



Weatherford

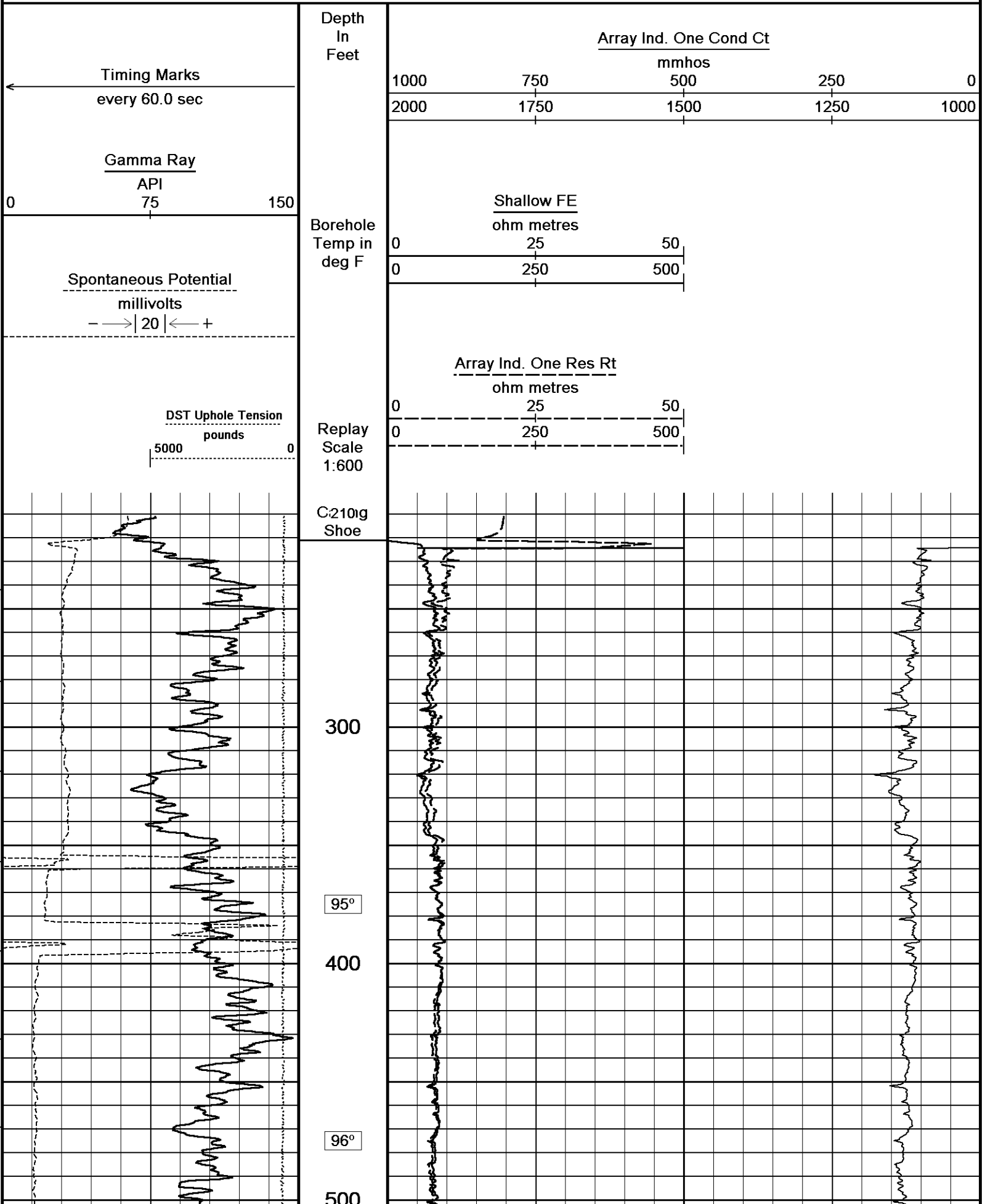
**ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**

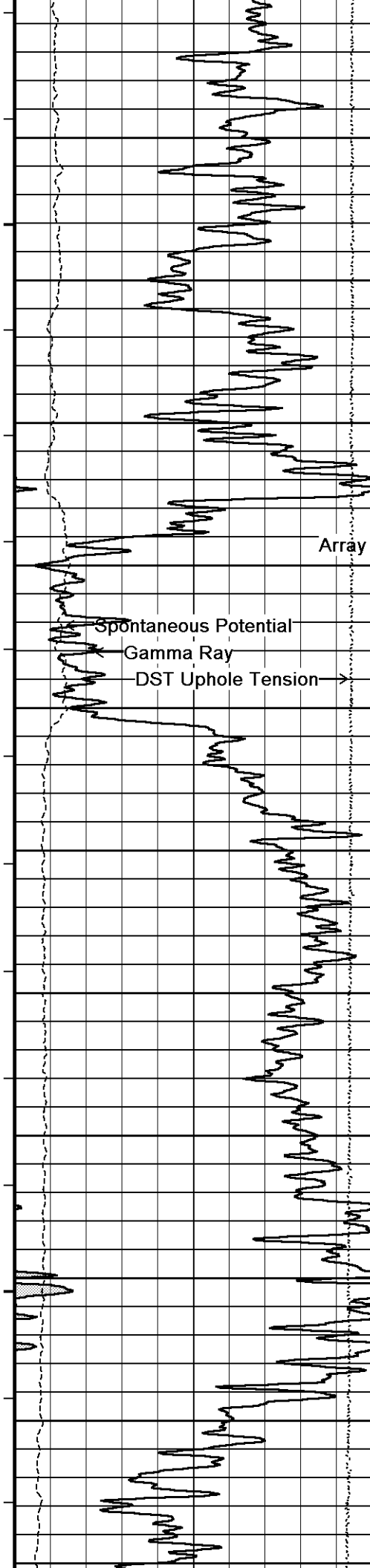
COMPANY				GRAND MESA OPERATING COMPANY			
WELL				CAMPBELL 1-33			
FIELD				WILDCAT			
PROVINCE/COUNTY				GOVE			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				1300' FSL & 558' FEL			
				NW NE SE SE			
SEC	TWP	RGE	Other Services				
33	13S	31W	MPD/MDN				
API Number		15-063-22046		MML			
Permit Number							
Permanent Datum G.L., Elevation 2919 feet						Elevations:	
Log Measured From KB						KB 2924.00	
Drilling Measured From K.B.						DF 2923.00	
						GL 2919.00	
Date	16-OCT-2012						
Run Number	ONE						
Depth Driller	4716.00			feet			
Depth Logger	4713.00			feet			
First Reading	4710.00			feet			
Last Reading	221.00			feet			
Casing Driller	222.00			feet			
Casing Logger	221.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.30 lb/USg		59.00	CP			
PH / Fluid Loss	10.00		8.80	ml/30Min			
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.80 @ 99.0			ohm-m			
Rmf @ Measured Temp	0.64 @ 99.0			ohm-m			
Rmc @ Measured Temp	0.96 @ 99.0			ohm-m			
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.68 @ 117.0		ohm-m				
Time Since Circulation	4 HOURS						
Max Recorded Temp	117.00		deg F				
Equipment Name	COMPACT						
Equipment / Base	13096	LIB					
Recorded By	LYNN SCOTT						
Witnessed By	KENT MATSON						
S.O. / JOB#	3537892			LB12-276			

BOREHOLE RECORD			Last Edited: 16-OCT-2012 14:06	
Bit Size inches	Depth From feet		Depth To feet	
7.875	221.00		4713.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	221.00	24.00

REMARKS
Tools Ran: MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION. 2.71 G/CC Limestone Density porosity used to calculate porosity Borehole Rugosity, Tight pulls, and washouts will affect data quality. All intervals logged and scaled per customer's request. Total hole volume from TD to Surface casing= 1900 cubic feet Annular hole volume with 5.5 Inch casing= 192 cubic feet Service order: 3537892 Rig: Murfin #24 Engineer: L. Scott Operator(s): J. LaPoint, B. Johnson

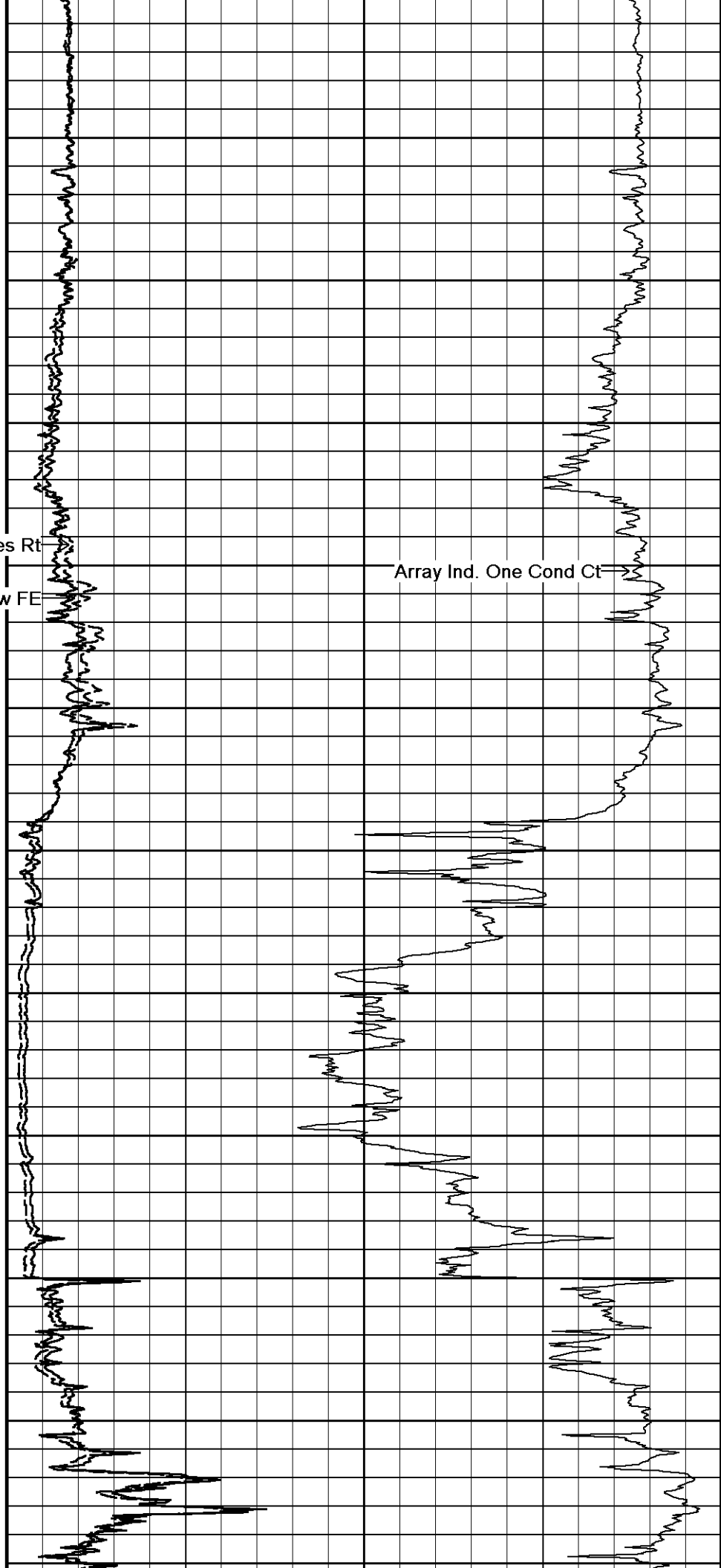
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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



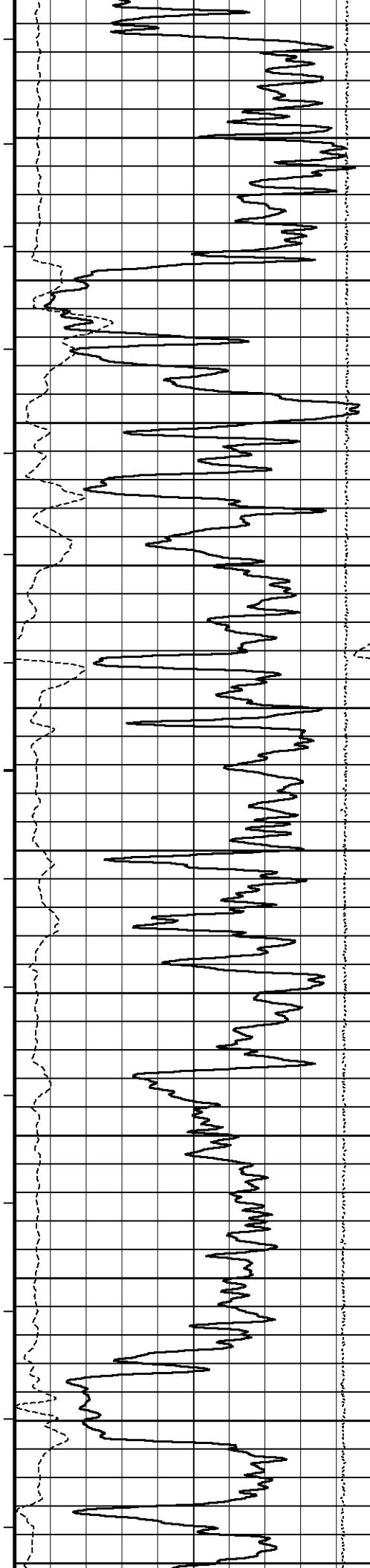


96°
600
96°
700
96°
800
97°
900
98°
1000

Array Ind. One Res Rt
Shallow FE



Array Ind. One Cond Ct



99°

1100

99°

1200

100°

1300

100°

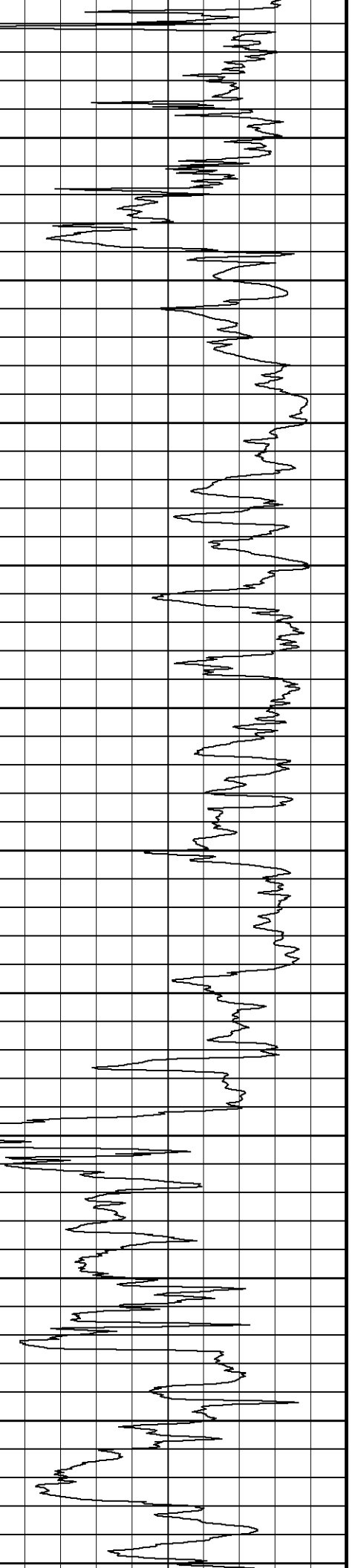
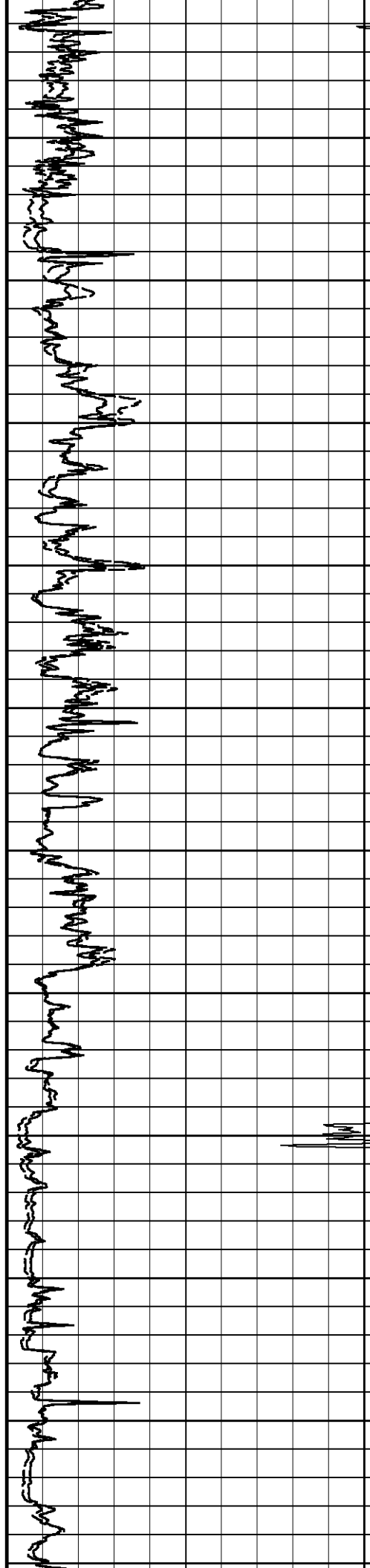
1400

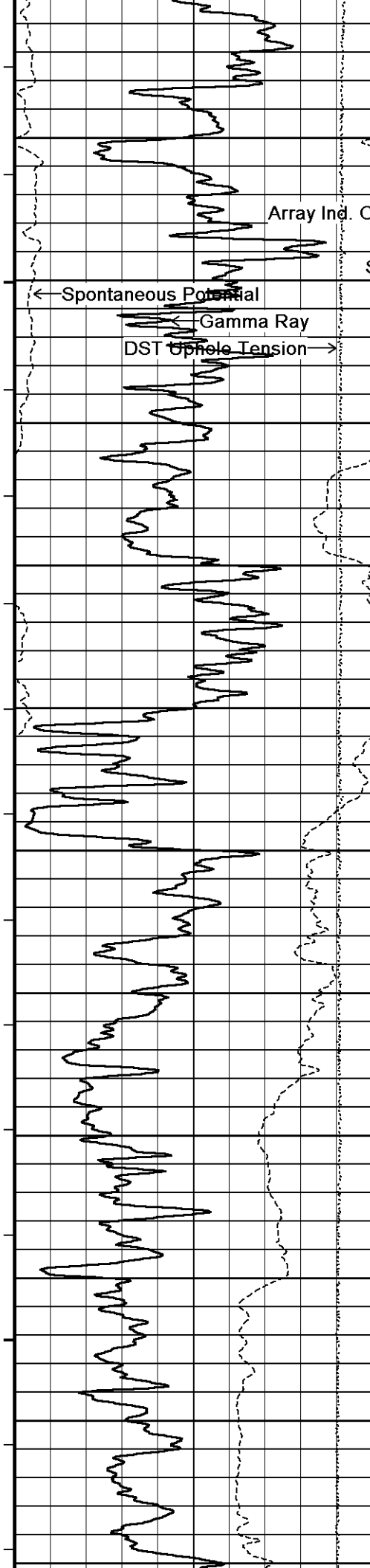
101°

1500

101°

1600





Array Ind. One Rt

Sha" FE

← Spontaneous Potential

Gamma Ray

DST Up-hole Tension →

102°

1700

102°

1800

102°

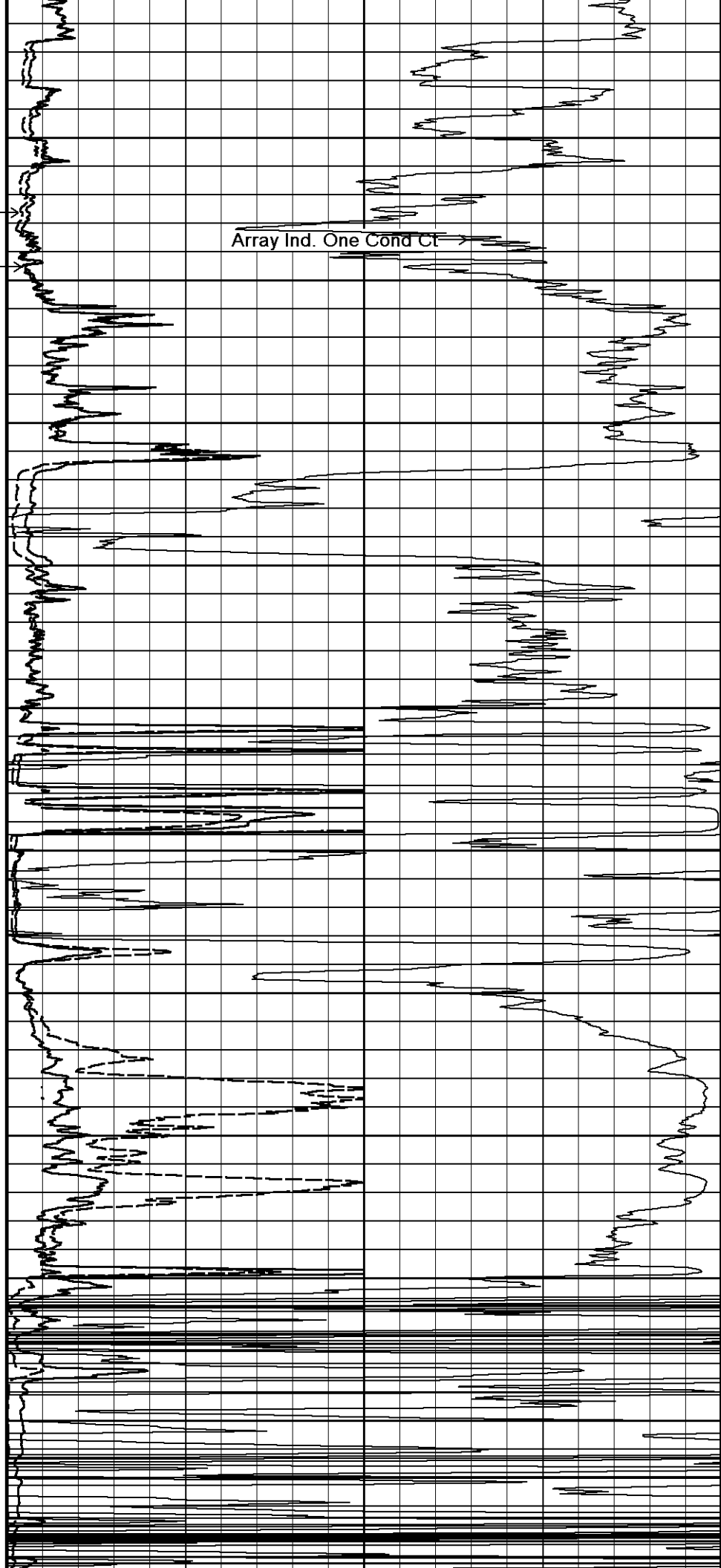
1900

103°

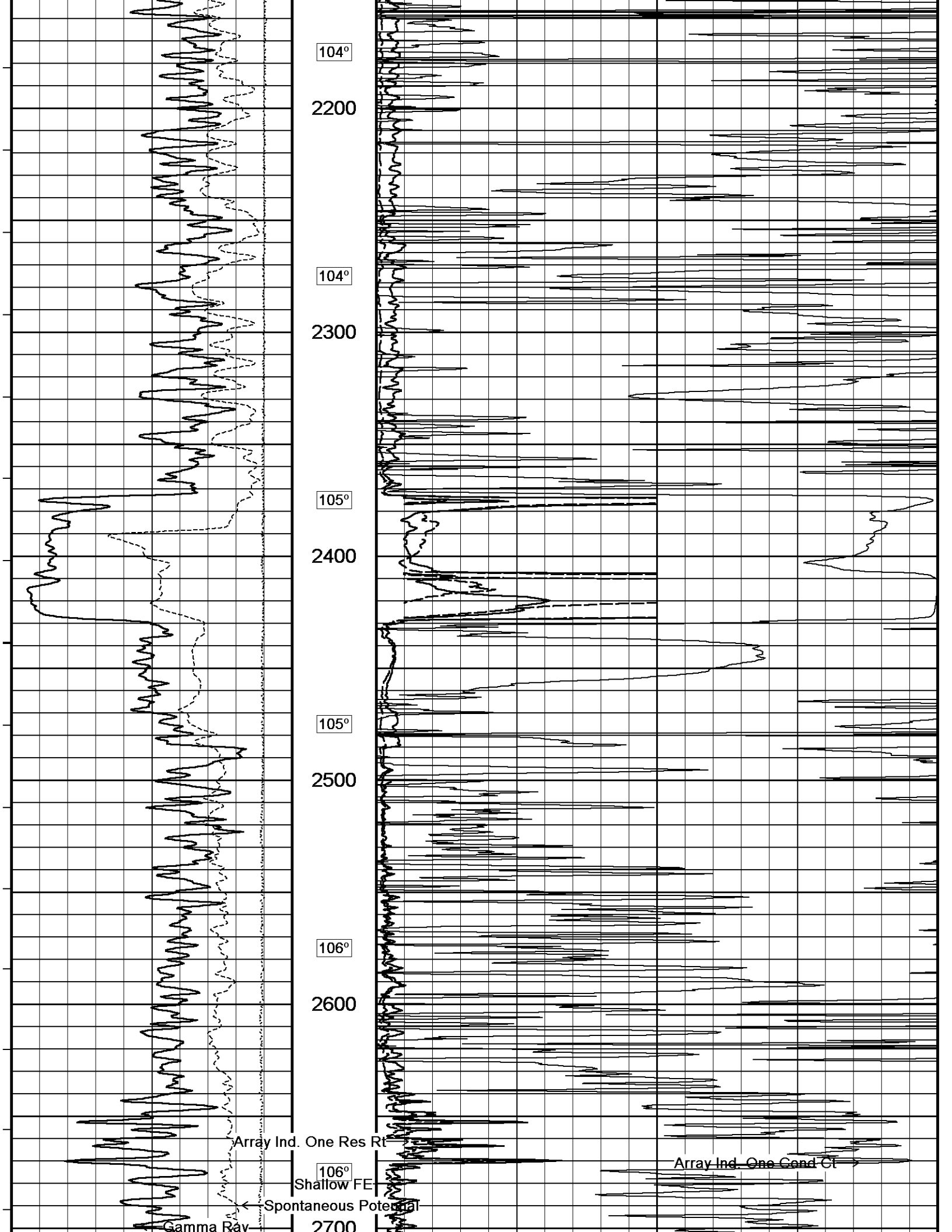
2000

103°

2100



Array Ind. One Cond Ct →



DST Uphole Tension →

2750

107°

2800

107°

2900

108°

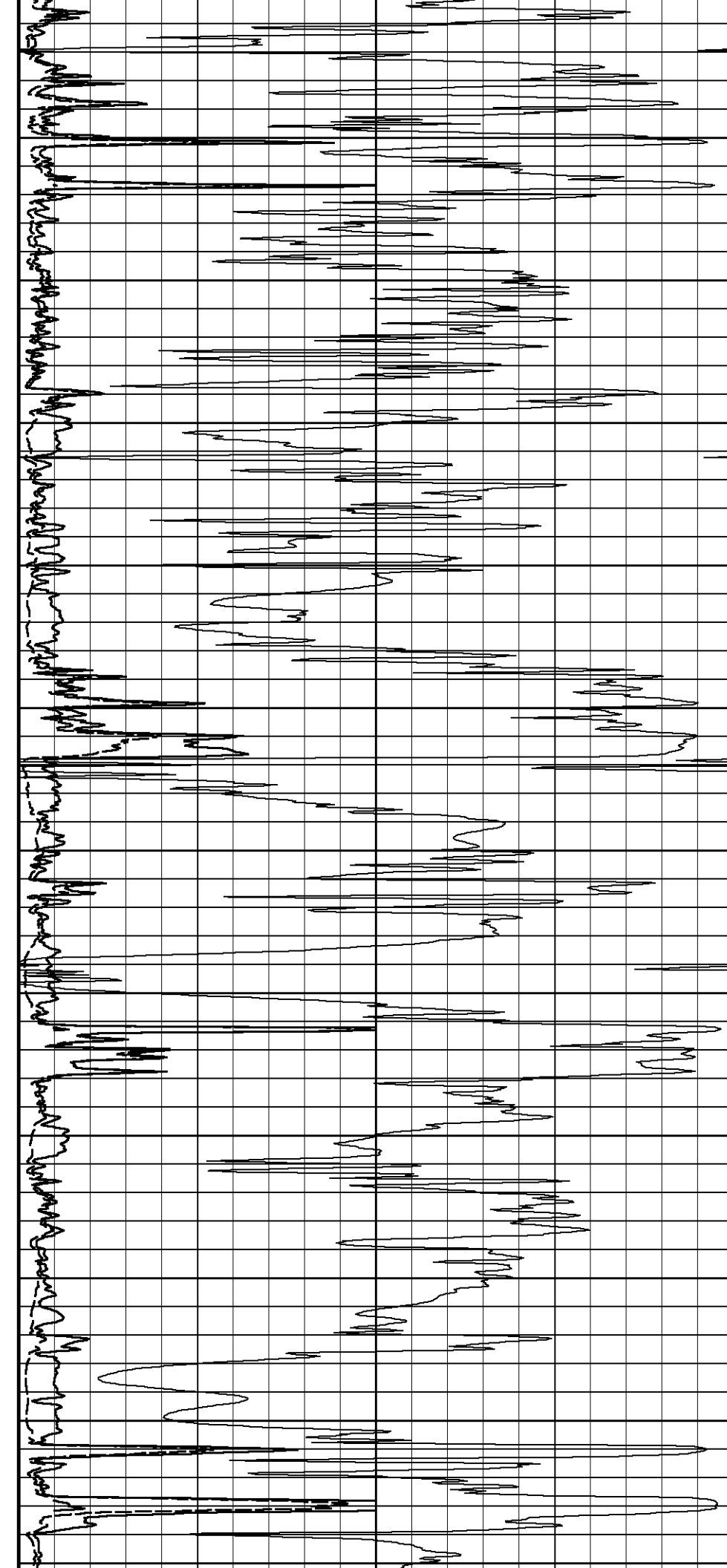
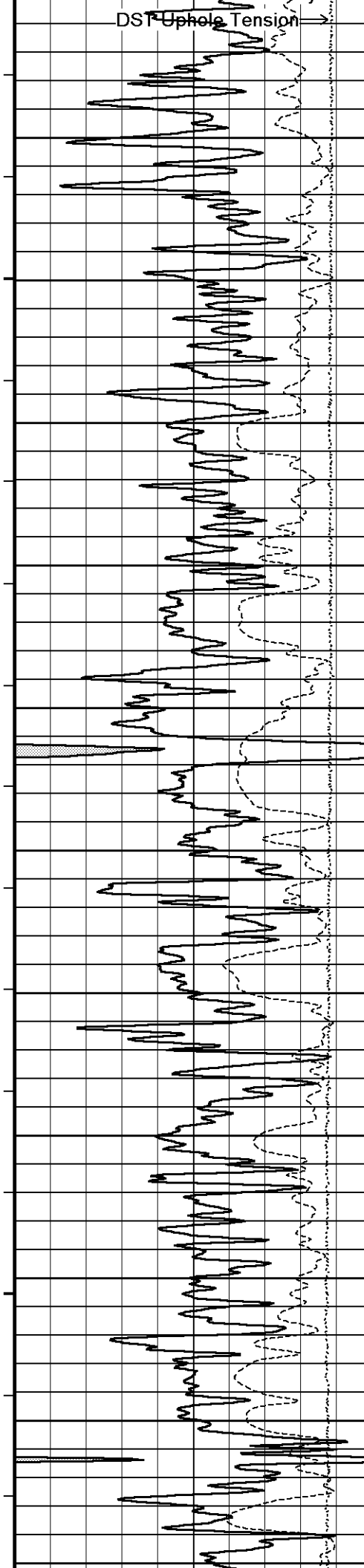
3000

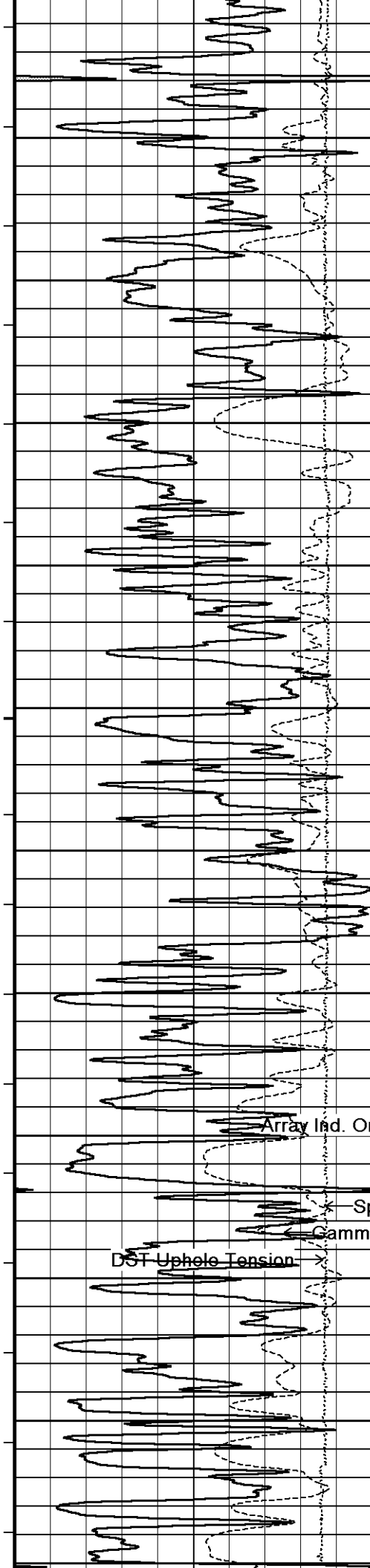
108°

3100

108°

3200





109°

3300

109°

3400

110°

3500

110°

3600

Array Ind. One Res Rt

Spontaneous Potential

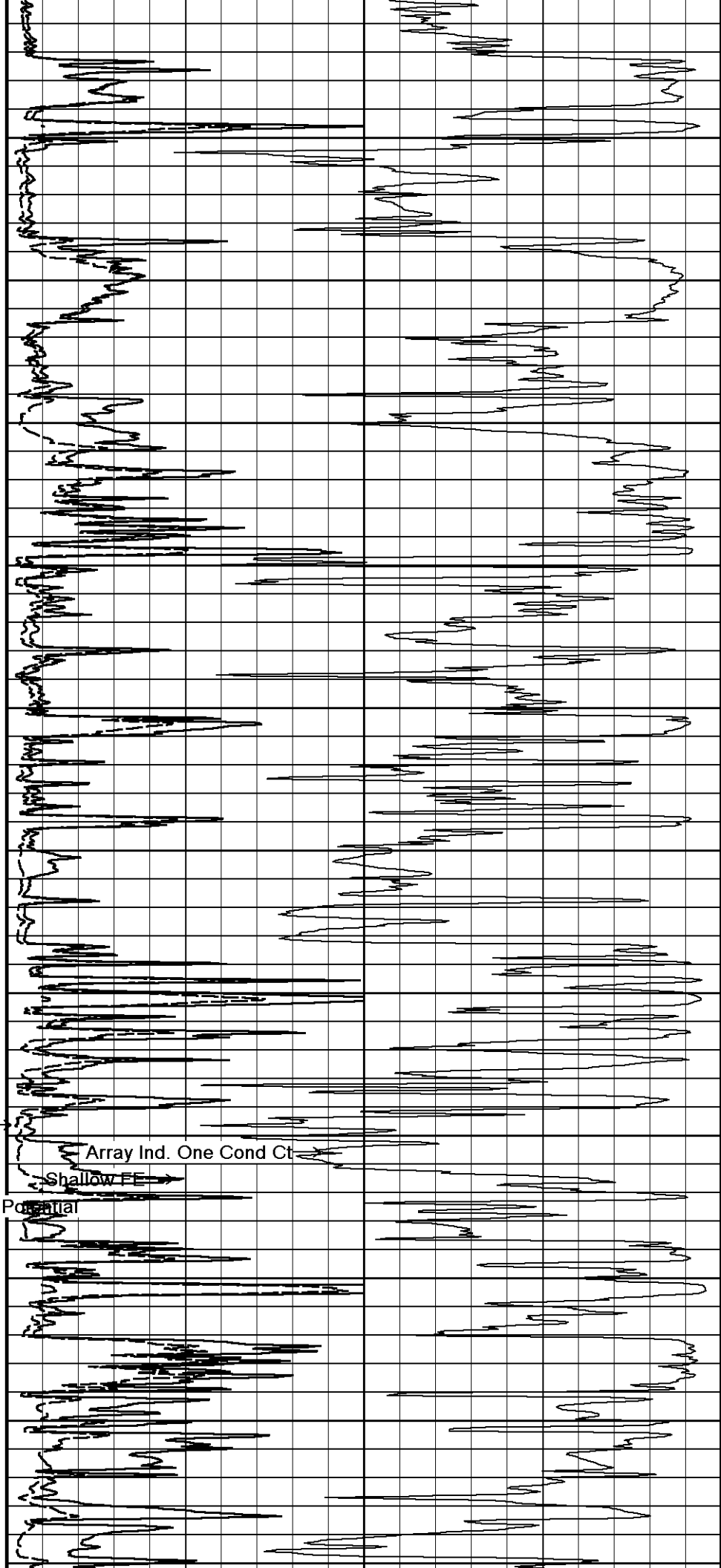
Gamma Ray

DST Uphole Tension

3700

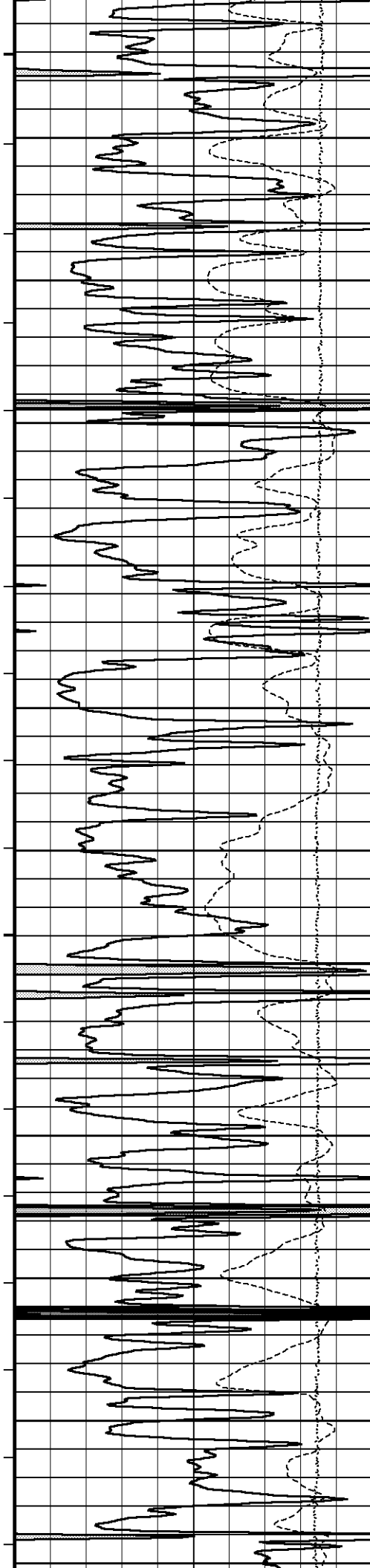
111°

3800

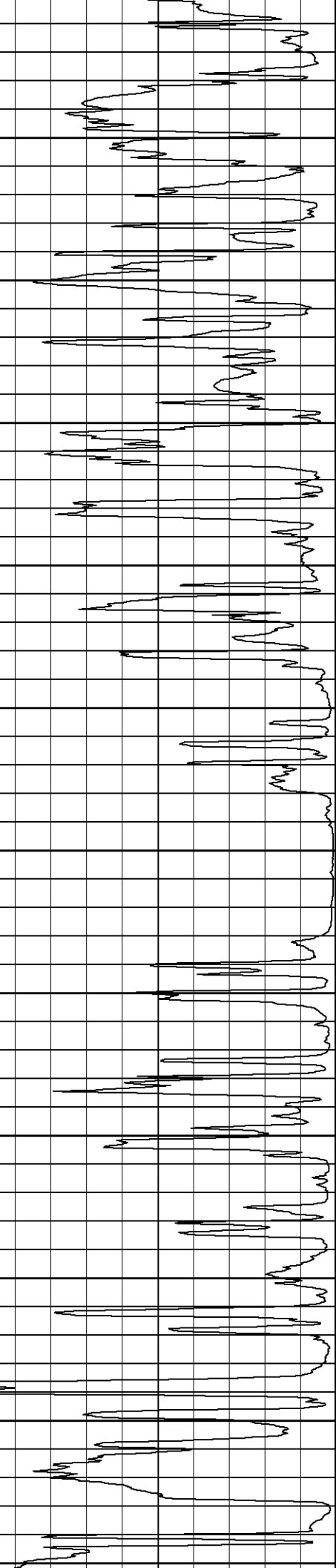
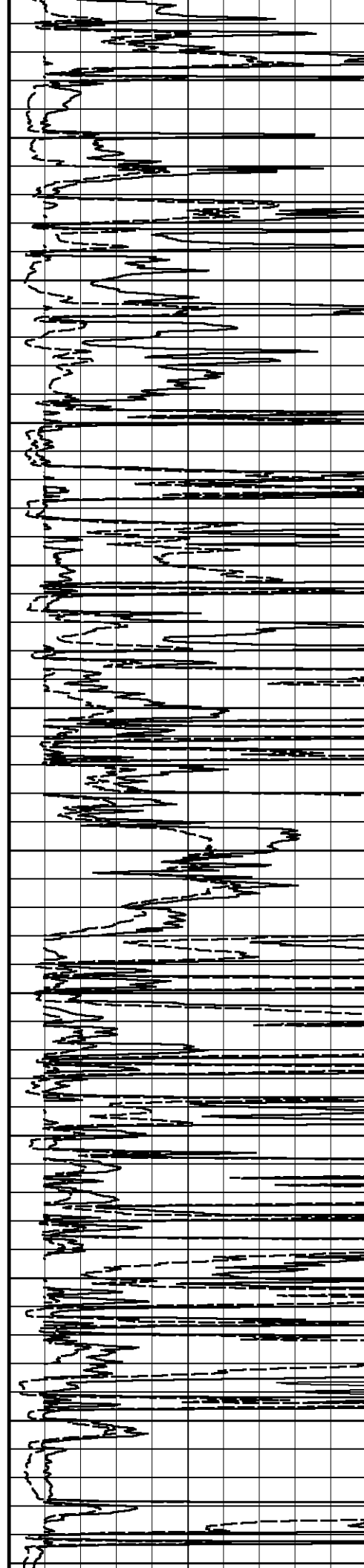


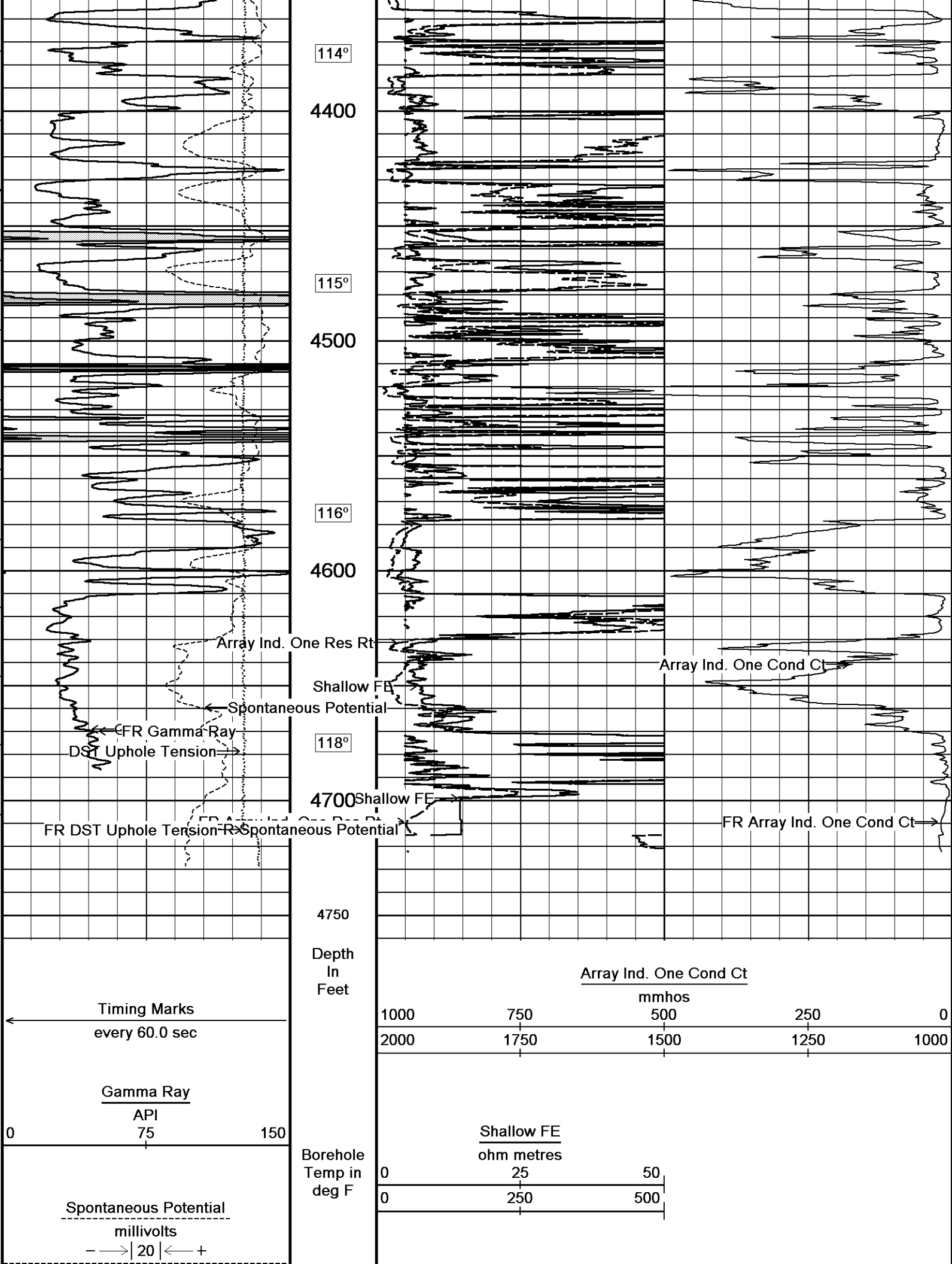
Array Ind. One Cond Ct

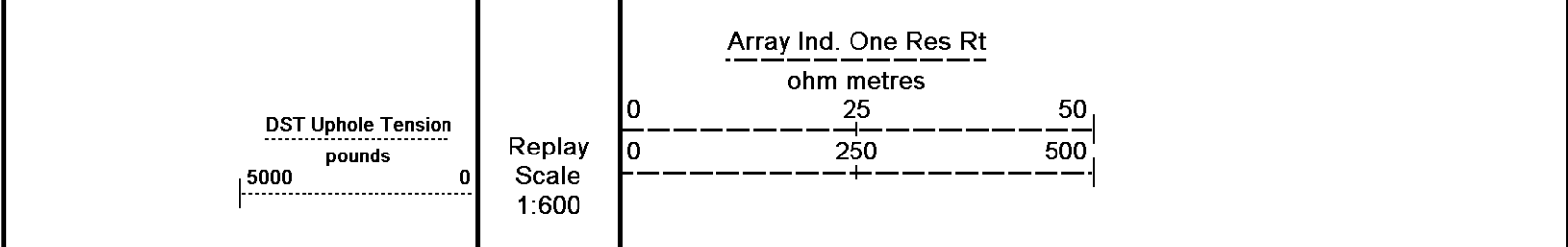
Shallow FF



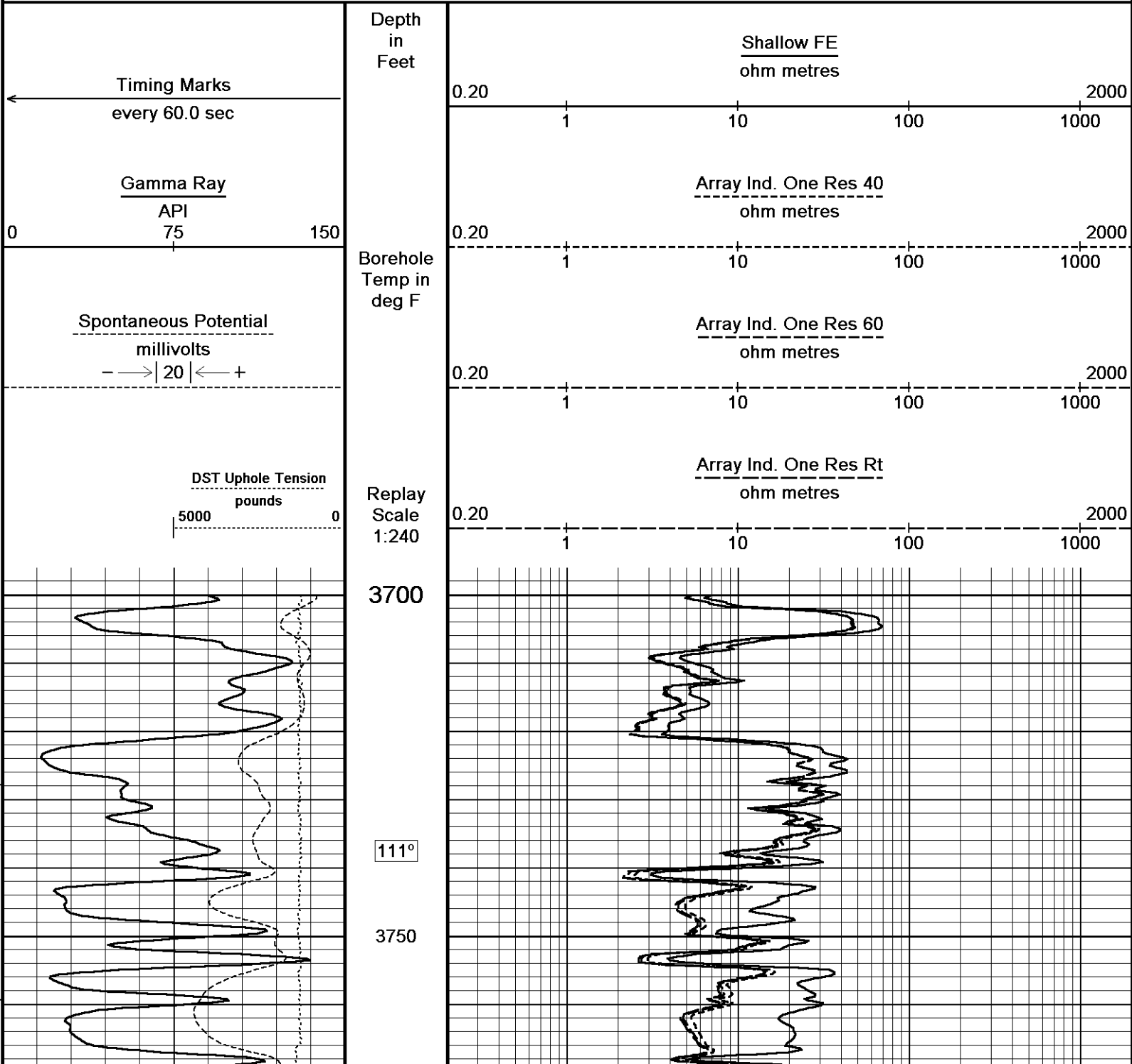
3300
112°
3900
112°
4000
112°
4100
112°
4200
113°
4300

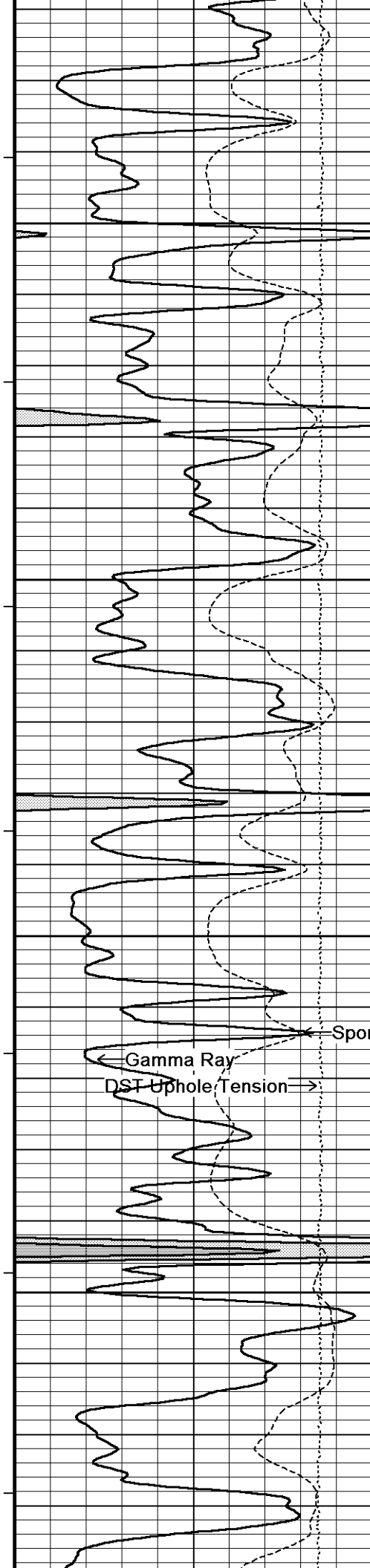






Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 16-OCT-2012 16:40
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa ...\Grand Mesa Operating Campbell 1-33_002.dta
Recorded on 16-OCT-2012 14:14
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600





111°

3800

112°

3850

112°

3900

112°

3950

112°

Array Ind. One Res Rt

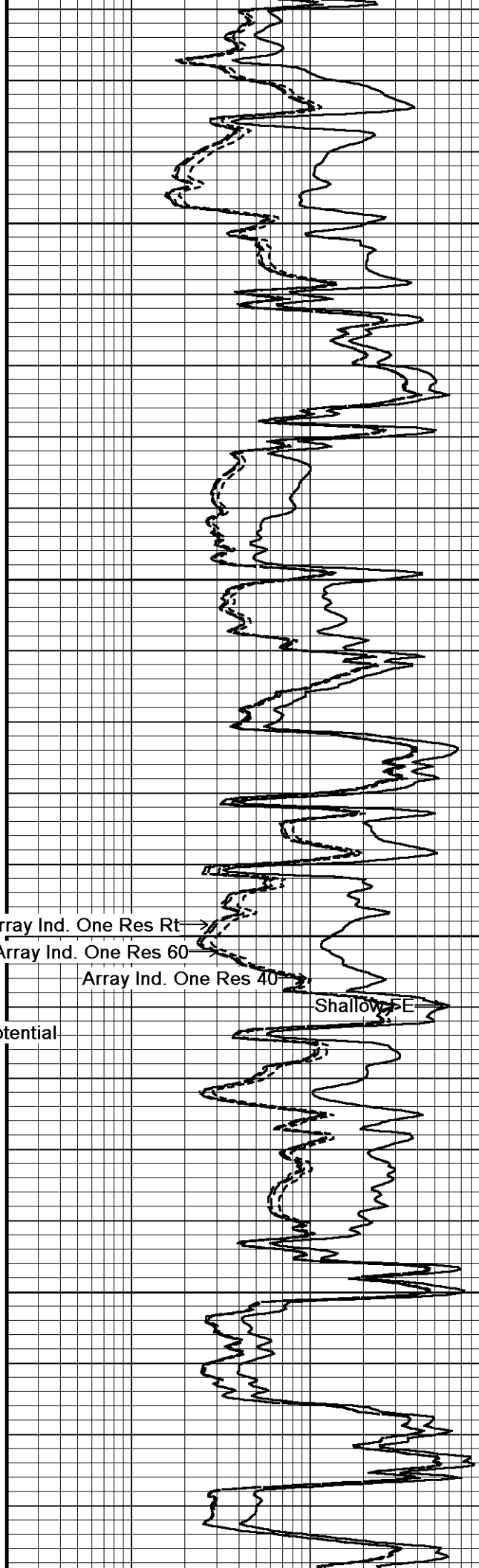
Array Ind. One Res 60

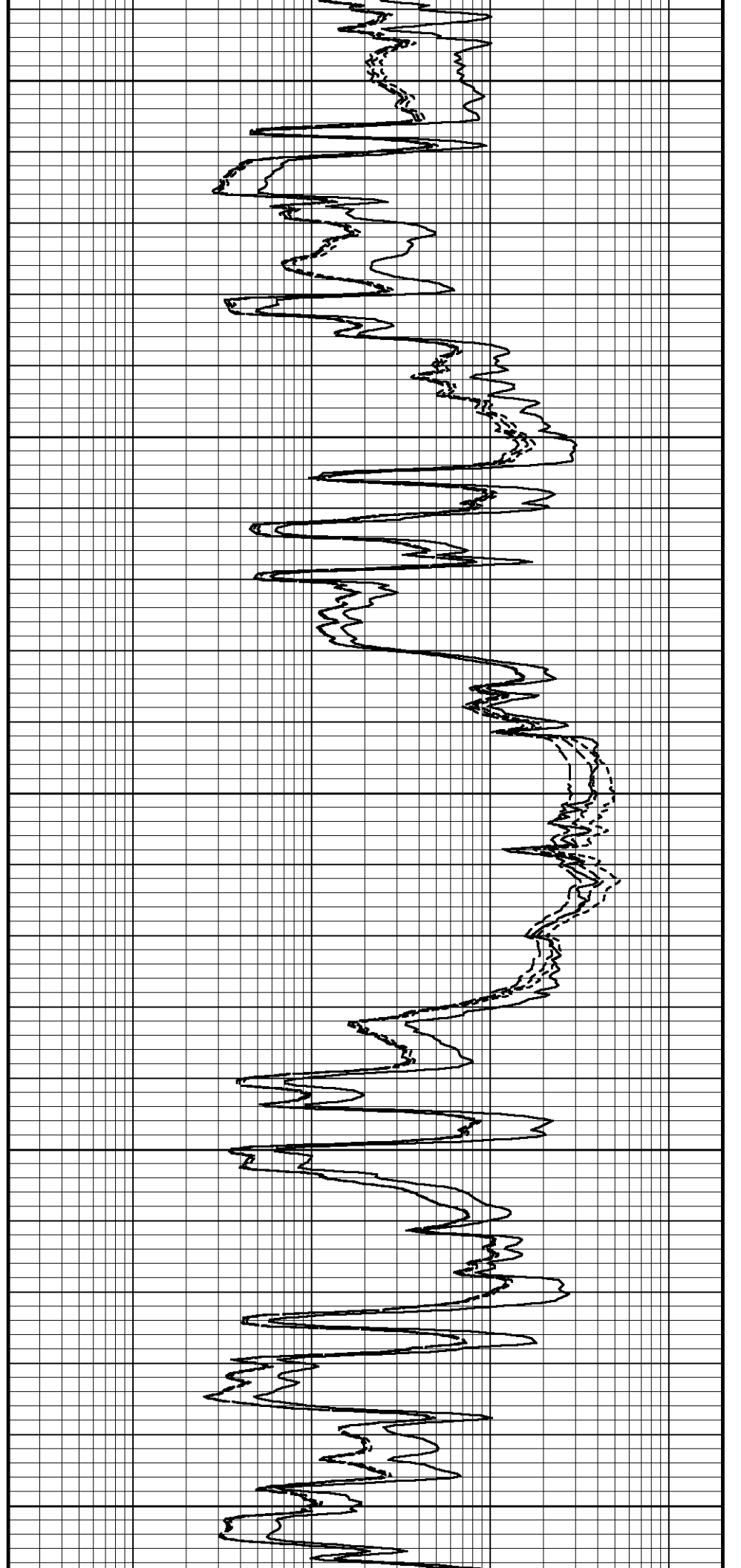
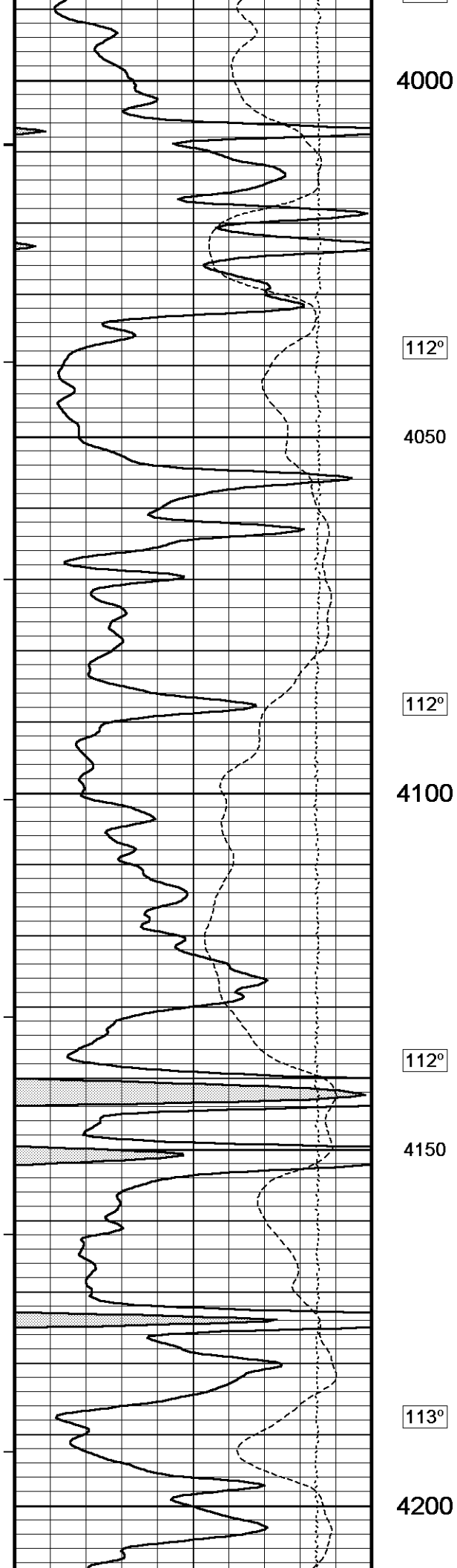
Array Ind. One Res 40

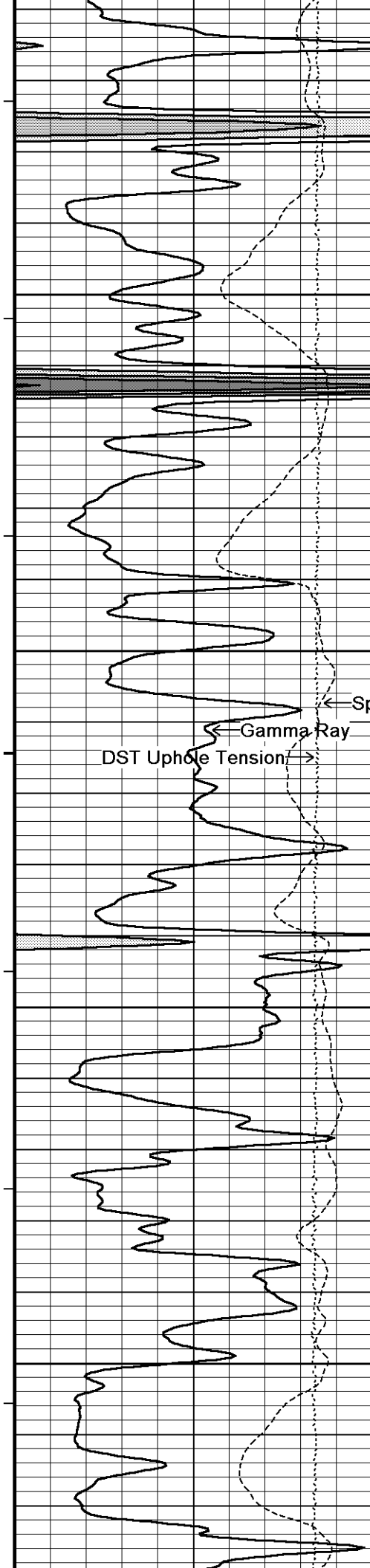
Shallow E

Spontaneous Potential

Gamma Ray
DST Uphole, Tension







113°

4250

114°

4300

← Spontaneous Potential

← Gamma Ray

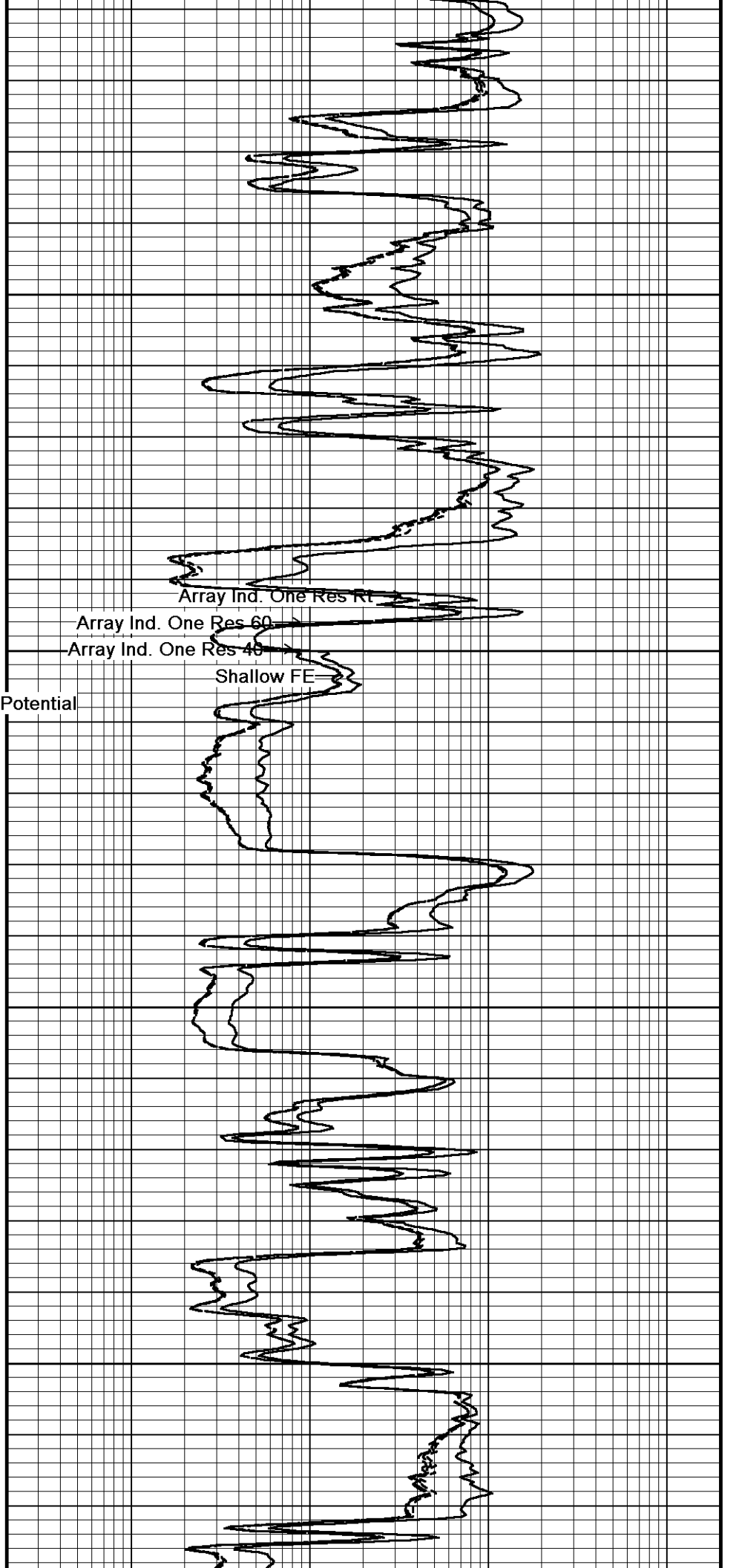
DST Uphole Tension →

114°

4350

114°

4400

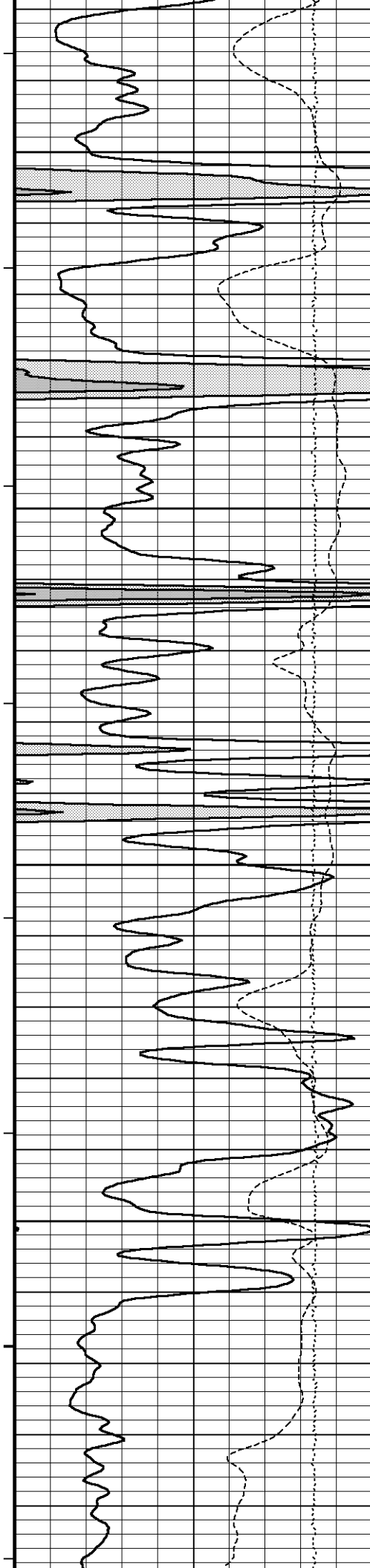


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE



115°

4450

115°

4500

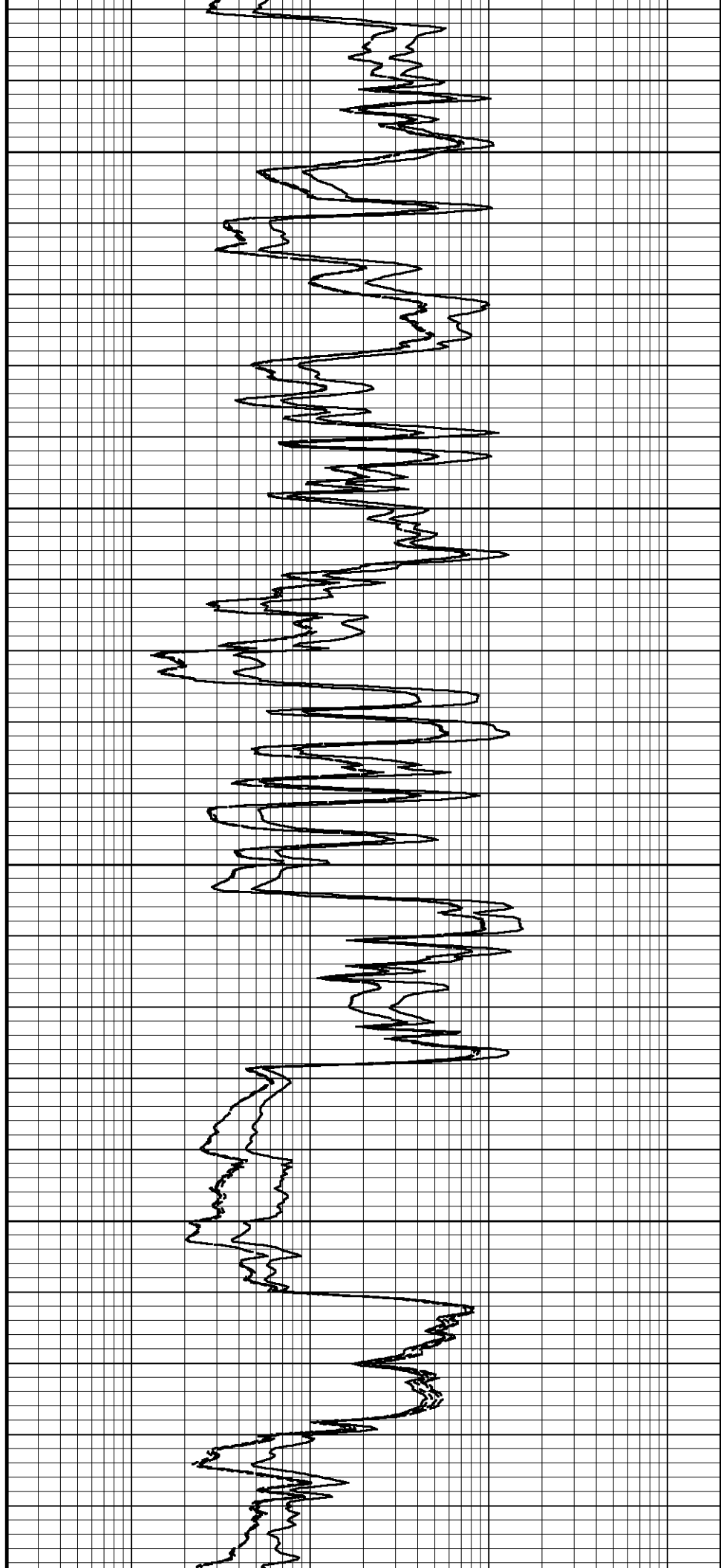
115°

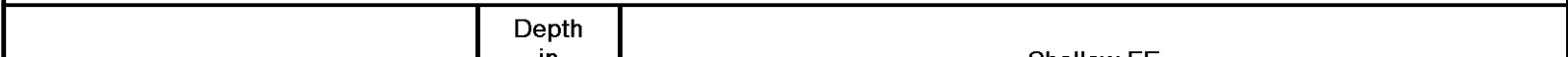
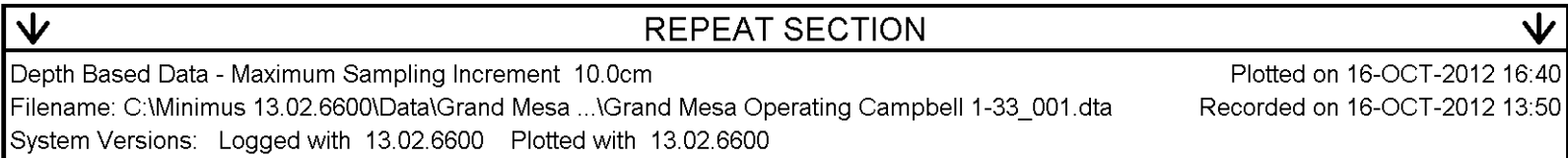
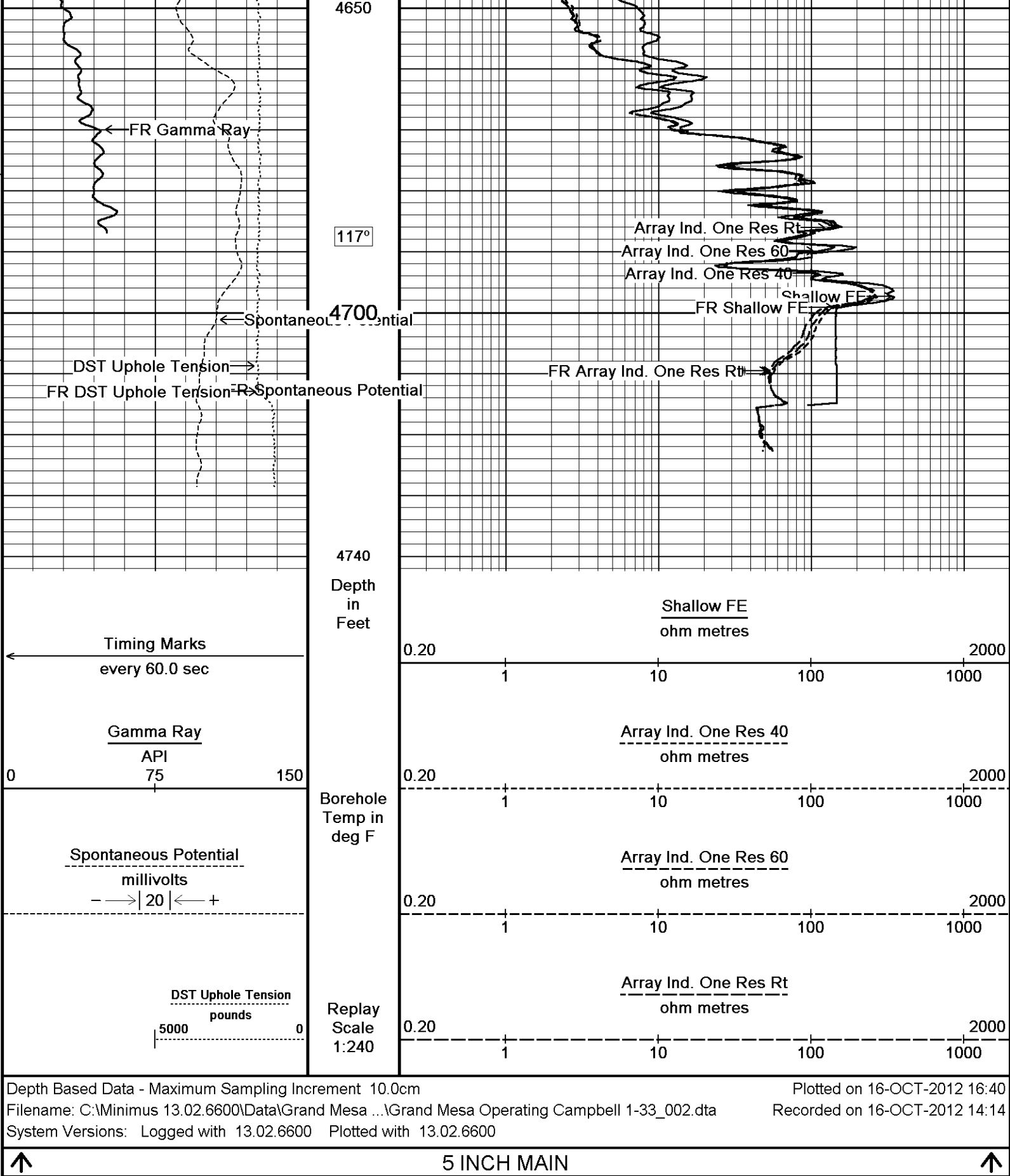
4550

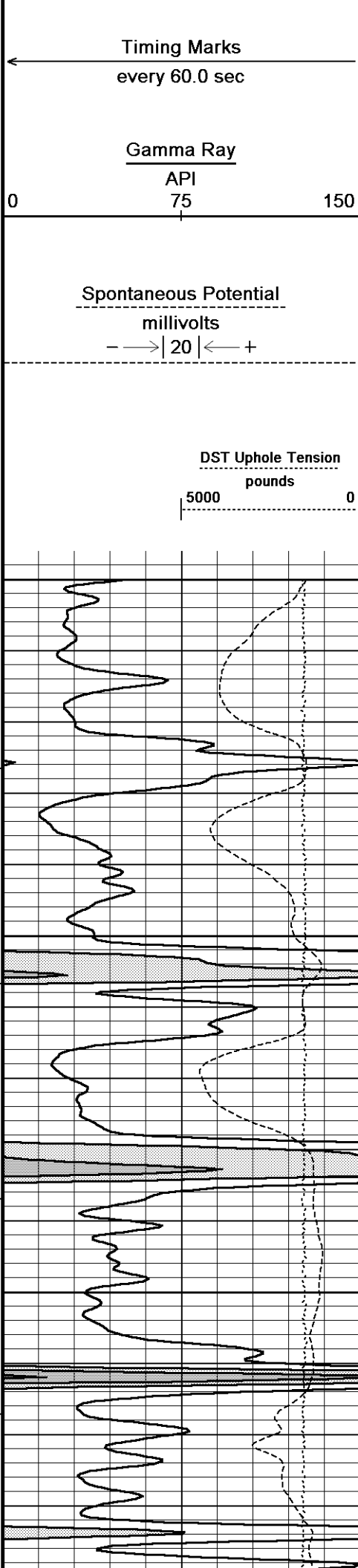
117°

4600

118°







in
Feet

Borehole
Temp in
deg F

Replay
Scale
1:240

4400

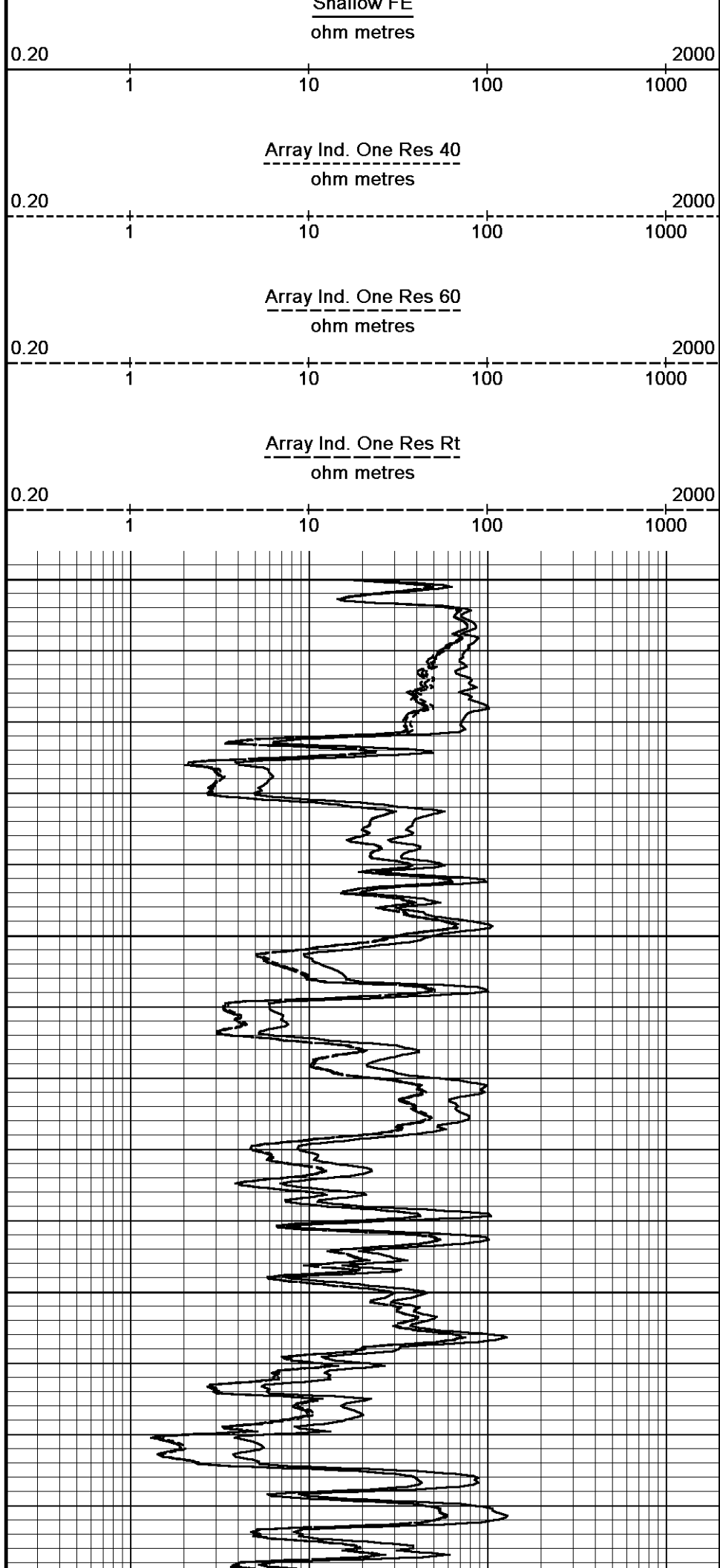
113°

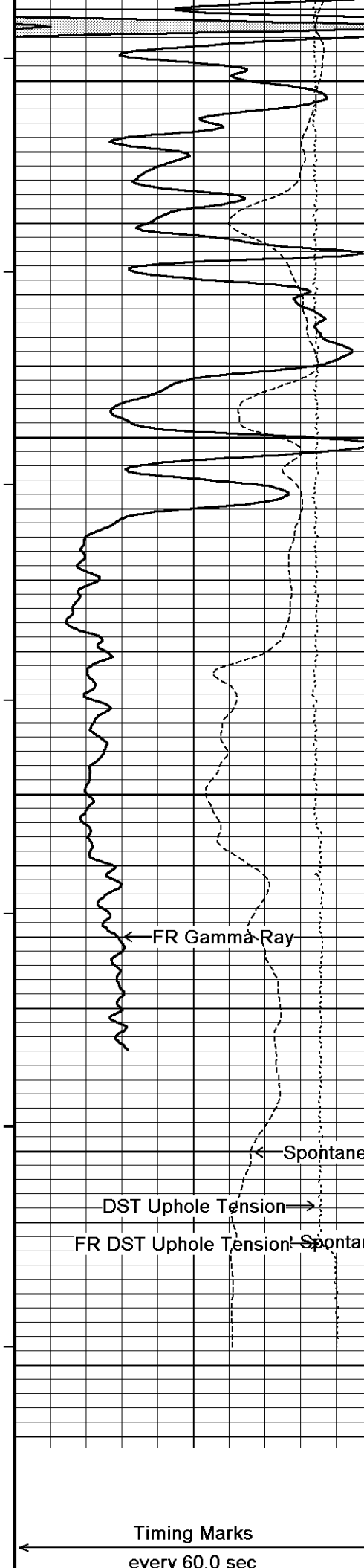
4450

114°

4500

114°





4550

115°

4600

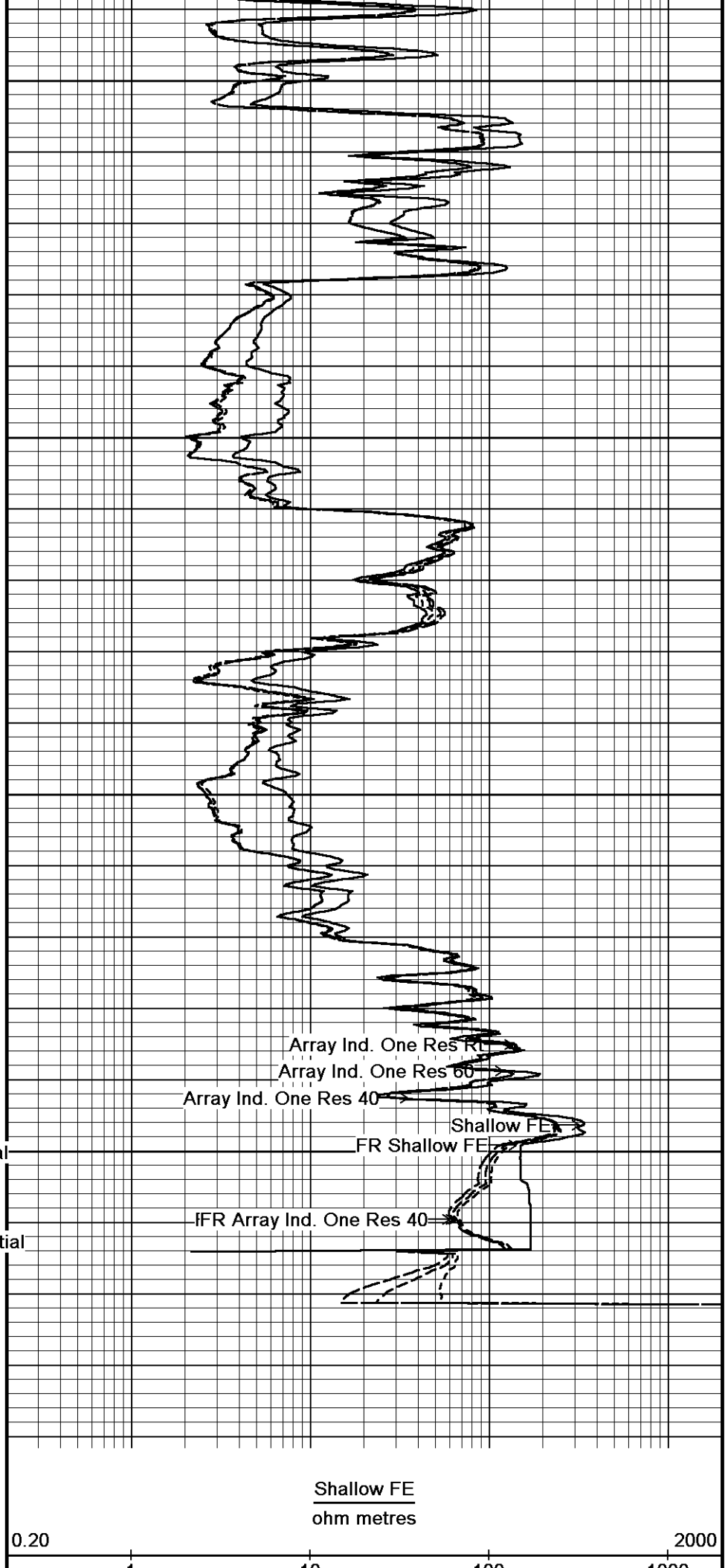
116°

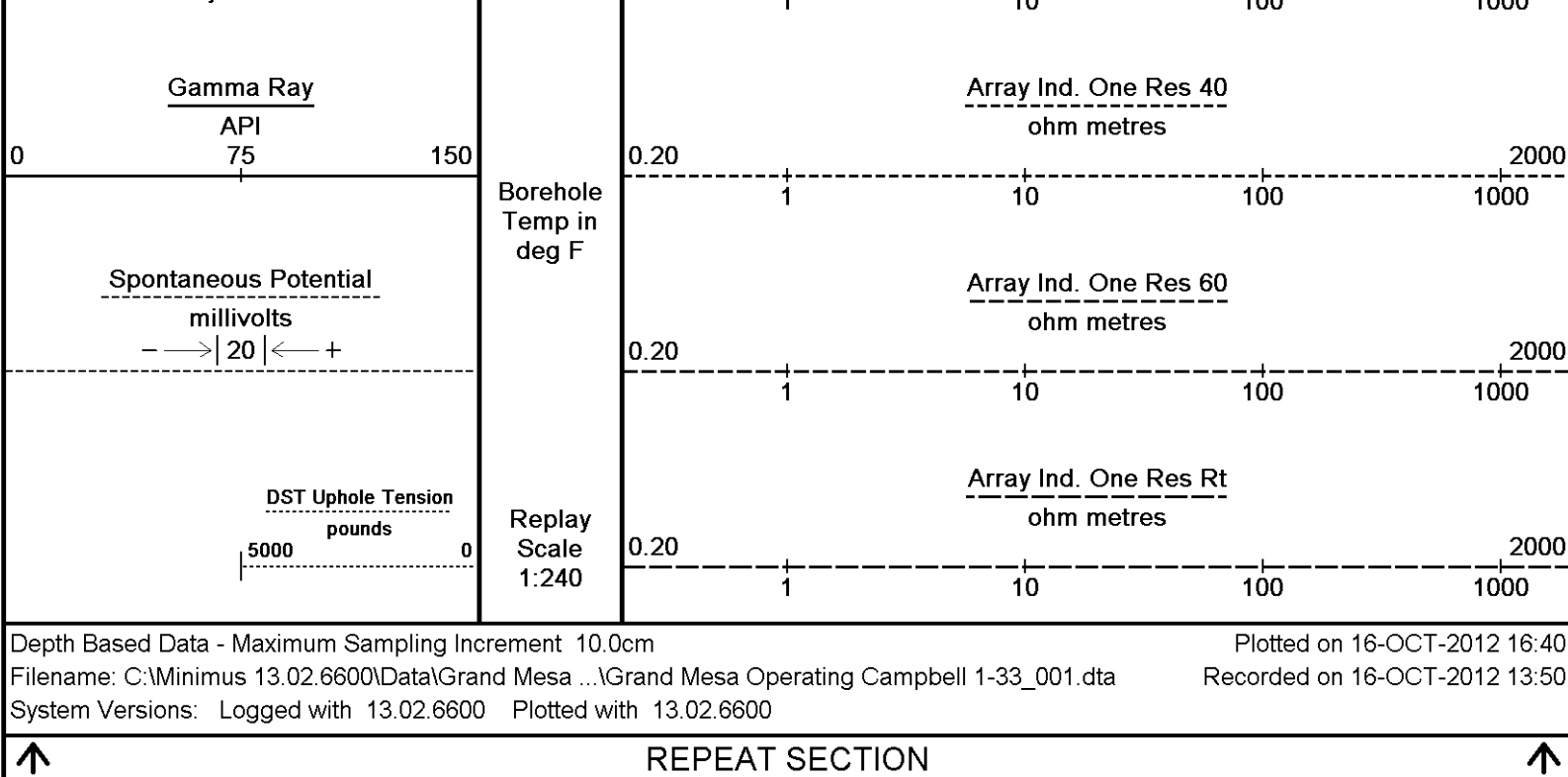
4650

115°

4700

4740
Depth
in
Feet





BEFORE SURVEY CALIBRATION			
C:\Minimus 13.02.6600\Data\Grand Mesa Operating Campbell 1-33\Grand Mesa Operating Campbell 1-33_001.dta			
General Constants All 000		Last Edited on 16-OCT-2012,10:30	
General Parameters			
Mud Resistivity	0.800	ohm-metres	
Mud Resistivity Temperature	99.000	degrees F	
Water Level	0.000	feet	
Density/Neutron Processing	Wet Hole		
Hole/Annular Volume and Differential Caliper Parameters			
HVOL Method	Single Caliper		
HVOL Caliper 1	Density Caliper		
HVOL Caliper 2	N/A		
Annular Volume Diameter	5.500	inches	
Caliper for Differential Caliper	Density Caliper		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. Four Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
Down-hole Tension Calibration SMS 0		Field Calibration on 10-SEP-2012 04:28	
Reading No	Measured	Calibrated (lbs)	
1	15456.86	0.00	
2	16071.78	384.00	
Gamma Calibration MCG-D.K 442		Field Calibration on 14-OCT-2012 02:07	
	Measured	Calibrated (API)	
Background	69	46	
Calibrator (Gross)	1152	771	
Calibrator (Net)	1083	725	
Gamma Constants MCG-D.K 442		Last Edited on 14-OCT-2012,08:31	
Gamma Calibrator Number	GRC38		
Mud Density	1.12	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		

Concentration of KCl		0.00	kppm
SP Calibration MCG-D.K 442			Field Calibration on 17-JUL-2012 16:34
	Measured	Calibrated (mV)	
Reference 1	100.2	100.0	
Reference 2	-99.9	-100.0	
High Resolution Temperature Calibration MCG-D.K 442			Field Calibration on 17-JUL-2012,16:35
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-D.K 442			Last Edited on
Pre-filter Length	11		
Caliper Calibration MML-A 16			Base Calibration on 30-SEP-2012 19:38 Field Calibration on 14-OCT-2012 02:01
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	13888	5.98	
2	16946	7.97	
3	20169	9.86	
4	23996	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	6.03	5.98	
Micro Normal and Micro Inverse Calibration MML-A 16			Base Calibration on 30-SEP-2012 19:42 Field Check on 14-OCT-2012 02:02
Base Calibration			
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 2
Micro Normal	12.2	60.2	5.0 25.0
Micro Inverse	15.6	78.4	5.0 25.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)
Micro Normal	62.9		62.9
Micro Inverse	48.2		48.2
Micro Normal and Micro Inverse Constants MML-A 16			Last Edited on 16-OCT-2012,10:30
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159		
Micro Normal K Factor	1.0000		
Micro Inverse K Factor	1.0000		
Standoff Offset	N/A inches		
Neutron Calibration MDN-A.B 66			Base Calibration on 10-OCT-2012 14:12 Field Check on 14-OCT-2012 02:13
Base Calibration			
	Measured	Calibrated (cps)	
	Near Far	Near	Far
	3058 95	3714	110
Ratio	32.033	33.764	
Field Calibrator at Base		Calibrated (cps)	
		1673	2395
Ratio		0.698	
Field Check		Calibrated (cps)	
		1678	2400
Ratio		0.699	
Neutron Constants MDN-A.B 66			Last Edited on 16-OCT-2012,10:30
Neutron Source Id	P0204NN		
Neutron Jig Number	5824NE		
Epithermal Neutron	No		
Caliper Source for Processing	Density Caliper		

Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 353		Base Calibration on 01-OCT-2012 09:16 Field Check on 14-OCT-2012 01:52	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	965.2	126.8	
Base Check		280.7	
Field Check		280.9	

FE Constants MFE-B.J 353		Last Edited on 16-OCT-2012,10:29	
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 17-JUL-2012,13:53	
	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 17-JUL-2012,13:49	
Pre-filter Length	11		

Induction Calibration MAI-A.A 167				Base Calibration on 17-JUL-2012,13:55	
				Field Check on 14-OCT-2012 01:51	
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	12.3	3841.0	
2	0.0	0.0	29.3	3478.5	
3	0.0	0.0	28.9	3054.3	
4	0.0	0.0	19.7	2082.6	
Deep	0.0	0.0	18.5	2049.7	
Medium	0.0	0.0	42.1	3992.9	
Shallow	0.0	0.0	42.5	5056.6	
Array Temperature		0.0	64.3	Deg F	

Induction Constants MAI-A.A 167		Last Edited on 16-OCT-2012,10:29	
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 64

Base Calibration on 10-OCT-2012 12:35
Field Calibration on 14-OCT-2012 01:53

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	12128	3.99
2	20753	5.98
3	29254	7.97
4	37705	9.86
5	46896	11.92
6	N/A	N/A

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

Photo Density Calibration MPD-B 64

Base Calibration on 10-OCT-2012 12:54
Field Check on 14-OCT-2012 02:00

Density Calibration				
Base Calibration				
		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58951	32645	59556	30836
Reference 2	24760	2893	24941	2541

Field Check at Base	1181.6	1375.1
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Field Check	1187.9	1371.9
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PE Calibration				
Base Calibration				
	WS	Measured	Calibrated	
		WH	Ratio	Ratio
Background	215	1053		
Reference 1	22216	58751	0.381	0.371

Reference 2 6718 24623 0.276 0.272

Field Check at Base

215.0 1052.6

Field Check

215.0 1059.8

Density Constants MPD-B 64

Last Edited on 14-OCT-2012,08:30

Density Source Id	18235B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	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)
2.87	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 13.02.6600\Data\Grand Mesa Operating Campbell 1-33\Grand Mesa Operating Campbell 1-33_001.dta

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

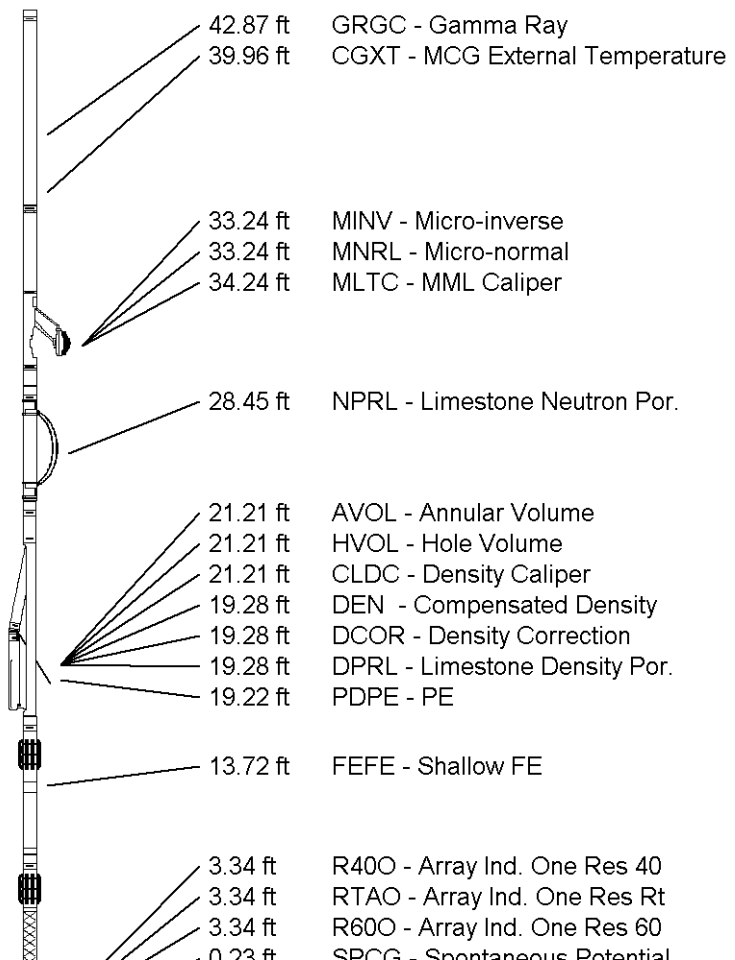
Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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

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

Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 42.10 ft Weight: 382.0 lb



0.25 ft Or OS - Spontaneous Potential
Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.

Elevation Kelly Bushing	2924.00	feet	First Reading	4710.00	feet
Elevation Drill Floor	2923.00	feet	Depth Driller	4716.00	feet
Elevation Ground Level	2919.00	feet	Depth Logger	4713.00	feet



1 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.02.6600\Data\Grand Mesa Oper. \Grand Mesa Operating Campbell 1-33_002.dta
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Plotted on 16-OCT-2012 16:40
 Recorded on 16-OCT-2012 14:14

Timing Marks
 every 60.0 sec

Gamma Ray
 API 75 150

Spontaneous Potential
 millivolts
 - -> 20 | <- +

DST Uphole Tension
 pounds
 5000 0

Depth In Feet

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

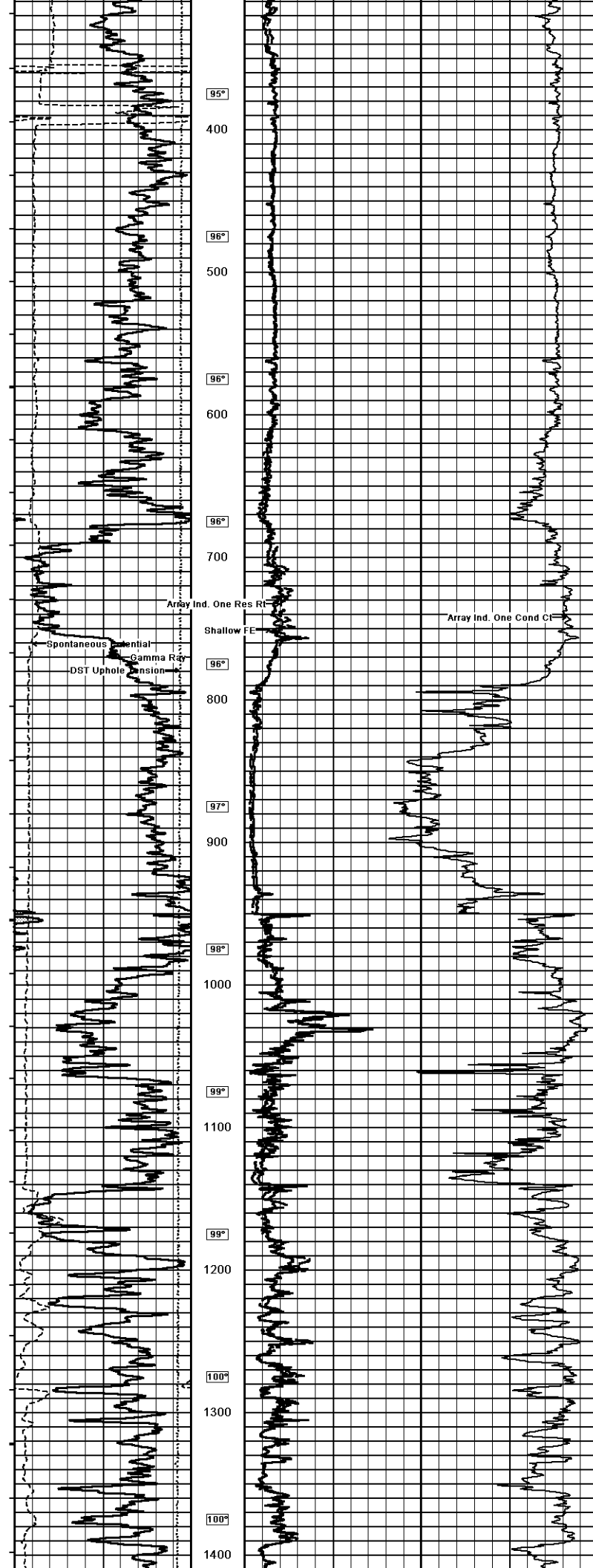
Shallow FE
 ohm metres
 0 25 50
 0 250 500

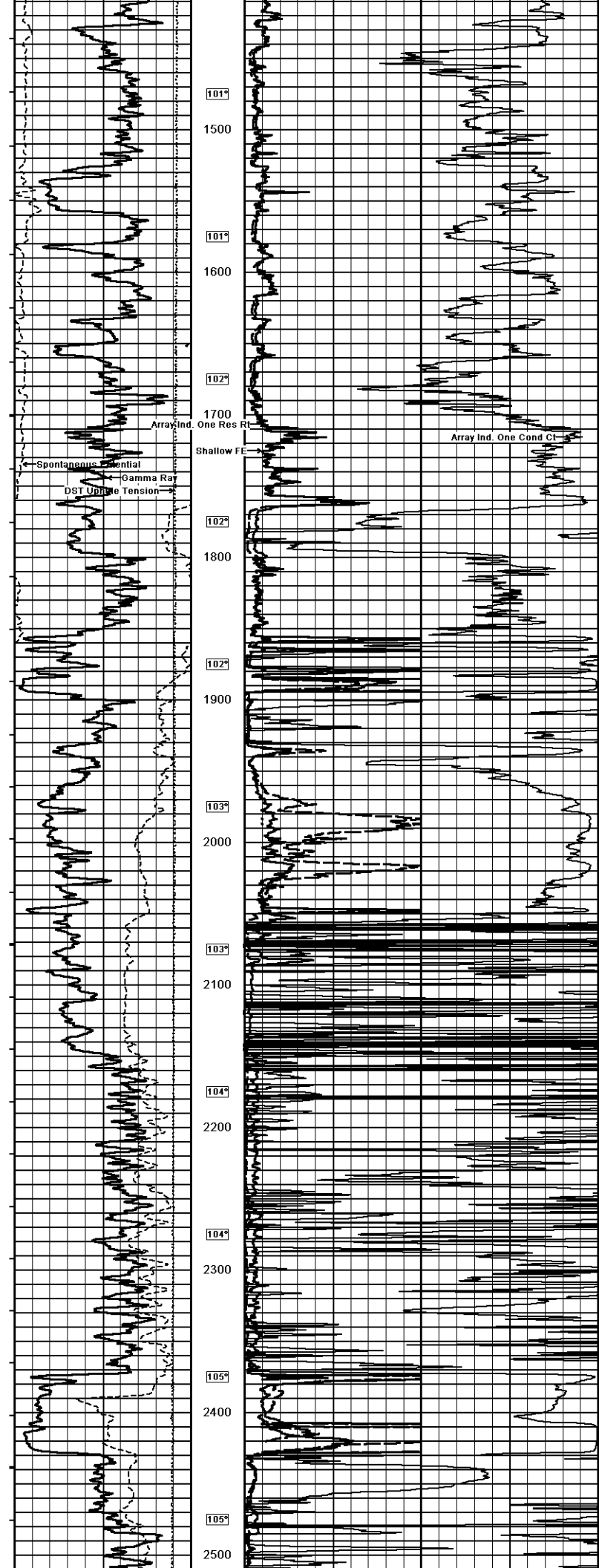
Array Ind. One Res Rt
 ohm metres
 0 25 50
 0 250 500

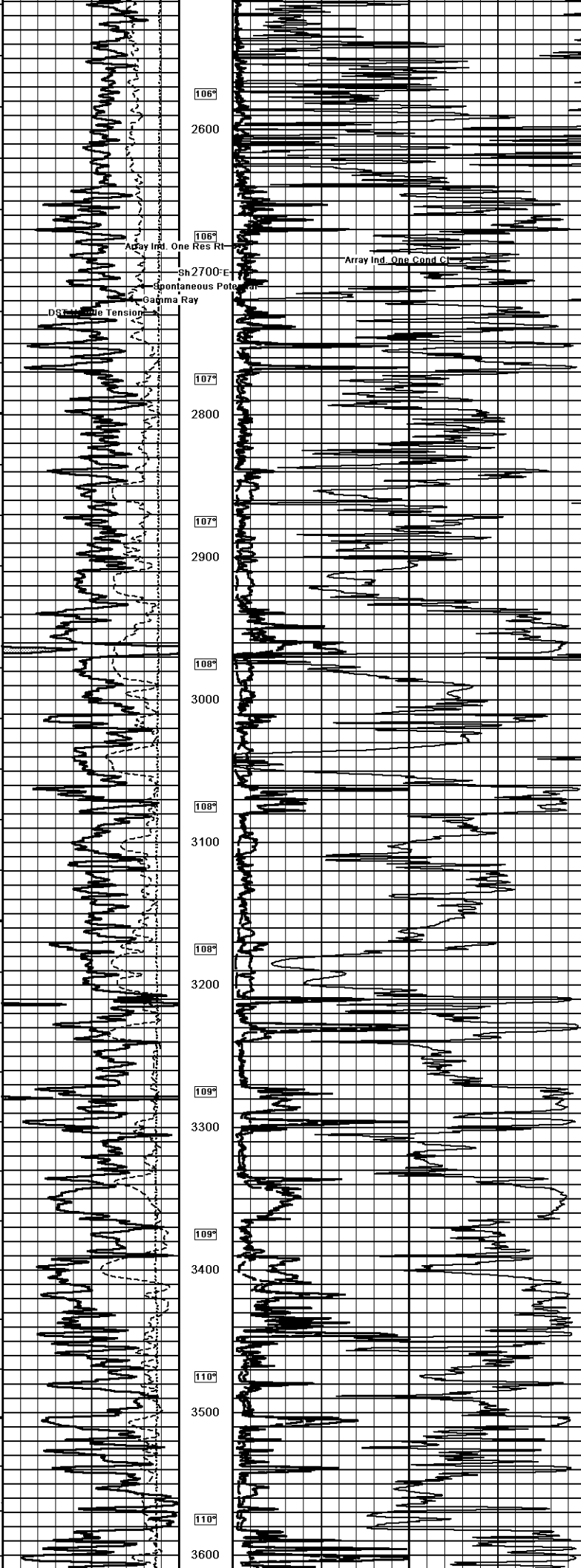
Replay Scale
 1.600

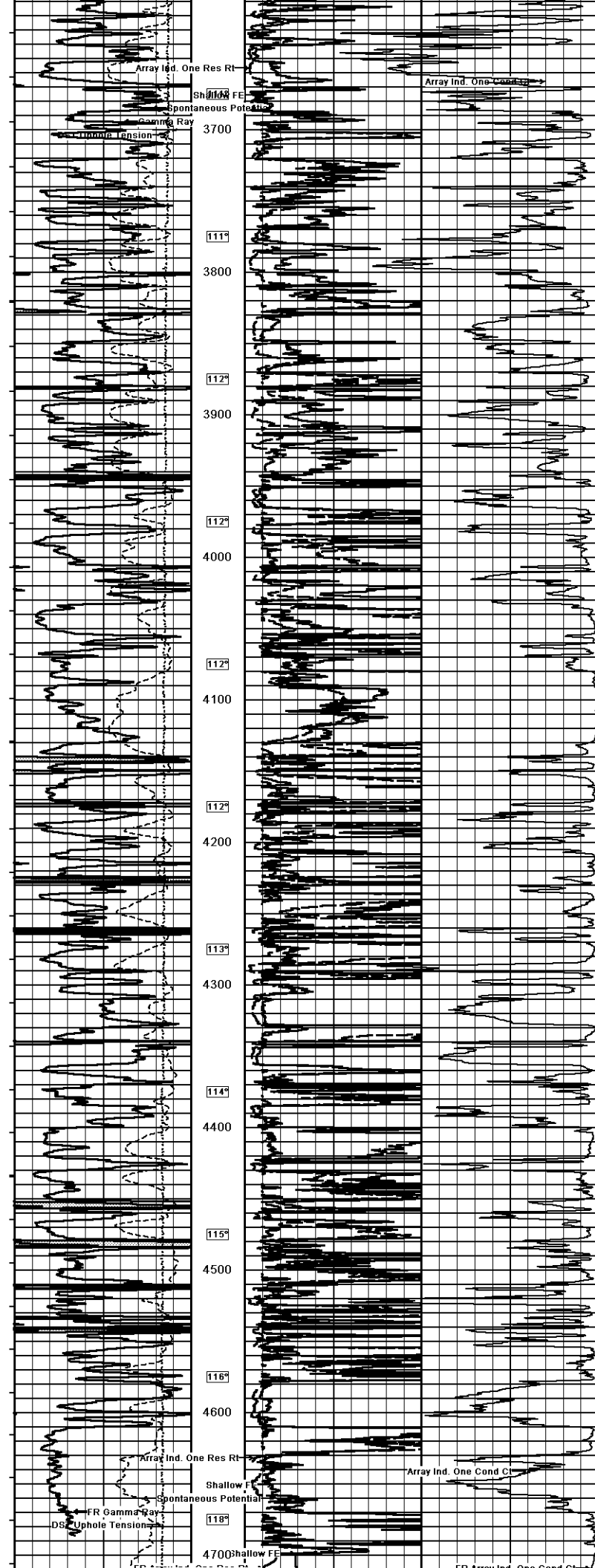
Casing Shoe

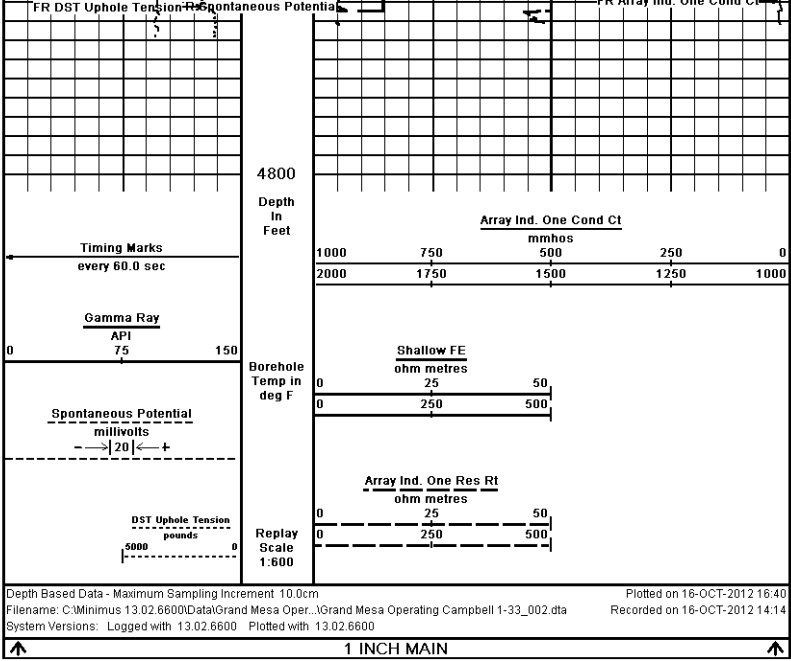
300











COMPANY		GRAND MESA OPERATING COMPANY			
WELL		CAMPBELL 1-33			
FIELD		WILDCAT			
PROVINCE/COUNTY		GOVE			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	2924.00	feet	First Reading	4710.00	feet
Elevation Drill Floor	2923.00	feet	Depth Driller	4716.00	feet
Elevation Ground Level	2919.00	feet	Depth Logger	4713.00	feet
		ARRAY INDUCTION			
		SHALLOW FOCUSED			
		ELECTRIC LOG			