



Weatherford[®]

MICRORESISTIVITY LOG

COMPANY	O'BRIEN RESOURCES, LLC.		
WELL	PECK 1 #2		
FIELD	WILDCAT		
PROVINCE/COUNTY LANE	U.S.A. / KANSAS		
COUNTRY/STATE	2455' FNL & 2072' FWL		
LOCATION	15-101-22495		
SEC 1	TWP 18S	RGE 29W	Other Services
Latitude			MAI/MFE
Longitude			MPD/MDN
API Number	Permanent Datum GL, Elevation 2748 feet		
			Log Measured From KB
			Drilling Measured From KB
Date	08-MAR-2014		Elevations: KB 2755.00 DF 2753.00 GL 2748.00
Run Number	ONE		
Service Order	4558-81483267		
Depth Driller	4665.00	feet	
Depth Logger	4668.00	feet	
First Reading	4635.00	feet	
Last Reading	3600.00	feet	
Casing Driller	265.00	feet	
Casing Logger	266.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.30 lb/USg	48.00 CP	
PH / Fluid Loss	10.00	6.80 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.28 @ 76.0	ohm-m	
Rmf @ Measured Temp	1.02 @ 76.0	ohm-m	
Rmc @ Measured Temp	1.54 @ 76.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.88 @ 111.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	111.00	deg F	
Equipment / Base	13244	LIB	
Recorded By	ADAM SILL		
Witnessed By	KURT TALBOTT		JEFFREY RANDLE
JOB #	LB14-066		

BOREHOLE RECORD

Last Edited: 08-MAR-2014 14:35

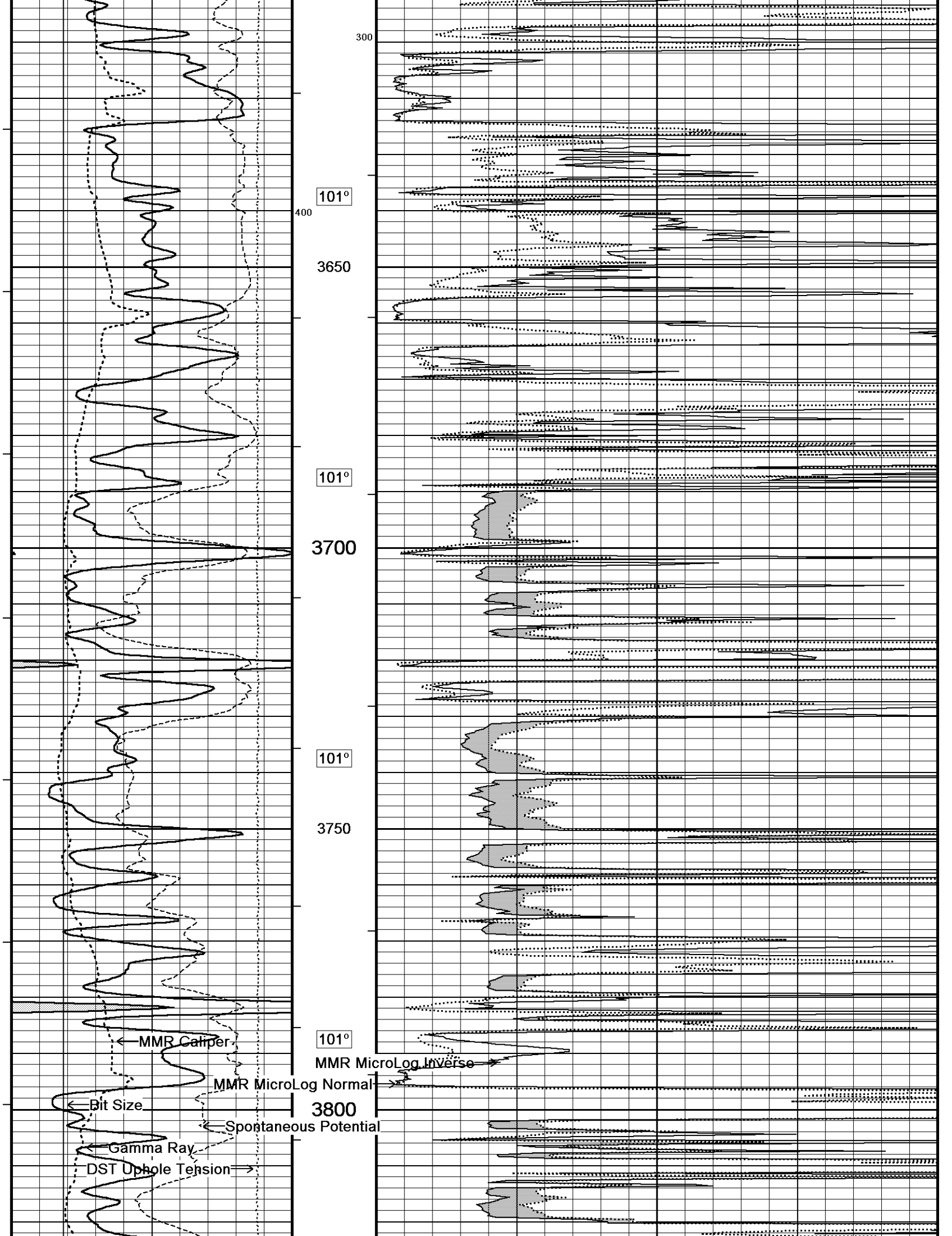
Bit Size inches	Depth From feet	Depth To feet
7.875	265.00	4665.00

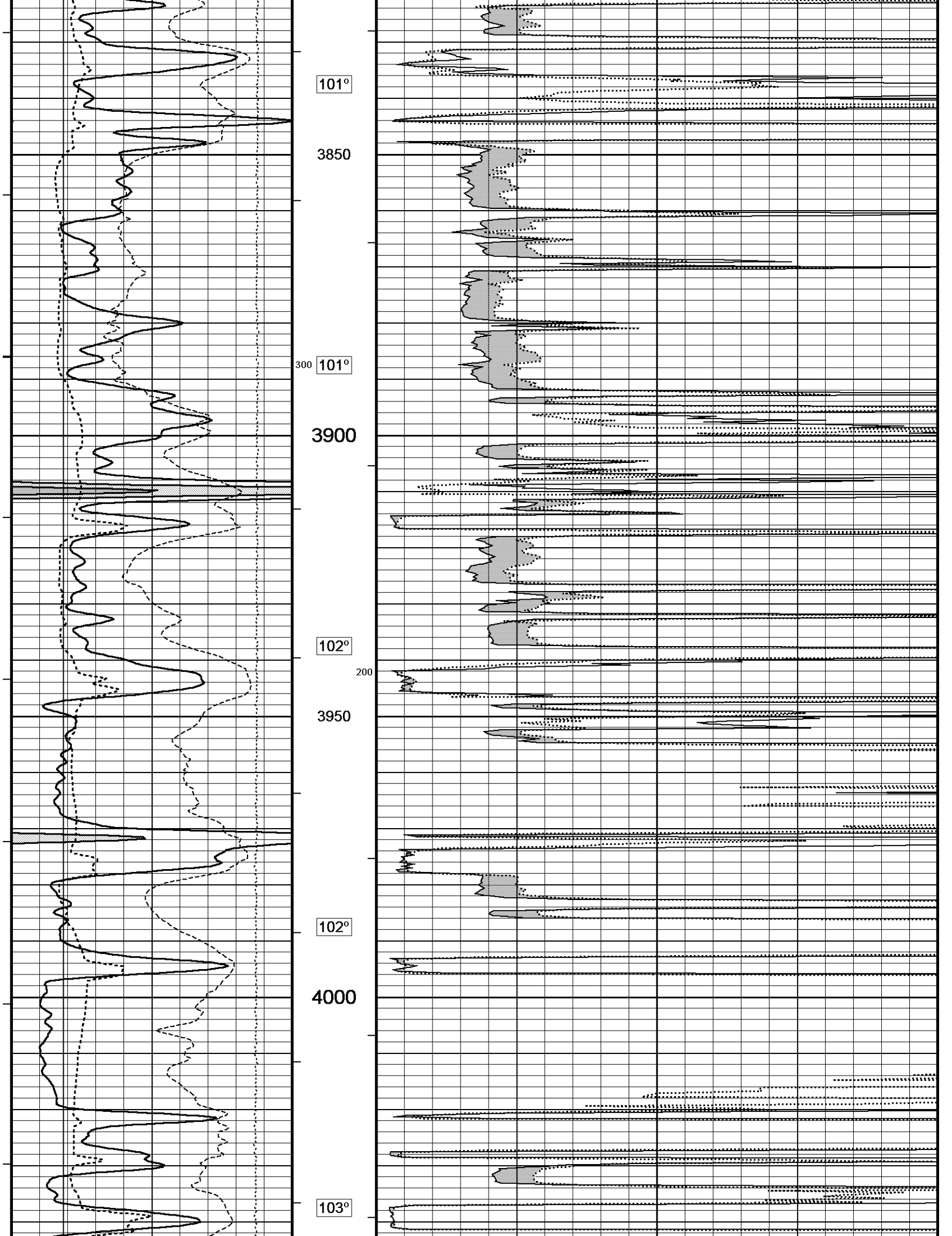
CASING RECORD

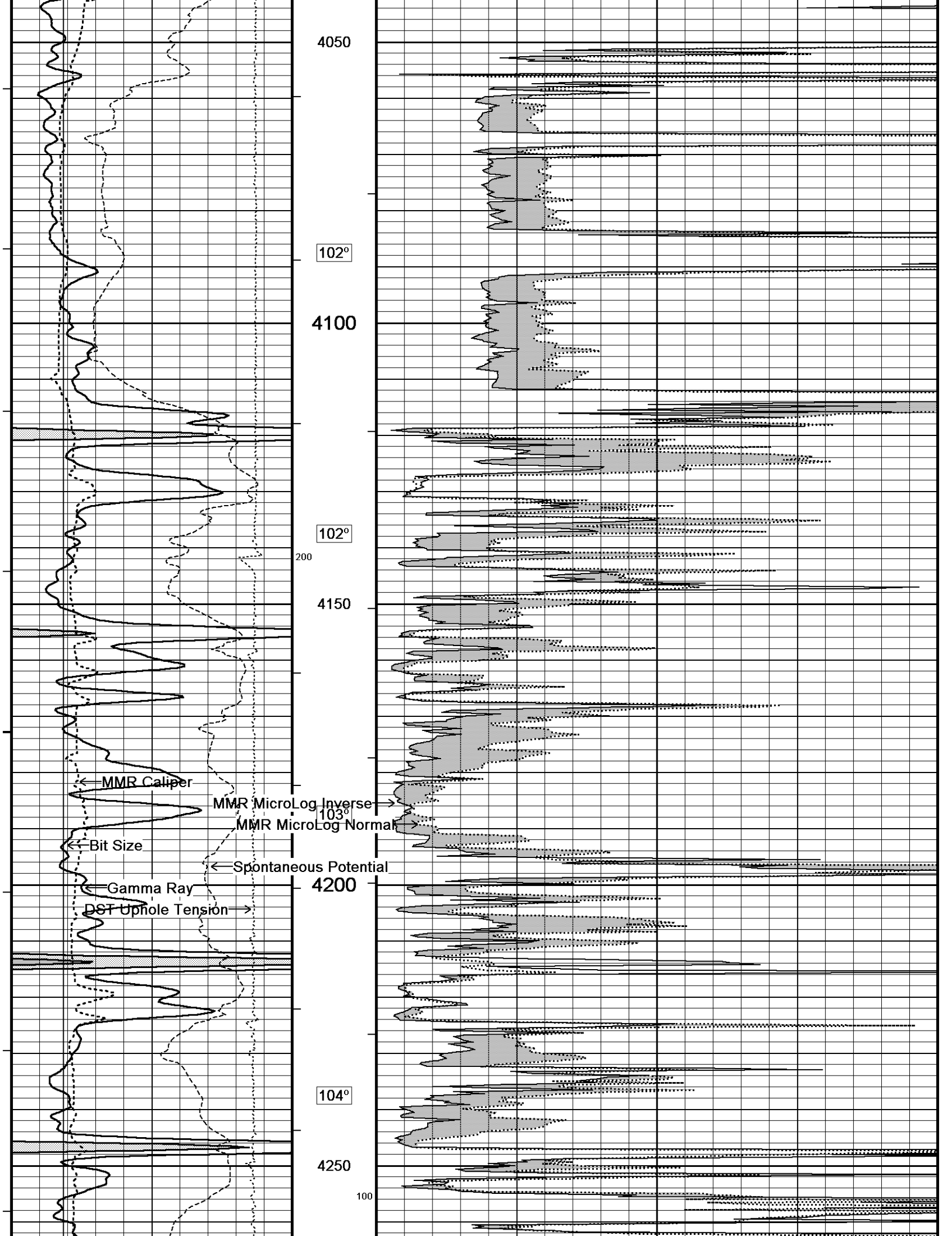
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	265.00	24.00

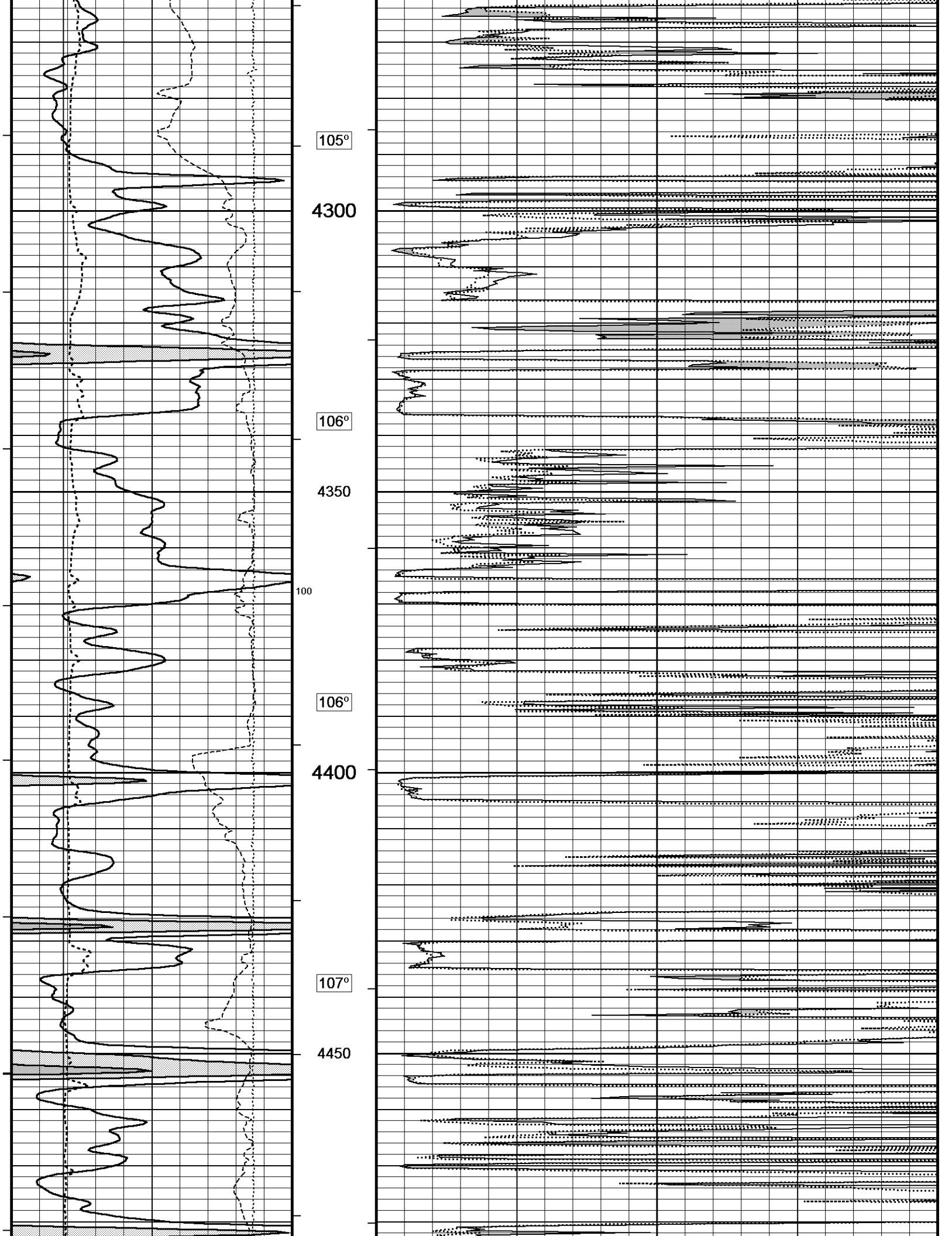
REMARKS

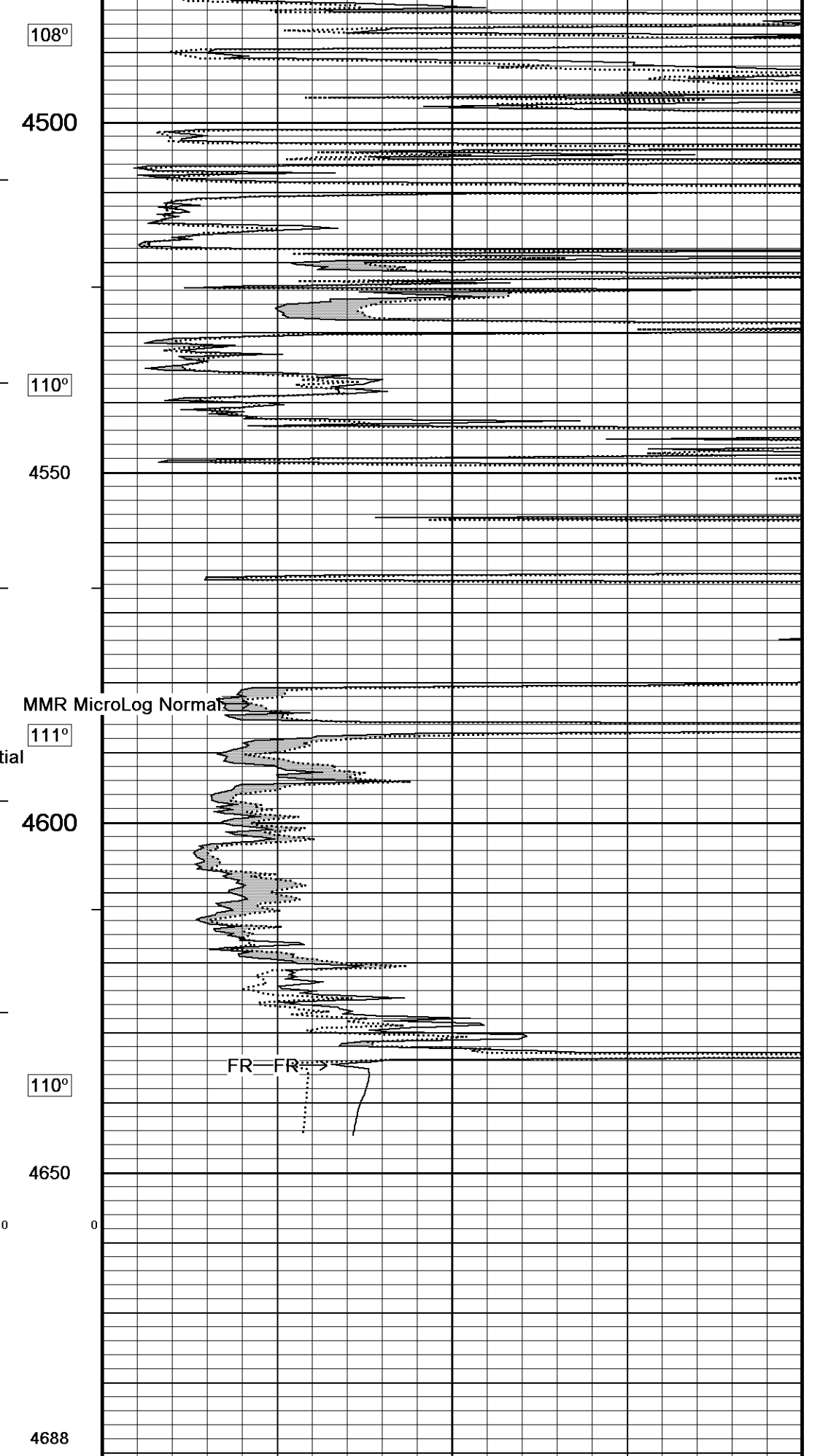
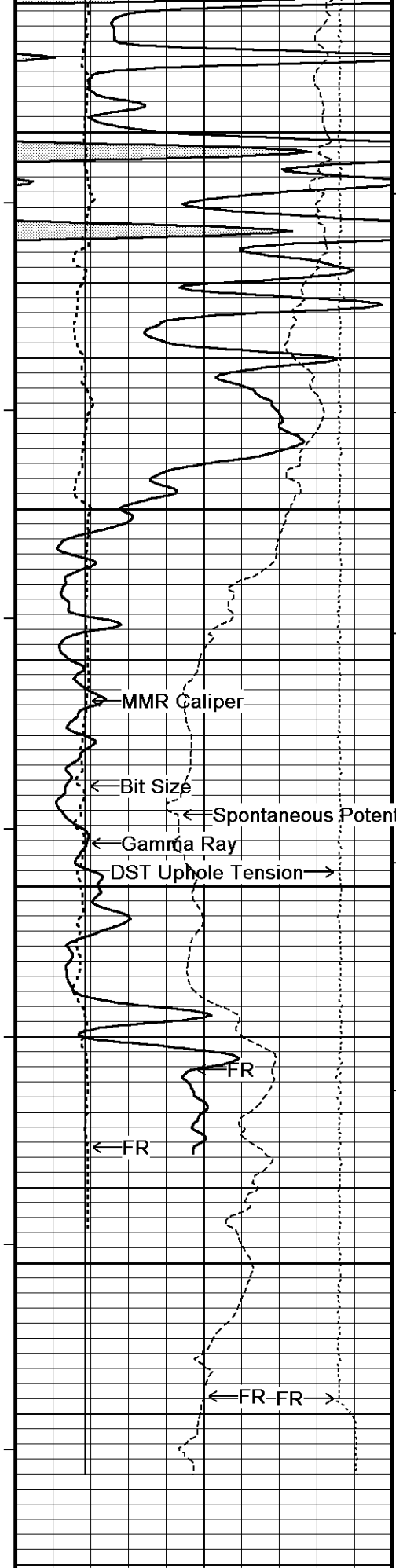
- SOFTWARE ISSUE: WLS 13.08.2113.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 2074 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 3600 FEET: 302 CU.FT.
- RIG: MAVERICK DRILLING 102











108°

4500

110°

4550

MMR MicroLog Normal

111°

4600

110°

4650

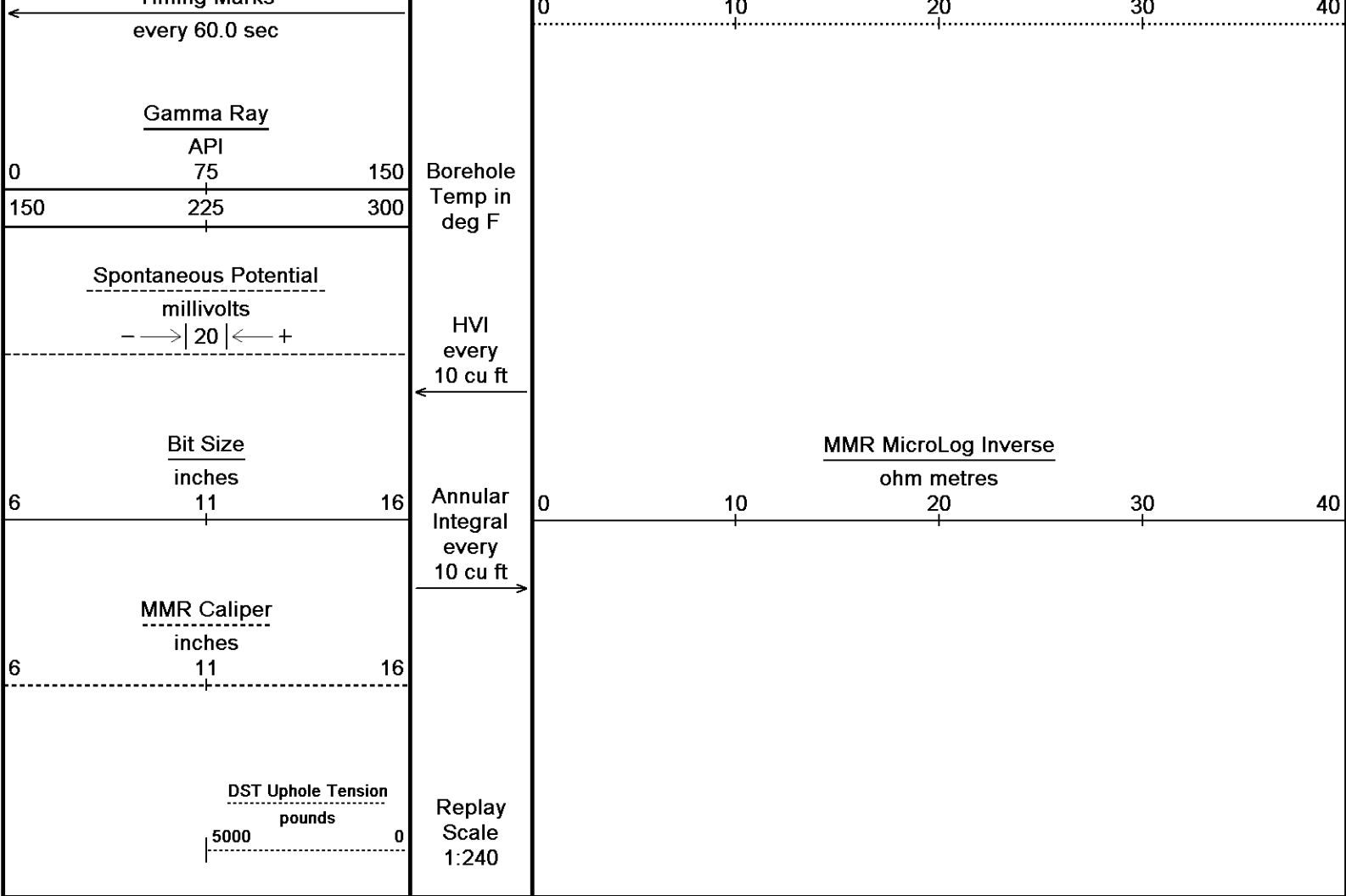
0

4688

Depth in Feet

MMR MicroLog Normal
ohm metres

Timing Marks

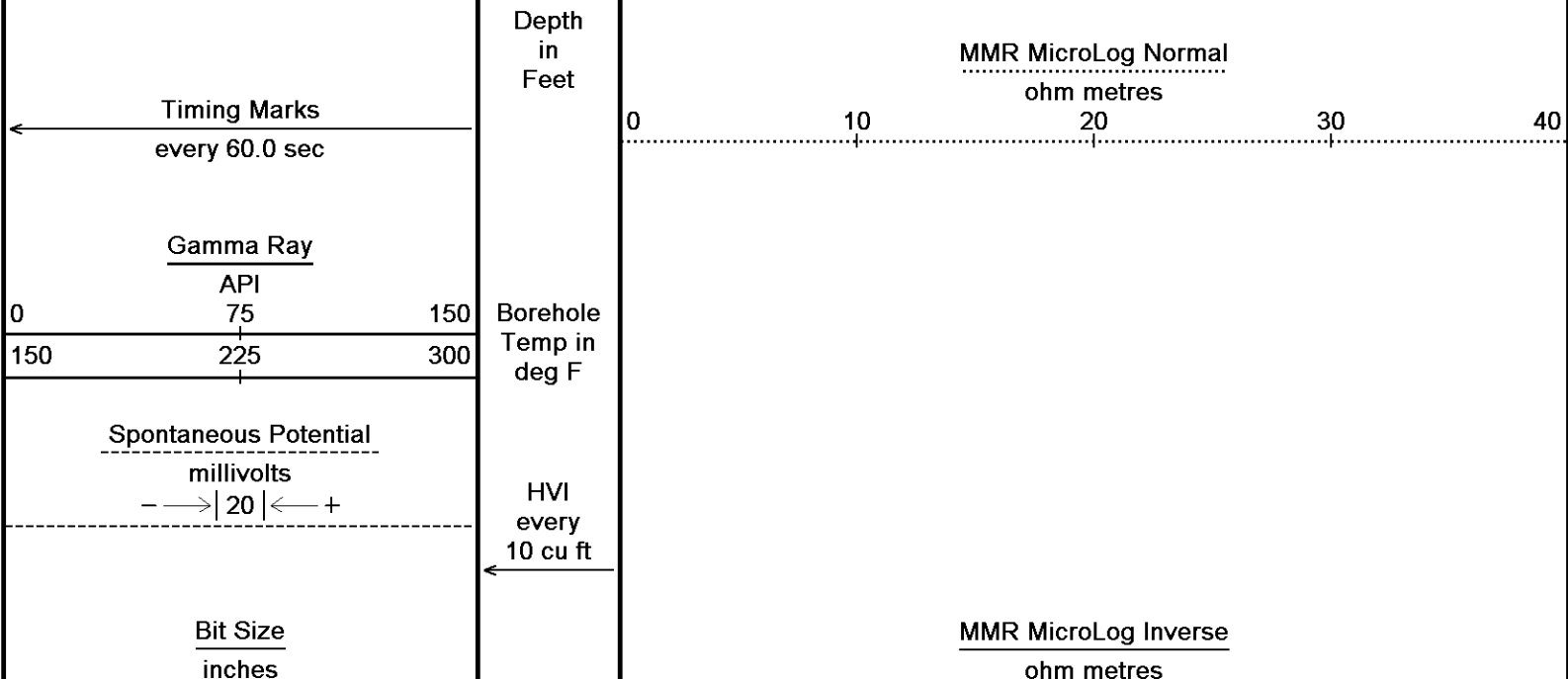


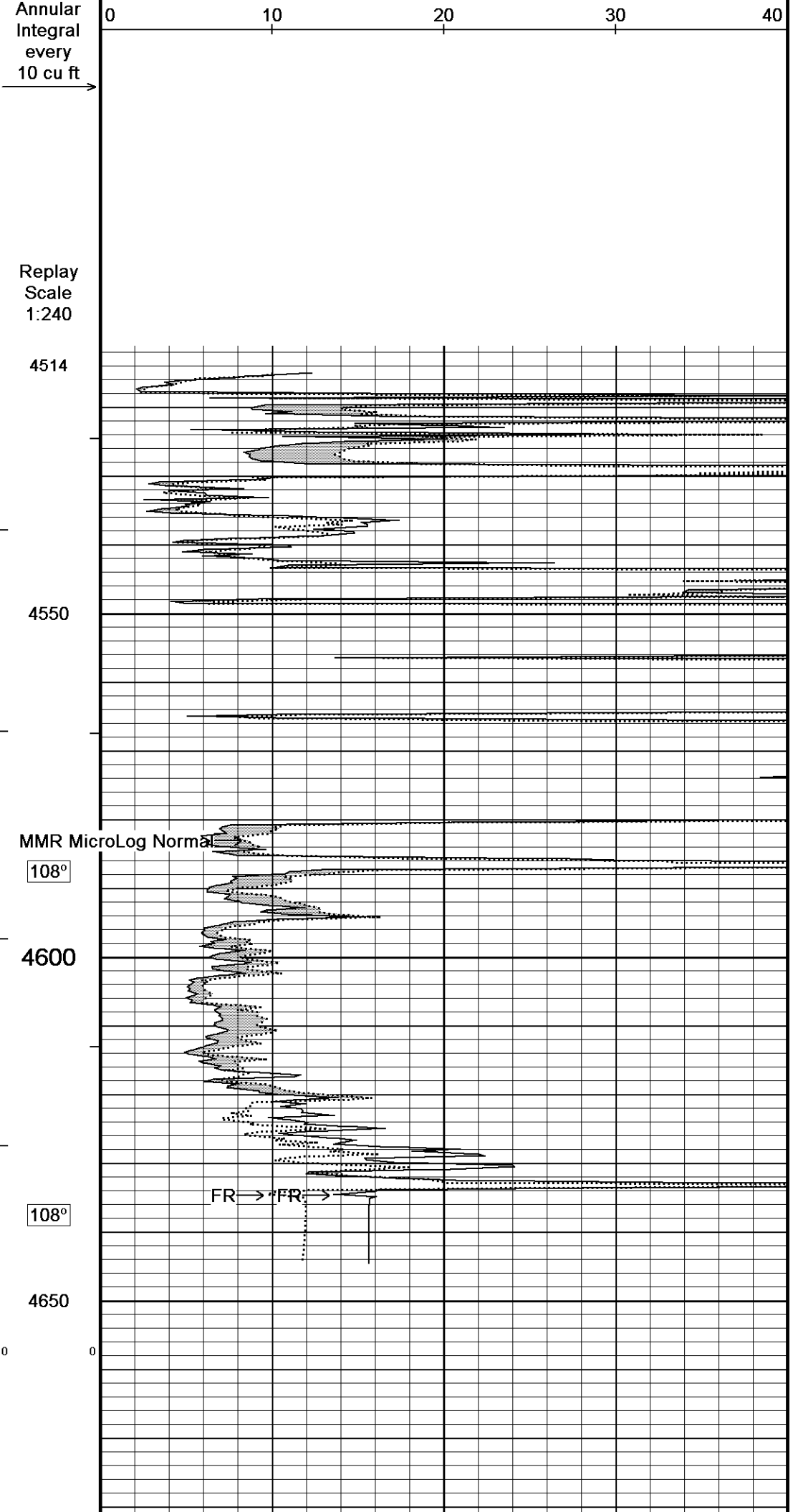
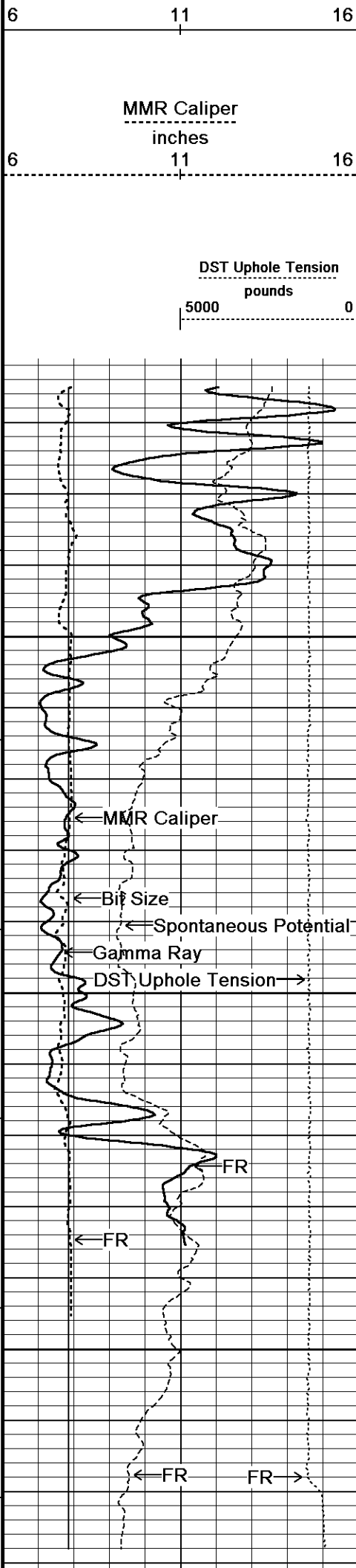
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 08-MAR-2014 20:29
 Filename: C:\Minimus 13.08.2113\Logs\O'BRIEN PECK 1 #2\O'BRIEN PECK 1 #2_003.dta
 Recorded on 08-MAR-2014 16:42
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

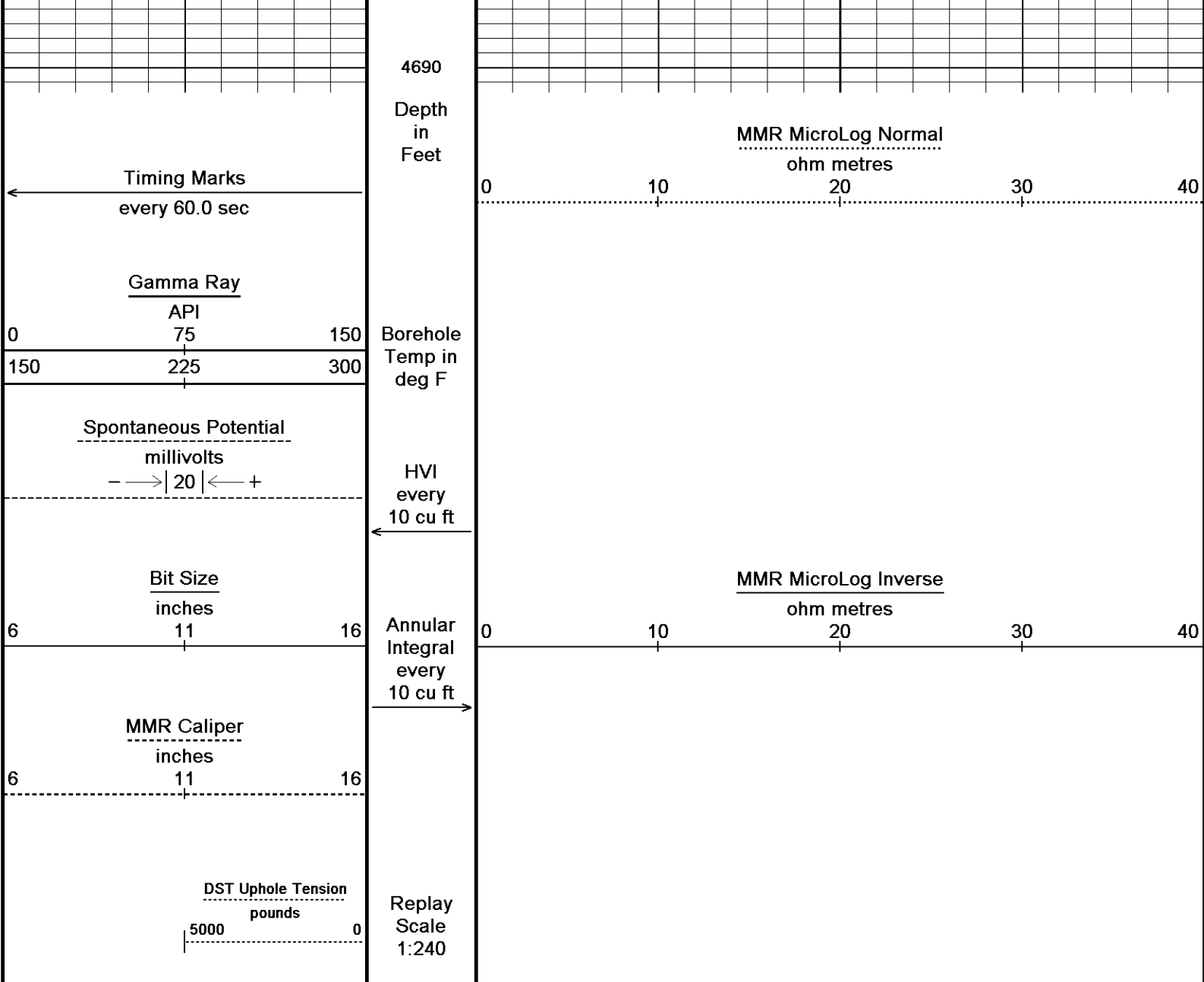
↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 08-MAR-2014 20:29
 Filename: C:\Minimus 13.08.2113\Logs\O'BRIEN PECK 1 #2\O'BRIEN PECK 1 #2_002.dta
 Recorded on 08-MAR-2014 16:18
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113







Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 08-MAR-2014 20:29
 Filename: C:\Minimus 13.08.2113\Logs\O'BRIEN PECK 1 #2\O'BRIEN PECK 1 #2_002.dta
 Recorded on 08-MAR-2014 16:18
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 13.08.2113\Logs\O'BRIEN PECK 1 #2\O'BRIEN PECK 1 #2_003.dta

General Constants All 000 Last Edited on 08-MAR-2014,16:32

General Parameters		
Mud Resistivity	1.280	ohm-metres
Mud Resistivity Temperature	76.000	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	Density Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	

Resistivity used	Array Ind. One Res Rt	
RWA Constant A		0.610
RWA Constant M		2.150
SW/APOR Tool Source		0.000

Down-hole Tension Calibration SMS 0

Field Calibration on 27-FEB-2014 09:36

Reading No	Measured	Calibrated (lbs)
1	15338.18	0.00
2	15806.32	400.00

Gamma Calibration MCG-C 150

Field Calibration on 08-MAR-2014 10:58

	Measured	Calibrated (API)
Background	71	48
Calibrator (Gross)	1145	773
Calibrator (Net)	1074	725

Gamma Constants MCG-C 150

Last Edited on 08-MAR-2014,14:57

Gamma Calibrator Number	GRC038	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-C 150

Field Calibration on 08-MAR-2014,10:58

	Measured	Calibrated (mV)
Reference 1	100.2	98.8
Reference 2	-97.4	-99.0

High Resolution Temperature Calibration MCG-C 150

Field Calibration on 08-MAR-2014,10:59

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

High Resolution Temperature Constants MCG-C 150

Last Edited on 08-MAR-2014,10:59

Pre-filter Length	11
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Caliper Calibration MMR-C.A 248

Base Calibration on 23-JAN-2014 16:52
Field Calibration on 08-MAR-2014 10:44

Base Calibration	Measured	Calibrator Size (in)
Reading No		
1	13431	5.98
2	16626	7.97
3	19813	9.86
4	23733	11.92
5	0	0.00
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.98	7.97

Micro Normal and Micro Inverse Calibration MMR-C.A 248

Base Calibration on 24-FEB-2014 11:45
Field Check on 08-MAR-2014 10:45

Base Calibration	Measured	Calibrated (ohm-m)
Channel	Resistor 1	Resistor 2
Micro Normal	9.9	49.5
Micro Inverse	9.9	49.5

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.9	93.9
Micro Inverse	62.2	62.2

Micro Normal and Micro Inverse Constants MMR-C.A 248

Last Edited on 23-JAN-2014,17:04

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
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Micro Normal K Factor	0.5110	
Micro Inverse K Factor	0.3380	
Standoff Offset	0.0000	inches

Neutron Calibration MDN-B.J 387

Base Calibration on 21-JAN-2014 13:56
Field Check on 08-MAR-2014 11:03

Base Calibration		Measured		Calibrated (cps)	
	Near	Far	Near	Far	
	2848	86	3714	110	
Ratio	32.942		33.764		
Field Calibrator at Base				Calibrated (cps)	
			1737	2564	
Ratio			0.677		
Field Check				Calibrated (cps)	
			1718	2552	
Ratio			0.673		

Neutron Constants MDN-B.J 387

Last Edited on 08-MAR-2014,14:56

Neutron Source Id	P58125B	
Neutron Jig Number	5824NE	
Epithermal Neutron		
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 55

Base Calibration on 21-JAN-2014 15:20
Field Check on 08-MAR-2014 10:35

Base Calibration		Measured		Calibrated (ohm-m)	
Reference 1		0.0		0.0	
Reference 2		951.8		126.8	
Base Check				281.4	
Field Check				281.5	

FE Constants MFE-A.A 55

Last Edited on 08-MAR-2014,14:55

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

Induction Calibration MAI-A.A 5

Base Calibration on 21-JAN-2014,09:50
Field Check on 08-MAR-2014 10:33

Base Calibration		Measured		Calibrated (mmho/m)	
Test Loop Calibration					
Channel	Low	High	Low	High	
1	16.3	470.8	9.3	966.2	
2	5.6	376.1	7.6	821.4	
3	2.6	266.1	5.2	566.0	
4	1.6	130.0	2.6	279.2	
Array Temperature	71.1		Deg F		

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			14.2	3864.1
2			31.7	3592.9
3			29.8	2973.5
4			20.8	2127.9
Deep			18.4	1913.8
Medium			43.1	3863.9
Shallow			47.1	5375.4
Array Temperature			55.8	Deg F

Induction Constants MAI-A.A 5		Last Edited on 08-MAR-2014,14:55	
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	

High Resolution Temperature Calibration MAI-A.A 5		Field Calibration on 21-JAN-2014,15:43	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MAI-A.A 5		Last Edited on 21-JAN-2014,15:42	
Pre-filter Length	11		

Photo Density Calibration MPD-B 64		Base Calibration on 21-JAN-2014 13:19 Field Check on 08-MAR-2014 10:42		
Density Calibration				
Base Calibration		Measured		Calibrated (sdu)
	Near	Far	Near	Far
Background	1151	1332		
Reference 1	54413	28212	59556	30836
Reference 2	21794	2569	24941	2541

Field Check at Base
1151.0 1331.7

Field Check
1148.5 1330.6

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	207	1021		
Reference 1	20693	54218	0.385	0.371
Reference 2	5952	21660	0.278	0.272

Field Check at Base
206.5 1020.6

Field Check
207.0 1020.9

Density Constants MPD-B 64

Last Edited on 08-MAR-2014,14:56

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	1.12	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	

Caliper Calibration MPD-B 64

Base Calibration on 13-FEB-2014 15:49
Field Calibration on 08-MAR-2014 10:37

Base Calibration Reading No	Measured	Calibrator Size (in)
1	16976	3.99
2	26016	5.98
3	34528	7.97
4	42943	9.86
5	52224	11.92
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.95	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Log\O'BRIEN PECK 1 #2\O'BRIEN PECK 1 #2_003.dta

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

Compact Comms Gamma
MCG-C 150 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in



43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature

Compact Micro-Resistivity
MMR-C.A 248 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

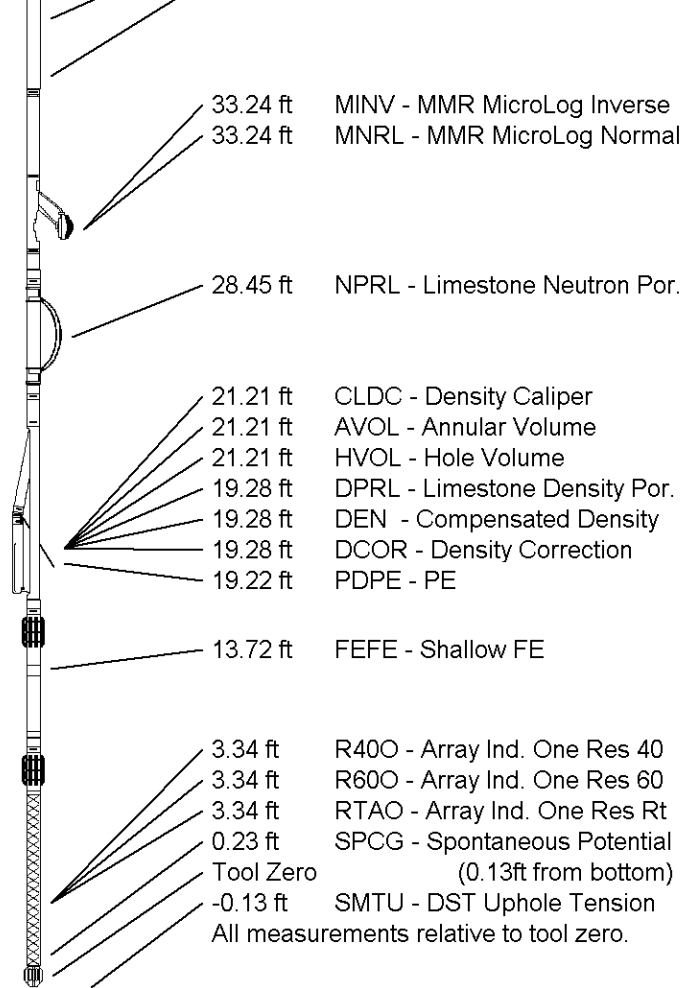
Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 5 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 51.18 ft Weight: 407.9 lb



COMPANY	O'BRIEN RESOURCES, LLC.
WELL	PECK 1 #2
FIELD	WILDCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2755.00	feet	First Reading	4635.00	feet
Elevation Drill Floor	2753.00	feet	Depth Driller	4665.00	feet
Elevation Ground Level	2748.00	feet	Depth Logger	4668.00	feet



Weatherford[®]

MICRORESISTIVITY LOG