



Weatherford[®]

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY				SHAKESPEARE OIL INC.			
WELL				TUCKER #2-9			
FIELD				WILDCAT			
PROVINCE/COUNTY				SCOTT			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				2216' FSL & 1695' FWL			
SEC	TWP	RGE	Other Services				
9	16S	34W	MPD/MDN				
API Number		15-171-20973		MML			
Permit Number		MSS					
Permanent Datum G.L., Elevation 3139 feet							
Log Measured From KB							
Drilling Measured From K.B. @ 10FEET							
Date	20-SEP-2013			Elevations:			
Run Number	ONE			KB 3149.00			
Service Order	3541087			DF 3147.00			
Depth Driller	4865.00			GL 3139.00			
Depth Logger	4862.00						
First Reading	4859.00						
Last Reading	264.00						
Casing Driller	260.00						
Casing Logger	264.00						
Bit Size	7.875						
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.30 lb/USg		52.00 CP				
PH / Fluid Loss	10.00		8.80 ml/30Min				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.72 @ 81.0			ohm-m			
Rmf @ Measured Temp	0.58 @ 81.0			ohm-m			
Rmc @ Measured Temp	0.86 @ 81.0			ohm-m			
Source Rmf / Rmc	CALC	CALC	CALC				
Rm @ BHT	0.53 @111.0		ohm-m				
Time Since Circulation	3 HOURS						
Max Recorded Temp	111.00		deg F				
Equipment / Base	13096	LIB					
Recorded By	ROB HOFFMAN						
Witnessed By	TIM PRIEST						
JOB #	LB13-266						

BOREHOLE RECORD

Last Edited: 20-SEP-2013 11:51

Bit Size inches	Depth From feet	Depth To feet
7.875	260.00	4865.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	260.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RUN 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: 2262 CU. FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO 3800 FEET: 279 CU. FT.

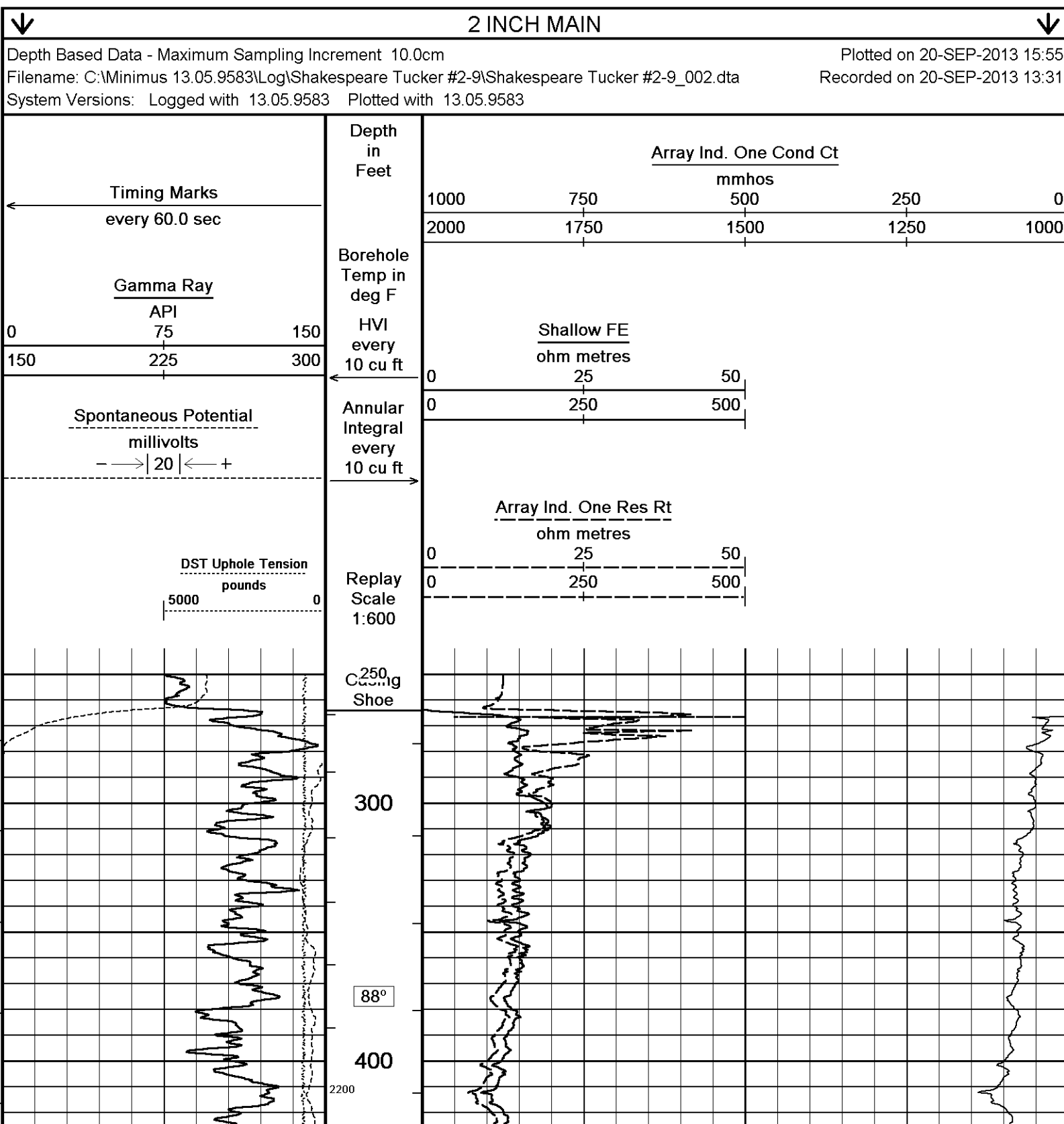
- SERVICE ORDER # 3541087

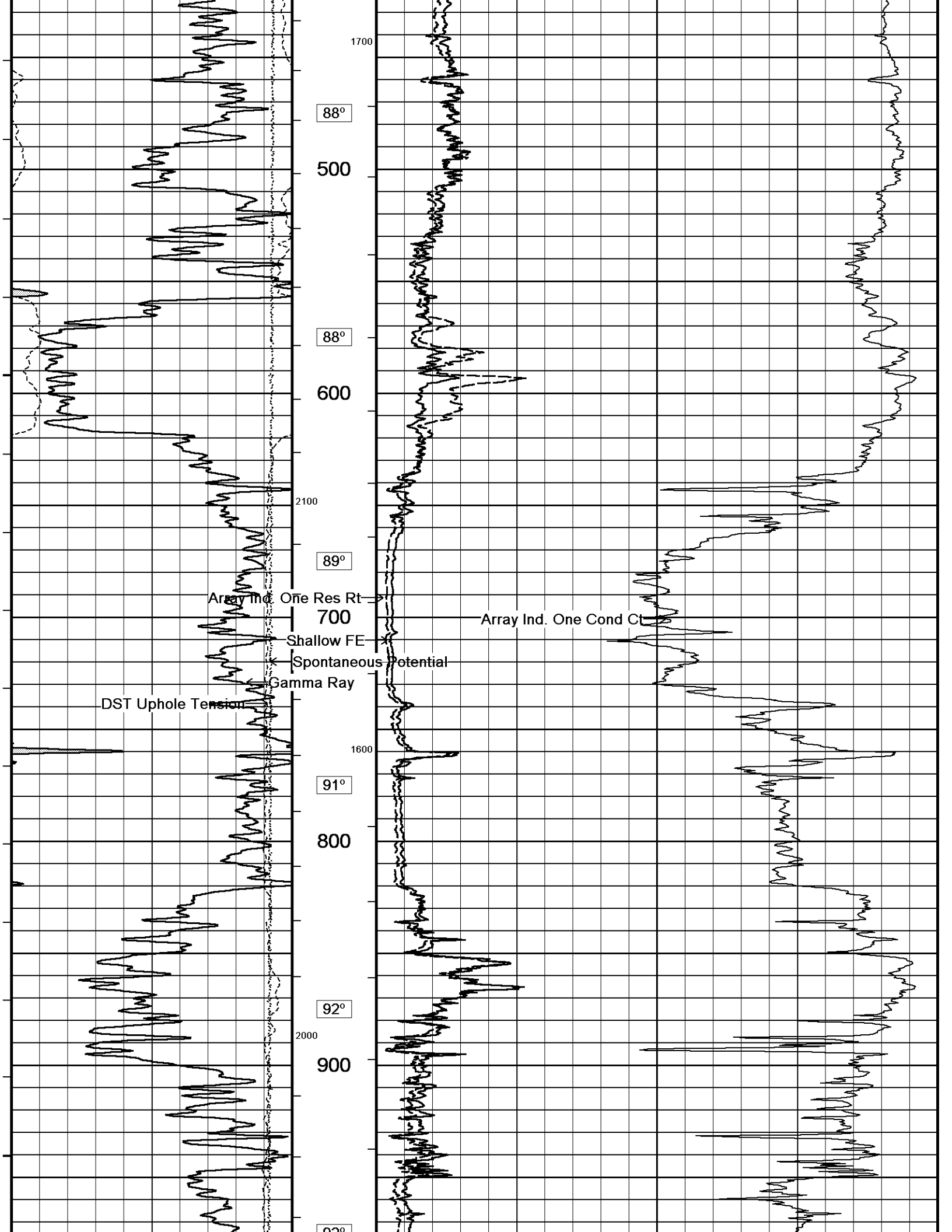
- RIG: HD DRILLING #2.

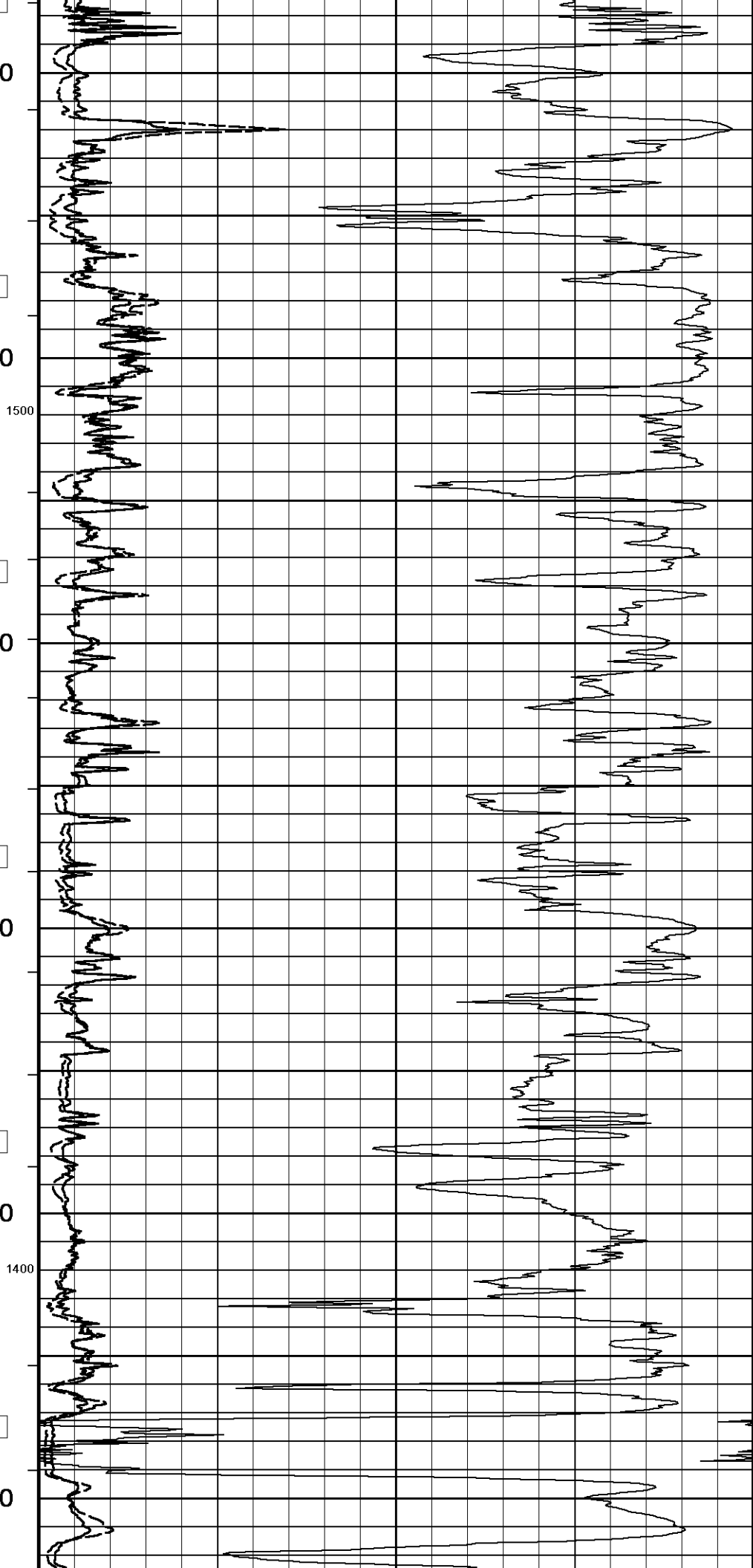
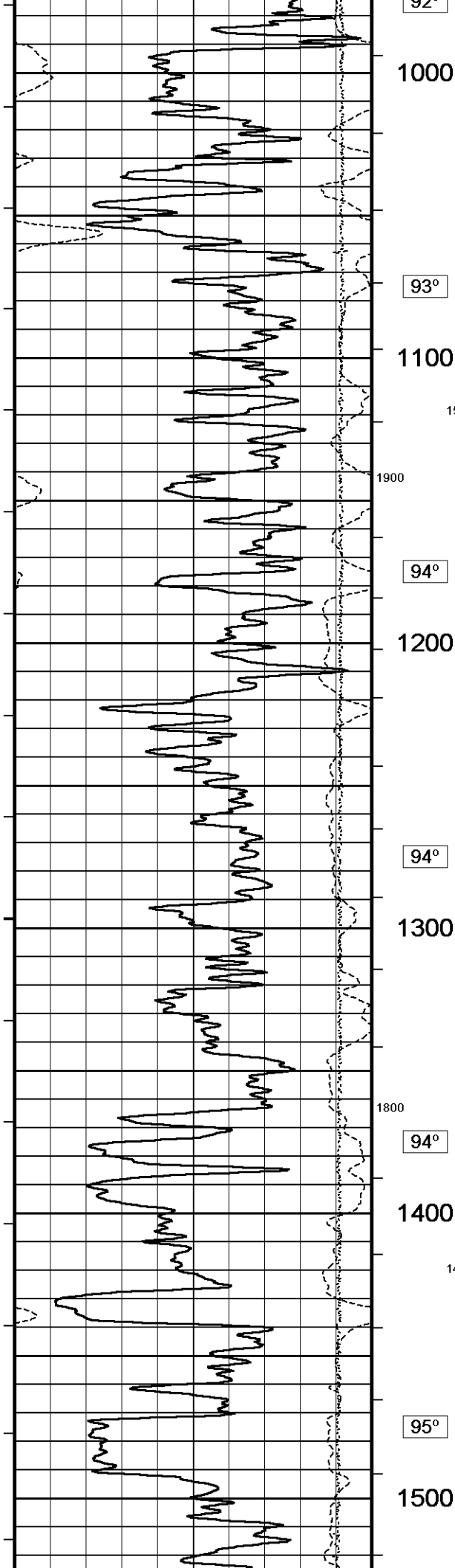
- ENGINEER: ROB HOFFMAN

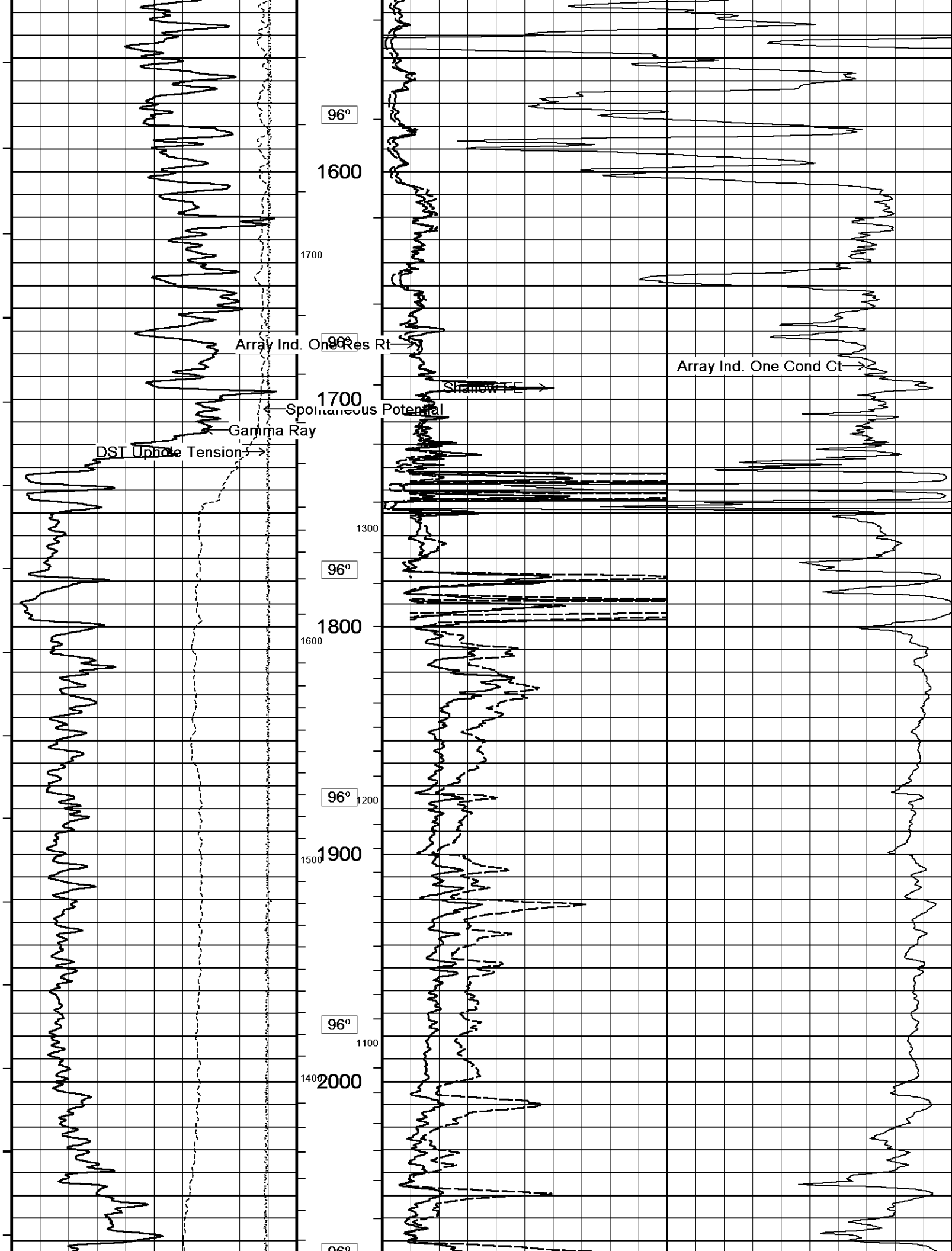
- OPERATOR(S): K. RINEHART, D. CANADAY

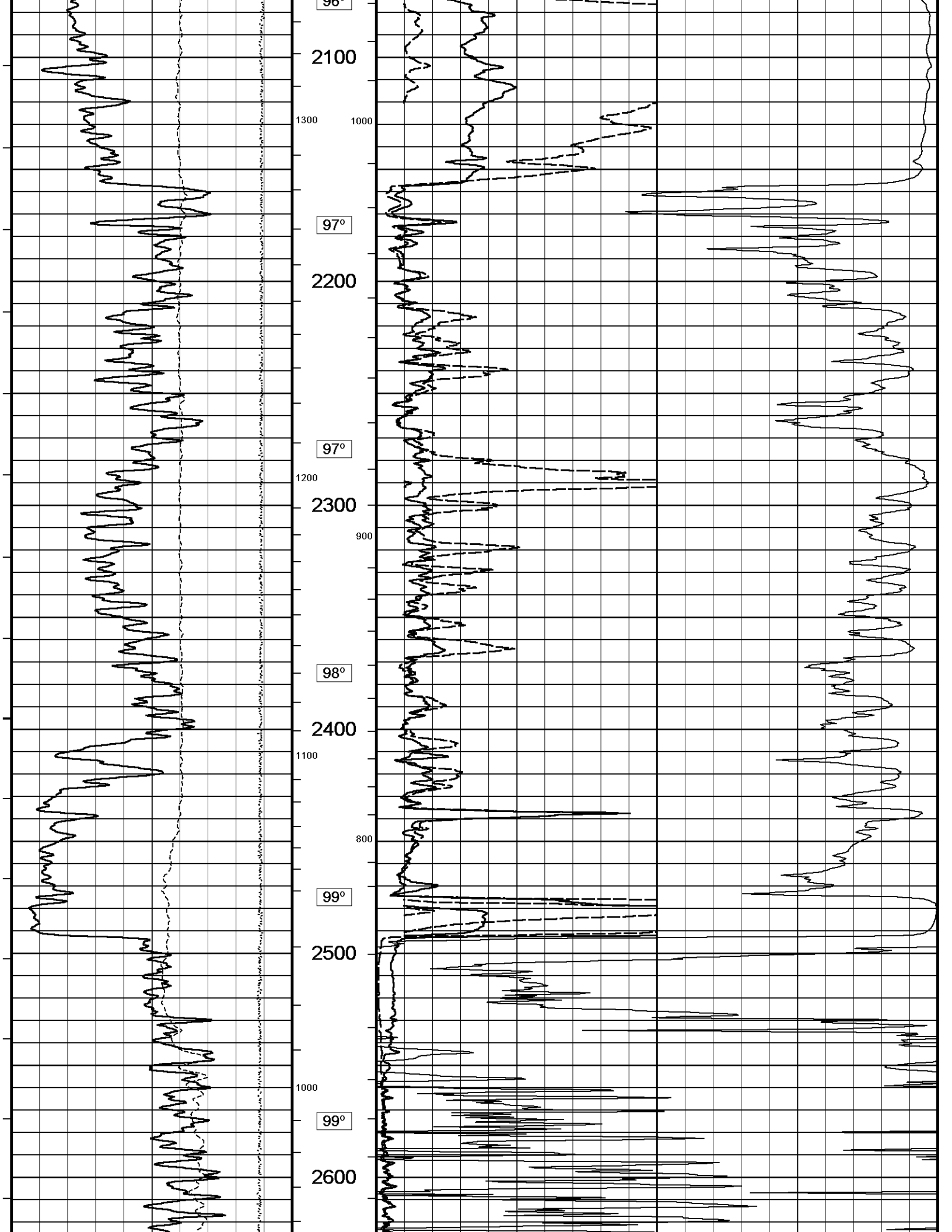
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

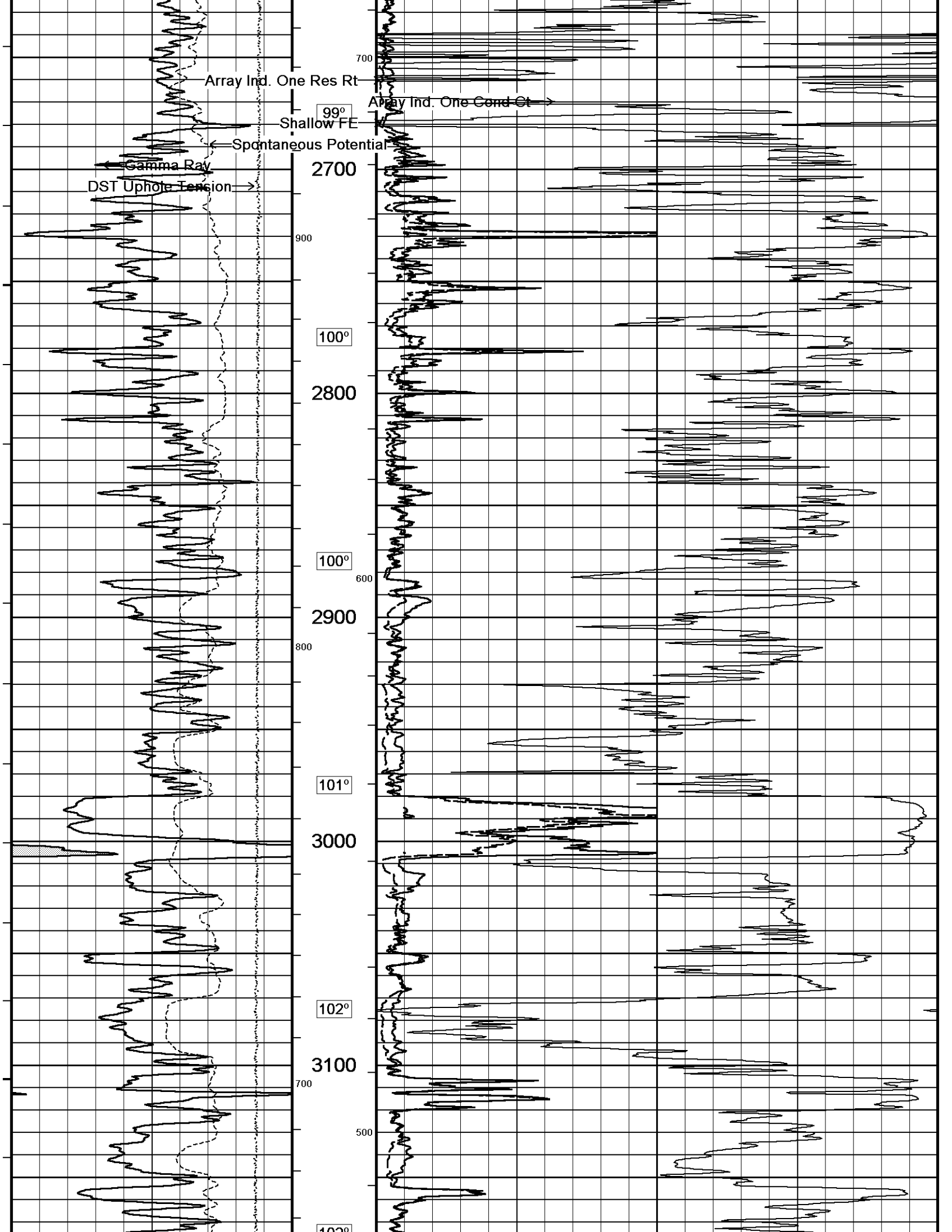


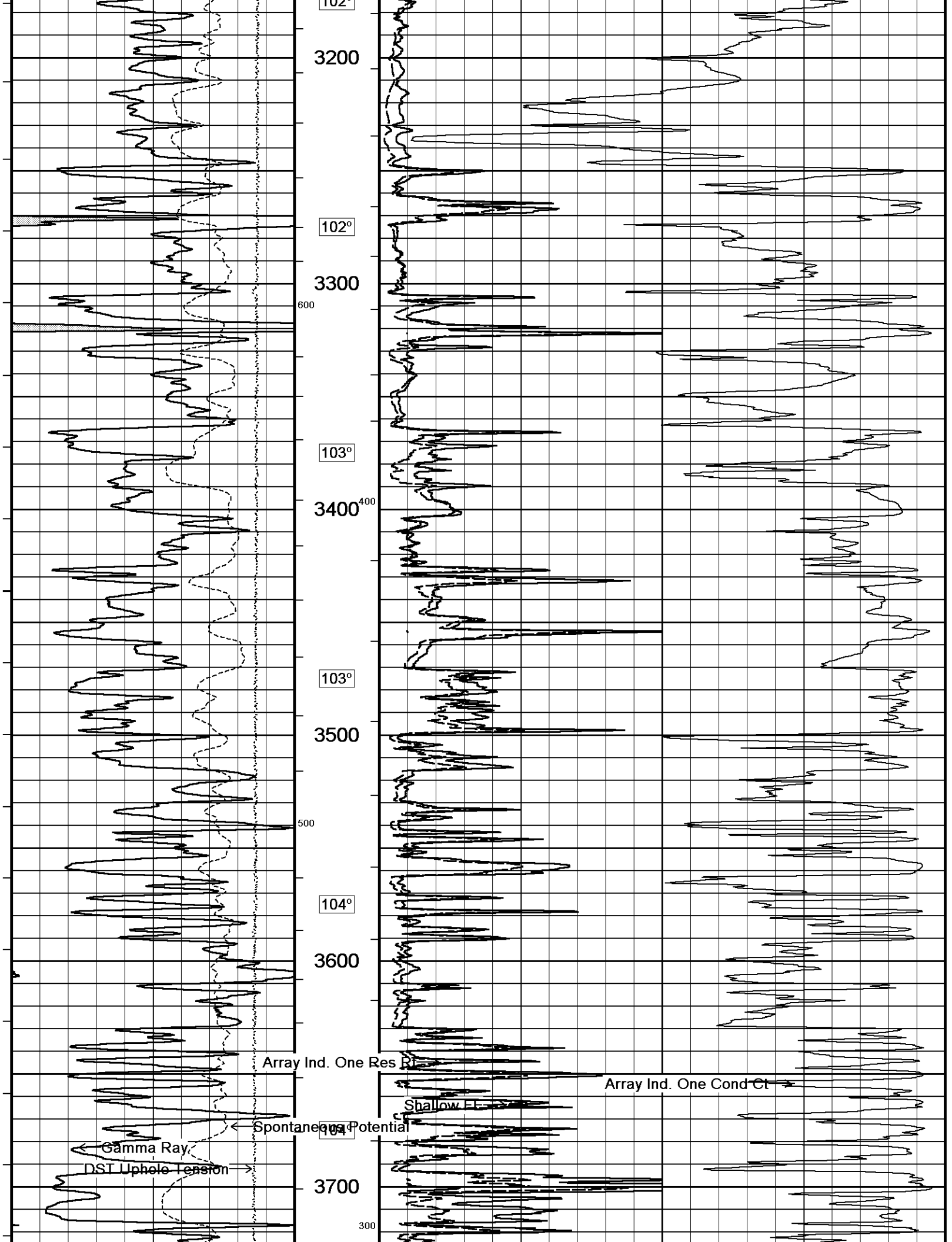


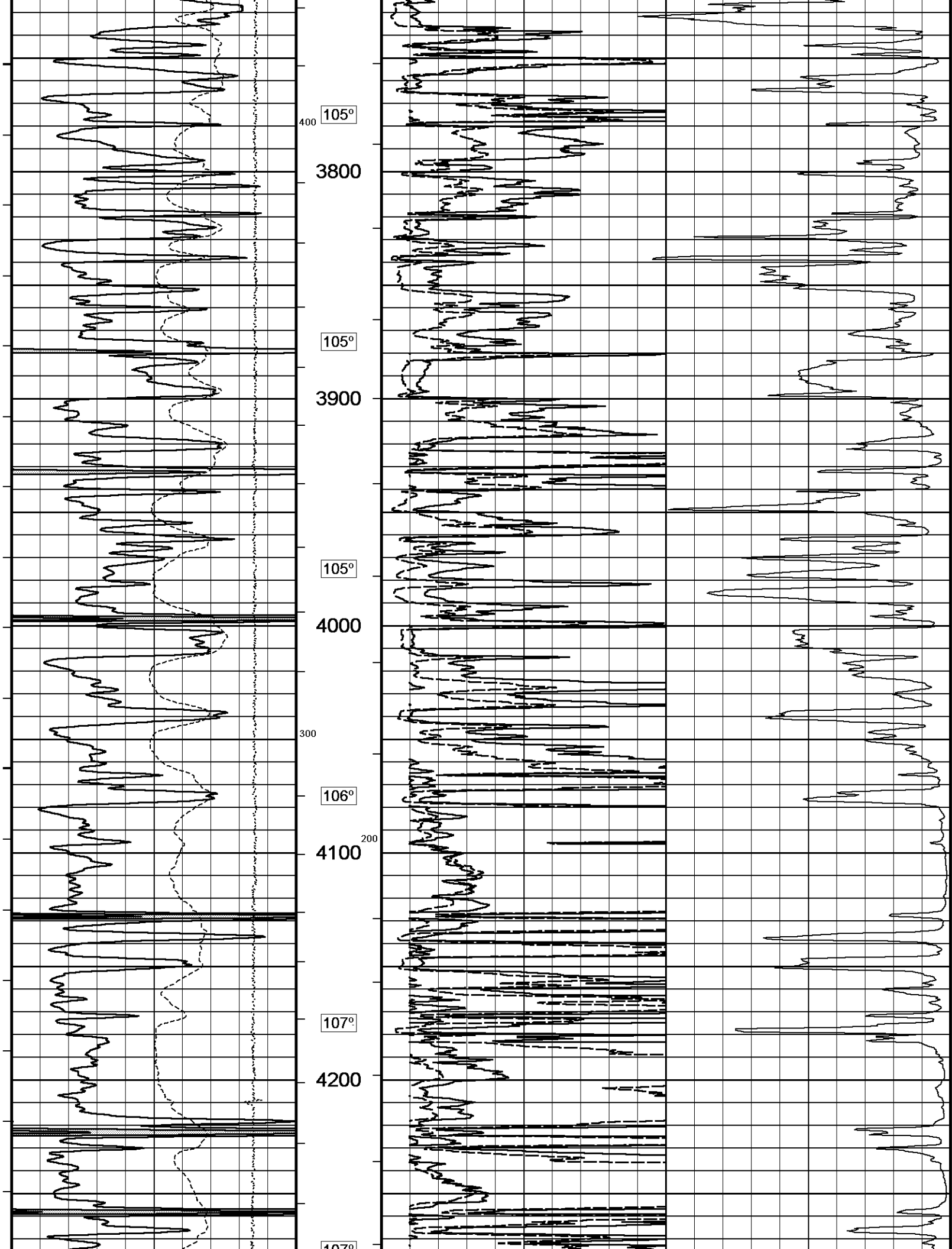


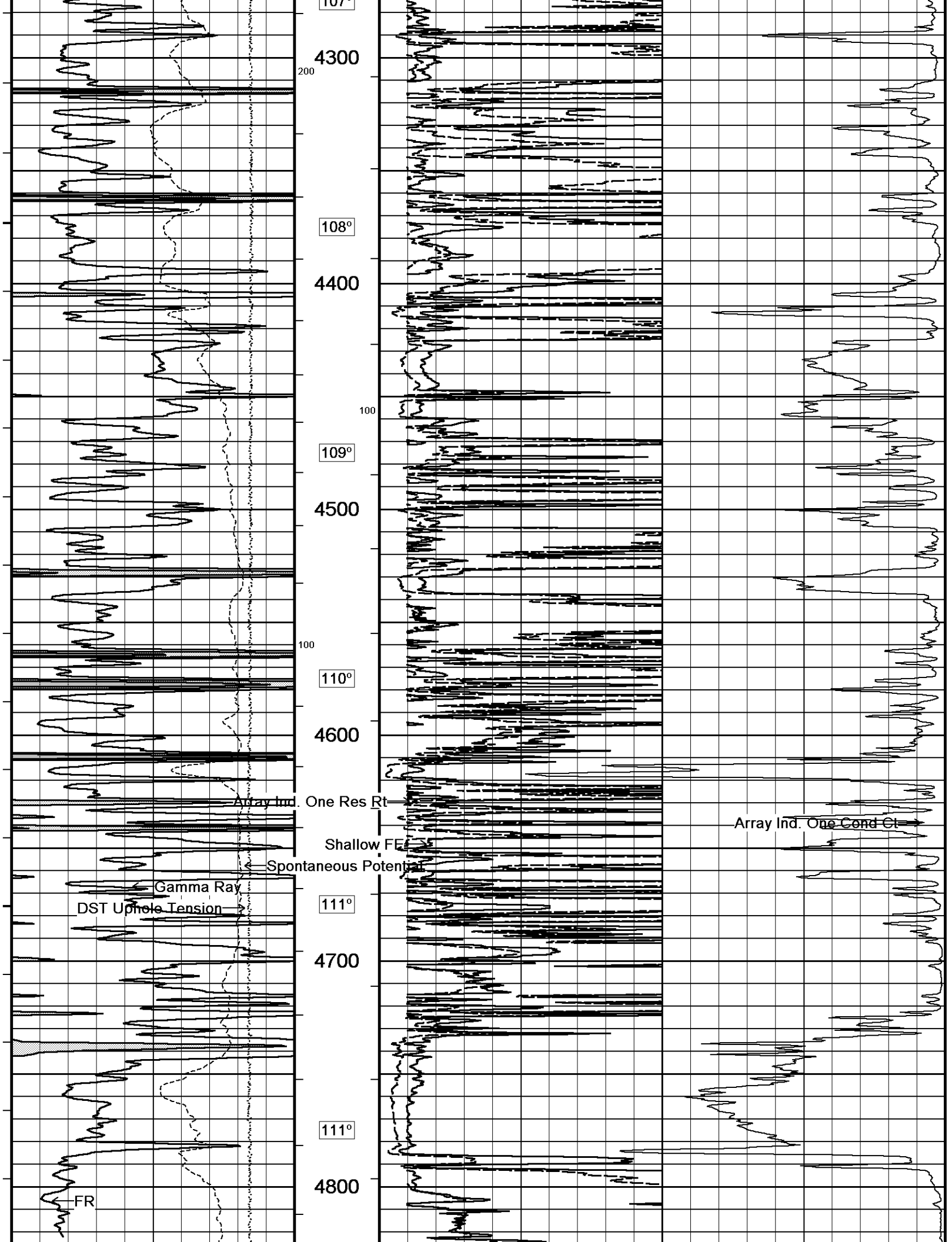


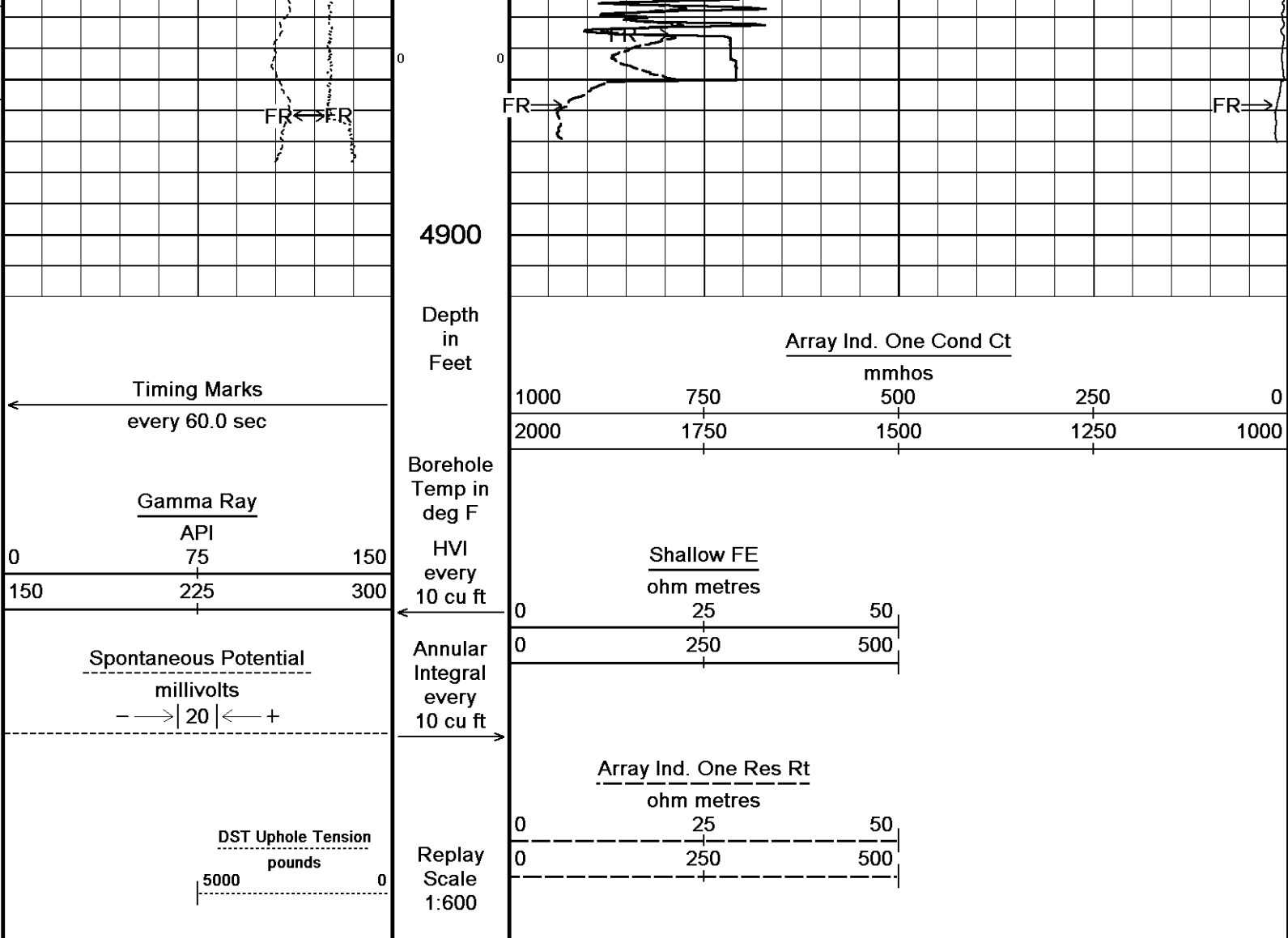










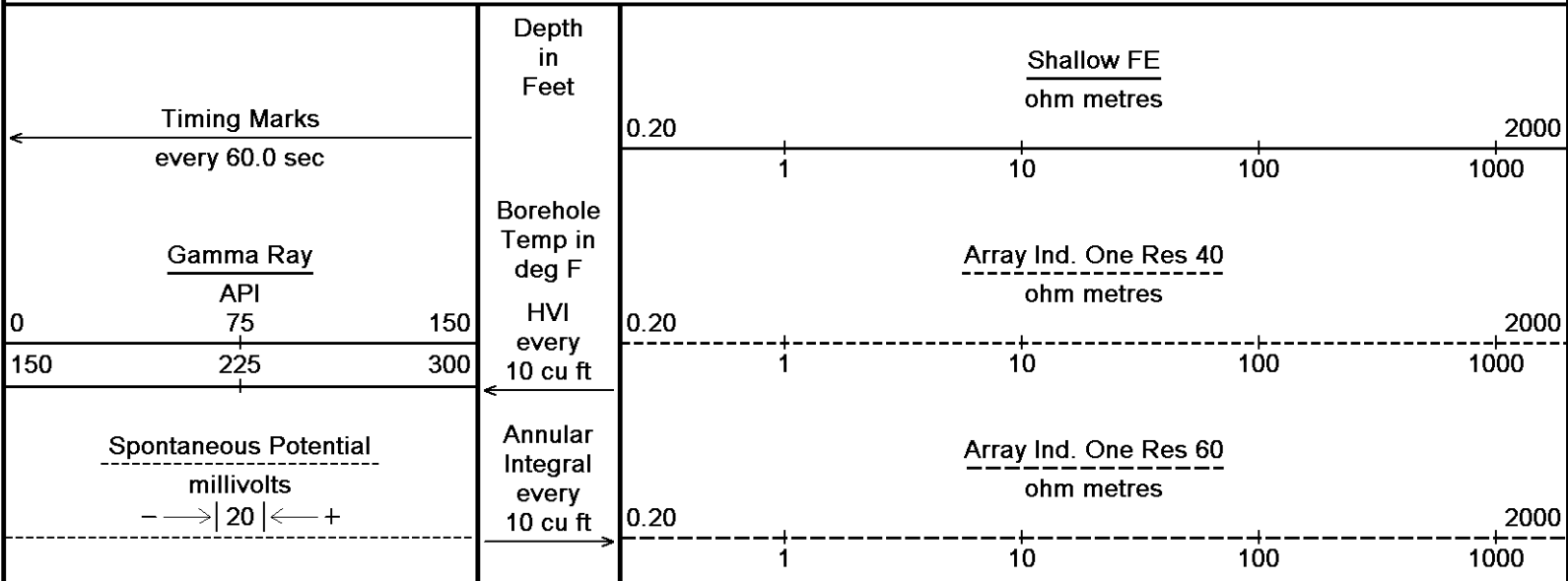


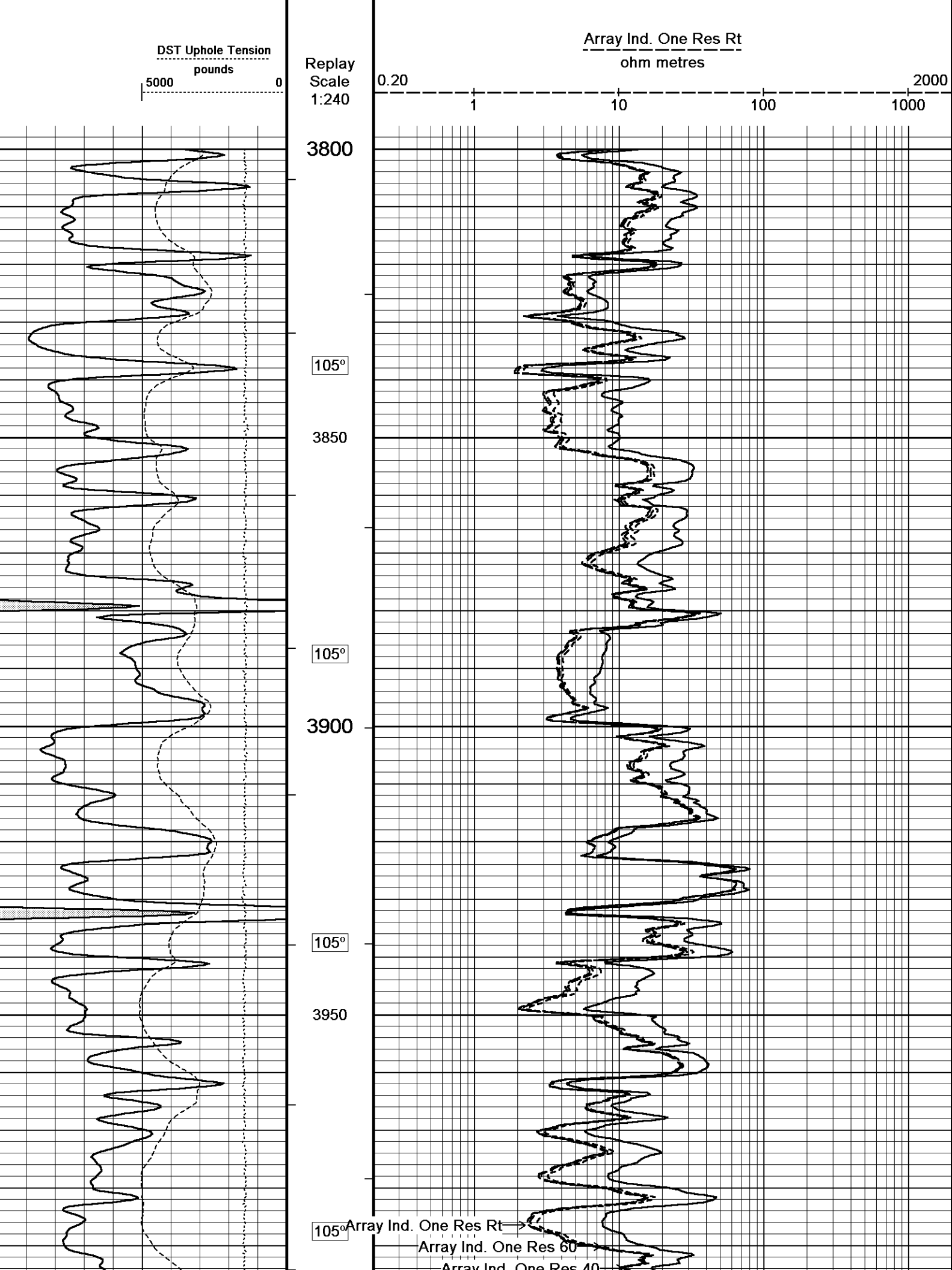
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 20-SEP-2013 15:55
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Tucker #2-9\Shakespeare Tucker #2-9_002.dta Recorded on 20-SEP-2013 13:31
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

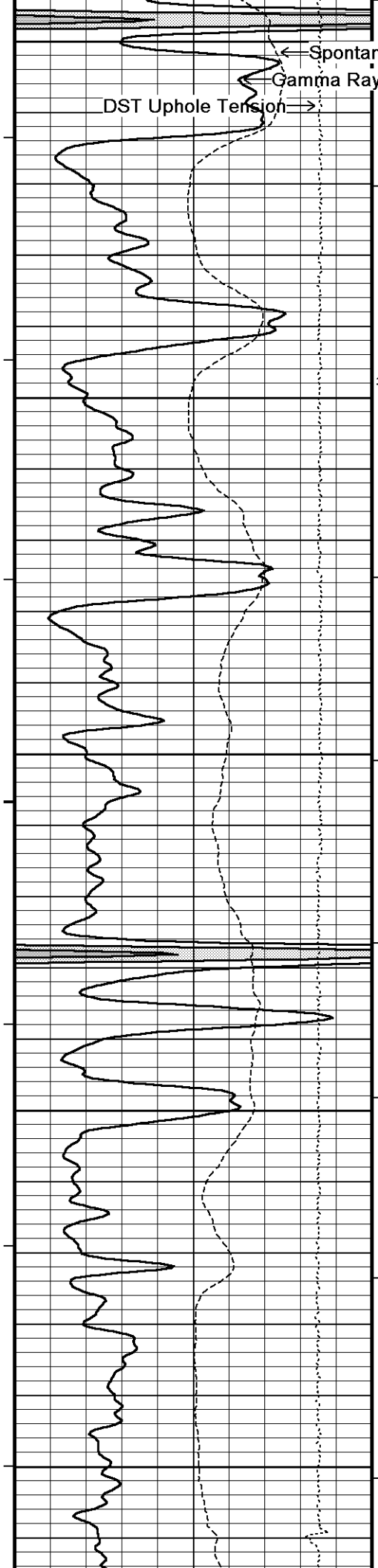
↑ 2 INCH MAIN ↑

↓ 5 INCH MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 20-SEP-2013 15:55
Filename: C:\Minimus 13.05.9583\Log\Shakespeare Tucker #2-9\Shakespeare Tucker #2-9_002.dta Recorded on 20-SEP-2013 13:31
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583



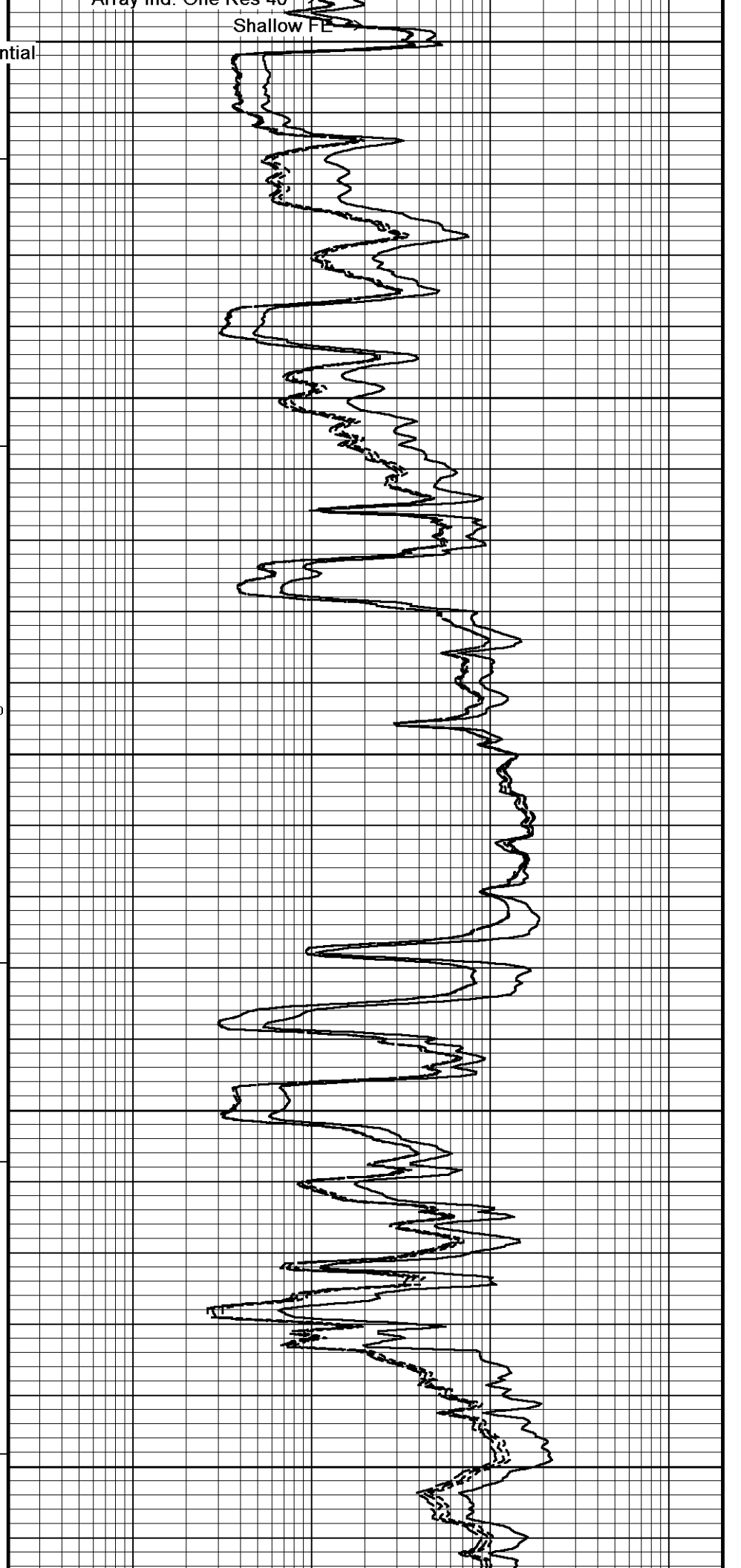


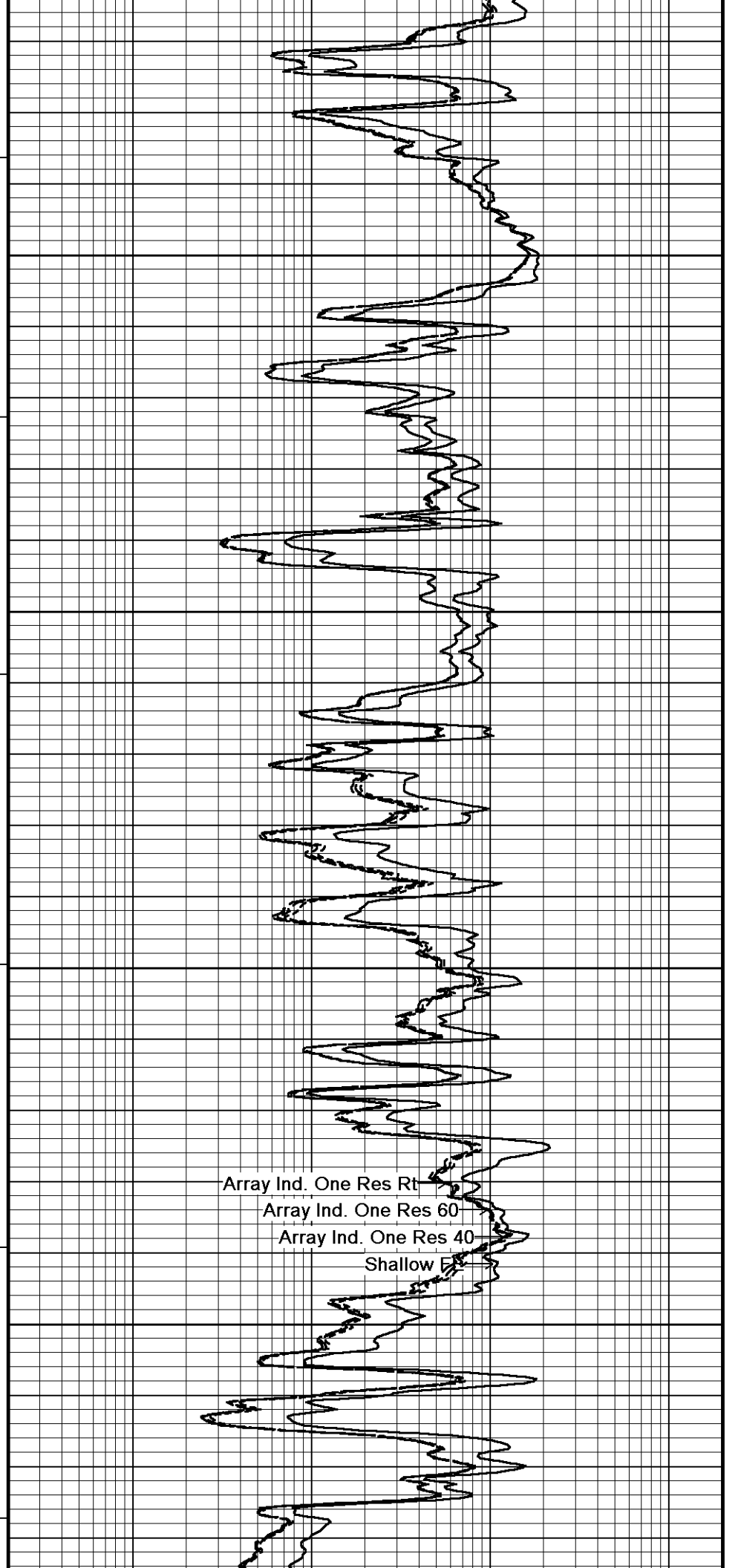
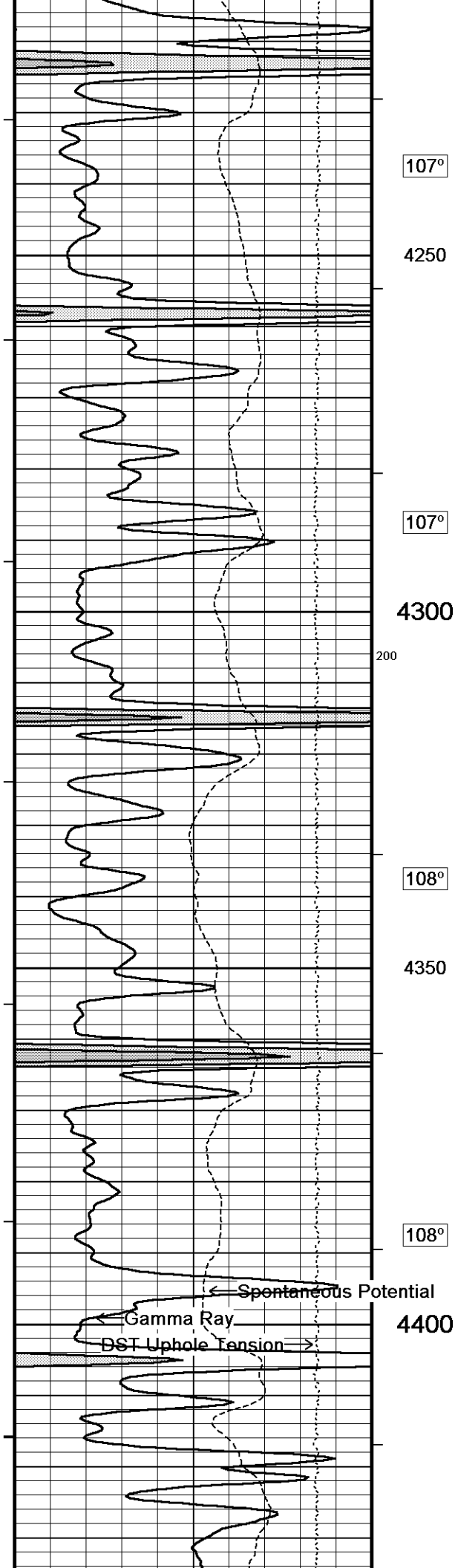


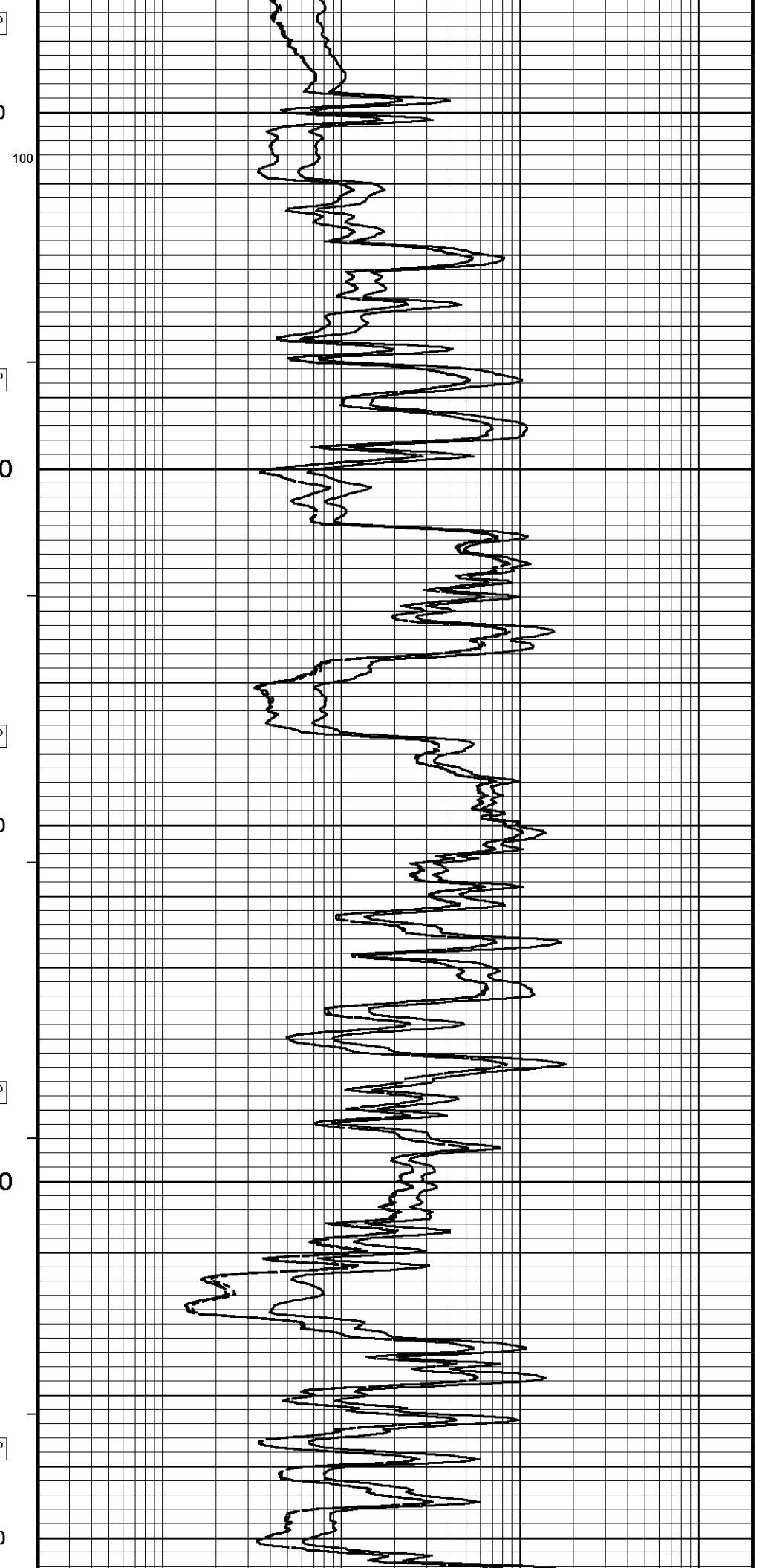
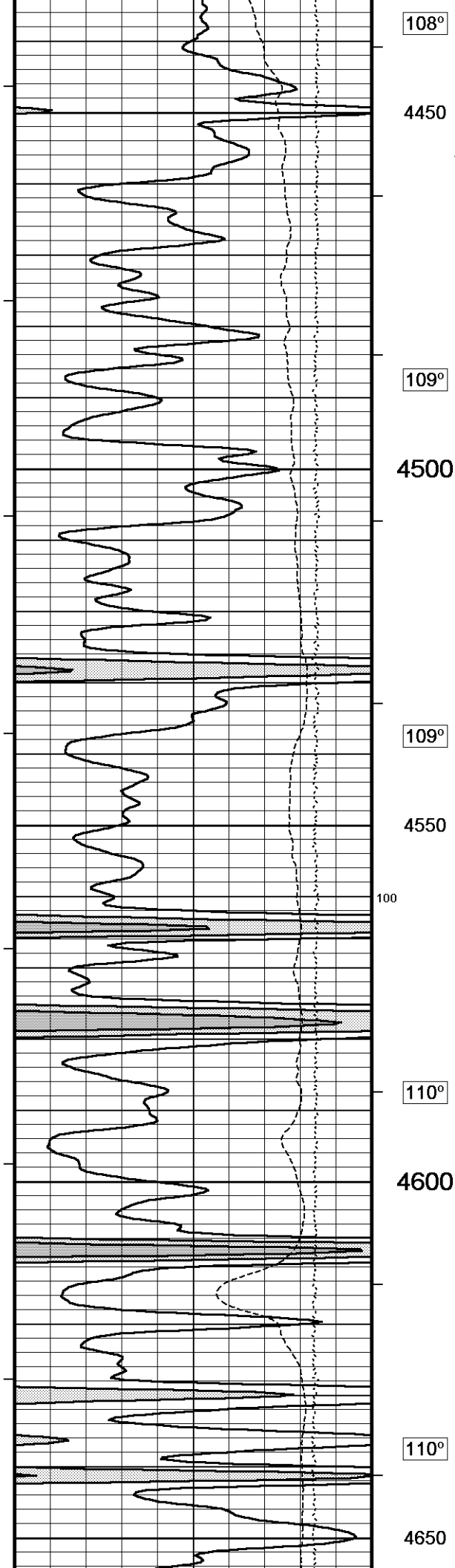
4000
106°
300
4050
106°
200
4100
107°
4150
107°
4200

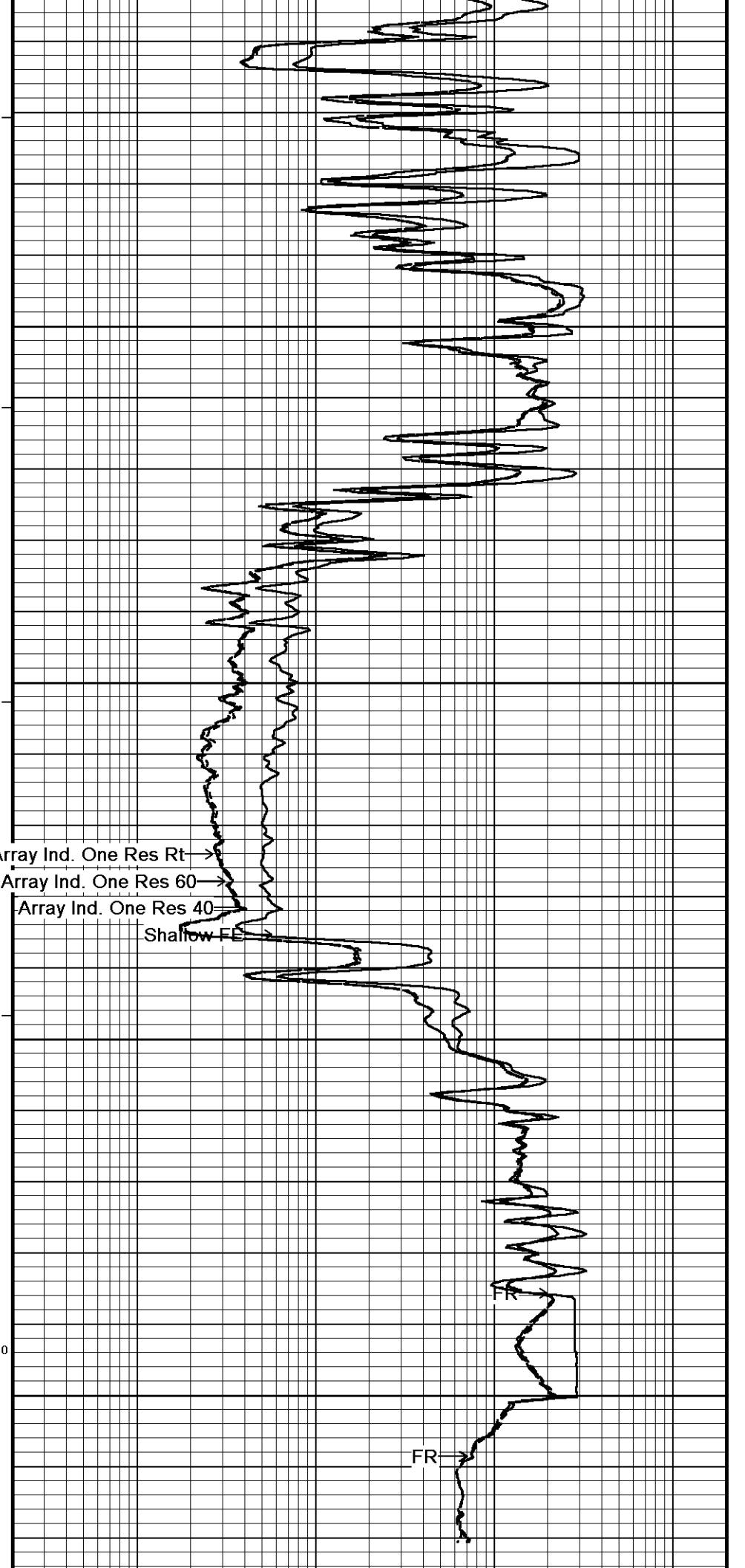
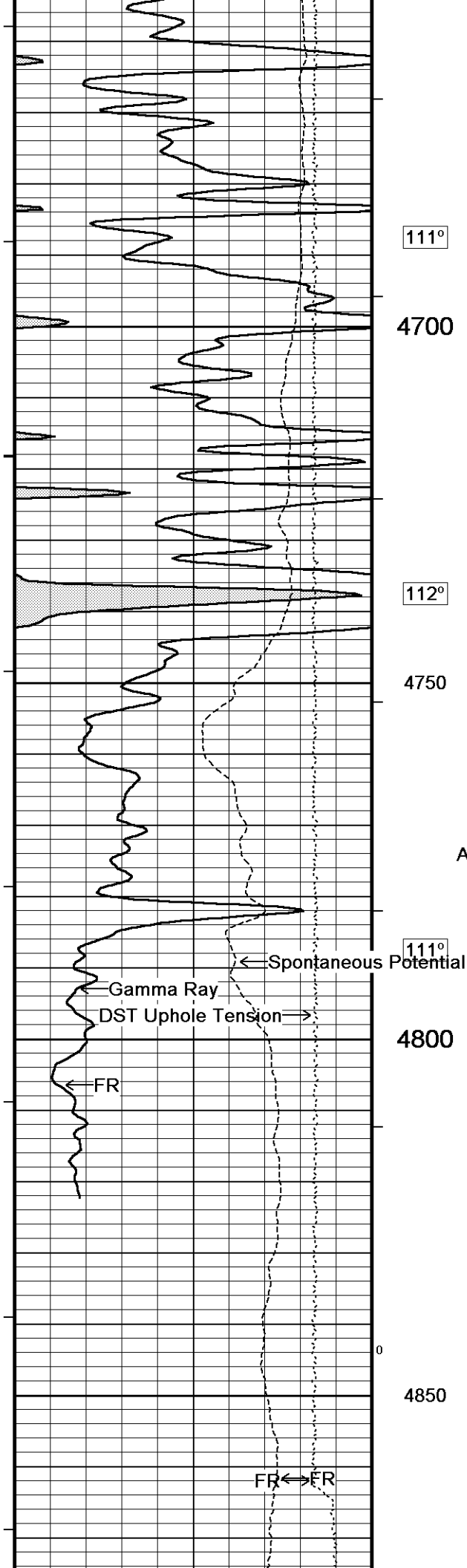
Array Ind. One Res 40

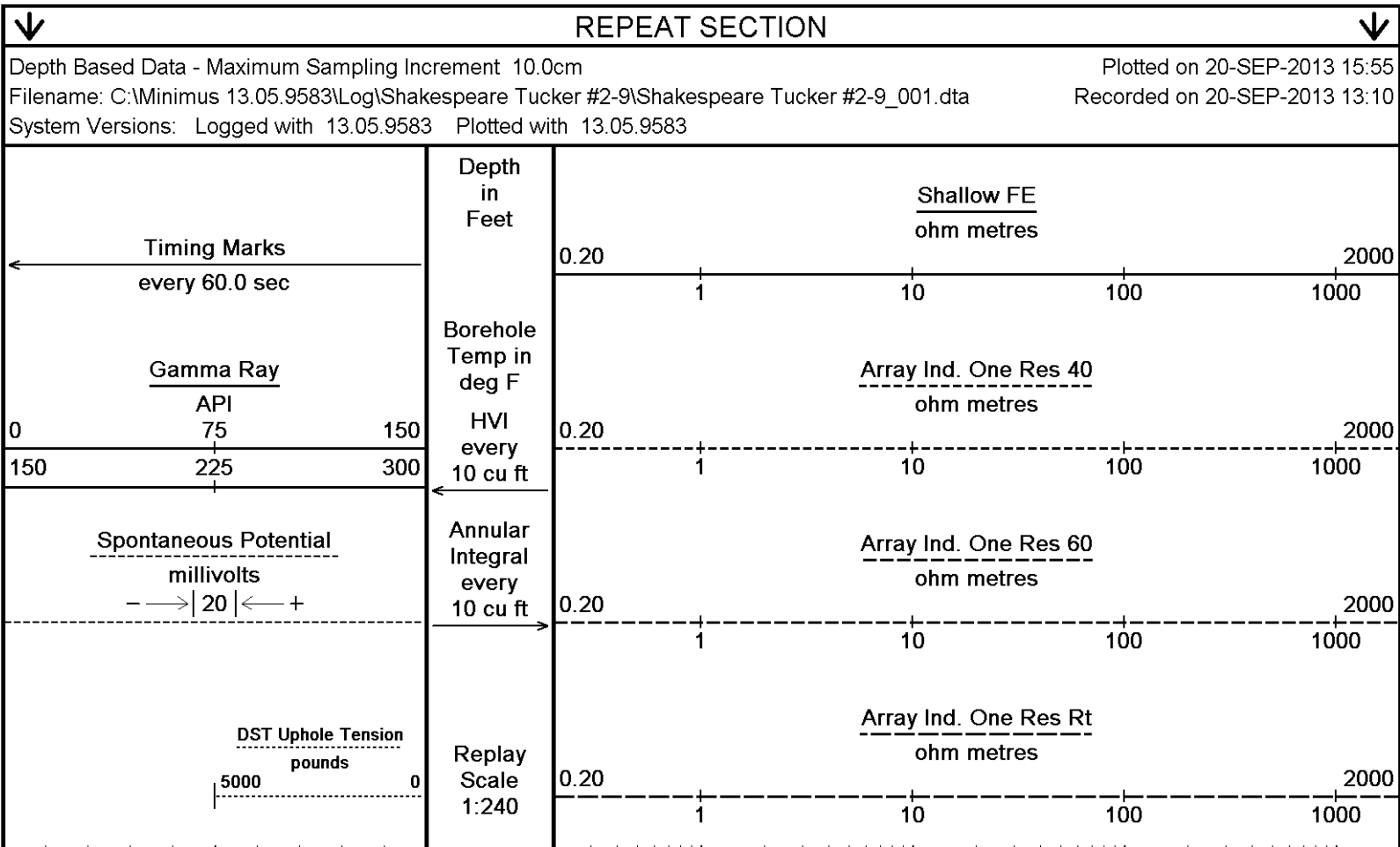
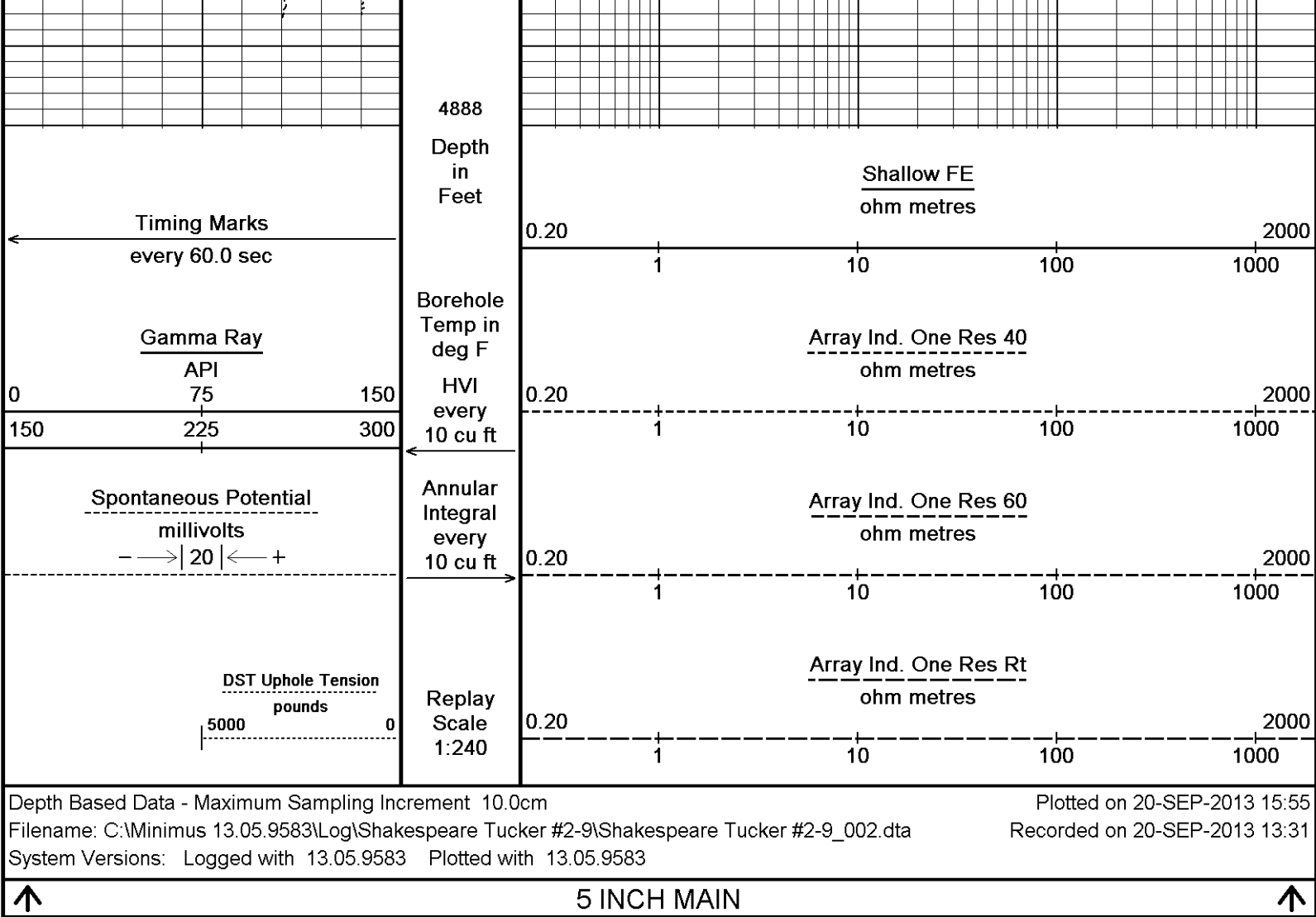
Shallow FE

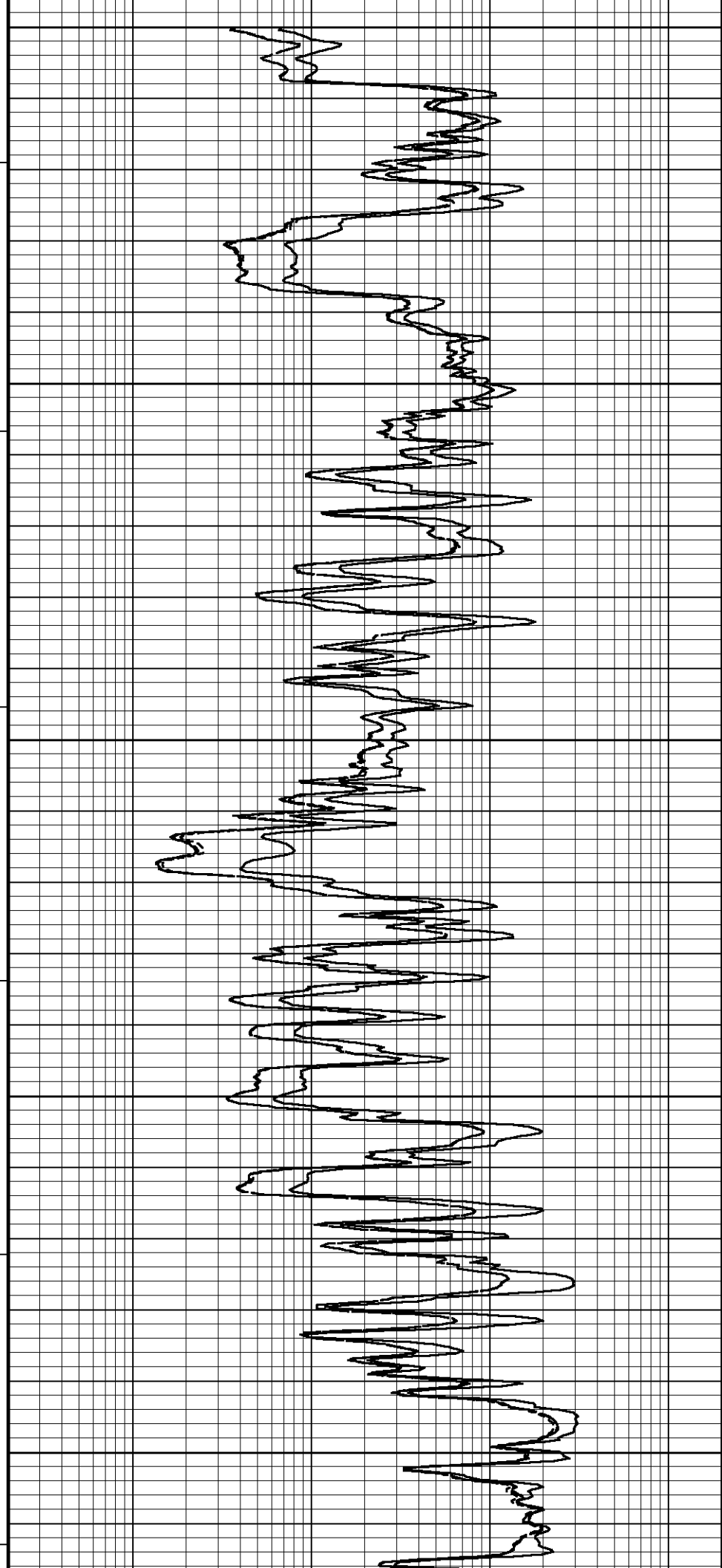
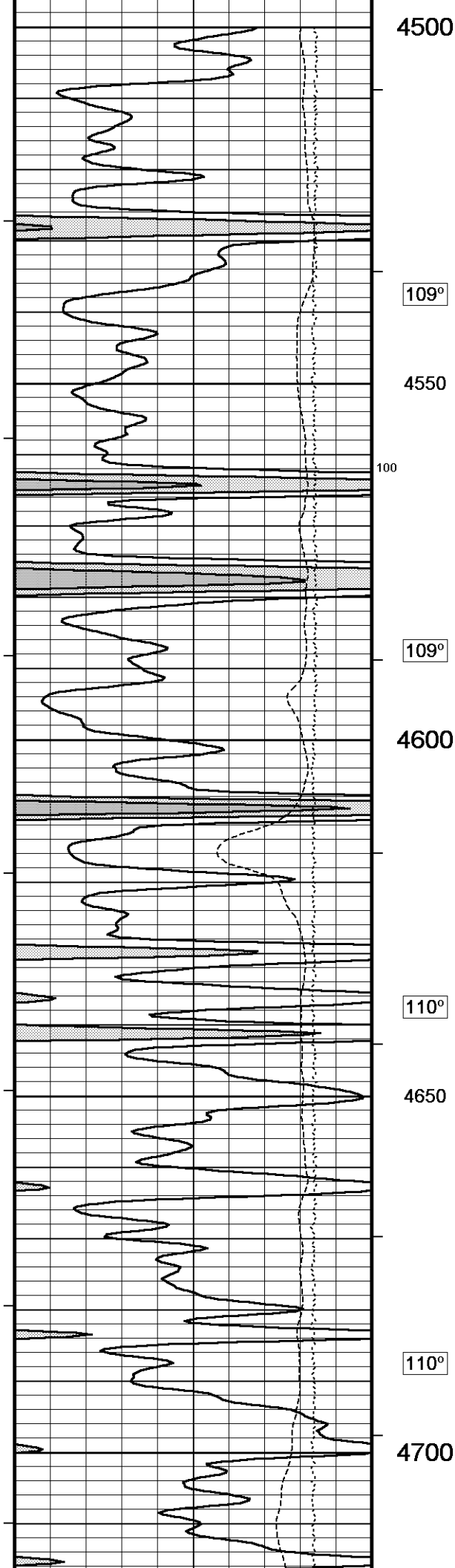


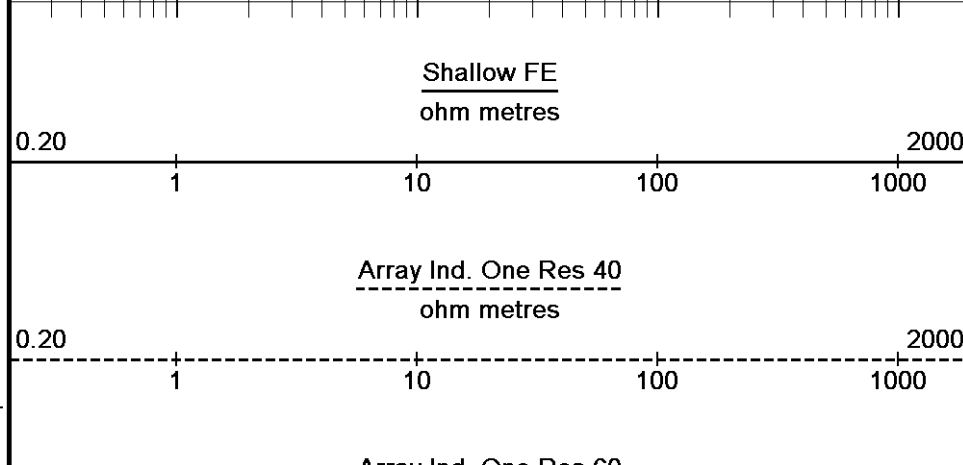
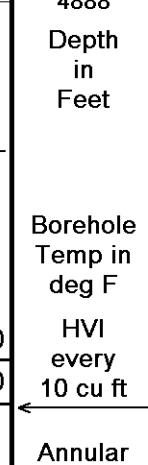
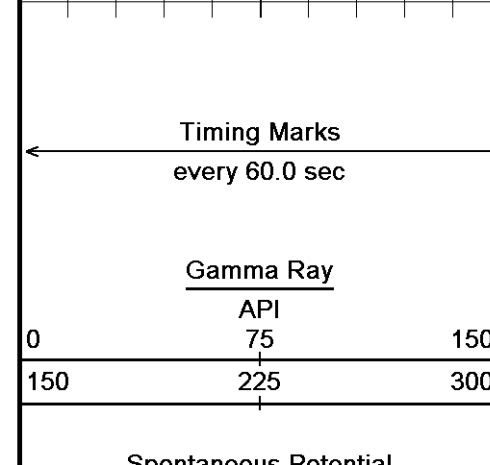
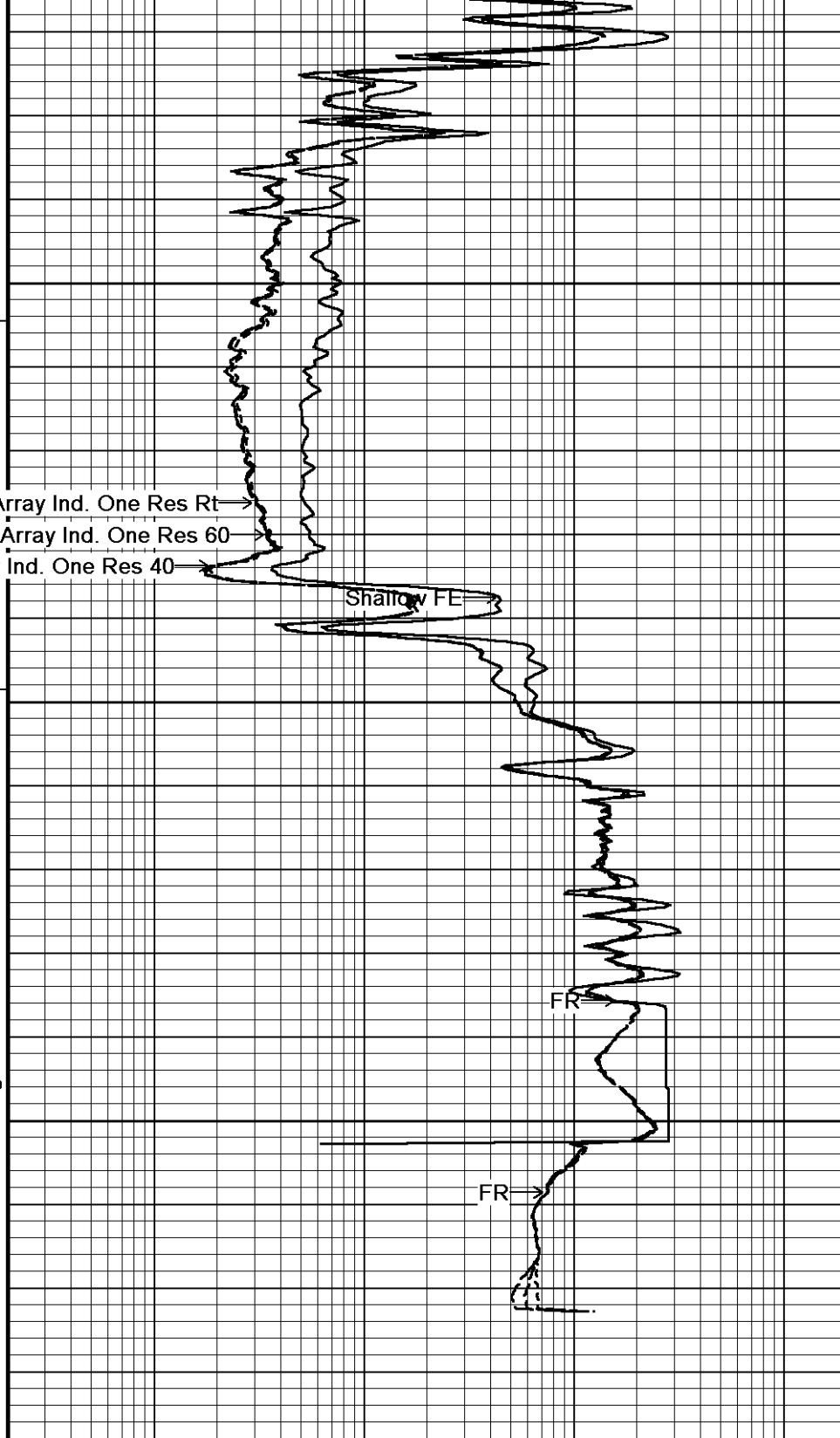
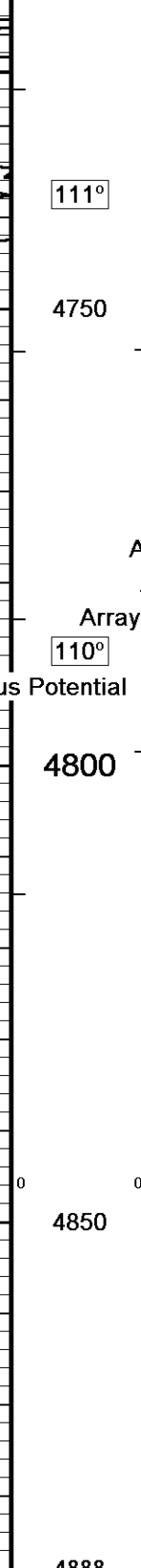
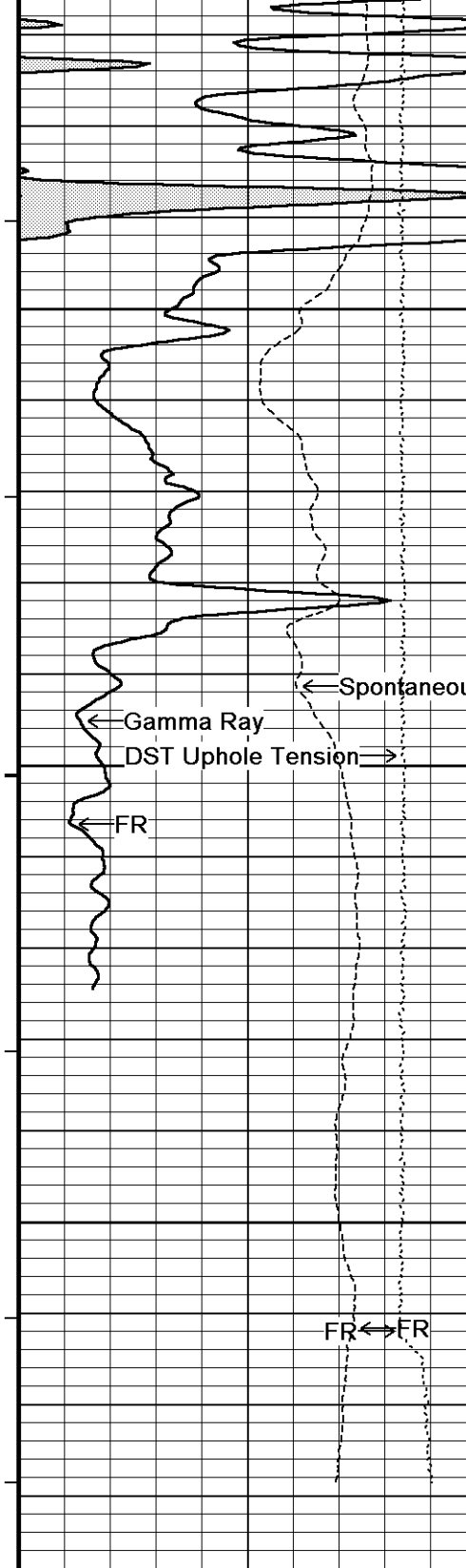


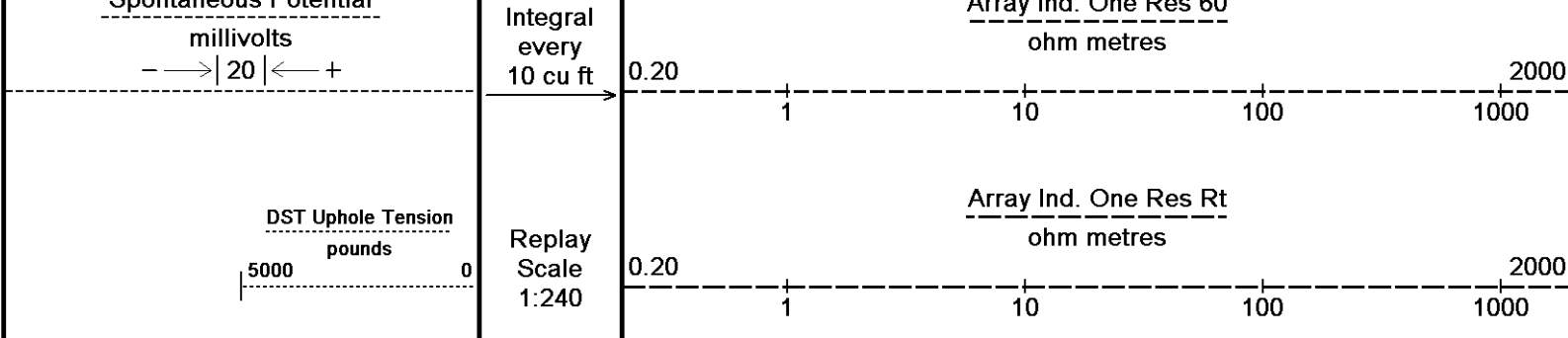












Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 20-SEP-2013 15:55
 Filename: C:\Minimus 13.05.9583\Log\Shakespeare Tucker #2-9\Shakespeare Tucker #2-9_001.dta
 Recorded on 20-SEP-2013 13:10
 System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Log\Shakespeare Tucker #2-9\Shakespeare Tucker #2-9_002.dta

General Constants All 000			Last Edited on 20-SEP-2013,11:53
General Parameters			
Mud Resistivity	0.720	ohm-metres	
Mud Resistivity Temperature	81.000	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	4.500	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		
SW/APOR Tool Source	0.000		

Down-hole Tension Calibration SMS 0			Field Calibration on 20-SEP-2013 12:33
Reading No	Measured	Calibrated (lbs)	
1	13525.61	0.00	
2	14214.48	470.00	

Gamma Calibration MCG-D.K 469			Field Calibration on 18-SEP-2013 10:56
	Measured	Calibrated (API)	
Background	67	46	
Calibrator (Gross)	1127	771	
Calibrator (Net)	1061	725	

Gamma Constants MCG-D.K 469			Last Edited on 20-SEP-2013,11:53
Gamma Calibrator Number	GRC38		
Mud Density	1.12	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Calibration MCG-D.K 469			Field Calibration on 18-AUG-2013,02:35
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

Pre-filter Length 11

SP Calibration MCG-D.K 469

Field Calibration on 12-SEP-2013 15:11

	Measured	Calibrated (mV)
Reference 1	100.2	100.0
Reference 2	-99.2	-100.1

Neutron Calibration MDN-A.B 66

Base Calibration on 31-JUL-2013 10:25

Field Check on 18-SEP-2013 11:03

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3180	99	3714	110
Ratio	32.180		33.764	

Field Calibrator at Base

	Calibrated (cps)
	1617 2323
Ratio	0.696

Field Check

	Calibrated (cps)
	1626 2326
Ratio	0.690

Neutron Constants MDN-A.B 66

Last Edited on 18-SEP-2013,10:57

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	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	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 353

Base Calibration on 15-AUG-2013 09:33

Field Check on 18-SEP-2013 10:37

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.1	126.8

Base Check	280.9
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Field Check	281.1
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FE Constants MFE-B.J 353

Last Edited on 18-SEP-2013,10:32

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

Sonic Constants MSS-C.K 330

Last Edited on 29-JUN-2013,19:32

Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft

Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-4' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A
Peak Amplitude Source	N/A	

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A		
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A
N/A	N/A	N/A	
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
3' Waveform Filter	N/A	
4' Waveform Filter	N/A	
5' Waveform Filter	N/A	
6' Waveform Filter	N/A	
Semblance Level	N/A	
Semblance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

Induction Calibration MAI-A.A 167

Base Calibration on 19-APR-2013,13:41
Field Check on 18-SEP-2013 10:27

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
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Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			13.2	3838.7
2			29.6	3476.3
3			29.2	3052.4

3	29.2	3032.4
4	19.8	2081.2
Deep	18.7	2048.5
Medium	42.3	3990.4
Shallow	43.0	5053.3
Array Temperature	75.7	Deg F

Induction Constants MAI-A.A 167

Last Edited on 18-SEP-2013,10:24

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	60.00	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 167

Field Calibration on 18-AUG-2013,02:21

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

High Resolution Temperature Constants MAI-A.A 167

Last Edited on 15-SEP-2013,16:14

Pre-filter Length	11
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Caliper Calibration MML-A 3

Base Calibration on 15-AUG-2013 08:50
Field Calibration on 18-SEP-2013 10:50

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14887	5.98
2	18120	7.97
3	21042	9.86
4	25322	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	6.08	5.98

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.3	60.3	5.0	25.0
Micro Inverse	15.7	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 3

Last Edited on 18-SEP-2013,10:44

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

Caliper Calibration MPD-B 64

Base Calibration on 15-AUG-2013 14:54

Field Calibration on 18-SEP-2013 10:44

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	16560	3.99
2	24992	5.98
3	32880	7.97
4	41184	9.86
5	50688	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.04	5.96

Photo Density Calibration MPD-B 64

Base Calibration on 15-AUG-2013 14:37

Field Check on 18-SEP-2013 10:42

Density Calibration		Measured	Calibrated (sdu)	
Base Calibration			Near	Far
Reference 1	60206	33560	59556	30836
Reference 2	25378	2915	24941	2541

Field Check at Base	1155.1	1345.7
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Field Check	1158.4	1339.4
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PE Calibration

Base Calibration		Measured		Calibrated Ratio
	WS	WH	Ratio	
Background	211	1029		
Reference 1	22957	60005	0.386	0.371
Reference 2	6904	25238	0.276	0.272

Field Check at Base	211.2	1028.9
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Field Check	209.9	1029.8
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Density Constants MPD-B 64

Last Edited on 20-SEP-2013,11:53

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 (m)
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 13.05.9583\Log\Shakespeare Tucker #2-9\Shakespeare Tucker #2-9_002.dta

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

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma

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

Compact Micro-log

MML-A 3 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

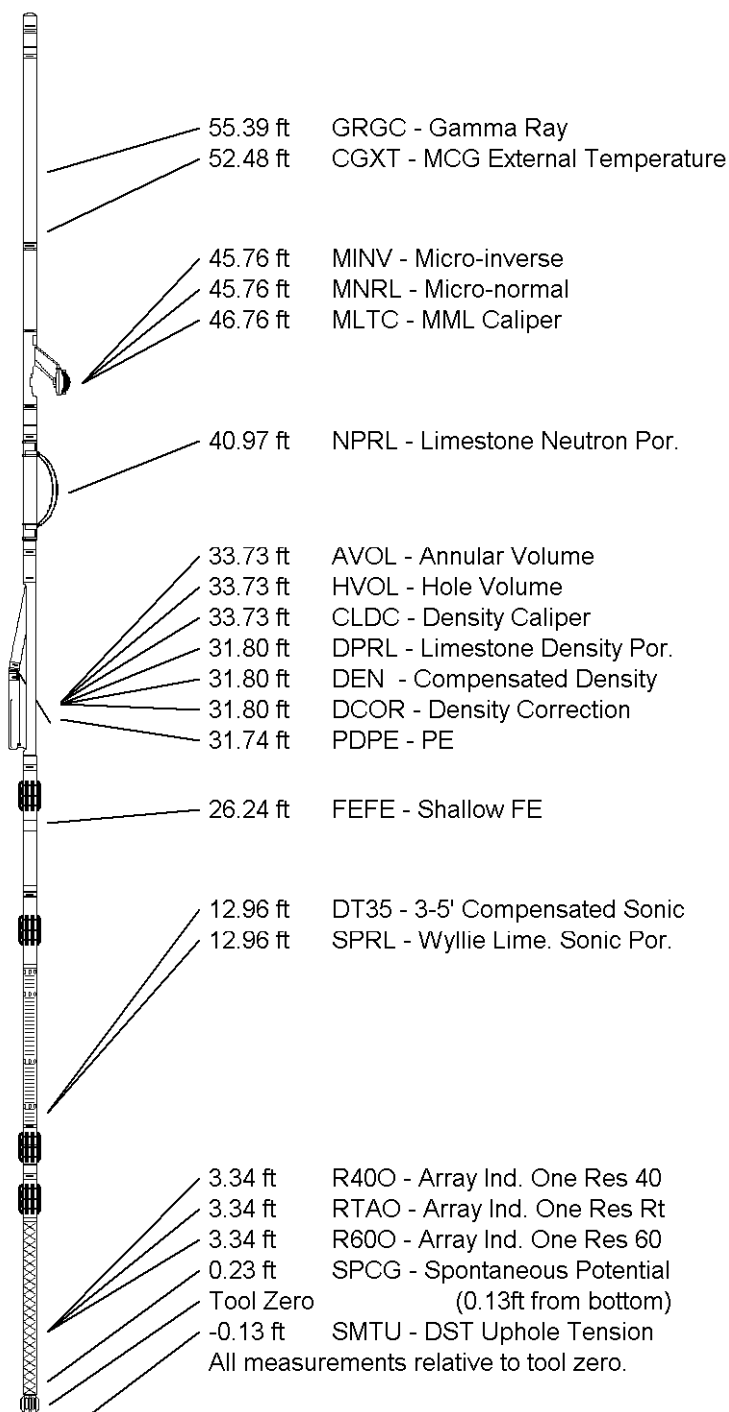
Compact Sonic

MSS-C.K 330 LG: 12.52 ft WT: 72.8 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: 62.25 ft Weight: 471.8 lb



COMPANY
WELL
FIELD
PROVINCE/COUNTY
COUNTRY/STATE

SHAKESPEARE OIL INC.
TUCKER #2-9
WILDCAT
SCOTT
U.S.A. / KANSAS

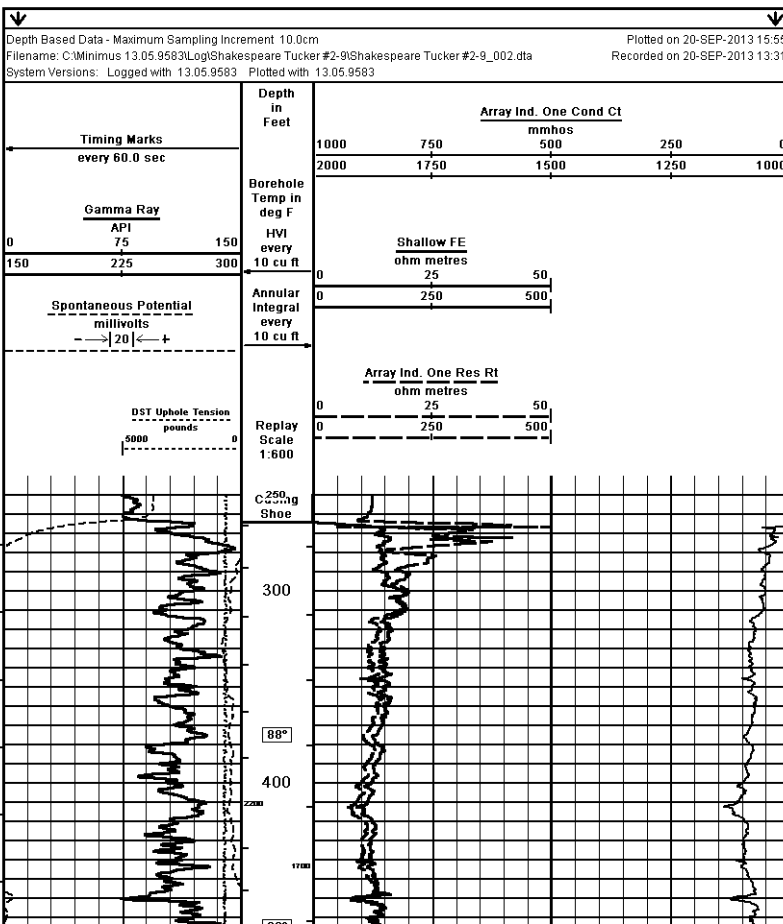
Elevation Kelly Bushing	3149.00	feet	First Reading	4859.00	feet
Elevation Drill Floor	3147.00	feet	Depth Driller	4865.00	feet
Elevation Ground Level	3139.00	feet	Depth Logger	4862.00	feet

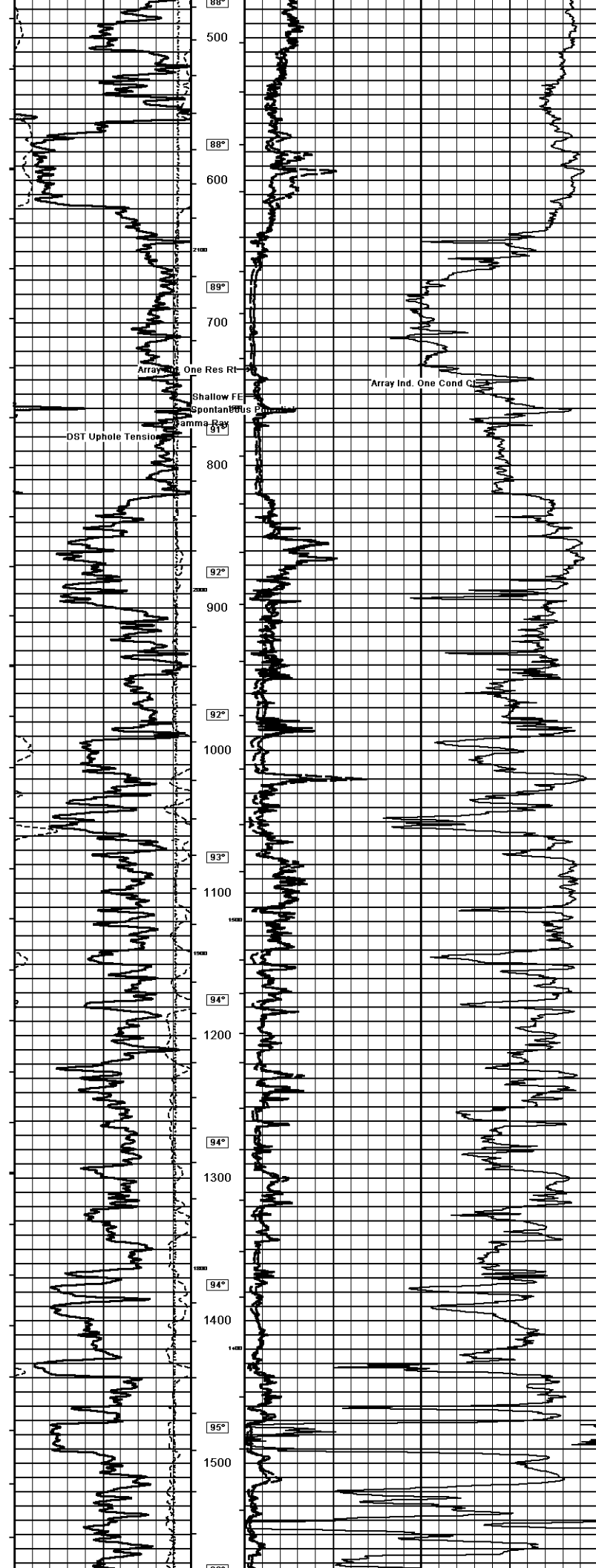


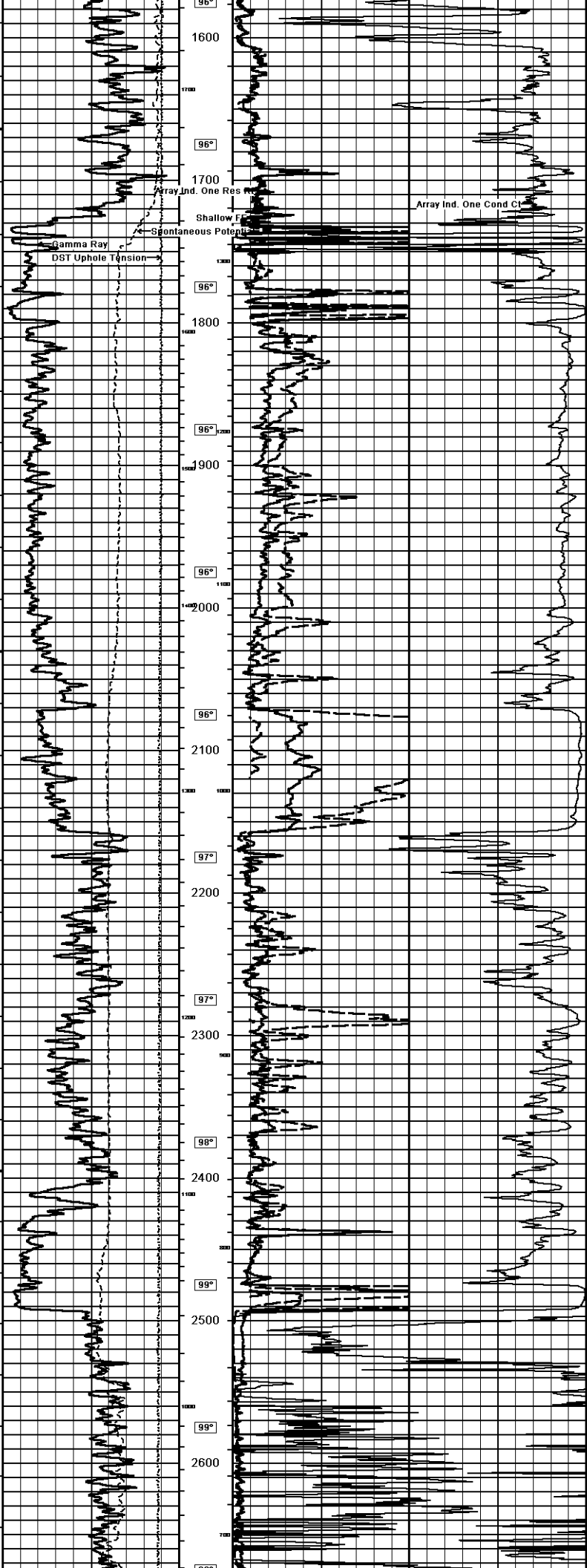
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

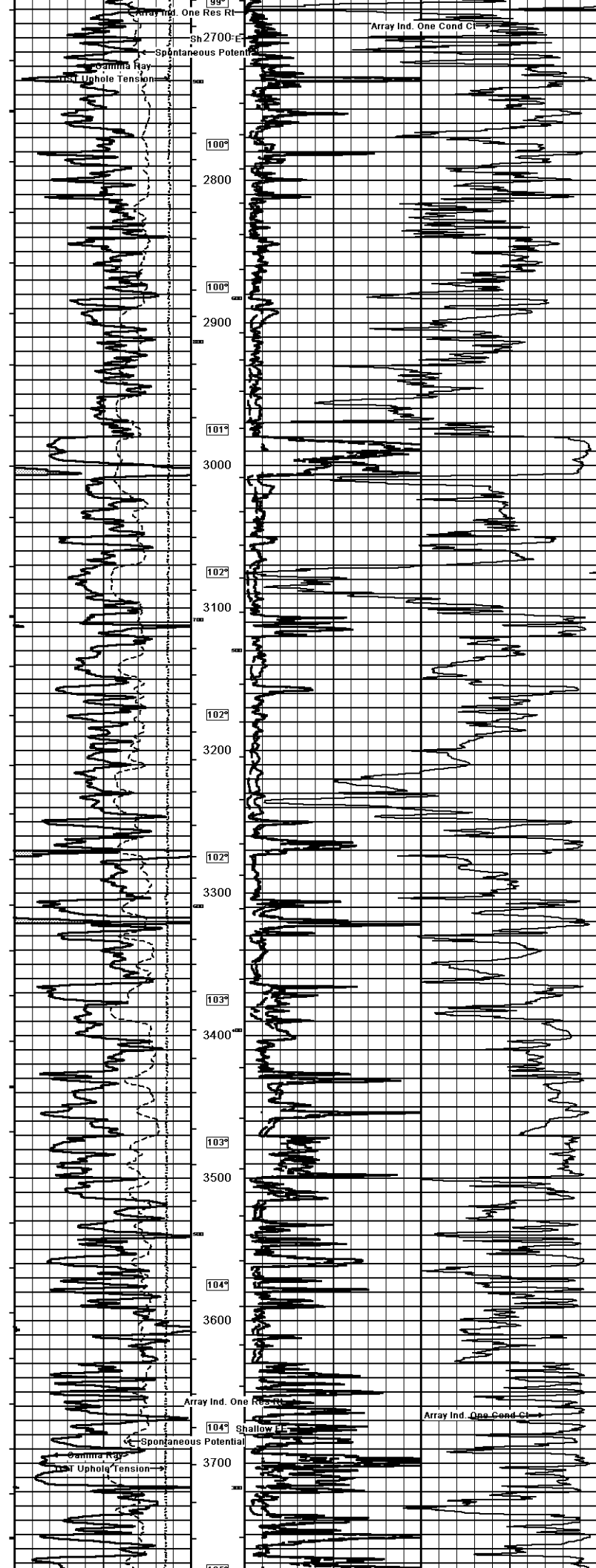
Weatherford

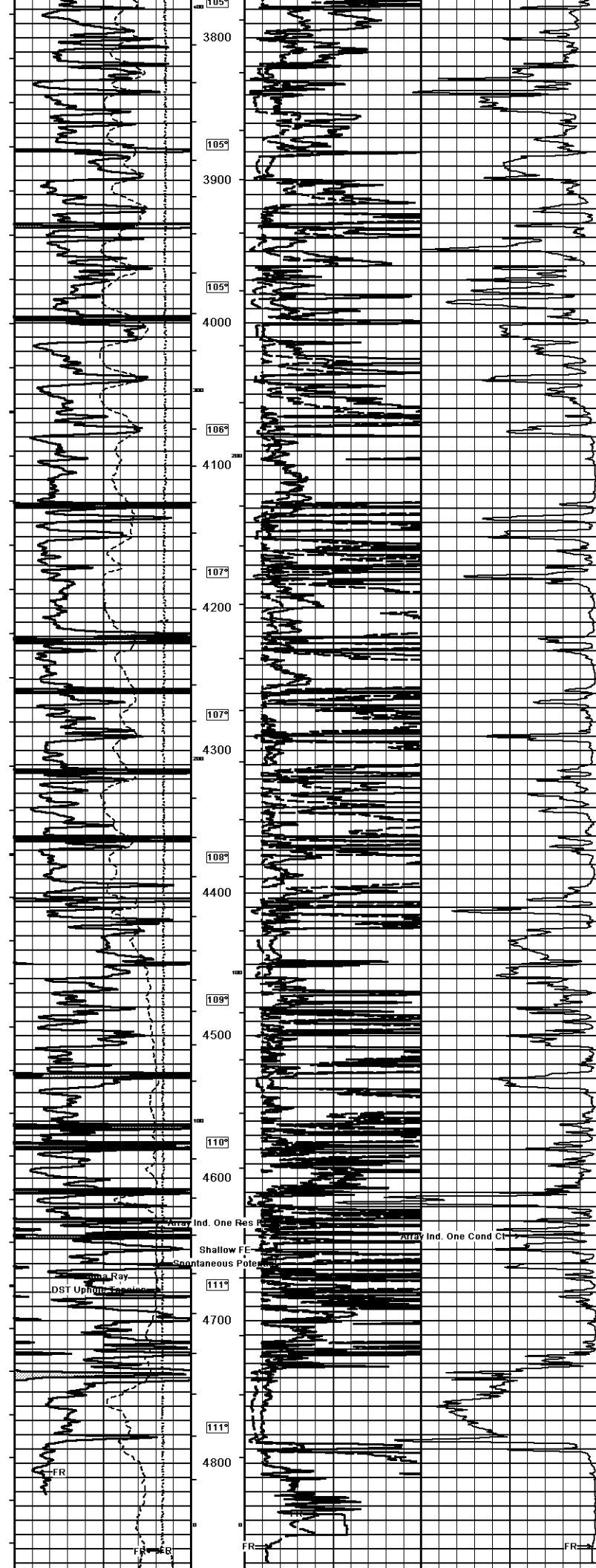
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY SHAKESPEARE OIL INC.			
WELL TUCKER #2-9			
FIELD WILDCAT			
PROVINCE/COUNTY SCOTT			
COUNTRY/STATE U.S.A. / KANSAS			
LOCATION 2216' FSL & 1695' FWL			
SEC	TIME	DATE	TIME
16S	34W	20-SEP-2013	15:55
Log Measured From KB @ 10' EET			
Drilling Measured From K.B. @ 10' EET			
Date 20-SEP-2013			
Run Number ONE			
Service Order 3541087			
Depth Driller 4865.00 feet			
Depth Logger 4863.00 feet			
First Reading 4859.00 feet			
Last Reading 264.00 feet			
Casing Driller 260.00 feet			
Casing Logger 264.00 feet			
Bit Size 7.875 inches			
Hole Fluid Type CHEMICAL			
Density/Viscosity 9.30 lb/cu ft			
PH/Fluid Loss 10.00			
Sample Source FLOWLINE			
Rm @ Measured Temp 0.72 @ 81.0 ohm-in			
Rm @ Measured Temp 0.56 @ 81.0 ohm-in			
Rm @ Measured Temp 0.86 @ 81.0 ohm-in			
Source Rm / Rmc CALC			
Rm @ BHT 0.53 @ 111.0 ohm-in			
Time Since Circulation 3 HOURS			
Max Recorded Temp 111.00 deg F			
Equipment / Base 13096 LB			
Recorded By ROB HOFFMAN			
Witnessed By TIM PREST			
LOG # LRI-3-266			

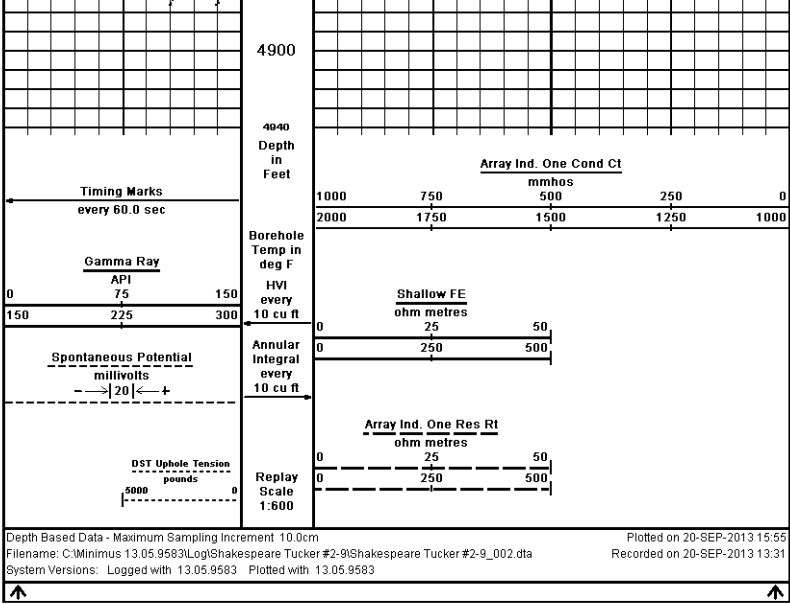












COMPANY		SHAKESPEARE OIL INC.			
WELL		TUCKER #2-9			
FIELD		WILDCAT			
PROVINCE/COUNTY		SCOTT			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	3149.00	feet	First Reading	4859.00	feet
Elevation Drill Floor	3147.00	feet	Depth Driller	4865.00	feet
Elevation Ground Level	3139.00	feet	Depth Logger	4862.00	feet
		ARRAY INDUCTION			
Weatherford		SHALLOW FOCUSED			
		ELECTRIC LOG			