MICRORESISTIVITY LOG

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	PREEDY #2-8
FIELD	ANGELL SOUTH
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	420' FNL & 335' FEL

SEC 8	TWP 33S	RGE 29W	Other Services
Latitude			MAI/MFE MPD/MDN
Longitude			
API Number	15-119-21415		

Permanent Datum GL, Elevation 2657 feet
Log Measured From KB, 13.00 feet above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	2670.00
DF	2668.00
GL	2657.00

Date	18-APR-2018			
Run Number	ONE			
Service Order	4558-211257073			
Depth Driller	6350.00	feet		
Depth Logger	6350.00	feet		
First Reading	6315.00	feet		
Last Reading	4000.00	feet		
Casing Driller	1533.00	feet		
Casing Logger	1532.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	53.00 CP		
PH / Fluid Loss	10.50	6.80 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.96 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.77 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.15 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.56 @129.0	ohm-m		
Time Since Circulation	5 HOURS			
Max Recorded Temp	129.00	deg F		
Equipment / Base	13096	LIB		
Recorded By	ADAM SILL			
Witnessed By	DANA GREATHOUSE		PETER DEBENHAM	

BOREHOLE RECORD

Last Edited: 18-APR-2018 16:47

Bit Size inches	Depth From feet	Depth To feet
7.875	1533.00	6350.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1533.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 18.01.5248.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  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: 1836 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 4000 FEET: 534 CU.FT.
- RIG: DUKE #9

- RIG: DURE #6.

- ENGINEER: A. SILL.

- 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.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 18-APR-2018 23:08

Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_003.dta — Recorded on 18-APR-2018 20:13

System Versions: Logged with 18.01.5248 Processed with 18.01.5248 Plotted with 18.01.5248

Timing Marks
every 60.0 sec

Gamma Ray
API
0 — 75 — 150
150 — 225 — 300

Spontaneous Potential
millivolts
– → | 20 | ← +

MMR Caliper
inches
6 — 11 — 16

Bit Size
inches
6 — 11 — 16

DST Uphole Tension
pounds
5000 — 0

Depth
in
Feet

Borehole
Temp in
deg F

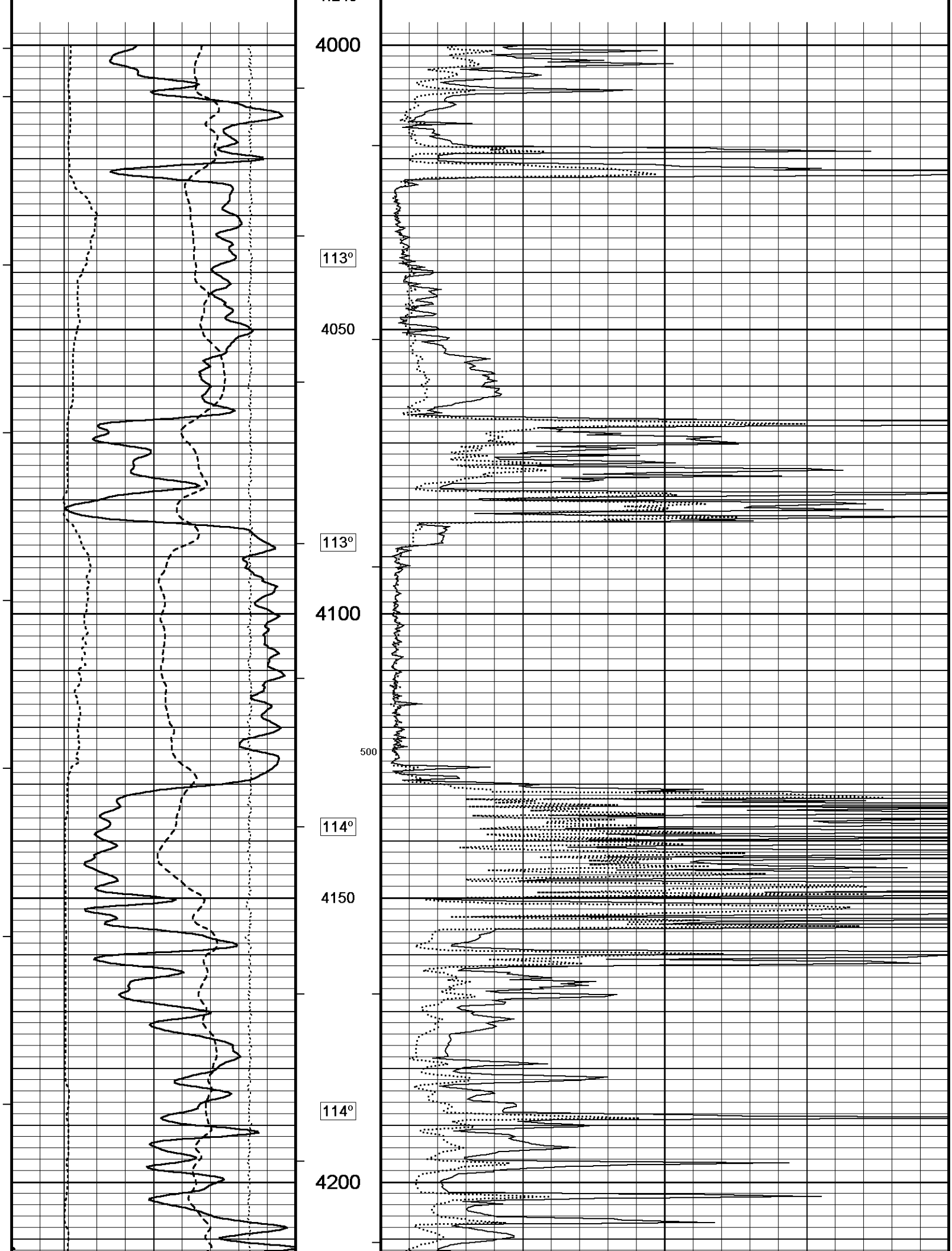
HVI
every
10 cu ft

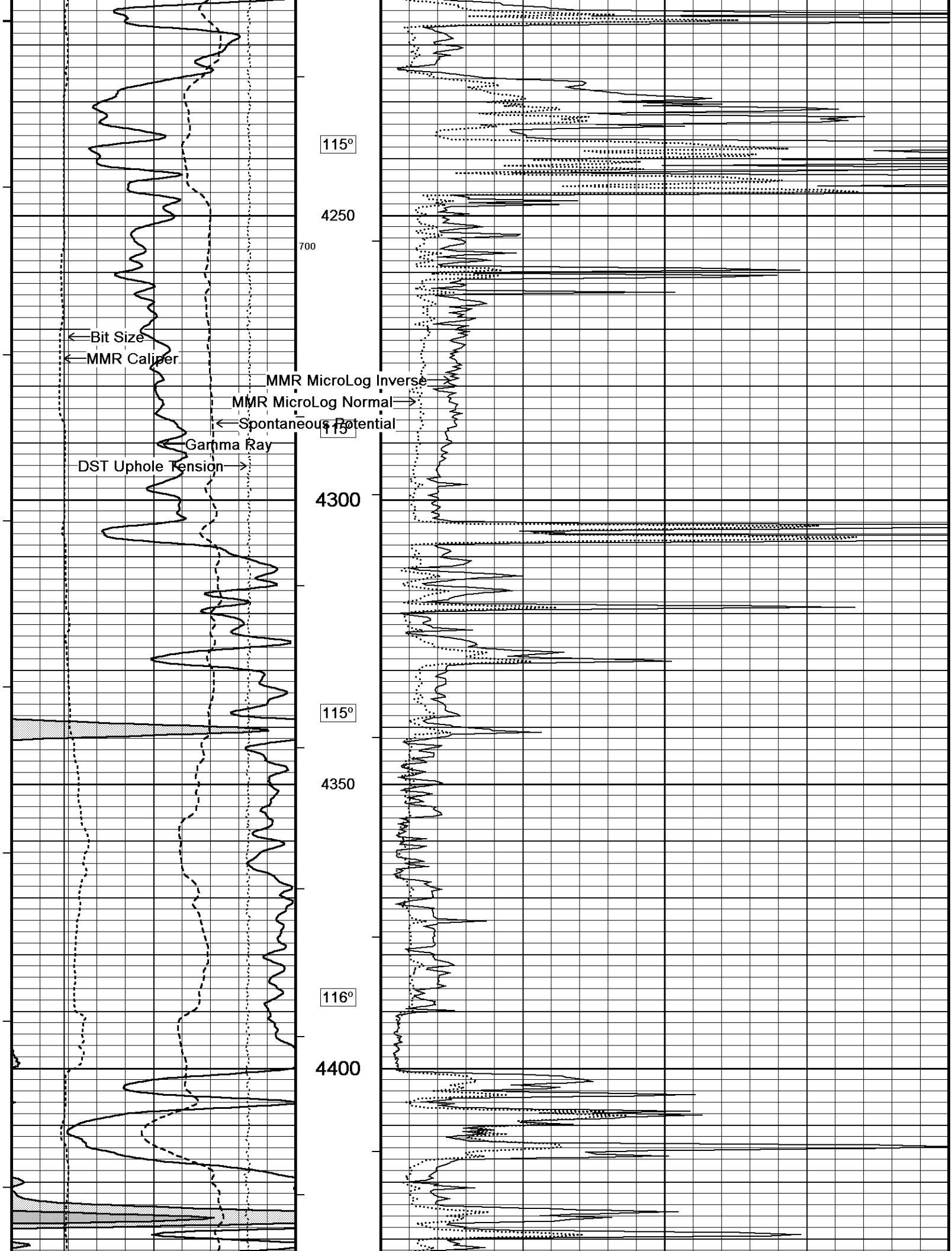
Annular
Integral
every
10 cu ft

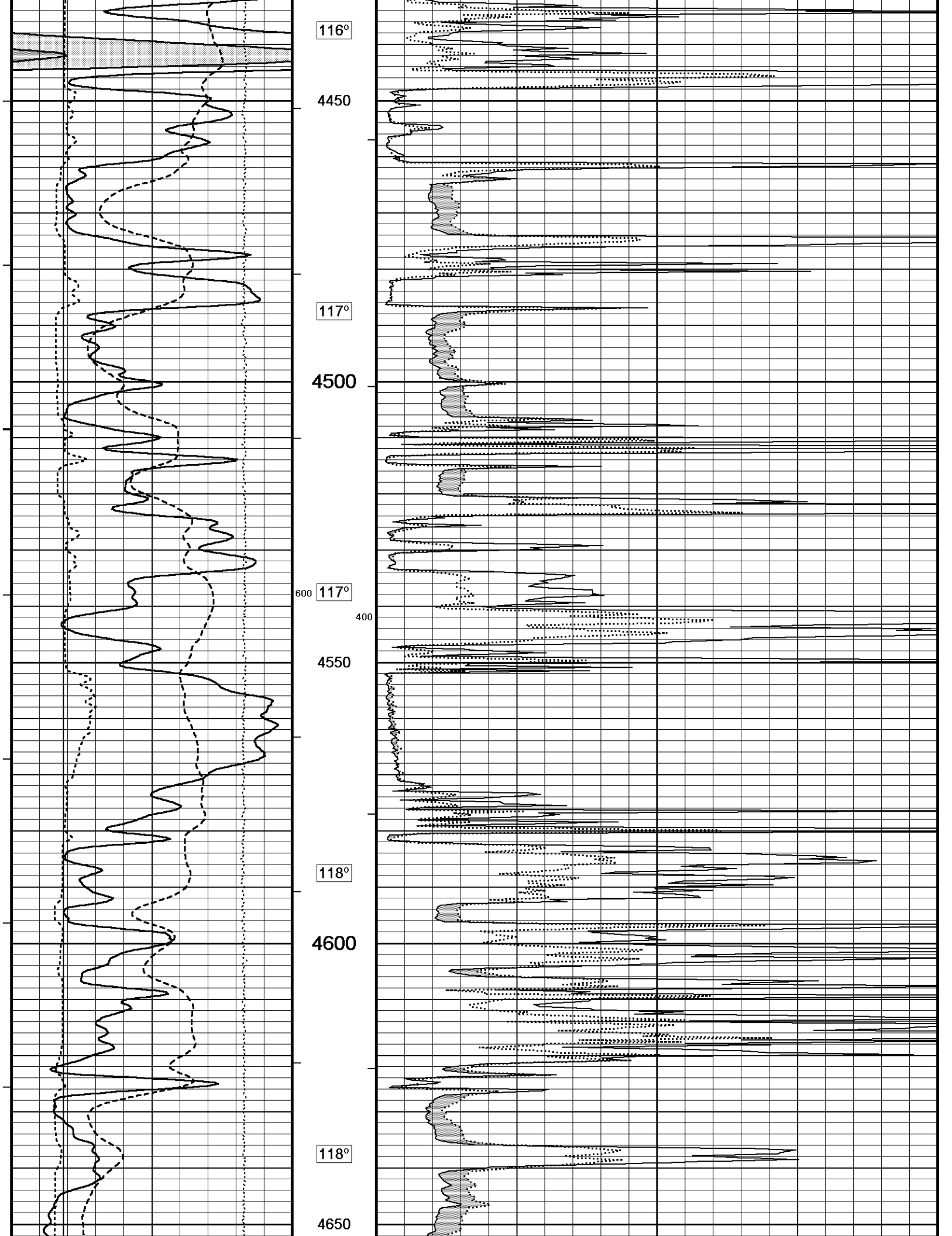
Replay
Scale
1:240

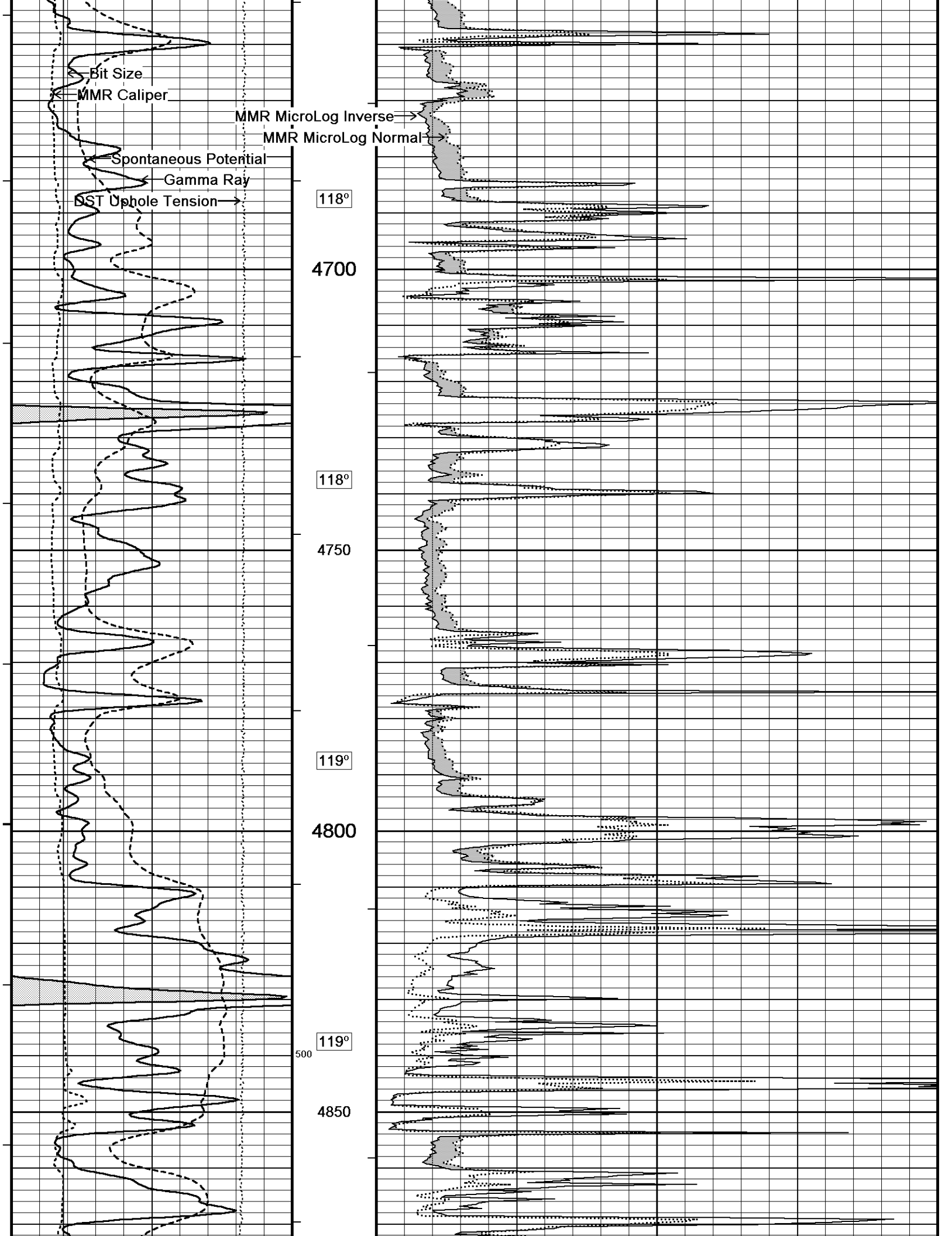
MMR MicroLog Normal
ohm metres
0 — 10 — 20 — 30 — 40

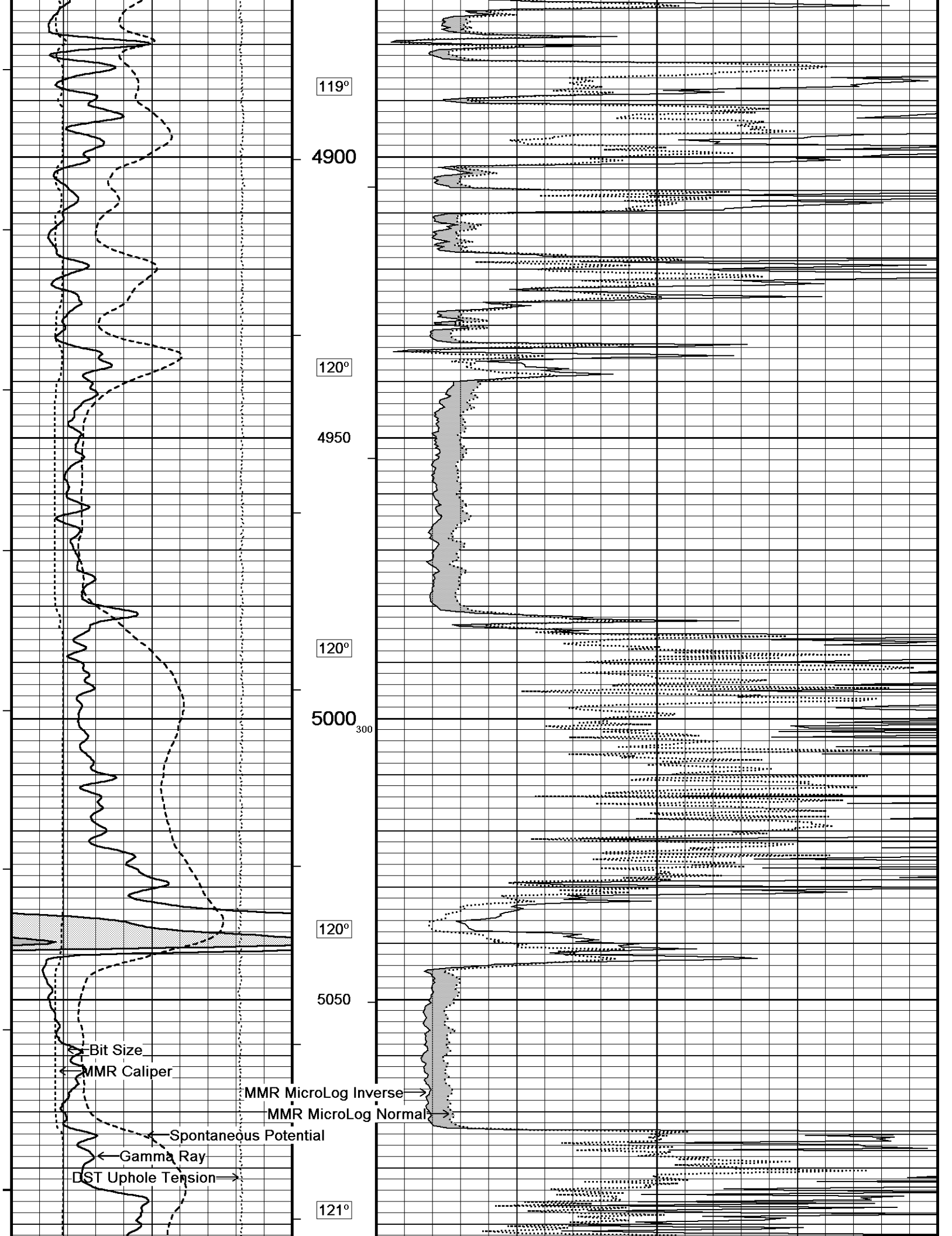
MMR MicroLog Inverse
ohm metres
0 — 10 — 20 — 30 — 40

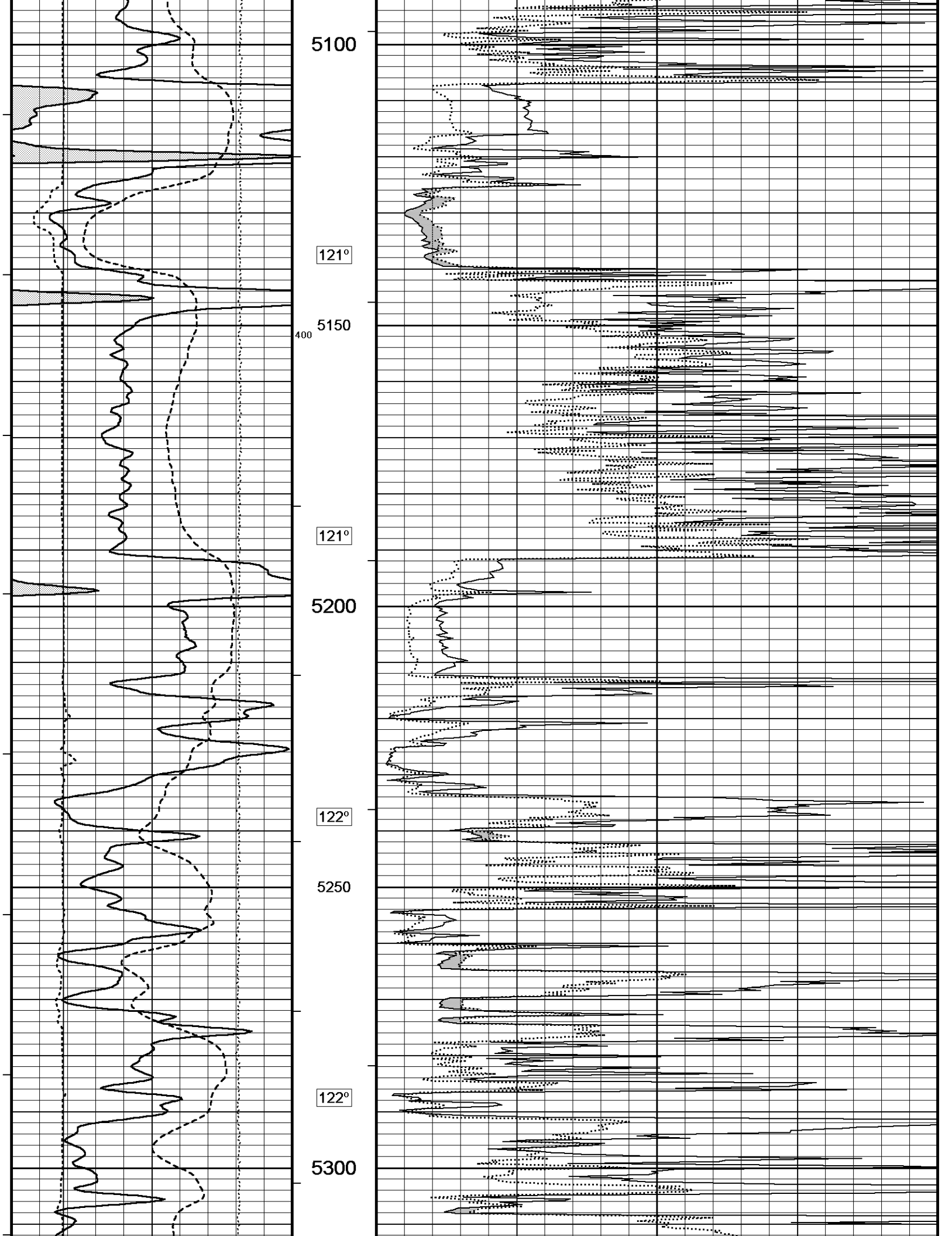

4000
113°
4050
113°
4100
500
114°
4150
114°
4200

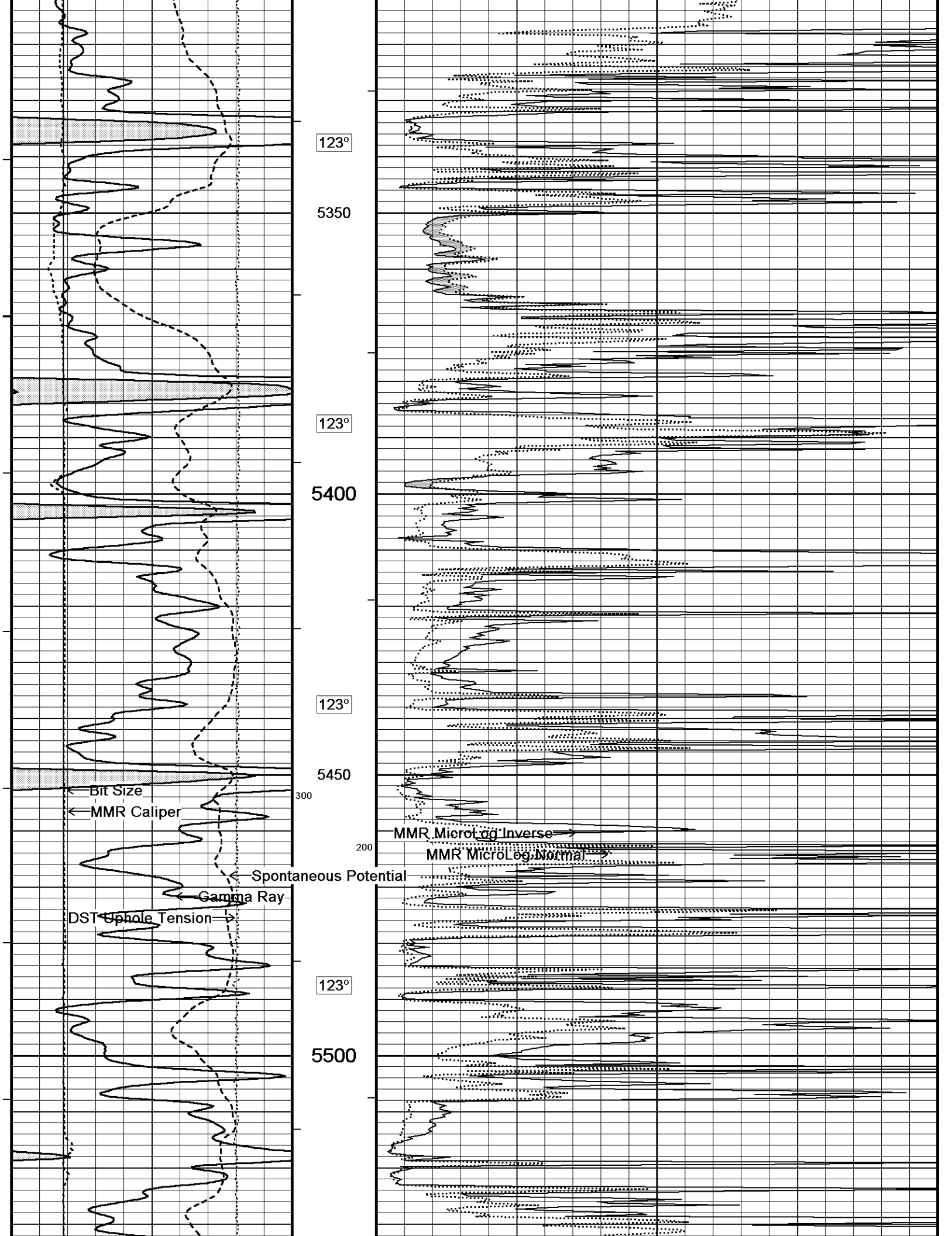

115°
4250
700
Bit Size
MMR Caliper
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
115°
Gamma Ray
DST Uphole Tension
4300
115°
4350
116°
4400

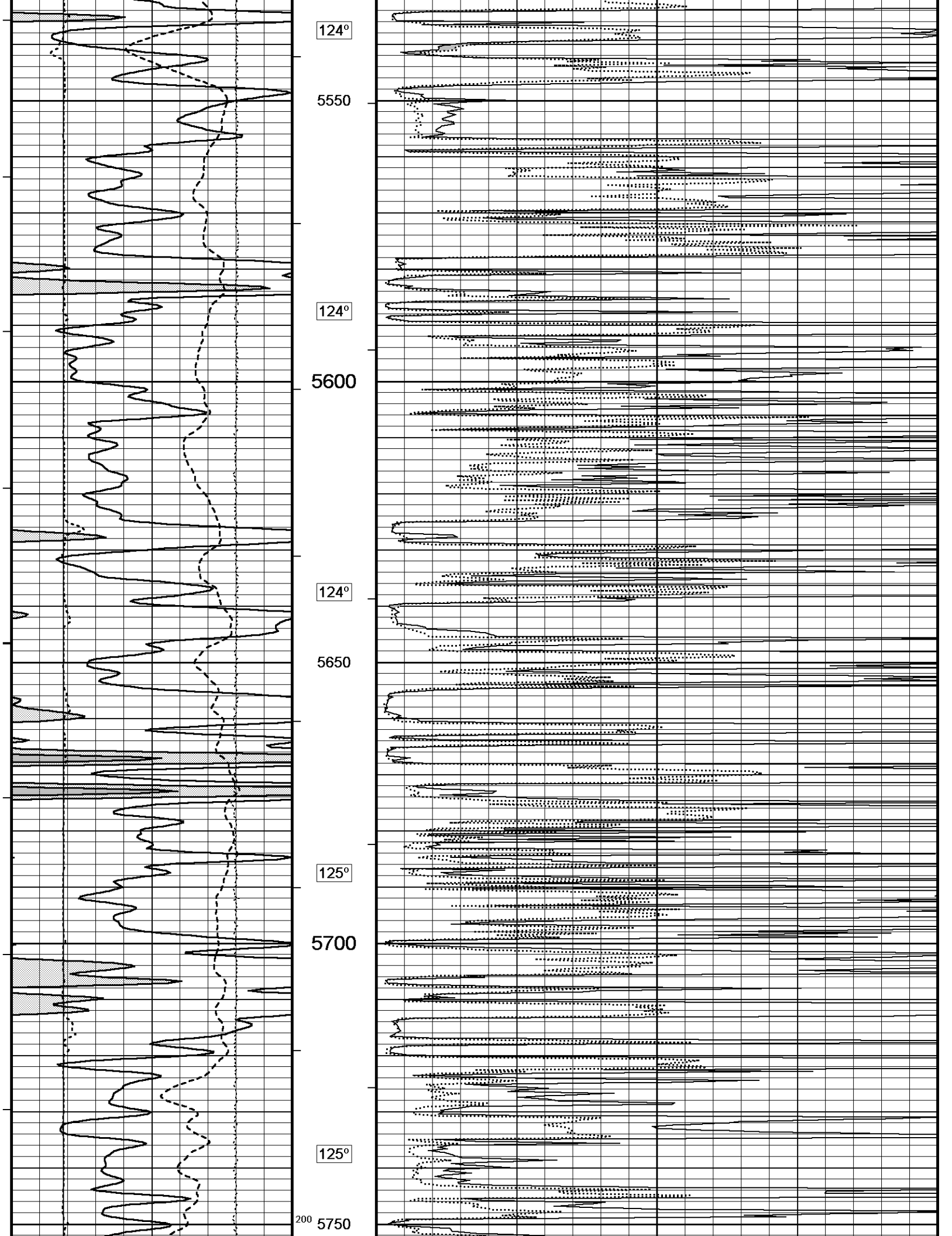

116°
4450
117°
4500
600
117°
400
4550
118°
4600
118°
4650

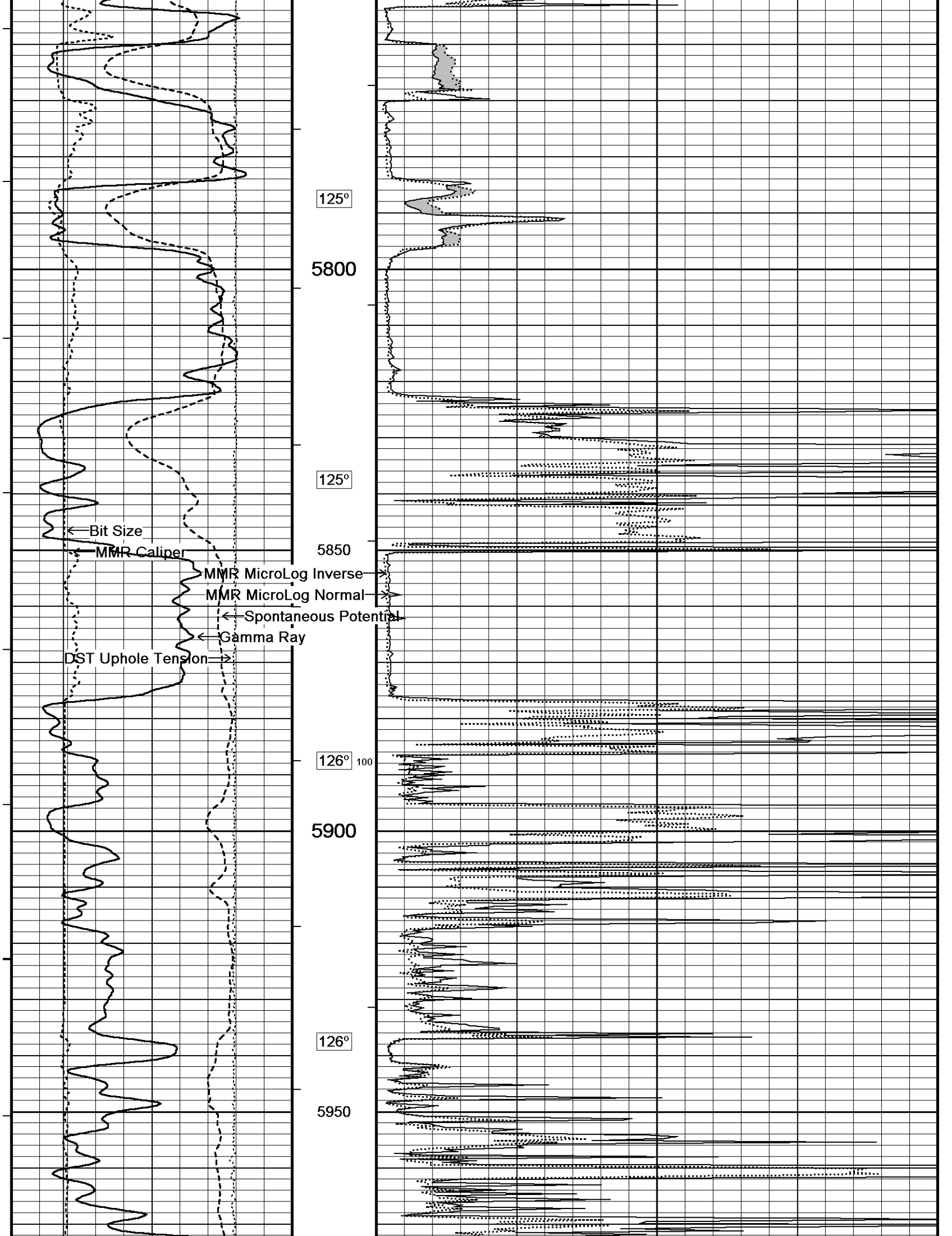

Bit Size
MMR Caliper
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
118°
4700
118°
4750
119°
4800
119°
500
4850

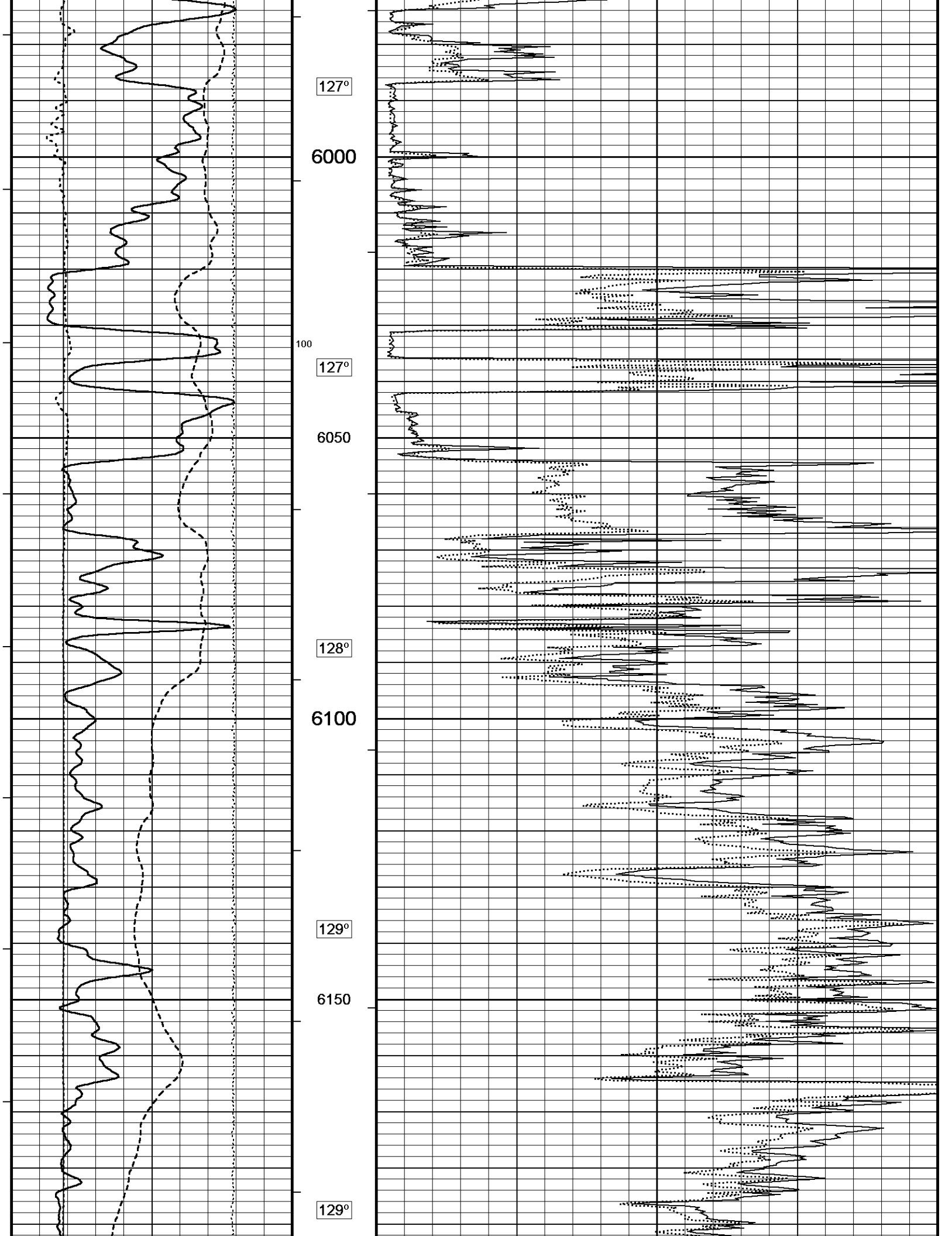

119°
4900
120°
4950
120°
5000
300
120°
5050
121°
Bit Size
MMR Caliper
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension

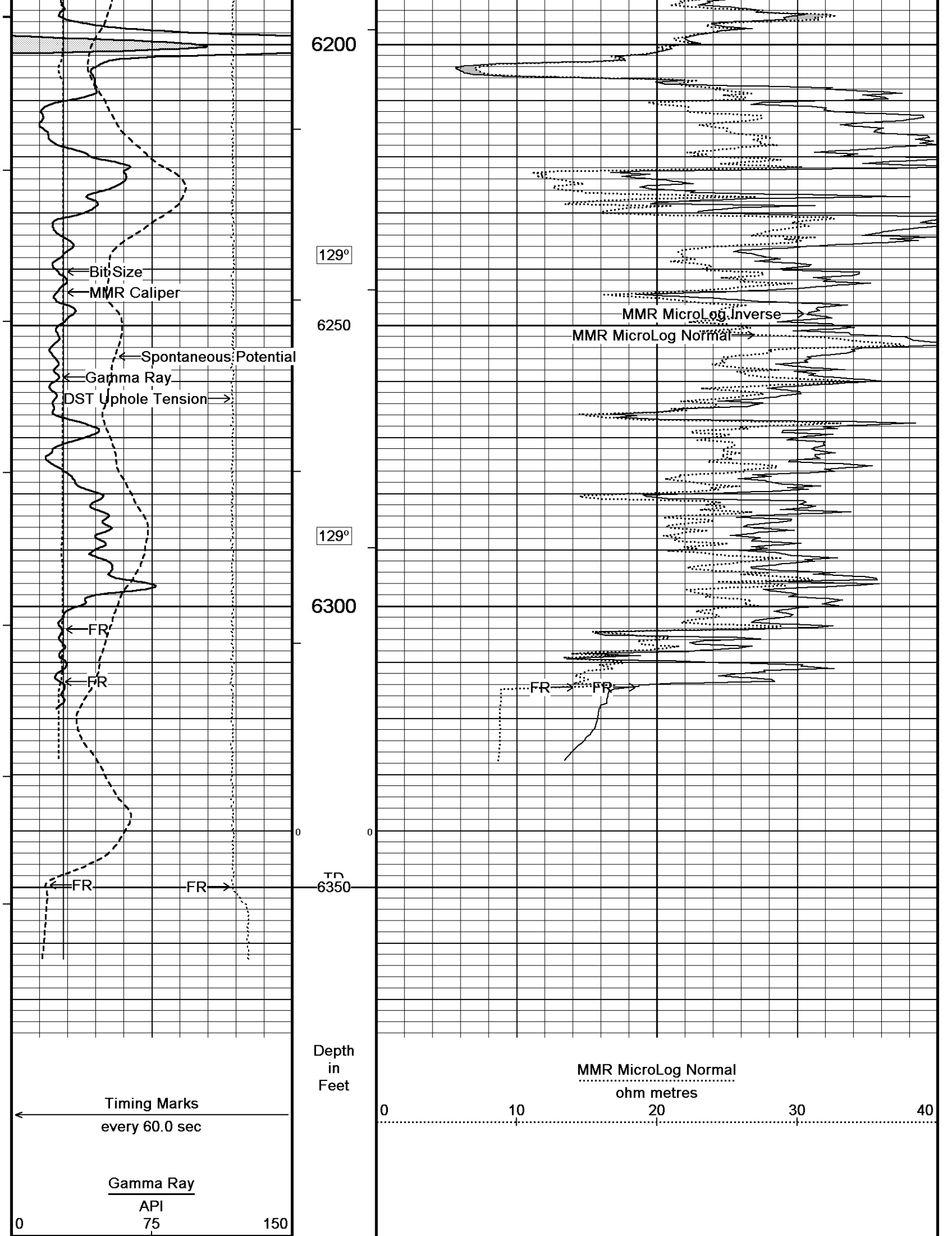

5100
121°
400
5150
121°
5200
122°
5250
122°
5300

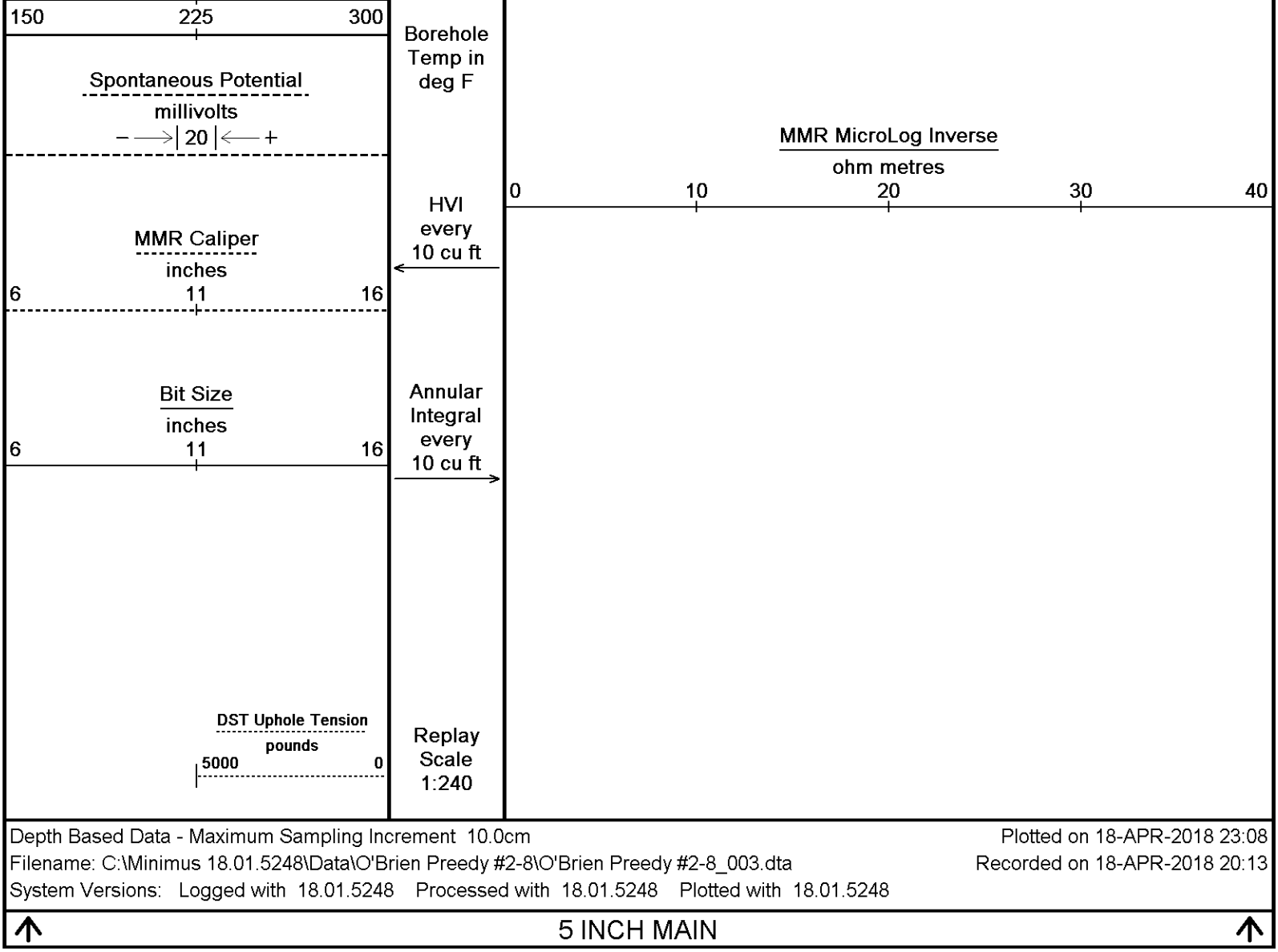

123°
5350
123°
5400
123°
5450
Bit Size
MMR Caliper
300
MMR Microlog Inverse
200
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
123°
5500


124°
5550
124°
5600
124°
5650
125°
5700
125°
200
5750


125°
5800
125°
Bit Size
MMR Caliper
5850
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
126°
100
5900
126°
5950


127°
6000
100
127°
6050
128°
6100
129°
6150
129°


6200
129°
Bit Size
MMR Caliper
6250
Spontaneous Potential
Gamma Ray
DST Uphole Tension
MMR MicroLog Inverse
MMR MicroLog Normal
129°
6300
FR
FR
FR
FR
FR
FR
0
0
TD
6350
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
MMR MicroLog Normal
ohm metres
0
10
20
30
40

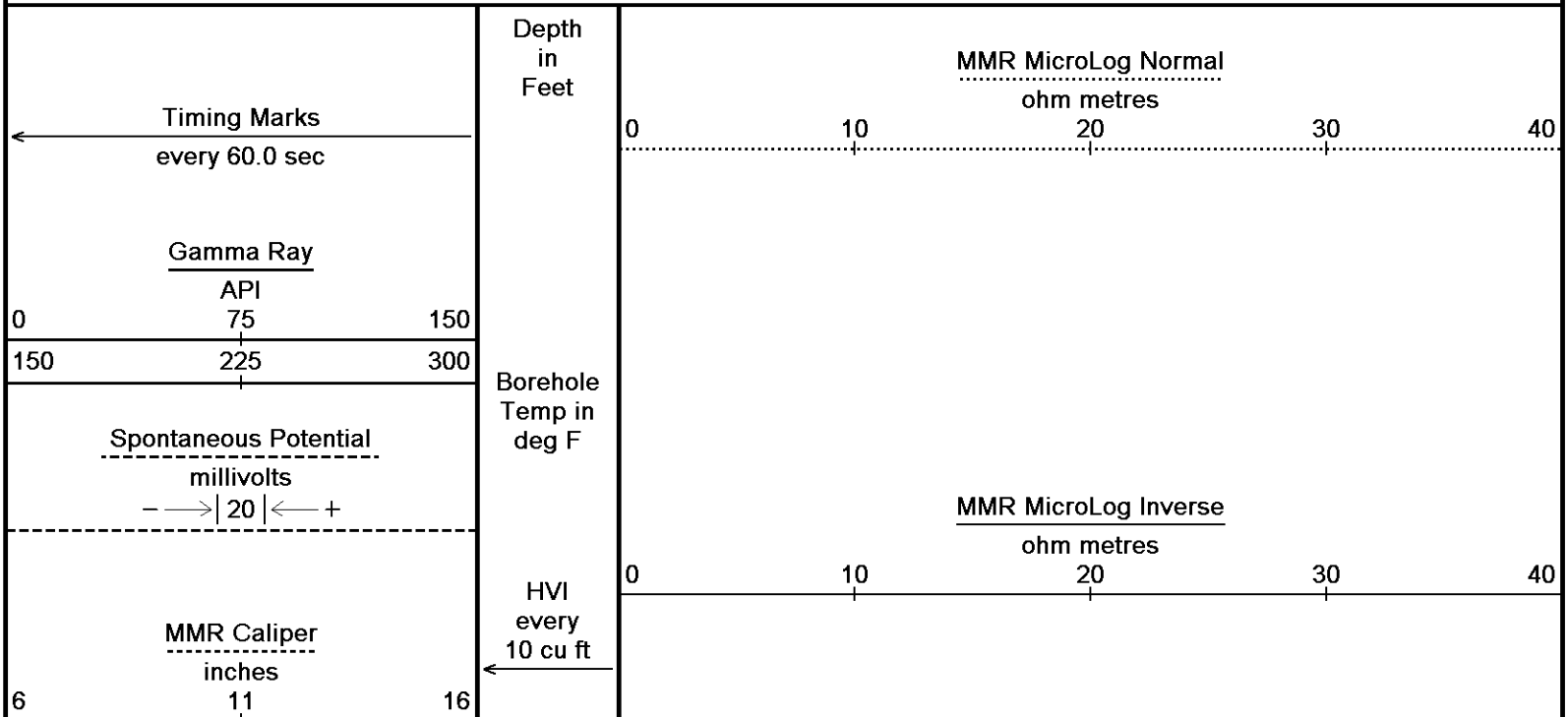


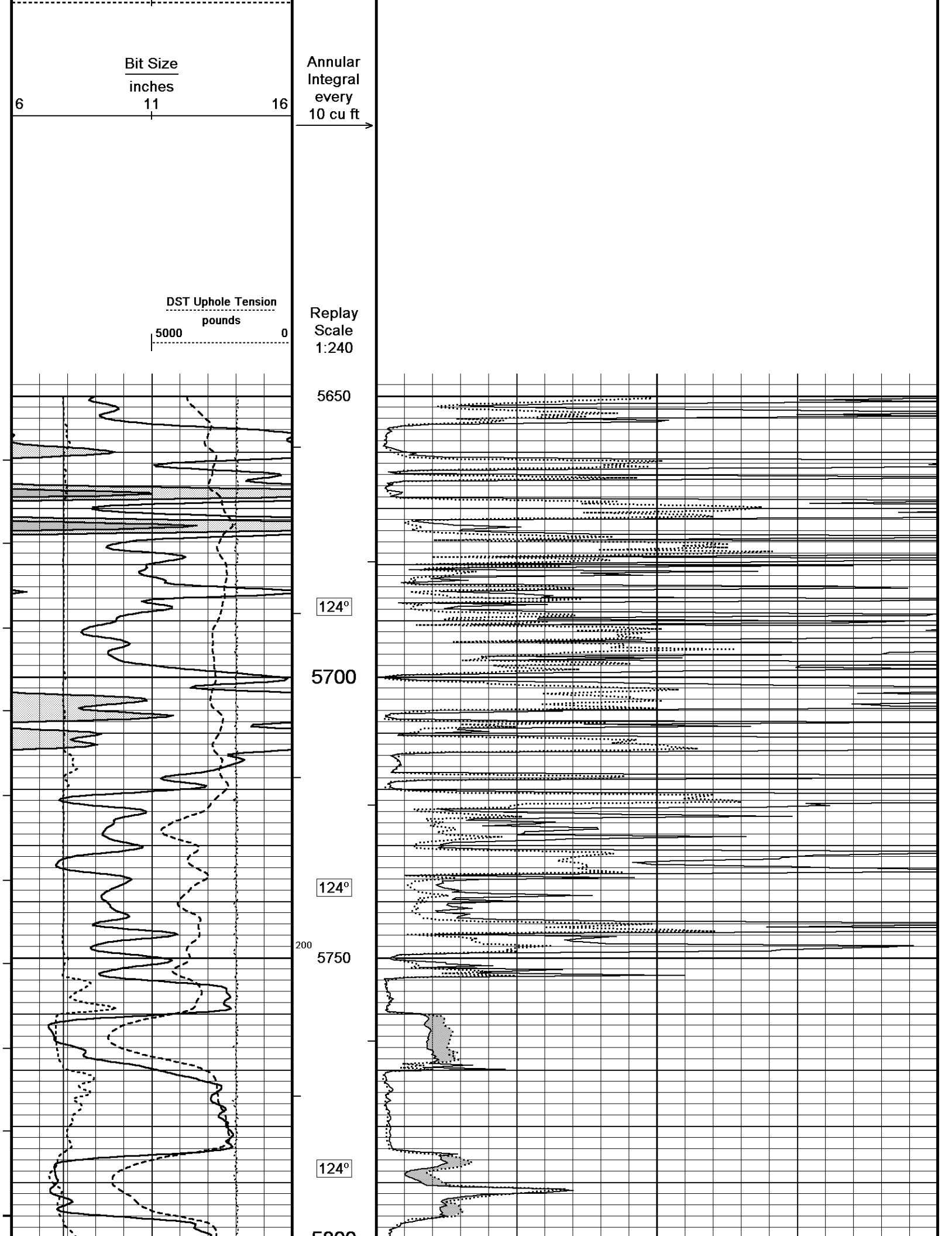
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 18-APR-2018 23:08
Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_003.dta — Recorded on 18-APR-2018 20:13
System Versions: Logged with 18.01.5248 Processed with 18.01.5248 Plotted with 18.01.5248

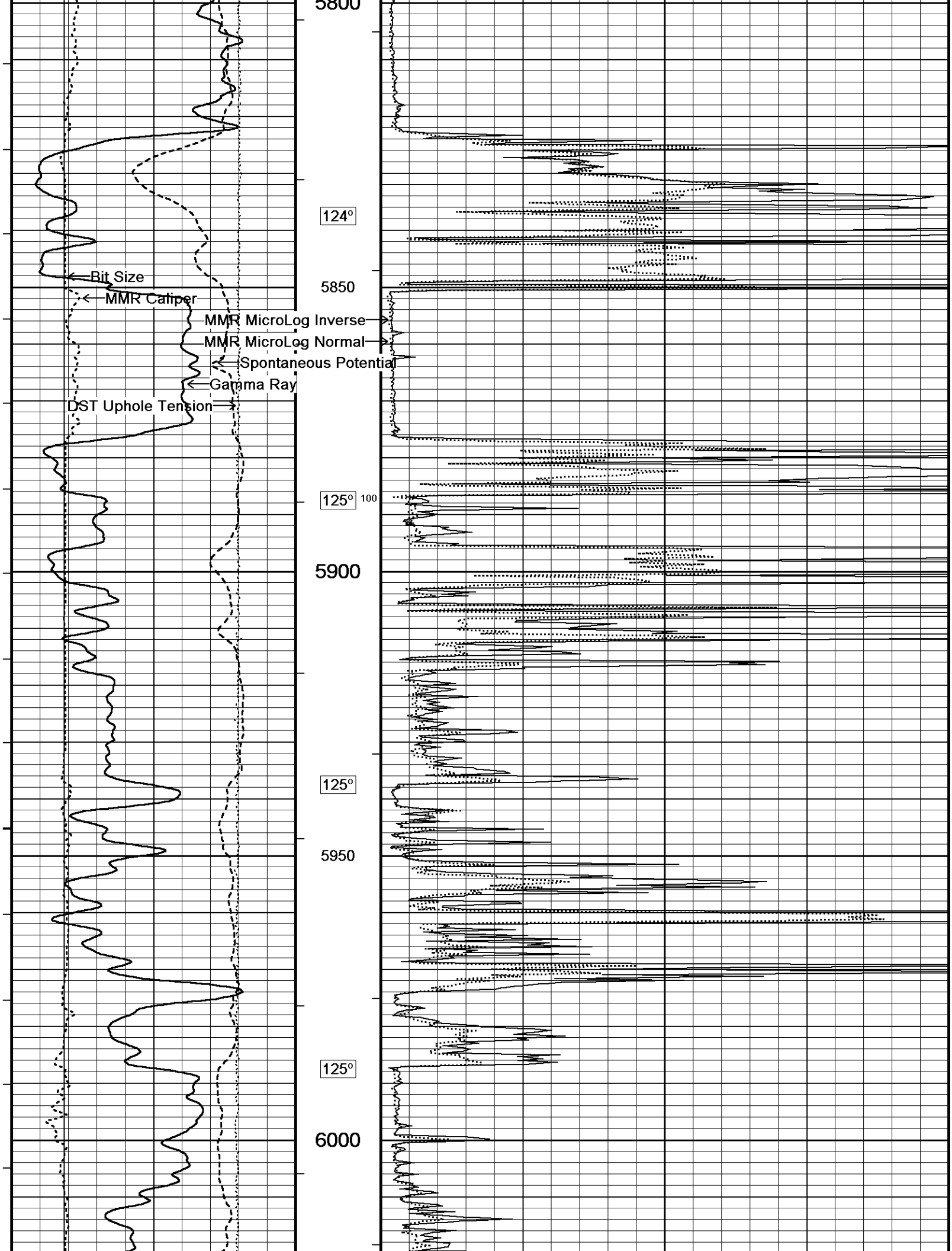
5 INCH MAIN

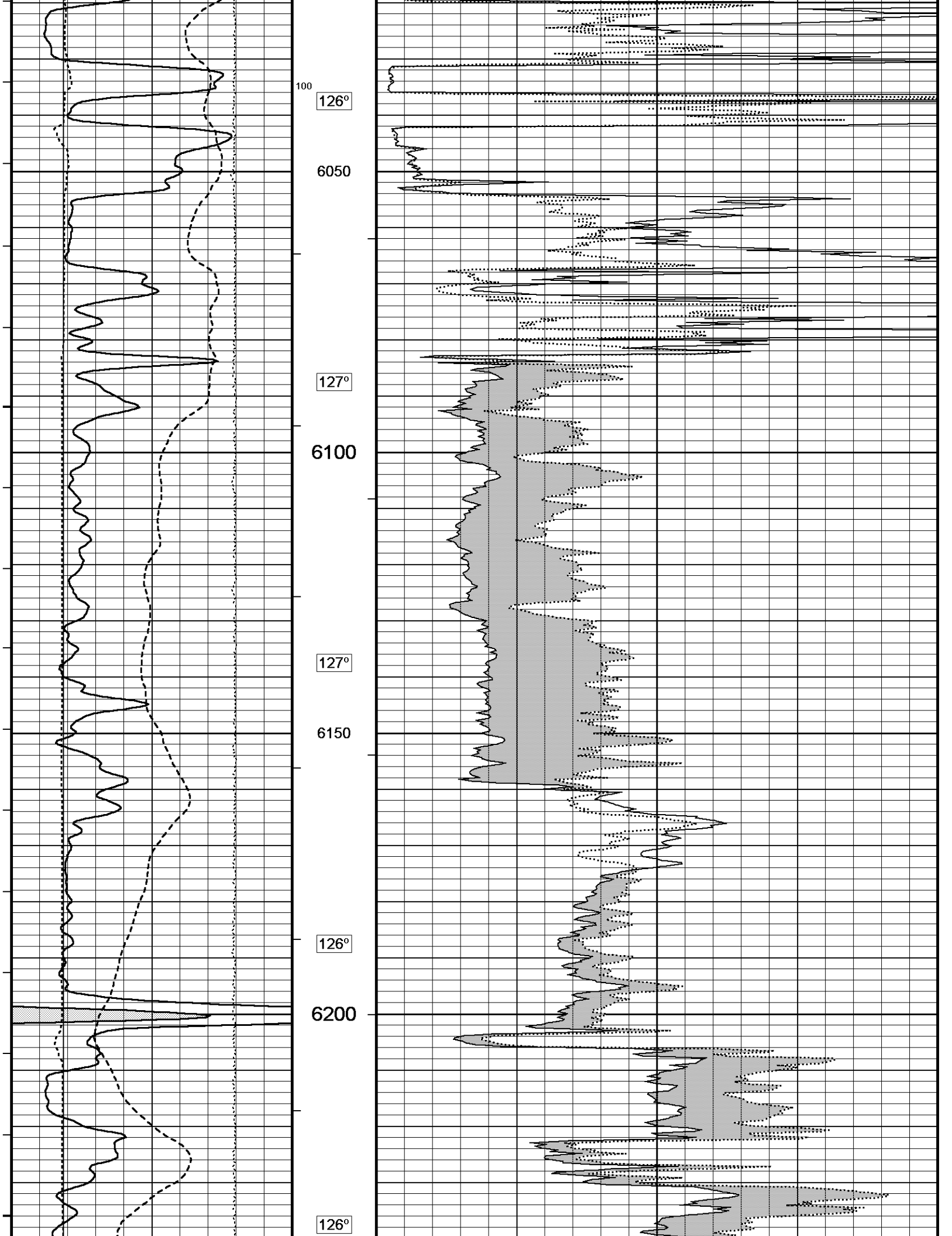
REPEAT SECTION

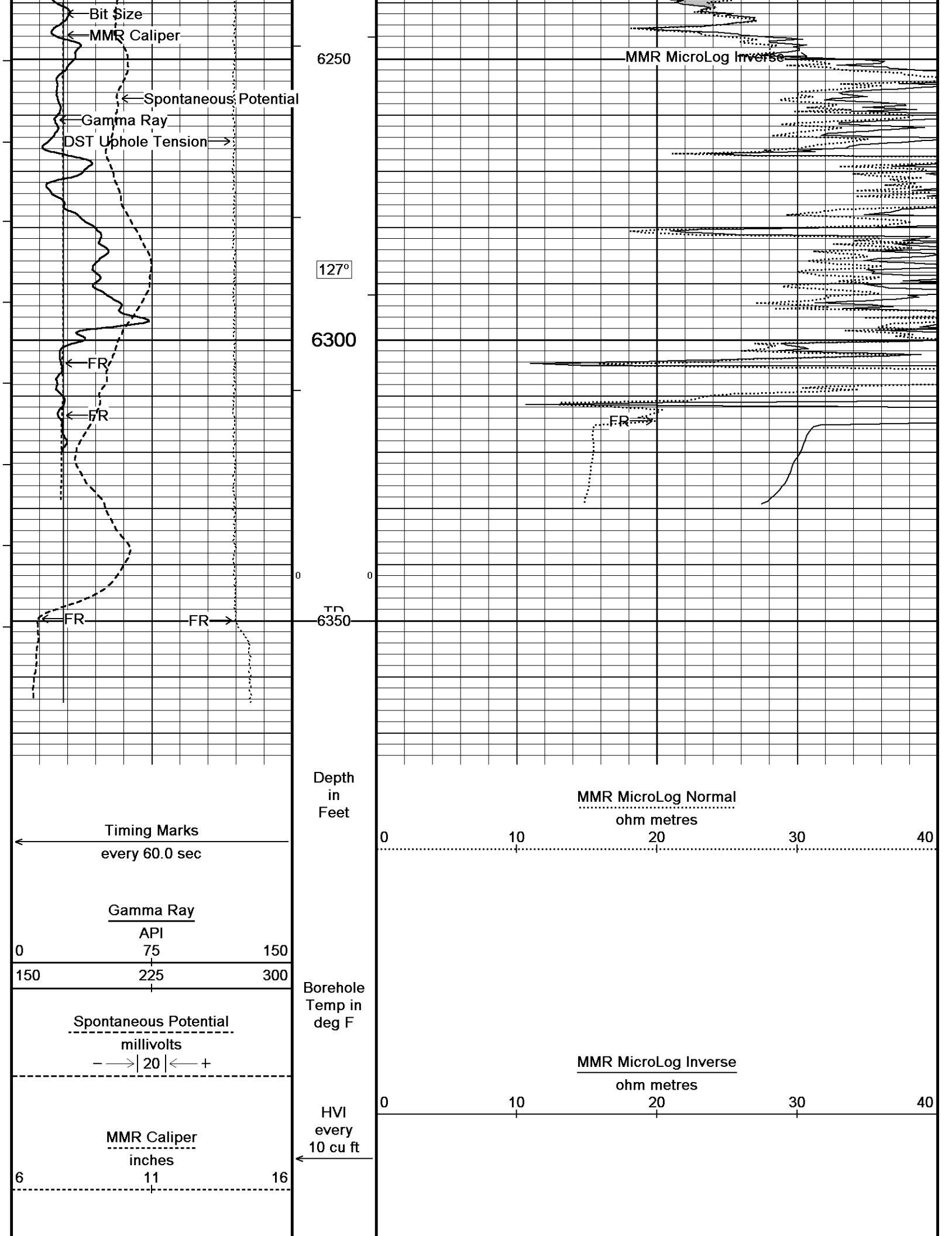
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 18-APR-2018 23:08
Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_002.dta — Recorded on 18-APR-2018 18:57
System Versions: Logged with 18.01.5248 Processed with 18.01.5248 Plotted with 18.01.5248




Bit Size
inches
6
11
16
Annular Integral every 10 cu ft
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240
5650
124°
5700
124°
200
5750
124°


5800
124°
Bit Size
MMR Caliper
5850
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
125°
100
5900
125°
5950
125°
6000


100
126°
6050
127°
6100
127°
6150
126°
6200
126°


Bit Size
MMR Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR
FR
FR
FR
6250
127°
6300
TD
6350
MMR MicroLog Inverse
FR
0
0
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
− 20 +
MMR Caliper
inches
6
11
16
Borehole
Temp in
deg F
HVI
every
10 cu ft
MMR MicroLog Normal
ohm metres
0
10
20
30
40
MMR MicroLog Inverse
ohm metres
0
10
20
30
40

Bit Size
inches
6 11 16

Annular Integral every 10 cu ft

DST Uphole Tension
pounds
5000 0

Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 18-APR-2018 23:08
Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_002.dta — Recorded on 18-APR-2018 18:57
System Versions: Logged with 18.01.5248 Processed with 18.01.5248 Plotted with 18.01.5248

REPEAT SECTION

10 INCH HIGH RESOLUTION

Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 18-APR-2018 23:08
Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_001.dta — Recorded on 18-APR-2018 18:57
System Versions: Logged with 18.01.5248 Plotted with 18.01.5248

Depth in Feet

Timing Marks
every 60.0 sec

MMR MicroLog Normal
ohm metres
0 10 20 30 40

Gamma Ray
API
0 75 150
150 225 300

Borehole Temp in deg F

Spontaneous Potential
millivolts
− → | 20 | ← +

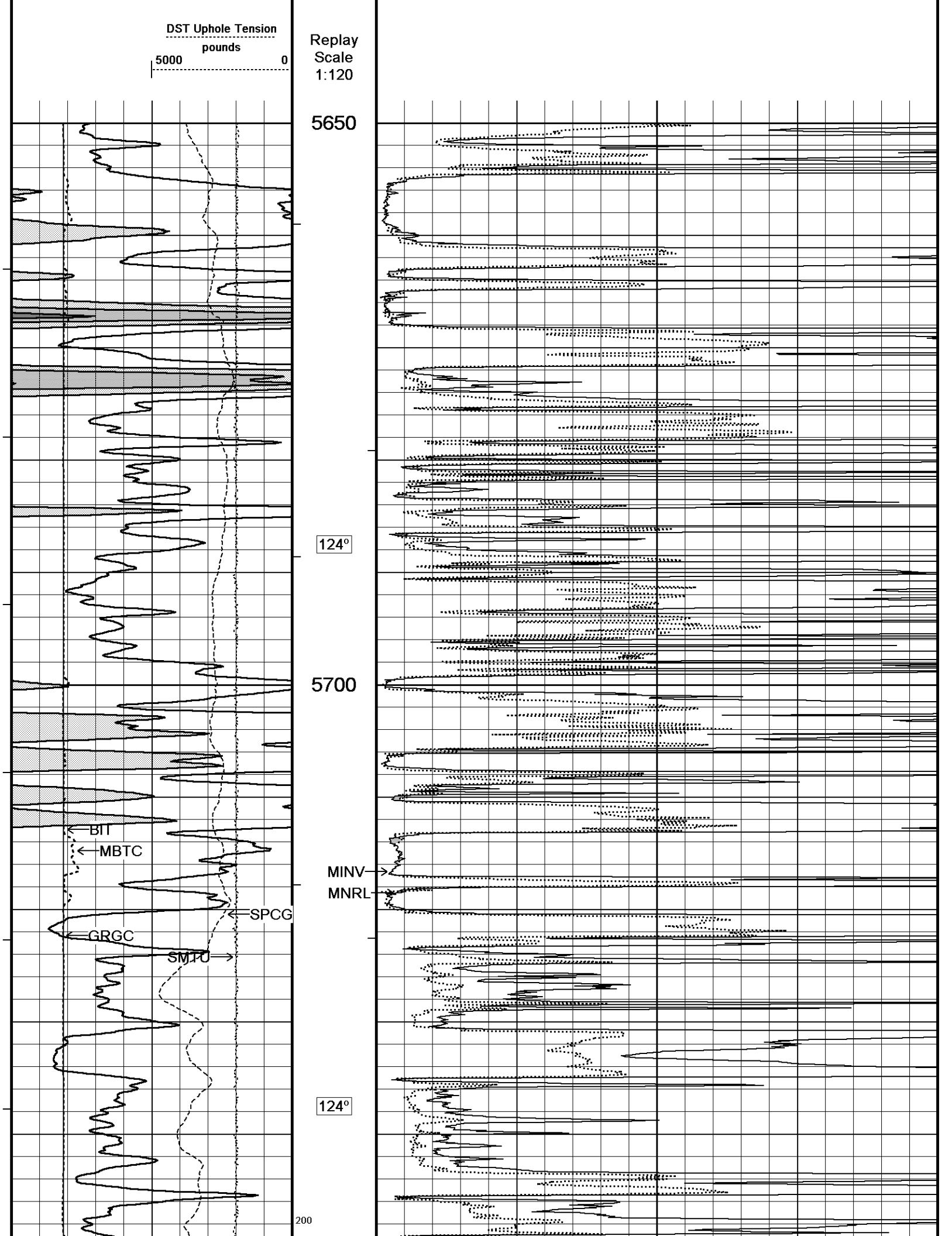
MMR MicroLog Inverse
ohm metres
0 10 20 30 40

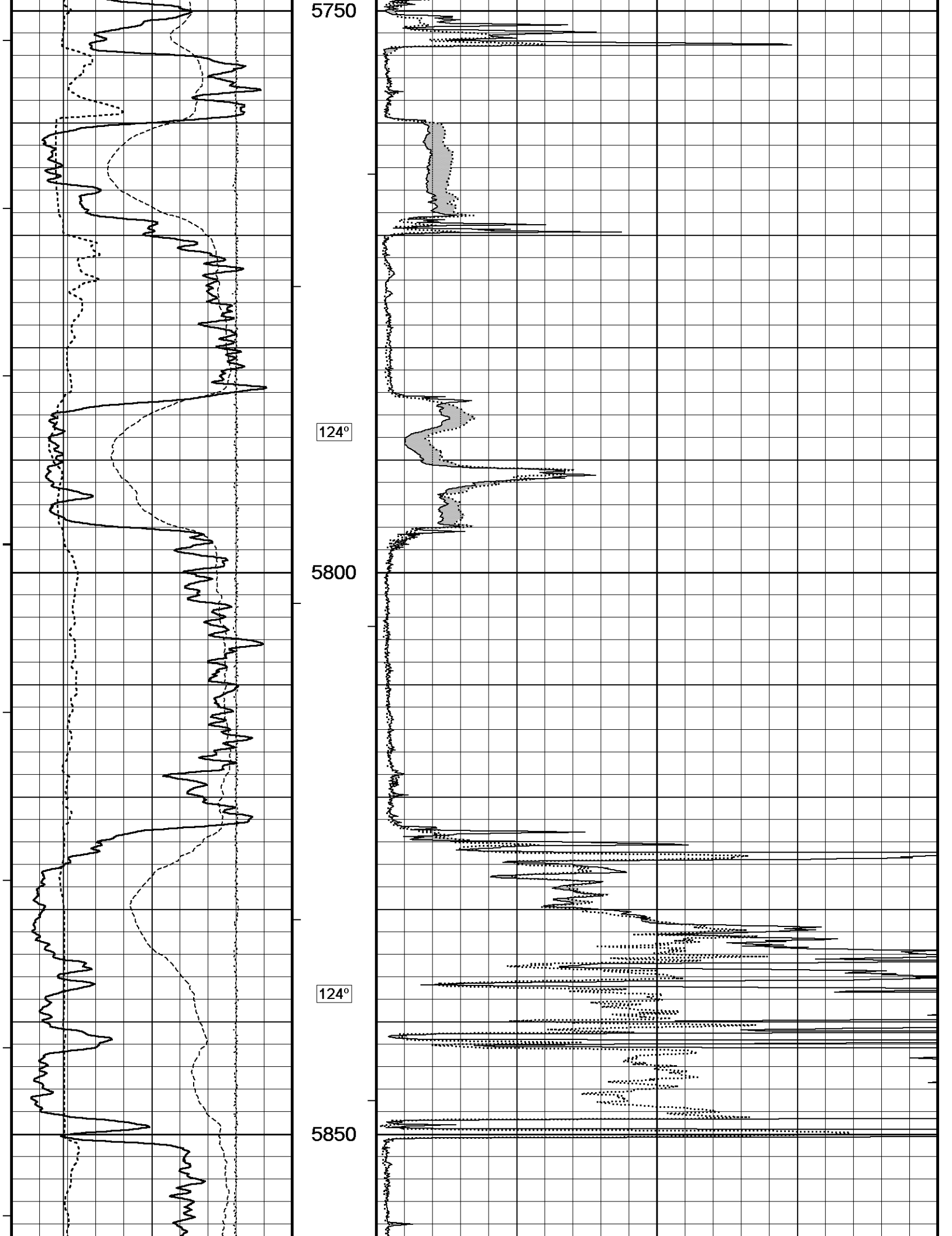
HVI every 10 cu ft

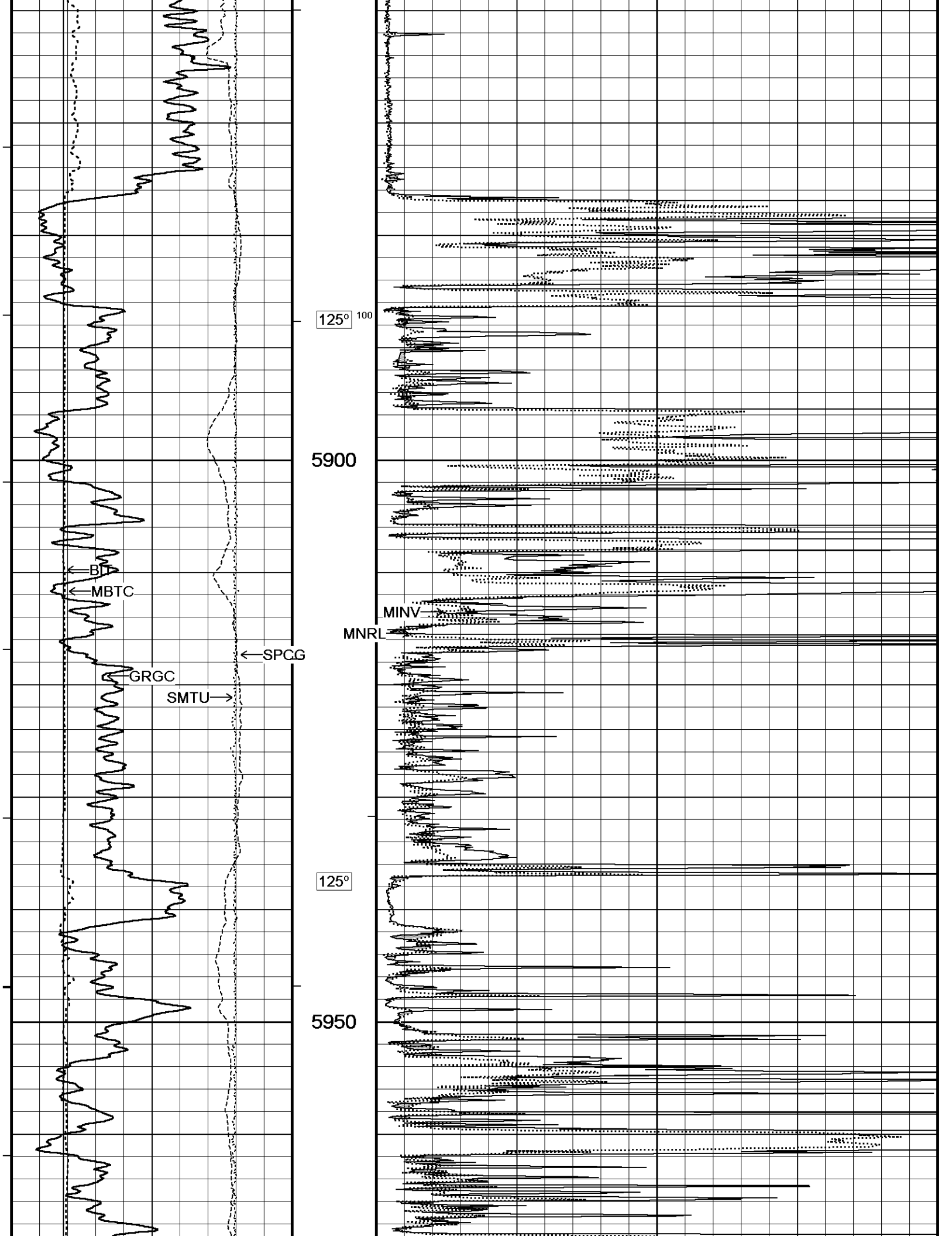
MMR Caliper
inches
6 11 16

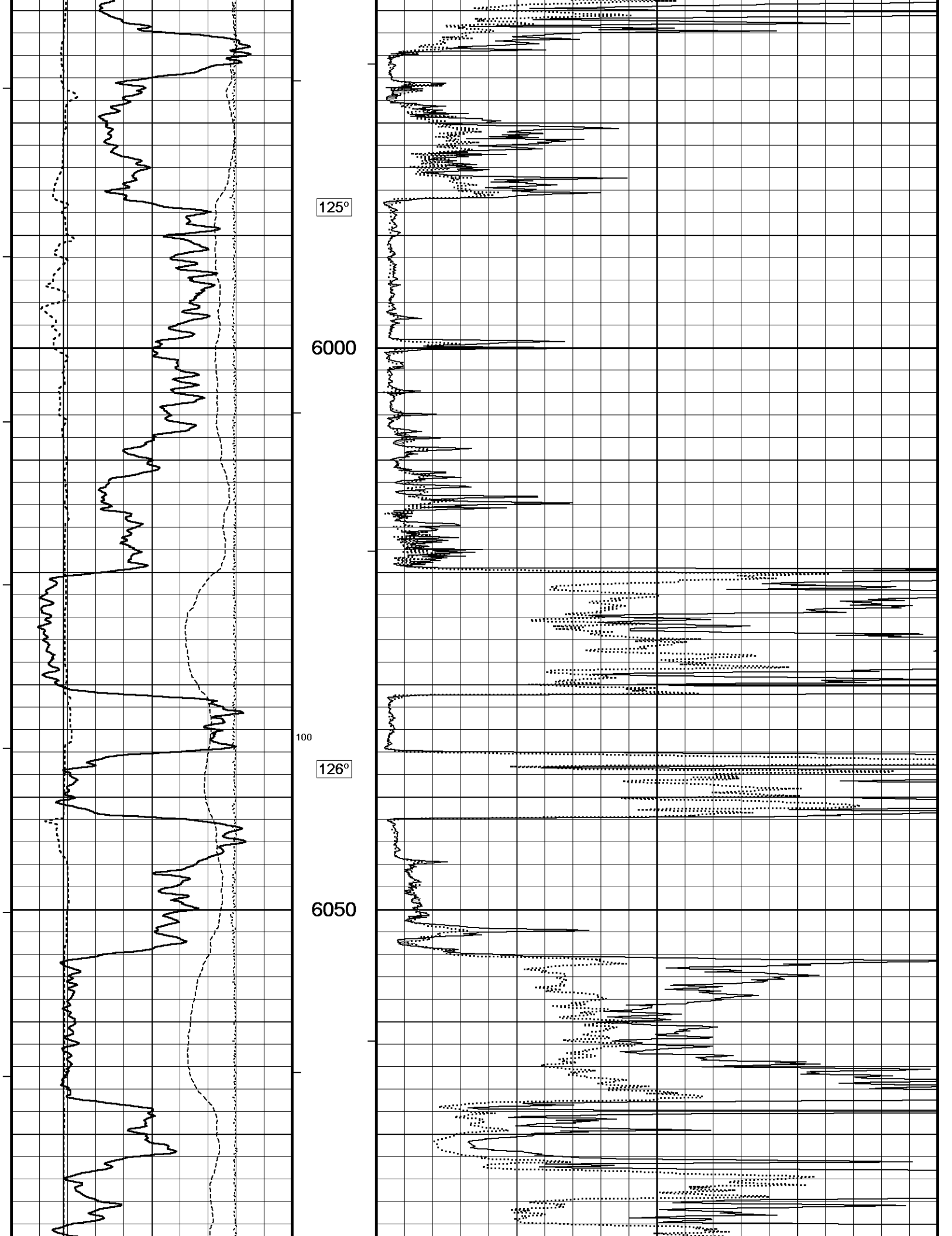
Bit Size
inches
6 11 16

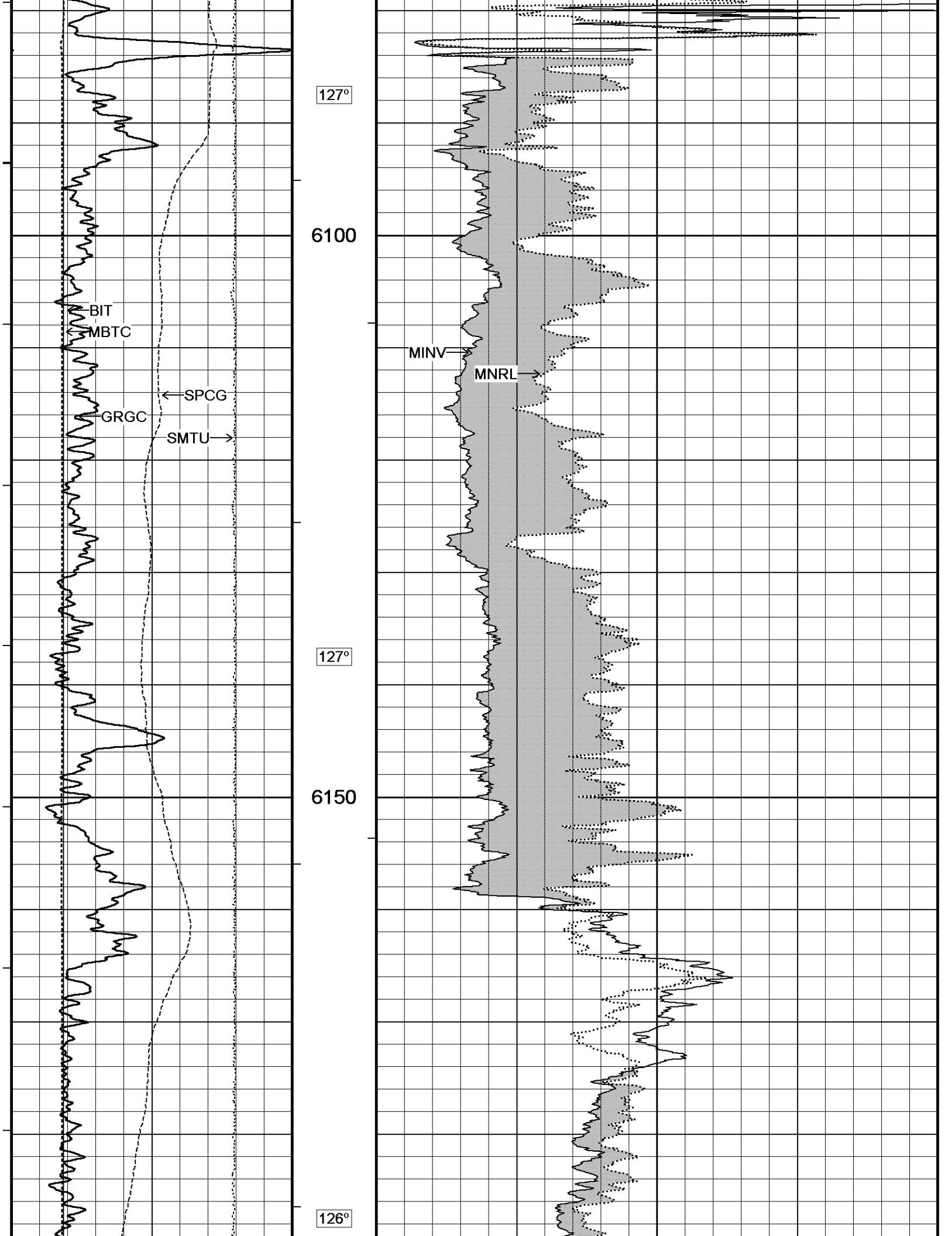
Annular Integral every 10 cu ft

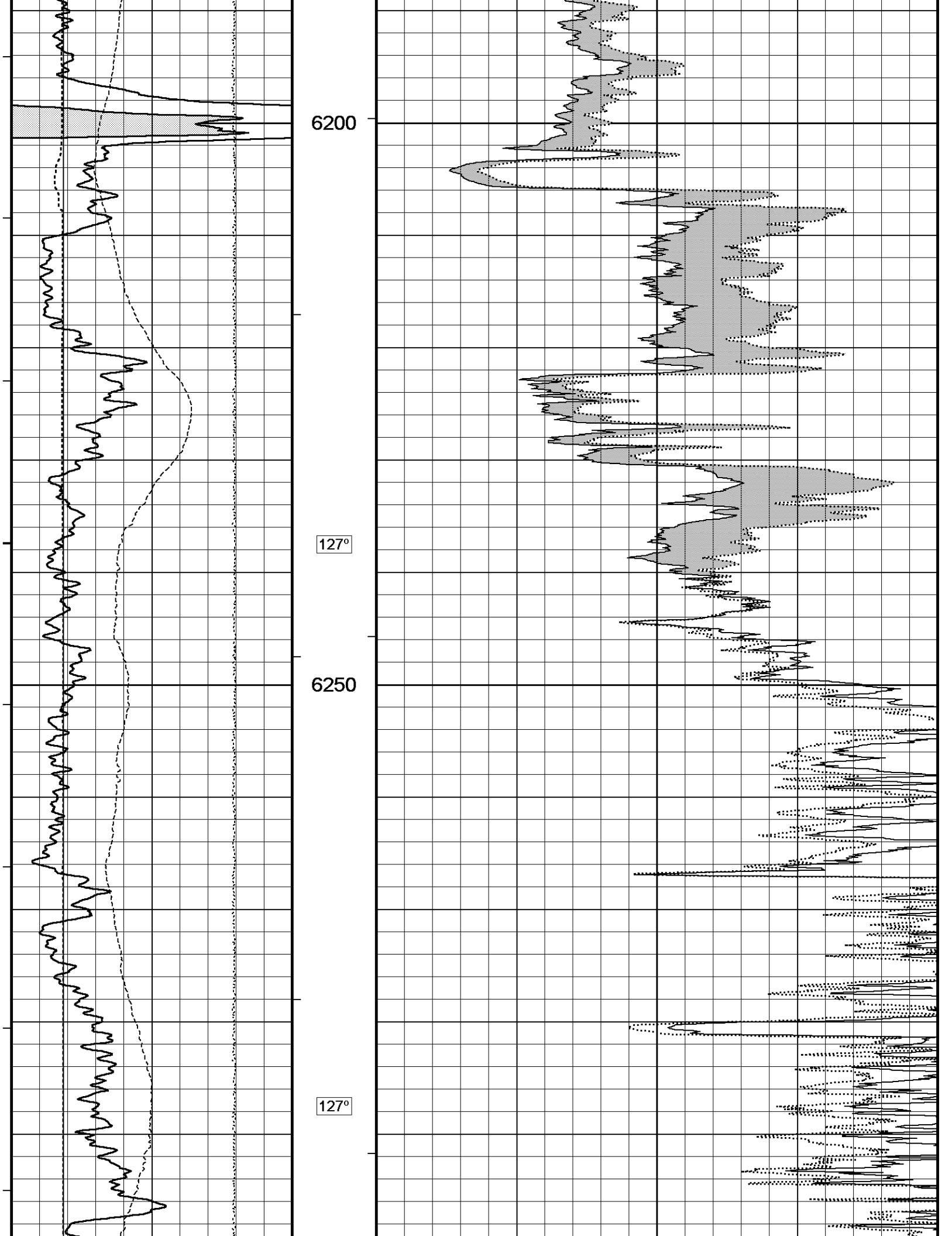

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:120
5650
124°
5700
BIT
MBTC
SPCG
GRGC
SMTU
MINV
MNRL
124°
200

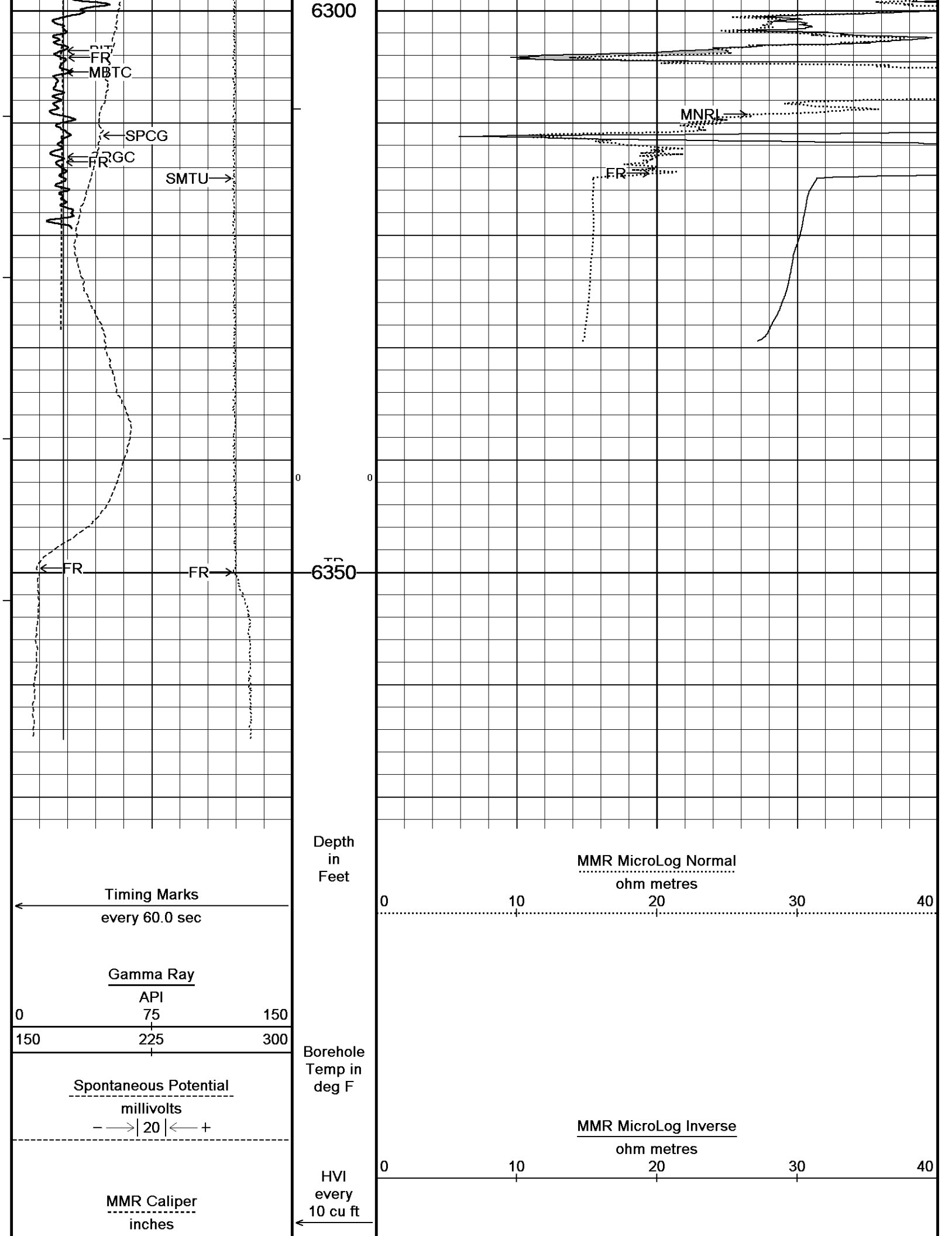

5750
124°
5800
124°
5850

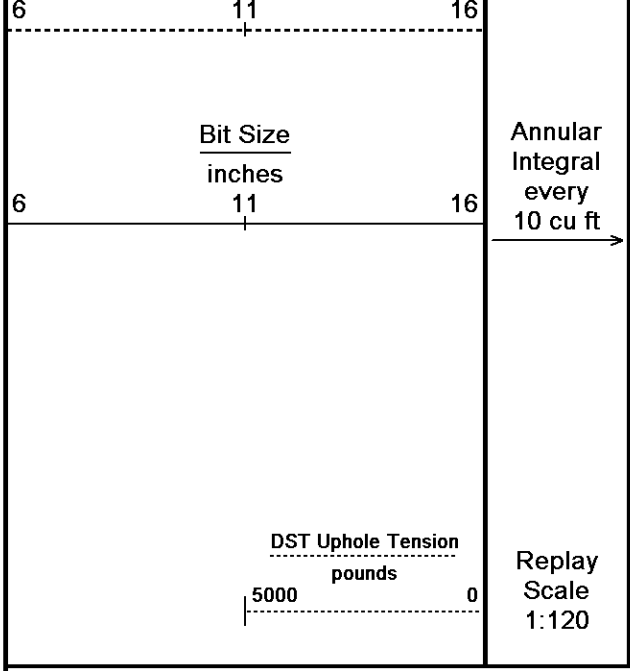

125° 100
5900
BIT
MBTC
MINV
MNRL
SPCG
GRGC
SMTU
125°
5950


125°
6000
100
126°
6050


127°
6100
BIT
MBTC
SPCG
GRGC
SMTU
MINV
MNRL
127°
6150
126°


6200
127°
6250
127°


6300
FR
MBTC
SPCG
FR
SMTU
MNRL
FR
0
0
FR
FR
6350
Depth
in
Feet
MMR MicroLog Normal
ohm metres
0
10
20
30
40
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
Spontaneous Potential
millivolts
– 20 +
MMR MicroLog Inverse
ohm metres
0
10
20
30
40
HVI
every
10 cu ft
MMR Caliper
inches



Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 18-APR-2018 23:08

Filename: C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_001.dta — Recorded on 18-APR-2018 18:57

System Versions: Logged with 18.01.5248 Plotted with 18.01.5248

10 INCH HIGH RESOLUTION

BEFORE SURVEY CALIBRATION

C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_002.dta

General Constants All 000

Last Edited on 18-APR-2018,18:28

General Parameters		
Mud Resistivity	0.960	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	4.500	inches
Caliper for Differential Caliper	None	
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	

Down-hole Tension Calibration SMS 0

Field Calibration on 18-APR-2018 17:48

Reading No	Measured	Calibrated (lbs)
1	15898.52	0.00
2	16872.90	454.00

Gamma Calibration MCG-D.J 422

Field Calibration on 18-APR-2018 15:02

	Measured	Calibrated (API)
Background	74	51
Calibrator (Gross)	734	507
Calibrator (Net)	661	456

Gamma Calibration Tolerances MCG-D.J 422

Ratio 1.449 (1.40 – 1.475 – 1.55) Counts/API

Gamma Constants MCG-D.J 422

Last Edited on 18-APR-2018,16:49

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-D.J 422

Field Calibration on 13-APR-2018,06:33

	Measured	Calibrated (mV)
Reference 1	101.2	99.9
Reference 2	-98.1	-100.2

High Resolution Temperature Calibration MCG-D.J 422

Field Calibration on 13-APR-2018,06:34

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	212.00	212.00

High Resolution Temperature Constants MCG-D.J 422

Last Edited on 07-DEC-2017,17:17

Pre-filter Length	11

Micro Normal and Micro Inverse Calibration MMR-B.A 91

Base Calibration on 13-APR-2018 05:15
Field Check on 18-APR-2018 14:49

	Resistor 1 (ohm)	Resistor 2 (ohm)
	10.0	50.0

Base Calibration

	Measured		Calibrated (ohm-m)	
Micro Normal	10.3	49.8	5.1	25.6
Micro Inverse	10.0	49.4	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.9	93.9
Micro Inverse	62.4	62.4

Micro Normal & Micro Inverse Calibration Tolerance MMR-B.A 91

Micro Normal Res. 1 10.3 ohm (-5% 10.0 +5%)
Micro Inverse Res. 1 10.0 ohm (-5% 10.0 +5%)
Micro Normal Res. 2 49.8 ohm (-5% 50.0 +5%)
Micro Inverse Res. 2 49.4 ohm (-5% 50.0 +5%)

Micro Normal Base Check 93.9 ohm-m (-2% 93.30 +2%)
Micro Inverse Base Check 62.4 ohm-m (-2% 62.24 +2%)

Micro Normal Field Check 93.9 ohm-m (-2% 93.9 +2%)
Micro Inverse Field Check 62.4 ohm-m (-2% 62.4 +2%)

Micro Normal and Micro Inverse Constants MMR-B.A 91

Last Edited on 13-APR-2018,05:04

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	0.0000	inches

Caliper Calibration MMR-B.A 91

Base Calibration on 13-APR-2018 05:09
Field Calibration on 18-APR-2018 14:46

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13869	5.98
2	17211	7.97
3	20545	9.86
4	24538	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

	Measured Caliper (in)	Actual Caliper (in)

Measured Caliper (in)	Actual Caliper (in)
8.00	7.97

Caliper Calibration Tolerances MMR-B.A 91

		7.77	7.97	8.17	
Short Arm Field Cal.	8.00				in

Micro-Resistivity Caliper Constants MMR-B.A 91

Sonde Configuration	Resistivity Mode

Neutron Calibration MDN-B.A 292

Base Calibration on 26-MAR-2018 16:14
Field Check on 18-APR-2018 15:07

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2880	91	3714	110
Ratio	31.819		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2207	3192
Ratio	0.691	

Field Check

	Calibrated (cps)	
	2227	3183
Ratio	0.700	

Neutron Calibration Tolerances MDN-B.A 292

		-5%	33	+5%
Ratio	31.819			

		0.65	0.7	0.75
Base Check	0.691			

		0.671	0.691	0.711
Field Check	0.700			

Neutron Constants MDN-B.A 292

Last Edited on 18-APR-2018,16:49

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Modified Ratio	
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 135

Base Calibration on 06-APR-2018 10:10
Field Check on 18-APR-2018 14:38

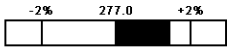
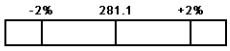
	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	1000.0

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.3	126.8
Base Check		281.1
Field Check		281.1

FE Calibration Tolerances MFE-A.A 135

		-3%	980.0	+3%	
Reference 2	963.3				ohm

Reference 2	963.3		ohm
Base Check	281.1		ohm-m
Field Check	281.1		ohm-m

FE Constants MFE-A.A 135

Last Edited on 18-APR-2018,16:49

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Borehole Correction Constants		
Sonde Position	0.5	inches
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

High Resolution Temperature Calibration MAI-A.A 111

Field Calibration on 23-FEB-2018,11:15

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 111

Last Edited on 26-JUN-2014,15:06

Pre-filter Length	11

Induction Calibration MAI-A.A 111

Factory Loop Calibration 13-APR-2018 06:16
Field Check on 18-APR-2018 14:34

Factory Loop Calibration

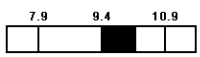
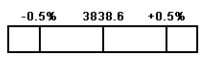
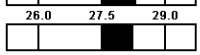
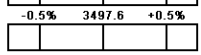
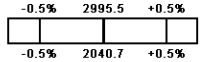
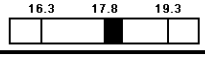
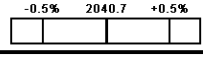
High Conductivity Reference Resistor	3.3	ohm
Low Conductivity Reference Resistor	333.3	ohm

	Measured Signal (unitless)		Reference Conductivity (mmho/m)		Calibration	
Array	Low	High	Low	High	Gain	Offset
1 (near)	17.6	473.6	9.3	966.2	0.000	0.0
2	6.4	385.9	7.6	821.4	0.000	0.0
3	3.2	264.0	5.2	566.0	0.000	0.0
4 (far)	2.1	135.5	2.6	279.2	0.000	0.0
Array Temperature		23.0	Deg F			

Tool Checks

	Factory Reference (mmho/m)		Before Survey (mmho/m)		
Array	Low	High	Low	High	
1 (near)	9.4	3838.6	10.2	3839.1	
2	27.5	3497.6	28.3	3498.2	
3	27.1	2995.5	27.8	2996.0	
4 (far)	17.8	2040.7	18.3	2041.1	
Array Temperature		67.7	68.9		Deg F

Induction Check Tolerances MAI-A.A 111

Low Array 1	10.2		mmho/m	High Array 1	3839.1		mmho/m
Low Array 2	28.3		mmho/m	High Array 2	3498.2		mmho/m
Low Array 3	27.8		mmho/m	High Array 3	2996.0		mmho/m
Low Array 4	18.3		mmho/m	High Array 4	2041.1		mmho/m

Induction Constants MAI-A.A 111

Last Edited on 18-APR-2018,16:49

Induction Model	RtAP-WBM	
Borehole Correction Constants		
Tool Centred	No	
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Stand-off Type	Pineapple	
Stand-off	0.49	inches
Number of Fins on Stand-off	5.0000	

Stand-off Fin Angle	72.00	degrees
Stand-off Fin Width	1.3878	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	
Borehole Correction Method	Default	
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

Symmetrised Receiver Gains

Receiver 1	1.00
Receiver 2	1.00
Receiver 3	1.00
Receiver 4	1.00

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-C.A 216

Base Calibration on 06-APR-2018 10:55
Field Calibration on 18-APR-2018 14:40

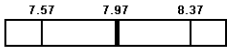
Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13889	3.99
2	22592	5.98
3	31350	7.97
4	39584	9.86
5	48879	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.99	7.97

Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal. 7.99 

in

Photo Density Calibration MPD-C.A 216

Base Calibration on 06-APR-2018 11:13
Field Check on 18-APR-2018 14:44

Density Calibration

Base Calibration	Measured Near	Measured Far	Calibrated (sdu) Near	Calibrated (sdu) Far
Background	1011	1199		
Reference 1	49188	23851	59556	30836
Reference 2	19522	2251	24941	2541

Field Check at Base

1010.9	1199.5

Field Check

	1012.1	1190.3

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	185	910		
Reference 1	20854	49032	0.429	0.371
Reference 2	5685	19414	0.297	0.272

Field Check at Base		
	185.2	910.4

Field Check		
	184.8	911.7

Photo Density Calibration Tolerances MPD-C.A 216

Near Density Ratio	2.60	-5%	2.52	+5%	
PE Calibration	0.124	0.089	0.110	0.131	
Far Density Ratio	21.55	-5%	21.00	+5%	
Near Den. Field Check	1012.1	-3%	1010.9	+3%	
PE WS Field Check	184.8	-6%	185.2	+6%	
Far Den. Field Check	1190.3	-3%	1199.5	+3%	
PE WH Field Check	911.7	-6%	910.4	+6%	

Density Constants MPD-C.A 216

Last Edited on 18-APR-2018,16:49

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	1.10	gm/cc
Mud Density Type		
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	
Precision Enhanced Density Processing	Not Applied	

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	

DOWNHOLE EQUIPMENT

C:\Minimus 18.01.5248\Data\O'Brien Preedy #2-8\O'Brien Preedy #2-8_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 724 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.J 422 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-B.A 91 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

45.66 ft GRGC - MCG Gamma Ray

42.76 ft CGXT - MCG External Temperature

36.40 ft MBTC - MMR Caliper

35.41 ft MINV - Micro-inverse

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

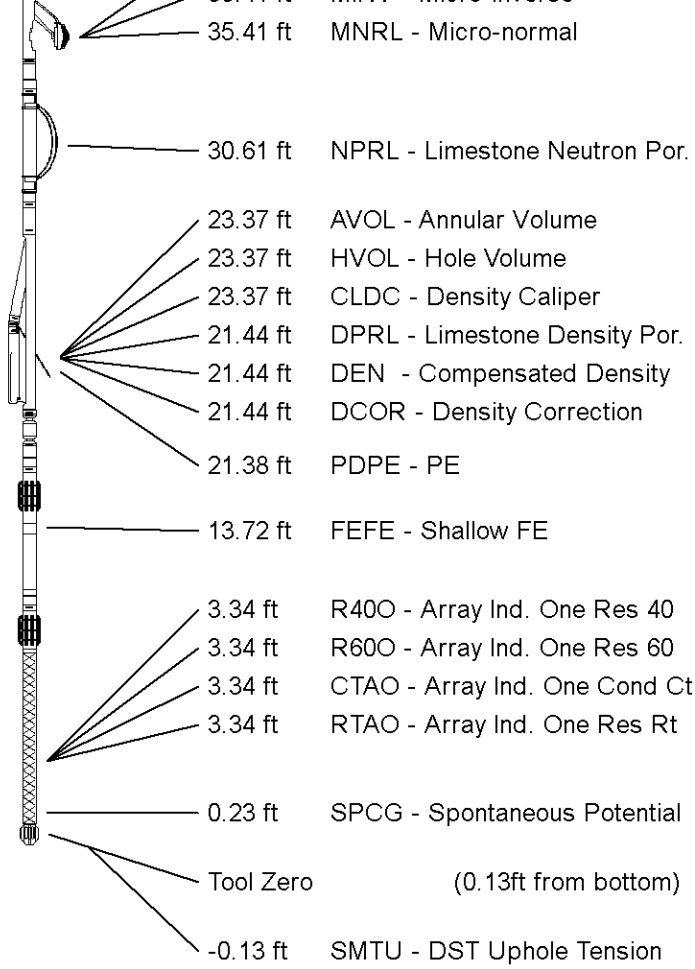
Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

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: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 55.64 ft Weight: 454.2 lb



All measurements relative to tool zero.

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	PREEDY #2-8
FIELD	ANGELL SOUTH
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2670	feet	First Reading	6315.00	feet
Elevation Drill Floor	2668	feet	Depth Driller	6350.00	feet
Elevation Ground Level	2657	feet	Depth Logger	6350.00	feet

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