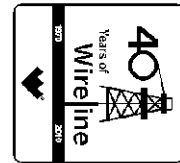




**Weatherford**<sup>®</sup>

**ARRAY INDUCTION  
SHALLOW FOCUSED  
ELECTRIC LOG**

**COMPANY** O'BRIEN ENERGY RESOURCES CORP.  
**WELL** ARDREY #1-2  
**FIELD** ARDREY  
**PROVINCE/COUNTY** CLARK  
**COUNTRY/STATE** U.S.A. / KANSAS  
**LOCATION** 660' FNL & 2066' FWL  
W2 E2 NE NW



SEC	TWP	RGE	Other Services	MML	Elevations:
2	31S	24W	MPD/MDN		KB 2541.00 DF 2539.00 GL 2529.00
API Number 15-025-21541					
Permit Number					
Permanent Datum G.L., Elevation 2529 feet					
Log Measured From KB					
Drilling Measured From K.B.					
Date	12-JUN-2012				
Run Number	ONE				
Depth Driller	5700.00			feet	
Depth Logger	5696.00			feet	
First Reading	5693.00			feet	
Last Reading	731.00			feet	
Casing Driller	730.00			feet	
Casing Logger	731.00			feet	
Bit Size	7.875			inches	
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.30	lb/USg	48.00	CP	
PH / Fluid Loss	11.00		11.60	ml/30Min	
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.52	@ 86.0		ohm-m	
Rmf @ Measured Temp	0.42	@ 86.0		ohm-m	
Rmc @ Measured Temp	0.62	@ 86.0		ohm-m	
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.37	@120.0		ohm-m	
Time Since Circulation	4 HOURS				
Max Recorded Temp	120.00			deg F	
Equipment Name	COMPACT				
Equipment / Base	13096		LIB		
Recorded By	L. SCOTT				
Witnessed By	ROGER PEARSON				
S.O.# / JOB#	3534544				PETER DEBENHAM 3534544

**BOREHOLE RECORD**

Last Edited: 12-JUN-2012 05:44

Bit Size inches	Depth From feet	Depth To feet
7.875	731.00	5696.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	731.00	24.00

**REMARKS**

Tools Run: MAI, MPD, MCG, MDN, MML, MFE  
 Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.  
 2.71 G/CC Limestone density matrix used to calculate porosity.  
 Borhole 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= 362 cu. ft.  
 Total hole volume from TD to Surface Casing= 2427cu. ft.  
 Service order #3534544  
 Rig: Duke Rig # 1  
 Engineer: L. Scott  
 Operator(s): K. Rinehart, 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

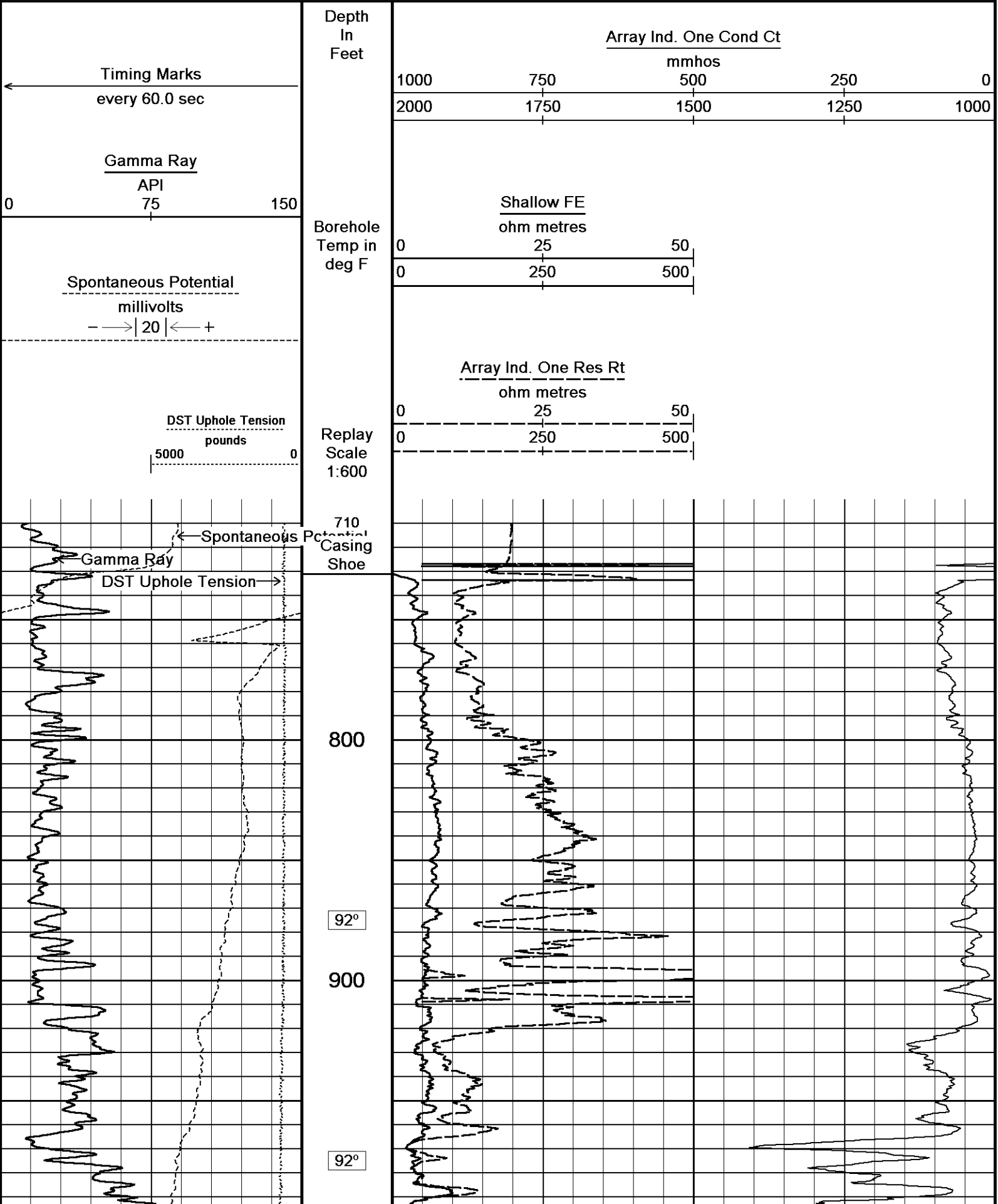
Depth Based Data - Maximum Sampling Increment 10.0cm

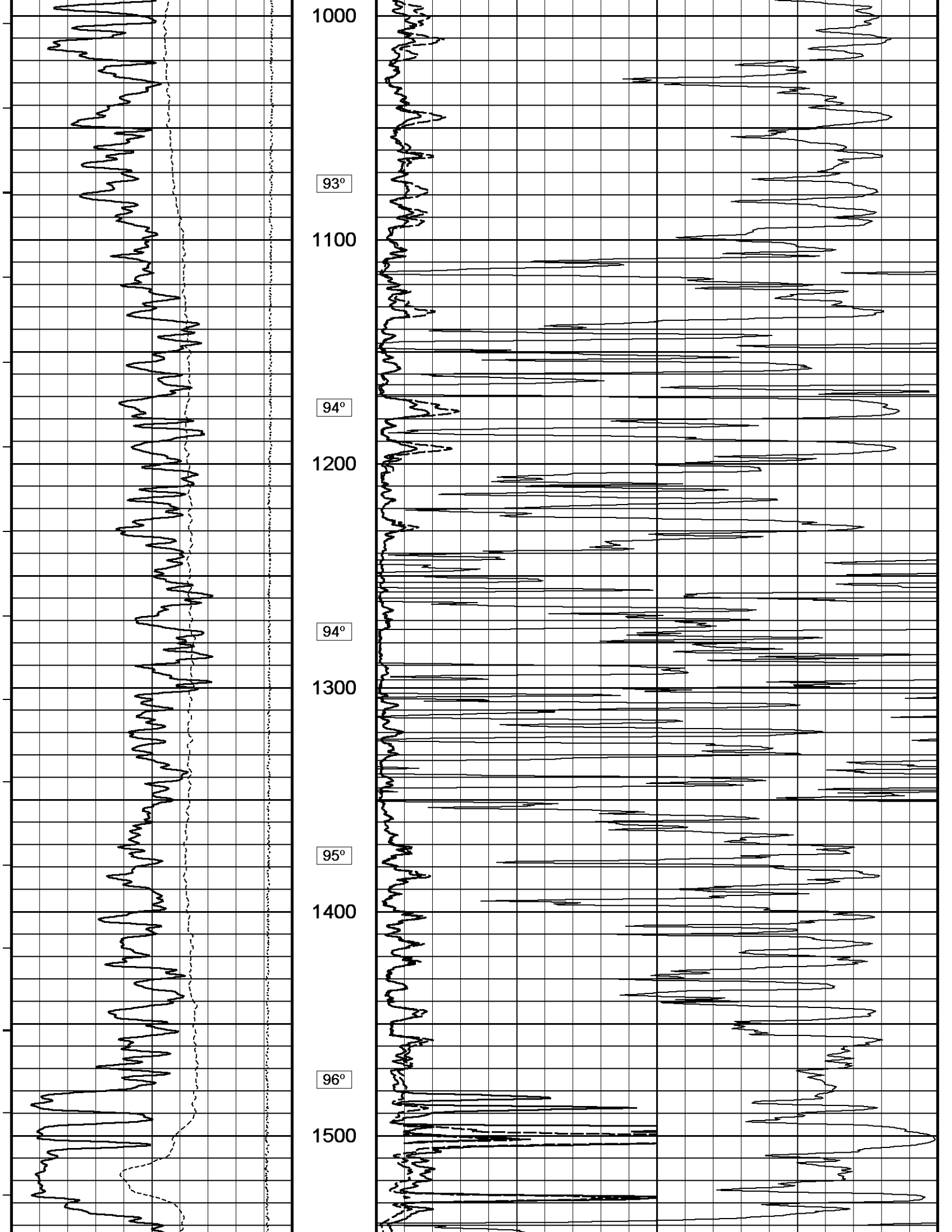
Plotted on 12-JUN-2012 07:49

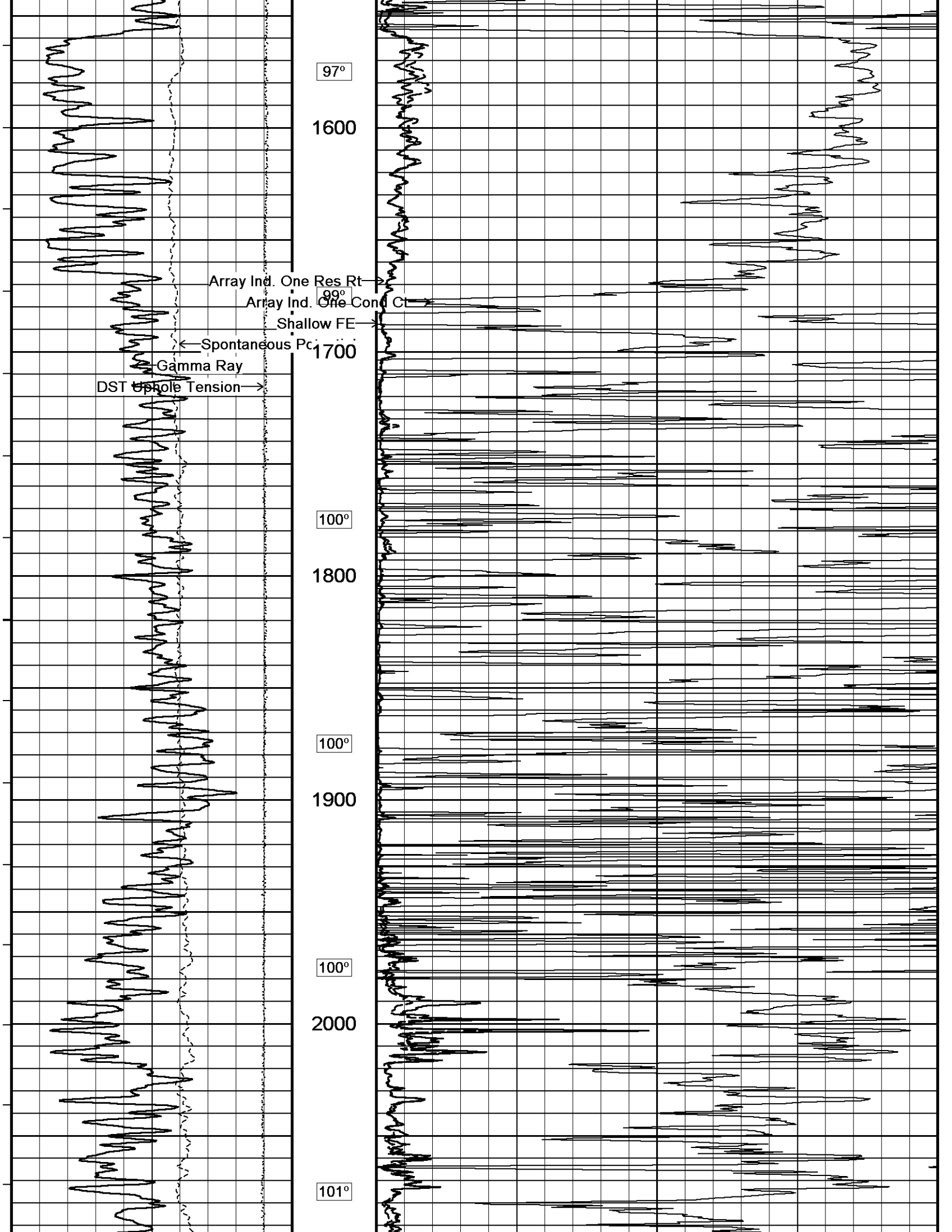
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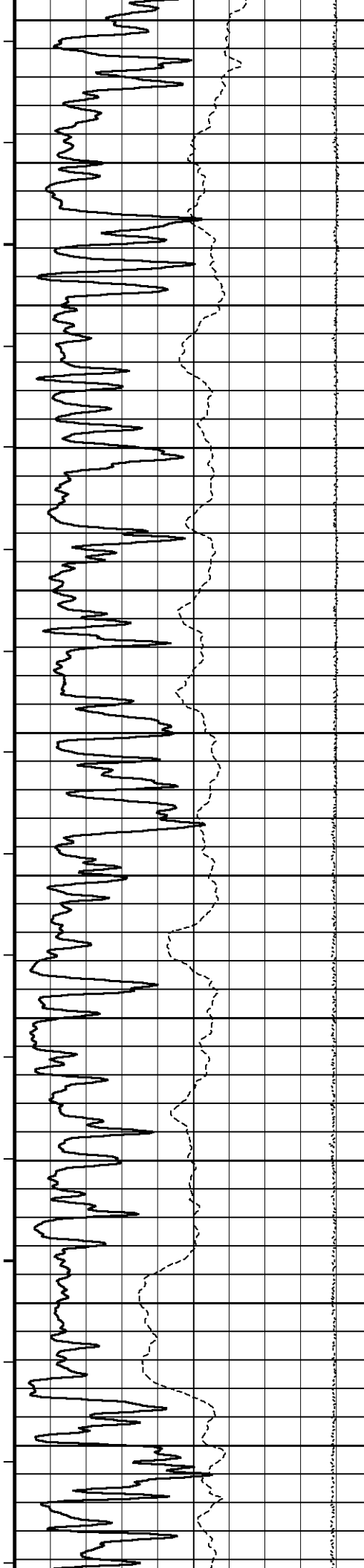
Recorded on 12-JUN-2012 05:13

System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

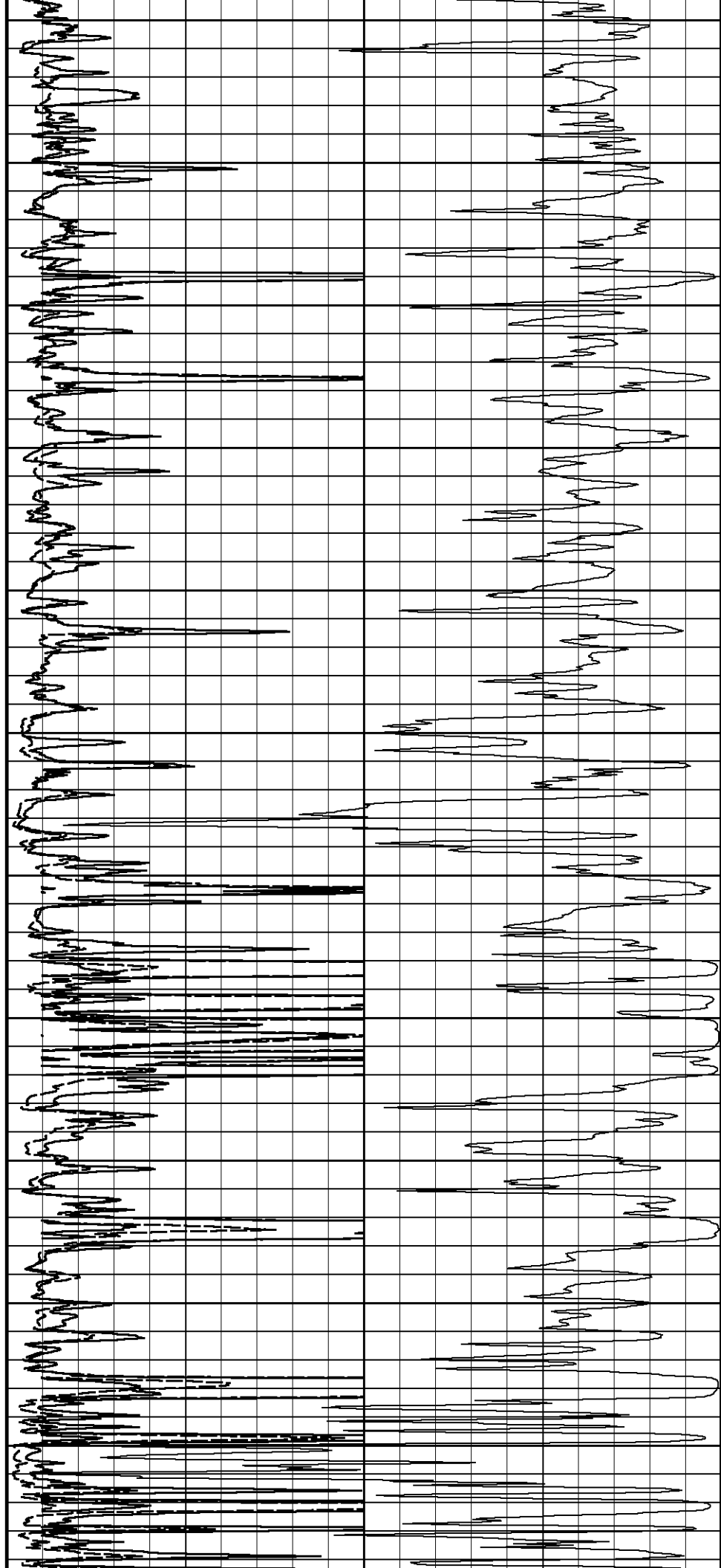


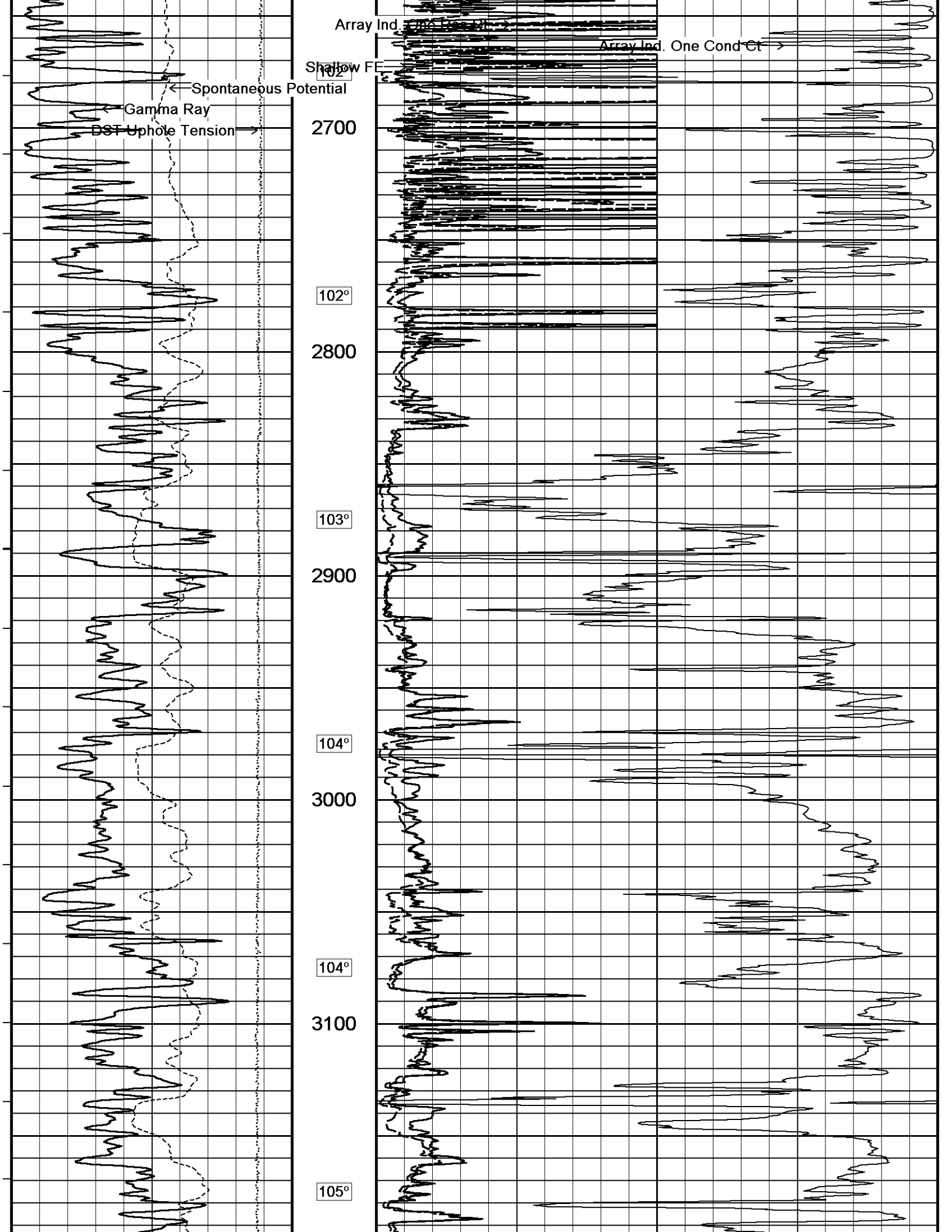


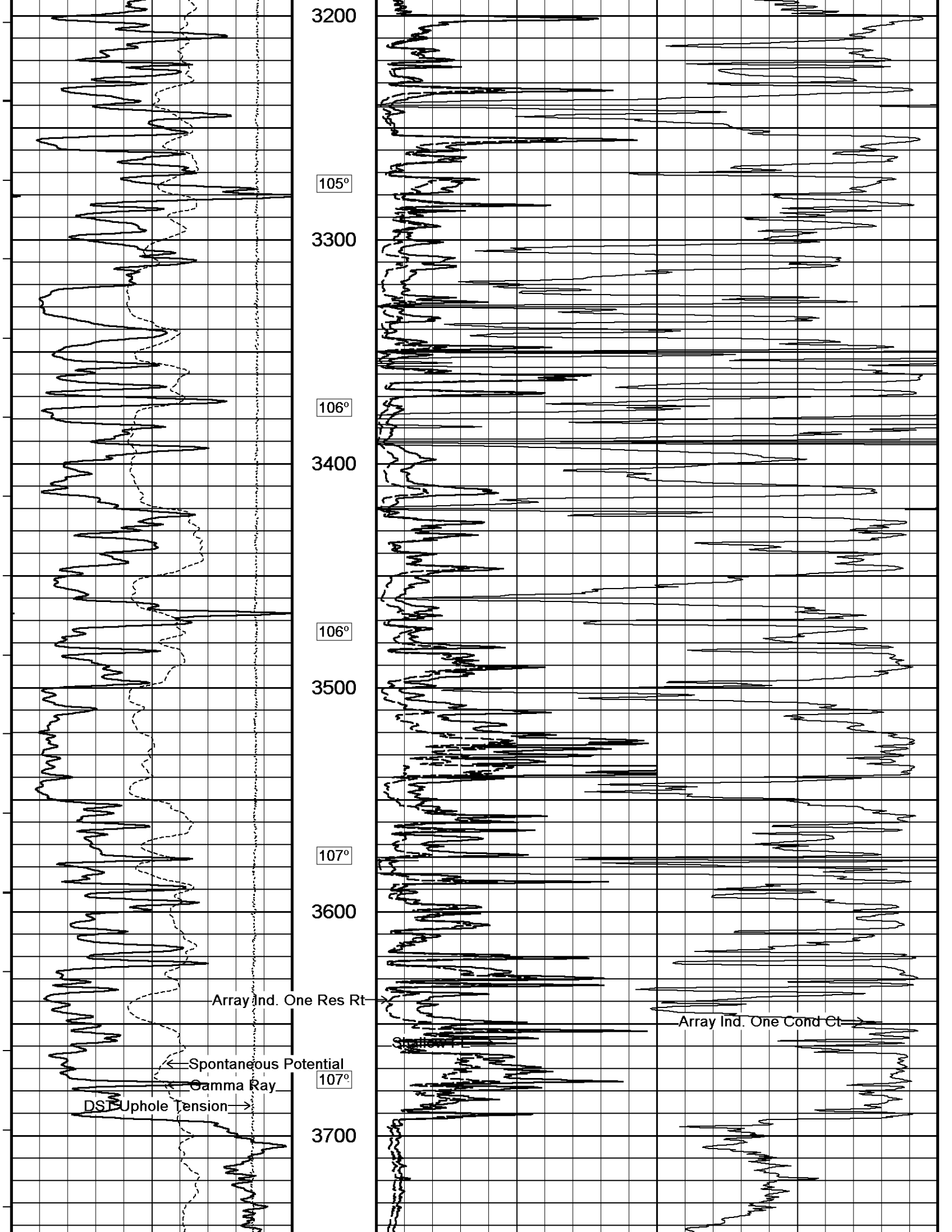


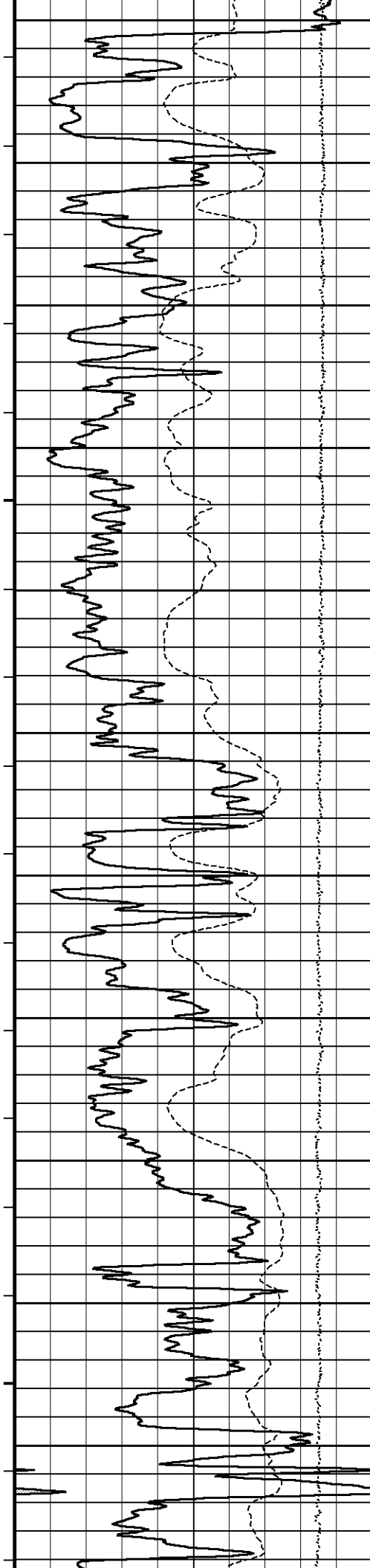


2100  
101°  
2200  
101°  
2300  
101°  
2400  
101°  
2500  
101°  
2600









108°

3800

109°

3900

109°

4000

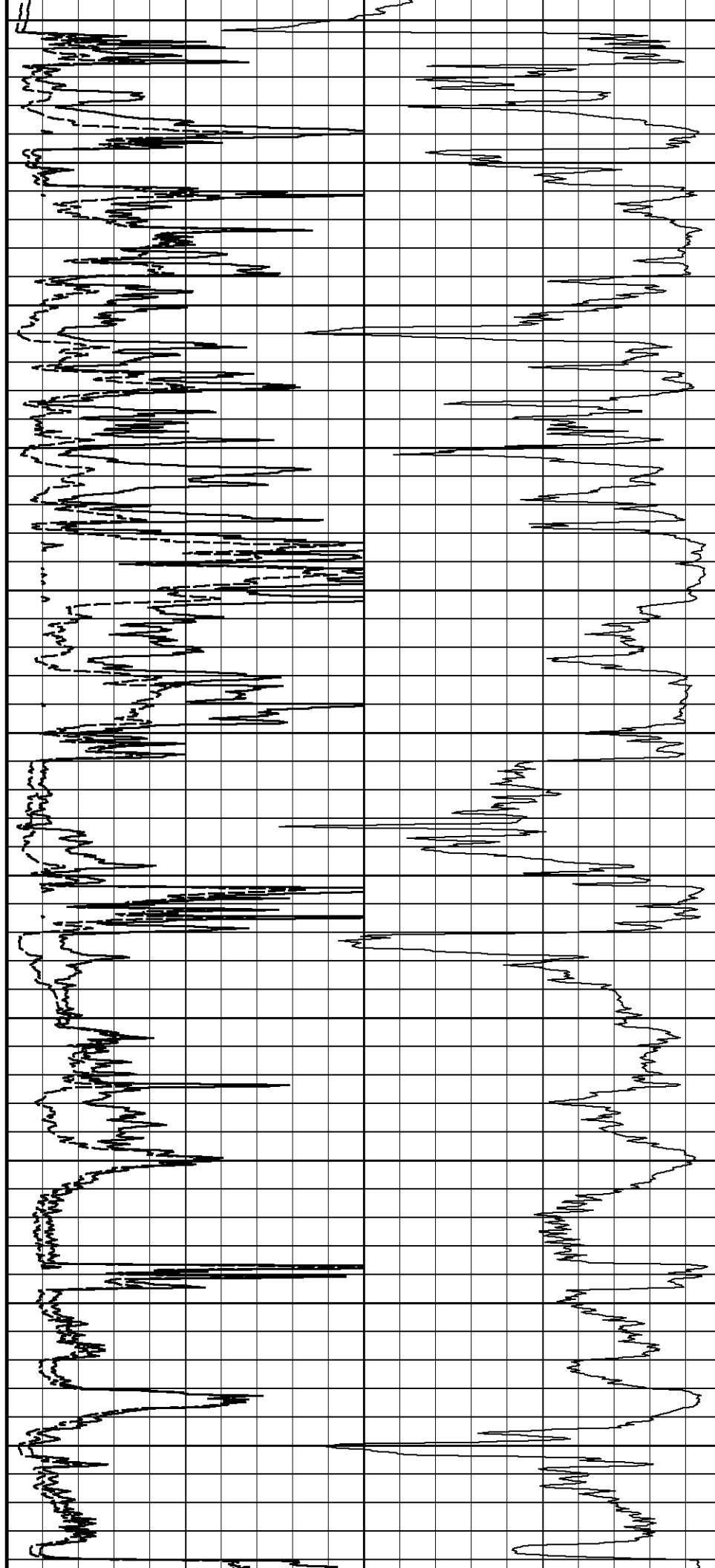
110°

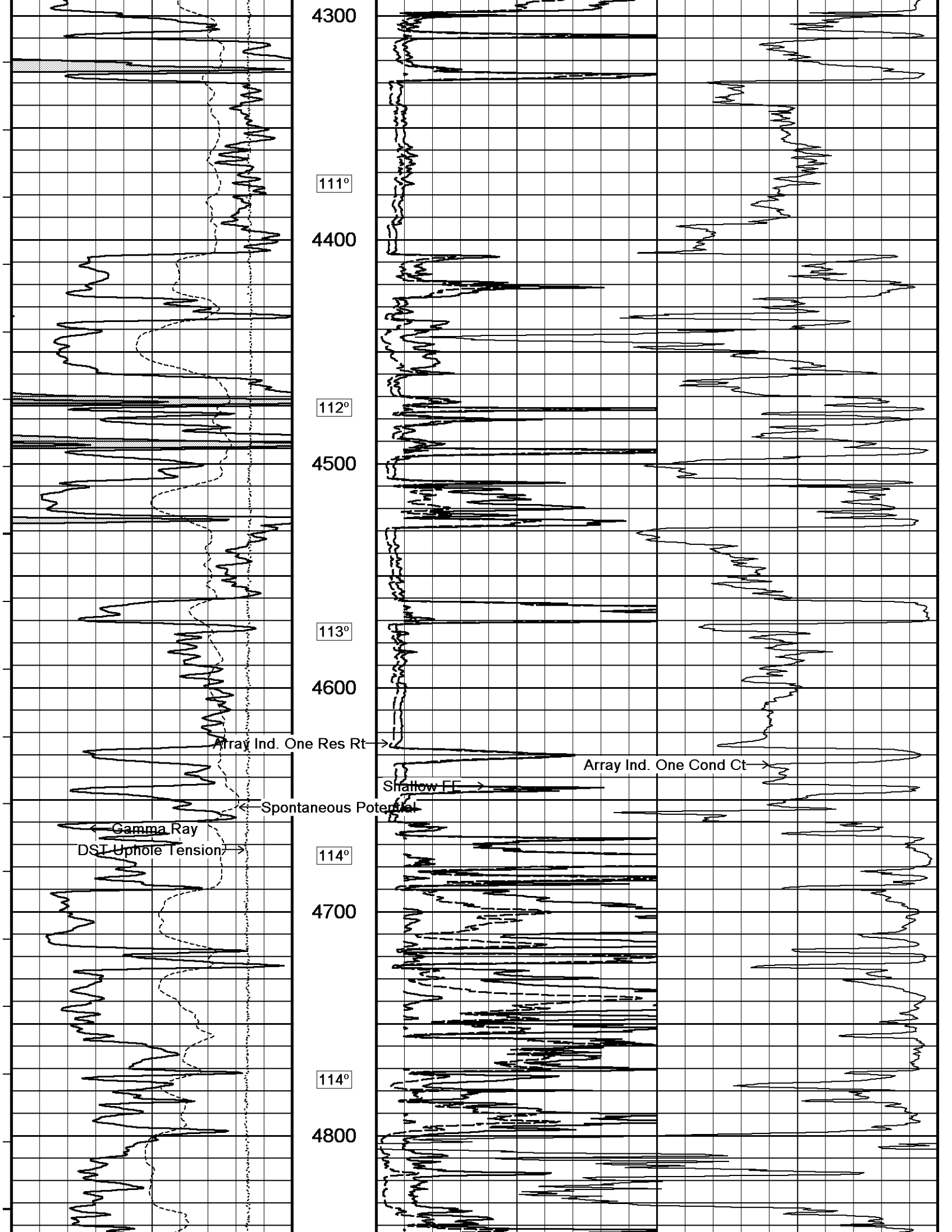
4100

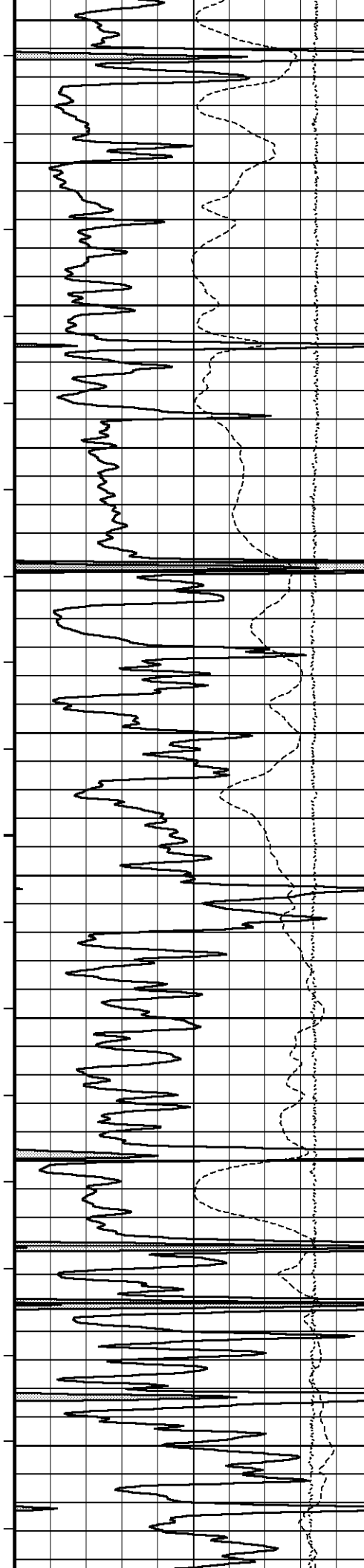
110°

4200

111°







115°

4900

115°

5000

116°

5100

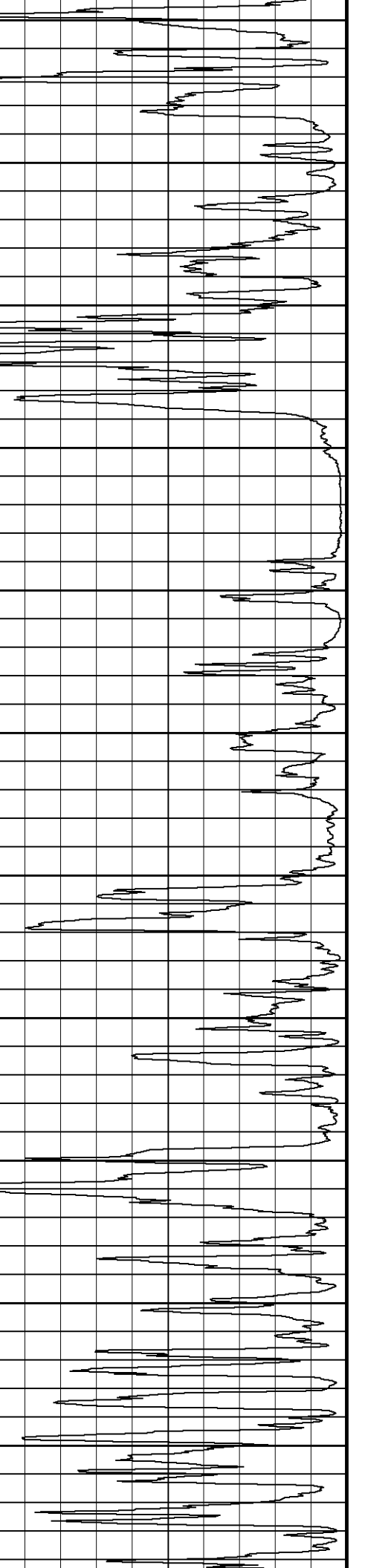
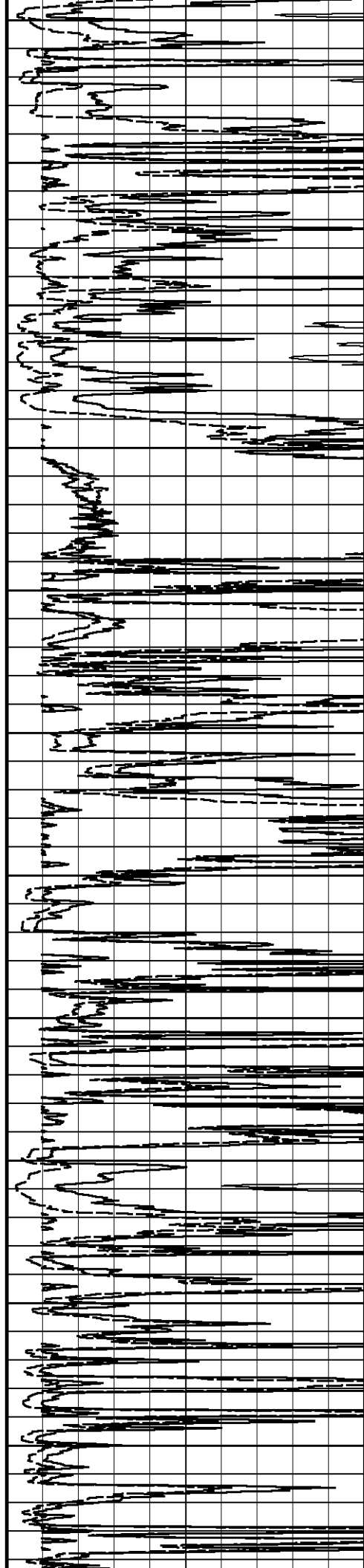
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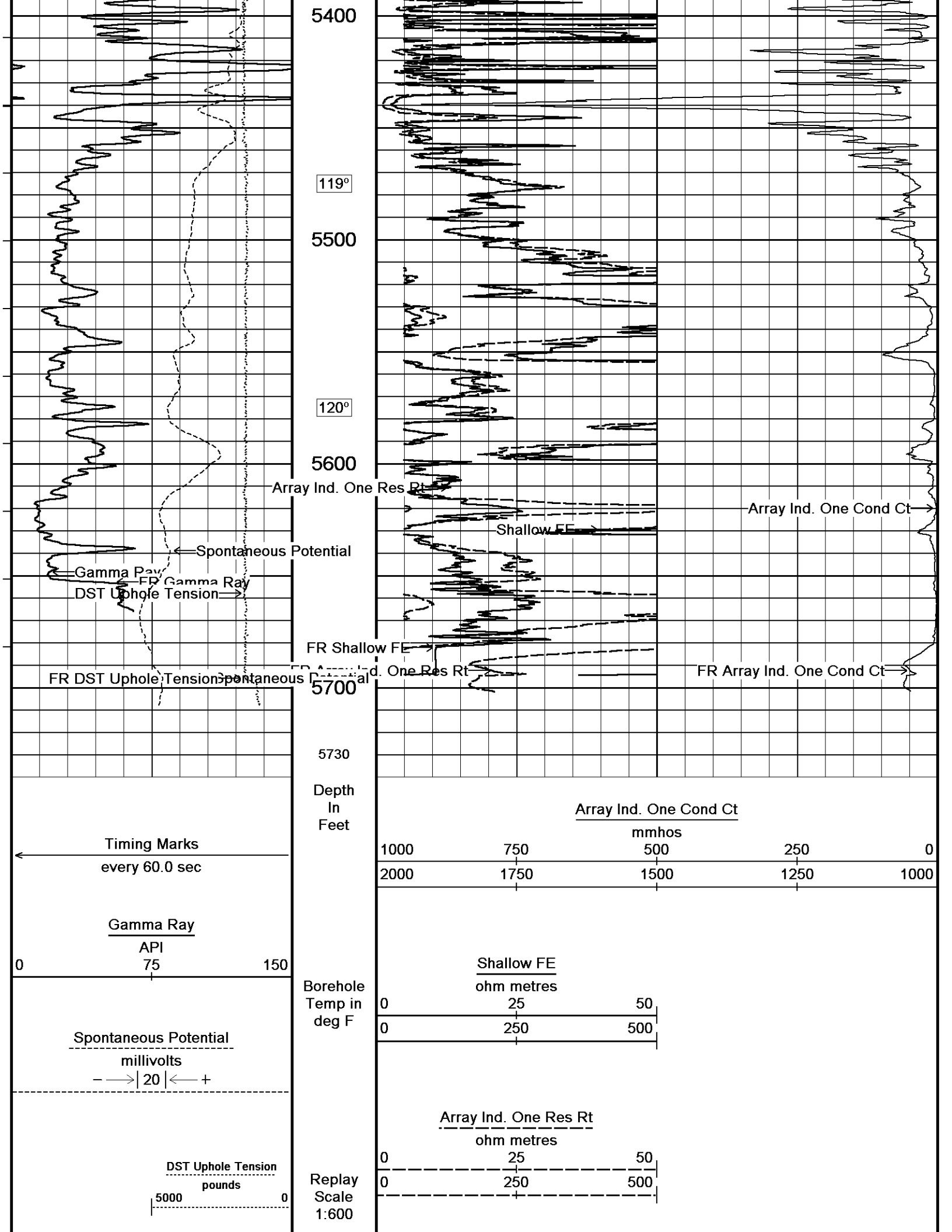
5200

116°

5300

118°



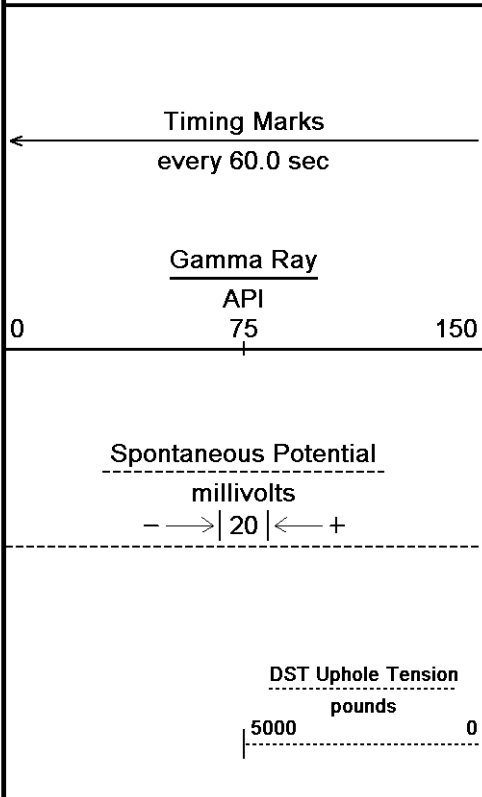




### 2 INCH MAIN



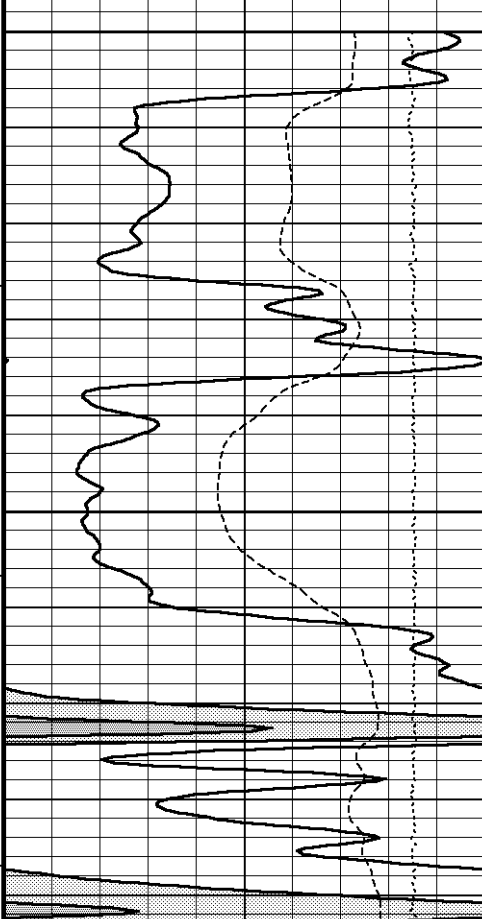
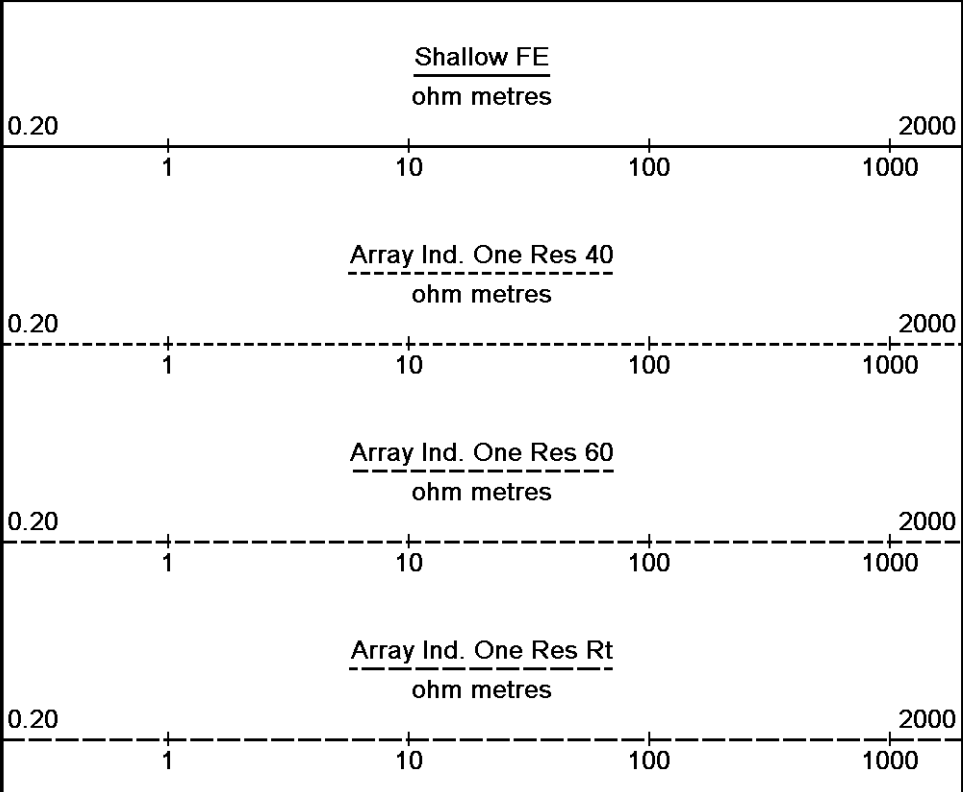
### 5 INCH MAIN



Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240

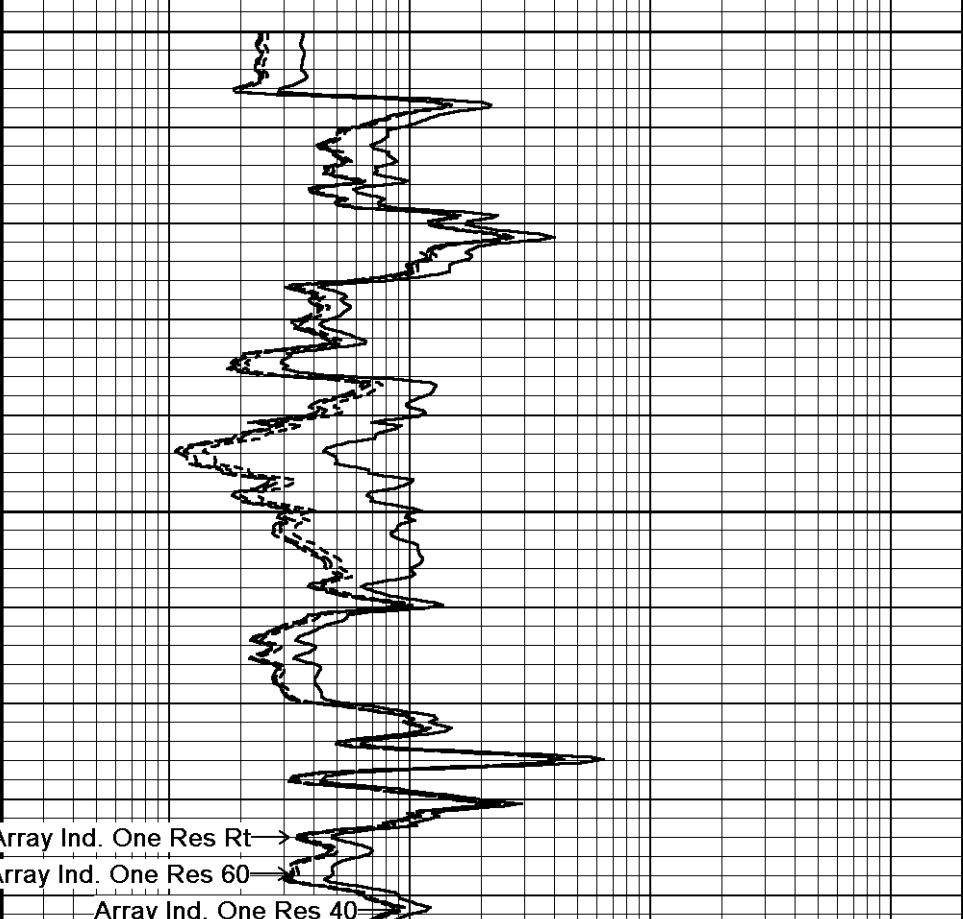


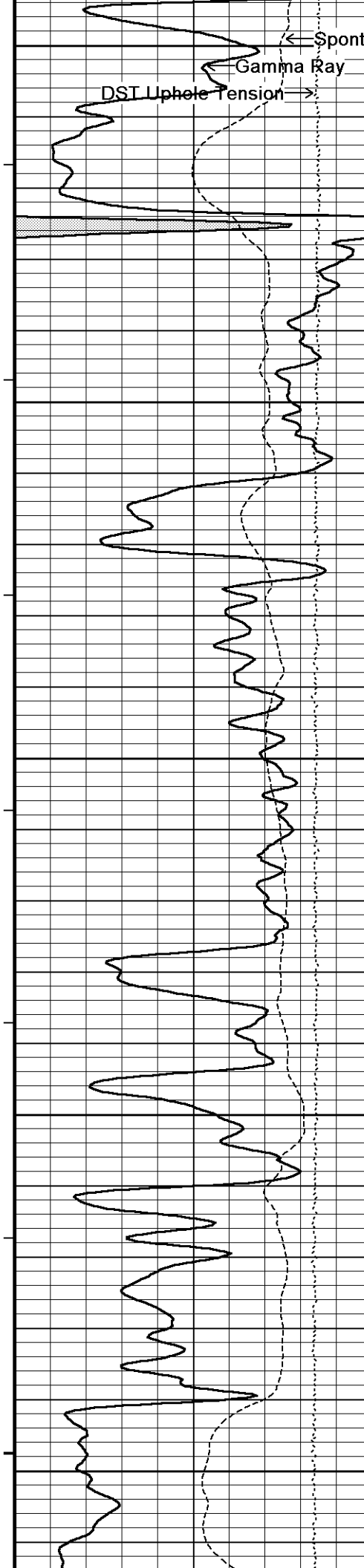
4400

112°

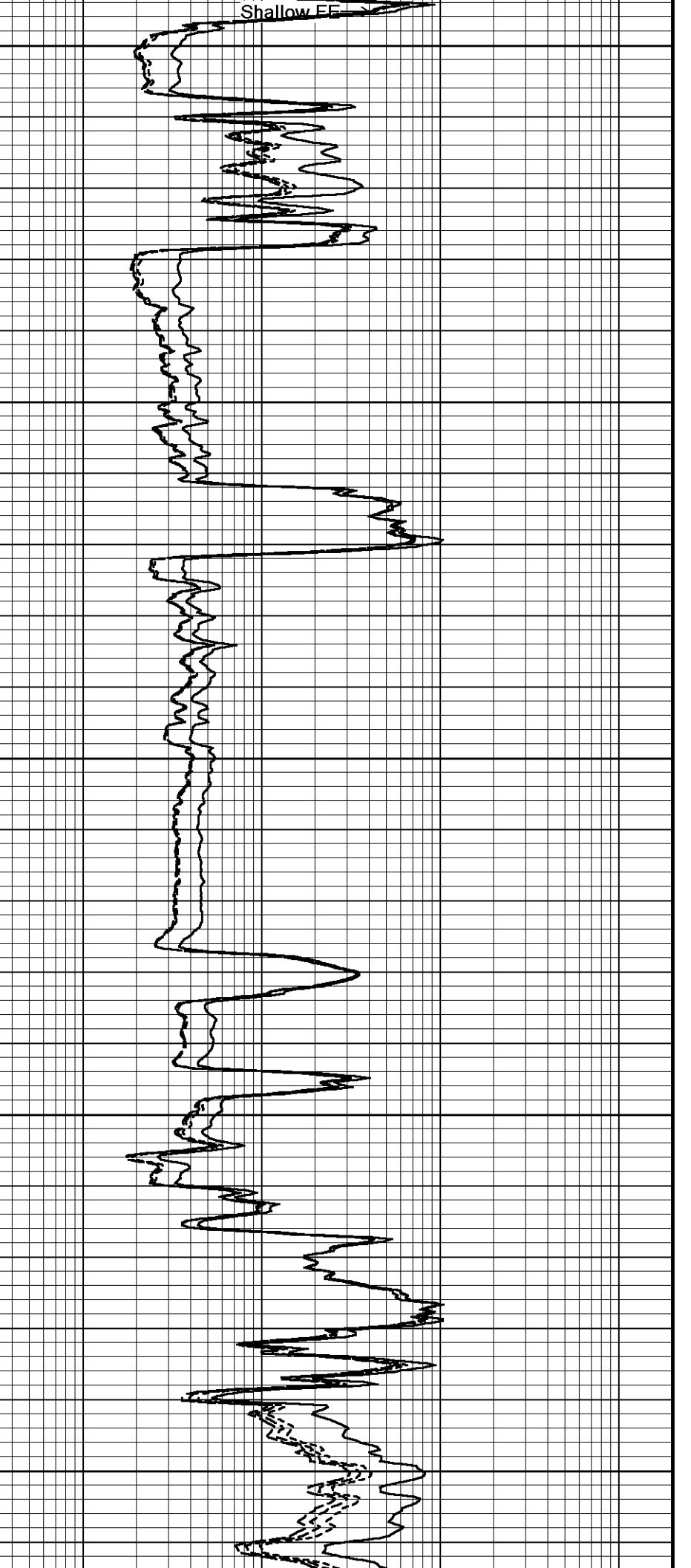
4450

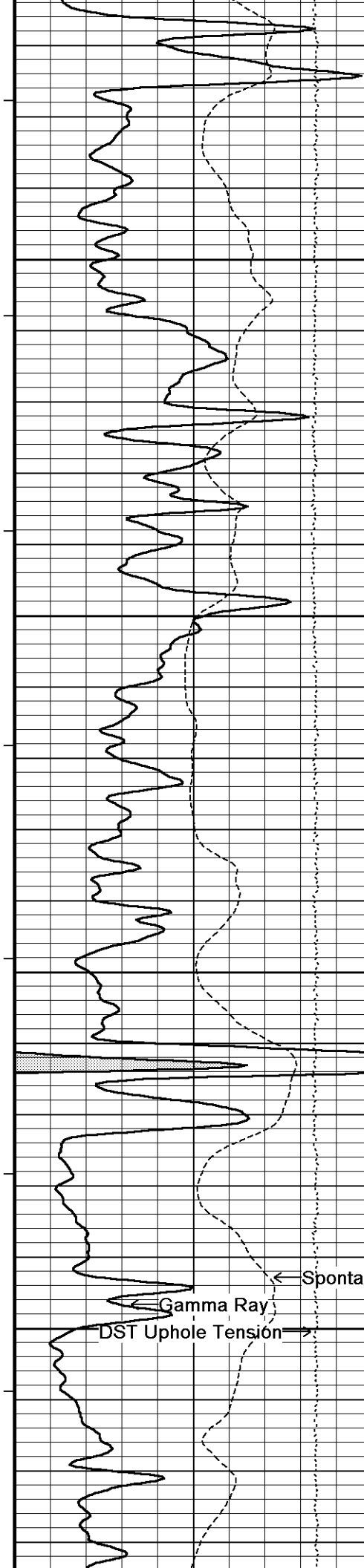
112°





4500  
112°  
4550  
113°  
4600  
113°  
4650  
114°  
4700





114°

4750

114°

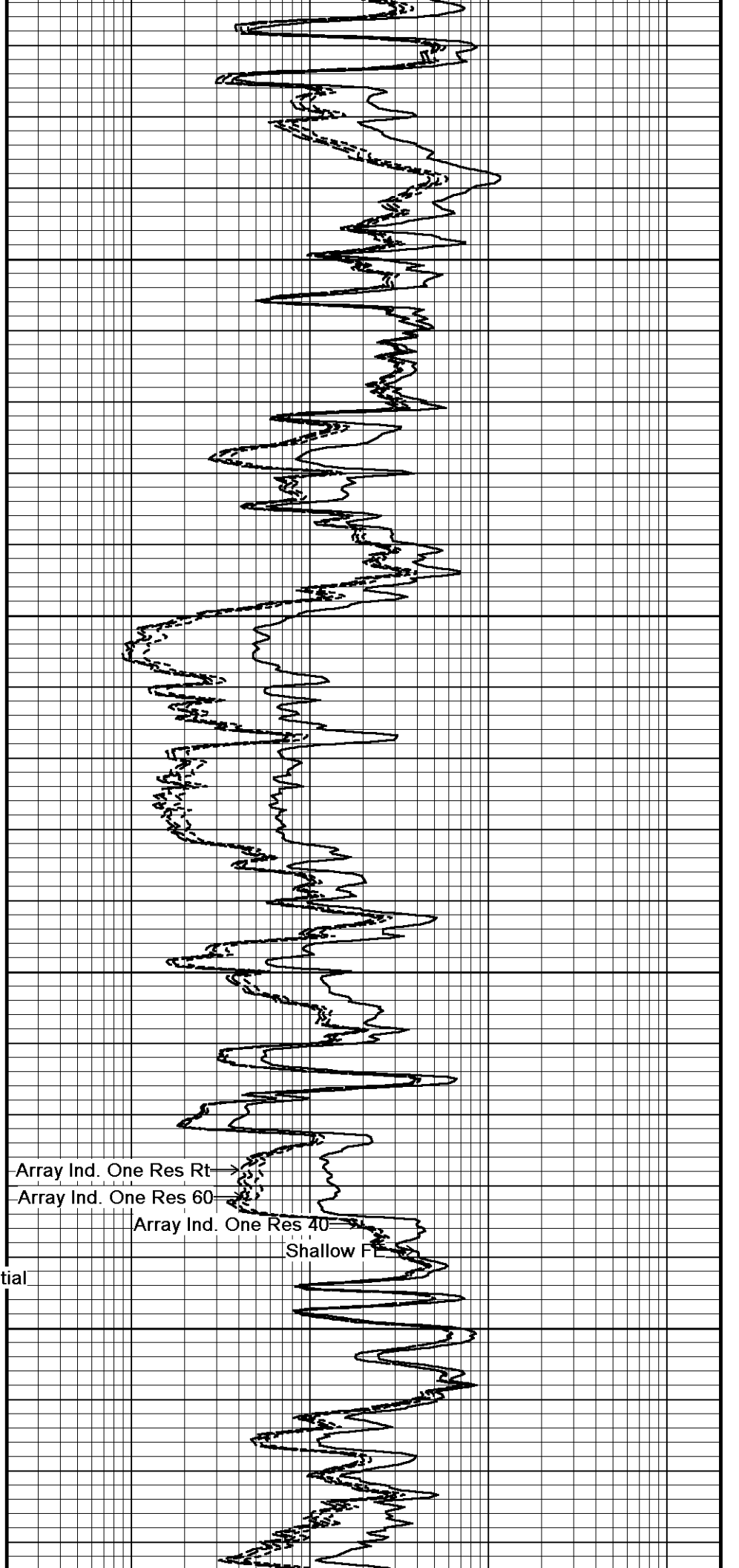
4800

114°

4850

115°

4900



Array Ind. One Res Rt

Array Ind. One Res 60

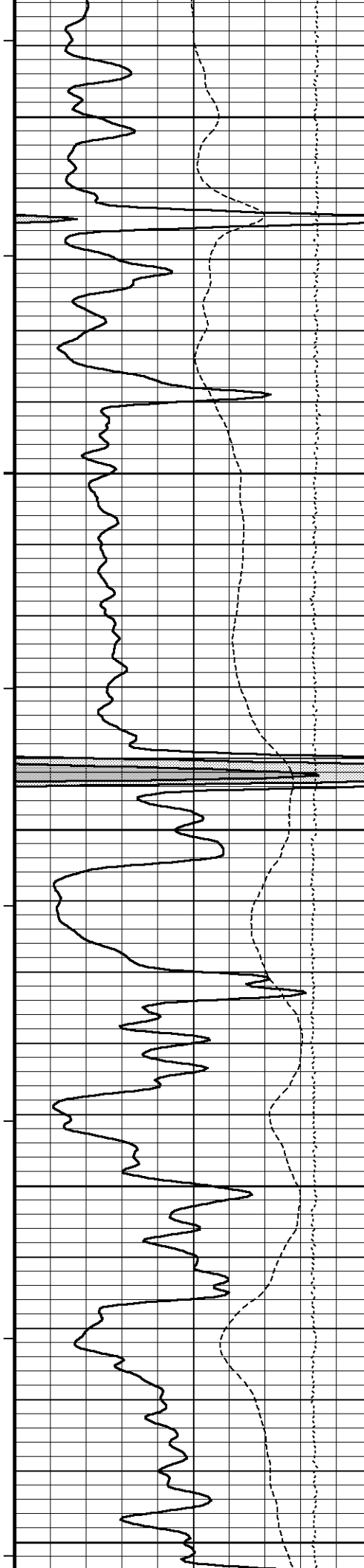
Array Ind. One Res 40

Shallow F

Gamma Ray

DST Uphole Tension

Spontaneous Potential



115°

4950

115°

5000

116°

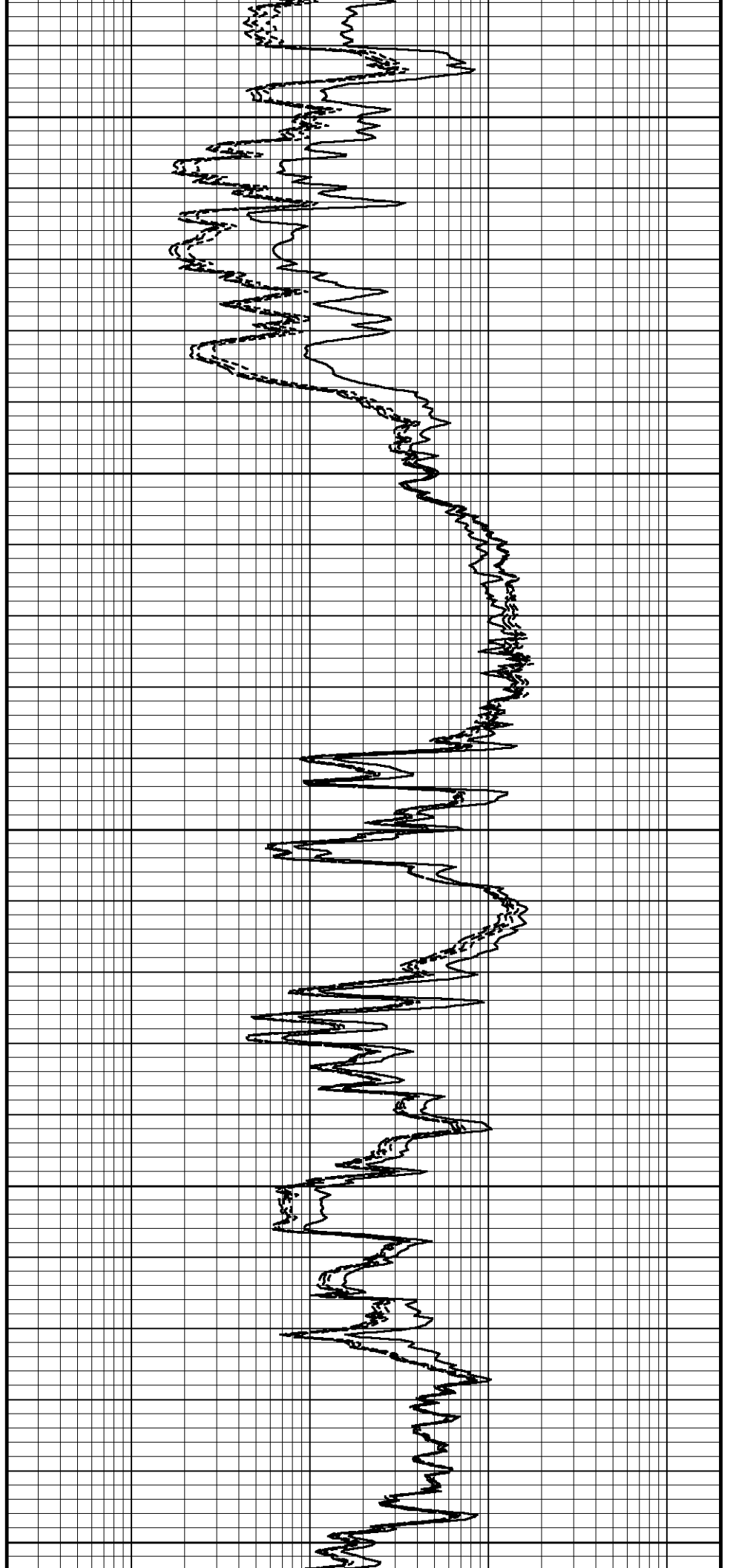
5050

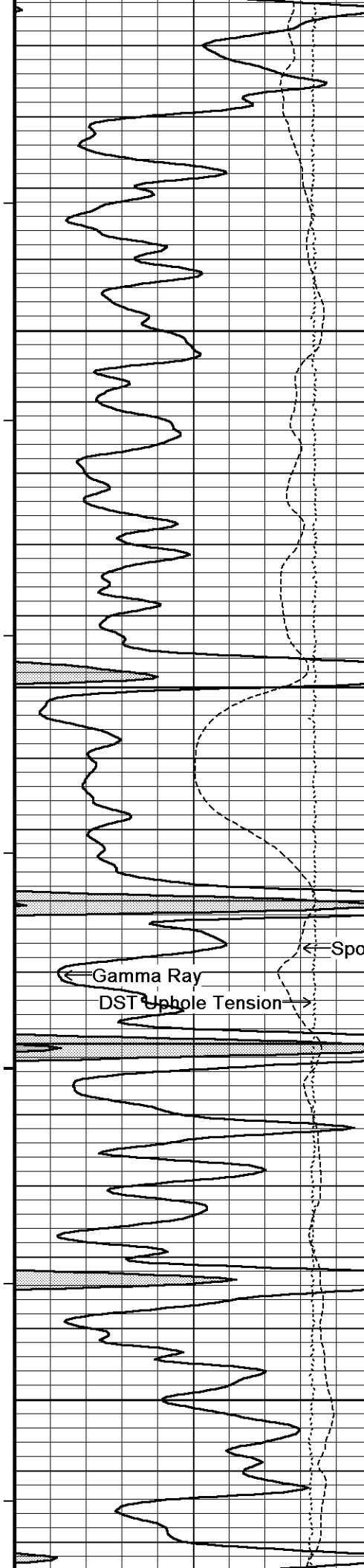
116°

5100

115°

5150





115°

5200

116°

5250

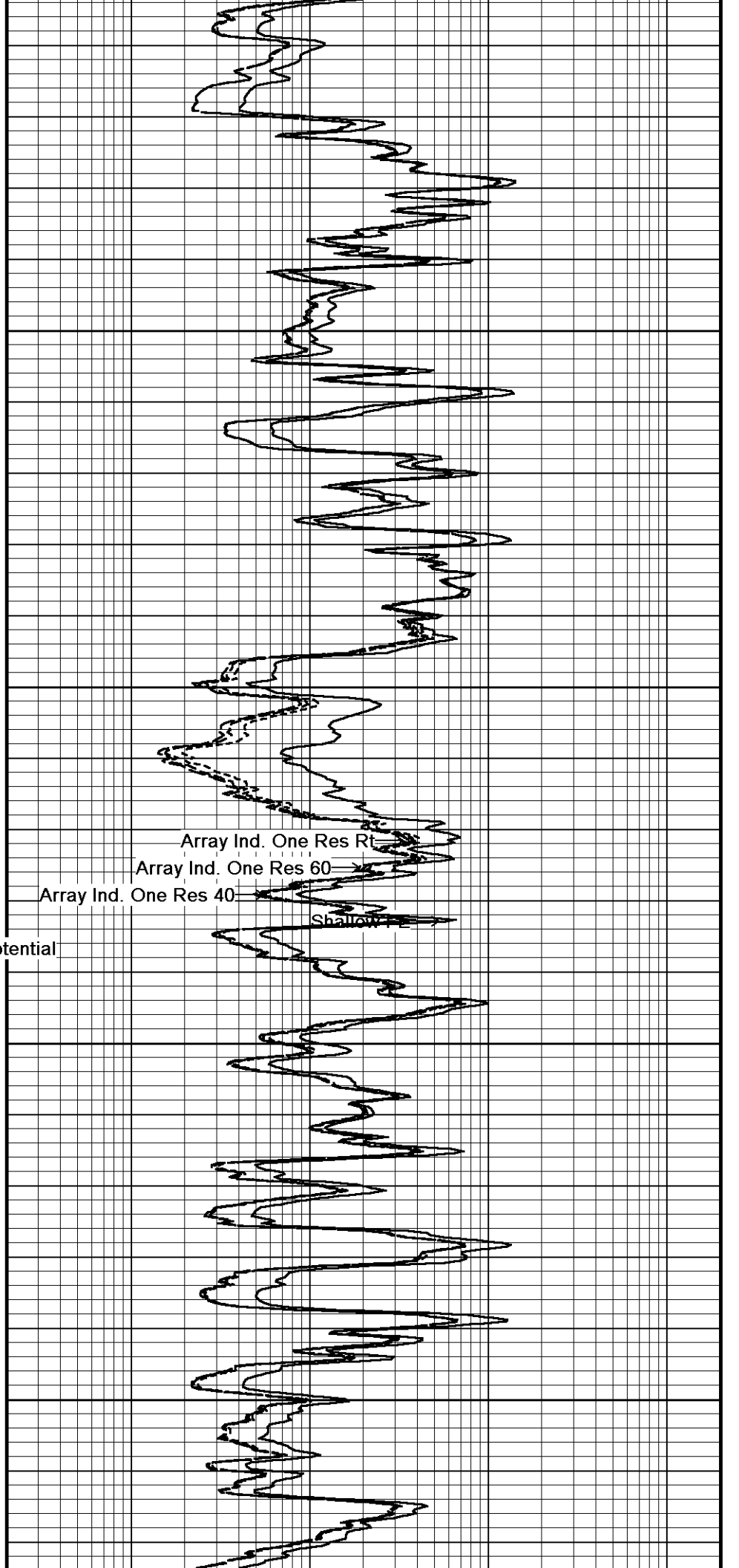
Spontaneous Potential

Gamma Ray  
DST  
Up-hole Tension

5300

117°

5350

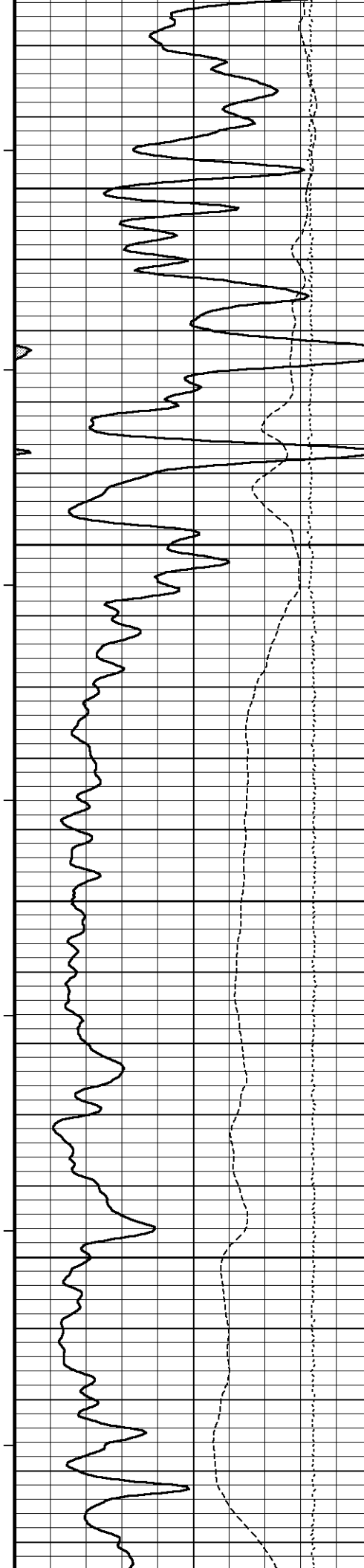


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow



118°

5400

119°

5450

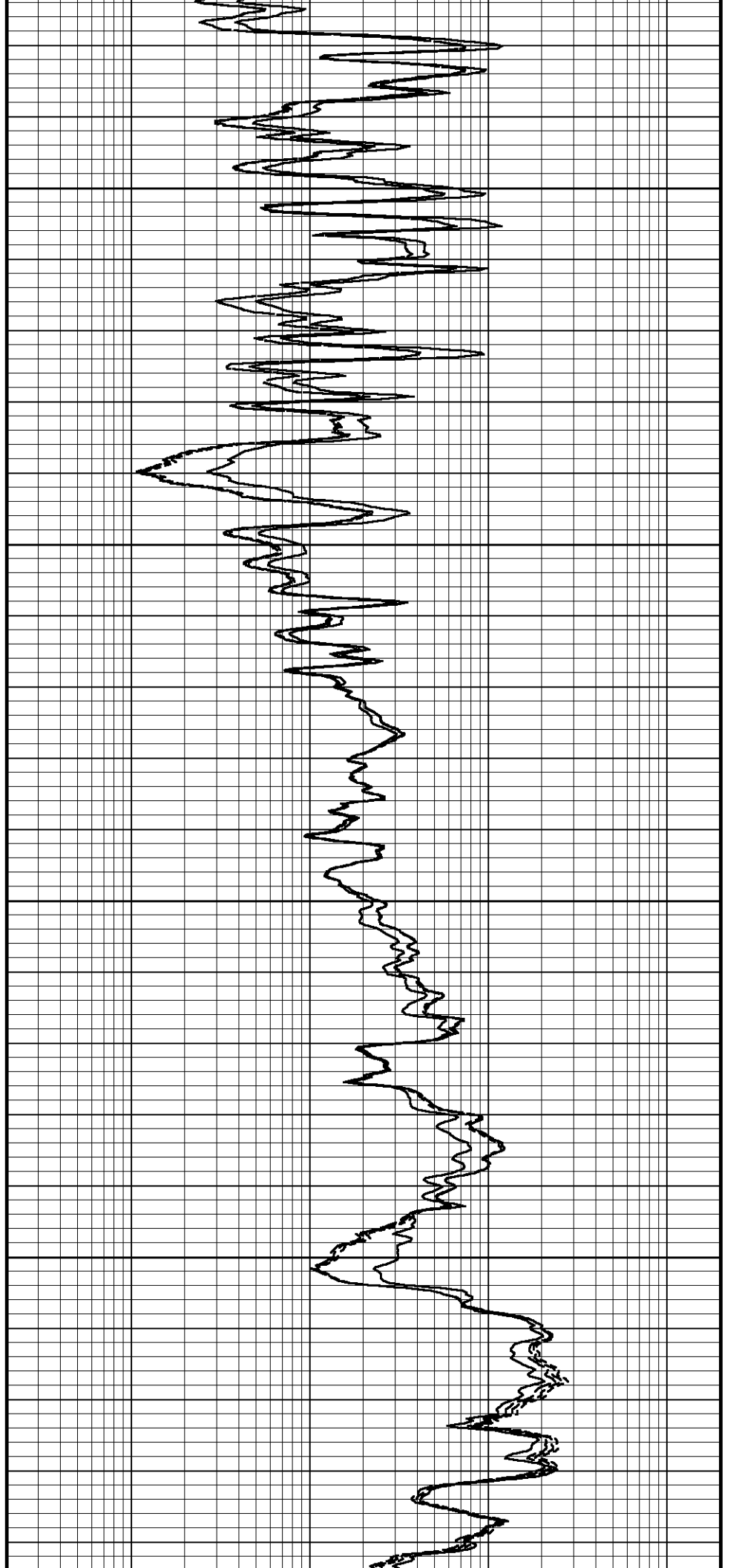
119°

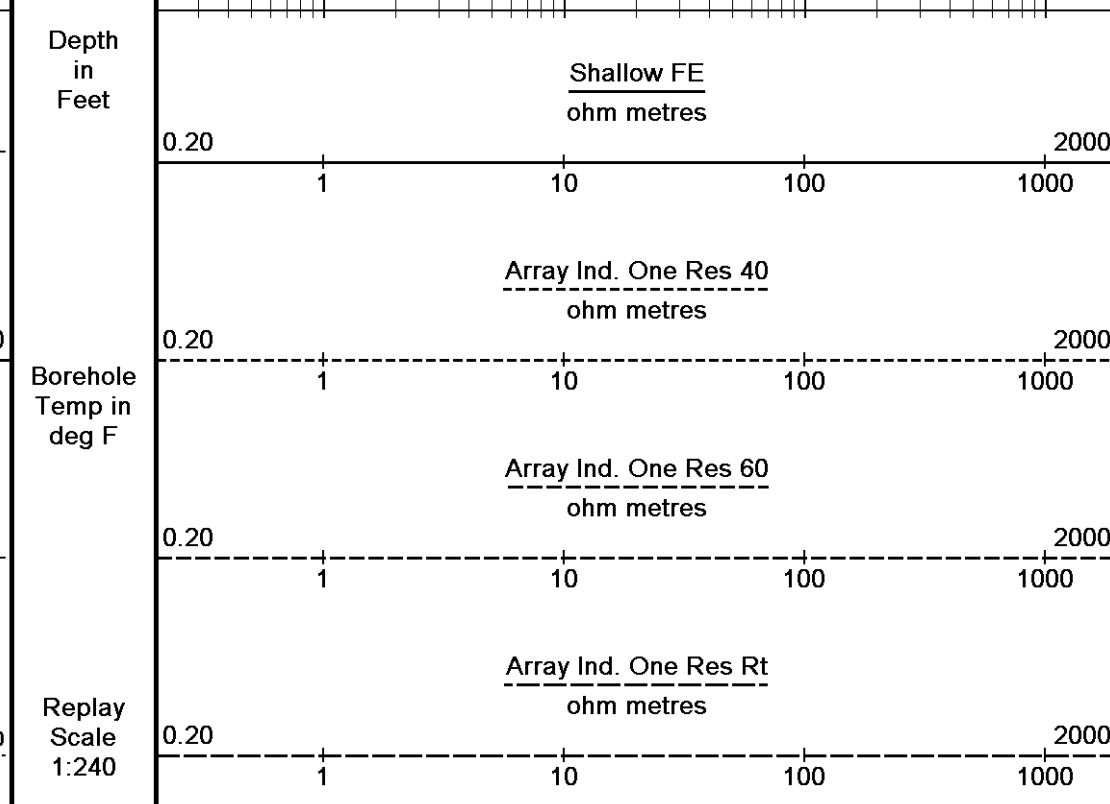
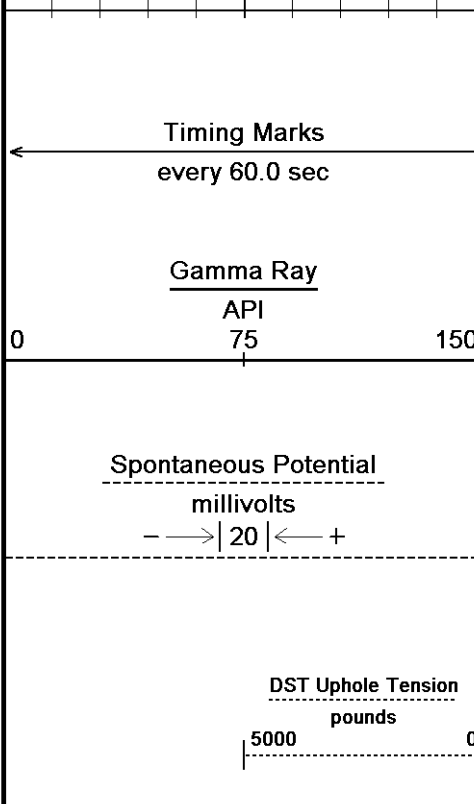
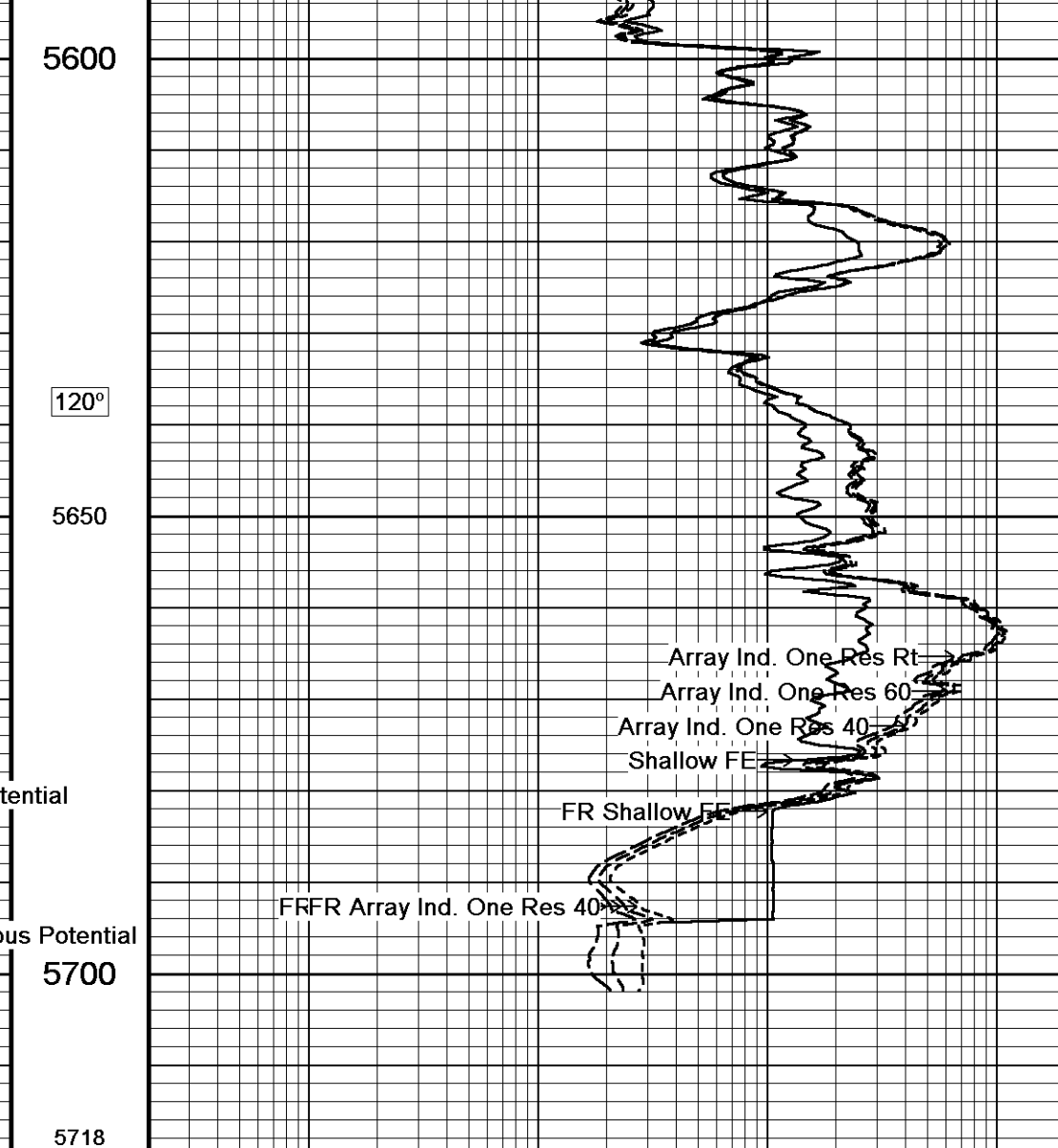
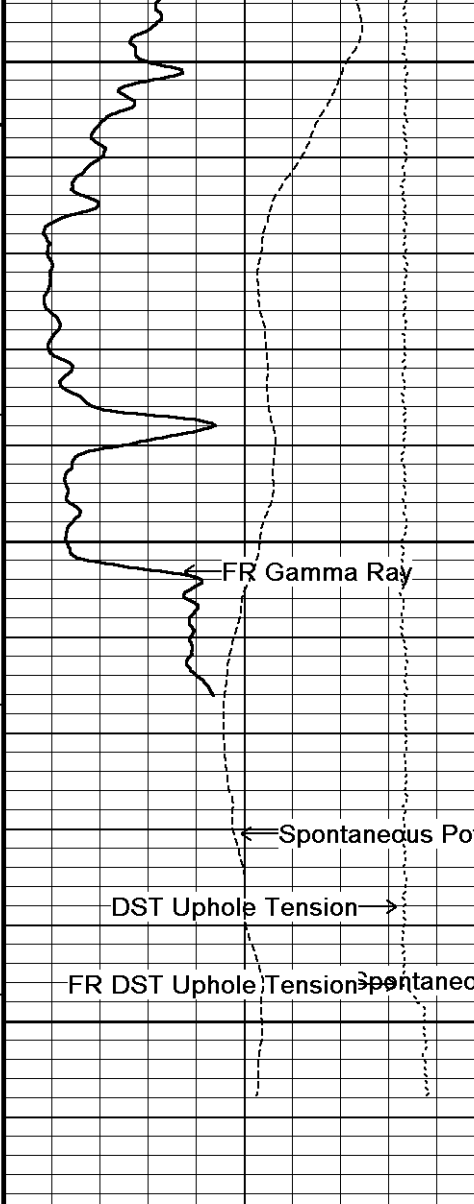
5500

120°

5550

120°







5 INCH MAIN



10 INCH HI-RES



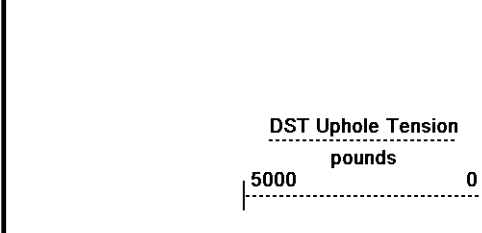
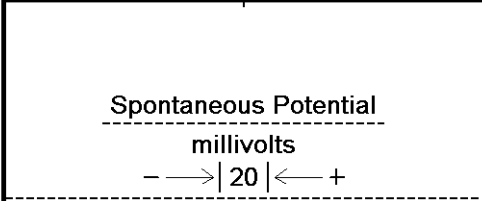
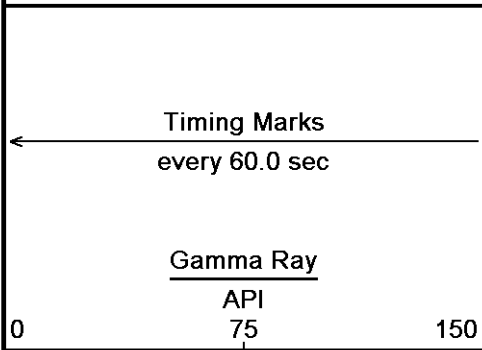
Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 12-JUN-2012 07:49

Filename: C:\Minimus 11\_03\_4044\Data\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2\_001.dta

Recorded on 12-JUN-2012 04:40

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



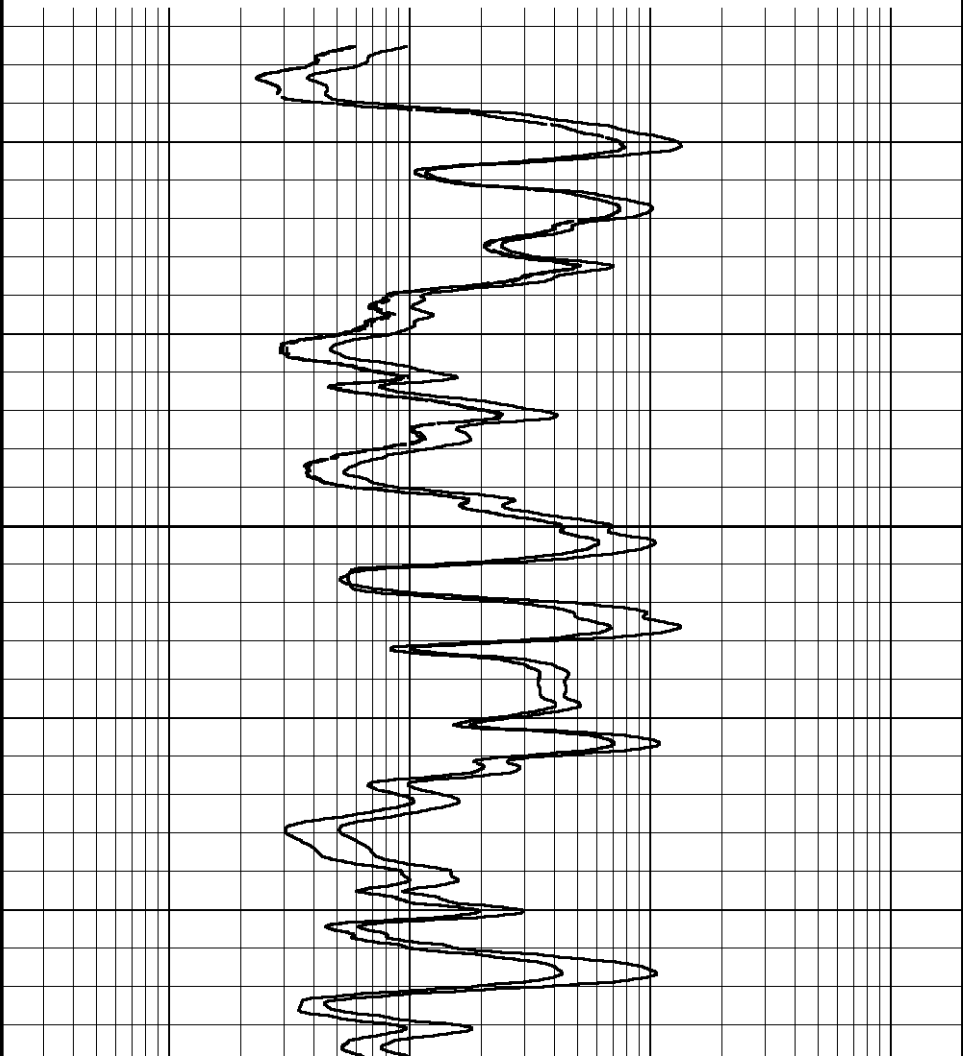
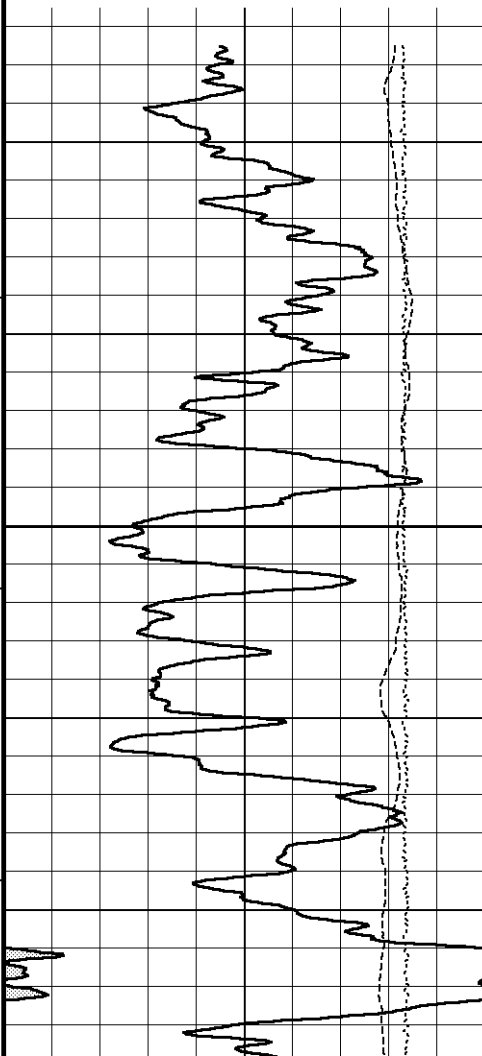
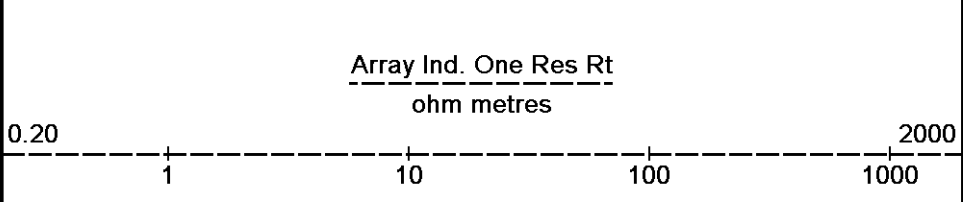
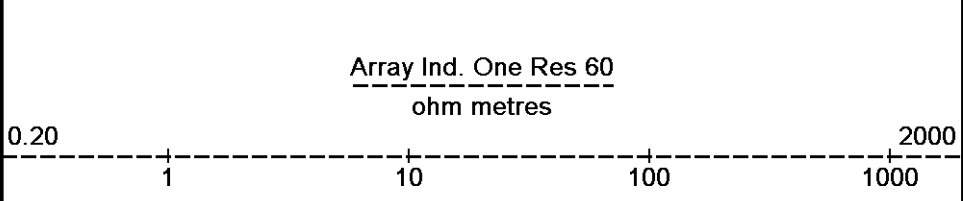
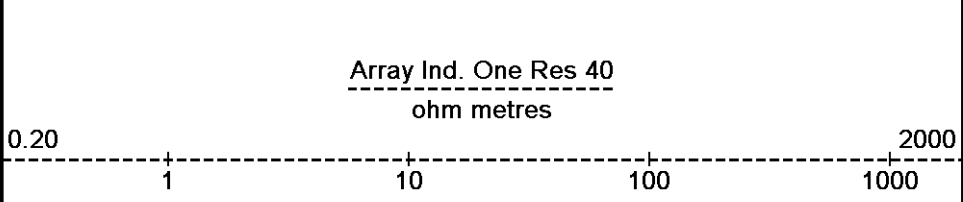
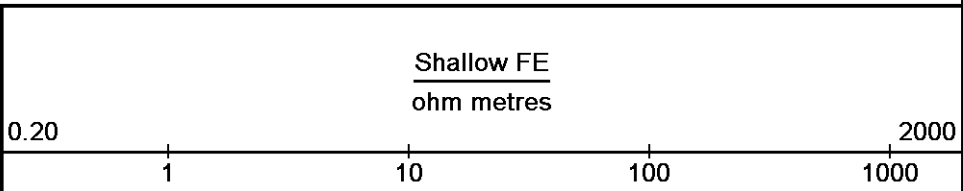
Depth  
in  
Feet

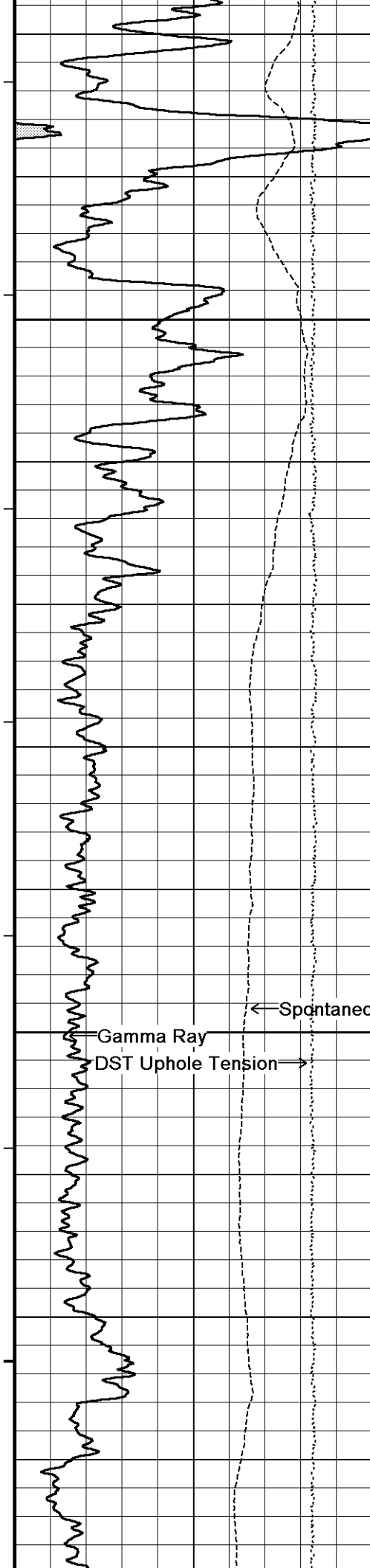
Borehole  
Temp in  
deg F

Replay  
Scale  
1:120

5374

5400





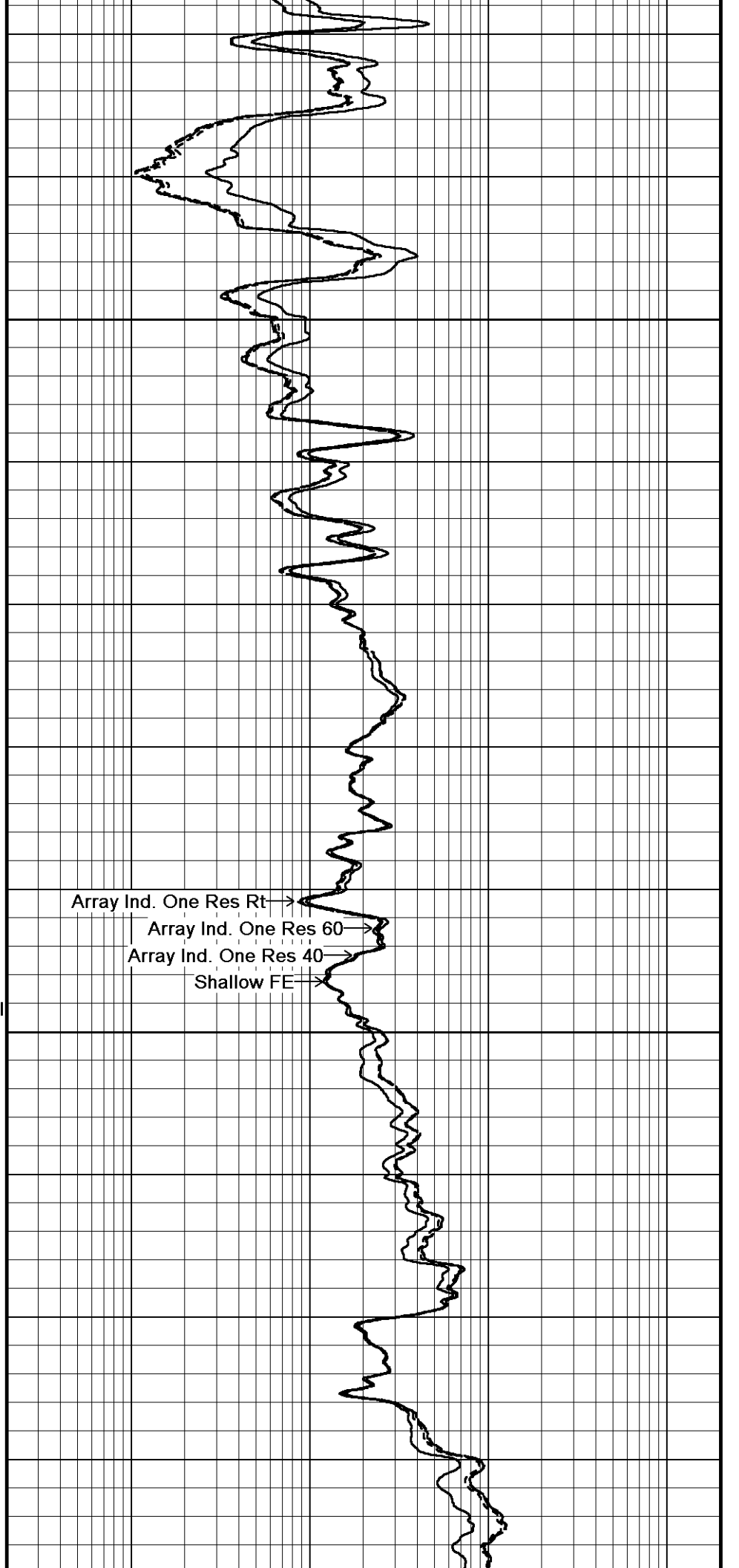
117°

5450

118°

← Spontaneous Potential  
5500

118°

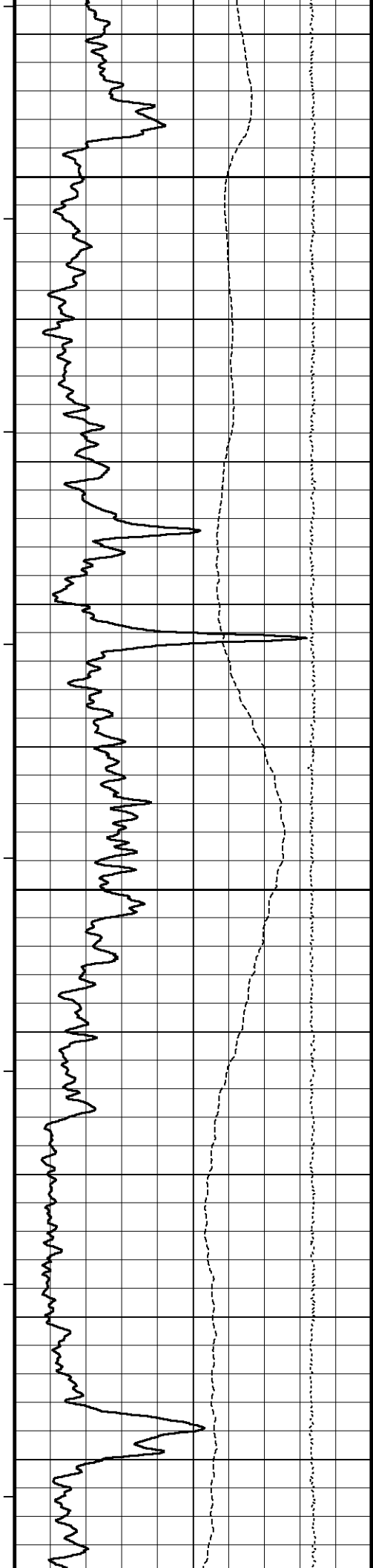


Array Ind. One Res Rt →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow FE →



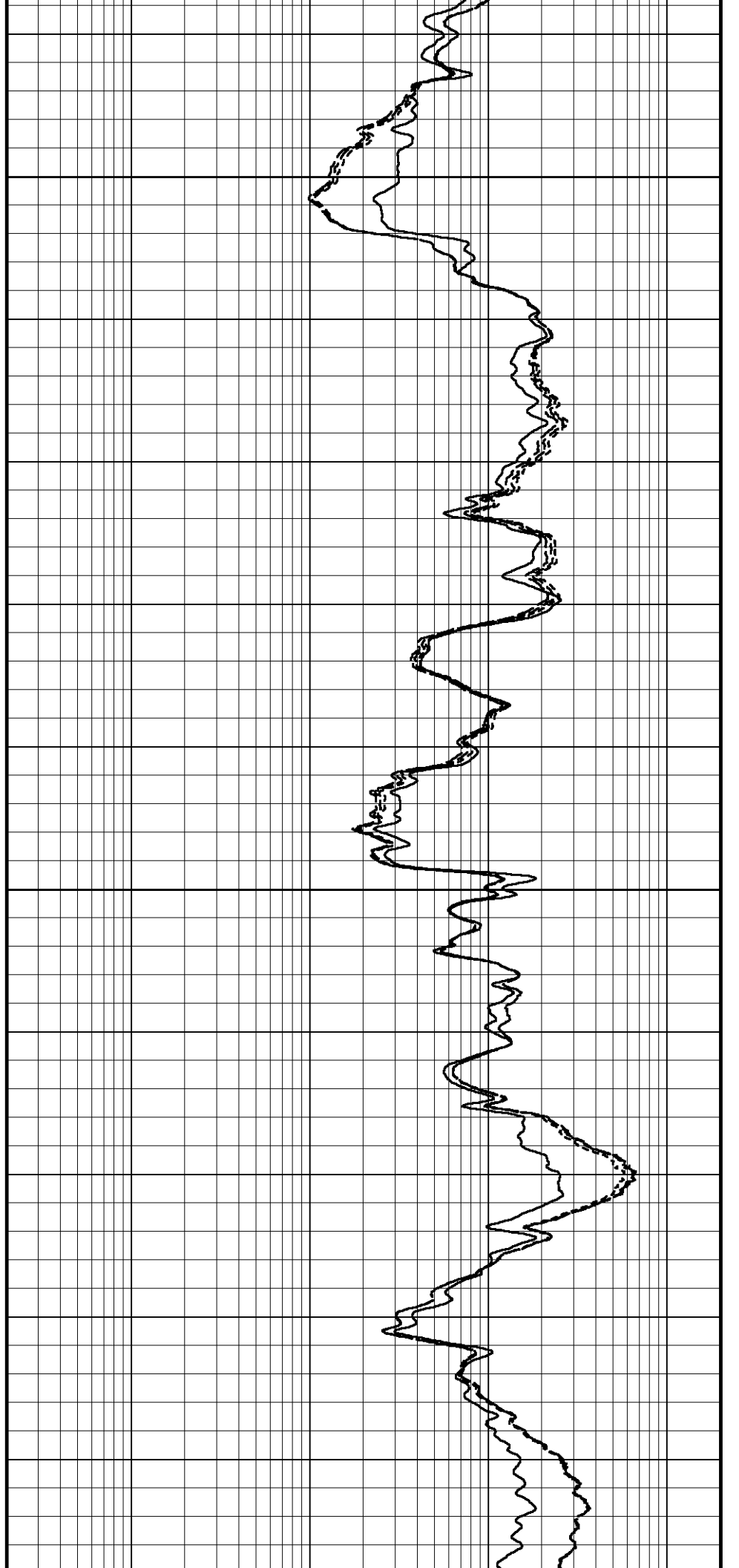
118

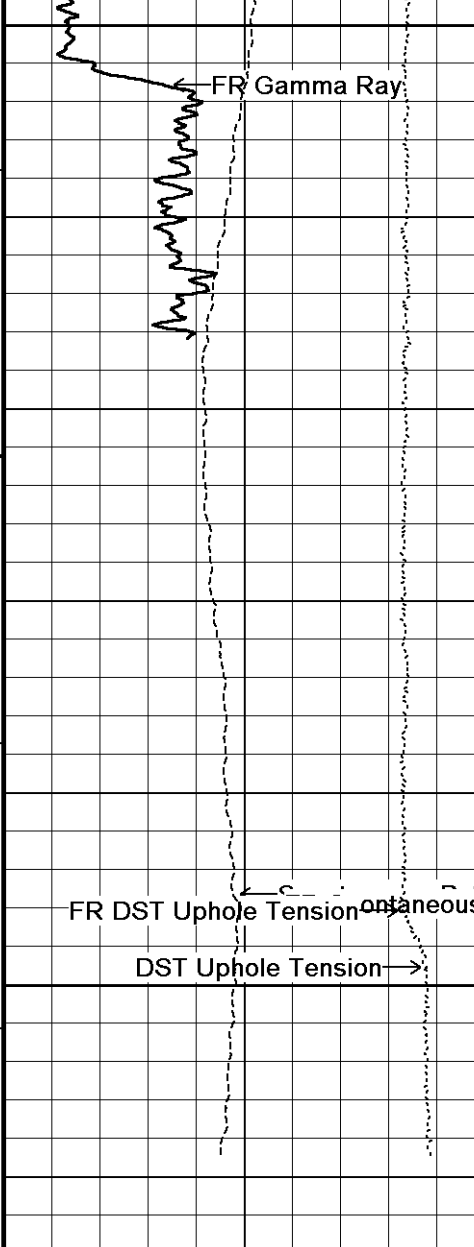
5550

119°

5600

119°



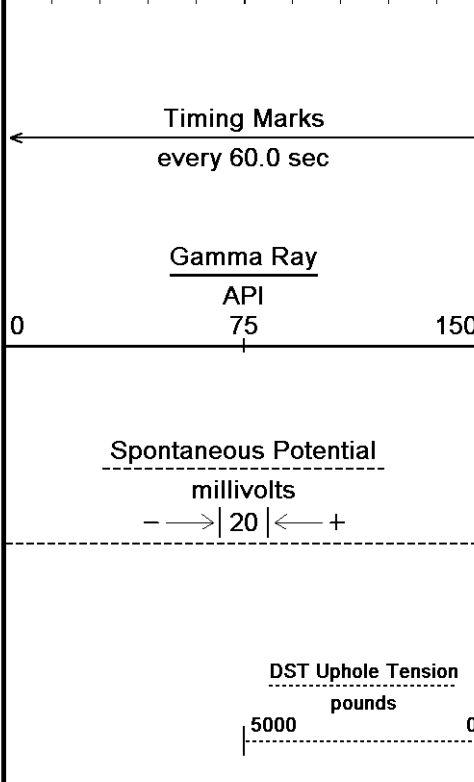


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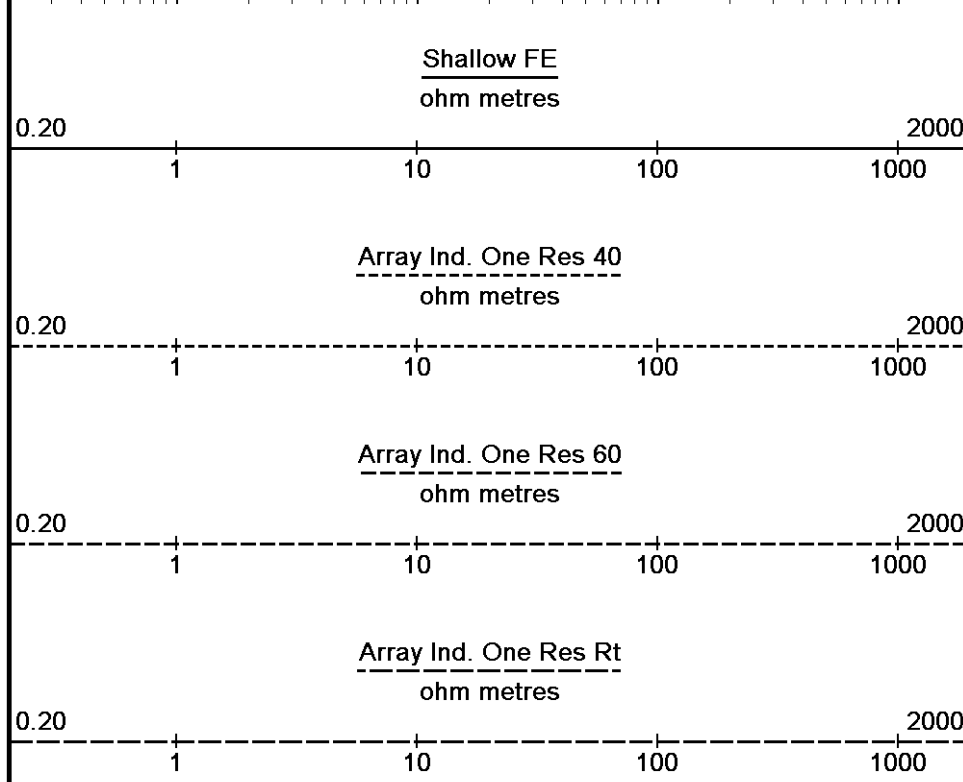
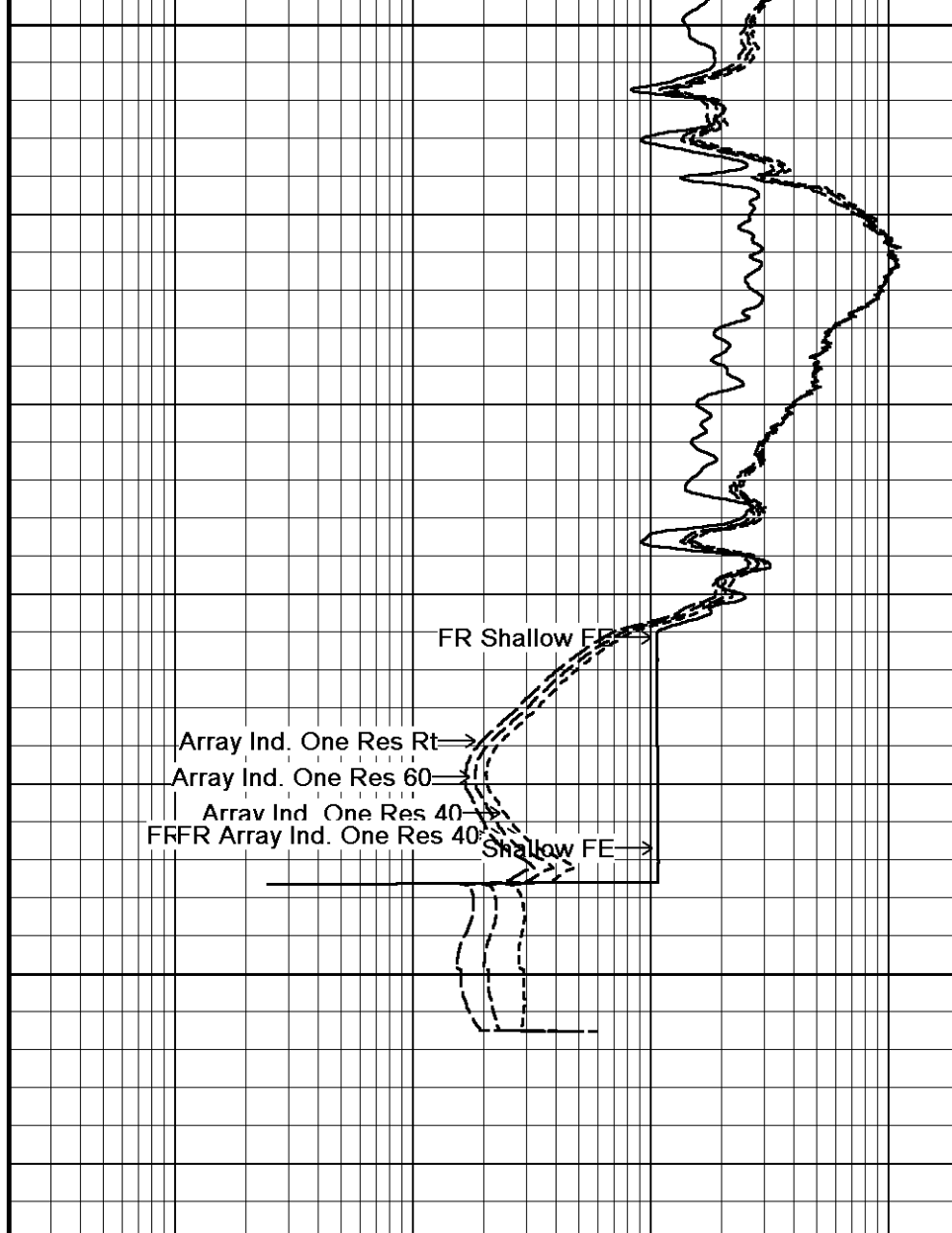
5700

5712

Depth in Feet



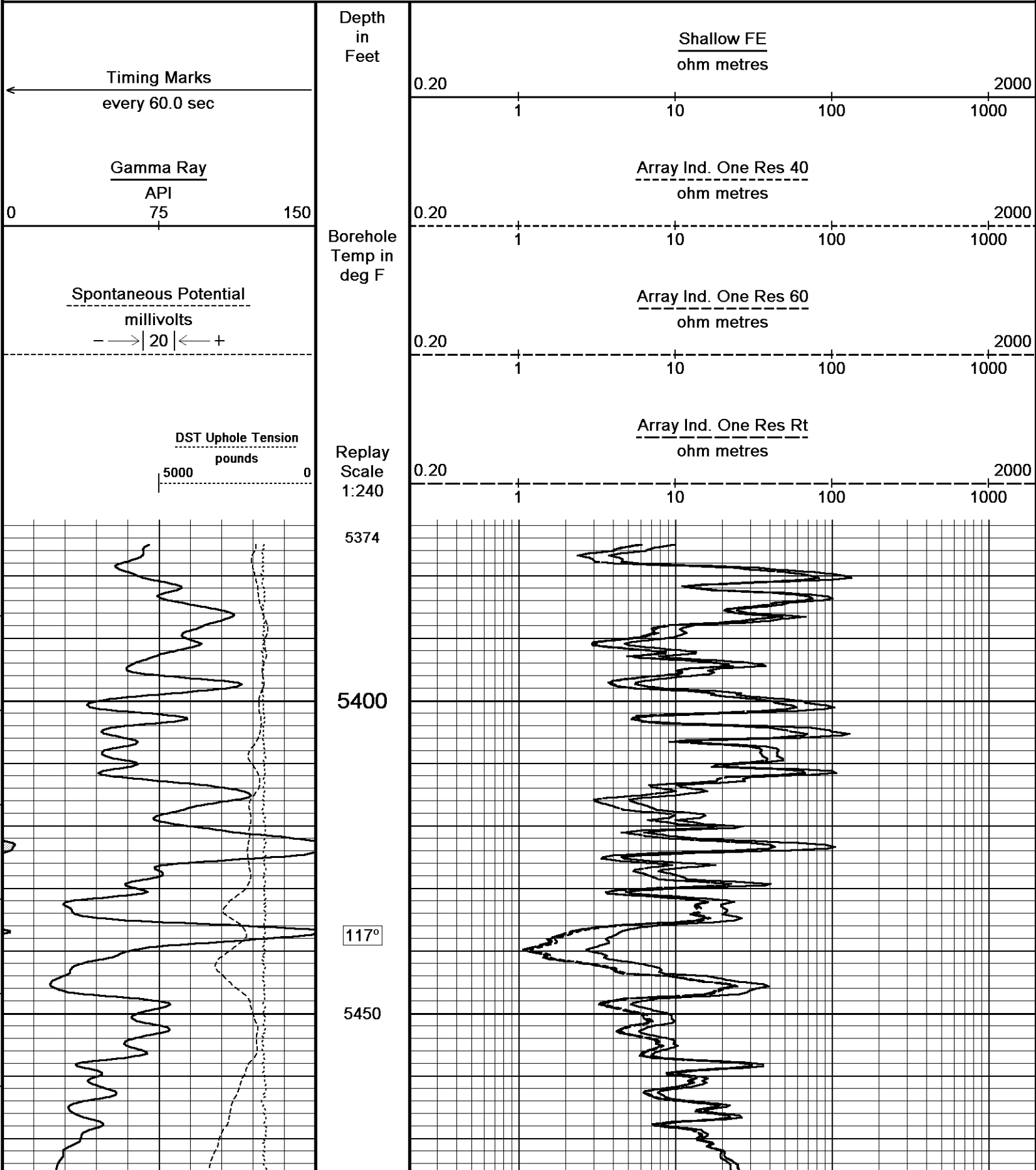
Borehole Temp in deg F

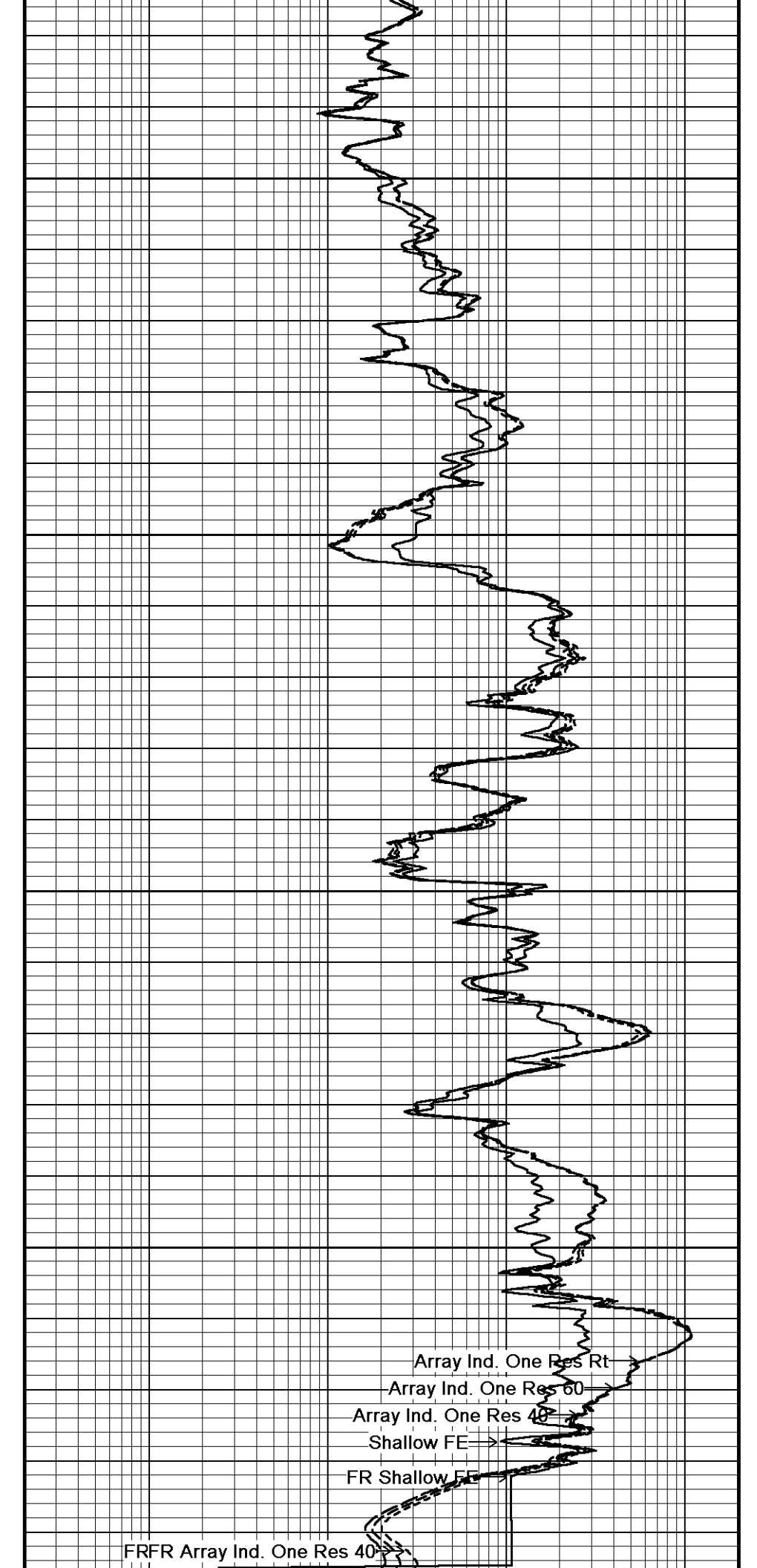
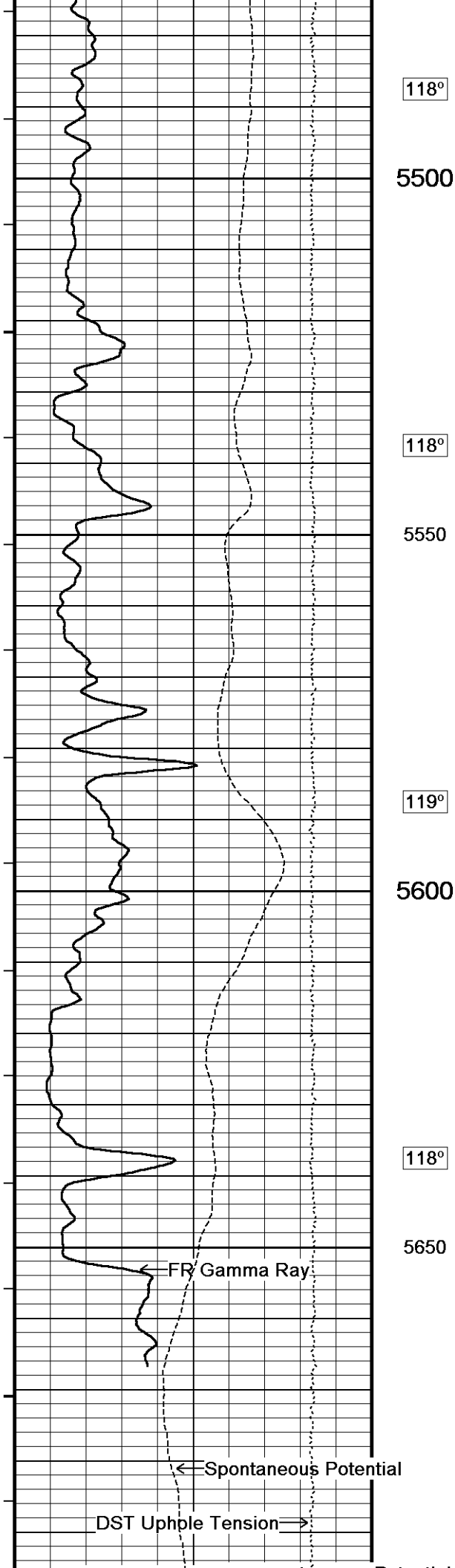


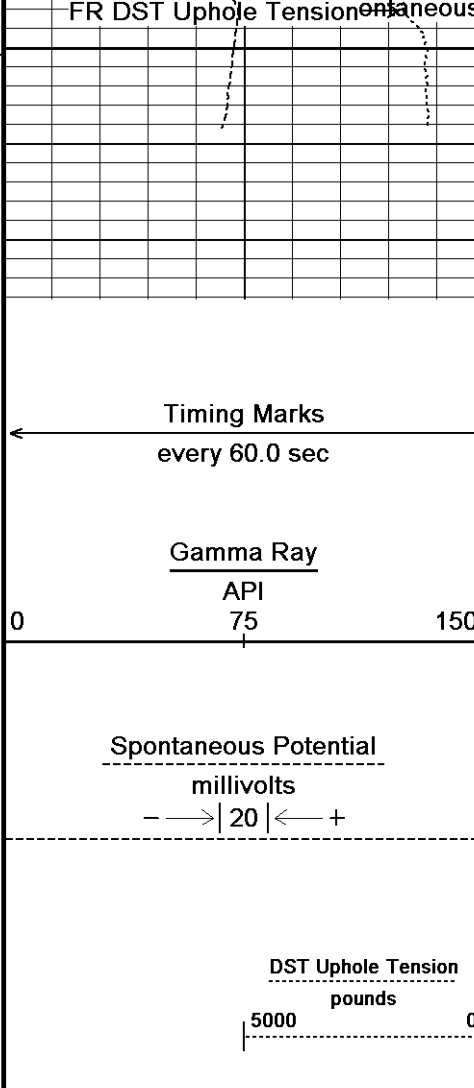
↑ 10 INCH HI-RES ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 12-JUN-2012 07:49  
 Filename: C:\Minimus 11\_03\_4044\Data\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2\_002.dta  
 Recorded on 12-JUN-2012 04:40  
 System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044







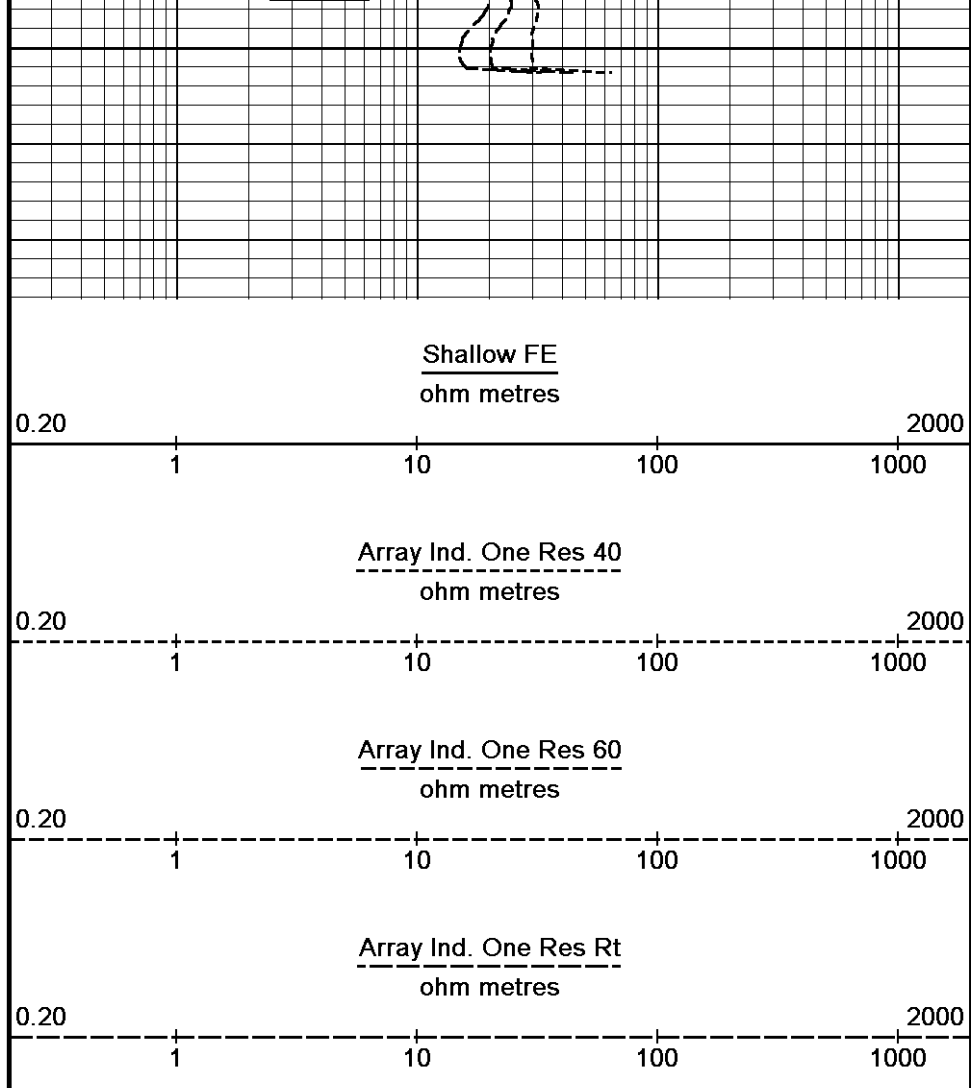
5700

5724

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 12-JUN-2012 07:49  
 Filename: C:\Minimus 11\_03\_4044\Data\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2\_002.dta  
 Recorded on 12-JUN-2012 04:40  
 System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

↑ REPEAT SECTION ↑

### BEFORE SURVEY CALIBRATION

C:\Minimus 11\_03\_4044\Data\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2.dta

General Constants All 000 Last Edited on 12-JUN-2012,00:57

General Parameters		
Mud Resistivity	0.520	ohm-metres
Mud Resistivity Temperature	86.000	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 11-JUN-2012 07:01

Reading No	Measured	Calibrated (lbs)
------------	----------	------------------

1	12381.30	0.00
2	13456.91	626.10

Gamma Calibration MCG-B 39		Field Calibration on 11-JUN-2012 22:28	
	Measured	Calibrated (API)	
Background	71	48	
Calibrator (Gross)	1152	773	
Calibrator (Net)	1081	725	

Gamma Constants MCG-B 39		Last Edited on 12-JUN-2012,00:58	
Gamma Calibrator Number	GRC038		
Mud Density	1.12	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

SP Calibration MCG-B 39		Field Calibration on 24-MAY-2012 10:26	
	Measured	Calibrated (mV)	
Reference 1	103.4	100.0	
Reference 2	-97.4	-100.0	

High Resolution Temperature Calibration MCG-B 39		Field Calibration on 02-APR-2012,14:03	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-B 39		Last Edited on	
Pre-filter Length	11		

Caliper Calibration MML-A 4		Base Calibration on 15-MAY-2012 17:25		Field Calibration on 11-JUN-2012 22:21	
Base Calibration					
Reading No	Measured	Calibrator Size (in)			
1	15117	5.98			
2	18514	7.97			
3	21781	9.86			
4	25834	11.92			
5	0	0.00			
6	N/A	N/A			
Field Calibration					
	Measured Caliper (in)	Actual Caliper (in)			
	6.15	5.98			

Micro Normal and Micro Inverse Calibration MML-A 4		Base Calibration on 15-MAY-2012 17:31				Field Check on 11-JUN-2012 22:22	
Base Calibration							
		Measured		Calibrated (ohm-m)			
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	Resistor 1	Resistor 2	Resistor 2
Micro Normal	12.2	60.3	5.0	25.0	5.0	25.0	25.0
Micro Inverse	15.7	78.5	5.0	25.0	5.0	25.0	25.0
Channel	Base Check (ohm-m)			Field Check (ohm-m)			
Micro Normal	62.8			62.8			
Micro Inverse	48.2			48.2			

Micro Normal and Micro Inverse Constants MML-A 4		Last Edited on 05-JUN-2012,09:46			
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-B.J 387		Base Calibration on 15-MAY-2012 16:34				Field Check on 11-JUN-2012 22:34	
Base Calibration							
		Measured		Calibrated (cps)			
	Near	Far	Near	Far	Near	Far	Far
	2995	90	3714	110	3714	110	110

Ratio

33.447

33.764

Field Calibrator at Base

Calibrated (cps)
1667      2508

Ratio

0.664

Field Check

Calibrated (cps)
1684      2520

Ratio

0.668

Neutron Constants MDN-B.J 387

Last Edited on 11-JUN-2012,22:29

Neutron Source Id	P0204NN	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
Caliper Source for Processing	Bit Size	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 15-MAY-2012 17:11  
Field Check on 11-JUN-2012 21:59

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.4	126.8
Base Check		281.4
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 11-JUN-2012,21:57

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

Induction Calibration MAI-A.A 178

Base Calibration on 15-MAY-2012,14:15  
Field Check on 11-JUN-2012 21:57

Base Calibration

Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel		Low	High	Low	High
1		17.6	484.7	9.3	966.2
2		6.2	391.4	7.6	821.4
3		4.0	264.5	5.2	566.0
4		2.3	135.1	2.6	279.2

Array Temperature      77.0      Deg F

Channel		Base Check (mmho/m)		Field Check (mmho/m)	
		Low	High	Low	High
1		0.0	0.0	12.8	3763.7
2		0.0	0.0	29.7	3467.4
3		0.0	0.0	27.2	3014.2
4		0.0	0.0	18.8	2064.9
Deep		0.0	0.0	15.9	1995.4
Medium		0.0	0.0	40.1	3955.3
Shallow		0.0	0.0	45.4	5082.5

Array Temperature

0.0

83.1

Deg F

## Induction Constants MAI-A.A 178

Last Edited on 11-JUN-2012,21:58

Induction Model		RtAP-WBM	
Caliper for Borehole Corr.		Density Caliper	
Hole Size for Borehole Correction		N/A	inches
Tool Centred		No	
Stand-off Type		Fins	
Stand-off		0.50	inches
Number of Fins on Stand-off		8.0000	
Stand-off Fin Angle		45.00	degrees
Stand-off Fin Width		0.5000	inches
Borehole Corr. Rm Source		Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature		
Squasher Start		0.0020	mhos/metre
Squasher Offset		N/A	mhos/metre
Borehole Normalisation			
DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

## Calibration Site Corrections

Channel 1		0.00	mmhos/metre
Channel 2		0.00	mmhos/metre
Channel 3		0.00	mmhos/metre
Channel 4		0.00	mmhos/metre

## Apparent Porosity and Water Saturation Constants

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	

## High Resolution Temperature Calibration MAI-A.A 178

Field Calibration on 0C4030110004,

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

## High Resolution Temperature Constants MAI-A.A 178

Last Edited on 0C4060522000,

Pre-filter Length	11
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## Caliper Calibration MPD-B 35

Base Calibration on 15-MAY-2012 15:38

Field Calibration on 11-JUN-2012 22:00

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	21260	3.99
2	31424	5.98
3	41761	7.97
4	51280	9.86
5	61536	11.92
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.95	5.98

## Photo Density Calibration MPD-B 35

Base Calibration on 15-MAY-2012 15:56

Field Check on 11-JUN-2012 22:19

Density Calibration			
Base Calibration			
	Measured	Calibrated (sdu)	
	Near	Near	Far

	Near	Far	Near	Far
Reference 1	62707	32170	59556	30836
Reference 2	26808	2860	24941	2541

Field Check at Base  
1145.6 1360.5

Field Check  
1139.6 1353.5

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	206	1009		
Reference 1	23065	62504	0.372	0.371
Reference 2	7038	26659	0.266	0.272

Field Check at Base  
206.0 1009.0

Field Check  
204.7 1004.2

Density Constants MPD-B 35

Last Edited on 12-JUN-2012,00:58

Density Source Id	18235B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	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)	
2.71	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\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2.dta

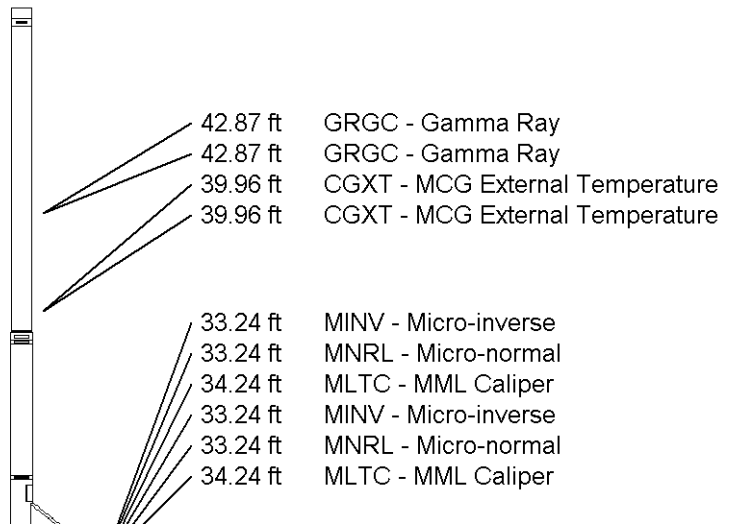
Compact Comms Gamma  
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Comms Gamma  
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log  
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Micro-log  
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron  
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in



Compact Neutron  
MDN-B.J 387 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

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

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

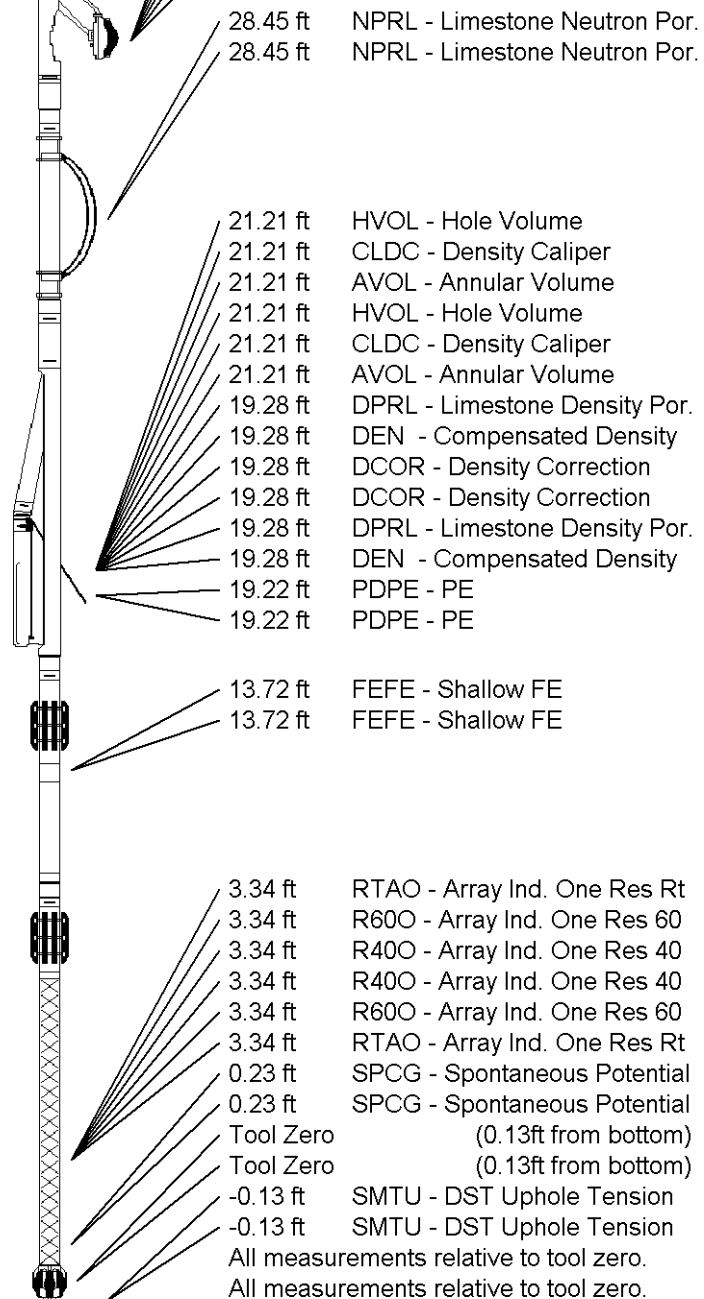
Compact Focused Electric  
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction  
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Compact Induction  
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 48.16 ft Weight: 383.6 lb

Total Length: 48.16 ft Weight: 383.6 lb



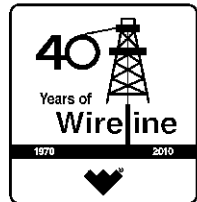
**COMPANY** O'BRIEN ENERGY RESOURCES CORP.  
**WELL** ARDREY #1-2  
**FIELD** ARDREY  
**PROVINCE/COUNTY** CLARK  
**COUNTRY/STATE** U.S.A. / KANSAS

Elevation Kelly Bushing	2541.00	feet	First Reading	5693.00	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2529.00	feet	Depth Logger	5696.00	feet



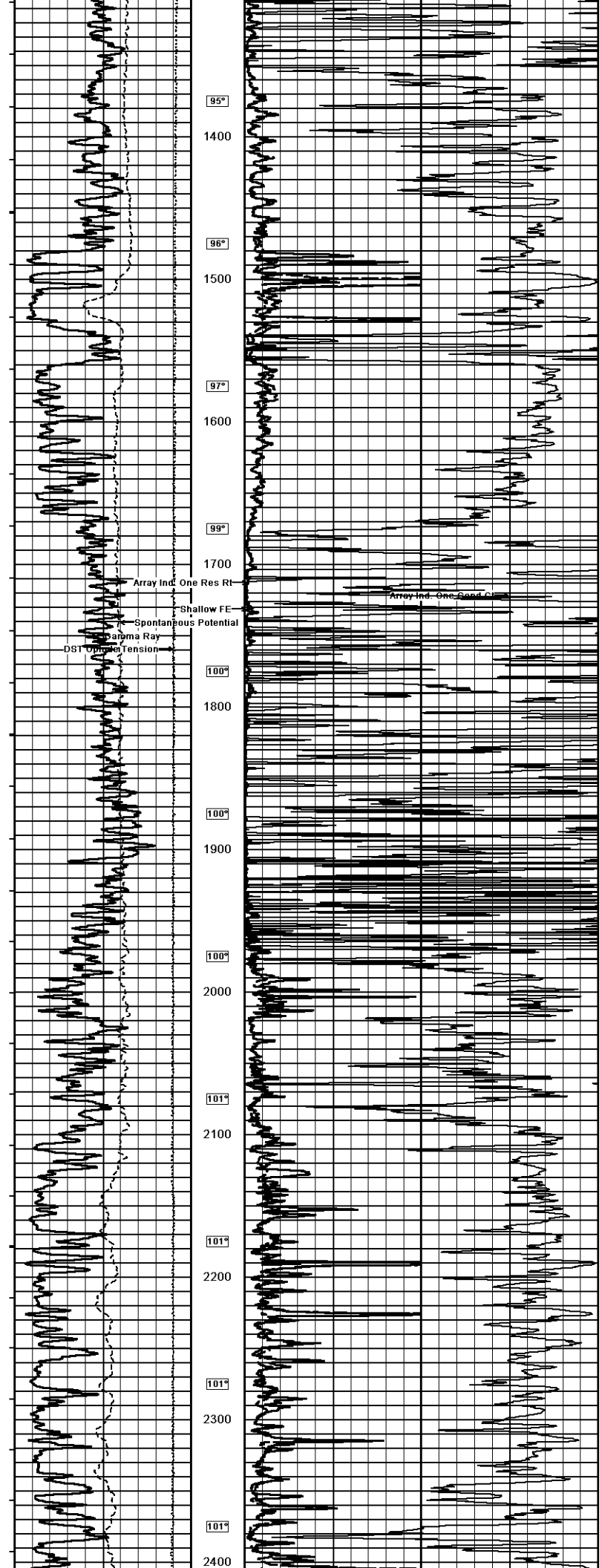
**Weatherford®**

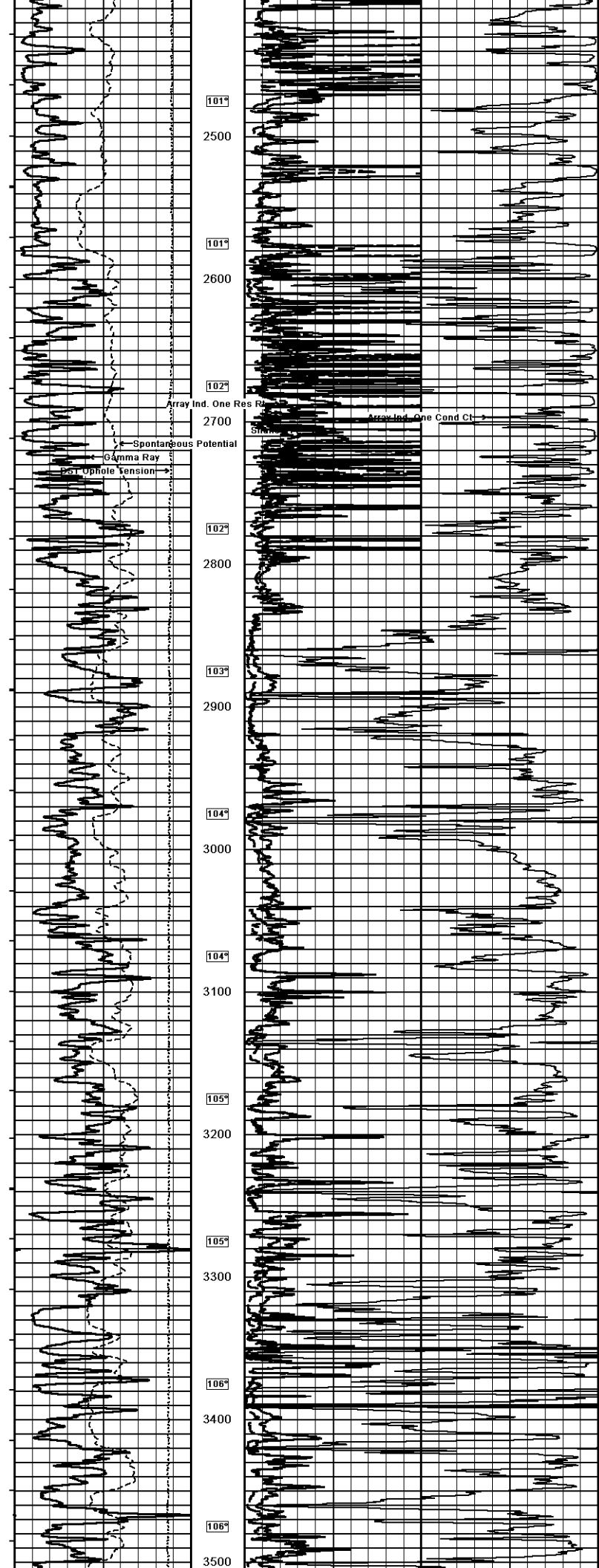
**ARRAY INDUCTION  
SHALLOW FOCUSED  
ELECTRIC LOG**

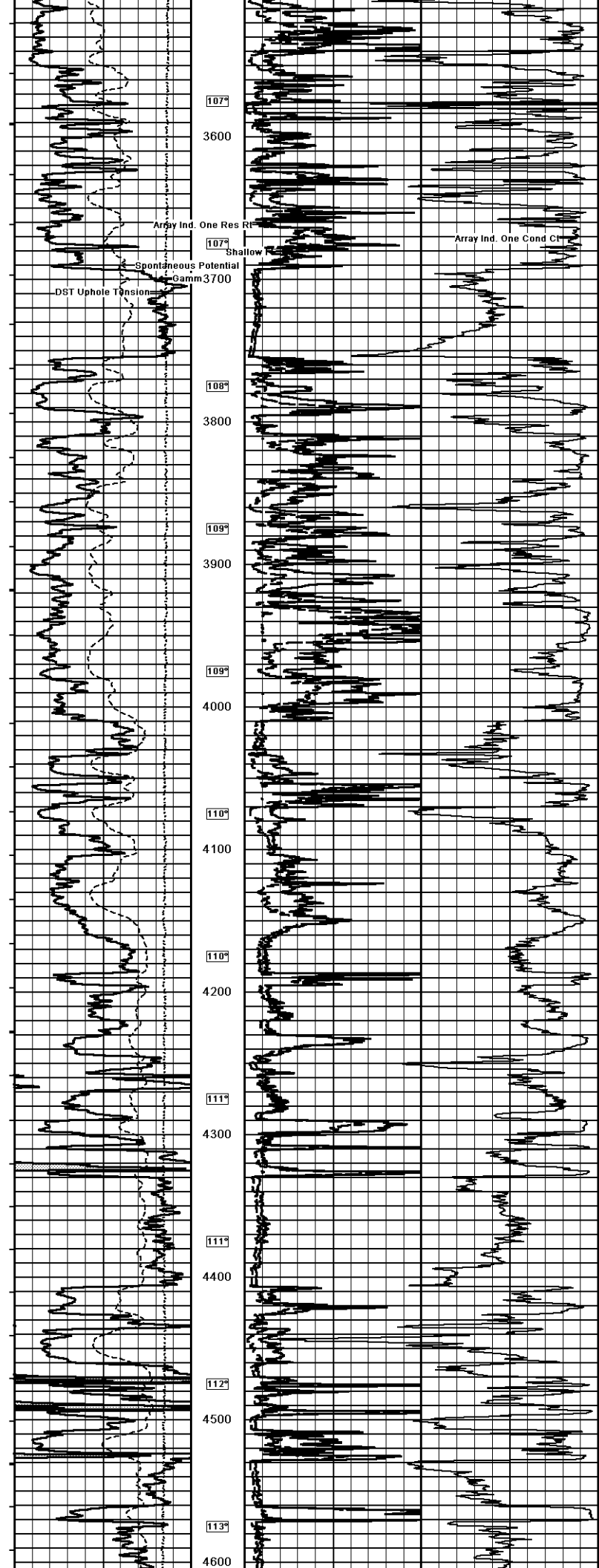


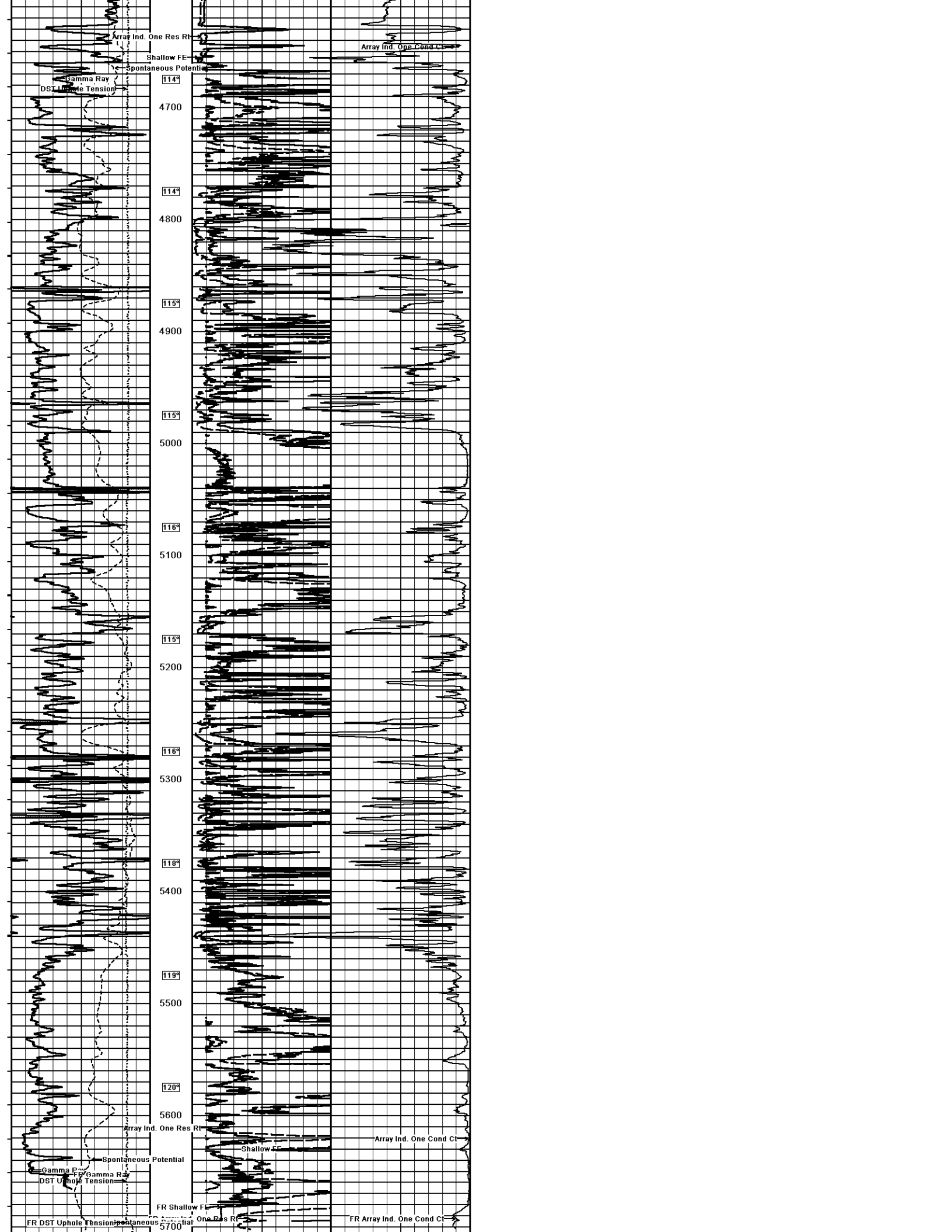
Company	Weatherford
Well	ARDREY #1-2
Field	ARDREY
Province/County	CLARK
Country/State	U.S.A. / KANSAS
Location	
SEC	
TWP	
R1S	
Log Number	1544
Permit Number	
Permanent Datum	0
Log Measured From	
Drilling Measured From	
Date	
Run Number	
Depth Driller	
Depth Logger	
First Reading	
Last Reading	
Casing Driller	
Casing Logger	
Bit Size	
Hole Fluid Type	
Density/Viscosity	
pH/Fluid Loss	
Sample Source	
Run @ Measured To	
Run @ Measured From	
Source Firm/ Firm	
Run @ BHT	
Time Since Circulation	
Max Recorded Temp	
Equipment Name	
Equipment Base	
Recorded By	
Assessed By	
SO# 1009#	

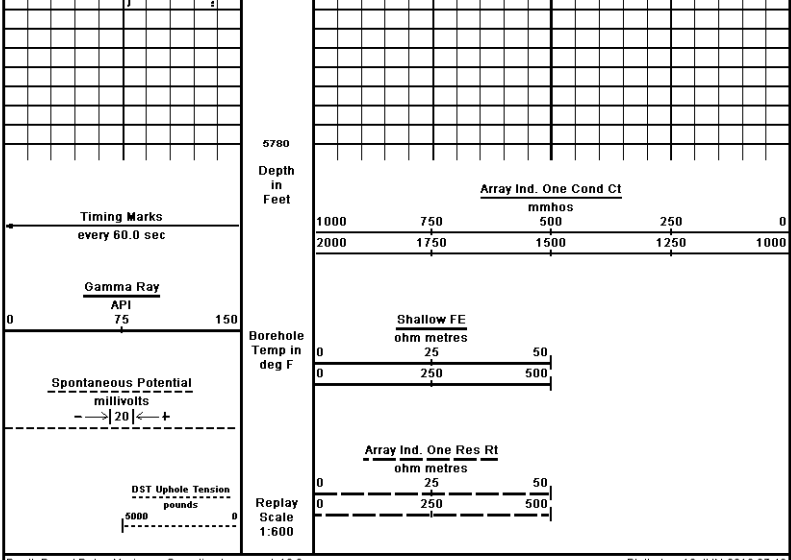












Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 12-JUN-2012 07:49  
 Filename: C:\Minimus 11\_03\_4044\Data\O'Brien Ardrey 1-2\O'Brien Ardrey 1-2\_003.dta  
 Recorded on 12-JUN-2012 05:13  
 System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

1 INCH MAIN

COMPANY	O'BRIEN ENERGY RESOURCES CORP.				
WELL	ARDREY #1-2				
FIELD	ARDREY				
PROVINCE/COUNTY	CLARK				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Busting	2541.00	feet	First Reading	5693.00	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2529.00	feet	Depth Logger	5696.00	feet

**Weatherford** ARRAY INDUCTION  
SHALLOW FOCUSED  
ELECTRIC LOG