



**Weatherford**

**MICRORESISTIVITY LOG**

COMPANY

**DAYSTAR PETROLEUM, INC.**

WELL

**DEUTSCHER B #1-2**

FIELD

**WILDCAT**

PROVINCE/COUNTY

**TREGO**

COUNTRY/STATE

**U.S.A. / KANSAS**

LOCATION

**1330' FSL & 395' FWL**

SEC 2

TWP 15S

RGE 21W

Other Services

Latitude

Longitude

API Number

MDN/MPD  
MSS

MAI/MFE

Permanent Datum GL, Elevation 2123 feet

Log Measured From KB

Drilling Measured From KB @ 8 FEET

Date

14-MAR-2016

Elevations:  
KB  
DF  
GL

feet  
2131.00  
2129.00  
2123.00

Run Number

ONE

Service Order

4558-145149224

Depth Driller

4040.00

Depth Logger

4037.00

First Reading

3991.00

Last Reading

3100.00

Casing Driller

263.00

Casing Logger

265.00

Bit Size

7.875

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.10 lb/USg

48.00 CP

PH / Fluid Loss

9.30

6.40 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

0.52 @ 75.0

ohm-m

Rmf @ Measured Temp

0.42 @ 75.0

ohm-m

Rmc @ Measured Temp

0.62 @ 75.0

ohm-m

Source Rmf / Rmc

CALC

CALC

Rm @ BHT

0.38 @104.0

ohm-m

Time Since Circulation

4 HOURS

Max Recorded Temp

104.00

deg F

Equipment / Base

13096

OKC

Recorded By

ADAM SILL

Witnessed By

BRAD RINE

**BOREHOLE RECORD**

Last Edited: 14-MAR-2016 13:16

Bit Size inches	Depth From feet	Depth To feet
7.875	263.00	4040.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	263.00	23.00

**REMARKS**

- SOFTWARE ISSUE: WLS 15.03.5939.
- 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: 1670 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3100 FEET: 176 CU.FT.

- RIG: WW DRILLING #12.

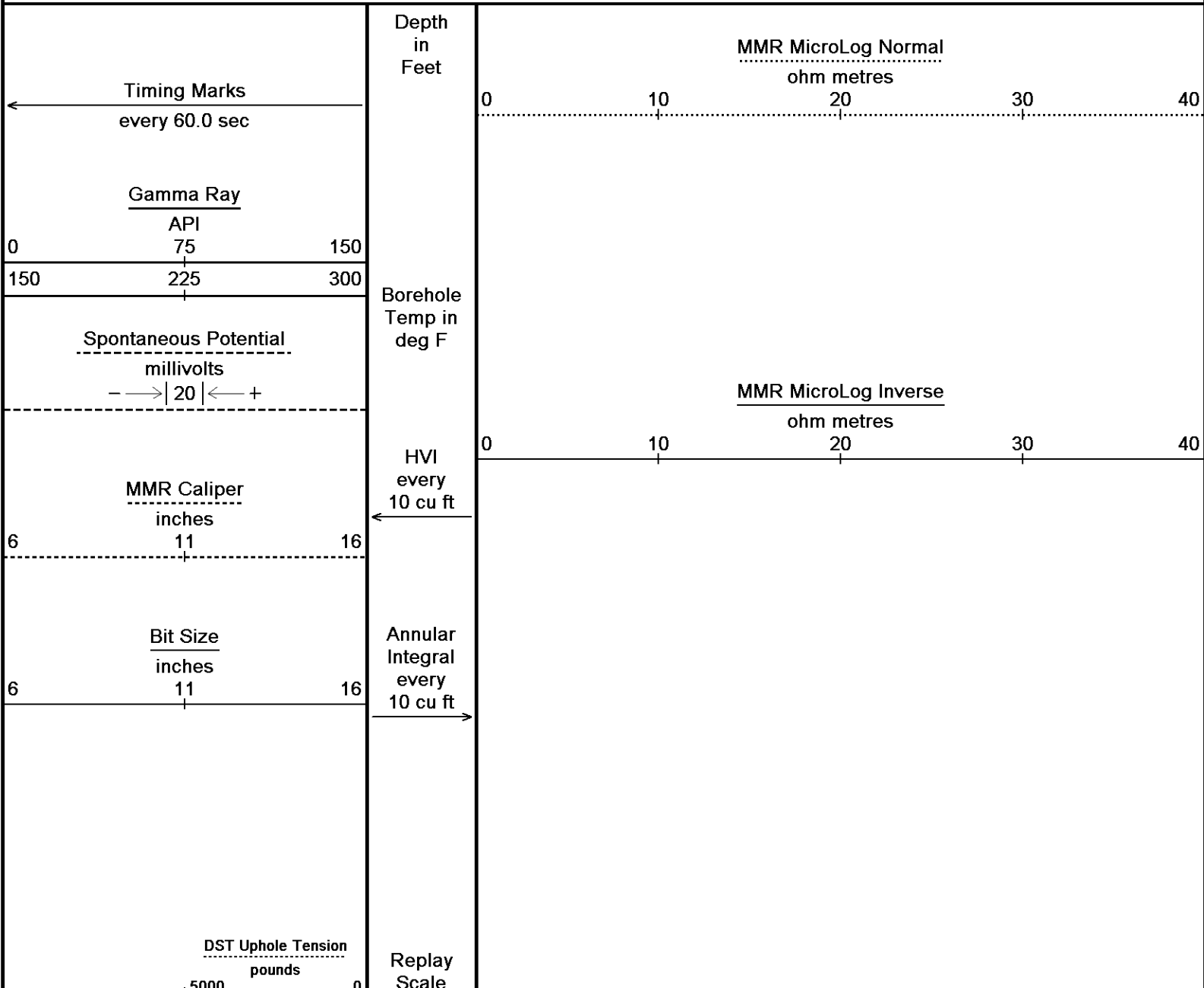
- ENGINEER: A. SILL.

- OPERATOR: J. LaPOINT.

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 14-MAR-2016 18:11  
 Filename: C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_002.dta Recorded on 14-MAR-2016 15:01  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939



1:240

3100

97°

3150

300

98°

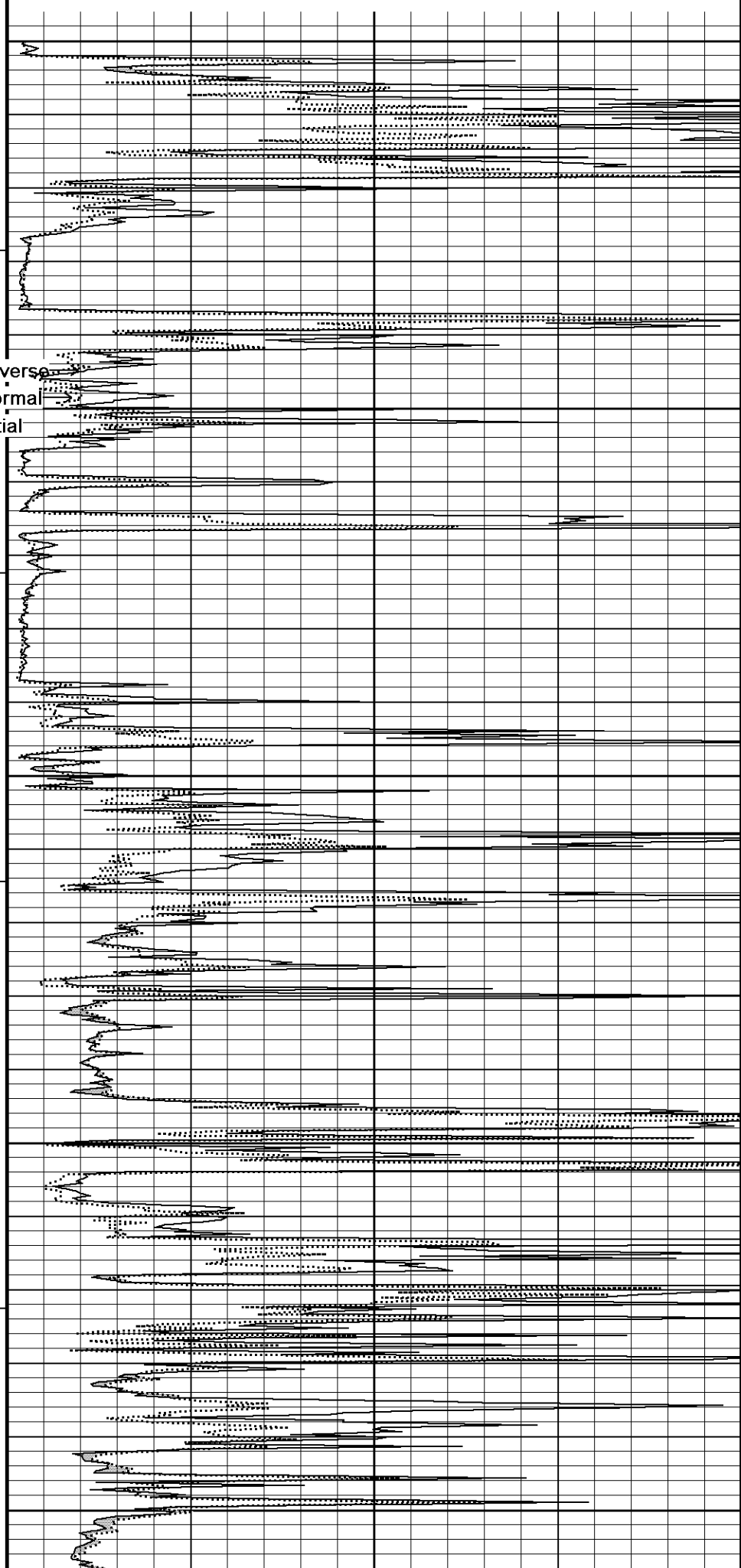
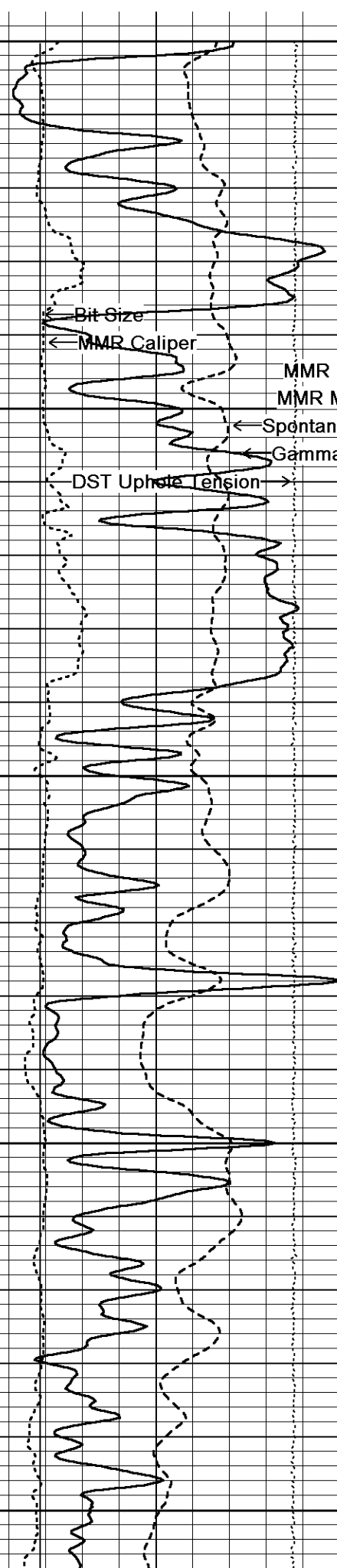
3200

98°

3250

98°

3300



Bit Size

MMR Caliper

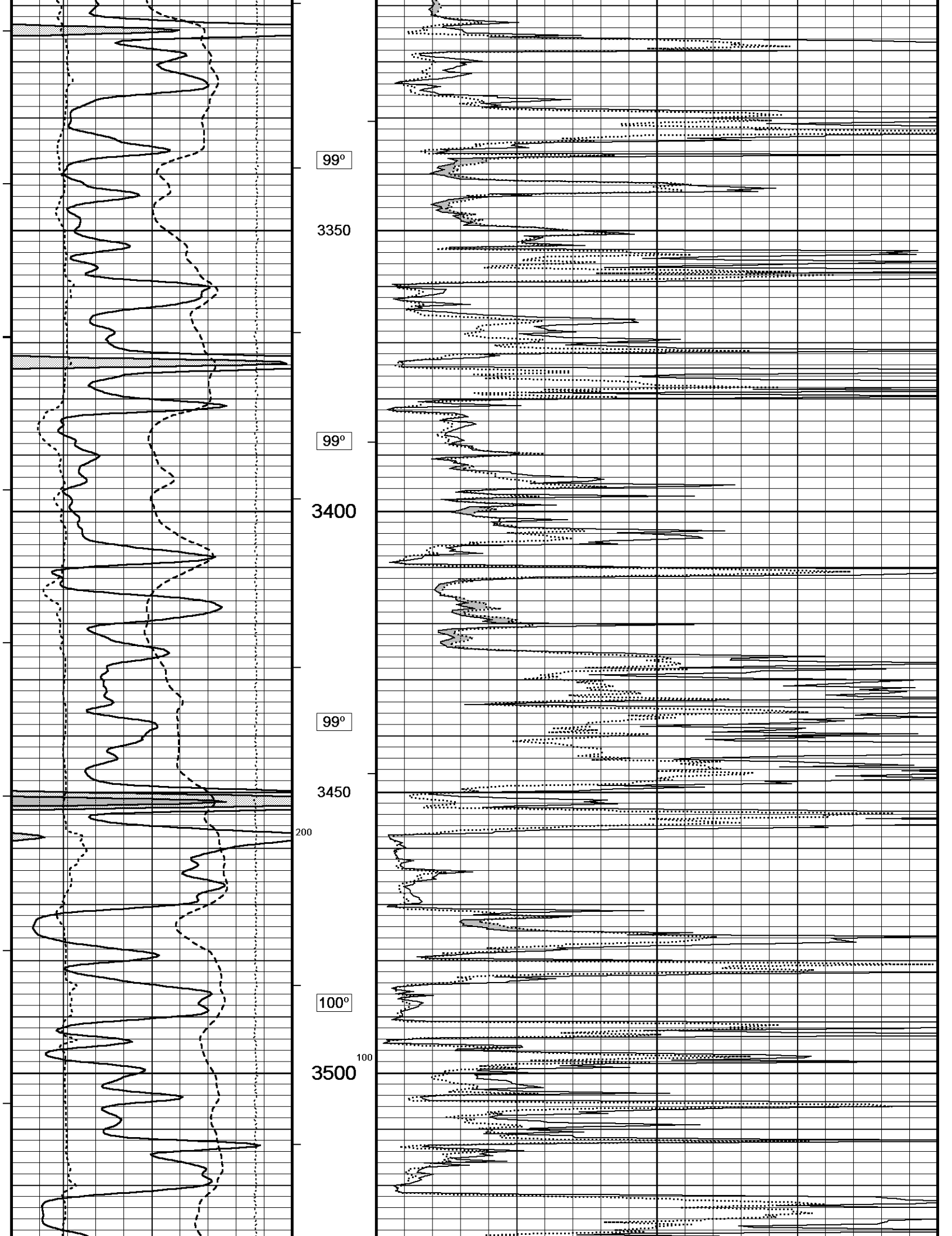
DST Up-hole Tension

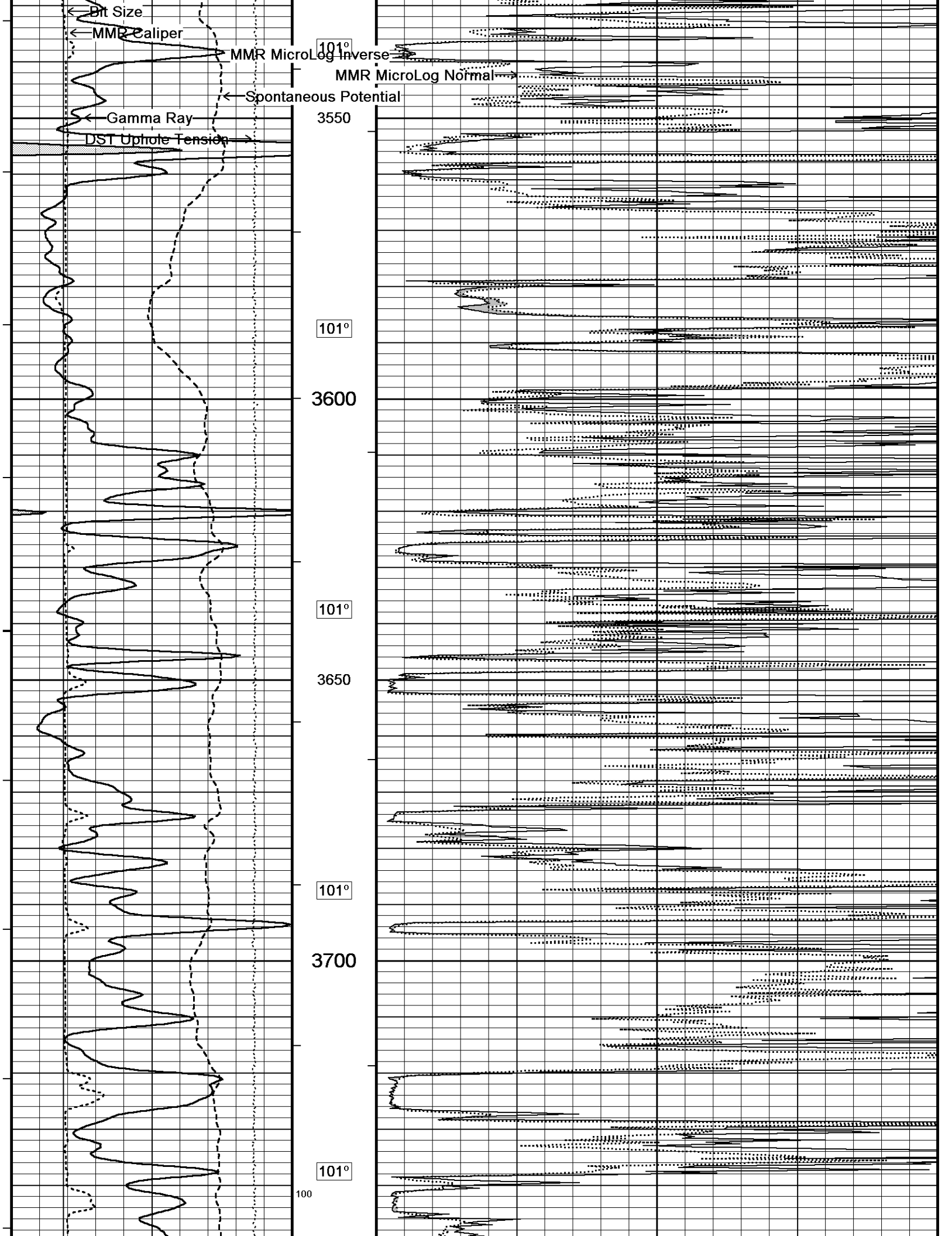
MMR MicroLog Inverse

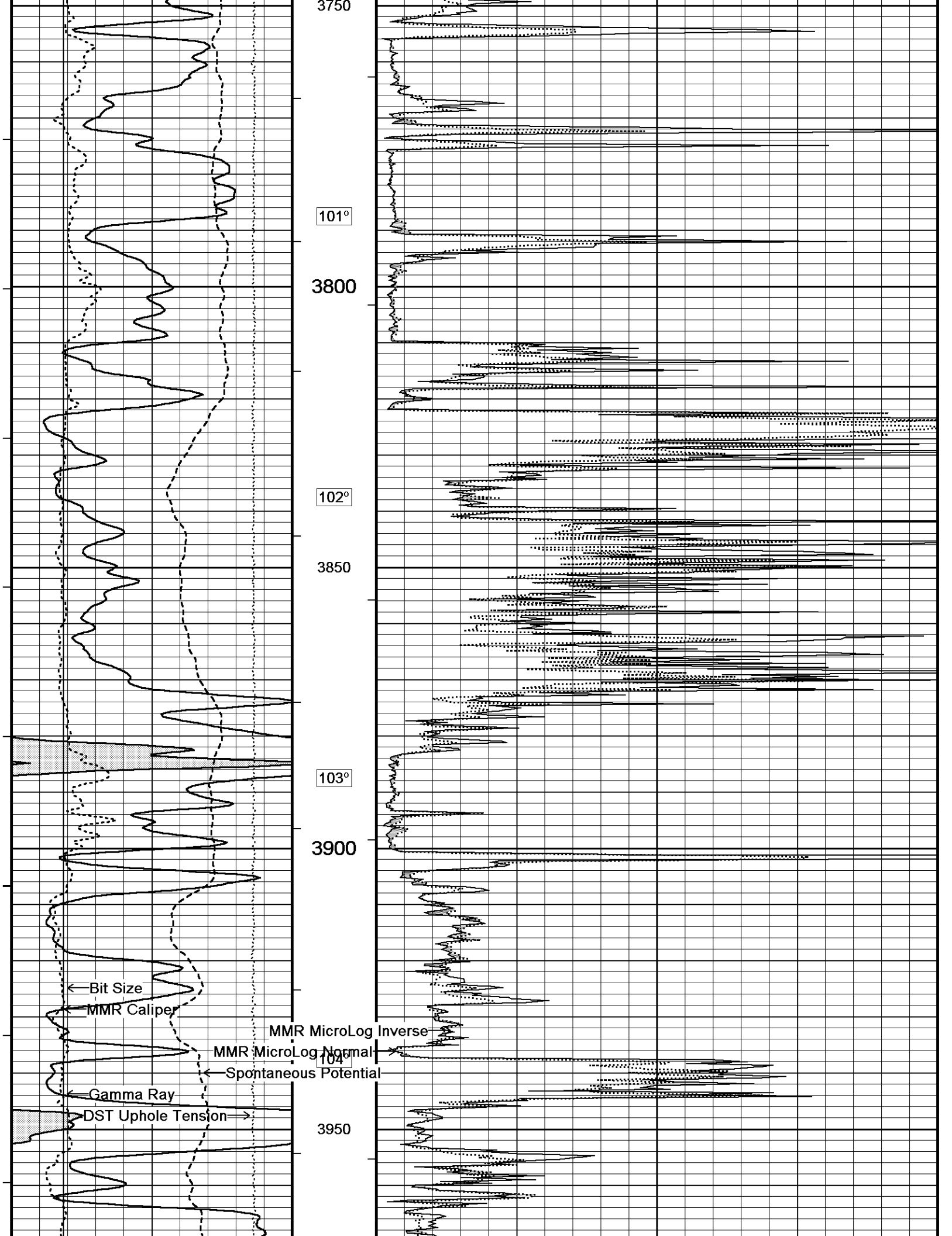
MMR MicroLog Normal

Spontaneous Potential

Gamma Ray







3750

101°

3800

102°

3850

103°

3900

104°

3950

← Bit Size

← MMR Caliper

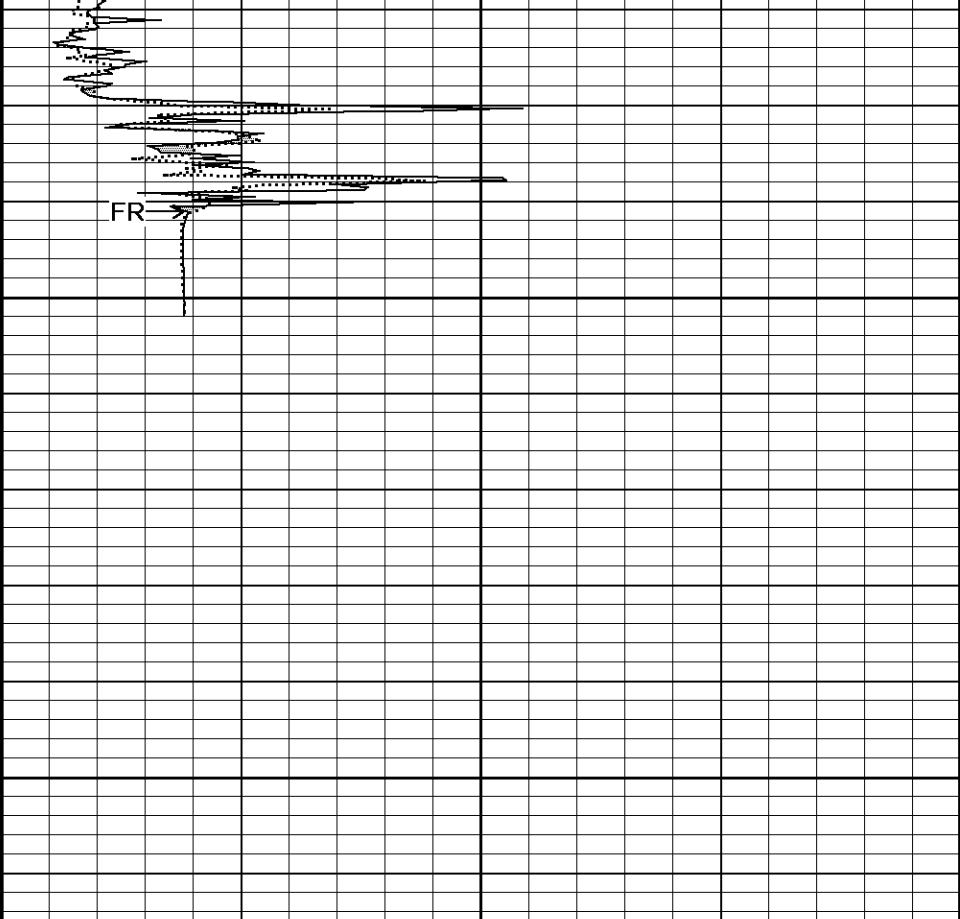
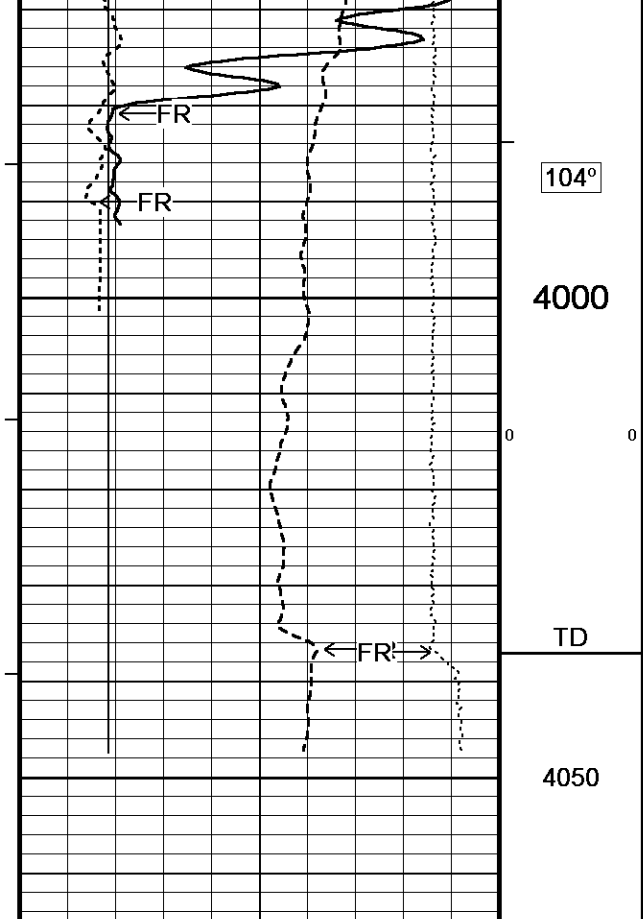
MMR MicroLog Inverse

MMR MicroLog Normal

← Spontaneous Potential

← Gamma Ray

← DST Uphole Tension →



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

Depth in Feet

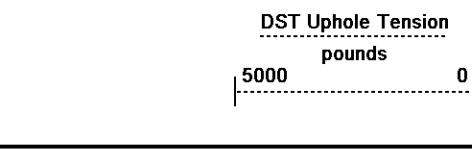
MMR MicroLog Normal  
ohm metres  
0 10 20 30 40

Borehole Temp in deg F

MMR MicroLog Inverse  
ohm metres  
0 10 20 30 40

HVI every 10 cu ft

Annular Integral every 10 cu ft



Replay  
Scale  
1:240

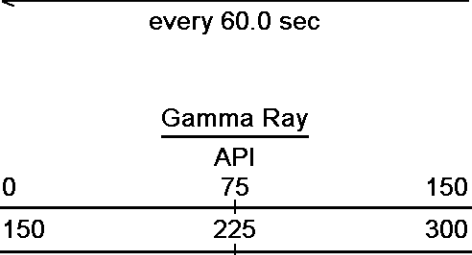
Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-MAR-2016 18:11  
 Filename: C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_002.dta  
 Recorded on 14-MAR-2016 15:01  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939

↑ 5 INCH MAIN ↑

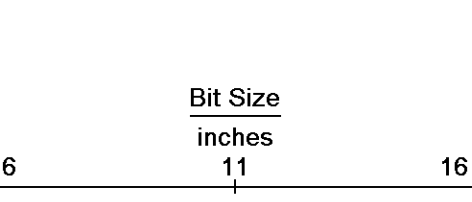
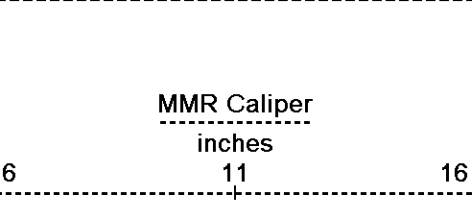
↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 14-MAR-2016 18:11  
 Filename: C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_001.dta  
 Recorded on 14-MAR-2016 14:33  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939

Timing Marks  
every 60.0 sec



Spontaneous Potential  
millivolts  
- -> | 20 | <- +



DST Uphole Tension  
pounds  
5000 0

Depth  
in  
Feet

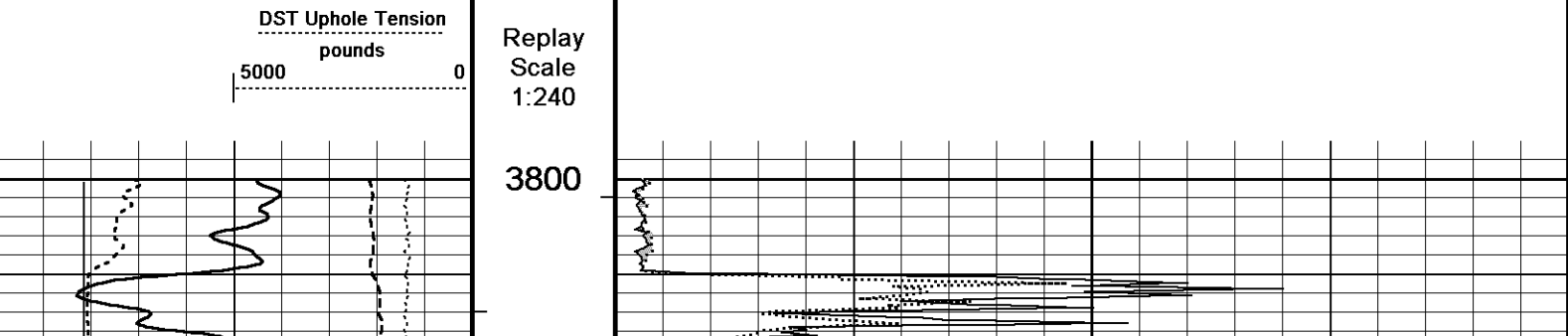
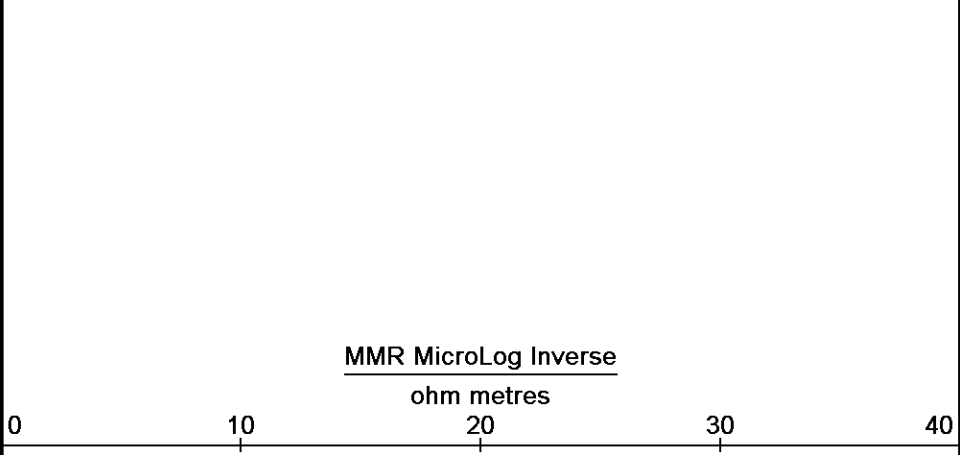
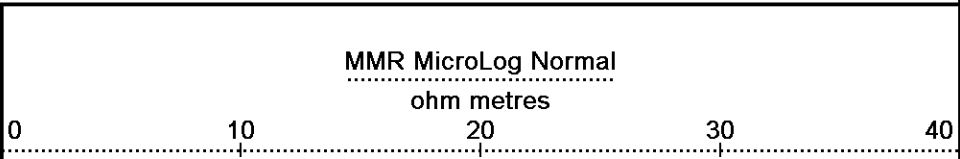
Borehole  
Temp in  
deg F

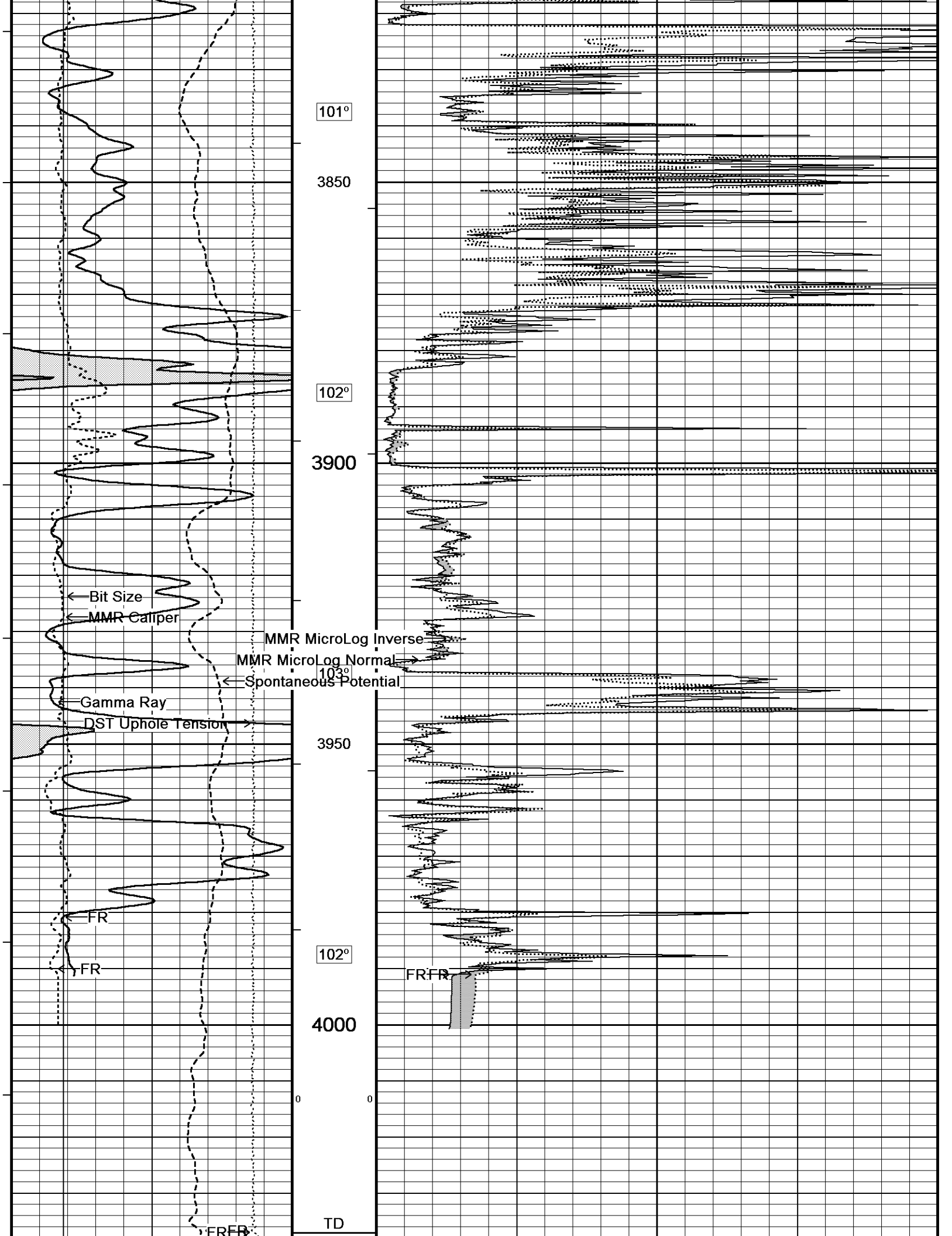
HVI  
every  
10 cu ft

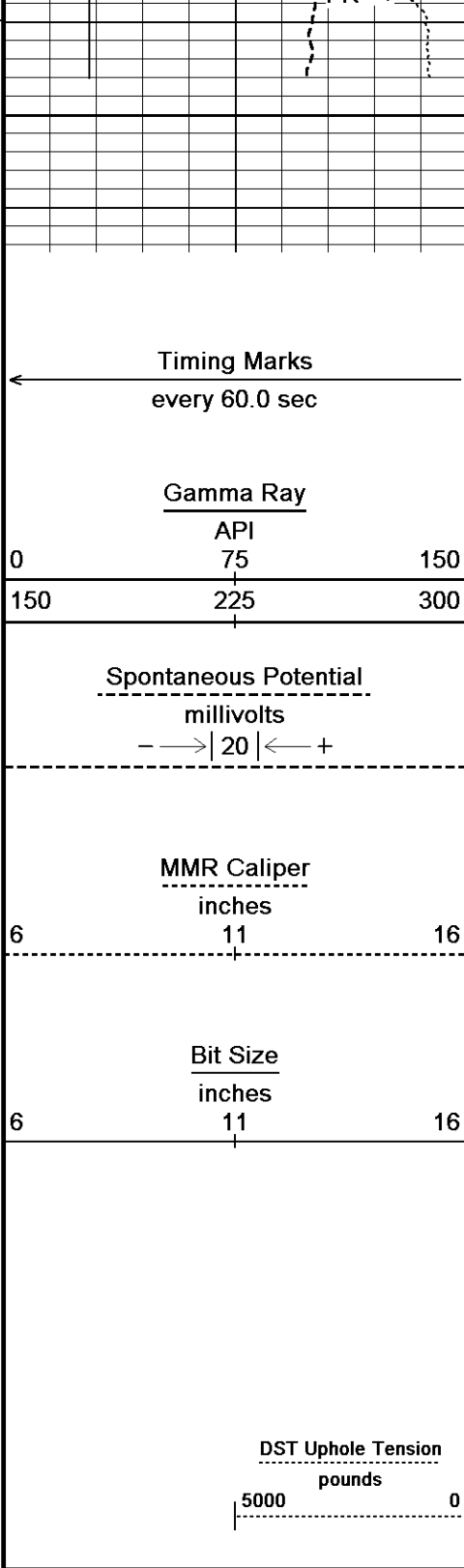
Annular  
Integral  
every  
10 cu ft

Replay  
Scale  
1:240

3800







4050

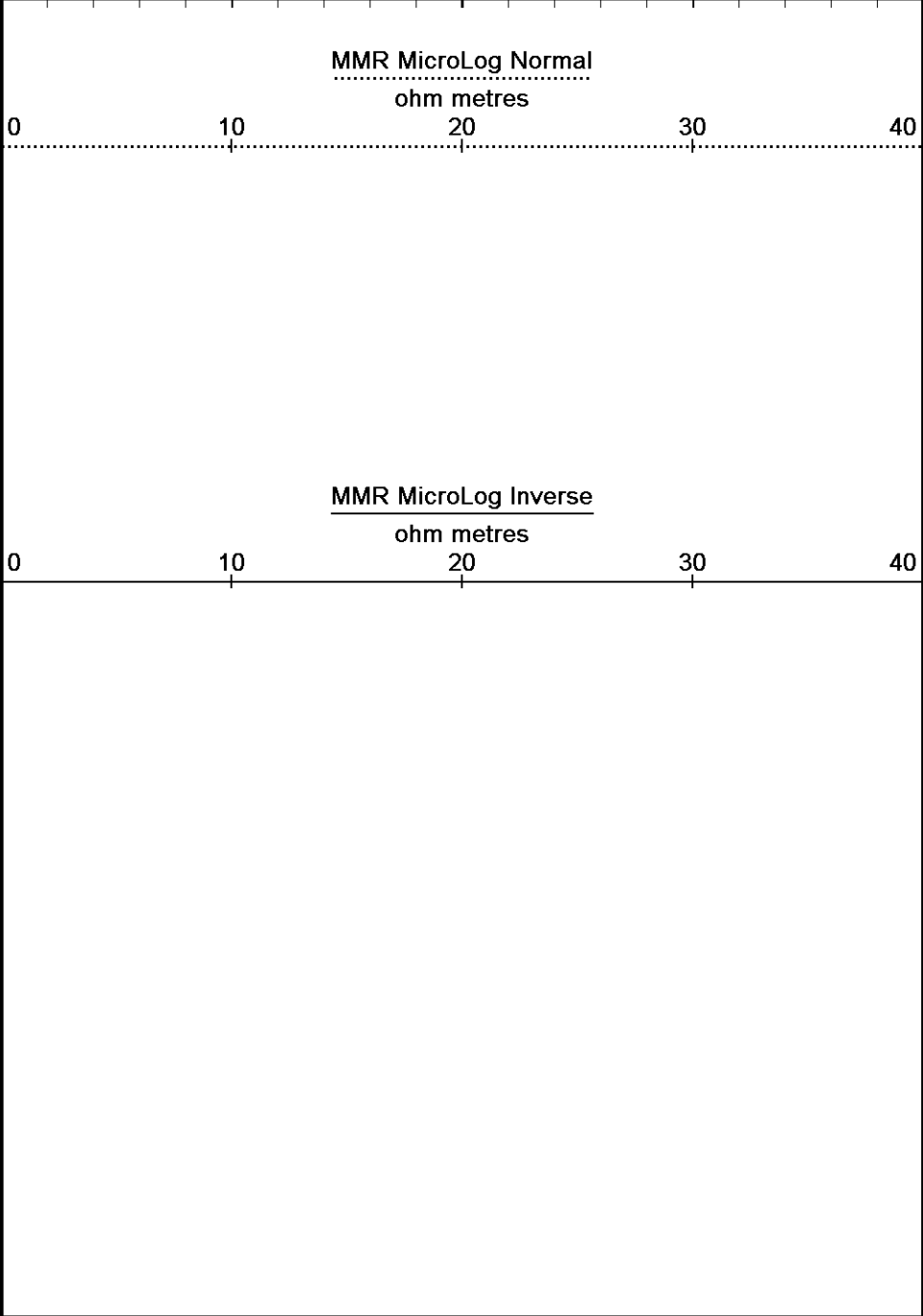
Depth in Feet

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  
 Plotted on 14-MAR-2016 18:11  
 Filename: C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_001.dta  
 Recorded on 14-MAR-2016 14:33  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION  
 C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_001.dta

General Constants All 000 Last Edited on 14-MAR-2016,14:09

General Parameters		
Mud Resistivity	0.520	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 5.500 inches  
 Caliper for Differential Caliper None

Rwa Parameters  
 Porosity used Base Density Porosity  
 Resistivity used Deep Induction  
 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 14-MAR-2016 13:45
Reading No	Measured	Calibrated (lbs)	
1	9937.87	0.00	
2	10554.14	500.00	

Gamma Calibration MCG-C 123			Field Calibration on 14-MAR-2016 08:52
	Measured	Calibrated (API)	
Background	73	51	
Calibrator (Gross)	726	507	
Calibrator (Net)	653	456	



Gamma Constants MCG-C 123			Last Edited on 14-MAR-2016,13:18
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	%	

High Resolution Temperature Calibration MCG-C 123			Field Calibration on 31-OCT-2015,17:05
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-C 123		Last Edited on 22-SEP-2015,11:43
Pre-filter Length	11	

SP Calibration MCG-C 123			Field Calibration on 02-NOV-2015 16:50
	Measured	Calibrated (mV)	
Reference 1	100.3	100.0	
Reference 2	-100.1	-99.9	

Micro Normal and Micro Inverse Calibration MMR-C.A 247					Base Calibration on 28-JAN-2016 15:04
					Field Check on 14-MAR-2016 08:38
Base Calibration					
		Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	
Micro Normal	10.2	49.9	5.1	25.6	
Micro Inverse	10.0	49.5	3.4	16.9	
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	93.5		93.5		
Micro Inverse	62.2		62.2		

Micro Normal & Micro Inverse Calibration Tolerance MMR-C.A 247

Micro Normal Res. 1	10.2		ohm	Micro Normal Res. 2	49.9		ohm
Micro Inverse Res. 1	10.0		ohm	Micro Inverse Res. 2	49.5		ohm
Micro Normal Base Check	93.5		ohm-m				
Micro Inverse Base Check	62.2		ohm-m				
Micro Normal Field Check	93.5		ohm-m				
Micro Inverse Field Check	62.2		ohm-m				

**Micro Normal and Micro Inverse Constants MMR-C.A 247**

Last Edited on 20-OCT-2015,12:33

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-C.A 247**

Base Calibration on 28-JAN-2016 14:54  
 Field Calibration on 14-MAR-2016 08:37

Base Calibration	Reading No	Measured	Calibrator Size (in)
	1	14598	5.98
	2	17942	7.97
	3	21198	9.86
	4	25146	11.92
	5	0	0.00
	6	N/A	N/A

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

**Caliper Calibration Tolerances MMR-C.A 247**

Short Arm Field Cal. 7.97 in

**Micro-Resistivity Caliper Constants MMR-C.A 247**

Last Edited on

Sonde Configuration Resistivity Mode

**Neutron Calibration MDN-A.B 66**

Base Calibration on 12-FEB-2016 22:05  
 Field Check on 14-MAR-2016 08:58

Base Calibration	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3097	96	3714	110
	32.423		33.764	

Field Calibrator at Base	Calibrated (cps)	
Ratio	2076	2984
	0.696	

Field Check	Calibrated (cps)	
Ratio	2115	3075
	0.688	

**Neutron Calibration Tolerances MDN-A.B 66**

Ratio 32.423

Base Check 0.696

Field Check 0.688

**Neutron Constants MDN-A.B 66**

Last Edited on 14-MAR-2016,13:18

Neutron Source Id P0204NN  
 Neutron Jig Number NJ5736  
 Air Hole Processing Legacy

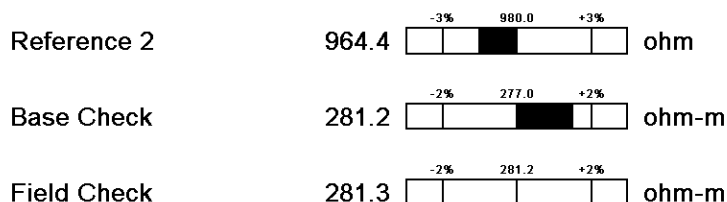
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	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 09-NOV-2015 11:10  
Field Check on 14-MAR-2016 08:30

Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.4	126.8
Base Check		281.2
Field Check		281.3

**FE Calibration Tolerances MFE-B.J 352**



**FE Constants MFE-B.J 352**

Last Edited on 14-MAR-2016,13:17

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 14-MAR-2016,13:17

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
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
3' Waveform Filter	N/A
4' Waveform Filter	N/A
5' Waveform Filter	N/A
6' Waveform Filter	N/A
Semblance Level	N/A
Semblance Window Width	N/A micro-sec
Sonic 1 Despiker	N/A N/A
Sonic 2 Despiker	N/A N/A

Induction Calibration MAI-A.A 111

Base Calibration on 05-AUG-2014,09:34  
Field Check on 14-MAR-2016 08:29

Base Calibration

Test Loop Calibration Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	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

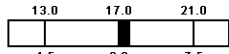
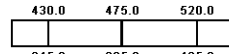
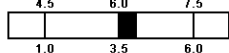
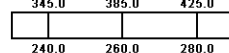
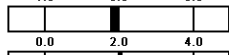
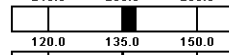
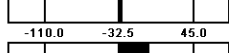
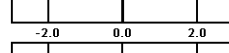

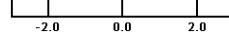
Array Temperature 23.0 Deg F

Test Loop Calibration Verified 09-DEC-2015 11:03

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	12.1	3873.0	11.8	3871.7
2	29.8	3528.1	29.8	3527.3
3	29.1	3021.3	29.1	3020.7
4	19.1	2058.5	19.2	2058.1
Deep	17.7	1962.1	17.7	1961.6
Medium	43.1	3976.4	43.2	3975.7
Shallow	44.4	5232.7	44.4	5231.5

Array Temperature 65.8 59.4 Deg F

Induction Calibration Tolerances MAI-A.A 111

Low Conductivity 1	17.6		mmho/m High Conductivity 1	473.6		mmho/m
Low Conductivity 2	6.4		mmho/m High Conductivity 2	385.9		mmho/m
Low Conductivity 3	3.2		mmho/m High Conductivity 3	264.0		mmho/m
Low Conductivity 4	2.1		mmho/m High Conductivity 4	135.5		mmho/m
Background Vx 1	0.0		mmho/m Phase Check Loop 1	0.0		%

Background Vx 2	0.0		mmho/m Phase Check Loop 2	0.0		%
Background Vx 3	0.0		mmho/m Phase Check Loop 3	0.0		%
Background Vx 4	0.0		mmho/m Phase Check Loop 4	0.0		%

Induction Constants MAI-A.A 111

Last Edited on 14-MAR-2016,13:17

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		

High Resolution Temperature Calibration MAI-A.A 111

Field Calibration on 24-NOV-2014,10:23

	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
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Photo Density Calibration MPD-B 104

Base Calibration on 12-FEB-2016 21:25  
Field Check on 14-MAR-2016 08:36

Density Calibration Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1155	1342		
Reference 1	49717	23901	59556	30836
Reference 2	20125	2432	24941	2541

Field Check at Base

1154.8 1342.5

Field Check

1156.1 1341.1

PE Calibration

Base Calibration	Measured	Calibrated
WS	WH	Ratio
Background	211	1032
Reference 1	20971	49542
Reference 2	5830	19993
		Ratio
		0.428
		0.296
		0.371
		0.272

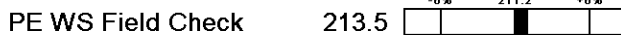
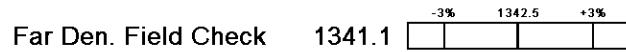
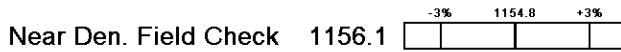
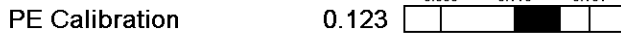
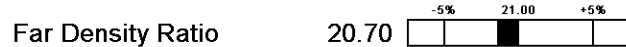
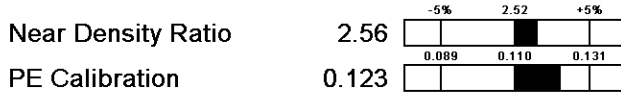
Field Check at Base

211.2 1031.6

Field Check

213.5 1033.1

Photo Density Calibration Tolerances MPD-B 104



Density Constants MPD-B 104

Last Edited on 14-MAR-2016,13:18

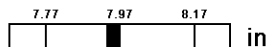
Density Source Id	P50557B
Nylon Calibrator Number	DNCE695
Aluminium Calibrator Number	DACD698
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.09 gm/cc
Mud Density Z/A Multiplier	1.11
Mud Filtrate Density	1.00 gm/cc
Dry Hole 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
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 104

Base Calibration on 12-FEB-2016 20:54  
Field Calibration on 14-MAR-2016 08:32

Base Calibration	Measured	Calibrator Size (in)
Reading No		
1	13189	3.99
2	22005	5.98
3	30656	7.97
4	38848	9.86
5	47902	11.92
6	N/A	N/A
Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.93	7.97

Caliper Calibration Tolerances MPD-B 104



### DOWNHOLE EQUIPMENT

C:\Minimus 15.03.5939\Logs\Daystar Deutscher B #1-2\Daystar Deutscher B #1-2\_001.dta

Cablehead, 11 pin  
CBH-CA 155 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma  
MCG-C 123 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity  
MMR-C.A 247 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron  
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

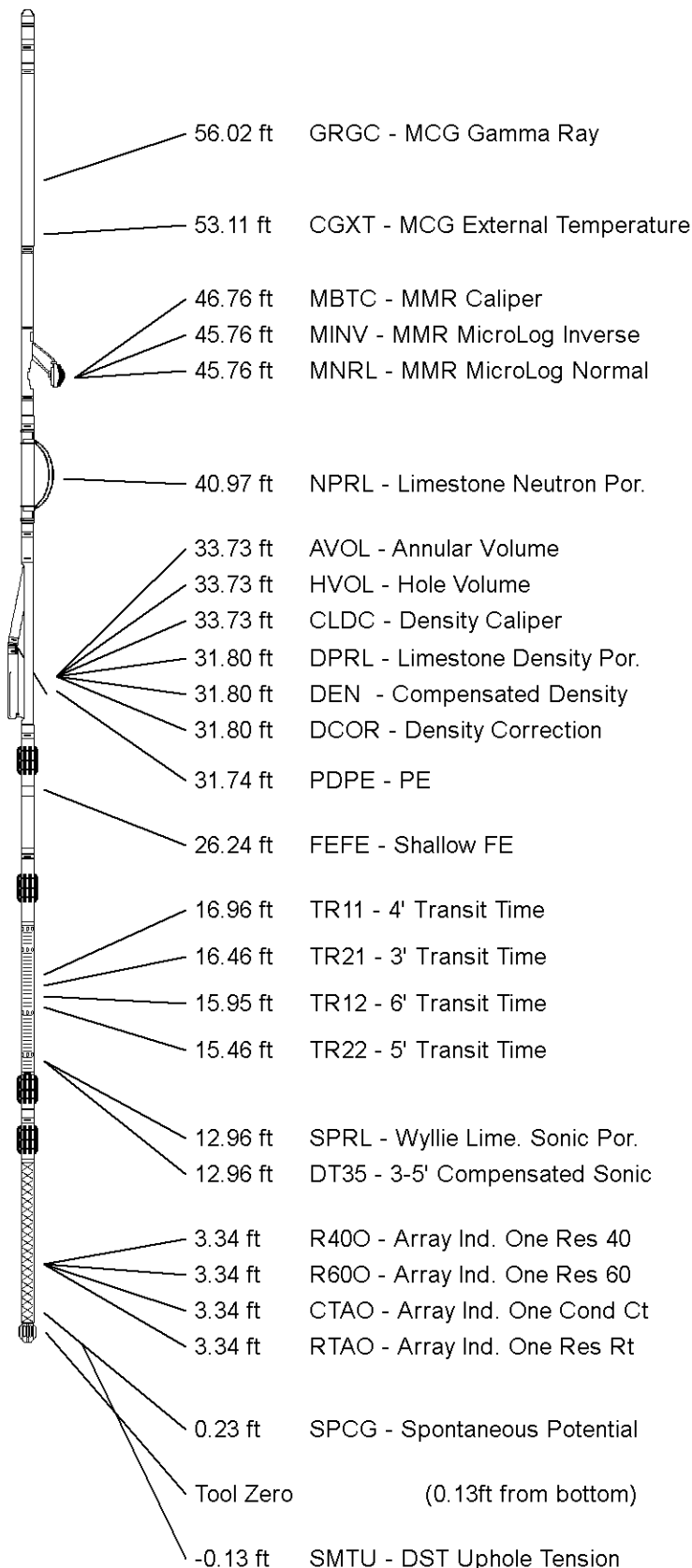
Compact Density/Caliper  
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

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: 63.70 ft Weight: 480.6 lb



All measurements relative to tool zero.

WELL DEUTSCHER B #1-2  
FIELD WILDCAT  
PROVINCE/COUNTY TREGO  
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2131.00	feet	First Reading	3991.00	feet
Elevation Drill Floor	2129.00	feet	Depth Driller	4040.00	feet
Elevation Ground Level	2123.00	feet	Depth Logger	4037.00	feet



**Weatherford**<sup>®</sup>

MICRORESISTIVITY LOG