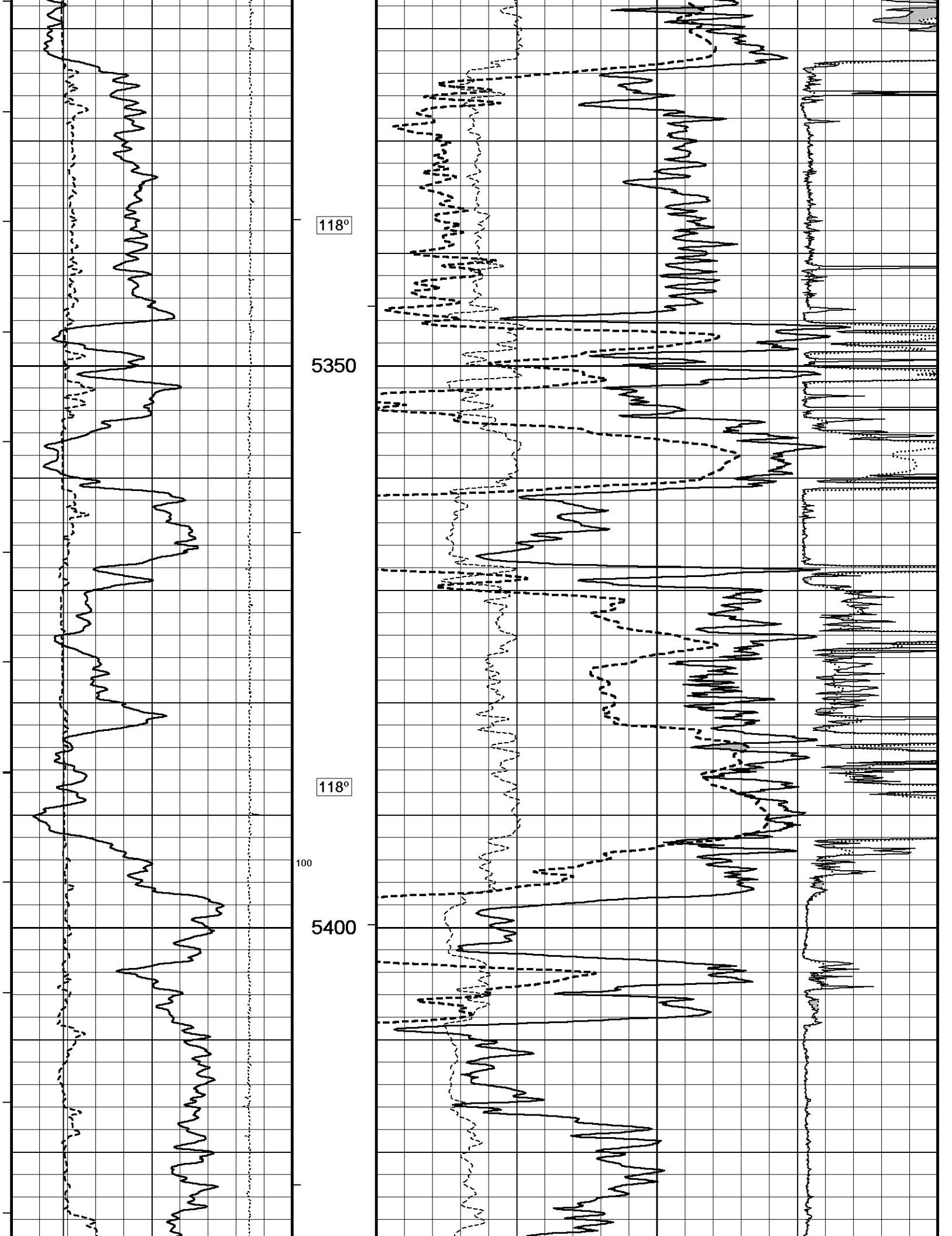
5 INCH MAIN

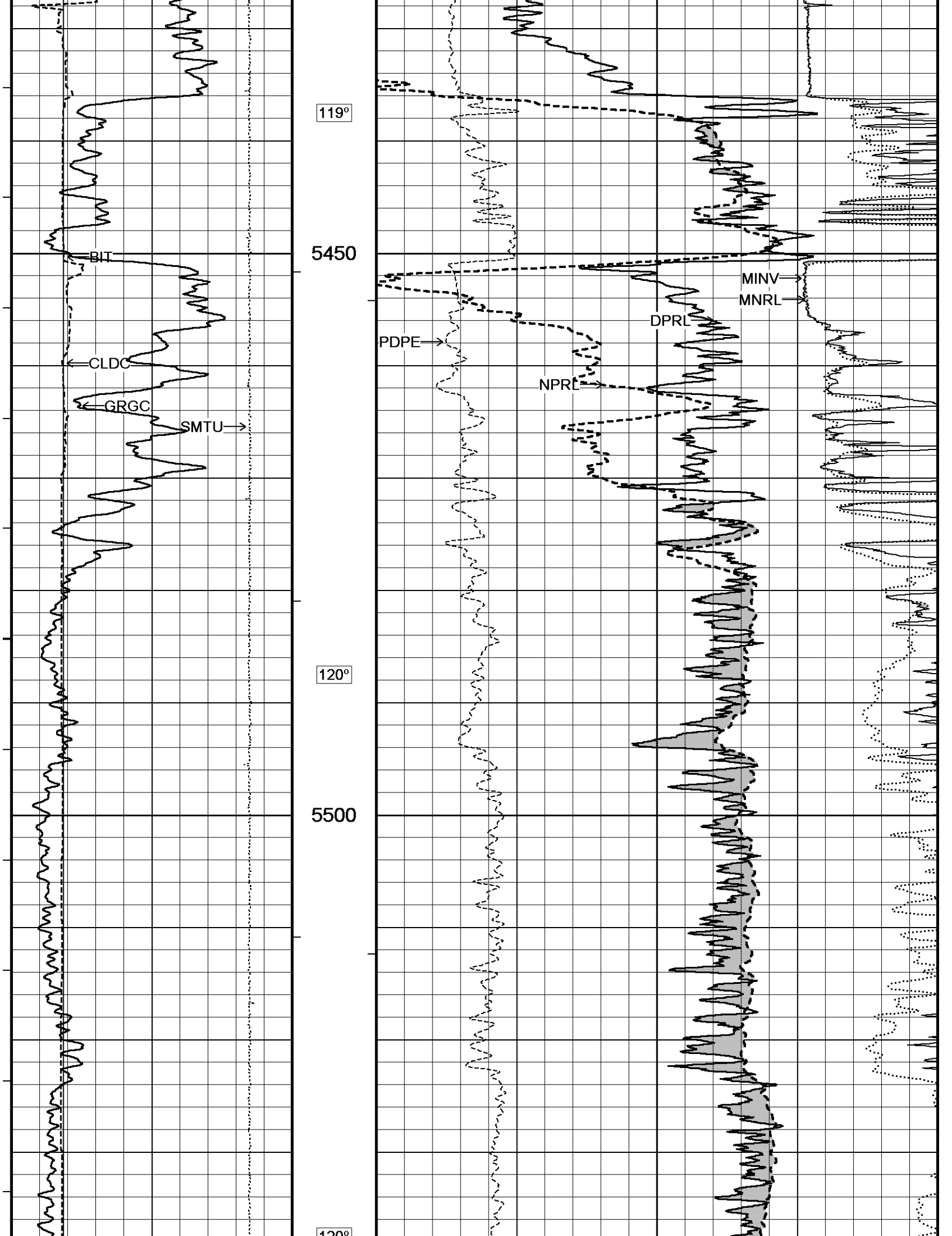
10 INCH HIGH RESOLUTION

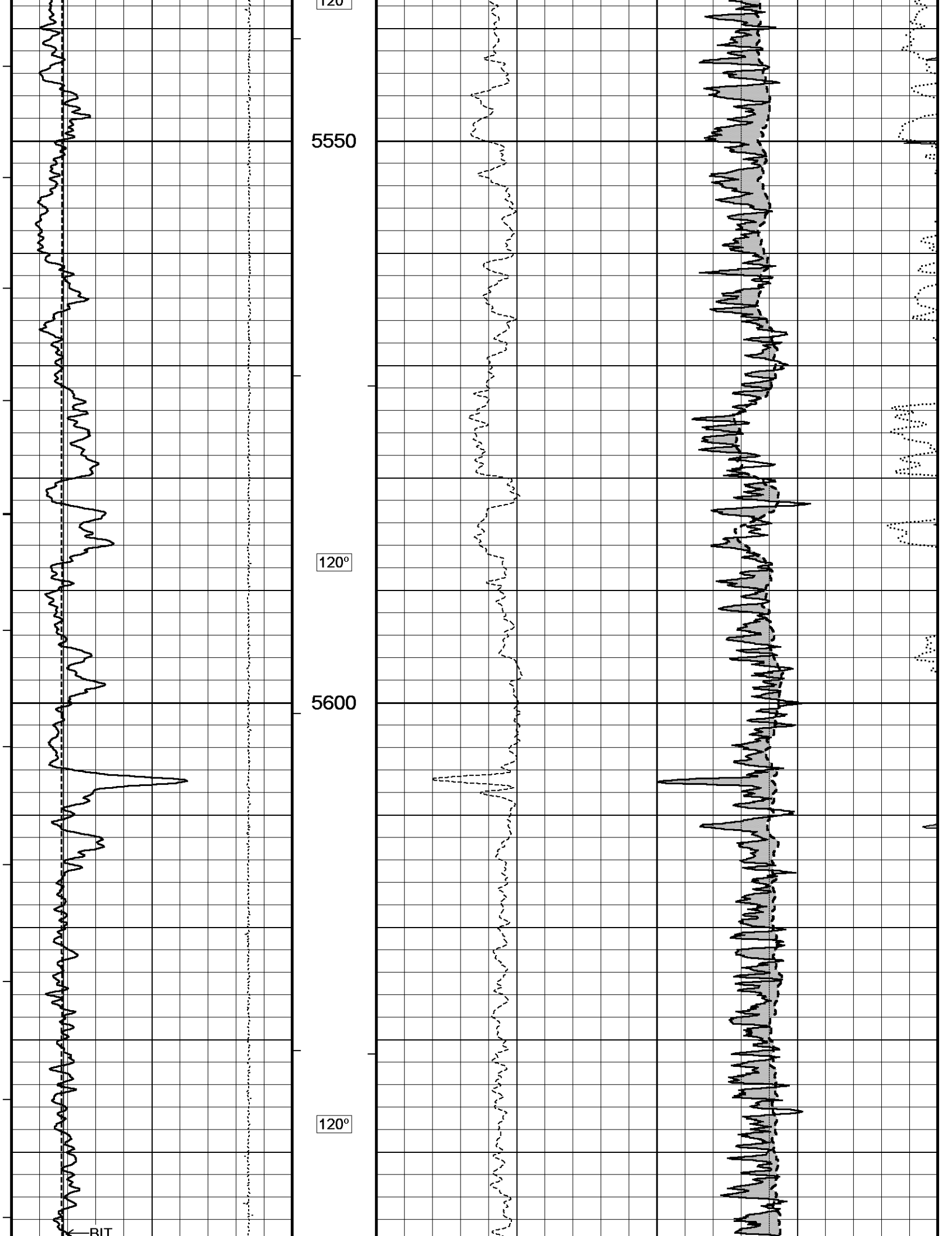
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta — Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

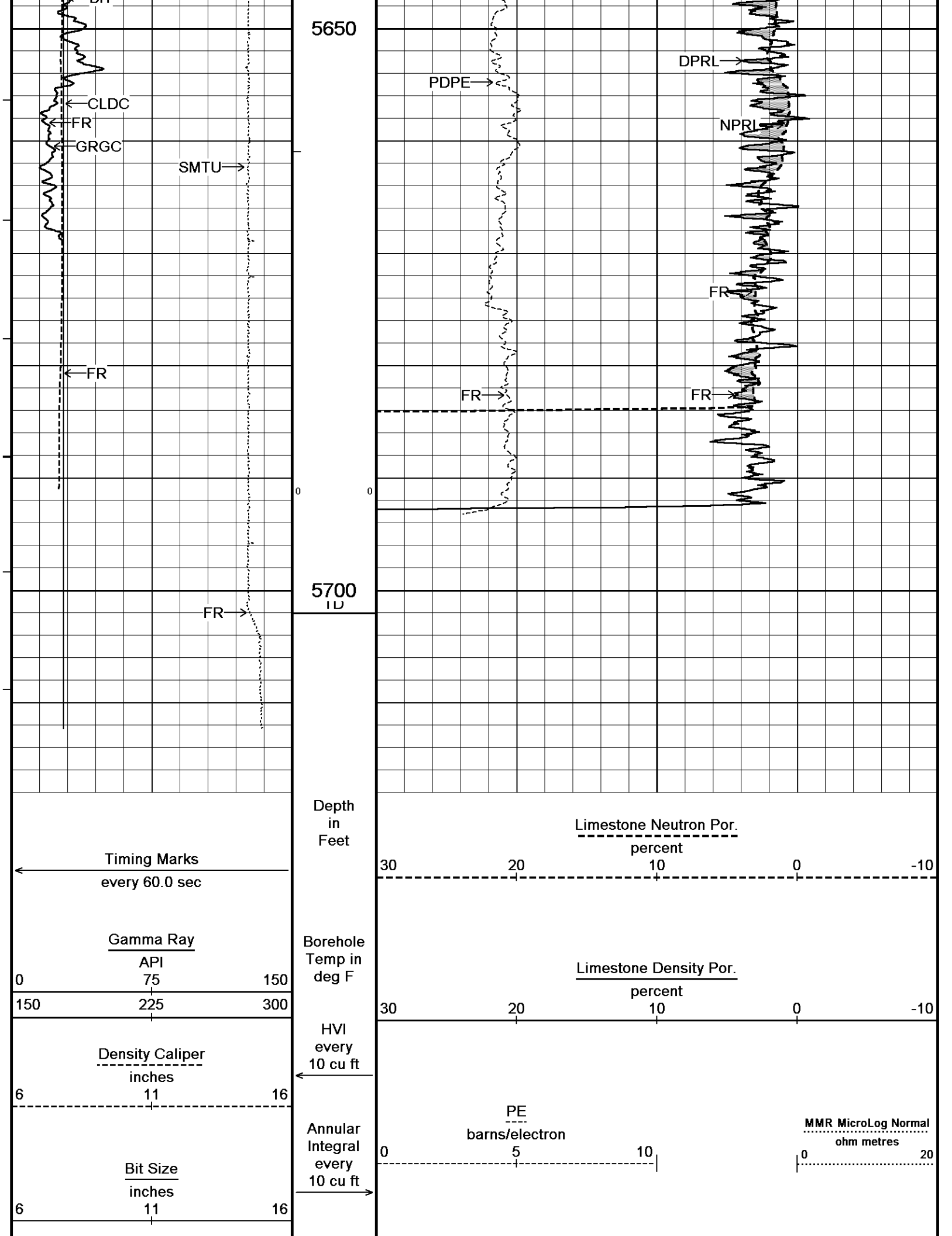



117°
5250
BIT
CLDC
GRGC
SMTU
PDPE
DPRL
MINV
MNRL
NPRL
117°
5300


118°
5350
118°
100
5400


BIT
CLDC
GRGC
SMTU
119°
5450
120°
5500
PDPE
NPRL
DPRL
MINV
MNRL


120
5550
120°
5600
120°
BIT


5650
5700
TD
CLDC
FR
GRGC
SMTU
FR
FR
PDPE
DPRL
NPRL
FR
FR
FR
0
0
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
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
MMR MicroLog Normal
ohm metres
0
20

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

MMR MicroLog Inverse
ohm metres
0 20

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

10 INCH HIGH RESOLUTION

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

Timing Marks
every 60.0 sec

Depth
in
Feet

Limestone Neutron Por.
percent
30 20 10 0 -10

Gamma Ray
API
0 75 150
150 225 300

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

PE
barns/electron
0 5 10

MMR MicroLog Normal
ohm metres
0 20

Annular
Integral
every
10 cu ft

Bit Size
inches
6 11 16

MMR MicroLog Inverse
ohm metres
0 20

DST Uphole Tension
pounds
5000 0

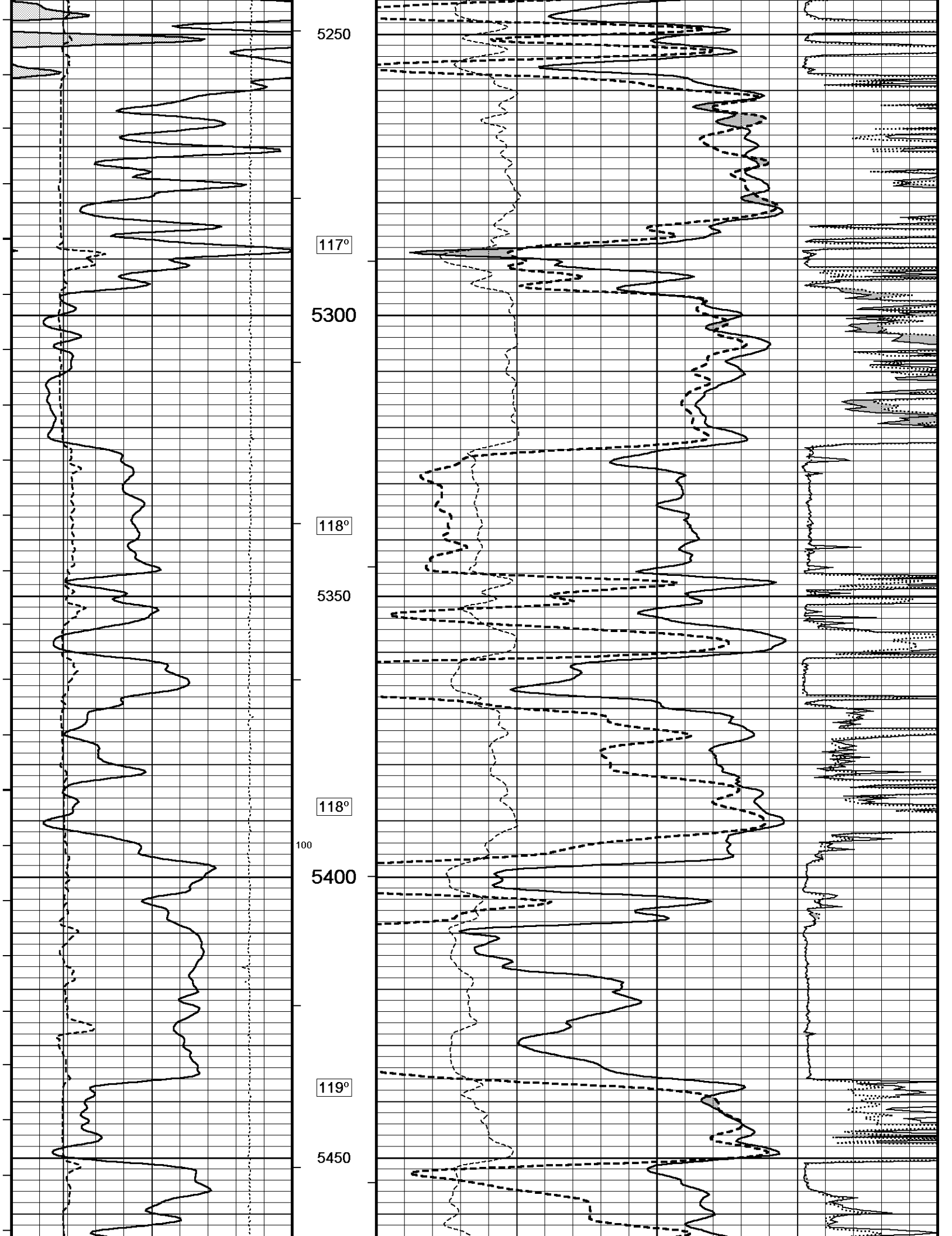
Replay
Scale
1:240

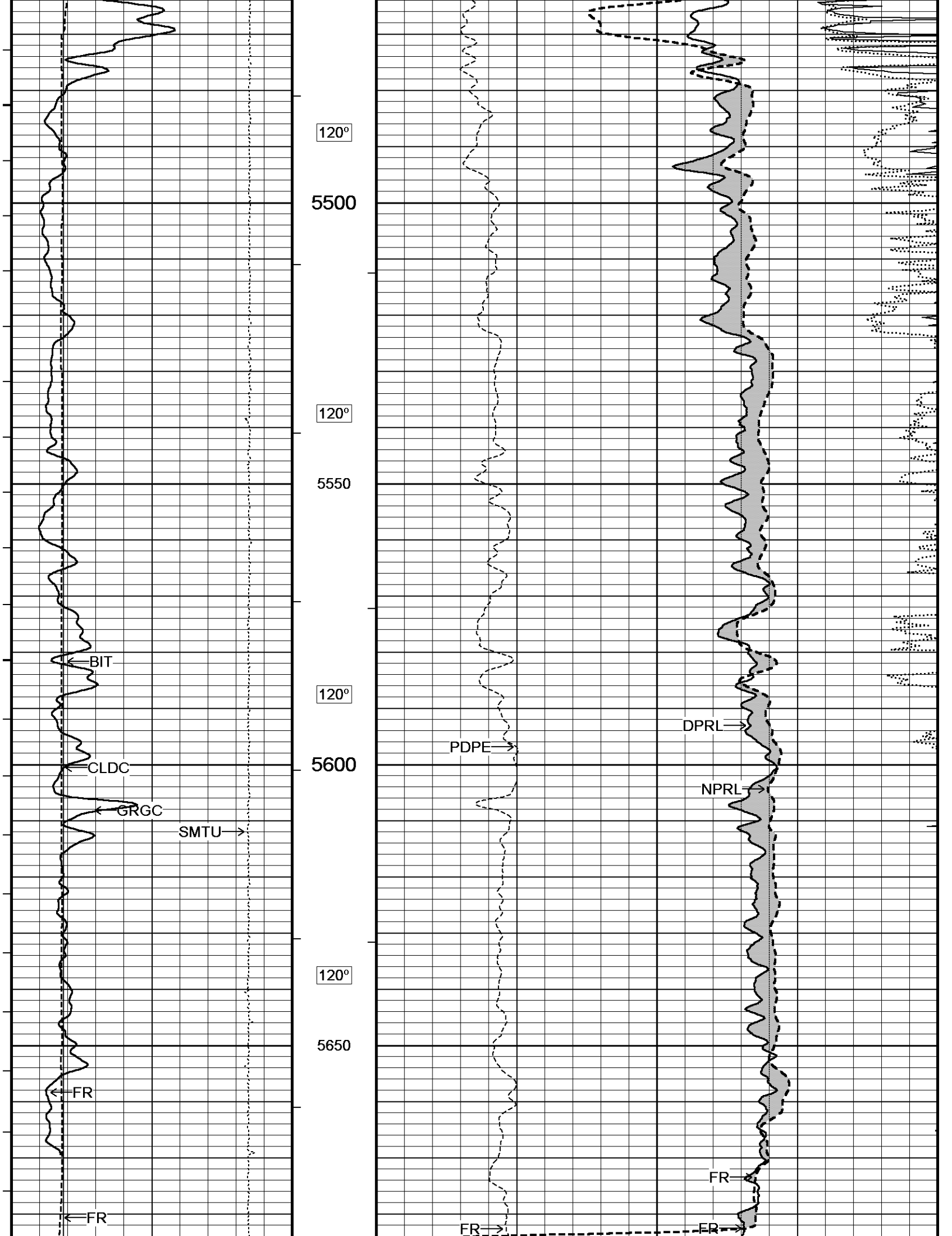
5190

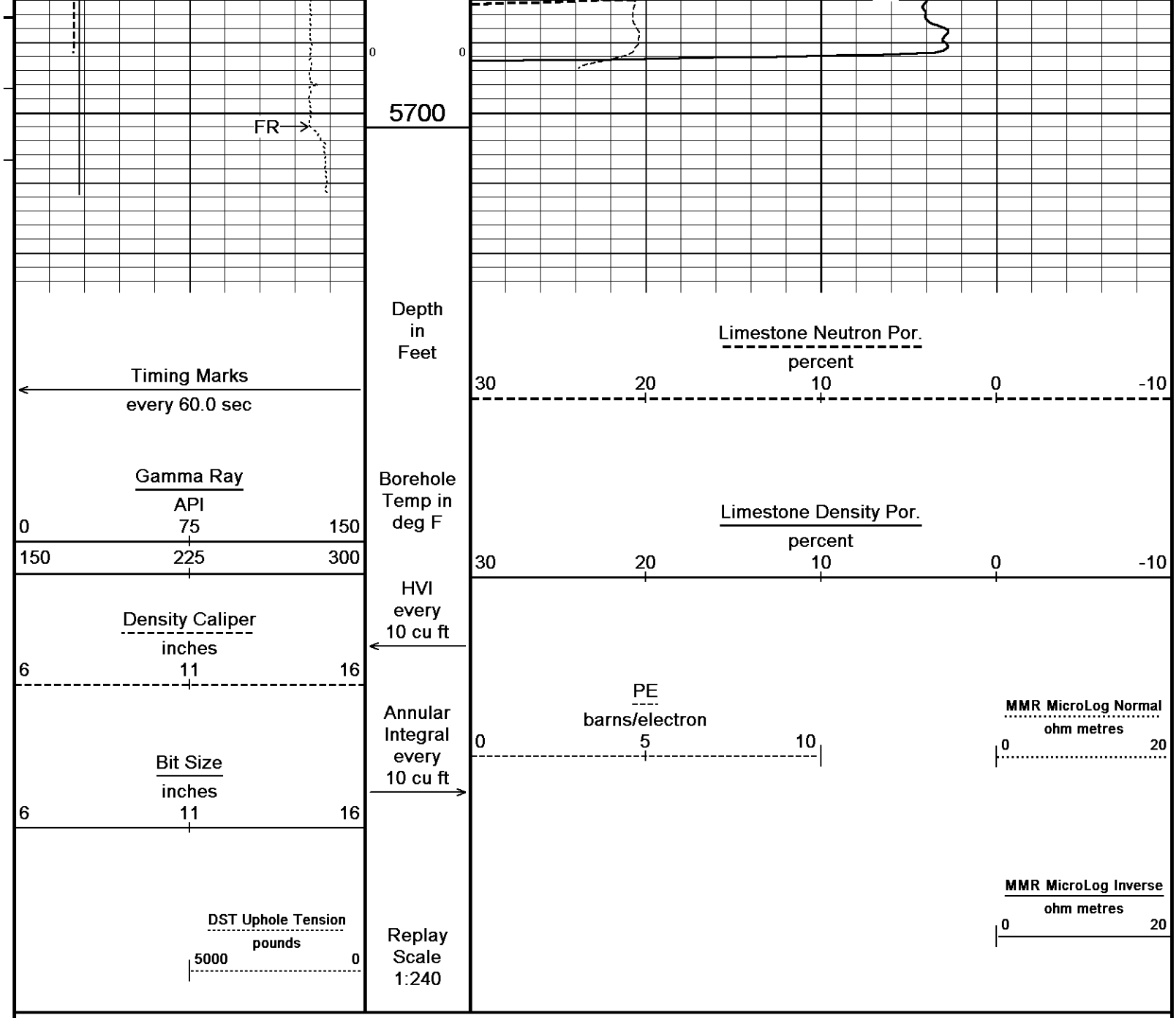
5200

CLDC
GRGC
SMTU
PDPE
DPRL
NPRL
MNRL

117°


5250
117°
5300
118°
5350
118°
100
5400
119°
5450


120°
5500
120°
5550
BIT
120°
CLDC
5600
GRGC
SMTU
120°
5650
FR
FR
PDPE
DPRL
NPRL
FR
FR
FR



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta
Recorded on 10-NOV-2014 23:07
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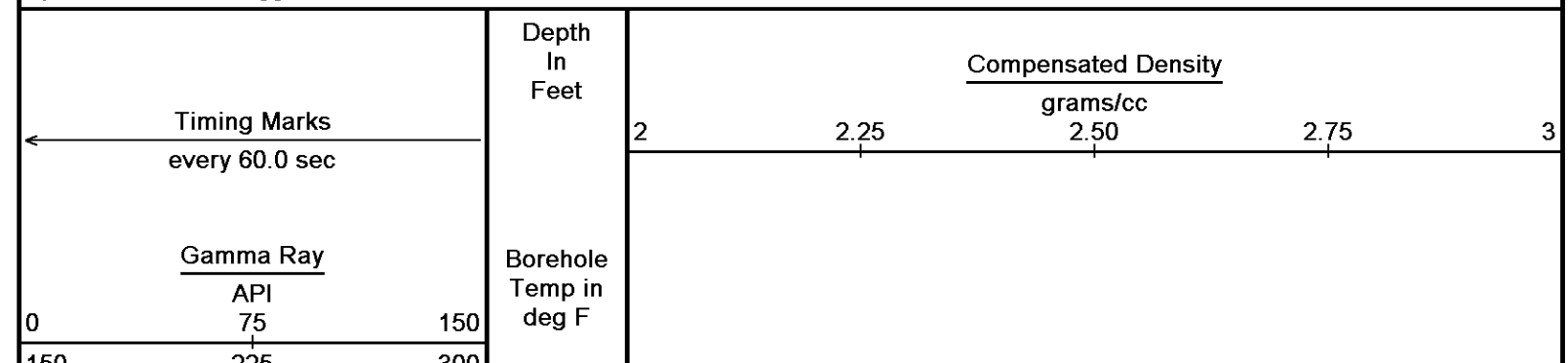
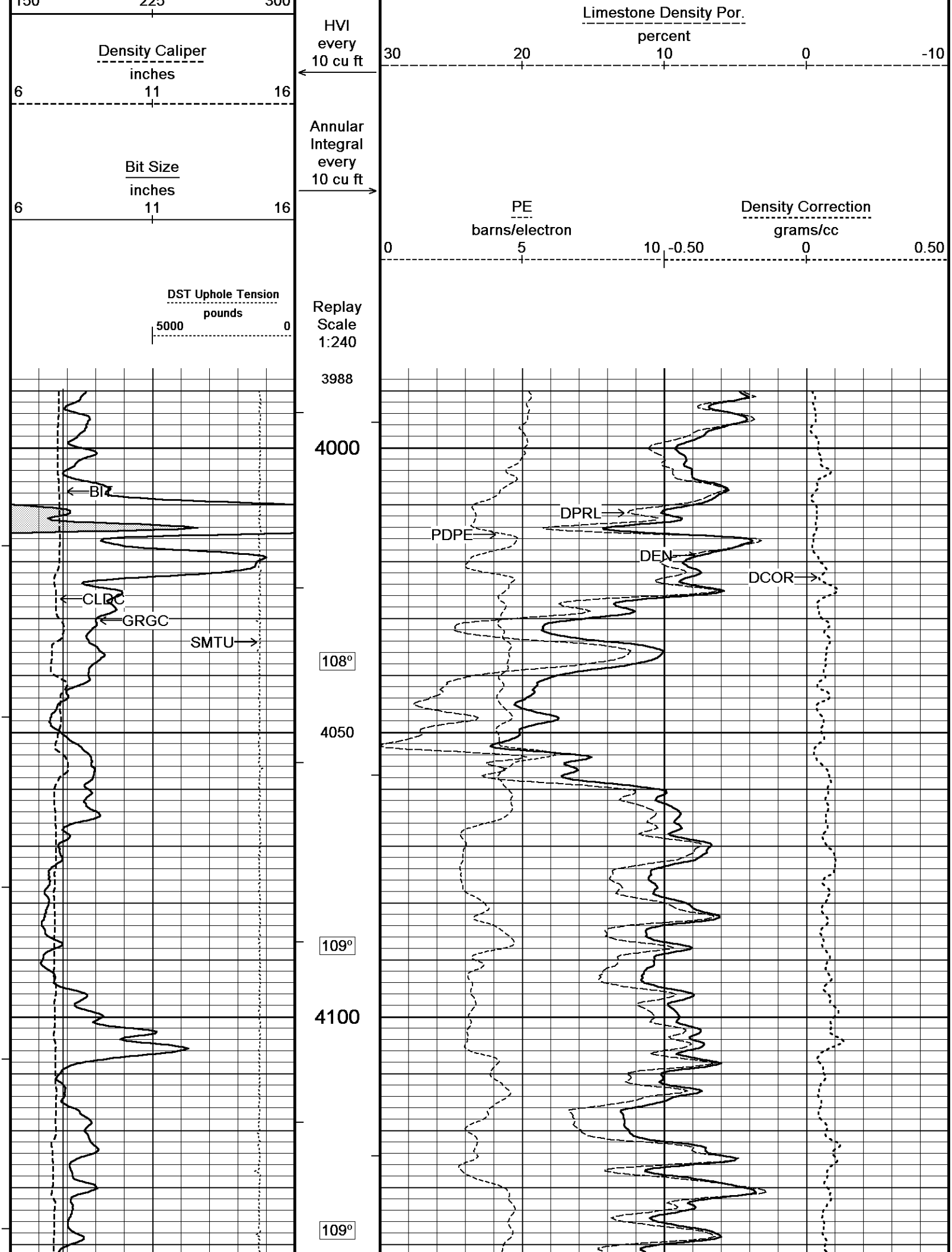
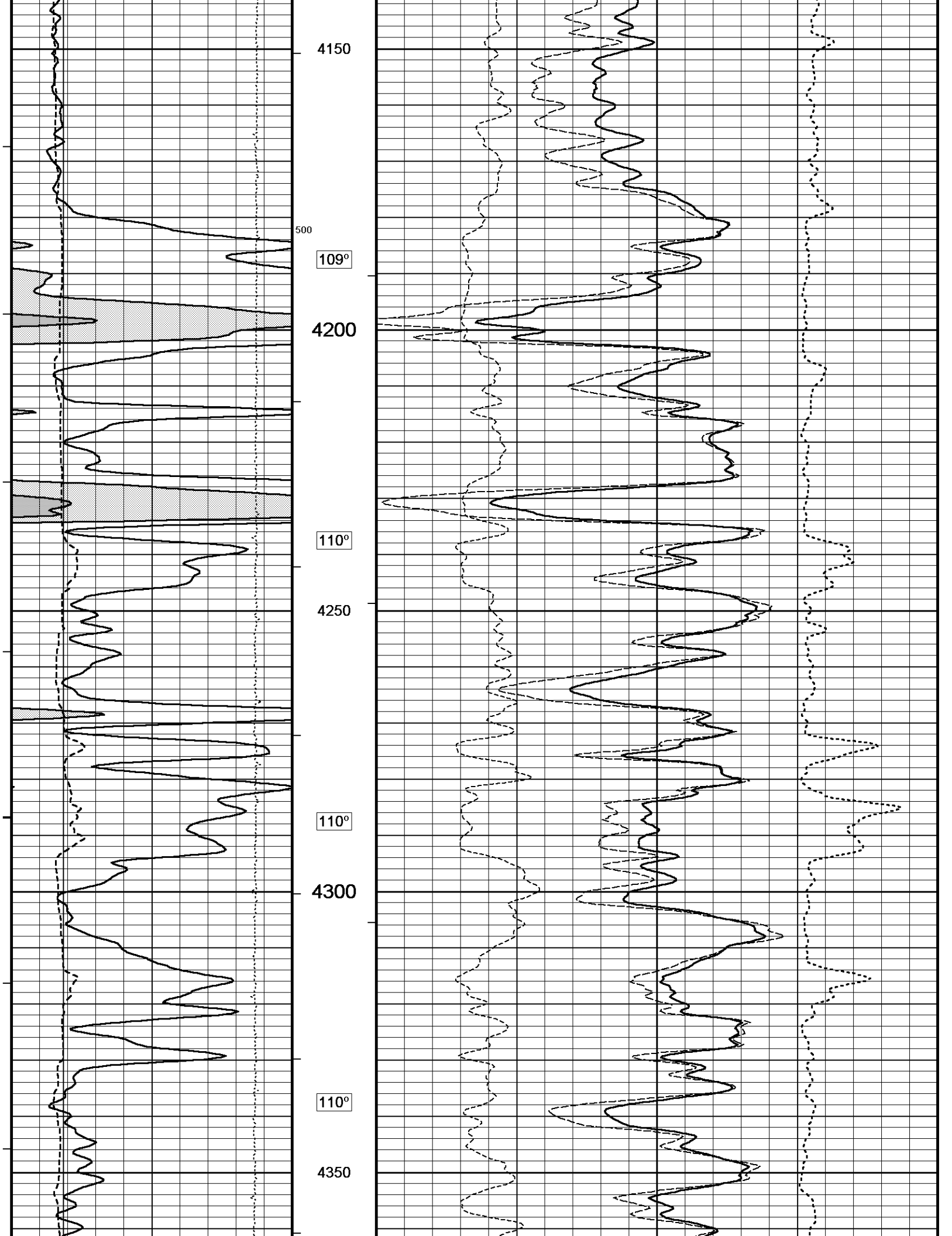
REPEAT SECTION

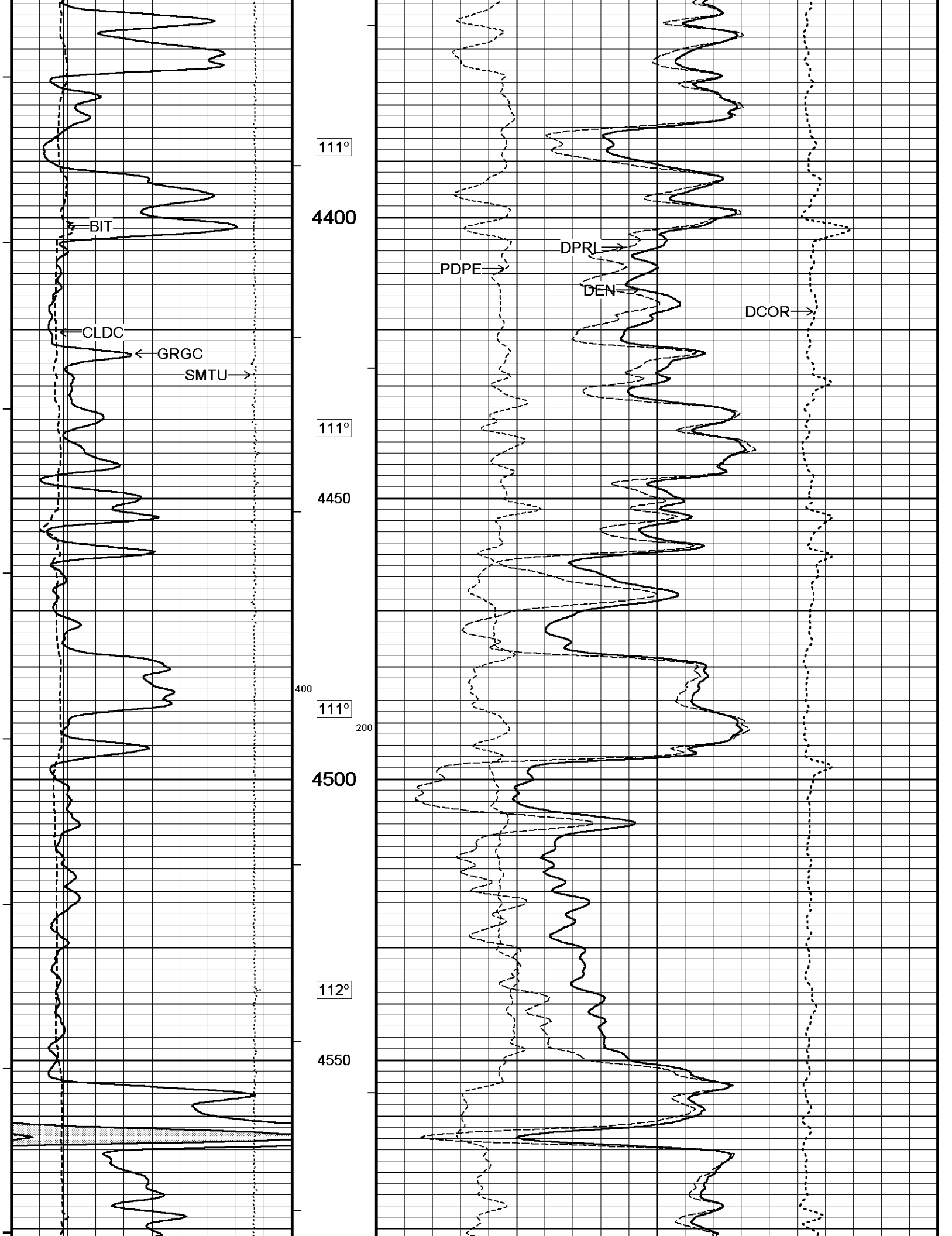
5 INCH MAIN

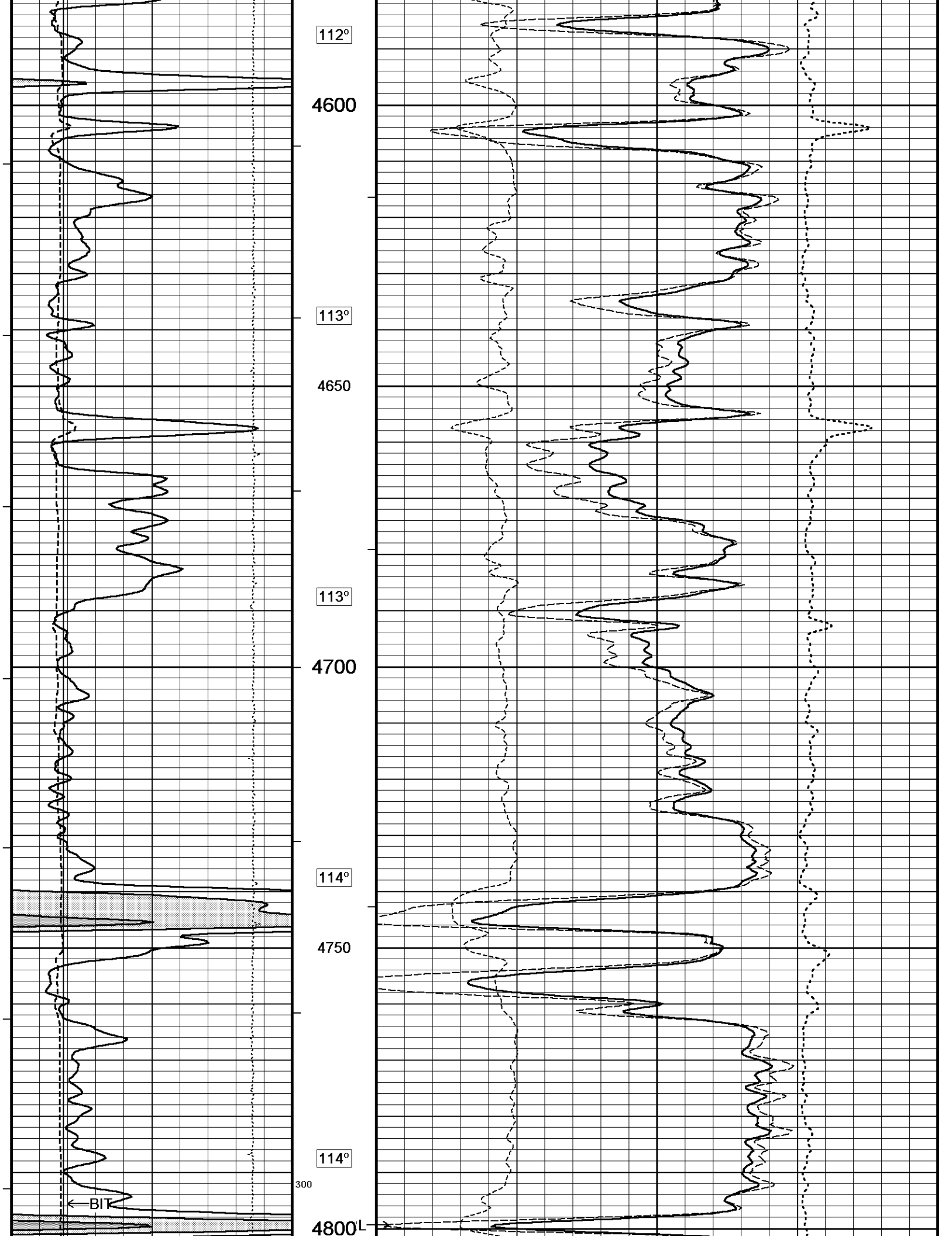
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta
Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

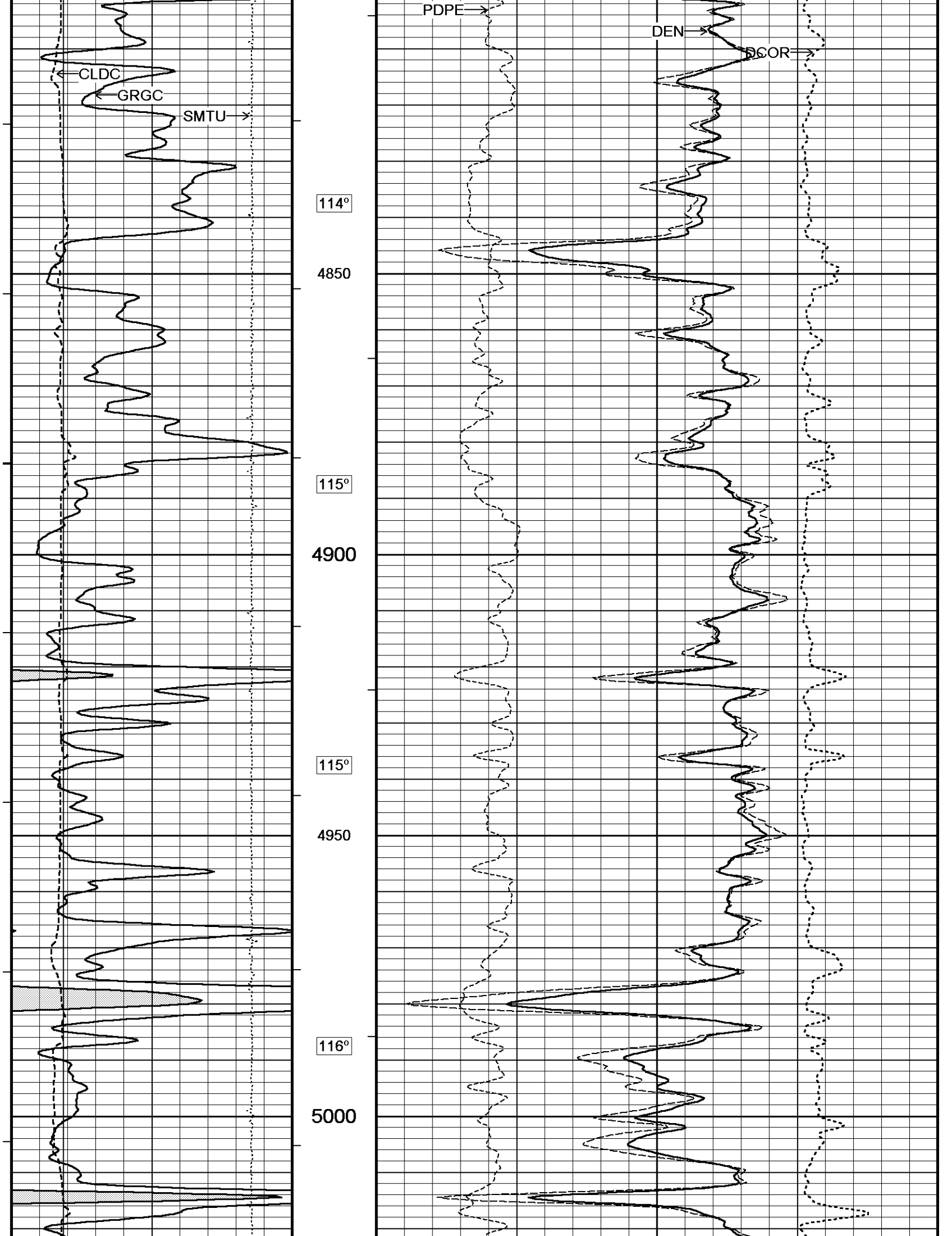


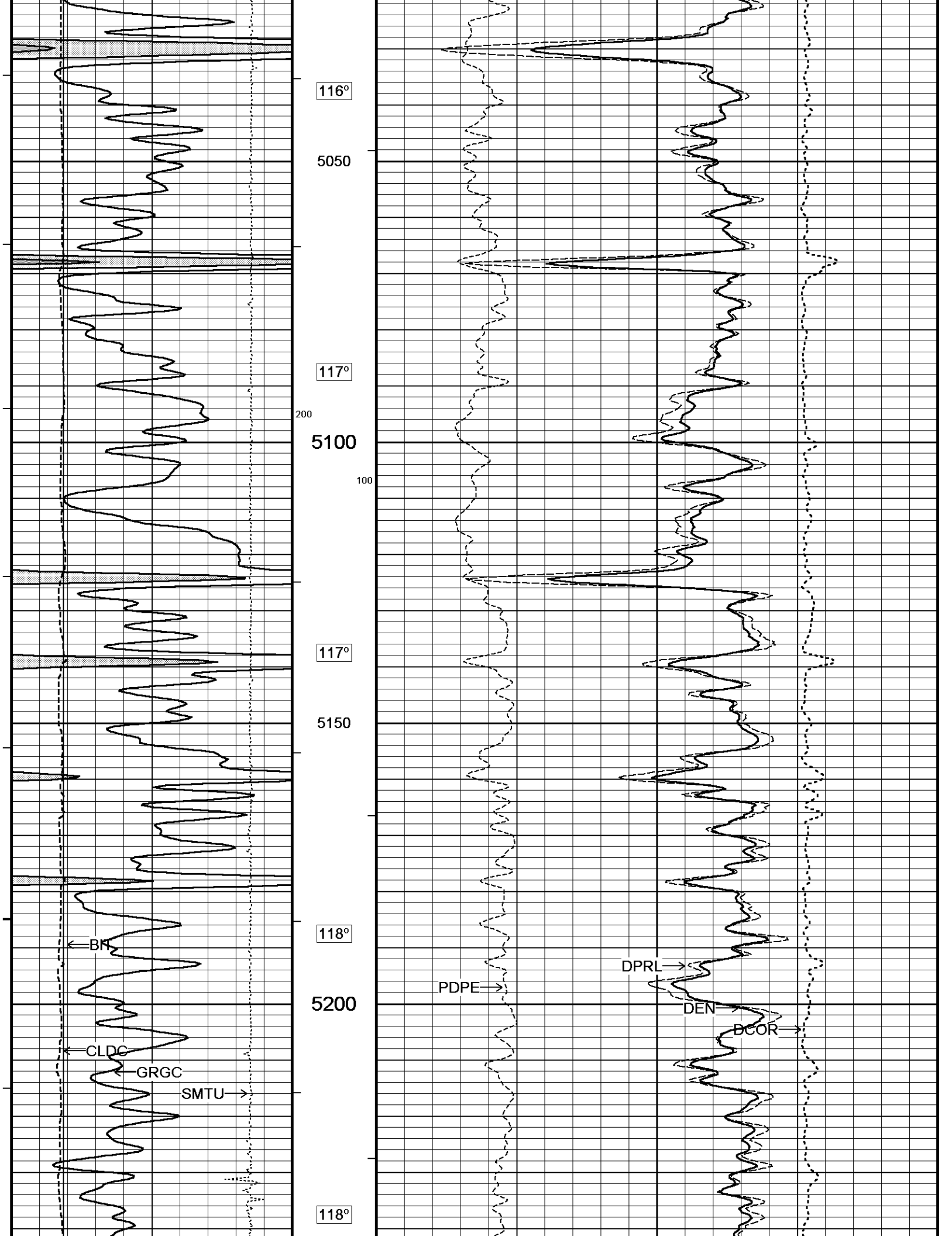

150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:240
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
3988
4000
4050
4100
108°
109°
109°
BIT
CLDC
GRGC
SMTU
PDPE
DPRL
DEN
DCOR

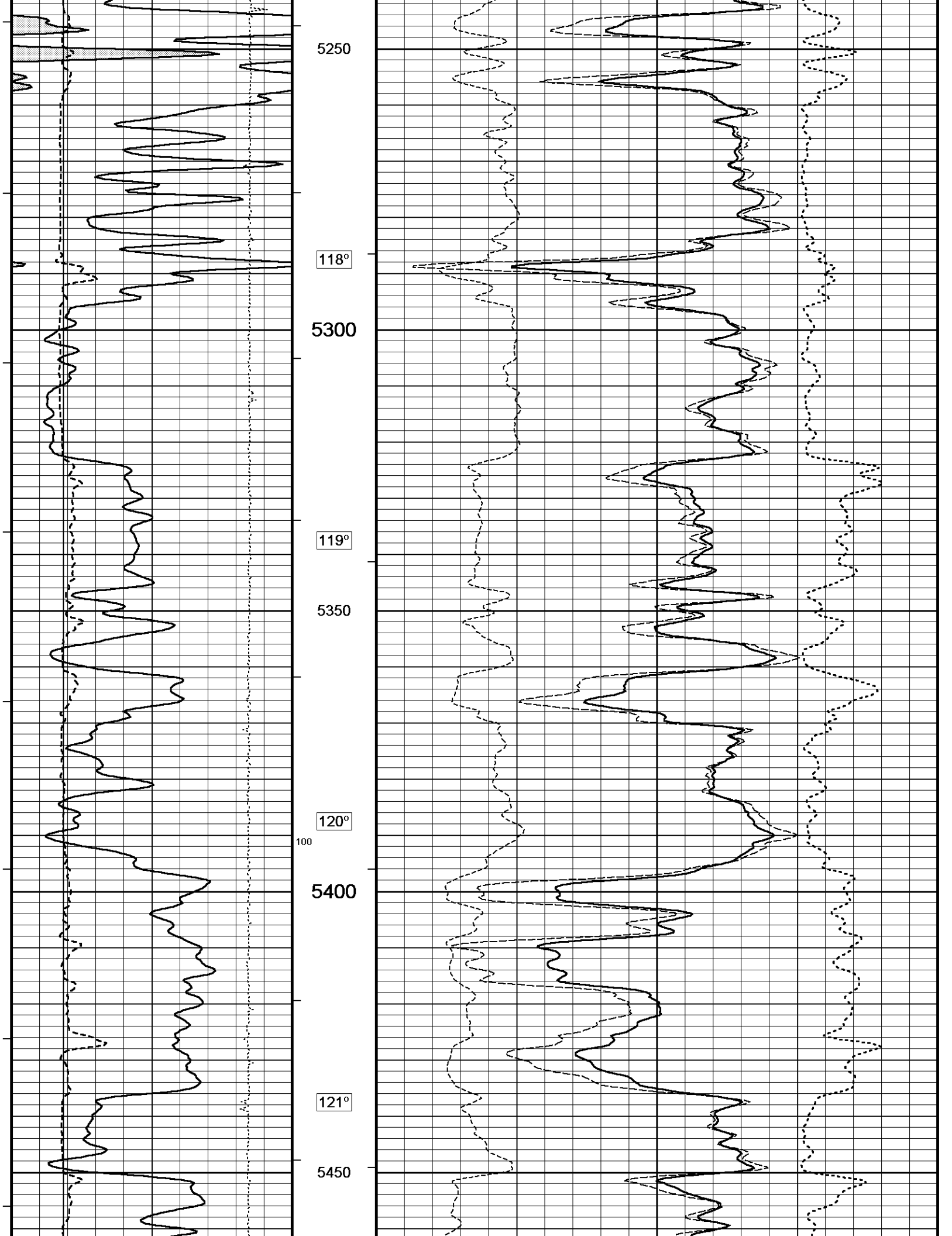

4150
500
109°
4200
110°
4250
110°
4300
110°
4350

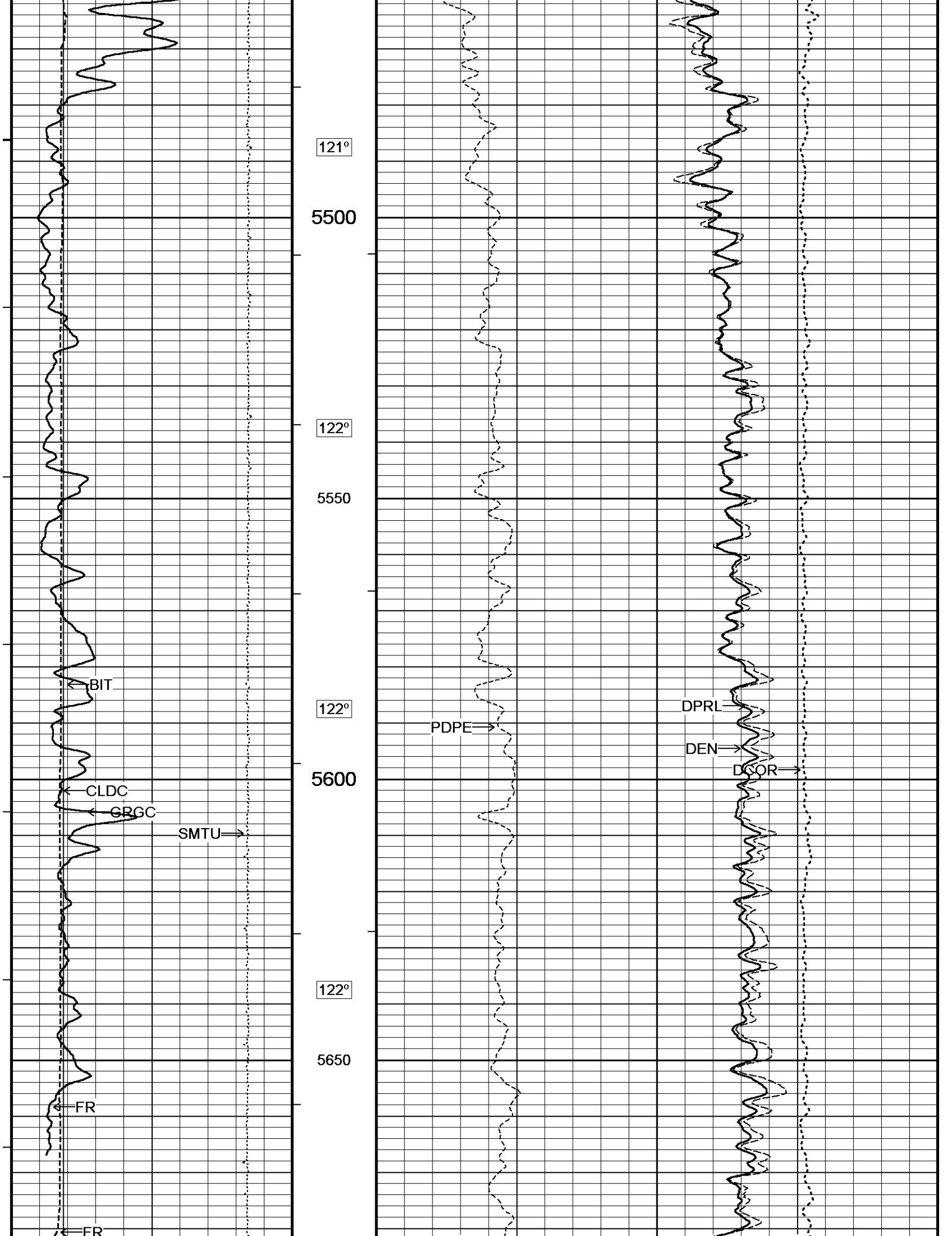

BIT
CLDC
GRGC
SMTU
111°
4400
111°
4450
400
111°
200
4500
112°
4550
PDPE
DPRL
DEN
DCOR

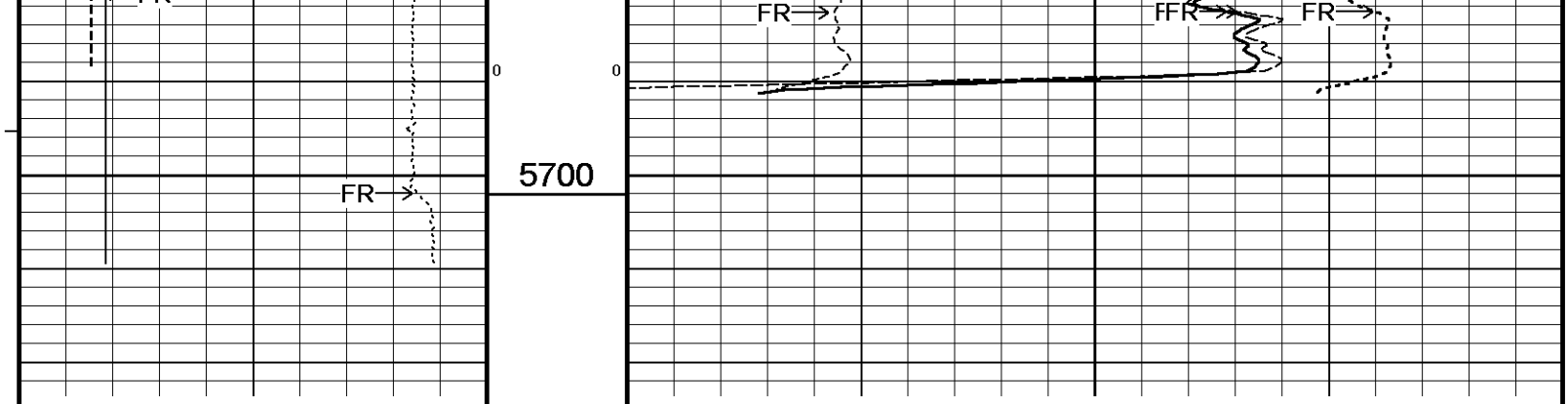

112°
4600
113°
4650
113°
4700
114°
4750
114°
300
BIT
4800
L


CLDC
GRGC
SMTU
PDPE
DEN
DCOR
114°
4850
115°
4900
115°
4950
116°
5000


116°
5050
117°
200
5100
100
117°
5150
118°
BIT
5200
PDPE
DPRL
DEN
DCOR
CLDC
GRGC
SMTU
118°


5250
118°
5300
119°
5350
120°
100
5400
121°
5450


121°
5500
122°
5550
122°
5600
122°
5650
BIT
CLDC
GRGC
SMTU
FR
FR
PDPE
DPRL
DEN
DCOR



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 1:240

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Limestone 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 10.0cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta
Recorded on 11-NOV-2014 00:18
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5 INCH MAIN

10 INCH HIGH RESOLUTION

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

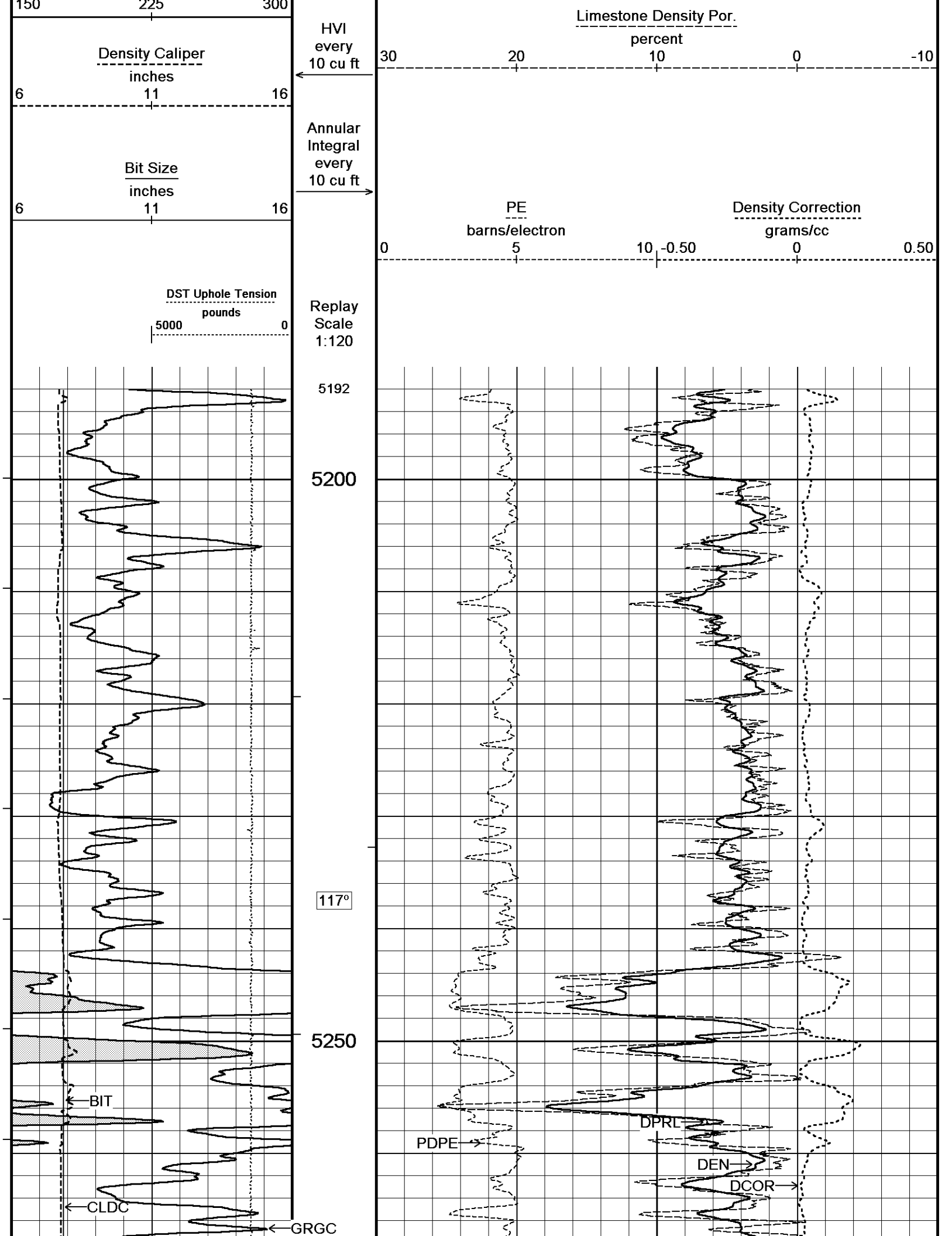
Depth in Feet

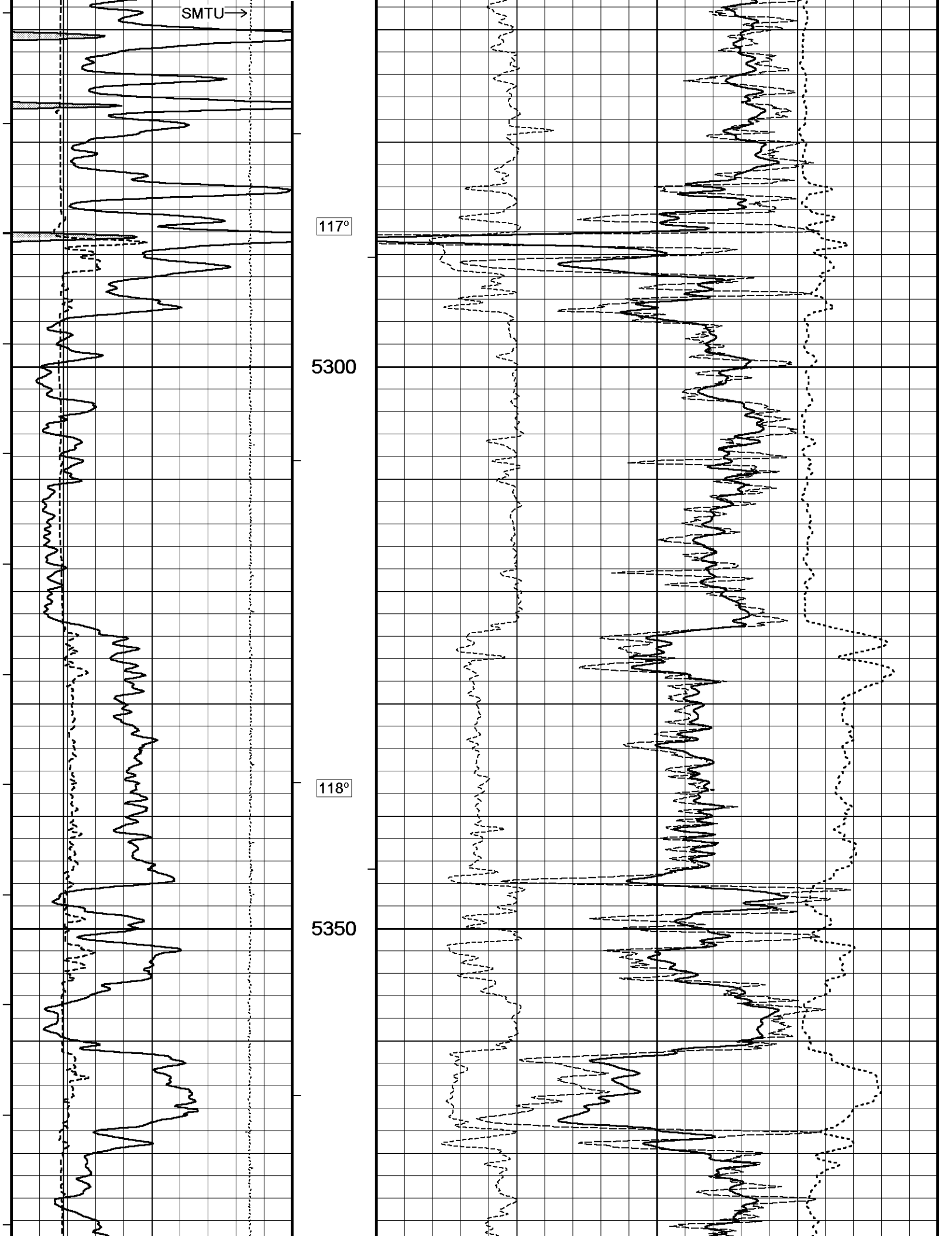
Timing Marks
every 60.0 sec

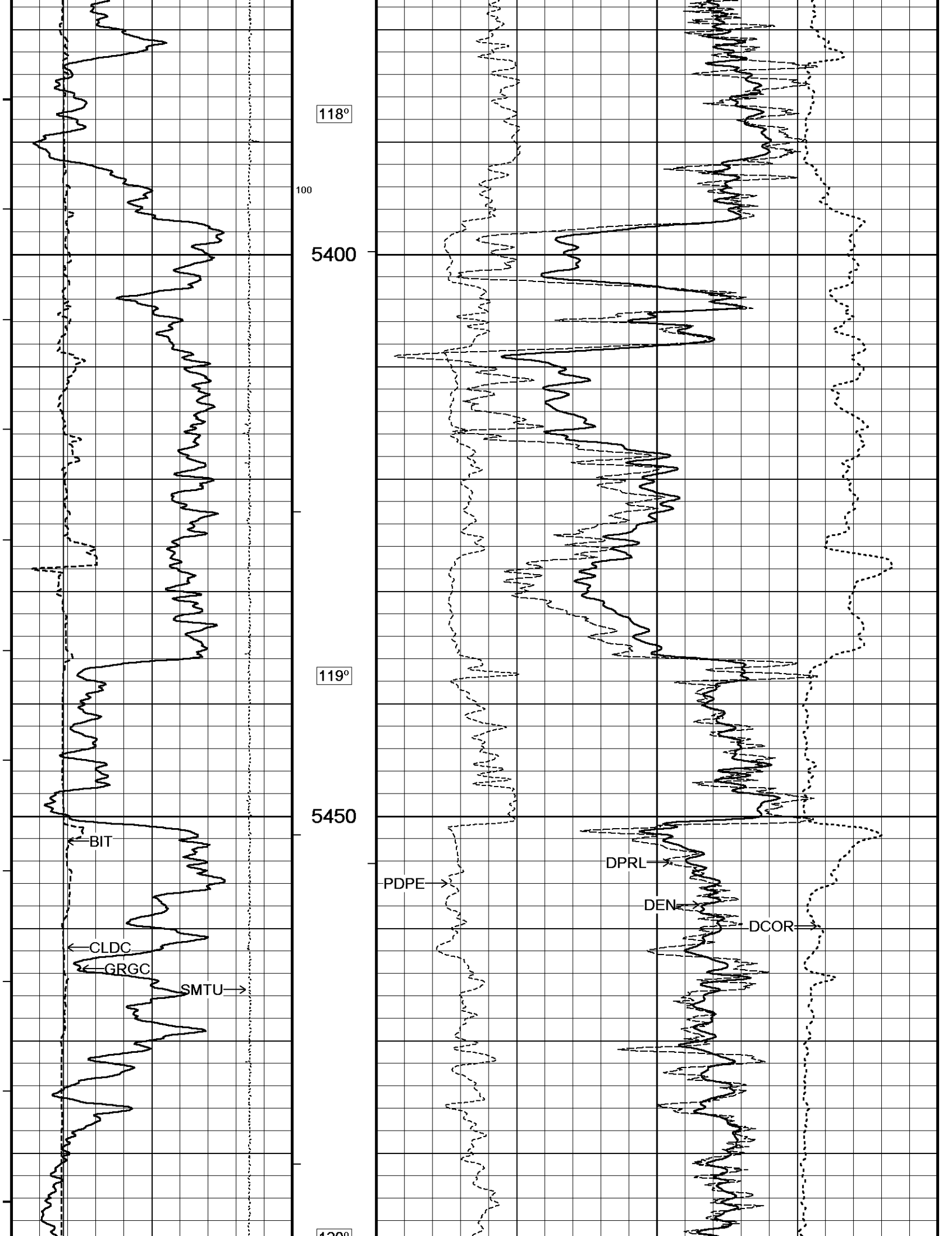
Gamma Ray
API
0 75 150

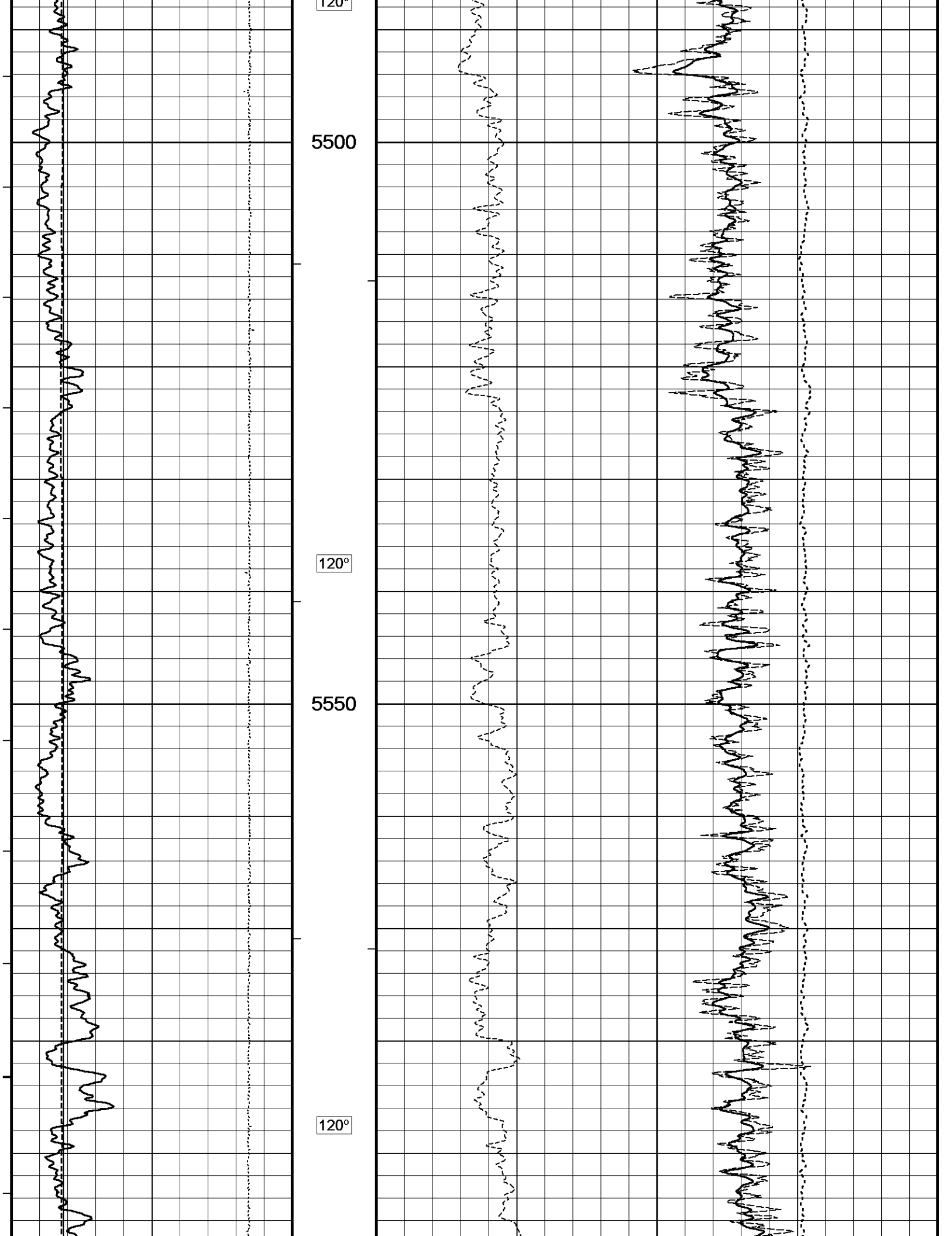
Borehole Temp in deg F

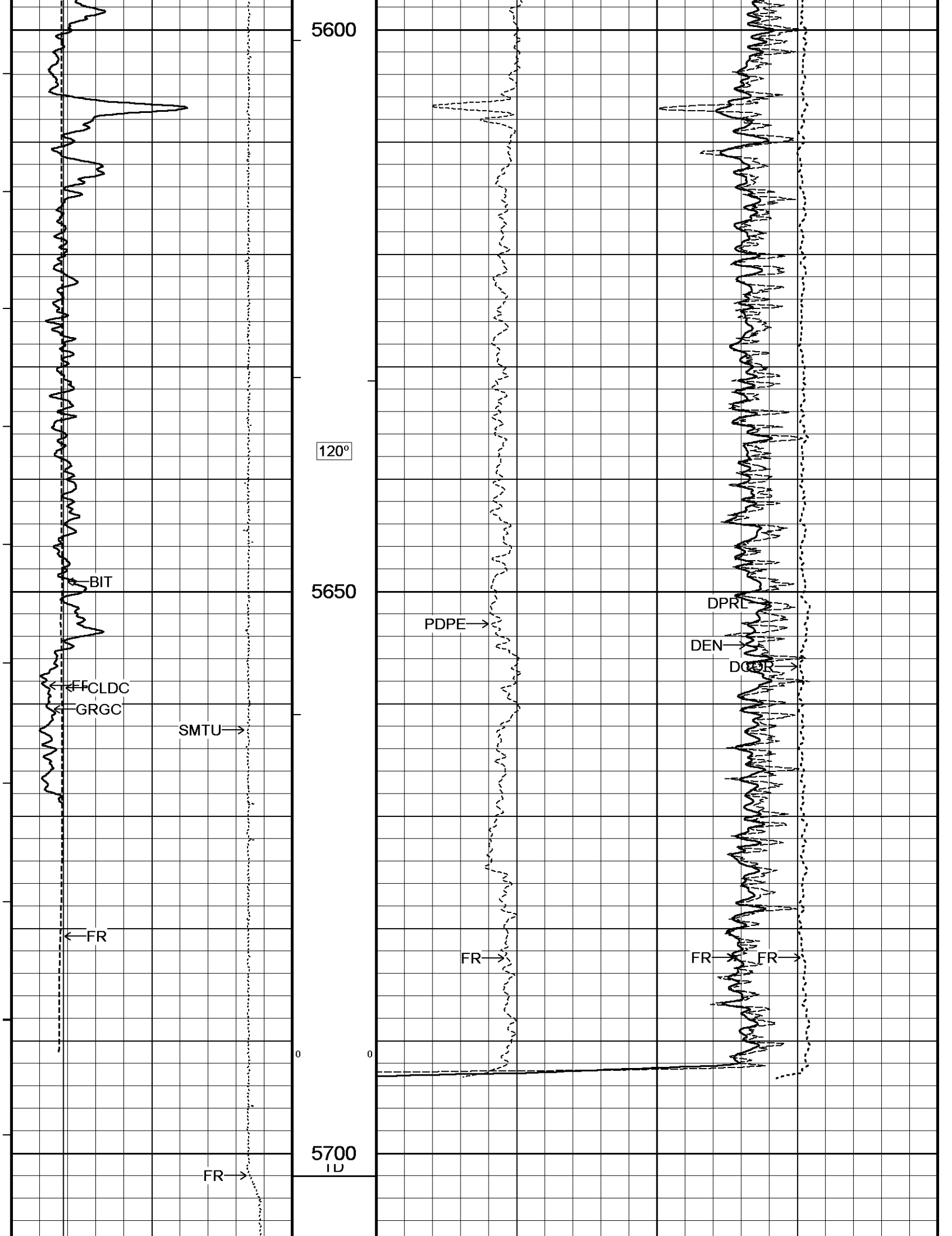
Compensated Density
grams/cc
2 2.25 2.50 2.75 3

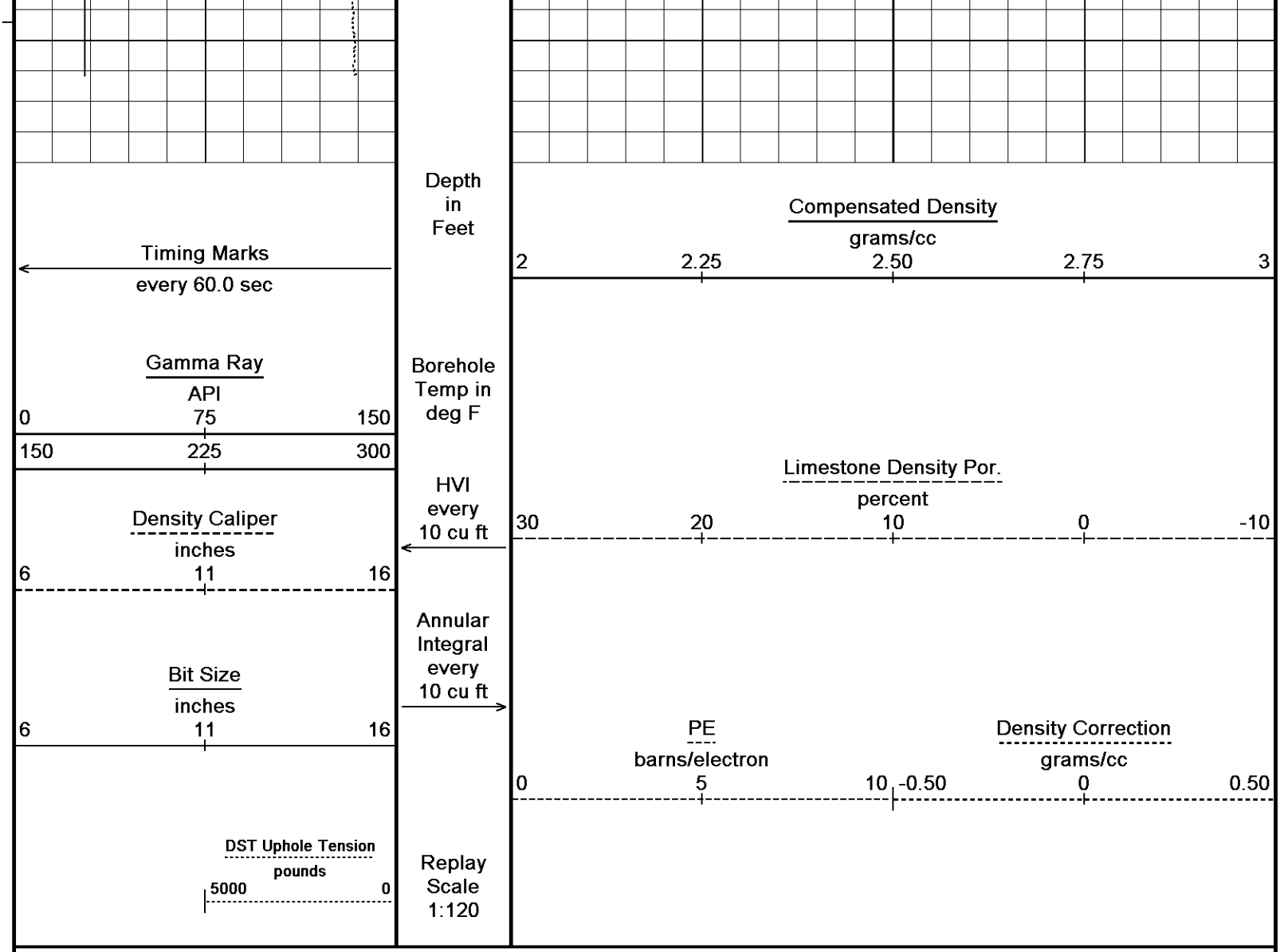

150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:120
5192
5200
117°
5250
BIT
CLDC
GRGC
PDPE
DPRL
DEN
DCOR


SMTU→
117°
5300
118°
5350


118°
100
5400
119°
5450
BIT
CLDC
GRGC
SMTU
PDPE
DPRL
DEN
DCOR


120°
5500
120°
5550
120°


5600
120°
5650
5700
TD
BIT
CLDC
GRGC
SMTU
FR
FR
PDPE
FR
DPRL
DEN
FR
FR
0
0

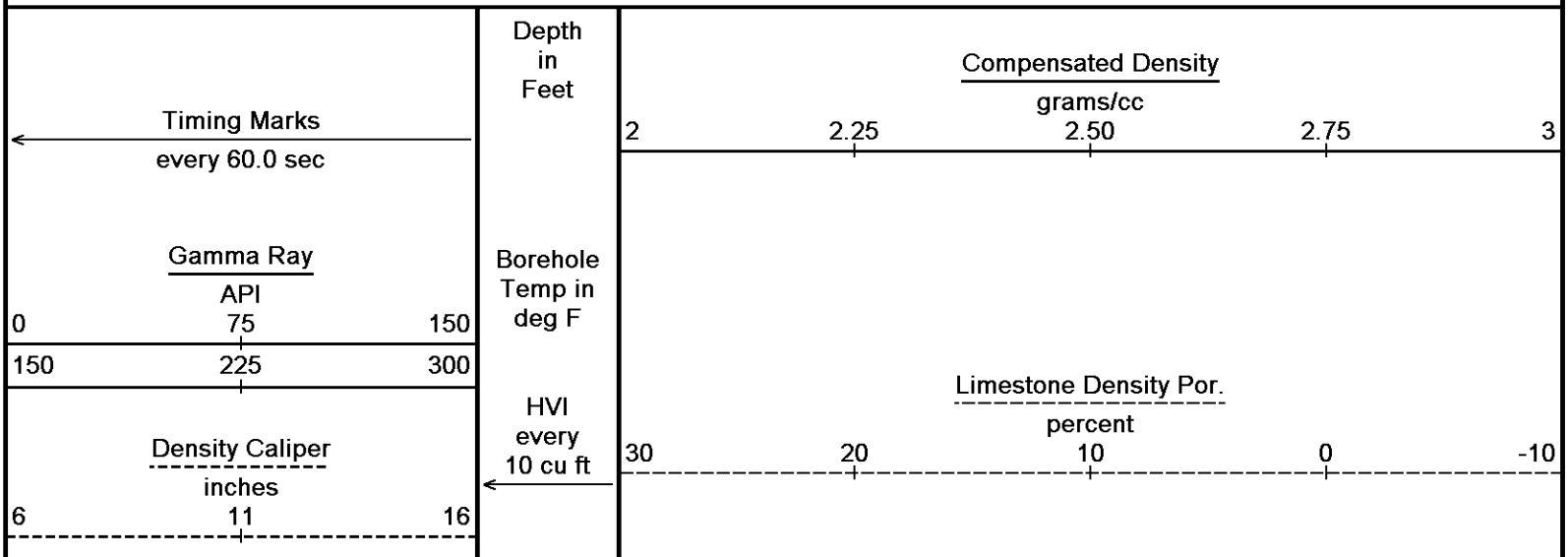


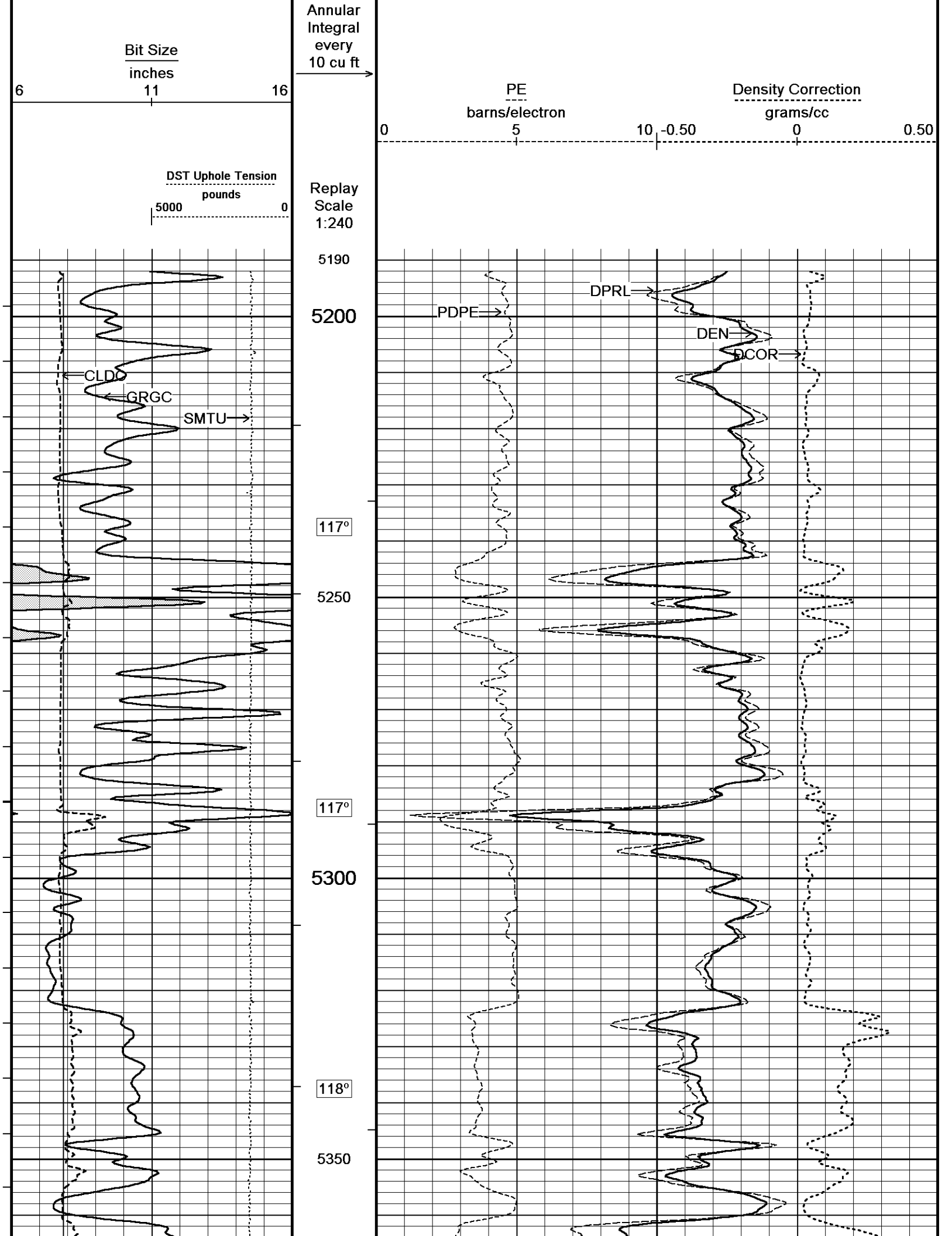
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta — Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

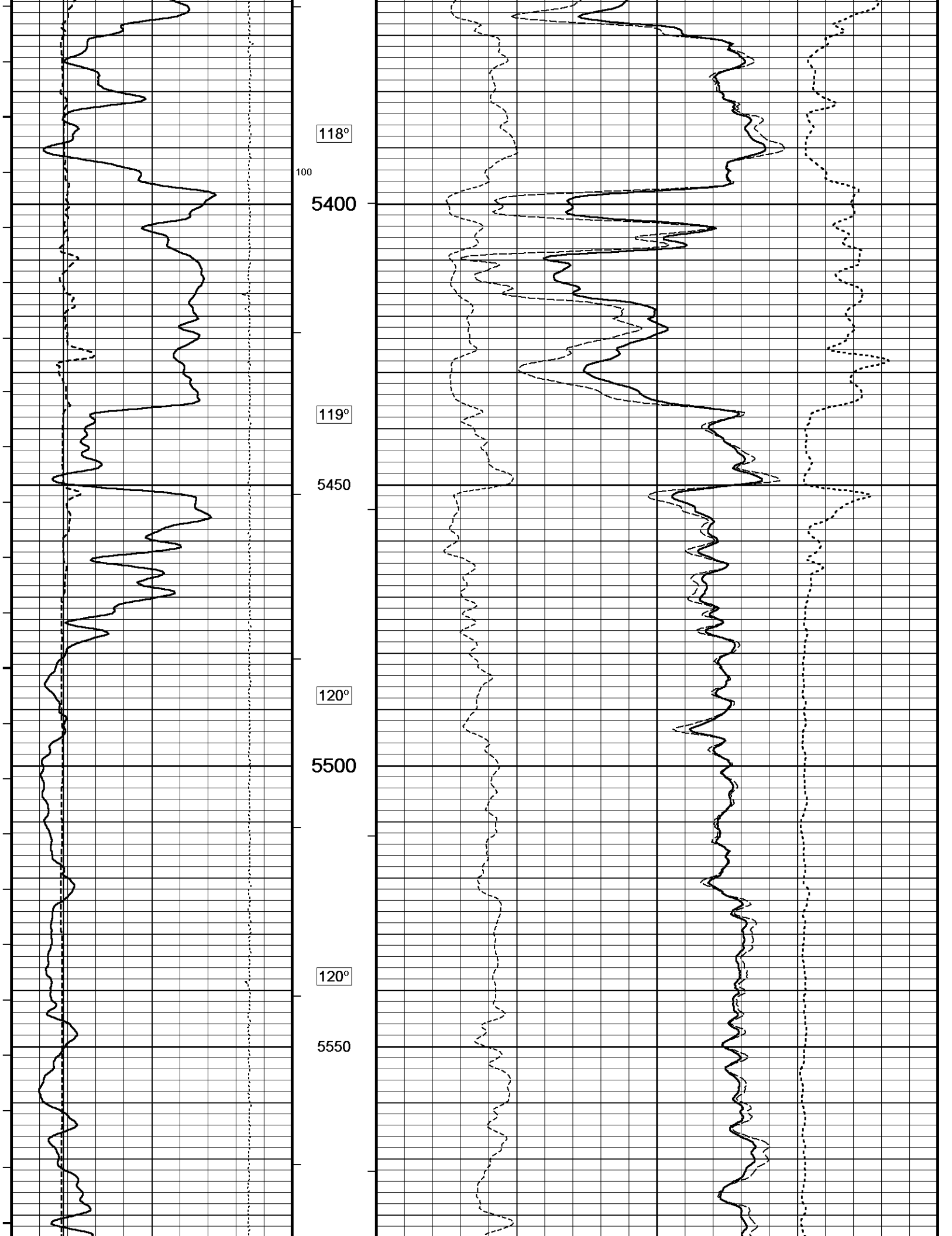
10 INCH HIGH RESOLUTION

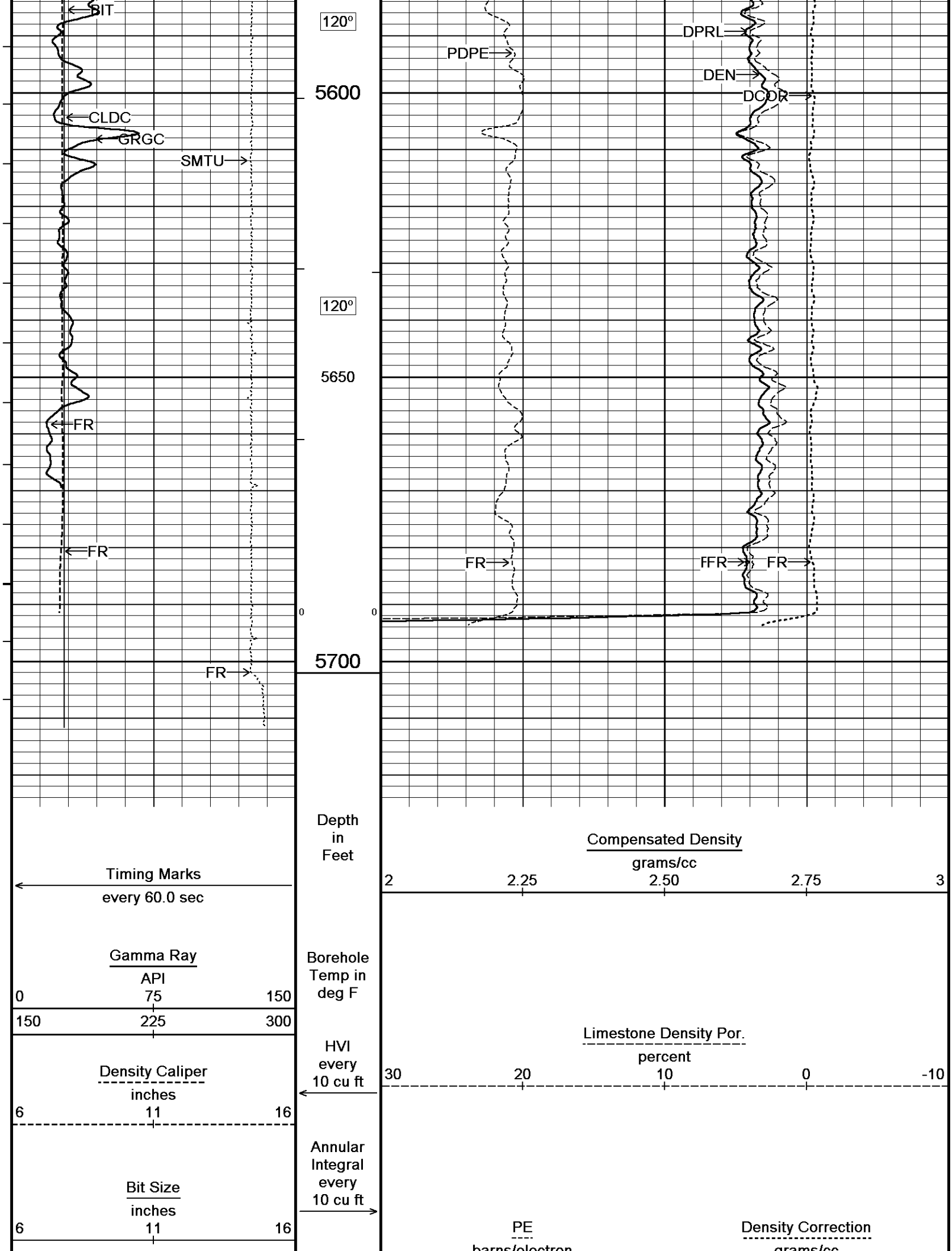
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta — Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114




Bit Size
inches
6
11
16
Annular Integral every 10 cu ft
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
5190
5200
5250
5300
5350
CLDC
GRGC
SMTU
PDPE
DPRL
DEN
DCOR
117°
117°
118°


118°
100
5400
119°
5450
120°
5500
120°
5550


BIT
120°
5600
CLDC
GRGC
SMTU
120°
5650
FR
FR
0
0
5700
FR
PDPE
DPRL
DEN
DCOR
FR
FFR
FR
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
150
225
300
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
Density Correction
grams/cc

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:47
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta — Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Brate 'A' 3-17\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta

General Constants All 000

Last Edited on 10-NOV-2014,20:39

General Parameters		
Mud Resistivity	1.970	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 10-NOV-2014 22:07

Reading No	Measured	Calibrated (lbs)
1	15342.73	0.00
2	15915.40	407.90

Gamma Calibration MCG-C 208

Field Calibration on 10-NOV-2014 09:47

	Measured	Calibrated (API)
Background	72	49
Calibrator (Gross)	1130	774
Calibrator (Net)	1057	725

Gamma Calibration Tolerances MCG-C 208

Ratio 1.459 (1.40 | 1.475 | 1.55) Counts/API

Gamma Constants MCG-C 208

Last Edited on 10-NOV-2014,20:39

Gamma Calibrator Number	GRC038	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-C 208

Field Calibration on 10-NOV-2014 11:01

	Measured	Calibrated (mV)

Reference 1	99.9	99.2
Reference 2	-98.0	-99.0

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 23-SEP-2014,19:44

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-C 208

Last Edited on 23-SEP-2014,19:44

Pre-filter Length	11

Caliper Calibration MMR-C.A 248

Base Calibration on 23-OCT-2014 09:52
Field Calibration on 10-NOV-2014 09:36

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13737	5.96
2	17108	7.98
3	20397	9.85
4	24360	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.94	7.97

Caliper Calibration Tolerances MMR-C.A 248

Short Arm Field Cal. 7.94 (7.77 | 7.97 | 8.17) in

Micro Normal and Micro Inverse Calibration MMR-C.A 248

Base Calibration on 23-OCT-2014 10:02
Field Check on 02-NOV-2014 00:33

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	10.2	49.9	5.1	25.6
Micro Inverse	9.9	49.5	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.5	93.5
Micro Inverse	62.2	62.2

Micro Normal & Micro Inverse Calibration Tolerance MMR-C.A 248

Micro Normal Res. 1 10.2 (-5% | 10.0 | +5%) ohm
Micro Inverse Res. 1 9.9 (-5% | 10.0 | +5%) ohm
Micro Normal Res. 2 49.9 (-5% | 50.0 | +5%) ohm
Micro Inverse Res. 2 49.5 (-5% | 50.0 | +5%) ohm

Micro Normal Base Check 93.5 (-2% | 93.16 | +2%) ohm-m
Micro Inverse Base Check 62.2 (-2% | 62.11 | +2%) ohm-m

Micro Normal Field Check 93.5 (-2% | 93.5 | +2%) ohm-m
Micro Inverse Field Check 62.2 (-2% | 62.2 | +2%) ohm-m

Micro Normal and Micro Inverse Constants MMR-C.A 248

Last Edited on 19-SEP-2014,16:14

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	0.0000	inches

Micro-Resistivity Caliper Constants MMR-C.A 248

Last Edited on

Sonde Configuration	Resistivity Mode

Micro Laterolog Calibration MMR-C.A 248

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

Base Calibration

	Measured	Calibrated (ohm-m)
	Ref 1 Ref 2	Ref 1 Ref 2

Ref 1	Ref 2	Ref 1	Ref 2
0.0	0.0	0.0	0.0

Base Check (ohm-m)	Field Check (ohm-m)
0.0	0.0

Micro Laterolog Constants MMR-C.A 248

Last Edited on 23-SEP-2014,18:59

Pad Type	6 in Solid Nylon B23059	
Micro Laterolog K Factor	0.0128	
Standoff Offset	0.0000	inches

Mudcake Thickness Correction Constants

Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper	N/A	
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	68.00	Deg F
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	N/A	

Neutron Calibration MDN-A.B 163

Base Calibration on 22-OCT-2014 17:32
Field Check on 10-NOV-2014 09:51

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	3042	93	3714	110
Ratio	32.627		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1687	2482
Ratio	0.680	

Field Check

	Calibrated (cps)	
	1673	2453
Ratio	0.682	

Neutron Calibration Tolerances MDN-A.B 163

Near Reading	3042	-25% 3500 +25%	cps	Far Reading	93	-50% 106 +50% cps
Ratio	32.627	-5% 33 +5%				
Base Check	0.680	0.65 0.7 0.75				
Field Check	0.682	0.660 0.680 0.700				

Neutron Constants MDN-A.B 163

Last Edited on 10-NOV-2014,20:02

Neutron Source Id	P58125B	
Neutron Jig Number	5824NE	
Air Hole Processing	Legacy	
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	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 55

Base Calibration on 23-OCT-2014 09:18
Field Check on 10-NOV-2014 09:27

Base Calibration

	Measured	Calibrated (ohm-m)

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	950.6	126.8
Base Check		282.0
Field Check		281.8

FE Calibration Tolerances MFE-A.A 55

Reference 2	950.6	-3% 980.0 +3%	ohm
Base Check	282.0	-2% 277.0 +2%	ohm-m
Field Check	281.8	-2% 282.0 +2%	ohm-m

FE Constants MFE-A.A 55

Last Edited on 10-NOV-2014,20:01

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

Induction Calibration MAI-A.A 5

Base Calibration on 22-OCT-2014,13:28
Field Check on 10-NOV-2014 09:26

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	16.3	470.8	9.3	966.2
2	5.6	376.1	7.6	821.4
3	2.6	266.1	5.2	566.0
4	1.6	130.0	2.6	279.2

Array Temperature	71.1	Deg F

Test Loop Calibration Verified

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			14.6	3862.9
2			31.6	3591.6
3			29.7	2972.4
4			20.7	2127.0
Deep			18.4	1913.0
Medium			42.9	3862.6
Shallow			46.9	5373.6
Array Temperature			66.3	Deg F

Induction Calibration Tolerances MAI-A.A 5

Low Conductivity 1	16.3	13.0 17.0 21.0	mmho/m	High Conductivity 1	470.8	430.0 475.0 520.0 mmho/m
Low Conductivity 2	5.6	4.5 6.0 7.5	mmho/m	High Conductivity 2	376.1	345.0 385.0 425.0 mmho/m
Low Conductivity 3	2.6	1.0 3.5 6.0	mmho/m	High Conductivity 3	266.1	240.0 260.0 280.0 mmho/m
Low Conductivity 4	1.6	0.0 2.0 4.0	mmho/m	High Conductivity 4	130.0	120.0 135.0 150.0 mmho/m
Background Vx 1	0.0	-110.0 -32.5 45.0	mmho/m	Phase Check Loop 1	0.0	-2.0 0.0 2.0 %
Background Vx 2	0.0	-35.0 20.0 75.0	mmho/m	Phase Check Loop 2	0.0	-2.0 0.0 2.0 %
Background Vx 3	0.0	-60.0 2.5 65.0	mmho/m	Phase Check Loop 3	0.0	-2.0 0.0 2.0 %
Background Vx 4	0.0	-50.0 -17.5 15.0	mmho/m	Phase Check Loop 4	0.0	-2.0 0.0 2.0 %

Induction Constants MAI-A.A 5

Last Edited on 10-NOV-2014,20:21

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	0.00	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.0000	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	

High Resolution Temperature Calibration MAI-A.A 5

Field Calibration on 01-NOV-2014,01:00

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 5

Last Edited on 01-NOV-2014,01:00

Pre-filter Length	11

Photo Density Calibration MPD-D.A 481

Base Calibration on 22-OCT-2014 15:53
Field Check on 10-NOV-2014 09:33

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1210	1421		
Reference 1	55376	26233	59556	30836
Reference 2	22300	2596	24941	2541

Field Check at Base

1210.3	1420.8

Field Check

1211.2	1417.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	227	1078		
Reference 1	23980	55175	0.439	0.371
Reference 2	6780	22159	0.311	0.272

Field Check at Base

226.9	1078.0

Field Check

230.6 1082.6

Photo Density Calibration Tolerances MPD-D.A 481

		-5%		+5%
Near Density Ratio	2.57		2.52	
PE Calibration	0.120	0.089	0.110	0.131

		-5%		+5%
Far Density Ratio	21.11		21.00	

		-3%		+3%
Near Den. Field Check	1211.2		1210.3	
PE WS Field Check	230.6	-6%	226.9	+6%

		-3%		+3%
Far Den. Field Check	1417.9		1420.8	
PE WH Field Check	1082.6	-6%	1078.0	+6%

Density Constants MPD-D.A 481

Last Edited on 10-NOV-2014,20:38

Density Source Id	P50557B	
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	1.11	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix density (gm/cc)	Depth (m)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-D.A 481

Base Calibration on 22-OCT-2014 15:01
Field Calibration on 10-NOV-2014 09:28

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17509	3.99
2	27597	5.98
3	37616	7.97
4	47437	9.86
5	58570	11.92
6	N/A	N/A

Field Calibration

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

Caliper Calibration Tolerances MPD-D.A 481

		7.77	7.97	8.17	
Short Arm Field Cal.	7.98				in

DOWNHOLE EQUIPMENT

C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Brate 'A' 3-17\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta

CBH-C, Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature

Compact Micro-Resistivity

MMR-C.A 248 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

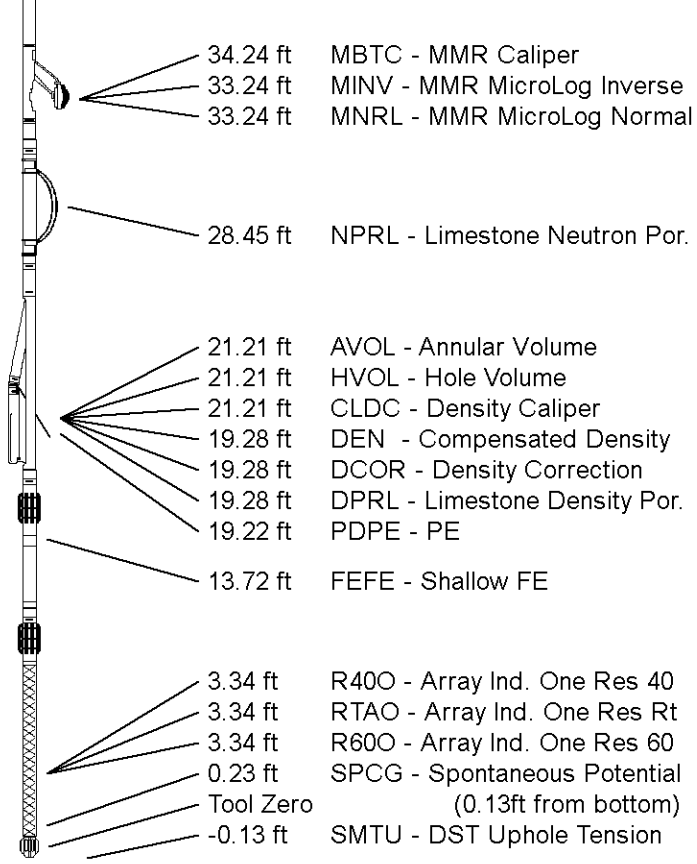
Compact Neutron
MDN-A.B 163 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-D.A 481 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 5 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 51.18 ft Weight: 407.9 lb



34.24 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

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2825.00	feet	First Reading	5683.00	feet
Elevation Drill Floor	2823.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2814.00	feet	Depth Logger	5702.00	feet

Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG