



Weatherford

**SHALLOW FOCUSED
ARRAY INDUCTION
ELECTRIC LOG**

COMPANY	PETROSANTANDER (USA), INC.									
WELL	SCOTT #6-13									
FIELD	CHRISTABELLE									
PROVINCE/COUNTY	KEARNY									
COUNTRY/STATE	U.S.A. / KANSAS									
LOCATION	660' FNL & 330' FWL									
SEC 13	TWP 21S	RGE 35W	Other Services			MML				
Latitude			MPD/MDN							
Longitude										
API Number	15-093-21924									
Permanent Datum GL, Elevation 3094 feet										
Log Measured From KB										
Drilling Measured From KB @ 12 FEET						Elevations: KB 3106.00 DF 3104.00 GL 3094.00				
Date	13-AUG-2014									
Run Number	ONE									
Service Order	7606-95087167									
Depth Driller	5010.00					feet				
Depth Logger	5012.00					feet				
First Reading	5008.66					feet				
Last Reading	523.00					feet				
Casing Driller	521.00					feet				
Casing Logger	523.00					feet				
Bit Size	7.875					inches				
Hole Fluid Type	CHEMICAL									
Density / Viscosity	9.15 lb/USg		50.00 CP							
PH / Fluid Loss	9.50		10.00 ml/30Min							
Sample Source	MUDPIT									
Rm @ Measured Temp	0.71 @ 75.0		ohm-m							
Rmf @ Measured Temp	0.57 @ 75.0		ohm-m							
Rmc @ Measured Temp	0.85 @ 75.0		ohm-m							
Source Rmf / Rmc	CALC		CALC							
Rm @ BHT	0.47 @116.0		ohm-m							
Time Since Circulation	4 HOURS									
Max Recorded Temp	116.00		deg F							
Equipment / Base	13057		LIB							
Recorded By	BEN WELDIN									
Witnessed By	WES HANSEN									
JOB #	LB14-232									

BOREHOLE RECORD

Last Edited: 13-AUG-2014 01:21

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	521.00
7.875	521.00	5010.00

CASING RECORD

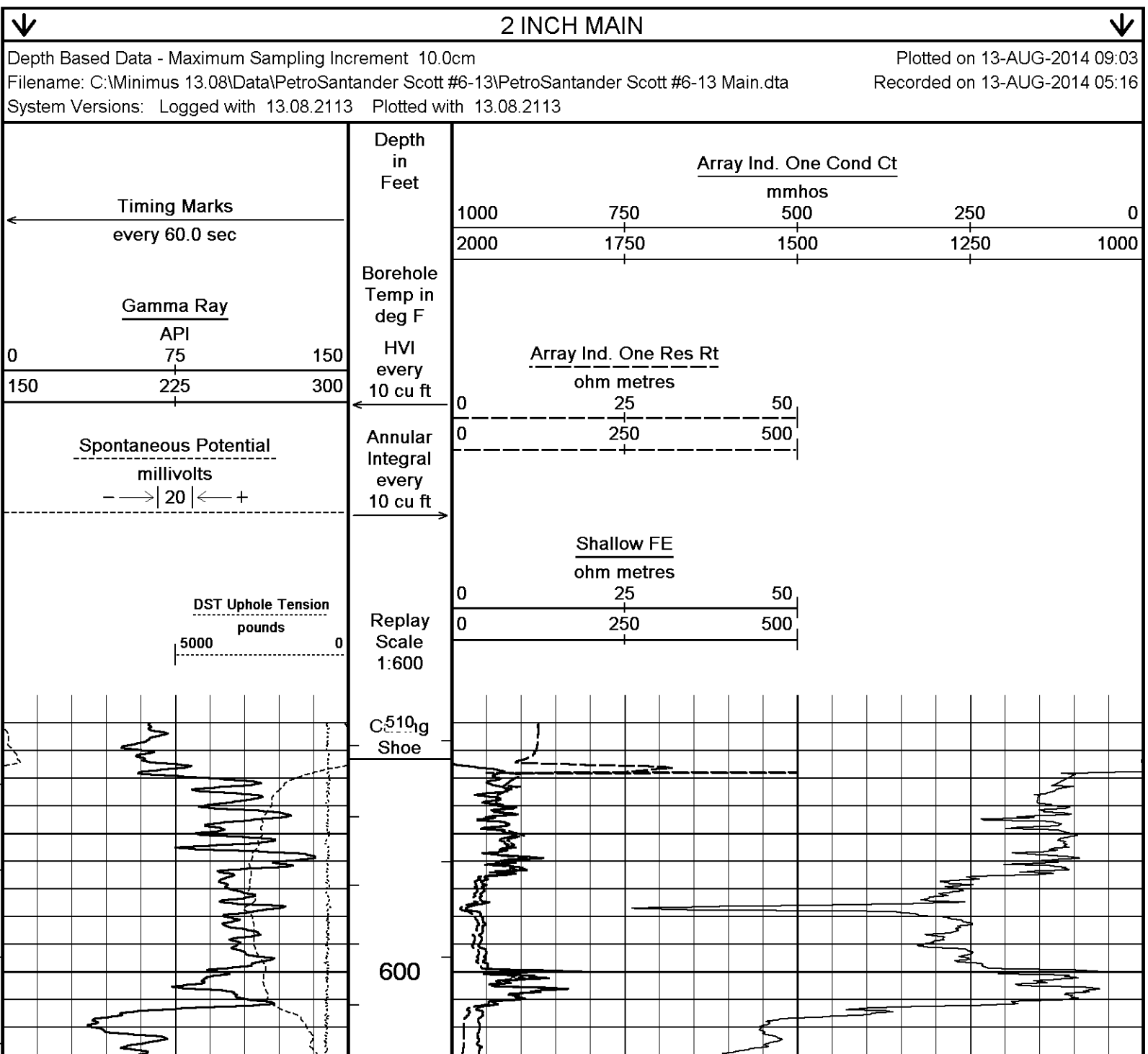
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	521.00	24.00

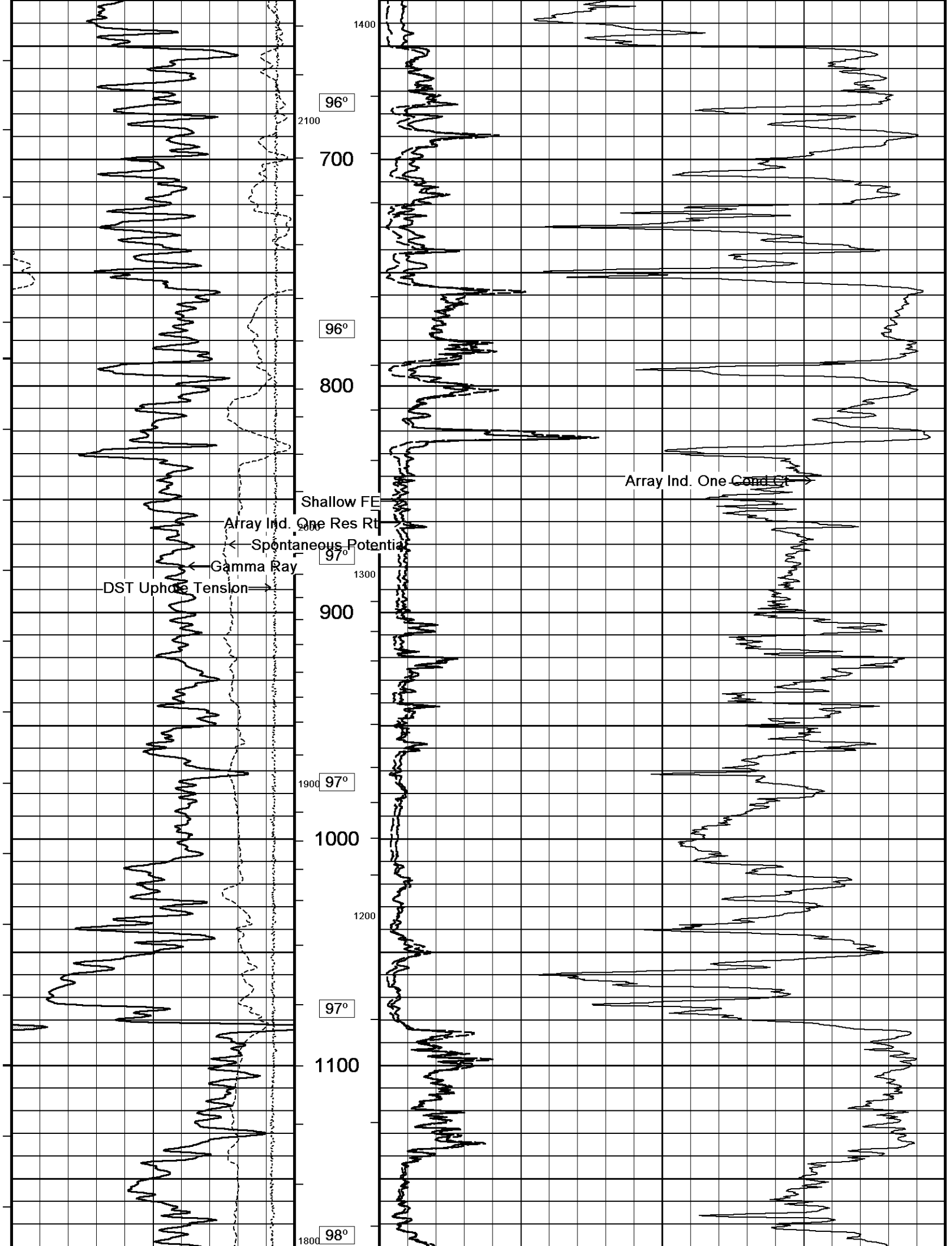
REMARKS

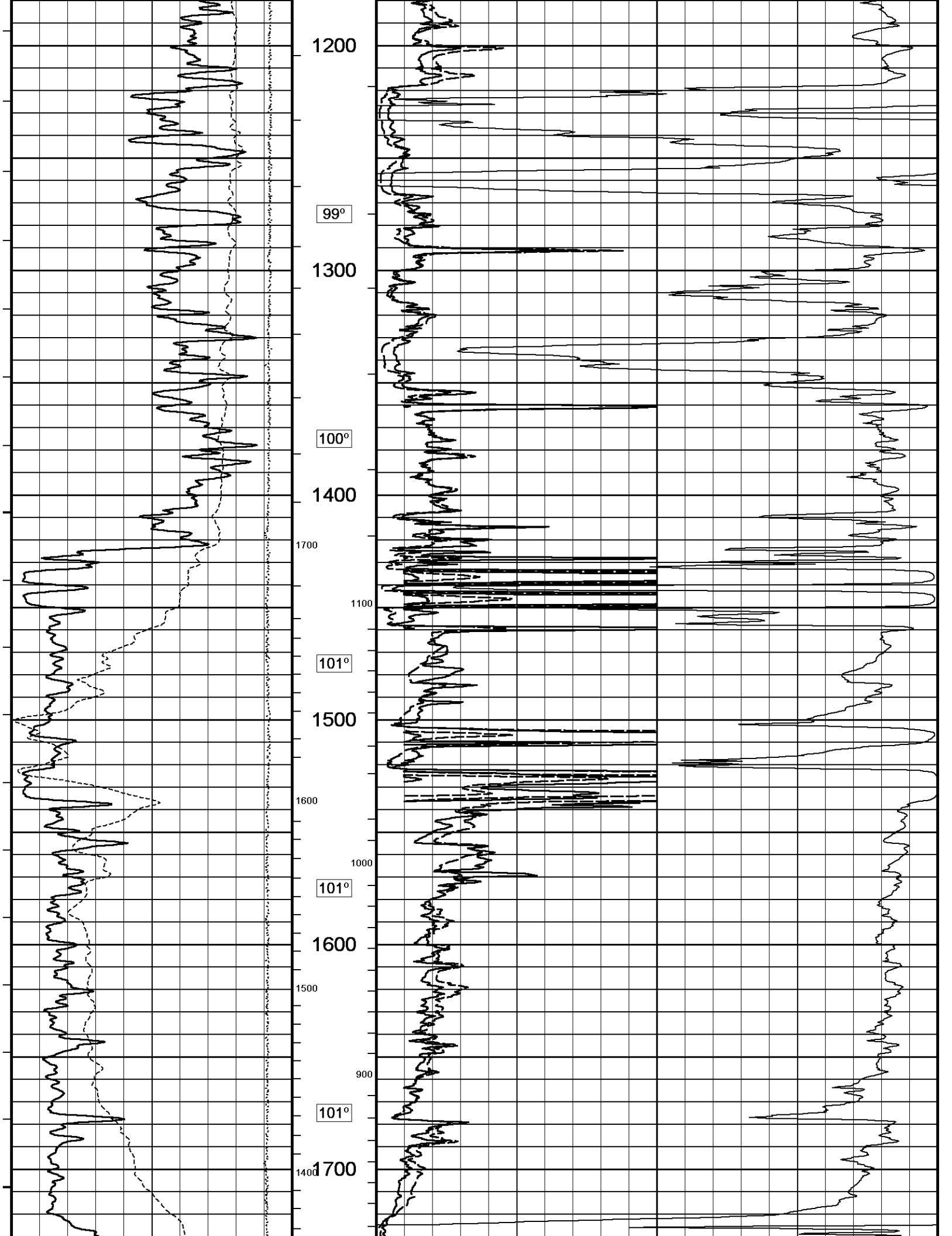
- SOFTWARE ISSUE: WLS 13.08.2113.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 2170 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1430 CU.FT.

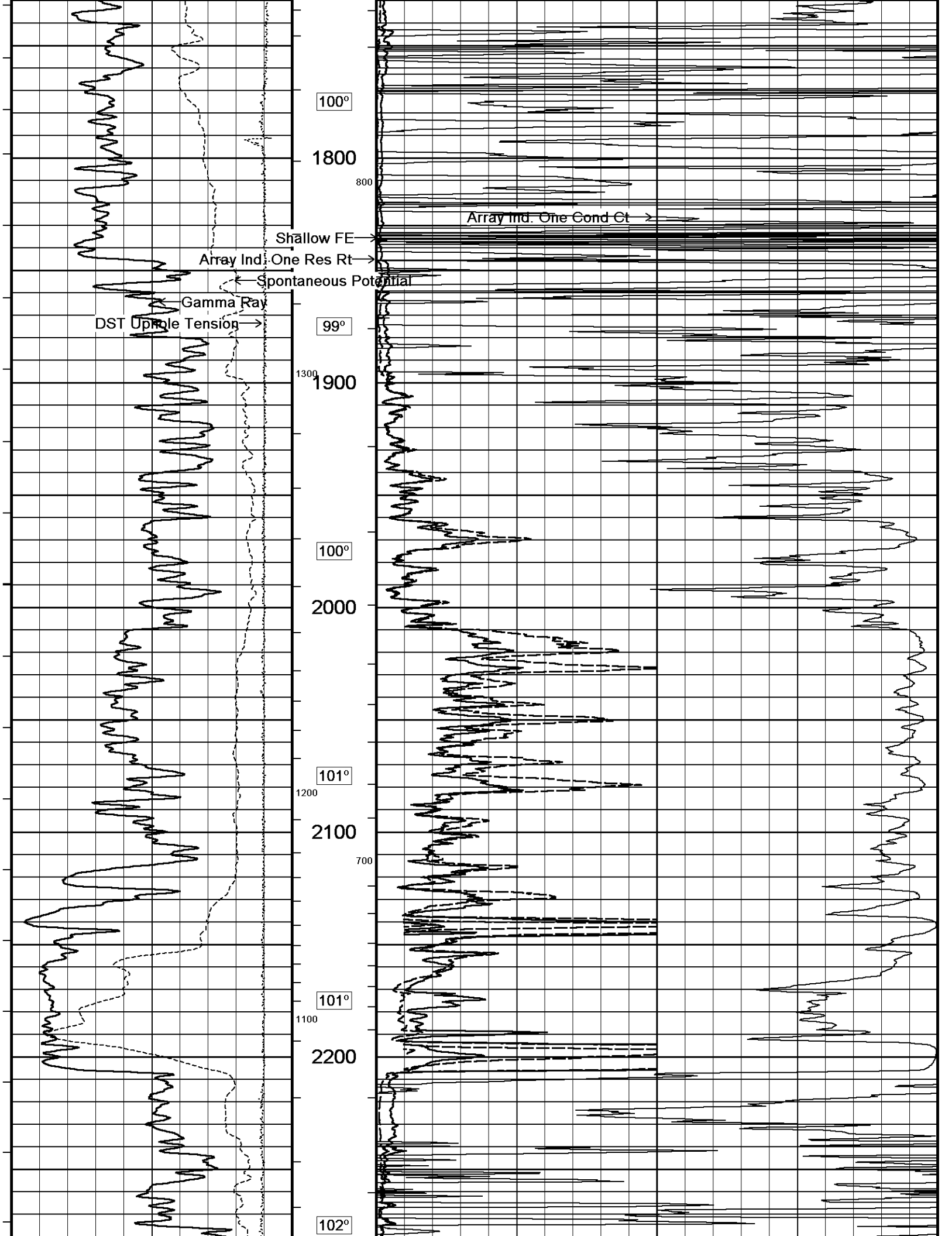
- RIG: VAL RIG #1
- ENGINEER: BEN WELDIN
- OPERATOR: KEN RINEHART

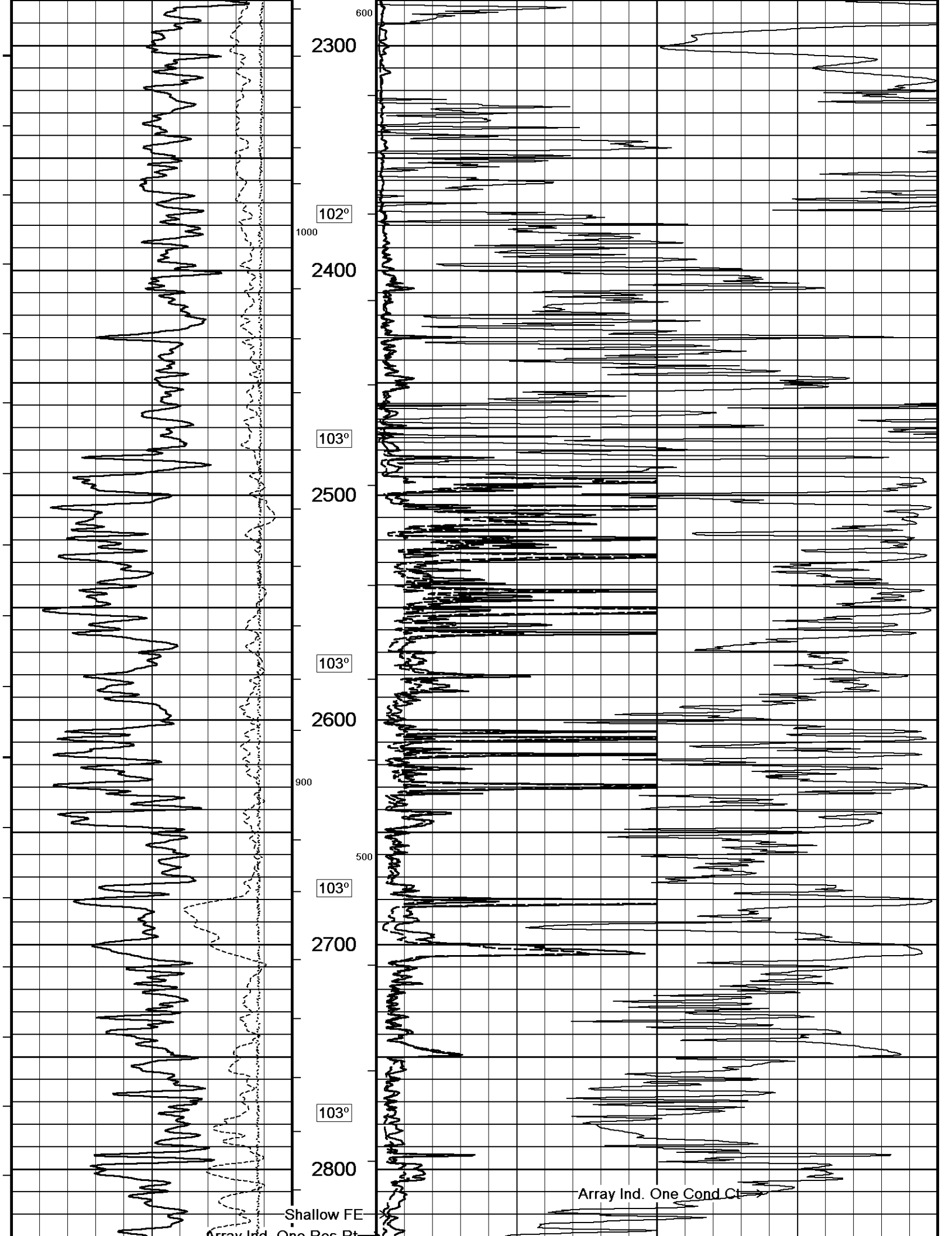
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

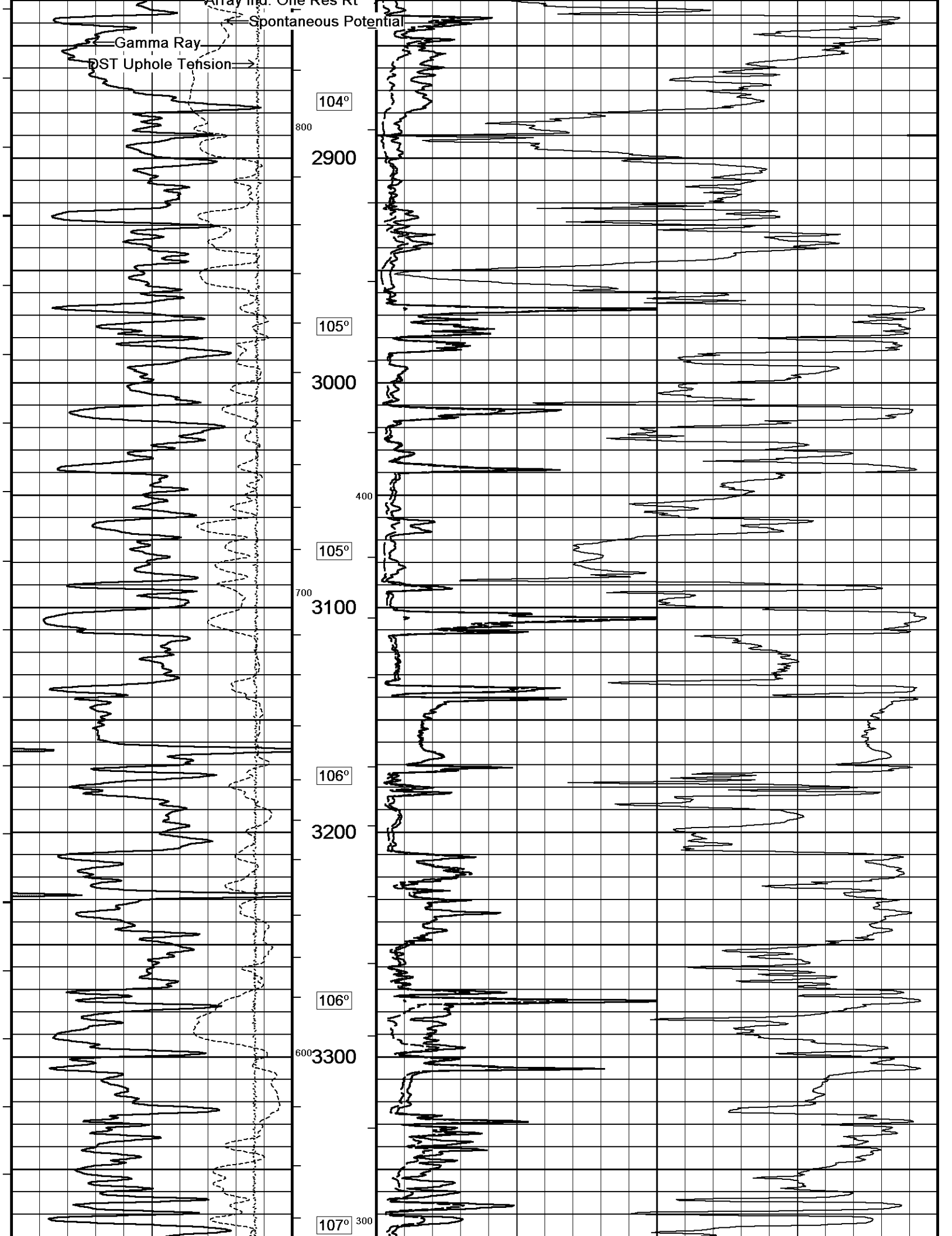


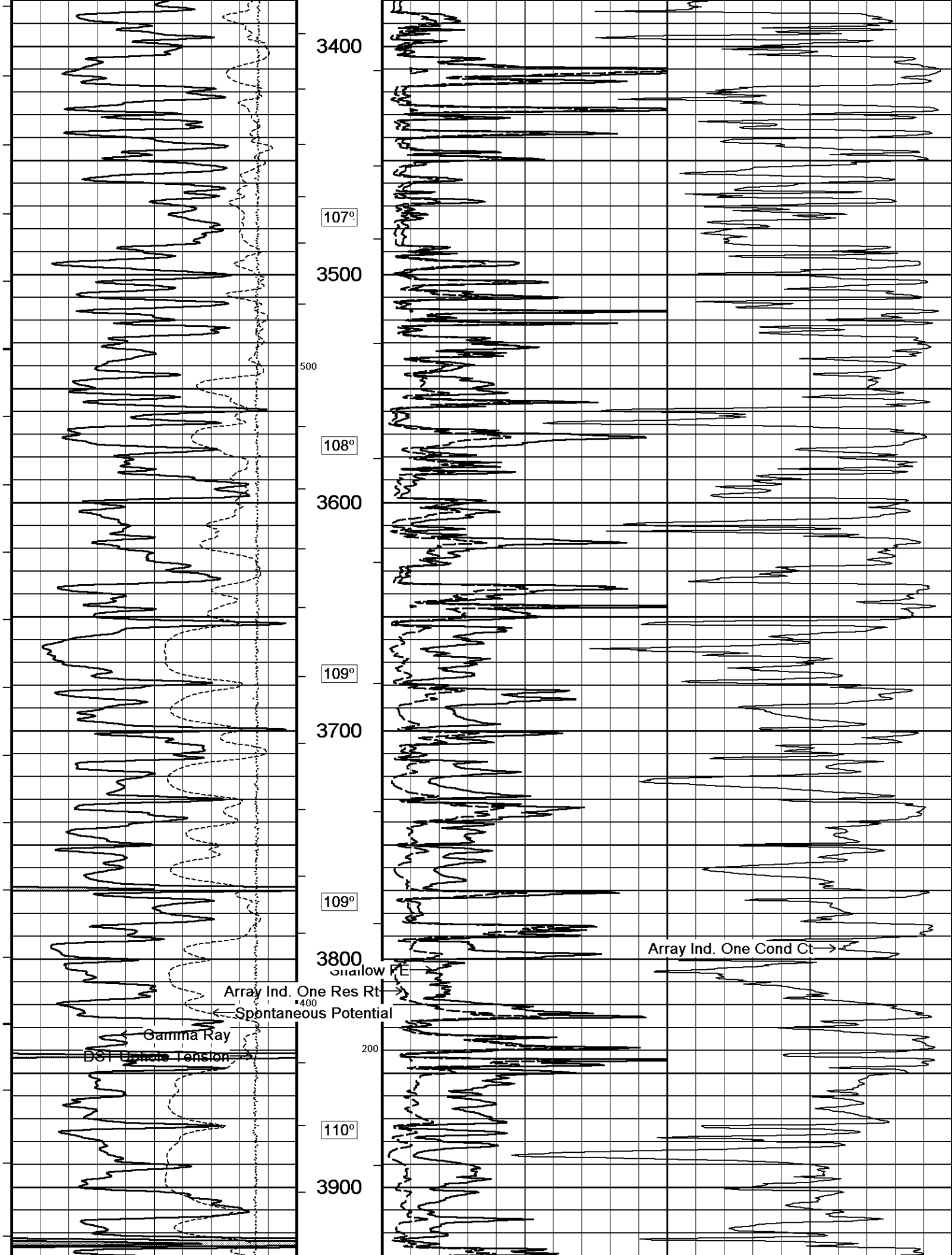


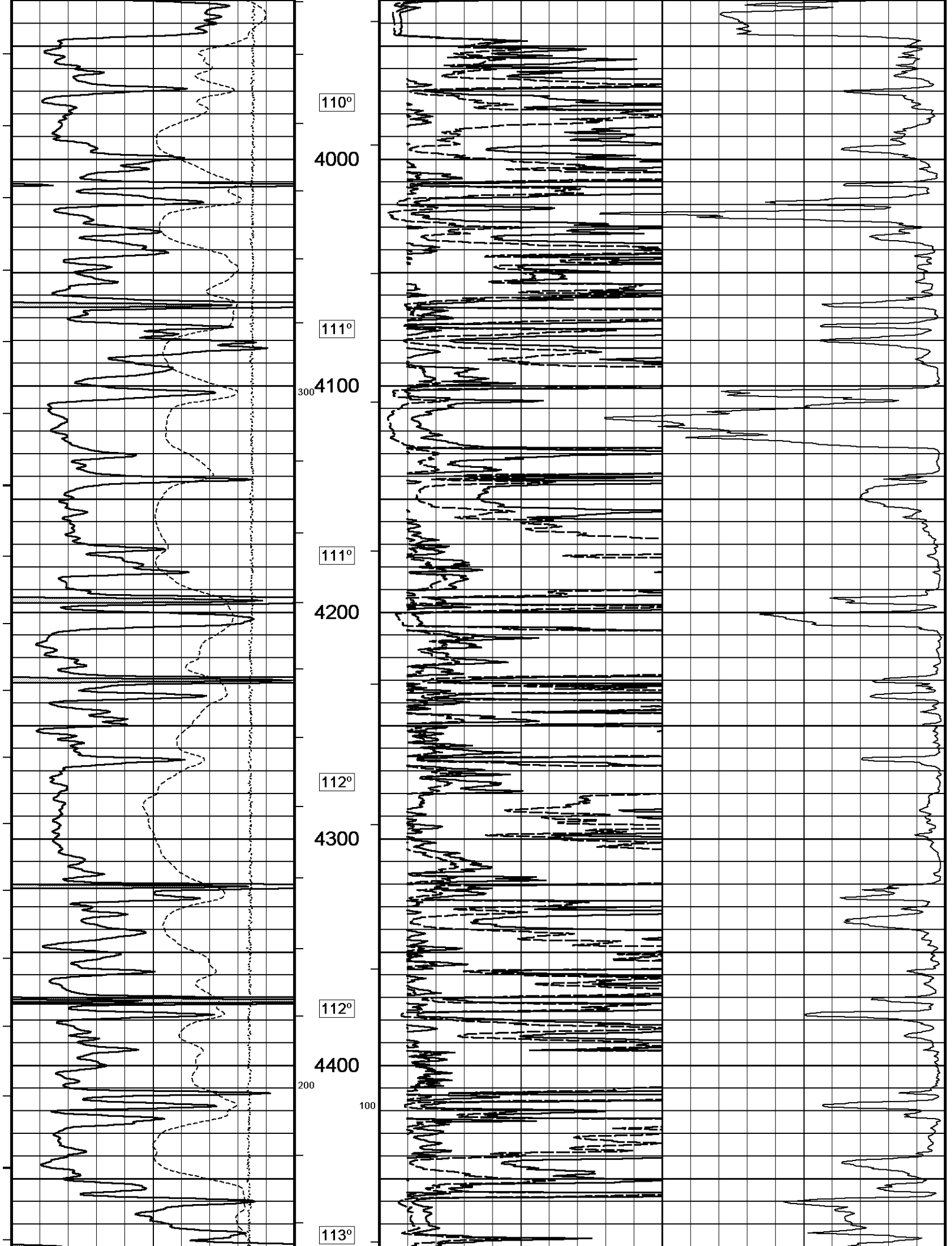


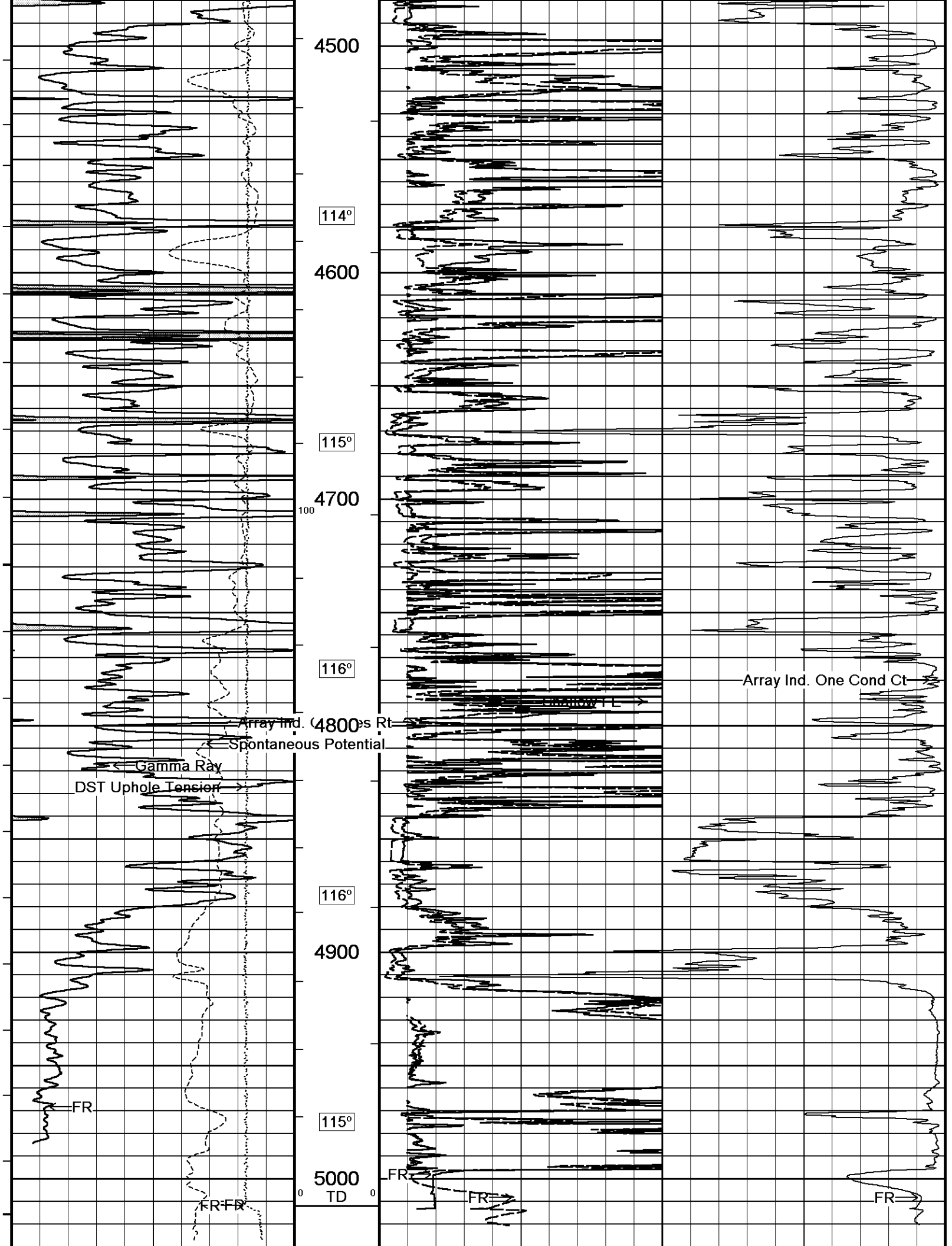


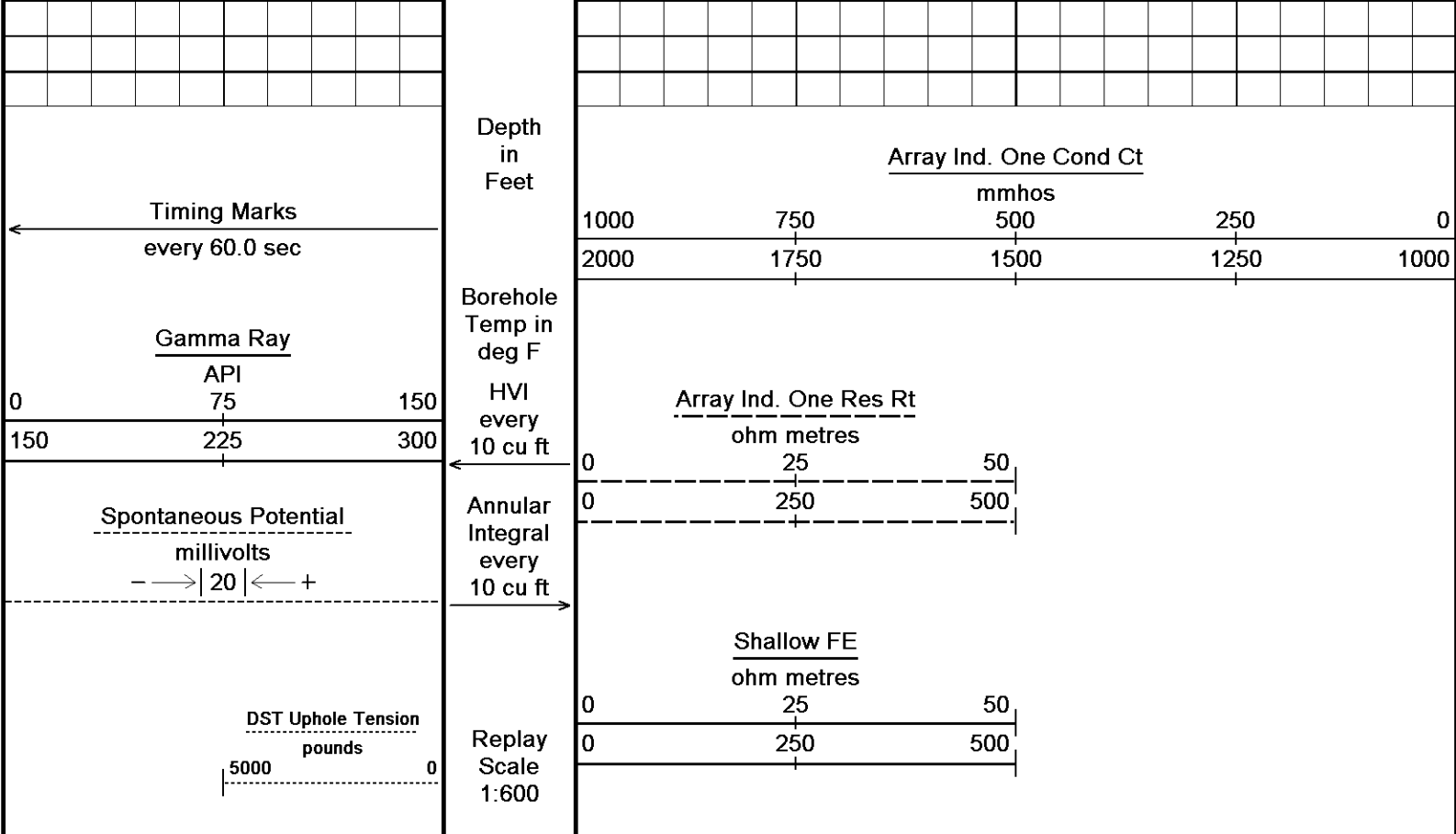












Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 13-AUG-2014 09:03

Filename: C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta

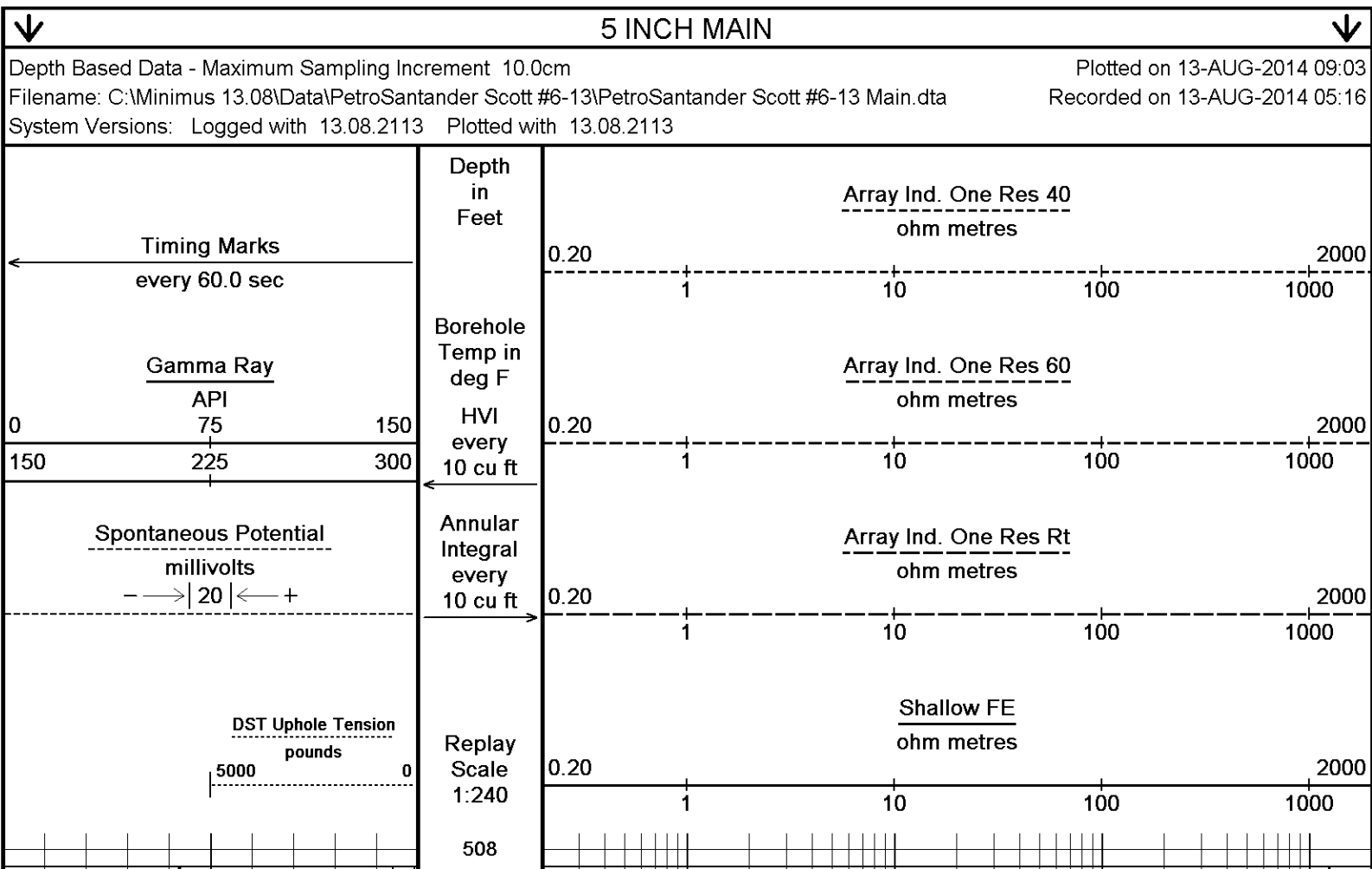
Recorded on 13-AUG-2014 05:16

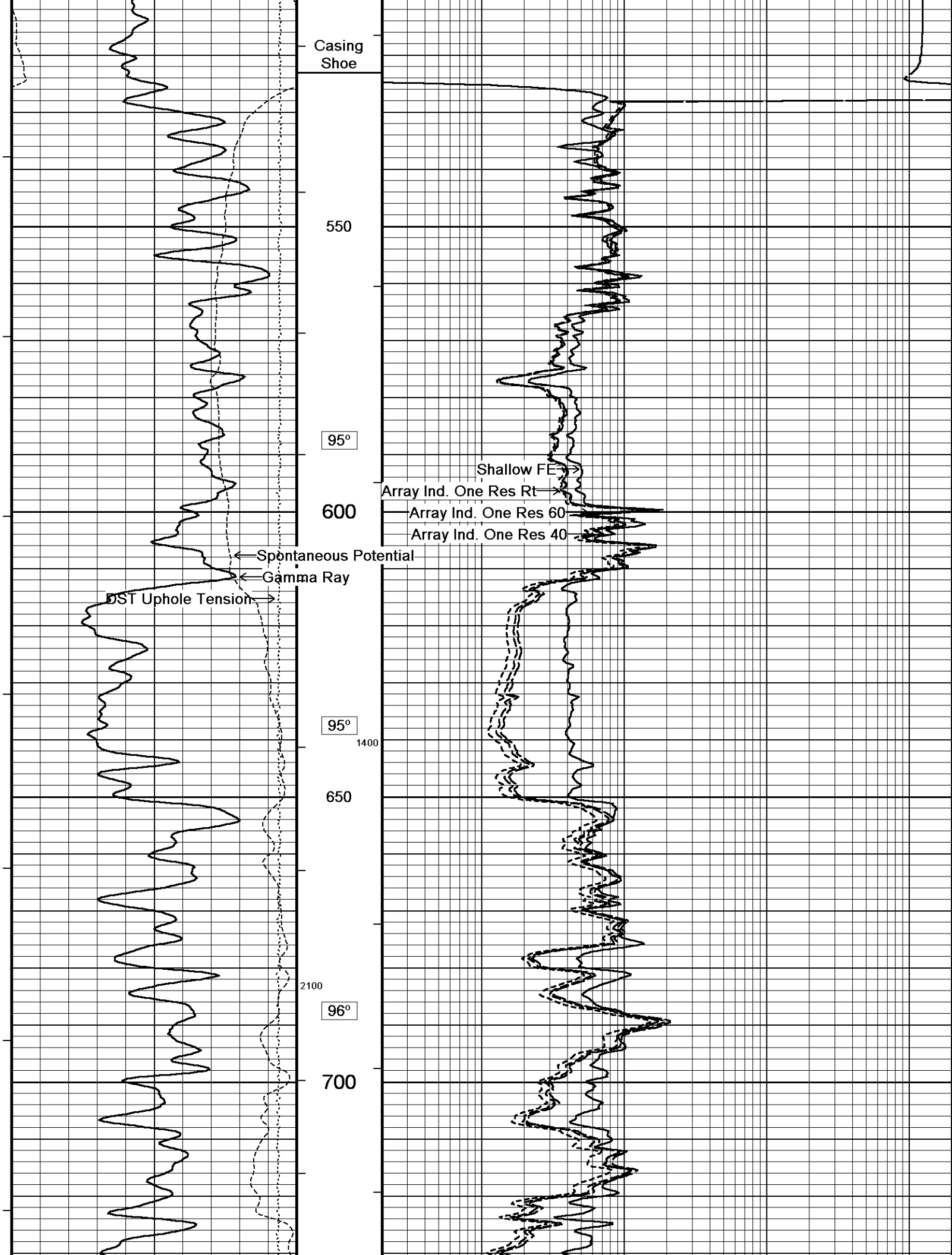
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

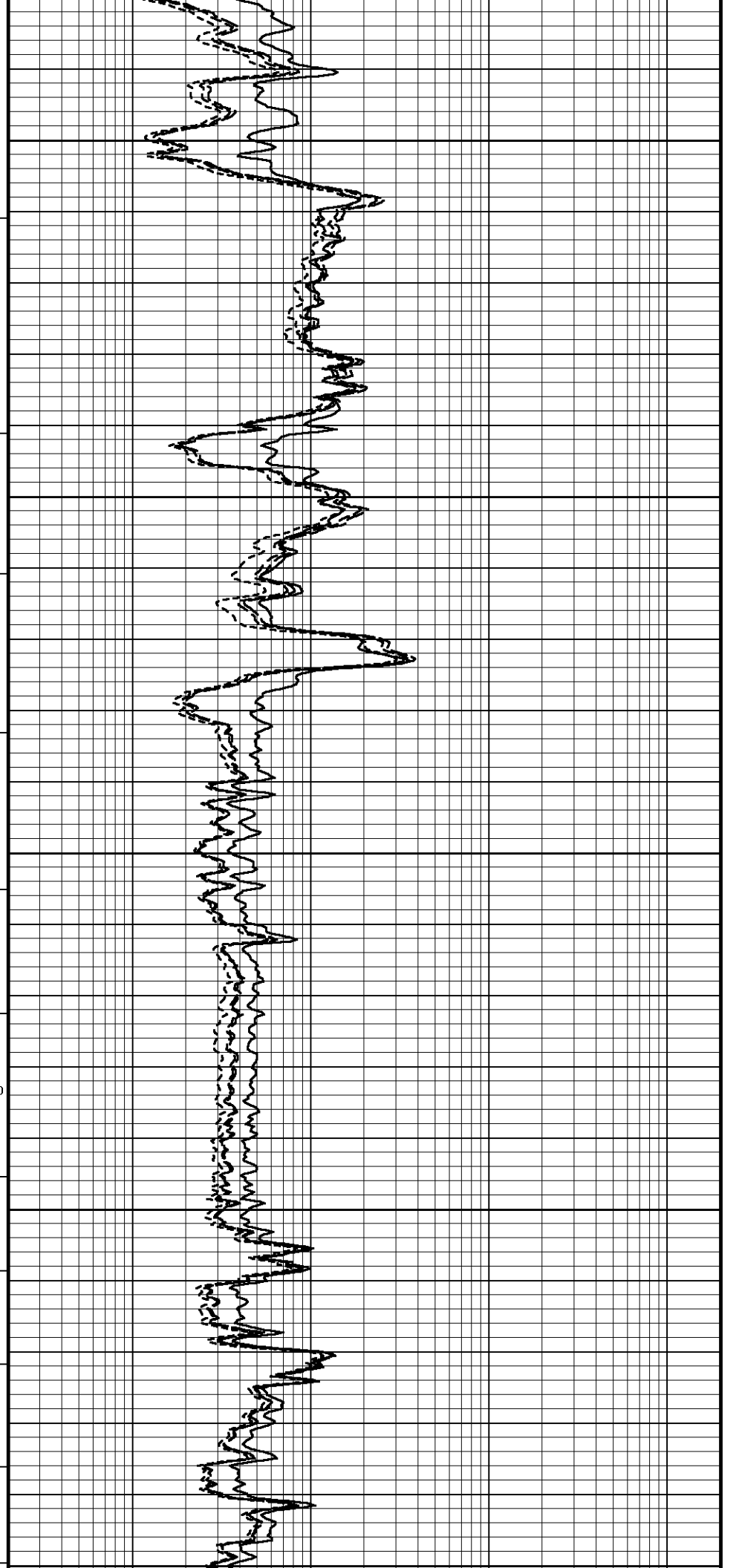
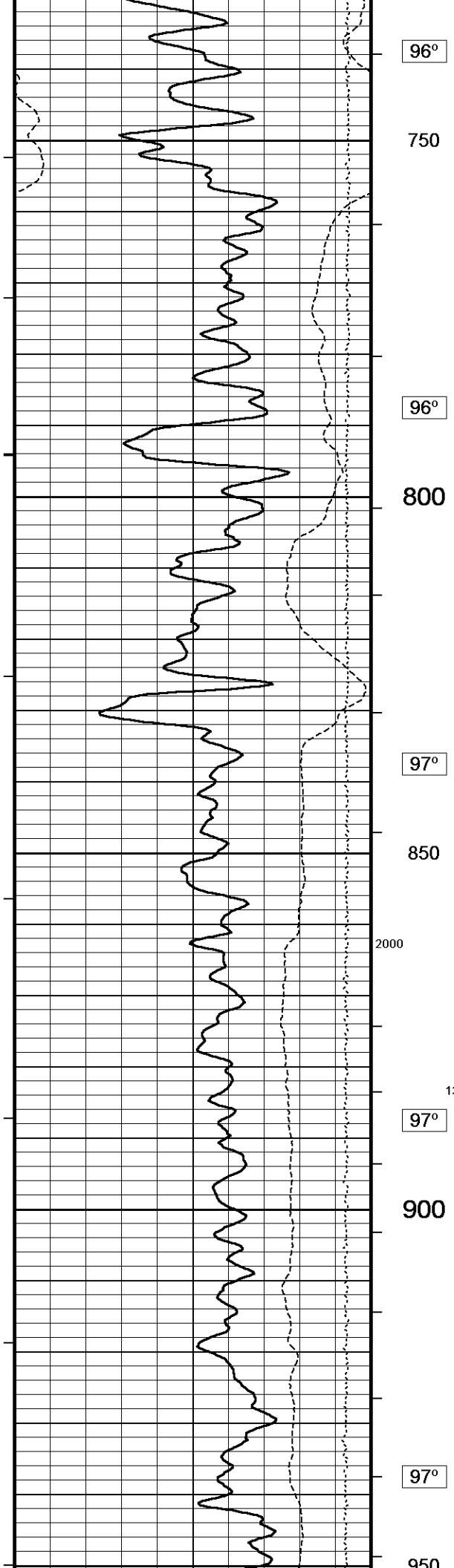
↑

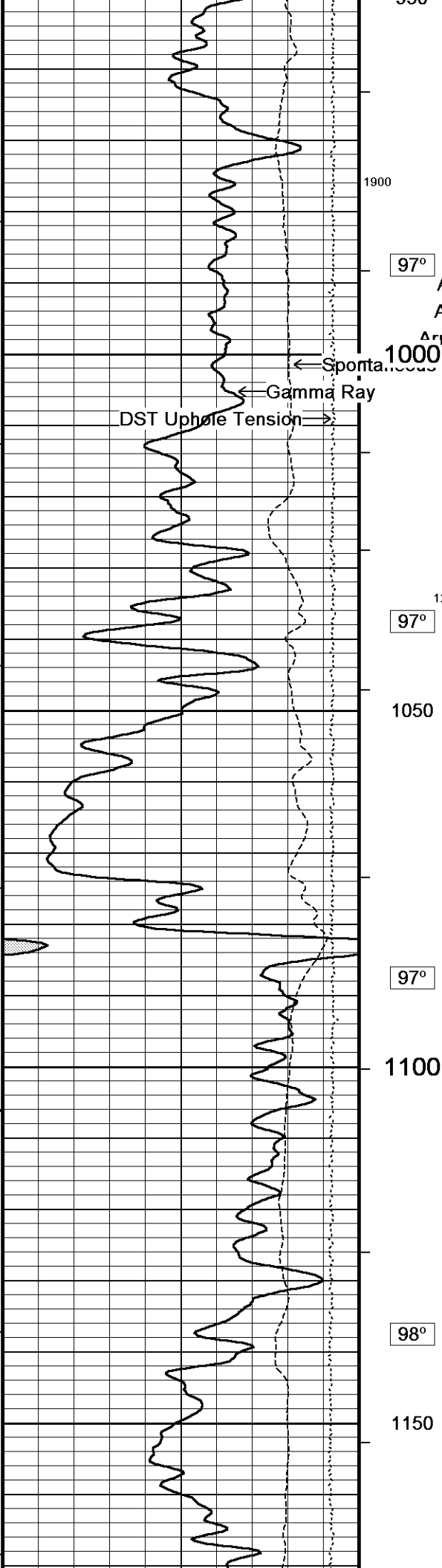
2 INCH MAIN

↑









97°

Shallow FEE

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

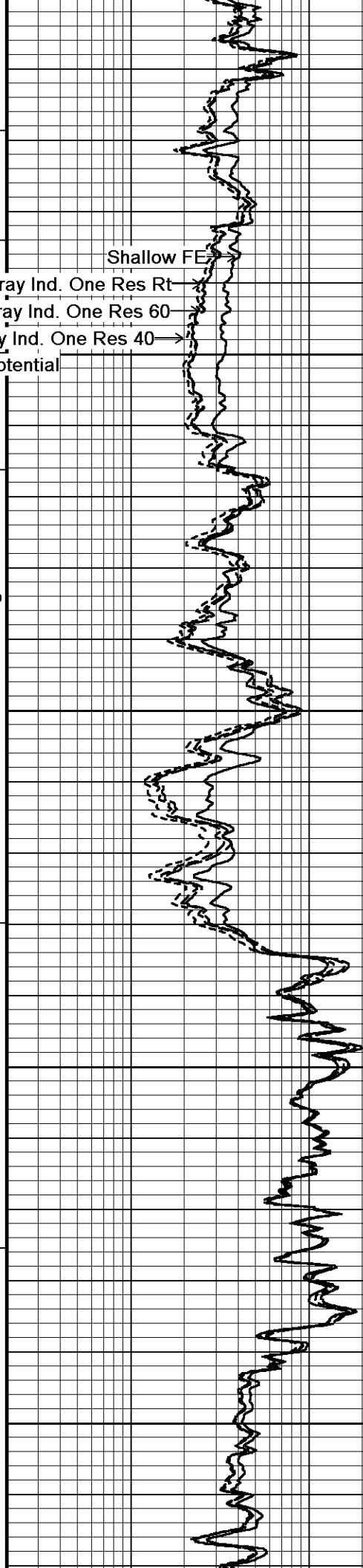
1000

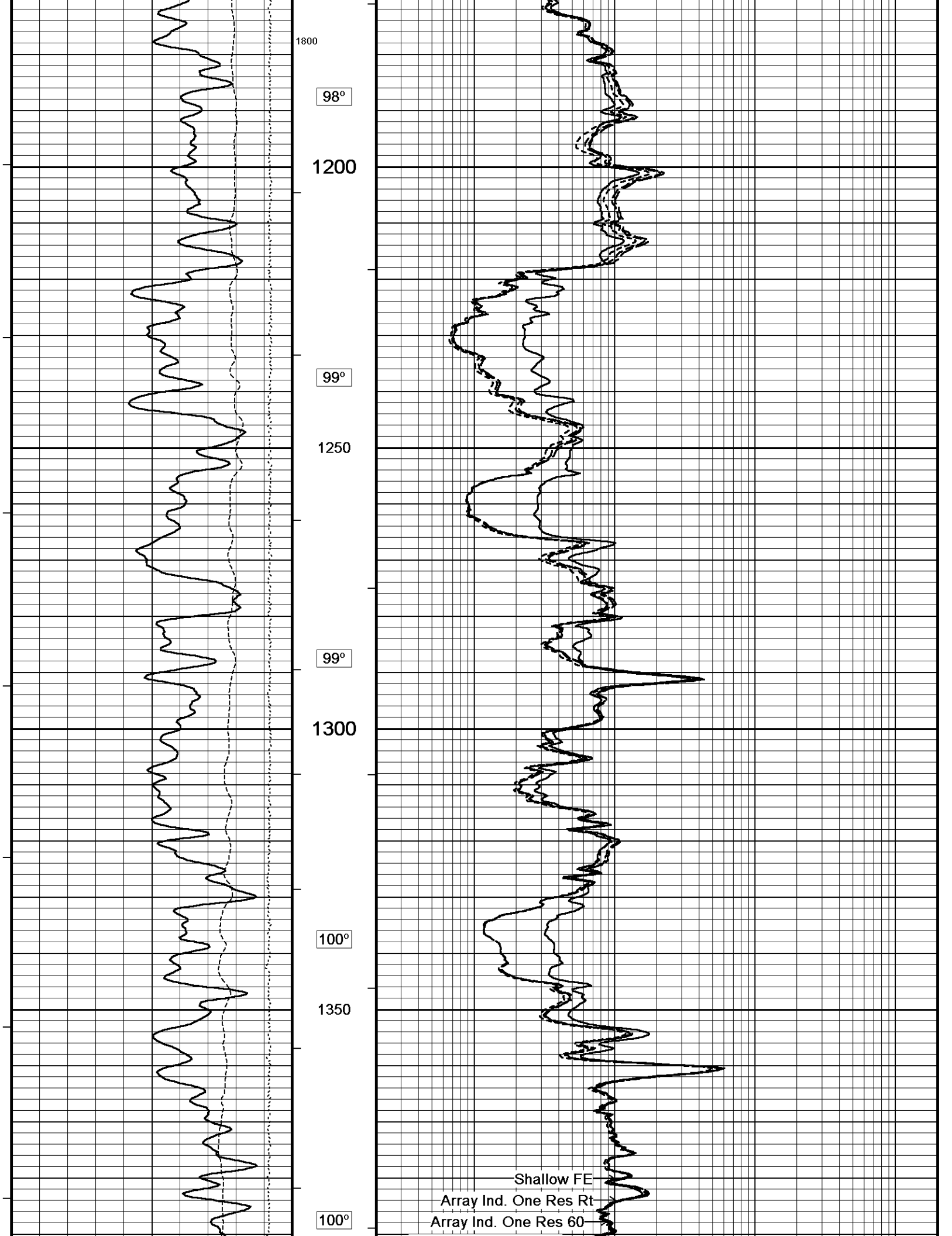
Potential

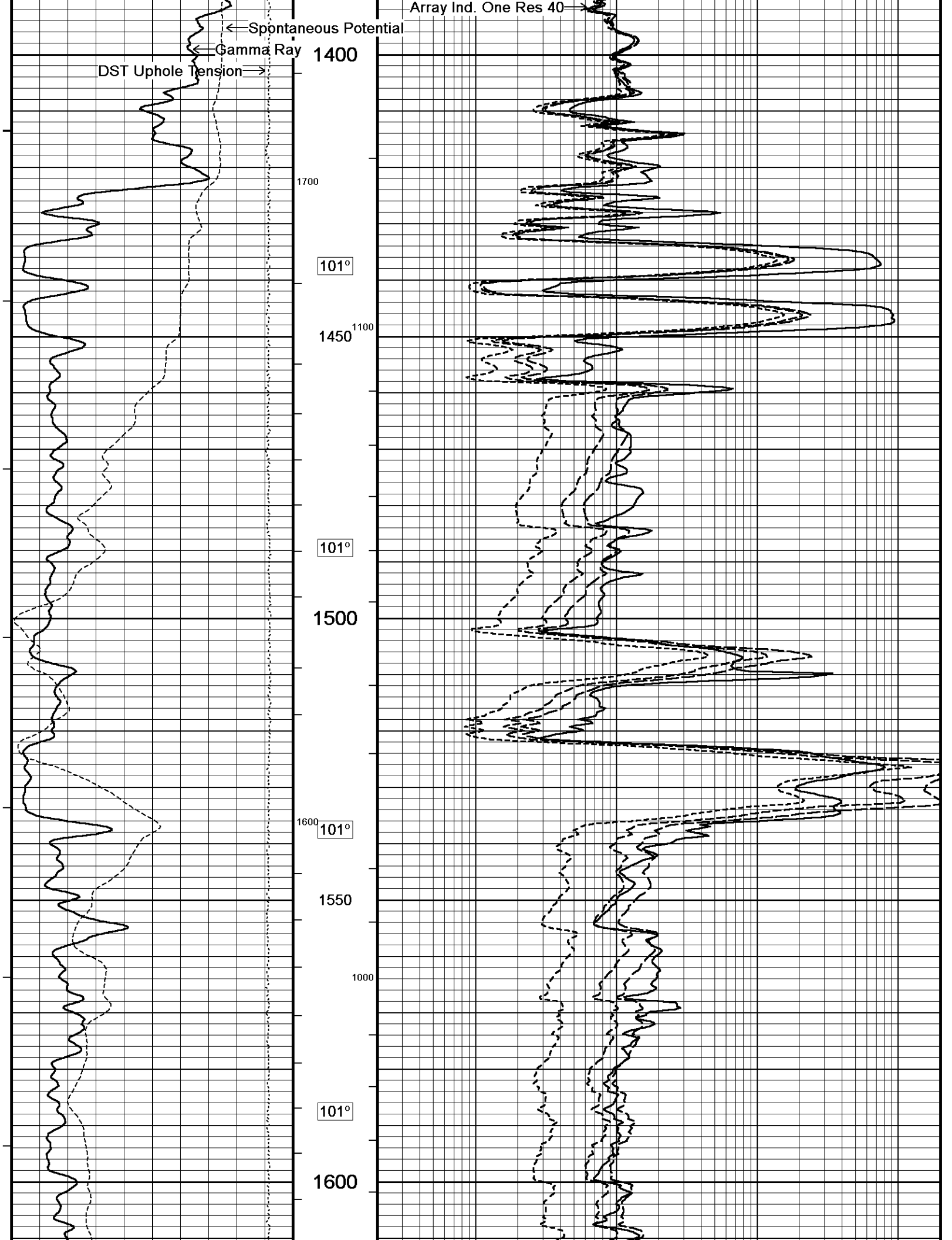
97°

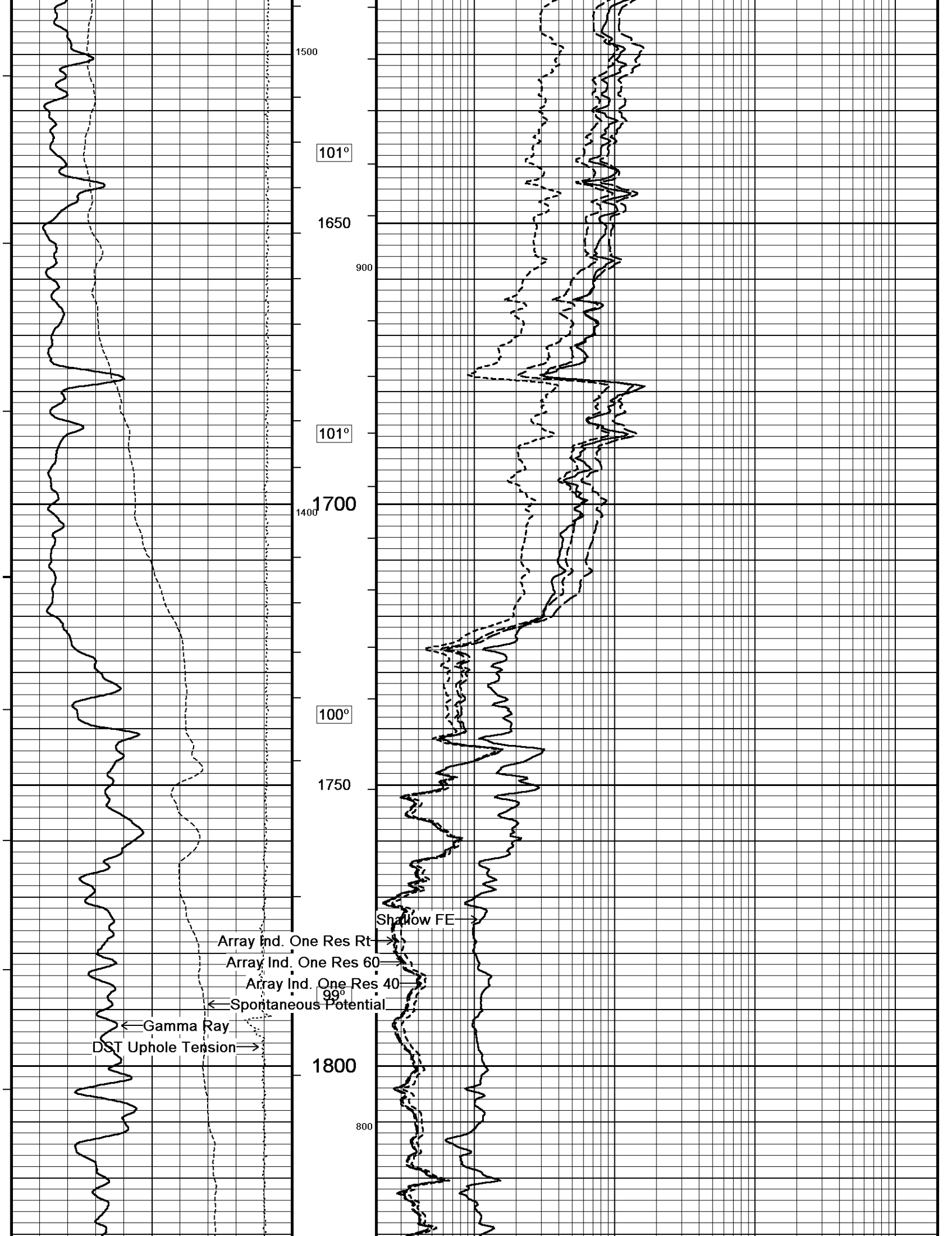
97°

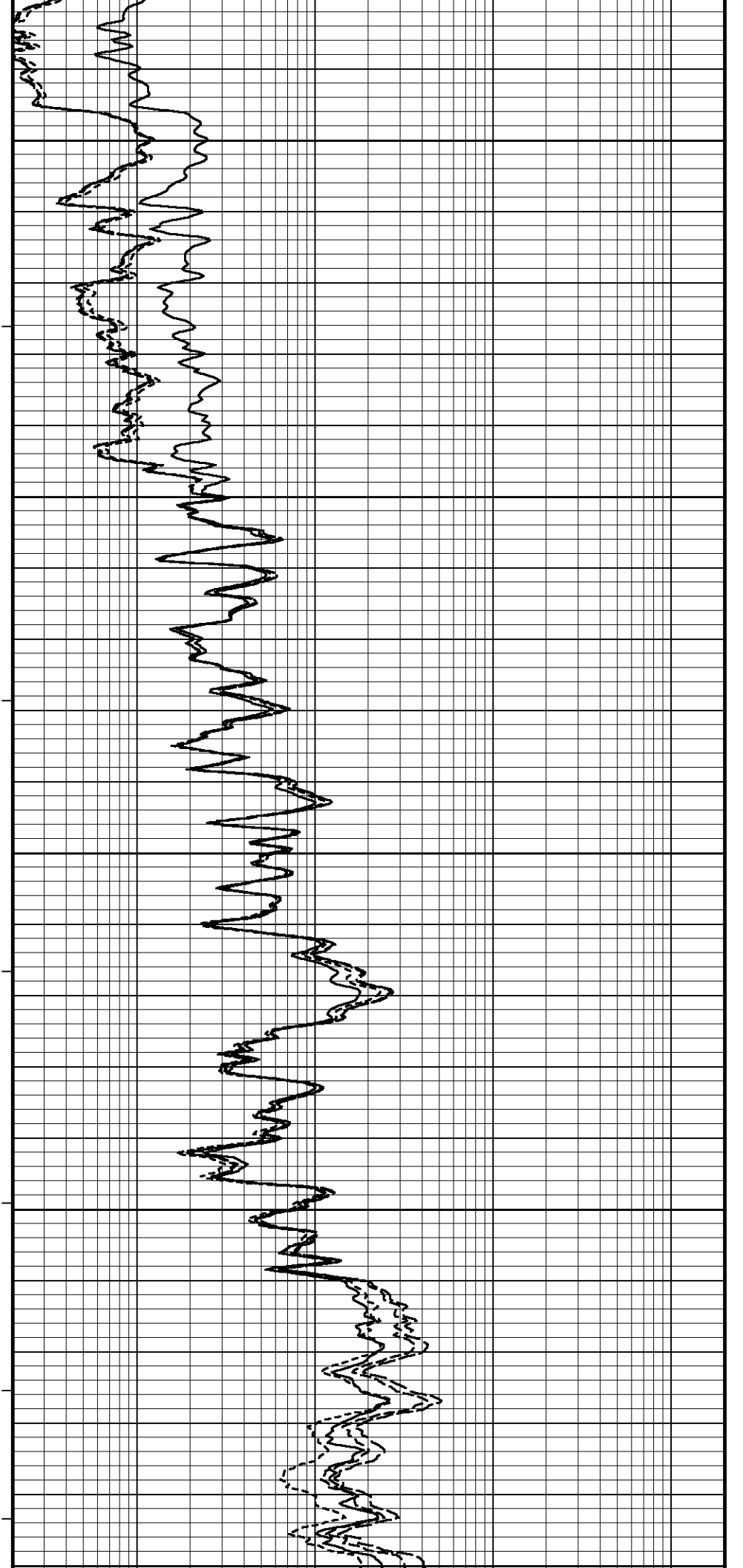
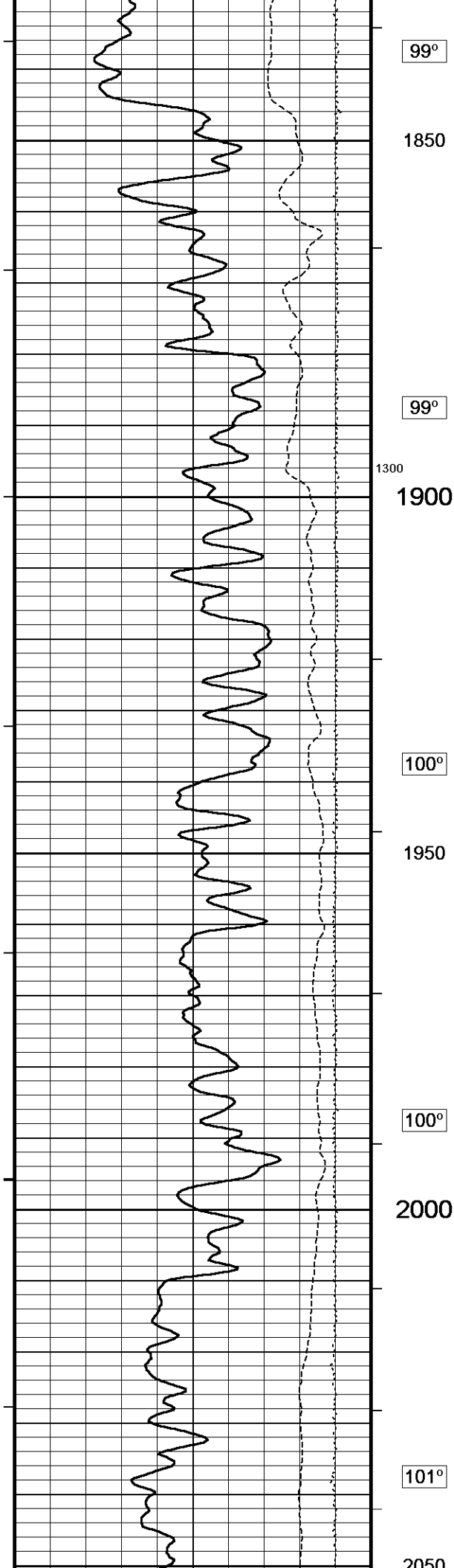
98°

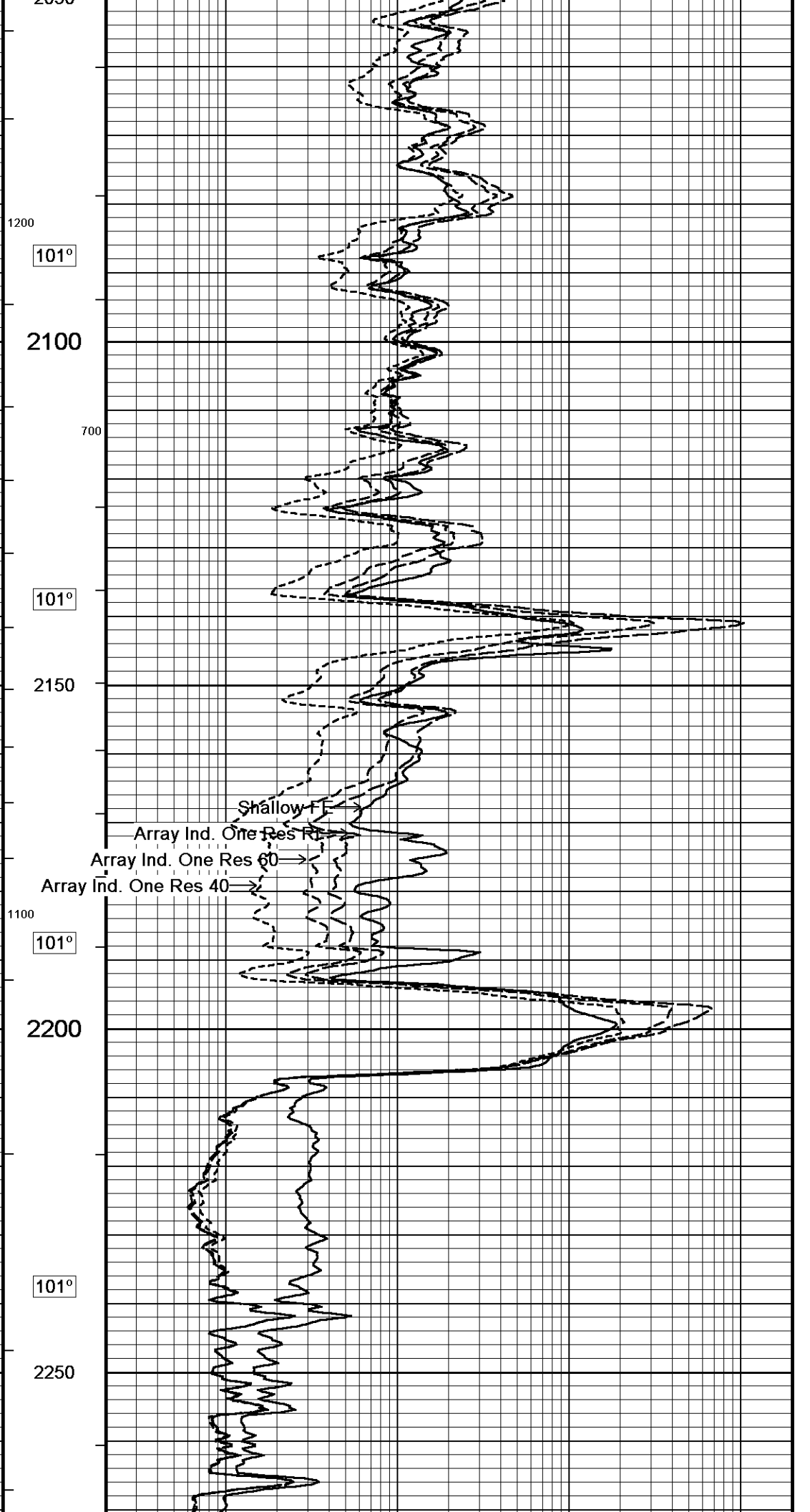
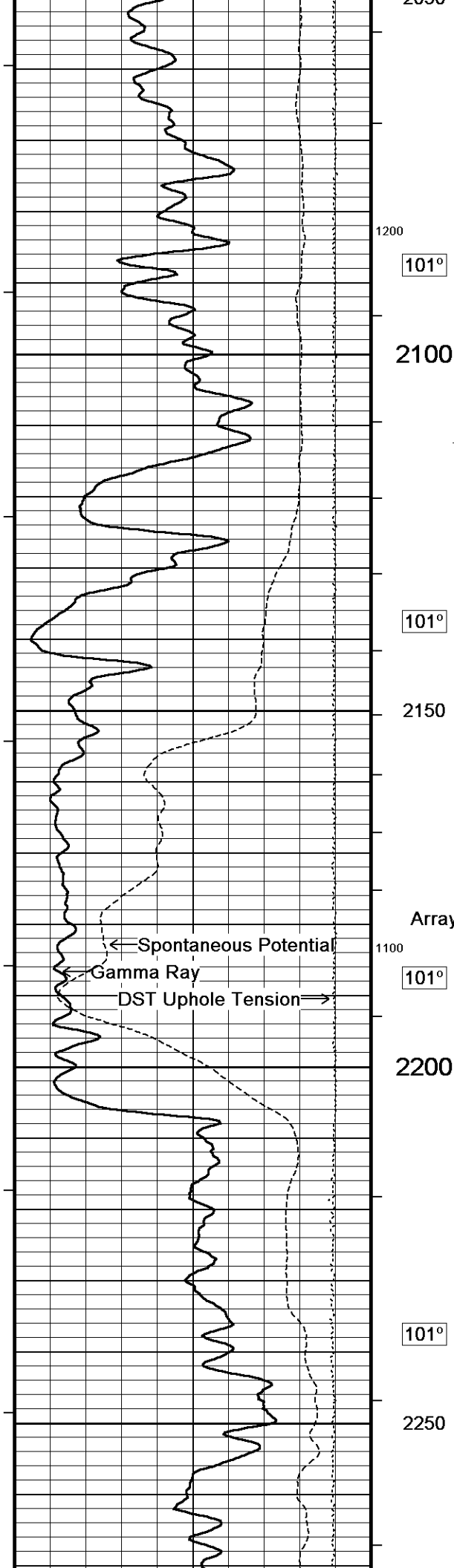


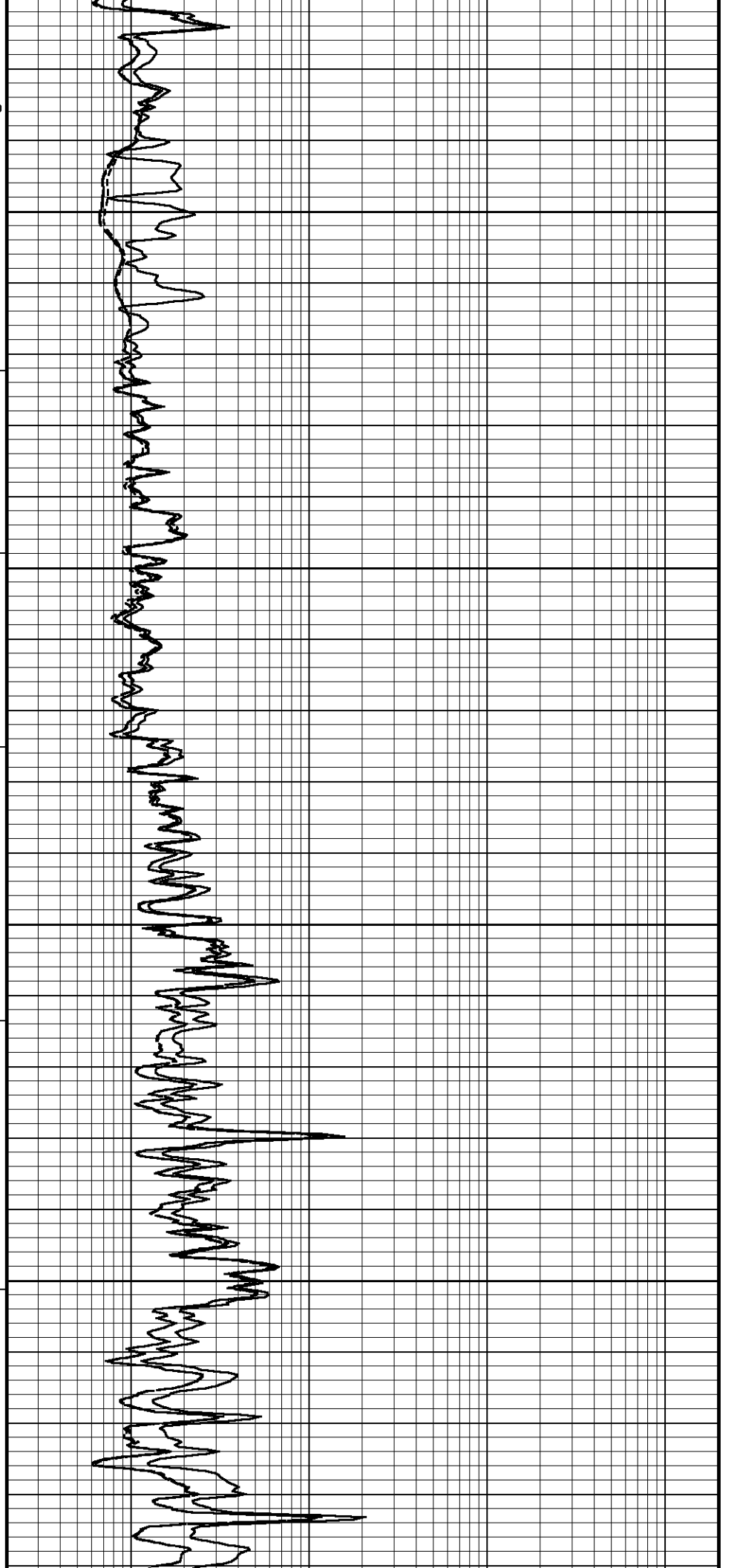
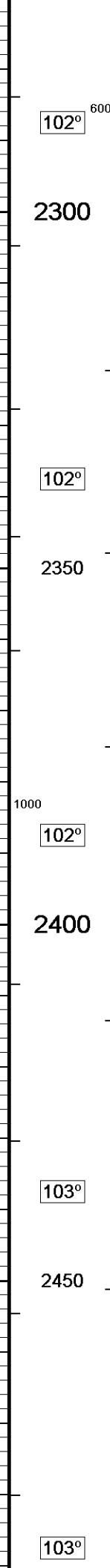
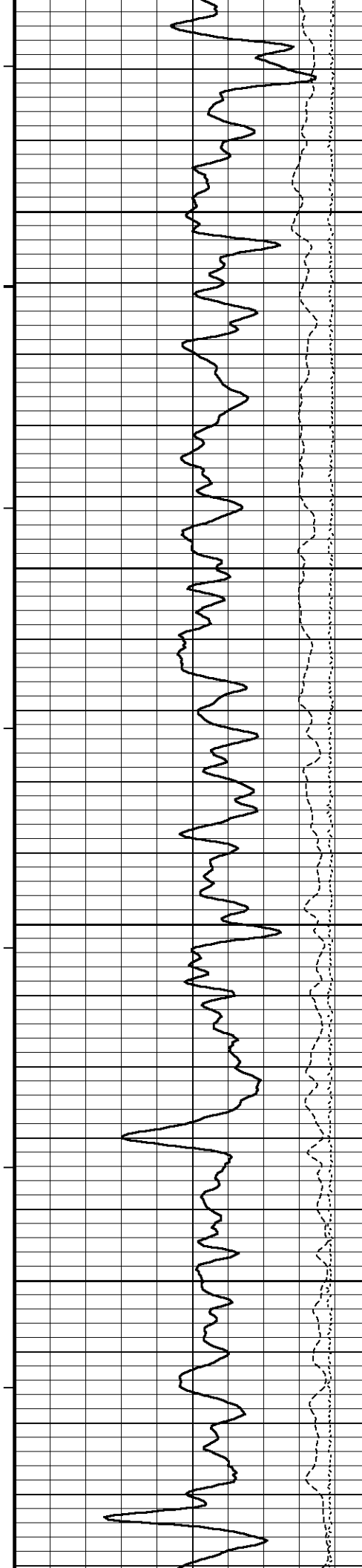


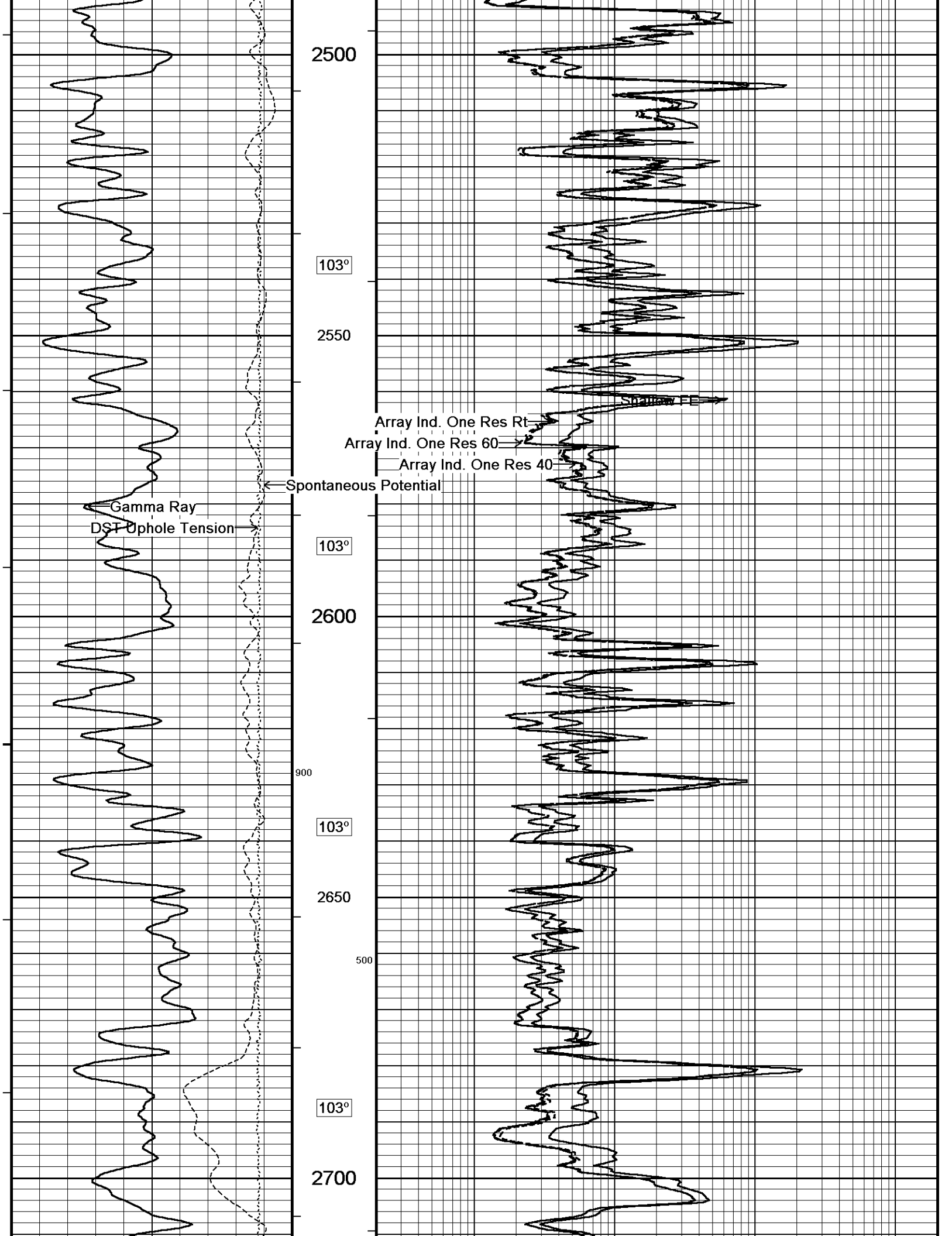


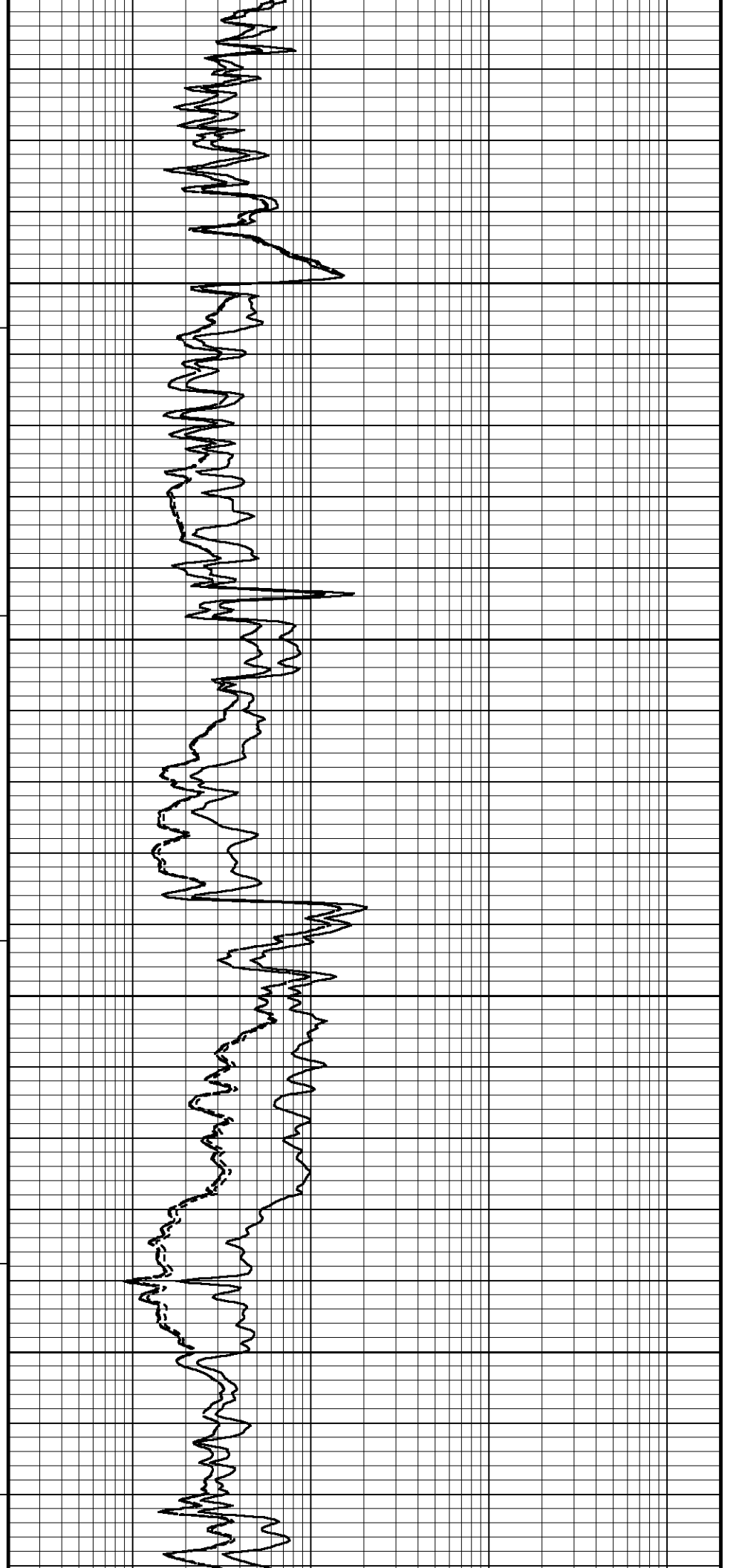
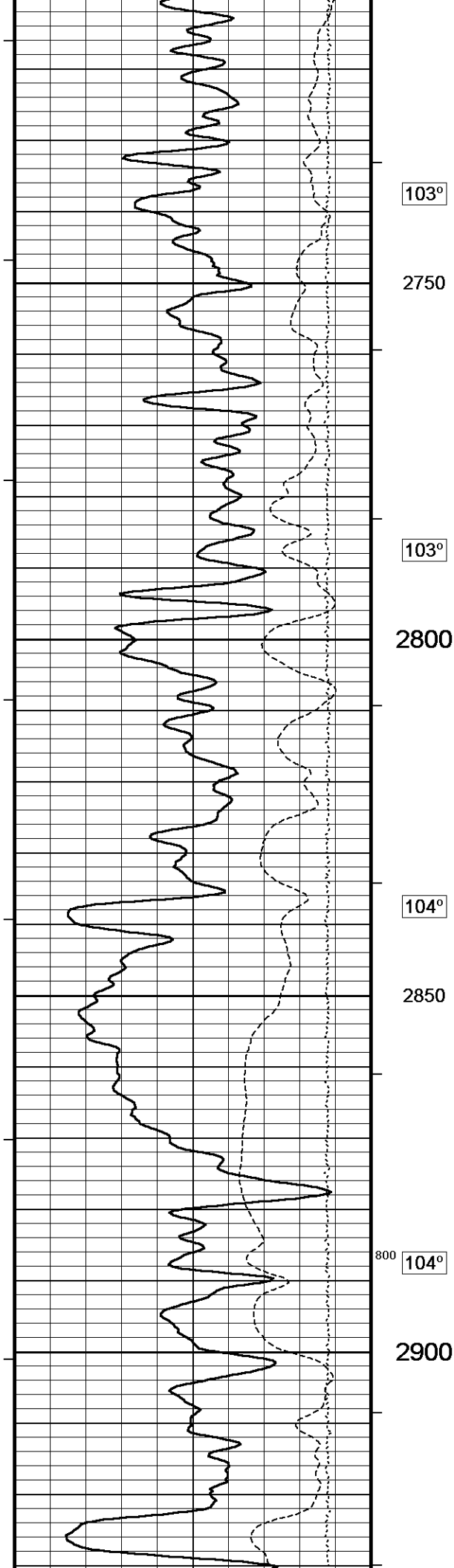


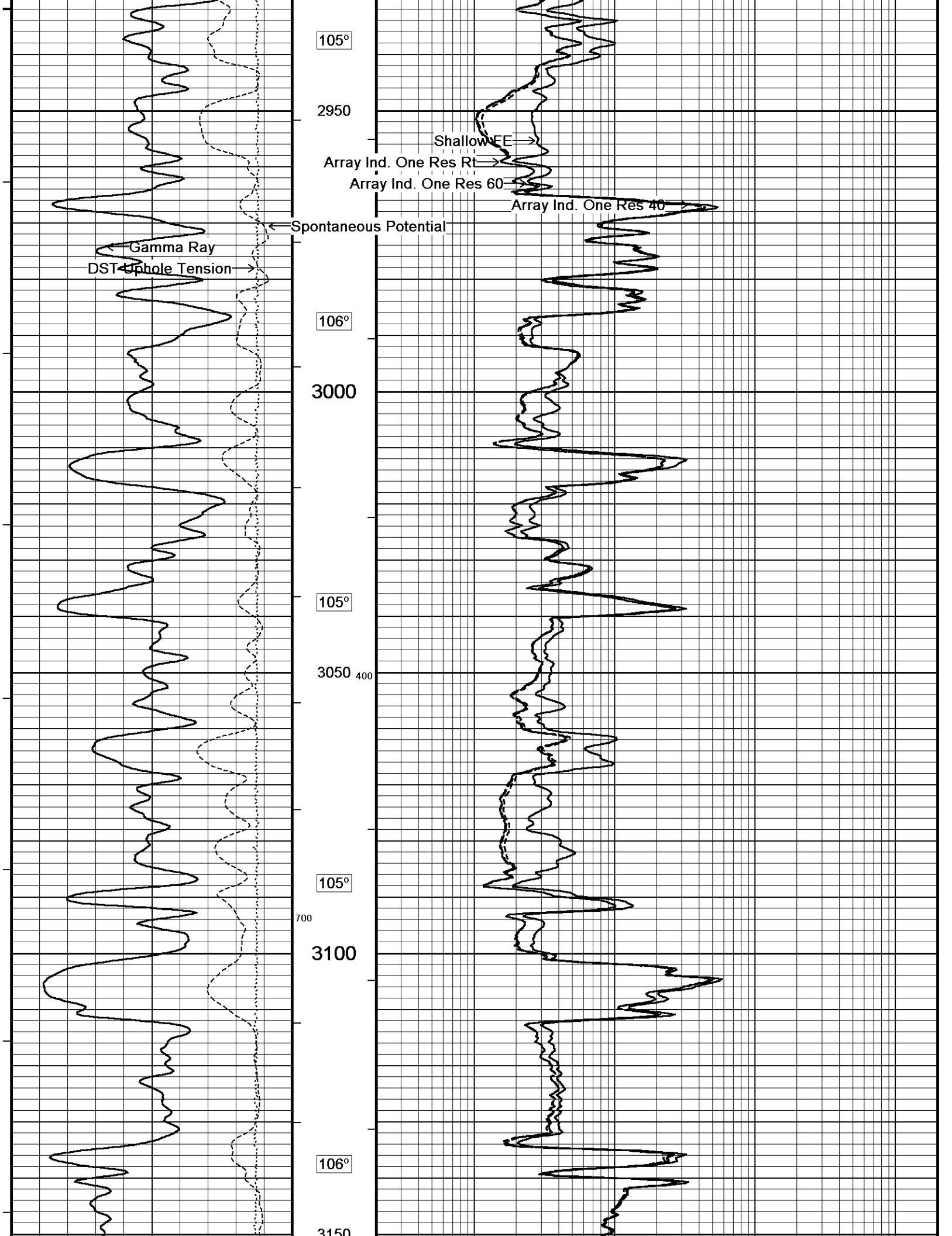


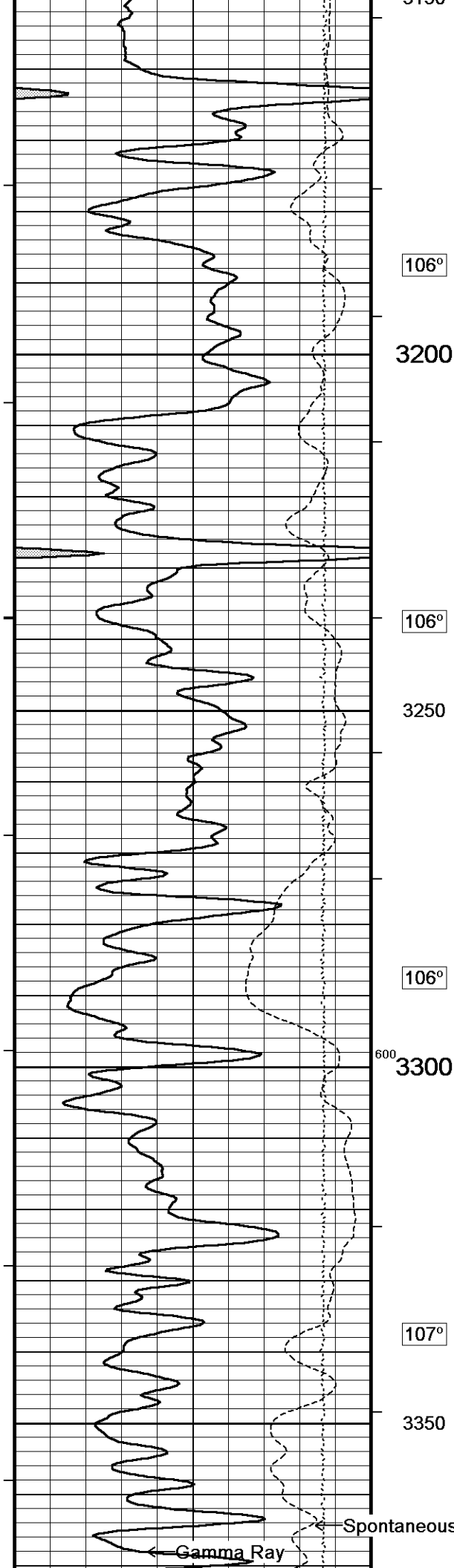












106°

3200

106°

3250

106°

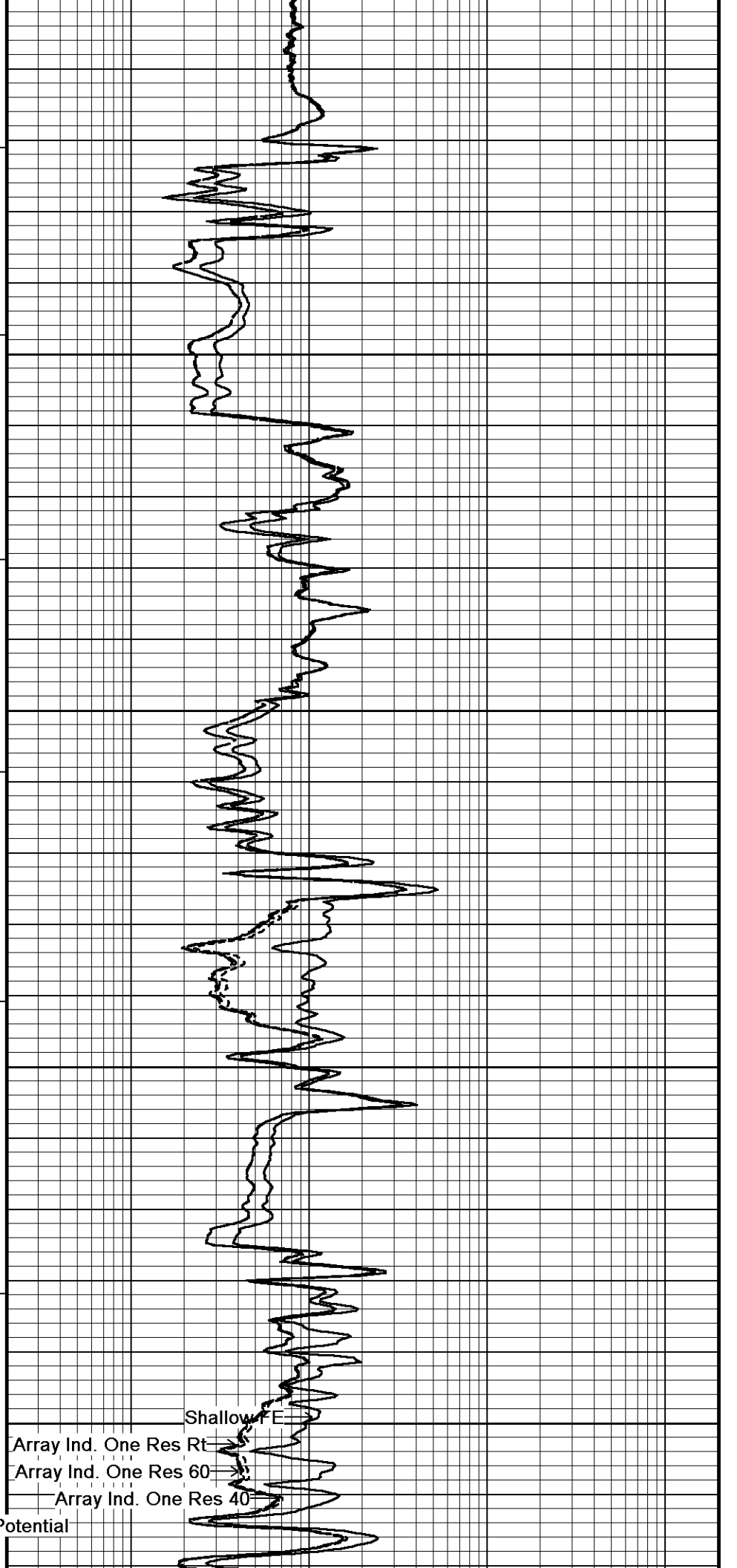
600
3300

107°

3350

Gamma Ray

Spontaneous Potential

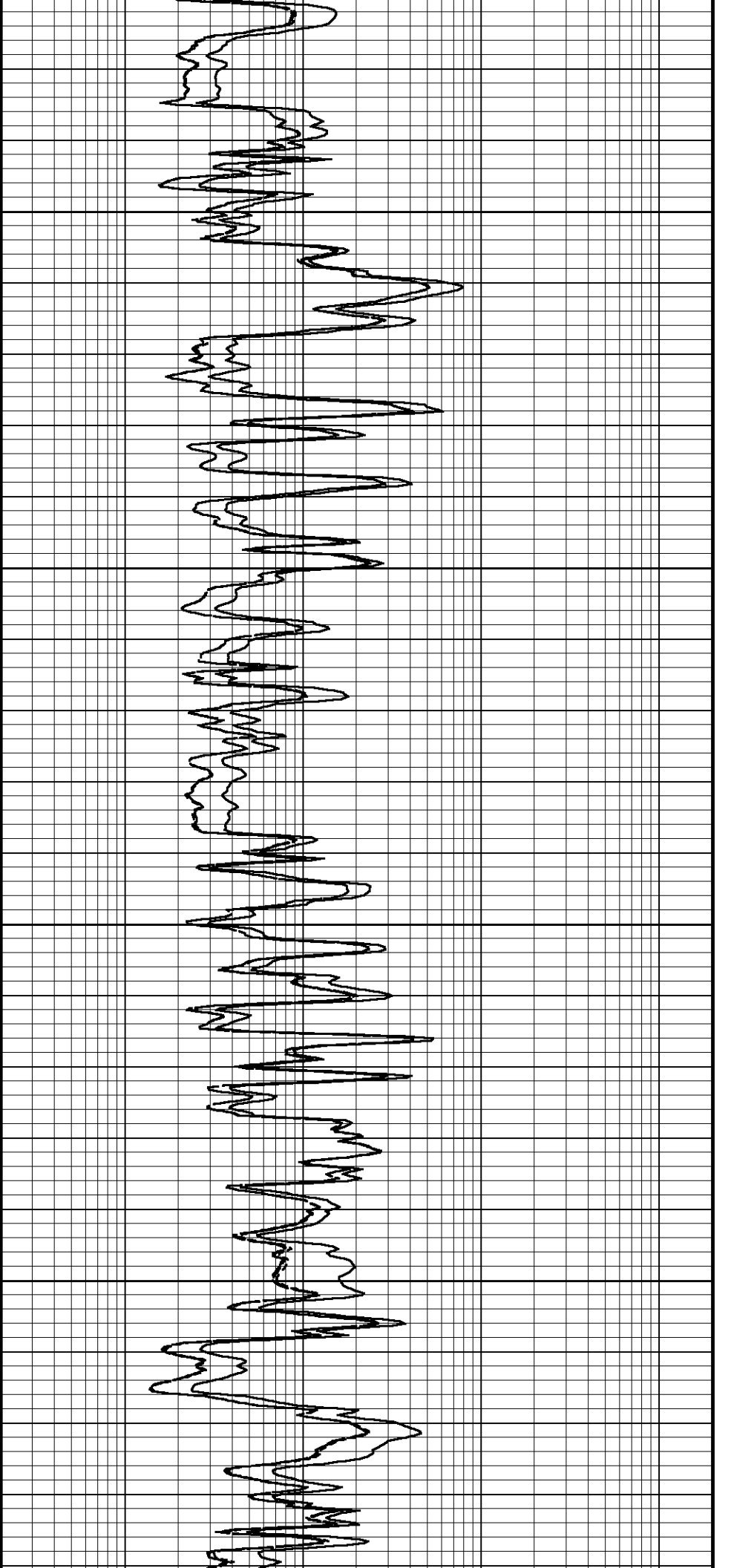
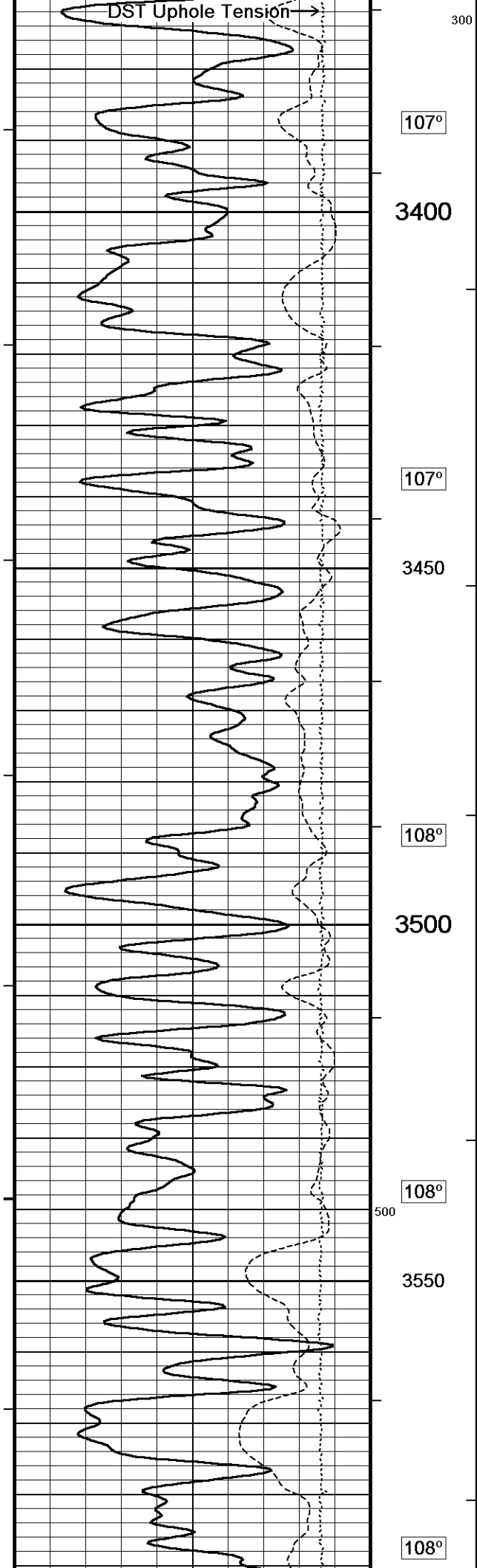


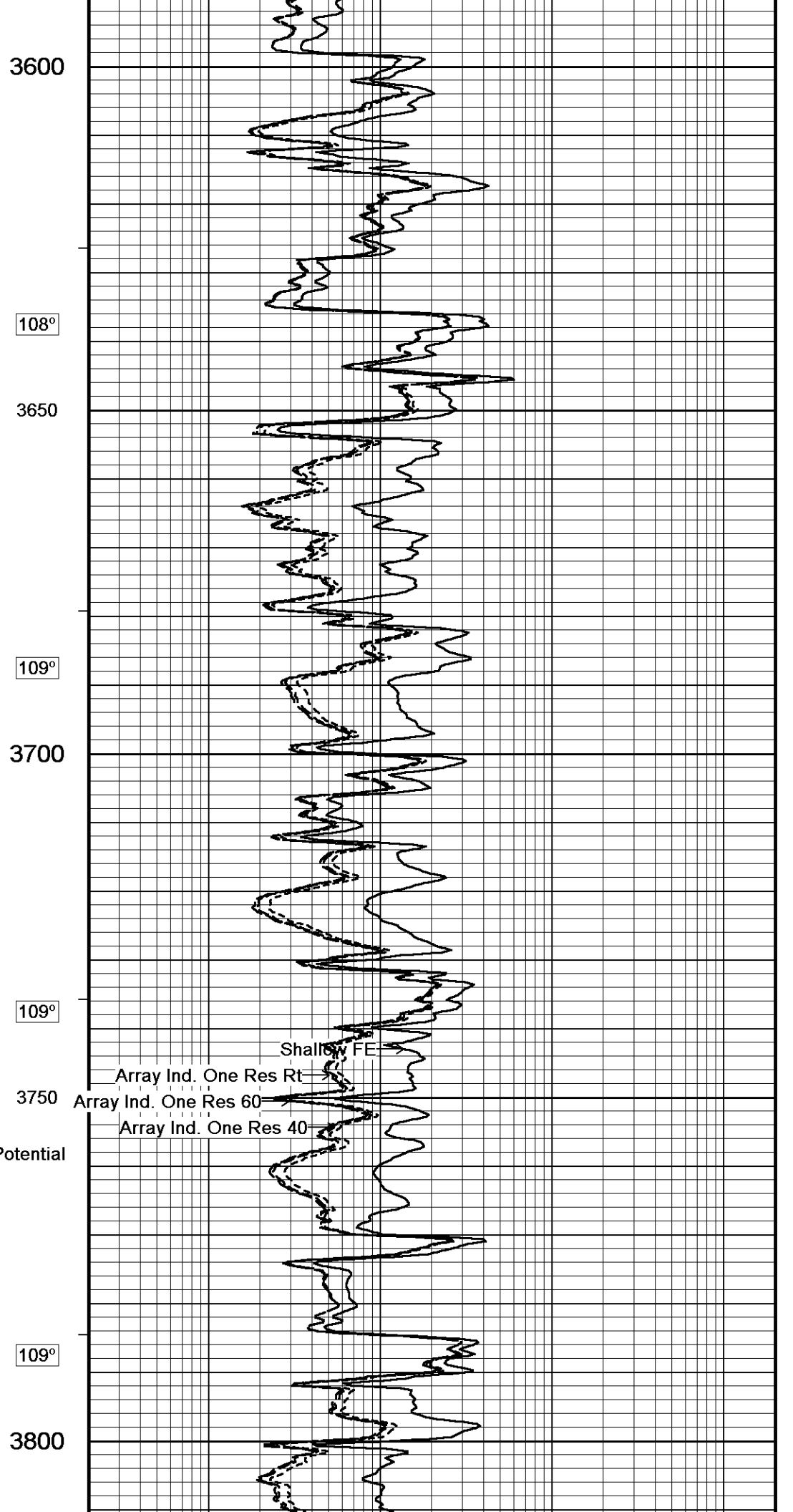
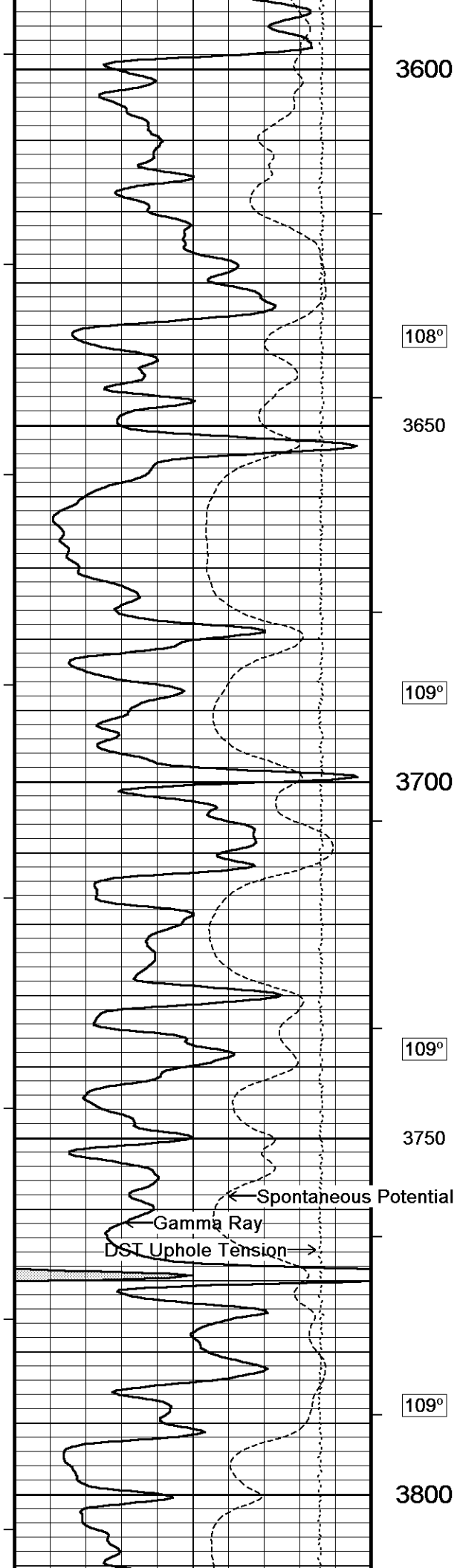
Shallow FE

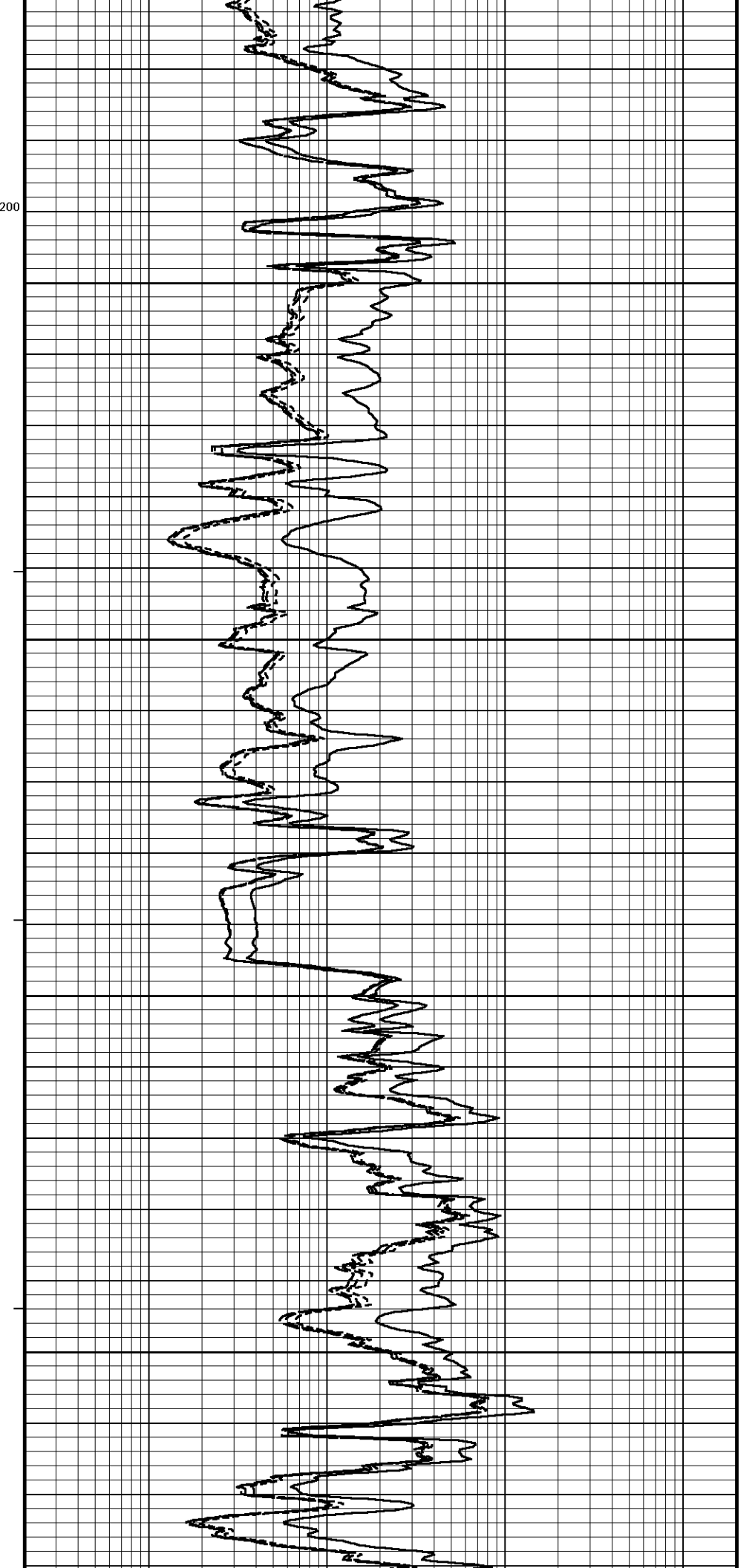
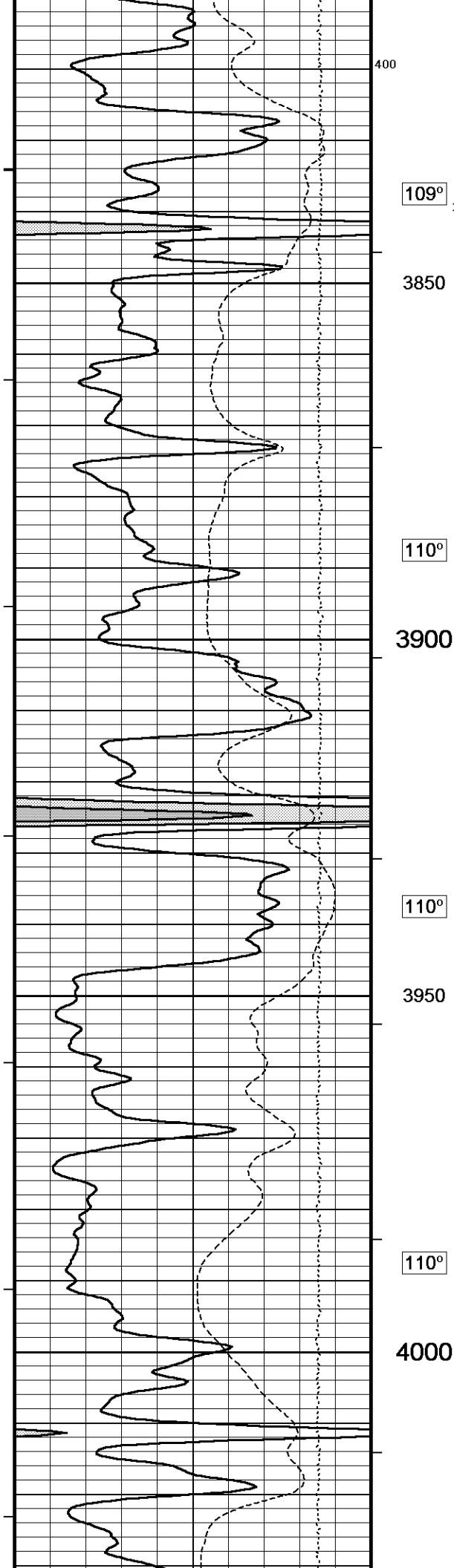
Array Ind. One Res Rt

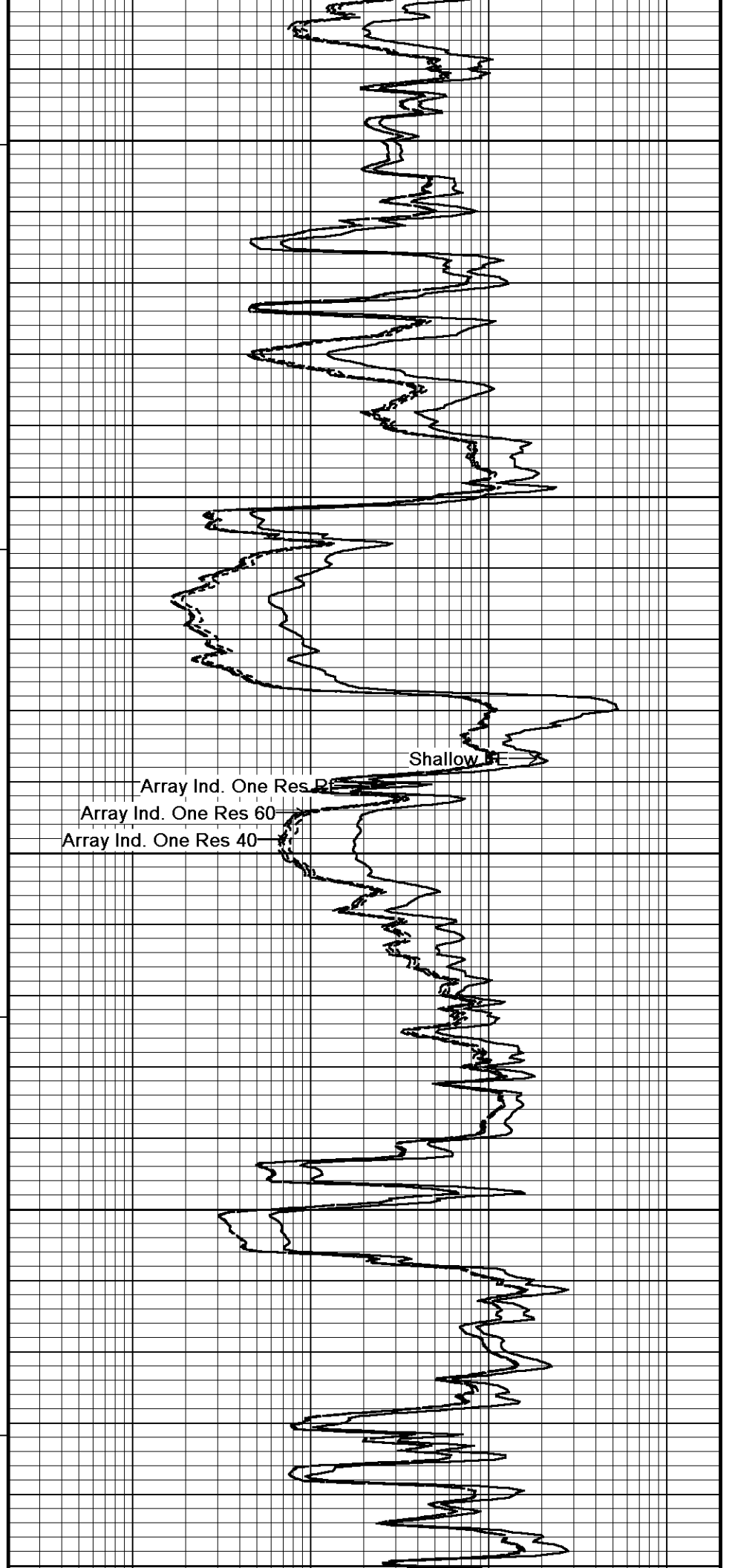
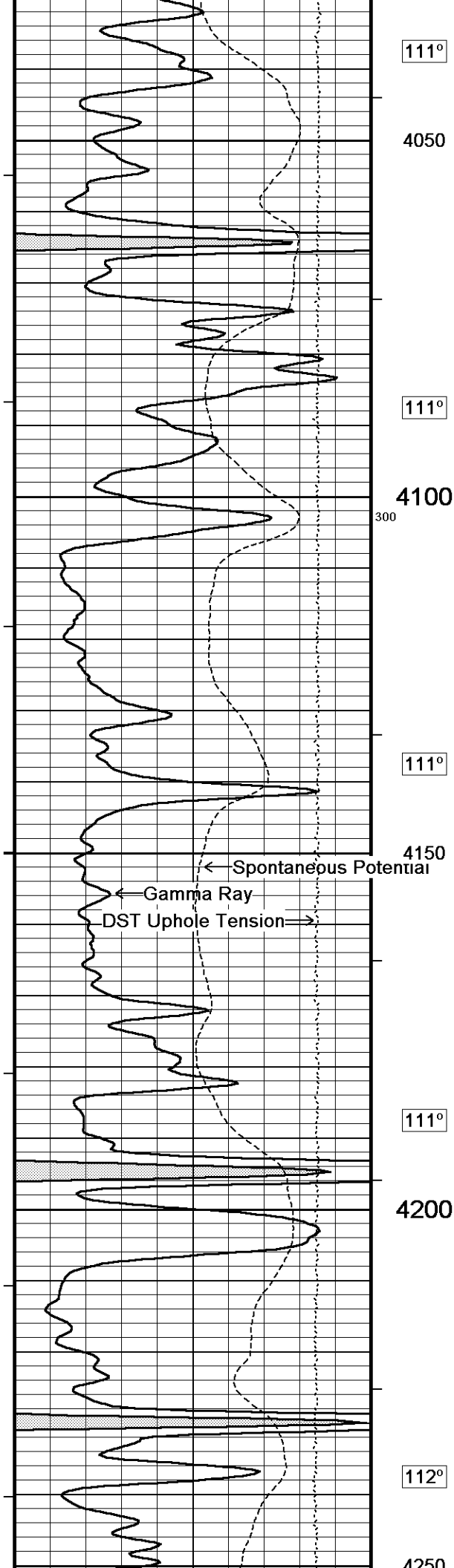
Array Ind. One Res 60

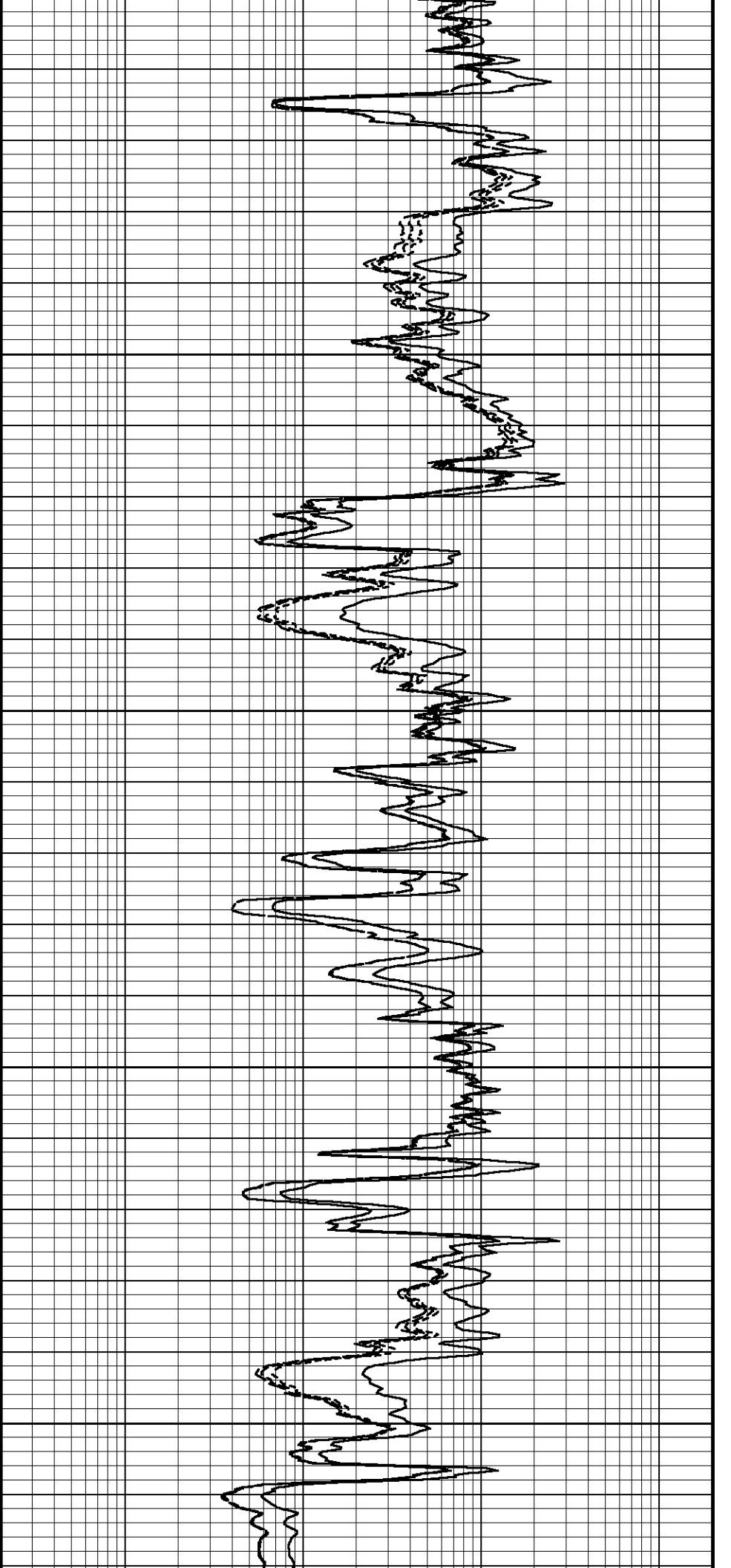
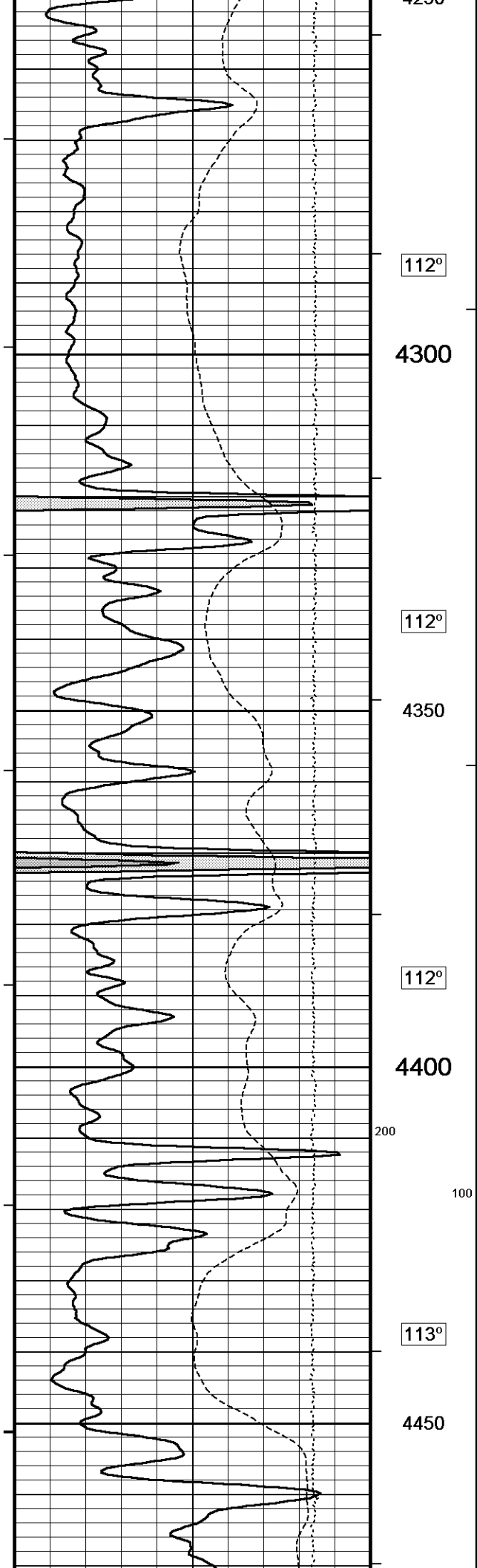
Array Ind. One Res 40

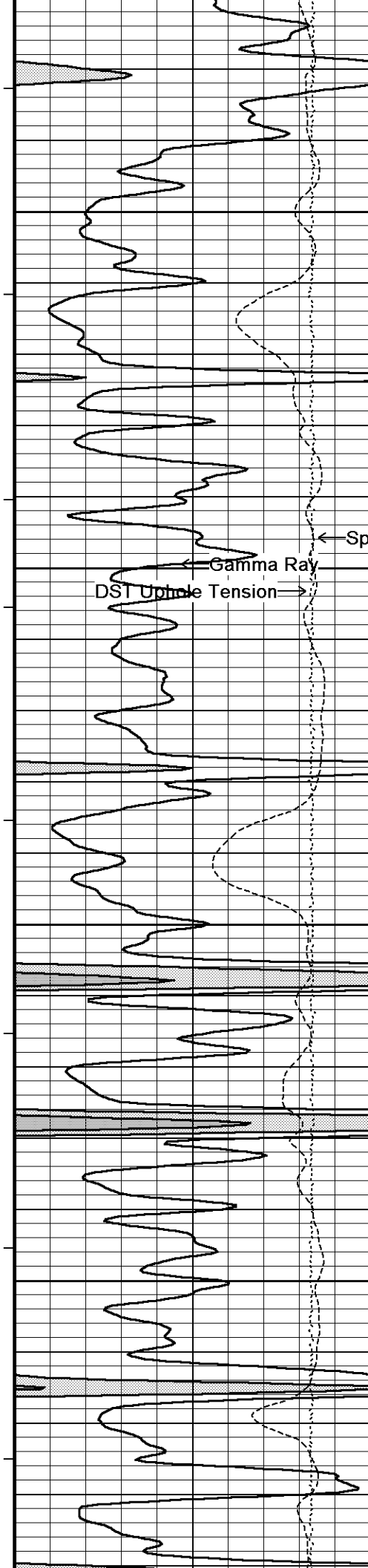












113°

4500

114°

4550

114°

4600

114°

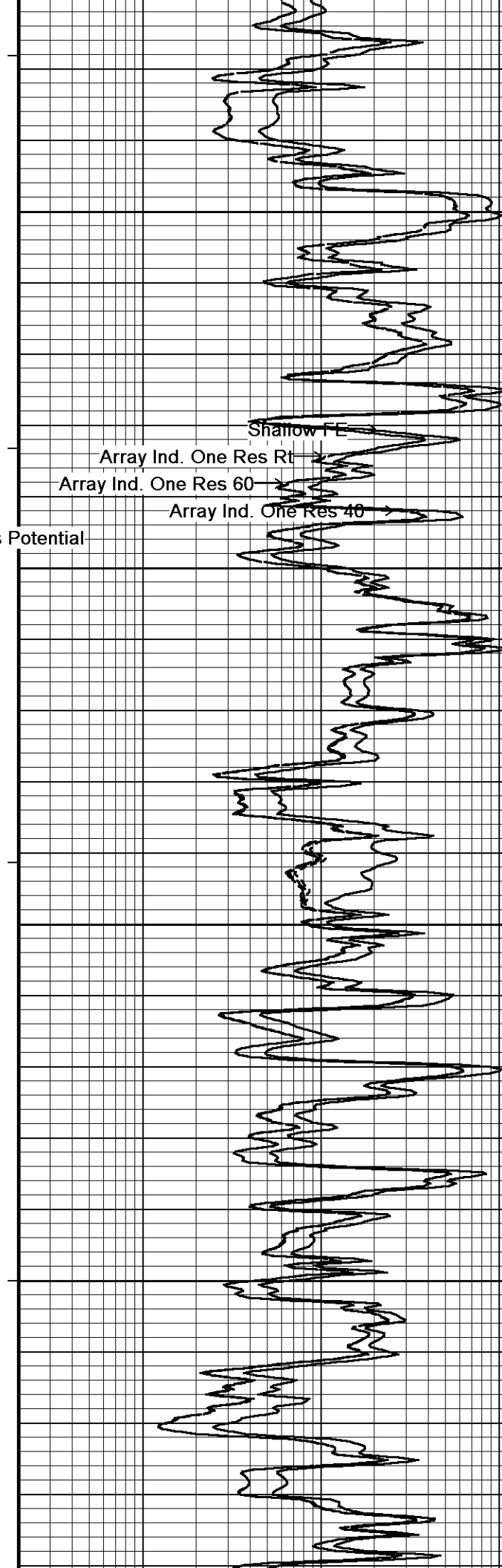
4650

115°

← Spontaneous Potential

Gamma Ray

DST Uphole Tension →

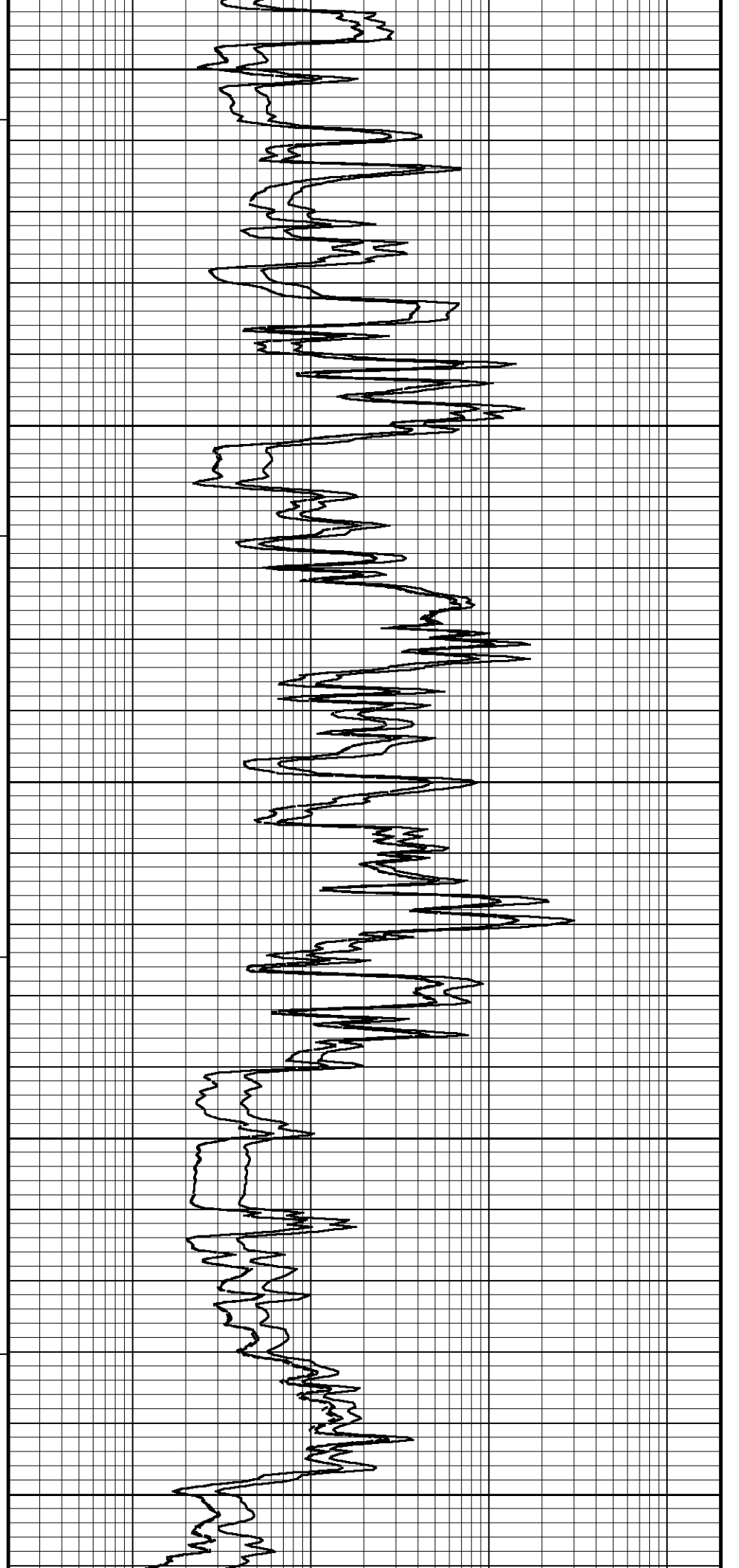
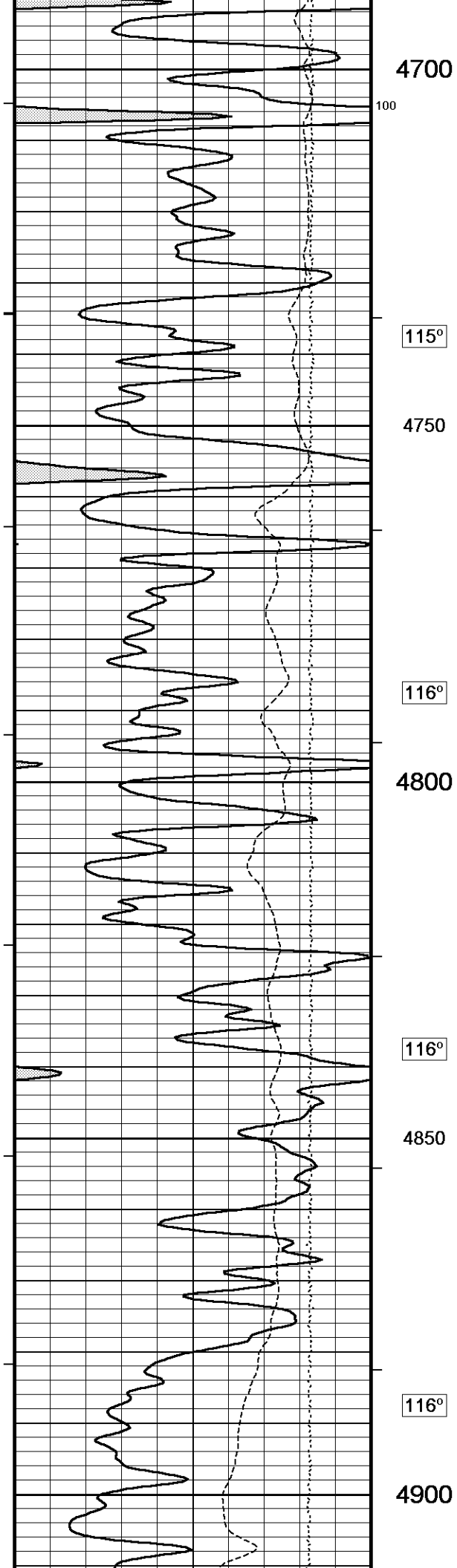


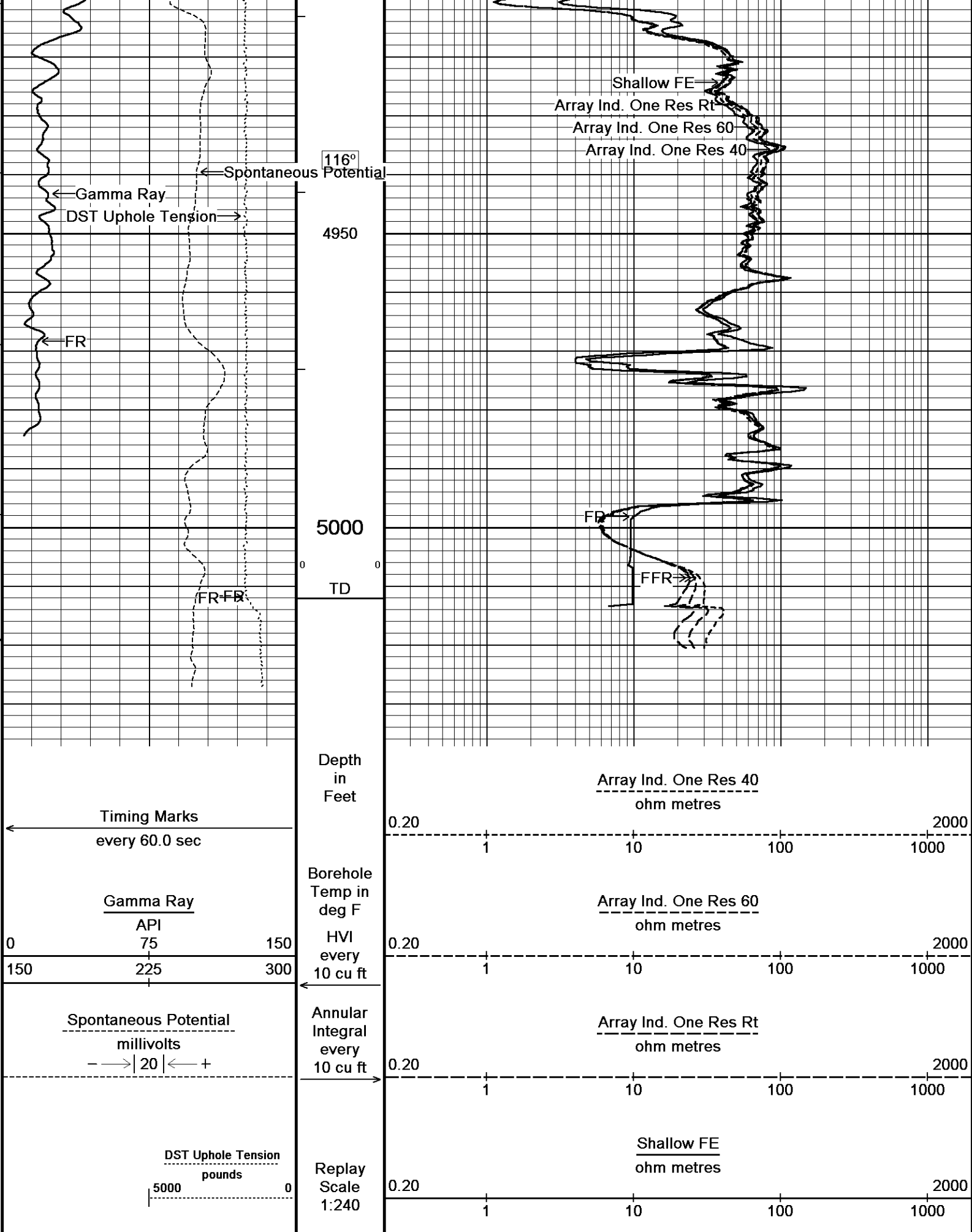
Shallow FE

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40





↓

REPEAT SECTION

↓

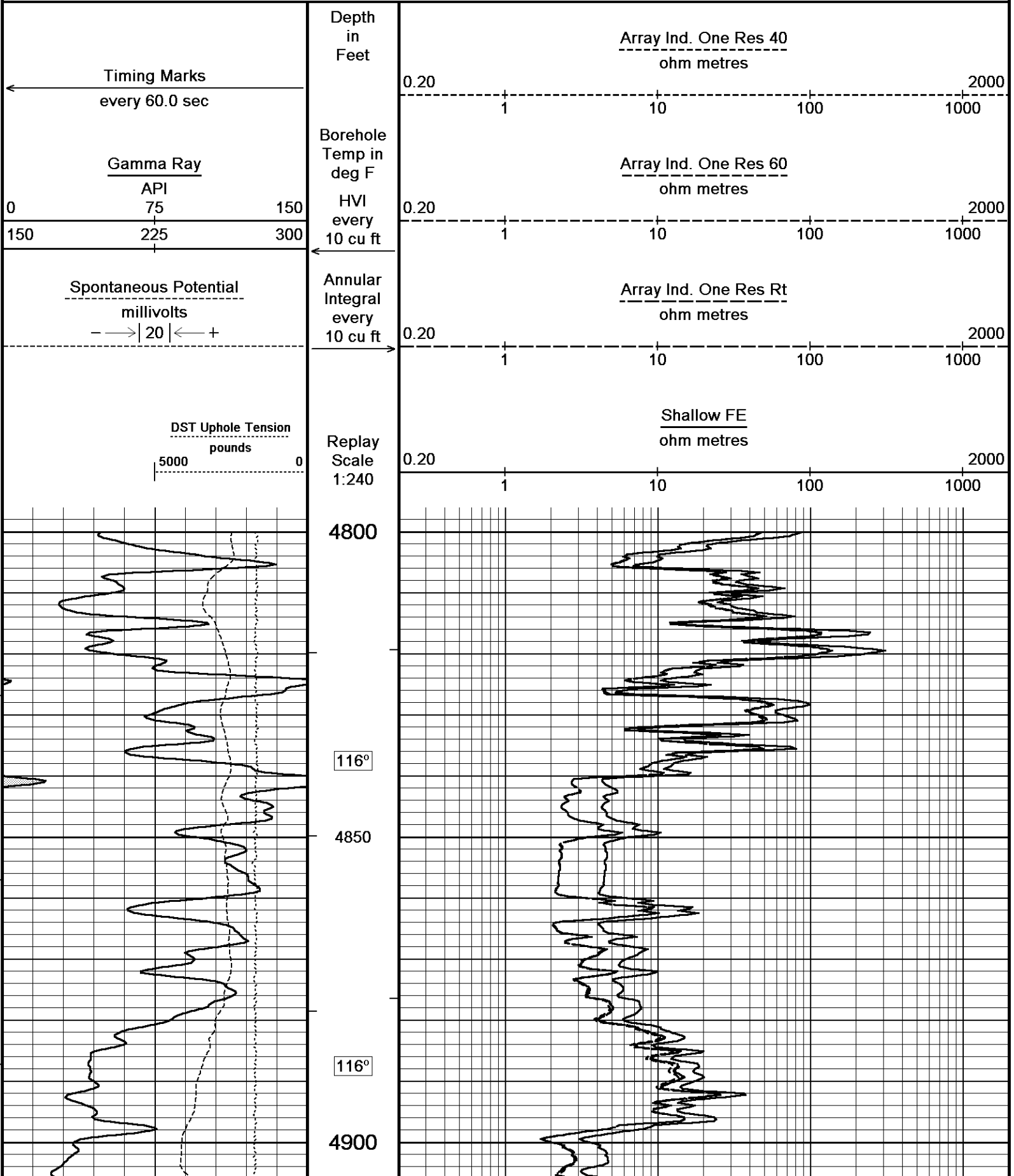
Depth Based Data - Maximum Sampling Increment 10.0cm

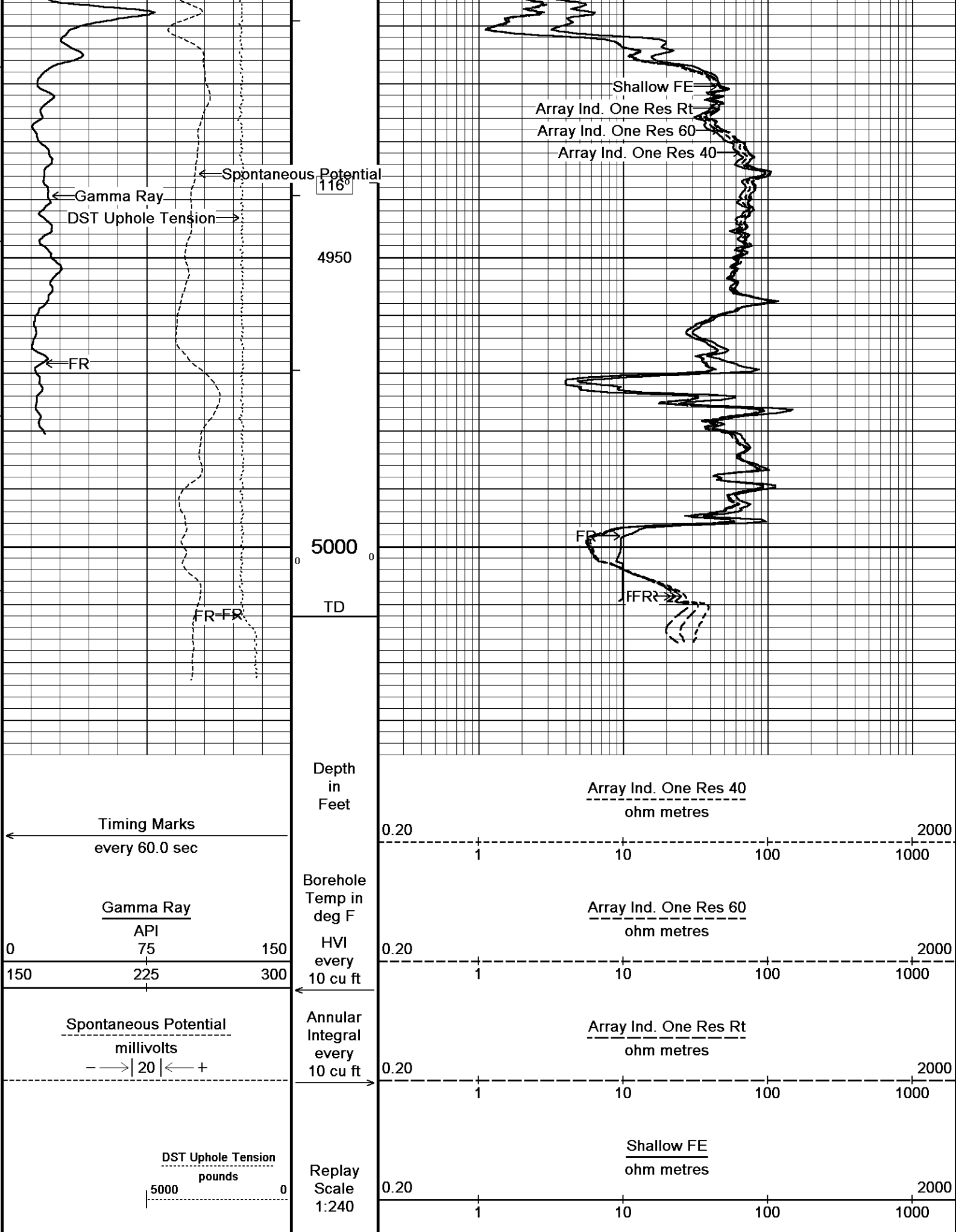
Plotted on 13-AUG-2014 09:03

Filename: C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Repeat.dta

Recorded on 13-AUG-2014 04:51

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113







REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta

General Constants All 000

Last Edited on 13-AUG-2014,04:11

General Parameters

Mud Resistivity	0.710	ohm-metres
Mud Resistivity Temperature	75.000	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	Crossplot Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150
SW/APOR Tool Source	0.000

High Resolution Temperature Calibration MCG-D.K 443

Field Calibration on 05-MAR-2014,20:50

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

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 22-JUL-2014,11:40

Pre-filter Length	11
-------------------	----

Gamma Calibration MCG-D.K 443

Field Calibration on 12-AUG-2014 20:37

	Measured	Calibrated (API)
Background	73	49
Calibrator (Gross)	1156	774
Calibrator (Net)	1083	725

Gamma Constants MCG-D.K 443

Last Edited on 13-AUG-2014,01:20

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

FE Calibration MFE-B.J 352

Base Calibration on 07-AUG-2014 16:12

Field Check on 12-AUG-2014 19:55

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	962.4	126.8
Base Check		281.6
Field Check		281.7

FE Constants MFE-B.J 352

Last Edited on 13-AUG-2014,01:18

Running Mode	No Sleeve
MFE K Factor	0.1268
Caliper Source for FE correction	Density Caliper

Caliper Source for FE correction	Density Caliper	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 158

Base Calibration on 03-APR-2014,15:01

Field Check on 12-AUG-2014 19:54

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.2	475.3	9.3	966.2
2	6.1	381.2	7.6	821.4
3	3.8	265.2	5.2	566.0
4	2.7	132.2	2.6	279.2

Array Temperature 22.3 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			14.1	3812.0
2			30.6	3527.1
3			27.5	2978.3
4			18.3	2095.4
Deep			15.1	1941.8
Medium			41.2	3883.1
Shallow			48.2	5231.0

Array Temperature 89.9 Deg F

Induction Constants MAI-A.A 158

Last Edited on 13-AUG-2014,01:18

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 104

Base Calibration on 12-AUG-2014 21:09

Field Calibration on 12-AUG-2014 21:10

Base Calibration

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	12248	3.99
2	21021	5.98
3	29619	7.97
4	37847	9.86
5	46921	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.94	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08\Data\PetroSantander Scott #6-13\PetroSantander Scott #6-13 Main.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.244 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.240 in

Compact Micro-Resistivity

MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.240 in

Compact Density/Caliper

MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

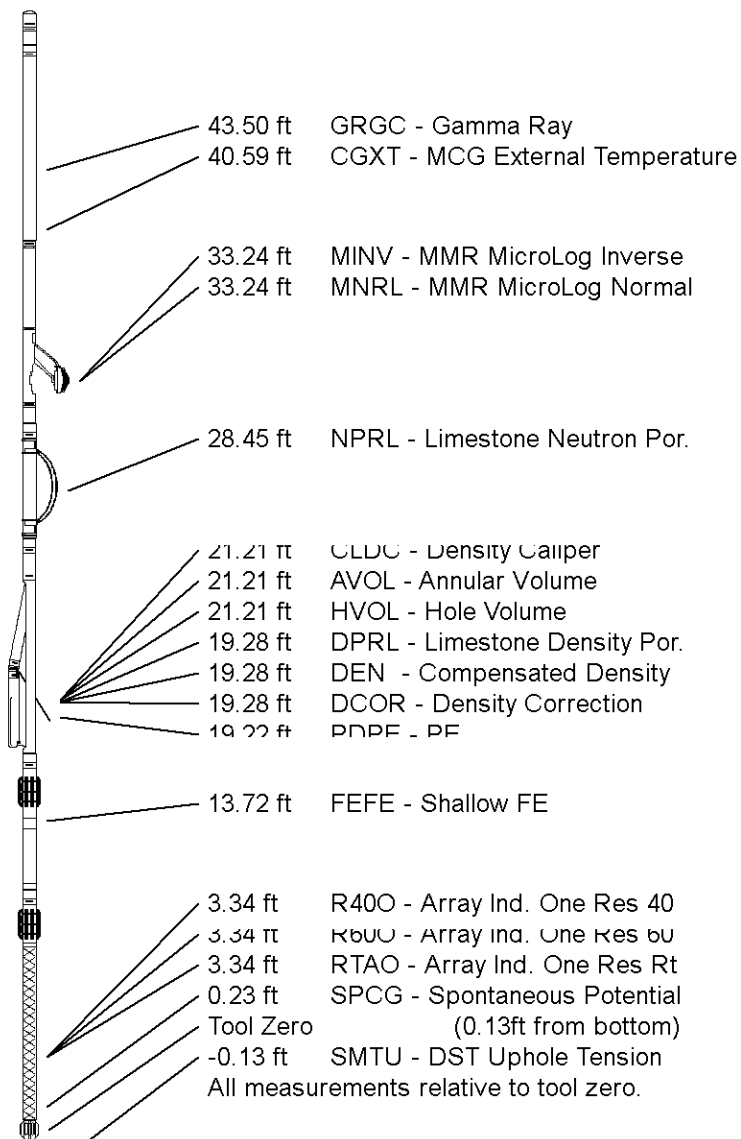
Compact Focussed Electric

MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.240 in

Compact Induction

MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY

PETROSANTANDER (USA), INC.

WELL

SCOTT #6-13

FIELD

CHRISTABELLE

PROVINCE/COUNTY

KEARNY

COUNTRY/STATE

U.S.A. / KANSAS

Elevation Kelly Bushing	3106.00	feet	First Reading	5008.66	feet
Elevation Drill Floor	3104.00	feet	Depth Driller	5010.00	feet
Elevation Ground Level	3094.00	feet	Depth Logger	5012.00	feet

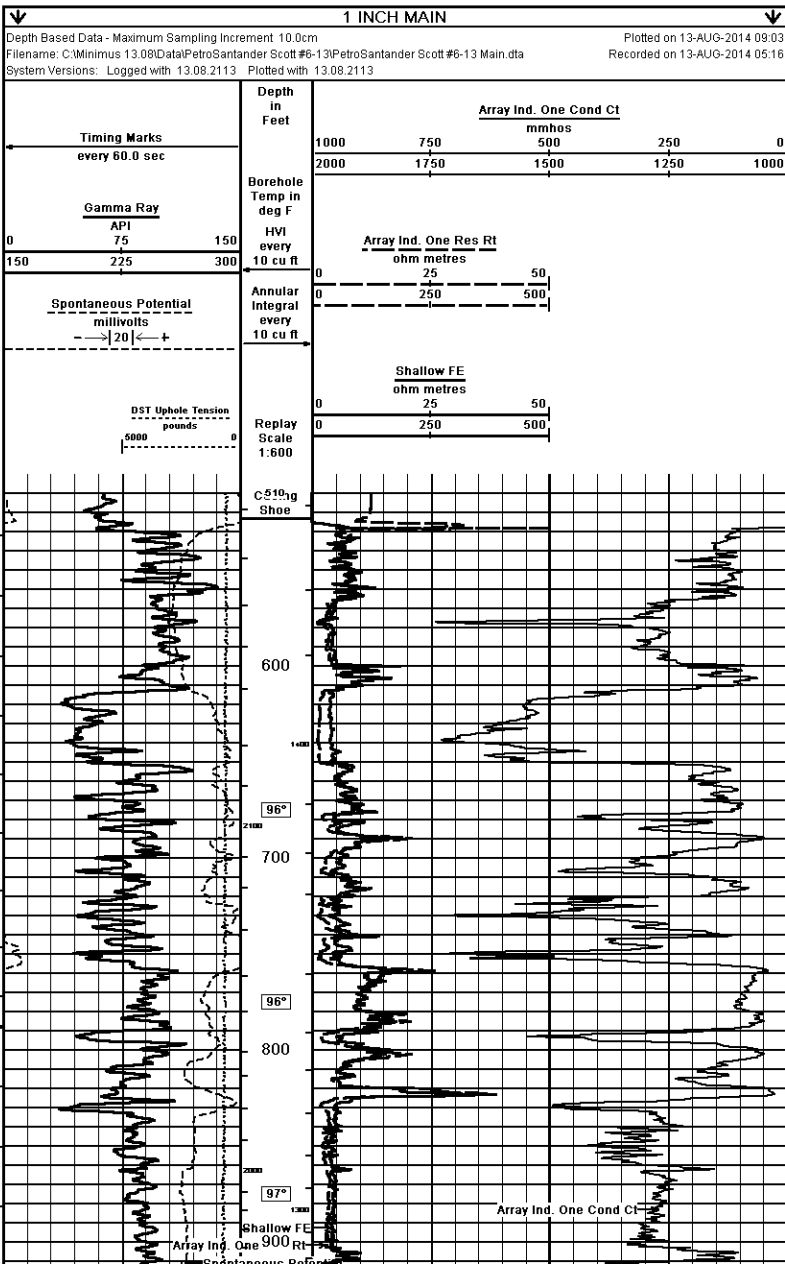
Elevation Ground Level 5554.65 Feet Depth Logger 5512.65 Feet

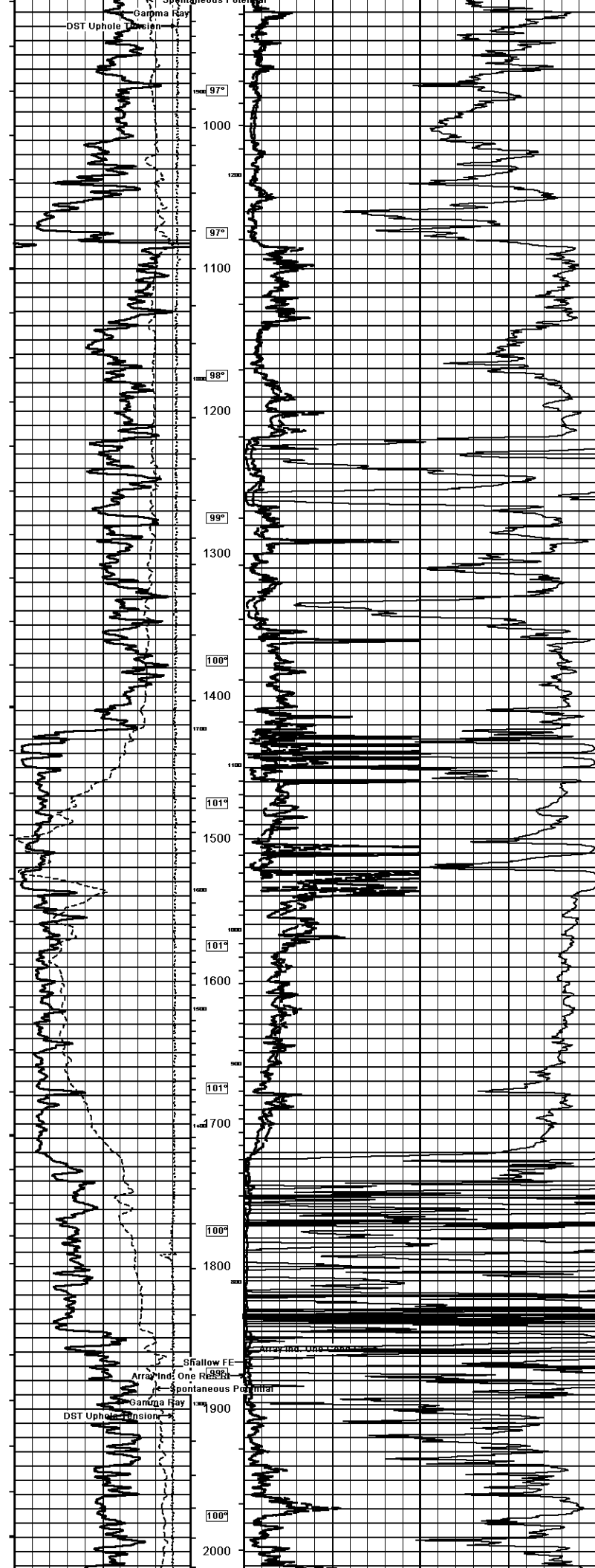


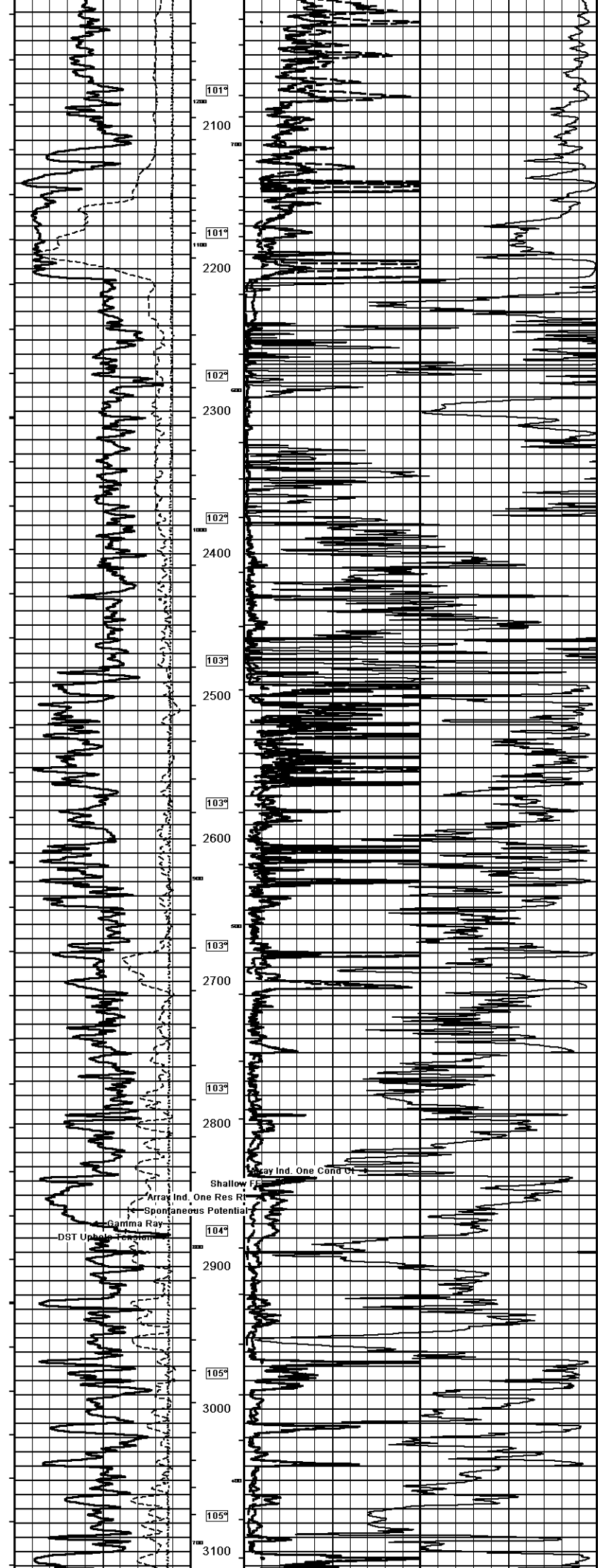
Weatherford®

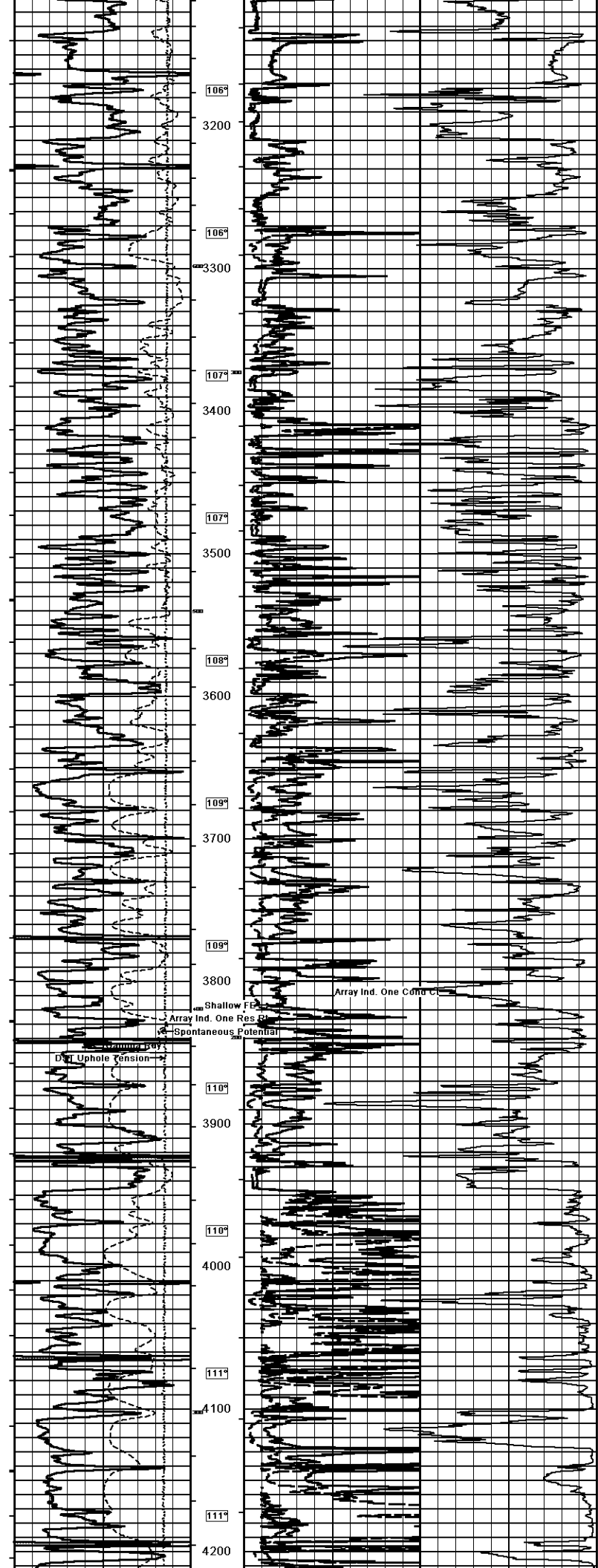
SHALLOW FOCUSED
ARRAY INDUCTION
ELECTRIC LOG

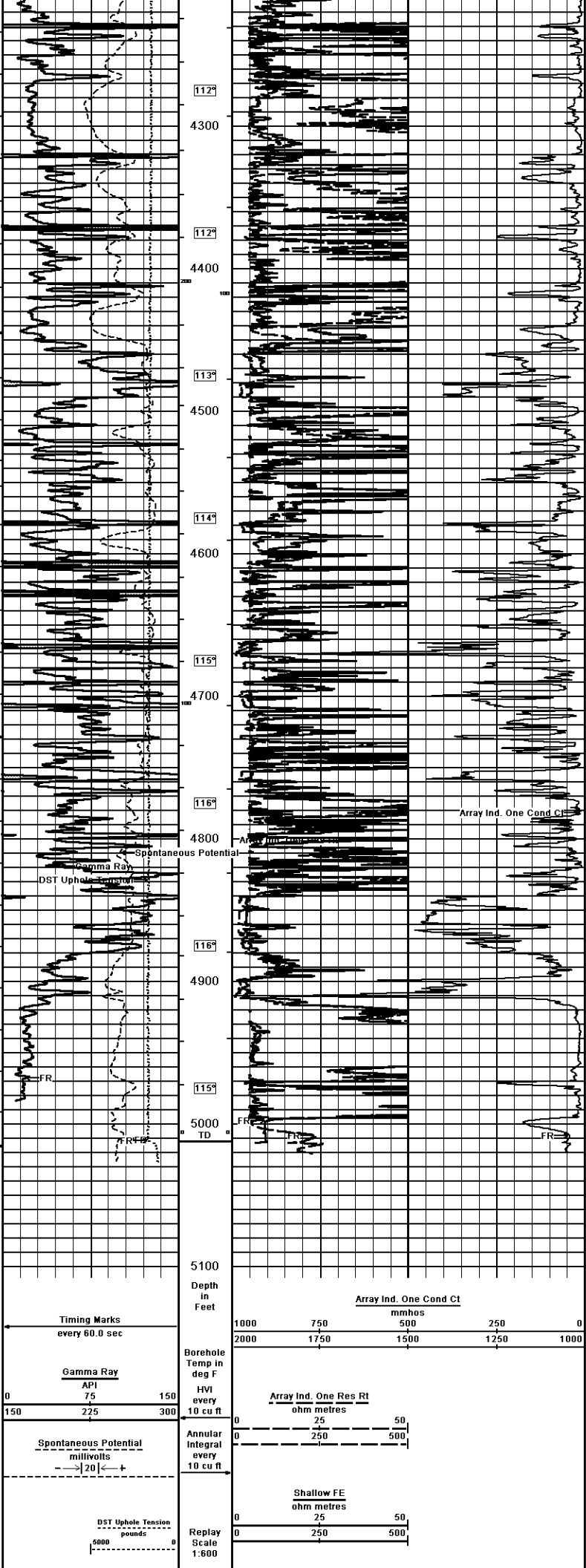
Weatherford		SHALLOW FOCUSED ARRAY INDUCTION ELECTRIC LOG	
COMPANY	PETROSANTANDER (USA), INC.		
WELL	SCOTT #6-13		
FIELD	CHRISTABELLE		
PROVINCE/COUNTY	KEARNY		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	660' ENL & 330' FWL		
SEC. 13	TWP. 21S	RGE. 35W	TOWNSHIP
Latitude	35.0321924	Longitude	-97.5811111
Log Number	15-083-21924	MD/DIVISION	MML
Permanent Datum G.L. Elevation	3094 feet		
Log Measured From	K9		
Drilling Measured From	K9 @ 12 FEET		
Date	13-AUG-2014		
Run Number	ONE		
Service Order	7606-95097167		
Depth Driller	5010.00	feet	
Depth Logger	5012.00	feet	
First Reading	5008.66	feet	
Last Reading	523.00	feet	
Casing Driller	523.00	feet	
Casing Logger	523.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density/Viscosity	9.15 lb/USg	50.00 CP	
PVT Fluid Loss	9.50	10.00 ml/30min	
Sample Source	MUDPIT		
Rm @ Measured Temp	0.71 @ 75.0	ohm-m	
Rmt @ Measured Temp	0.57 @ 75.0	ohm-m	
Rmt @ Measured Temp	0.85 @ 75.0	ohm-m	
Source Rmt / Rmc	CALC	CALC	
Rm @ BHT	0.47 @ 16.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	116.00	deg F	
Equipment Base	13057		
Recorded By	BENJAMIN		
Witnessed By	MESCHERSEN		
LOG #	LE14-232		











COMPANY	PETROSANTANDER (USA), INC.				
WELL	SCOTT #6-13				
FIELD	CHRISTABELLE				
PROVINCE/COUNTY	KEARNY				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	3106.00	feet	First Reading	5008.66	feet
Elevation Drill Floor	3104.00	feet	Depth Driller	5010.00	feet
Elevation Ground Level	3094.00	feet	Depth Logger	5012.00	feet
SHALLOW FOCUSED ARRAY INDUCTION ELECTRIC LOG					