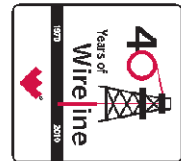




**Weatherford**

**MICRORESISTIVITY LOG**

COMPANY O'BRIEN ENERGY RESOURCES CORP.  
 WELL HULL #2-11  
 FIELD ADAMS RANCH  
 PROVINCE/COUNTY MEADE  
 COUNTRY/STATE U.S.A. / KANSAS  
 LOCATION 660' FNL & 1650' FEL



SEC TWP RGE Other Services  
 11 34S 30W MAI/MFE MPD/MDN  
 API Number 15-119-21280  
 Permit Number

Permanent Datum G.L., Elevation 2668 feet  
 Log Measured From K.B. @ 12 FEET above Permanent Datum  
 Drilling Measured From K.B.

Elevations: feet  
 KB 2680.00  
 DF 2678.00  
 GL 2668.00

Date	13-FEB-2011
Run Number	ONE
Depth Driller	6387.00 feet
Depth Logger	6383.00 feet
First Reading	6347.00 feet
Last Reading	3000.00 feet
Casing Driller	1489.00 feet
Casing Logger	1489.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.20 lb/USg 62.00 CP
PH / Fluid Loss	10.50 5.80 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	1.05 @ 73.0 ohm-m
Rmf @ Measured Temp	0.84 @ 73.0 ohm-m
Rmc @ Measured Temp	1.26 @ 73.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.65 @ 118.0 ohm-m
Time Since Circulation	5 HOURS
Max Recorded Temp	118.00 deg F
Equipment Name	COMPACT
Equipment / Base	13057 LIB
Recorded By	L. SCOTT
Witnessed By	ROGER PEARSON
S.O.# / JOB#	3529057
	PETER DEBENHAM
	LB11-028

**BOREHOLE RECORD**

Last Edited: 13-FEB-2011 20:38

Bit Size inches	Depth From feet	Depth To feet
7.875	1489.00	6383.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1489.00	24.00

**REMARKS**

Tools Used: MCG, MML, MDN, MPD, SKJ, MFE, MAI  
 Hardware: MPD: 8 inch profile plate. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.  
 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.  
 Annular volume with 4.5 inch production casing= 821 cu. ft.  
 Service order #3529057  
 Rig: Duke #6  
 Engineer: L. Scott  
 Operator(s): J. LaPoint, 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.

# 5 INCH MAIN PASS

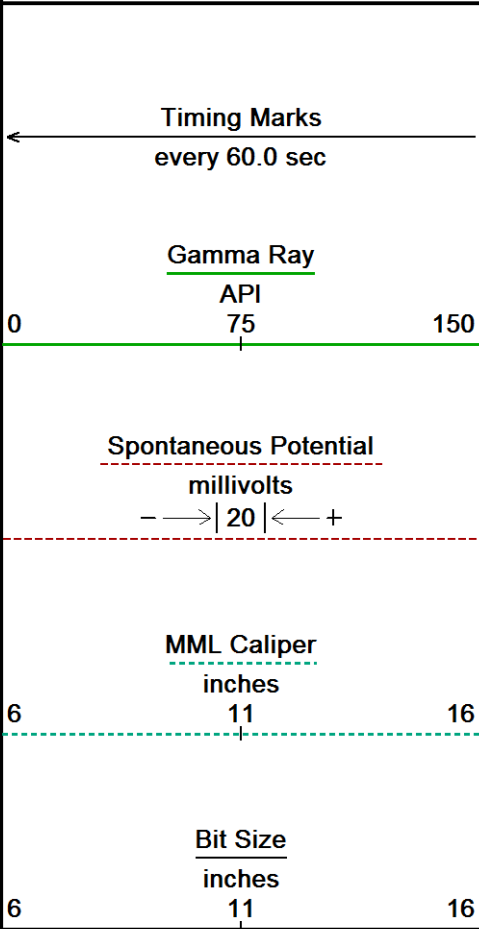
Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 08-MAR-2011 15:40

Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\O'BRIEN HULL #2-11\_006.dta

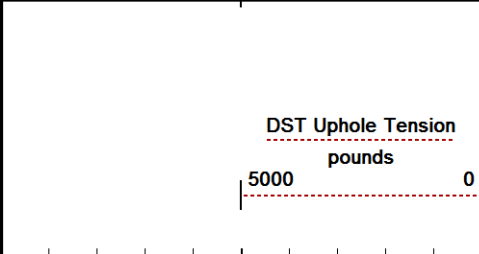
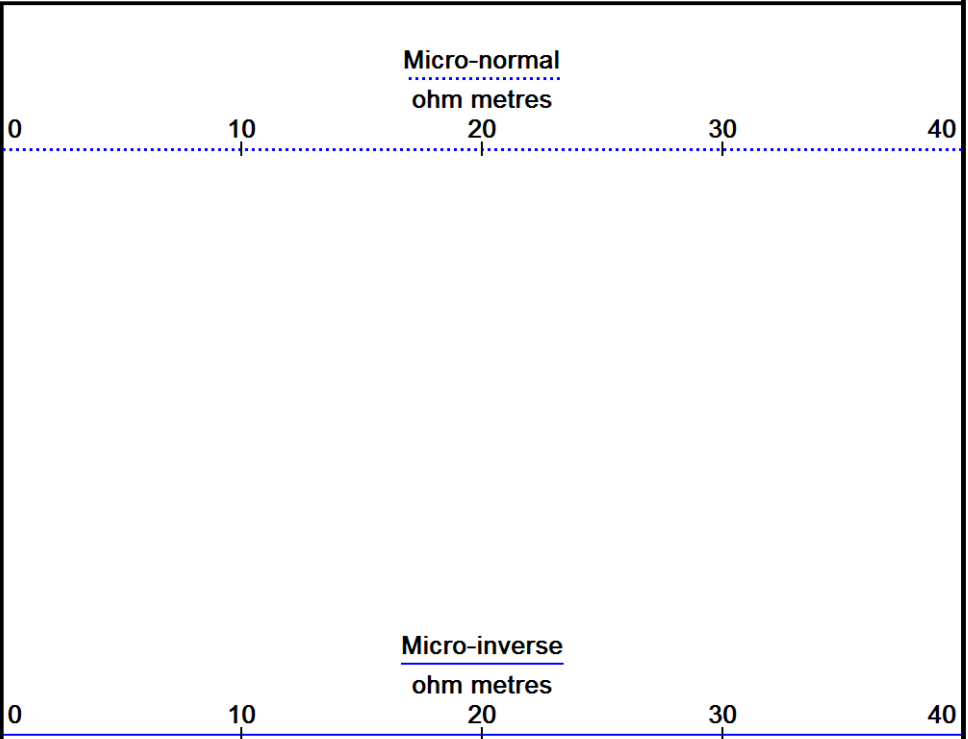
Recorded on 13-FEB-2011 18:15

System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164

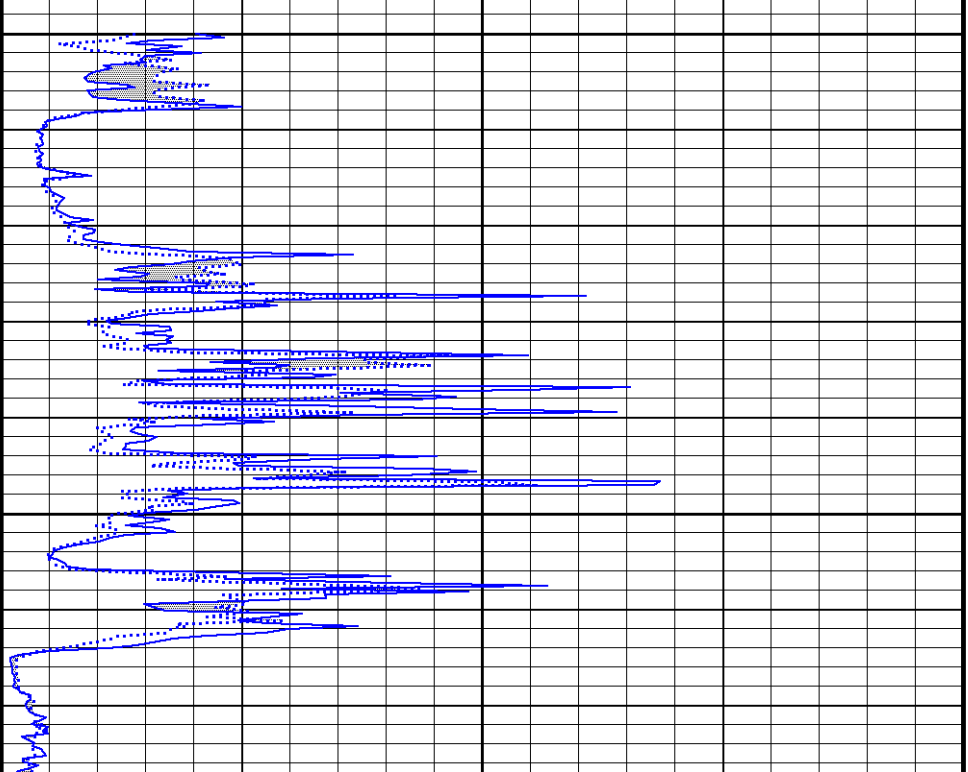
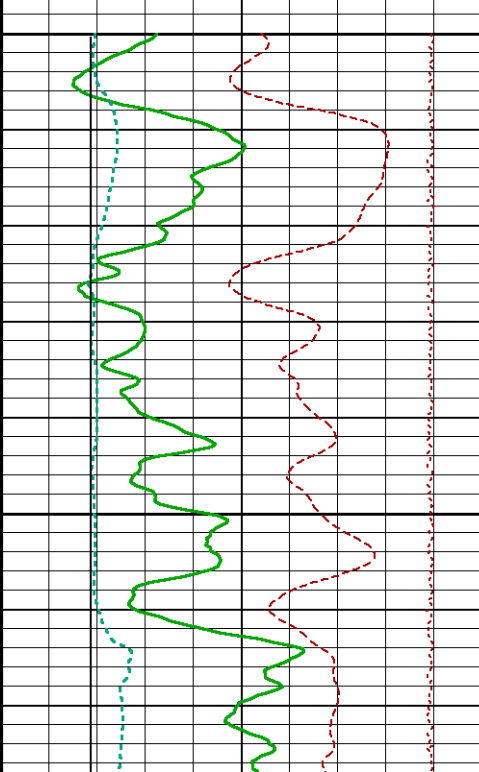


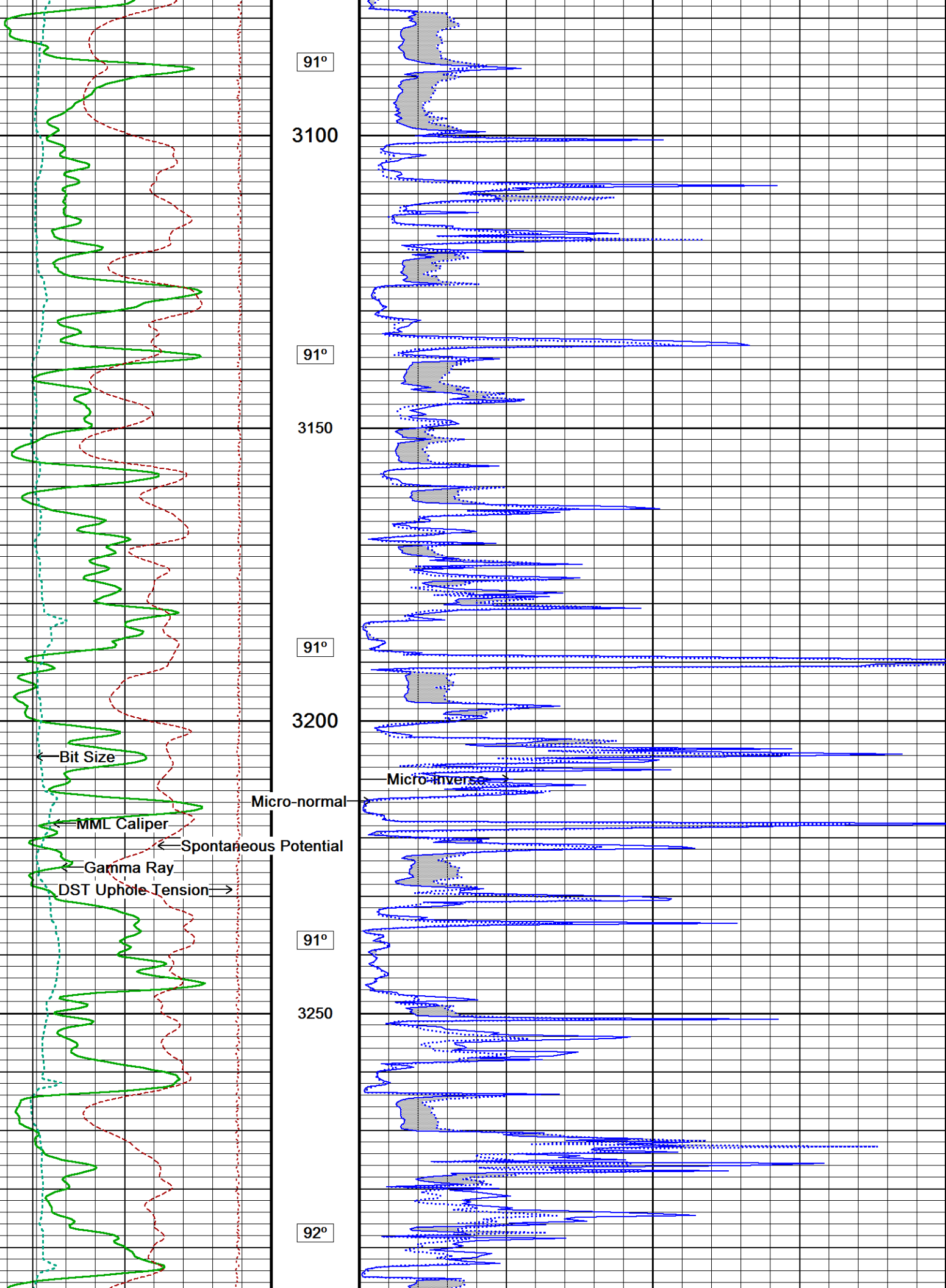
Depth in Feet

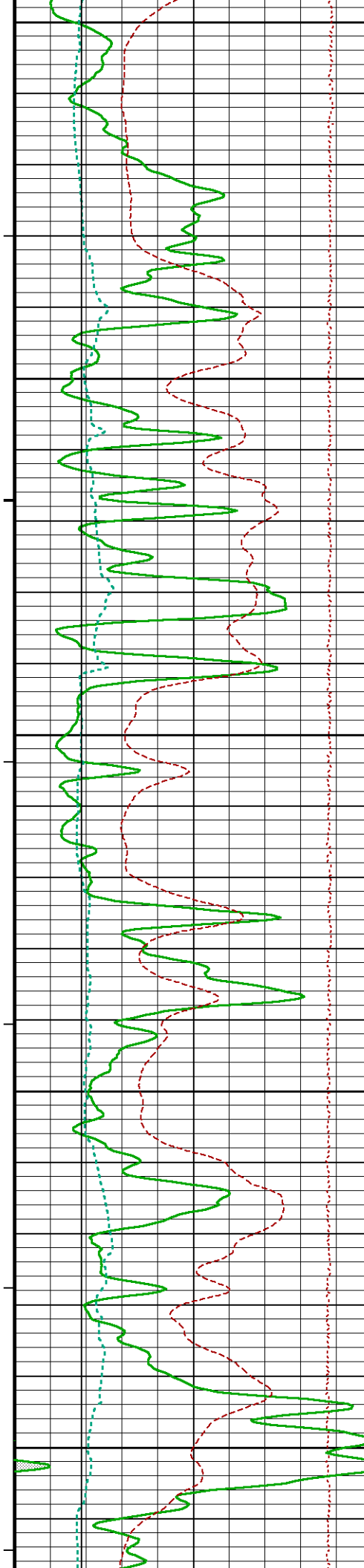
Borehole Temp in deg F



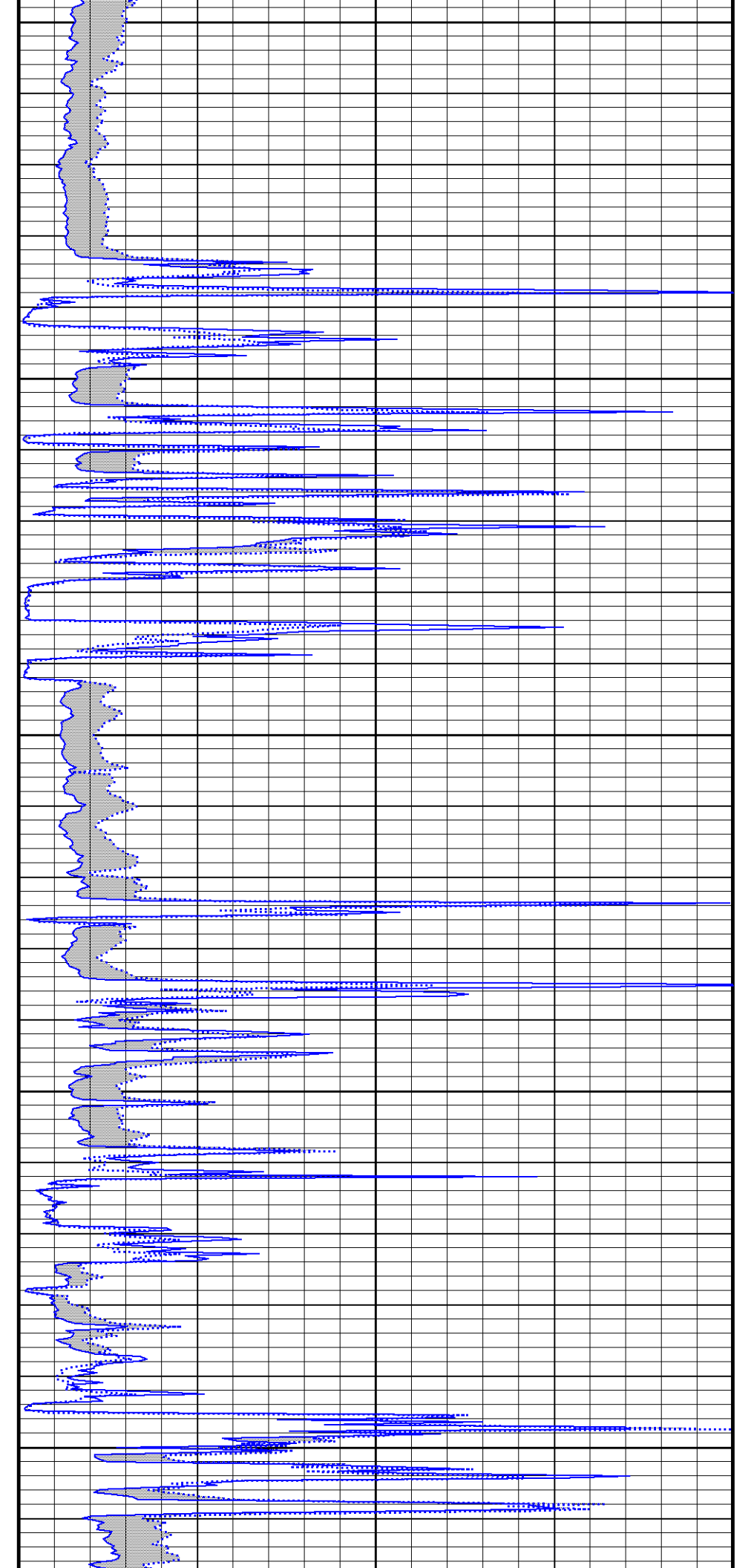
Replay Scale 1:240

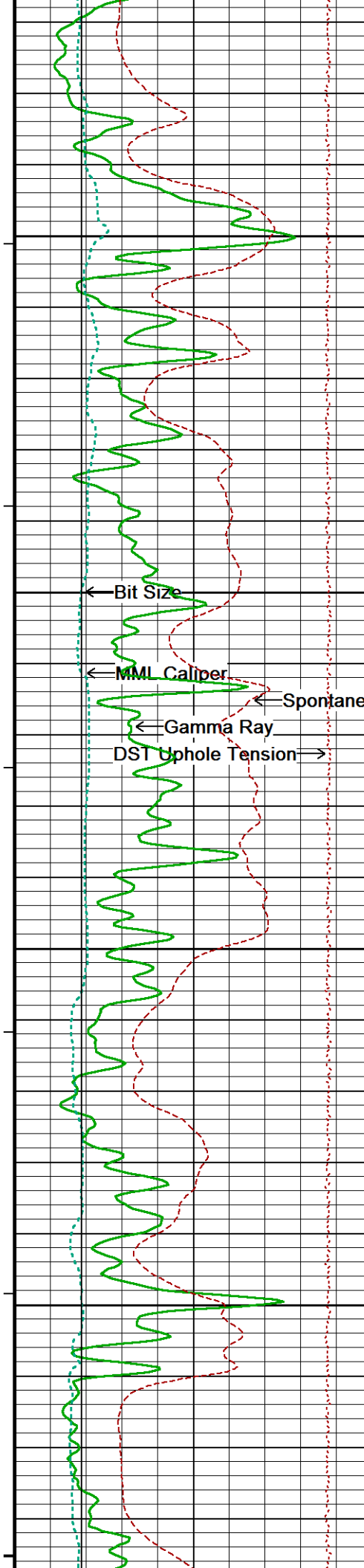






3300  
92°  
3350  
92°  
3400  
92°  
3450  
92°  
3500





93°

3550

93°

3600

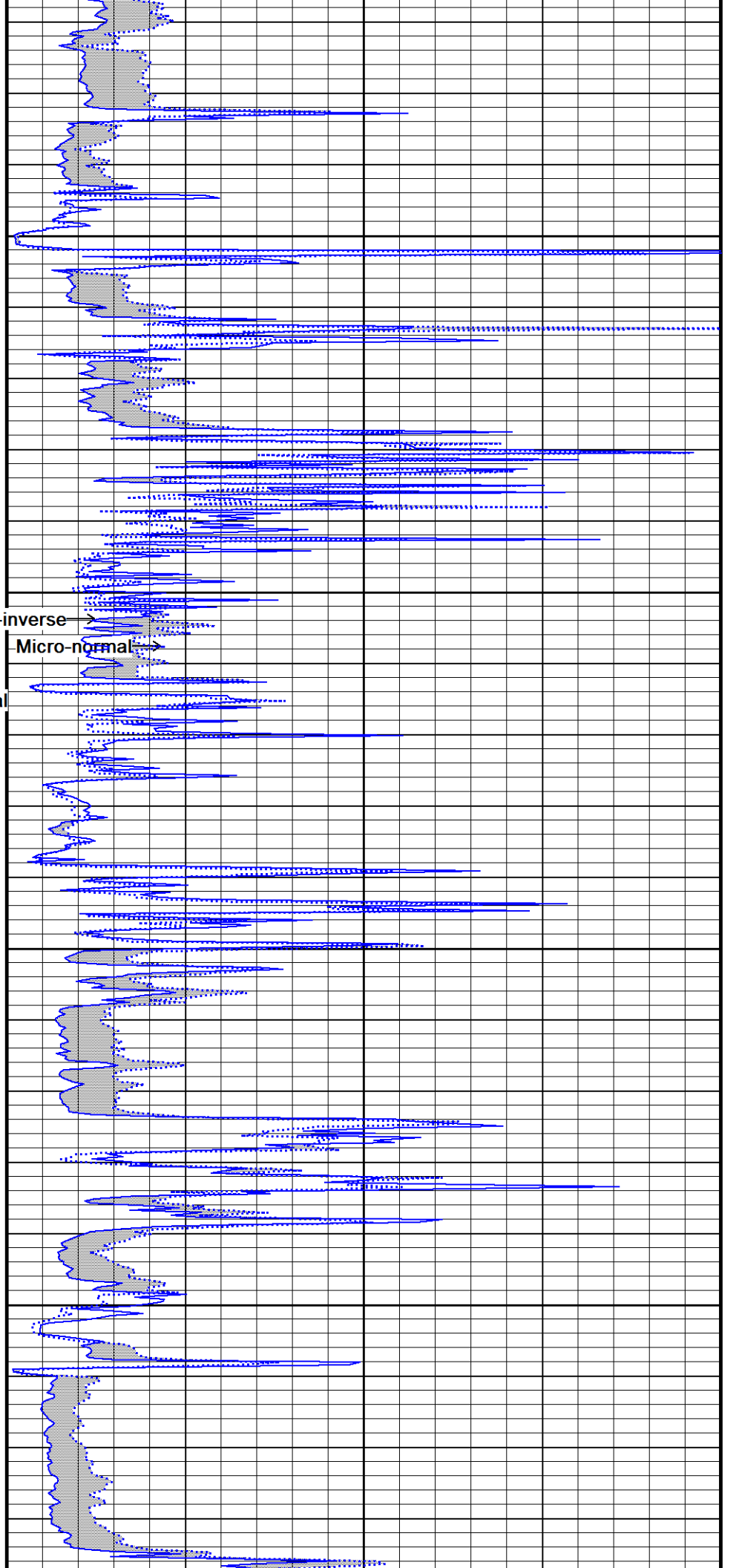
94°

3650

94°

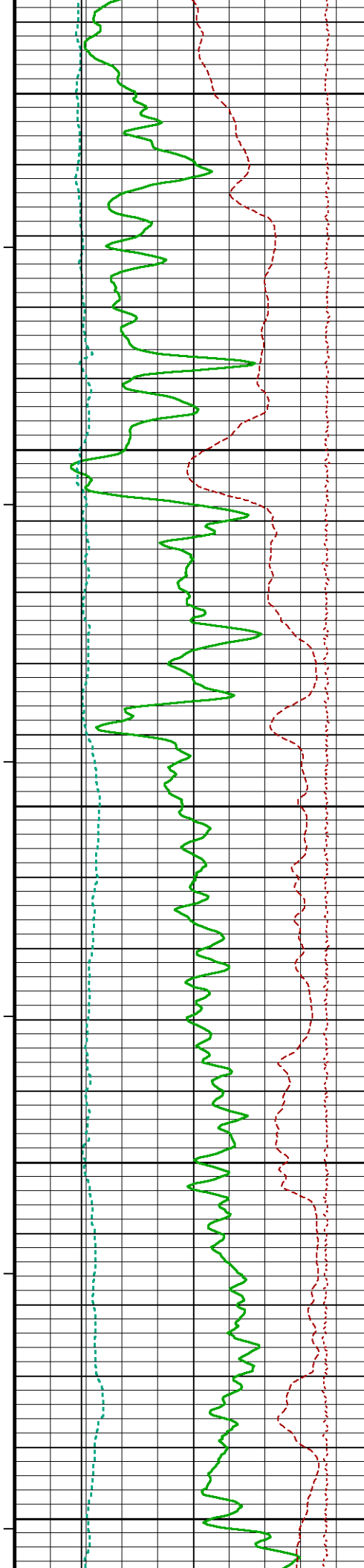
3700

3750

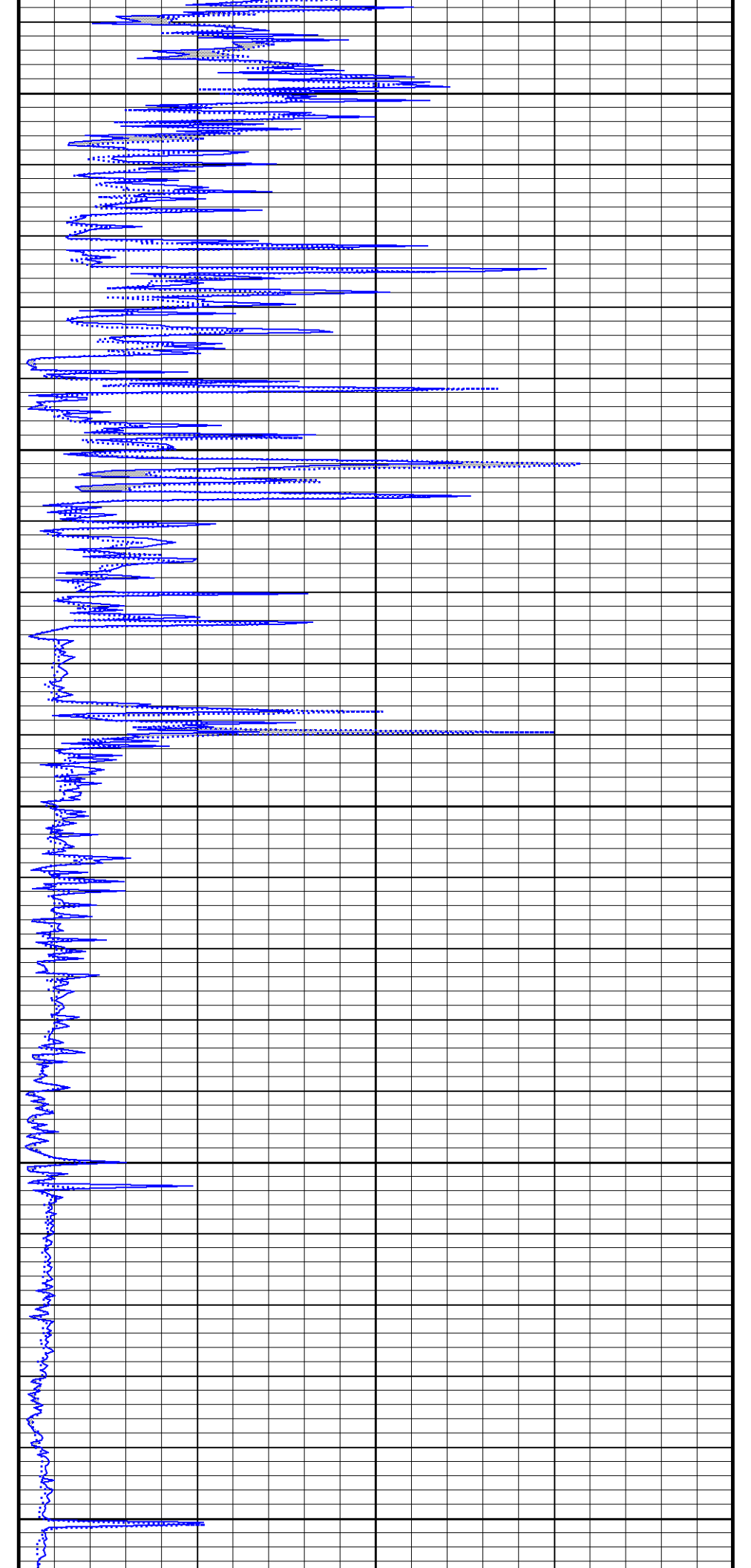


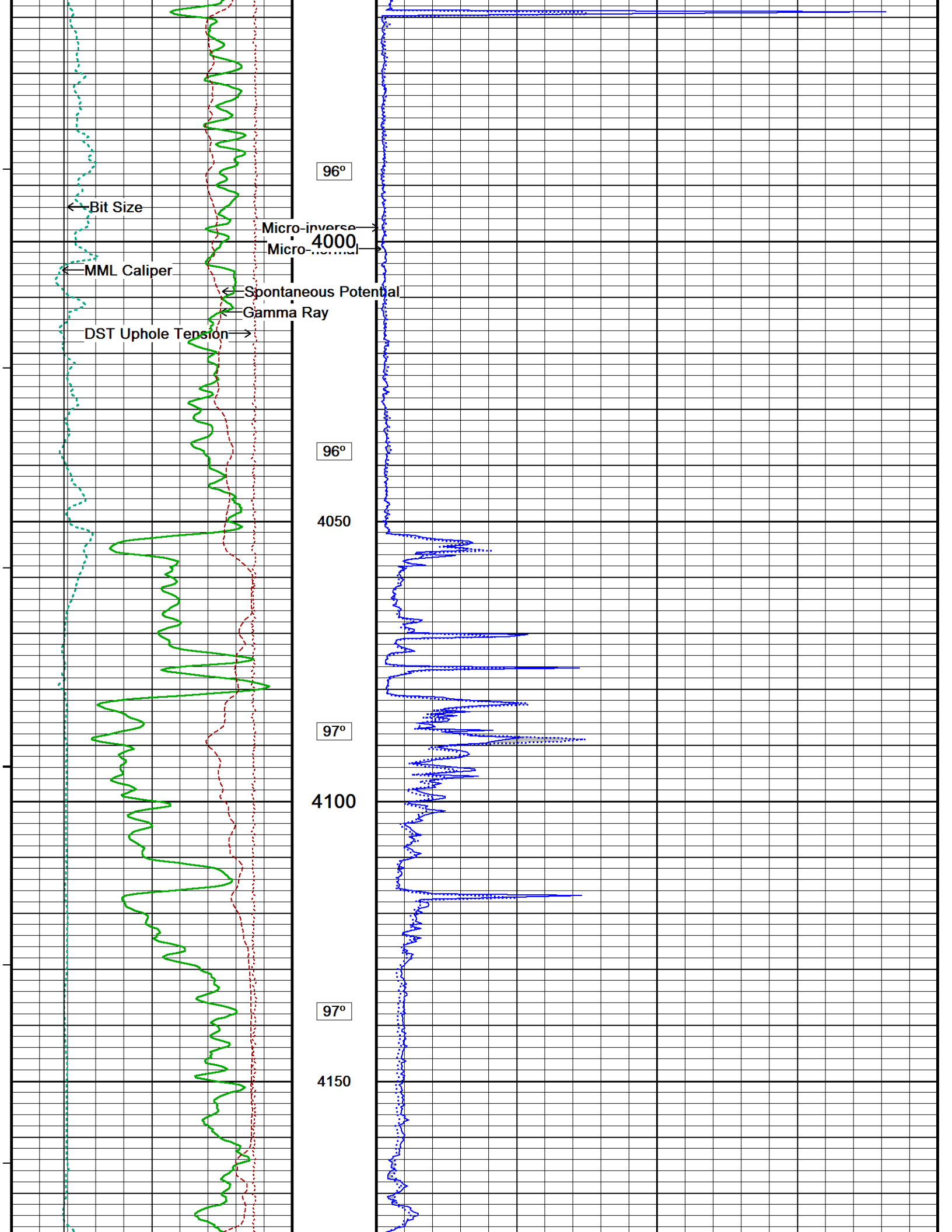
Micro-inverse

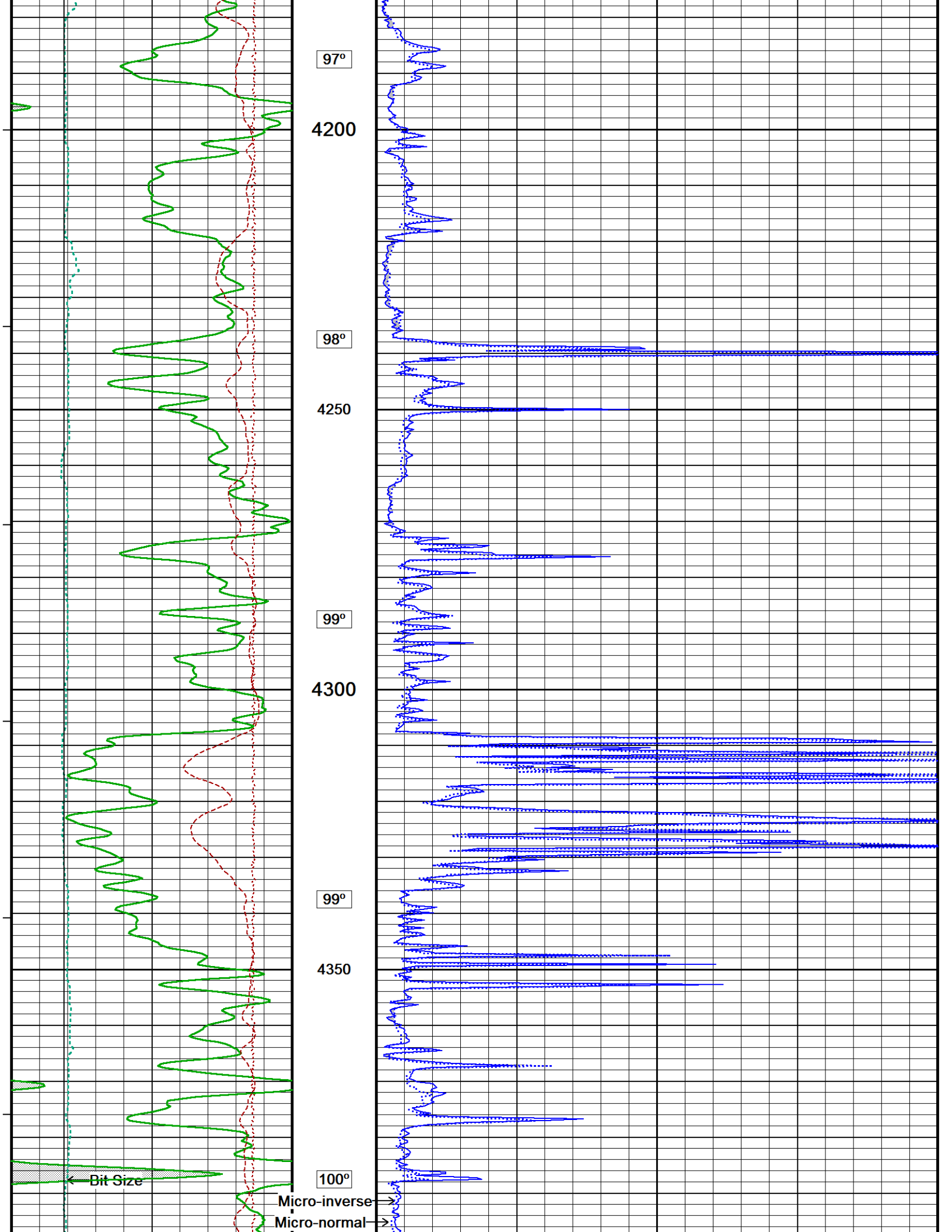
Micro-normal



95°  
3750  
95°  
3800  
95°  
3850  
95°  
3900  
96°  
3950







97°

4200

98°

4250

99°

4300

99°

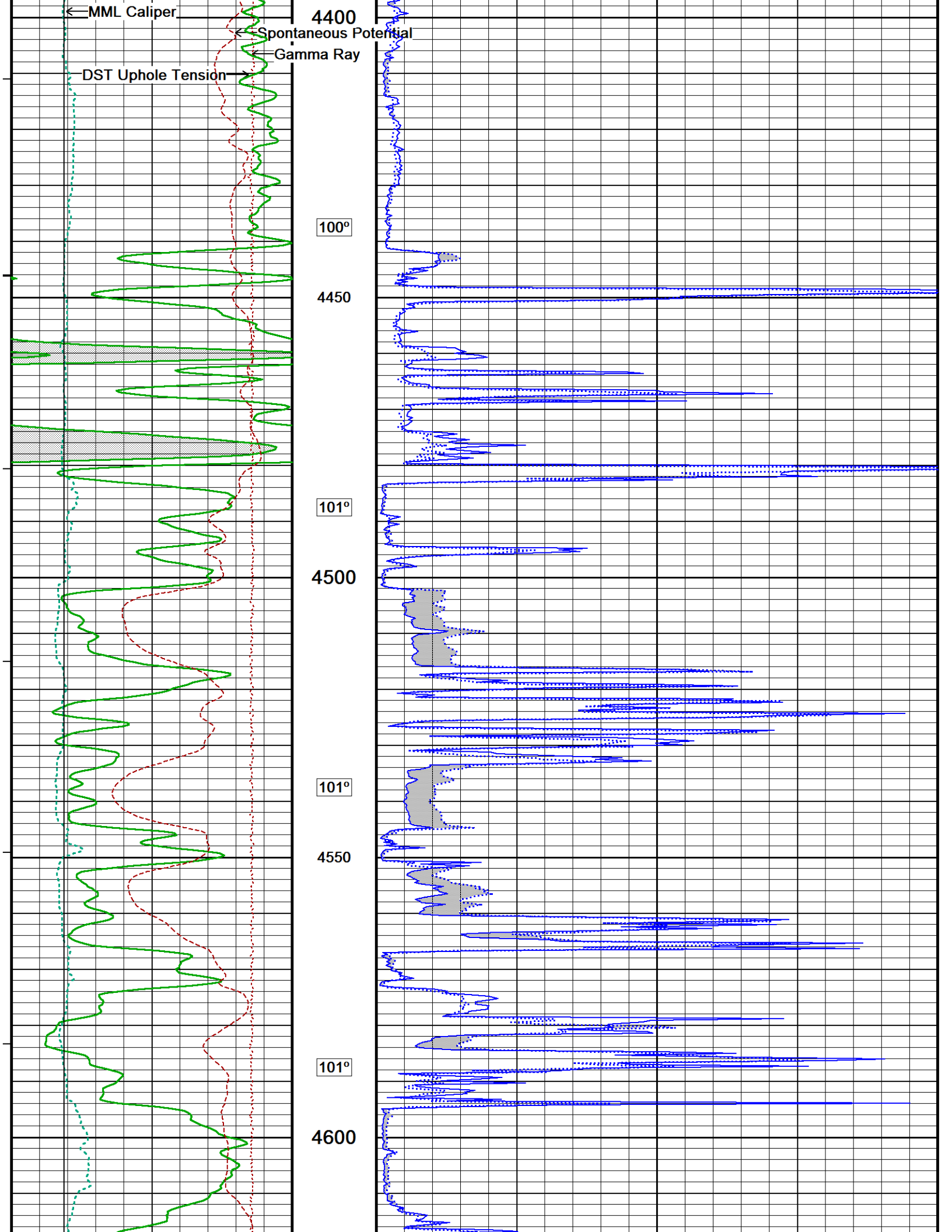
4350

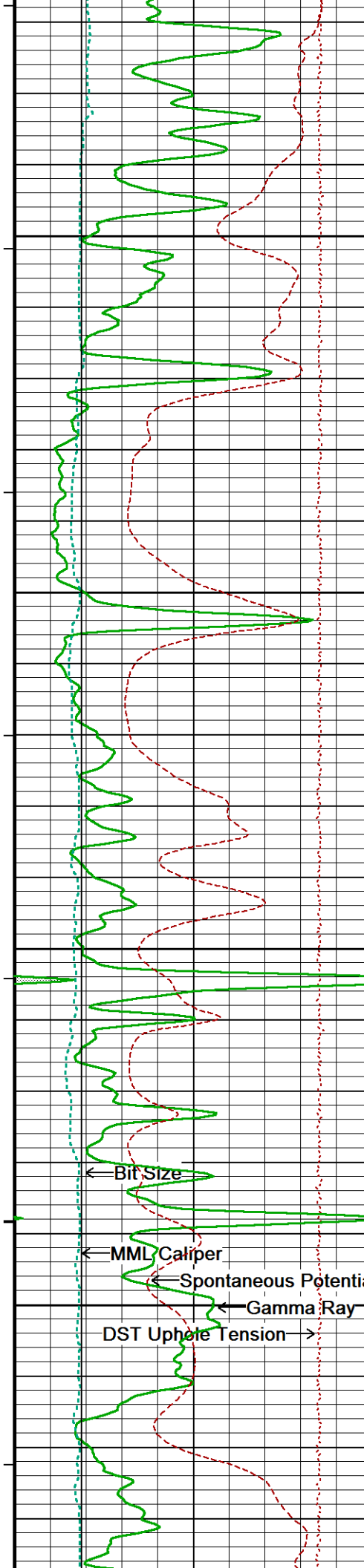
100°

← Bit Size

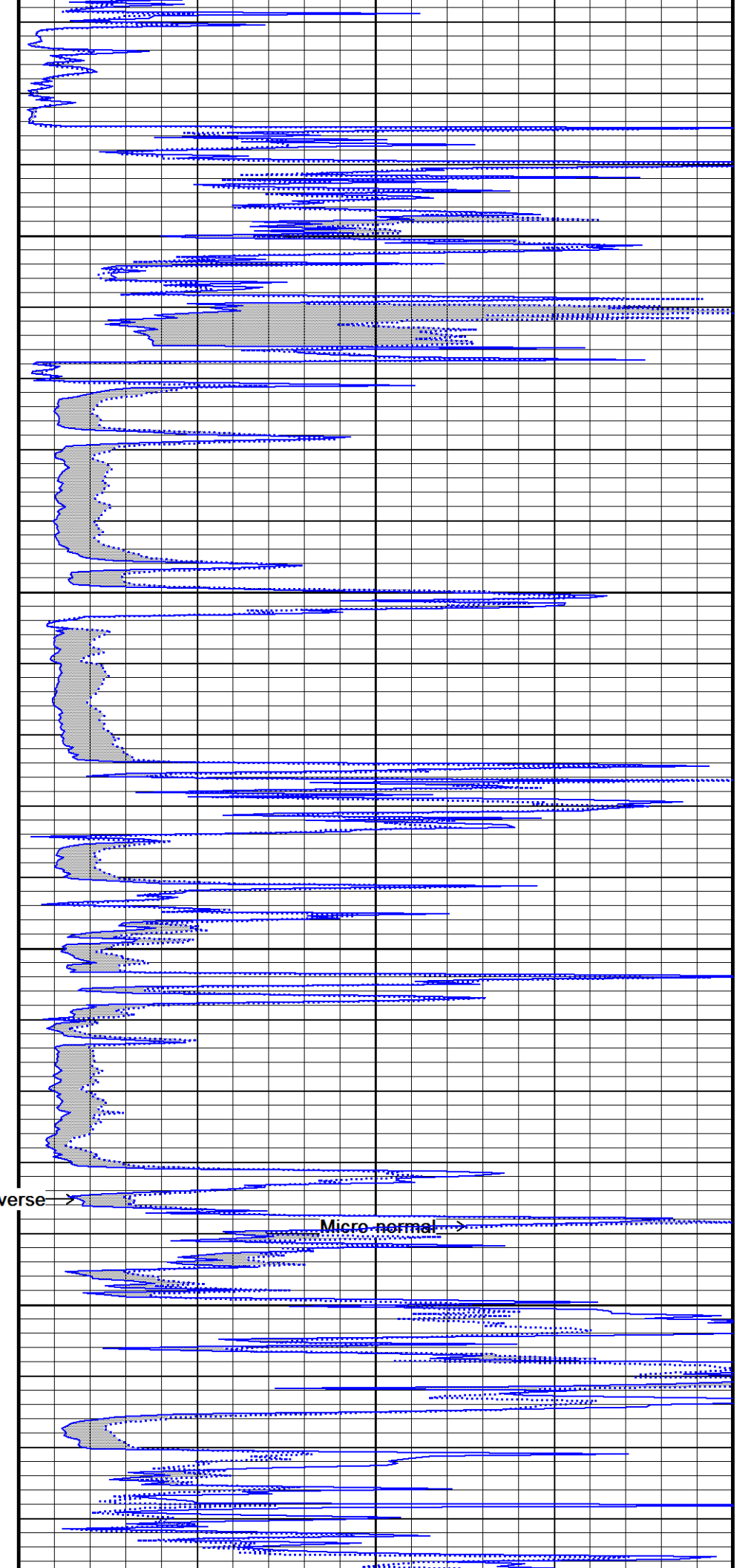
Micro-inverse →

Micro-normal →



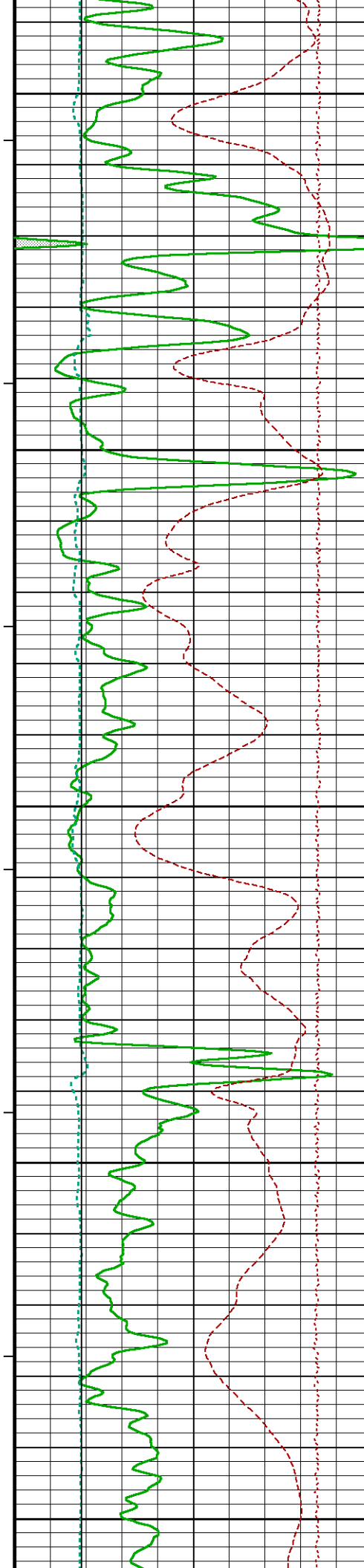


102°  
4650  
102°  
4700  
103°  
4750  
103°  
4800  
103°

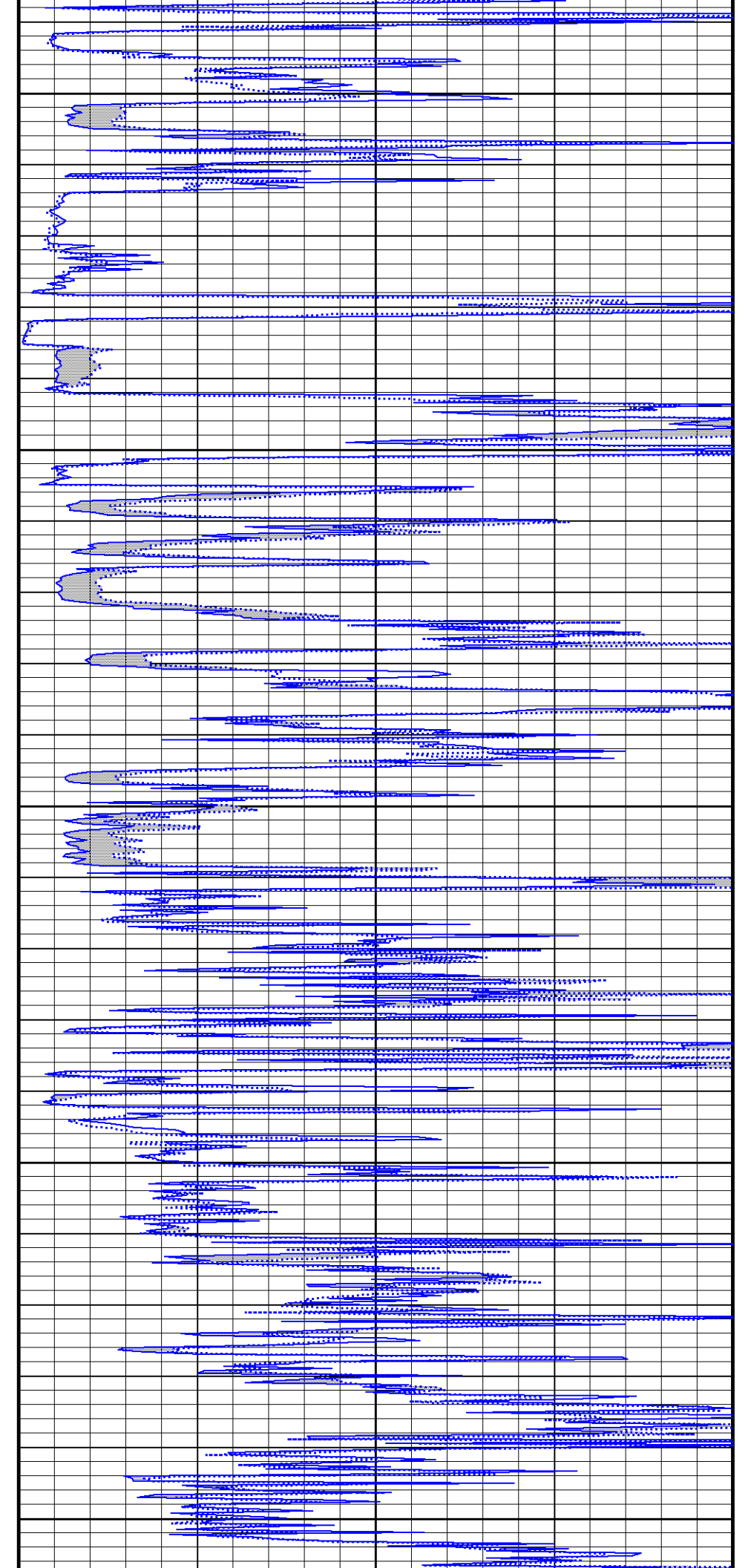


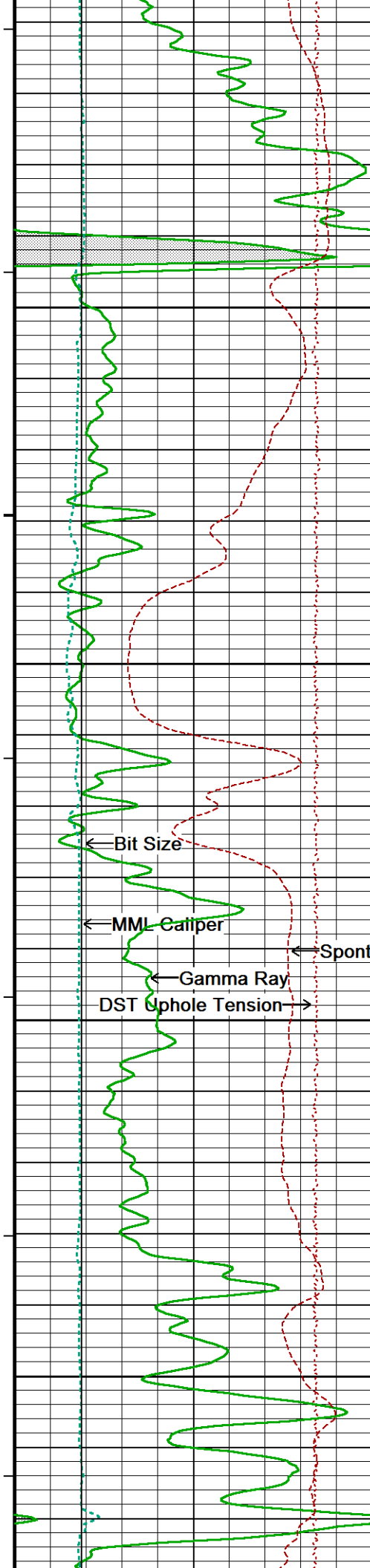
← Bit Size  
← MML Caliper  
← Spontaneous Potential  
← Gamma Ray  
DST Uphole Tension →

Micro-inverse →  
Micro-normal →



104°  
4850  
104°  
4900  
104°  
4950  
105°  
5000  
105°  
5050





105°

5100

105°

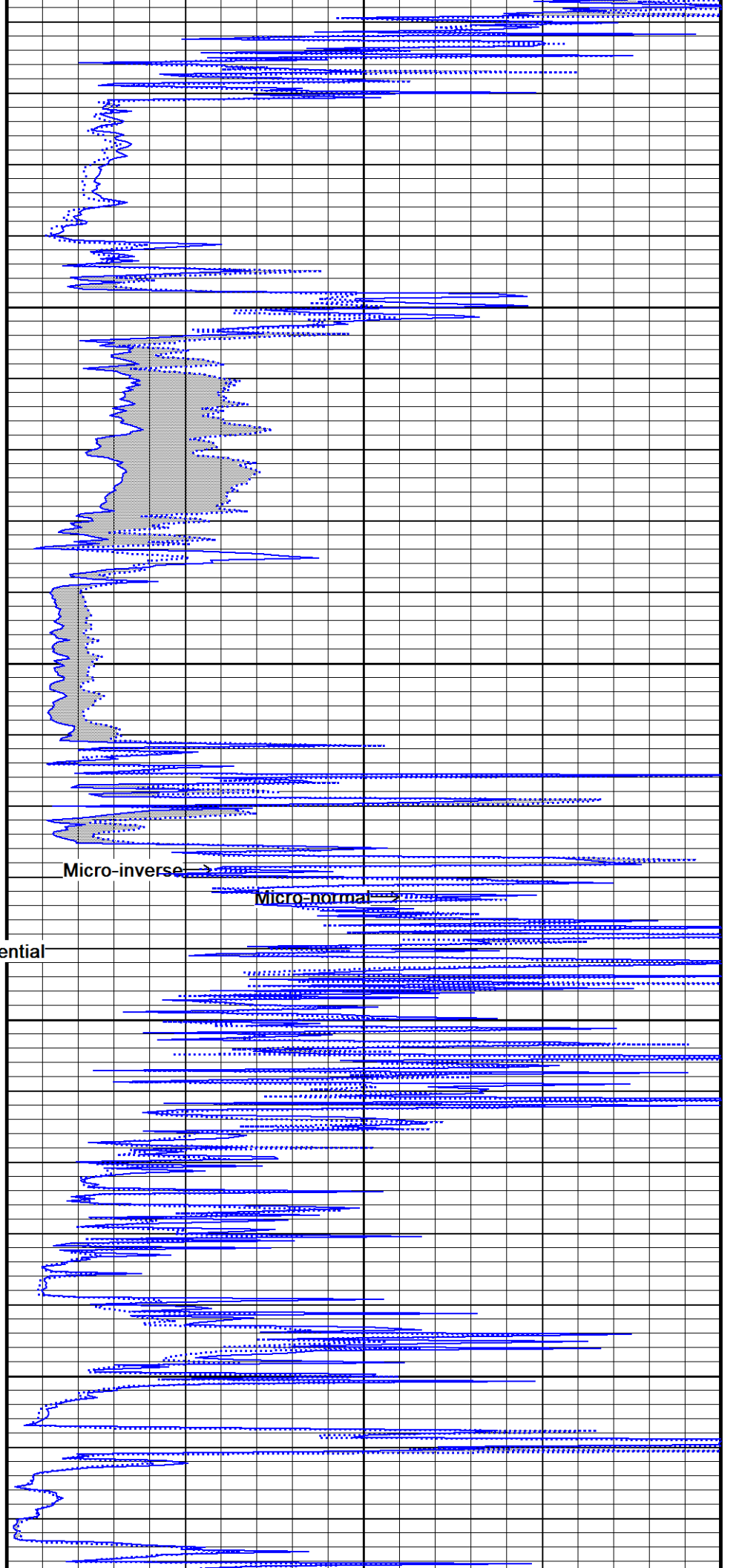
5150

106°

5200

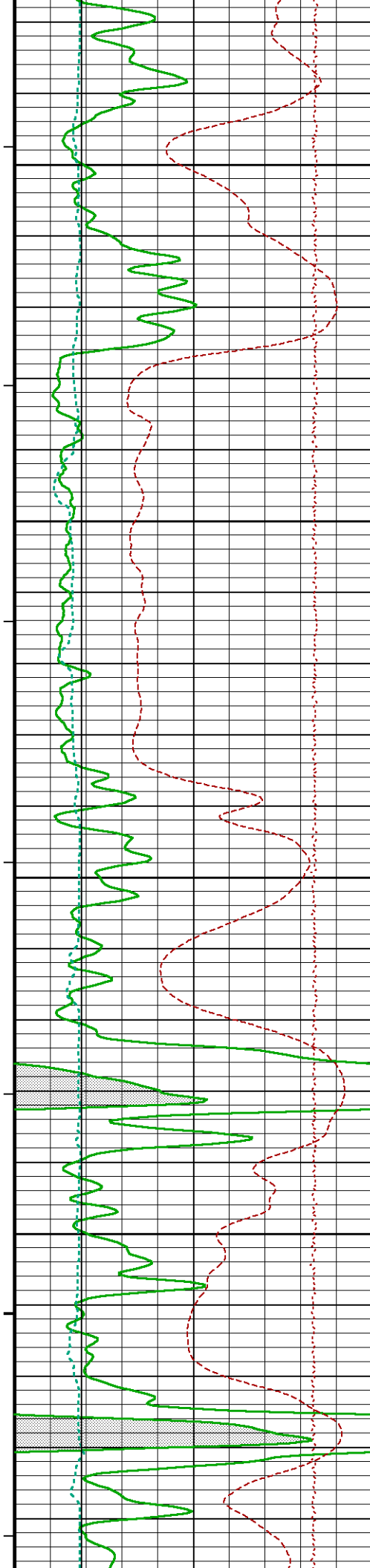
106°

5250



Micro-inverse →

Micro-normal →



106°

5300

107°

5350

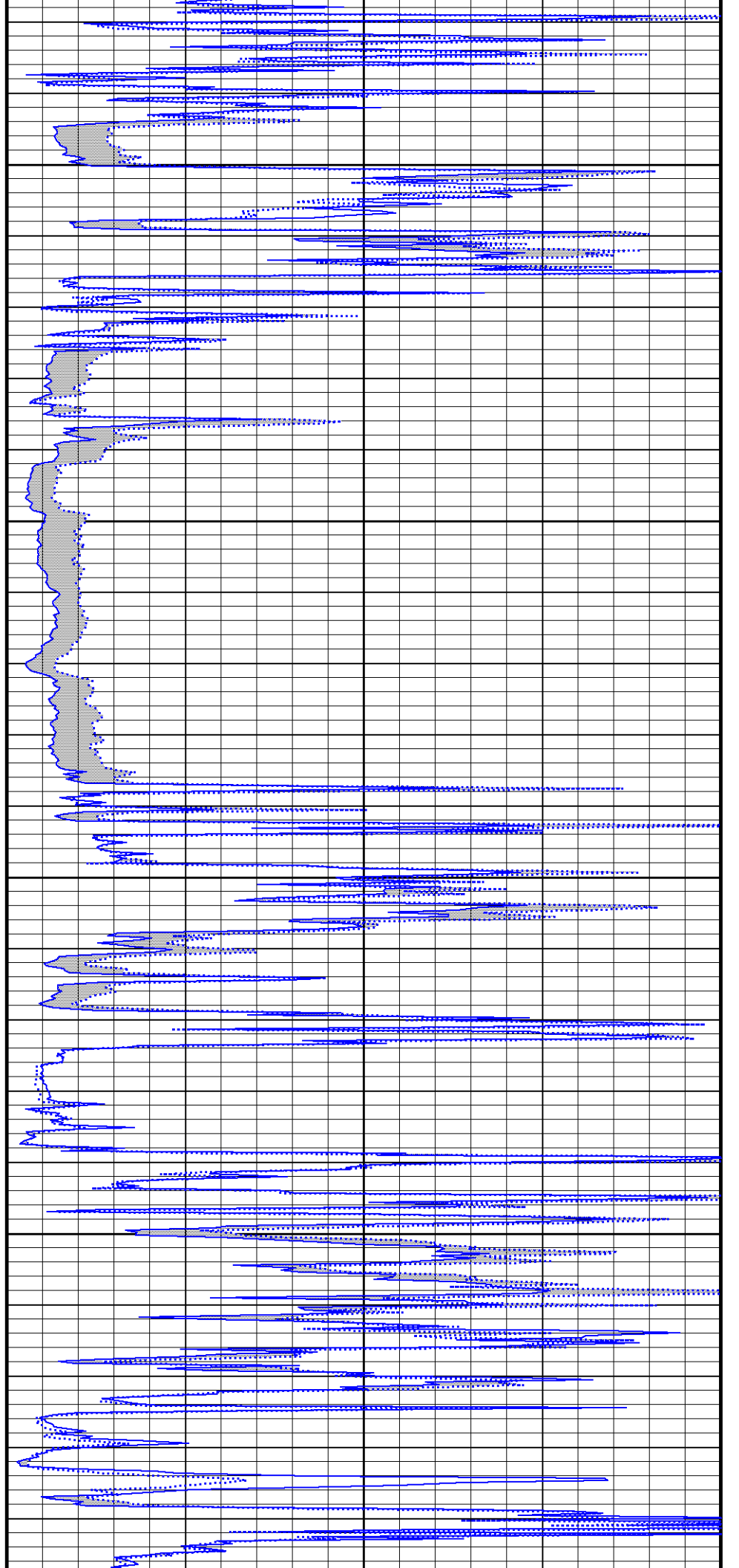
107°

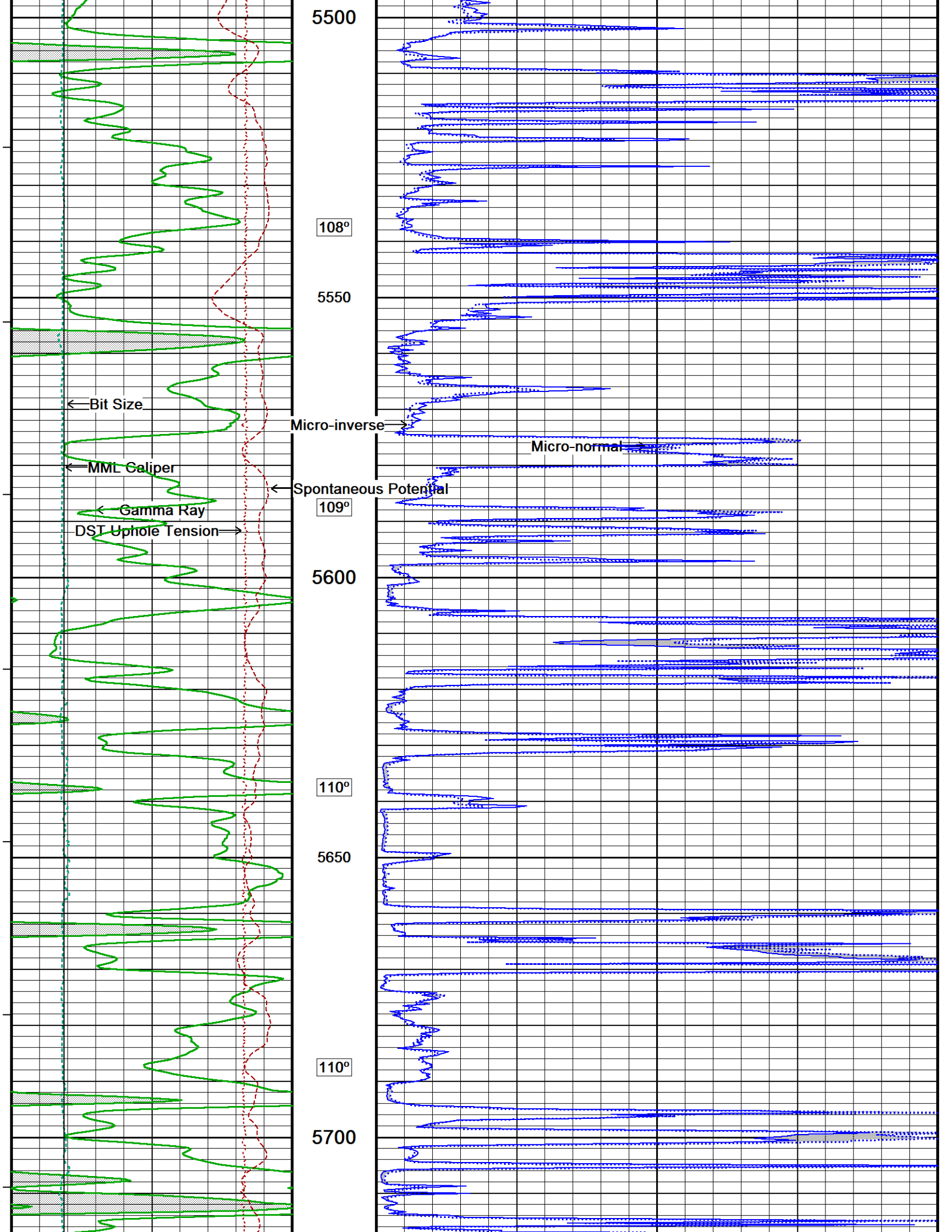
5400

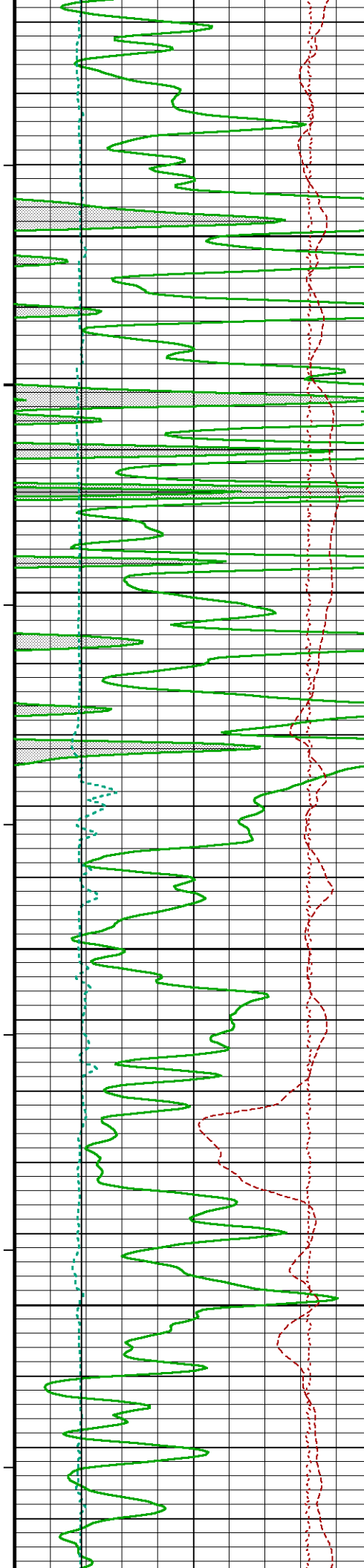
108°

5450

108°







111°

5750

112°

5800

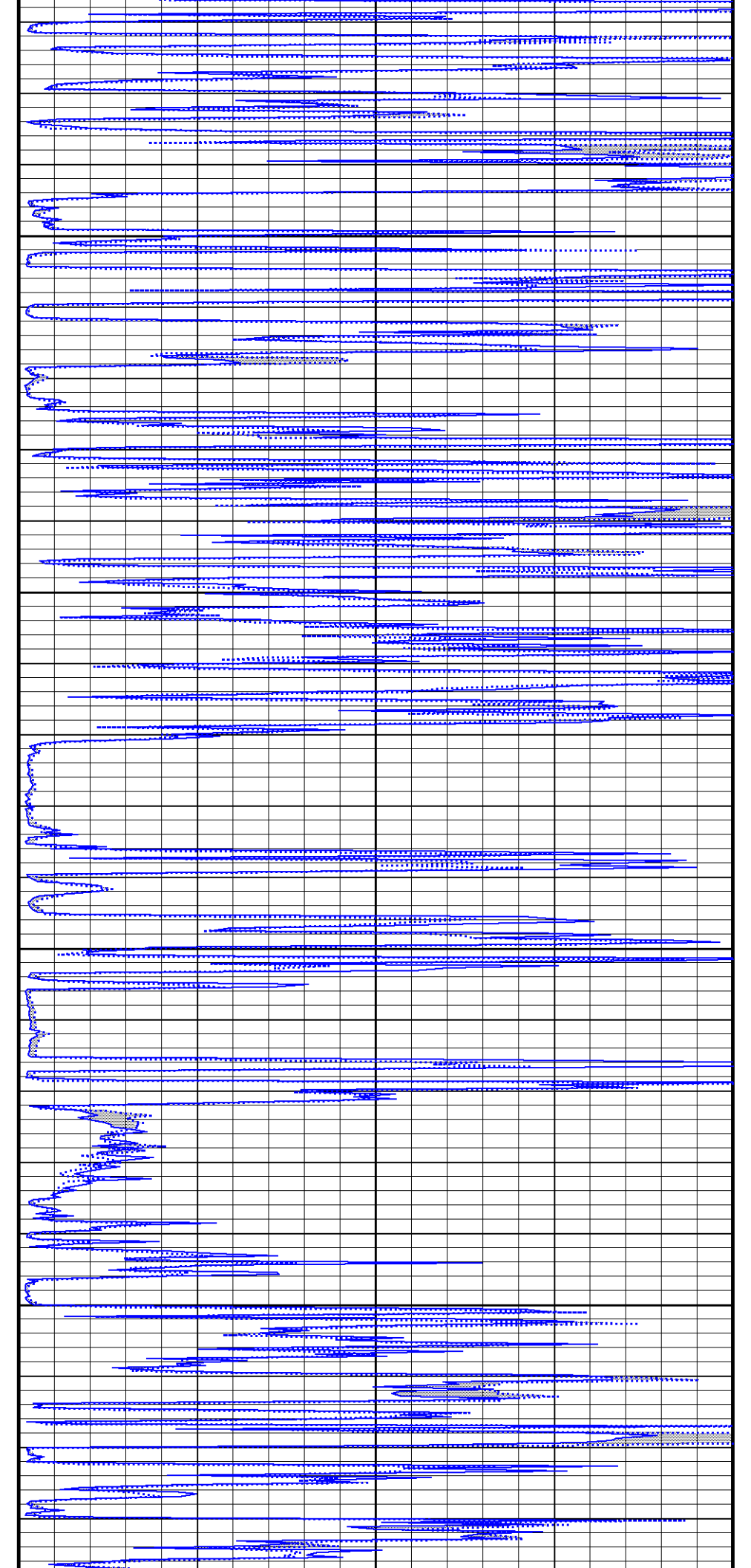
112°

5850

112°

5900

112°



112°

5950

← Bit Size

← MML Caliper

← Gamma Ray

DST Uphole Tension →

Micro-normal

← Spontaneous Potential

Micro-inverse →

113°

6000

113°

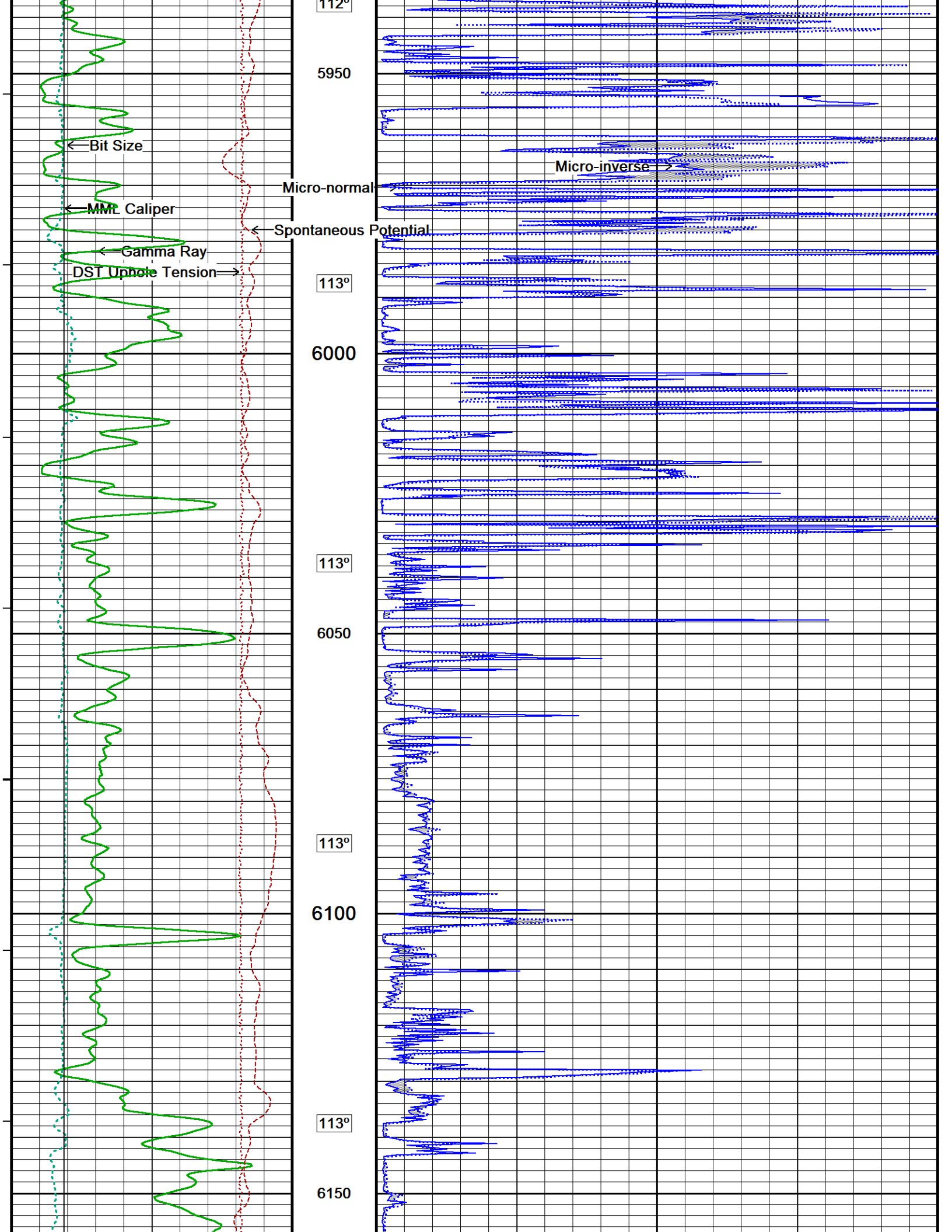
6050

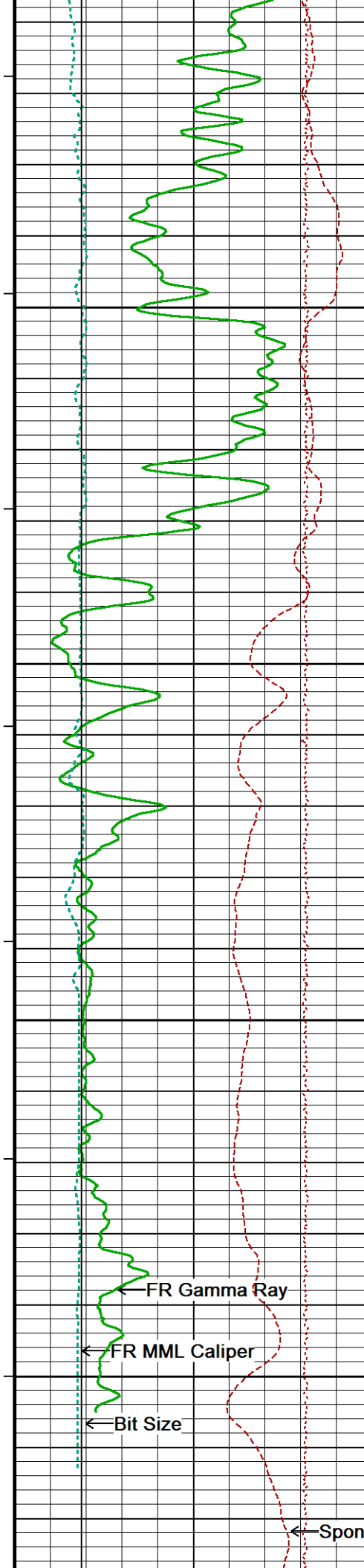
113°

6100

113°

6150





114°

6200

116°

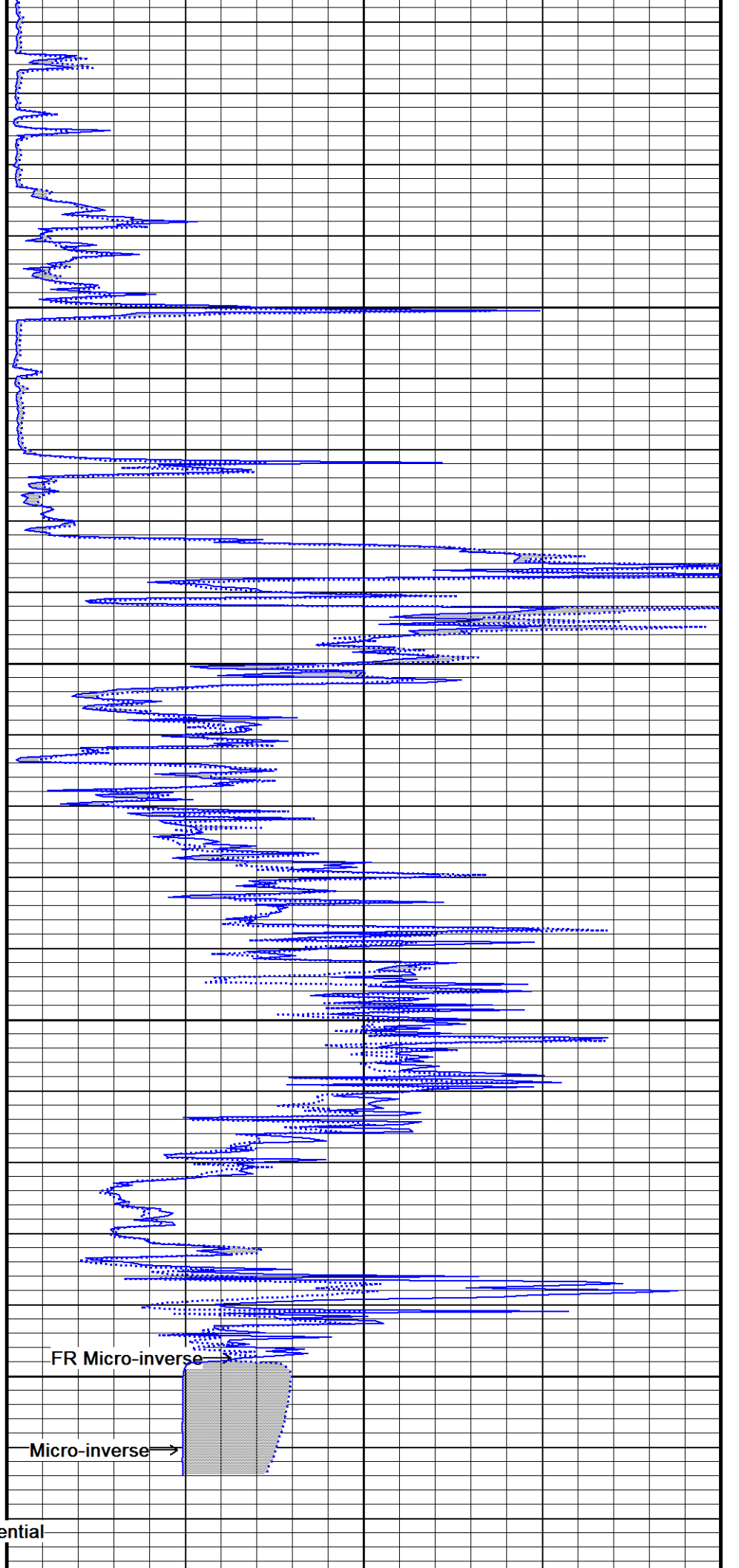
6250

118°

6300

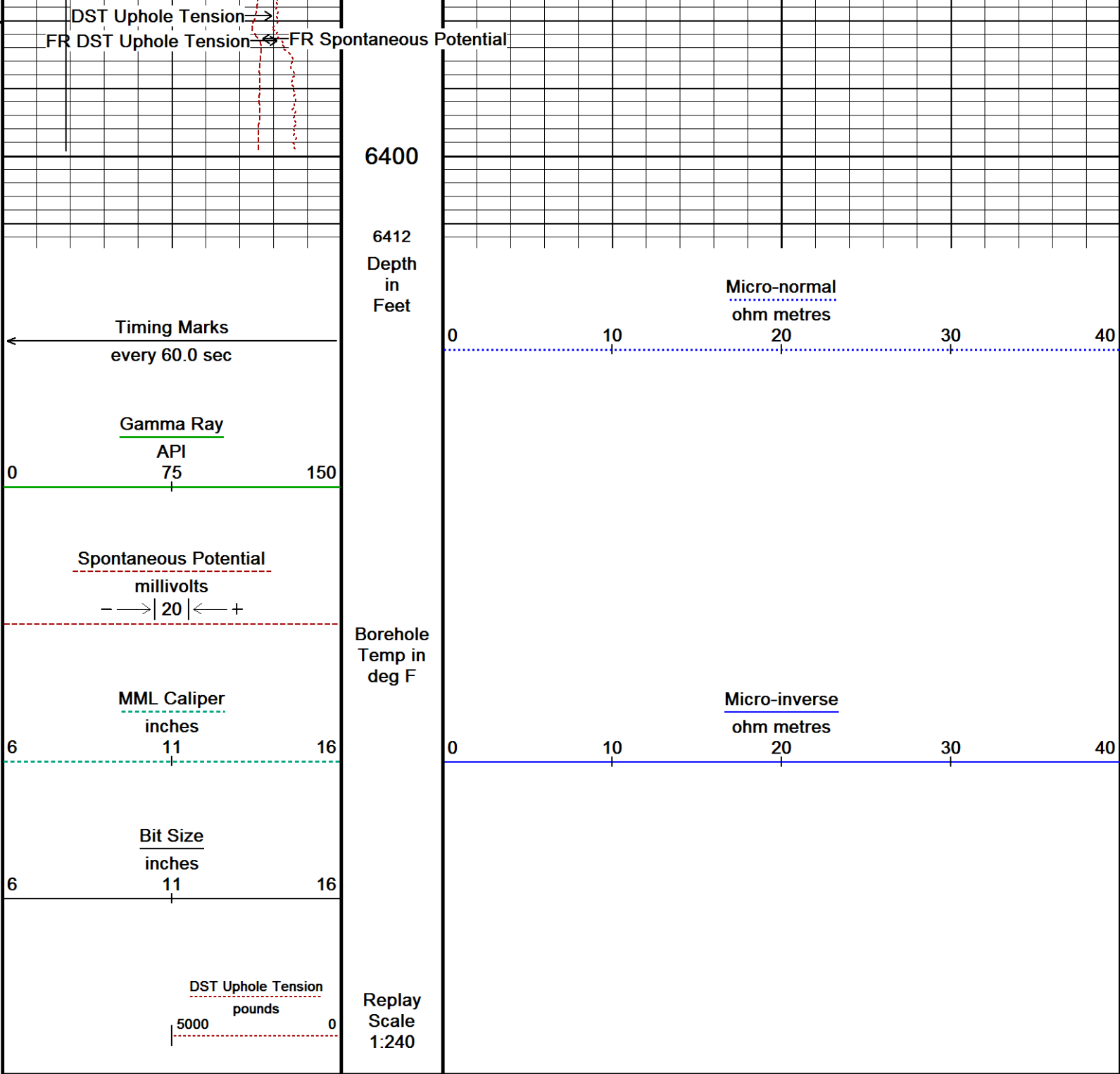
118°

6350



FR Micro-inverse

Micro-inverse

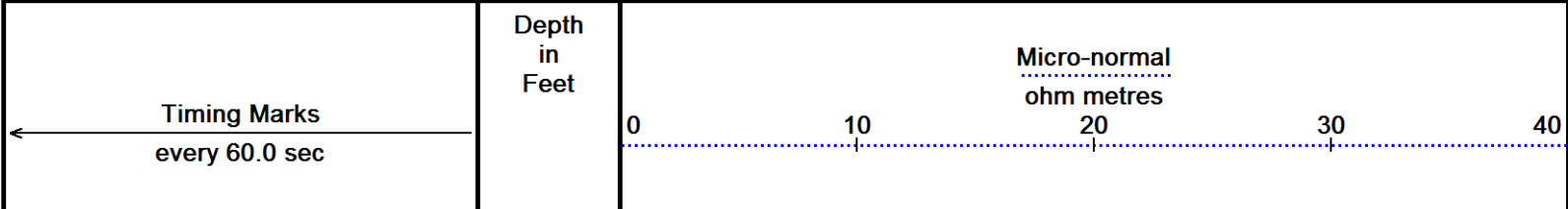


Depth Based Data - Maximum Sampling Increment 10.0cm  
 Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11\_006.dta  
 System Versions: Logged with 11.03.2789 Processed with 11.03.2789 Plotted with 11.02.2164  
 Plotted on 08-MAR-2011 15:40  
 Recorded on 13-FEB-2011 18:15

↑ **5 INCH MAIN PASS** ↑

↓ **5 INCH REPEAT PASS** ↓

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11\_001.dta  
 System Versions: Logged with 11.03.2789 Plotted with 11.02.2164  
 Plotted on 08-MAR-2011 15:40  
 Recorded on 13-FEB-2011 16:44



Gamma Ray  
API  
0 75 150

Spontaneous Potential  
millivolts  
- -> | 20 | <- +

MML Caliper  
inches  
6 11 16

Bit Size  
inches  
6 11 16

DST Uphole Tension  
pounds  
5000 0

Borehole  
Temp in  
deg F

Replay  
Scale  
1:240

5800

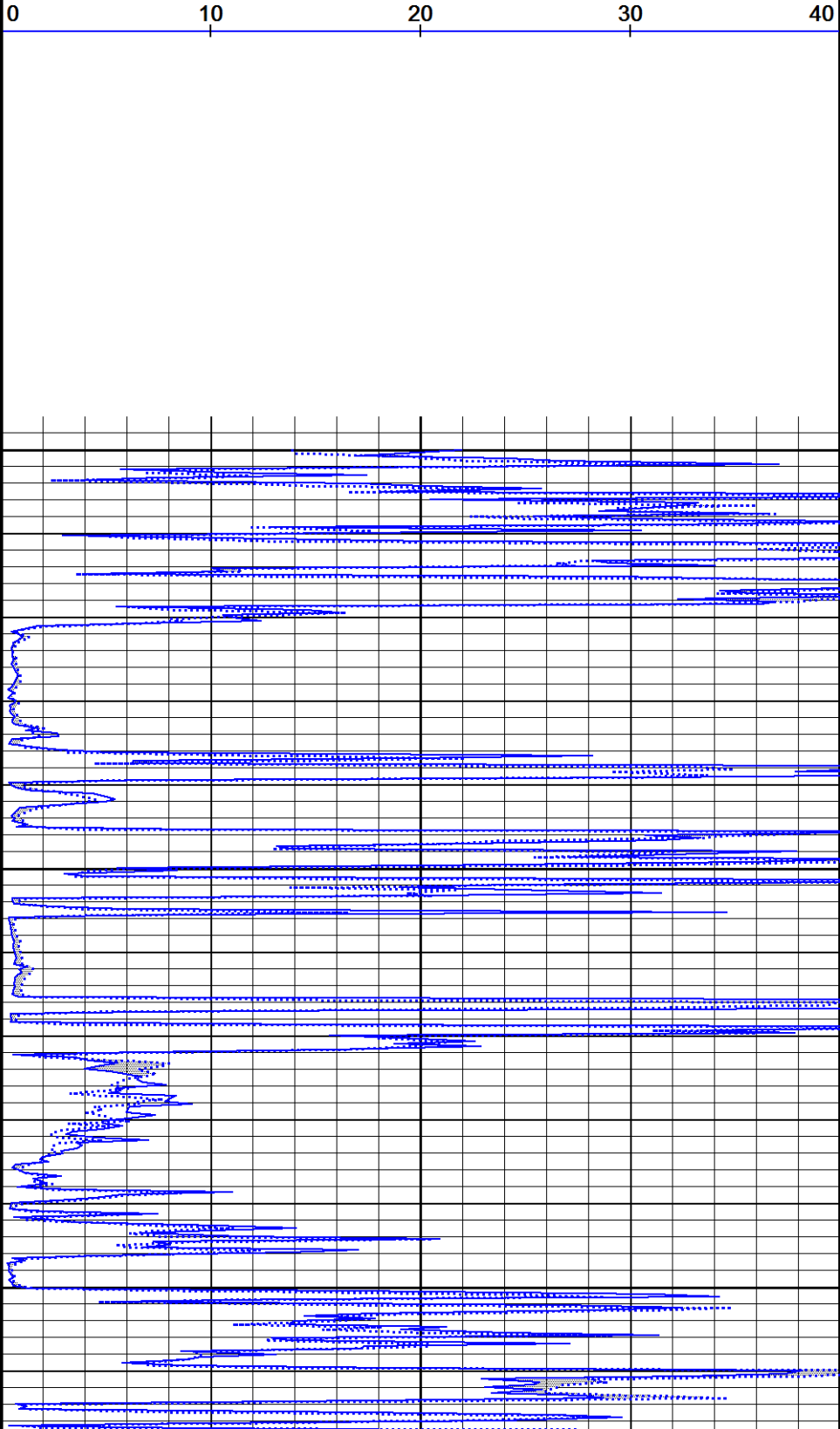
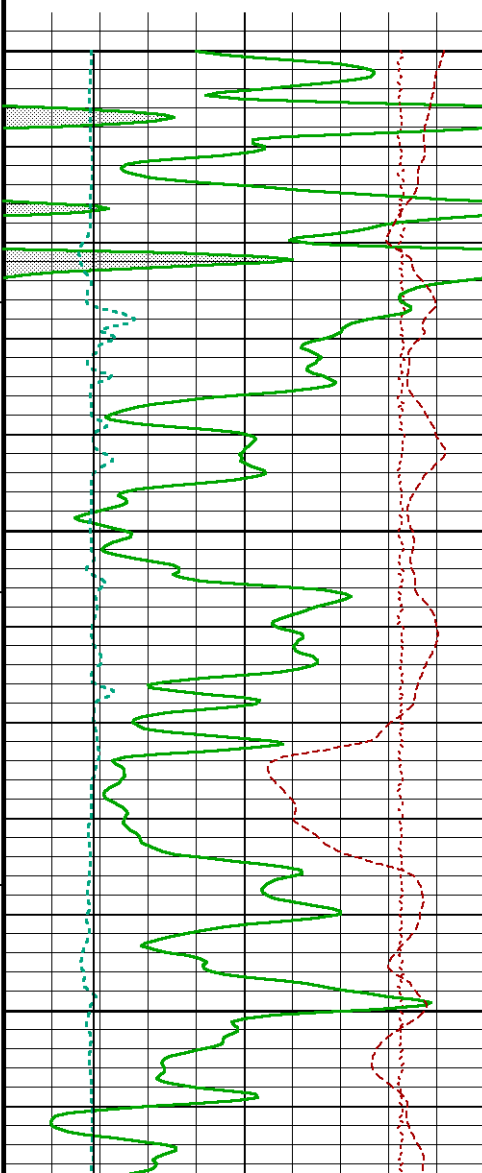
107°

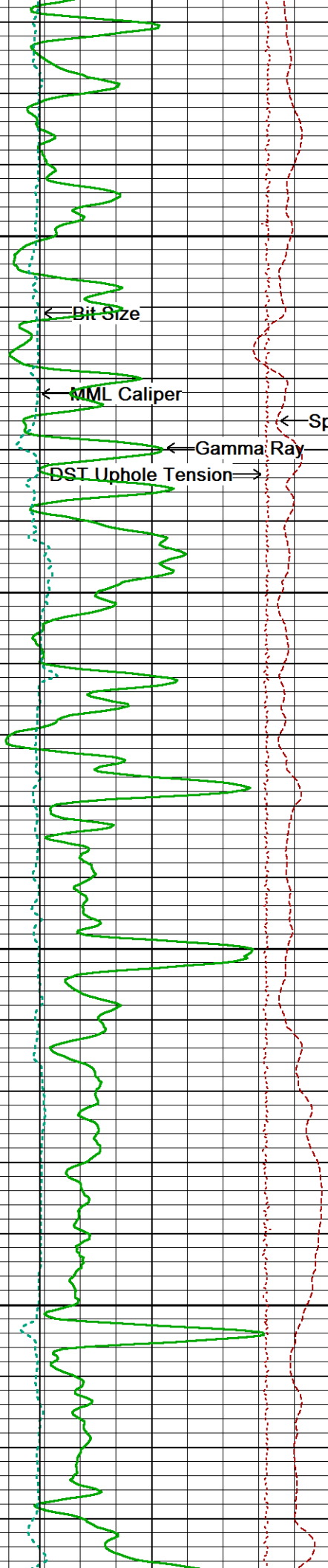
5850

107°

5900

Micro-inverse  
ohm metres  
0 10 20 30 40





107°

5950

Spontaneous Potential

108°

6000

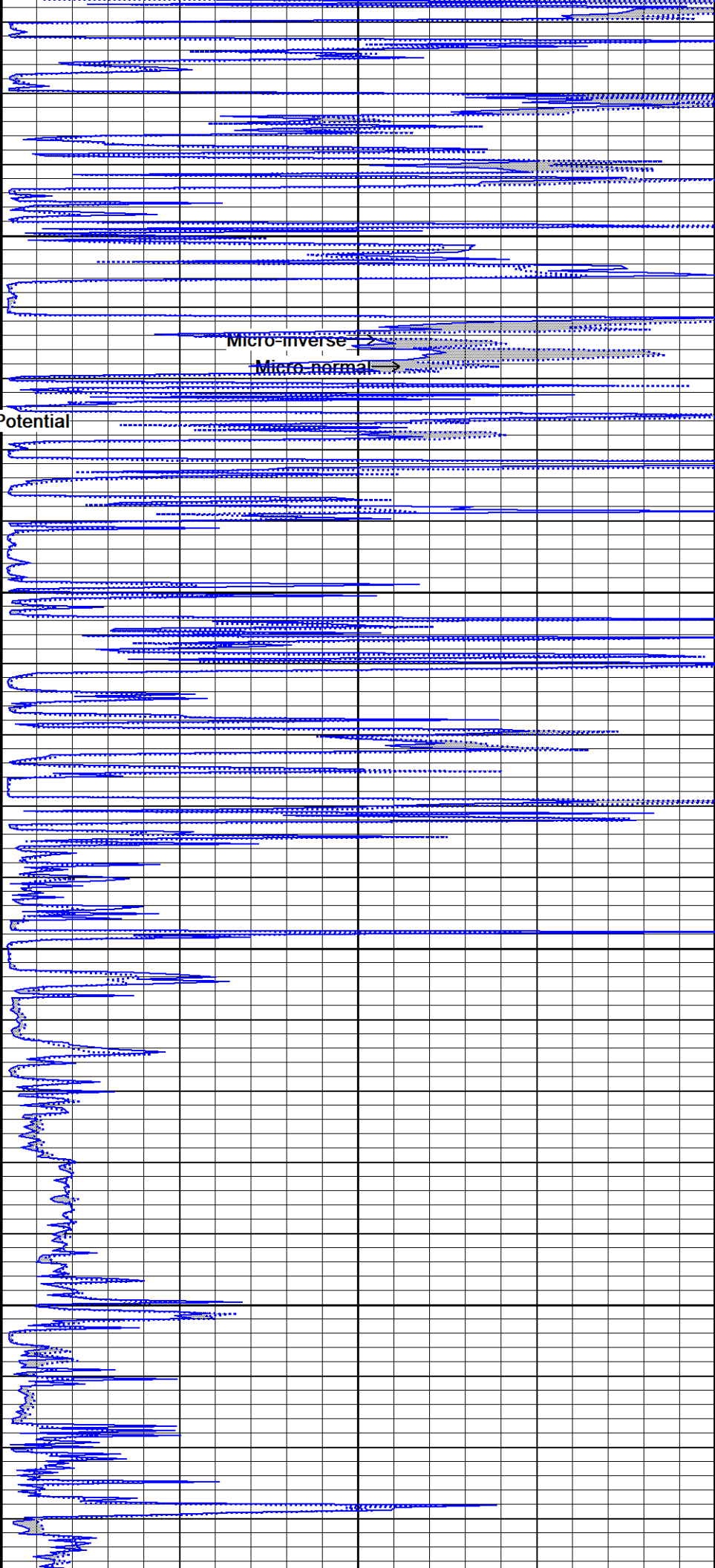
108°

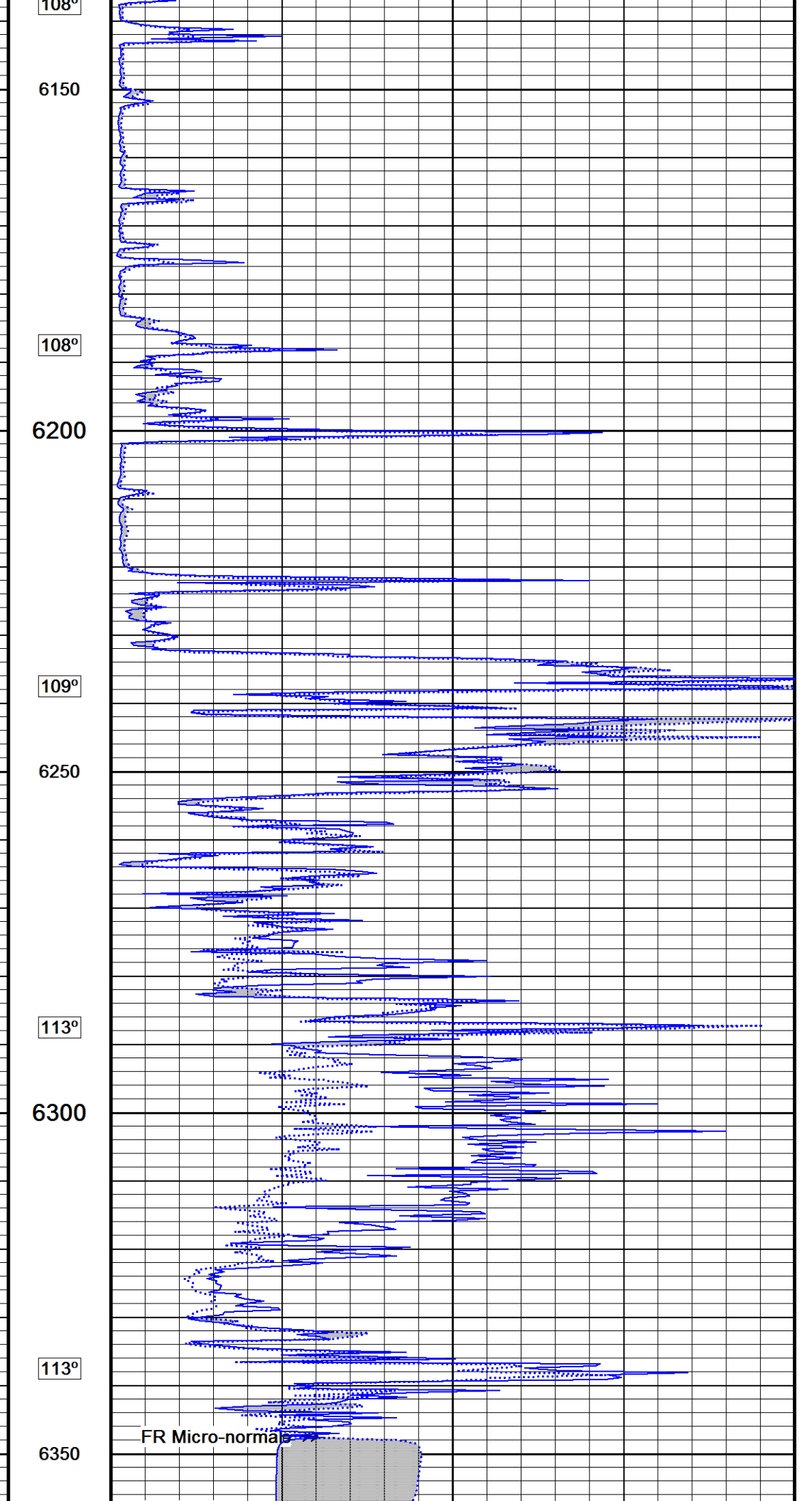
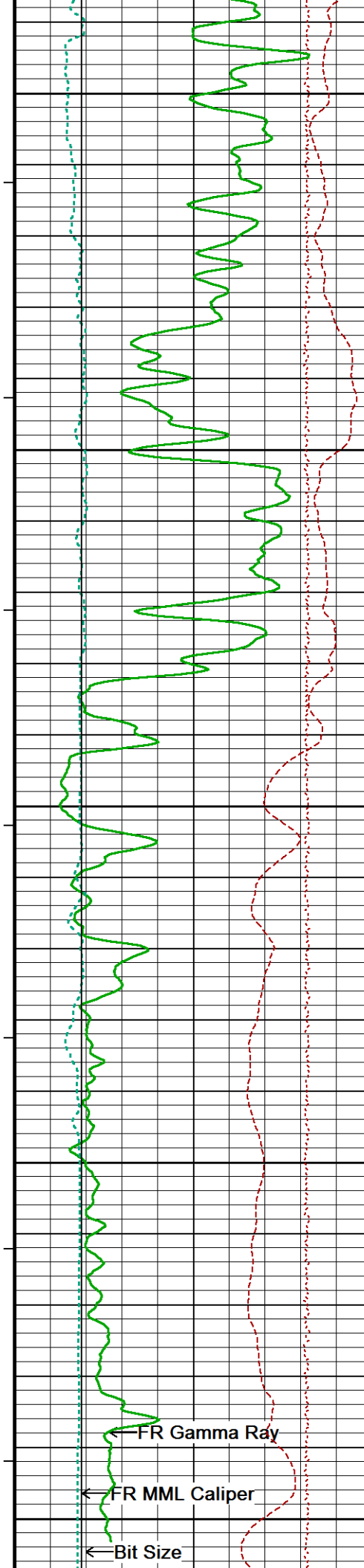
6050

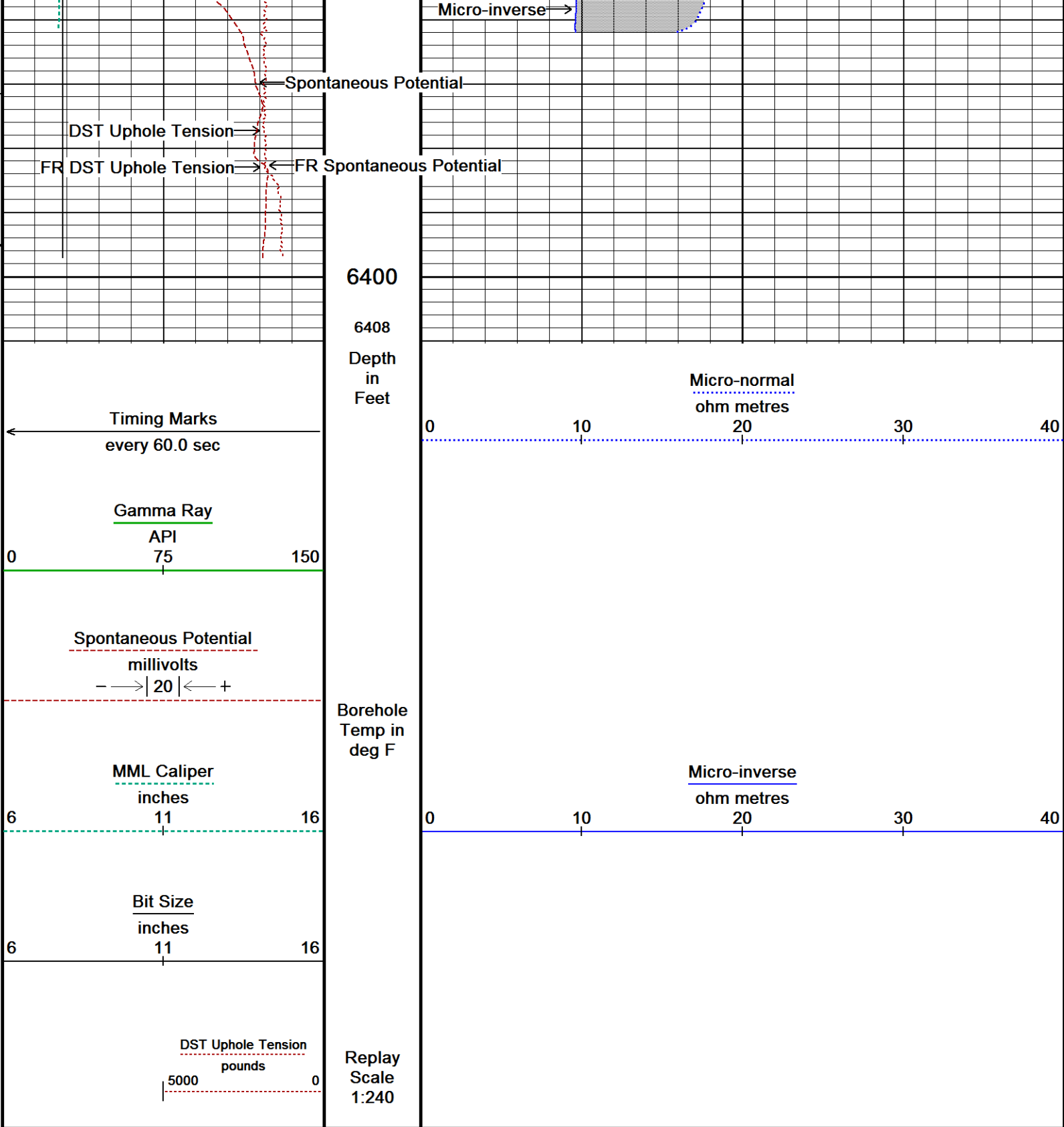
108°

6100

6200







Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 08-MAR-2011 15:40  
 Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11\_001.dta  
 Recorded on 13-FEB-2011 16:44  
 System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

↑ 5 INCH REPEAT PASS ↑

BEFORE SURVEY CALIBRATION  
 C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11.dta

General Constants All 000 Last Edited on 13-FEB-2011,14:20

General Parameters  
 Mud Resistivity 1.050 ohm-metres

Mud Resistivity Temperature	73.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-C 84			Field Calibration on 24-JUN-2010,13:02
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-C 84			Last Edited on
Pre-filter Length	11		

SP Calibration MCG-C 84			Field Calibration on 28-DEC-2010 11:28
	Measured	Calibrated (mV)	
Reference 1	100.3	100.0	
Reference 2	-99.7	-100.0	

Gamma Calibration MCG-C 84			Field Calibration on 13-FEB-2011 11:17
	Measured	Calibrated (API)	
Background	66	45	
Calibrator (Gross)	1136	770	
Calibrator (Net)	1070	725	

Gamma Constants MCG-C 84			Last Edited on 13-FEB-2011,14:21
Gamma Calibrator Number	grc38		
Mud Density	1.10	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

Micro Normal and Micro Inverse Calibration MML-A 9					Base Calibration on 17-JAN-2011 13:45
					Field Check on 13-FEB-2011 10:58
Base Calibration					
		Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	
Micro Normal	12.1	59.8	2.6	12.8	
Micro Inverse	15.6	78.1	1.7	8.4	
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	32.4		32.4		
Micro Inverse	16.4		16.4		

Micro Normal and Micro Inverse Constants MML-A 9					Last Edited on 13-FEB-2011,10:57
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				

Caliper Calibration MML-A 9			Base Calibration on 17-JAN-2011 13:36
			Field Calibration on 13-FEB-2011 11:05
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14751	5.96	
2	18323	7.98	
3	21735	9.95	

3	21733	9.93
4	25522	11.91
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.06	5.98

Neutron Calibration MDN-A.B 65 Base Calibration on 17-JAN-2011 15:12  
Field Check on 13-FEB-2011 11:12

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3079	97	3714	110
Ratio	31.797		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1654	2338
Ratio	0.708	

Field Check

	Calibrated (cps)	
	1657	2354
Ratio	0.704	

Neutron Constants MDN-A.B 65 Last Edited on 13-FEB-2011,14:21

Neutron Source Id	757	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.10	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	

FE Calibration MFE-A.A 55 Base Calibration on 17-JAN-2011 13:58  
Field Check on 13-FEB-2011 10:56

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	954.8	126.8
Base Check		281.8
Field Check		281.4

FE Constants MFE-A.A 55 Last Edited on 13-FEB-2011,14:21

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

High Resolution Temperature Calibration MAI-A.A 178 Field Calibration on 28-MAR-2010,00:50

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.80

High Resolution Temperature Constants MAI-A.A 178 Last Edited on

## Induction Calibration MAI-A.A 178

Base Calibration on 17-JAN-2011,15:37  
Field Check on 13-FEB-2011 10:54

## Base Calibration

## Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.6	484.7	9.3	966.2
2	6.2	391.4	7.6	821.4
3	4.0	264.5	5.2	566.0
4	2.3	135.1	2.6	279.2

Array Temperature 77.0 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	11.9	3762.7
2	0.0	0.0	29.6	3466.5
3	0.0	0.0	27.1	3015.0
4	0.0	0.0	18.7	2063.8
Deep	0.0	0.0	15.7	1995.9
Medium	0.0	0.0	40.2	3957.5
Shallow	0.0	0.0	45.5	5080.8
Array Temperature	0.0		67.5	Deg F

## Induction Constants MAI-A.A 178

Last Edited on 13-FEB-2011,14:22

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	8.0000		
Stand-off Fin Angle	45.00	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		

## Caliper Calibration MPD-B 65

Base Calibration on 17-JAN-2011 14:40  
Field Calibration on 13-FEB-2011 10:57

## Base Calibration

Reading No	Measured	Calibrator Size (in)
1	12872	4.01

2	21339	5.96
3	30048	7.98
4	38622	9.95
5	47408	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	5.98

Photo Density Calibration MPD-B 65

Base Calibration on 17-JAN-2011 14:55  
Field Check on 13-FEB-2011 11:04

Density Calibration  
Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	50201	24995	59556	30836
Reference 2	20201	1952	24941	2541

Field Check at Base

645.0	771.4
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Field Check

643.2	771.8
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PE Calibration

Base Calibration

	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	117	570		
Reference 1	19746	50081	0.396	
Reference 2	5656	20120	0.283	

Field Check at Base

117.0	570.5
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Field Check

117.2	568.8
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Density Constants MPD-B 65

Last Edited on 13-FEB-2011,14:21

Density Source Id	254	
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	1.10	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:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\O'BRIEN HULL #2-11.dta

Compact Comms Gamma  
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



45.04 ft  
42.13 ft

GRGC - Gamma Ray  
CGXT - MCG External Temperature

Compact Micro-log  
MML-A 9 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron  
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

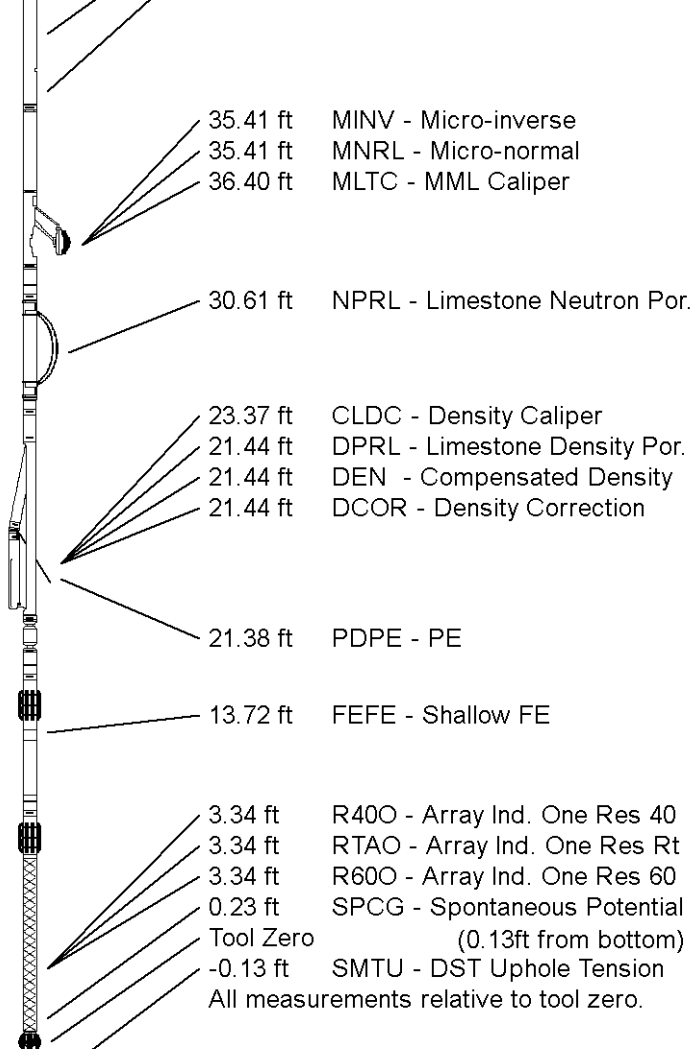
Compact Density/Caliper  
MPD-B 65 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

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

Compact Induction  
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.32 ft Weight: 407.9 lb



<b>COMPANY</b>	<b>O'BRIEN ENERGY RESOURCES CORP.</b>
<b>WELL</b>	<b>HULL #2-11</b>
<b>FIELD</b>	<b>ADAMS RANCH</b>
<b>PROVINCE/COUNTY</b>	<b>MEADE</b>
<b>COUNTRY/STATE</b>	<b>U.S.A. / KANSAS</b>

Elevation Kelly Bushing	2680.00	feet	First Reading	6347.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6387.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6383.00	feet



**Weatherford**<sup>®</sup>

**MICRORESISTIVITY LOG**

