



Weatherford

**COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME**

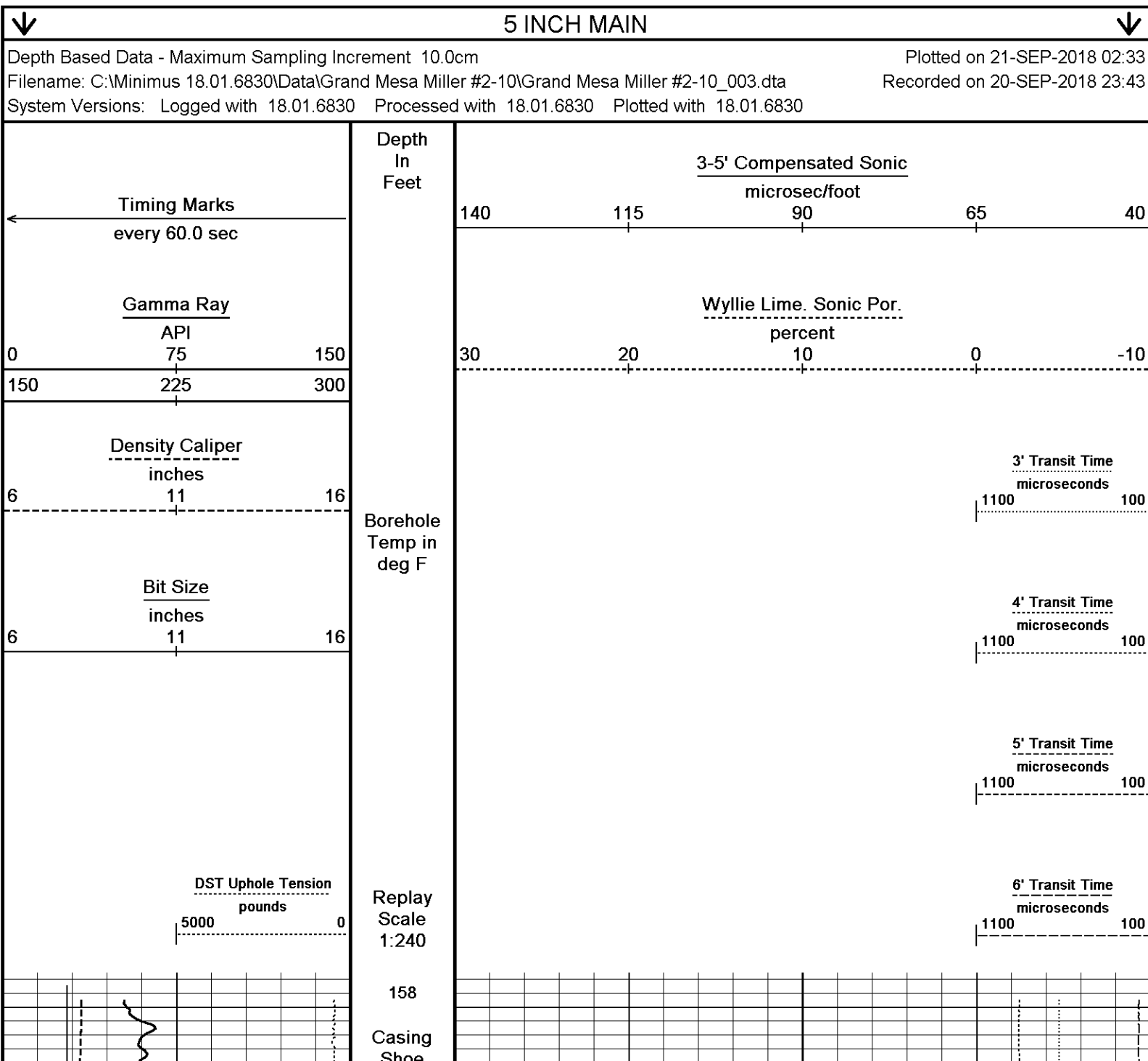
COMPANY	GRAND MESA OPERATING COMPANY		
WELL	MILLER #2-10		
FIELD	ZENITH-PEACE CREEK		
PROVINCE/COUNTY	RENO		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1950' FSL & 1273' FWL		
SEC 10	TWP 23S	RGE 10W	Other Services
Latitude	15-155-21759		
Longitude			
API Number			
Permanent Datum GL, Elevation			
Log Measured From KB, 5.00 feet above Permanent Datum			Elevations: KB 1770.00 DF 1765.00 GL
Drilling Measured From KB			
Date	20-SEP-2018		
Run Number	ONE		
Service Order	4558-224651393		
Depth Driller	3860.00	feet	
Depth Logger	3856.00	feet	
First Reading	3843.00	feet	
Last Reading	169.00	feet	
Casing Driller	168.00	feet	
Casing Logger	169.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.25 lb/USg	48.00 CP	
PH / Fluid Loss	9.00	12.40 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.43 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.34 @ 75.0	ohm-m	
Rmc @ Measured Temp	0.52 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.30 @107.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	107.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	ADAM SILL		
Witnessed By	STEVE CARL		

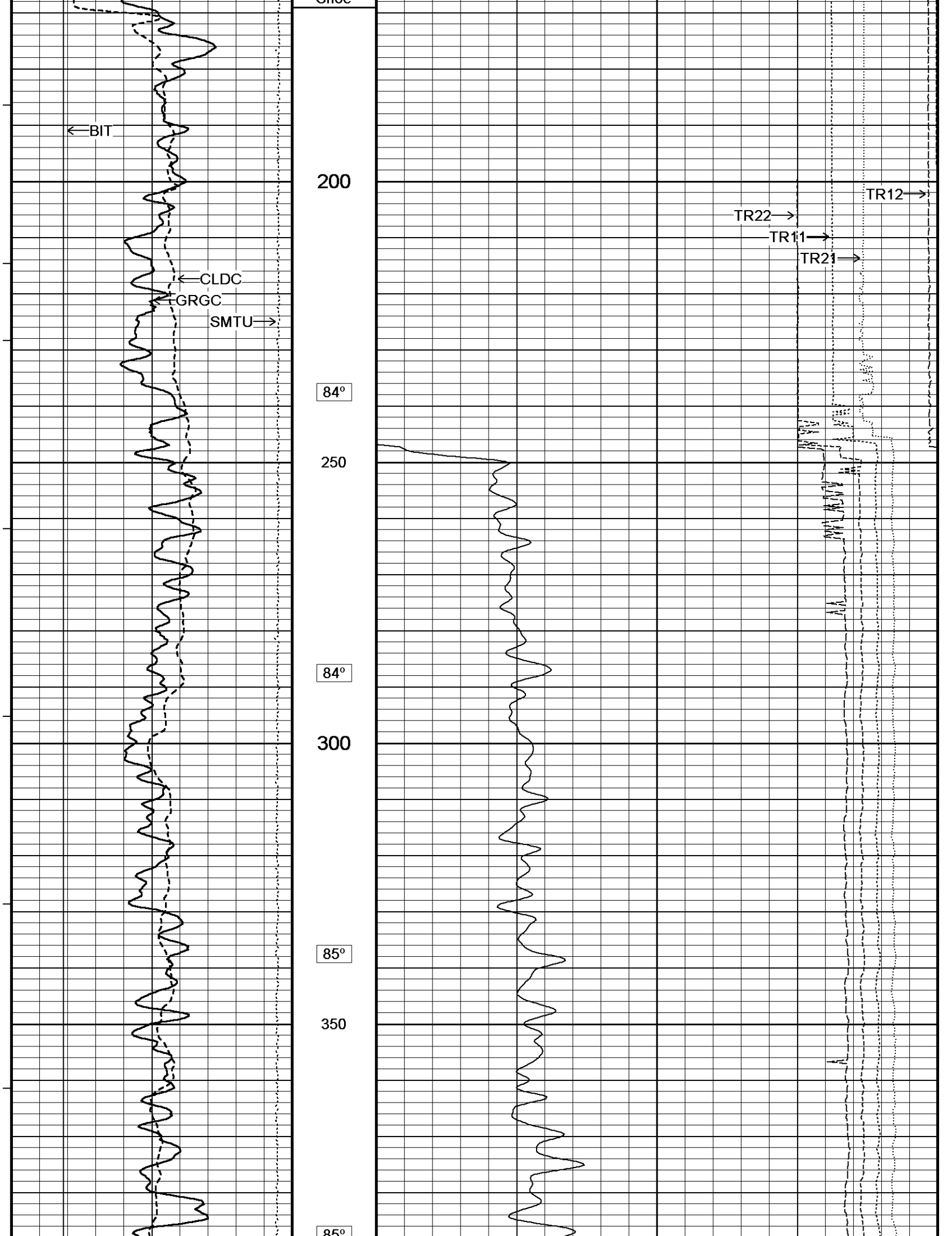
BOREHOLE RECORD				Last Edited: 20-SEP-2018 20:35
Bit Size inches		Depth From feet		Depth To feet
7.875		168.00		3860.00
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	168.00	24.00

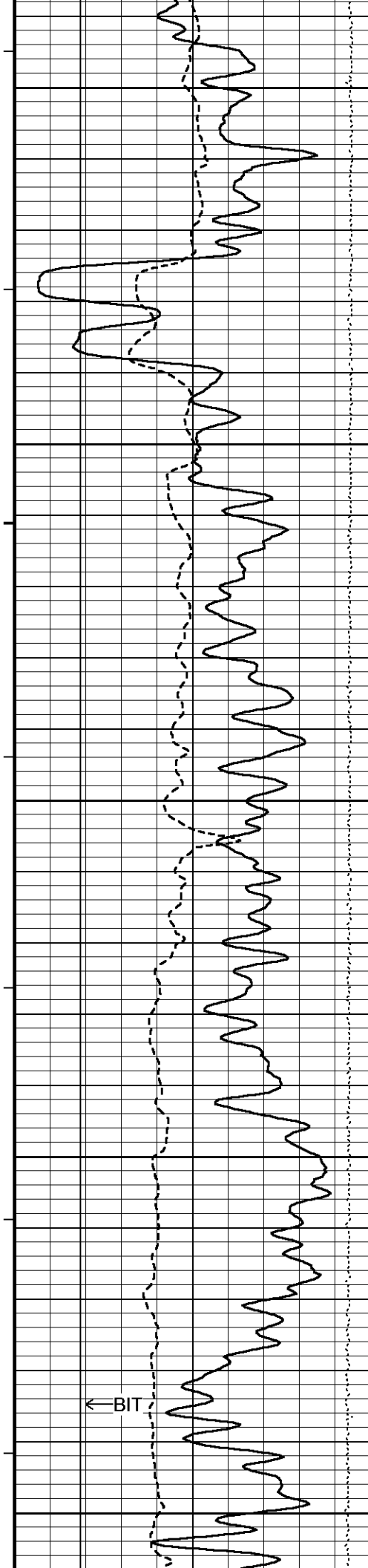
REMARKS
- SOFTWARE ISSUE: WLS 18.01.6830.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- 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: 1899 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1293 CU.FT.

- OPERATOR: B. TOVAR.

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.







400

86°

450

86°

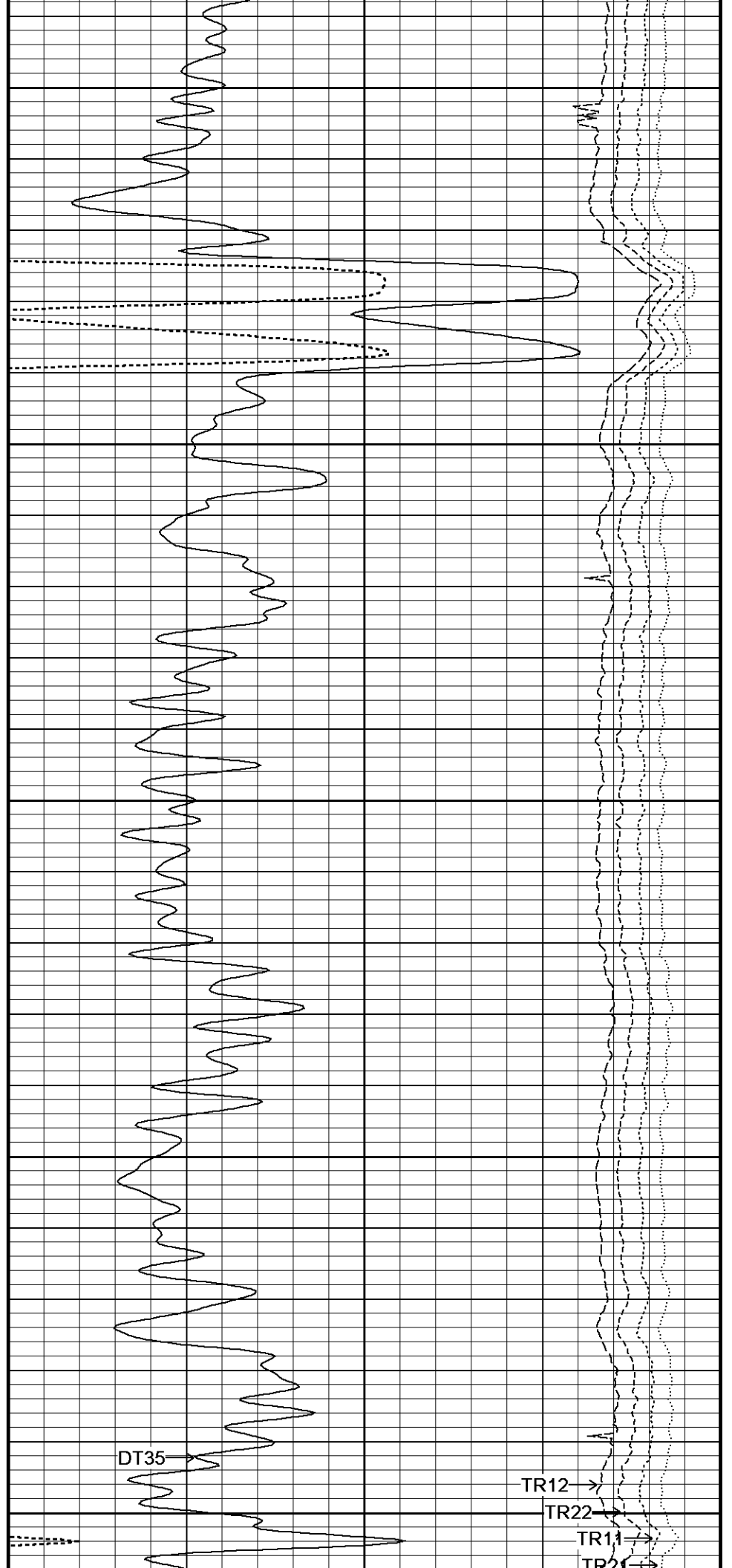
500

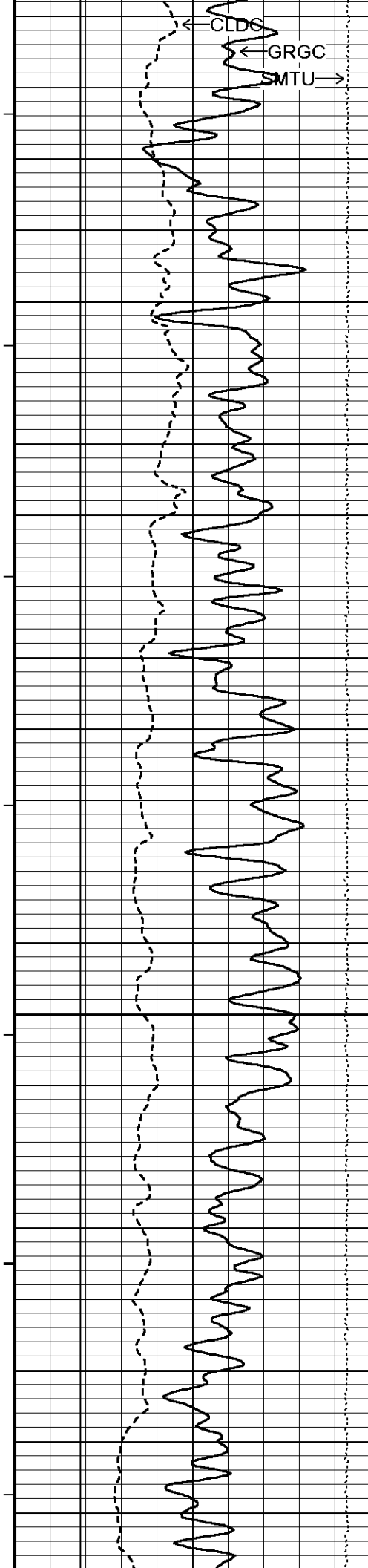
87°

550

87°

600





87°

650

88°

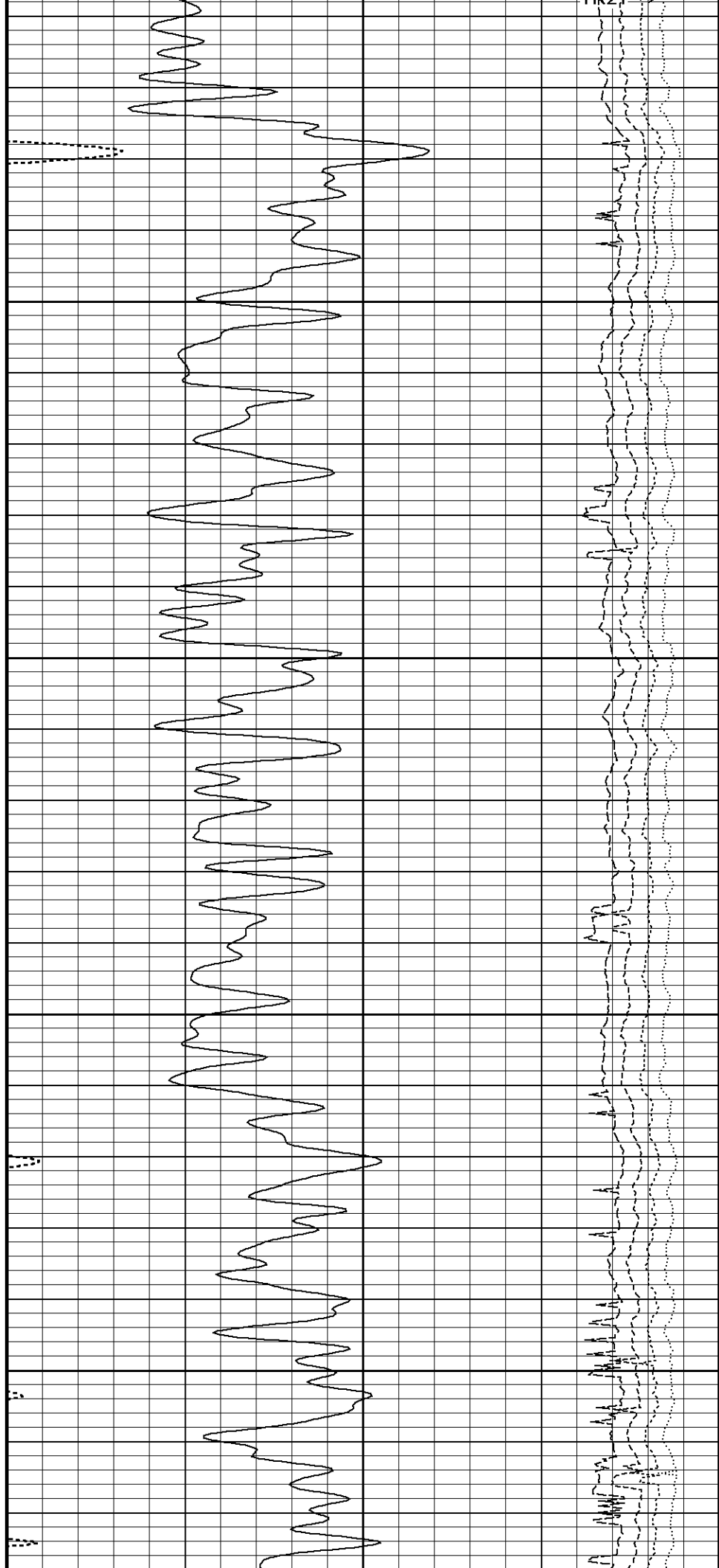
700

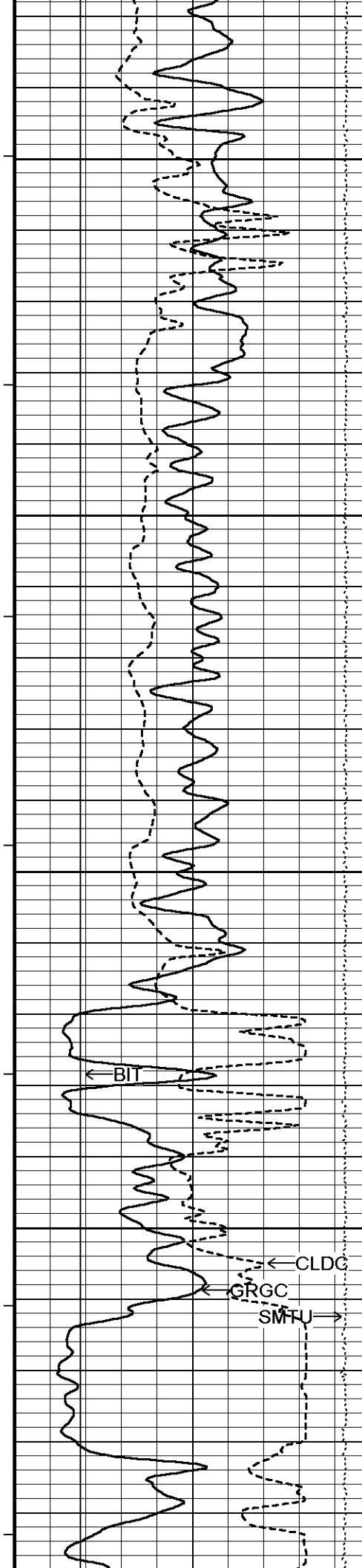
88°

750

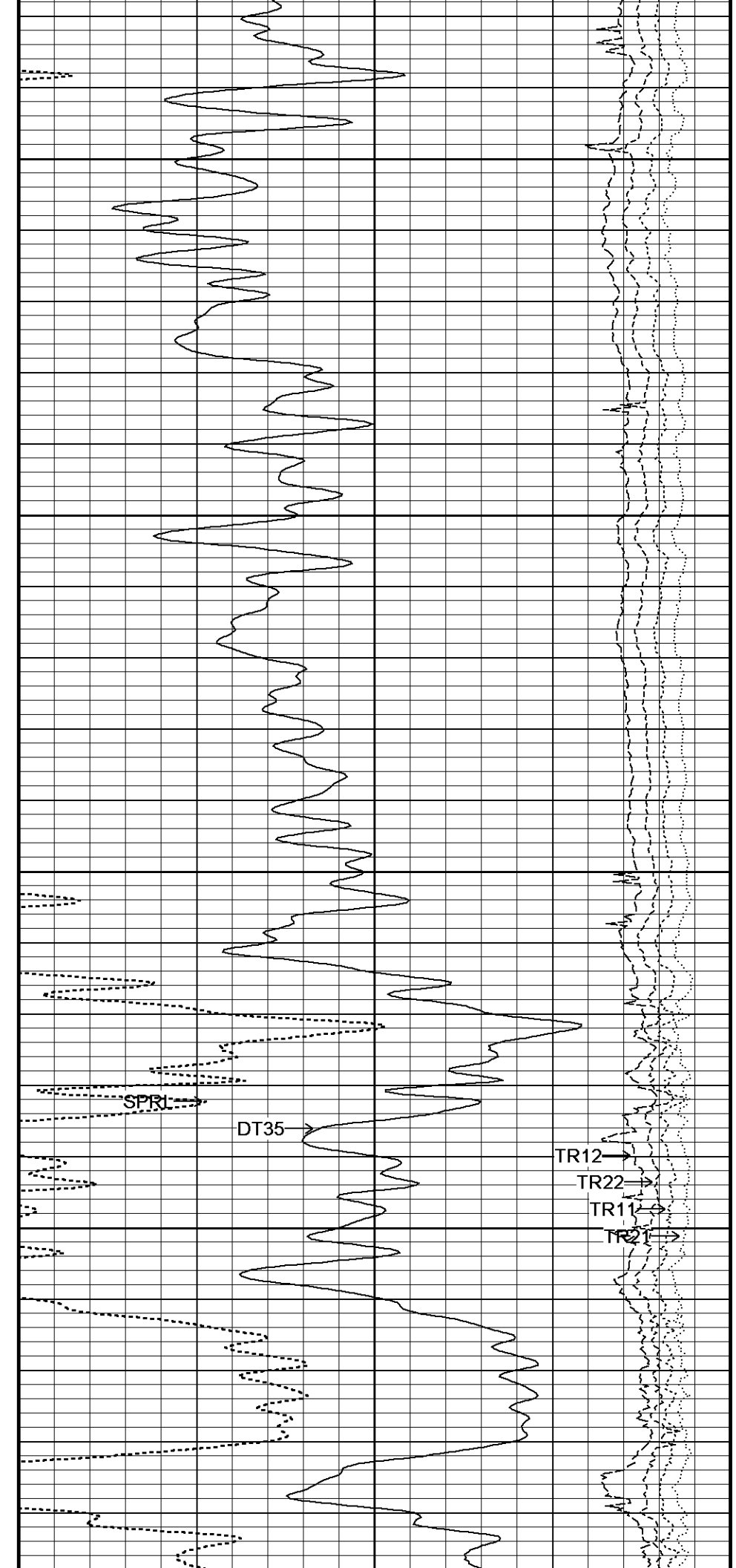
89°

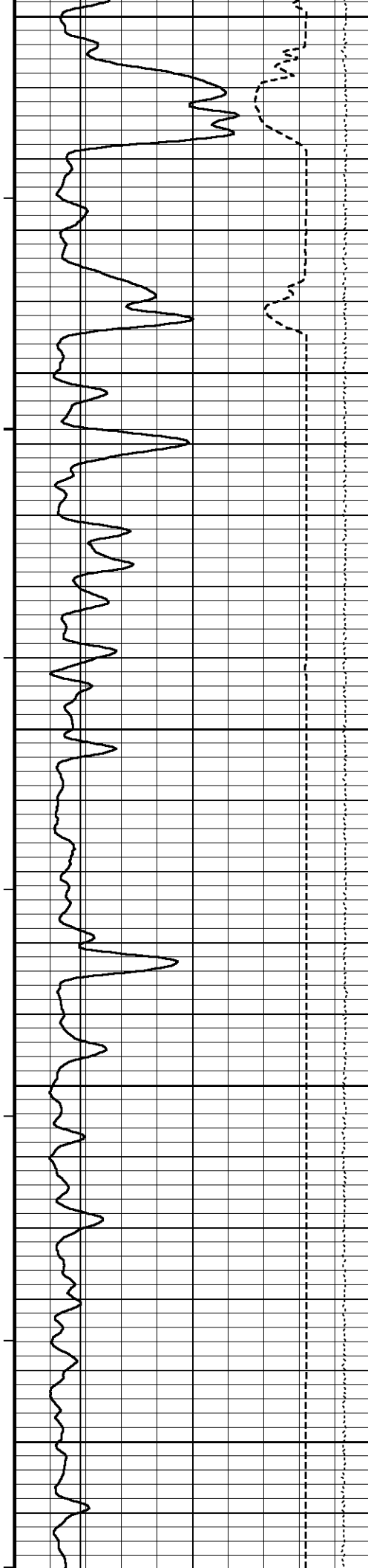
800



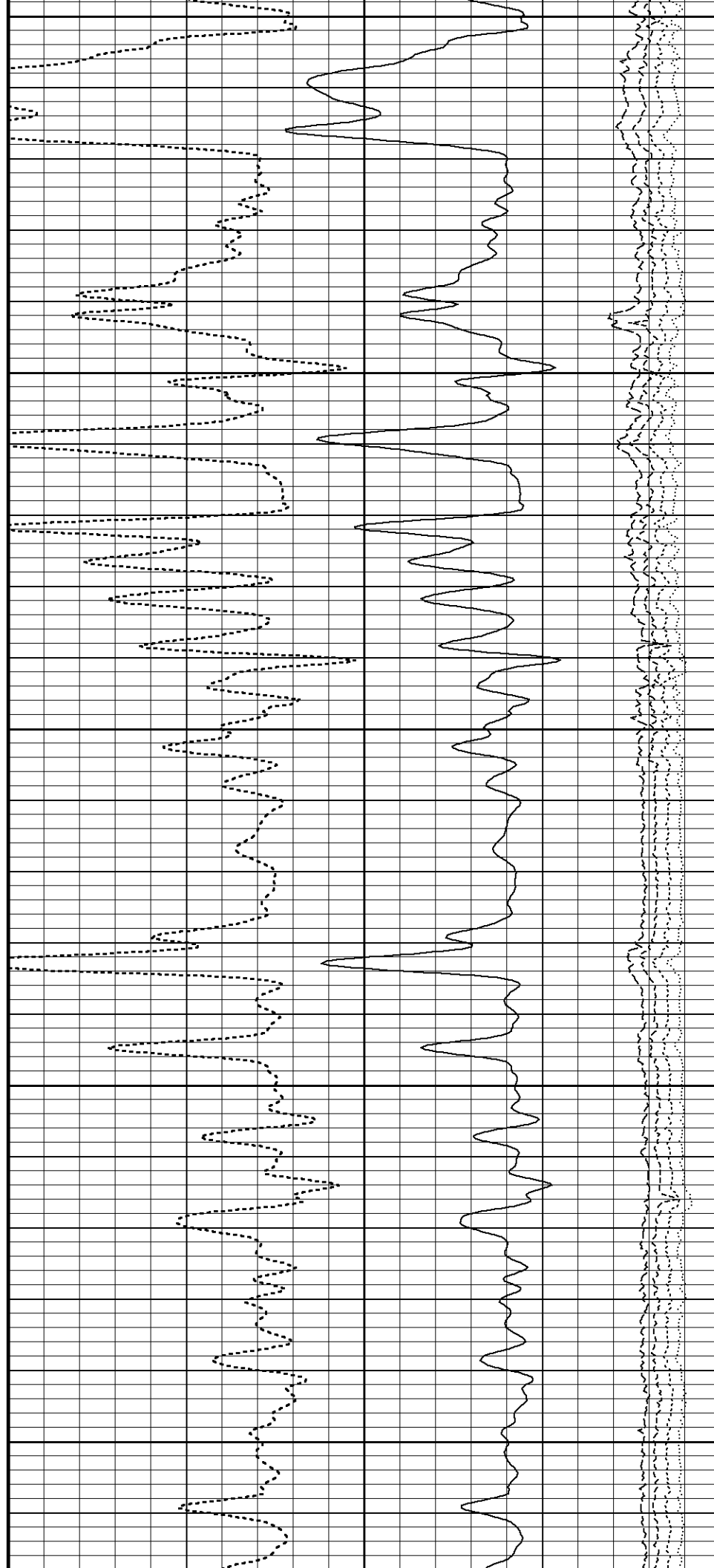


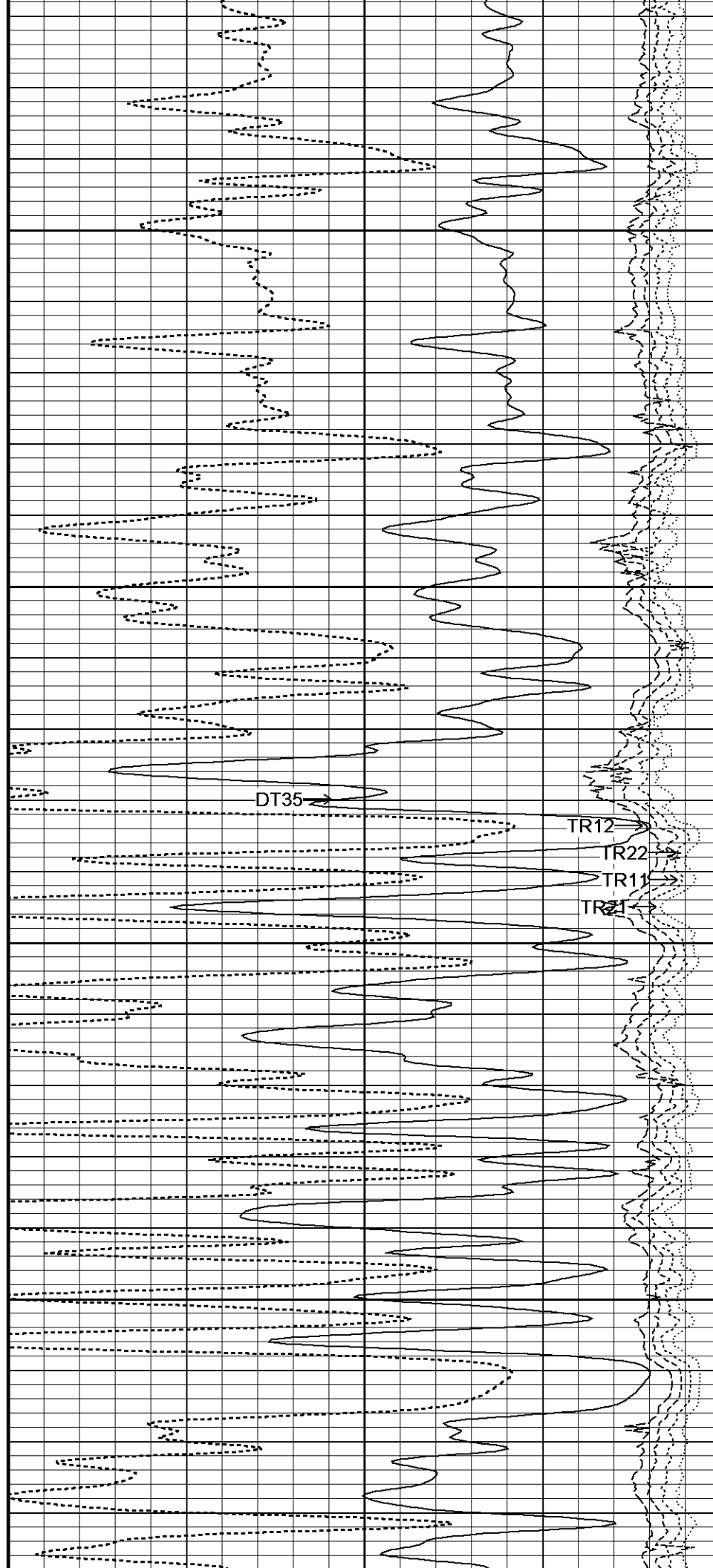
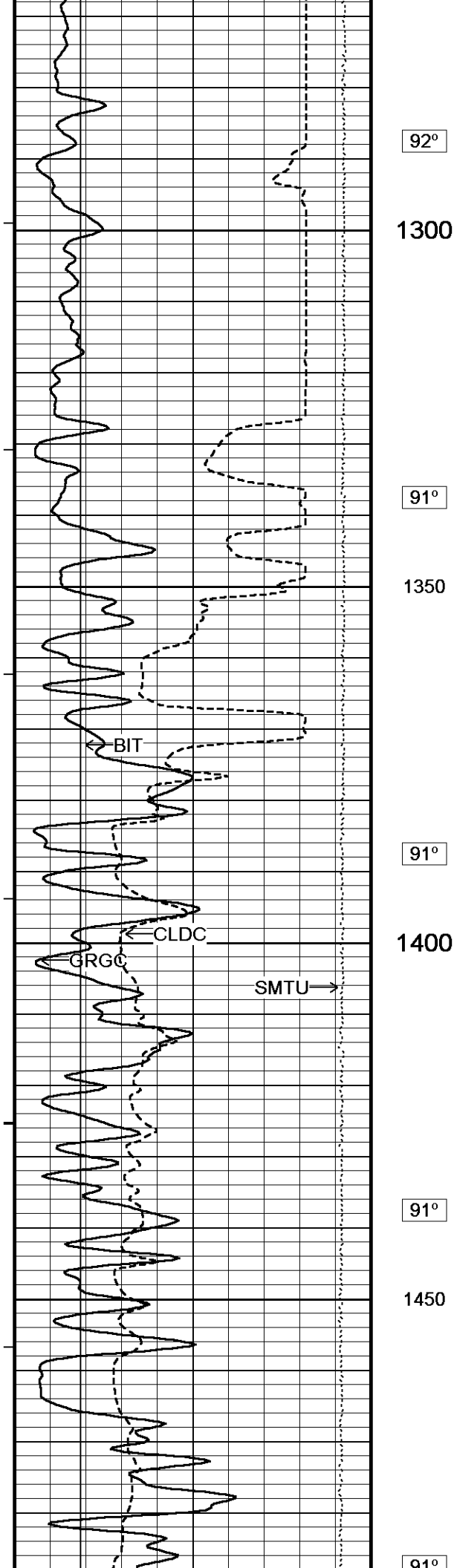
91°
850
90°
900
89°
950
90°
1000
91°

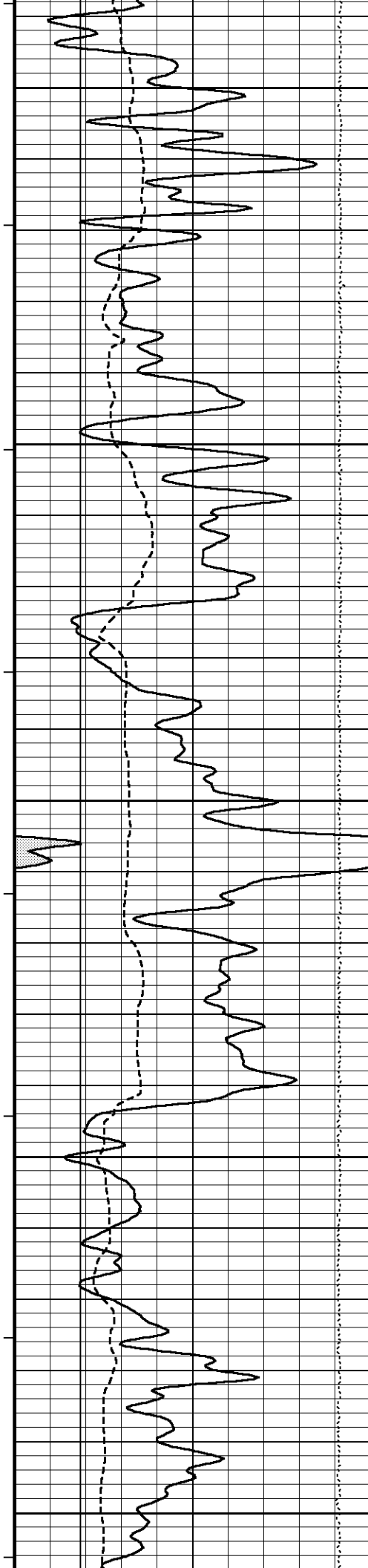




1050
91°
1100
91°
1150
91°
1200
92°
1250







1500

92°

1550

92°

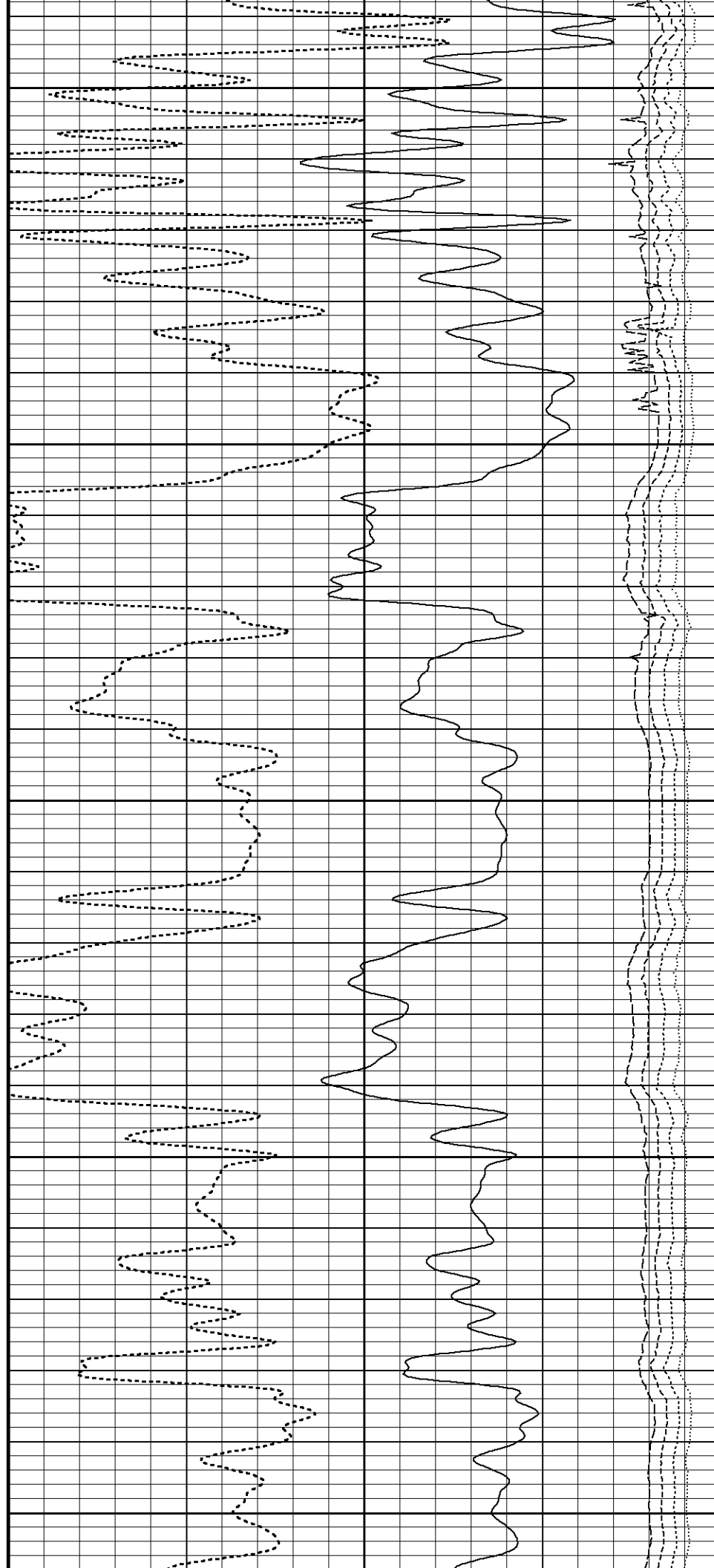
1600

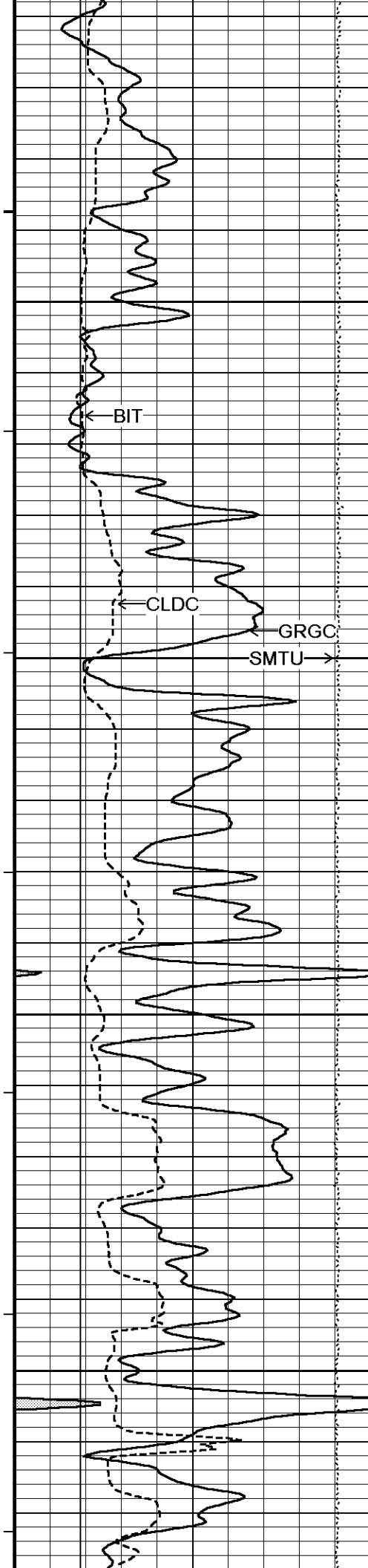
93°

1650

93°

1700





93°

1750

BIT

94°

1800

CLDC

GRGC

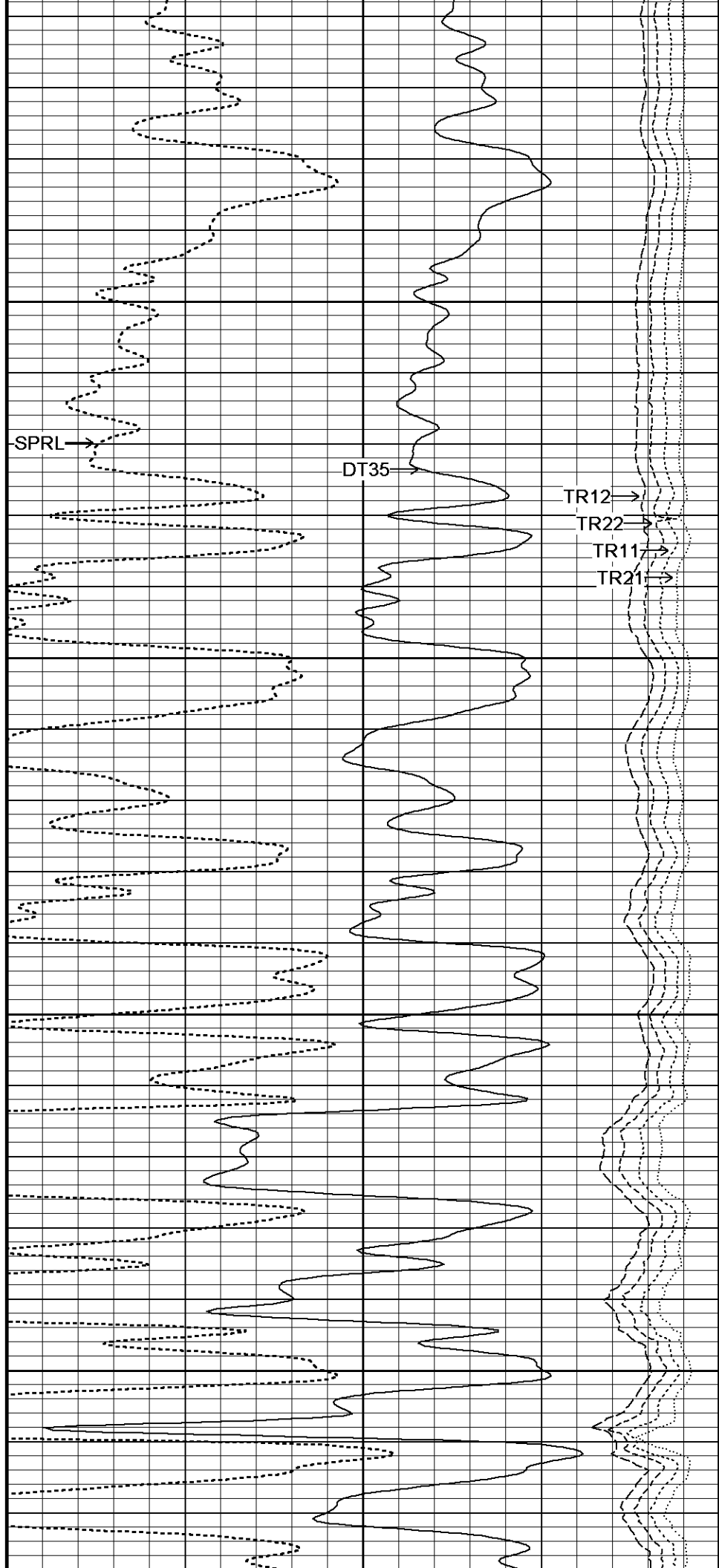
SMTU

94°

1850

94°

1900



SPRL

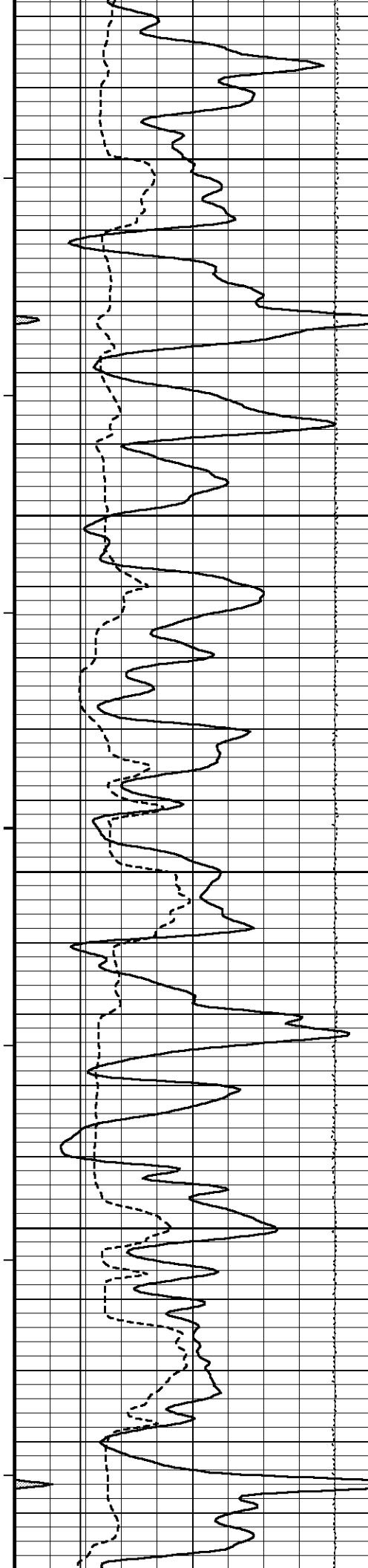
DT35

TR12

TR22

TR11

TR21



95°

1950

95°

2000

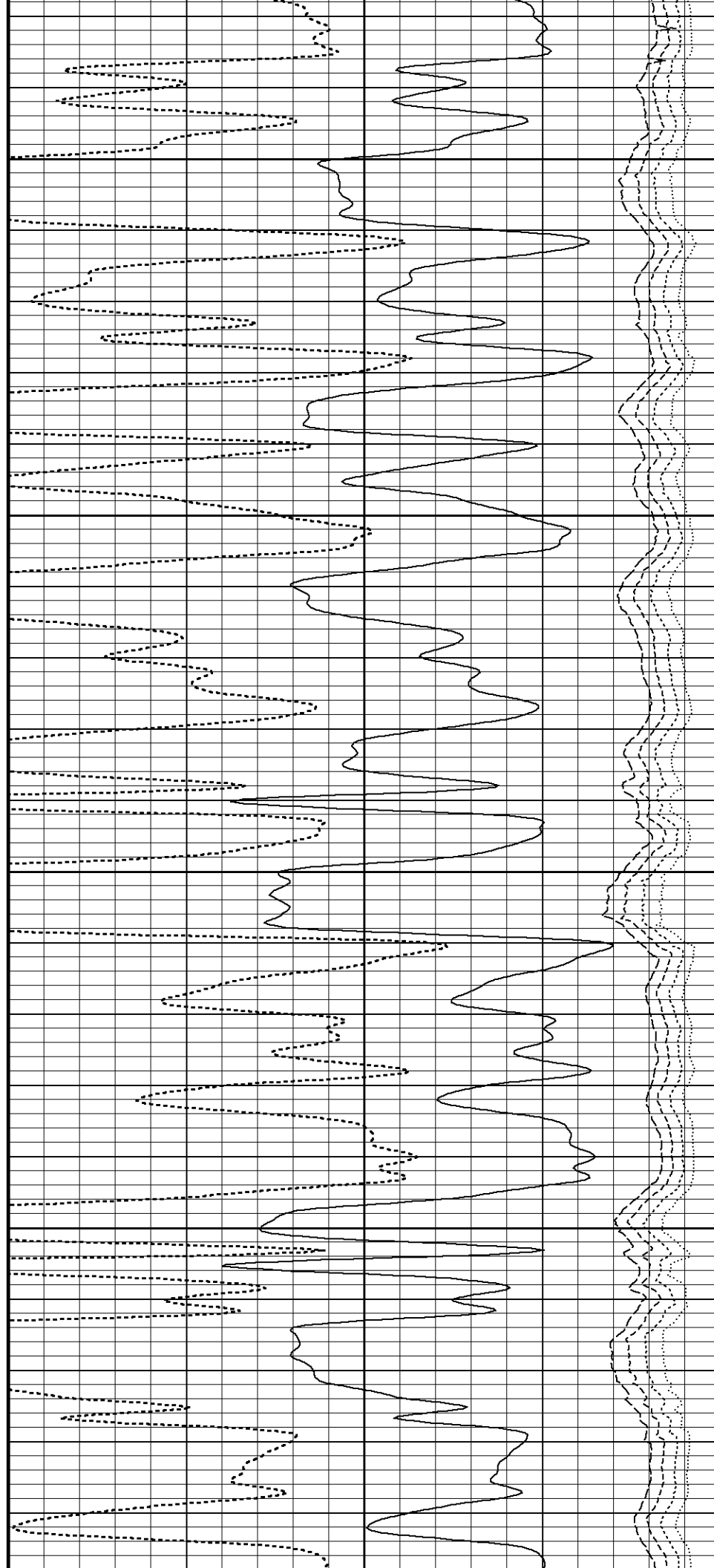
96°

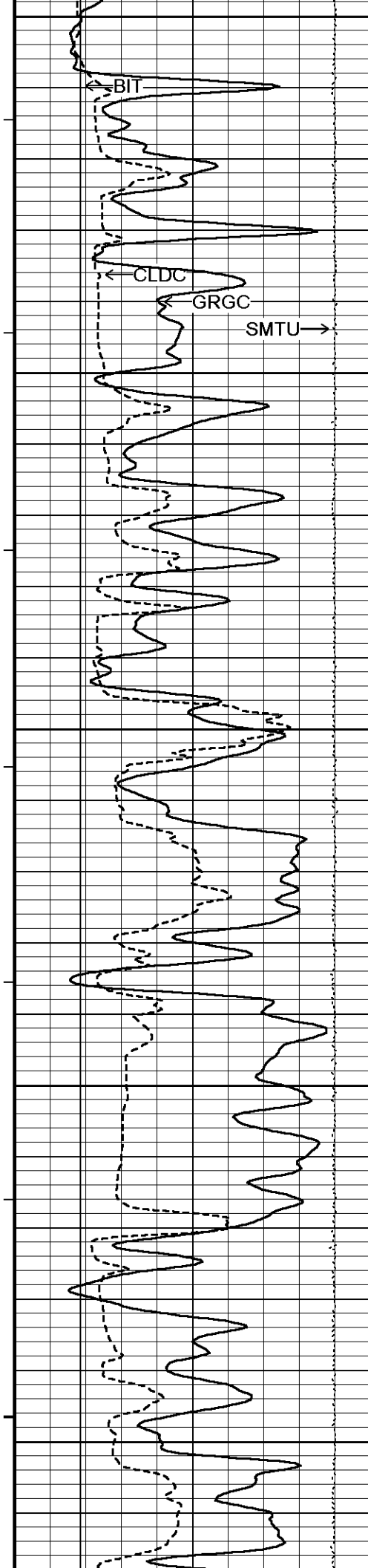
2050

96°

2100

96°





2150

97°

2200

97°

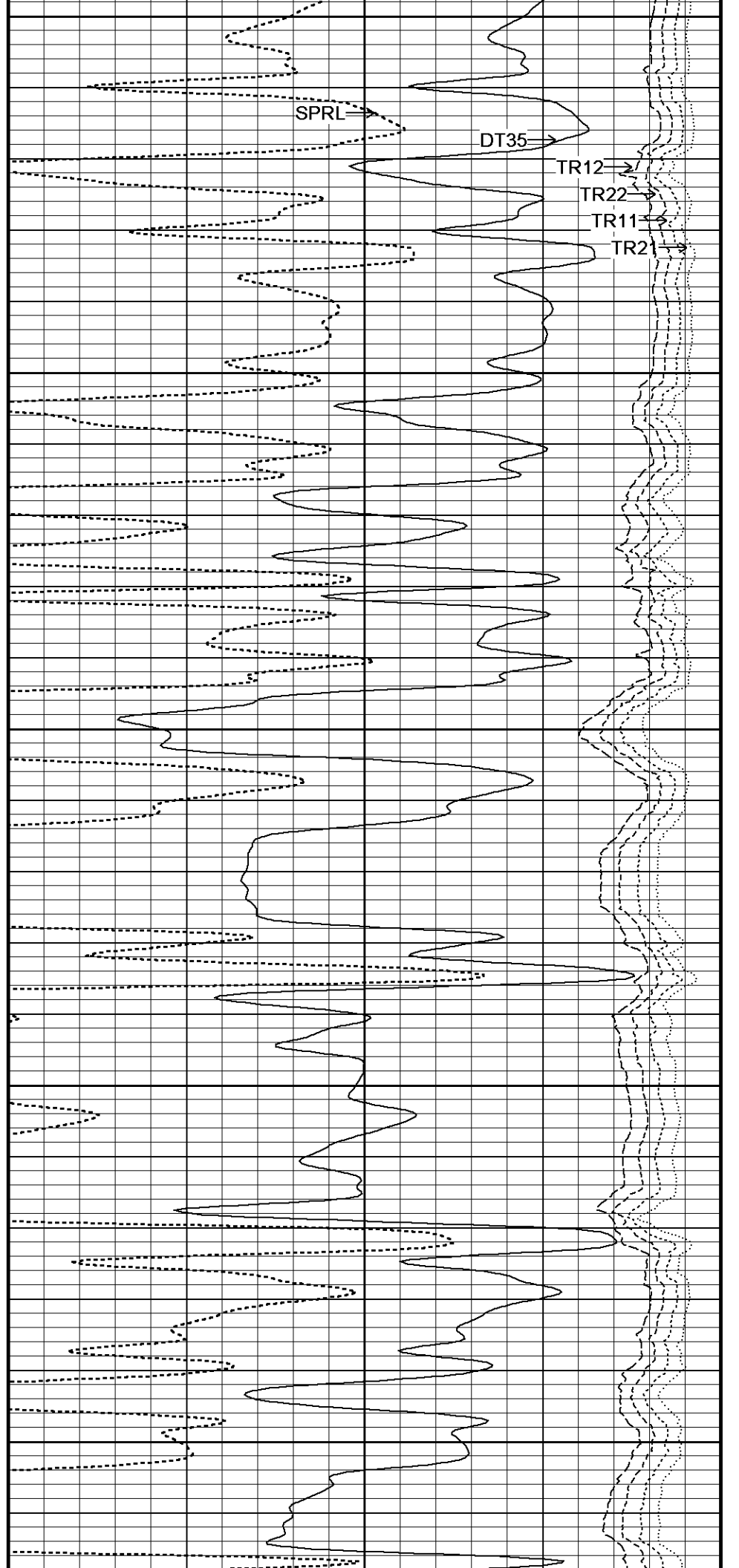
2250

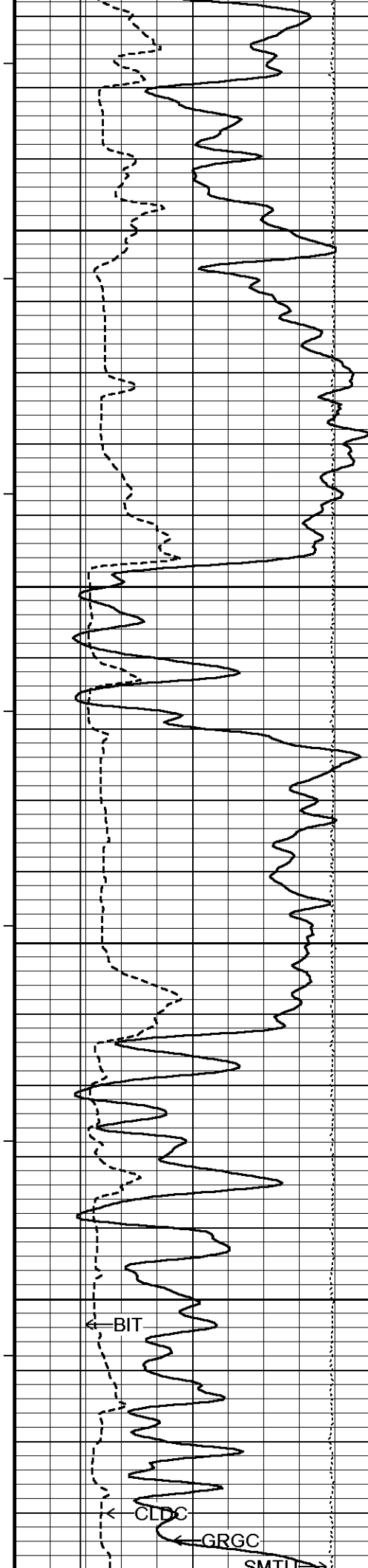
97°

2300

98°

2350





98°

2400

98°

2450

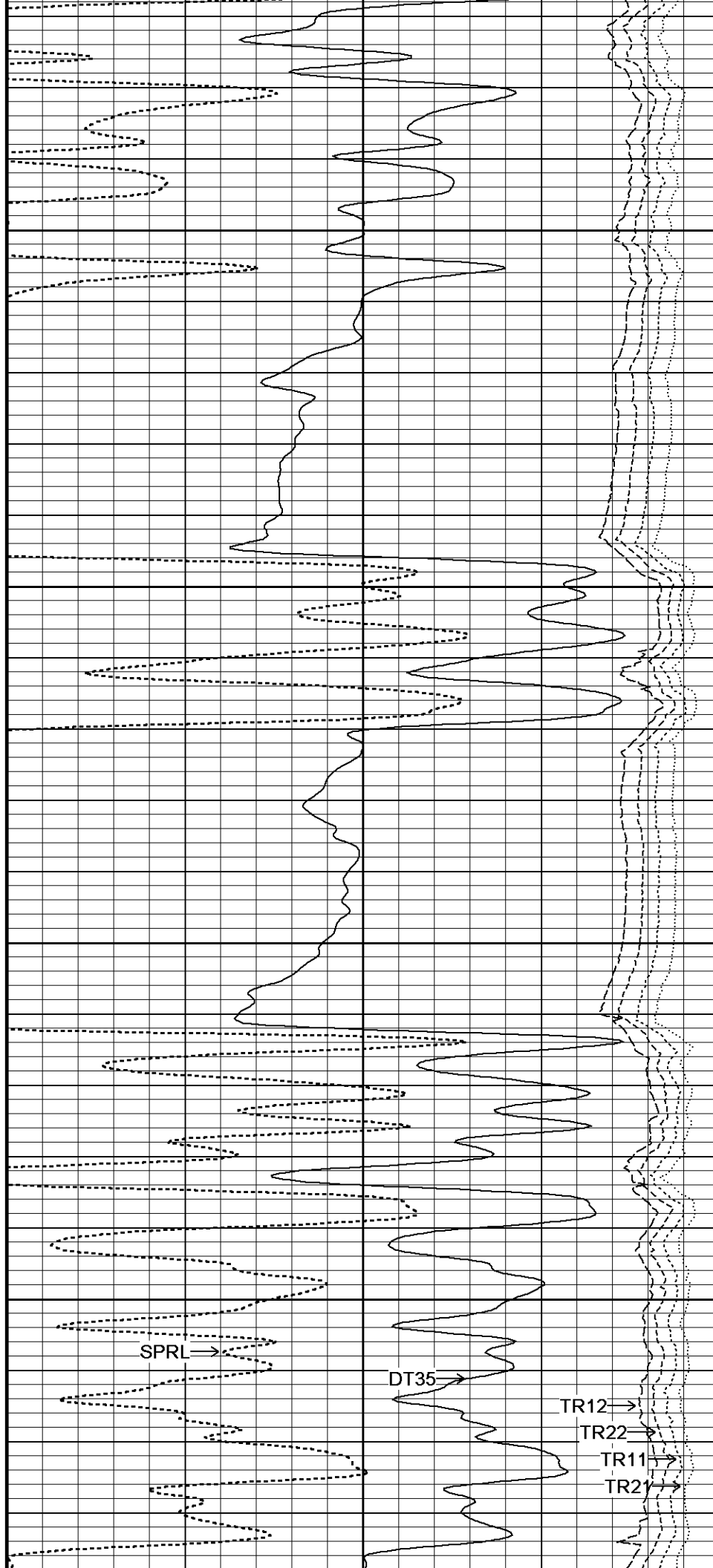
99°

2500

99°

2550

00°



SPRL

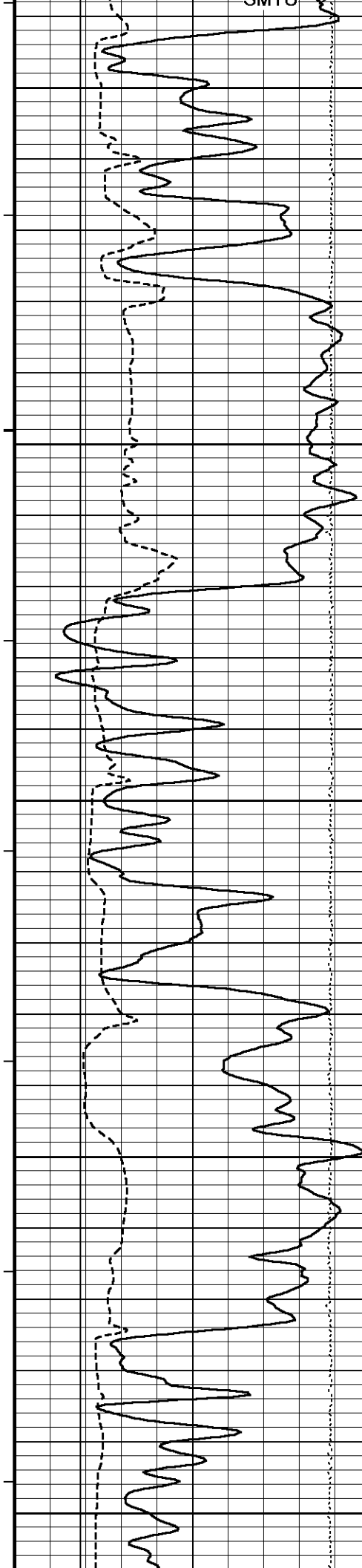
DT35

TR12

TR22

TR11

TR21



35

2600

100°

2650

100°

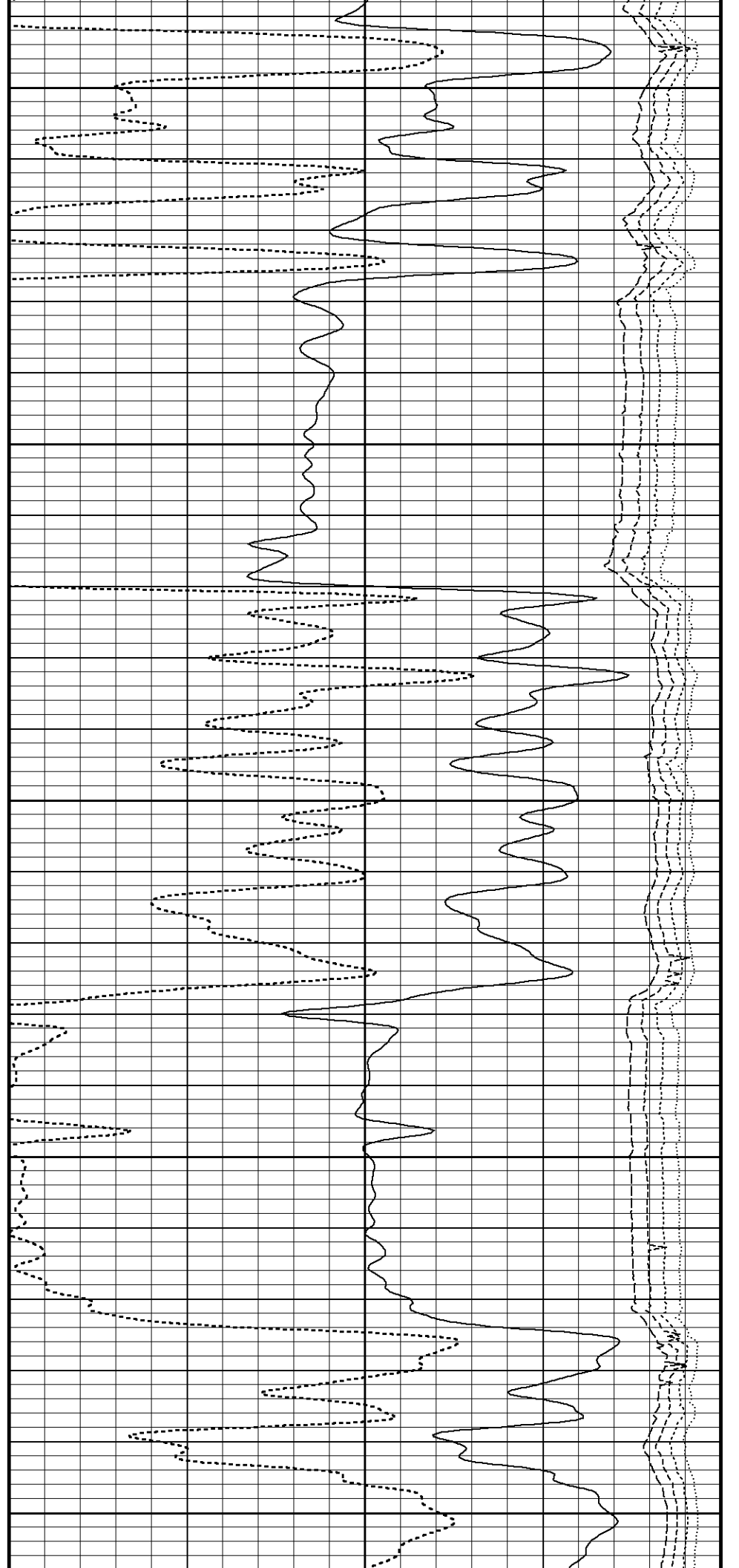
2700

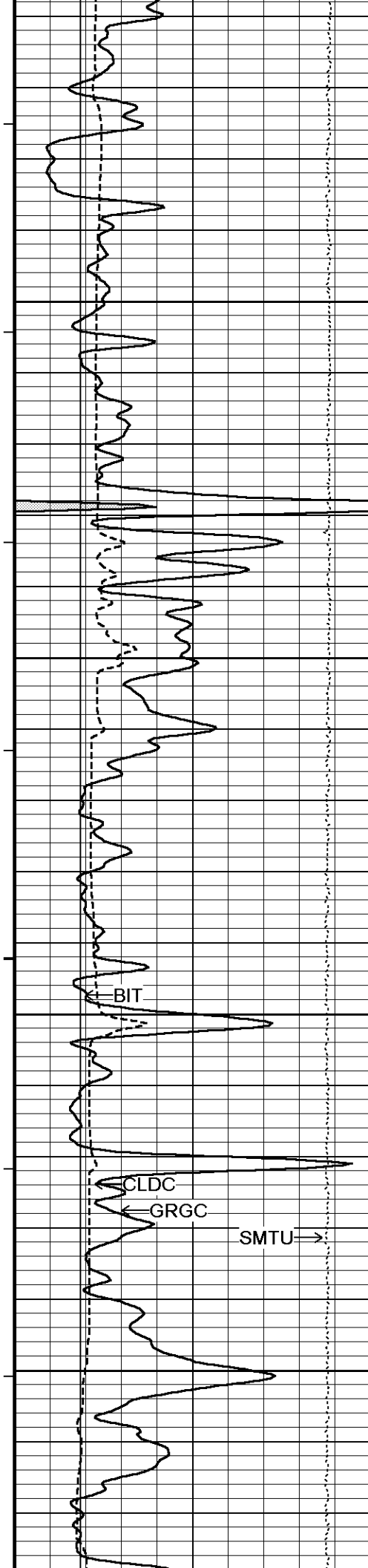
100°

2750

101°

2800





101°

2850

101°

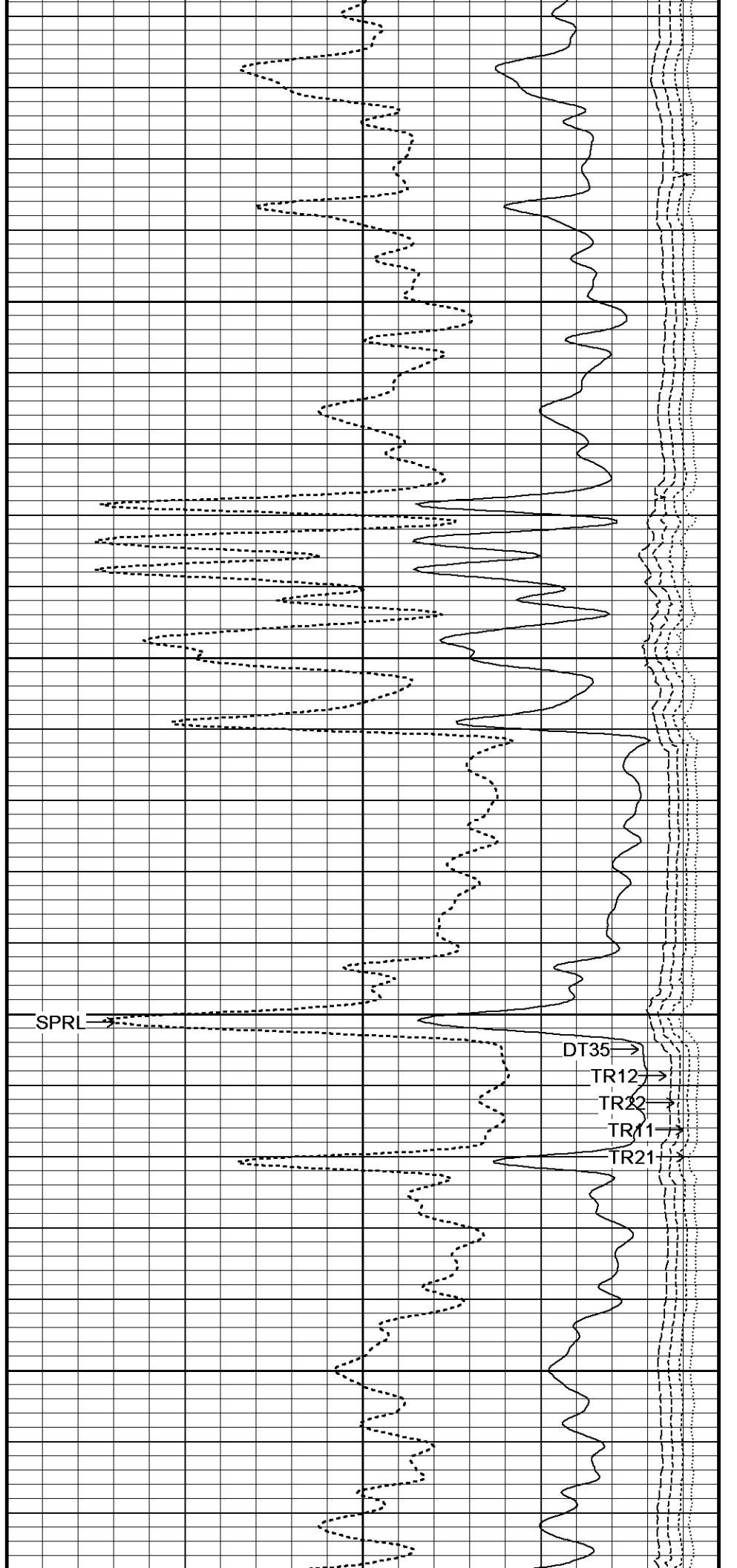
2900

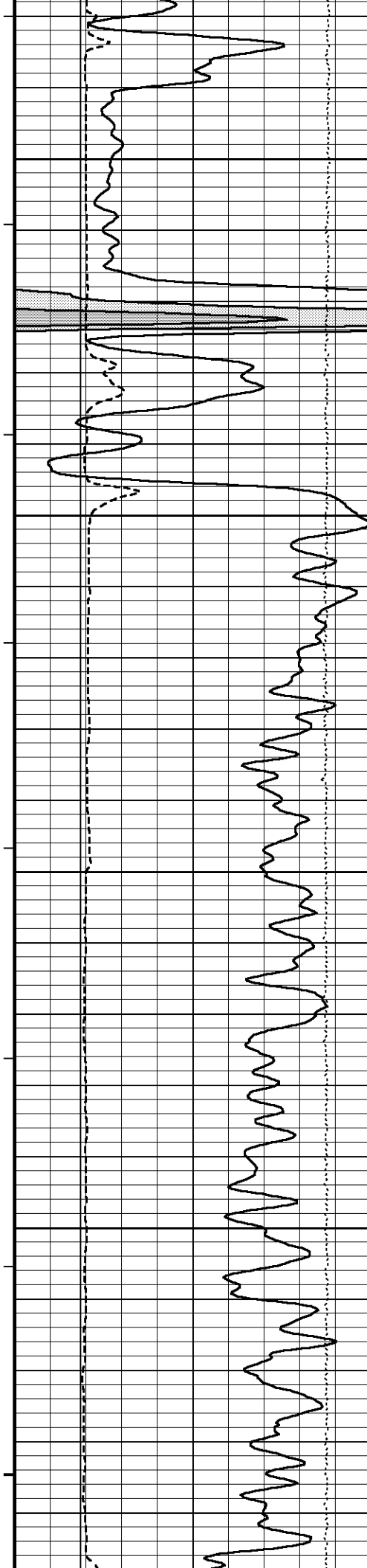
102°

2950

102°

3000





102°

3050

103°

3100

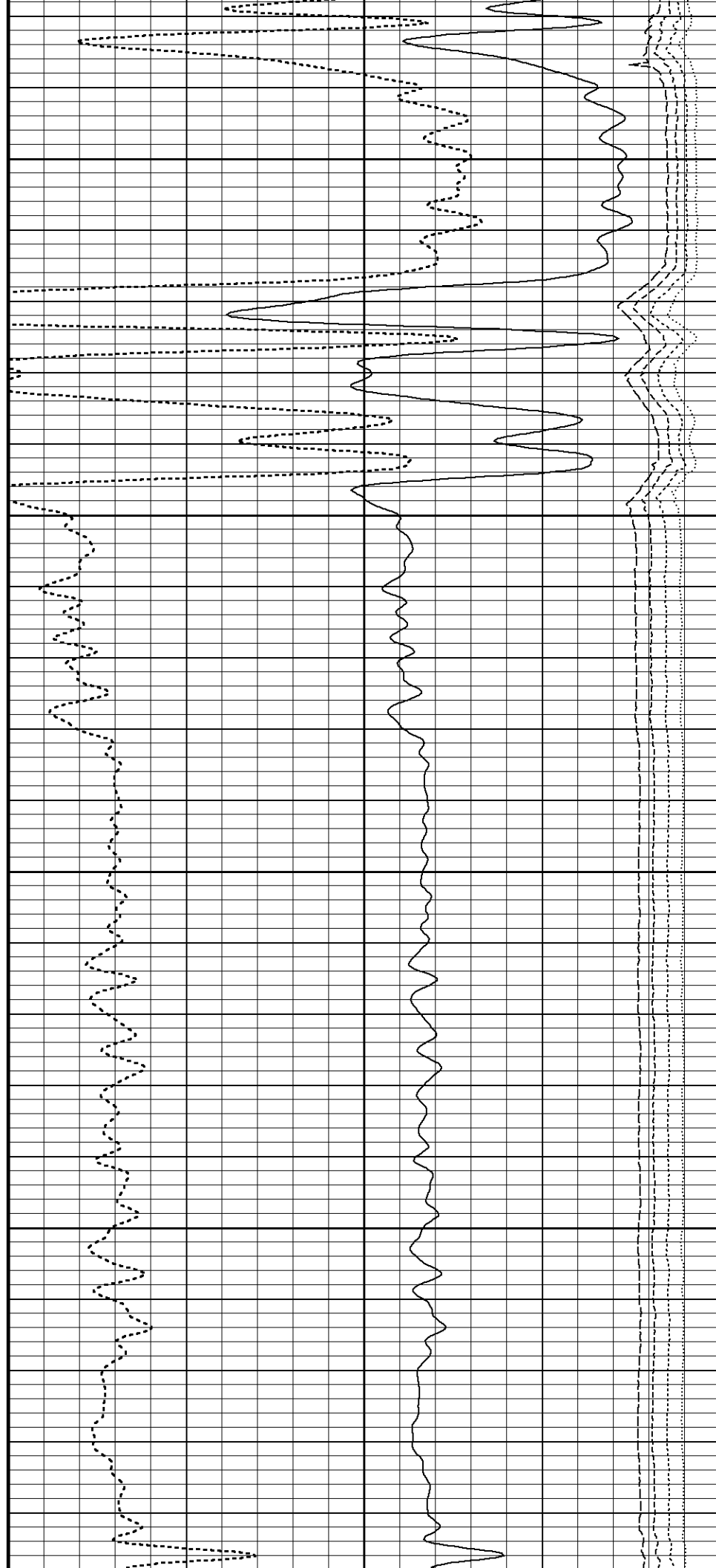
103°

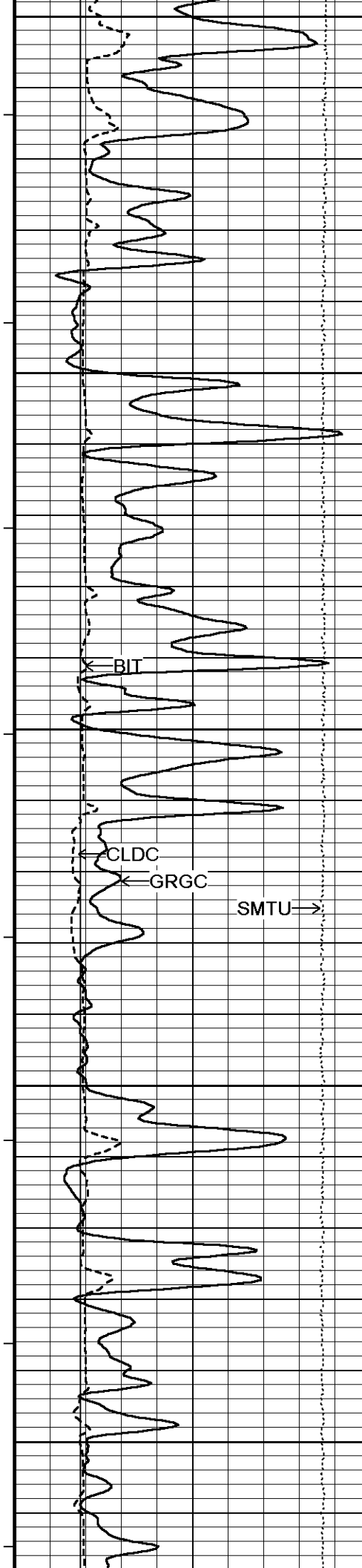
3150

103°

3200

104°





3250

104°

3300

104°

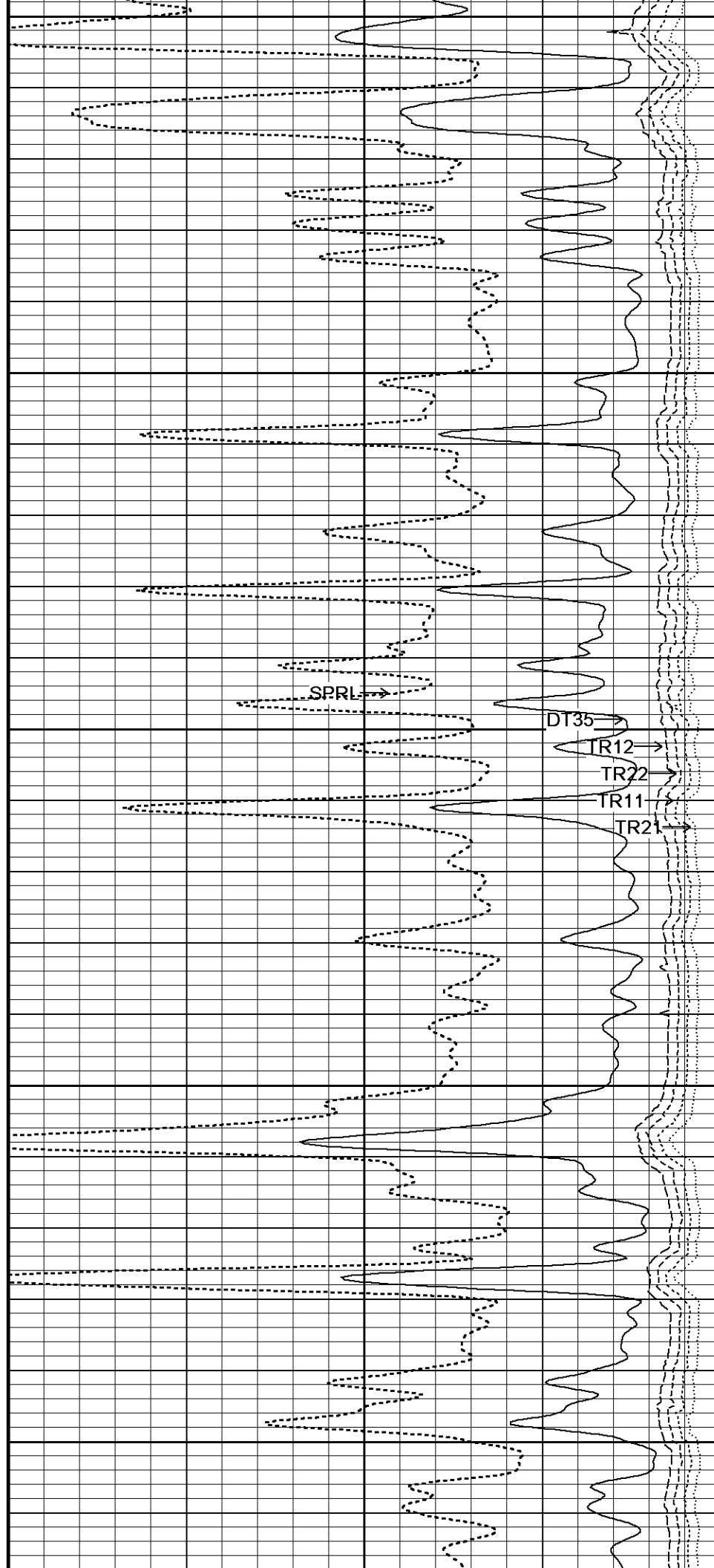
3350

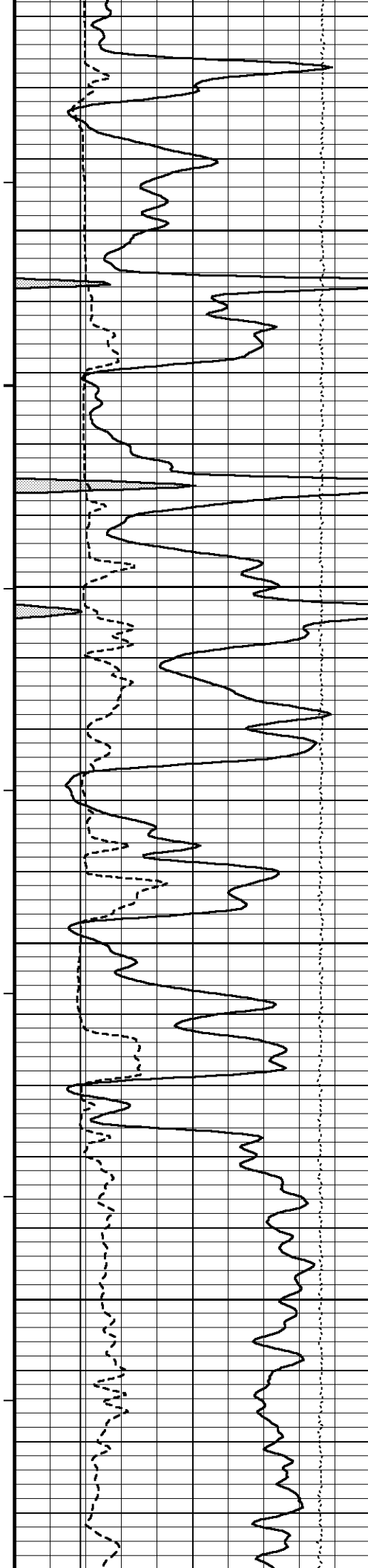
104°

3400

105°

3450





105°

3500

105°

3550

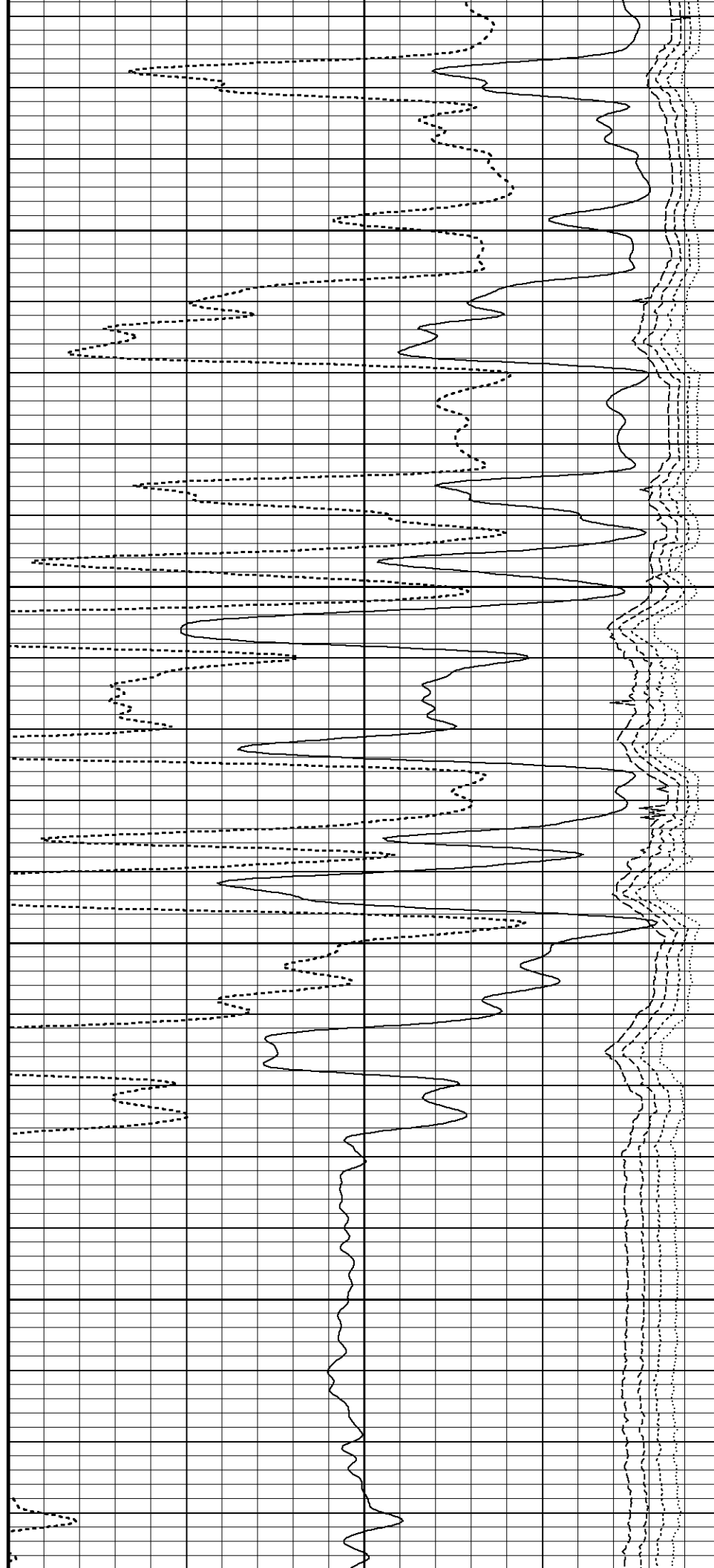
106°

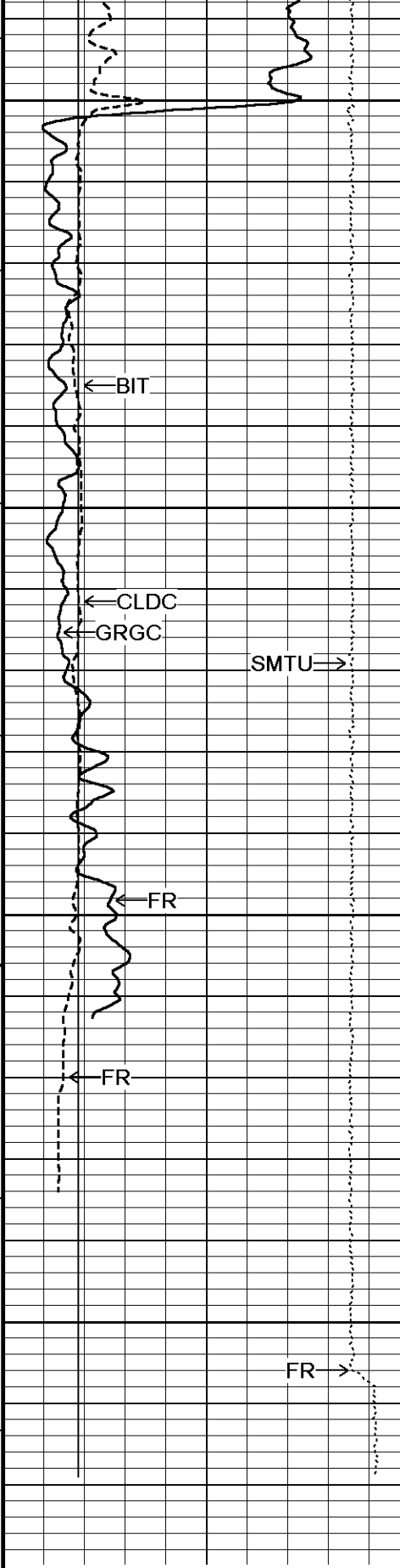
3600

106°

3650

107°





107°

3700

107°

3750

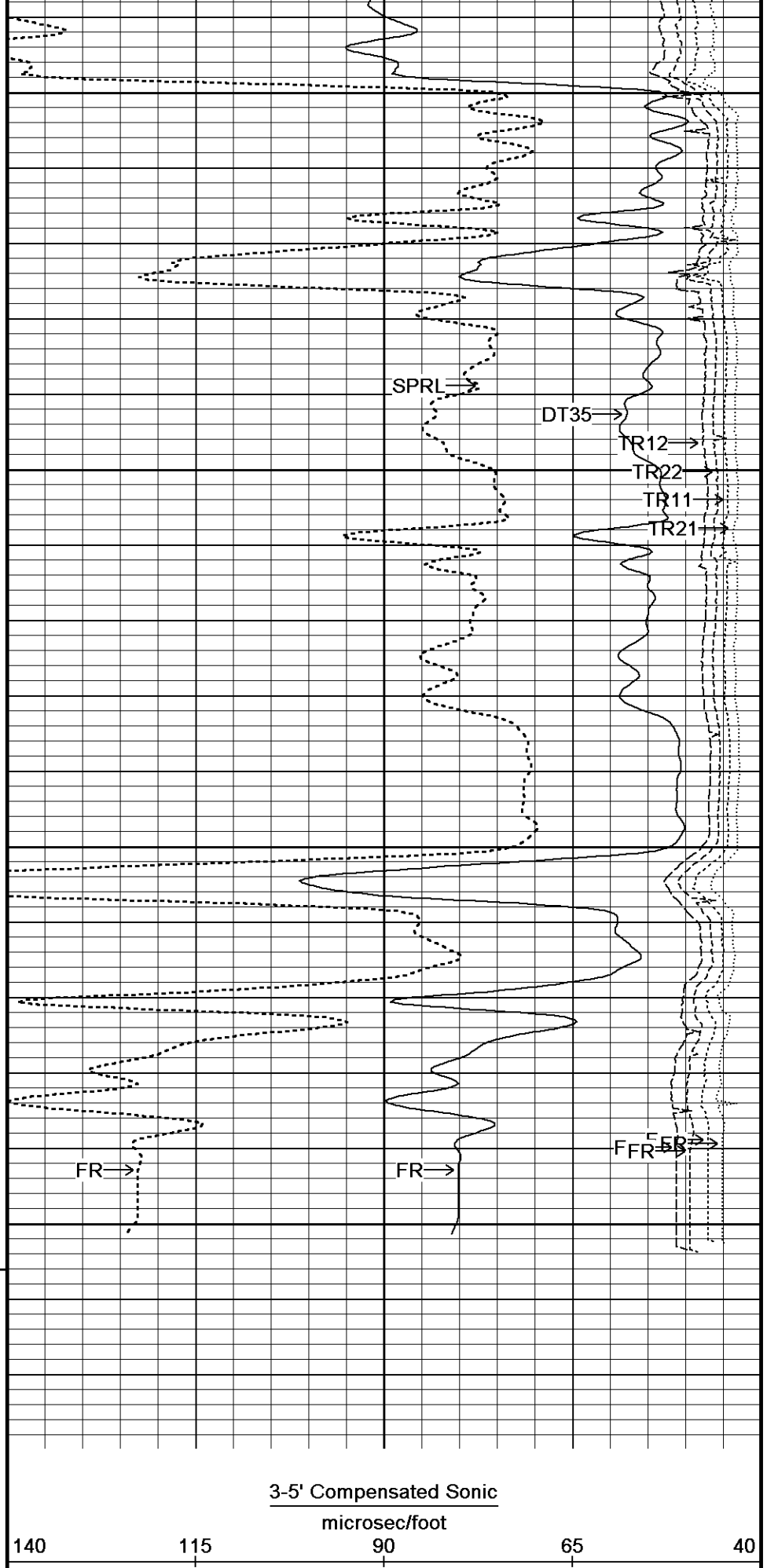
107°

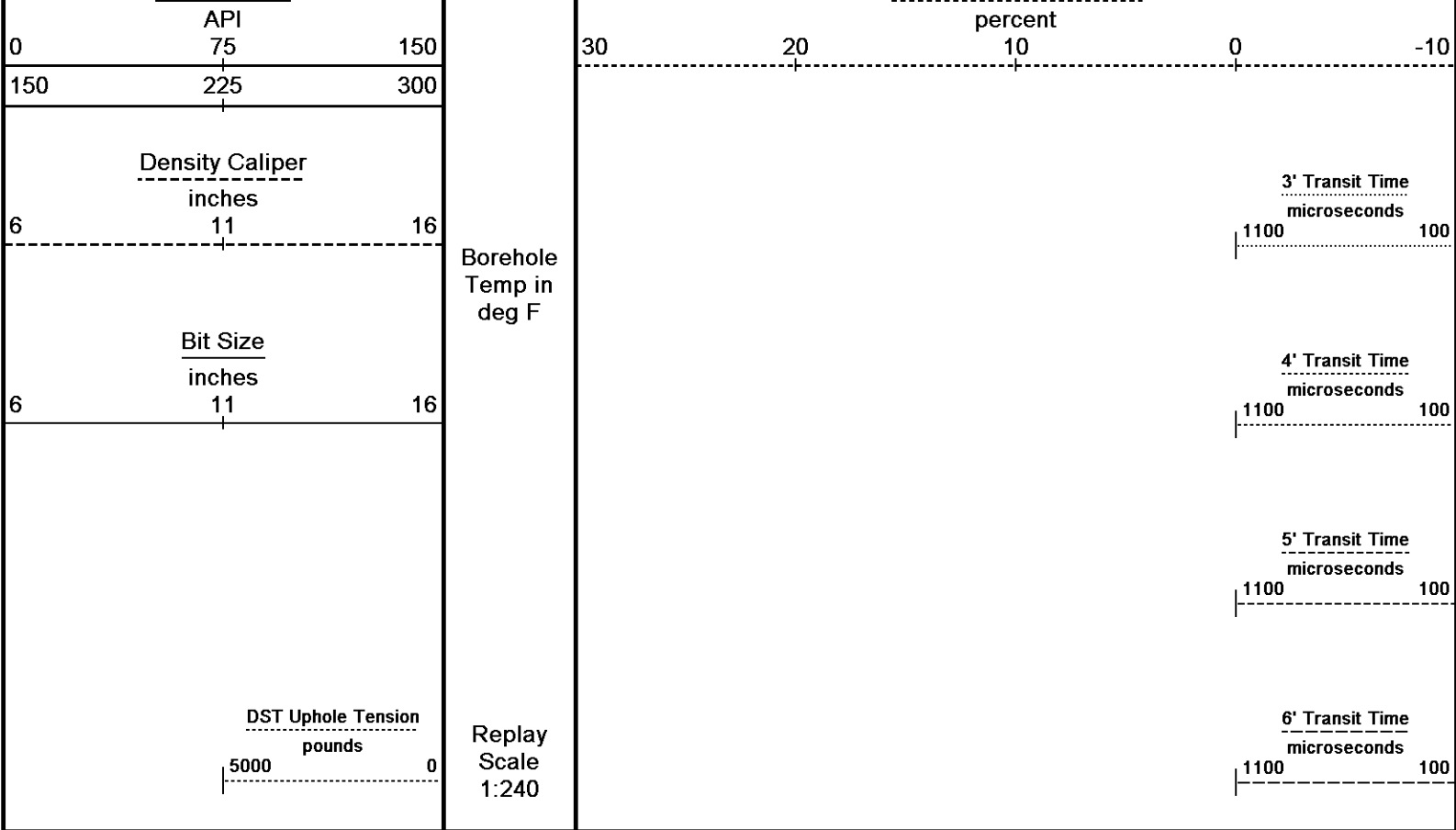
3800

3850

TD

Depth In Feet





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 21-SEP-2018 02:33

Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_003.dta

Recorded on 20-SEP-2018 23:43

System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

↑

5 INCH MAIN

↑

↓

REPEAT SECTION

↓

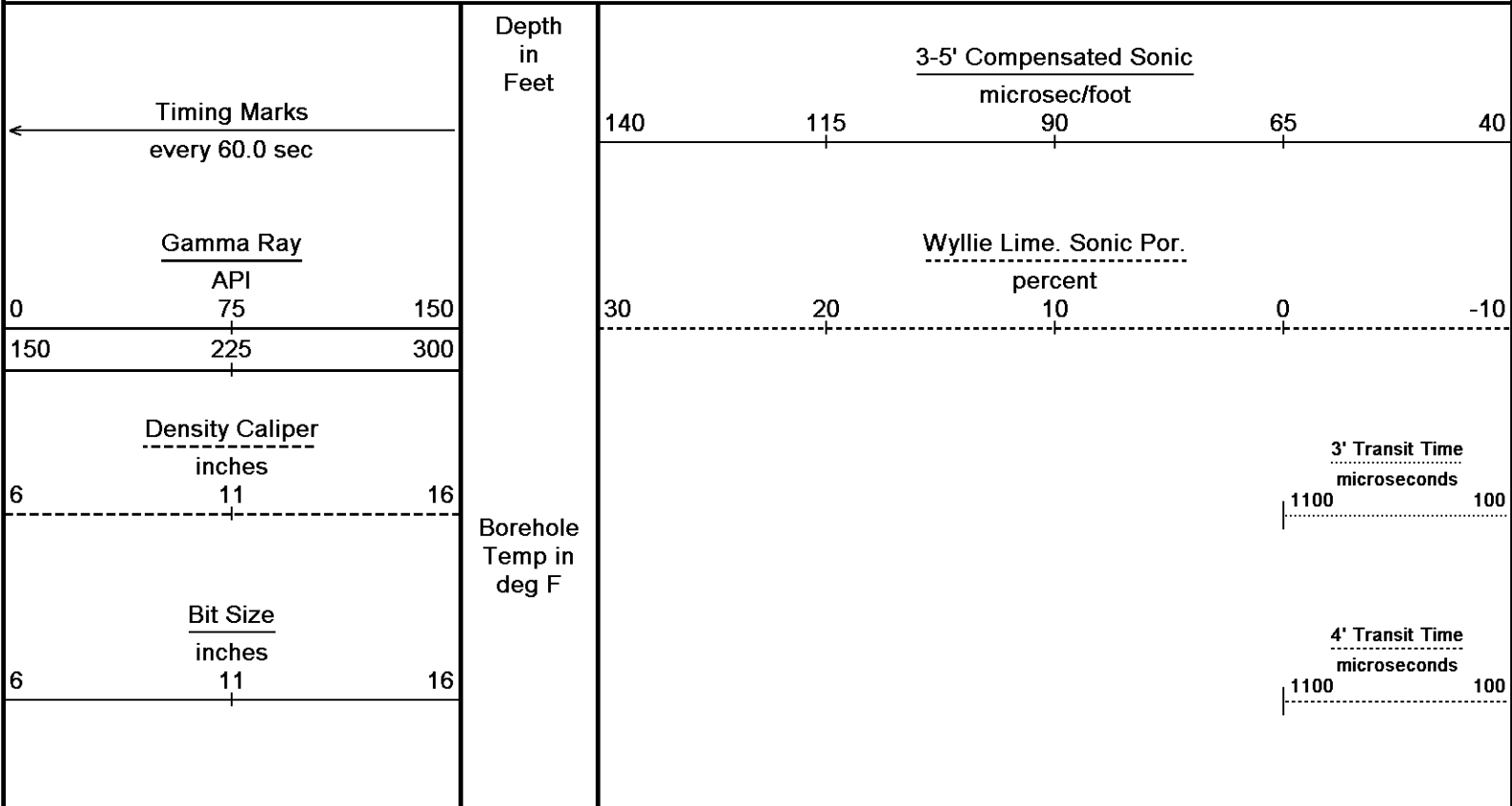
Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 21-SEP-2018 02:33

Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta

Recorded on 20-SEP-2018 23:06

System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

5' Transit Time
microseconds
1100 100

6' Transit Time
microseconds
1100 100

3500

104°

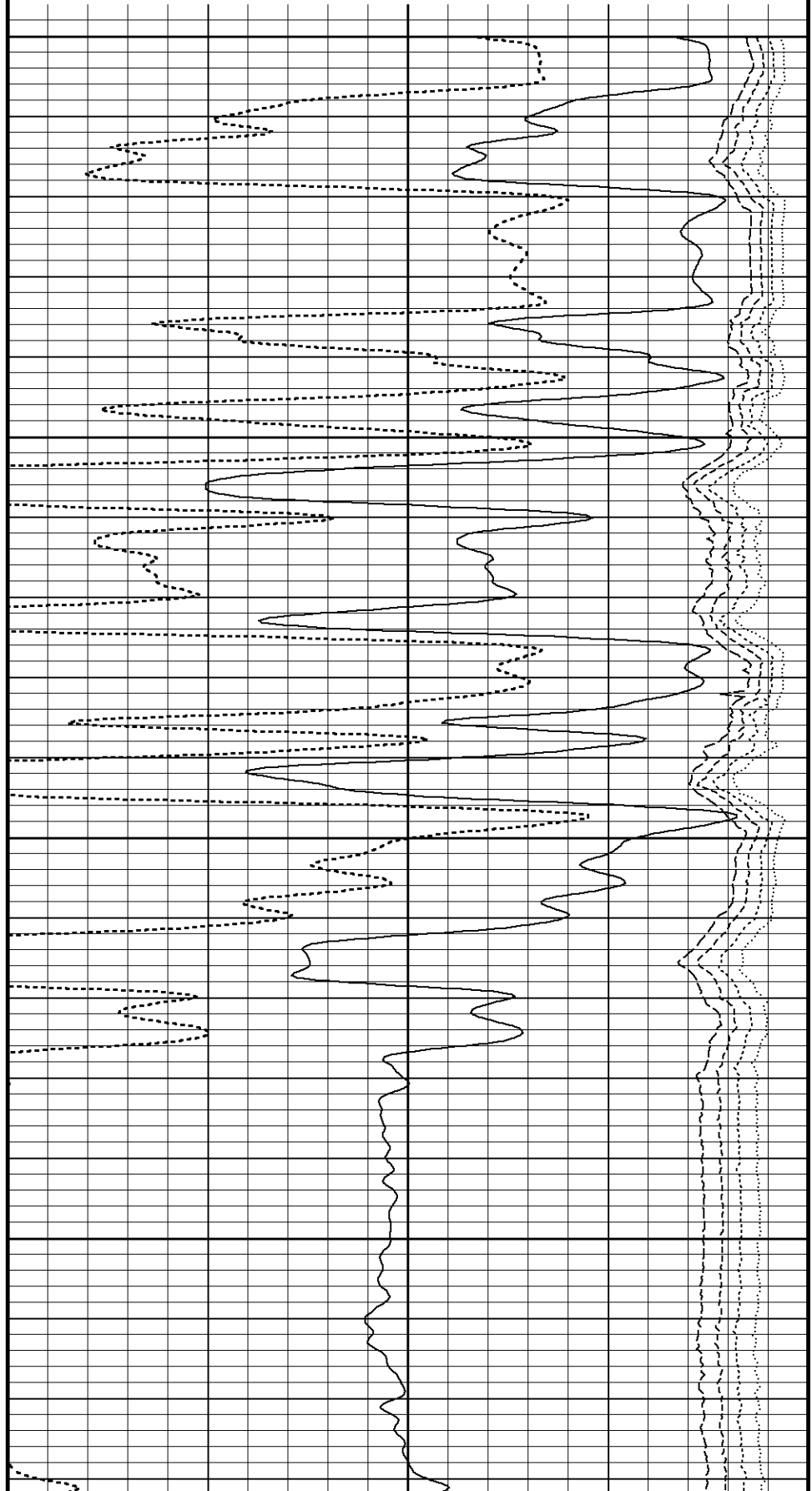
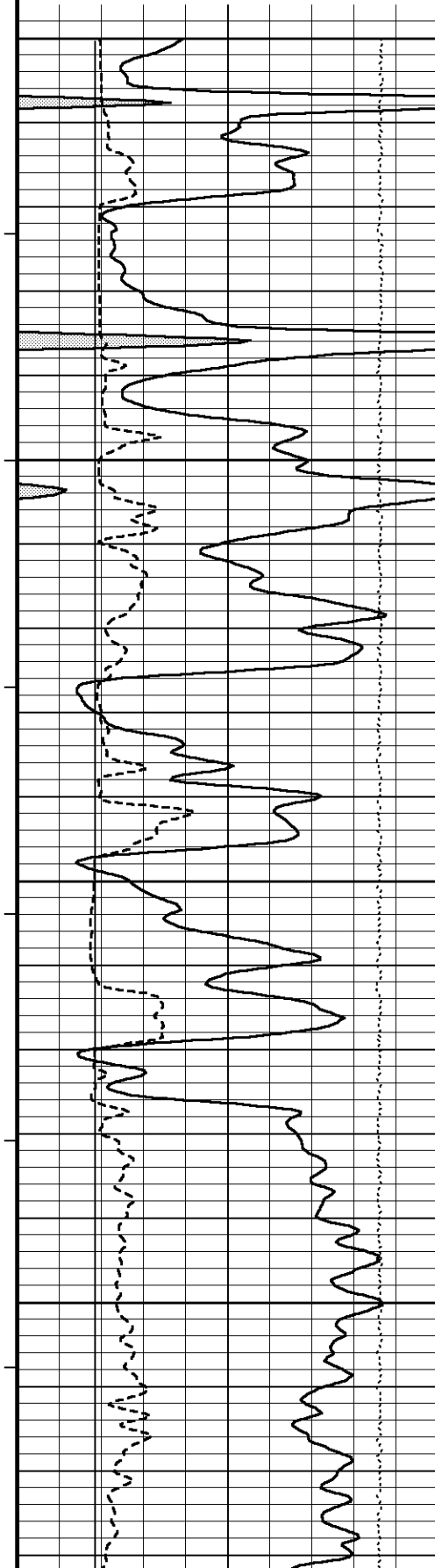
3550

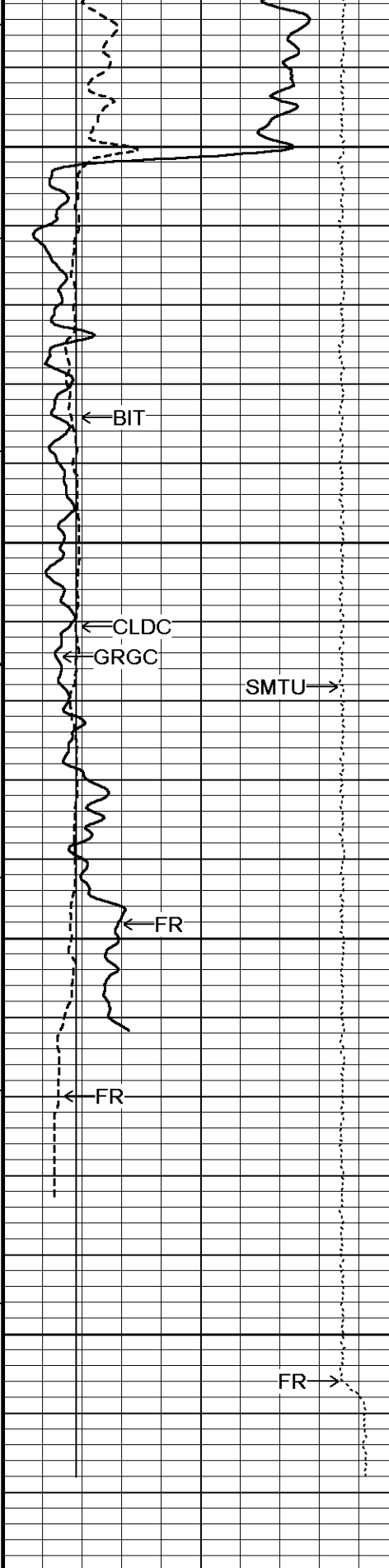
105°

3600

105°

3650





106°

3700

106°

3750

107°

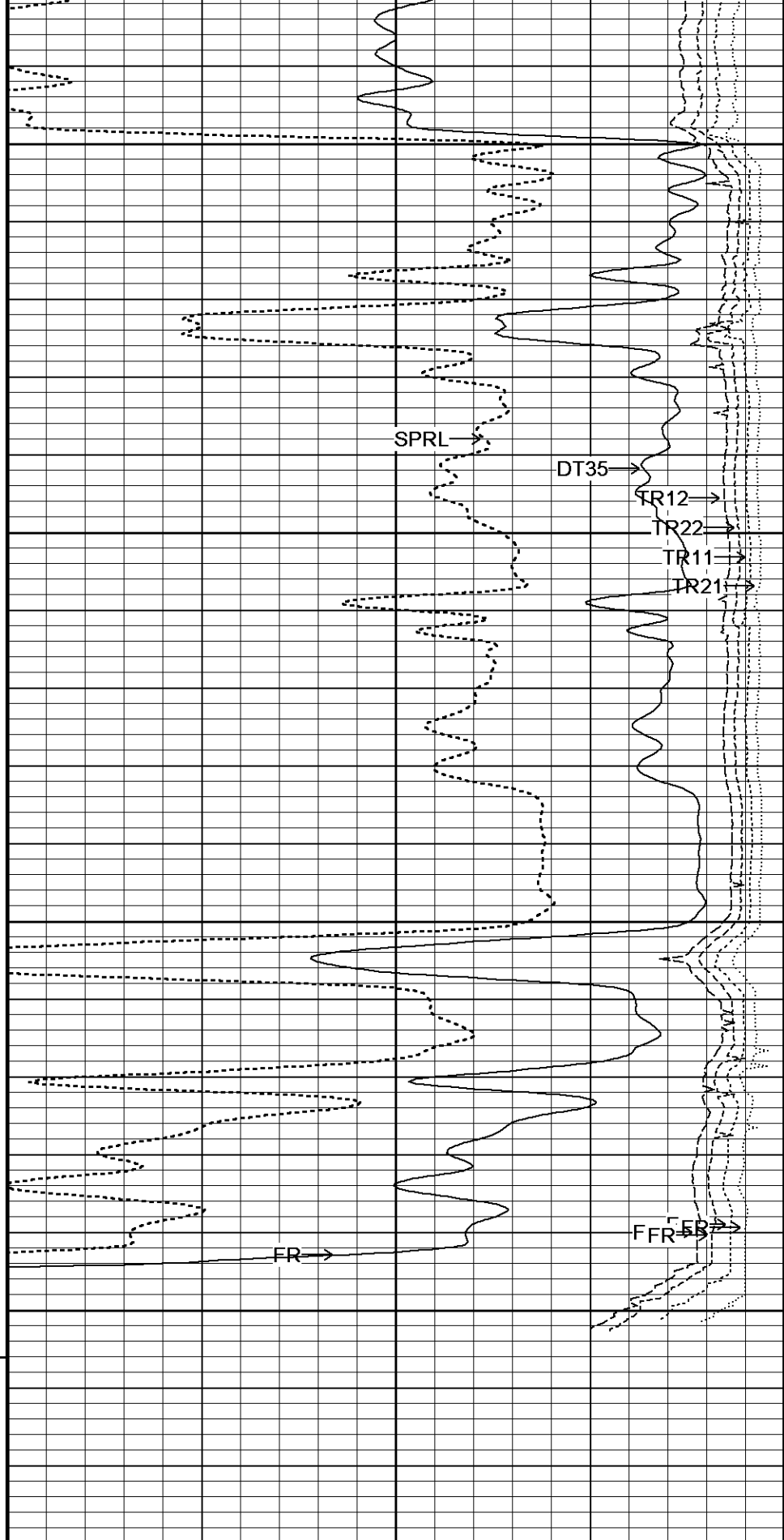
3800

3850

TD

Depth
in
Feet

Timing Marks
every 60.0 sec



SPRL

DT35

TR12

TR22

TR11

TR21

FR

FFR

3-5' Compensated Sonic
microsec/foot

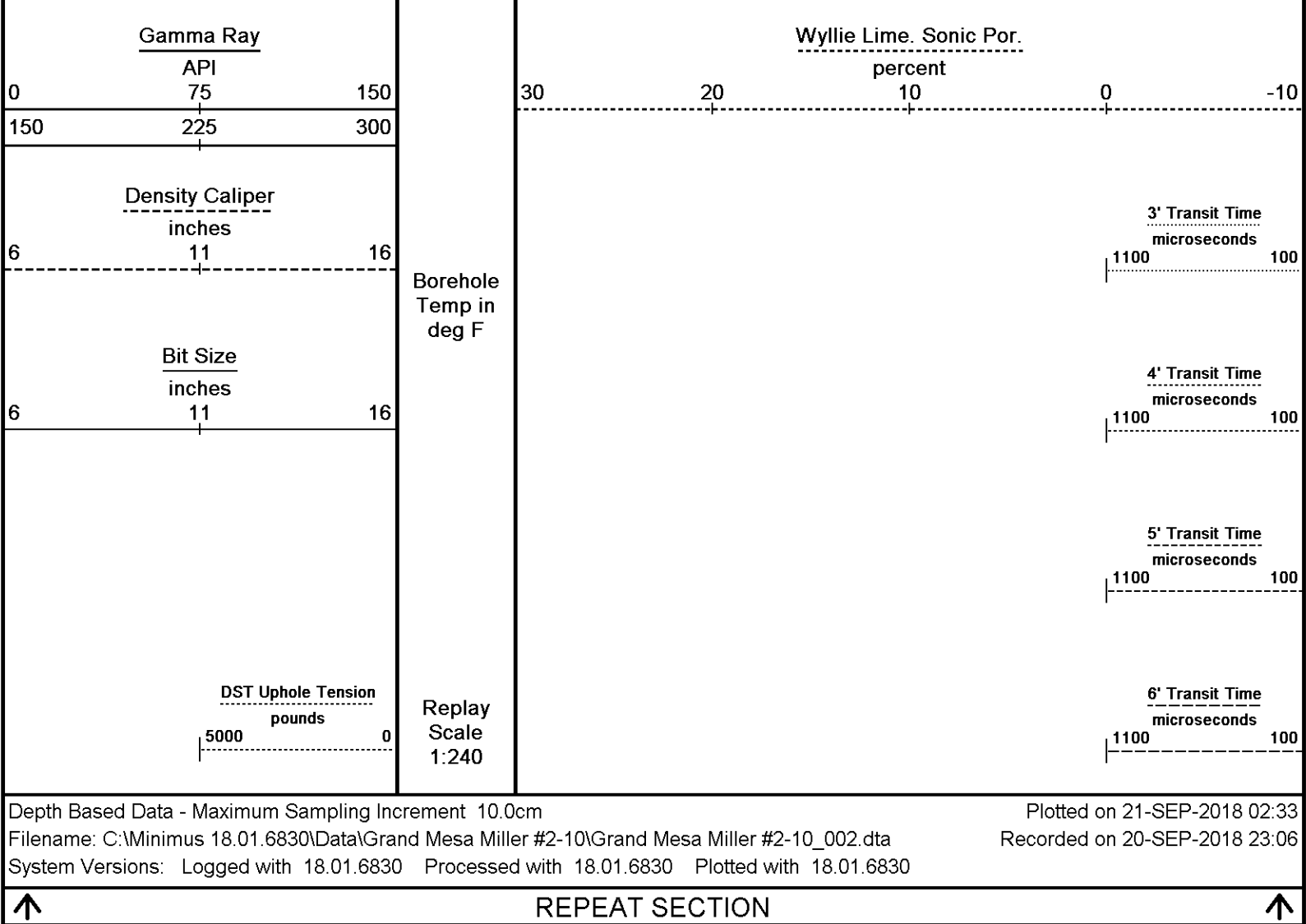
140

115

90

65

40



BEFORE SURVEY CALIBRATION			
C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta			
General Constants All 000		Last Edited on 20-SEP-2018,22:43	
General Parameters			
Mud Resistivity	0.430	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	Density Caliper		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. Two Res Rt		
RWA Constant A	0.620		
RWA Constant M	2.150		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.A 246		Field Calibration on 20-SEP-2018,10:55	
	Measured	Calibrated (API)	
Background	107	74	
Calibrator (Gross)	770	530	
Calibrator (Net)	663	456	

Gamma Calibration Tolerances MCG-D.A 246						
Ratio	1.454	1.40 1.475 1.55	Counts/API			
Gamma Constants MCG-D.A 246			Last Edited on 20-SEP-2018,21:39			
Gamma Calibrator Number	MCGGRCC141					
GRC-M Calibrator Jig in Use?	NO					
Inactive Background Jig in Use?	NO					
Mud Density	1.11	gm/cc				
Caliper Source for Processing	Density Caliper					
Tool Position	Eccentred					
Potassium Equivalence	Chloride					
K Mud Concentration	0.00	%				
High Resolution Temperature Calibration MCG-D.A 246			Field Calibration on 01-AUG-2018,13:29			
	Measured	Calibrated(Deg F)				
Lower	50.00	50.00				
Upper	212.00	212.00				
High Resolution Temperature Constants MCG-D.A 246			Last Edited on 07-JUN-2018,10:42			
Pre-filter Length	11					
Sonic Constants MSS-C.K 319			Last Edited on 08-JUL-2018,09:57			
Maximum Boundary Contrast	70.00	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					
Correction for Sonde Skew	Applied					
Cycle Stretch Algorithm	Applied					
MN3FT	0.00	micro-sec				
MX3FT	1500.00	micro-sec				
Hunt-Raymer Constant	83.13	micro-sec/ft				
Sonde Mode	Compensated					
Hole Type	Open Hole					
Sonde Parameters						
	Measured	Calibrated				
Offset		0.0000				
Free Pipe	0.0000					
Peak Amplitude Source						
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)	Depth (ft)			
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	0.00	0.00	0.00			
Full Waveform Parameters						
Use 3' Waveform to derive TR	No					
Use 4' Waveform to derive TR	No					
Use 5' Waveform to derive TR	No					
Use 6' Waveform to derive TR	No					
3' Waveform Discriminator Level	0.30	mV				
4' Waveform Discriminator Level	0.30	mV				

4' Waveform Discriminator Level	0.50	mV
5' Waveform Discriminator Level	0.15	mV
6' Waveform Discriminator Level	0.15	mV

Waveform Discriminator Filter	Not Applied	
Semblance Window Width	150.00	micro-sec
Semblance Processing Enabled	Yes	
Tracking Boxes Enabled In Processing	Yes	

Caliper Calibration MPD-C.A 216

Base Calibration on 02-SEP-2018,10:42
Field Calibration on 20-SEP-2018,10:42

Base Calibration Reading No	Measured	Calibrator Size (in)
1	14688	3.99
2	23495	5.98
3	32176	7.97
4	40480	9.86
5	49713	11.92
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	8.08	8.10

Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal. 8.08

7.70	8.10	8.50
------	------	------

 in

DOWNHOLE EQUIPMENT

C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta

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

Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.A 246 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.244 in

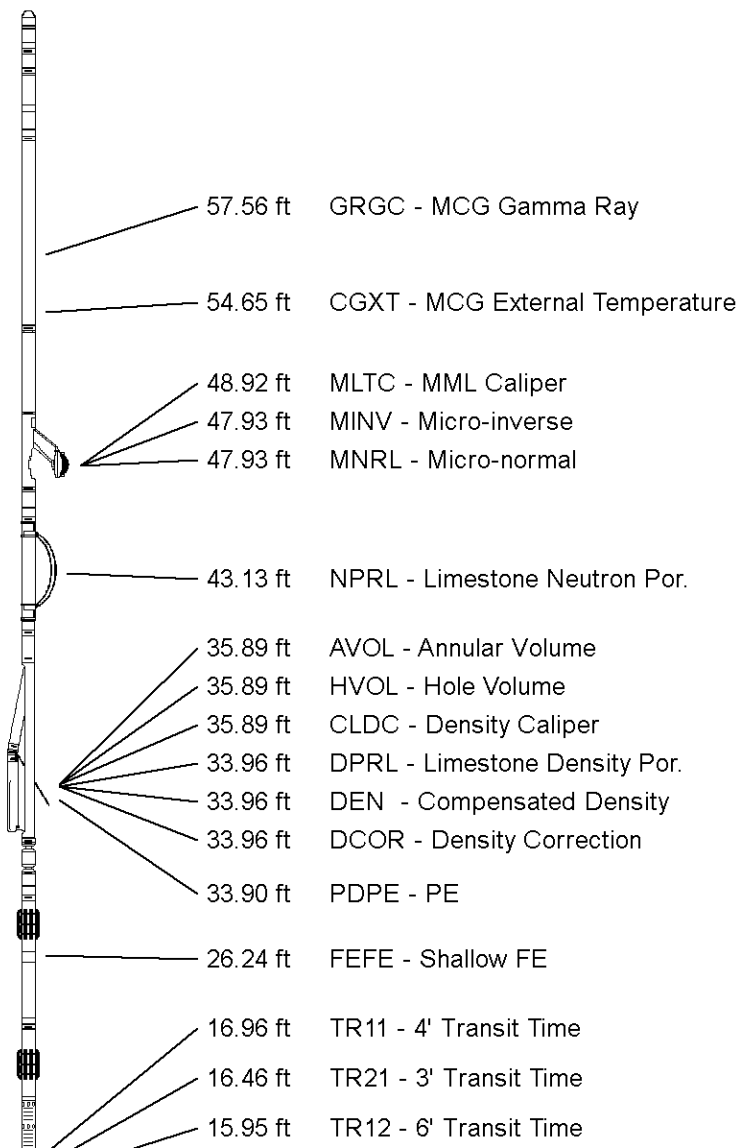
Compact Neutron
MDN-B.A 292 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

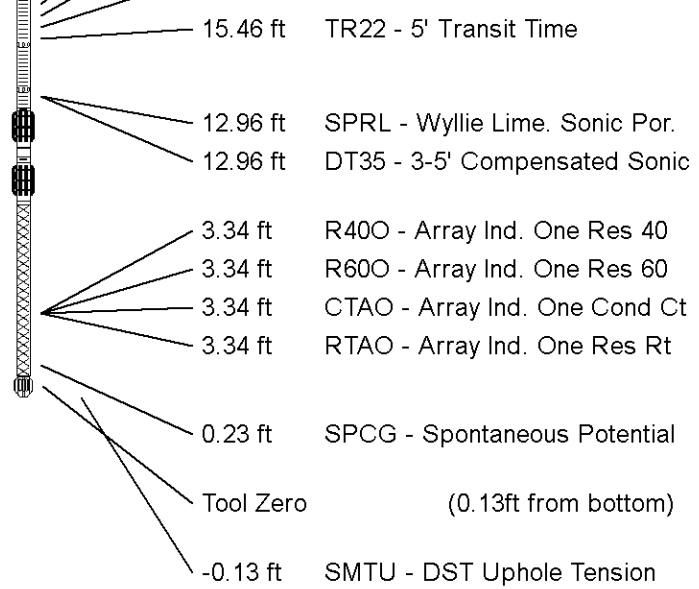
Compact Focussed Electric
MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.240 in

Compact Sonic
MSS-C.K 319 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in



Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 67.54 ft Weight: 526.9 lb



All measurements relative to tool zero.

COMPANY	GRAND MESA OPERATING COMPANY
WELL	MILLER #2-10
FIELD	ZENITH-PEACE CREEK
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1770	feet	First Reading	3843.00	feet
Elevation Drill Floor	1765	feet	Depth Driller	3860.00	feet
Elevation Ground Level		feet	Depth Logger	3856.00	feet



Weatherford®

COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME