



Weatherford

**COMPENSATED NEUTRON
SONIC POROSITY
OVERLAY**

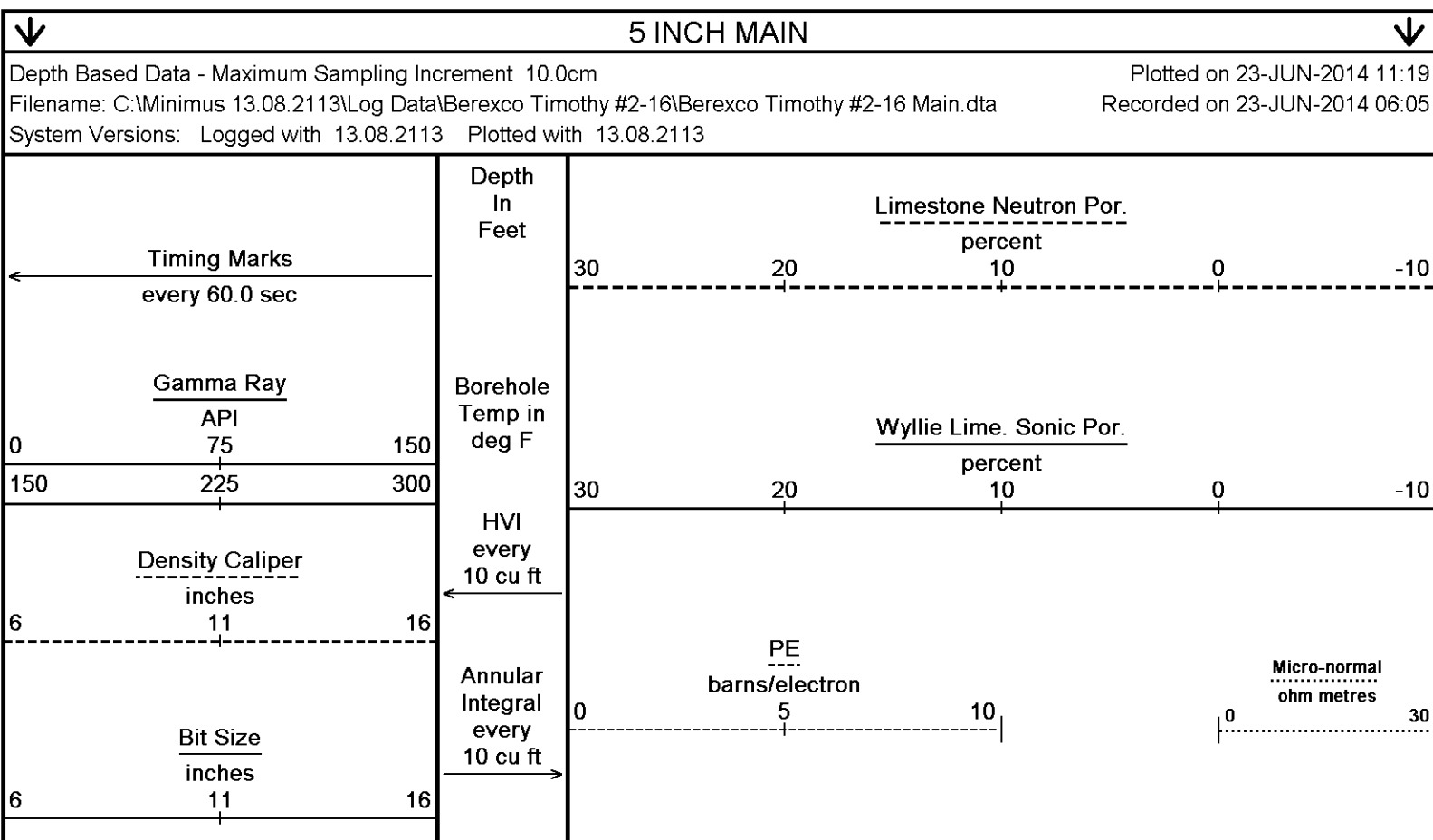
COMPANY	BEREXCO LLC		
WELL	TIMOTHY #2-16		
FIELD	WILDCAT		
PROVINCE/COUNTY	FINNEY		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1644' FSL & 351' FWL		
SEC 16	TWP 22S	RGE 34W	Other Services
Latitude	38.13861	MAI/MFE	MPD
Longitude	101.0653	MML	CMI
API Number	15-055-22311		
Permanent Datum GL, Elevation	2957 feet		
Log Measured From	KB		
Drilling Measured From	KB @ 12 FEET		
Date	23-JUN-2014		Elevations: KB 2969.00 DF 2967.00 GL 2957.00
Run Number	ONE		
Service Order	7606-90684489		
Depth Driller	4850.00 feet		
Depth Logger	4847.00 feet		
First Reading	4833.91 feet		
Last Reading	1696.00 feet		
Casing Driller	1700.00 feet		
Casing Logger	1696.00 feet		
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.00 lb/USg	54.00 CP	
PH / Fluid Loss	11.00	8.80 ml/30Min	
Sample Source	MUD PIT		
Rm @ Measured Temp	0.85 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m	
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.617 @105.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	105.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	BEN WELDIN		
Witnessed By	ED GRIEVES	DEREK CARTER	
JOB #	LB14-186		

BOREHOLE RECORD					Last Edited: 23-JUN-2014 03:05
Bit Size inches		Depth From feet		Depth To feet	
12.250		0.00		1700.00	
7.875		1700.00		4850.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	1700.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING: - RUN 1: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION - RUN 2: SHA, MCG, MIM, MIE RUN IN COMBINATION
- HARDWARE: - MDN: DUAL BOWSPRING ECCENTRALIZER - MFE: 1 X 0.5 INCH STANDOFF - MSS: 2 X 0.5 INCH STANDOFF - MAI: 2 X 0.5 INCH STANDOFF - MIM: 6 LEAF CENTRALIZER - MIE: 1 X 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RIGIDITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY

- MAGNETIC DECLINATION: 6 23 DEGREES EAST

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.



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Micro-inverse
ohm metres
0 30

1684

Casing
Shoe

1700

91°

1750

91°

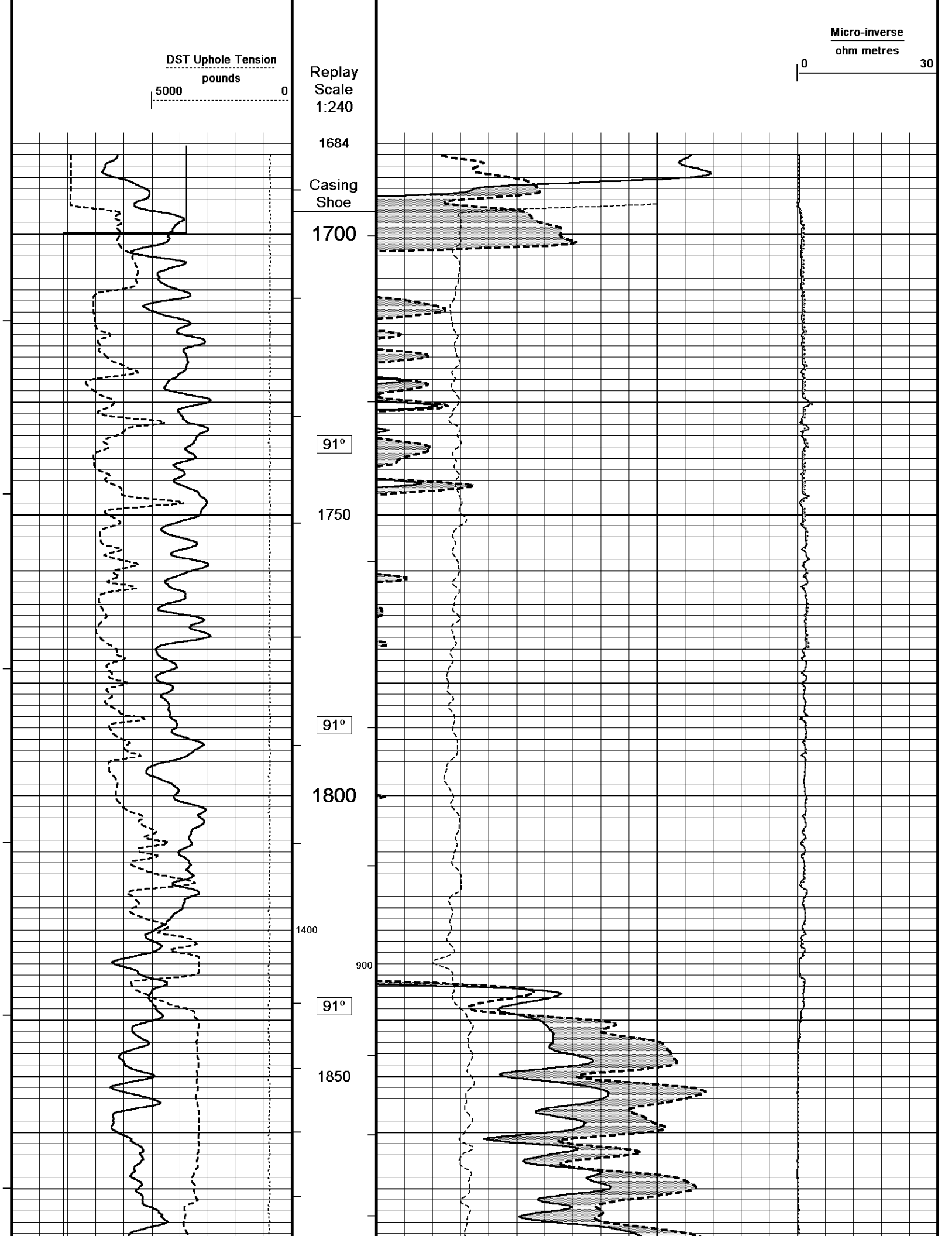
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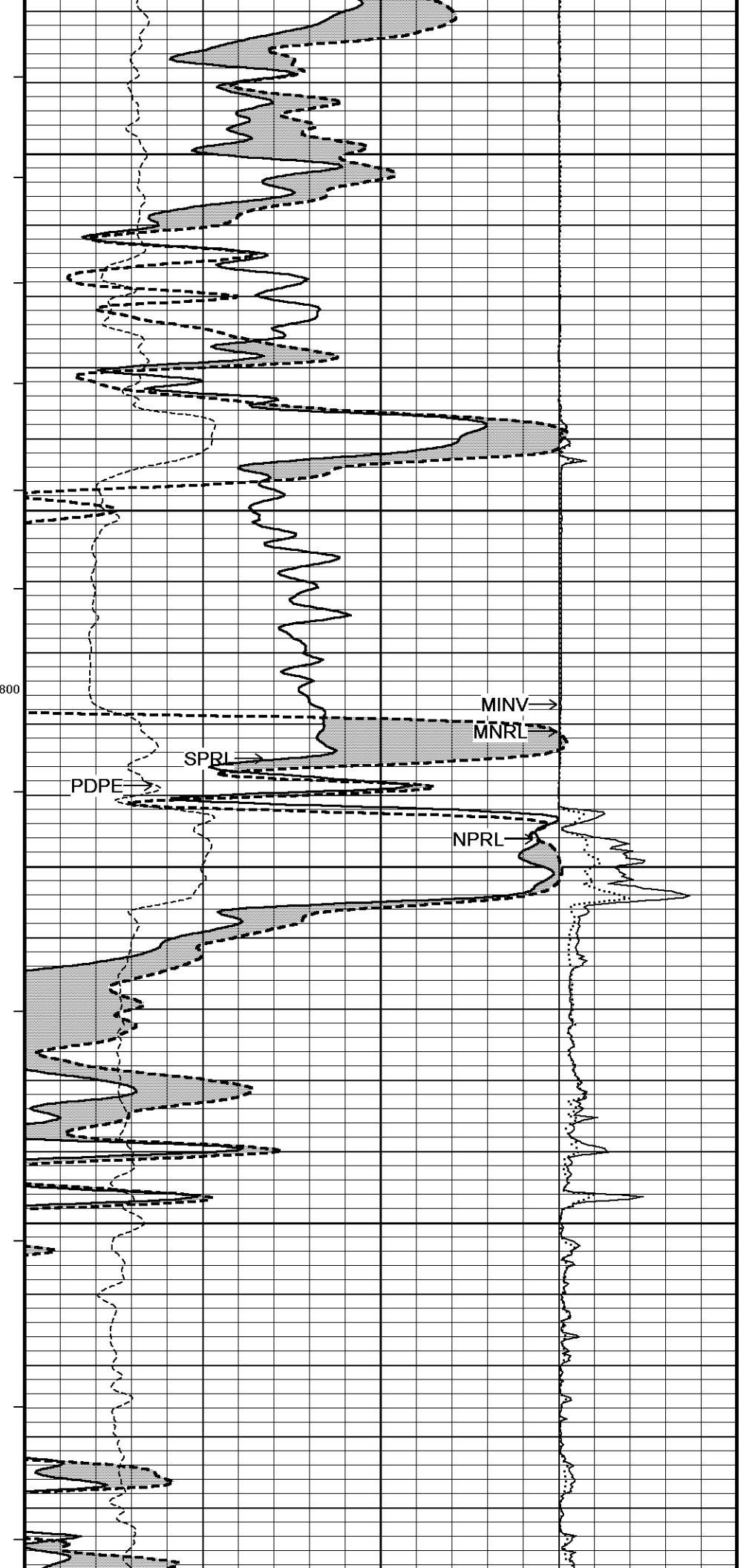
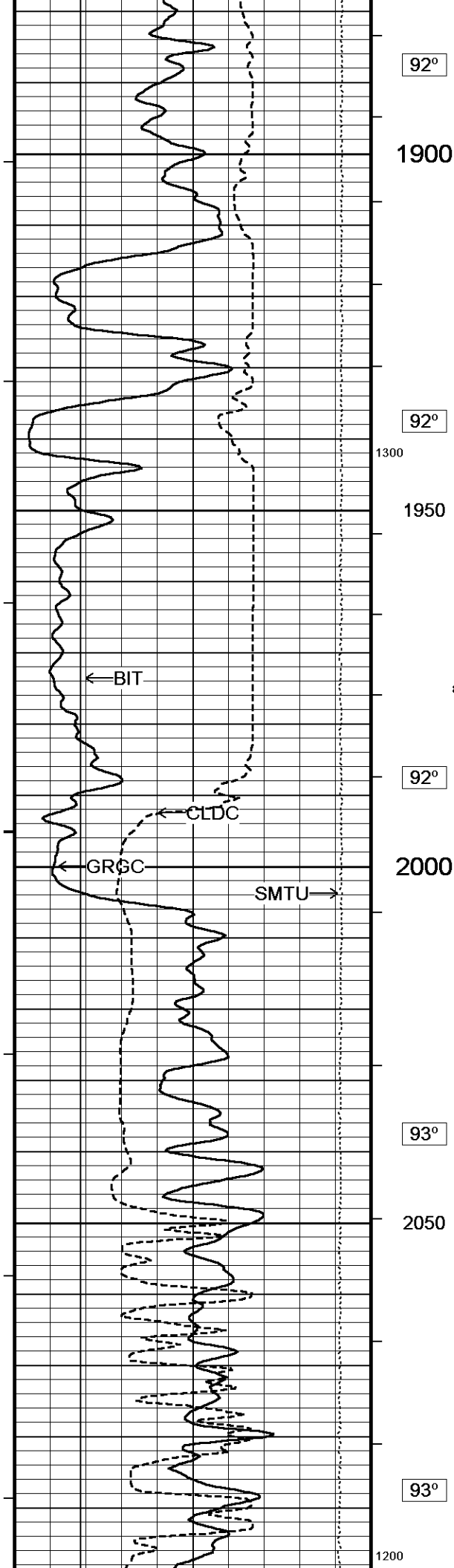
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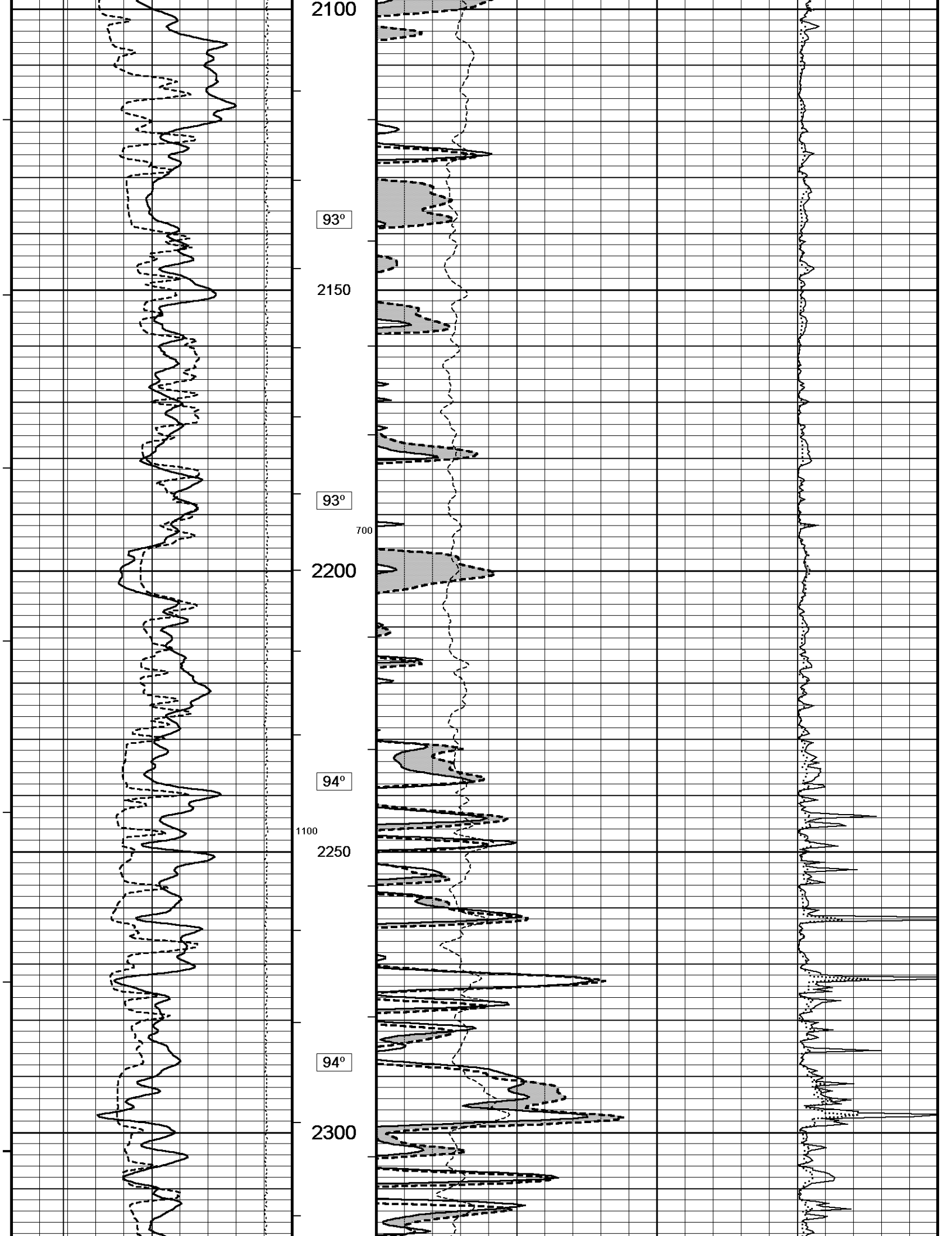
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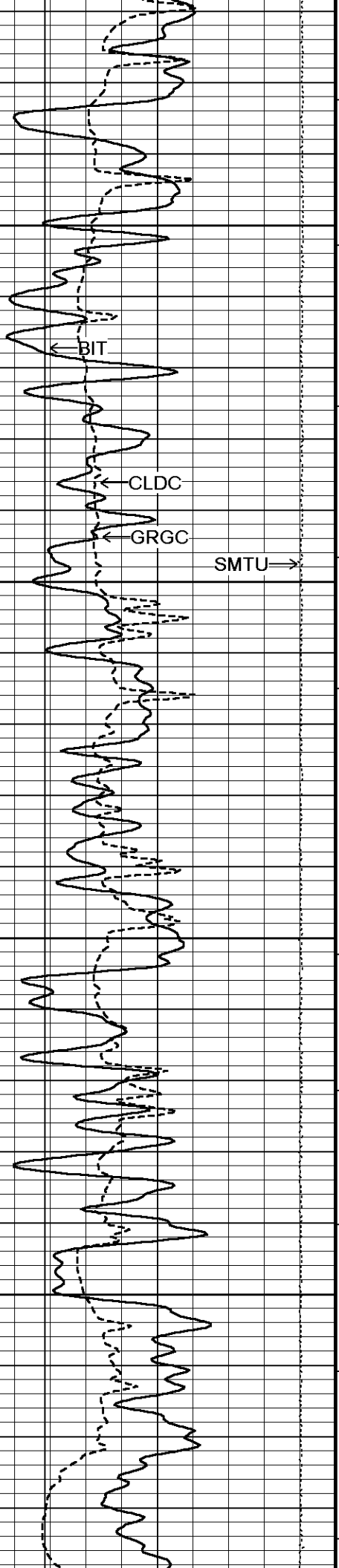
91°

1850

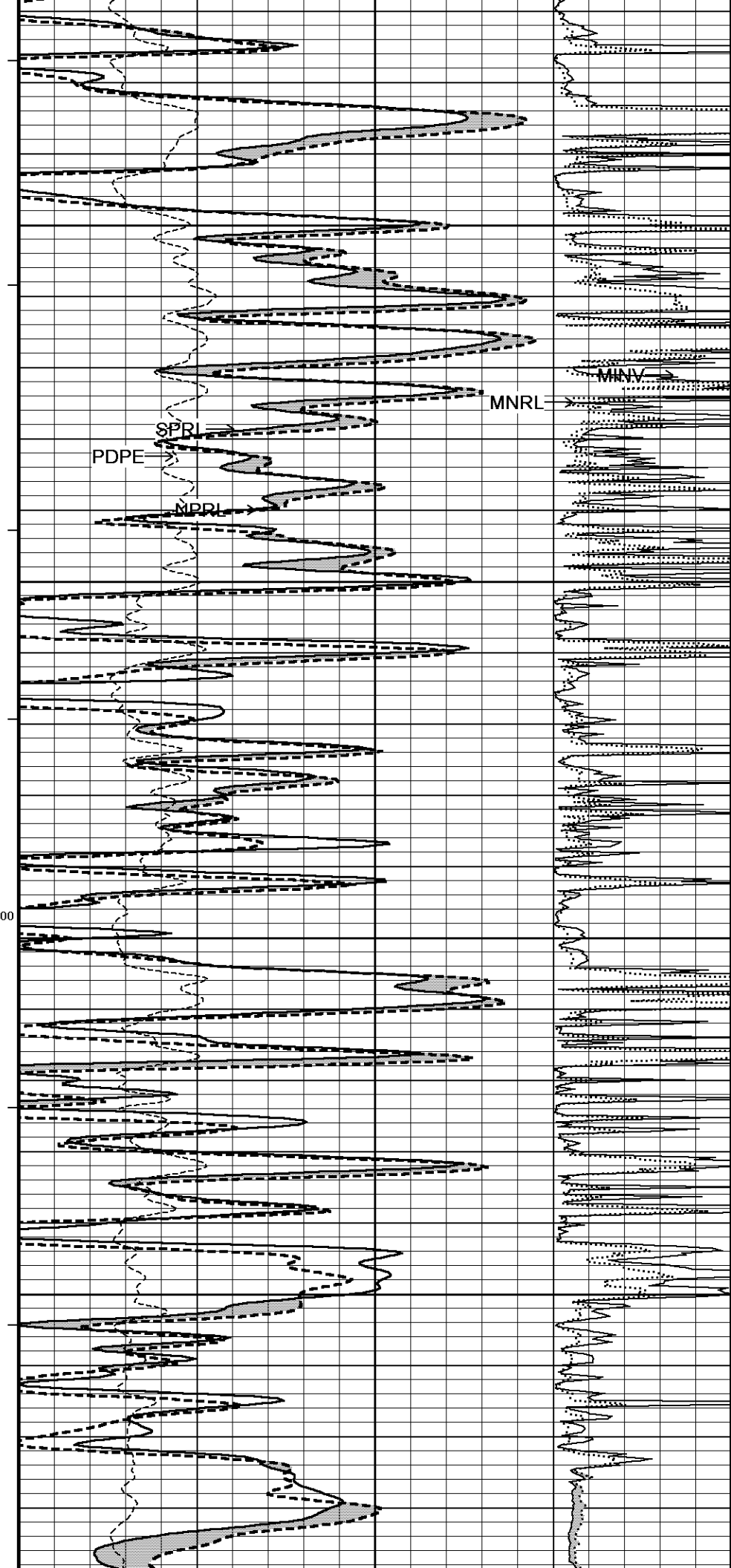


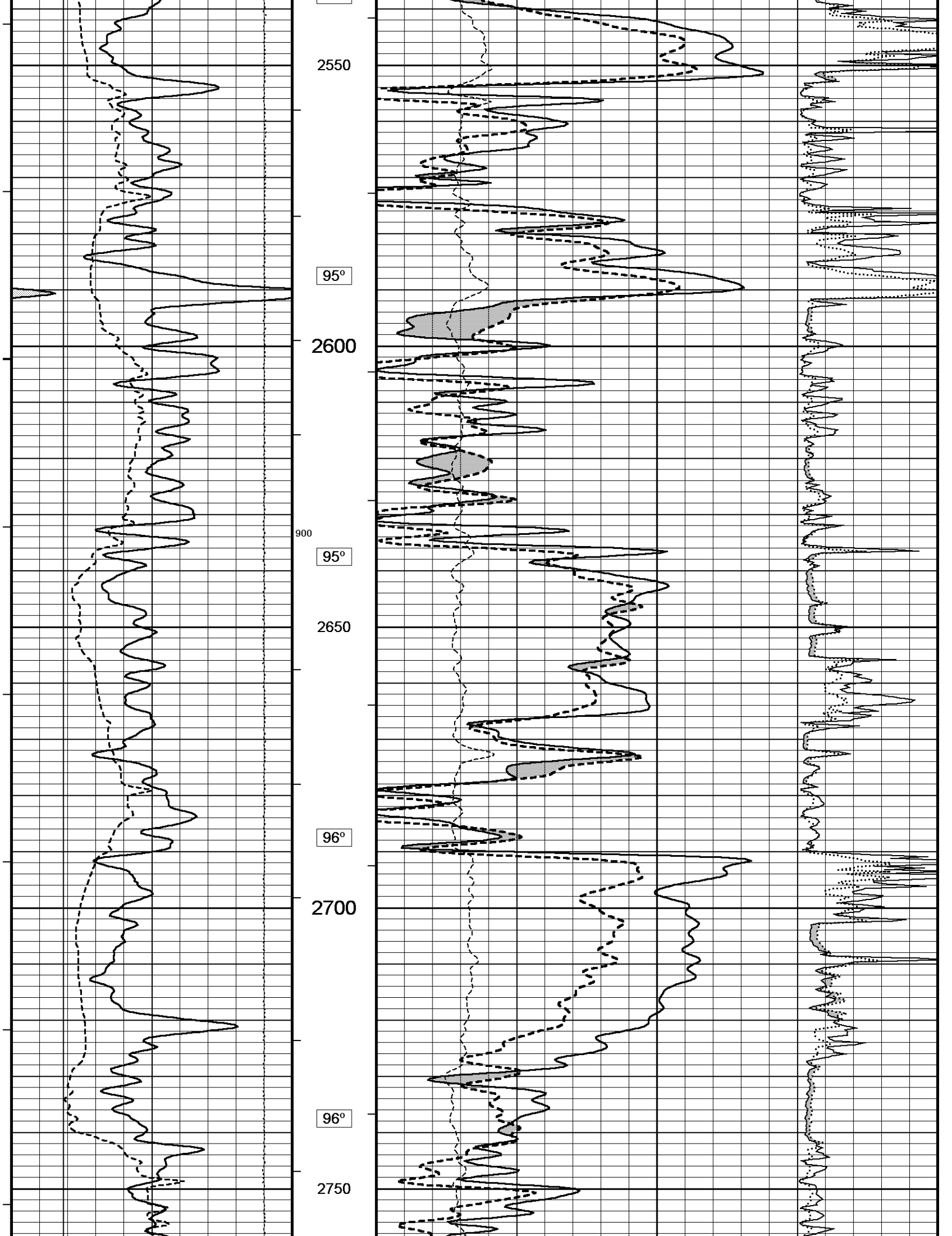


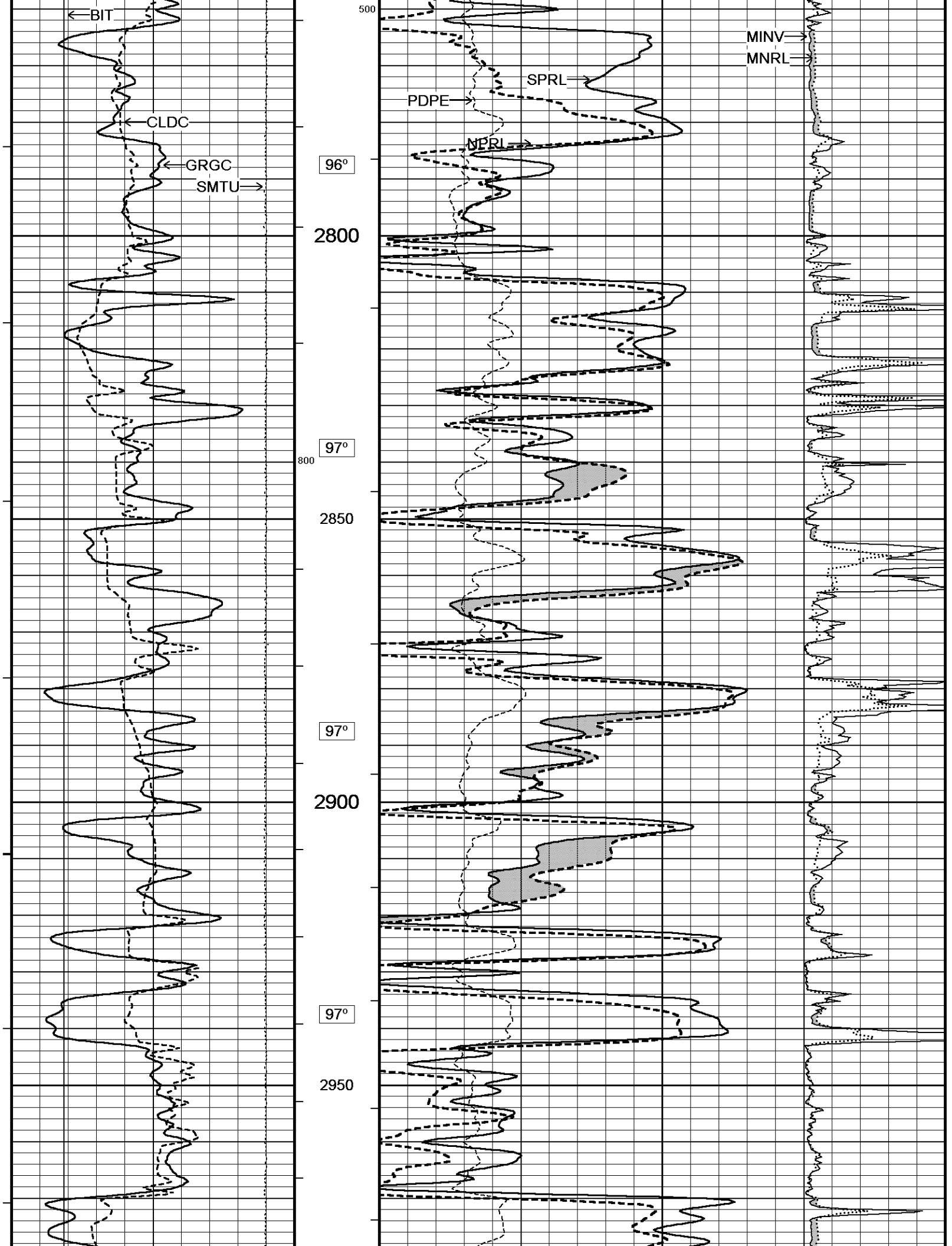


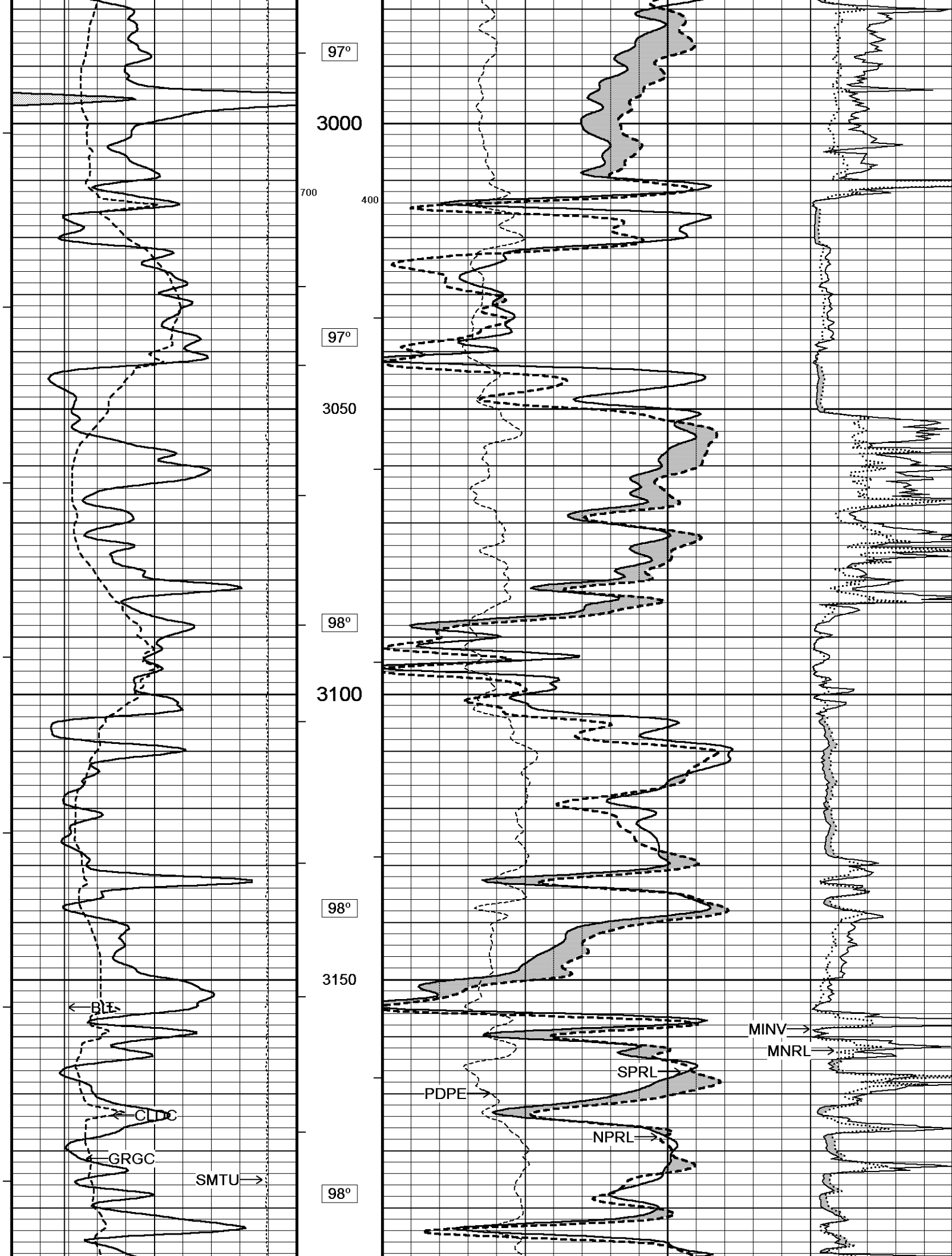


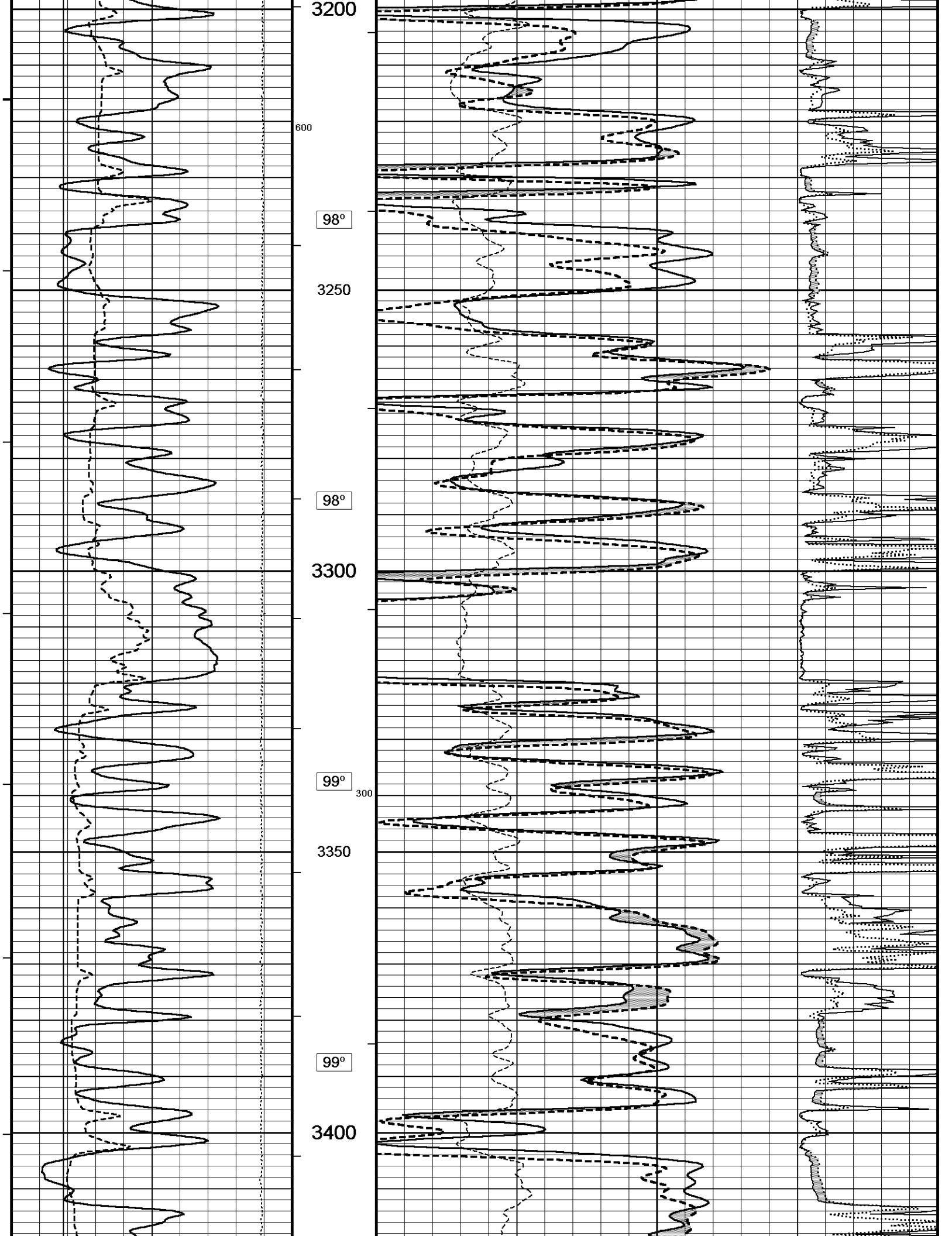
94°
2350
94°
2400
1000
94°
2450
600
95°
2500
95°

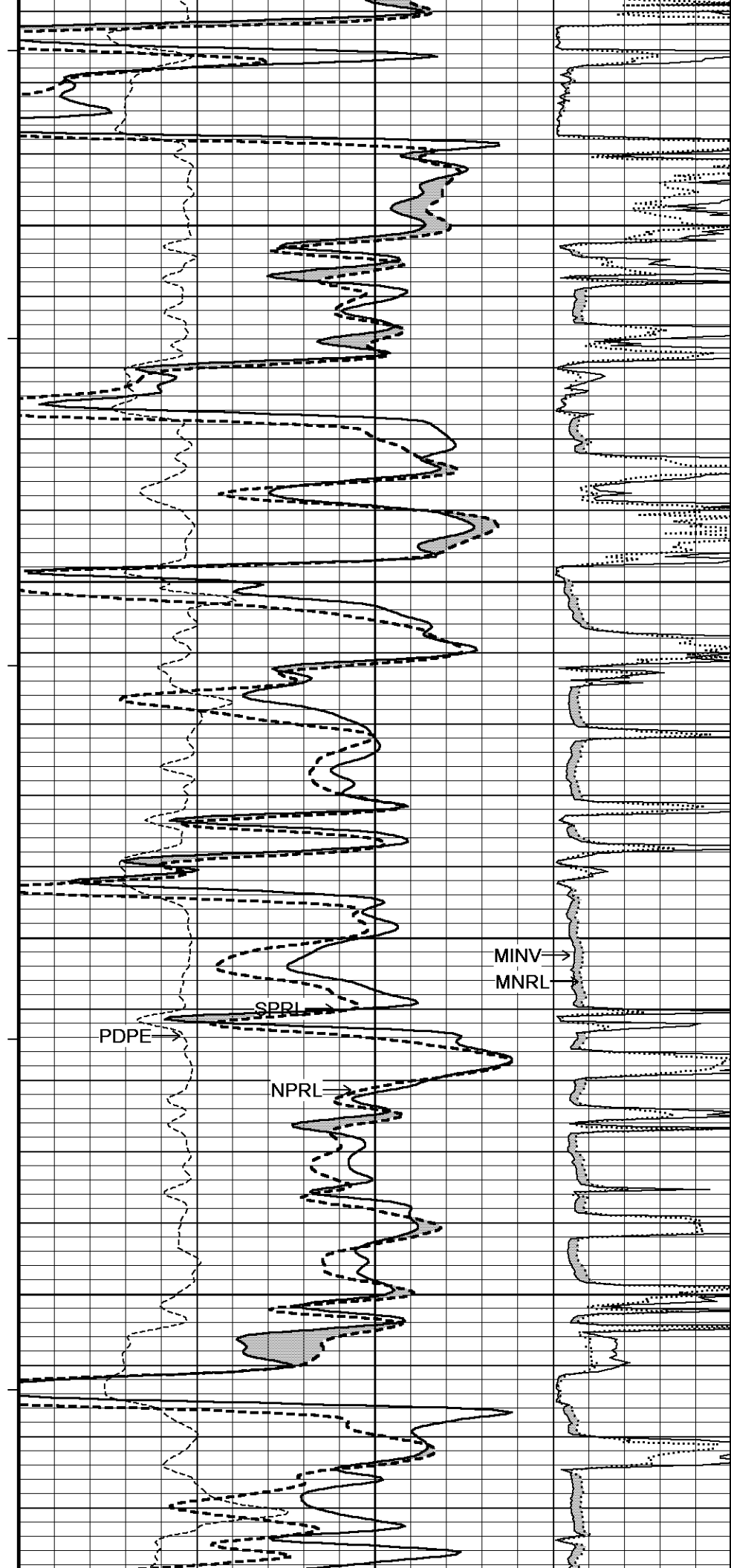
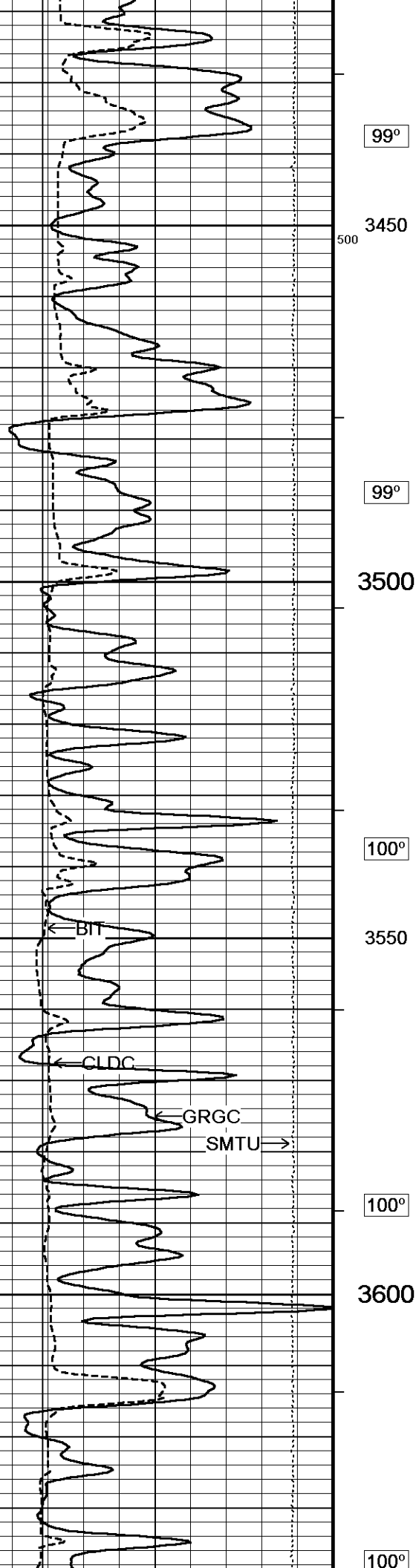


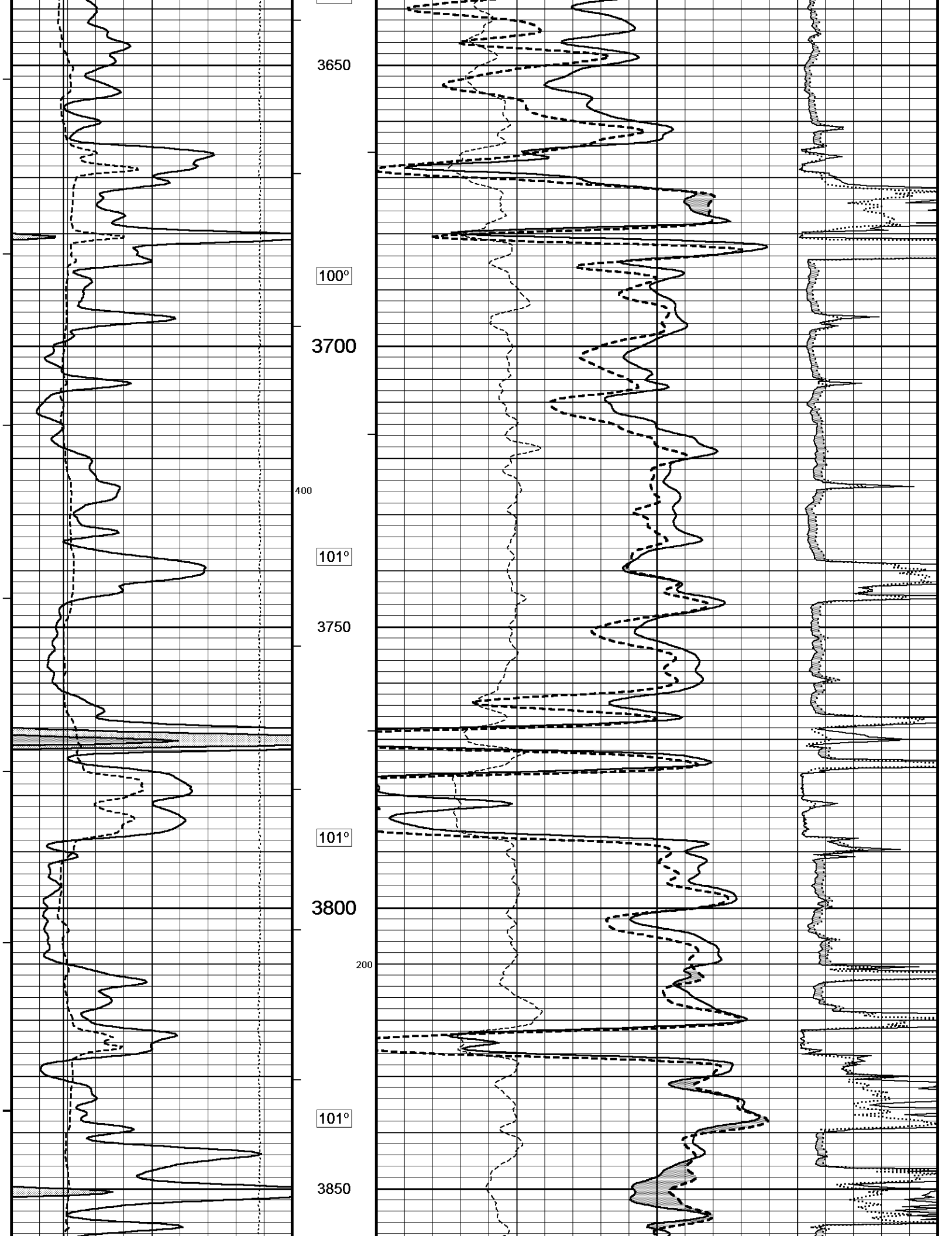


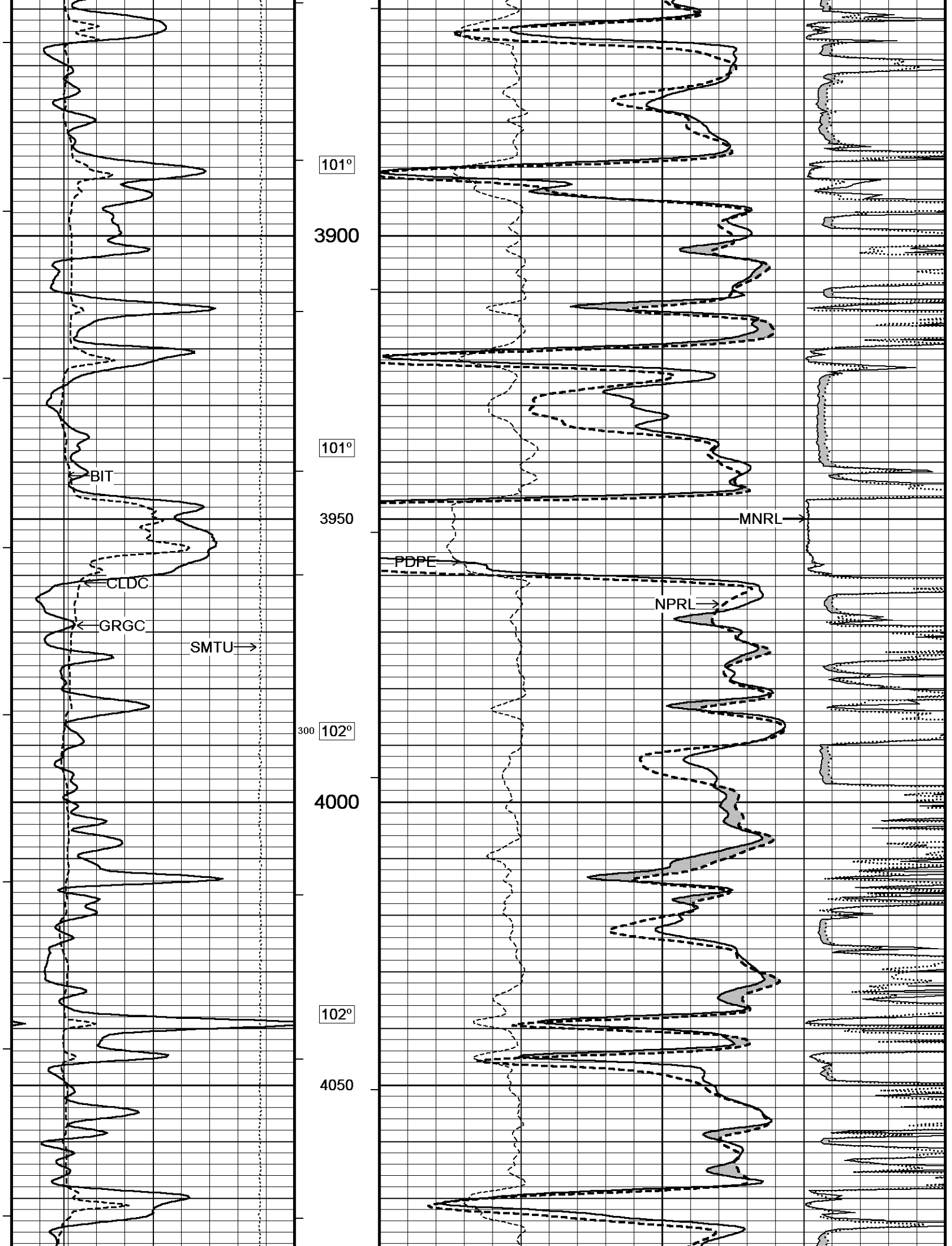


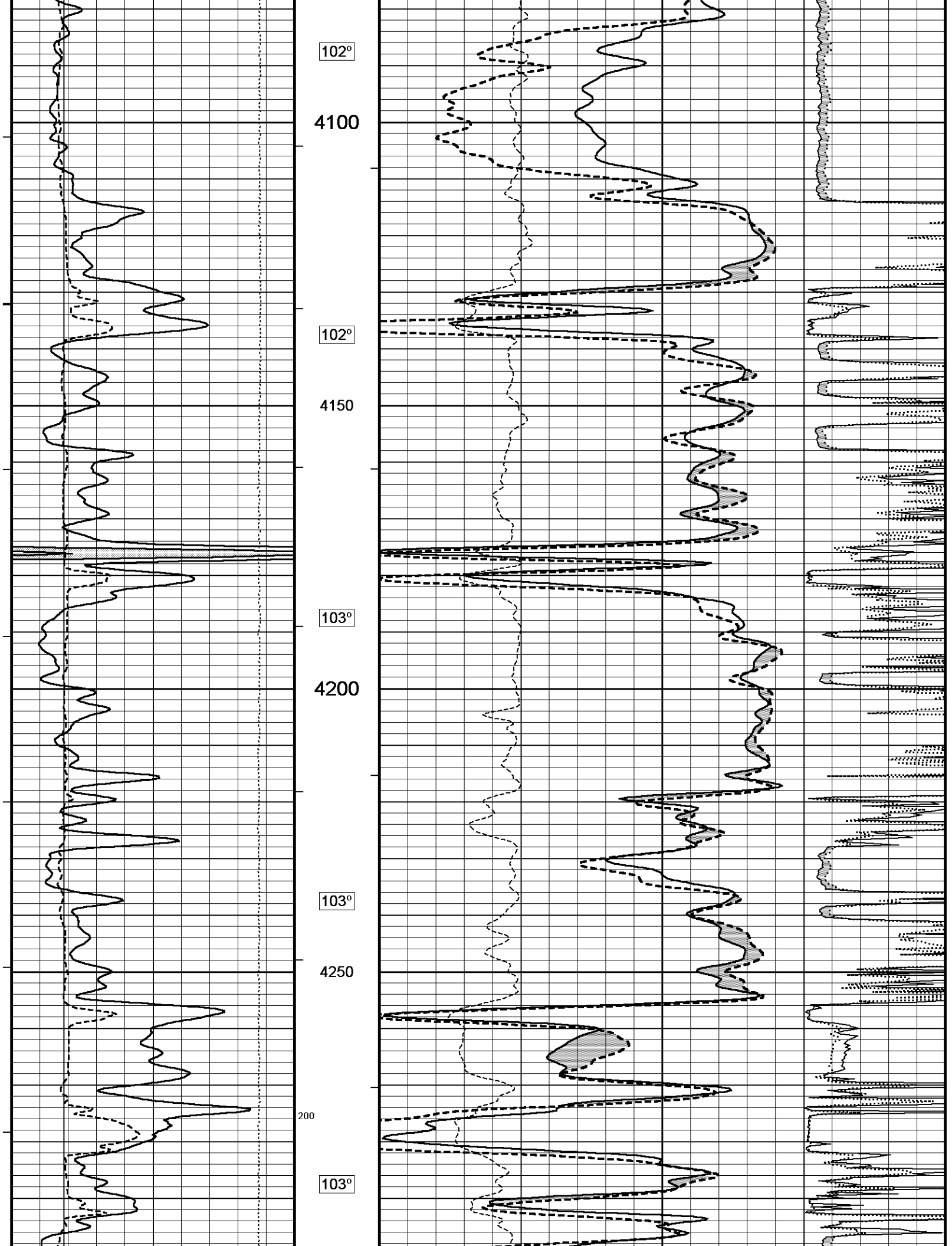


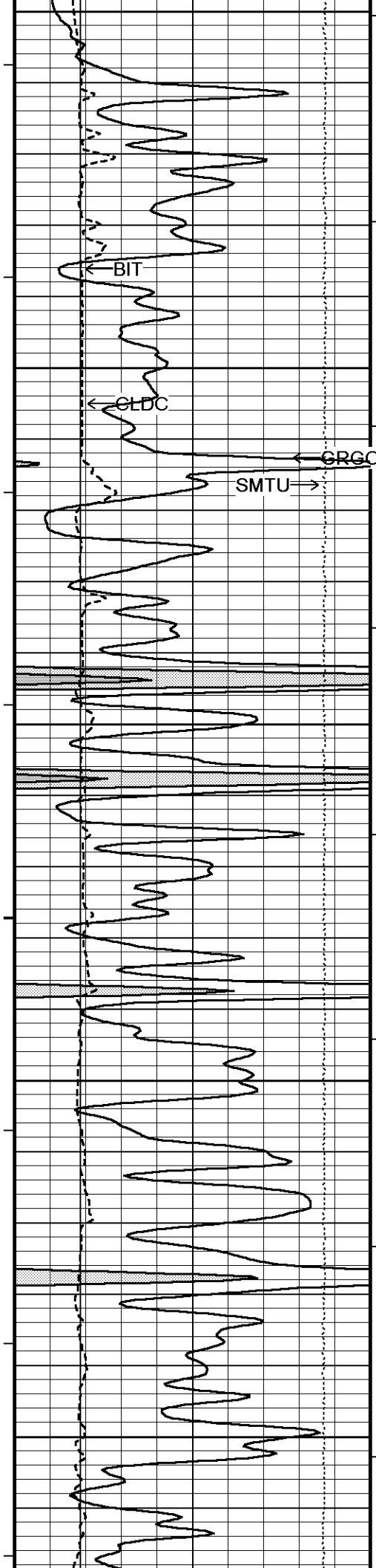




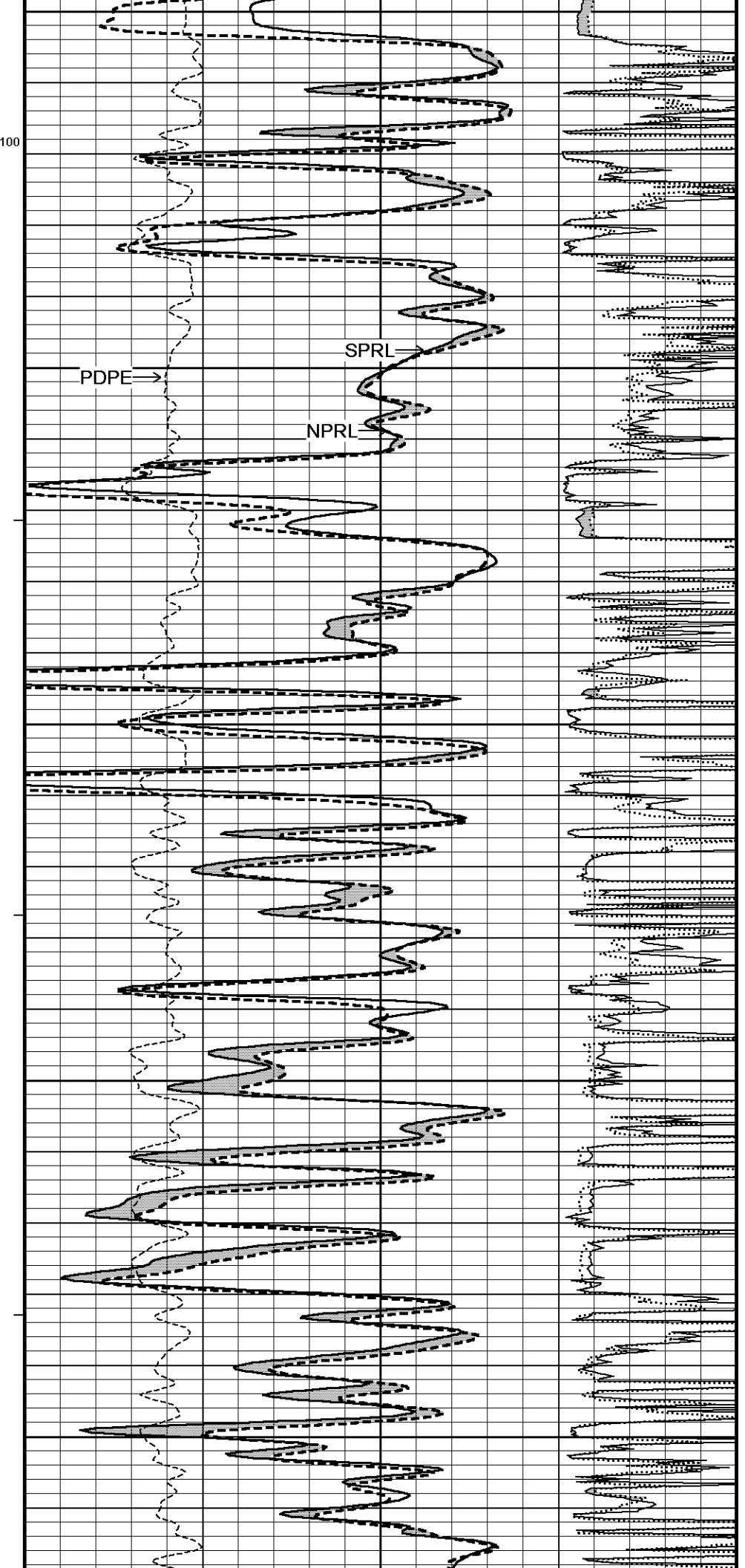


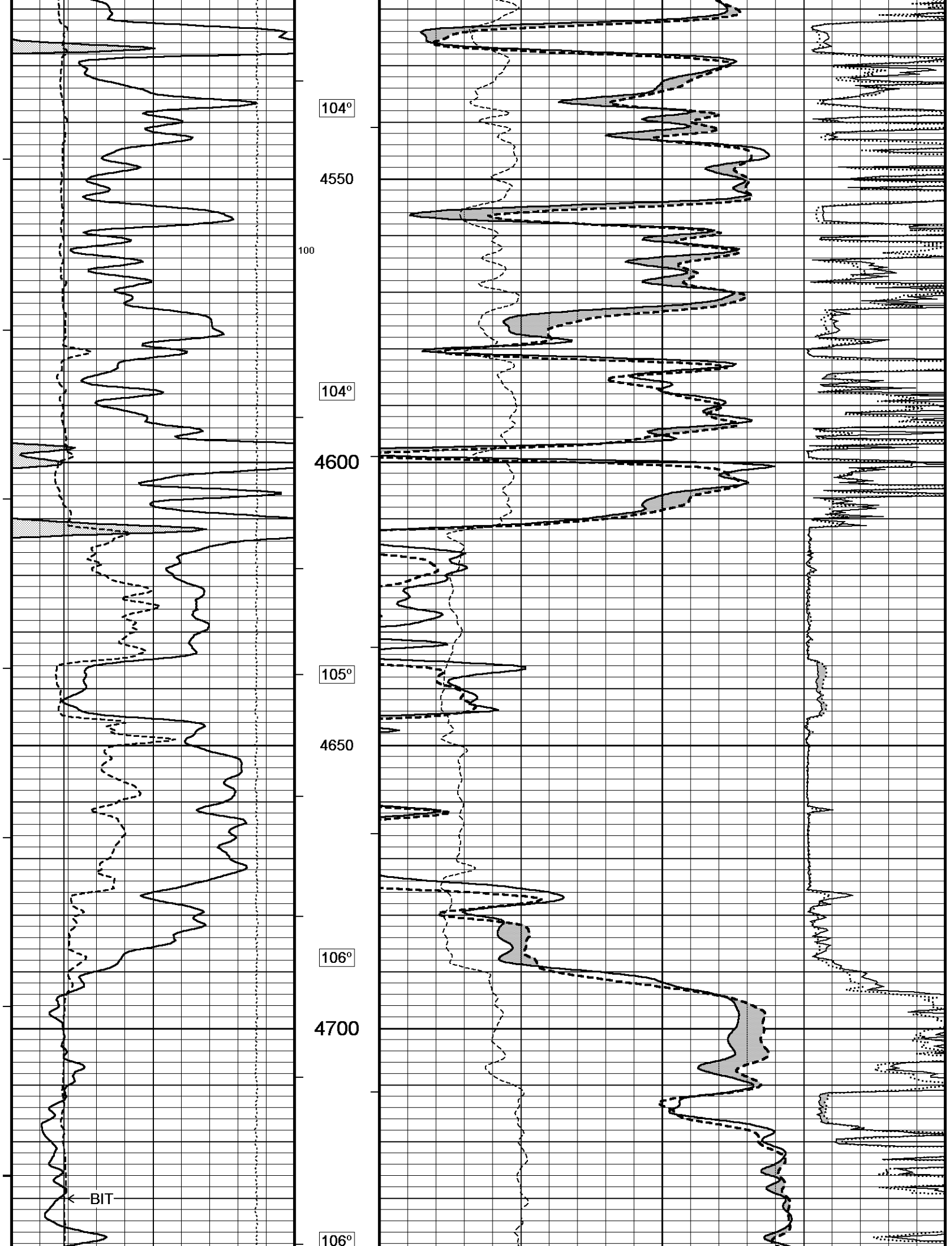


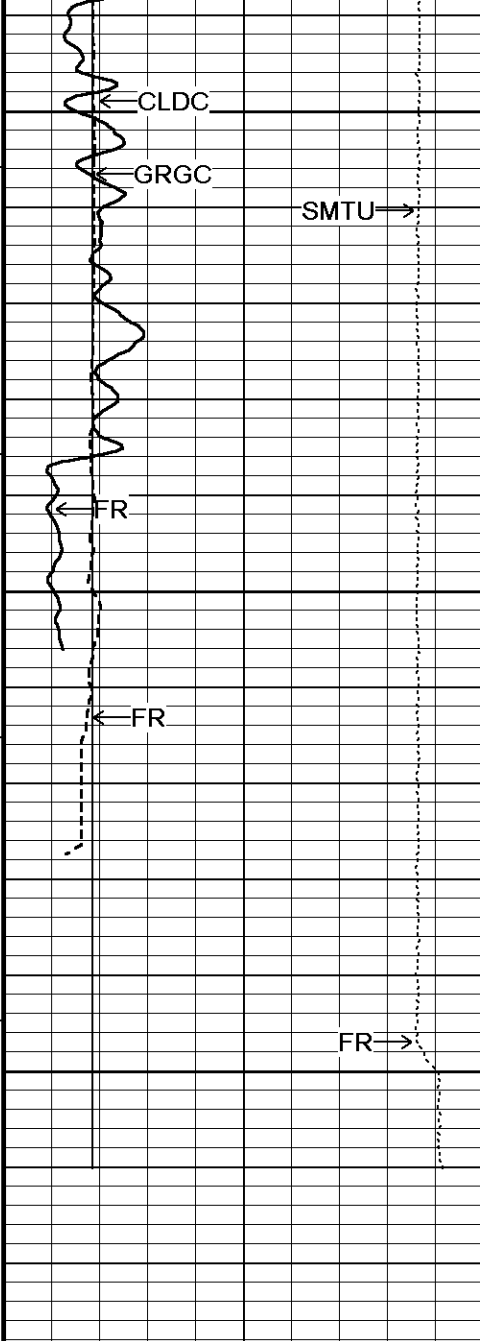




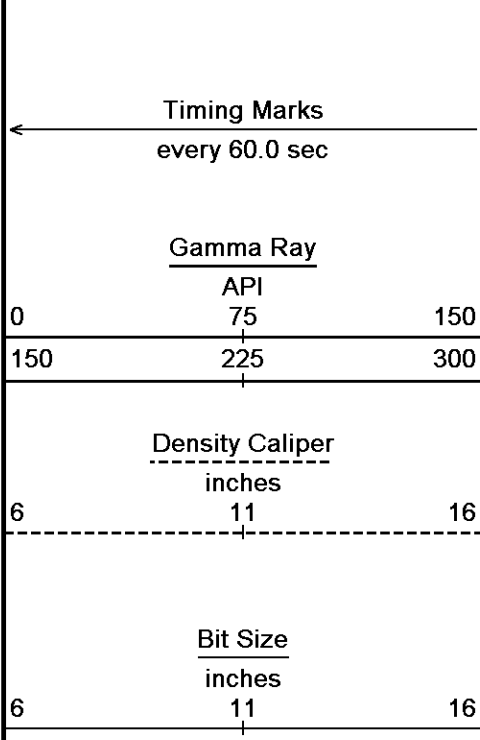
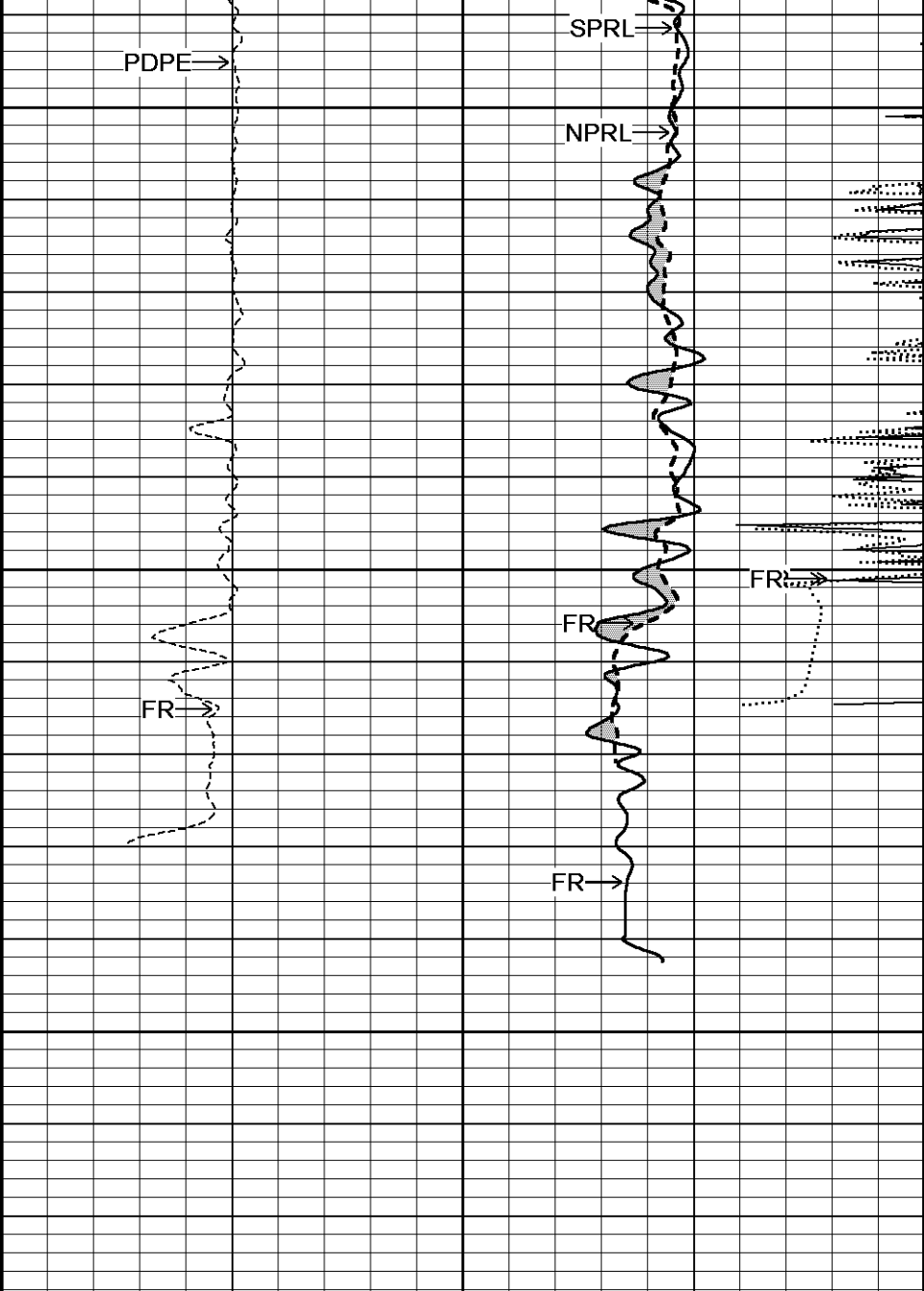
4300
100
103°
4350
104°
4400
104°
4450
104°
4500



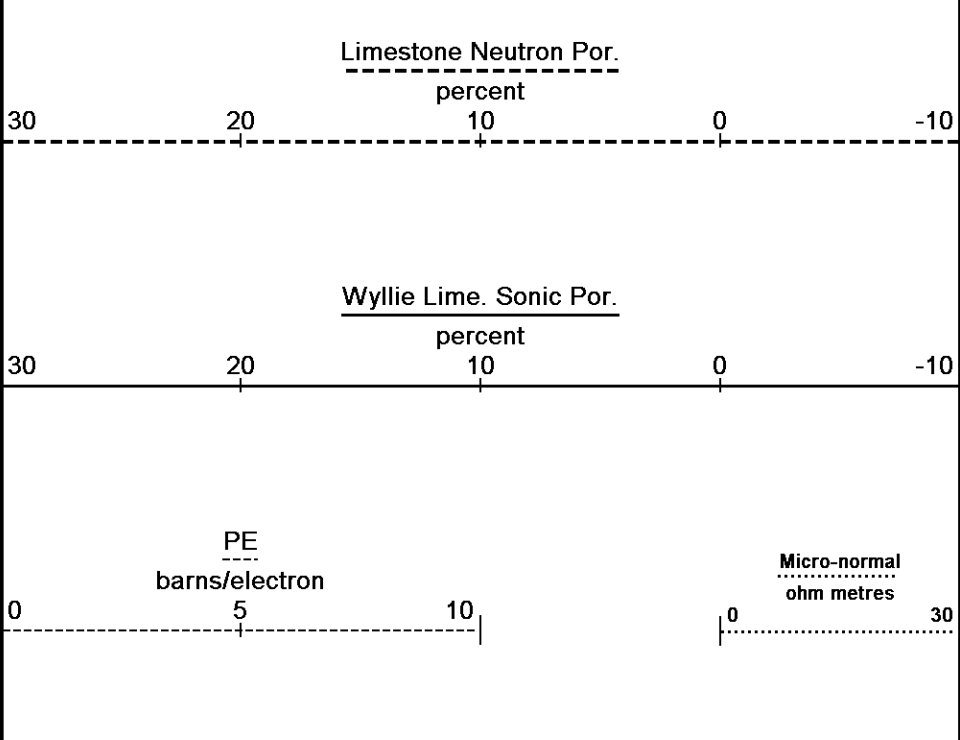




4750
105°
4800
0
0
TD
4850
Depth
In
Feet



Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Density Caliper
inches
6 11 16
Bit Size
inches
6 11 16
Borehole
Temp in
deg F
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Micro-inverse
ohm metres

0 30

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 23-JUN-2014 11:19

Filename: C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta

Recorded on 23-JUN-2014 06:05

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113



5 INCH MAIN



BEFORE SURVEY CALIBRATION

C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 Main.dta

General Constants All 000

Last Edited on 23-JUN-2014,03:06

General Parameters

Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	MML Caliper	

Rwa Parameters

Porosity used	Wyllie Lime. Sonic Por.
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150
SW/APOR Tool Source	0.000

Gamma Calibration MCG-D.K 469

Field Calibration on 22-JUN-2014 22:28

	Measured	Calibrated (API)
Background	77	51
Calibrator (Gross)	1163	776
Calibrator (Net)	1086	725

Gamma Constants MCG-D.K 469

Last Edited on 23-JUN-2014,02:57

Gamma Calibrator Number	GRC038	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 12-MAY-2014,02:16

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

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 12-JUN-2014,06:51

Pre-filter Length 11

Micro Normal and Micro Inverse Calibration MML-A 3

Base Calibration on 03-JUN-2014 20:20

Field Check on 22-JUN-2014 22:09

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10 0	50 0	5 1	25 6

Micro Normal	10.0	49.9	3.4	16.9
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal		77.3		77.3
Micro Inverse		51.2		51.2

Micro Normal and Micro Inverse Constants MML-A 3				Last Edited on 23-JUN-2014,02:57
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159			
Micro Normal K Factor			0.5110	
Micro Inverse K Factor			0.3380	
Standoff Offset			N/A	inches

Neutron Calibration MDN-A.B 66					Base Calibration on 17-JUN-2014 14:31	
					Field Check on 22-JUN-2014 22:32	
Base Calibration						
		Measured		Calibrated (cps)		
		Near	Far	Near	Far	
		3219	100	3714	110	
Ratio		32.030		33.764		
Field Calibrator at Base						
				Calibrated (cps)		
				1617	2318	
Ratio				0.698		
Field Check						
				Calibrated (cps)		
				1621	2297	
Ratio				0.696		

Neutron Constants MDN-A.B 66			Last Edited on 23-JUN-2014,02:57		
Neutron Source Id	P0204NN				
Neutron Jig Number	5824NE				
Epithermal Neutron					
Caliper Source for Processing	Bit Size				
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				

Sonic Constants MSS-C.K 330			Last Edited on 23-JUN-2014,03:06	
Maximum Boundary Contrast	100.00		micro-sec/ft	
Fluid Transit Time	189.00		micro-sec/ft	
Limestone Transit Time	47.50		micro-sec/ft	
Sandstone Transit Time	55.50		micro-sec/ft	
Dolomite Transit Time	43.50		micro-sec/ft	
Sonic used for Porosities	3-5' Compensated Sonic			
Correction for Sonde Skew	Applied			
Cycle Stretch Algorithm	Applied			
MN3FT	N/A		micro-sec	
MX3FT	N/A		micro-sec	
Hunt-Raymer Constant	83.13		micro-sec/ft	
Sonde Mode	Compensated			
Hole Type	Open Hole			
Sonde Parameters				
	Measured	Calibrated		
Offset	N/A	0.0000		
Free Pipe	N/A	N/A		

Peak Amplitude Source	N/A				
Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A				
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A		
N/A	N/A	N/A			
N/A	N/A	N/A			
N/A	N/A	N/A			
N/A	N/A	N/A			
N/A	N/A	N/A			

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
3' Waveform Filter	N/A	
4' Waveform Filter	N/A	
5' Waveform Filter	N/A	
6' Waveform Filter	N/A	
Semblance Level	N/A	
Semblance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

Caliper Calibration MPD-C.A 216

Base Calibration on 18-JUN-2014 10:39
Field Calibration on 22-JUN-2014 22:12

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	16948	3.99
2	27088	5.98
3	37015	7.97
4	46800	9.86
5	58001	11.92
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.93	7.97

Photo Density Calibration MPD-C.A 216

Base Calibration on 18-JUN-2014 11:00
Field Check on 22-JUN-2014 22:16

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Background	1108	1302		
Reference 1	60000	31770	59556	30836
Reference 2	24613	2738	24941	2541
Field Check at Base				
	1107.7	1302.5		
Field Check				
	1109.7	1307.4		
PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	200	988		

Reference 1	24654	59812	0.416	0.371
Reference 2	6993	24480	0.289	0.272

Field Check at Base

199.7	987.8
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Field Check

200.5	989.2
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Density Constants MPD-C.A 216

Last Edited on 23-JUN-2014,02:56

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	1.08	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	0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Log Data\Berexco Timothy #2-16\Berexco Timothy #2-16 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 in

Compact Comms Gamma
MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.240 in

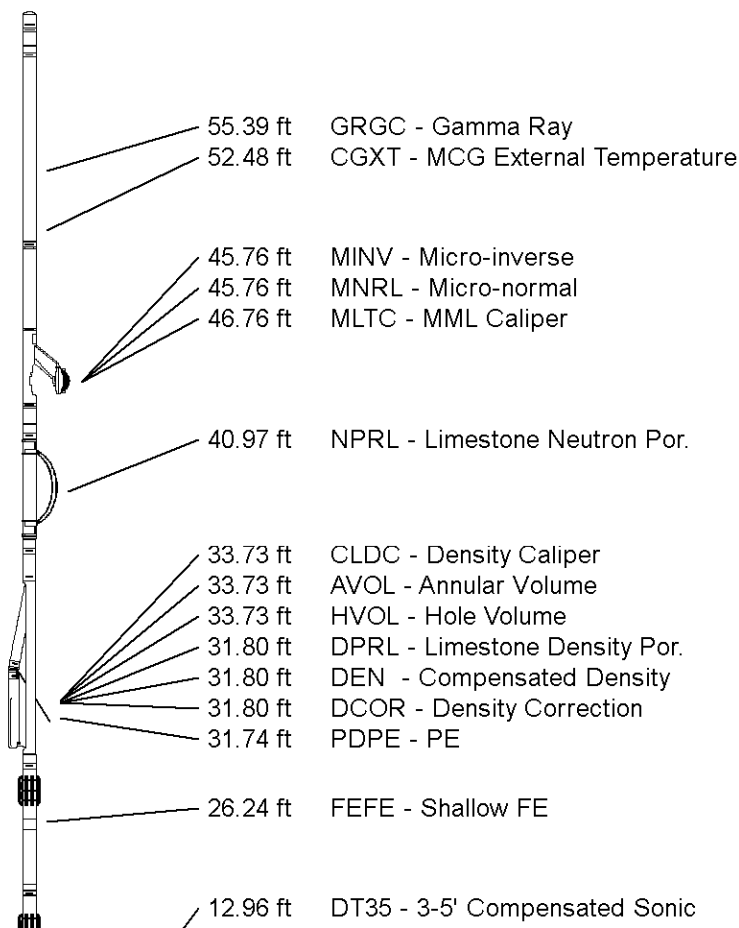
Compact Micro-log
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.240 in

Compact Neutron
MDN-A.B 66 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-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic

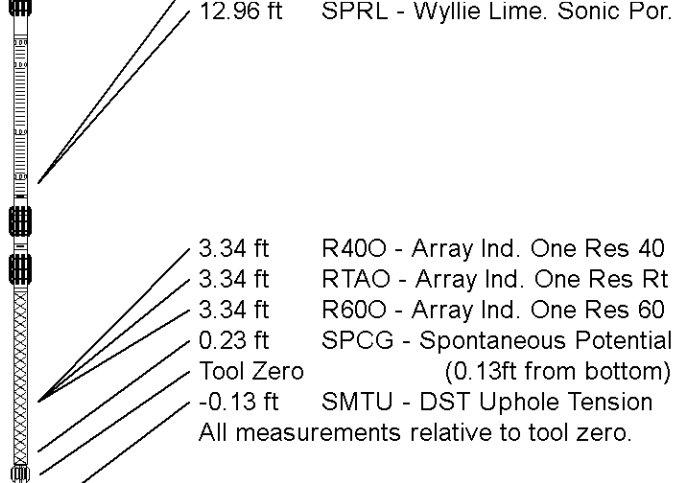


MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

12.96 ft SPRL - Wyllie Lime. Sonic Por.

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

Total Length: 62.25 ft Weight: 471.8 lb



COMPANY	BEREXCO LLC
WELL	TIMOTHY #2-16
FIELD	WILDCAT
PROVINCE/COUNTY	FINNEY
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2969.00	feet	First Reading	4833.91	feet
Elevation Drill Floor	2967.00	feet	Depth Driller	4850.00	feet
Elevation Ground Level	2957.00	feet	Depth Logger	4847.00	feet



Weatherford®

COMPENSATED NEUTRON
SONIC POROSITY
OVERLAY