



Weatherford

MICRORESISTIVITY LOG

COMANCHE RESOURCES COMPANY

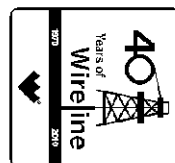
WELL EDER # 6-4

FIELD WILDCAT

PROVINCE/COUNTY SCOTT

COUNTRY/STATE U.S.A. / KANSAS

LOCATION 780' FSL & 920' FEL



SEC

6

TWP 20S

RGE 34W

Other Services

MPD/MDN

MAI/MFE

Permit Number

Permanent Datum G.L., Elevation 3070 feet

Log Measured From KB

Drilling Measured From K.B. @ 11 FEET

Date 03-JAN-2012

Run Number ONE

Depth Driller

Depth Logger

First Reading

Last Reading

Casing Driller

Casing Logger

Bit Size 7.875

Hole Fluid Type CHEMICAL

Density / Viscosity 9.10 lb/USg

PH / Fluid Loss 10.00

Sample Source FLOWLINE

Rm @ Measured Temp 0.80 @ 50.0

Rmf @ Measured Temp 0.64 @ 50.0

Rmc @ Measured Temp 0.96 @ 50.0

Source Rmf / Rmc CALC

Rm @ BHT 0.38 @ 111.0

Time Since Circulation 5 HOURS

Max Recorded Temp 111.00

Equipment Name COMPACT

Equipment / Base 13057

Recorded By A. GIAMBALVO

Witnessed By SEAN DEENIHAN

S.O. / JOB # 3531243

LB12-02

Elevations:
KB 3081.00
DF 3079.00
GL 3070.00

BOREHOLE RECORD

Last Edited: 04-JAN-2012 03:19

Bit Size
inches

7.875

Depth From
feet

394.00

Depth To
feet

5004.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

11.00

Shoe Depth
feet

394.00

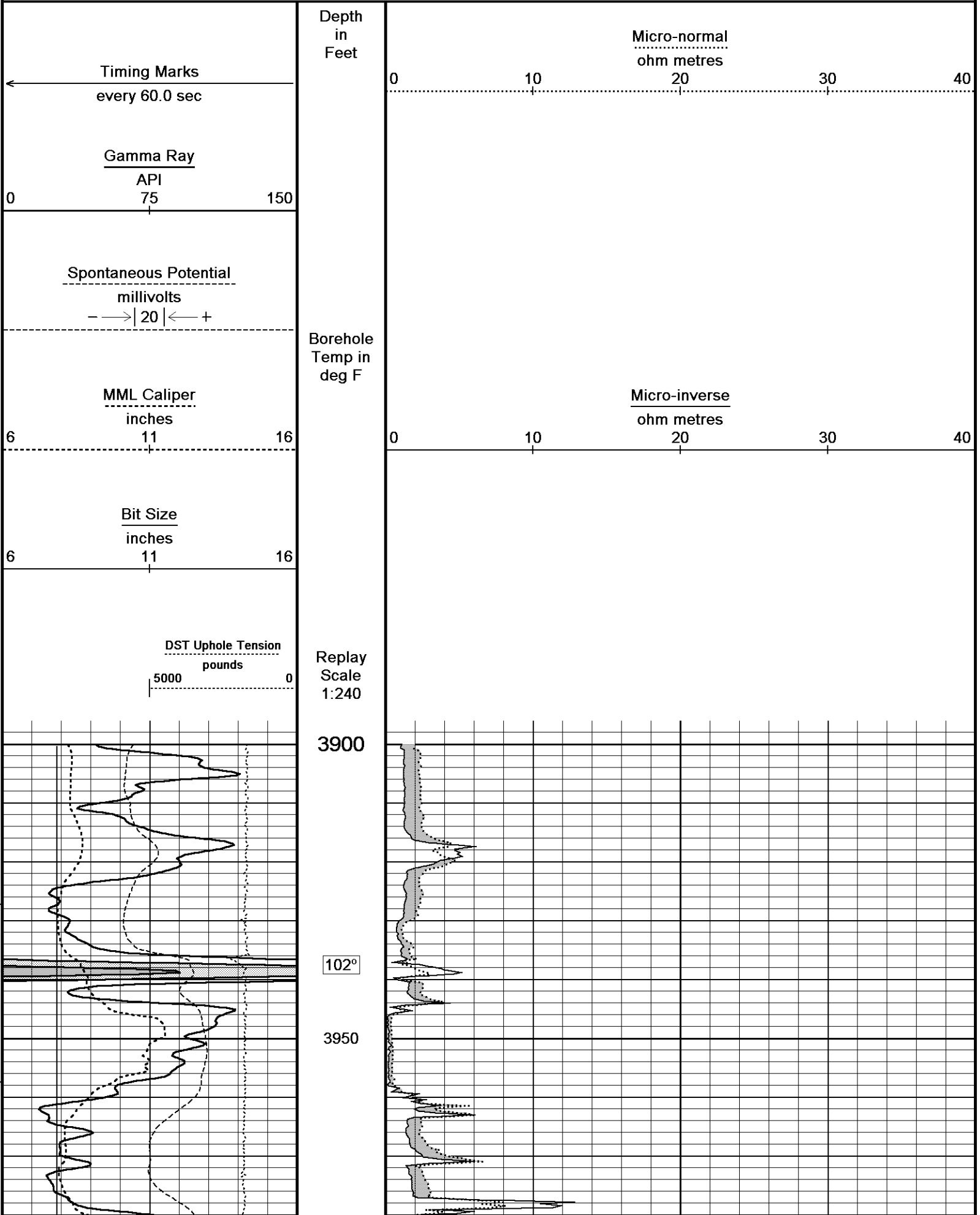
Weight
pounds/ft

24.00

REMARKS

Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MAI.
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE and MAI 0.5 inch standoffs used.
2.71 g/cc Limestone Density Matrix used to calculate porosity.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 275 cu. ft.
Service order #3531243
Rig: Murfin Rig # 22
Engineer: A. Giambalvo
Operator(s): B. Johnson

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.





102°

4000

103°

4050

103°

4100

103°

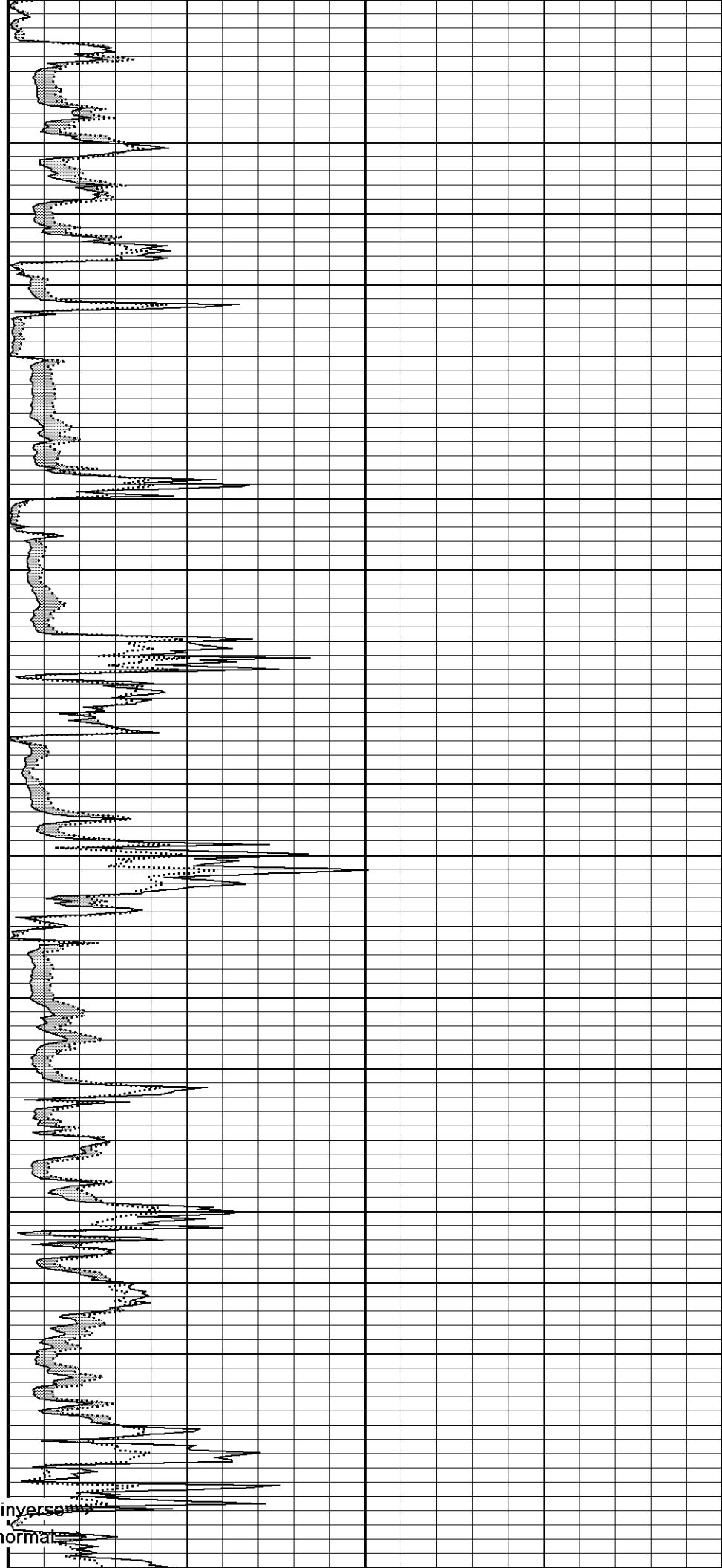
4150

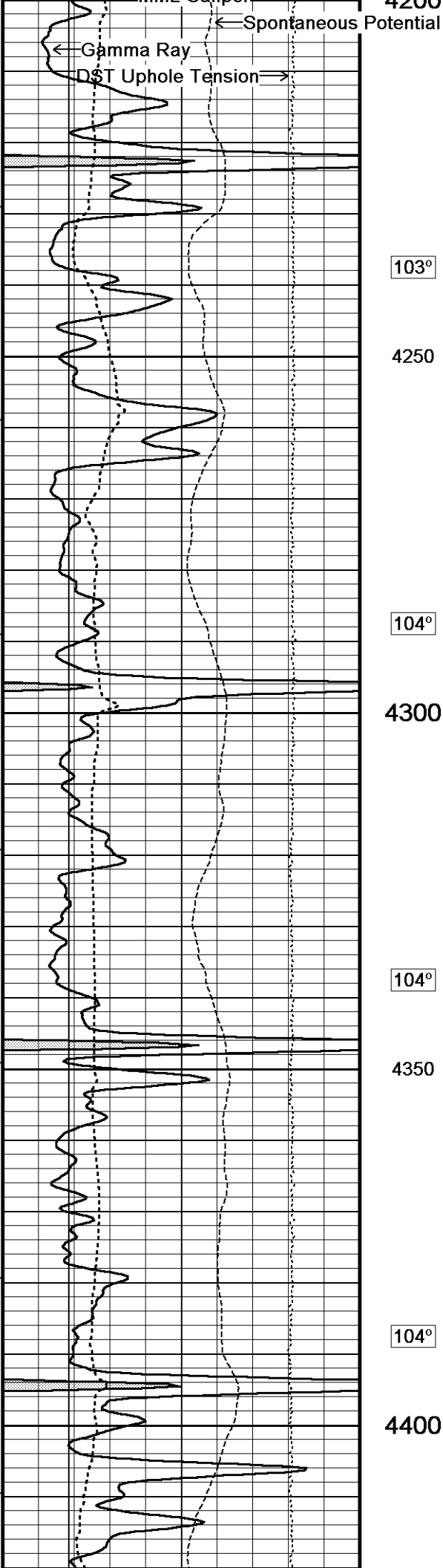
103°

Micro-inversion

Micro-normal

4200





103°

4250

104°

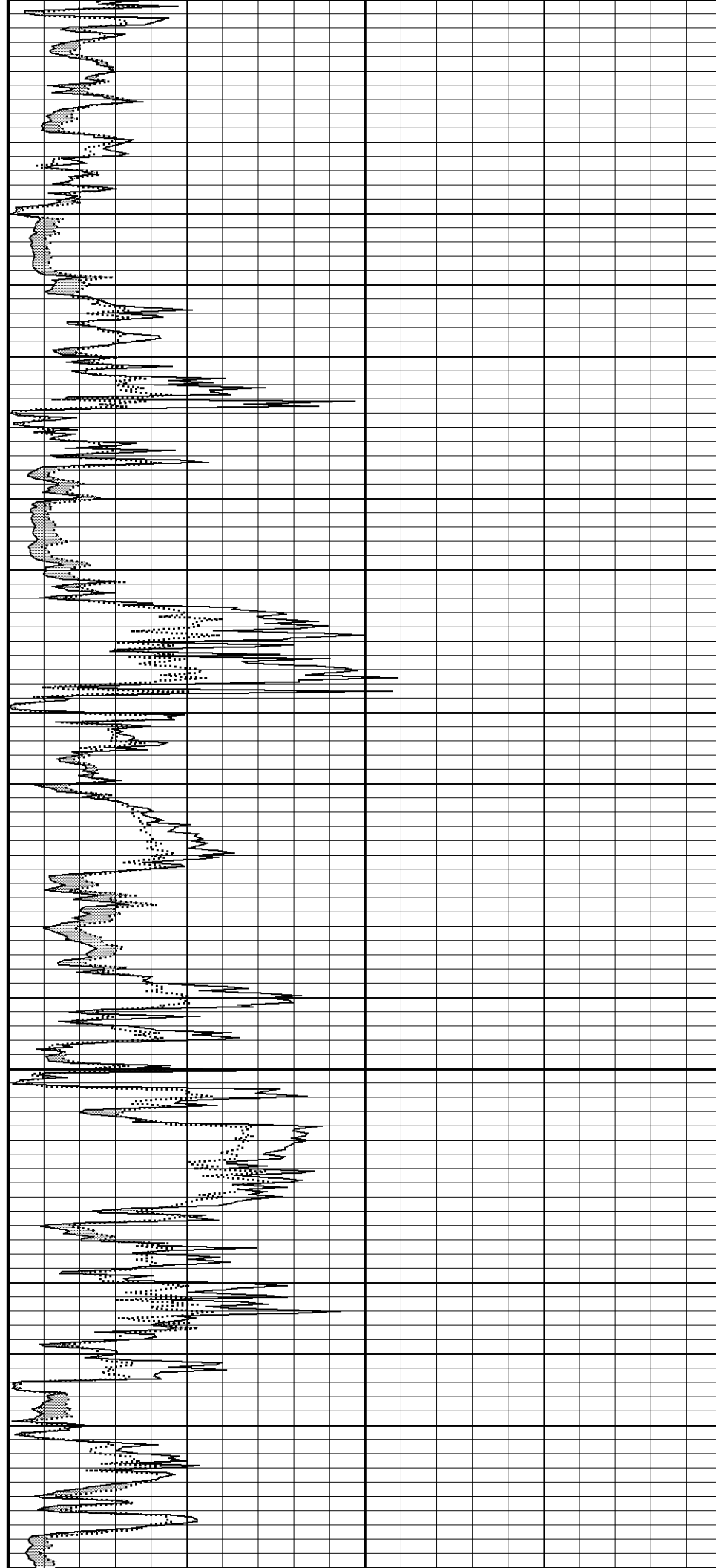
4300

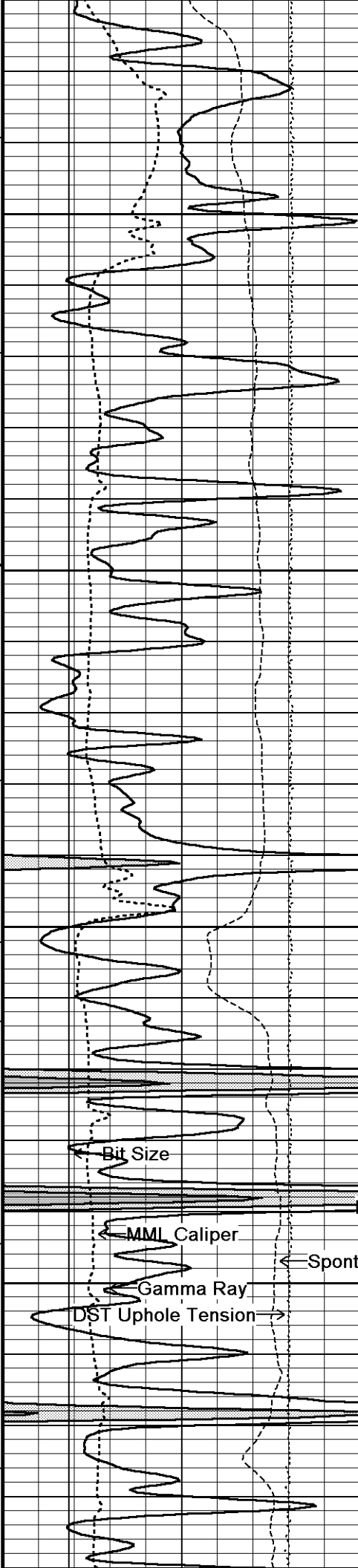
104°

4350

104°

4400





104°

4450

105°

4500

106°

4550

Bit Size

MMI Caliper

Gamma Ray

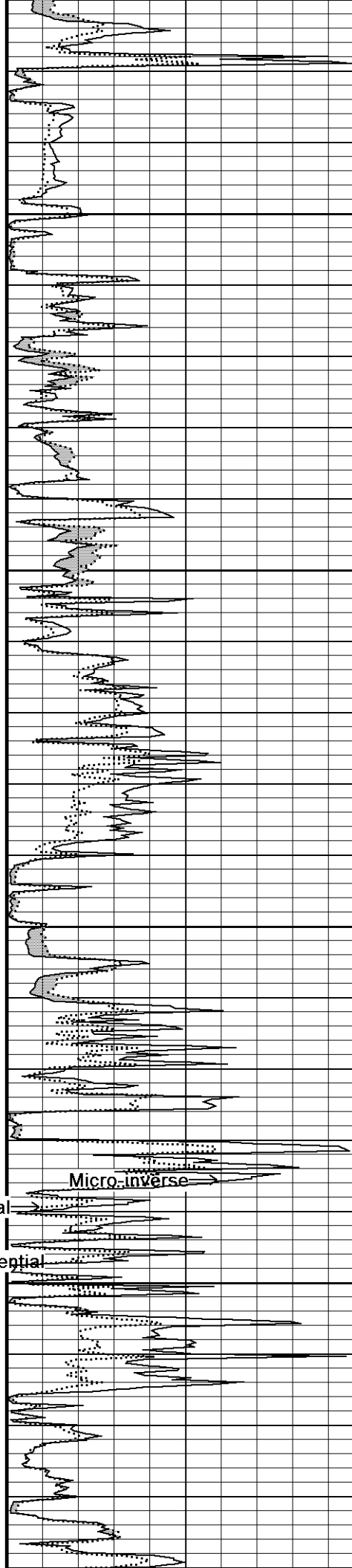
DST Uphole Tension

Micro-normal

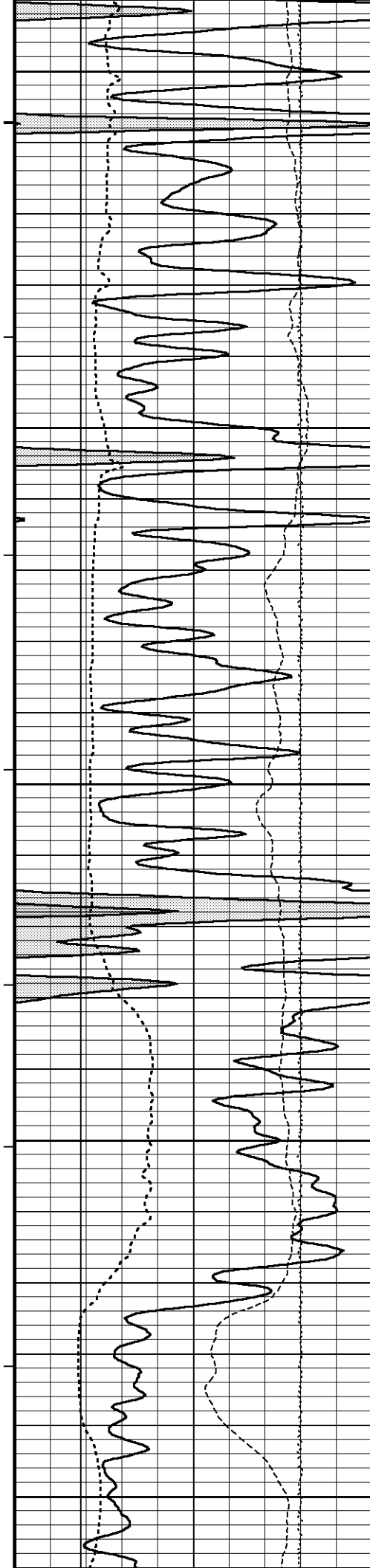
Spontaneous Potential

4600

107°



Micro-inverse



4650

108°

4700

109°

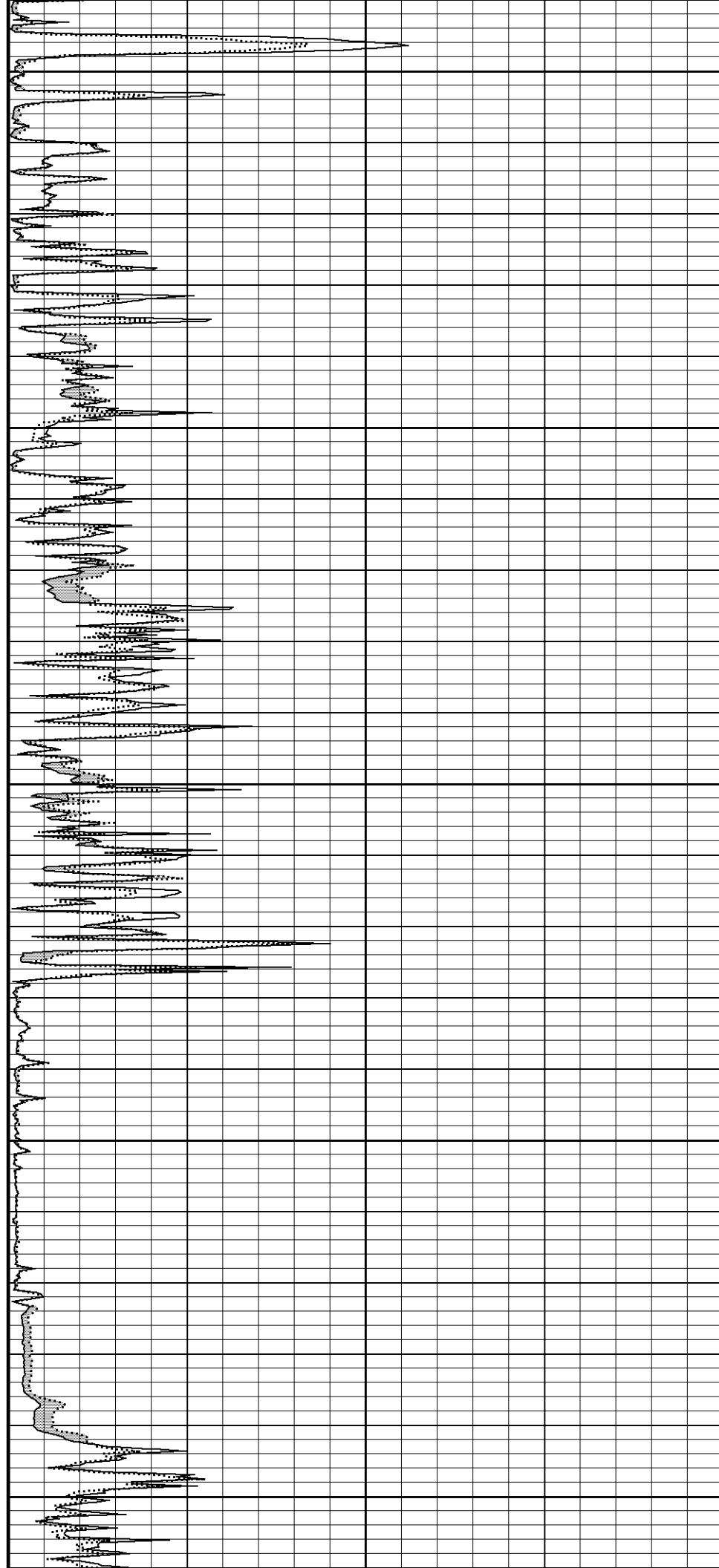
4750

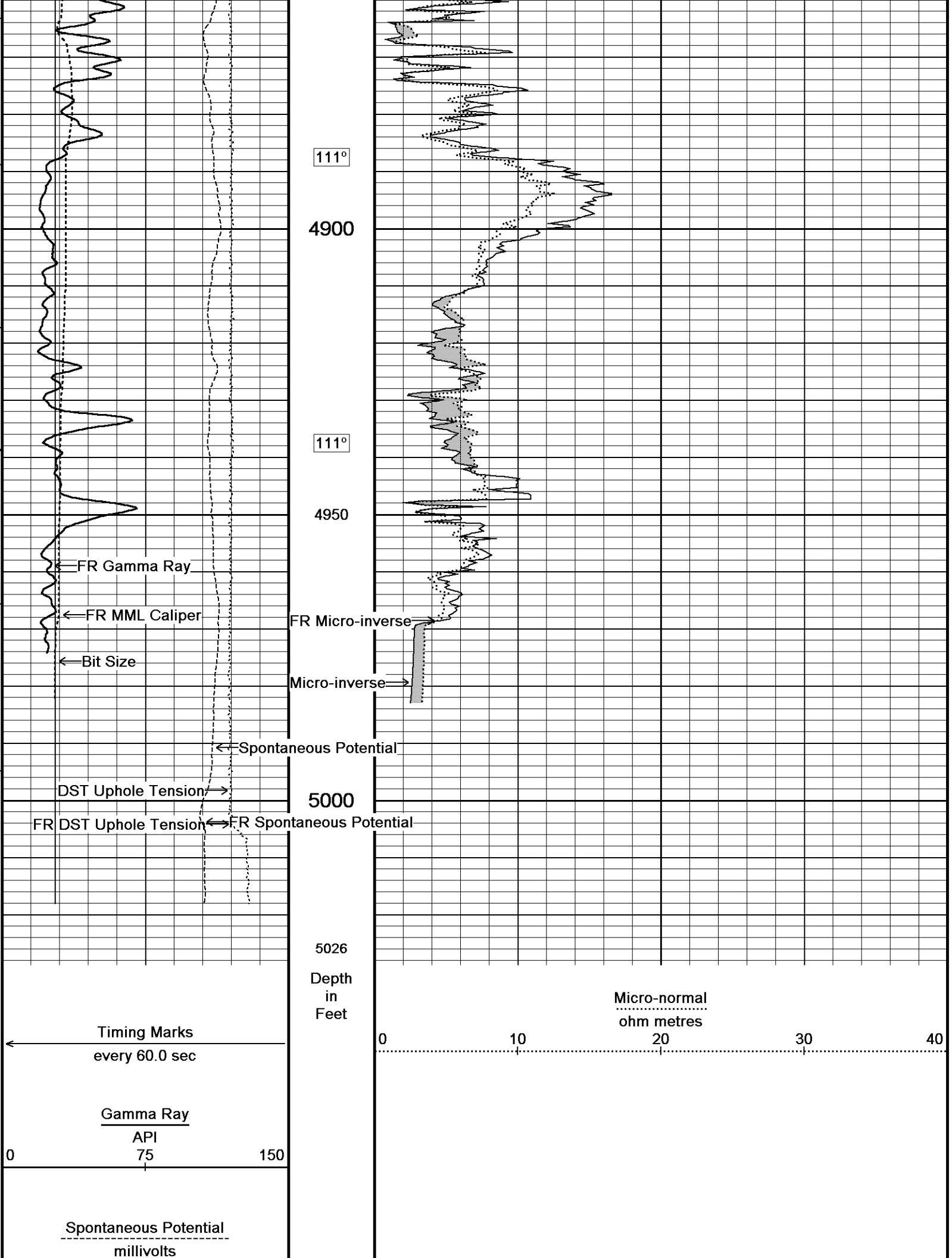
110°

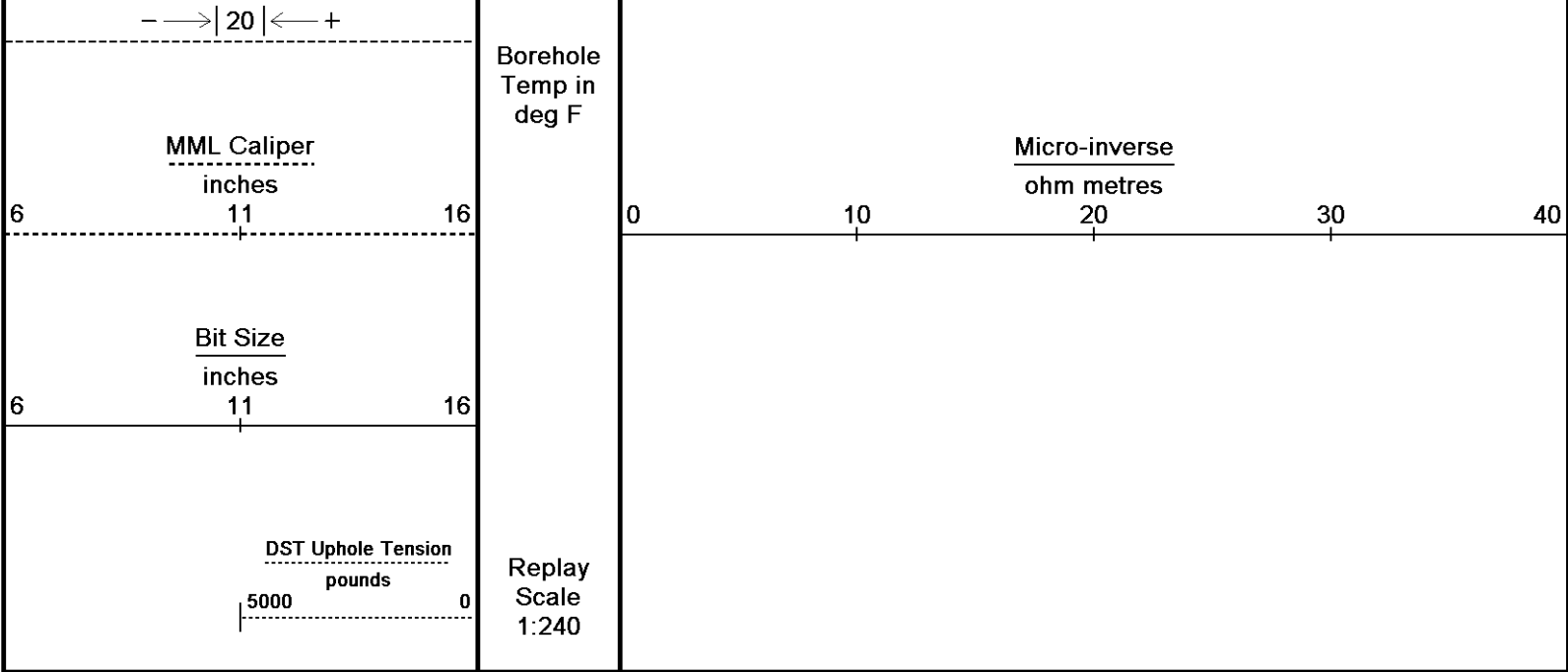
4800

111°

4850





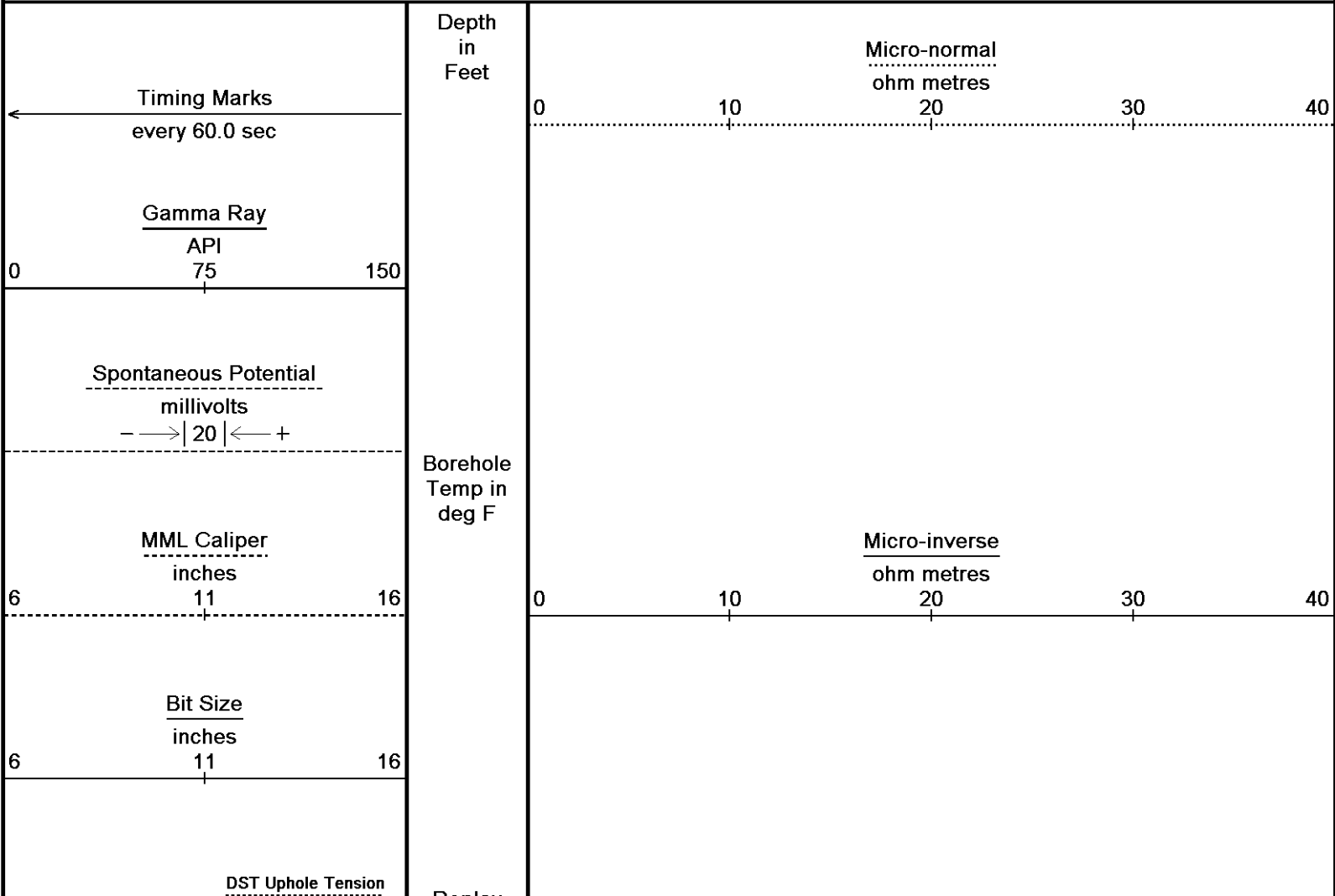


Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 04-JAN-2012 03:43
Filename: C:\Minimus 11.03.4044\Data\Comanche Eder # 6-4\Comanche Eder 6-4_002.dta	Recorded on 04-JAN-2012 00:37
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044	

↑	5 INCH MAIN PASS	↑
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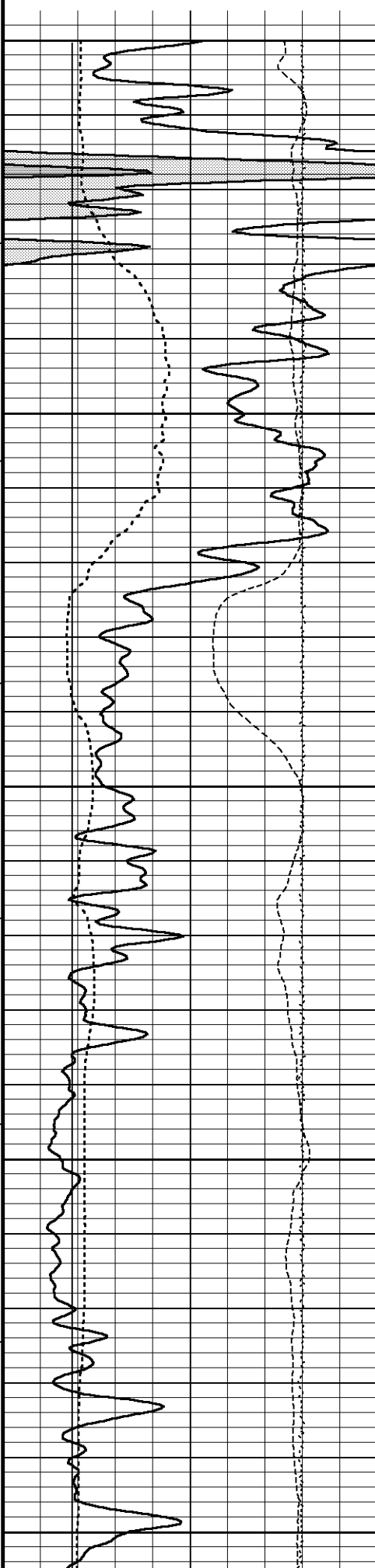
↓	5 INCH REPEAT PASS	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 04-JAN-2012 03:43
Filename: C:\Minimus 11.03.4044\Data\Comanche Eder # 6-4\Comanche Eder 6-4_001.dta	Recorded on 04-JAN-2012 00:17
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044	



pounds
5000 0

Replay
Scale
1:240



4750

108°

4800

110°

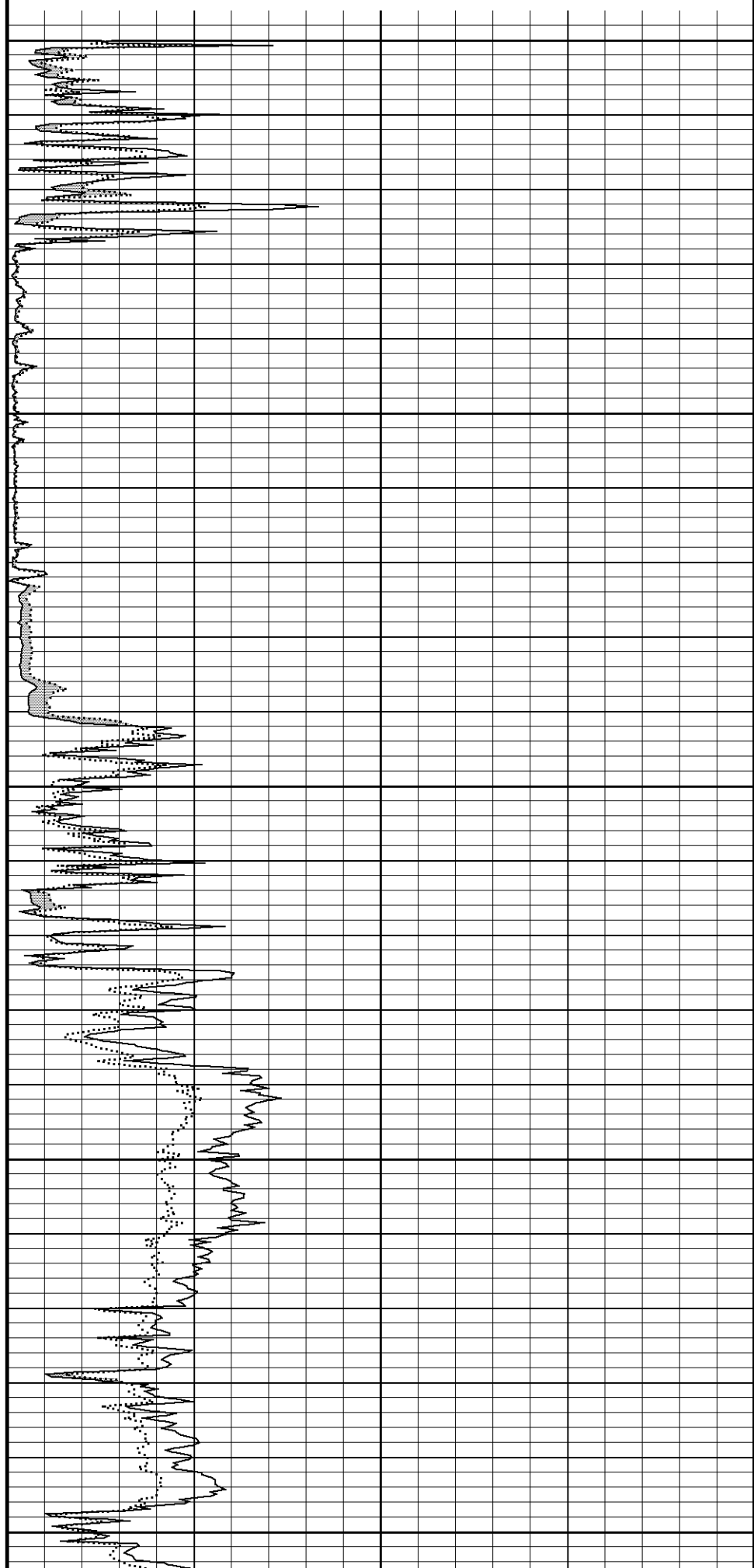
4850

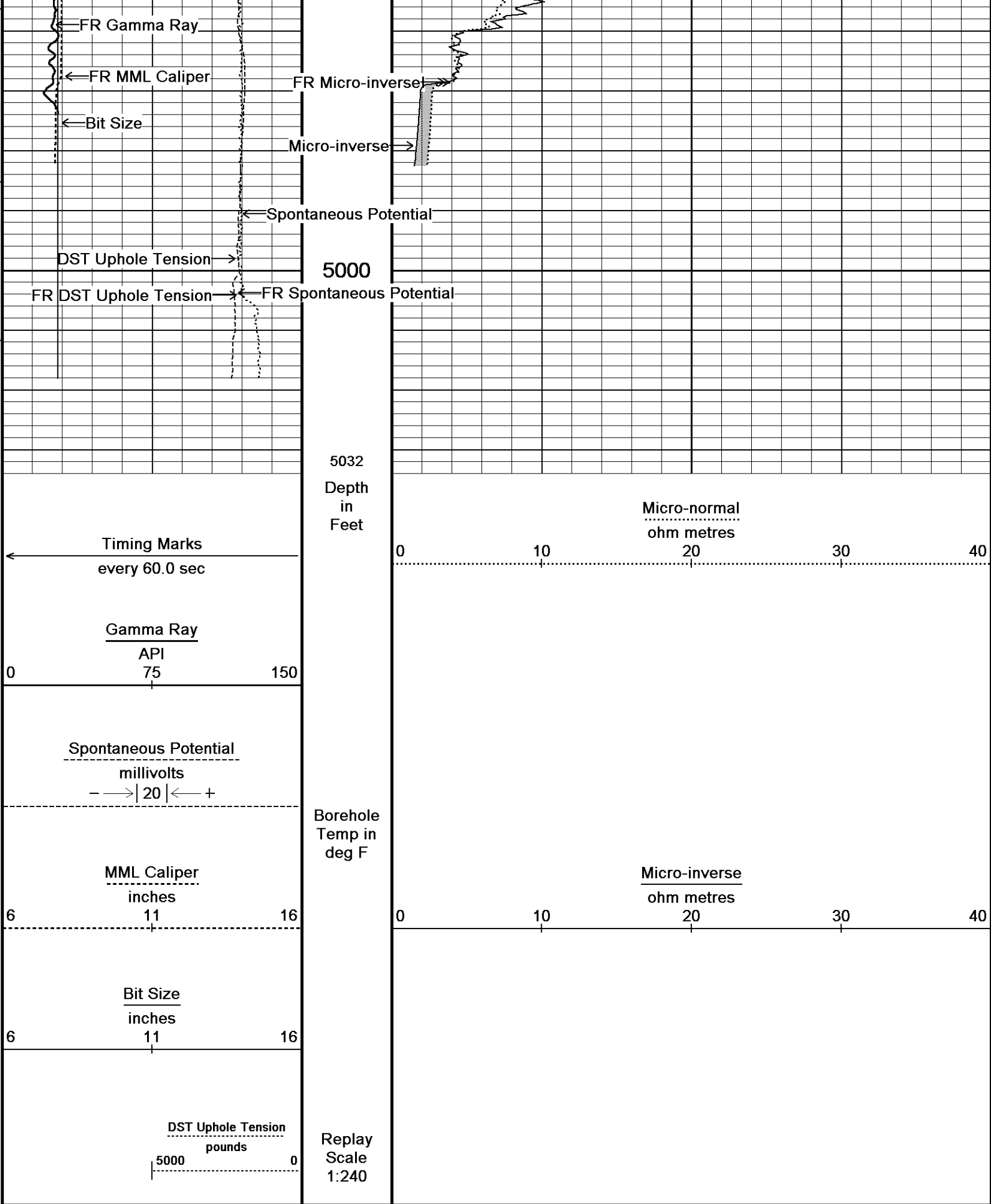
110°

4900

110°

4950





BEFORE SURVEY CALIBRATION

C:\Minimus 11.03.4044\Data\Comanche Eder # 6-4\Comanche Edier 6-4_002.dta

General Constants All 000

Last Edited on 03-JAN-2012,23:46

General Parameters

Mud Resistivity	0.800	ohm-metres
Mud Resistivity Temperature	50.000	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	5.500	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 24-DEC-2011 19:14

Reading No	Measured	Calibrated (lbs)
1	13180.10	0.00
2	14049.87	408.00

Gamma Calibration MCG-D.K 442

Field Calibration on 30-NOV-2011 11:34

	Measured	Calibrated (API)
Background	73	51
Calibrator (Gross)	731	507
Calibrator (Net)	658	456

Gamma Constants MCG-D.K 442

Last Edited on 03-JAN-2012,23:46

Gamma Calibrator Number	grc141	
Mud Density	1.09	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-D.K 442

Field Calibration on 23-SEP-2011 14:10

	Measured	Calibrated (mV)
Reference 1	100.3	100.0
Reference 2	-98.9	-100.0

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 02-DEC-2011,12:34

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

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 25-SEP-2011,21:25

Pre-filter Length	11
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Caliper Calibration MML-A 4

Base Calibration on 26-DEC-2011 14:04

Field Calibration on 03-JAN-2012 11:18

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15032	5.98
2	18428	7.97
3	21790	9.86
4	25773	11.92
5	0	0.00
6	N/A	N/A

Field Calibration	Measured Caliper (in) 5.98	Actual Caliper (in) 5.98
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Micro Normal and Micro Inverse Calibration MML-A 4					Base Calibration on 26-DEC-2011 13:57 Field Check on 03-JAN-2012 11:22	
Base Calibration						
		Measured		Calibrated (ohm-m)		
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2		
Micro Normal	12.2	60.2	2.6	12.8		
Micro Inverse	15.7	78.4	1.7	8.4		
Channel		Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal		32.1		32.1		
Micro Inverse		16.3		16.3		

Micro Normal and Micro Inverse Constants MML-A 4				Last Edited on 26-DEC-2011,13:43	
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	N/A		inches		

Neutron Calibration MDN-A.B 65				Base Calibration on 16-DEC-2011 14:56	
				Field Check on 03-JAN-2012 11:14	
Base Calibration					
		Measured		Calibrated (cps)	
	Near	Far	Near	Far	
	3067	96	3714	110	
Ratio	31.868		33.764		
Field Calibrator at Base			Calibrated (cps)		
			1645	2378	
Ratio	0.692				
Field Check			Calibrated (cps)		
			1658	2359	
Ratio	0.703				

Neutron Constants MDN-A.B 65			Last Edited on 03-JAN-2012,23:46		
Neutron Source Id	757				
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-A.A 55			Base Calibration on 16-DEC-2011 15:40 Field Check on 03-JAN-2012 11:26	
Base Calibration				
	Measured		Calibrated (ohm-m)	
Reference 1	0.0		0.0	
Reference 2	951.4		126.8	
Base Check			281.6	
Field Check			281.6	

FE Constants MFE-A.A 55		Last Edited on 03-JAN-2012,23:47	
Running Mode	No Sleeve		

Running Mode	NO CORRECTION	
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 45

Base Calibration on 13-OCT-2011 14:35

Field Check on 03-JAN-2012 11:30

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature 79.4 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	18.8	3852.2
2	0.0	0.0	31.8	3630.0
3	0.0	0.0	28.7	3050.0
4	0.0	0.0	18.4	2079.5
Deep	0.0	0.0	16.1	1911.6
Medium	0.0	0.0	42.6	4061.5
Shallow	0.0	0.0	49.7	5484.1

Array Temperature 0.0 65.1 Deg F

Induction Constants MAI-A.A 45

Last Edited on 03-JAN-2012,23:47

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	

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

High Resolution Temperature Constants MAI-A.A 45

Last Edited on

Pre-filter Length 11

Photo Density Calibration MPD-B 64

Base Calibration on 08-DEC-2011 15:10

Field Check on 03-JAN-2012 11:06

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	47904	25079	59556	30836
Reference 2	19725	2537	24941	2541

Field Check at Base

1205.0 1399.0

Field Check

1205.2 1397.8

PE Calibration

Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	220	1077		
Reference 1	18004	47717	0.381	0.371
Reference 2	5349	19592	0.277	0.272

Field Check at Base

219.9 1077.0

Field Check

219.0 1077.4

Density Constants MPD-B 64

Last Edited on 03-JAN-2012,23:47

Density Source Id	254	
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 (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 08-DEC-2011 14:37

Field Calibration on 03-JAN-2012 11:08

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	12765	3.99
2	21501	5.98
3	30128	7.97
4	38369	9.86
5	47411	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)
5.96Actual Caliper (in)
5.98

DOWNHOLE EQUIPMENT

C:\Minimus 11.03.4044\Data\Comanche Eder # 6-4\Comanche Edier 6-4_002.dta

MCB-A.A 11B Tension Cablehead

MCB-A.A 175 LG: 2.40 ft WT: 19.8 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 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

MDN-A.B 65 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

SKJ-D.A Compact Knuckle Joint

SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

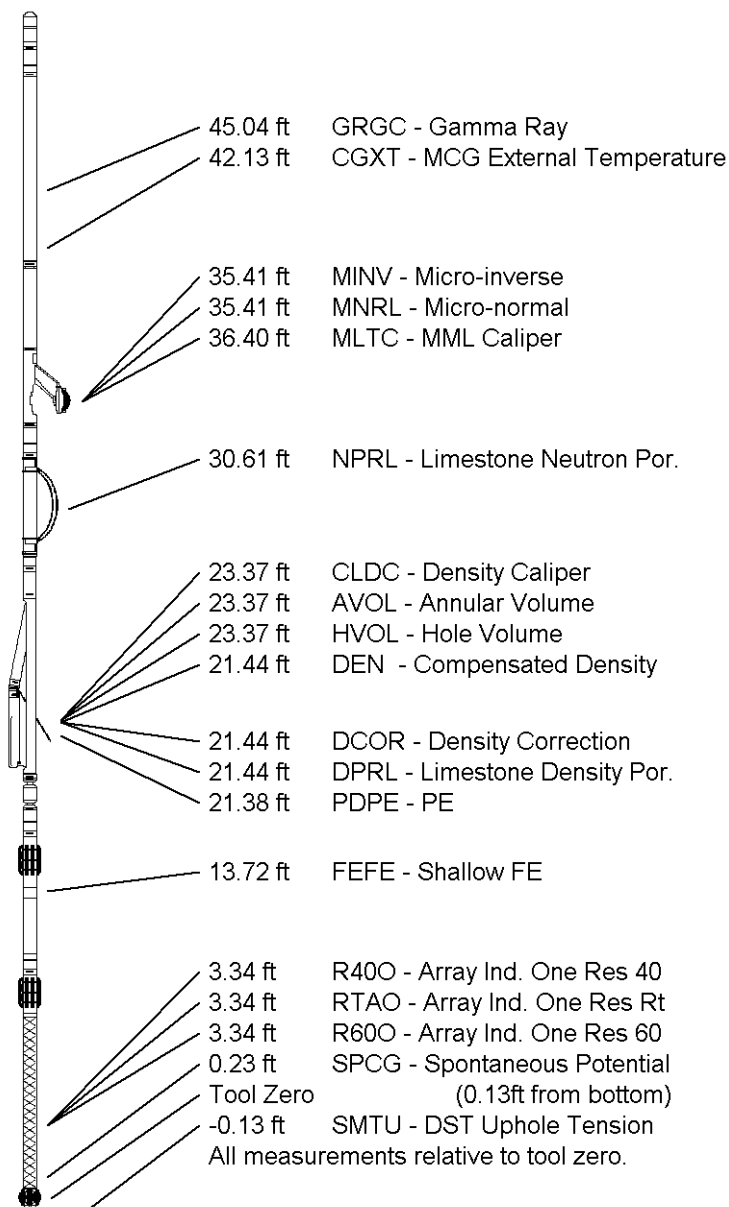
Compact Focussed Electric

MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 52.72 ft Weight: 427.7 lb



COMPANY

COMANCHE RESOURCES COMPANY

WELL

EDER # 6-4

FIELD

WILDCAT

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE

U.S.A. / KANSAS

Elevation Kelly Bushing	3081.00	feet
Elevation Drill Floor	3079.00	feet
Elevation Ground Level	3070.00	feet

First Reading	4968.00	feet
Depth Driller	5000.00	feet
Depth Logger	5004.00	feet



MICRORESISTIVITY LOG



