



Weatherford

**CML IMPULSE SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED NEUTRON LOG**

COMPANY	SANDRIDGE ENERGY		
WELL	FALDTZ 2231 2-26H		
FIELD	STEWART		
PROVINCE/COUNTY	FINNEY		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	2640' FSL & 2200' FEL		
SEC 26	TWP 22S	RGE 31W	Other Services
Latitude			MAI
Longitude			
API Number	15-055-222570100		
Permanent Datum	G.L., Elevation 2890 feet		
Log Measured From	KB		Elevations: KB 2901.00
Drilling Measured From	K.B. @ 11 FEET		DF 2901.00
			GL 2890.00
Date	20-JAN-2014		
Run Number	ONE		
Service Order	3441-77442537		
Depth Driller	6979.00		feet
Depth Logger	6979.00		feet
First Reading	6934.00		feet
Last Reading	1870.00		feet
Casing Driller	5492.00		feet
Casing Logger	5493.00		feet
Bit Size	6.125		inches
Hole Fluid Type	WBM		
Density / Viscosity	9.40	lb/USg	37.00 CP
PH / Fluid Loss	9.30		
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.80 @ 70.0		ohm-m
Rmf @ Measured Temp	1.35 @ 70.0		ohm-m
Rmc @ Measured Temp	2.70 @ 70.0		ohm-m
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.99 @ 129.0		ohm-m
Time Since Circulation	1.5 HOUR		
Max Recorded Temp	129.00		deg F
Equipment / Base	18077		OKC
Recorded By	M. JOHNSON		
Witnessed By	W. SCOTT		

BOREHOLE RECORD Last Edited: 21-JAN-2014 07:00

Bit Size inches	Depth From feet	Depth To feet
12.750	0.00	1870.00
8.750	1870.00	5493.00
6.125	5493.00	6979.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1870.00	36.00
INTERMED	7.000	800.00	5493.00	26.00

REMARKS

LOGGED WITH WLS_13.06.9804 SOFTWARE

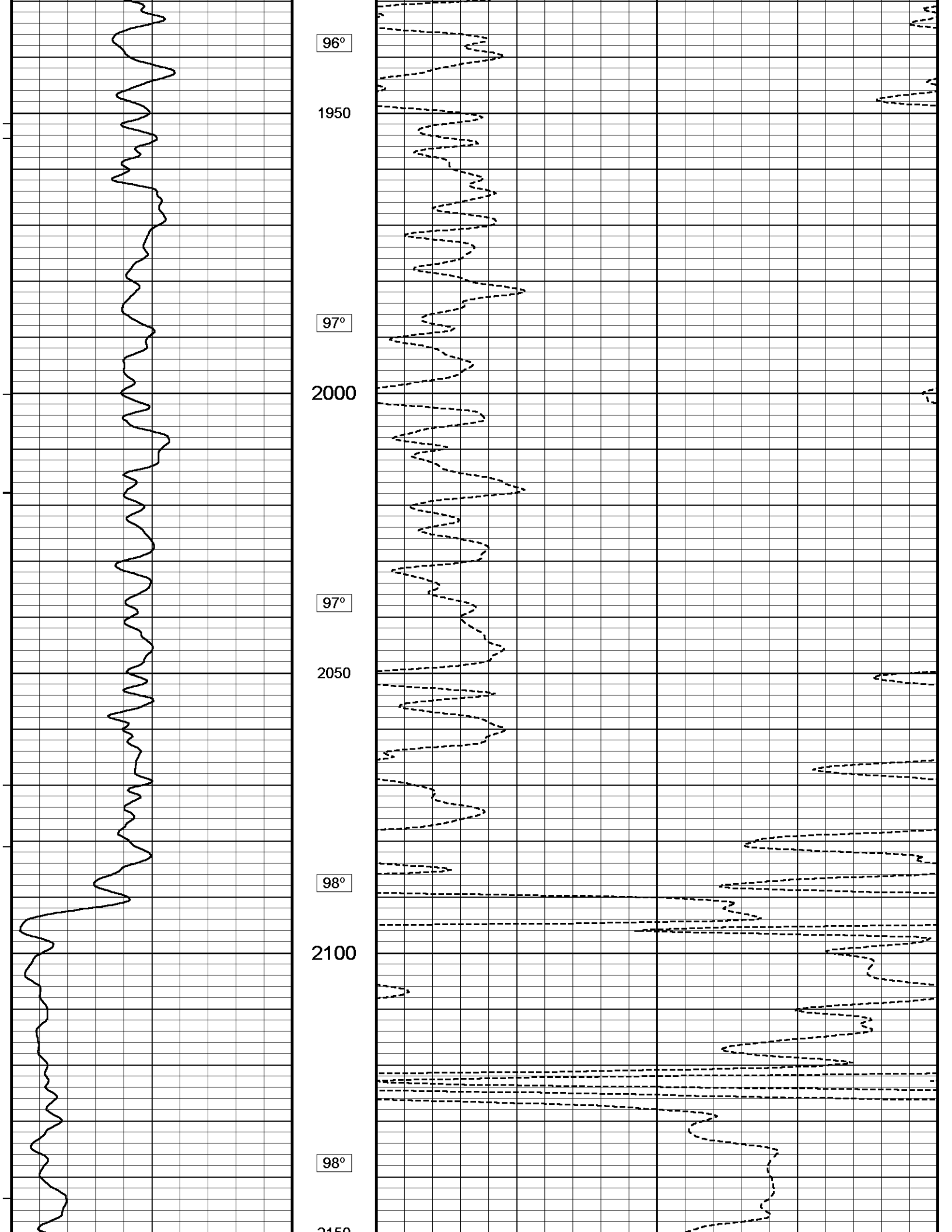
LOGGED USING IMPULSE METHOD OF DEPLOYMENT AND MEMORY LOGGING SYSTEM

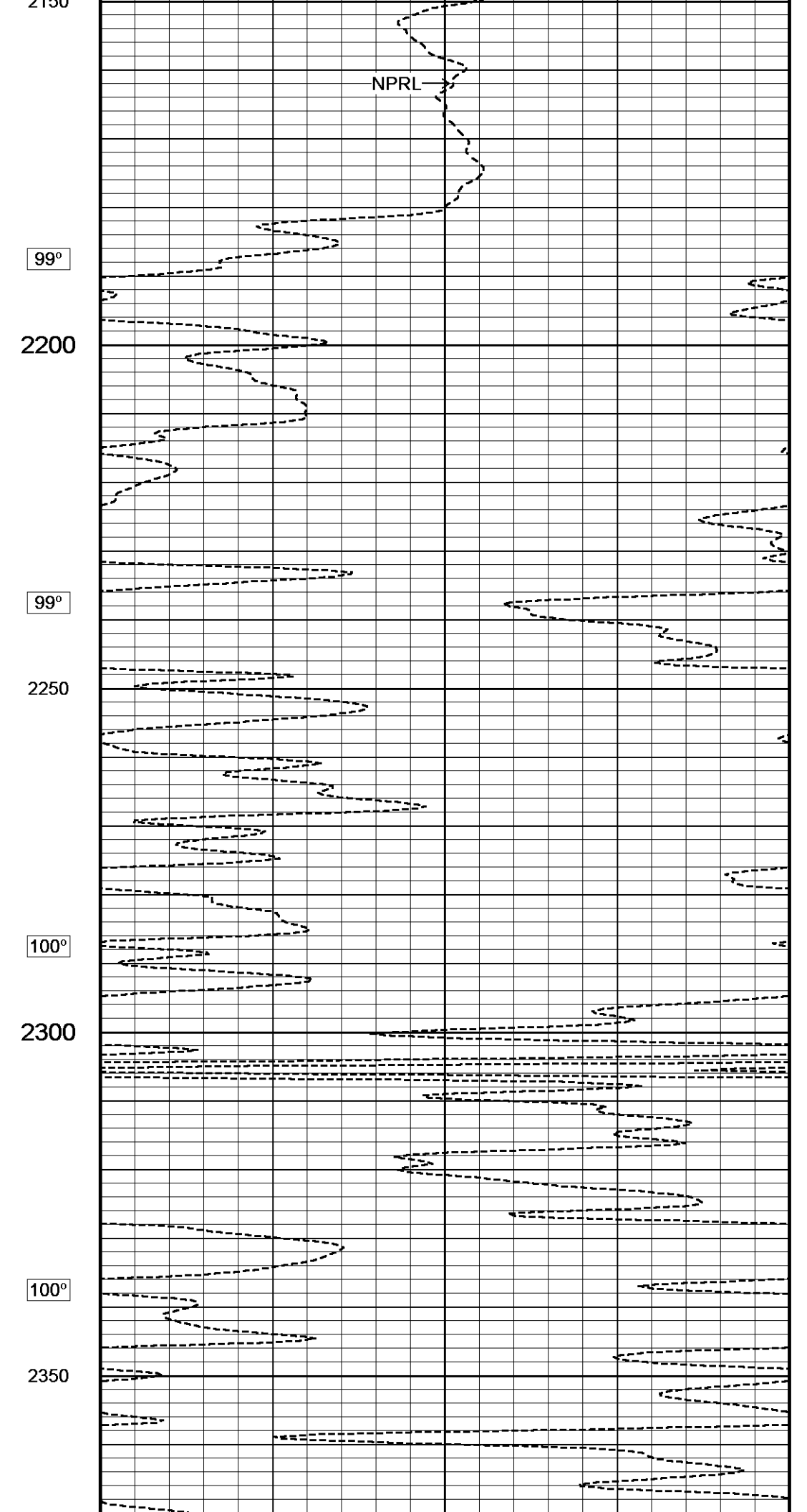
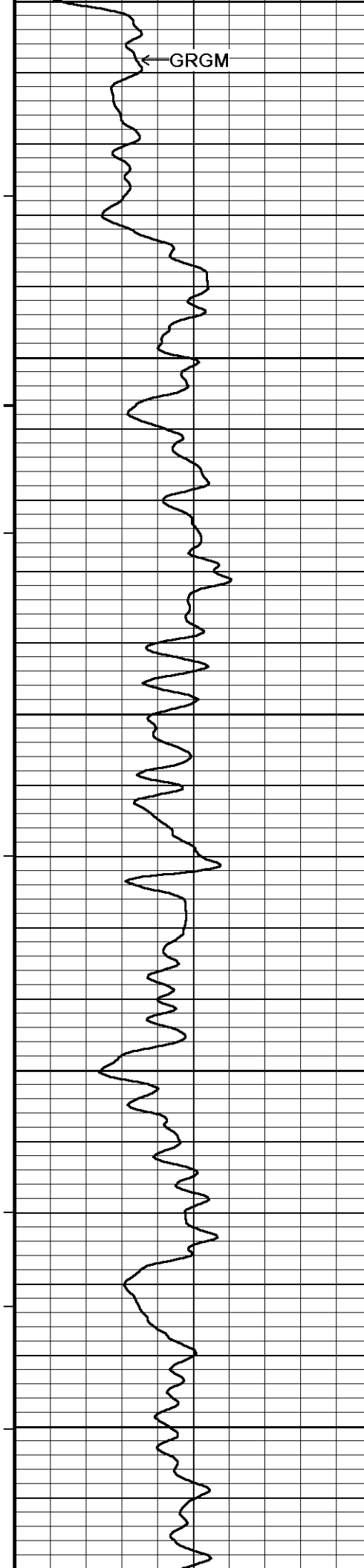
LOGGED WITH ADVANTAGE DEPTH SYSTEM _CORRECTED BACK TO PIPE STRAP

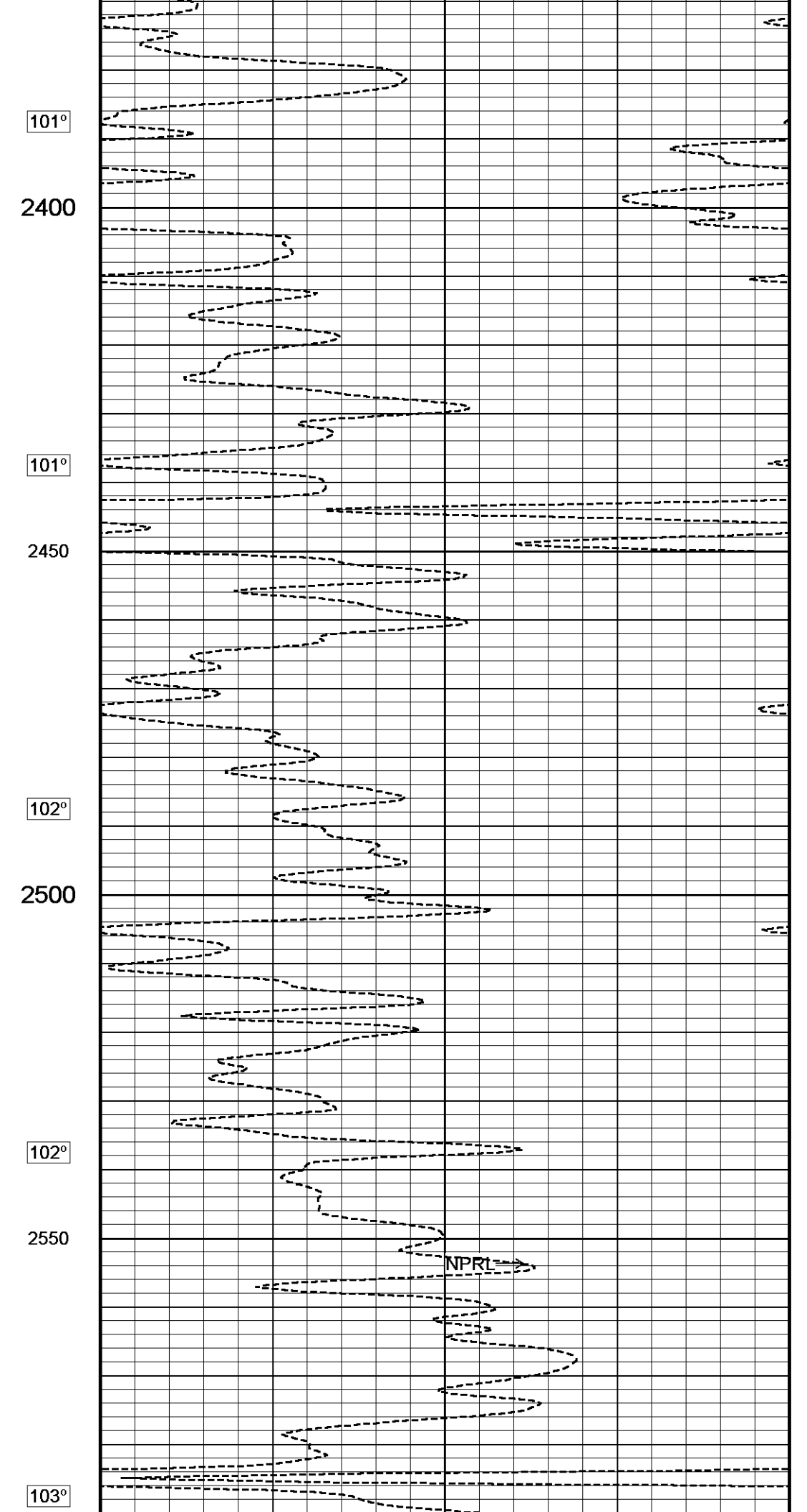
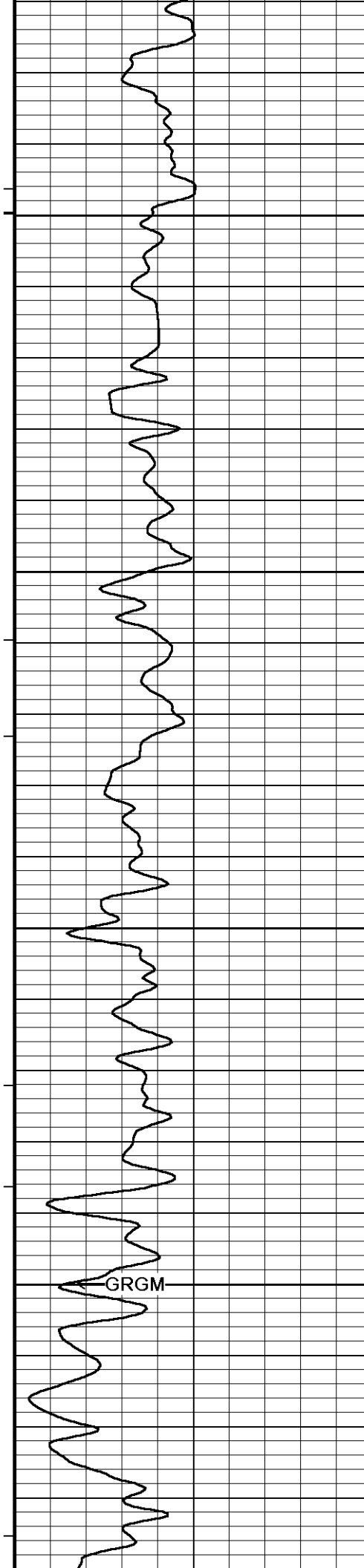
LOGGING STRING: SMR-148,SER-184,MBS-131, MTI-076,MGS-108,MCL-049,SKJ-472,SHA-472,MISD-606,MDN-391,MPD-395,MISD-435,SHA-438,SKJ-438,MISE-572,MFE-395,MISE-575,MAI-170

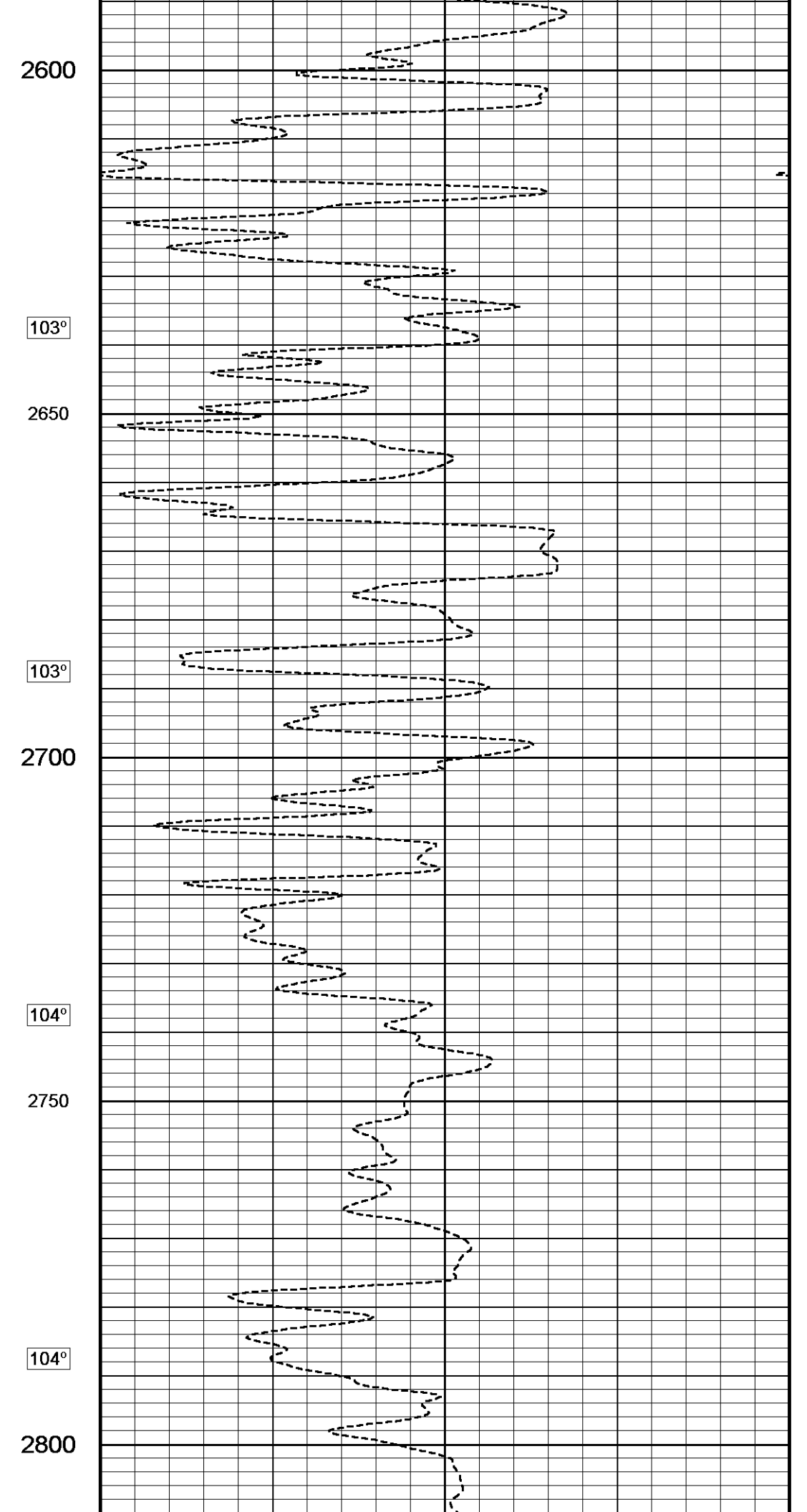
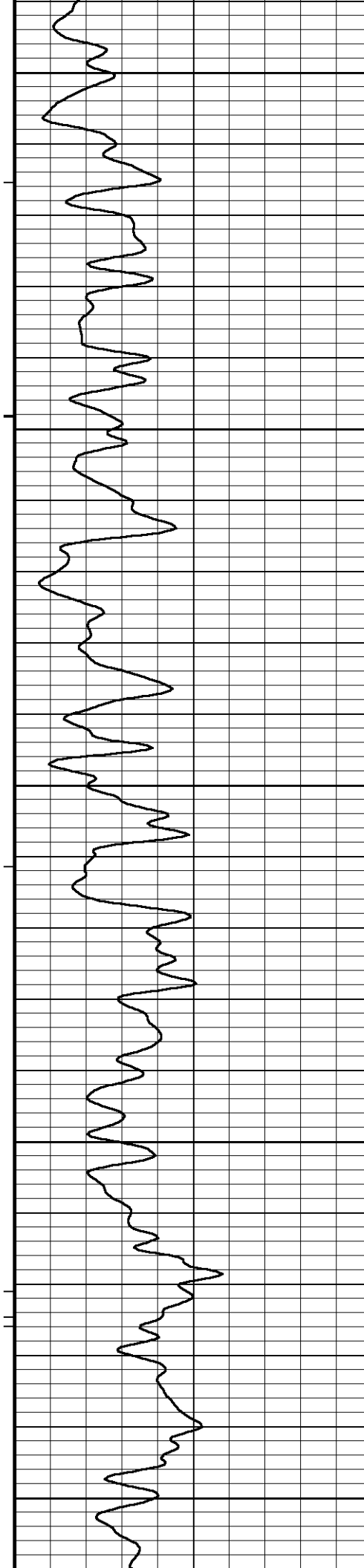
HARDWARE: MAI: MISE 0.5 INCH STANDOFF ABOVE AND ISA 0.5 INCH STANDOFF BELOW
MFE: MISE 0.5 INCH STANDOFF ABOVE
MPD: 4" PROFILE PLATE, MISD SINGLE BOWSPRING DECENTRALIZER BELOW
MDN: MISD DOUBLE BOWSPRING DECENTRALIZER ABOVE

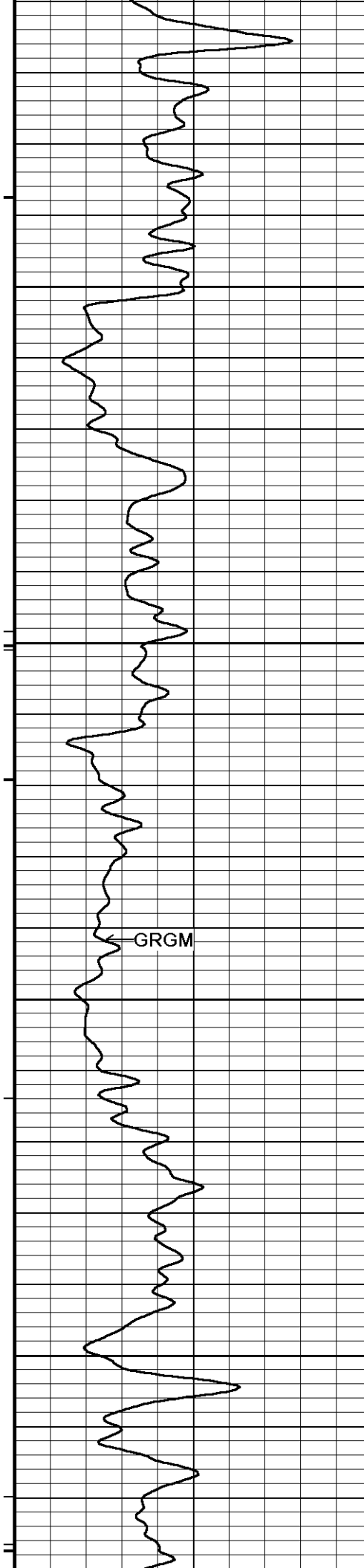
2.71 G/CC DENSITY MATRIX USED TO CALCULATE DENSITY POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST











104°

2850

105°

2900

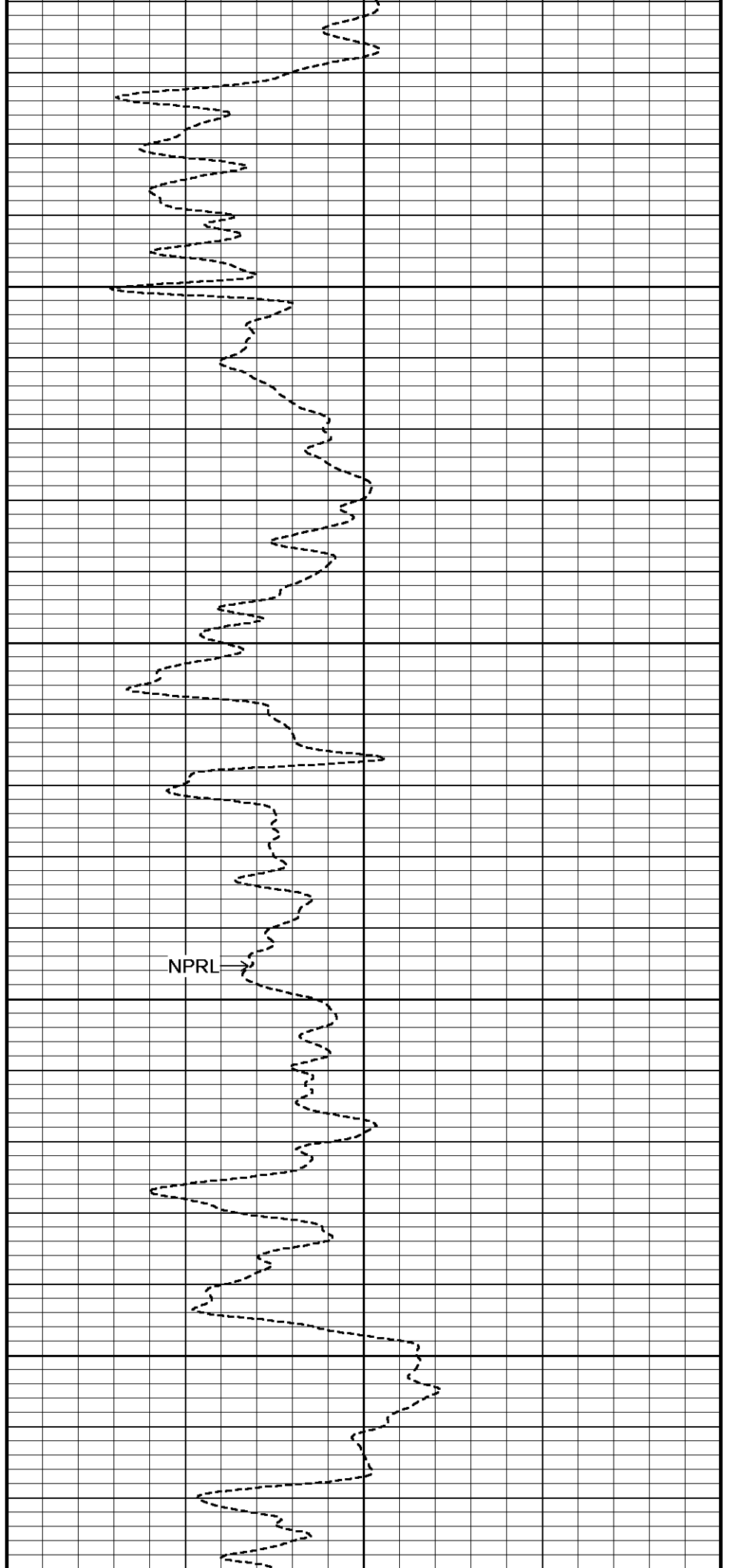
106°

2950

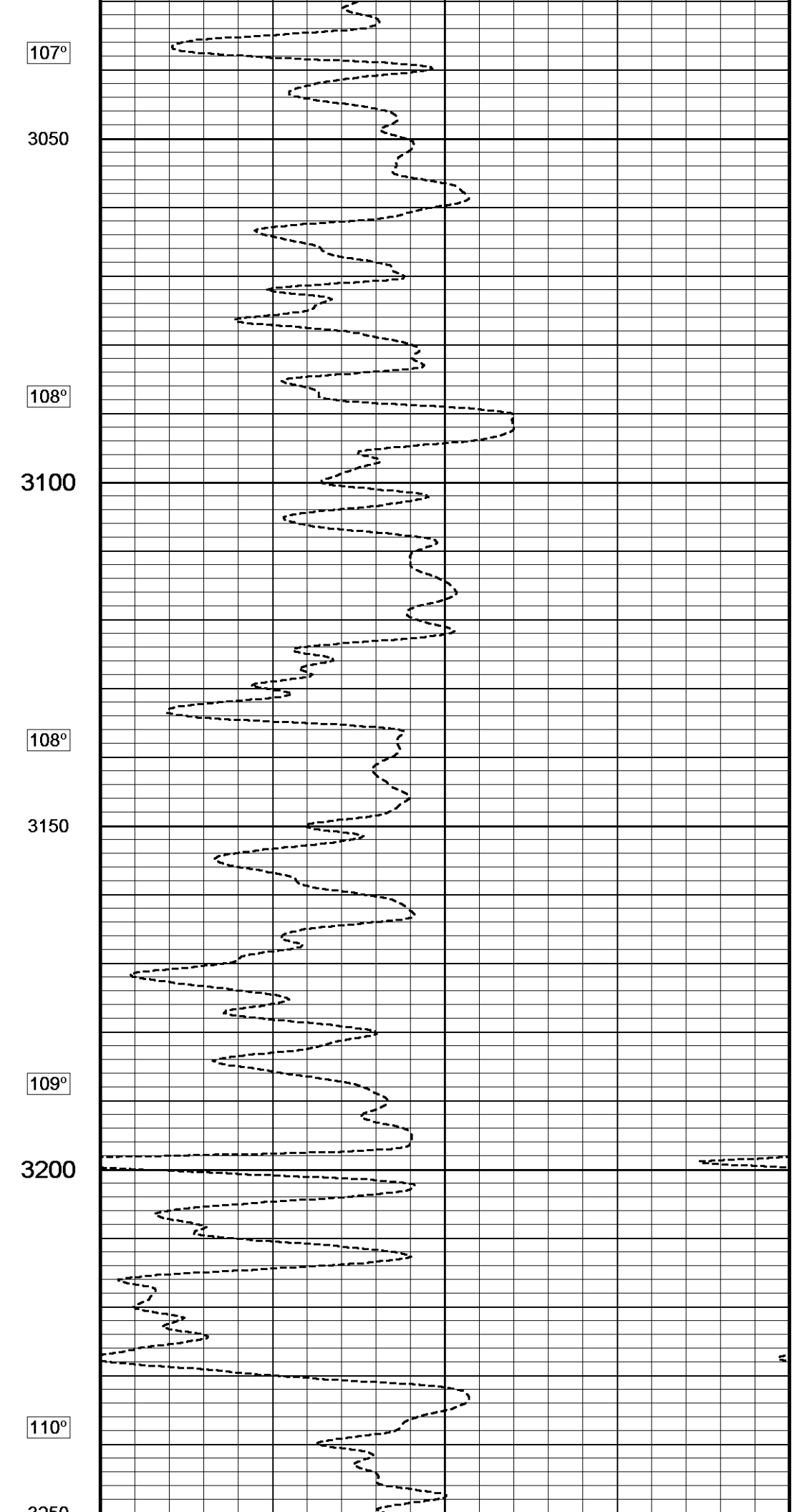
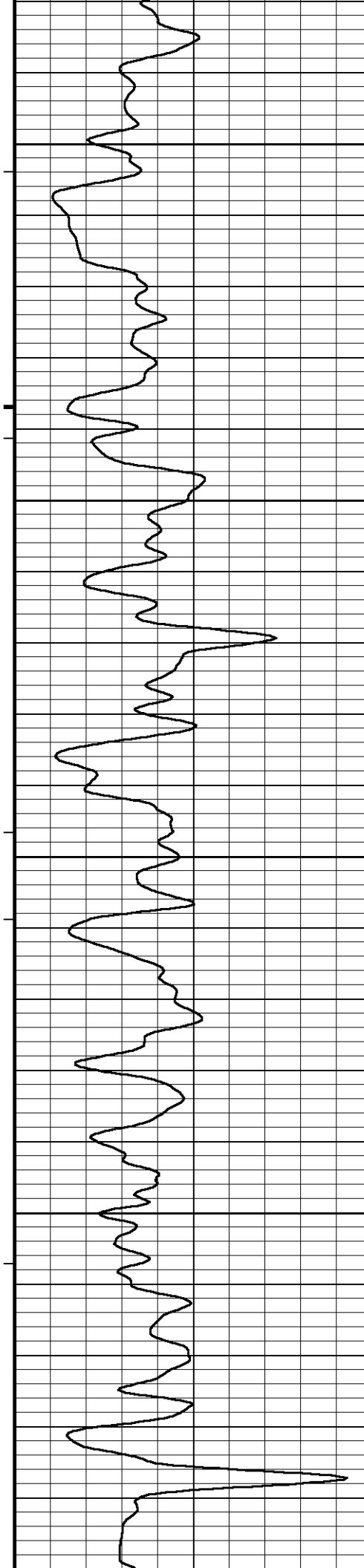
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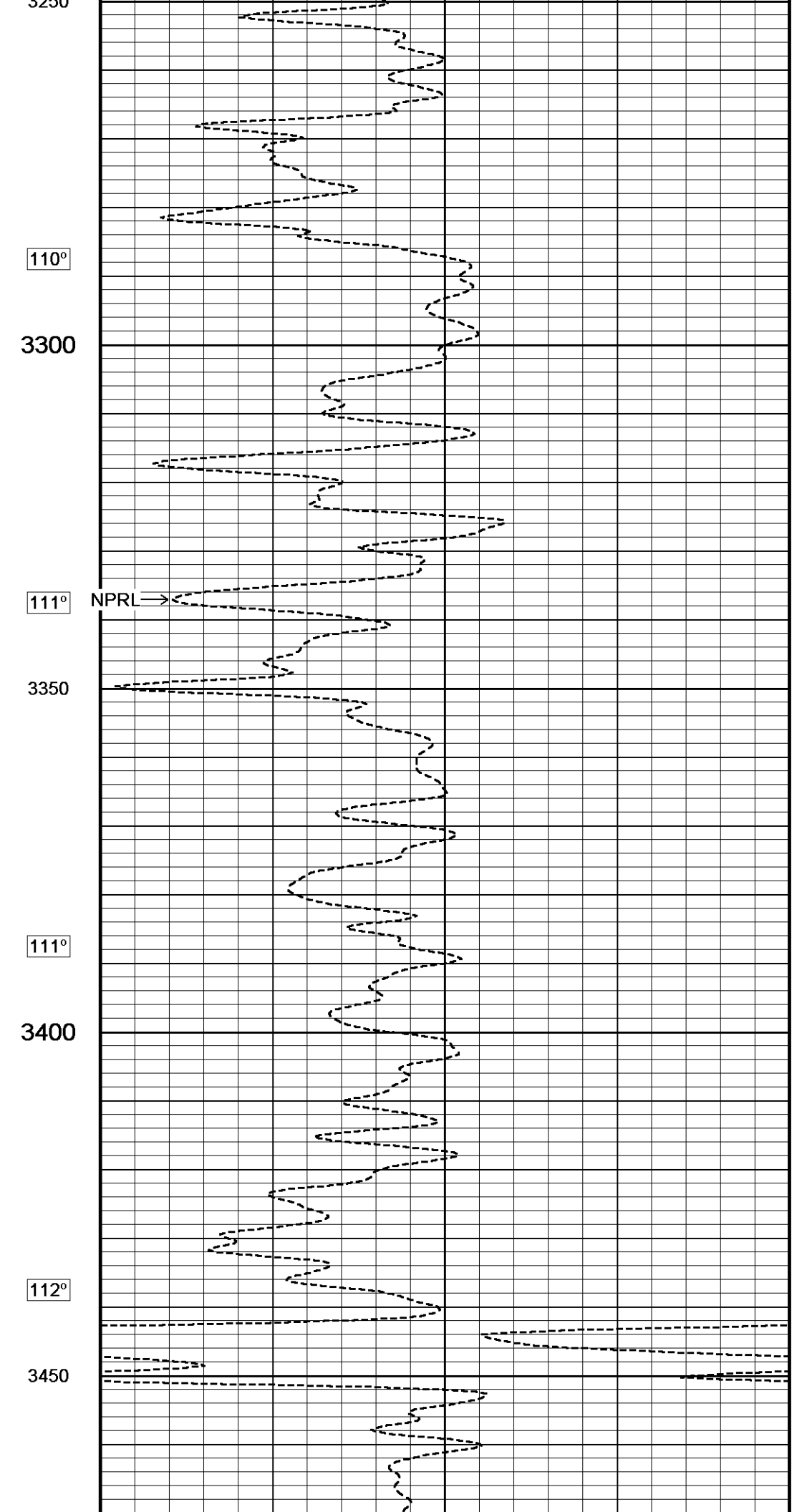
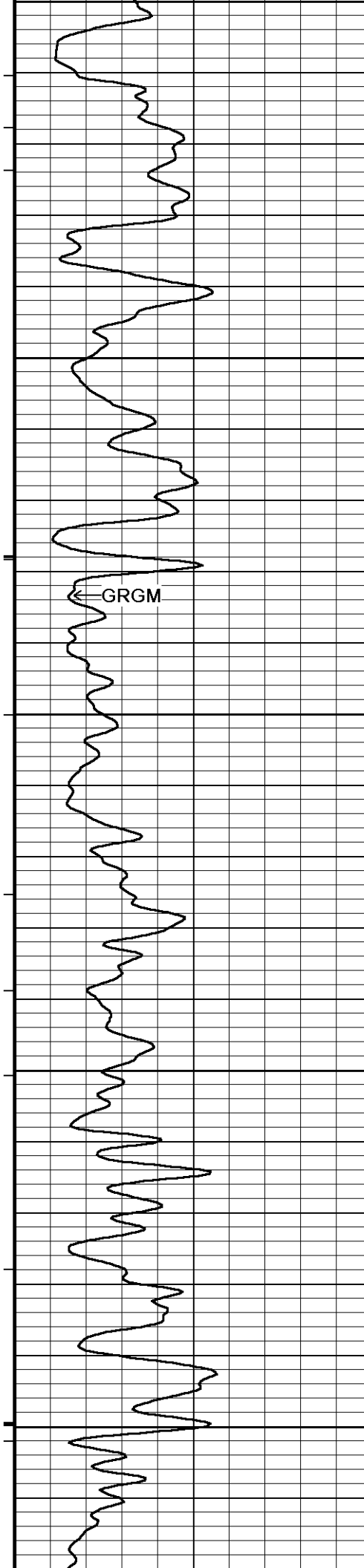
3000

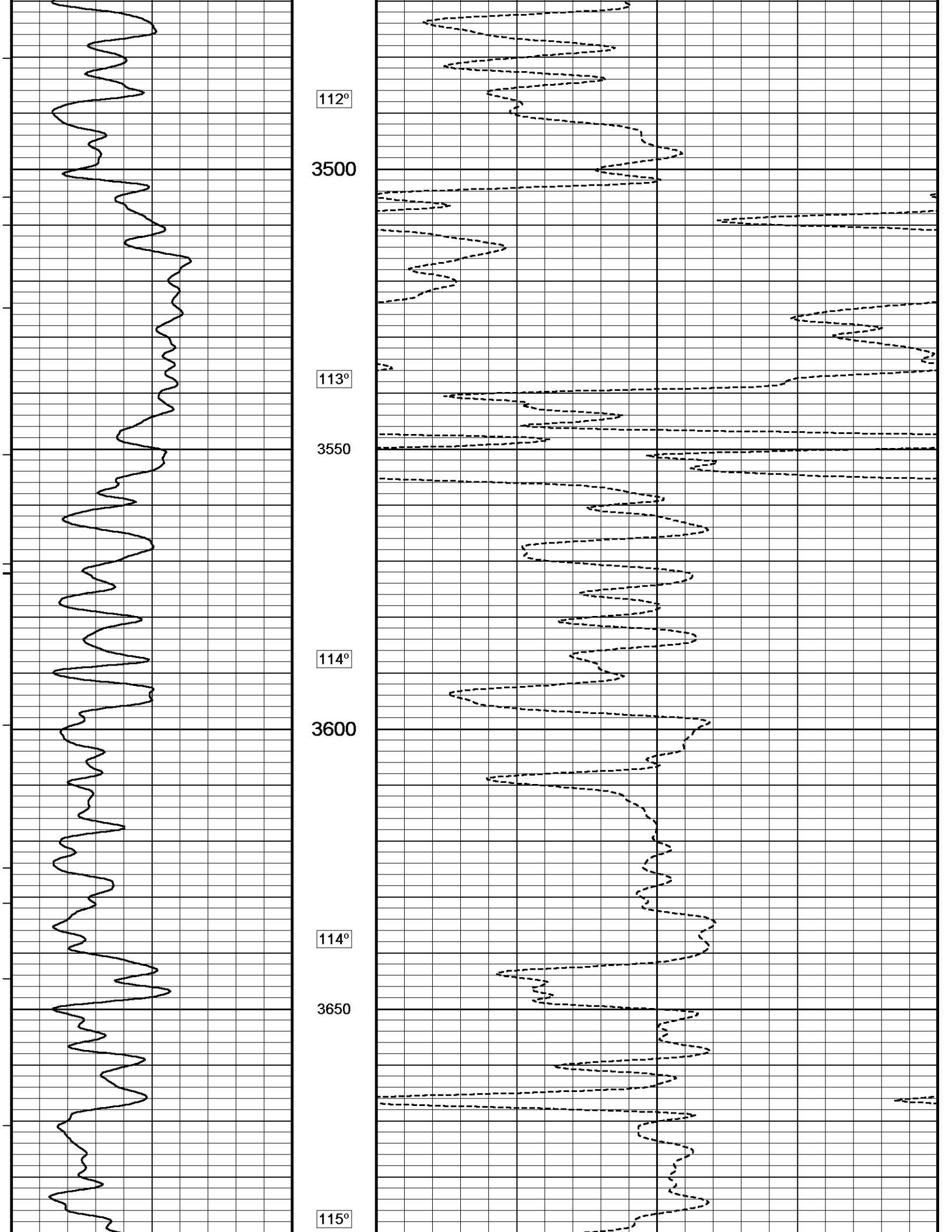
GRGM

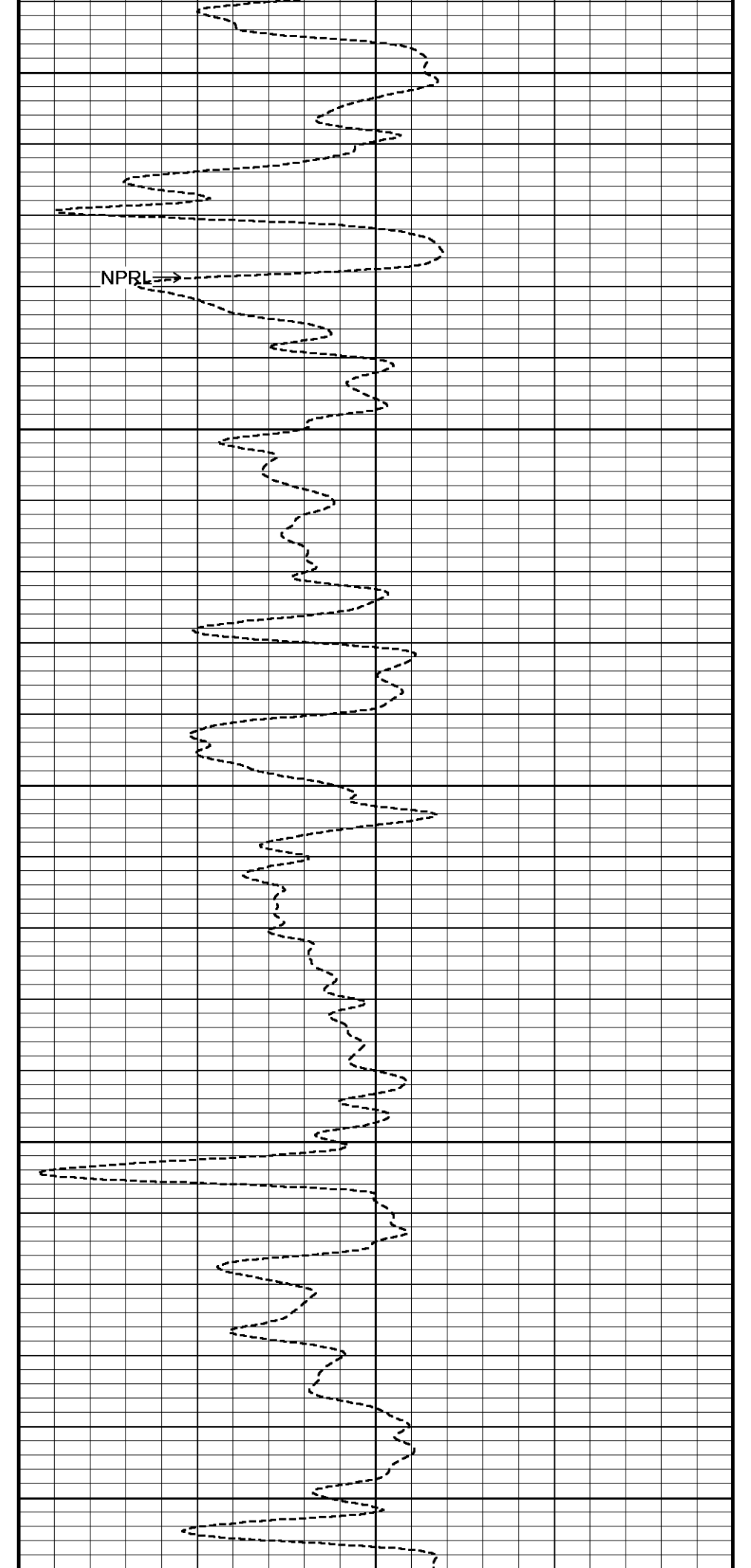
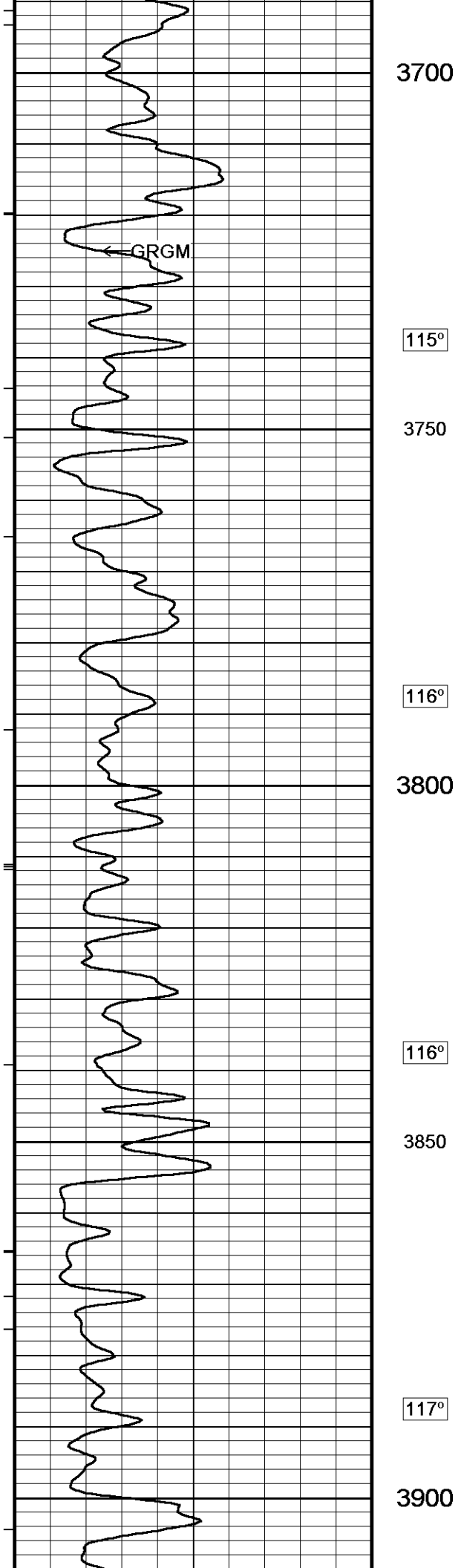


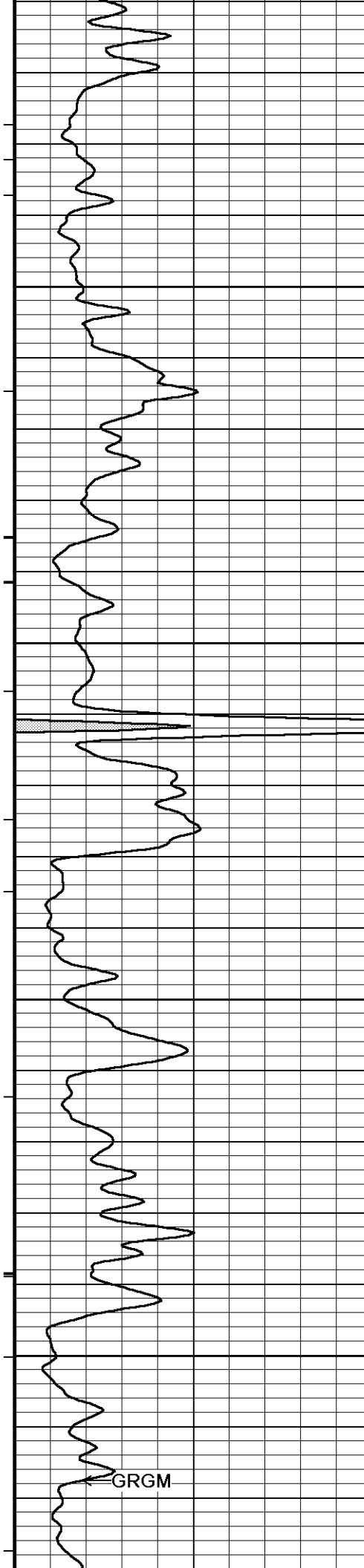
NPRL











117°

3950

118°

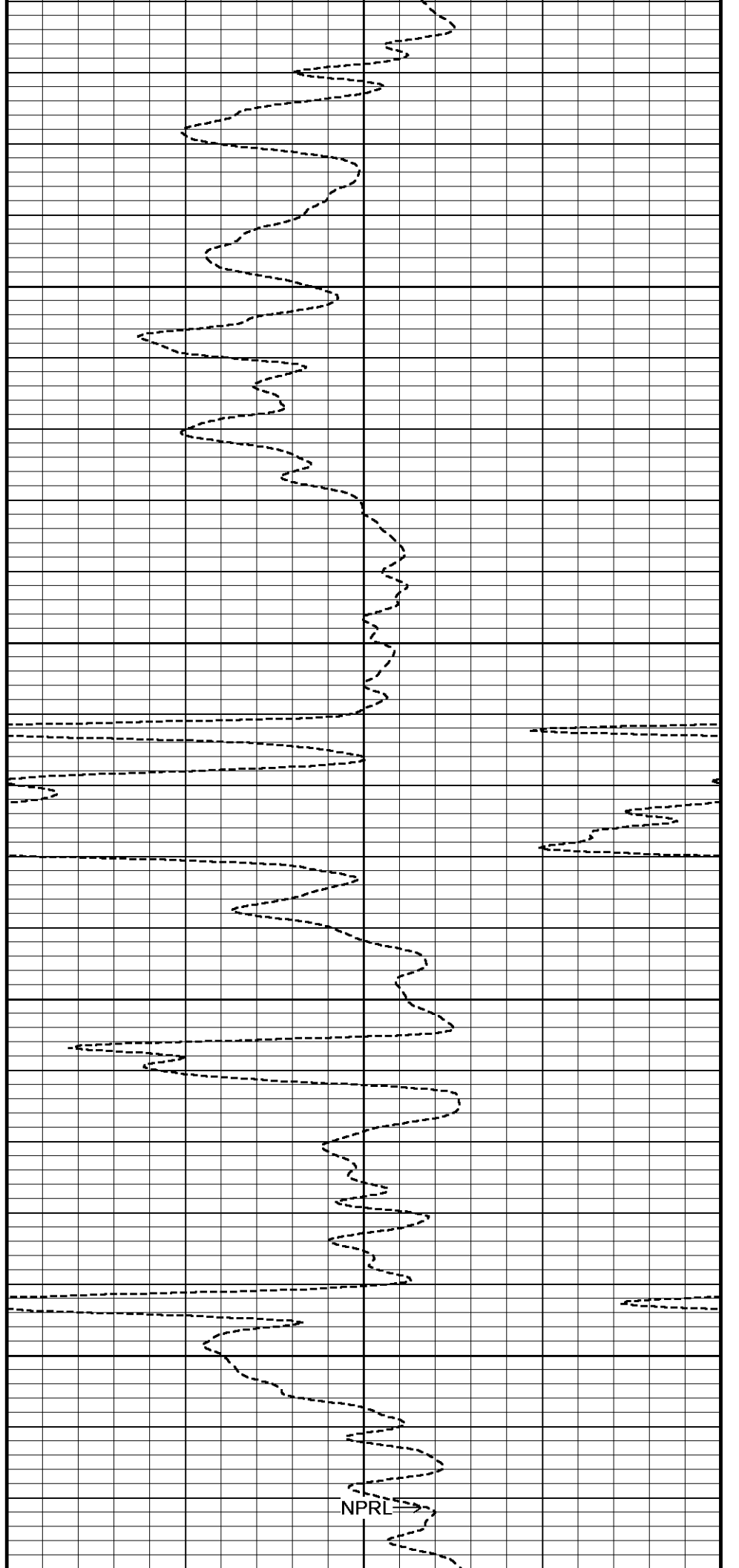
4000

118°

4050

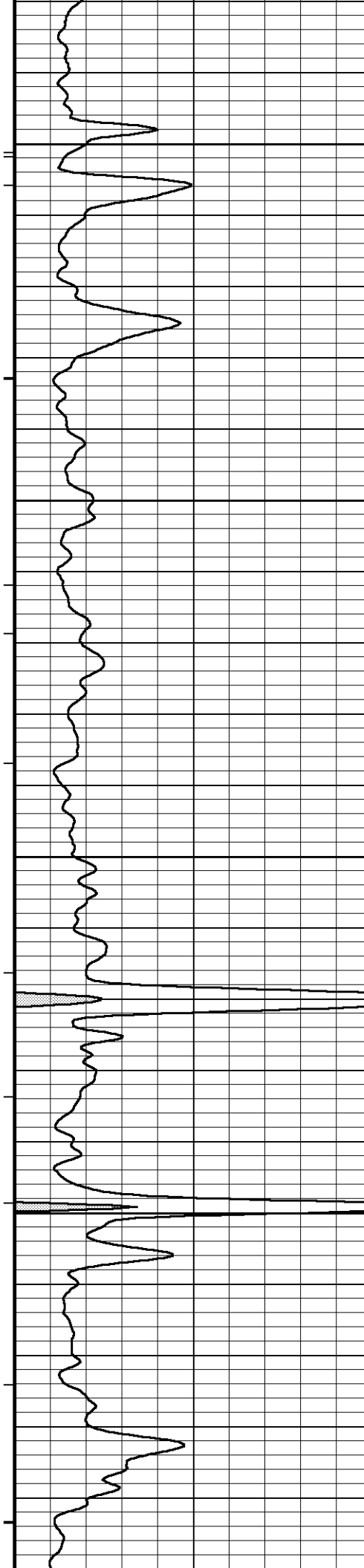
118°

4100



GRGM

NPRL



119°

4150

120°

4200

120°

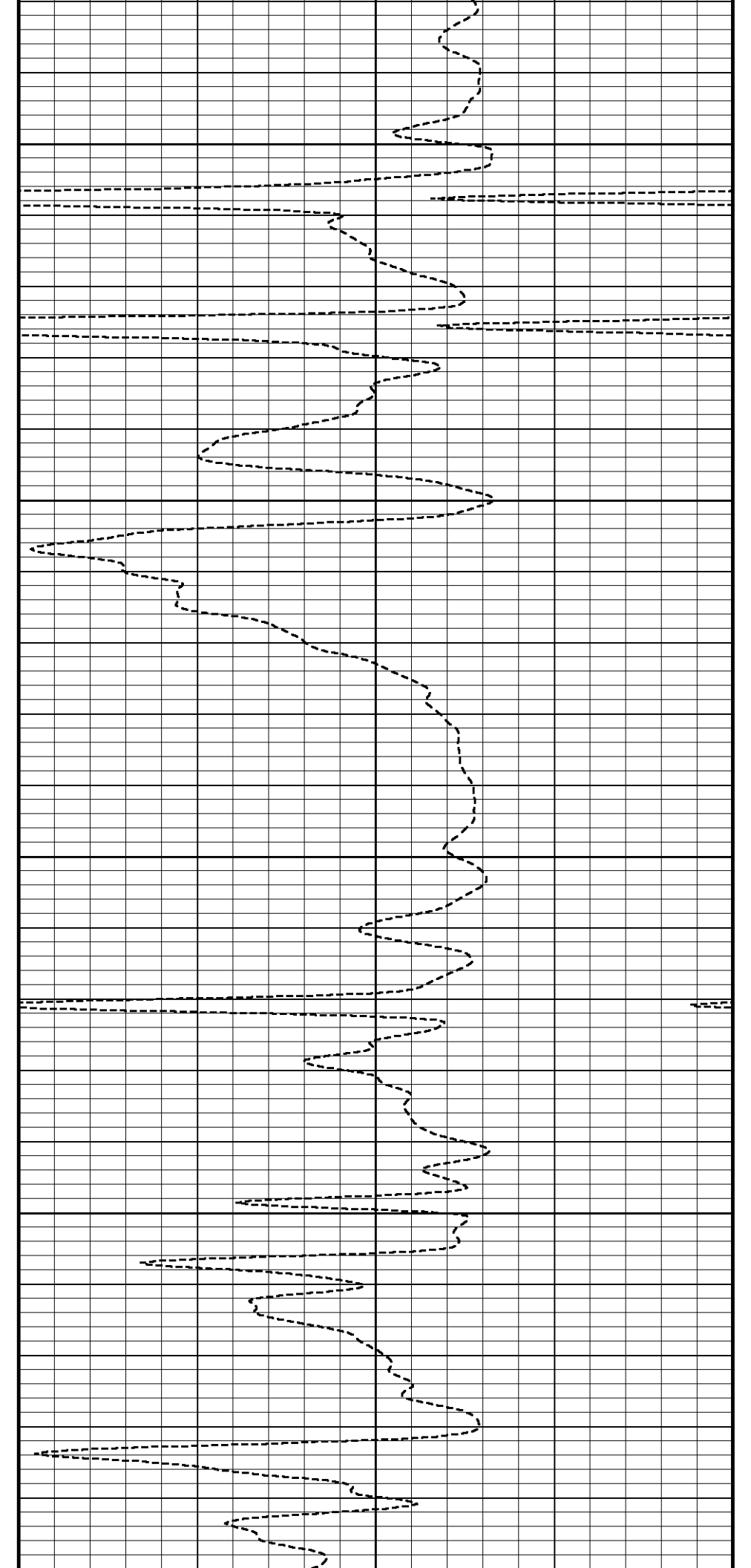
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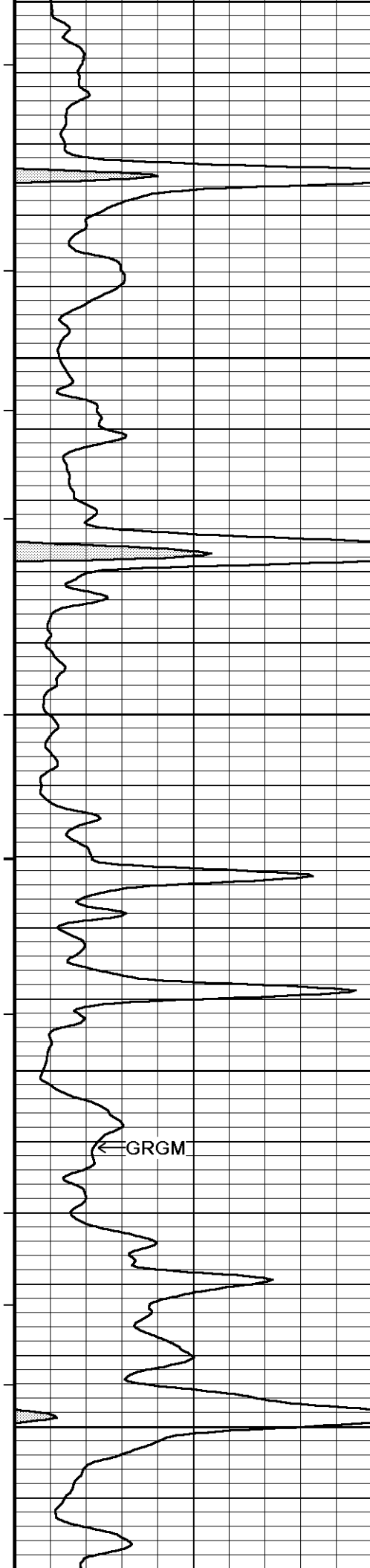
120°

4300

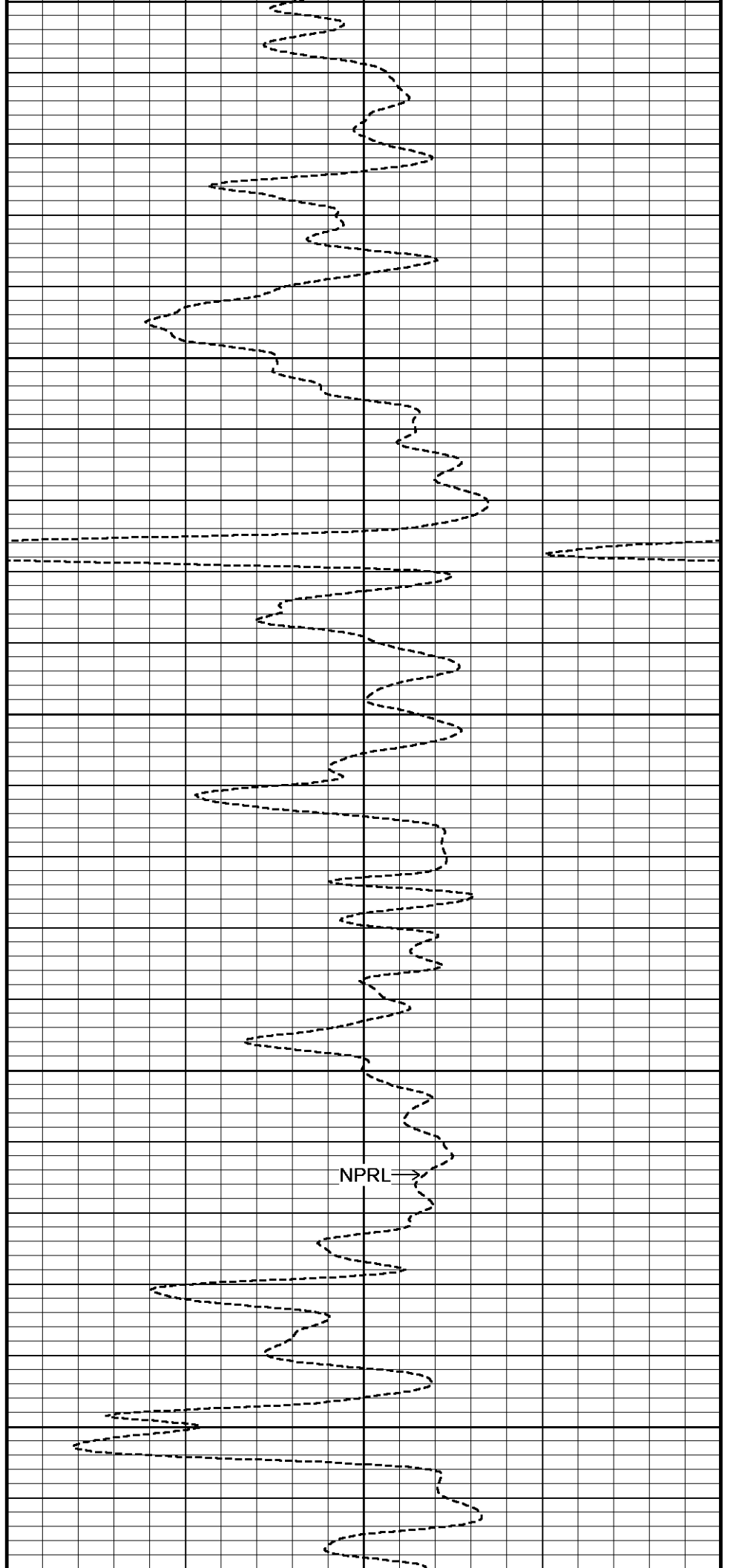
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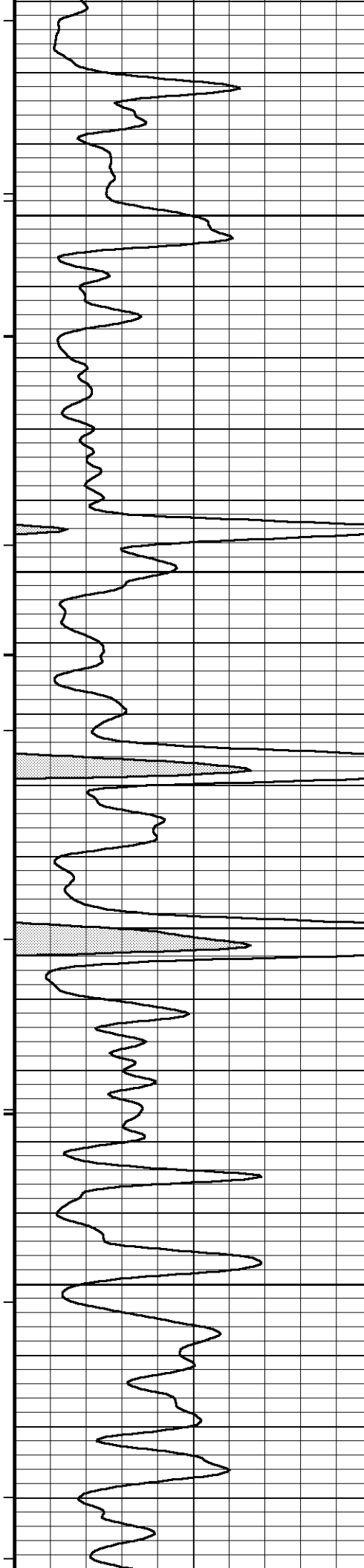
4350





4530
121°
4400
121°
4450
122°
4500
122°
4550





122°

4600

123°

4650

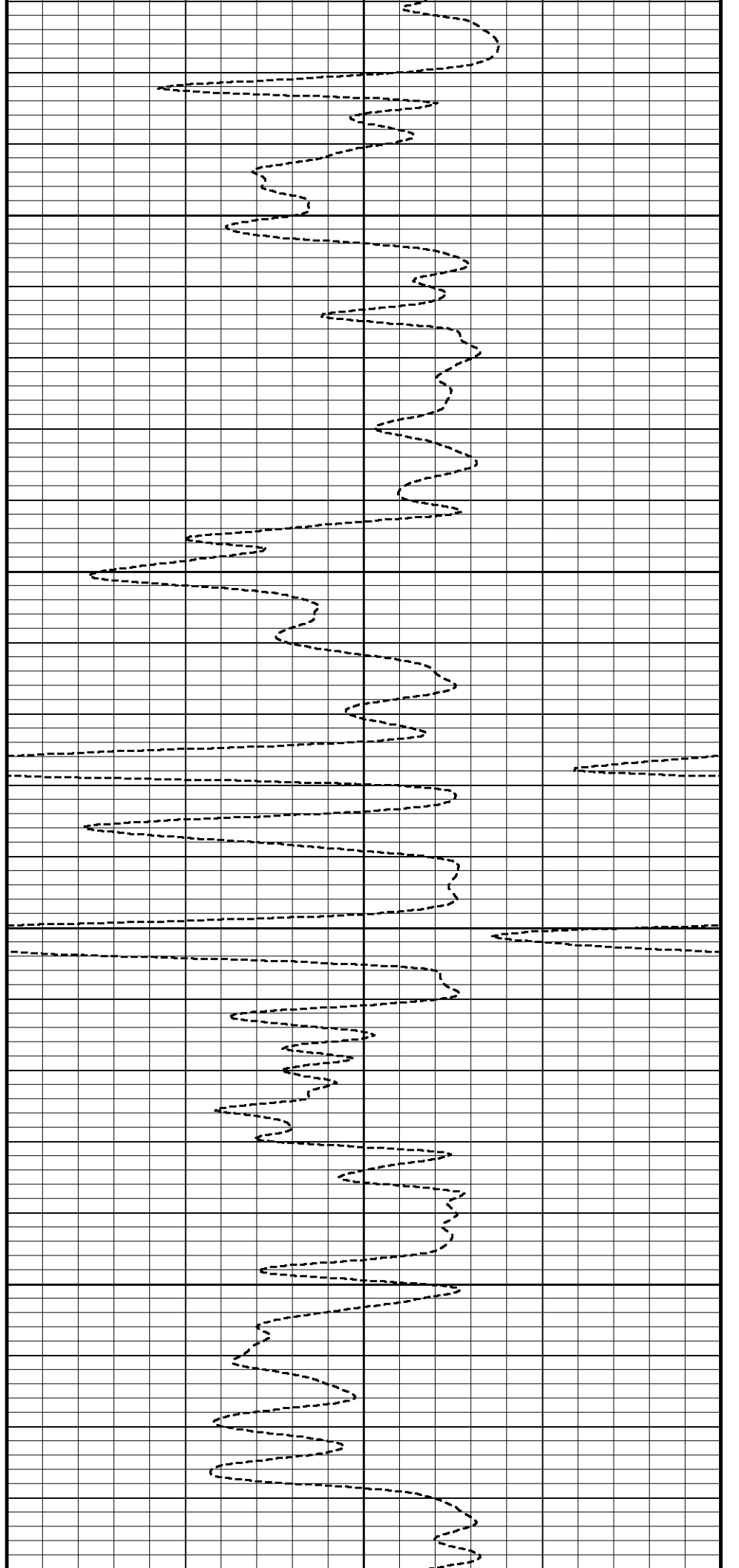
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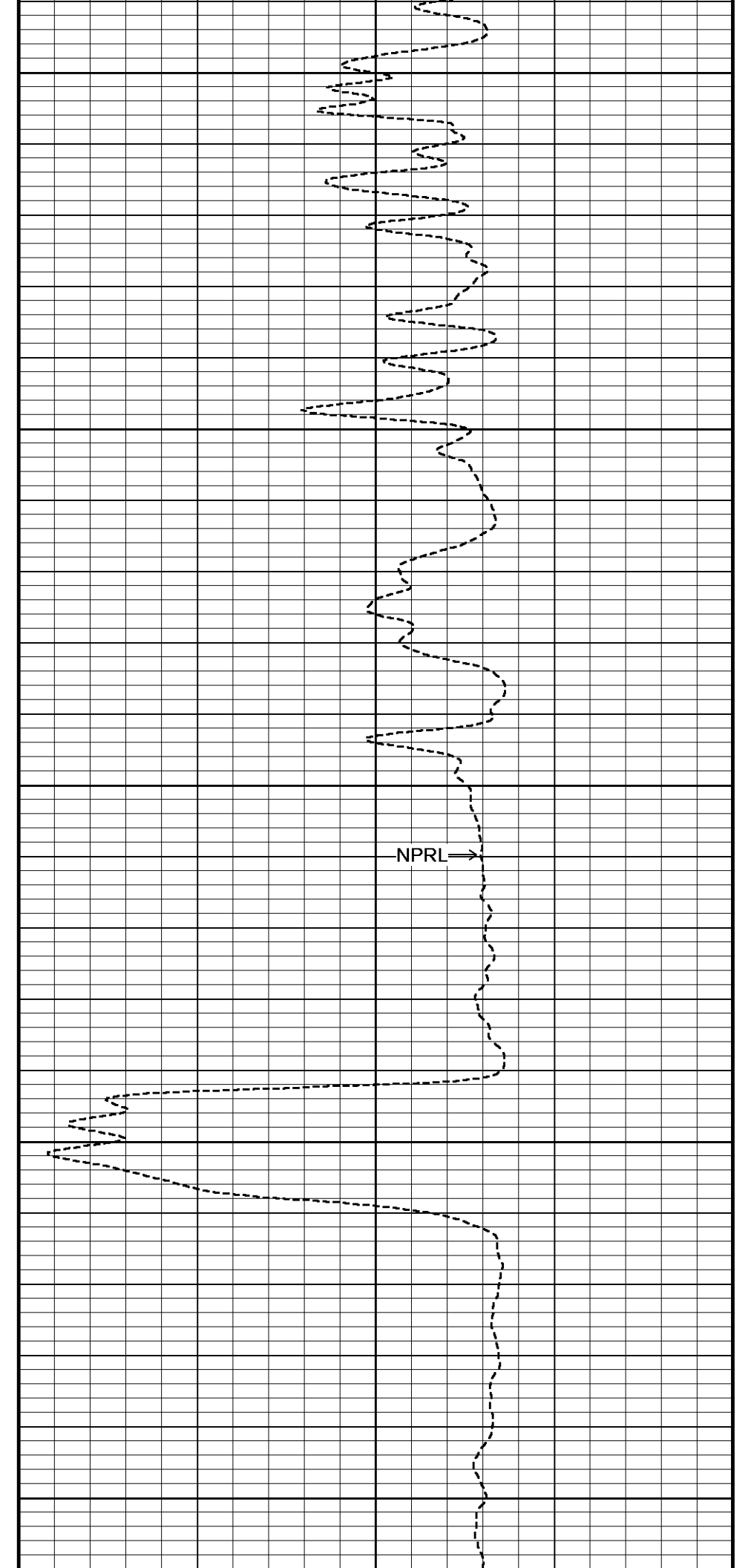
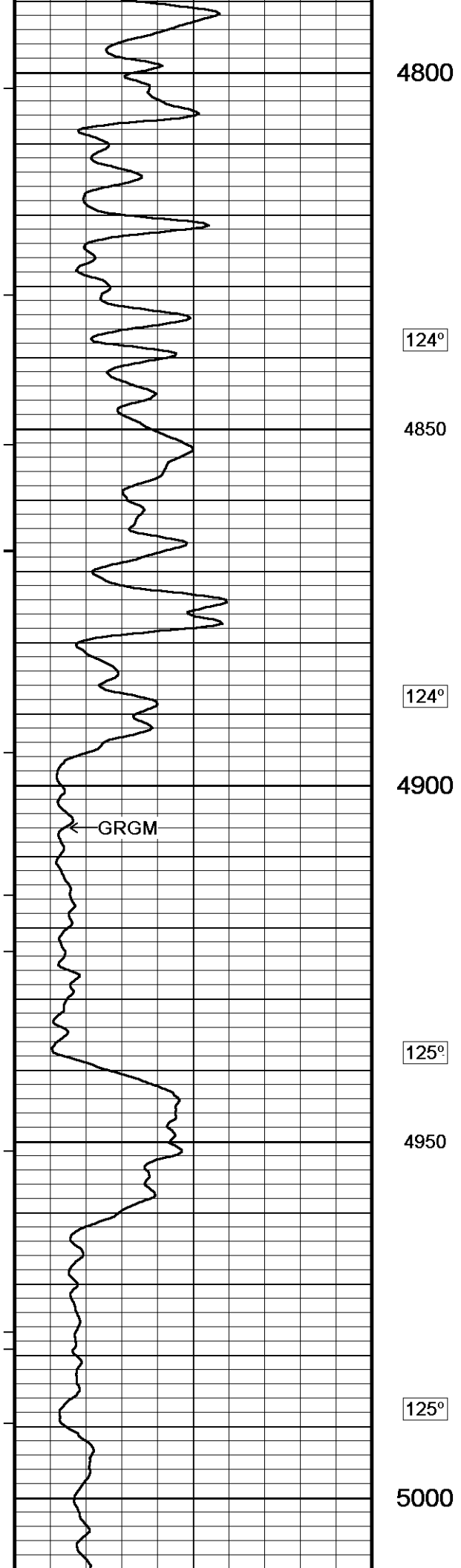
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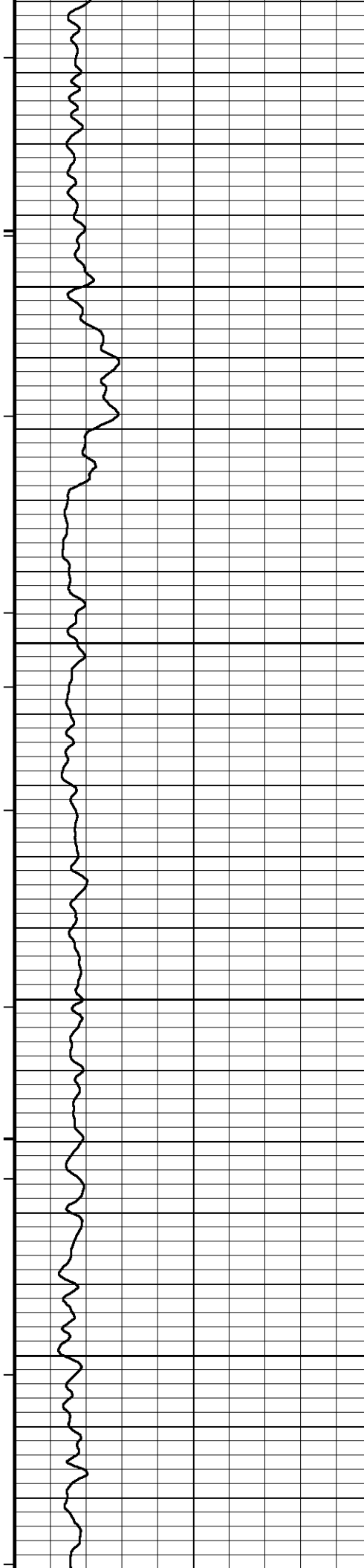
123°

4750

124°







125°

5050

125°

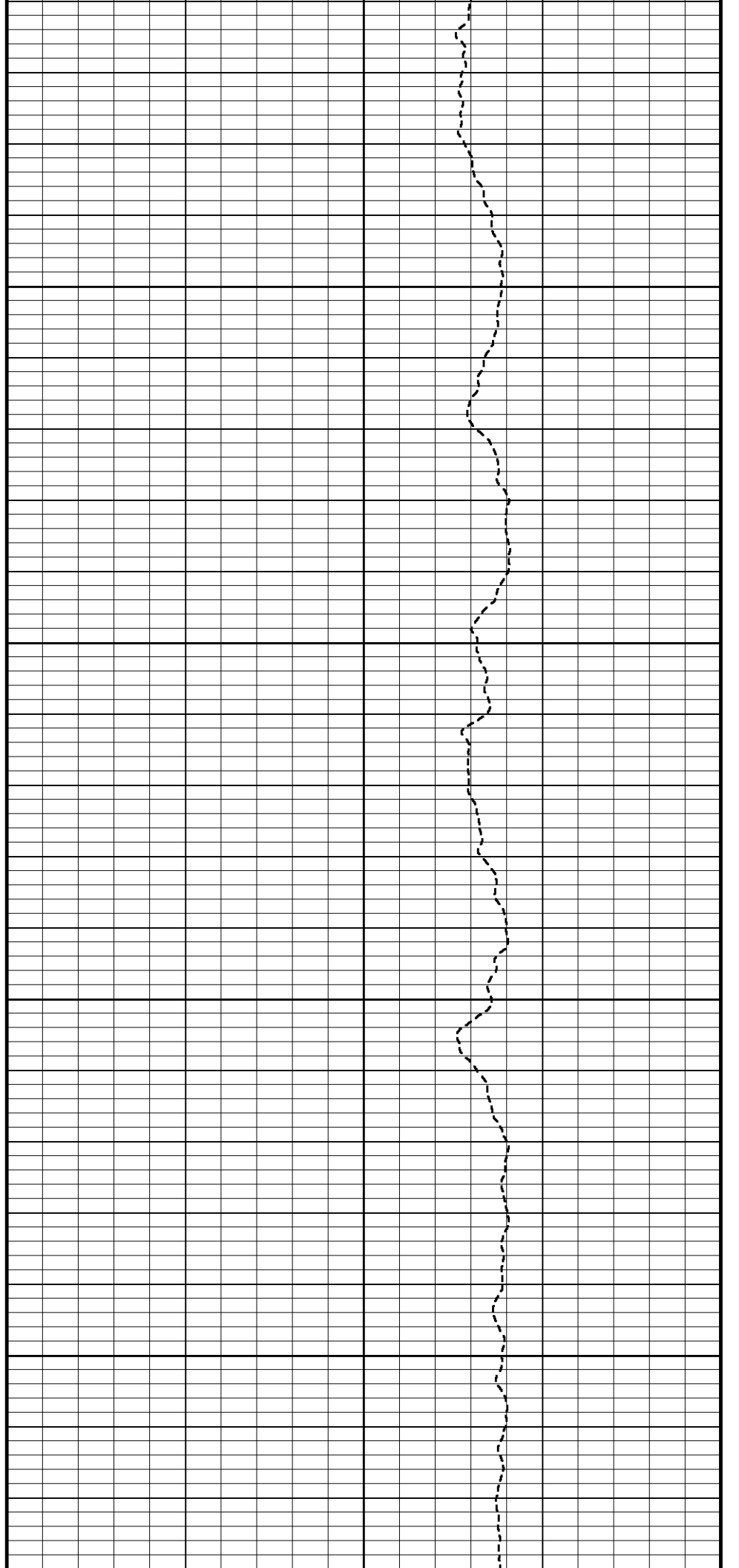
5100

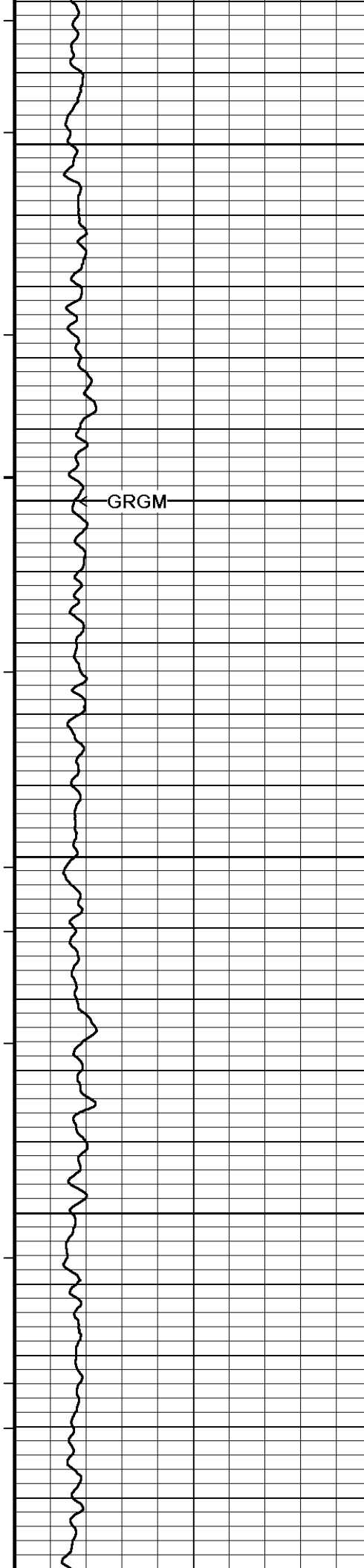
126°

5150

126°

5200





126°

5250

126°

5300

126°

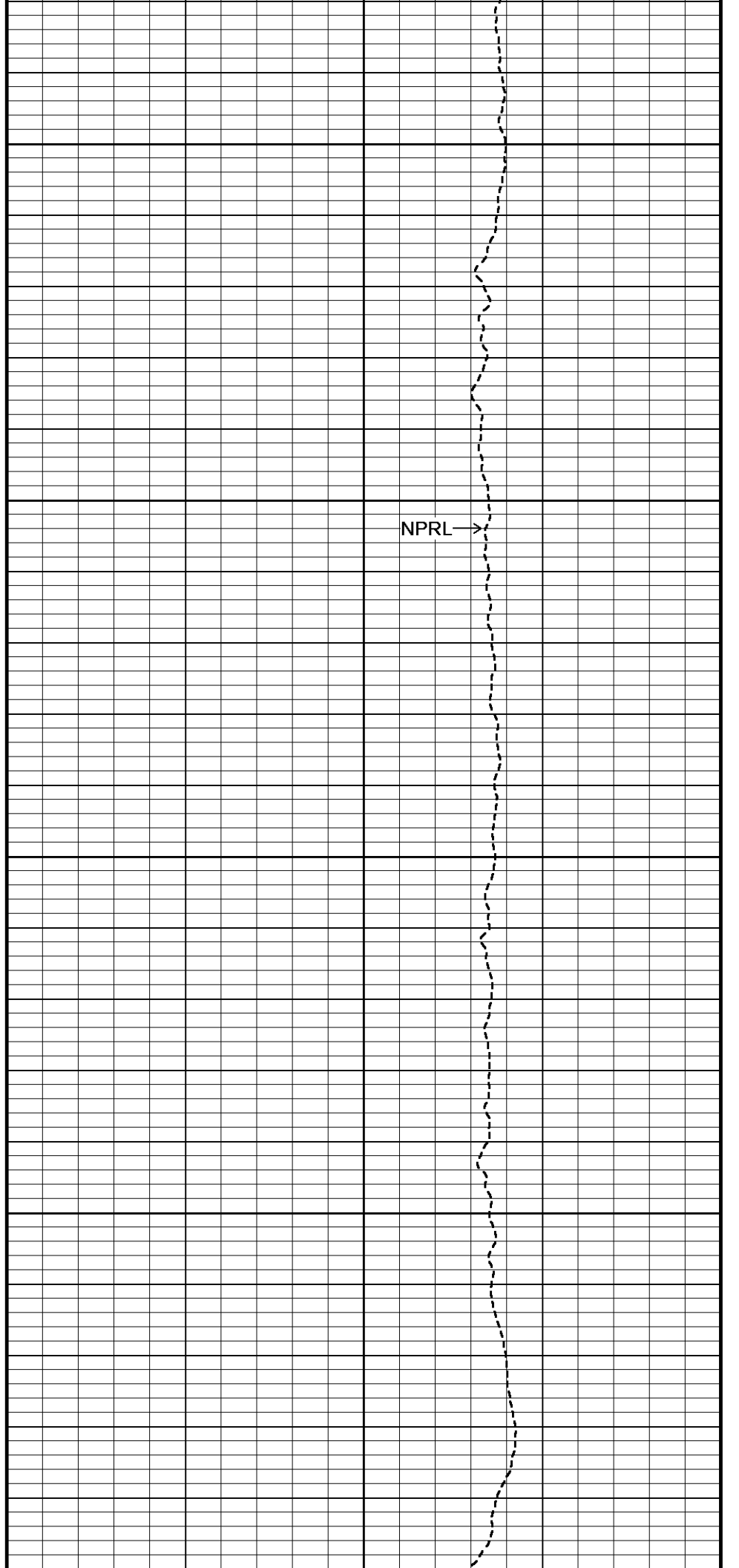
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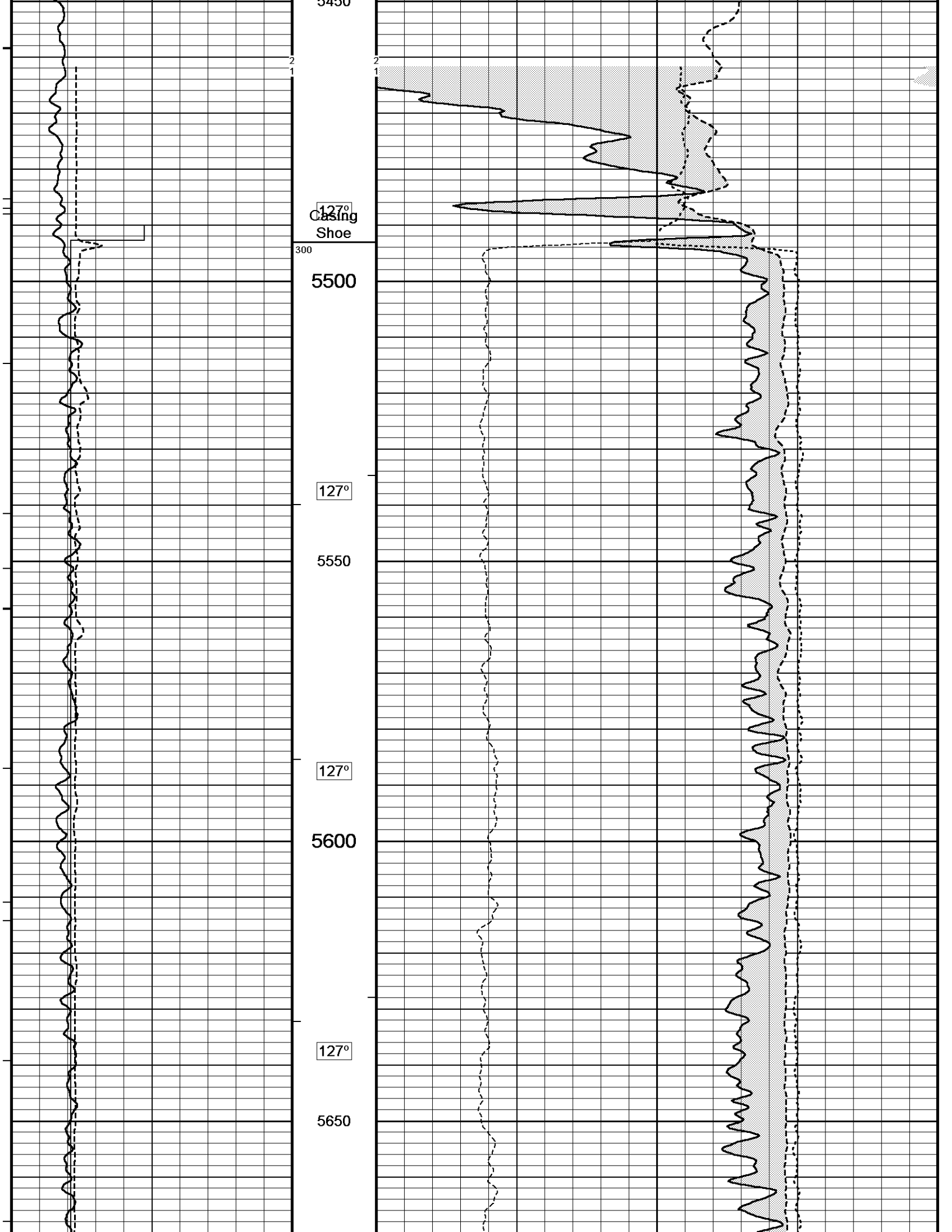
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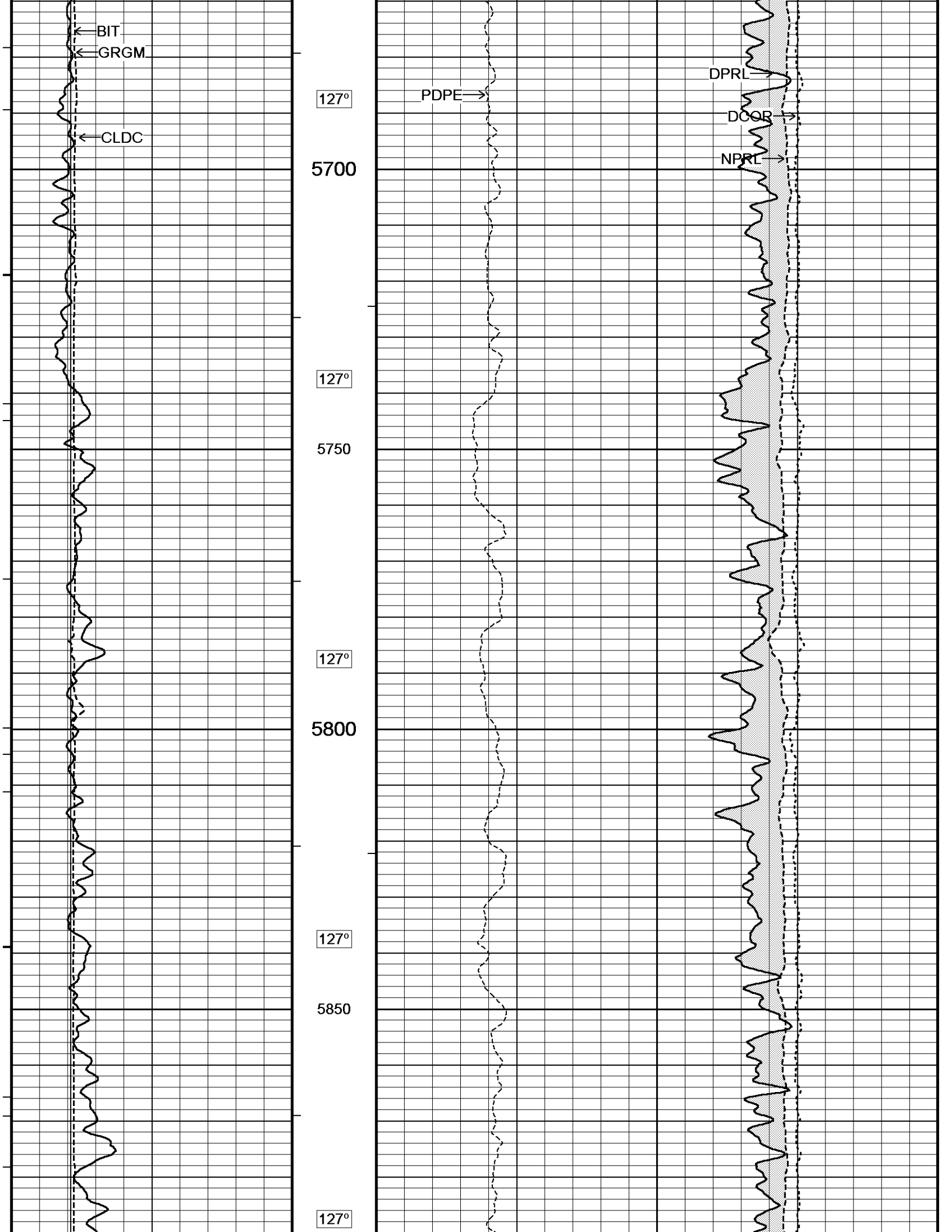
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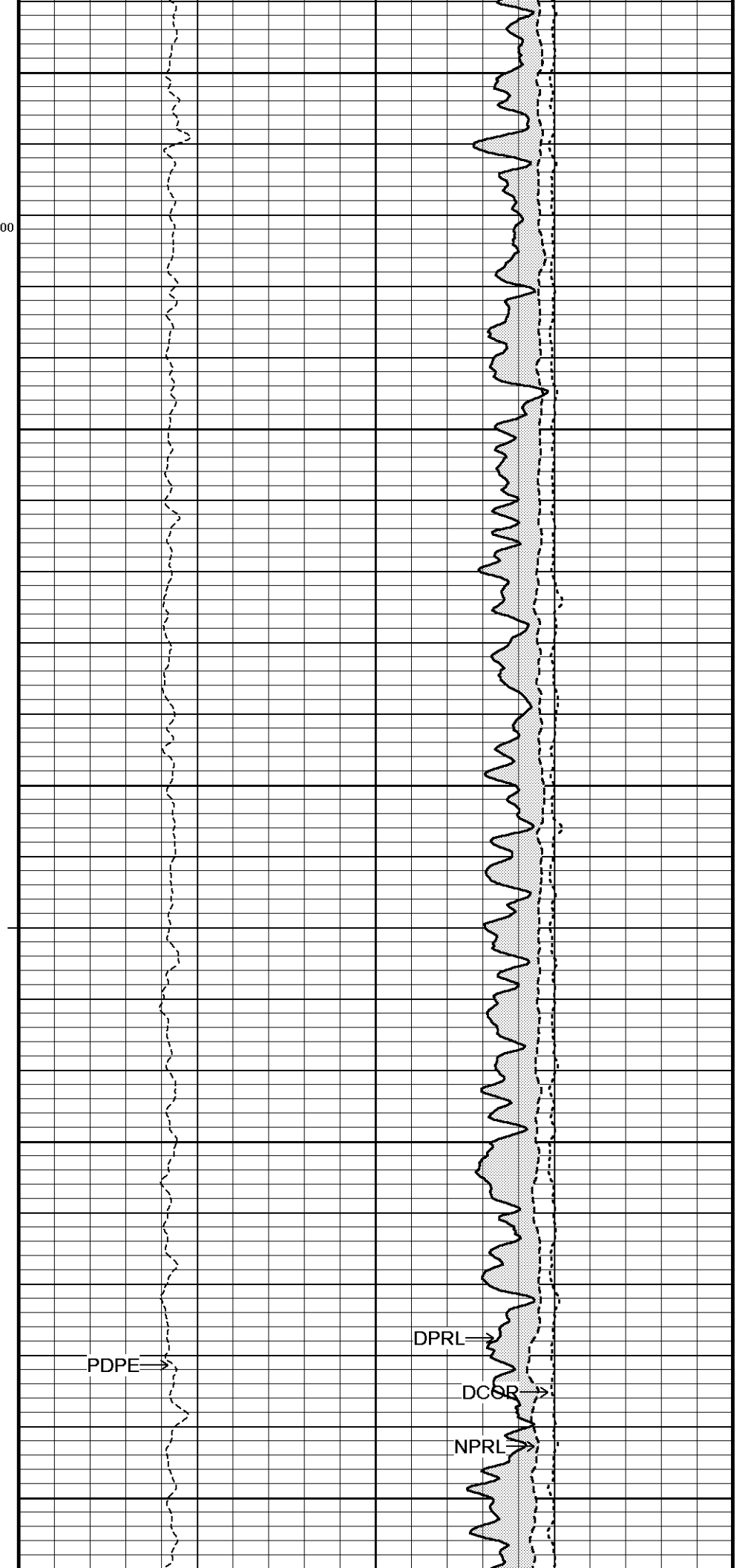
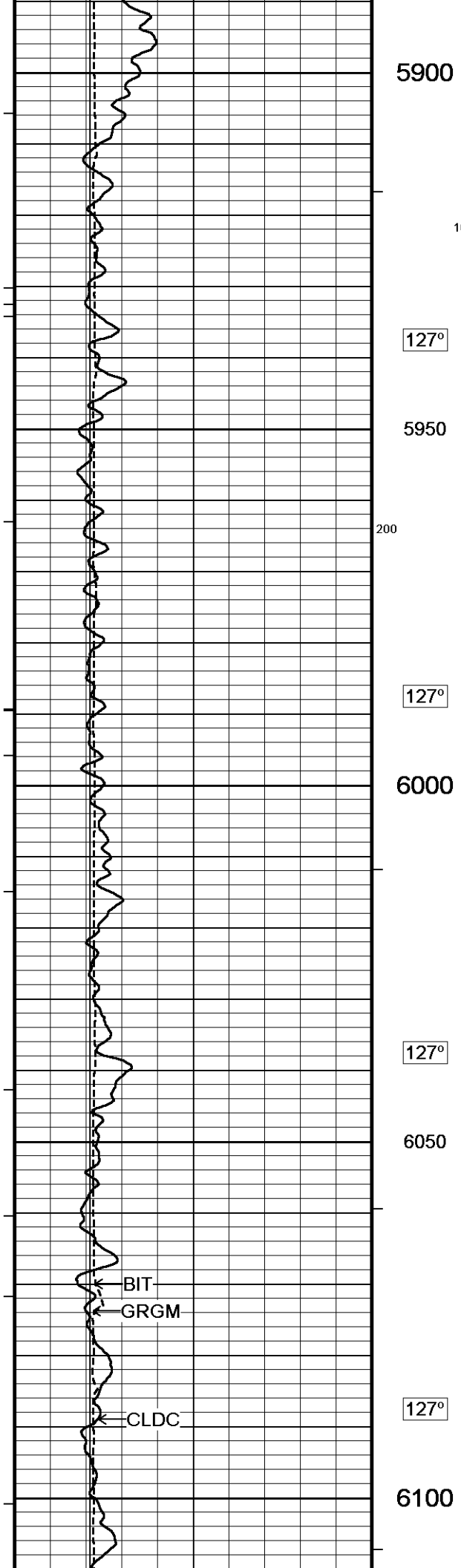
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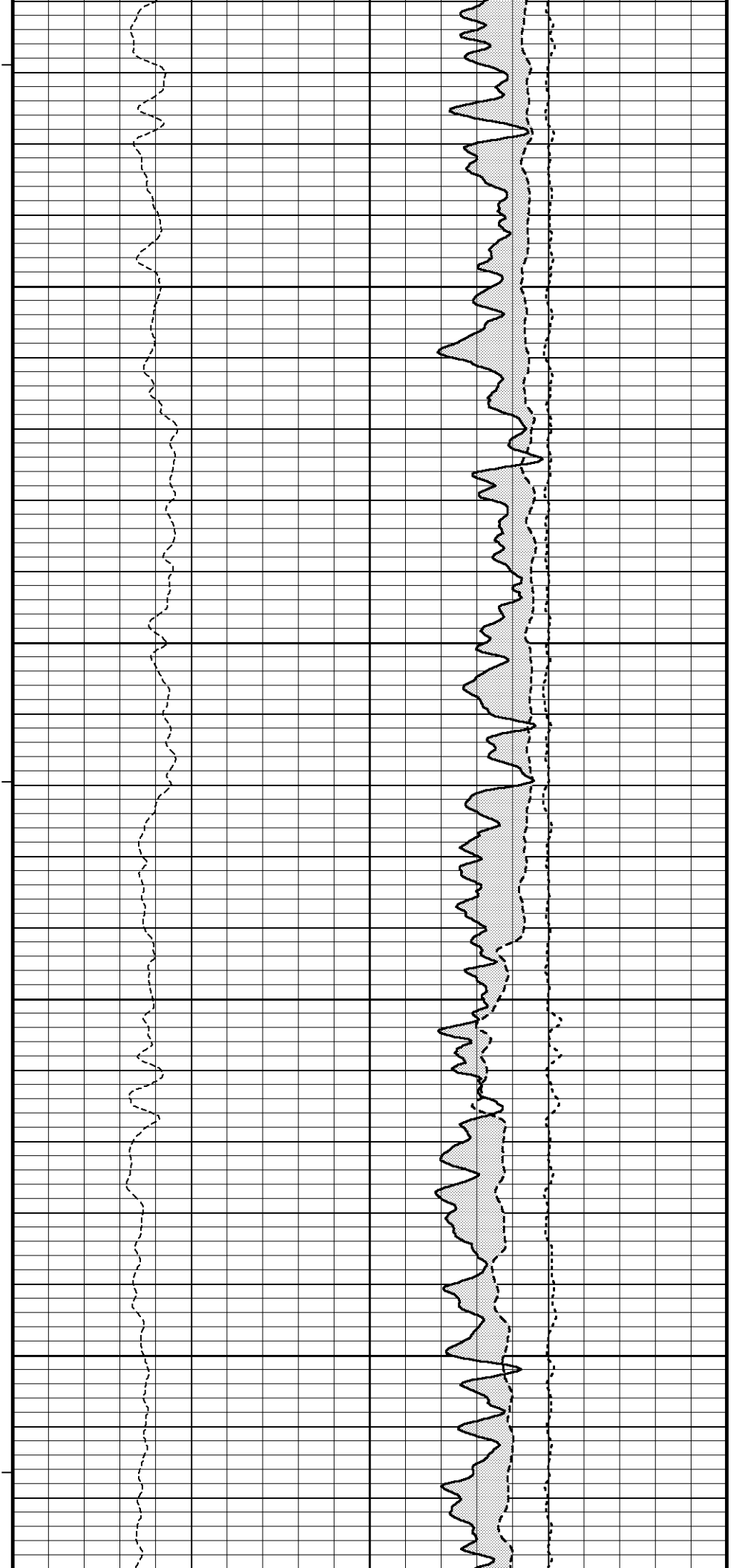
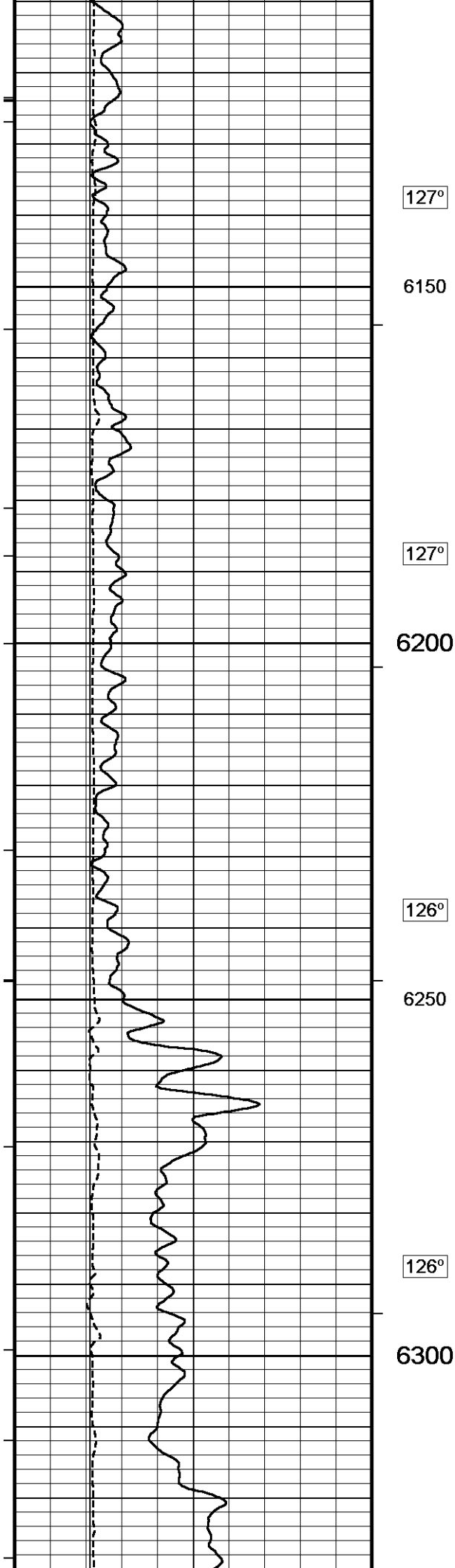
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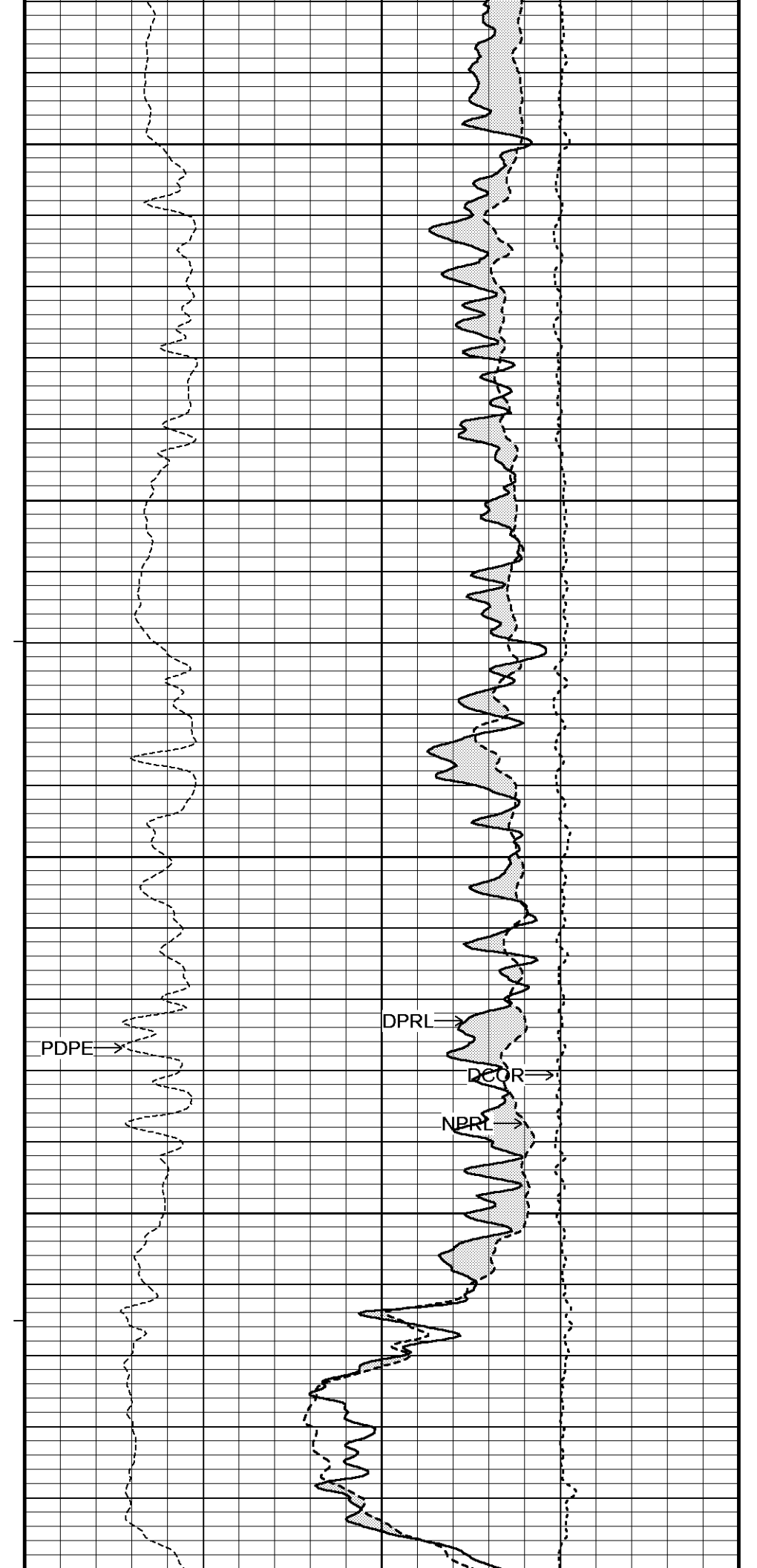
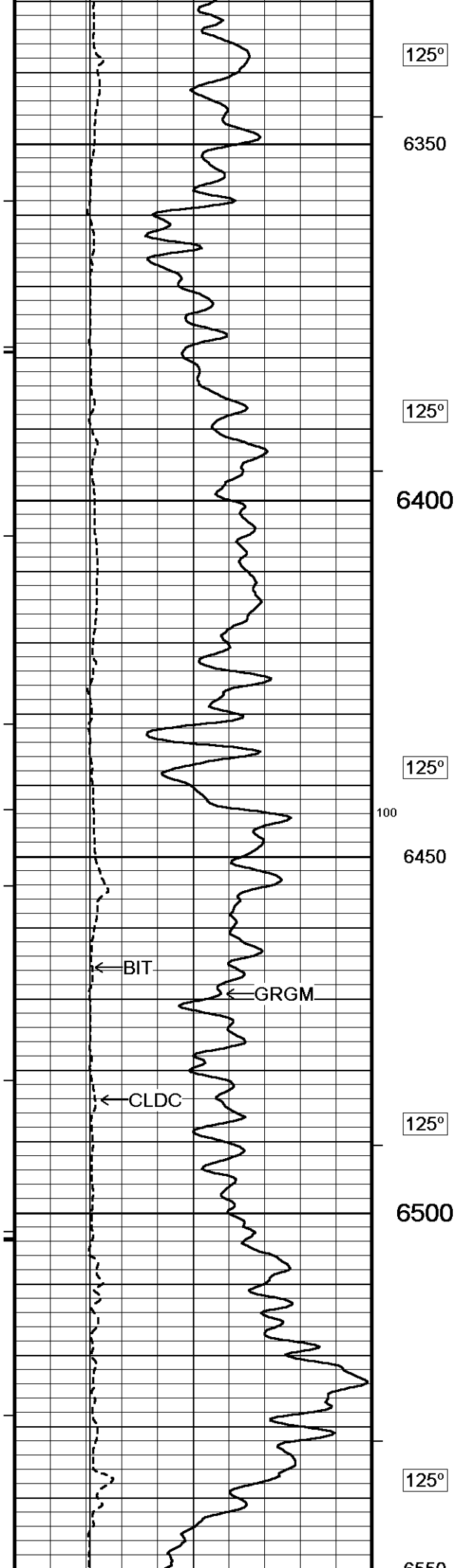


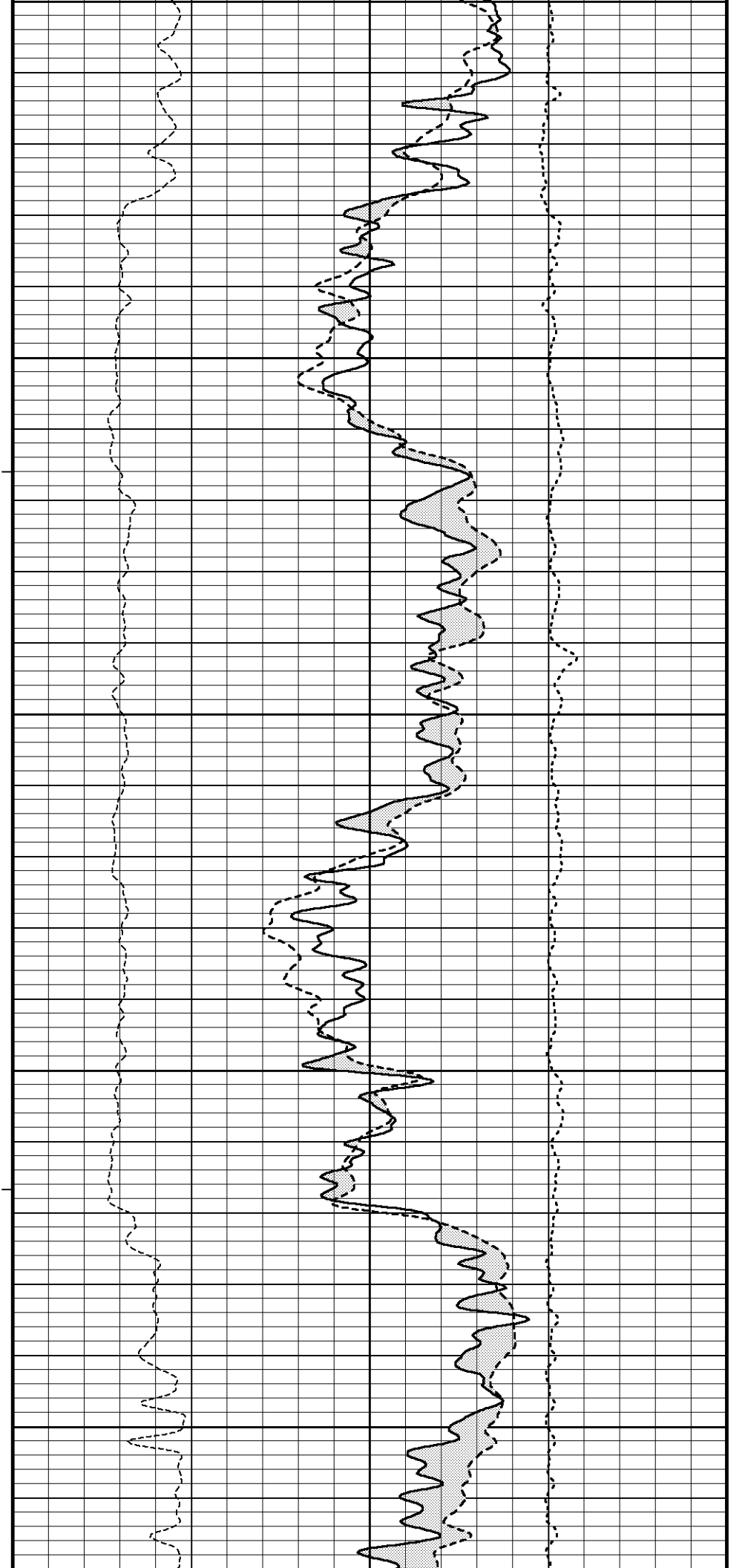
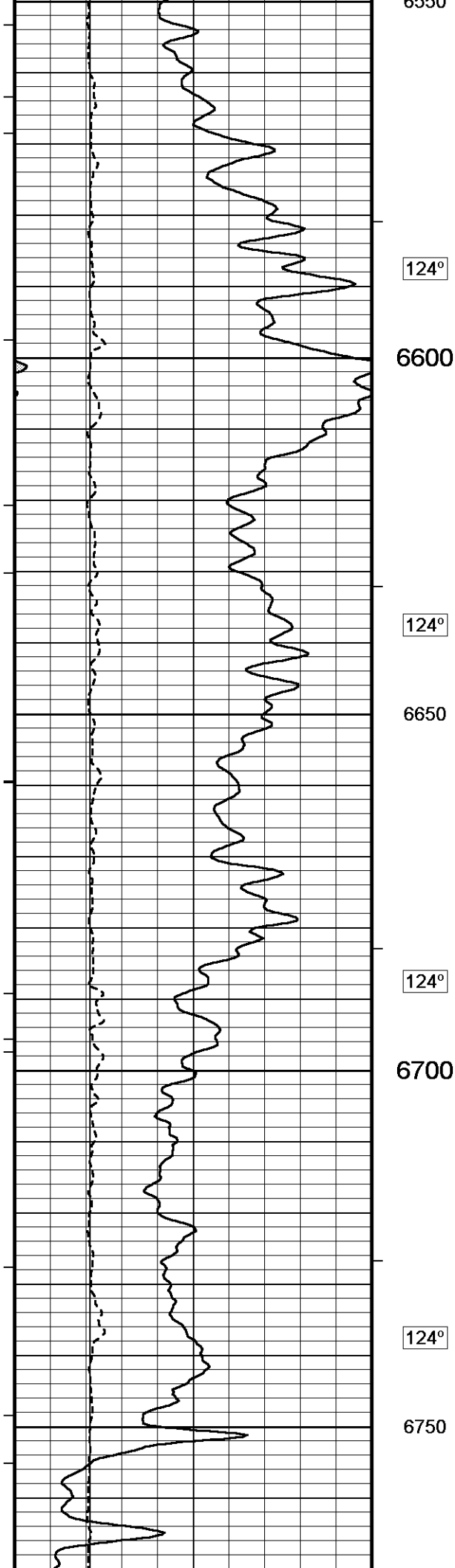


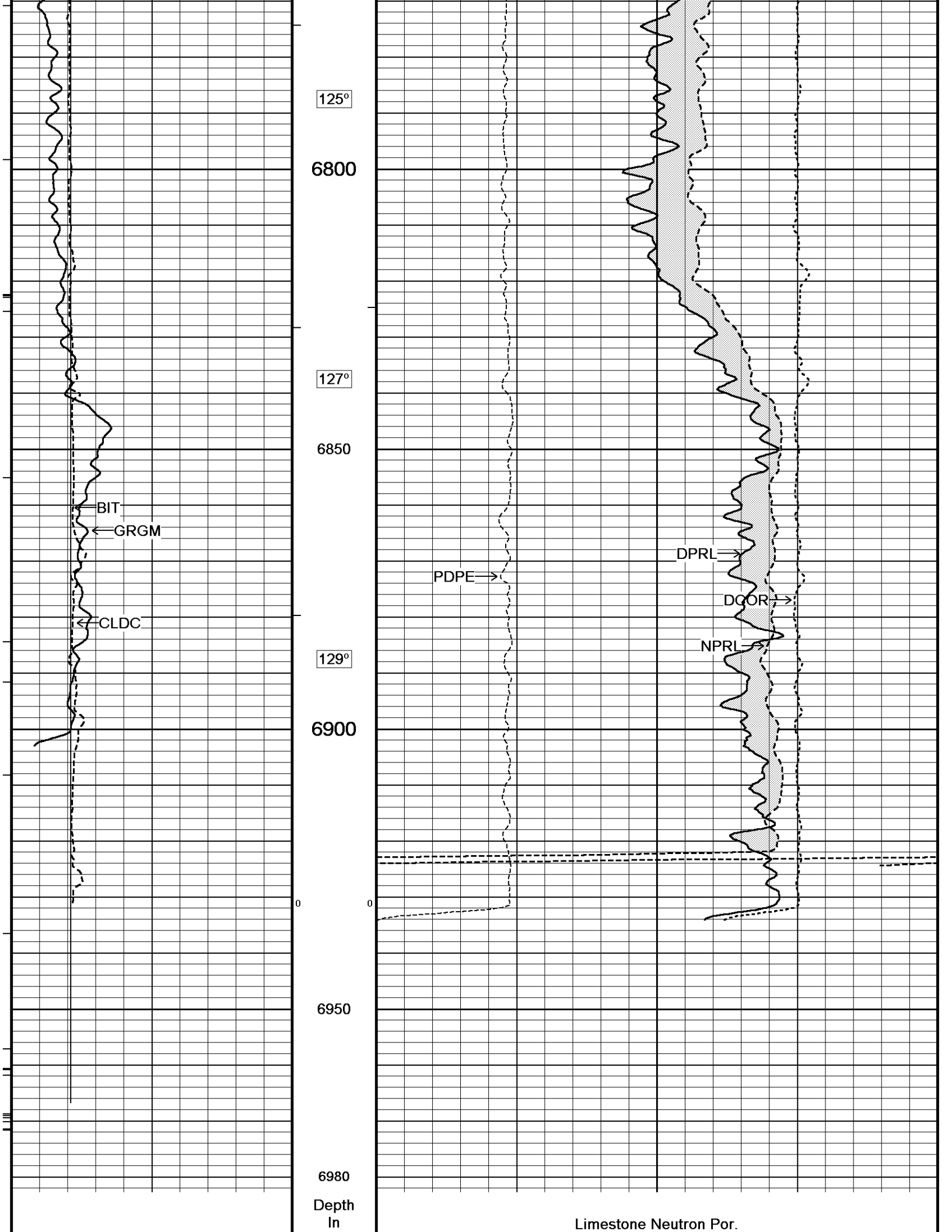


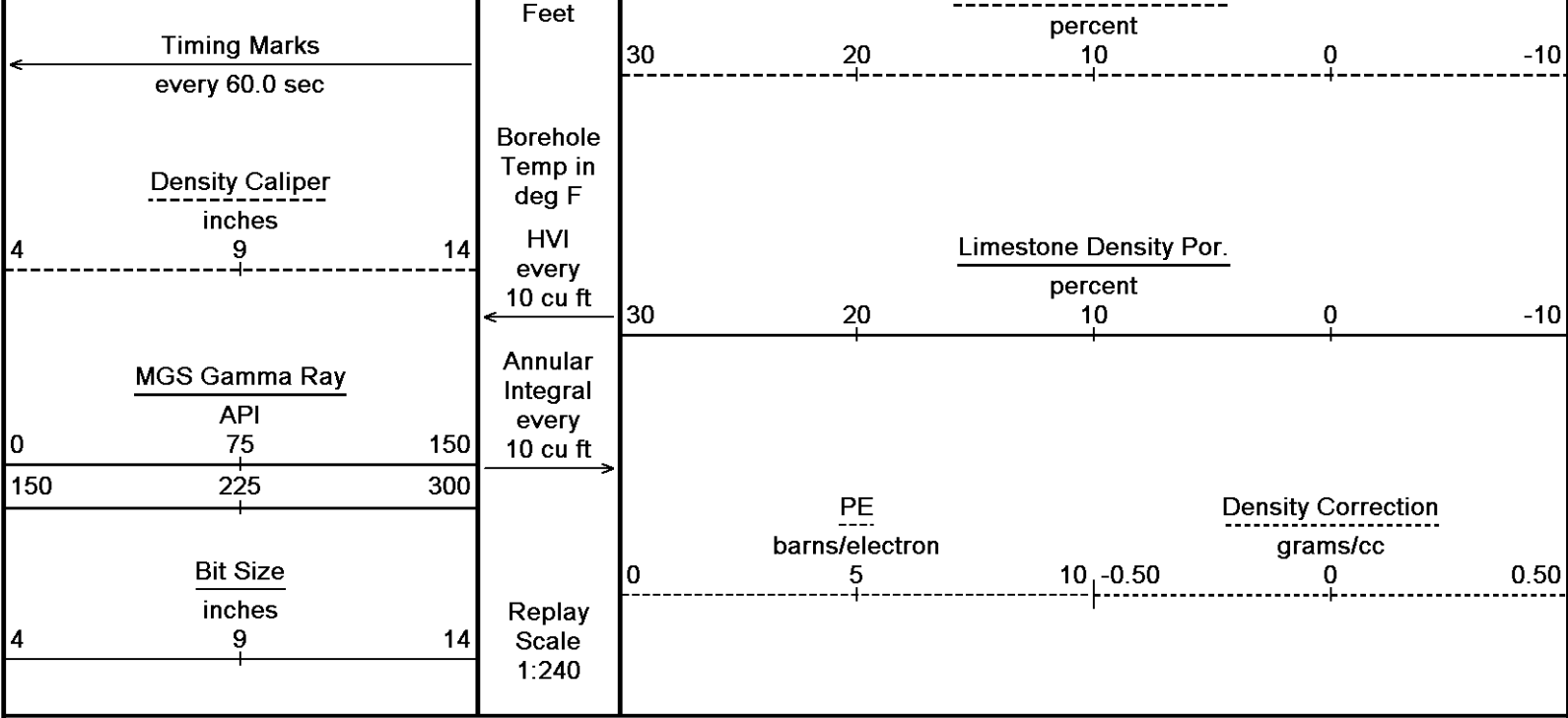










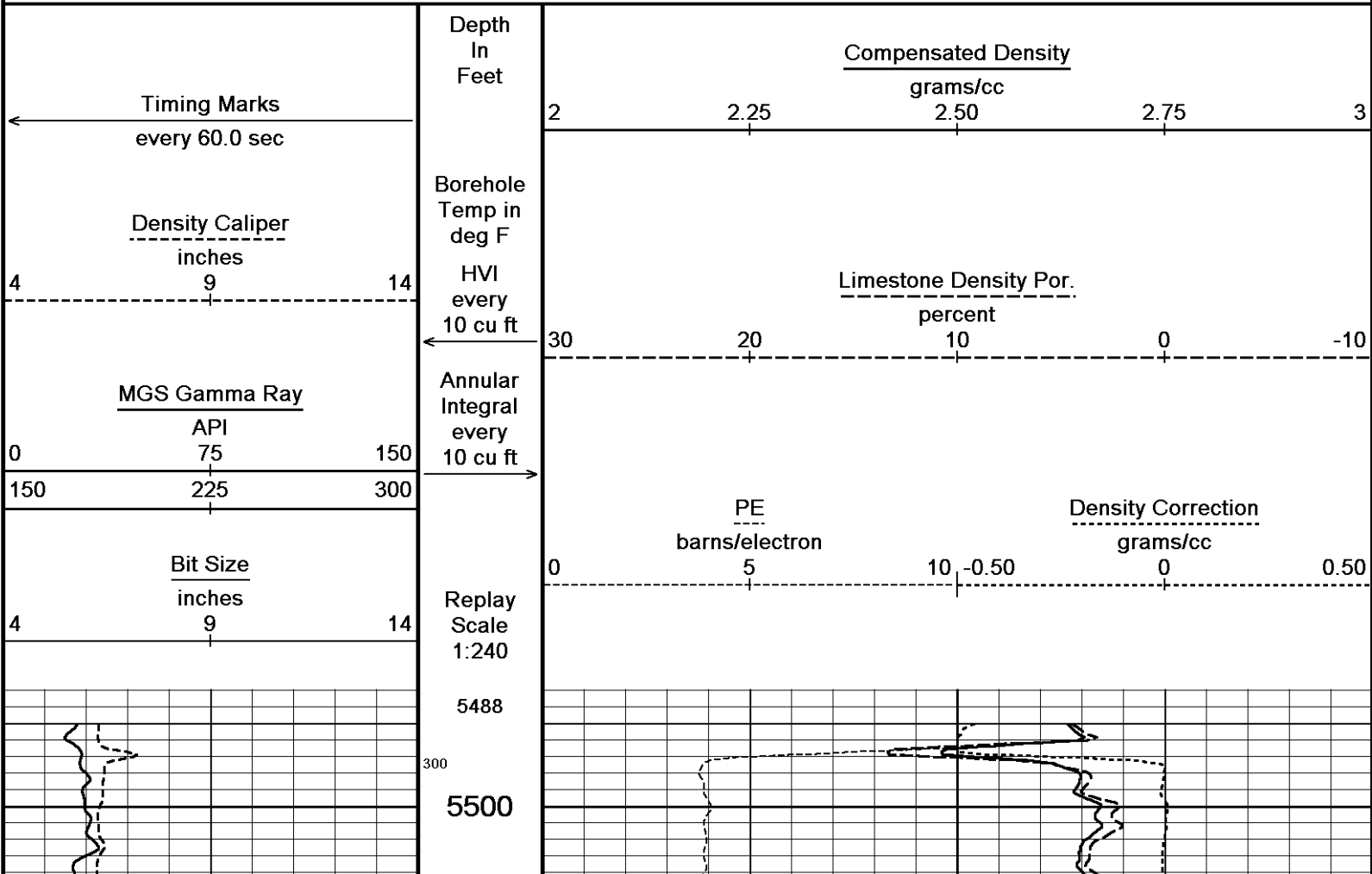


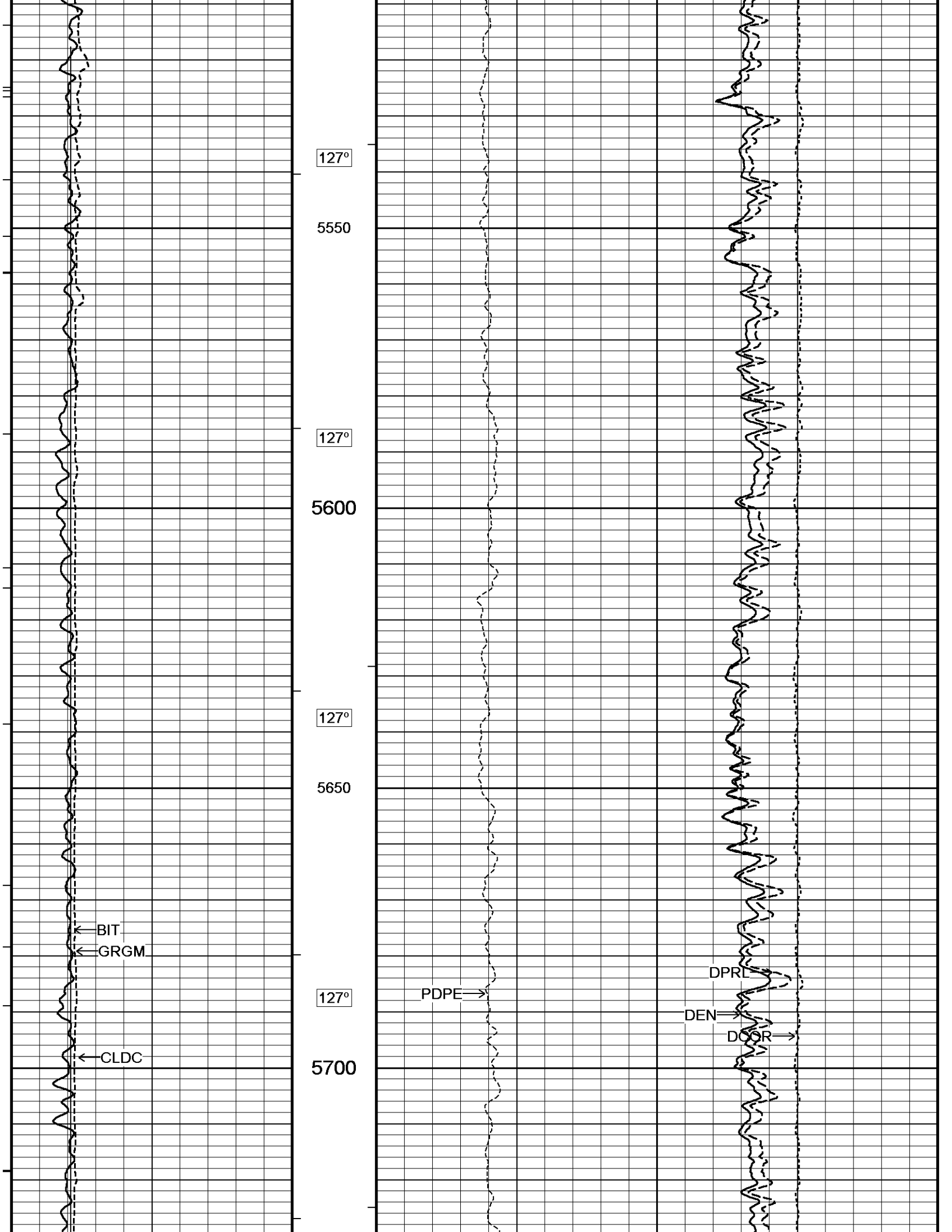
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 16-APR-2014 12:04
 Filename: C:\DATA\Sandridge_Fal dtz 2231 2-26H\Fal dtz 2231 2-26H_Rtap.dta
 Recorded on 21-JAN-2014 05:30
 System Versions: Processed with 13.06.9804 Plotted with 13.06.9804

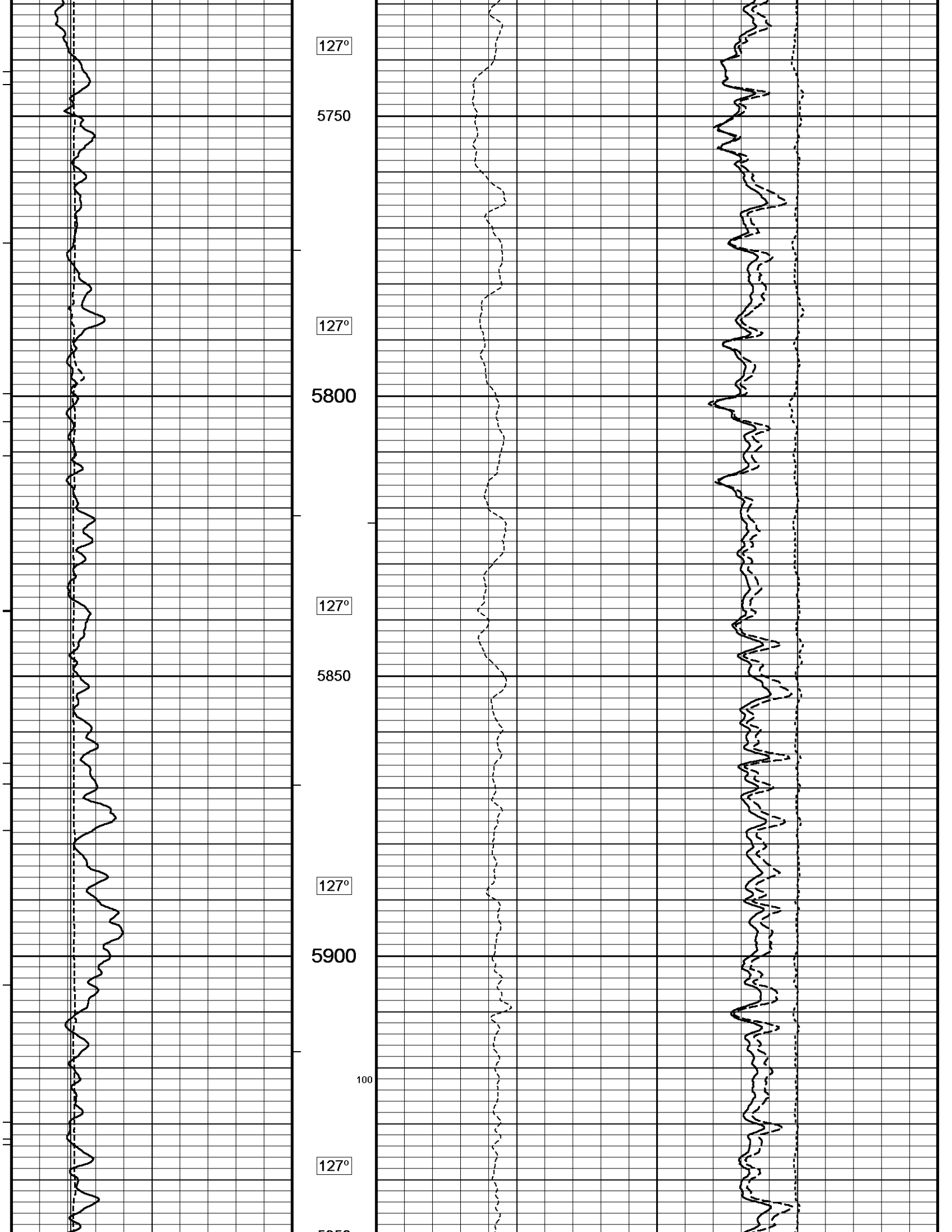
↑ 5 INCH MAIN LOG ↑

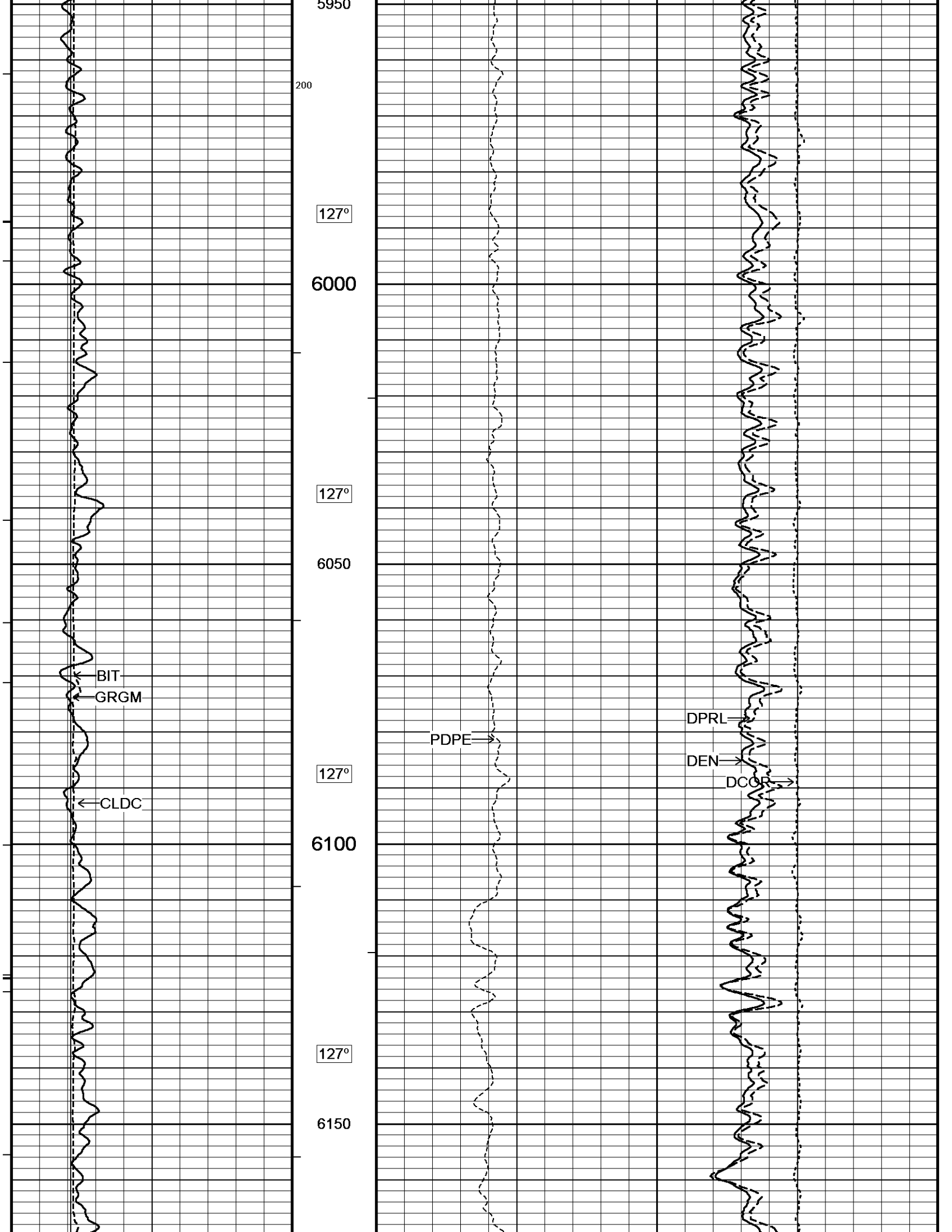
↓ 5 INCH BULK DENSITY ↓

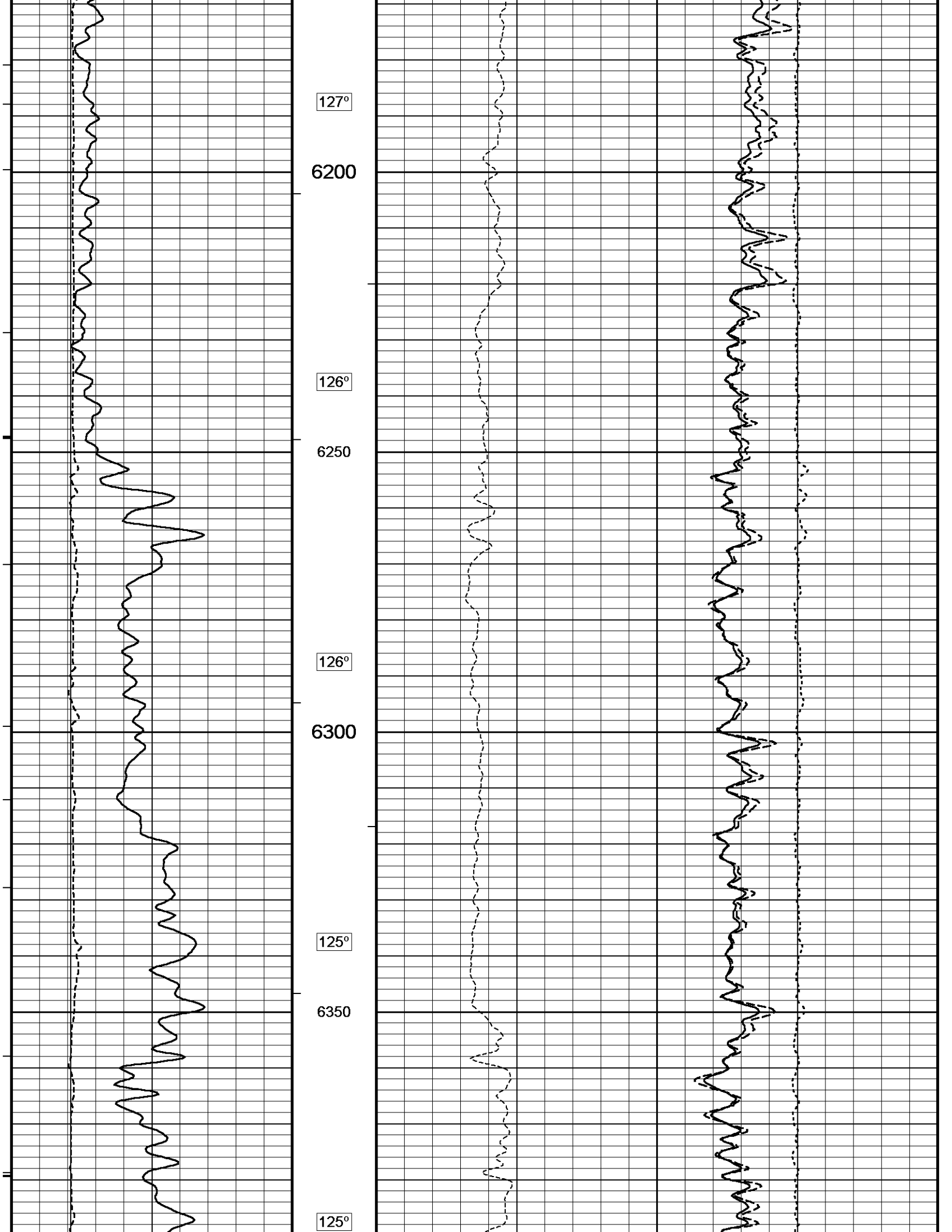
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 16-APR-2014 12:04
 Filename: C:\DATA\Sandridge_Fal dtz 2231 2-26H\Fal dtz 2231 2-26H_Rtap.dta
 Recorded on 21-JAN-2014 05:30
 System Versions: Processed with 13.06.9804 Plotted with 13.06.9804

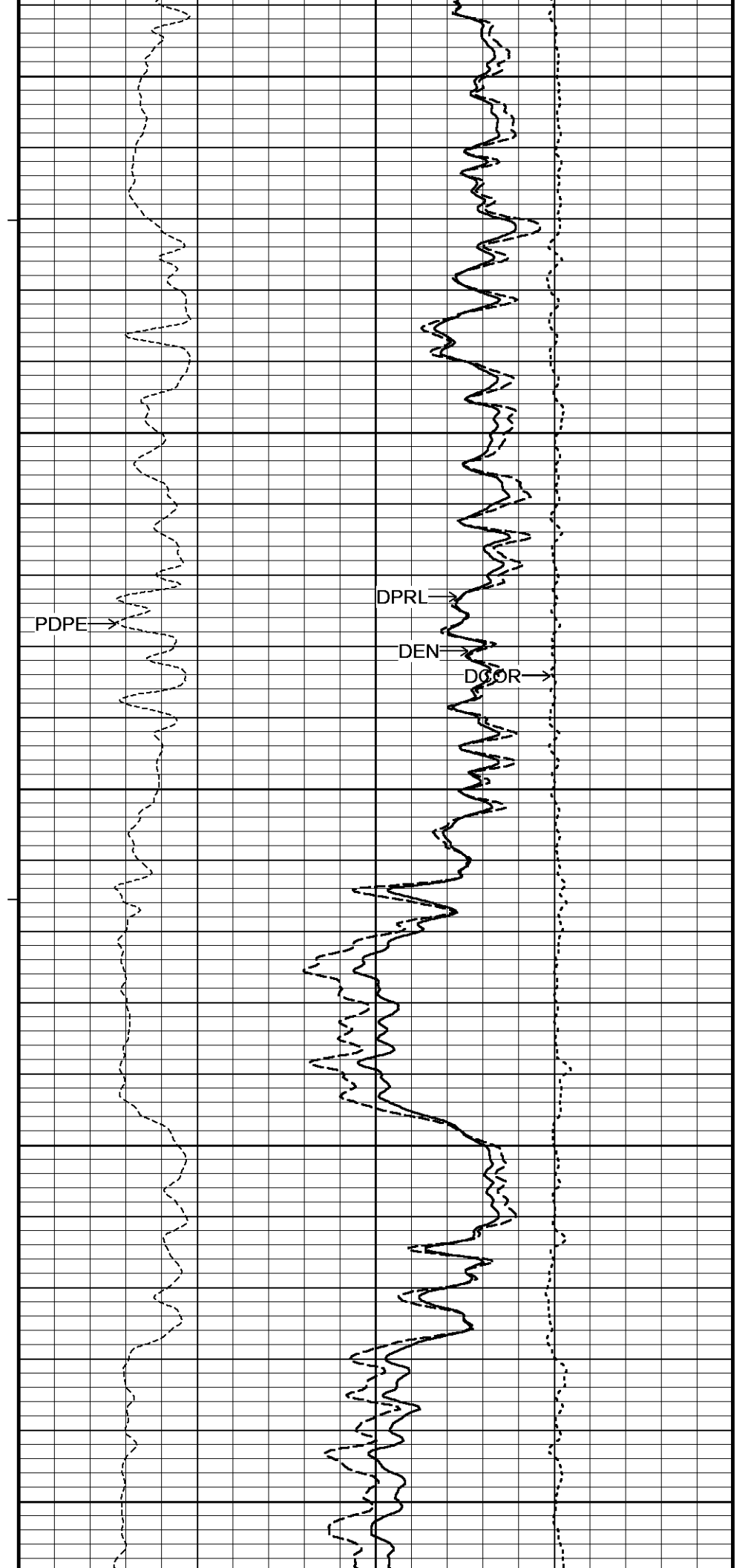
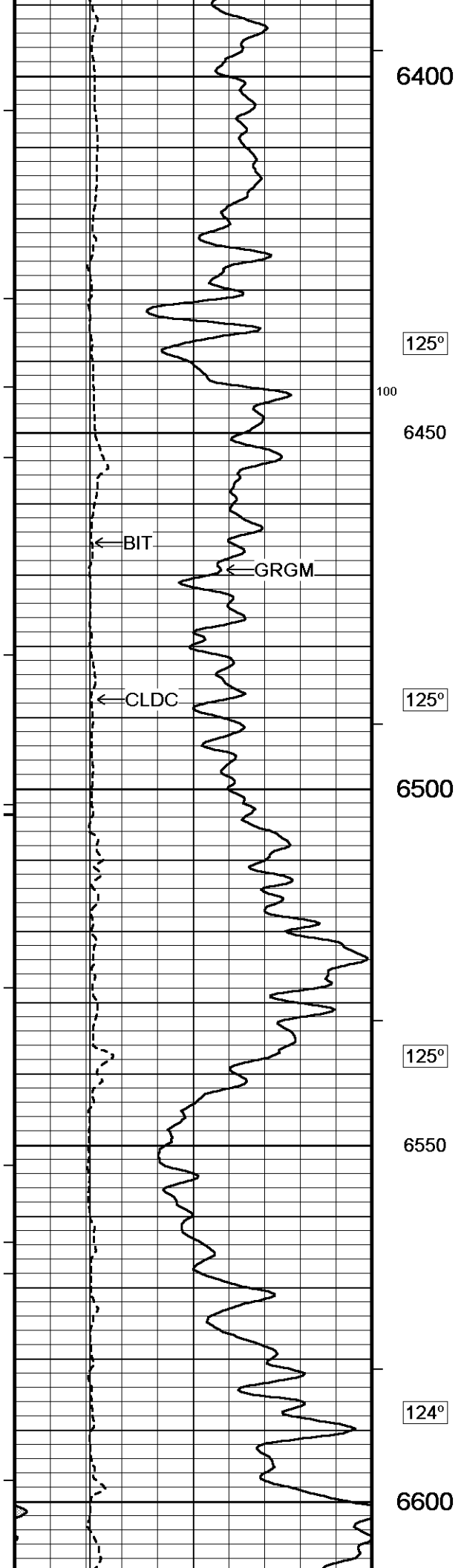


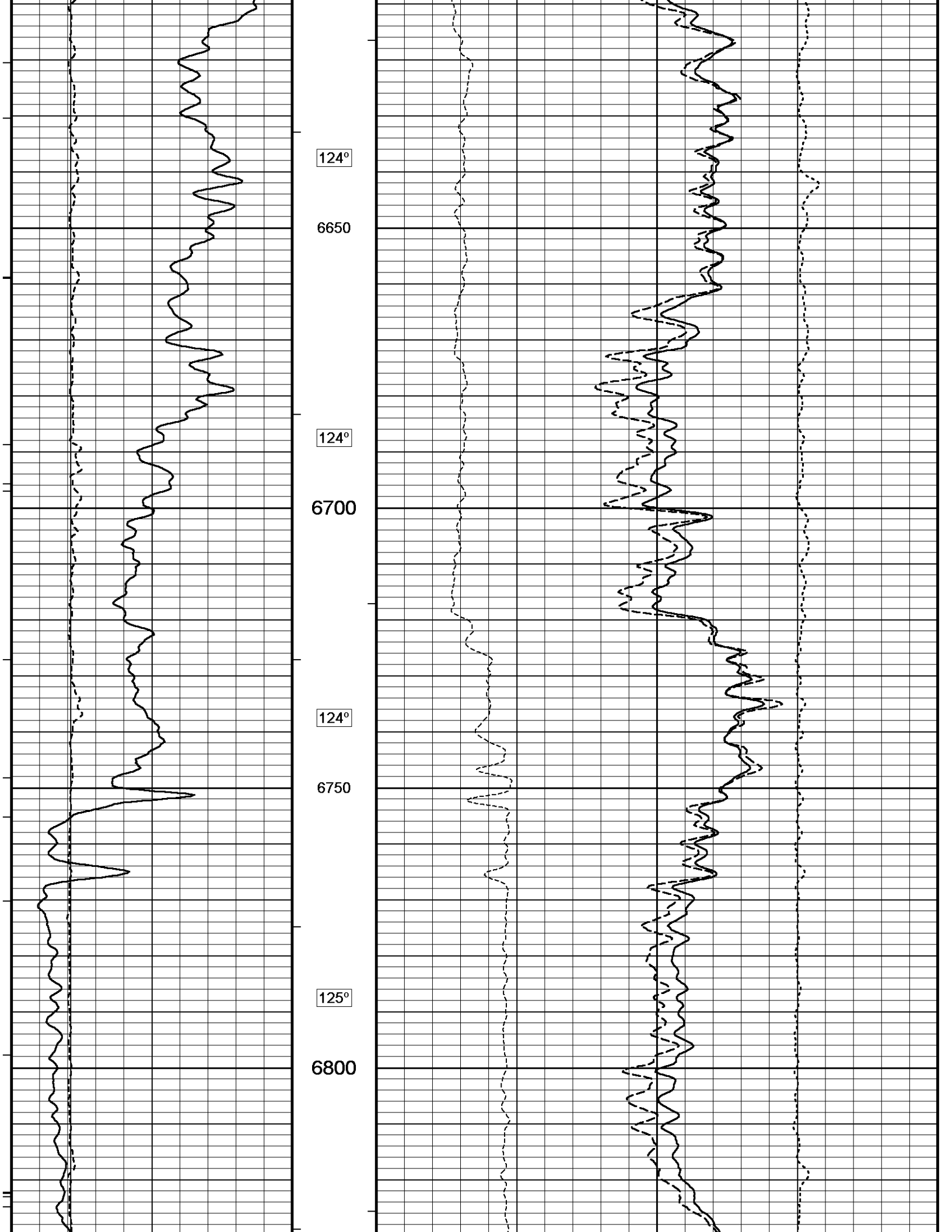


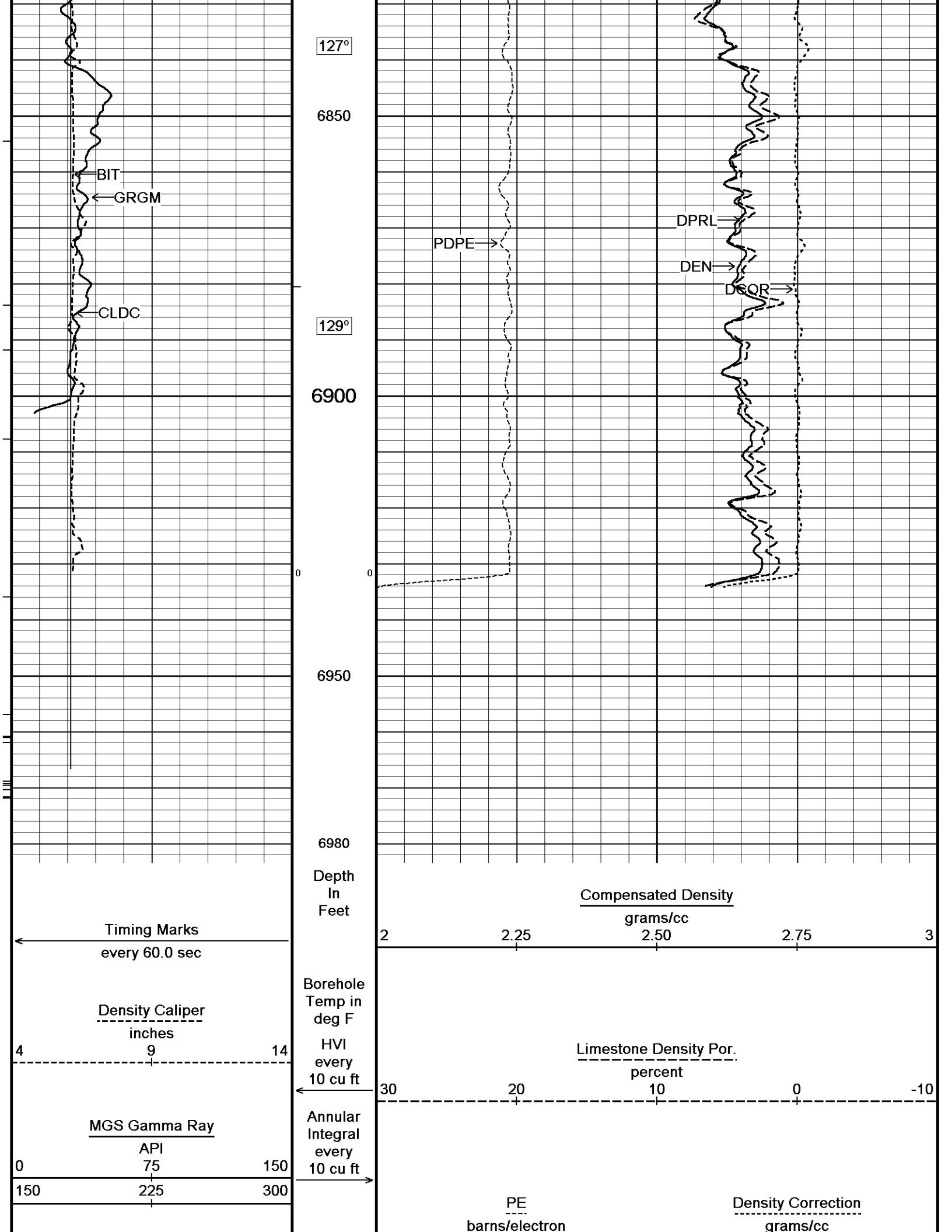












Bit Size

inches

4 9 14

Replay Scale 1:240

0 5 10 -0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 16-APR-2014 12:04

Filename: C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta

Recorded on 21-JAN-2014 05:30

System Versions: Processed with 13.06.9804 Plotted with 13.06.9804



5 INCH BULK DENSITY



BEFORE SURVEY CALIBRATION

C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta

General Constants All 000

Last Edited on 21-JAN-2014,05:43

General Parameters

Mud Resistivity	1.800	ohm-metres
Mud Resistivity Temperature	70.000	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	Limestone Density Por.	
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 06-MAY-2013,07:48

Reading No	Measured	Calibrated (lbs)
1	12115.60	0.00
2	13815.60	500.00

Strain Gauge Constants SER-B.A 184

Last Edited on

Atmospheric Pressure	14.70	psi			
Serial Number	0				
Calibration Date	000000000000				
Base Check Date					
Dead Weight Serial Number	0				
Dead Weight Gravitational Correction	1.0				
Temperature	75.0	150.0	250.0	350.0	degrees F
Pressure psia	Inc. Dec.	Inc. Dec.	Inc. Dec.	Inc. Dec.	
0.0	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	
2000.0	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	
4000.0	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	
6000.0	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	
8000.0	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	
10000.0	0.000	0.000	0.000	0.000	

Strain Gauge Constants MMS-F.A 259

Last Edited on

Atmospheric Pressure	14.70	psi			
Serial Number	0				
Calibration Date	000000000000				
Base Check Date					
Dead Weight Serial Number	0				
Dead Weight Gravitational Correction	1.0				
Temperature	75.0	150.0	250.0	350.0	degrees F
Pressure psia	Inc. Dec.	Inc. Dec.	Inc. Dec.	Inc. Dec.	

Pressure psi	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	10000.0	0.000		0.000	0.000		0.000	

Gamma Calibration MGS-C.J 108

Field Calibration on 20-JAN-2014,11:18

	Measured	Calibrated (API)
Background	38	27
Calibrator (Gross)	1260	884
Calibrator (Net)	1222	857

Gamma Constants MGS-C.J 108

Last Edited on 21-JAN-2014,05:43

Gamma Calibrator Number	GRCG073	
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	%

SP Calibration MGS-C.J 108

Field Calibration on 13-JUN-2013,17:01

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

High Resolution Temperature Calibration MGS-C.J 108

Field Calibration on 13-JUN-2013,17:01

	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	0.00	0.00

High Resolution Temperature Constants MGS-C.J 108

Last Edited on 13-JUN-2013,17:01

Pre-filter Length	11
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Neutron Calibration MDN-B.J 391

Base Calibration on 07-JAN-2014 12:00
Field Check on 20-JAN-2014,03:10

Base Calibration					
	Measured		Calibrated (cps)		
	Near	Far	Near	Far	
Ratio	3232	98	3714	110	
	33.134		33.764		
Field Calibrator at Base					
			Calibrated (cps)		
Ratio			1960	2952	
			0.664		
Field Check					
			Calibrated (cps)		
Ratio			0.664		

Neutron Constants MDN-B.J 391

Last Edited on 21-JAN-2014,05:44

Neutron Source Id	N1055	
Neutron Jig Number	N639	
Epithermal Neutron	No	
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	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	

Squasher Offset

N/A

mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Caliper Calibration MPD-C.J 395

Base Calibration on 07-JAN-2014 10:39
Field Calibration on 20-JAN-2014 03:07

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16176	4.00
2	25615	5.98
3	35504	7.96
4	45616	9.86
5	56208	11.87
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	6.00

Photo Density Calibration MPD-C.J 395

Base Calibration on 07-JAN-2014 10:29
Field Check on 20-JAN-2014 03:04

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	49915	23413	59494	30754
Reference 2	21240	2169	26398	2598

Field Check at Base

982.9 1076.3

Field Check

983.9 1073.9

PE Calibration

Base Calibration	WS	Measured		Calibrated Ratio
		WH	Ratio	
Background	179	883		
Reference 1	21106	49761	0.428	0.367
Reference 2	6161	21134	0.295	0.270

Field Check at Base

179.0 882.8

Field Check

181.1 884.5

Density Constants MPD-C.J 395

Last Edited on 21-JAN-2014,05:44

Density Source Id

236

Nuclear Calibrator Number

DNCE7366

Nylon Calibrator Number	DNCE766	
Aluminium Calibrator Number	DHCG856	
Density Shoe Profile	4 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 (ft)
2.71	
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

DOWNHOLE EQUIPMENT

C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta

Shuttle Mechanical Release (SMR A)
SMR-A 148 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-B.A 184 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 131 LG: 10.61 ft WT: 70.5 lb OD: 2.24 in

Compact Memory Sub F.A
MMS-F.A 259 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 76 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 108 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 49 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 472 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 472 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 606 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 391 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper



61.76 ft GRGM - MGS Gamma Ray

59.77 ft GSXT - MGS External Temperature

57.75 ft GCSL - MCL C. Collar Locator

42.89 ft NPRL - Limestone Neutron Por.

35.65 ft AVOL - Annular Volume

Compact Density/Caliper
 MPD-C.J 395 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
 MIS-D.A 435 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
 SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 438 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

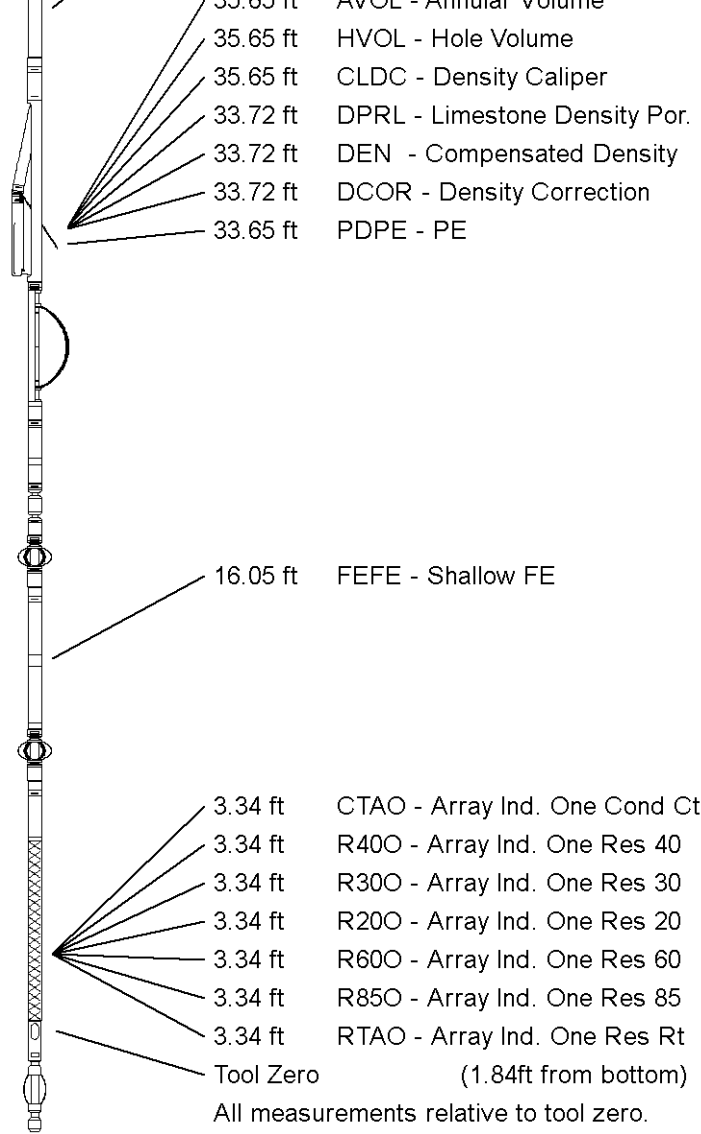
MIS-E.B Compact Inline Standoff sub
 MIS-E.B 572 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
 MFE-C.A 395 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
 MIS-E.B 575 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
 MAI-A.A 170 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 97.17 ft Weight: 727.5 lb



COMPANY SANDRIDGE ENERGY
 WELL FALDTZ 2231 2-26H
 FIELD STEWART
 PROVINCE/COUNTY FINNEY
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2901.00	feet	First Reading	6934.00	feet
Elevation Drill Floor	2901.00	feet	Depth Driller	6979.00	feet
Elevation Ground Level	2890.00	feet	Depth Logger	6979.00	feet



Weatherford[®]

CML IMPULSE SHUTTLE
 COMPACT PHOTO DENSITY
 COMPENSATED NEUTRON LOG