



Weatherford

**COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME**

COMPANY	SHAKESPEARE OIL. CO., INC.		
WELL	CAMPBELL 4-17		
FIELD	WILDCAT		
PROVINCE/COUNTY	LOGAN		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	850' FSL & 2000' FEL		
PERMIT NUMBER	SE NW SW SE		
SEC 17	TWP 13S	RGE 32W	Other Services
Latitude	MA/ MFE		MPD/MDN
Longitude	MML		
API Number	15-109-21293		
Permanent Datum GL, Elevation	3033 feet		
Log Measured From	KB		
Drilling Measured From	KB @ 10 FEET		
Date	11-JUN-2014		
Run Number	ONE		
Service Order	5872-89695834		
Depth Driller	4720.00	feet	
Depth Logger	4716.00	feet	
First Reading	4703.00	feet	
Last Reading	264.00	feet	
Casing Driller	268.00	feet	
Casing Logger	264.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.30 lb/USg	65.00 CP	
PH / Fluid Loss	10.50	8.80 ml/30Min	
Sample Source	MUDDPIT		
Rm @ Measured Temp	0.64 @ 93.0	ohm-m	
Rmf @ Measured Temp	0.51 @ 93.0	ohm-m	
Rmc @ Measured Temp	0.77 @ 93.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.52 @ 113.0	ohm-m	
Time Since Circulation	5 HOURS		
Max Recorded Temp	113.00	deg F	
Equipment / Base	13244	LIB	
Recorded By	D. COLE		
Witnessed By	T. PRIEST		
JOB #	LB14-178		

Elevations:	feet
KB	3043.00
DF	3041.00
GL	3033.00

BOREHOLE RECORD Last Edited: 11-JUN-2014 14:01

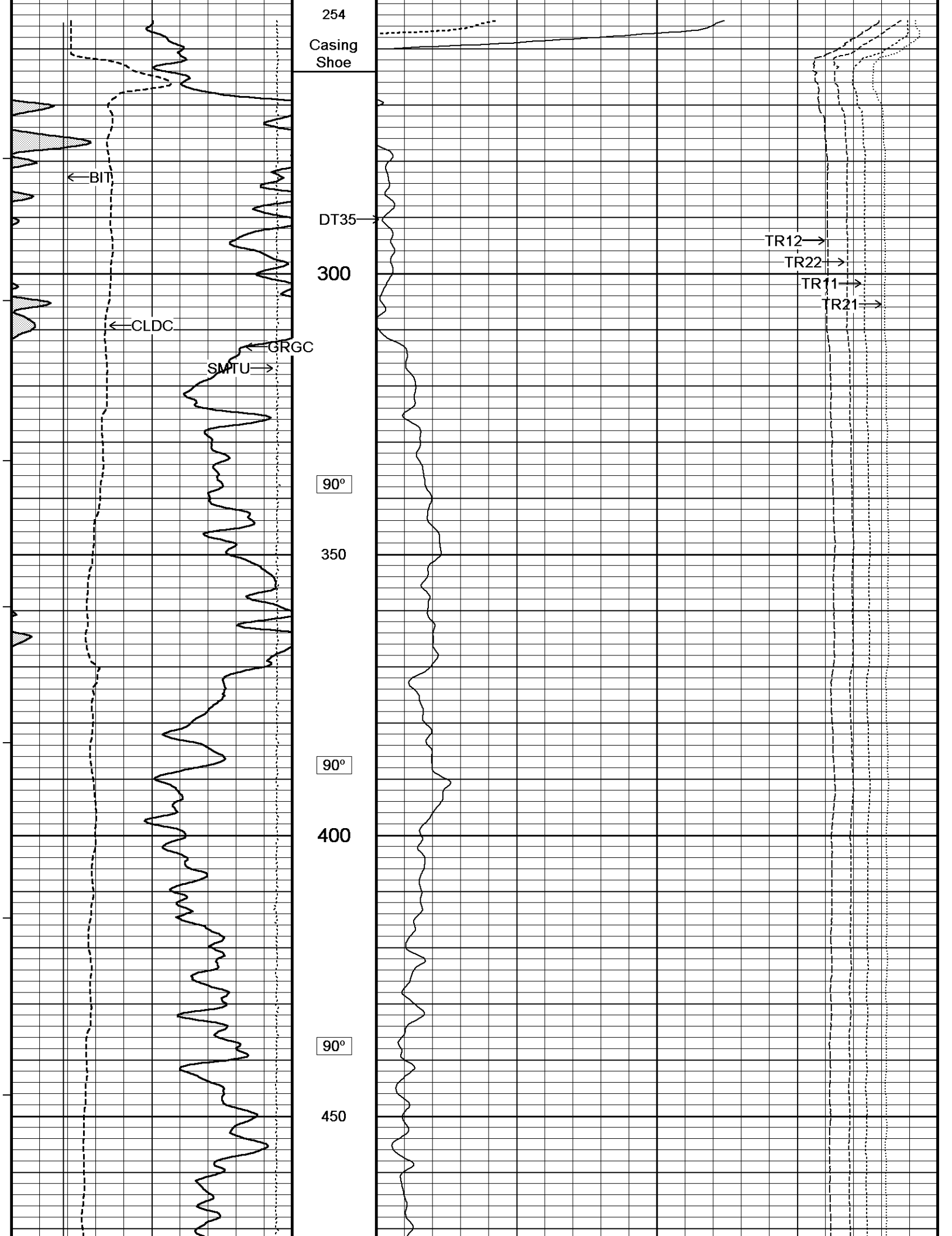
Bit Size inches	Depth From feet	Depth To feet
7.875	268.00	4720.00

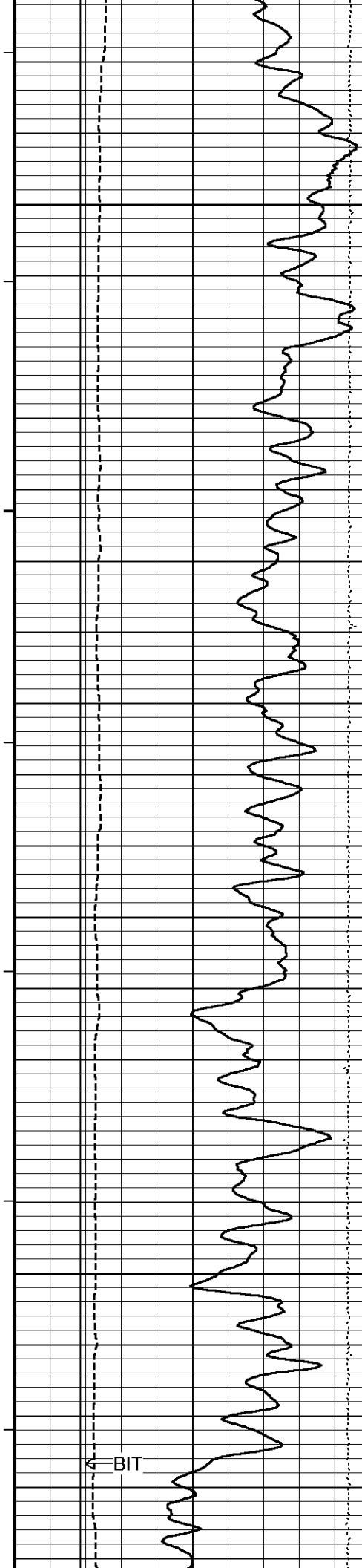
CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	268.00	24.00

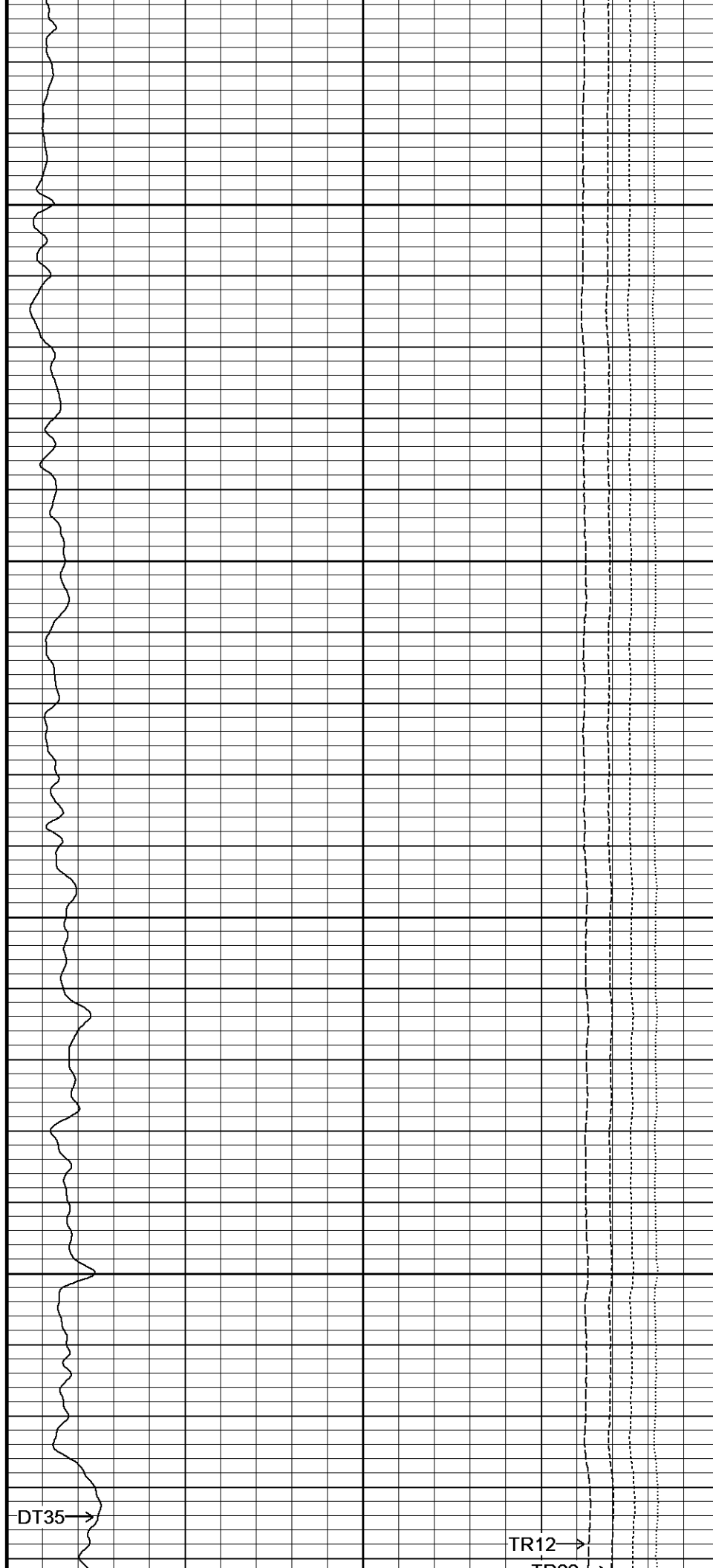
REMARKS

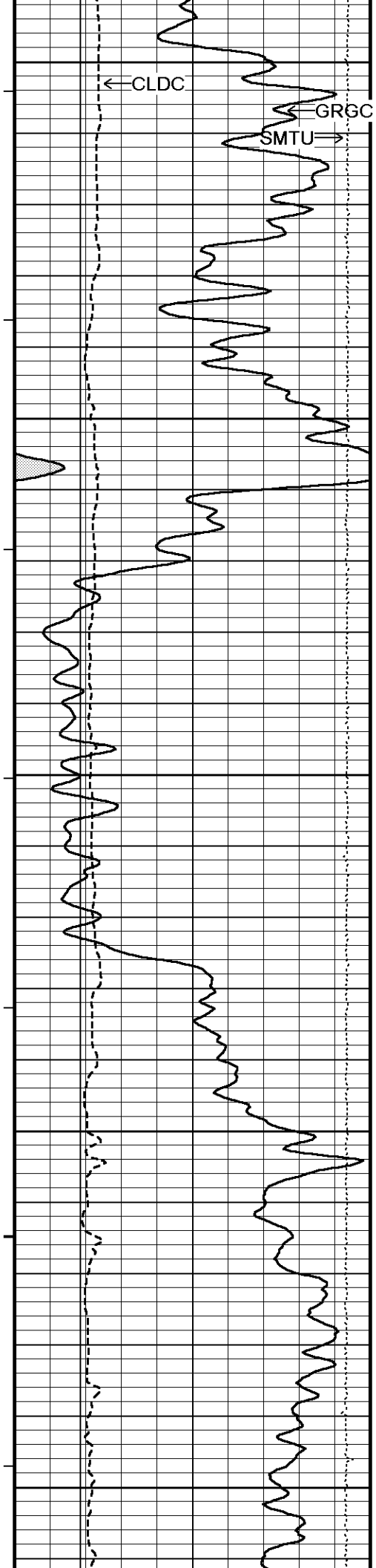
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOLSTRING: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE:
 - MDN: DUAL BOWSPRING ECCENTRALIZER
 - MFE: 1 X 0.5 INCH STANDOFF
 - MSS: 2 X 0.5 INCH STANDOFF
 - MAI: 2 X 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- 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 3800 FEET: 370 CU.FT.





90°
500
91°
550
91°
600
91°
650
92°



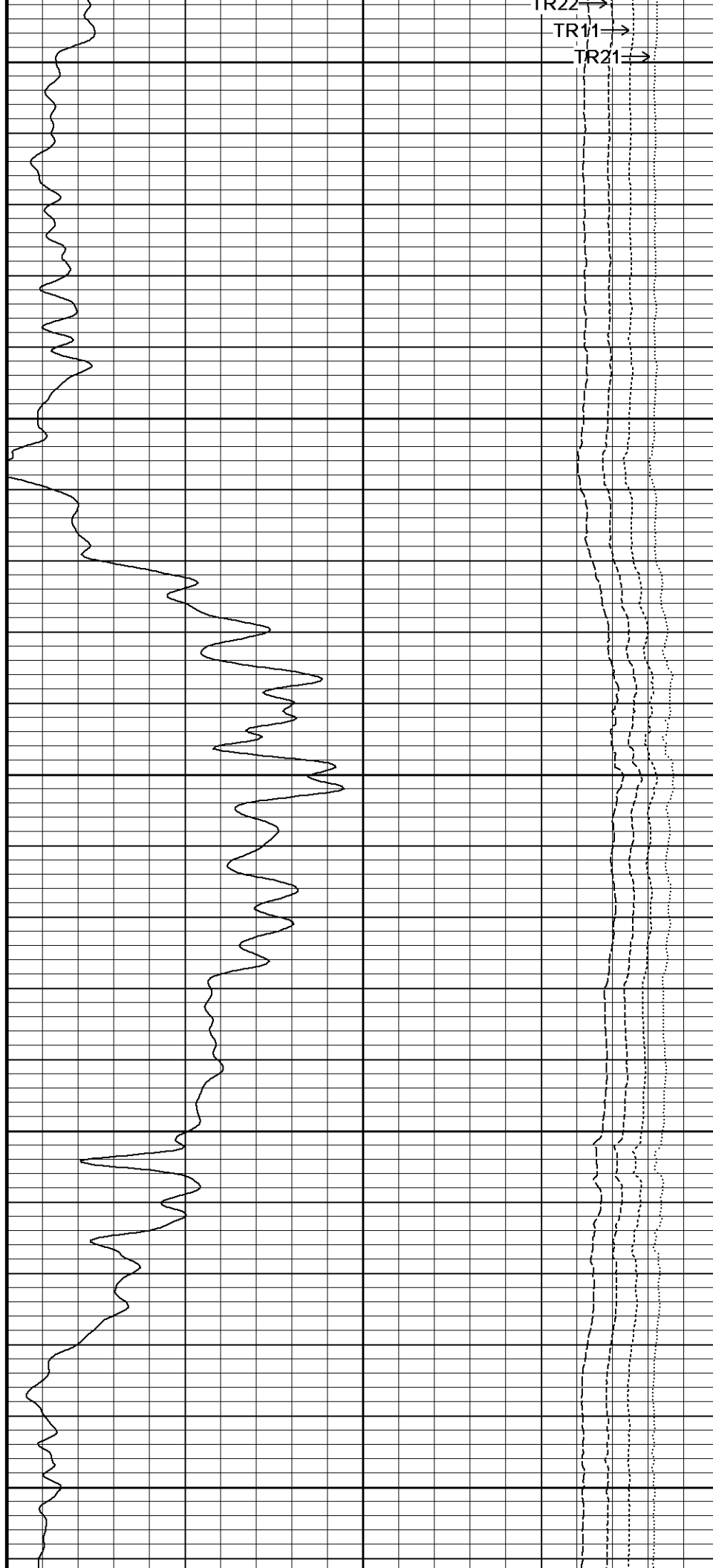


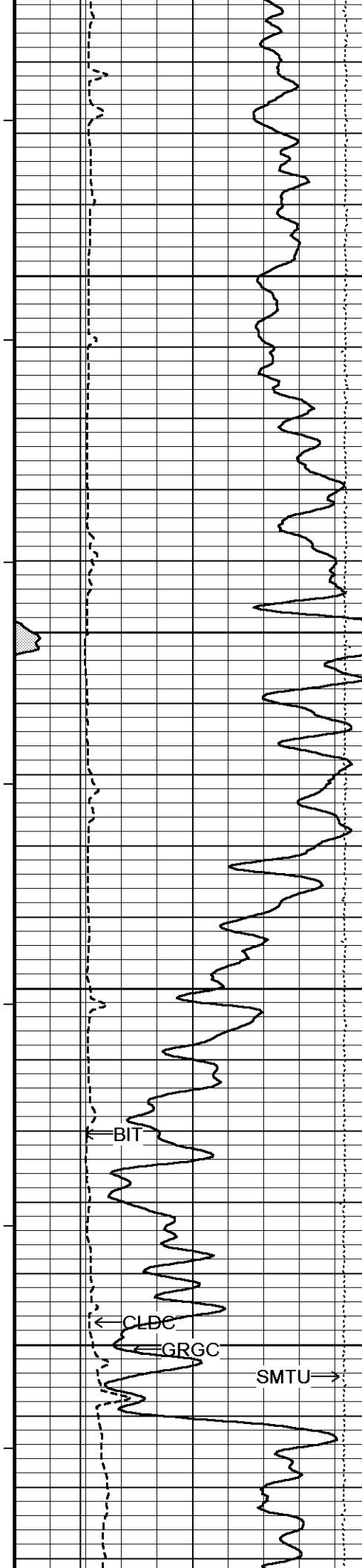
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92°

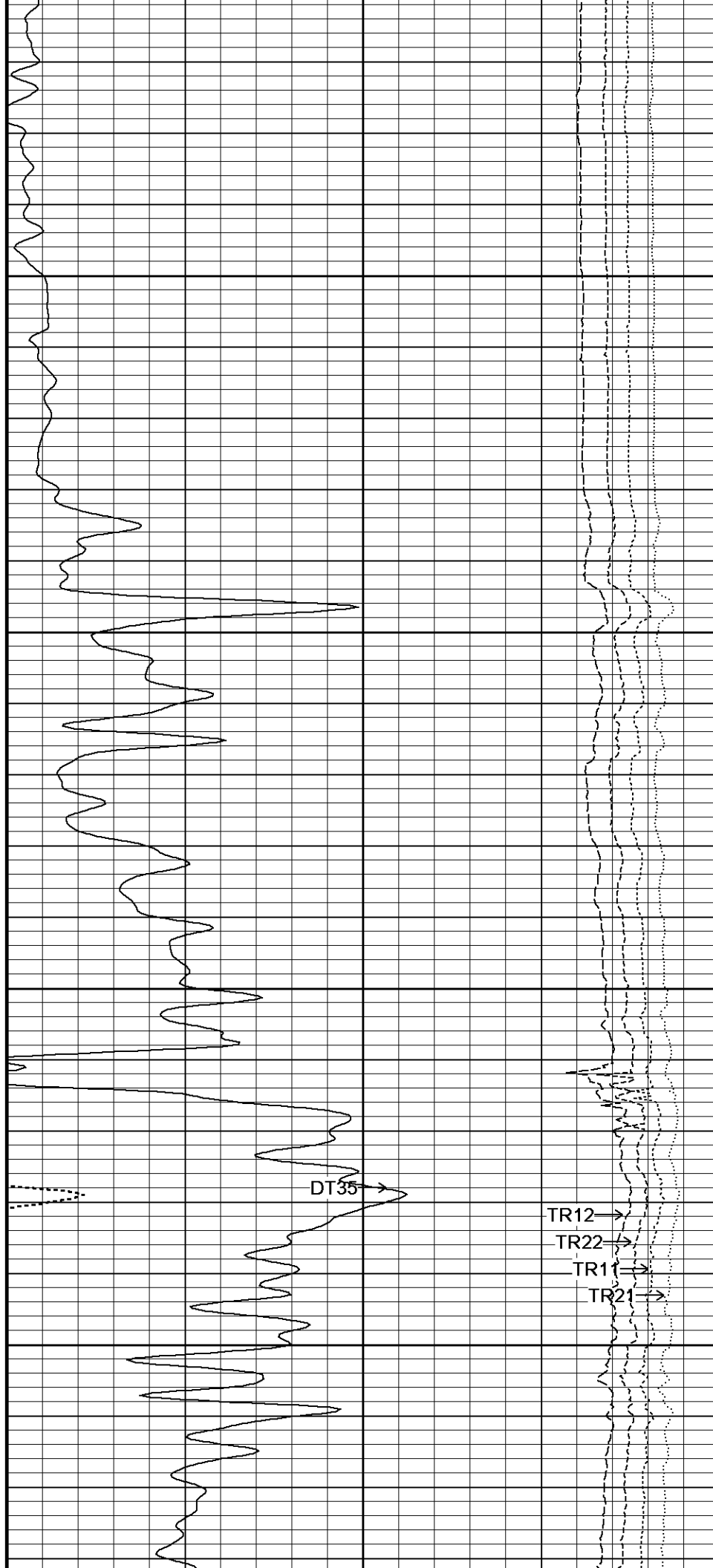
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93°

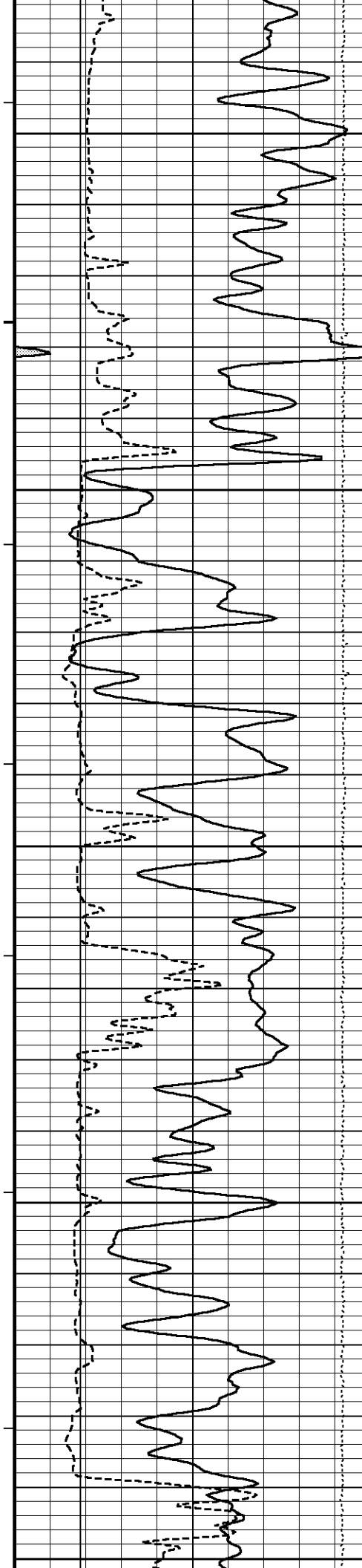




94°
950
94°
1000
93°
1050
94°
1100



DT35
TR12
TR22
TR11
TR21



94°

1150

94°

1200

95°

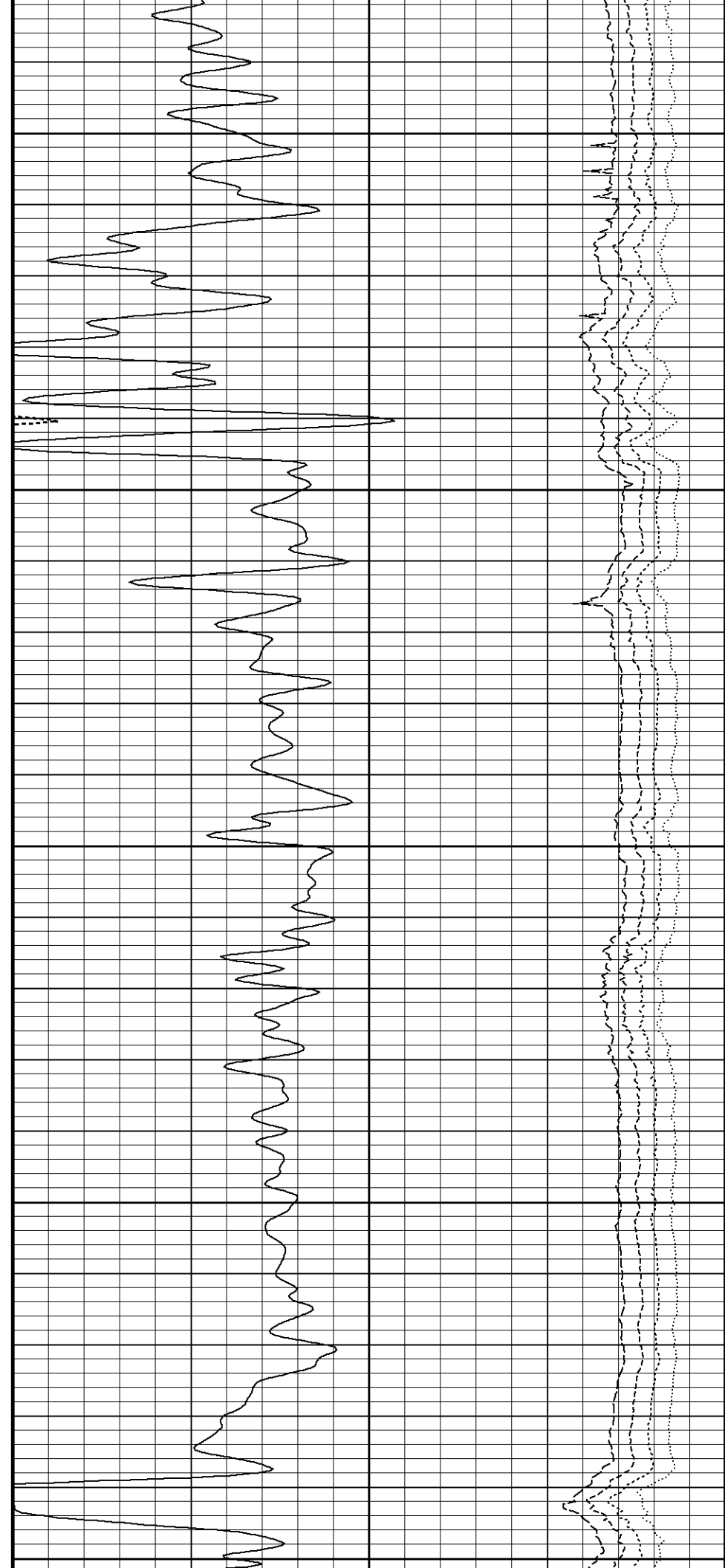
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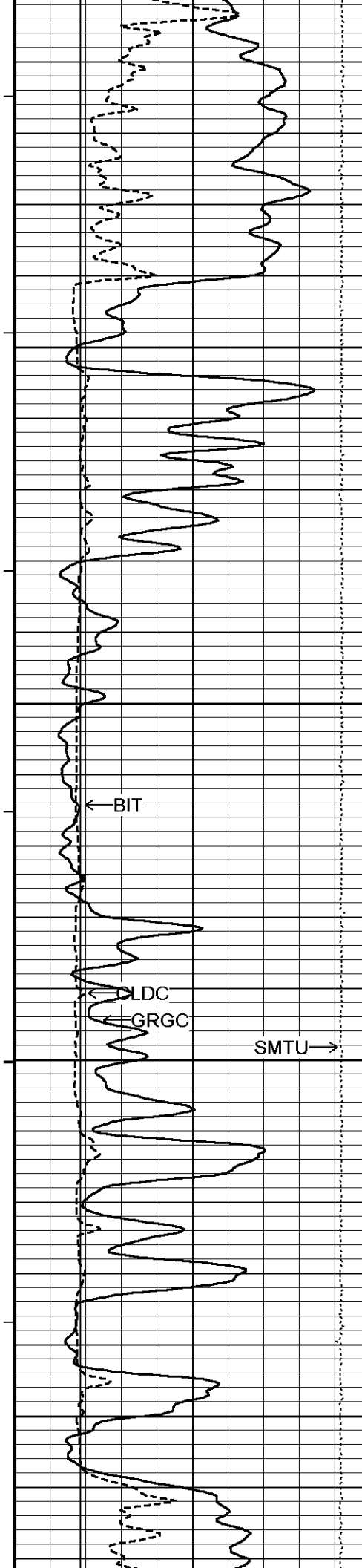
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1300

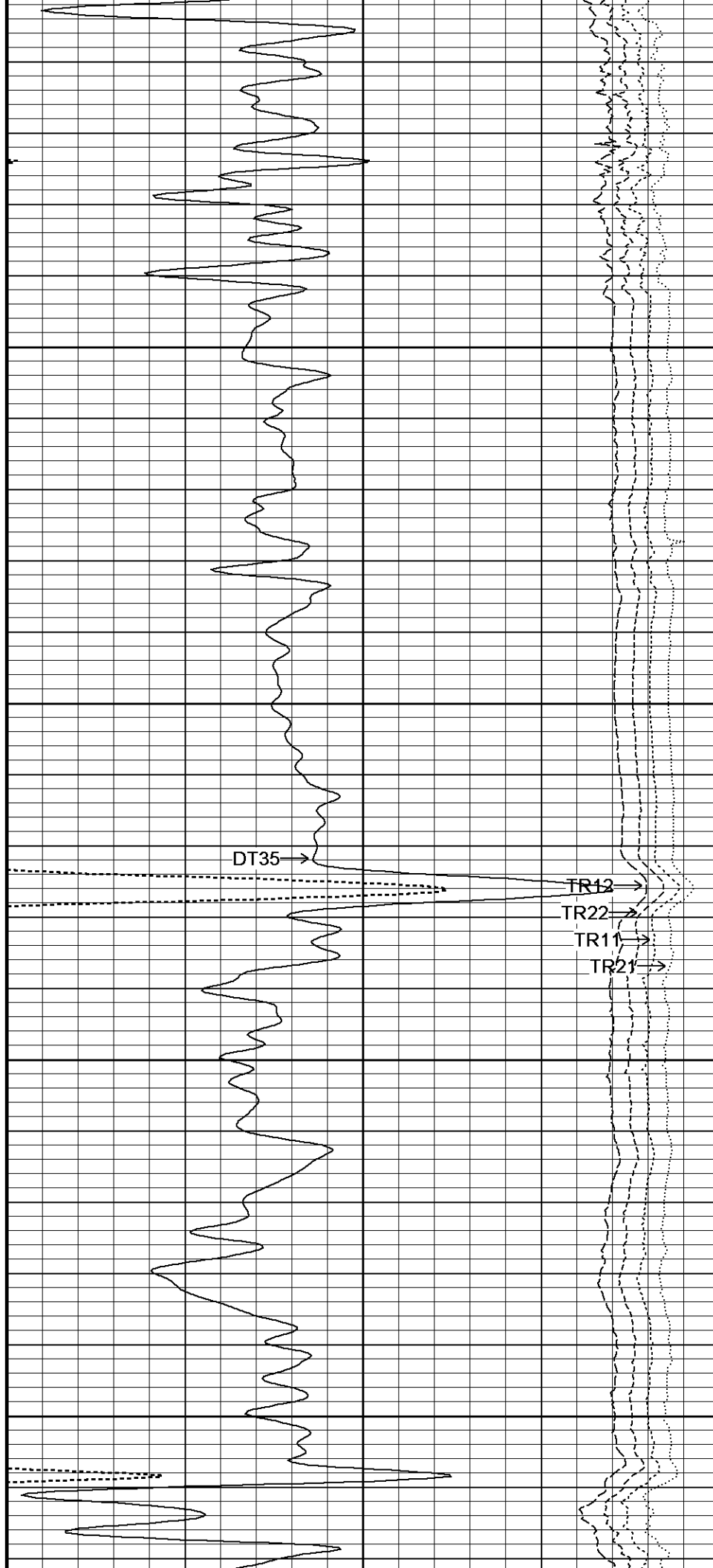
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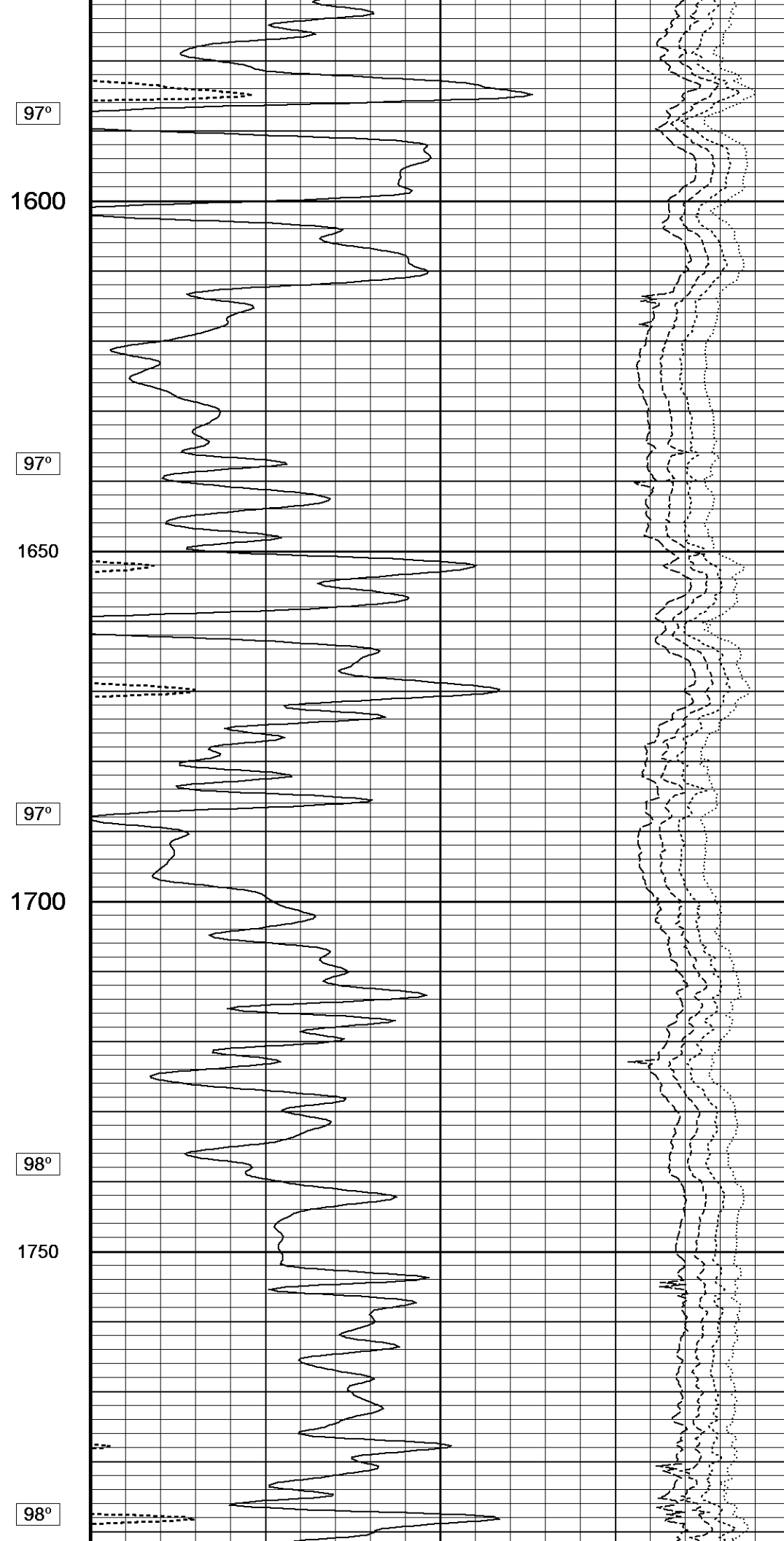
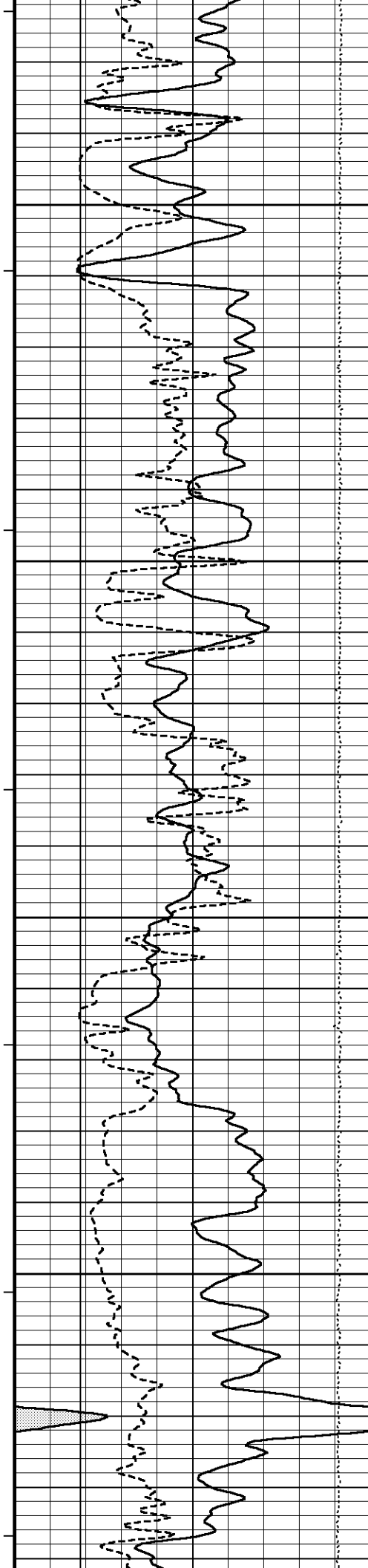
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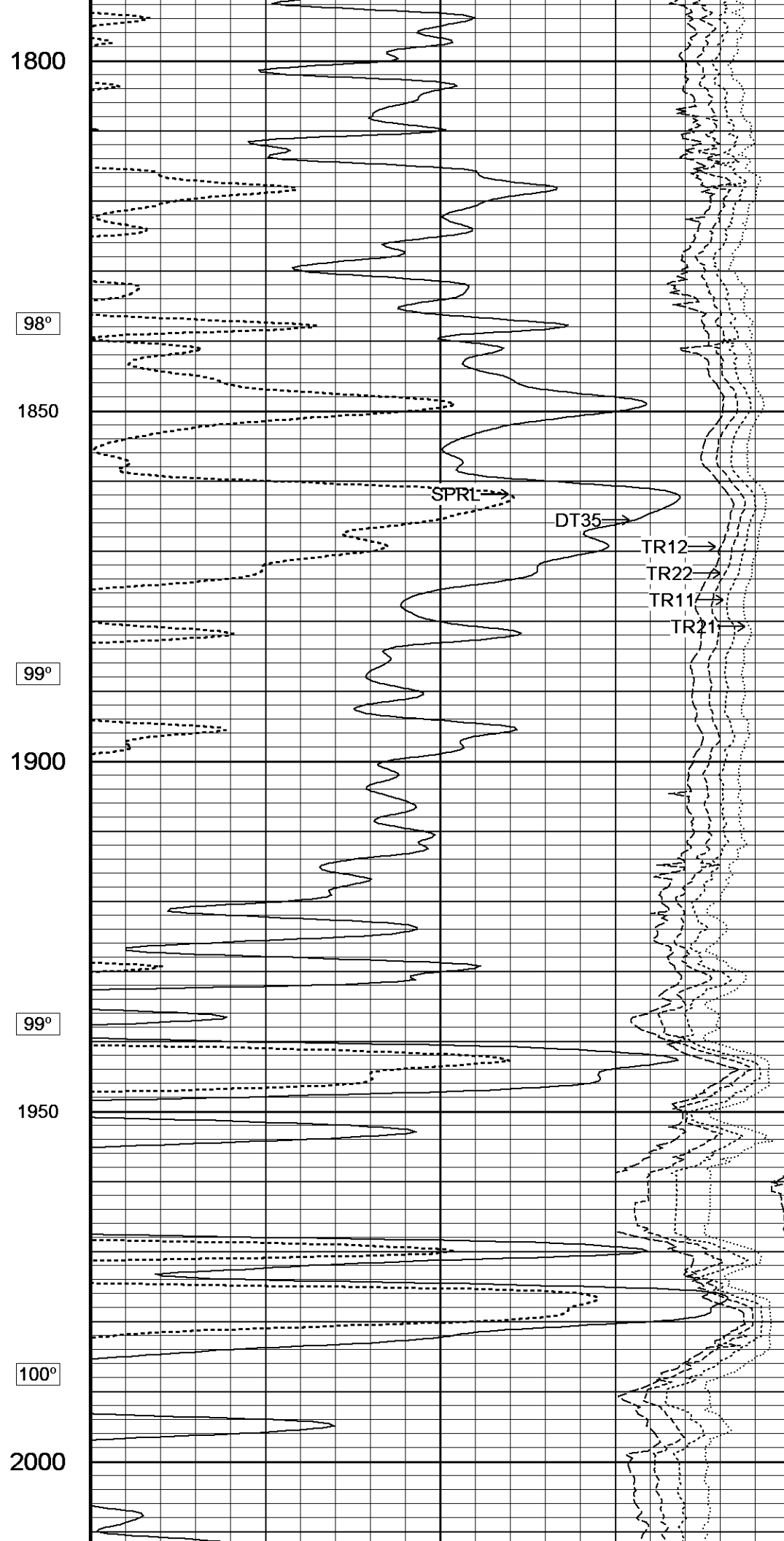
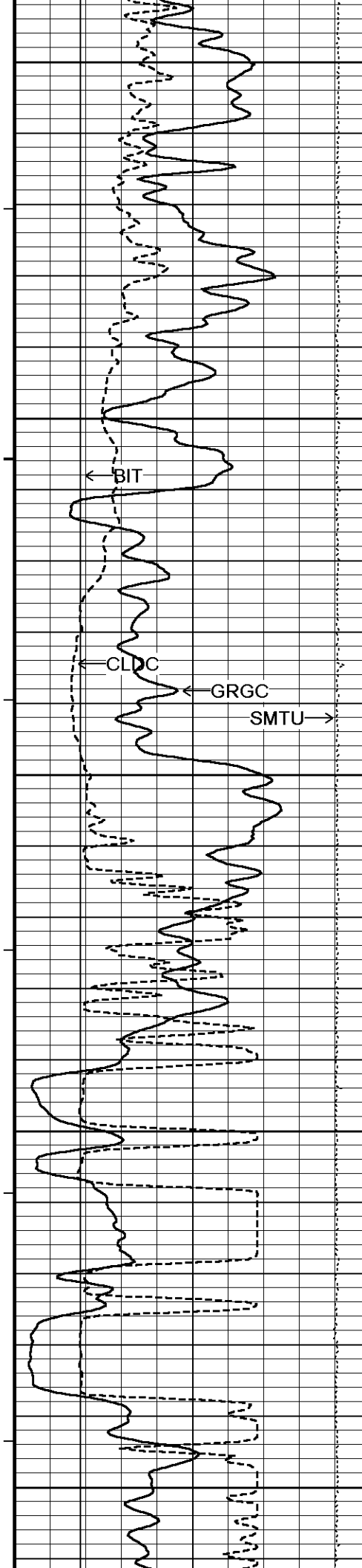


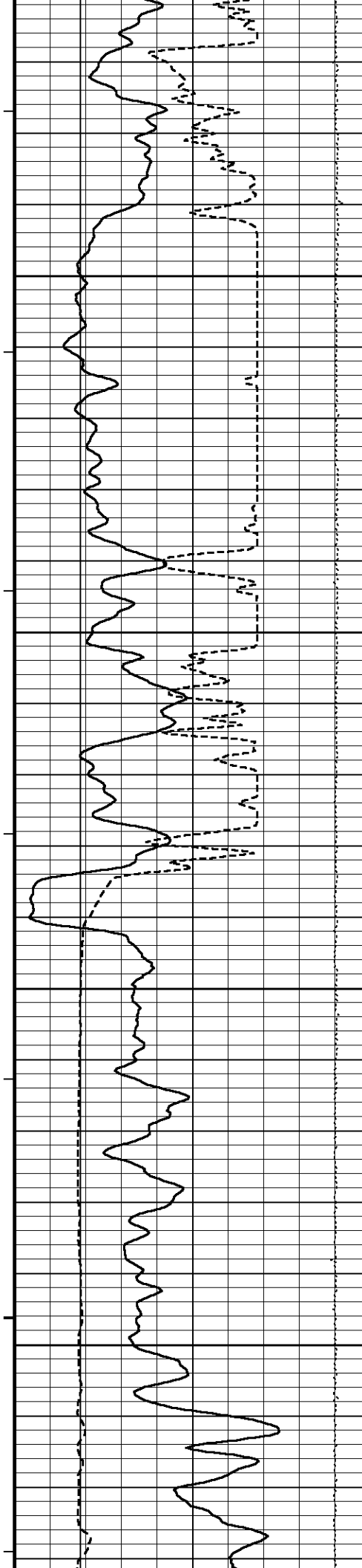


95°
1400
95°
1450
96°
1500
96°
1550









99°

2050

99°

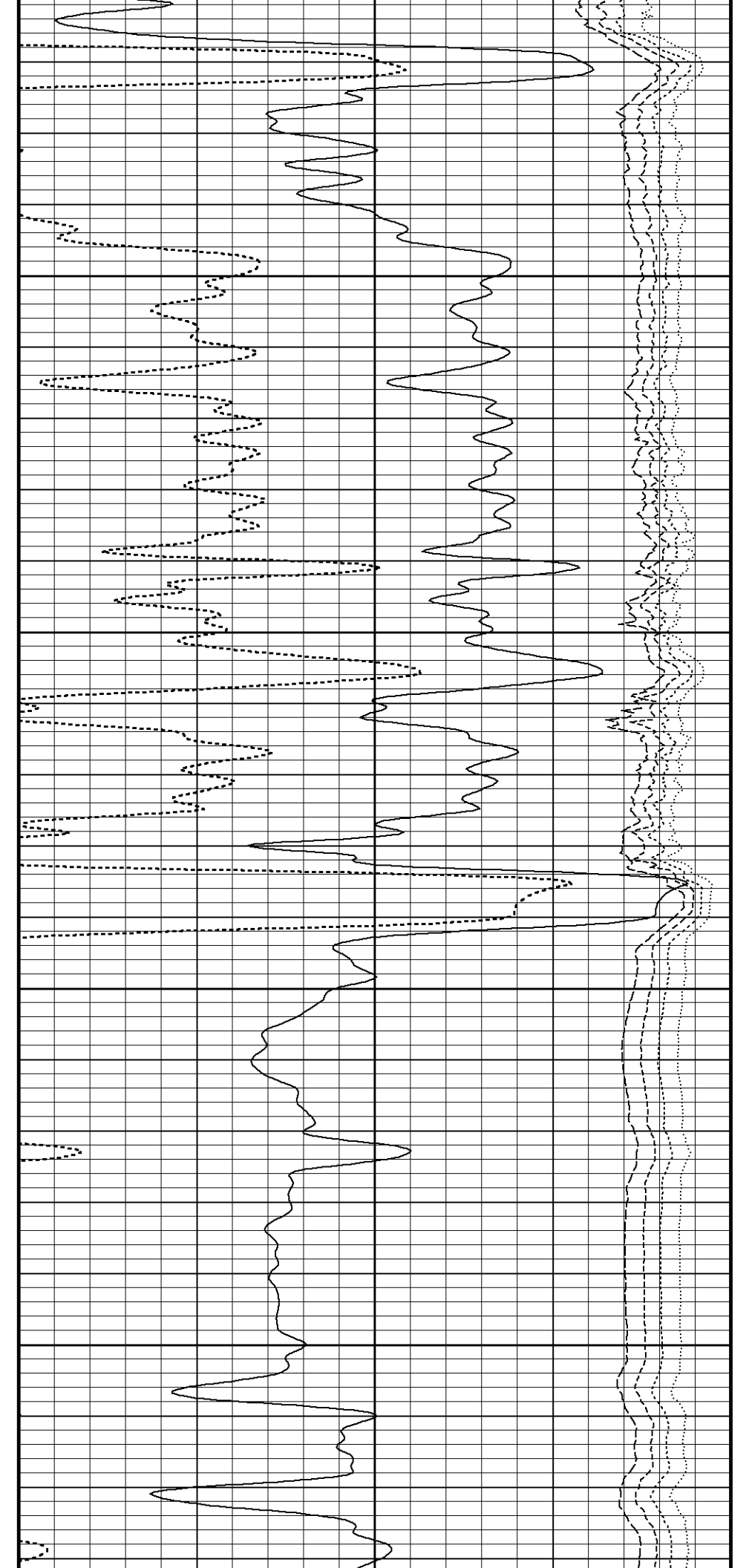
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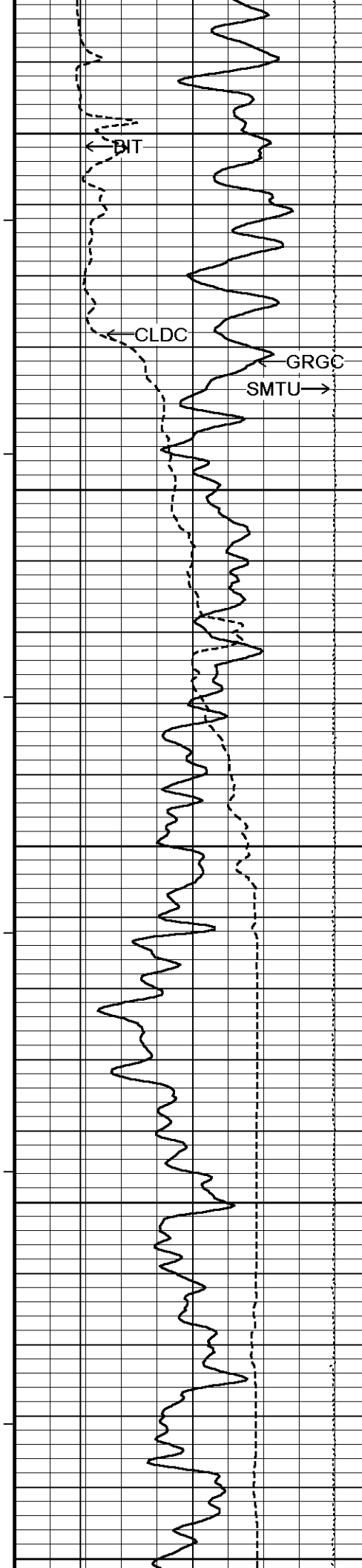
99°

2150

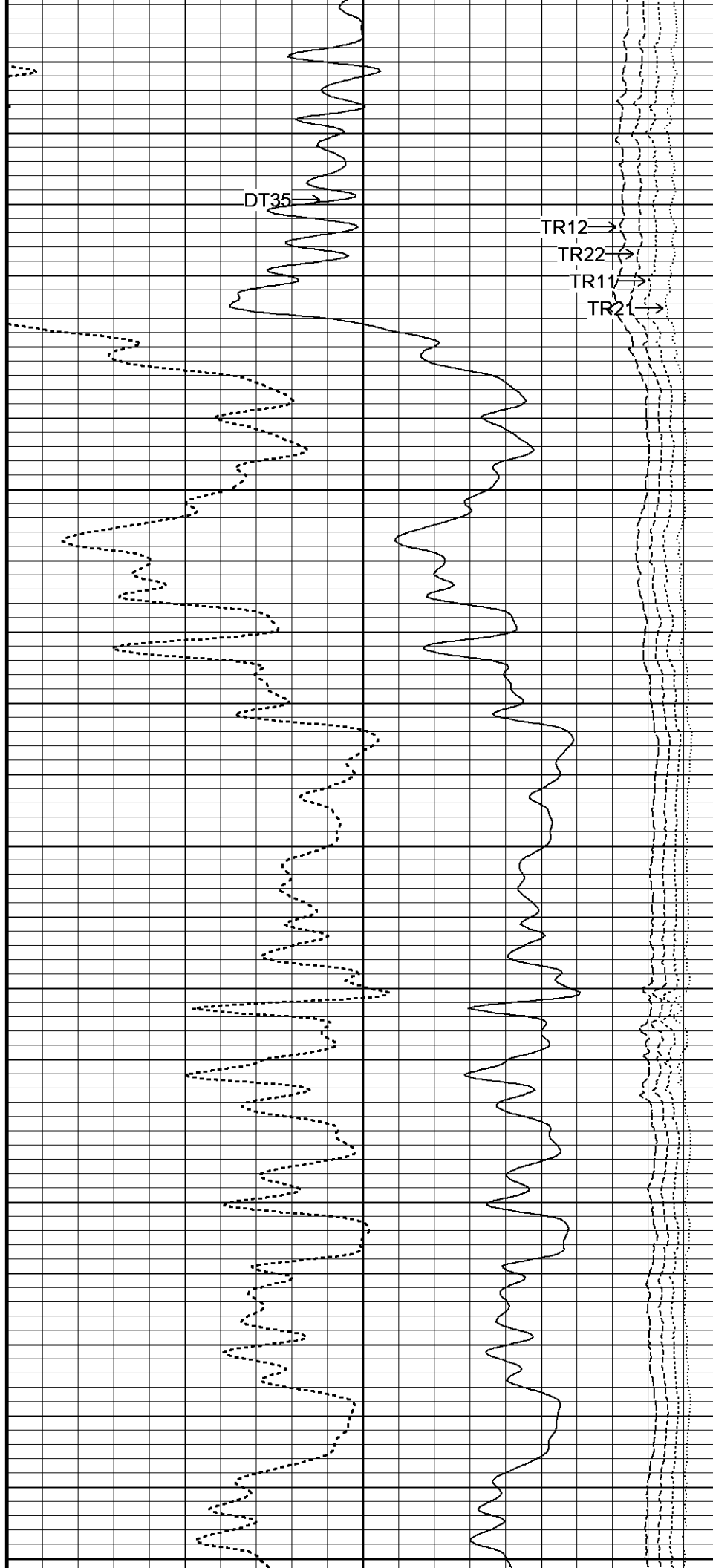
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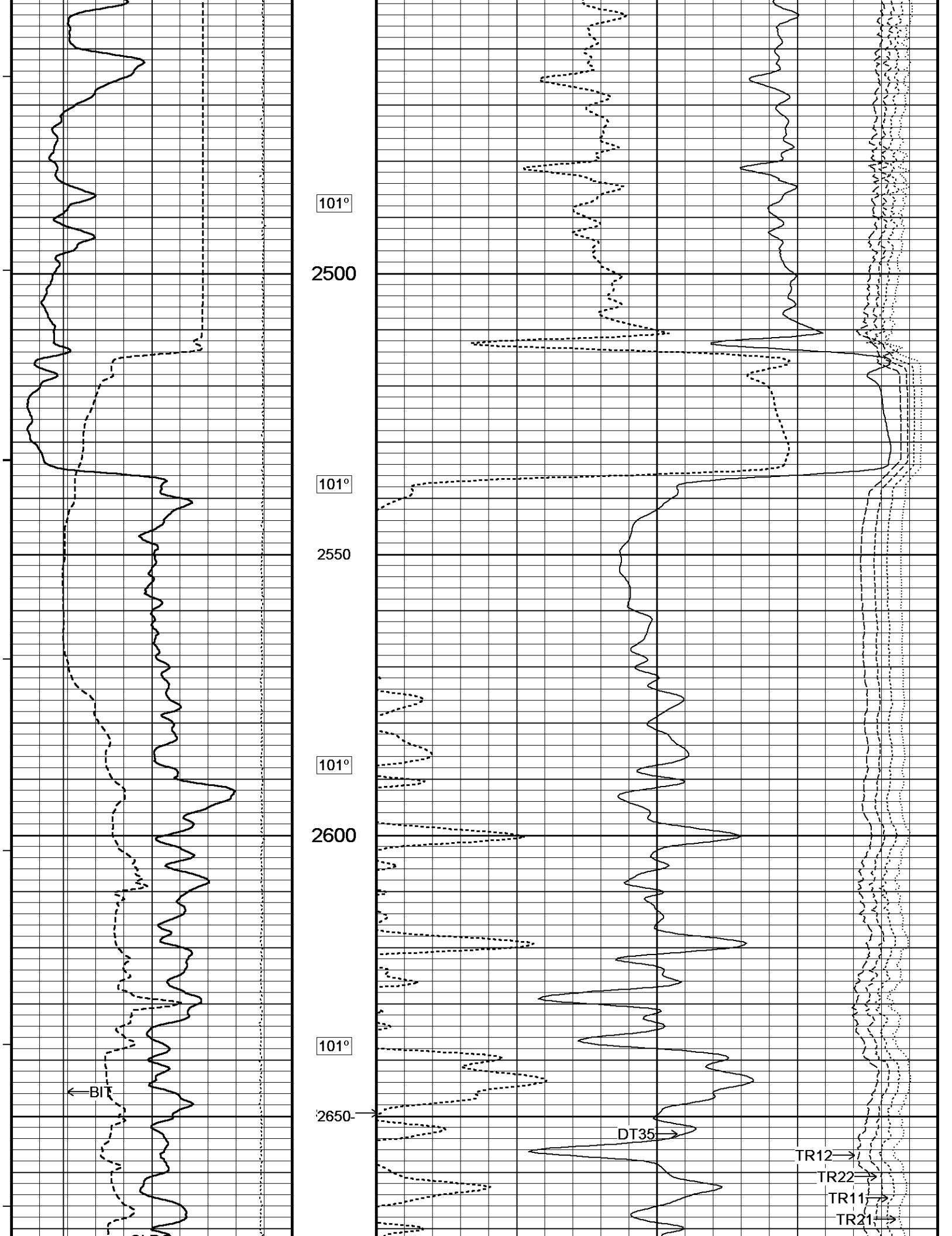
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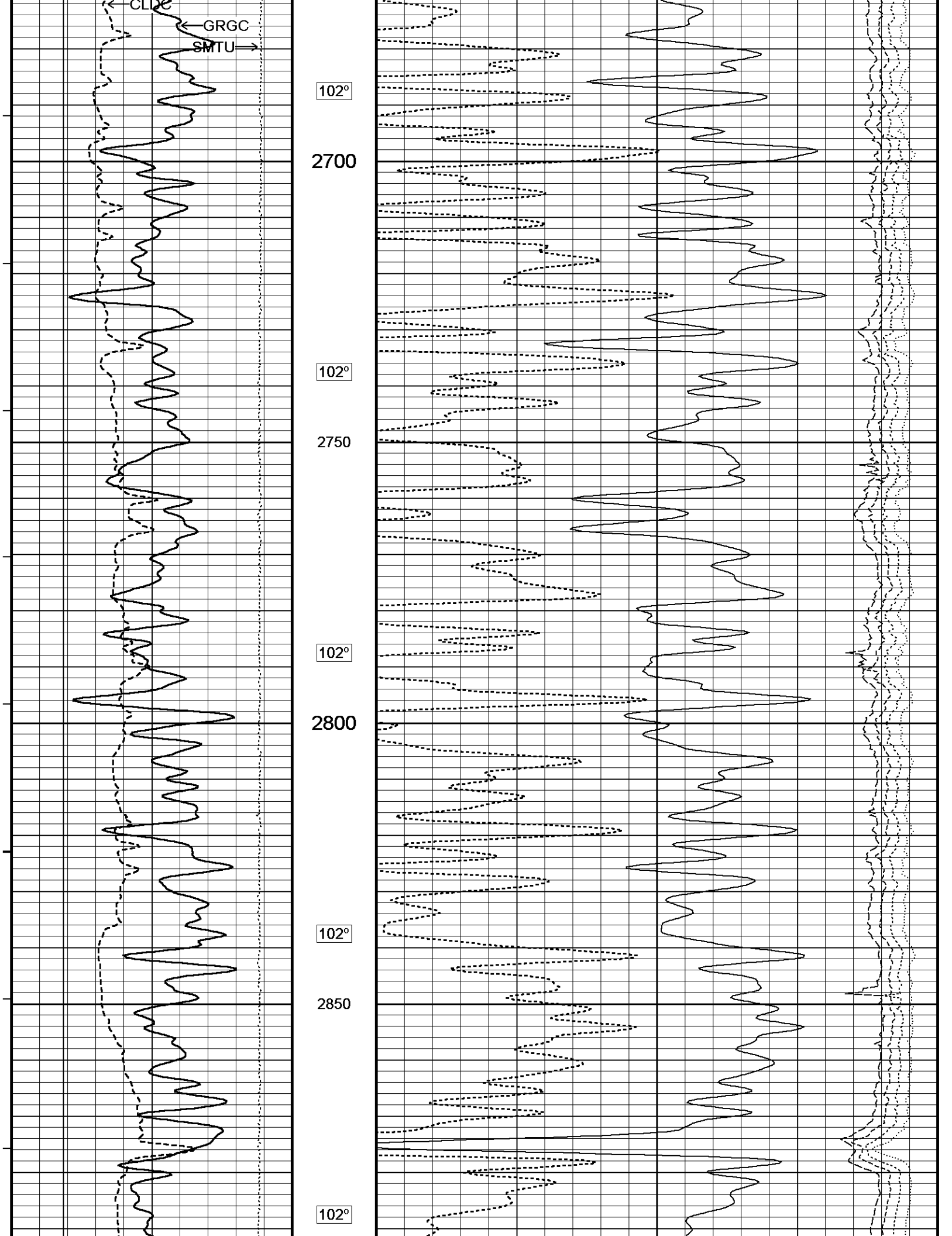


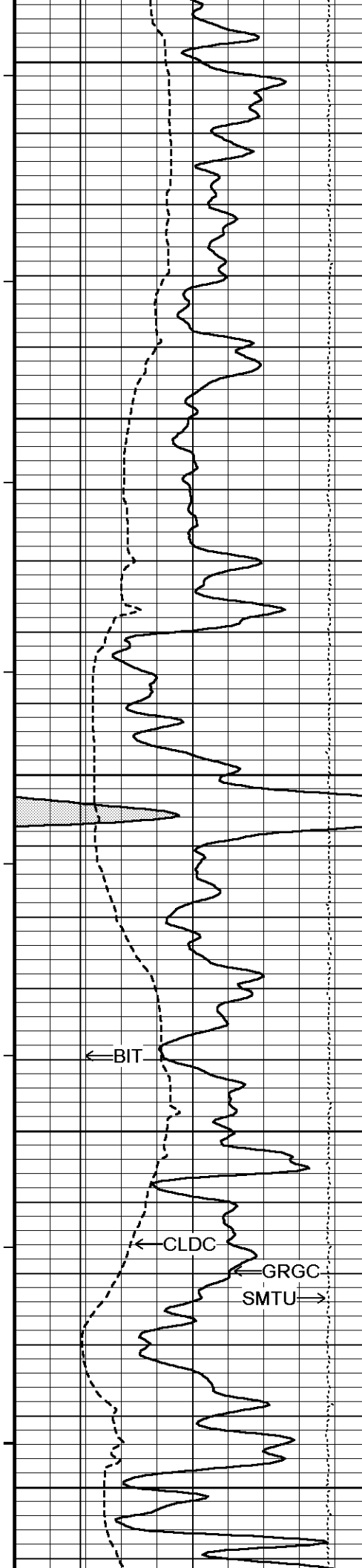


99°
2250
99°
2300
100°
2350
100°
2400
100°
2450









2900

103°

2950

103°

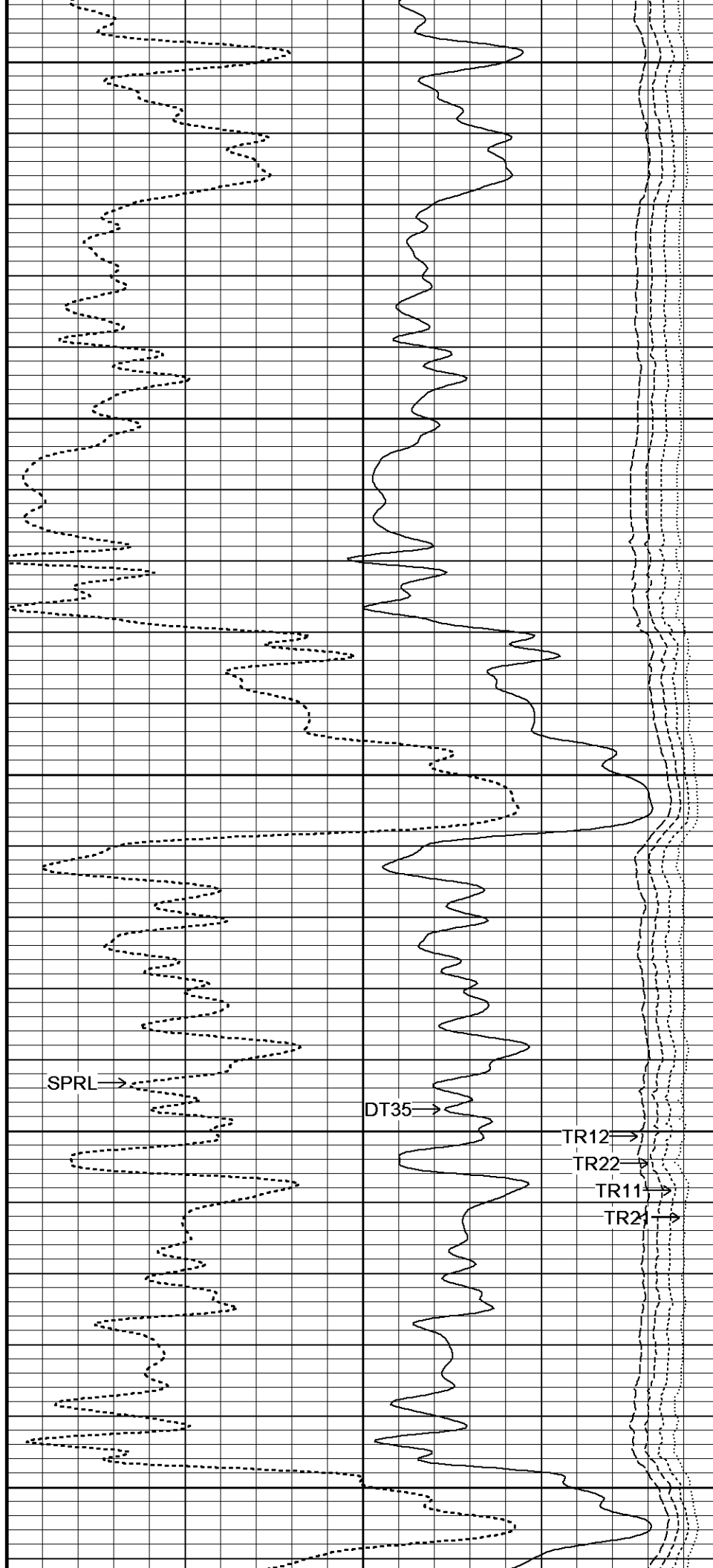
3000

103°

3050

103°

3100



SPRL →

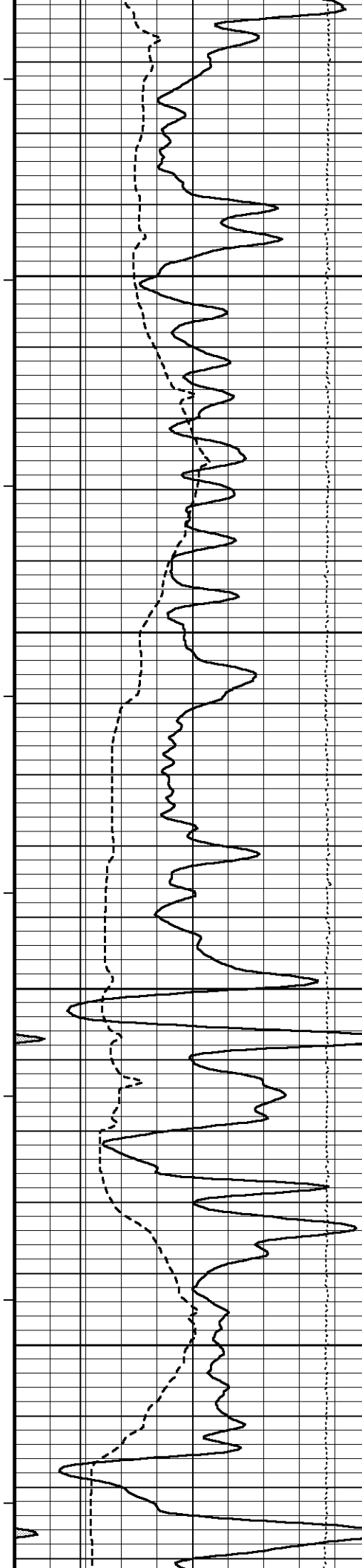
DT35 →

TR12 →

TR22 →

TR11 →

TR21 →



103°

3150

104°

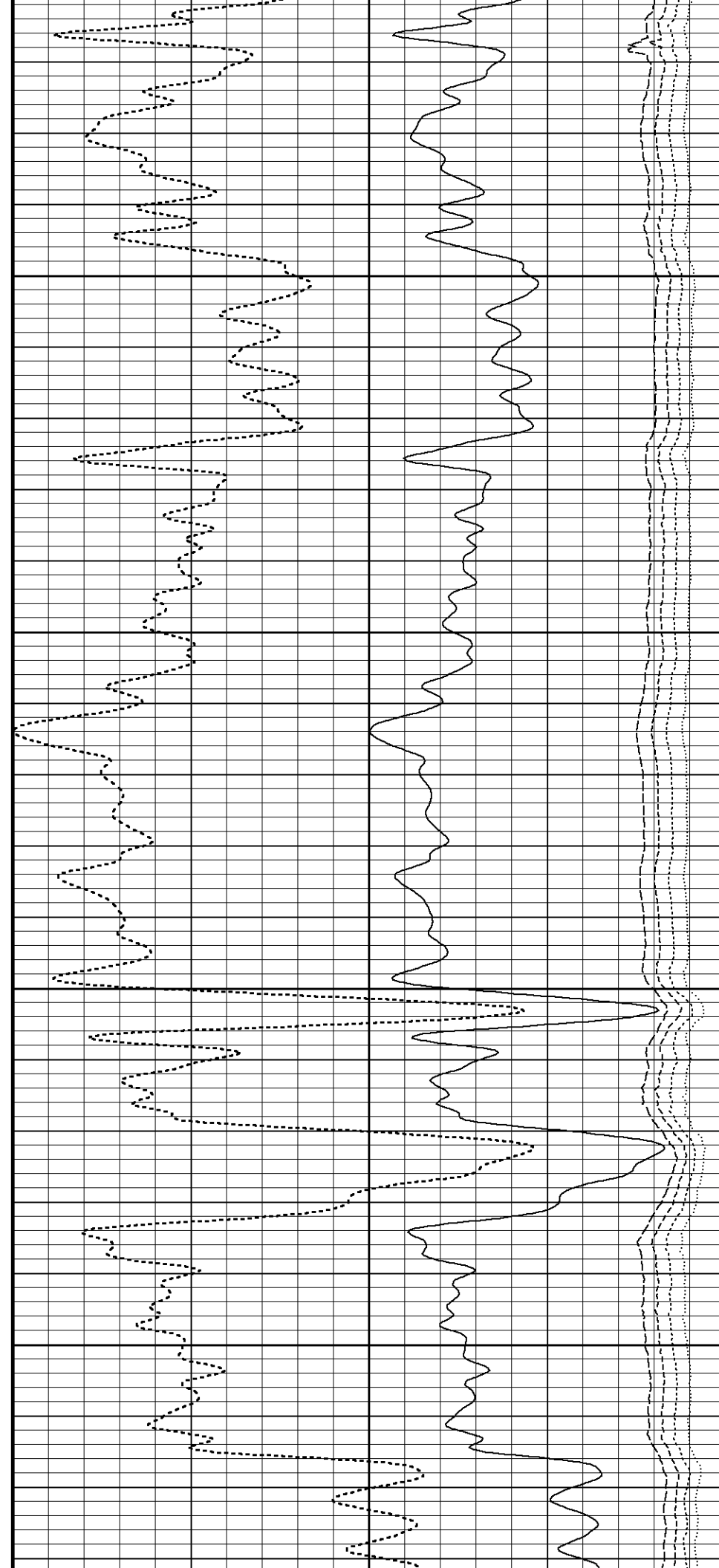
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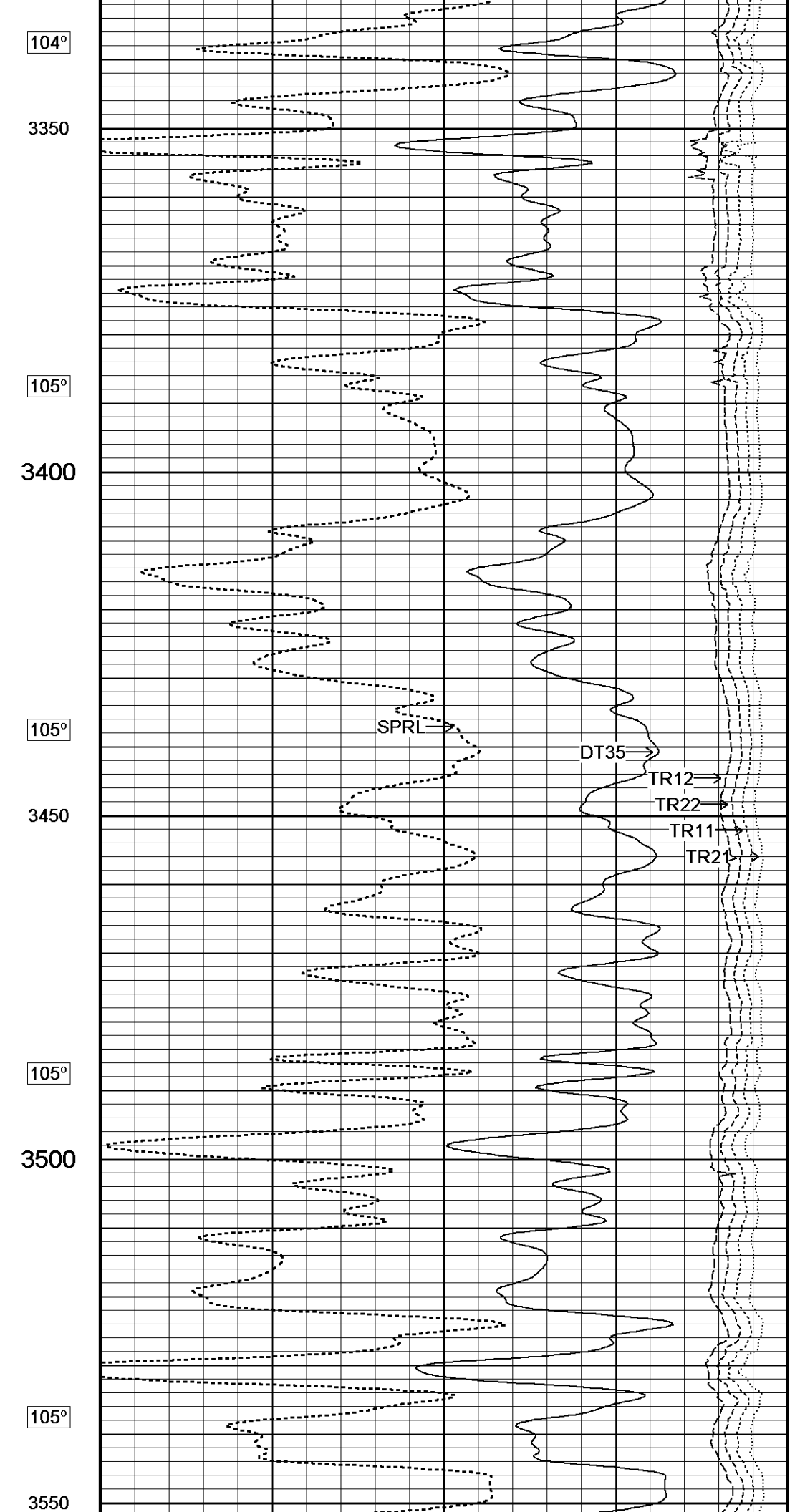
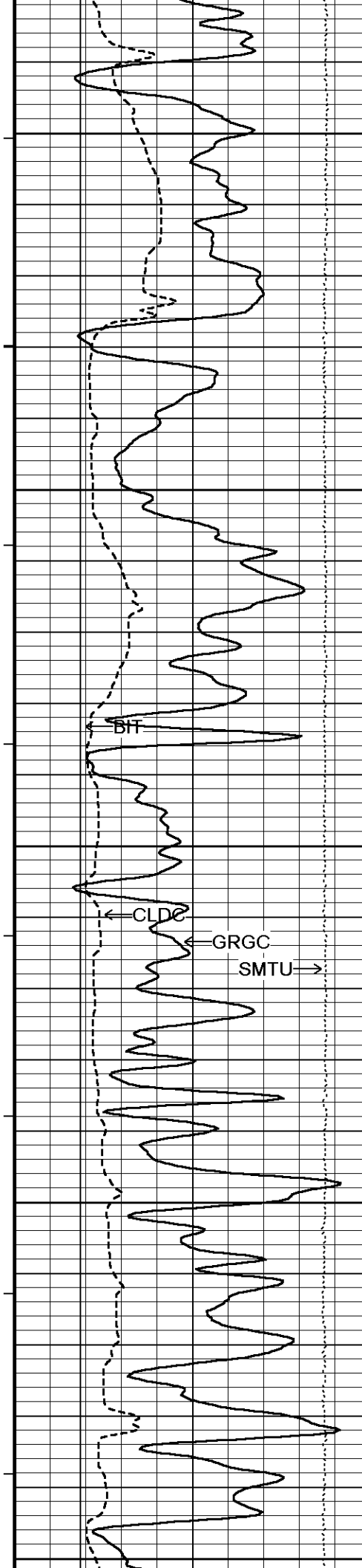
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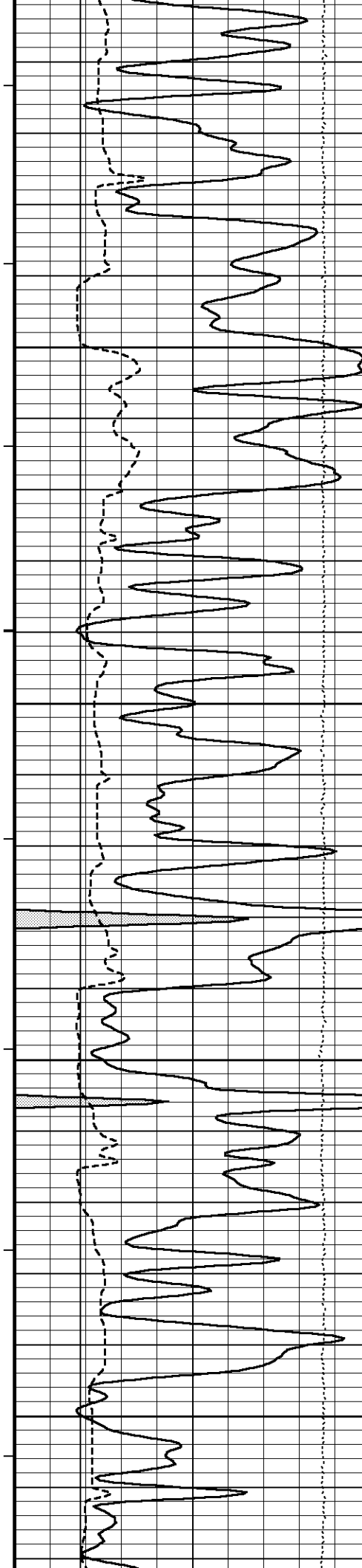
3250

104°

3300







106°

3600

106°

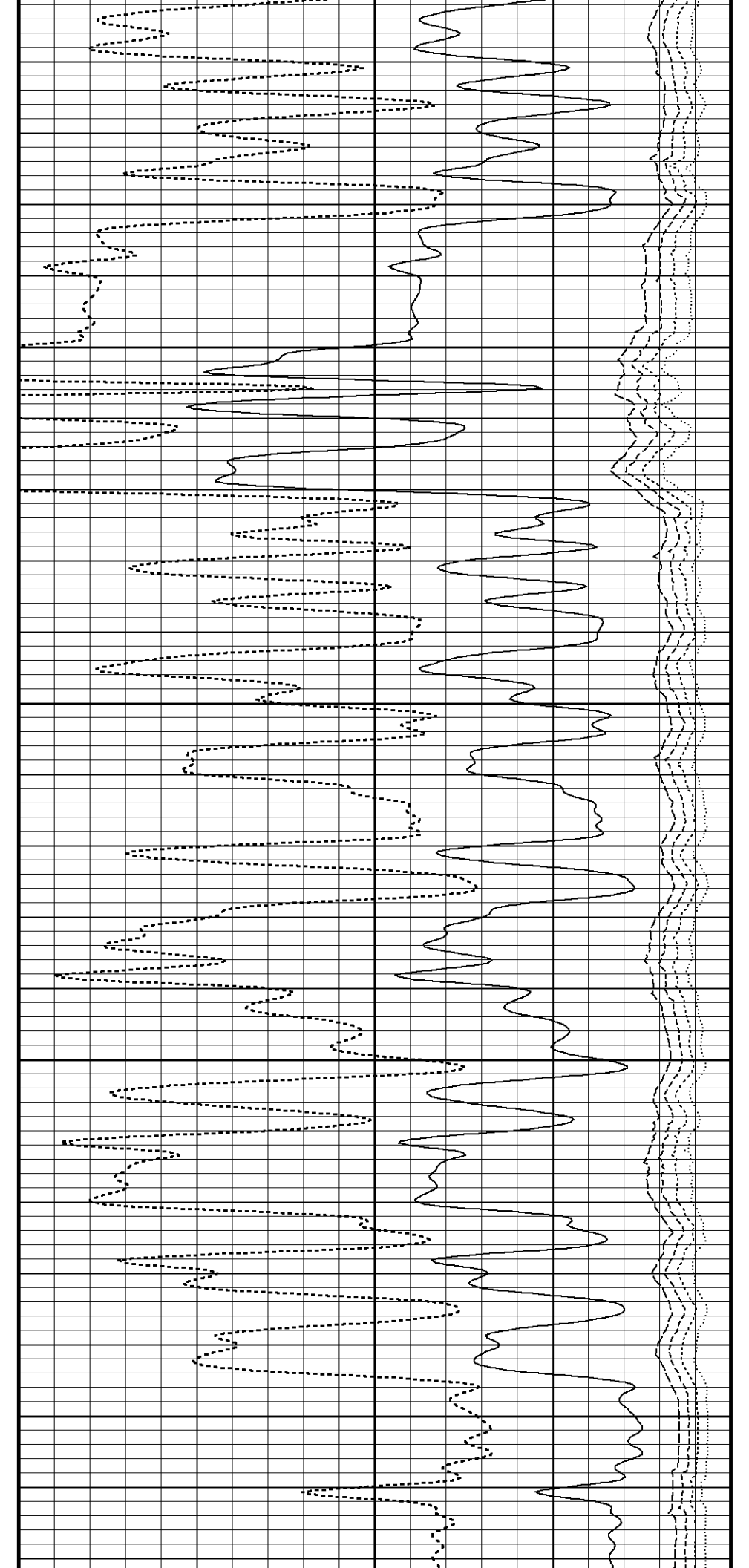
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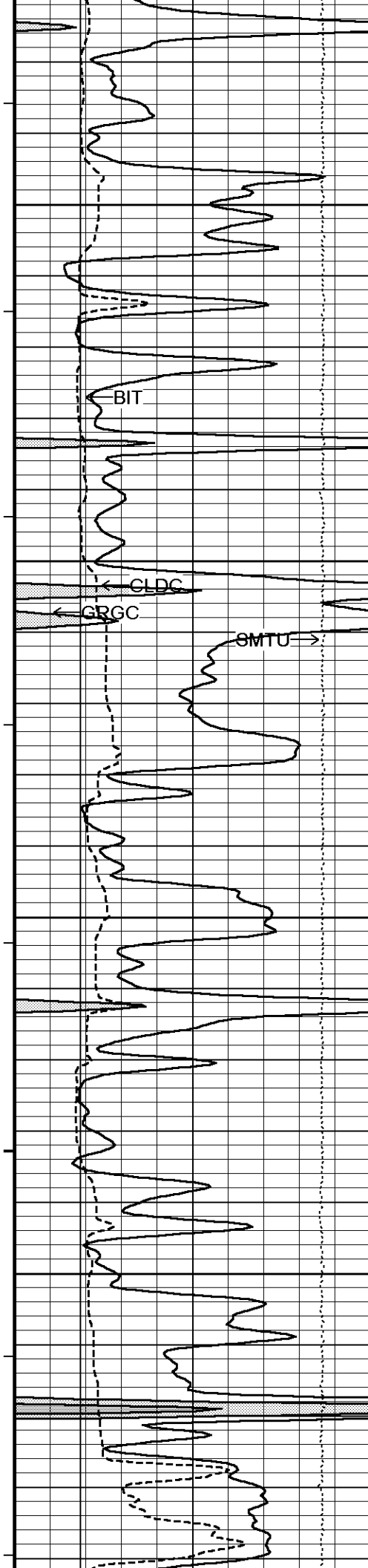
106°

3700

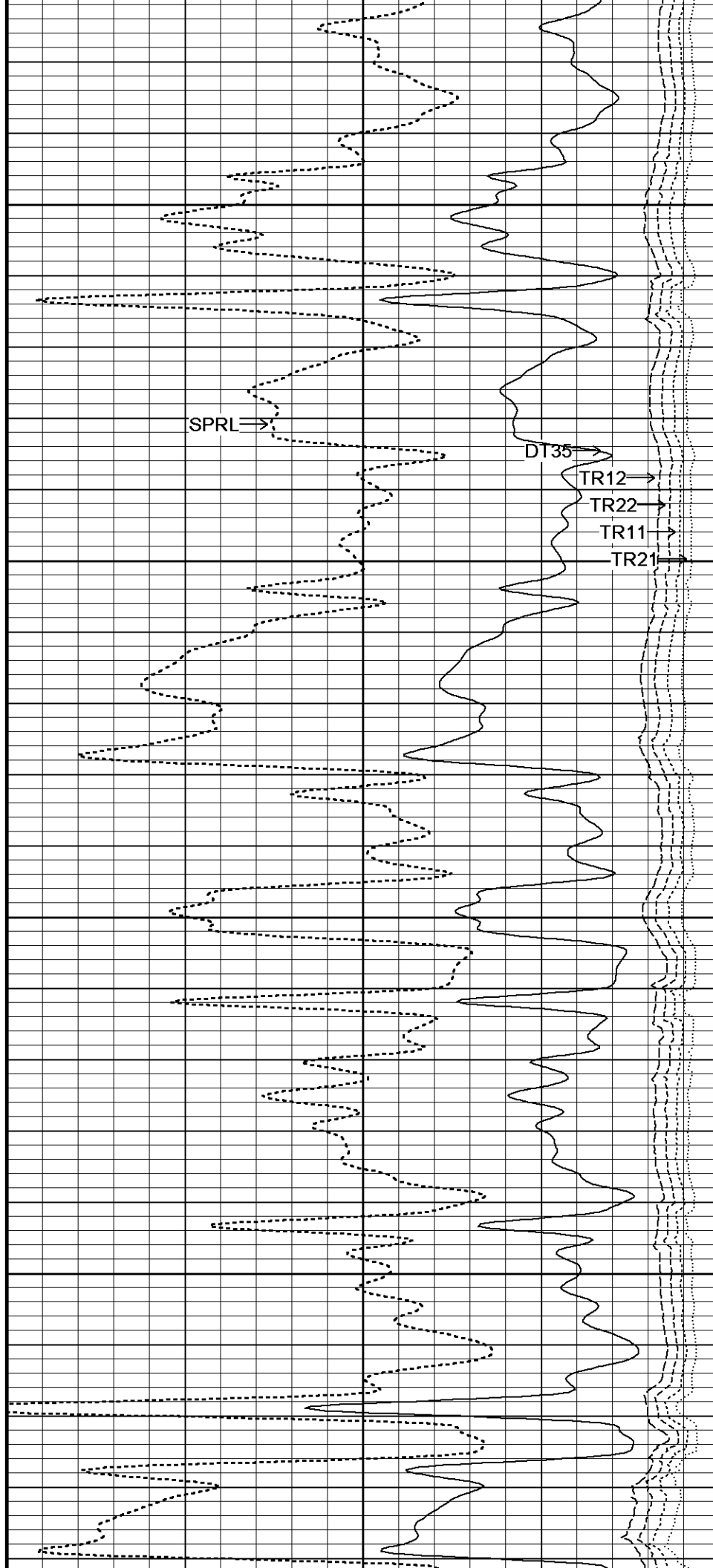
106°

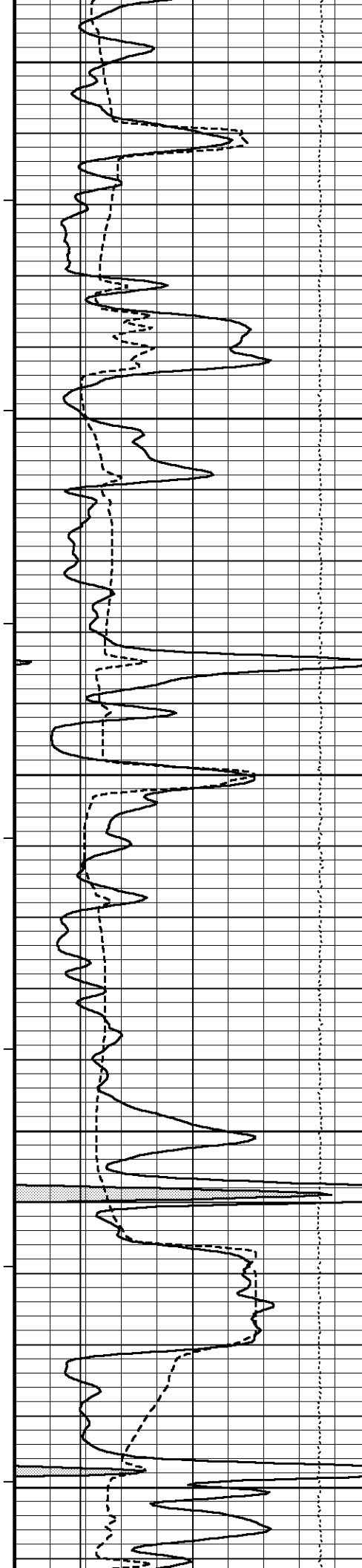
3750





107°
3800
107°
3850
107°
3900
107°
3950
107°





4000

108°

4050

108°

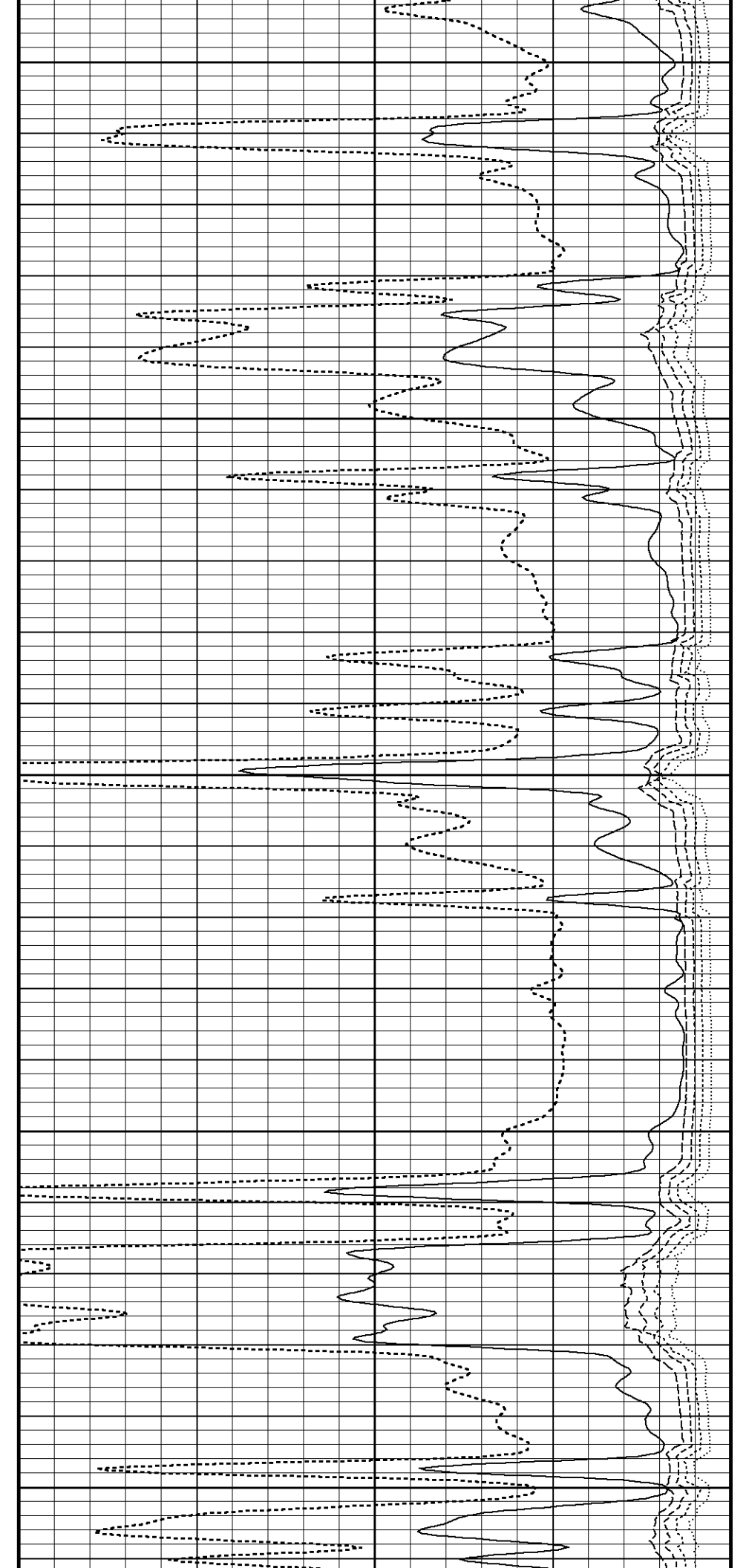
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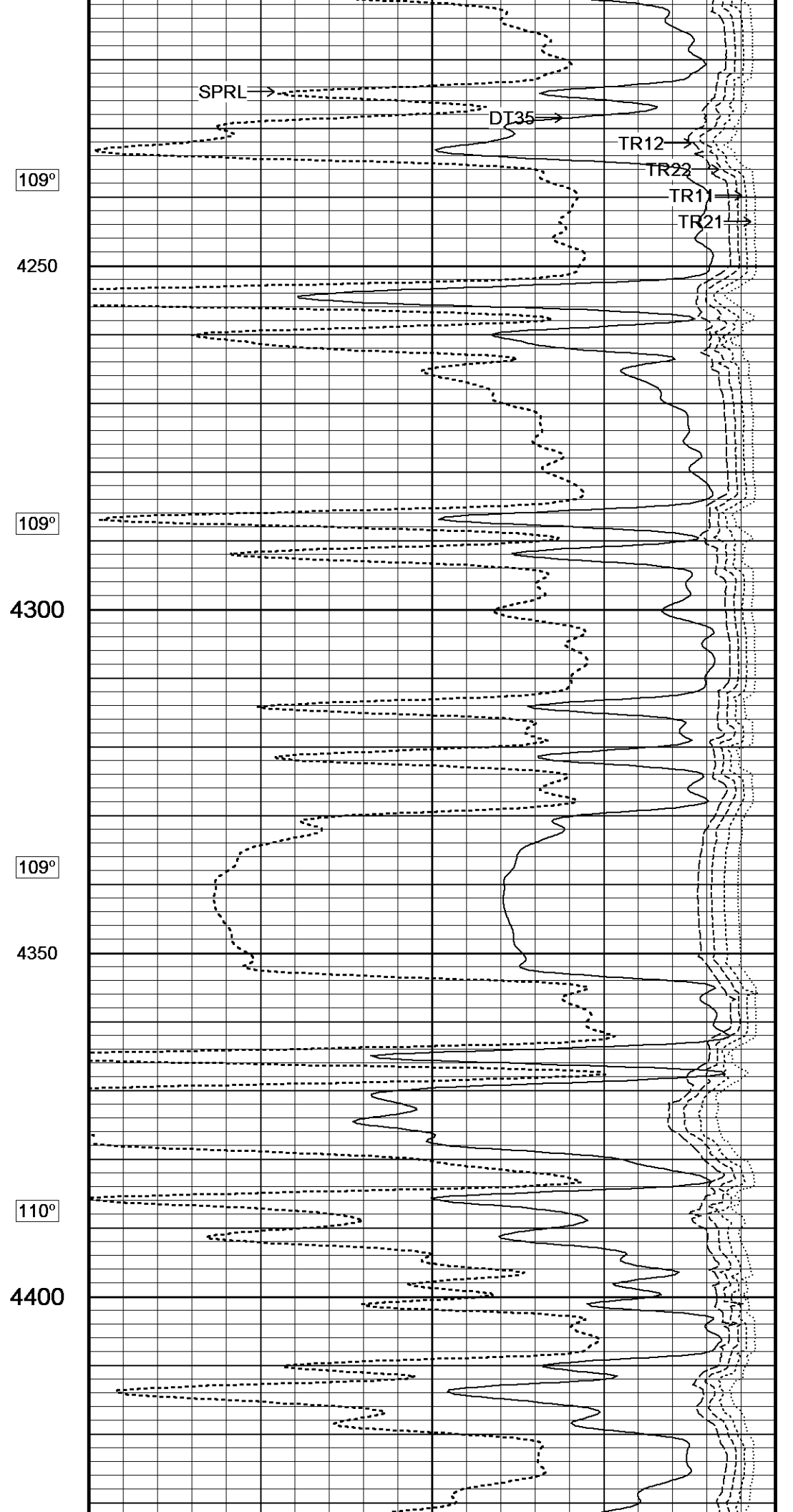
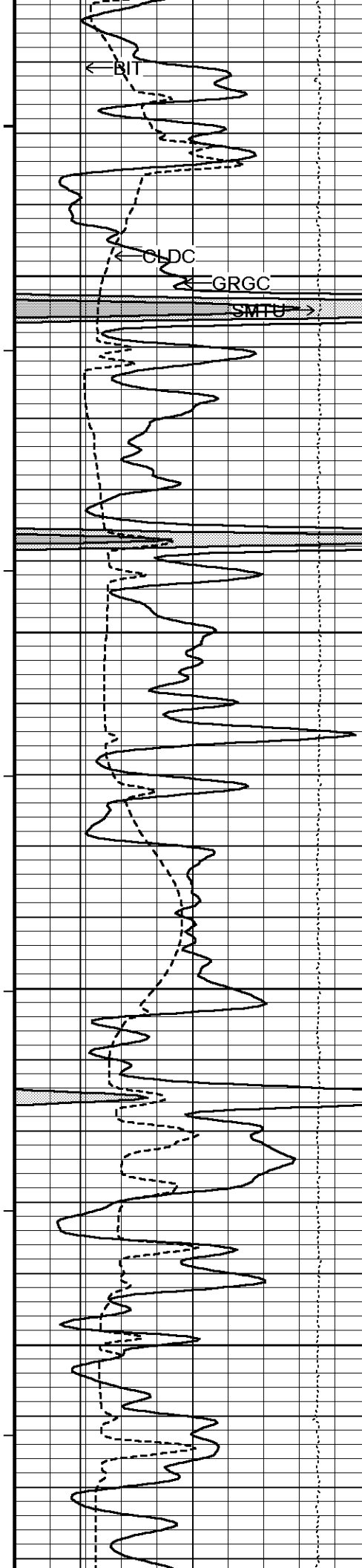
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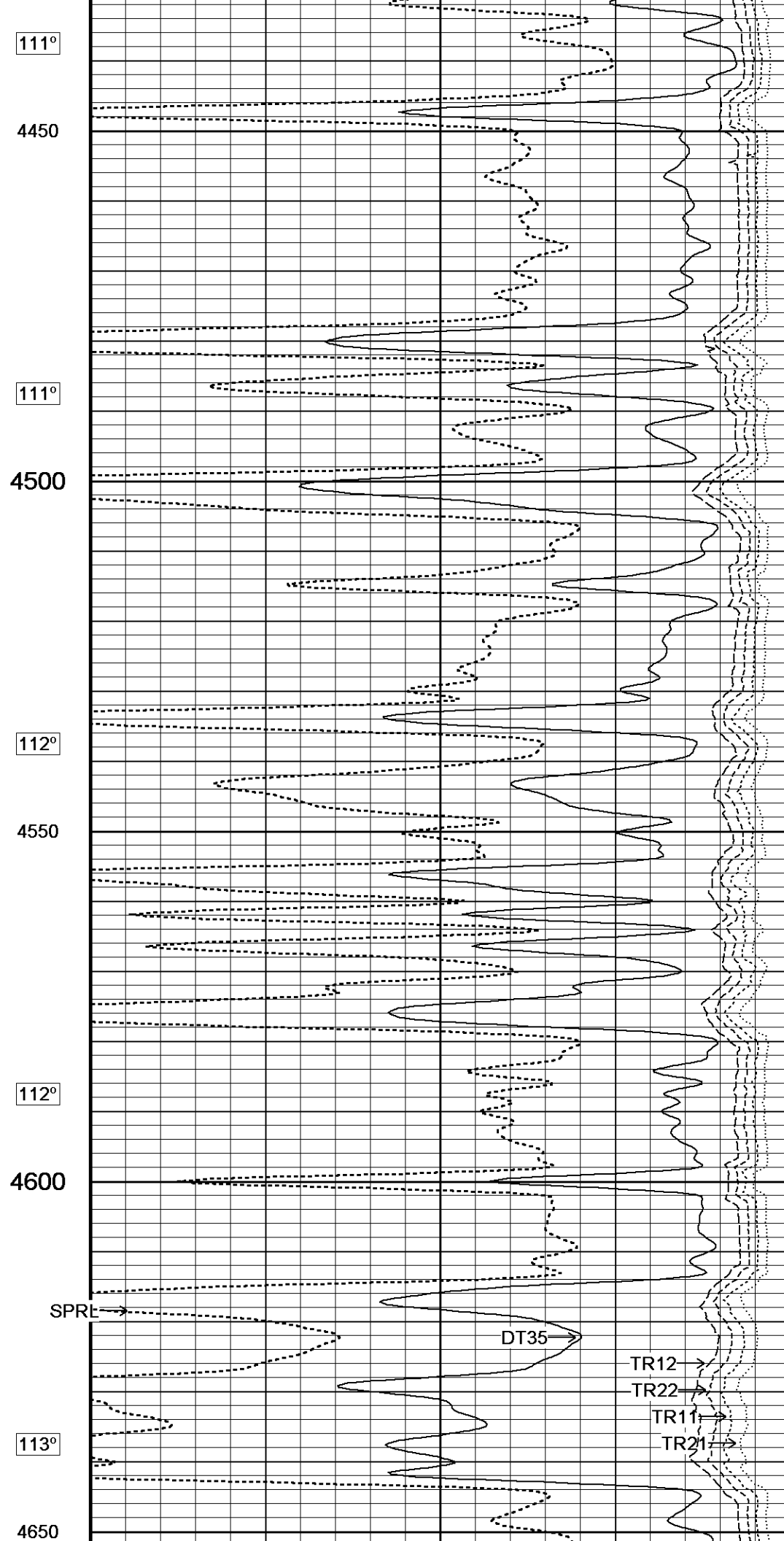
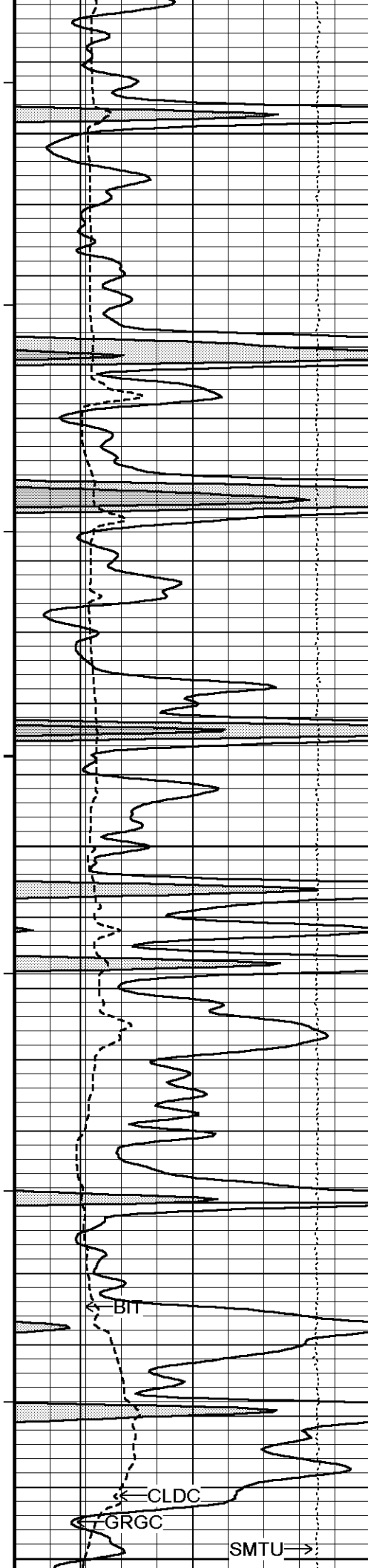
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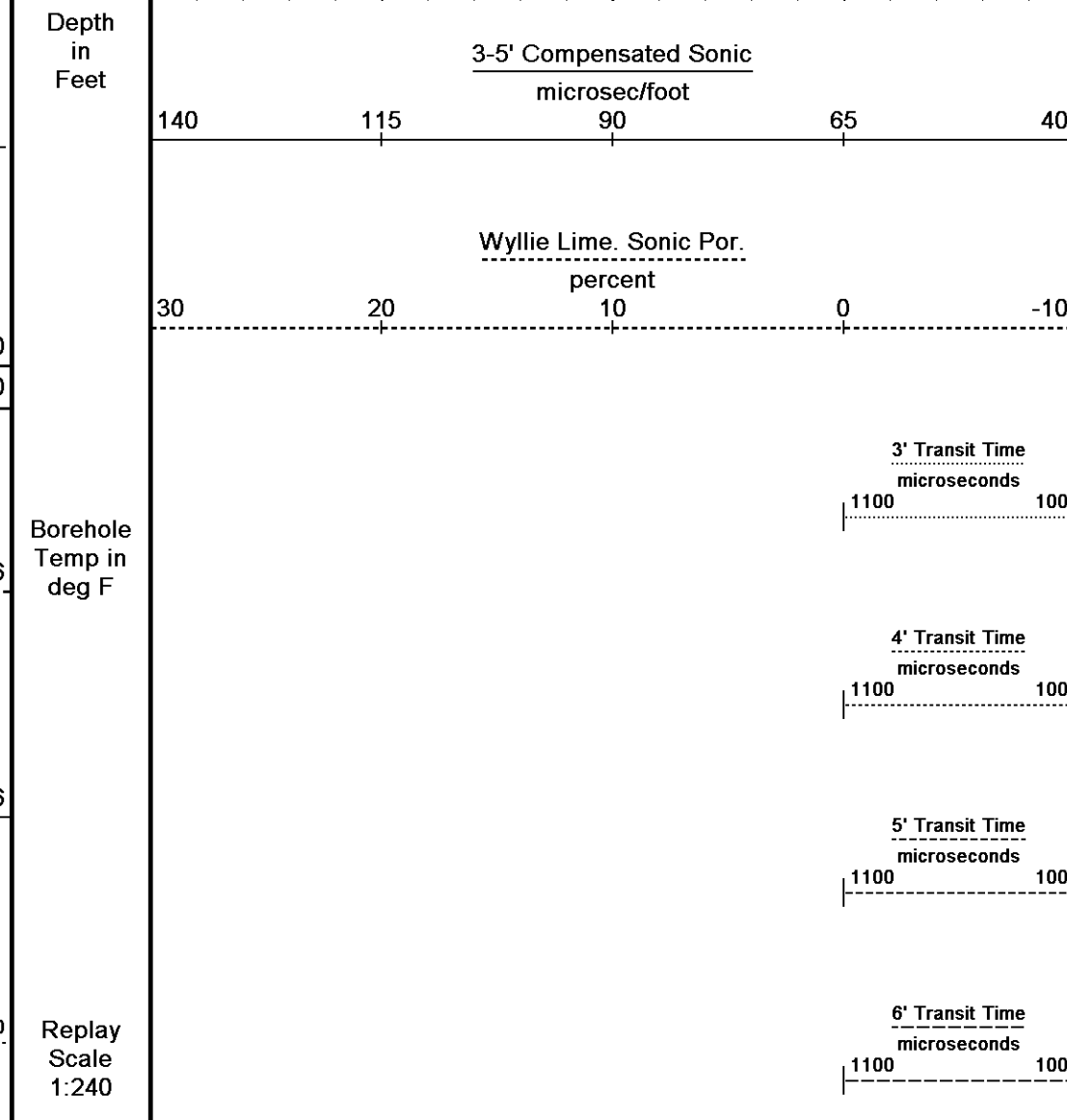
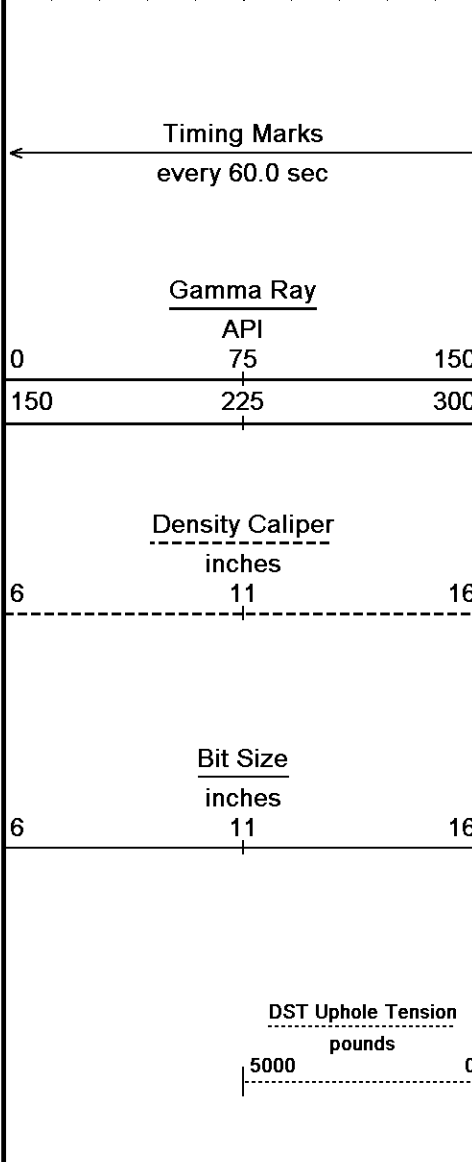
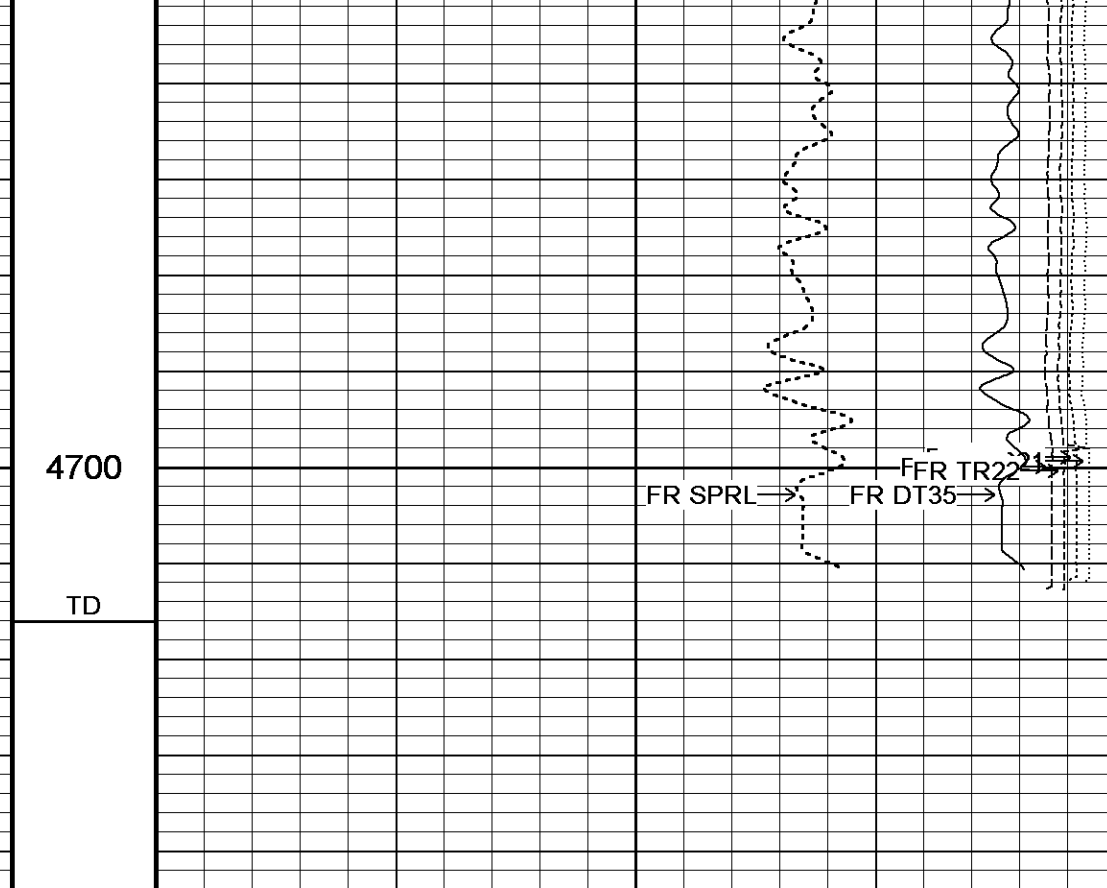
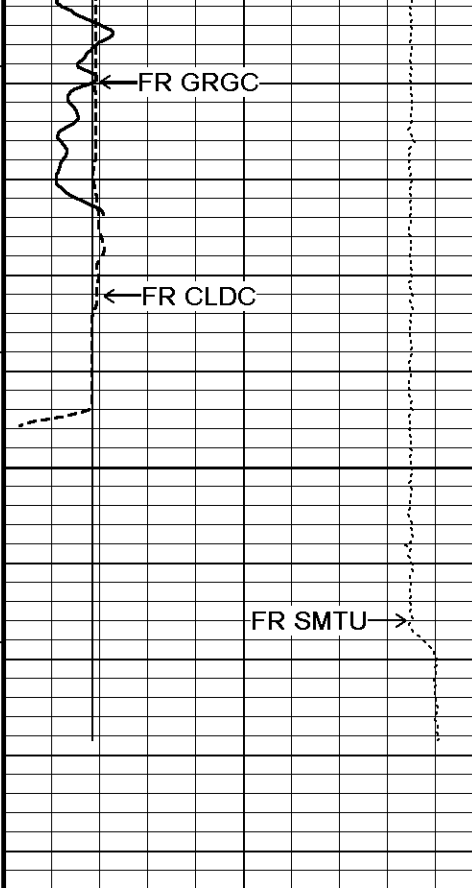
108°

4200





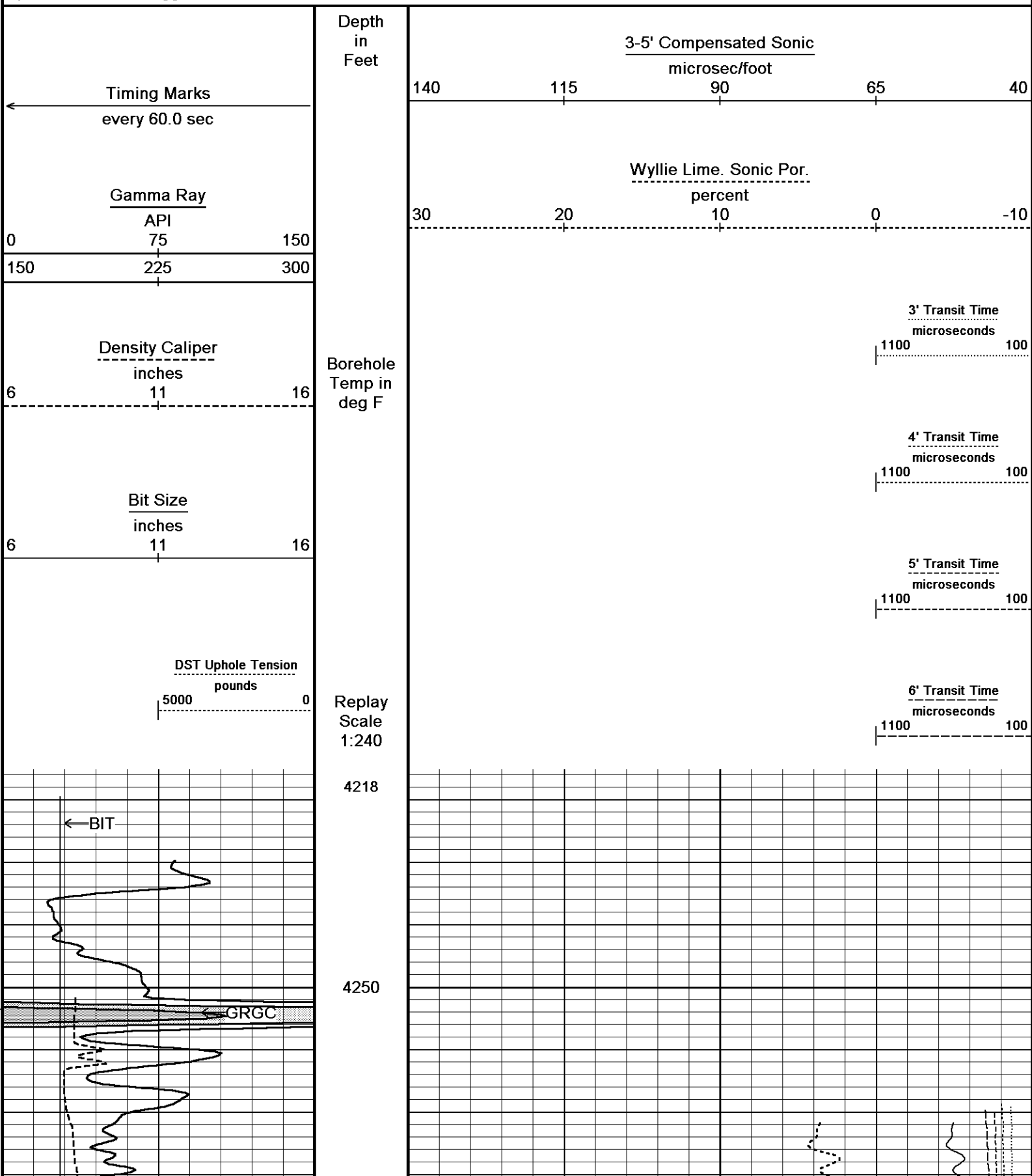


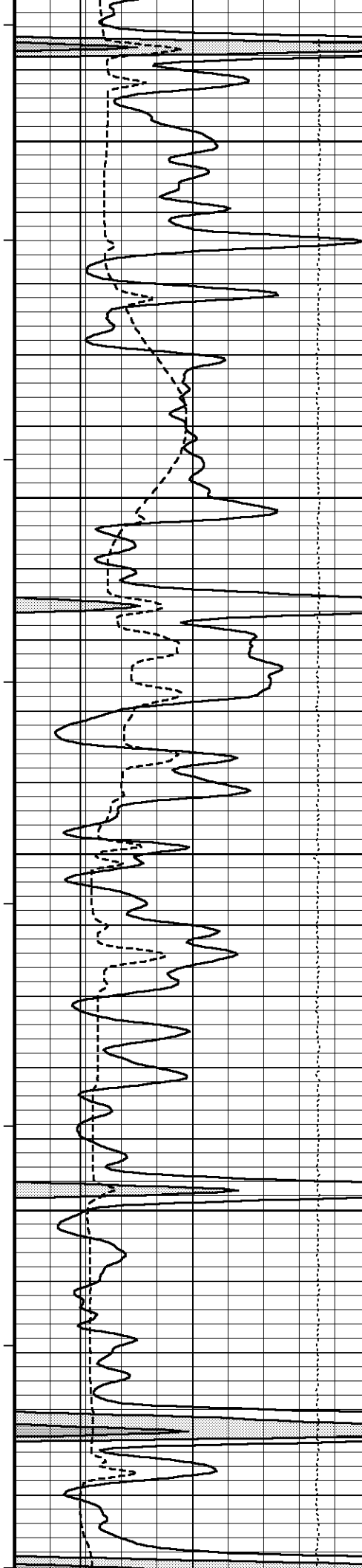


↑ **5 INCH MAIN** ↑

↓ **REPEAT SECTION** ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 11-JUN-2014 21:10
 Filename: C:\Minimus 13.08.2113\Log\SHAKESPEARE\SHAKESPEARE CAMPBELL 4-17 REPEAT.dta
 Recorded on 11-JUN-2014 18:11
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113





109°

4300

109°

4350

110°

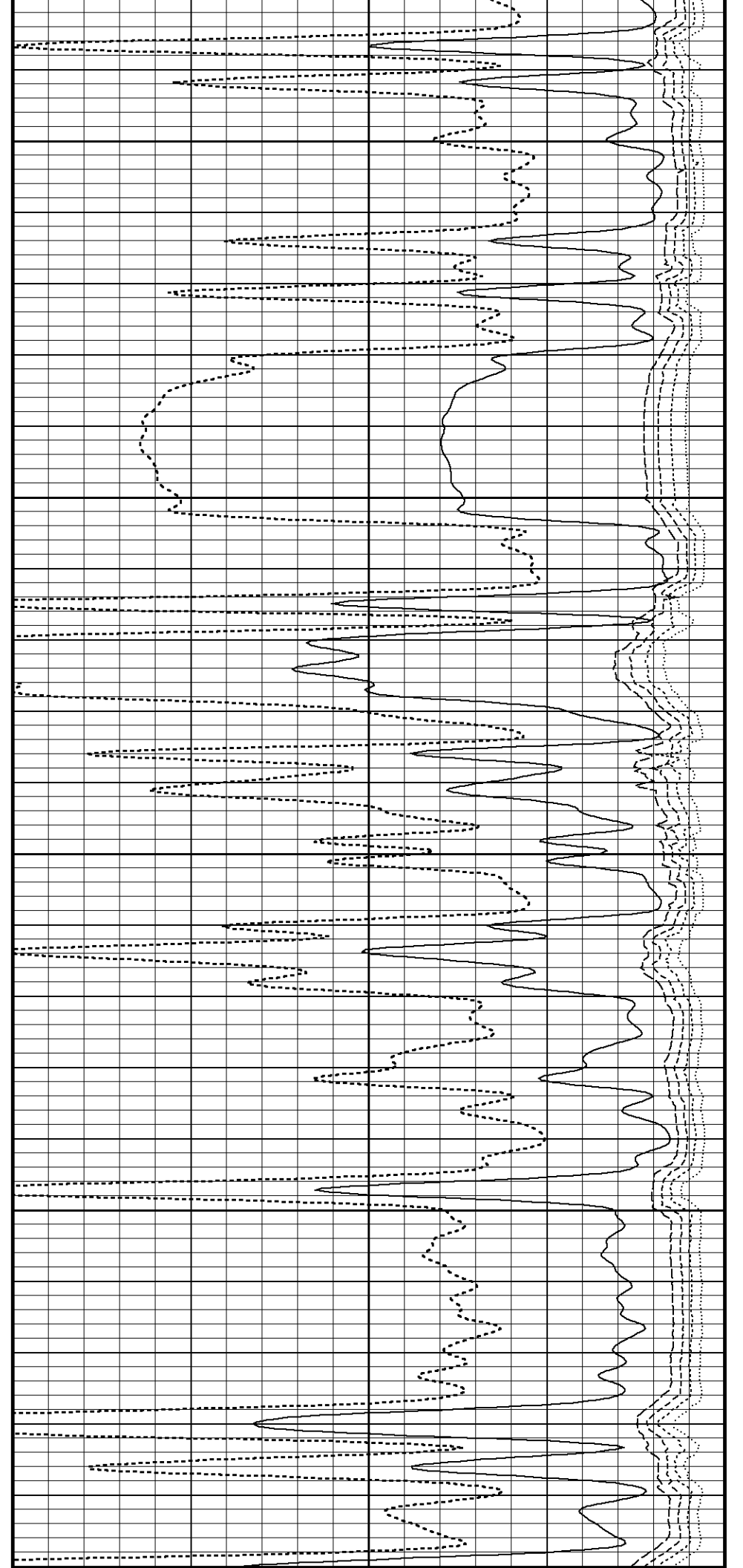
4400

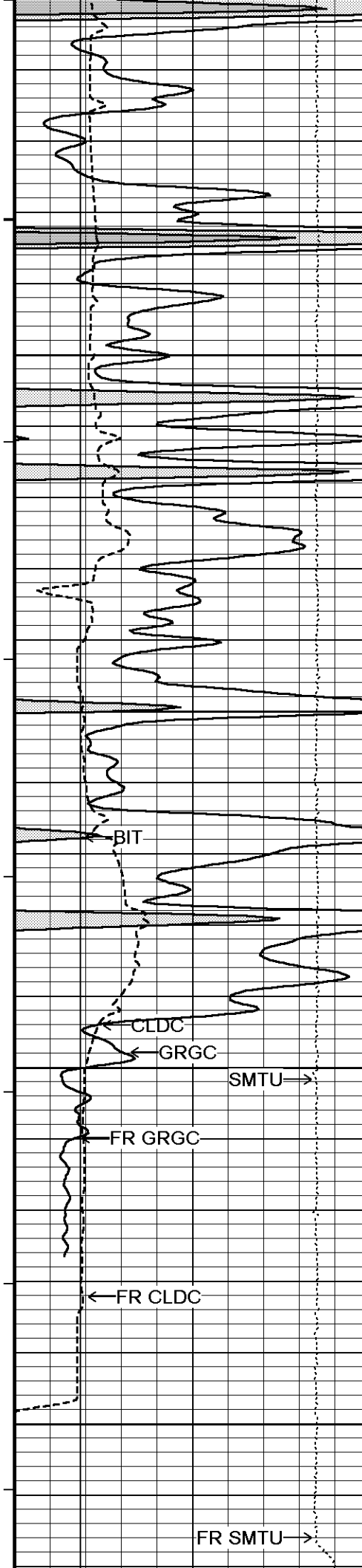
110°

4450

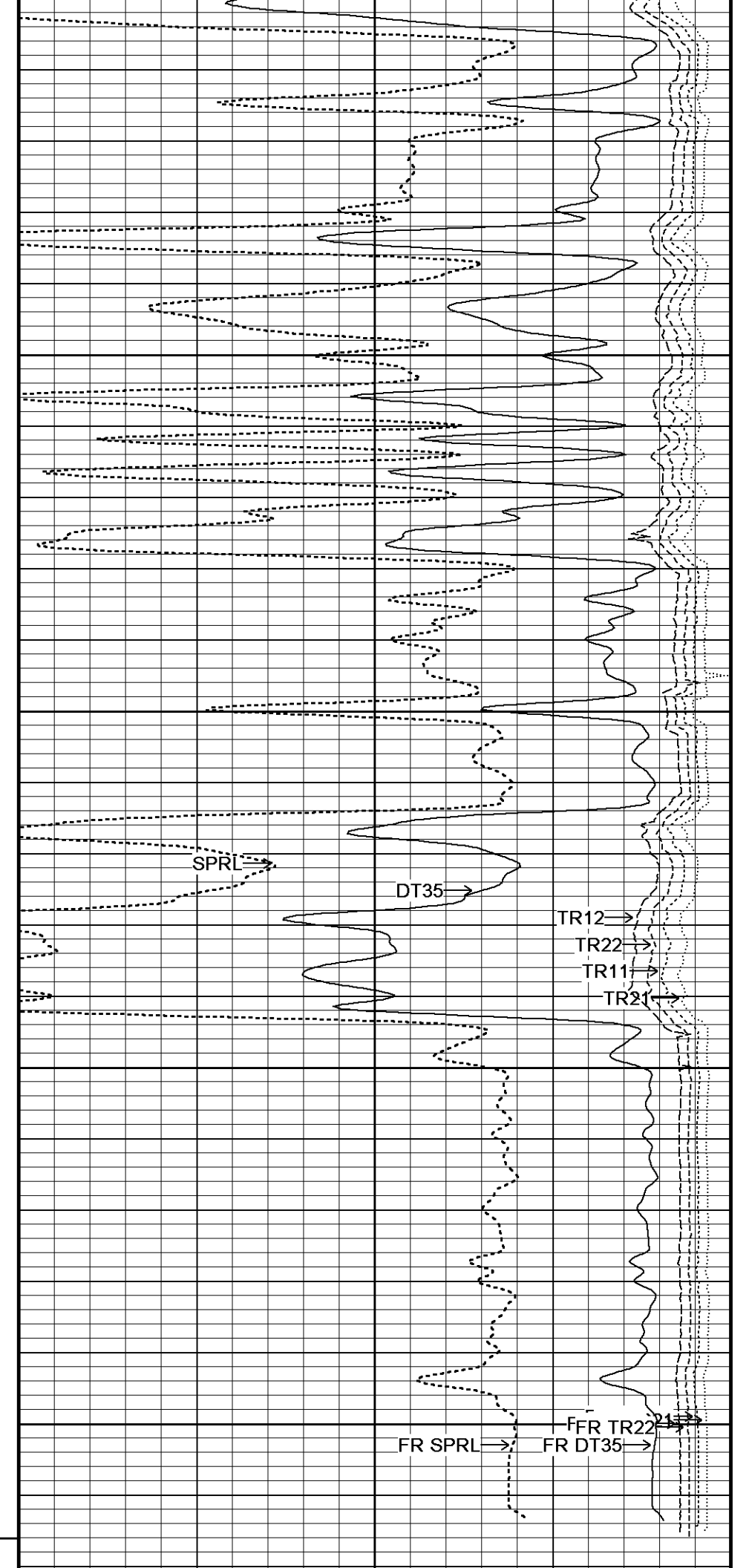
111°

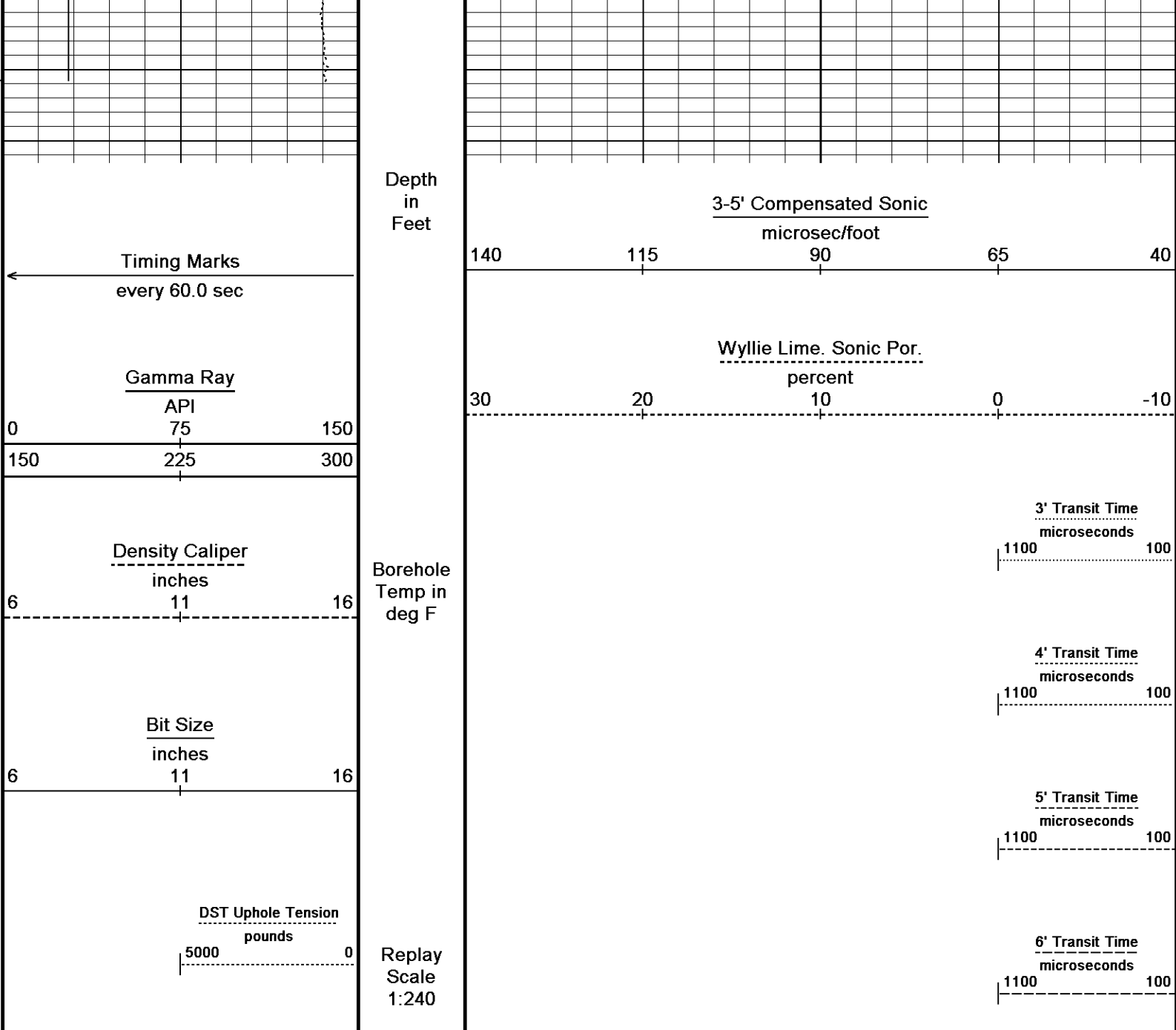
4500





4500
111°
4550
112°
4600
112°
4650
4700
TD





Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 11-JUN-2014 21:10
 Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEA...\SHAKESPEARE CAMPBELL 4-17 REPEAT.dta Recorded on 11-JUN-2014 18:11
 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\SHAKESPEARE CAMPBELL 4-17\SHAKESPEARE CAMPBELL 4-17 REPEAT.dta

General Constants All 000 Last Edited on 11-JUN-2014,17:41

General Parameters
 Mud Resistivity 0.640 ohm-metres
 Mud Resistivity Temperature 93.000 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 MMR Caliper

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

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 23-JAN-2014,17:11

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

High Resolution Temperature Constants MCG-C 208

Last Edited on 23-JAN-2014,17:11

Pre-filter Length	11
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Gamma Calibration MCG-C 208

Field Calibration on 04-JUN-2014 10:53

	Measured	Calibrated (API)
Background	68	46
Calibrator (Gross)	1134	771
Calibrator (Net)	1067	725

Gamma Constants MCG-C 208

Last Edited on 10-JUN-2014,13:26

Gamma Calibrator Number	GRC038	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Sonic Constants MSS-A.A 73

Last Edited on 10-JUN-2014,13:27

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
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-D.A 480

Base Calibration on 08-MAY-2014 14:36
Field Calibration on 04-JUN-2014 10:32

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17491	3.99
2	27463	5.98
3	37484	7.97
4	47415	9.86
5	58518	11.92
6	N/A	N/A

Field Calibration

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

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\SHAKESPEARE CAMPBELL 4-17\SHAKESPEARE CAMPBELL 4-17 REPEAT.dta

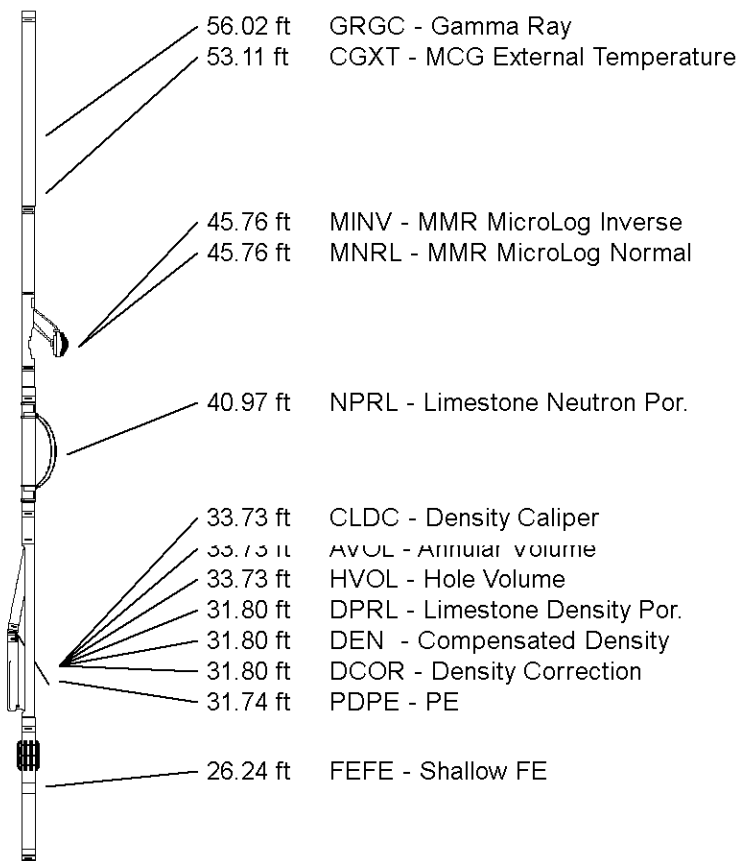
Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

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

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-D.A 480 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

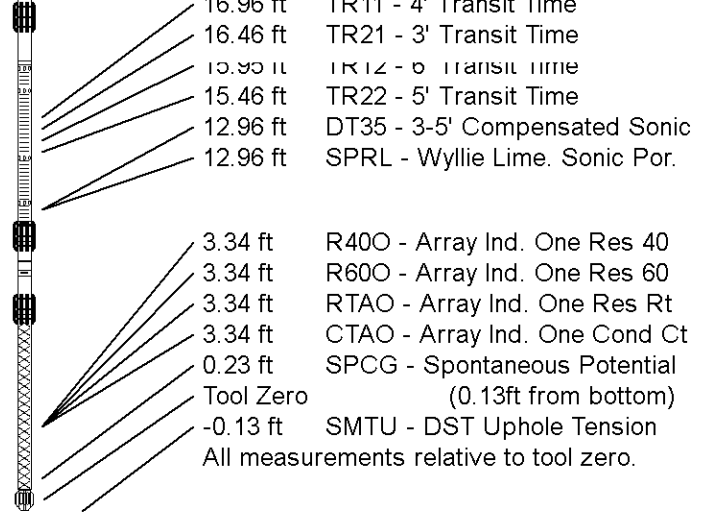
Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in



Compact Sonic
 MSS-A.A 73 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

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

Total Length: 61.30 ft Weight: 456.4 lb



COMPANY SHAKESPEARE OIL. CO., INC.
 WELL CAMPBELL 4-17
 FIELD WILDCAT
 PROVINCE/COUNTY LOGAN
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	3043.00	feet	First Reading	4703.00	feet
Elevation Drill Floor	3041.00	feet	Depth Driller	4720.00	feet
Elevation Ground Level	3033.00	feet	Depth Logger	4716.00	feet



Weatherford[®]

COMPENSATED SONIC
 WITH INTEGRATED TRANSIT TIME