

**Weatherford****ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**

COMPANY **SHAKESPEARE OIL COMPANY**
WELL **JANZEN #2-26**
FIELD **WILDCAT**
PROVINCE/COUNTY **SCOTT**
COUNTRY/STATE **U.S.A. / KANSAS**
LOCATION **2305' FSL & 1900' FWL**
SW/4

SEC	TWP	RGE	Other Services	MML	Elevations:
26	16S	34W	MPD/MDN		KB DF GL
API Number	15-171-20929	MSS			3125.00 3124.00 3115.00
Permit Number					
Permanent Datum GL, Elevation 3115 feet					
Log Measured From KB					
Drilling Measured From KB					
Date	14-MAR-2013				
Run Number	ONE				
Service Order	3539874				
Depth Driller	4897.00				
Depth Logger	4896.00				
First Reading	4893.00				
Last Reading	263.00				
Casing Driller	264.00				
Casing Logger	263.00				
Bit Size	7.875				
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.00 lb/USg				
PH / Fluid Loss	10.50				
Sample Source	MUDPIT				
Rm @ Measured Temp	0.51 @ 86.0				
Rmf @ Measured Temp	0.41 @ 86.0				
Rmc @ Measured Temp	0.61 @ 86.0				
Source Rmf / Rmc	CALC				
Rm @ BHT	0.41 @107.0				
Time Since Circulation	5 HOURS				
Max Recorded Temp	107.00				
Equipment / Base	13057				
Recorded By	ADAM SILL				
Witnessed By	TIM PRIEST				
IOB #	LB13-067				

BOREHOLE RECORD

Last Edited: 14-MAR-2013 13:20

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4897.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	264.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.04.8492.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 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: 2376 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3850 FEET: 224 CU. FT.

- SERVICE ORDER # 3539874.

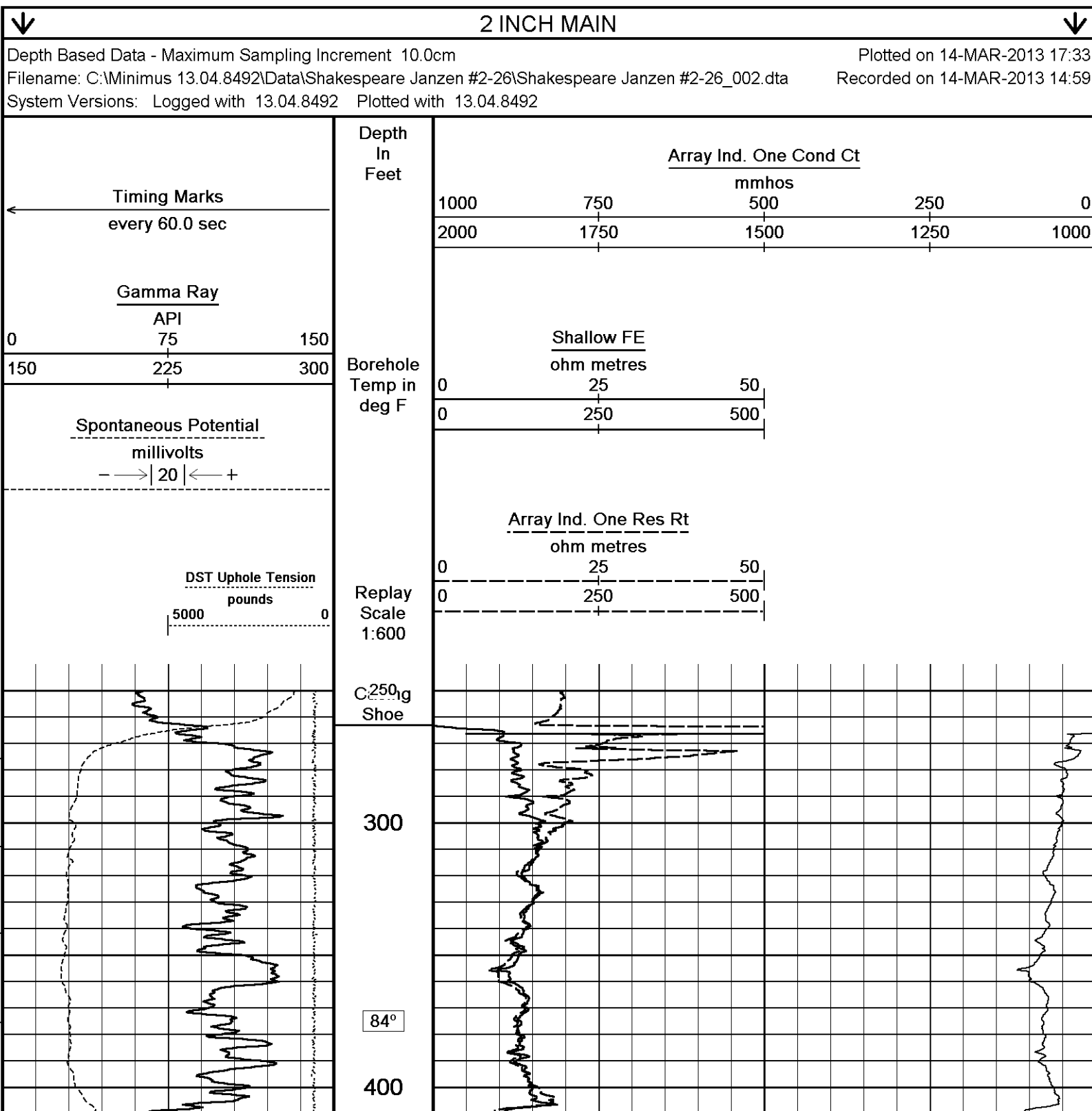
- RIG: H-D #2.

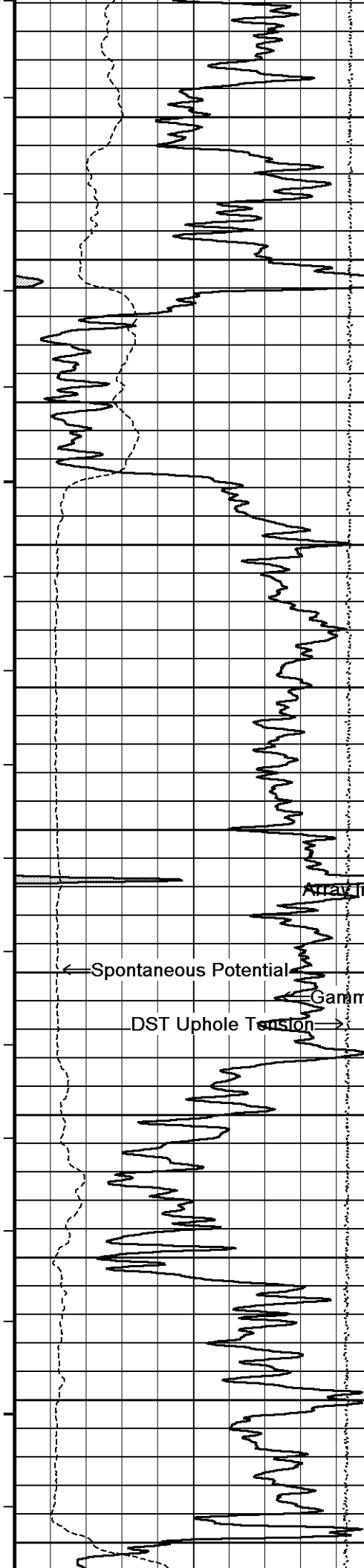
- ENGINEER: A. SILL.

- OPERATOR(S): N. ADAME.

**** SOFTWARE ISSUE CHANGED FLUID LOSS TO MATCH PH. FLUID LOSS SHOULD BE 7.6 ML/30MIN. ****

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.





85°

500

85°

600

86°

700

Array Ind. One Res Rt

Shallow FE

Spontaneous Potential

Gamma Ray

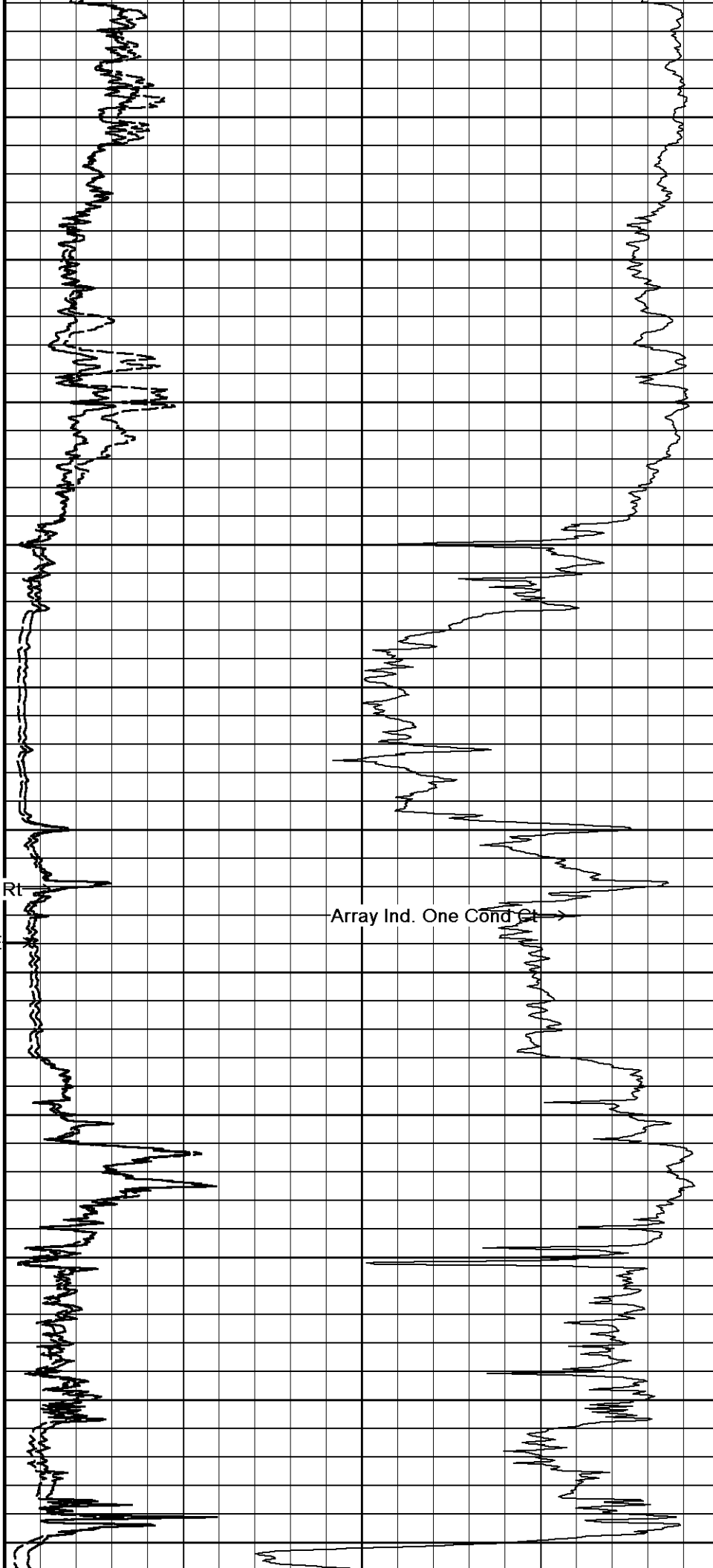
DST Uphole Tension

86°

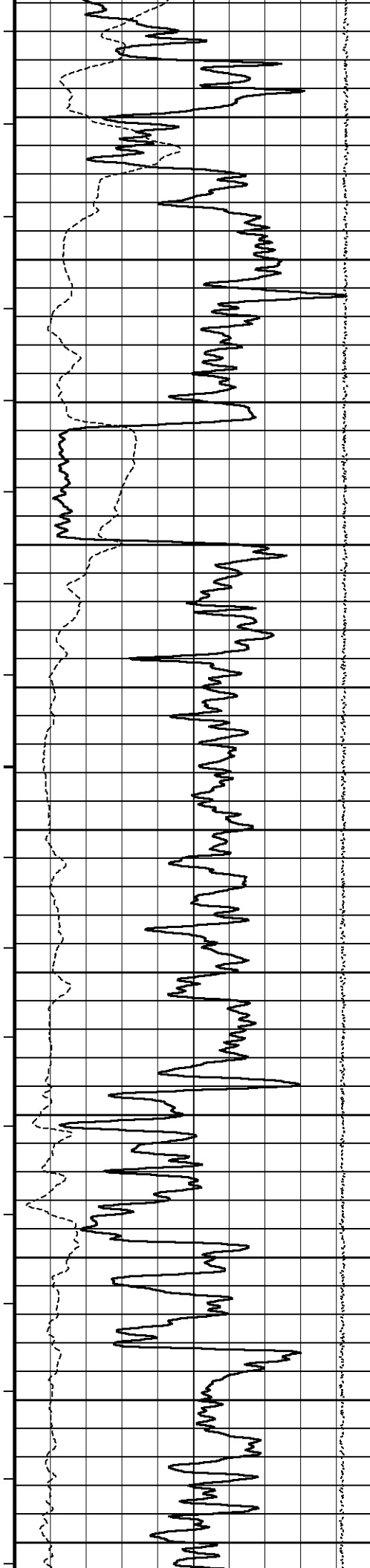
800

87°

900



Array Ind. One Cond Ct



88°

1000

89°

1100

89°

1200

90°

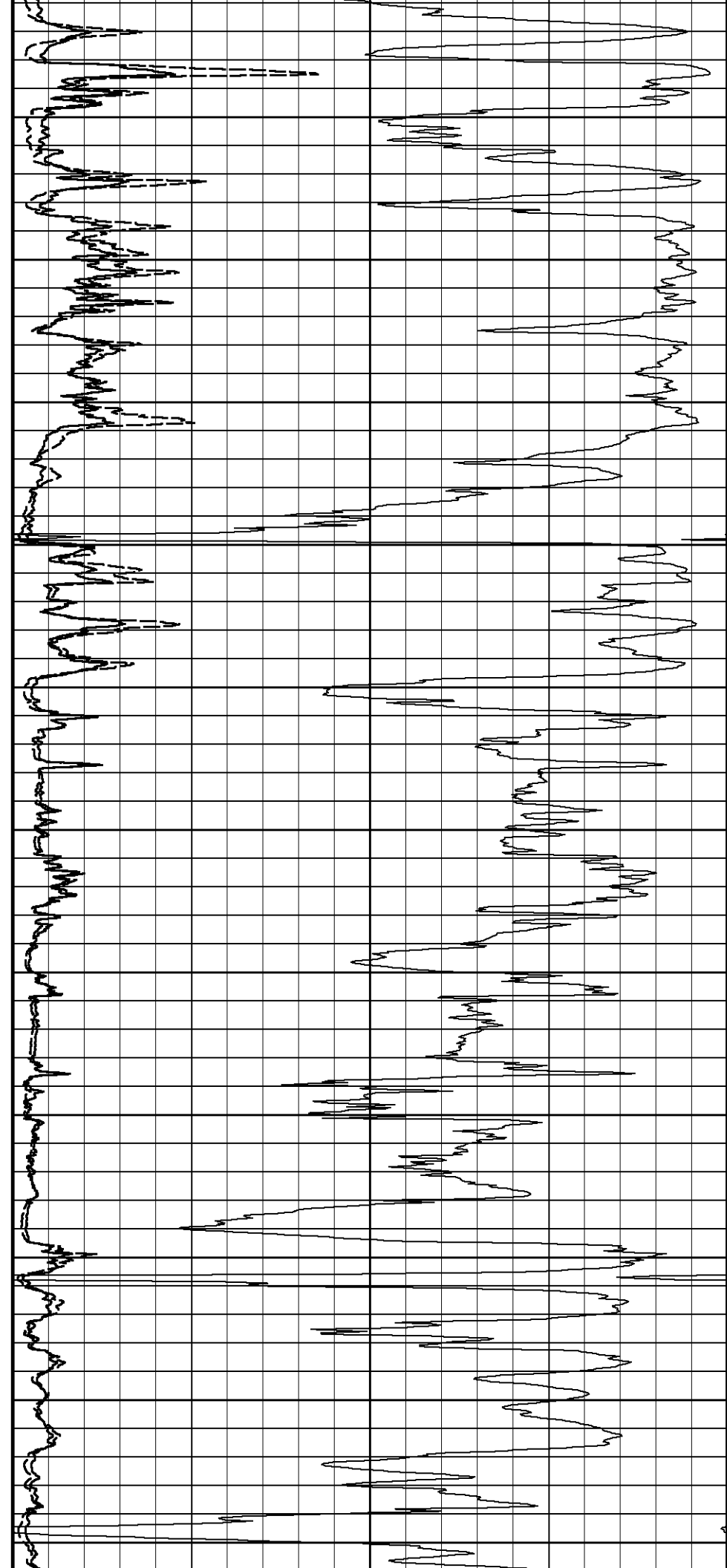
1300

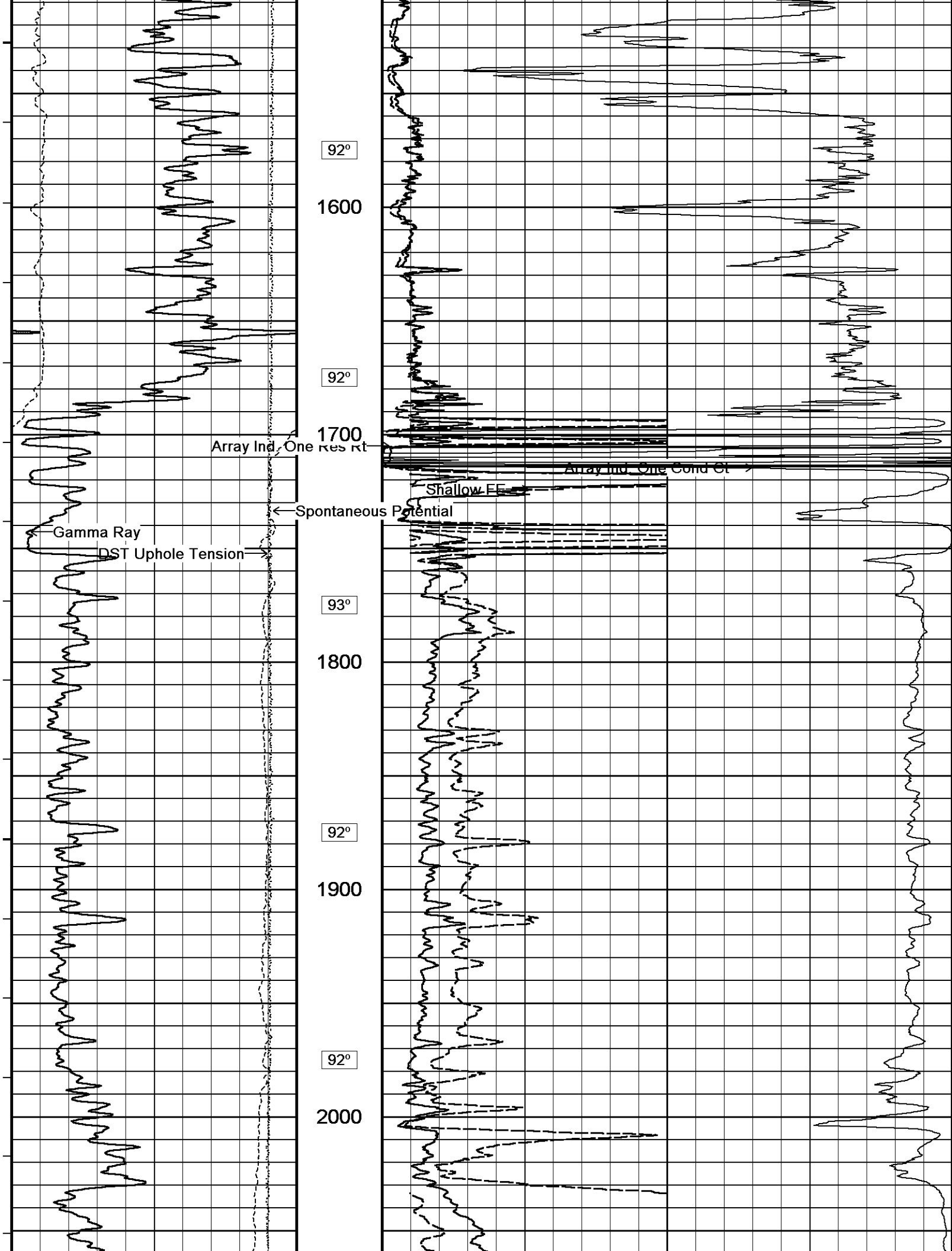
90°

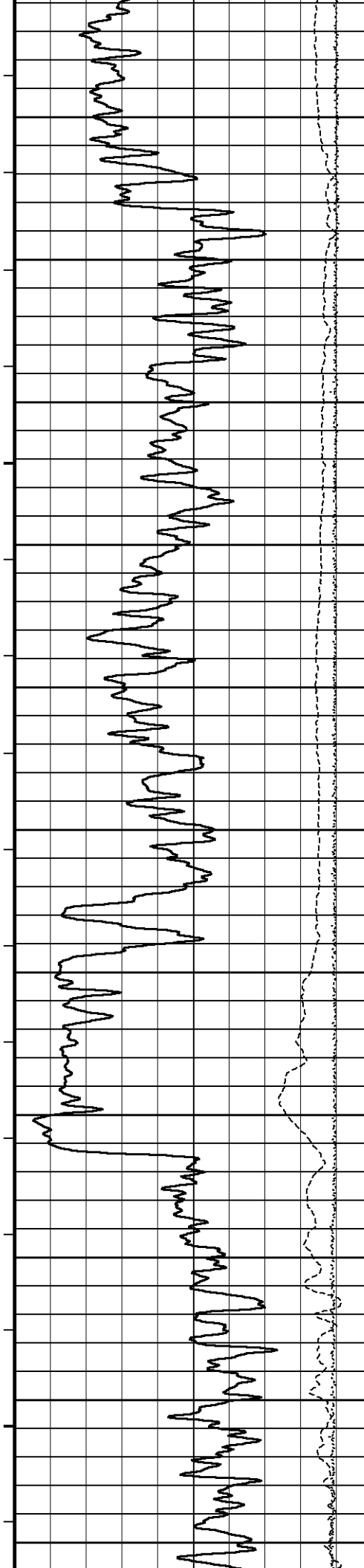
1400

91°

1500







93°

2100

93°

2200

94°

2300

94°

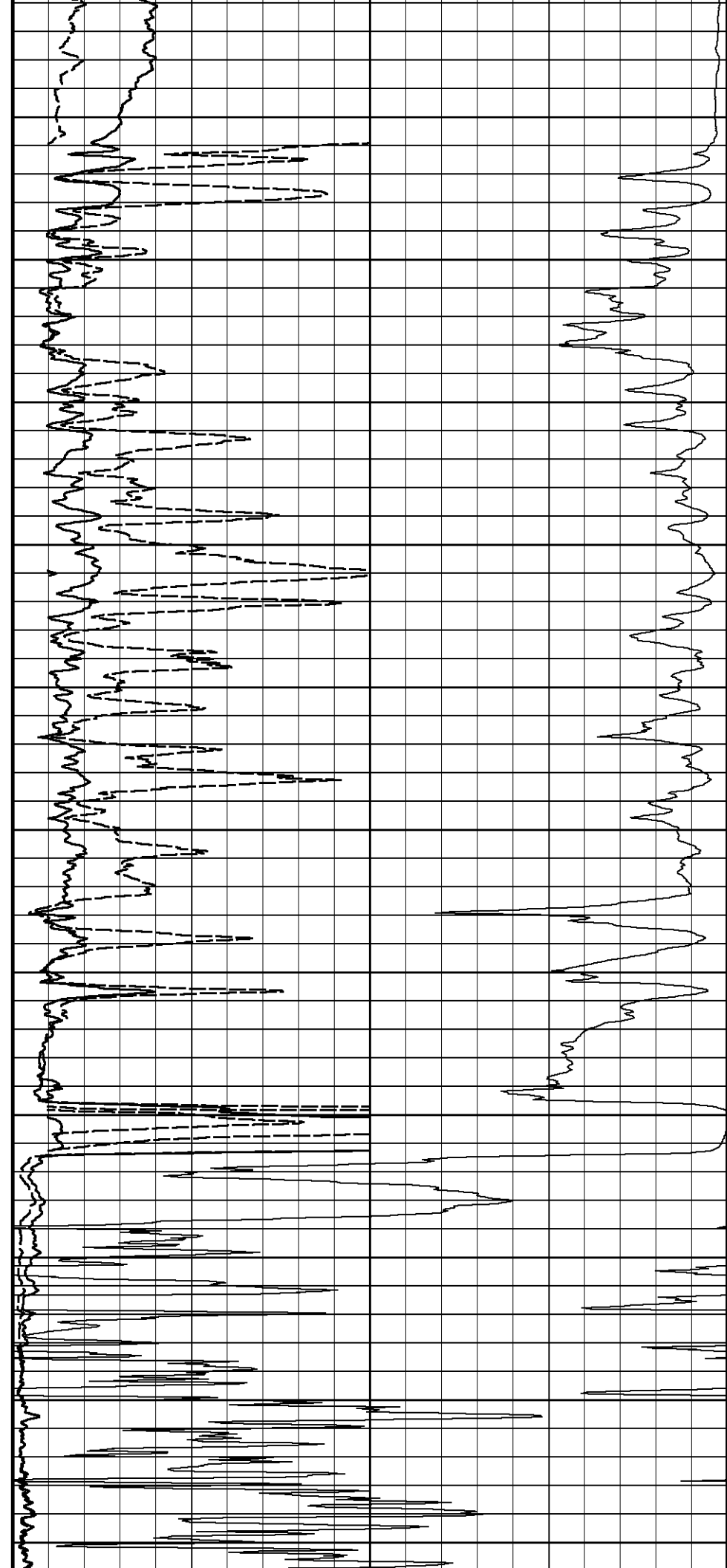
2400

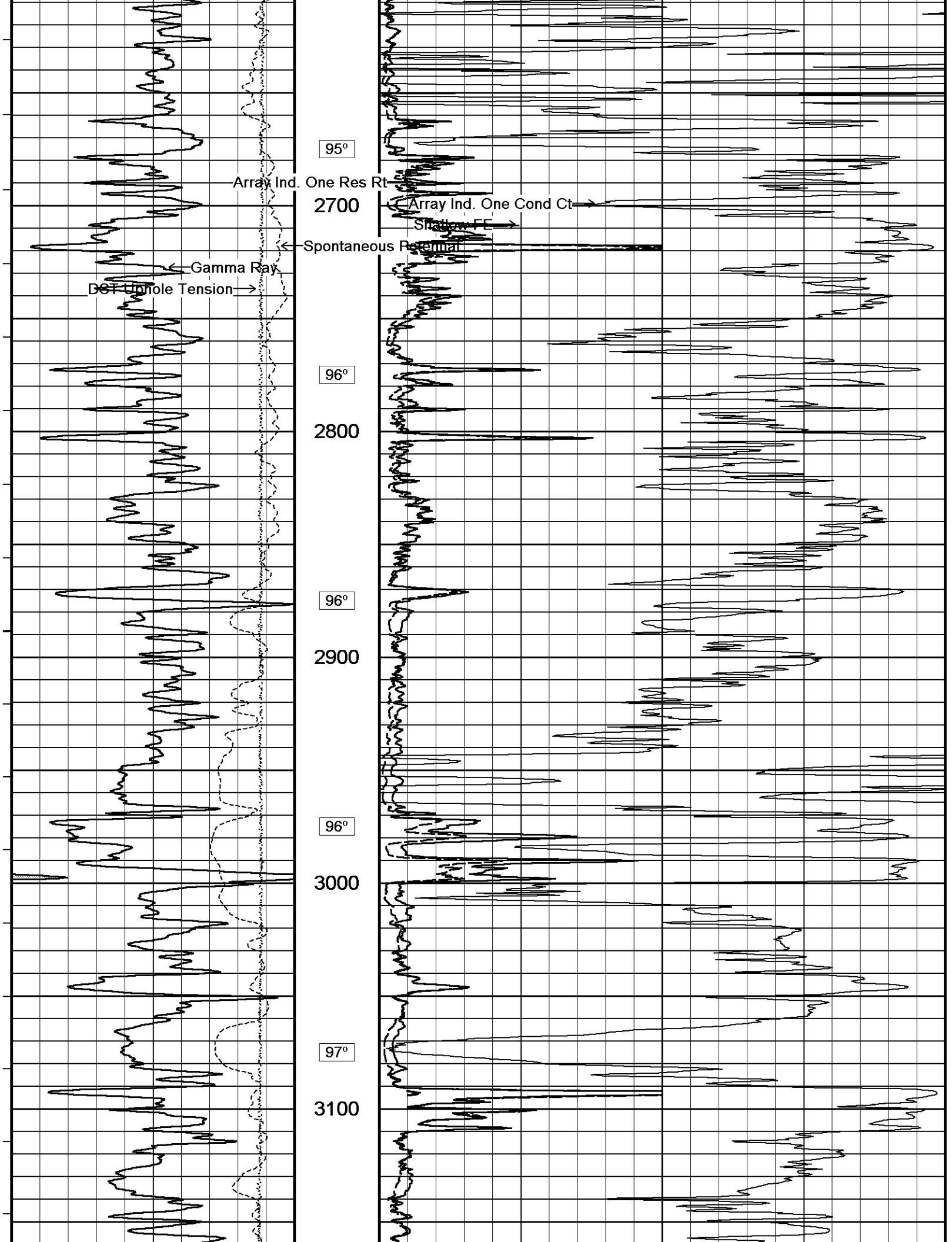
94°

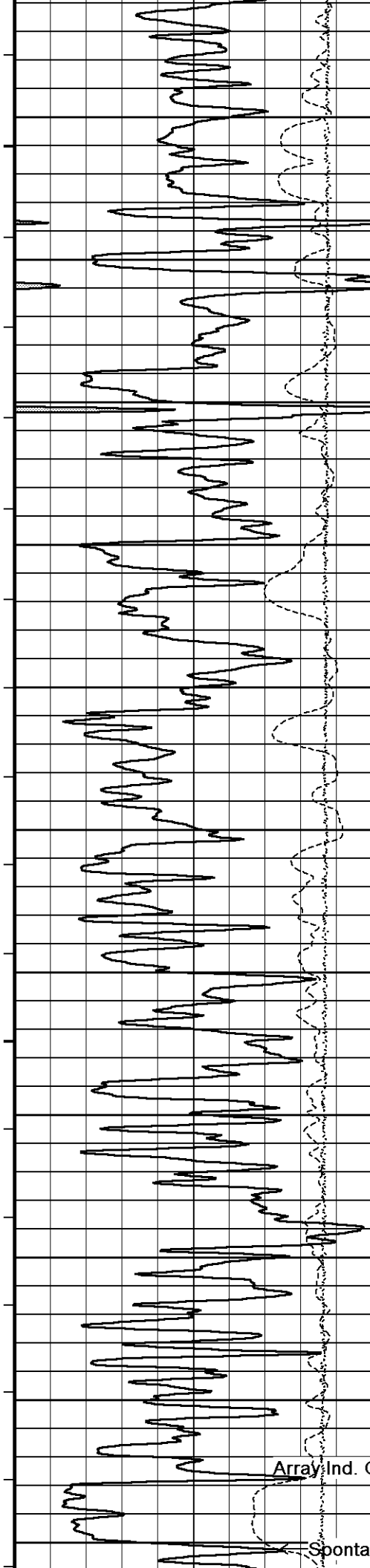
2500

95°

2600







97°

3200

97°

3300

98°

3400

98°

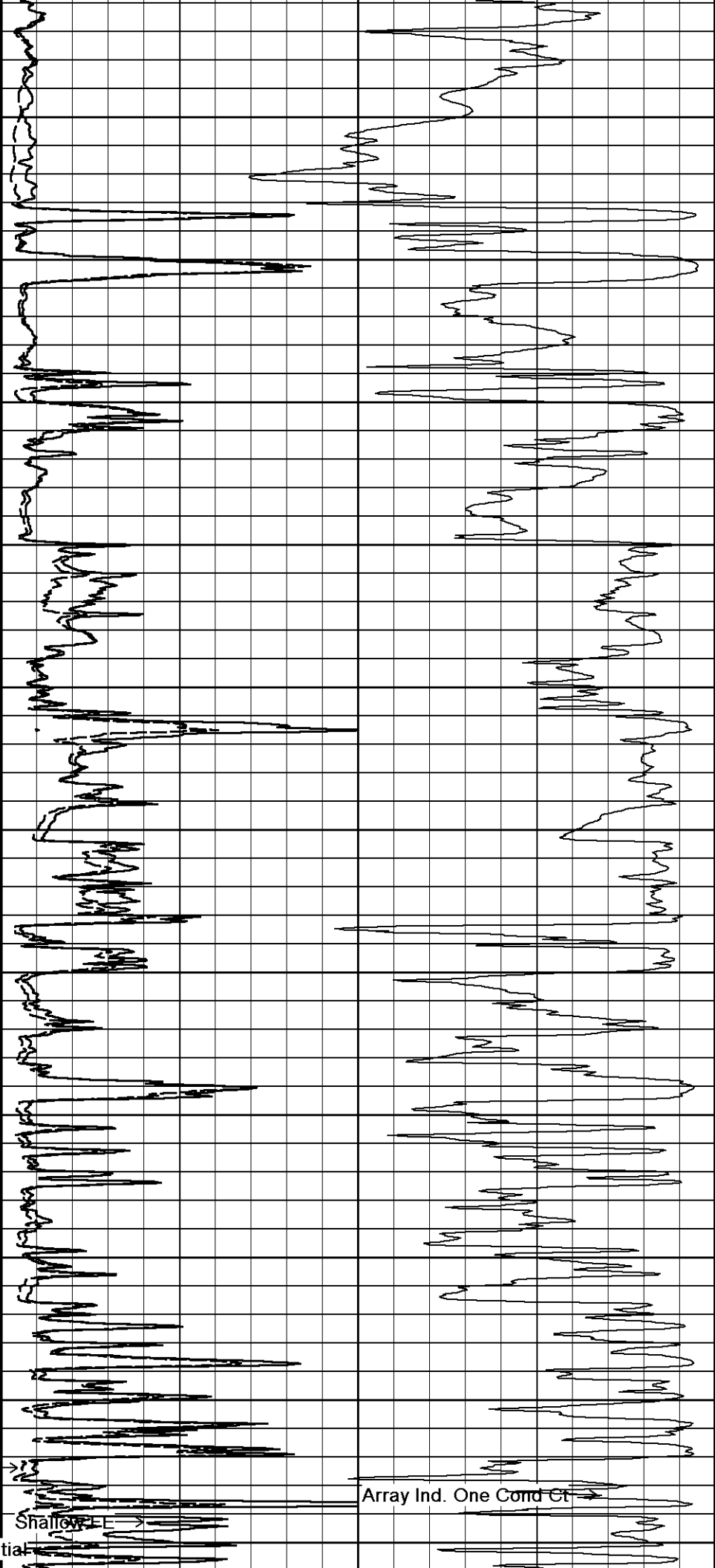
3500

98°

3600

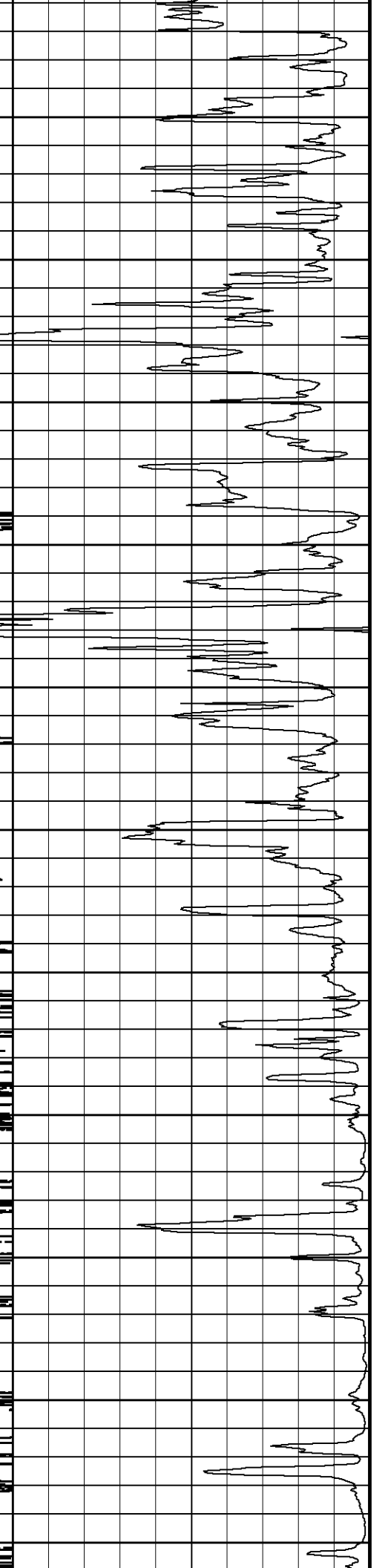
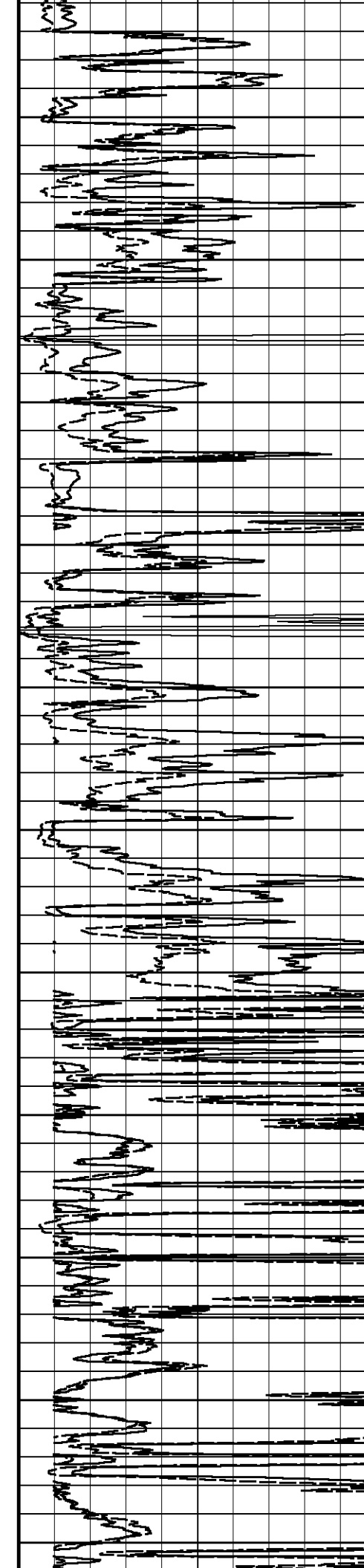
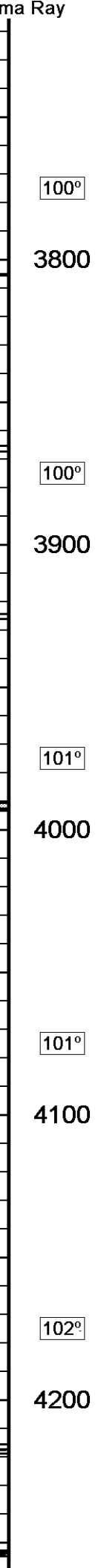
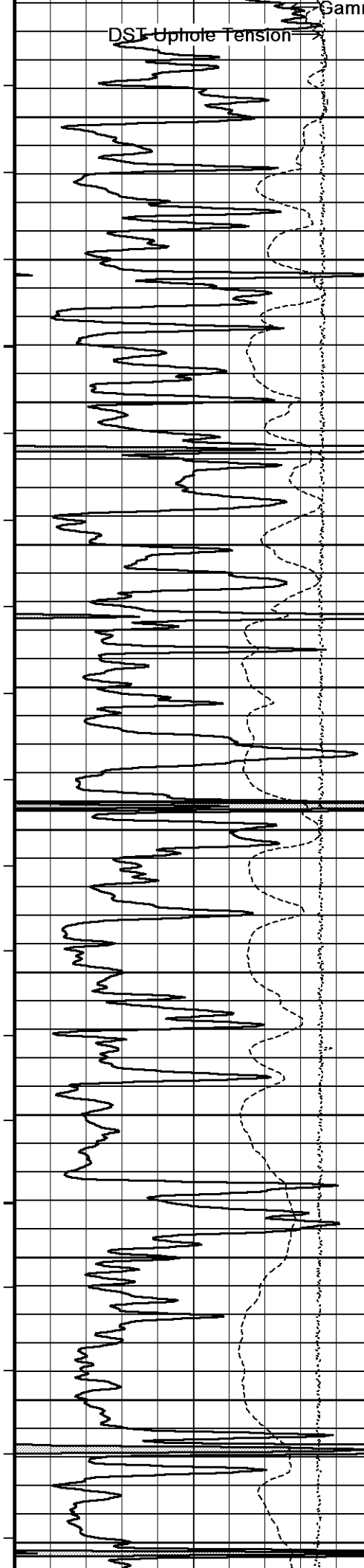
Array Ind. One 100s Rt

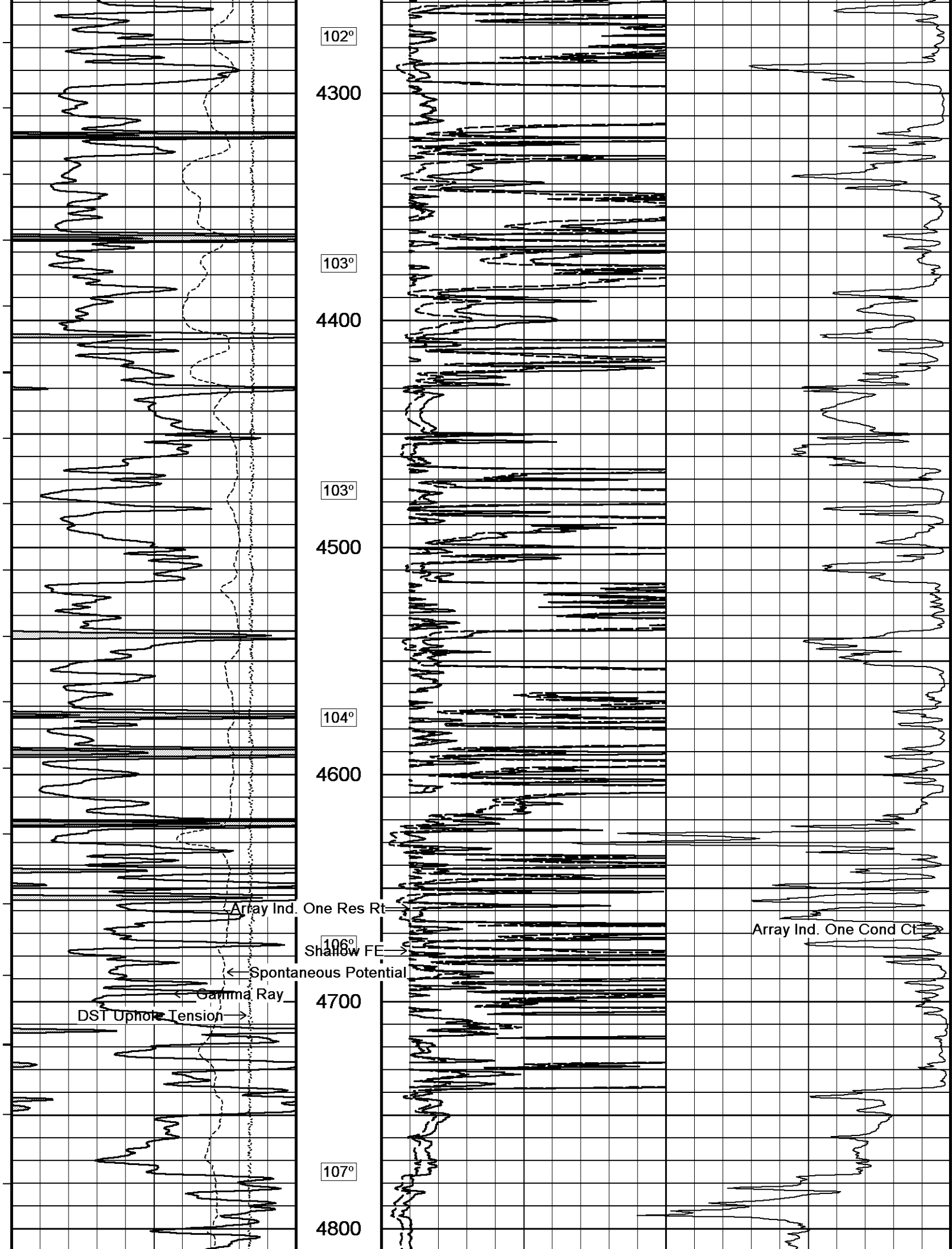
Spontaneous Potential

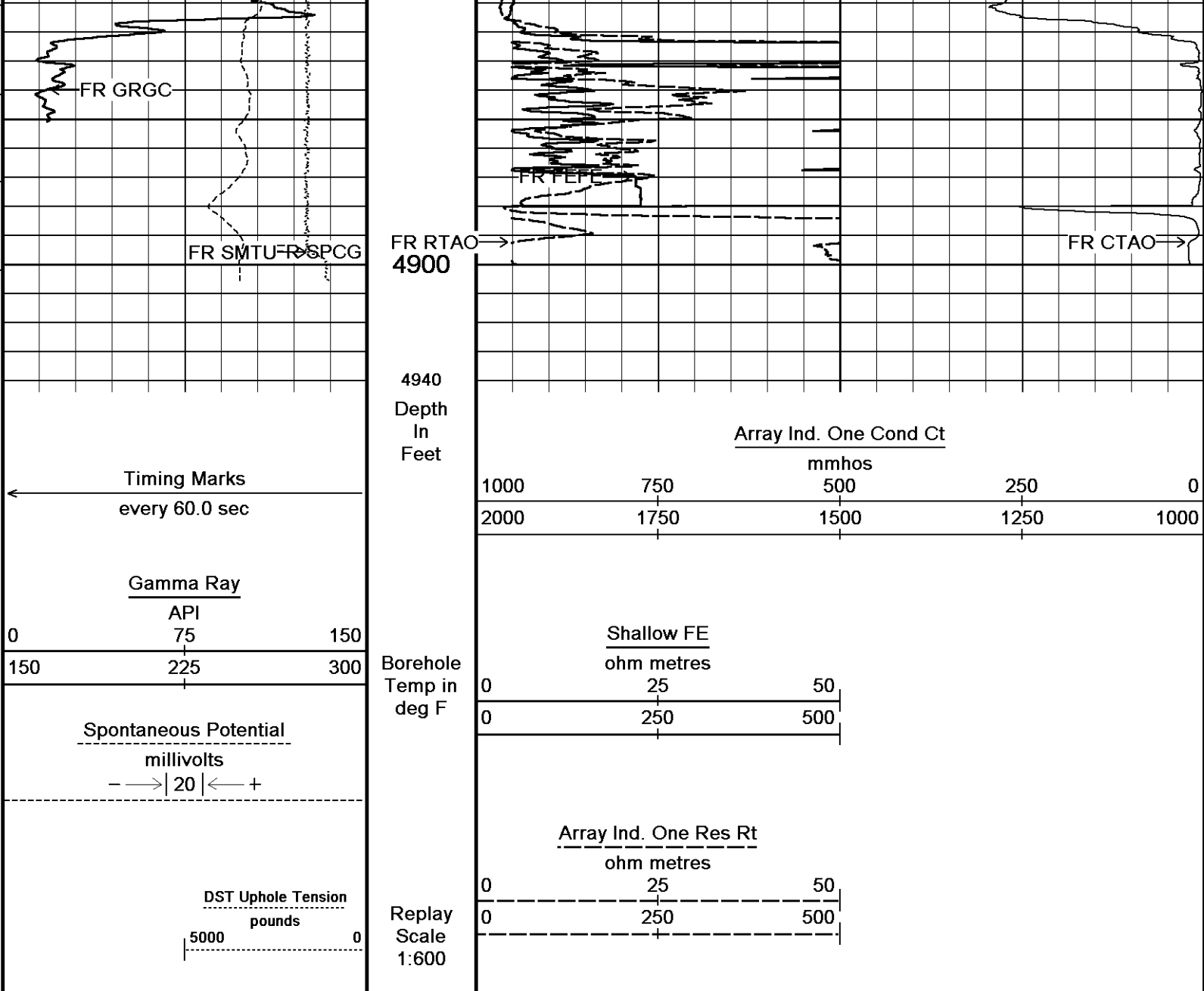


Array Ind. One Cond Ct

Shallow LE





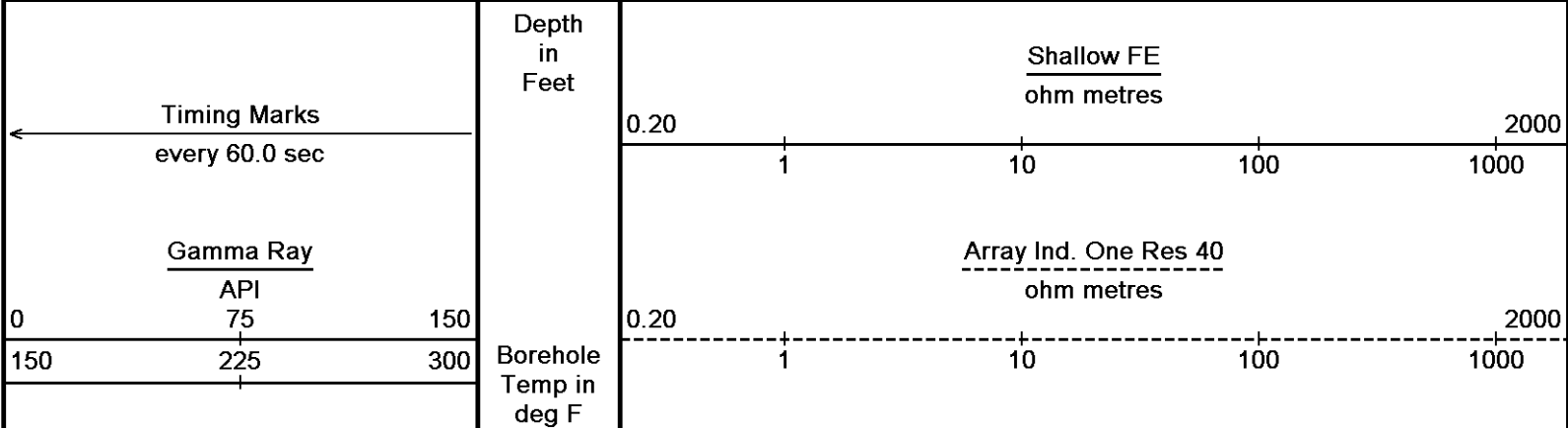


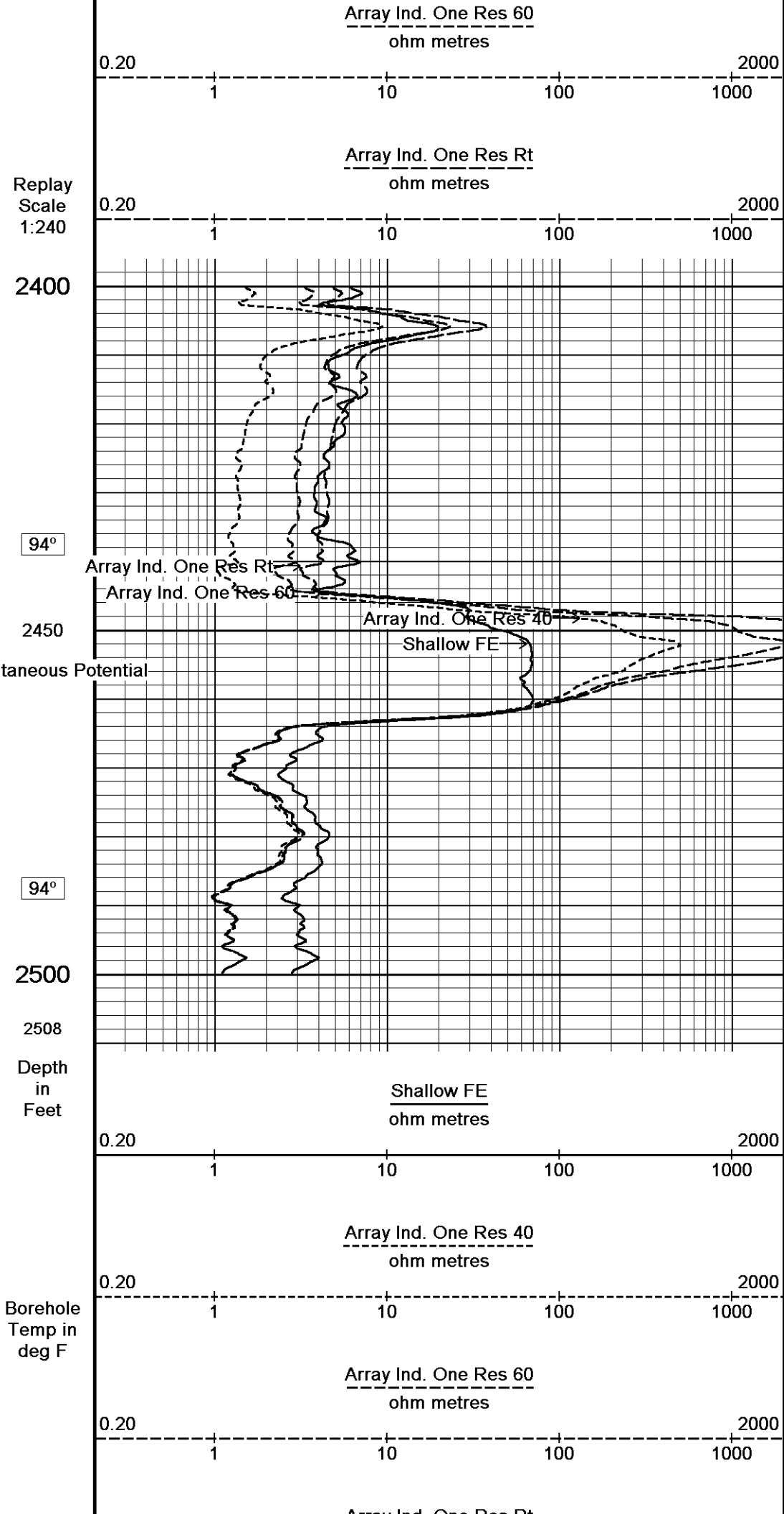
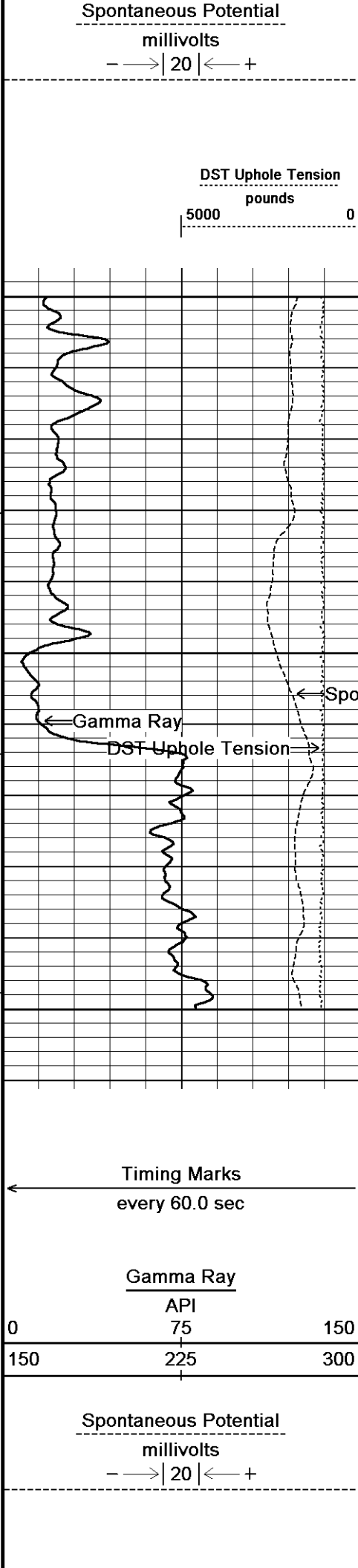
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 14-MAR-2013 17:33
Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_002.dta Recorded on 14-MAR-2013 14:59
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

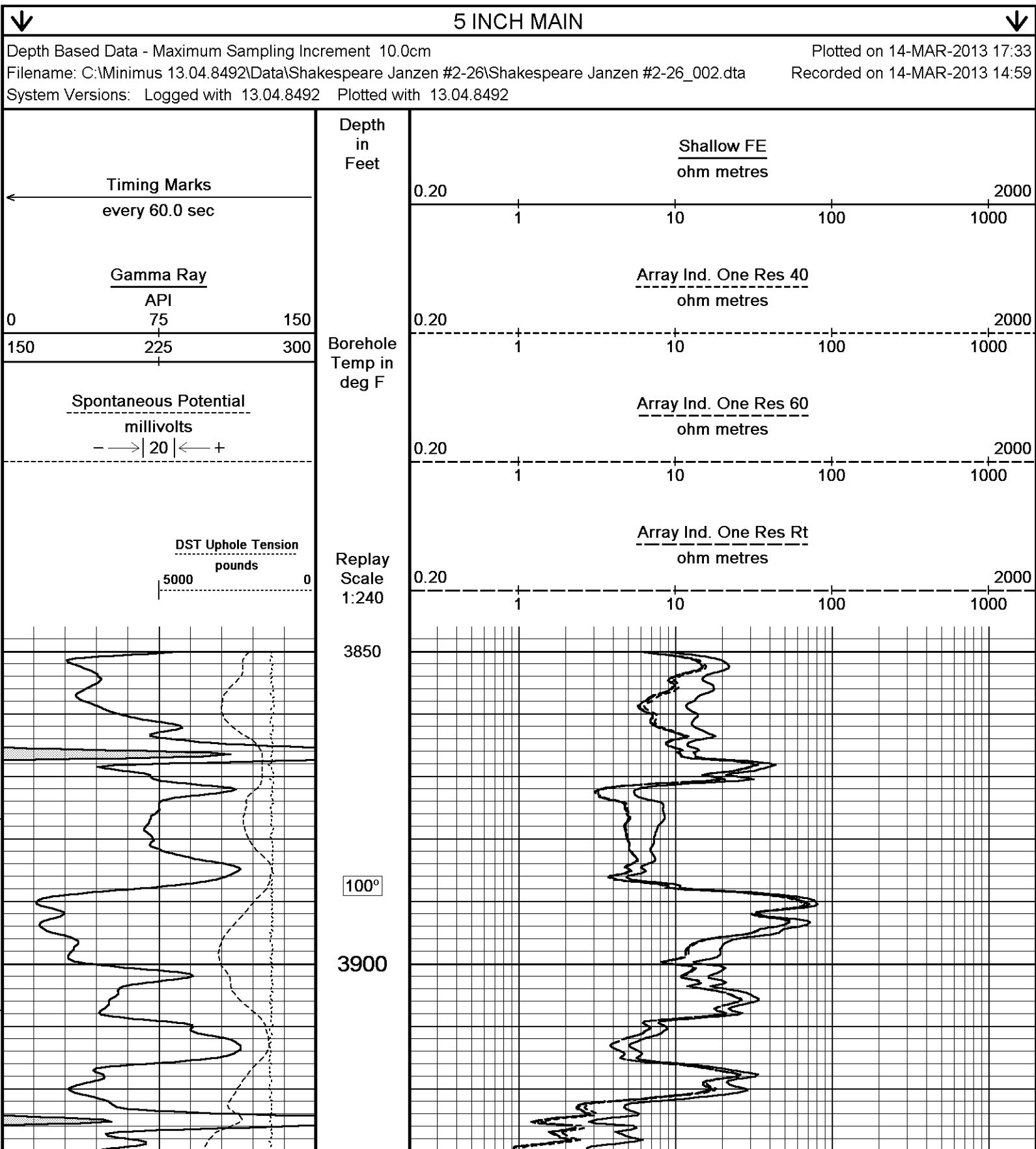
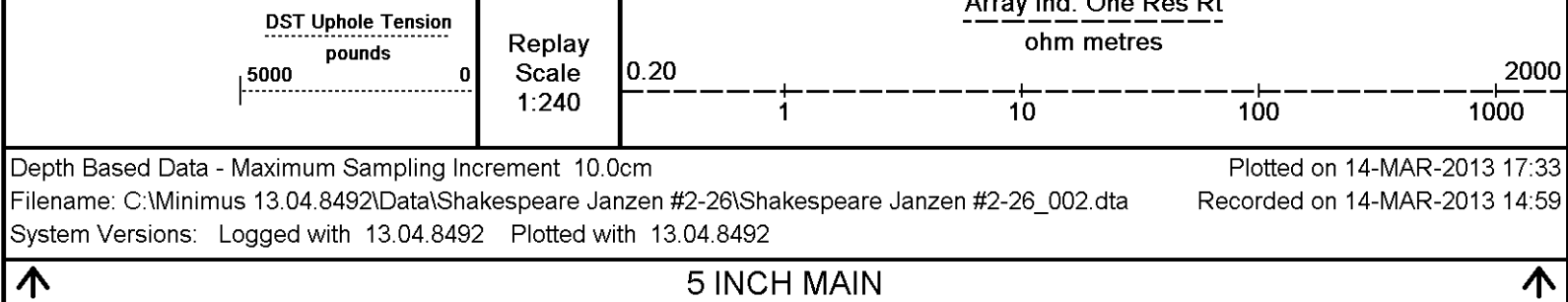
↑ 2 INCH MAIN ↑

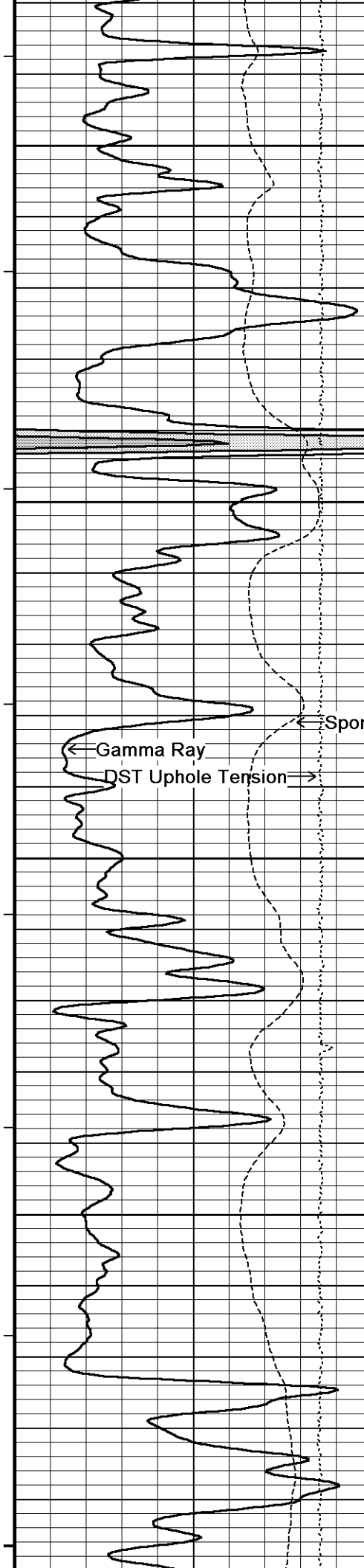
↓ 5 INCH MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 14-MAR-2013 17:33
Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_002.dta Recorded on 14-MAR-2013 14:59
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492









101°

3950

101°

4000

101°

4050

101°

4100

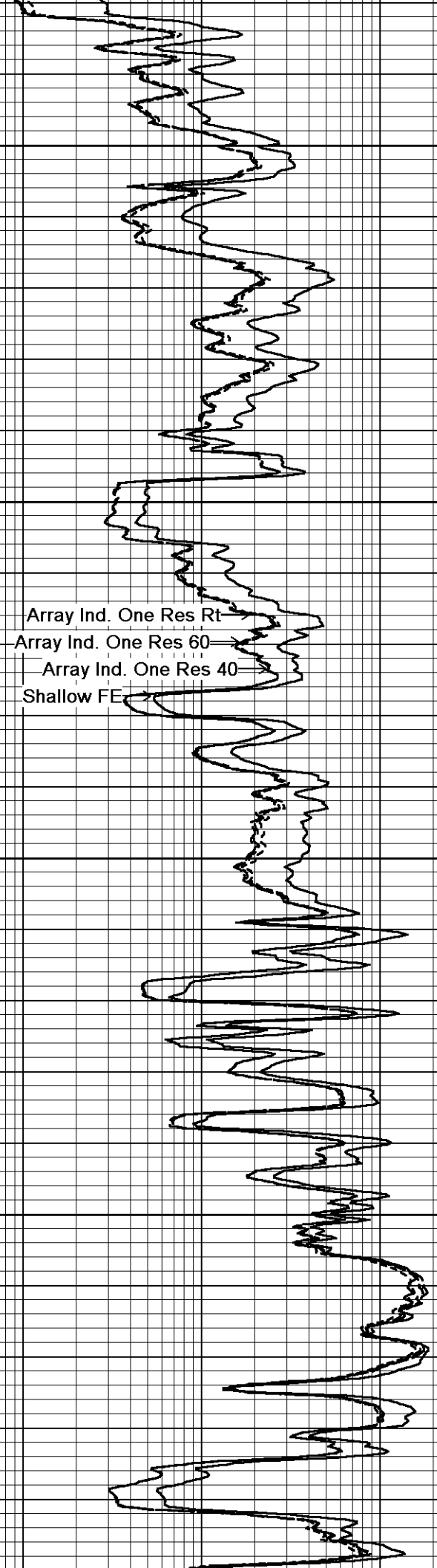
102°

4150

Spontaneous Potential

Gamma Ray

DST Uphole Tension

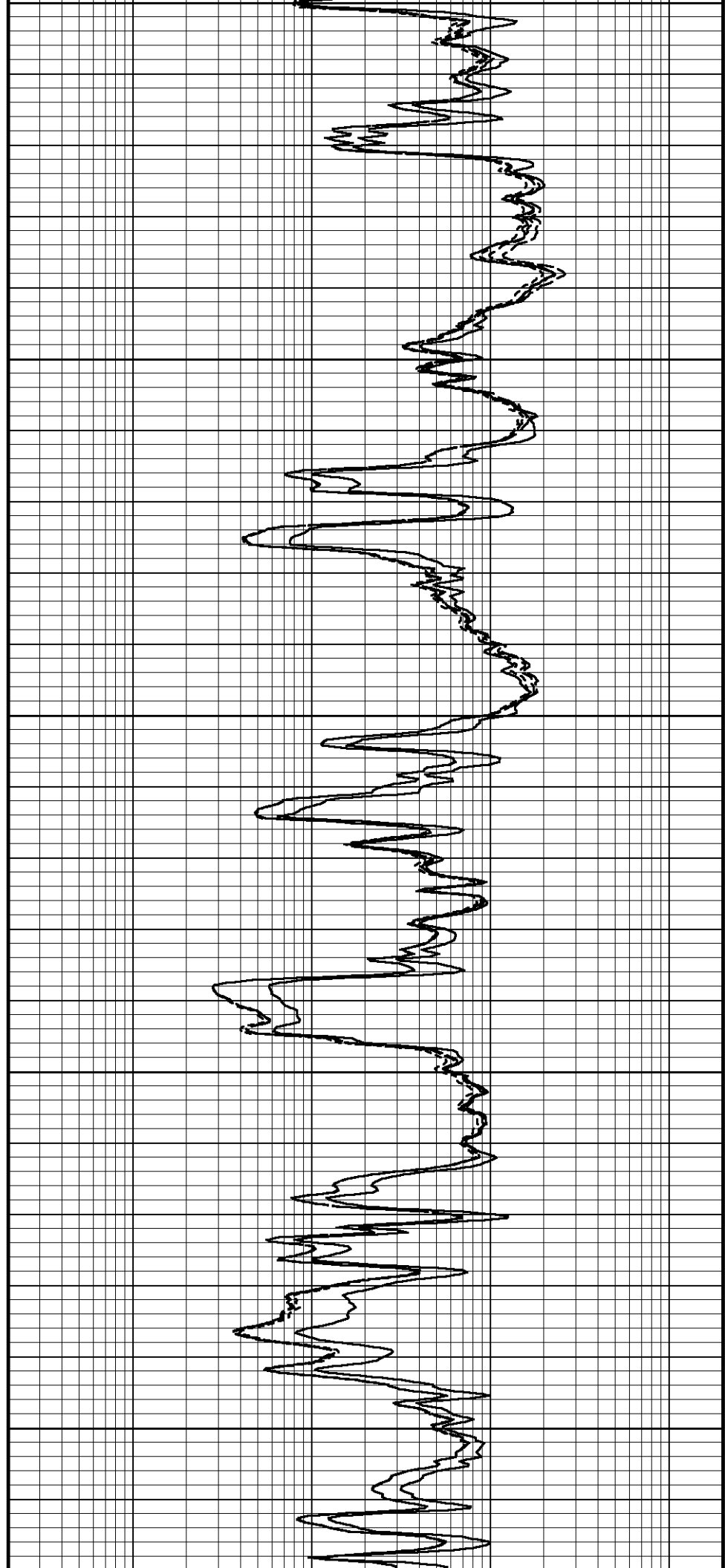
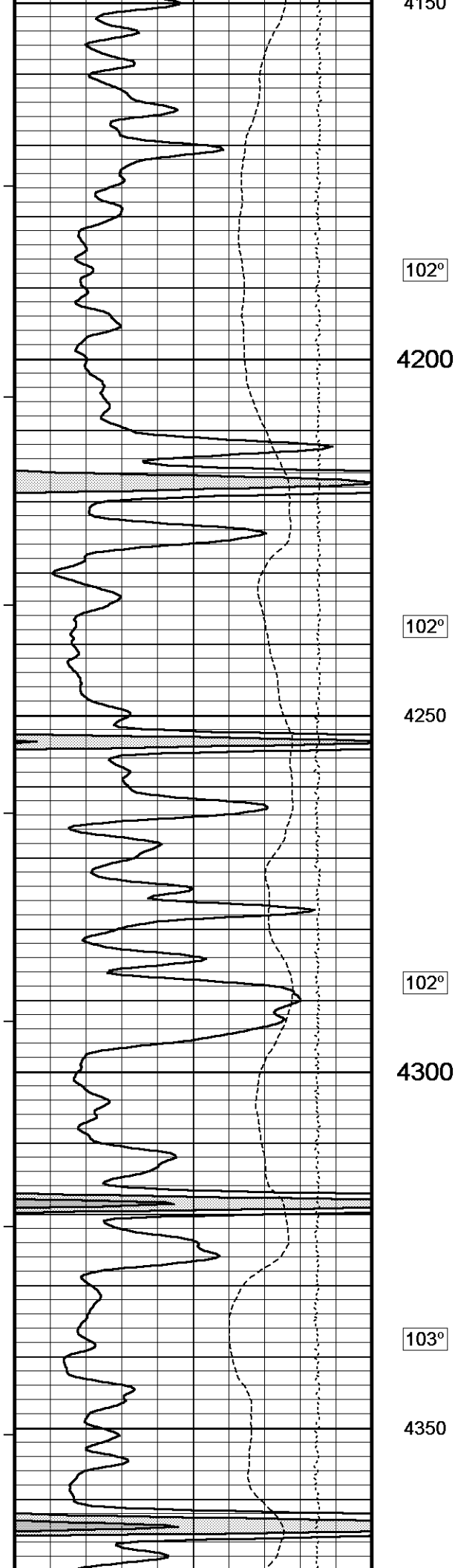


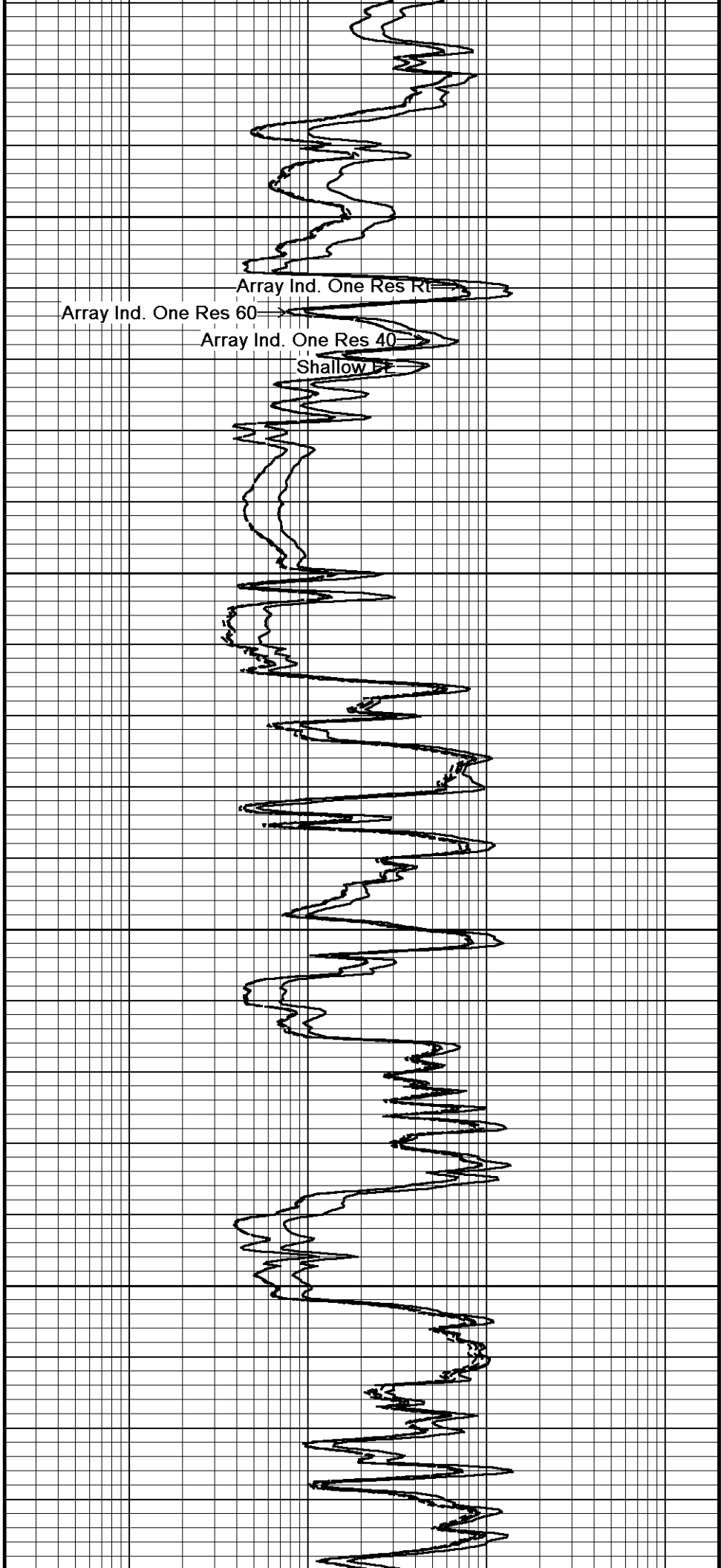
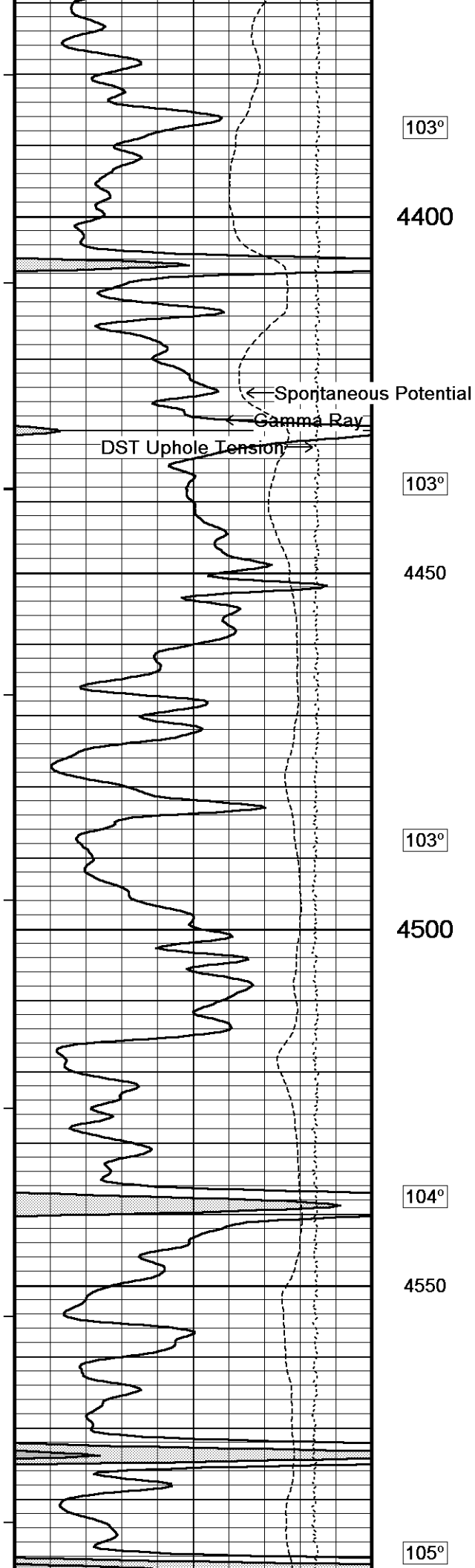
Array Ind. One Res Rt

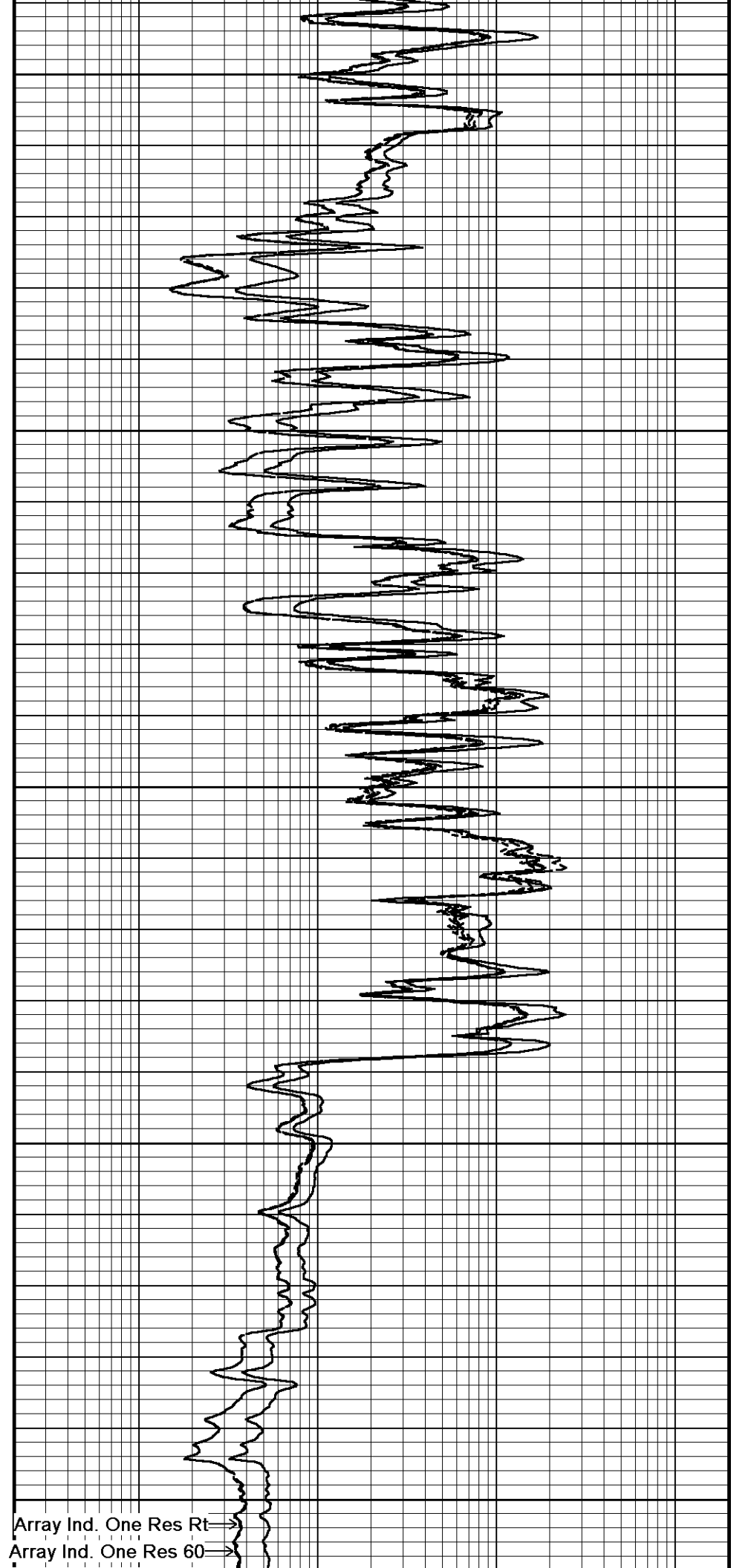
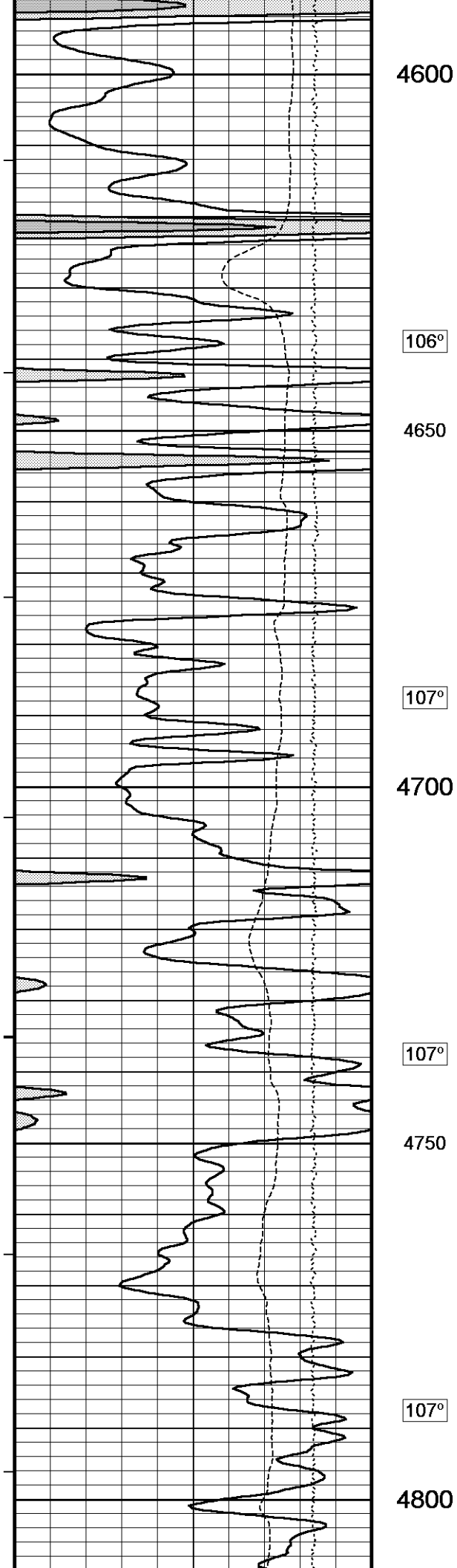
Array Ind. One Res 60

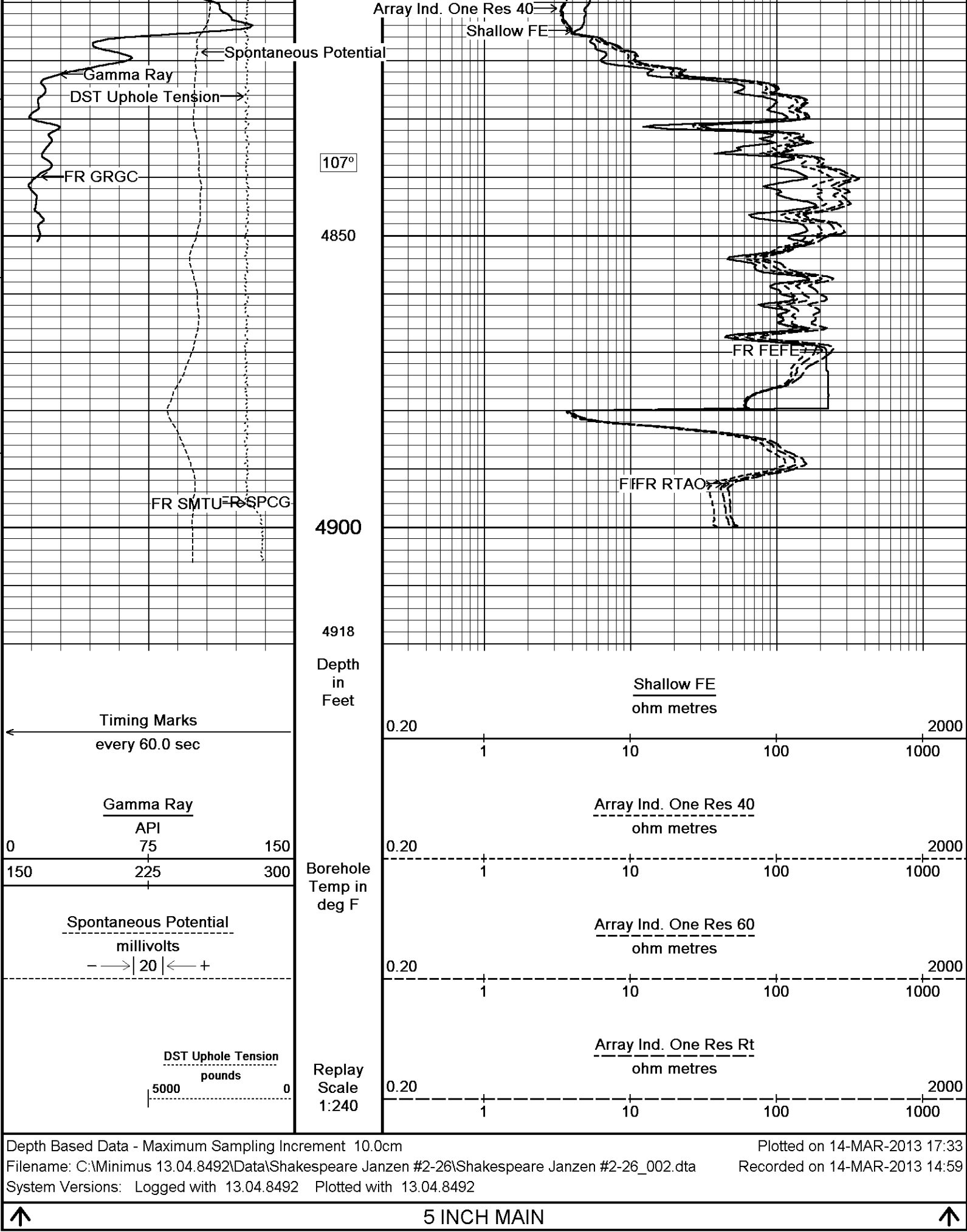
Array Ind. One Res 40

Shallow FE





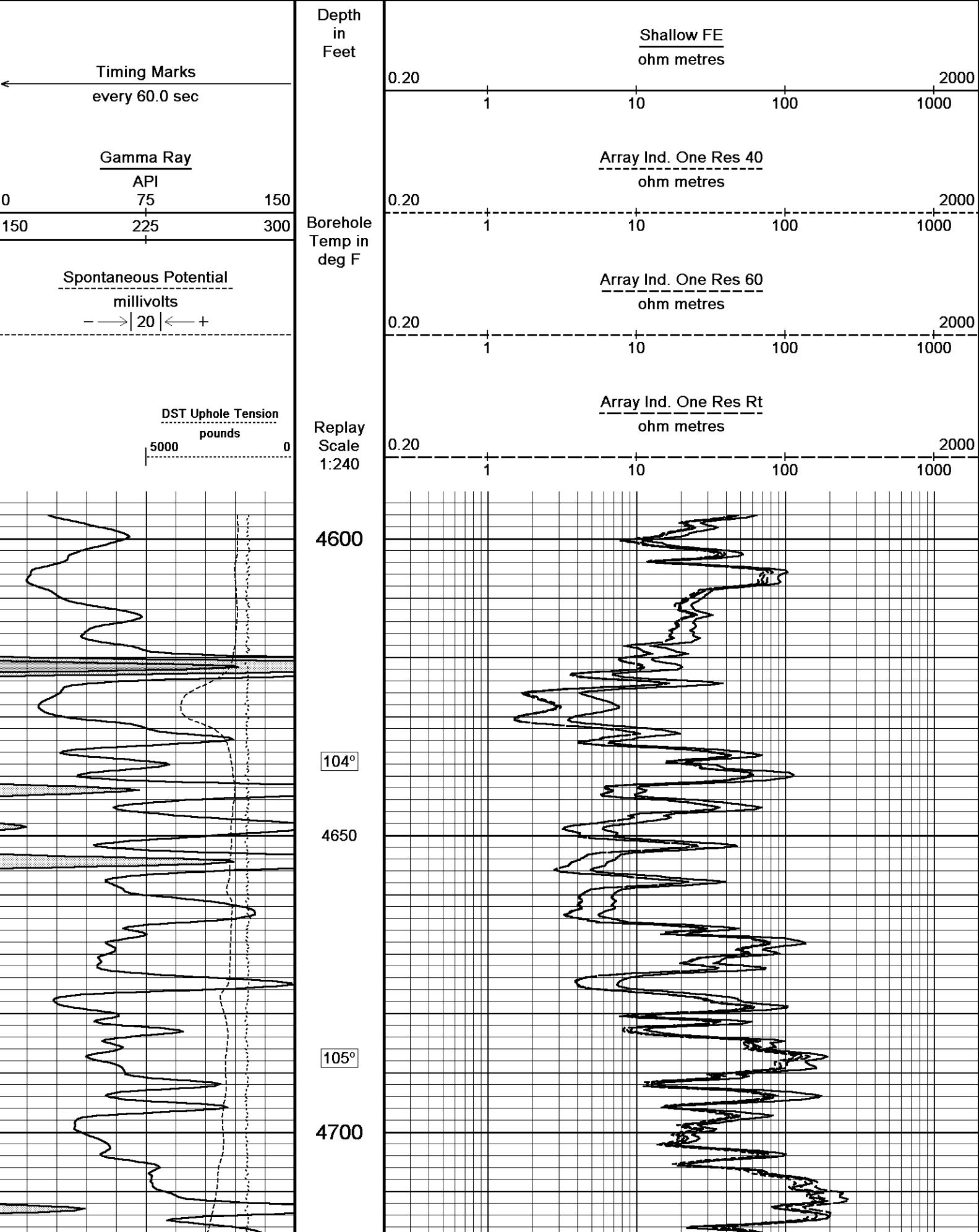


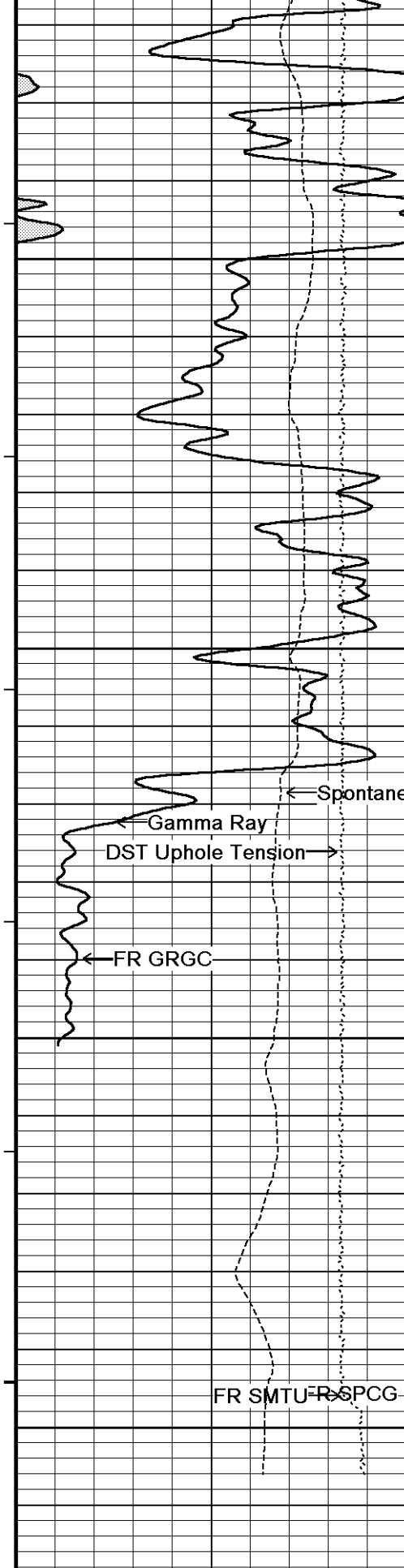


Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_002.dta
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492
Plotted on 14-MAR-2013 17:33
Recorded on 14-MAR-2013 14:59

↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓





106°

4750

106°

4800

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

← FR GRGC

FR SMTU-R-SPCG

106°

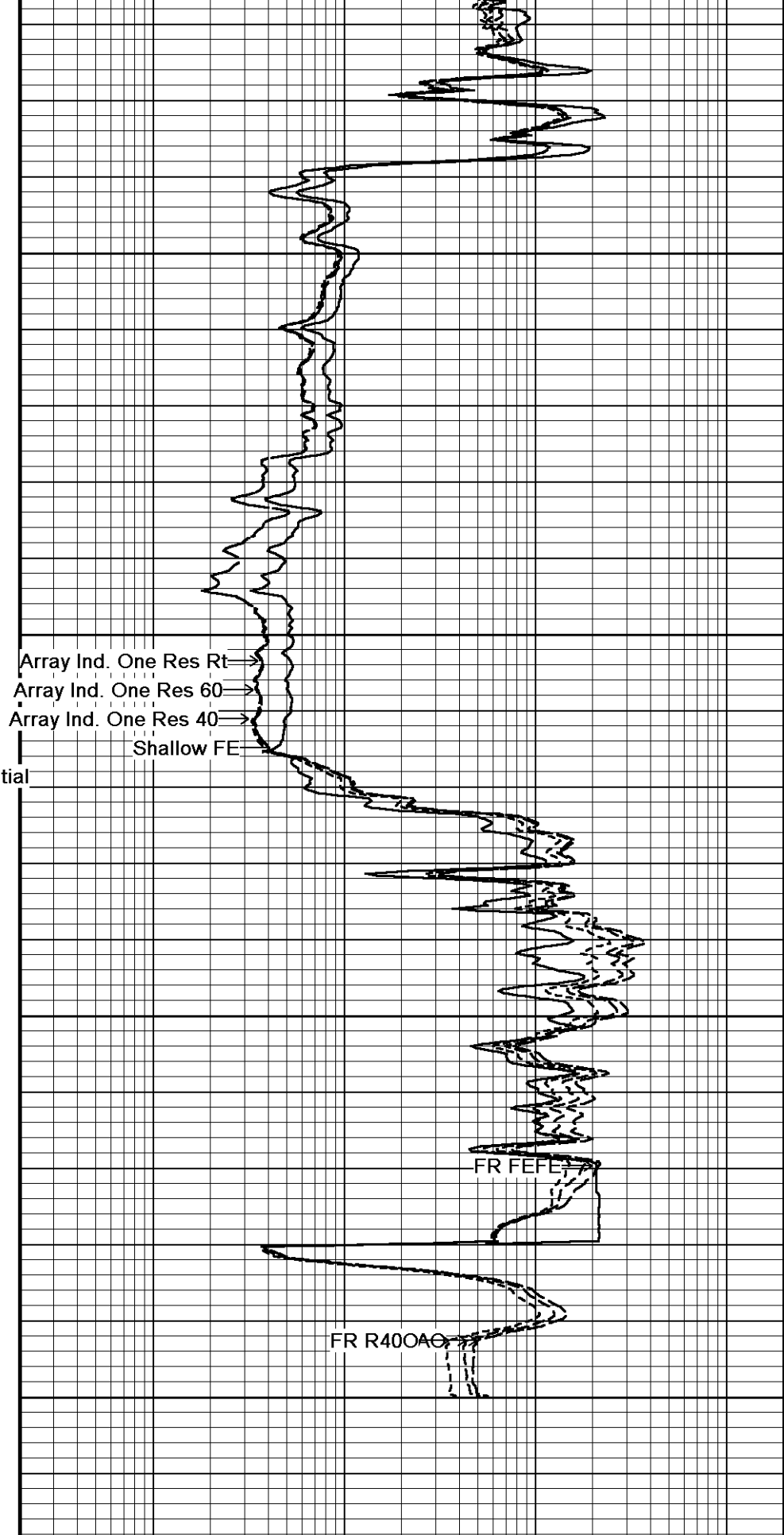
4850

4900

4916

Depth
in
Feet

Timing Marks
every 60.0 sec



Array Ind. One Res Rt →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow FE

FR FEFE

FR R400AO

Shallow FE
ohm metres

0.20

1

10

100

1000

2000

Pre-filter Length	11	
FE Calibration MFE-B.J 352		Base Calibration on 16-JAN-2013 10:20 Field Check on 08-MAR-2013 16:46
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 14-MAR-2013,13:21
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 45		Base Calibration on 26-JUL-2012,09:22 Field Check on 12-MAR-2013 18:30
Base Calibration		
Test Loop Calibration	Measured	Calibrated (mmho/m)
Channel	Low High	Low 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 High	Field Check (mmho/m) Low High
1		18.5 3850.6
2		31.8 3628.9
3		28.7 3049.2
4		18.4 2079.1
Deep		16.1 1911.1
Medium		42.6 4060.3
Shallow		49.7 5482.3
Array Temperature		61.1 Deg F

Induction Constants MAI-A.A 45		Last Edited on 14-MAR-2013,13:21
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

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	

DOWNHOLE EQUIPMENT

C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_001.dta

Compact Comms Gamma

MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

56.02 ft

GRGC - Gamma Ray

53.11 ft

CGXT - MCG External Temperature

Compact Micro-Resistivity

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

45.76 ft

MINV - MMR MicroLog Inverse

45.76 ft

MNRL - MMR MicroLog Normal

Compact Neutron

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

40.97 ft

NPRL - Limestone Neutron Por.

Compact Density/Caliper

MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

33.73 ft

AVOL - Annular Volume

33.73 ft

HVOL - Hole Volume

33.73 ft

CLDC - Density Caliper

31.80 ft

DPRL - Limestone Density Por.

31.80 ft

DEN - Compensated Density

31.80 ft

DCOR - Density Correction

31.74 ft

PDPE - PE

Compact Focussed Electric

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

26.24 ft

FEFE - Shallow FE

Compact Sonic

MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

12.96 ft

SPRL - Wyllie Lime. Sonic Por.

12.96 ft

DT35 - 3-5' Compensated Sonic

Compact Induction

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

3.34 ft

R400 - Array Ind. One Res 40

3.34 ft

R600 - 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.

Total Length: 61.30 ft Weight: 456.4 lb

