MICRORESISTIVITY LOG

COMPANY	SHAKESPEARE OIL CO., INC.
WELL	GOERING #1-5
FIELD	WILDCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1580' FNL & 360' FEL

SEC 5	TWP 20S	RGE 30W	Other Services
Latitude			MAI/MFE MPD/MDN
Longitude			MSS
API Number	15-101-22596		

Permanent Datum GL, Elevation 2940 feet
Log Measured From KB, 11.00 feet above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	2951.00
DF	2949.00
GL	2940.00

Date	21-JUL-2017			
Run Number	ONE			
Service Order	4558-187851123			
Depth Driller	4800.00	feet		
Depth Logger	4802.00	feet		
First Reading	4756.00	feet		
Last Reading	3800.00	feet		
Casing Driller	265.00	feet		
Casing Logger	266.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.10 lb/USg	49.00 CP		
PH / Fluid Loss	10.50	7.20 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	0.57 @126.0	ohm-m		
Time Since Circulation	5 HOURS			
Max Recorded Temp	126.00	deg F		
Equipment / Base	13096	LIB		
Recorded By	ADAM SILL			
Witnessed By	TIM PRIEST			

BOREHOLE RECORD

Last Edited: 21-JUL-2017 20:12

Bit Size inches	Depth From feet	Depth To feet
7.875	265.00	4800.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	265.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 17.01.7206.

- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
    0.5 INCH STANDOFF USED ON MFE.
    TWO 0.5 INCH STANDOFFS USED ON MSS.
    0.5 INCH STANDOFF USED ON MAI.

- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.

- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.

- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1722 CU.FT.

- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 3800 FEET: 222 CU.FT.

- RIG: DUKE #5.

- 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 22-JUL-2017 02:33

Filename: C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_002.dta — Recorded on 21-JUL-2017 23:39

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

Bit Size
inches
6 11 16

MML Caliper
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

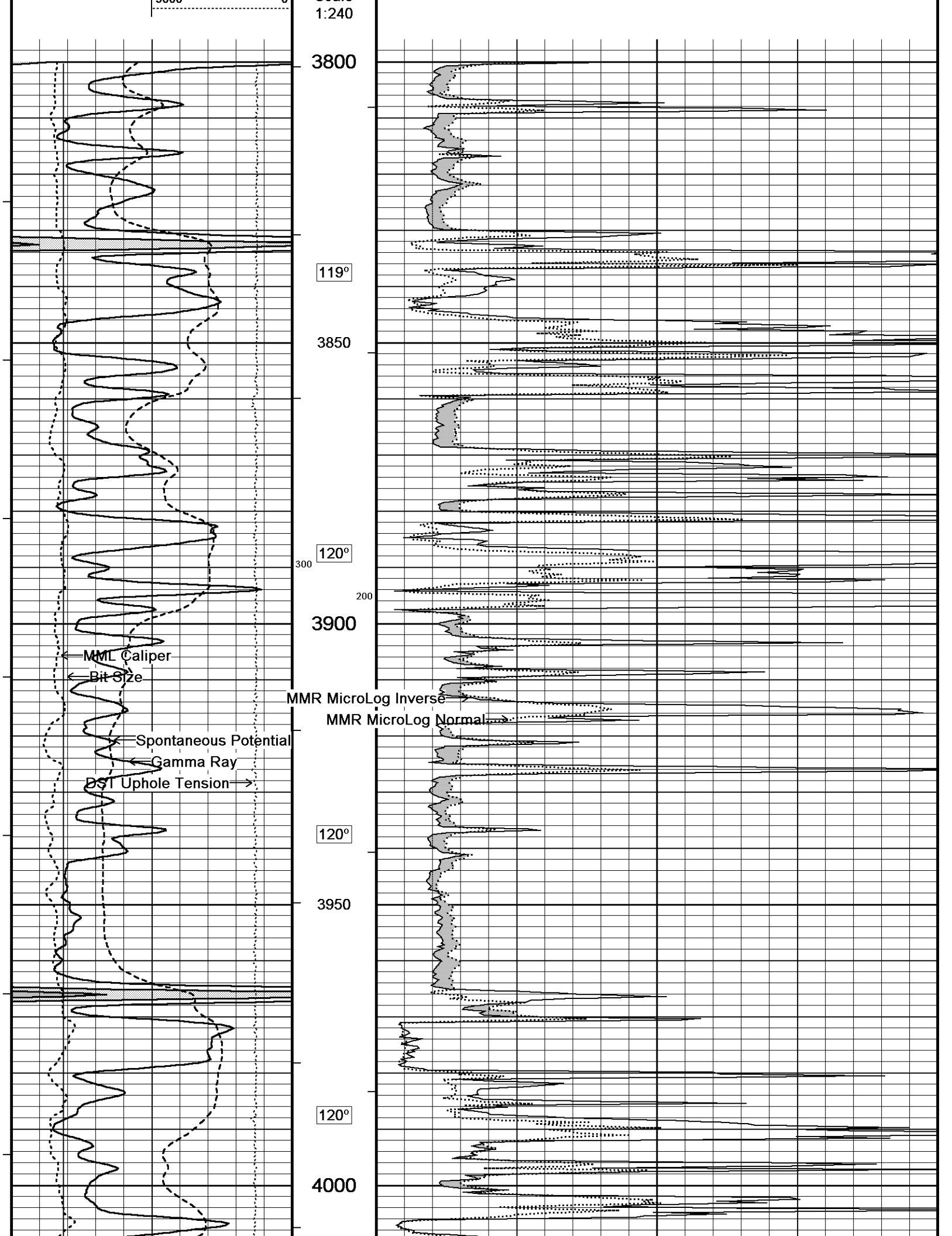
HVI every 10 cu ft

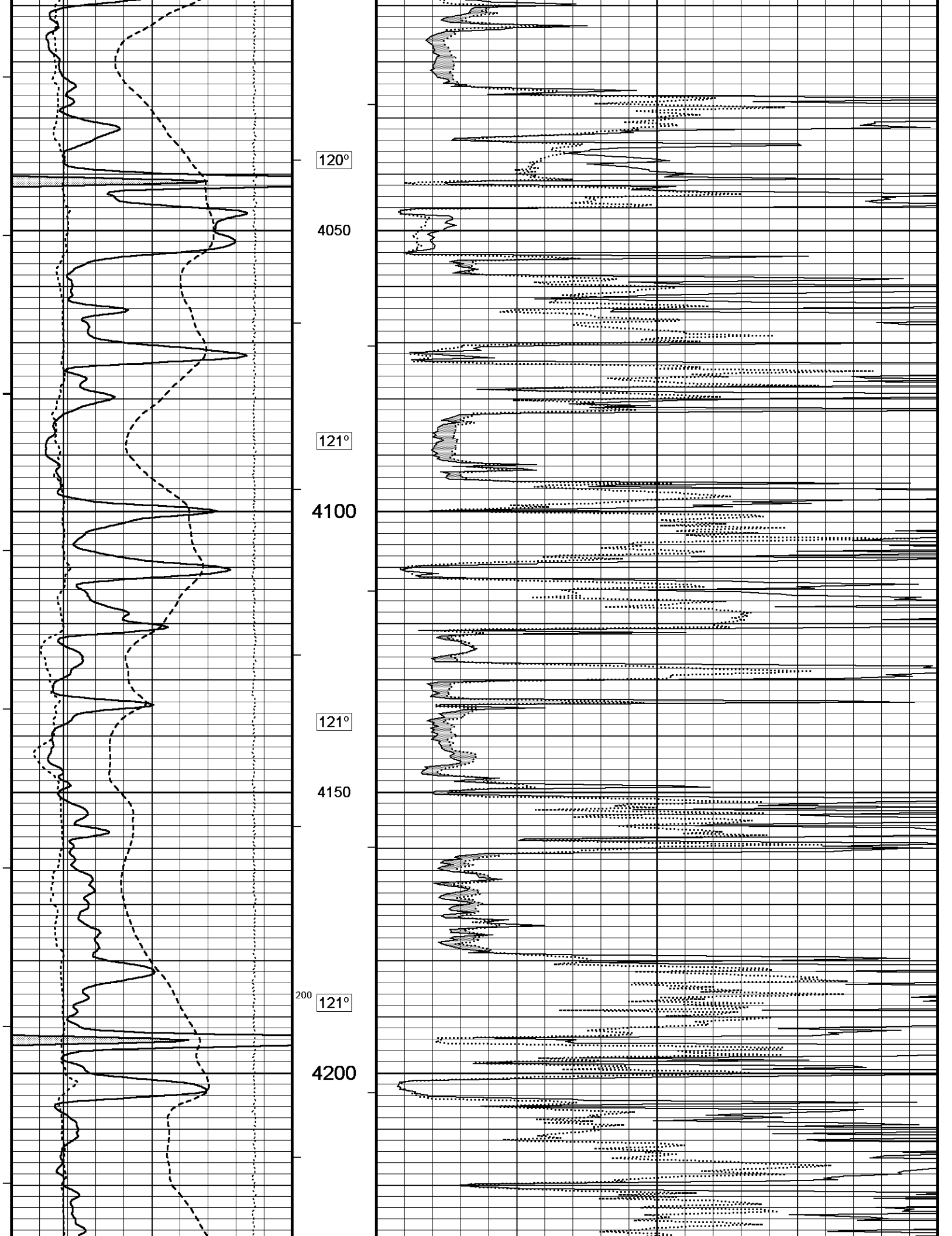
Annular Integral every 10 cu ft

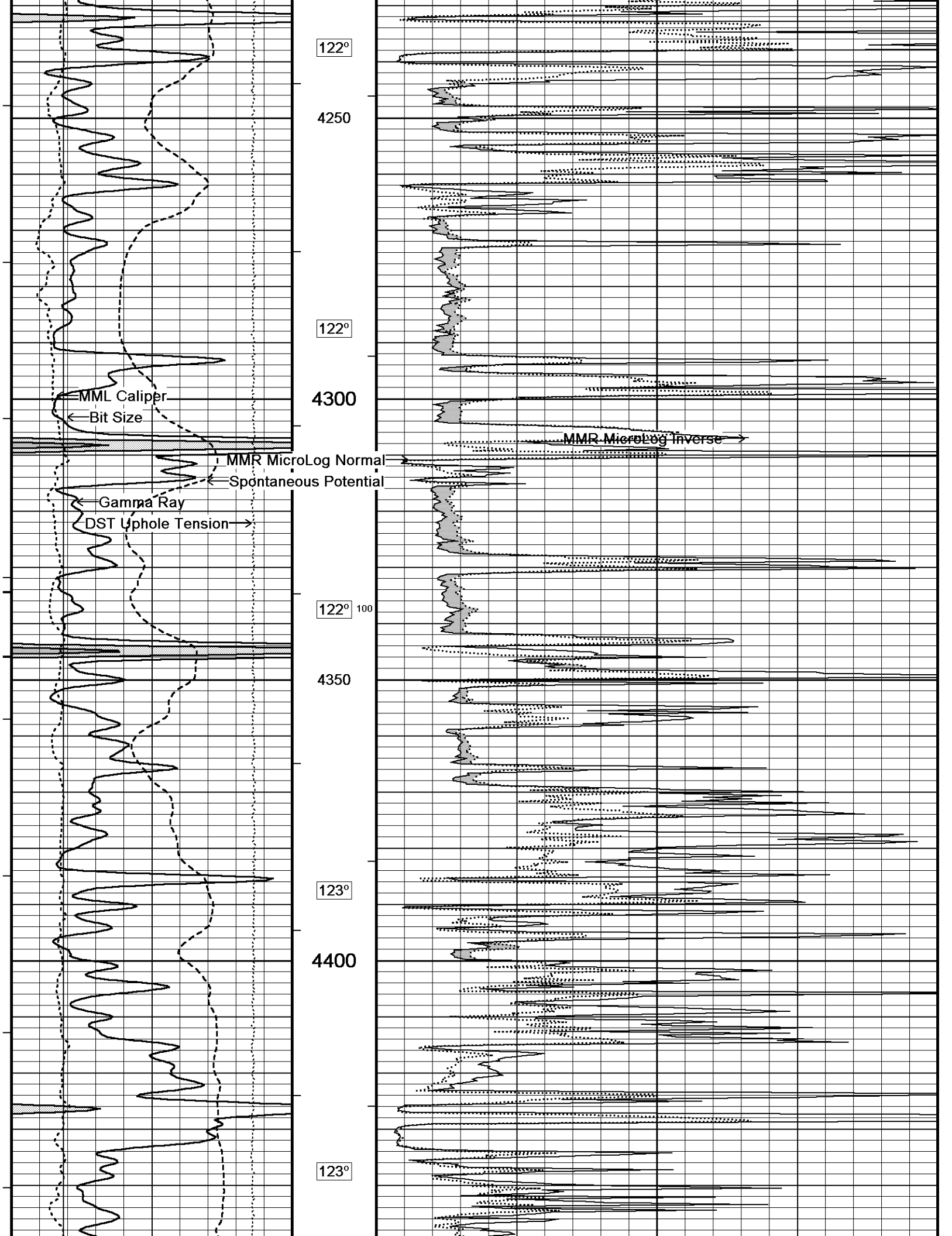
Replay Scale

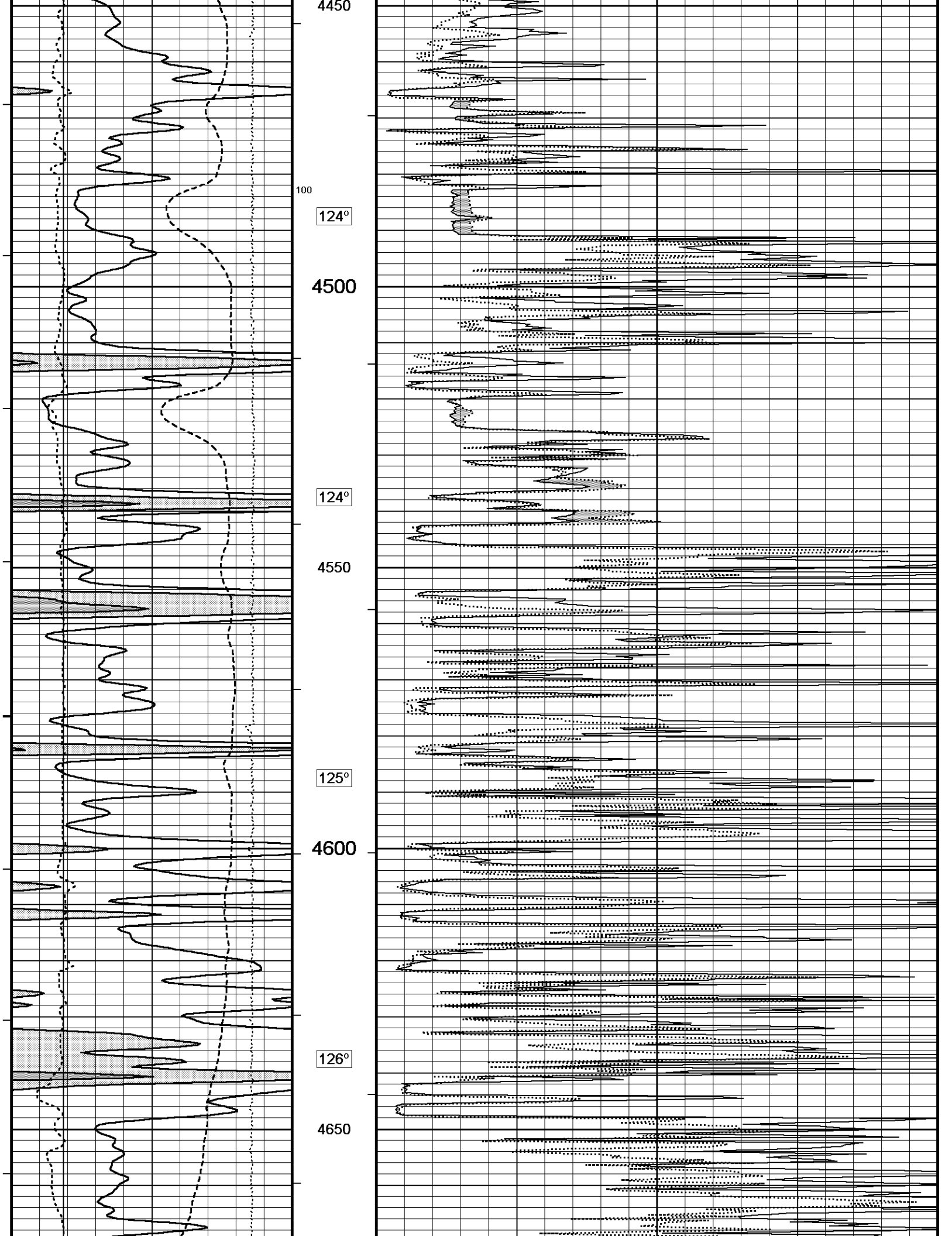
MMR MicroLog Normal
ohm metres
0 10 20 30 40

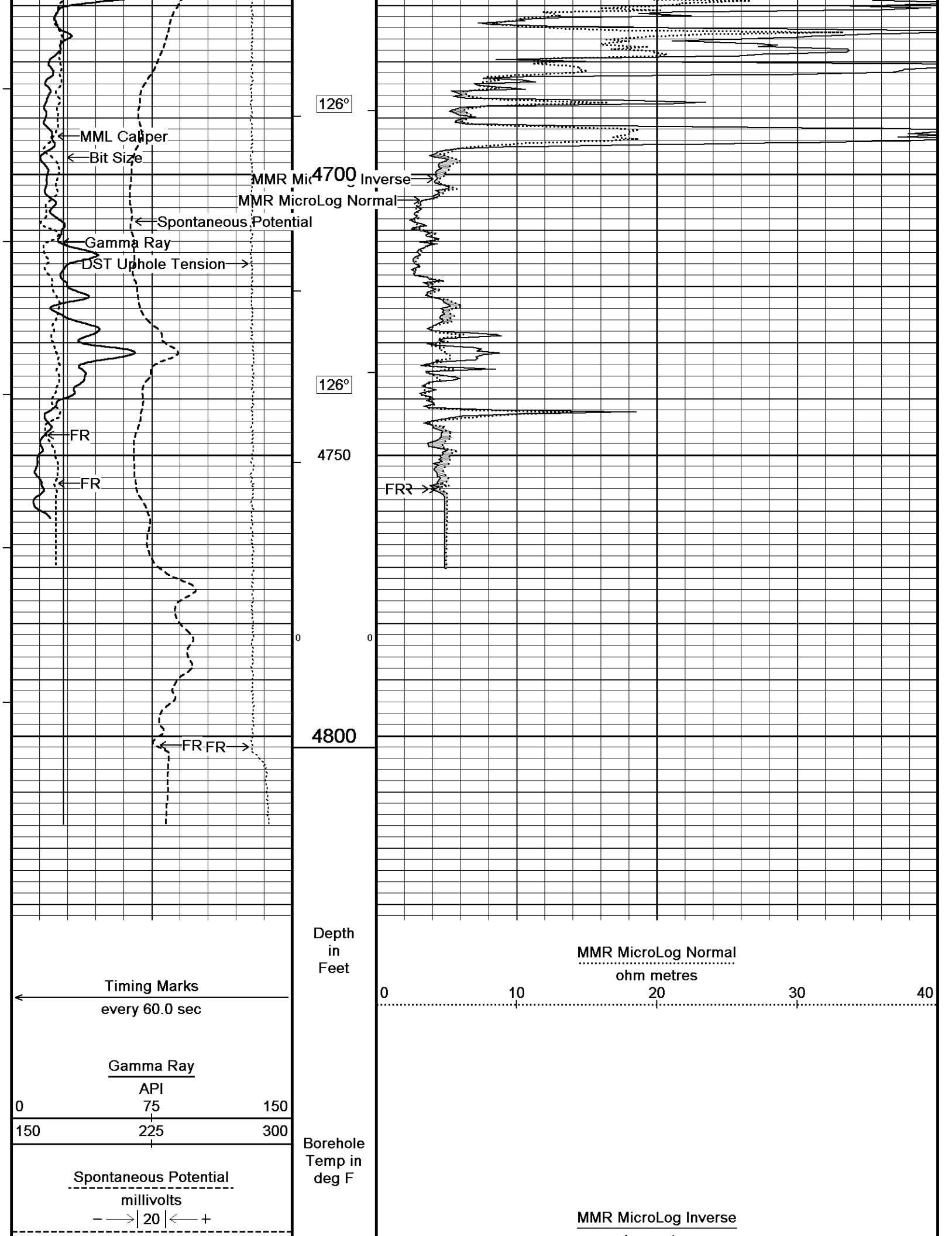
MMR MicroLog Inverse
ohm metres
0 10 20 30 40

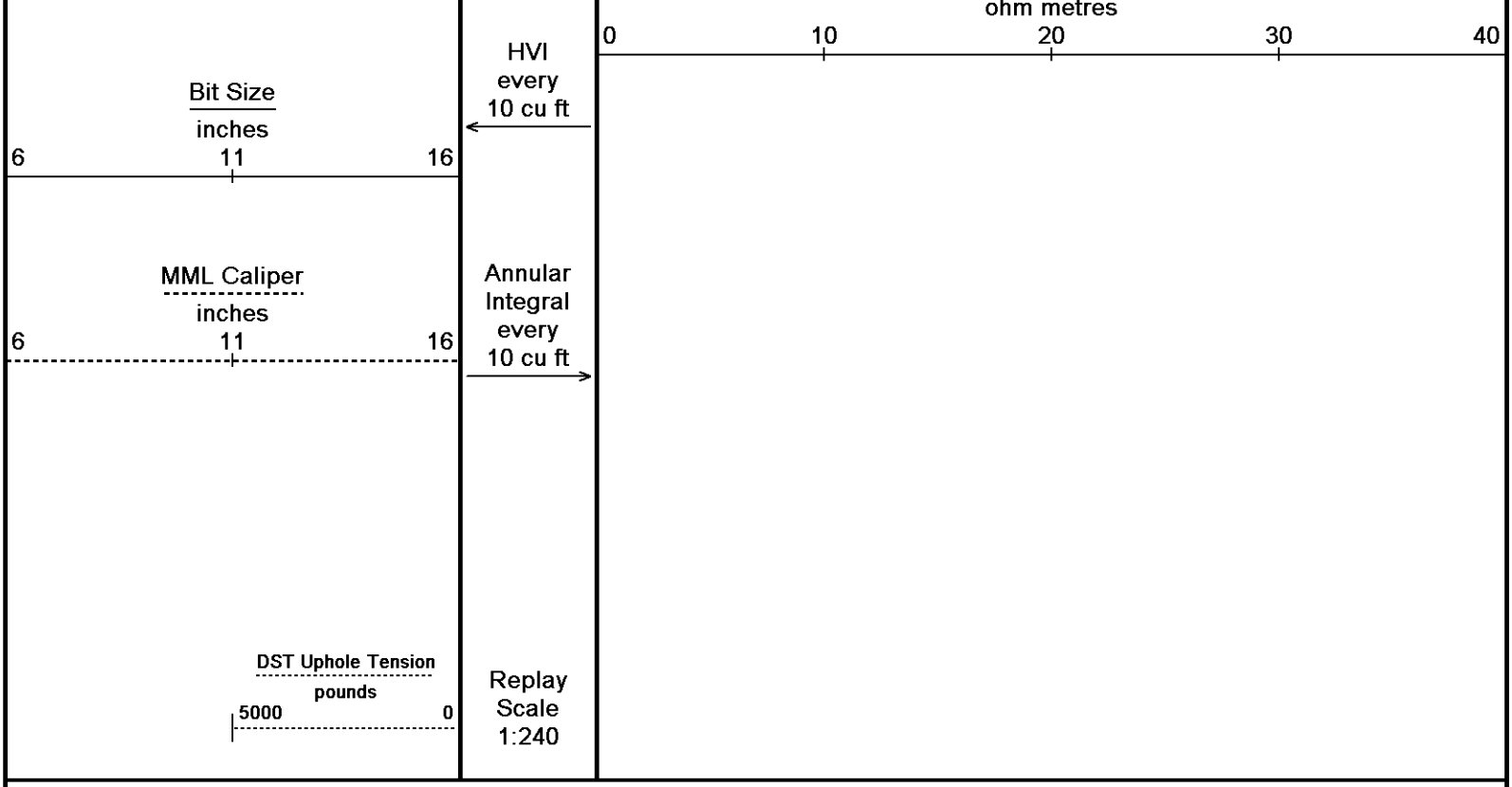

1:240
3800
119°
3850
120°
300
200
3900
MML Caliper
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
120°
3950
120°
4000


120°
4050
121°
4100
121°
4150
200
121°
4200


122°
4250
122°
4300
MML Caliper
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
122°
100
4350
123°
4400
123°


4450
100
124°
4500
124°
4550
125°
4600
126°
4650


126°
MML Caliper
Bit Size
MMR Mic
4700
Inverse
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
126°
FR
4750
FR
FR
0
0
4800
FR
FR
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

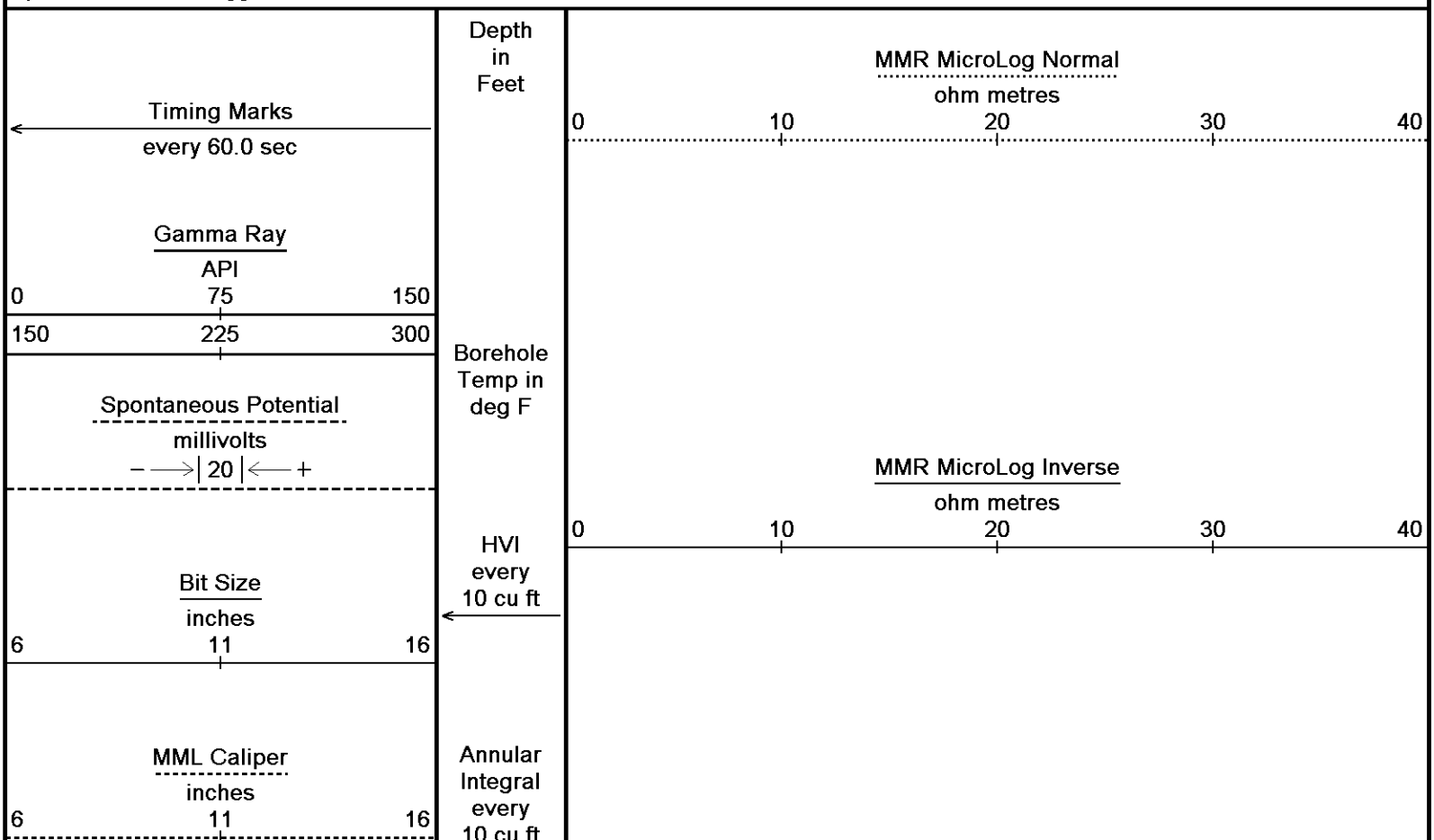


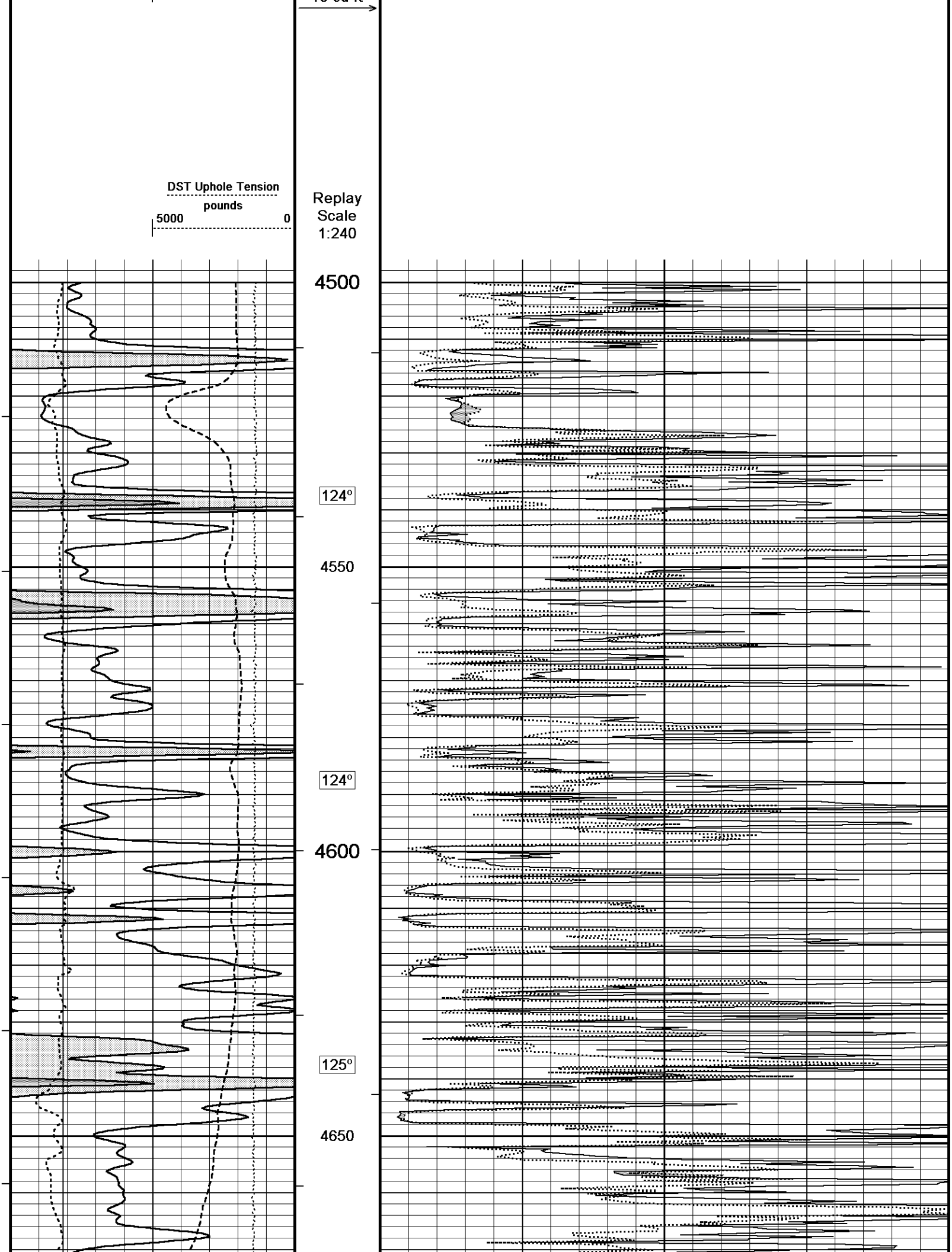
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2017 02:33
Filename: C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_002.dta — Recorded on 21-JUL-2017 23:39
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

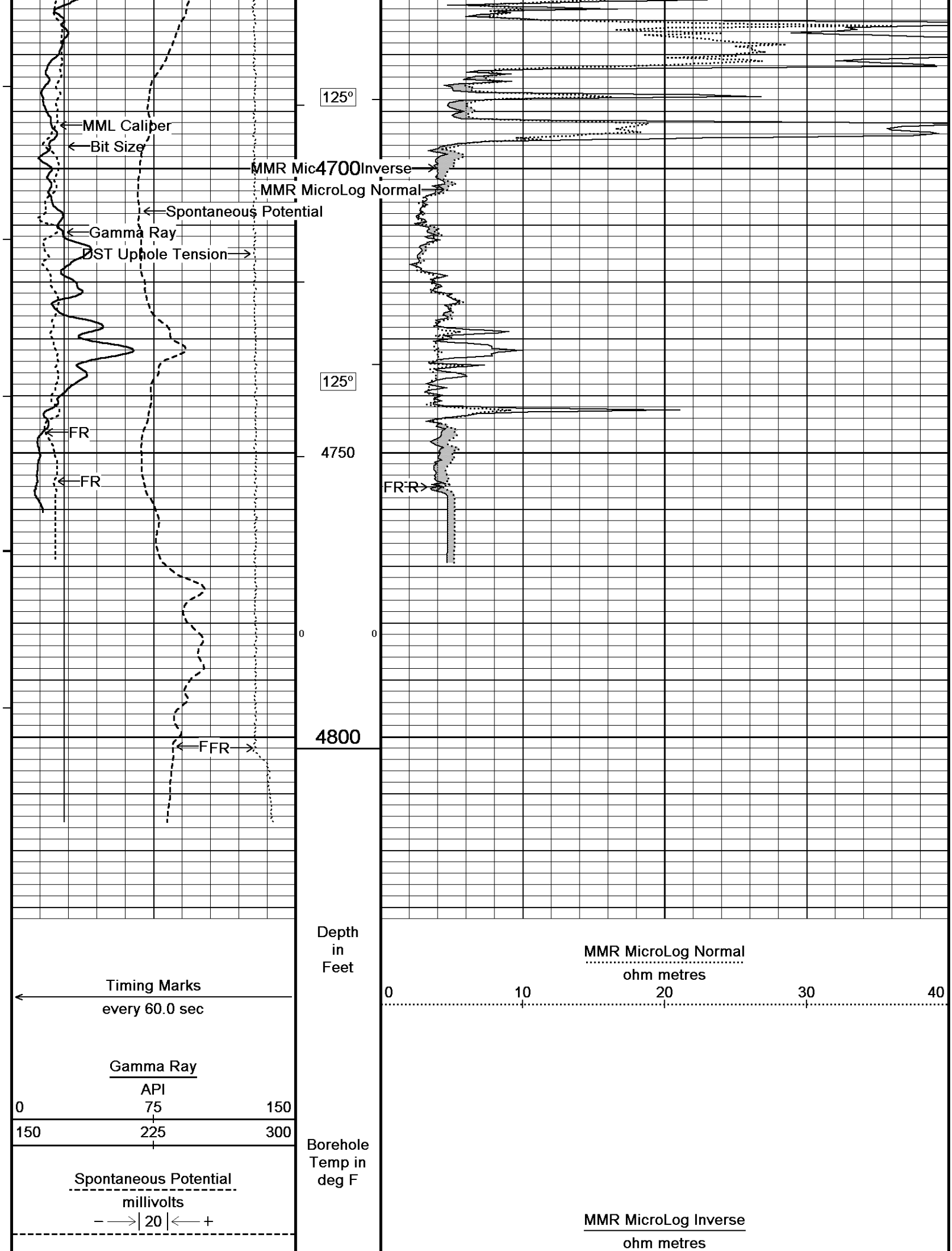
5 INCH MAIN

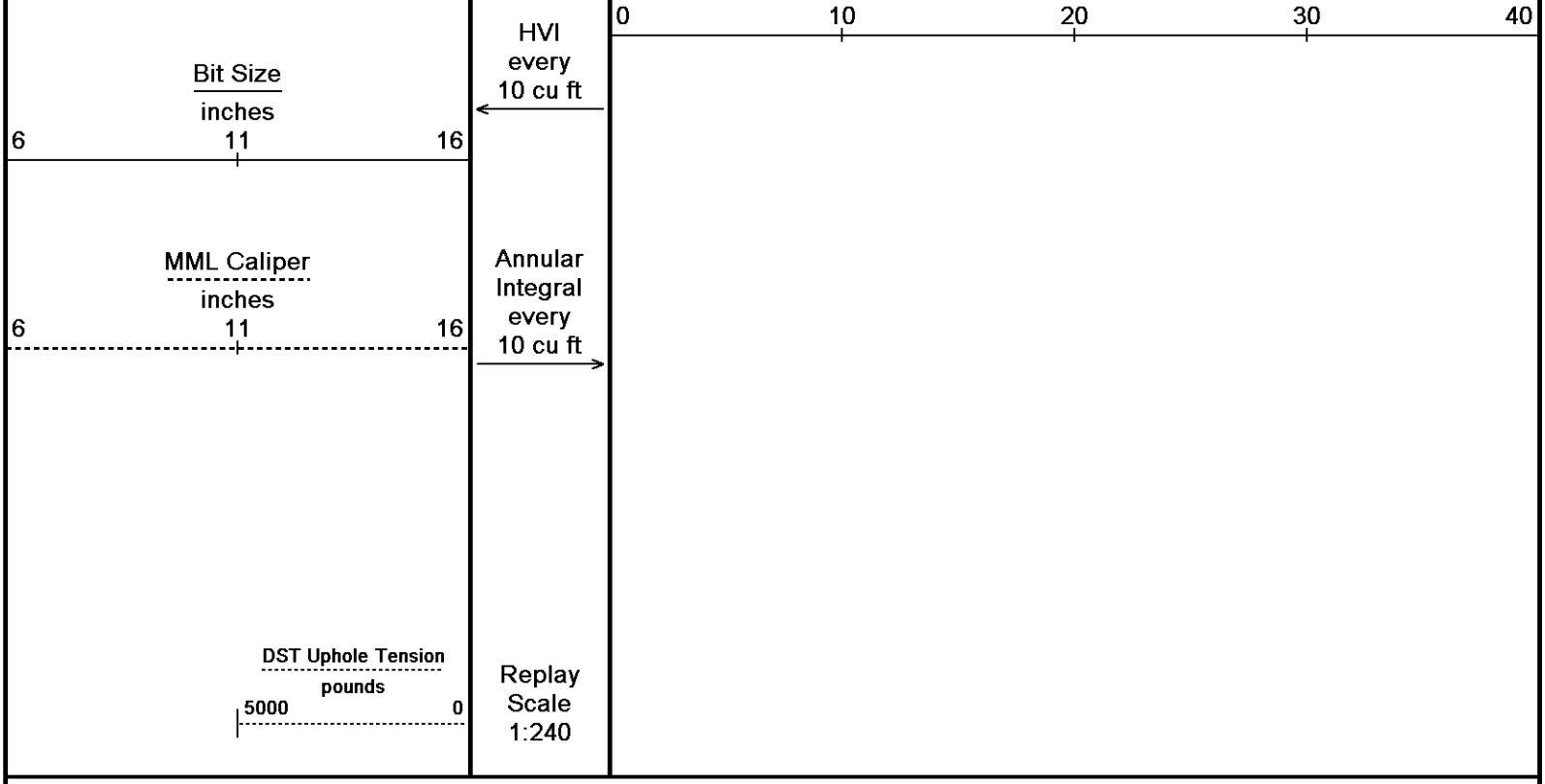
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2017 02:33
Filename: C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_001.dta — Recorded on 21-JUL-2017 23:12
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206




DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
4500
124°
4550
124°
4600
125°
4650


MML Caliper
Bit Size
MMR Mic
MMR MicroLog Normal
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR
FR
FR
FR
125°
125°
4700
4750
4800
Inverse
0
0
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
– 20 +
Depth
in
Feet
Borehole
Temp in
deg F
MMR MicroLog Normal
ohm metres
0
10
20
30
40
MMR MicroLog Inverse
ohm metres



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2017 02:33

Filename: C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_001.dta — Recorded on 21-JUL-2017 23:12

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_001.dta

General Constants All 000

Last Edited on 21-JUL-2017,22:39

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	Base Density Porosity	
Resistivity used	Array Ind. One 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 21-JUL-2017 22:14

Reading No	Measured	Calibrated (lbs)
1	14039.09	0.00
2	14869.52	481.00

Gamma Calibration MCG-C 84

Field Calibration on 21-JUL-2017 17:00

	Measured	Calibrated (API)
Background	142	95
Calibrator (Gross)	825	551
Calibrator (Net)	683	456

Gamma Calibration Tolerances MCG-C 84

Ratio	1.498	1.40 / 1.475 / 1.55	Counts/API

Gamma Constants MCG-C 84

Last Edited on 21-JUL-2017,20:15

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.09	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-C 84

Field Calibration on 03-JUL-2017,10:23

	Measured	Calibrated (mV)
Reference 1	104.4	100.1
Reference 2	-95.8	-100.1

High Resolution Temperature Calibration MCG-C 84

Field Calibration on 03-JUL-2017,10:23

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

High Resolution Temperature Constants MCG-C 84

Last Edited on 09-SEP-2014,02:23

Pre-filter Length	11

Micro Normal and Micro Inverse Calibration MML-A 7

Base Calibration on 21-JUL-2017,09:26
Field Check on 21-JUL-2017 16:43

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.0	49.7	5.1	25.6
Micro Inverse	10.0	50.1	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.9	77.9
Micro Inverse	51.0	51.0

Micro Normal & Micro Inverse Calibration Tolerance MML-A 7

Micro Normal Res. 1	10.0	-5% / 10.0 / +5%	ohm	Micro Normal Res. 2	49.7	-5% / 50.0 / +5% ohm
Micro Inverse Res. 1	10.0	-5% / 10.0 / +5%	ohm	Micro Inverse Res. 2	50.1	-5% / 50.0 / +5% ohm
Micro Normal Base Check	77.9	-2% / 77.69 / +2%	ohm-m			
Micro Inverse Base Check	51.0	-2% / 50.89 / +2%	ohm-m			
Micro Normal Field Check	77.9	-2% / 77.9 / +2%	ohm-m			
Micro Inverse Field Check	51.0	-2% / 51.0 / +2%	ohm-m			

Micro Normal and Micro Inverse Constants MML-A 7

Last Edited on 21-JUL-2017,20:15

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 7

Base Calibration on 21-JUL-2017,09:17
Field Calibration on 21-JUL-2017 16:41

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13752	5.98
2	16863	7.97
3	19899	9.86
4	23808	11.92
5	0	0.00

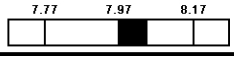
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.04	7.97

Caliper Calibration Tolerances MML-A 7

Short Arm Field Cal. 8.04 in



Neutron Calibration MDN-A.B 114

Base Calibration on 21-JUL-2017,14:44
Field Check on 21-JUL-2017 17:05

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3156	98	3714	110
Ratio	32.298		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2073	3042
Ratio	0.682	

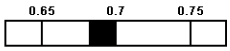
Field Check

	Calibrated (cps)	
	2082	3059
Ratio	0.681	

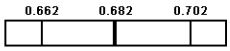
Neutron Calibration Tolerances MDN-A.B 114

Ratio 32.298

Base Check 0.682



Field Check 0.681



Neutron Constants MDN-A.B 114

Last Edited on 21-JUL-2017,20:15

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Legacy	
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-B.J 352

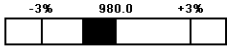
Base Calibration on 21-JUL-2017,09:08
Field Check on 21-JUL-2017 16:32

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	966.4	126.8
Base Check		280.6
Field Check		280.2

FE Calibration Tolerances MFE-B.J 352

Reference 2 966.4 ohm



Base Check	280.6	-2% 277.0 +2%	ohm-m
Field Check	280.2	-2% 280.6 +2%	ohm-m

FE Constants MFE-B.J 352

Last Edited on 21-JUL-2017,20:15

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	

Sonic Constants MSS-A.A 55

Last Edited on 21-JUL-2017,20:14

Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft
Sonde Mode	Compensated	
Hole Type	Open Hole	

Sonde Parameters

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A

Peak Amplitude Source N/A

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing N/A

Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
Waveform Discriminator Filter	N/A	
Semblance Window Width	N/A	micro-sec
Sonic Despiker	N/A	N/A

High Resolution Temperature Calibration MAI-A.A 111

High Resolution Temperature Calibration MAI-A.A 111

Field Calibration on 03-JUL-2017,10:17

	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

Base Calibration on 21-JUL-2017,10:20
Field Check on 21-JUL-2017 16:30

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.6	473.6	9.3	966.2
2	6.4	385.9	7.6	821.4
3	3.2	264.0	5.2	566.0
4	2.1	135.5	2.6	279.2

Array Temperature 23.0 Deg F

Test Loop Calibration Verified

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	13.7	3869.0	14.0	3870.2
2	30.1	3523.0	30.4	3523.7
3	29.2	3017.0	29.4	3017.1
4	19.2	2055.4	19.3	2055.2
Deep	17.8	1959.3	18.0	1959.0
Medium	43.1	3970.5	43.4	3971.0
Shallow	44.9	5225.2	45.3	5226.9
Array Temperature	95.2		94.1	Deg F

Induction Calibration Tolerances MAI-A.A 111

Low Conductivity 1	17.6	13.0 / 17.0 / 21.0	mmho/m	High Conductivity 1	473.6	430.0 / 475.0 / 520.0 mmho/m
Low Conductivity 2	6.4	4.5 / 6.0 / 7.5	mmho/m	High Conductivity 2	385.9	345.0 / 385.0 / 425.0 mmho/m
Low Conductivity 3	3.2	1.0 / 3.5 / 6.0	mmho/m	High Conductivity 3	264.0	240.0 / 260.0 / 280.0 mmho/m
Low Conductivity 4	2.1	0.0 / 2.0 / 4.0	mmho/m	High Conductivity 4	135.5	120.0 / 135.0 / 150.0 mmho/m
Background Vx 1	0.0	-110.0 / -32.5 / 45.0	mmho/m	Phase Check Loop 1	0.0	-2.0 / 0.0 / 2.0 %
Background Vx 2	0.0	-35.0 / 20.0 / 75.0	mmho/m	Phase Check Loop 2	0.0	-2.0 / 0.0 / 2.0 %
Background Vx 3	0.0	-60.0 / 2.5 / 65.0	mmho/m	Phase Check Loop 3	0.0	-2.0 / 0.0 / 2.0 %
Background Vx 4	0.0	-50.0 / -17.5 / 15.0	mmho/m	Phase Check Loop 4	0.0	-2.0 / 0.0 / 2.0 %

Induction Constants MAI-A.A 111

Last Edited on 21-JUL-2017,20:15

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	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
Rm Source	Global Value: Temperature Corrected	
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

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	

Photo Density Calibration MPD-C.A 216

Base Calibration on 21-JUL-2017,11:29
Field Check on 21-JUL-2017 16:39

Density Calibration

Base Calibration	Measured Near	Measured Far	Calibrated (sdu) Near	Calibrated (sdu) Far
Background	1034	1215		
Reference 1	51875	24845	59556	30836
Reference 2	20527	2316	24941	2541

Field Check at Base

Near	Far
1033.8	1215.4

Field Check

Near	Far
1037.2	1227.6

PE Calibration

Base Calibration	Measured WS	Measured WH	Ratio	Calibrated Ratio
Background	189	925		
Reference 1	21486	51702	0.419	0.371
Reference 2	5928	20410	0.295	0.272

Field Check at Base

WS	WH
189.2	924.8

Field Check

WS	WH
188.6	929.0

Photo Density Calibration Tolerances MPD-C.A 216

Near Density Ratio	2.61	-5% 2.52 +5%	Far Density Ratio	21.48	-5% 21.00 +5%
PE Calibration	0.116	0.089 0.110 0.131			
Near Den. Field Check	1037.2	-3% 1033.8 +3%	Far Den. Field Check	1227.6	-3% 1215.4 +3%
PE WS Field Check	188.6	-6% 189.2 +6%	PE WH Field Check	929.0	-6% 924.8 +6%

Density Constants MPD-C.A 216

Last Edited on 21-JUL-2017,20:14

Density Source Id	P50557B
Nylon Calibrator Number	DNCE695
Aluminium Calibrator Number	DACD698
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper

Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.09	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	0.00

Caliper Calibration MPD-C.A 216

Base Calibration on 21-JUL-2017,11:21
Field Calibration on 21-JUL-2017 16:35

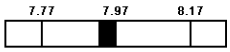
Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18416	3.99
2	28544	5.98
3	38624	7.97
4	48448	9.86
5	59555	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.92	7.97

Caliper Calibration Tolerances MPD-C.A 216

Short Arm Field Cal. 7.92 

in

DOWNHOLE EQUIPMENT

C:\Minimus 17.01.7206\Data\Shakespeare Goering #1-5\Shakespeare Goering #1-5_001.dta

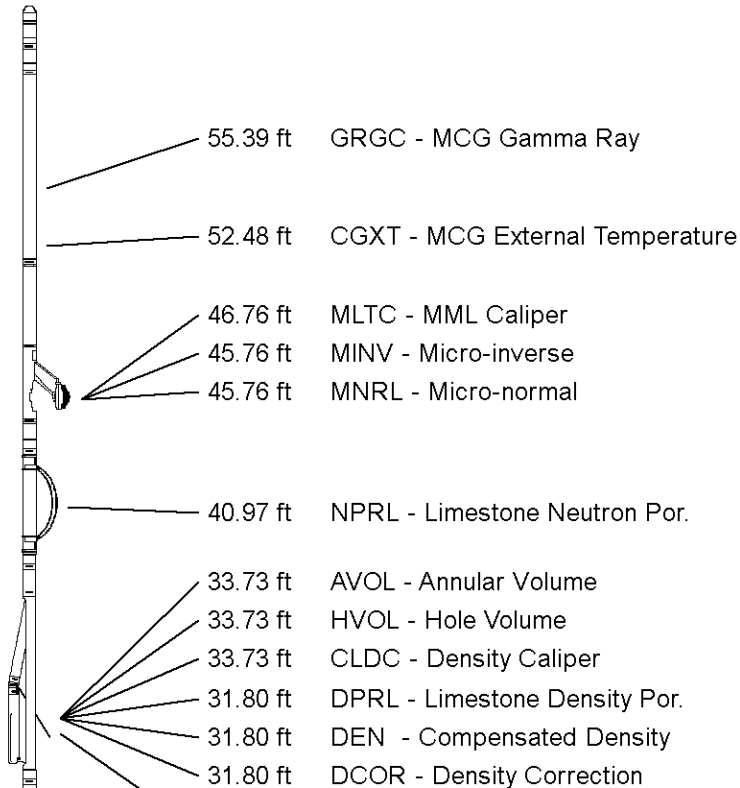
Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.244 in

Compact Neutron
MDN-A.B 114 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: 2.449 in

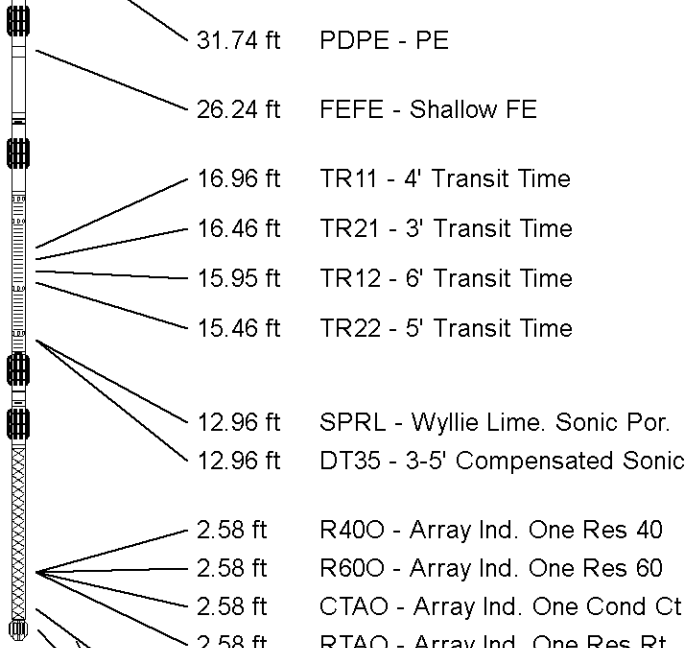


Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-A.A 55 LG: 12.52 ft WT: 72.8 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: 63.07 ft Weight: 480.6 lb



31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
16.96 ft	TR11 - 4' Transit Time
16.46 ft	TR21 - 3' Transit Time
15.95 ft	TR12 - 6' Transit Time
15.46 ft	TR22 - 5' Transit Time
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
12.96 ft	DT35 - 3-5' Compensated Sonic
2.58 ft	R40O - Array Ind. One Res 40
2.58 ft	R60O - Array Ind. One Res 60
2.58 ft	CTAO - Array Ind. One Cond Ct
2.58 ft	RTAO - Array Ind. One Res Rt
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	SHAKESPEARE OIL CO., INC.
WELL	GOERING #1-5
FIELD	WILDCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2951	feet	First Reading	4756.00	feet
Elevation Drill Floor	2949	feet	Depth Driller	4800.00	feet
Elevation Ground Level	2940	feet	Depth Logger	4802.00	feet

Weatherford®

MICRORESISTIVITY LOG