Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	M & M EXPLORATION, INC.
WELL	Z-BAR 8-1
FIELD	AETNA SE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	500' FNL & 600' FEL NE/4

SEC	TWP	RGE	Other Services
8	34S	14W	MPD/MDN
			MAI/MFE

API Number 15-007-23999
Permit Number

Permanent Datum G.L., Elevation 1658 feet
Log Measured From KB
Drilling Measured From K.B. @ 10 FEET

Elevations:	feet
KB	1668.00
DF	1666.00
GL	1658.00

Date	13-APR-2013			
Run Number	ONE			
Service Order	3539885			
Depth Driller	5200.00	feet		
Depth Logger	5198.00	feet		
First Reading	5195.00	feet		
Last Reading	311.00	feet		
Casing Driller	312.00	feet		
Casing Logger	311.00	inches		
Bit Size	7.875			
Hole Fluid Type	CHEMICAL	lb/USg		
Density / Viscosity	9.00 lb/USg	45.00 CP		
PH / Fluid Loss	9.80	9.80		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.67 @ 82.0	ohm-m		
Rmf @ Measured Temp	0.54 @ 82.0	ohm-m		
Rmc @ Measured Temp	0.80 @ 82.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.47 @118.0	ohm-m		
Time Since Circulation	3 HOURS			
Max Recorded Temp	118.00	deg F		
Equipment / Base	13057	LIB		
Recorded By	J. LAPOINT		W. STAMBAUGH	
Witnessed By	BILL BUSCH			
JOB#	LB13-098			

BOREHOLE RECORD

Last Edited: 13-APR-2013 06:05

Bit Size inches	Depth From feet	Depth To feet
7.875	311.00	5198.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	13.375	0.00	311.00	48.00

REMARKS

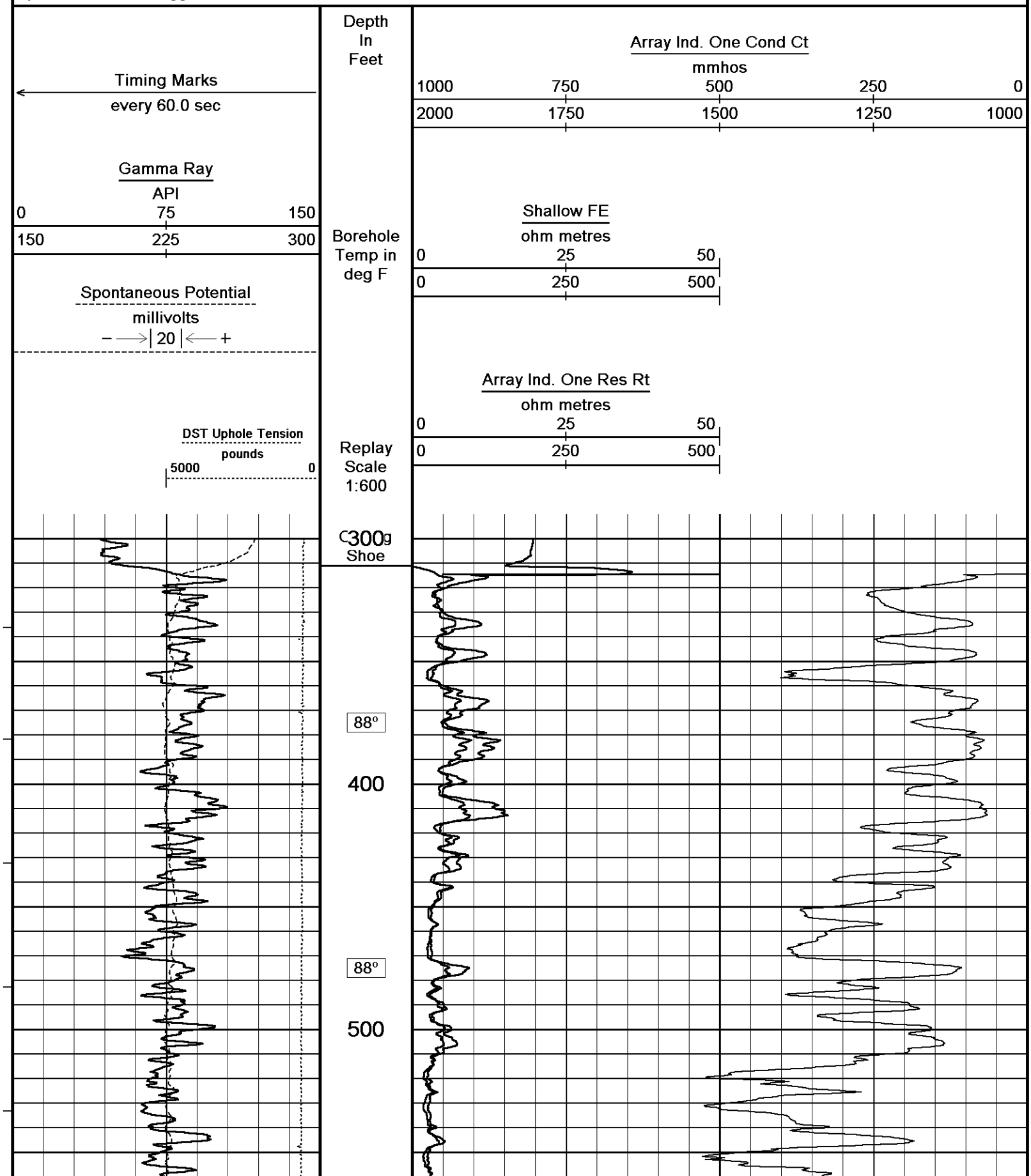
Tools Ran: MCG, MML, MDN, MPD, MFE, MAI ran in combination.
Hardware Used: MDN Dual bowspring used. MPD 8 inch profile plate used. MAI and MFE 0.5 Inch standoffs used.
2.71 g/cc Limestone Density Matrix used to calculate porosity.
All intervals logged and scaled per customer's request.
Tight pulls, washouts and borehole rugosity will affect data quality.
Total hole volume from TD to Surface Casing= 1958 cu. ft.
Annular volume with 5.5 inch production casing from TD to 3900 ft.= 229 cu. ft.
Service order: #3539885
Rig: Hardt Drilling Rig #1
Engineer: W. Stambaugh, J. LaPoint
Operator(s): R. Venegas

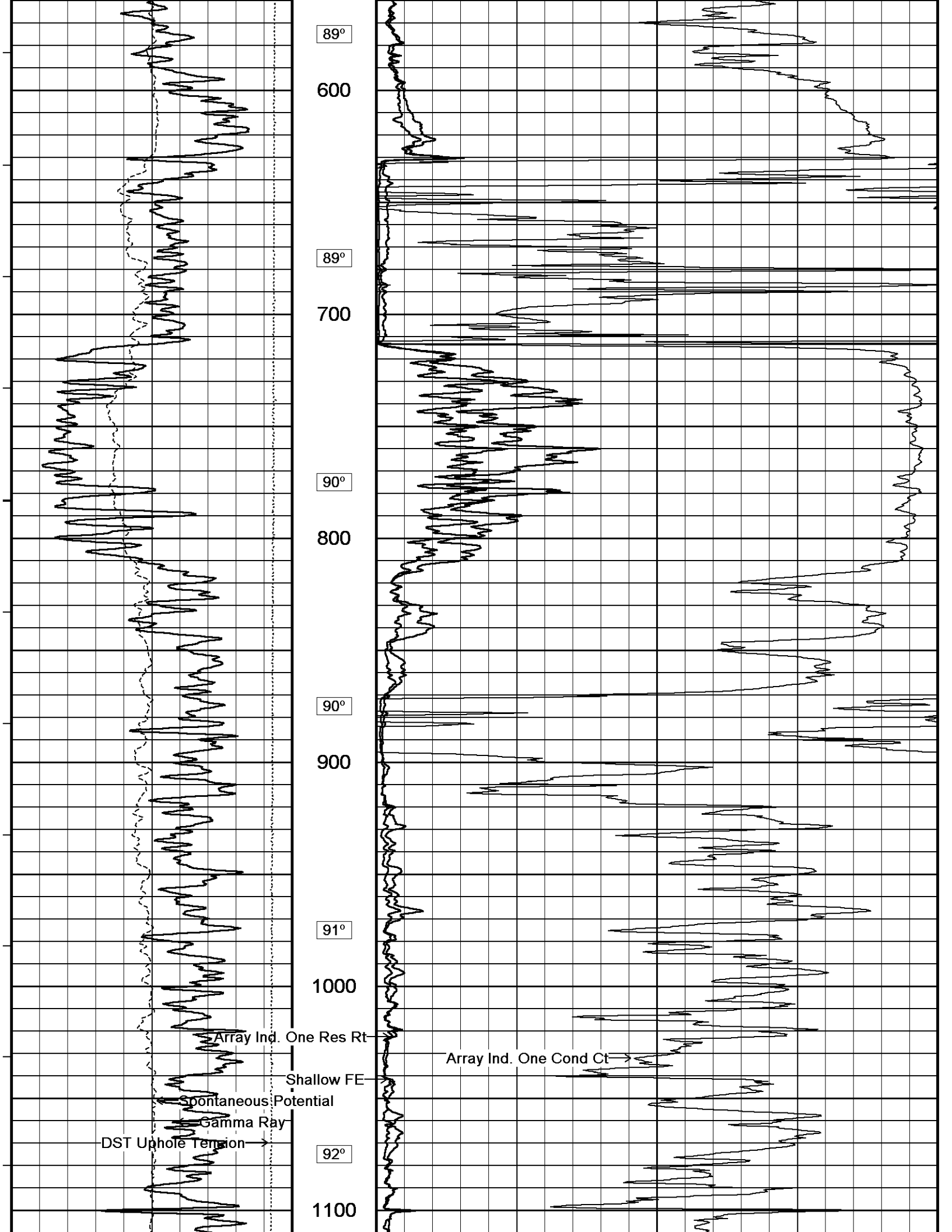
****Software issue changed fluid loss to match Ph fluild loss should be 9.8 ml/30min.****

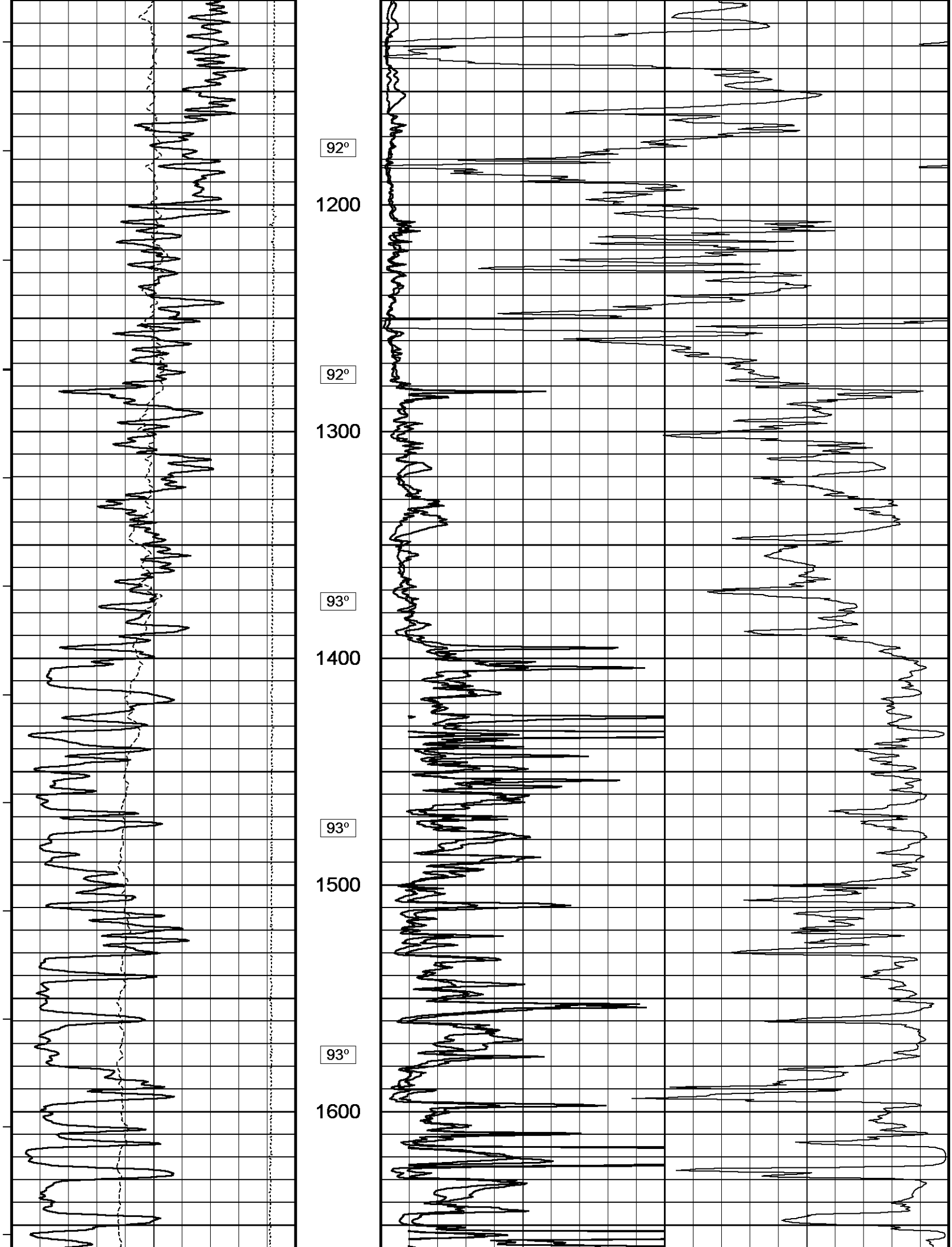
any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

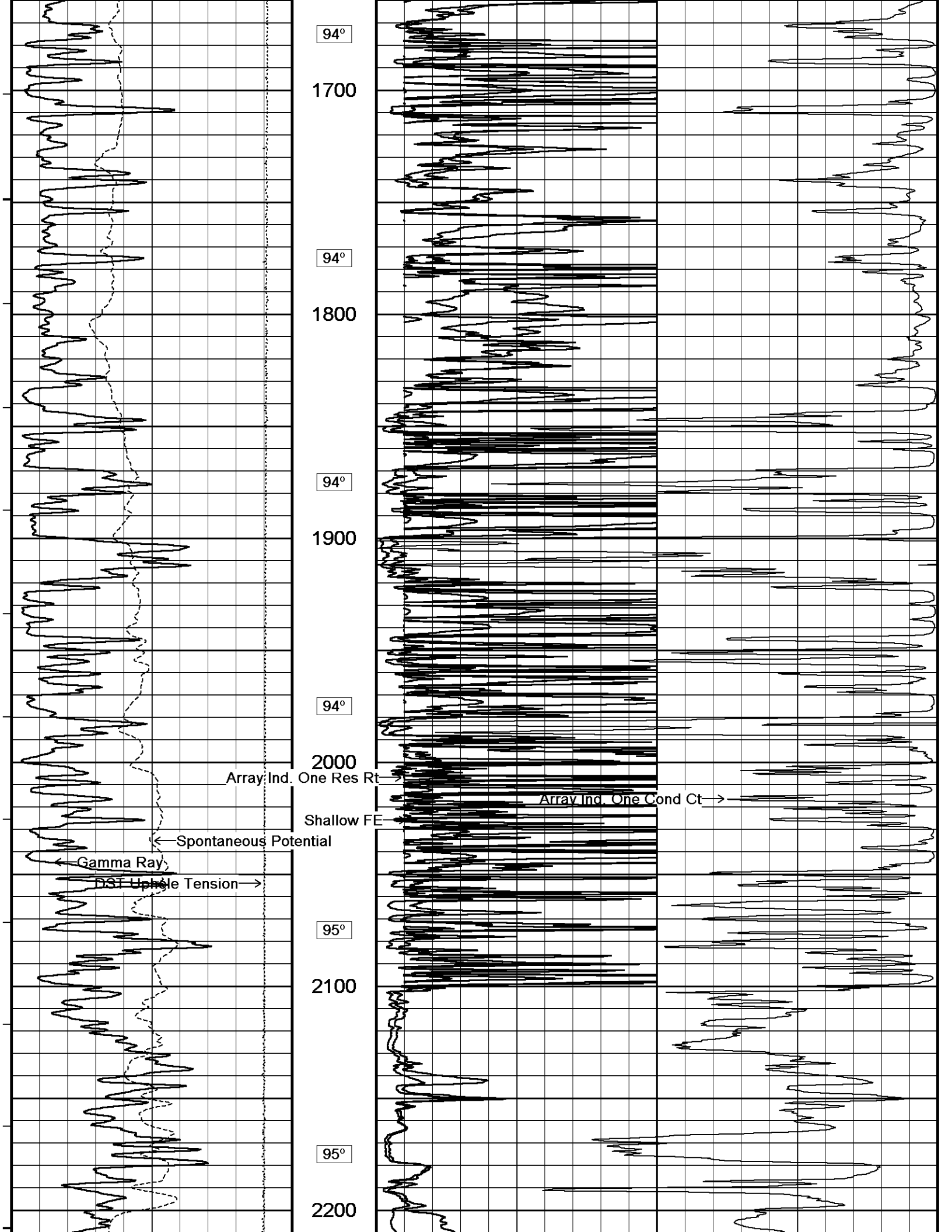
2 INCH MAIN

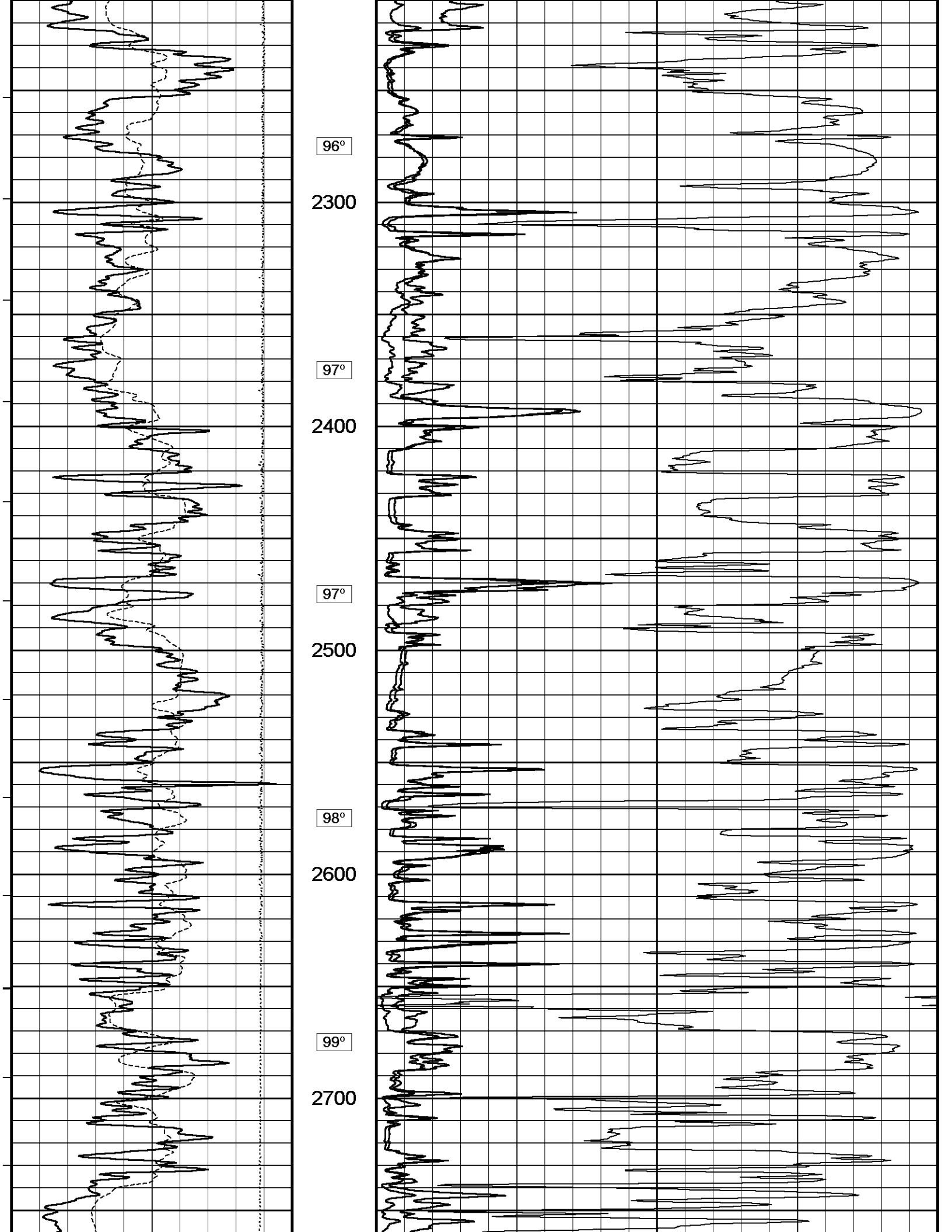
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_002.dta
Recorded on 13-APR-2013 06:17
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

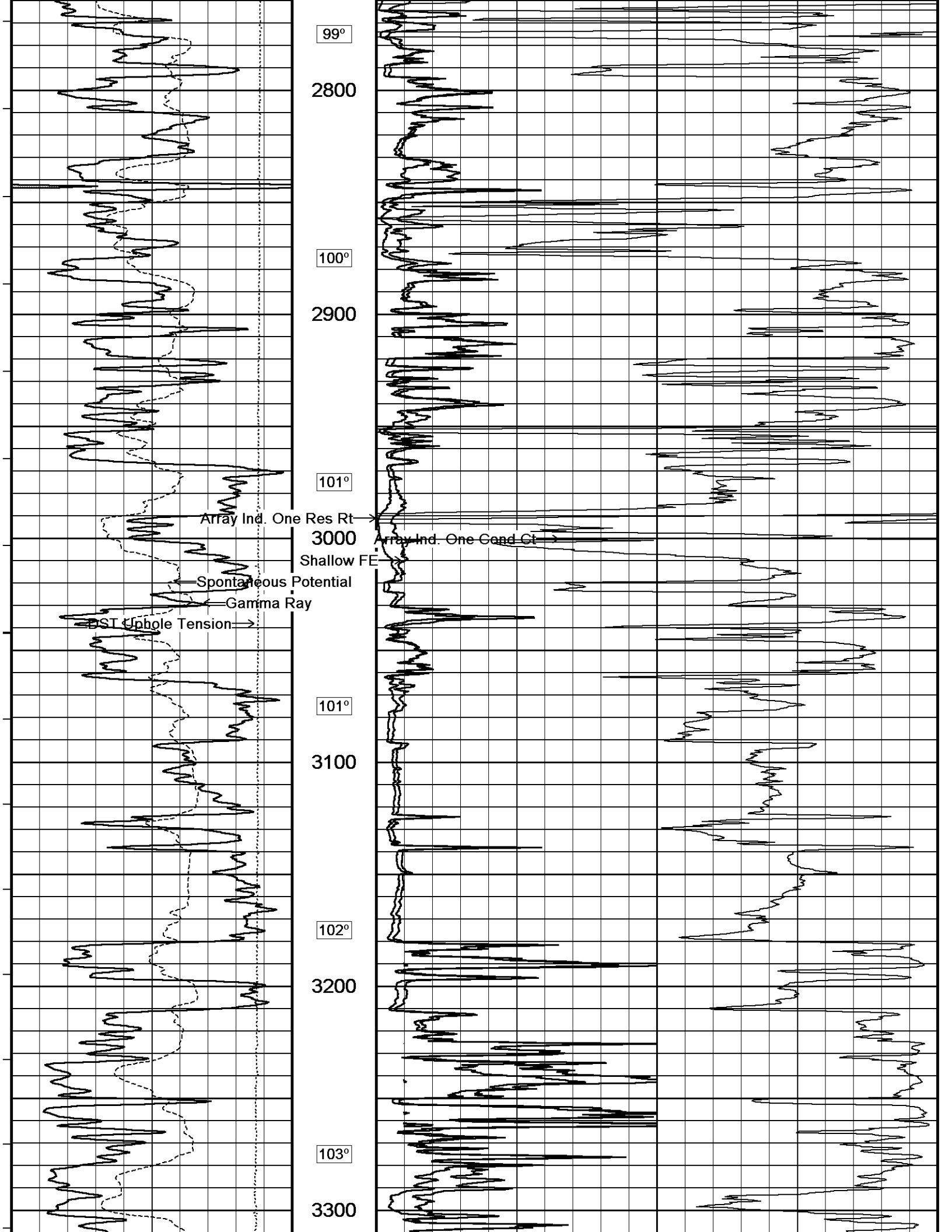


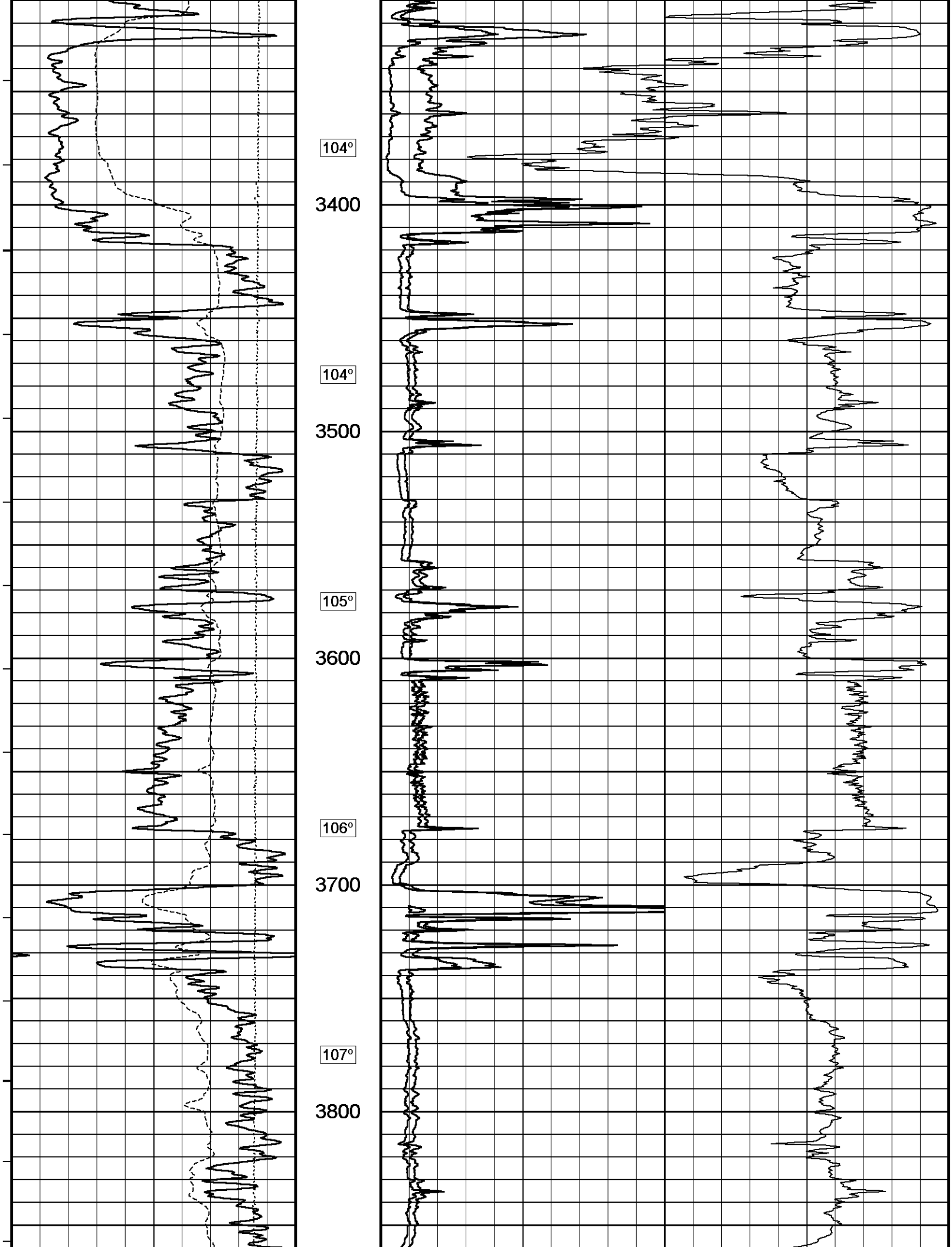

89°
600
89°
700
90°
800
90°
900
91°
1000
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
92°
1100

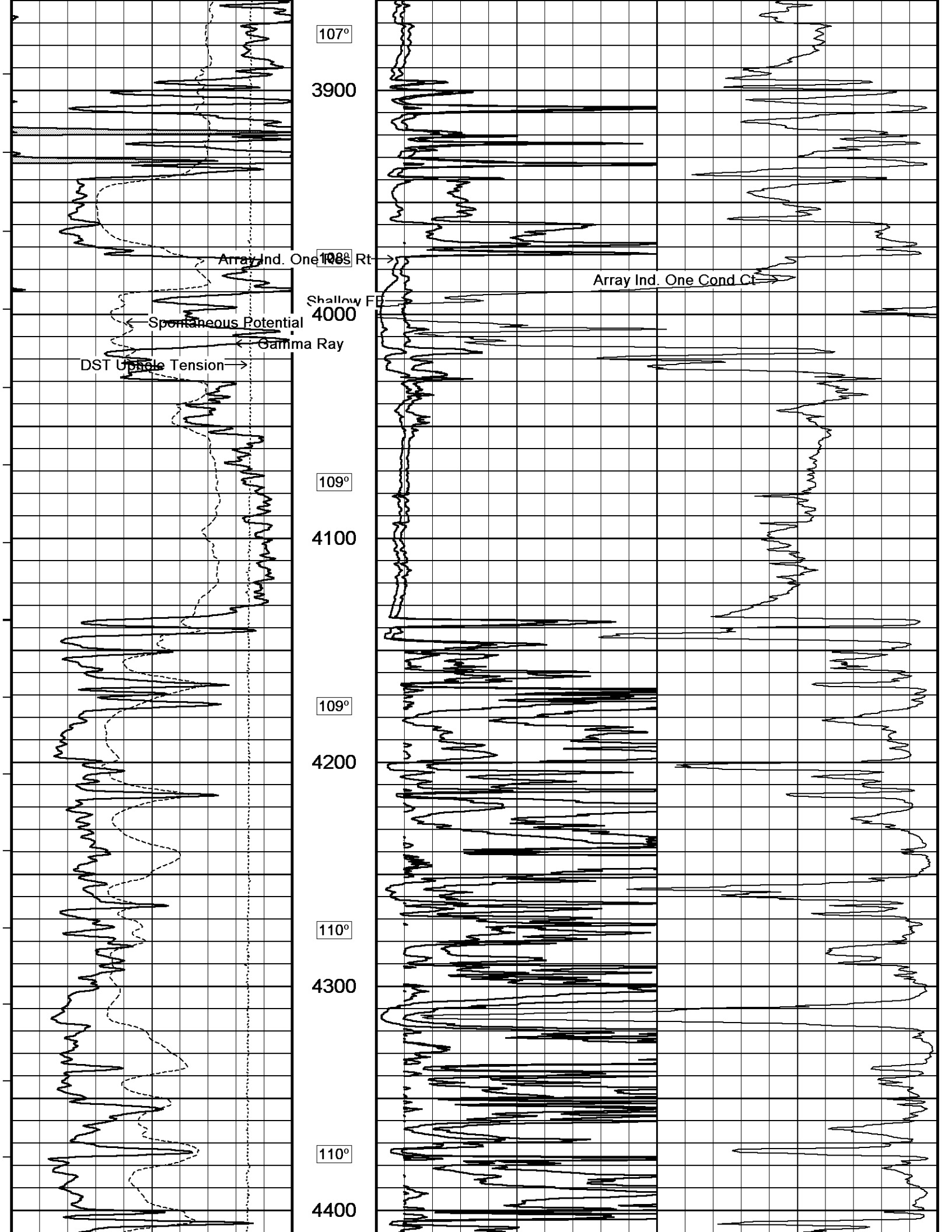

92°
1200
92°
1300
93°
1400
93°
1500
93°
1600

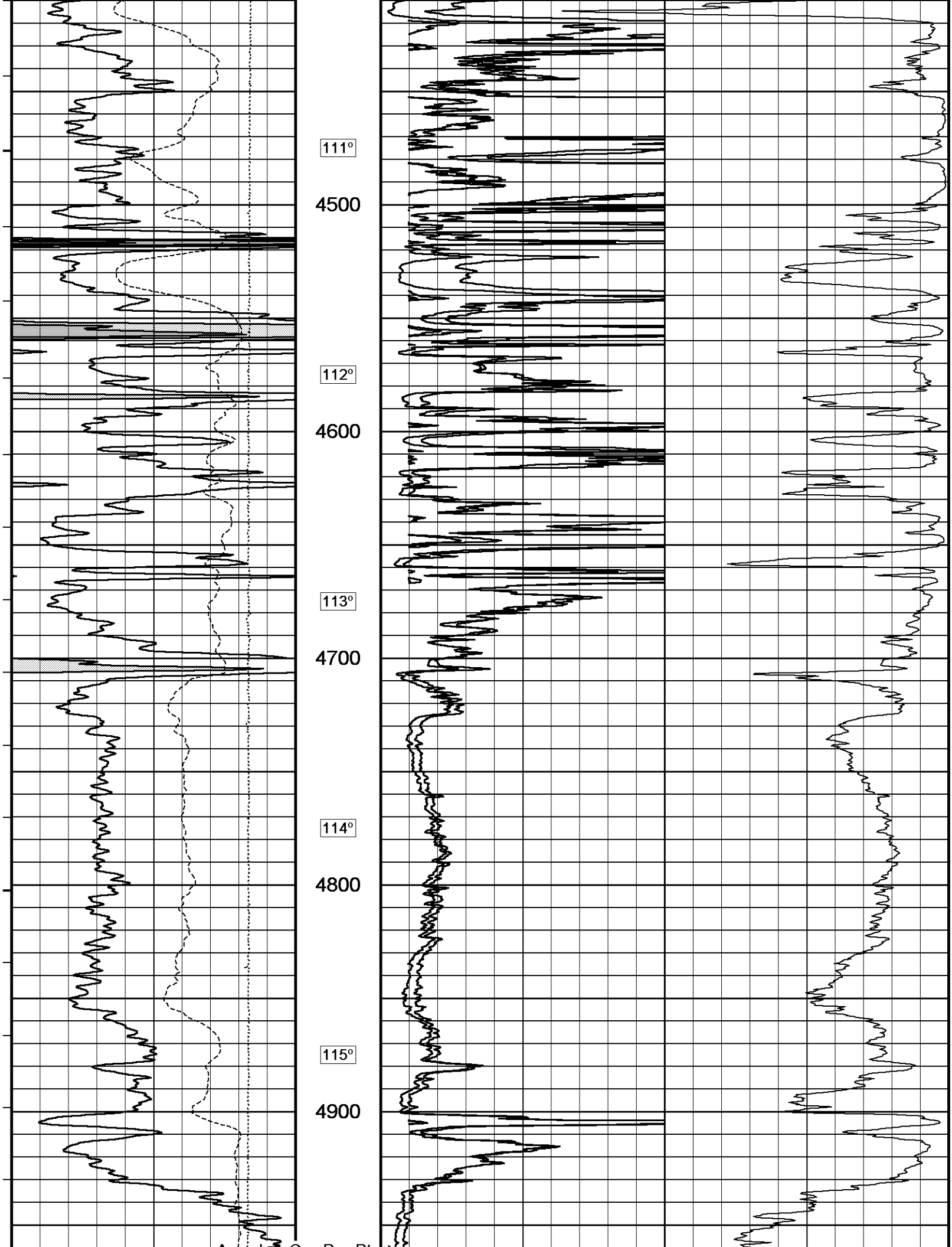

94°
1700
94°
1800
94°
1900
94°
2000
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
95°
2100
95°
2200

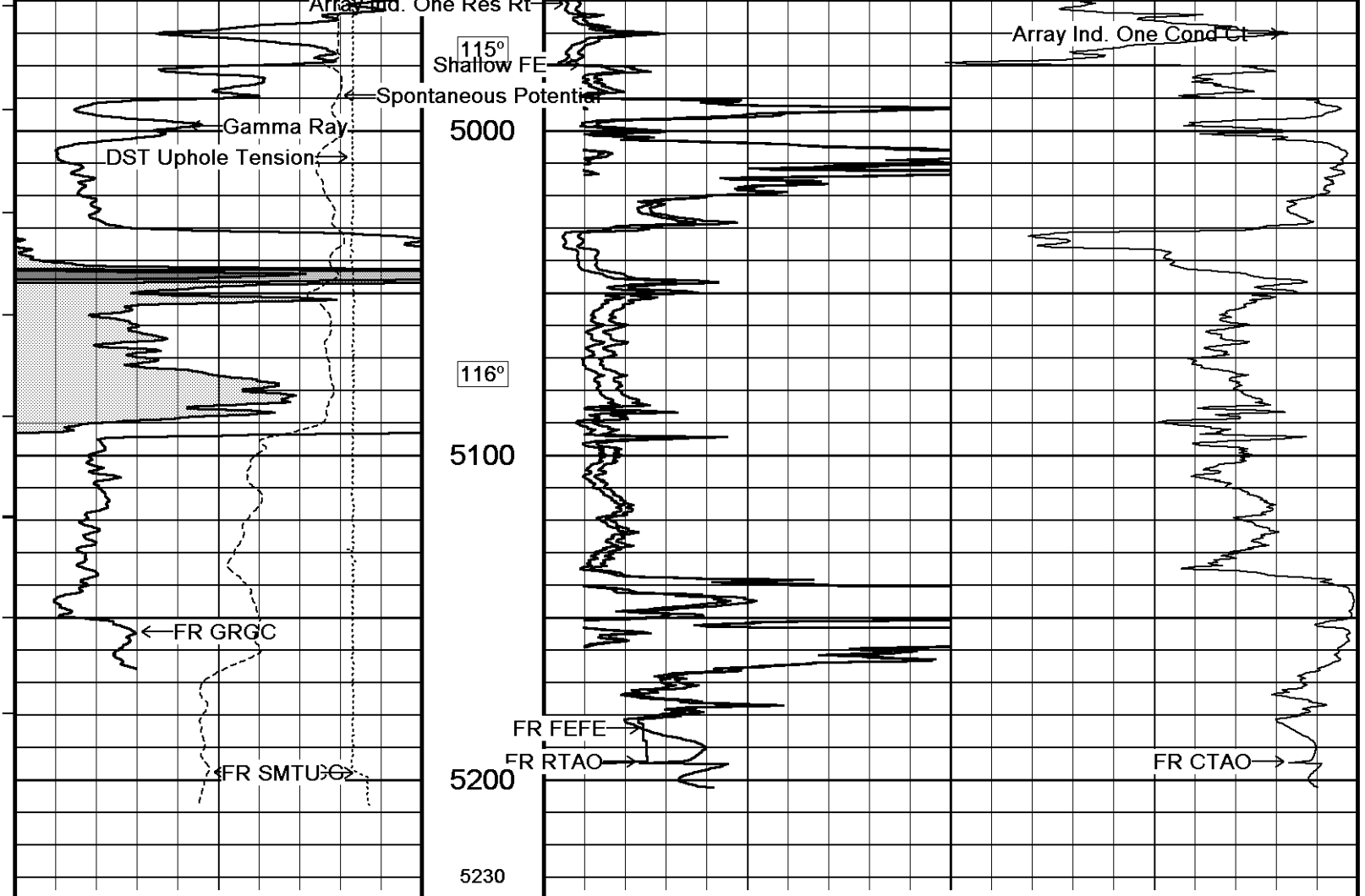

96°
2300
97°
2400
97°
2500
98°
2600
99°
2700


99°
2800
100°
2900
101°
Array Ind. One Res Rt
3000
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
101°
3100
102°
3200
103°
3300


104°
3400
104°
3500
105°
3600
106°
3700
107°
3800


107°
3900
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
4000
Spontaneous Potential
Gamma Ray
DST Uphole Tension
109°
4100
109°
4200
110°
4300
110°
4400


111°
4500
112°
4600
113°
4700
114°
4800
115°
4900



5230

Depth In Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− 20 +

DST Uphole Tension
pounds
5000 0

Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

Borehole Temp in deg F

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

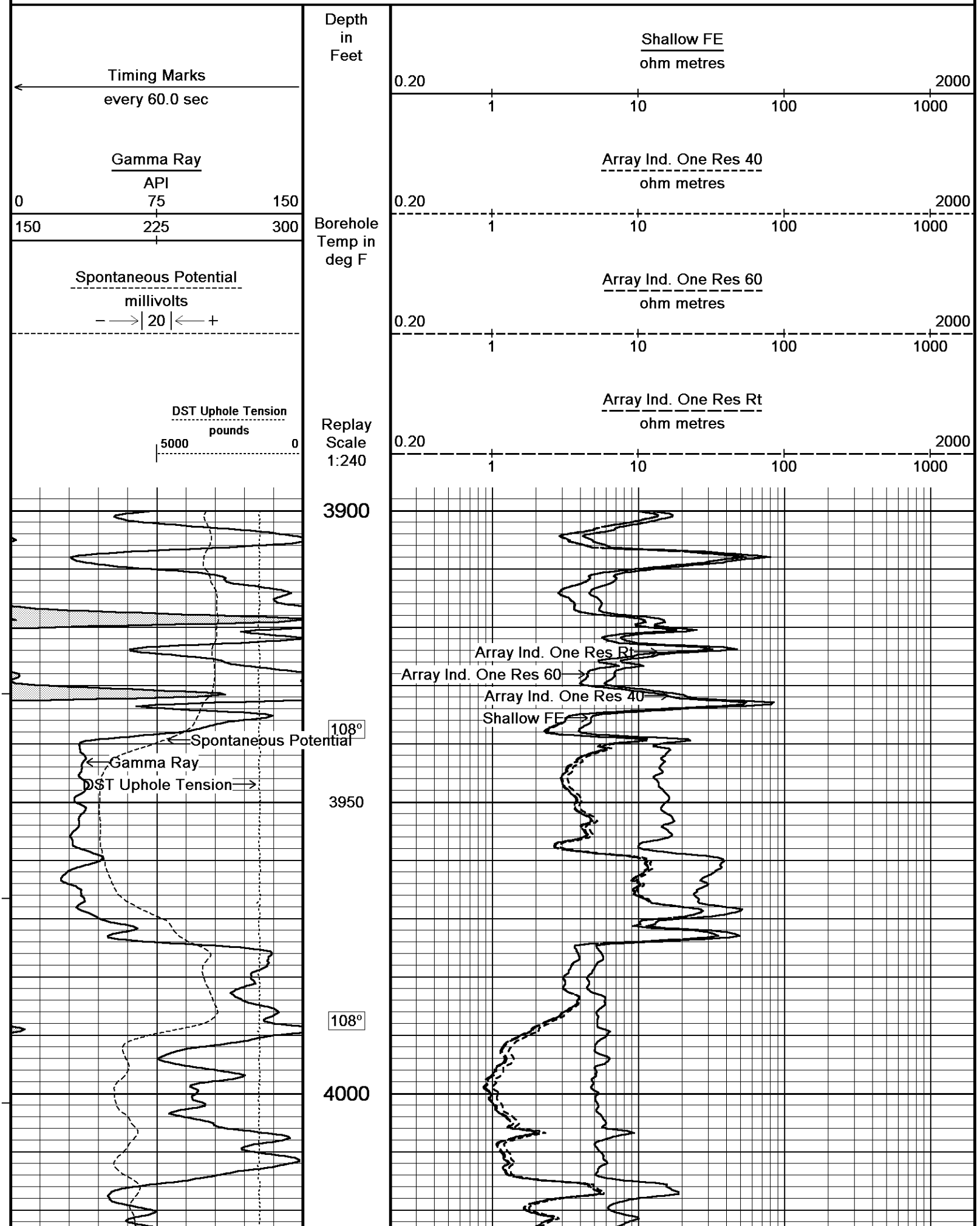
Replay Scale 1:600

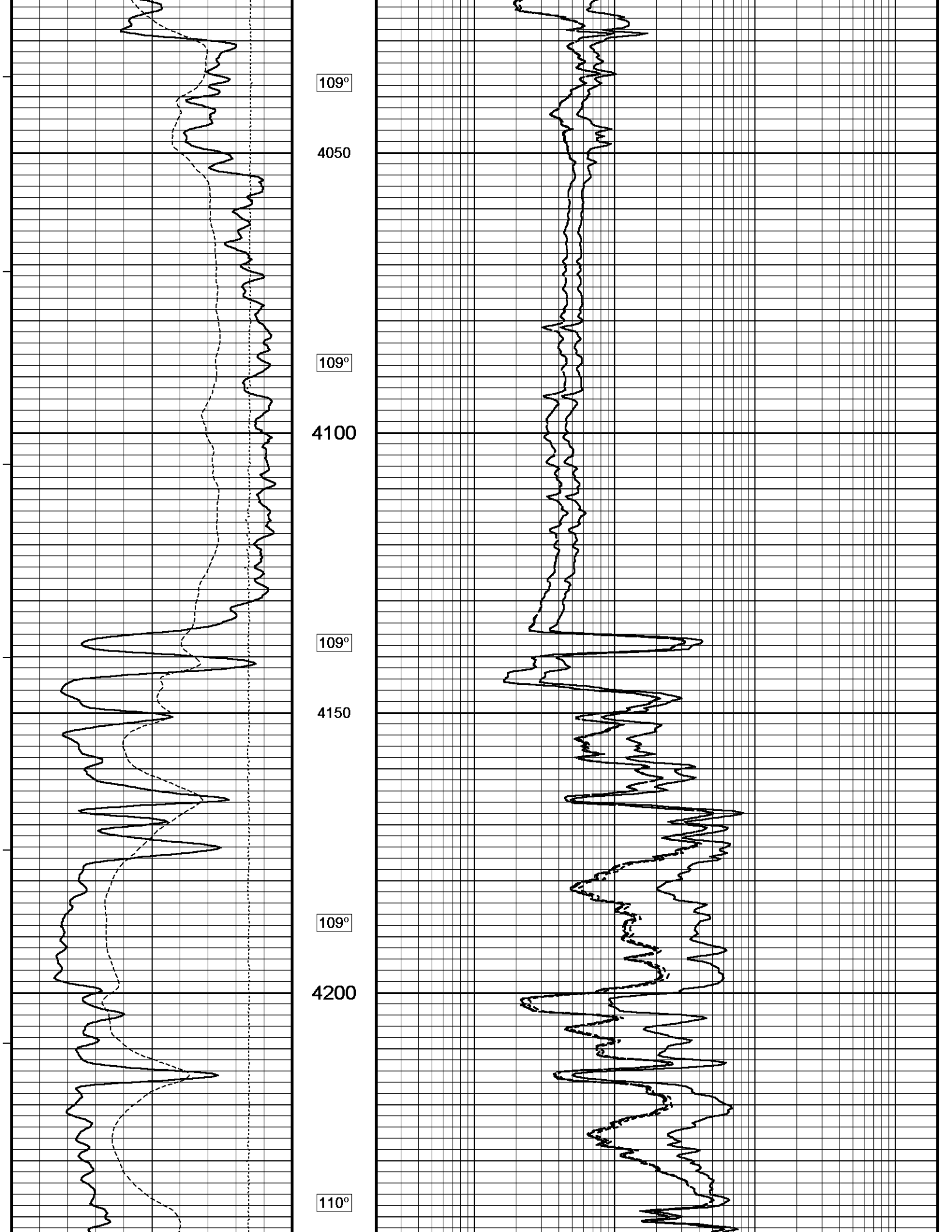
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_002.dta
Recorded on 13-APR-2013 06:17
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

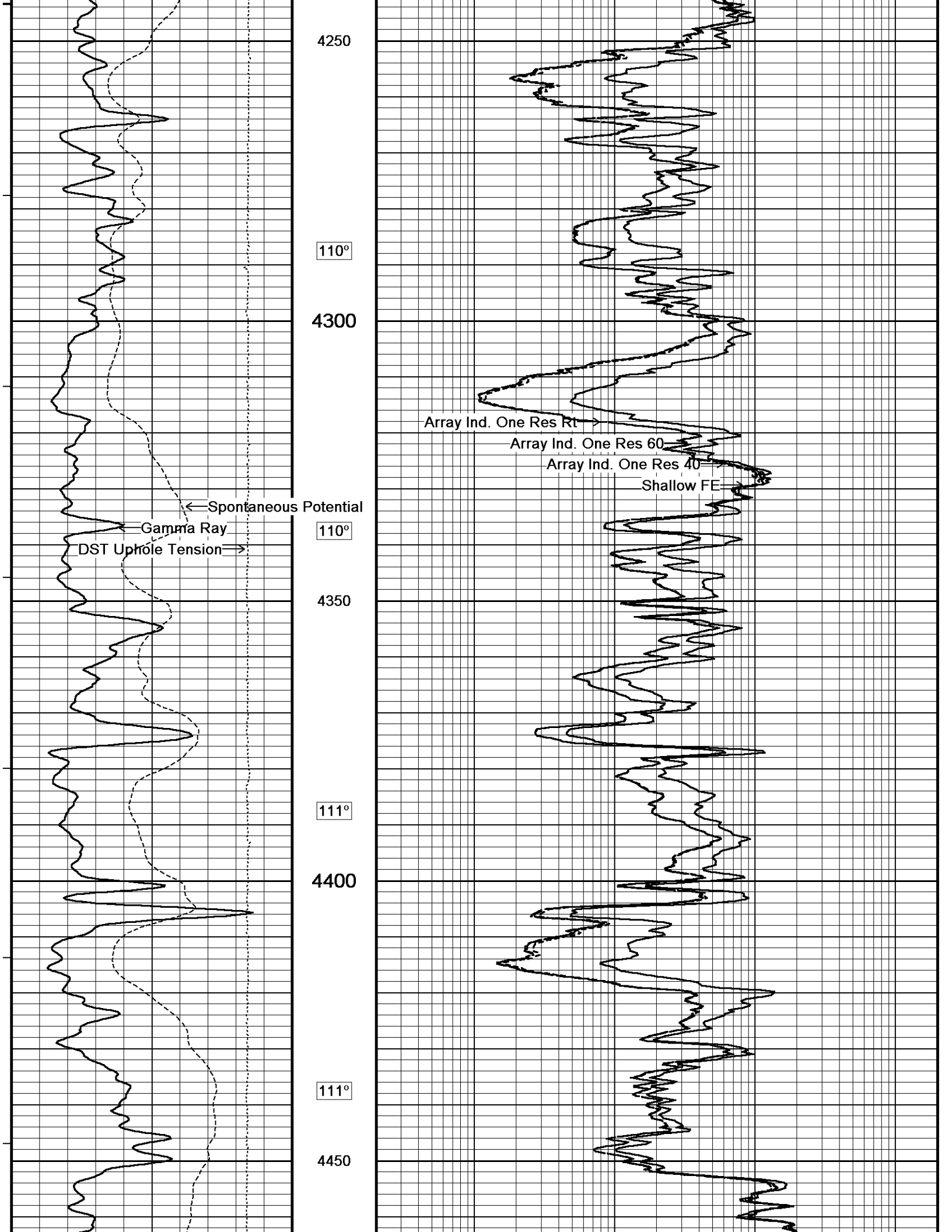
2 INCH MAIN

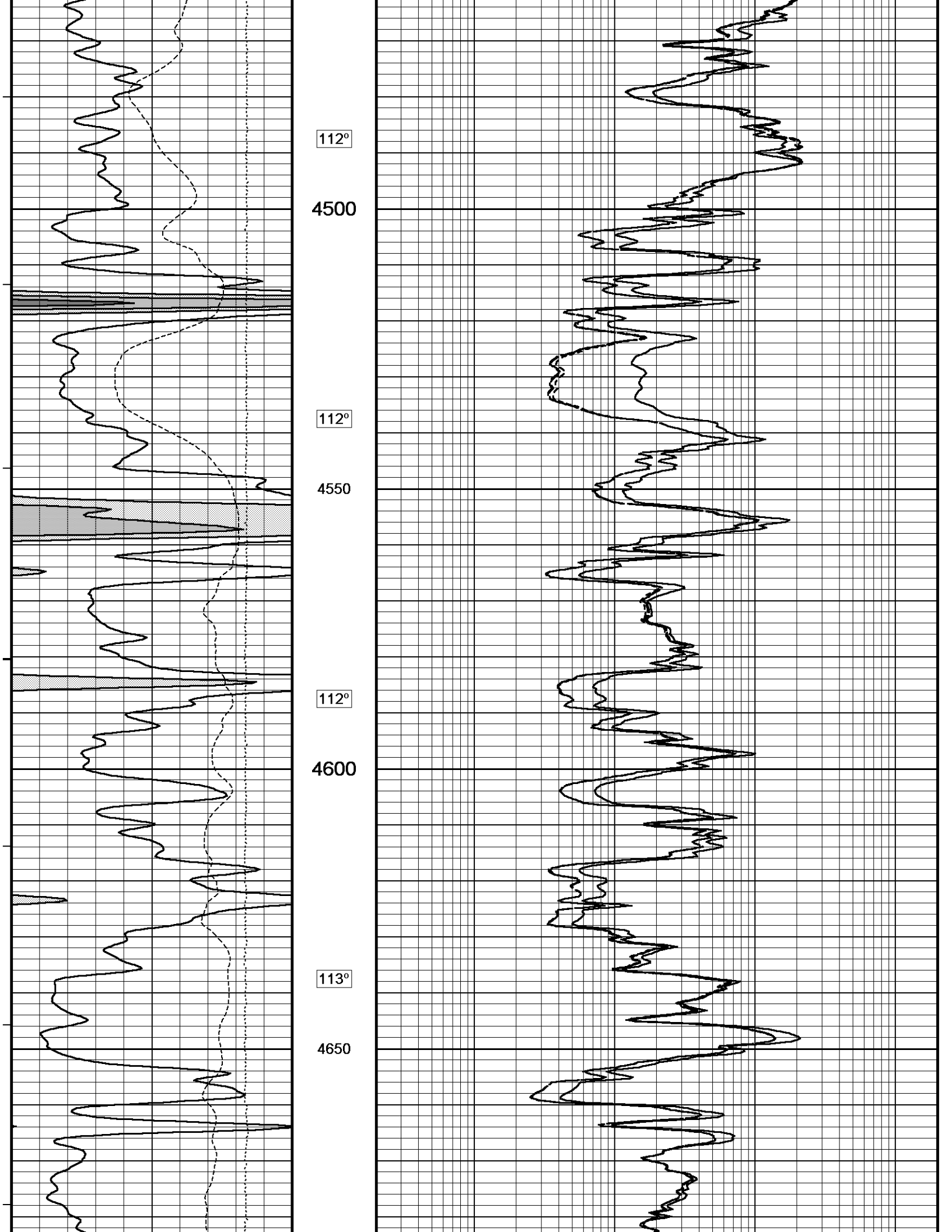
5 INCH MAIN

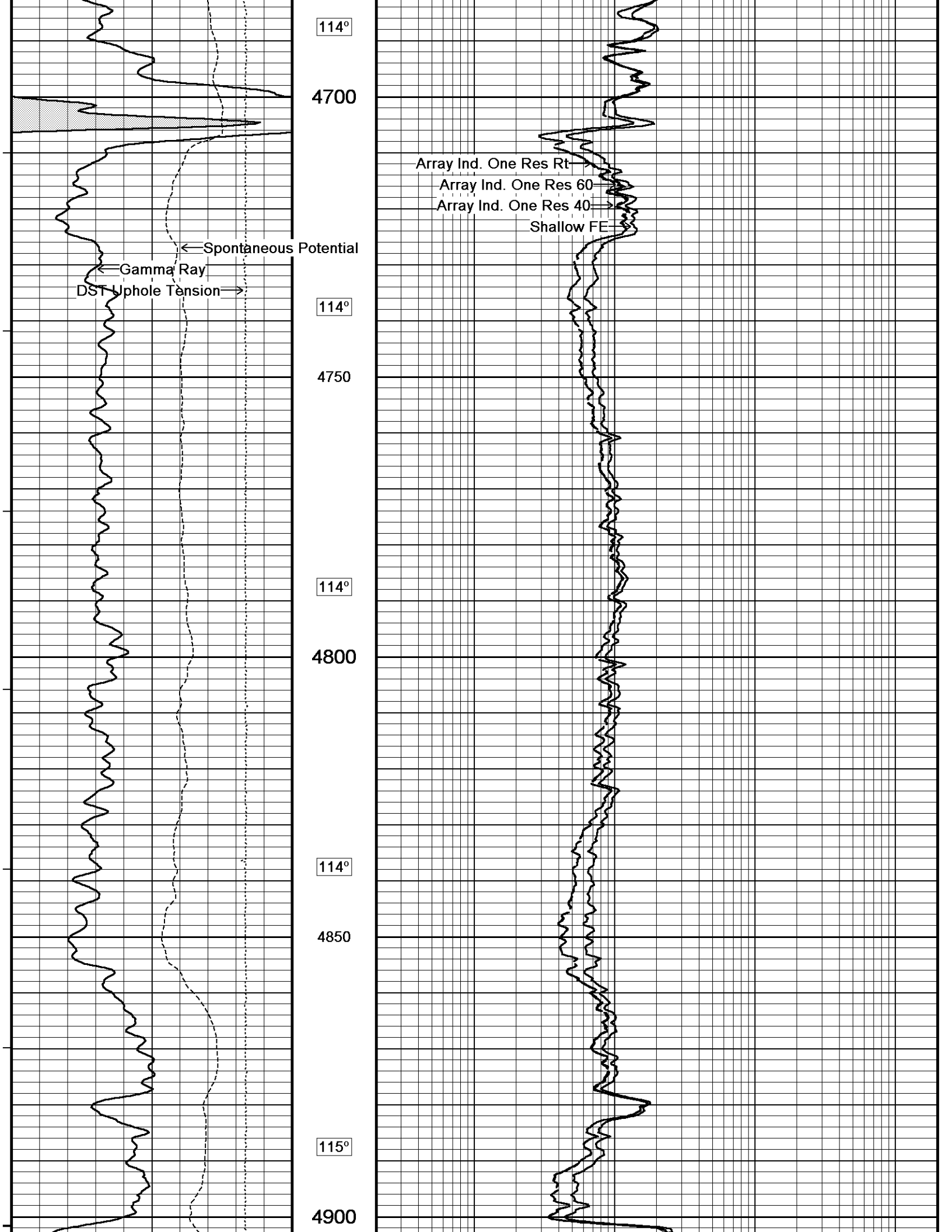
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_002.dta
Recorded on 13-APR-2013 06:17
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

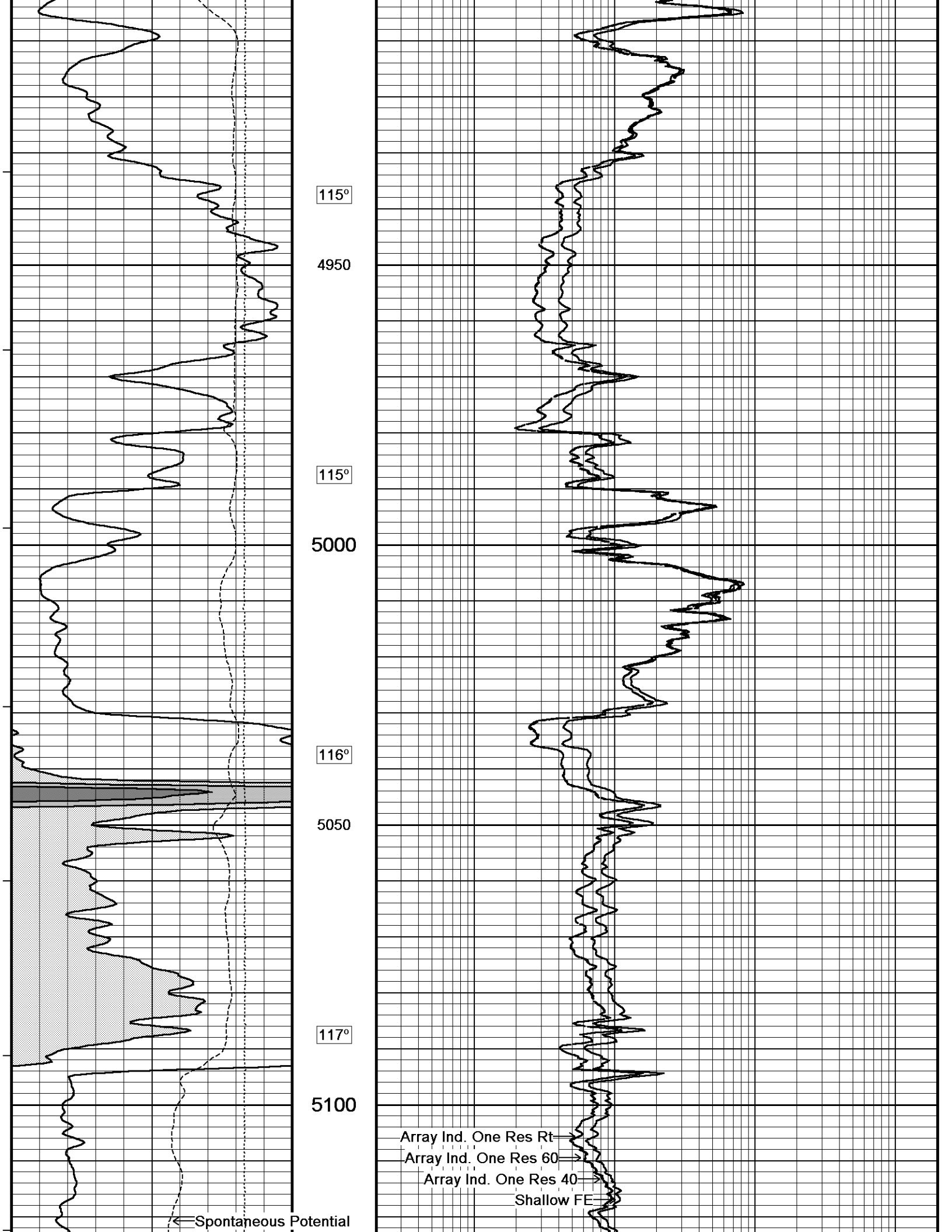


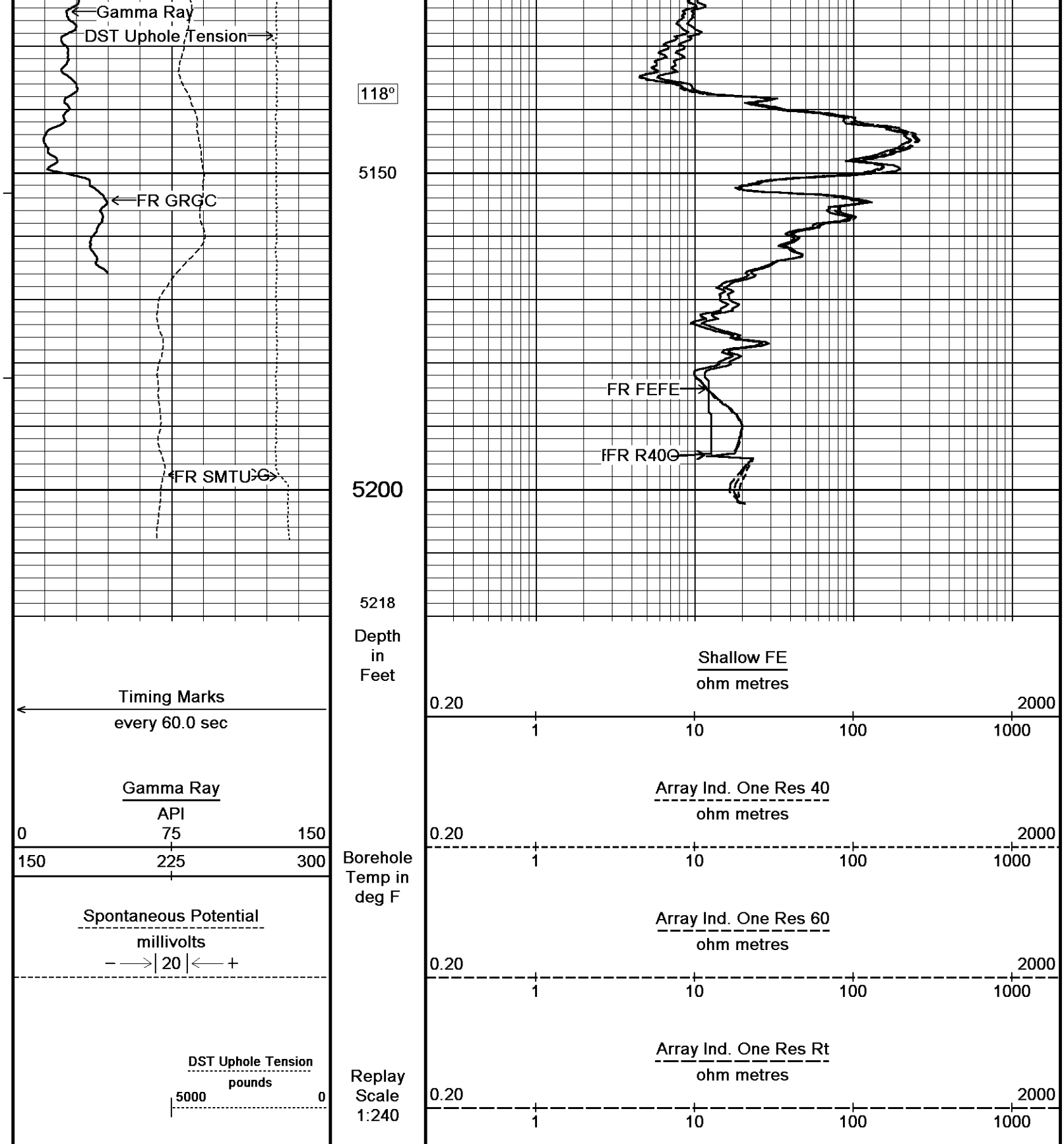

109°
4050
109°
4100
109°
4150
109°
4200
110°


4250
110°
4300
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
110°
4350
111°
4400
111°
4450


112°
4500
112°
4550
112°
4600
113°
4650


114°
4700
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
114°
4750
114°
4800
114°
4850
115°
4900


115°
4950
115°
5000
116°
5050
117°
5100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential

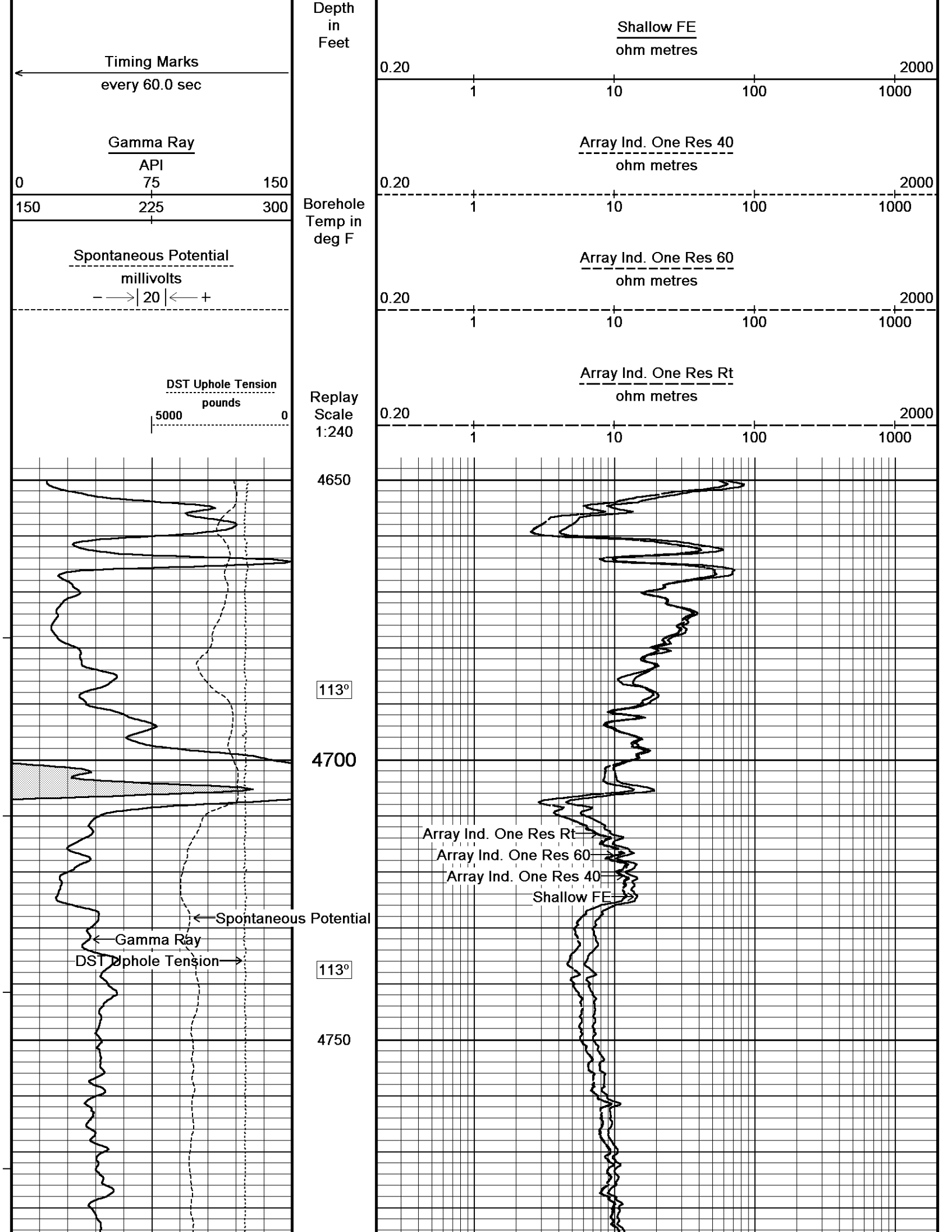


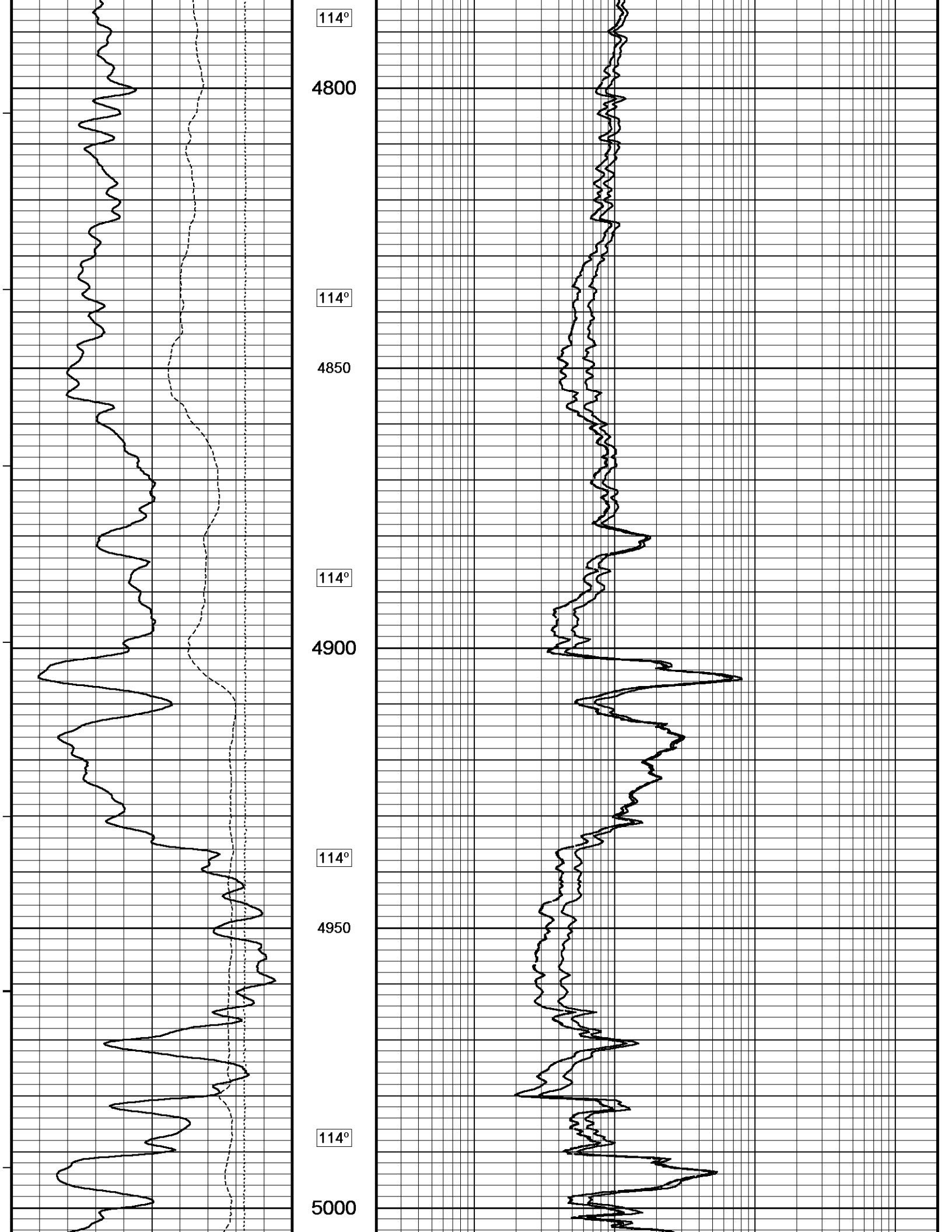
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_002.dta
Recorded on 13-APR-2013 06:17
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

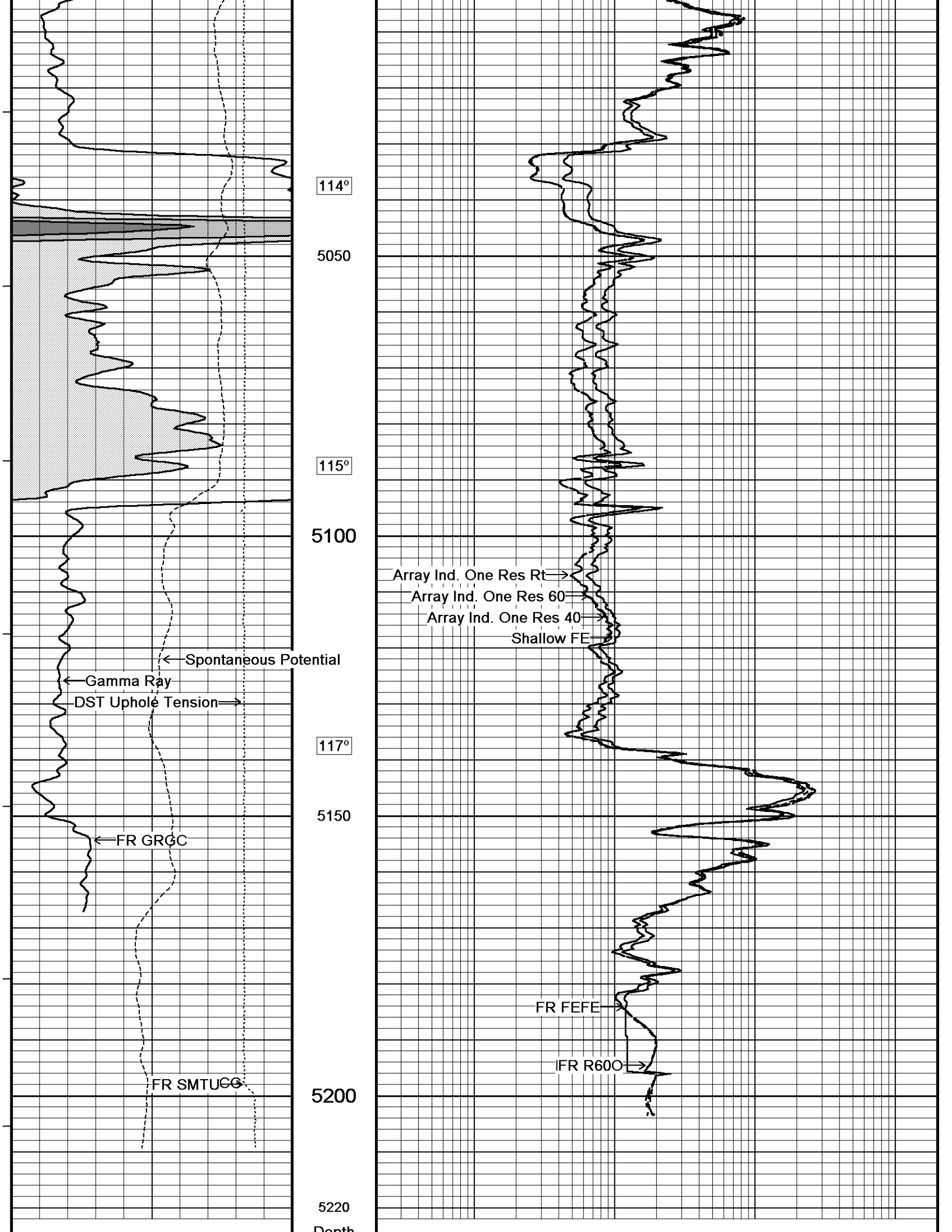
5 INCH MAIN

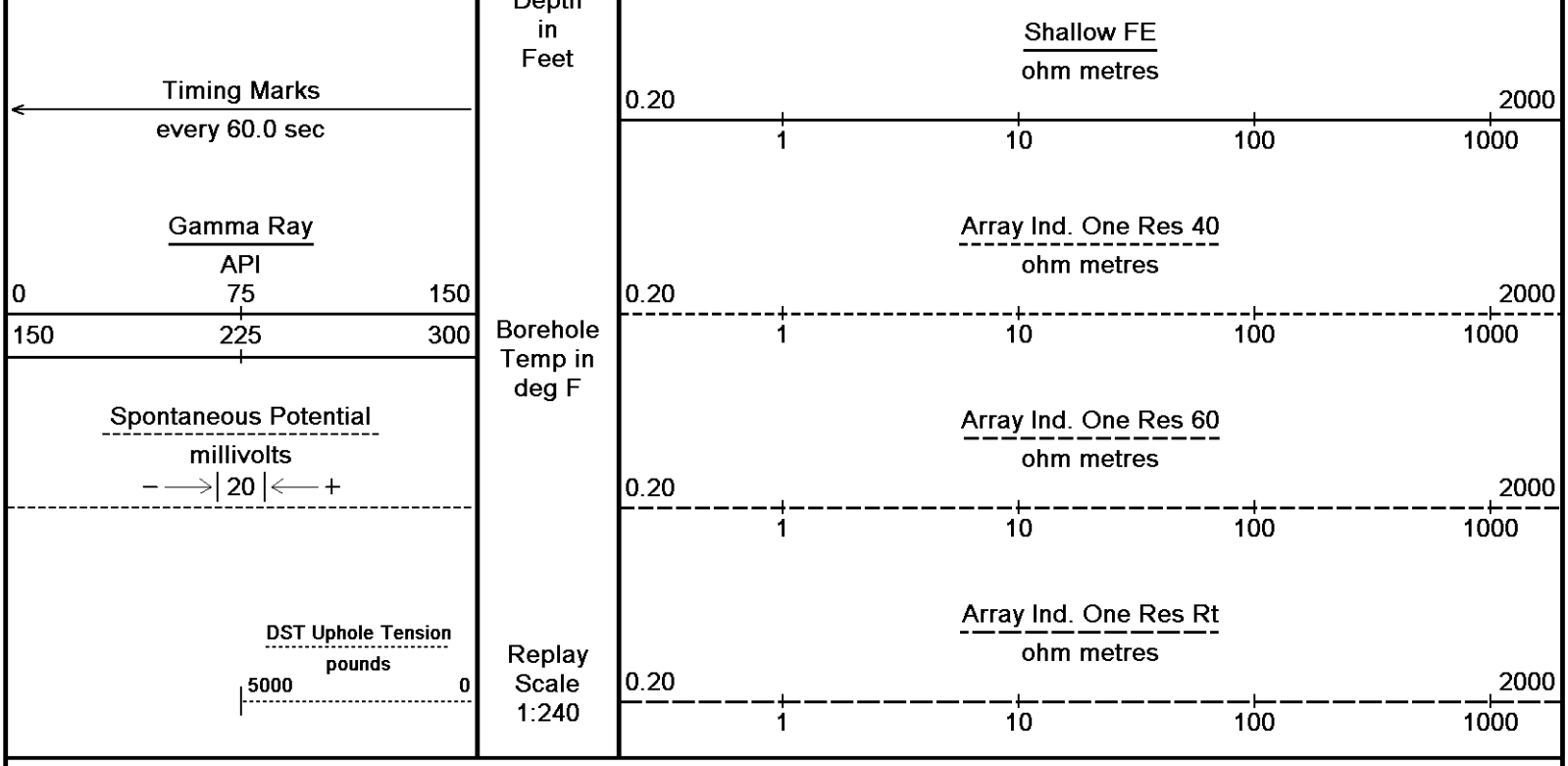
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_001.dta
Recorded on 13-APR-2013 05:45
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492


Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
20
DST Uphole Tension
pounds
5000
0
Depth in Feet
Borehole Temp in deg F
Replay Scale 1:240
4650
113°
4700
113°
4750
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
Array Ind. One Res 60
Array Ind. One Res Rt
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE


114°
4800
114°
4850
114°
4900
114°
4950
114°
5000


114°
5050
115°
5100
117°
5150
5200
5220
Depth
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
FR SMTUCG
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR FEFE
IFR R60O



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 13-APR-2013 08:40

Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar...\M & M Exploration Z-Bar 8-1_001.dta — Recorded on 13-APR-2013 05:45

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar 8-1\M & M Exploration Z-Bar 8-1_001.dta

General Constants All 000

Last Edited on 13-APR-2013,02:29

General Parameters		
Mud Resistivity	0.670	ohm-metres
Mud Resistivity Temperature	82.000	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. Six Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 13-APR-2013 05:06

Reading No	Measured	Calibrated (lbs)
1	14798.56	0.00
2	15473.05	383.60

Gamma Calibration MCG-B 34

Field Calibration on 10-APR-2013 10:25

	Measured	Calibrated (API)
Background	60	40
Calibrator (Gross)	1154	765
Calibrator (Net)	1095	725

Gamma Constants MCG-B 34

Last Edited on 13-APR-2013,02:06

Gamma Calibrator Number	GR38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-B 34

Field Calibration on 29-MAR-2013,12:58

	Measured	Calibrated (mV)
Reference 1	101.0	100.0
Reference 2	-99.0	-100.0

High Resolution Temperature Calibration MCG-B 34

Field Calibration on 29-MAR-2013,12:58

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

High Resolution Temperature Constants MCG-B 34

Last Edited on 29-MAR-2013,12:58

Pre-filter Length	11

Micro Laterolog Calibration MMR-A 11

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

Base Calibration

Measured		Calibrated (ohm-m)	
Ref 1	Ref 2	Ref 1	Ref 2
0.0	0.0	0.0	0.0

Base Check (ohm-m)	Field Check (ohm-m)
0.0	0.0

Micro Laterolog Constants MMR-A 11

Last Edited on

Pad Type	6 in Solid Nylon B23059	
Micro Laterolog K Factor	0.0128	
Standoff Offset	0.0000	inches

Mudcake Thickness Correction Constants

Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	20.00	Degrees C
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	MCG External Temperature	

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 08-MAR-2013 17:36
Field Check on 10-APR-2013 10:27

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.4	60.0	5.0	25.0
Micro Inverse	15.5	77.5	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	76.3	76.3
Micro Inverse	58.7	58.7

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 05-NOV-2012,13:54

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	0.0000	inches

Caliper Calibration MMR-A 11

Base Calibration on 08-APR-2013 09:09
Field Calibration on 10-APR-2013 10:30

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13932	5.98
2	17063	7.97
3	20236	9.86

4	24170	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

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

Neutron Calibration MDN-A.B 65

Base Calibration on 13-MAR-2013 16:17
Field Check on 10-APR-2013 10:41

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2980	92	3714	110
Ratio	32.499		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1736	2464
Ratio	0.705	

Field Check

	Calibrated (cps)	
	1736	2470
Ratio	0.680	

Neutron Constants MDN-A.B 65

Last Edited on 13-APR-2013,02:06

Neutron Source Id	PN-521	
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	None	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 16-JAN-2013 10:20
Field Check on 10-APR-2013 10:50

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.3	126.8
Base Check		281.2
Field Check		281.3

FE Constants MFE-B.J 352

Last Edited on 13-APR-2013,02:04

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 45

Field Calibration on 13-DEC-2012,10:54

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

High Resolution Temperature Constants MAI-A.A 45

Last Edited on 10-APR-2013,10:31

High Resolution Temperature Constants MAI-A.A 45

Pre-filter Length	11

Induction Calibration MAI-A.A 45

Base Calibration on 26-JUL-2012,09:22
Field Check on 10-APR-2013 10:52

Base Calibration

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

Array Temperature 78.4 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			18.4	3850.4
2			31.7	3628.8
3			28.7	3049.3
4			18.3	2079.1
Deep			16.1	1911.4
Medium			42.5	4060.4
Shallow			49.5	5481.9

Array Temperature 60.4 Deg F

Induction Constants MAI-A.A 45

Last Edited on 13-APR-2013,02:04

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 31

Base Calibration on 28-MAR-2013 13:43
Field Calibration on 08-APR-2013 08:48

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16832	3.99

2	24690	5.98
3	33328	7.97
4	41600	9.86
5	50976	11.92
6	N/A	N/A

Field Calibration

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

Photo Density Calibration MPD-B 31

Base Calibration on 13-MAR-2013 15:17
Field Check on 10-APR-2013 10:49

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	46119	23502	59556	30836
Reference 2	19149	1933	24941	2541

Field Check at Base

681.1	838.4

Field Check

679.5	834.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	125	604		
Reference 1	19219	46004	0.421	0.371
Reference 2	5674	19062	0.301	0.272

Field Check at Base

125.1	603.7

Field Check

124.6	603.1

Density Constants MPD-B 31

Last Edited on 13-APR-2013,02:05

Density Source Id	254	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.08	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

DOWNHOLE EQUIPMENT

C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar 8-1\M & M Exploration Z-Bar 8-1_001.dta

Compact Comms Gamma
MCG-B 34 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

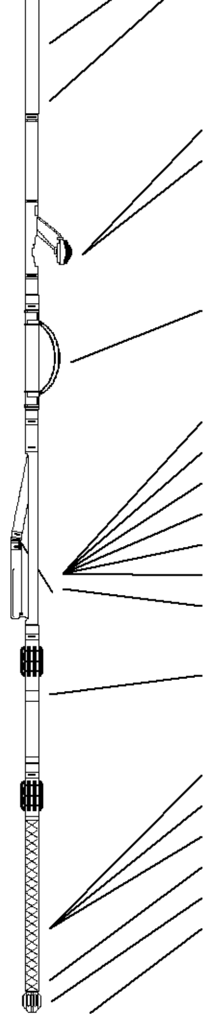
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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

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

Total Length: 48.78 ft Weight: 383.6 lb



33.24 ft	MINV - MMR MicroLog Inverse
33.24 ft	MNRL - MMR MicroLog Normal
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DPRL - Limestone Density Por.
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R60O - Array Ind. One Res 60
3.34 ft	RTAO - Array Ind. One Res Rt
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	M & M EXPLORATION, INC.
WELL	Z-BAR 8-1
FIELD	AETNA SE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1668.00	feet	First Reading	5195.00	feet
Elevation Drill Floor	1666.00	feet	Depth Driller	5200.00	feet
Elevation Ground Level	1658.00	feet	Depth Logger	5198.00	feet

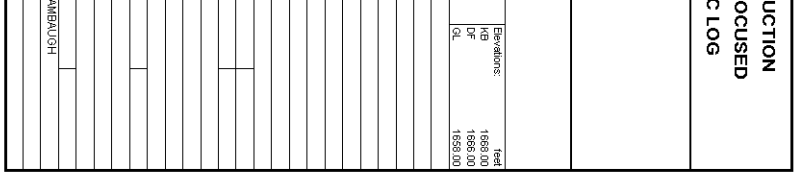
Weatherford®

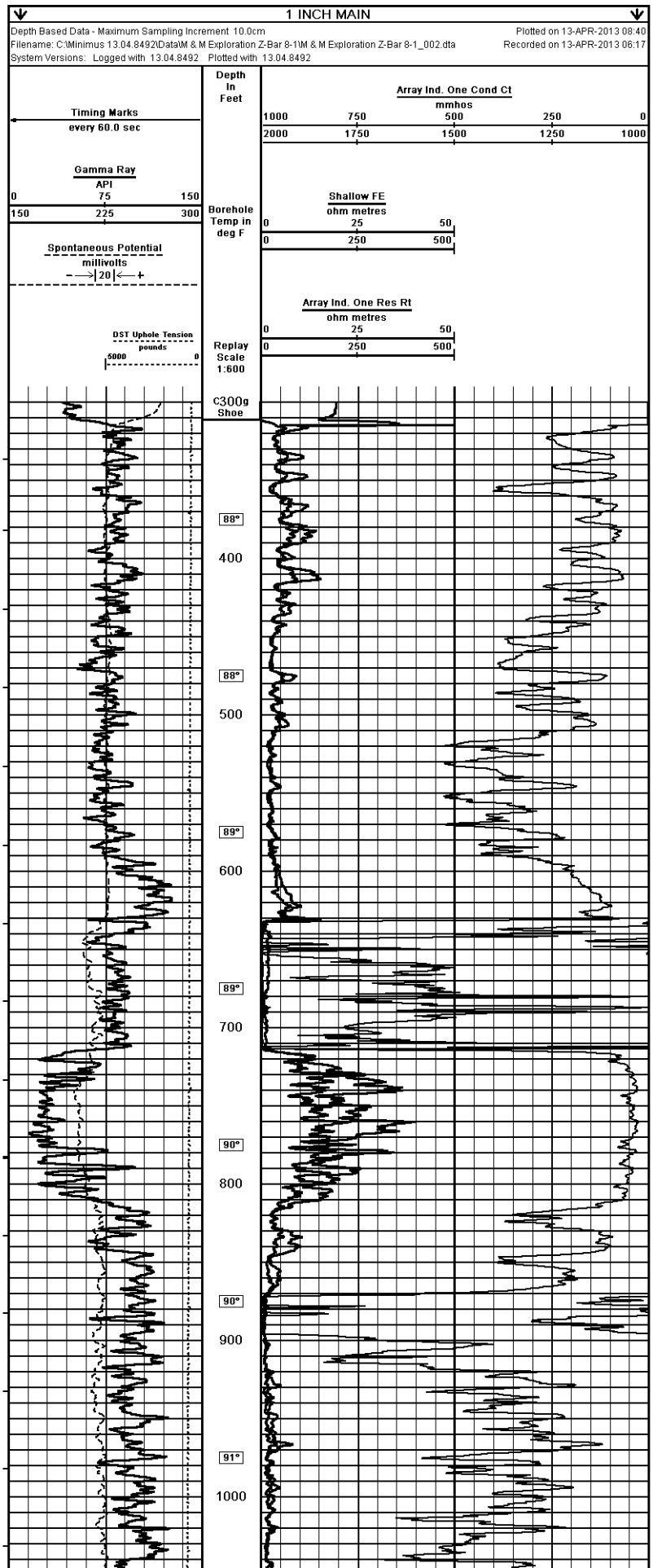
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

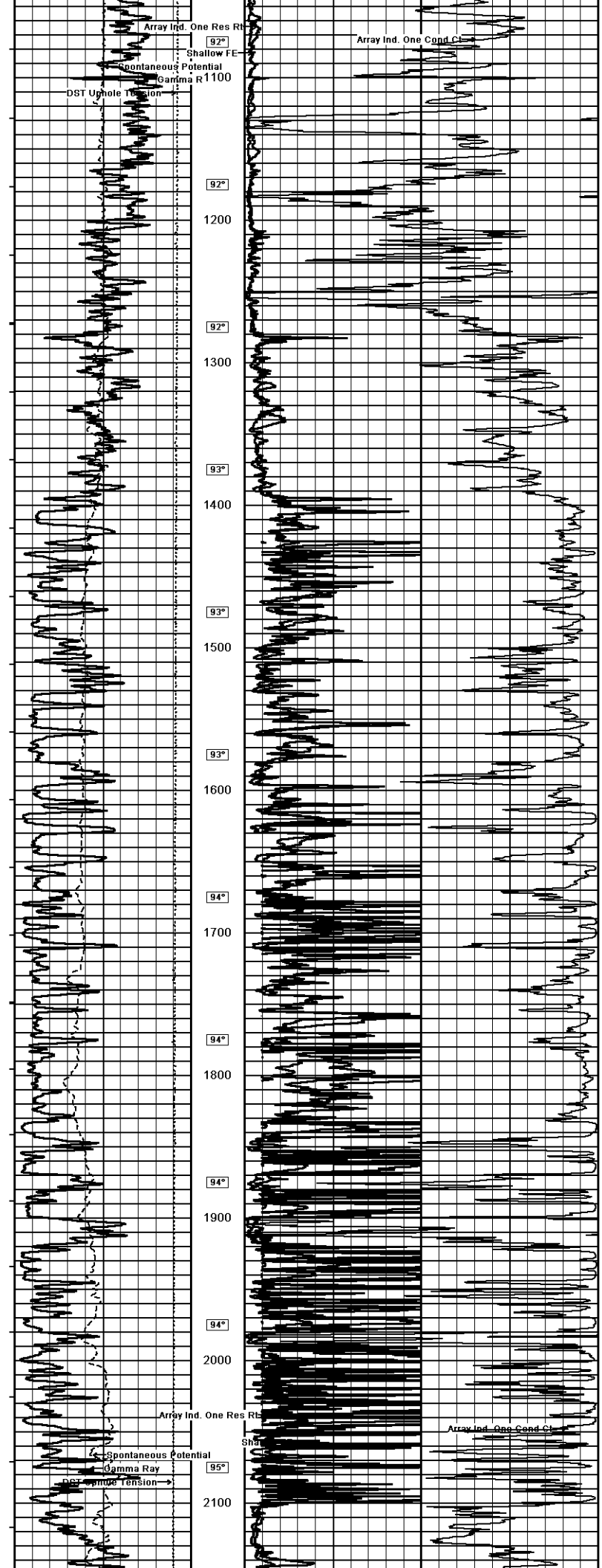
Weatherford

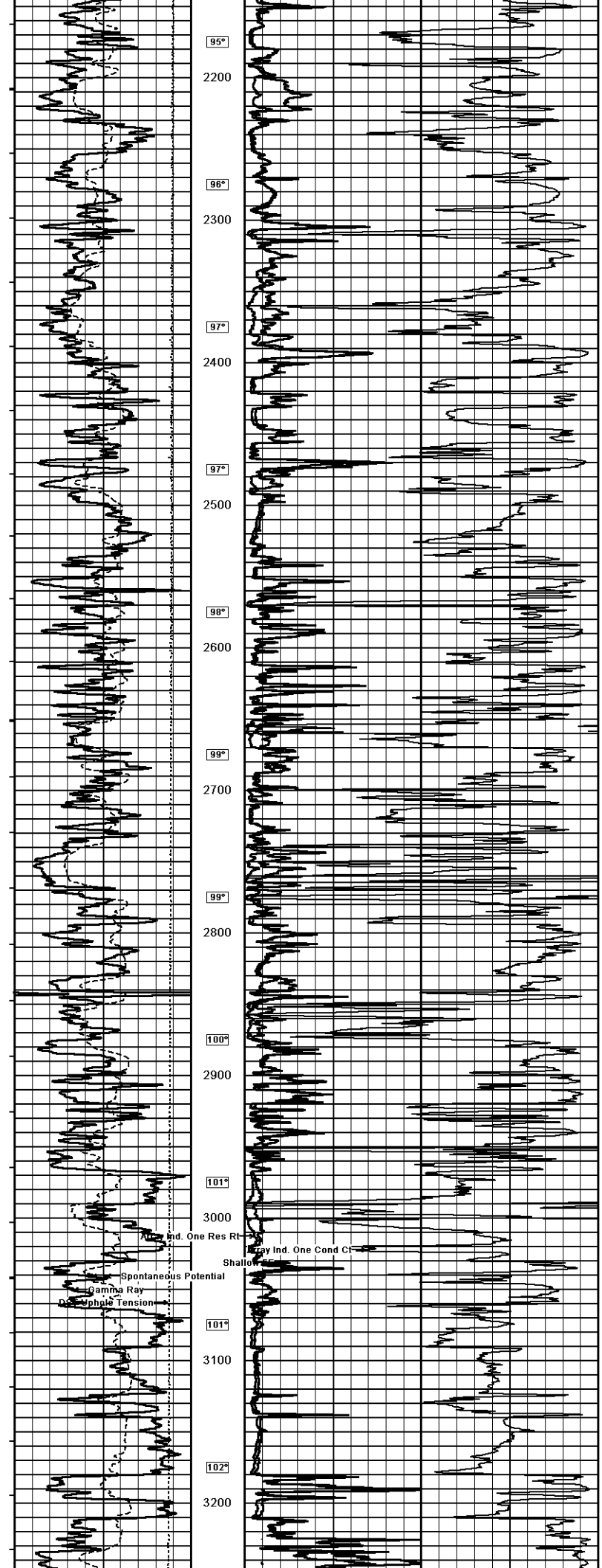
ARRAY IND
SHALLOW F
ELECTRI

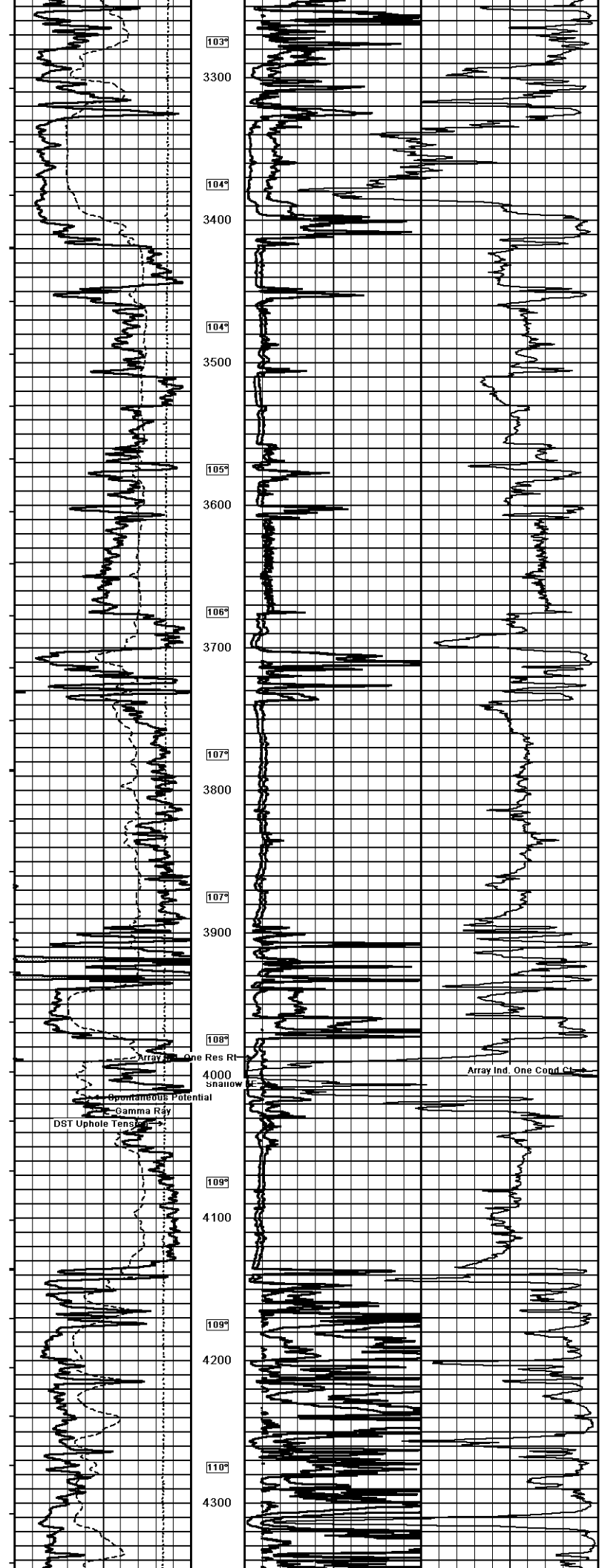
COMPANY	M & M EXPLORATION, INC.	
WELL	Z-BAR 8-1	
FIELD	AETNA SE	
PROVINCE/COUNTY	BARBER	
COUNTRY/STATE	U.S.A. / KANSAS	
LOCATION	500' FNL & 600' FEL NE/4	
SEC 8 / TWP 34S / RGE 14W		Other Services MPD/MDN MAI/MFE
API Number	15-007-23999	
Permit Number		
Permanent Datum G.L., Elevation 1658 feet		
Log Measured From KB		
Drilling Measured From K.B. @ 10 FEET		
Date	13-APR-2013	
Run Number	ONE	
Service Order	3539885	
Depth Driller	5200.00	feet
Depth Logger	5198.00	feet
First Reading	5195.00	feet
Last Reading	311.00	feet
Casing Driller	312.00	feet
Casing Logger	311.00	inches
Bit Size	7.875	
Hole Fluid Type	CHEMICAL	lb/USg
Density / Viscosity	9.00 lb/USg	45.00 CP
PH / Fluid Loss	9.80	9.80
Sample Source	FLOWLINE	
Rm @ Measured Temp	0.67 @ 82.0	ohm-m
Rmf @ Measured Temp	0.54 @ 82.0	ohm-m
Rmc @ Measured Temp	0.80 @ 82.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.47 @118.0	ohm-m
Time Since Circulation	3 HOURS	
Max Recorded Temp	118.00	deg F
Equipment / Base	13057	LIB
Recorded By	J. LAPOINT	W. ST
Witnessed By	BILL BUSCH	
JOB#	LB13-098	

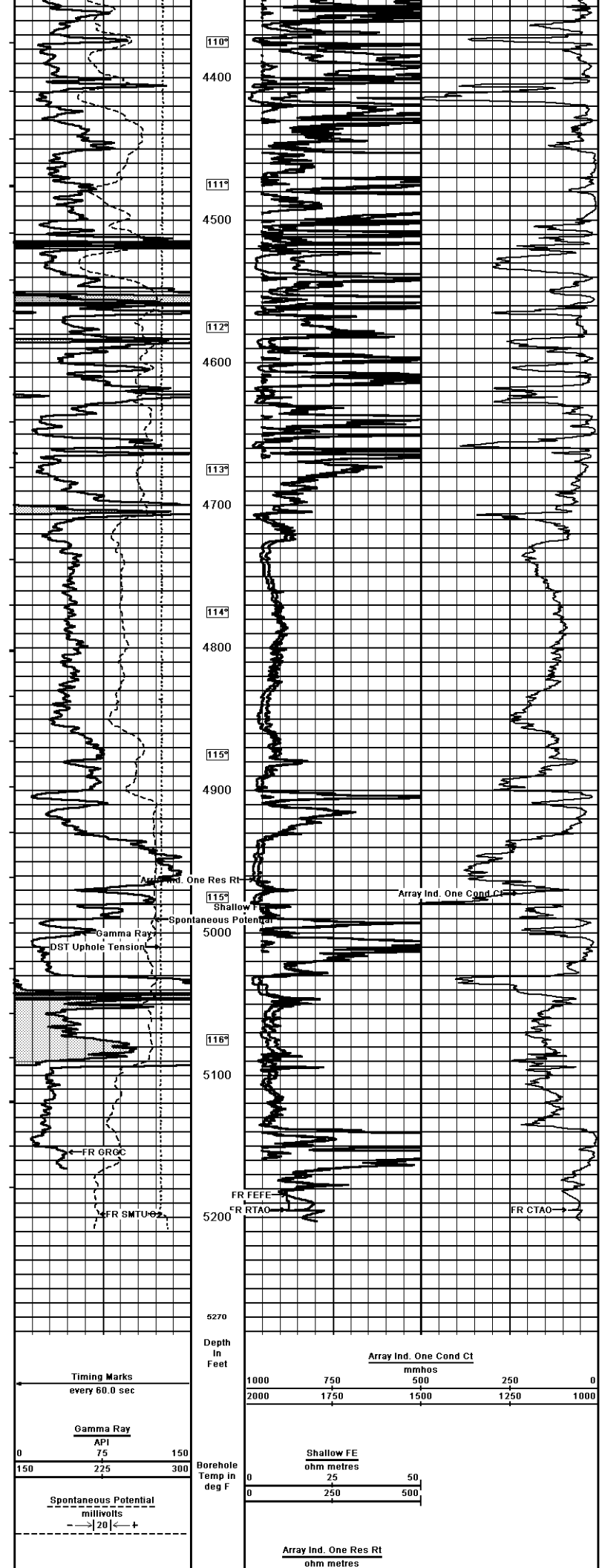

Elevations:
KB
DF
GL
1668.00
1666.00
1658.00
feet
UCTION
OCUSED
C LOG
AMBAUGH

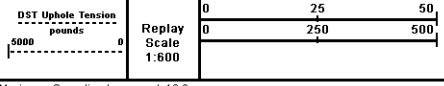

1 INCH MAIN
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-APR-2013 08:40
Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar 8-1\M & M Exploration Z-Bar 8-1_002.dta
Recorded on 13-APR-2013 06:17
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492
Depth In Feet
Timing Marks every 60.0 sec
Gamma Ray API 0 75 150 150 225 300
Spontaneous Potential millivolts -20+
DST Uphole Tension pounds 5000 0
Borehole Temp in deg F
Replay Scale 1:600
Array Ind. One Cond Ct mmhos 1000 750 500 250 0 2000 1750 1500 1250 1000
Shallow FE ohm metres 0 25 50 0 250 500
Array Ind. One Res Rt ohm metres 0 25 50 0 250 500
C300g Shoe
88°
400
88°
500
89°
600
89°
700
90°
800
90°
900
91°
1000


Array Ind. One Res Rt
92°
Shallow FE
Spontaneous Potential
Gamma R
1100
DST Uphole Tension
Array Ind. One Cond Ct
92°
1200
92°
1300
93°
1400
93°
1500
93°
1600
94°
1700
94°
1800
94°
1900
94°
2000
Array Ind. One Res Rt
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
95°
DST Uphole Tension
2100


95°
2200
96°
2300
97°
2400
97°
2500
98°
2600
99°
2700
99°
2800
100°
2900
101°
3000
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow
Spontaneous Potential
Gamma Ray
Delta Phase Tension
101°
3100
102°
3200


103°
3300
104°
3400
104°
3500
105°
3600
106°
3700
107°
3800
107°
3900
108°
Array Ind. One Res Rt
4000
Shallow
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ch
109°
4100
109°
4200
110°
4300


110°
4400
111°
4500
112°
4600
113°
4700
114°
4800
115°
4900
115°
5000
116°
5100
5200
5270
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRCC
FR SMTUCZ
Array Ind. One Cond Ct
FR FEFE
FR RTAO
FR CTAO
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
20
Depth
In
Feet
Borehole
Temp in
deg F
Array Ind. One Cond Ct
mmhos
1000
750
500
250
0
2000
1750
1500
1250
1000
Shallow FE
ohm metres
0
25
50
0
250
500
Array Ind. One Res Rt
ohm metres



Replay Scale 1:600

0	25	50
0	250	500

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 13-APR-2013 08:40

Filename: C:\Minimus 13.04.8492\Data\M & M Exploration Z-Bar 8-1\M & M Exploration Z-Bar 8-1_002.dta — Recorded on 13-APR-2013 06:17

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

1 INCH MAIN

COMPANY	M & M EXPLORATION, INC.
WELL	Z-BAR 8-1
FIELD	AETNA SE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1668.00	feet	First Reading	5195.00	feet
Elevation Drill Floor	1666.00	feet	Depth Driller	5200.00	feet
Elevation Ground Level	1658.00	feet	Depth Logger	5198.00	feet

Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG