



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY			O'BRIEN ENERGY RESOURCES CORP.		
WELL			ANGELL #2-13		
FIELD			ANGELL		
PROVINCE/COUNTY			MEADE		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			2305' FSL & 1320' FEL		
SEC 13	TWP 32S	RGE 30W	Other Services		
Latitude		MAI/MFE			
Longitude					
API Number		15-119-21376			
Permanent Datum GL, Elevation 2724 feet					
Log Measured From KB					
Drilling Measured From KB @ 11 FEET					
Date	27-OCT-2014				
Run Number	ONE				
Service Order	4558-101569280				
Depth Driller	6400.00		feet		
Depth Logger	6405.00		feet		
First Reading	6386.00		feet		
Last Reading	4000.00		feet		
Casing Driller	1493.00		feet		
Casing Logger	1492.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.20 lb/USg		54.00 CP		
PH / Fluid Loss	9.50		8.80 ml/30Min		
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.87 @ 92.0		ohm-m		
Rmf @ Measured Temp	0.70 @ 92.0		ohm-m		
Rmc @ Measured Temp	1.0 @ 92.0		ohm-m		
Source Rmf / Rmc	CALC	CALC			
Rm @ BHT	0.61 @131.0		ohm-m		
Time Since Circulation	5 HOURS				
Max Recorded Temp	131.00		deg F		
Equipment / Base	13096	LIB			
Recorded By	ADAM SILL				
Witnessed By	ROGER PEARSON		PETER DEBENHAM		
JOB #	LB14-332				

BOREHOLE RECORD			Last Edited: 27-OCT-2014 02:31	
Bit Size inches	Depth From feet		Depth To feet	
7.875	1493.00		6400.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1493.00	24.00

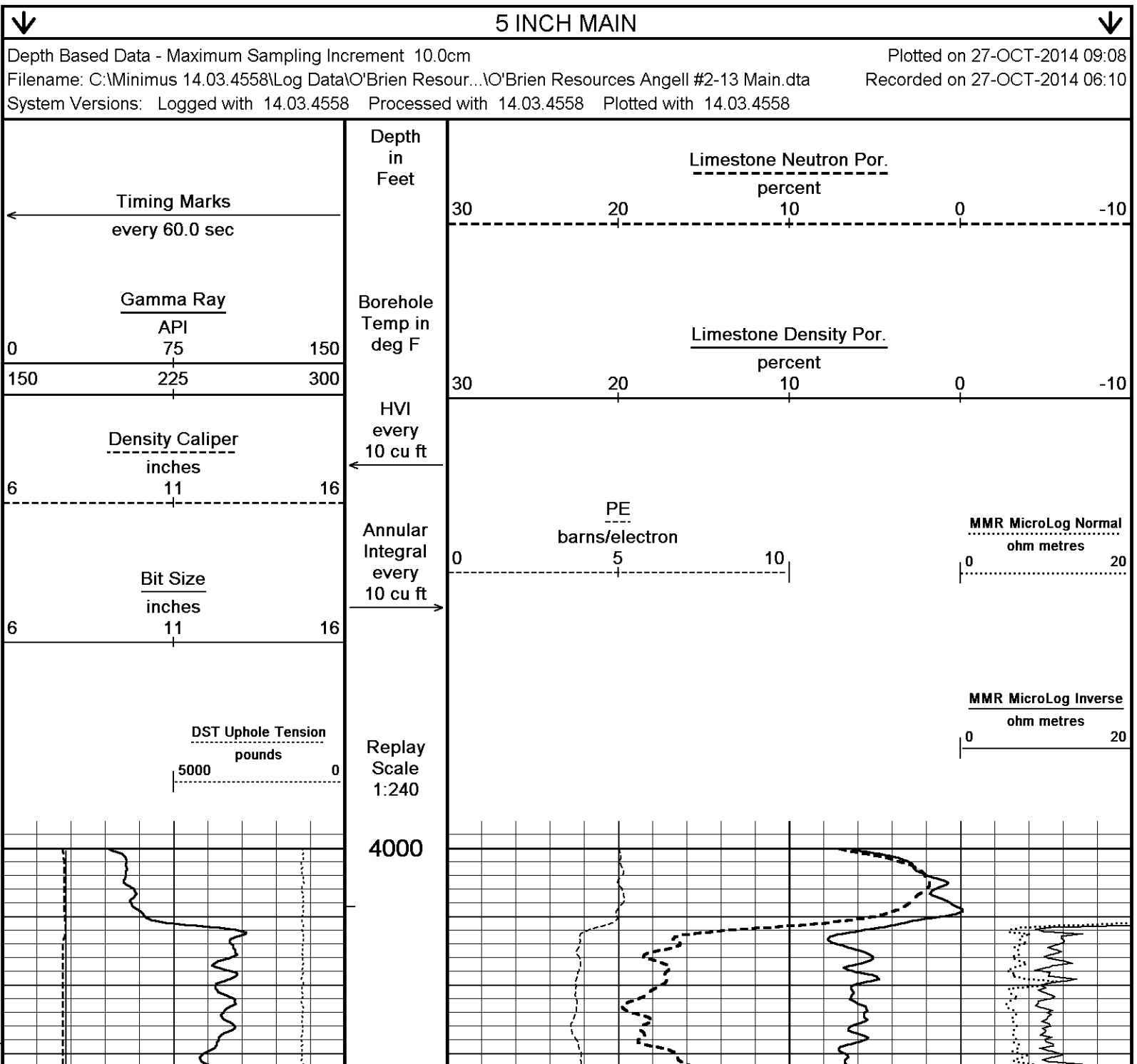
REMARKS
- SOFTWARE ISSUE: WLS 14.03.4558.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1844 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 4000 FEET: 528 CU.FT.
- RIG: DUKE #10

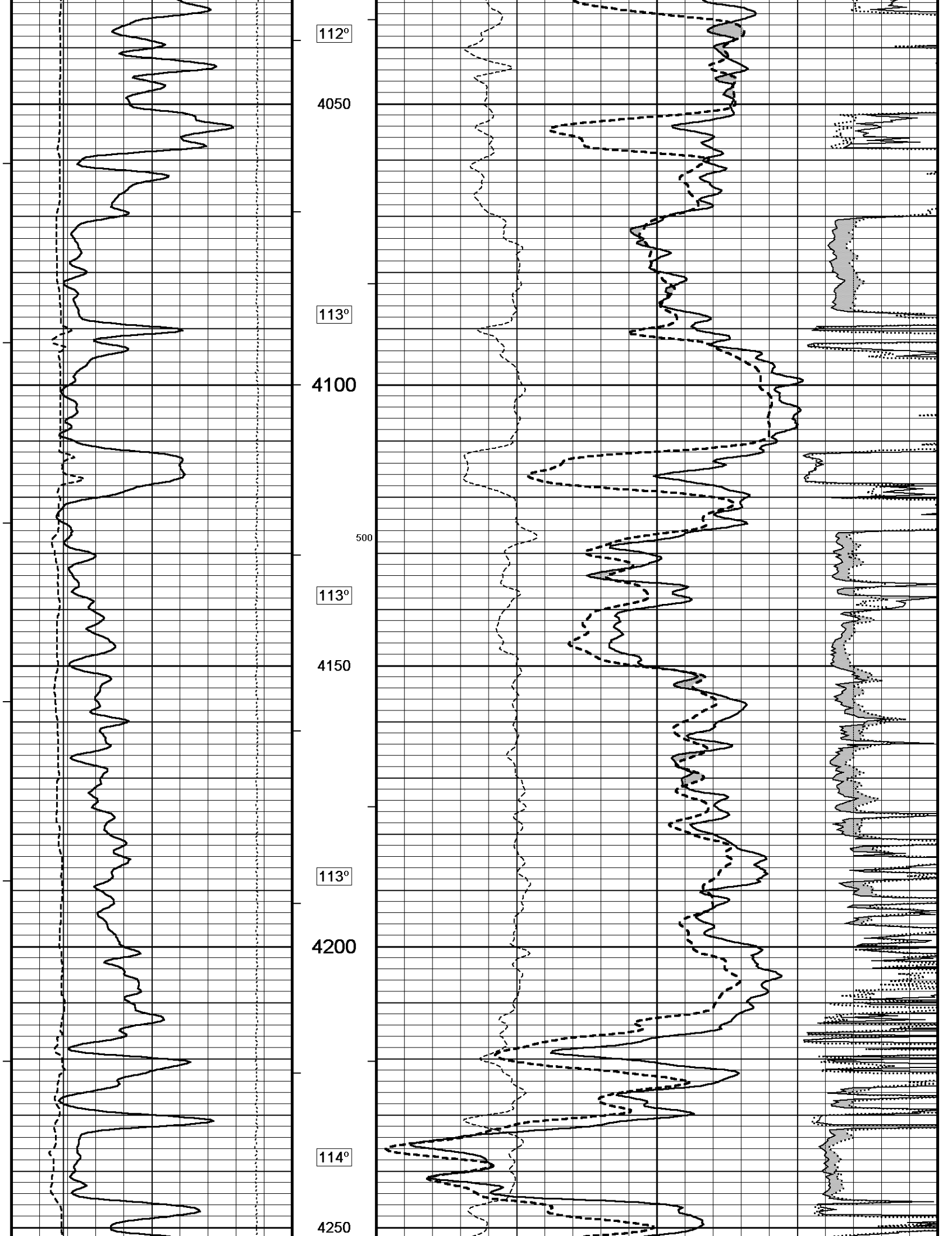
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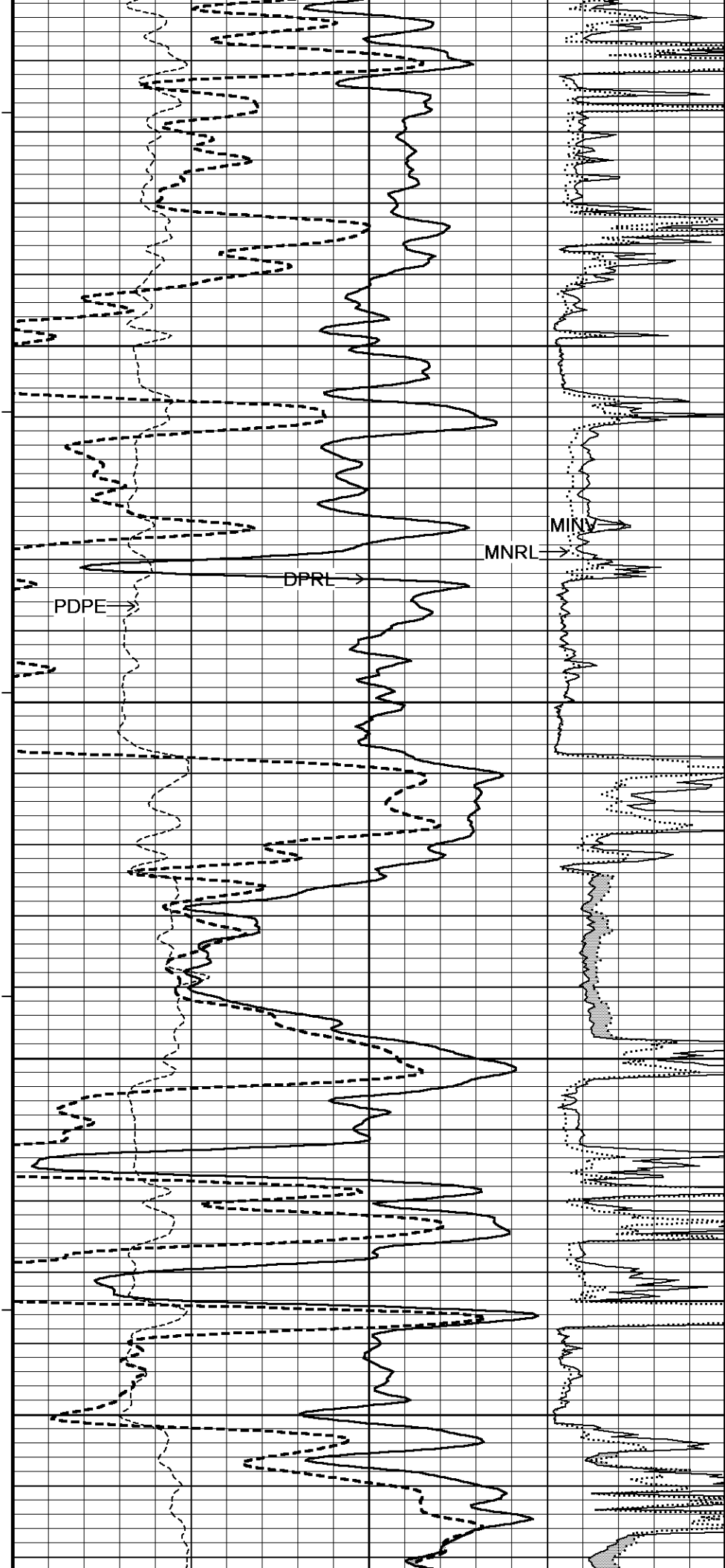
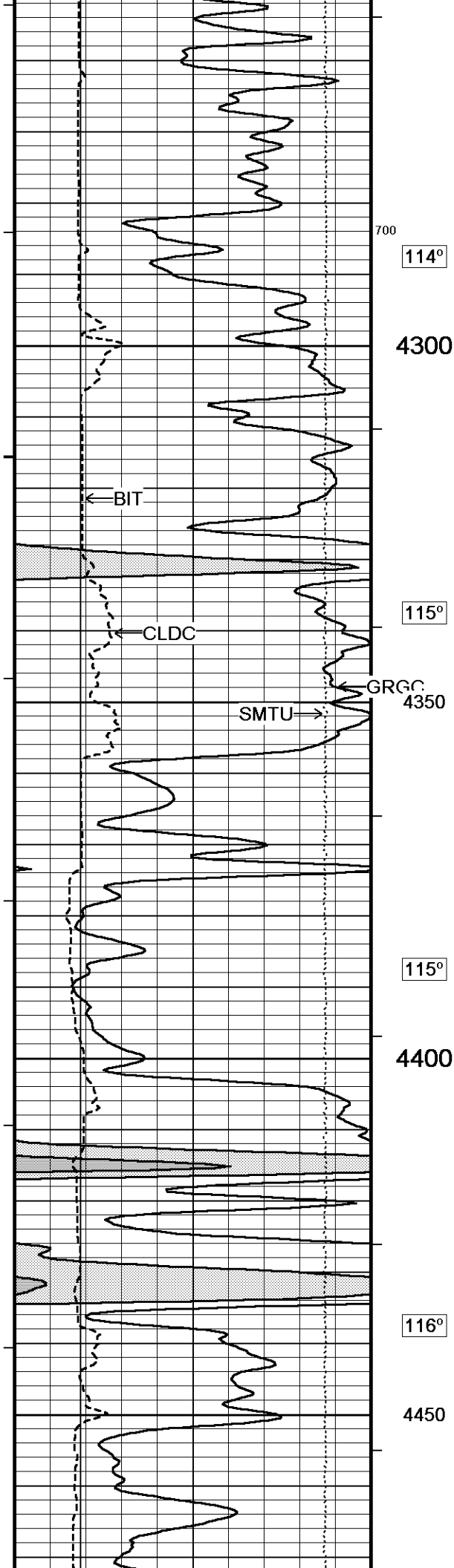
- ENGINEER: A. SILL.

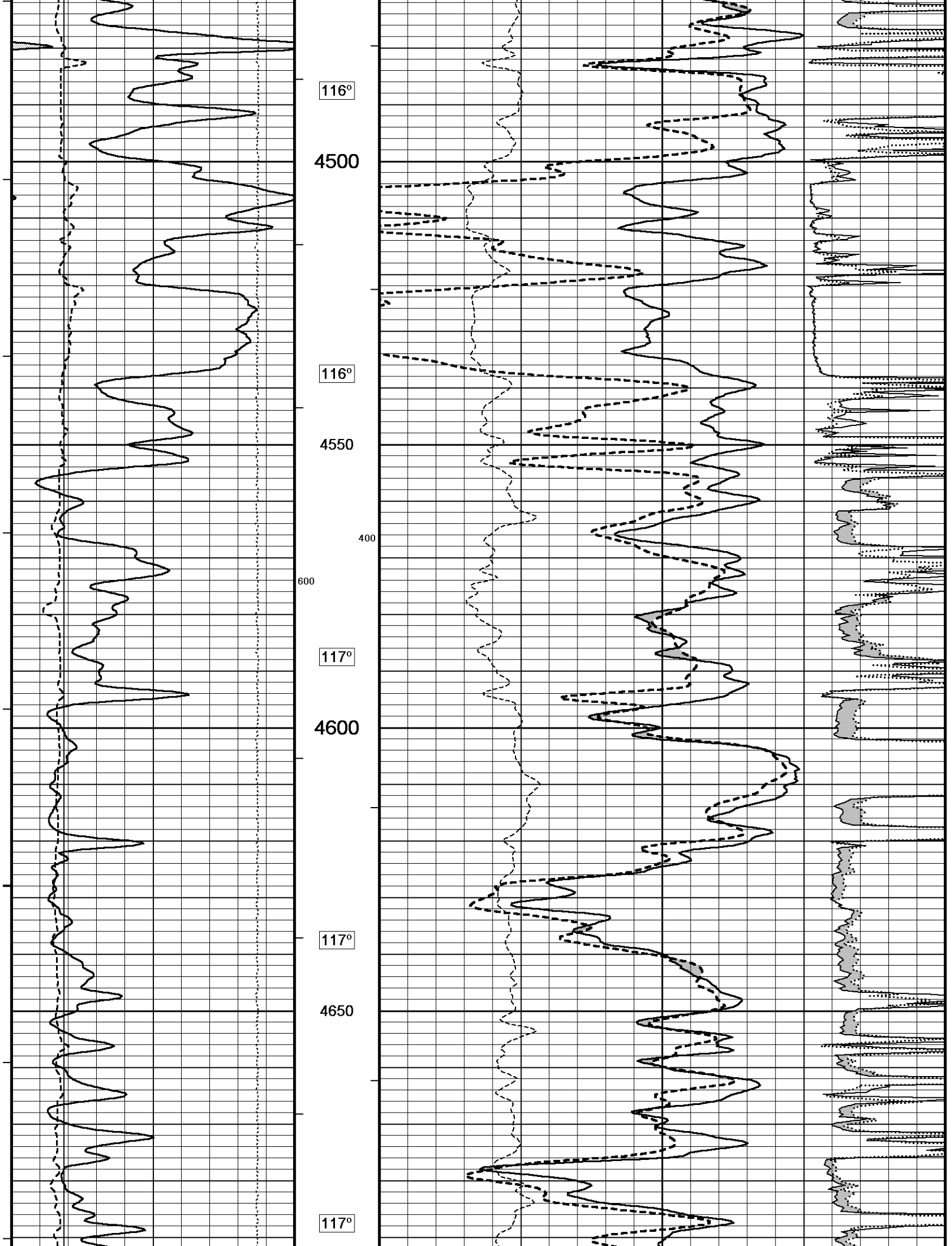
- OPERATOR: J. DUNLAP, N. ADAME.

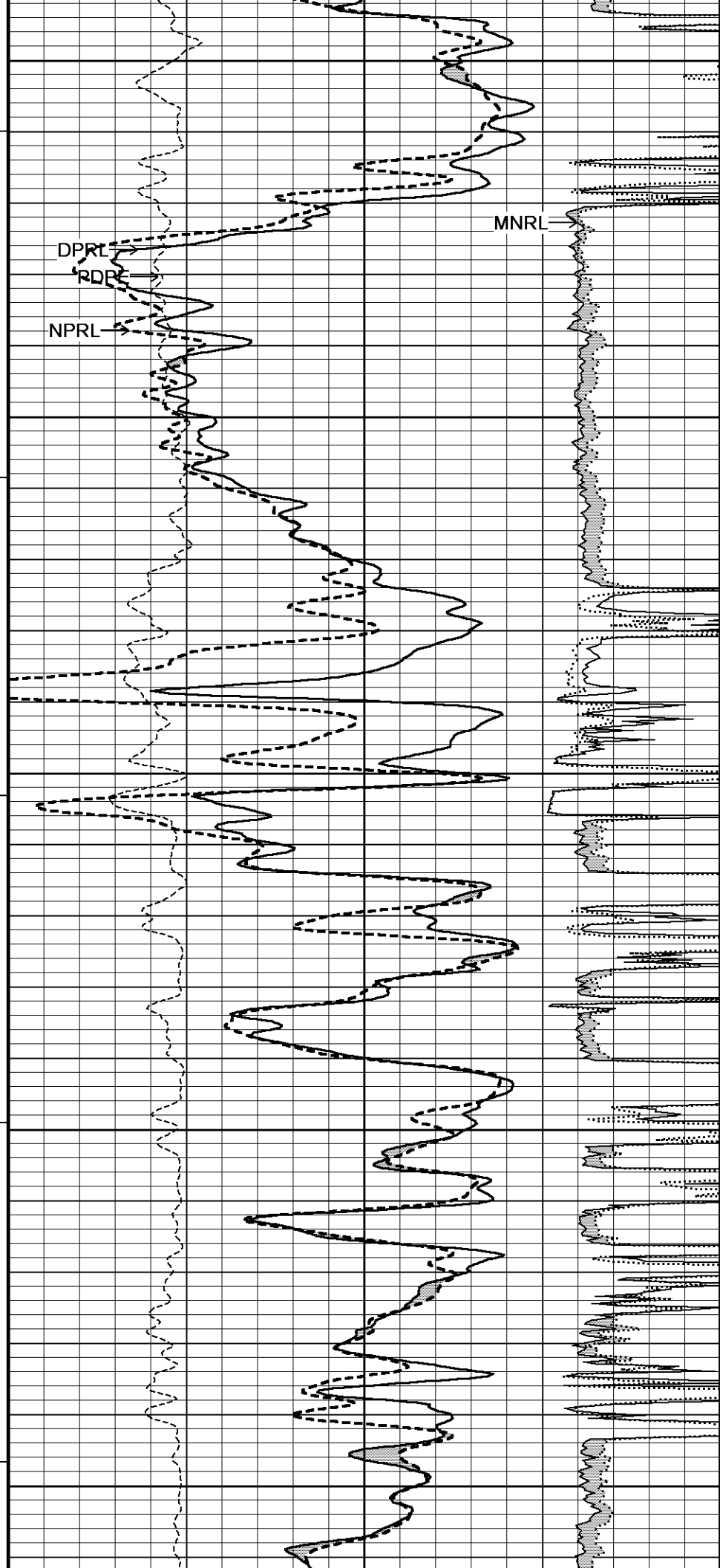
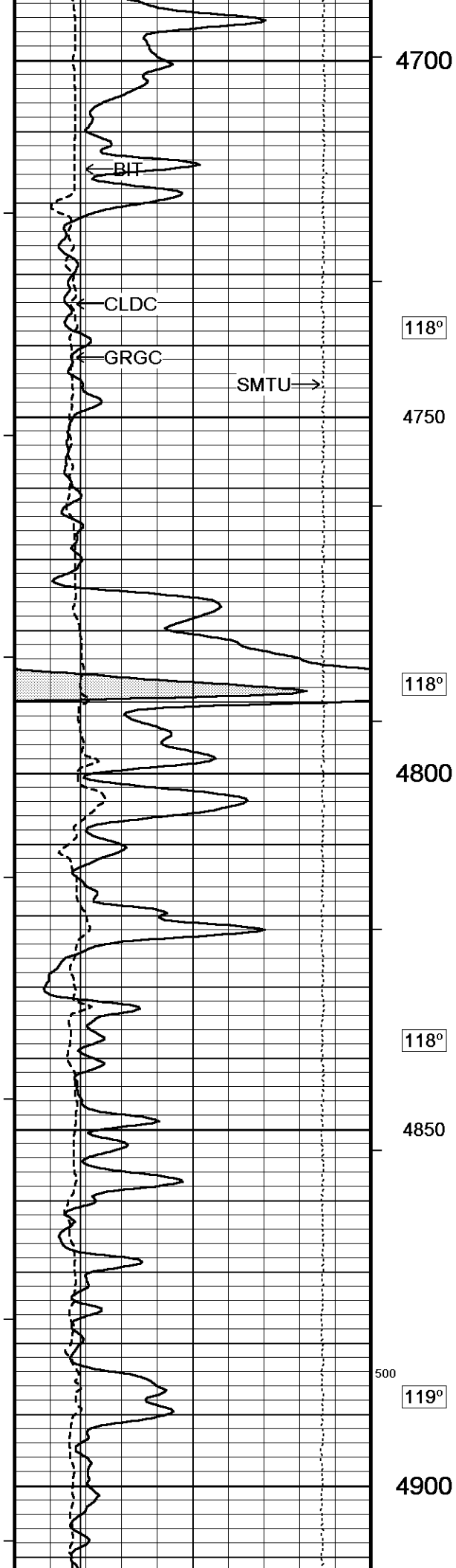
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

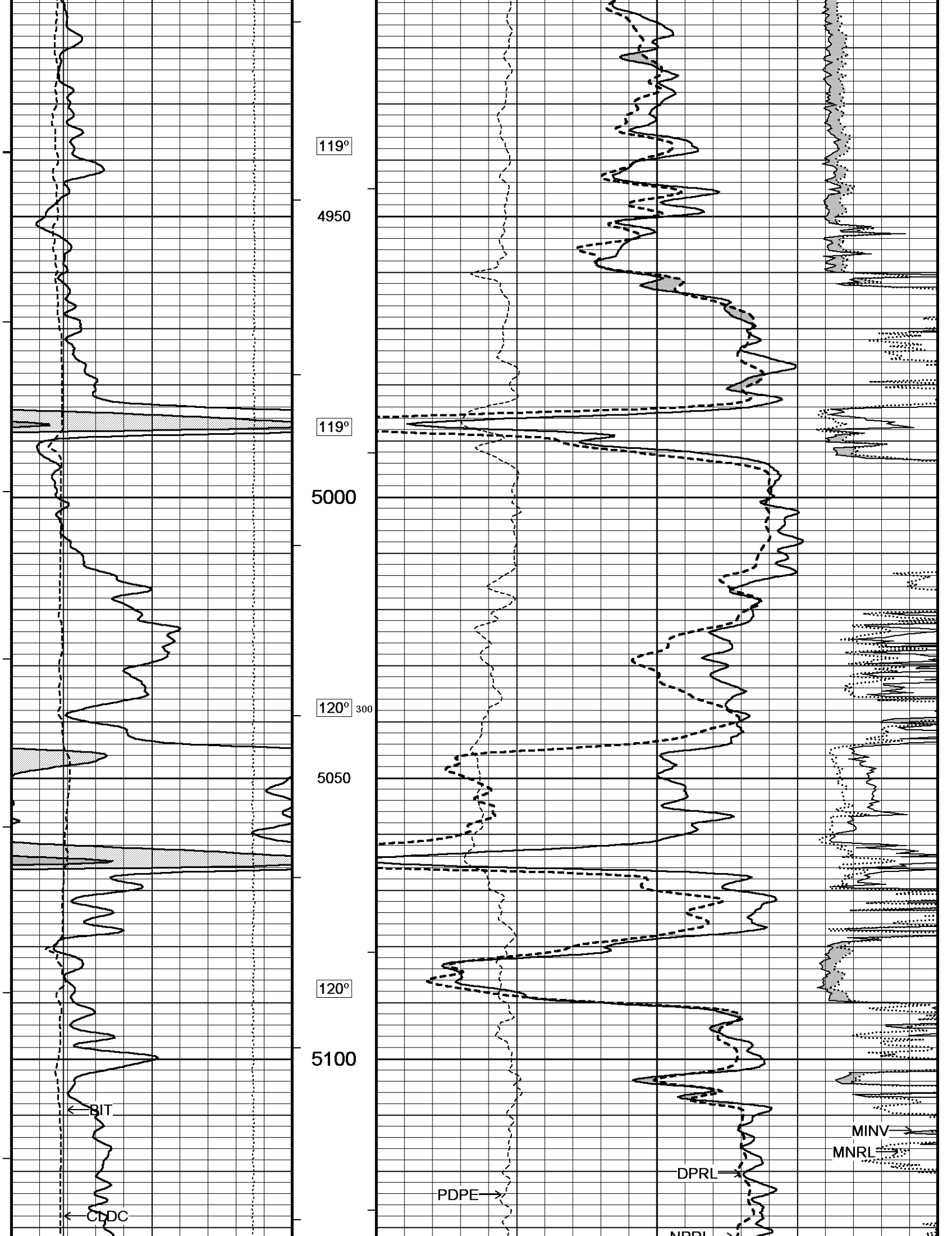


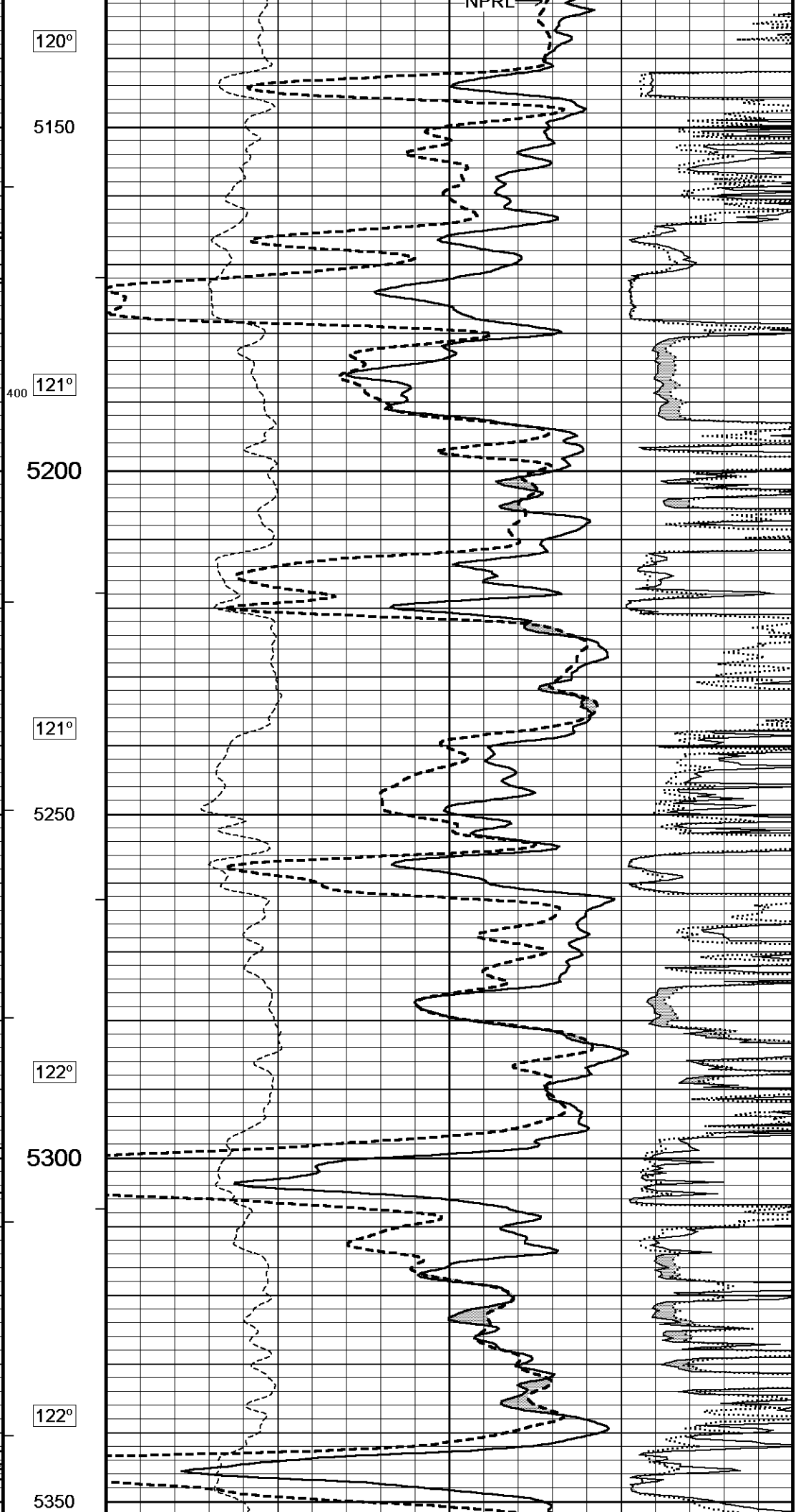
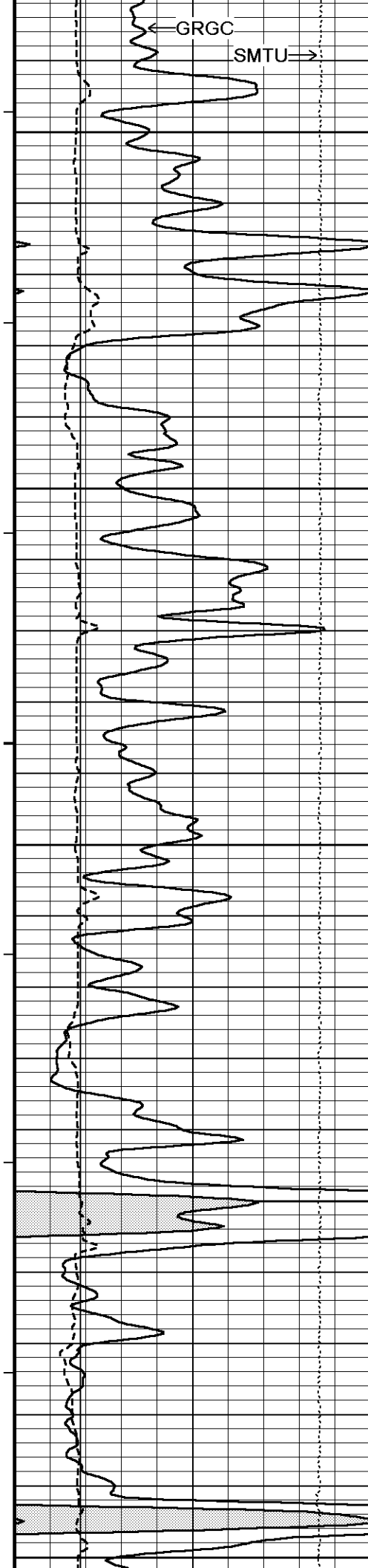


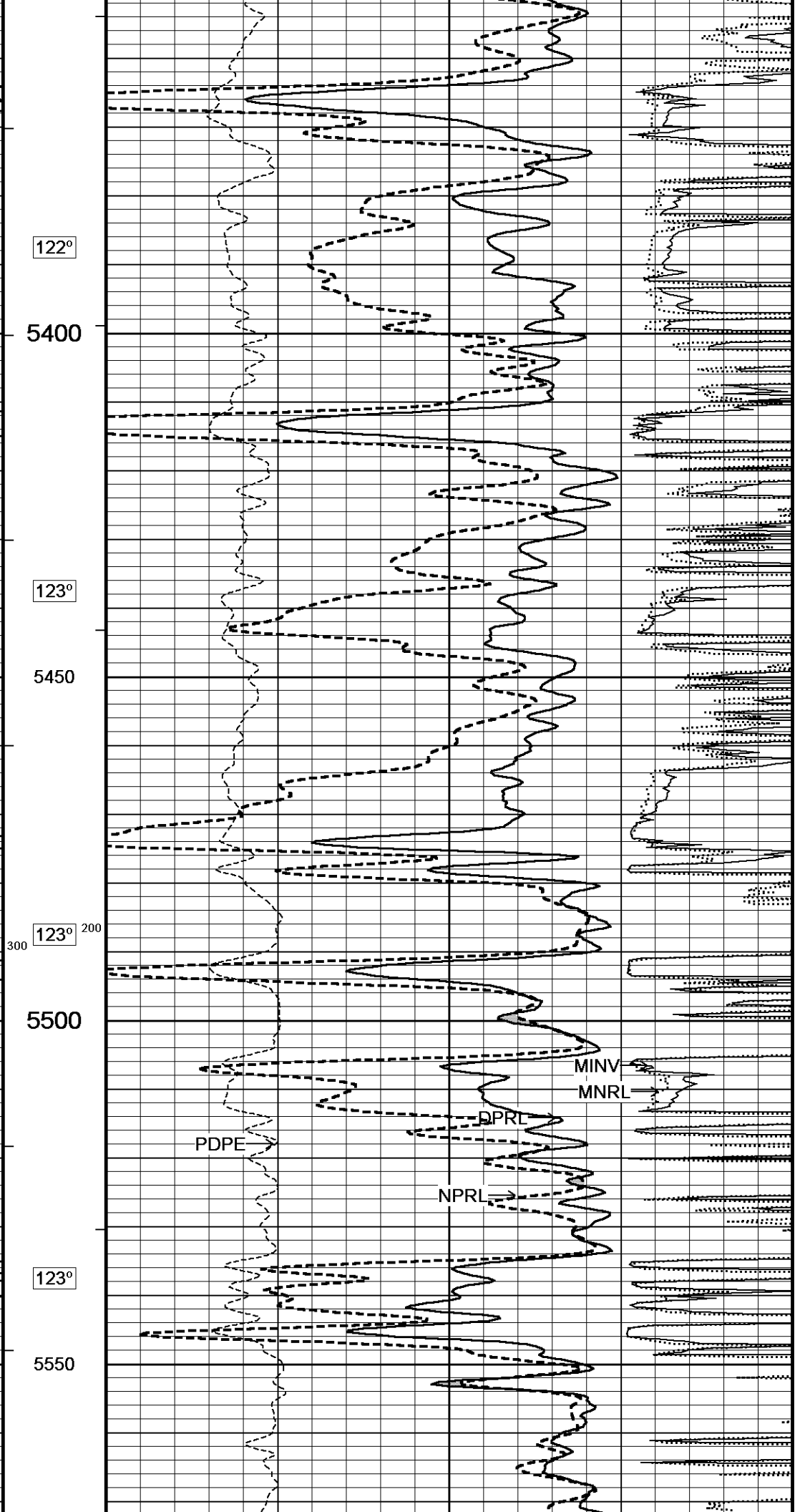
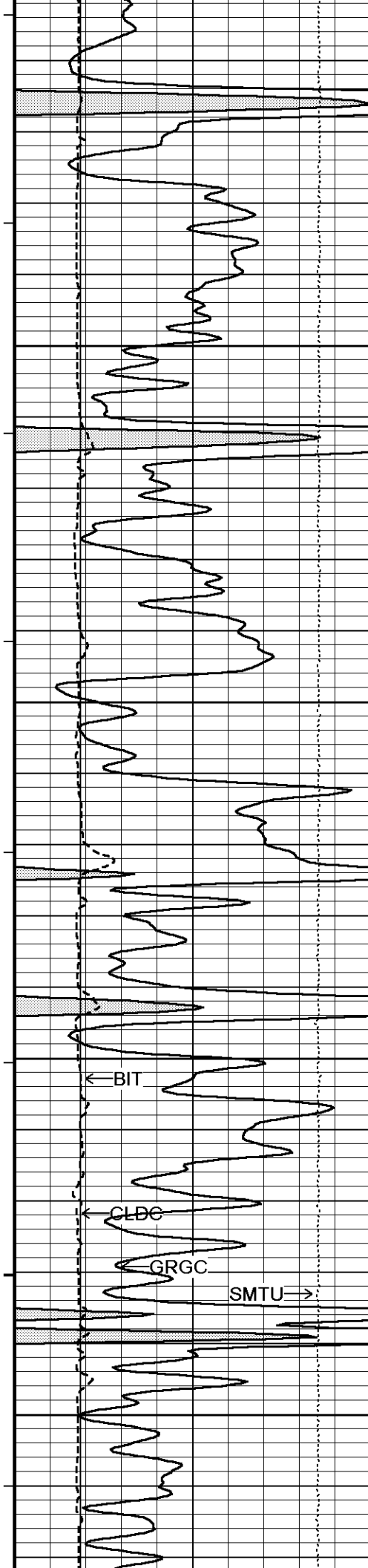


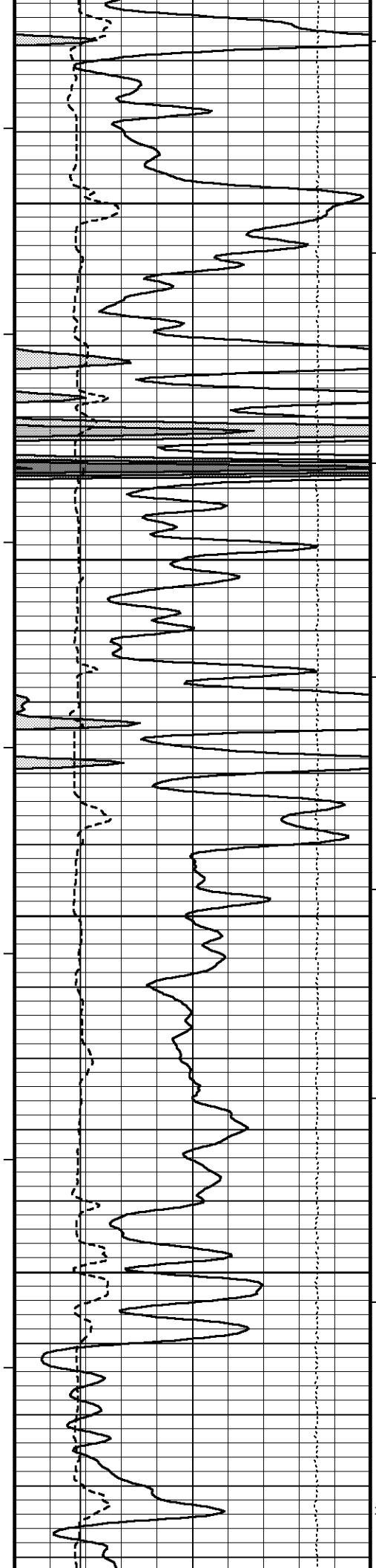












124°

5600

124°

5650

125°

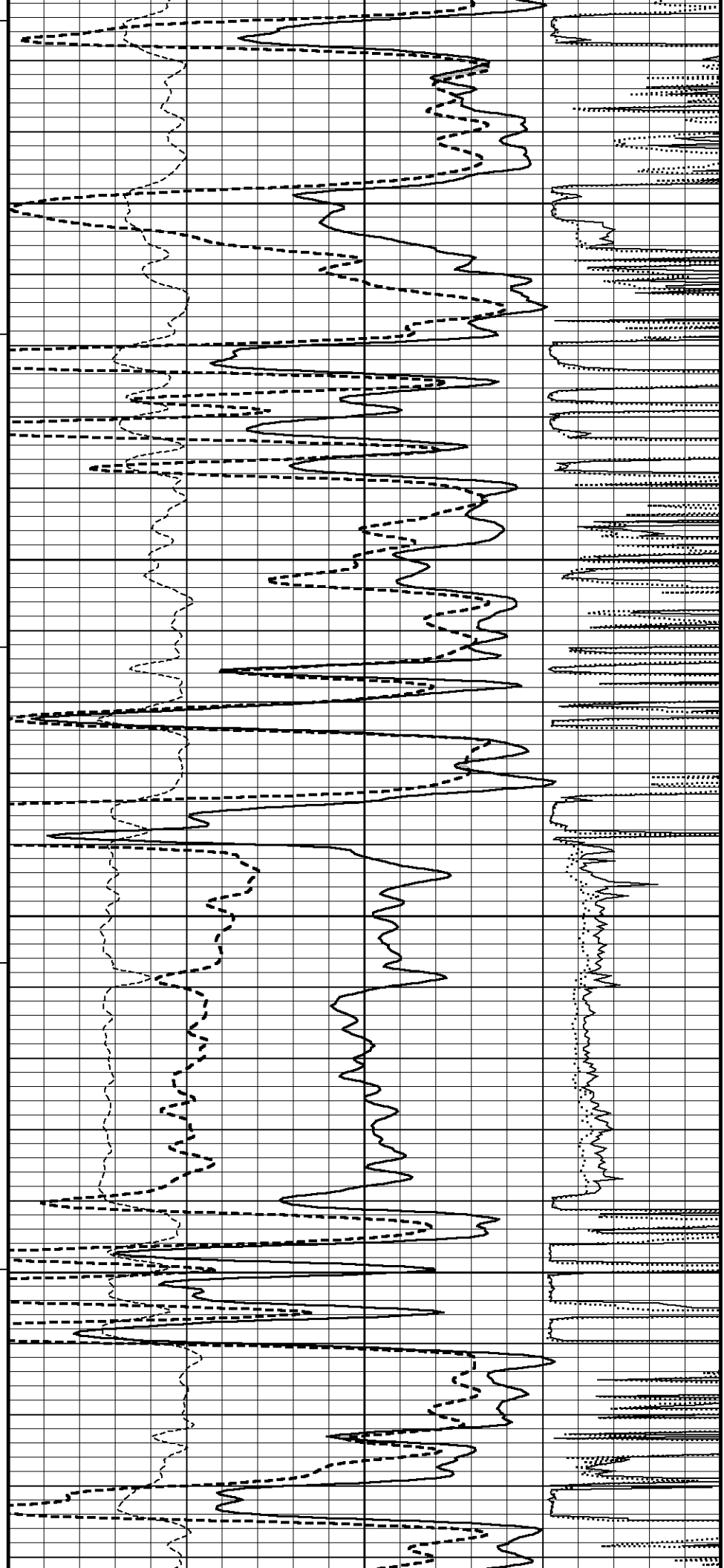
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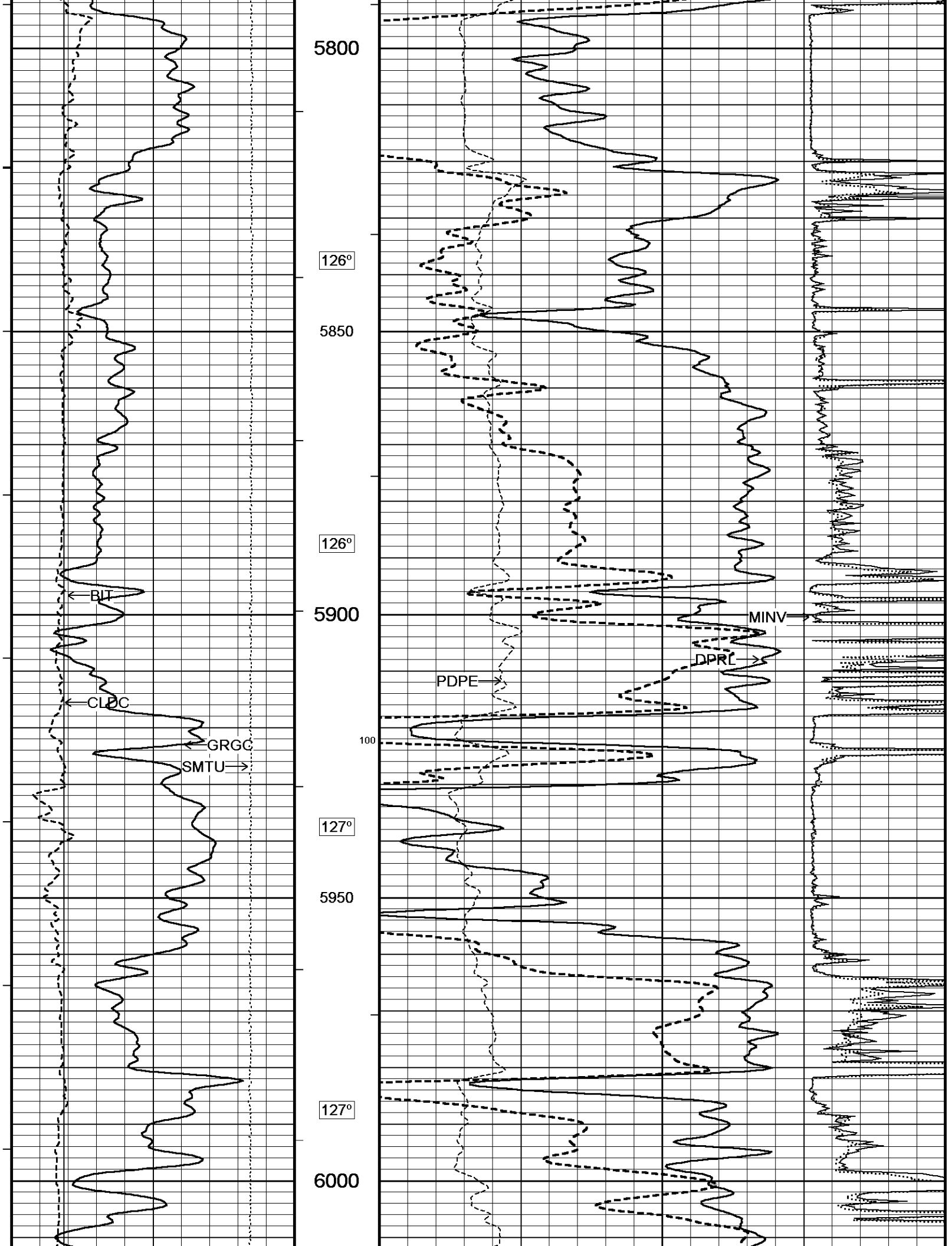
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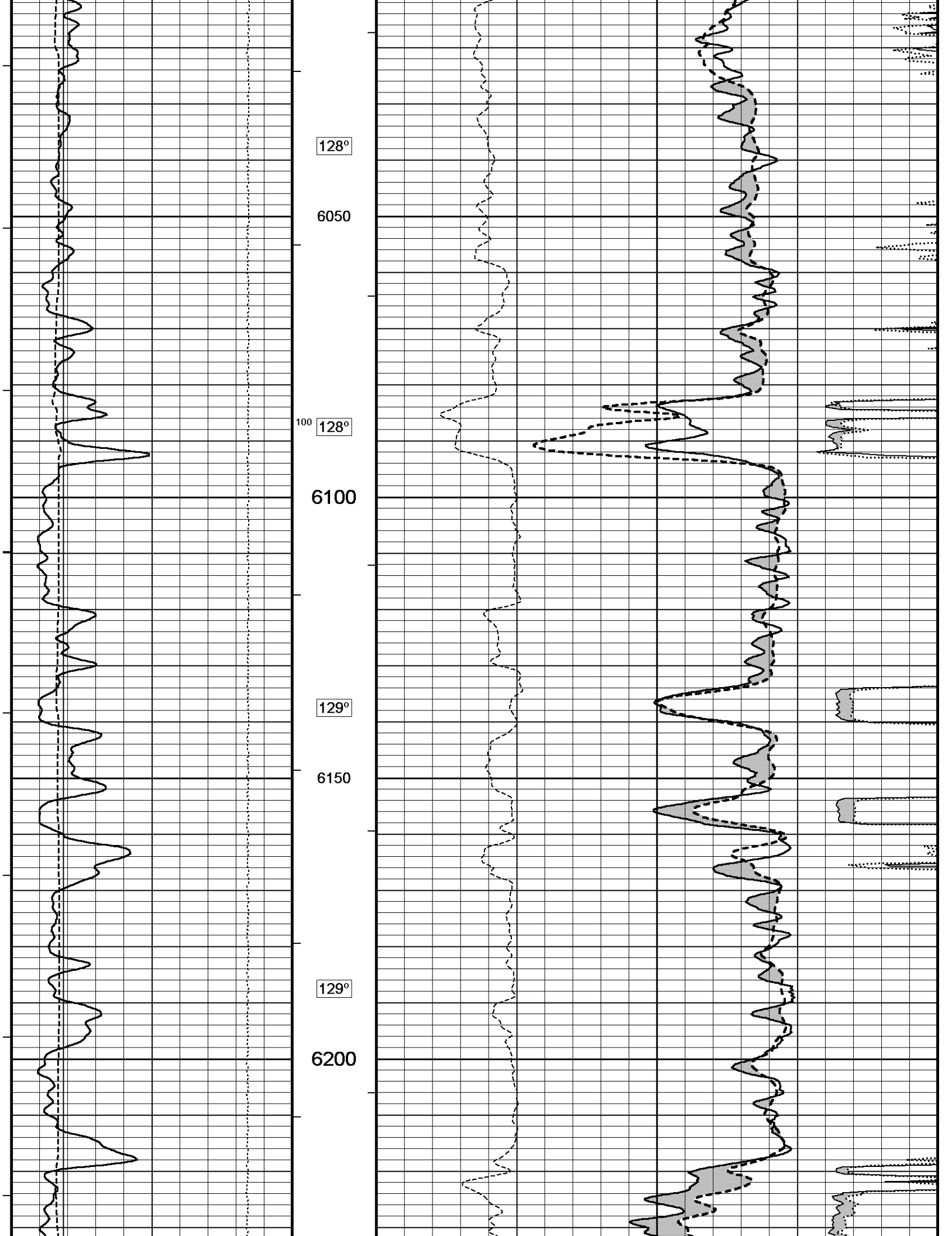
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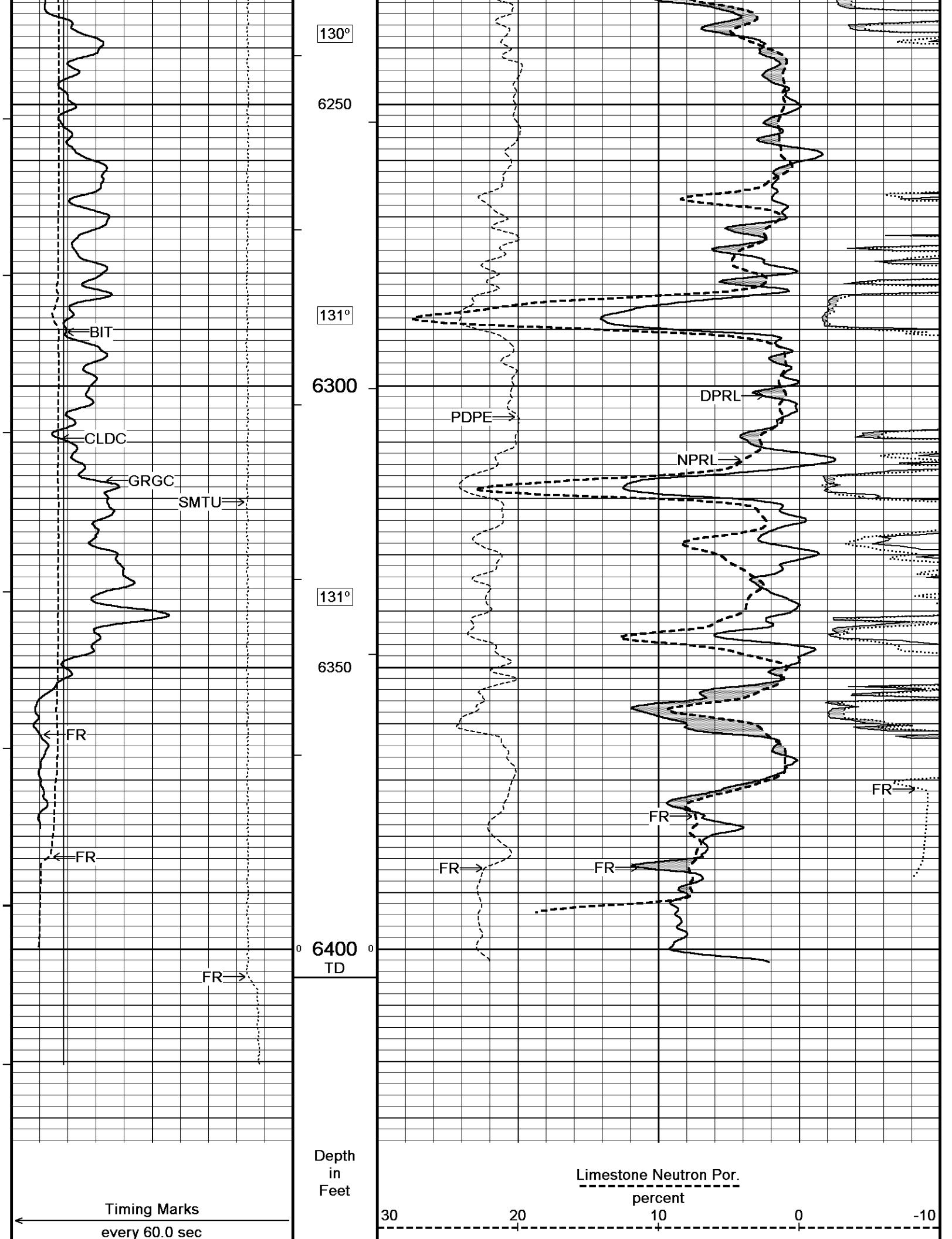
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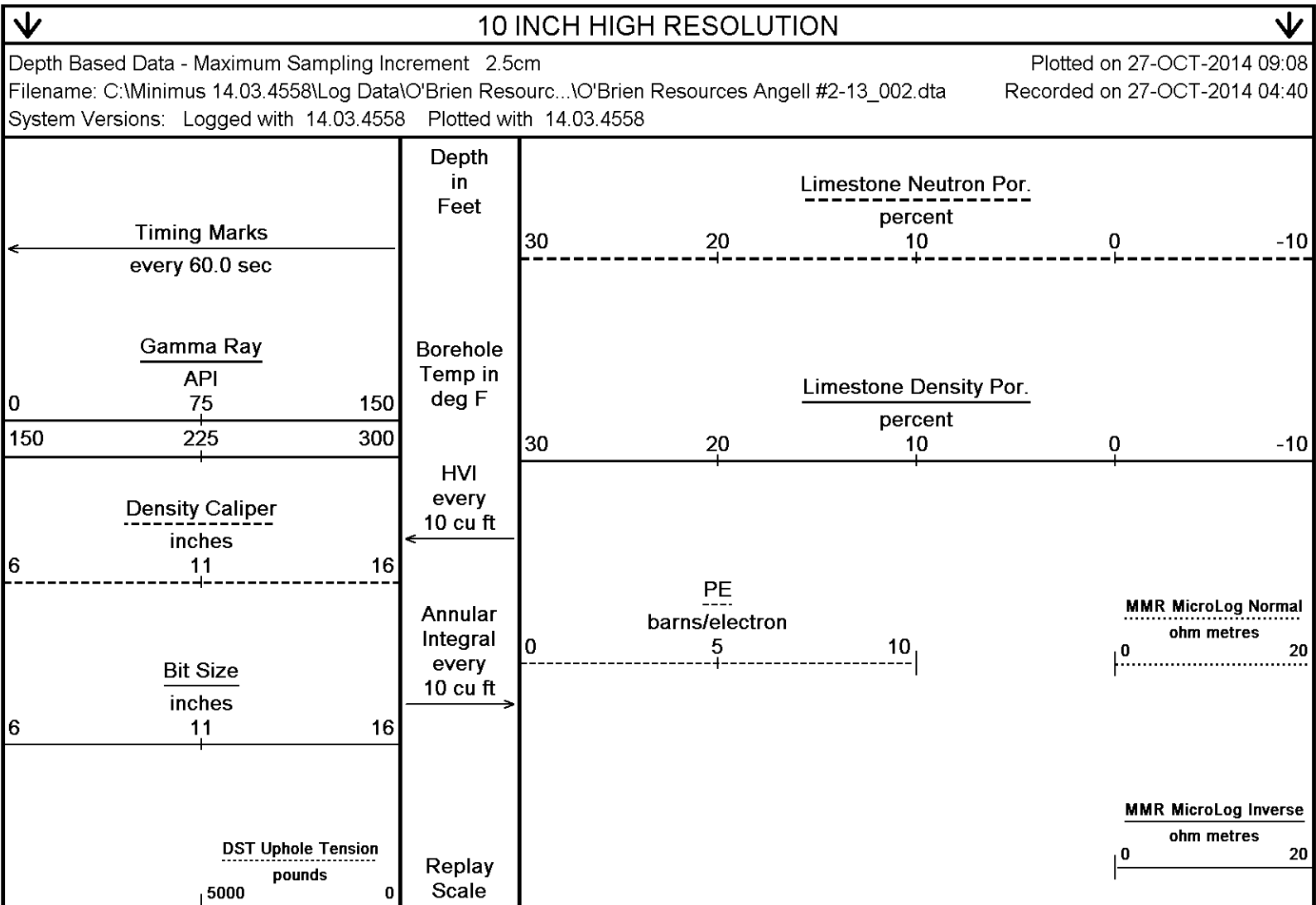
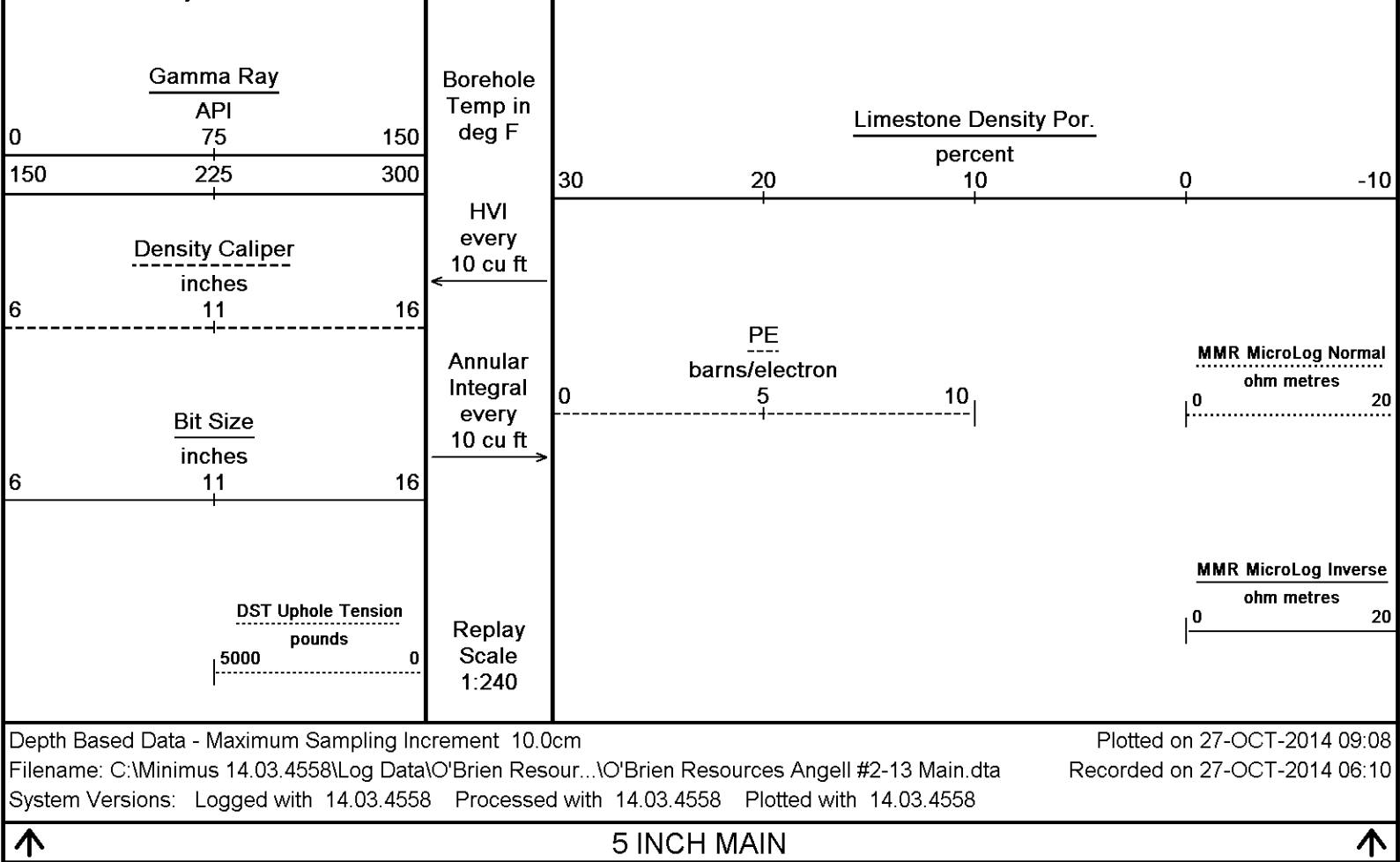
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1:120

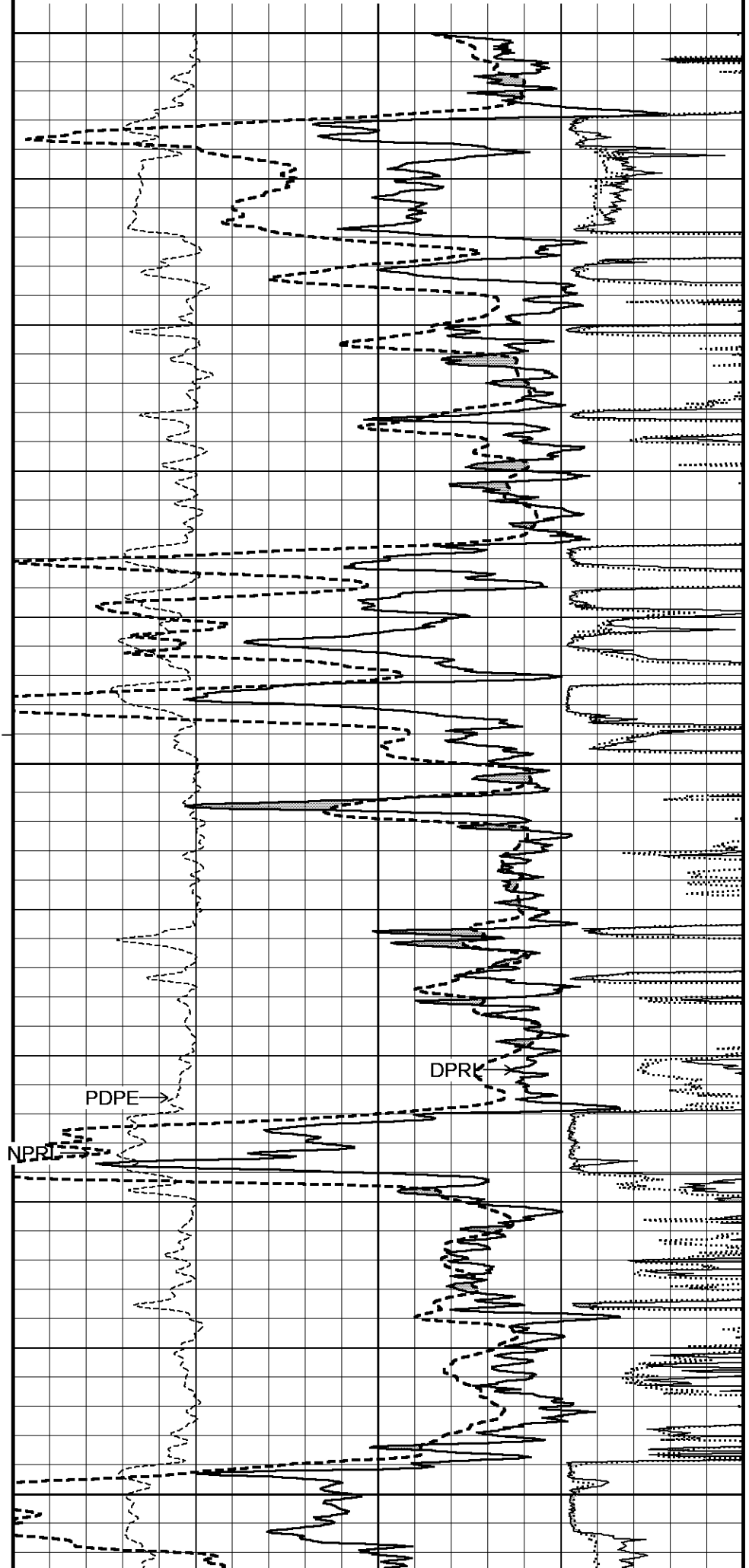
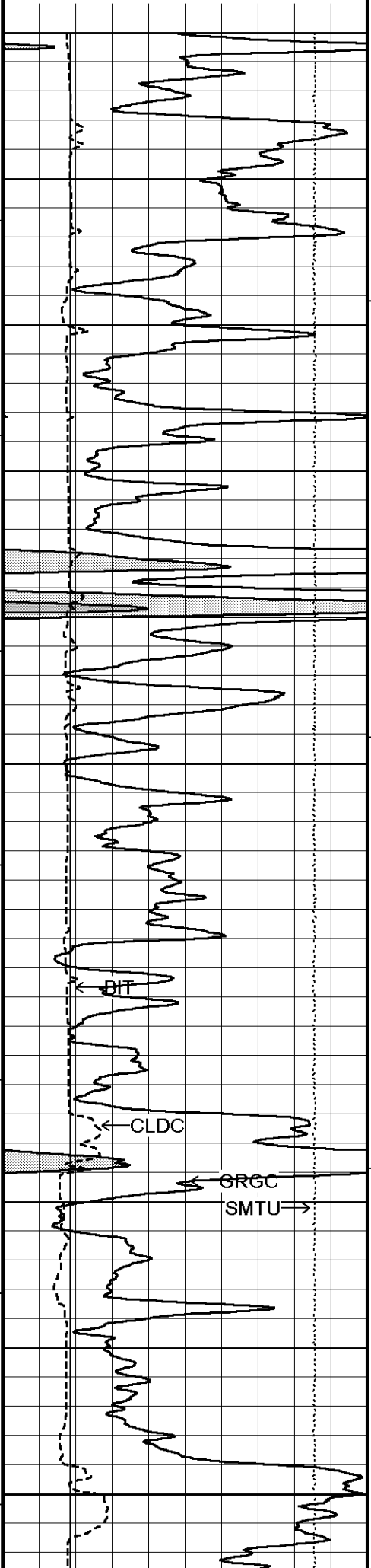
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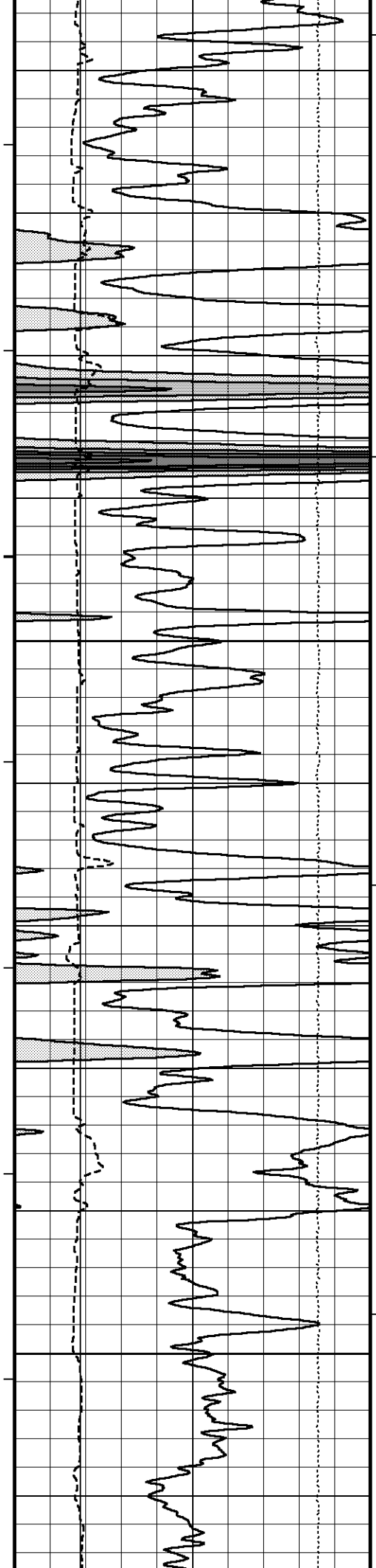
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5550

123°

5600



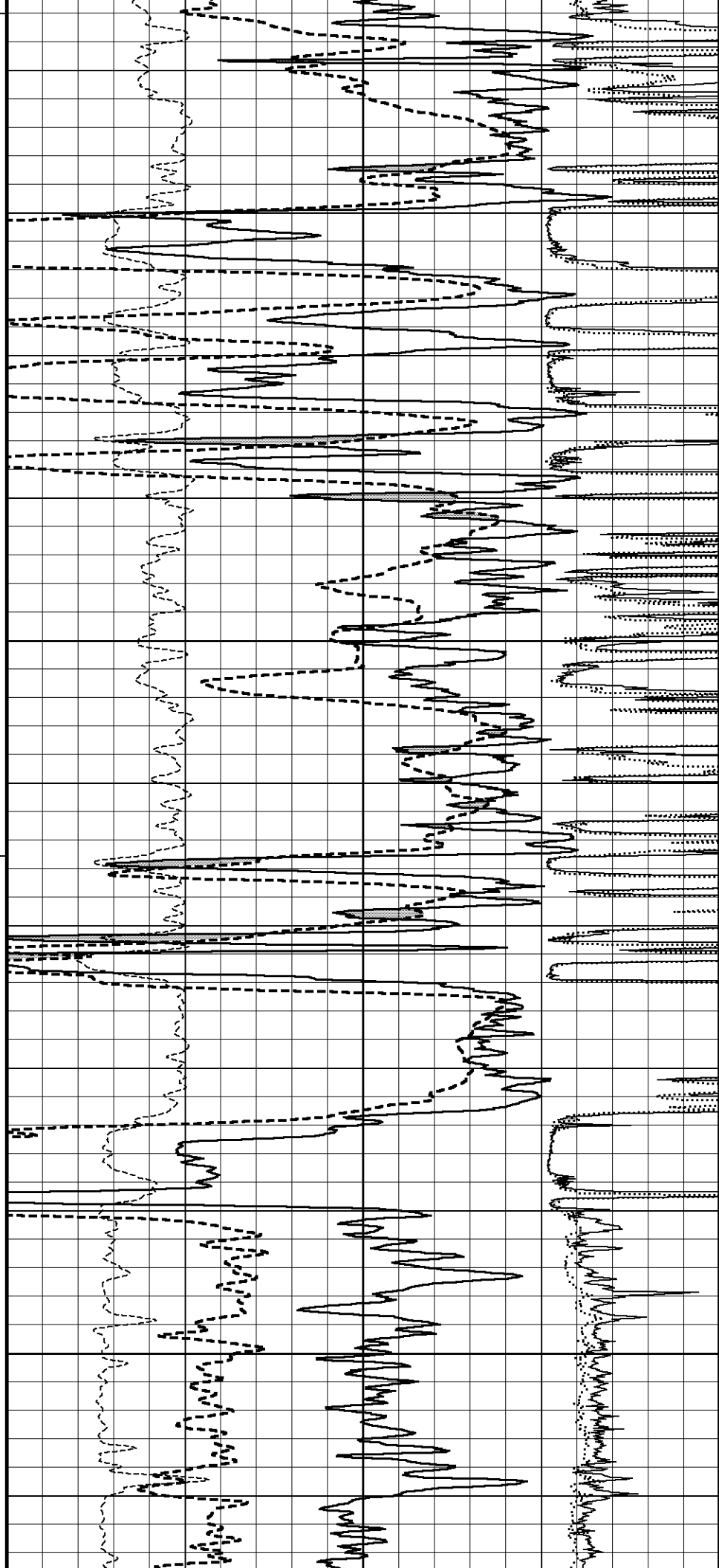


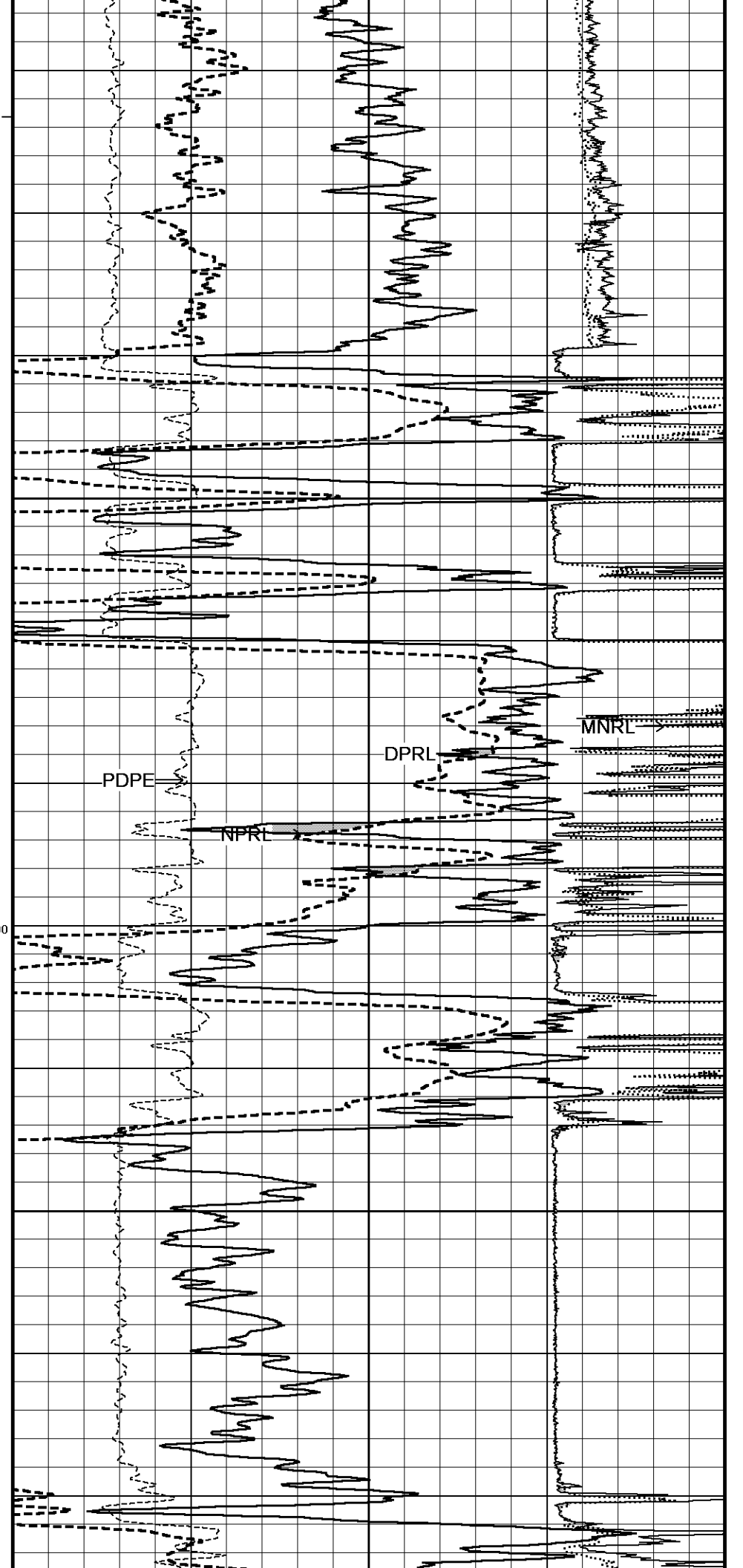
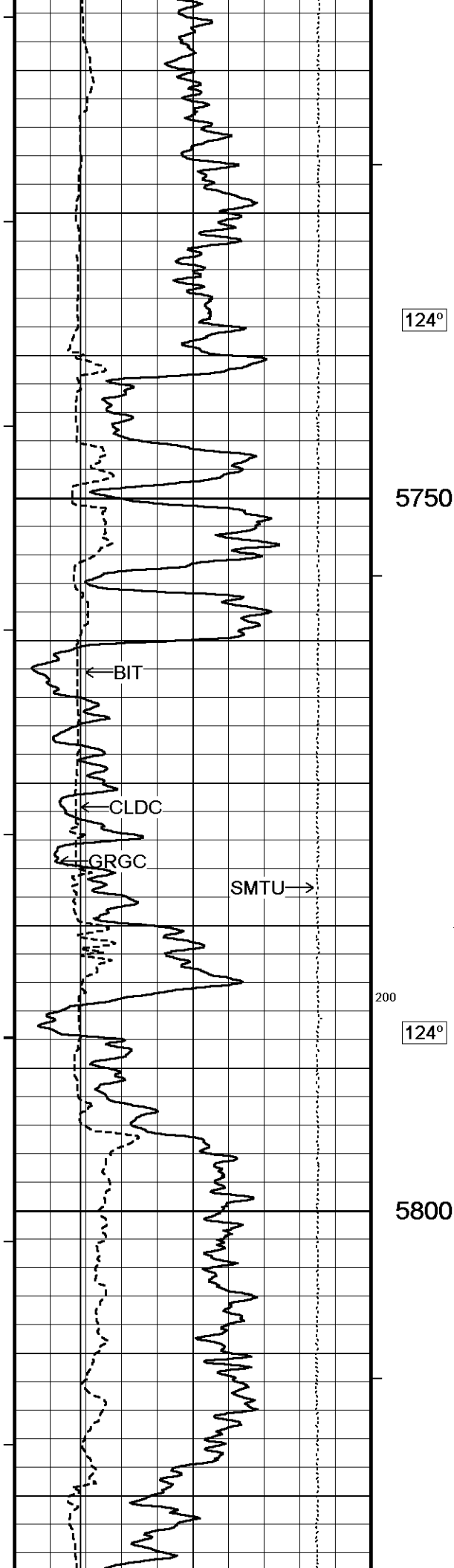
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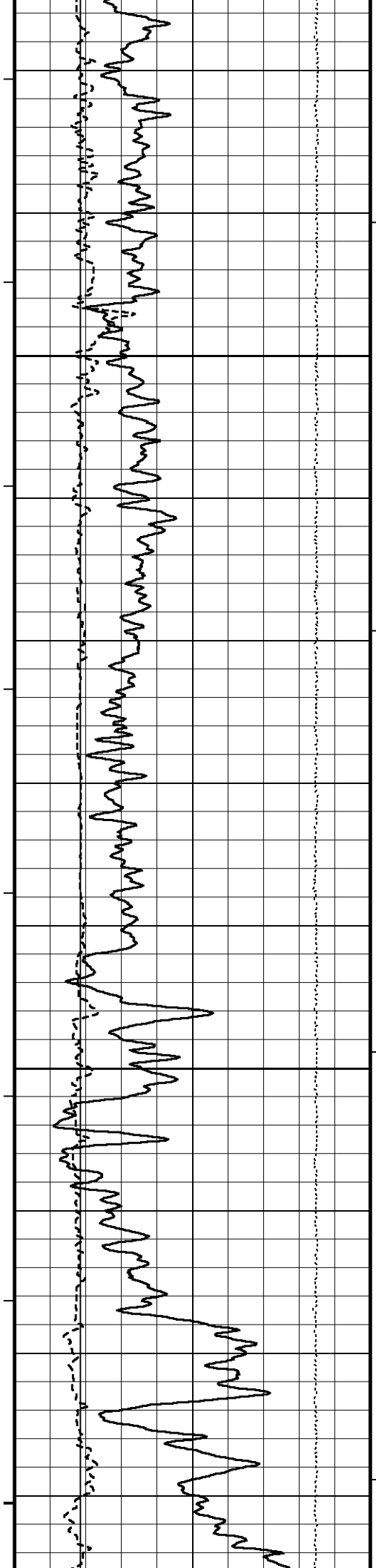
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124°

5700





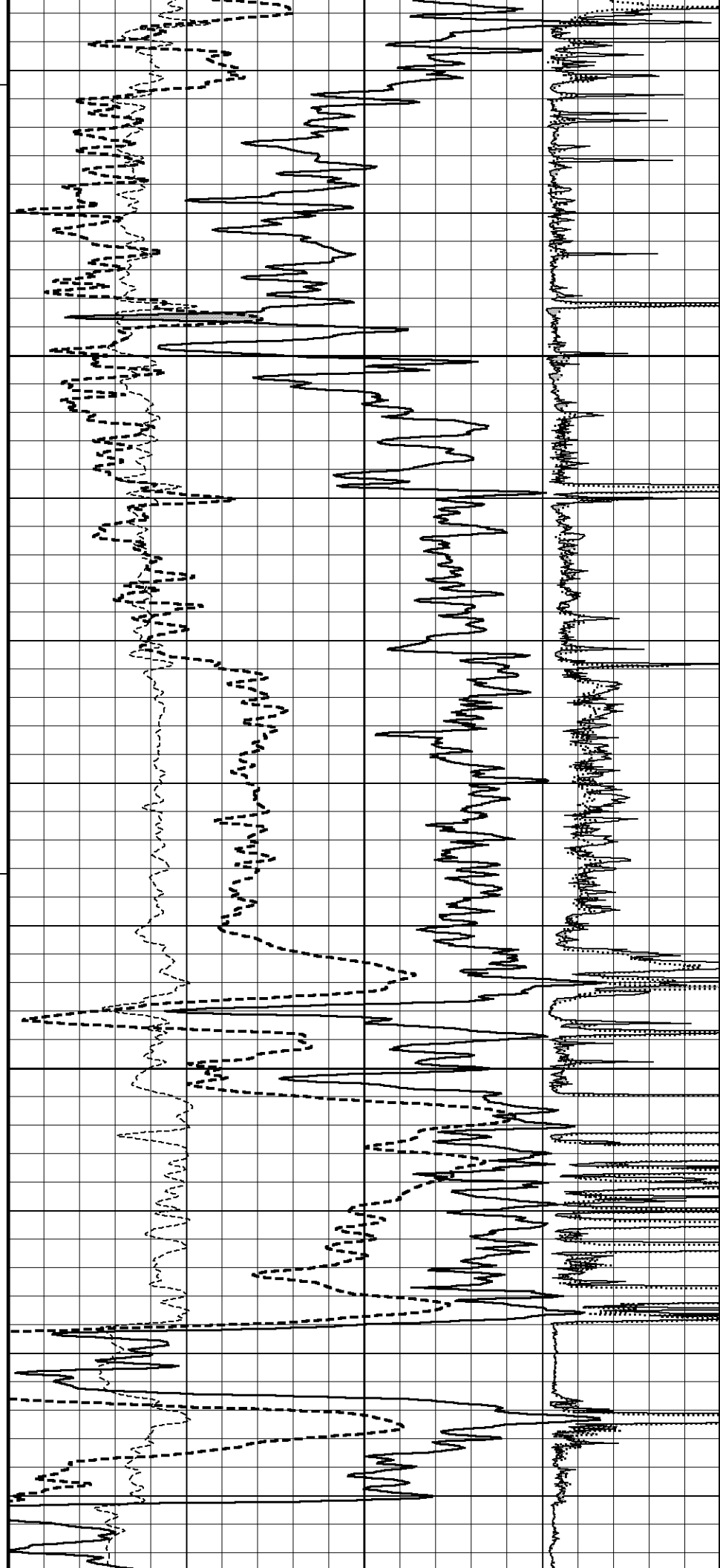


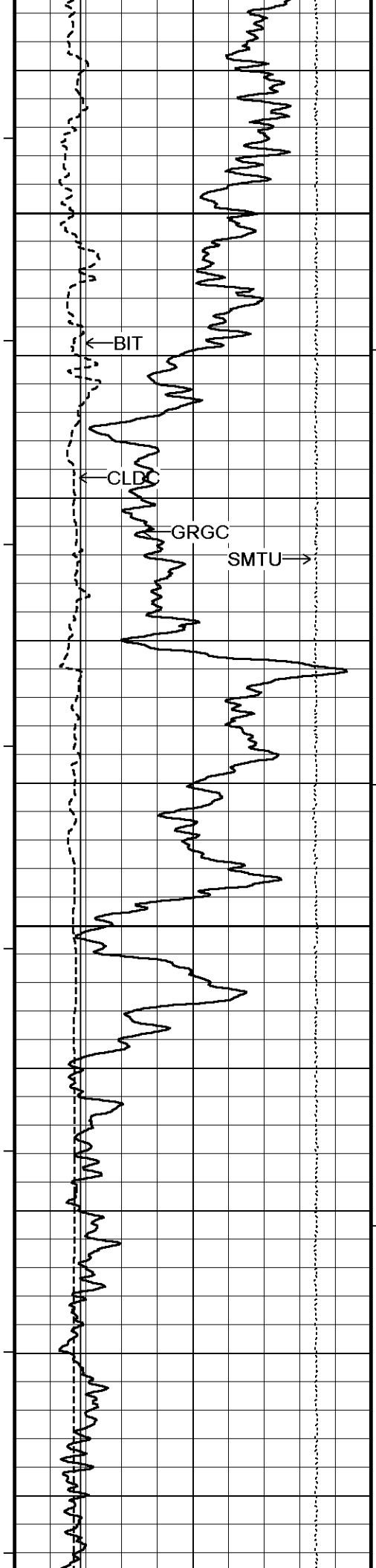
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5850

124°

5900





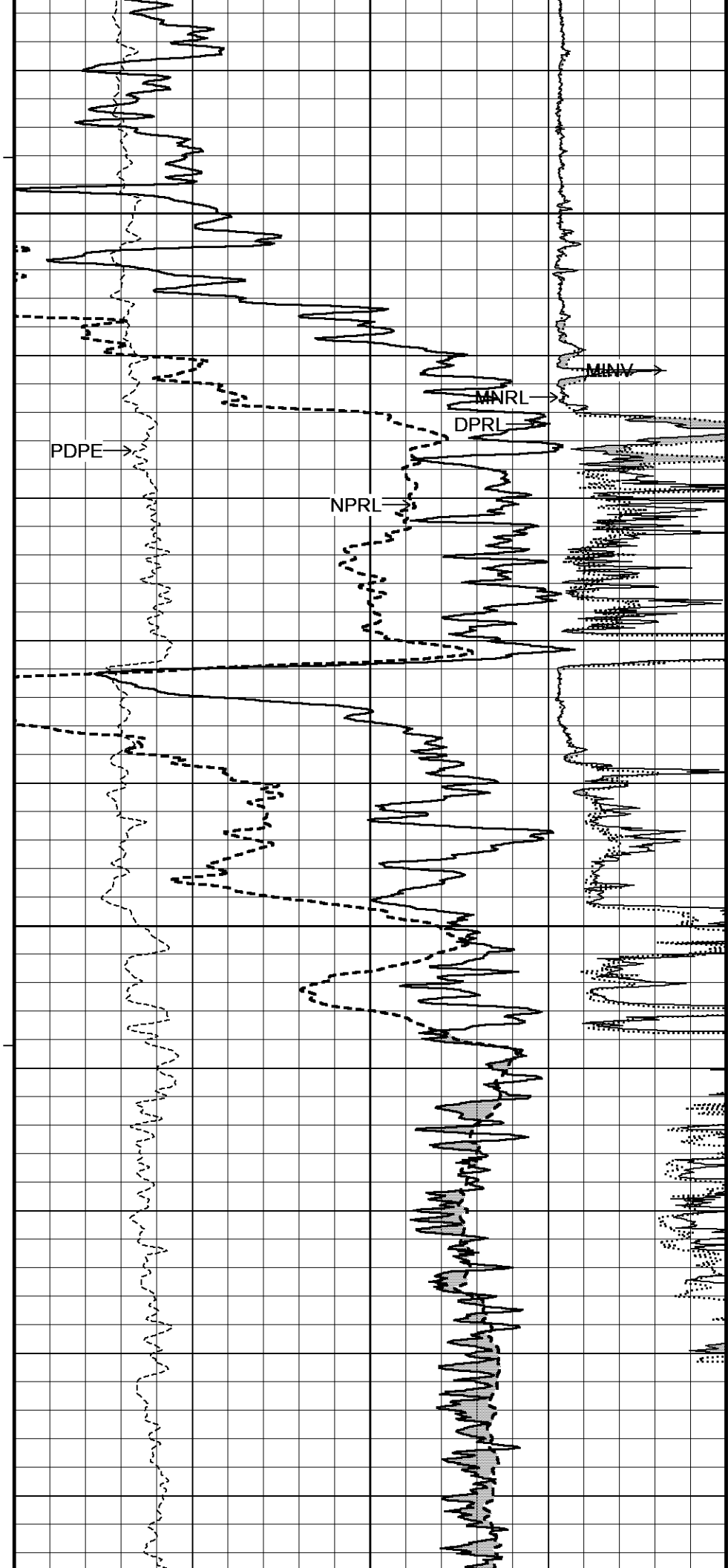
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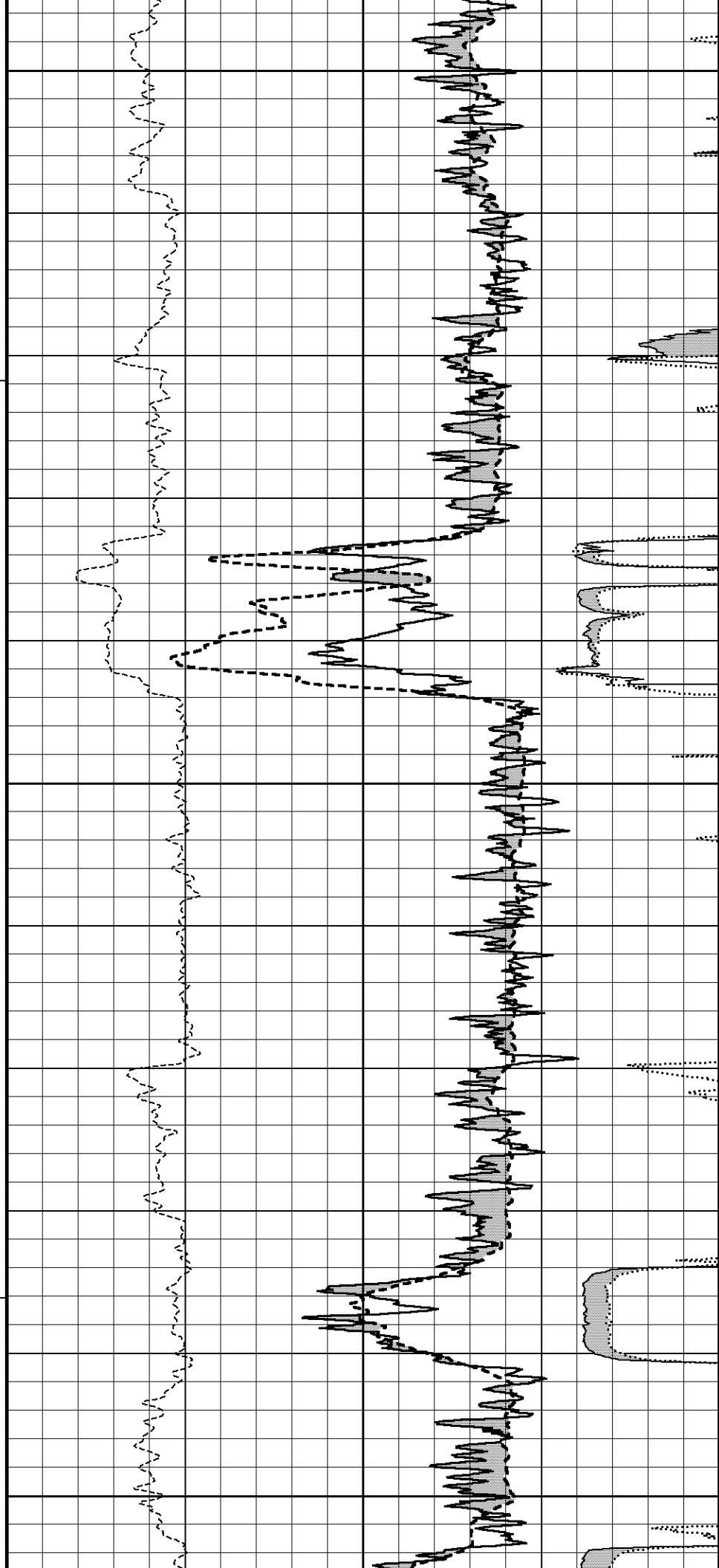
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126°

6000

126°





6050

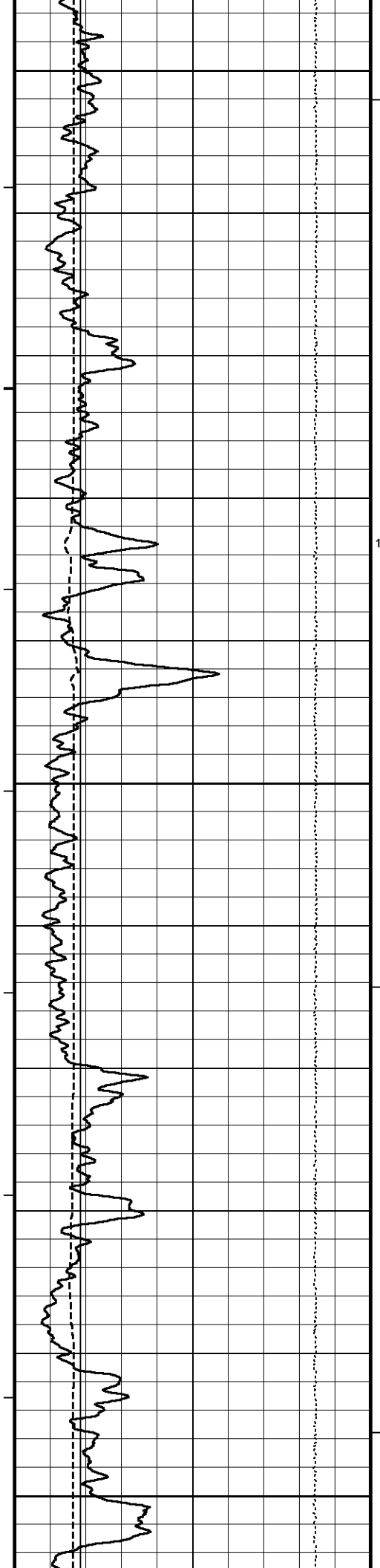
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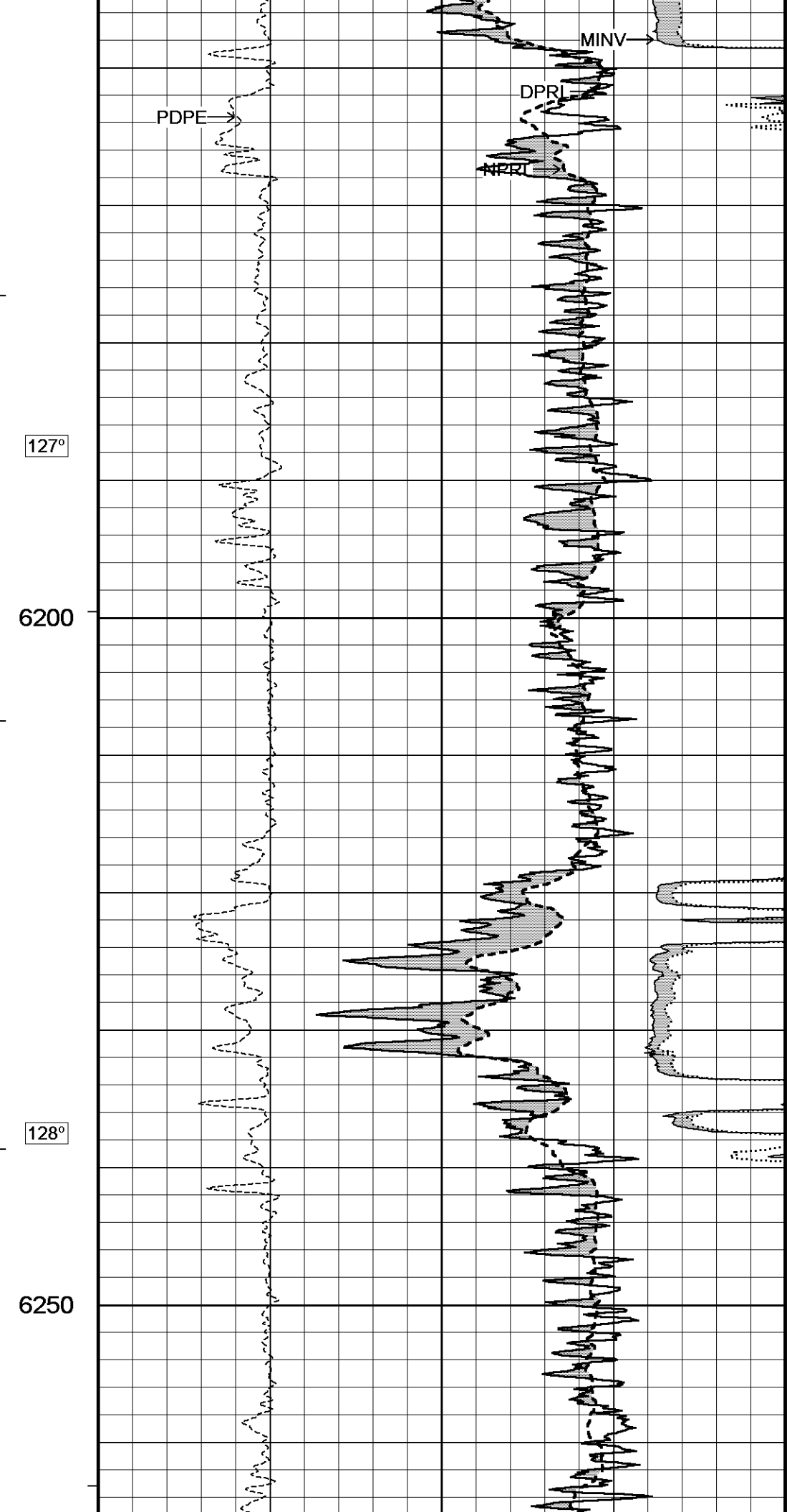
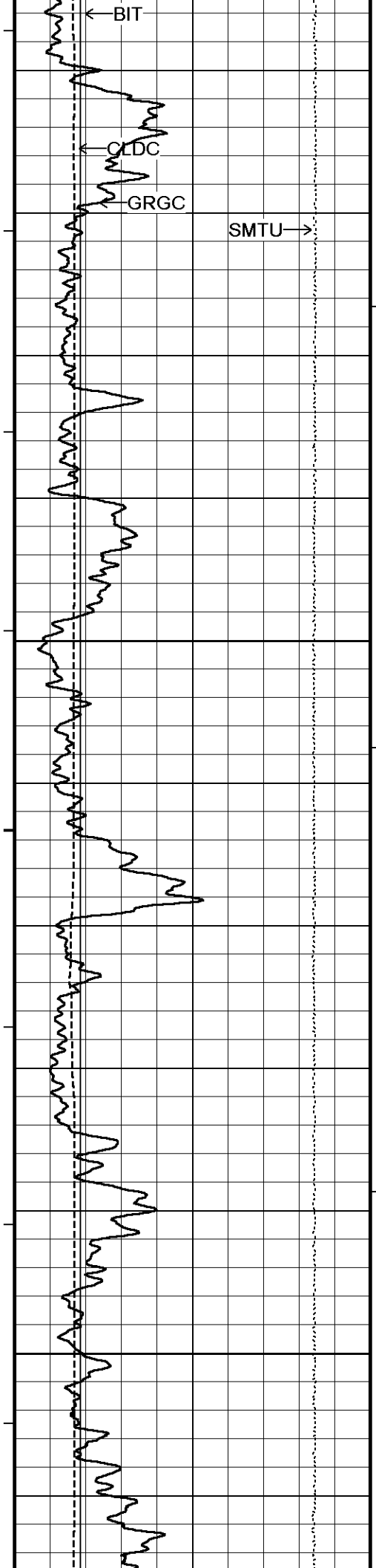
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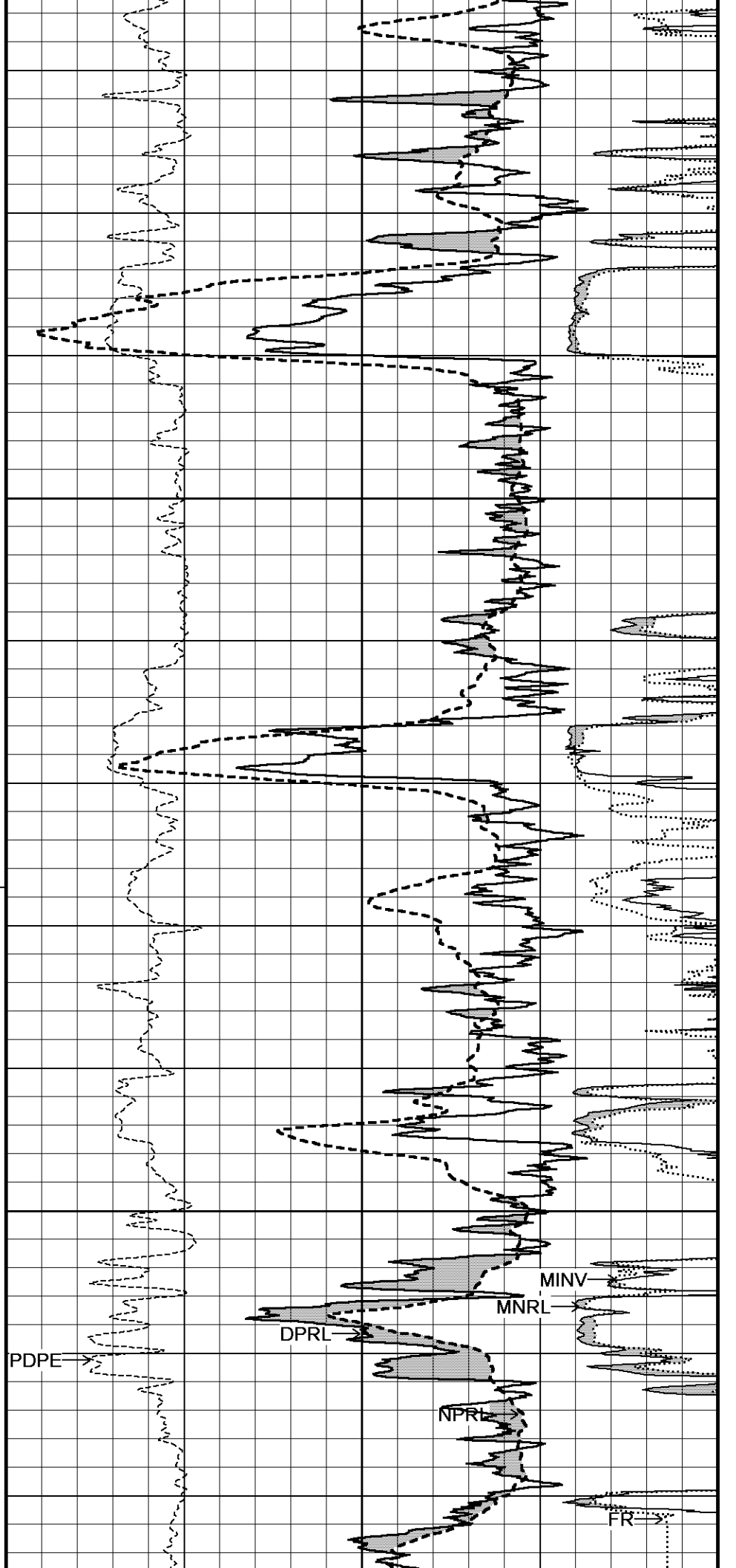
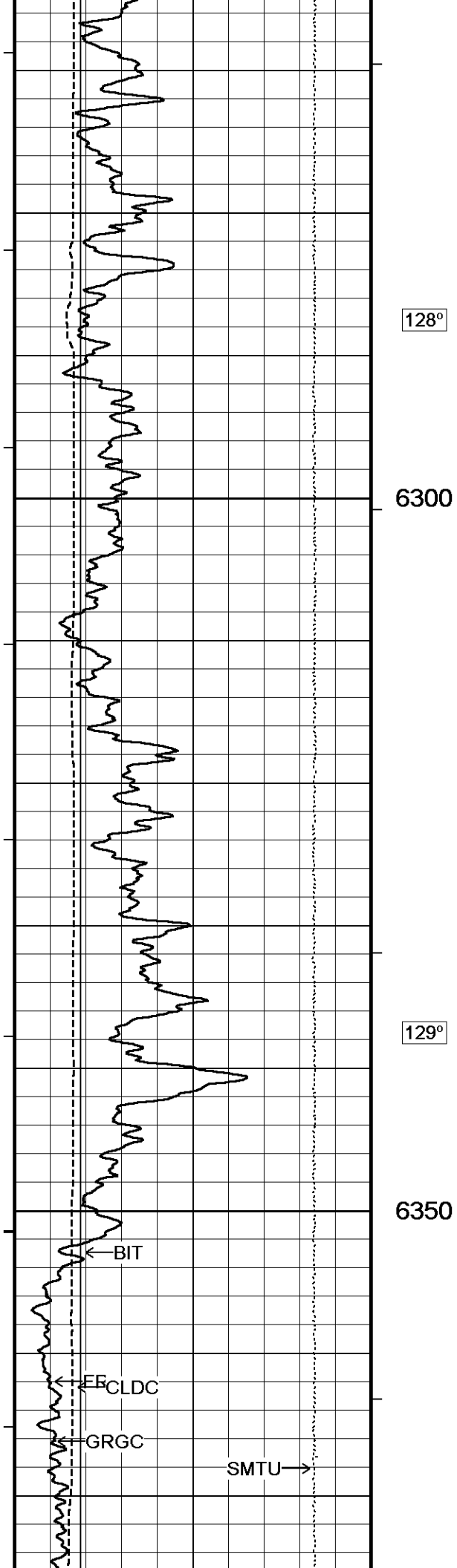
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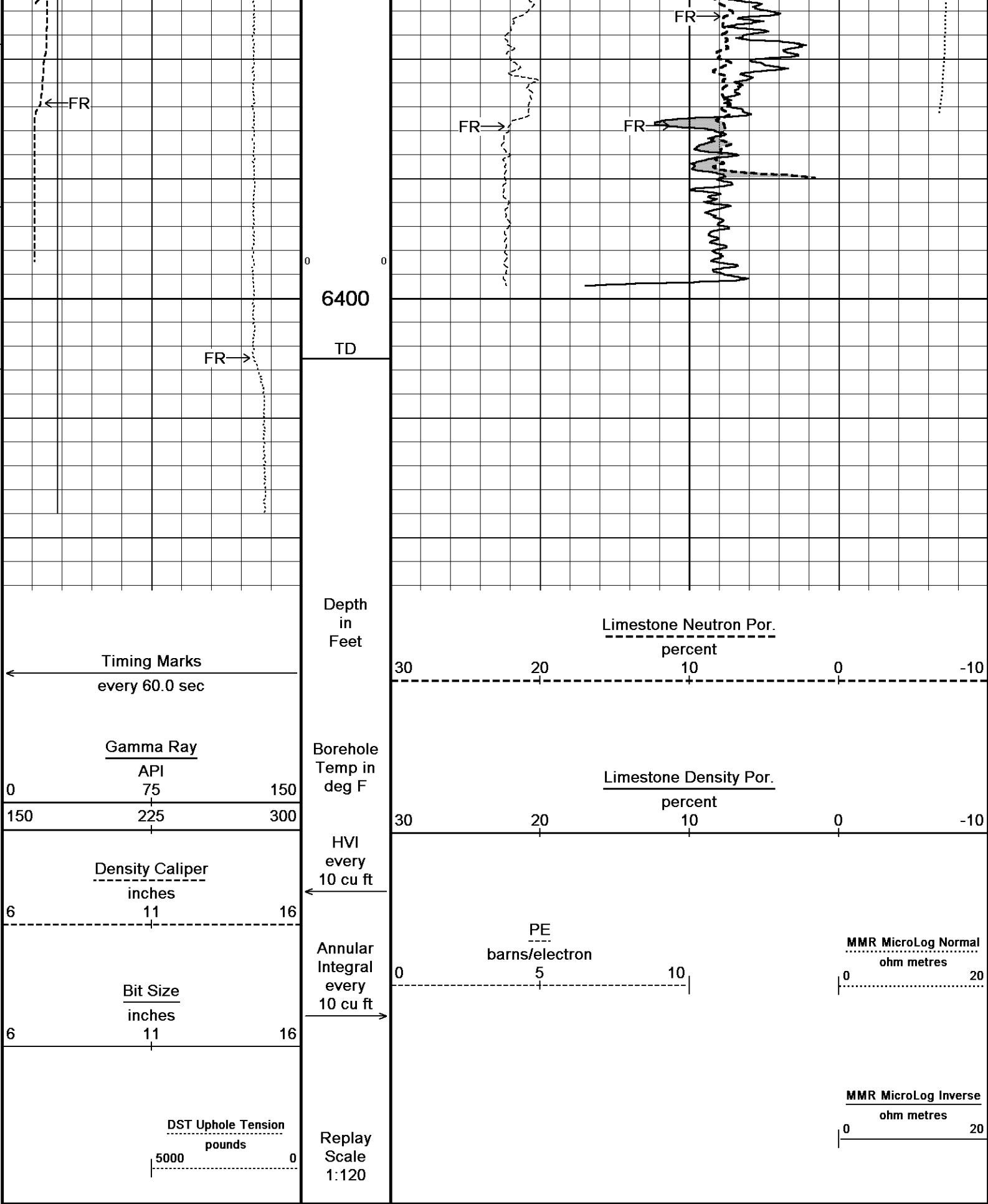
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6150











REPEAT SECTION



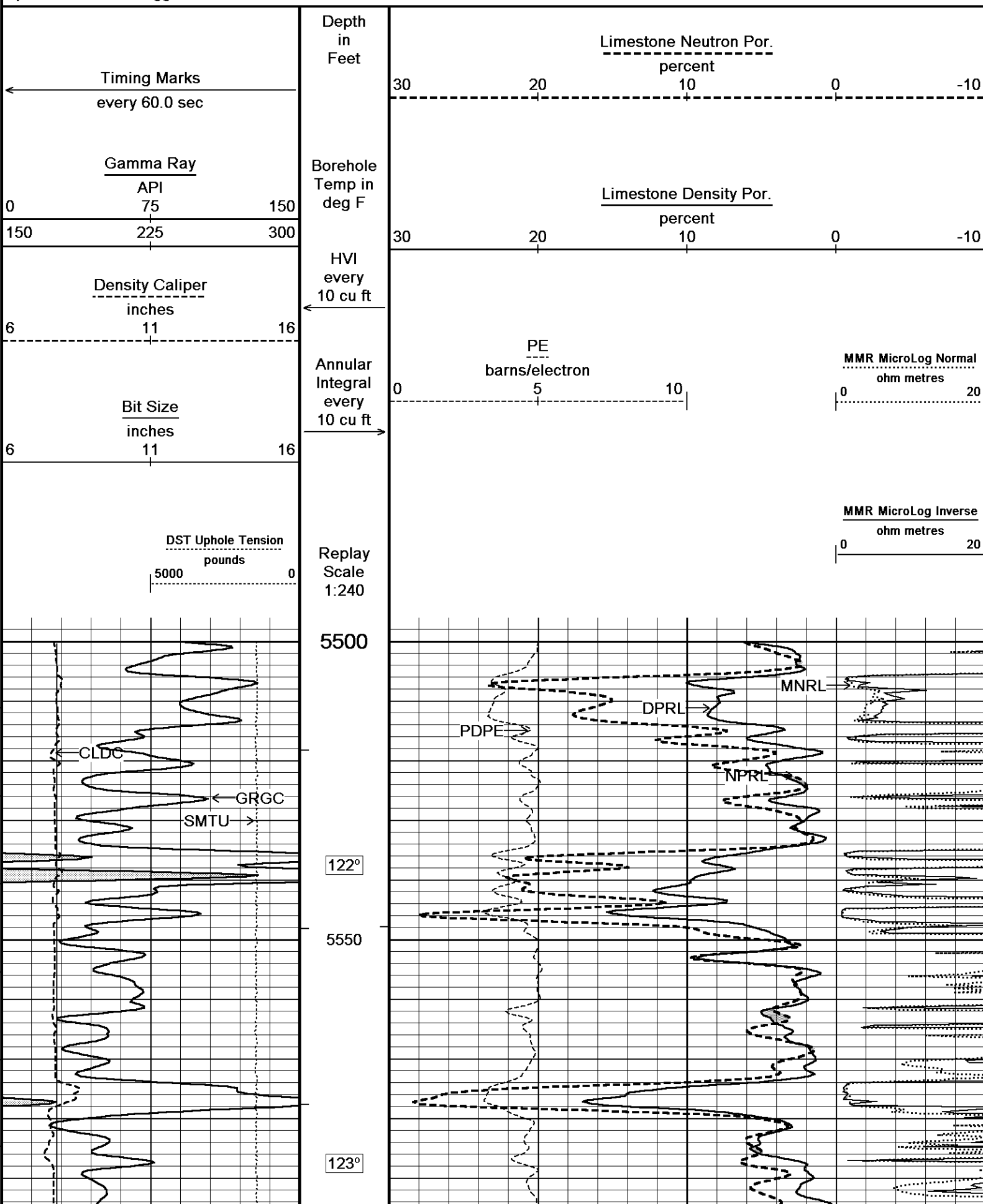
Depth Based Data - Maximum Sampling Increment 10.0cm

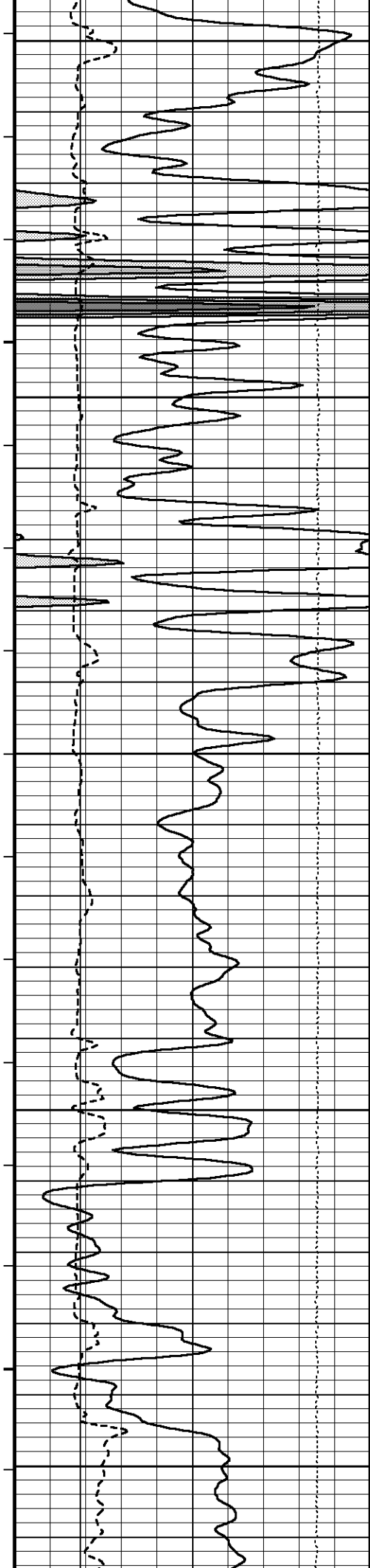
Plotted on 27-OCT-2014 09:08

Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resourc...\O'Brien Resources Angell #2-13_003.dta

Recorded on 27-OCT-2014 04:40

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558





5600

123°

5650

124°

5700

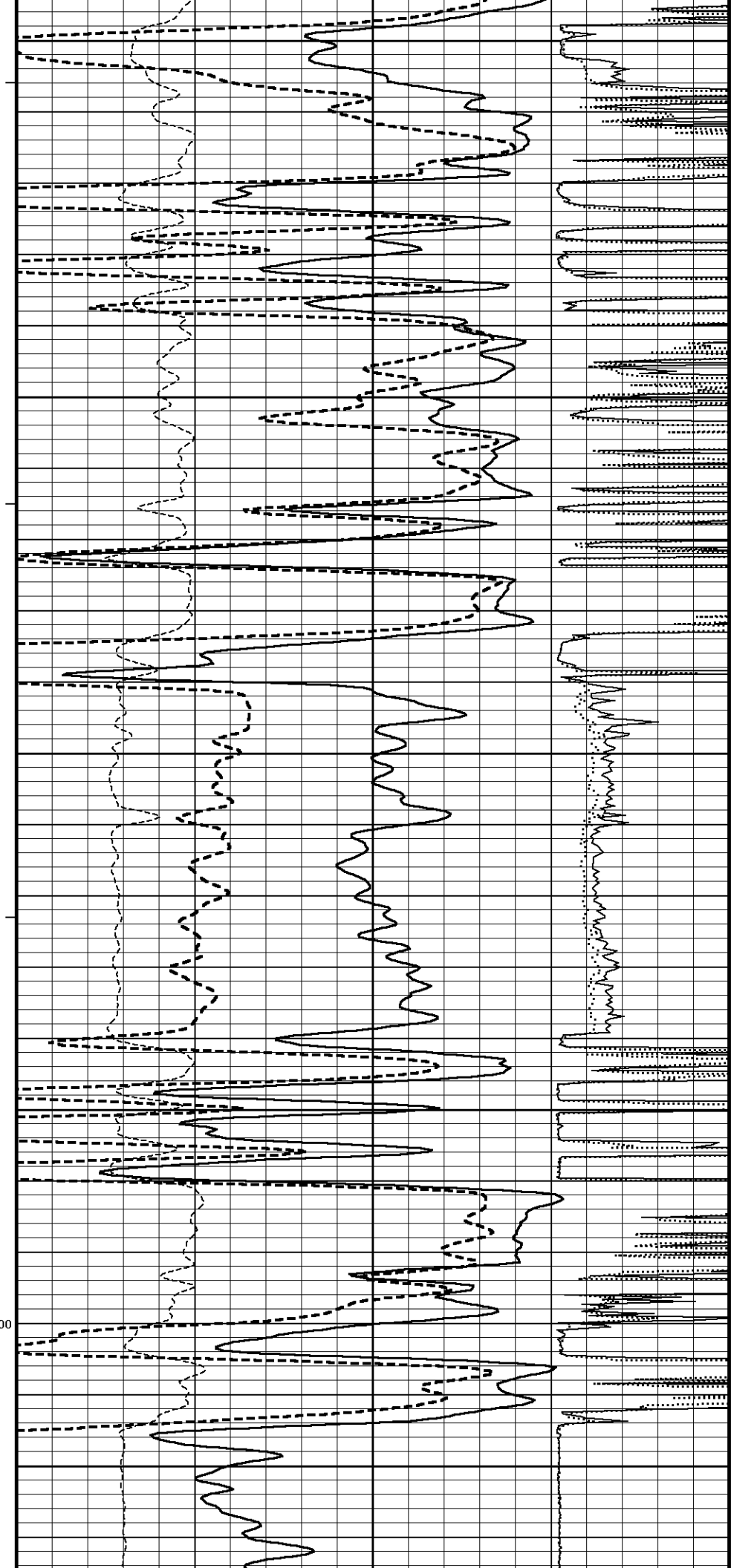
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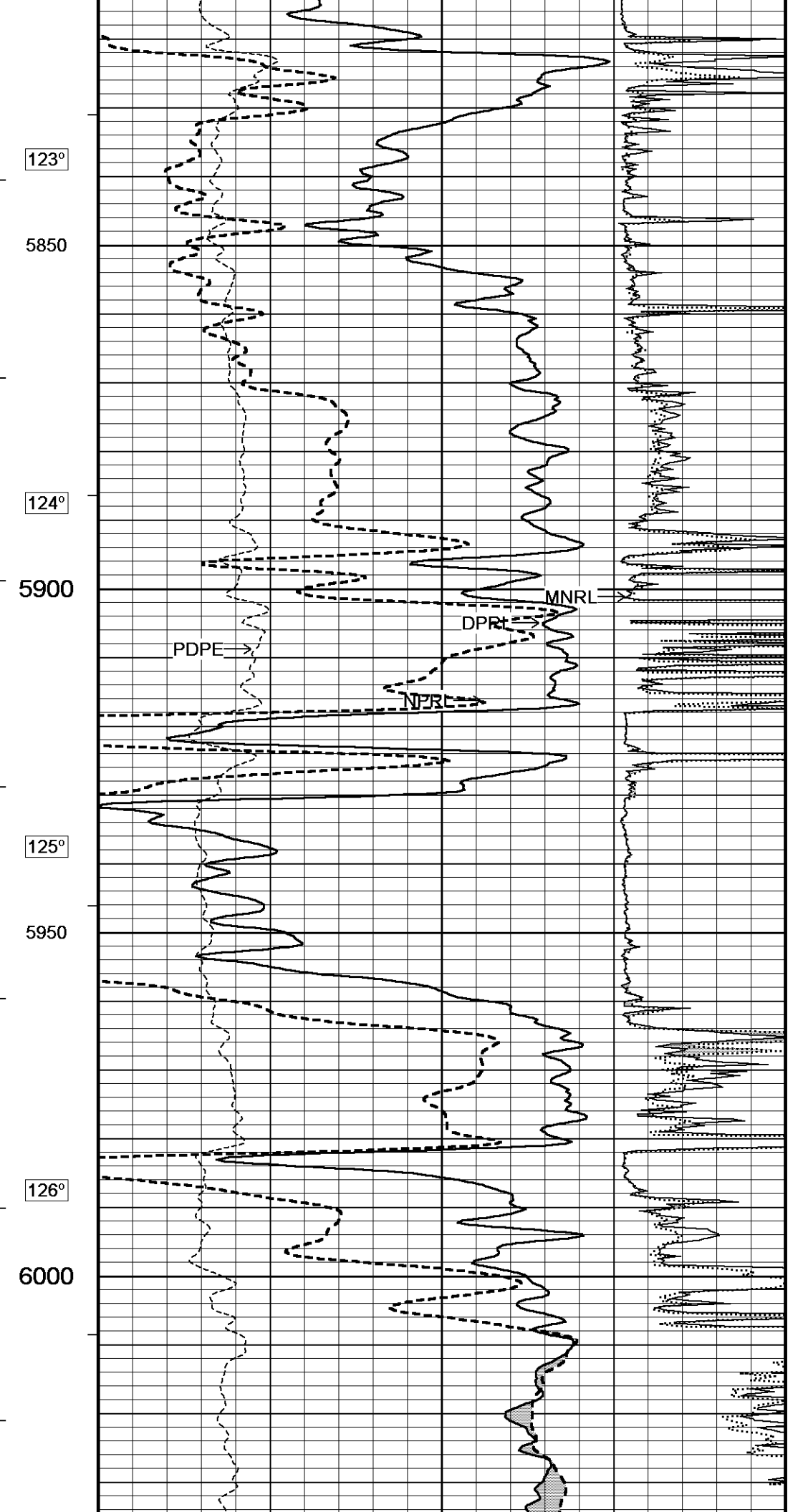
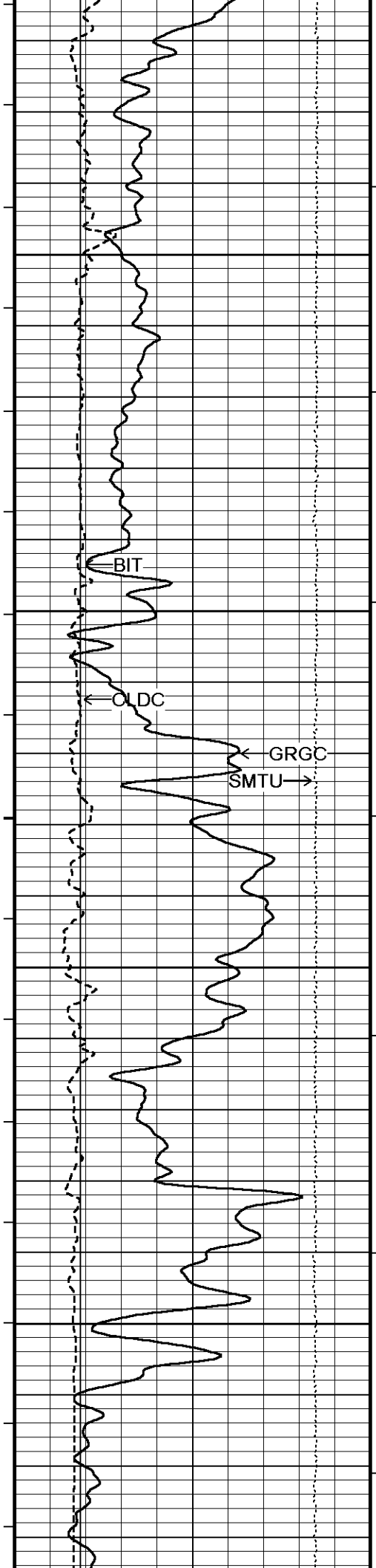
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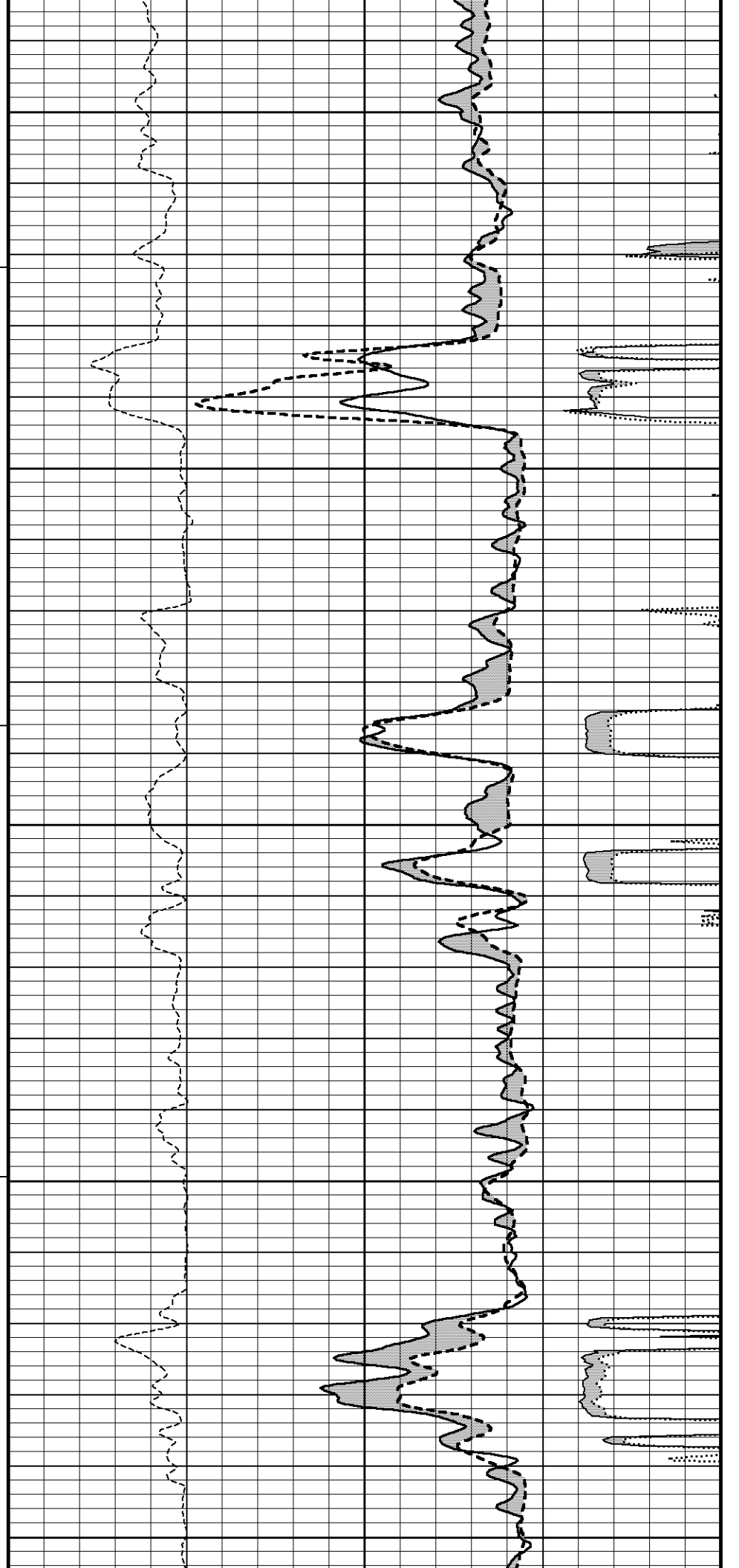
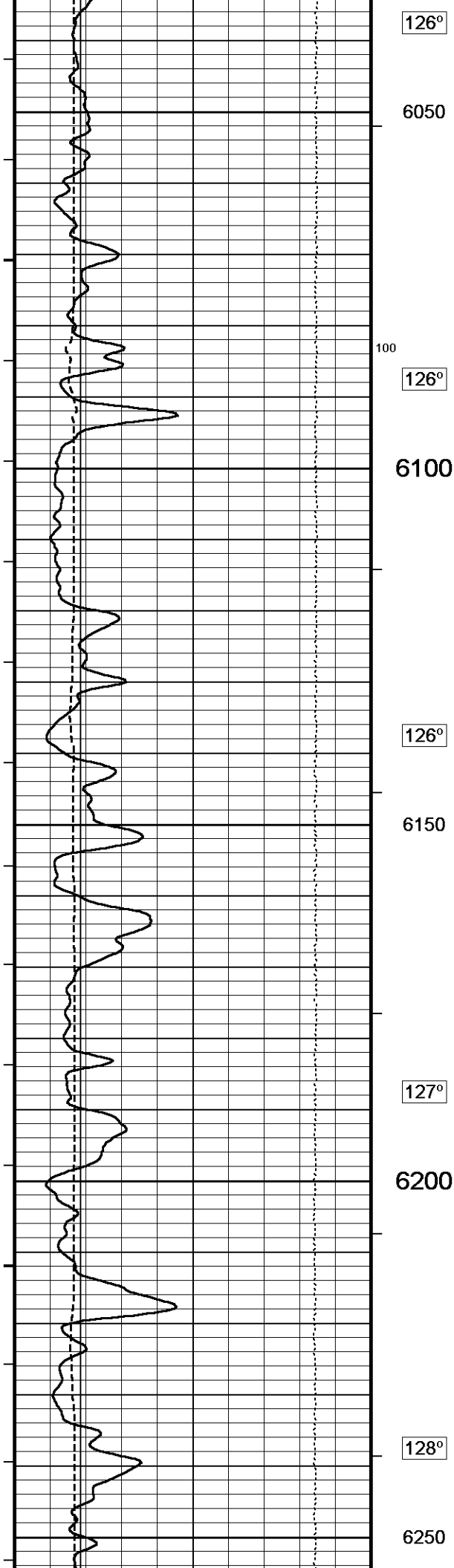
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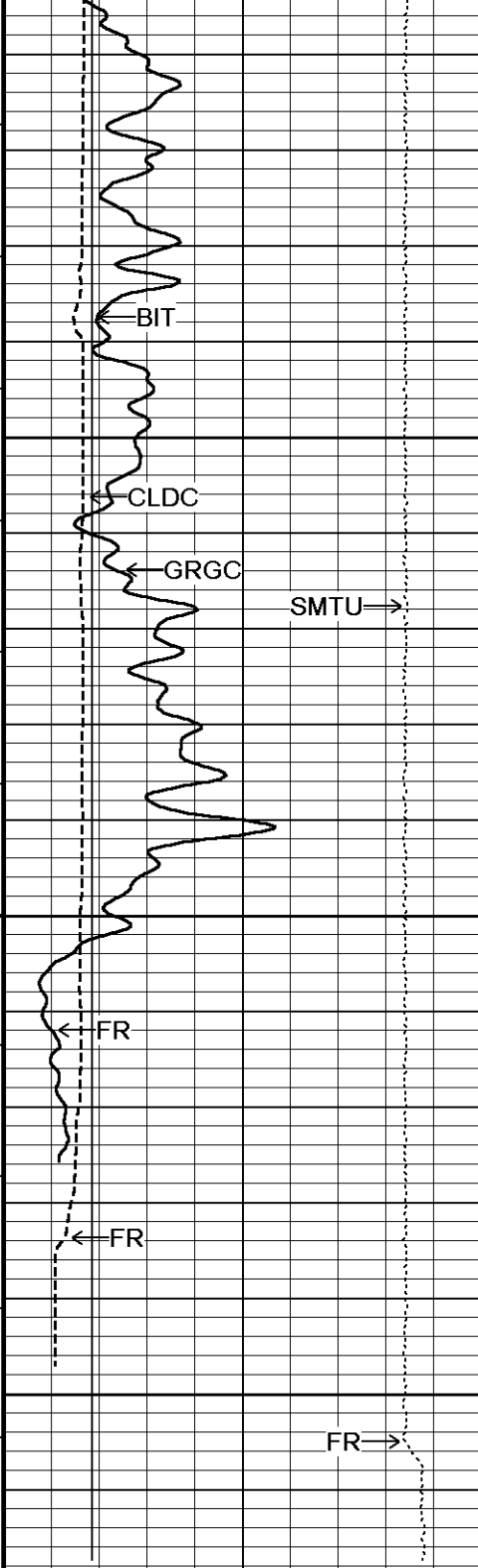
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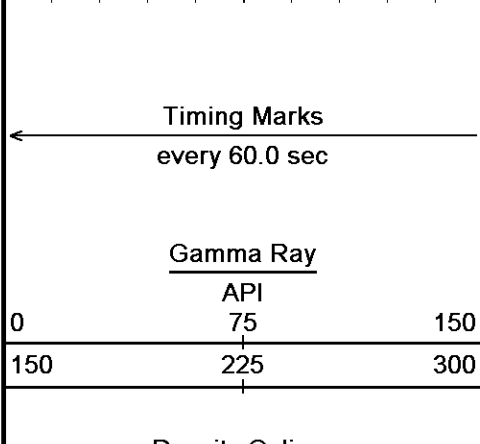
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6300

129°

6350

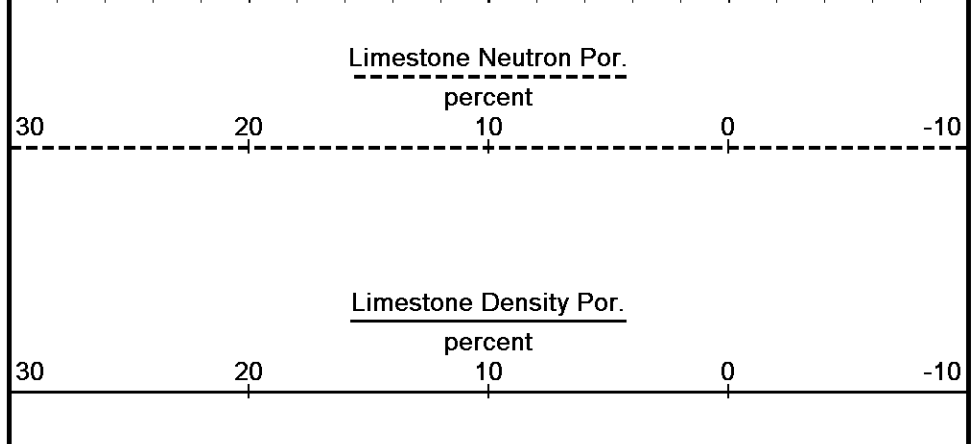
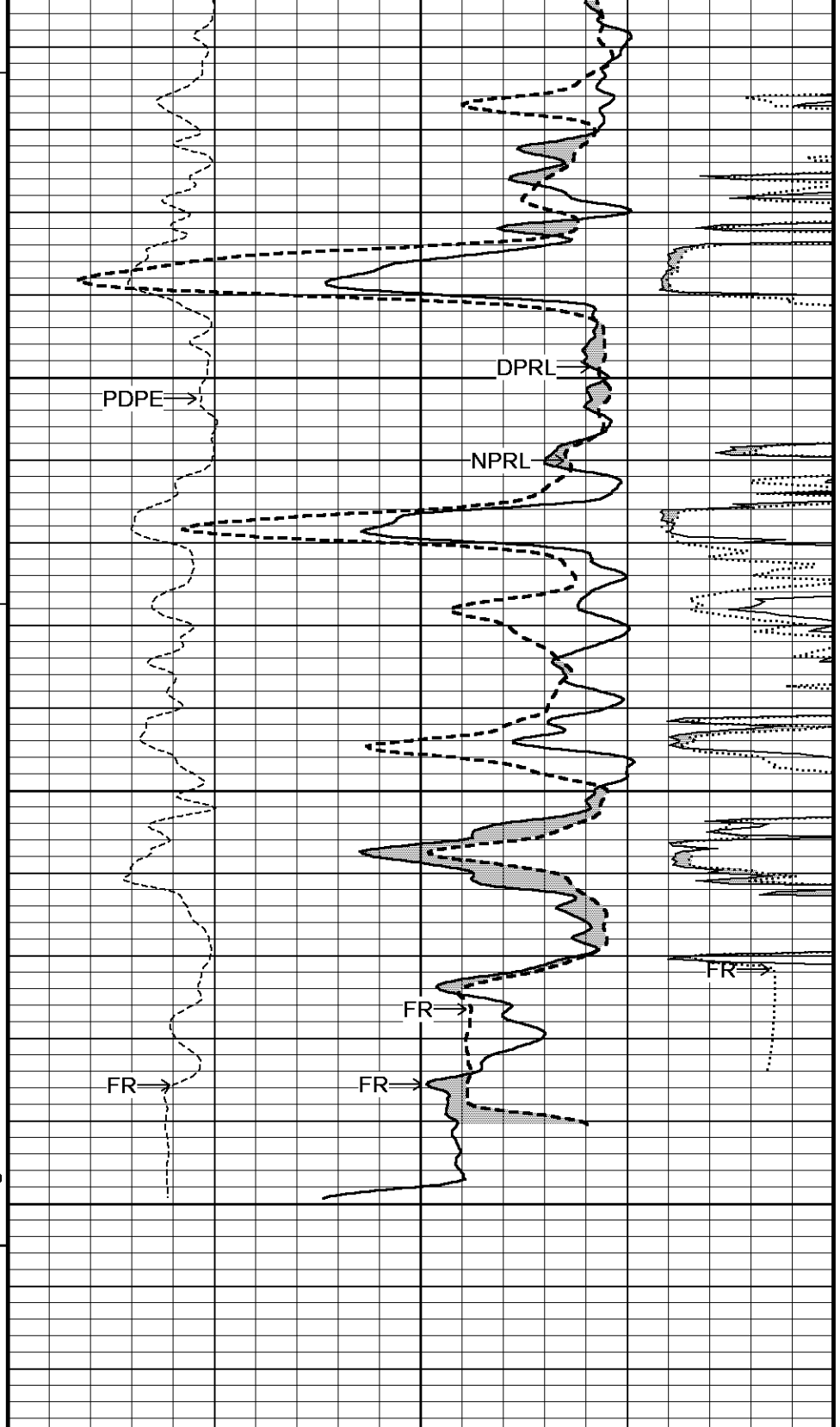
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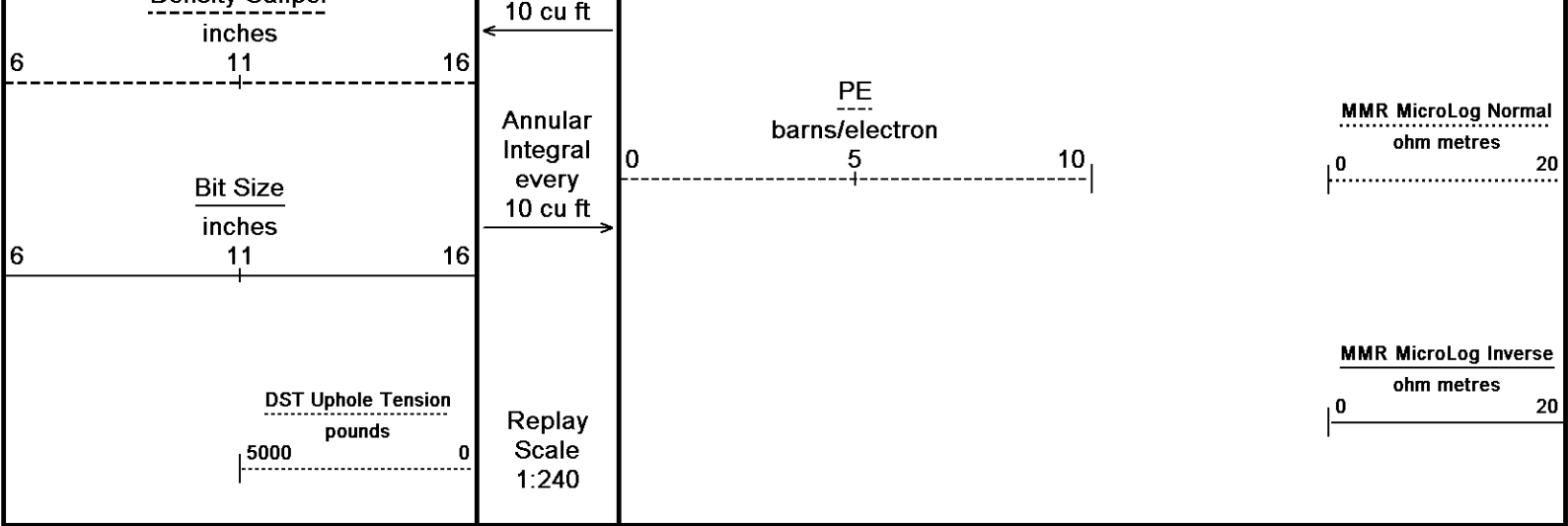


Depth
in
Feet

Borehole
Temp in
deg F

HVI
every





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 27-OCT-2014 09:08

Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resourc...\O'Brien Resources Angell #2-13_003.dta

Recorded on 27-OCT-2014 04:40

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558

↑ REPEAT SECTION ↑

↓ 5 INCH MAIN ↓

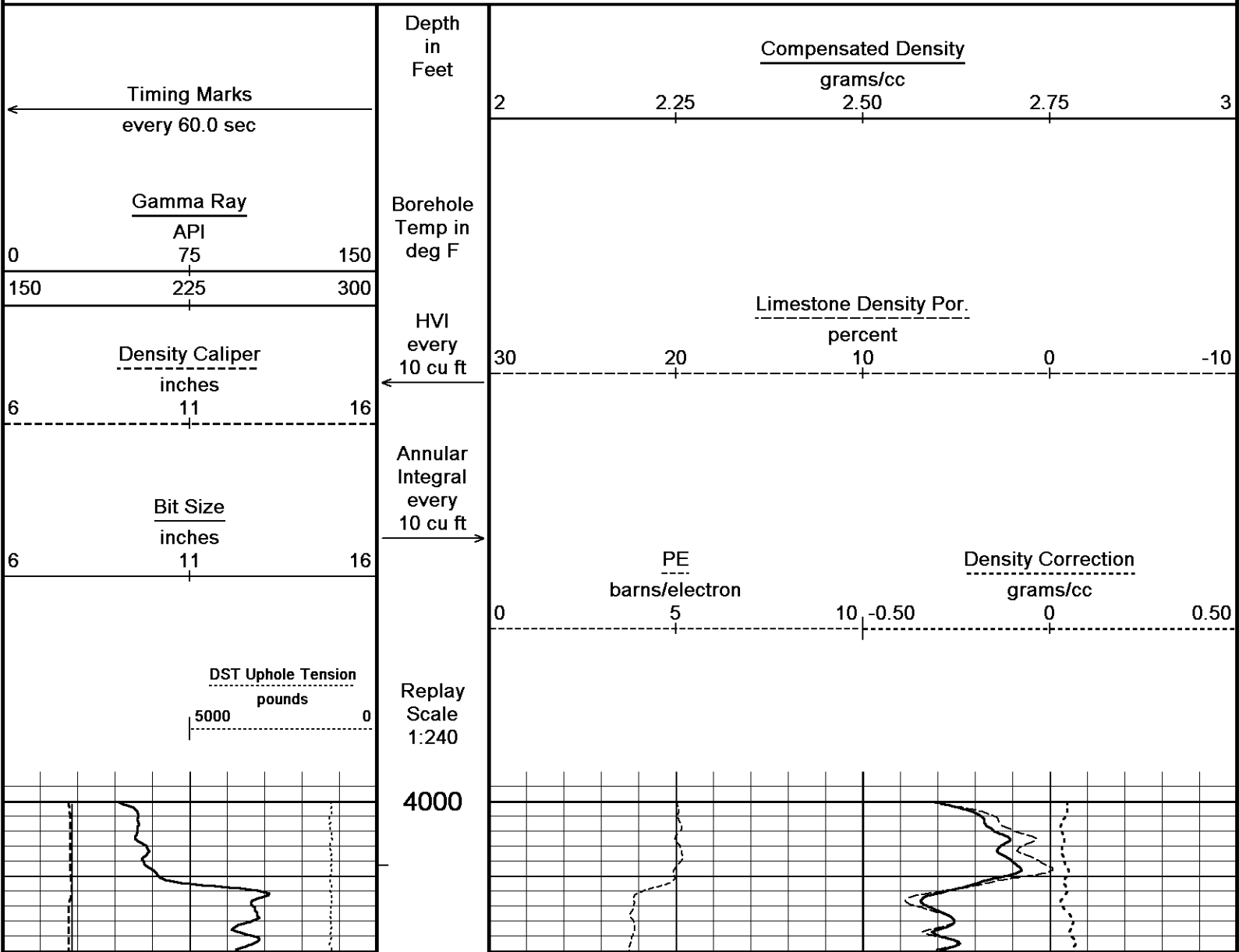
Depth Based Data - Maximum Sampling Increment 10.0cm

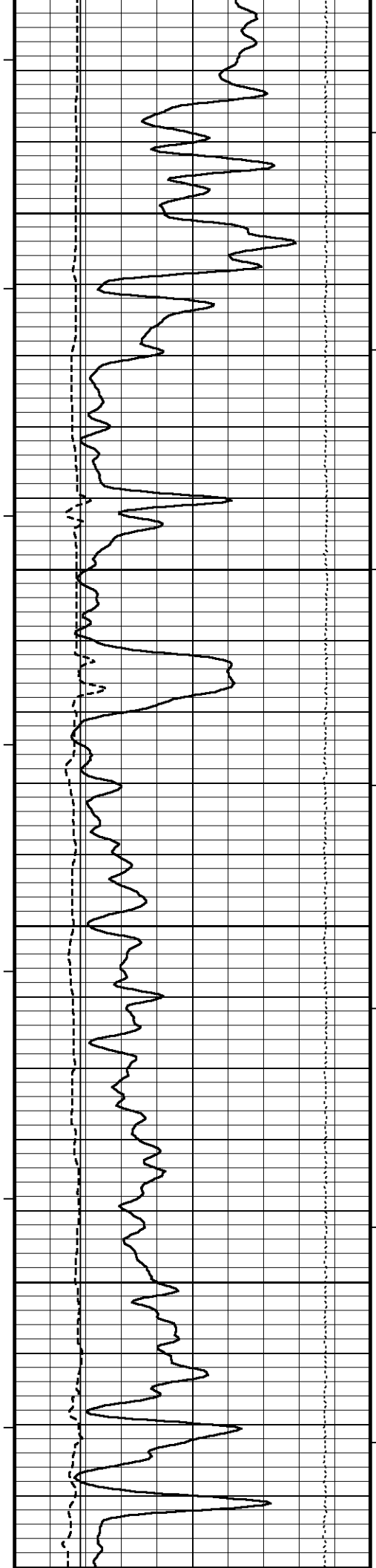
Plotted on 27-OCT-2014 09:08

Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resourc...\O'Brien Resources Angell #2-13 Main.dta

Recorded on 27-OCT-2014 06:10

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558





112°

4050

113°

4100

500

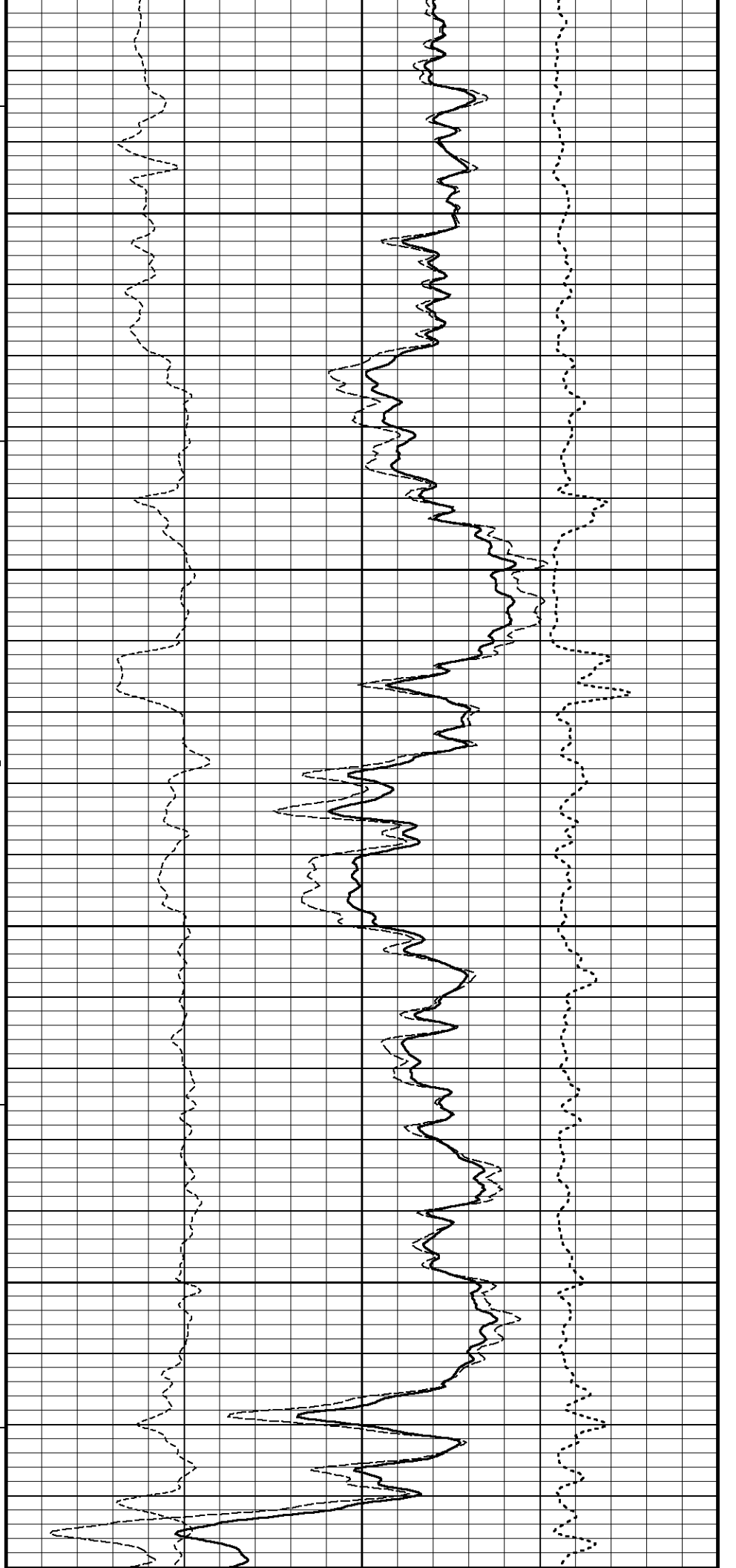
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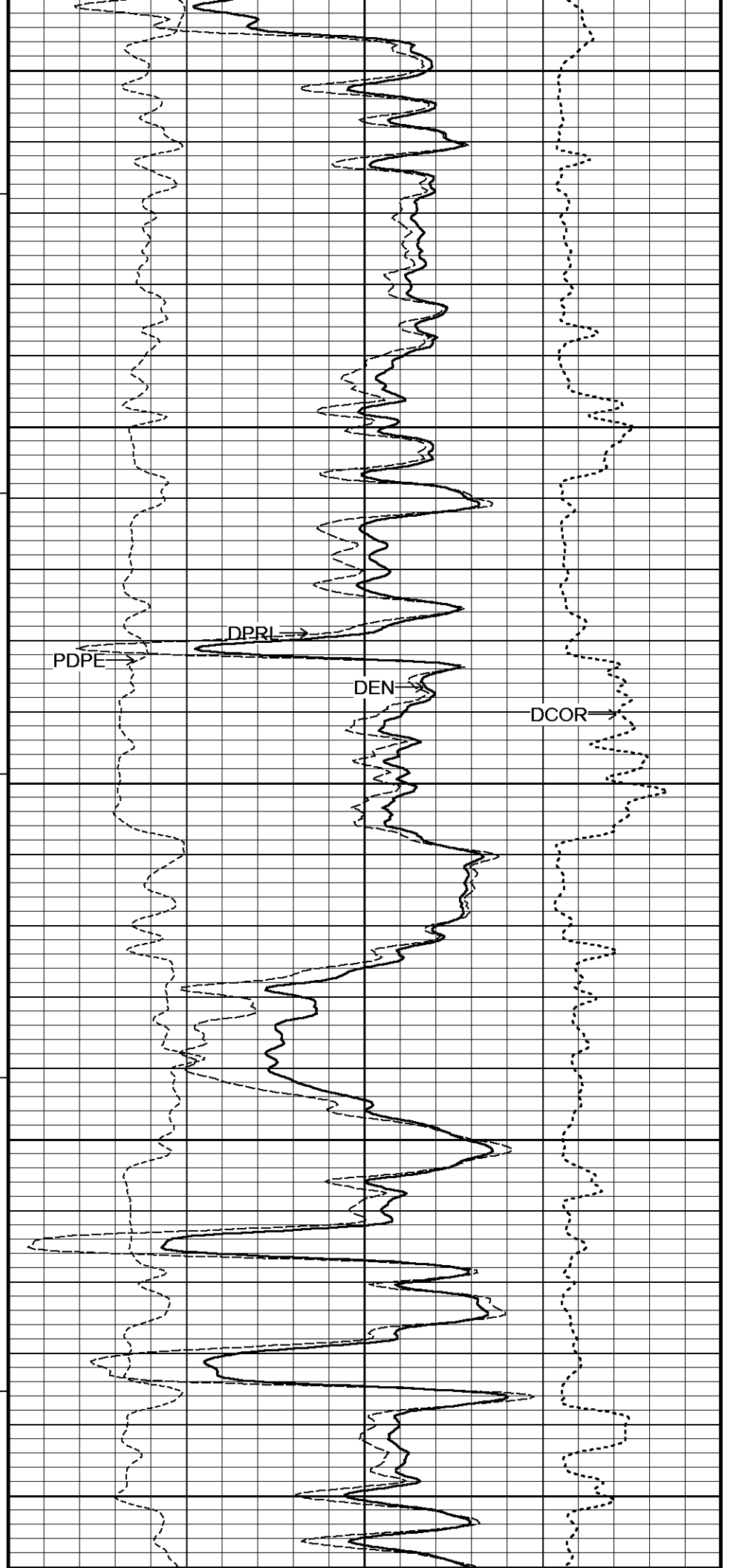
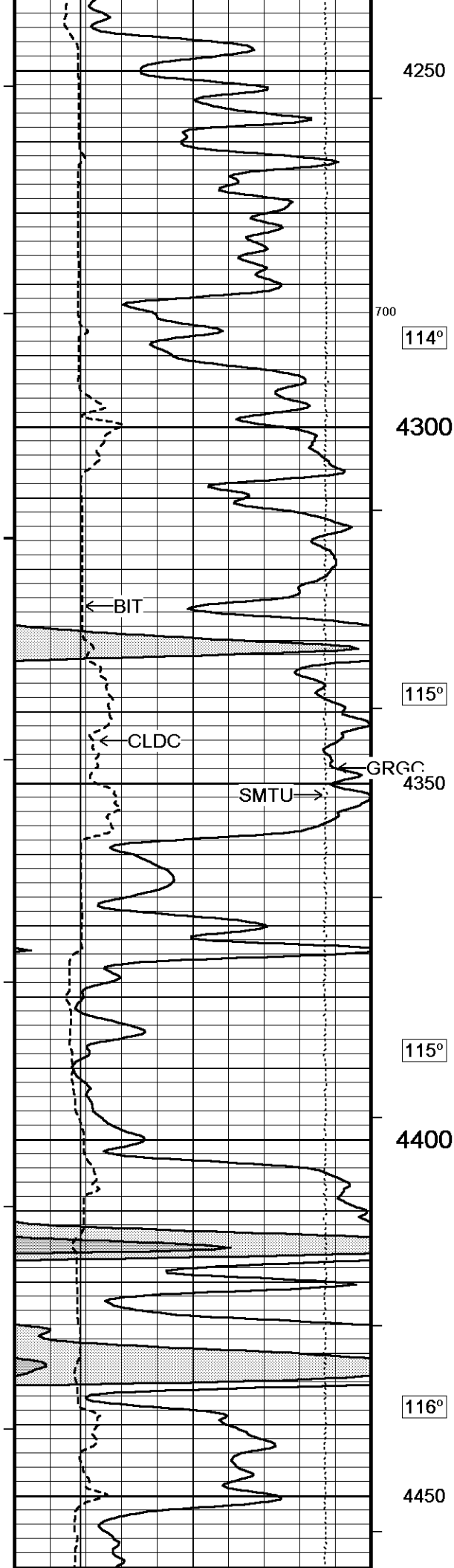
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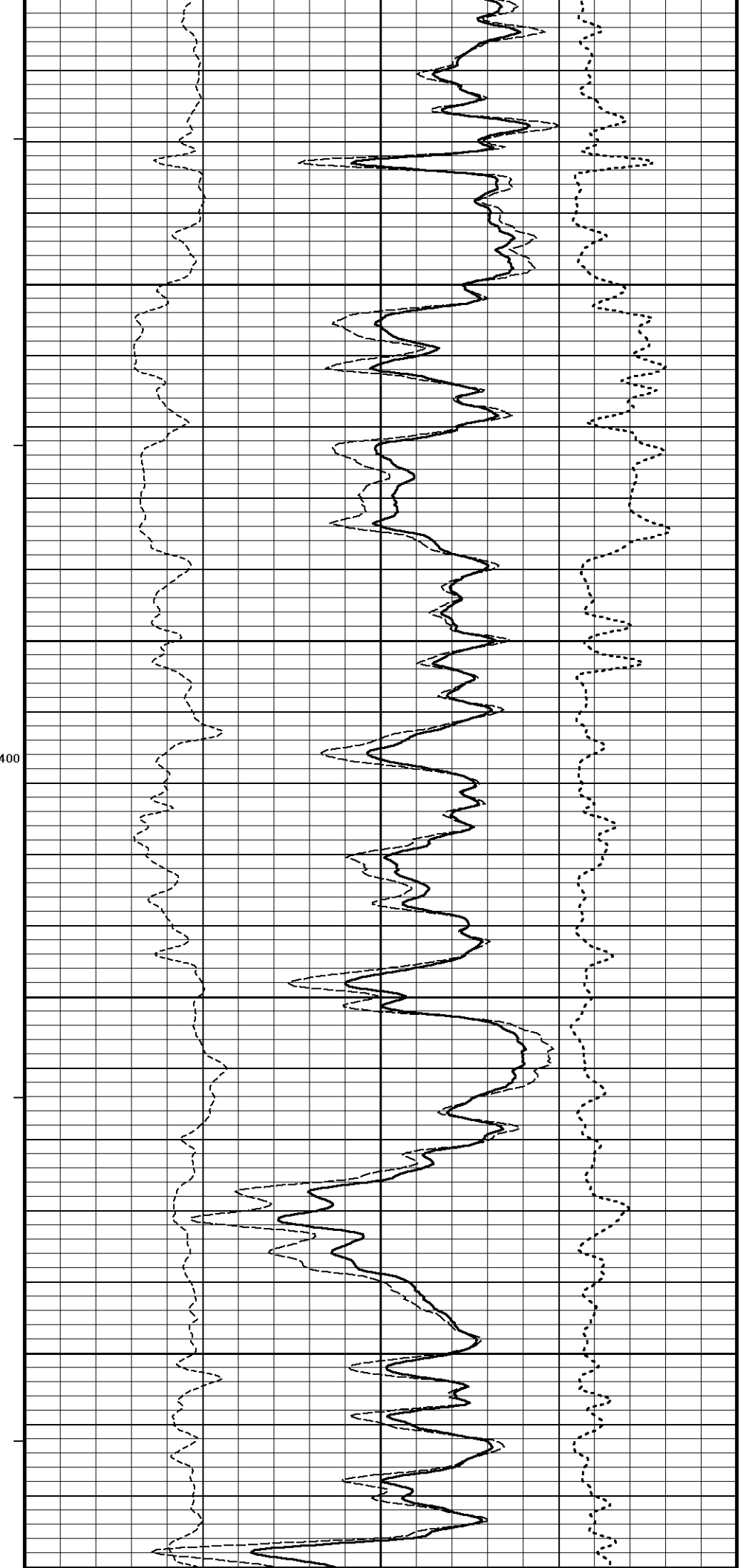
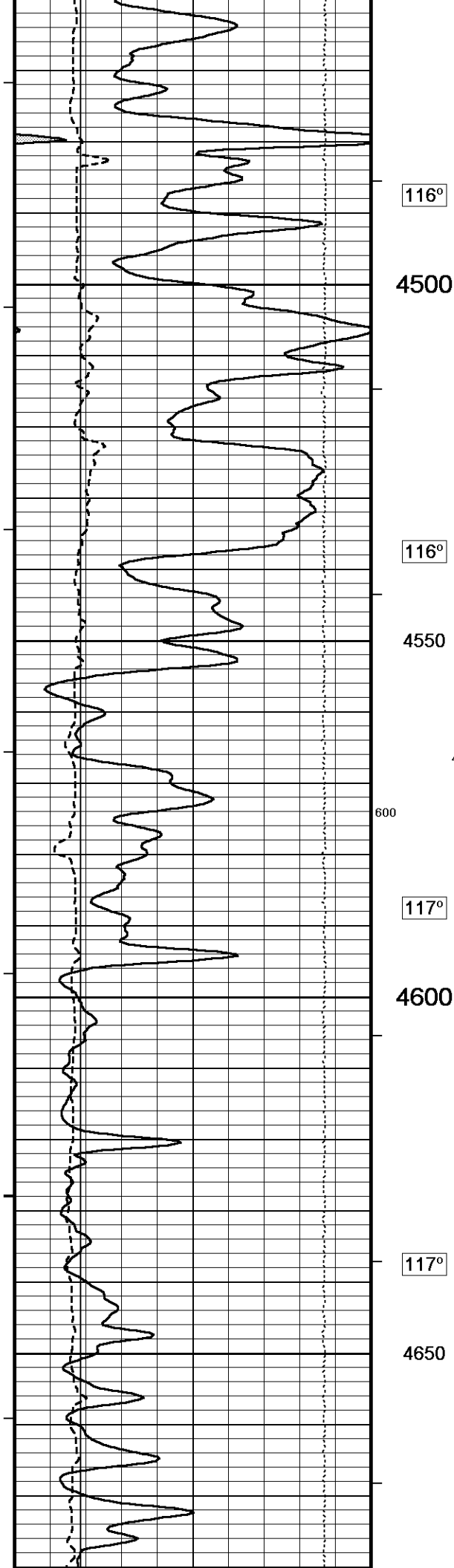
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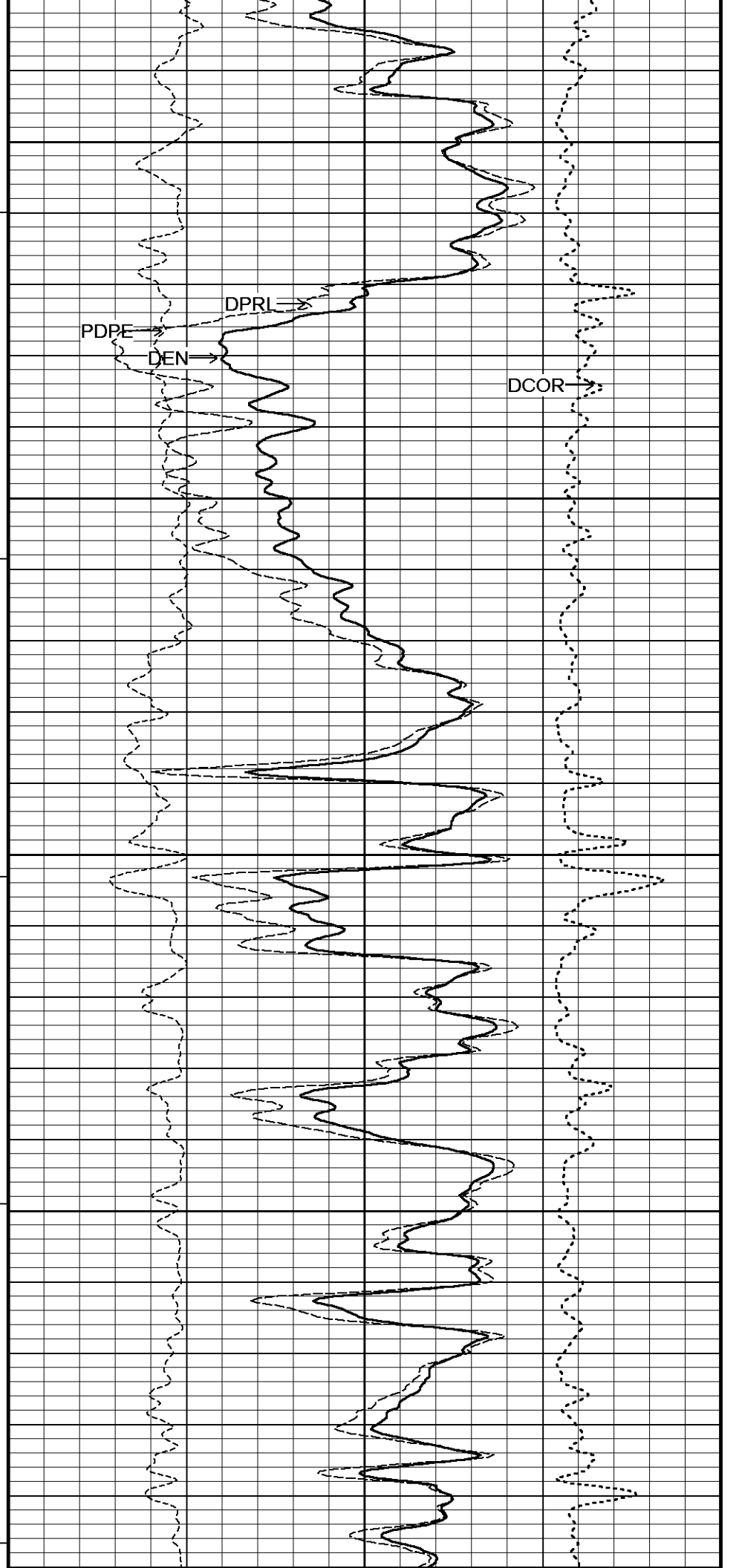
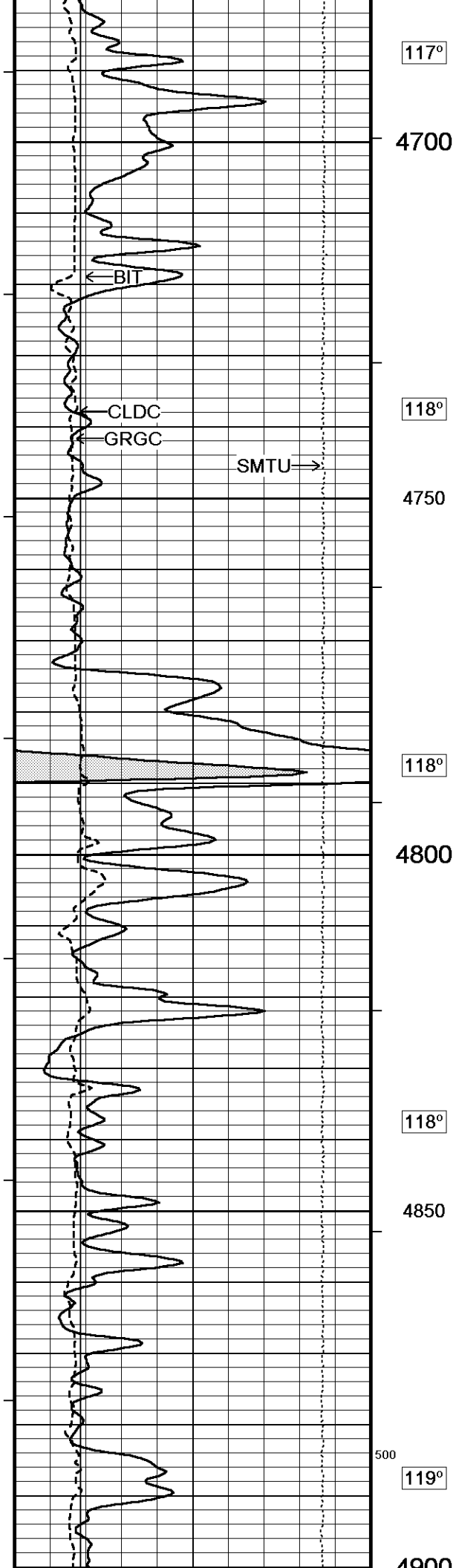
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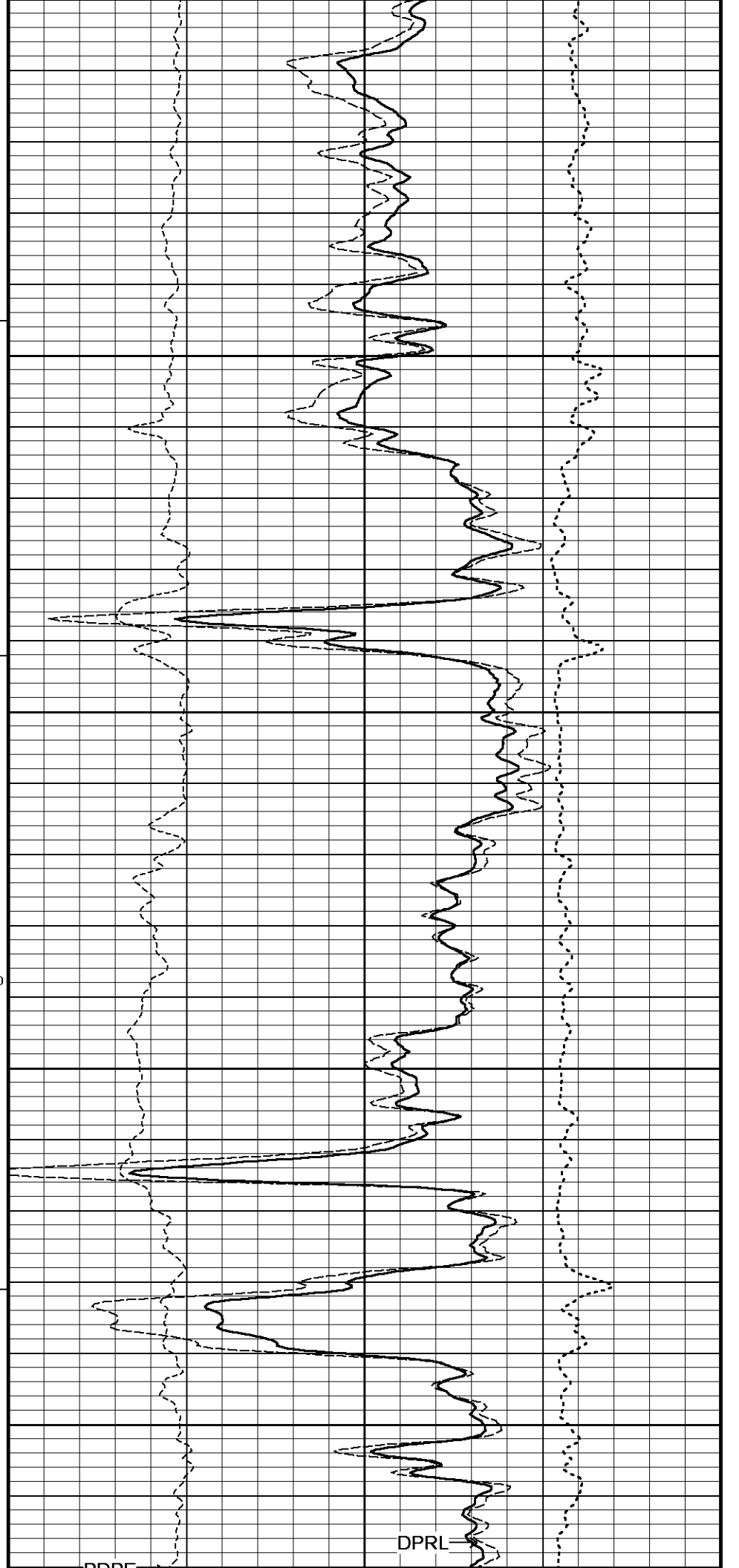
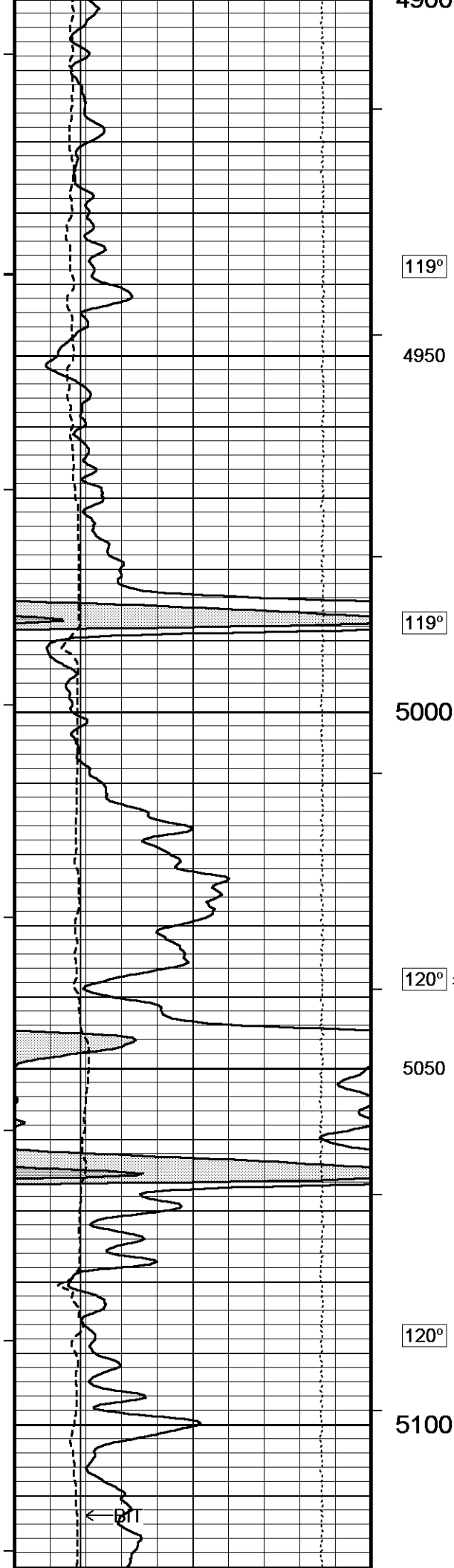
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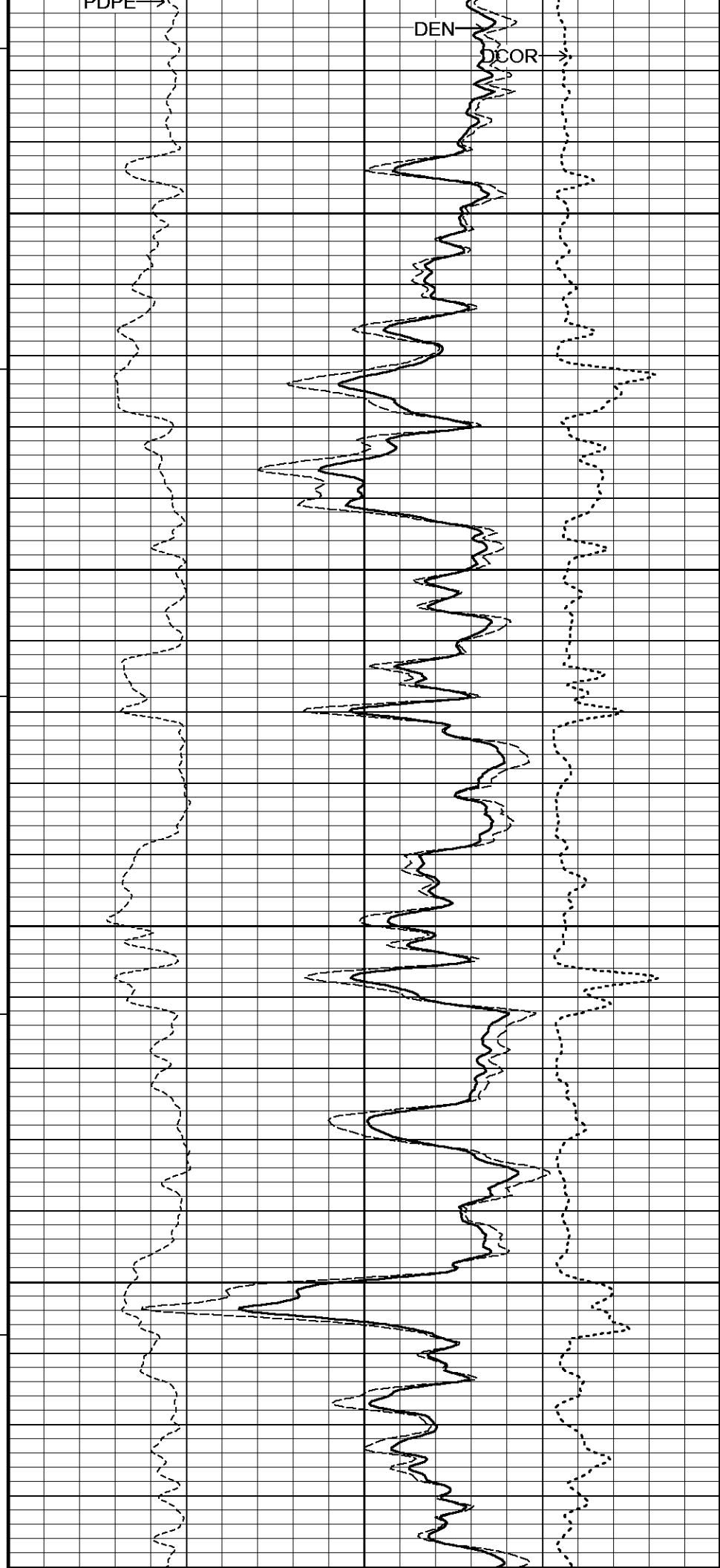
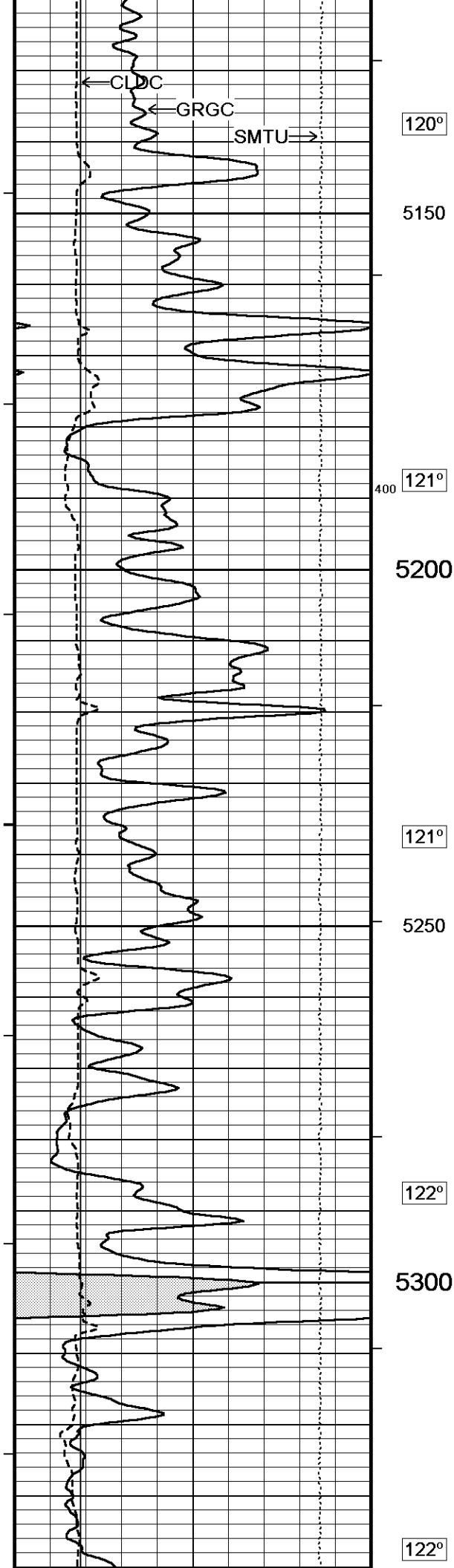


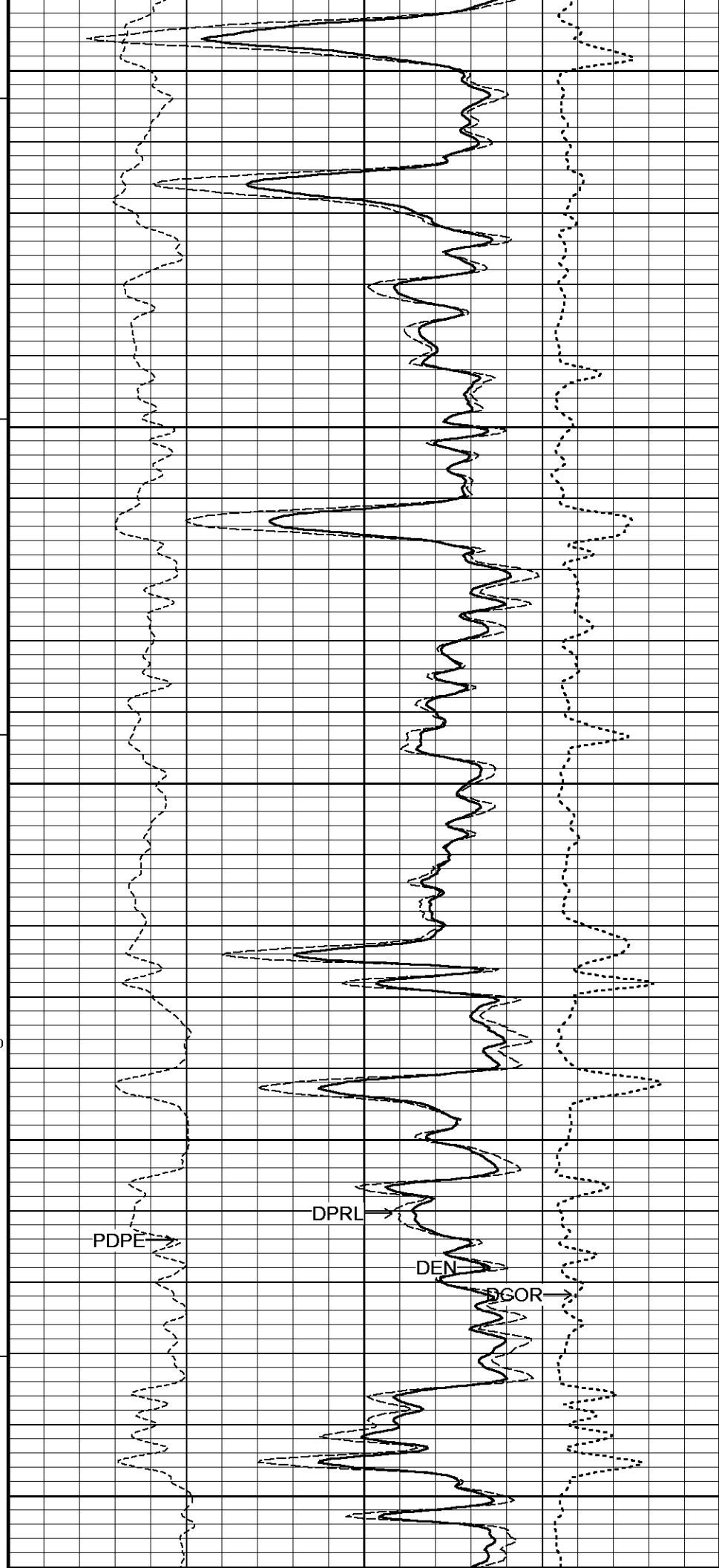
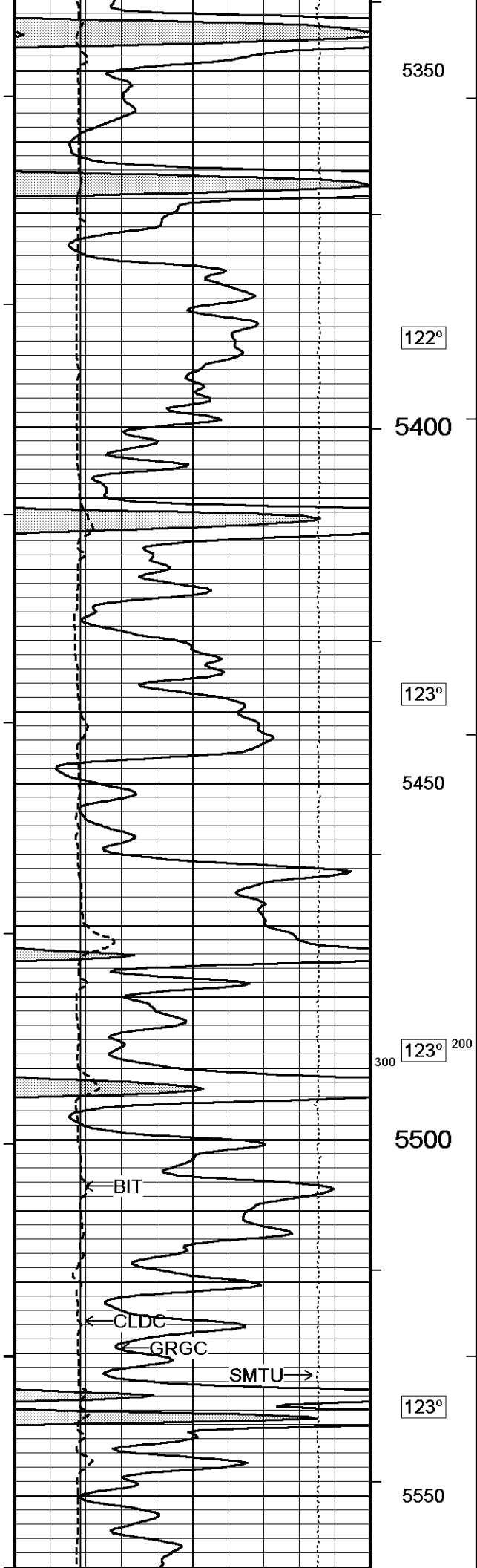


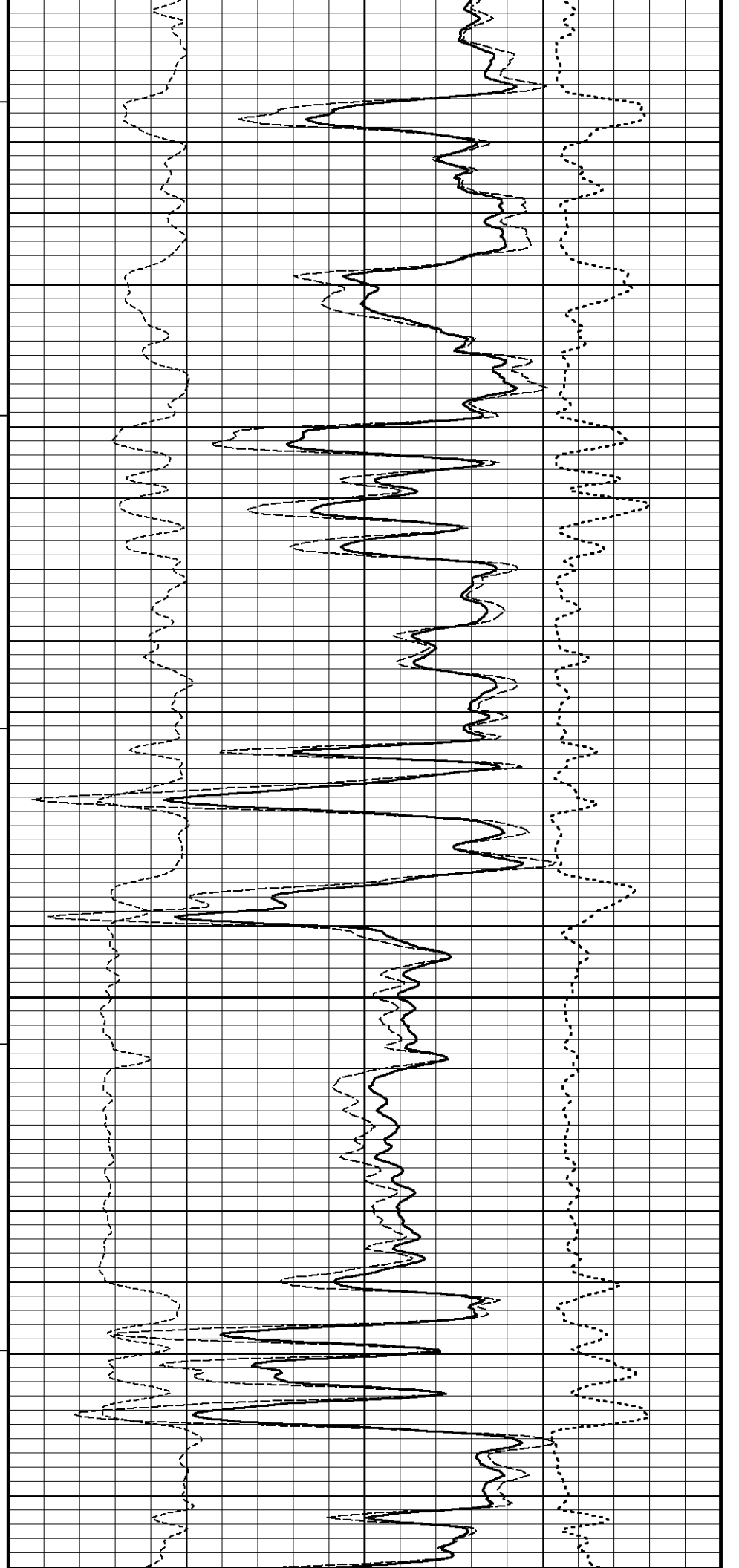
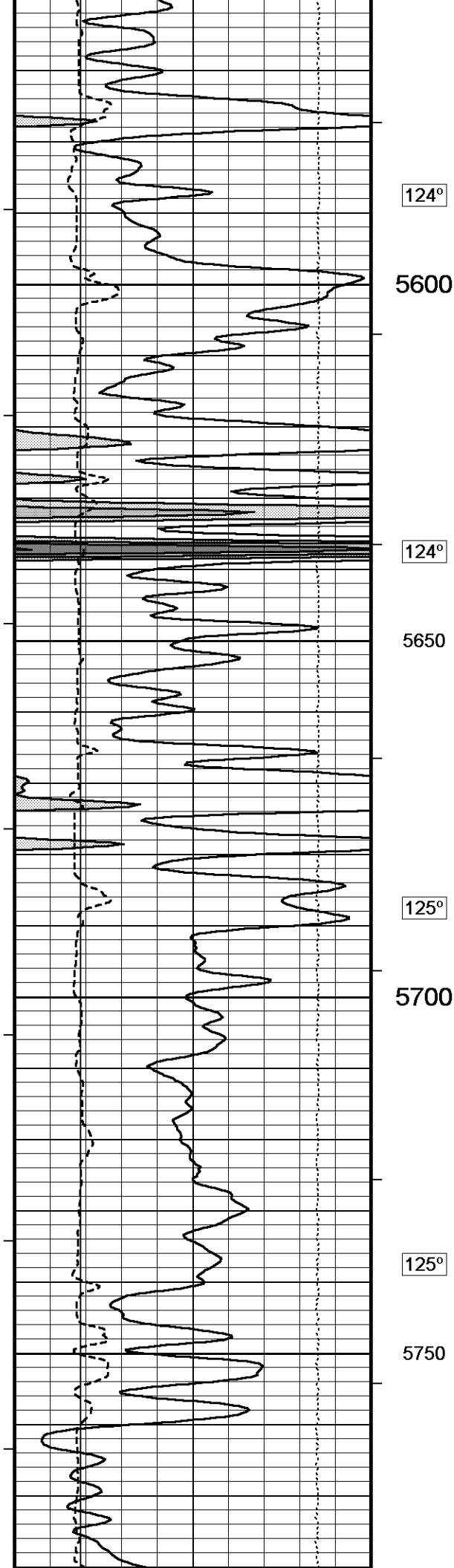


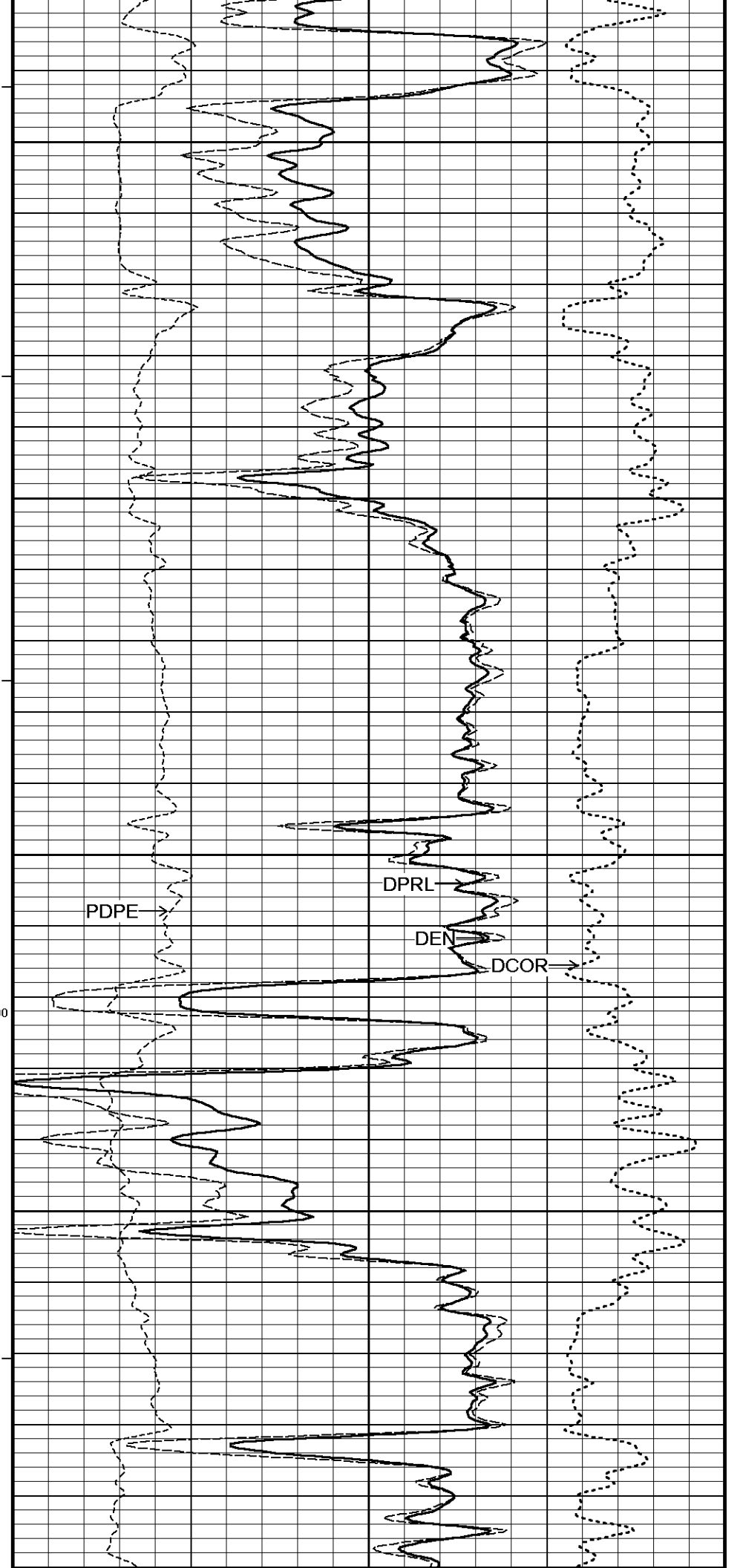
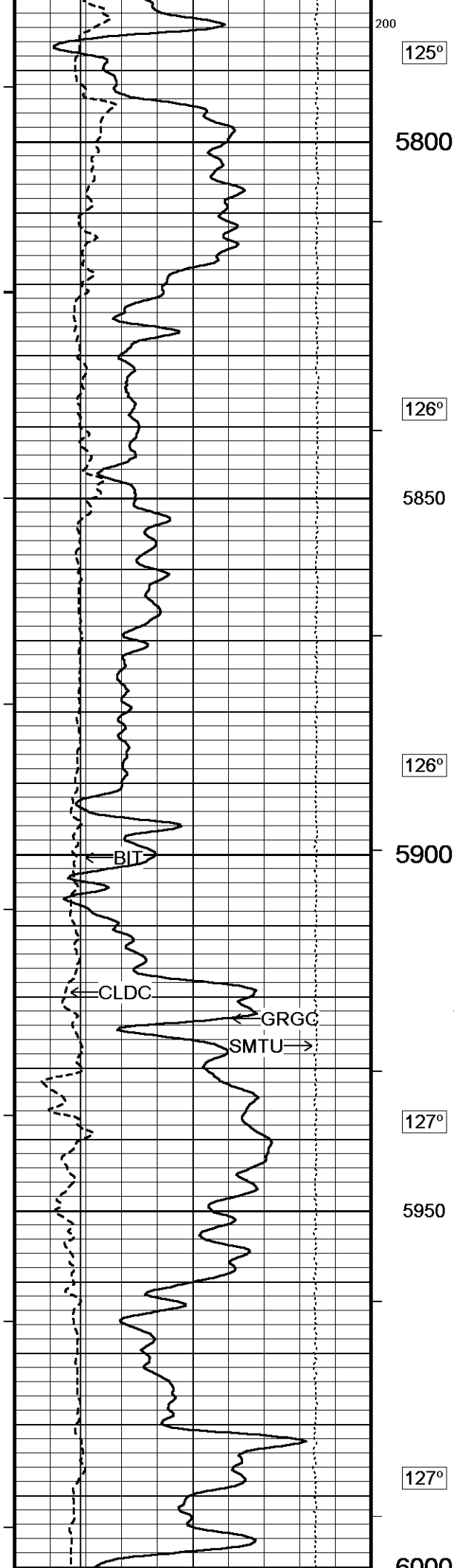


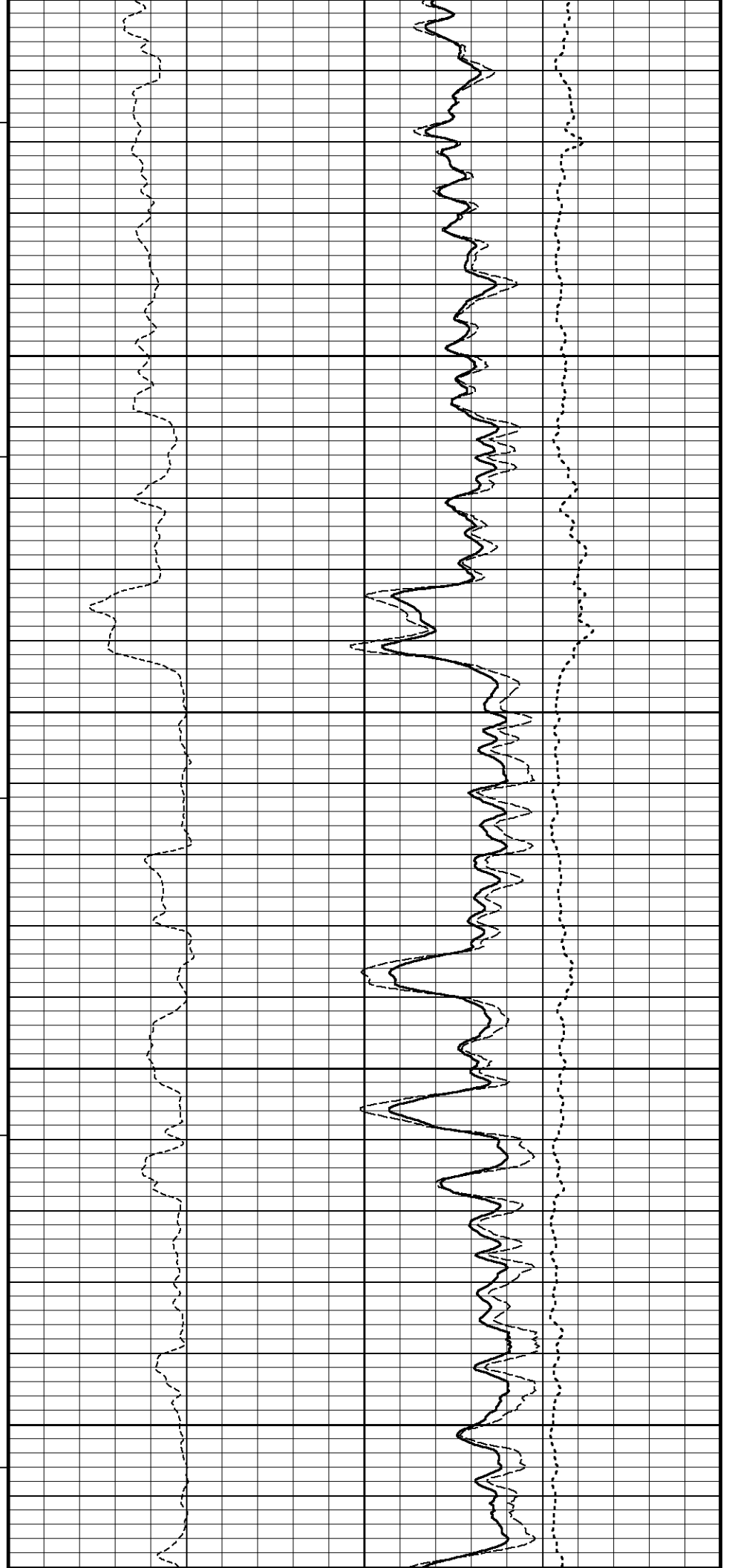
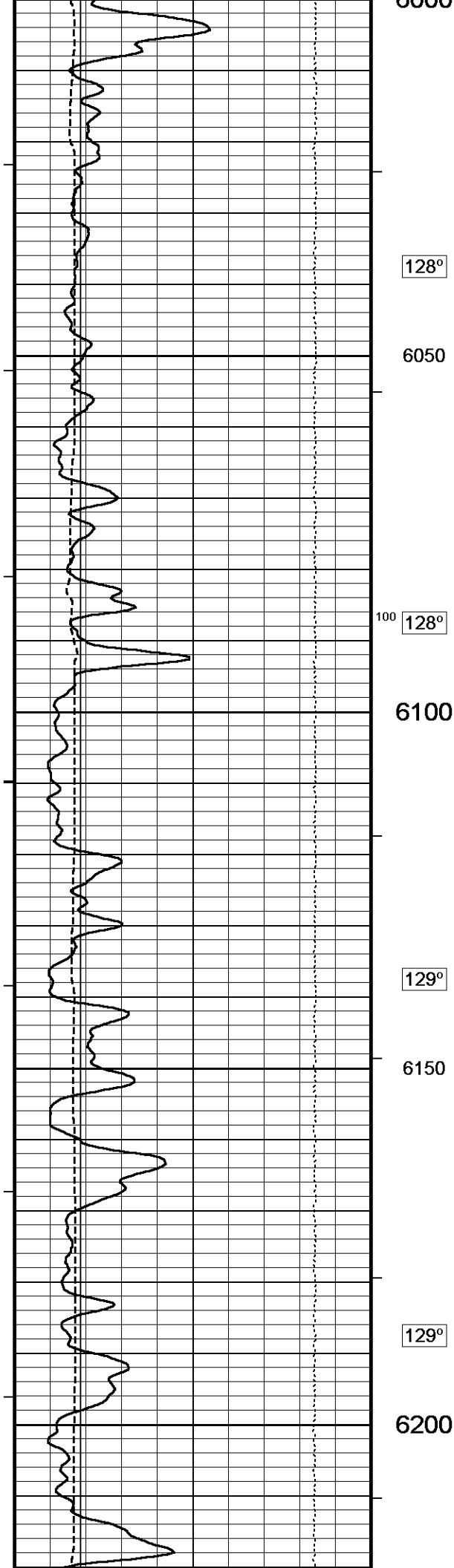


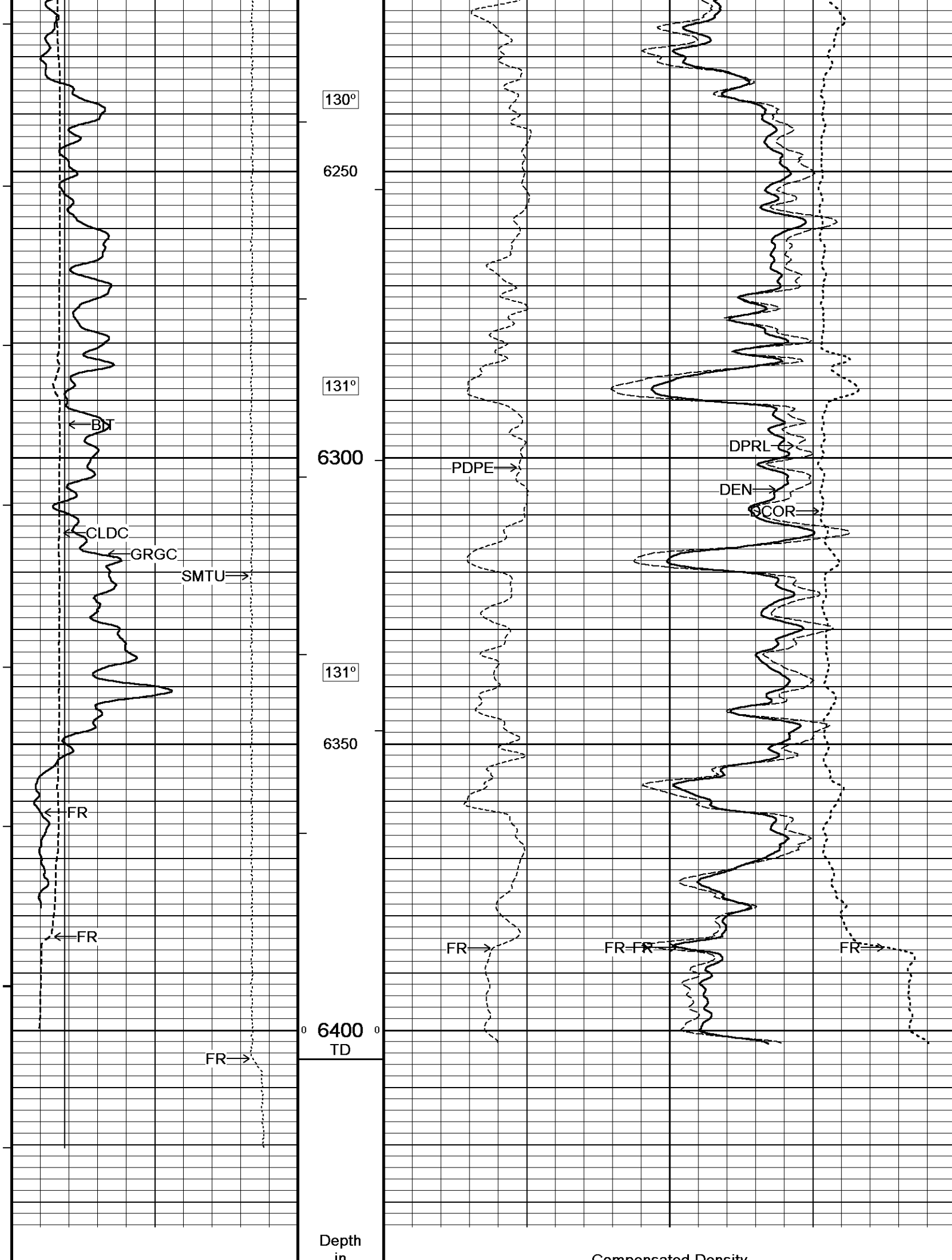


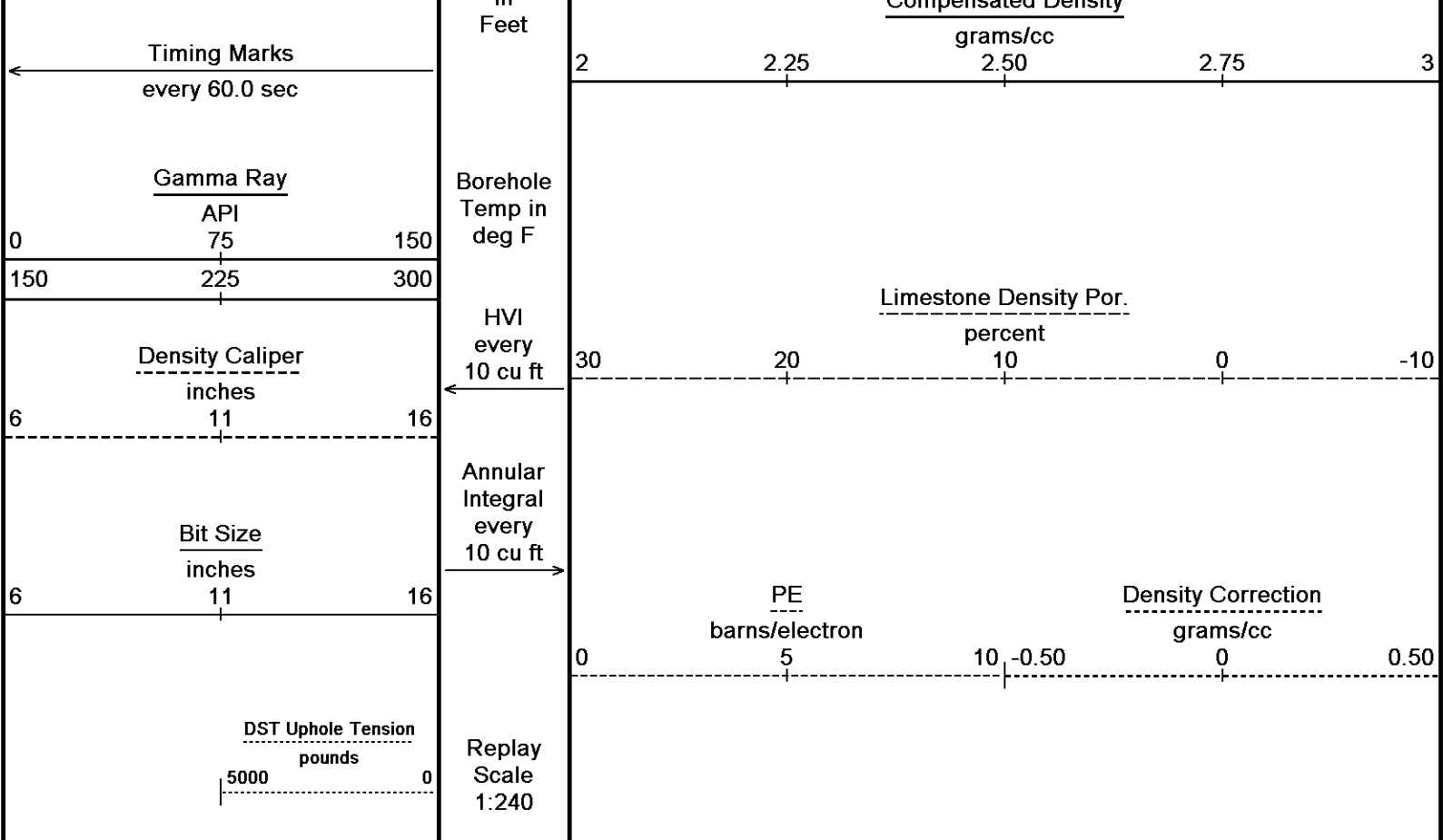












Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 27-OCT-2014 09:08

Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resour...\O'Brien Resources Angell #2-13 Main.dta

Recorded on 27-OCT-2014 06:10

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558

5 INCH MAIN

10 INCH HIGH RESOLUTION

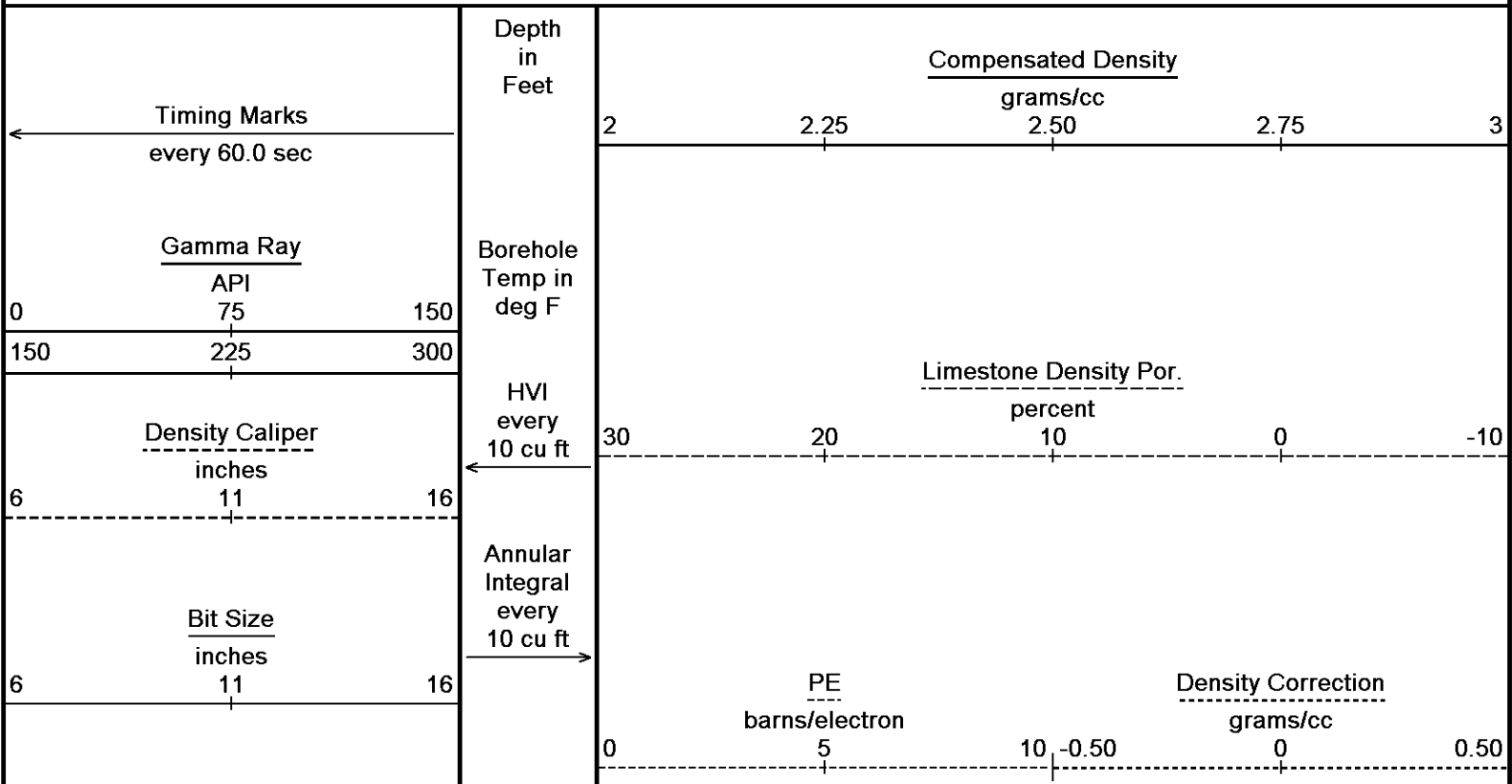
Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 27-OCT-2014 09:08

Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resour...\O'Brien Resources Angell #2-13_002.dta

Recorded on 27-OCT-2014 04:40

System Versions: Logged with 14.03.4558 Plotted with 14.03.4558



DST Uphole Tension
pounds
5000 0

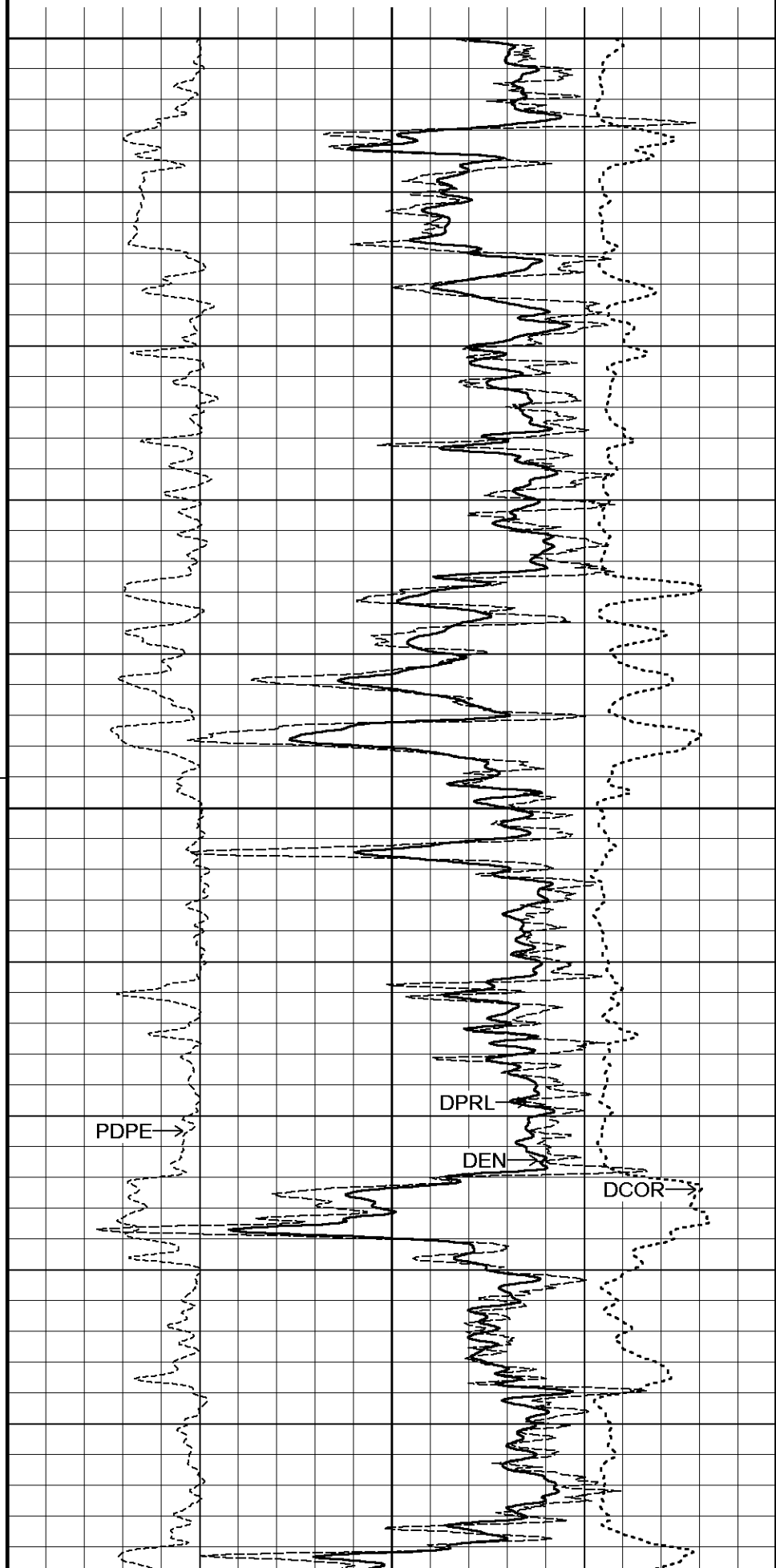
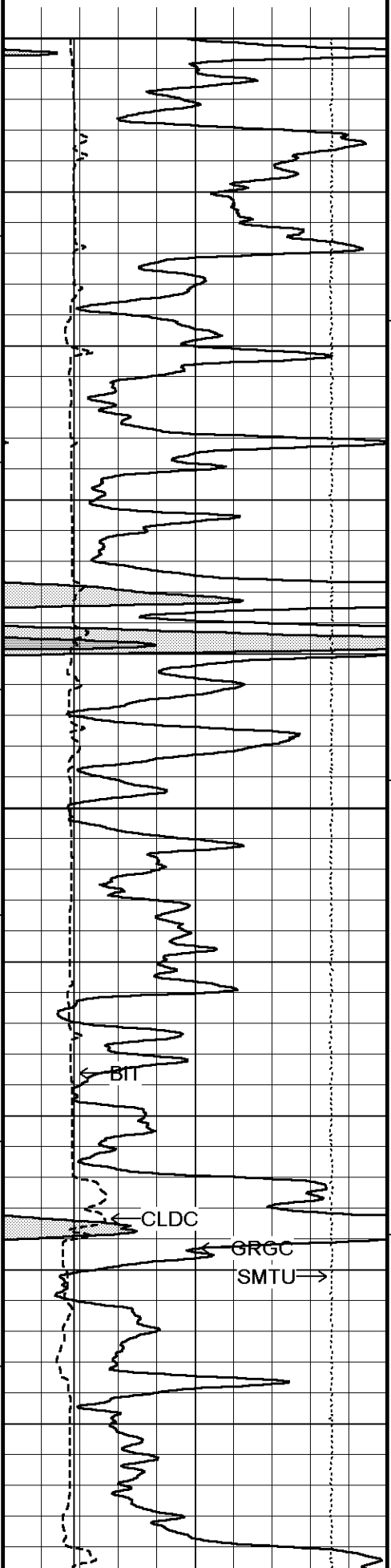
Replay
Scale
1:120

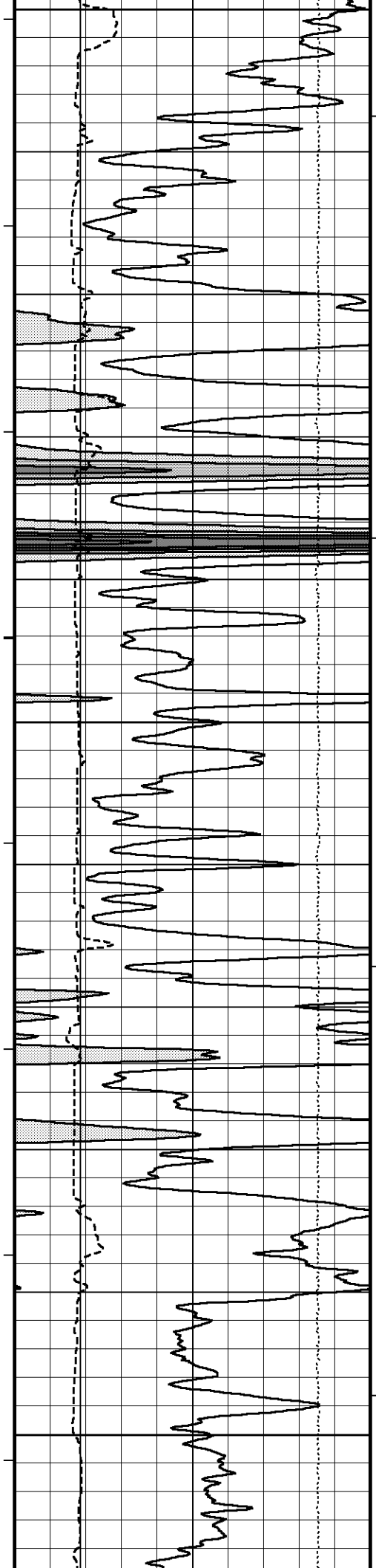
5500

122°

5550

123°





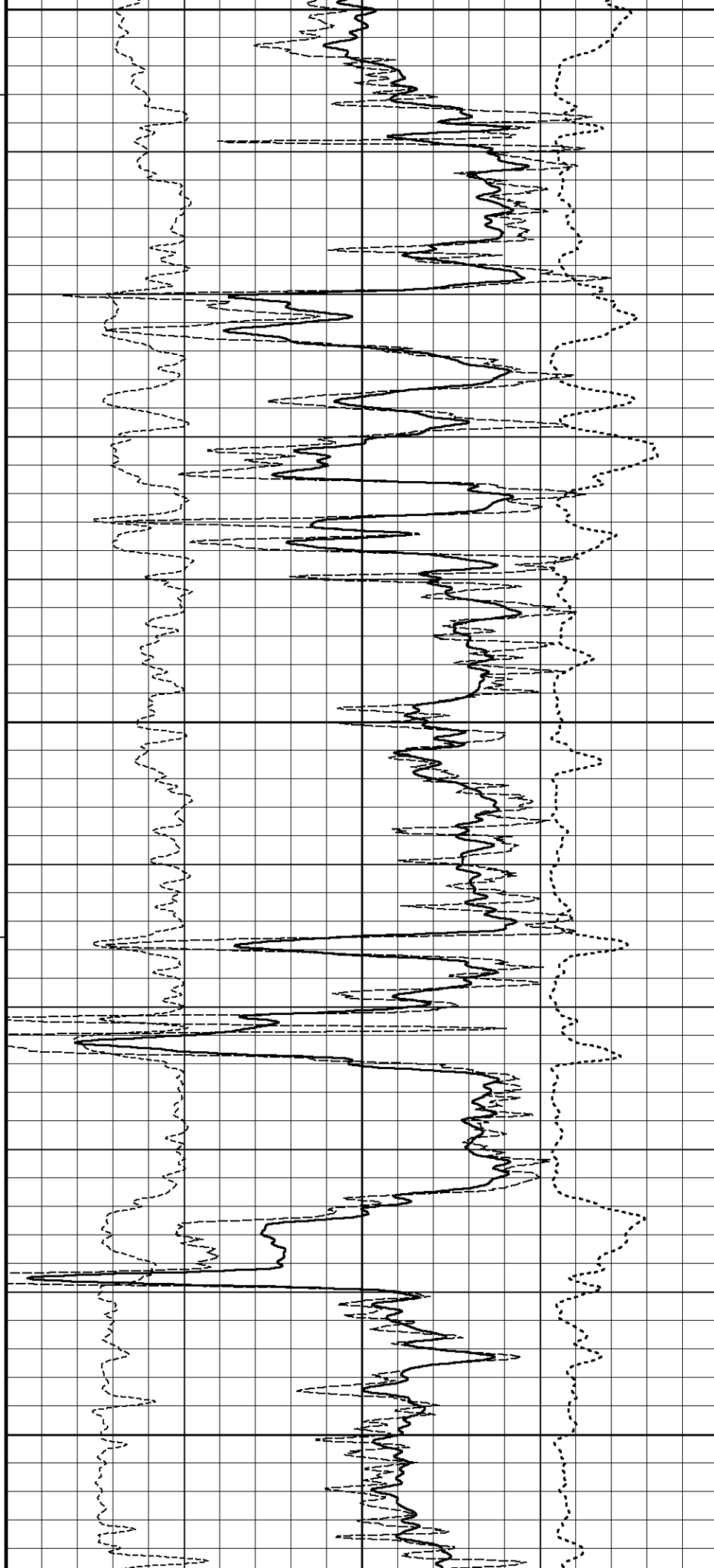
5600

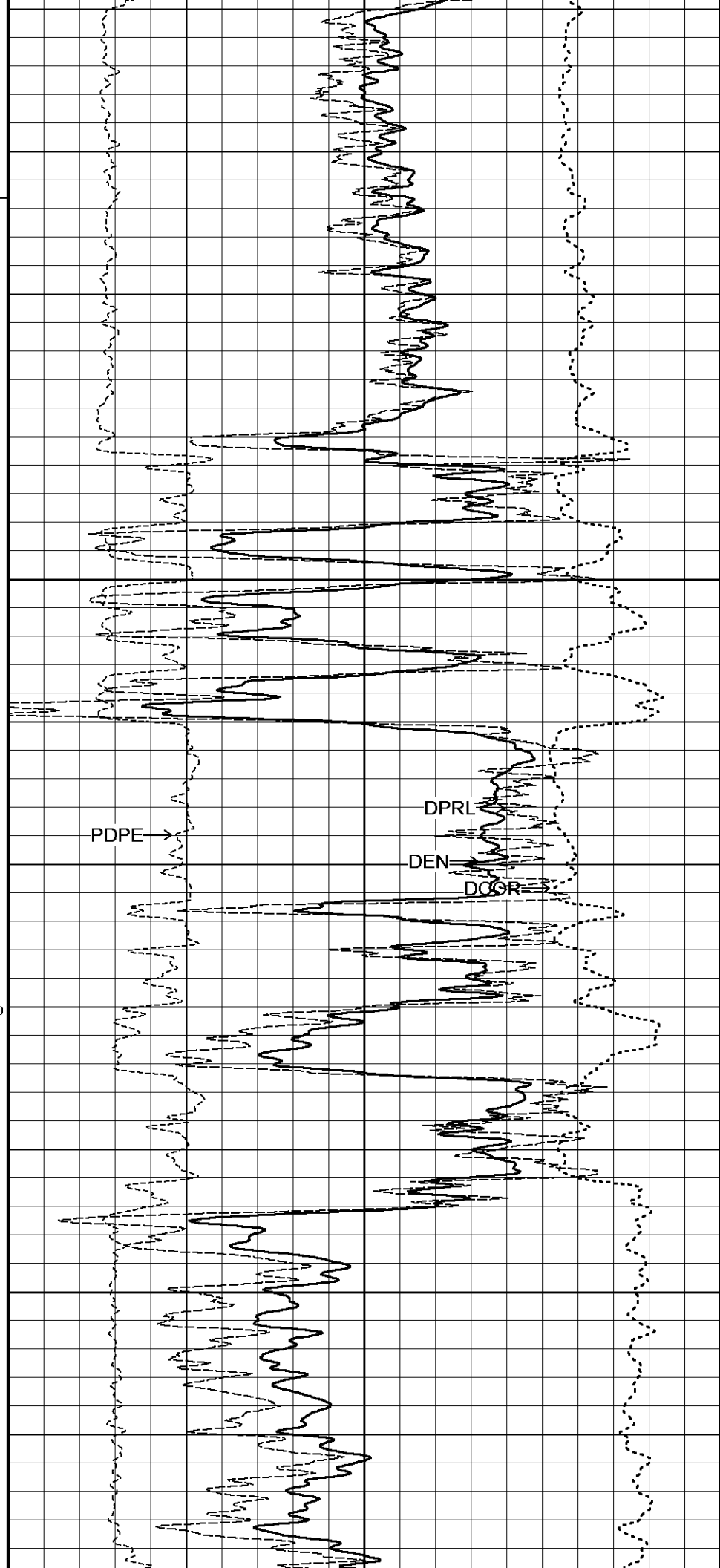
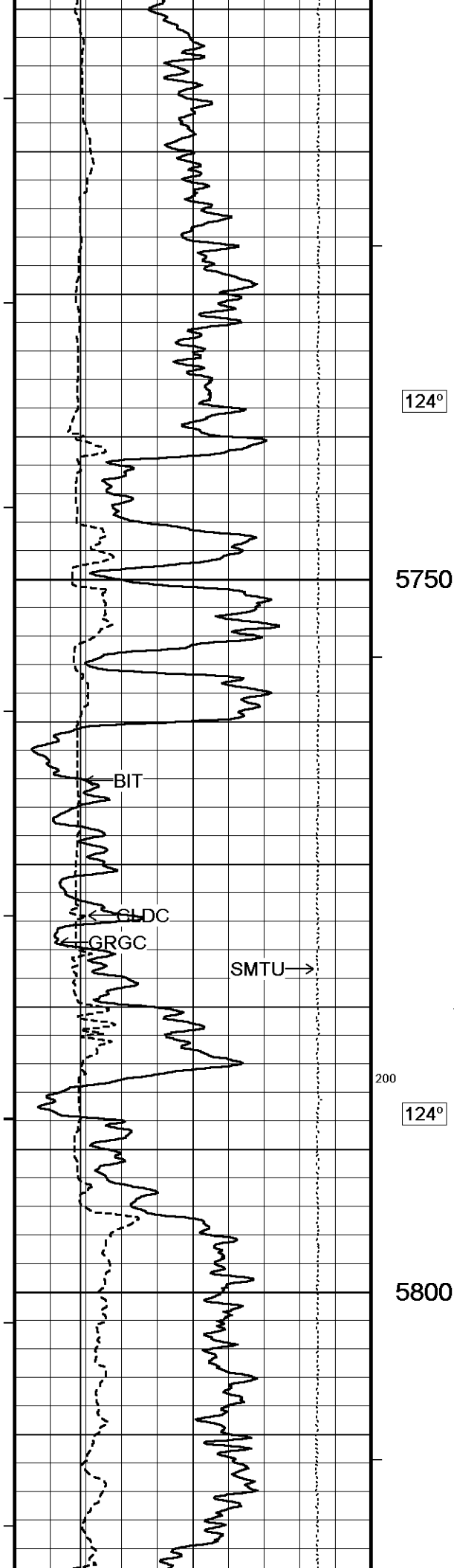
123°

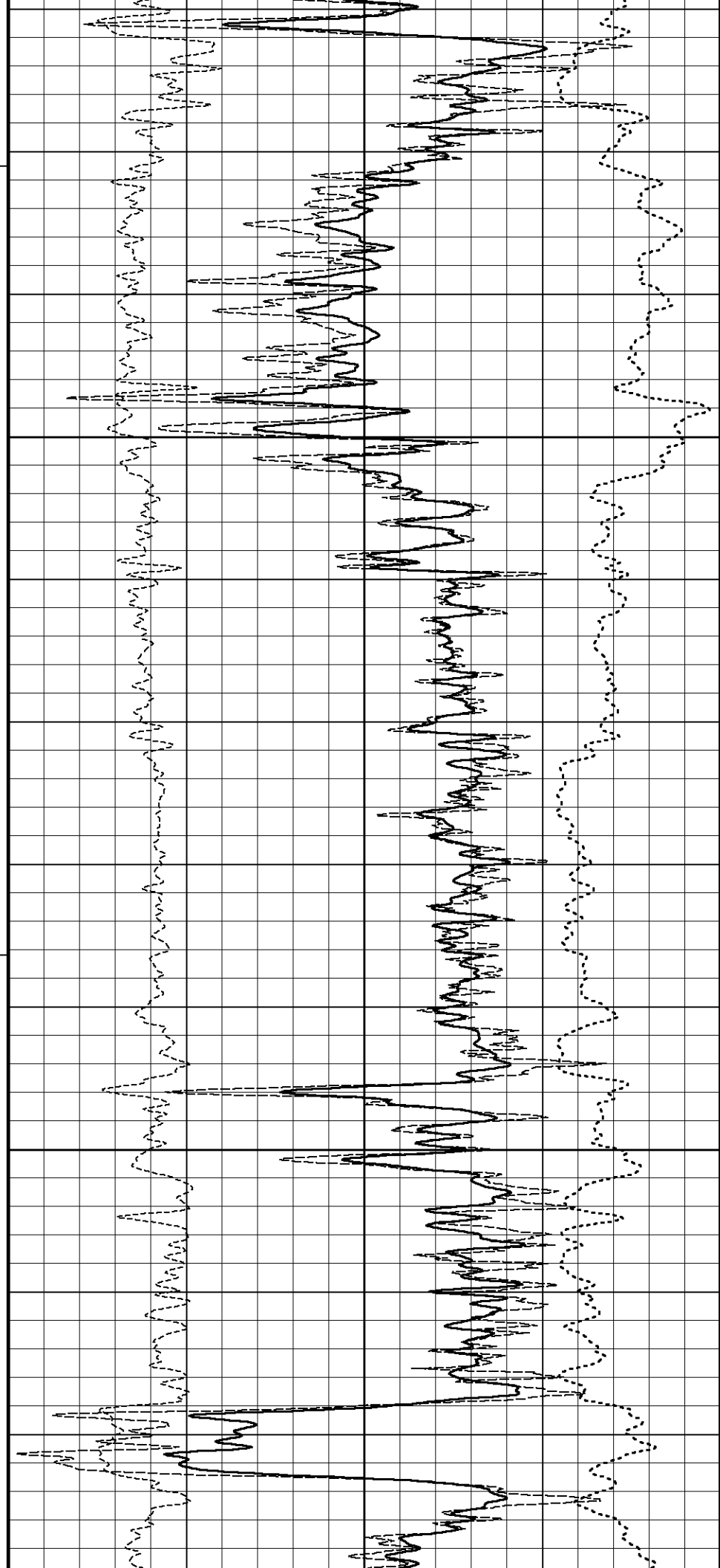
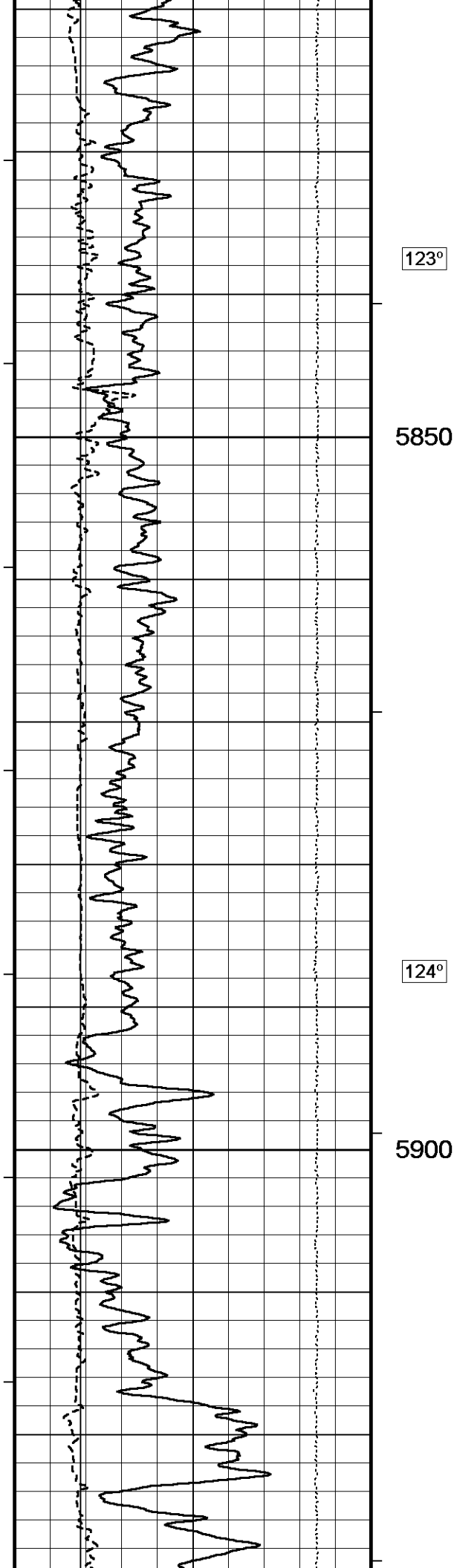
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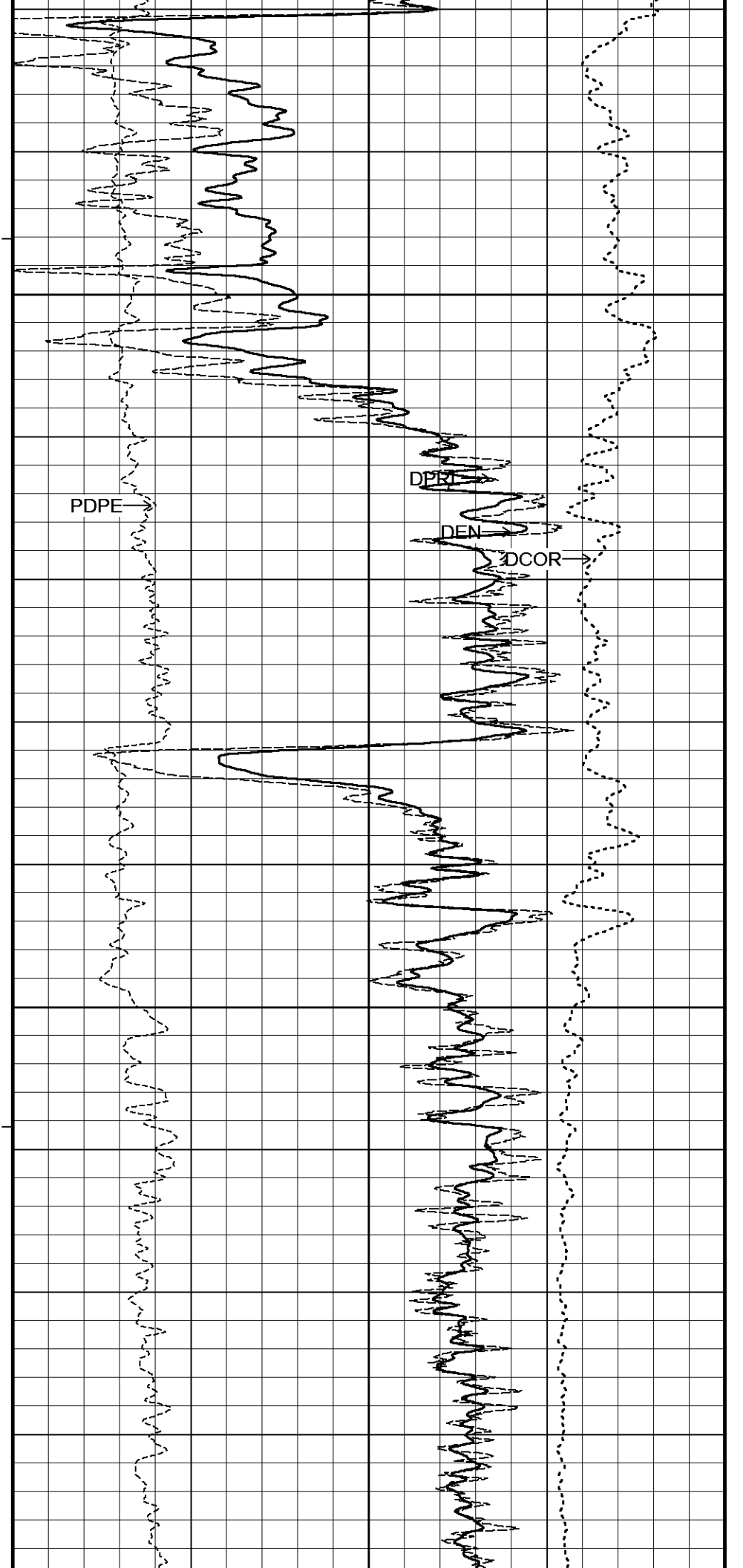
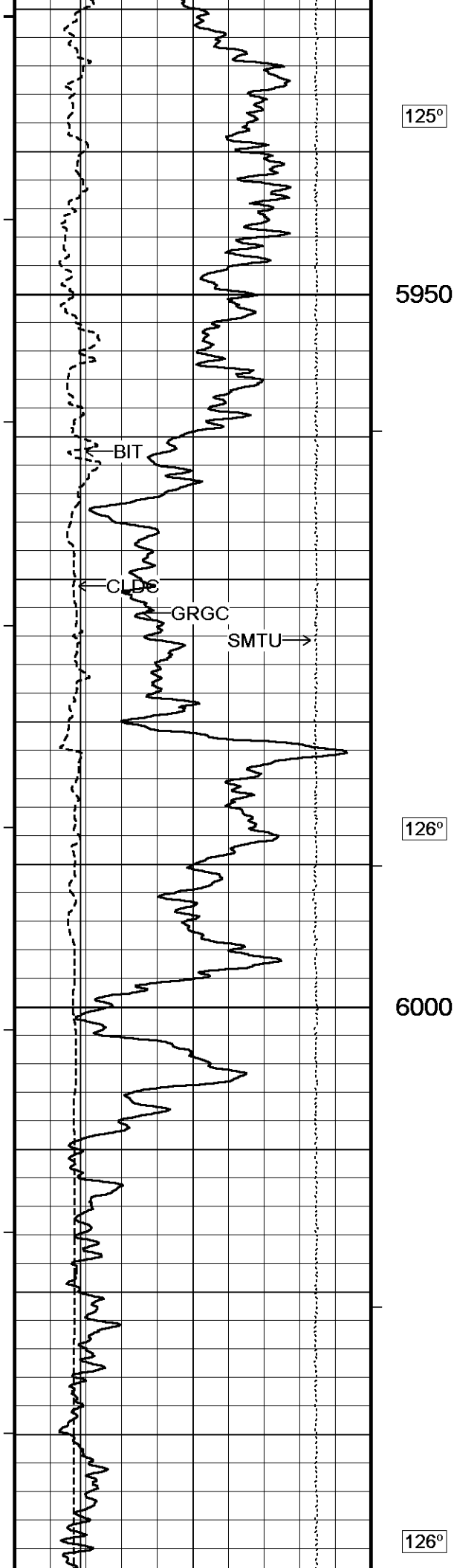
124°

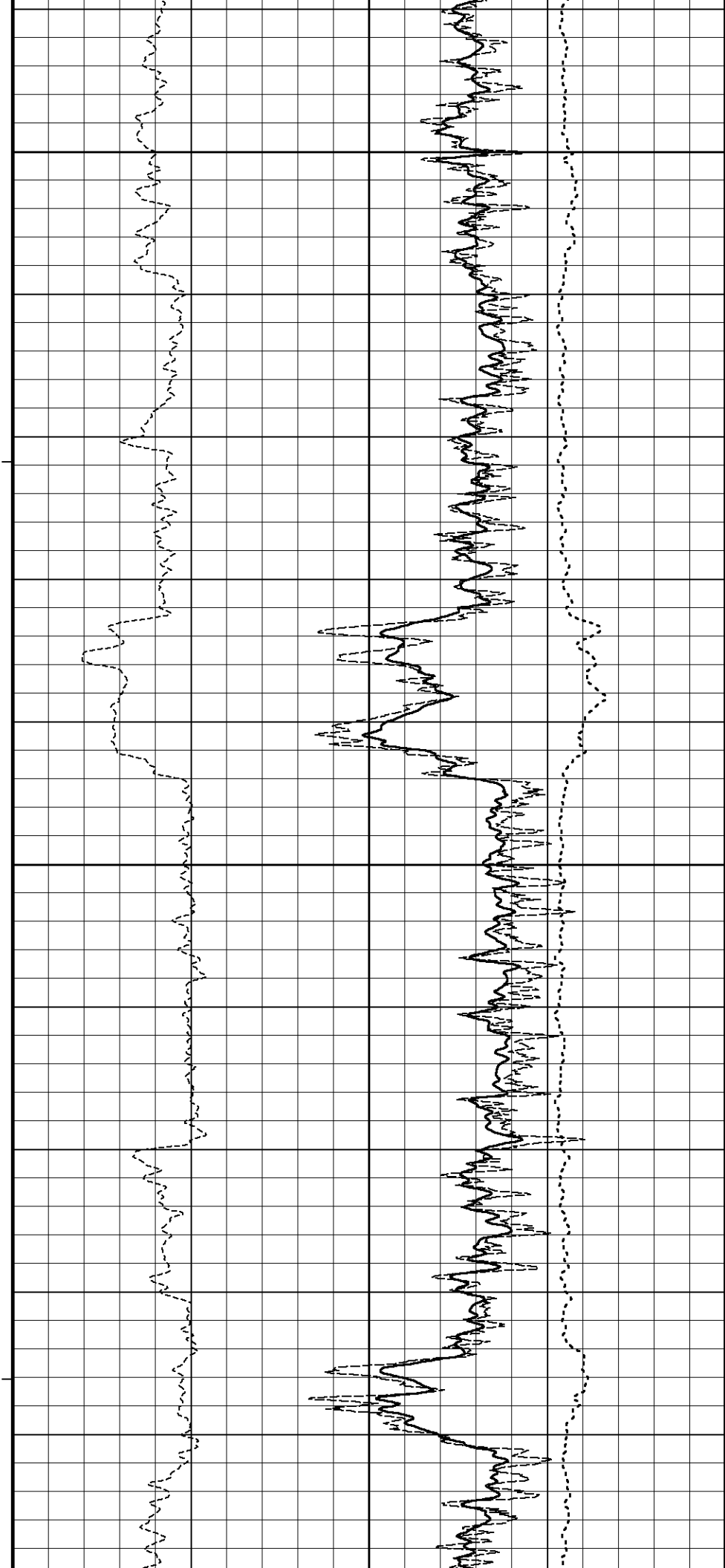
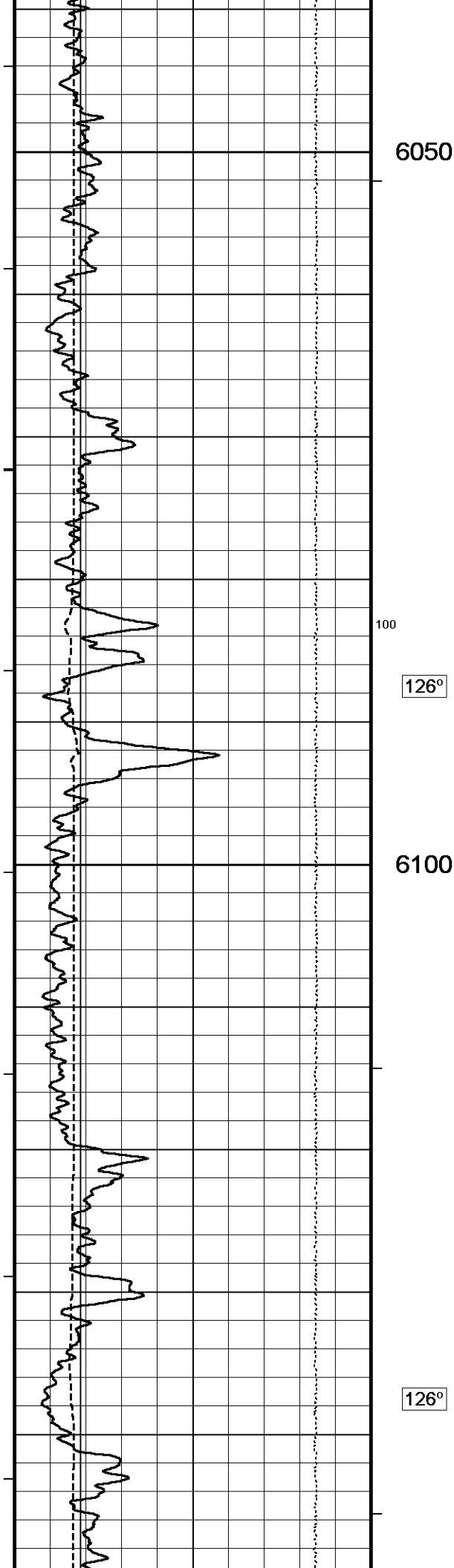
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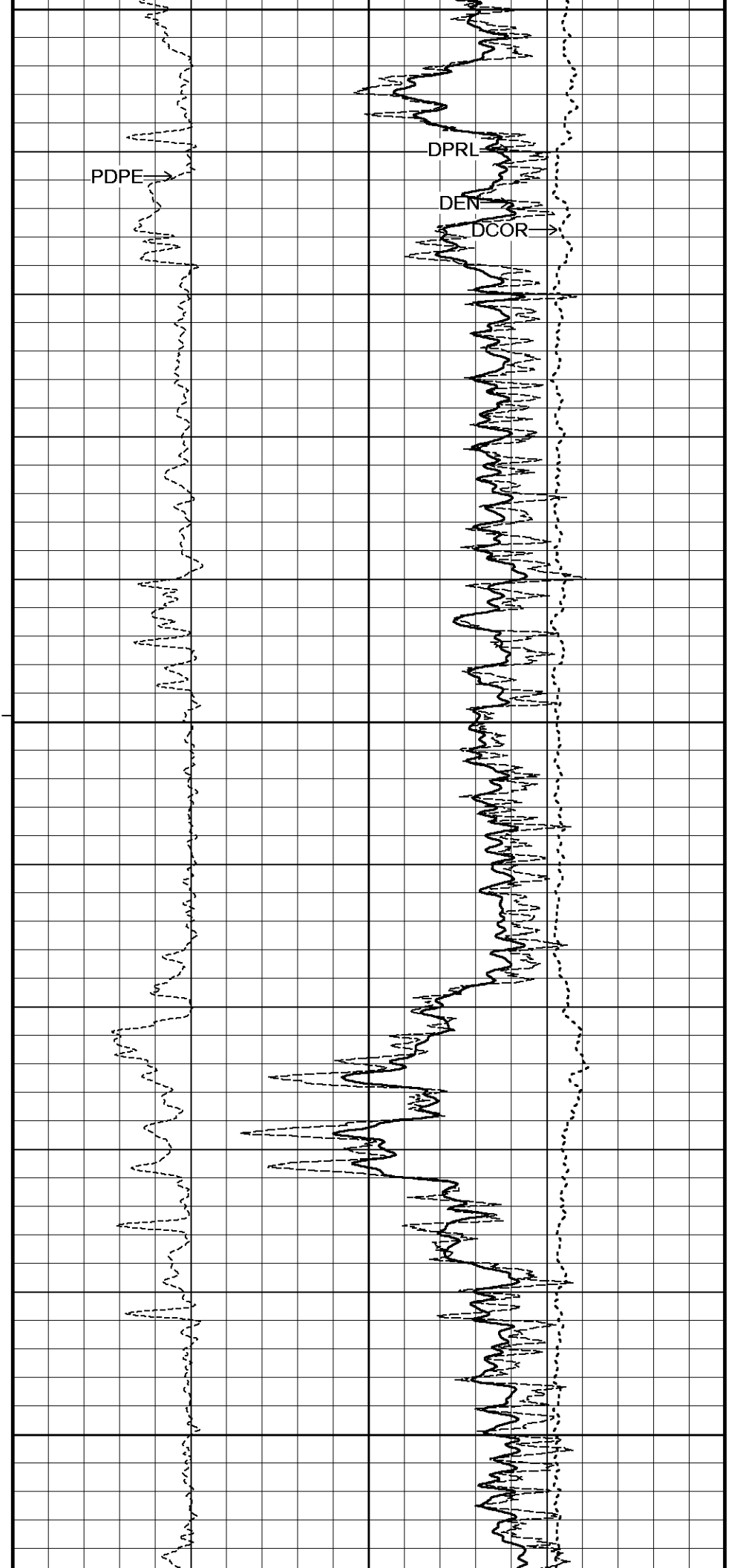
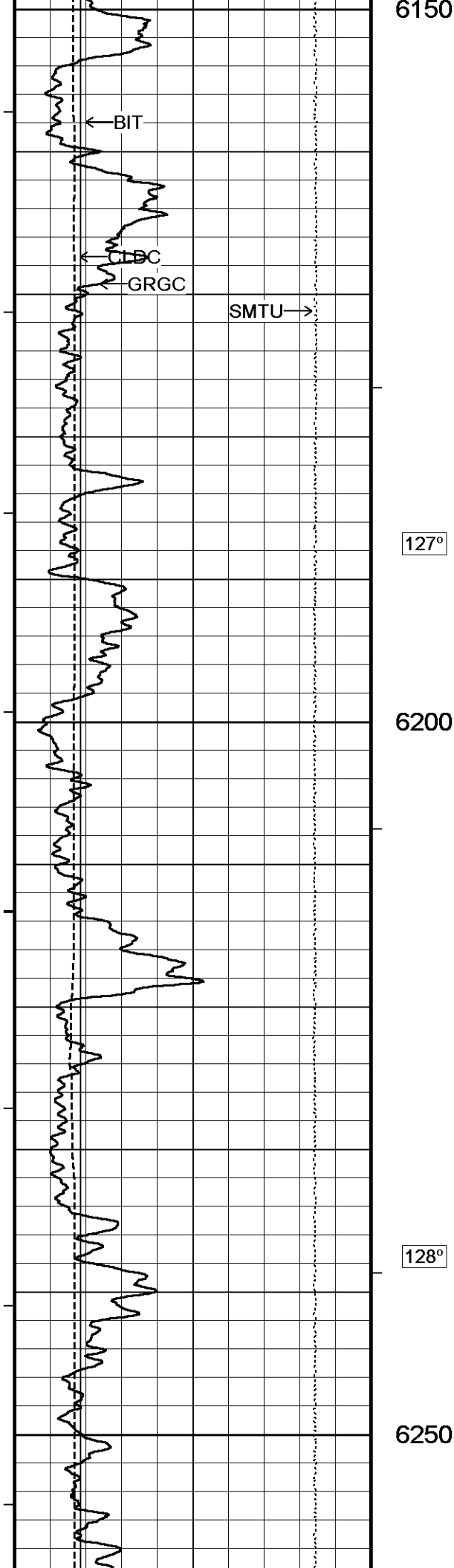


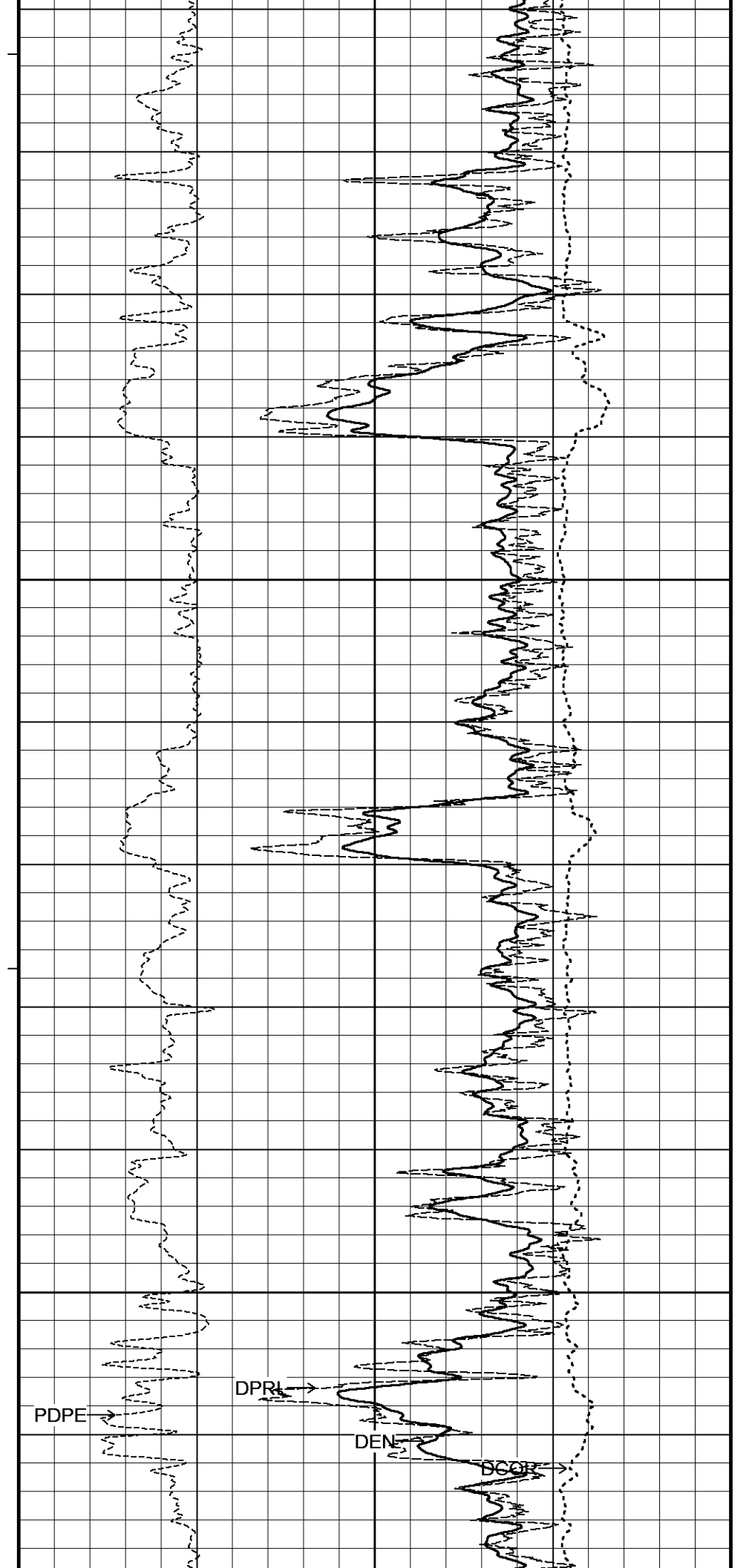
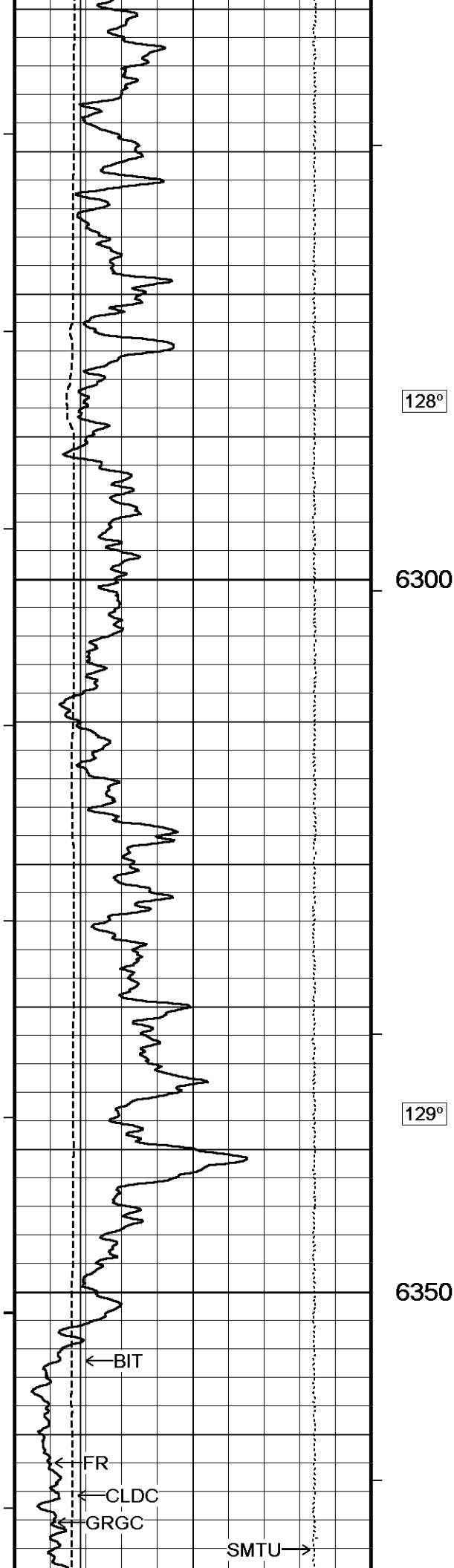








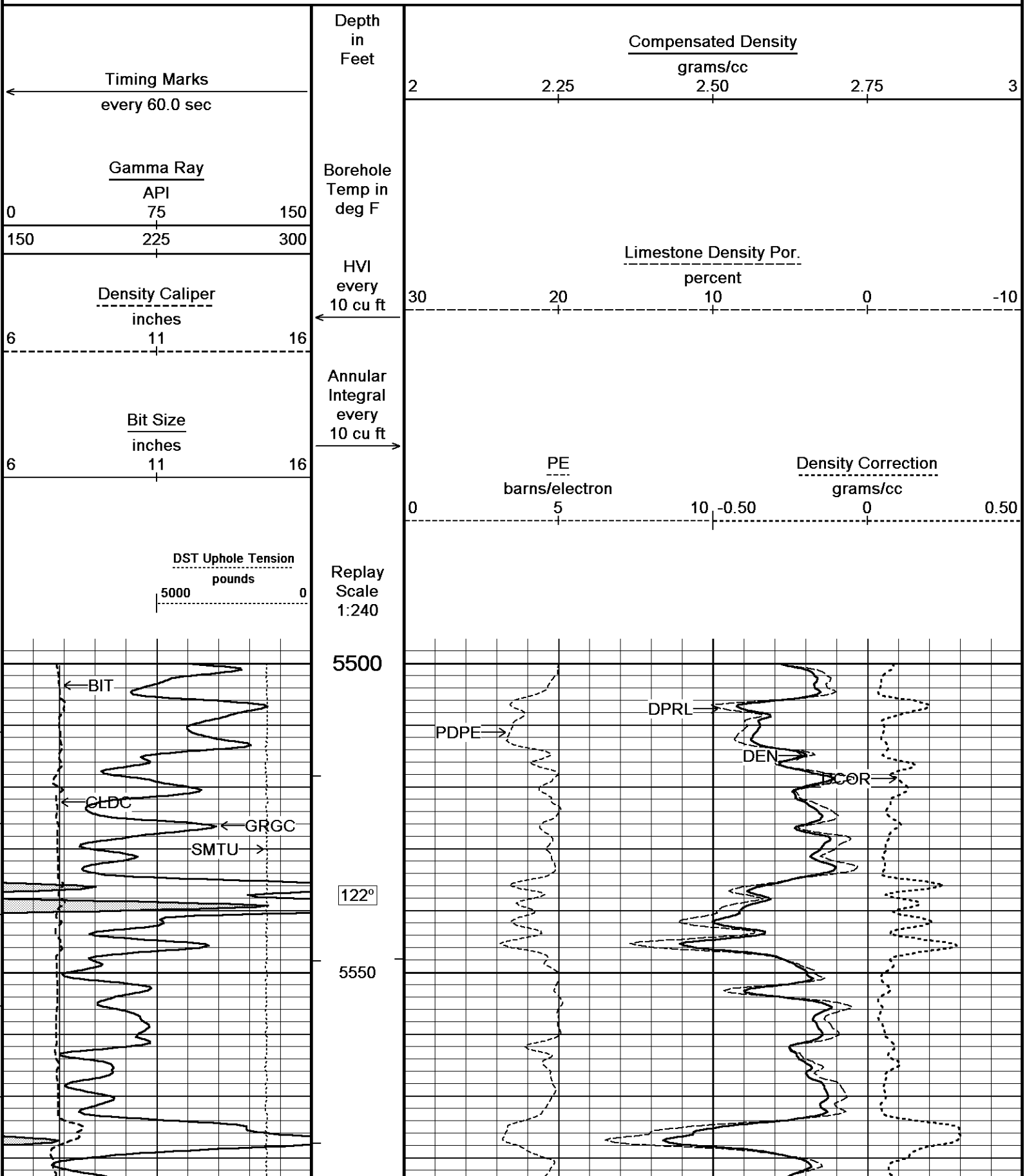


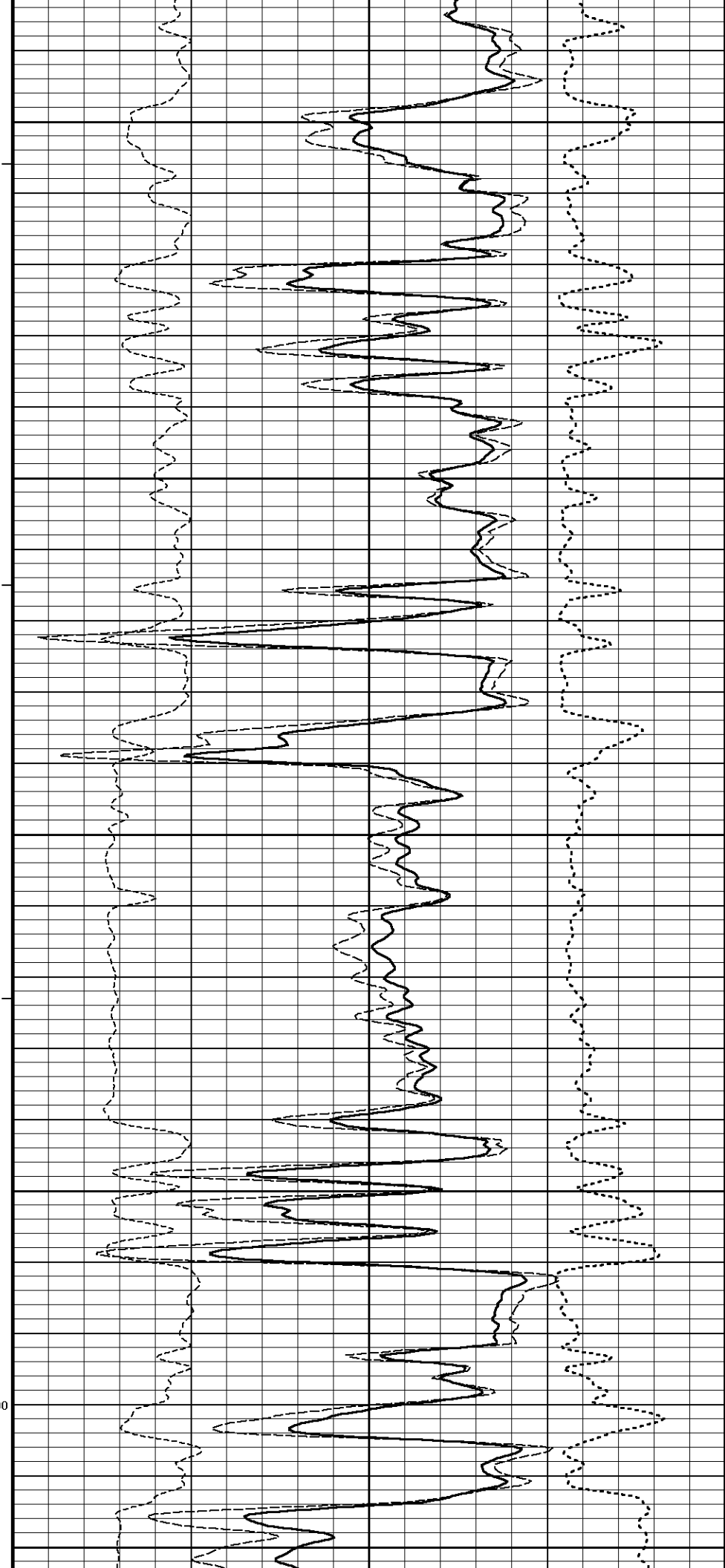
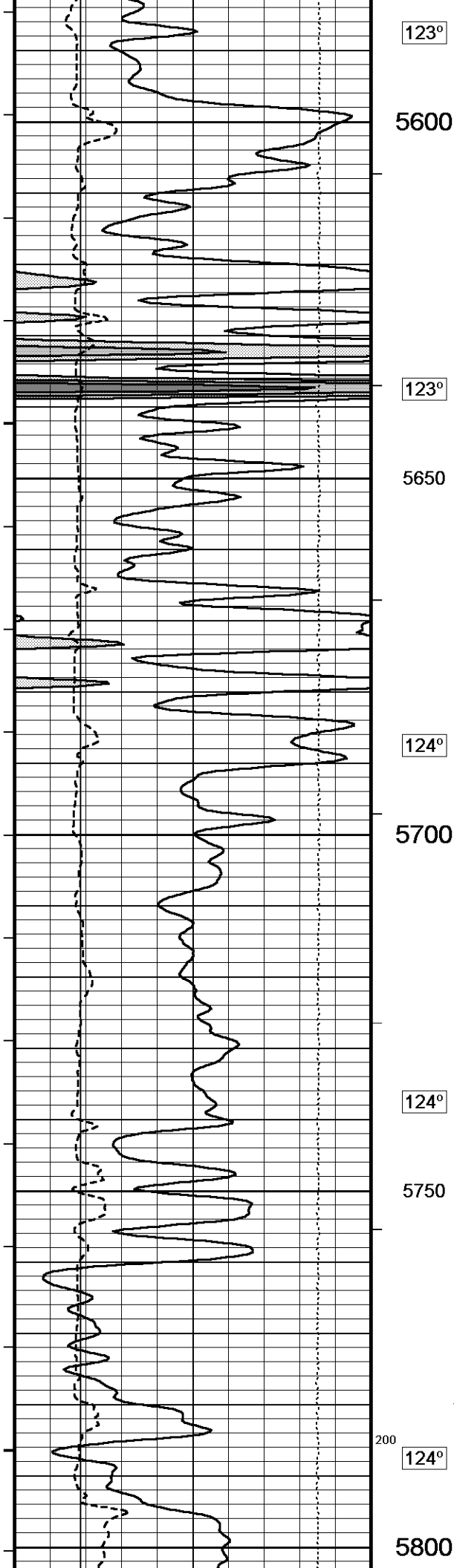


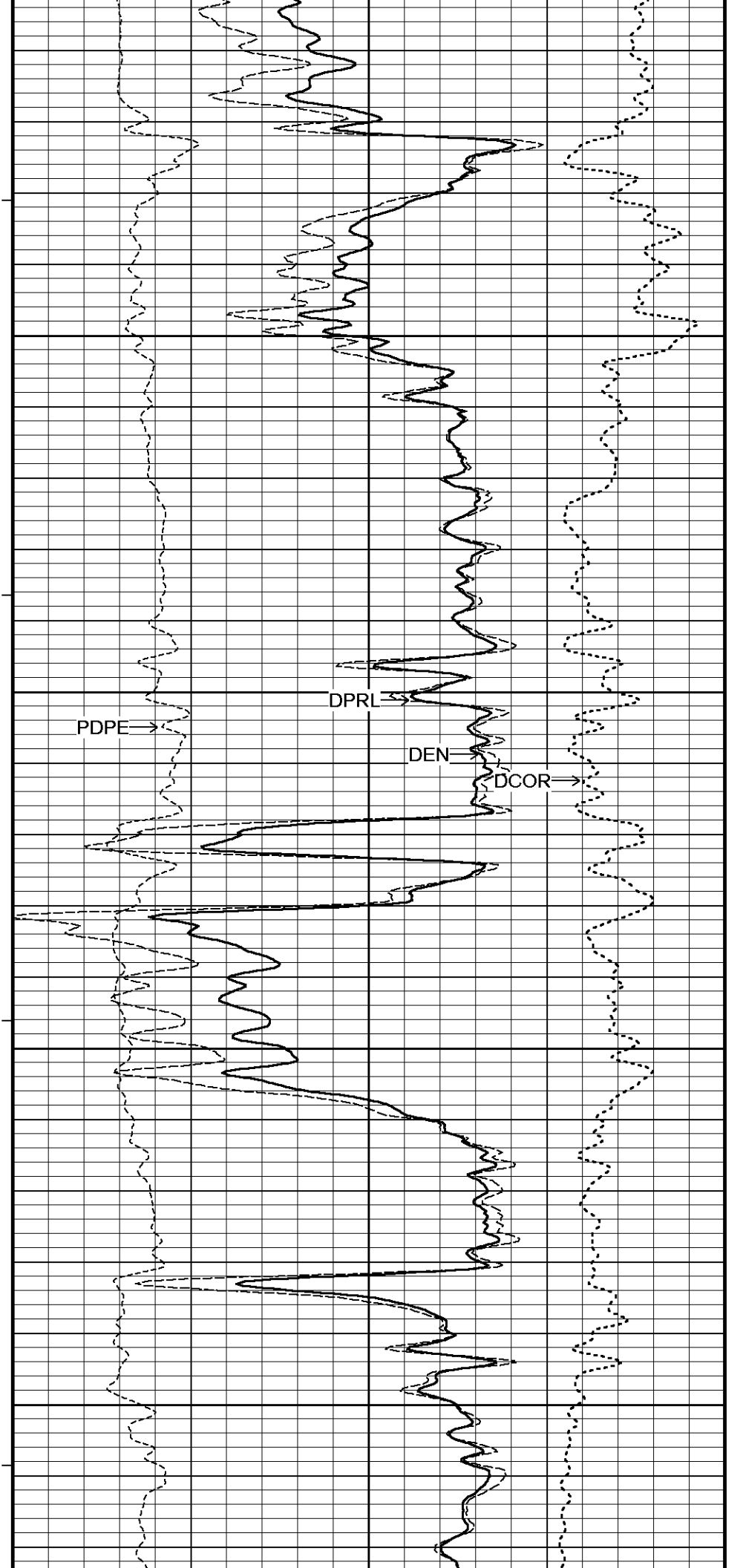
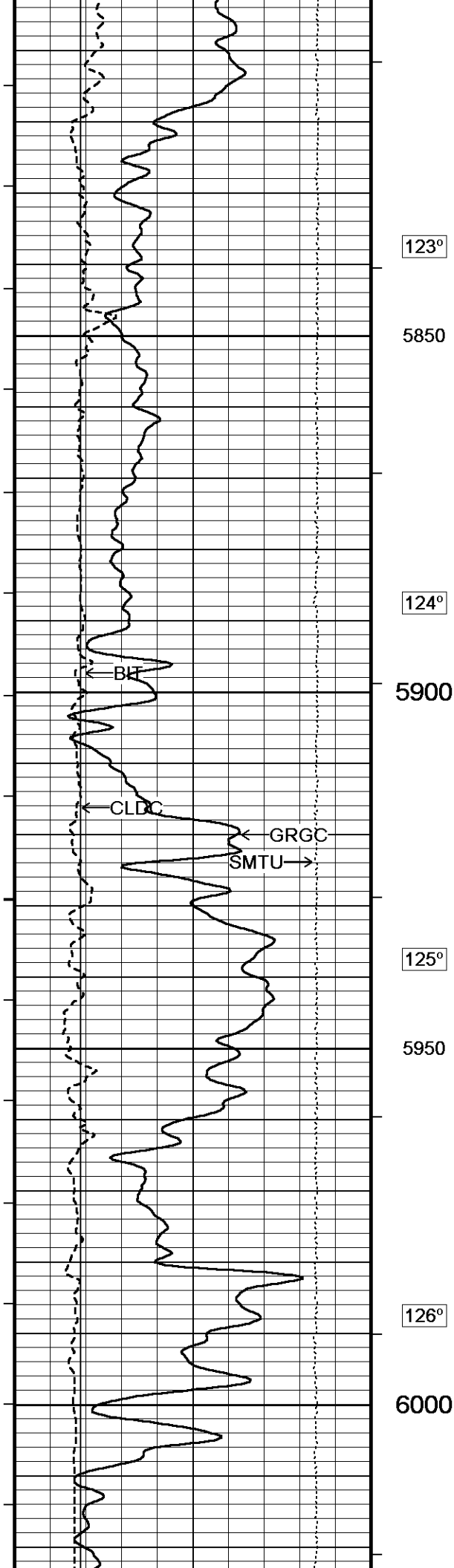


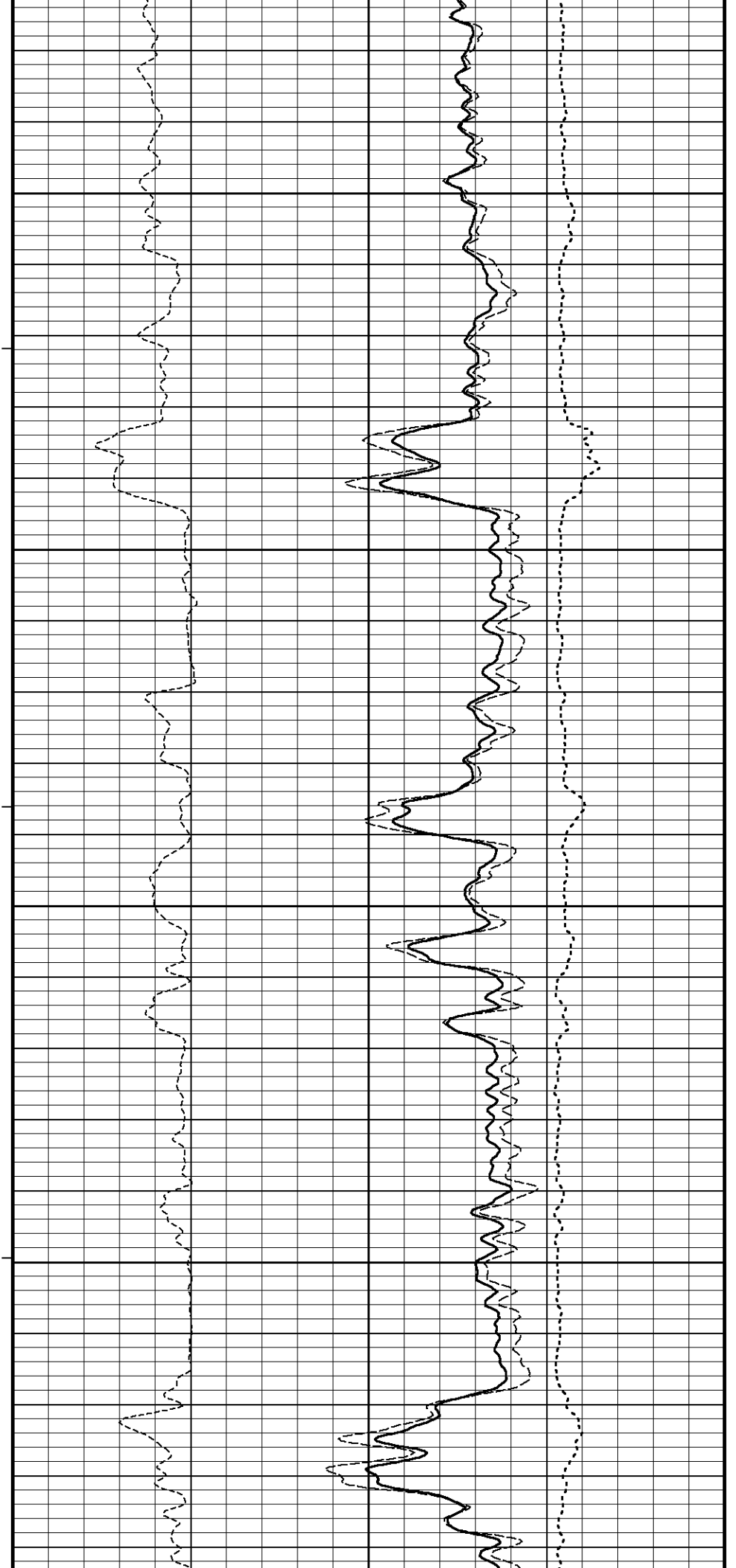
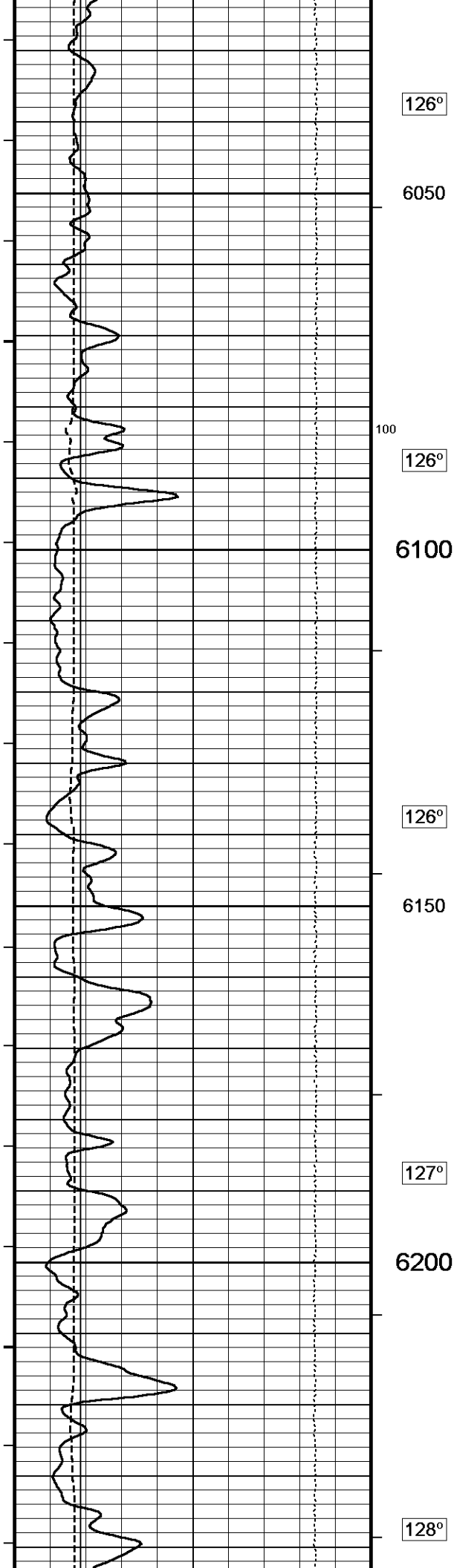
REPEAT SECTION

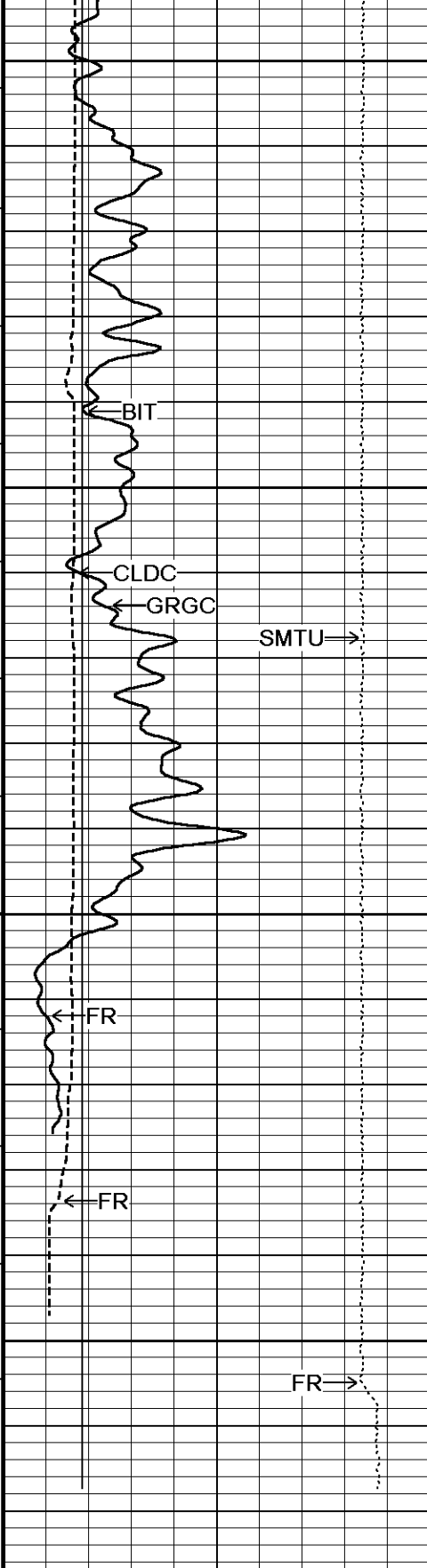
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 27-OCT-2014 09:08
Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resources\...O'Brien Resources Angell #2-13_003.dta
Recorded on 27-OCT-2014 04:40
System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558











6250

128°

6300

129°

6350

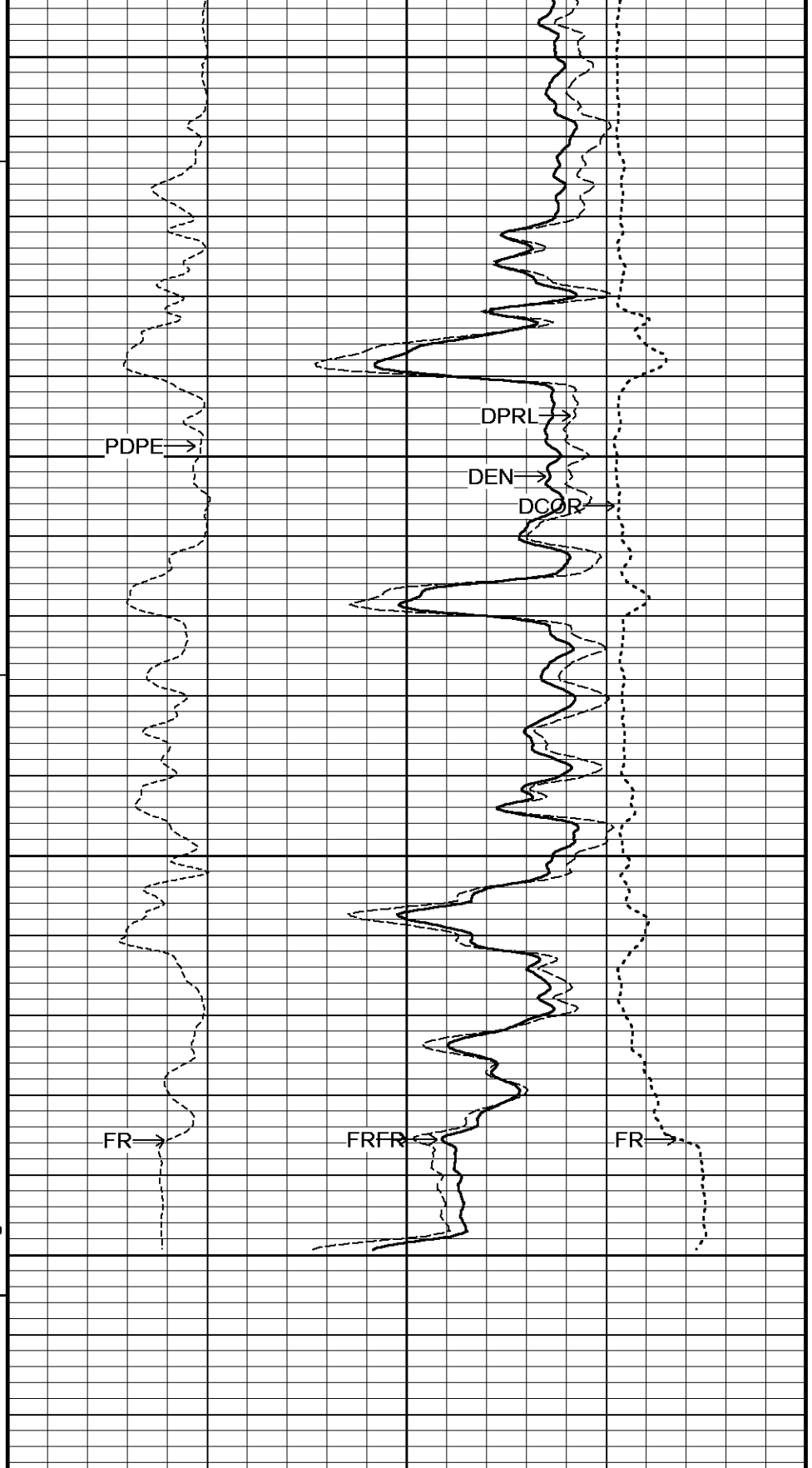
6400
TD

← Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Depth
in
Feet

Borehole
Temp in
deg F



PDPE →

DPRL →

DEN →

DCOR →

FR →

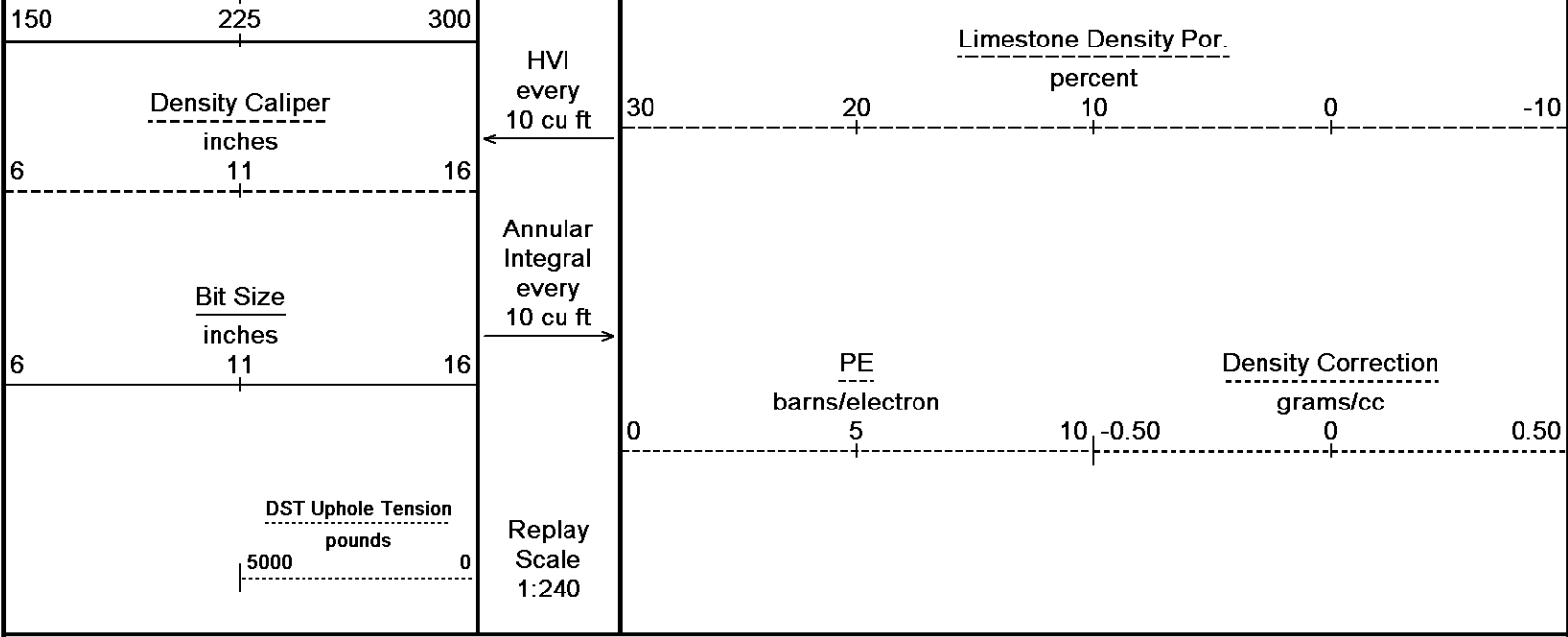
FRFR ←

FR →

Compensated Density

grams/cc

2 2.25 2.50 2.75 3



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 14.03.4558\Log Data\O'Brien Resources Angell #2-13_003.dta
System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.03.4558
Plotted on 27-OCT-2014 09:08
Recorded on 27-OCT-2014 04:40

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
C:\Minimus 14.03.4558\Log Data\O'Brien Resources Angell #2-13\O'Brien Resources Angell #2-13 Main.dta

General Constants All 000
Last Edited on 27-OCT-2014,08:56

General Parameters		
Mud Resistivity	0.870	ohm-metres
Mud Resistivity Temperature	92.000	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	None	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One 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 21-OCT-2014 01:30
Reading No	Measured	Calibrated (lbs)	
1	15337.05	0.00	
2	16392.20	583.00	

Gamma Calibration MCG-B 39			Field Calibration on 20-OCT-2014 11:27
	Measured	Calibrated (API)	
Background	69	47	
Calibrator (Gross)	1136	772	
Calibrator (Net)	1067	725	

Gamma Calibration Tolerances MCG-B 39		
Ratio	1.471	Counts/API

Gamma Constants MCG-B 39
Last Edited on 27-OCT-2014 02:35

Gamma Constants MCG-B 39			Last Edited on 27-OCT-2014,02:52
Gamma Calibrator Number	GRC038		
GRC-M Calibrator Jig in Use?	NO		
Inactive Background Jig in Use?	NO		
Mud Density	1.10	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

SP Calibration MCG-B 39			Field Calibration on 25-SEP-2014 12:11
	Measured	Calibrated (mV)	
Reference 1	102.6	99.9	
Reference 2	-97.9	-100.0	

High Resolution Temperature Calibration MCG-B 39			Field Calibration on 02-MAY-2014,08:37
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-B 39			Last Edited on 28-AUG-2014,01:02
Pre-filter Length	11		

Caliper Calibration MML-A 3			Base Calibration on 24-OCT-2014 14:47 Field Calibration on 24-OCT-2014 14:52
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	15153	5.98	
2	18429	7.97	
3	21713	9.86	
4	25537	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	7.98	7.97	

Caliper Calibration Tolerances MML-A 3			
Short Arm Field Cal.	7.98	7.77 7.97 8.17	in

Micro Normal and Micro Inverse Calibration MML-A 3					Base Calibration on 24-OCT-2014 15:09	
					Field Check on 24-OCT-2014 15:12	
Base Calibration						
		Measured		Calibrated (ohm-m)		
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2		
Micro Normal	10.0	49.9	5.1	25.6		
Micro Inverse	10.0	49.9	3.4	16.9		
Channel	Base Check (ohm-m)		Field Check (ohm-m)			
Micro Normal	77.4		77.4			
Micro Inverse	51.3		51.3			

Micro Normal & Micro Inverse Calibration Tolerance MML-A 3									
Micro Normal Res. 1	10.0	-5% 10.0 +5%	ohm	Micro Normal Res. 2	49.9	-5% 50.0 +5%	ohm		
Micro Inverse Res. 1	10.0	-5% 10.0 +5%	ohm	Micro Inverse Res. 2	49.9	-5% 50.0 +5%	ohm		
Micro Normal Base Check	77.4	-2% 77.28 +2%	ohm-m						
Micro Inverse Base Check	51.3	-2% 51.19 +2%	ohm-m						
Micro Normal Field Check	77.4	-2% 77.4 +2%	ohm-m						
Micro Inverse Field Check	51.3	-2% 51.3 +2%	ohm-m						

Micro Normal and Micro Inverse Constants MML-A 3			Last Edited on 27-OCT-2014,02:35
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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

Neutron Calibration MDN-A.B 152

Base Calibration on 24-OCT-2014 12:40

Field Check on 24-OCT-2014 13:09

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2866	87	3714	110
Ratio	33.093		33.764	

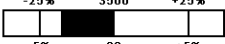
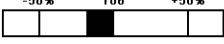
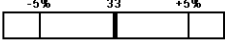
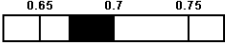
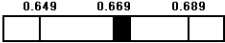
Field Calibrator at Base

	Calibrated (cps)
	1779 2659
Ratio	0.669

Field Check

	Calibrated (cps)
	1781 2643
Ratio	0.674

Neutron Calibration Tolerances MDN-A.B 152

Near Reading	2866		cps	Far Reading	87		cps
Ratio	33.093						
Base Check	0.669						
Field Check	0.674						

Neutron Constants MDN-A.B 152

Last Edited on 27-OCT-2014,02:59

Neutron Source Id	P0204NN	
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-B.J 353

Base Calibration on 24-OCT-2014 15:33

Field Check on 24-OCT-2014 15:39

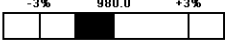
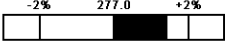
Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.2	126.8

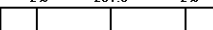
Base Check	281.0
------------	-------

Field Check	281.0
-------------	-------

FE Calibration Tolerances MFE-B.J 353

Reference 2	964.2		ohm
Base Check	281.0		ohm-m

-2% 281.0 +2%

Field Check 281.0  ohm-m

FE Constants MFE-B.J 353

Last Edited on 27-OCT-2014,02:34

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 111

Base Calibration on 05-AUG-2014,09:34

Field Check on 24-OCT-2014 11:13

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.6	473.6	9.3	966.2
2	6.4	385.9	7.6	821.4
3	3.2	264.0	5.2	566.0
4	2.1	135.5	2.6	279.2

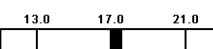
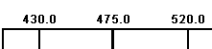
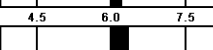
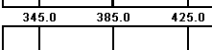
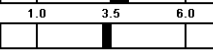
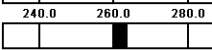
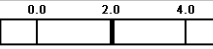
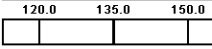
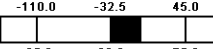
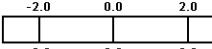
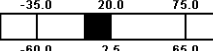
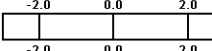
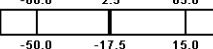
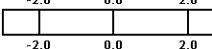
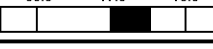
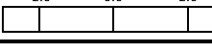
Array Temperature 23.0 Deg F

Test Loop Calibration Verified

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			13.0	3870.7
2			30.0	3524.8
3			29.1	3018.3
4			19.1	2056.2
Deep			17.8	1960.0
Medium			43.1	3972.5
Shallow			44.6	5228.2

Array Temperature 81.6 Deg F

Induction Calibration Tolerances MAI-A.A 111

Low Conductivity 1	17.6		mmho/m	High Conductivity 1	473.6		mmho/m
Low Conductivity 2	6.4		mmho/m	High Conductivity 2	385.9		mmho/m
Low Conductivity 3	3.2		mmho/m	High Conductivity 3	264.0		mmho/m
Low Conductivity 4	2.1		mmho/m	High Conductivity 4	135.5		mmho/m
Background Vx 1	0.0		mmho/m	Phase Check Loop 1	0.0		%
Background Vx 2	0.0		mmho/m	Phase Check Loop 2	0.0		%
Background Vx 3	0.0		mmho/m	Phase Check Loop 3	0.0		%
Background Vx 4	0.0		mmho/m	Phase Check Loop 4	0.0		%

Induction Constants MAI-A.A 111

Last Edited on 27-OCT-2014,02:33

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 111

Field Calibration on 20-JUN-2014,09:22

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

High Resolution Temperature Constants MAI-A.A 111

Last Edited on 26-JUN-2014,15:06

Pre-filter Length 11

Caliper Calibration MPD-C.A 216

Base Calibration on 24-OCT-2014 11:23

Field Calibration on 24-OCT-2014 11:25

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18960	3.99
2	28807	5.98
3	38852	7.97
4	48518	9.86
5	59792	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.99	7.97

Caliper Calibration Tolerances MPD-C.A 216

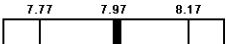
Short Arm Field Cal. 7.99  in

Photo Density Calibration MPD-C.A 216

Base Calibration on 24-OCT-2014 11:46

Field Check on 24-OCT-2014 11:53

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1094	1297		
Reference 1	59838	31173	59556	30836
Reference 2	24858	2730	24941	2541

Field Check at Base

1094.4 1296.6

Field Check

1096.6 1297.3

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	201	974		
Reference 1	25019	59646	0.423	0.371
Reference 2	7097	24723	0.290	0.272

Field Check at Base
201.2 973.6

Field Check
199.1 973.5

Photo Density Calibration Tolerances MPD-C.A 216

Near Density Ratio 2.47

-5%	2.52	+5%
0.089	0.110	0.131

PE Calibration 0.124

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Near Den. Field Check 1096.6

-3%	1094.4	+3%
-6%	201.2	+6%

PE WS Field Check 199.1

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Far Density Ratio 20.84

-5%	21.00	+5%
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Far Den. Field Check 1297.3

-3%	1296.6	+3%
-6%	973.6	+6%

PE WH Field Check 973.5

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Density Constants MPD-C.A 216

Last Edited on 27-OCT-2014,02:35

Density Source Id 18235B
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 (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	0.00

DOWNHOLE EQUIPMENT

C:\Minimus 14.03.4558\Log Data\O'Brien Resources Angell #2-13\O'Brien Resources Angell #2-13 Main.dta

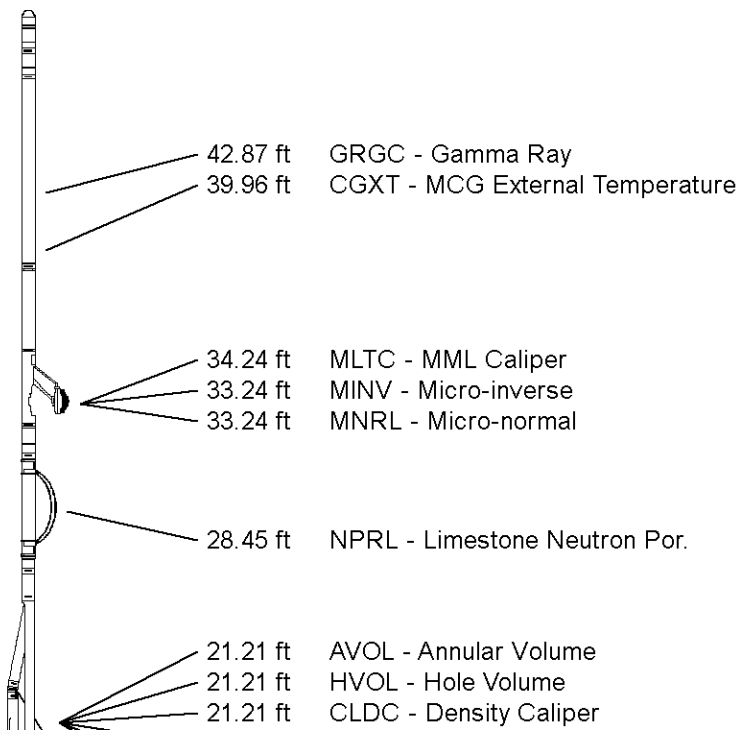
CBH-C, Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.240 in

Compact Neutron
MDN-A.B 152 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

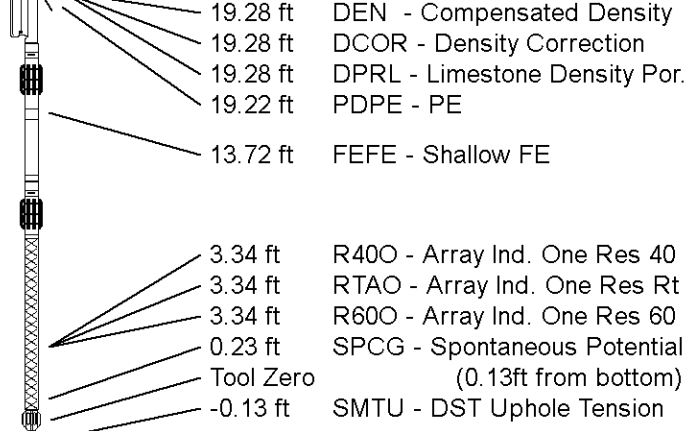
Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in



Compact Focussed Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 50.55 ft Weight: 407.9 lb



COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	ANGELL #2-13
FIELD	ANGELL
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2735.00	feet	First Reading	6386.00	feet
Elevation Drill Floor	2733.00	feet	Depth Driller	6400.00	feet
Elevation Ground Level	2724.00	feet	Depth Logger	6405.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG