



Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY				O'BRIEN RESOURCES LLC			
WELL				PECK 1 #1			
FIELD				WILDCAT			
PROVINCE/COUNTY LANE				U.S.A. / KANSAS			
COUNTRY/STATE				1170' FNL & 790' FWL			
LOCATION				SW SE NW NW			
SEC	TWP	RGE	Other Services		MML		
1	18S	29W	MPD/MDN				
API Number		15-101-22482		MSS			
Permit Number							
Permanent Datum GL, Elevation 2714 feet							
Log Measured From KB							
Drilling Measured From KB AT 10 FEET							
Date	14-JAN-2014						
Run Number	ONE						
Service Order	7036-76935286						
Depth Driller	4625.00			feet			
Depth Logger	4622.00			feet			
First Reading	4618.66			feet			
Last Reading	273.00			feet			
Casing Driller	273.00			feet			
Casing Logger	273.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.40 lb/USg		44.00	CP			
PH / Fluid Loss	10.00		7.20	ml/30Min			
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.88 @ 77.8			ohm-m			
Rmf @ Measured Temp	0.70 @ 77.8			ohm-m			
Rmc @ Measured Temp	1.06 @ 77.8			ohm-m			
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	0.62 @ 112.0		ohm-m				
Time Since Circulation	2.5 HOURS						
Max Recorded Temp	112.00		deg F				
Equipment / Base	13096		LIB				
Recorded By	DEREK CARTER						
Witnessed By	KURT TALBOTT						
IOB #	LB14-004						

BOREHOLE RECORD					Last Edited: 14-JAN-2014 23:45
Bit Size inches		Depth From feet		Depth To feet	
7.875		273.00		4625.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	273.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE: - MDN: DUAL BOWSPRING ECCENTRALIZER - MFE: 1 X 0.5 INCH STANDOFF - MSS: 2 X 0.5 INCH STANDOFF - MAI: 2 X 0.5 INCH STANDOFF
- 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 PIPE: 1820 CU. FT

- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO SURFACE PIPE: 1340 CU. FT

- RIG: MAVERICK DRILLING #108

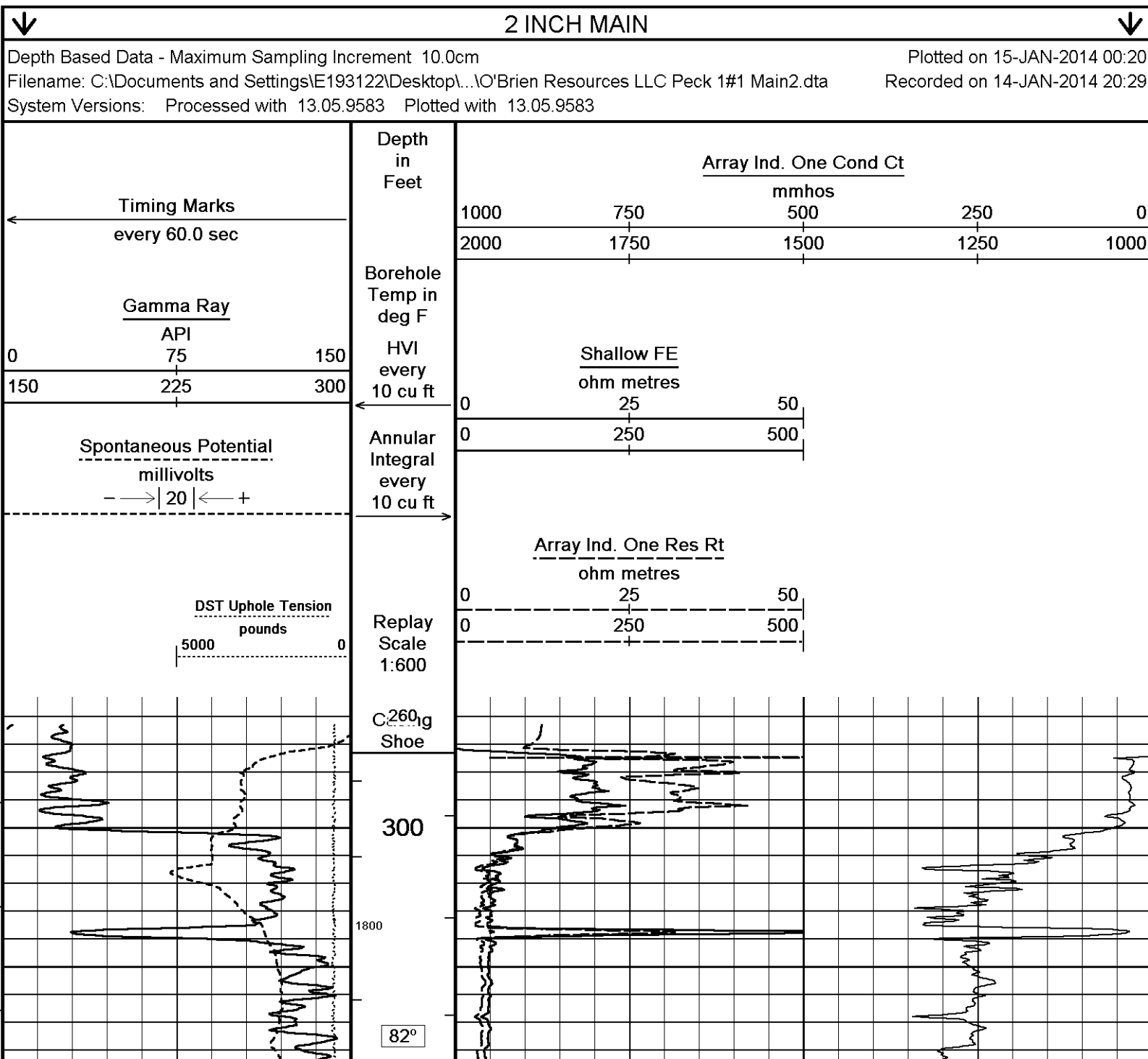
- ENGINEER: DEREK CARTER

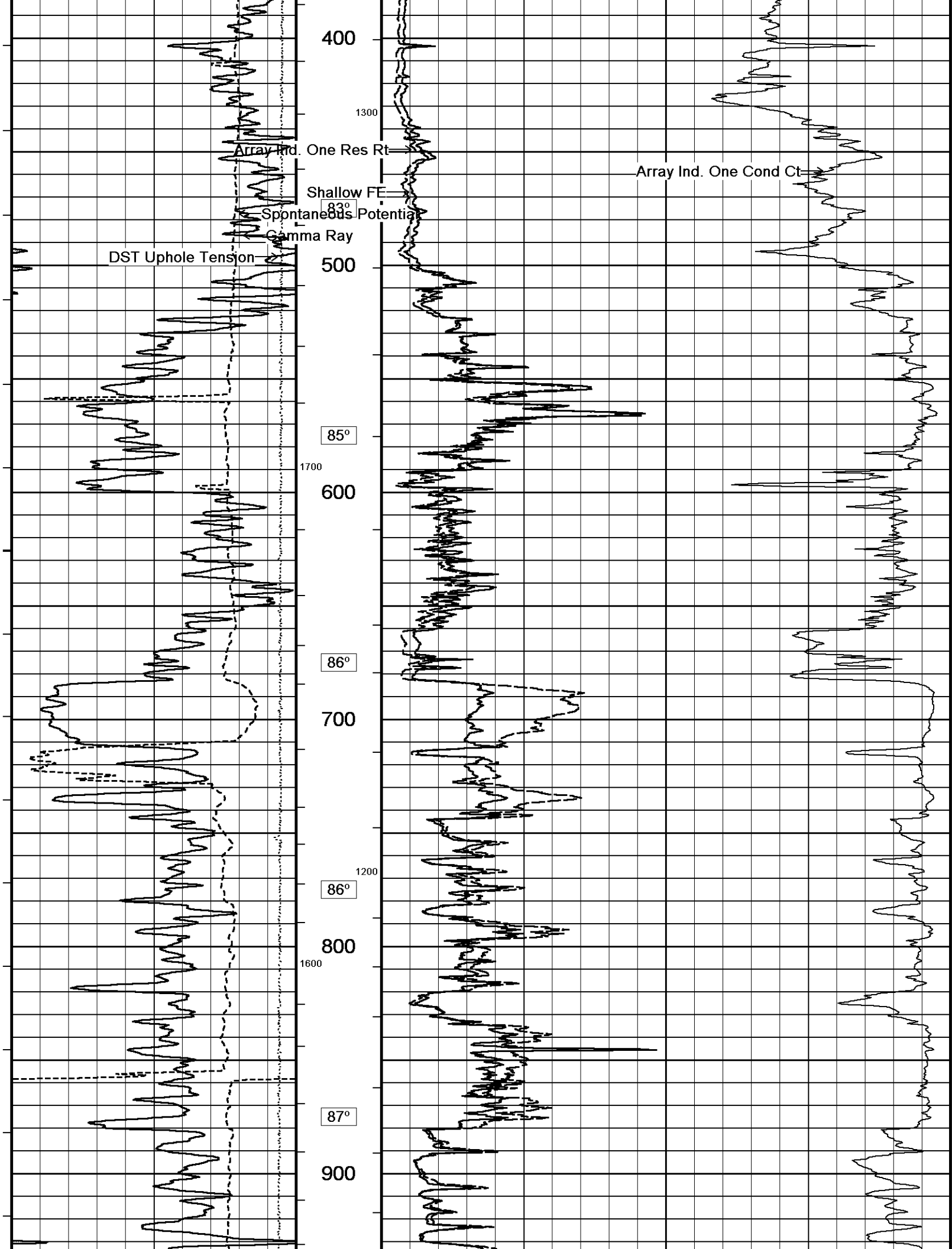
- OPERATORS: KEN RINEHART, TROWDY DICKENS

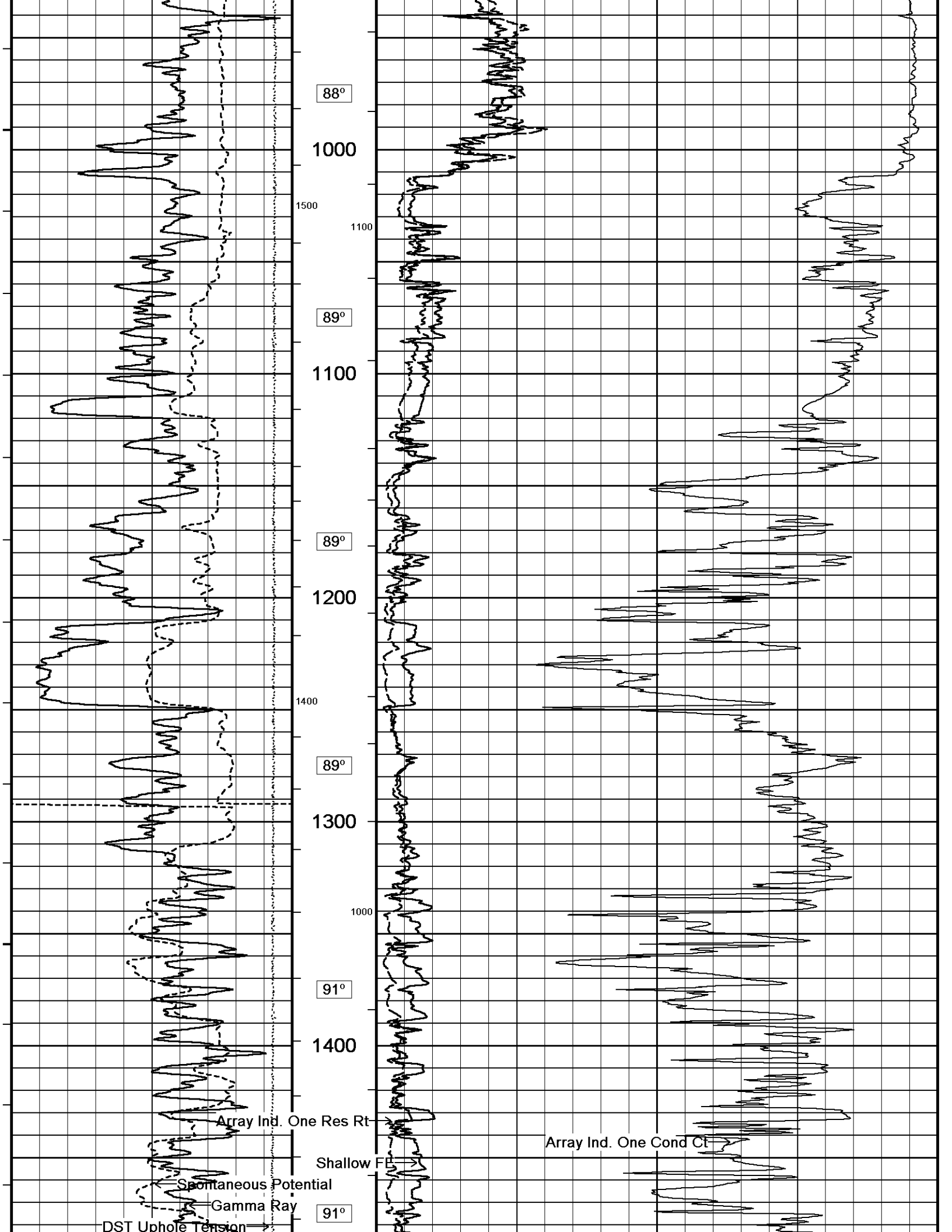
- PER CUSTOMER REQUEST A COMPOSITE (E-LOG ONLY, NO FIELD PRINT) IS BEING INCLUDED WITH THE STANDARD TRIPLECOMBO E-LOGS (DEN-NEU-MIC, INDUCTION, MICROLOG)

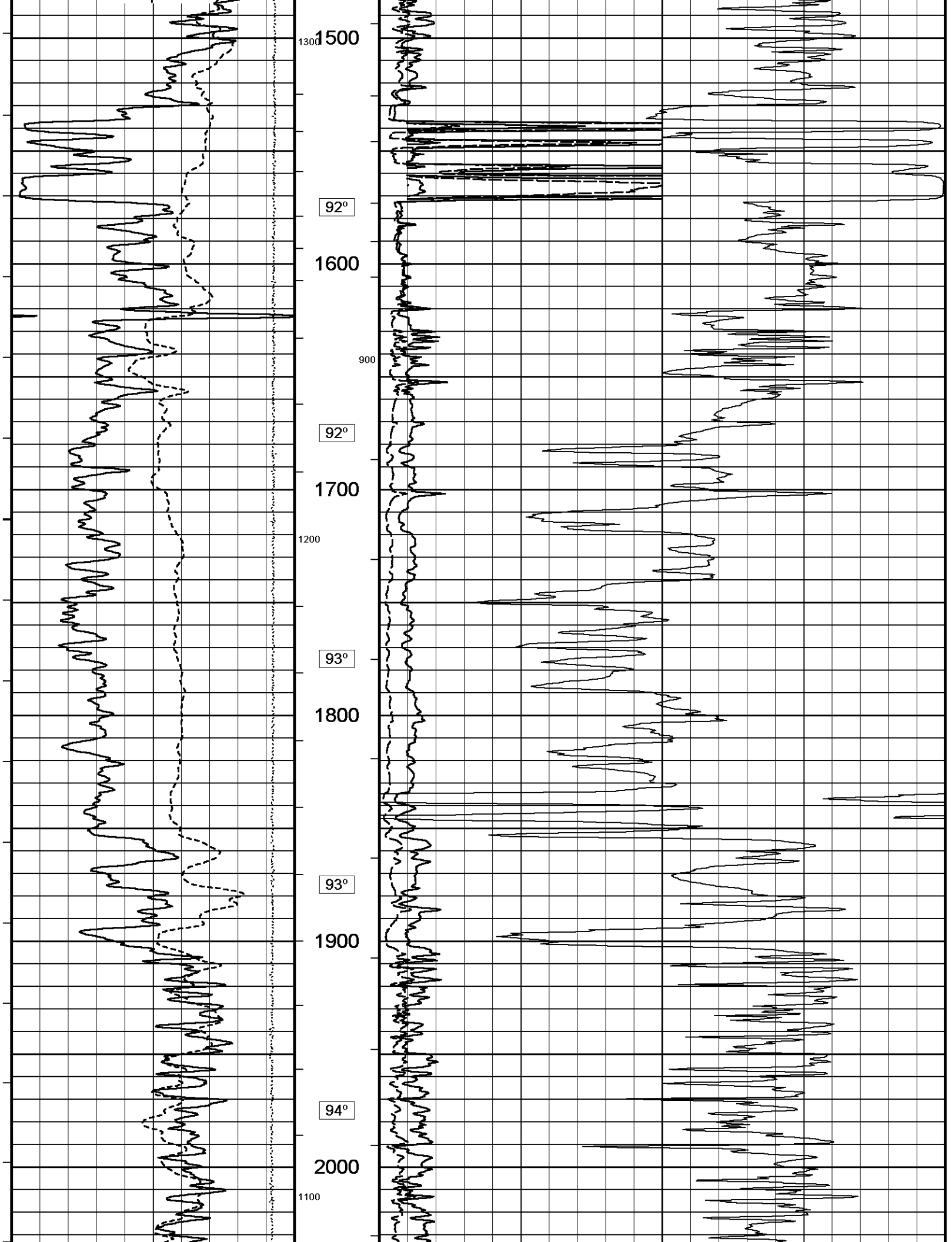
- SP CURVE HAS A NUMBER OF DISCONTINUITIES AND ERRATIC SPOTS (557-560 FT., 596-599 FT., 710-728 FT., 854-859 FT., 1292-1294 FT., 2236-2254 FT., 3454-3456 FT.). THE RIG CREW HAD A TRASH PUMP THAT PERIODICALLY OPERATED IN ORDER TO PUMP EXCESS MUD. IT IS BELIEVED THAT THIS MAY HAVE CAUSED THE DISCONTINUITIES AND ERRATIC INTERVALS.

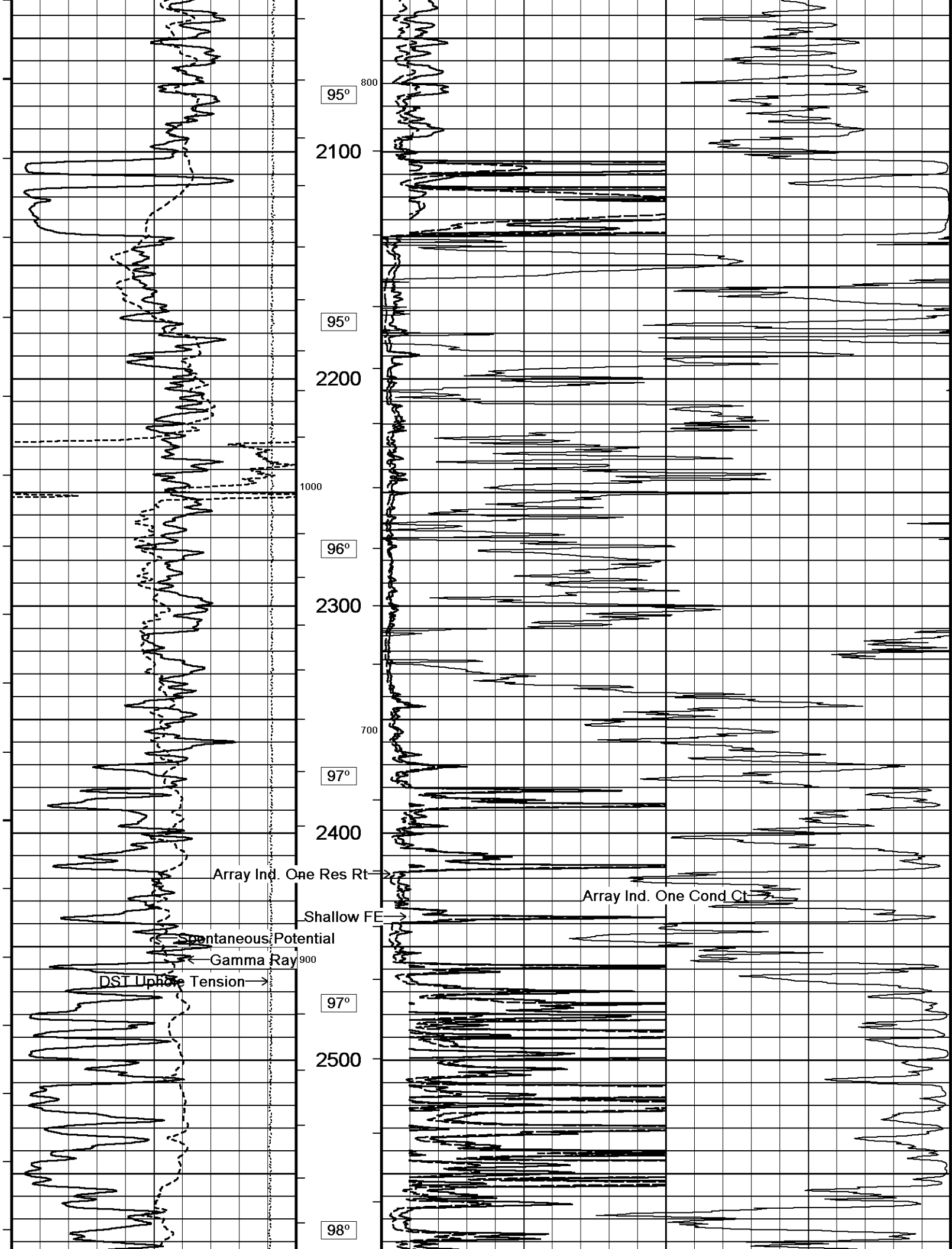
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

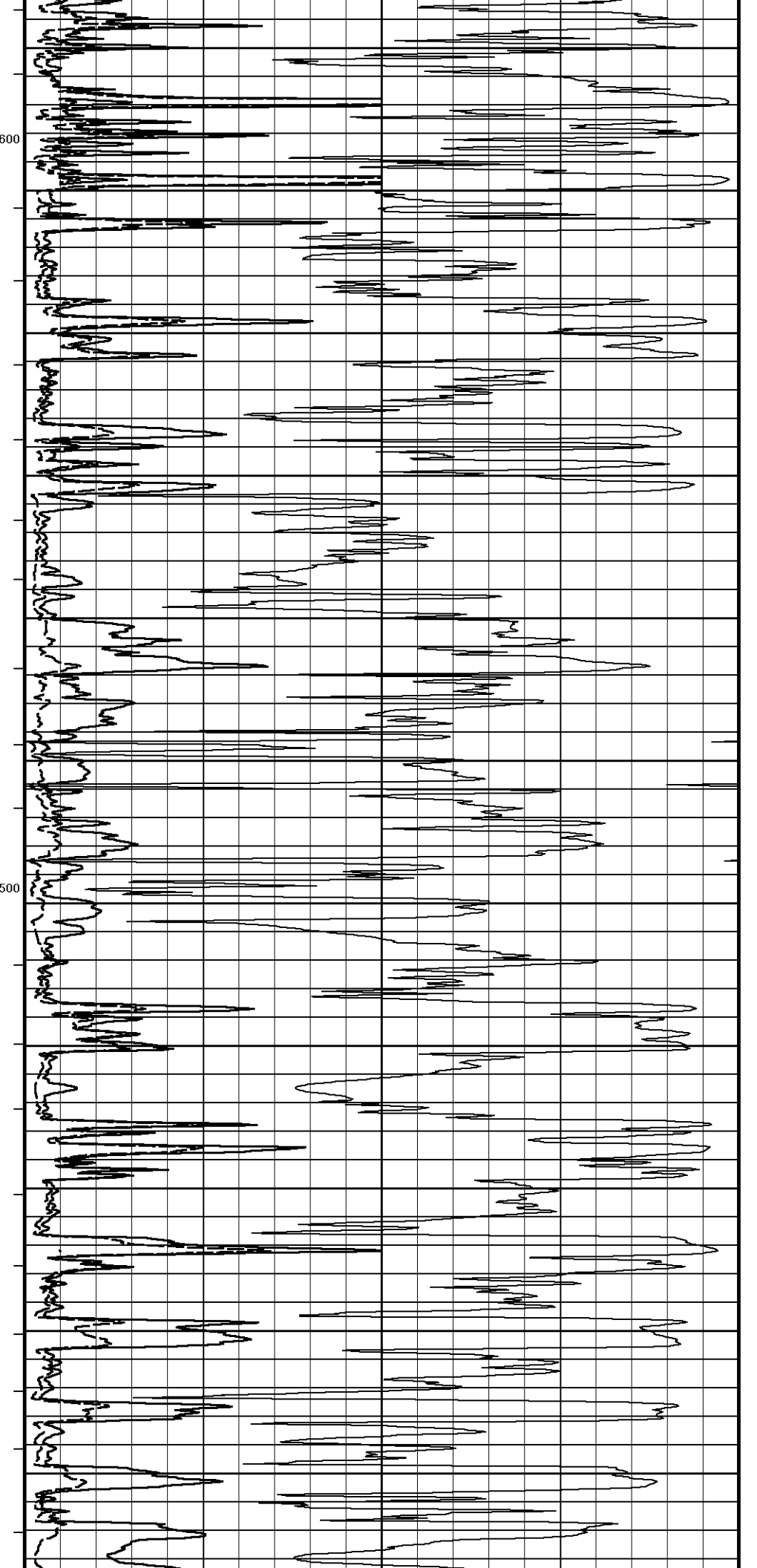
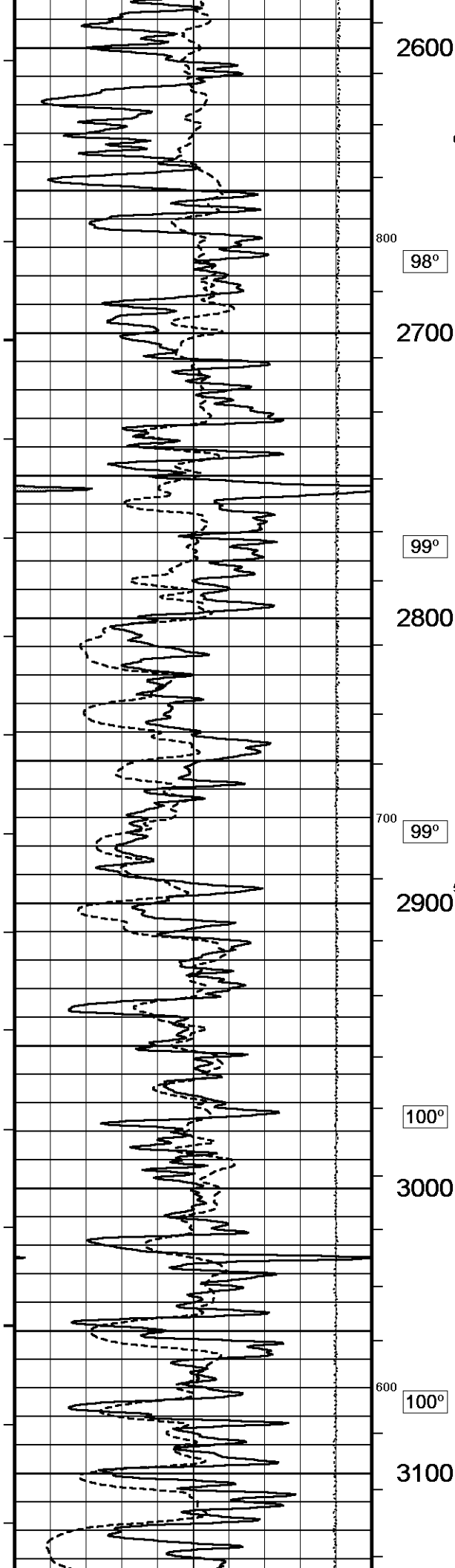


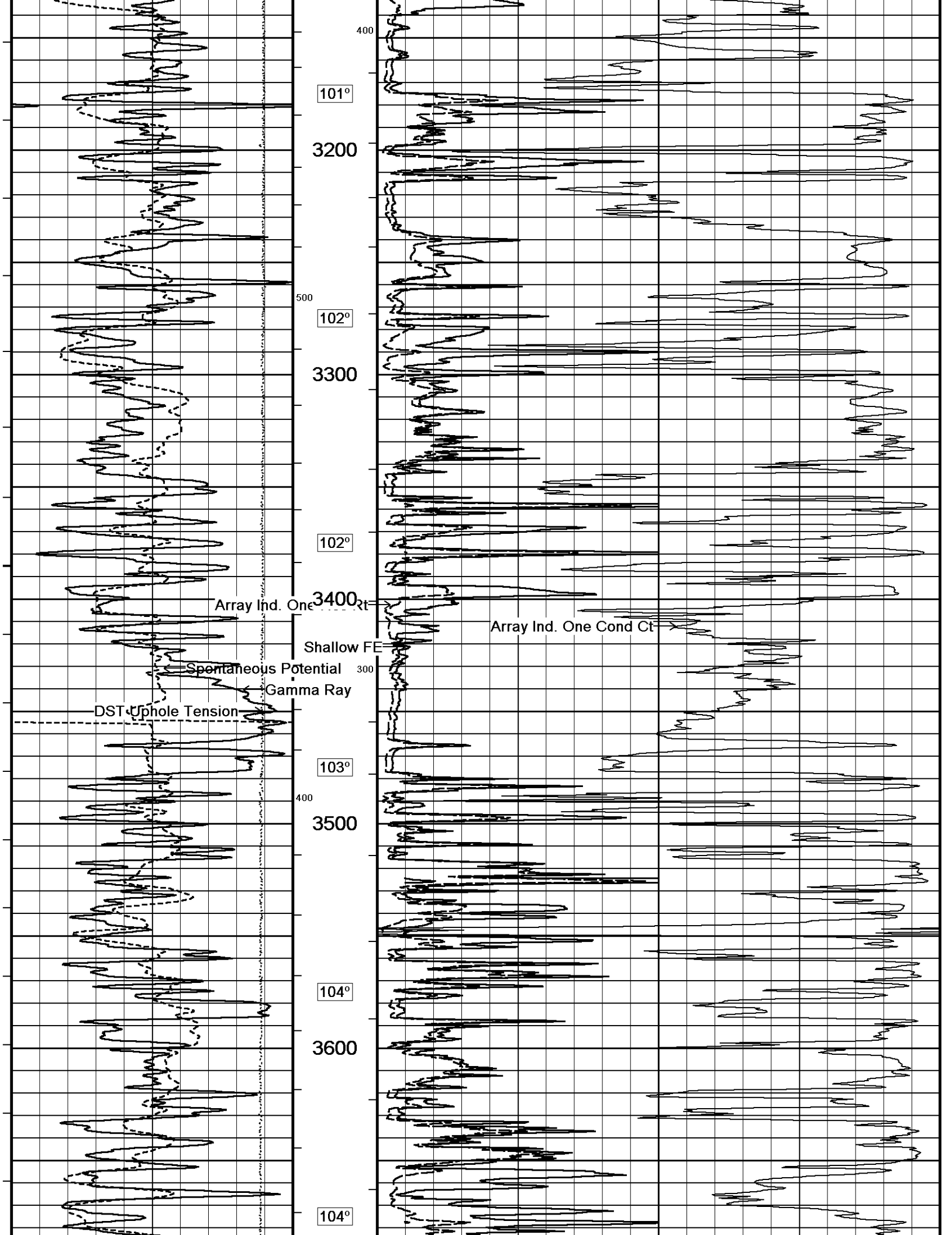


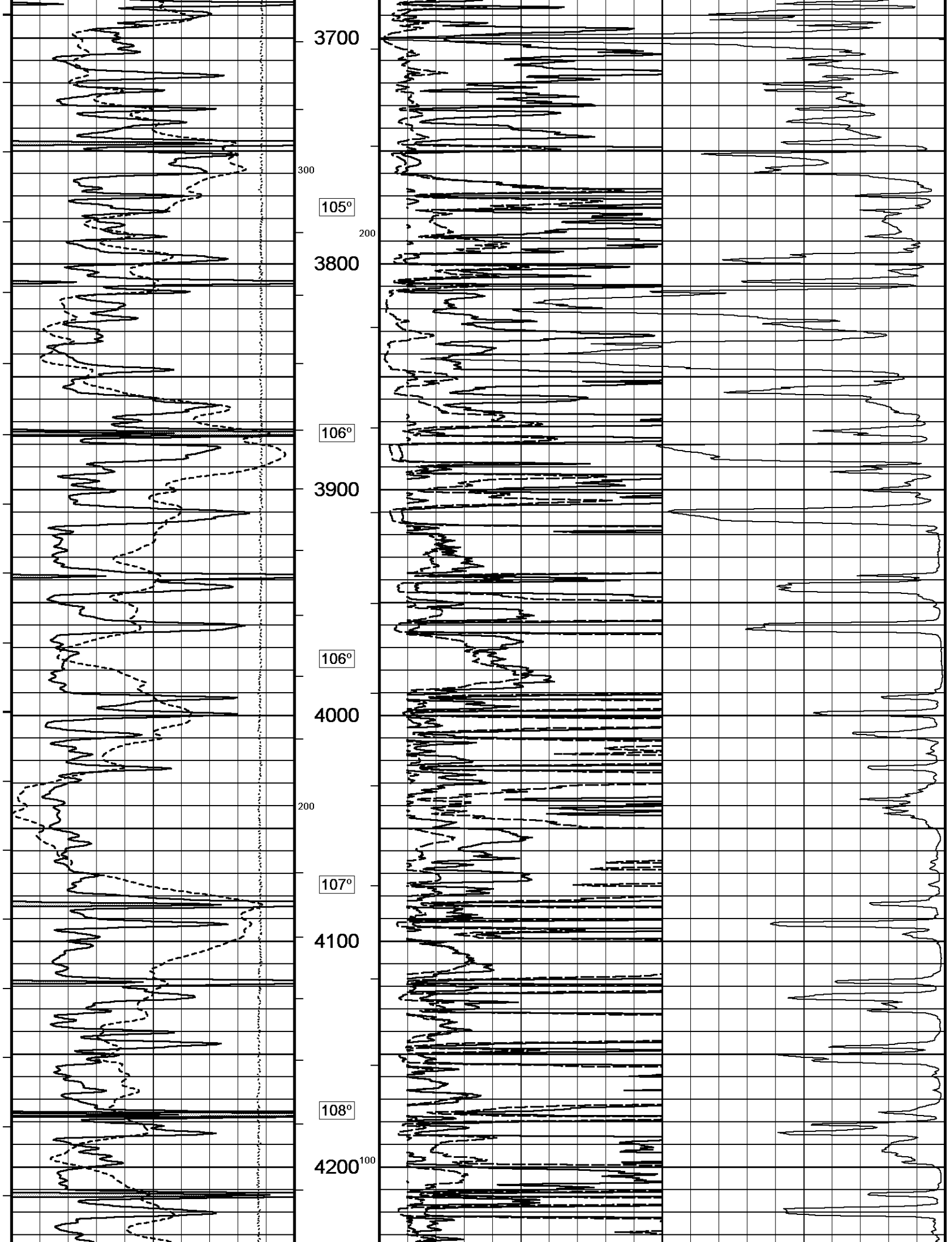


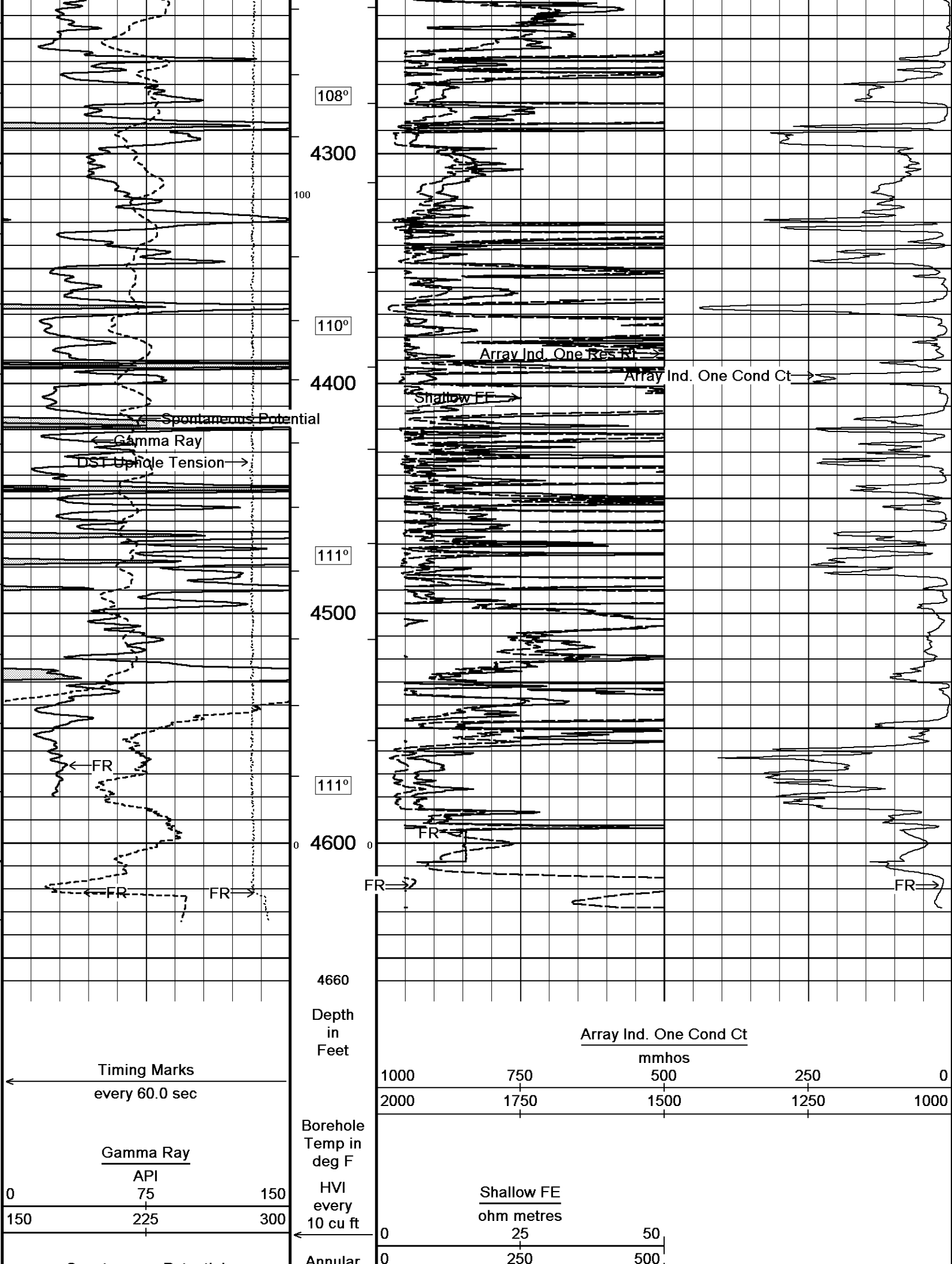


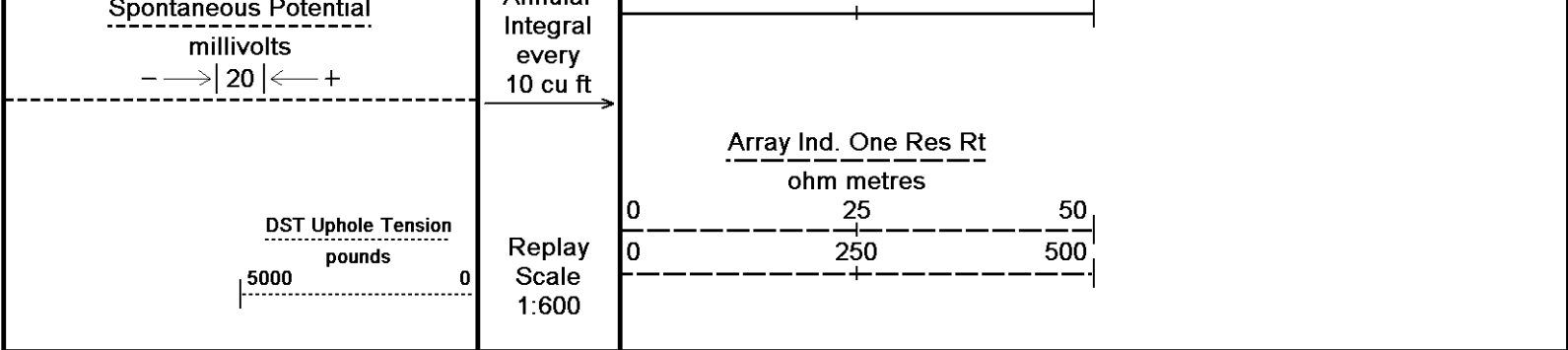












Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 15-JAN-2014 00:20

Filename: C:\Documents and Settings\E193122\Desktop\...\O'Brien Resources LLC Peck 1#1 Main2.dta

Recorded on 14-JAN-2014 20:29

System Versions: Processed with 13.05.9583 Plotted with 13.05.9583

↑

2 INCH MAIN

↑

↓

5 INCH MAIN

↓

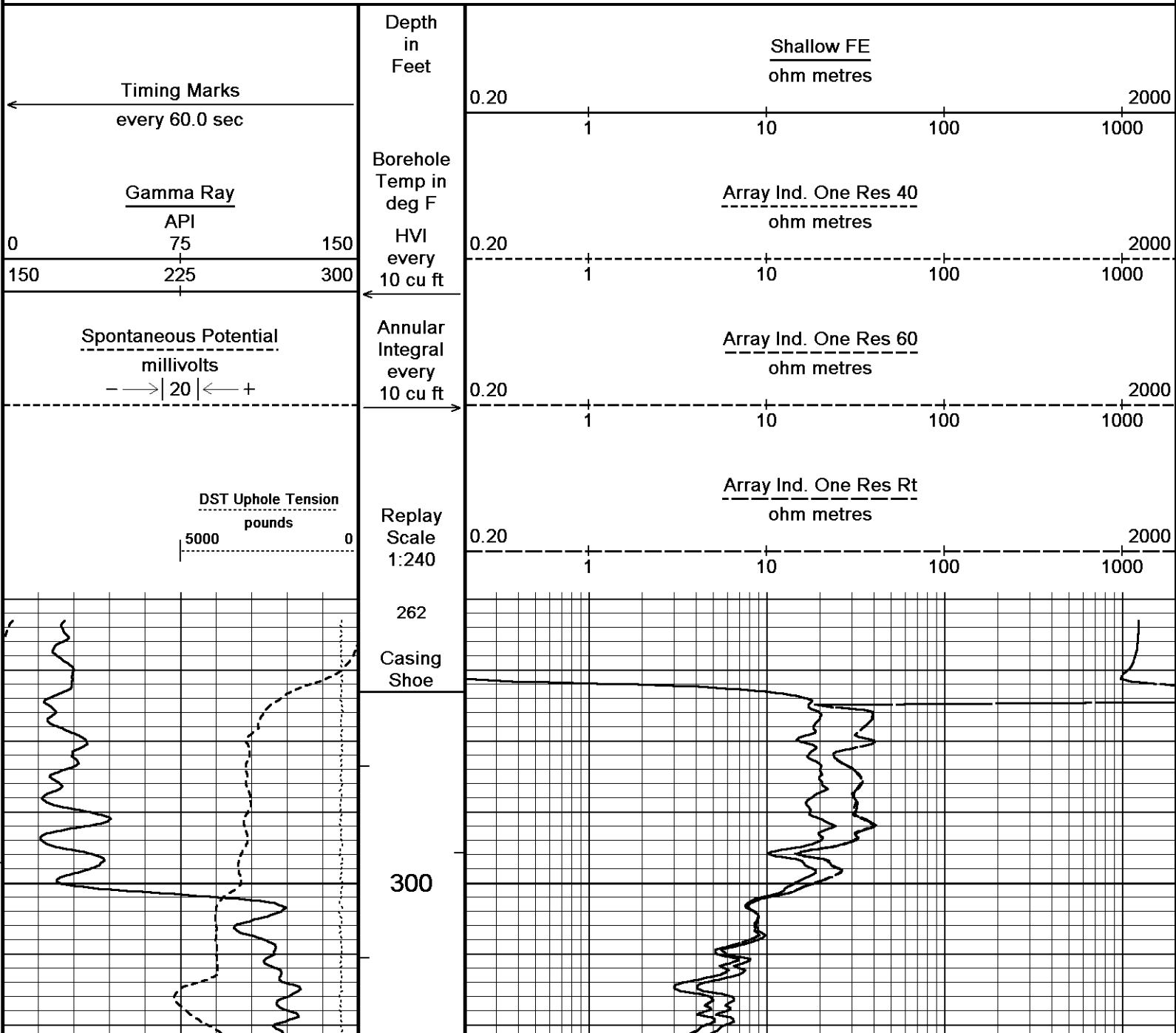
Depth Based Data - Maximum Sampling Increment 10.0cm

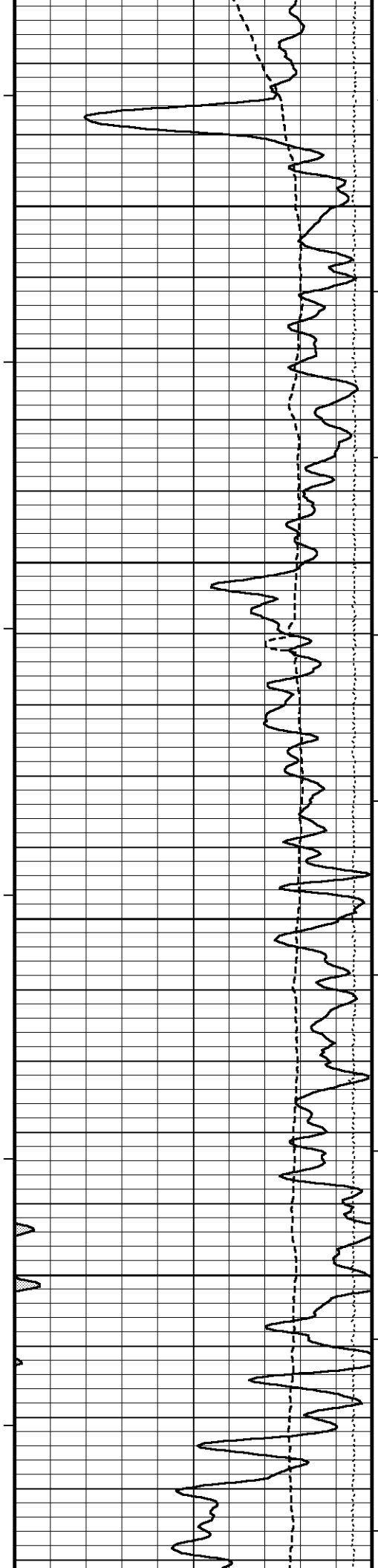
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Filename: C:\Documents and Settings\E193122\Desktop\...\O'Brien Resources LLC Peck 1#1 Main2.dta

Recorded on 14-JAN-2014 20:29

System Versions: Processed with 13.05.9583 Plotted with 13.05.9583





1800

81°

350

82°

400

1300

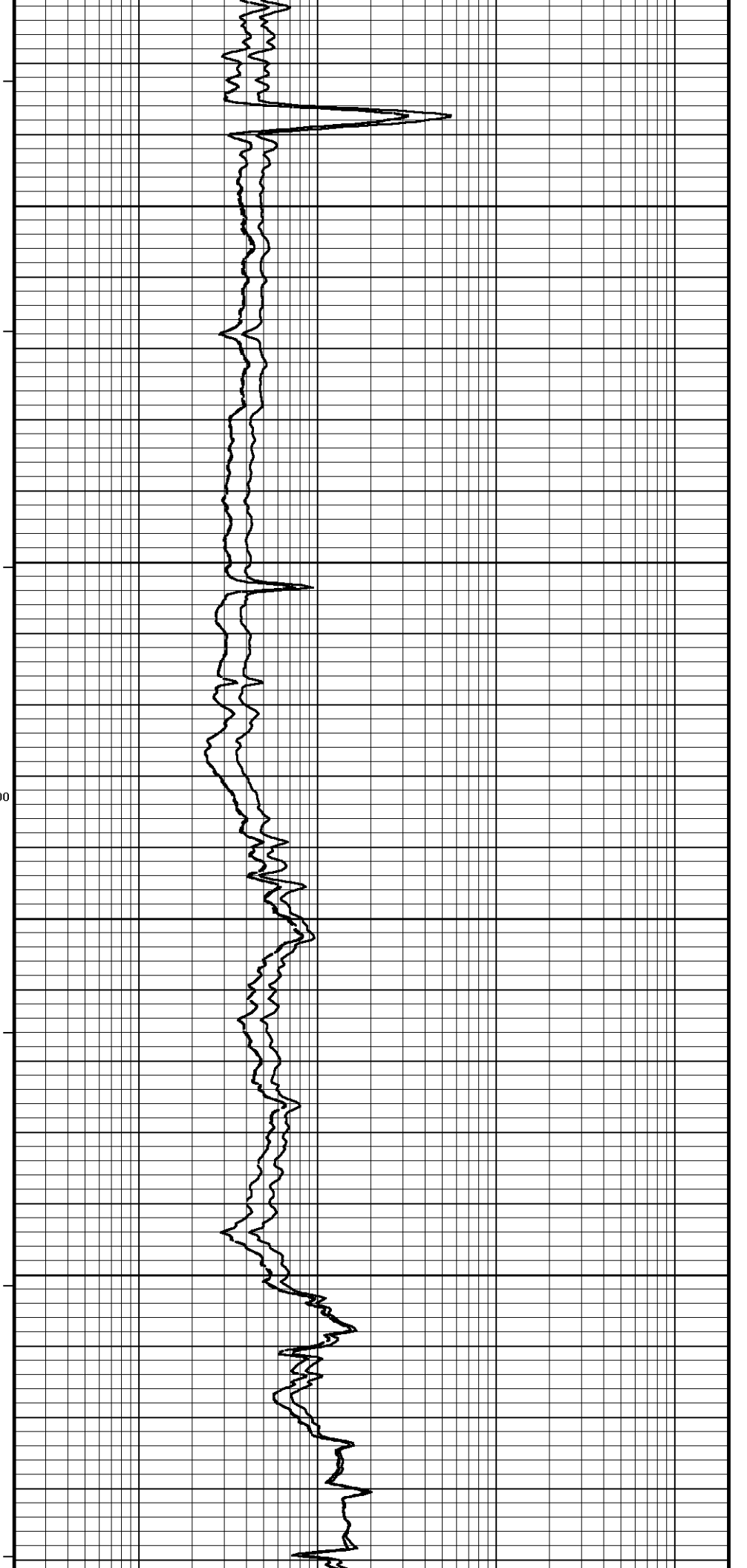
83°

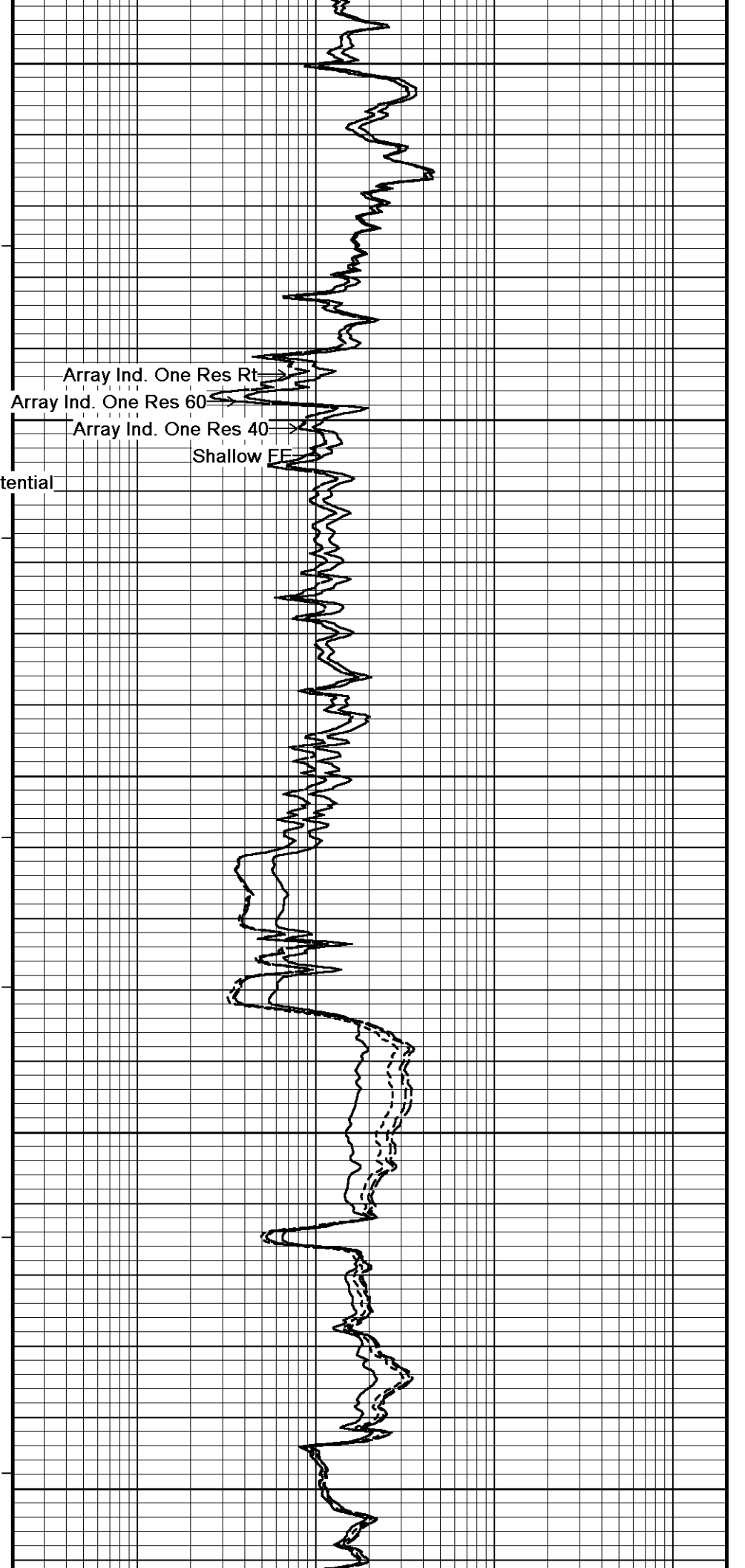
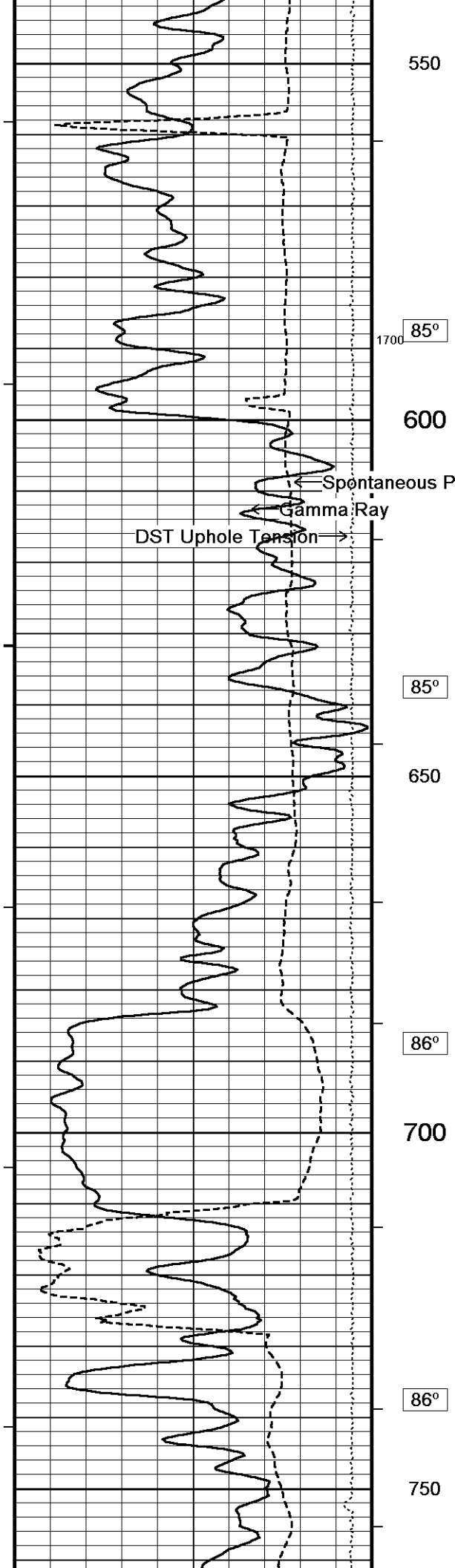
450

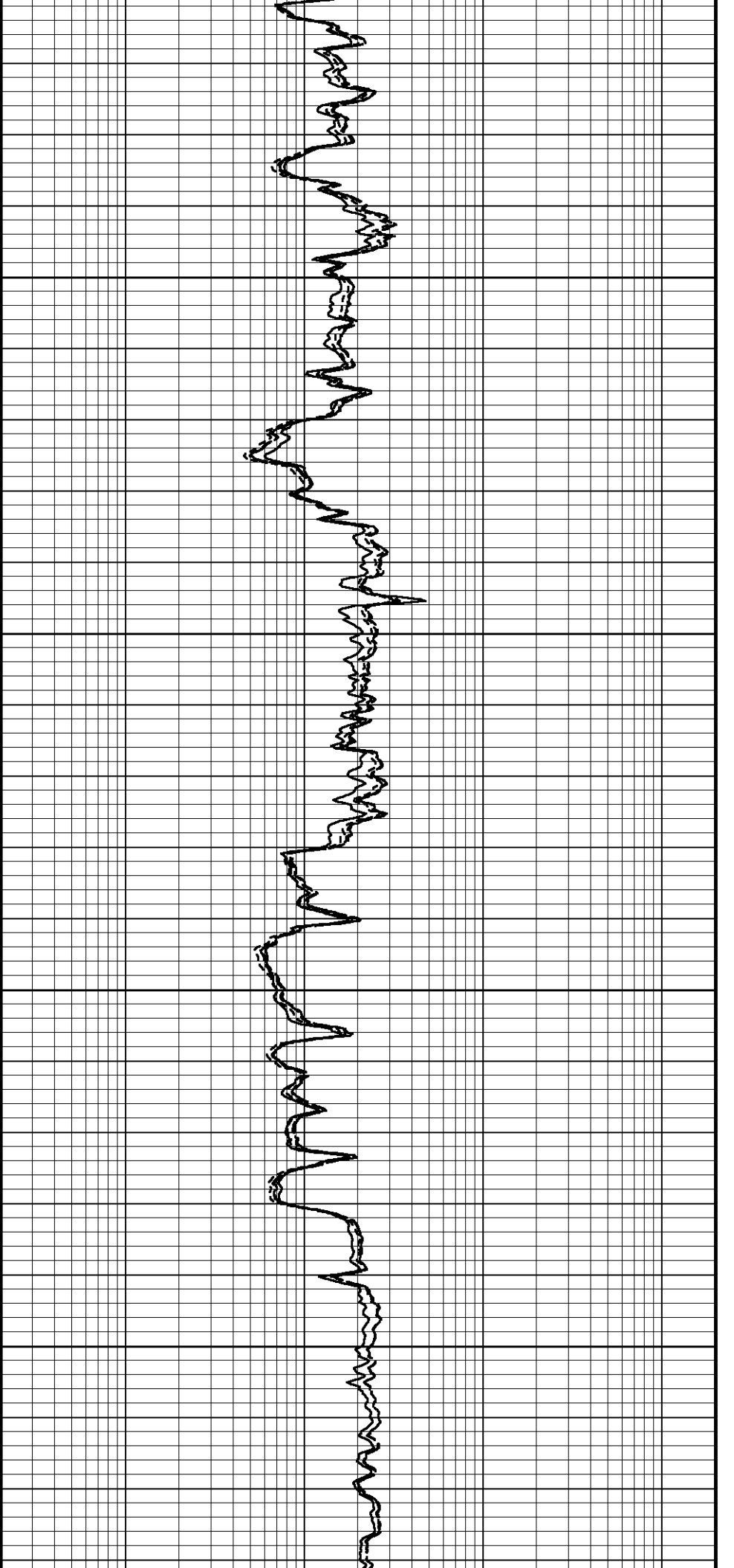
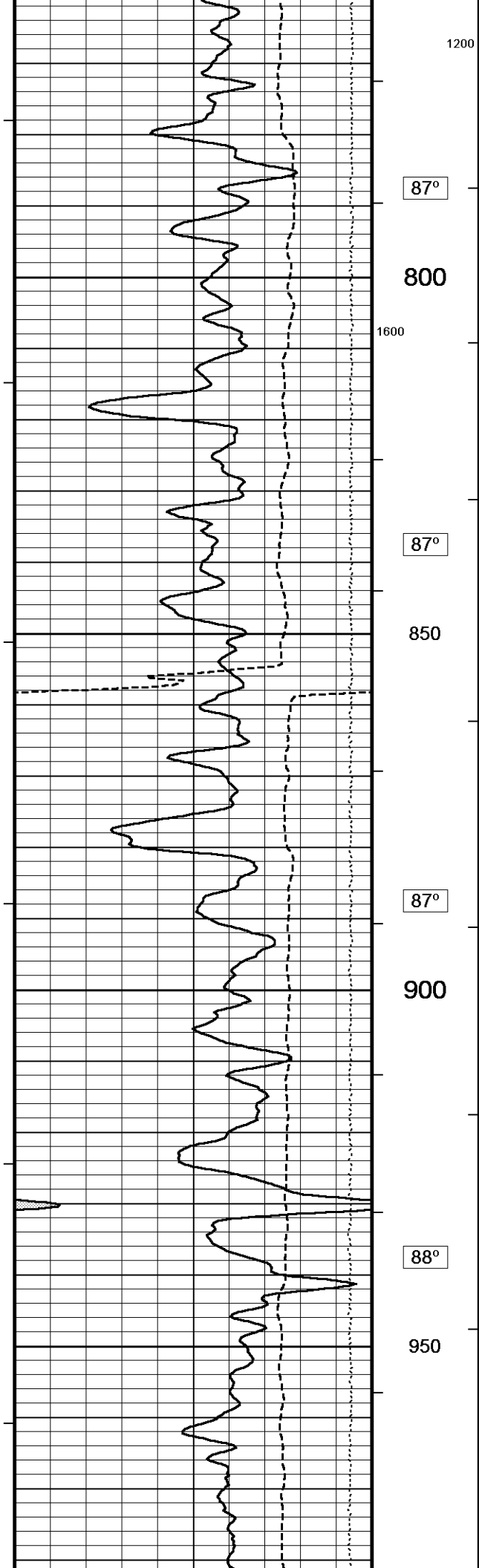
84°

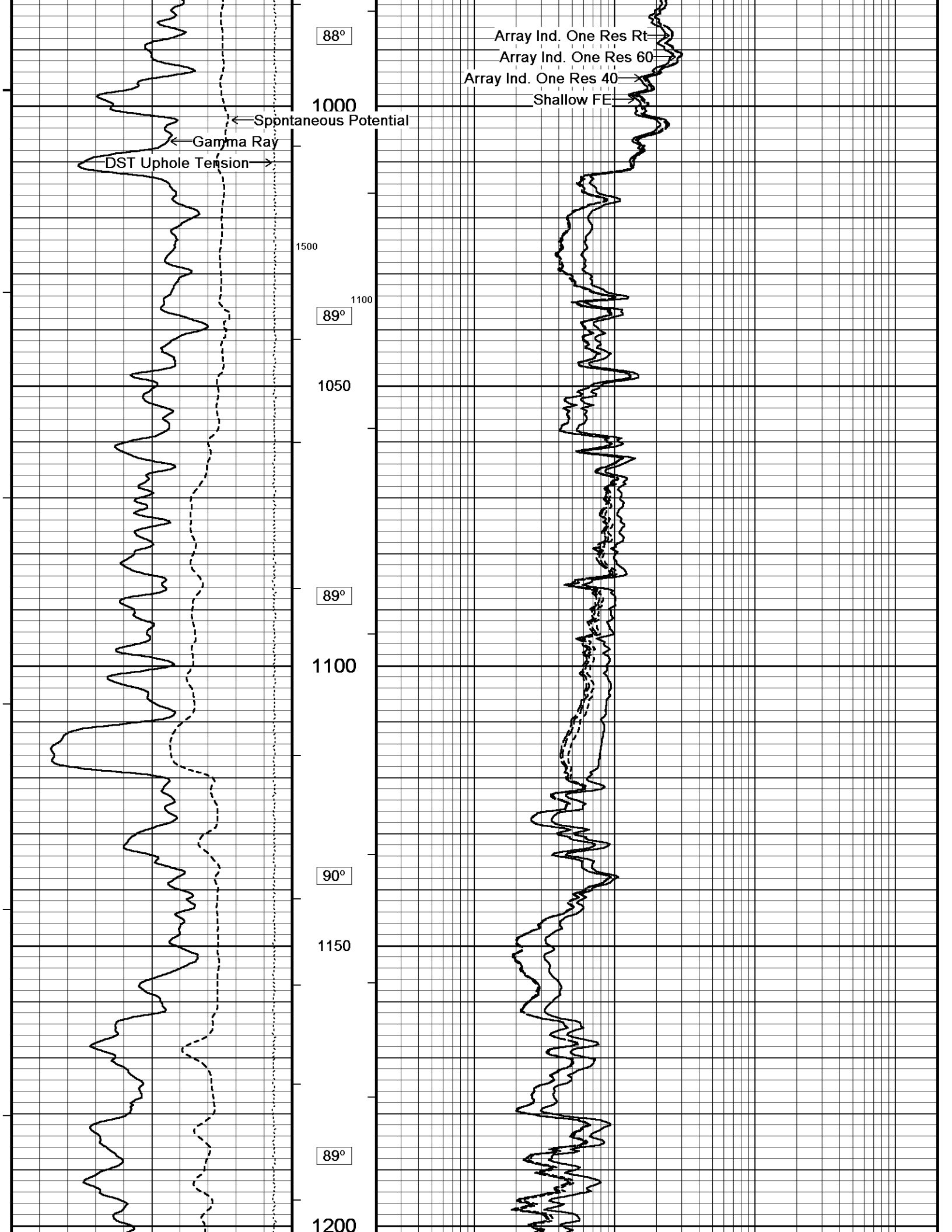
500

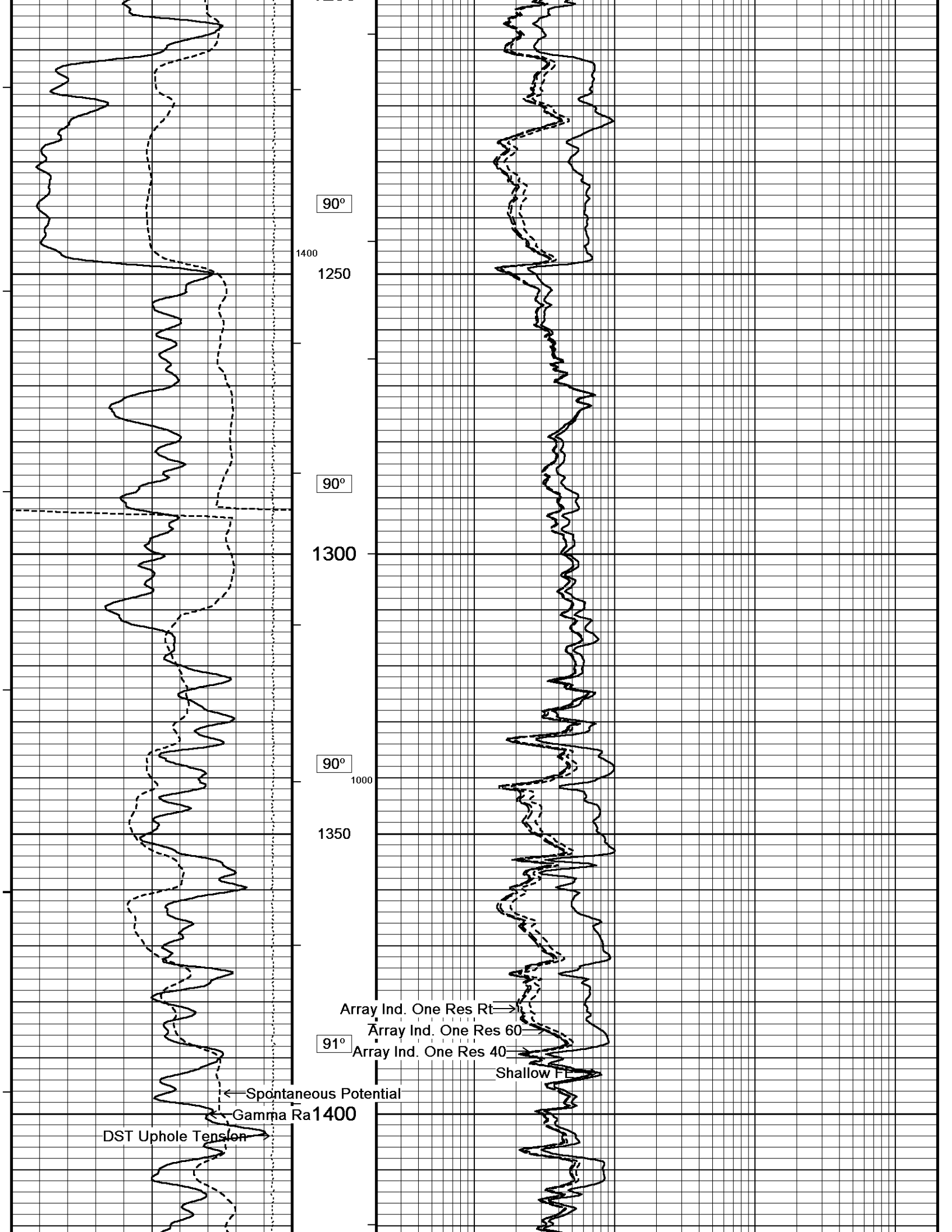
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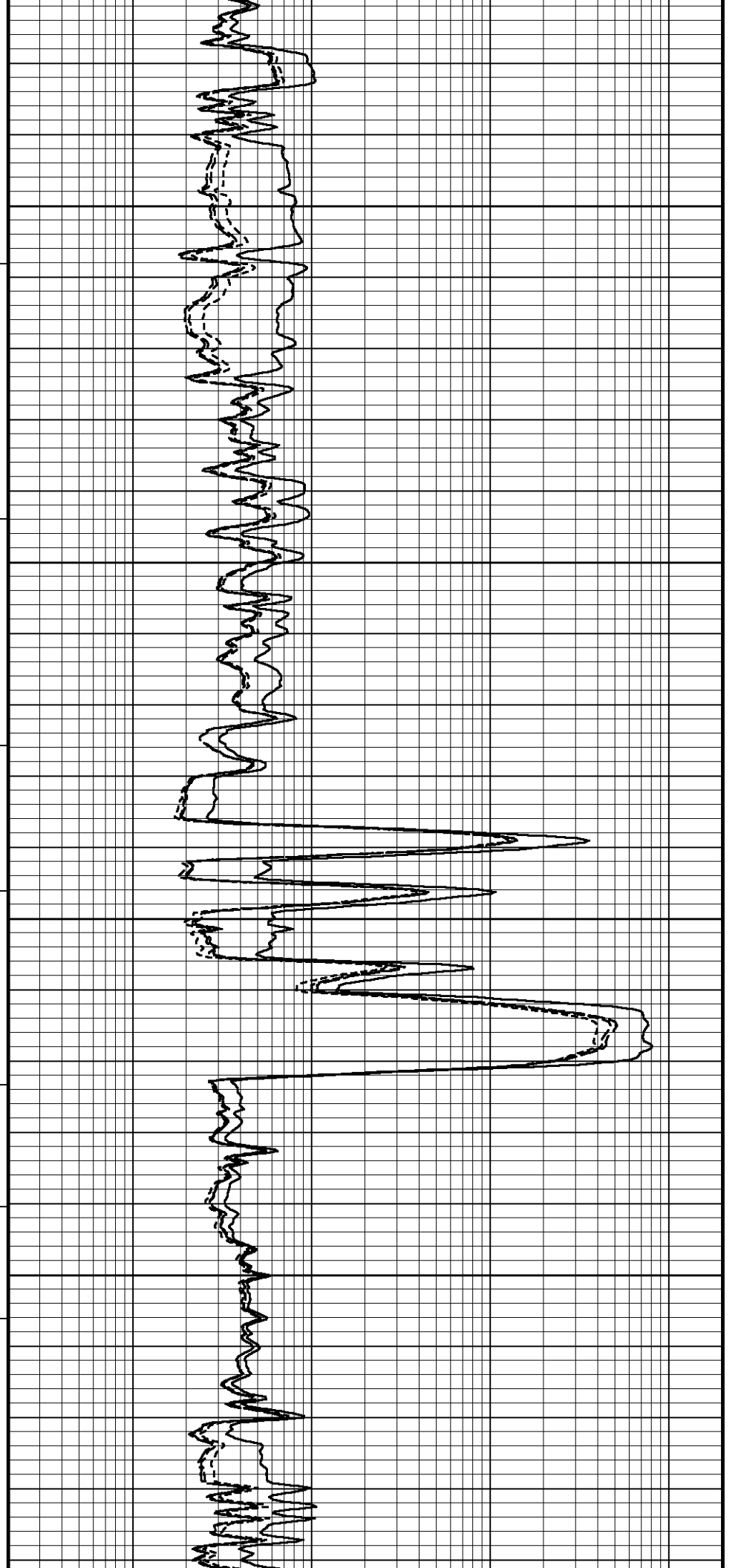
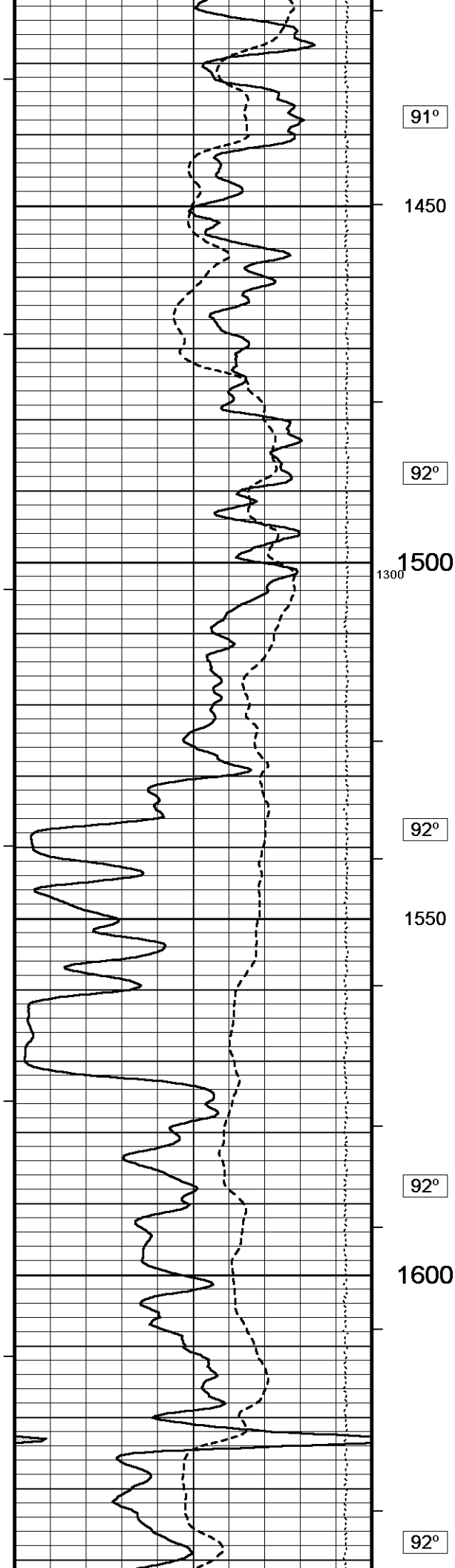


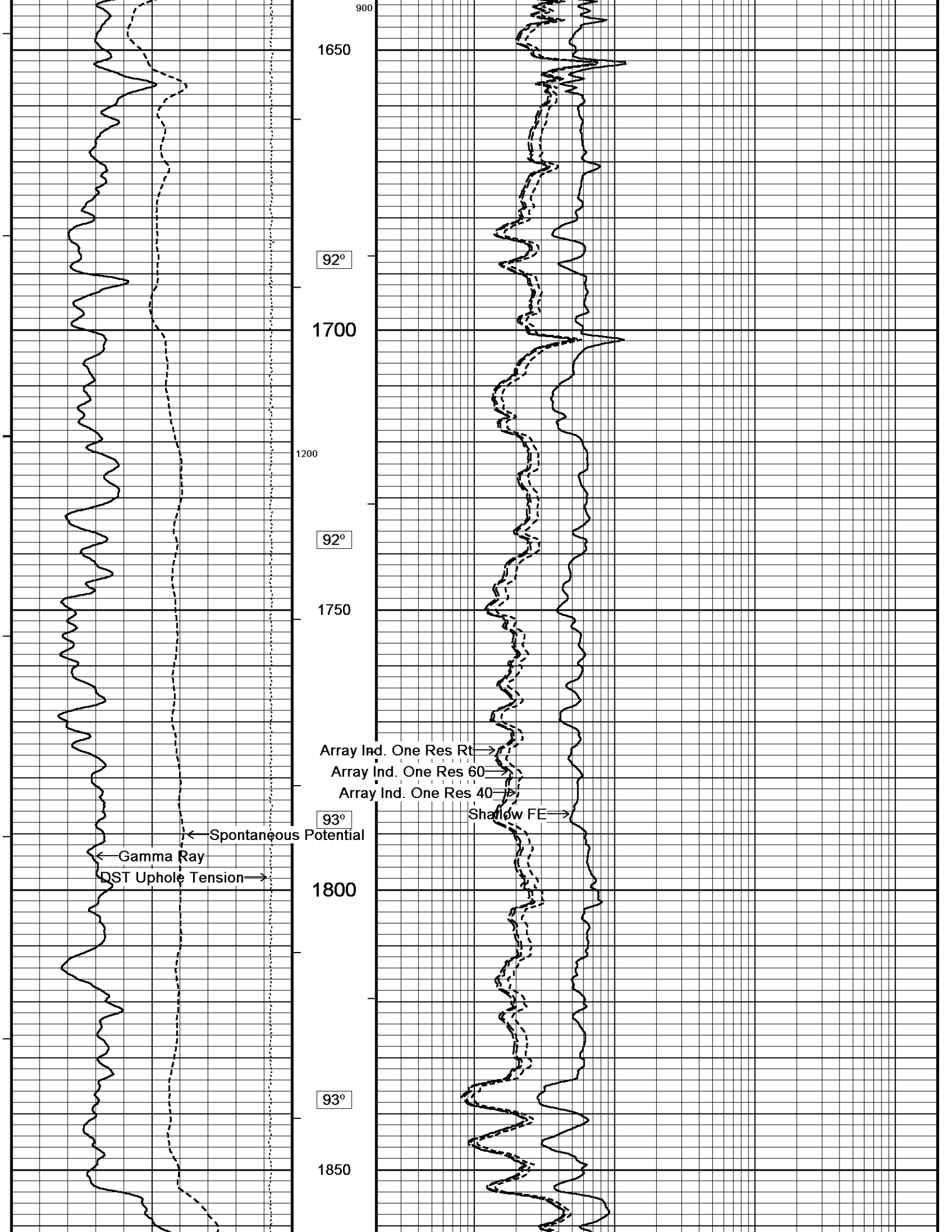


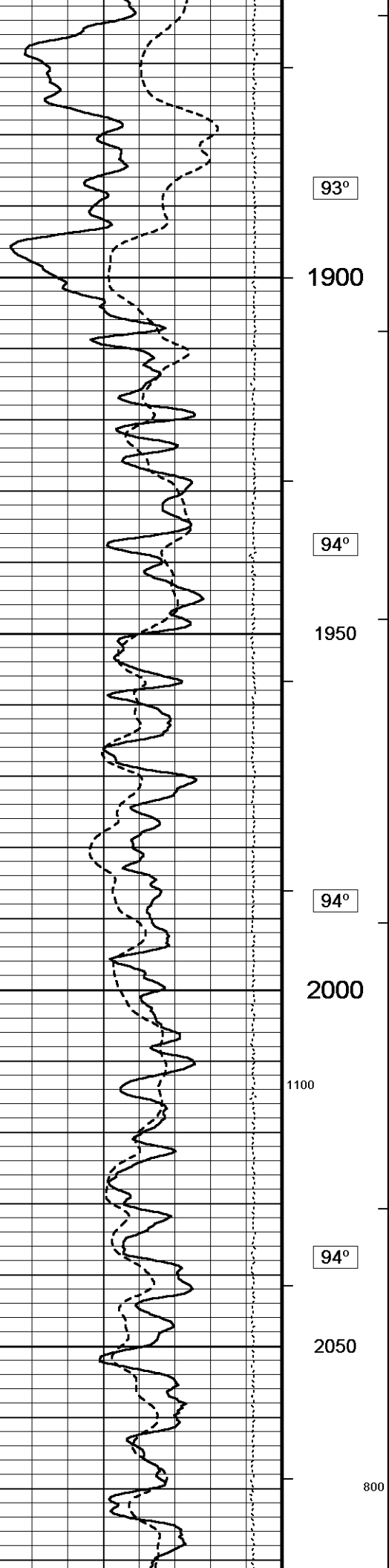












93°

1900

94°

1950

94°

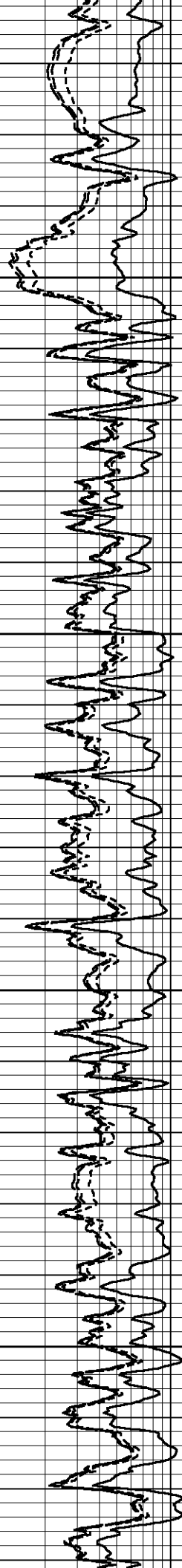
2000

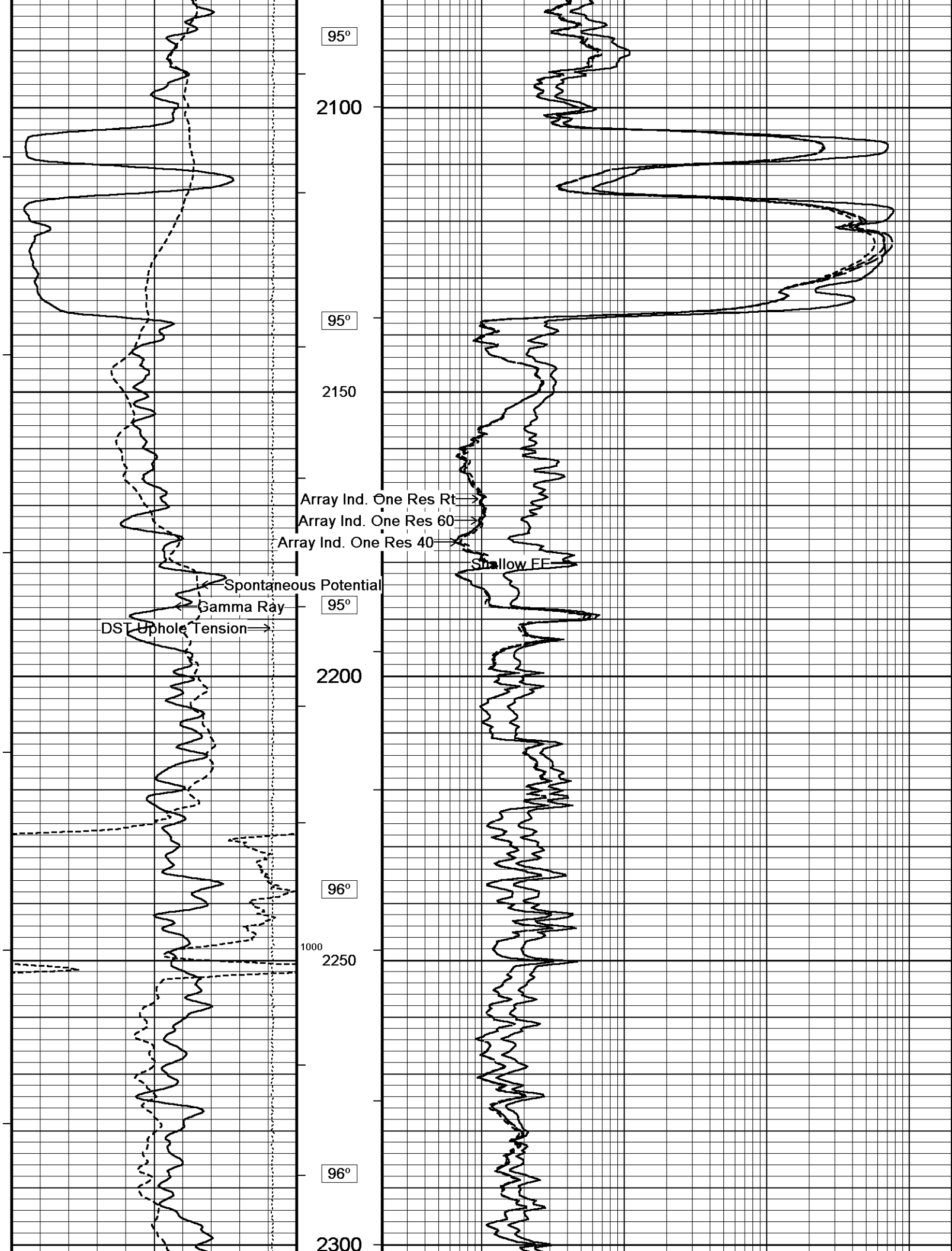
1100

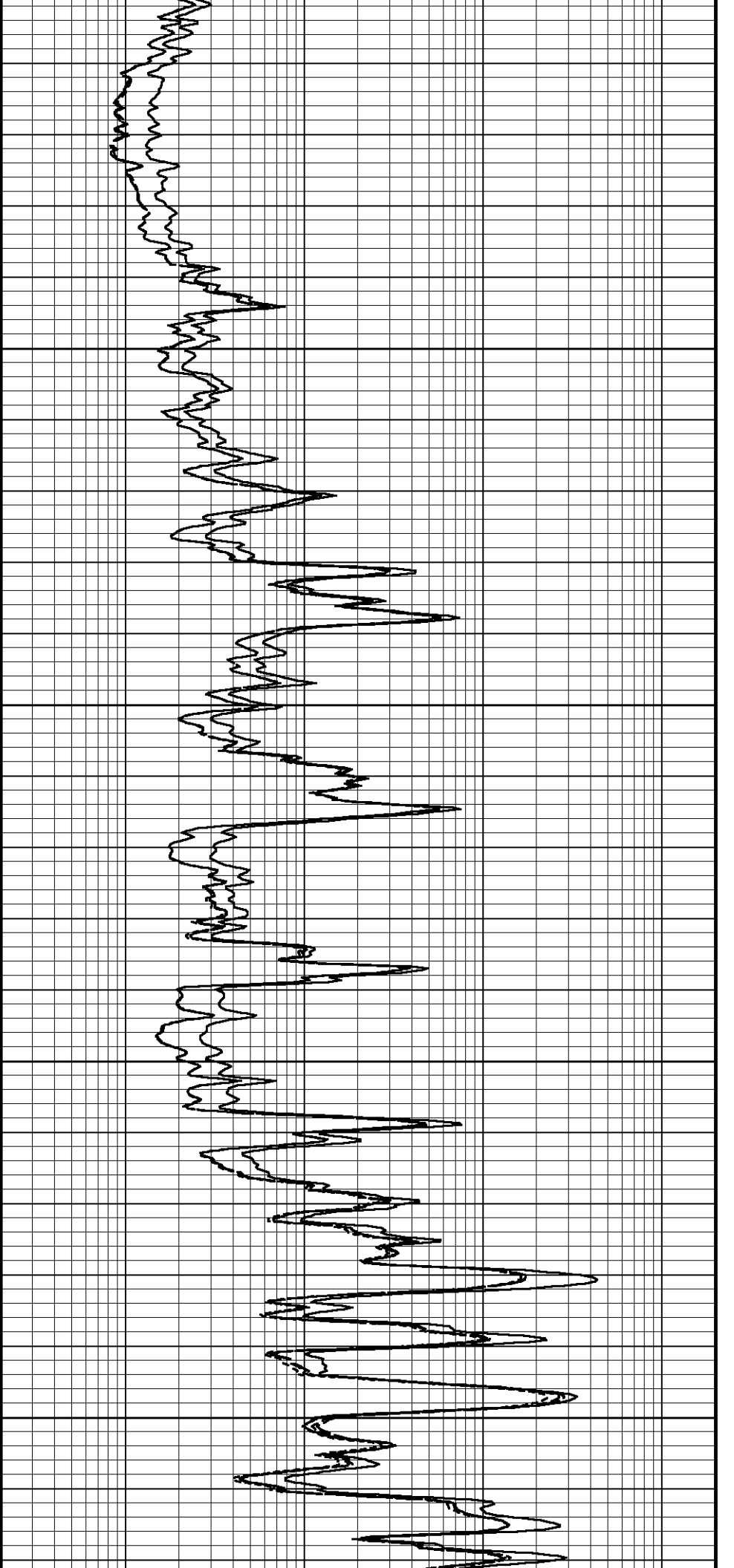
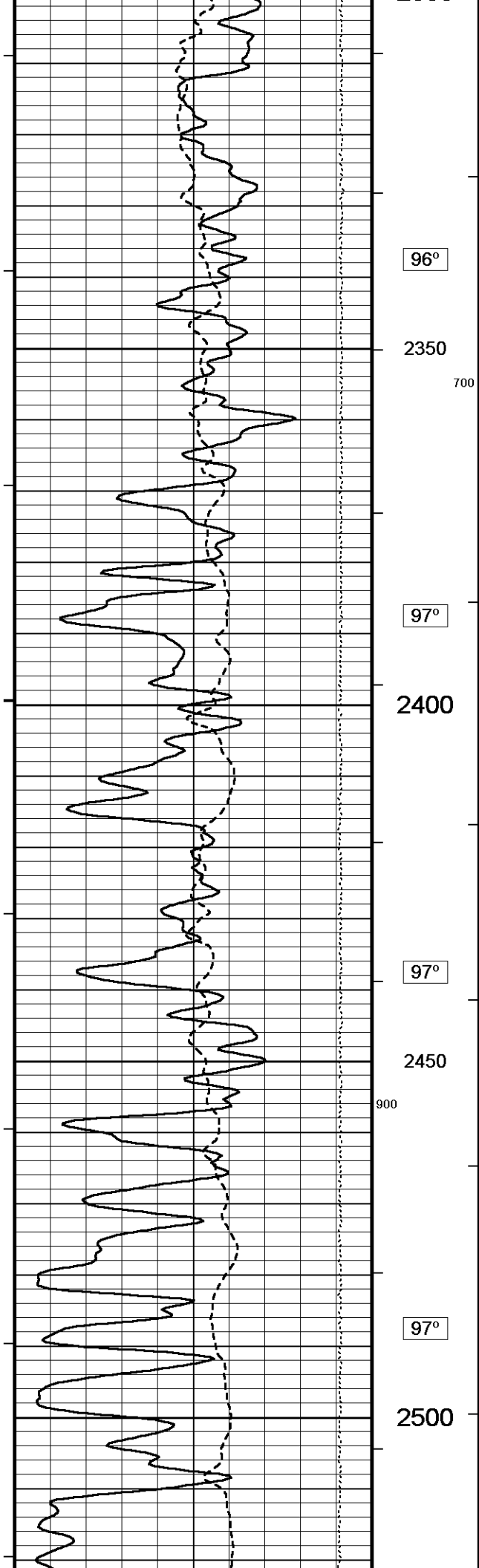
94°

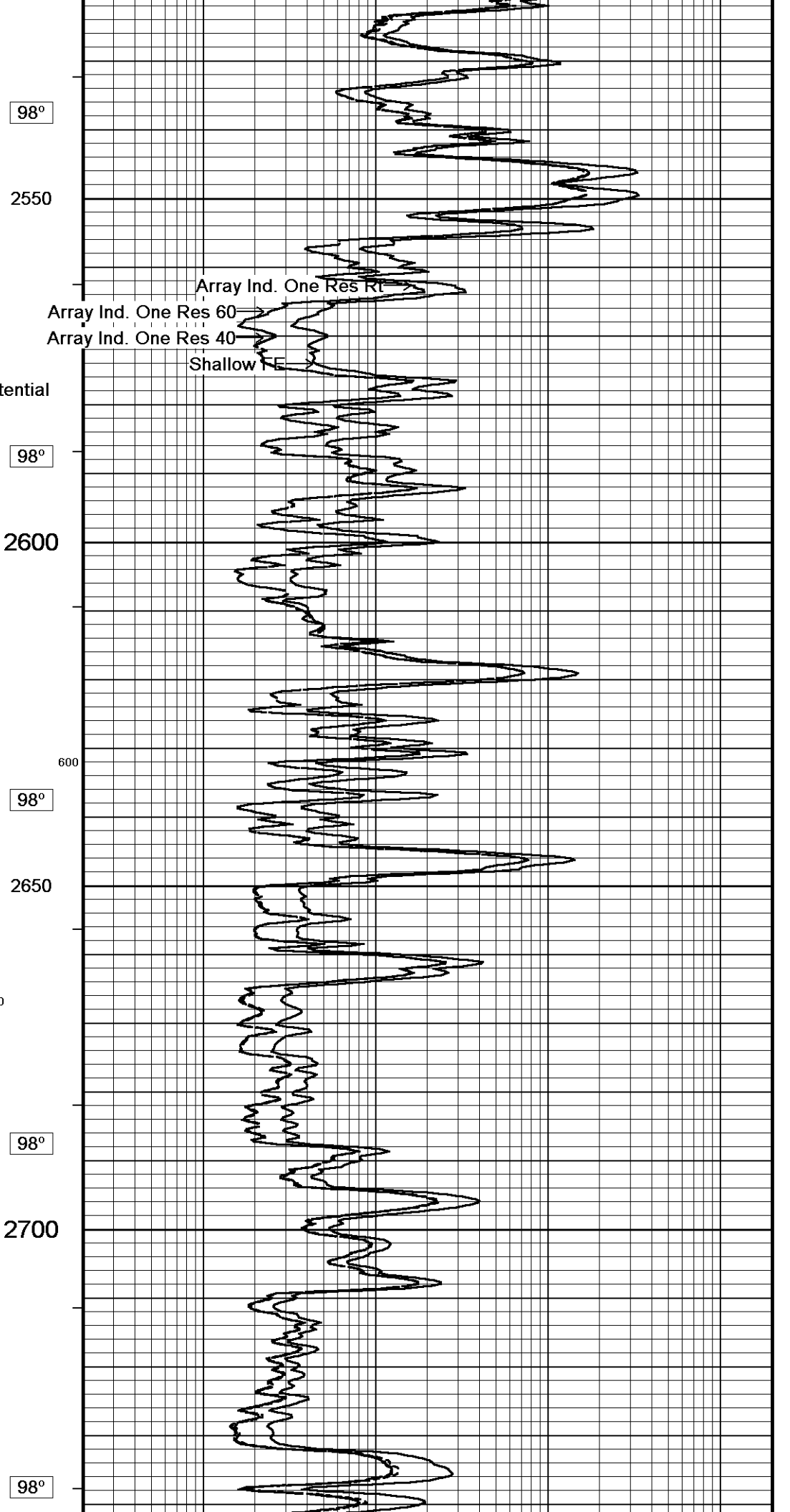
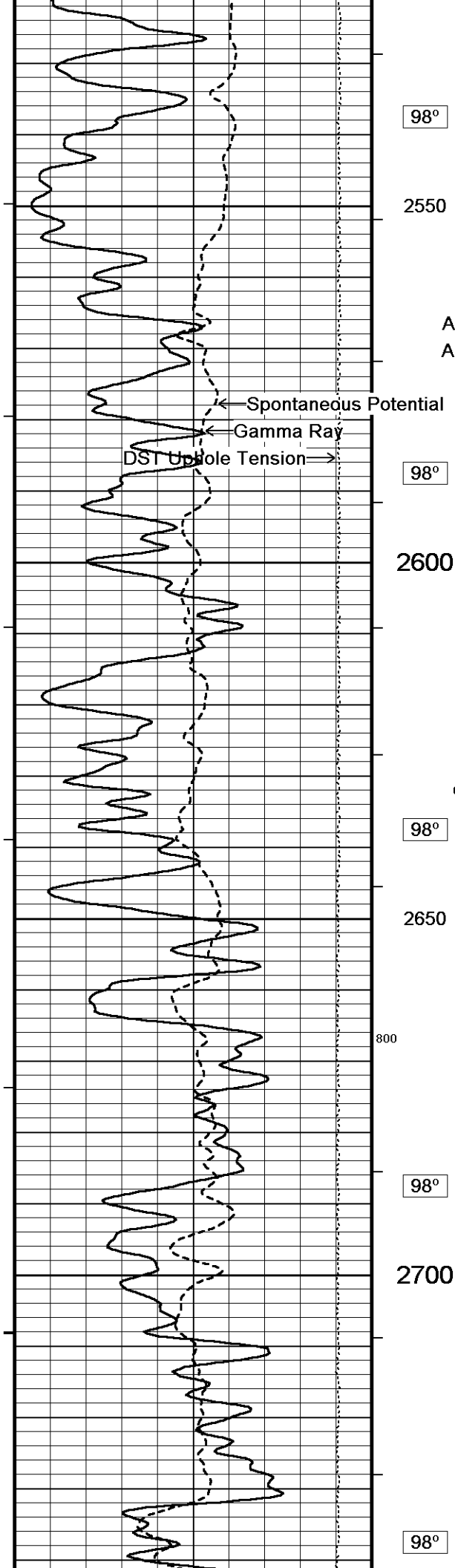
2050

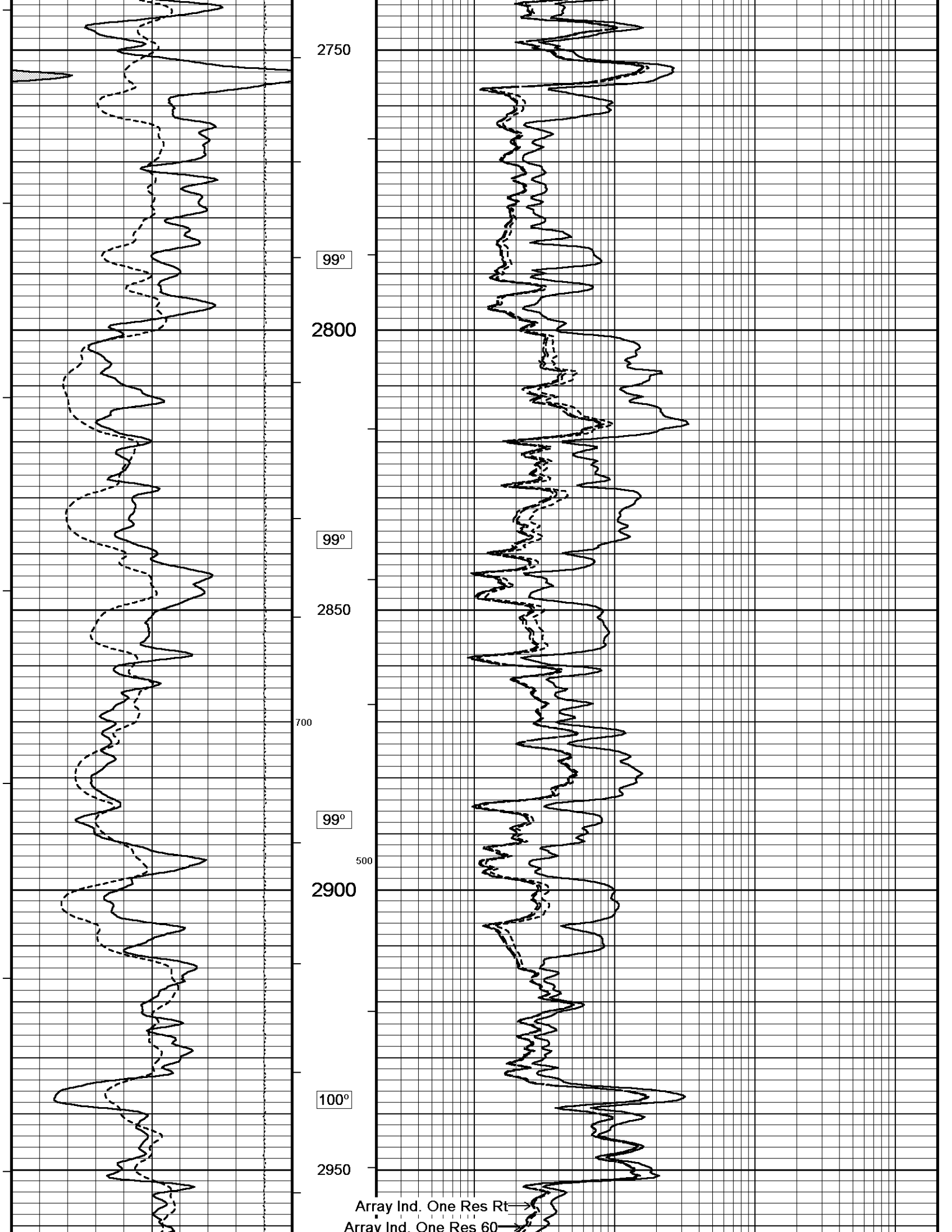
800

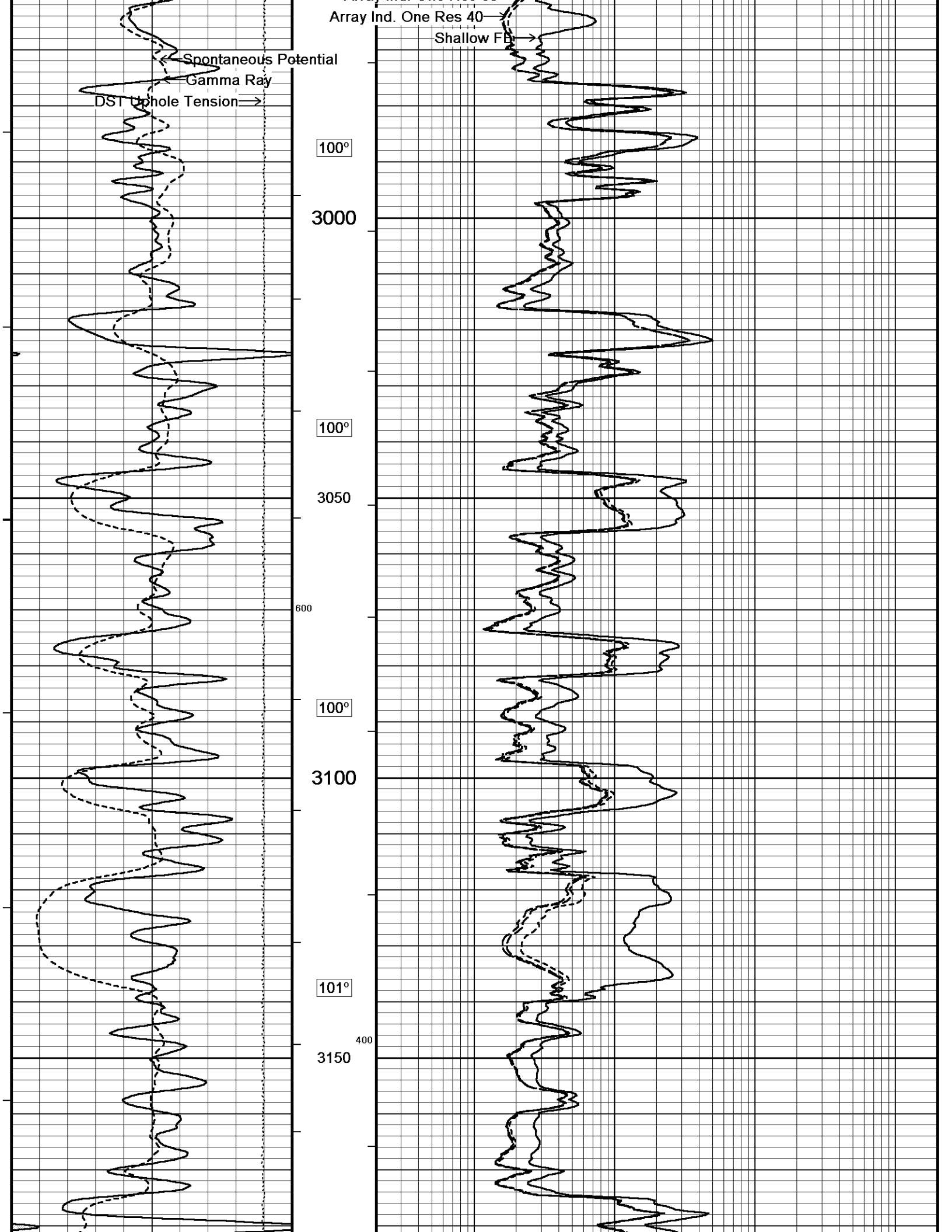


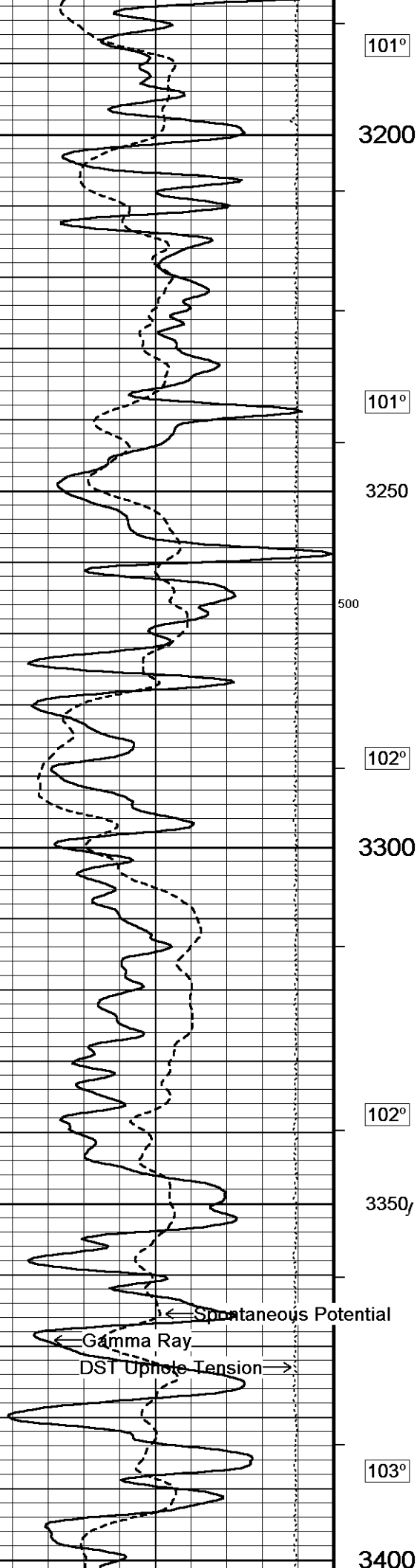












101°

3200

101°

3250

500

102°

3300

102°

3350 Ind. One Res Rt

Array Ind. One Res 80

Array Ind. One Res 40

Shallow

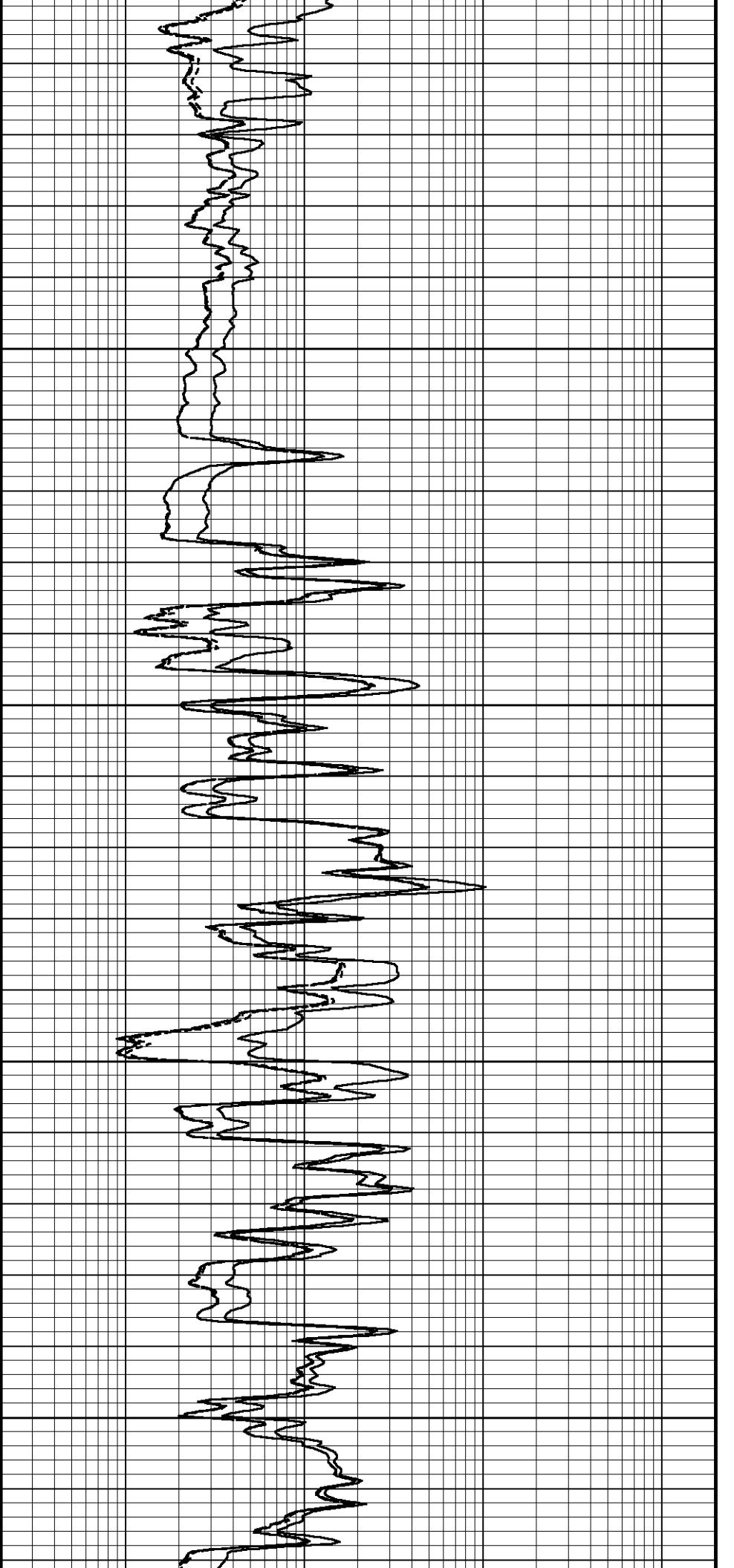
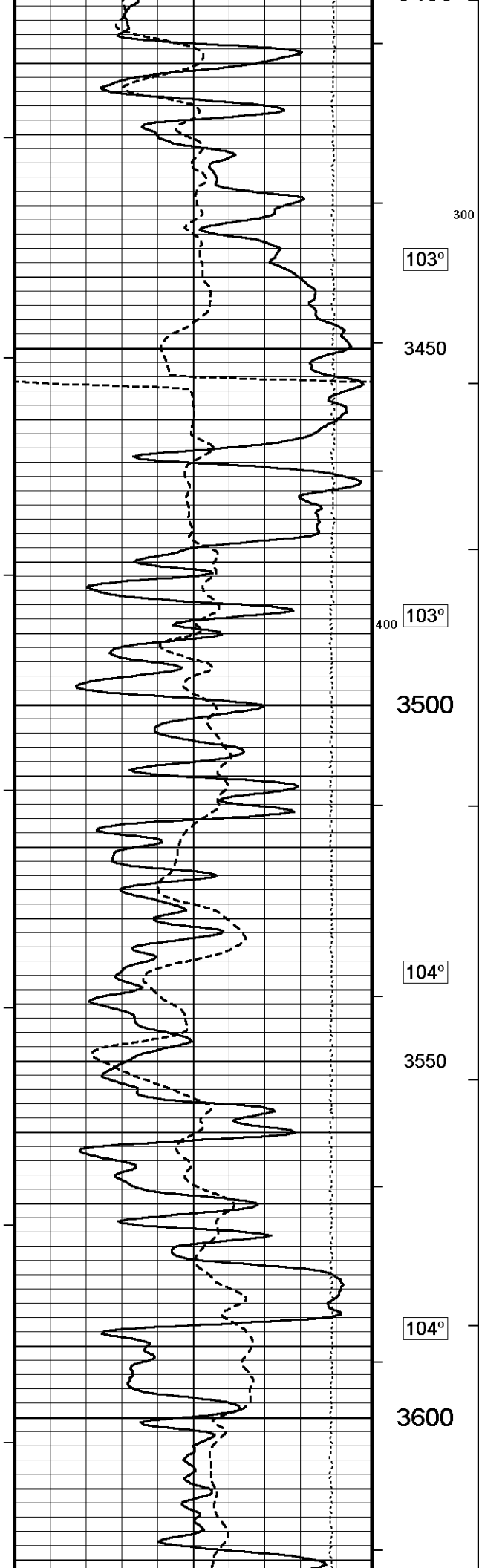
Spontaneous Potential

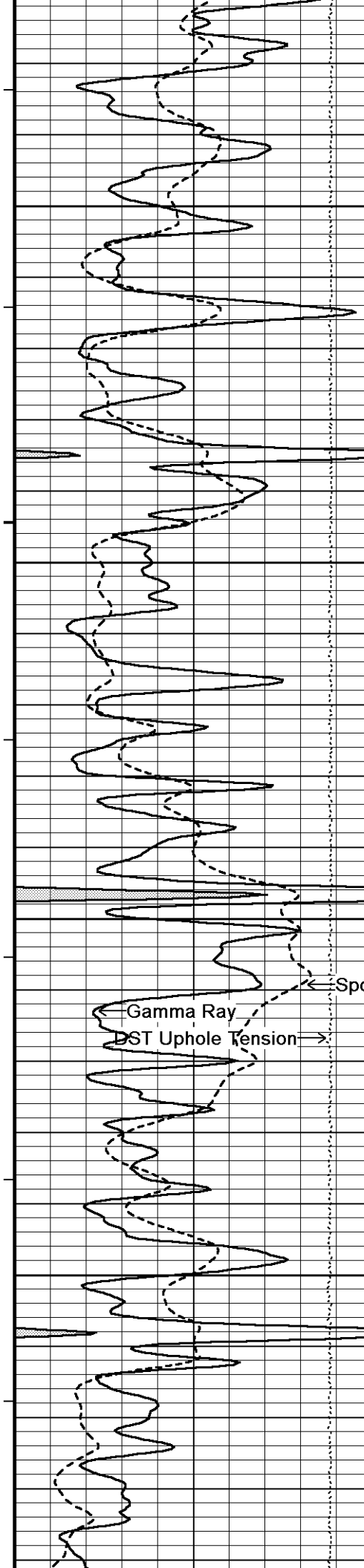
Gamma Ray

DST Uphole Tension

103°

3400





104°

3650

105°

3700

105°

3750

105° 200

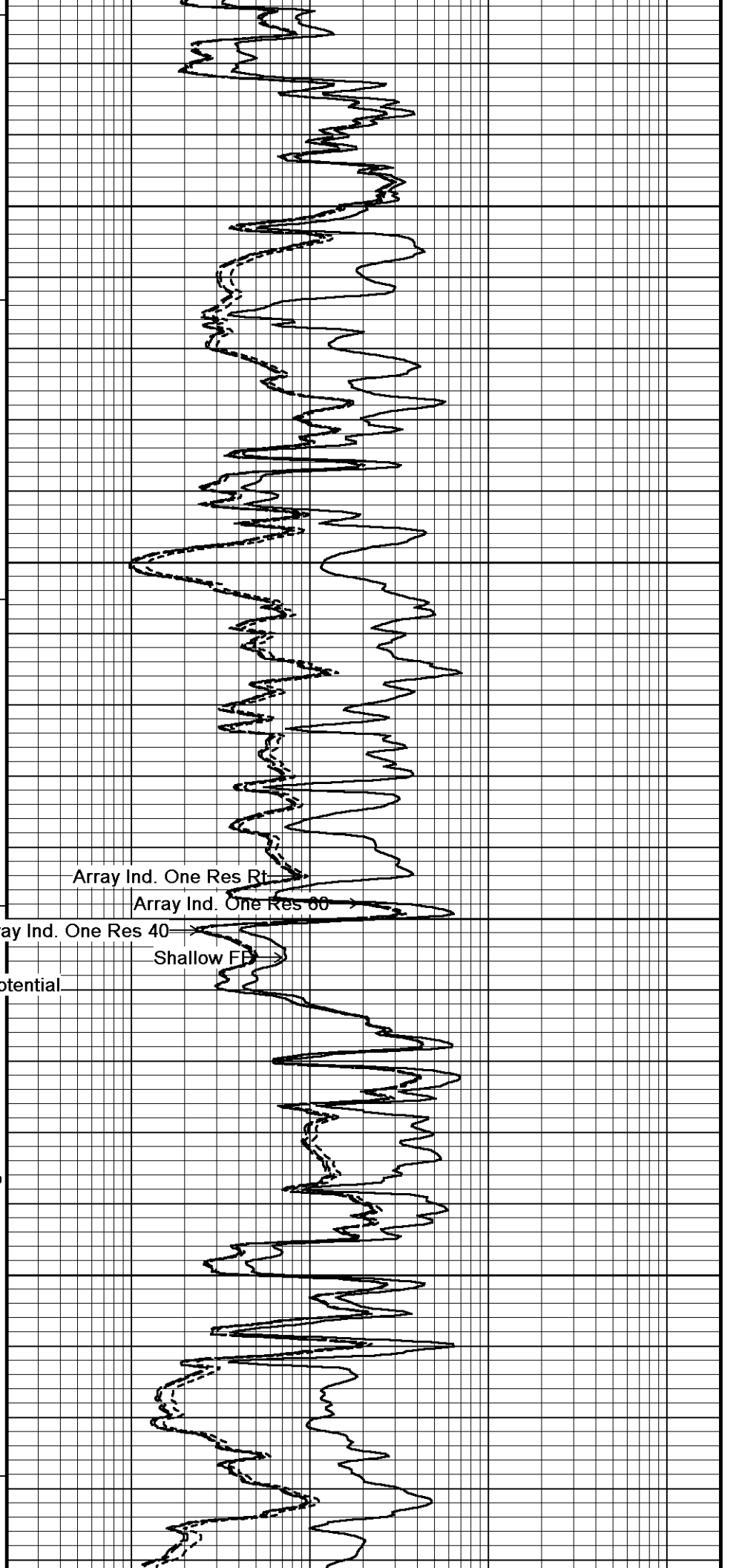
3800

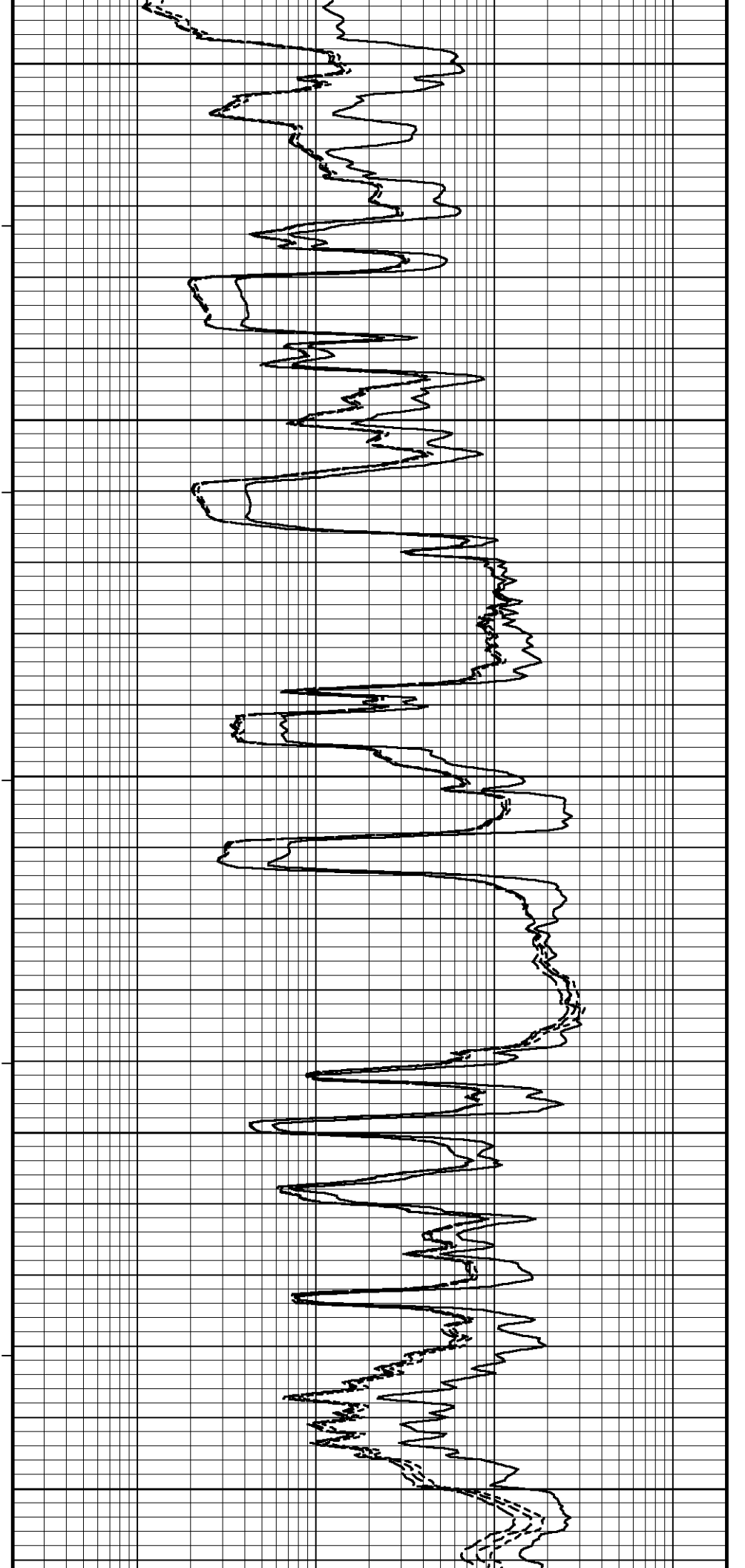
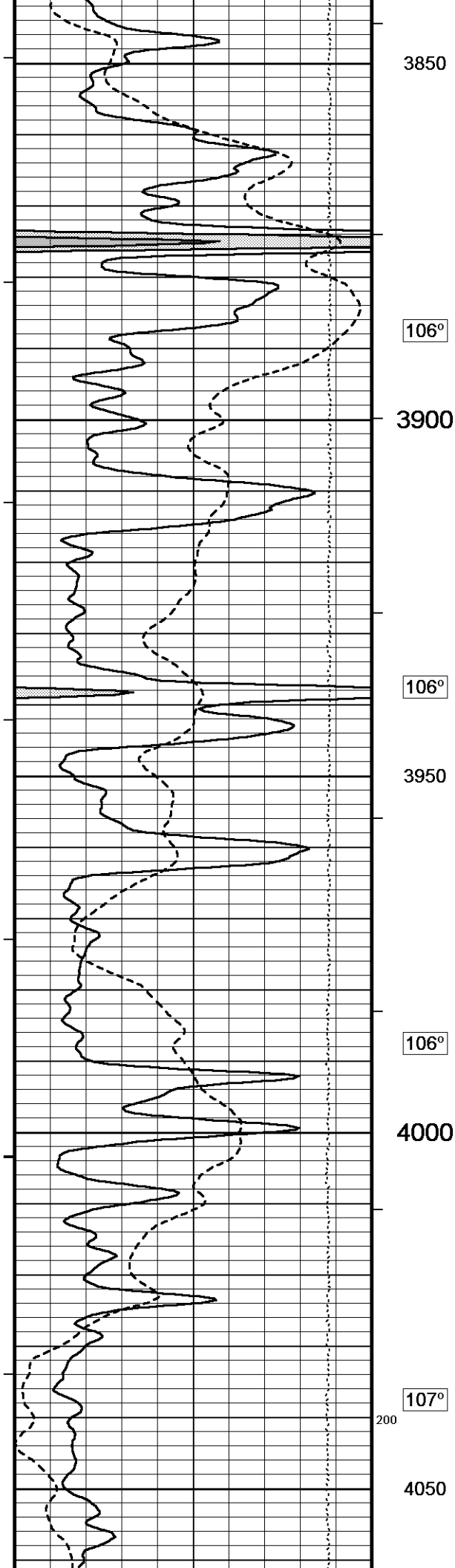
105°

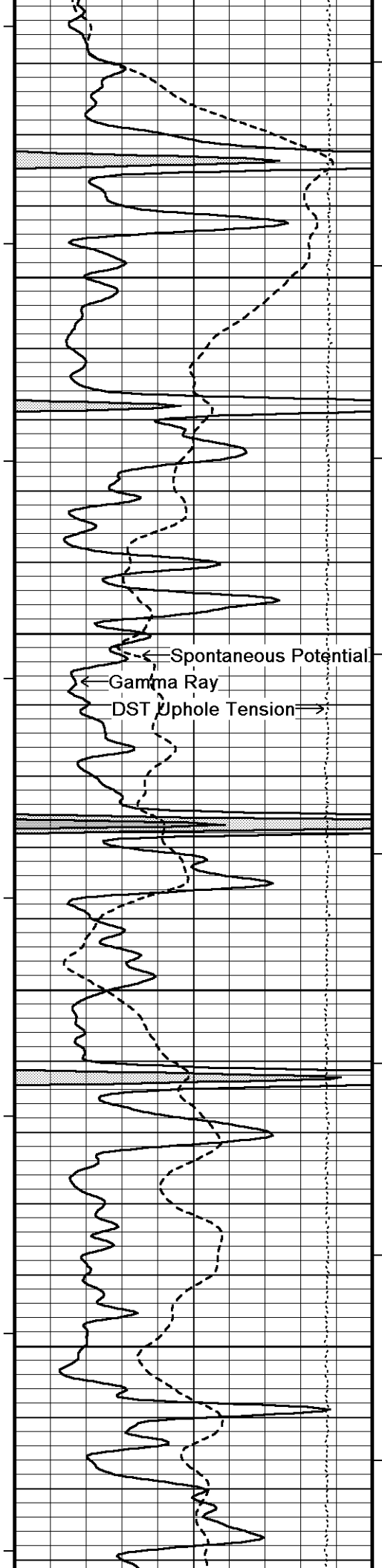
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FB

Spontaneous Potential

Gamma Ray
DST Uphole Tension







107°

4100

107°

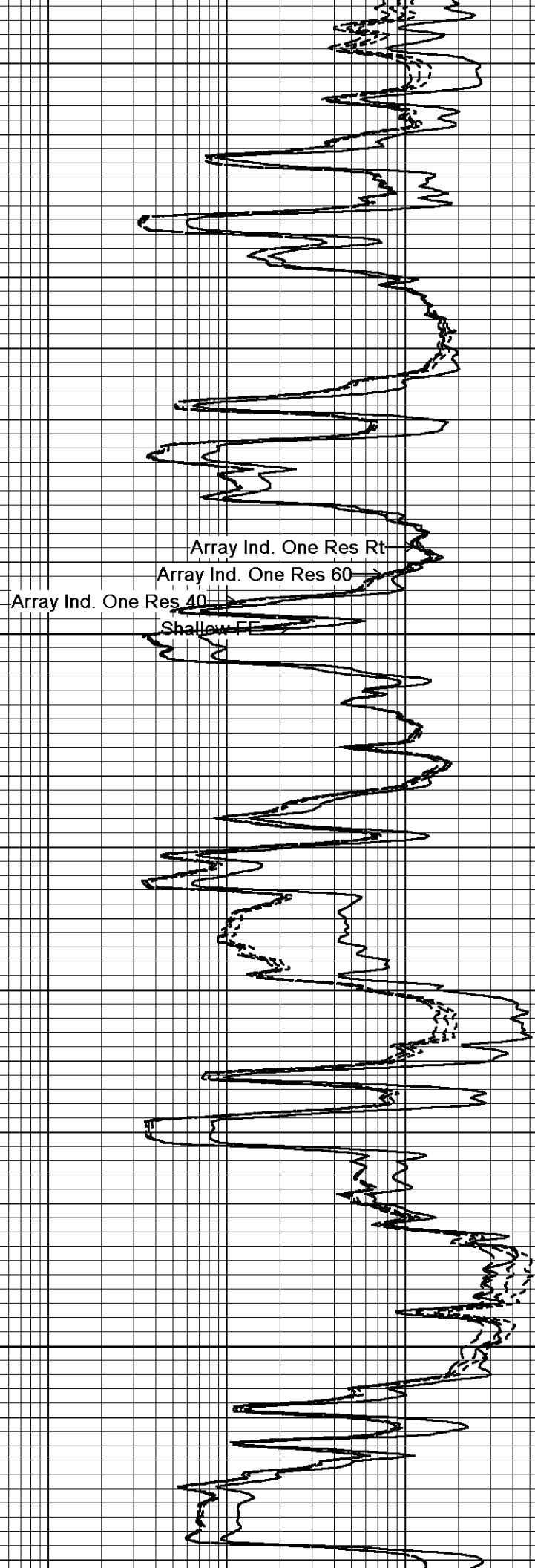
4150

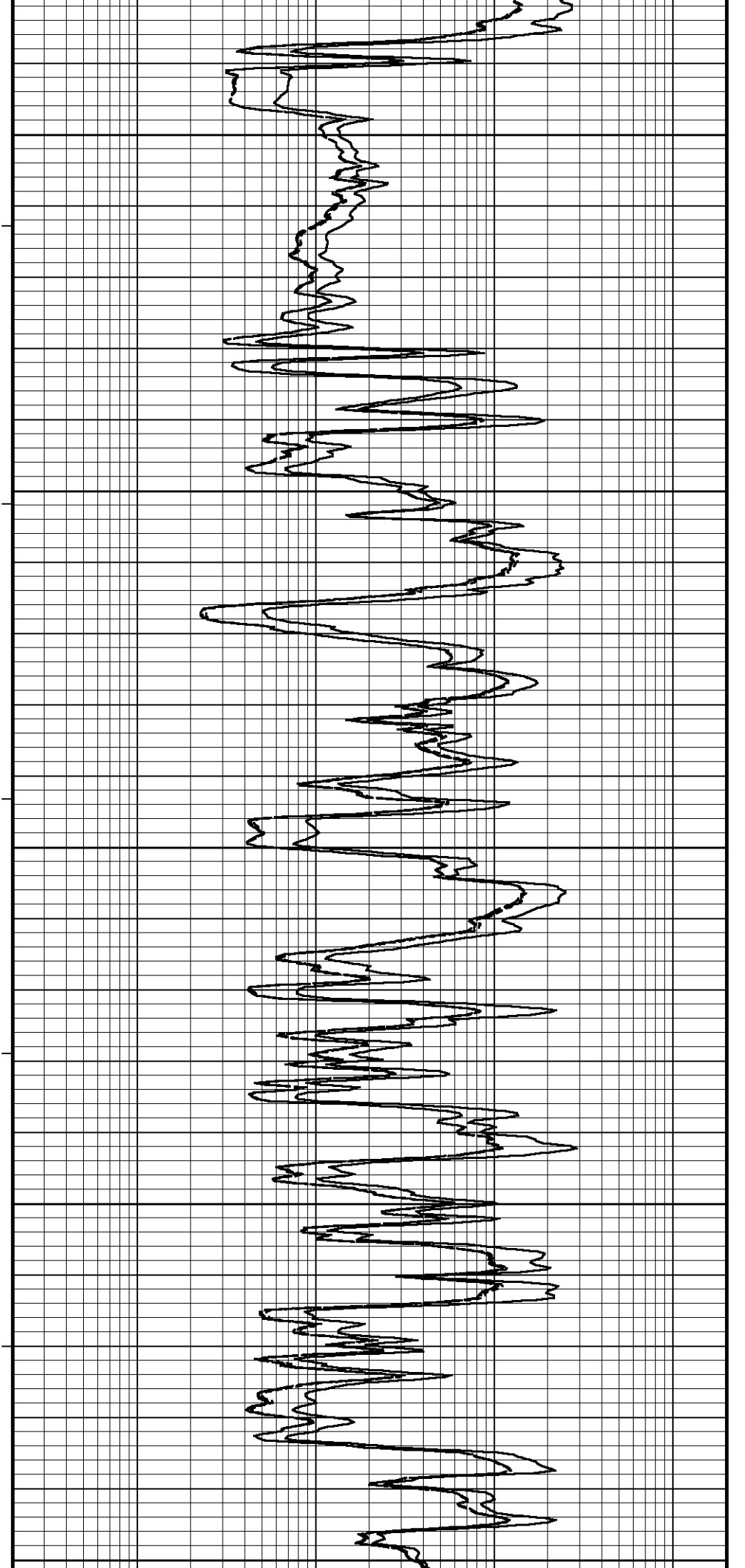
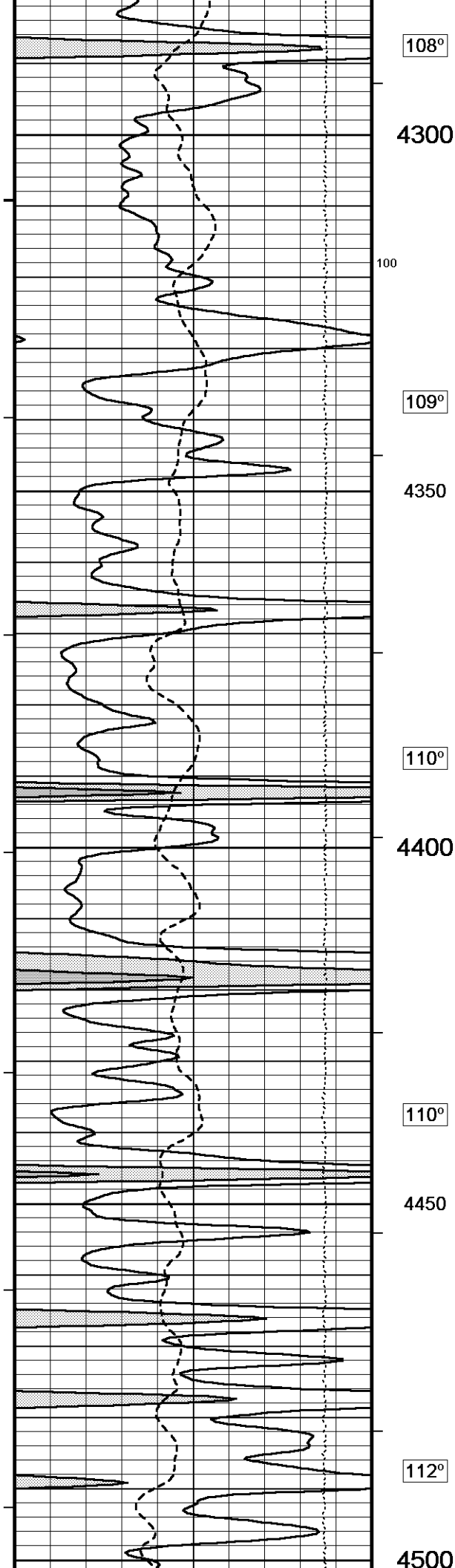
108°

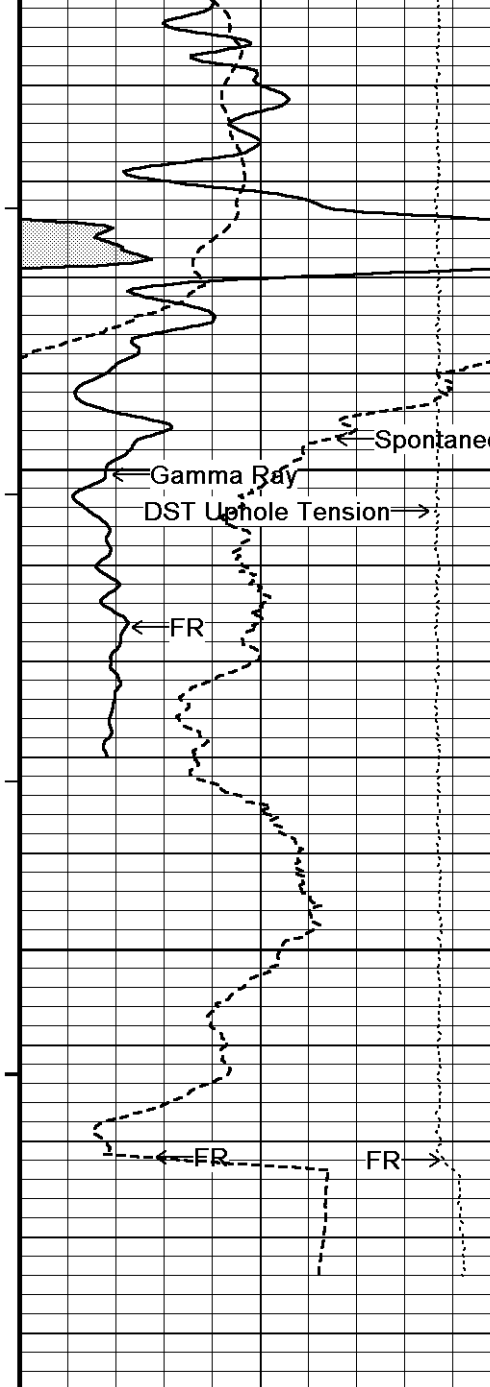
100
4200

108°

4250







112°

Spontaneous Potential
4550

Gamma Ray

DST Uphole Tension

FR

4600

4644
Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

75

225

300

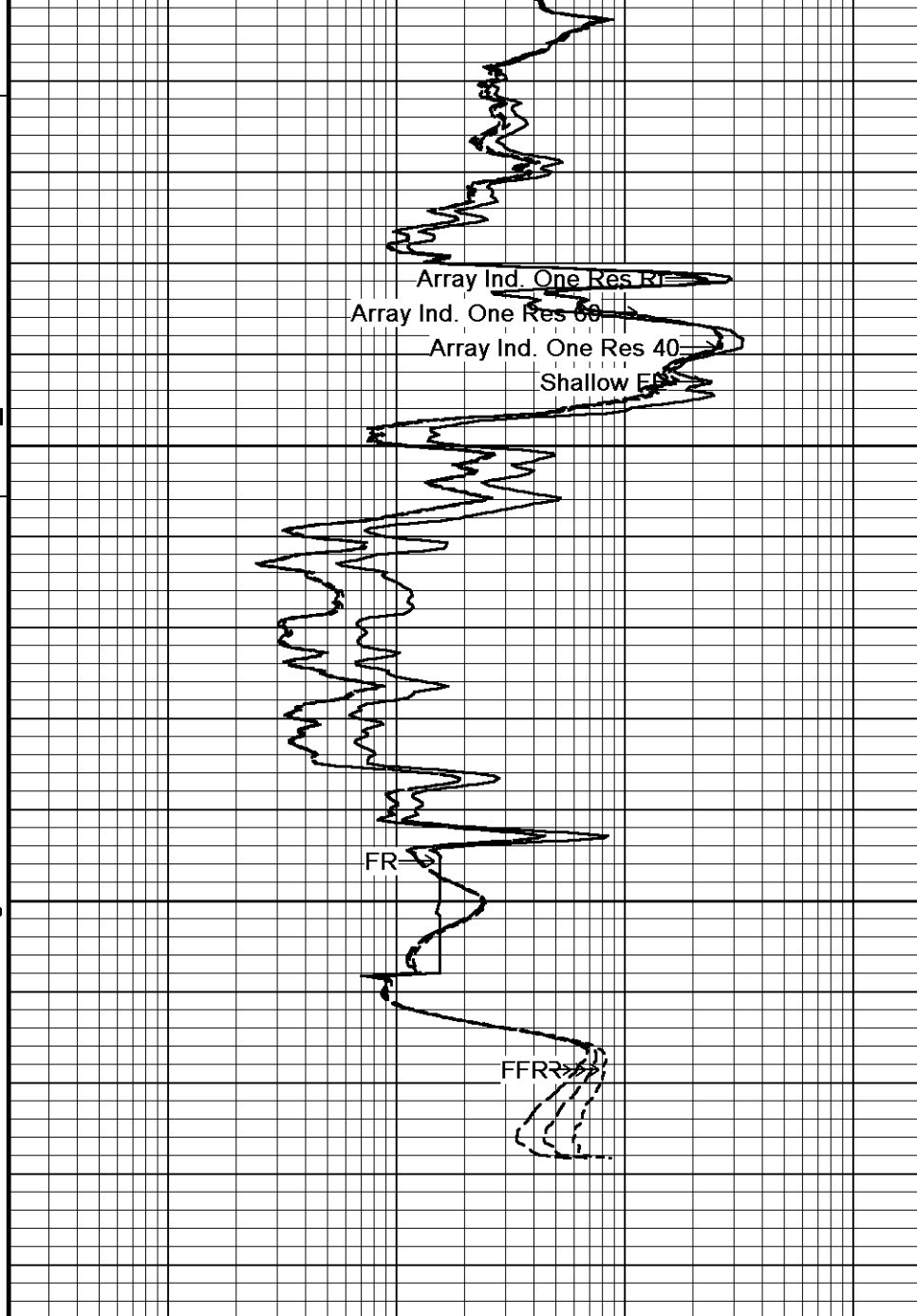
Borehole
Temp in
deg F
HVI
every
10 cu ft

Spontaneous Potential
millivolts

— — — | 20 | — — — +

DST Uphole Tension
pounds

Replay
Scale



Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

FR

FFR

Shallow FE
ohm metres

0.20

1

10

100

1000

2000

Array Ind. One Res 40
ohm metres

0.20

1

10

100

1000

2000

Array Ind. One Res 60
ohm metres

0.20

1

10

100

1000

2000

Array Ind. One Res Rt
ohm metres

0.20

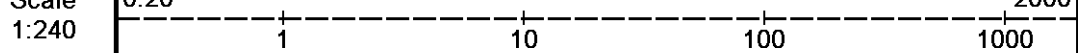
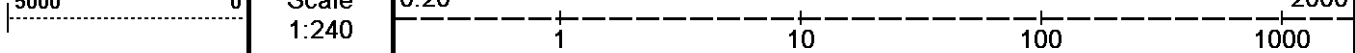
1

10

100

1000

2000

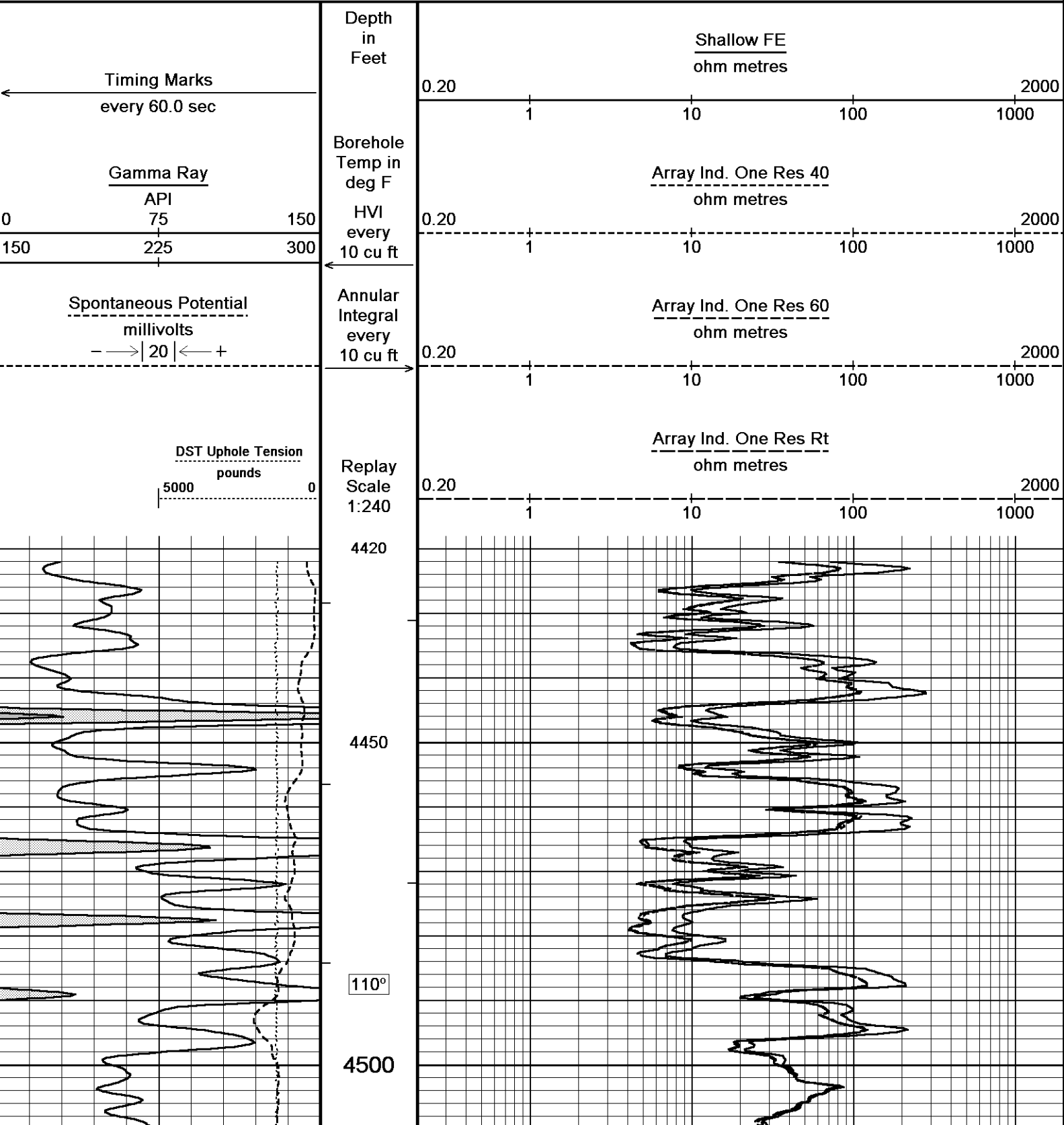


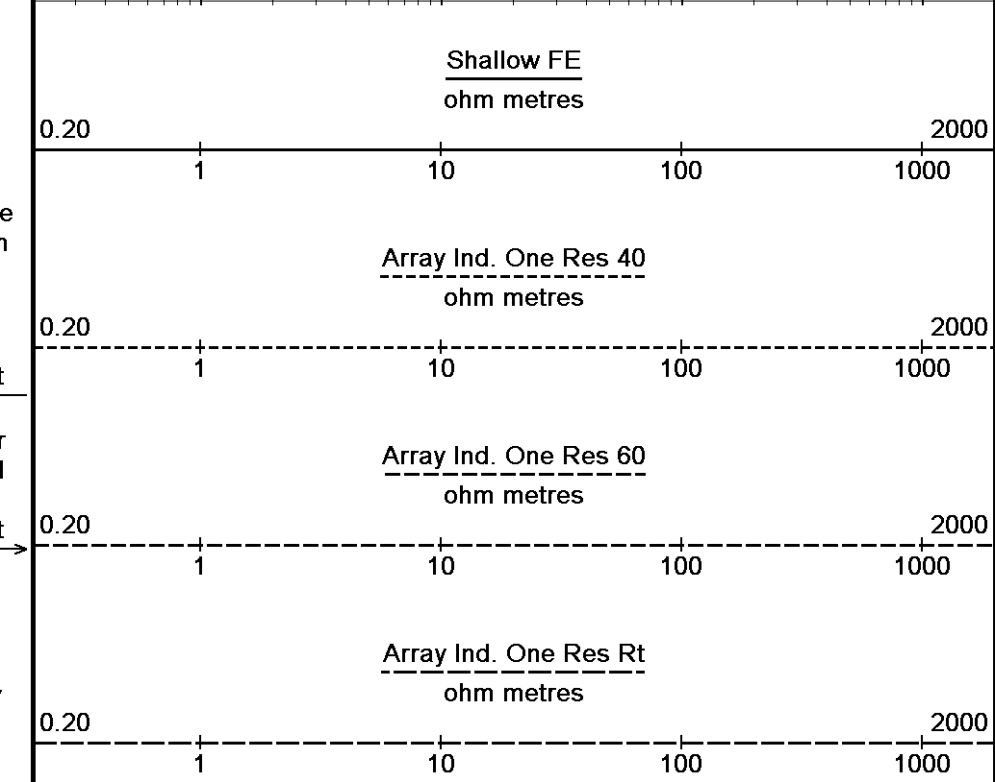
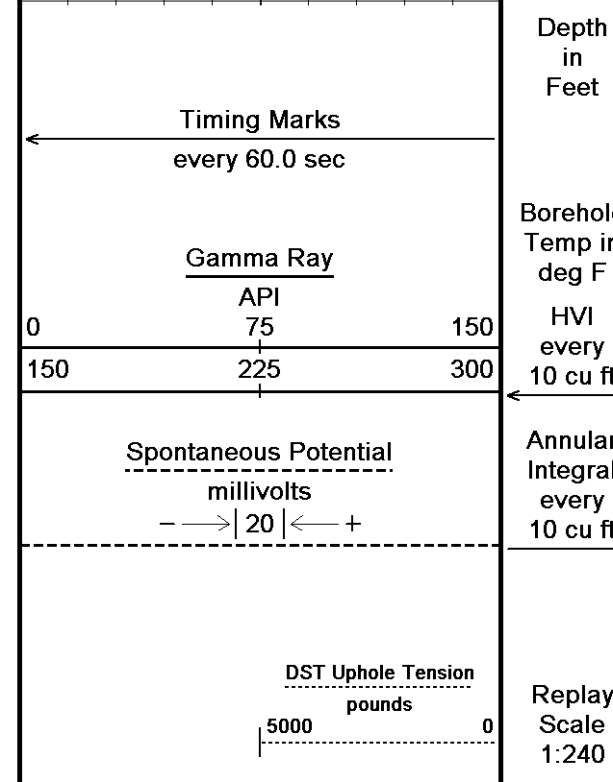
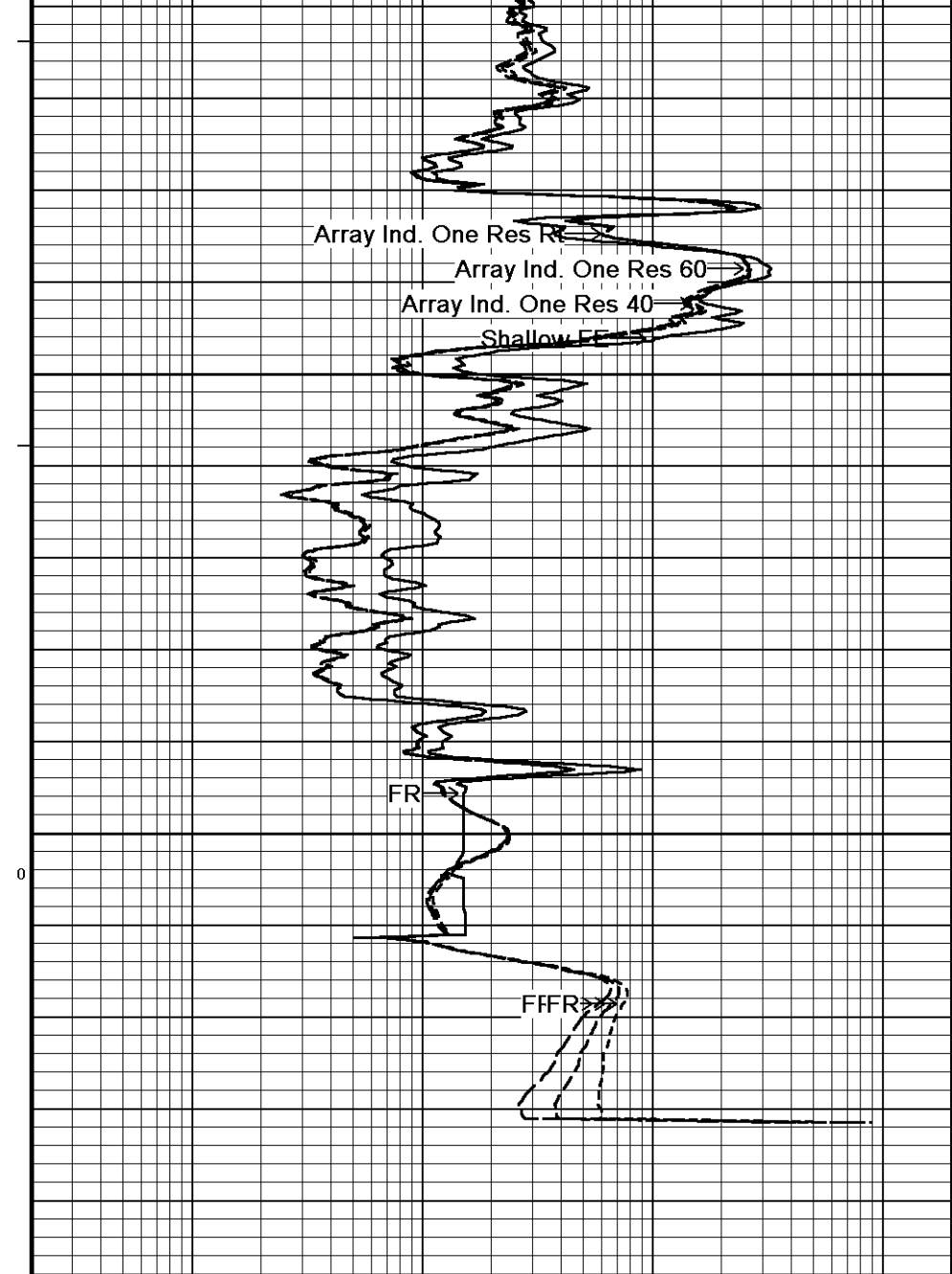
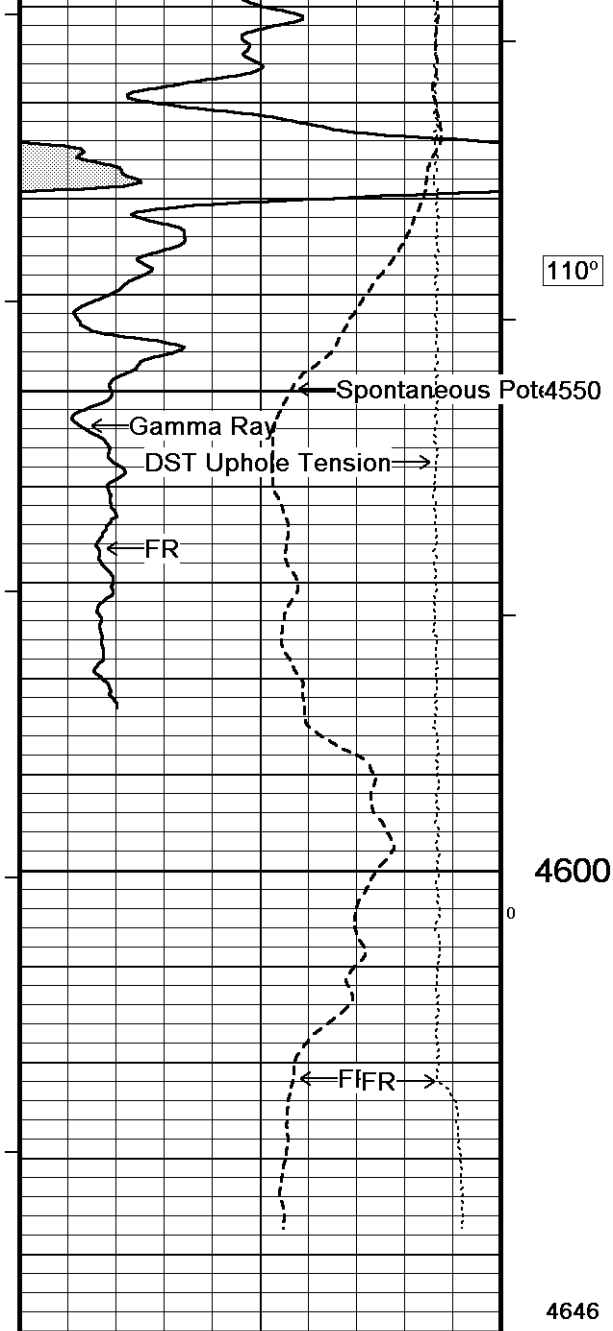
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Documents and Settings\E193122\Desktop\...O'Brien Resources LLC Peck 1#1 Main2.dta
System Versions: Processed with 13.05.9583 Plotted with 13.05.9583

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Documents and Settings\E193122\Desktop\...O'Brien Resources LLC Peck 1#1 Repeat.dta
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583





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REPEAT SECTION

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BEFORE SURVEY CALIBRATION			
C:\Documents and Settings\E193122\Desktop\Archive\Logs\13 O'Brien Resources LLC ...O'Brien Resources LLC Peck 1#1 Main.dta			
General Constants All 000		Last Edited on 14-JAN-2014,19:13	
General Parameters			
Mud Resistivity	0.880	ohm-metres	
Mud Resistivity Temperature	77.800	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	None		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 469		Field Calibration on 13-JAN-2014 14:21	
	Measured	Calibrated (API)	
Background	65	43	
Calibrator (Gross)	1158	768	
Calibrator (Net)	1093	725	
Gamma Constants MCG-D.K 469		Last Edited on 14-JAN-2014,19:13	
Gamma Calibrator Number	GRC38		
Mud Density	1.13	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 11-JAN-2014,16:37	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-D.K 469		Last Edited on 11-JAN-2014,16:37	
Pre-filter Length	11		
FE Calibration MFE-B.J 353		Base Calibration on 30-DEC-2013 12:34 Field Check on 13-JAN-2014 14:05	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	964.4	126.8	
Base Check		280.9	
Field Check		281.1	
FE Constants MFE-B.J 353		Last Edited on 14-JAN-2014,19:12	

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 167

Base Calibration on 02-OCT-2013,14:21
Field Check on 13-JAN-2014 14:04

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			12.1	3840.7
2			29.4	3478.8
3			29.0	3054.8
4			19.8	2082.8
Deep			18.5	2050.1
Medium			42.3	3993.6
Shallow			42.7	5056.8

Array Temperature 57.9 Deg F

Induction Constants MAI-A.A 167

Last Edited on 14-JAN-2014,19:12

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	

Base Calibration

Reading No

Measured

Calibrator Size (in)

1	16063	3.99
2	26074	5.98
3	36080	7.97
4	45856	9.86
5	57120	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)

Actual Caliper (in)

7.96

7.97

DOWNHOLE EQUIPMENT

C:\Documents and Settings\E193122\Desktop\Archive\Logs\13 O'Brien Resources LLC ... \O'Brien Resources LLC Peck 1#1 Main.dta

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

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 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-C.A 216 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

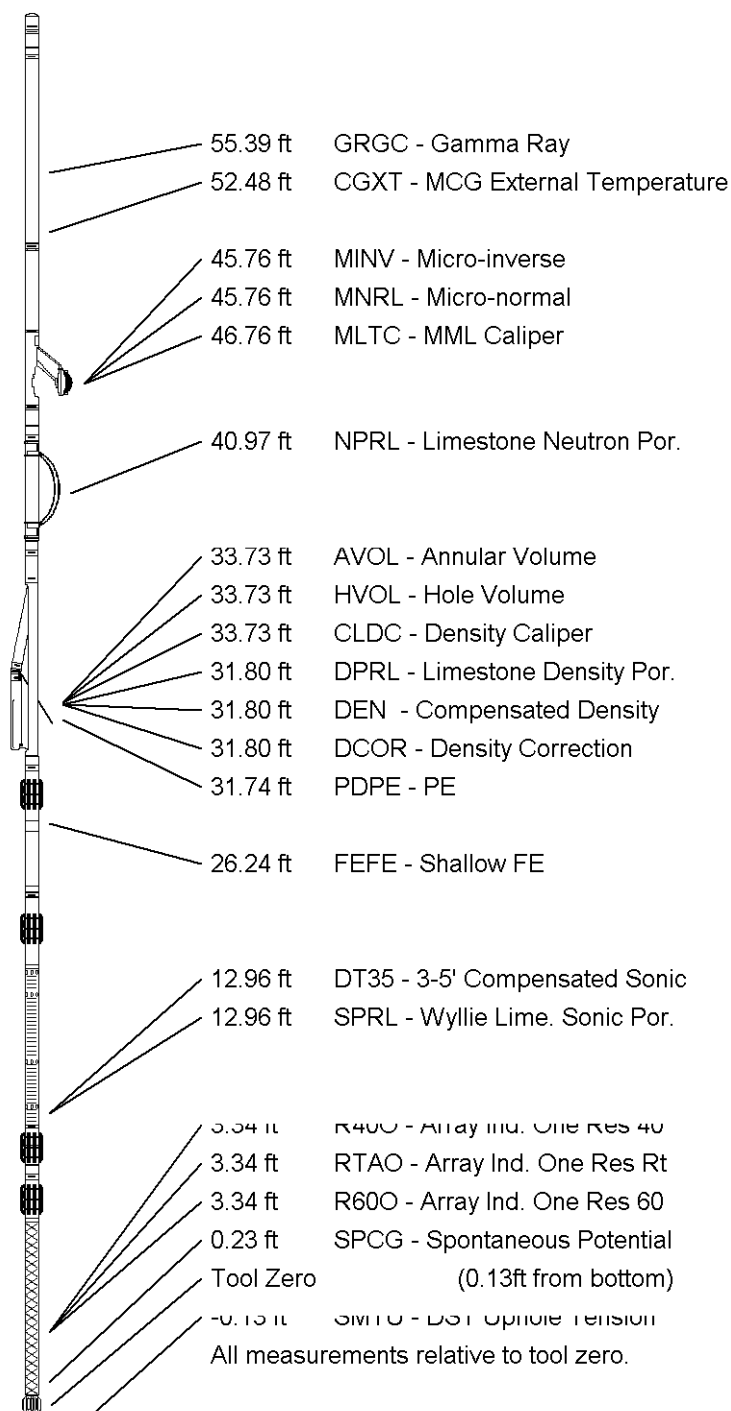
Compact Sonic

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 O'BRIEN RESOURCES LLC
WELL PECK 1 #1
FIELD WILDCAT
PROVINCE/COUNTY LANE
COUNTRY/STATE U.S.A. / KANSAS

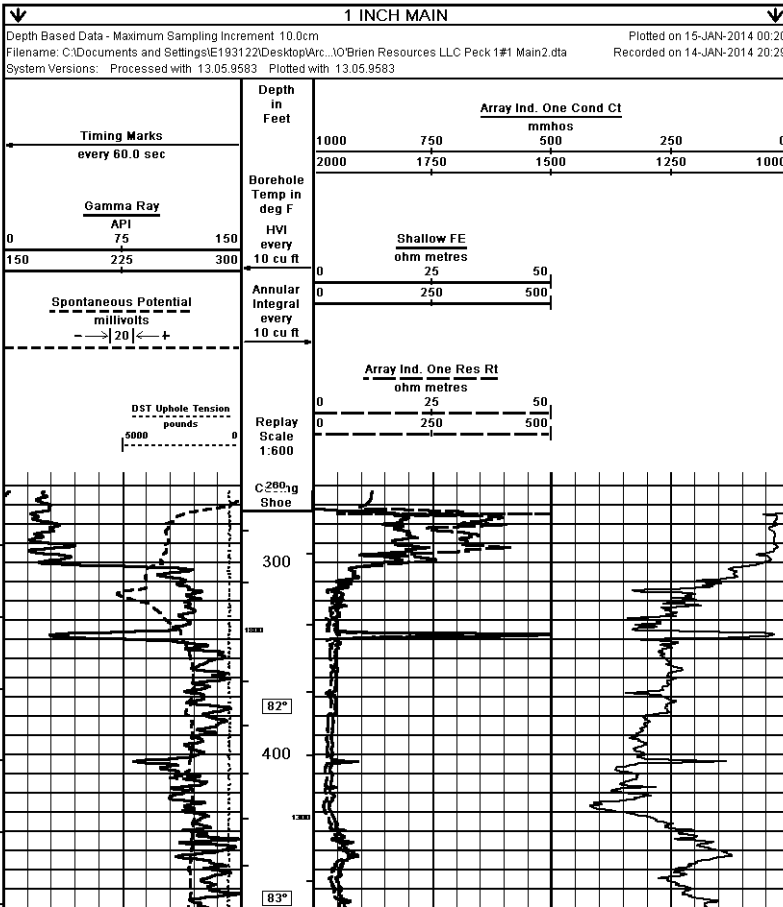
Elevation Kelly Bushing	2724.00	feet	First Reading	4618.66	feet
Elevation Drill Floor	2722.00	feet	Depth Driller	4625.00	feet
Elevation Ground Level	2714.00	feet	Depth Logger	4622.00	feet

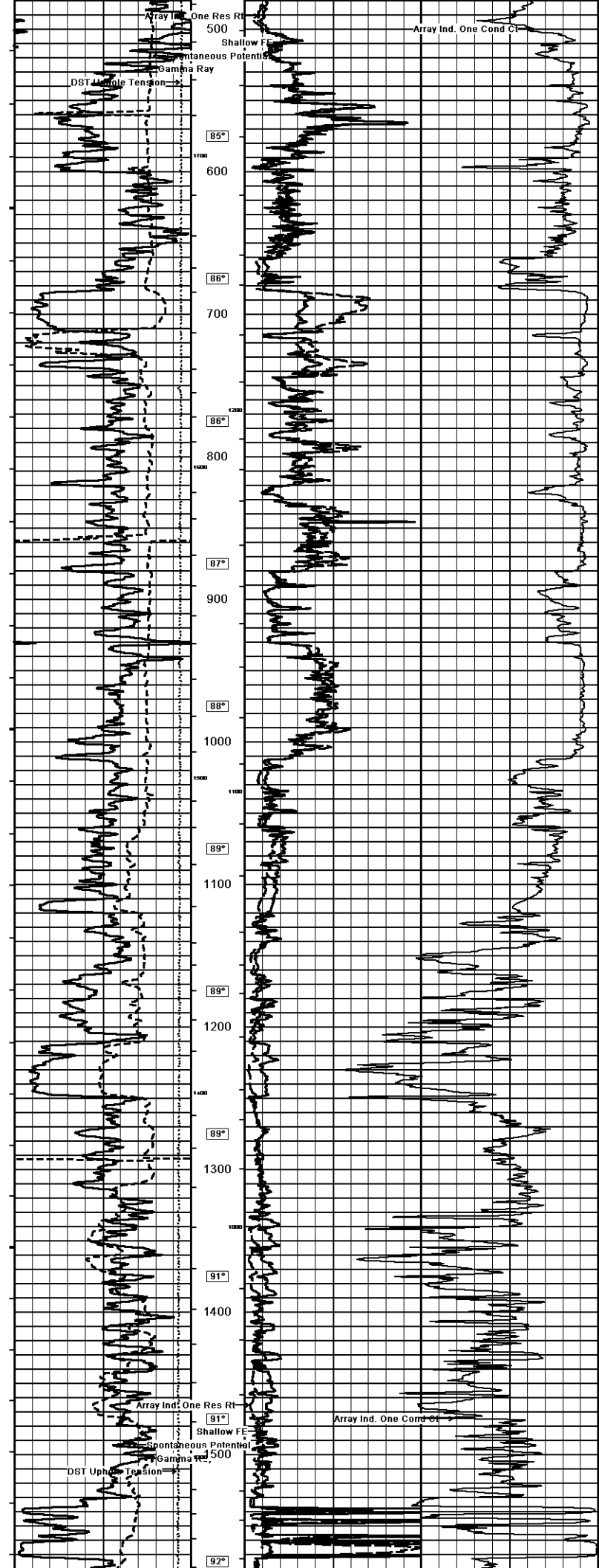


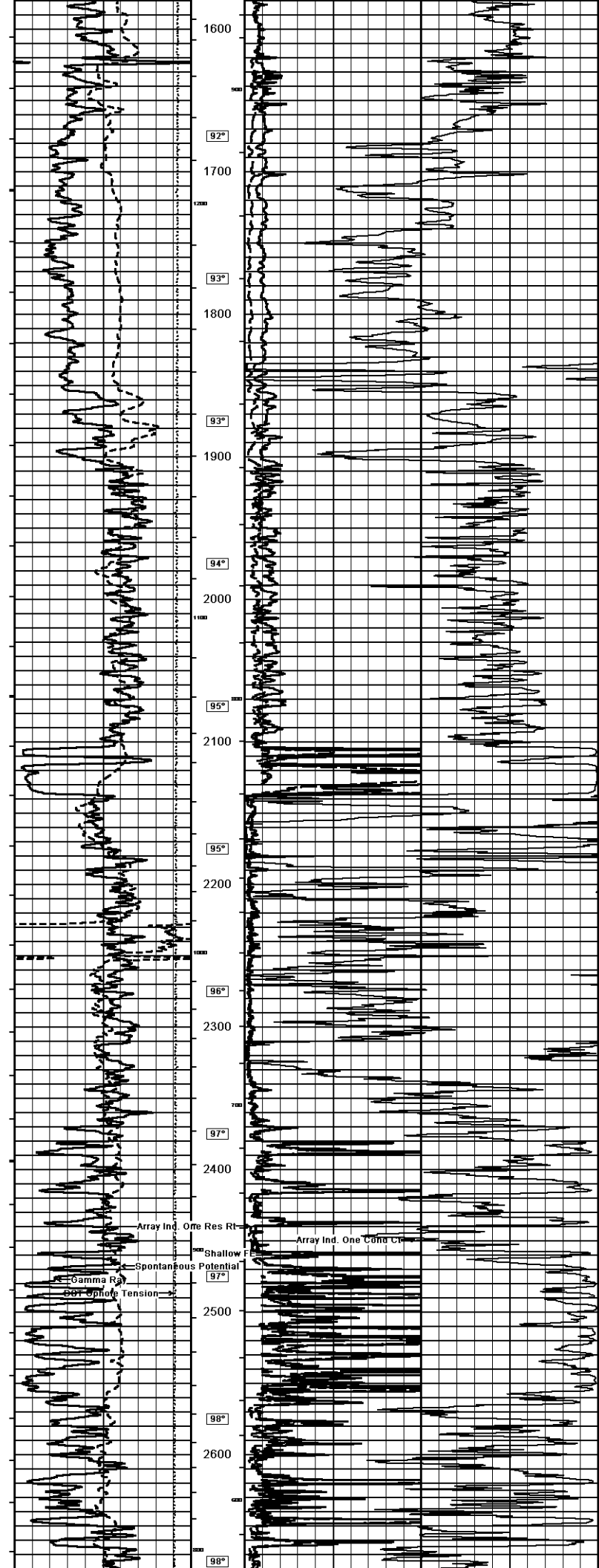
Weatherford[®]

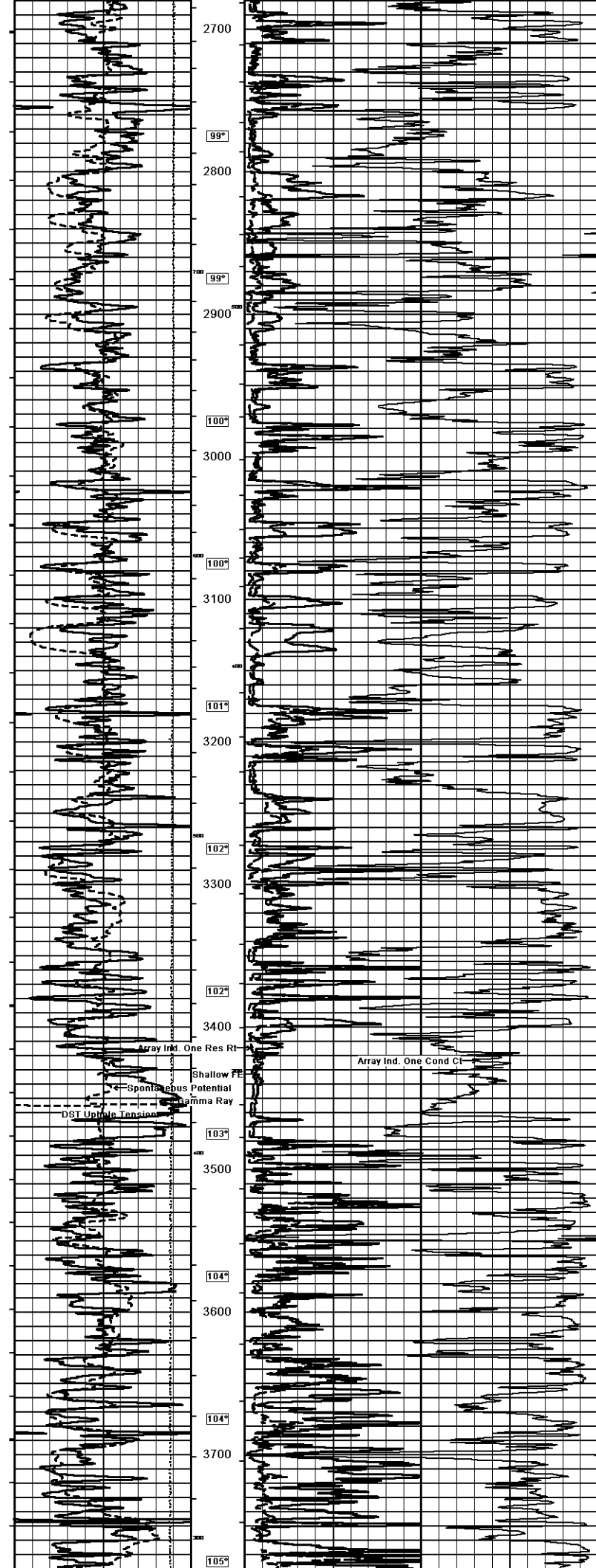
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

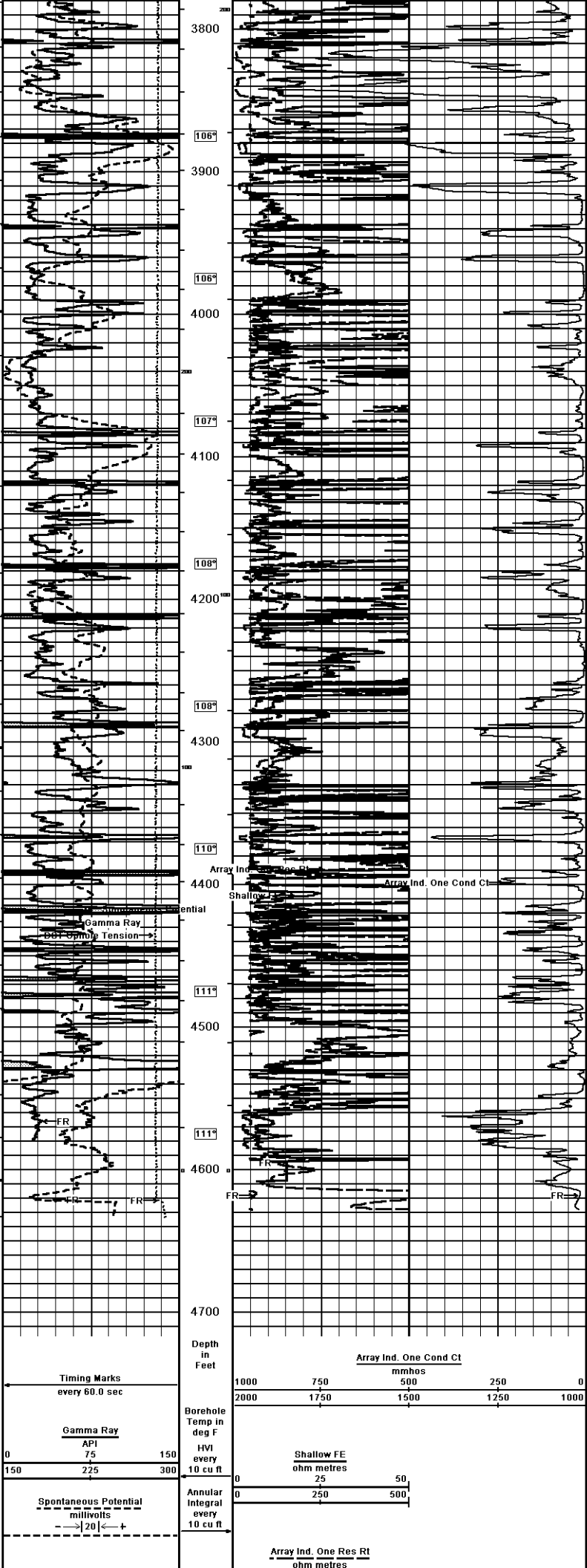
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	O'BRIEN RESOURCES LLC		
WELL	PECK 1 #1		
FIELD	WILDCAT		
PROVINCE/COUNTY	LANE		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1170' FNL & 790' FWL SW SE NW NW		
SEC	TYPE	LOG	DATE
1	105	28W	14-JAN-2014
2	105	28W	14-JAN-2014
3	105	28W	14-JAN-2014
4	105	28W	14-JAN-2014
5	105	28W	14-JAN-2014
6	105	28W	14-JAN-2014
7	105	28W	14-JAN-2014
8	105	28W	14-JAN-2014
9	105	28W	14-JAN-2014
10	105	28W	14-JAN-2014
11	105	28W	14-JAN-2014
12	105	28W	14-JAN-2014
13	105	28W	14-JAN-2014
14	105	28W	14-JAN-2014
15	105	28W	14-JAN-2014
16	105	28W	14-JAN-2014
17	105	28W	14-JAN-2014
18	105	28W	14-JAN-2014
19	105	28W	14-JAN-2014
20	105	28W	14-JAN-2014
21	105	28W	14-JAN-2014
22	105	28W	14-JAN-2014
23	105	28W	14-JAN-2014
24	105	28W	14-JAN-2014
25	105	28W	14-JAN-2014
26	105	28W	14-JAN-2014
27	105	28W	14-JAN-2014
28	105	28W	14-JAN-2014
29	105	28W	14-JAN-2014
30	105	28W	14-JAN-2014
31	105	28W	14-JAN-2014
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42	105	28W	14-JAN-2014
43	105	28W	14-JAN-2014
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54	105	28W	14-JAN-2014
55	105	28W	14-JAN-2014
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58	105	28W	14-JAN-2014
59	105	28W	14-JAN-2014
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62	105	28W	14-JAN-2014
63	105	28W	14-JAN-2014
64	105	28W	14-JAN-2014
65	105	28W	14-JAN-2014
66	105	28W	14-JAN-2014
67	105	28W	14-JAN-2014
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69	105	28W	14-JAN-2014
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76	105	28W	14-JAN-2014
77	105	28W	14-JAN-2014
78	105	28W	14-JAN-2014
79	105	28W	14-JAN-2014
80	105	28W	14-JAN-2014
81	105	28W	14-JAN-2014
82	105	28W	14-JAN-2014
83	105	28W	14-JAN-2014
84	105	28W	14-JAN-2014
85	105	28W	14-JAN-2014
86	105	28W	14-JAN-2014
87	105	28W	14-JAN-2014
88	105	28W	14-JAN-2014
89	105	28W	14-JAN-2014
90	105	28W	14-JAN-2014
91	105	28W	14-JAN-2014
92	105	28W	14-JAN-2014
93	105	28W	14-JAN-2014
94	105	28W	14-JAN-2014
95	105	28W	14-JAN-2014
96	105	28W	14-JAN-2014
97	105	28W	14-JAN-2014
98	105	28W	14-JAN-2014
99	105	28W	14-JAN-2014
100	105	28W	14-JAN-2014











DST Uphole Tension pounds 50000 0		Replay Scale 1:600		0 25 50 0 250 500	
Depth Based Data - Maximum Sampling Increment 10.0cm					
Plotted on 15-JAN-2014 00:20					
Filename: C:\Documents and Settings\E19312\Desktop\Arc...\O'Brien Resources LLC Peck 1#1 Main2.dta					
Recorded on 14-JAN-2014 20:29					
System Versions: Processed with 13.05.9583 Plotted with 13.05.9583					
1 INCH MAIN					

COMPANY						O'BRIEN RESOURCES LLC					
WELL						PECK 1 #1					
FIELD						WILDCAT					
PROVINCE/COUNTY						LANE					
COUNTRY/STATE						U.S.A. / KANSAS					
Elevation Kelly Bushing		2724.00	feet	First Reading		4618.66	feet				
Elevation Drill Floor		2722.00	feet	Depth Driller		4625.00	feet				
Elevation Ground Level		2714.00	feet	Depth Logger		4622.00	feet				

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ARRAY INDUCTION

SHALLOW FOCUSED

ELECTRIC LOG