



Weatherford

MICRO RESISTIVITY LOG

COMPANY					MCCOY PETROLEUM CORPORATION				
WELL					ERSKINE "B" #1-32				
FIELD					ERSKINE NORTH				
PROVINCE/COUNTY					SUMNER				
COUNTRY/STATE					USA / KANSAS				
LOCATION					660' FNL & 660' FEL				
					C NE NE				
SEC	TWP	RGE	Other Services						
32	31 S	3 W	MAI/MFE						
API Number		15-191-22661		MDN/MPD					
Permit Number									
Permanent Datum GL, Elevation 1278 feet						Elevations:			
Log Measured From KB						KB 1287.00			
Drilling Measured From KB						DF 1285.00			
						GL 1278.00			
Date	08-AUG-2012								
Run Number	ONE								
Depth Driller	4390.00				feet				
Depth Logger	4378.00				feet				
First Reading	4344.00				feet				
Last Reading	2500.00				feet				
Casing Driller	266.00				feet				
Casing Logger	266.00				feet				
Bit Size	7.875				inches				
Hole Fluid Type	WBM								
Density / Viscosity	9.50 g/cc		54.00 CP						
PH / Fluid Loss	10.50		9.20 ml/30Min						
Sample Source	MUD PIT								
Rm @ Measured Temp	0.32 @ 91.0				ohm-m				
Rmf @ Measured Temp	0.26 @ 91.0				ohm-m				
Rmc @ Measured Temp	0.38 @ 91.0				ohm-m				
Source Rmf / Rmc	CALC		CALC						
Rm @ BHT	0.23 @ 129.0				ohm-m				
Time Since Circulation	4 HOURS								
Max Recorded Temp	130.00				deg F				
Equipment Name	COMPACT								
Equipment / Base	13039		OKC						
Recorded By	JIM SCHULER								
Witnessed By	JERRY A. SMITH								
TICKET NUMBER	3538700				JUSTIN SCHEFFE				

BOREHOLE RECORD

Last Edited: 08-AUG-2012 19:31

Bit Size inches	Depth From feet	Depth To feet
7.875	266.00	4390.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	266.00	24.00

REMARKS

WLS 13.02

DEPTH CONTROL: CALIBRATED MEASURING WHEEL

TOOLS RAN: SHA, MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION

HARDWARE: MAI: TWO 0.5 INCH STANDOFFS USED.

MFE: ONE 0.5 INCH STANDOFF USED

MDN: DUAL NEUTRON BOW SPRINGS USED.

MPD: 8 INCH PROFILE PLATE 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 2500' = 2000 CU.FT.

ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 2500' = 1325 CU.FT.

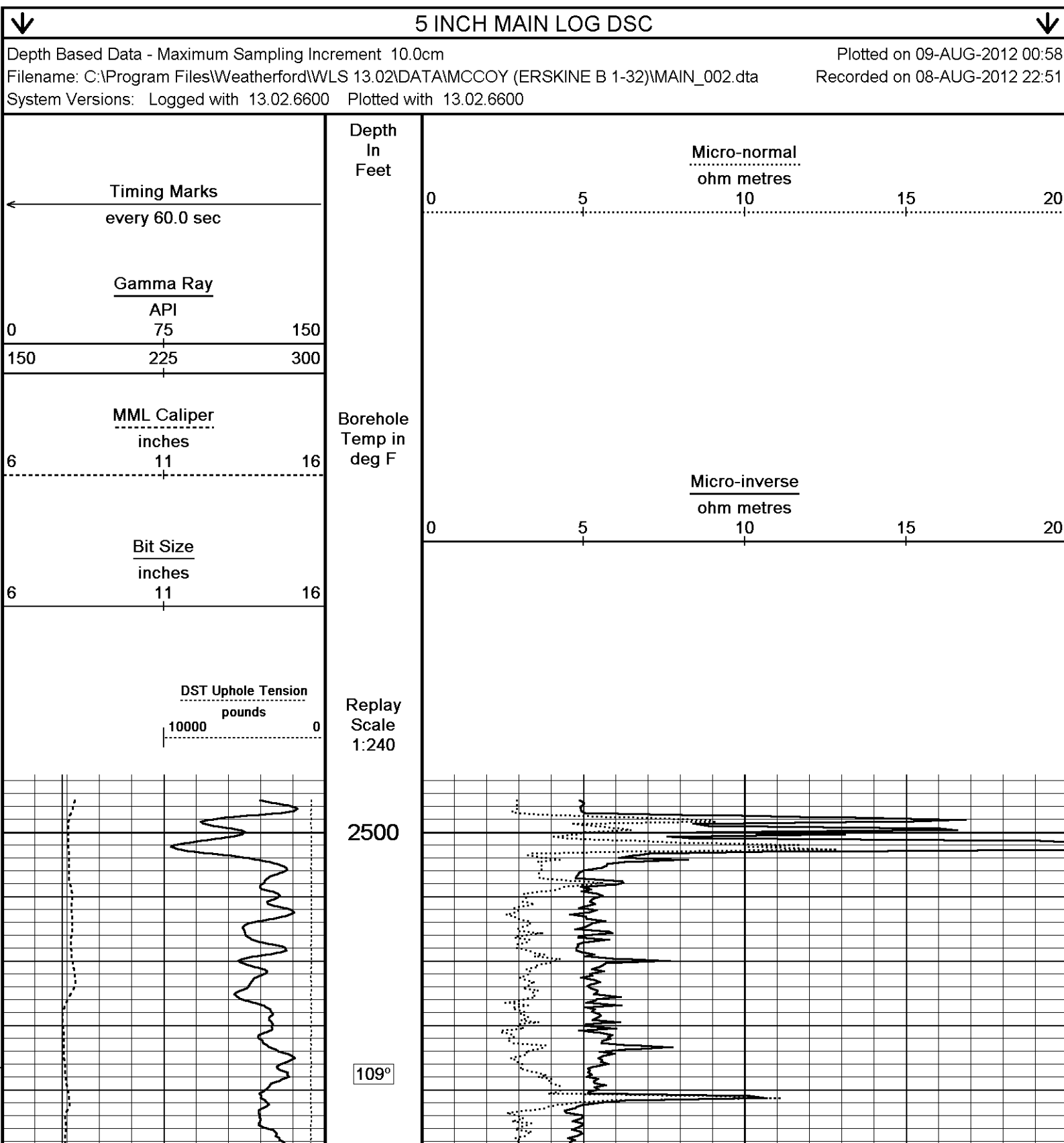
SERVICE ORDER # 3538700

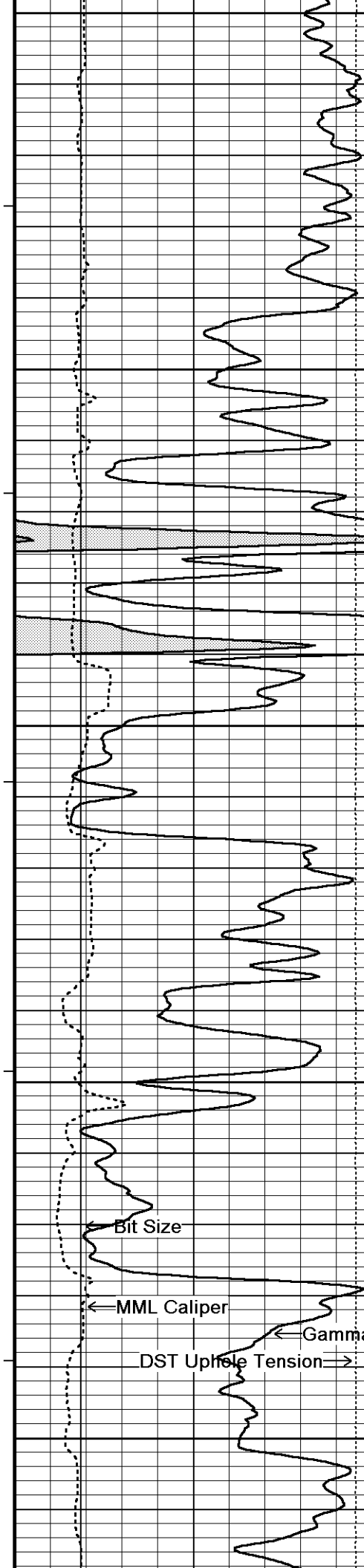
RIG: STEARLING DRILLING RIG #4

OPERATOR(S): M. SLOBODKIN, G. NANNEY, C. ALEXANDER

WASHOUTS AND HOLE RUGOSITY WILL AFFECT LOG QUALITY AND REPEATABILITY

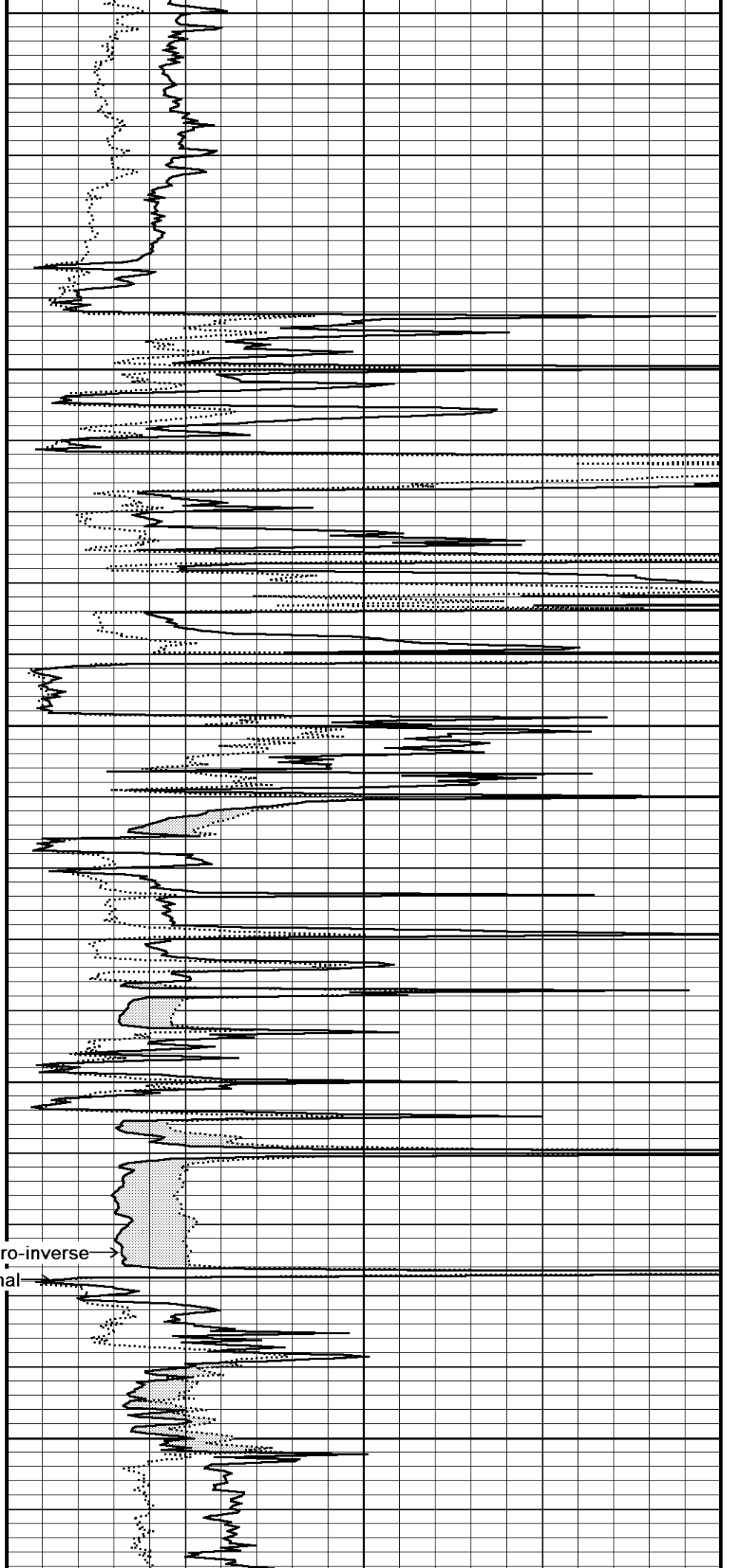
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.



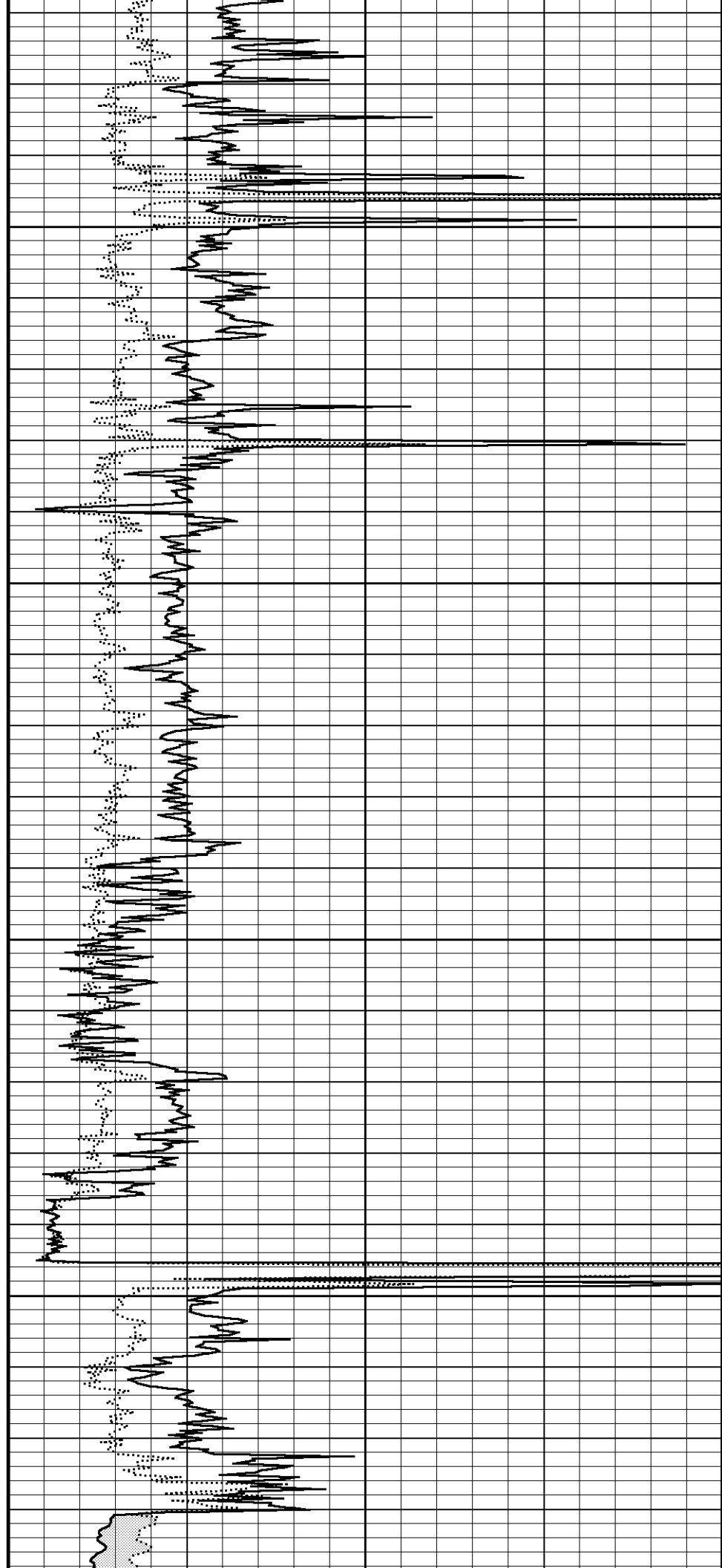
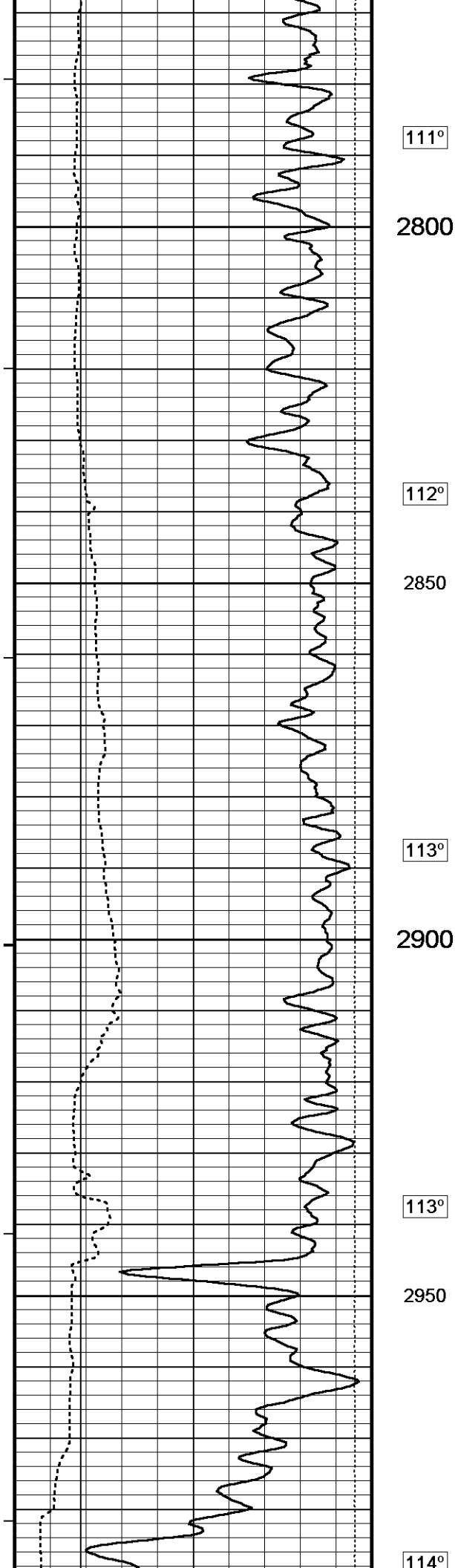


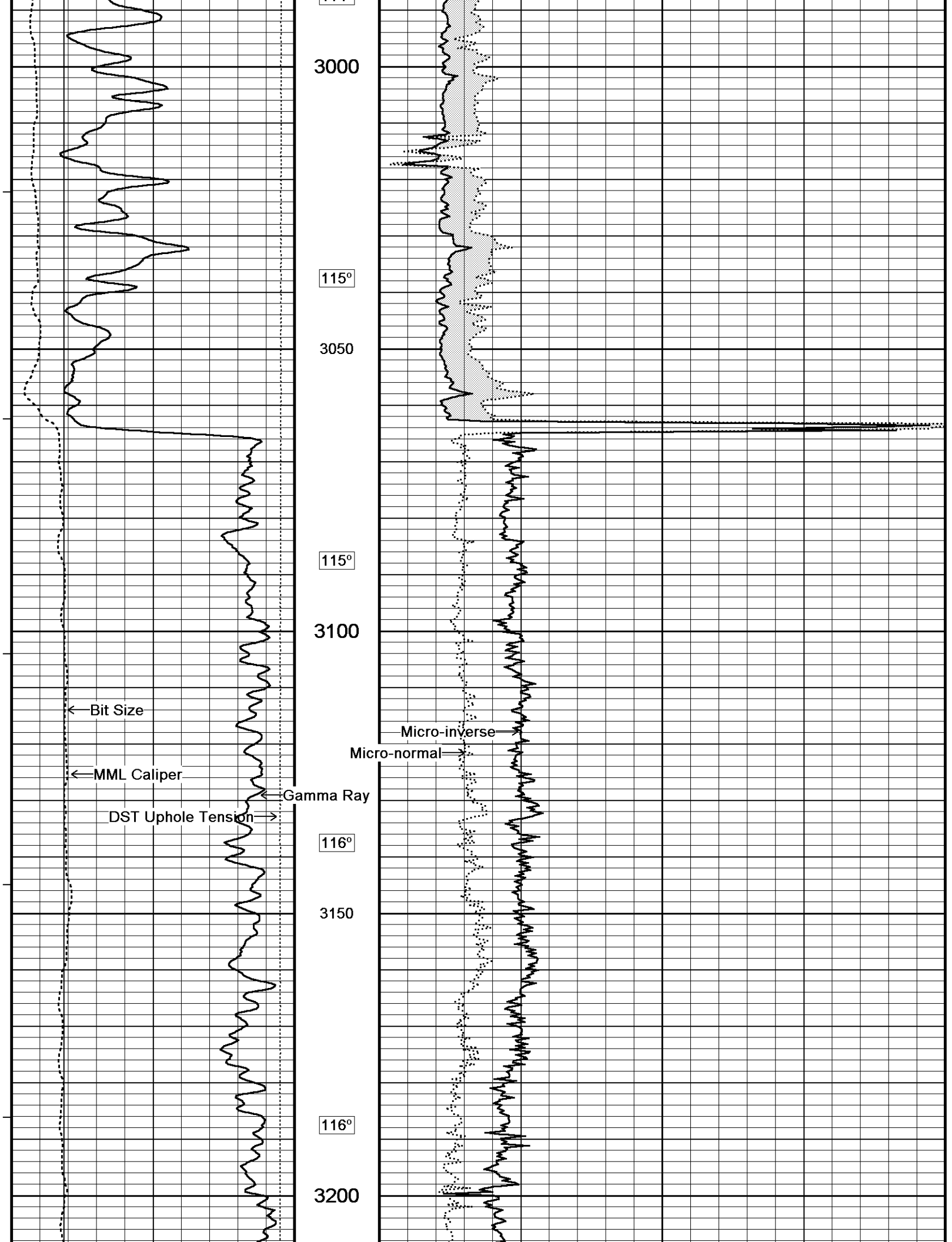
2550
109°
2600
110°
2650
110°
2700
111°
2750

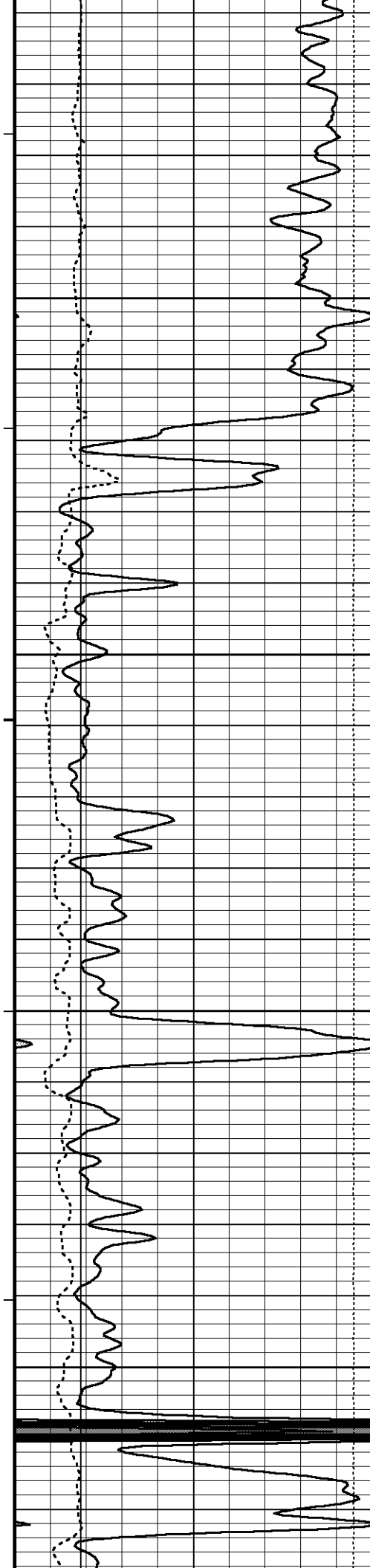
Bit Size
MML Caliper
Gamma Ray
DST Uphole Tension



Micro-inverse
Micro-normal







117°

3250

117°

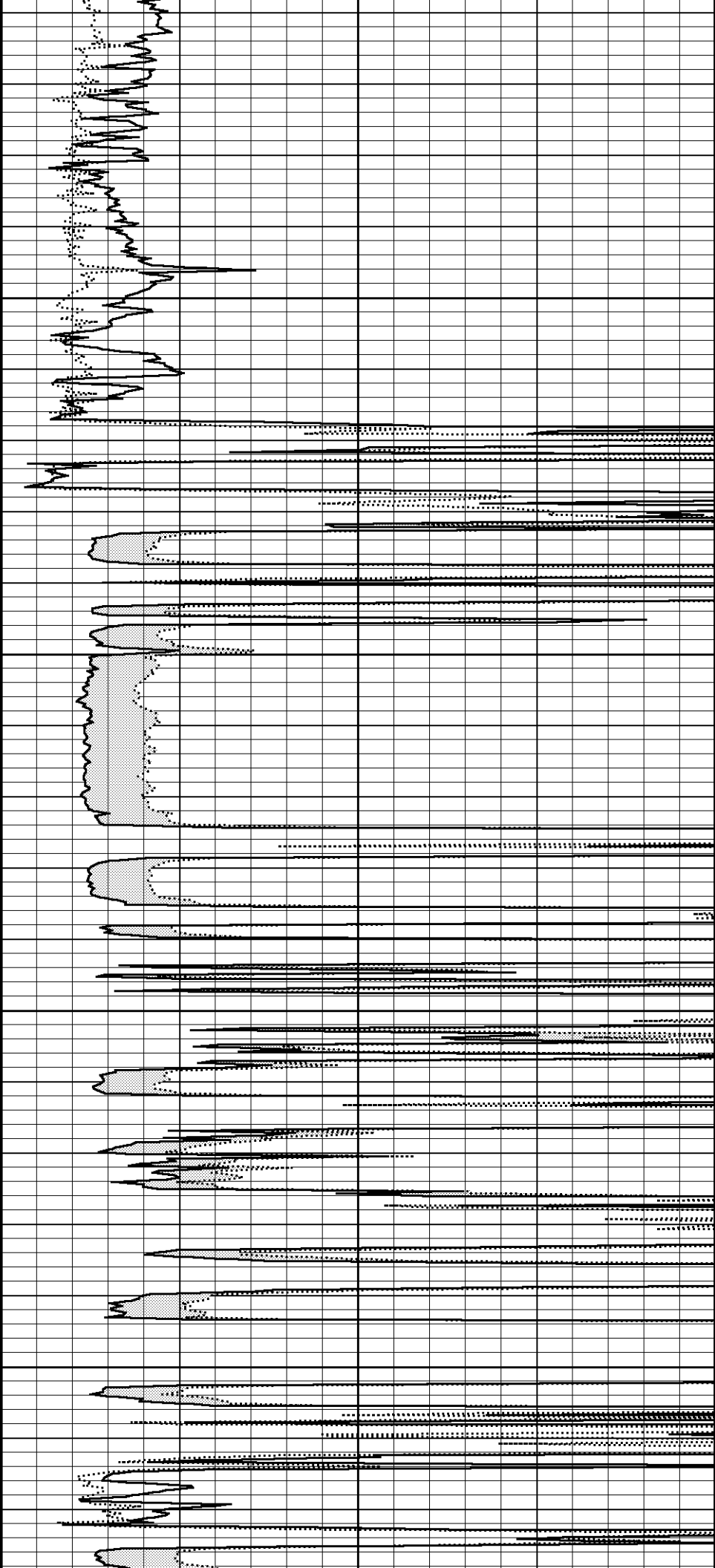
3300

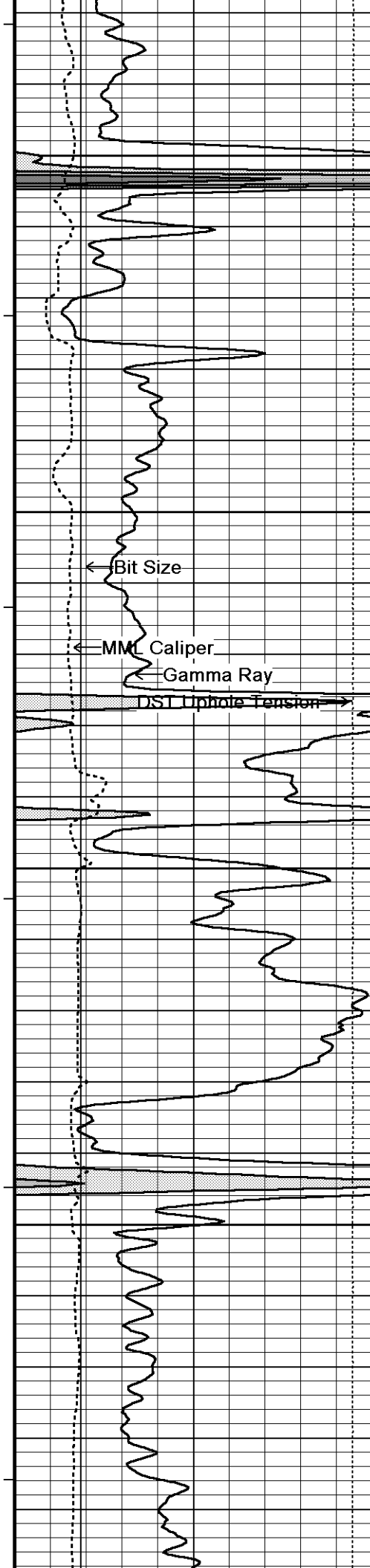
118°

3350

119°

3400





119°

3450

120°

3500

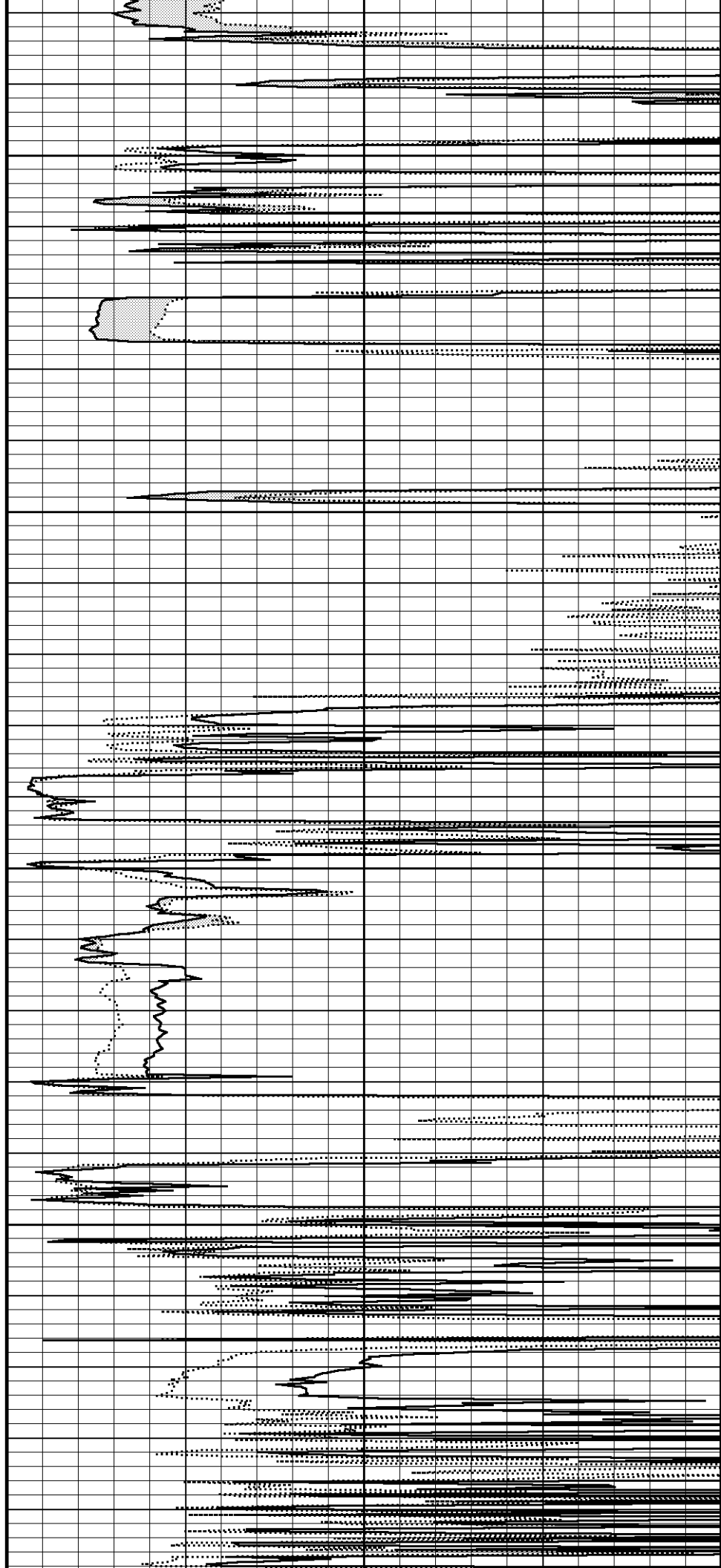
120°

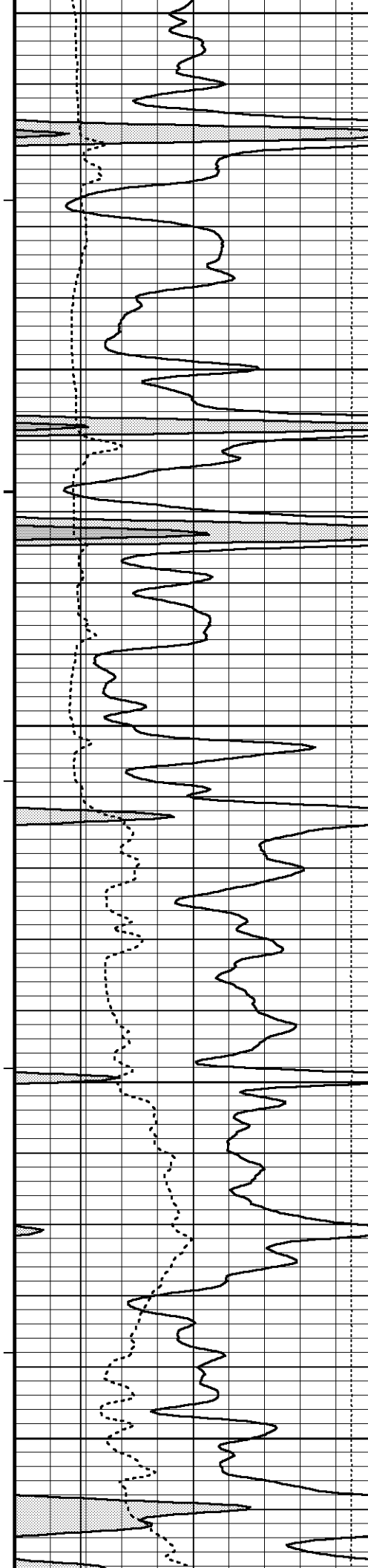
3550

121°

3600

121°





3650

122°

3700

123°

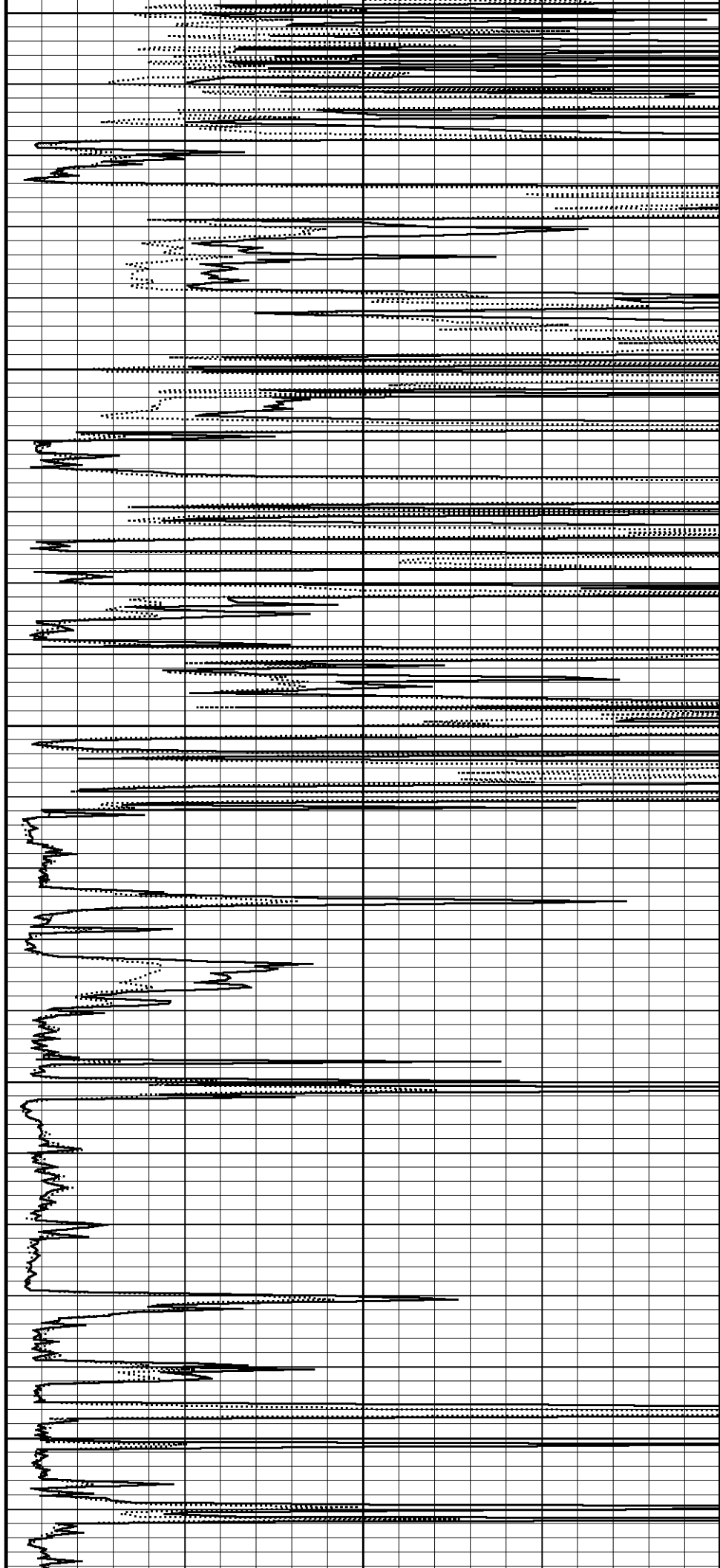
3750

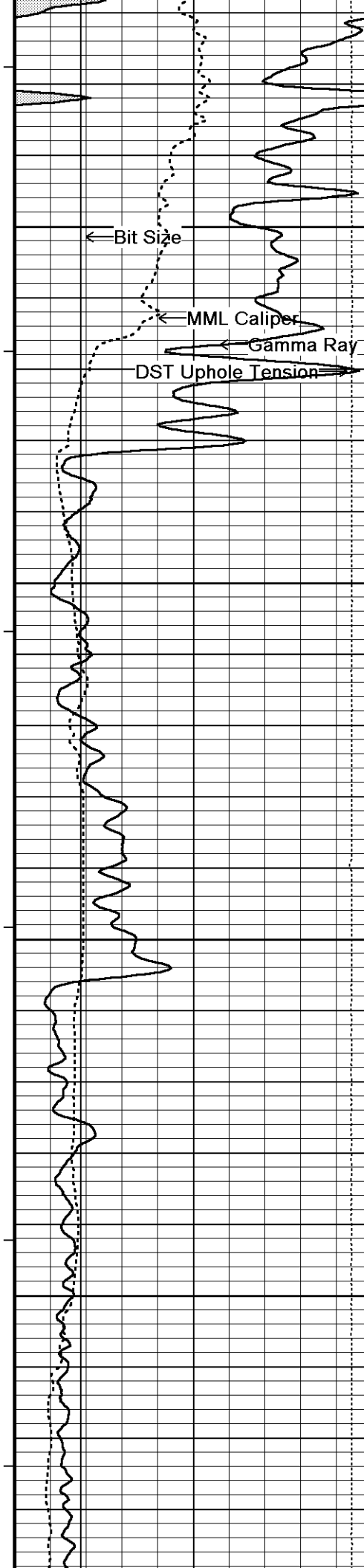
123°

3800

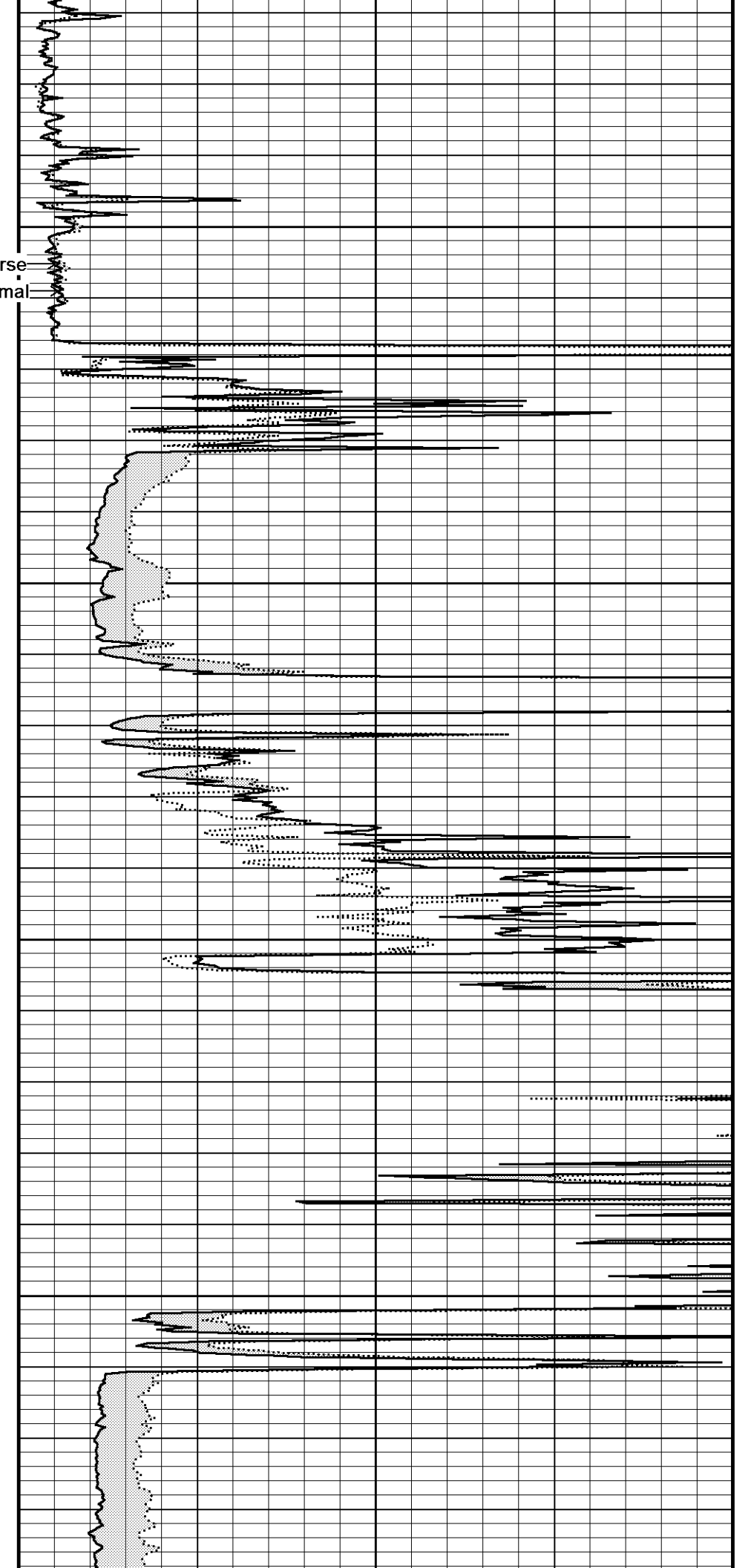
124°

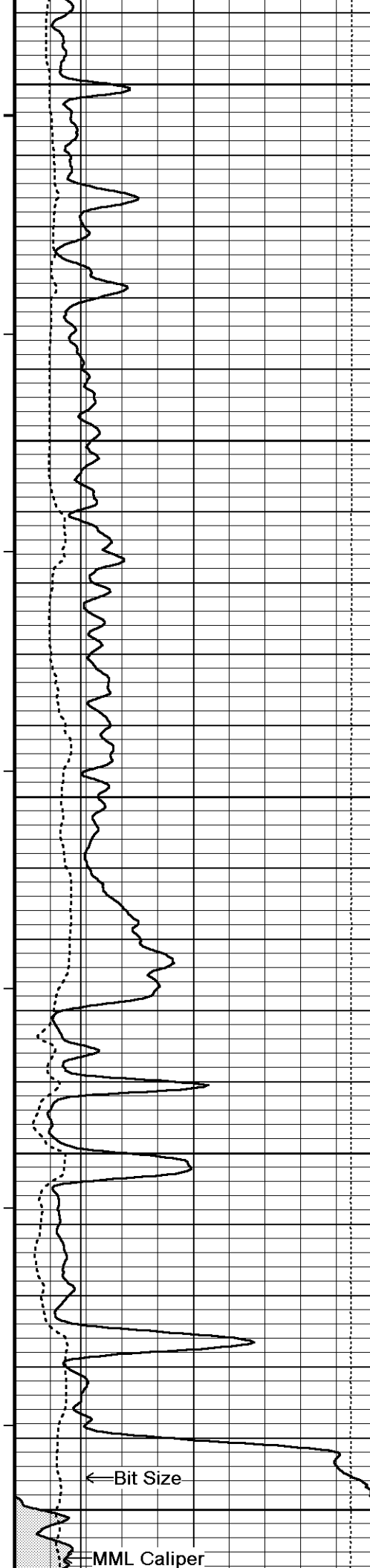
3850





125°
3900
Micro-inverse
Micro-normal
126°
3950
127°
4000
127°
4050
128°





4100

129°

4150

130°

4200

130°

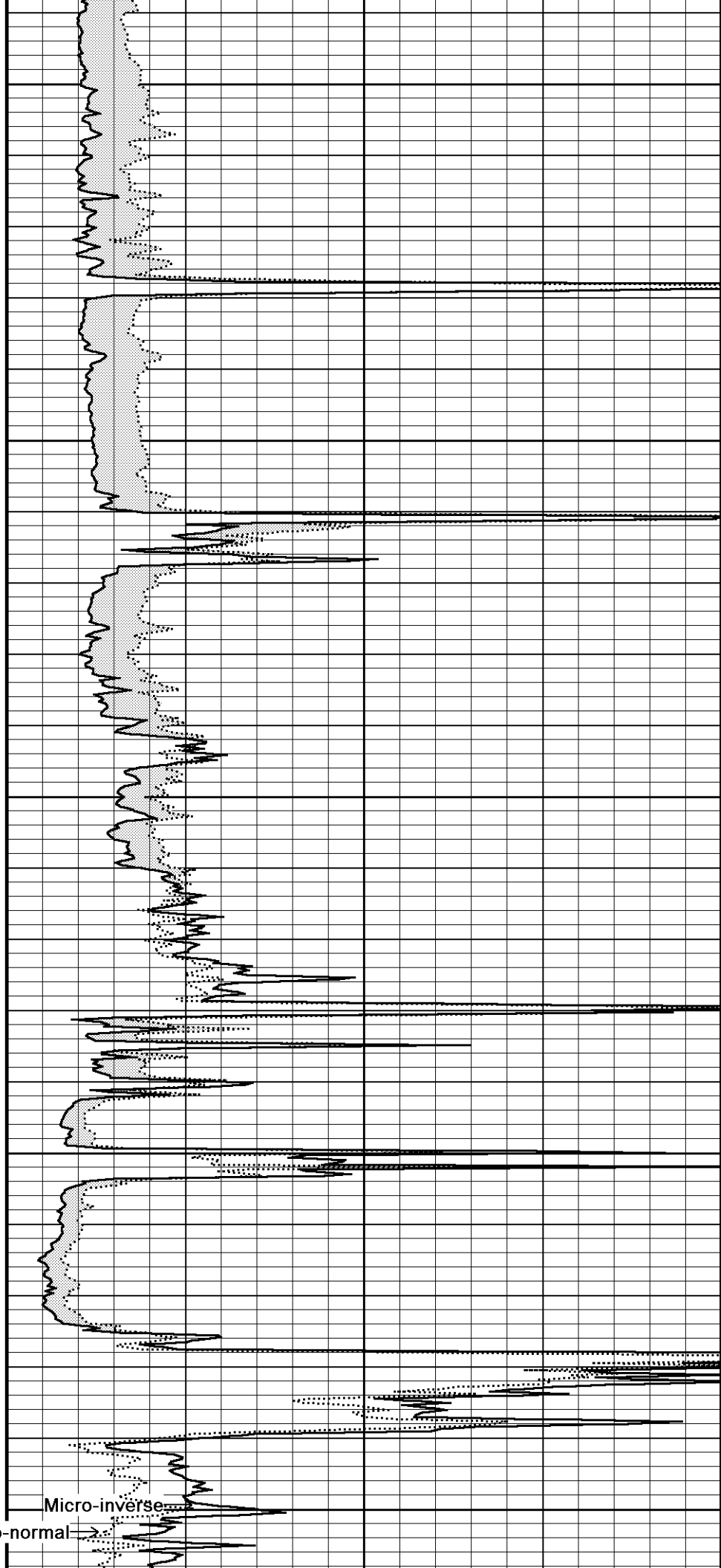
4250

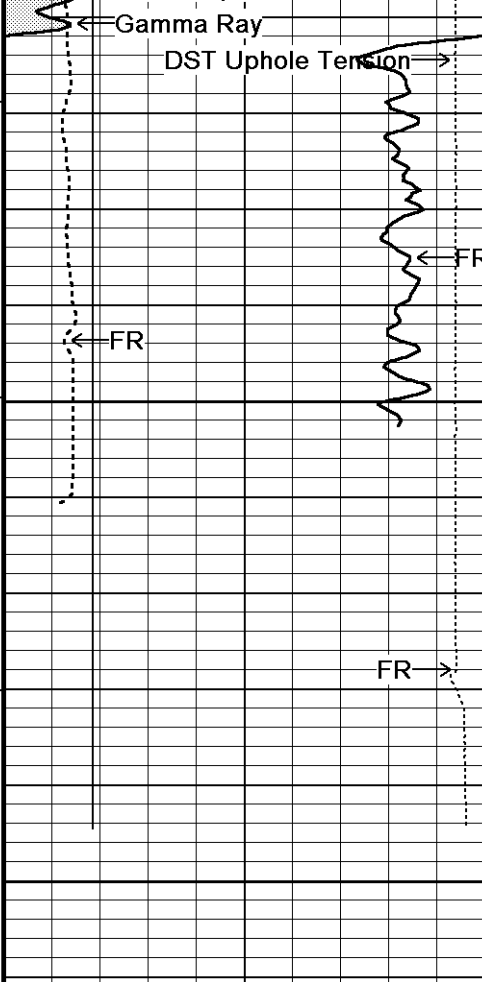
130°

4300

Micro-inverse

Micro-normal





129°

4350

4400

4408

Depth
In
Feet

← Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

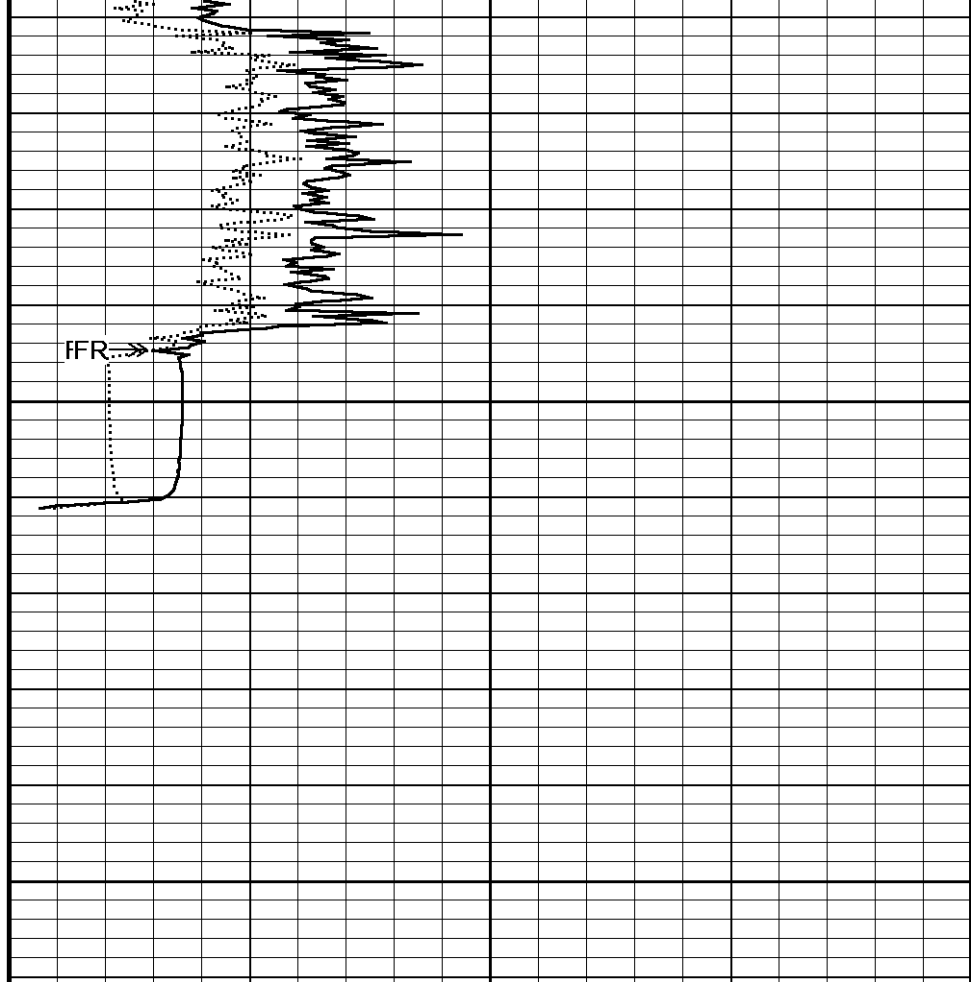
MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
10000 0

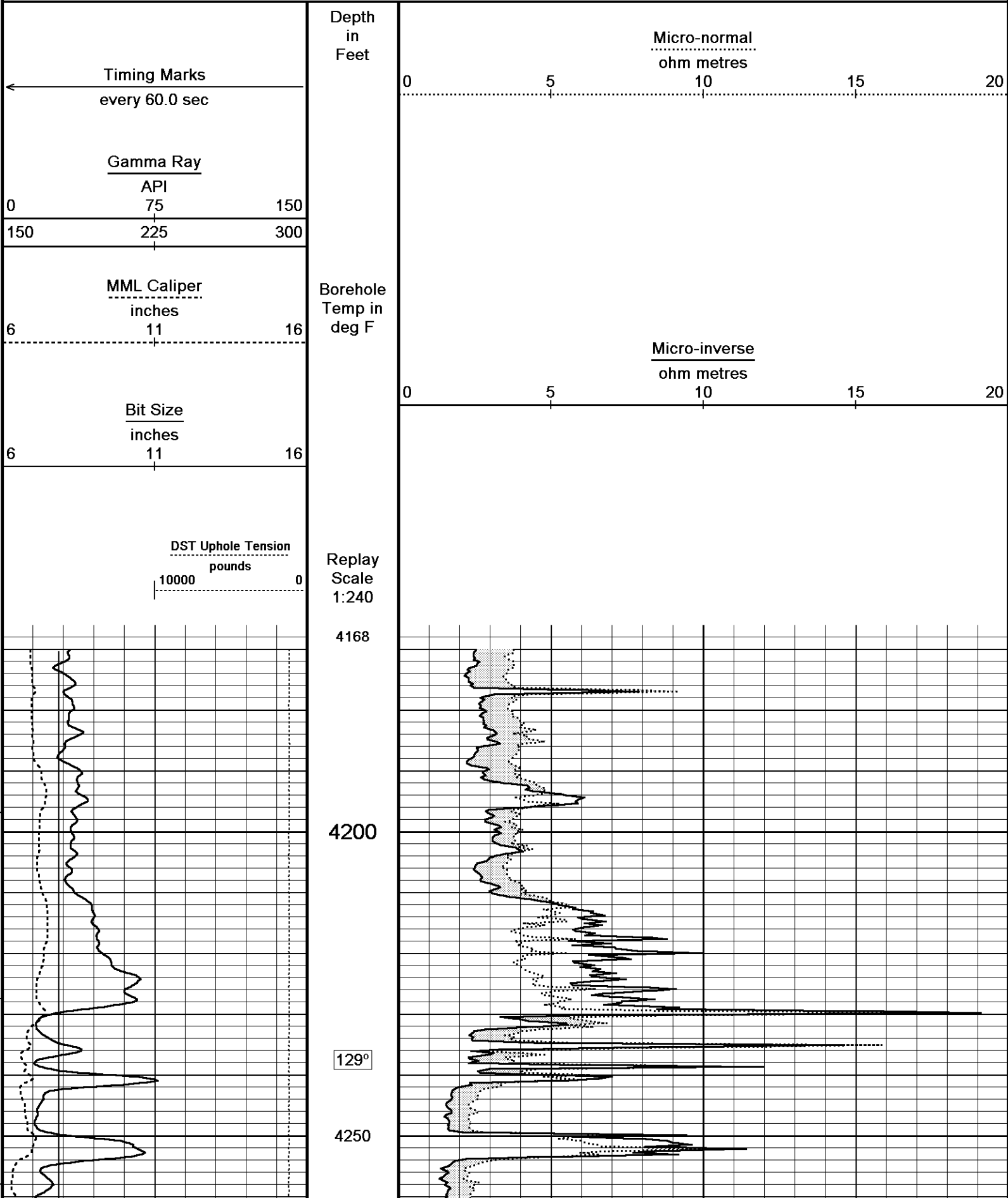
Borehole
Temp in
deg F

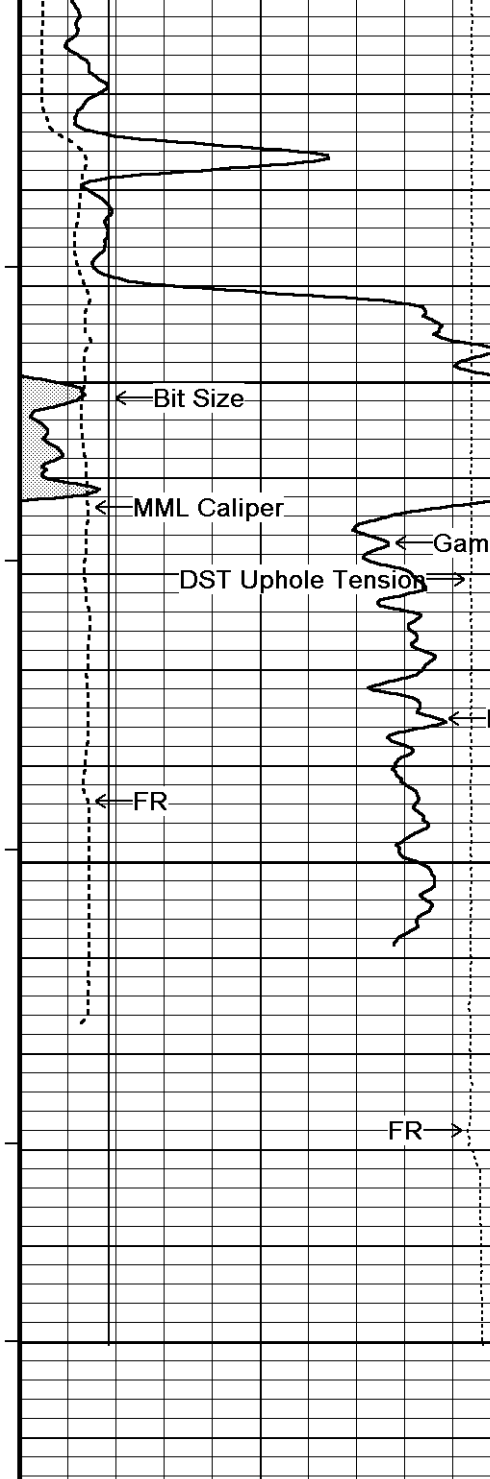
Replay
Scale
1:240



Micro-normal
ohm metres
0 5 10 15 20

Micro-inverse
ohm metres
0 5 10 15 20





128°

4300

127°

4350

4400

4414
Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

0 75 150

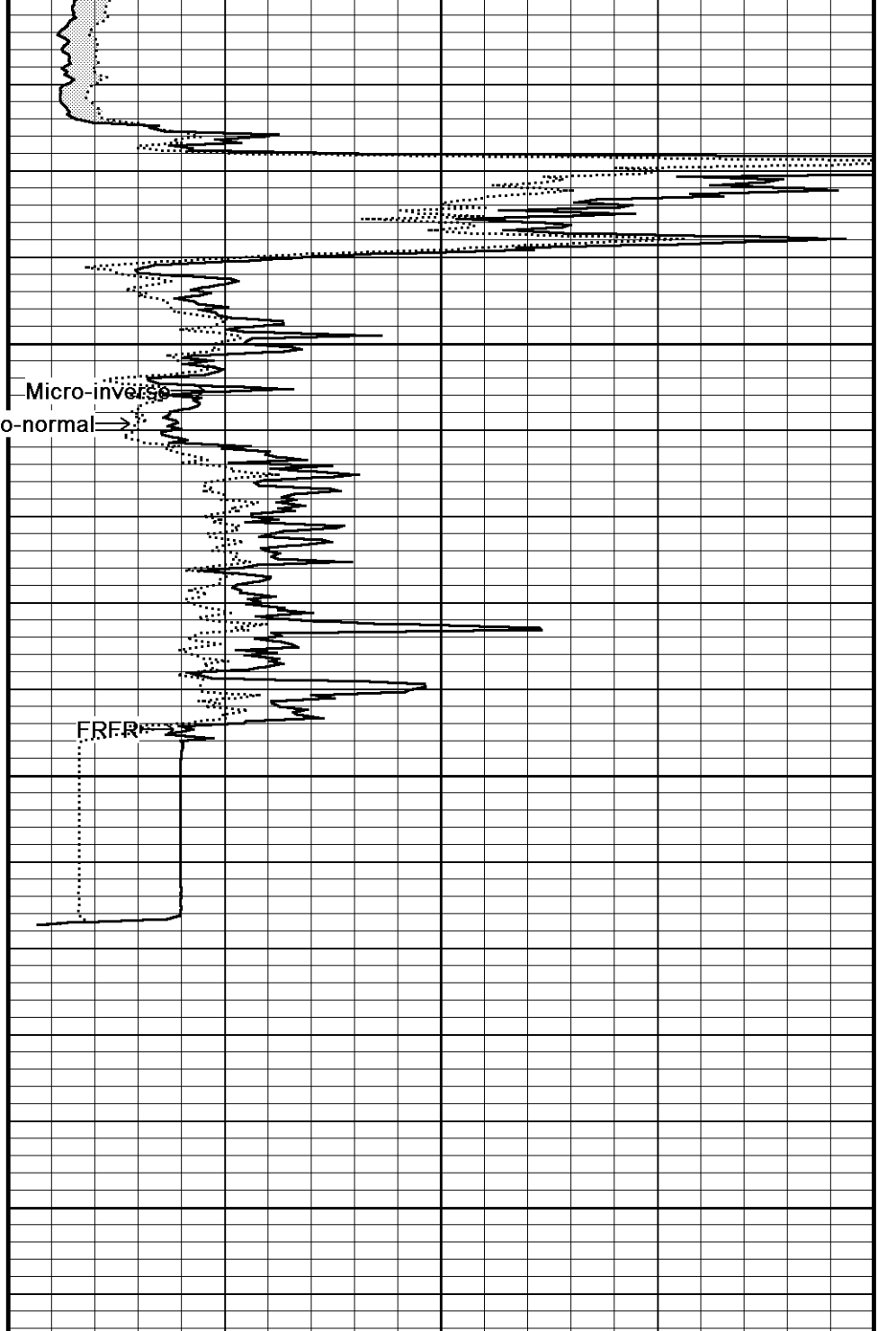
150 225 300

MML Caliper

inches

6 11 16

Borehole
Temp in
deg F



Micro-inverse

Micro-normal

FR FR

Micro-normal
ohm metres

0 5 10 15 20

Micro-inverse
ohm metres

0 5 10 15 20

Bit Size

inches

6

11

16

DST Uphole Tension
pounds

10000

0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 09-AUG-2012 00:58

Filename: C:\Program Files\Weatherford\WLS 13.02\DATA\MCCOY (ERSKINE B 1-32)\MAIN_001.dta

Recorded on 08-AUG-2012 22:38

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Program Files\Weatherford\WLS 13.02\DATA\MCCOY (ERSKINE B 1-32)\MAIN.dta

General Constants All 000

Last Edited on 08-AUG-2012,19:36

General Parameters

Mud Resistivity	0.320	ohm-metres
Mud Resistivity Temperature	91.000	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	5.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

Porosity used	Limestone Density Por.
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Down-hole Tension Calibration SMS 0

Field Calibration on 05-AUG-2012 08:14

Reading No	Measured	Calibrated (lbs)
1	16640.32	0.00
2	16905.01	430.00

Gamma Calibration MCG-B 31

Field Calibration on 08-AUG-2012,19:37

	Measured	Calibrated (API)
Background	38	26
Calibrator (Gross)	1063	722
Calibrator (Net)	1025	696

Gamma Constants MCG-B 31

Last Edited on 08-AUG-2012,19:37

Gamma Calibrator Number	036	
Mud Density	1.14	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-B 31

Field Calibration on 08-AUG-2012,19:38

	Measured	Calibrated (mV)
Reference 1	100.0	100.0
Reference 2	-100.0	-100.0

High Resolution Temperature Calibration MCG-B 31

Field Calibration on 08-AUG-2012,19:38

	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-B 31			
Last Edited on			
Pre-filter Length	11		
Caliper Calibration MML-A 7			
Base Calibration on 18-APR-2012 08:58			
Field Calibration on 08-AUG-2012,19:38			
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	15211	5.96	
2	18535	7.98	
3	21950	9.94	
4	25696	11.90	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	8.24	7.98	
Micro Normal and Micro Inverse Calibration MML-A 7			
Base Calibration on 18-APR-2012 08:48			
Field Check on 08-AUG-2012,19:38			
Base Calibration			
Channel	Resistor 1	Measured	Calibrated (ohm-m)
		Resistor 2	Resistor 1
			Resistor 2
Micro Normal	12.1	59.8	5.0
Micro Inverse	15.7	77.9	5.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)
Micro Normal	63.4		63.4
Micro Inverse	48.5		48.5
Micro Normal and Micro Inverse Constants MML-A 7			
Last Edited on 08-AUG-2012,19:38			
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-A.B 31			
Base Calibration on 05-MAR-2012 13:28			
Field Check on 08-AUG-2012,19:39			
Base Calibration			
	Measured	Calibrated (cps)	
	Near	Far	
	3308	102	
Ratio	32.392	33.764	
Field Calibrator at Base			
	Calibrated (cps)		
	2229	3259	
Ratio	0.684		
Field Check			
	Calibrated (cps)		
	1936	2801	
Ratio	0.691		
Neutron Constants MDN-A.B 31			
Last Edited on 08-AUG-2012,19:39			
Neutron Source Id	n1054		
Neutron Jig Number	grcc056		
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
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 54		Base Calibration on 18-APR-2012 10:04 Field Check on 08-AUG-2012,19:40	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	968.0	126.8	
Base Check		282.8	
Field Check		282.4	

FE Constants MFE-A.A 54			Last Edited on 08-AUG-2012,19:40		
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 66		Field Calibration on 08-AUG-2012,19:40	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI-A.A 66		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-A.A 66				Base Calibration on 29-SEP-2009,08:06	
				Field Check on 08-AUG-2012,19:40	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	16.3	454.6	9.3	966.2	
2	5.6	370.2	7.6	821.4	
3	3.7	253.8	5.2	566.0	
4	1.9	131.5	2.6	279.2	
Array Temperature		78.4	Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	17.8	4013.6	
2	0.0	0.0	33.4	3653.7	
3	0.0	0.0	29.6	3137.2	
4	0.0	0.0	20.5	2113.2	
Deep	0.0	0.0	17.1	2025.4	
Medium	0.0	0.0	43.1	4149.1	
Shallow	0.0	0.0	51.7	5432.3	
Array Temperature		0.0	96.8		Deg F

Induction Constants MAI-A.A 66		Last Edited on 08-AUG-2012,19:40	
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		0.0040	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 24-JUL-2012 10:14
Field Calibration on 08-AUG-2012,19:39

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	19152	4.01
2	27520	5.96
3	36176	7.98
4	44688	9.94
5	53424	11.90
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	8.86	8.83

Photo Density Calibration MPD-A.A 11

Base Calibration on 23-JUL-2012 12:42
Field Check on 08-AUG-2012,19:39

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58001	30635	59869	31110
Reference 2	24376	2748	24557	2522
Field Check at Base				
	1210.5	1305.5		
Field Check				
	1210.3	1304.2		
PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	217	1059		
Reference 1	20651	57782	0.360	0.369
Reference 2	6291	24213	0.262	0.271
Field Check at Base				
	217.0	1059.4		
Field Check				
	219.3	1065.4		

Density Constants MPD-A.A 11

Last Edited on 08-AUG-2012,19:39

Density Source Id	p56135b	
Nylon Calibrator Number	dnce633	
Aluminium Calibrator Number	dacd633	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.14	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	0.00

DOWNHOLE EQUIPMENT

C:\Program Files\Weatherford\WLS 13.02\DATA\MCCOY (ERSKINE B 1-32)\MAIN.dta

SHA-D Compact Swivel Head Adaptor
SHA-D 5 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 31 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

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

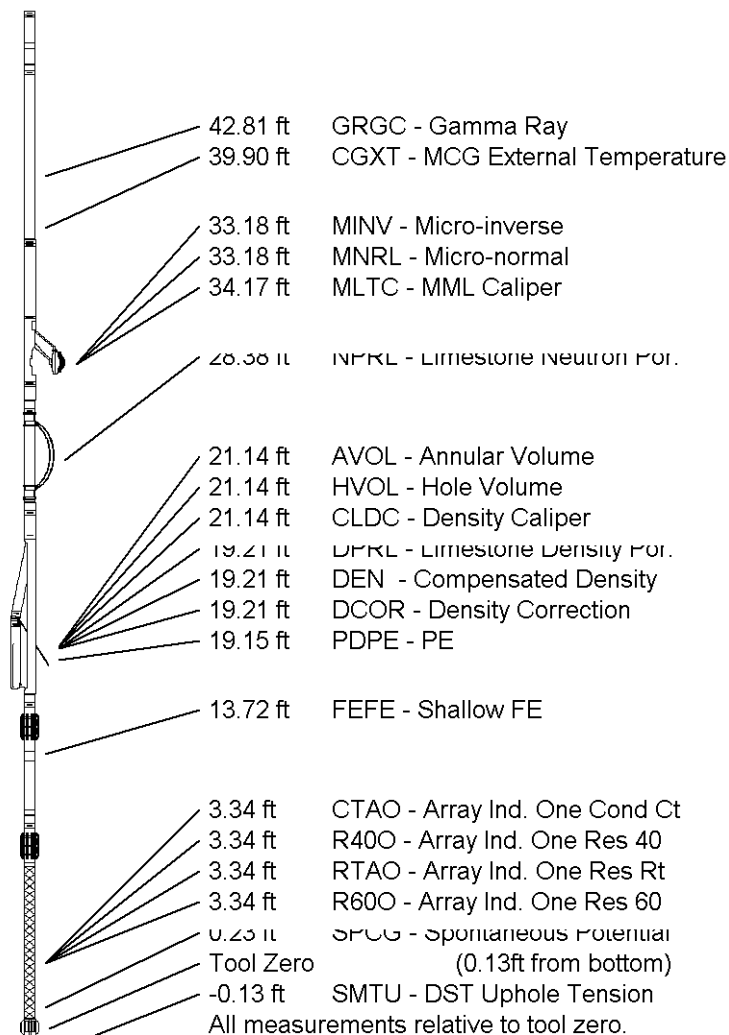
Compact Neutron
MDN-A.B 31 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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 Induction
MAI-A.A 66 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.83 ft Weight: 410.1 lb



COMPANY
WELL

MCCOY PETROLEUM CORPORATION
ERSKINE "B" #1-32

FIELD			ERSKINE NORTH		
PROVINCE/COUNTY			SUMNER		
COUNTRY/STATE			USA / KANSAS		
Elevation Kelly Bushing	1287.00	feet	First Reading	4344.00	feet
Elevation Drill Floor	1285.00	feet	Depth Driller	4390.00	feet
Elevation Ground Level	1278.00	feet	Depth Logger	4378.00	feet
 Weatherford[®] MICRO RESISTIVITY LOG					