



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1074232
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1074232

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

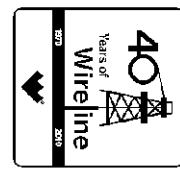
DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Weatherford[®]

**ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG**

COMPANY M&M EXPLORATION, INC.
WELL Z-BAR #18-13
FIELD AETNA NE
PROVINCE/COUNTY BARBER
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 1100' FSL & 330' FWL
SW/4



SEC 18	TWP 34S	RGE 14W	Other Services MPD/MDN	MML	Elevations: KB 1705.00 DF 1703.00 GL 1693.00
API Number 15-007-23792		Permit Number		Permanent Datum G.L., Elevation 1693 feet	
Log Measured From KB		Drilling Measured From K.B.		Date 04-DEC-2011	
Run Number	ONE				
Depth Driller	5100.00		feet		
Depth Logger	5105.00		feet		
First Reading	5102.00		feet		
Last Reading	919.00		feet		
Casing Driller	920.00		feet		
Casing Logger	919.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.00	lb/USg	38.00	CP	
PH / Fluid Loss	10.00		9.20	ml/30Min	
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.87	@ 62.0	ohm-m		
Rmf @ Measured Temp	0.70	@ 62.0	ohm-m		
Rmc @ Measured Temp	1.04	@ 62.0	ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.48	@ 112.0	ohm-m		
Time Since Circulation	4 HOURS				
Max Recorded Temp	112.00		deg F		
Equipment Name	COMPACT				
Equipment / Base	13025		LIB		
Recorded By	L. SCOTT				
Witnessed By	BETH BROCK				
S.O.# / JOB#	3531211		LB11-307		

BOREHOLE RECORD

Last Edited: 04-DEC-2011 14:52

Bit Size inches	Depth From feet	Depth To feet
7.875	919.00	5105.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	919.00	24.00

REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MML
 Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
 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.
 Annular volume with 4.5 inch production casing = 274 cu. ft.
 Service order #3531211
 Rig: Southwind #70
 Engineer(s): L. Scott
 Operator(s): J. LaPoint

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.

2 INCH MAIN

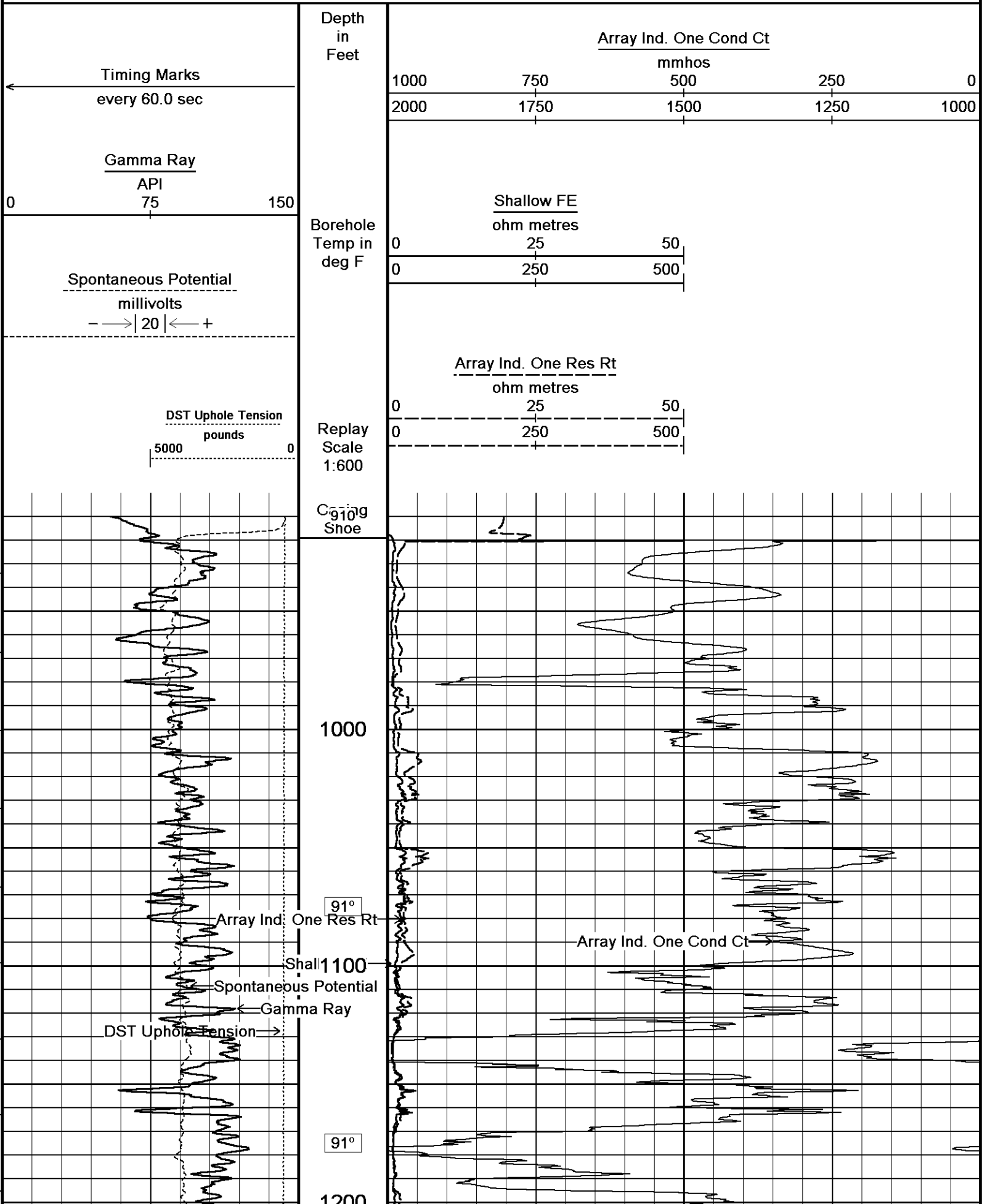
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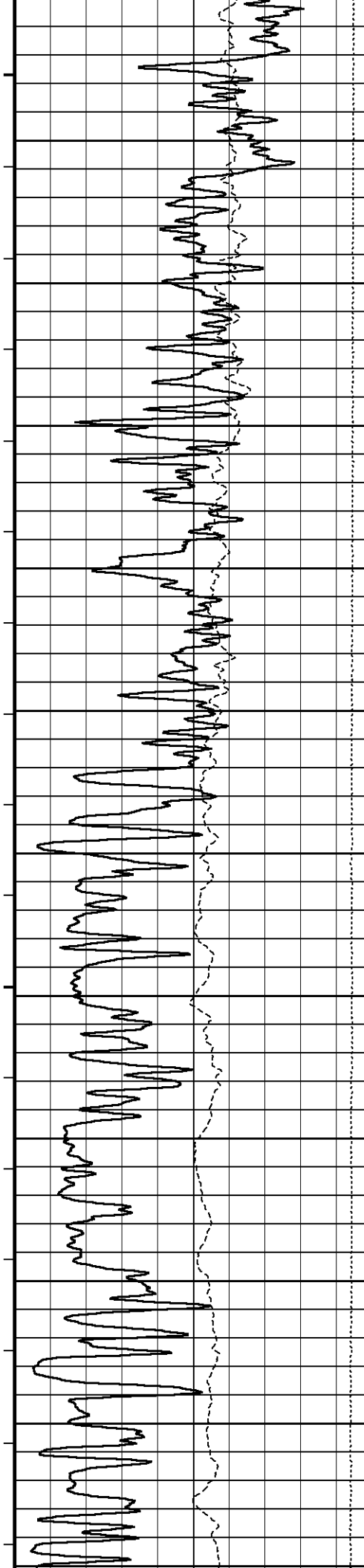
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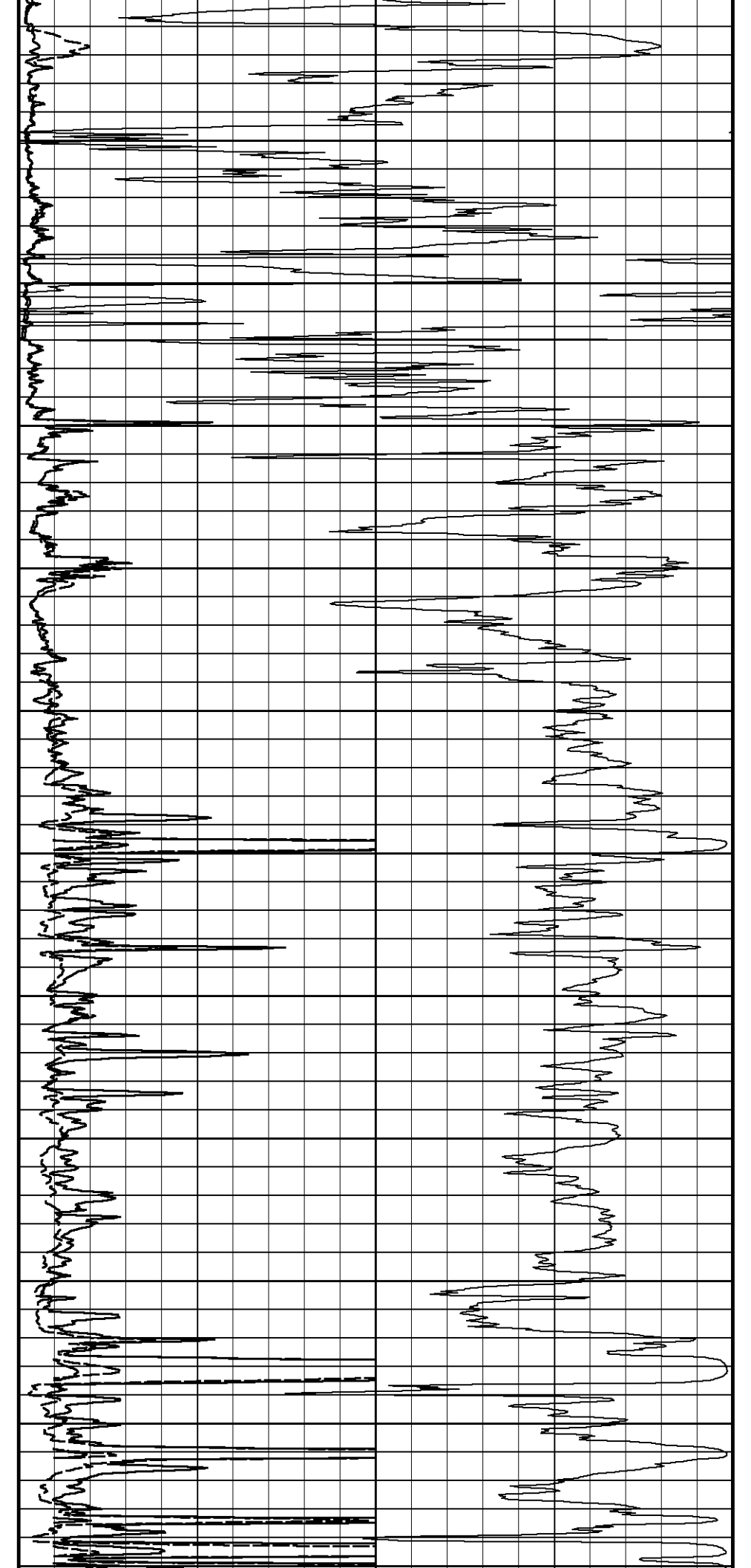
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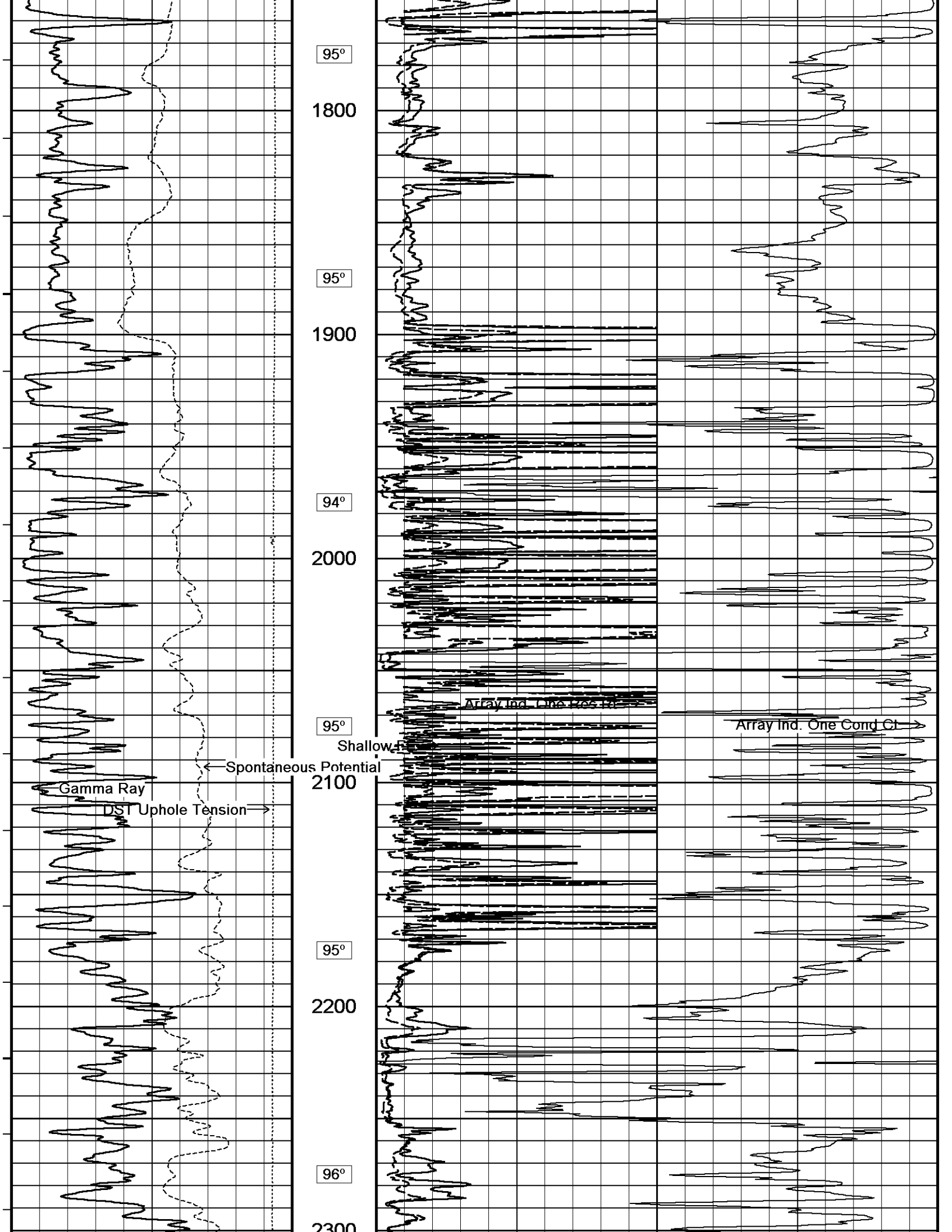
System Versions: Plotted with 11.03.4044

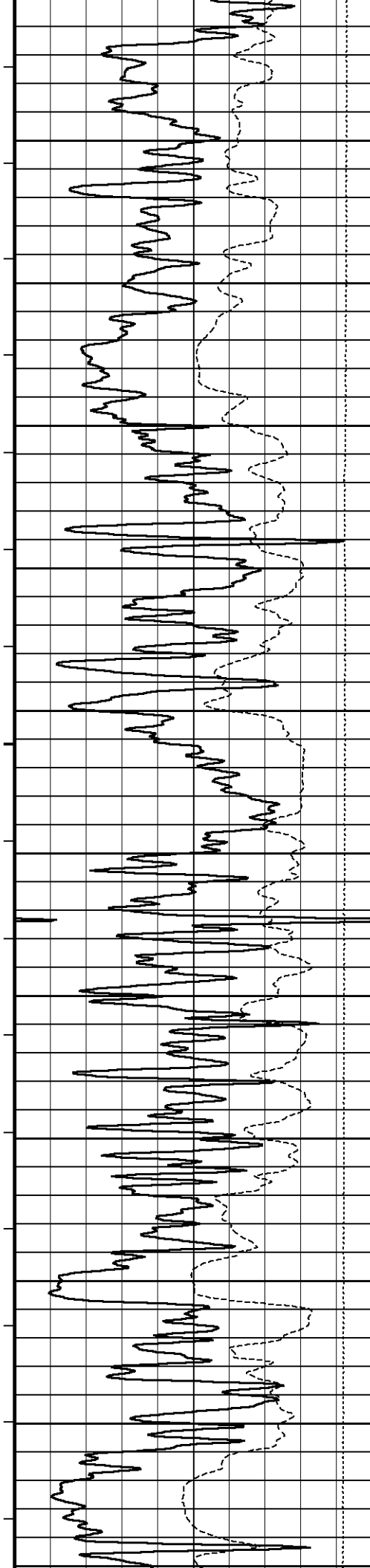




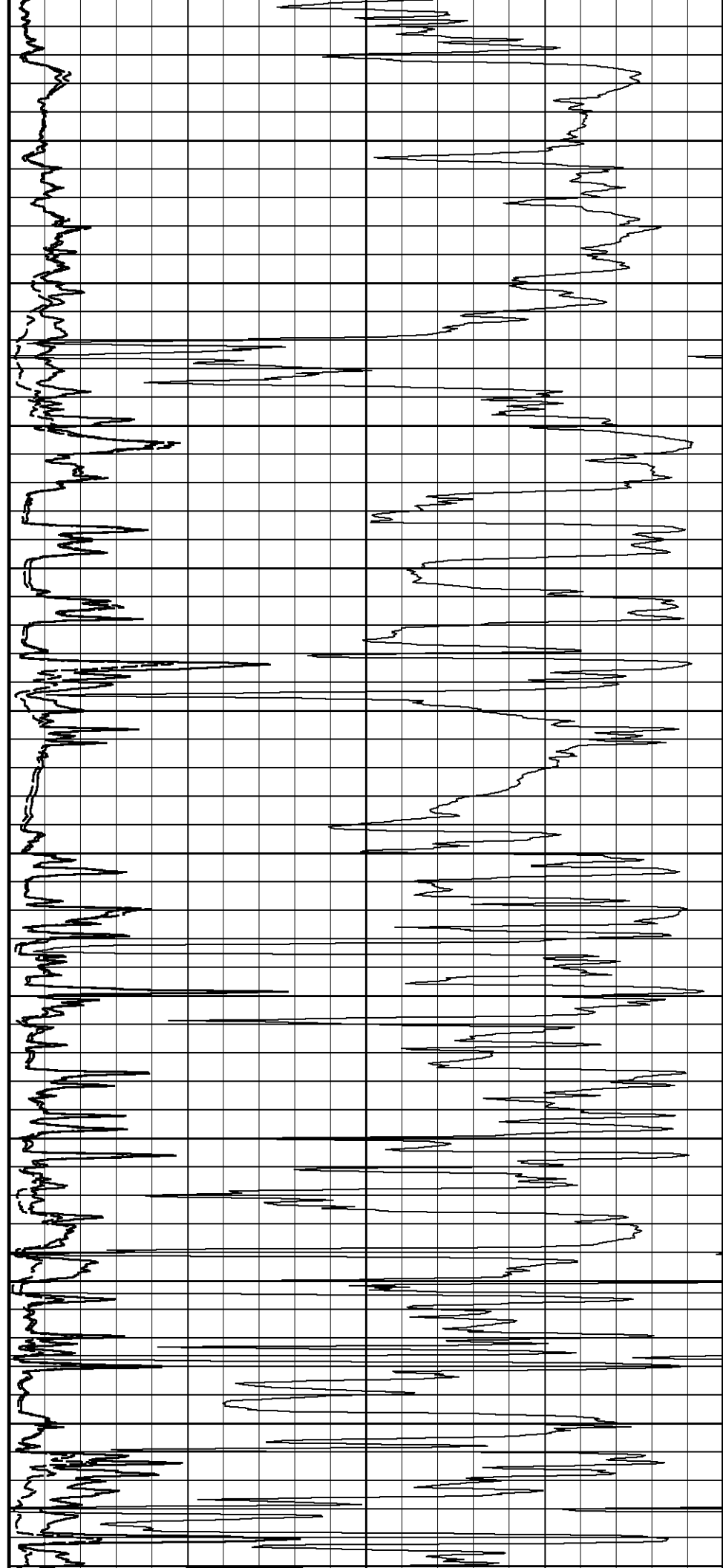
1200
92°
1300
93°
1400
94°
1500
94°
1600
94°
1700

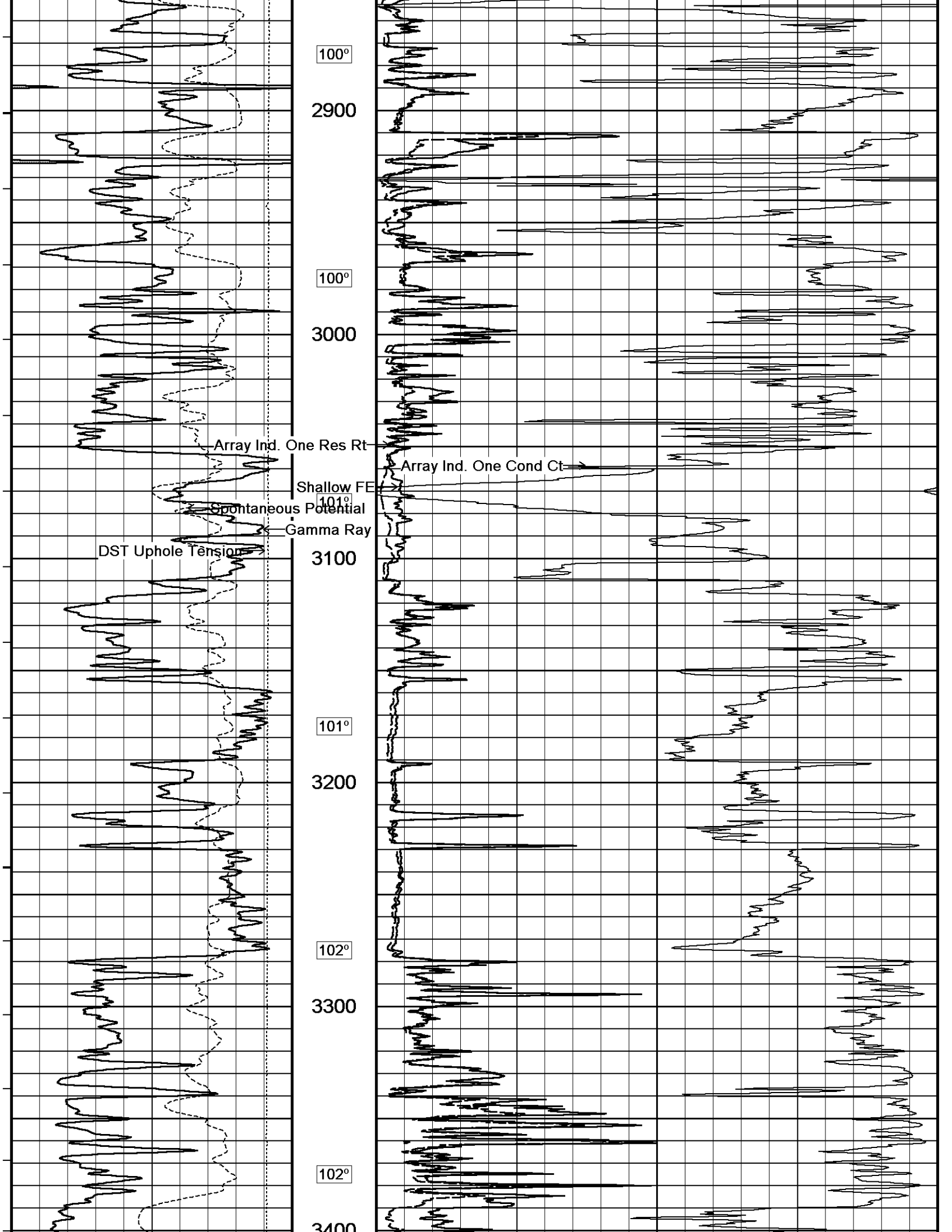






2300
97°
2400
97°
2500
98°
2600
98°
2700
99°
2800





100°

2900

100°

3000

Array Ind. One Res Rt

Array Ind. One Cond Ct

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

3100

101°

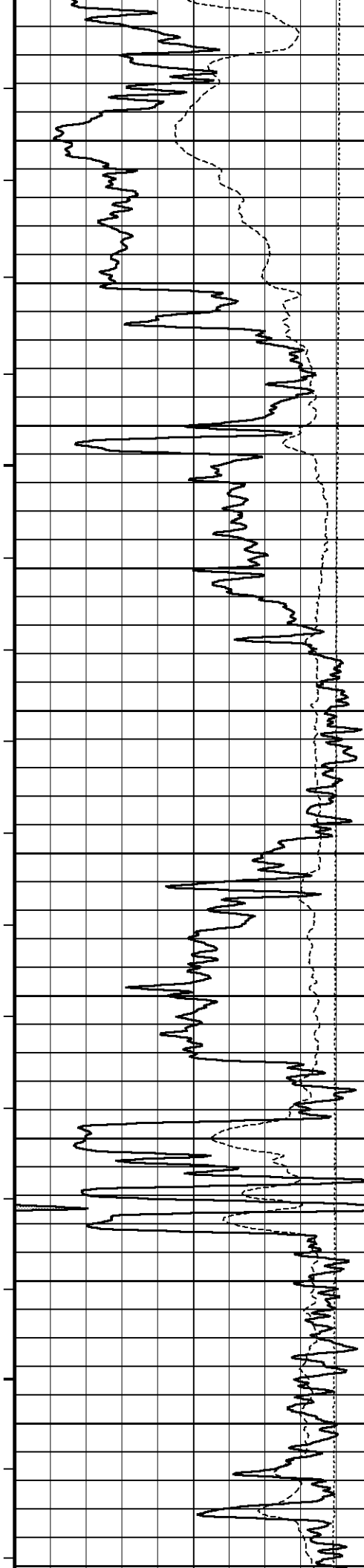
3200

102°

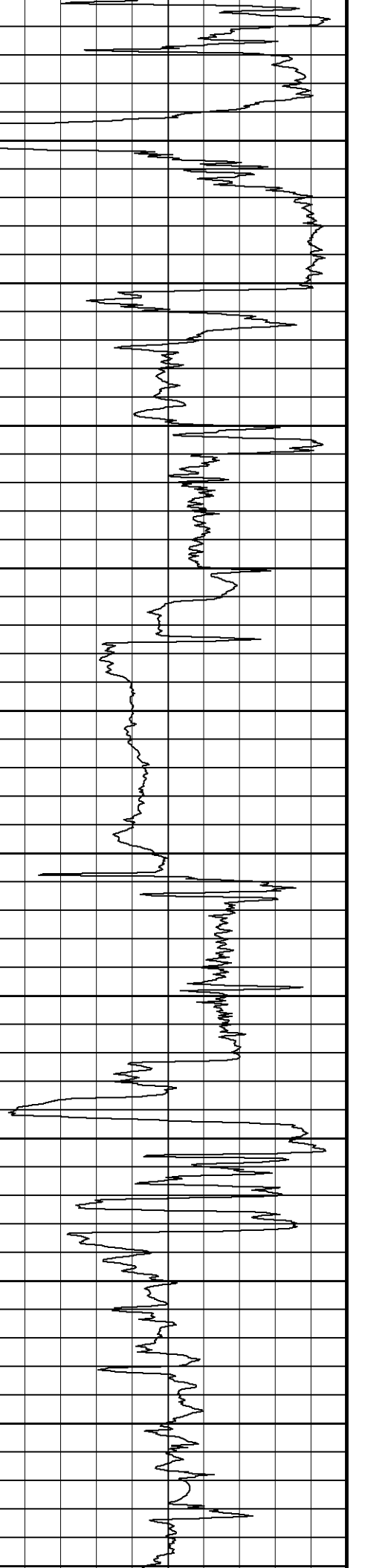
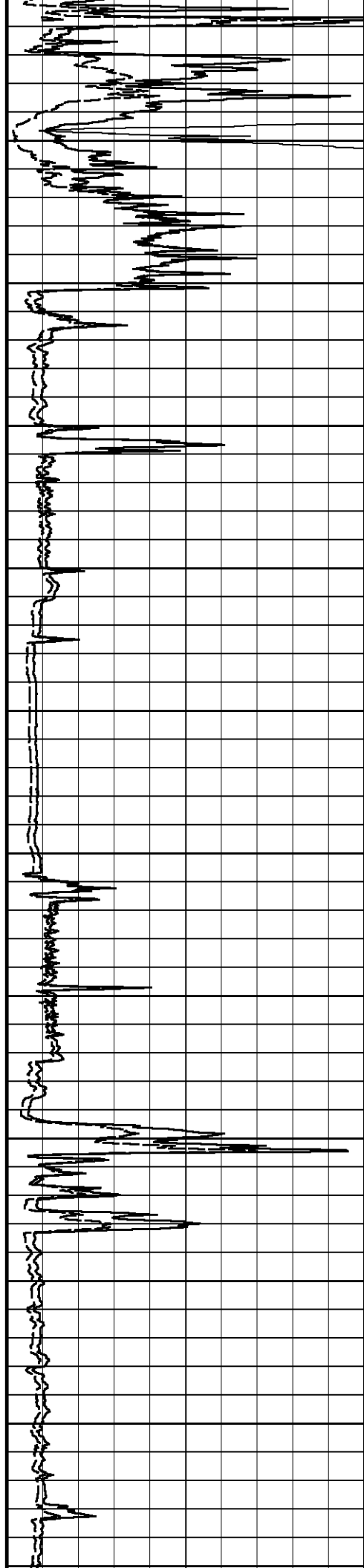
3300

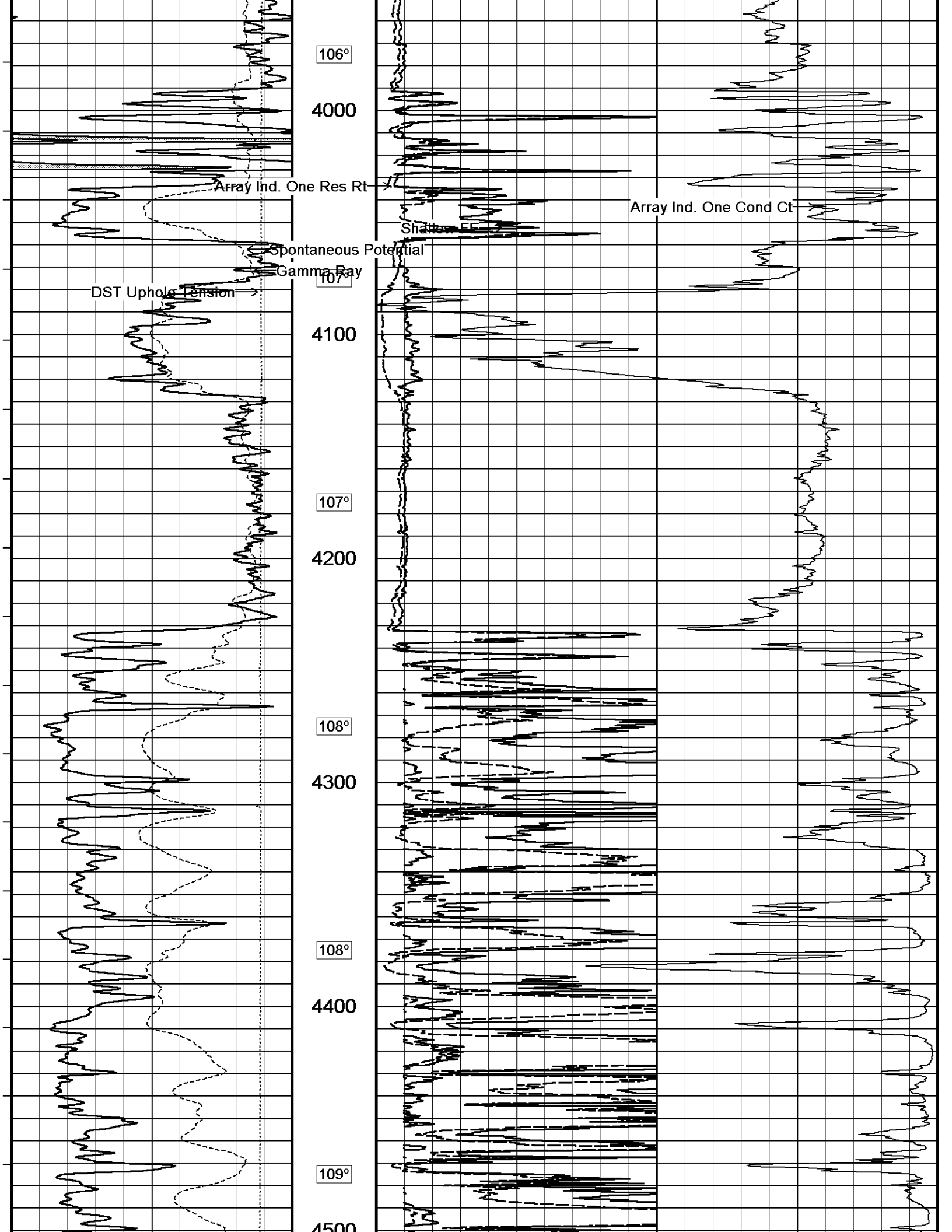
102°

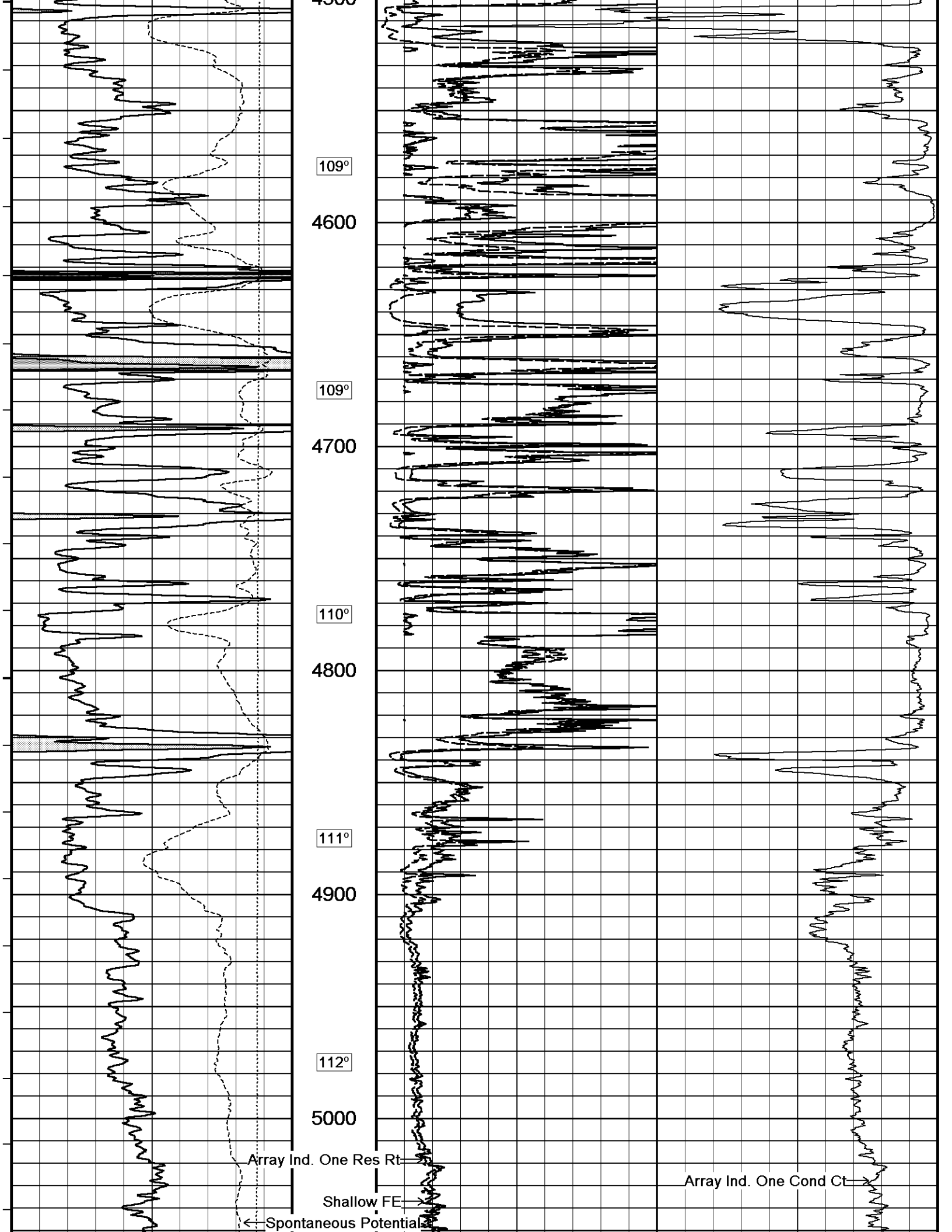
3400

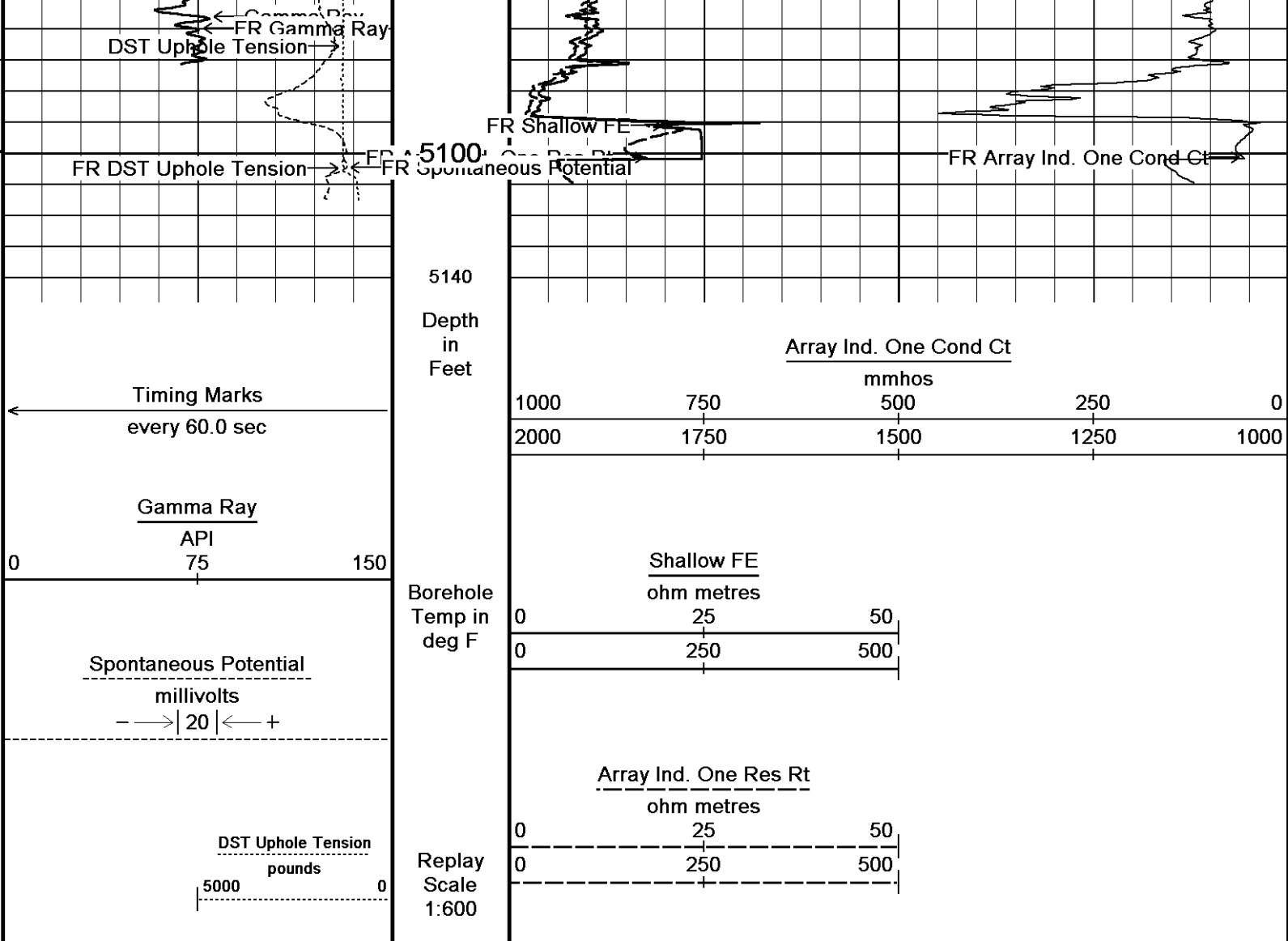


3400
103°
3500
104°
3600
104°
3700
104°
3800
105°
3900





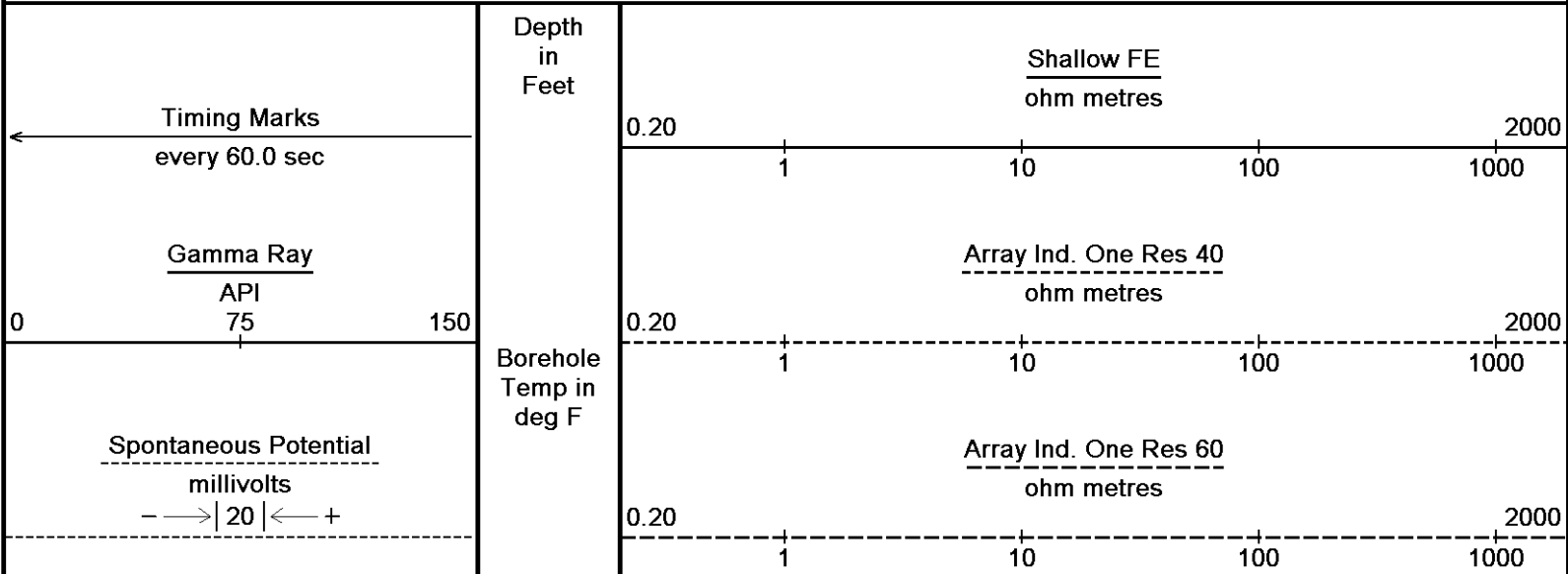




↑ 2 INCH MAIN ↑

↓ 5 INCH MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 17:39
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_002.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



DST Uphole Tension
pounds

5000 0

Replay
Scale
1:240

Array Ind. One Res Rt
ohm metres

0.20

2000

4000

107°

4050

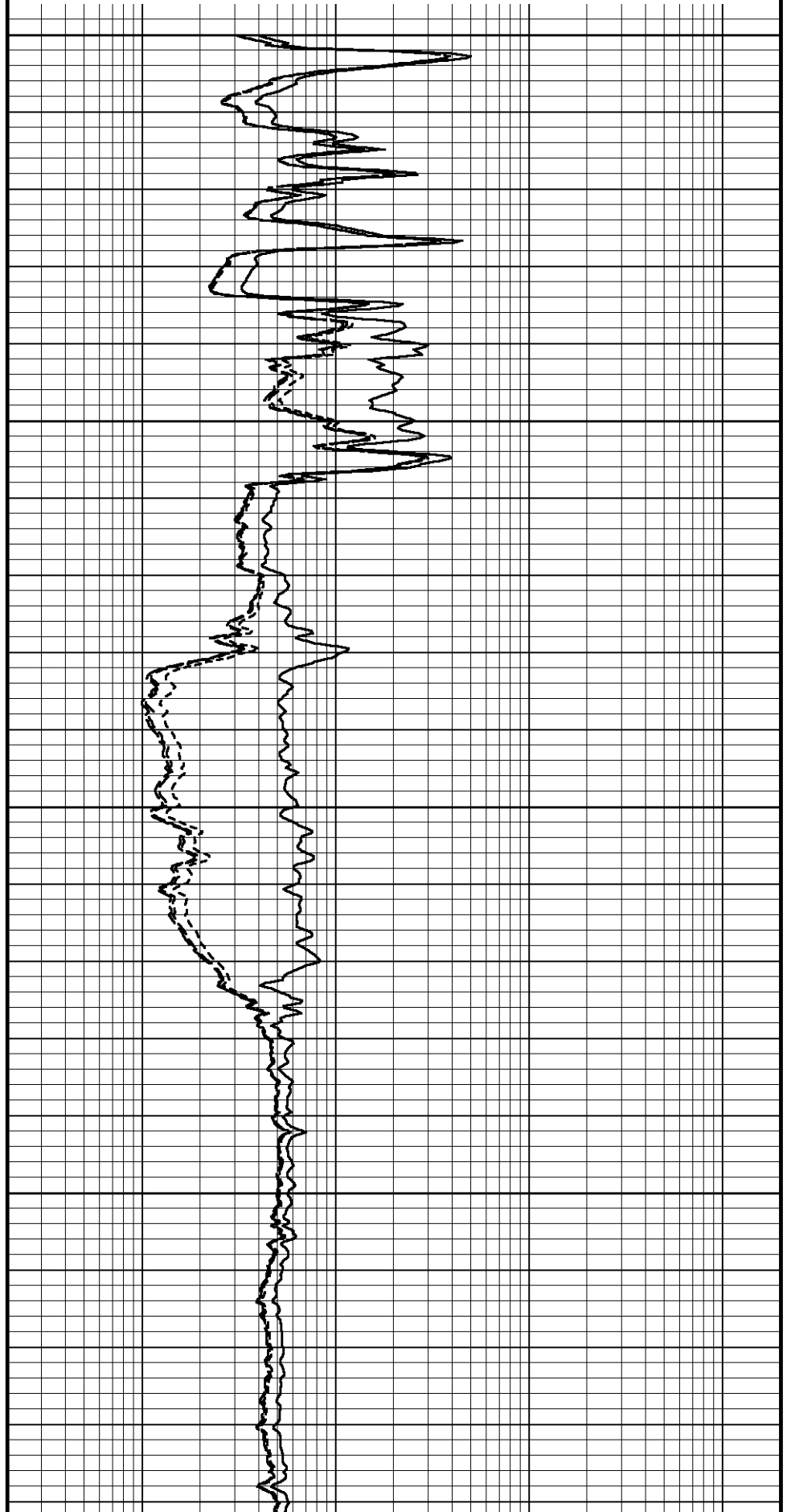
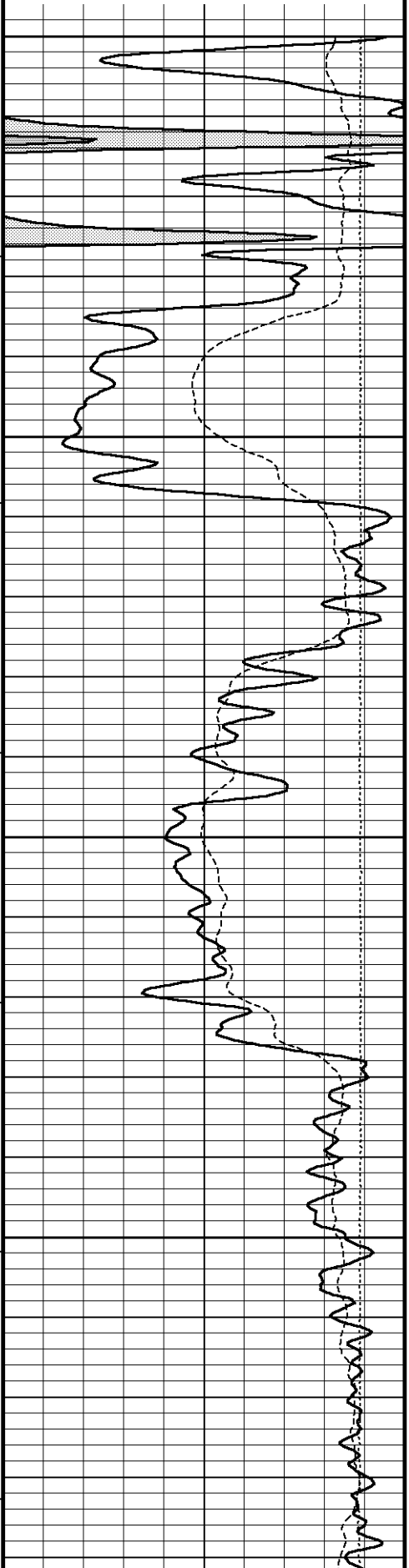
107°

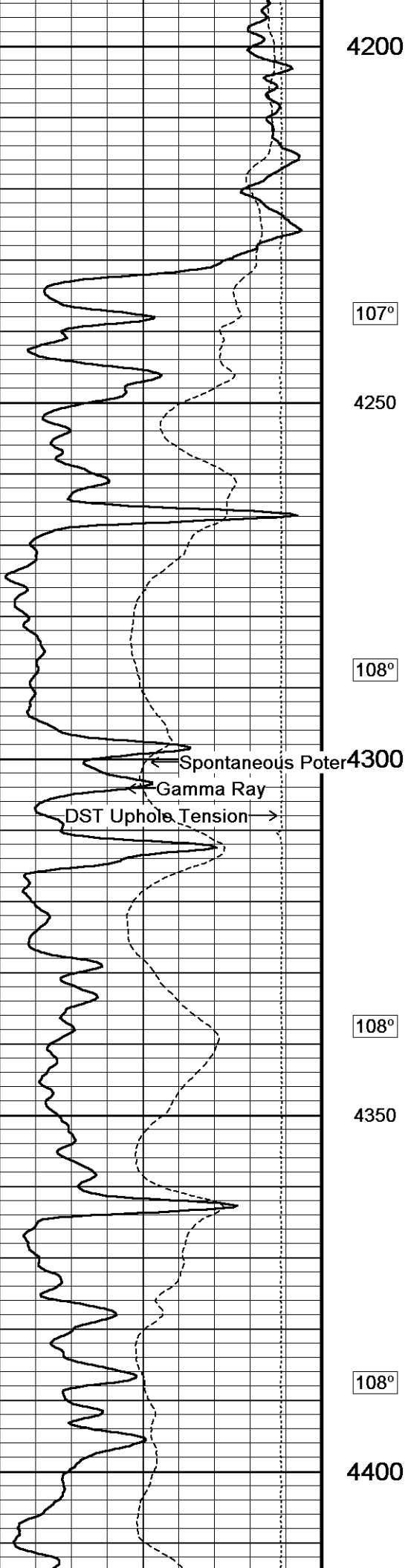
4100

107°

4150

107°





4200

107°

4250

108°

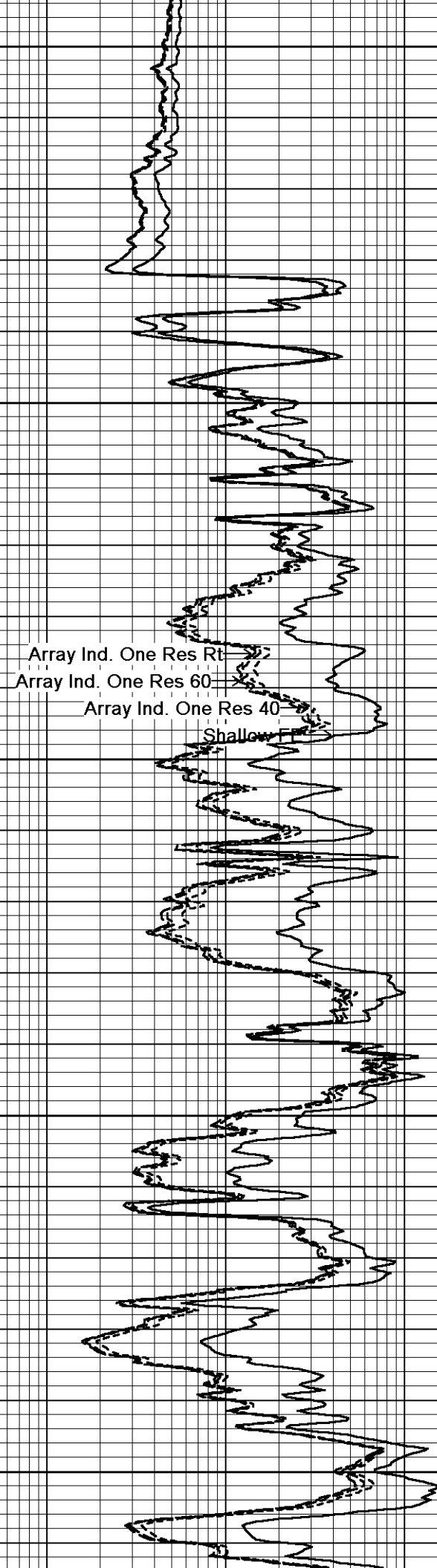
4300

108°

4350

108°

4400

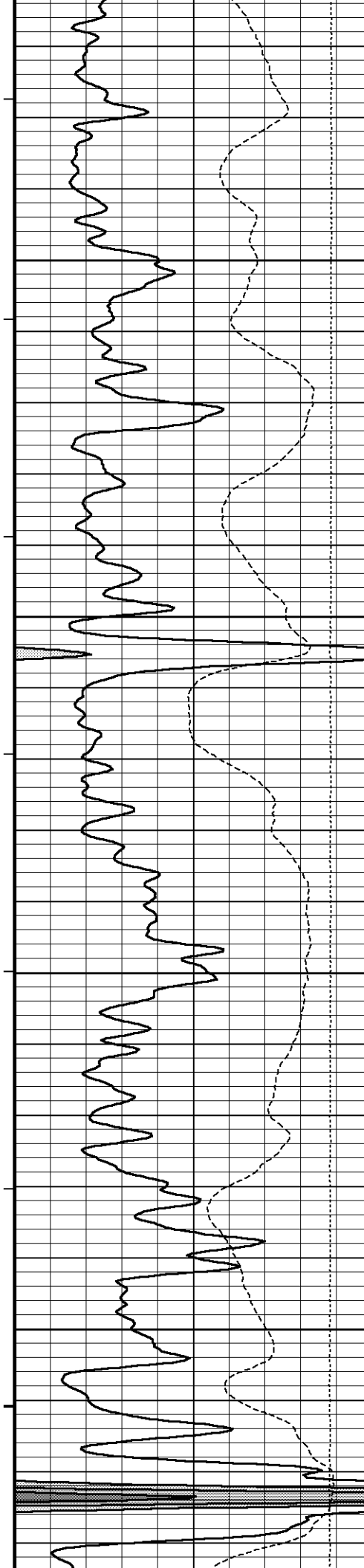


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow



108°

4450

109°

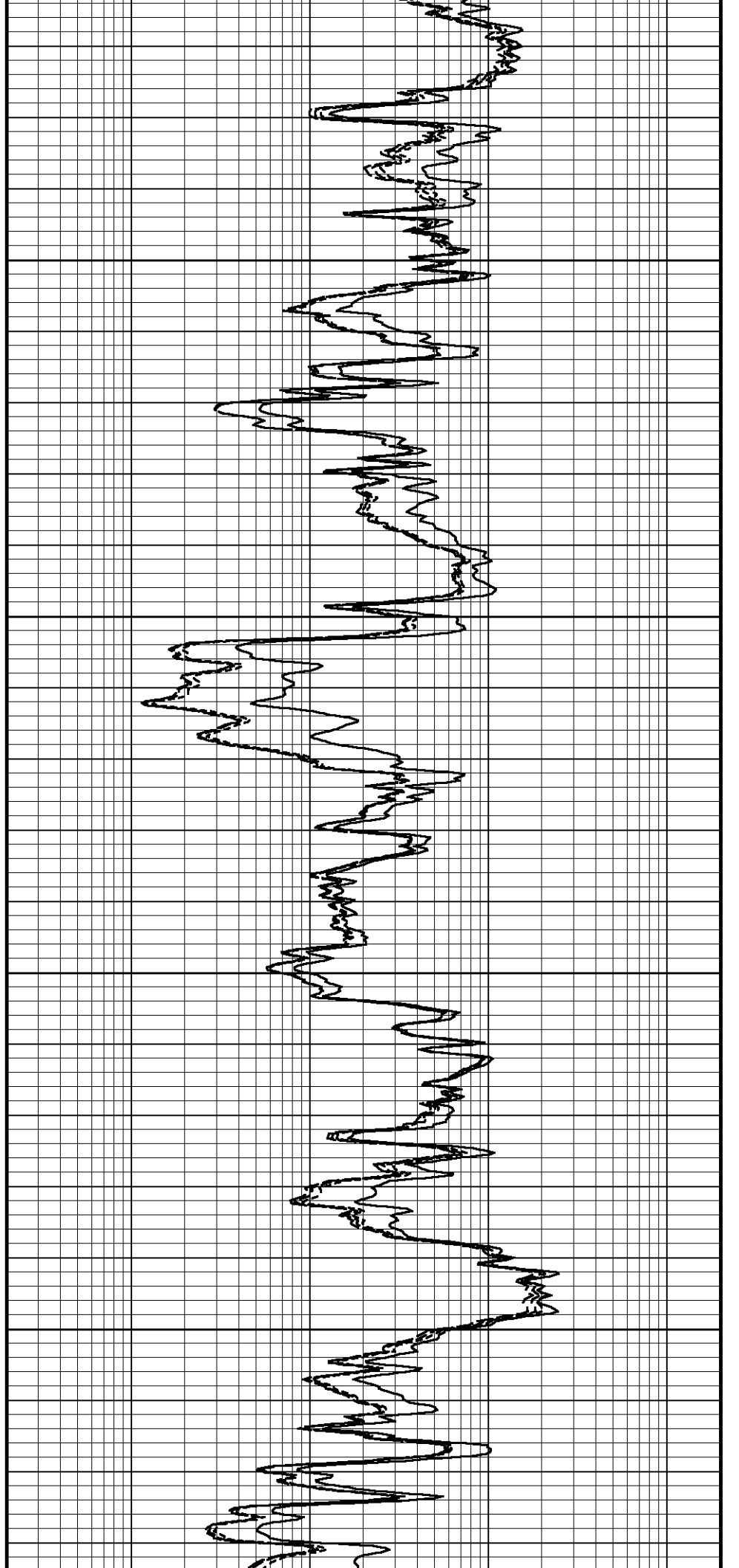
4500

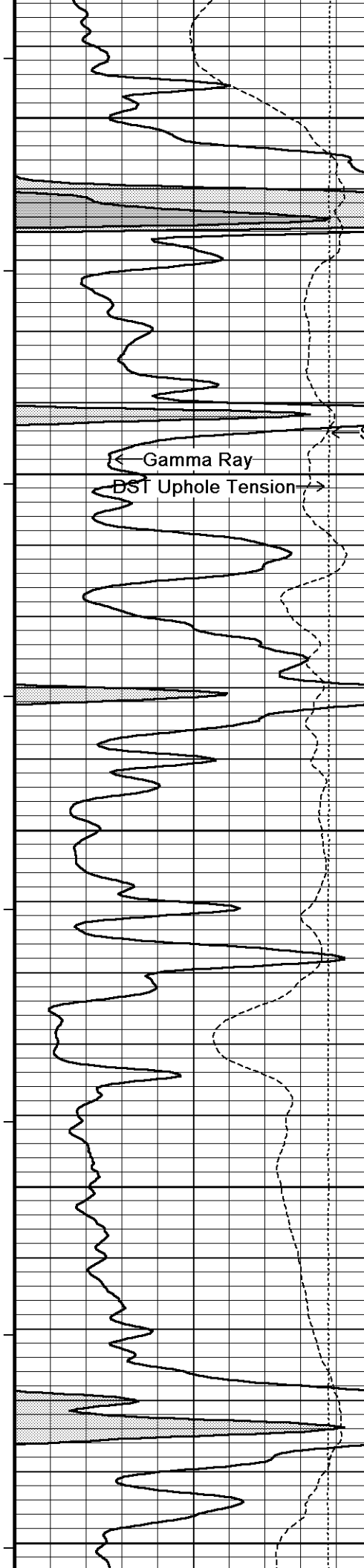
109°

4550

109°

4600





109°

4650

109°

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

4700

110°

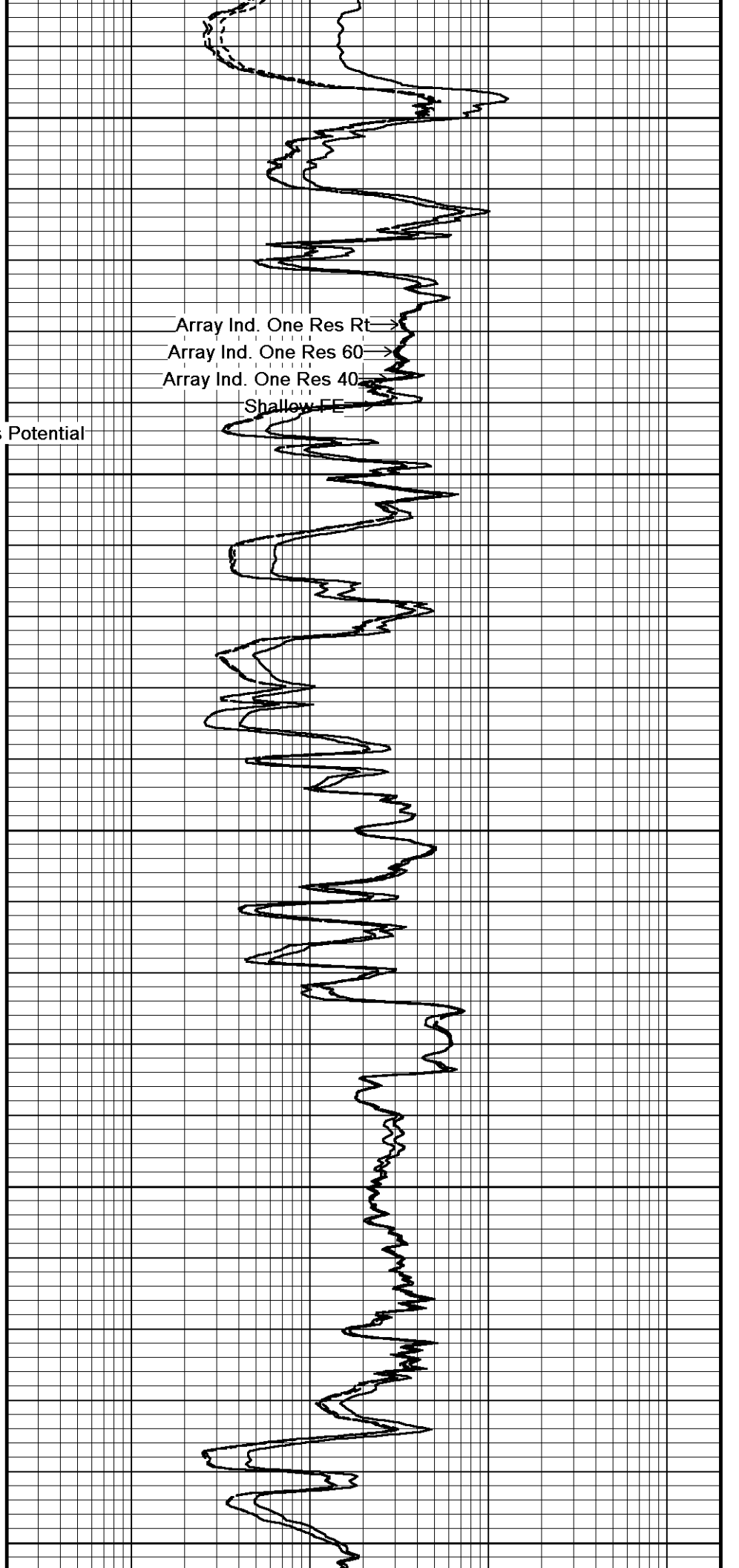
4750

110°

4800

110°

4850

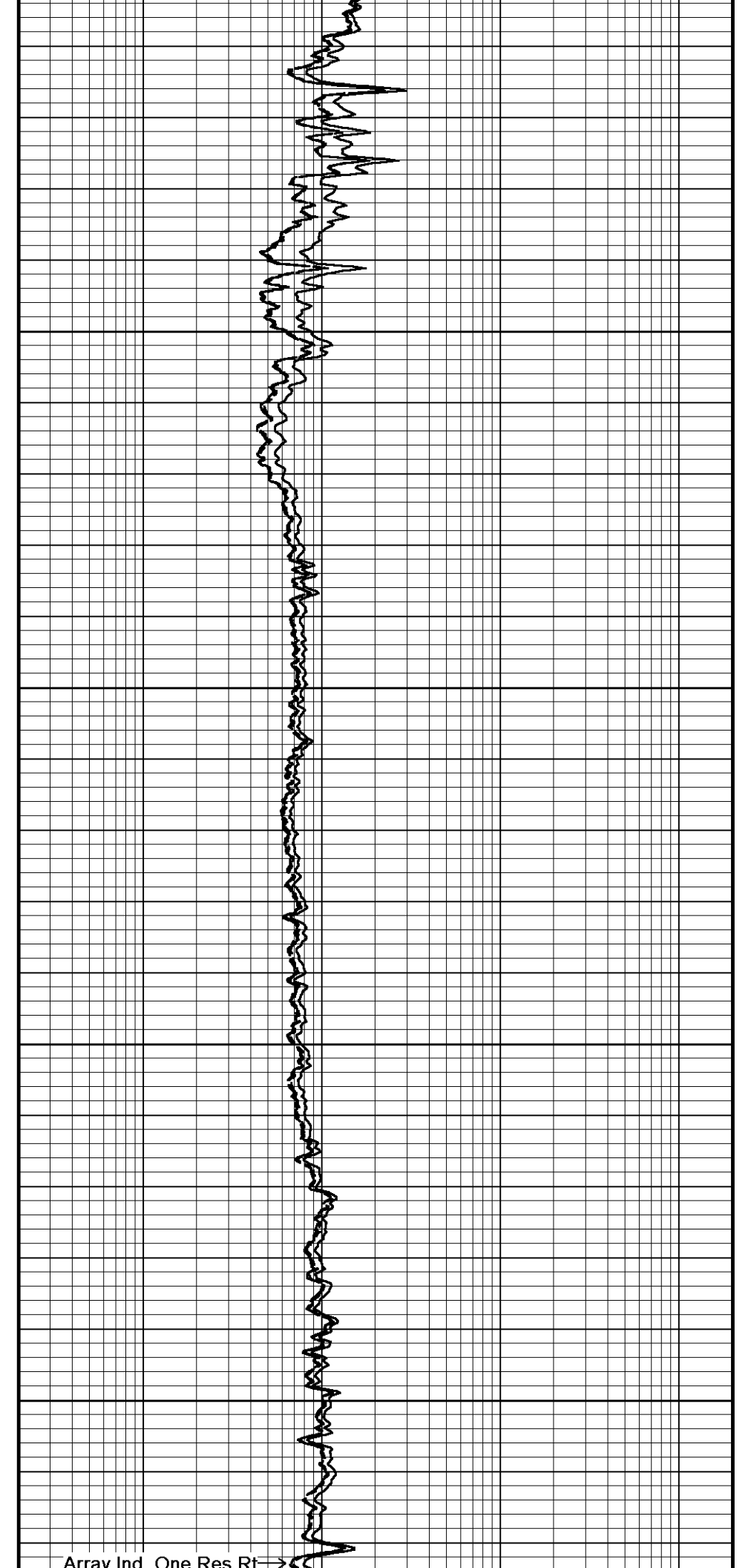
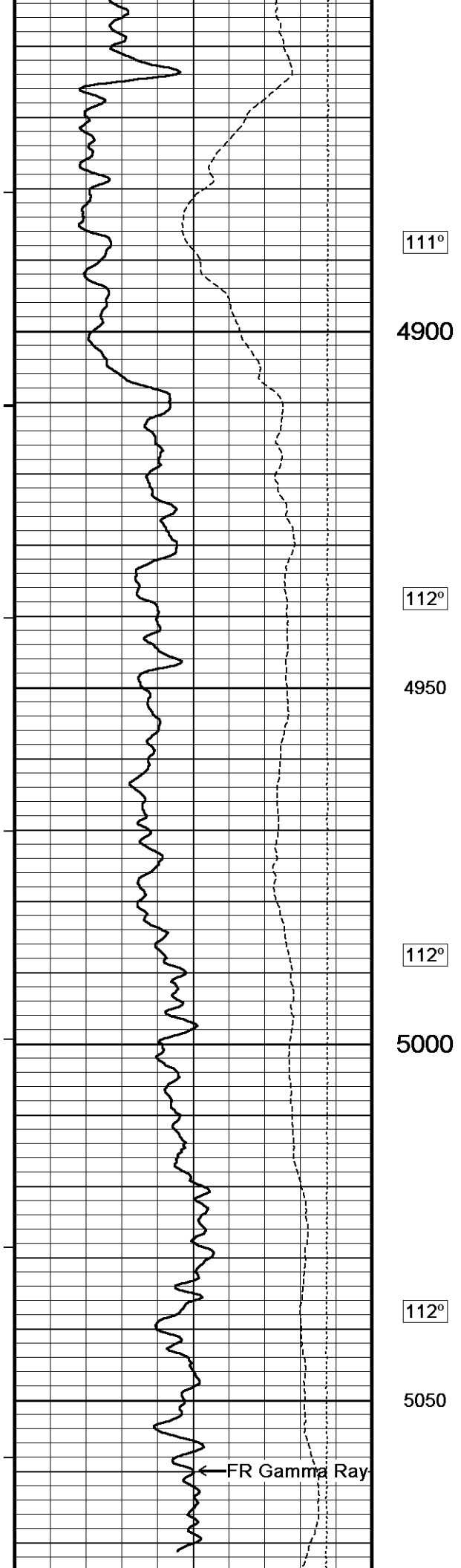


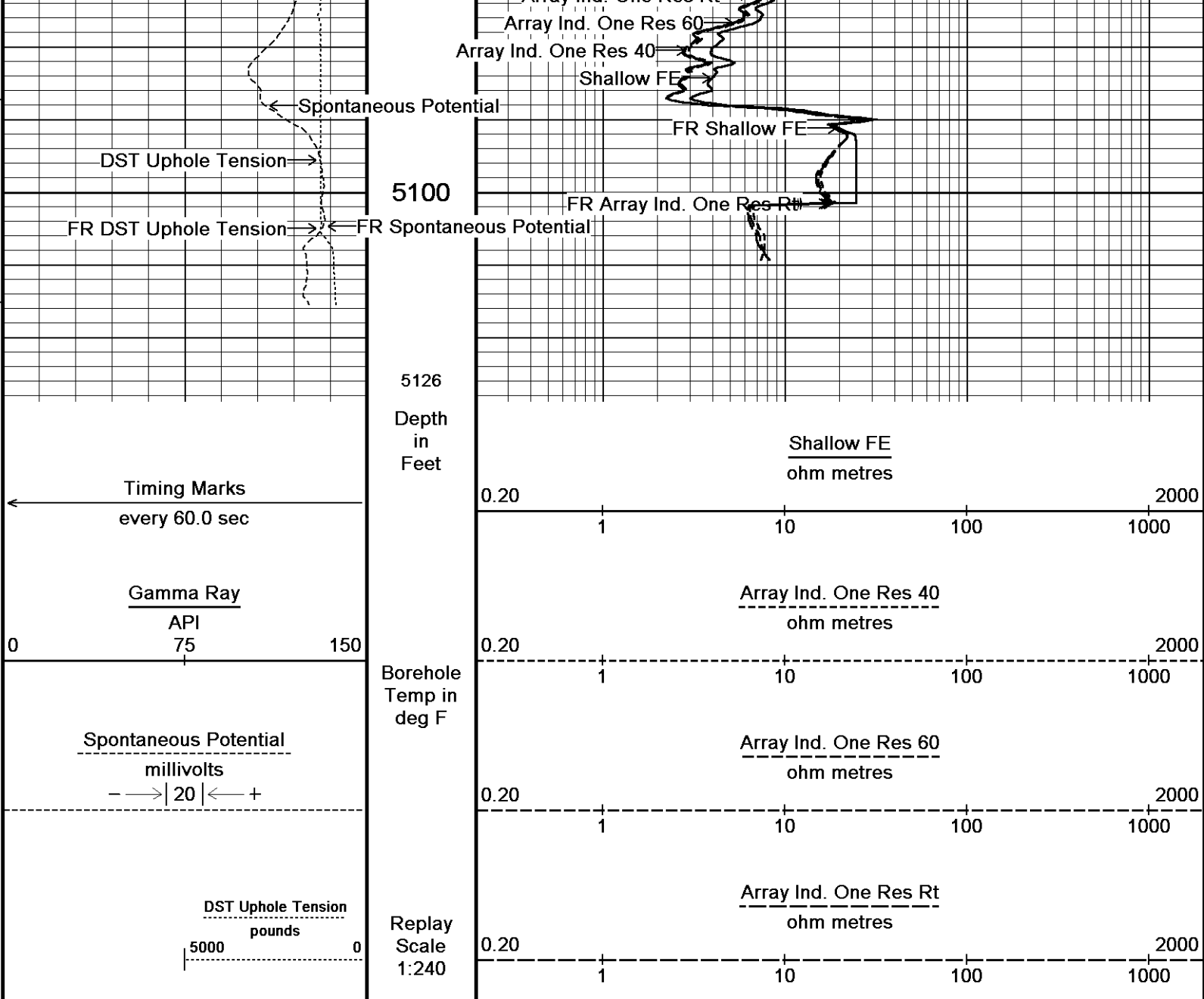
Array Ind. One Res Rt →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow EE →



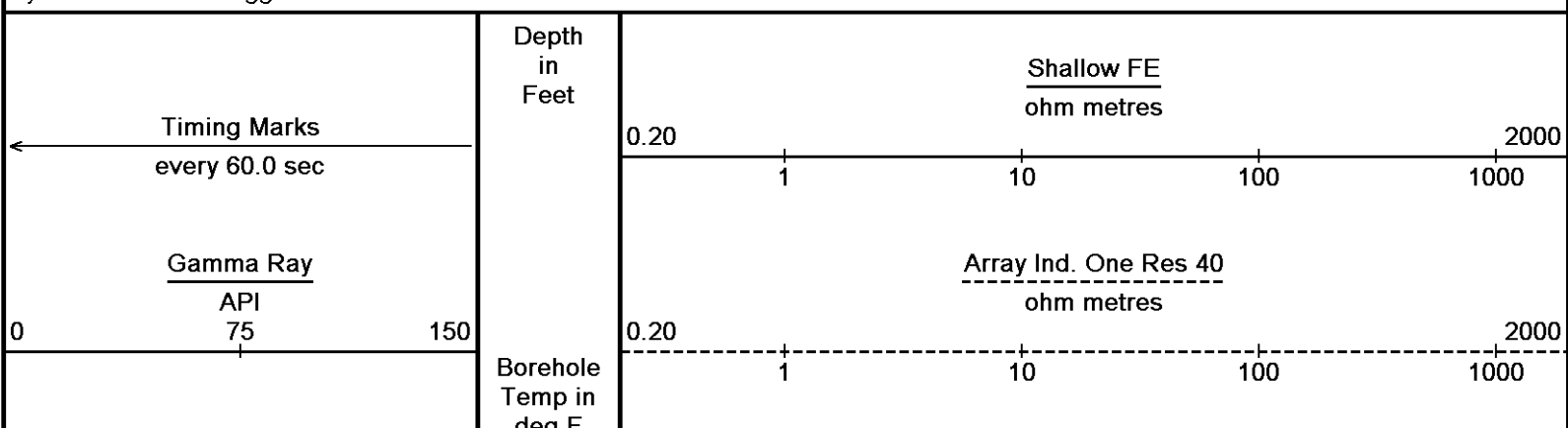


Depth Based Data - Maximum Sampling Increment 10.0cm
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 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_002.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 17:39
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta
 Recorded on 04-DEC-2011 14:46
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



Spontaneous Potential

millivolts

—→|20|←+

DST Uphole Tension

pounds

5000

0

Replay

Scale

1:240

4800

110°

4850

110°

4900

110°

4950

deg T

Array Ind. One Res 60

ohm metres

0.20

2000

1

10

100

1000

Array Ind. One Res Rt

ohm metres

0.20

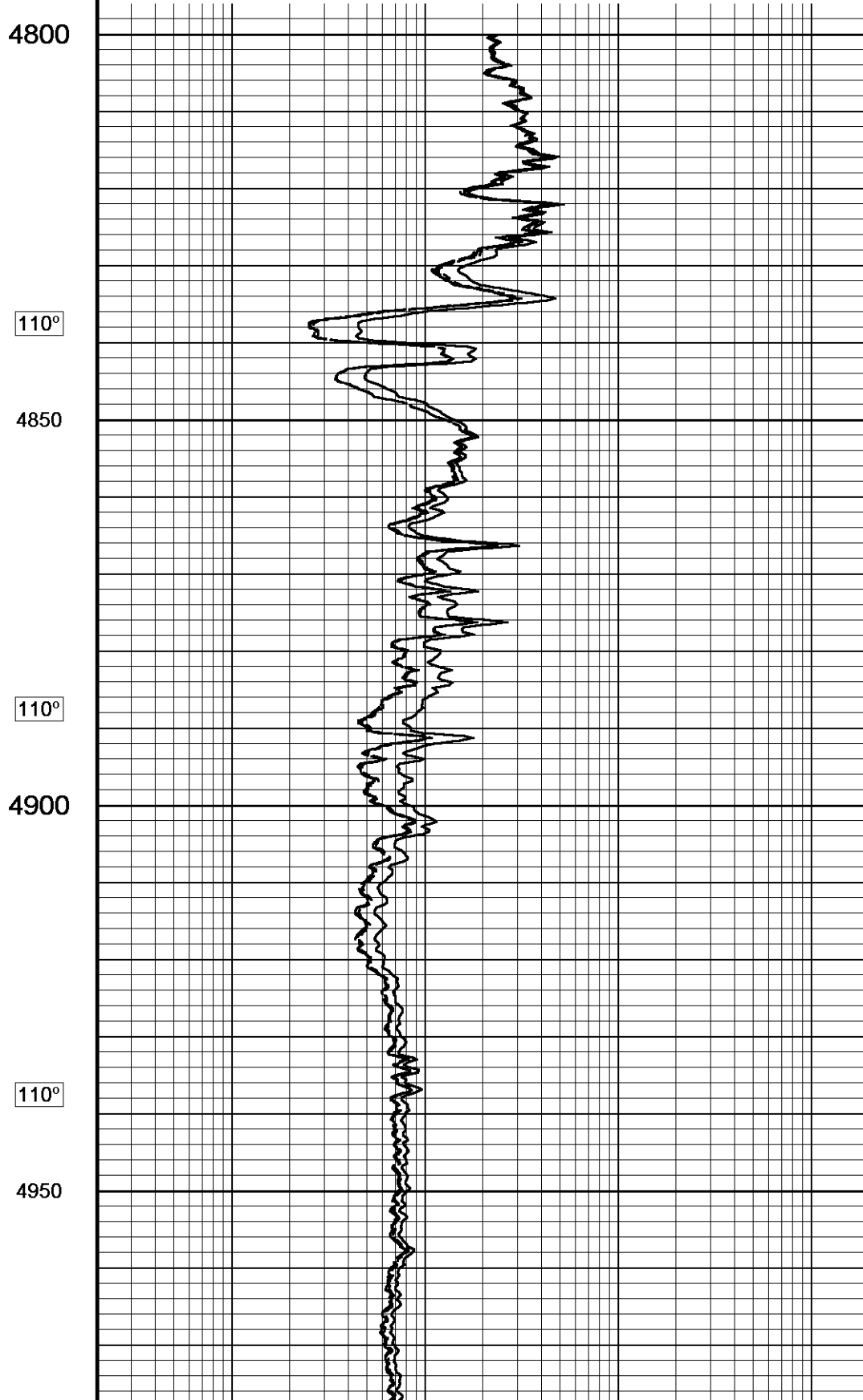
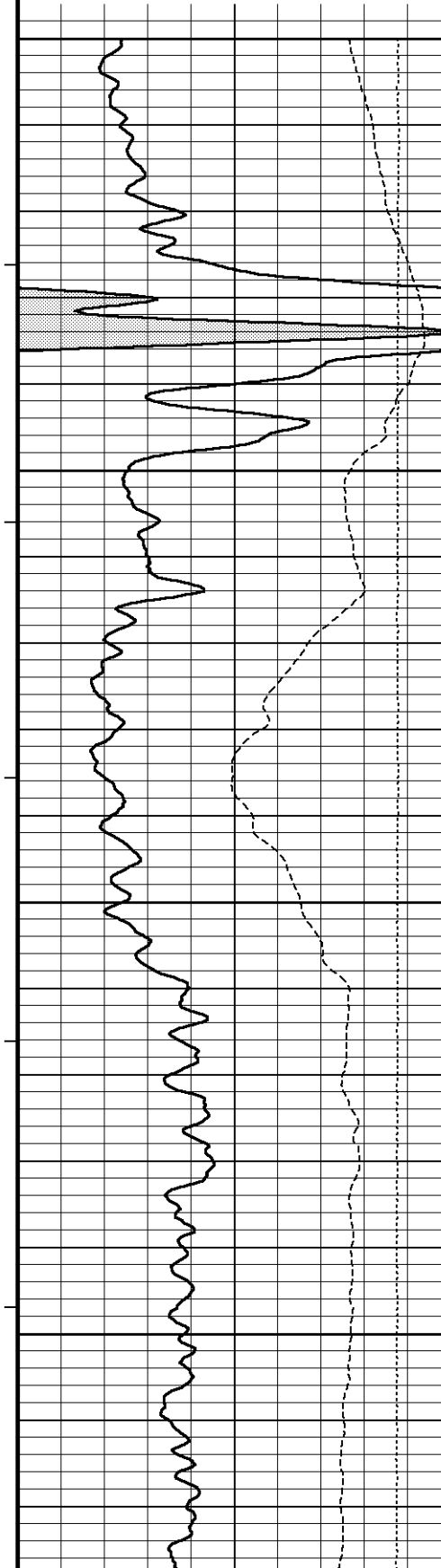
2000

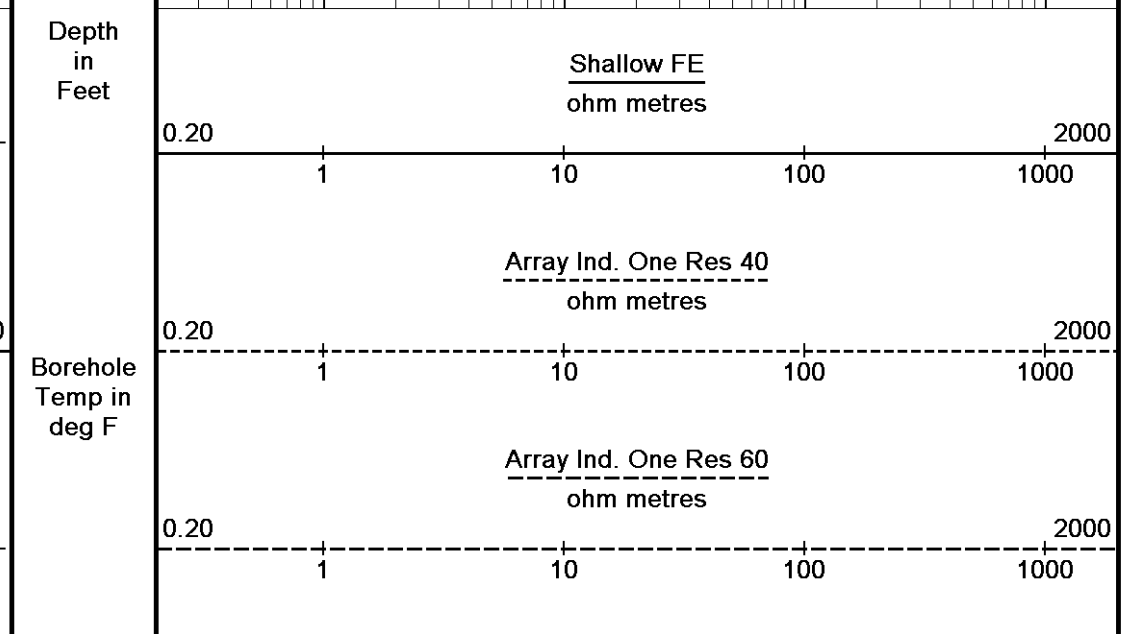
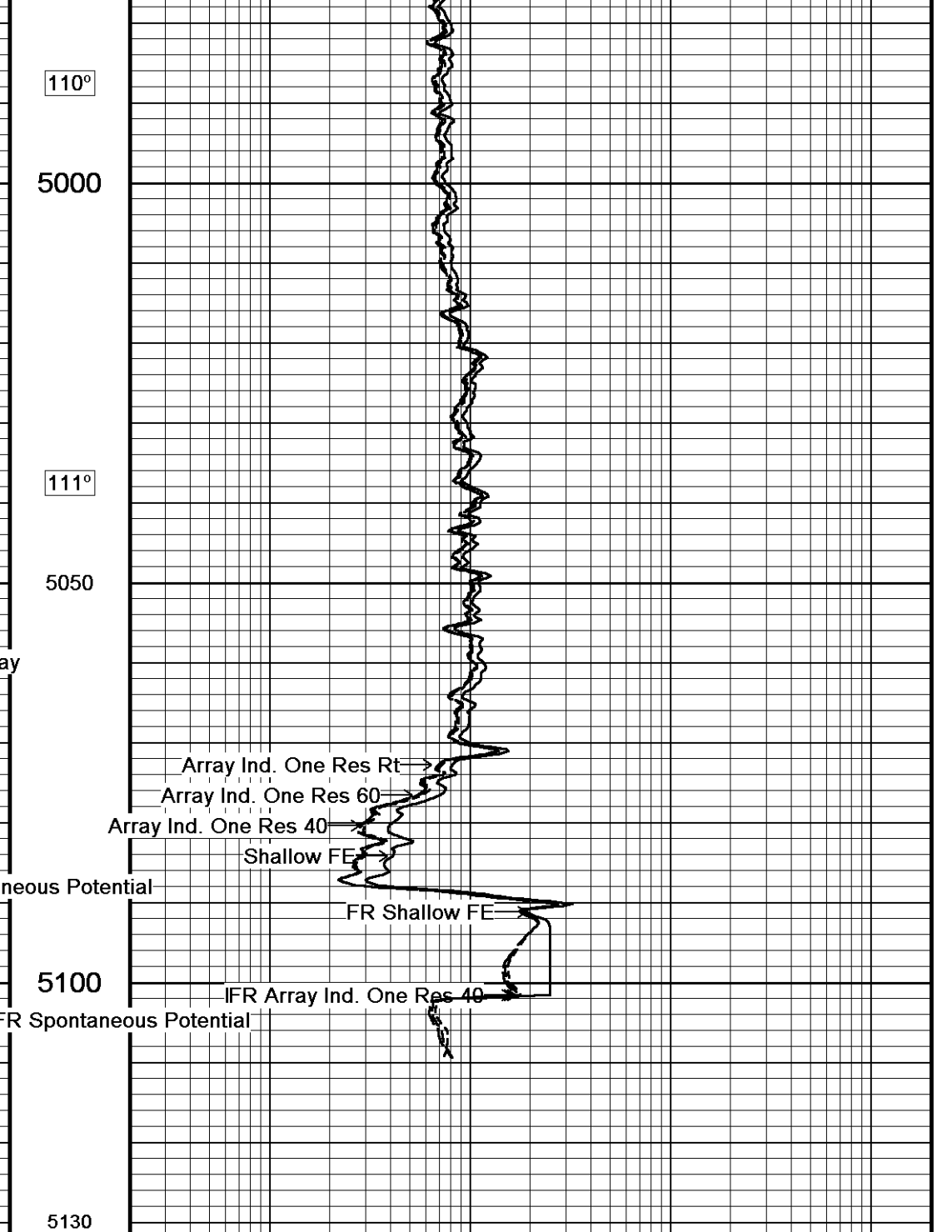
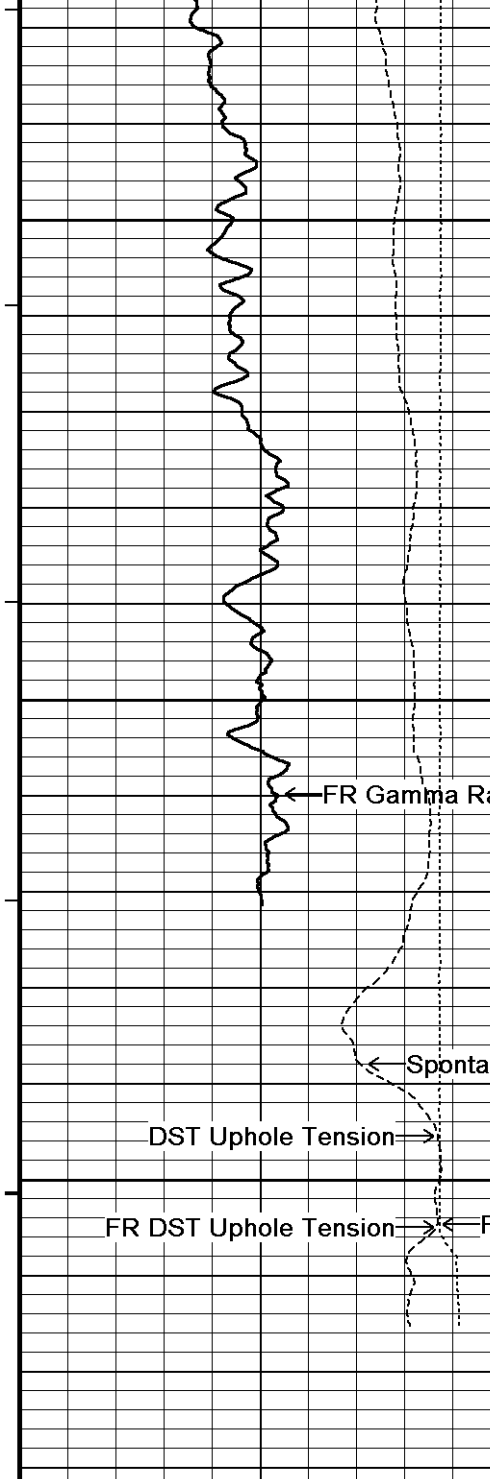
1

10

100

1000





DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

0.20

1

Array Ind. One Res Rt
ohm metres

10

100

2000

1000

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 04-DEC-2011 17:39

Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta

Recorded on 04-DEC-2011 14:46

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13.dta

Down-hole Tension Calibration All 000

Field Calibration on 30-JUN-2010

Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00

General Constants All 000

Last Edited on 04-DEC-2011,12:48

General Parameters

Mud Resistivity	0.870	ohm-metres
Mud Resistivity Temperature	62.000	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 10-SEP-2011 04:32

Reading No	Measured	Calibrated (lbs)
1	-2243.52	0.00
2	-2203.03	480.60

High Resolution Temperature Calibration MCG-C 139

Field Calibration on 02-AUG-2011,17:13

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

High Resolution Temperature Constants MCG-C 139

Last Edited on

Pre-filter Length 11

SP Calibration MCG-C 139

Field Calibration on 29-AUG-2011 09:25

	Measured	Calibrated (mV)
Reference 1	103.7	100.0
Reference 2	-96.7	-100.0

Gamma Calibration MCG-C 139

Field Calibration on 04-DEC-2011 07:42

	Measured	Calibrated (API)
Background	72	49
Calibrator (Gross)	1135	774
Calibrator (Net)	1064	725

Gamma Constants MCG-C 139

Last Edited on 04-DEC-2011,12:48

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 15-NOV-2011 08:45
Field Check on 04-DEC-2011 07:34

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	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 16

Last Edited on 04-DEC-2011,07:33

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	N/A inches

Caliper Calibration MML-A 16

Base Calibration on 15-NOV-2011 08:38
Field Calibration on 04-DEC-2011 07:36

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14184	5.98
2	17582	7.97
3	20836	9.86
4	24886	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.06	5.98

Neutron Calibration MDN-A.B 66

Base Calibration on 17-OCT-2011 14:32
Field Check on 04-DEC-2011 07:48

Base Calibration

Ratio	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3086	97	3714	110
	31.796		33.764	

Field Calibrator at Base

Ratio	Calibrated (cps)
	1659 2358
	0.704

Field Check

Ratio	Calibrated (cps)
	1660 2359
	0.704

Neutron Constants MDN-A.B 66

Last Edited on 04-DEC-2011,07:43

Neutron Source Id	P58125B
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	None
Formation Pressure	N/A kpsi
Temperature Source	Constant Value
Temperature	68.00 degrees F
Mud Salinity	0.00 kppm

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 52		Base Calibration on 15-NOV-2011 08:59	
		Field Check on 04-DEC-2011 07:26	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	965.0	126.8	
Base Check		280.1	
Field Check		279.9	

FE Constants MFE-A.A 52		Last Edited on 04-DEC-2011,07:25	
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	

High Resolution Temperature Calibration MAI-A.A 167		Field Calibration on 28-OCT-2011,10:01	
	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	
Pre-filter Length	11		

Induction Calibration MAI-A.A 167		Base Calibration on 11-MAR-2011,09:58			
		Field Check on 04-DEC-2011 07:25			
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	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		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	13.1	3839.3	
2	0.0	0.0	29.6	3476.7	
3	0.0	0.0	29.1	3052.6	
4	0.0	0.0	19.7	2081.2	
Deep	0.0	0.0	18.5	2048.4	
Medium	0.0	0.0	42.2	3990.8	
Shallow	0.0	0.0	43.1	5054.2	
Array Temperature	0.0		74.4		Deg F

Induction Constants MAI-A.A 167		Last Edited on 04-DEC-2011,07:22			
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	

Caliper Calibration MPD-B 35

Base Calibration on 15-NOV-2011 10:23
Field Calibration on 04-DEC-2011 07:33

Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	20351	3.99	
2	30291	5.98	
3	40582	7.97	
4	50158	9.86	
5	60743	11.92	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.93	5.98	

Photo Density Calibration MPD-B 35

Base Calibration on 15-NOV-2011 10:46
Field Check on 04-DEC-2011 07:31

Density Calibration				
Base Calibration		Measured		Calibrated (sdu)
	Near	Far	Near	Far
Reference 1	57280	27020	59556	30836
Reference 2	23374	2567	24941	2541
Field Check at Base				
	1159.9	1374.4		
Field Check				
	1154.5	1377.3		
PE Calibration				
Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	207	1024		
Reference 1	21400	57084	0.378	0.371
Reference 2	6184	23227	0.269	0.272
Field Check at Base				
	206.8	1023.7		
Field Check				
	205.8	1018.8		

Density Constants MPD-B 35

Last Edited on 04-DEC-2011,12:48

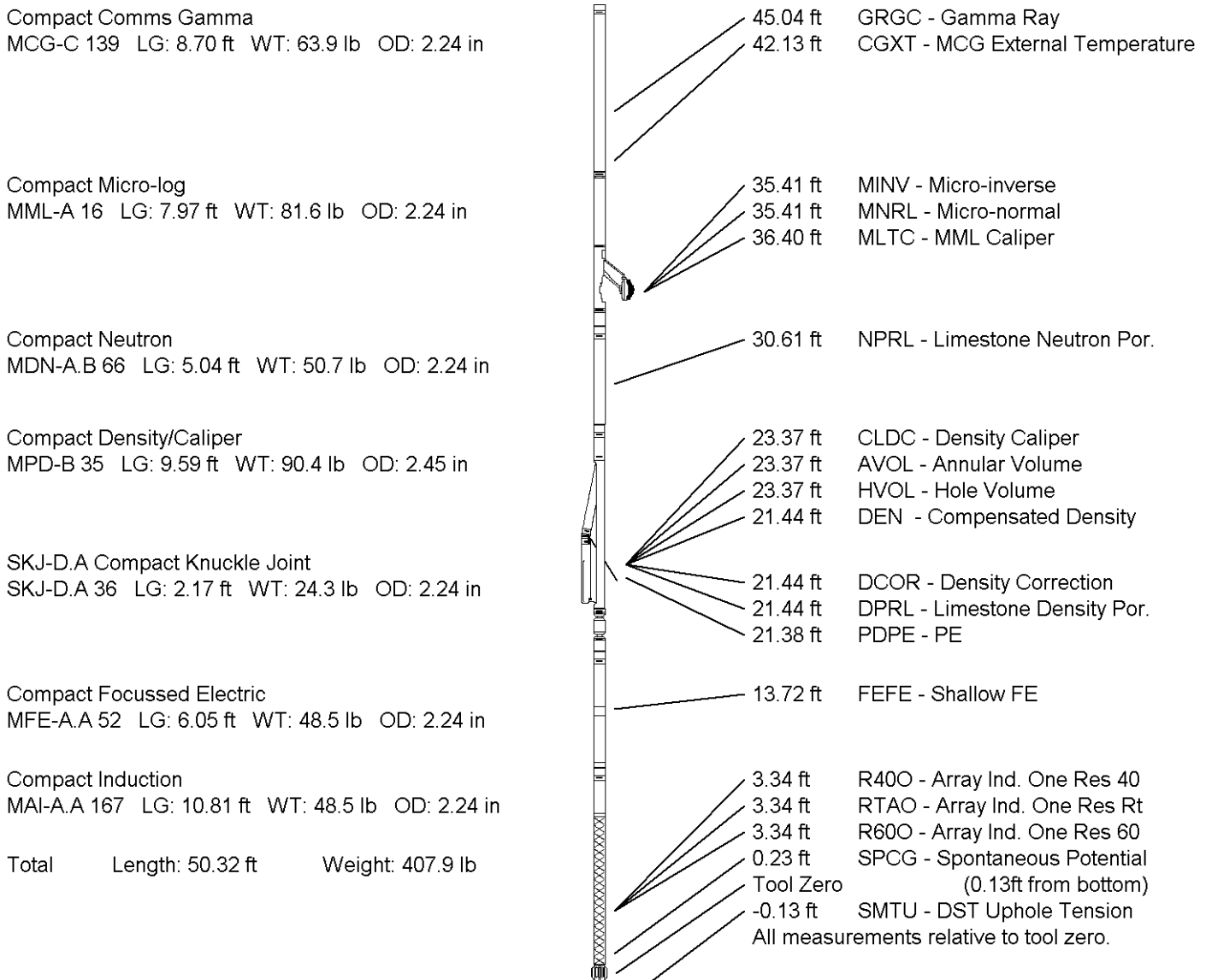
Density Source Id p50557b

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	1.08	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 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13.dta

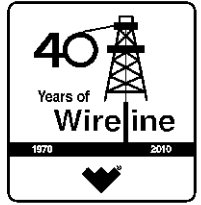


WELL Z-BAR #18-13
 FIELD AETNA NE
 PROVINCE/COUNTY BARBER
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	1705.00	feet	First Reading	5102.00	feet
Elevation Drill Floor	1703.00	feet	Depth Driller	5100.00	feet
Elevation Ground Level	1693.00	feet	Depth Logger	5105.00	feet

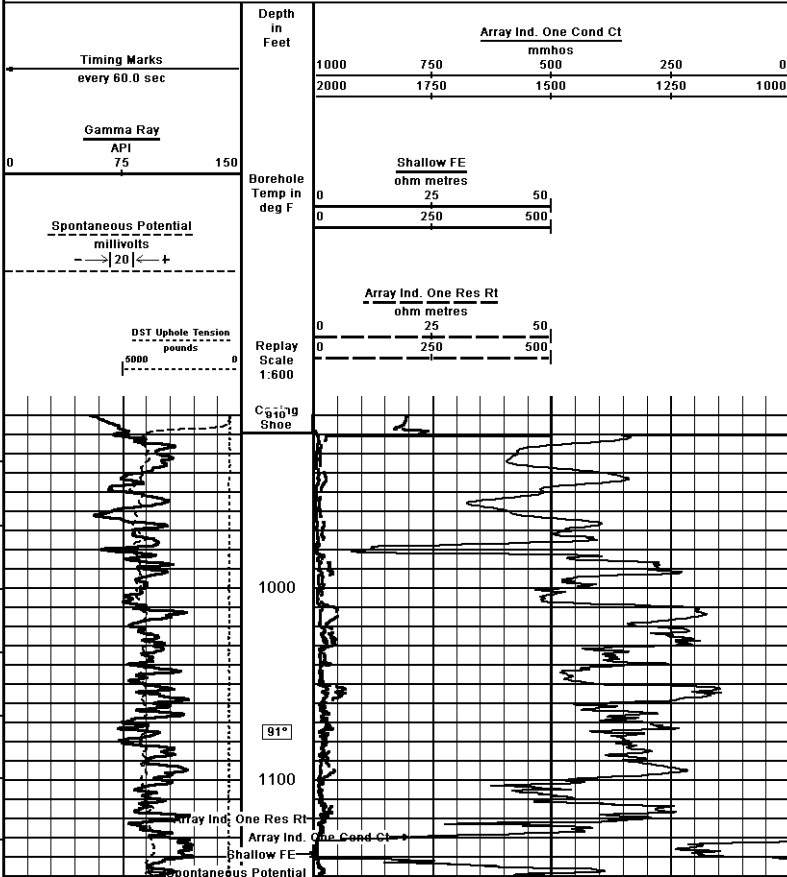


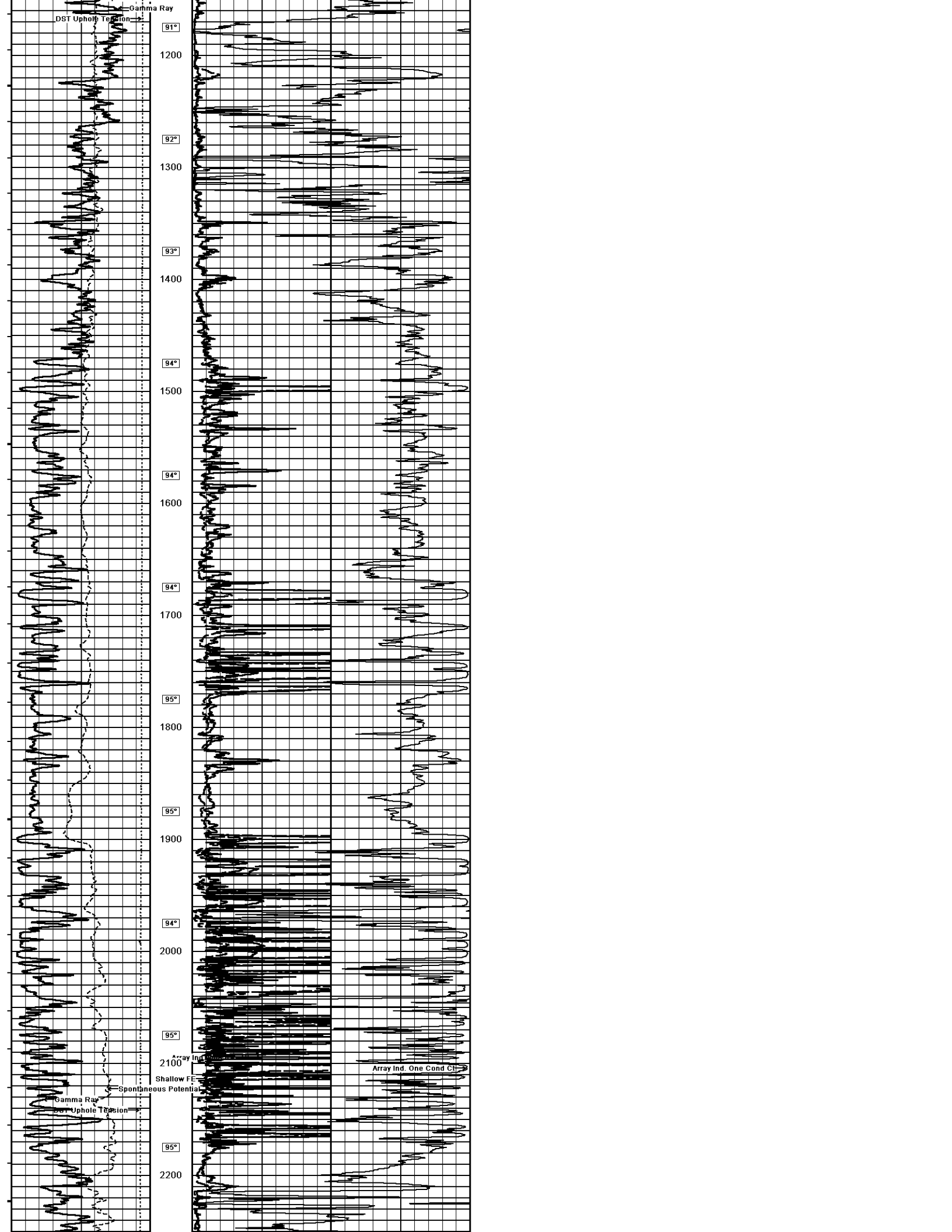
ARRAY INDUCTION
 SHALLOW FOCUSED
 ELECTRIC LOG

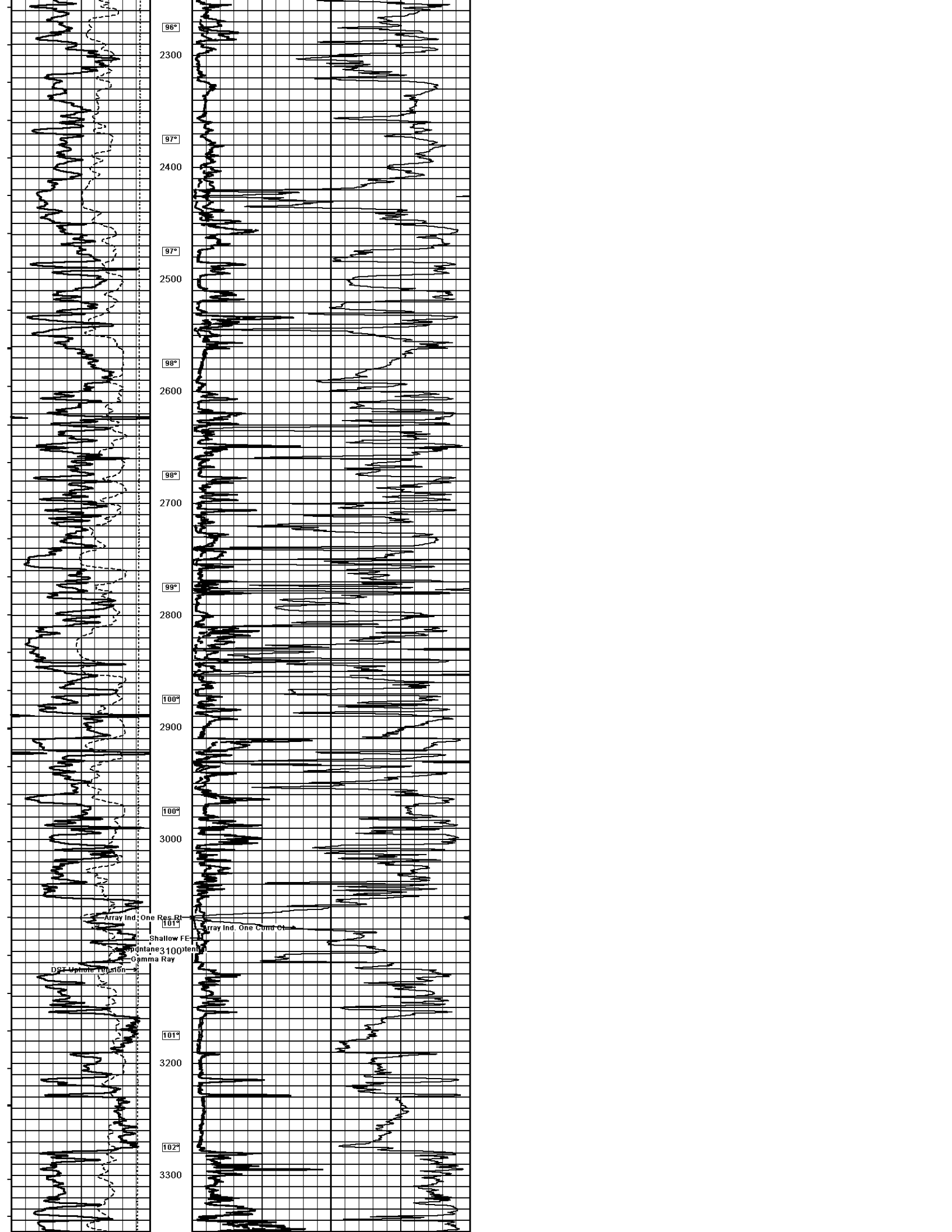


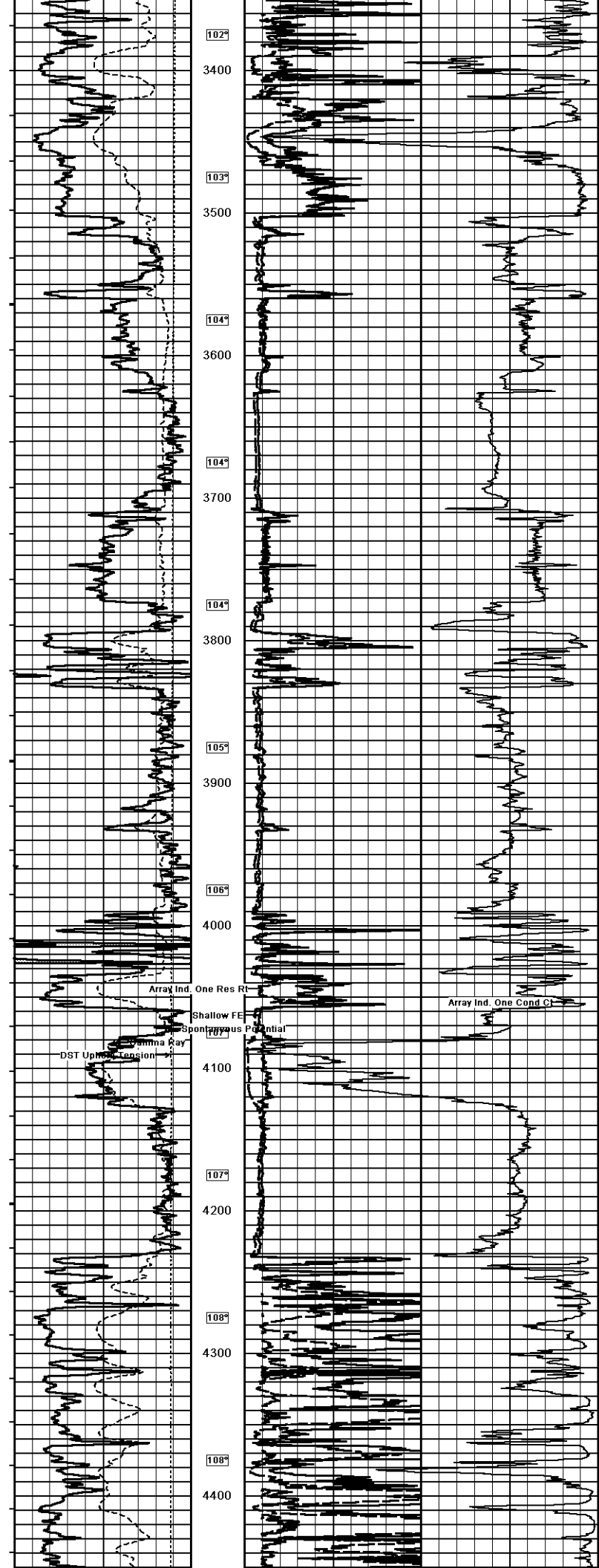
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	M&M EXPLORATION, INC.	Well	Z-BAR #18-13
WELL	Z-BAR #18-13	FIELD	AETNA NE
PROVINCE/COUNTY	BARBER	COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1100' FSL & 330' FWL SW/4	Log Measured From	169
DATE	04-DEC-2011	Drilling Measured From	K.B.
Run Number	01E	Permanent Datum O.L. Elevation	1693 feet
Depth Driller	5100.00	Log Measured From	169
Depth Logger	5105.00	Drilling Measured From	K.B.
First Reading	5107.00	Log Measured From	169
Last Reading	919.00	Drilling Measured From	K.B.
Casing Driller	920.00	Log Measured From	169
Casing Logger	919.00	Drilling Measured From	K.B.
Bit Size	7.875	Log Measured From	169
Hoist Fluid Type	CHEMICAL	Log Measured From	169
Density/Viscosity	9.00 / 100/89	Log Measured From	169
PH/Fluid Loss	10.00	Log Measured From	169
Sample Source	FLOWLINE	Log Measured From	169
Rim @ Measured Temp	0.87 @ 62.0	Log Measured From	169
Rim @ Measured Temp	0.70 @ 62.0	Log Measured From	169
Rim @ Measured Temp	1.04 @ 62.0	Log Measured From	169
Source Rim / Rim	CALC	Log Measured From	169
Rim @ BHT	0.48 @ 112.0	Log Measured From	169
Time Since Circulation	4 HOURS	Log Measured From	169
Max Record Temp	112.00	Log Measured From	169
Equipment Name	COMPACT	Log Measured From	169
Equipment Base	13095	Log Measured From	169
Recorded By	SCOTT	Log Measured From	169
Witnessed By	BEITH-BROOK	Log Measured From	169
WITNESS	3531211	Log Measured From	169

1 INCH MAIN
 Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 17:39
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar #18-13 Merge.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Plotted with 11.03.4044









102°

3400

103°

3500

104°

3600

104°

3700

104°

3800

105°

3900

106°

4000

107°

4100

107°

4200

108°

4300

108°

4400

Array Ind. One Res Rt.

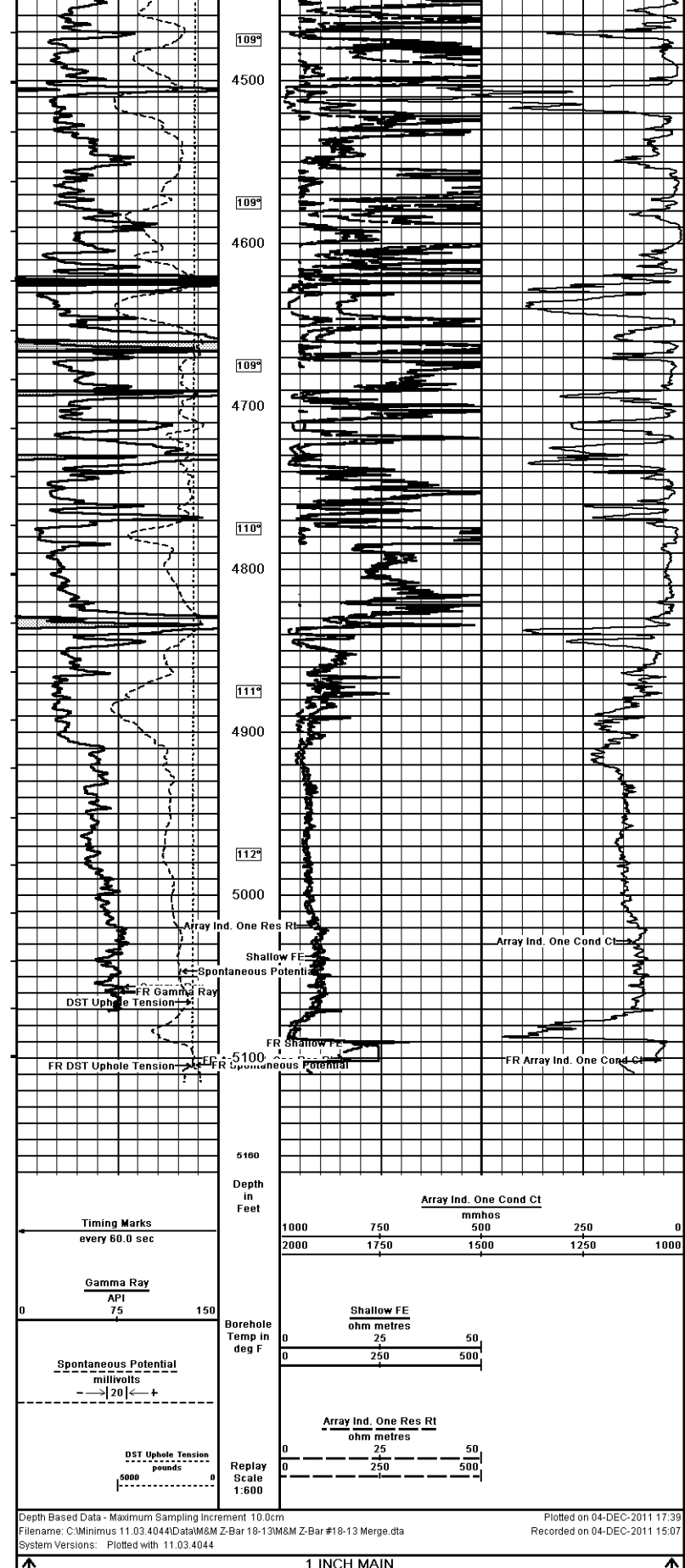
Shallow FE

Spontaneous Potential

Gamma Ray

DST Up/Down Tension

Array Ind. One Cond Ct.



Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 17:39
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar #18-13 Merge.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Plotted with 11.03.4044

COMPANY	M&M EXPLORATION, INC.				
WELL	Z-BAR #18-13				
FIELD	AETNA NE				
PROVINCE/COUNTY	BARBER				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	1705.00	feet	First Reading	5102.00	feet
Elevation Drill Floor	1703.00	feet	Depth Driller	5100.00	feet
Elevation Ground Level	1693.00	feet	Depth Logger	5105.00	feet

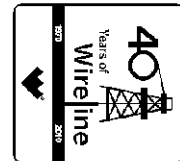




Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY M&M EXPLORATION, INC.
WELL Z-BAR #18-13
FIELD AETNA NE
PROVINCE/COUNTY BARBER
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 1100' FSL & 330' FWL
SW/4



SEC	TWP	RGE	Other Services
18	34S	14W	MA/MI/FE
API Number	15-007-23792		
Permit Number			
Permanent Datum	G.L., Elevation 1693 feet		
Log Measured From	KB		
Drilling Measured From	K.B.		
Date	04-DEC-2011		
Run Number	ONE		
Depth Driller	5100.00	feet	
Depth Logger	5105.00	feet	
First Reading	5083.00	feet	
Last Reading	4000.00	feet	
Casing Driller	920.00	feet	
Casing Logger	919.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.00	lb/USg	38.00 CP
PH / Fluid Loss	10.00		9.20 ml/30Min
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.87 @ 62.0	ohm-m	
Rmf @ Measured Temp	0.70 @ 62.0	ohm-m	
Rmc @ Measured Temp	1.04 @ 62.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.48 @ 112.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	112.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13025	LIB	
Recorded By	L. SCOTT		
Witnessed By	BETH BROCK		
S.O.# / JOB#	3531211		LB11-307

Elevations:	feet
KB	1705.00
DF	1703.00
GL	1693.00

BOREHOLE RECORD

Last Edited: 04-DEC-2011 14:52

Bit Size inches	Depth From feet	Depth To feet
7.875	919.00	5105.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	919.00	24.00

REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MML
 Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
 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.
 Annular volume with 4.5 inch production casing = 274 cu. ft.
 Service order #3531211
 Rig: Southwind #70
 Engineer(s): L. Scott
 Operator(s): J. LaPoint

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.

5 INCH MAIN

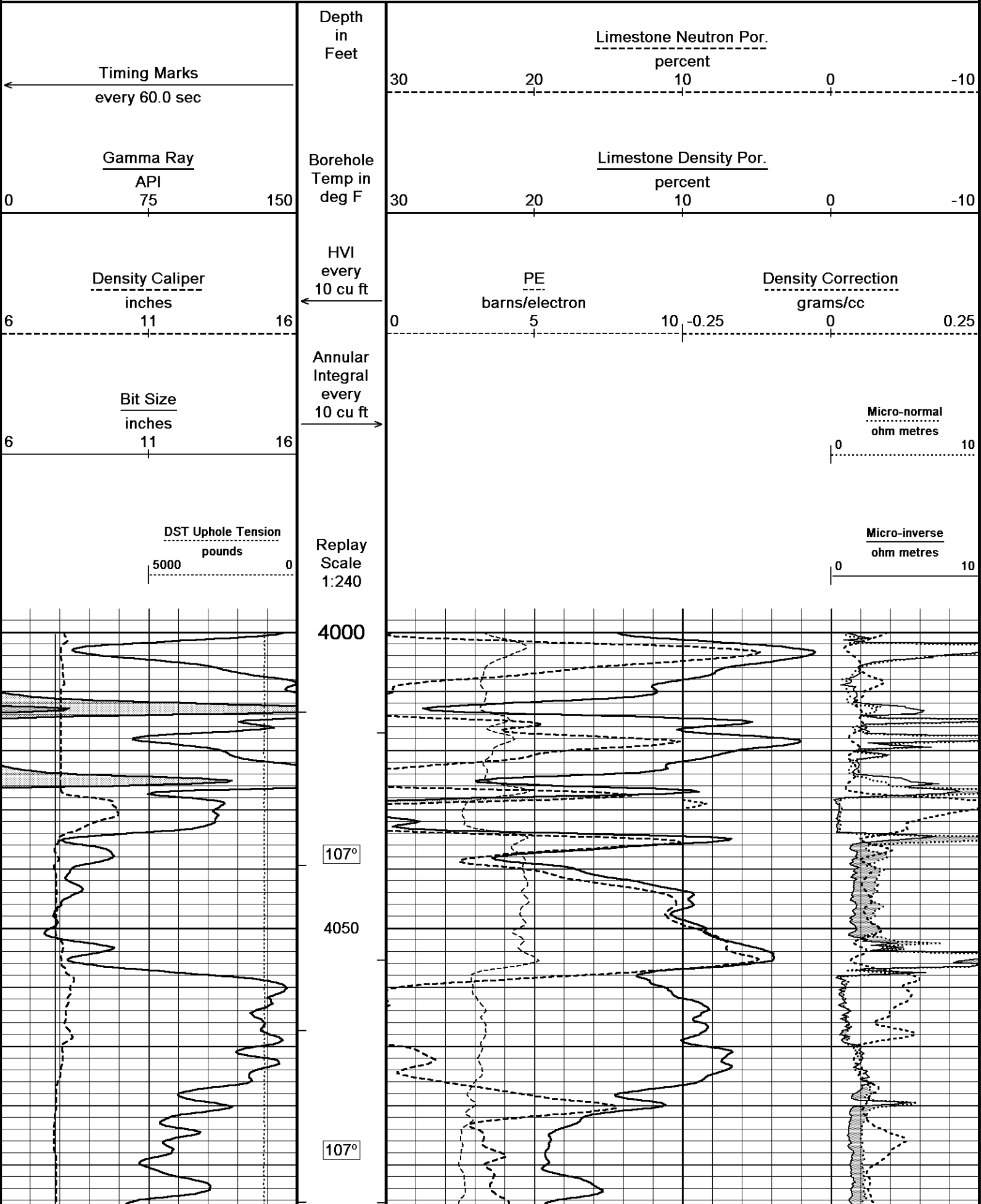
Depth Based Data - Maximum Sampling Increment 10.0cm

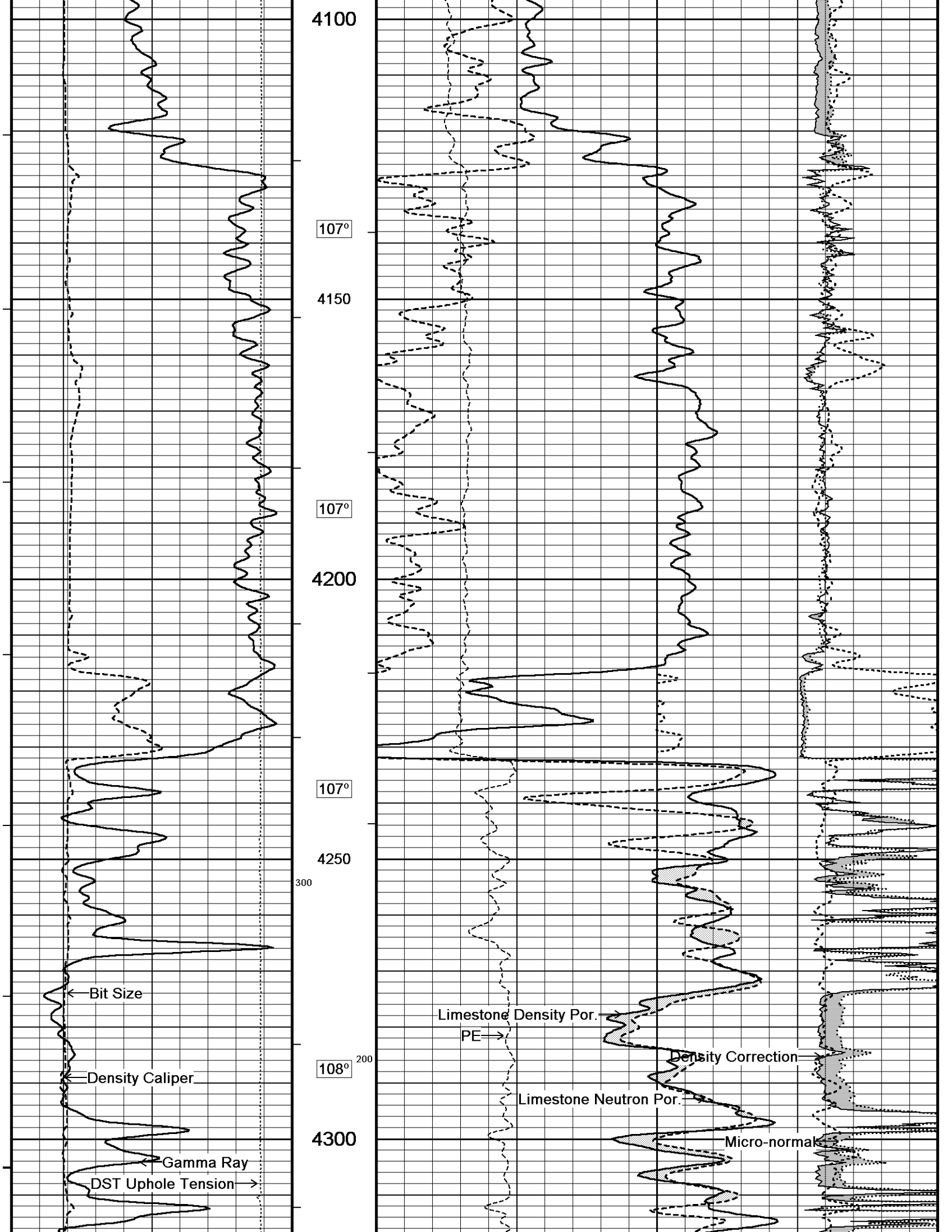
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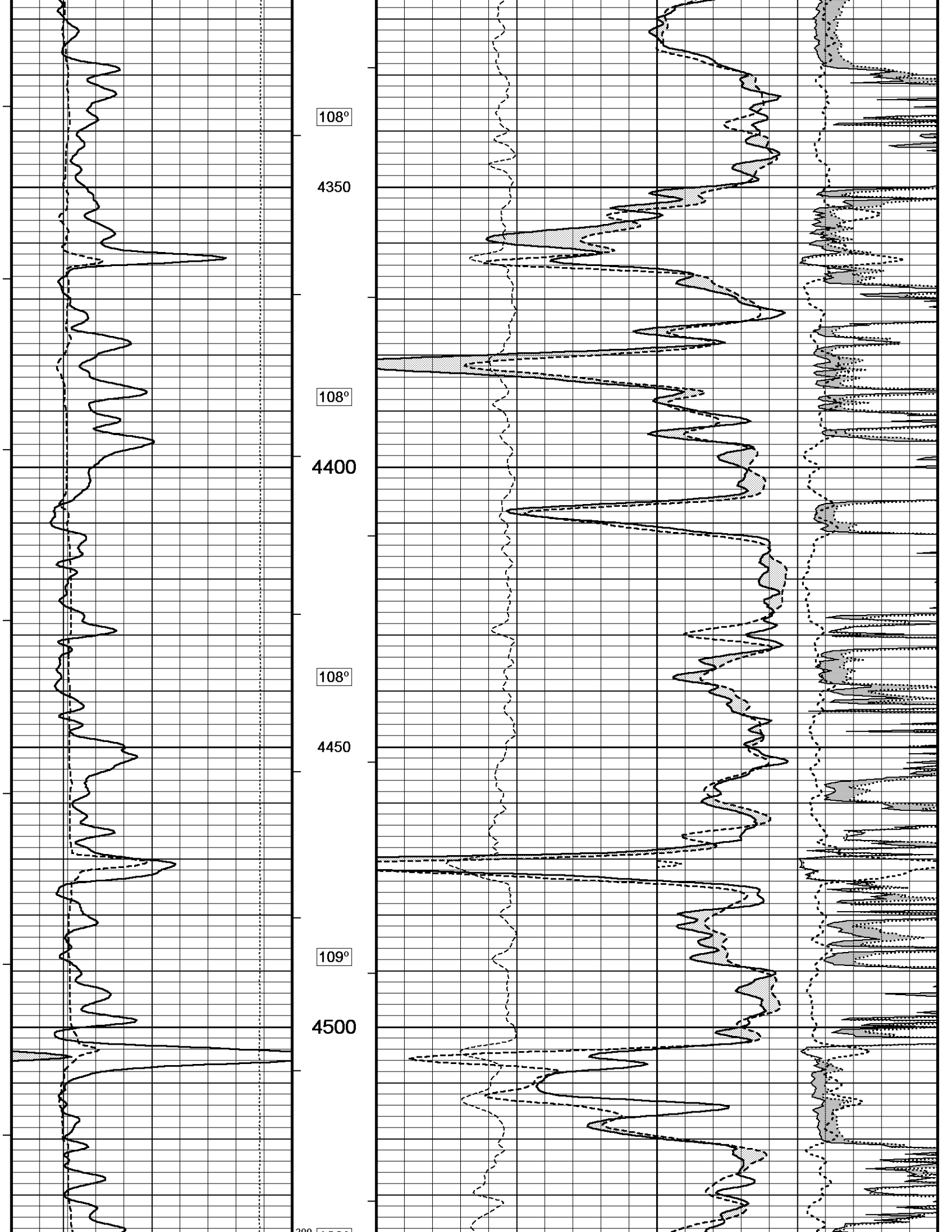
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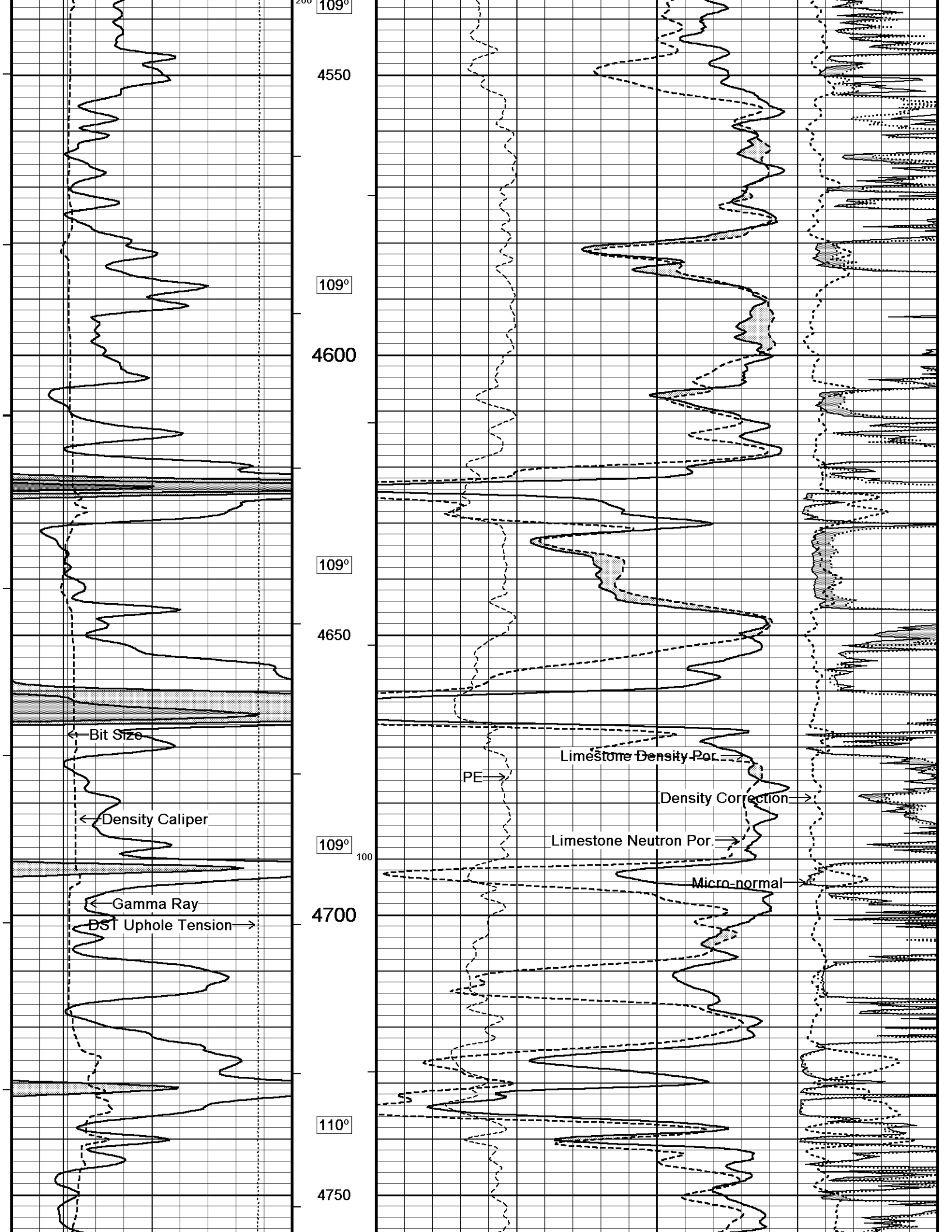
Recorded on 04-DEC-2011 15:07

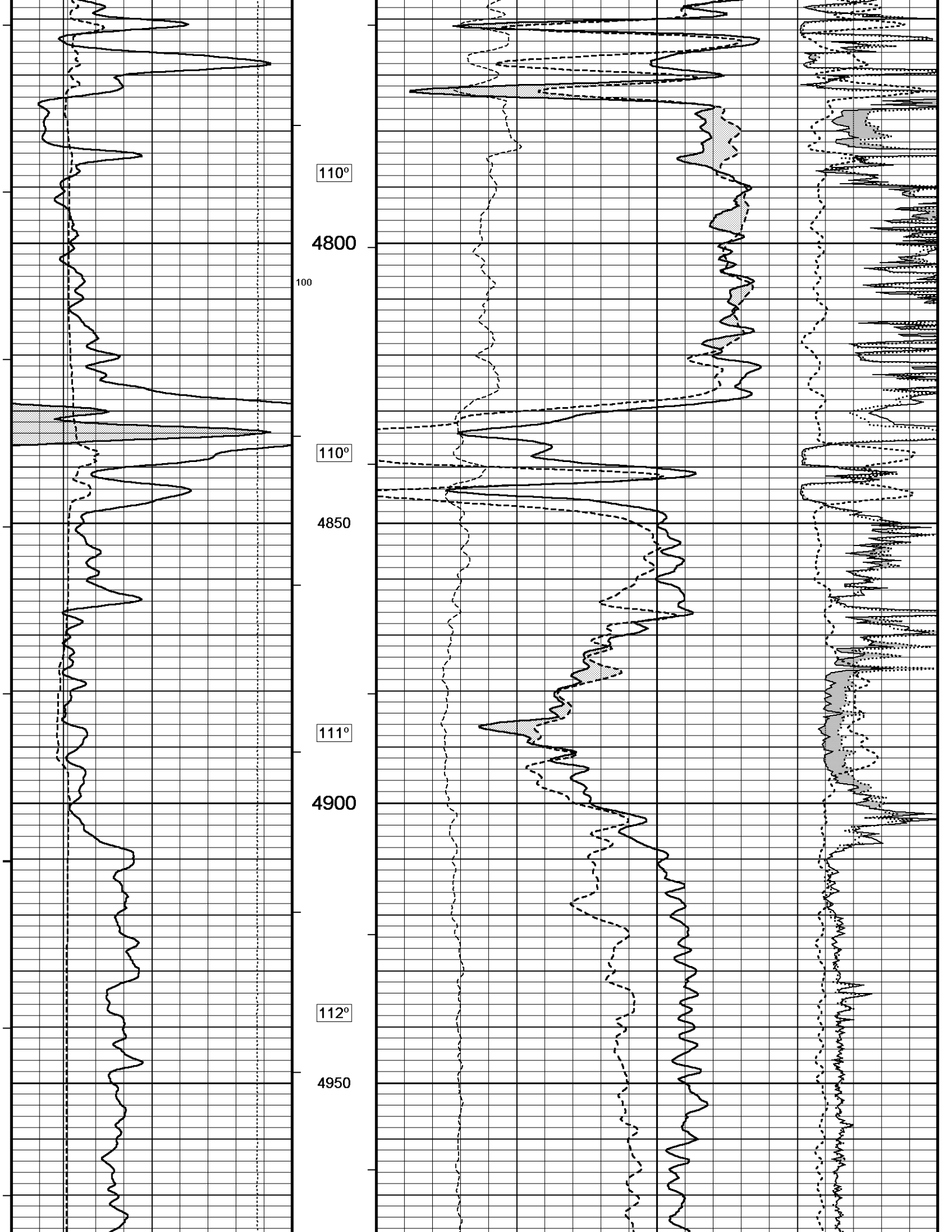
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

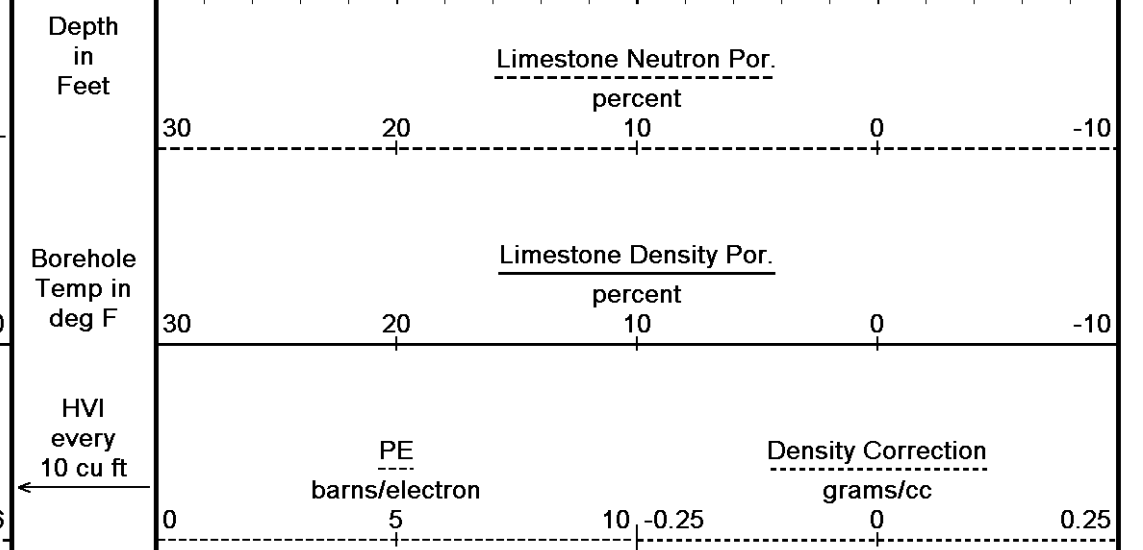
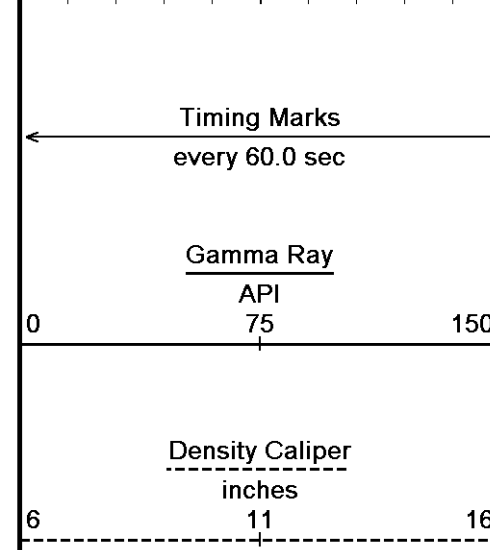
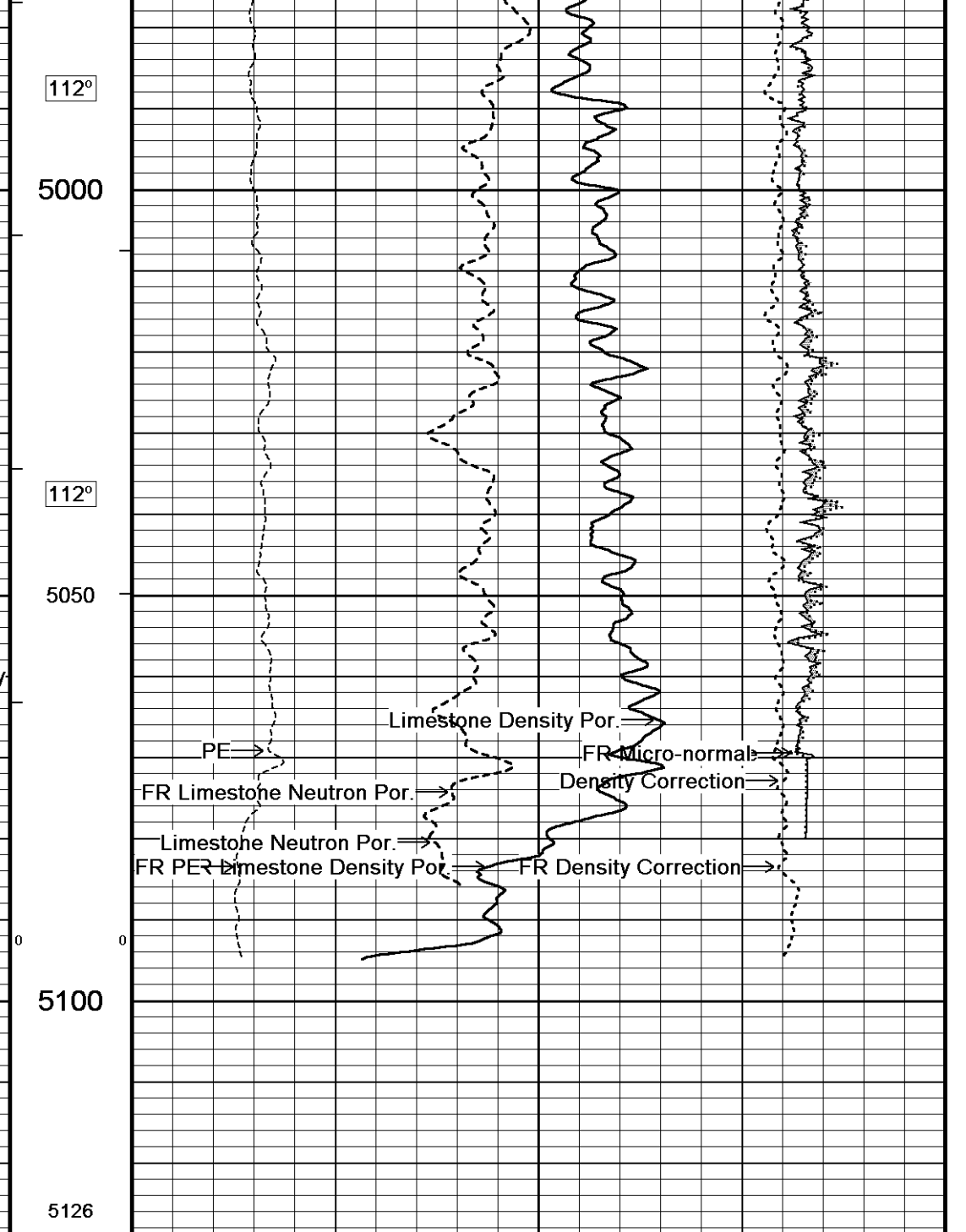
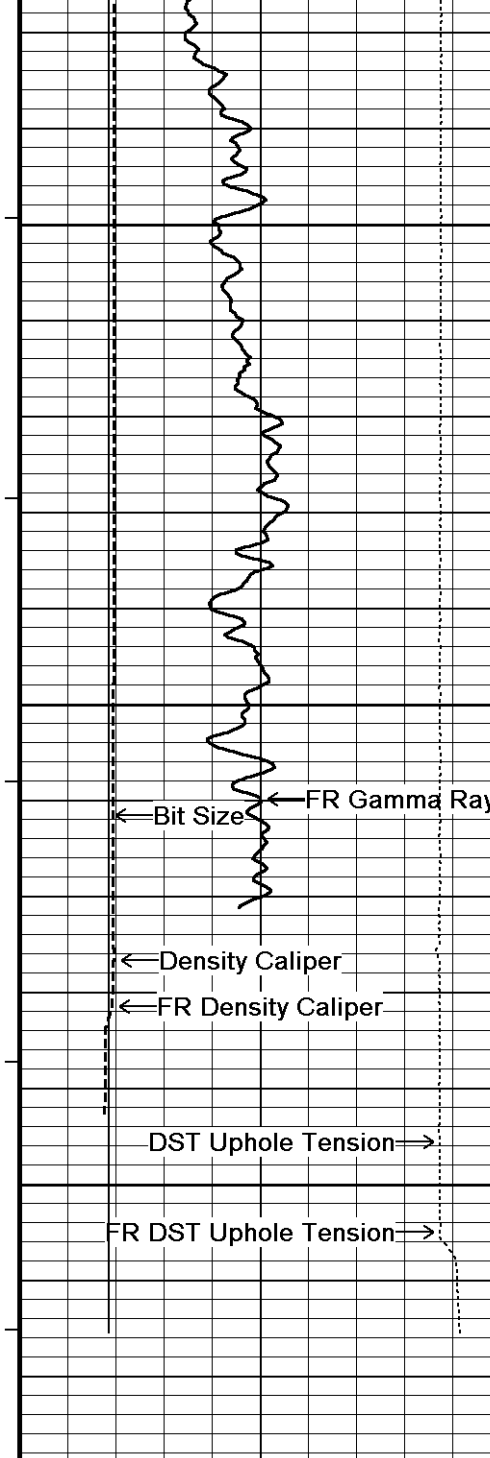












112°

112°

5000

5050

5100

5126

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every

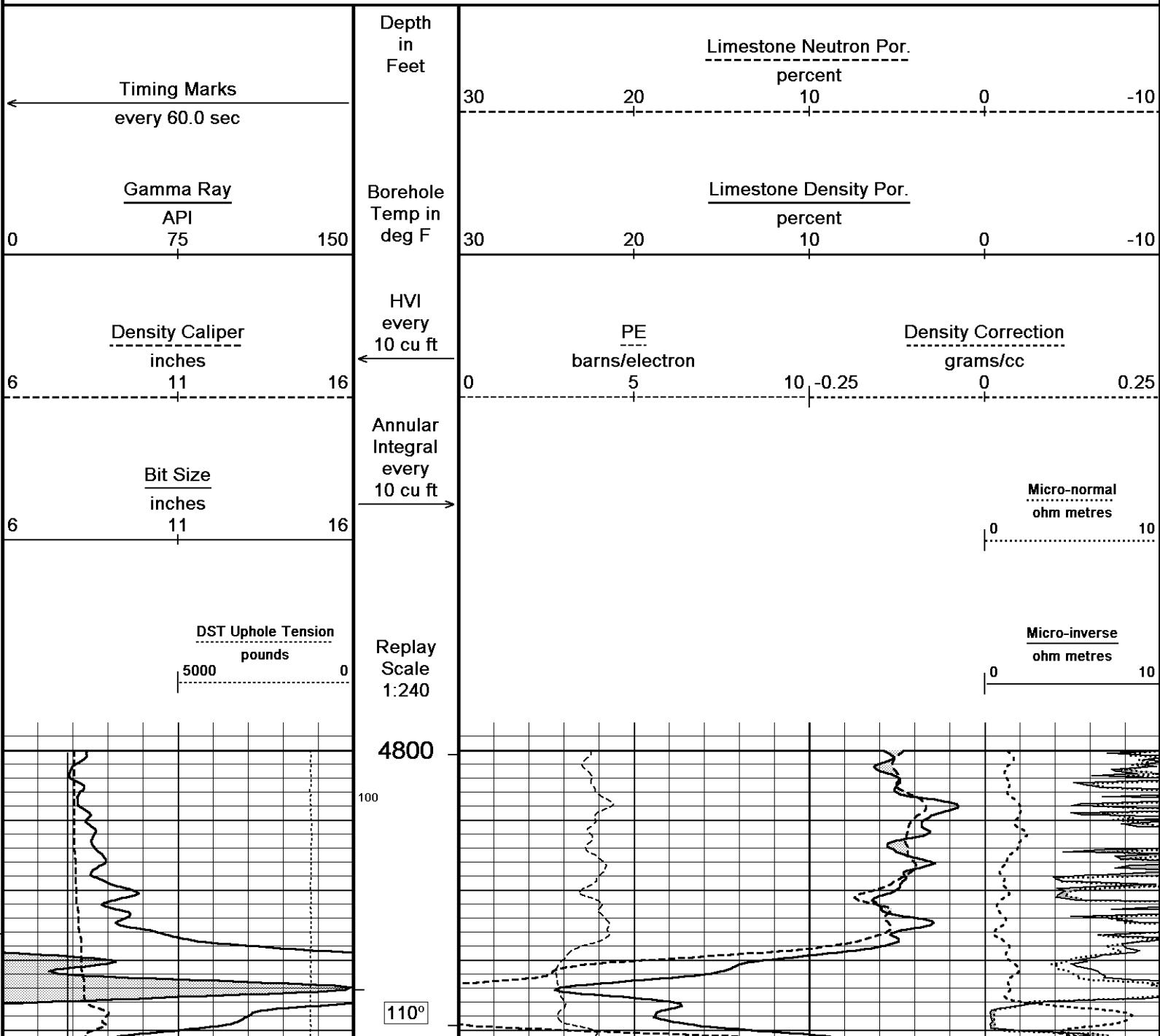


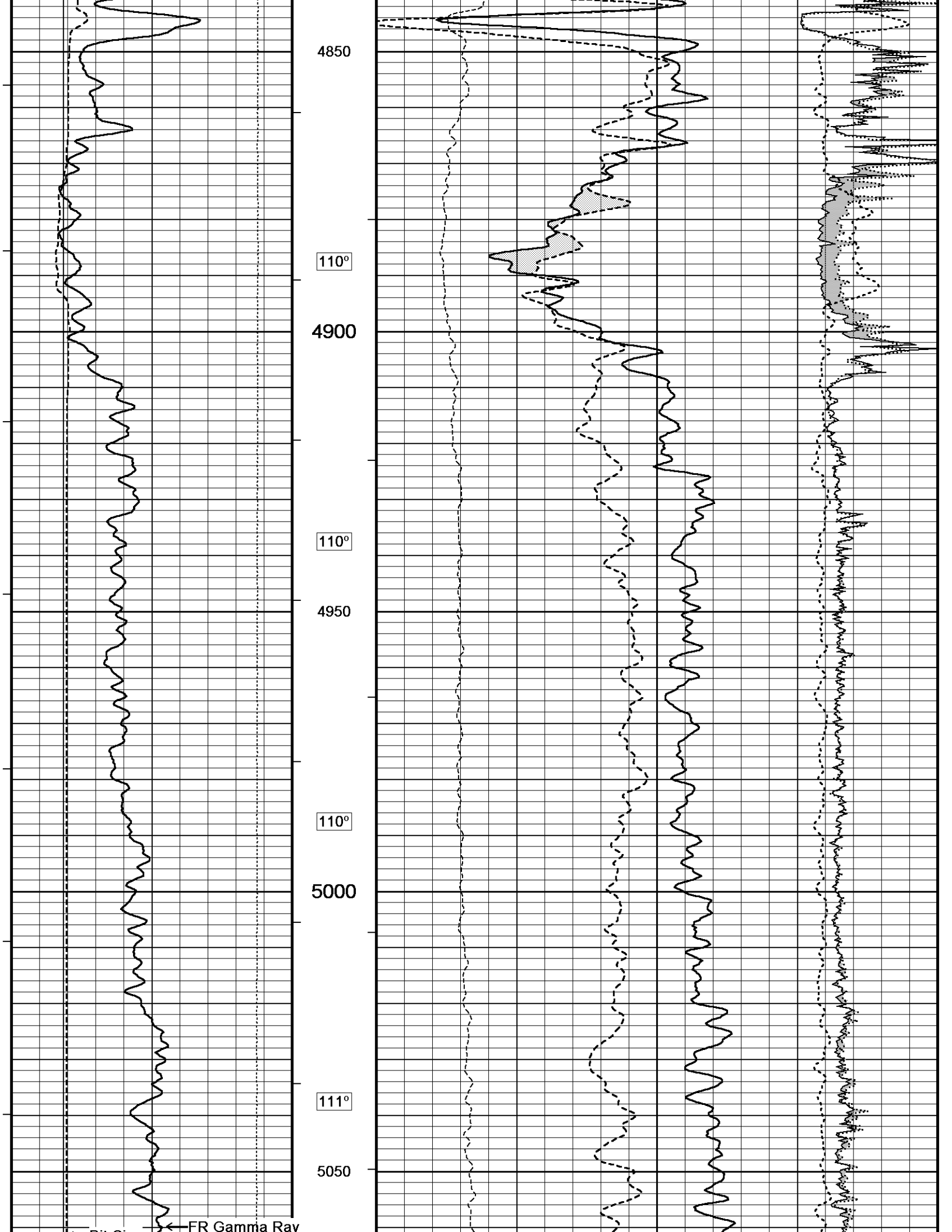
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 16:50
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_002.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

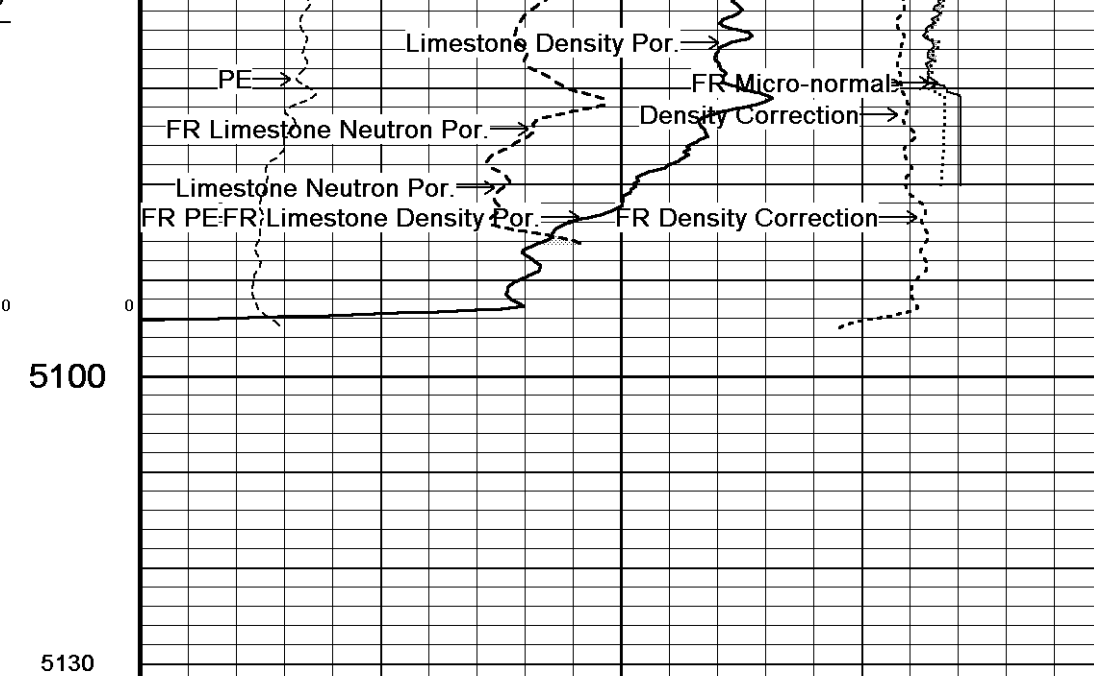
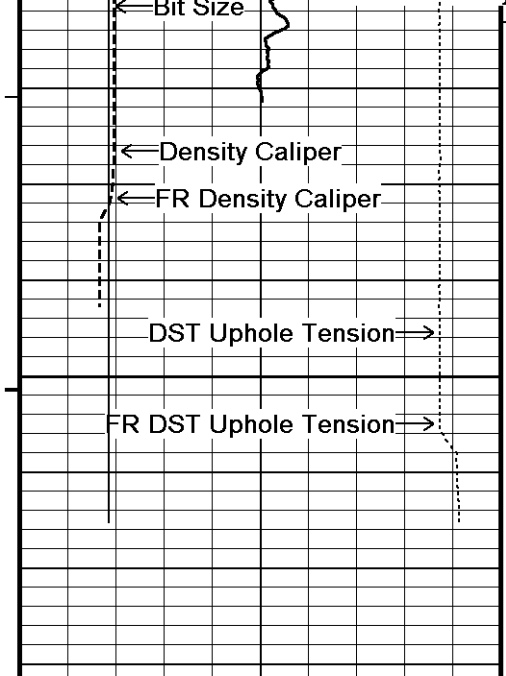
↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 16:50
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta
 Recorded on 04-DEC-2011 14:46
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044







5100

5130
Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

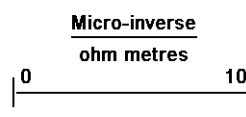
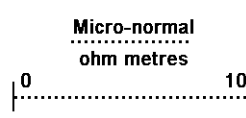
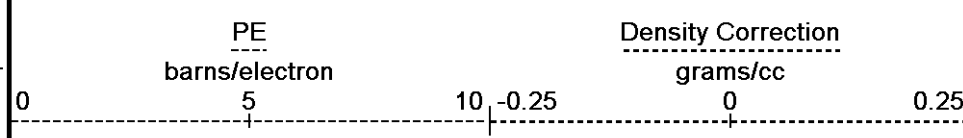
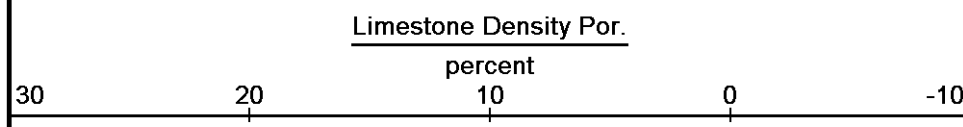
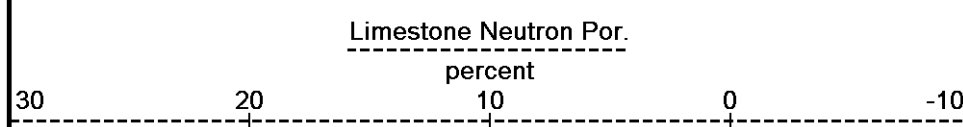
DST Uphole Tension
pounds
5000 0

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 04-DEC-2011 16:50
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta
 Recorded on 04-DEC-2011 14:46
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑ REPEAT SECTION ↑

↓ 5 INCH MAIN ↓
 Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 04-DEC-2011 16:50
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_002.dta
 Recorded on 04-DEC-2011 15:07
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

	Depth in Feet	Compensated Density
--	---------------------	---------------------

← Timing Marks
every 60.0 sec

Gamma Ray
API
75

Density Caliper
inches
11

Bit Size
inches
11

DST Uphole Tension
pounds
5000

Feet
Borehole
Temp in
deg F

HVI
every
10 cu ft

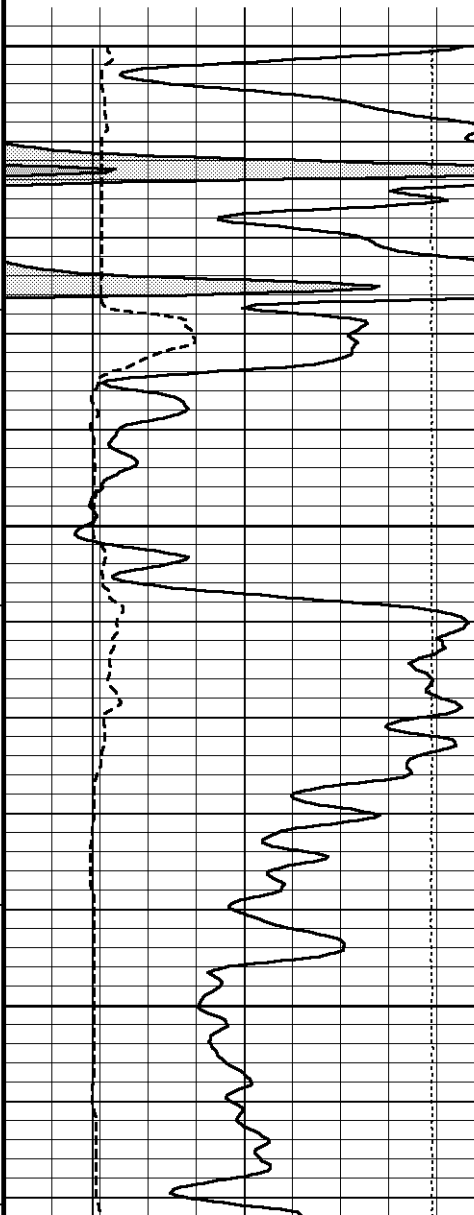
Annular
Integral
every
10 cu ft →

Replay
Scale
1:240

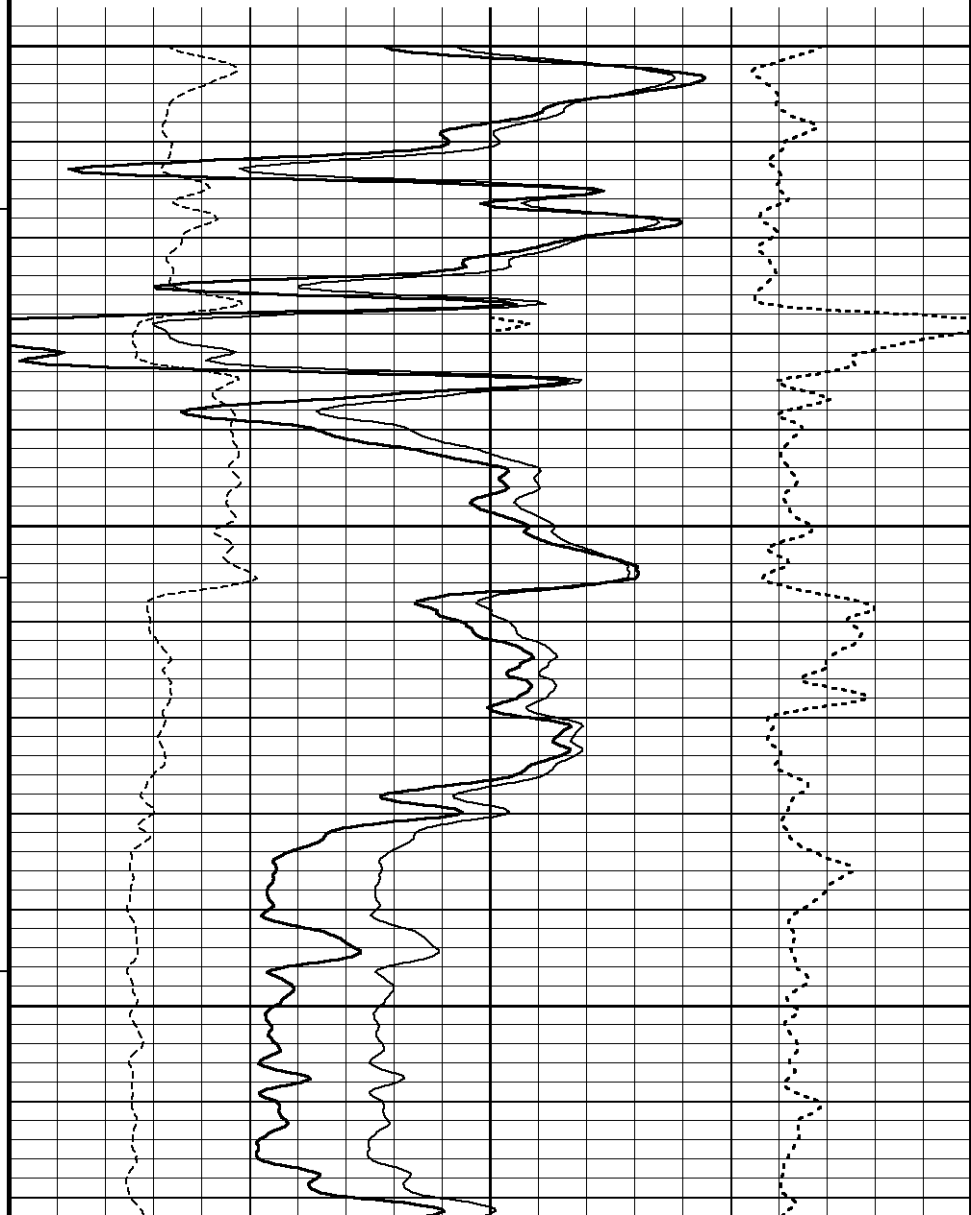
2 2.25 grams/cc 2.50 2.75 3

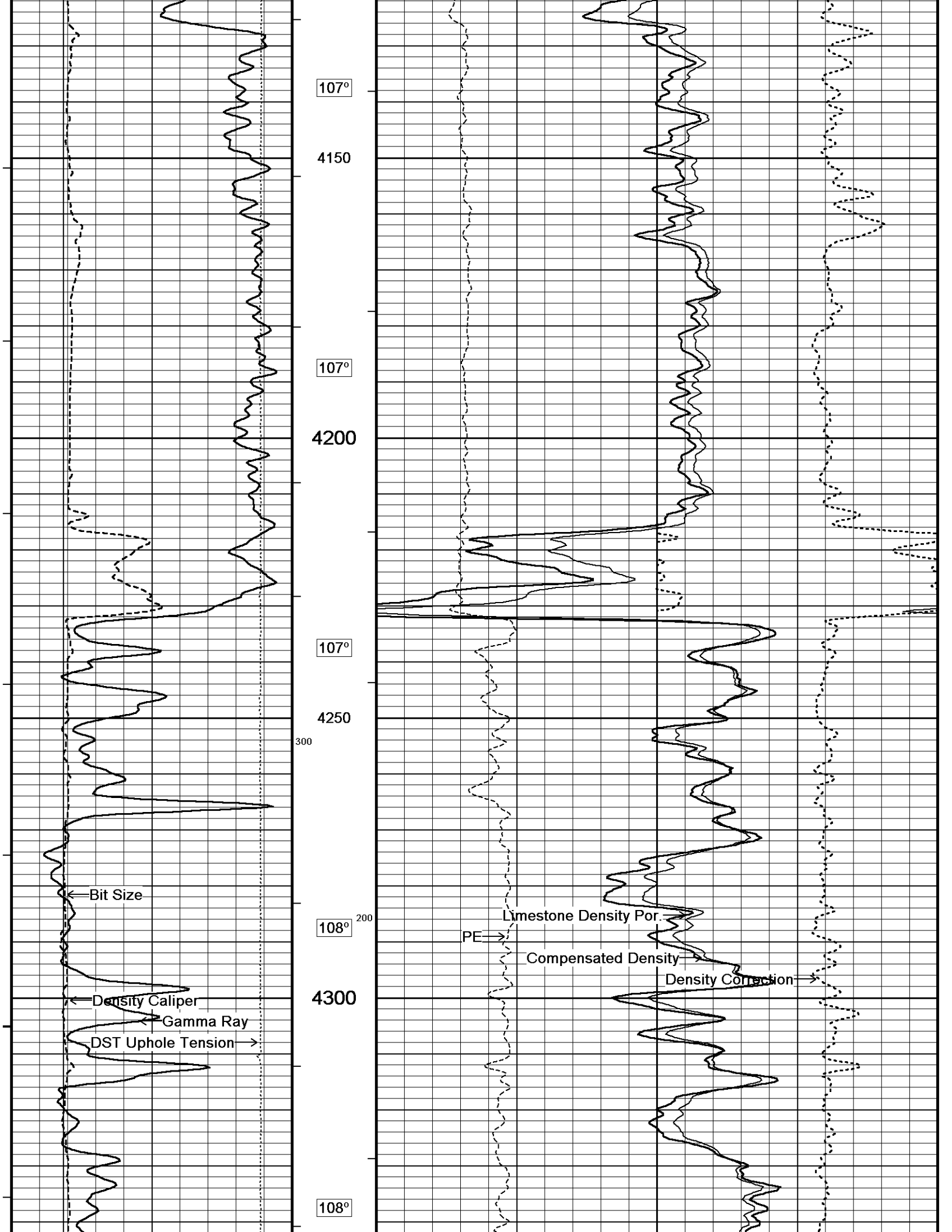
Limestone Density Por.
percent
30 20 10 0 -10

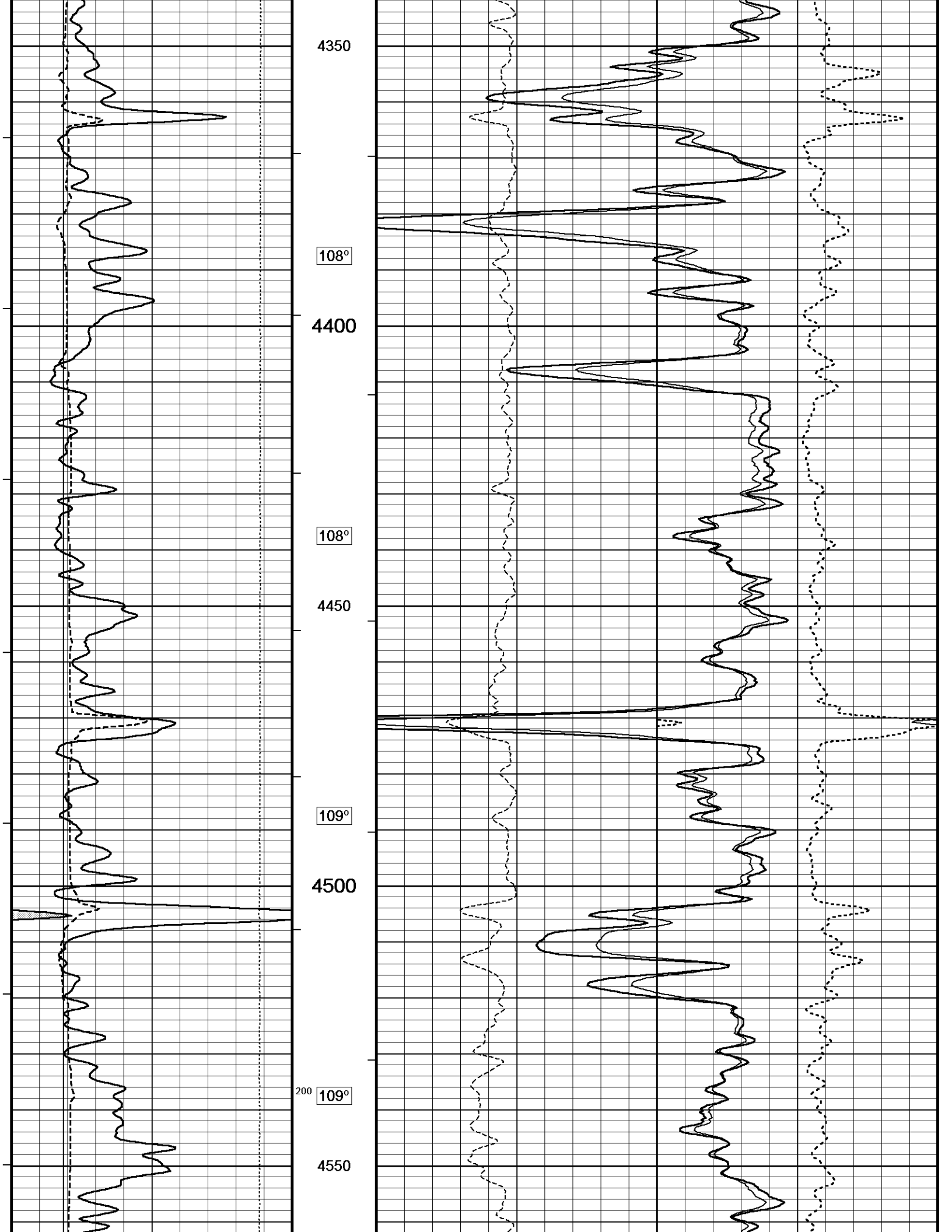
PE barns/electron 5 10
Density Correction grams/cc -0.25 0 0.25

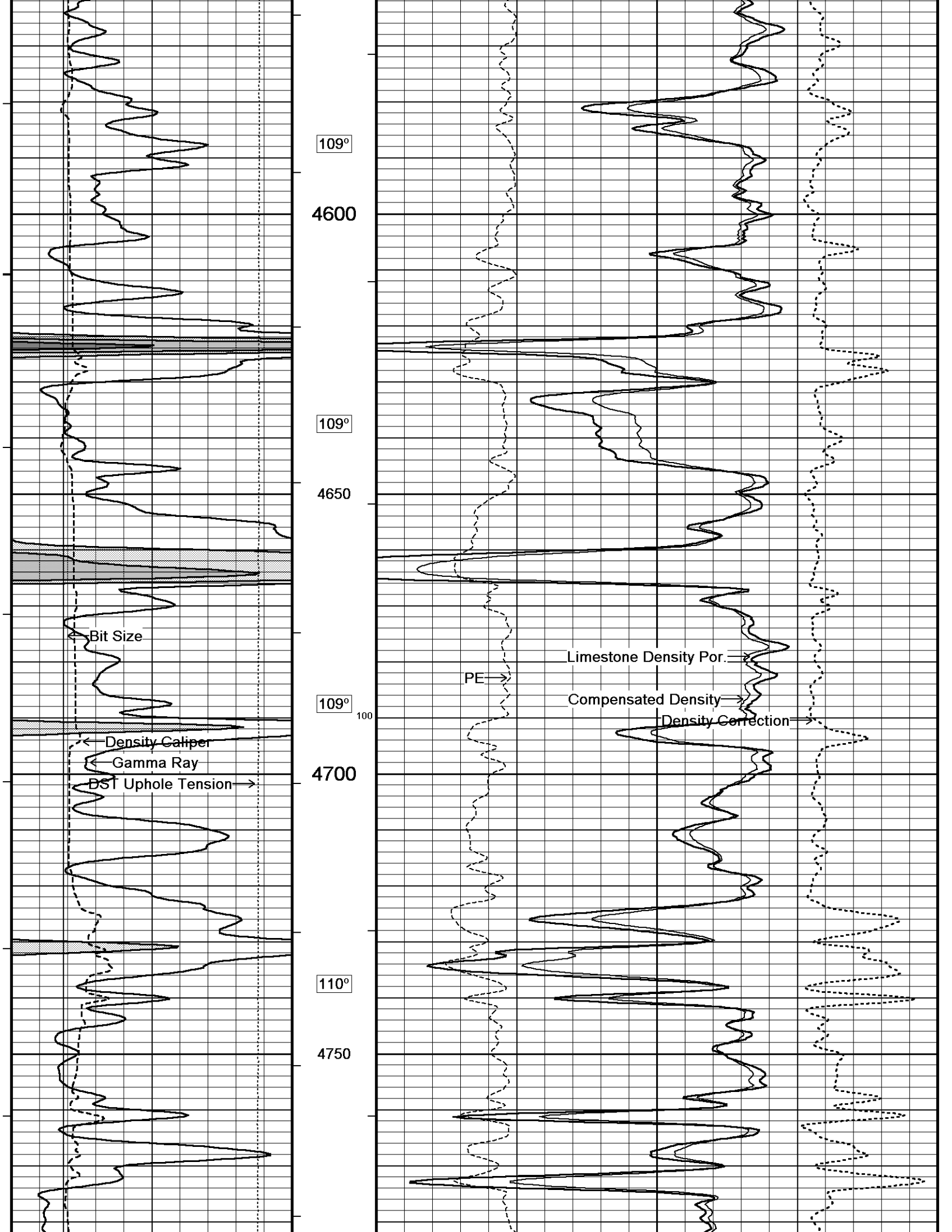


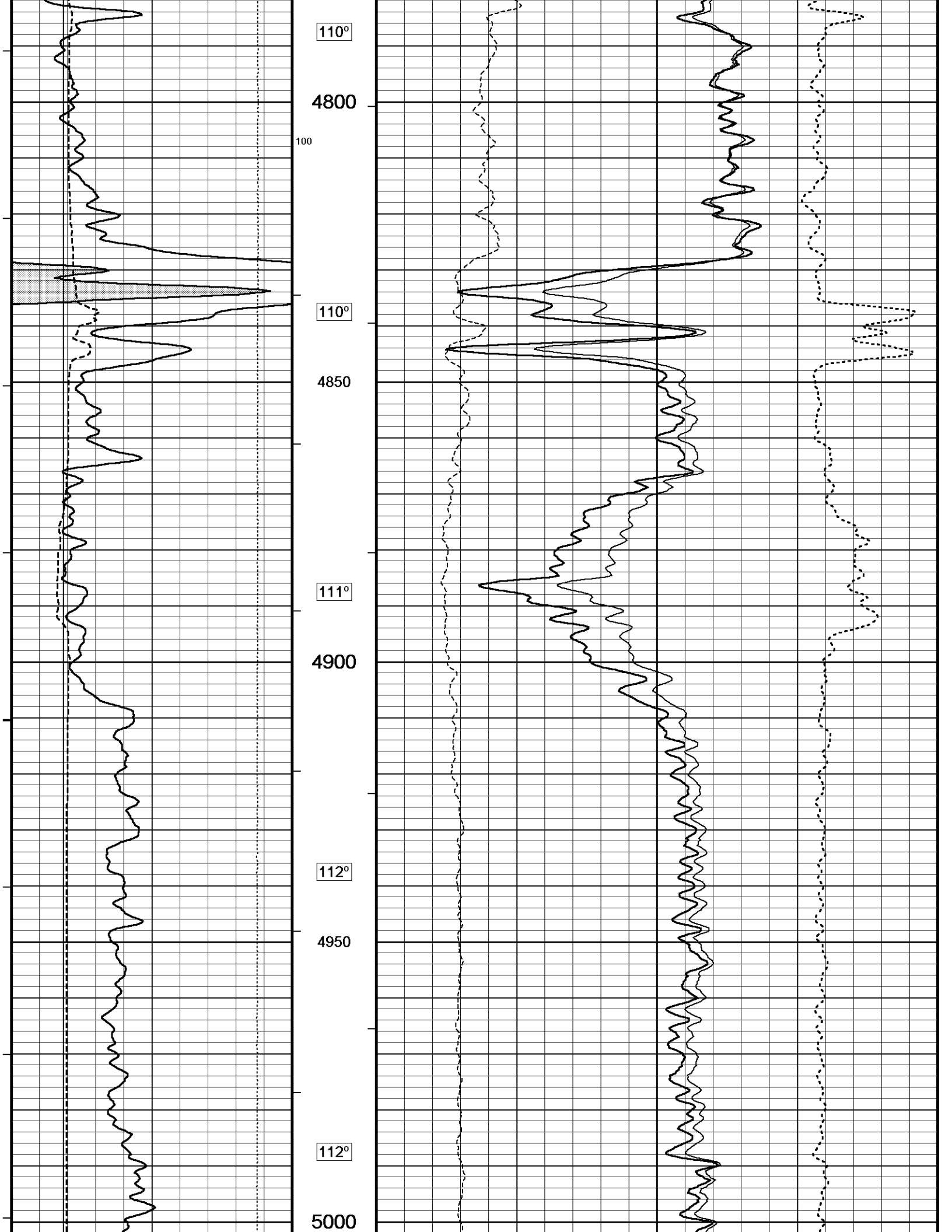
4000
107°
4050
107°
4100

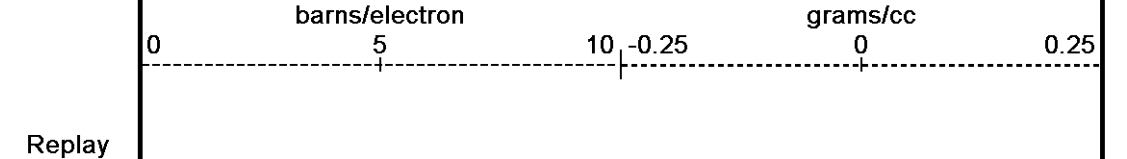
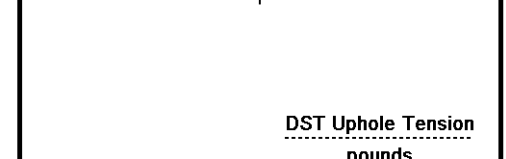
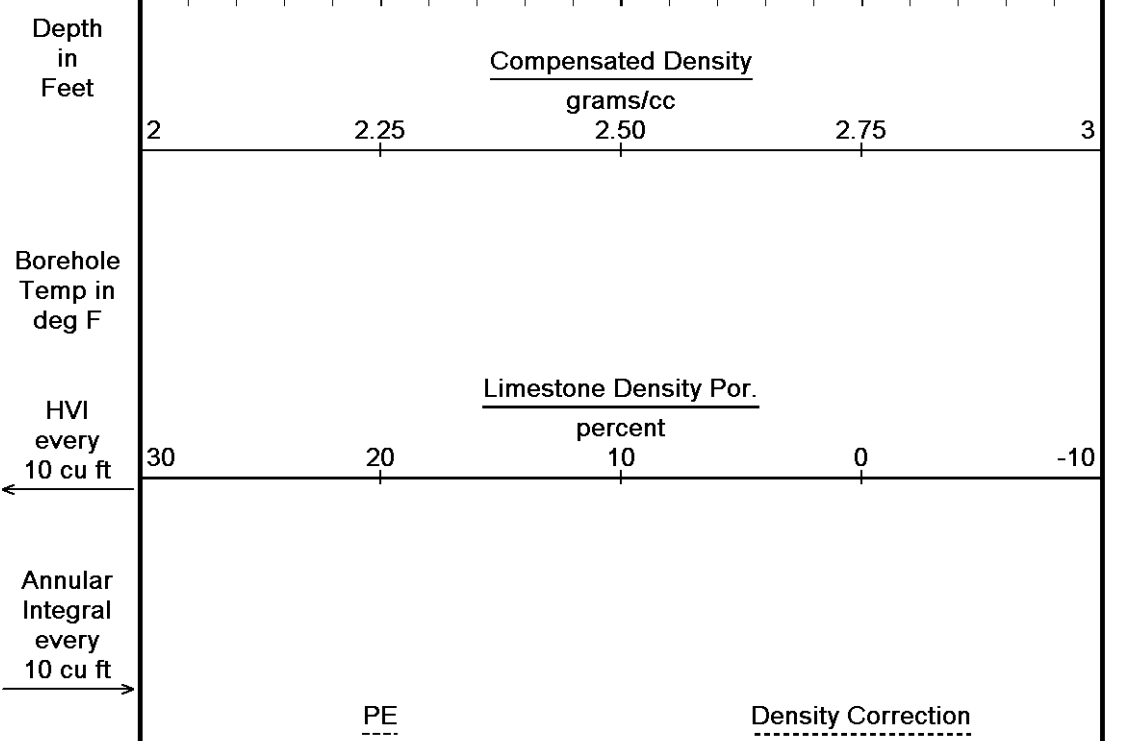
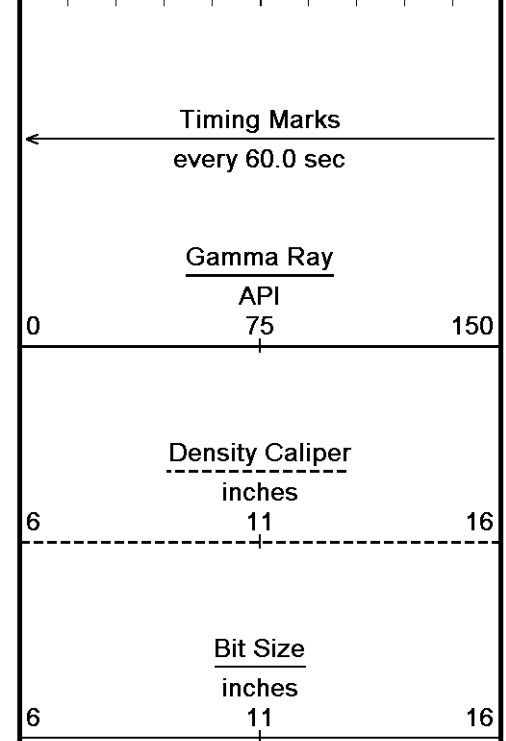
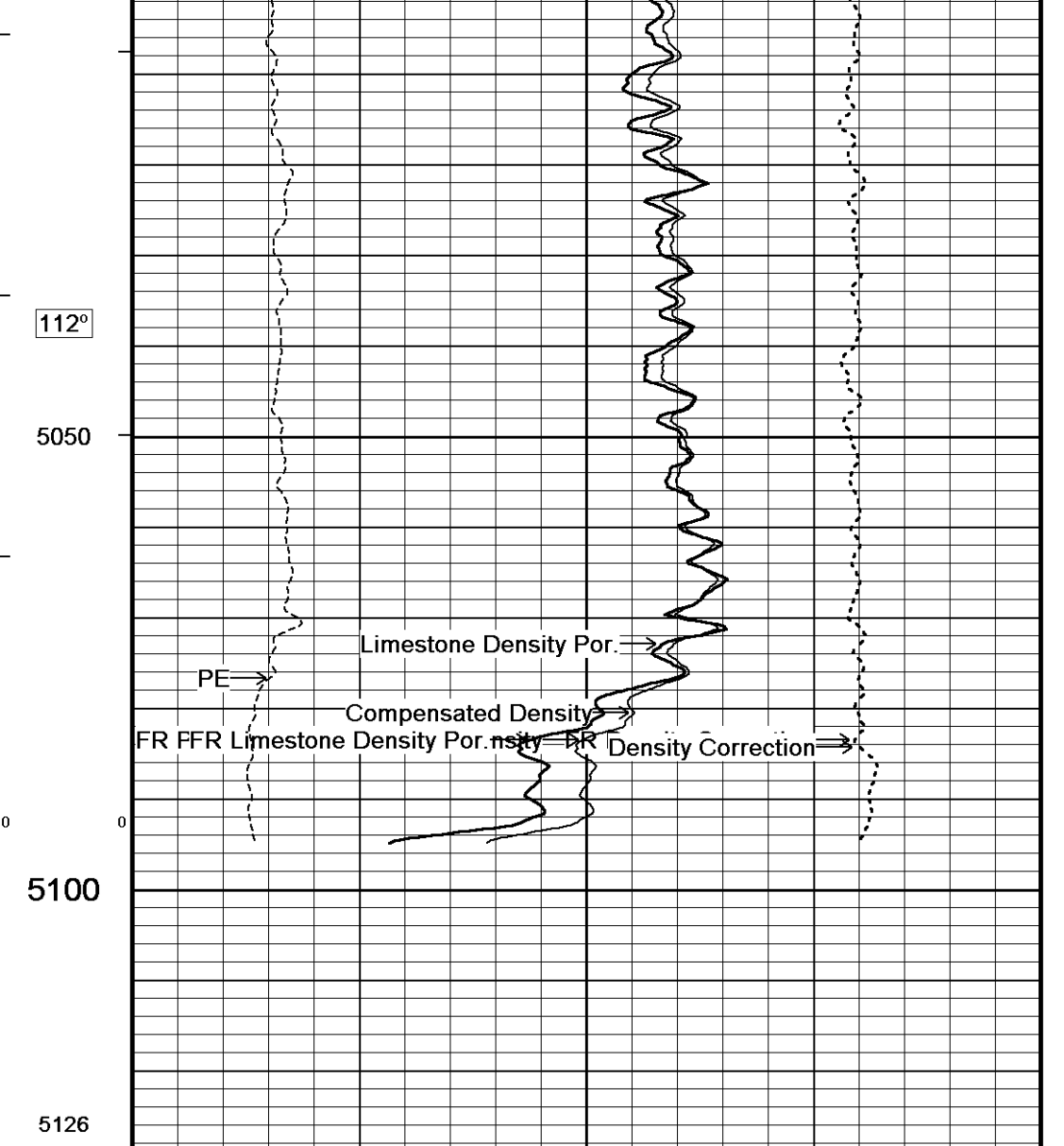
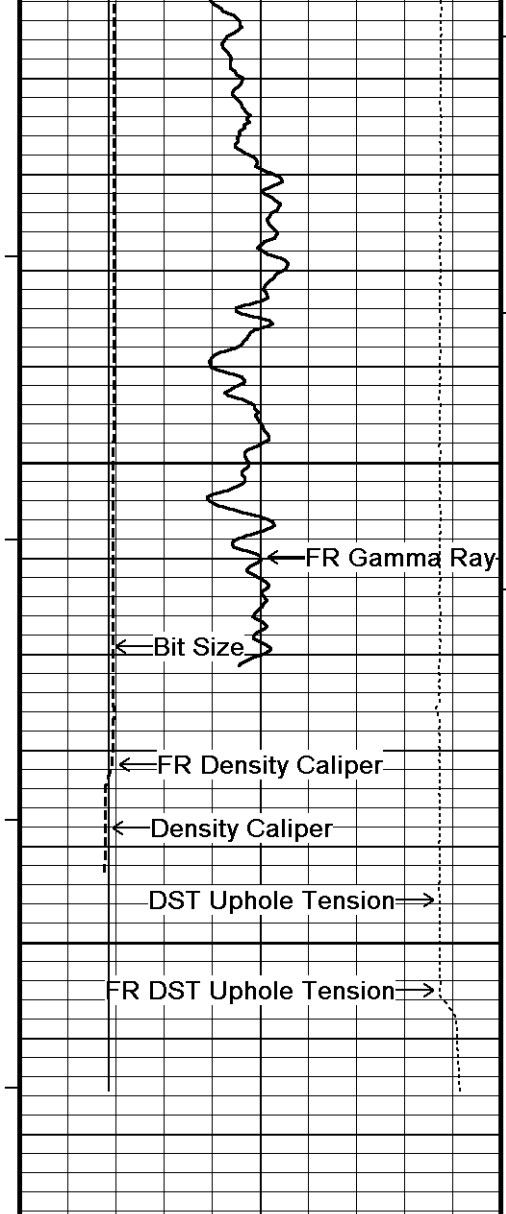












5000 pounds

Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 04-DEC-2011 16:50
Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_002.dta
Recorded on 04-DEC-2011 15:07
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



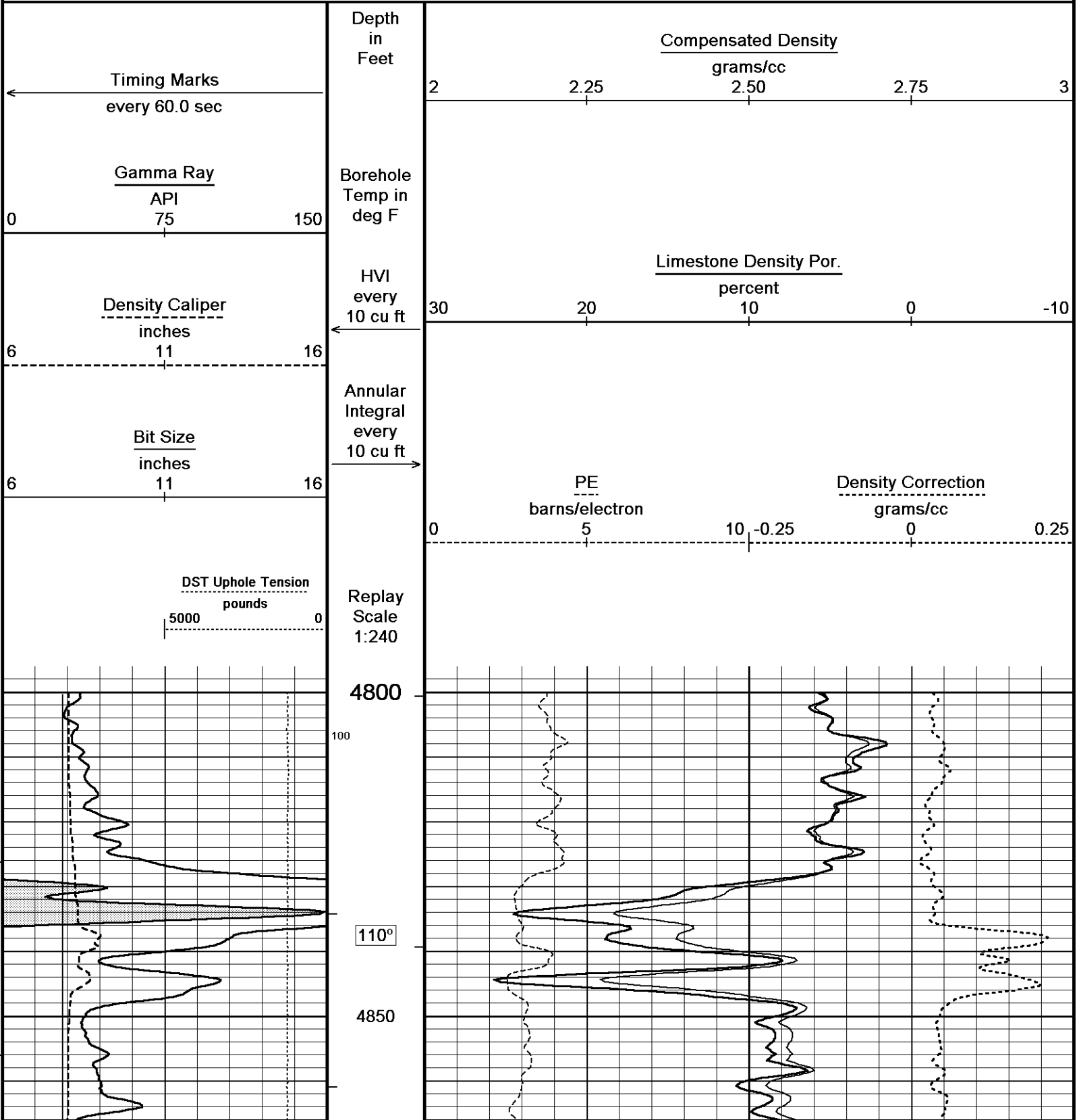
5 INCH MAIN

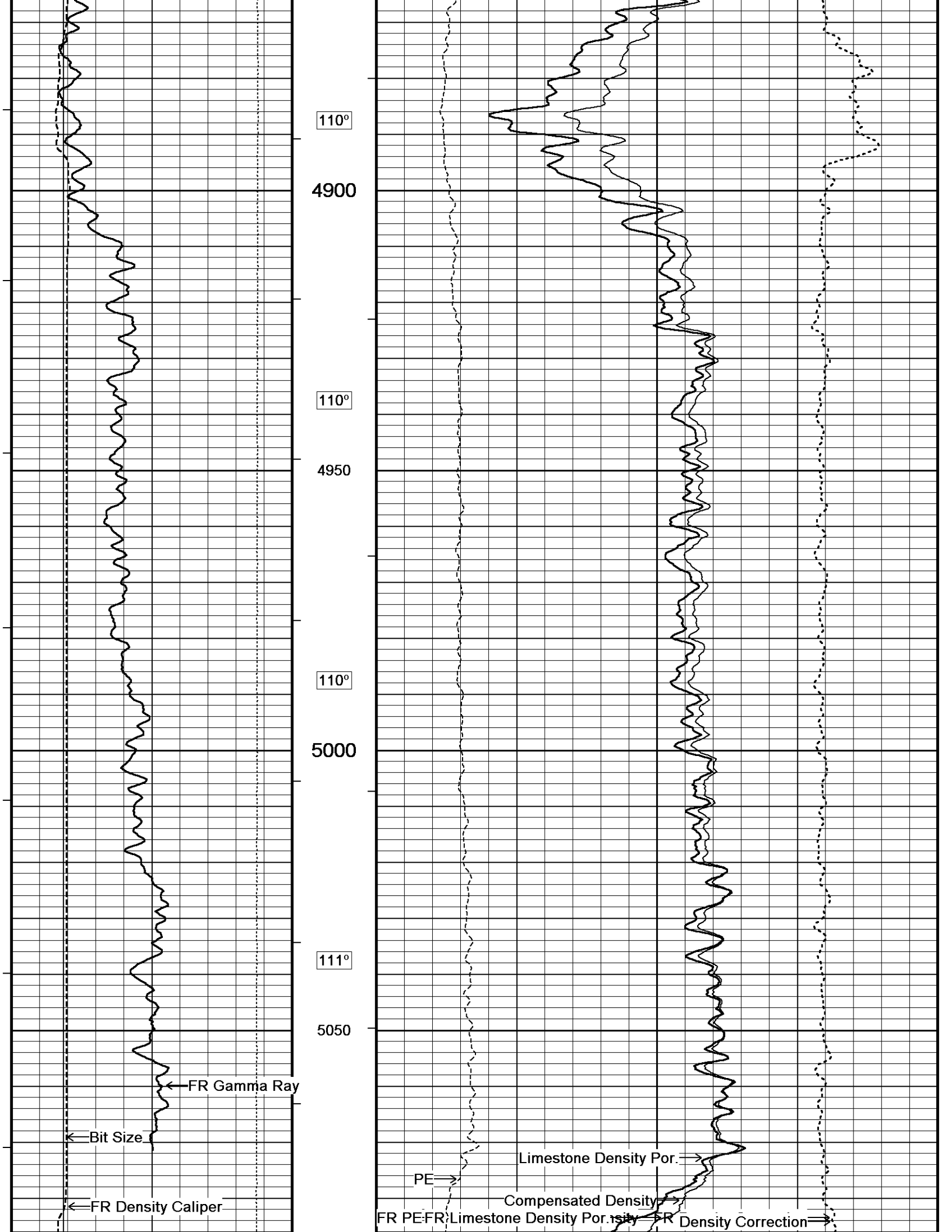


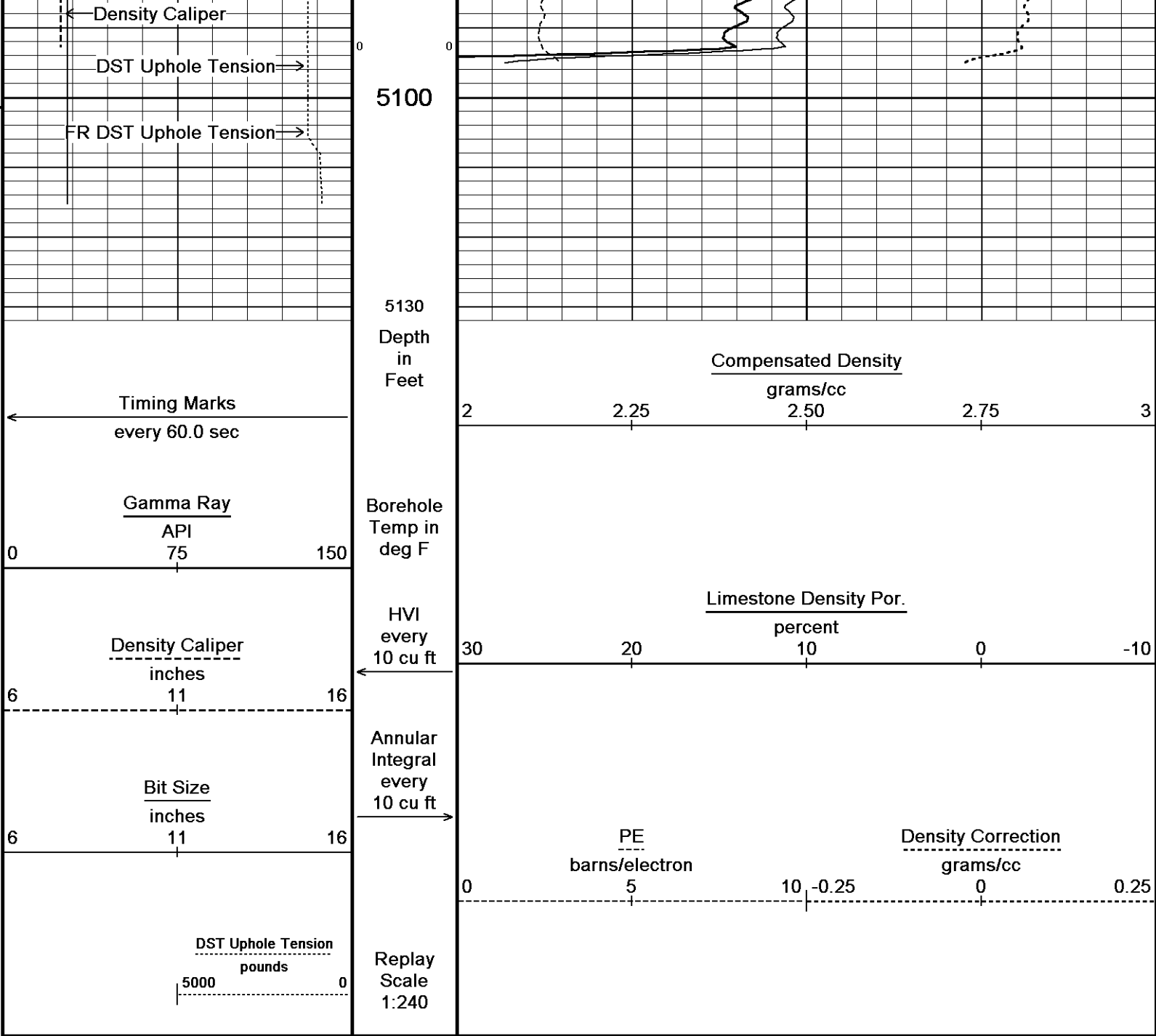
REPEAT SECTION



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 04-DEC-2011 16:50
Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta
Recorded on 04-DEC-2011 14:46
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044







Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 04-DEC-2011 16:50
 Filename: C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13_001.dta Recorded on 04-DEC-2011 14:46
 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13.dta

Down-hole Tension Calibration All 000 Field Calibration on 30-JUN-2010

Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00

General Constants All 000 Last Edited on 04-DEC-2011,12:48

General Parameters		
Mud Resistivity	0.870	ohm-metres
Mud Resistivity Temperature	62.000	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 10-SEP-2011 04:32

Reading No	Measured	Calibrated (lbs)
1	-2243.52	0.00
2	-2203.03	480.60

High Resolution Temperature Calibration MCG-C 139

Field Calibration on 02-AUG-2011,17:13

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

High Resolution Temperature Constants MCG-C 139

Last Edited on

Pre-filter Length 11

SP Calibration MCG-C 139

Field Calibration on 29-AUG-2011 09:25

	Measured	Calibrated (mV)
Reference 1	103.7	100.0
Reference 2	-96.7	-100.0

Gamma Calibration MCG-C 139

Field Calibration on 04-DEC-2011 07:42

	Measured	Calibrated (API)
Background	72	49
Calibrator (Gross)	1135	774
Calibrator (Net)	1064	725

Gamma Constants MCG-C 139

Last Edited on 04-DEC-2011,12:48

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 15-NOV-2011 08:45

Field Check on 04-DEC-2011 07:34

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	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 16

Last Edited on 04-DEC-2011,07:33

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 N/A inches

Caliper Calibration MML-A 16

Base Calibration on 15-NOV-2011 08:38

Field Calibration on 04-DEC-2011 07:36

Base Calibration
 Reading No Measured Calibrator Size (in)

1	14184	5.98
2	17582	7.97
3	20836	9.86
4	24886	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.06	5.98

Neutron Calibration MDN-A.B 66

Base Calibration on 17-OCT-2011 14:32
Field Check on 04-DEC-2011 07:48

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3086	97	3714	110
Ratio	31.796		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	Near	Far
	1659	2358
Ratio	0.704	

Field Check

	Calibrated (cps)	
	Near	Far
	1660	2359
Ratio	0.704	

Neutron Constants MDN-A.B 66

Last Edited on 04-DEC-2011,07:43

Neutron Source Id	P58125B		
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	None		
Formation Pressure	N/A	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 52

Base Calibration on 15-NOV-2011 08:59
Field Check on 04-DEC-2011 07:26

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	965.0	126.8

Base Check	280.1
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Field Check	279.9
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FE Constants MFE-A.A 52

Last Edited on 04-DEC-2011,07:25

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	

High Resolution Temperature Calibration MAI-A.A 167

Field Calibration on 28-OCT-2011,10:01

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.00

High Resolution Temperature Constants MAI-A.A 167

Last Edited on

Pre-filter Length

11

Induction Calibration MAI-A.A 167

Base Calibration on 11-MAR-2011,09:58

Field Check on 04-DEC-2011 07:25

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

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	13.1	3839.3
2	0.0	0.0	29.6	3476.7
3	0.0	0.0	29.1	3052.6
4	0.0	0.0	19.7	2081.2
Deep	0.0	0.0	18.5	2048.4
Medium	0.0	0.0	42.2	3990.8
Shallow	0.0	0.0	43.1	5054.2

Array Temperature 0.0 74.4 Deg F

Induction Constants MAI-A.A 167

Last Edited on 04-DEC-2011,07:22

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	

Caliper Calibration MPD-B 35

Base Calibration on 15-NOV-2011 10:23

Field Calibration on 04-DEC-2011 07:33

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	20351	3.99
2	30291	5.98
3	40582	7.97
4	50158	9.86
5	60743	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.93	5.98

Photo Density Calibration MPD-B 35

Base Calibration on 15-NOV-2011 10:46
Field Check on 04-DEC-2011 07:31

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	57280	27020	59556	30836
Reference 2	23374	2567	24941	2541

Field Check at Base

1159.9	1374.4
--------	--------

Field Check

1154.5	1377.3
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PE Calibration

Base Calibration

	WS	Measured		Ratio	Calibrated Ratio
		WH	Ratio		
Background	207	1024			
Reference 1	21400	57084	0.378		0.371
Reference 2	6184	23227	0.269		0.272

Field Check at Base

206.8	1023.7
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Field Check

205.8	1018.8
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Density Constants MPD-B 35

Last Edited on 04-DEC-2011,12:48

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	1.08	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	0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 11.03.4044\Data\M&M Z-Bar 18-13\M&M Z-Bar 18-13.dta

Compact Gamma Ray
MCG-C 139 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

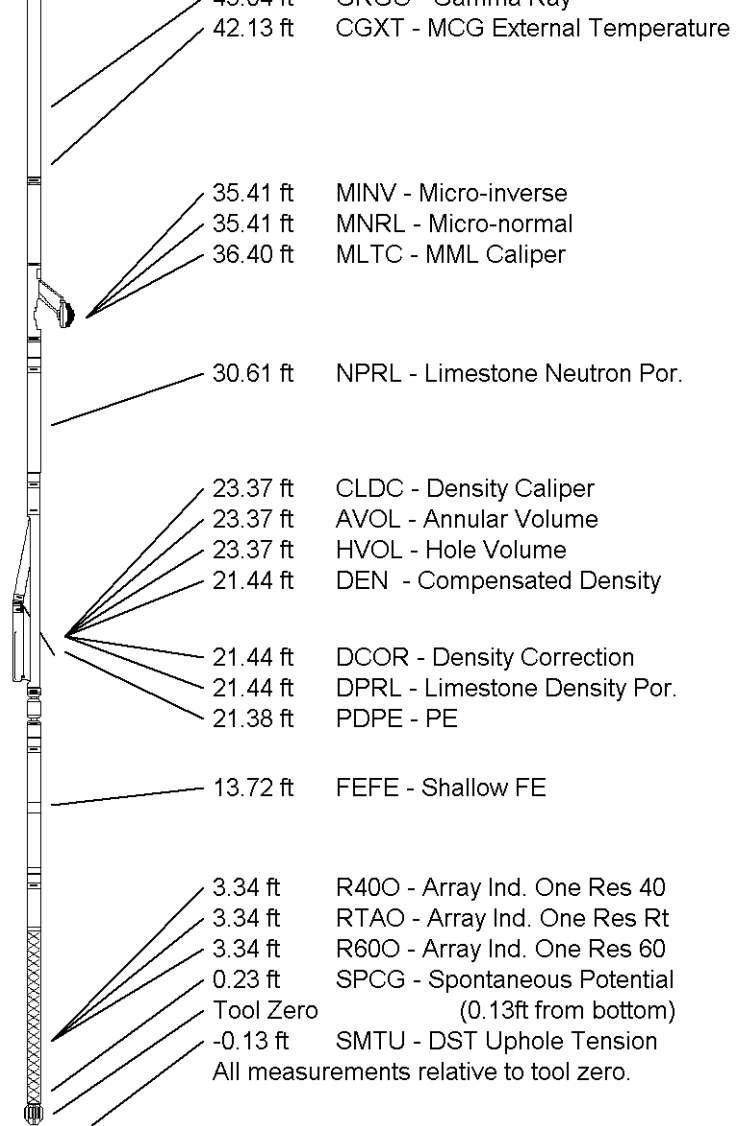
Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 36 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focused Electric
MFE-A.A 52 LG: 6.05 ft WT: 48.5 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: 50.32 ft Weight: 407.9 lb

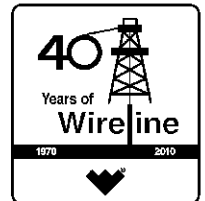


COMPANY M&M EXPLORATION, INC.
WELL Z-BAR #18-13
FIELD AETNA NE
PROVINCE/COUNTY BARBER
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	1705.00	feet	First Reading	5083.00	feet
Elevation Drill Floor	1703.00	feet	Depth Driller	5100.00	feet
Elevation Ground Level	1693.00	feet	Depth Logger	5105.00	feet



COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG





Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: M & M Exploration
Location: 18-T34S-14W
License Number: 15-007-23792
Spud Date: 11/26/2011
Surface Coordinates: 1100' FSL & 330' FWL, SW/4

Z-BAR 18-13
Barber County, KS
Region: Atena NE
Drilling Completed:

Bottom Hole Coordinates: As Above
Ground Elevation (ft): 1693' K.B. Elevation (ft): 1705'
Logged Interval (ft): 3900' To: 5100' Total Depth (ft): 5100'
Formation: Pennsylvanian & Mississippian
Type of Drilling Fluid: Chemical Mud

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: M & M Exploration
Address: Attn: Mike Austin
4257 Main Street, Suite 230
Westminster, Co. 80031

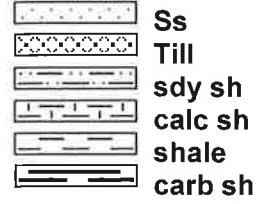
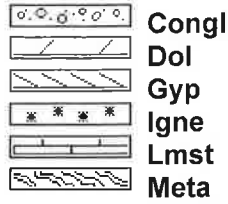
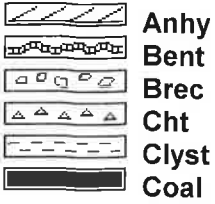
GEOLOGIST

Name: Mike Pollok
Company: Map Exploration, Inc.
Address: P.O. Box 106
Purcell, Ok 73080

Comments

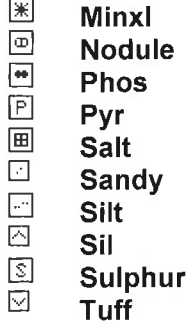
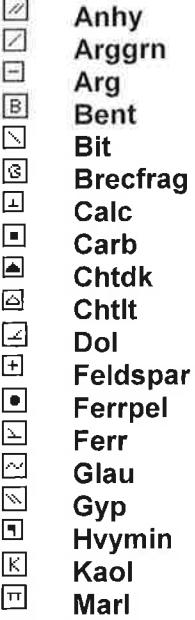
Southwind Rig #70
Mudlogging Unit #5
Mudlogger: Beth Brock

ROCK TYPES

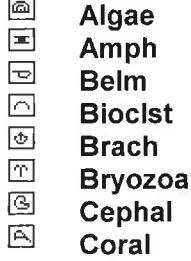


ACCESSORIES

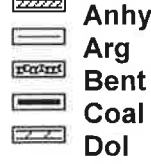
MINERAL



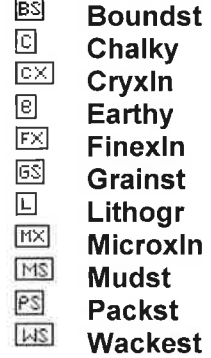
FOSSIL



STRINGER

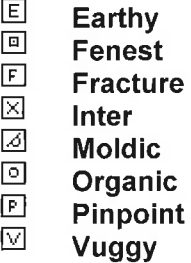


TEXTURE



OTHER SYMBOLS

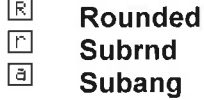
POROSITY TYPE



SORTING



ROUNDING



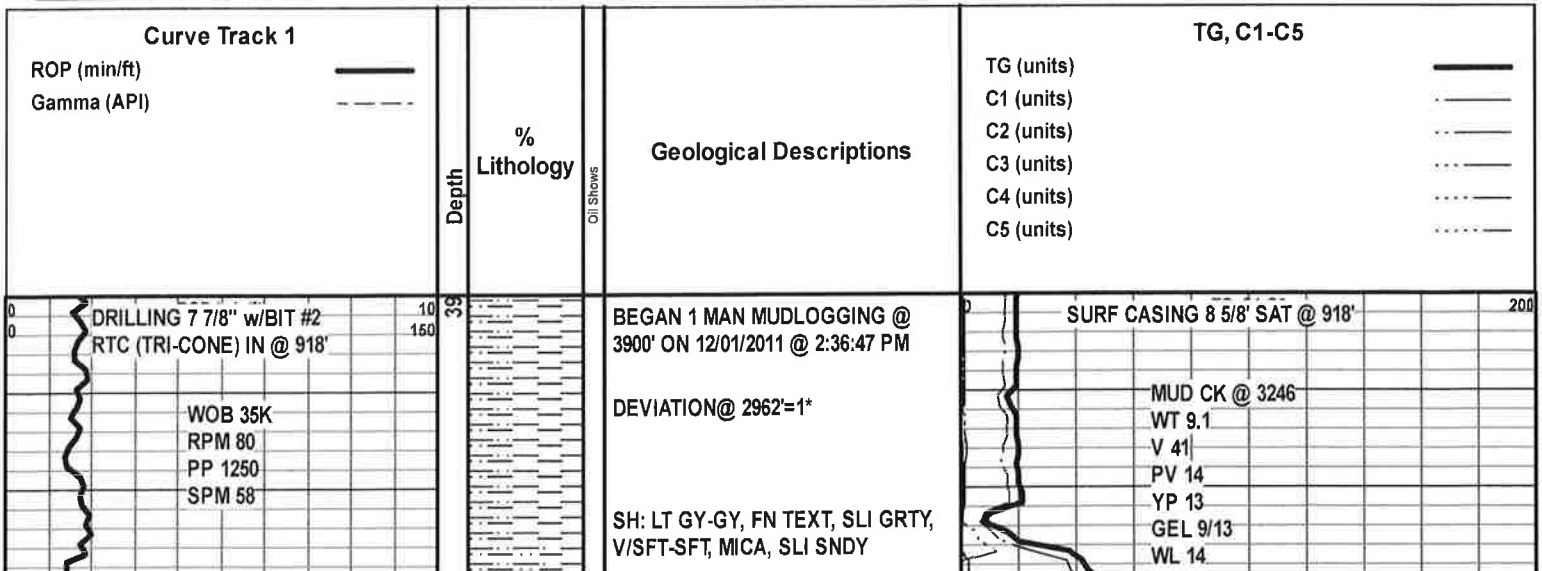
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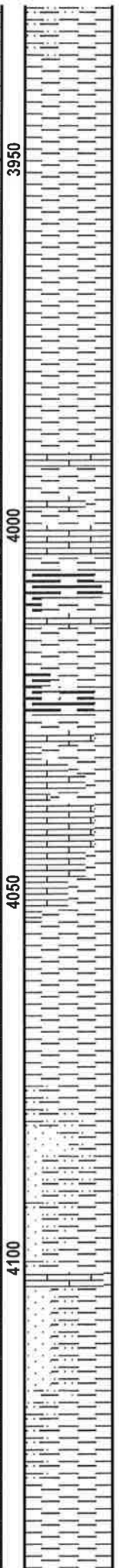
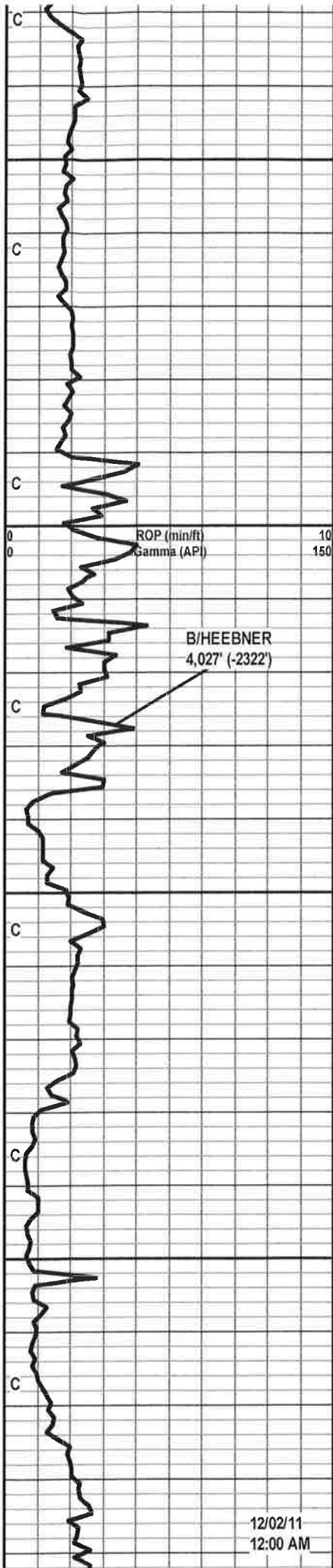


INTERVALS



EVENTS





SH: LT GY-GY-DK GY, V/FN TEXT, SFT, FISS, SLI MICA

SH: GY-DK GY-BRN-BLK, V/FN WXY TEXT, SFT-MD FM, MICA, V/PLTY, SM PYR'C SPKS, CALC, CARB

SH: AAB

LS: OFF WT-TN-BRN, MICRO-XLN W/ABT INTER-XLN, SUC, SM P.P.POR AND ITNER-XLN, SM OOL'C, ARG, BRT YEL FLU W/SM DUL YEL FLU, NO VIS STN, CUT, OR ODOR

DEVIATION@ 4055'=1"

SH: GY-DK GY, FN GRTY TEXT, W/ ABT SS: WT-LT GY-GY, FN-MD GRN, SBRND-RND, TRNS, CONS, SHLY, GLAU'C SPKS, MICA, PYR'C NO VIS FLU, STN, CUT OR ODOR

SH: AAB

CK 2
SOLS 5.2
PH 10
CHL5200
CA 40
LCM #

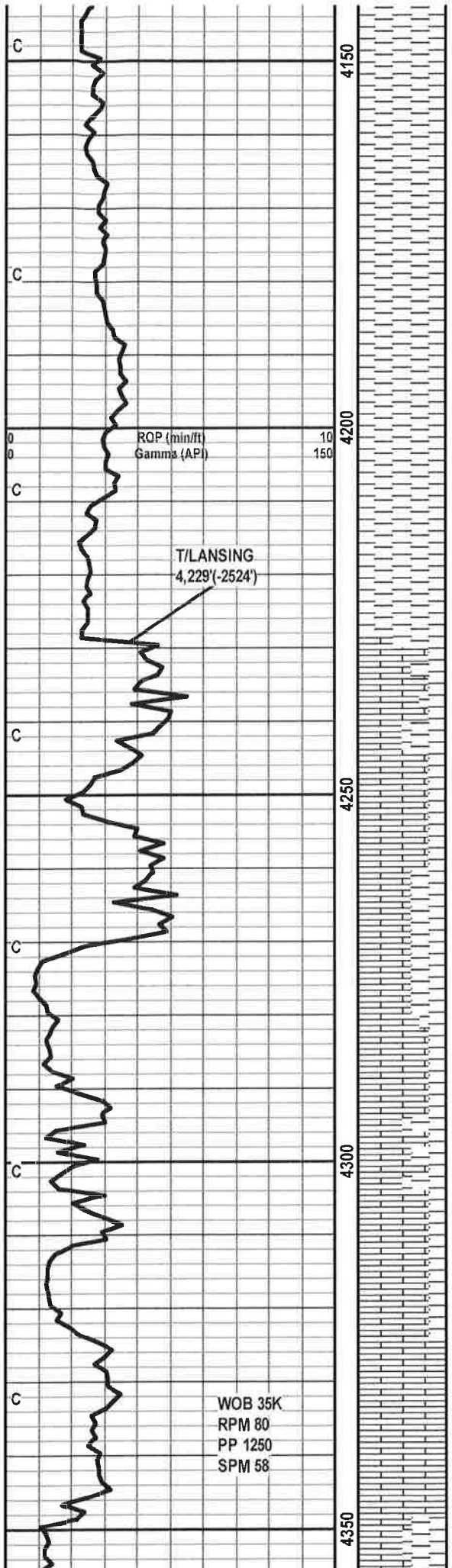
TG, G1-C5 200

SHALE GAS

SHALE GAS

RAN SURVEY

HAD TO RESTART
GEOIMAGING
LOST GAS
READING FROM
4080' TO 4117'



SH: GY-DK GY, VFN-FN TEXT,
V/SFT-SFT, PYR'C SPKS, SLI MICA,
FISS

SH: AAB

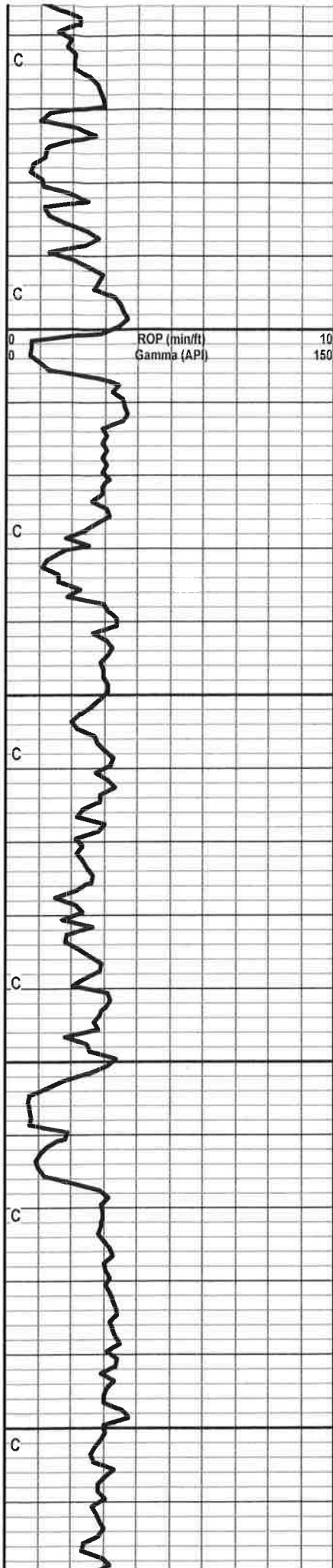
SH: LT GY-GY, V/FN TEXT, V/SFT,
V/PYR'C, MICA, PLTY

LS: WT-OFF WT-TN-BRN-GY, V/FN
MICRO-XLN, DNS, SM P.P.POR,
V/ARG, SHLY, FOSS, FR CALC, SM
DUL BRNSH YEL FLU, NO VIS STN,
CUT, OR ODOR

LS: WT-OFF WT-LT GY-TN,
MICRO-XLN, SLI DNS, GD P.P.POR,
SLI SHLY, ARG, CALC, ABT BRT
YEL FLU, NO VIS STN, CUT, OR
ODOR

LS: OFF WT-TN-BRN, V/FN
MICRO-XLN, HD DNS, TR P.P.POR,
CALC, FOSS, ARG, V/DUL YEL FLU,
NO VIS STN, CUT, OR ODOR





LS: OFF WT-TN-BRN, MICRO-XLN,
SLI DNS, GD P.P.POR, FR CALC,
FOSS, ARG, SLI SHLY, V/DUL YEL
FLU, SM DOS, NO CUT OR ODOR

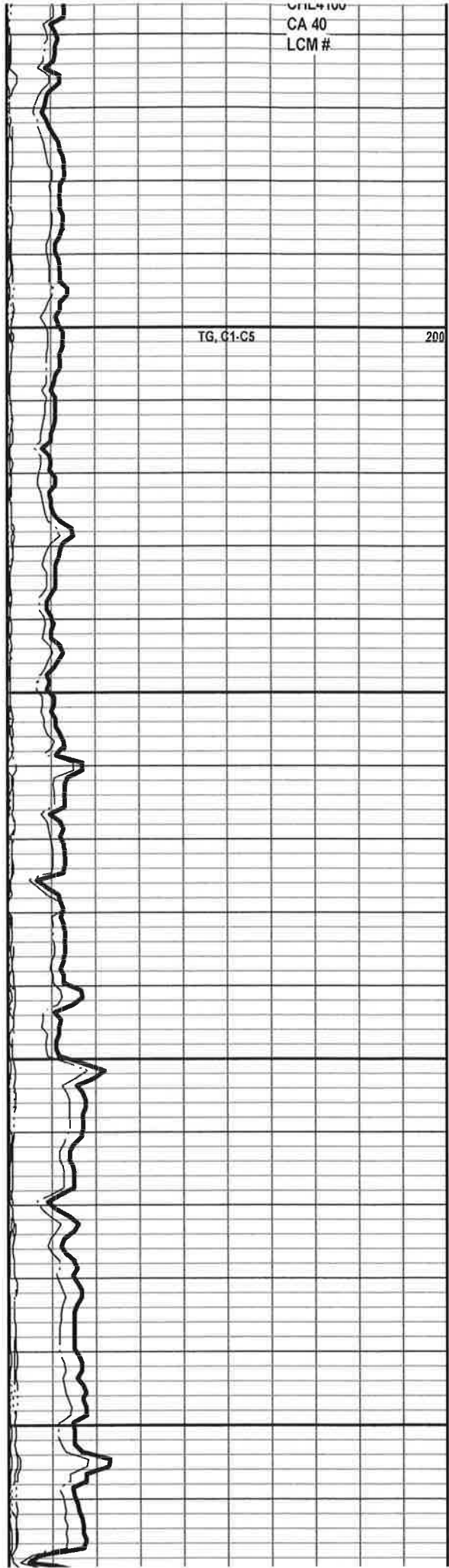
LS: AAB

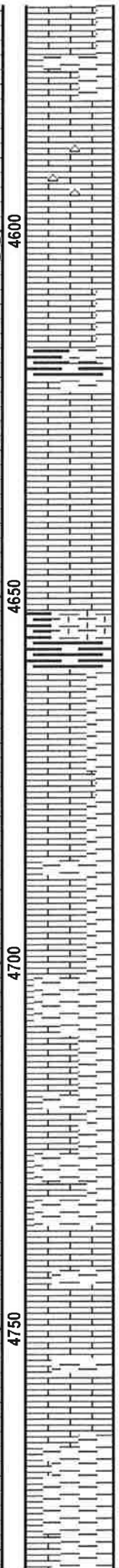
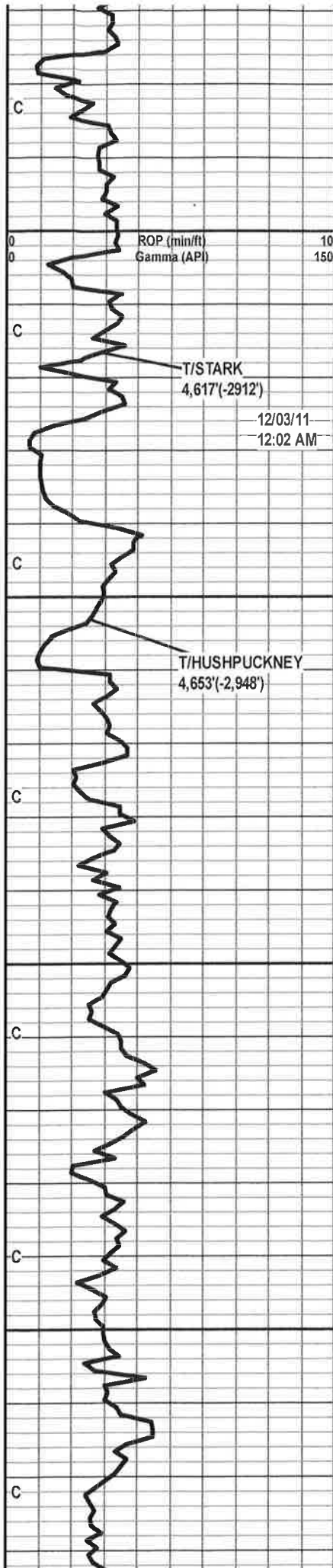
LS: TN-BRN-DK BRN, MICRO-XLN
W/SM INTER-XLN, GD P.P.POR, SLI
CALC, V/ARG, TR FOSS, ABT DUL
YEL FLU, NO VIS STN, CUT, OR
ODOR

LS: AAB

LS: WT-OFF WT-TN, V/FN
MICRO-XLN, HD DNS, TR P.P.POR
V/CALC, ARG, SM BRT YEL FLU, NO
VIS STN, CUT, OR ODOR

LS: AAB W/ ABT LMY GY-DK GY
SHALE





LS: TN-BRN-DK BRN, MICRO-XLN W/
SM INTER-XLN, SUC, GD P.P. POR
AND INTER-XLN POR, TR VUG, ARG,
SLI CHTY, ABT DUL YEL FLU, SM DK
STN, NO CUT OR ODOR

SH: DK GY-BRN-BLK, V/WXY TEXT,
CARB, CALC

LS: OFF WT-TN-BRN, INTER-XLN,
FRI, SUC, GD P.P.POR AND
INTER-XLN POR, SLI OOL'C, YEL
FLU, SM BRN STN, NO VIS CUT OR
ODOR

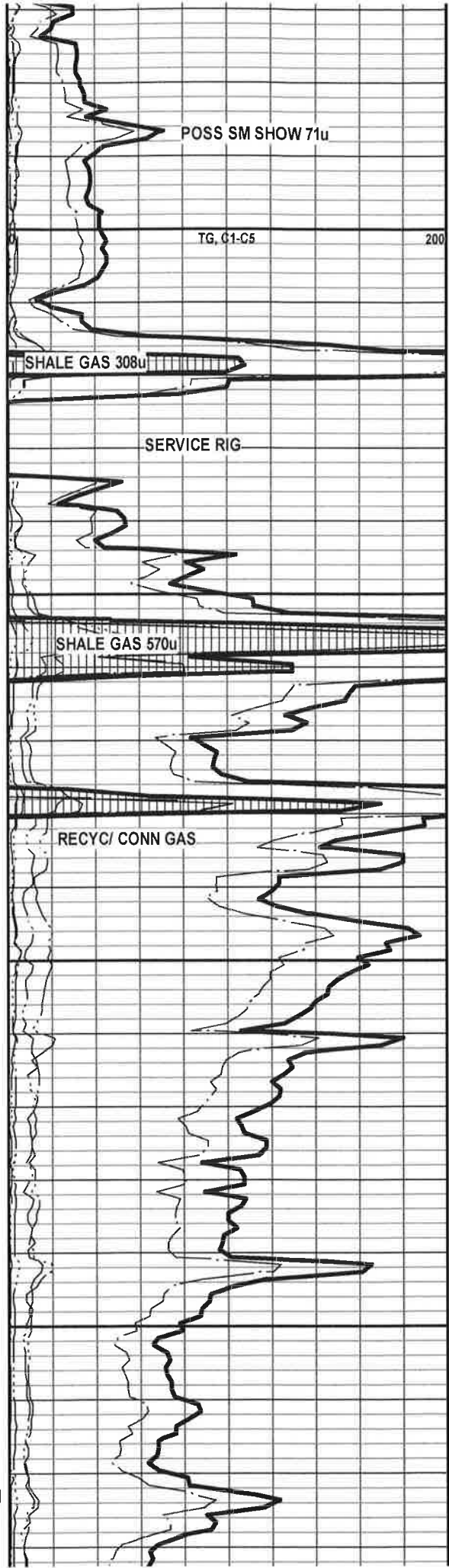
SH: CARB BLK V/WXY SHNY TEXT,
CALC

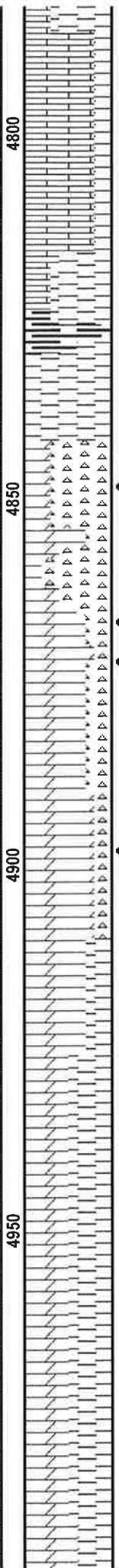
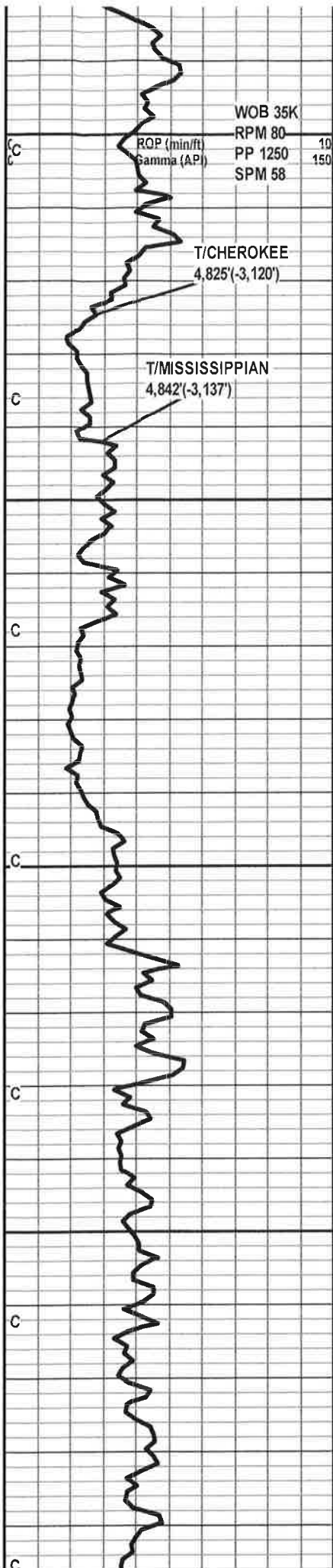
LS: OFF WT-TN-BRN-GY, V/FN
MICRO-XLN, DNS, SHLY I.P., V/ ARG,
FOSS, SM BRT YEL FLU, NO VIS
STN, CUT, OR ODOR

LS: AAB W/ABT SH: GY-DK GY, V/FN
TEXT, MD FM-HD, V/LMY, MICA,
PLTY

LS: AAB

SH: LT GY-GY-GRN, V/FN TEXT, MD
SFT-FM, PLTY, SLI LMY, GLAU'C, SLI
MICA, PYR'C SPKS





LS: WT-OFF WT-TN-BRN,
 MICRO-XLN, HD, DNS, TR P.P.POR, V/
 ARG, FOSS, SLI SHLY, V/DUL
 BRNSH YEL, FLU, NO VIS STN, CUT,
 OR ODOR

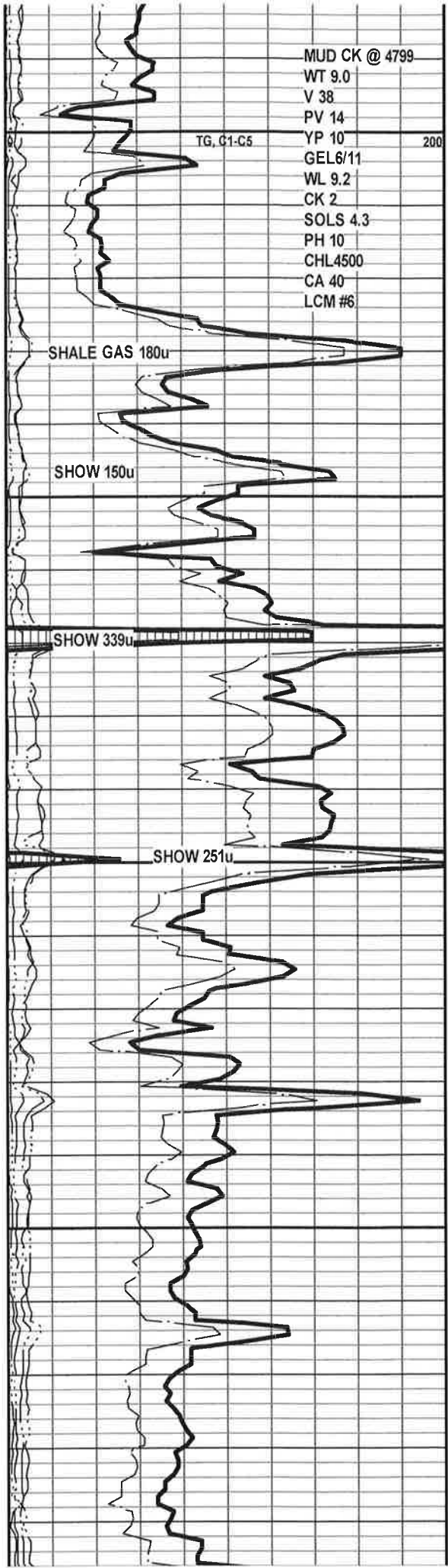
SH: GY-DK GY-BRN-BLK, V/FN WXY
 SHNY TEXT, MD FM-HD, PLTY. ABT
 PYR'C SPECKS, V/CALC, CARB

CHT: OFF WT-TN-OPA, MICRO-XLN
 W/SM INTER-XLN, FRSH GRDING TO
 WTHRD, SUC, EXC P.P. AND
 INTER-XLN POR, DOLO I.P., ABT
 YEL FLU, LOS, GD STRNG, AND
 V/GD STRM CUT

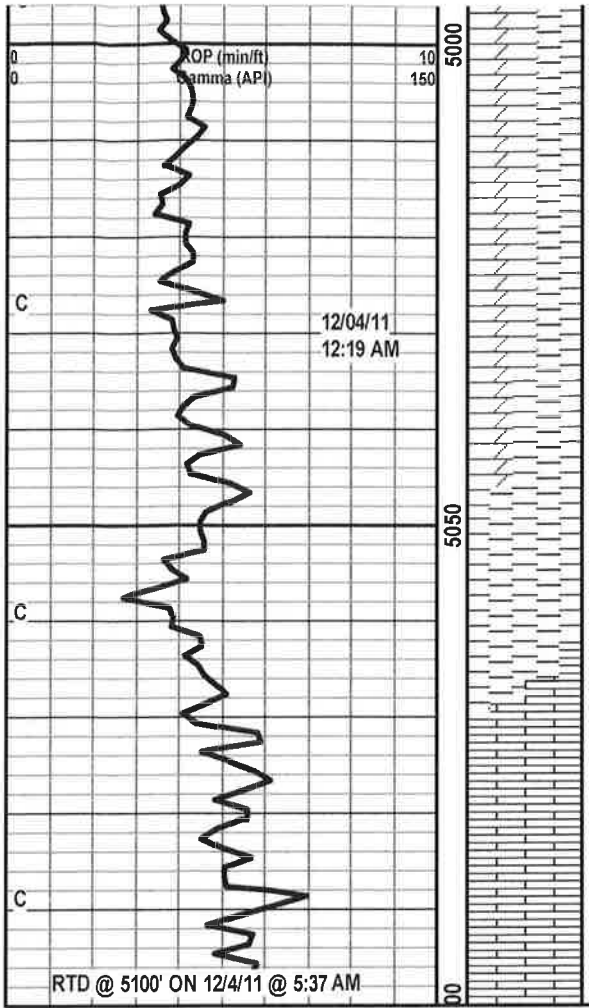
DOLO: TN-BRN-GRN-DK BRN,
 INTER-XLN, V/SUC, FRI, EXC
 INTER-XLN POR, CHTY, GLAU'C,
 ABT DUL YEL FLU, V/STRNG ODOR,
 BRN STN, AND FST STRM CUT

DOLO: TN-GRN-GY, V/FN
 MICRO-XLN, HD DNS, SLI ARG, SM
 P.P.POR, TR DUL BRNSH YEL FLU,
 NO VIS CUT, STN, OR ODOR

DOLO: LT GY-GY-DK GY, V/FN
 MICRO-XLN, HD, DNS, V/SHLY, SM
 PYR'C SPKS, NO VIS FLU, STN,
 CUT, OR ODOR



MUD CK @ 4799
 WT 9.0
 V 38
 PV 14
 YP 10 200
 GEL6/11
 WL 9.2
 CK 2
 SOLS 4.3
 PH 10
 CHL4500
 CA 40
 LCM #6

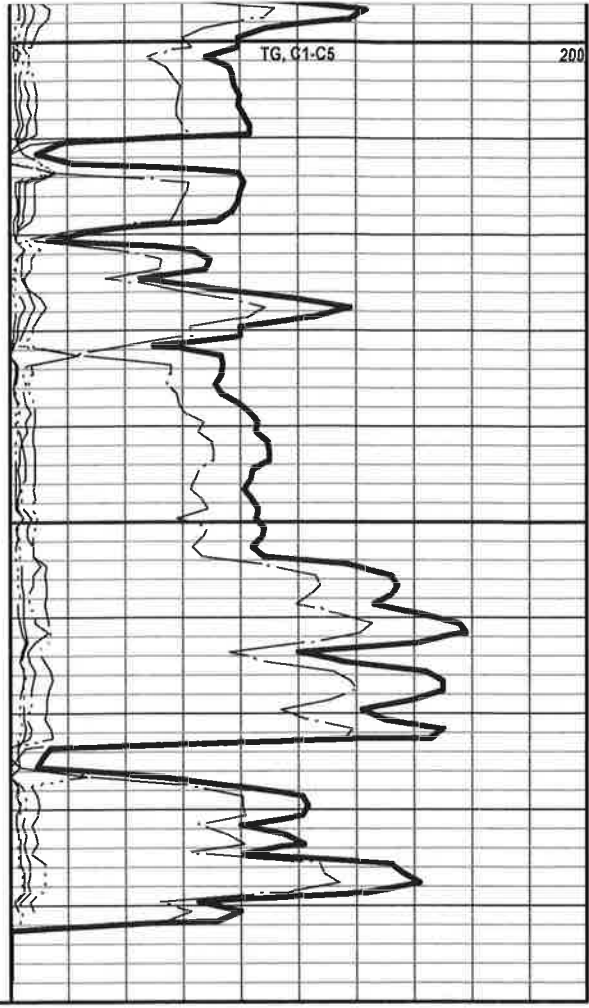


DOLO: AAB

SH: LT GY-GY-GRN, V/FN TEXT, MD SFT-FM, GLAU'C, SLI MICA, V.PLT, SLI DOLO

LS: WT-OFF WT-TN, V/FN MICRO-XLN, V/DNS, CHKY, SM CALC, TR YEL FLU, NO VIS STN, CUT, OR ODOR

SHORT TRIP TO COLLARS, TIH, CIRC 1 1/2 HR, DROP SURVEY, TOH FOR ELOGS



TG, G1-C5

200

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Ward Loyd, Commissioner
Thomas E. Wright, Commissioner

Sam Brownback, Governor

March 14, 2012

Mike Austin
M & M Exploration, Inc.
4257 MAIN ST., #230
WESTMINSTER, CO 80031

Re: ACO1
API 15-007-23792-00-00
Z Bar 18-13
SW/4 Sec.18-34S-14W
Barber County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Mike Austin

ALLIED CEMENTING CO., LLC. 037898

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:
Medicine Lodge, KS

DATE <u>11-26-2011</u>	SEC <u>18</u>	TWP. <u>34S</u>	RANGE <u>14W</u>	CALLED OUT <u>9:00 AM</u>	ON LOCATION <u>12:00 PM</u>	JOB START <u>9:15 PM</u>	JOB FINISH <u>10:15 PM</u>
LEASE <u>Z Br</u>	WELL # <u>18-13</u>	LOCATION <u>Deerhose & Cottage Creek Rd</u>		COUNTY <u>Berhar</u>	STATE <u>Ks</u>		
OLD OR <u>NEW</u> (Circle one)		<u>4 east, 1/4 south, 1/4 east, S1/4</u>					

CONTRACTOR Southwind #70
 TYPE OF JOB Surface
 HOLE SIZE 12 1/4 T.D. 920'
 CASING SIZE 8 5/8 24 # DEPTH 905'
 TUBING SIZE 14' L5 DEPTH
 DRILL PIPE DEPTH
 TOOL DEPTH
 PRES. MAX MINIMUM
 MEAS. LINE SHOE JOINT 41"
 CEMENT LEFT IN CSG.
 PERFS.
 DISPLACEMENT 36 bbls of freshwater

OWNER M & M Exploration
 CEMENT
 AMOUNT ORDERED 250s x 65.35: 6% Gel
3% cc + 1/4 # Floseal, 150sb class A
3% cc + 2% Gel

EQUIPMENT

PUMP TRUCK CEMENTER Darin F
 # 471-302 HELPER Ron G.
 BULK TRUCK
 # 421-252 DRIVER Eddie P.
 BULK TRUCK
 # _____ DRIVER

COMMON	<u>150 sacks</u>	@ <u>11.25</u>	<u>2437.50</u>
POZMIX		@	
GEL	<u>3 sacks</u>	@ <u>21.25</u>	<u>63.75</u>
CHLORIDE	<u>13 sacks</u>	@ <u>58.20</u>	<u>756.60</u>
ASC		@	
ALL-Types 1-A	<u>250 sacks</u>	@ <u>15.00</u>	<u>3750.00</u>
Floesal	<u>63 pounds</u>	@ <u>2.70</u>	<u>170.10</u>
		@	
		@	
		@	
		@	
		@	
HANDLING	<u>416</u>	@ <u>2.25</u>	<u>936.00</u>
MILEAGE	<u>416 x .11 x 40</u>		<u>1833.40</u>
TOTAL			<u>\$9944.35</u>

REMARKS:
Pipe on bottom & break circulation, pump
3 bbls water shear, mix 250s of test
Cement, mix 150s of 491 Cement, shut
down, Release plug, start displacement
slow rate to 3 bpm @ 46 bbls, bump
plug @ 56 bbls 500-1,000 psi, float did
hold, cement did circulate

SERVICE

DEPTH OF JOB	<u>920'</u>		
PUMP TRUCK CHARGE			<u>1125.00</u>
EXTRA FOOTAGE	<u>100</u>	@ <u>.95</u>	<u>589.00</u>
MILEAGE	<u>80</u>	@ <u>7.00</u>	<u>560.00</u>
MANIFOLD		@	<u>250.00</u>
light vehicle	<u>80</u>	@ <u>4.00</u>	<u>320.00</u>
		@	

CHARGE TO: M & M Exploration
 STREET _____
 CITY _____ STATE _____ ZIP _____

TOTAL \$84400

PLUG & FLOAT EQUIPMENT

<u>8 5/8</u>			
1 - Rubber plug	@ <u>112</u>		<u>112.00</u>
1 - AFU Insert	@ <u>382</u>		<u>382.00</u>
1 - B951ce+	@ <u>478</u>		<u>478.00</u>
	@		
	@		
TOTAL			<u>\$972.00</u>

To Allied Cementing Co., LLC.
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

SALES TAX (if Any) _____
 TOTAL CHARGES \$13,760.35
 DISCOUNT 20% IF PAID IN 30 DAYS
 net \$11,008.28

PRINTED NAME x Alvin Vestal
 SIGNATURE x [Signature]

Thank you !!!



BASICSM
ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

FIELD SERVICE TICKET

1718 04999 A

DATE _____ TICKET NO. _____

DATE OF JOB <u>12-5-2011</u> / DISTRICT <u>PRATT, Ks.</u>				NEW WELL <input checked="" type="checkbox"/> OLD WELL <input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/> CUSTOMER ORDER NO.:						
CUSTOMER <u>M & M EXPLORATION INC.</u>				LEASE <u>2-BAR</u>		WELL NO. <u>18-13</u>				
ADDRESS _____				COUNTY <u>BARBER</u>		STATE <u>Ks.</u>				
CITY _____ STATE _____				SERVICE CREW <u>LESLEY, LAWRENCE, MCKASKEY</u>						
AUTHORIZED BY _____				JOB TYPE: <u>CNLW - 4 1/2" I.S.</u>						
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM	PM	TIME
<u>37586</u>	<u>4</u>						<u>12-5-11</u>			<u>3:00</u>
<u>19889-19842</u>	<u>4</u>					ARRIVED AT JOB				<u>6:15</u>
<u>19832-21010</u>	<u>4</u>					START OPERATION				<u>10:30</u>
						FINISH OPERATION				<u>2:30</u>
						RELEASED				<u>PM</u>
						MILES FROM STATION TO WELL				<u>6.5</u>

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: [Signature]
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
CP 105	AA-2 CEMENT	SK	300		
CC 102	CELL-FLAKE	lb	75		
CC 111	SALT	lb	1631		
CC 113	GYPSUM	lb	1410		
CC 129	FLA-322	lb	226		
CC 201	GILSONITE	lb	1800		
CF 606	LATCHDOWN PLUG & BAFFLE, 4 1/2"	EA	1		
CF 1250	AUTO FILL FLOAT SHOE, 4 1/2"	EA	1		
CF 1650	TURBOLIZER, 4 1/2"	EA	8		
CF 1900	BASKET, 4 1/2"	EA	1		
C 704	CLAYMAX	GAL	4		
E 100	PICKUP MILEAGE	MI	65		
E 101	HEAVY EQUIPMENT MILEAGE	MI	130		
E 113	BULK DELIVERY CHARGE	TM	917		
CE 206	DEPTH CHARGE; 5001-10000'	HR	1-4		
CE 240	BLENDING SERVICE CHARGE	SK	300		
CE 504	PLUG CONTAINER CHARGE	JCB	1		
S 003	SERVICE SUPERVISOR	EA	1		

SUB TOTAL 14,472¹³

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON \$	
MATERIALS	%TAX ON \$	
TOTAL		

SERVICE REPRESENTATIVE [Signature] THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: [Signature]
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO. _____

Customer <i>M & M EXPLORATION</i>	Lease No.	Date <i>12-5-2011</i>	
Lease <i>Z-BAR</i>	Well # <i>18-13</i>		
Field Order # <i>04999</i>	Station <i>PRATT, KS.</i>	Casing <i>4 1/2"</i>	Depth
Type Job <i>CNW - 4 1/2" L.S.</i>	Formation <i>TTB - 5100'</i>	County <i>BARBER</i>	State <i>Ks.</i>
		Legal Description <i>18-34-13</i>	

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size <i>4 1/2" x 10.5"</i>	Tubing Size	Shots/Ft <i>CMT-</i>	Acid <i>255SK AA2</i>	RATE	PRESS	ISIP		
Depth <i>5105'</i>	Depth	From	To	Pre Pad <i>@ 1.54/cwt</i>	Max	5 Min.		
Volume <i>81.16 BBL</i>	Volume	From	To	Pad	Min	10 Min.		
Max Press <i>1500</i>	Max Press	From	To	Frac	Avg	15 Min.		
Well Connection <i>P.C.</i>	Annulus Vol.	From	To		HHP Used	Annulus Pressure		
Plug Depth <i>5105'</i>	Packer Depth	From	To	Flush <i>4 BBL 2% KCL</i>	Gas Volume	Total Load		

Customer Representative <i>ALAN VRATIL</i>	Station Manager <i>D. SCOTT</i>	Treater <i>K. LESLEY</i>
Service Units <i>37506 19889 19842 19832 21010</i>		
Driver Names <i>LESLEY LAWRENCE - MCKASKEY -</i>		

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<i>6:30 AM</i>					<i>ON LOCATION - SAFETY MEETING</i>
<i>6:45 AM</i>					<i>SPOT TRUCKSON LOC.</i>
<i>8:30 AM</i>					<i>RUN JTS. 4 1/2" x 10.5" S.D. = 20'</i>
<i>12:00 PM</i>					<i>CSG. ON BOTTOM</i>
<i>12:10 PM</i>					<i>HOOK UP TO CSG. / BREAK CIRC. W/ RIG</i>
<i>1:15 PM</i>	<i>460</i>		<i>5</i>	<i>6</i>	<i>H2O AHEAD</i>
<i>1:17 PM</i>	<i>460</i>		<i>8</i>	<i>6</i>	<i>MIX 255SKS SCAVENGER @ 12.5 PPG</i>
<i>1:50 PM</i>	<i>300</i>		<i>62</i>	<i>6</i>	<i>MIX 225 SKS AA-2 @ 14.8 PPG</i>
<i>2:15 PM</i>					<i>WASH PUMP & LINE CLEAN</i>
<i>2:16 PM</i>					<i>DROP PLUG (L.D.)</i>
<i>2:15 PM</i>	<i>0</i>		<i>0</i>	<i>6</i>	<i>START DISPLACEMENT W/ KCL H2O</i>
<i>2:25 PM</i>	<i>600</i>		<i>60</i>	<i>5</i>	<i>LIFT PRESSURE</i>
<i>2:28 PM</i>	<i>900</i>		<i>70</i>	<i>4</i>	<i>SLOW RATE</i>
<i>2:30 PM</i>	<i>1500</i>		<i>81</i>	<i>4</i>	<i>PLUG DOWN! - HELD</i>
					<i>CIRC. THRU WB</i>
			<i>10.4</i>		<i>PLUG R.H. & M.H.</i>
					<i>WB COMPLETE,</i>
					<i>THANKS -</i>
					<i>KEVIN LESLEY</i>

BIG BUCKETS RATHOLE DRILLING

P.O. Box 5252

Enid, Oklahoma 73702

Phone (580) 233-9850

Fax (580) 233-4588

No 4801

ORDERED BY

Allen Chatel

Date

11/22/11

Bill To

M & M Exploration

Lease

Z Bar 18-13

Address

Legal

Sec 18-345-14W

County

Barber KS

Rig

Southwind Drilling #10

DESCRIPTION	AMOUNT	
Furnish Men & Equipment To	<i>Drill cellar & 43 ft of 30" hole & remove dirt off loc.</i>	
Materials Furnished	<i>40 ft. of 30" pipe - 4 yds of 8" pb grout & 5' of 60" timbers (cellar form)</i>	
	<i>\$6500</i>	<i>00</i>
	<i>~</i>	
Operator	Approved By	Total
<i>Daniel Whittington</i>		<i>\$6500</i>
		<i>00</i>

STATE TAX

4.50%

0.00

Have A Safe Holiday!

Total

\$6,500.00