



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

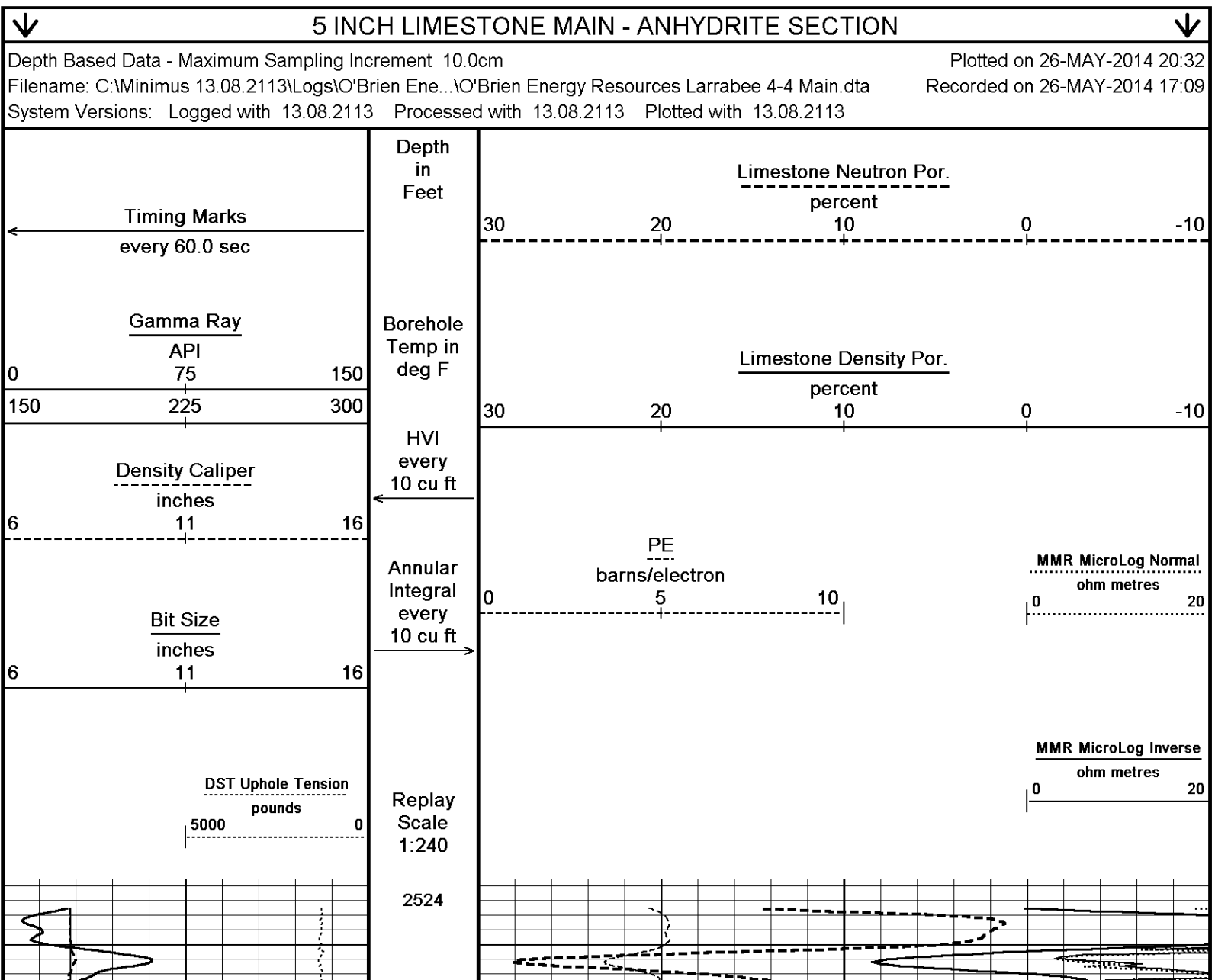
COMPANY			O'BRIEN ENERGY RESOURCES CORP.		
WELL			LARRABEE 4-4		
FIELD			MOHLER		
PROVINCE/COUNTY			MEADE		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			1220' FNL & 335' FEL		
SEC 4	TWP 34S	RGE 29W	Other Services		
Latitude		MML			
Longitude					
API Number		15-119-21366			
Permanent Datum GL, Elevation 2530 feet					
Log Measured From KB					
Drilling Measured From KB @ 11 FEET					
Date	26-MAY-2014				
Run Number	ONE				
Service Order	7036-88315374				
Depth Driller	6415.00		feet		
Depth Logger	6408.00		feet		
First Reading	6388.78		feet		
Last Reading	4000.00		feet		
Casing Driller	1494.00		feet		
Casing Logger	1492.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	WBM				
Density / Viscosity	9.40	lb/USg	60.00	CP	
PH / Fluid Loss	9.00		8.00	ml/30Min	
Sample Source	MUDPIT				
Rm @ Measured Temp	1.78 @ 75.0		ohm-m		
Rmf @ Measured Temp	1.42 @ 75.0		ohm-m		
Rmc @ Measured Temp	2.14 @ 75.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	1.05 @130.0		ohm-m		
Time Since Circulation	3 HOURS				
Max Recorded Temp	130.00		deg F		
Equipment / Base	13057		LIB		
Recorded By	DEREK CARTER				
Witnessed By	ROGER PEARSON		PETER DEBENHAM		
JOB #	LB14-158				

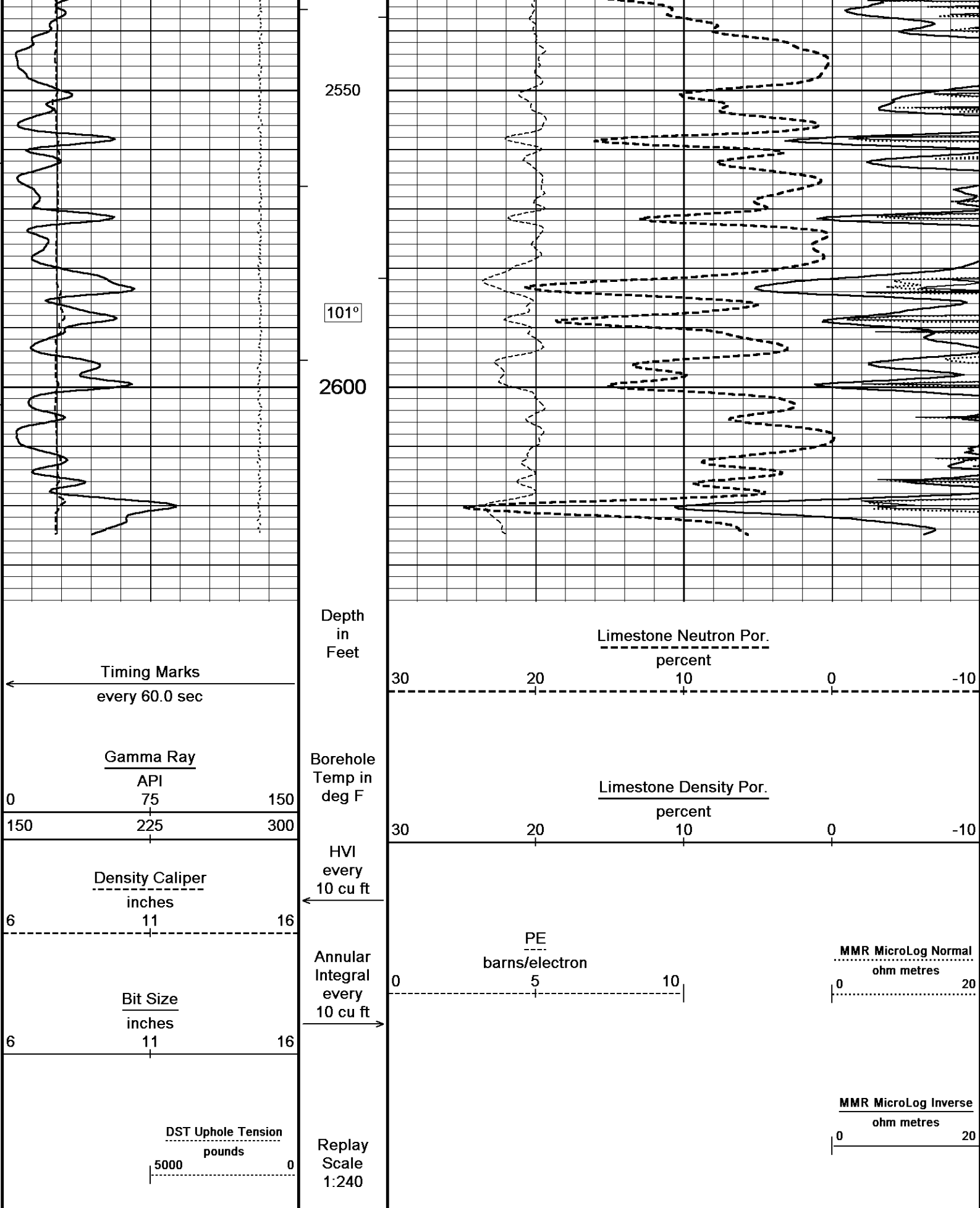
BOREHOLE RECORD					Last Edited: 26-MAY-2014 11:52
Bit Size inches		Depth From feet		Depth To feet	
7.875		1494.00		6415.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	1494.00	24.00	

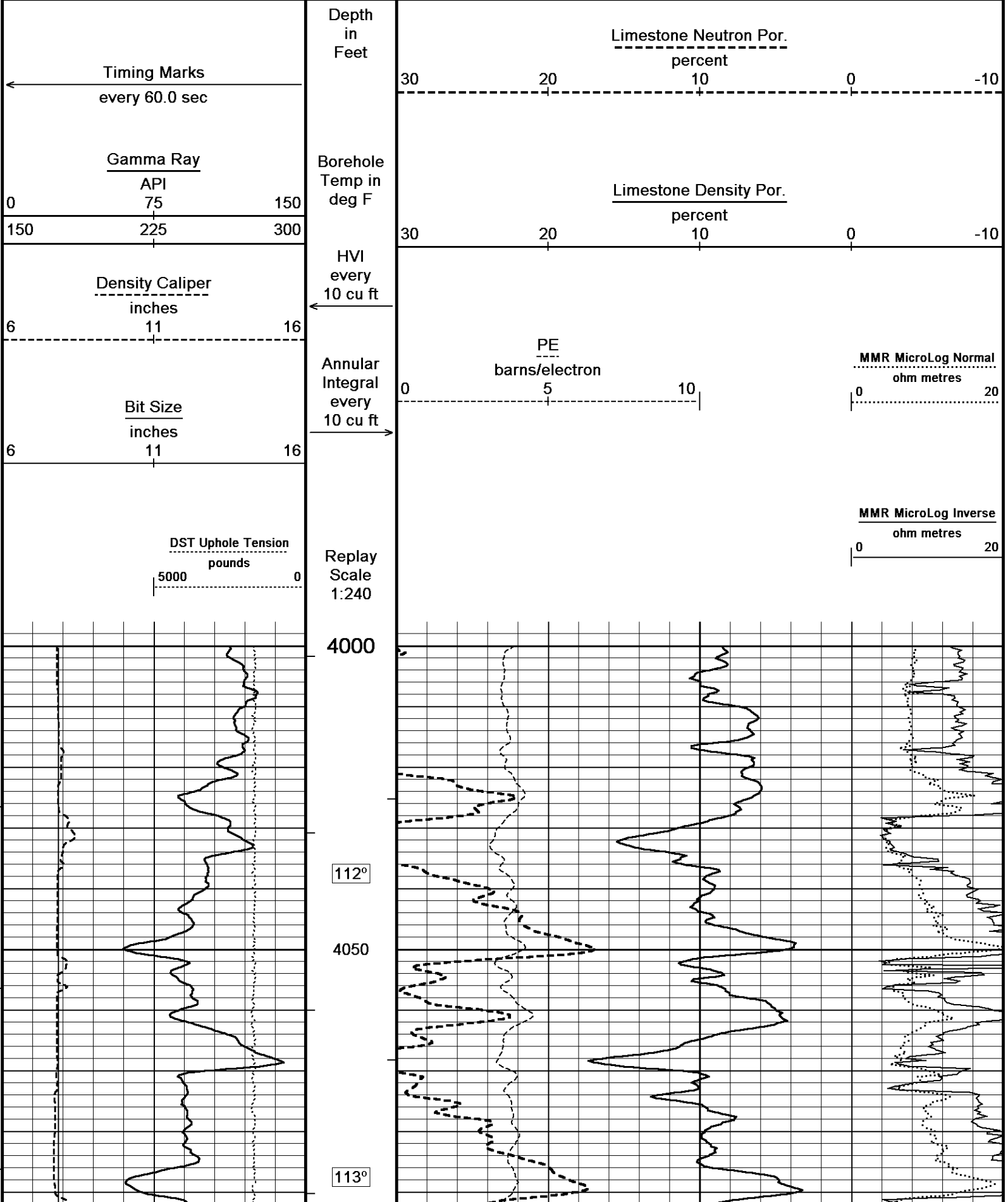
REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION
- HARDWARE: MDN: DUAL BOWSPRING ECCENTRALIZER MFE: 1 X 0.5 INCH STANDOFF MAI: 2 X 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
- HI-RESOLUTION REPEAT PASS PRESENTED ON A SANDSTONE MATRIX (2.65 G/CC) REQUESTED
- MAIN PASS PRESENTED ON A LIMESTONE MATRIX (NO HI-RES) REQUESTED

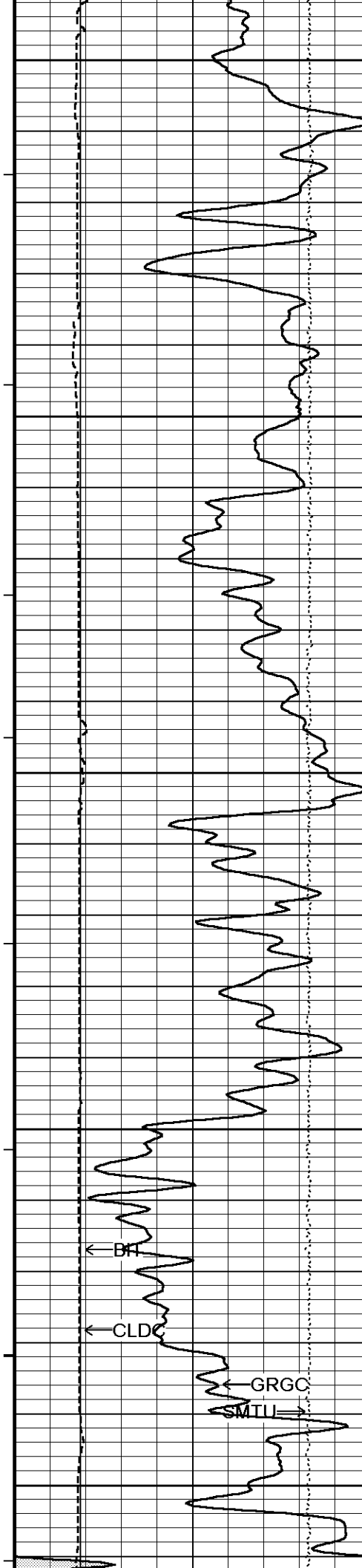
- OPERATOR: CARLOS RAMIREZ

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

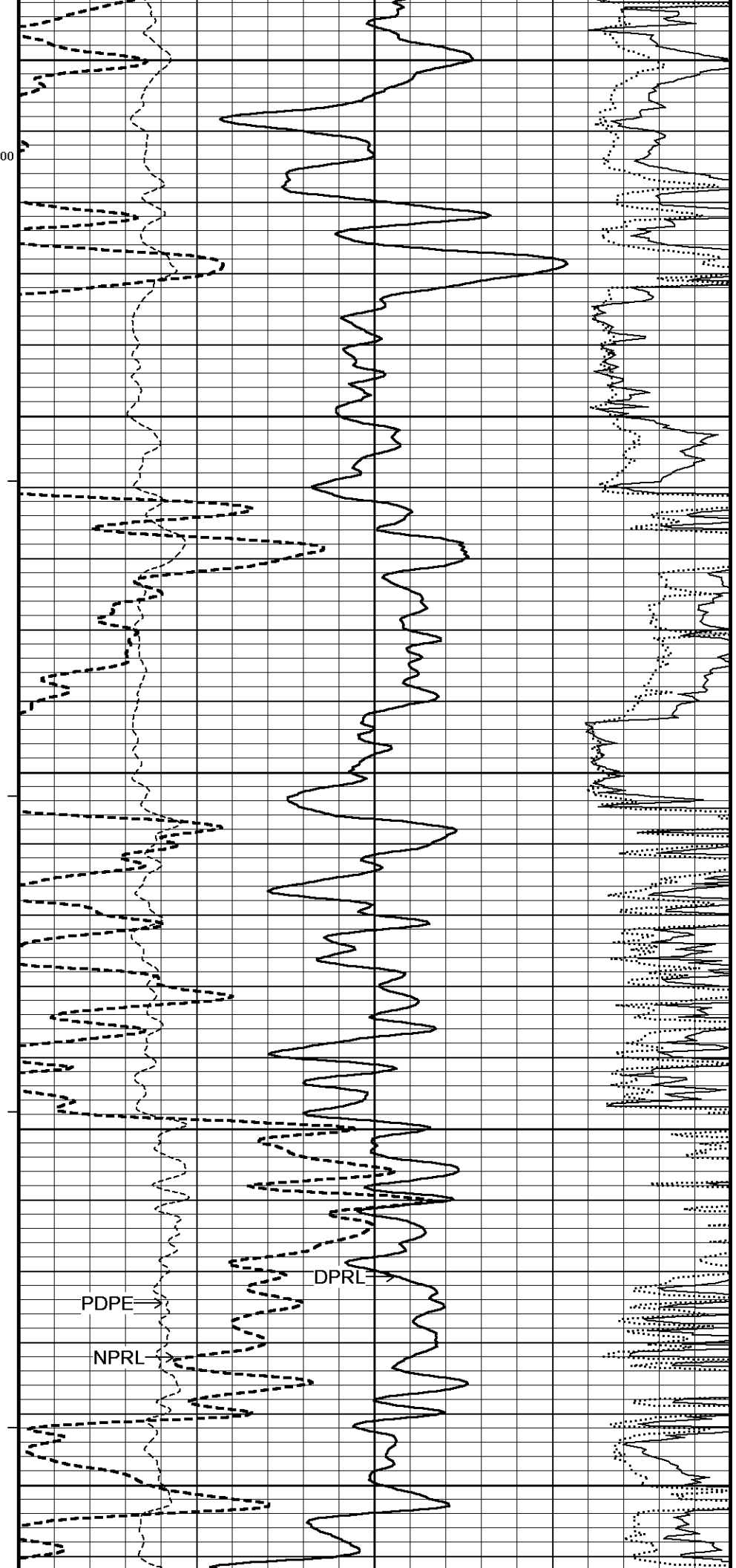


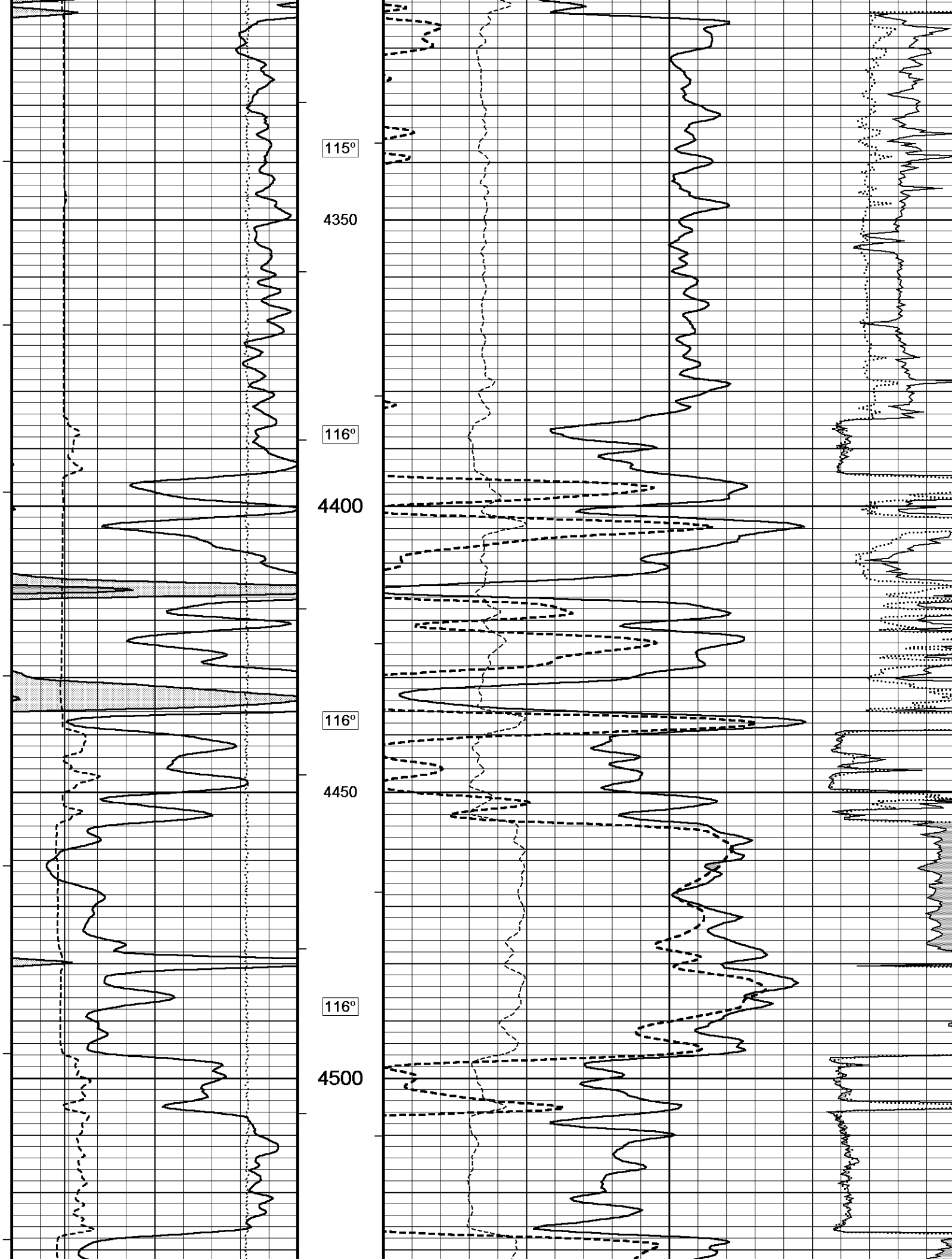


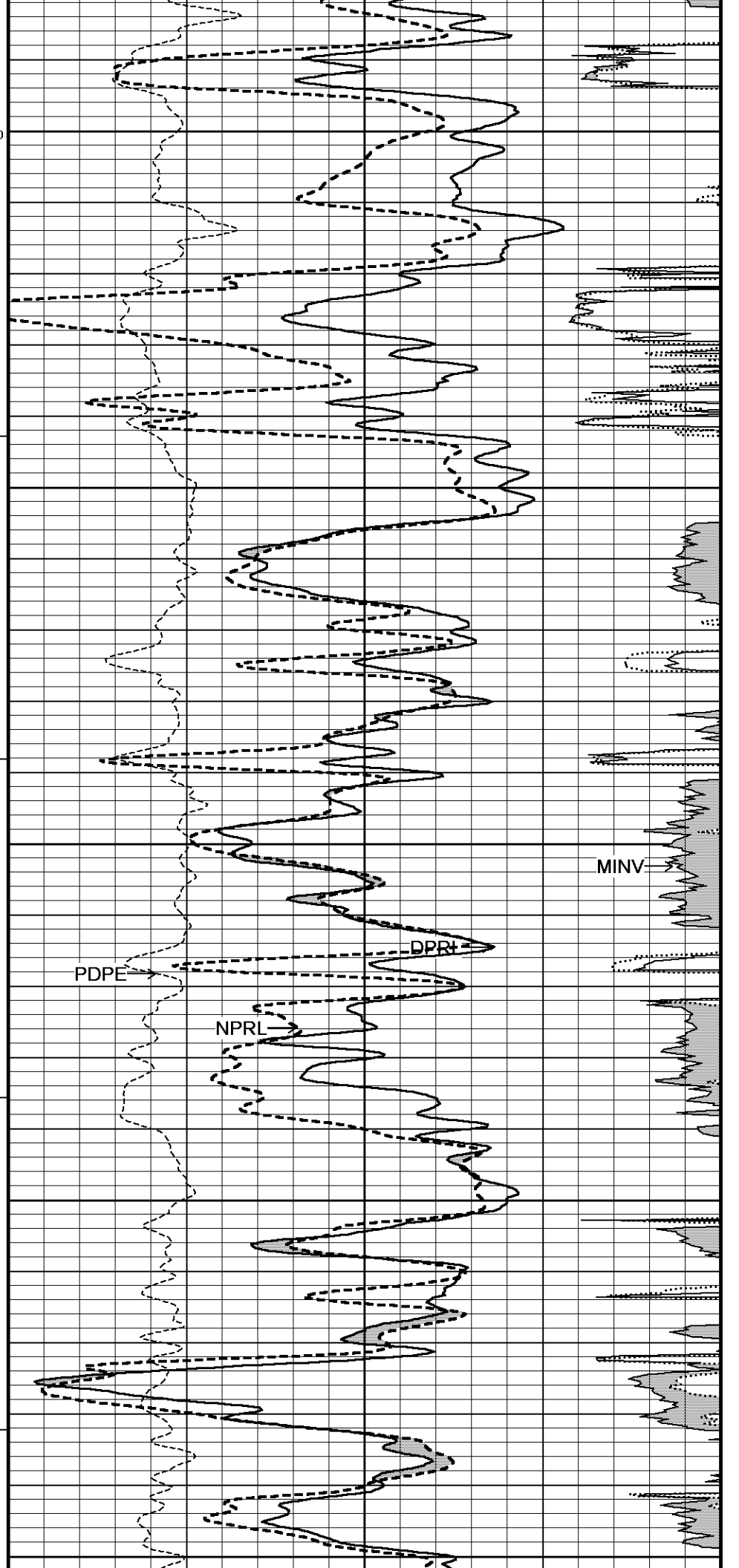
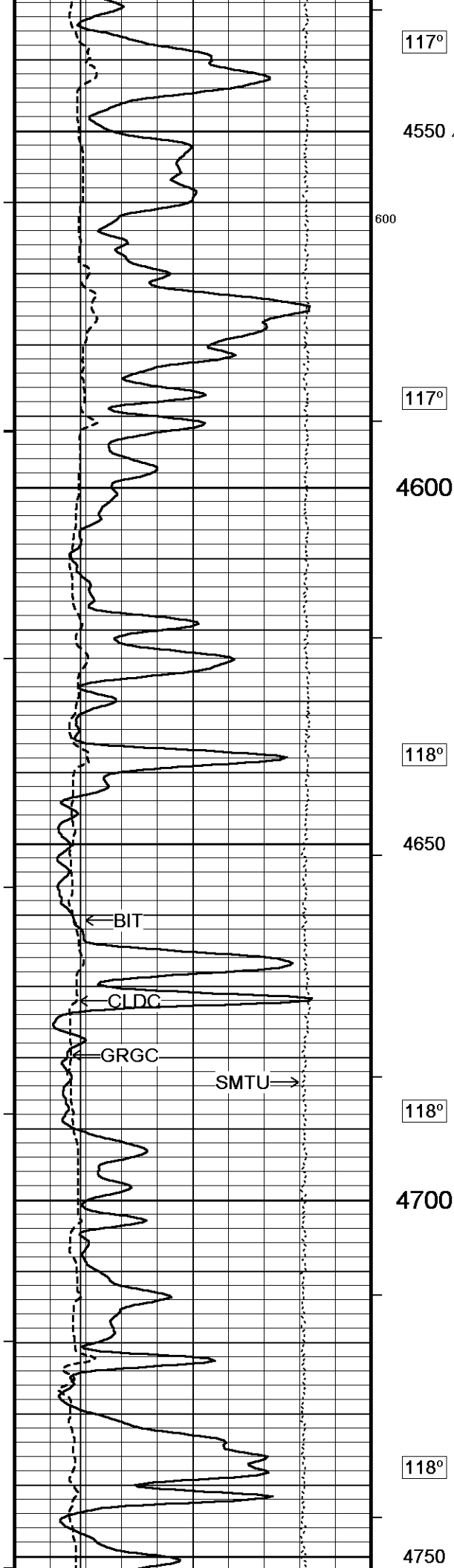


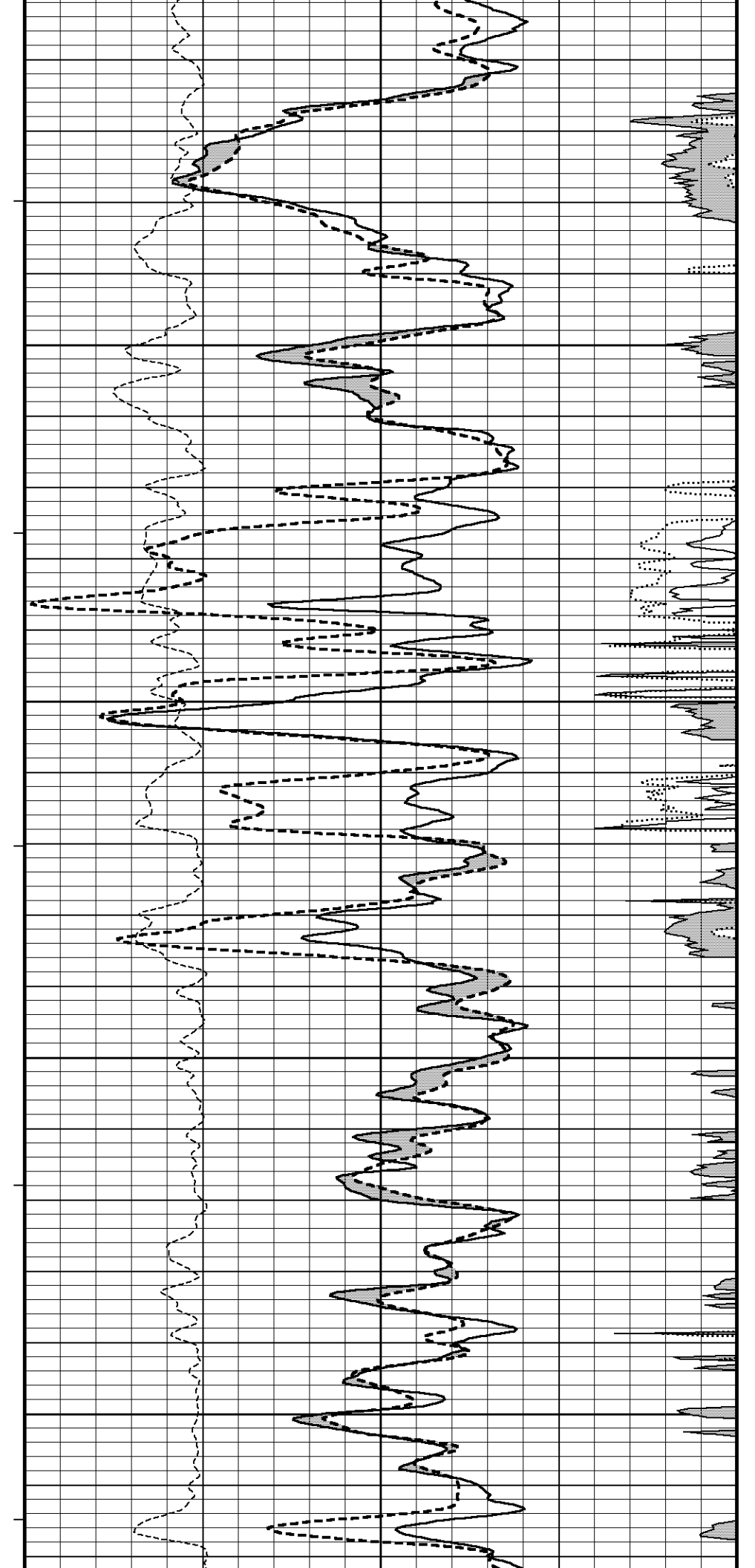
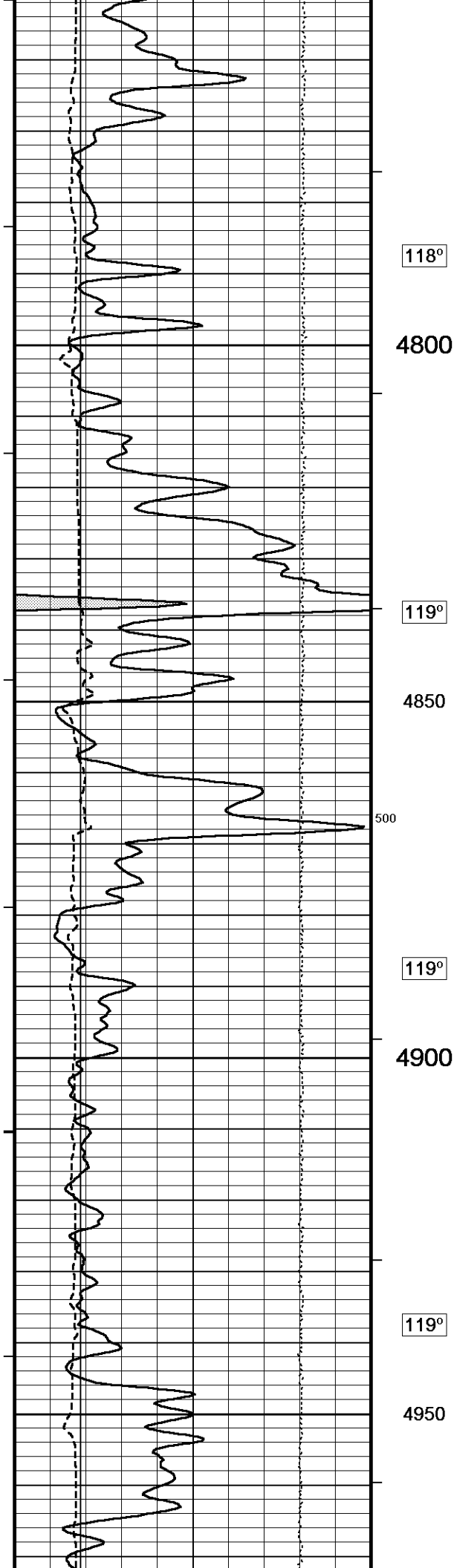


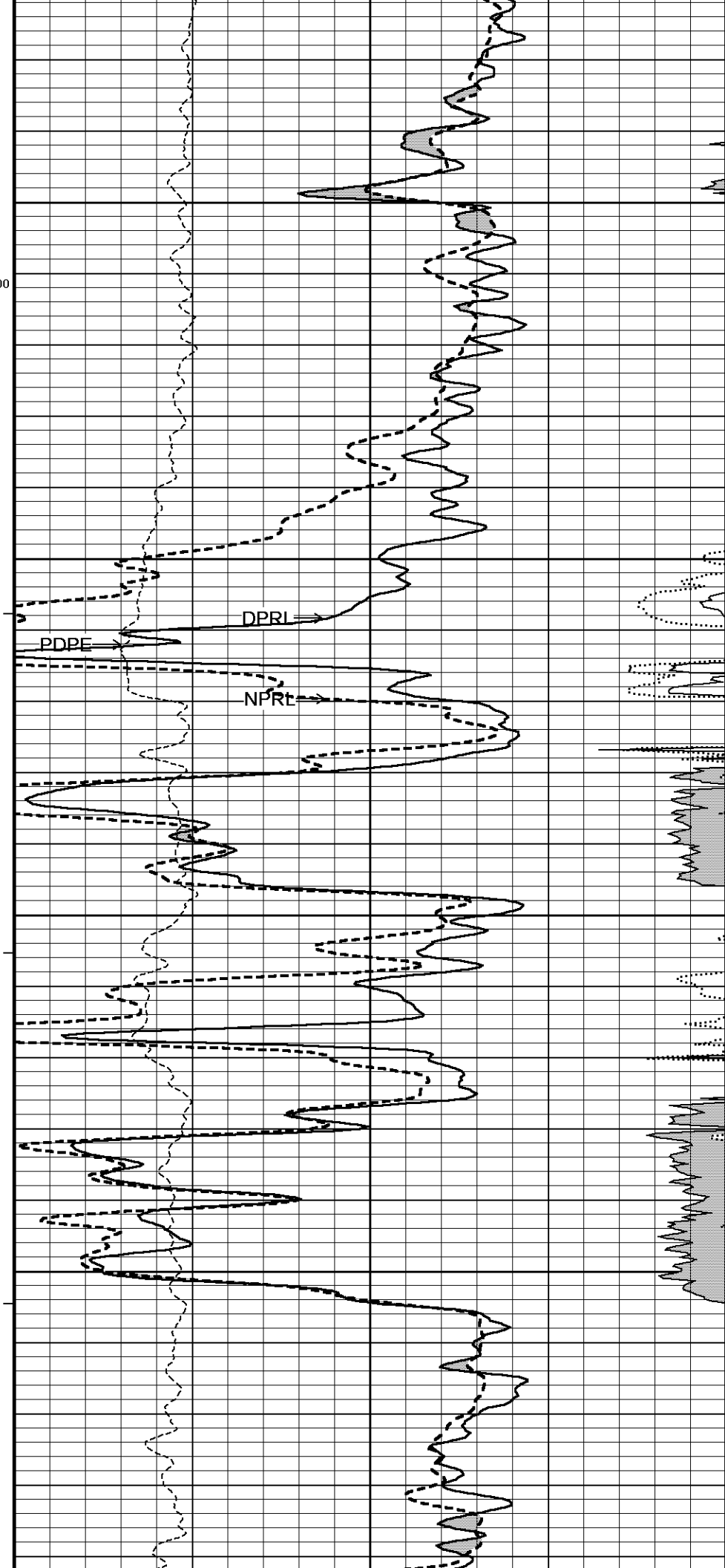
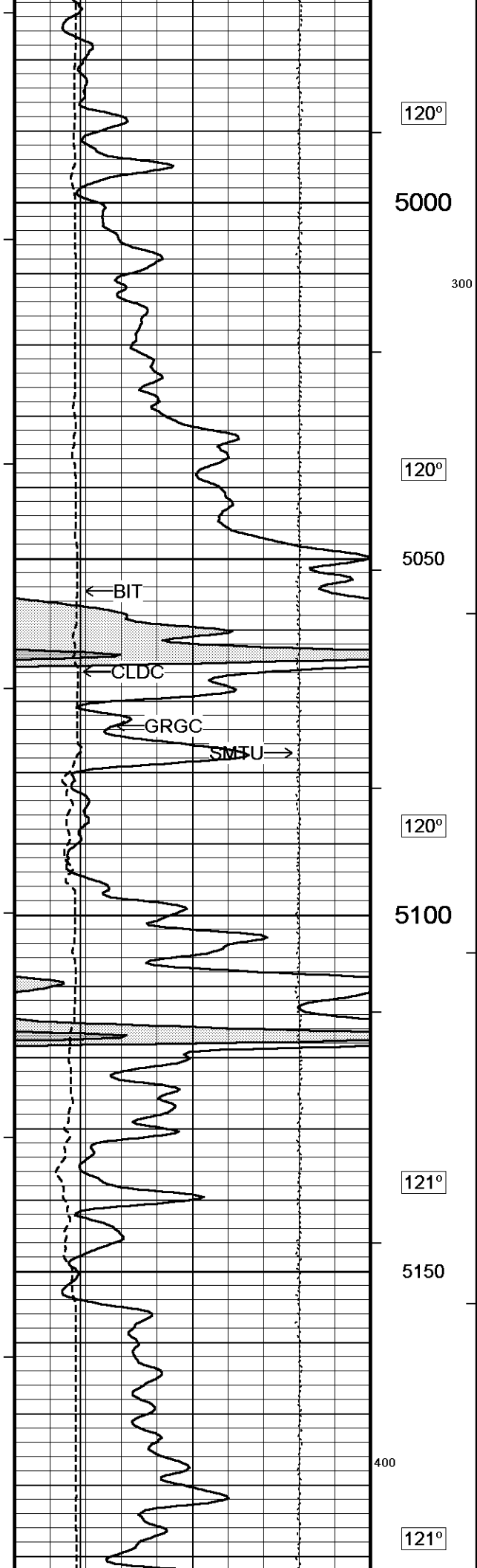
4100
500
113°
4150
114°
4200
114°
4250
700
115°
4300

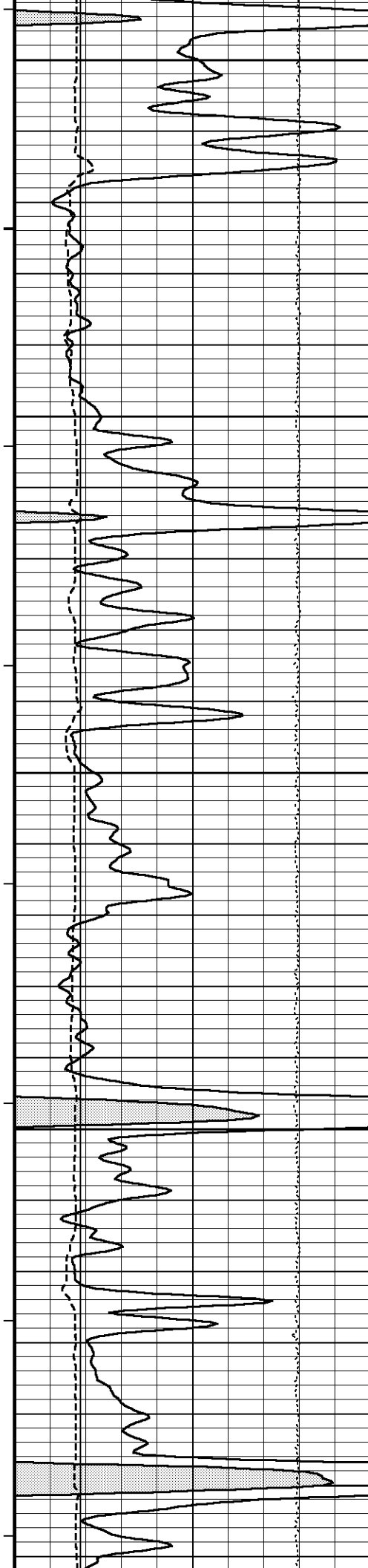












5200

122°

5250

122°

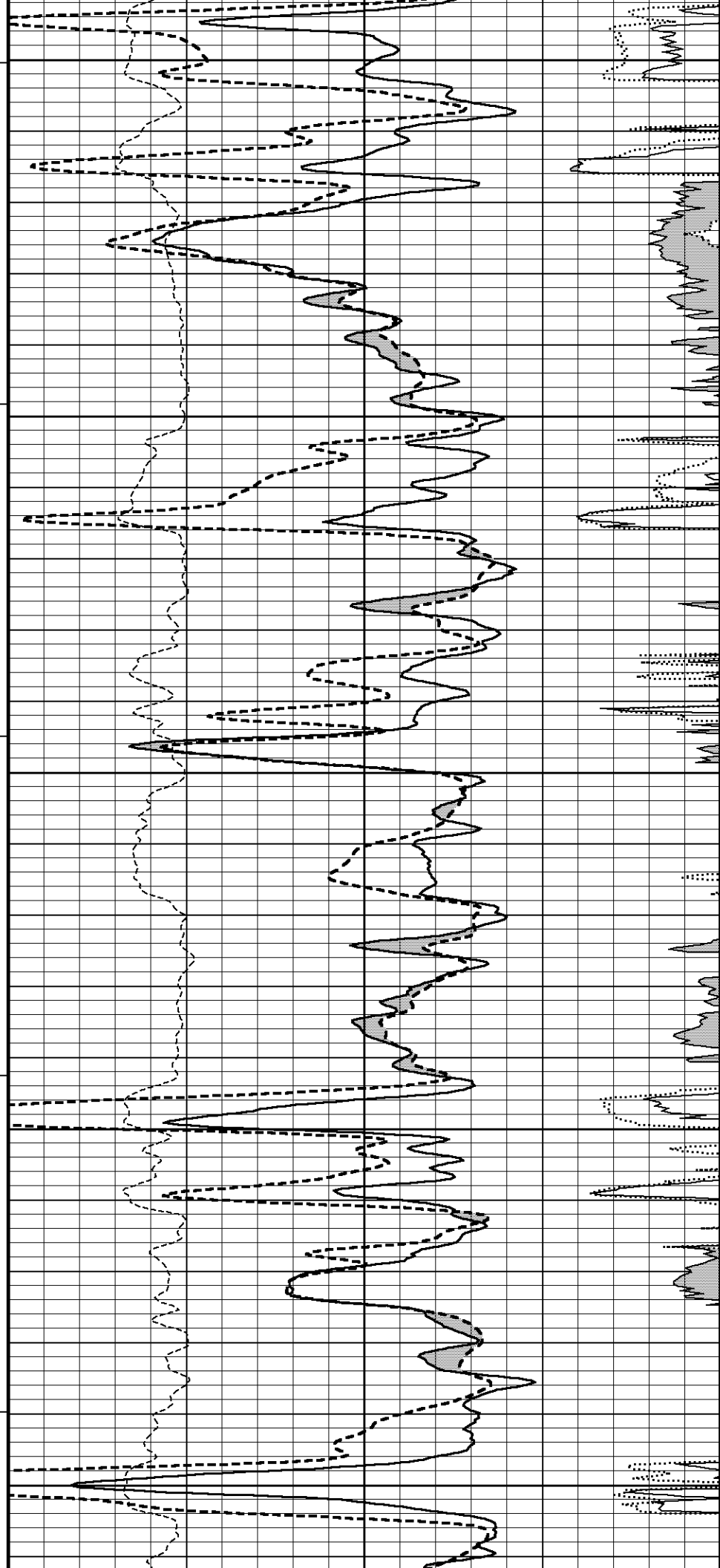
5300

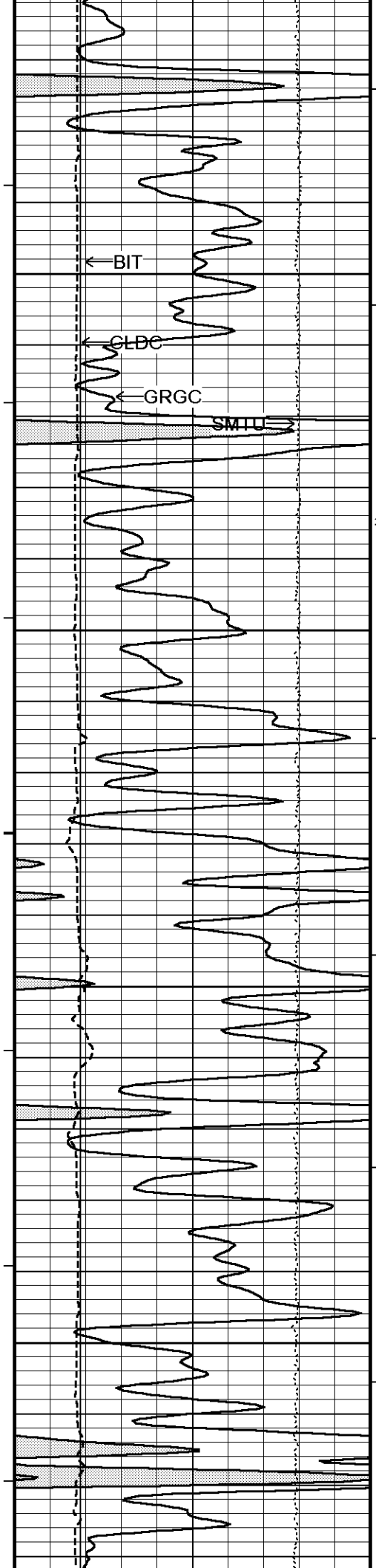
122°

5350

123°

5400





123°

5450

123°

5500

123°

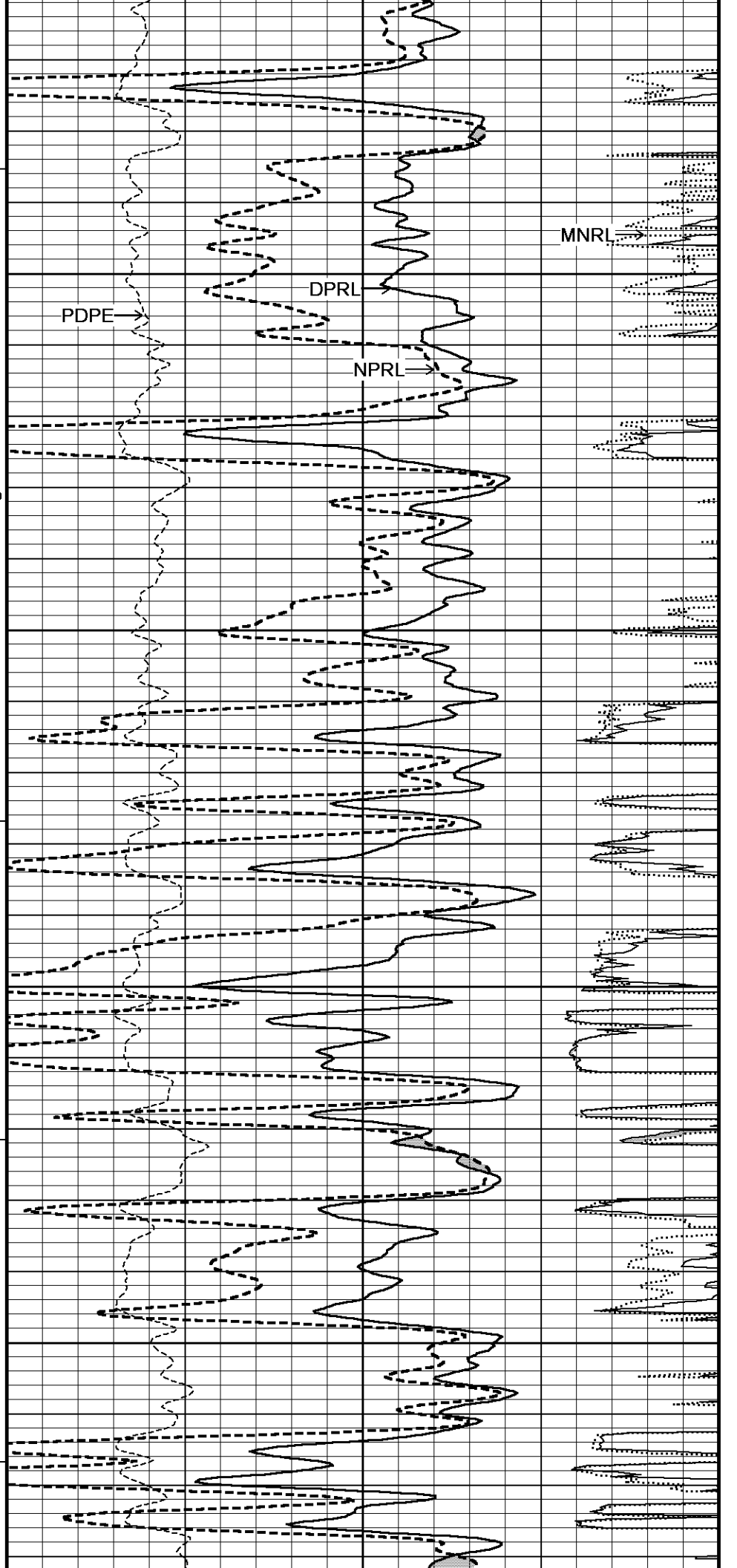
5550

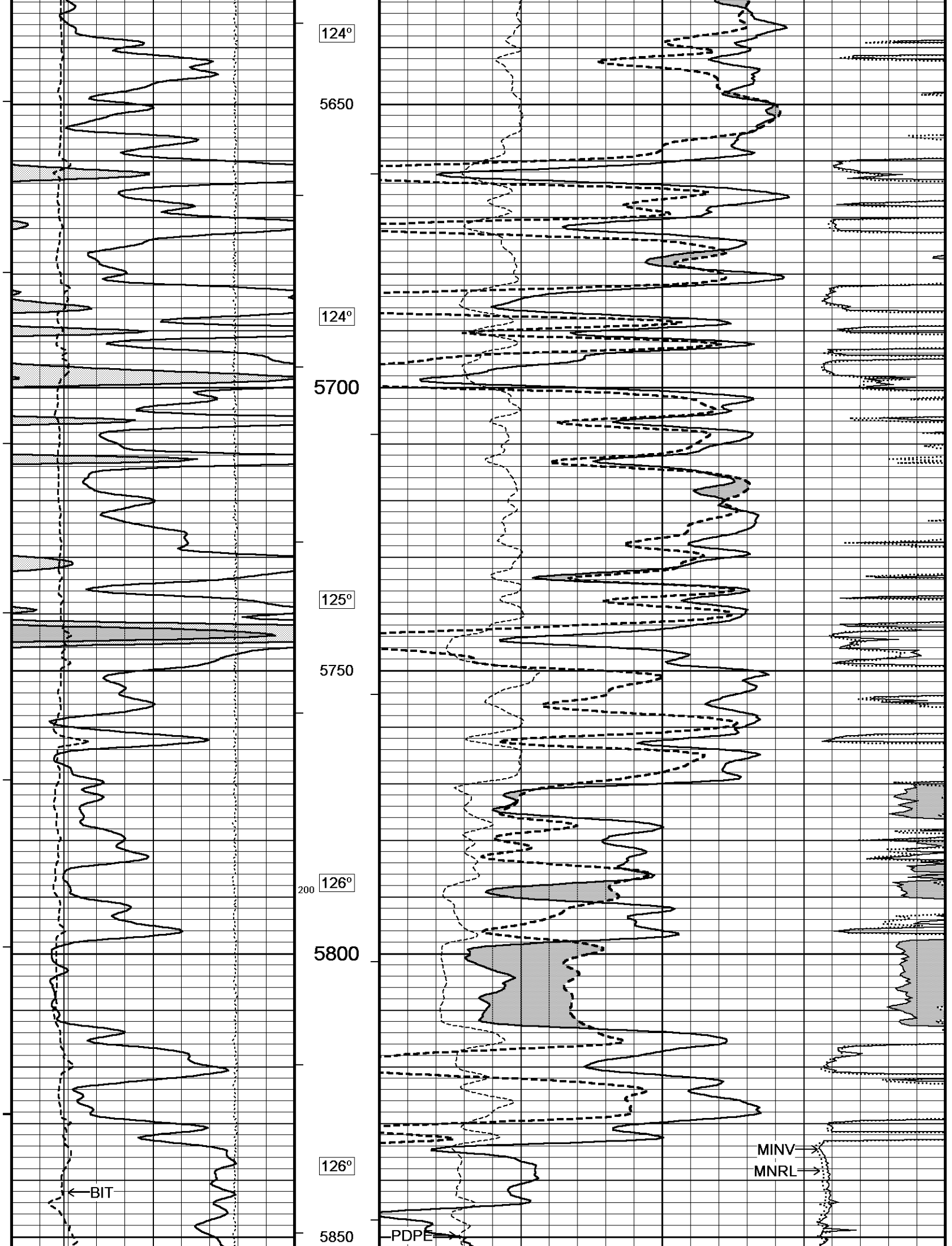
124°

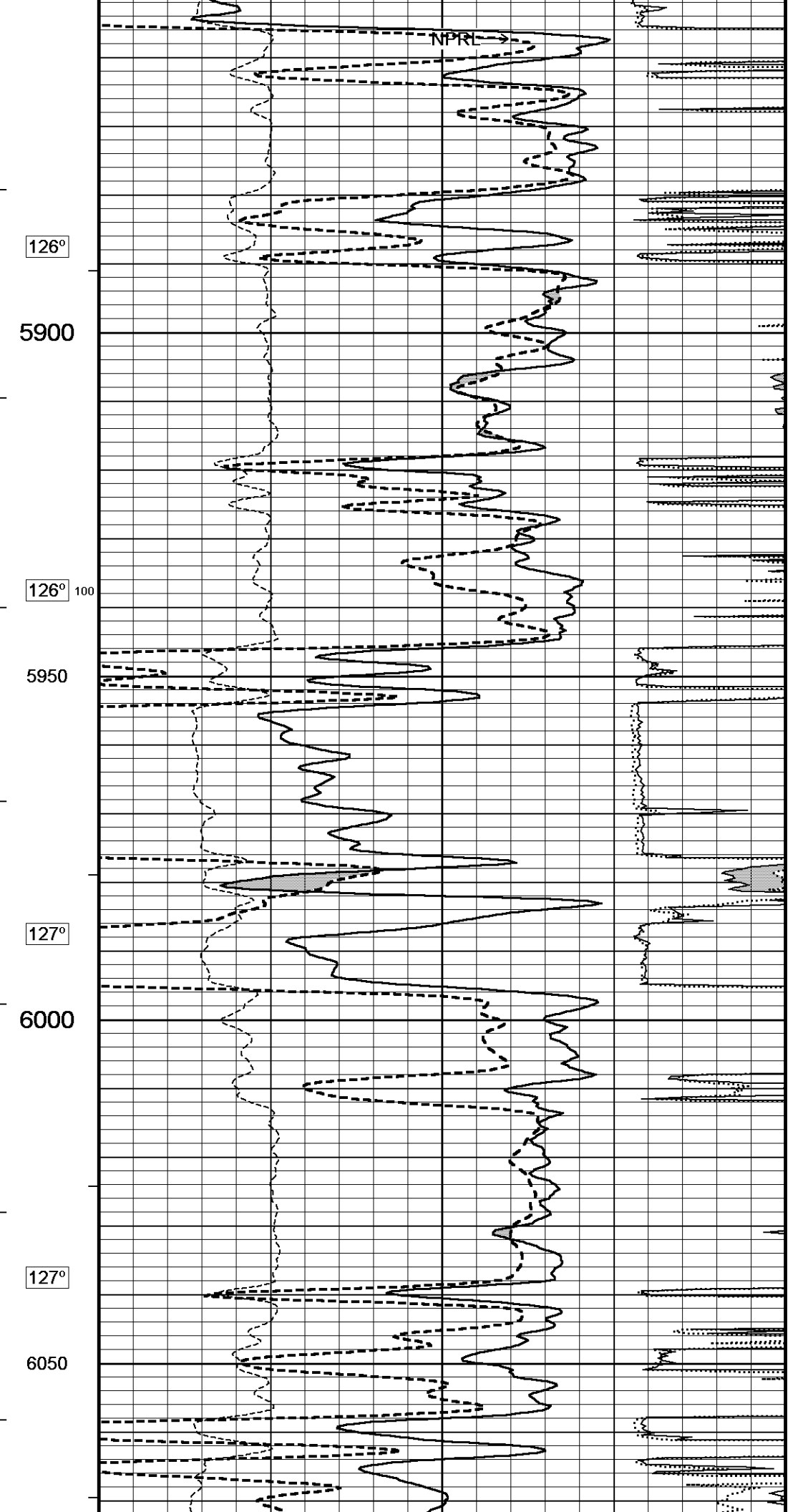
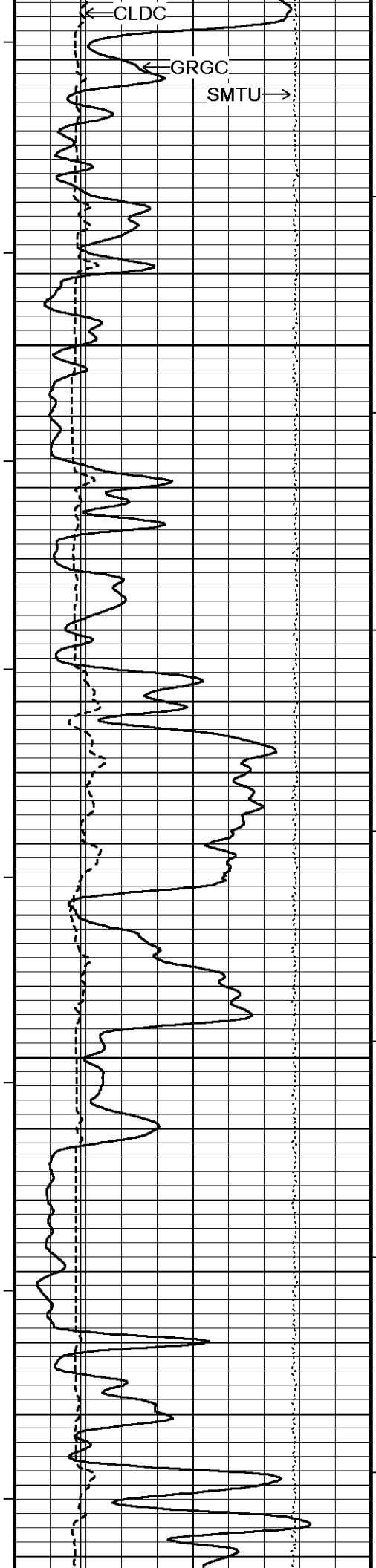
5600

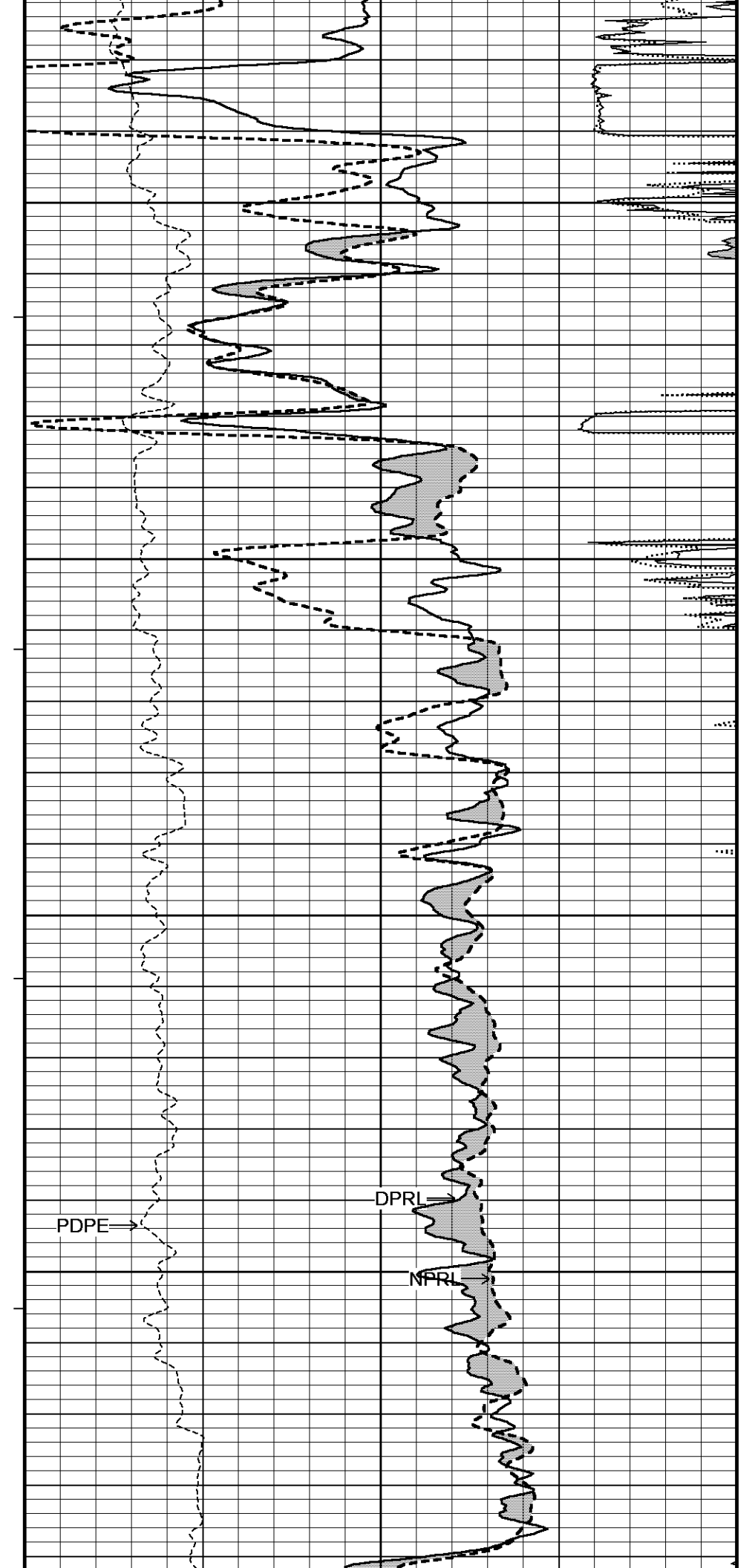
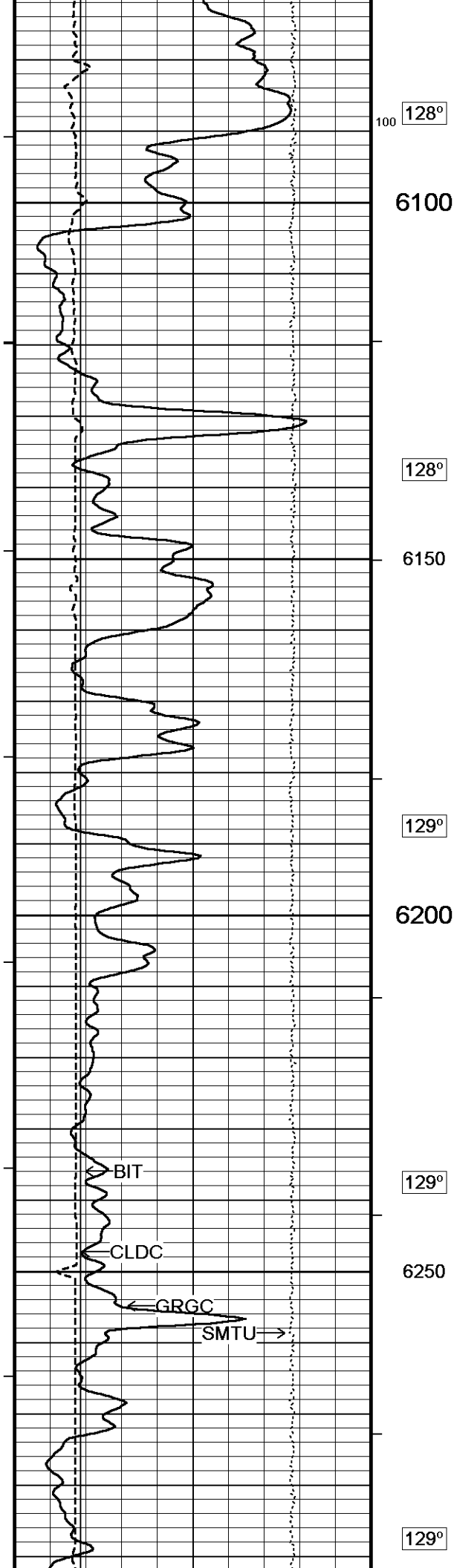
200

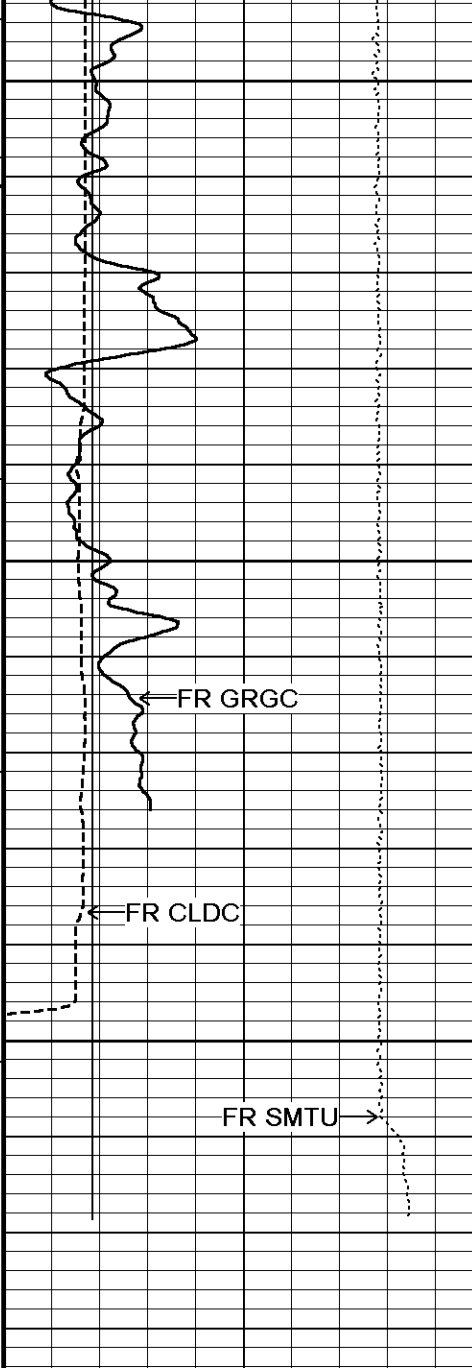
300











6300

130°

6350

6400

TD

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

75

0 150

150 225 300

Density Caliper
inches

6 11 16

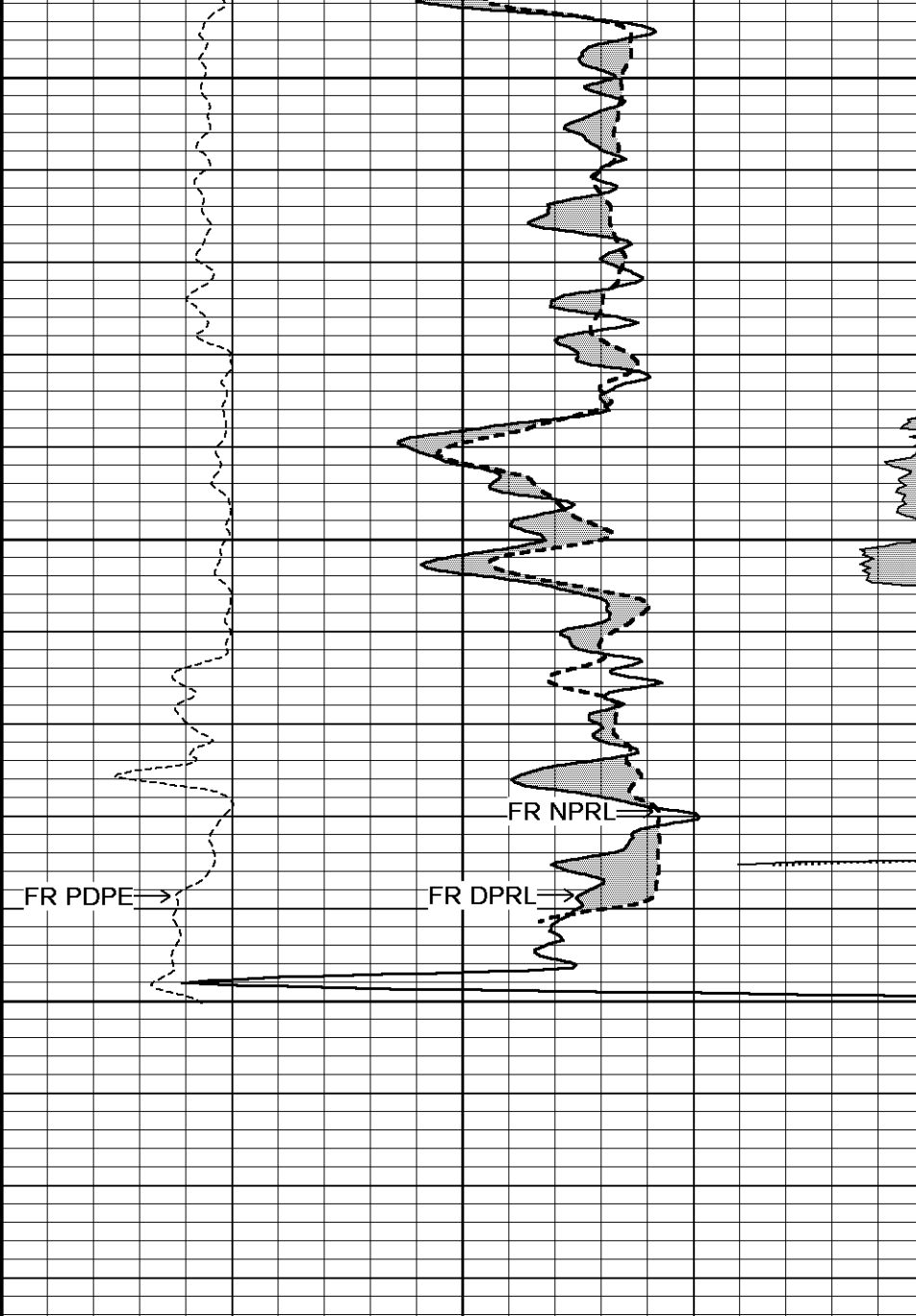
Bit Size
inches

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

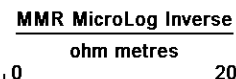
30 20 10 0 -10

PE
barns/electron

0 5 10

MMR MicroLog Normal
ohm metres

0 20

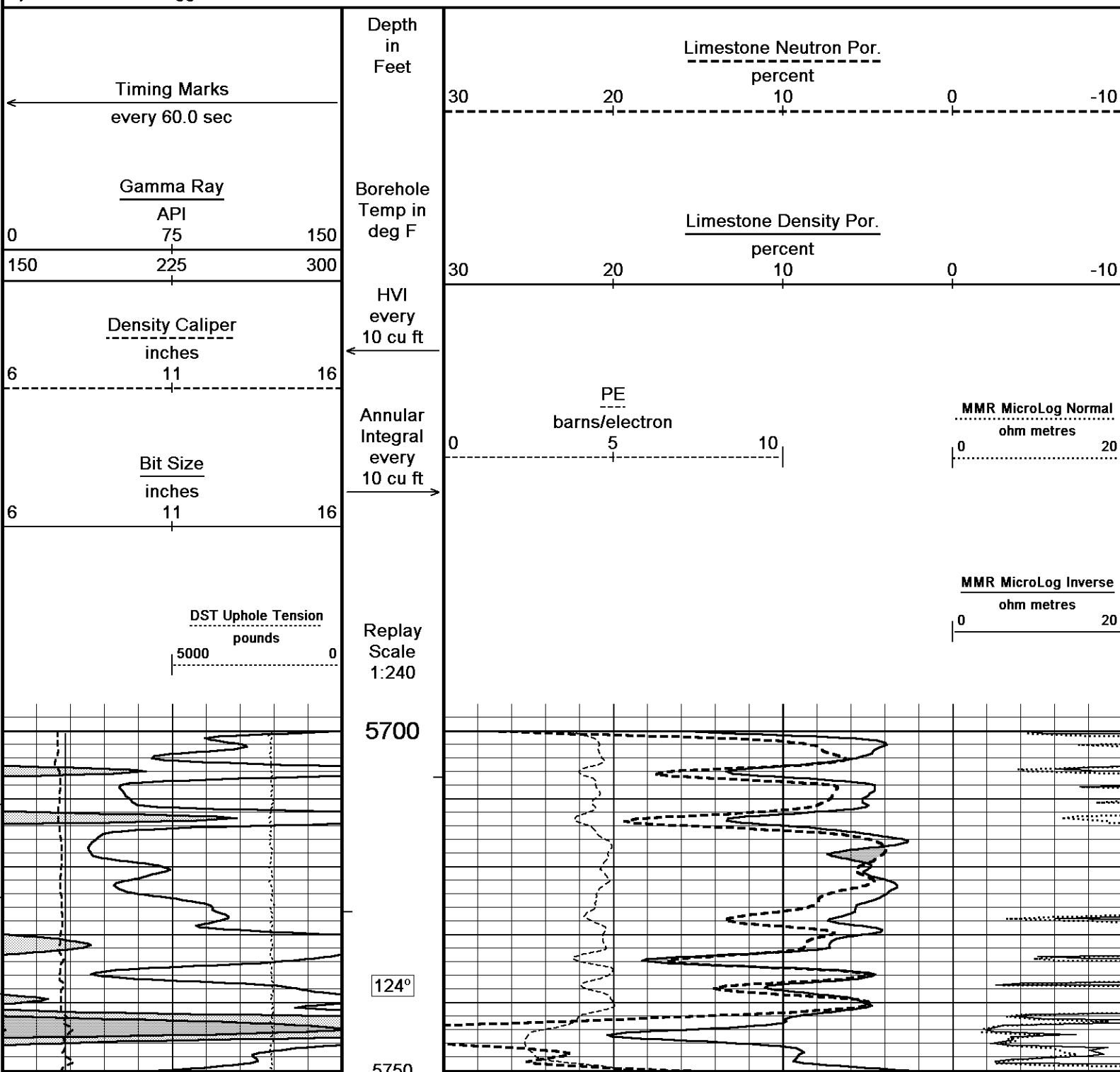


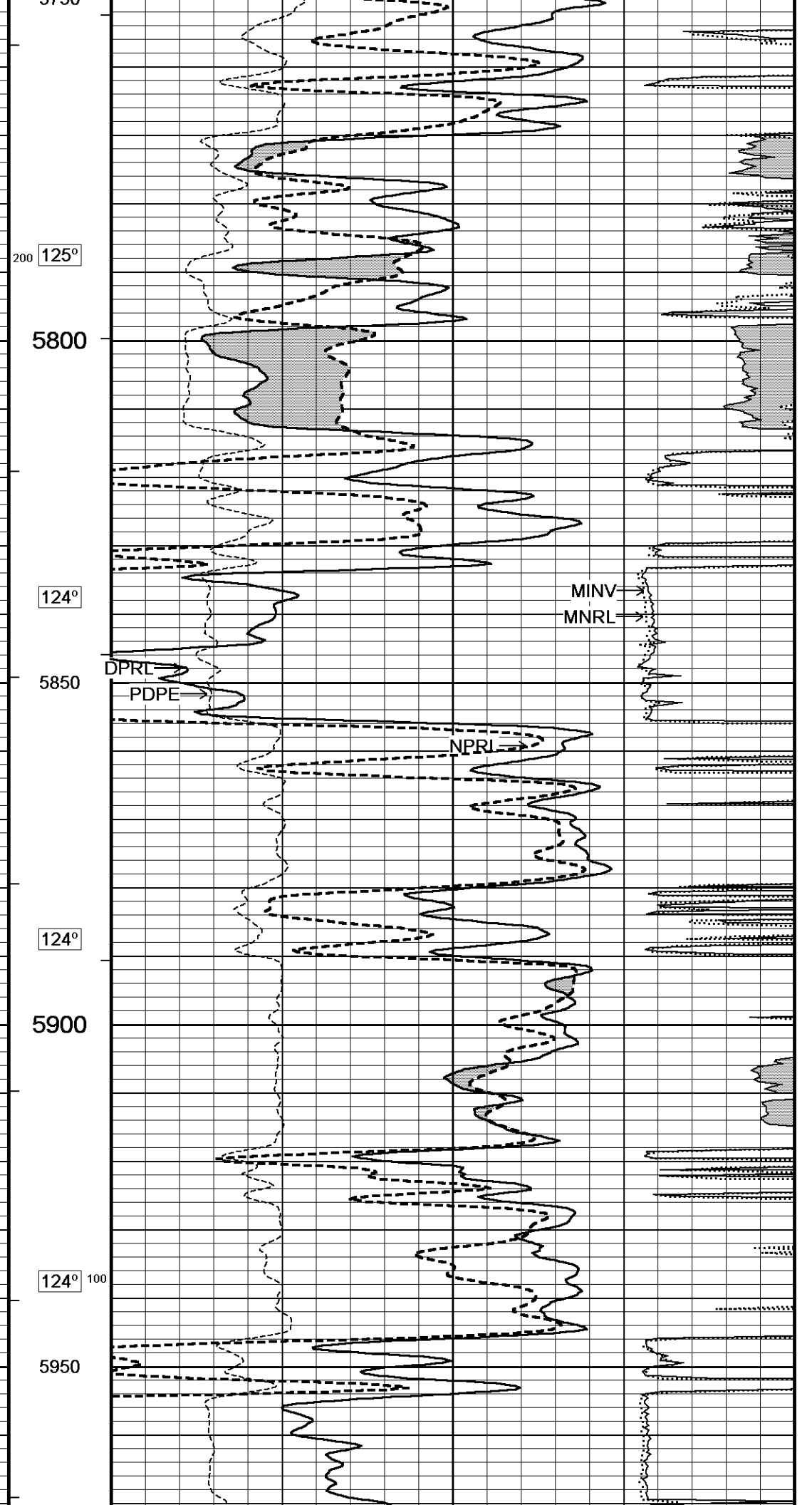
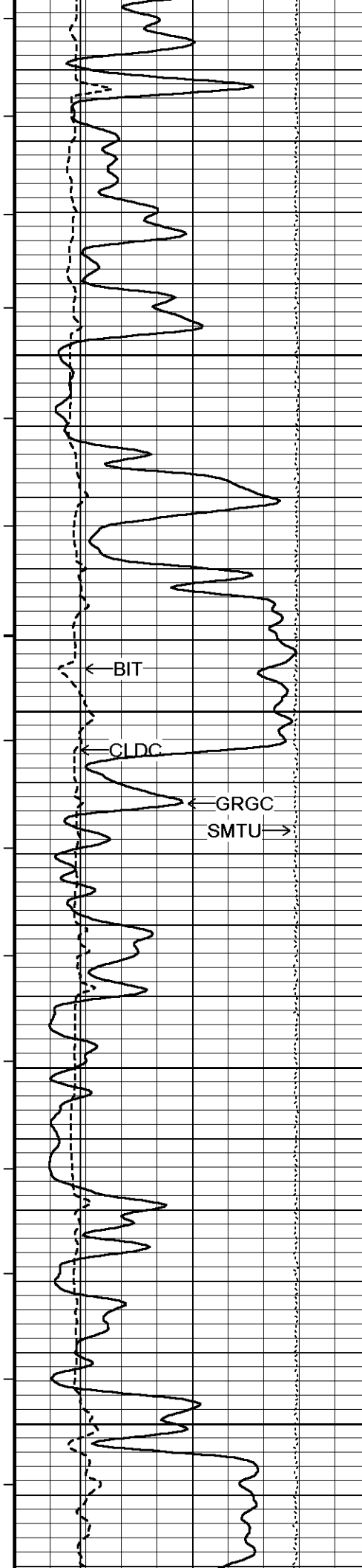
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 26-MAY-2014 20:32
 Filename: C:\Minimus 13.08.2113\Logs\O'Brien Ene...\O'Brien Energy Resources Larrabee 4-4 Main.dta Recorded on 26-MAY-2014 17:09
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

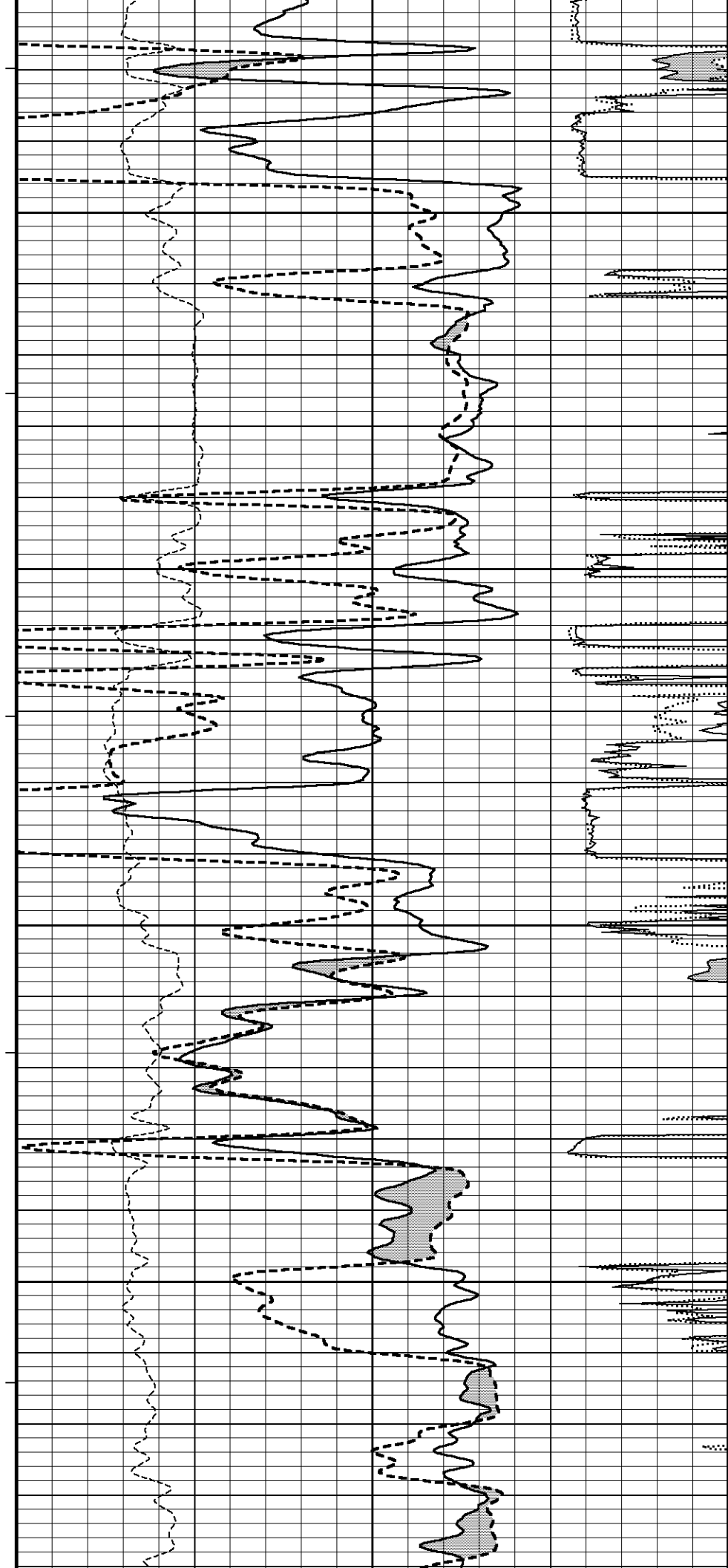
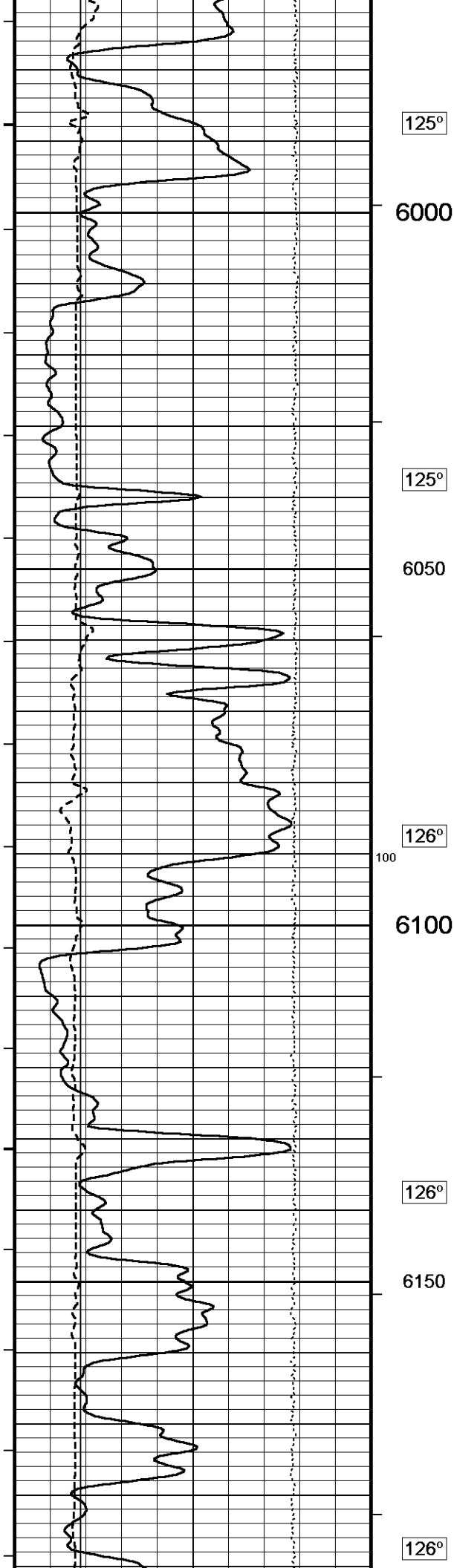
5 INCH LIMESTONE MAIN

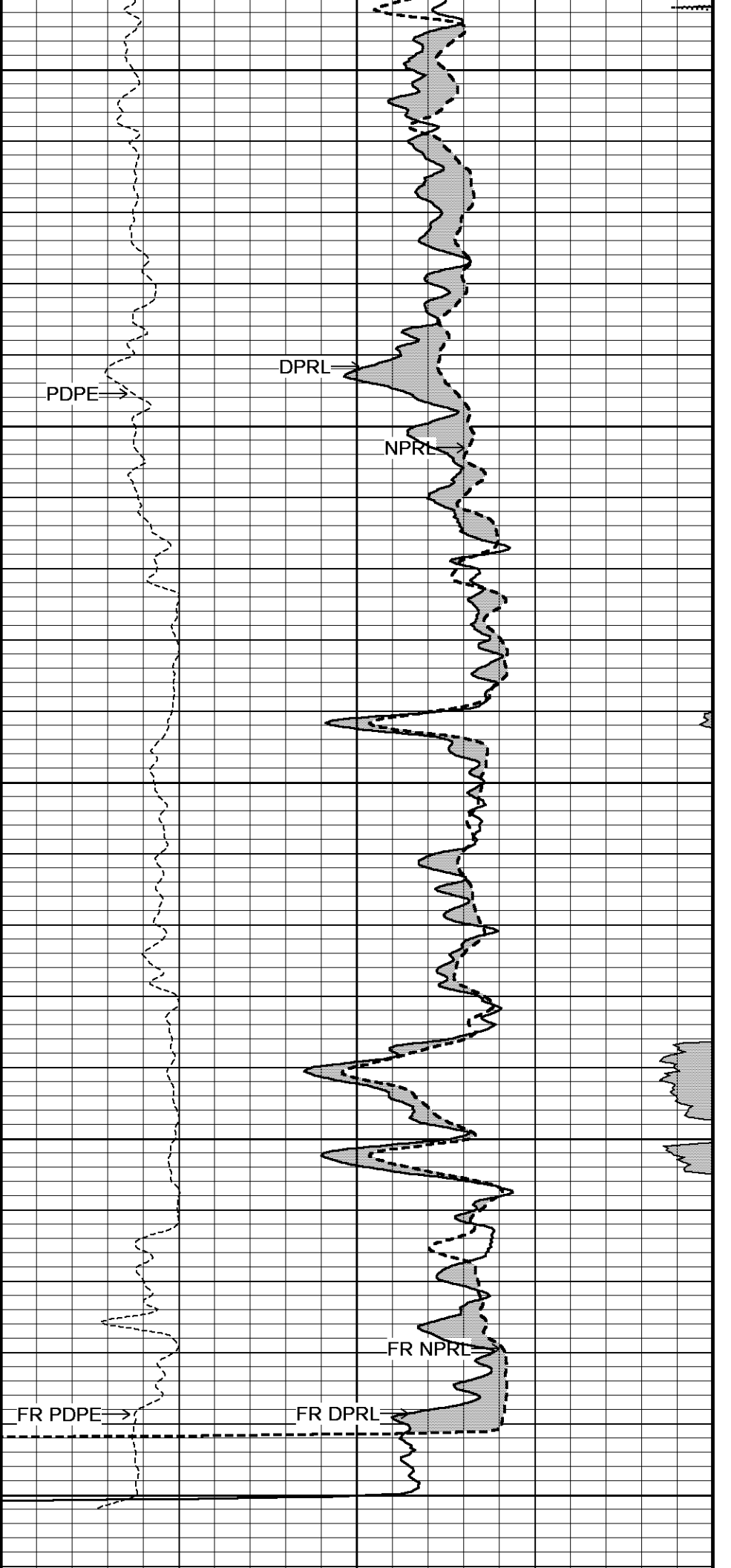
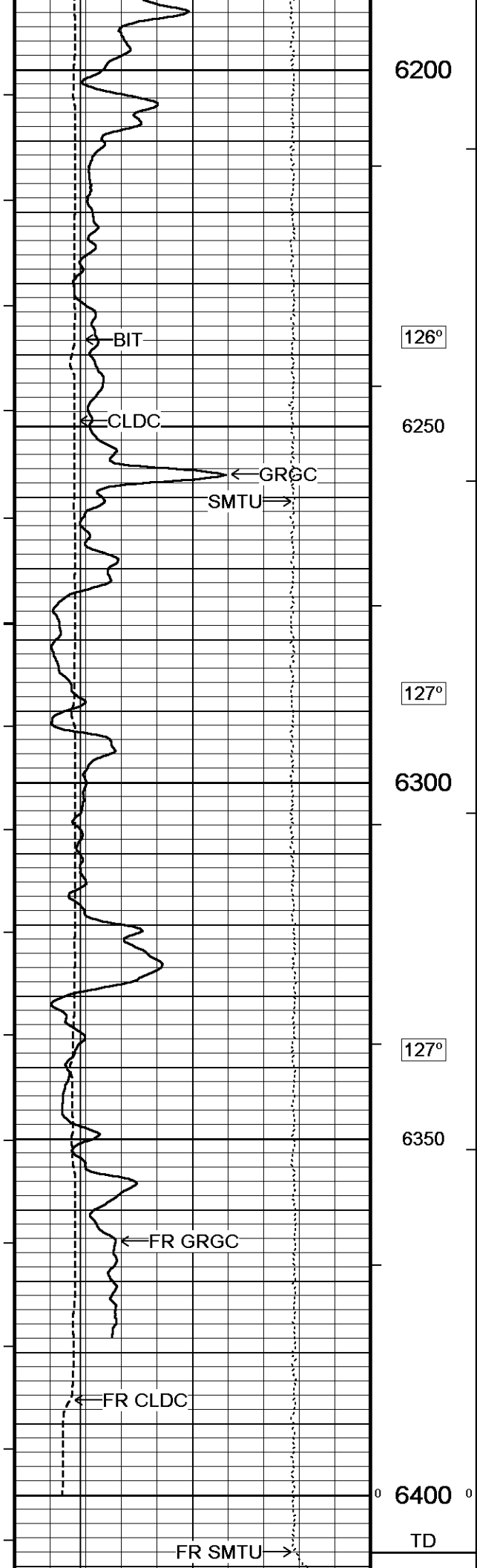
REPEAT SECTION

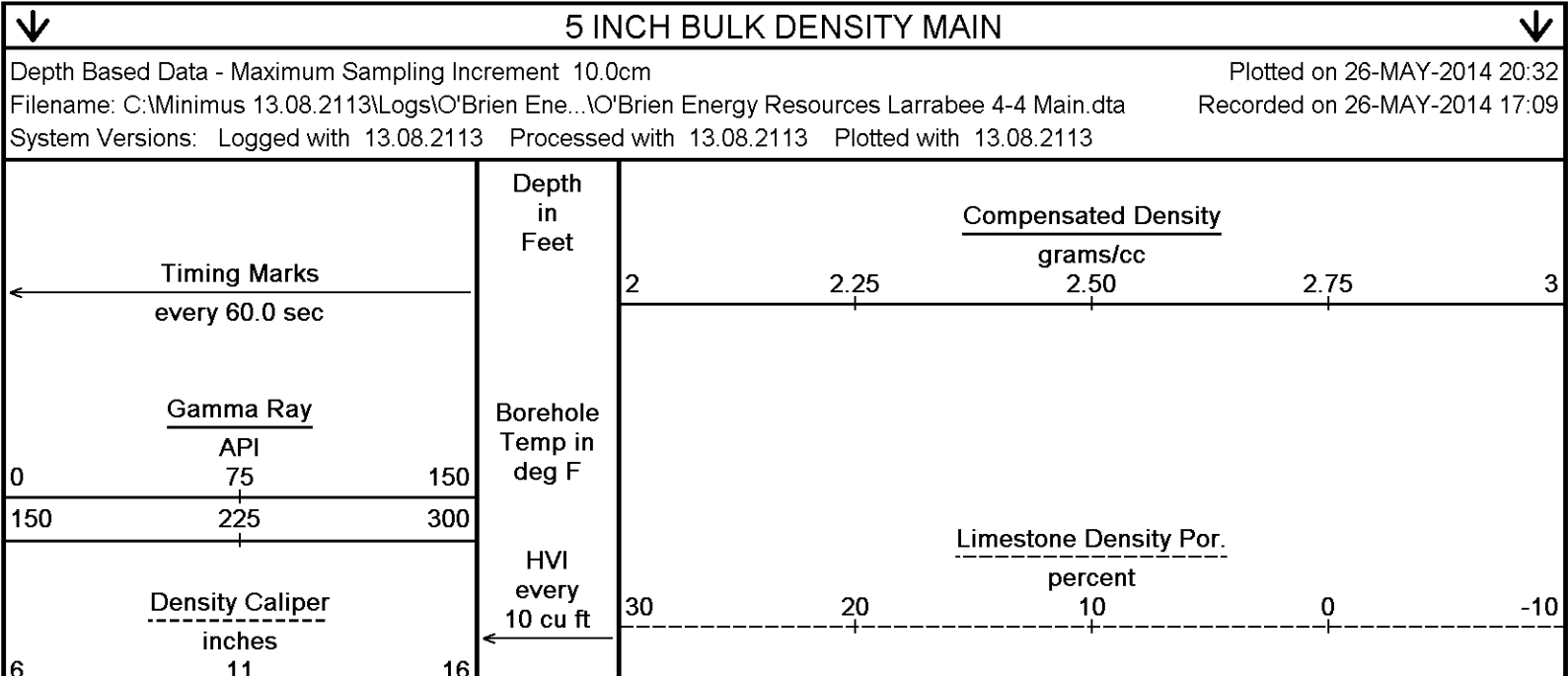
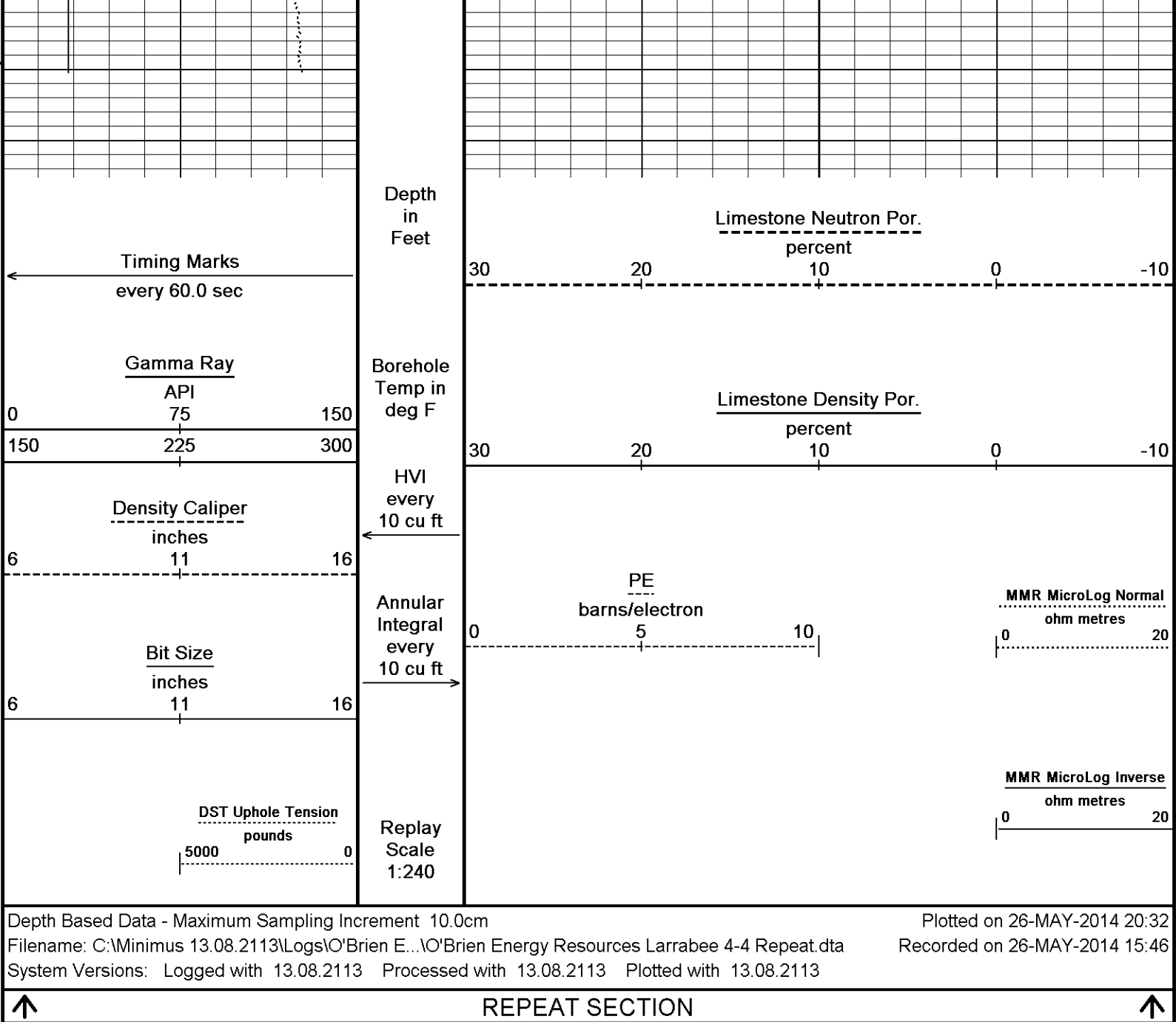
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 26-MAY-2014 20:32
 Filename: C:\Minimus 13.08.2113\Logs\O'Brien E...\O'Brien Energy Resources Larrabee 4-4 Repeat.dta Recorded on 26-MAY-2014 15:46
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

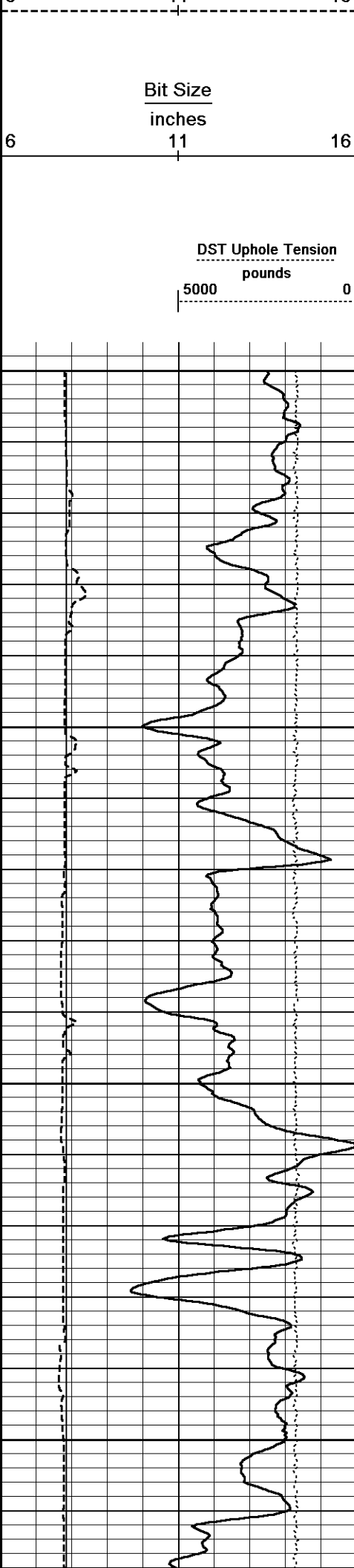




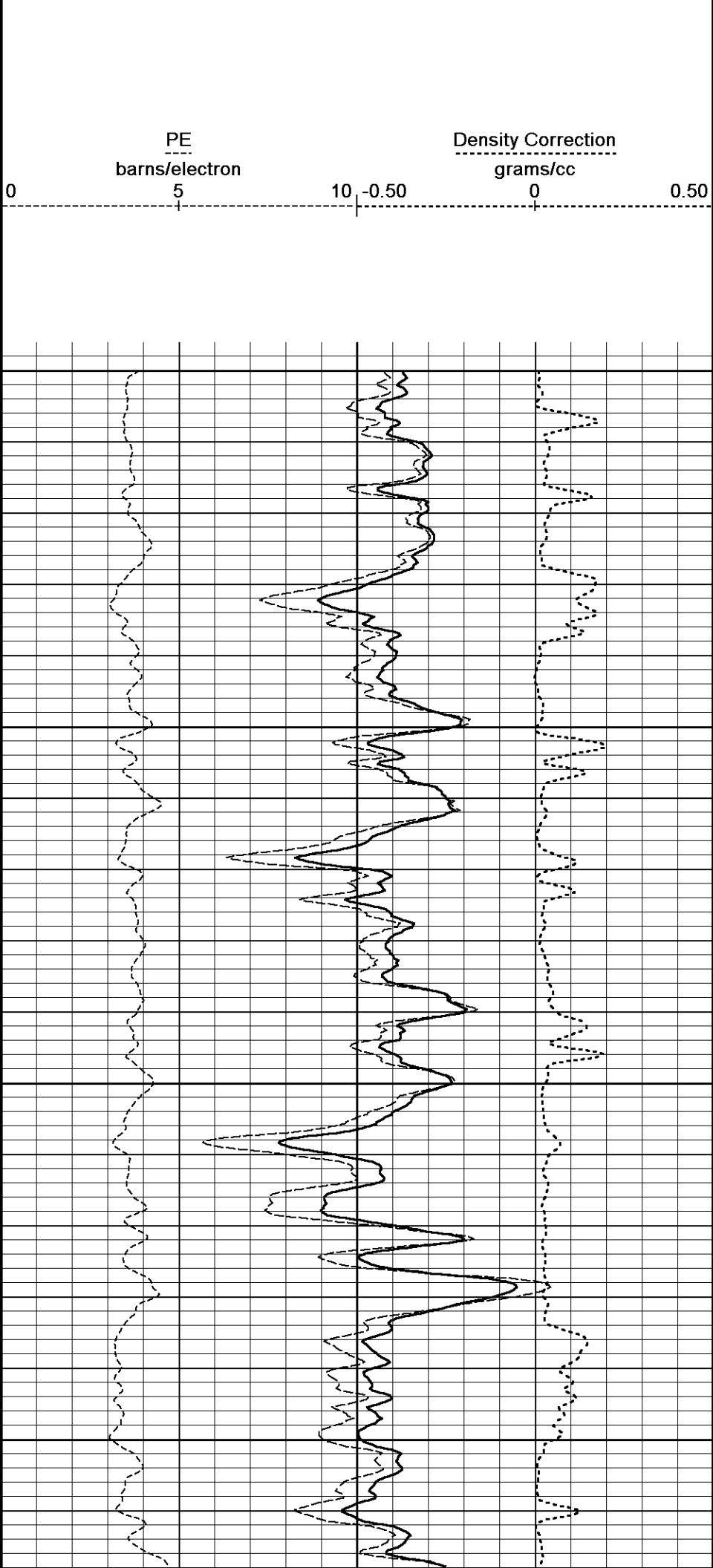


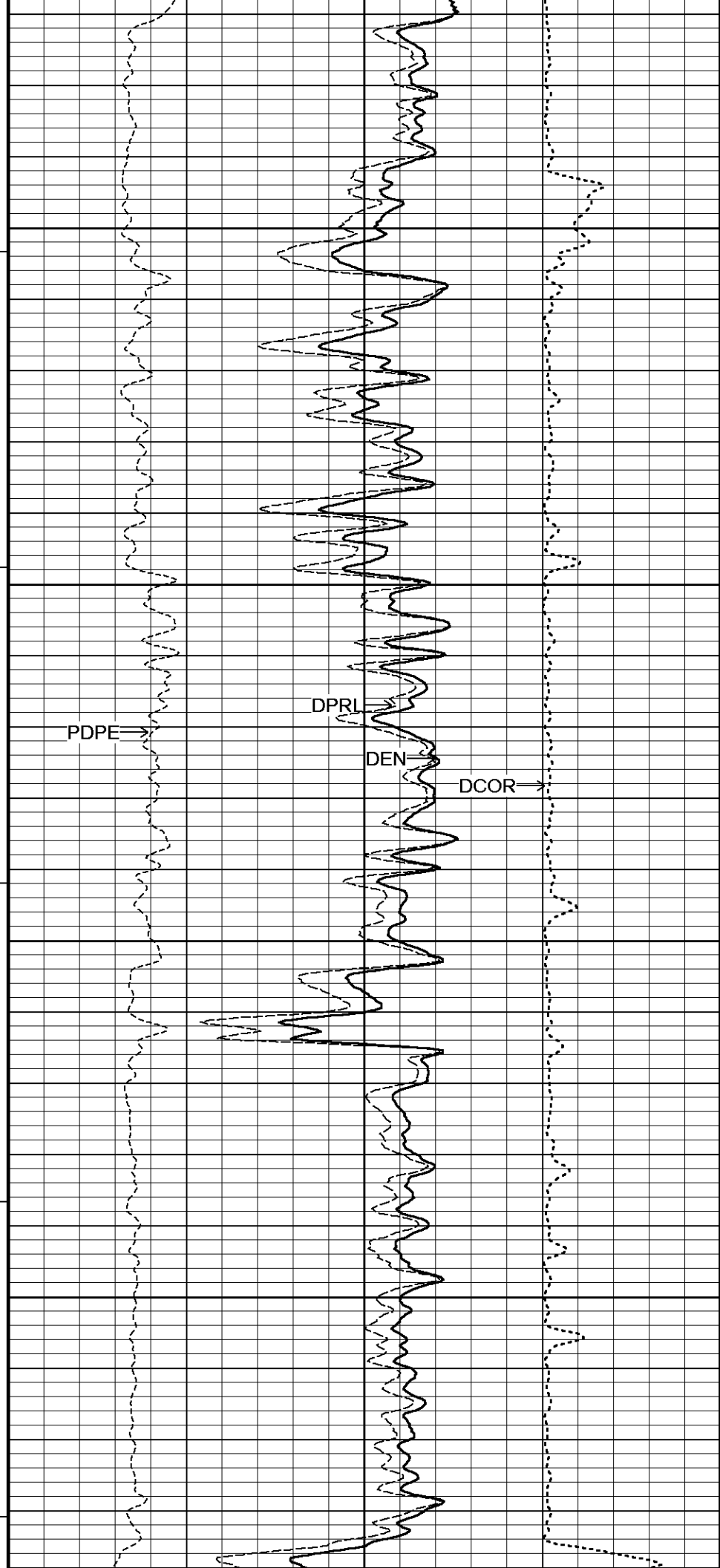
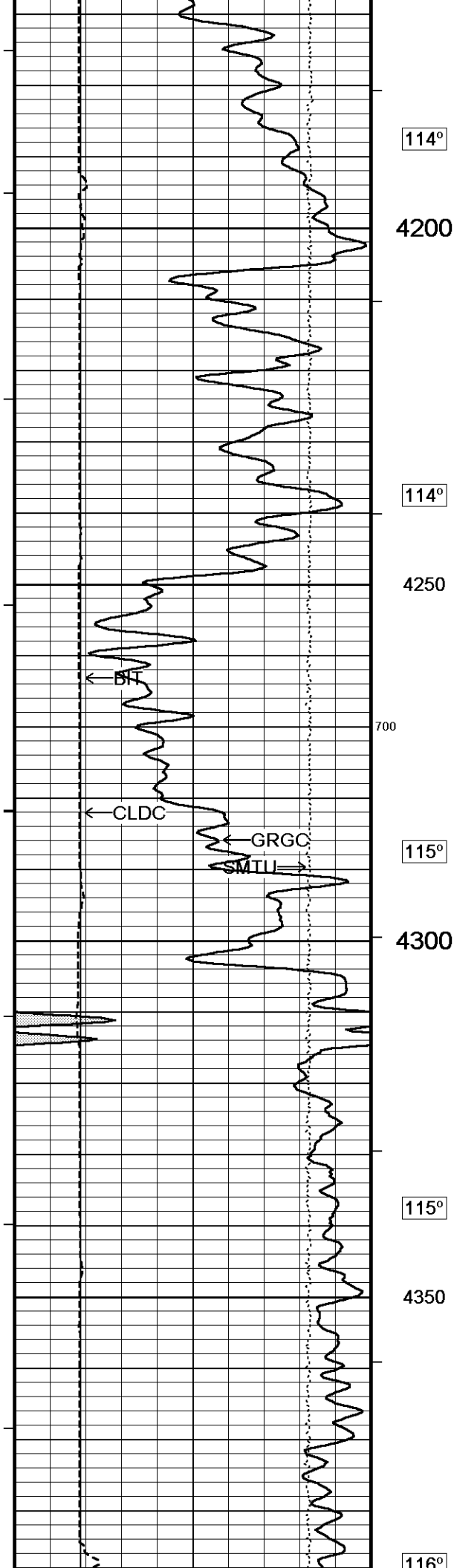


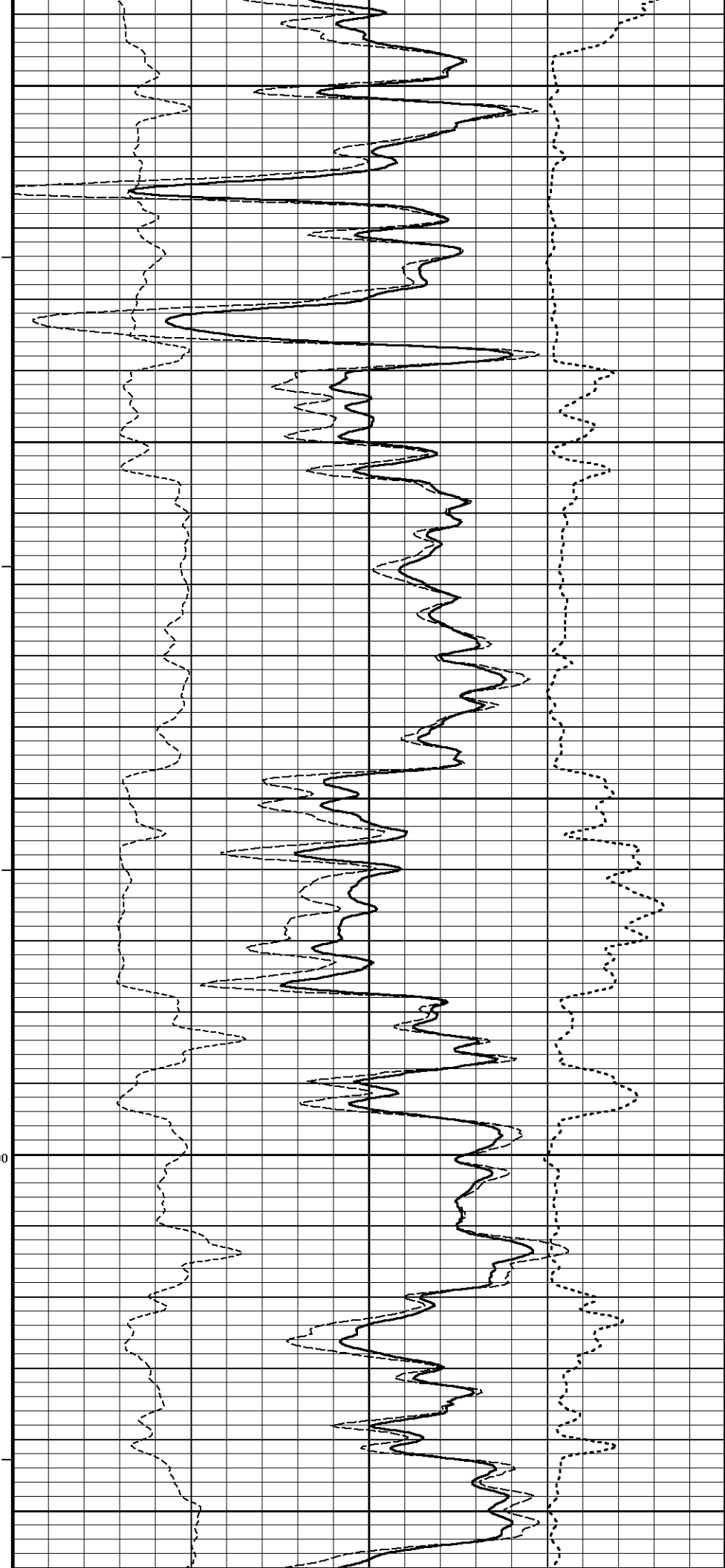
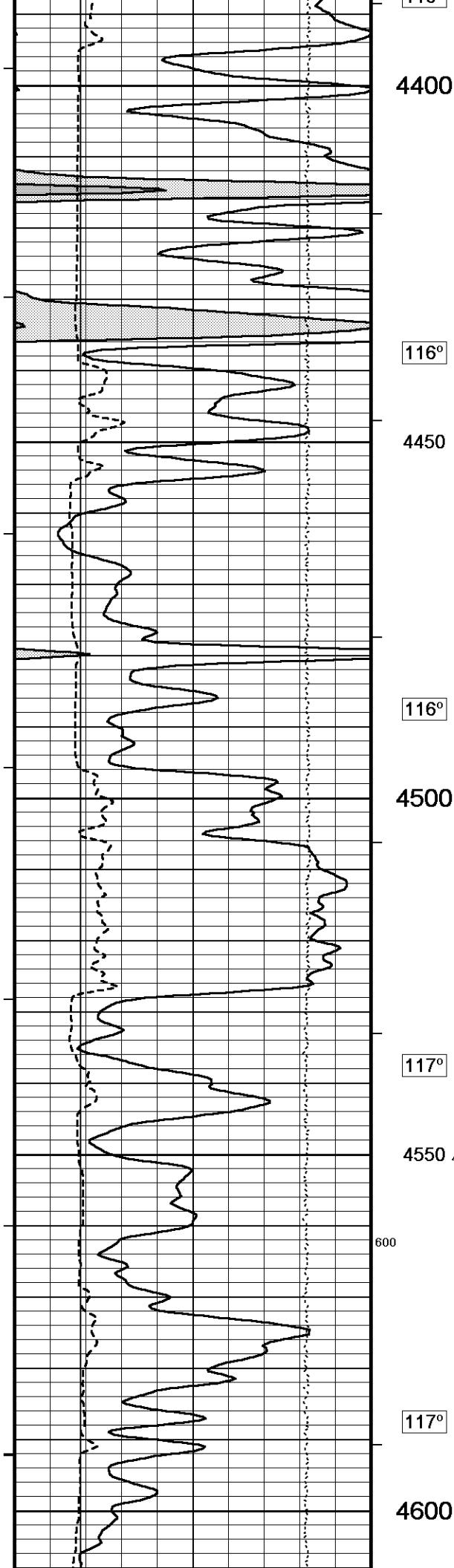


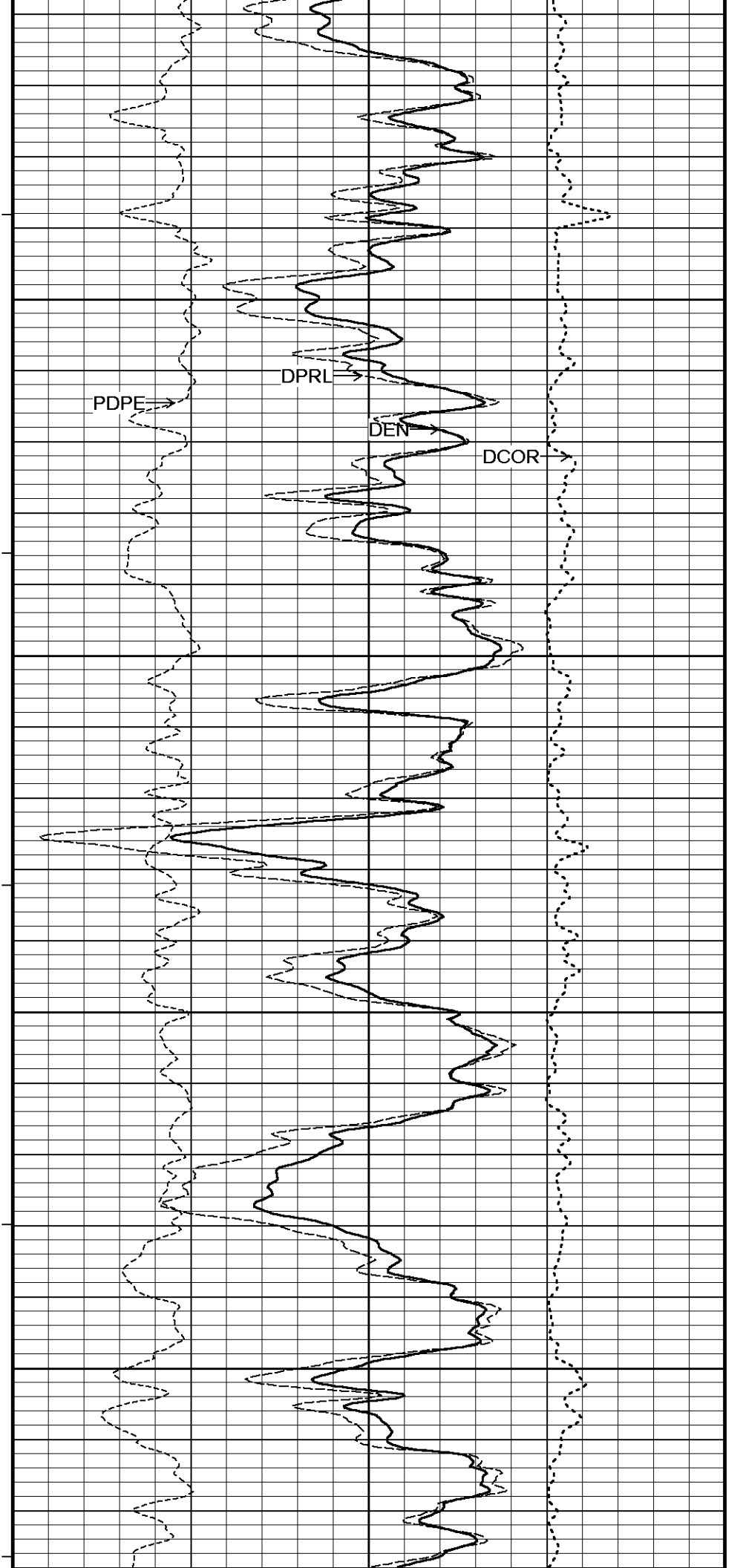
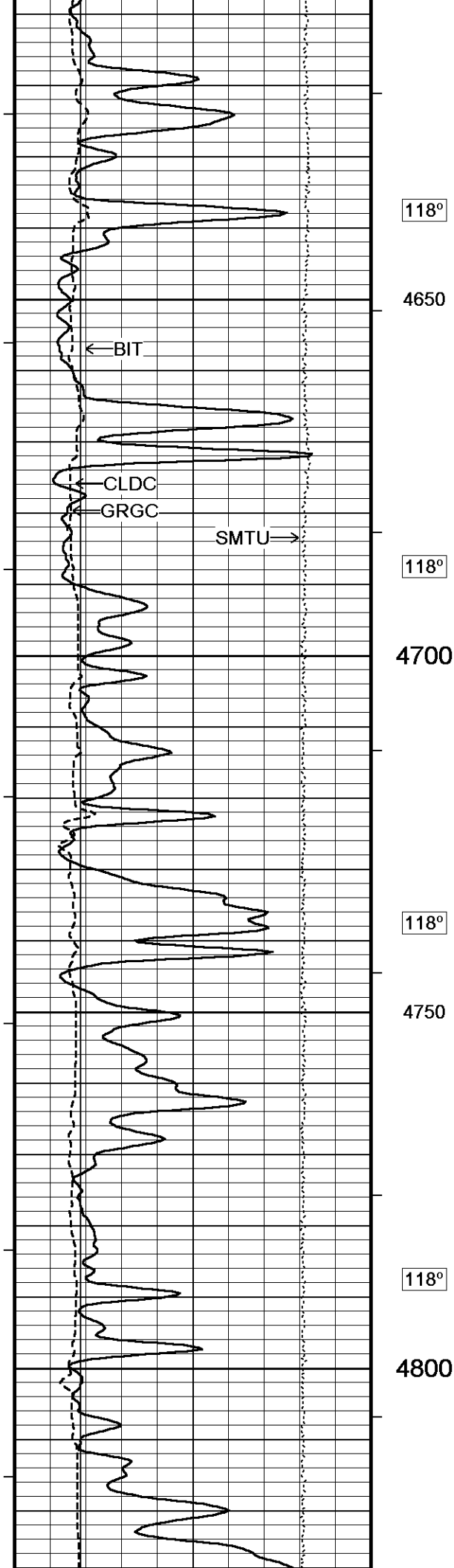


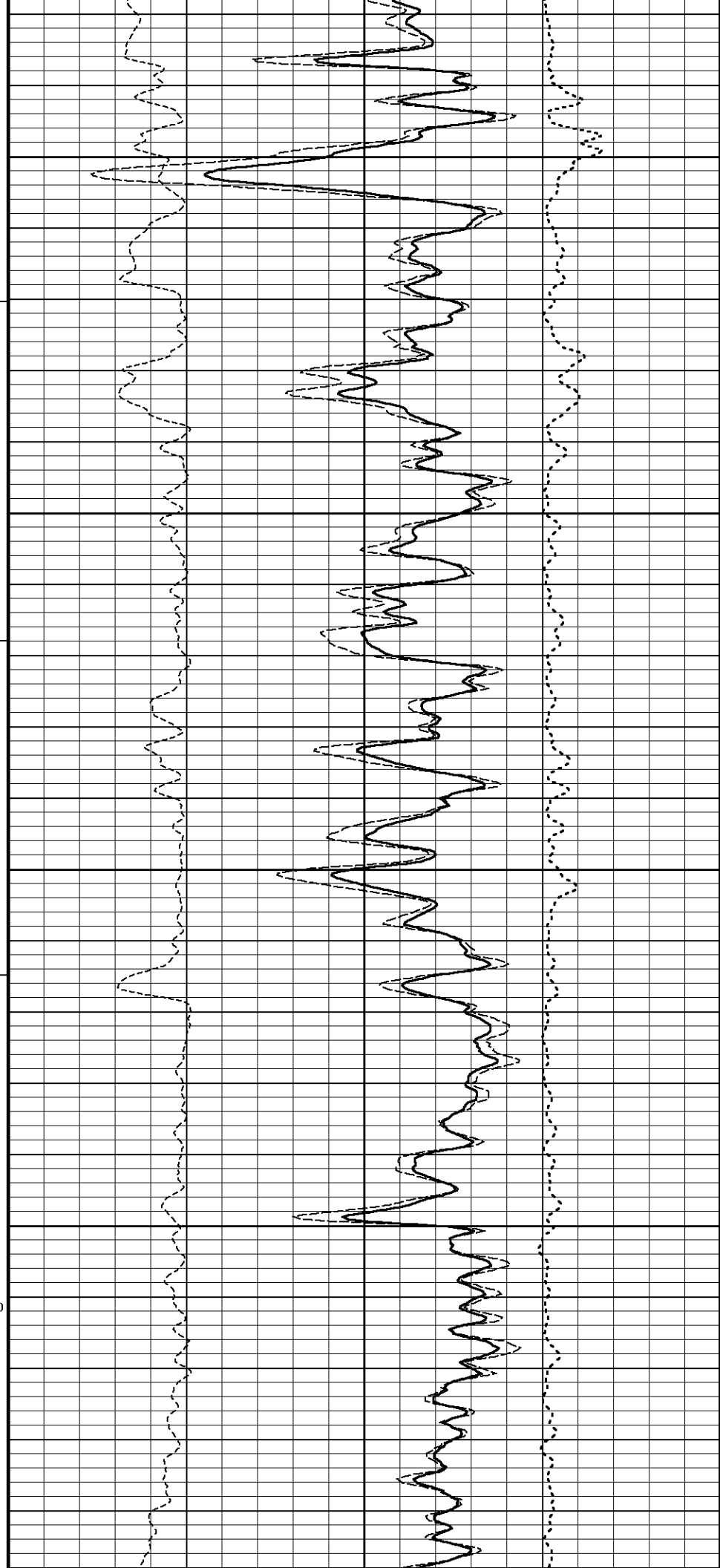
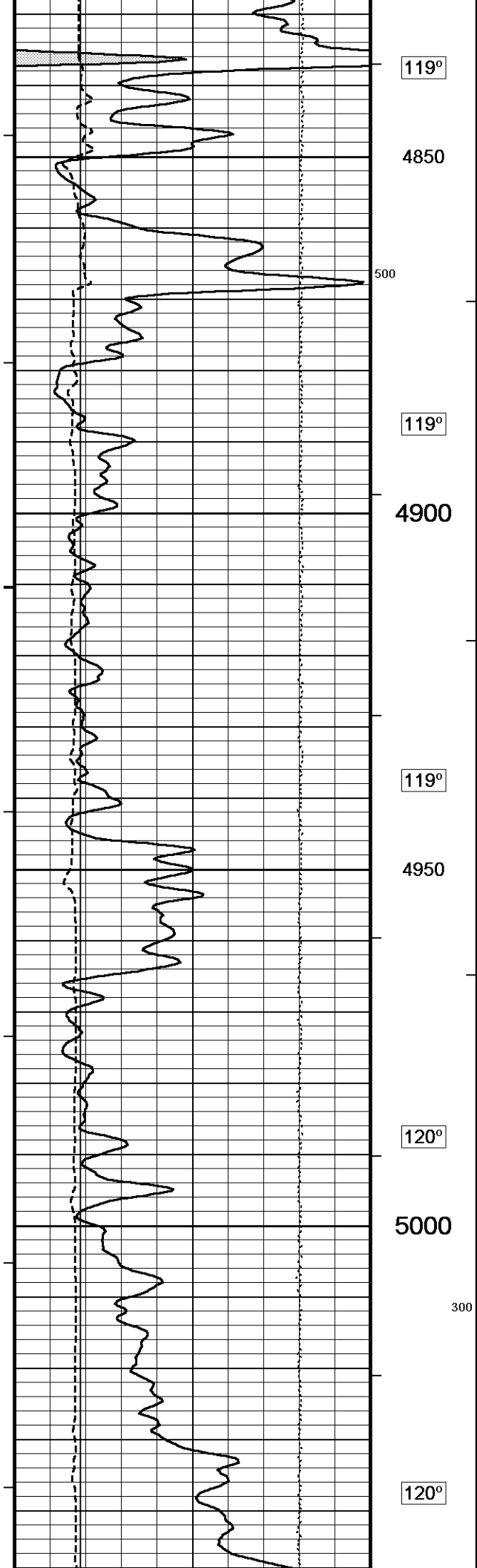
Annular
Integral
every
10 cu ft

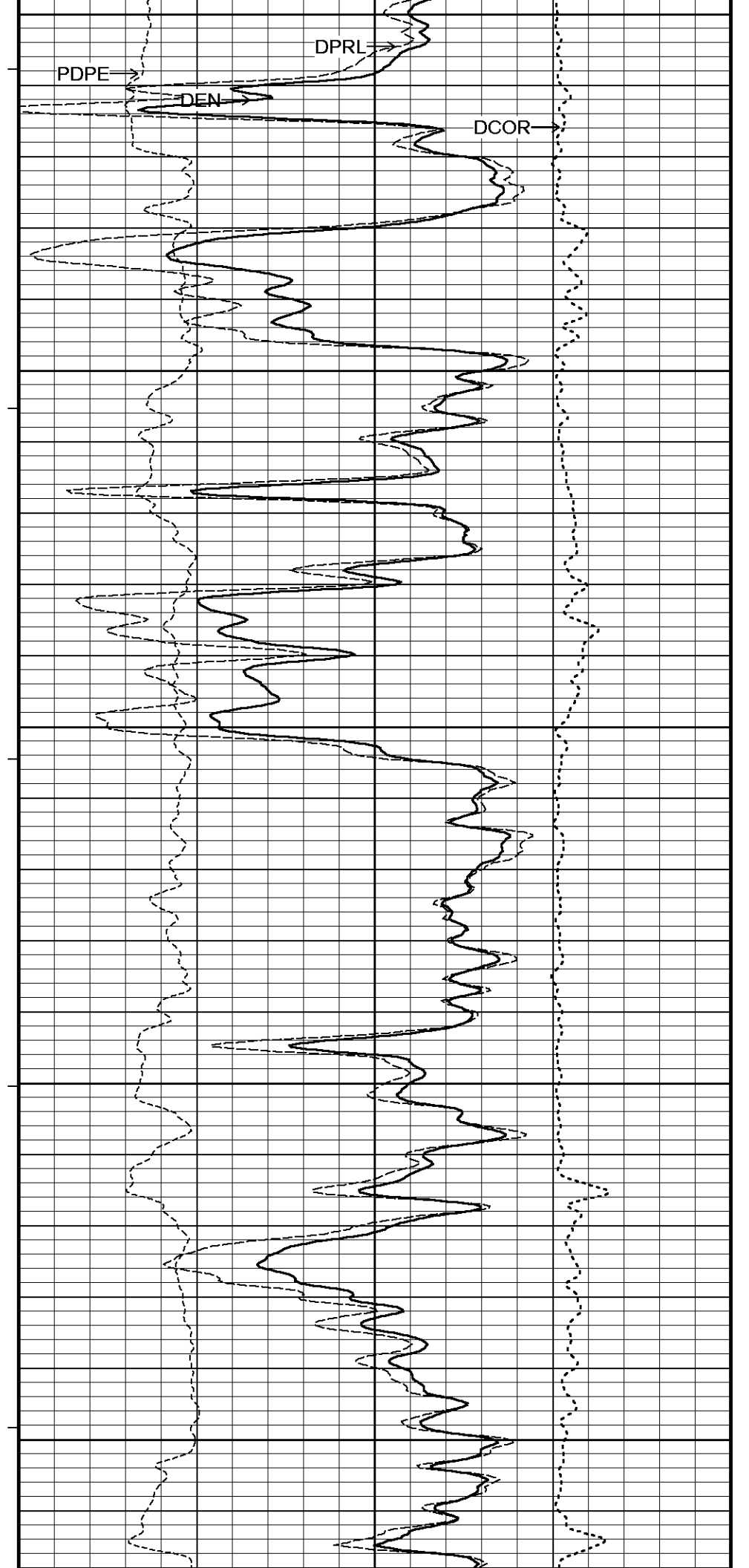
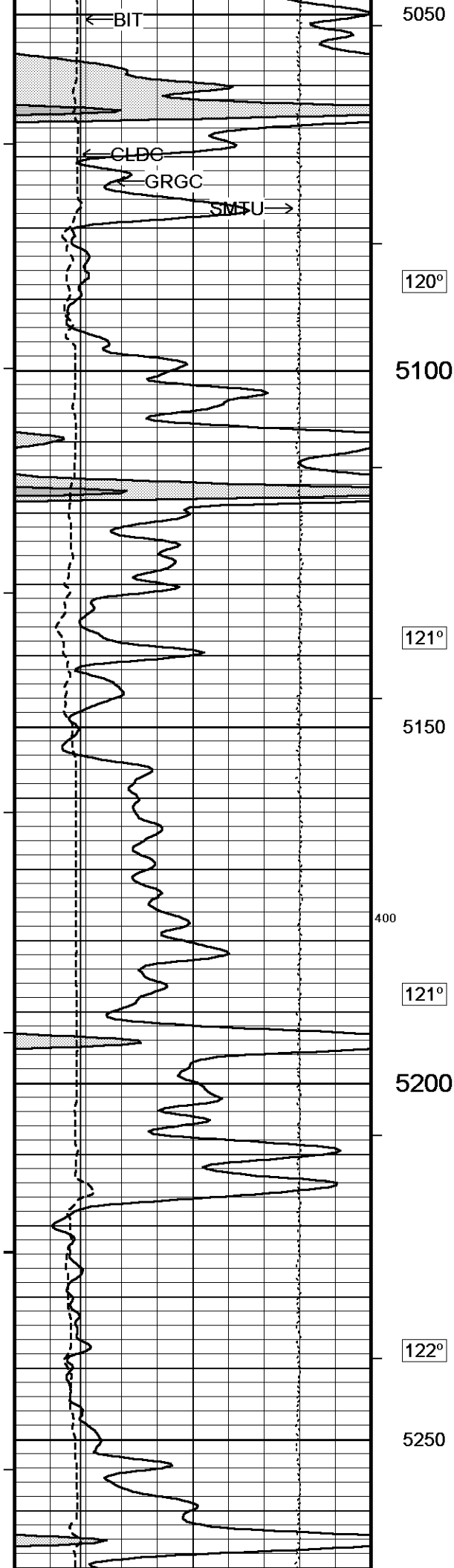


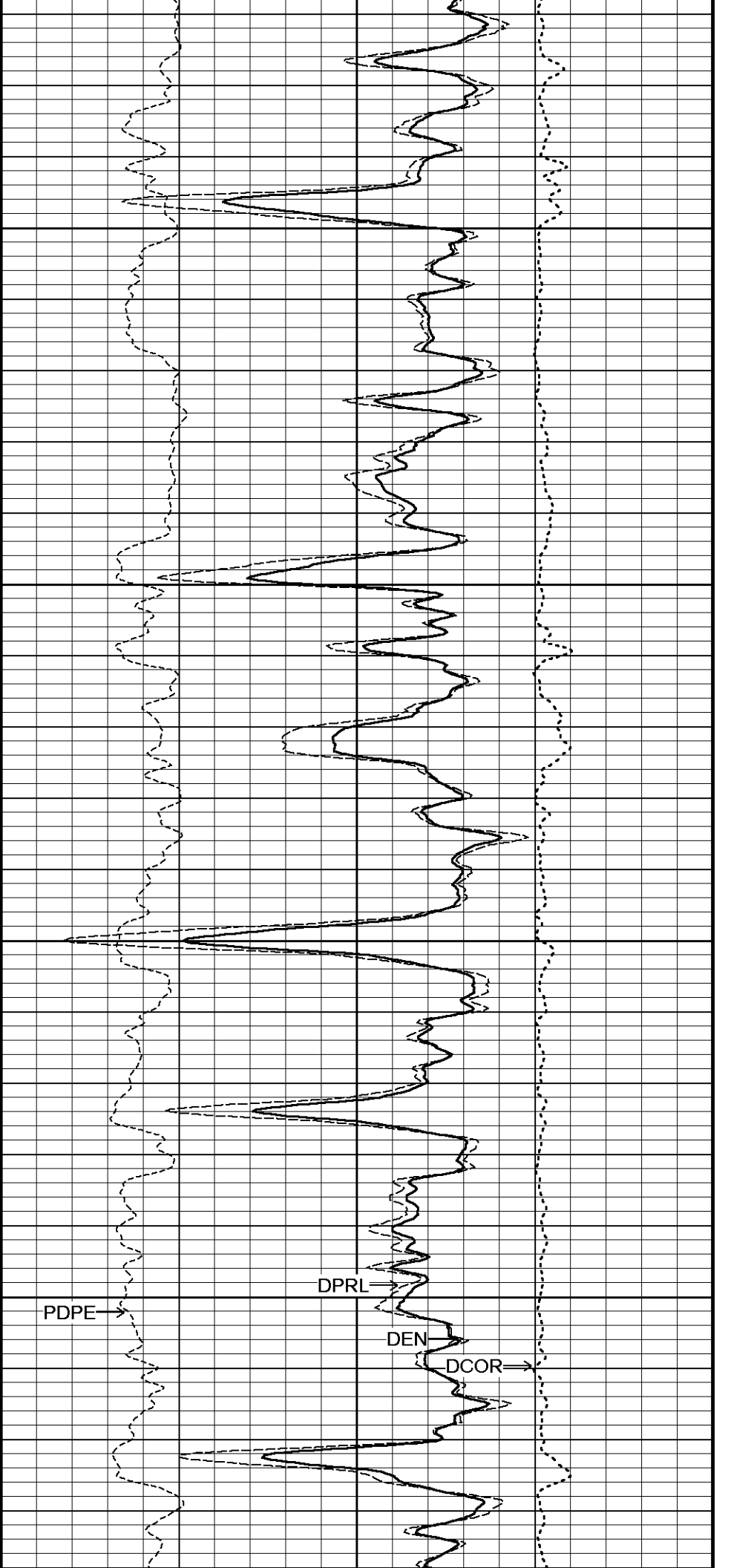
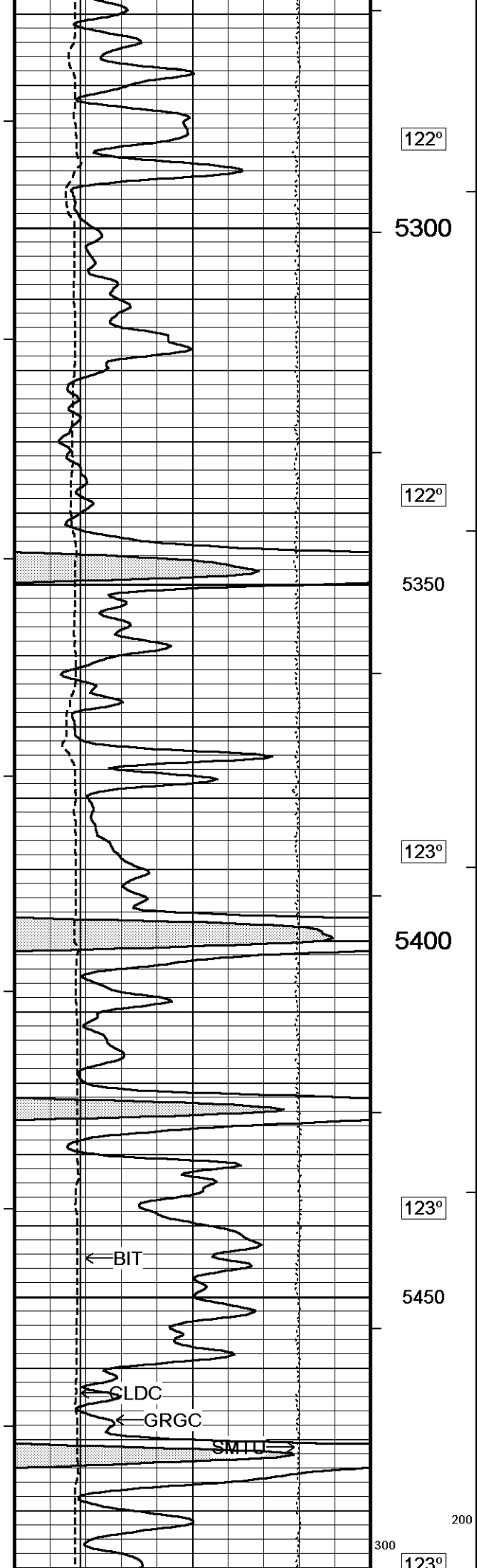


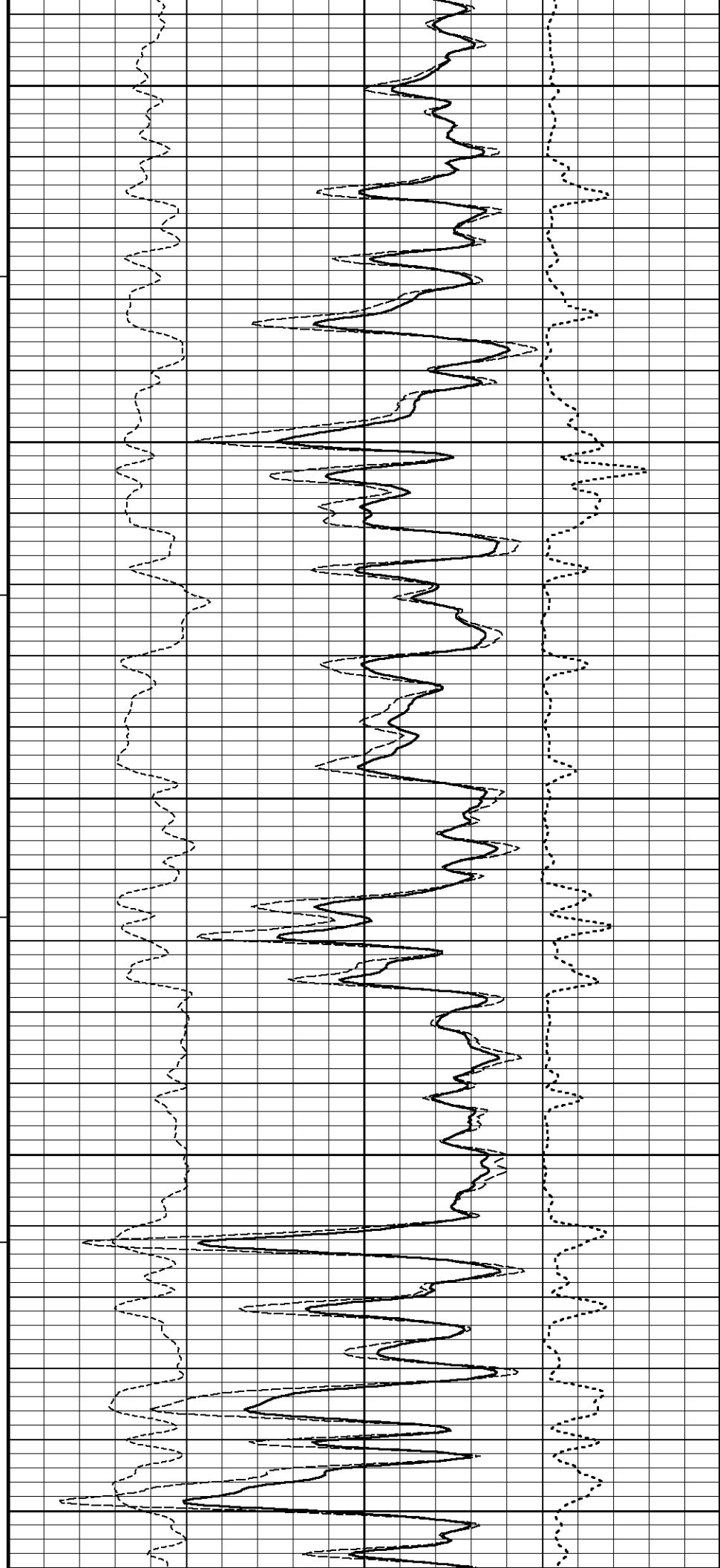
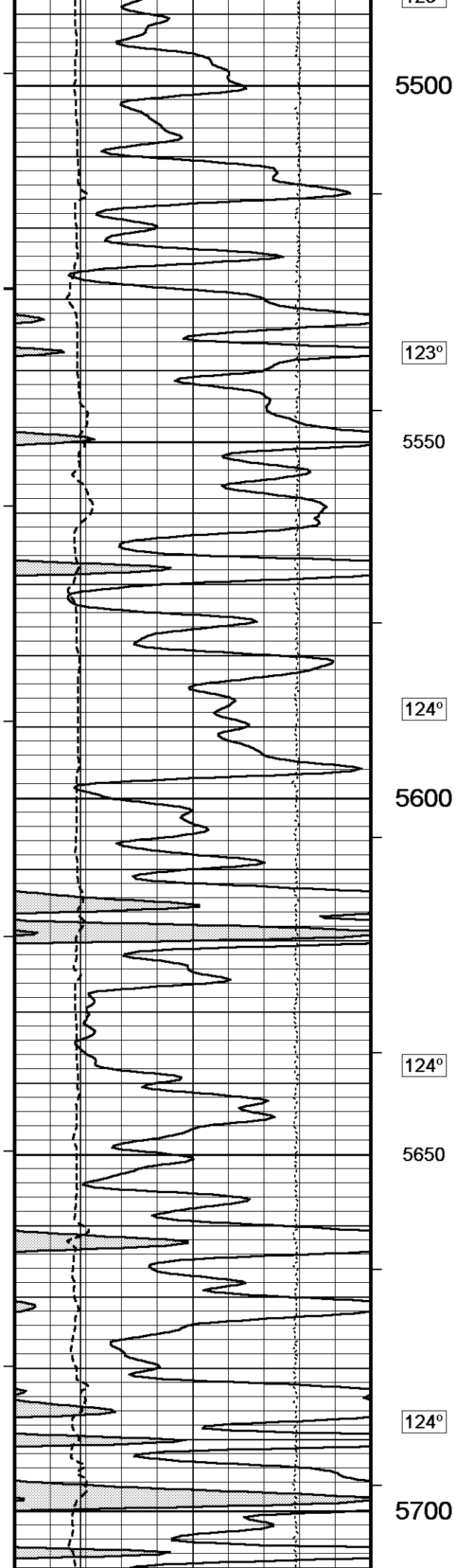


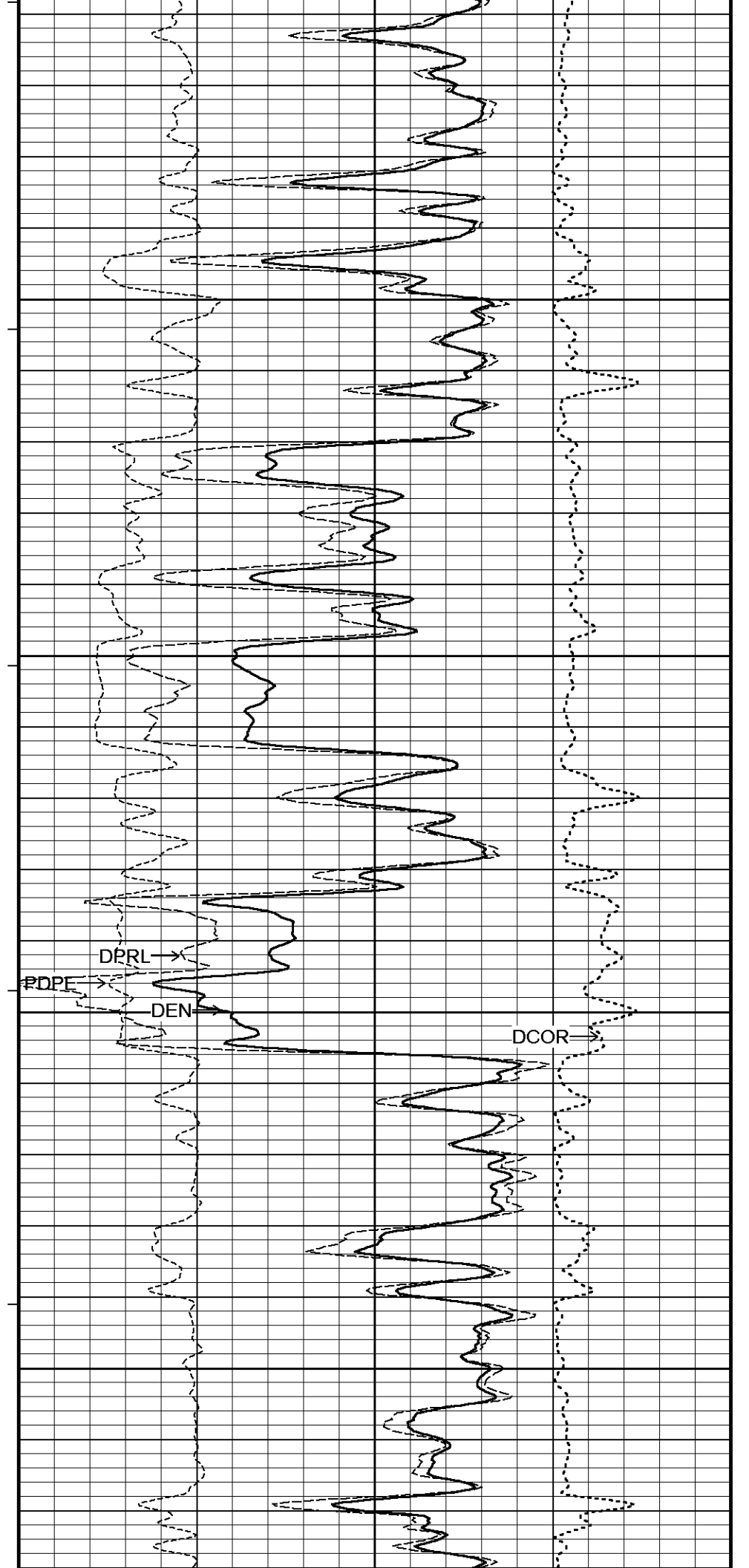
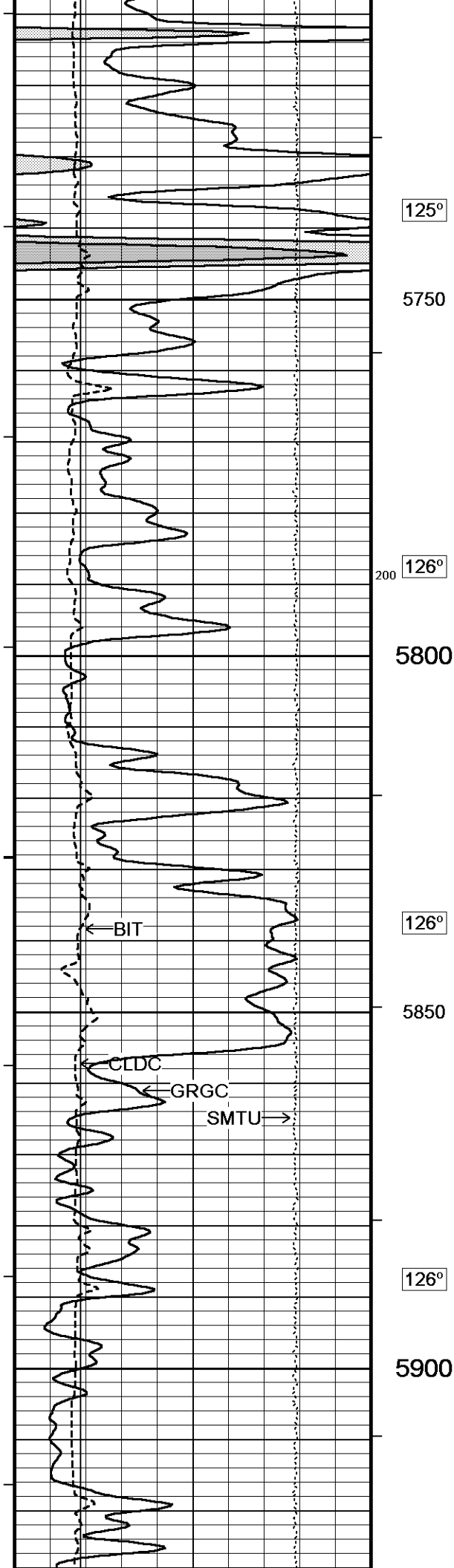


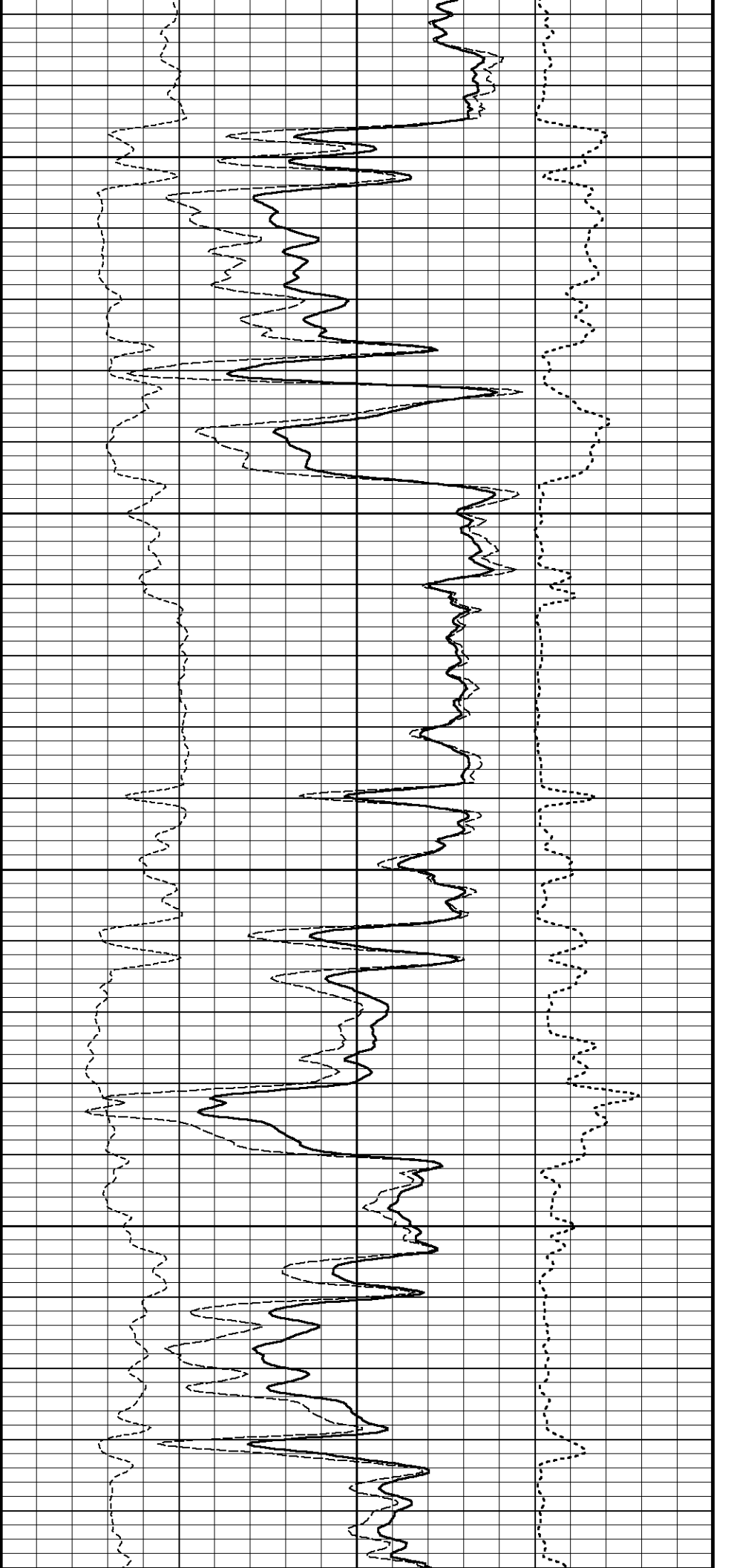
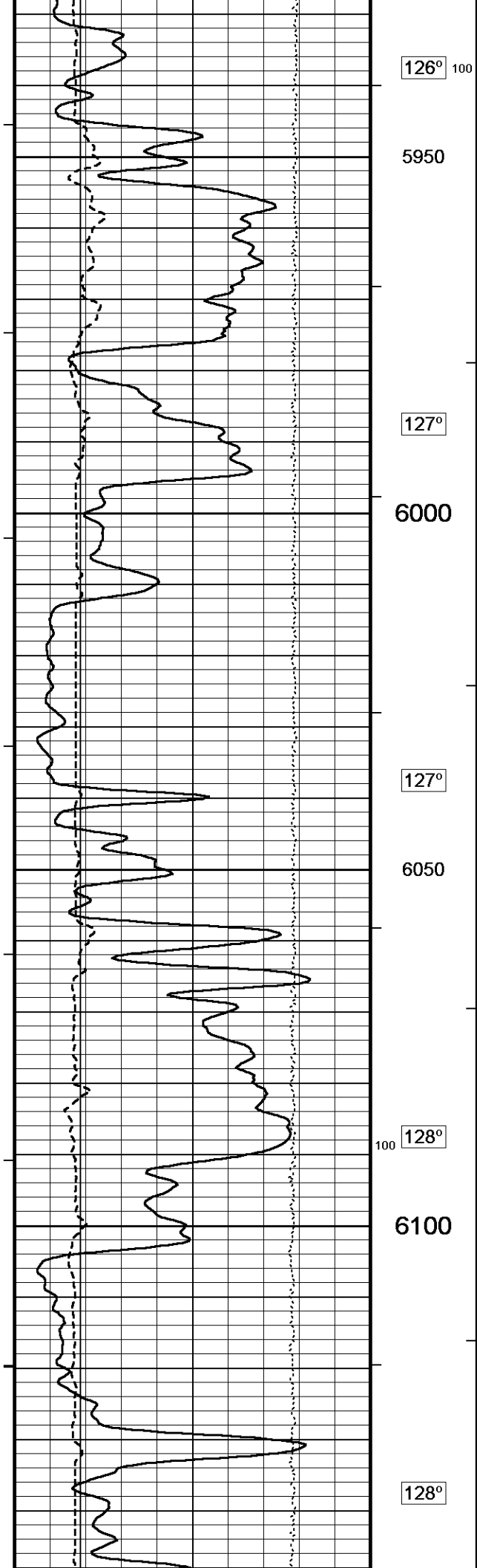


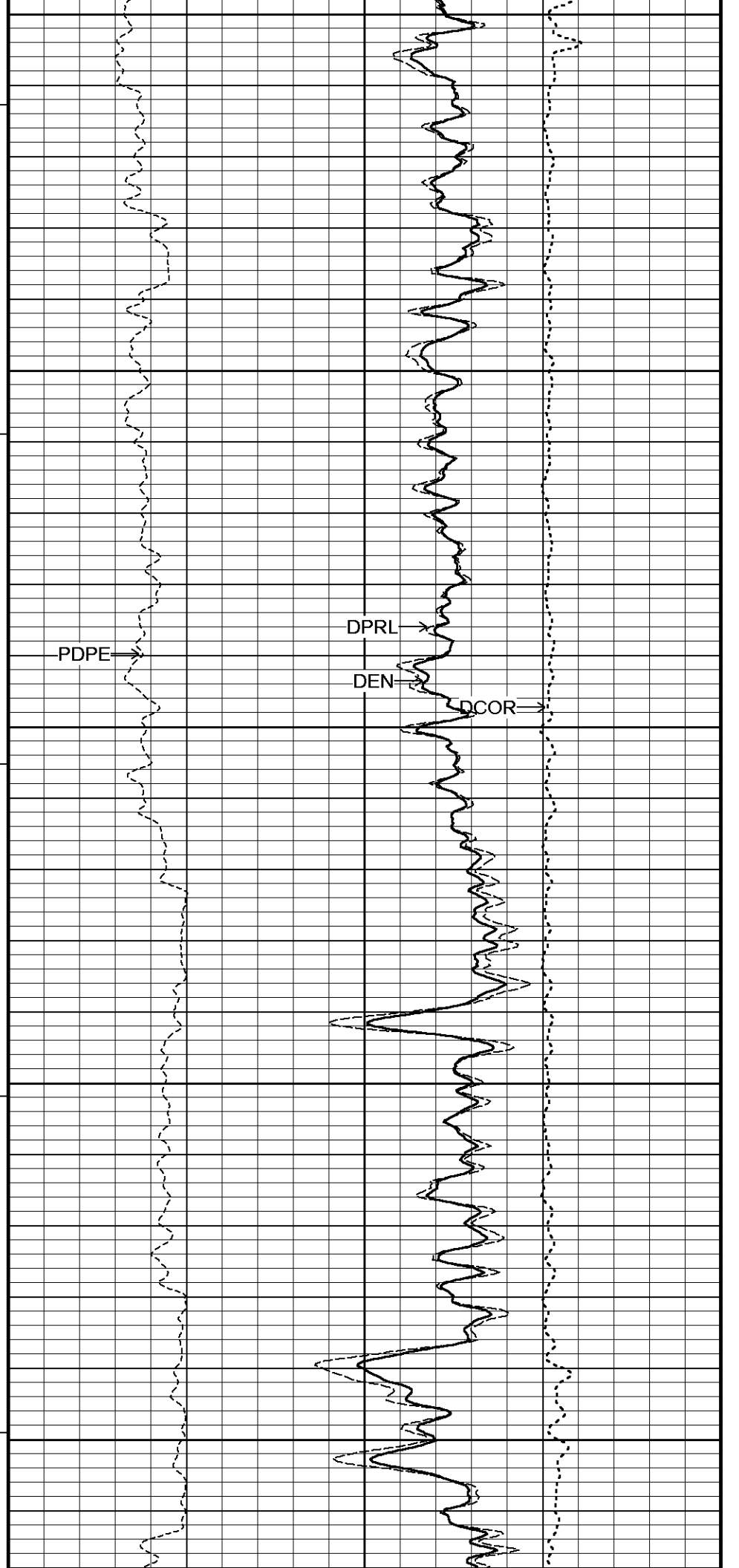
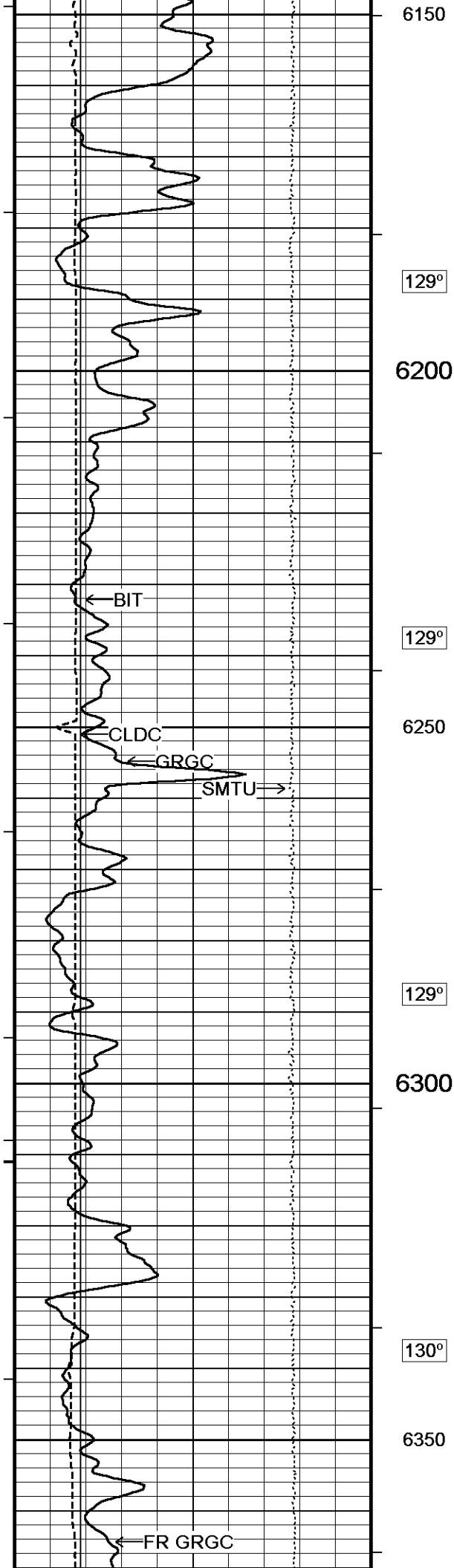


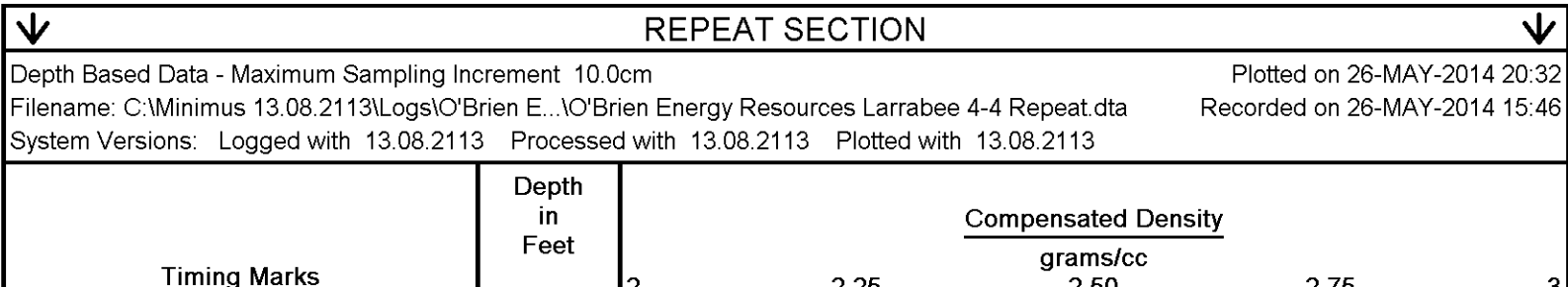
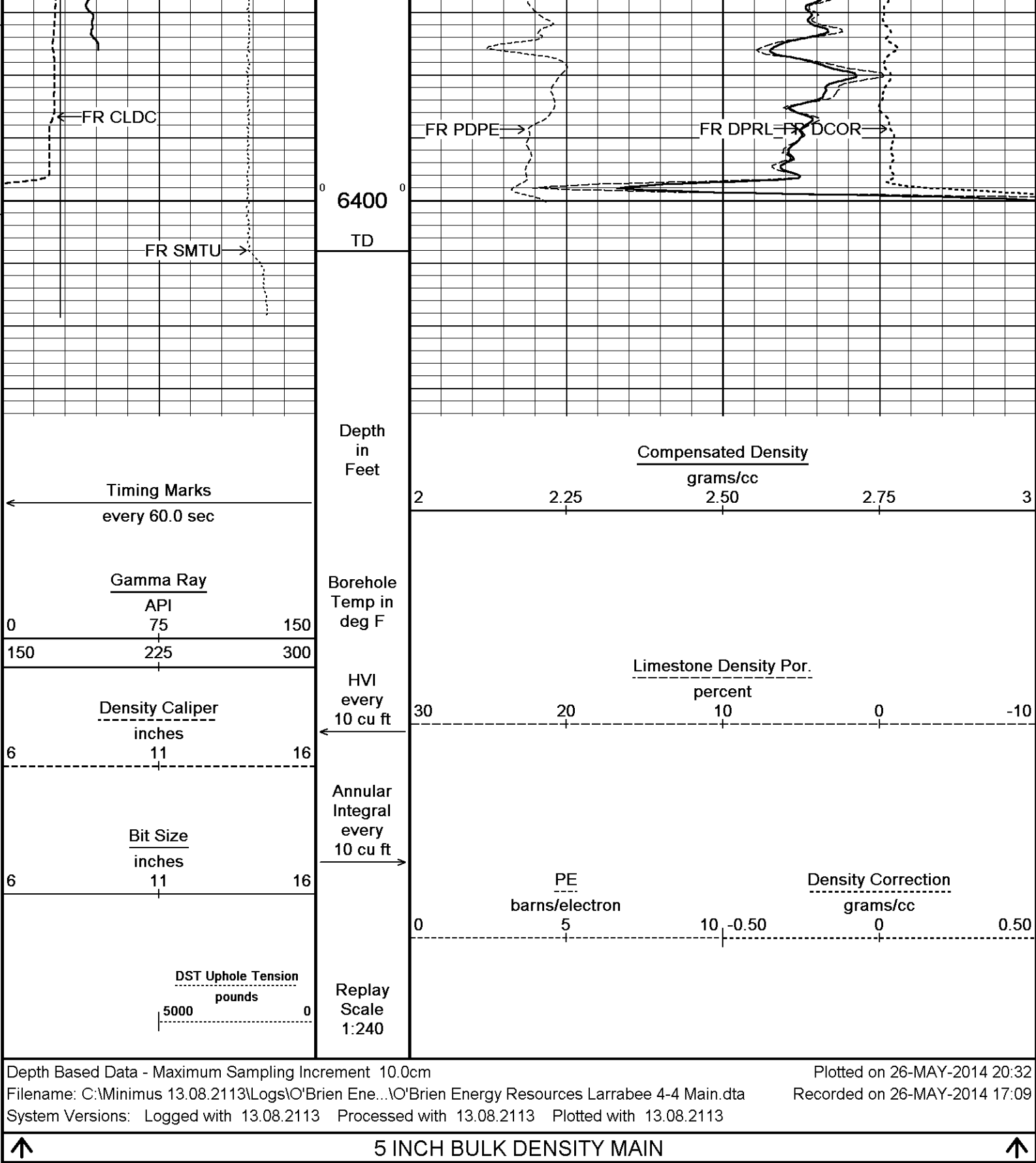










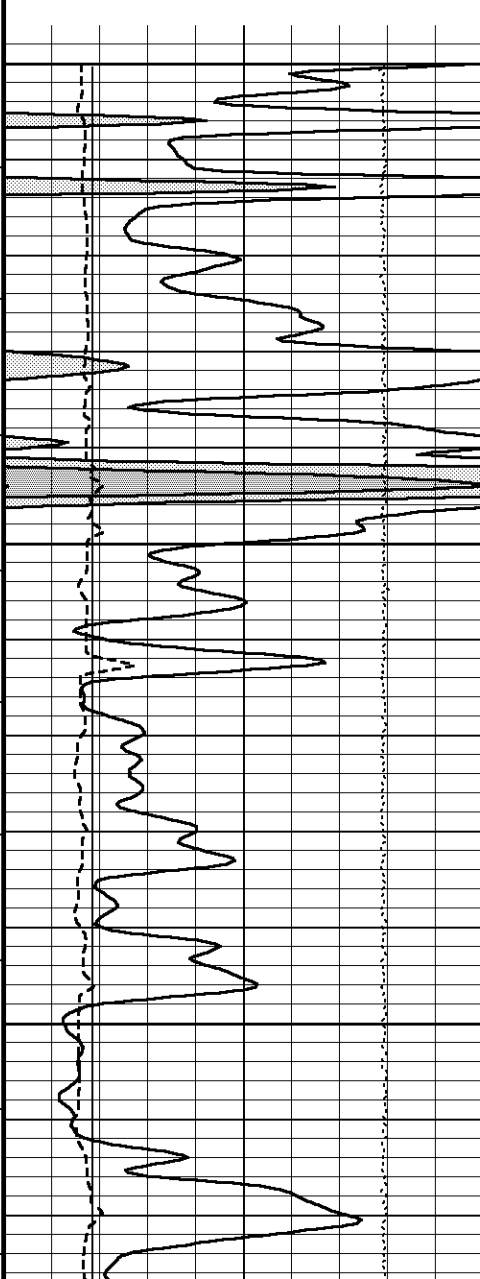


← every 60.0 sec		
Gamma Ray		
API		
0	75	150
150	225	300

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

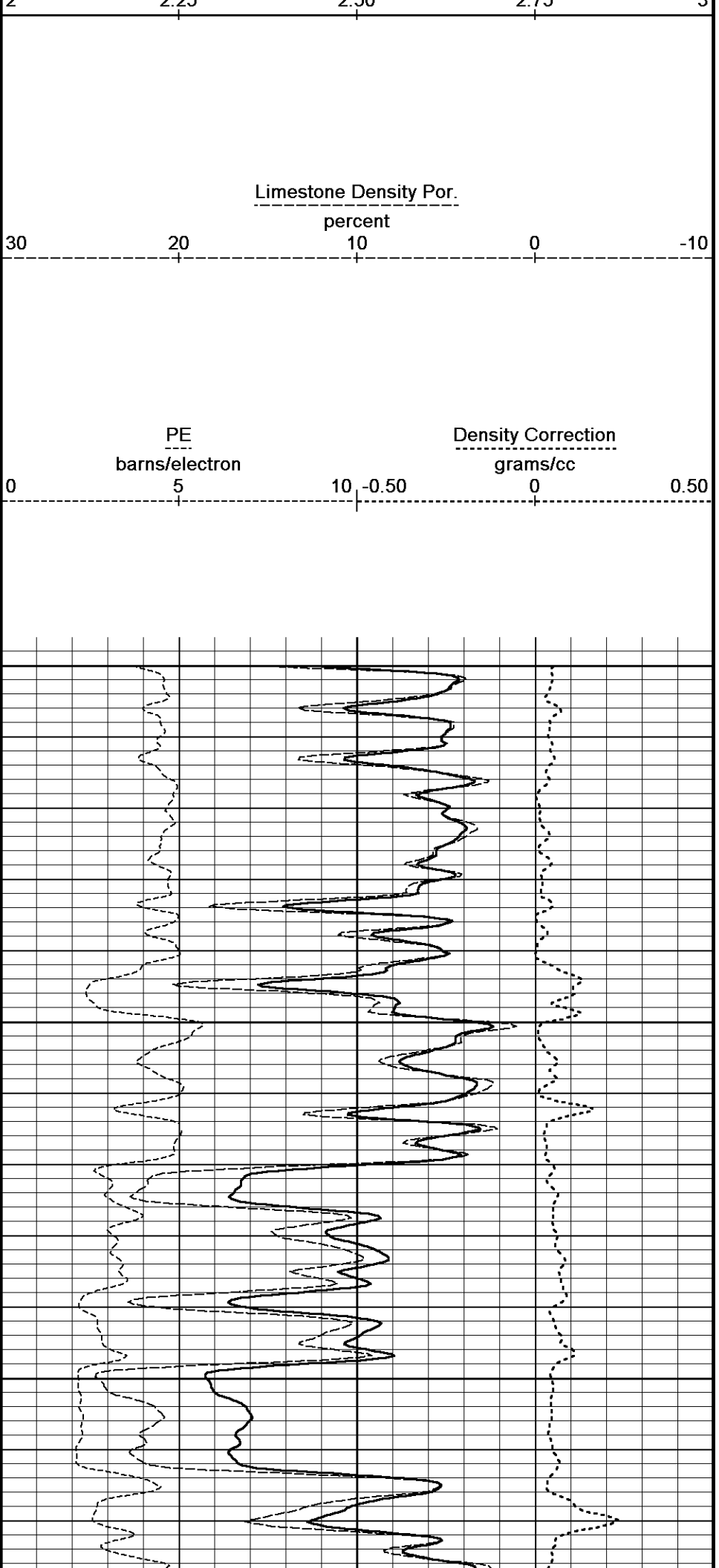
5700

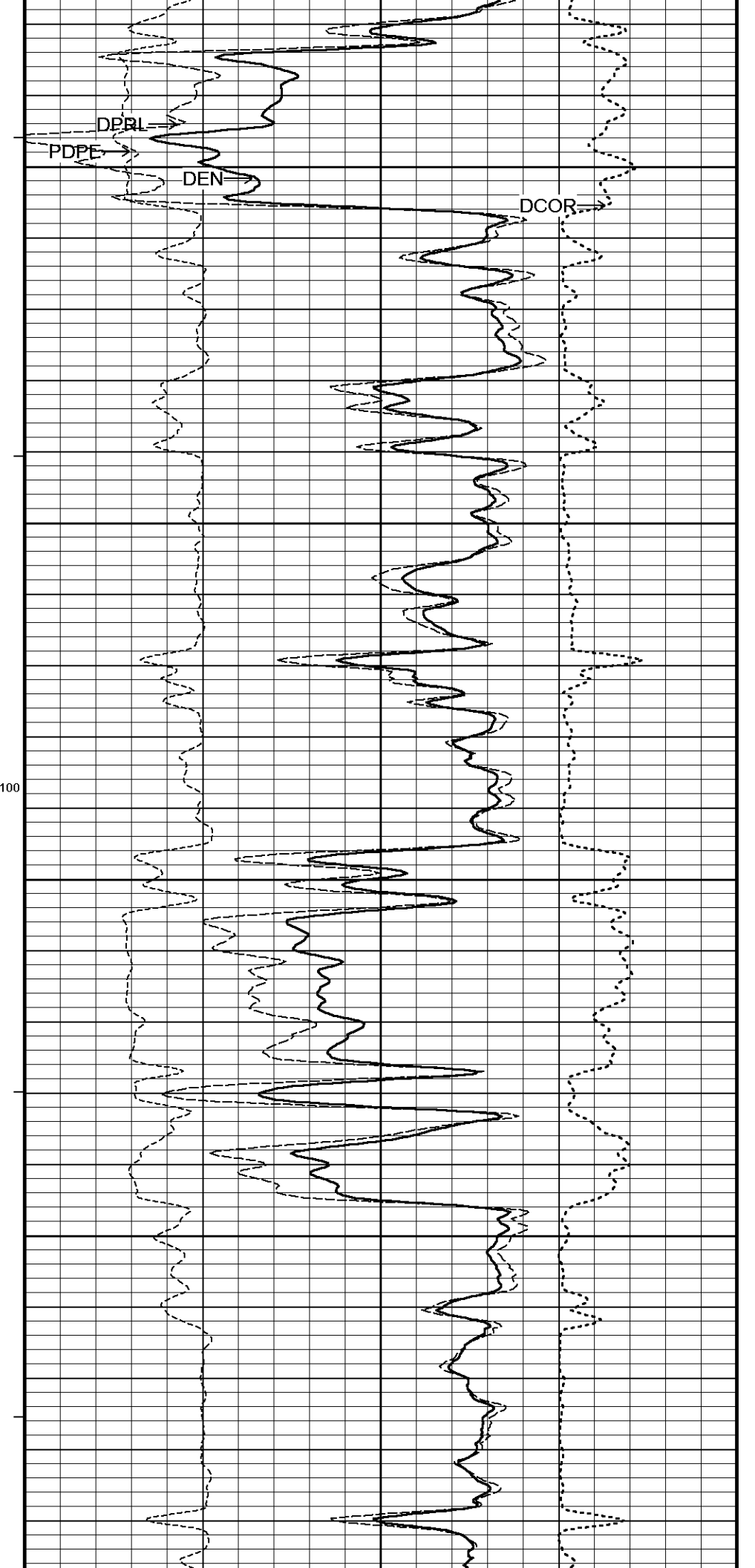
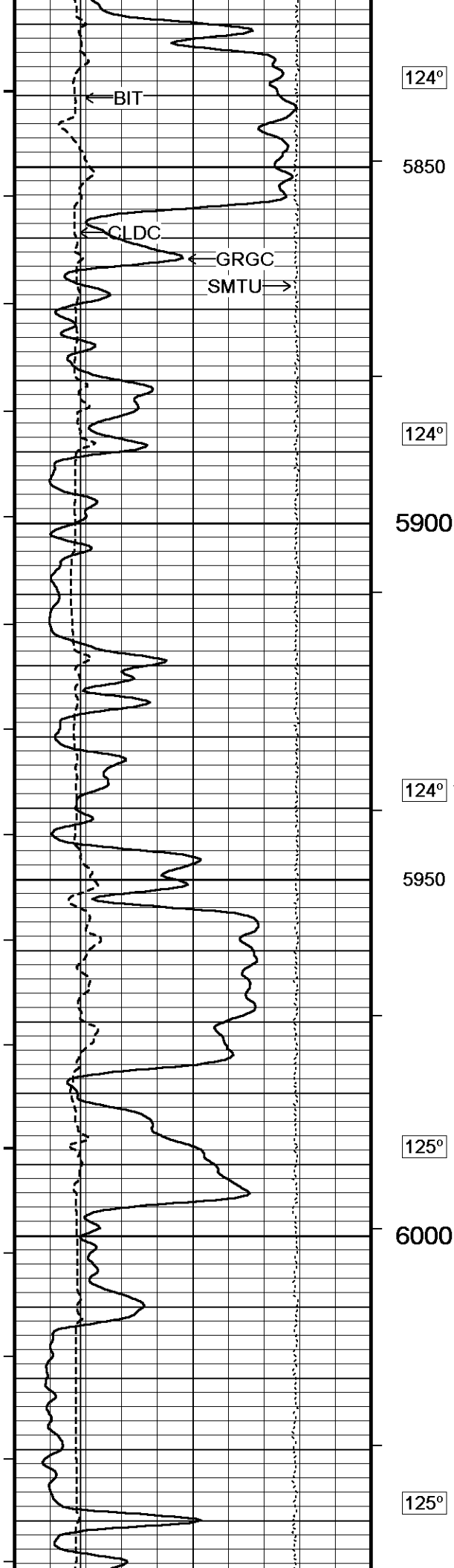
124°

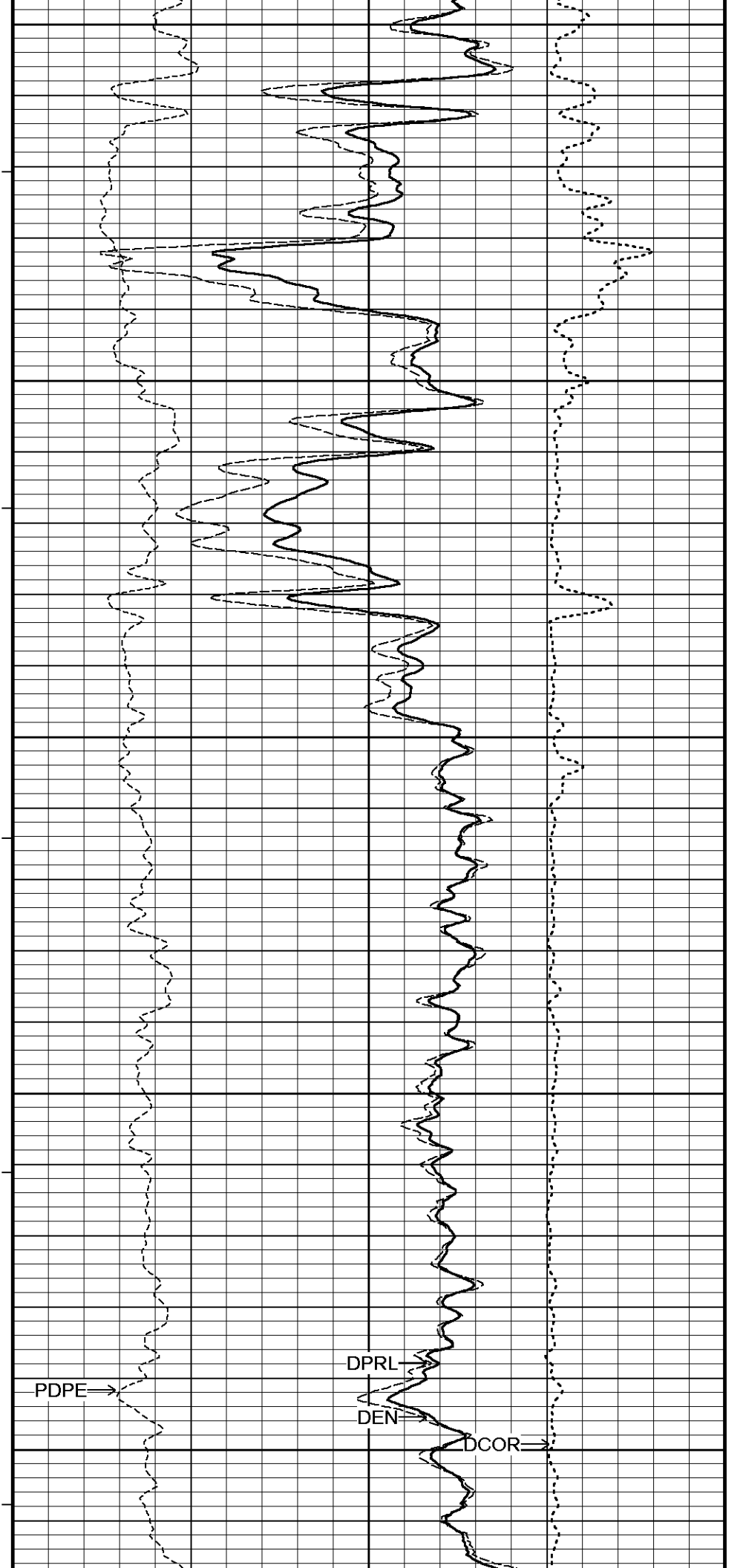
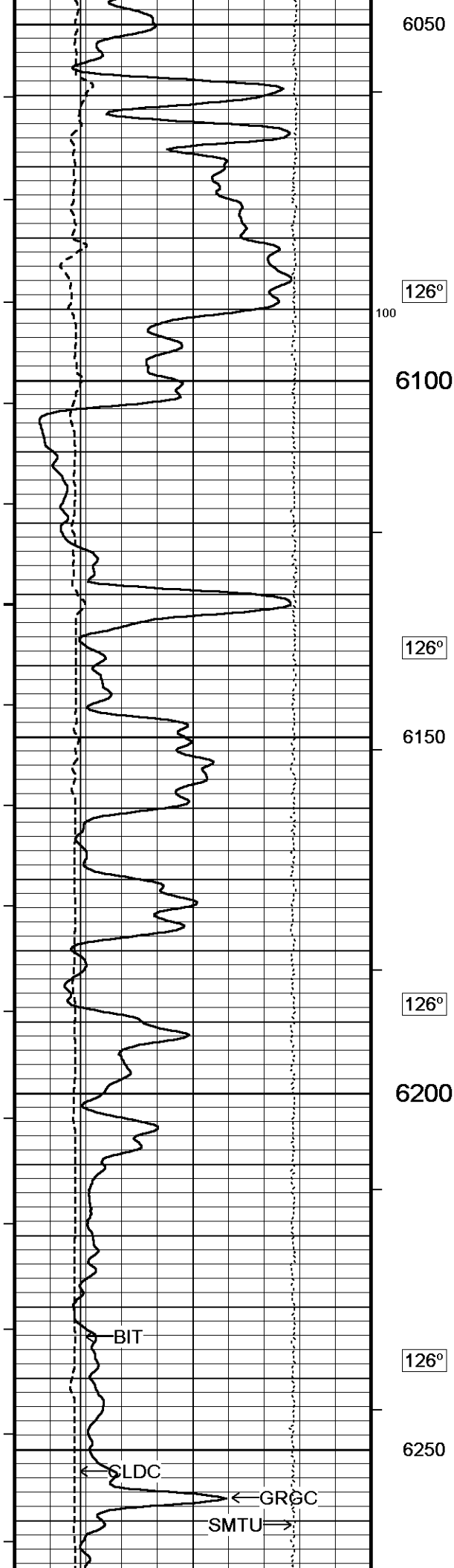
5750

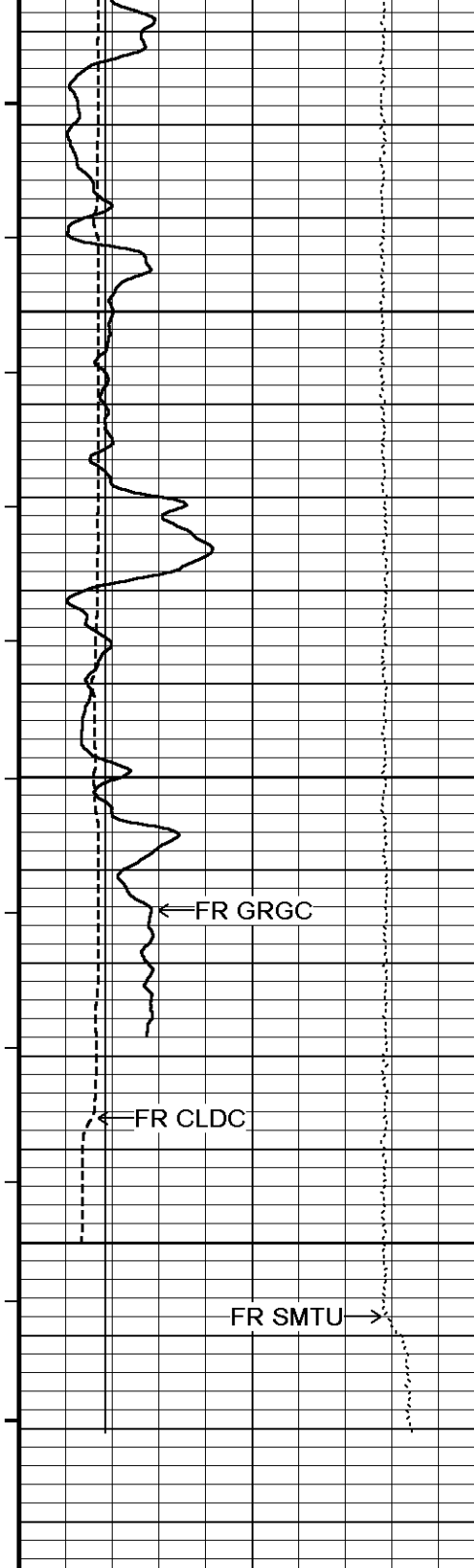
200 125°

5800

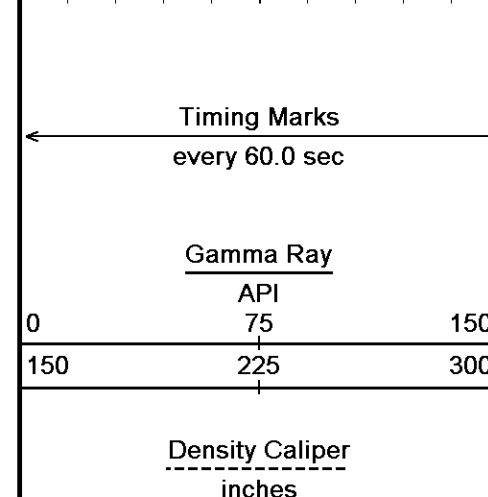
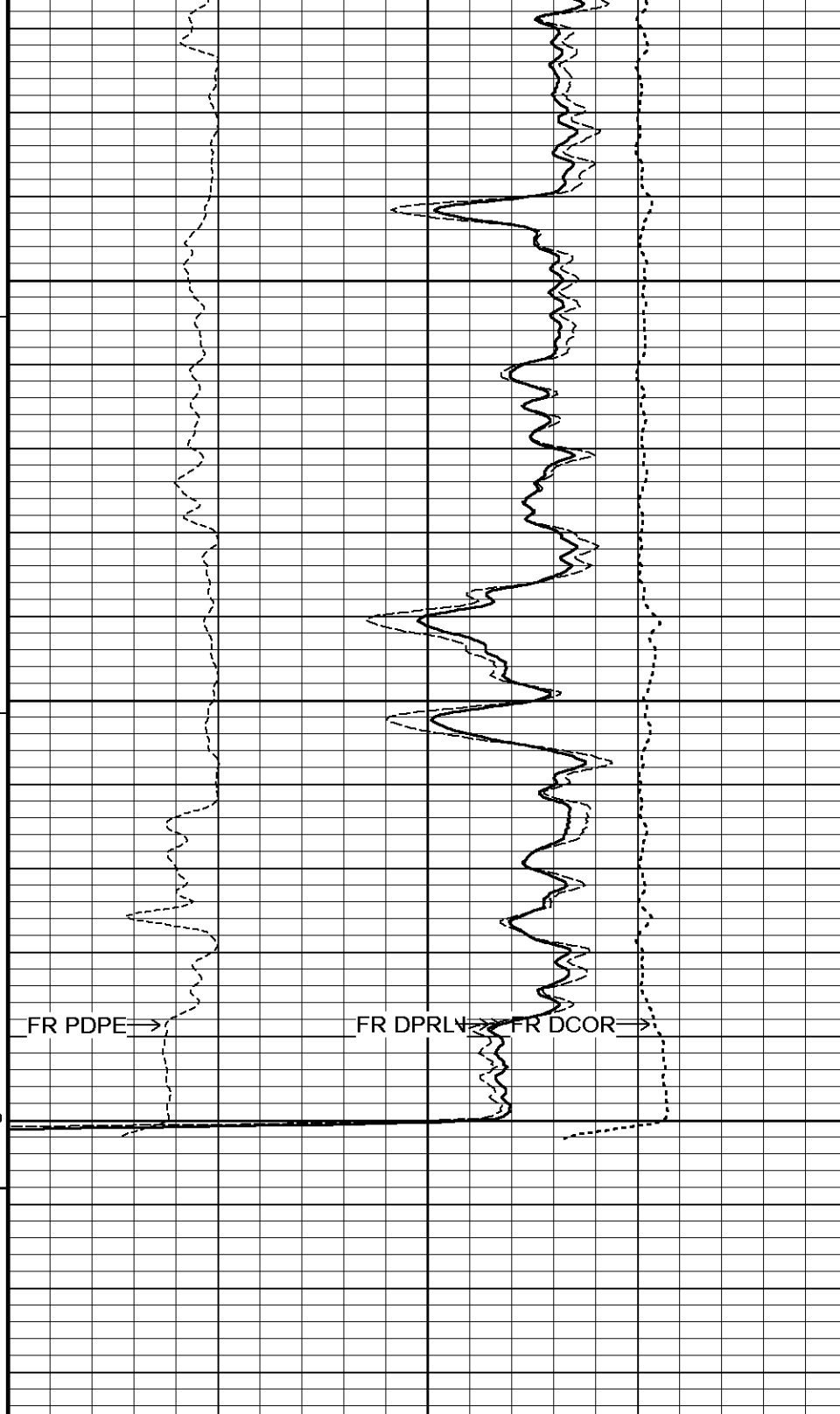




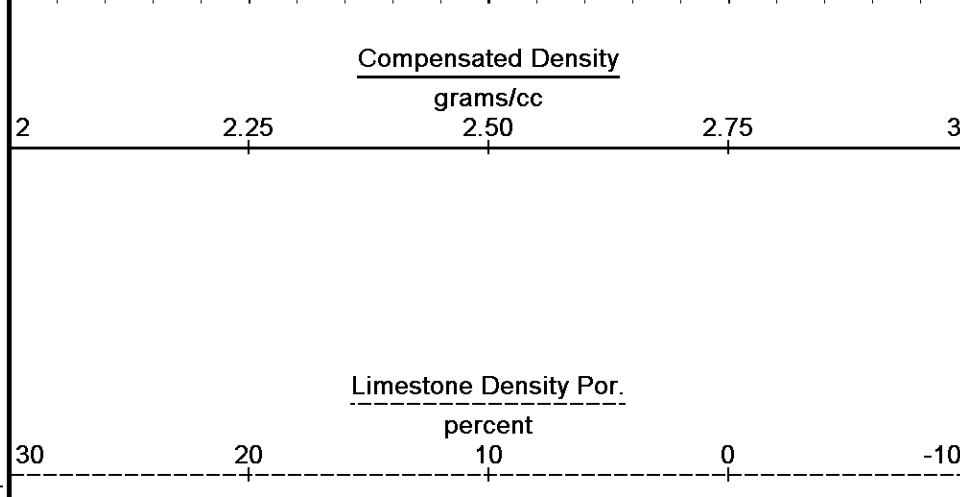




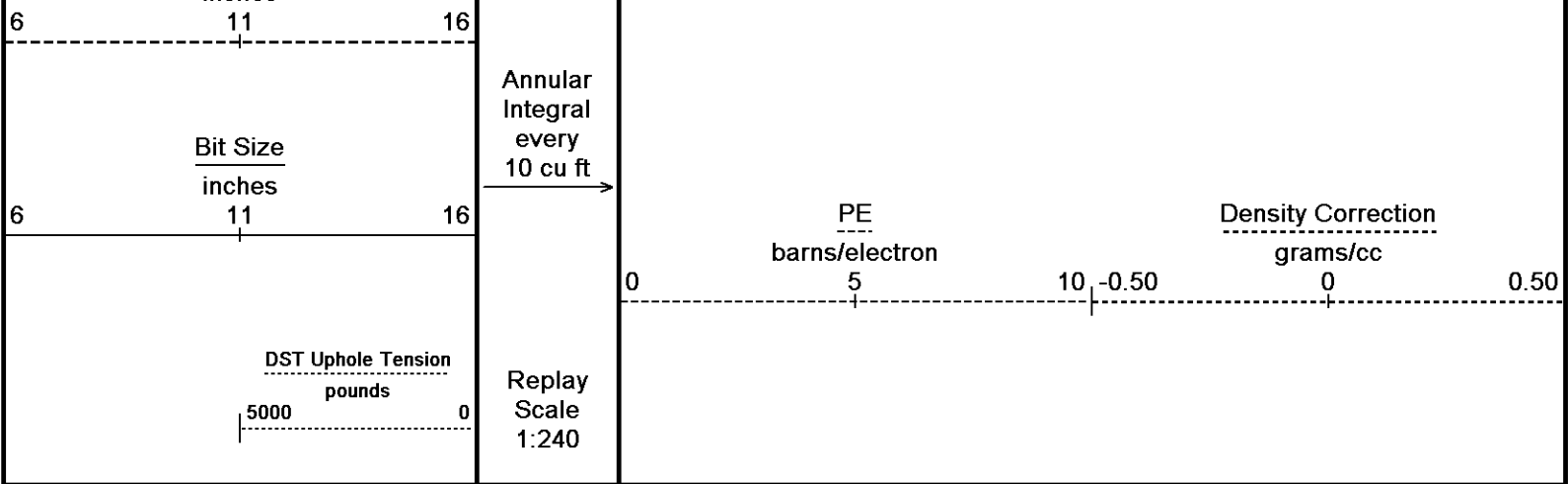
127°
6300
127°
6350
6400
0
TD
Depth in Feet



Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
HVI
every
10 cu ft



Compensated Density
grams/cc
2 2.25 2.50 2.75 3
Limestone Density Por.
percent
30 20 10 0 -10



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 26-MAY-2014 20:32
 Filename: C:\Minimus 13.08.2113\Logs\O'Brien E... \O'Brien Energy Resources Larrabee 4-4 Repeat.dta Recorded on 26-MAY-2014 15:46
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta

General Constants All 000			Last Edited on 26-MAY-2014,12:31
General Parameters			
Mud Resistivity	1.780	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	4.500	inches	
Caliper for Differential Caliper	Density Caliper		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		

Down-hole Tension Calibration SMS 0		Field Calibration on 26-MAY-2014 14:51	
Reading No	Measured	Calibrated (lbs)	
1	15544.03	0.00	
2	16189.75	456.00	

Gamma Calibration MCG-D.K 443		Field Calibration on 20-MAY-2014 14:25	
	Measured	Calibrated (API)	
Background	72	48	
Calibrator (Gross)	1168	773	
Calibrator (Net)	1096	725	

Gamma Constants MCG-D.K 443		Last Edited on 26-MAY-2014,12:00	
Gamma Calibrator Number	GRC38		
Mud Density	1.13	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

	Measured	Calibrated (mV)
Reference 1	102.2	100.0
Reference 2	-99.0	-100.0

High Resolution Temperature Calibration MCG-D.K 443

Field Calibration on 05-MAR-2014,20:50

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

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 05-MAR-2014,20:50

Pre-filter Length 11

Micro Normal and Micro Inverse Calibration MMR-B.A 98

Base Calibration on 05-MAY-2014 08:58

Field Check on 20-MAY-2014 14:07

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.3	49.9	10.0	50.0
Micro Inverse	9.9	49.4	10.0	50.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	183.2	183.2
Micro Inverse	184.0	184.0

Micro Normal and Micro Inverse Constants MMR-B.A 98

Last Edited on 24-MAR-2014,13:47

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159		
Micro Normal K Factor	1.0000		
Micro Inverse K Factor	1.0000		
Standoff Offset	0.0000	inches	

Caliper Calibration MMR-B.A 98

Base Calibration on 05-MAY-2014 09:10

Field Calibration on 20-MAY-2014 14:10

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13608	5.98
2	17025	7.97
3	20357	9.86
4	24282	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

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

Micro Laterolog Calibration MMR-B.A 98

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
	0.0	0.0	0.0	0.0

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

Micro Laterolog Constants MMR-B.A 98

Last Edited on

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

Mudcake Thickness Correction Constants

Mudcake Thickness Correction Constants		
Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	68.00	Deg F
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rme Correc	MCG External Temperature	

Neutron Calibration MDN-A.B 65

Base Calibration on 02-APR-2014 11:47

Field Check on 20-MAY-2014 14:36

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2916	94	3714	110
Ratio	30.984		33.764	

Field Calibrator at Base

	Calibrated (cps)
	1762 2457
Ratio	0.717

Field Check

	Calibrated (cps)
	1753 2453
Ratio	0.723

Neutron Constants MDN-A.B 65

Last Edited on 26-MAY-2014,00:49

Neutron Source Id	PN-521		
Neutron Jig Number	5824NE		
Epithermal Neutron			
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	0.00	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	0.00	kppm	
Barite Mud Correction	Not Applied		

FE Calibration MFE-B.J 352

Base Calibration on 05-MAY-2014 10:07

Field Check on 20-MAY-2014 13:57

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.2	126.8

Base Check 281.6

Field Check 281.6

FE Constants MFE-B.J 352

Last Edited on 26-MAY-2014,11:58

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 158

Base Calibration on 03-APR-2014,15:01

Field Check on 20-MAY-2014 13:56

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
Channel 1	17.2	475.3	9.3	966.2
2	6.1	381.2	7.6	821.4
3	3.8	265.2	5.2	566.0
4	2.7	132.2	2.6	279.2

Array Temperature 22.3 Deg F

Channel Base Check (mmho/m) Field Check (mmho/m)

	Low	High	Low	High
1			13.5	3813.8
2			30.5	3528.8
3			27.5	2979.4
4			18.2	2096.0
Deep			15.1	1942.2
Medium			41.2	3884.8
Shallow			48.0	5234.1
Array Temperature			80.5	Deg F

Induction Constants MAI-A.A 158			Last Edited on 26-MAY-2014,11:58	
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		

High Resolution Temperature Calibration MAI-A.A 158			Field Calibration on 03-APR-2014,15:43
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MAI-A.A 158		Last Edited on 22-MAY-2014,10:26	
Pre-filter Length	11		

Photo Density Calibration MPD-B 104			Base Calibration on 15-MAY-2014 11:34	
			Field Check on 20-MAY-2014 14:02	
Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Background	1204	1388		
Reference 1	44485	22012	59556	30836
Reference 2	18380	2413	24941	2541
Field Check at Base				
	1203.8	1388.3		

Field Check

1204.5 1400.5

PE Calibration

Base Calibration

Measured

Calibrated

	WS	WH	Ratio	Ratio
Background	221	1081		
Reference 1	19124	44318	0.437	0.371
Reference 2	5373	18251	0.300	0.272

Field Check at Base

220.6 1081.3

Field Check

221.3 1080.4

Density Constants MPD-B 104

Last Edited on 26-MAY-2014,11:59

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	1.13 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	0.00

Caliper Calibration MPD-B 104

Base Calibration on 15-MAY-2014 11:17
Field Calibration on 20-MAY-2014 14:03

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	11934	3.99
2	20612	5.98
3	29168	7.97
4	37534	9.86
5	46657	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.00	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta

3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.244 inCompact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature

Compact Micro Resistivity 22.24 ft MINV - MMD Micro Log Imager

Compact Micro-Resistivity
MMR-B.A 98 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

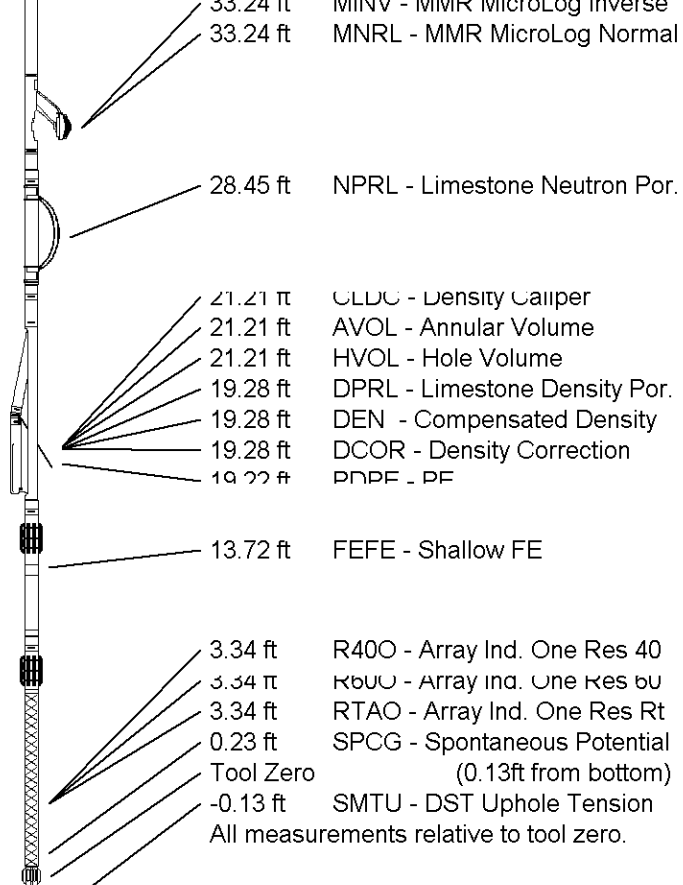
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	LARRABEE 4-4
FIELD	MOHLER
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2541.00	feet	First Reading	6388.78	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	6415.00	feet
Elevation Ground Level	2530.00	feet	Depth Logger	6408.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG