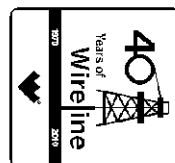




Weatherford

MICRO RESISTIVITY LOG



COMPANY	SANDRIDGE		
WELL	STEPHANIE 1-3 SWD		
FIELD	WOLDRON-WEST		
PROVINCE/COUNTY	BARBER		
COUNTRY/STATE	USA / KANSAS		
LOCATION	2135' FSL 178' FEL		
SEC	TWP	RGE	Other Services
3	35S	10W	MAI/MFE MPD/MDN MSS
API Number	15-007-23799		MMI
Permit Number			
Permanent Datum GL, Elevation 1317 feet			Elevations: feet
Log Measured From KB			KB 1328.00
Drilling Measured From KB			DF 1326.00
			GL 1317.00
Date	11-NOV-2011		
Run Number	ONE		
Depth Driller	5594.00 feet		
Depth Logger	5589.00 feet		
First Reading	5542.00 feet		
Last Reading	1580.00 feet		
Casing Driller	1008.00 feet		
Casing Logger	1005.00 feet		
Bit Size	8.750 inches		
Hole Fluid Type	WBM		
Density / Viscosity	9.10 lb/USg	55.00 CP	
PH / Fluid Loss	10.00	7.40 ml/30Min	
Sample Source	FLOW LINE		
Rm @ Measured Temp	1.50 @ 70.0 ohm-m		
Rmf @ Measured Temp	1.20 @ 70.0 ohm-m		
Rmc @ Measured Temp	1.80 @ 70.0 ohm-m		
Source Rmf / Rmc	CALC.	CALC.	
Rm @ BHT	0.85 @ 127.0 ohm-m		
Time Since Circulation	6 HOURS		
Max Recorded Temp	127.00 deg F		
Equipment Name	COMPACT		
Equipment / Base	13039	OKC	
Recorded By	T. GUTHMUELLER		
Witnessed By	T. ALCORN		
	C. MCAULIFF		
AFE#DC11577	SO#3534234		

BOREHOLE RECORD

Last Edited: 11-NOV-2011 12:14

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	1008.00
8.750	1008.00	5594.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURF	9.625	0.00	1008.00	36.00

REMARKS

TOOLS RAN: SHA-205,MCG-093,MML-007,MDN-031,MPD-021,MFE-054,MSS-040,MAI-390 RAN IN COMBINATION

HARDWARE: MAI: TWO 0.5 INCH STANDOFFS USED.

I MDN: DUAL NEUTRON BOW SPRINGS USED.

I MPD: 8 INCH PROFILE PLATE USED.

MSS: THREE 0.5 INCH STANDOFFS USED.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

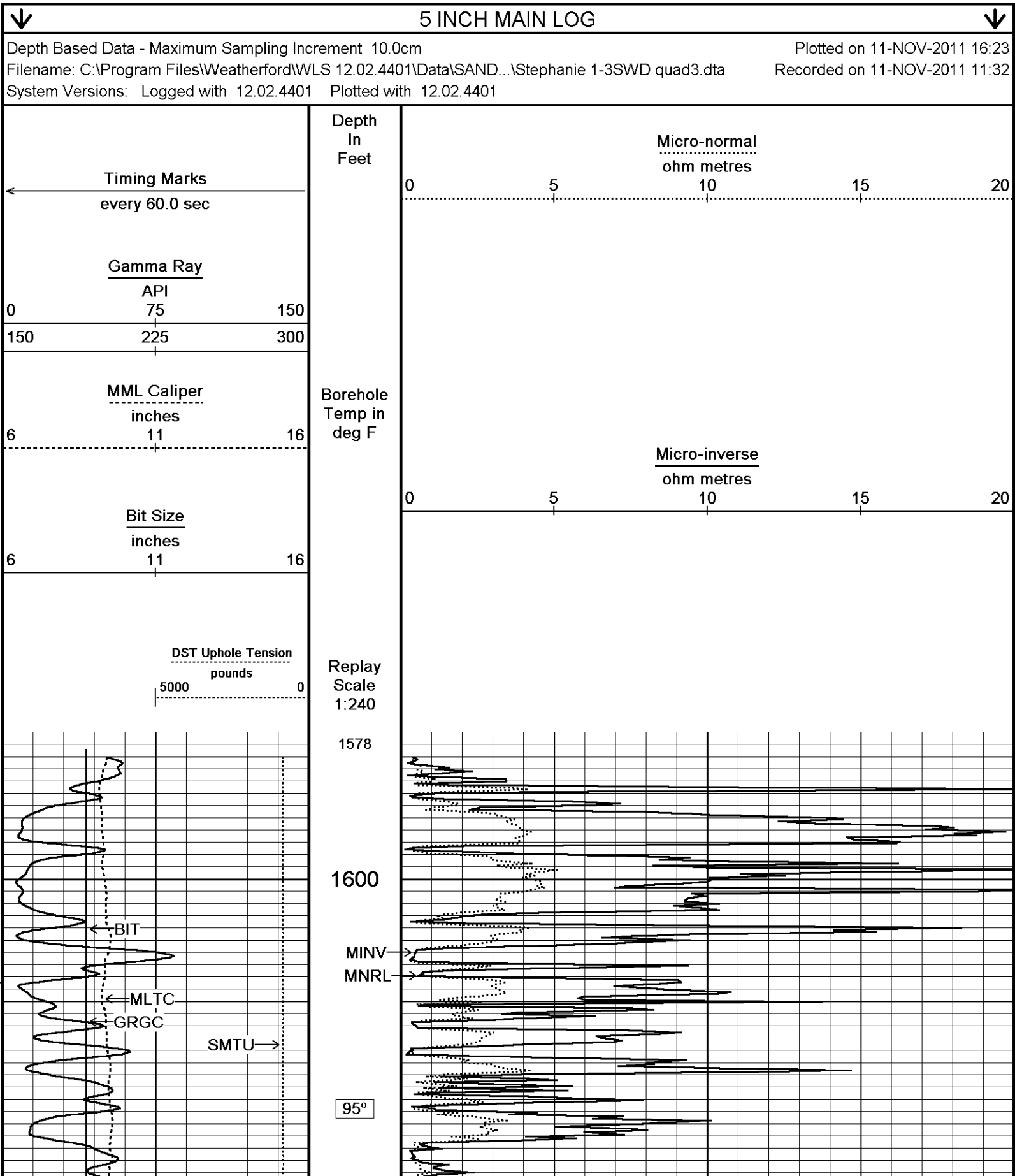
TOTAL HOLE VOLUME FROM TD TO 1600 = 1740 CU.FT.

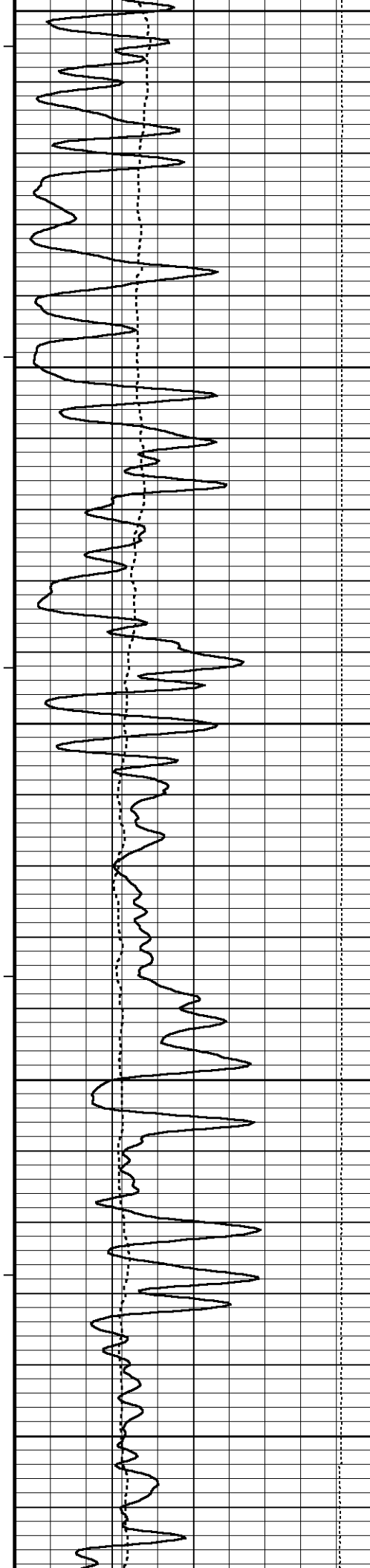
ANNULAR HOLE VOLUME WITH 7 INCH PRODUCTION CASING FROM TD TO 1600 = 680 CU.FT.

SERVICE ORDER # 3534234

RIG: TOMCAT #3

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.





1650

96°

1700

96°

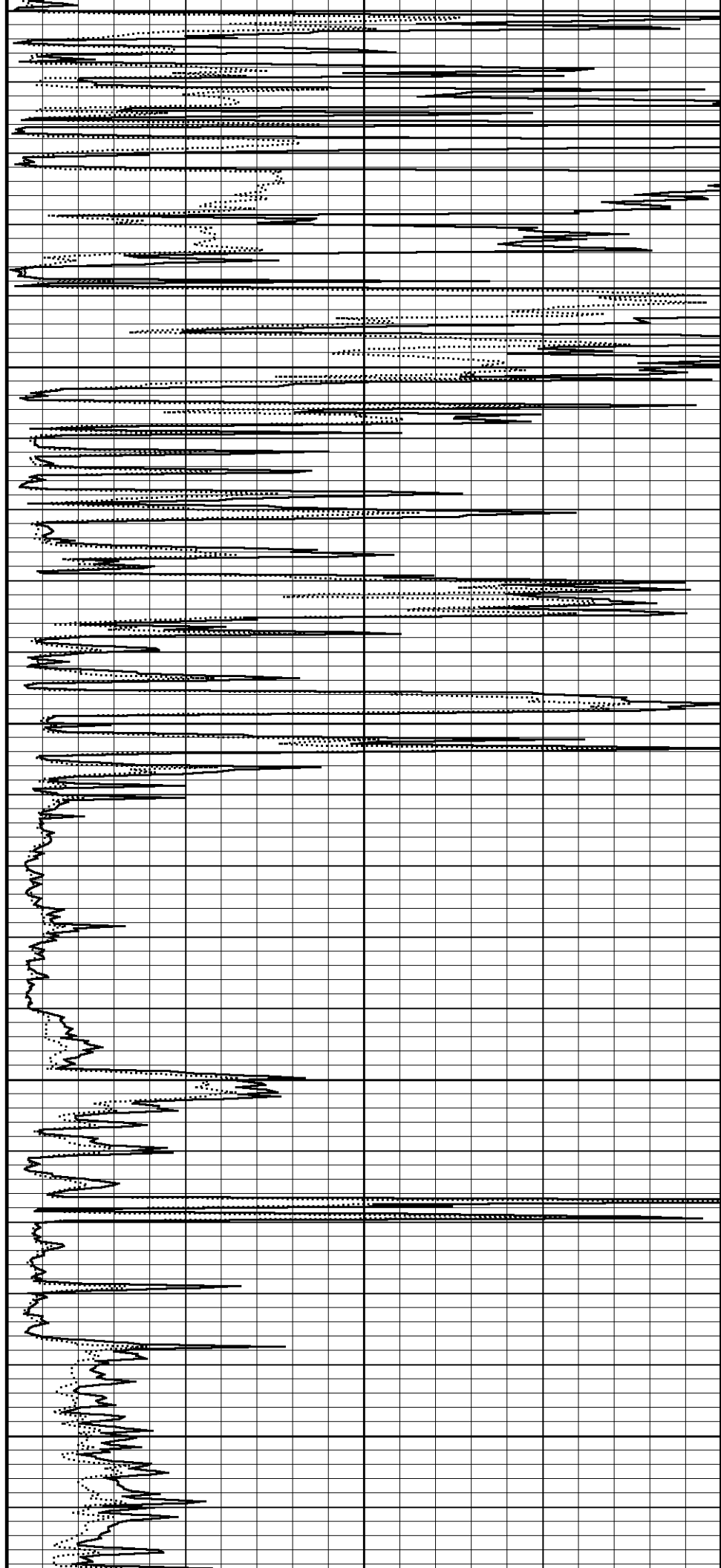
1750

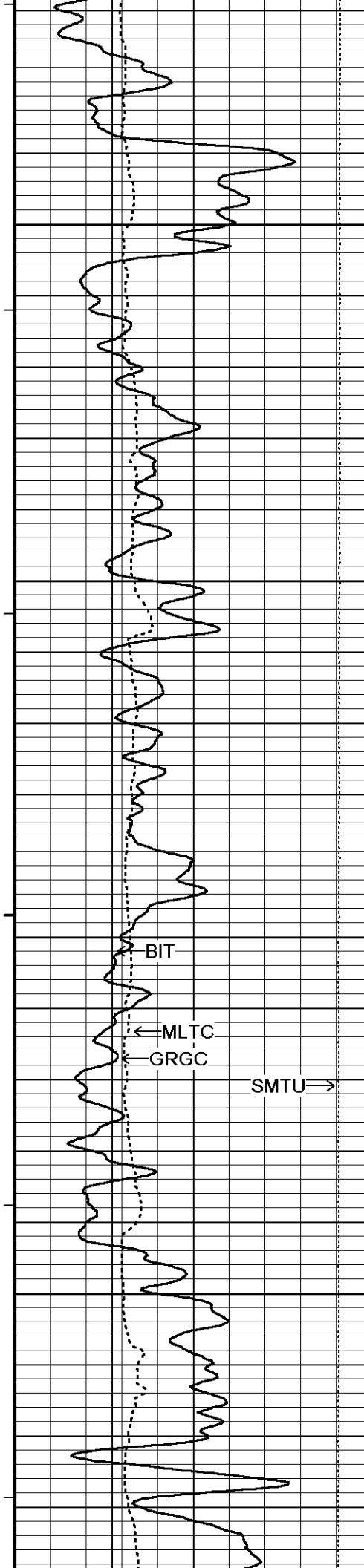
96°

1800

96°

1850





97°

1900

97°

1950

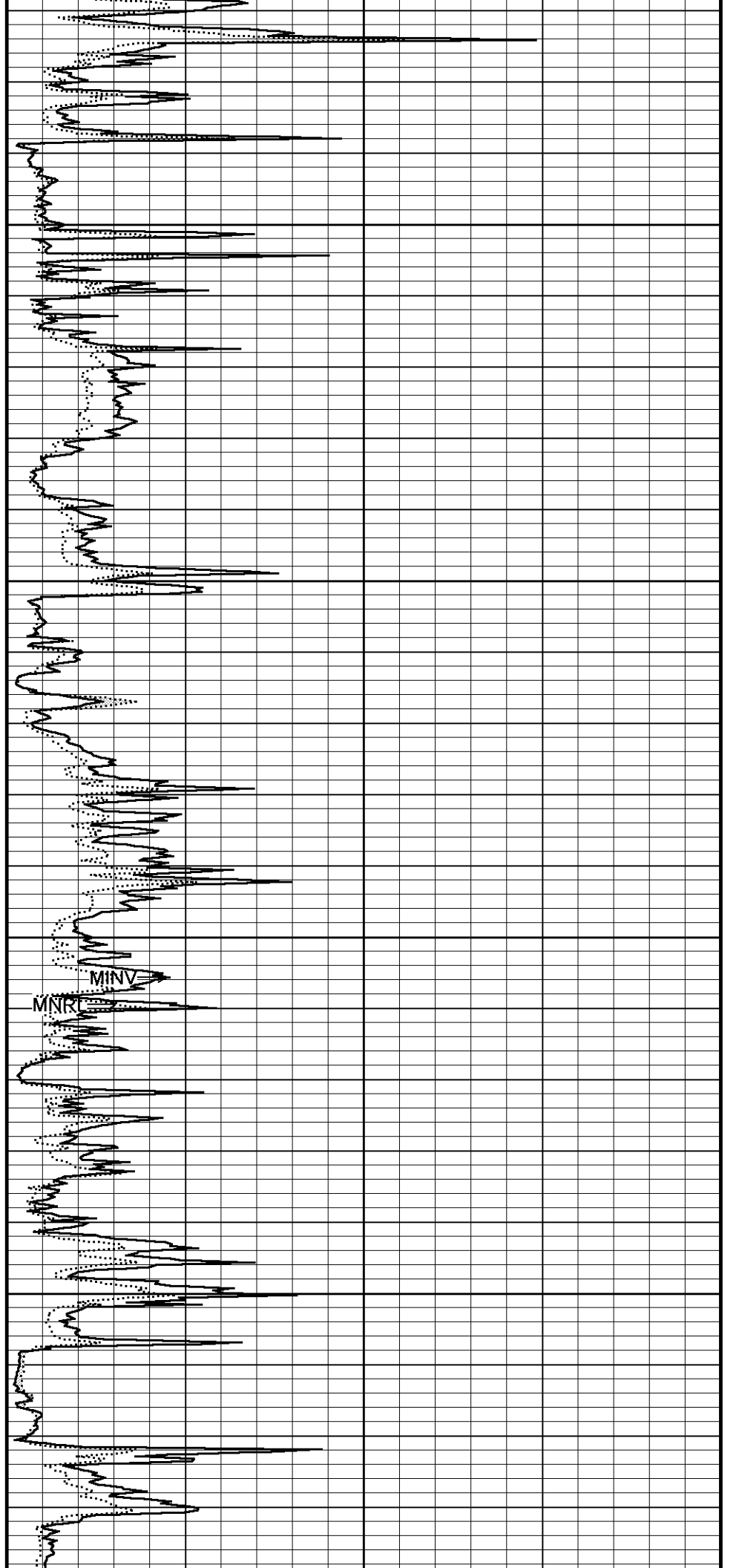
97°

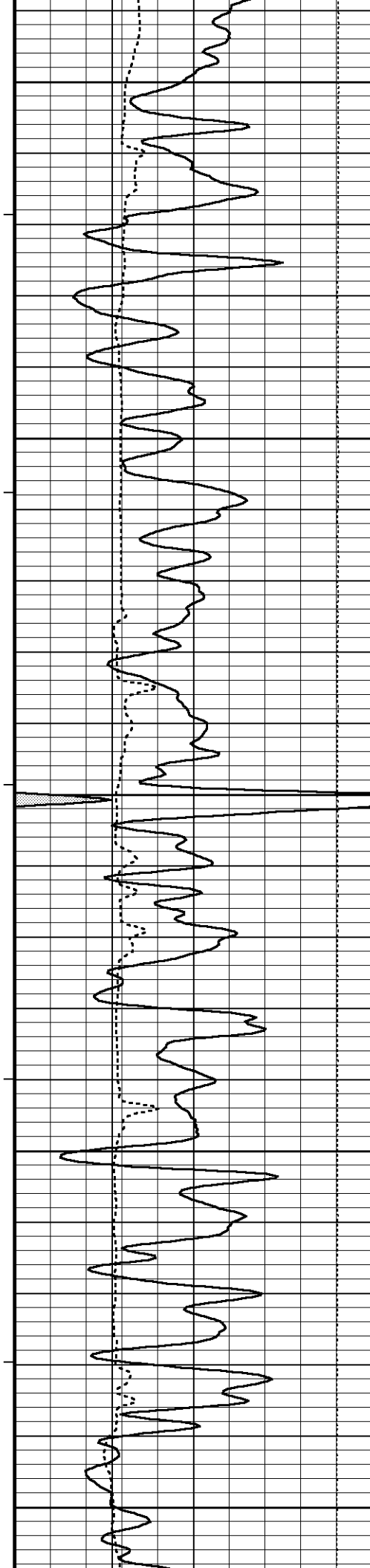
2000

97°

2050

97°





2100

98°

2150

98°

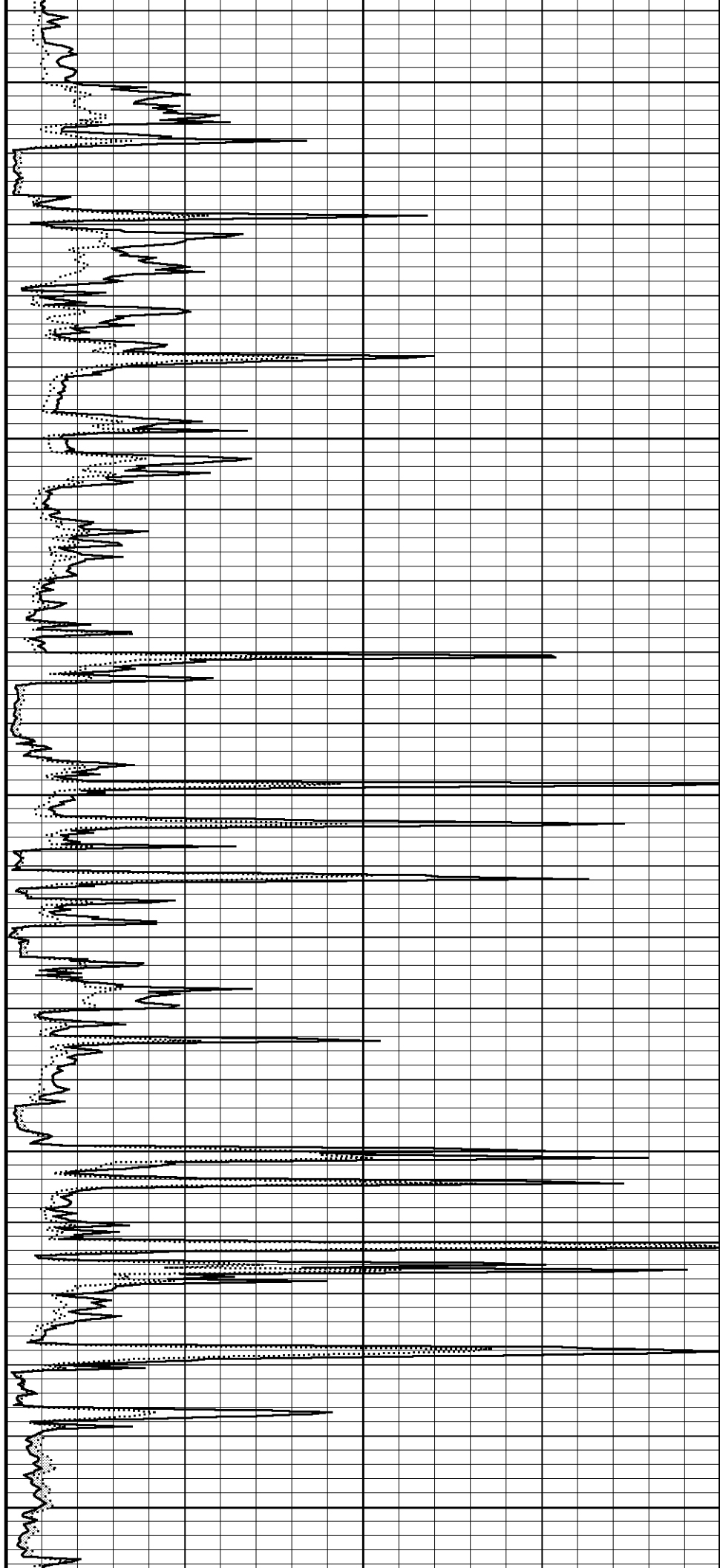
2200

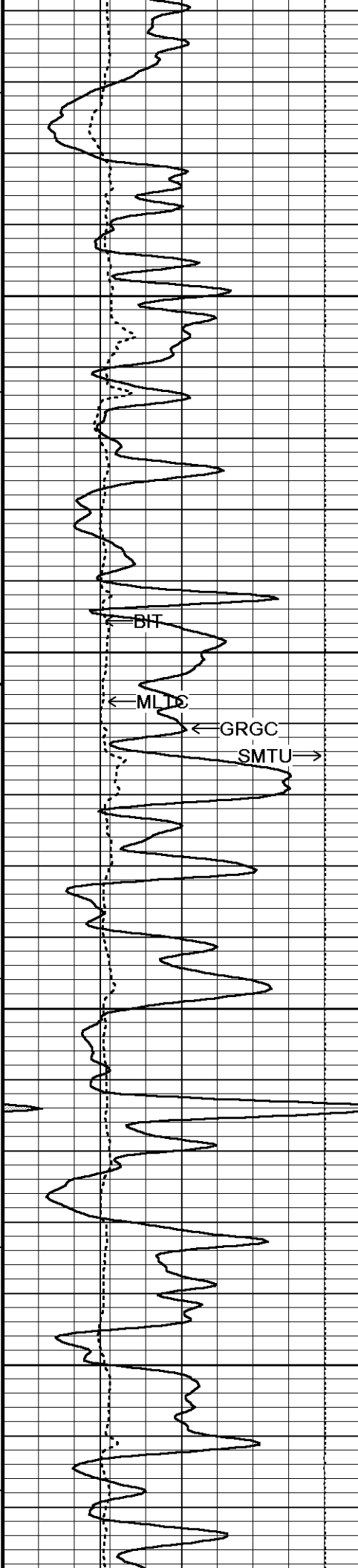
98°

2250

98°

2300





98°

2350

99°

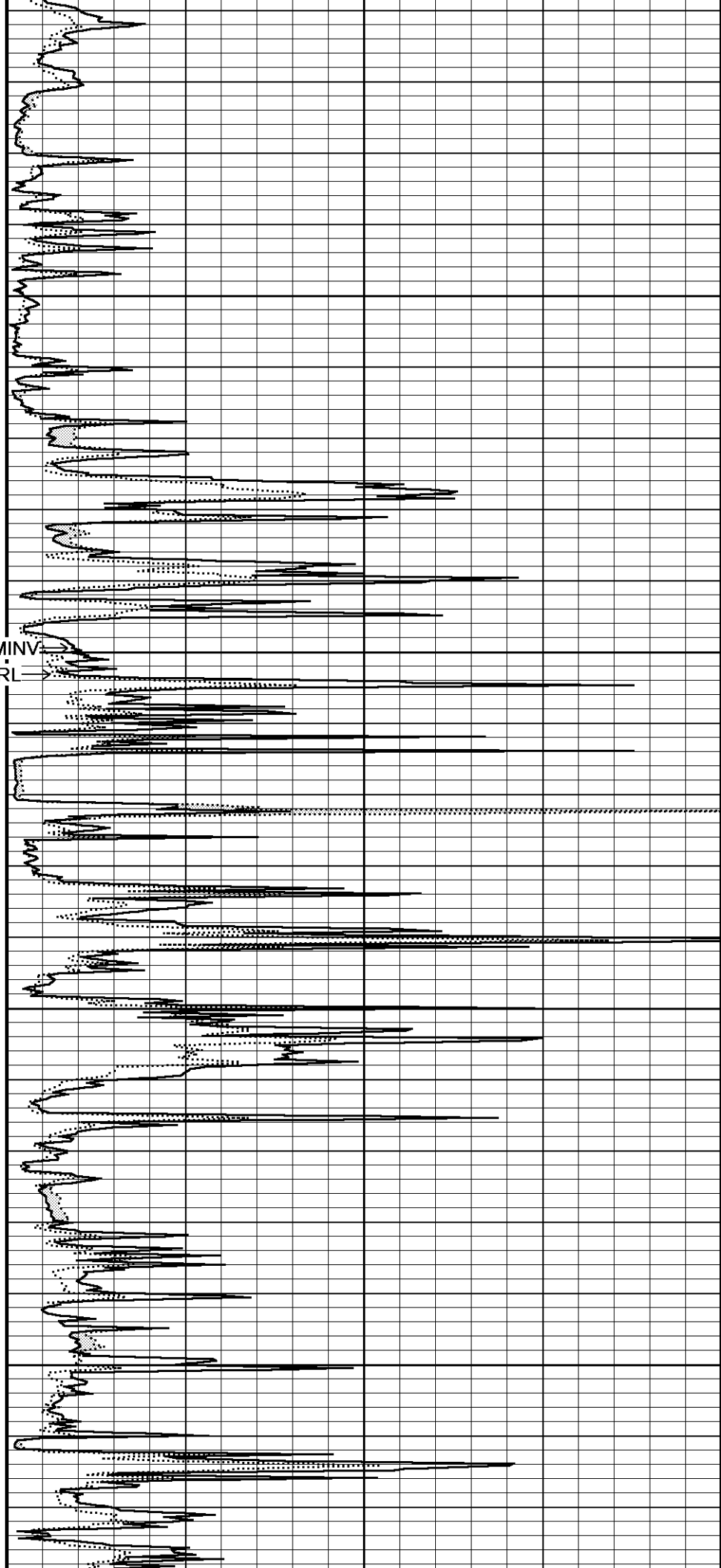
2400 MINV
MNRL

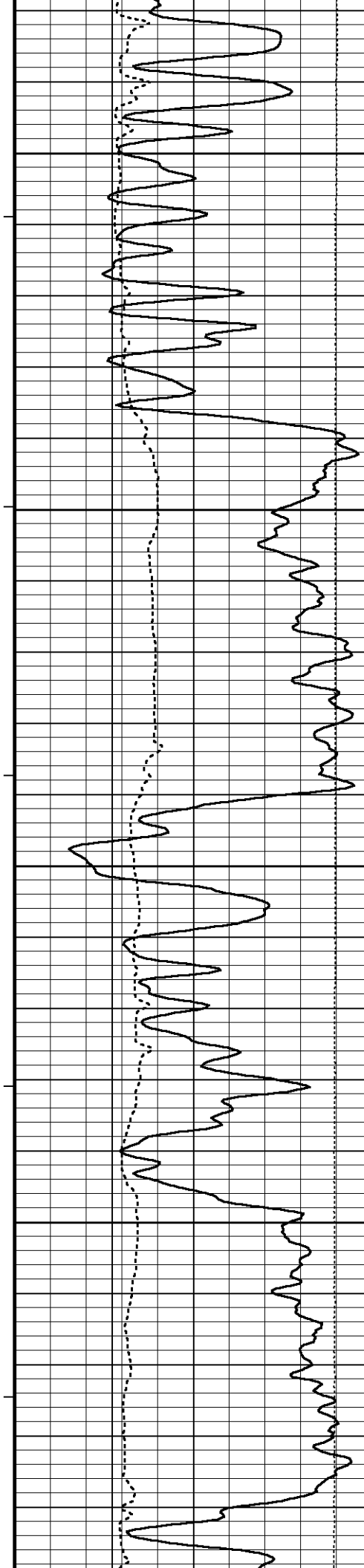
100°

2450

100°

2500





100°

2550

101°

2600

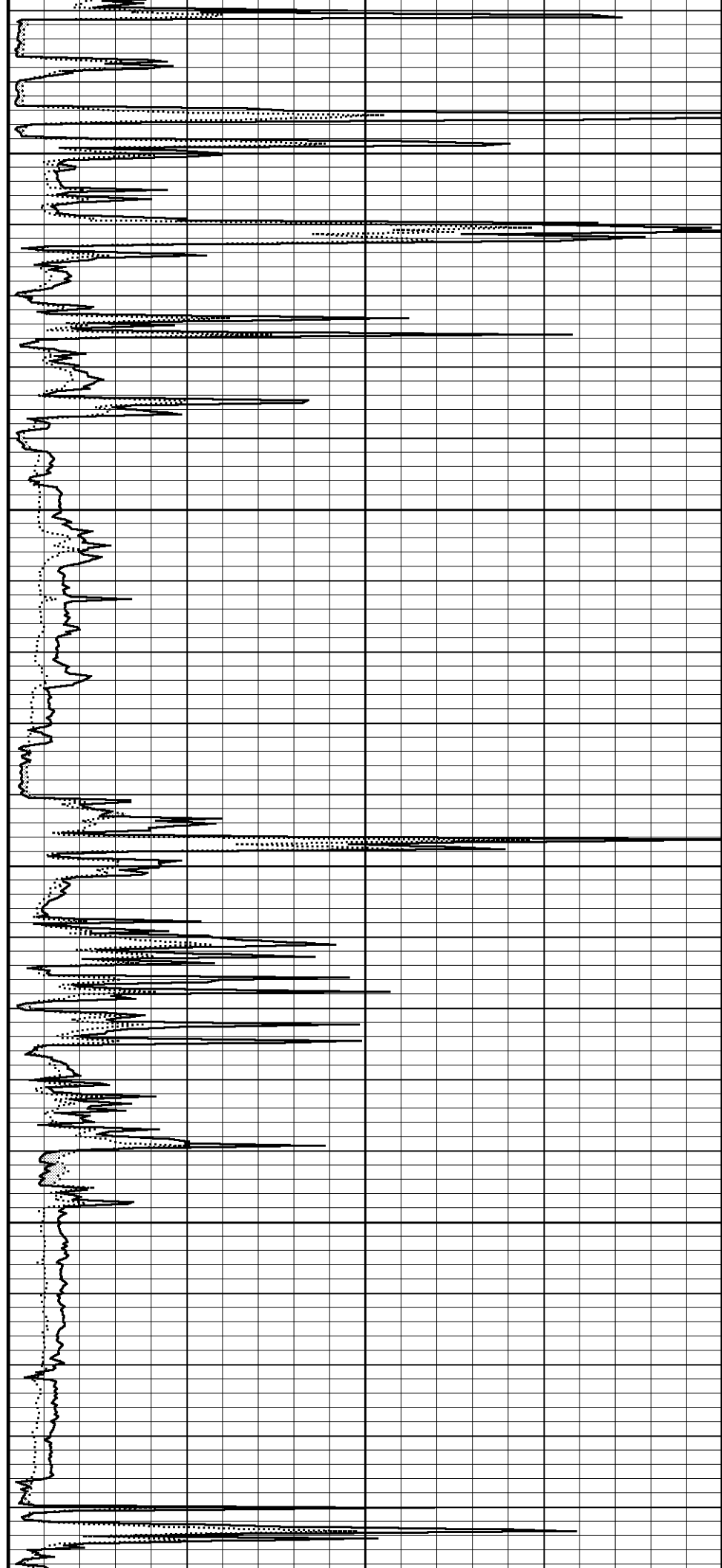
101°

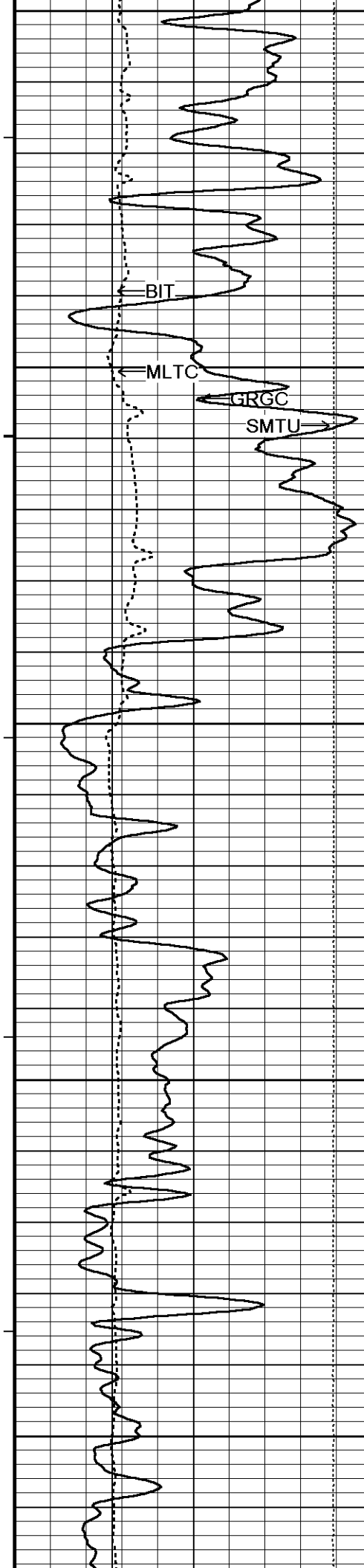
2650

102°

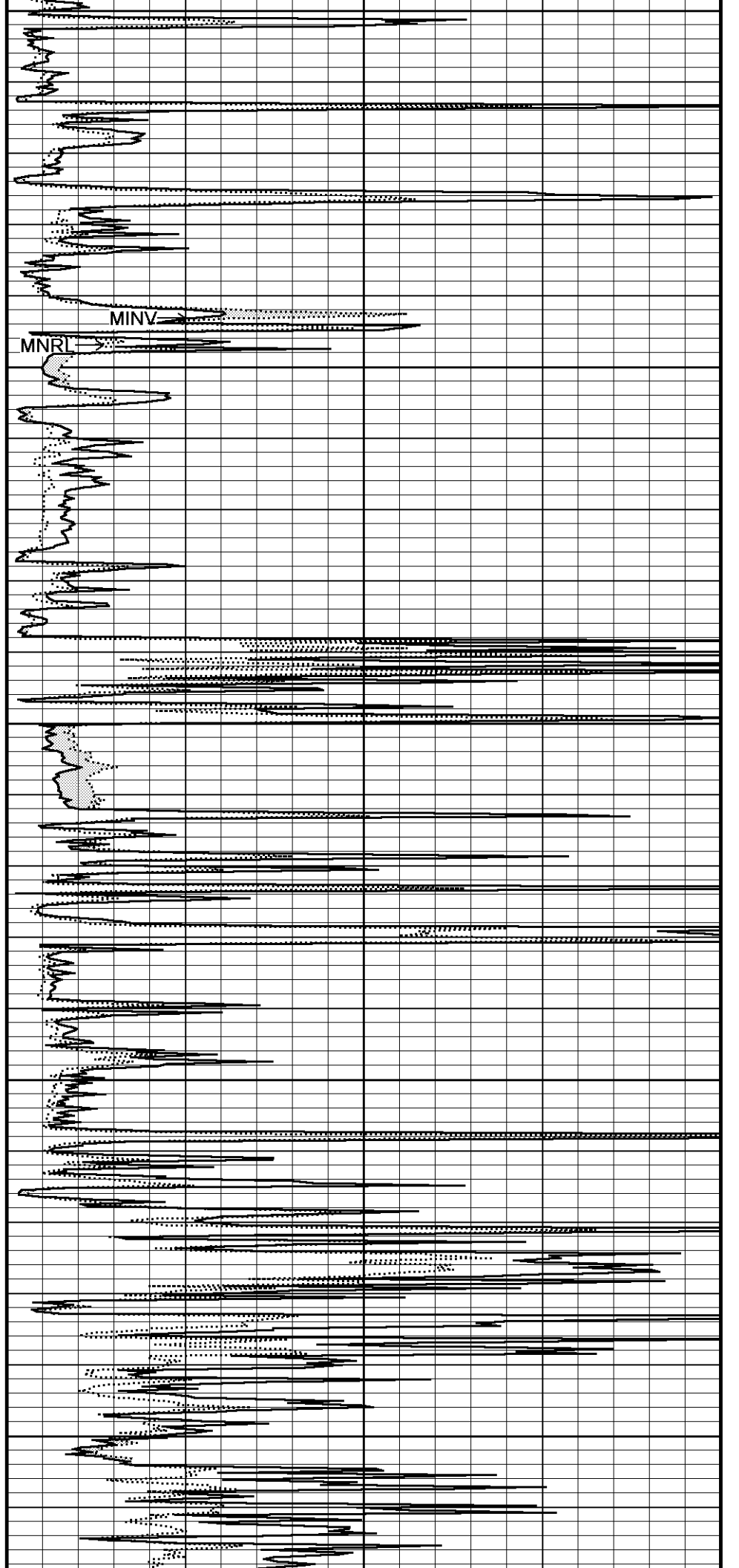
2700

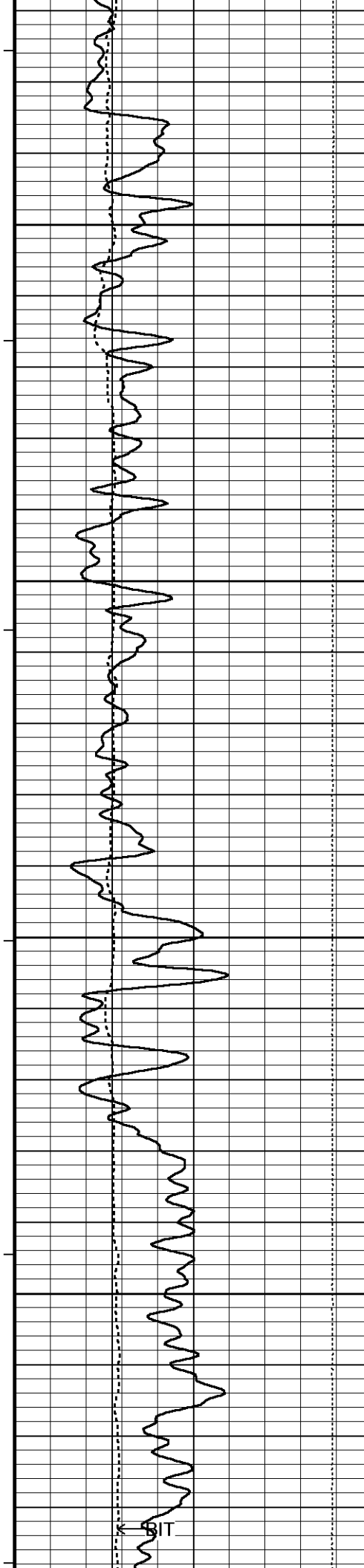
102°





2750
102°
2800
103°
2850
103°
2900
104°
2950





104°

3000

104°

3050

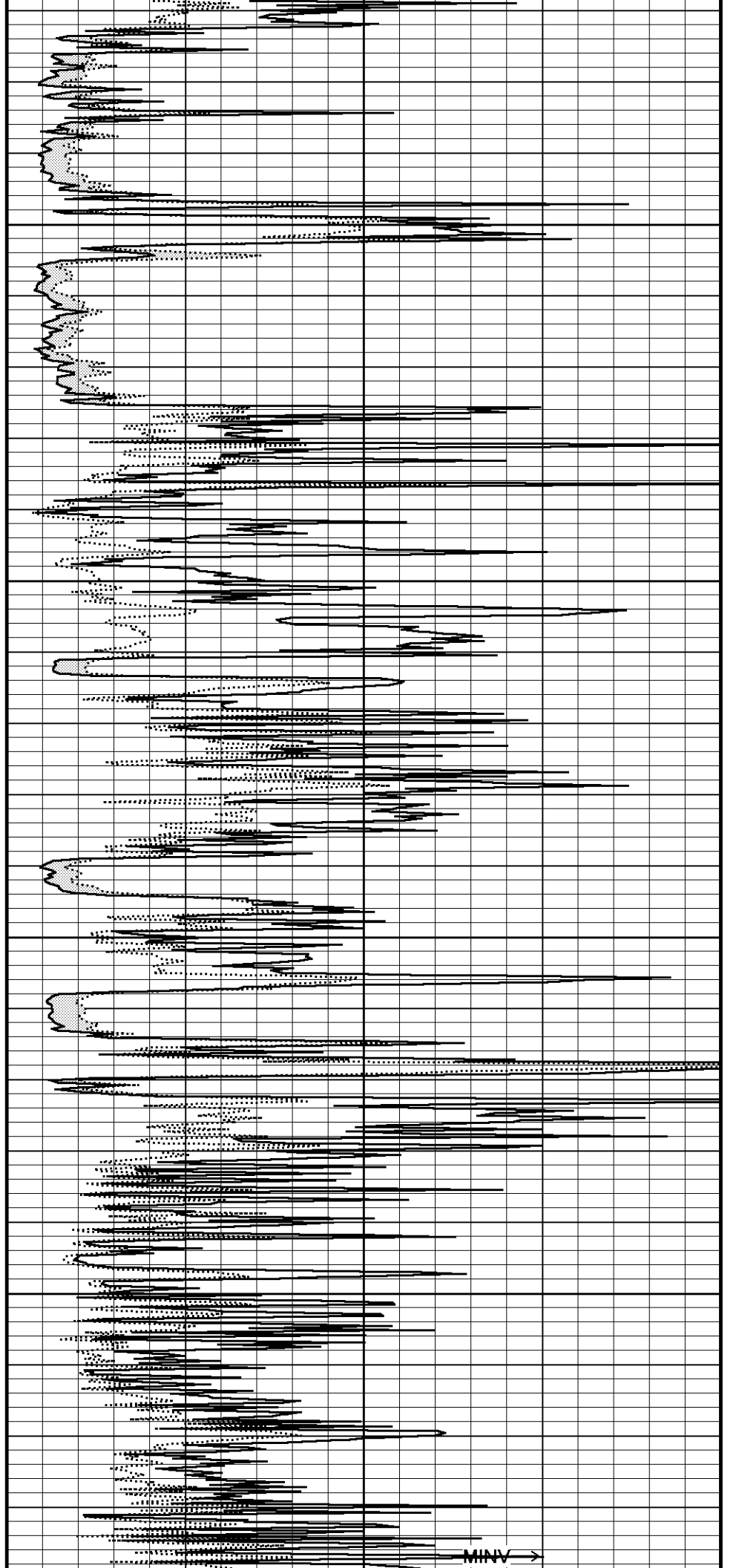
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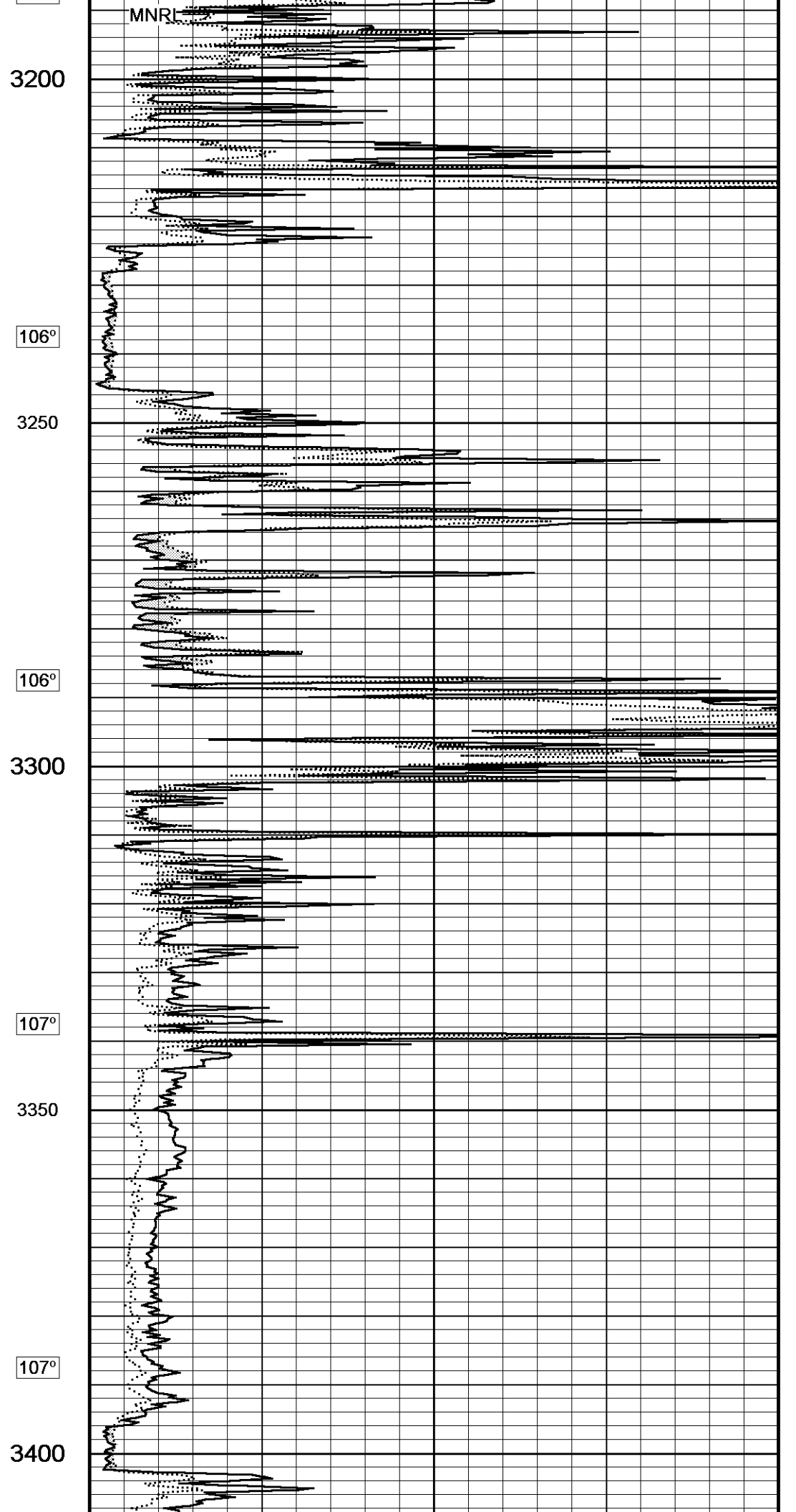
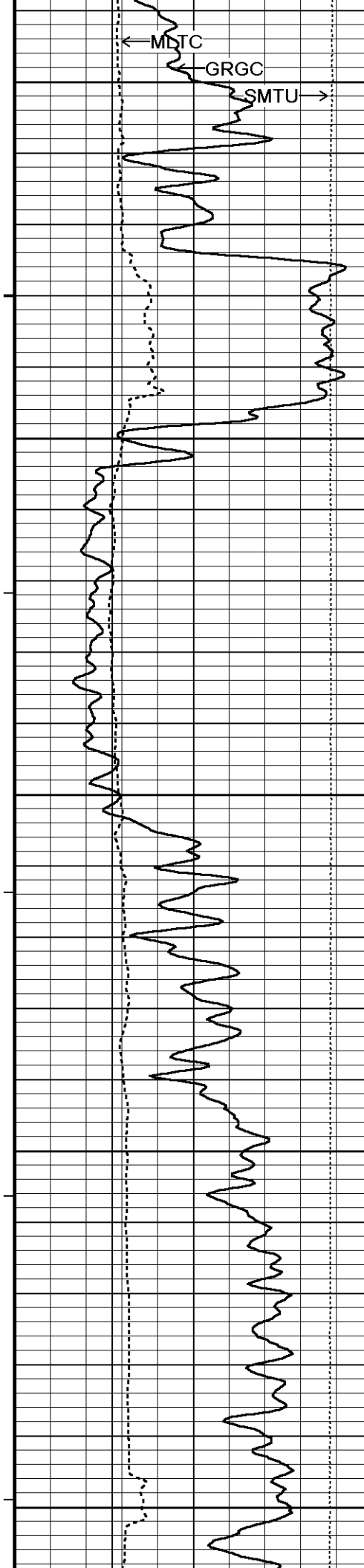
3100

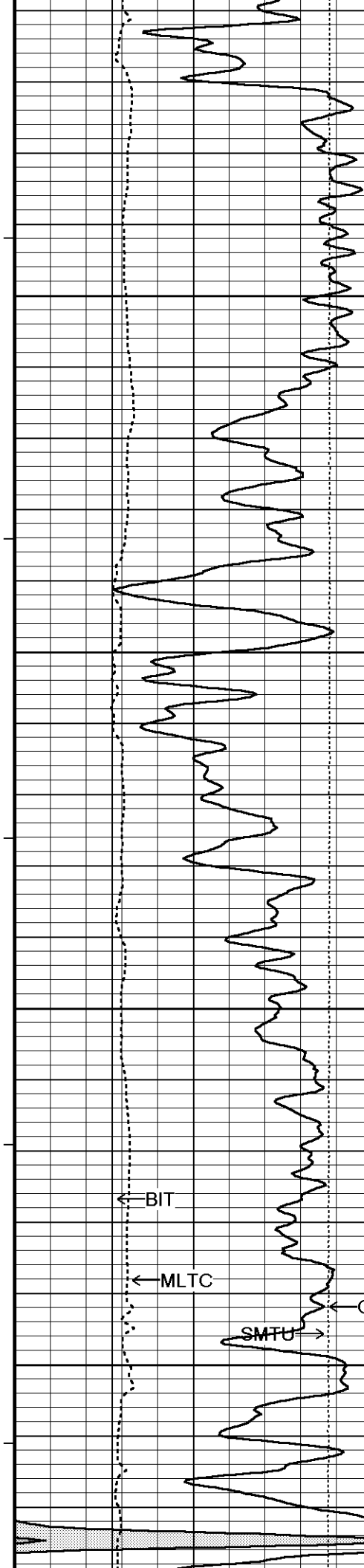
105°

3150

106°







108°

3450

108°

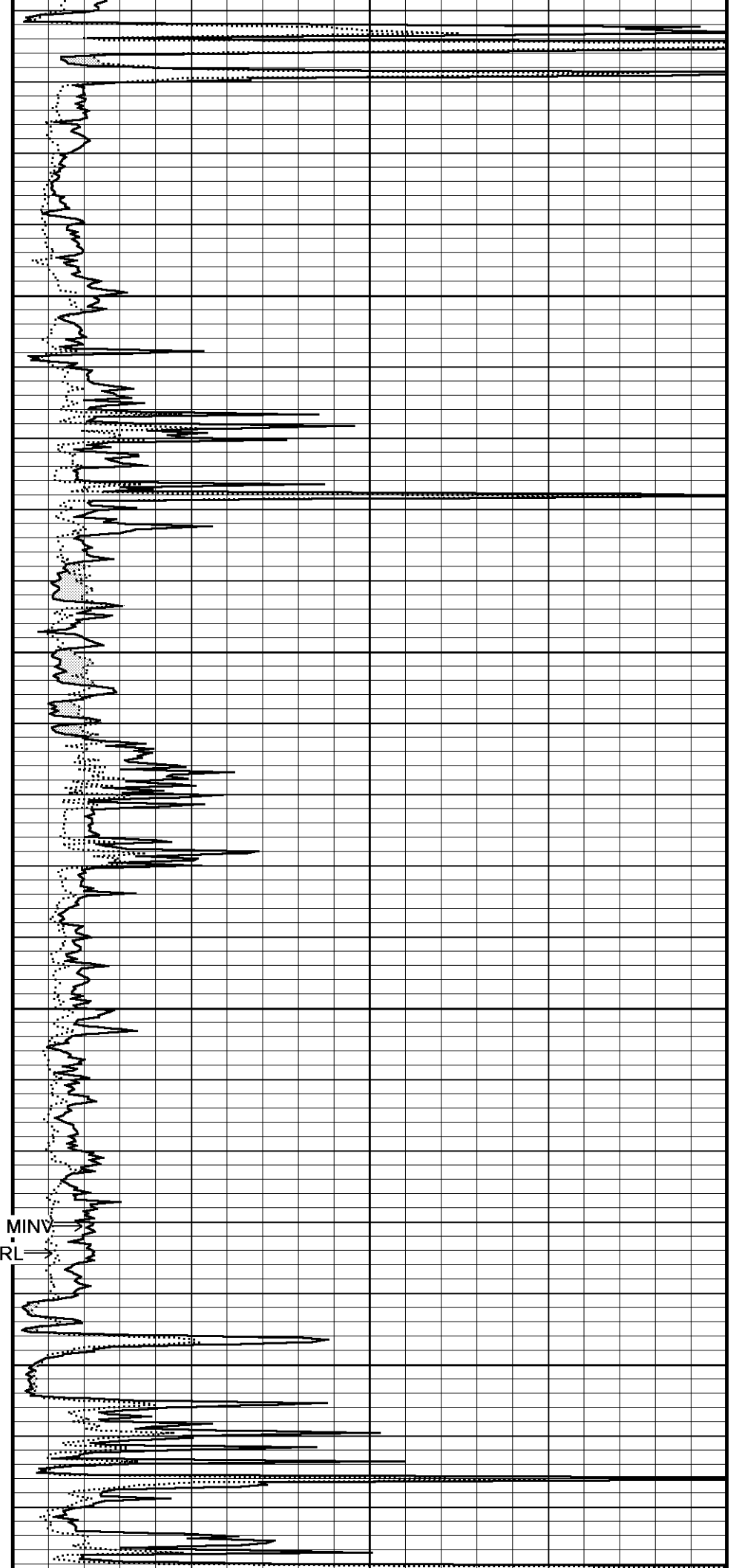
3500

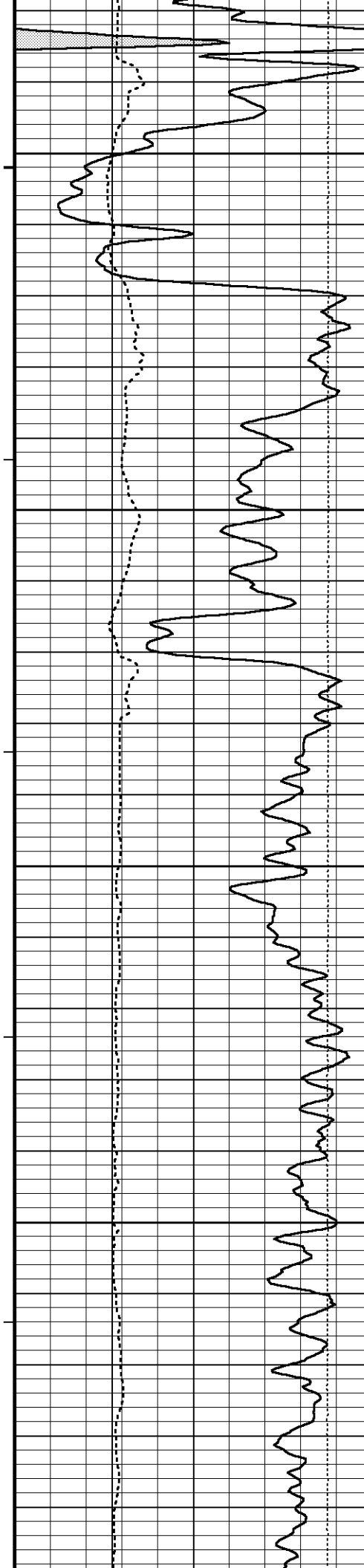
108°

3550

108°

3600





109°

3650

109°

3700

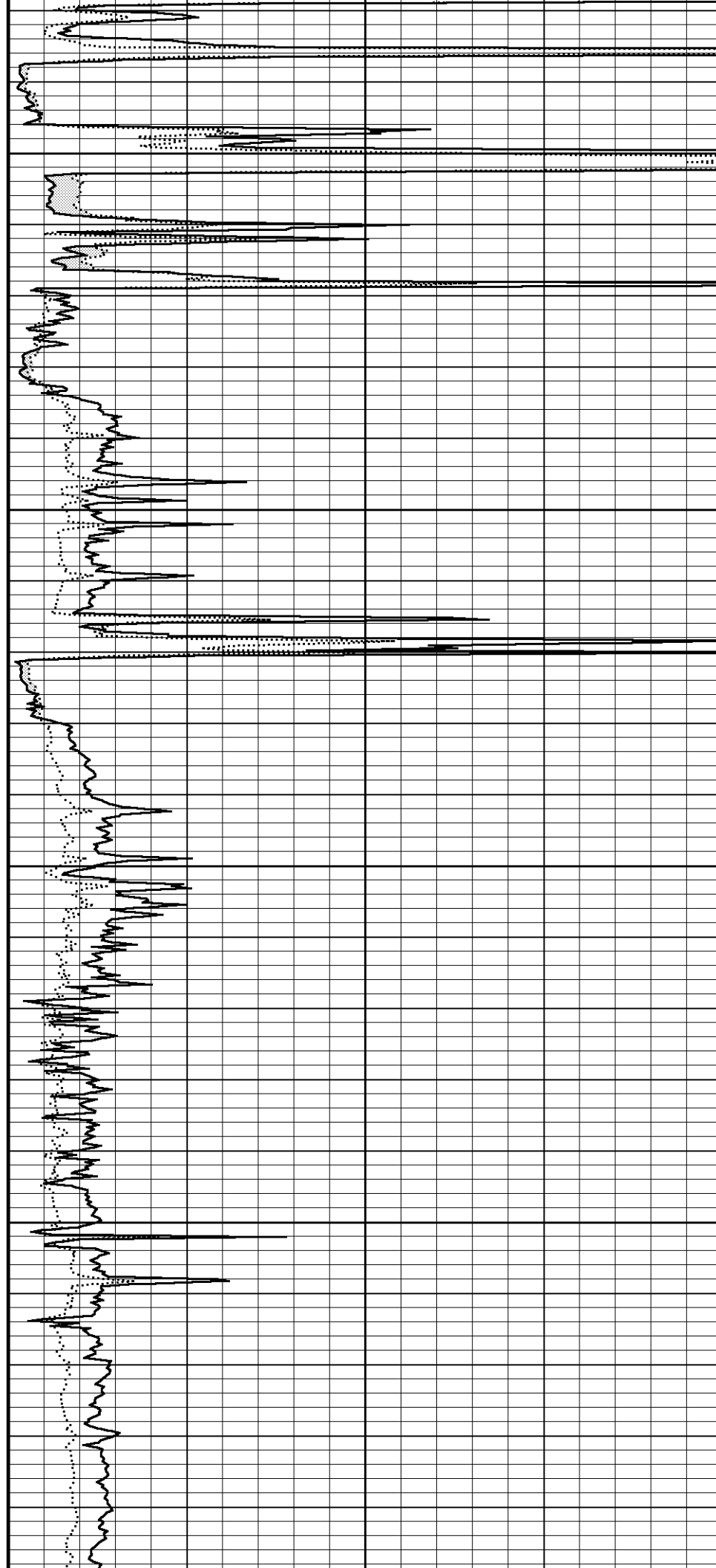
109°

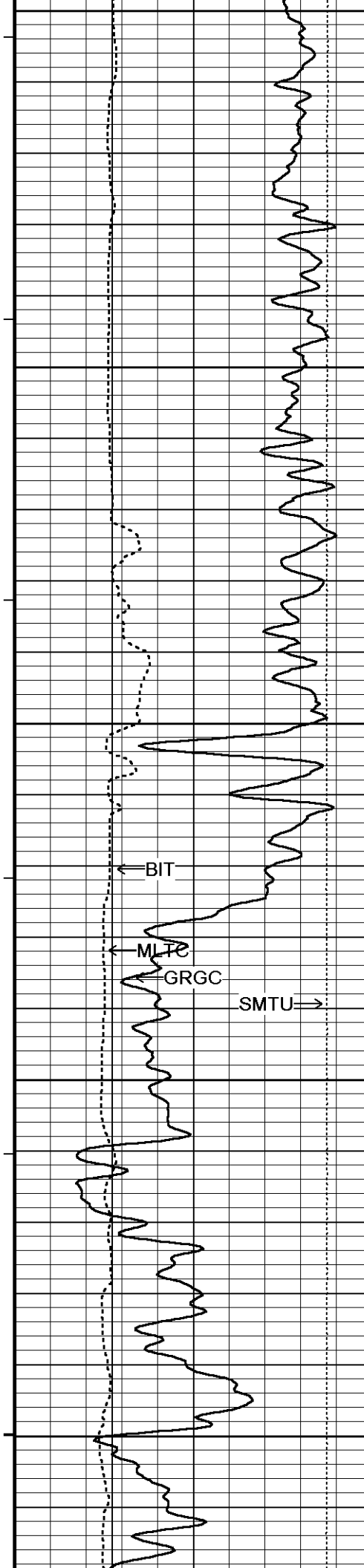
3750

109°

3800

109°





3850

110°

3900

111°

3950

← BIT

← MLTC

← GRGC

SMTU →

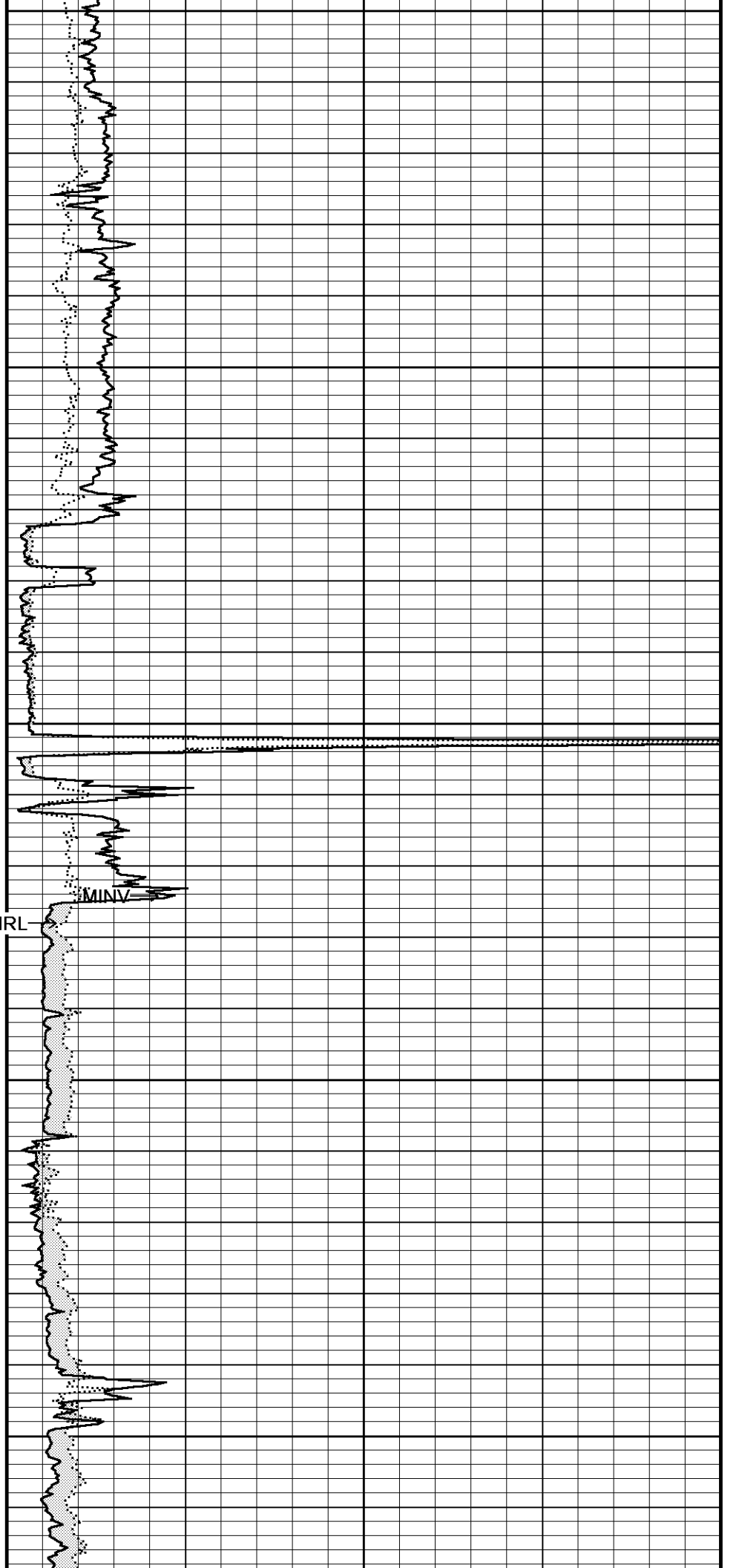
MNRL →

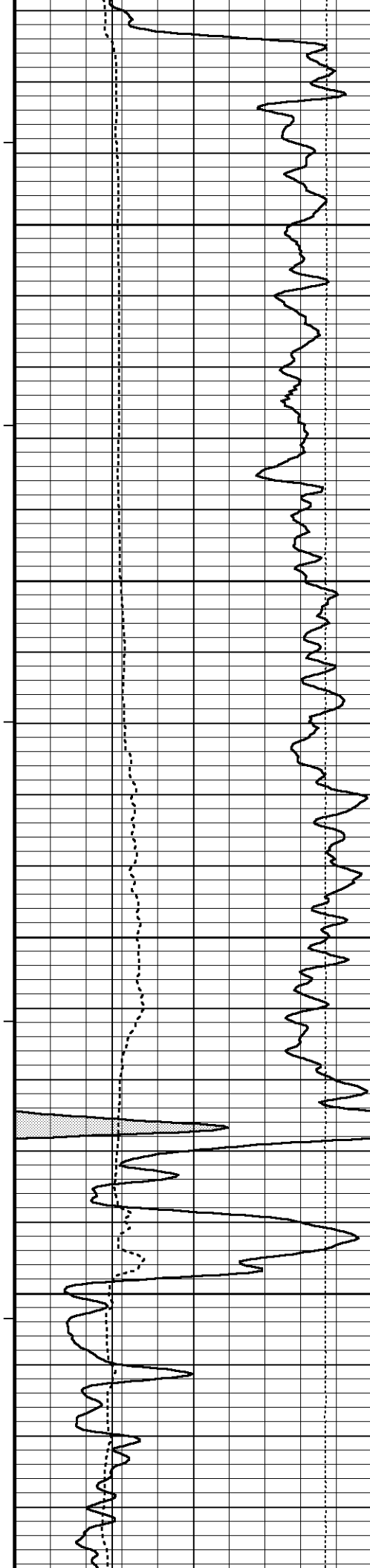
112°

4000

113°

4050





113°

4100

113°

4150

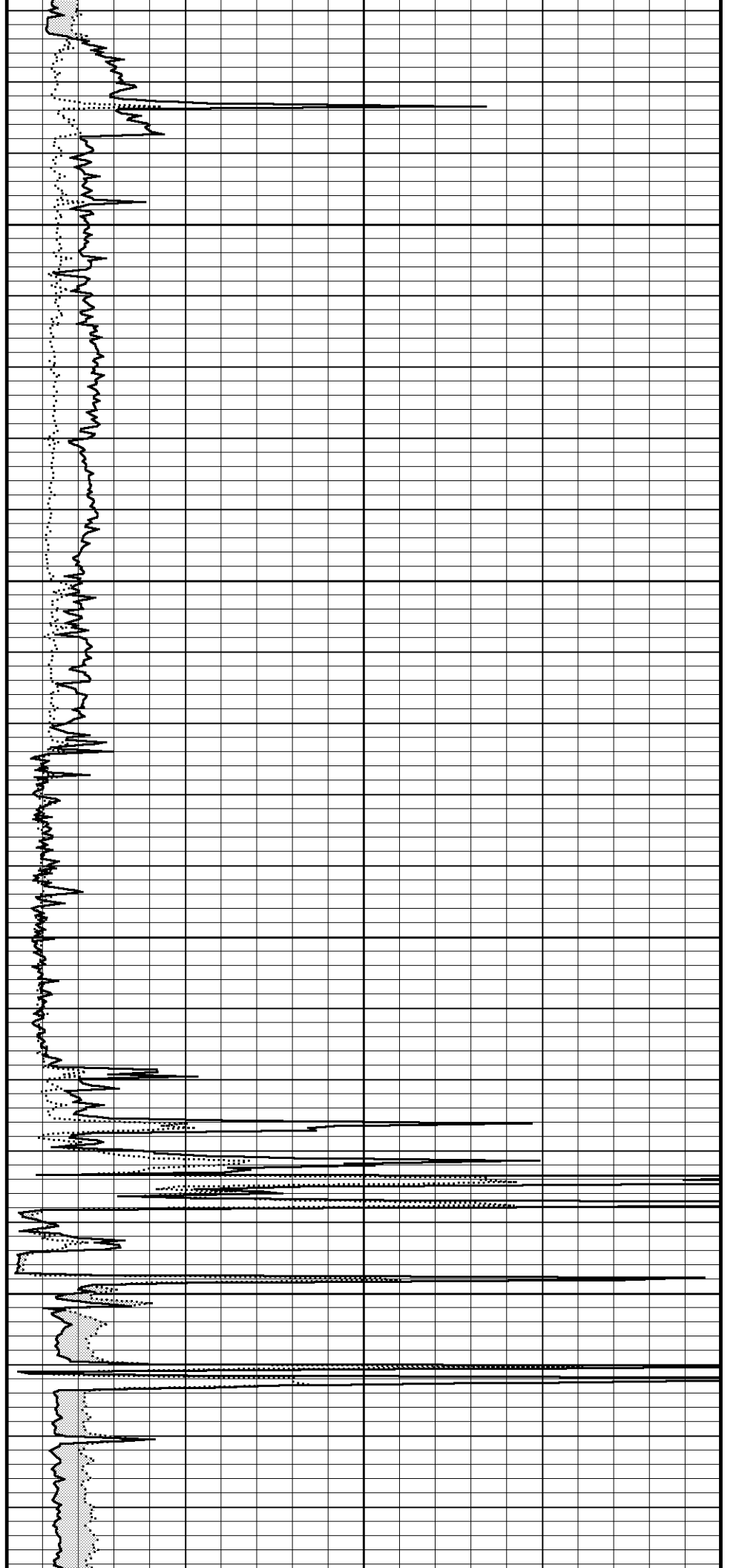
114°

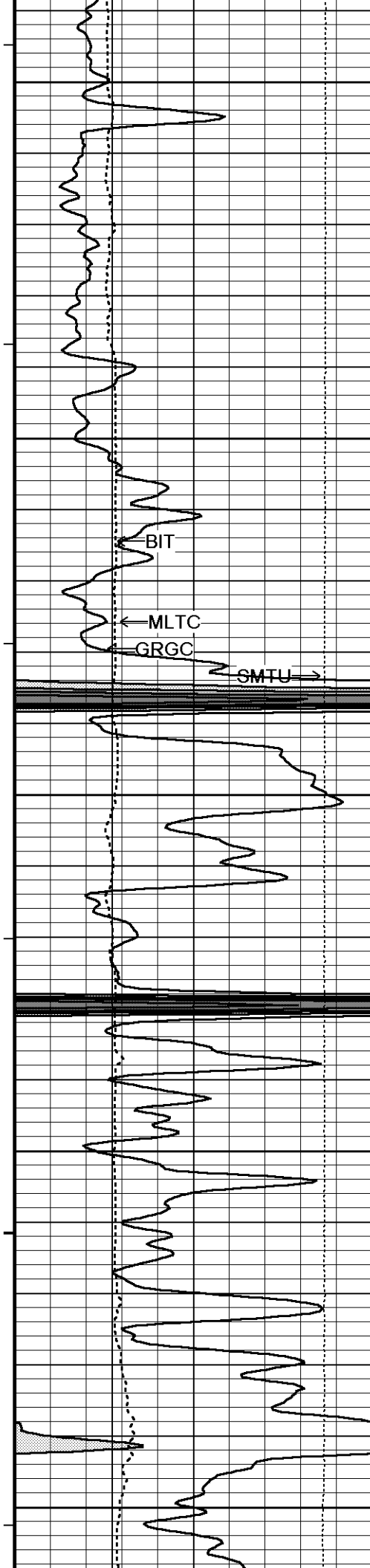
4200

115°

4250

115°





4300

115°

4350

116°

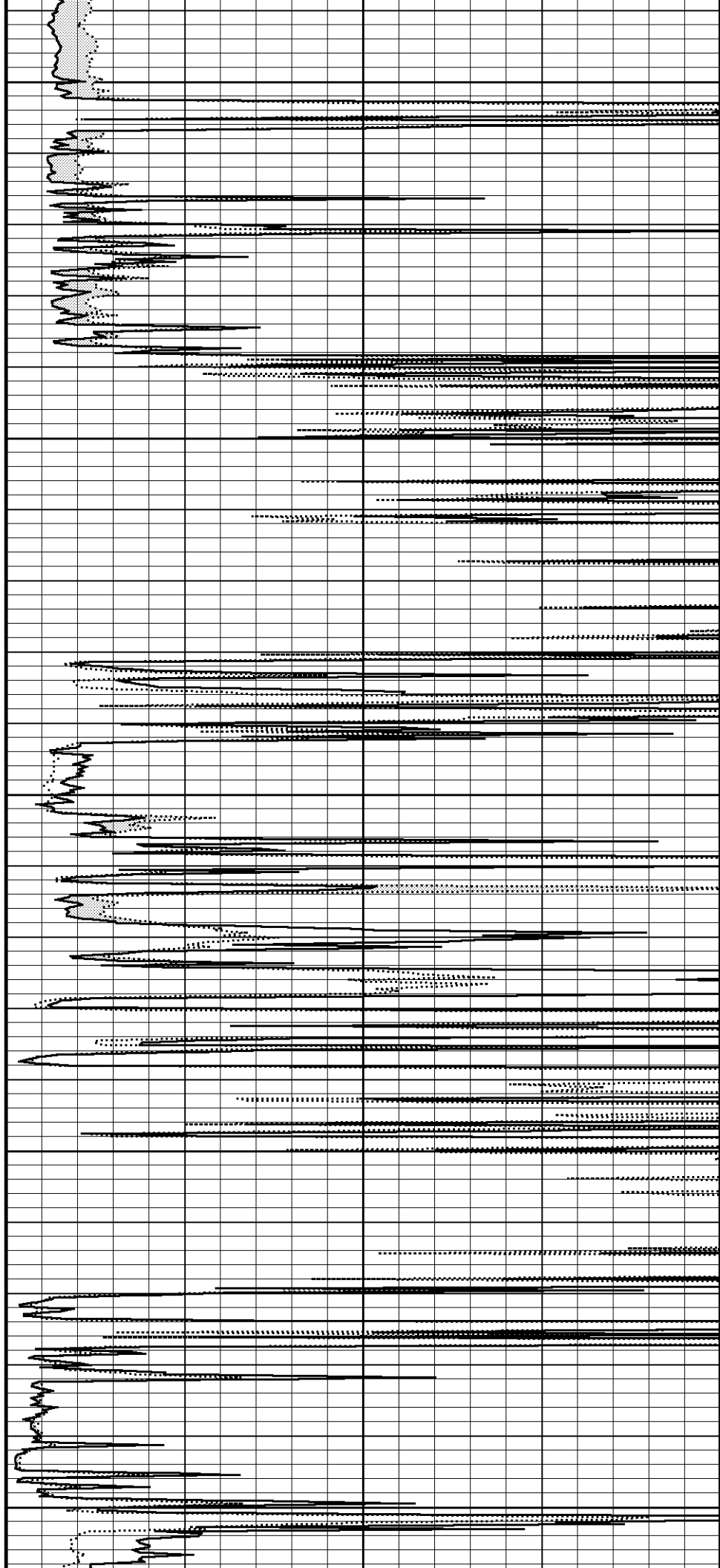
4400

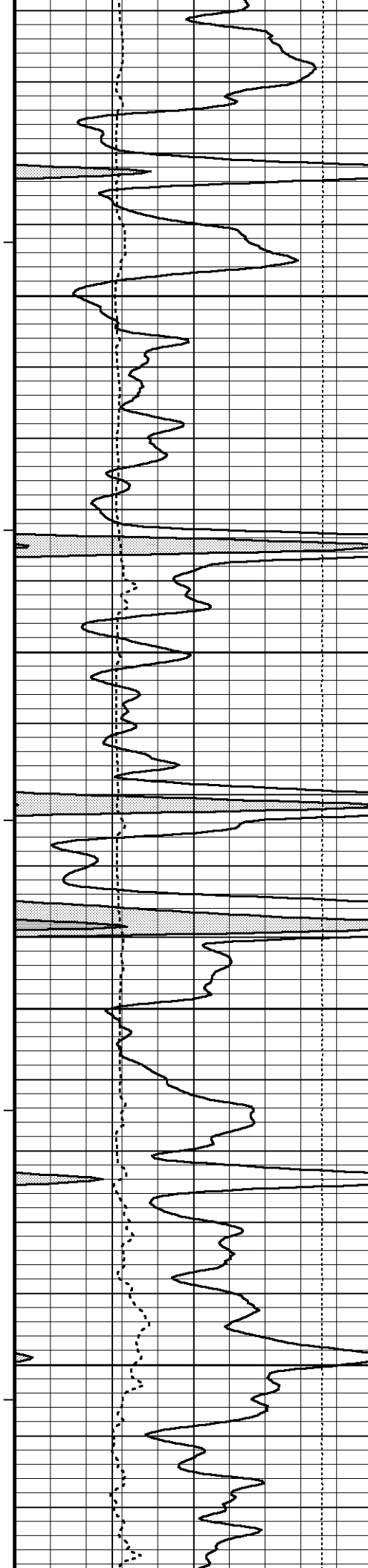
116°

4450

116°

4500





116°

4550

116°

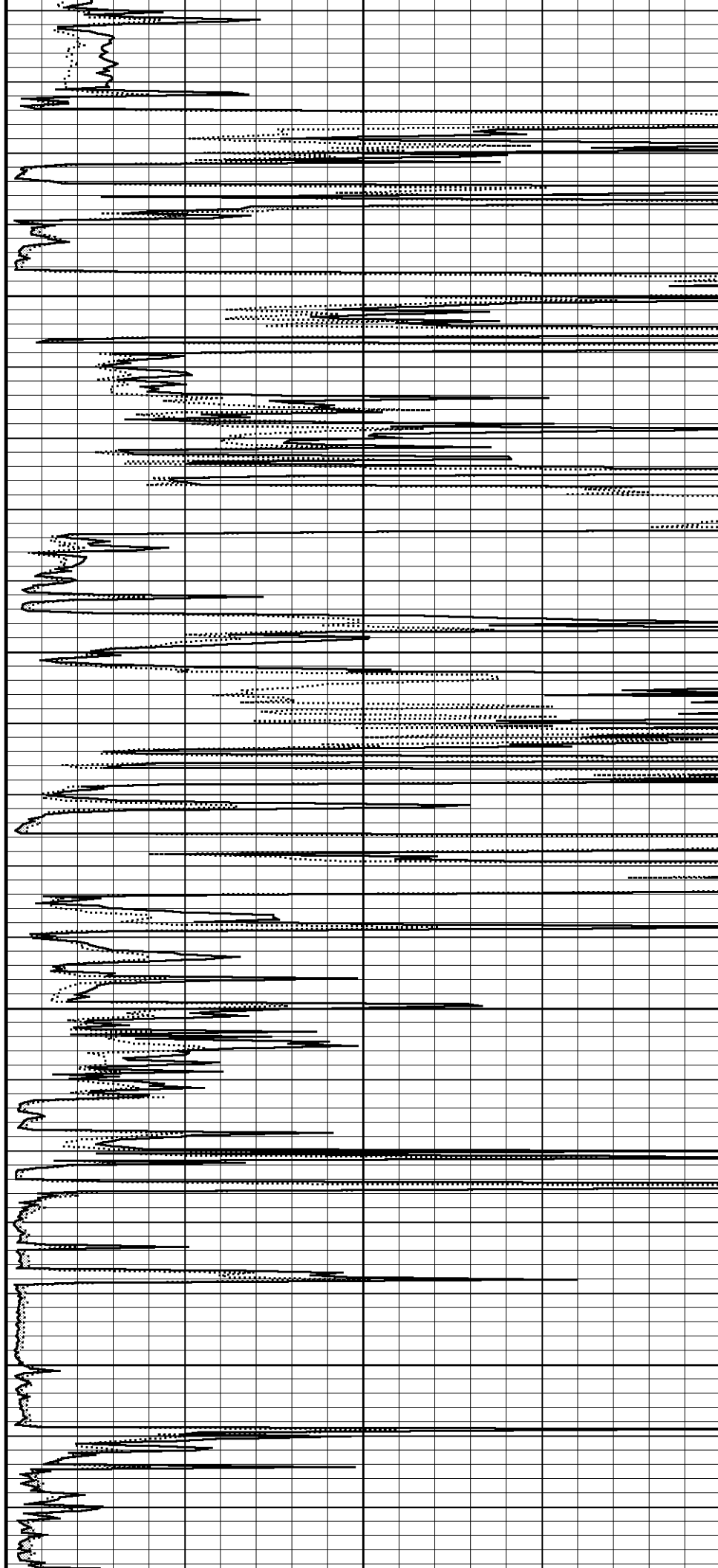
4600

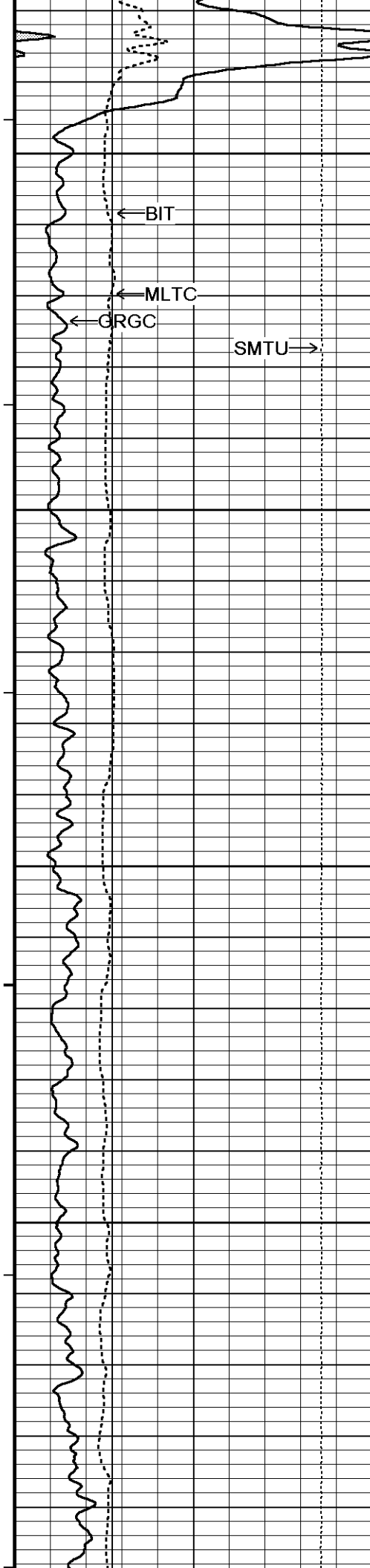
116°

4650

116°

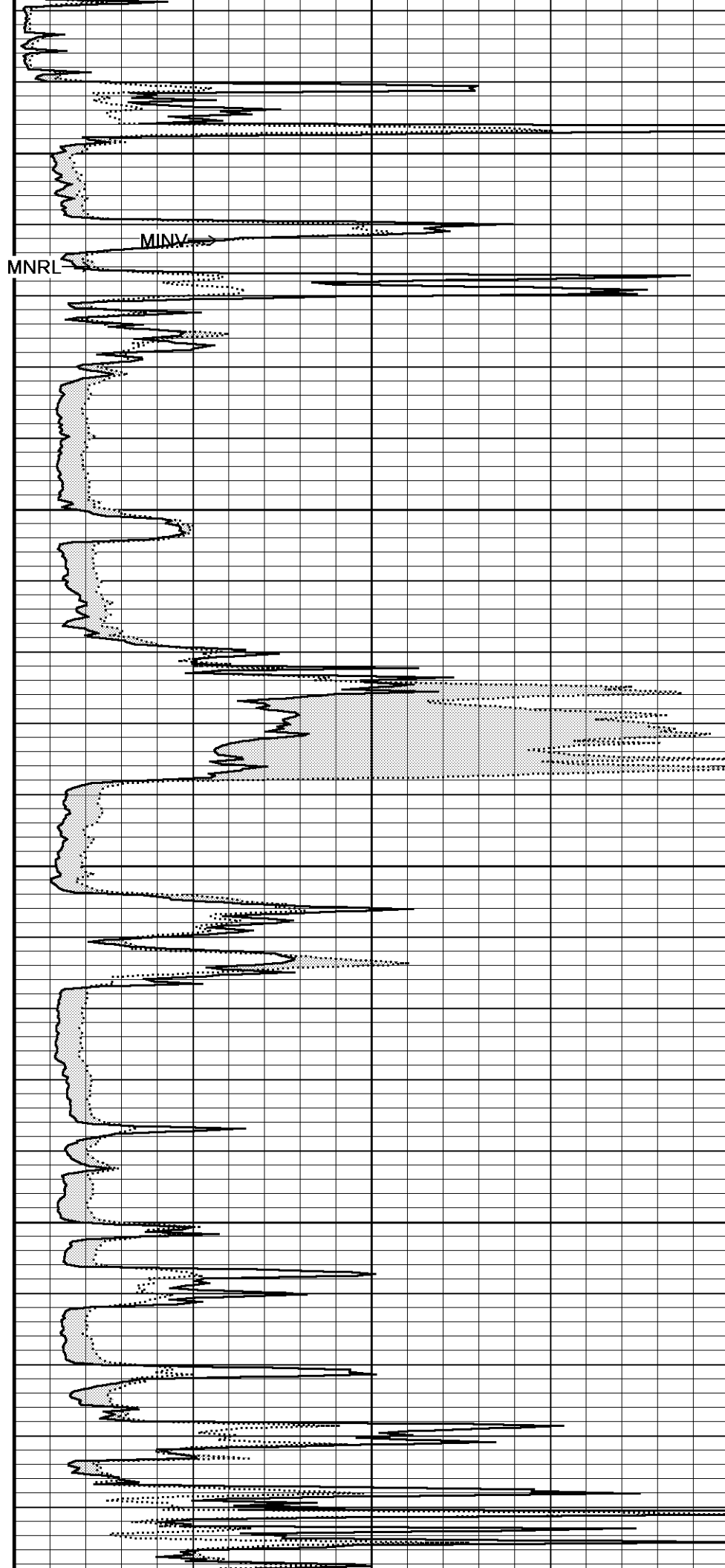
4700





116°

4750



116°

4800

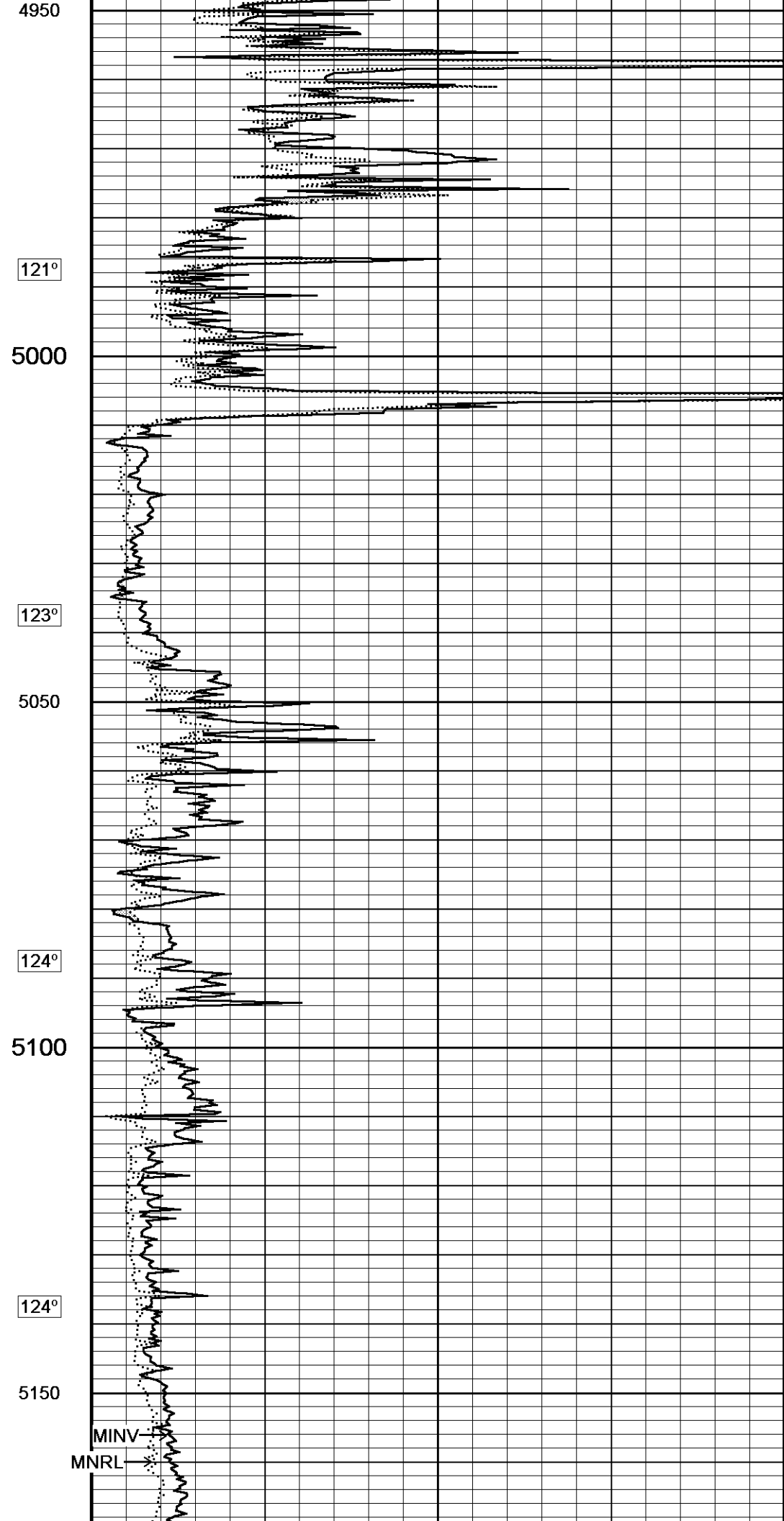
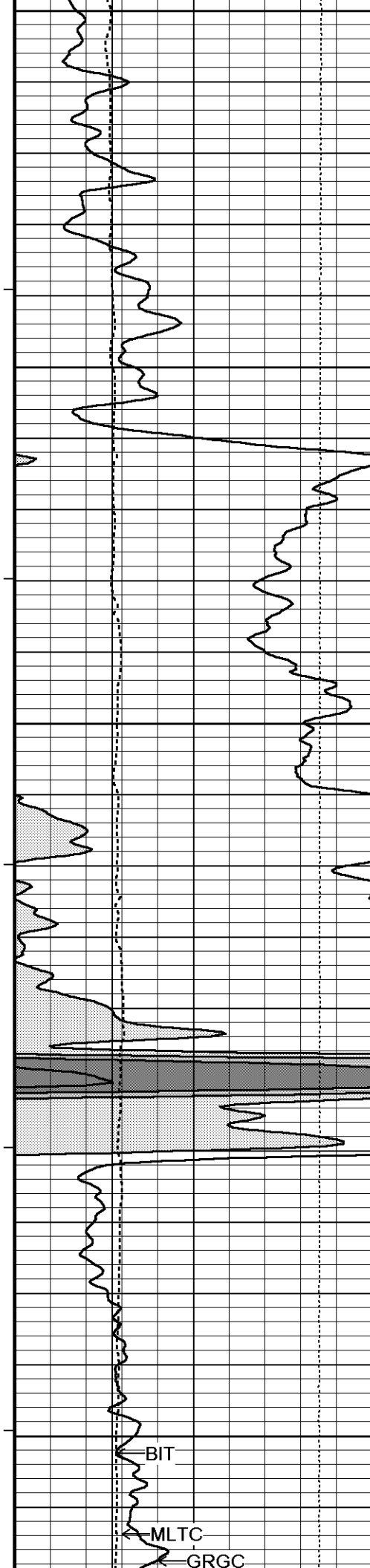
117°

4850

118°

4900

119°



SMTU→

124°

5200

124°

5250

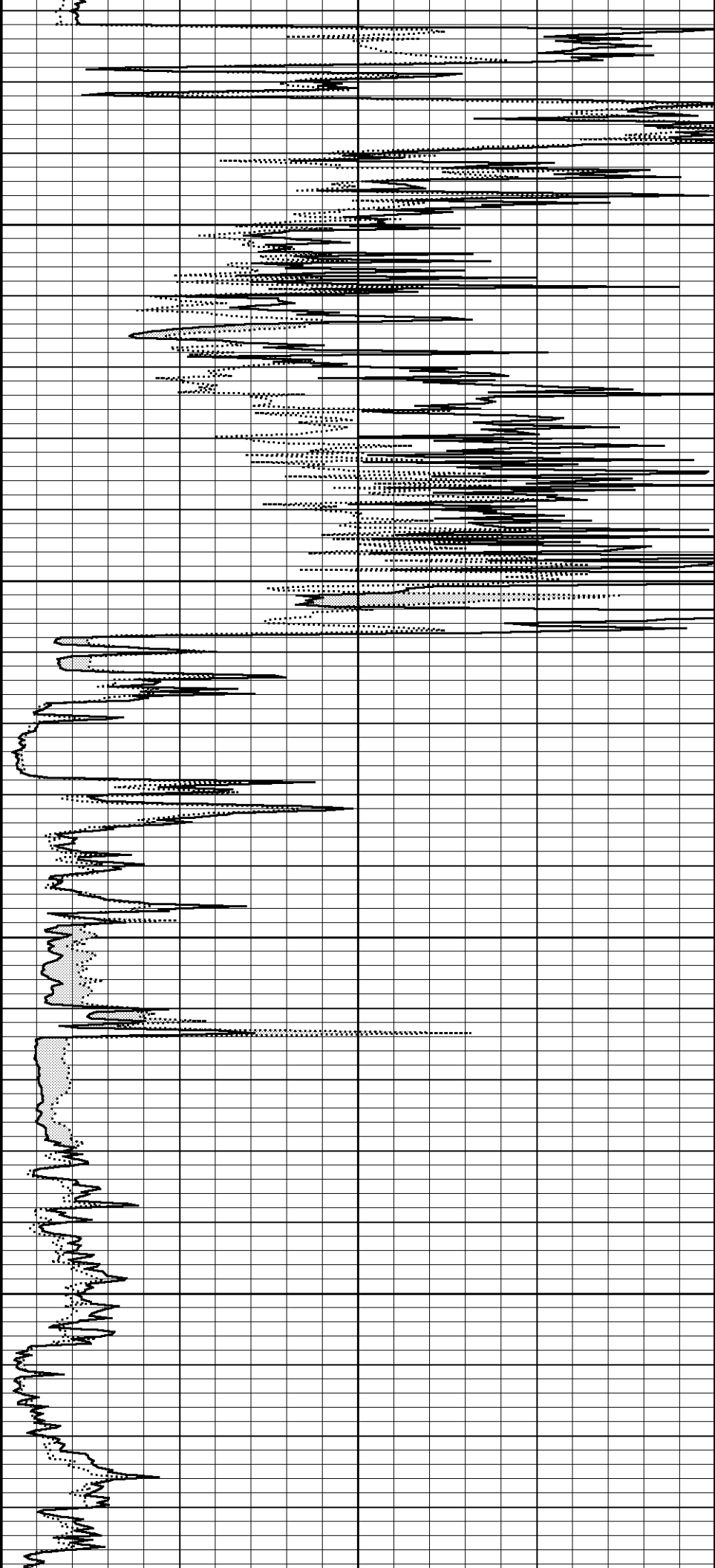
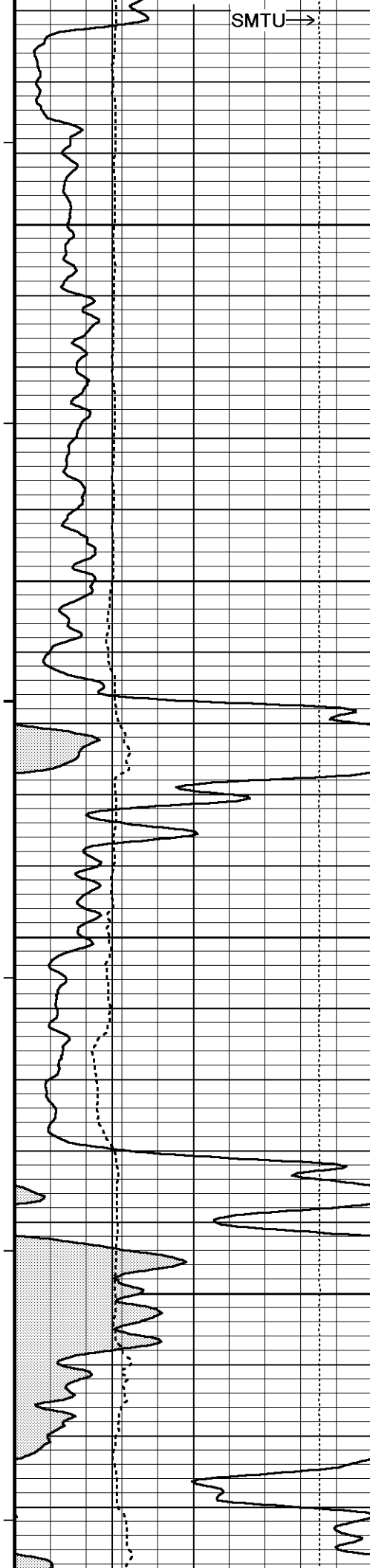
126°

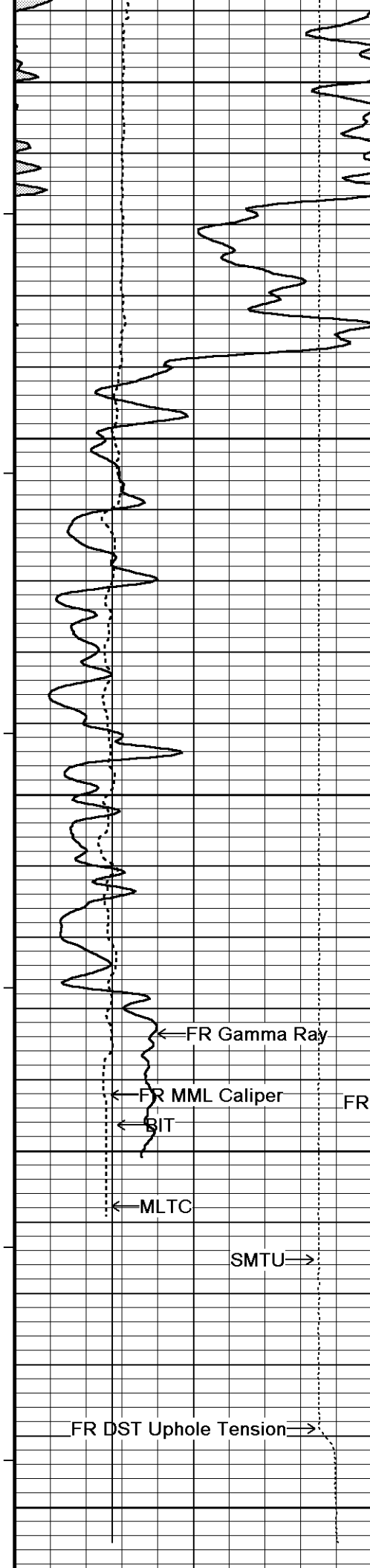
5300

126°

5350

127°





5400

127°

5450

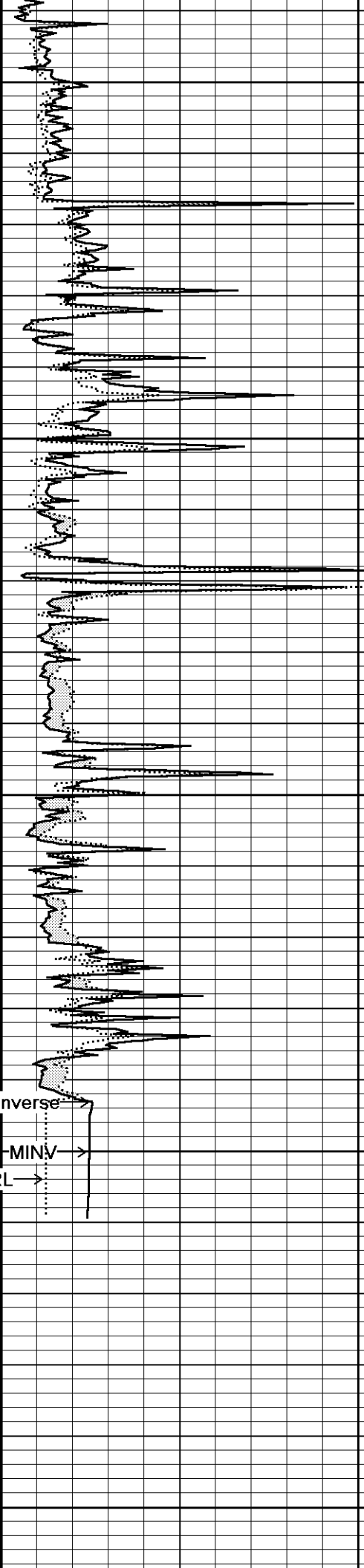
127°

5500

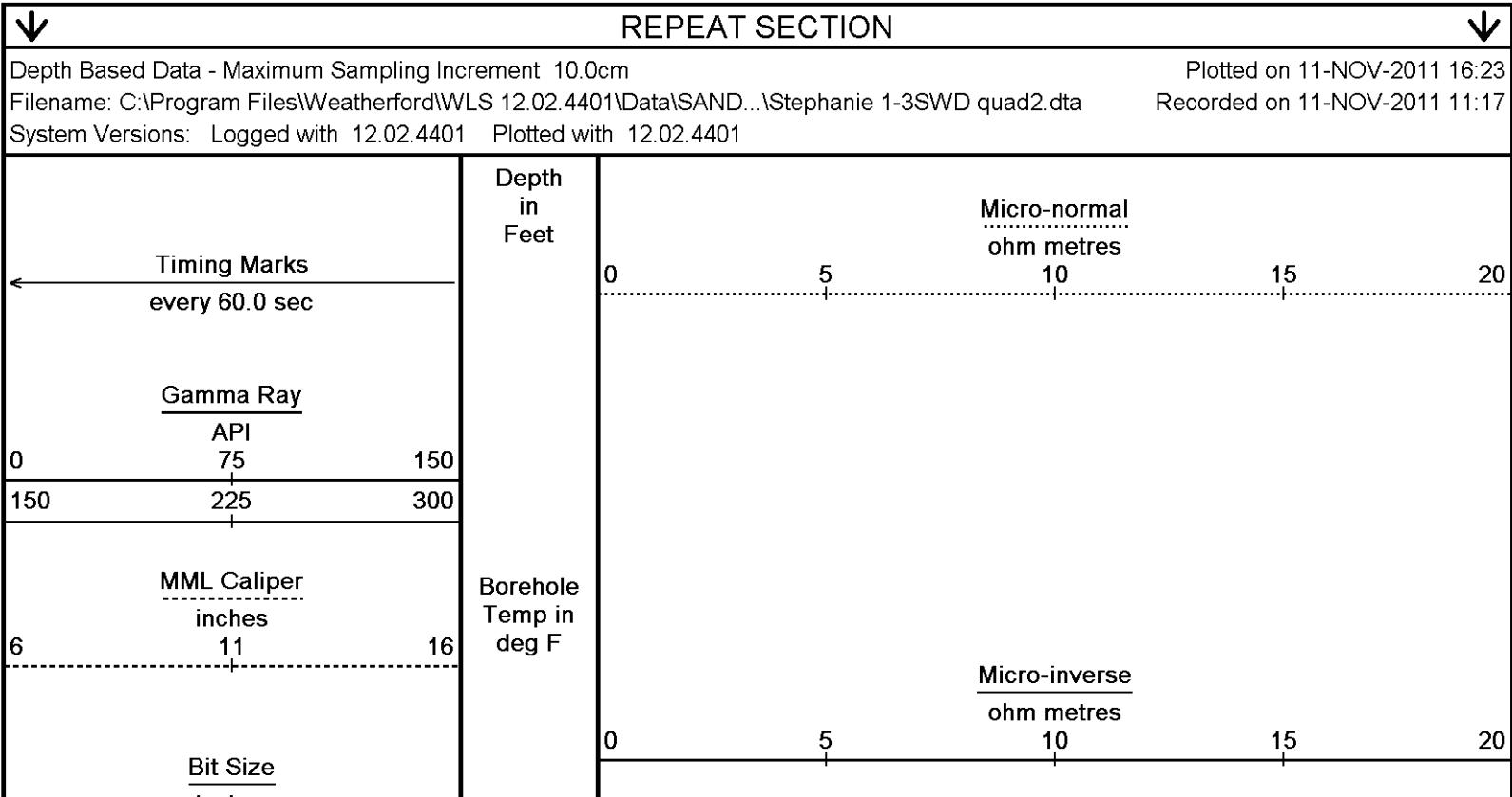
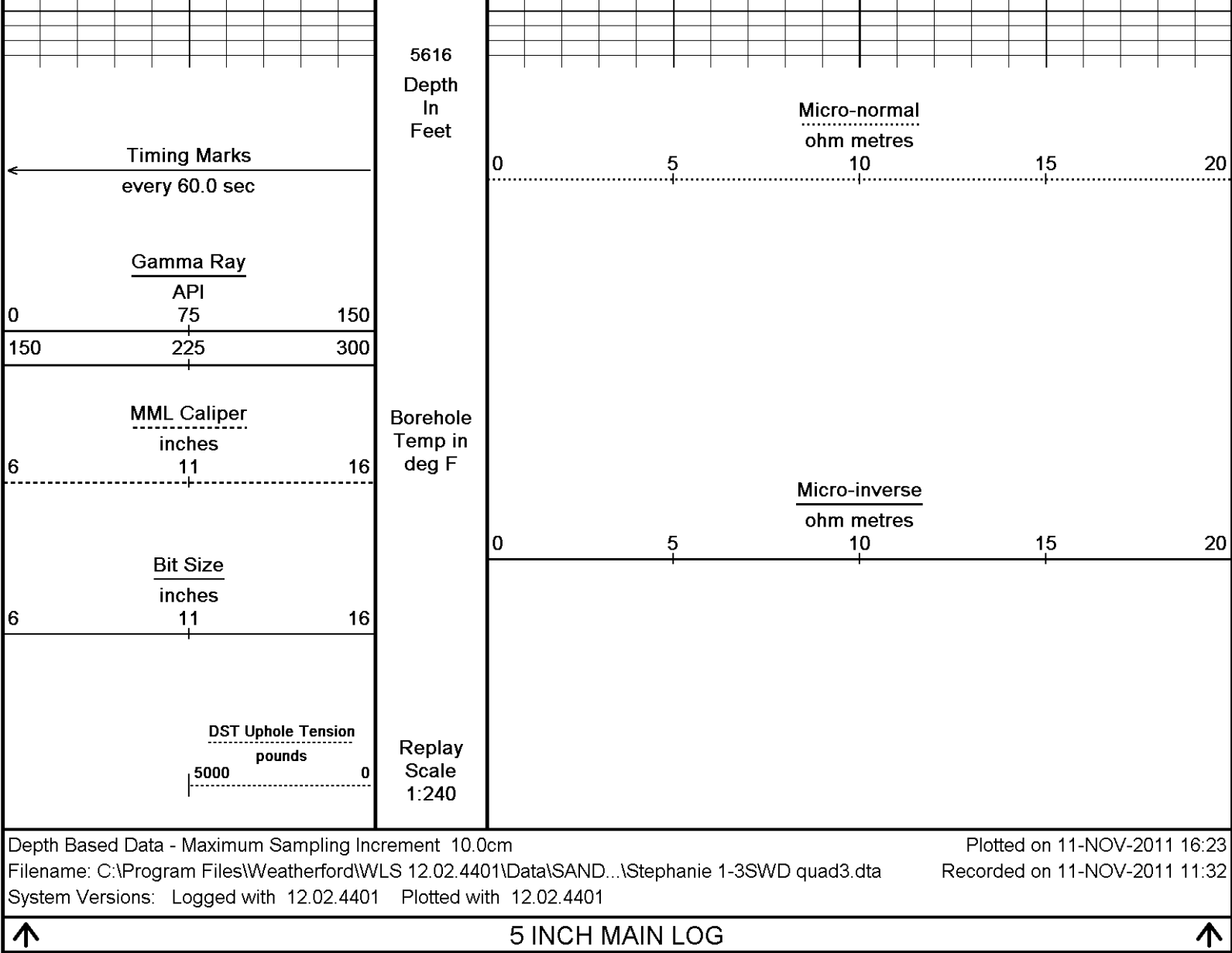
127°

5550

MNRL



5600



Inches

6

11

16

DST Uphole Tension
pounds

5000

0

Replay
Scale
1:240

5238

5250

125°

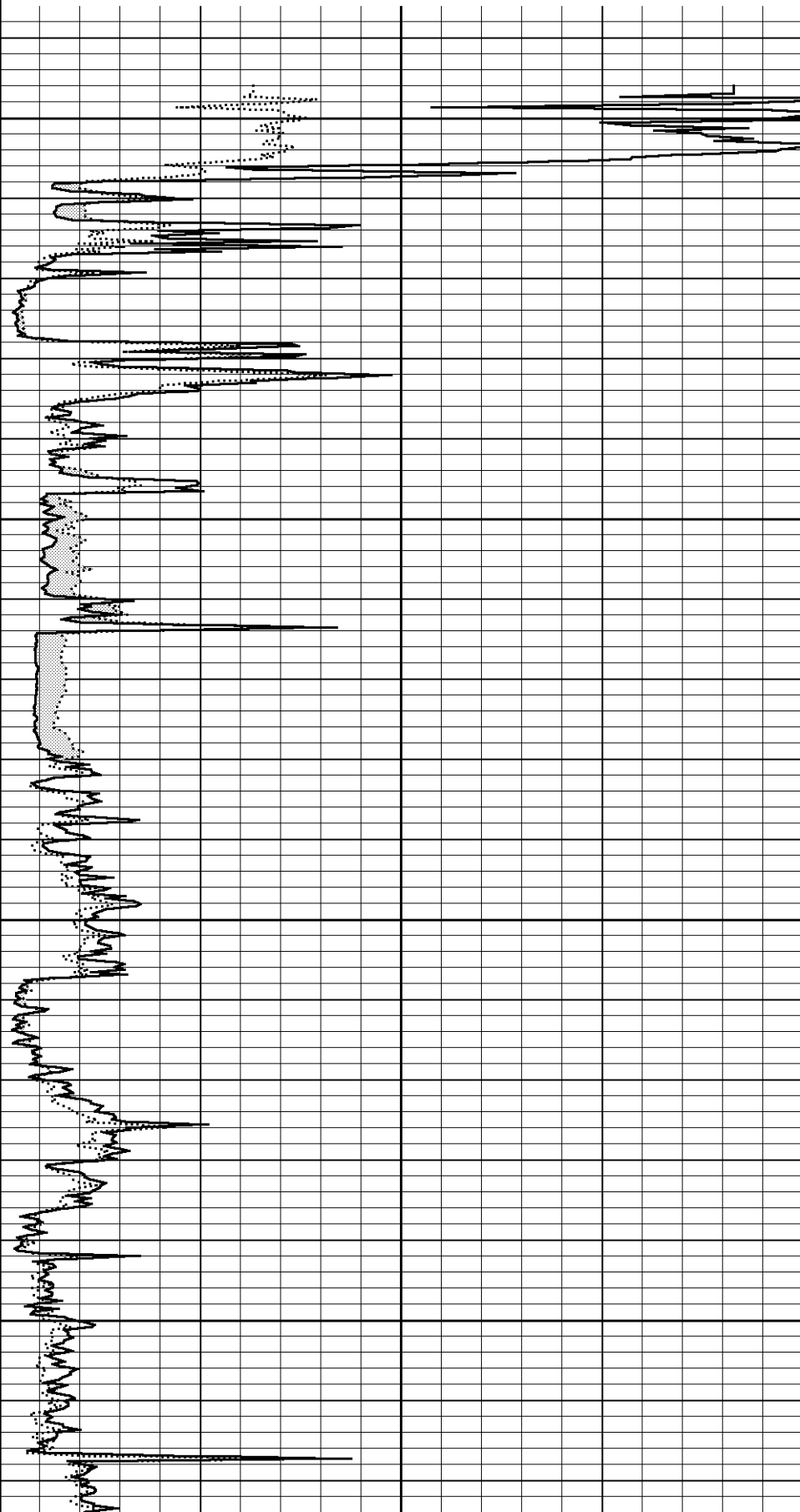
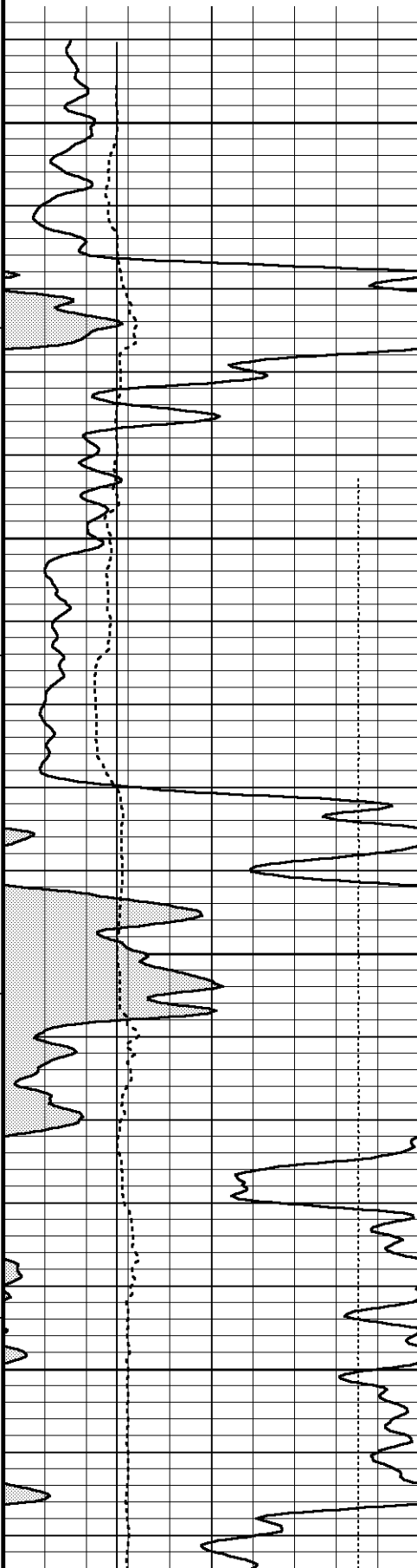
5300

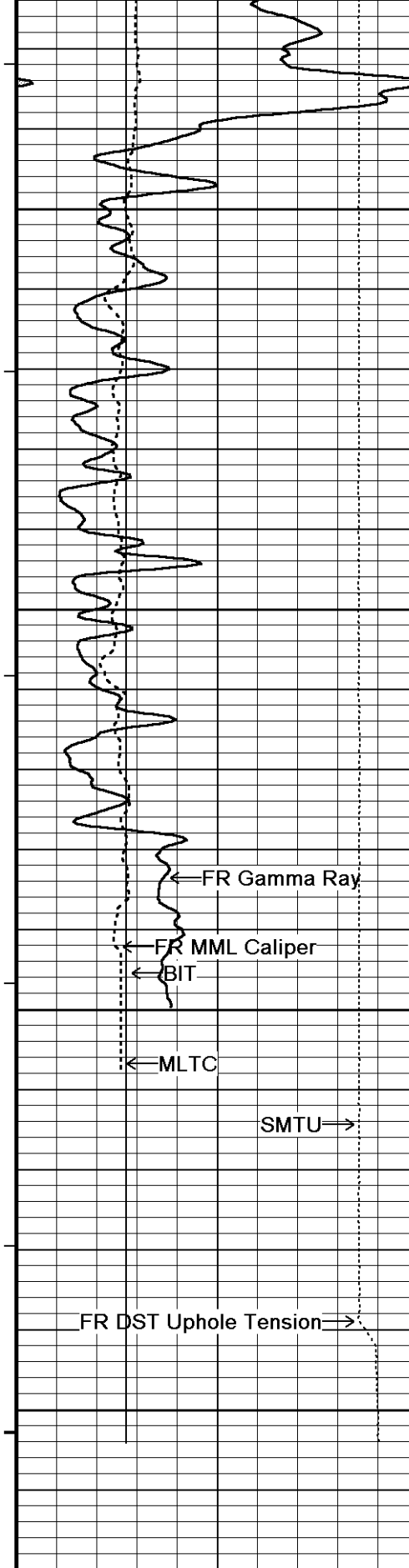
125°

5350

126°

5400





126°

5450

126°

5500

126°

5550

5600

5618

Depth
in
Feet

FRFR Micro-inverse

MINV

MNRL

Timing Marks
every 60.0 sec

Micro-normal
ohm metres

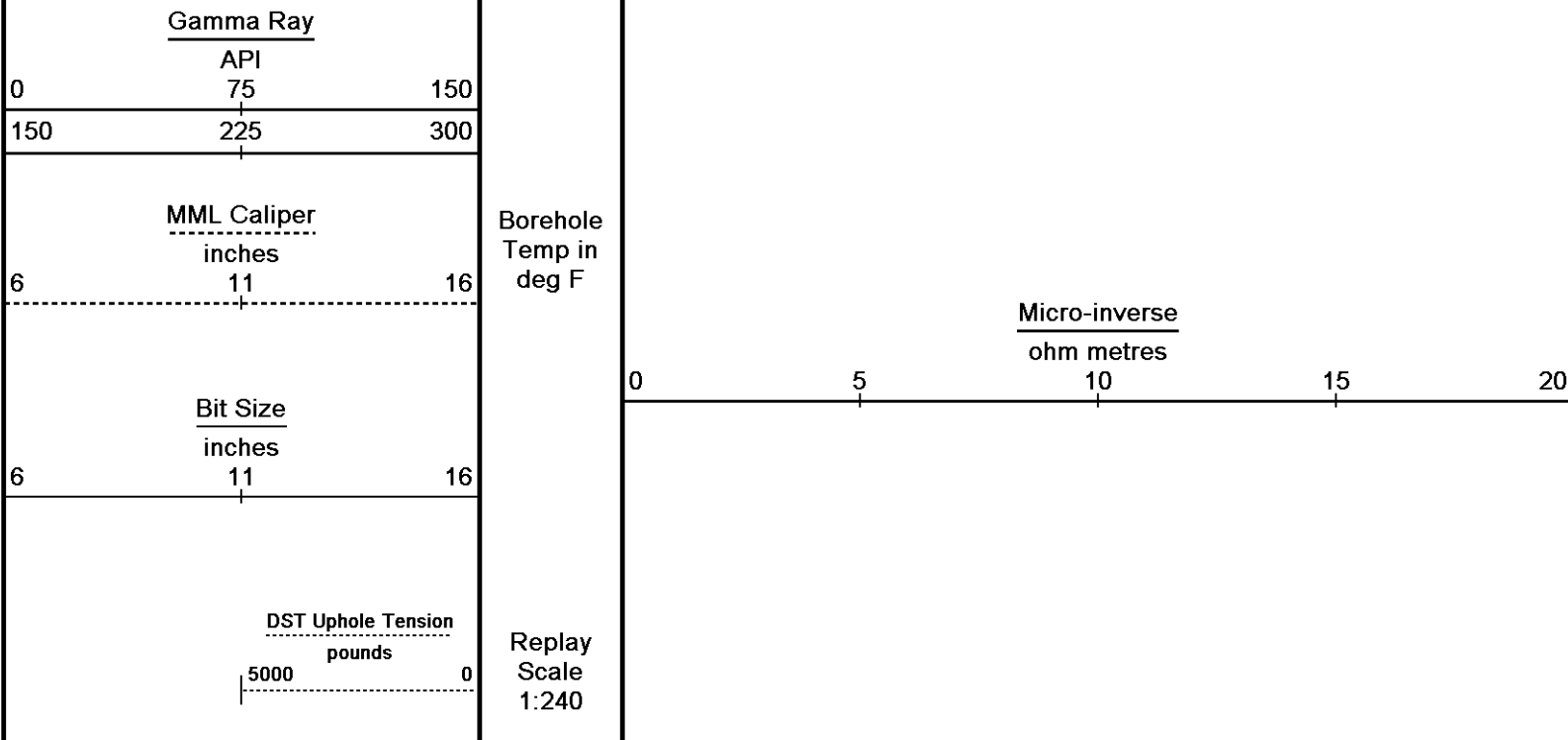
0

5

10

15

20



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 11-NOV-2011 16:23
 Filename: C:\Program Files\Weatherford\WLS 12.02.4401\Data\SAND...Stephanie 1-3SWD quad2.dta Recorded on 11-NOV-2011 11:17
 System Versions: Logged with 12.02.4401 Plotted with 12.02.4401

↑
 REPEAT SECTION
 ↑

BEFORE SURVEY CALIBRATION
 C:\Program Files\Weatherford\WLS 12.02.4401\Data\SANDRIDGE (Stephanie 1-3 SWD)\Stephanie 1-3SWD quad.dta

General Constants All 000		Last Edited on 11-NOV-2011 10:24
General Parameters		
Mud Resistivity	1.500	ohm-metres
Mud Resistivity Temperature	70.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	7.000	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	

Down-hole Tension Calibration SMS 0			Field Calibration on 03-NOV-2011 00:00
Reading No	Measured	Calibrated (lbs)	
1	14363.30	0.00	
2	14882.20	420.00	

SP Calibration MCG-C 93			Field Calibration on 10-NOV-2011 10:18
	Measured	Calibrated (mV)	
Reference 1	100.0	100.0	
Reference 2	-100.0	-100.0	

High Resolution Temperature Calibration MCG-C 93			Field Calibration on 10-NOV-2011 10:18
	Measured	Calibrated(Deg F)	

Lower	50.00	50.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MCG-C 93			Last Edited on	
Pre-filter Length	11			
Gamma Calibration MCG-C 93			Field Calibration on 10-NOV-2011 10:29	
	Measured	Calibrated (API)		
Background	39	28		
Calibrator (Gross)	1031	724		
Calibrator (Net)	992	696		
Gamma Constants MCG-C 93			Last Edited on 11-NOV-2011 09:46	
Gamma Calibrator Number	036			
Mud Density	1.09	gm/cc		
Caliper Source for Processing	Density Caliper			
Tool Position	Eccentred			
Concentration of KCl	0.00	kppm		
Caliper Calibration MML-A 7			Base Calibration on 28-OCT-2011 12:29 Field Calibration on 11-NOV-2011 10:26	
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	15410	5.96		
2	18697	7.98		
3	22057	9.94		
4	25813	11.90		
5	0	0.00		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	8.91	8.92		
Micro Normal and Micro Inverse Calibration MML-A 7			Base Calibration on 28-OCT-2011 12:20 Field Check on 11-NOV-2011 10:14	
Base Calibration				
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Resistor 2
Micro Normal	11.9	60.3	2.6	12.8
Micro Inverse	15.6	77.9	1.7	8.4
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	32.0		32.0	
Micro Inverse	16.4		16.4	
Micro Normal and Micro Inverse Constants MML-A 7			Last Edited on 30-SEP-2011 11:02	
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 31			Base Calibration on 10-NOV-2011 10:00 Field Check on 10-NOV-2011 10:18	
Base Calibration				
	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3307	102	3714	110
Ratio	32.458		33.764	
Field Calibrator at Base				
			Calibrated (cps)	
			2195	3229
Ratio	0.680			
Field Check				
			Calibrated (cps)	
			2253	3270
Ratio	0.689			
Neutron Constants MDN-A.B 31			Last Edited on 11-NOV-2011 09:46	

Neutron Source Id	N1054		
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	MCG External Temperature		
Temperature	N/A	degrees F	
Mud Salinity	0.00	kppm	
Formation Fluid Salinity Source	Constant Value		
Formation Fluid Salinity	0.00	kppm	
Barite Mud Correction	Not Applied		
Salinity Correction	Not Applied		

FE Calibration MFE-A.A 54		Base Calibration on 28-OCT-2011 12:41 Field Check on 11-NOV-2011 10:13	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	969.1	126.8	
Base Check		282.1	
Field Check		282.1	

FE Constants MFE-A.A 54		Last Edited on 11-NOV-2011 09:47	
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-A.A 40		Last Edited on 11-NOV-2011 10:17			
Maximum Boundary Contrast	328.08	micro-sec/m			
Fluid Transit Time	620.08	micro-sec/m			
Limestone Transit Time	155.84	micro-sec/m			
Sandstone Transit Time	182.09	micro-sec/m			
Dolomite Transit Time	142.72	micro-sec/m			
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	272.72	micro-sec/m			
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		Discriminator (mV)	Depth (ft)
Start Time (micro-sec)	End Time (micro-sec)			
N/A	N/A		N/A	0.00
N/A	N/A		N/A	0.00
N/A	N/A		N/A	0.00
N/A	N/A		N/A	0.00
N/A	N/A		N/A	0.00
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

High Resolution Temperature Calibration MAI-B.J 390			Field Calibration on 07-NOV-2011 02:31
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI-B.J 390		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-B.J 390			Base Calibration on 16-AUG-2010 14:24	Field Check on 11-NOV-2011 10:16
Base Calibration				
Test Loop Calibration		Measured	Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	16.8	458.6	9.3	966.2
2	6.3	377.7	7.6	821.4
3	3.8	258.6	5.2	566.0
4	1.9	132.3	2.6	279.2
Array Temperature	77.9		Deg F	
Channel		Base Check (mmho/m)	Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	16.2	3953.7
2	0.0	0.0	32.6	3558.1
3	0.0	0.0	30.2	3056.9
4	0.0	0.0	21.2	2085.0
Deep	0.0	0.0	18.6	2003.2
Medium	0.0	0.0	43.4	4006.6
Shallow	0.0	0.0	48.7	5252.9
Array Temperature	0.0		63.7	Deg F

Induction Constants MAI-B.J 390		Last Edited on 11-NOV-2011 09:47
Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	6.0000	
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	0.0060	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	

Caliper Calibration MPD-A.A 11

Base Calibration on 10-NOV-2011 15:41
Field Calibration on 10-NOV-2011 15:43

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	15968	4.01
2	24277	5.96
3	32864	7.98
4	41441	9.94
5	50192	11.90
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.96	7.98

Photo Density Calibration MPD-A.A 11

Base Calibration on 10-NOV-2011 15:28
Field Check on 10-NOV-2011 15:37

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	59597	31577	60364	31946
Reference 2	24527	2746	25079	2547

Field Check at Base		
	1227.3	1318.8

Field Check		
	1224.0	1329.2

PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	223	1078		
Reference 1	22974	59374	0.390	0.399
Reference 2	6432	24363	0.267	0.273

Field Check at Base		
	222.6	1078.4

Field Check		
	219.5	1073.2

Density Source Id	P56135B	
Nylon Calibrator Number	603	
Aluminium Calibrator Number	509	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.09	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:\Program Files\Weatherford\WLS 12.02.4401\Data\SANDRIDGE (Stephanie 1-3 SWD)\Stephanie 1-3SWD quad.dta

MCB-A 11B Tension Cablehead
MCB-A 1 LG: 2.18 ft WT: 19.8 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 205 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

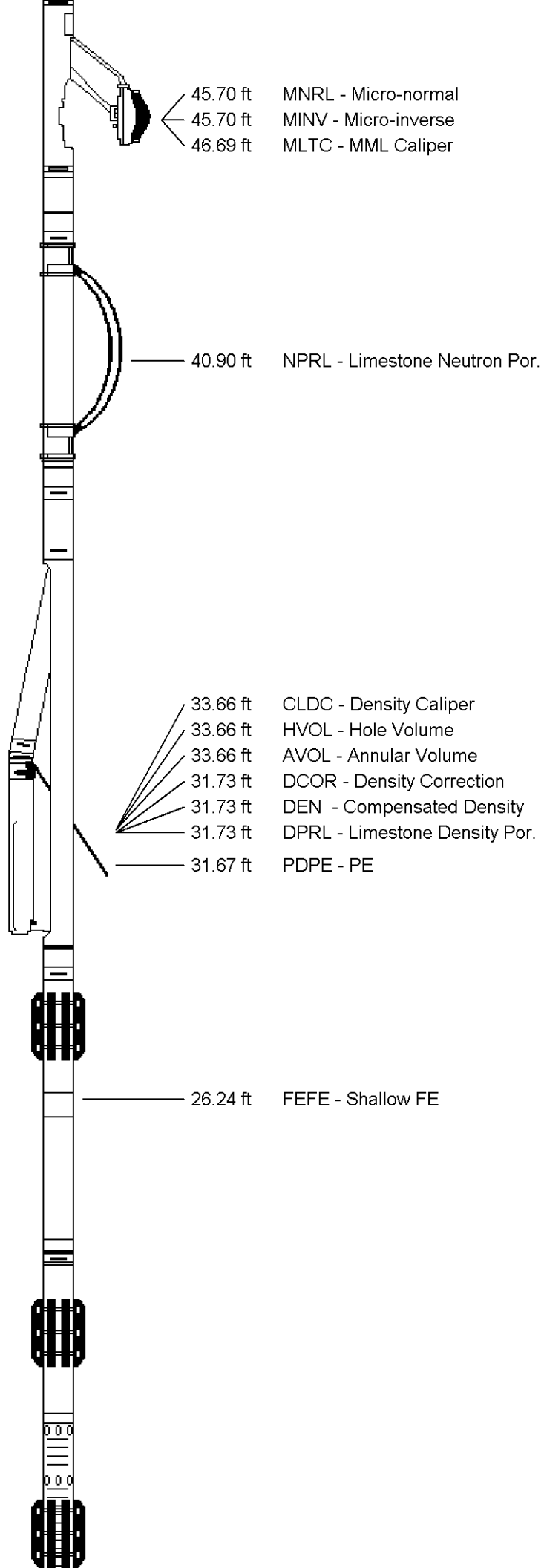
Compact Comms Gamma
MCG-C 93 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



55.32 ft GRGC - Gamma Ray

52.42 ft CGXT - MCG External Temperature

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in



Compact Neutron

MDN-A.B 31 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-A.A 11 LG: 9.53 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric

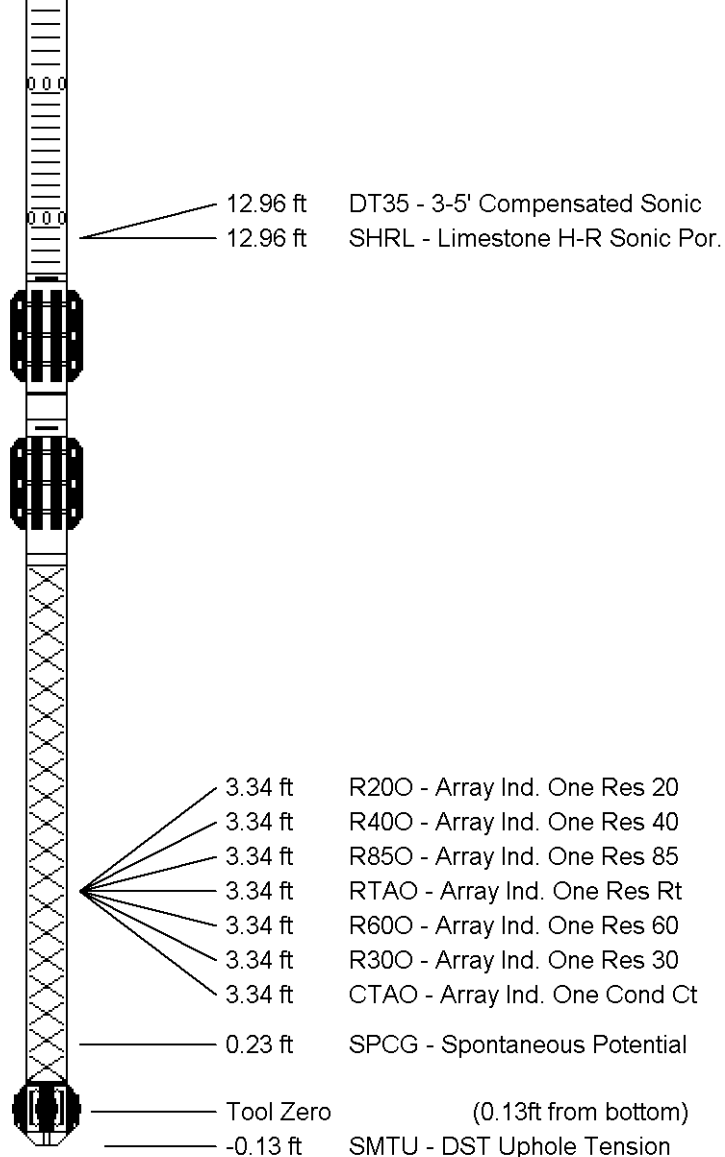
MFE-A.A 54 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic

MSS-A.A 40 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction

MAI-B.J 390 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in



Total Length: 65.09 ft Weight: 498.2 lb

All measurements relative to tool zero.

COMPANY SANDRIDGE
WELL STEPHANIE 1-3 SWD
FIELD WOLDRON-WEST
PROVINCE/COUNTY BARBER
COUNTRY/STATE USA / KANSAS

Elevation Kelly Bushing	1328.00	feet	First Reading	5542.00	feet
Elevation Drill Floor	1326.00	feet	Depth Driller	5594.00	feet
Elevation Ground Level	1317.00	feet	Depth Logger	5589.00	feet



Weatherford®

MICRO RESISTIVITY LOG

