MICRORESISTIVITY LOG

COMPANY	REDLAND RESOURCES, INC.
WELL	GLEASON 35-4
FIELD	WILDCAT
PROVINCE/COUNTY	HODGEMAN
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1064' FNL & 1243' FWL NW/4
	SE NW NW

SEC	TWP	RGE	Other Services
35	23S	25W	MAI/MFE
API Number 15-083-21799			MPD/MDN
Permit Number			MSS

Permanent Datum G.L., Elevation 2516 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations:	feet
KB	2524.00
DF	2522.00
GL	2516.00

Date	08-SEP-2012			
Run Number	ONE			
Depth Driller	4950.00	feet		
Depth Logger	4949.00	feet		
First Reading	4903.00	feet		
Last Reading	3950.00	feet		
Casing Driller	222.00	feet		
Casing Logger	222.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	1.10 g/c3	51.00 CP		
PH / Fluid Loss	9.00	15.60 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.92 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.74 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.10 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.63 @110.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	110.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	R.HOFFMAN			
Witnessed By	DAVID HICKMAN			
S.O. # / JOB #	3537881		LB12-244	

BOREHOLE RECORD

Last Edited: 08-SEP-2012 18:11

Bit Size inches	Depth From feet	Depth To feet
7.875	222.00	4949.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	222.00	24.00

REMARKS

Tools Used: MCG, MML, MDN, MPD, MFE, MSS, MAI.
Hardware: MPD: 8 inch profile plate used. MAI, MFE, and MSS: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Sonic porosity calculated using 47.5 usec/ft Limestone scale.
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= 2285 cubic feet
Annular volume with 4.5 inch production casing = 298 cubic feet
Service order #3537881
Rig: Duke Drilling Rig #2
Engineer: R. Hoffman
Operator(s): K. Rinehart

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-SEP-2012 20:18
Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta — Recorded on 08-SEP-2012 18:01
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
– → | 20 | ← +

MML 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

Replay Scale 1:240

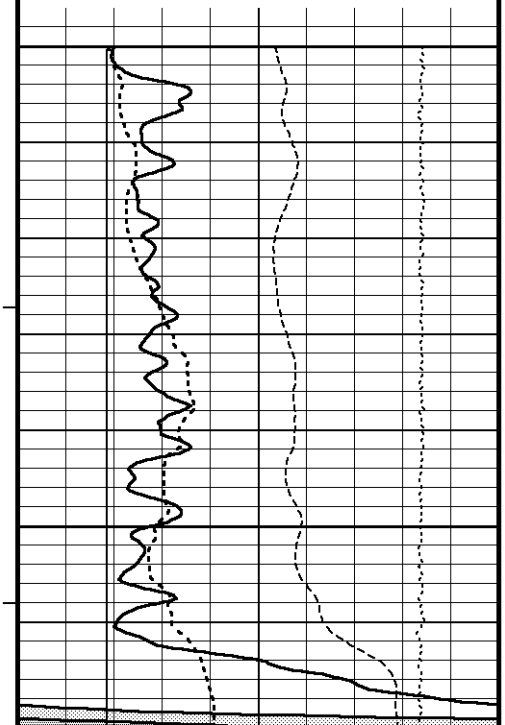
Micro-normal
ohm metres
0 10 20 30 40

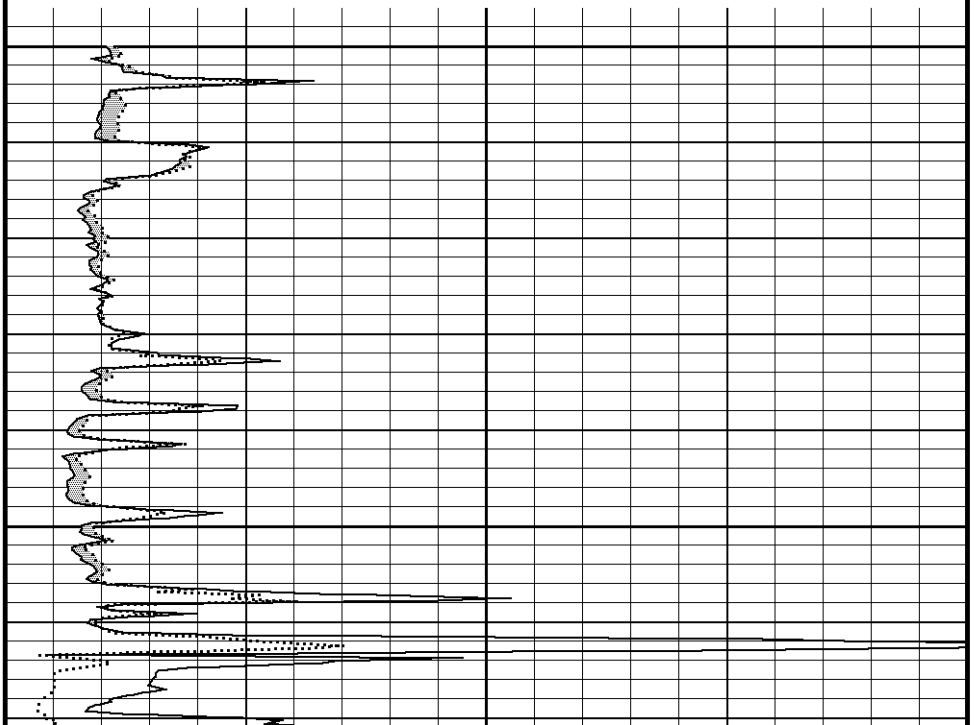
Micro-inverse
ohm metres
0 10 20 30 40

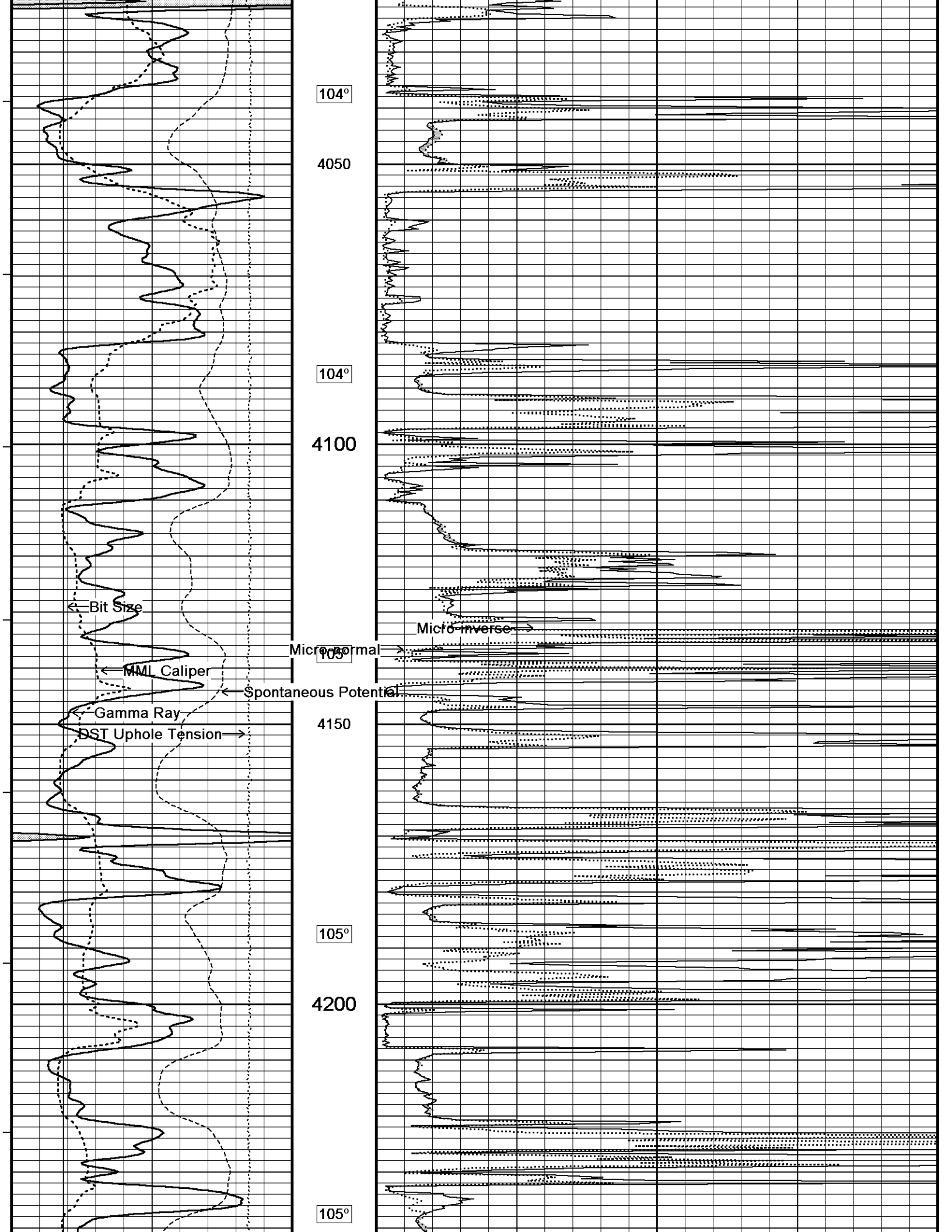
3950

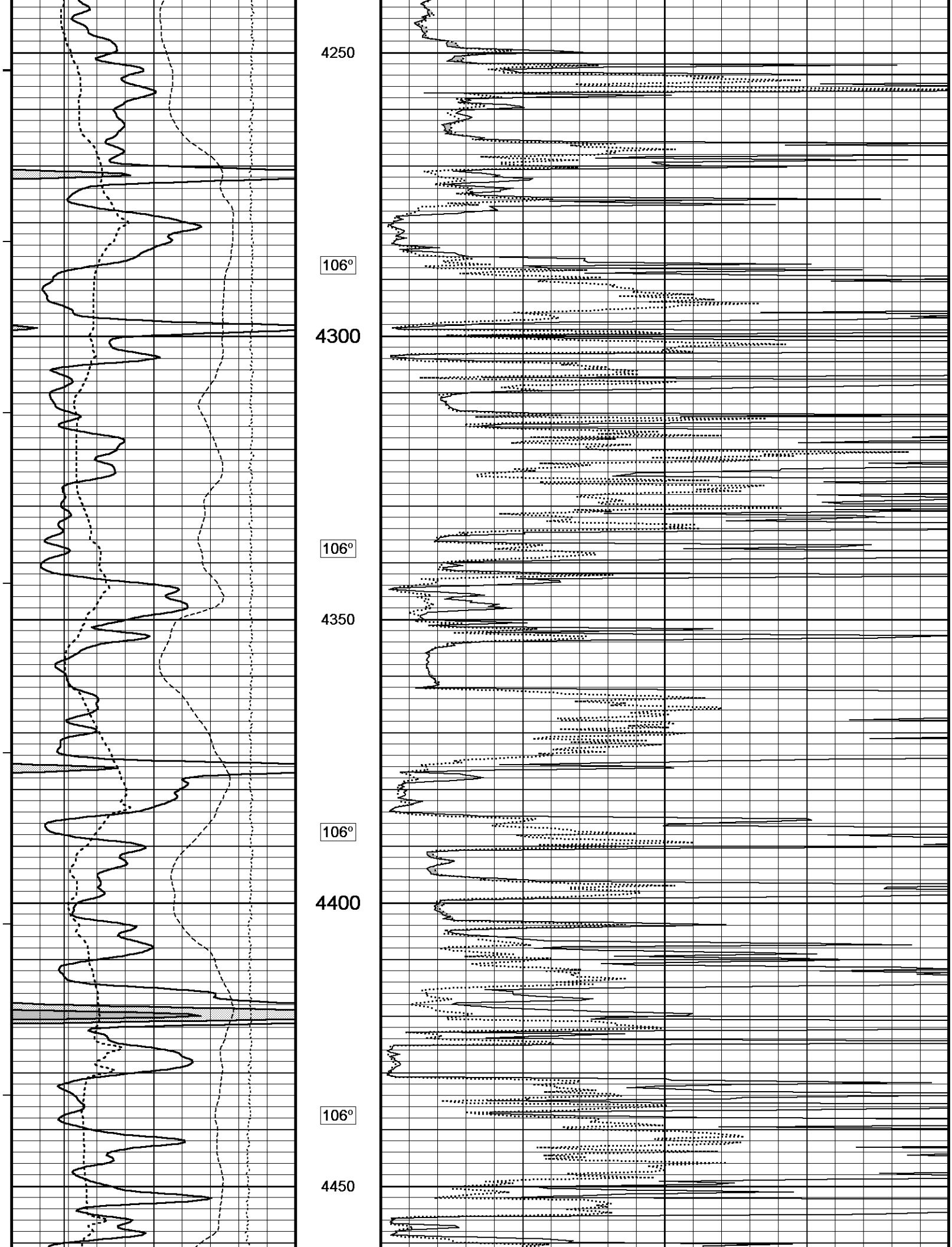
104°

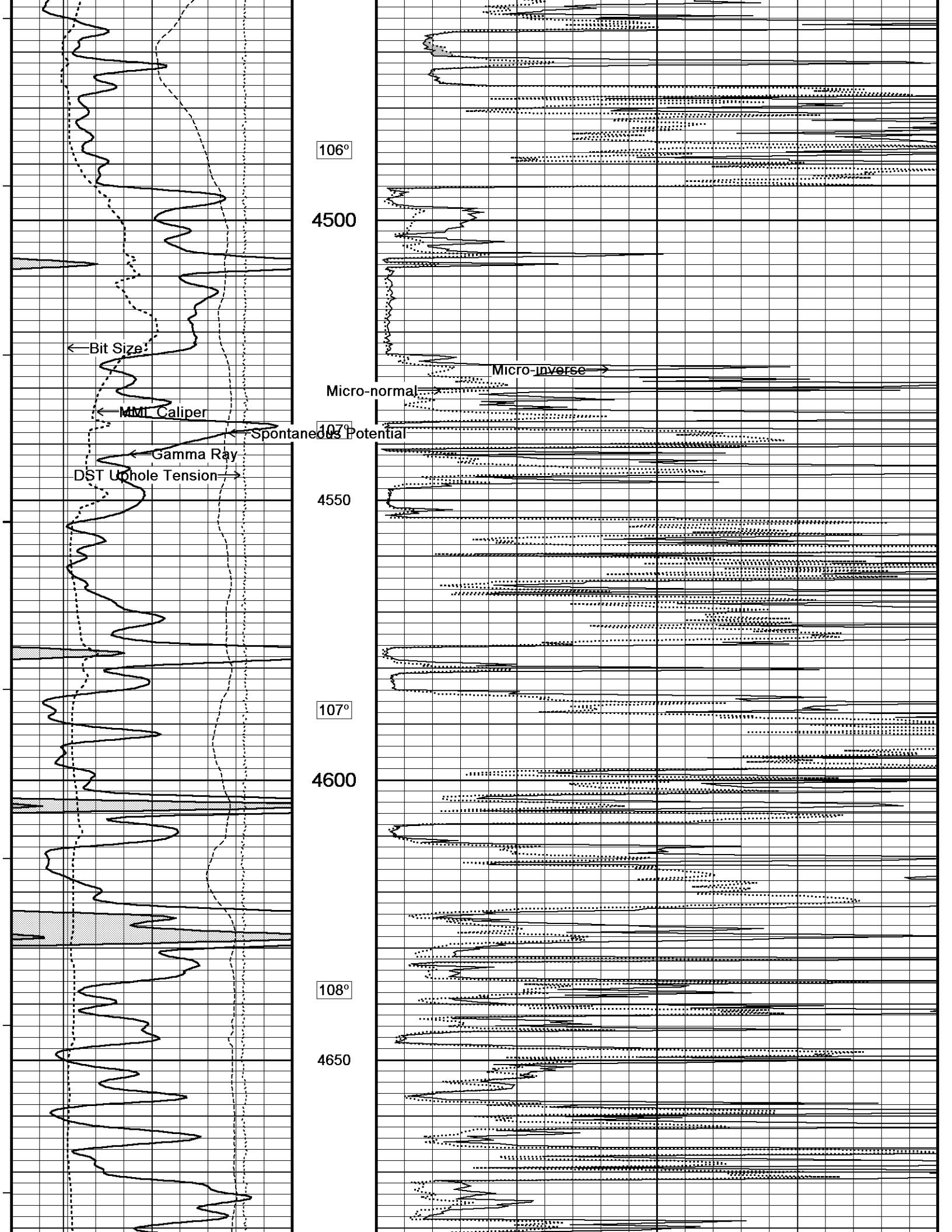
4000

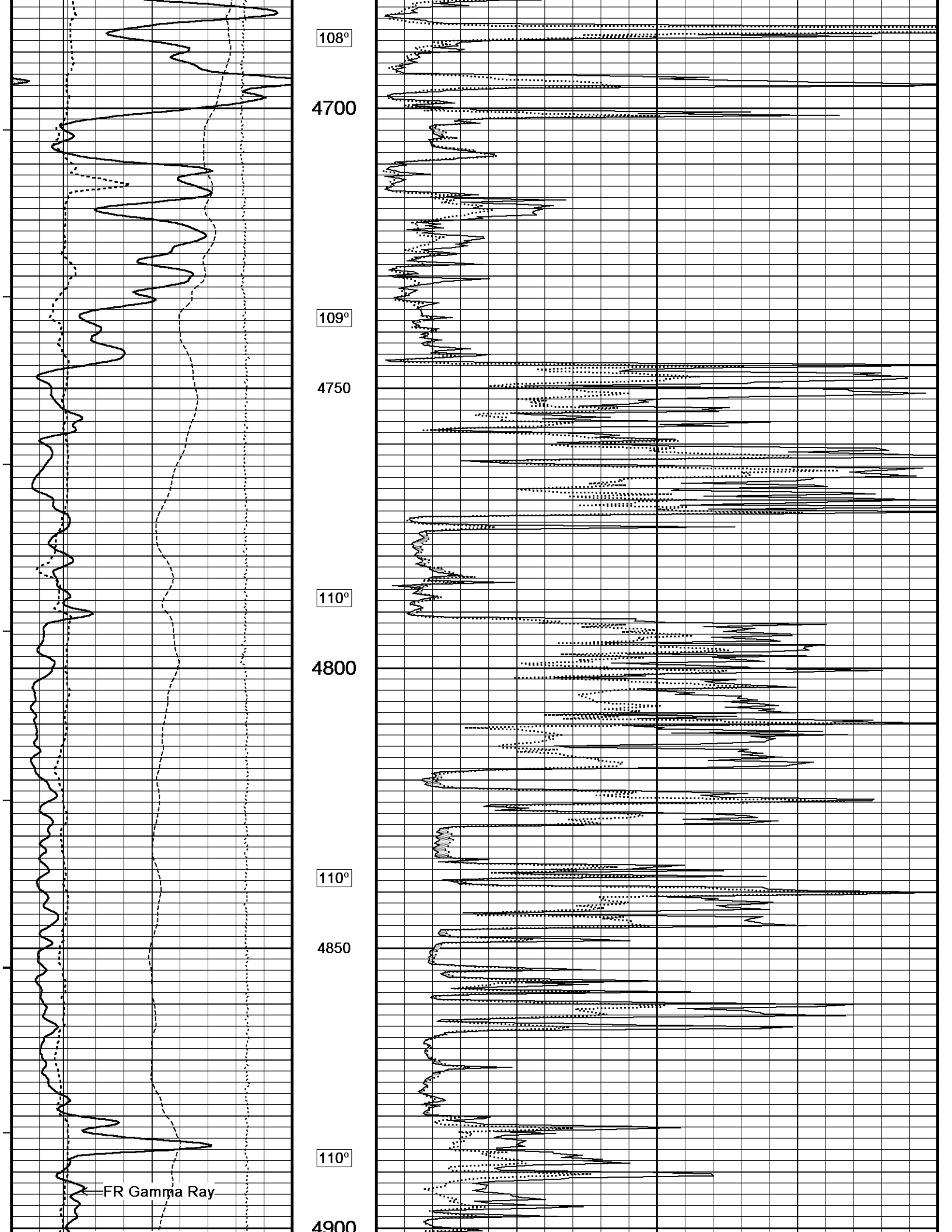


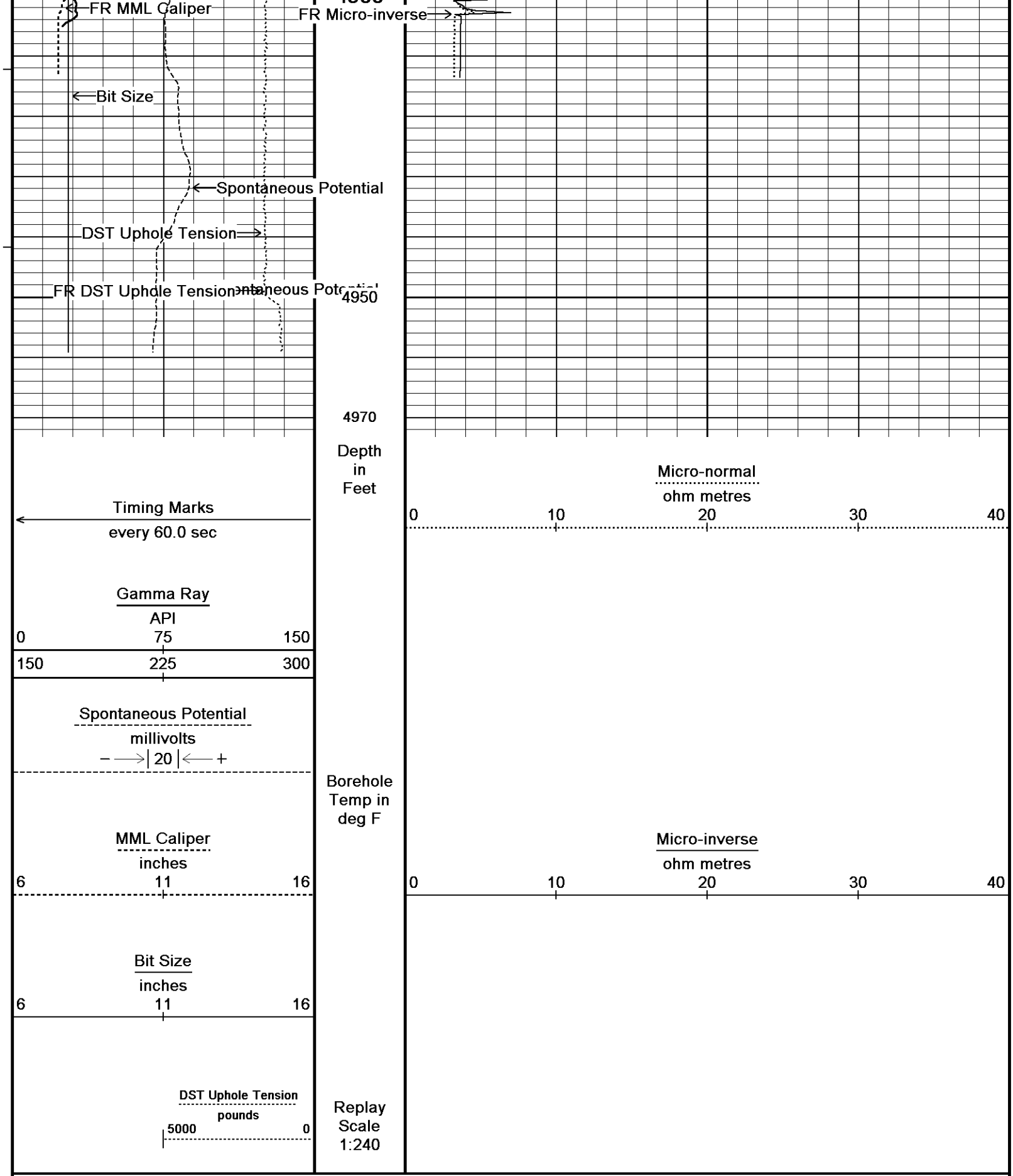



104°
4050
104°
4100
Bit Size
Micro inverse
Micro normal
105°
MML Caliper
Spontaneous Potential
Gamma Ray
4150
DST Uphole Tension
105°
4200
105°


4250
106°
4300
106°
4350
106°
4400
106°
4450


106°
4500
Bit Size
Micro-inverse
Micro-normal
MMI Caliper
107°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
4550
107°
4600
108°
4650


108°
4700
109°
4750
110°
4800
110°
4850
110°
FR Gamma Ray
4900



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-SEP-2012 20:18
Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta
Recorded on 08-SEP-2012 18:01
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-SEP-2012 20:18
Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta
Recorded on 08-SEP-2012 18:01
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

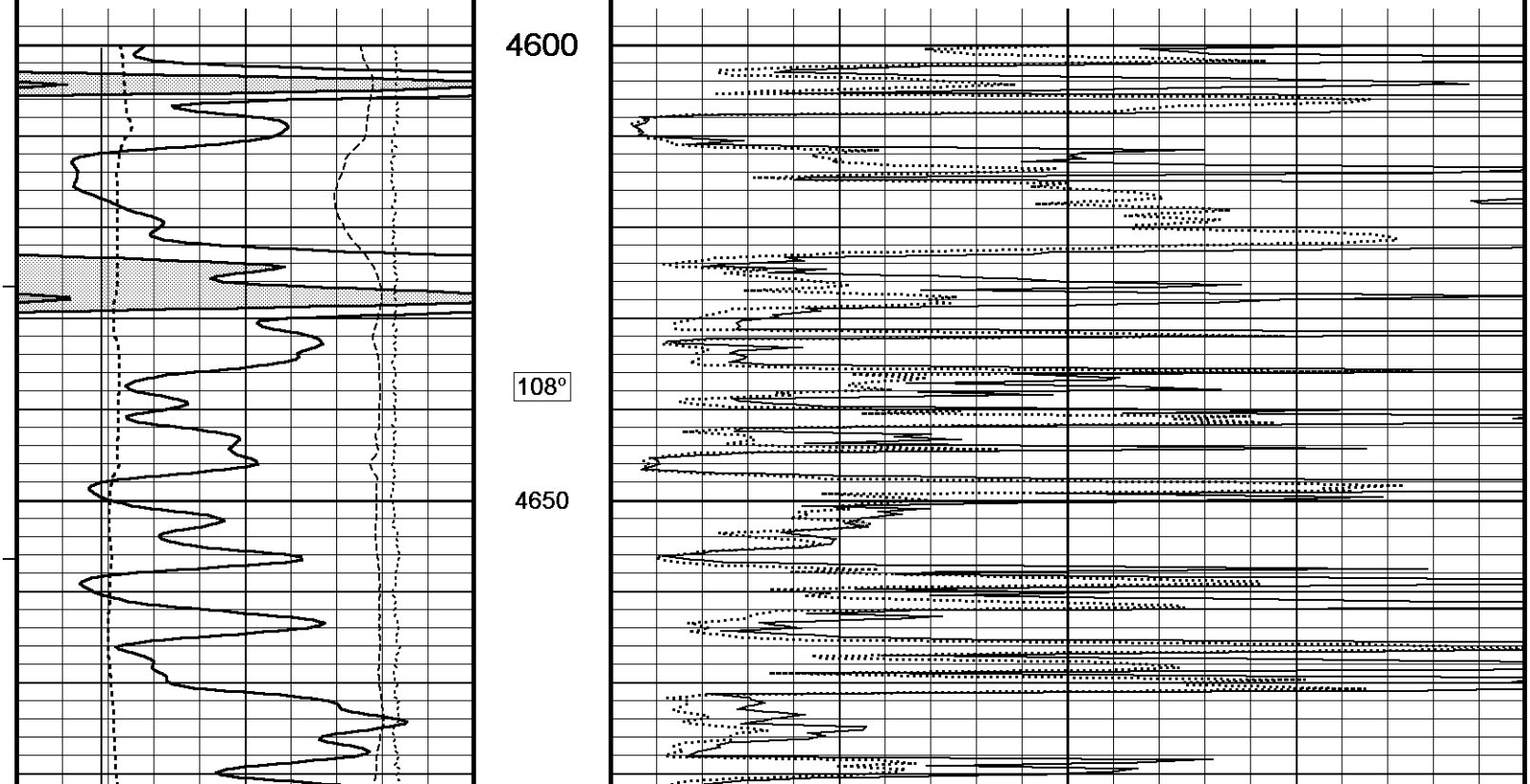
Depth in Feet

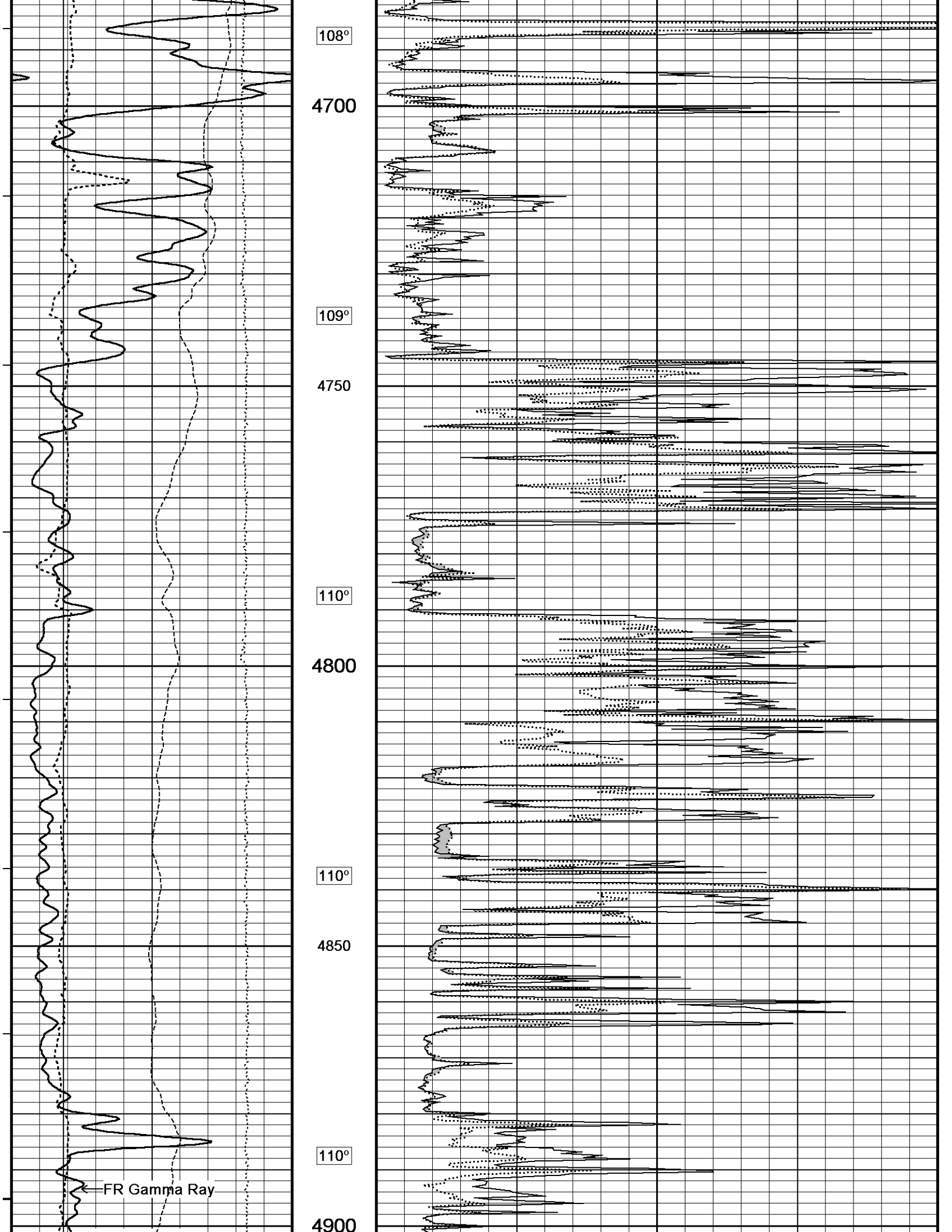
Borehole Temp in deg F

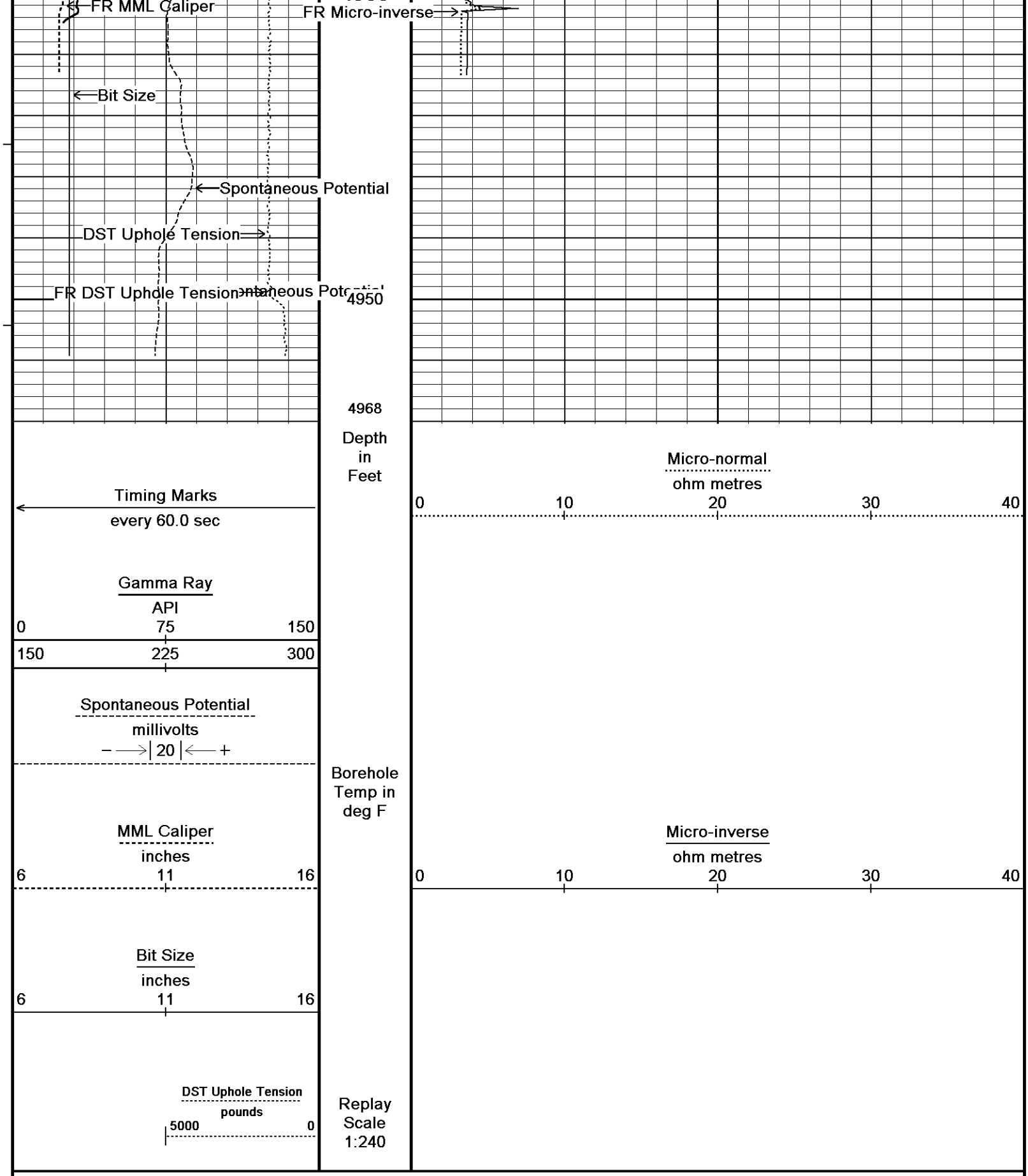
Replay Scale 1:240

Micro-normal
ohm metres
0 10 20 30 40

Micro-inverse
ohm metres
0 10 20 30 40




108°
4700
109°
4750
110°
4800
110°
4850
110°
FR Gamma Ray
4900



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-SEP-2012 20:18

Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta — Recorded on 08-SEP-2012 18:01

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

REPEAT SECTION

BEFORE SURVEY CALIBRATION

General Constants All 000

Last Edited on 08-SEP-2012,16:15

General Parameters

Mud Resistivity	0.920	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Density/Neutron 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. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Gamma Calibration MCG-D.K 442

Field Calibration on 07-SEP-2012 14:57

	Measured	Calibrated (API)
Background	67	45
Calibrator (Gross)	1141	770
Calibrator (Net)	1074	725

Gamma Constants MCG-D.K 442

Last Edited on 08-SEP-2012,14:46

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 17-JUL-2012,16:35

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on

Pre-filter Length	11

Caliper Calibration MML-A 16

Base Calibration on 07-SEP-2012 10:01
Field Calibration on 07-SEP-2012 10:04

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13823	5.98
2	16876	7.97
3	20058	9.86
4	23883	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	5.98

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 07-SEP-2012 10:10
Field Check on 07-SEP-2012 10:12

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	60.2	5.0	25.0
Micro Inverse	15.6	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.2	48.2

Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 16 — Last Edited on 07-SEP-2012,10:07

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	N/A	inches

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Main spooled section.dta

3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

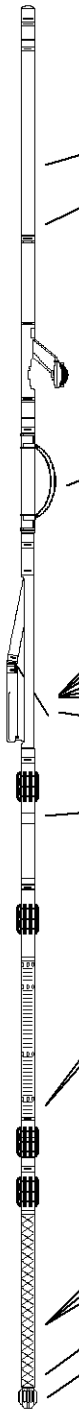
Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.25 ft Weight: 471.8 lb



55.39 ft	GRGC - Gamma Ray
52.48 ft	CGXT - MCG External Temperature
45.76 ft	MINV - Micro-inverse
45.76 ft	MNRL - Micro-normal
46.76 ft	MLTC - MML Caliper
40.97 ft	NPRL - Limestone Neutron Por.
33.73 ft	AVOL - Annular Volume
33.73 ft	HVOL - Hole Volume
33.73 ft	CLDC - Density Caliper
31.80 ft	DPRL - Limestone Density Por.
31.80 ft	DEN - Compensated Density
31.80 ft	DCOR - Density Correction
31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
12.96 ft	DT35 - 3-5' Compensated Sonic
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
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	REDLAND RESOURCES, INC.
WELL	GLEASON 35-4
FIELD	WILDCAT
PROVINCE/COUNTY	HODGEMAN

COUNTRY/STATE			U.S.A. / KANSAS		
Elevation Kelly Bushing	2524.00	feet	First Reading	4903.00	feet
Elevation Drill Floor	2522.00	feet	Depth Driller	4950.00	feet
Elevation Ground Level	2516.00	feet	Depth Logger	4949.00	feet

Weatherford®

MICRORESISTIVITY LOG