



Weatherford

MICRORESISTIVITY LOG

COMPANY										McCOY PETROLEUM CORPORATION									
WELL										MTPRC 'B' #3-22									
FIELD										ALFORD									
PROVINCE/COUNTY										KIOWA									
COUNTRY/STATE										USA / KANSAS									
LOCATION										1980' FSL & 1320' FEL									
SEC 22		TWP 30S		RGE 19W		Other Services													
Latitude								MPD/MDN											
Longitude								MAI/MFE											
API Number		15-097-21792																	
Permanent Datum GL, Elevation 2230 feet																			
Log Measured From KB																			
Drilling Measured From KB																			
Date		31-MAY-2014												Elevations:		feet			
Run Number		ONE												KB		2243.00			
Service Order		4558-88689664												DF		2241.00			
Depth Driller		5200.00						feet											
Depth Logger		5200.00						feet											
First Reading		5167.00						feet											
Last Reading		3900.00						feet											
Casing Driller		641.00						feet											
Casing Logger		643.00						feet											
Bit Size		7.875						inches											
Hole Fluid Type		CHEMICAL																	
Density / Viscosity		9.40		lb/USg		69.00		CP											
PH / Fluid Loss		9.00				9.60		ml/30Min											
Sample Source		MUDPIT																	
Rm @ Measured Temp		0.85 @ 73.0						ohm-m											
Rmf @ Measured Temp		0.68 @ 73.0						ohm-m											
Rmc @ Measured Temp		1.02 @ 73.0						ohm-m											
Source Rmf / Rmc		CALC				CALC													
Rm @ BHT		0.56 @113.0				ohm-m													
Time Since Circulation		4 HOURS																	
Max Recorded Temp		113.00						deg F											
Equipment / Base		13244		LIB															
Recorded By		ADAM SILL												JEFFREY RANDLE					
Witnessed By		DAVE WILLIAMS												ZACH WIELE					
JOB #		LB14-164																	

BOREHOLE RECORD					Last Edited: 31-MAY-2014 04:25
Bit Size inches		Depth From feet		Depth To feet	
7.875		641.00		5200.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	641.00	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: 1902 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3900 FEET: 218 CU.FT.
- RIG: STERLING DRILLING #5

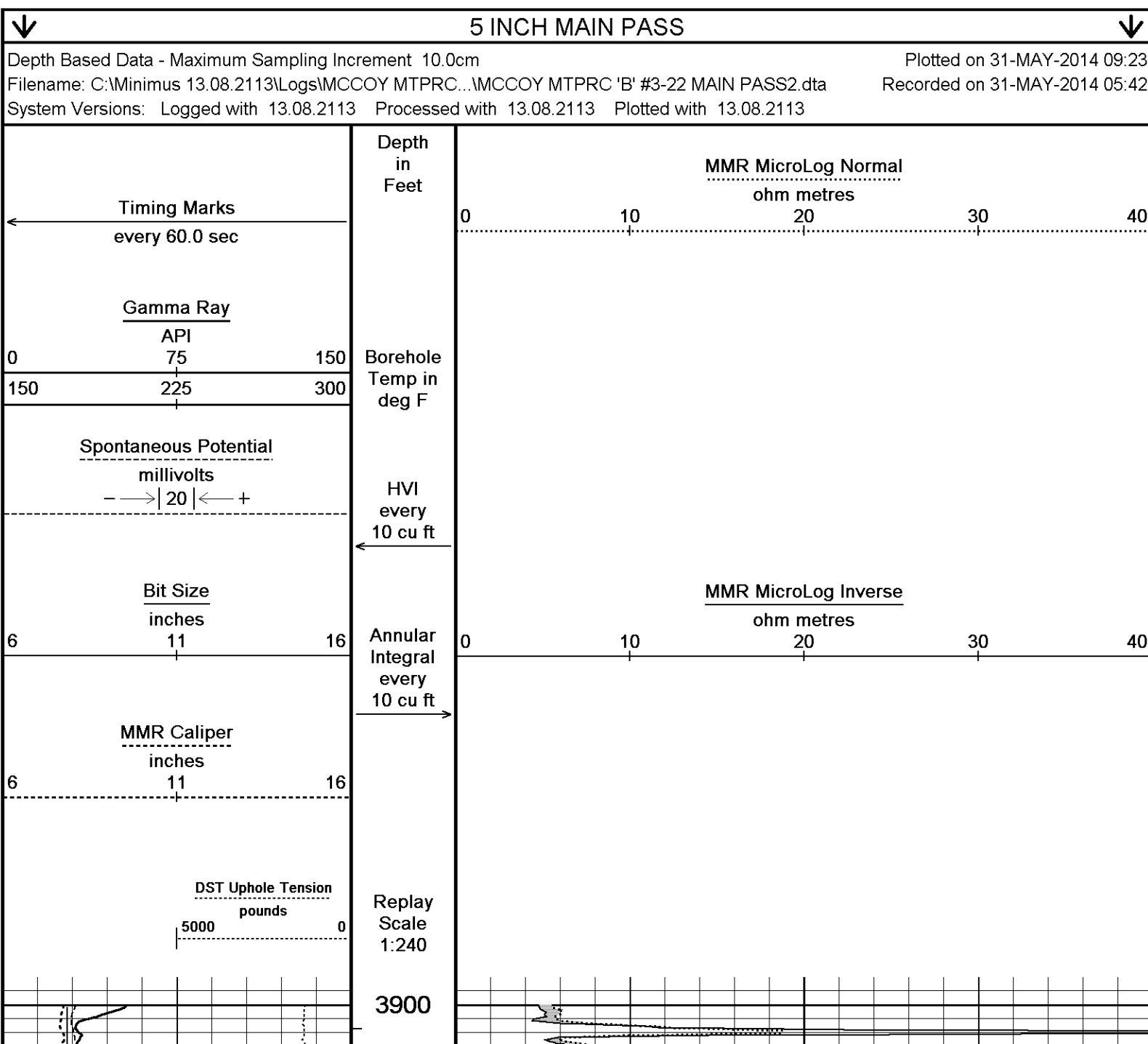
RIG: OPERING DRILLING #0:

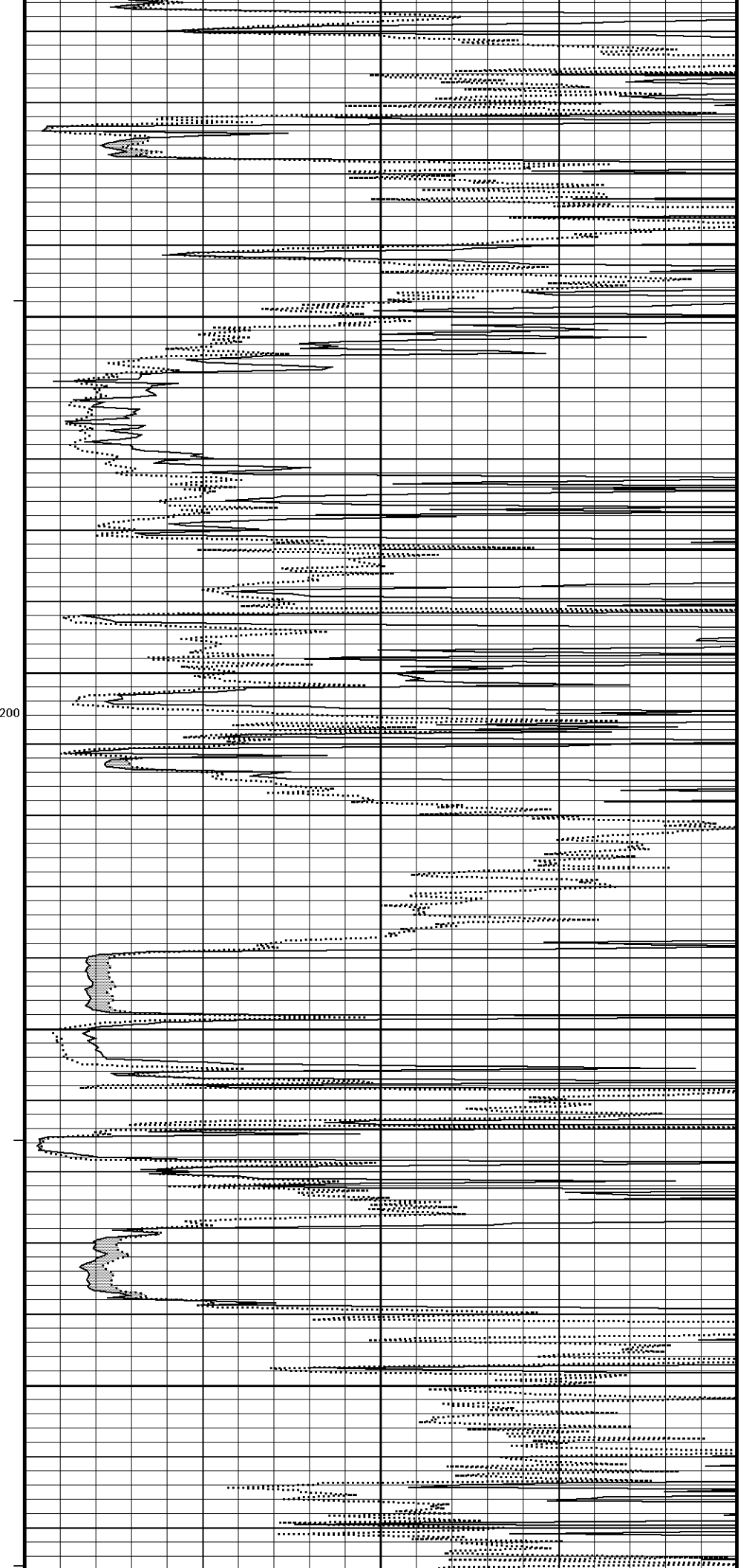
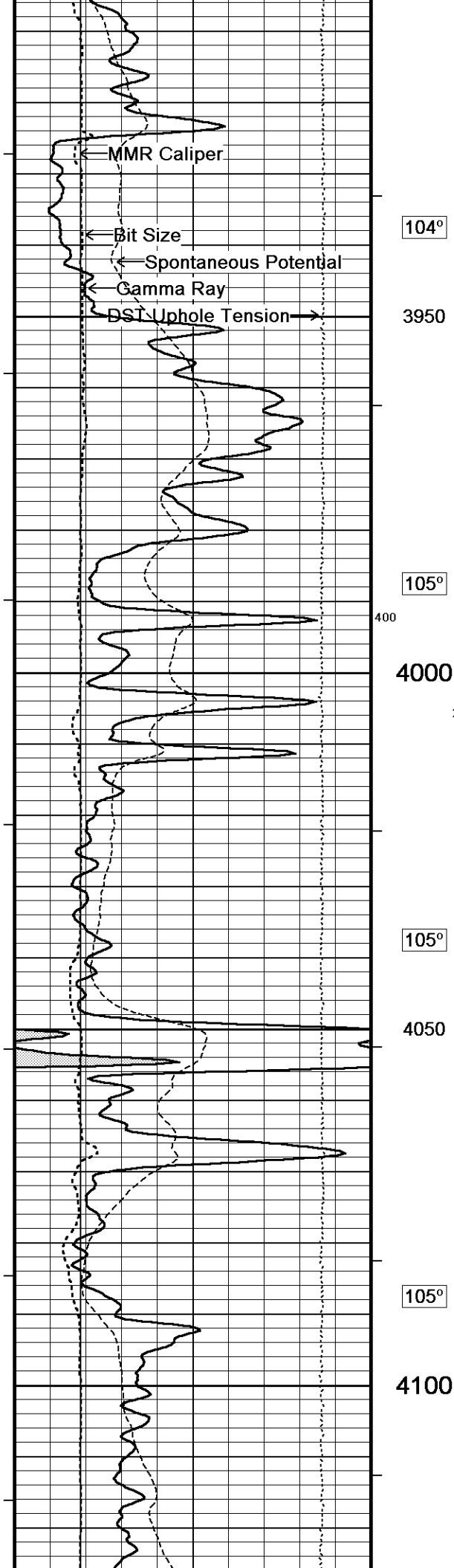
- ENGINEER: A. SILL.

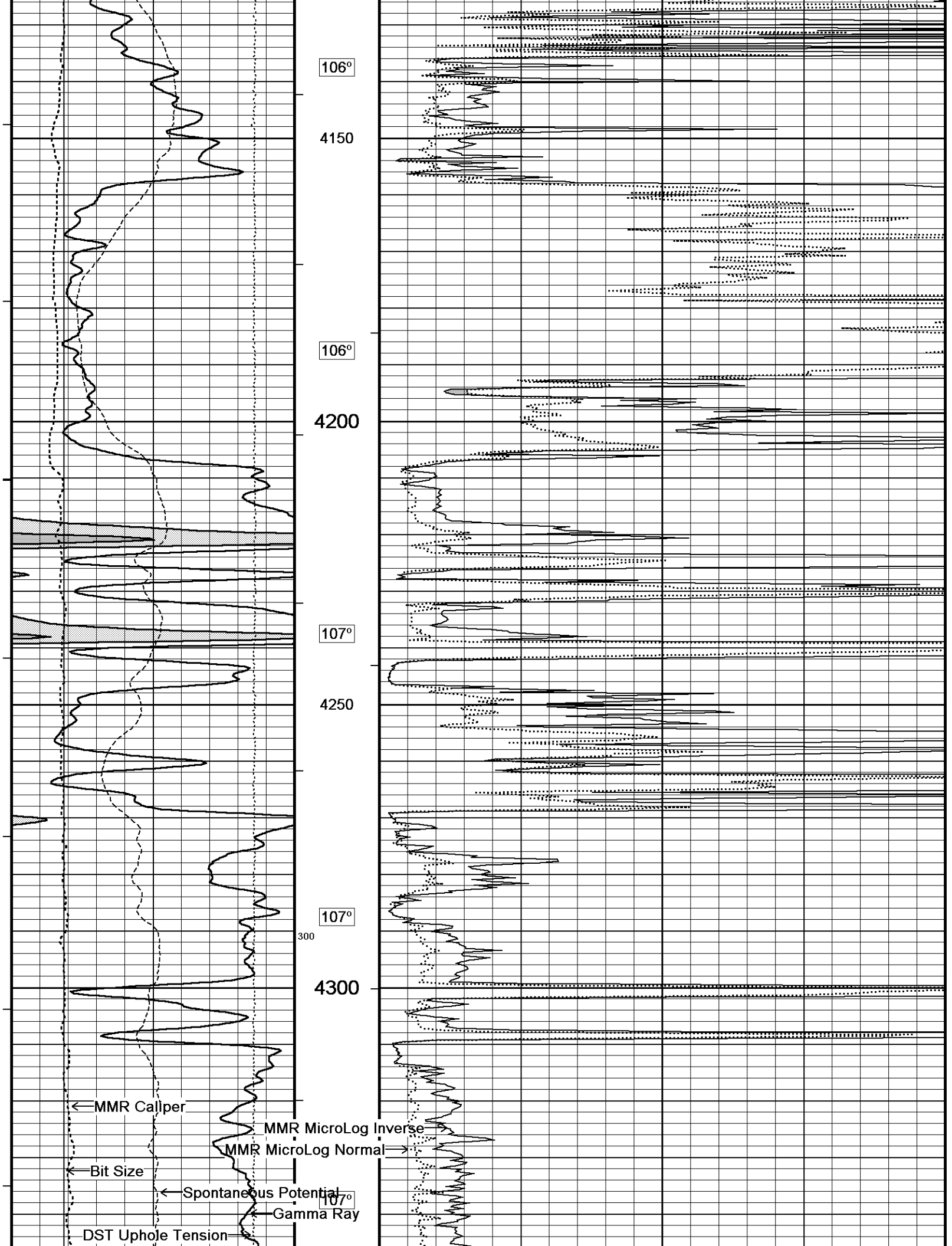
- OPERATOR: C. RAMIREZ.

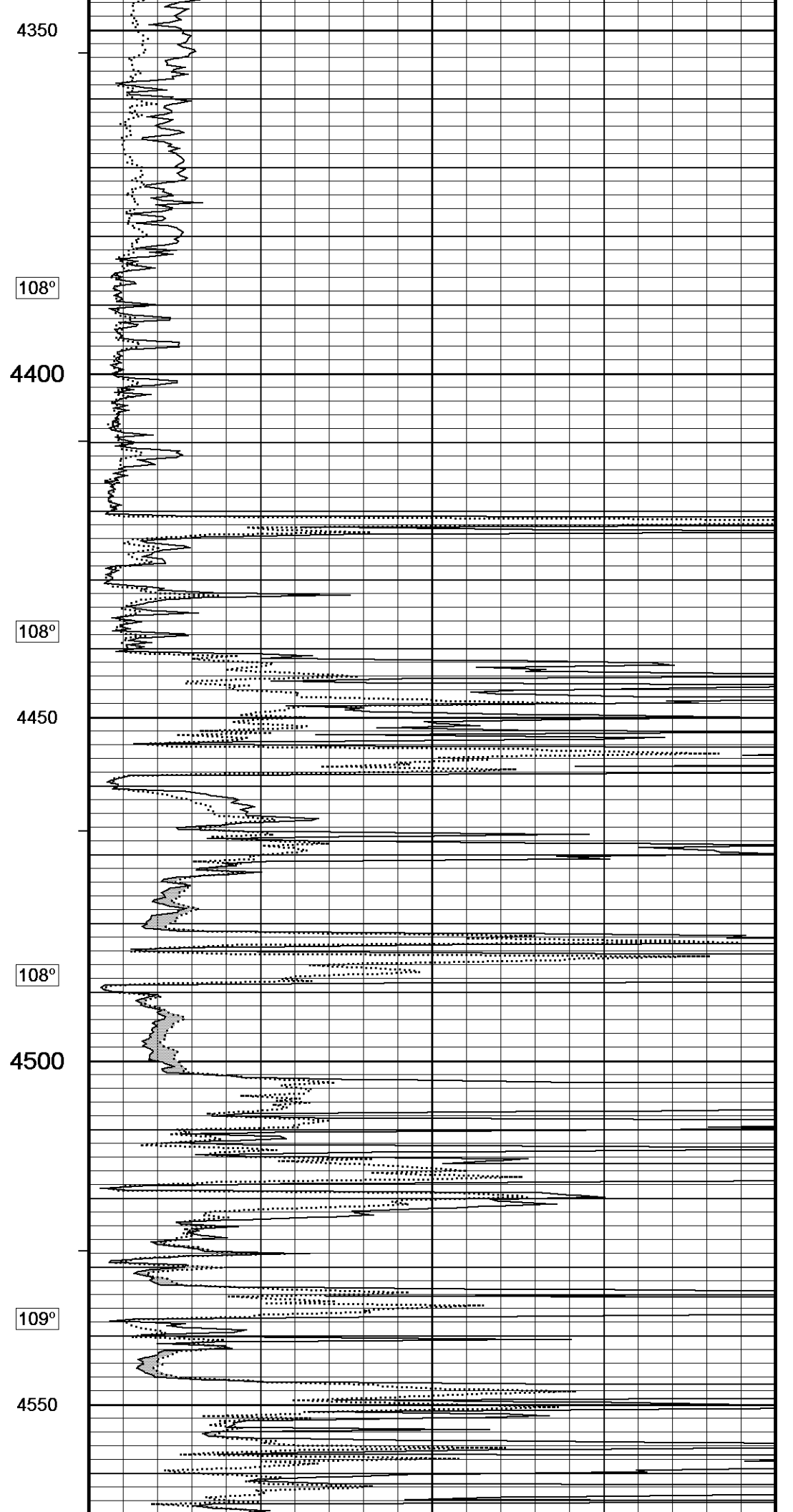
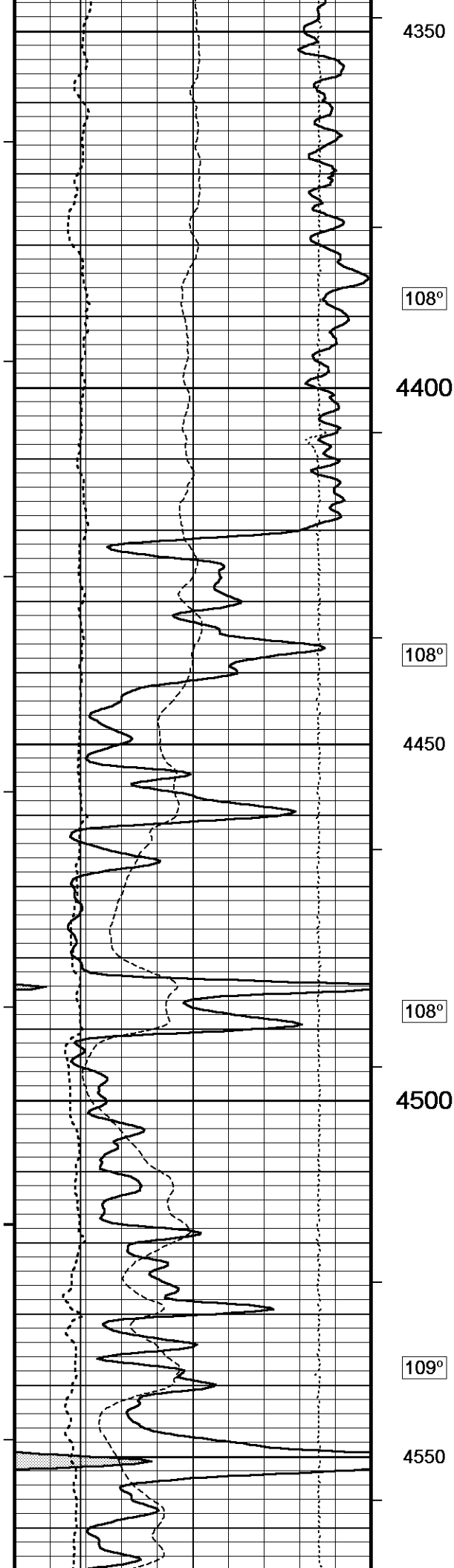
- JUNIOR FIELD ENGINEER: J. RANDLE.

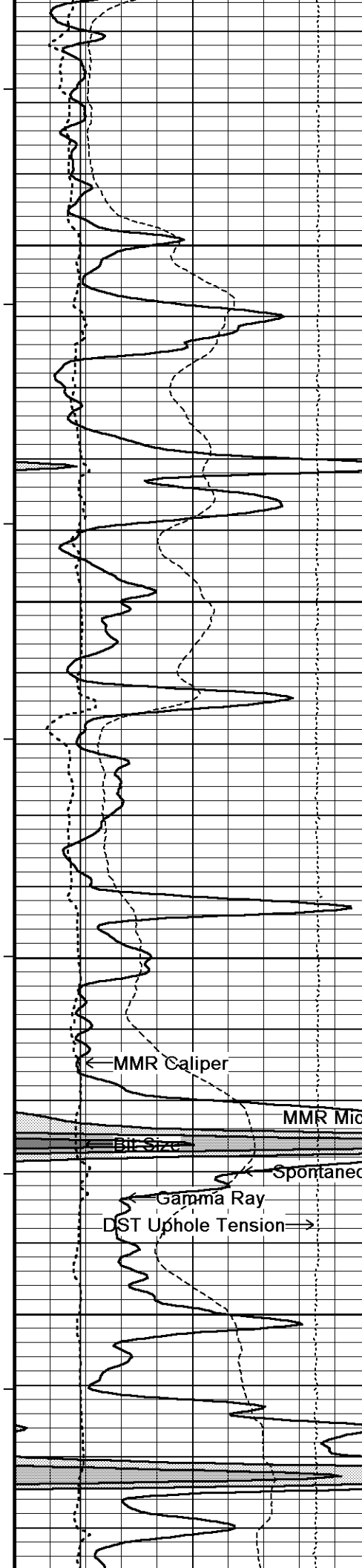
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.











200 109°

4600

109°

4650

109°

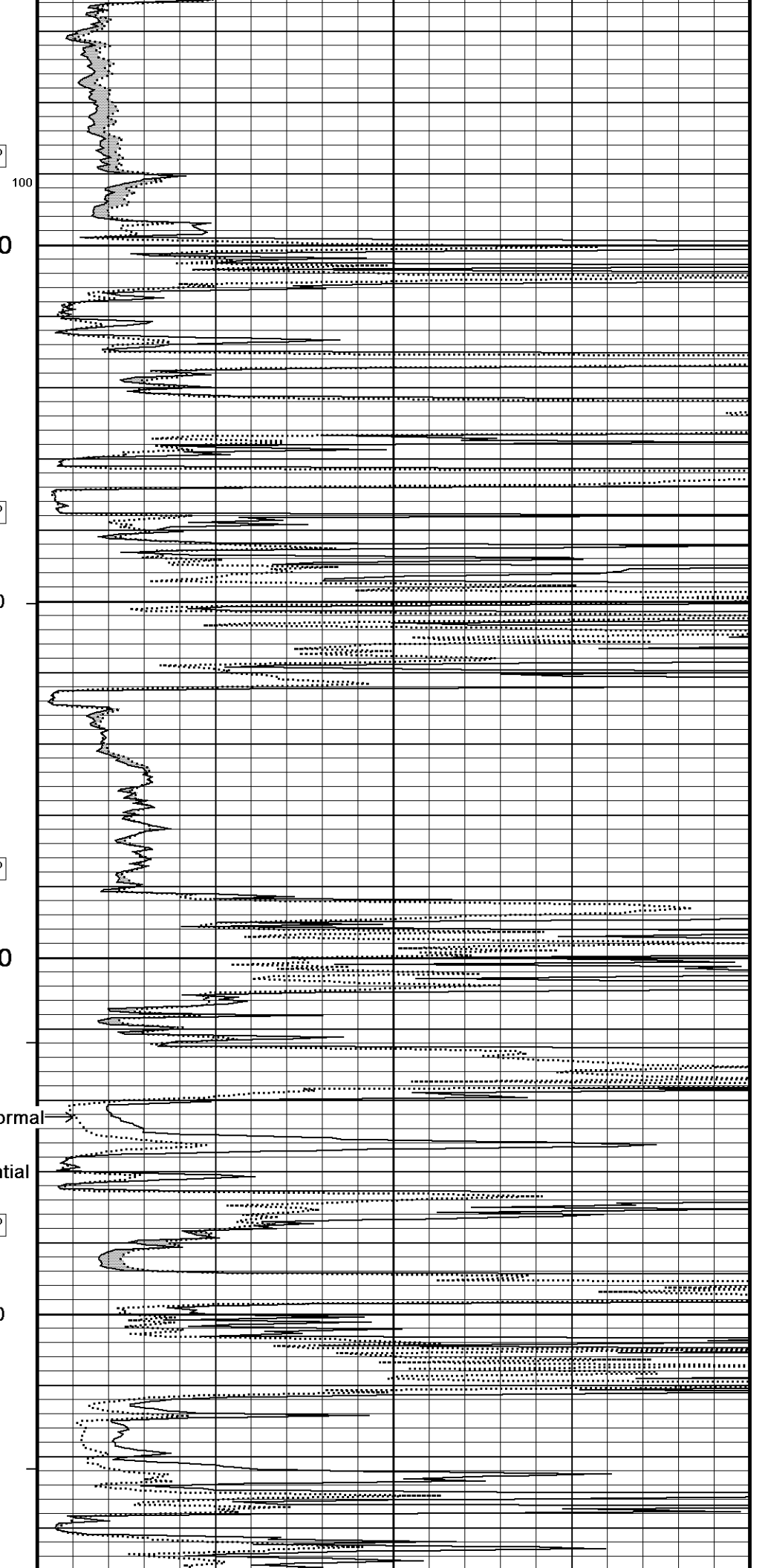
4700

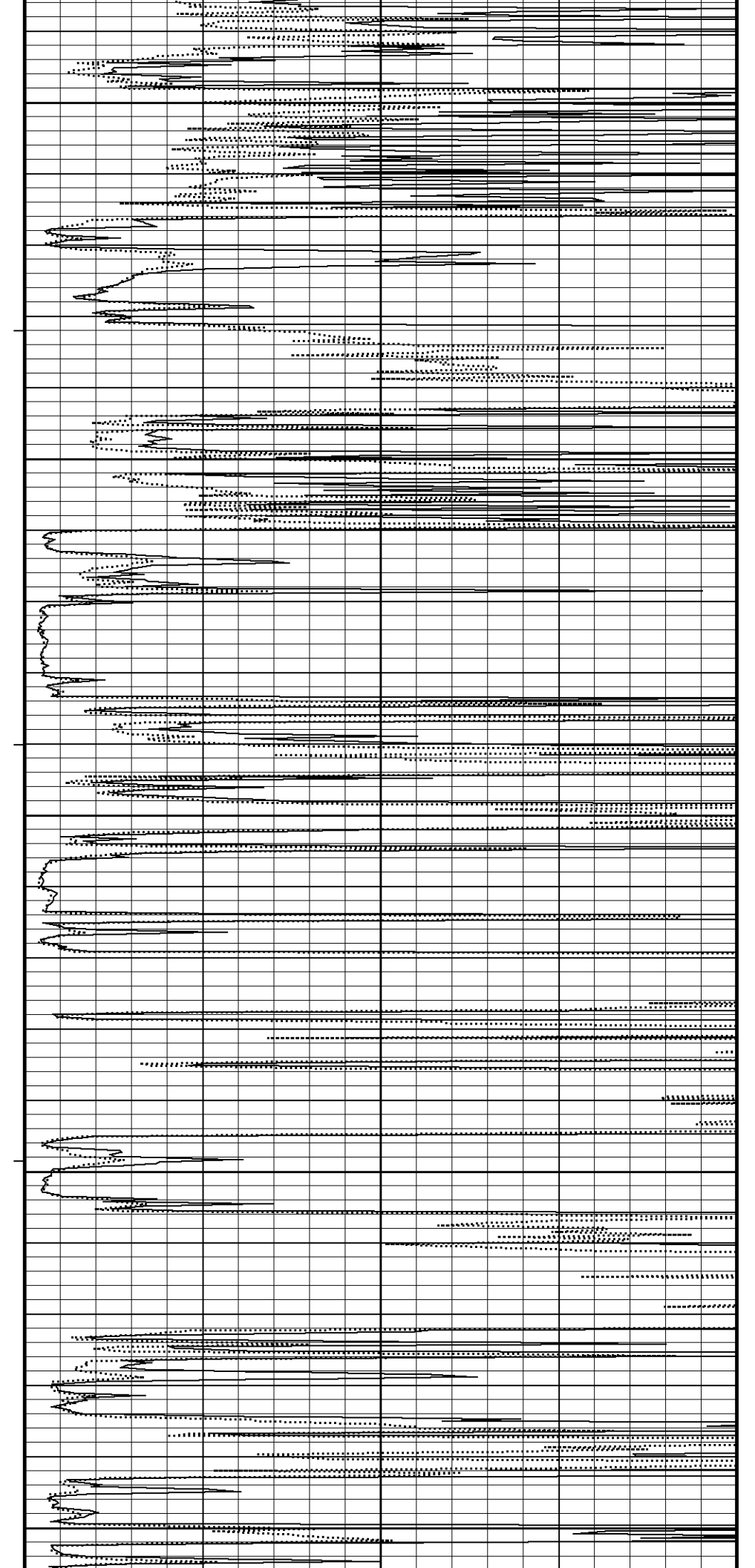
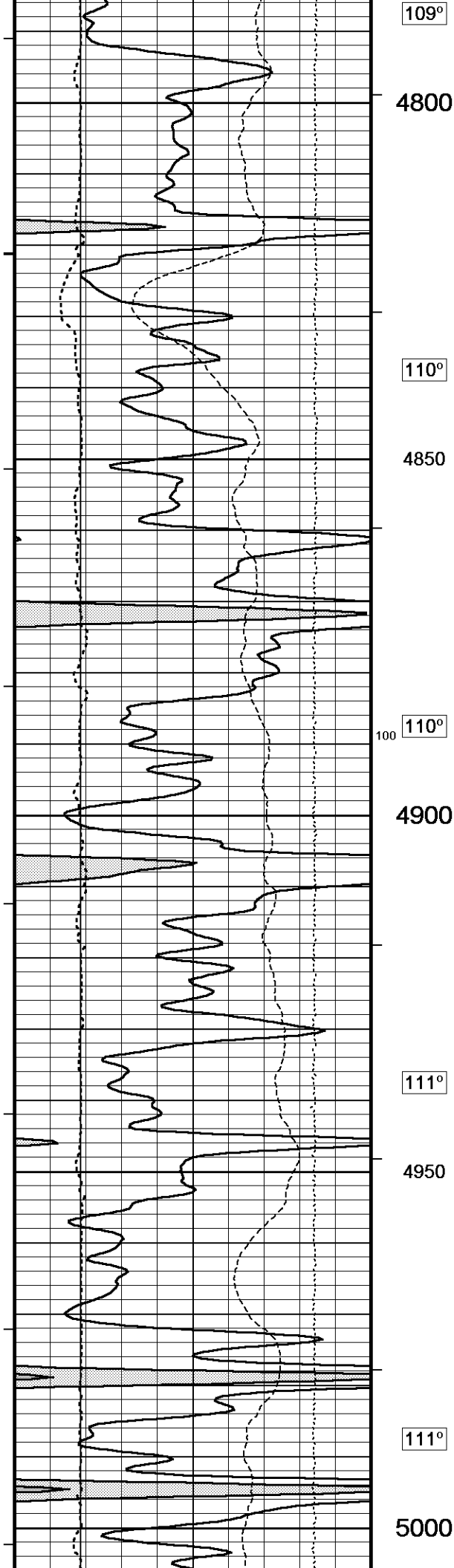
MMR MicroLog Normal

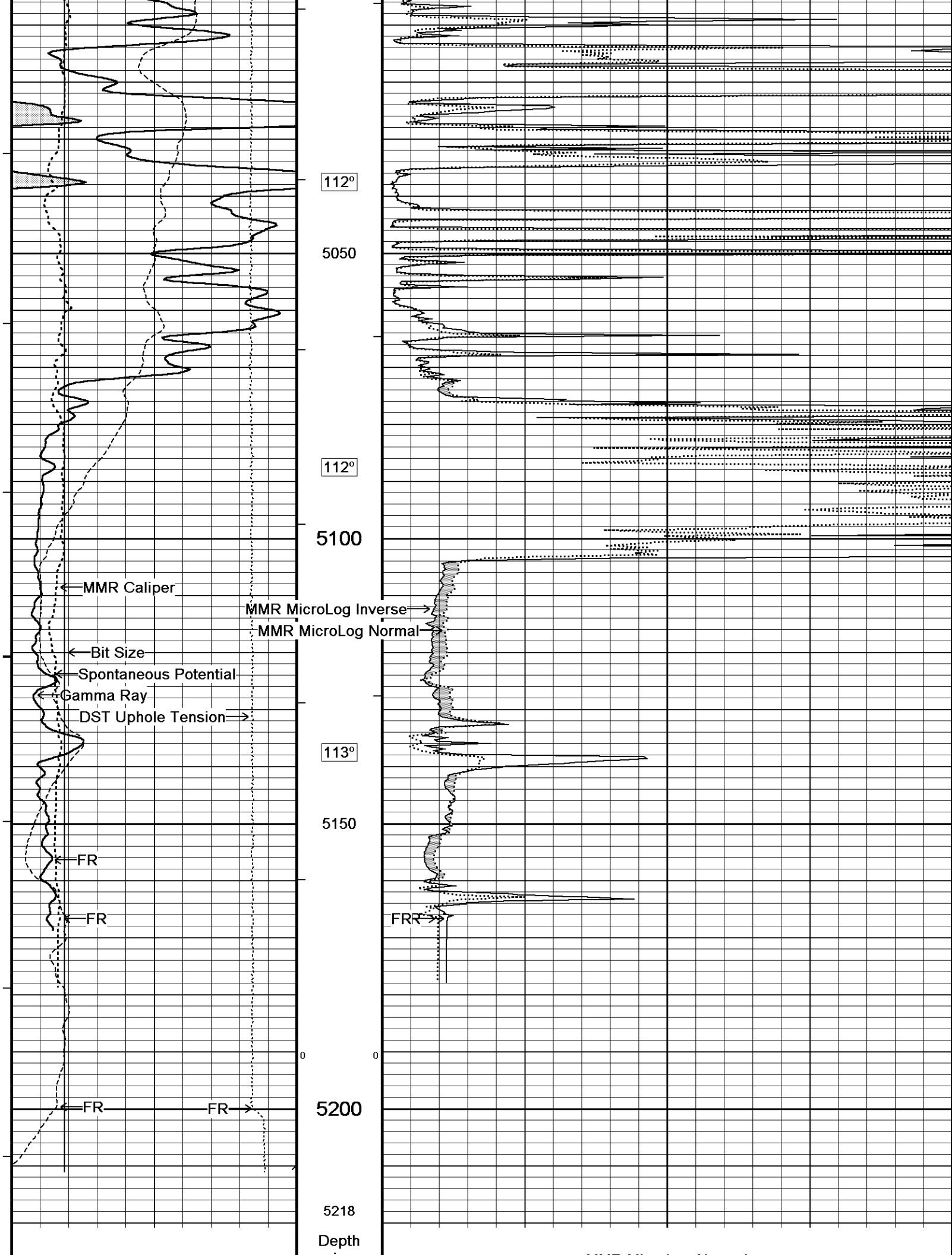
Spontaneous Potential

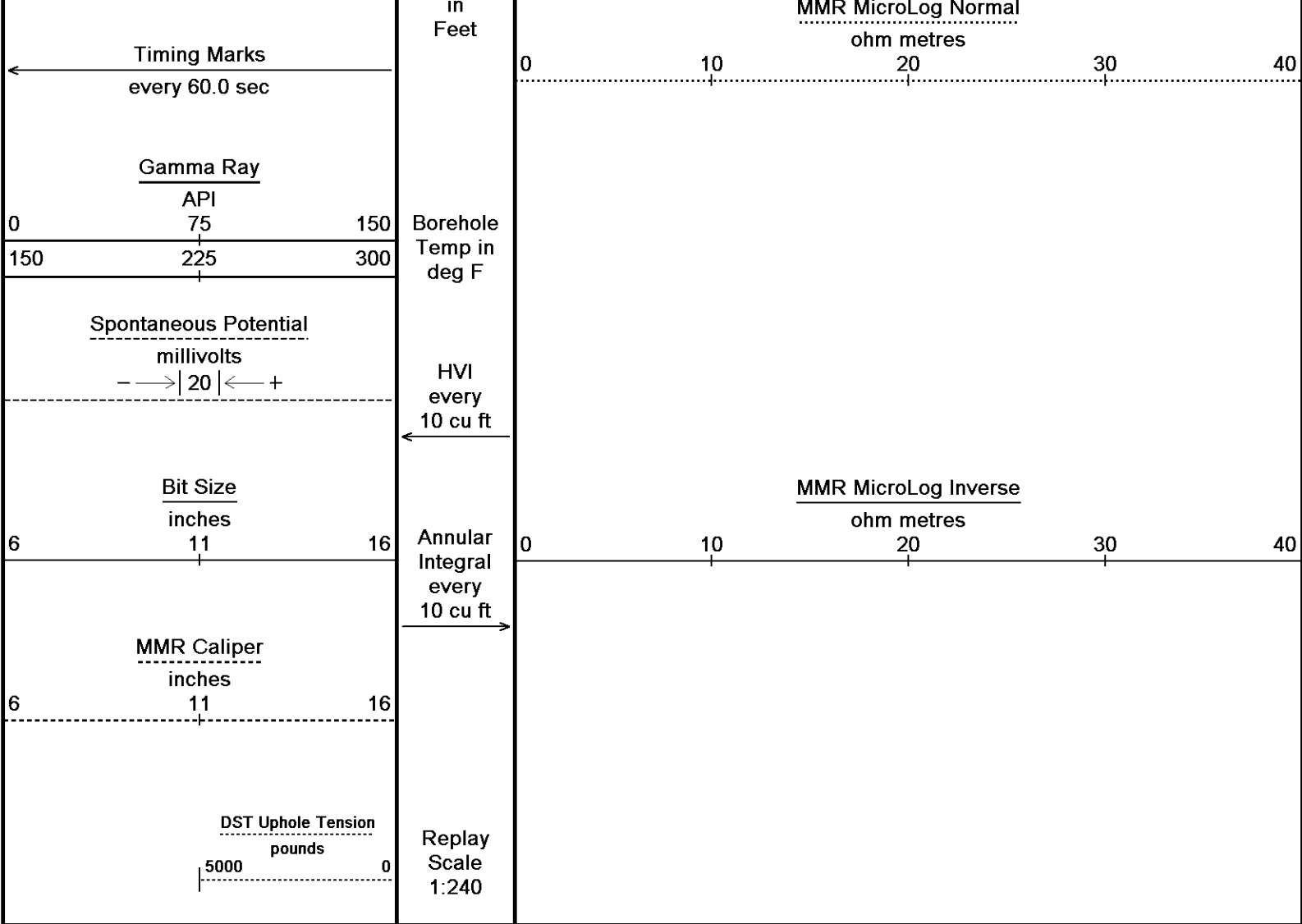
109°

4750







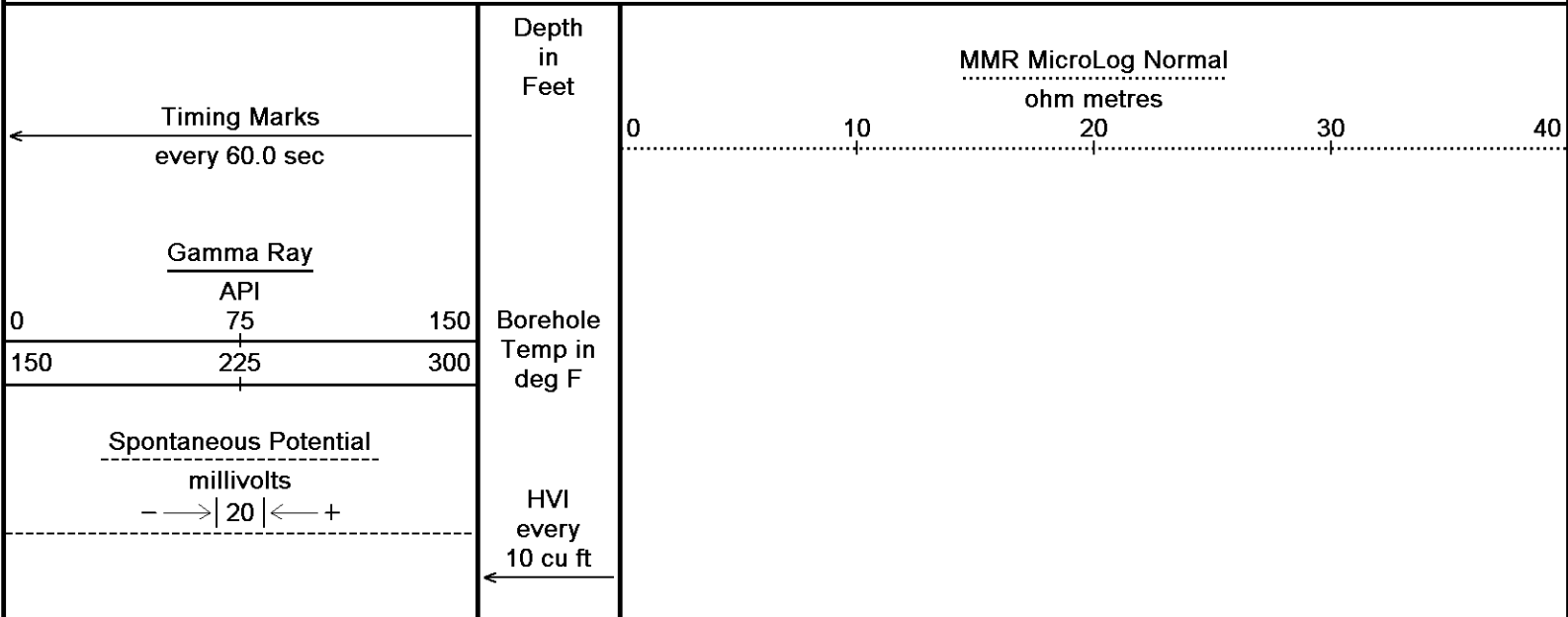


Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 31-MAY-2014 09:23
Filename: C:\Minimus 13.08.2113\Logs\MCCOY MTPRC...\MCCOY MTPRC 'B' #3-22 MAIN PASS2.dta	Recorded on 31-MAY-2014 05:42
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113	

↑	5 INCH MAIN PASS	↑
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↓	REPEAT PASS	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 31-MAY-2014 09:23
Filename: C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' ...MCCOY MTPRC 'B' #3-22 REPEAT2.dta	Recorded on 31-MAY-2014 05:05
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113	



Bit Size

inches

6 11 16

MMR Caliper

inches

6 11 16

DST Uphole Tension

pounds

5000

0

Replay
Scale
1:240

5000

110°

5050

111°

5100

← MMR Caliper

MMR MicroLog Inverse →

MMR MicroLog Normal →

← Bit Size

← Spontaneous Potential

← Gamma Ray

← DST Uphole Tension →

← FR

112°

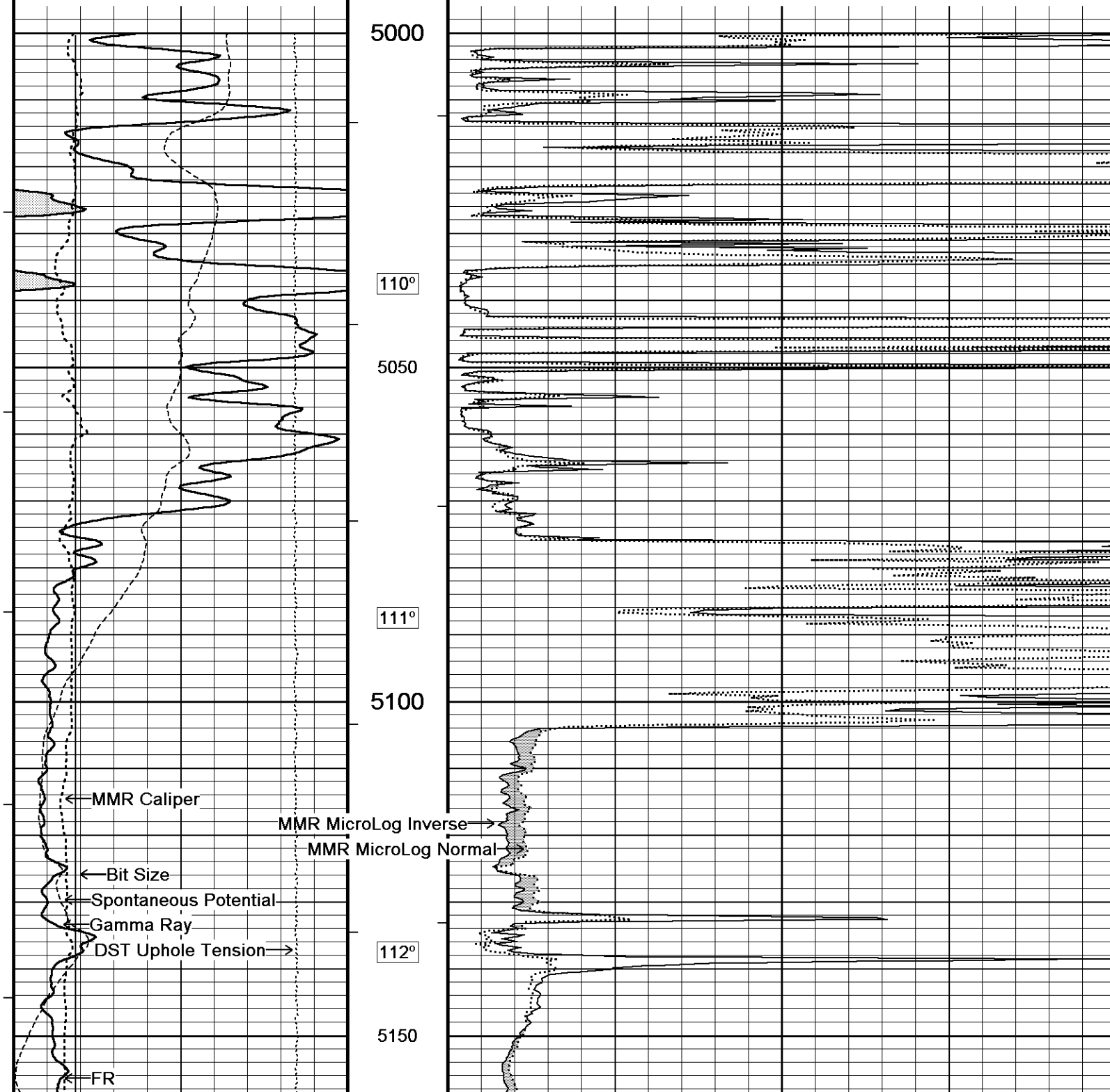
5150

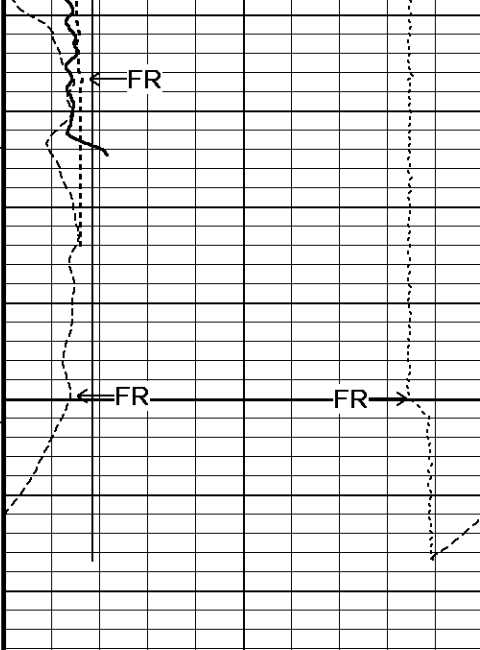
MMR MicroLog Inverse

ohm metres

0 10 20 30 40

Annular
Integral
every
10 cu ft →





FR

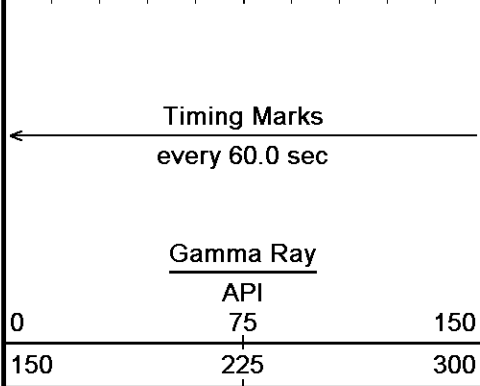
FR

FR

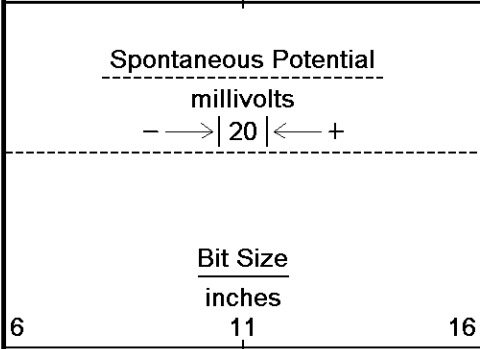
5200

5224

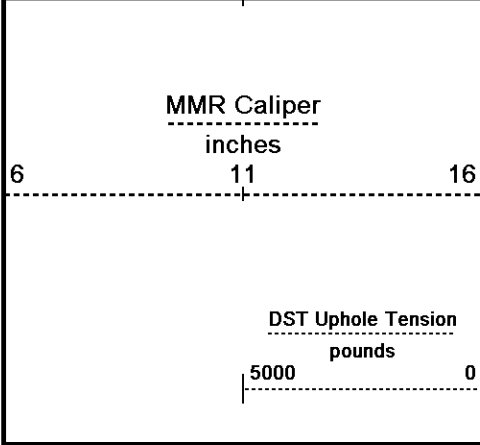
Depth in Feet



Borehole Temp in deg F

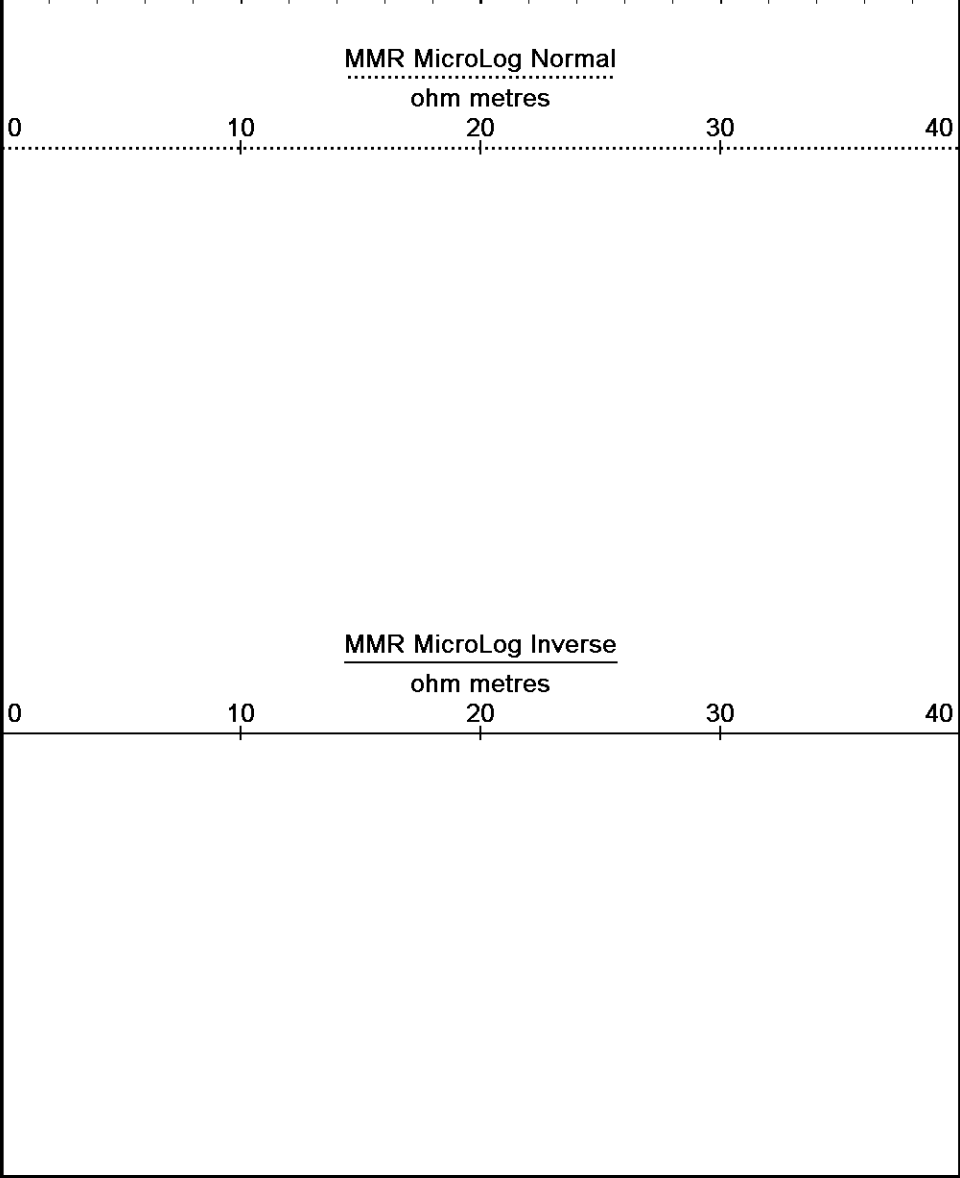
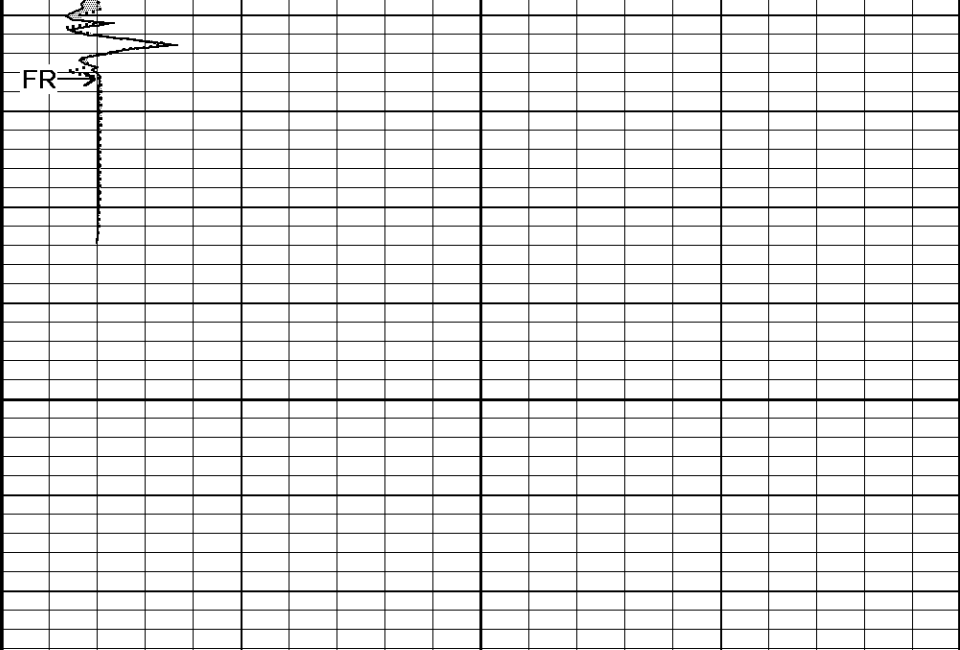


HVI every 10 cu ft



Annular Integral every 10 cu ft

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' ...MCCOY MTPRC 'B' #3-22 REPEAT2.dta

System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

Plotted on 31-MAY-2014 09:23

Recorded on 31-MAY-2014 05:05

REPEAT PASS

BEFORE SURVEY CALIBRATION

C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' #3-22\MCCOY MTPRC 'B' #3-22 REPEAT2.dta

General Constants All 000

Last Edited on 31-MAY-2014,03:48

General Parameters

Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	73.000	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	5.500	inches
Caliper for Differential Caliper	MMR Caliper	

Rwa Parameters

Porosity used	Crossplot 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 28-MAY-2014 17:56

Reading No	Measured	Calibrated (lbs)
1	15108.43	0.00
2	15841.14	436.00

SP Calibration MCG-C 208

Field Calibration on 10-MAY-2014 11:38

	Measured	Calibrated (mV)
Reference 1	99.7	99.0
Reference 2	-97.7	-98.8

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 23-JAN-2014,17:11

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

High Resolution Temperature Constants MCG-C 208

Last Edited on 23-JAN-2014,17:11

Pre-filter Length	11
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Gamma Calibration MCG-C 208

Field Calibration on 30-MAY-2014 21:32

	Measured	Calibrated (API)
Background	65	44
Calibrator (Gross)	1146	769
Calibrator (Net)	1081	725

Gamma Constants MCG-C 208

Last Edited on 31-MAY-2014,08:48

Gamma Calibrator Number	GRC038	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Caliper Calibration MMR-C.A 248

Base Calibration on 10-MAY-2014 09:28
Field Calibration on 30-MAY-2014 21:09

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	13446	5.98
2	16585	7.97
3	19782	9.86
4	23693	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Field Calibration	Measured Caliper (in) 7.98	Actual Caliper (in) 7.97
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Micro Normal and Micro Inverse Calibration MMR-C.A 248				Base Calibration on 10-MAY-2014 09:40 Field Check on 30-MAY-2014 21:06
Base Calibration				
		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.1	49.8	5.1	25.6
Micro Inverse	9.9	49.5	3.4	16.9
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	93.6		93.6	
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			
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 08-MAY-2014 14:03	
				Field Check on 30-MAY-2014 21:39	
Base Calibration					
		Measured		Calibrated (cps)	
	Near	Far		Near	Far
	2970	91		3714	110
Ratio	32.668			33.764	
Field Calibrator at Base					
				Calibrated (cps)	
				1688	2486
Ratio				0.679	
Field Check					
				Calibrated (cps)	
				1689	2475
Ratio				0.681	

Neutron Constants MDN-B.J 387			Last Edited on 31-MAY-2014,03:01
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 10-MAY-2014 09:55 Field Check on 30-MAY-2014 21:05
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	952.2	126.8	
Base Check		281.3	
Field Check		281.3	

FE Constants MFE-A.A 55	Last Edited on 31-MAY-2014,03:00
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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 30-MAY-2014 21:03

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
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			15.8	3862.6
2			31.9	3590.4
3			29.8	2971.1
4			20.8	2126.0
Deep			18.5	1912.1
Medium			43.0	3860.7
Shallow			47.4	5371.9

Array Temperature	86.3	Deg F
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Induction Constants MAI-A.A 5

Last Edited on 31-MAY-2014,03:00

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 09-MAY-2014,12:22	
Pre-filter Length	11			
Caliper Calibration MPD-D.A 480			Base Calibration on 08-MAY-2014 14:36 Field Calibration on 30-MAY-2014 21:12	
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	17491	3.99		
2	27463	5.98		
3	37484	7.97		
4	47415	9.86		
5	58518	11.92		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	7.98	7.97		
Photo Density Calibration MPD-D.A 480			Base Calibration on 08-MAY-2014 14:53 Field Check on 30-MAY-2014 21:18	
Density Calibration				
Base Calibration				
	Near	Far	Near	Far
Background	1275	1464		
Reference 1	55908	26147	59556	30836
Reference 2	22982	2651	24941	2541
Field Check at Base				
	1274.5	1464.0		
Field Check				
	1271.2	1468.9		
PE Calibration				
Base Calibration				
	WS	WH	Ratio	Ratio
Background	241	1140		
Reference 1	23265	55701	0.422	0.371
Reference 2	6806	22836	0.303	0.272
Field Check at Base				
	240.7	1139.6		
Field Check				
	240.2	1135.7		
Density Constants MPD-D.A 480			Last Edited on 31-MAY-2014,08:48	
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			1.13	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 (m)	
2.71			0.00	
0.00			0.00	
0.00			0.00	

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DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' #3-22\MCCOY MTPRC 'B' #3-22 REPEAT2.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 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

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-D.A 480 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

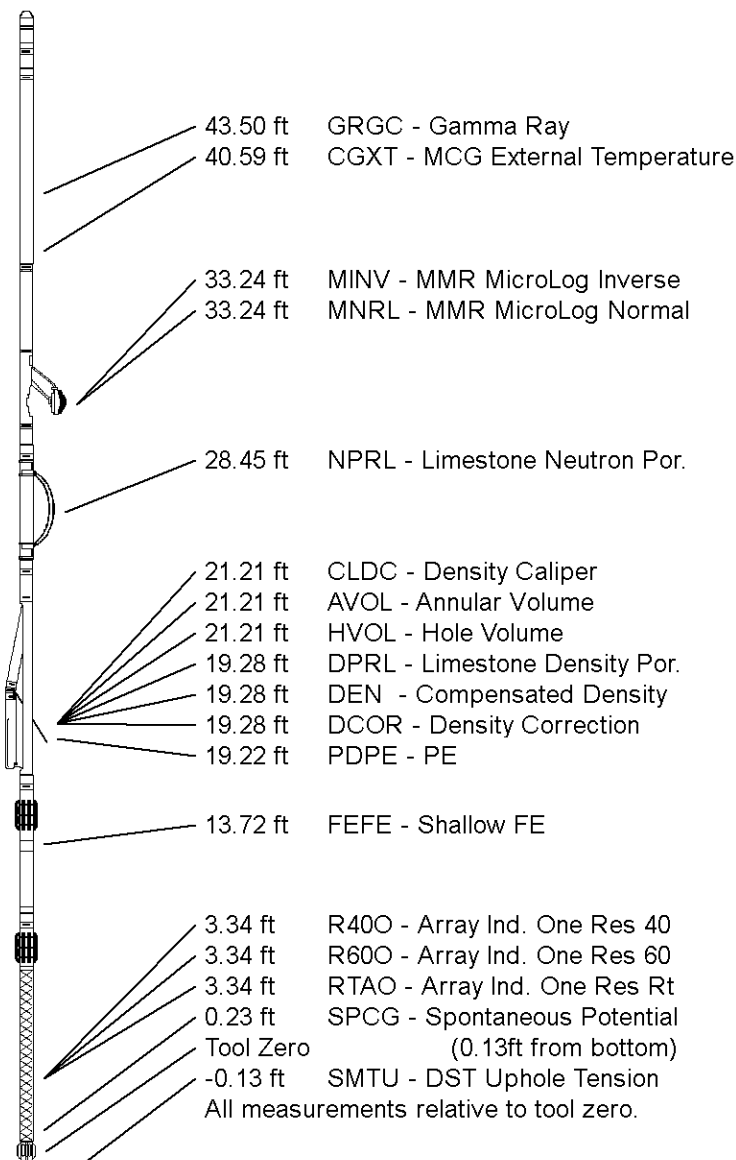
Compact Focussed Electric

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

McCOY PETROLEUM CORPORATION

WELL

MTPRC 'B' #3-22

FIELD

ALFORD

PROVINCE/COUNTY

KIOWA

COUNTRY/STATE

USA / KANSAS

Elevation Kelly Bushing	2243.00	feet
Elevation Drill Floor	2241.00	feet
Elevation Ground Level	2230.00	feet

First Reading	5167.00	feet
Depth Driller	5200.00	feet
Depth Logger	5200.00	feet



MICRORESISTIVITY LOG

