Weatherford®

MICRORESISTIVITY LOG

COMPANY	MCCOY PETROLEUM CORPORATION
WELL	FITZGERALD 'A' #3-30
FIELD	LETTE SE
PROVINCE/COUNTY	HASKELL
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1625' FNL & 1270' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
30	30S	31W	MPD/MDN MAI/MFE

API Number 15-081-21988
Permit Number

Permanent Datum G.L., Elevation 2845 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations:	feet
KB	2858.00
DF	2856.00
GL	2845.00

Date	14-JUN-2012			
Run Number	ONE			
Depth Driller	4810.00	feet		
Depth Logger	4804.00	feet		
First Reading	4770.00	feet		
Last Reading	3800.00	feet		
Casing Driller	1819.00	feet		
Casing Logger	1820.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	FLOWLINE			
Density / Viscosity	9.00 lb/USg	44.00 CP		
PH / Fluid Loss	11.00	8.00 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.84 @ 95.0	ohm-m		
Rmf @ Measured Temp	0.67 @ 95.0	ohm-m		
Rmc @ Measured Temp	1.01 @ 95.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.69 @116.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	116.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	L. SCOTT			
Witnessed By	JERRY SMITH			
S.O.# / JOB#	3534495		LB12-149	

BOREHOLE RECORD

Last Edited: 14-JUN-2012 13:17

Bit Size inches	Depth From feet	Depth To feet
7.875	1820.00	4804.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1820.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= 250 cu. ft.
Total hole volume from TD to Surface Casing= 1325 cu. ft.
Service order #3534495
Rig: Sterling #5
Engineer: L. Scott
Operator(s): B. Johnson

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 14-JUN-2012 14:59
Filename: C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzger...\McCoy Fitzgerald A #3-30_002.dta — Recorded on 14-JUN-2012 13:13
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

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

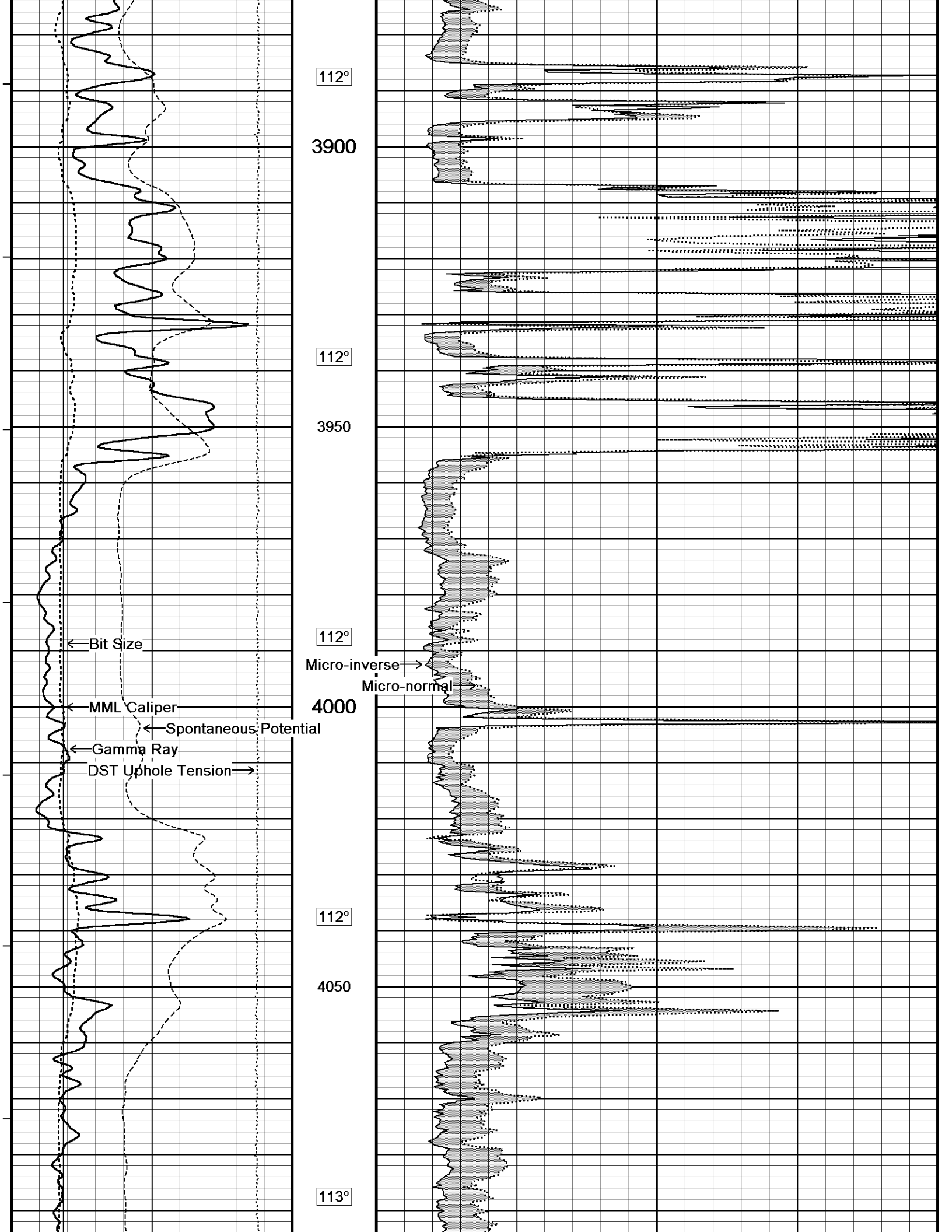
Micro-normal
ohm metres
0 10 20 30 40

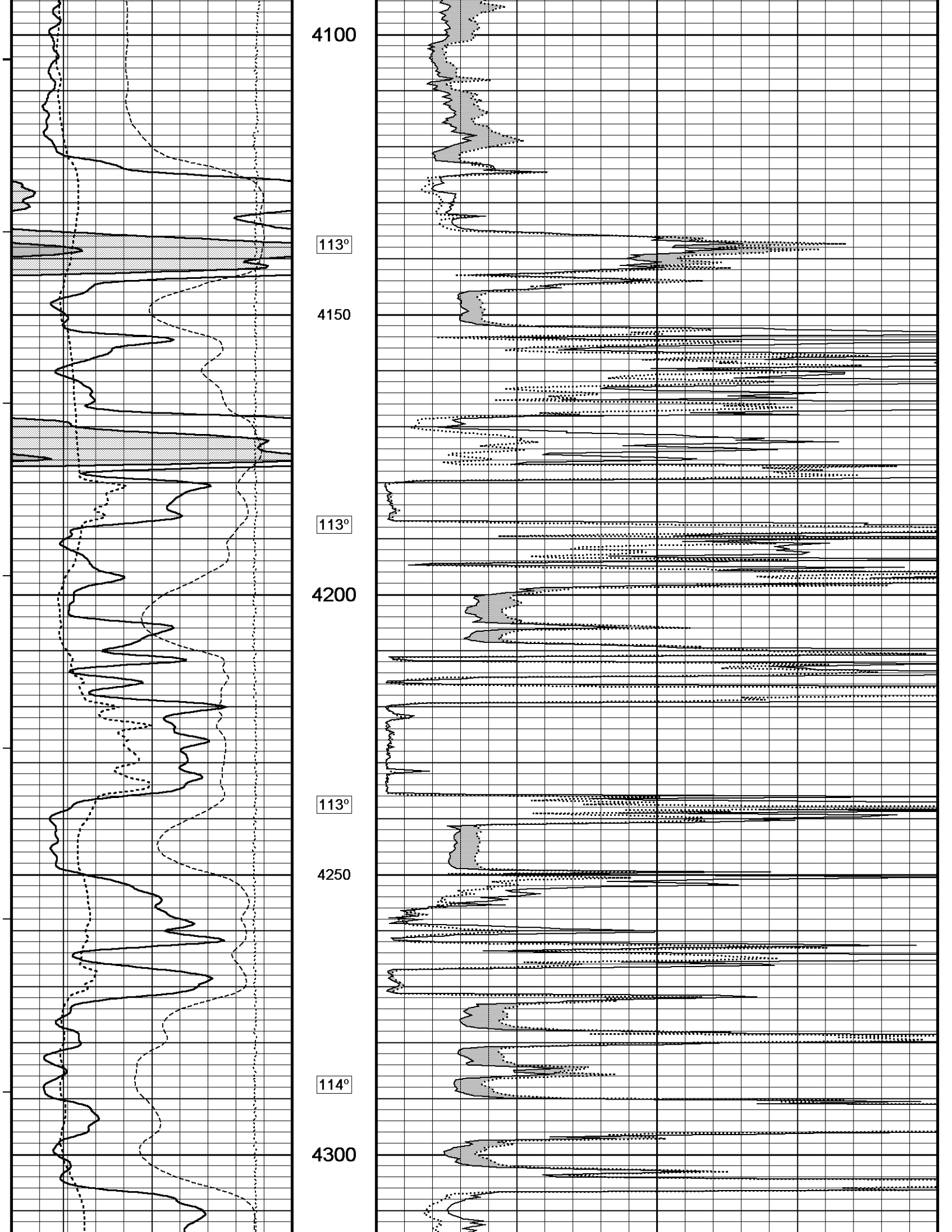
Micro-inverse
ohm metres
0 10 20 30 40

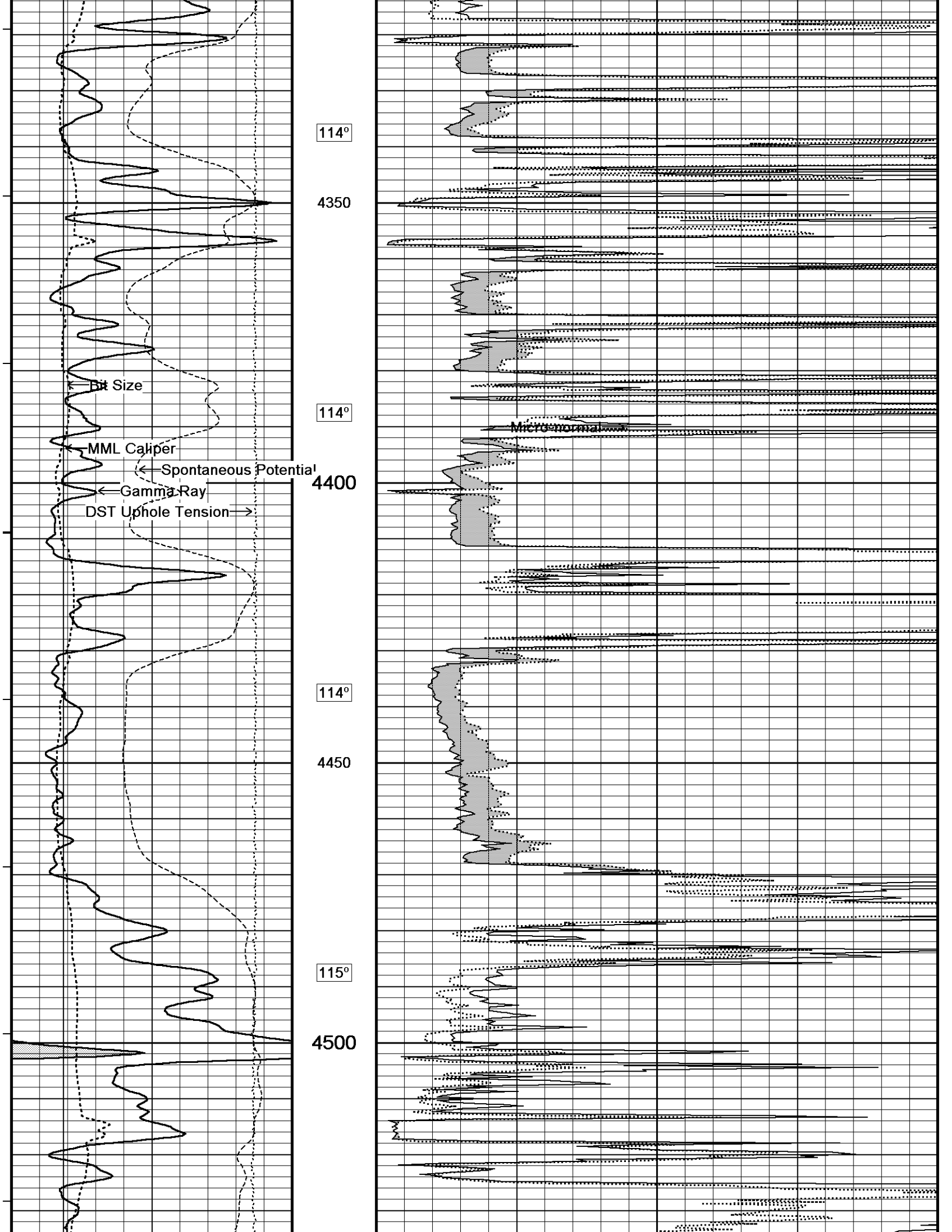
3800

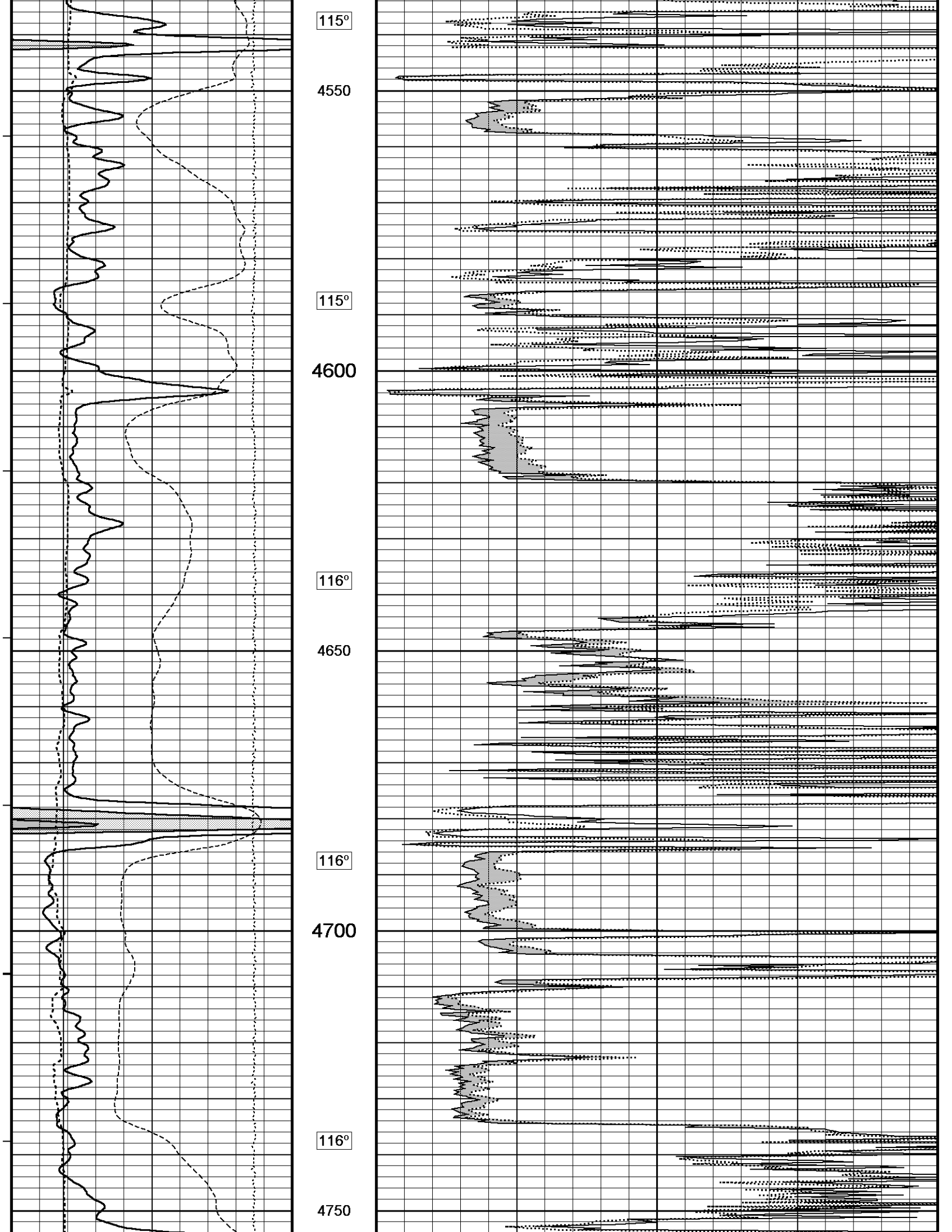
111°

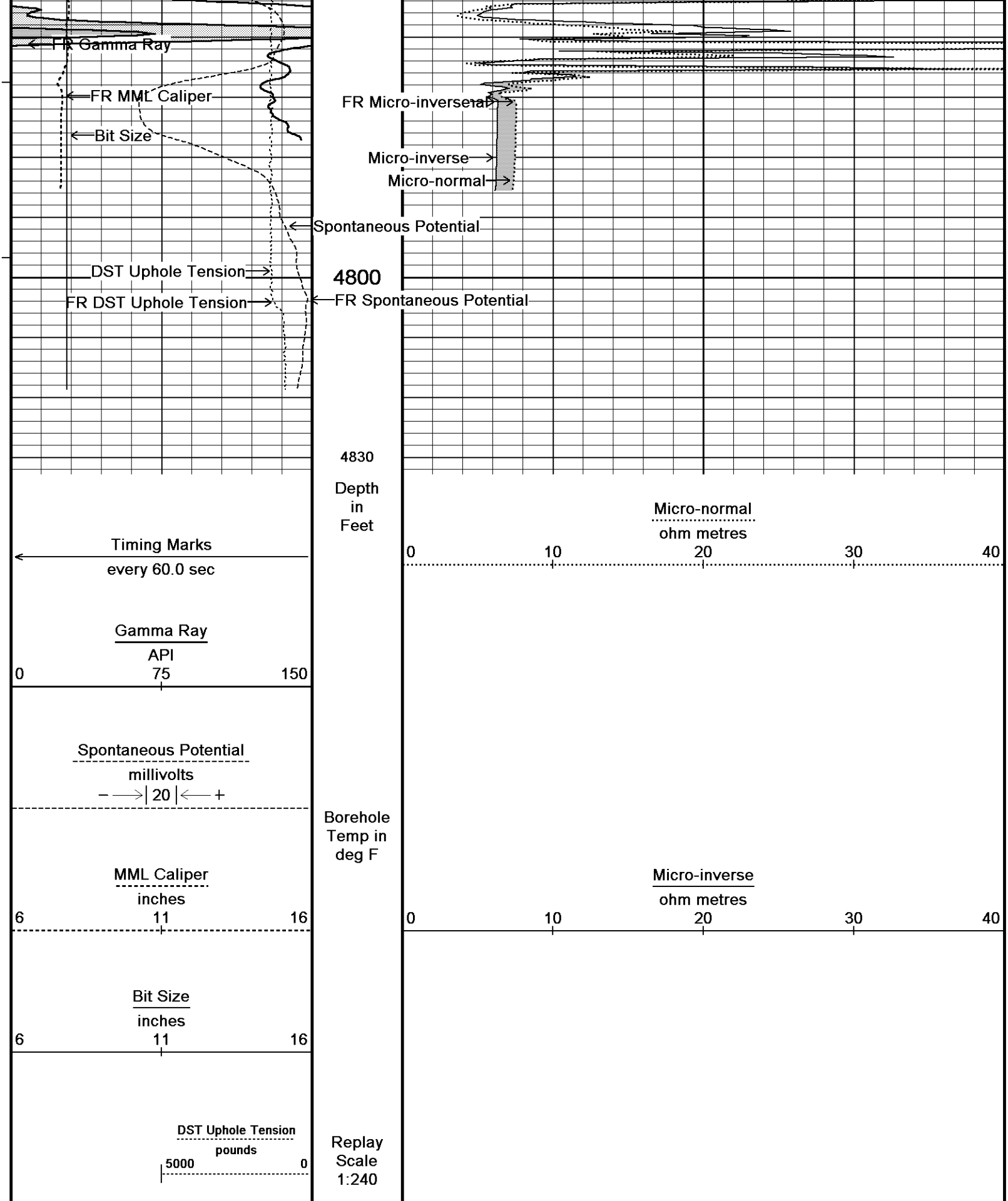
3850


112°
3900
112°
3950
112°
Bit Size
Micro-inverse
Micro-normal
MML Caliper
4000
Spontaneous Potential
Gamma Ray
DST Uphole Tension
112°
4050
113°


4100
113°
4150
113°
4200
113°
4250
114°
4300


114°
4350
Bit Size
114°
Micro-normal
MML Caliper
Spontaneous Potential
4400
Gamma Ray
DST Uphole Tension
114°
4450
115°
4500


115°
4550
115°
4600
116°
4650
116°
4700
116°
4750



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 14-JUN-2012 14:59

Filename: C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzger...\McCoy Fitzgerald A #3-30_002.dta — Recorded on 14-JUN-2012 13:13

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 14-JUN-2012 14:59
Filename: C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzger...\McCoy Fitzgerald A #3-30_001.dta — Recorded on 14-JUN-2012 12:54
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Spontaneous Potential
millivolts
– → | 20 | ← +

MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

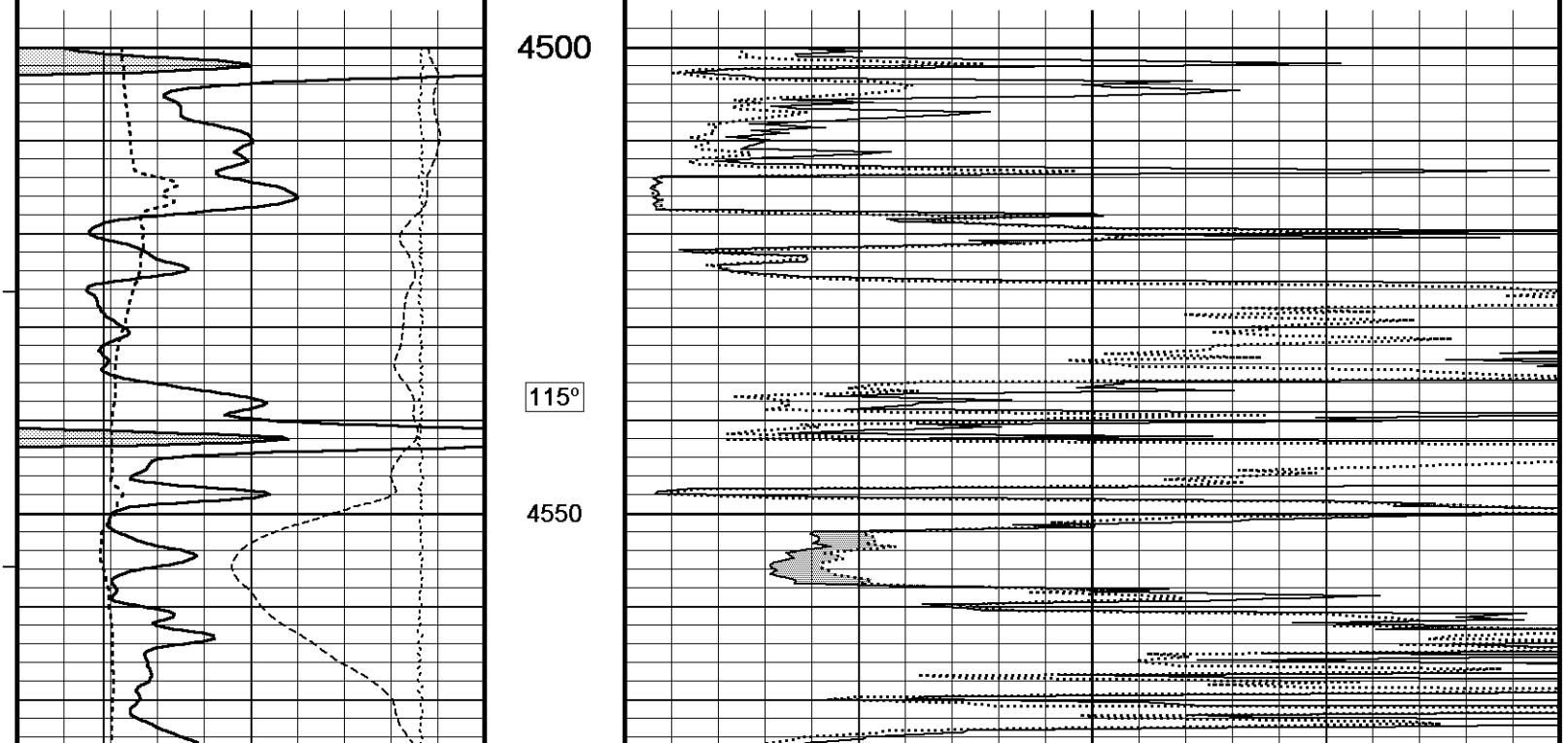
Depth in Feet

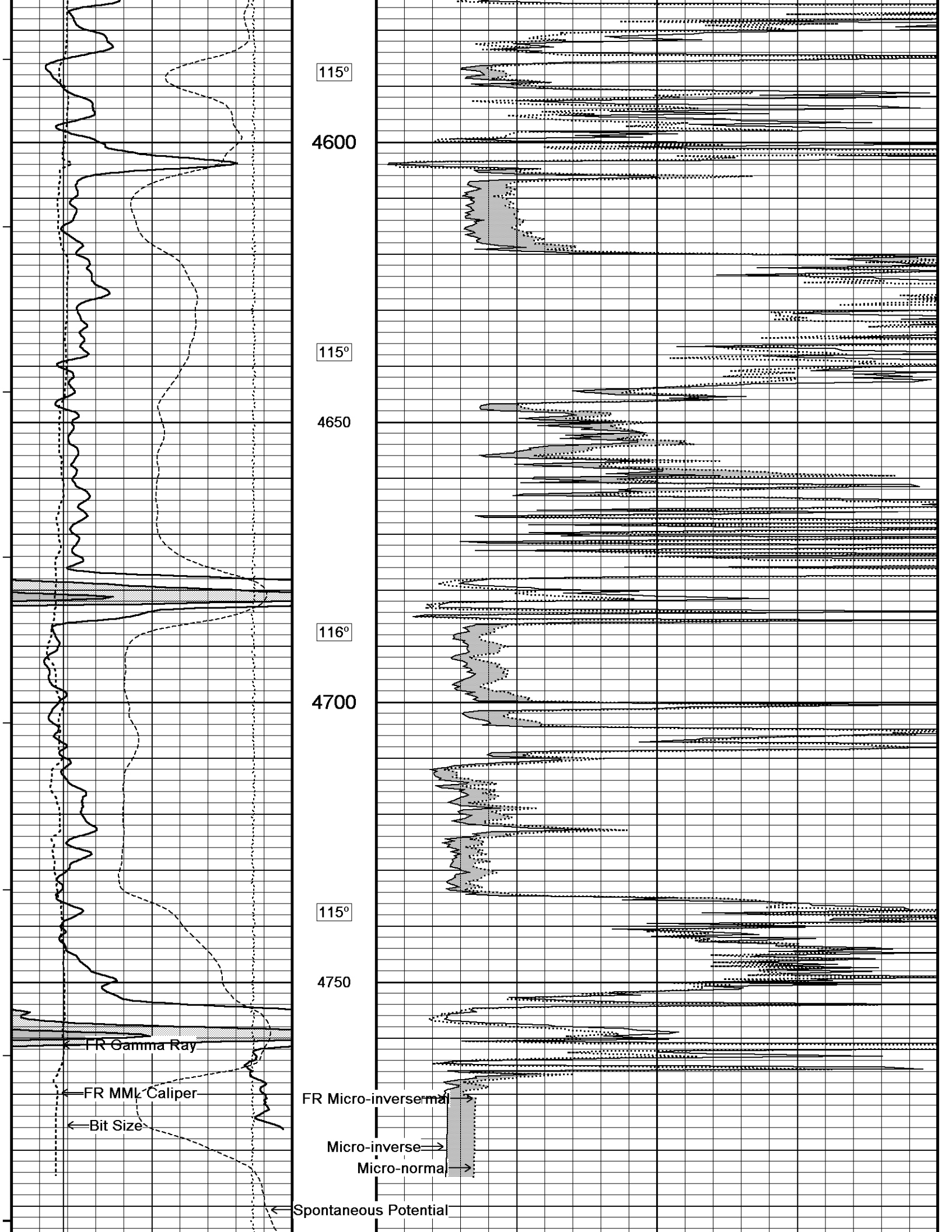
Borehole Temp in deg F

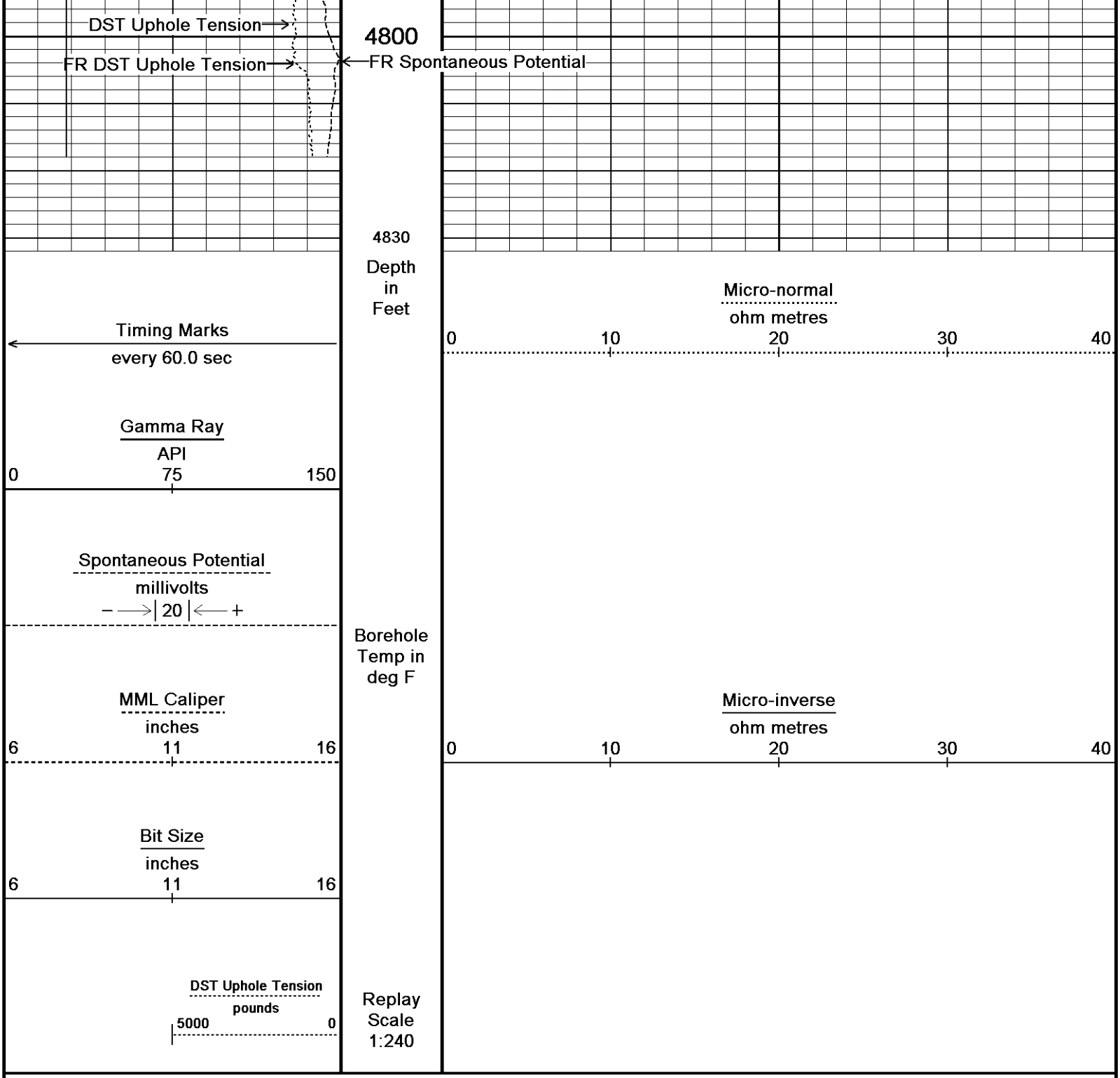
Replay Scale 1:240

Micro-normal
ohm metres
0 10 20 30 40

Micro-inverse
ohm metres
0 10 20 30 40




115°
4600
115°
4650
116°
4700
115°
4750
FR Gamma Ray
FR MML Caliper
Bit Size
FR Micro-inverse
Micro-inverse
Micro-normal
Spontaneous Potential



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 14-JUN-2012 14:59

Filename: C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzger...\McCoy Fitzgerald A #3-30_001.dta — Recorded on 14-JUN-2012 12:54

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzgerald A #3-30\McCoy Fitzgerald A #3-30.dta

General Constants All 000 — Last Edited on 14-JUN-2012,08:45

General Parameters

Mud Resistivity	0.840	ohm-metres
Mud Resistivity Temperature	95.000	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. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 11-JUN-2012 07:01

Reading No	Measured	Calibrated (lbs)
1	12381.30	0.00
2	13456.91	626.10

Gamma Calibration MCG-B 39

Field Calibration on 13-JUN-2012 14:11

	Measured	Calibrated (API)
Background	65	43
Calibrator (Gross)	1147	768
Calibrator (Net)	1082	725

Gamma Constants MCG-B 39

Last Edited on 14-JUN-2012,08:31

Gamma Calibrator Number	GRC038	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-B 39

Field Calibration on 24-MAY-2012 10:26

	Measured	Calibrated (mV)
Reference 1	103.4	100.0
Reference 2	-97.4	-100.0

High Resolution Temperature Calibration MCG-B 39

Field Calibration on 02-APR-2012,14:03

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

High Resolution Temperature Constants MCG-B 39

Last Edited on

Pre-filter Length	11

Caliper Calibration MML-A 4

Base Calibration on 15-MAY-2012 17:25
Field Calibration on 13-JUN-2012 14:02

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15117	5.98
2	18514	7.97
3	21781	9.86
4	25834	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.15	5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 15-MAY-2012 17:31
Field Check on 13-JUN-2012 14:00

Base Calibration

		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.3	5.0	25.0
Micro Inverse	15.7	78.5	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.8	62.8

Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 13-JUN-2012,13:59

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

Neutron Calibration MDN-B.J 387

Base Calibration on 15-MAY-2012 16:34
Field Check on 13-JUN-2012 14:16

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2995	90	3714	110
Ratio	33.447		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1667	2508
Ratio	0.664	

Field Check

	Calibrated (cps)	
	1673	2530
Ratio	0.661	

Neutron Constants MDN-B.J 387

Last Edited on 14-JUN-2012,08:45

Neutron Source Id	P0204NN	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
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	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 15-MAY-2012 17:11
Field Check on 13-JUN-2012 13:57

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.4	126.8
Base Check		281.4
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 14-JUN-2012,08:45

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 178

Base Calibration on 15-MAY-2012,14:15
Field Check on 13-JUN-2012 13:55

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.6	484.7	9.3	966.2

2	6.2	391.4	7.6	821.4
3	4.0	264.5	5.2	566.0
4	2.3	135.1	2.6	279.2

Array Temperature 77.0 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	13.0	3764.4
2	0.0	0.0	29.9	3468.0
3	0.0	0.0	27.4	3014.6
4	0.0	0.0	18.8	2065.2
Deep	0.0	0.0	16.0	1995.6
Medium	0.0	0.0	40.4	3955.7
Shallow	0.0	0.0	45.8	5083.4
Array Temperature		0.0		83.6 Deg F

Induction Constants MAI-A.A 178

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

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 178

Field Calibration on 0C4030110004,

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

High Resolution Temperature Constants MAI-A.A 178

Last Edited on 0C4060522000,

Pre-filter Length	11

Caliper Calibration MPD-B 35

Base Calibration on 15-MAY-2012 15:38
Field Calibration on 13-JUN-2012 13:58

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	21260	3.99

2	31424	5.98
3	41761	7.97
4	51280	9.86
5	61536	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.98

Photo Density Calibration MPD-B 35

Base Calibration on 15-MAY-2012 15:56
Field Check on 13-JUN-2012 14:06

Density Calibration

Base Calibration	Measured Near	Measured Far	Calibrated (sdu) Near	Calibrated (sdu) Far
Reference 1	62707	32170	59556	30836
Reference 2	26808	2860	24941	2541
Field Check at Base	1145.6	1360.5		
Field Check	1144.7	1352.6		

PE Calibration

Base Calibration	WS	Measured WH	Measured Ratio	Calibrated Ratio
Background	206	1009		
Reference 1	23065	62504	0.372	0.371
Reference 2	7038	26659	0.266	0.272
Field Check at Base	206.0	1009.0		
Field Check	205.1	1008.6		

Density Constants MPD-B 35

Last Edited on 14-JUN-2012,08:33

Density Source Id	18235B	
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	1.08	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	

DOWNHOLE EQUIPMENT

C:\Minimus 11_03_4044\Data\McCoy Petroleum Fitzgerald A #3-30\McCoy Fitzgerald A #3-30.dta

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

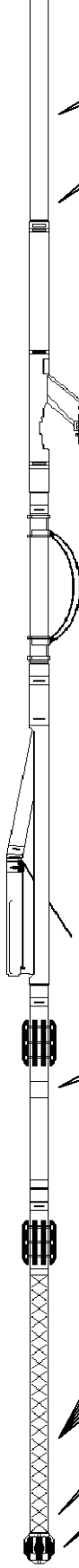
Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 48.16 ft Weight: 383.6 lb

Total Length: 48.16 ft Weight: 383.6 lb



42.87 ft	GRGC - Gamma Ray
42.87 ft	GRGC - Gamma Ray
39.96 ft	CGXT - MCG External Temperature
39.96 ft	CGXT - MCG External Temperature
33.24 ft	MINV - Micro-inverse
33.24 ft	MNRL - Micro-normal
34.24 ft	MLTC - MML Caliper
33.24 ft	MINV - Micro-inverse
33.24 ft	MNRL - Micro-normal
34.24 ft	MLTC - MML Caliper
28.45 ft	NPRL - Limestone Neutron Por.
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
21.21 ft	AVOL - Annular Volume
19.28 ft	DPRL - Limestone Density Por.
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.28 ft	DCOR - Density Correction
19.28 ft	DPRL - Limestone Density Por.
19.28 ft	DEN - Compensated Density
19.22 ft	PDPE - PE
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
13.72 ft	FEFE - Shallow FE
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R60O - Array Ind. One Res 60
3.34 ft	RTAO - Array Ind. One Res Rt
0.23 ft	SPCG - Spontaneous Potential
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

All measurements relative to tool zero.

COMPANY	MCCOY PETROLEUM CORPORATION
WELL	FITZGERALD 'A' #3-30
FIELD	LETTE SE
PROVINCE/COUNTY	HASKELL
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2858.00	feet	First Reading	4770.00	feet

Elevation Kelly Bushing	2856.00	feet	First Reading	4770.00	feet
Elevation Drill Floor	2856.00	feet	Depth Driller	4810.00	feet
Elevation Ground Level	2845.00	feet	Depth Logger	4804.00	feet

Weatherford®

MICRORESISTIVITY LOG

40 Years of Wireline 1970 2010