

**Weatherford****MICRORESISTIVITY LOG**

COMPANY

STELBAR OIL CORPORATION, INC.

WELL

LPR #1-17

FIELD

WILDCAT

PROVINCE/COUNTY

LOGAN

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

1230' FSL & 1748' FEL

NW NE SW SE

SEC

TWP

RGE

Other Services
MPD/MDN

17

15S

33W

MAI/MFE

API Number

15-109-21146

MSS

Permit Number

Permanent Datum G.L., Elevation 2944 feet

Log Measured From KB

Drilling Measured From K.B.

Date

07-JAN-2013

Run Number

ONE

Service Order

3537802

Depth Driller

4685.00

feet

Depth Logger

4686.00

feet

First Reading

4640.00

feet

Last Reading

3400.00

feet

Casing Driller

303.00

feet

Casing Logger

304.00

inches

Bit Size

7.875

Hole Fluid Type

CHEMICAL

lb/USg

Density / Viscosity

9.00

lb/USg

64.00

CP

PH / Fluid Loss

10.50

10.50

Sample Source

FLOWLINE

Rm @ Measured Temp

0.44 @ 79.0

ohm-m

Rmf @ Measured Temp

0.35 @ 79.0

ohm-m

Rmc @ Measured Temp

0.53 @ 79.0

ohm-m

Source Rmf / Rmc

CALC

CALC

Rm @ BHT

0.33 @ 107.0

ohm-m

Time Since Circulation

5 HOURS

Max Recorded Temp

107.00

deg F

Equipment / Base

13096

LIB

Recorded By

LYNN SCOTT

DAVE GOLDAK

BOREHOLE RECORD

Last Edited: 07-JAN-2013 07:06

Bit Size
inches

7.875

Depth From
feet

304.00

Depth To
feet

4686.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

0.00

Shoe Depth
feet

304.00

Weight
pounds/ft

24.00

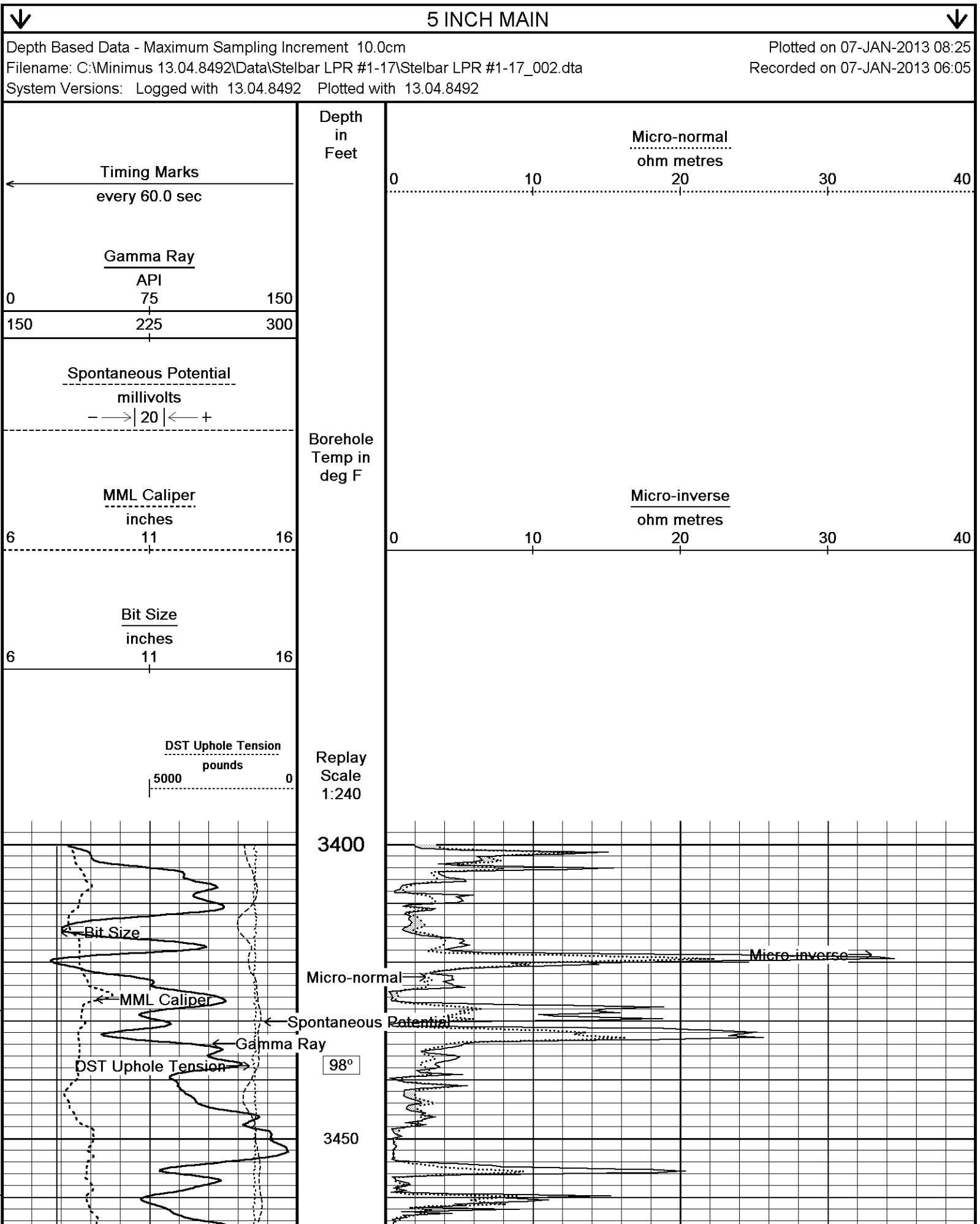
REMARKS

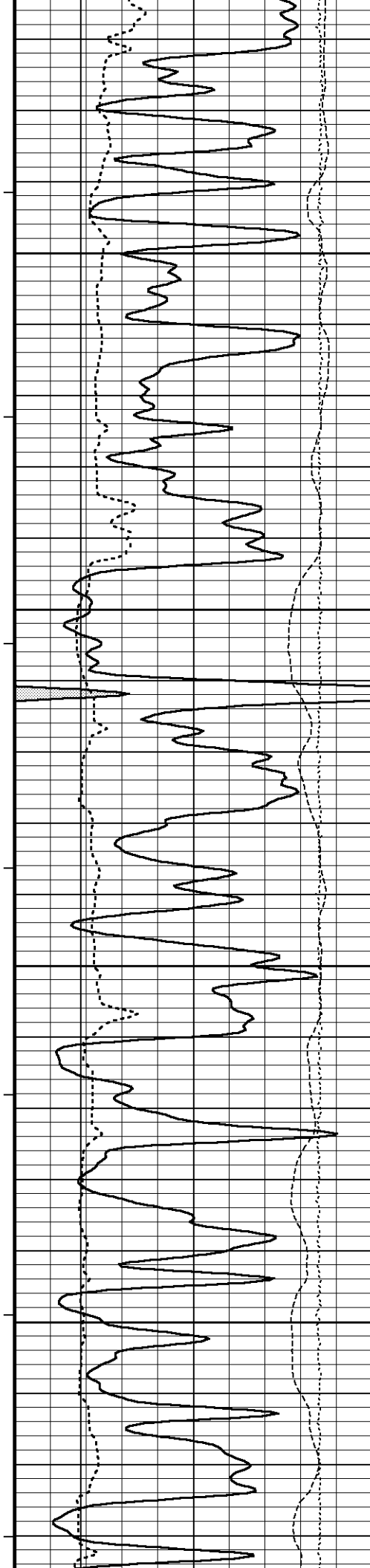
Tools Ran: MCG, MML, MDN, MPD, MFE, MSS, MAI ran in combination.
Hardware Used: MPD: 8 inch profile plate used. MAI, MSS and MFE: 0.5 inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone Density porosity used to calculate porosity.
Sonic porosity calculated using a Limestone scale (47.5 usec/ft).
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= 2171 cubic feet
Annular hole volume with 5.5 Inch casing from TD to 3400 ft.= 241 cubic feet
Service order: 3537802
Rig: Pickrell #10
Engineer: L. Scott
Operator(s): B. Reeves

The software duplicates the pH value on the fluid loss. The Fluid loss should be 10.4.

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.





98°

3500

99°

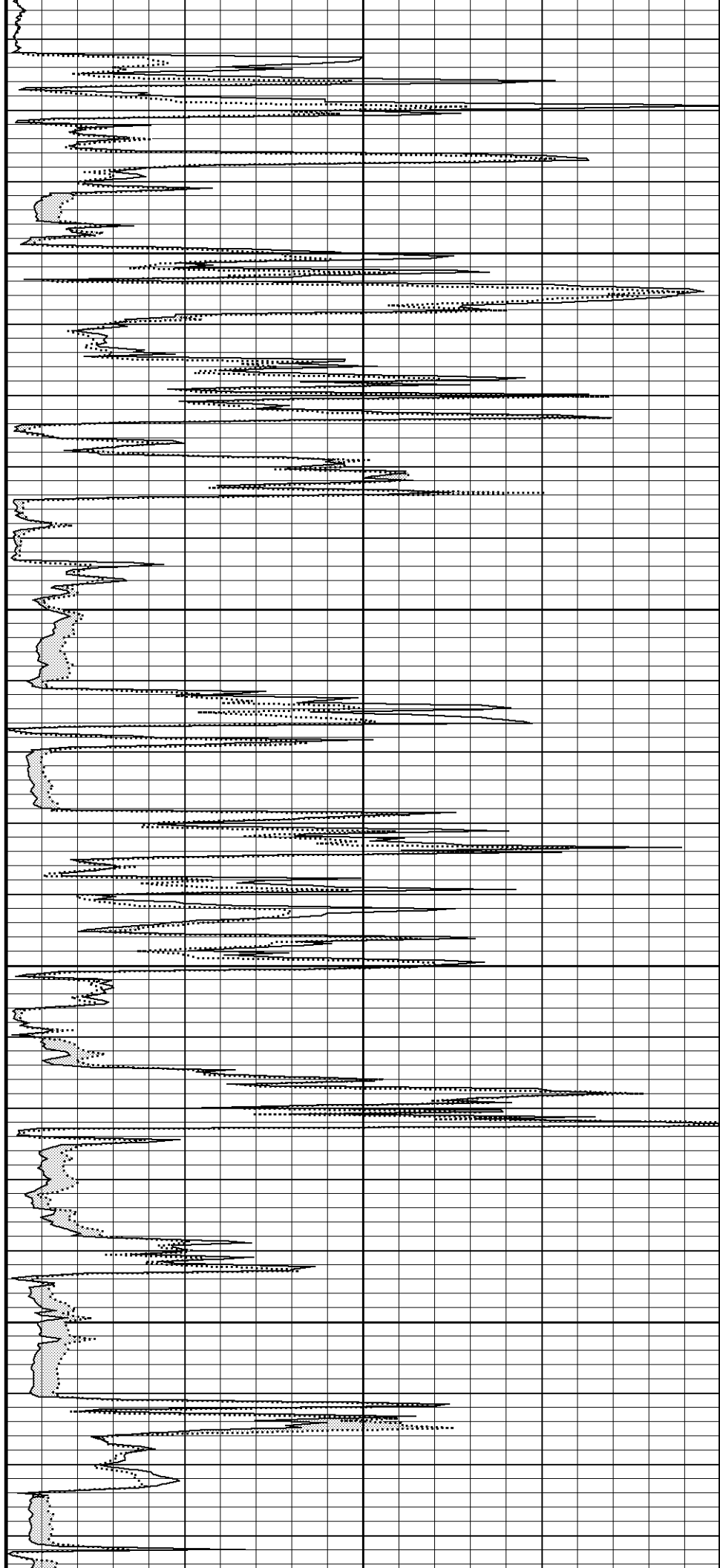
3550

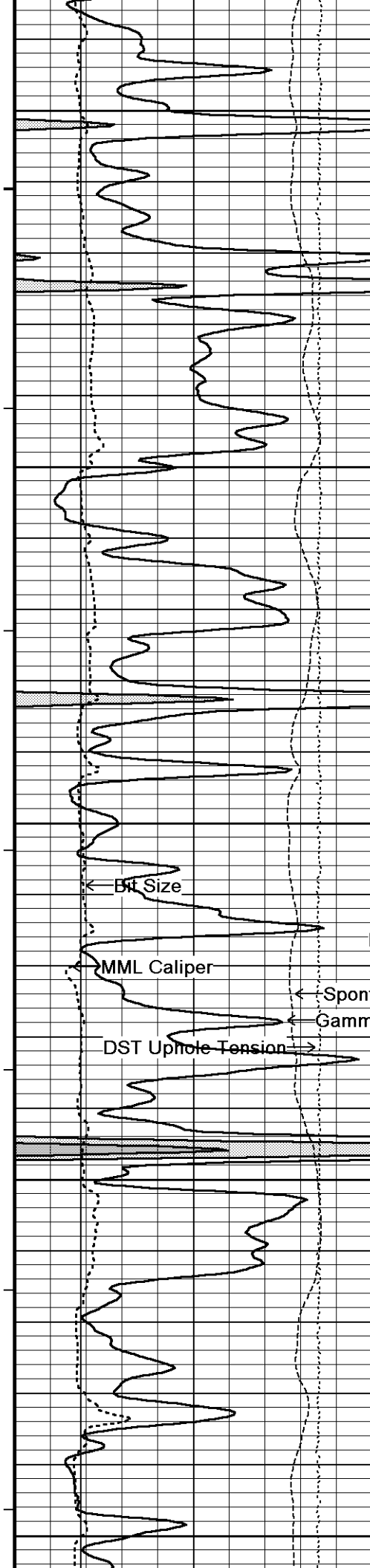
99°

3600

99°

3650





99°

3700

99°

3750

100°

3800

Micro-inverse

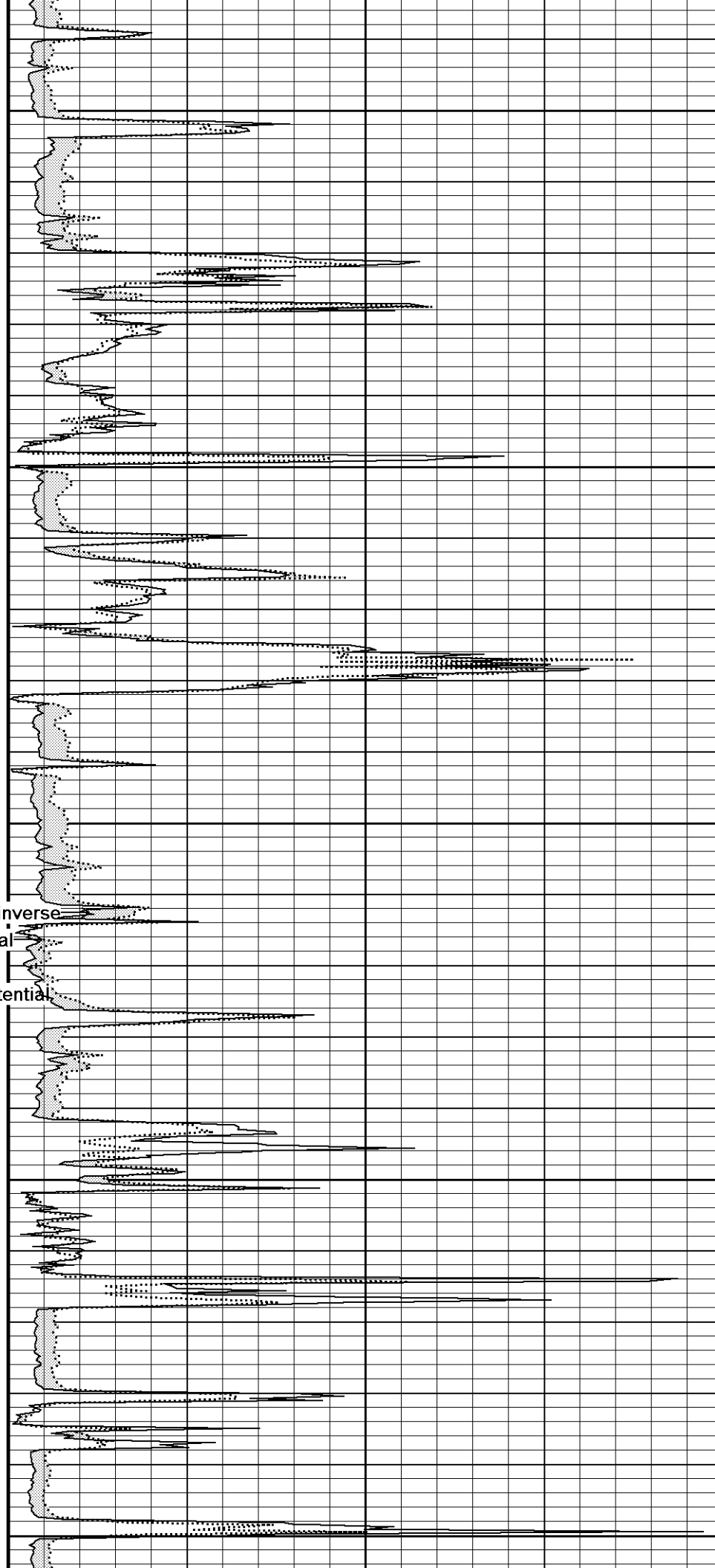
Micro-normal

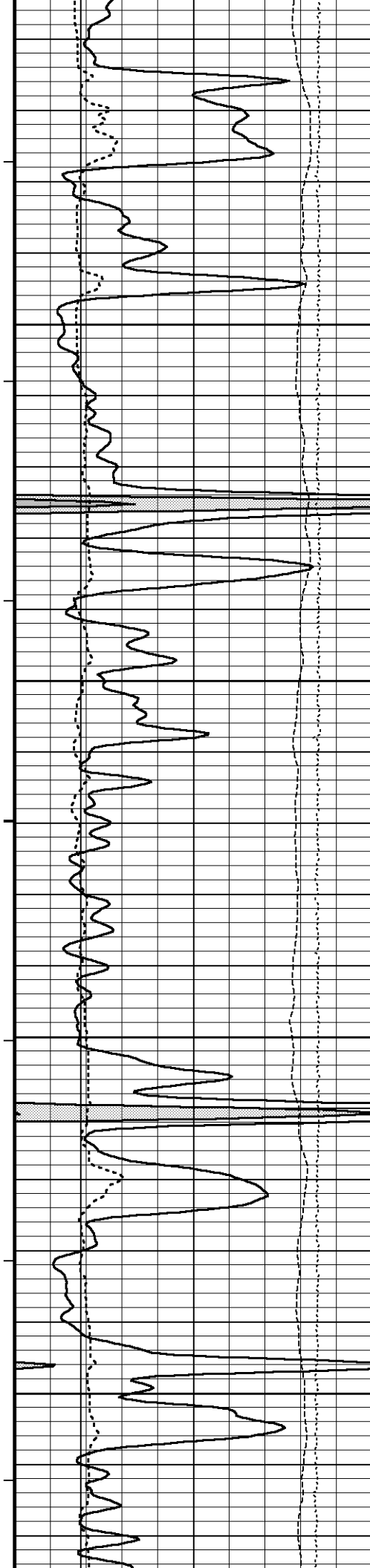
100°

3850

100°

3900





100°

3950

101°

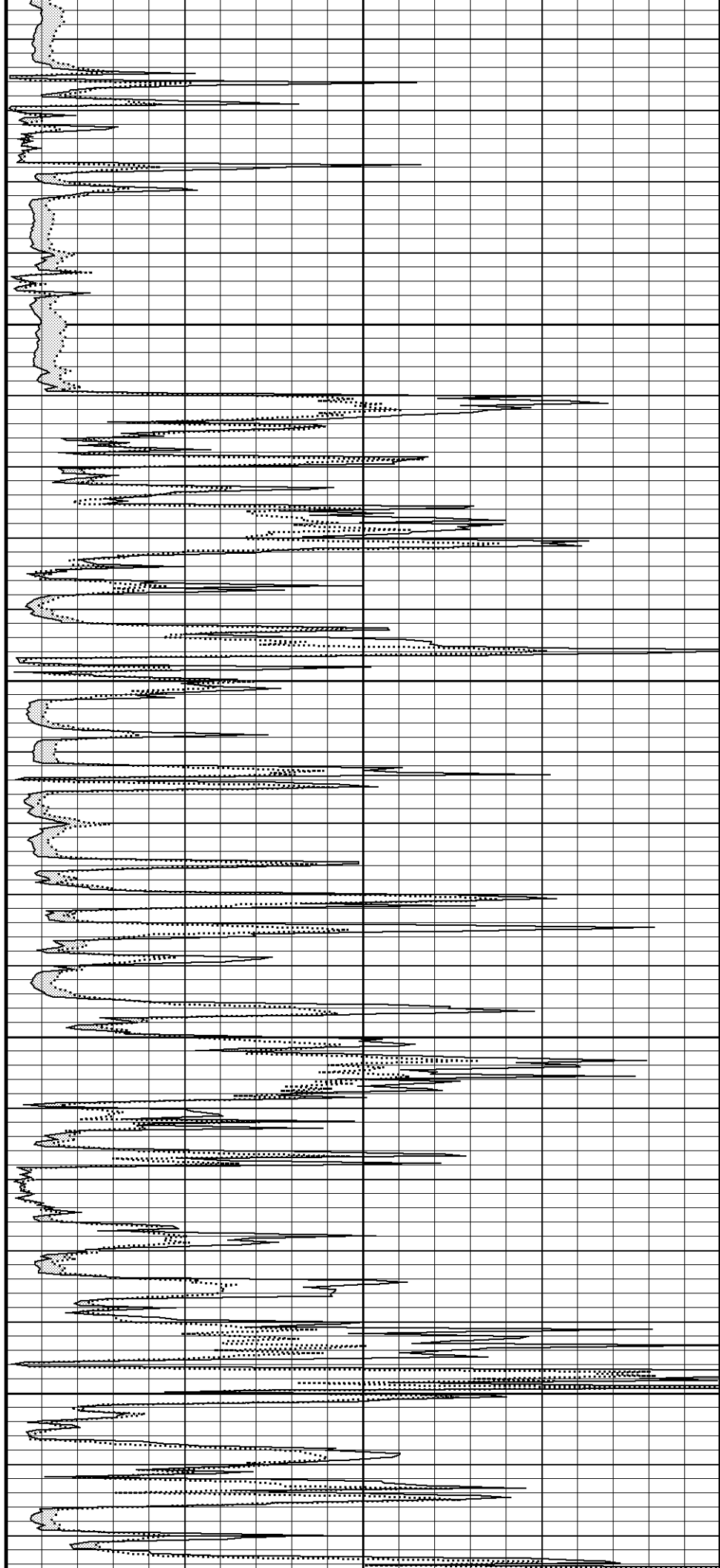
4000

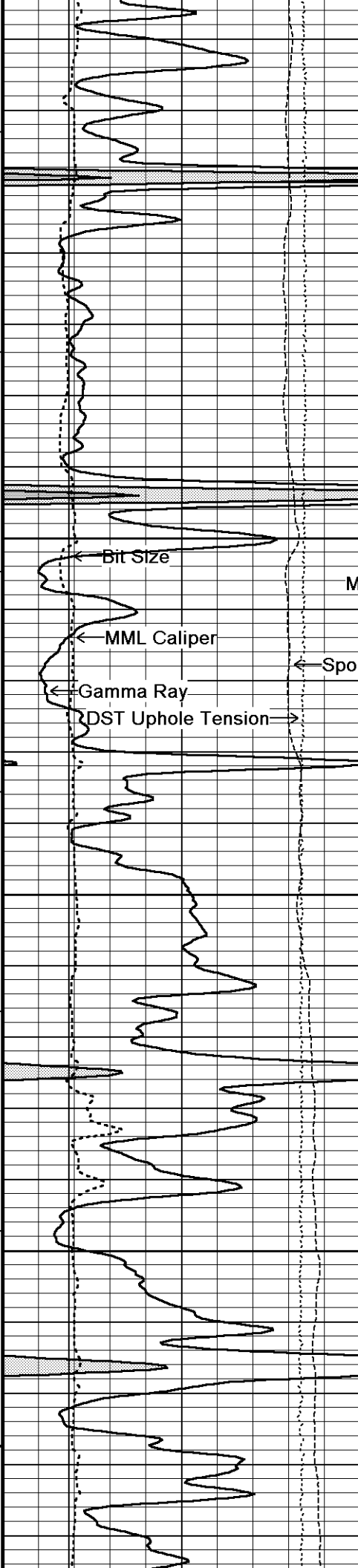
101°

4050

101°

4100





102°

4150

102°

4200

Micro-inverse

Micro-normal

Spontaneous Potential

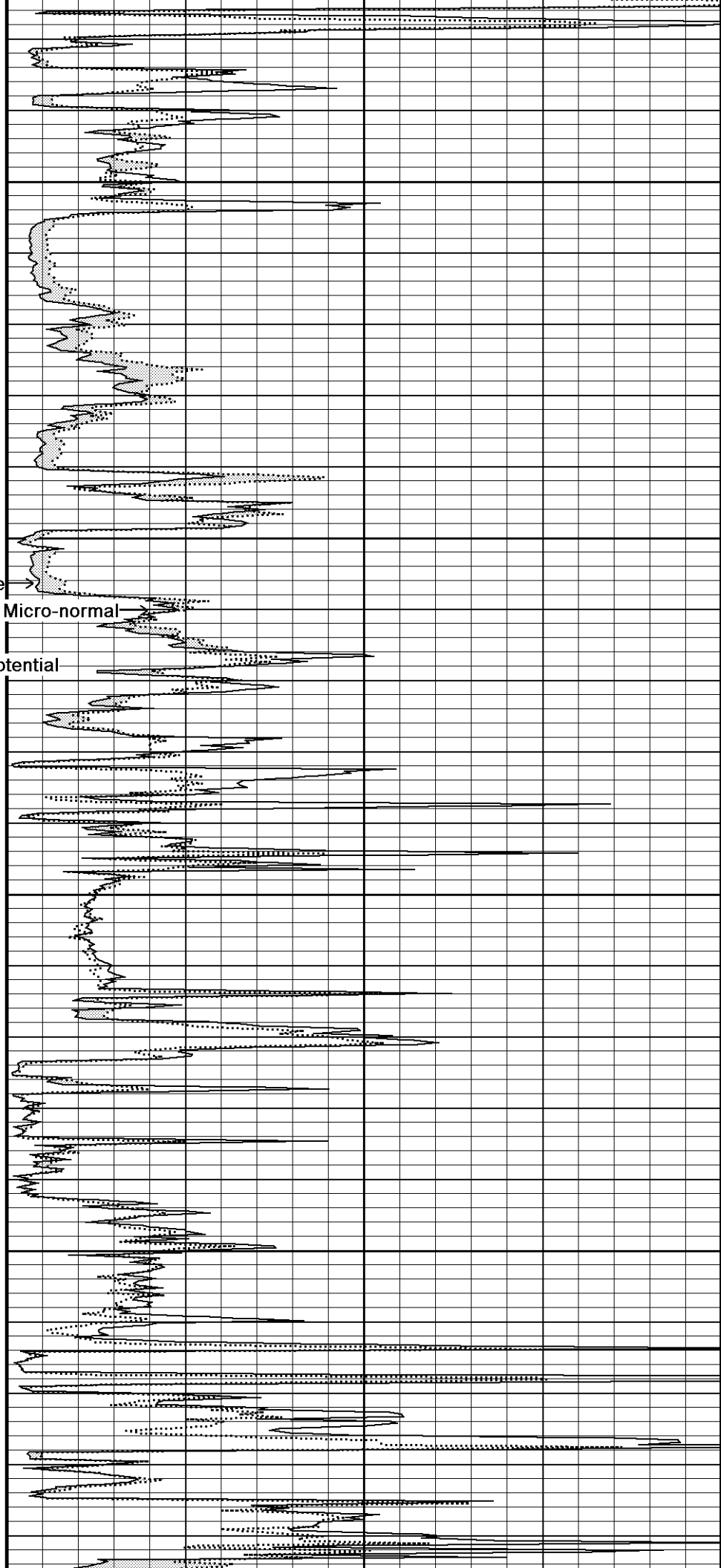
102°

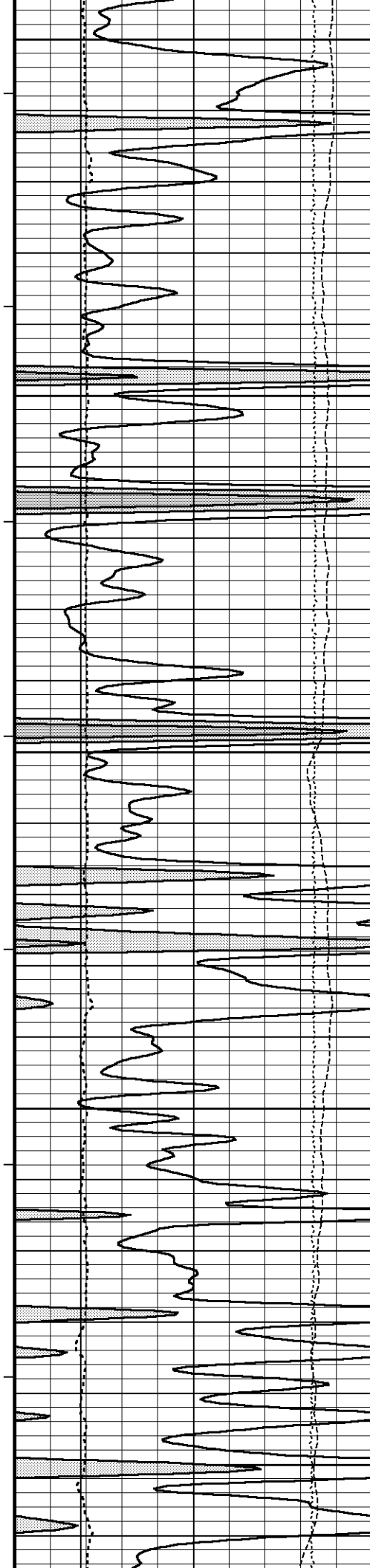
4250

103°

4300

103°





4350

104°

4400

105°

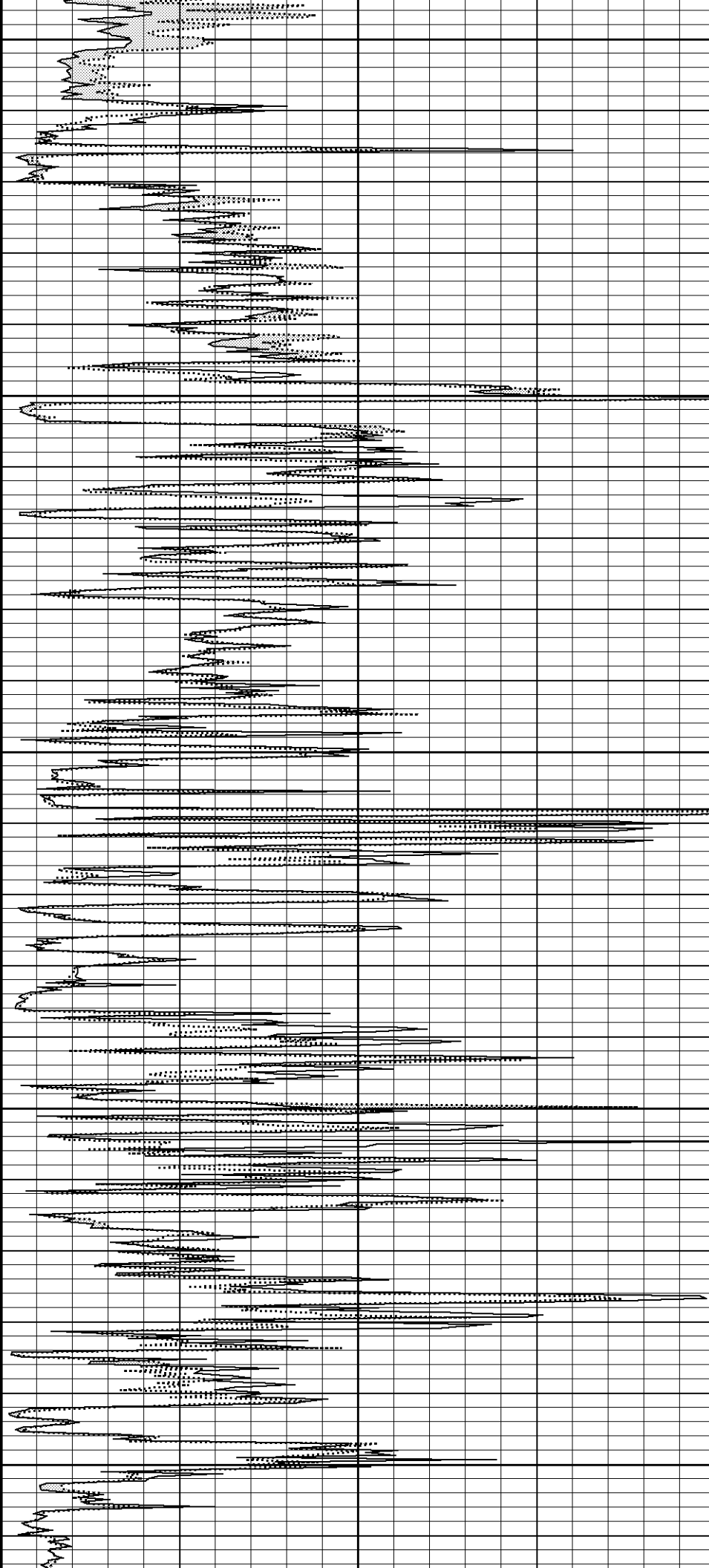
4450

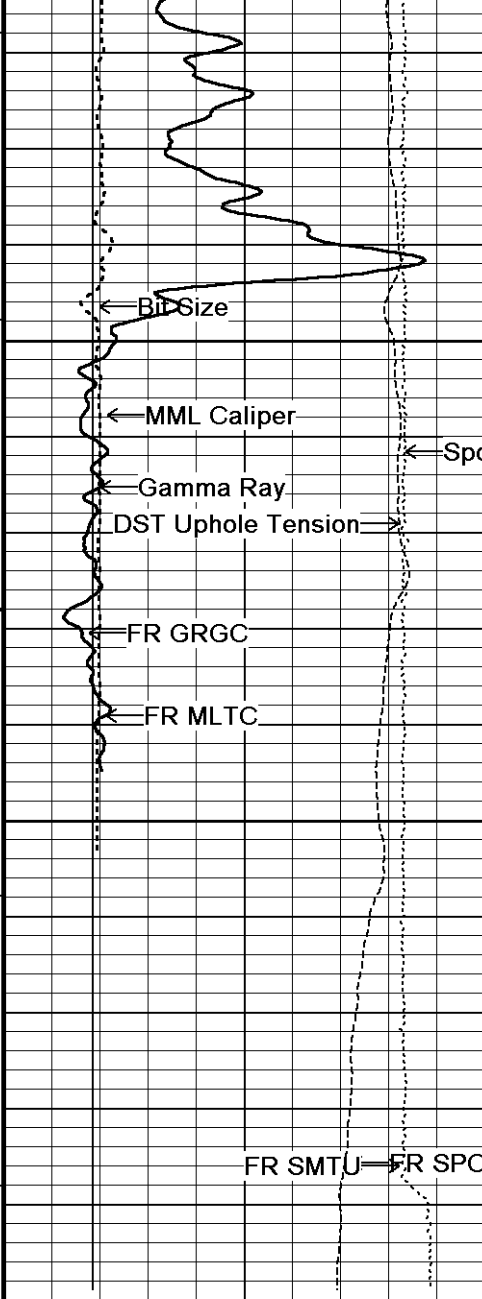
106°

4500

107°

4550





108°

4600

107°

4650

4700

4708

Depth
in
Feet

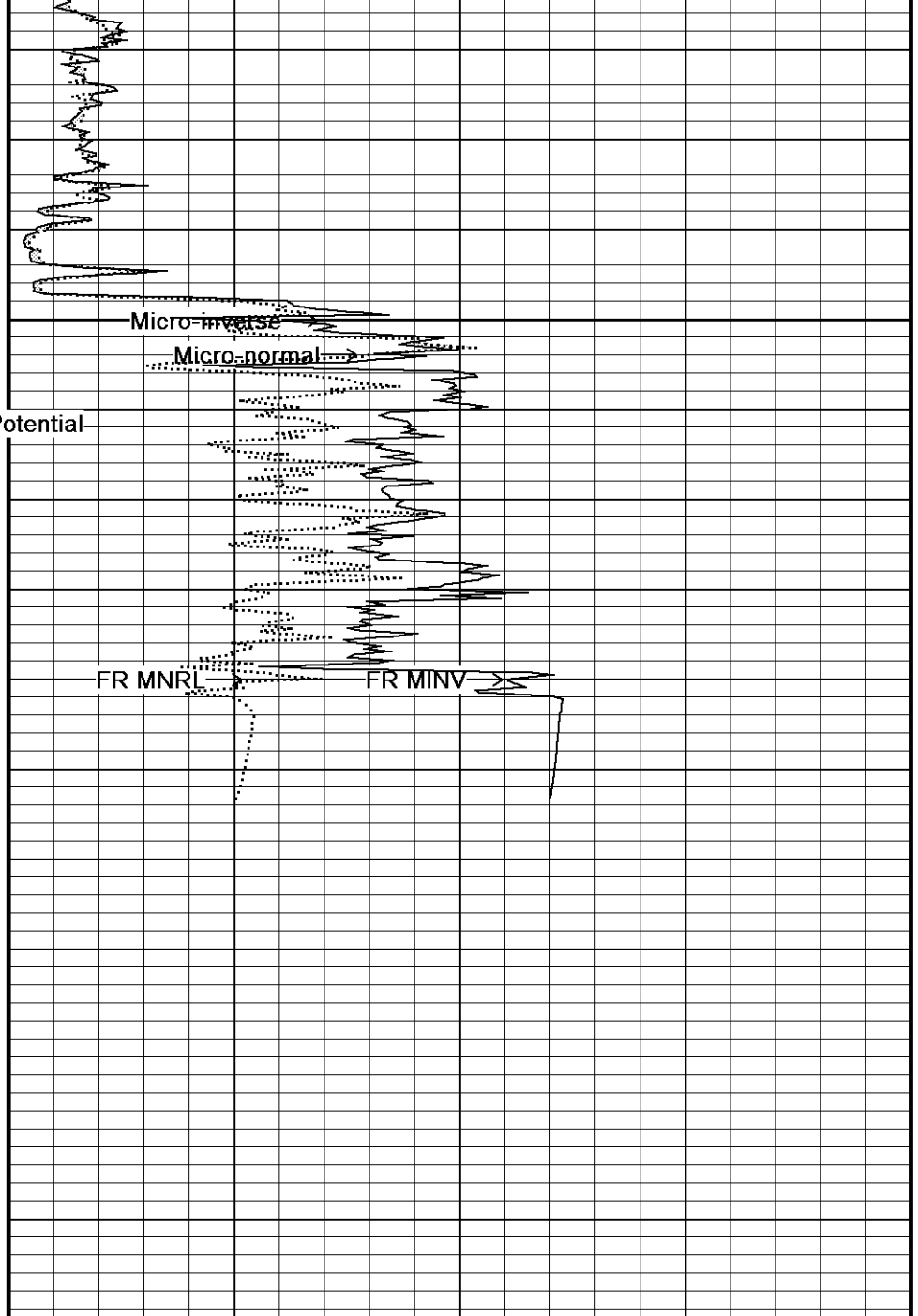
Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
—→| 20 |←+

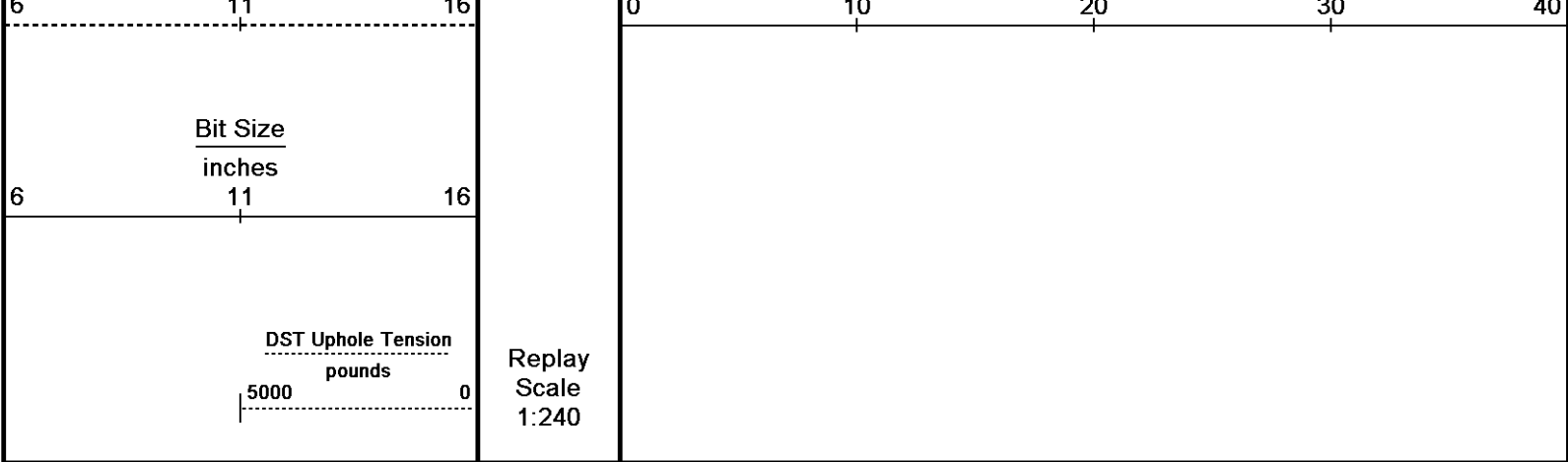
MML Caliper
inches
0 11 12

Borehole
Temp in
deg F



Micro-normal
ohm metres
0 10 20 30 40

Micro-inverse
ohm metres
0 10 20 30 40

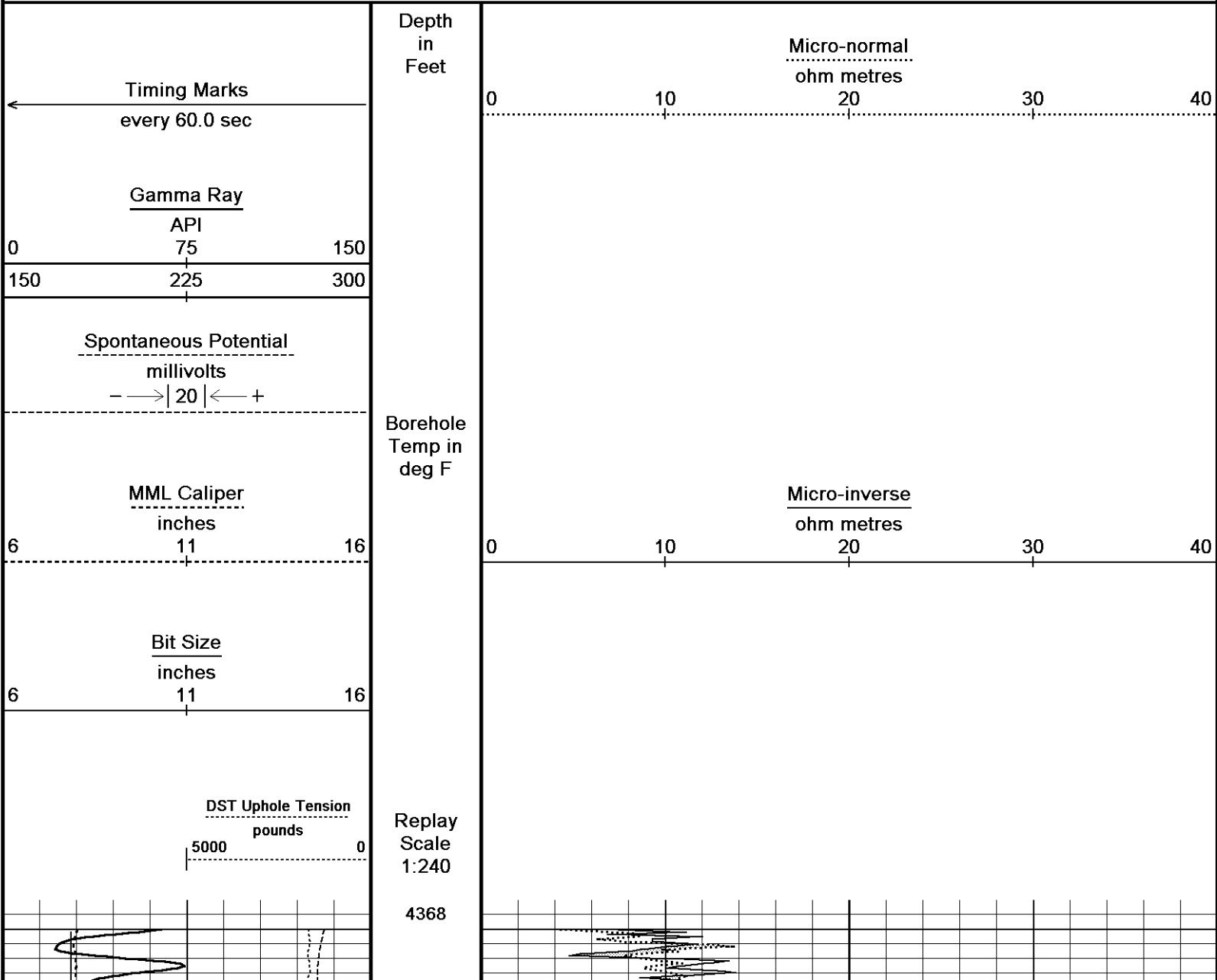


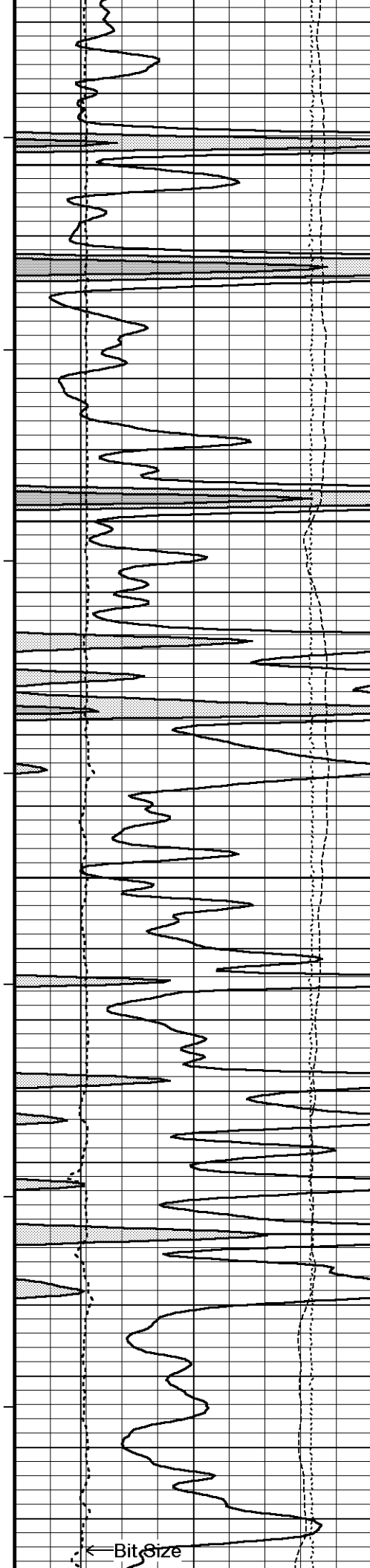
Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 07-JAN-2013 08:25
Filename: C:\Minimus 13.04.8492\Data\Stelbar LPR #1-17\Stelbar LPR #1-17_002.dta	Recorded on 07-JAN-2013 06:05
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492	

↑	5 INCH MAIN	↑
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↓	REPEAT SECTION	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 07-JAN-2013 08:25
Filename: C:\Minimus 13.04.8492\Data\Stelbar LPR #1-17\Stelbar LPR #1-17_001.dta	Recorded on 07-JAN-2013 05:48
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492	





4400

104°

4450

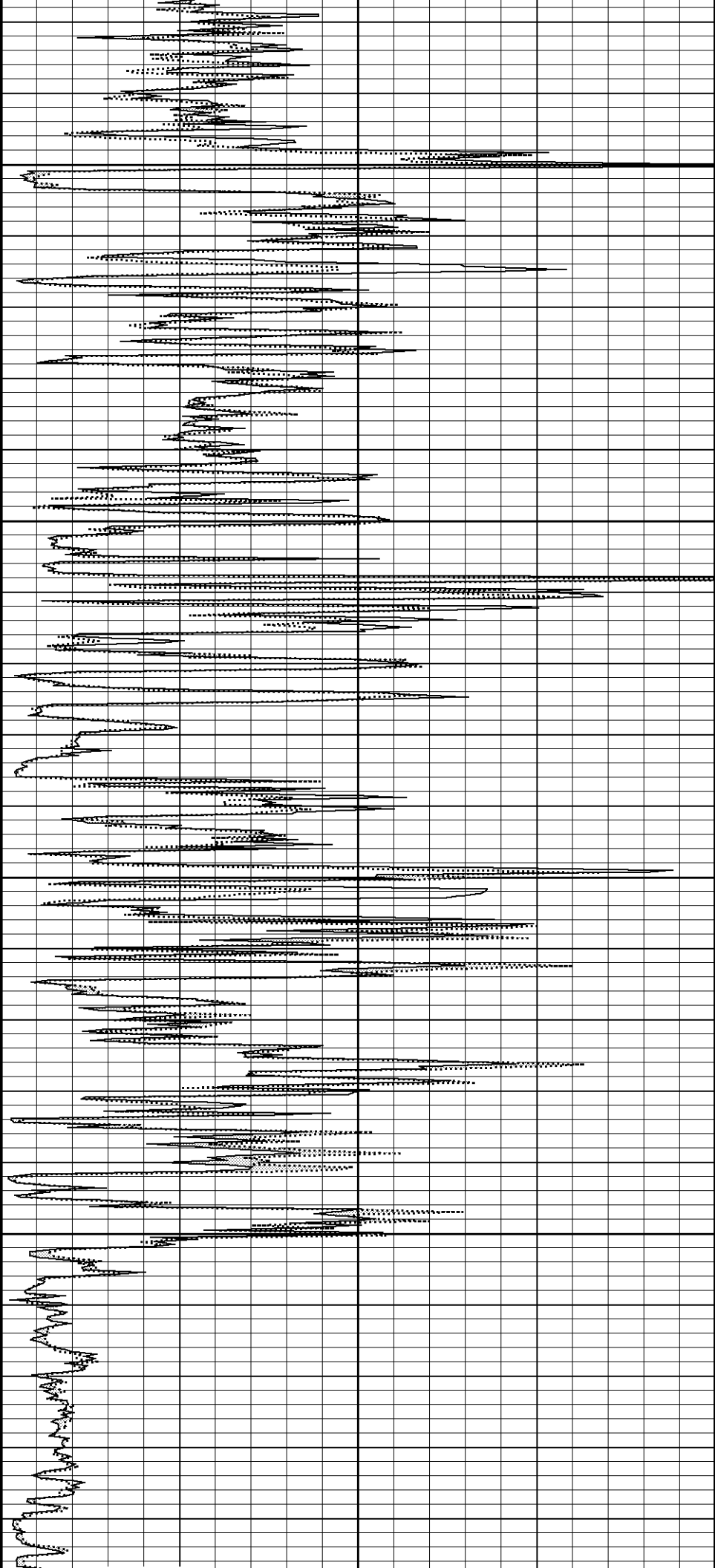
105°

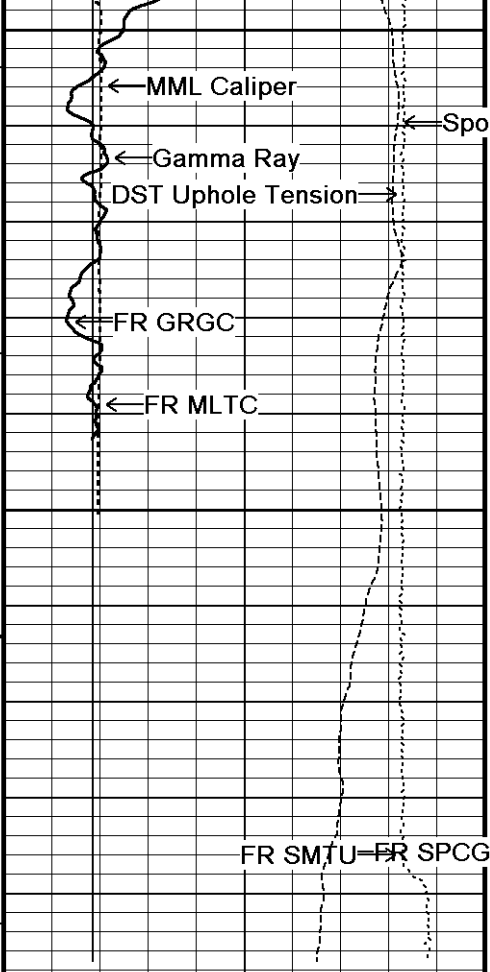
4500

106°

4550

106°





4600

106°

4650

4700

4710
Depth
in
Feet

← Timing Marks
every 60.0 sec

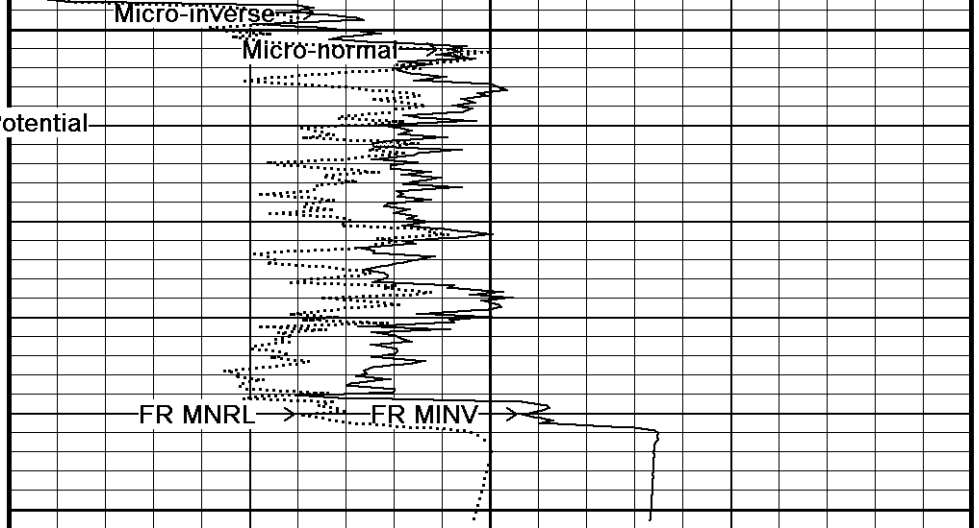
Gamma Ray
API
0 75 150
150 225 300

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

MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Borehole
Temp in
deg F



Micro-normal
ohm metres
0 10 20 30 40

Micro-inverse
ohm metres
0 10 20 30 40

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 07-JAN-2013 08:25

Filename: C:\Minimus 13.04.8492\Data\Stelbar LPR #1-17\Stelbar LPR #1-17_001.dta

Recorded on 07-JAN-2013 05:48

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492



REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 13.04.8492\Data\Stelbar LPR #1-17\Stelbar LPR #1-17_001.dta

General Constants All 000

Last Edited on 07-JAN-2013,02:57

General Parameters

Mud Resistivity	0.440	ohm-metres
Mud Resistivity Temperature	79.000	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	Density Caliper	

Rwa Parameters

Porosity used	Base Density Porosity
Resistivity used	Array Ind. Four Res Rt
RWA Constant A	1.000
RWA Constant M	2.000

Down-hole Tension Calibration SMS 0

Field Calibration on 02-JAN-2013 05:23

Reading No	Measured	Calibrated (lbs)
1	13709.50	0.00
2	14142.20	390.00

High Resolution Temperature Calibration MCG-B 34

Field Calibration on 08-NOV-2012,10:05

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

High Resolution Temperature Constants MCG-B 34

Last Edited on 08-NOV-2012,10:04

Pre-filter Length	11
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SP Calibration MCG-B 34

Field Calibration on 08-NOV-2012 10:10

	Measured	Calibrated (mV)
Reference 1	107.1	100.0
Reference 2	-93.0	-100.0

Gamma Calibration MCG-B 34

Field Calibration on 06-JAN-2013 23:19

	Measured	Calibrated (API)
Background	68	46
Calibrator (Gross)	1125	771
Calibrator (Net)	1057	725

Gamma Constants MCG-B 34

Last Edited on 07-JAN-2013,02:58

Gamma Calibrator Number	GRC38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 13-DEC-2012 09:14
Field Check on 06-JAN-2013 23:14

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	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 Normal and Micro Inverse Constants MML-A 16

Last Edited on 06-JAN-2013,23:13

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			

Caliper Calibration MML-A 16

Base Calibration on 13-DEC-2012 09:09
Field Calibration on 06-JAN-2013 23:13

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14167	5.98
2	17246	7.97
3	20473	9.86
4	24393	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.95	5.98

Neutron Calibration MDN-A.B 66

Base Calibration on 13-DEC-2012 15:33
Field Check on 06-JAN-2013 23:26

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2993	92	3714	110
Ratio	32.445		33.764	

Field Calibrator at Base

Calibrated (cps)
1709 2478
Ratio 0.690

Field Check

Calibrated (cps)
1706 2480
Ratio 0.682

Neutron Constants MDN-A.B 66

Last Edited on 06-JAN-2013,23:13

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
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FF Calibration MFF-B.J 353

Base Calibration on 13-DEC-2012 09:28

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.3	126.8
Base Check		281.1
Field Check		281.0

FE Constants MFE-B.J 353

Last Edited on 07-JAN-2013,02:58

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

Sonic Constants MSS-C.K 330

Last Edited on 14-NOV-2012,11:39

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	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	0.00	micro-sec
MX3FT	1500.00	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	0.0000	0.0000
Free Pipe	0.0000	

Peak Amplitude Source

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)	Depth (ft)	
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	0.00	0.00	0.00	

Full Waveform Parameters

Use 3' Waveform to derive TR	No
Use 4' Waveform to derive TR	No
Use 5' Waveform to derive TR	No
Use 6' Waveform to derive TR	No
3' Waveform Discriminator Level	0.30 mV
4' Waveform Discriminator Level	0.30 mV
5' Waveform Discriminator Level	0.15 mV
6' Waveform Discriminator Level	0.15 mV
3' Waveform Filter	
4' Waveform Filter	

5' Waveform Filter
6' Waveform Filter

Semblance Level	0.50	
Semblance Window Width	120.00	micro-sec
Sonic 1 Despiker	100.00	micro-sec/ft
Sonic 2 Despiker	100.00	micro-sec/ft

High Resolution Temperature Calibration MAI-A.A 167

Field Calibration on 14-NOV-2012,09:17

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.80

High Resolution Temperature Constants MAI-A.A 167

Last Edited on 16-DEC-2012,13:35

Pre-filter Length	11
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Induction Calibration MAI-A.A 167

Base Calibration on 14-NOV-2012,09:21
Field Check on 06-JAN-2013 22:58

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.3	474.2	9.3	966.2
2	6.3	388.4	7.6	821.4
3	3.3	259.4	5.2	566.0
4	1.9	133.0	2.6	279.2

Array Temperature	76.8	Deg F
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Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	12.7	3840.8
2	0.0	0.0	29.5	3478.8
3	0.0	0.0	29.1	3054.6
4	0.0	0.0	19.8	2082.6
Deep			18.6	2049.7
Medium			42.2	3993.6
Shallow			42.8	5057.2

Array Temperature	0.0	67.4	Deg F
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Induction Constants MAI-A.A 167

Last Edited on 07-JAN-2013,02:58

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

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	

Caliper Calibration MPD-B 64

Base Calibration on 13-DEC-2012 14:47
Field Calibration on 06-JAN-2013 23:01

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	12994	3.99
2	21855	5.98
3	30456	7.97
4	38925	9.86
5	48176	11.92
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.95	5.98

Photo Density Calibration MPD-B 64

Base Calibration on 13-DEC-2012 15:03
Field Check on 06-JAN-2013 23:11

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	59295	32863	59556	30836
Reference 2	24770	2893	24941	2541

Field Check at Base	1180.9	1372.2
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Field Check	1178.7	1360.4
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PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	215	1052		
Reference 1	22270	59095	0.380	0.371
Reference 2	6705	24633	0.275	0.272

Field Check at Base	215.4	1052.3
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Field Check	215.0	1050.9
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Density Constants MPD-B 64

Last Edited on 07-JAN-2013,02:58

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
0.00
0.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.04.8492\Data\Stelbar LPR #1-17\Stelbar LPR #1-17_001.dta

Compact Comms Gamma
MCG-B 34 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

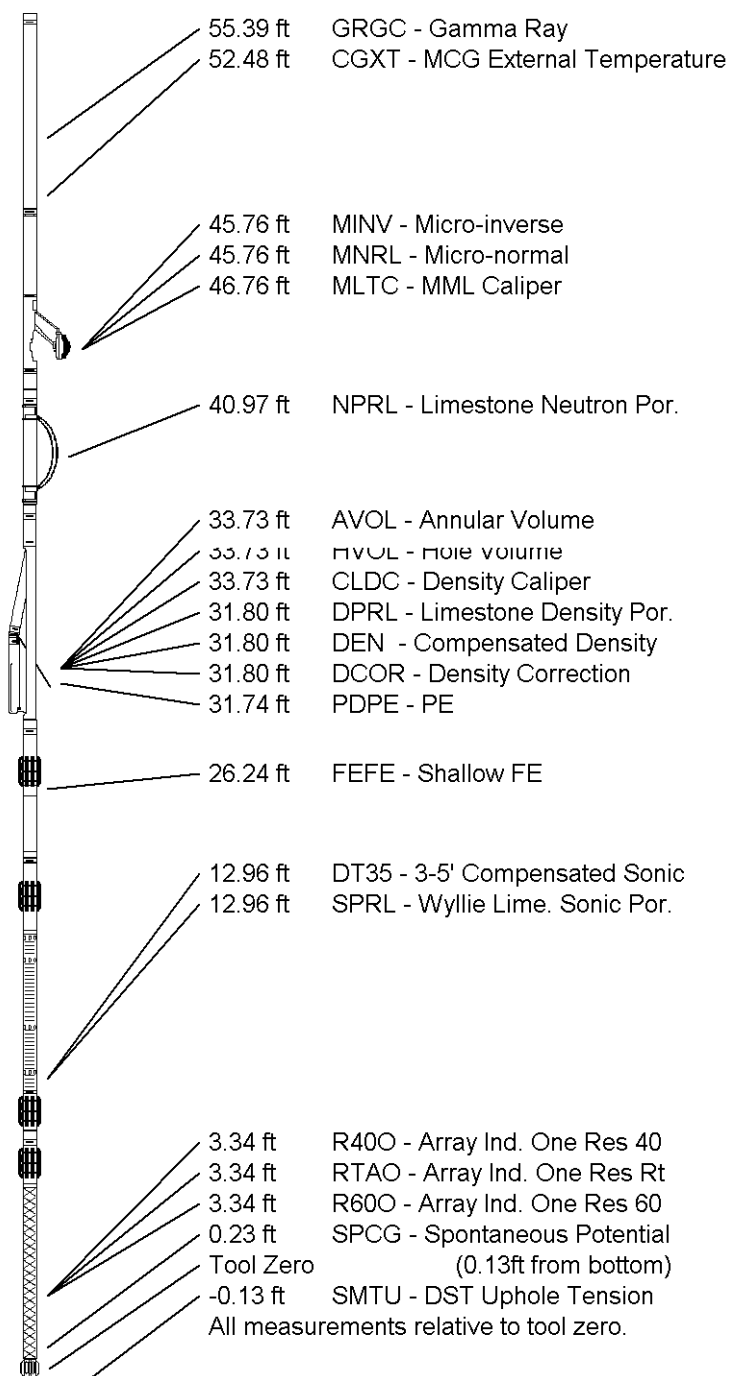
Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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

Compact Sonic
MSS-C.K 330 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: 60.68 ft Weight: 456.4 lb



COMPANY

STELBAR OIL CORPORATION, INC.

WELL

LPR #1-17

FIELD

WILDCAT

PROVINCE/COUNTY

LOGAN

COUNTRY/STATE

U.S.A. / KANSAS

Elevation Kelly Bushing 2951.00 feet

Elevation Drill Floor 2950.00 feet

First Reading 4640.00 feet

Depth Driller 4685.00 feet

Elevation Ground Level	2944.00	feet	Depth Logger	4686.00	feet
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