

**Weatherford****COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME**

COMPANY				MCELVAIN ENERGY, INC.			
WELL				WALZ 31-8			
FIELD				WILDCAT			
PROVINCE/COUNTY				GRAHAM			
COUNTRY/STATE				U.S.A./KANSAS			
LOCATION				2230' FNL & 330' FEL N2 SE SE NE			
SEC	TWP	RGE	Other Services				
31	10S	21W	MPD/MDN				
API Number		15-065-23995		MAI/MFE			
Permit Number				MML			
Permanent Datum GL, Elevation 2221 feet						Elevations:	
Log Measured From KB						KB	2231.00
Drilling Measured From KB @ 2231						DF	2229.00
						GL	2221.00
Date	15-DEC-2013						
Run Number	ONE						
Service Order	3547680						
Depth Driller	4000.00			feet			
Depth Logger	3995.00			feet			
First Reading	3982.00			feet			
Last Reading	330.00			feet			
Casing Driller	352.00			feet			
Casing Logger	352.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.40 lb/USg		56.00	CP			
PH / Fluid Loss	10.50		7.60	ml/30Min			
Sample Source	FLOWLINE						
Rm @ Measured Temp	1.32 @ 82.0			ohm-m			
Rmf @ Measured Temp	1.06 @ 82.0			ohm-m			
Rmc @ Measured Temp	1.58 @ 82.0			ohm-m			
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	1.01 @ 107.0		ohm-m				
Time Since Circulation	4 HOURS						
Max Recorded Temp	107.00		deg F				
Equipment / Base	13244		LIB				
Recorded By	JOHN LAPOINT						
Witnessed By	CHRIS MITCHELL						
IOB#	LB13-354						

BOREHOLE RECORD

Last Edited: 15-DEC-2013 07:19

Bit Size inches	Depth From feet	Depth To feet
7.875	352.00	4000.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	352.00	24.00

REMARKS

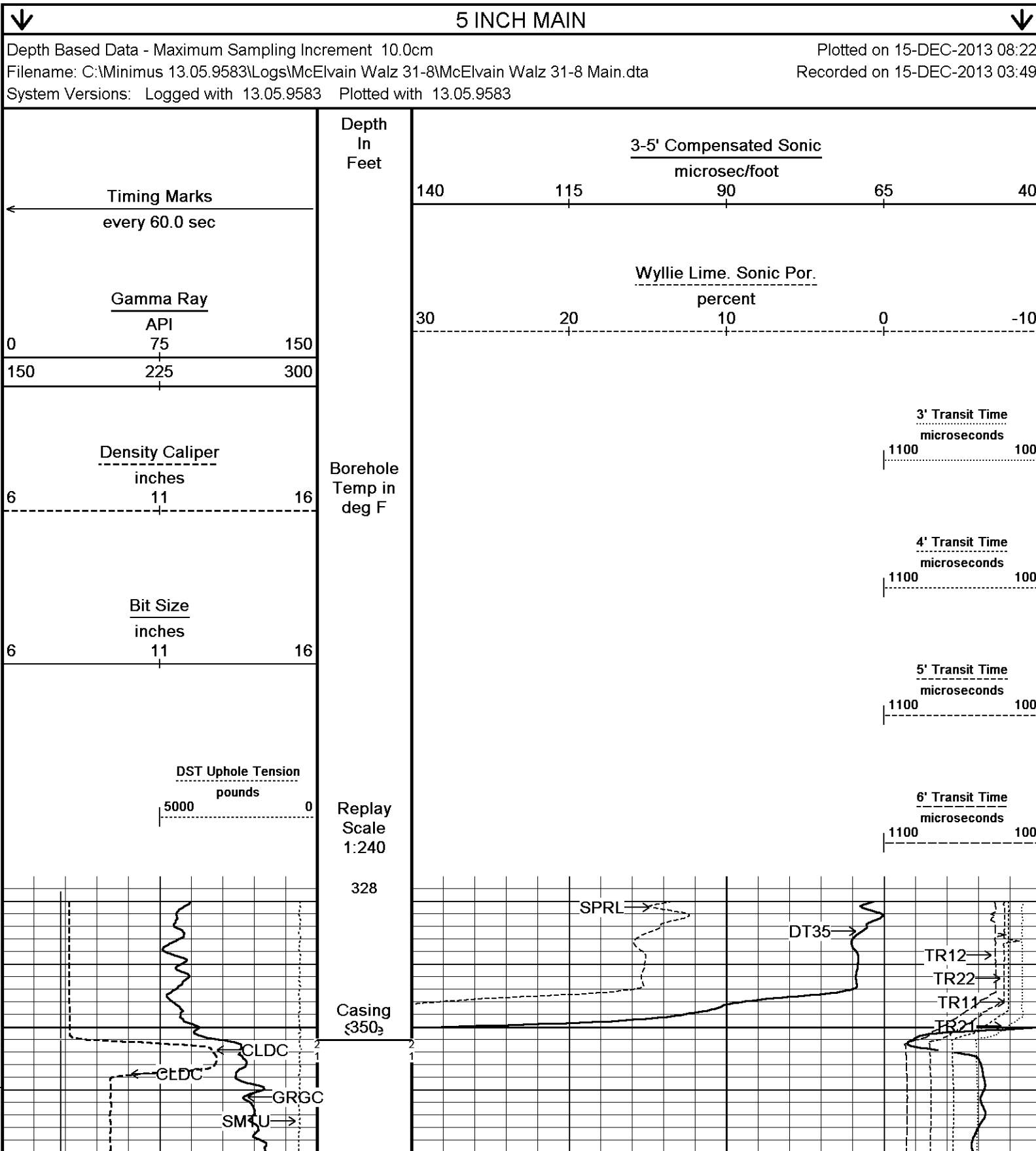
- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
HARDWARE: DUAL BOWSPRING USED ON MDN.
0.5 INCH STANDOFF USED ON MFE.
0.5 INCH STANDOFF USED ON MSS.
0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, 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 AT 352 FEET: 1415 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO SURFACE CASING AT 352 FEET: 819 CU. FT.
- DRILLING RIG: VAL RIG 6

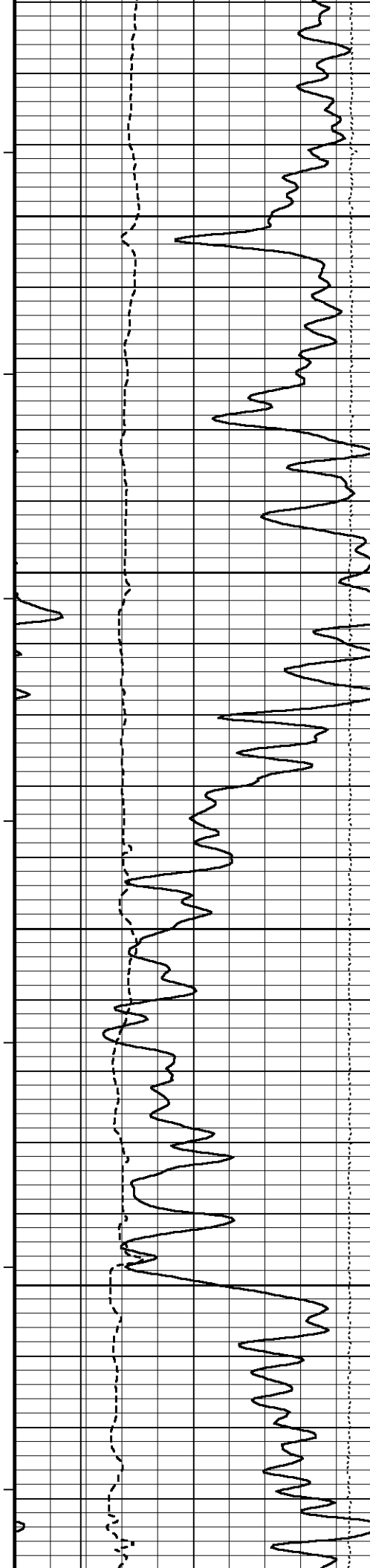
- DRILLING RIG: VALERIO S.

- ENGINEER: J. LAPOINT AND R. HOFFMAN.

- OPERATOR(S): N. ADAME.

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.





80°

400

81°

450

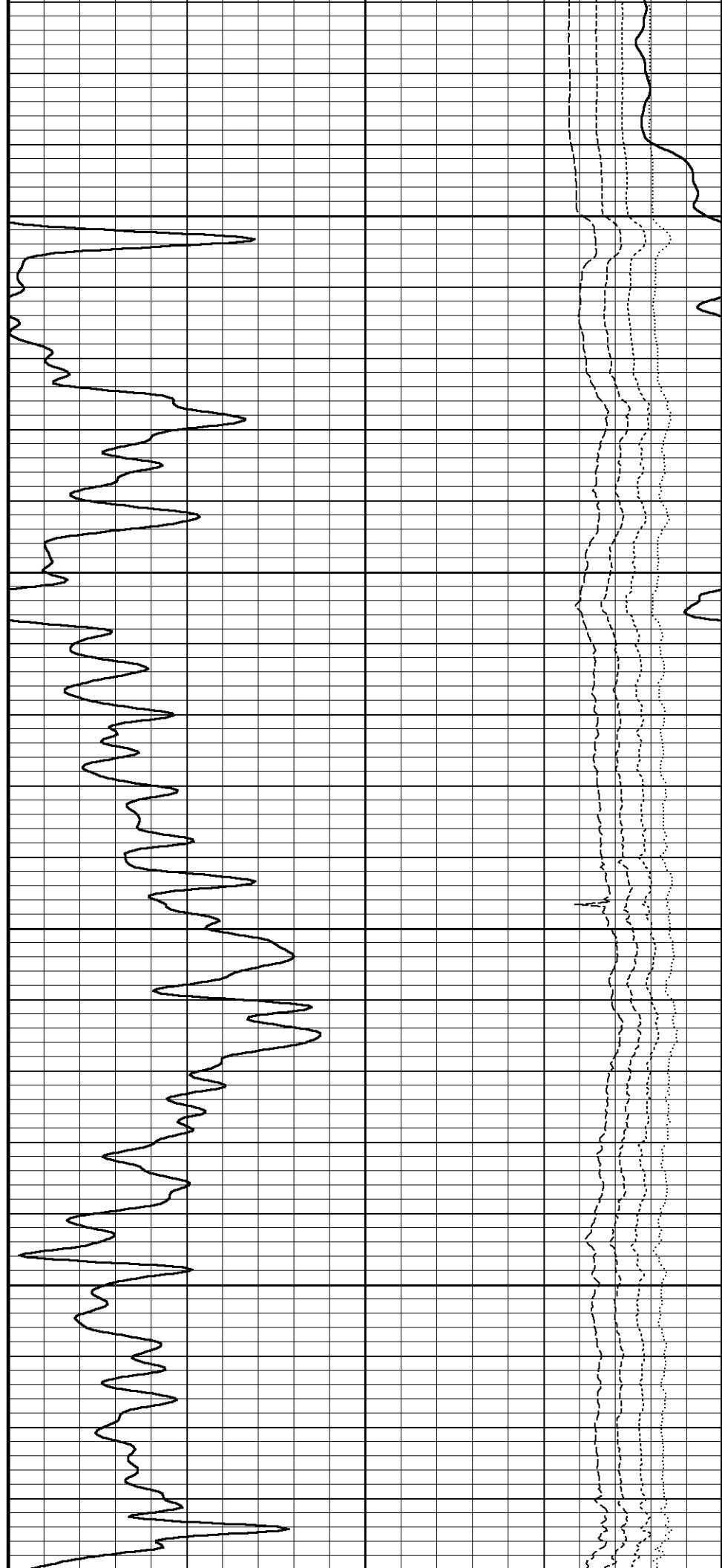
82°

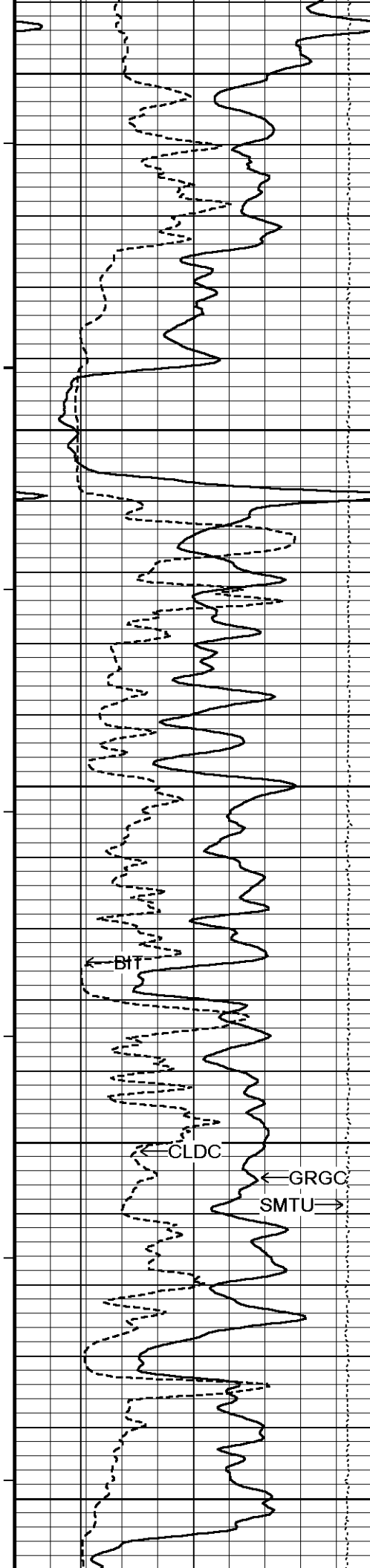
500

82°

550

82°





600

82°

650

83°

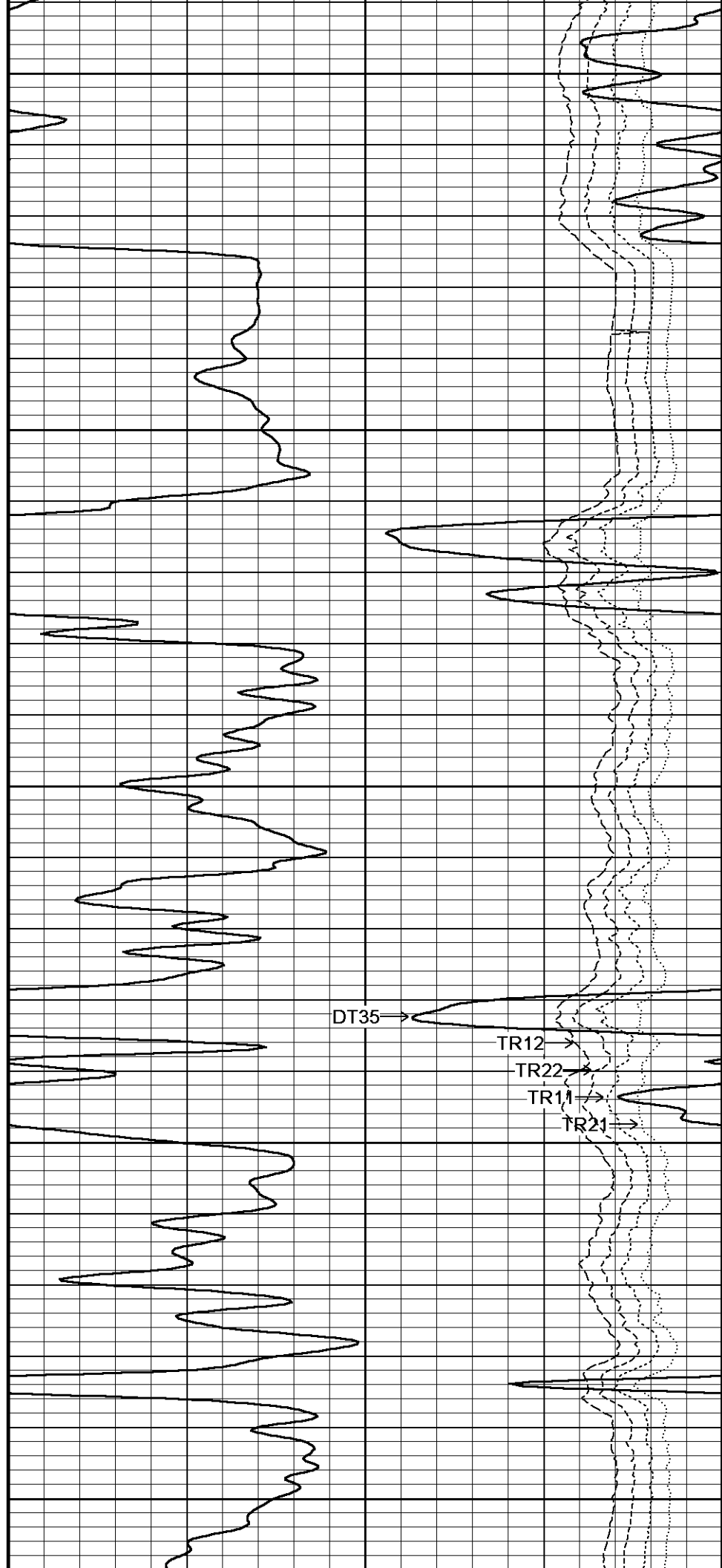
700

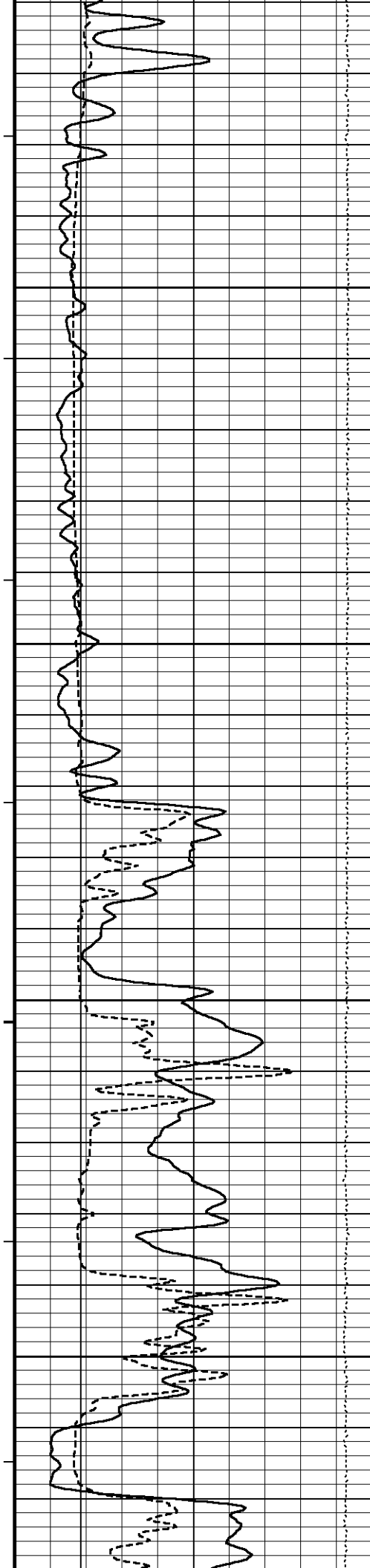
83°

750

83°

800





83°

85°

83°

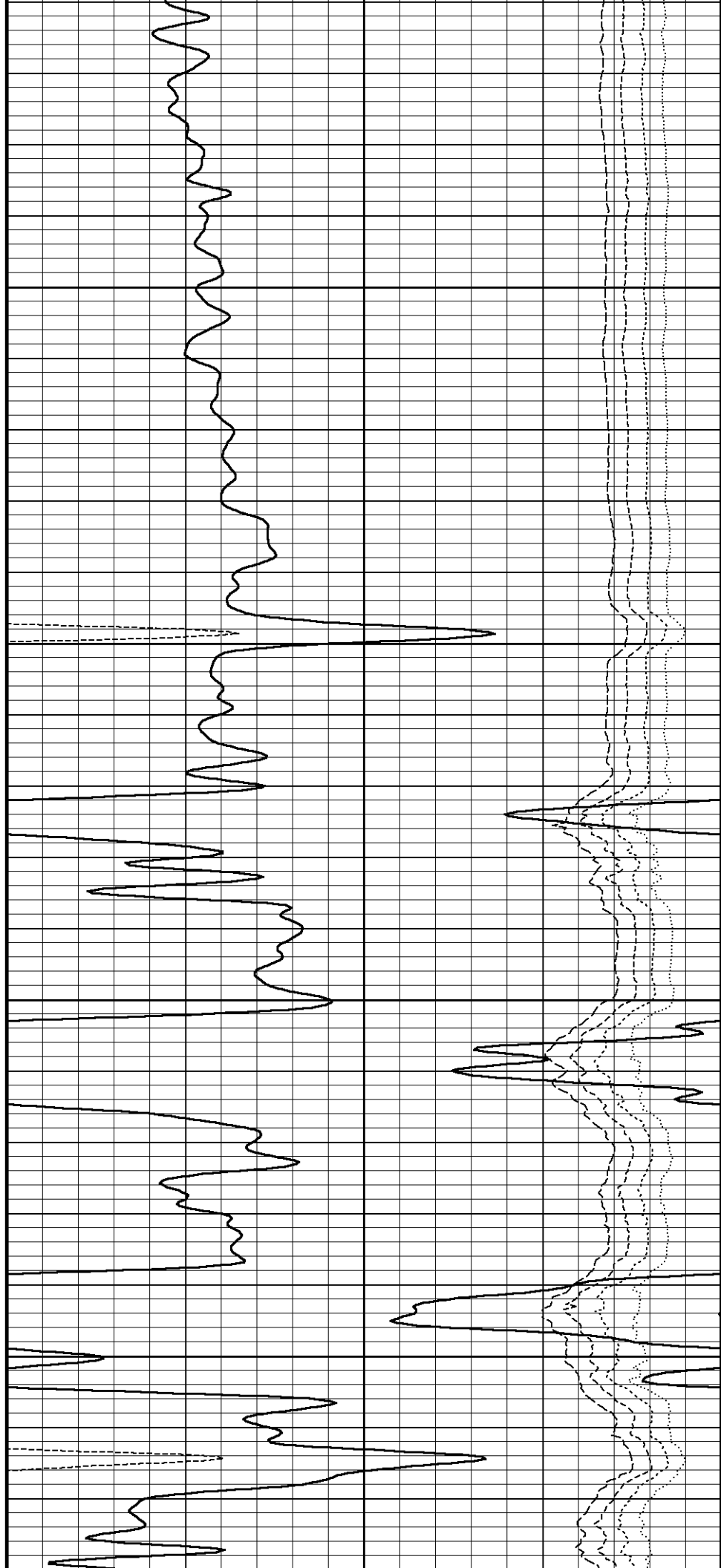
90°

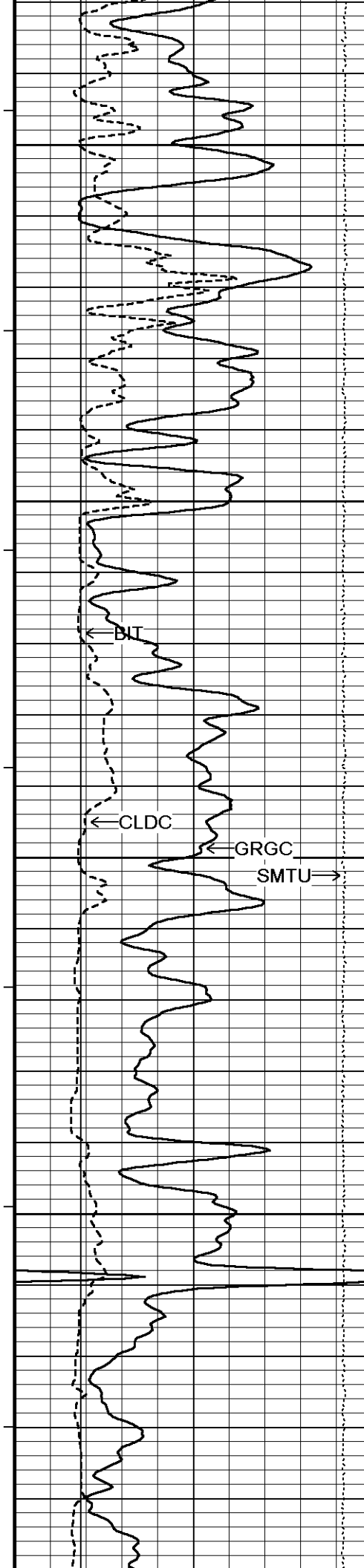
84°

95°

85°

100°





85°

1050

85°

1100

85°

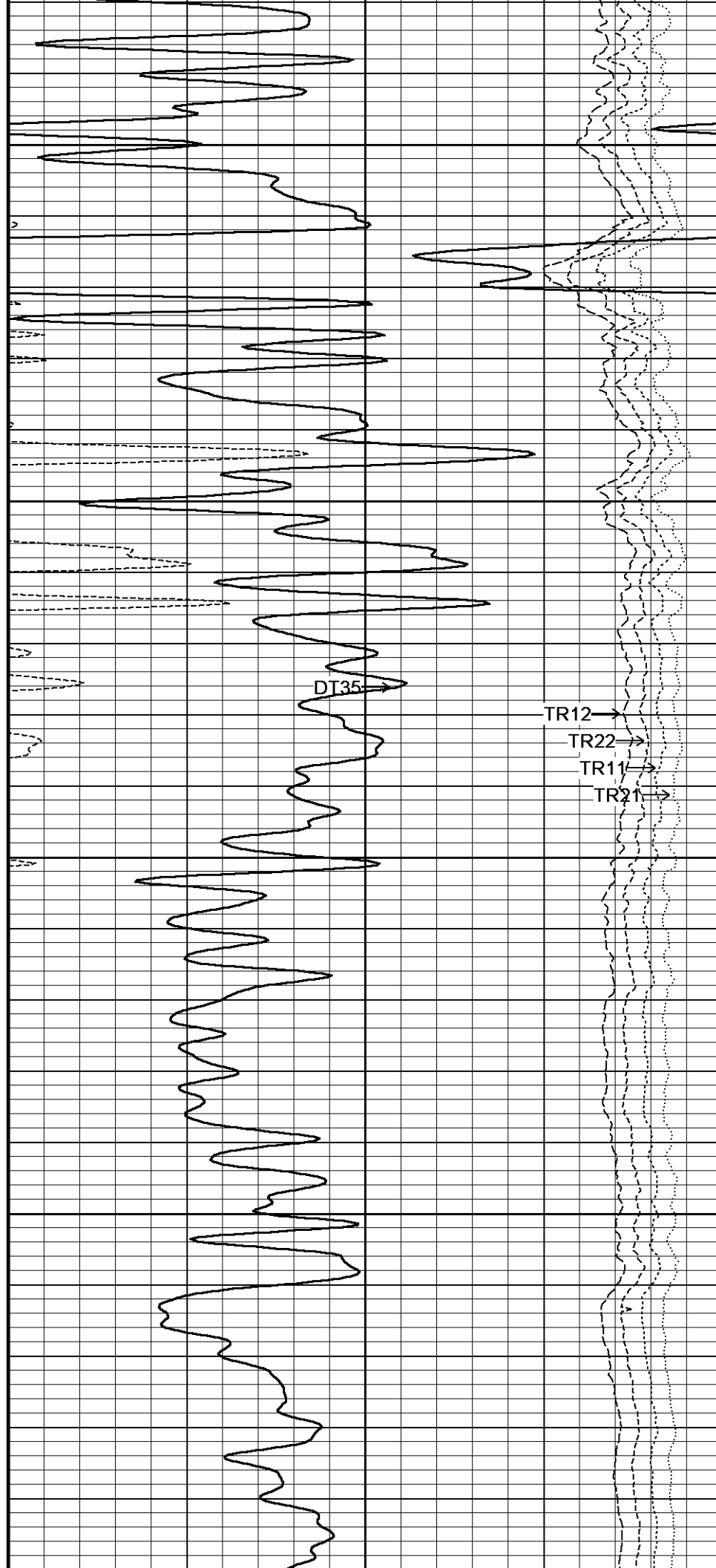
1150

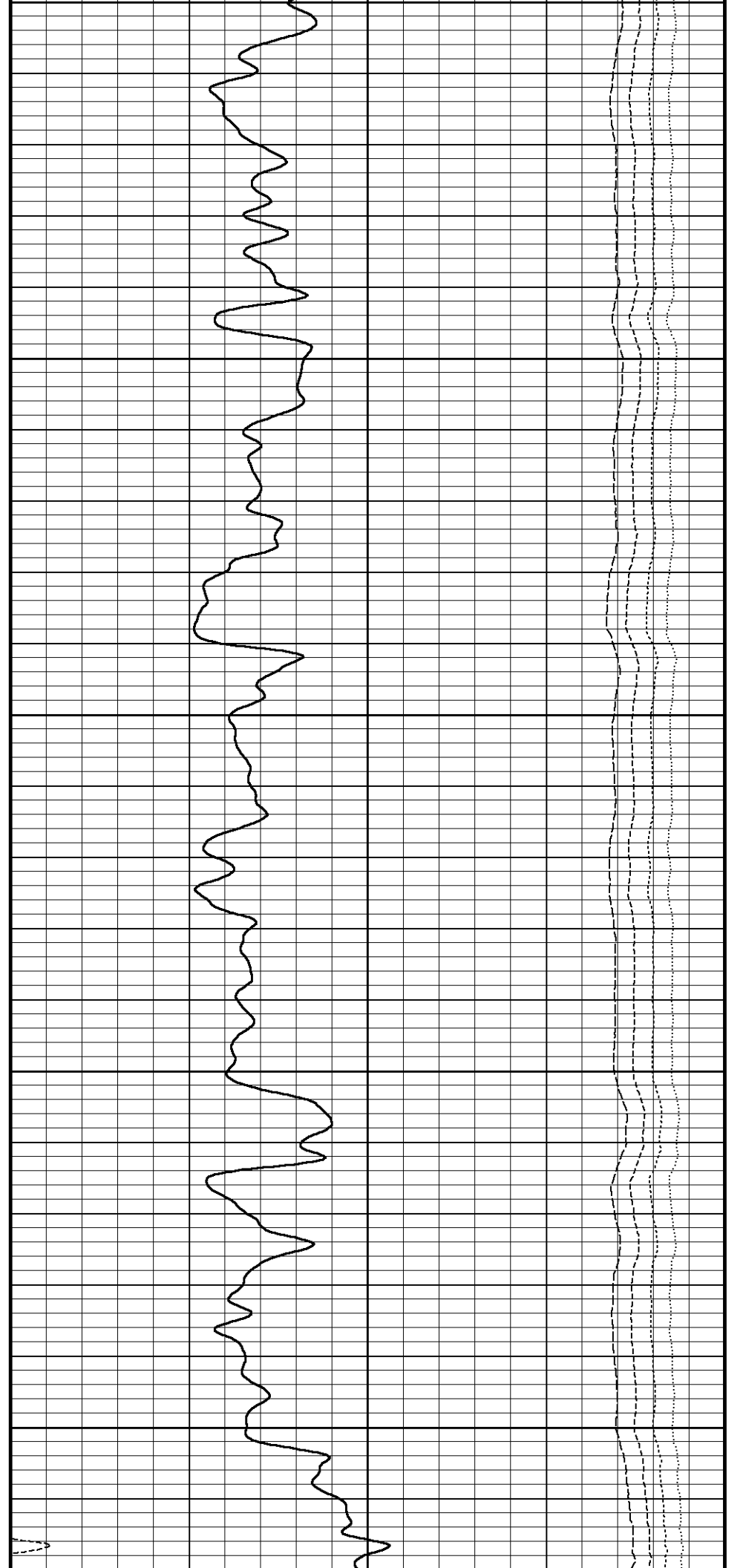
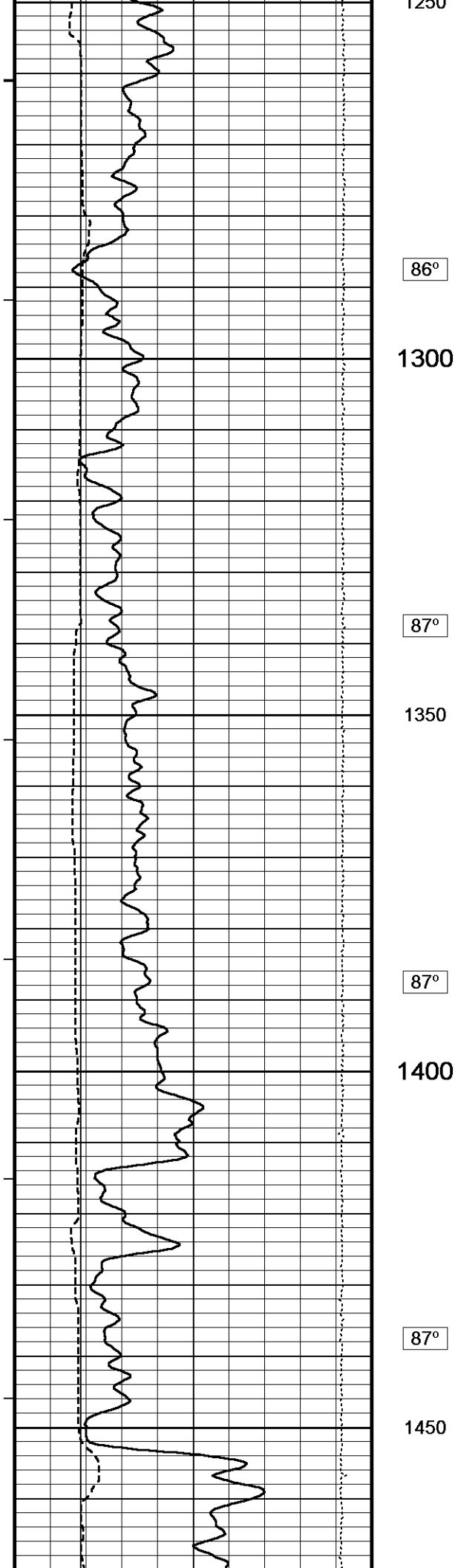
85°

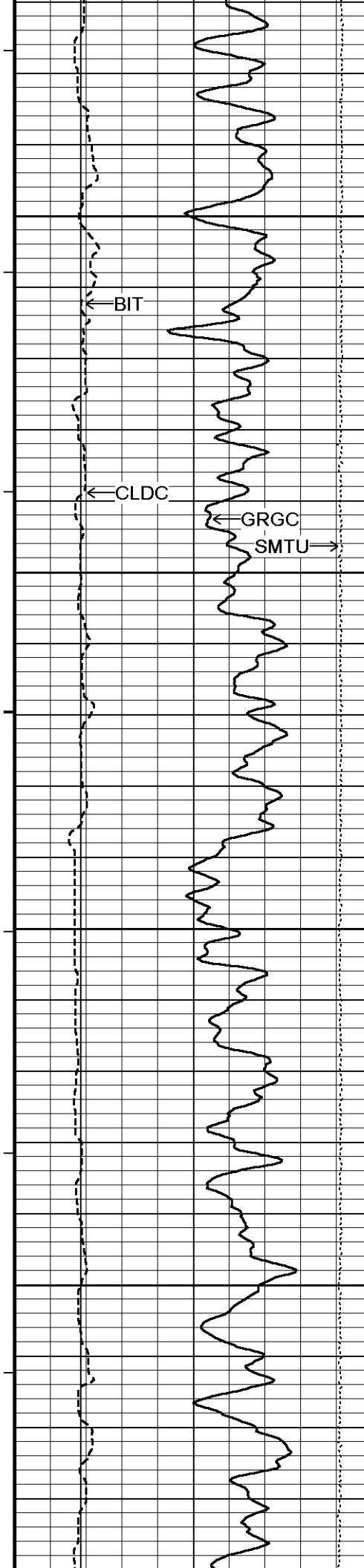
1200

85°

1250







88°

1500

88°

1550

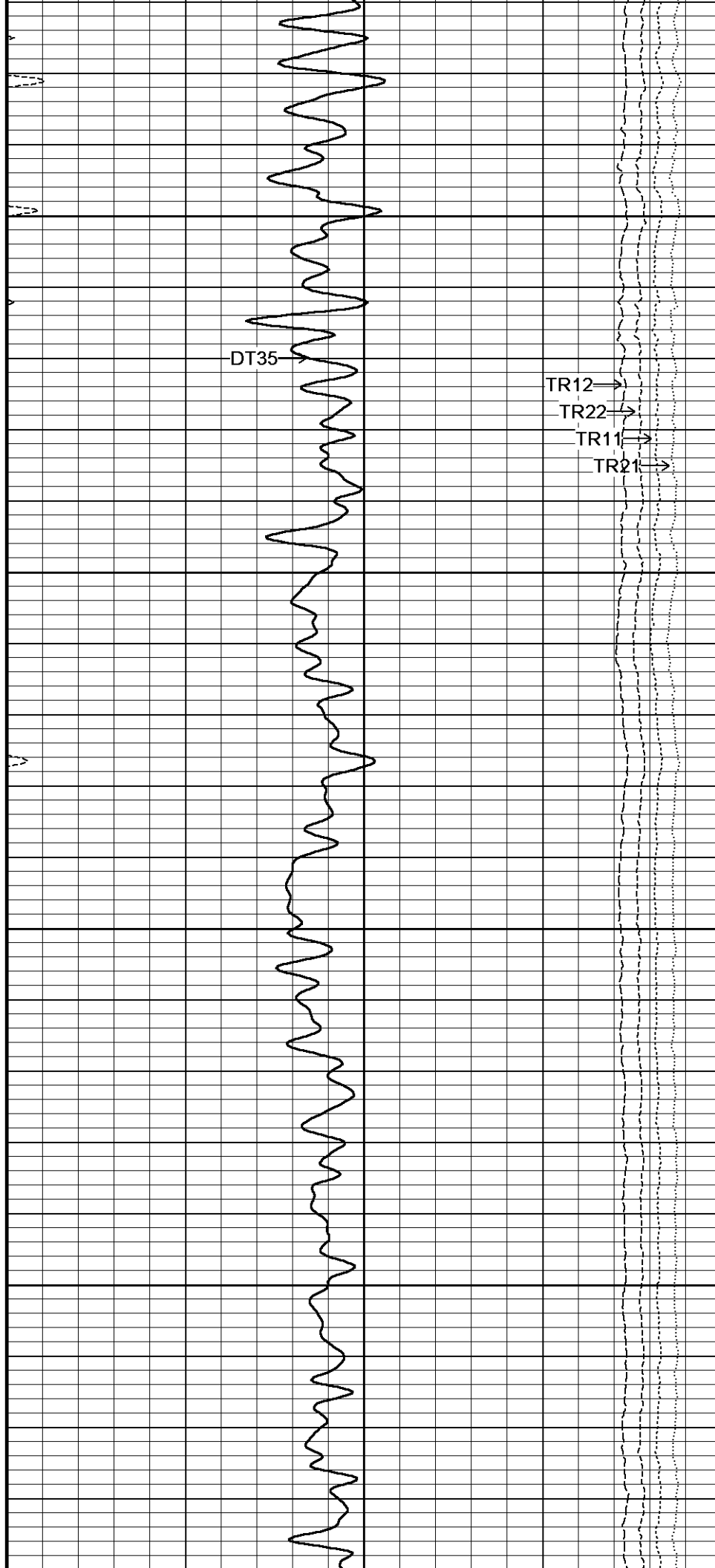
88°

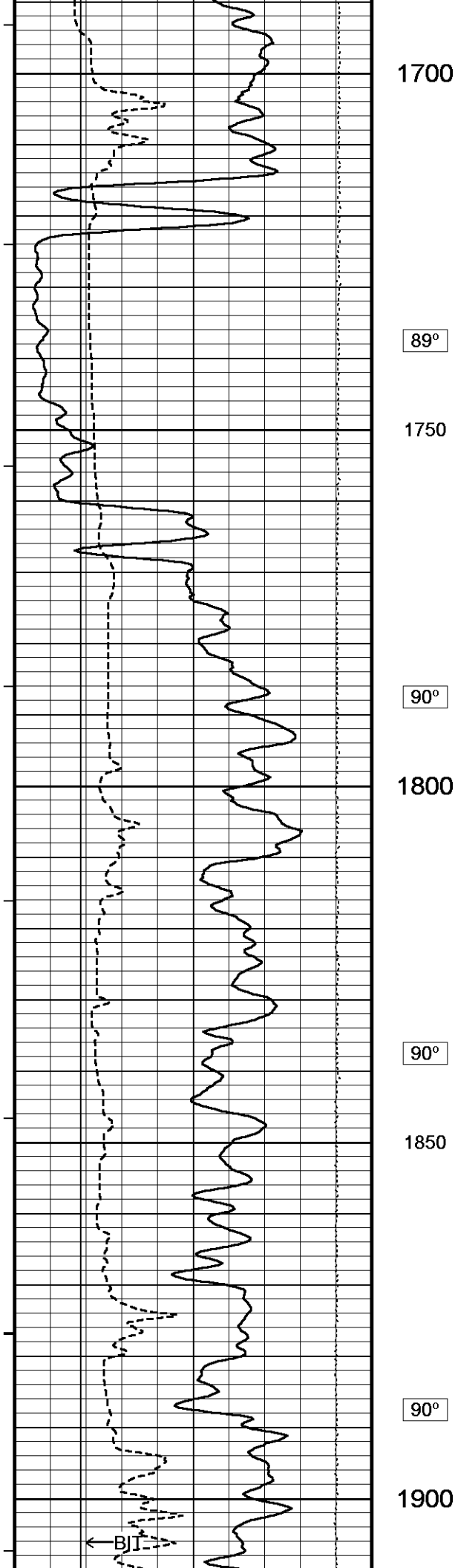
1600

89°

1650

89°





1700

89°

1750

90°

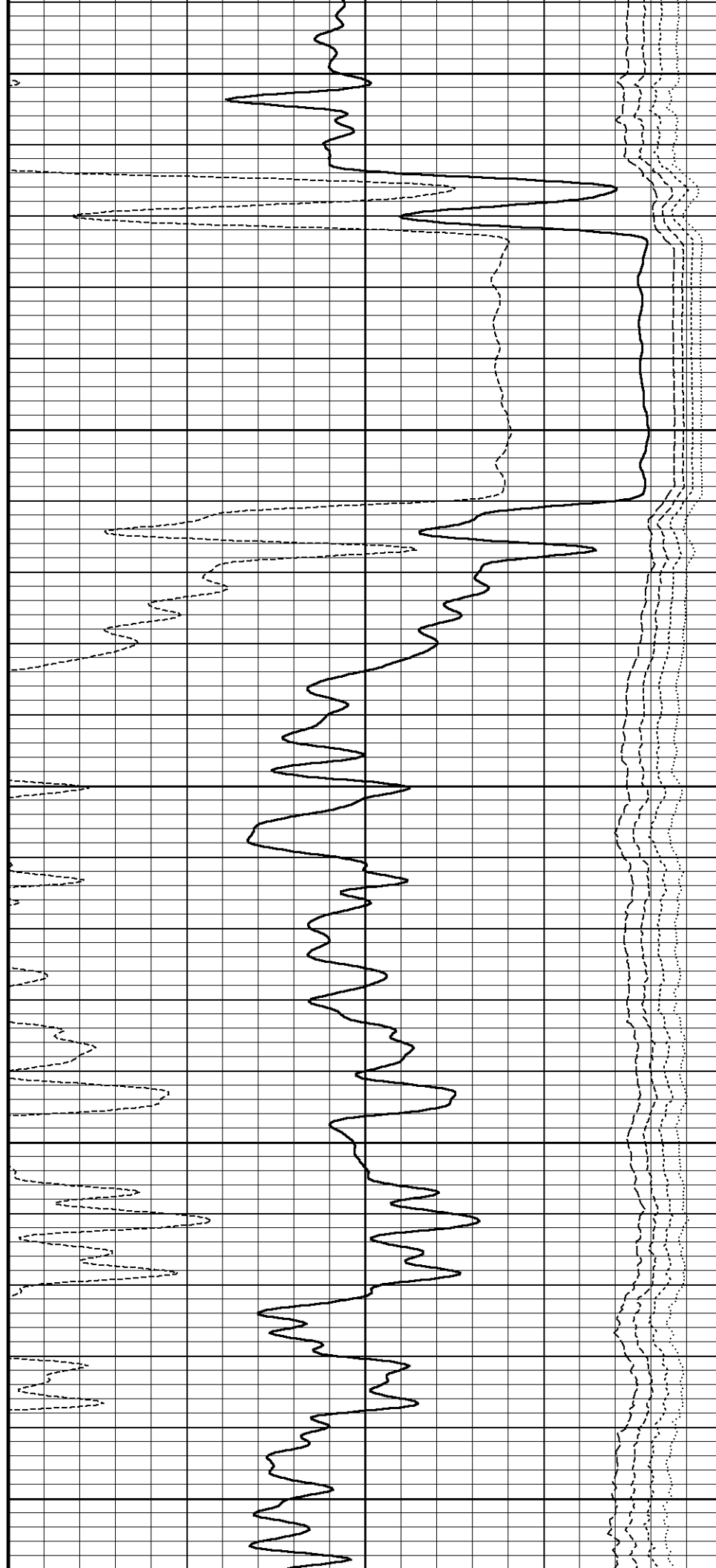
1800

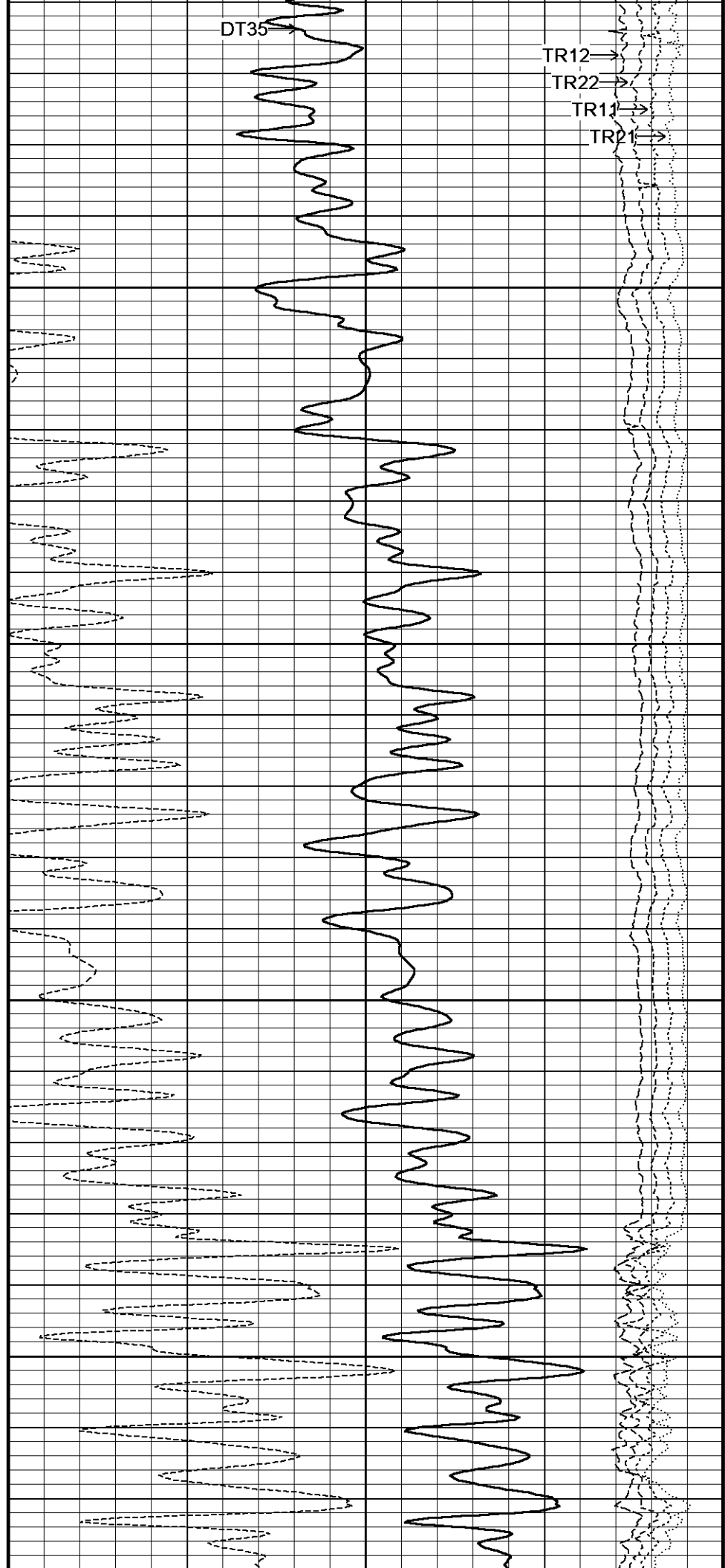
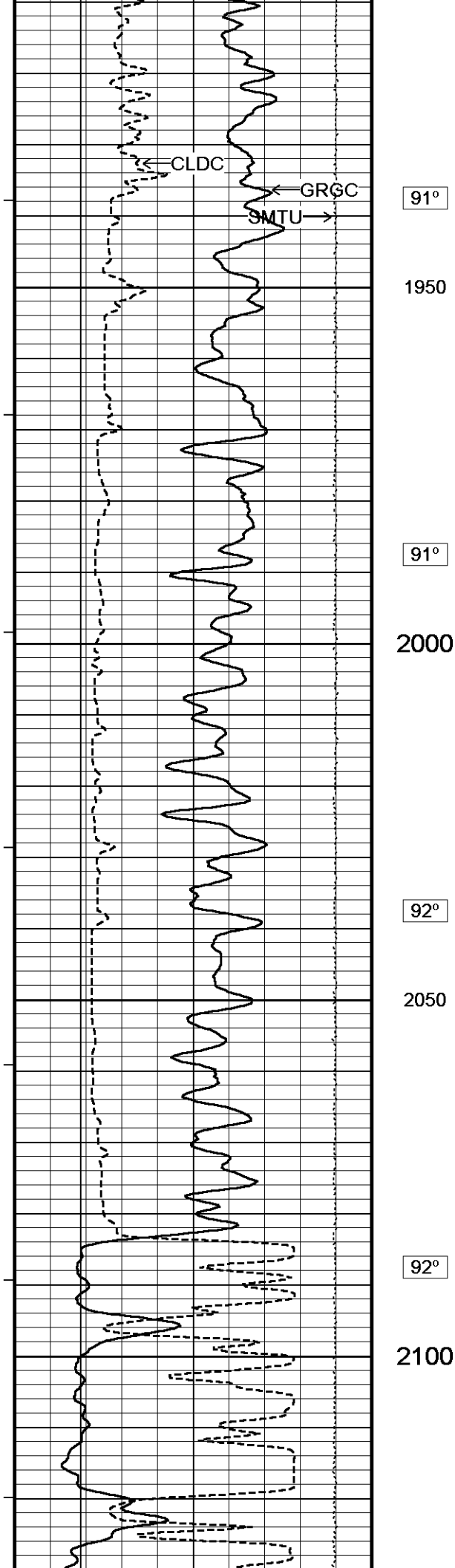
90°

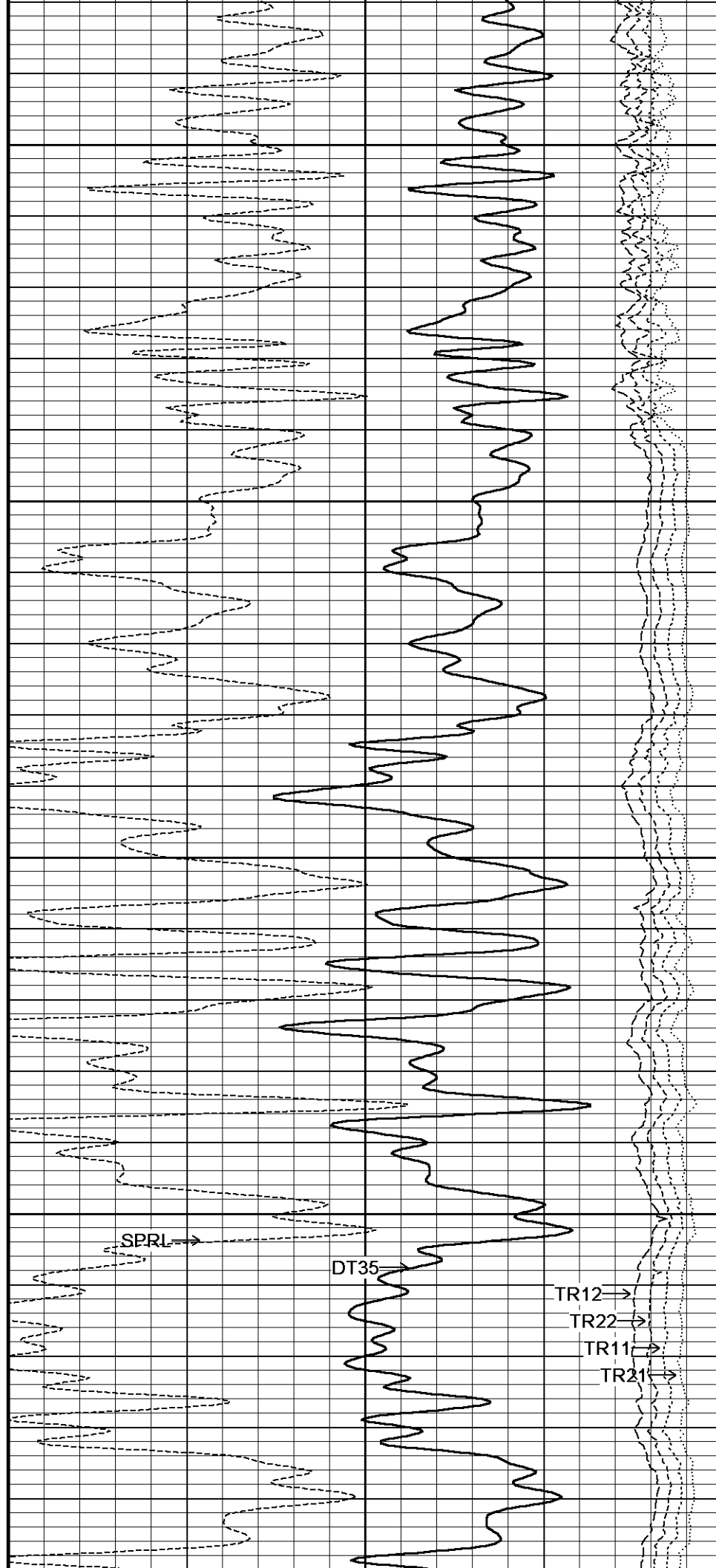
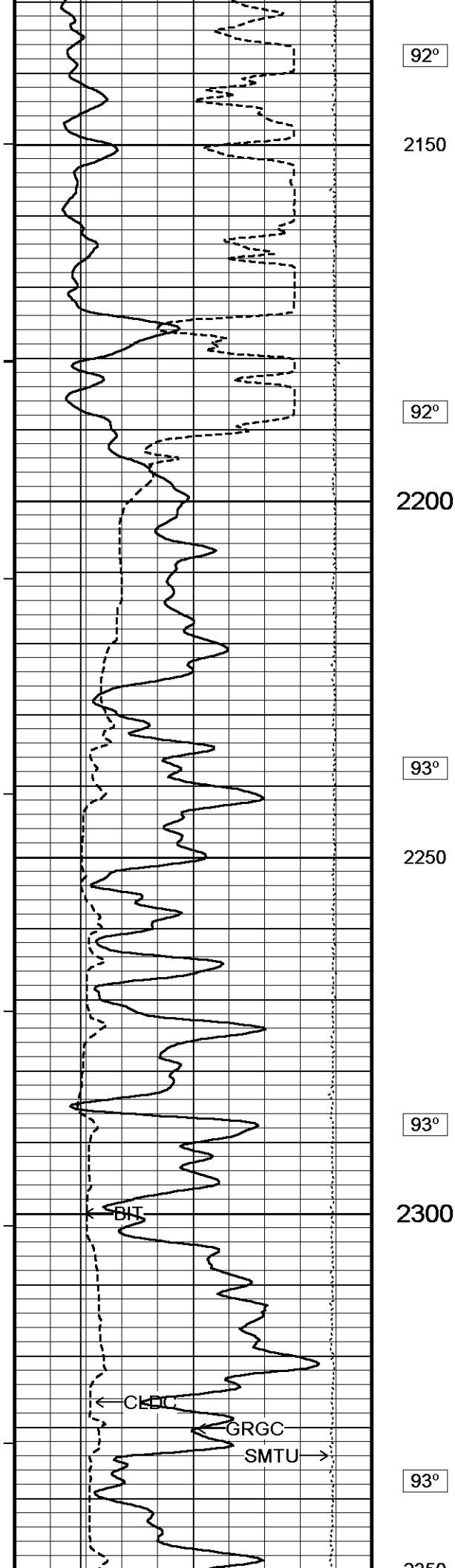
1850

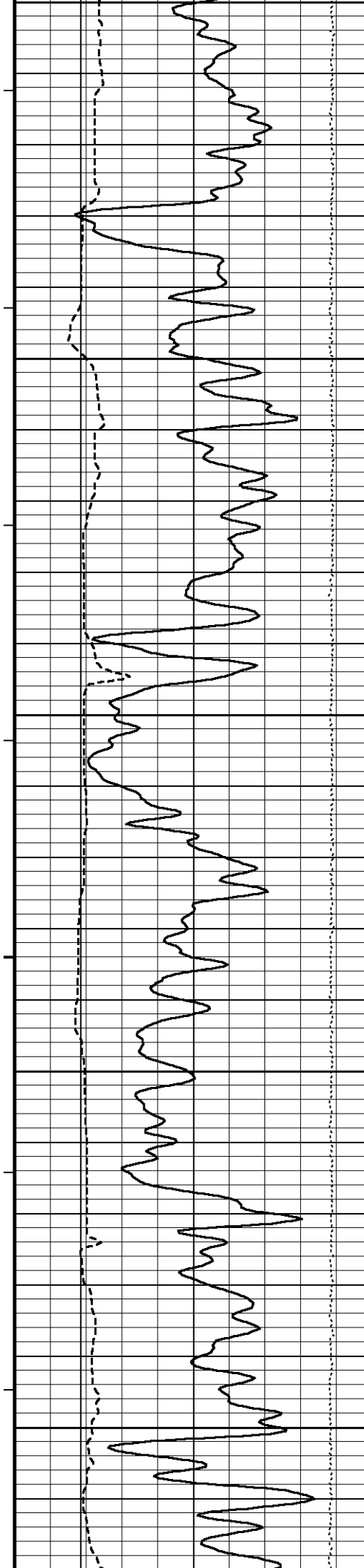
90°

1900









2350

94°

2400

94°

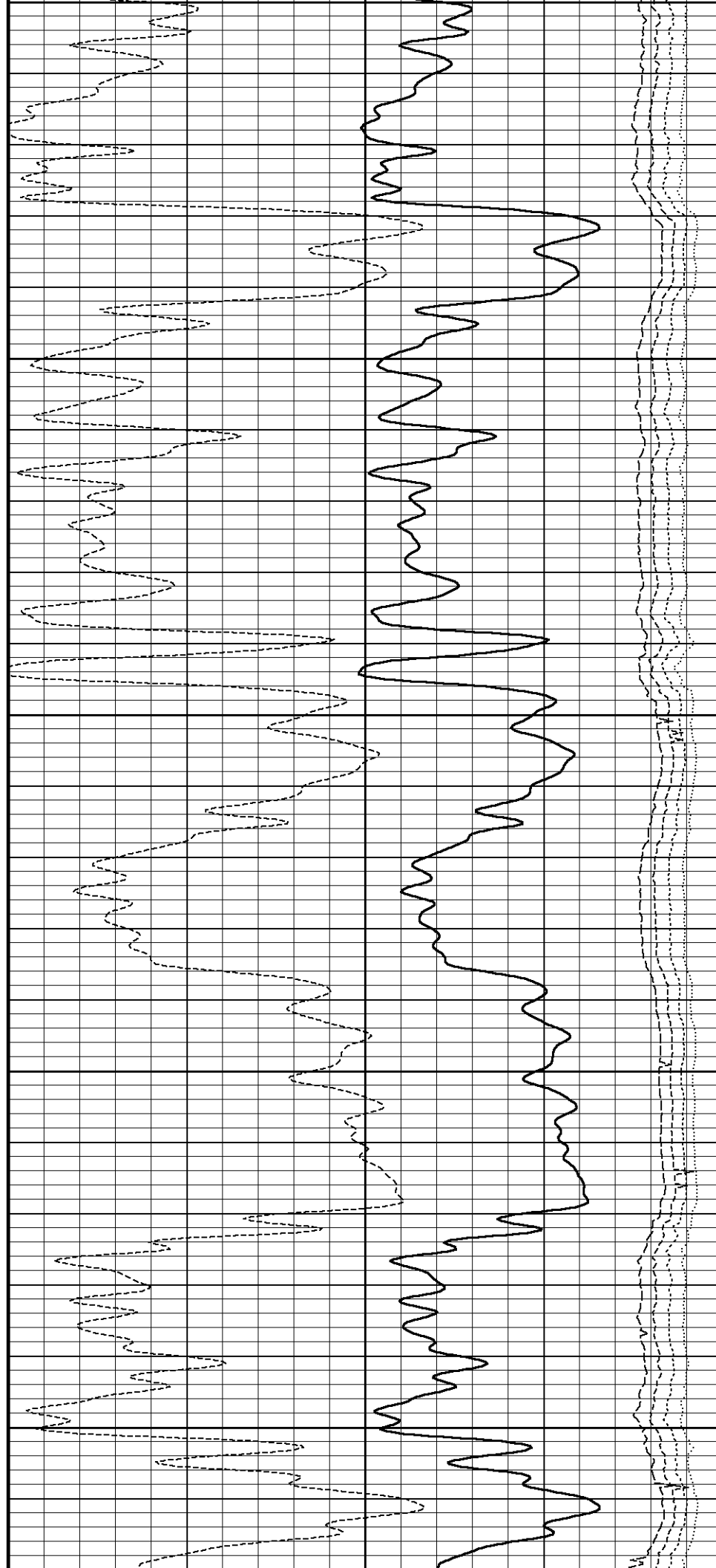
2450

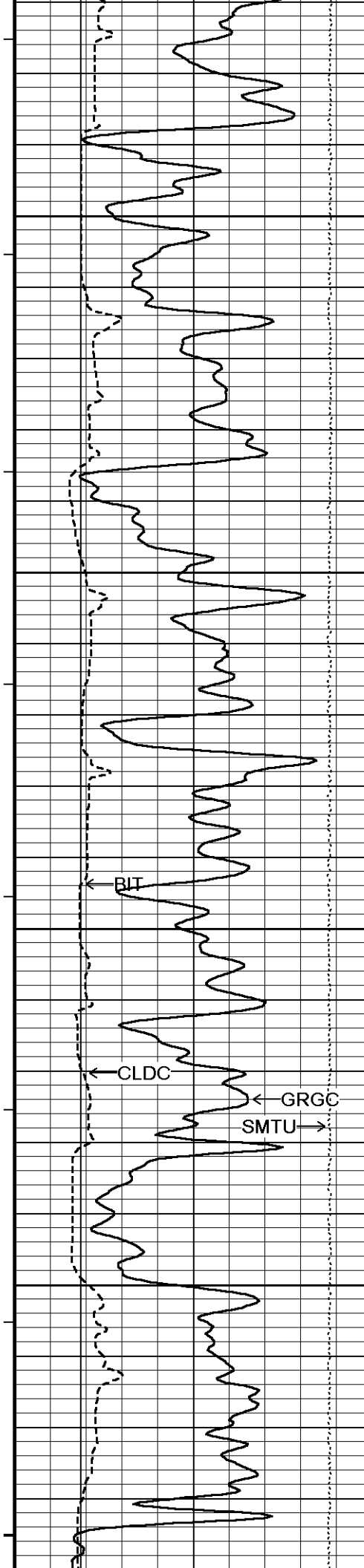
94°

2500

94°

2550





95°

2600

95°

2650

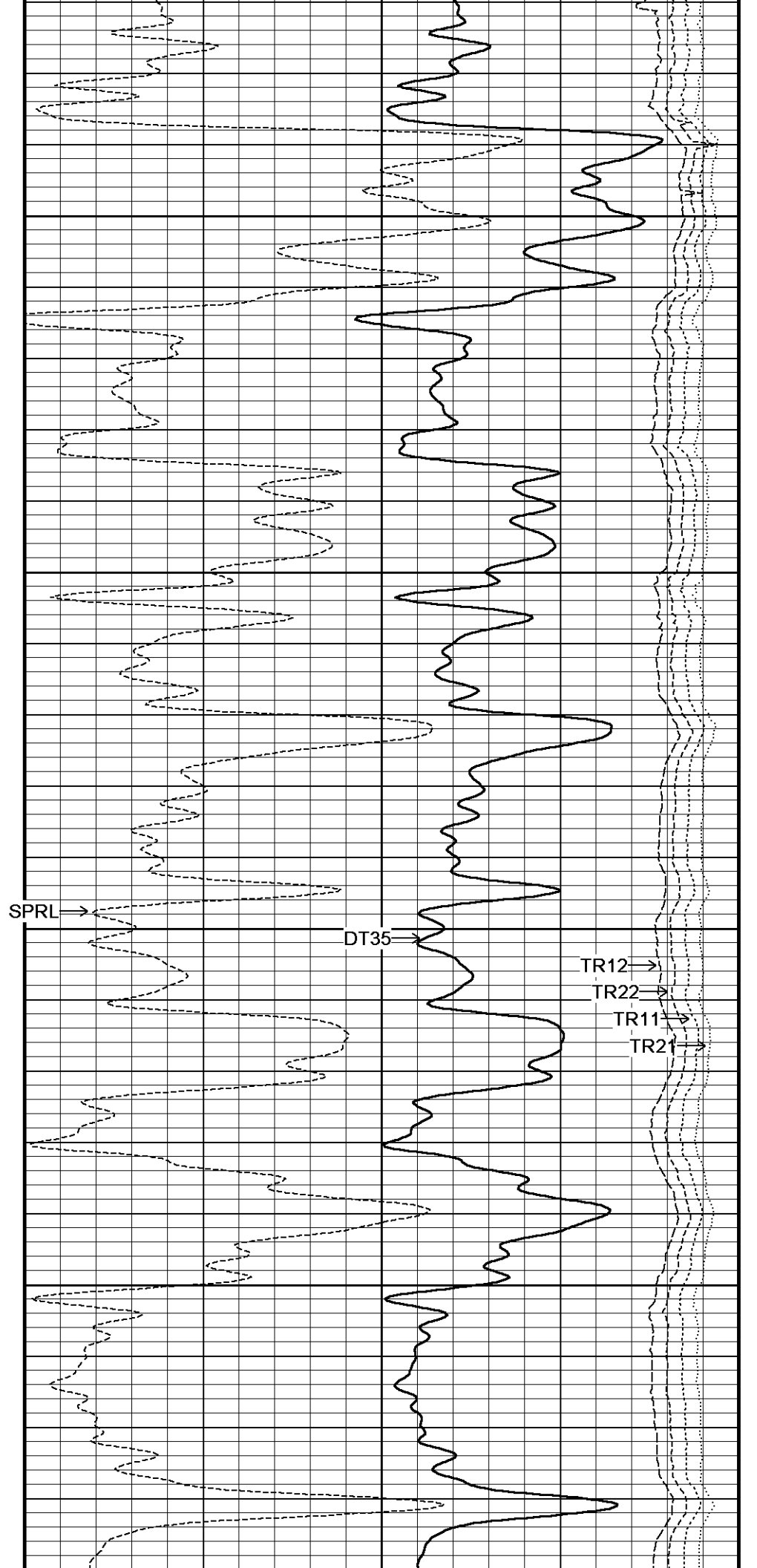
96°

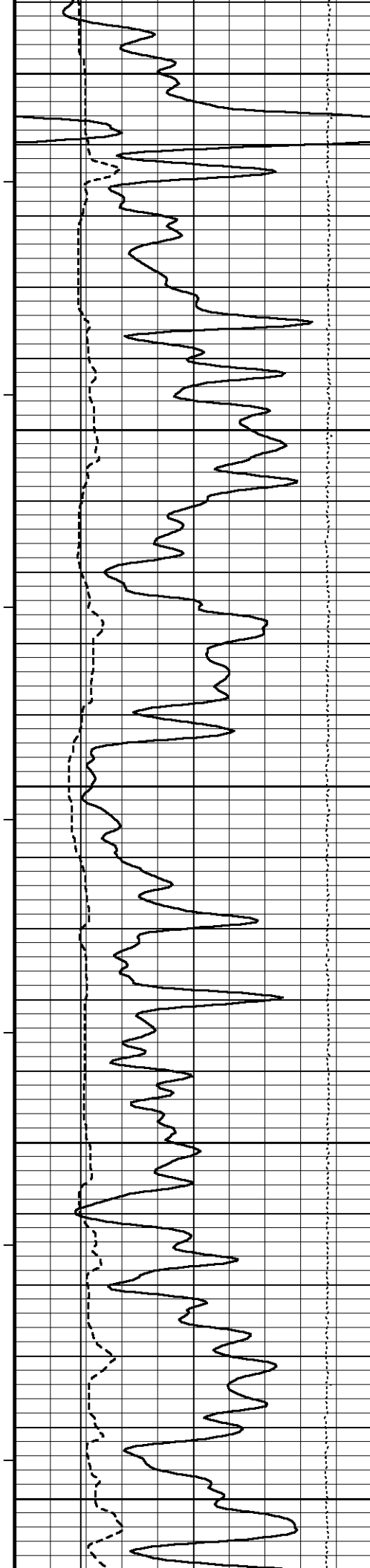
2700

96°

2750

96°





2800

97°

2850

97°

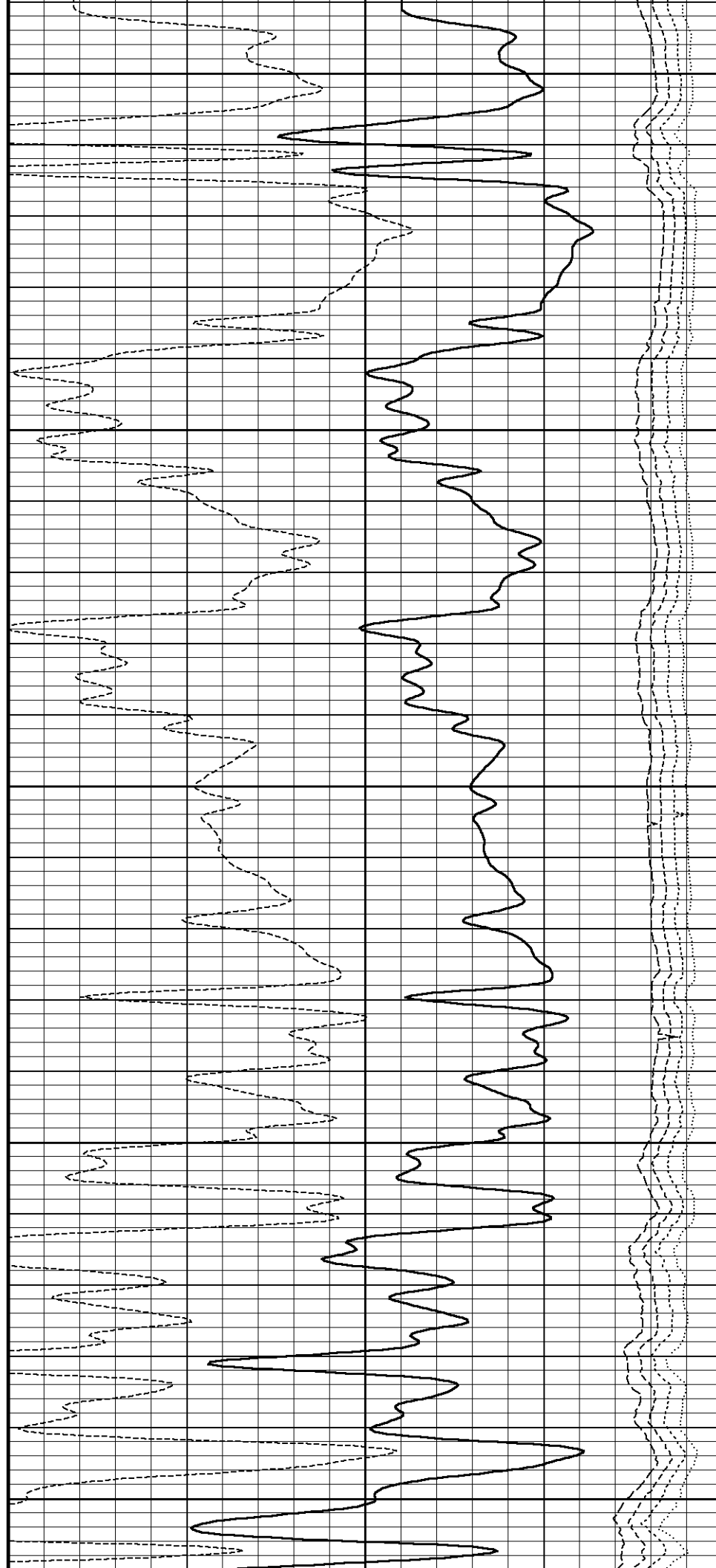
2900

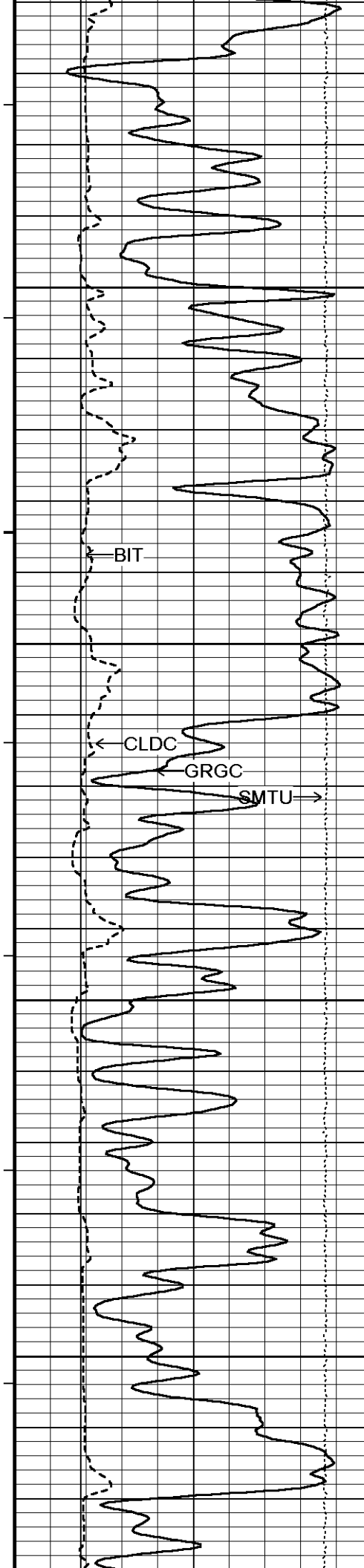
97°

2950

98°

3000





98°

3050

99°

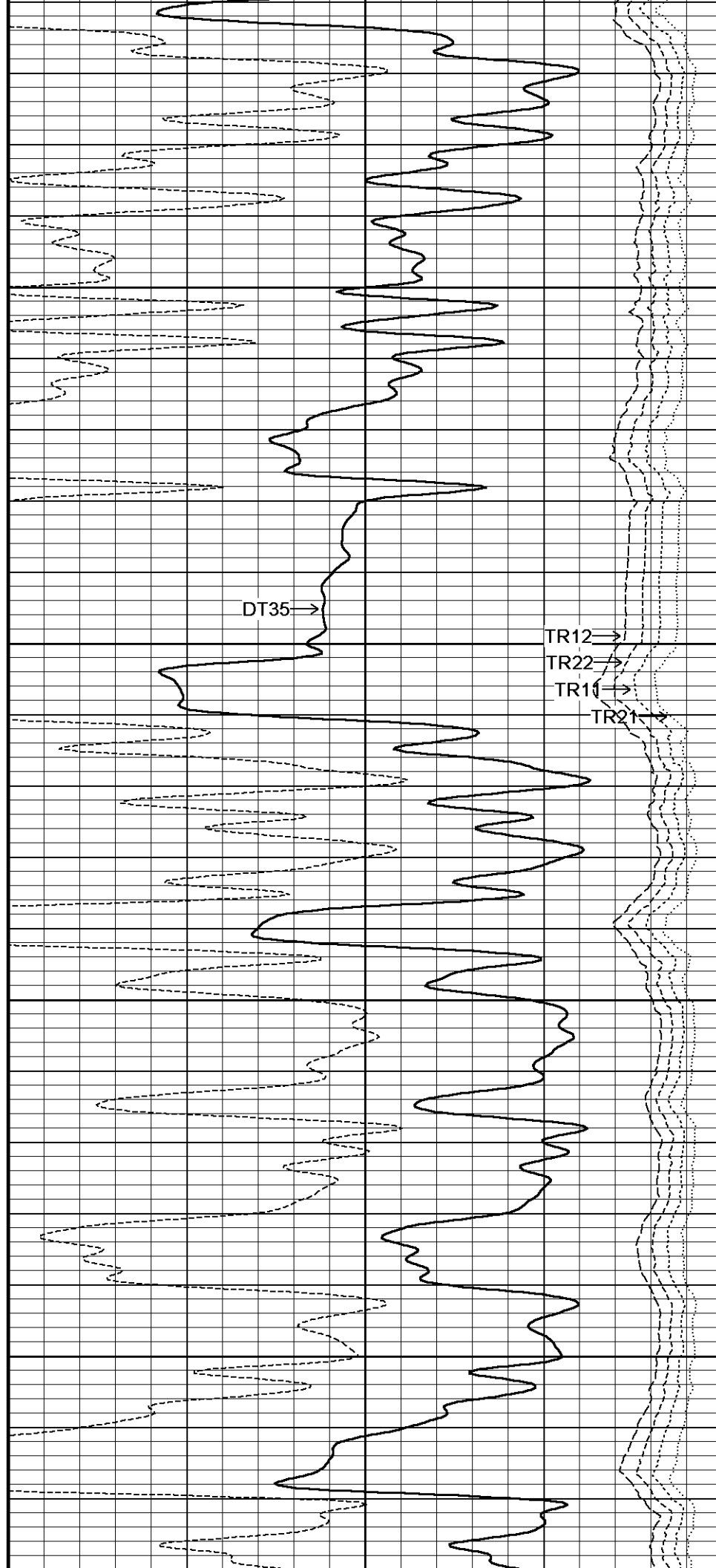
3100

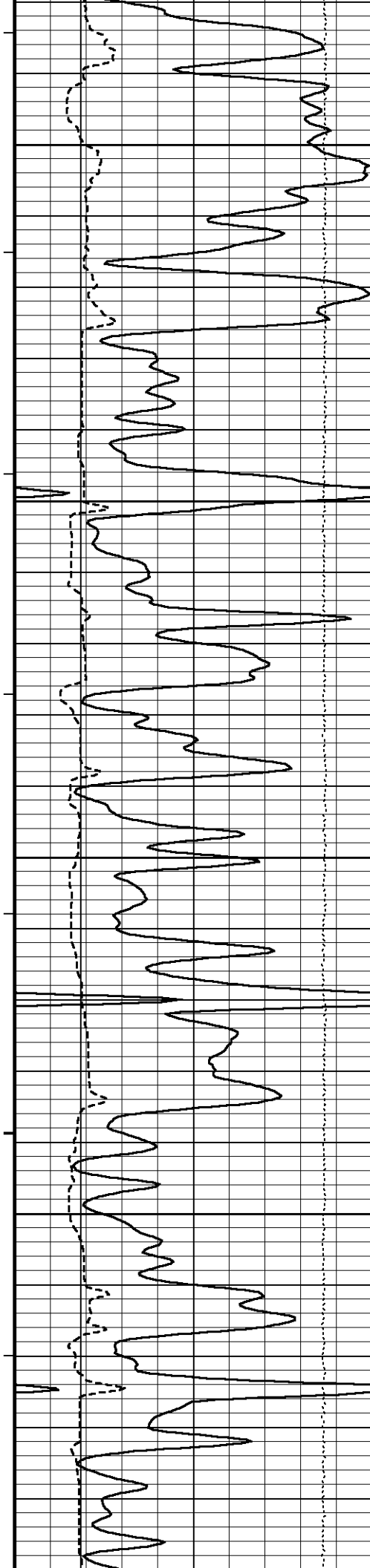
99°

3150

100°

3200





100°

3250

101°

3300

101°

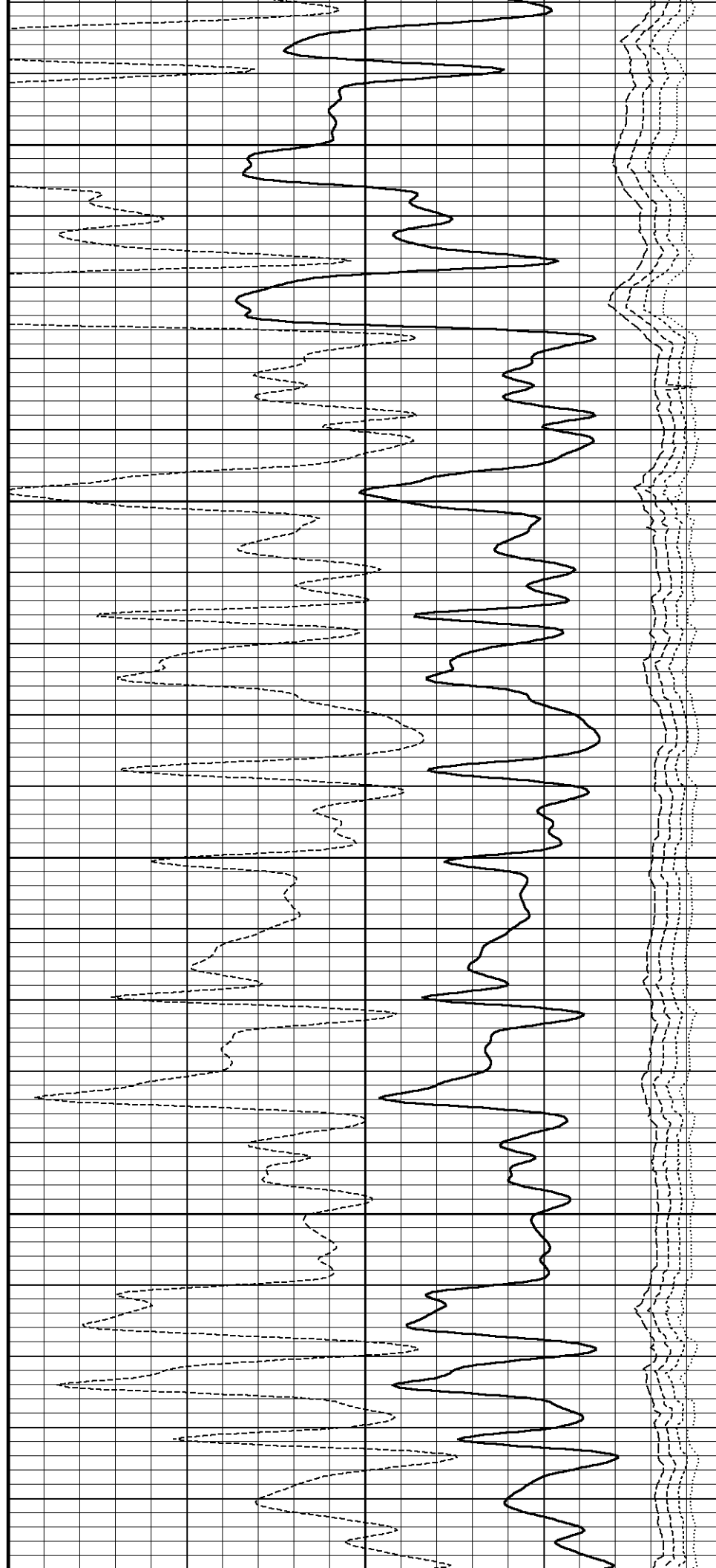
3350

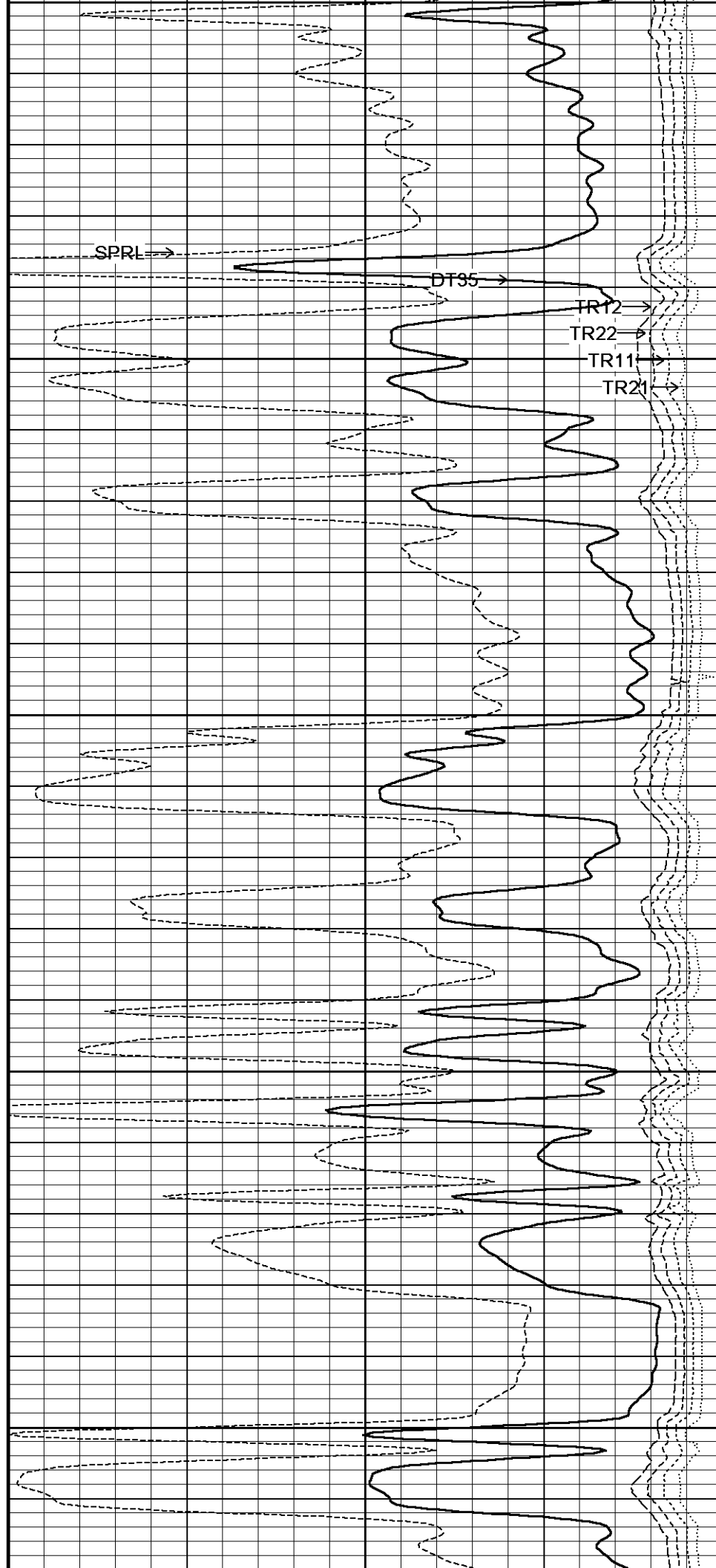
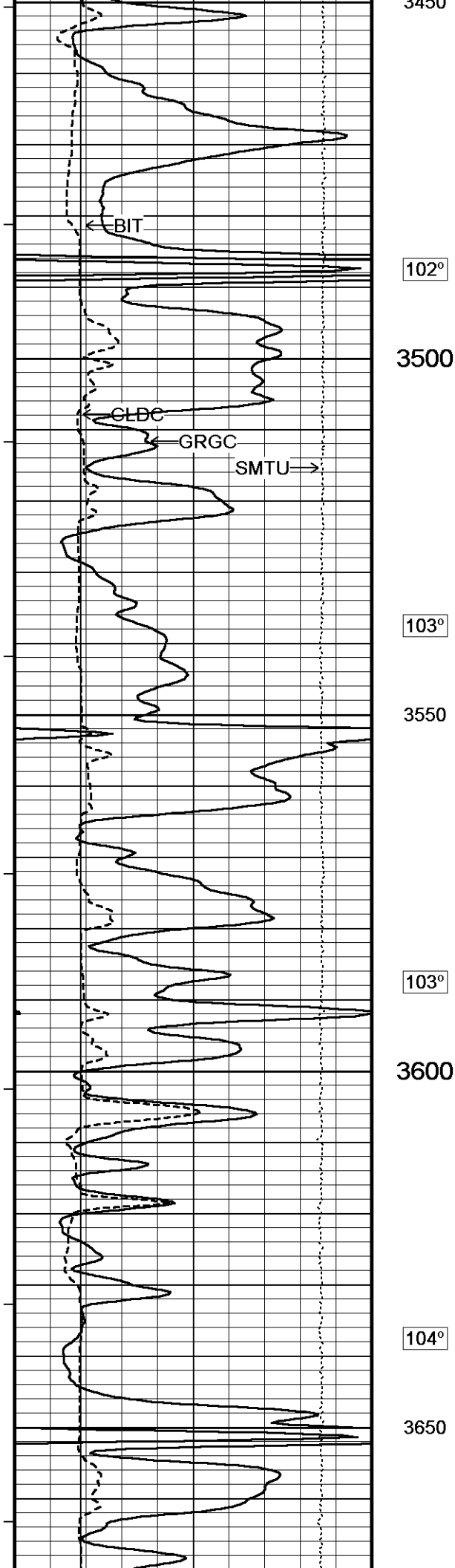
101°

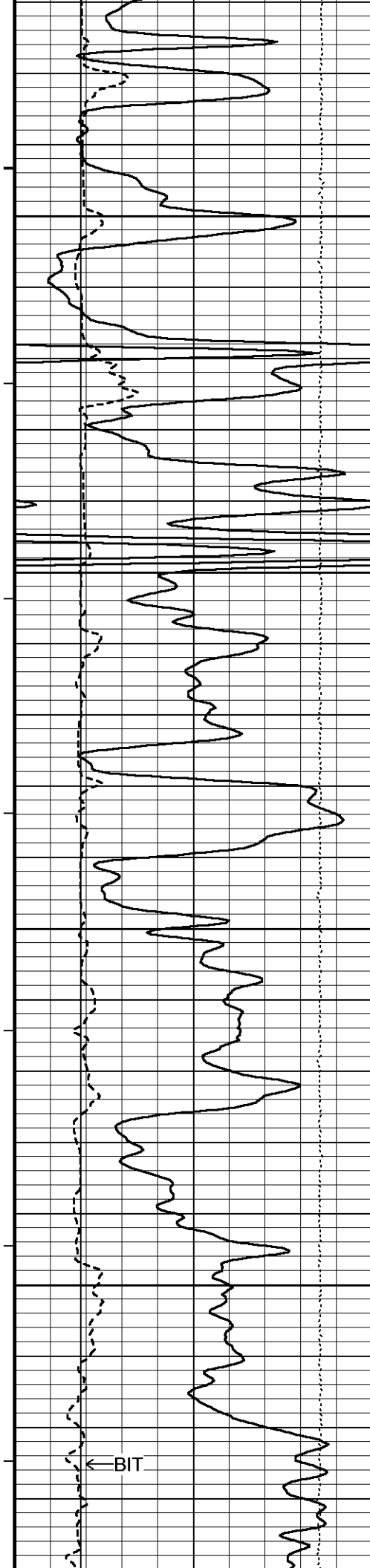
3400

102°

3450







105°

3700

105°

3750

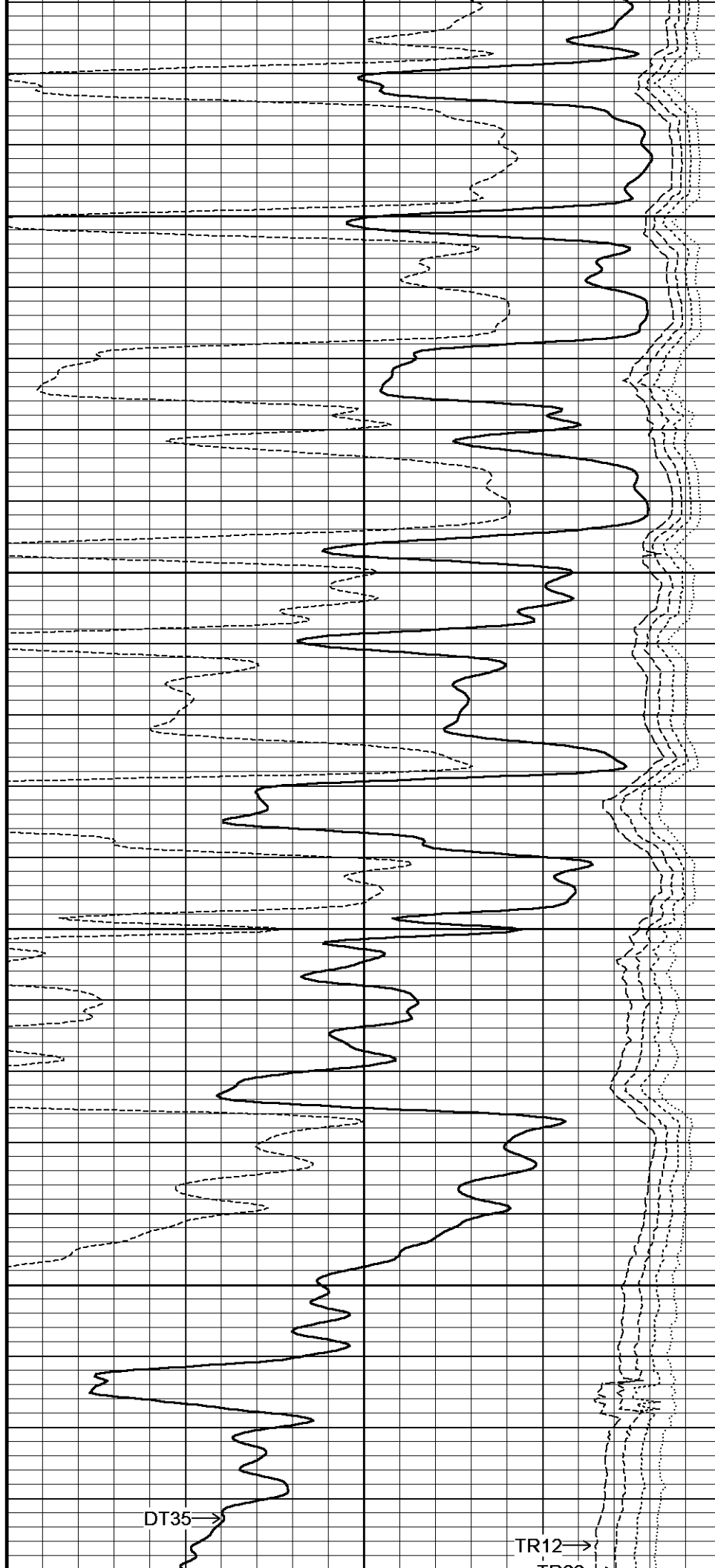
106°

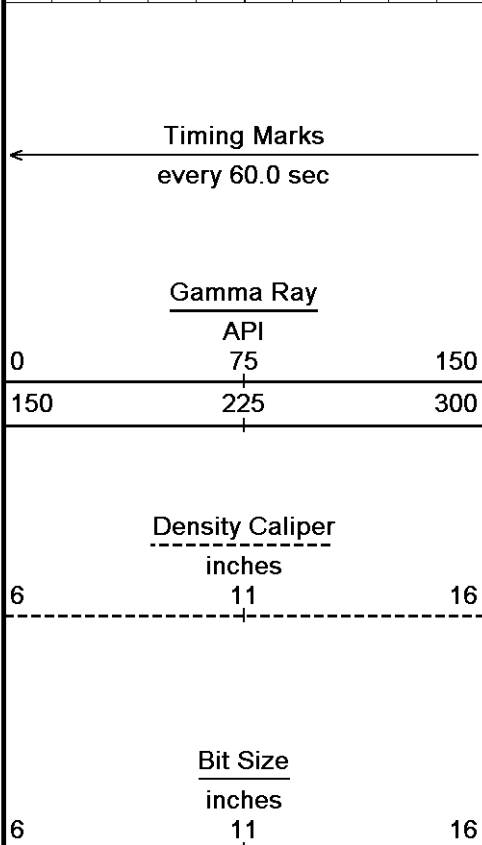
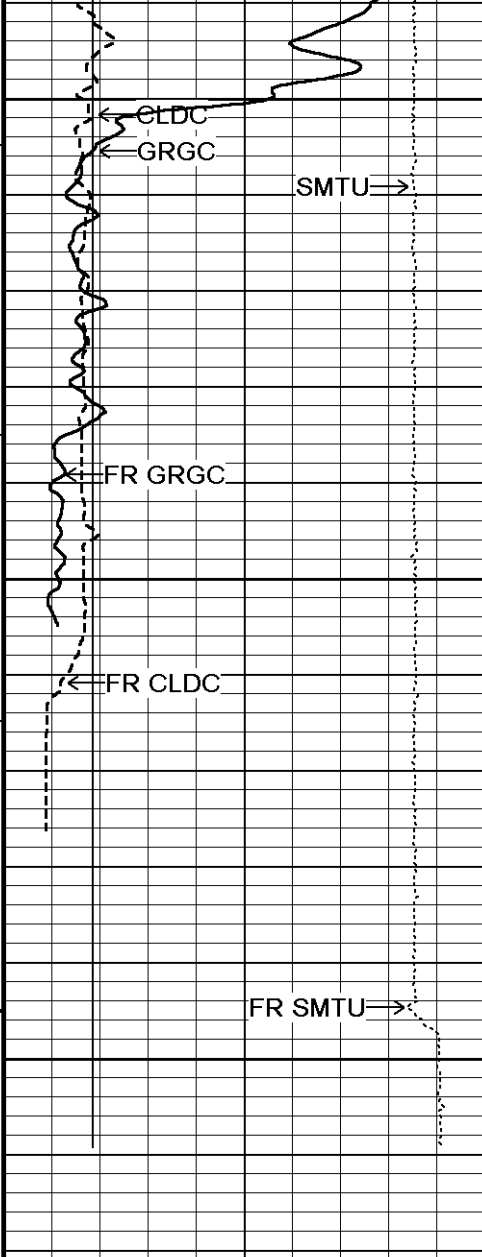
3800

106°

3850

108°





3900

107°

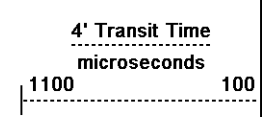
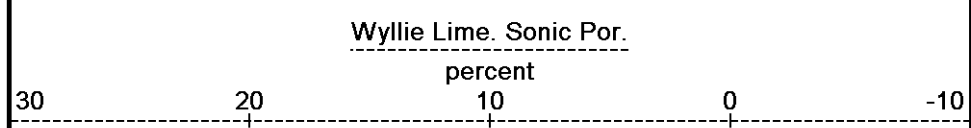
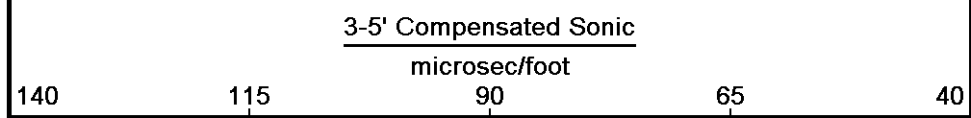
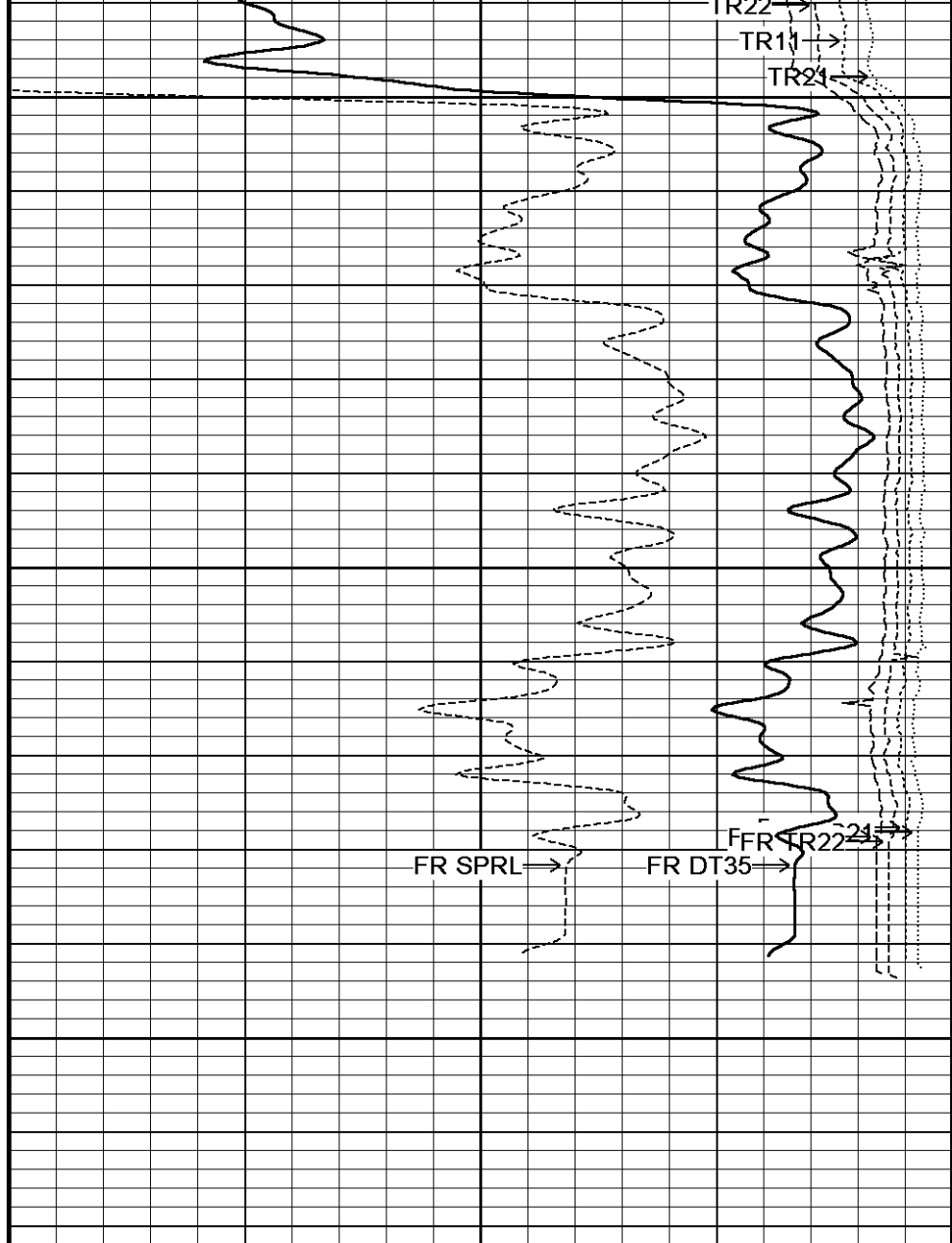
3950

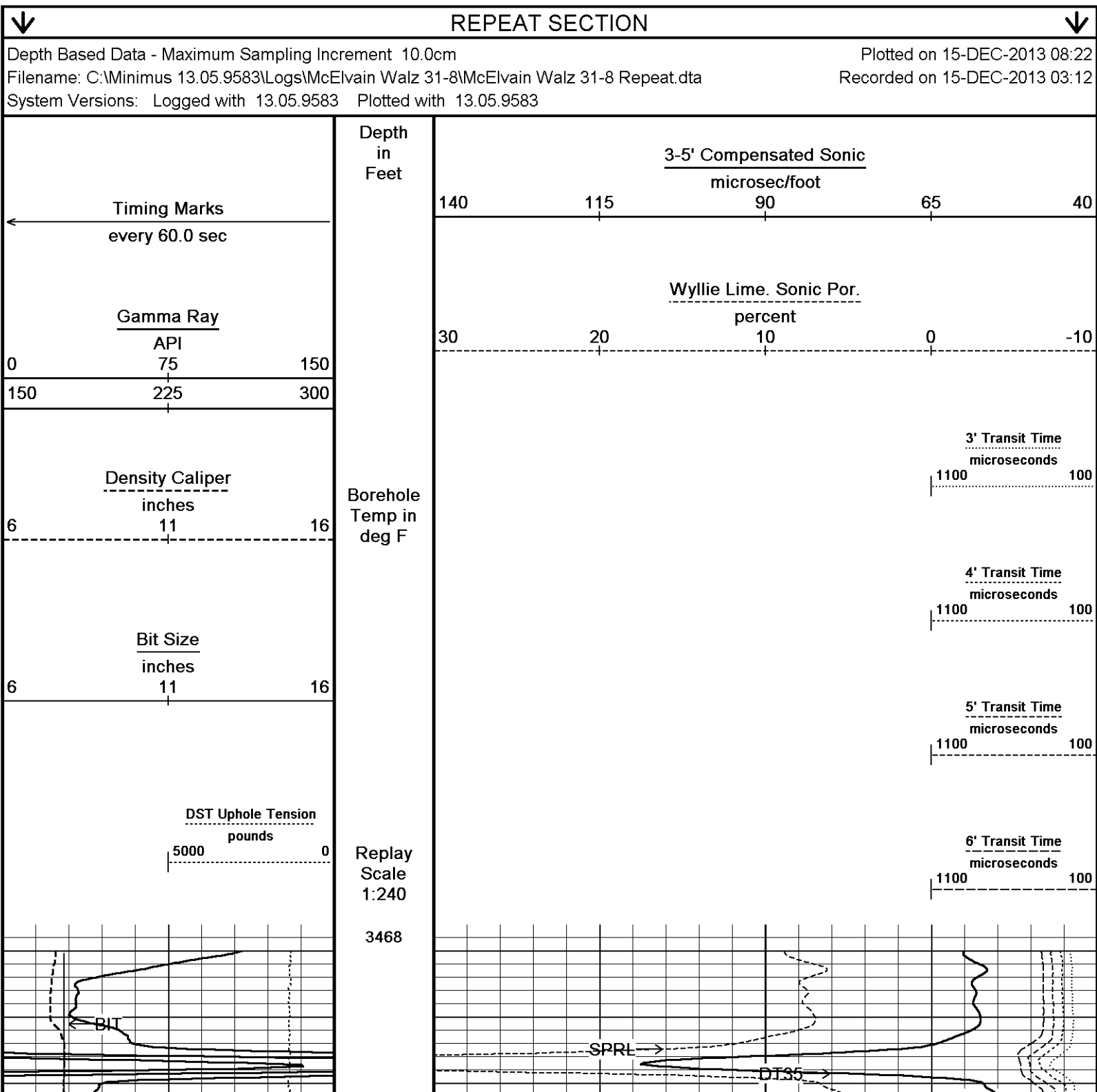
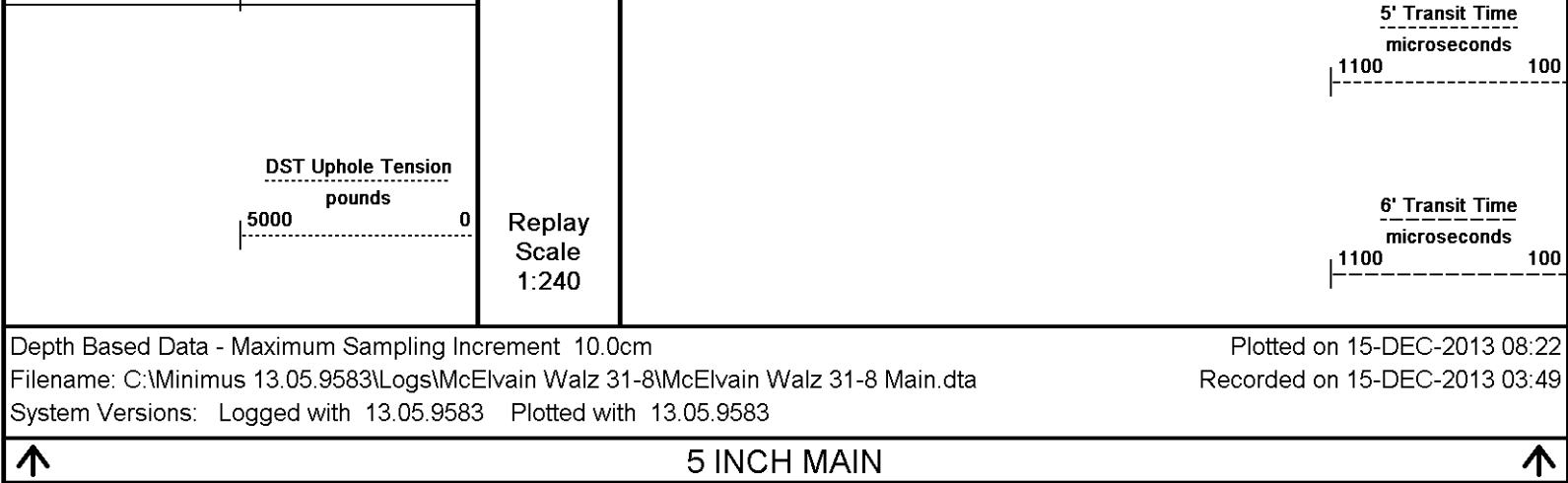
4000

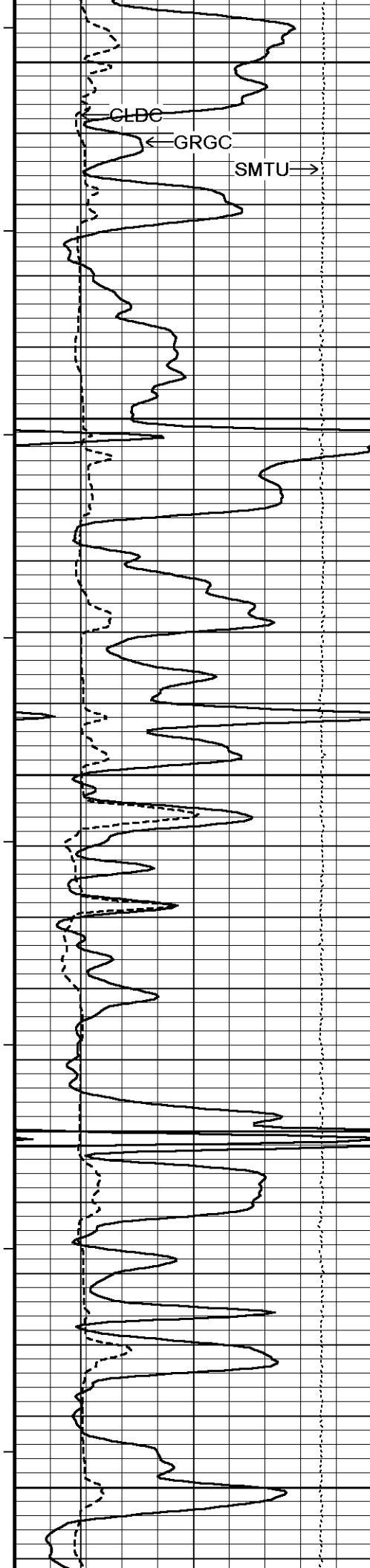
4020

Depth
In
Feet

Borehole
Temp in
deg F







3500

102°

3550

103°

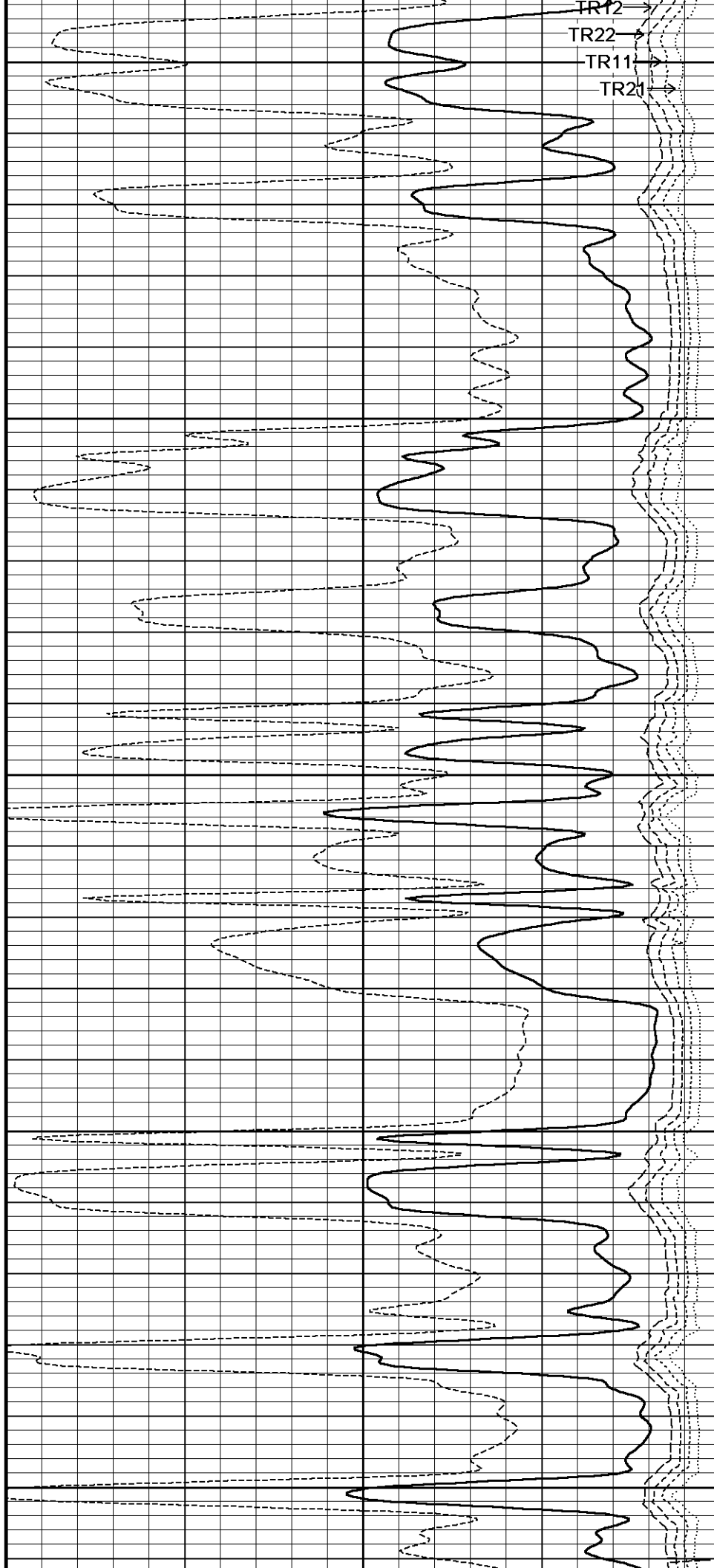
3600

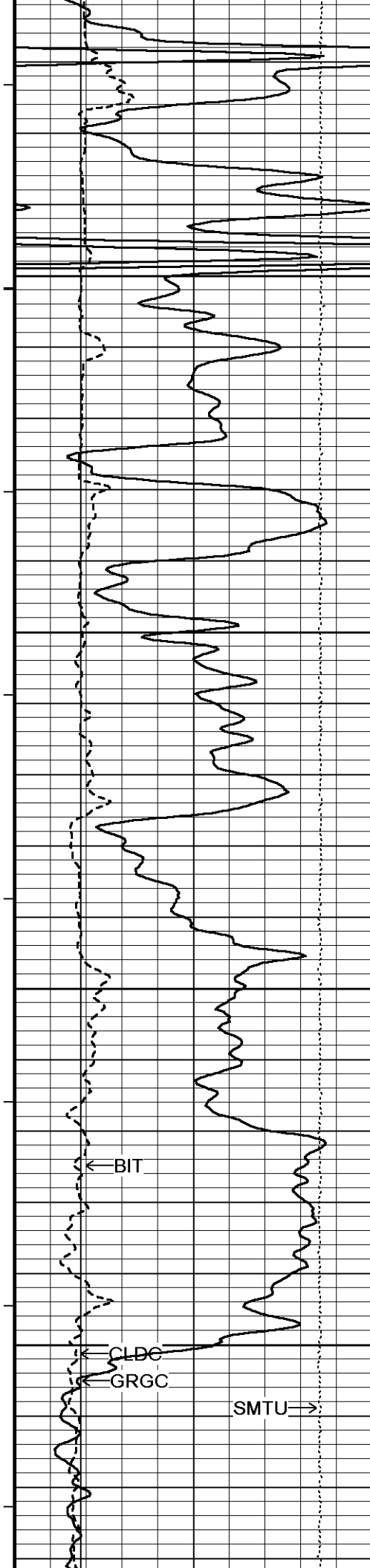
103°

3650

104°

3700





104°

3750

104°

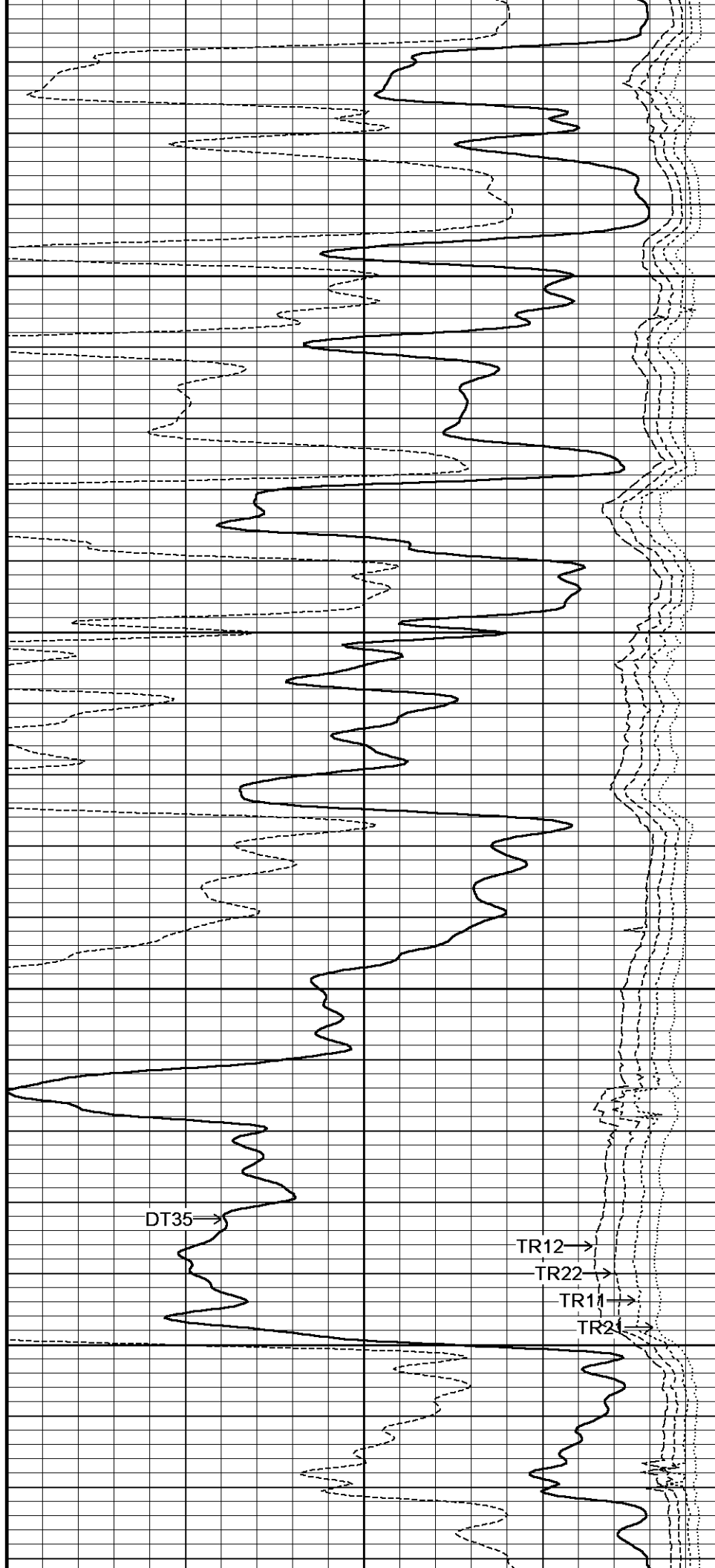
3800

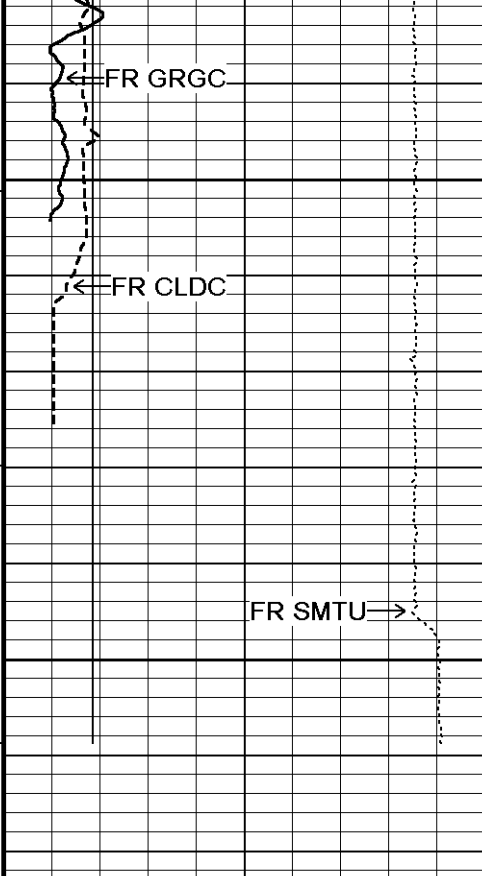
105°

3850

106°

3900





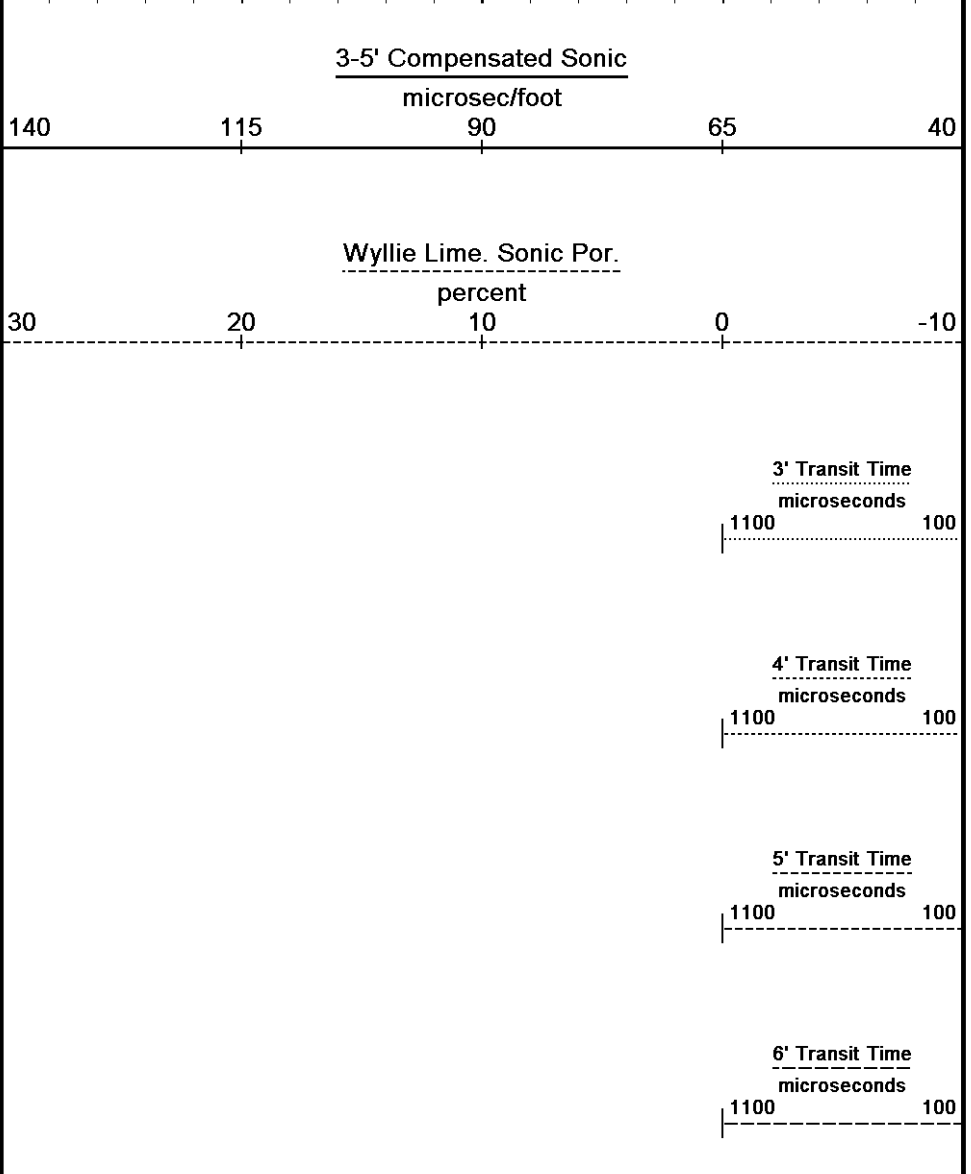
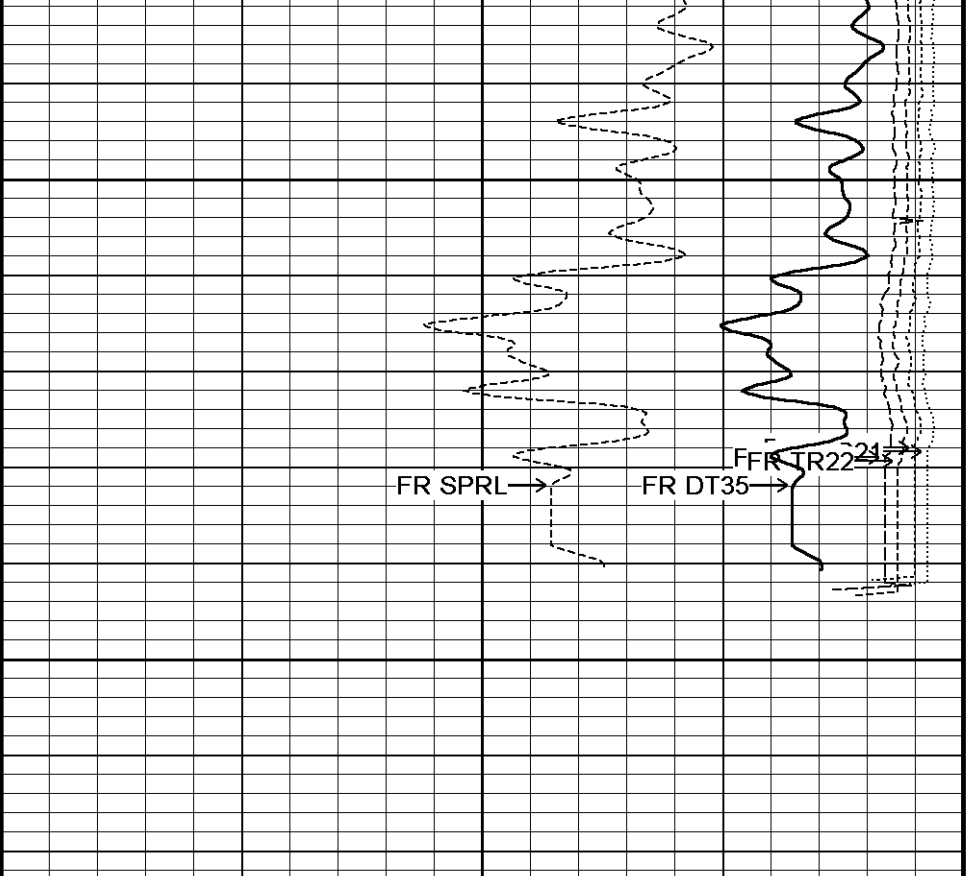
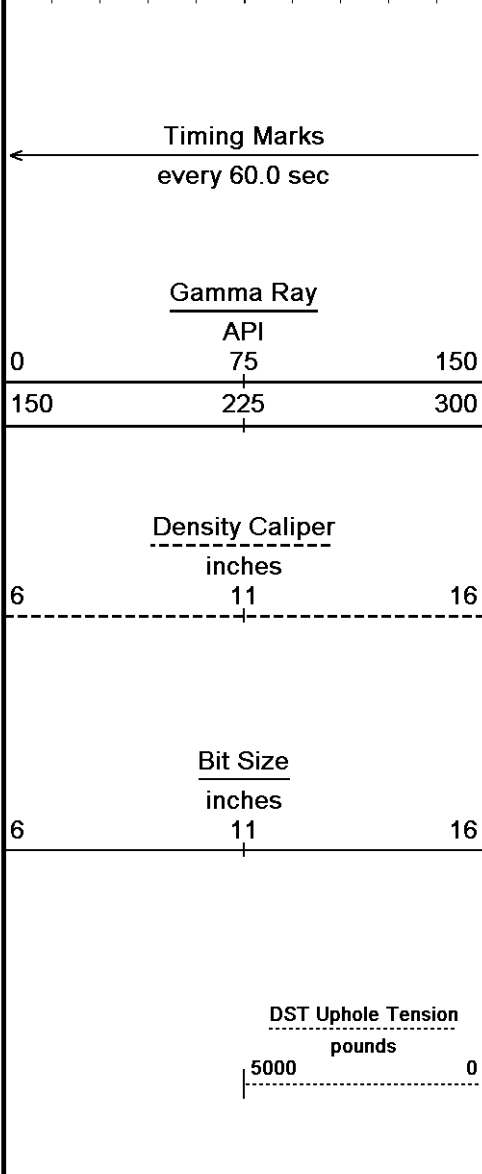
106°

3950

4000

4020

Depth in Feet



BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Logs\McElvain Walz 31-8\McElvain Walz 31-8 Main.dta

General Constants All 000

Last Edited on 15-DEC-2013,01:31

General Parameters

Mud Resistivity	1.320	ohm-metres
Mud Resistivity Temperature	83.000	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. 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 15-DEC-2013 02:26

Reading No	Measured	Calibrated (lbs)
1	14592.41	0.00
2	15135.27	456.40

Gamma Calibration MCG-C 208

Field Calibration on 14-DEC-2013 06:42

	Measured	Calibrated (API)
Background	72	49
Calibrator (Gross)	1139	774
Calibrator (Net)	1067	725

Gamma Constants MCG-C 208

Last Edited on 15-DEC-2013,01:30

Gamma Calibrator Number	GRC038	
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 MCG-C 208

Field Calibration on 11-NOV-2013 16:06

	Measured	Calibrated (mV)
Reference 1	99.8	98.8
Reference 2	-97.8	-98.9

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 12-JUN-2013,14:22

	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-AUG-2013,11:59

Pre-filter Length	11
-------------------	----

Caliper Calibration MML-A 16

Base Calibration on 26-NOV-2013 15:59

Field Calibration on 14-DEC-2013 06:37

Base Calibration		
Reading No	Measured	Calibrator Size (in)

1	14048	5.98
2	17183	7.97
3	20399	9.86
4	24282	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

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

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 26-NOV-2013 15:45
Field Check on 14-DEC-2013 06:34

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.4	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 15-DEC-2013,01:30

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	1.0000
Micro Inverse K Factor	1.0000
Standoff Offset	N/A inches

Neutron Calibration MDN-B.J 387

Base Calibration on 20-NOV-2013 14:17
Field Check on 14-DEC-2013 06:46

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2899	88	3714	110
Ratio	32.794		33.764	

Field Calibrator at Base

	Calibrated (cps)
	1704 2522
Ratio	0.676

Field Check

	Calibrated (cps)
Ratio	0.681

Neutron Constants MDN-B.J 387

Last Edited on 15-DEC-2013,01:30

Neutron Source Id	P58125B
Neutron Jig Number	5824NE
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	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-A.A 55

Base Calibration on 26-NOV-2013 15:32
Field Check on 14-DEC-2013 06:25

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0

Reference 2	951.3	126.8
Base Check		281.6
Field Check		281.7

FE Constants MFE-A.A 55		Last Edited on 15-DEC-2013,01:29	
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	

Sonic Constants MSS-C.K 368		Last Edited on 15-DEC-2013,01:29	
Maximum Boundary Contrast	100.00	micro-sec/ft	
Fluid Transit Time	189.00	micro-sec/ft	
Limestone Transit Time	47.60	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	

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	

Semibalance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

Induction Calibration MAI-A.A 5

Base Calibration on 10-JUN-2013,14:52

Field Check on 14-DEC-2013 06:24

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	16.3	470.8	9.3	966.2
2	5.6	376.1	7.6	821.4
3	2.6	266.1	5.2	566.0
4	1.6	130.0	2.6	279.2

Array Temperature 71.1 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			14.9	3864.0
2			31.8	3591.9
3			29.8	2972.2
4			20.8	2126.8
Deep			18.4	1912.7
Medium			43.1	3862.3
Shallow			47.3	5374.5

Array Temperature 67.8 Deg F

Induction Constants MAI-A.A 5

Last Edited on 15-DEC-2013,01:29

Induction Model

Caliper for Borehole Corr.	RtAP-WBM	
Hole Size for Borehole Correction	Density Caliper	
Tool Centred	N/A	inches
Stand-off Type	No	
Stand-off	Fins	
Stand-off	0.00	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	60.00	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 5

Field Calibration on 10-DEC-2013,18:45

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

High Resolution Temperature Constants MAI-A.A 5

Last Edited on 10-DEC-2013,18:45

Pre-filter Length

11

Photo Density Calibration MPD-B 64

Base Calibration on 20-NOV-2013 16:18

Field Check on 14-DEC-2013 06:32

Density Calibration

Base Calibration

Measured

Calibrated (sdu)

Near

Far

Near

Far

Reference 1

54813

28391

59556

30836

Reference 2

22141

2599

24941

2541

Field Check at Base

1158.1

1339.6

Field Check

1152.5

1334.2

PE Calibration

Base Calibration

Measured

Calibrated

WS

WH

Ratio

Ratio

Background

209

1029

Reference 1

20544

54619

0.379

0.371

Reference 2

5974

22004

0.275

0.272

Field Check at Base

208.8

1029.0

Field Check

207.1

1024.2

Density Constants MPD-B 64

Last Edited on 15-DEC-2013,01:29

Density Source Id

P50557B

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

1.13

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

Caliper Calibration MPD-B 64

Base Calibration on 20-NOV-2013 16:00

Field Calibration on 14-DEC-2013 06:27

Base Calibration

Reading No

Measured

Calibrator Size (in)

1

16386

3.99

2

25312

5.98

3

33872

7.97

4

42289

9.86

5

51520

11.92

6

N/A

N/A

Field Calibration

Measured Caliper (in)

Actual Caliper (in)

7.98

7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\McElvain Walz 31-8\McElvain Walz 31-8 Main.dta

Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

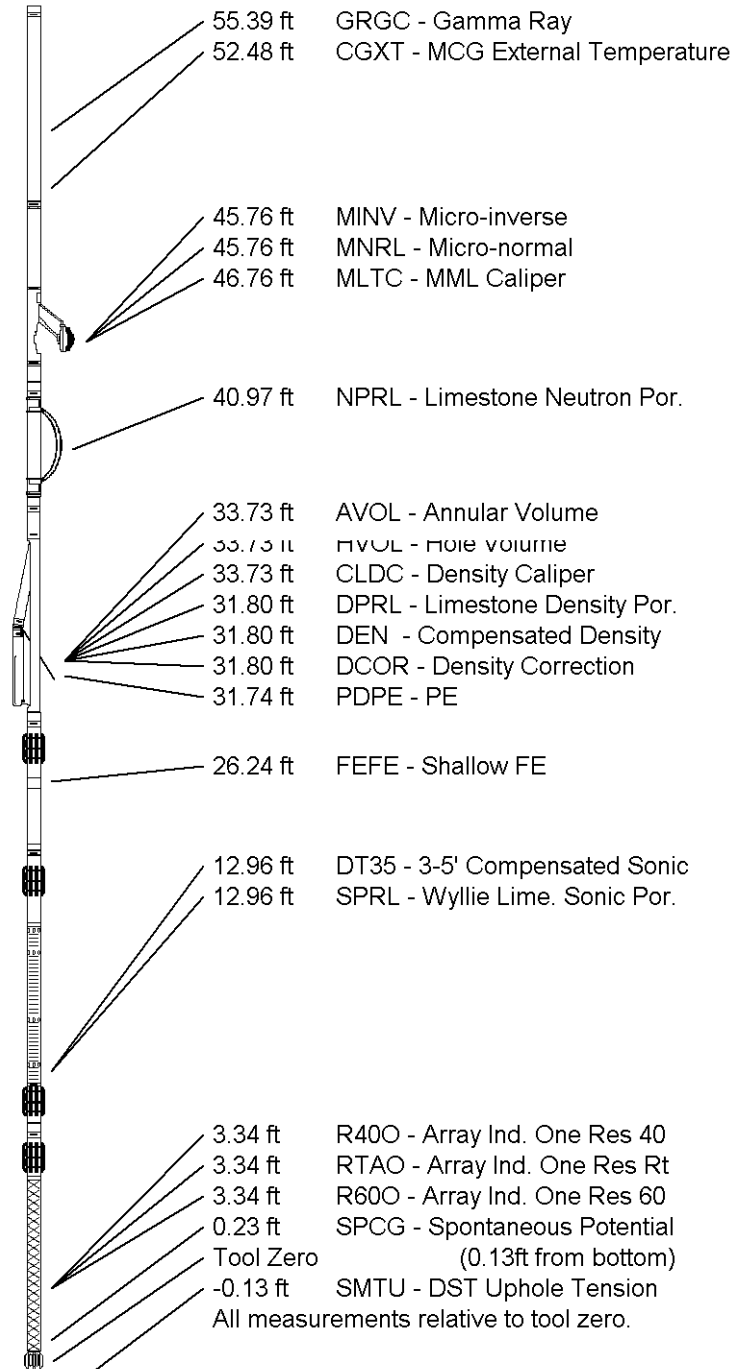
Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-C.K 368 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 5 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 60.68 ft Weight: 456.4 lb



COMPANY	MCELVAIN ENERGY, INC.
WELL	WALZ 31-8
FIELD	WILDCAT
PROVINCE/COUNTY	GRAHAM
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2231.00	feet	First Reading	3982.00	feet
Elevation Drill Floor	2229.00	feet	Depth Driller	4000.00	feet
Elevation Ground Level	2221.00	feet	Depth Logger	3995.00	feet



COMPENSATED SONIC

Weatherford®

COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME