



Weatherford[®]

**ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**

COMPANY O'BRIEN RESOURCES LLC
 WELL COLT 45 FBC 2
 FIELD WILDCAT
 PROVINCE/COUNTY LANE
 COUNTRY/STATE U.S.A. / KANSAS
 LOCATION 720' FNL & 2424' FEL
 NW SW NW NE

SEC 2 TWP 17S RGE 30W Other Services MML
 API Number 15-101-22478 MPD/MDN
 Permit Number
 Permanent Datum GL, Elevation 2848 feet
 Log Measured From KB
 Drilling Measured From KB @ 5 FEET

Date	03-JAN-2014	Elevations:	KB 2853.00 DF 2851.00 GL 2848.00
Run Number	ONE		
Service Order	3547662		
Depth Driller	4635.00	feet	
Depth Logger	4636.00	feet	
First Reading	4632.66	feet	
Last Reading	246.00	feet	
Casing Driller	245.00	feet	
Casing Logger	246.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.40 lb/USg	45.00 CP	
PH / Fluid Loss	10.50	5.20 ml/30Min	
Sample Source	MUDPIT		
Rm @ Measured Temp	1.03 @ 74.8	ohm-m	
Rmf @ Measured Temp	0.82 @ 74.8	ohm-m	
Rmc @ Measured Temp	1.24 @ 74.8	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.71 @ 111.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	113.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	DEREK CARTER		
Witnessed By	KURT TALBOTT		
JOB #	LB14-004		

BOREHOLE RECORD

Last Edited: 03-JAN-2014 16:06

Bit Size inches	Depth From feet	Depth To feet
7.875	245.00	4635.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	245.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION
- HARDWARE:
 - MDN: DUAL BOWSPRING ECCENTRALIZER
 - MFE: 1 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: 1860 CU. FT
- ANNUAL HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO SURFACE PIPE: 1370 CU. FT

- RIG: MALLARD J.V. #1

- ENGINEER: DEREK CARTER

- OPERATORS: KEN RINEHART, NICOLAS ADAME

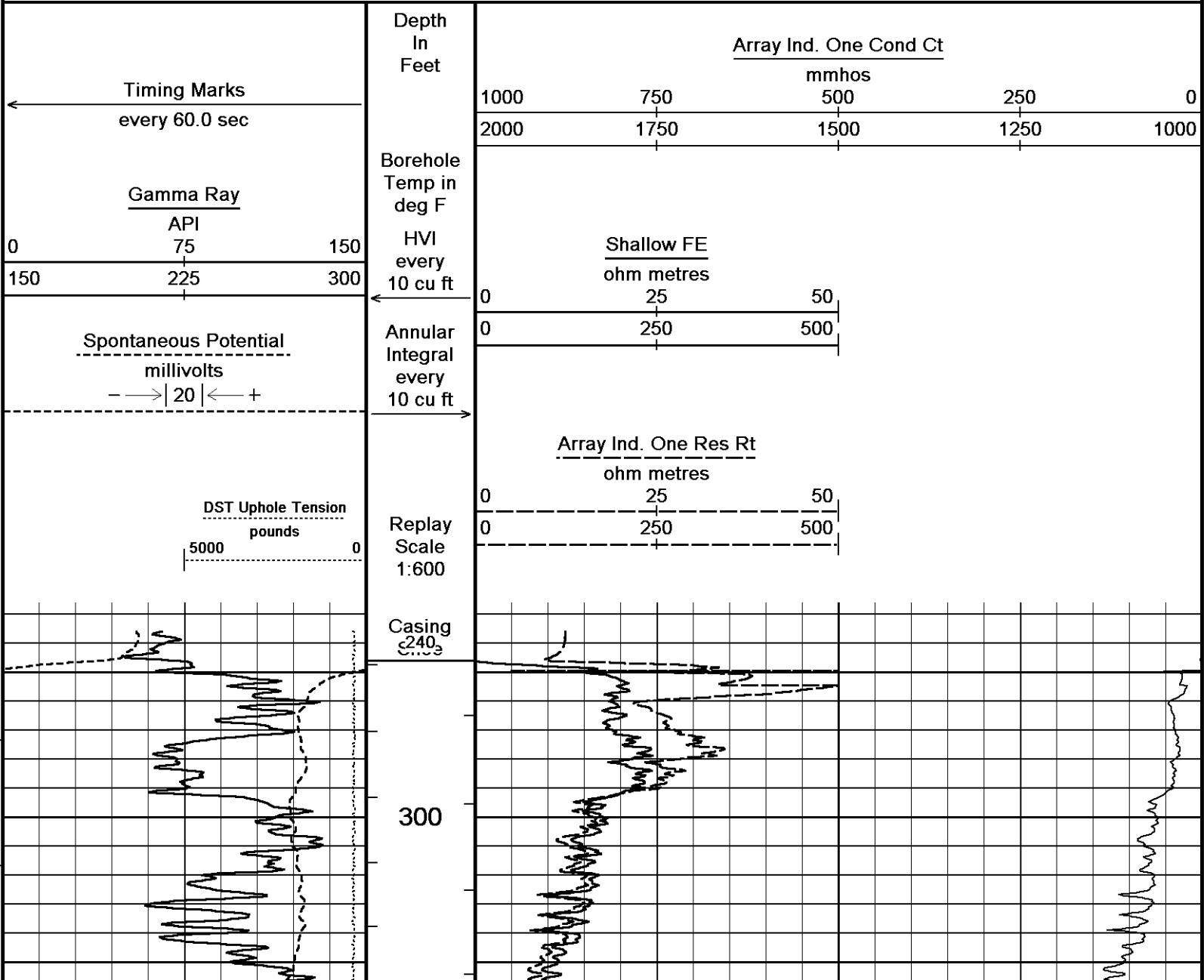
- PER CUSTOMER REQUEST A COMPOSITE (E-LOG ONLY, NO FIELD PRINT) IS BEING INCLUDED WITH THE STANDARD TRIPLECOMBO E-LOGS (DEN-NEU-MIC, INDUCTION, MICROLOG)

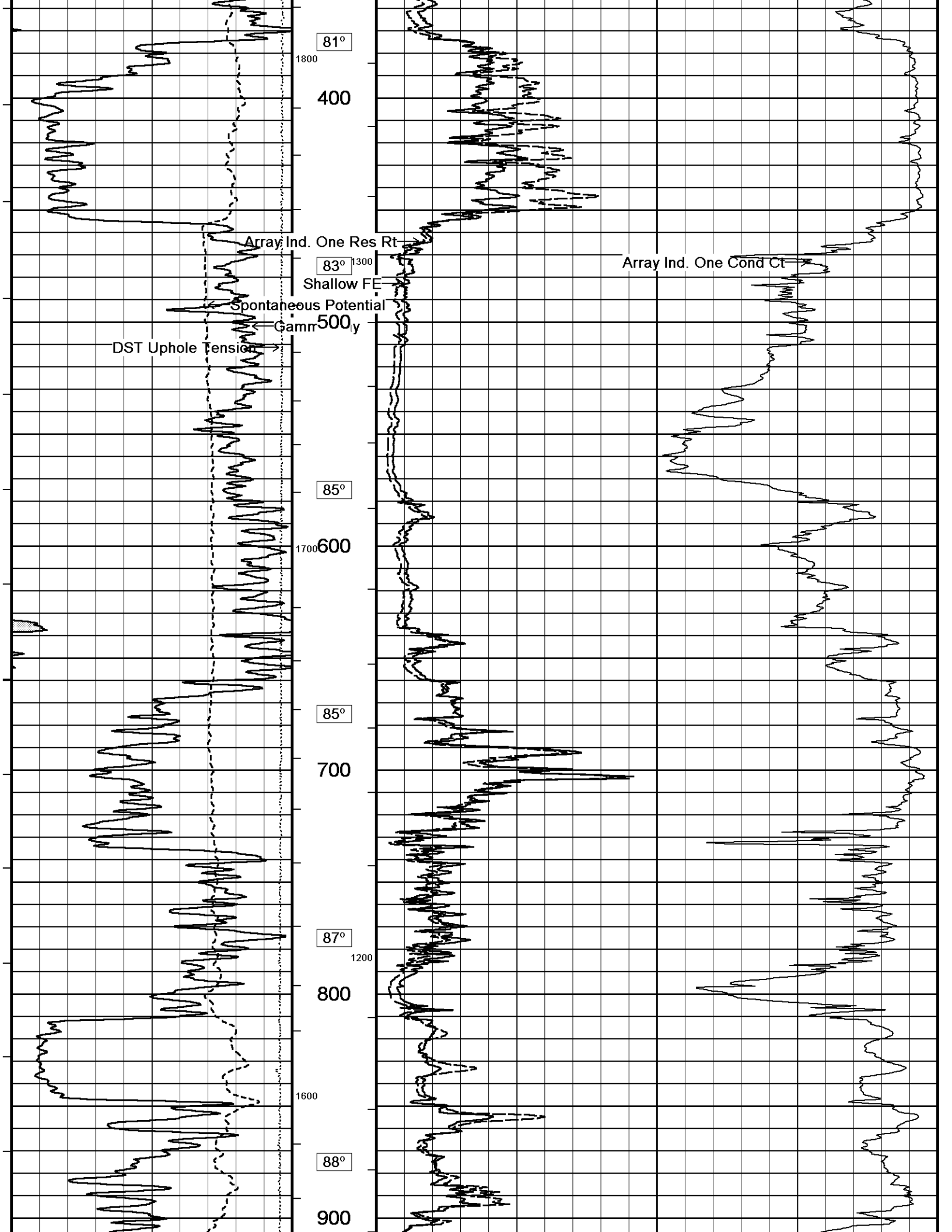
- AT ABOUT 1924, WHILE LOGGING THE MAIN PASS, ONE OF THE RIG HANDS WAS NOTICED WELDING ON A PIECE OF EQUIPMENT BEHIND THE DRAWWORKS. THE HAND WAS LIKELY ONLY WELDING FOR A SHORT TIME (APPROXIMATELY 2 MINUTES) BECAUSE HE WAS CLEARLY VISIBLE TO THE WINCHMAN. THE DEPTH ON THE KERR PANEL AT THE TIME WAS APPROXIMATELY 4230 FEET. THERE WERE NO NOTICEABLE AFFECTS TO THE SP.

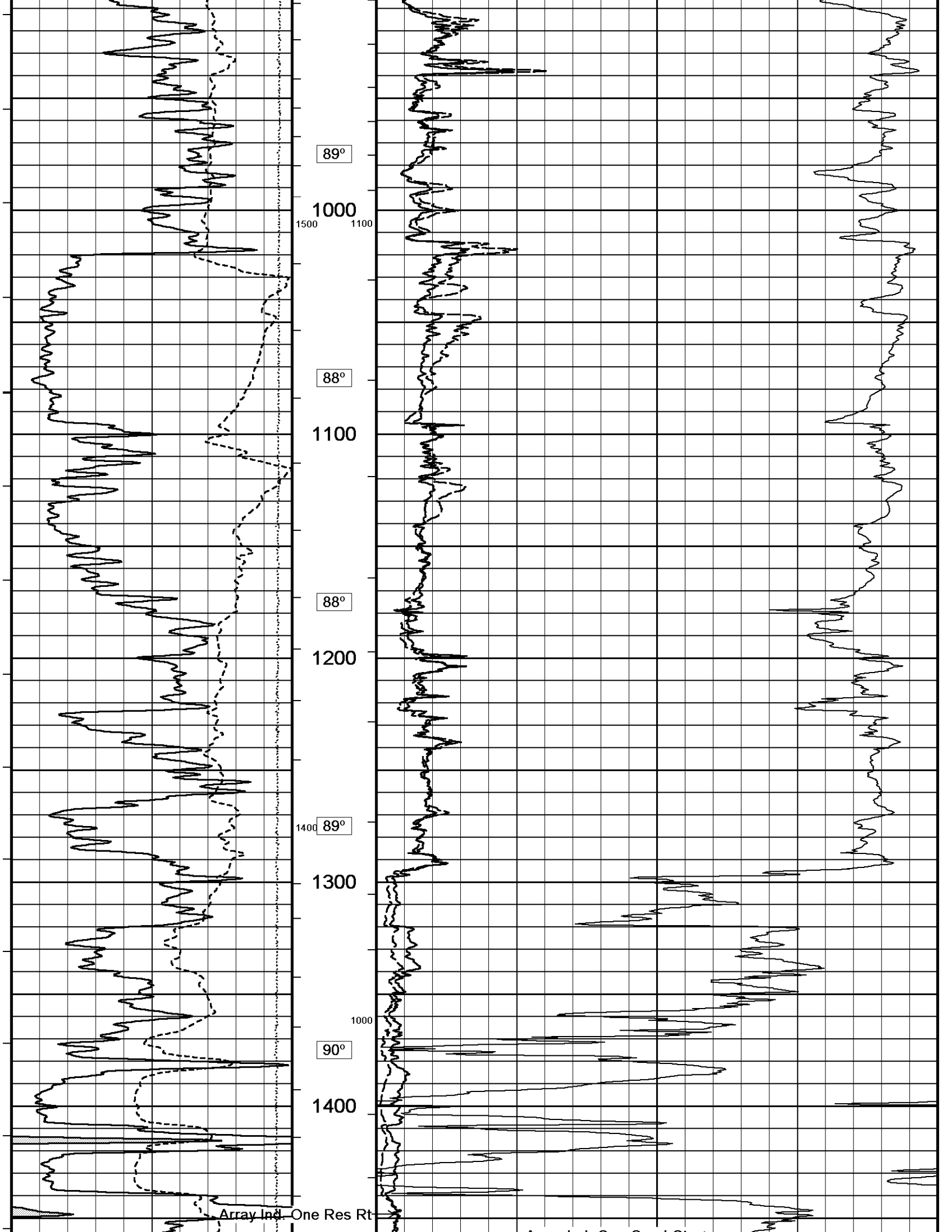
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

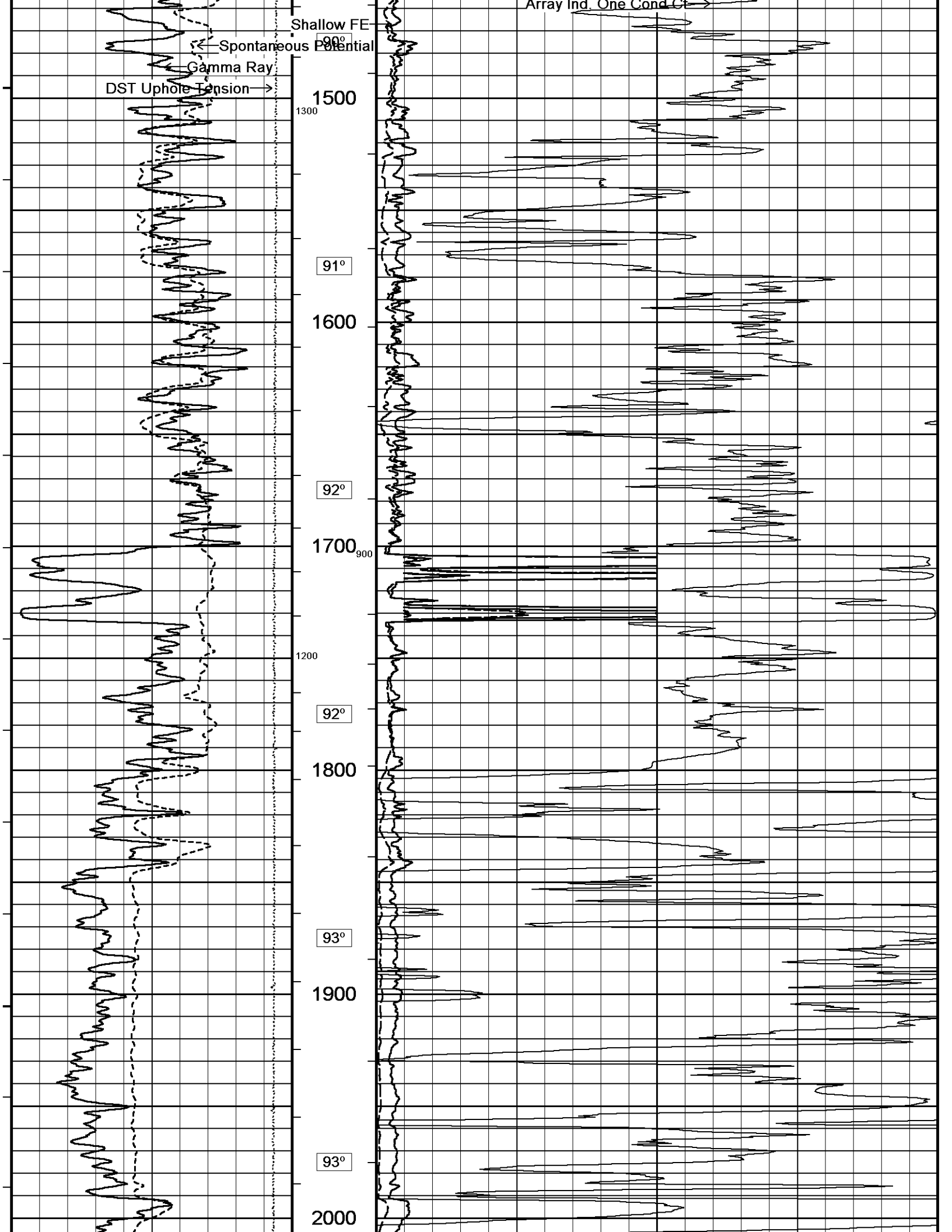
2 INCH MAIN

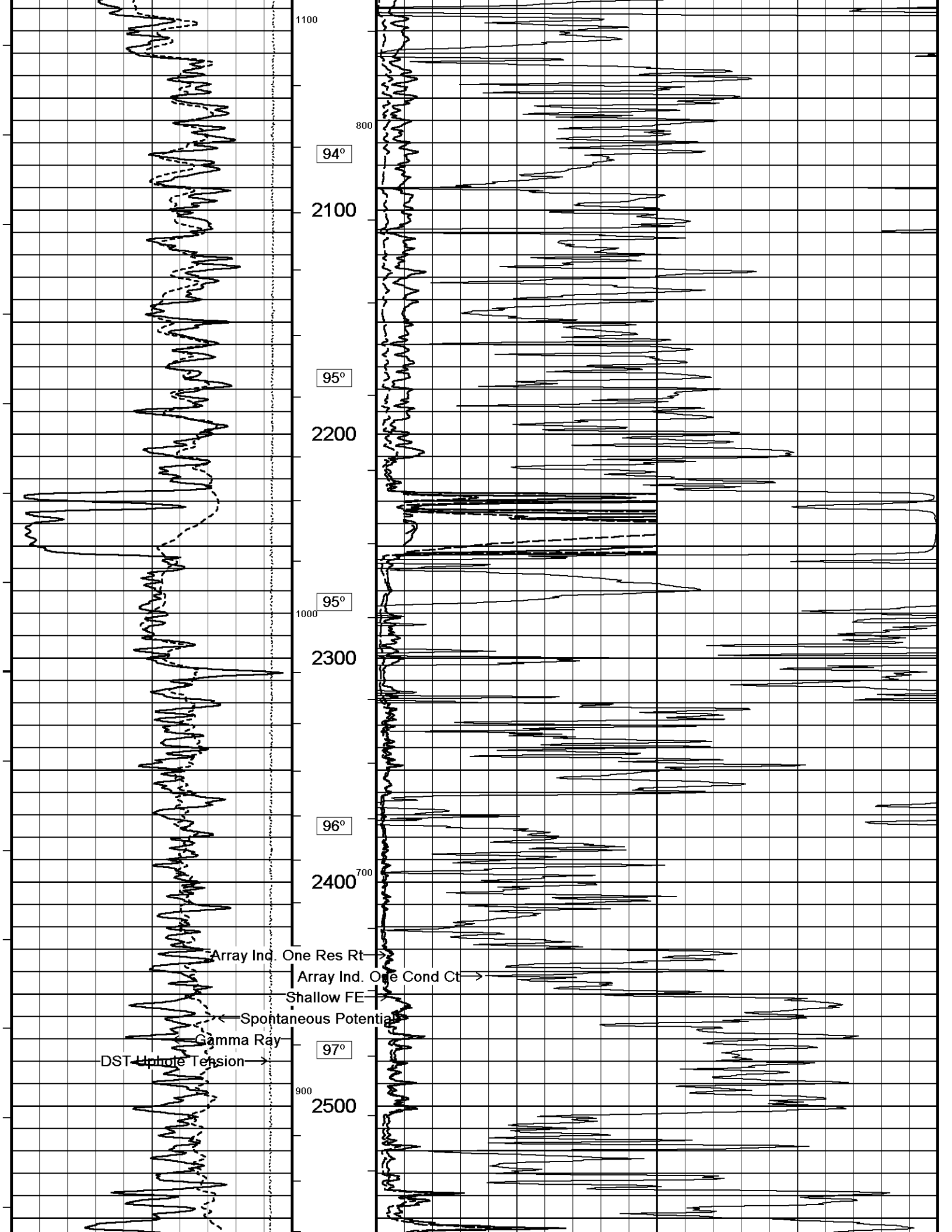
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 03-JAN-2014 22:03
Filename: C:\Minimus 13.05.9583\Log\O'Brien Resou...\O'Brien Resources LLC Colt 45 FBC 2 Main.dta
Recorded on 03-JAN-2014 18:58
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

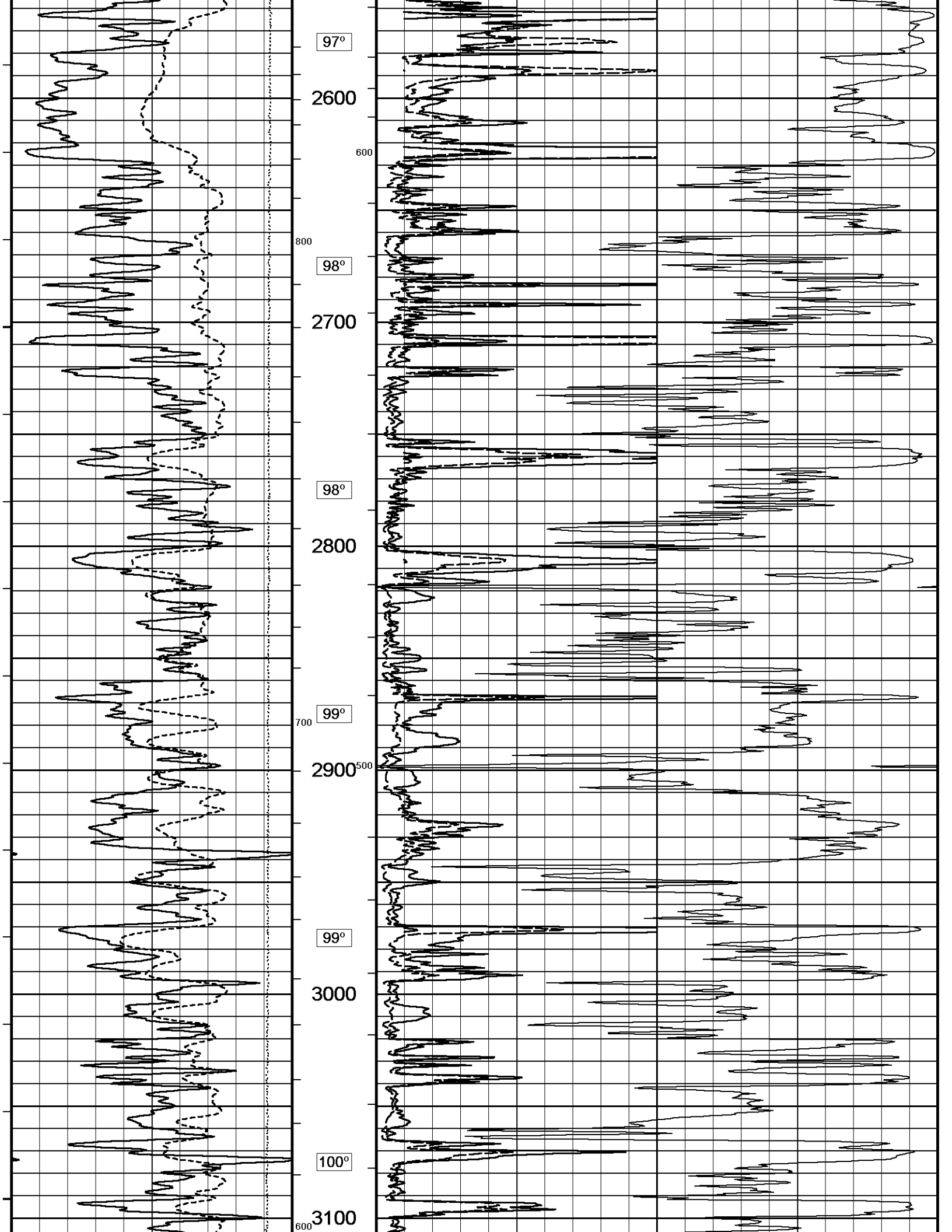


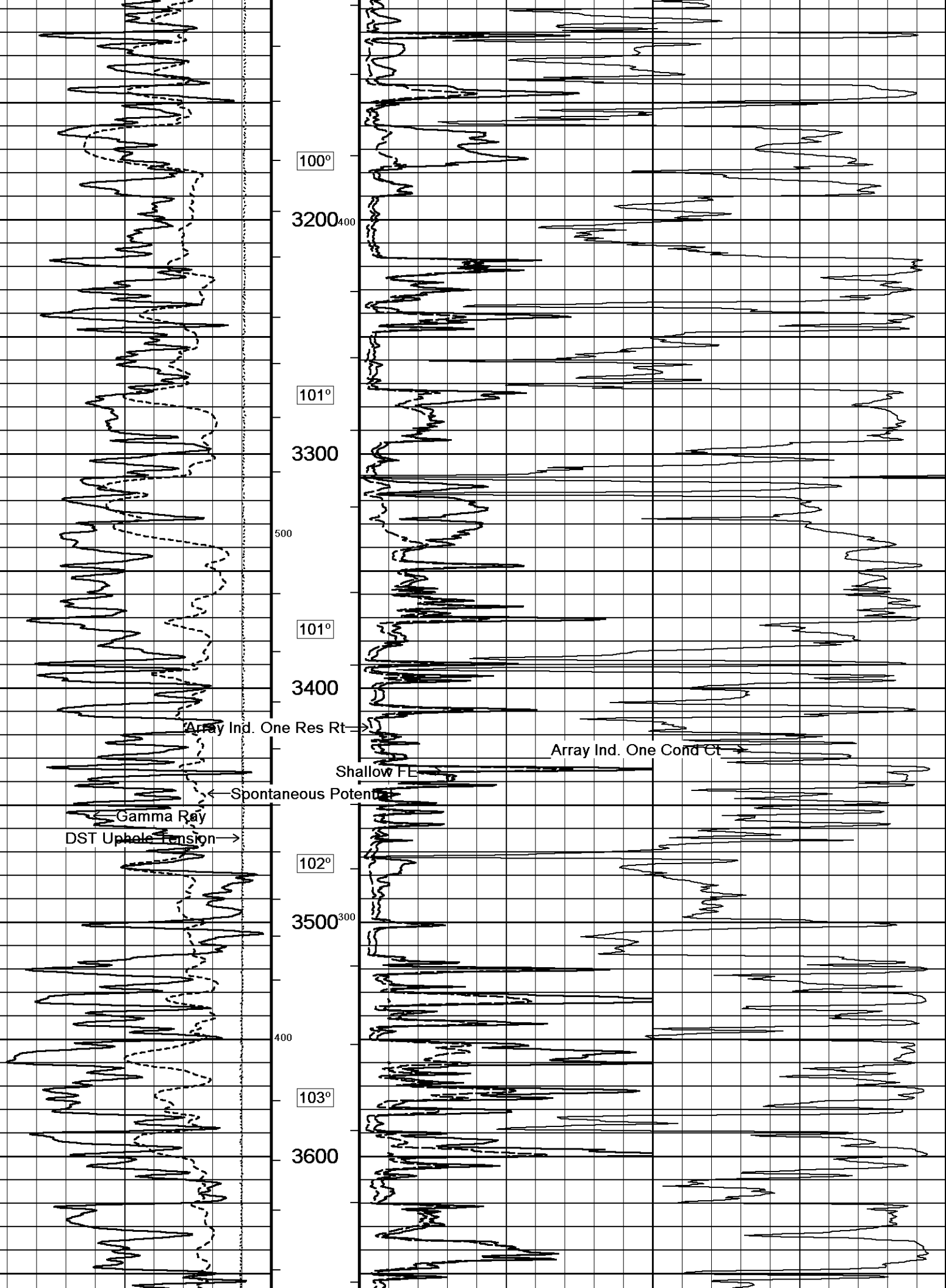


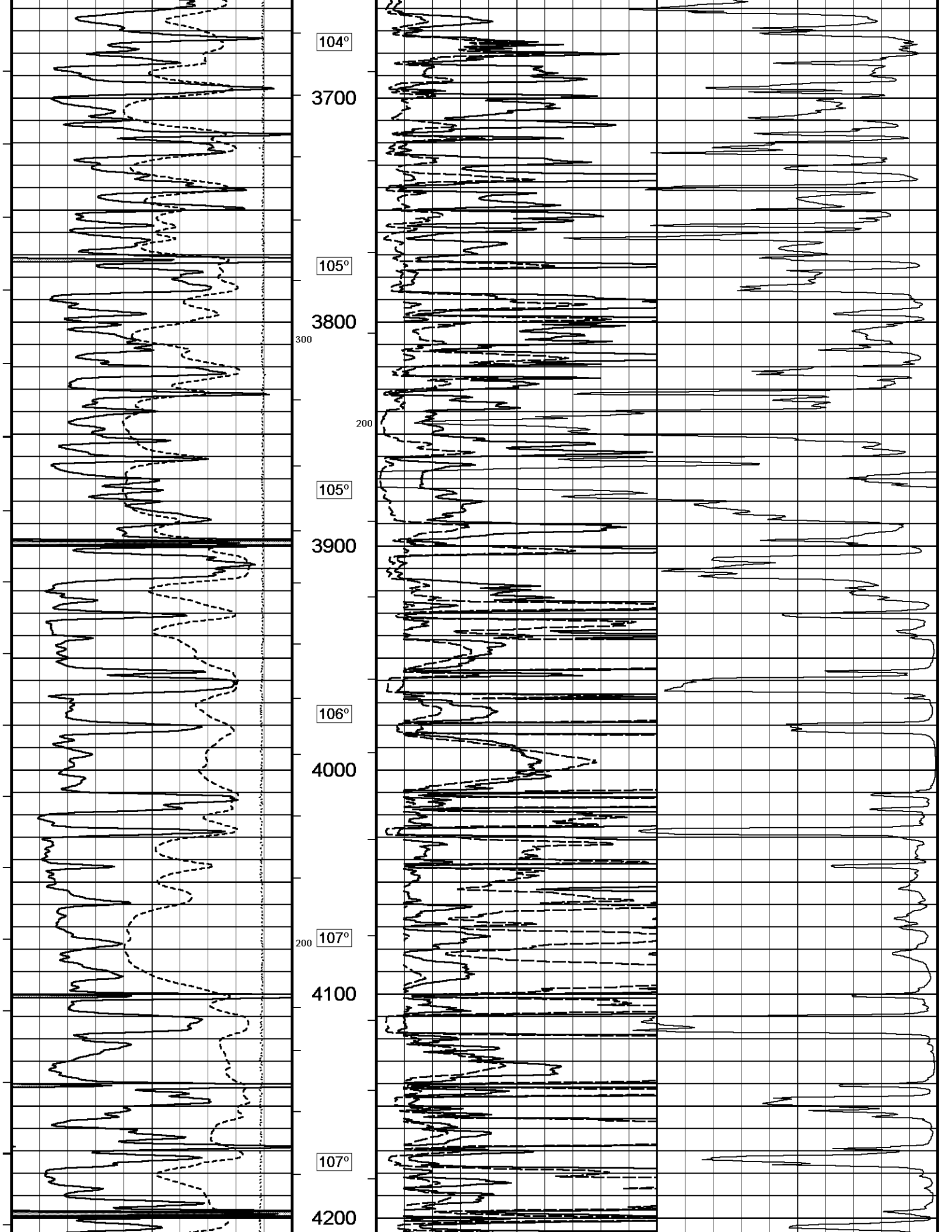


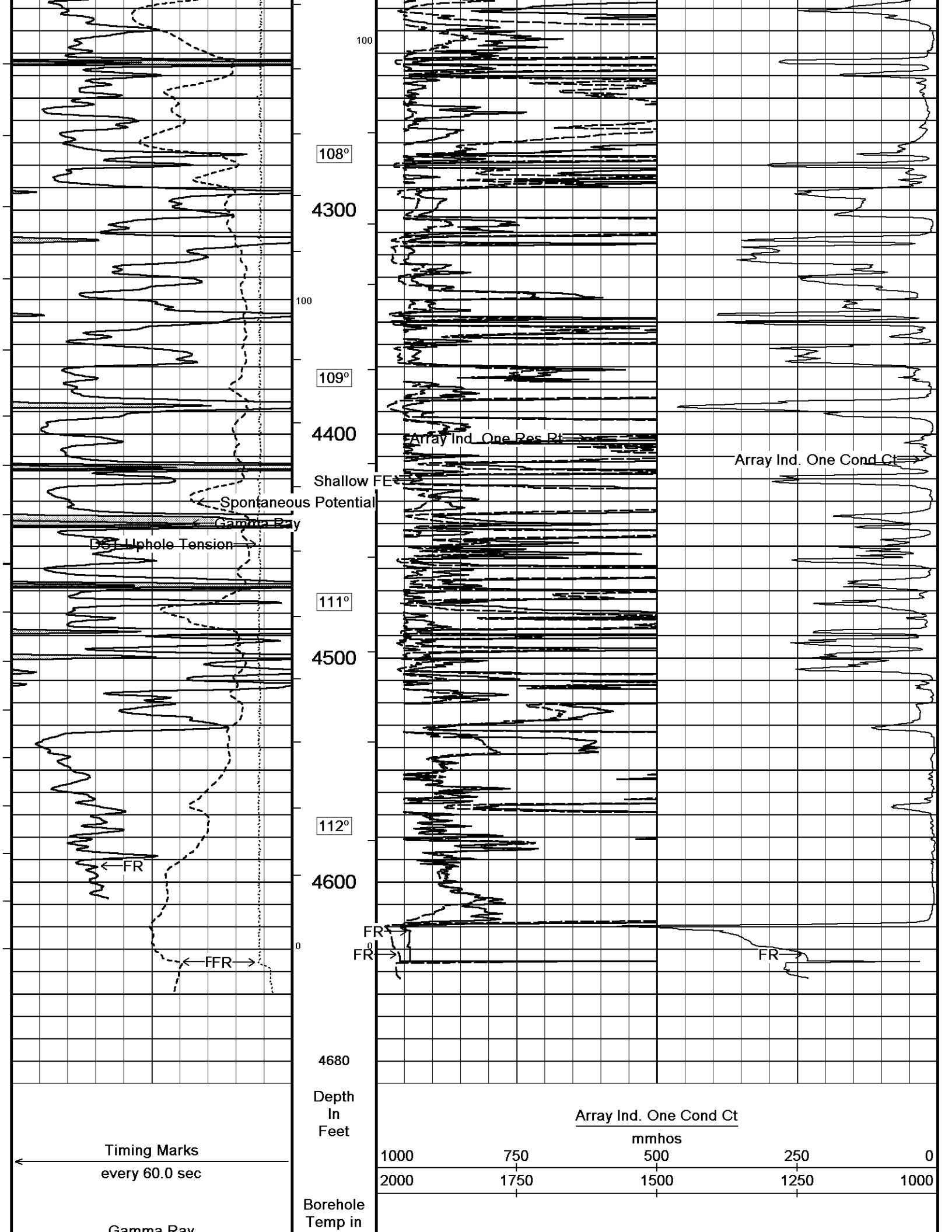


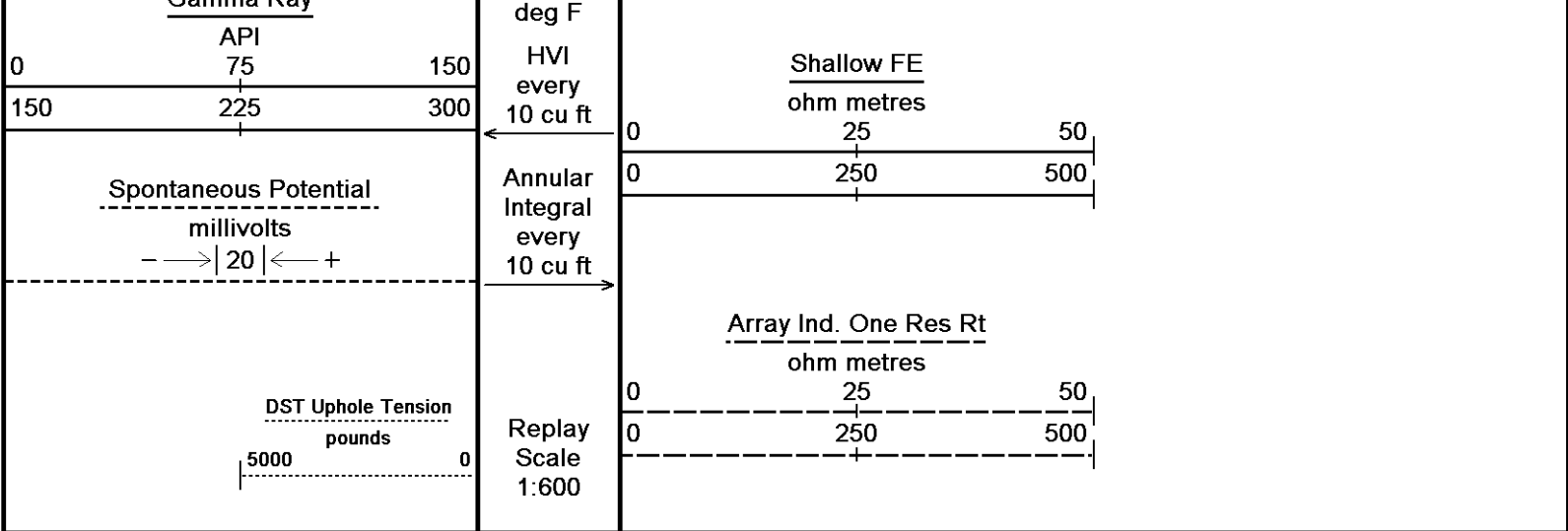








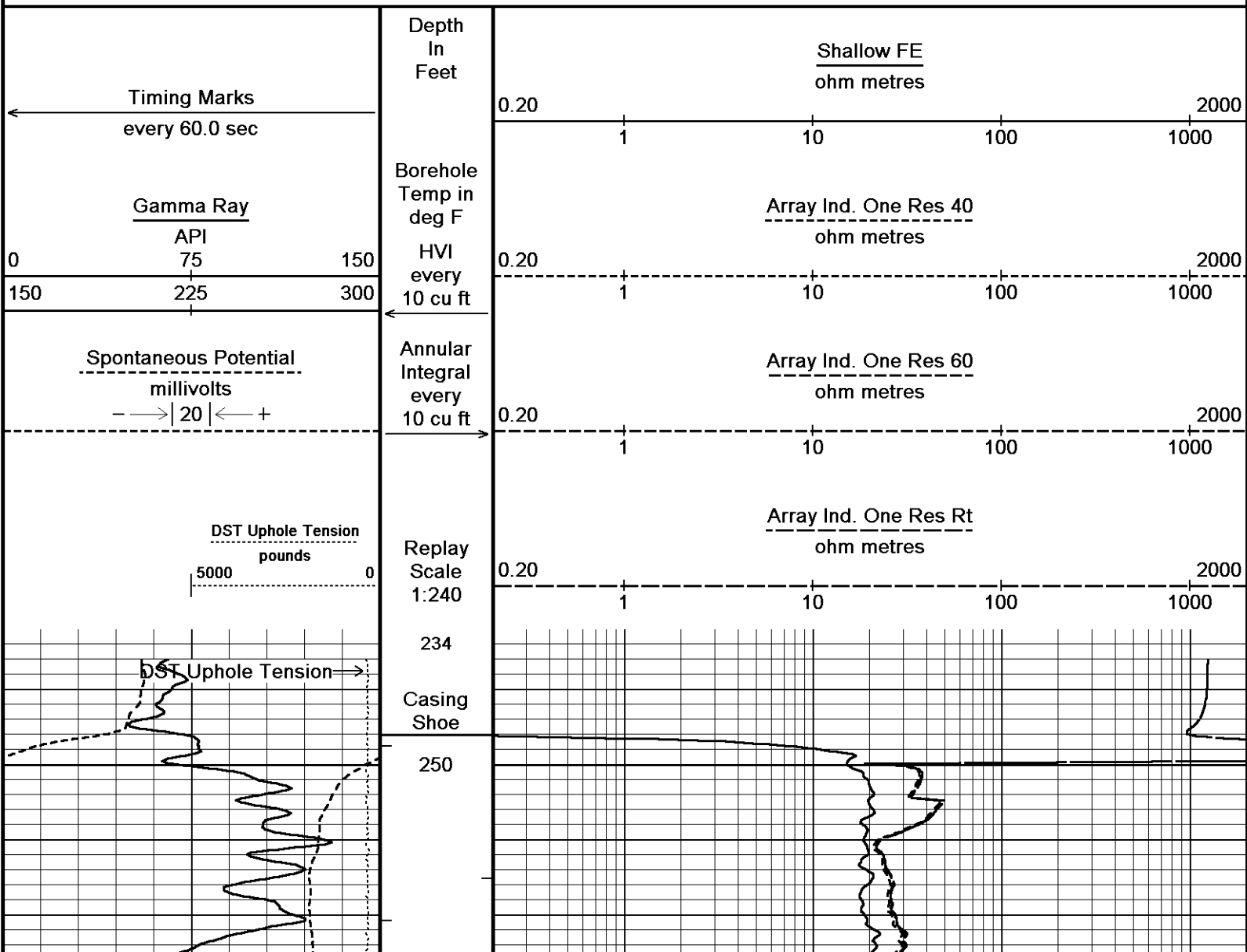


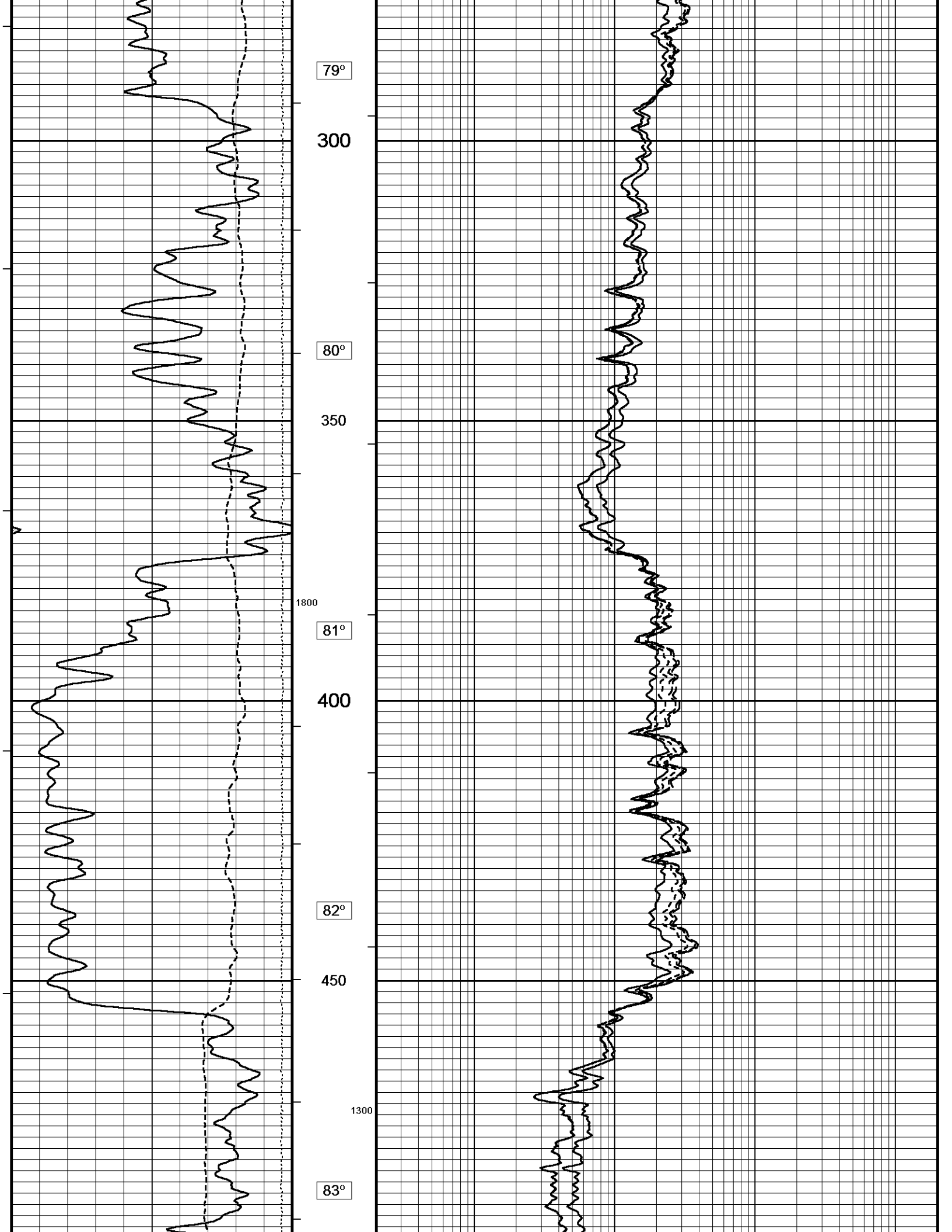


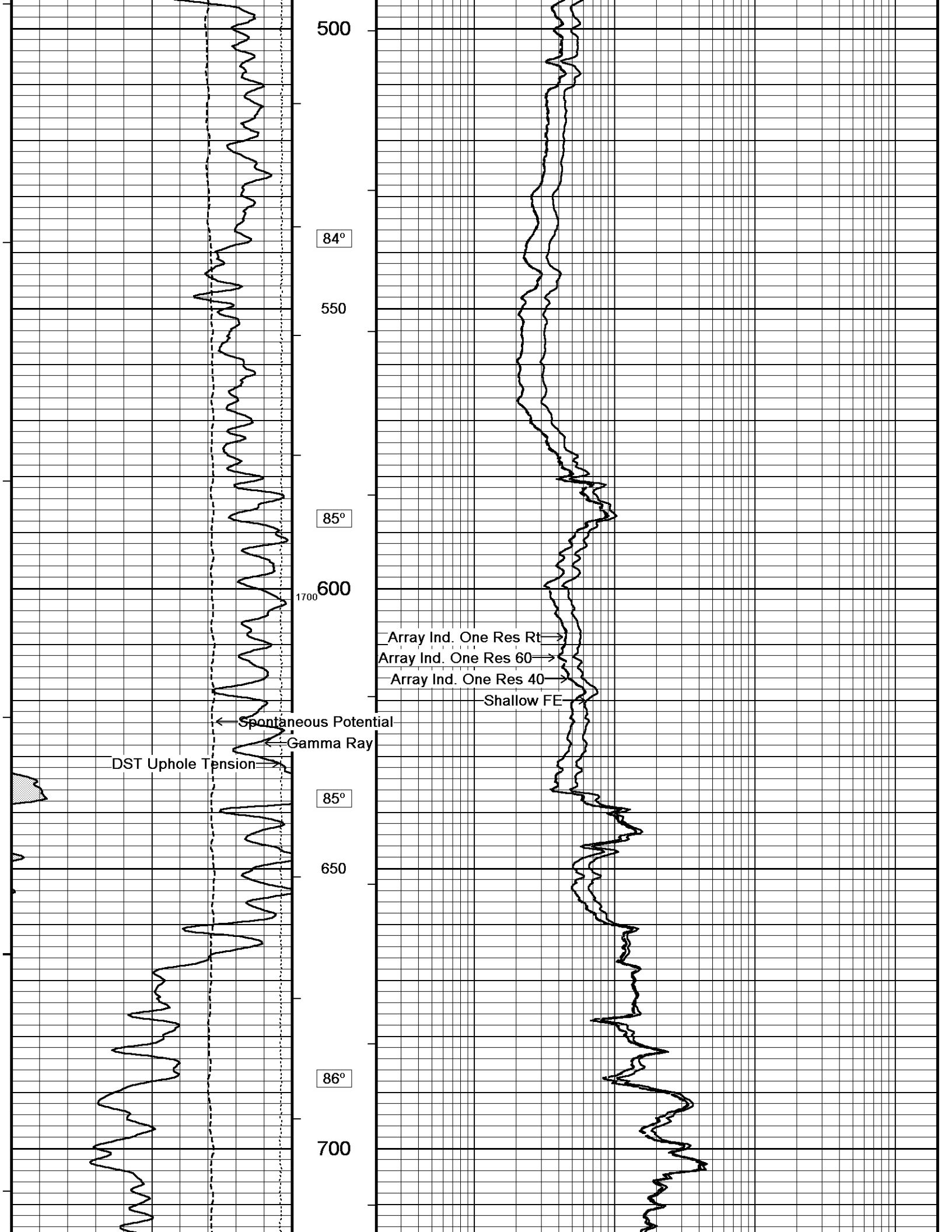
↑ 2 INCH MAIN ↑

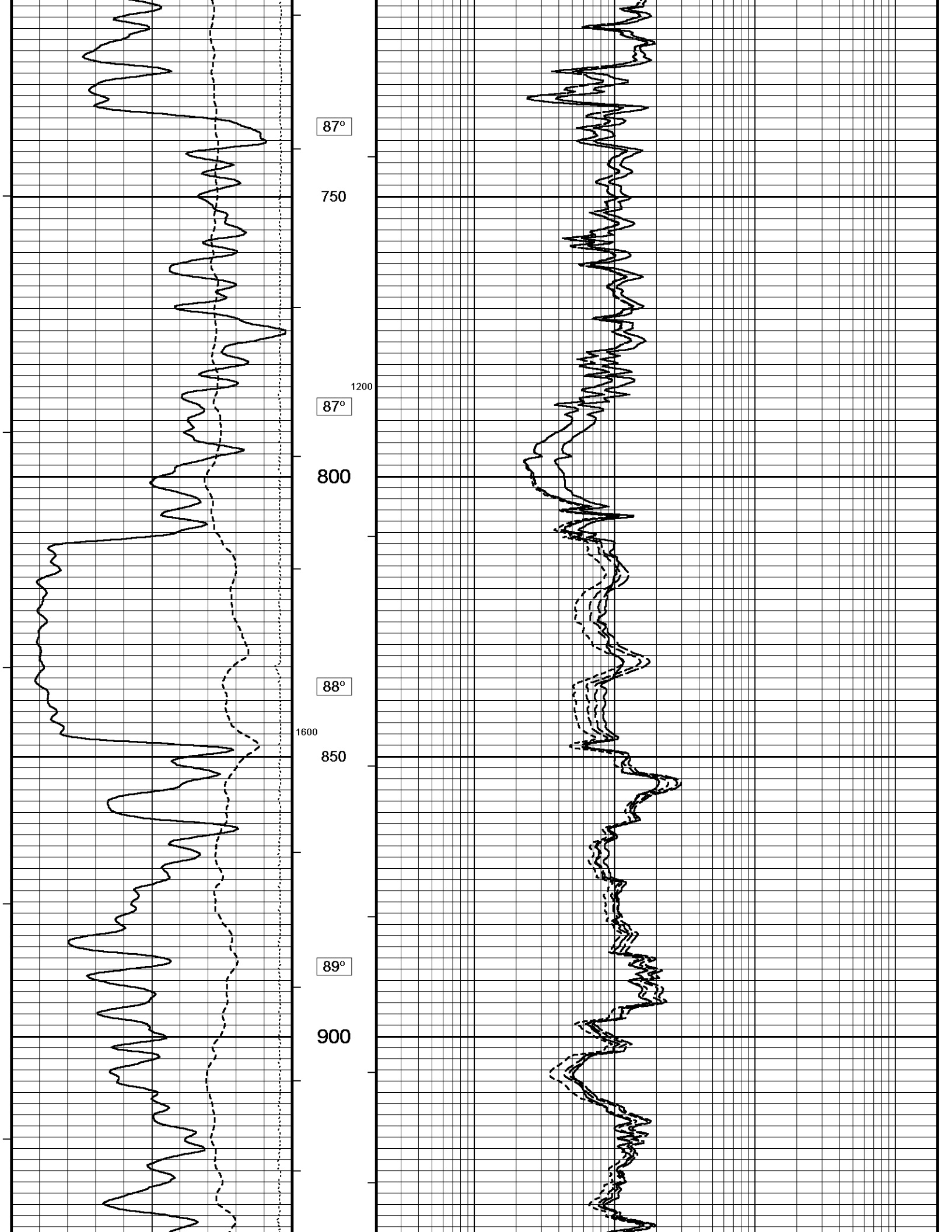
↓ 5 INCH MAIN ↓

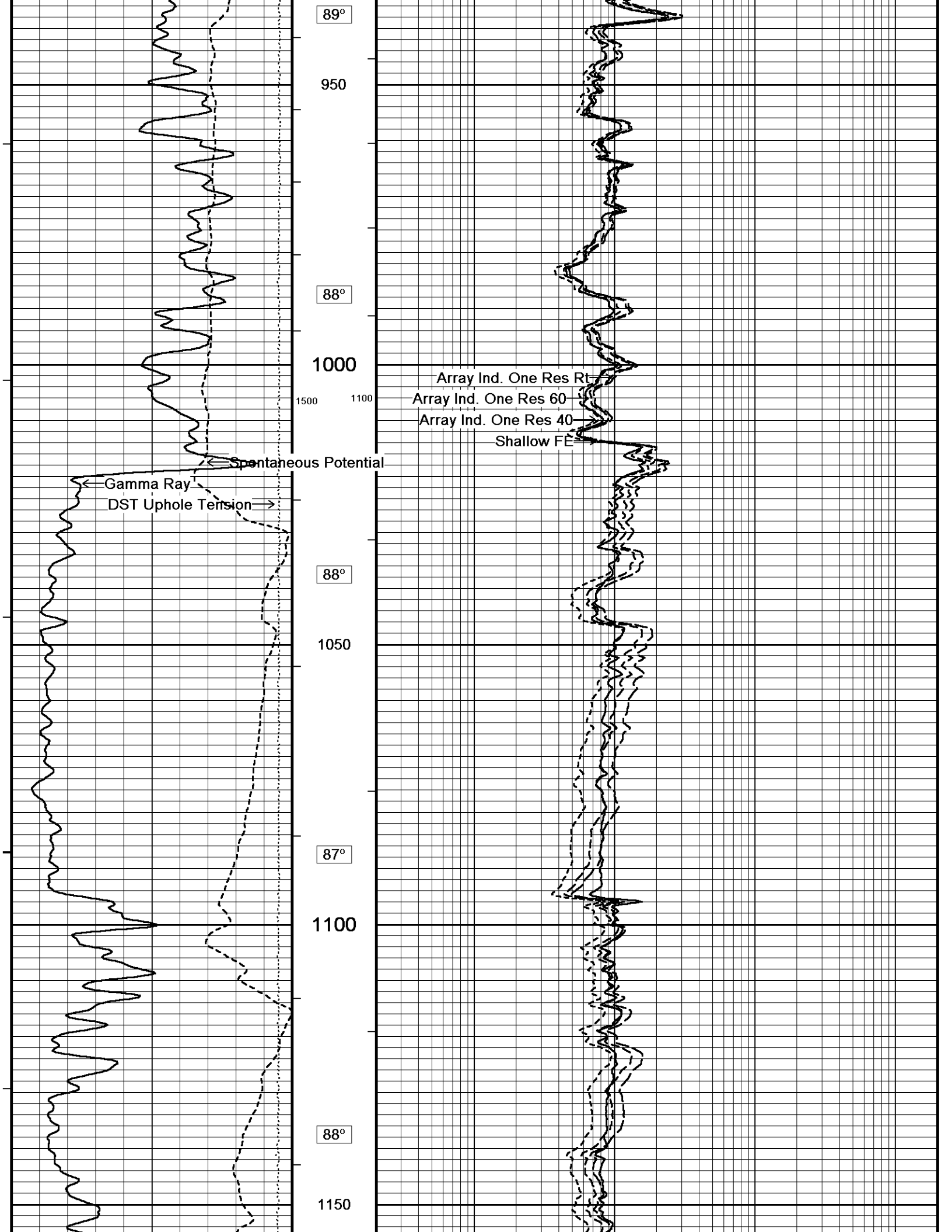
Depth Based Data - Maximum Sampling Increment 10.0cm
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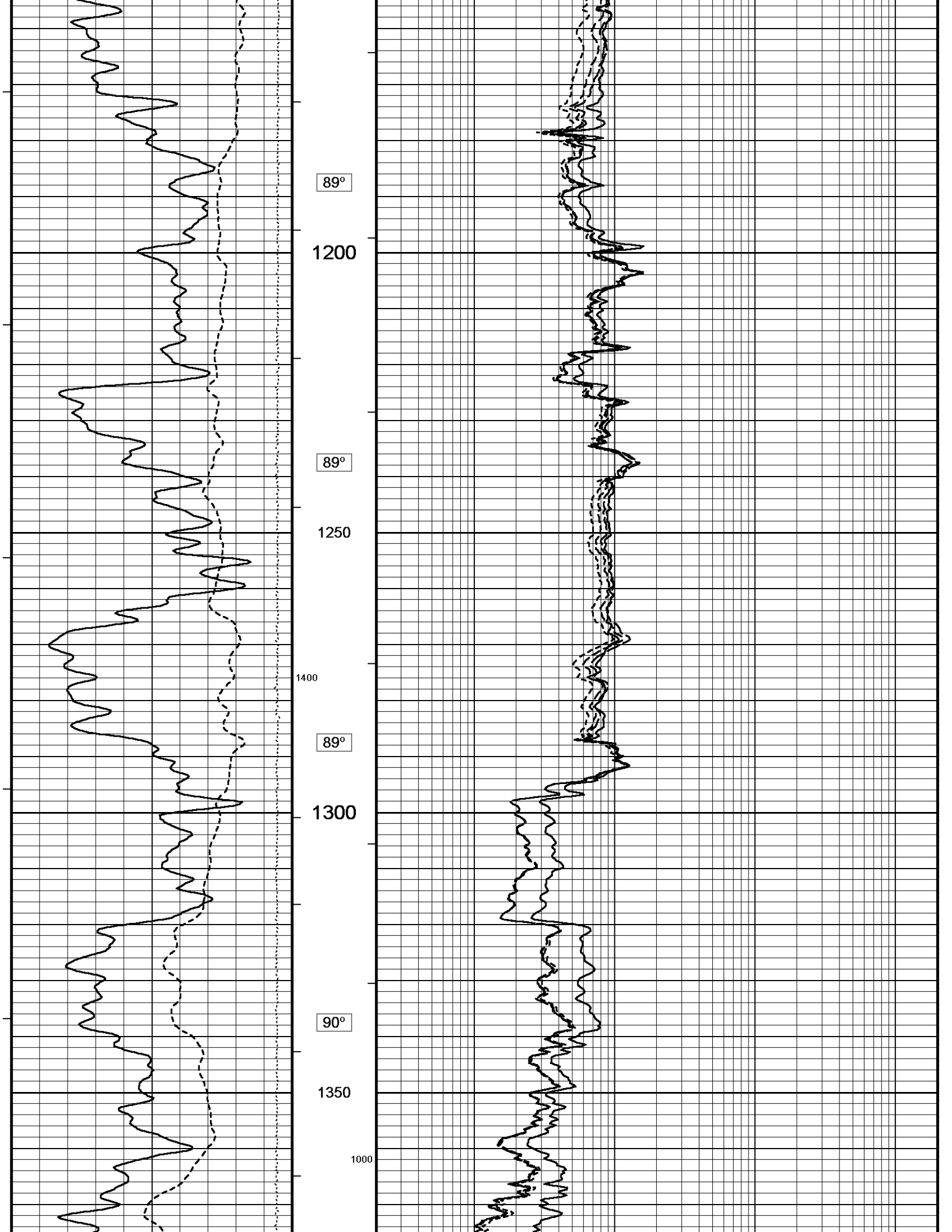


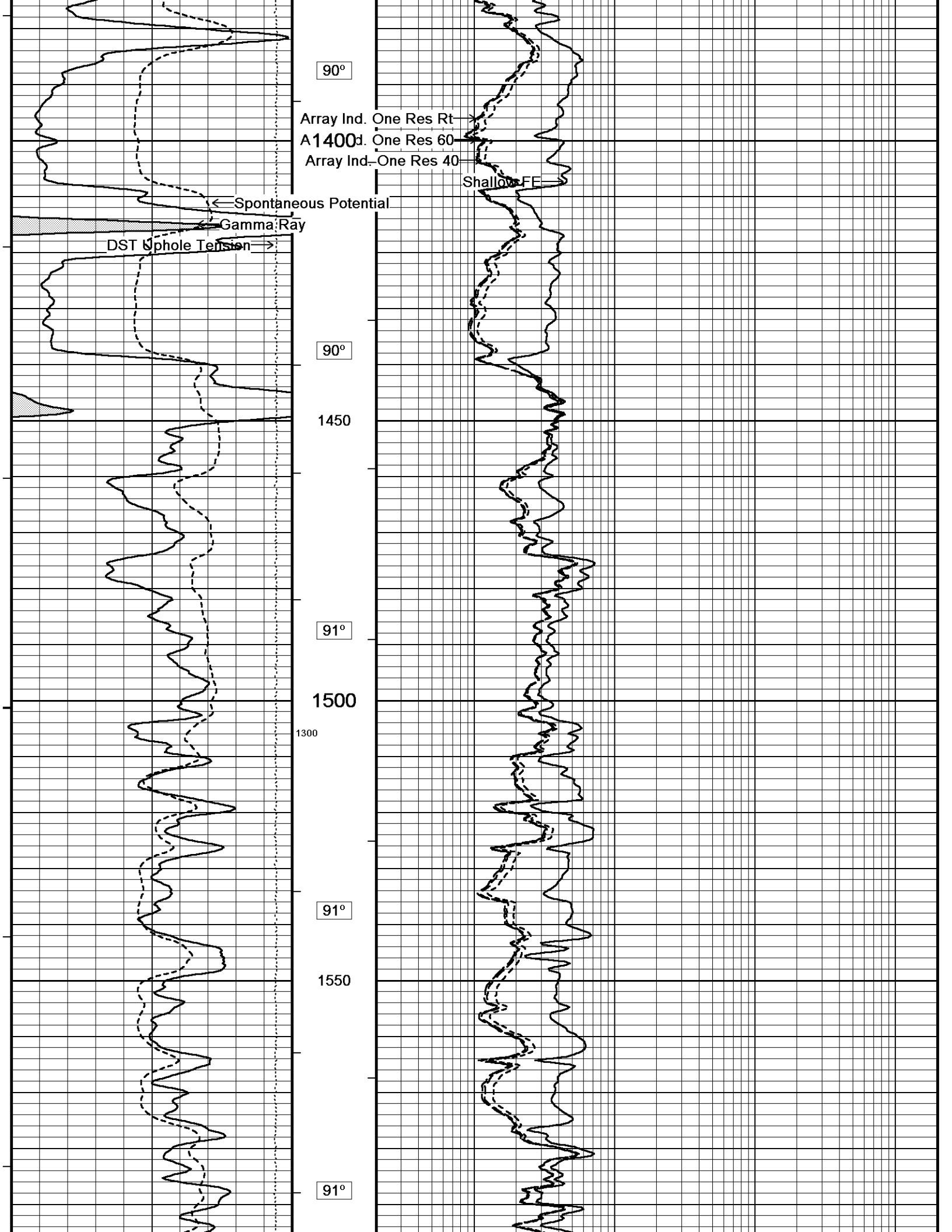


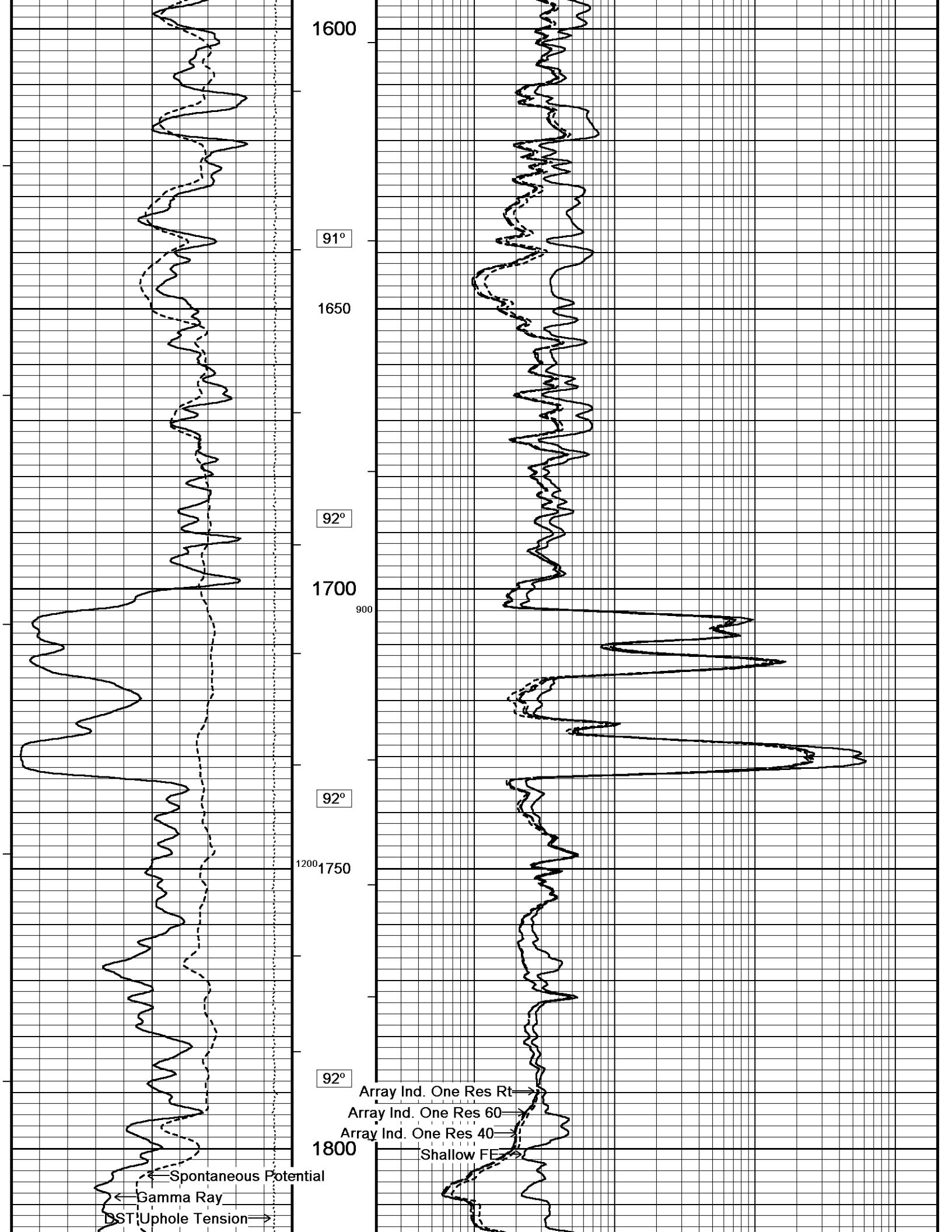


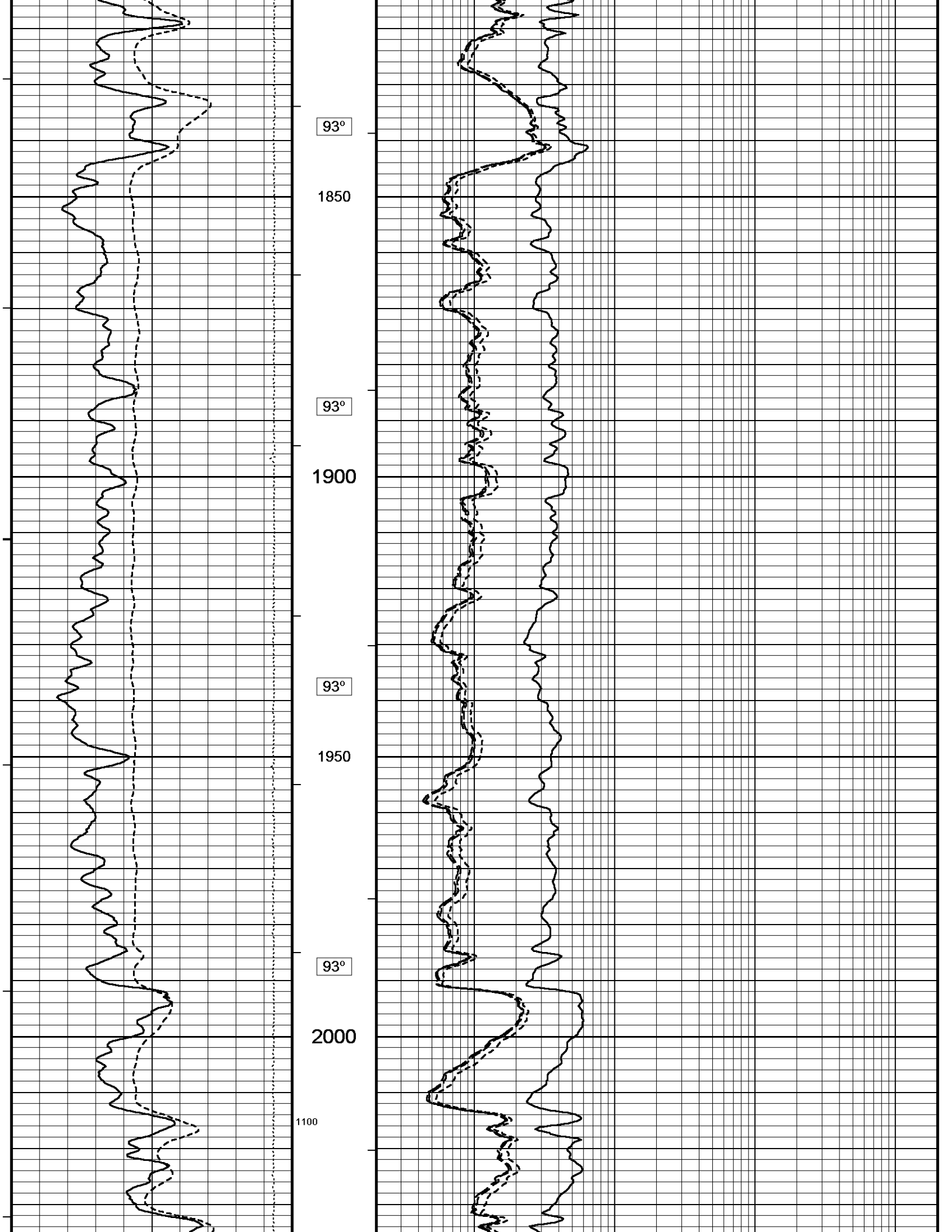


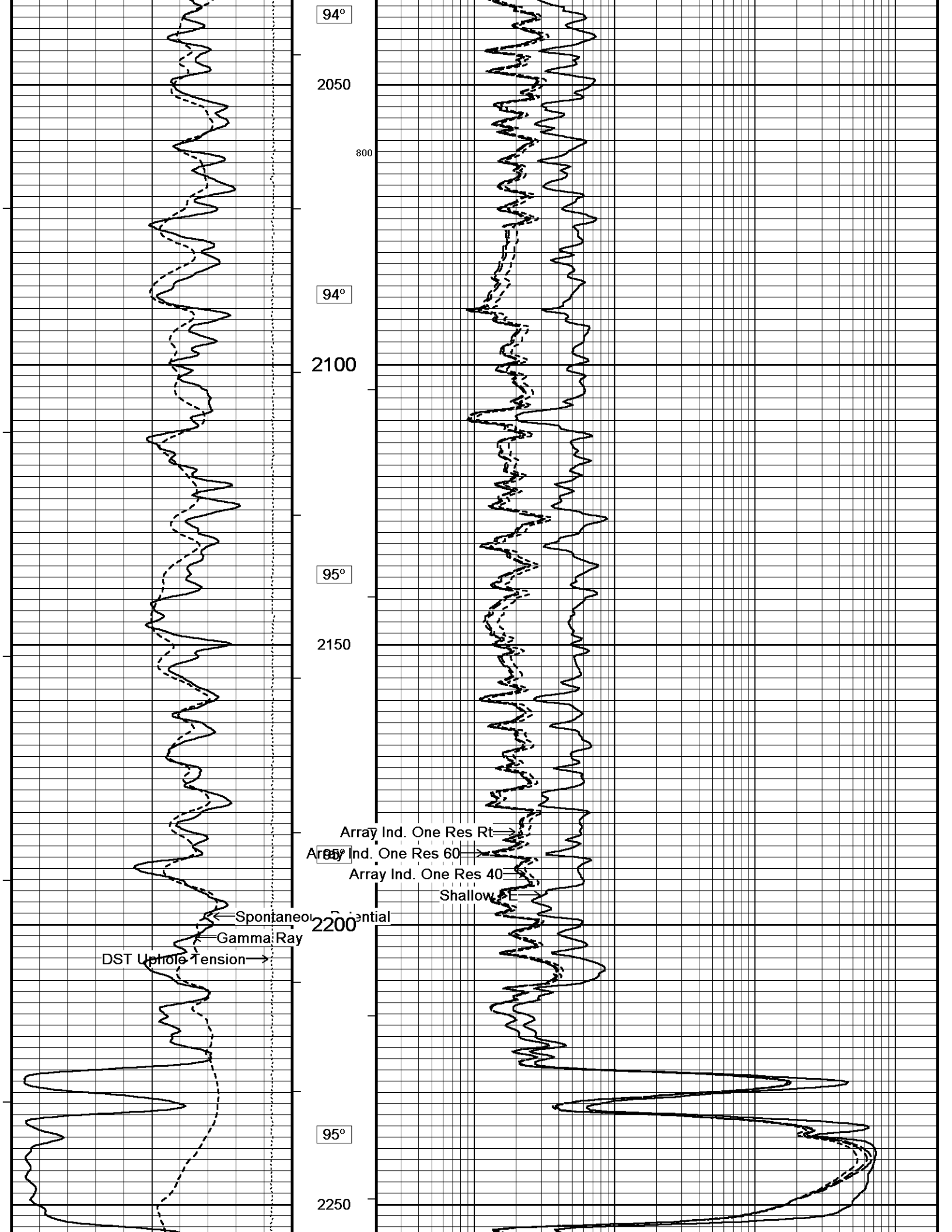


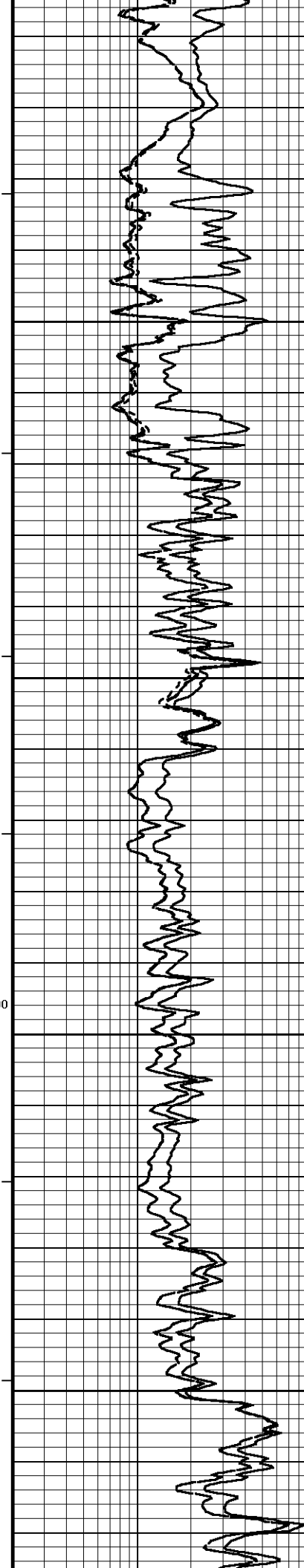
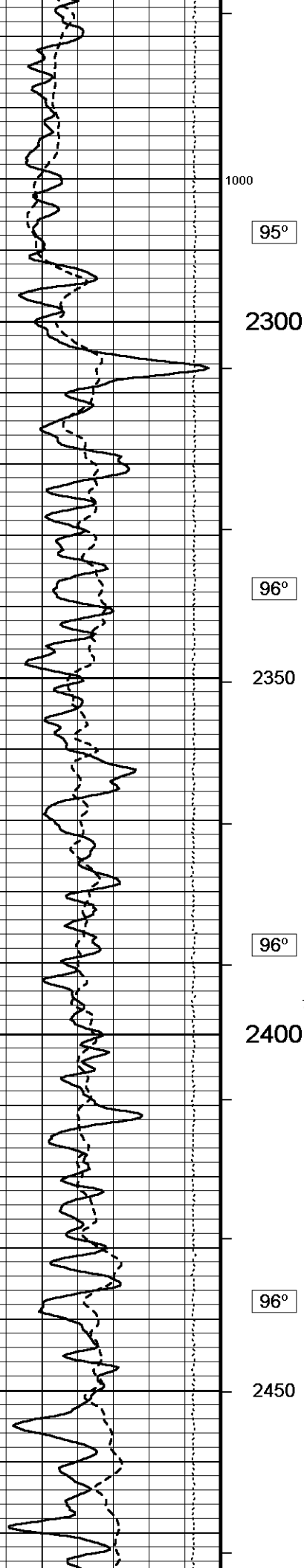


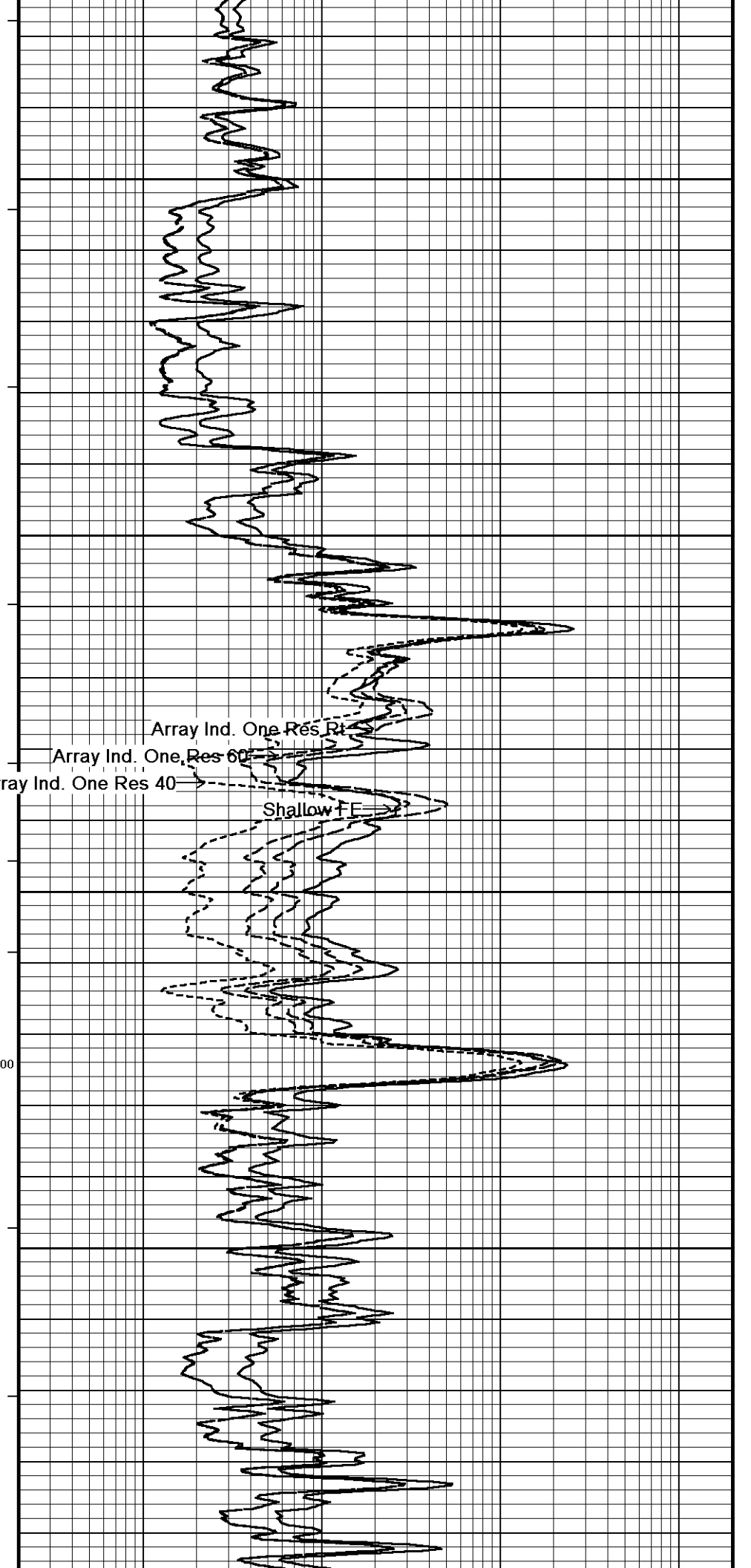
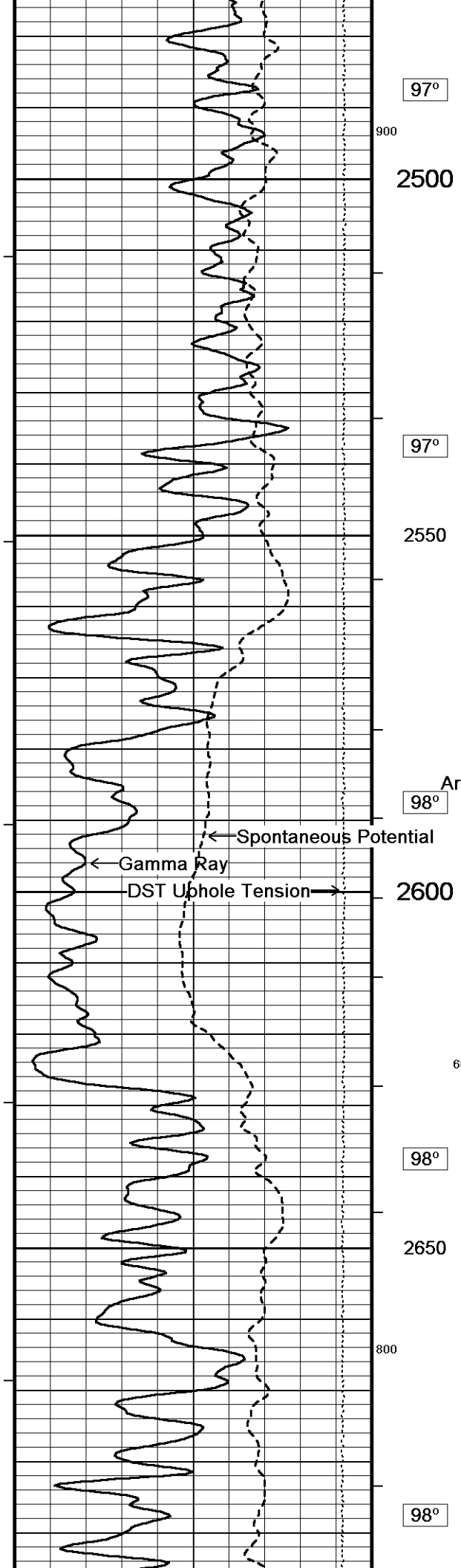


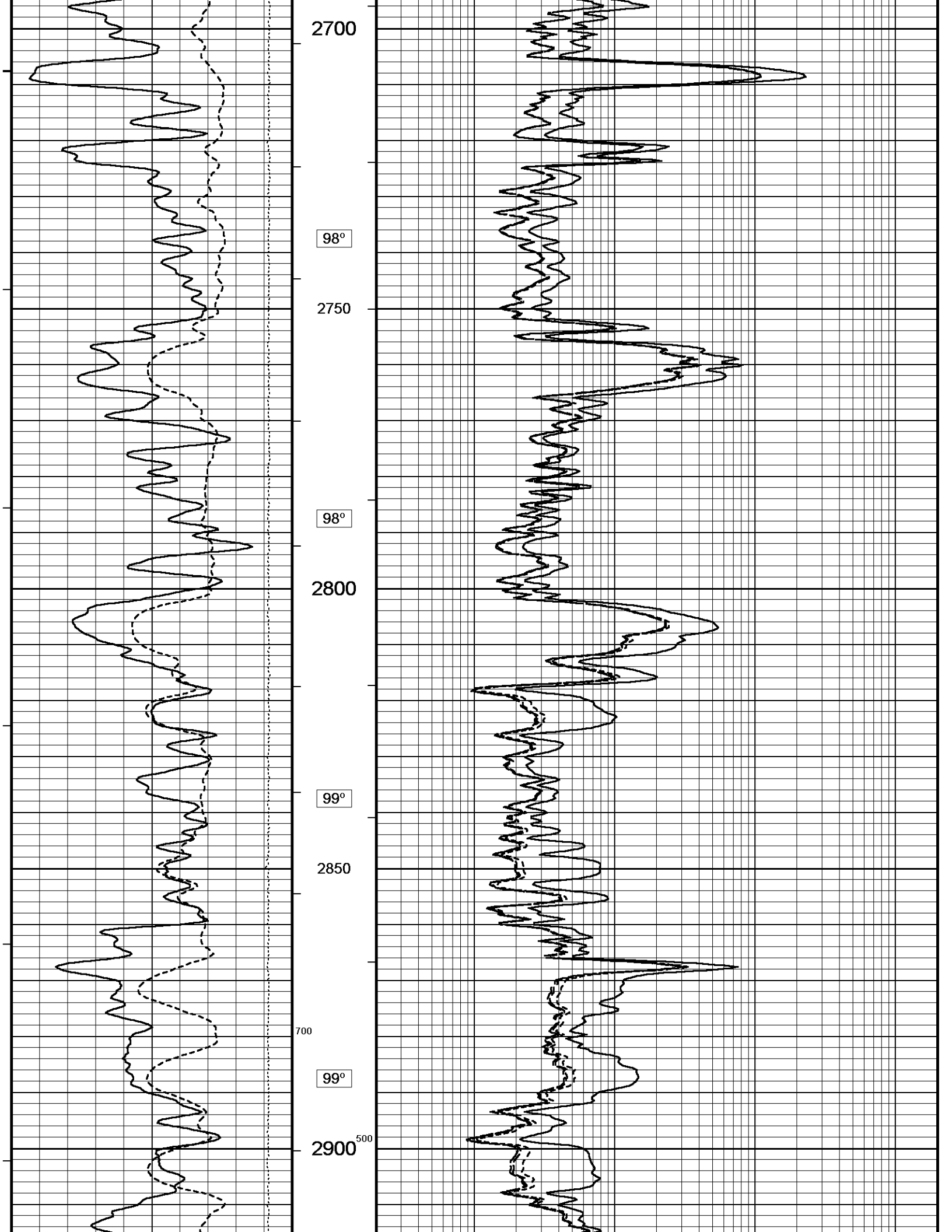


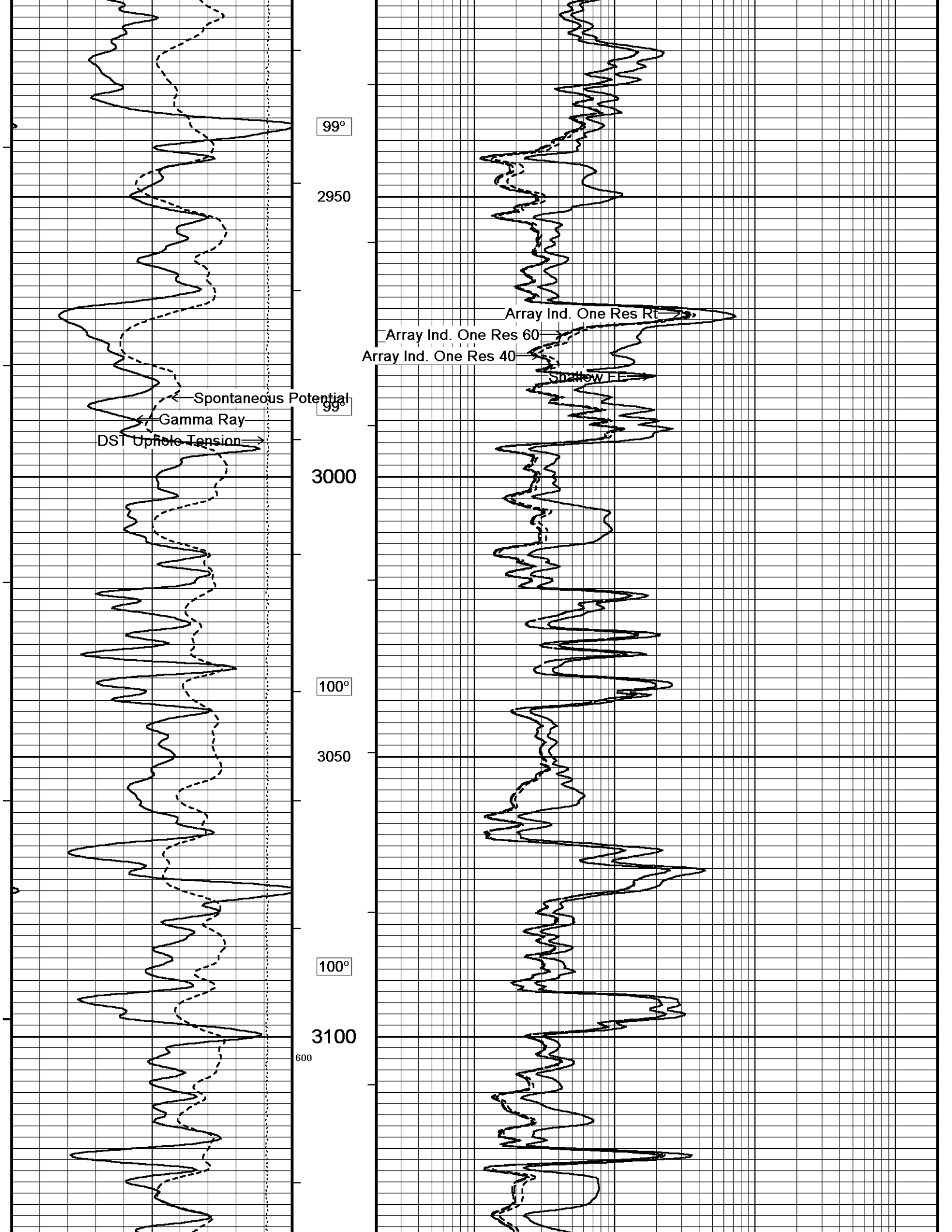


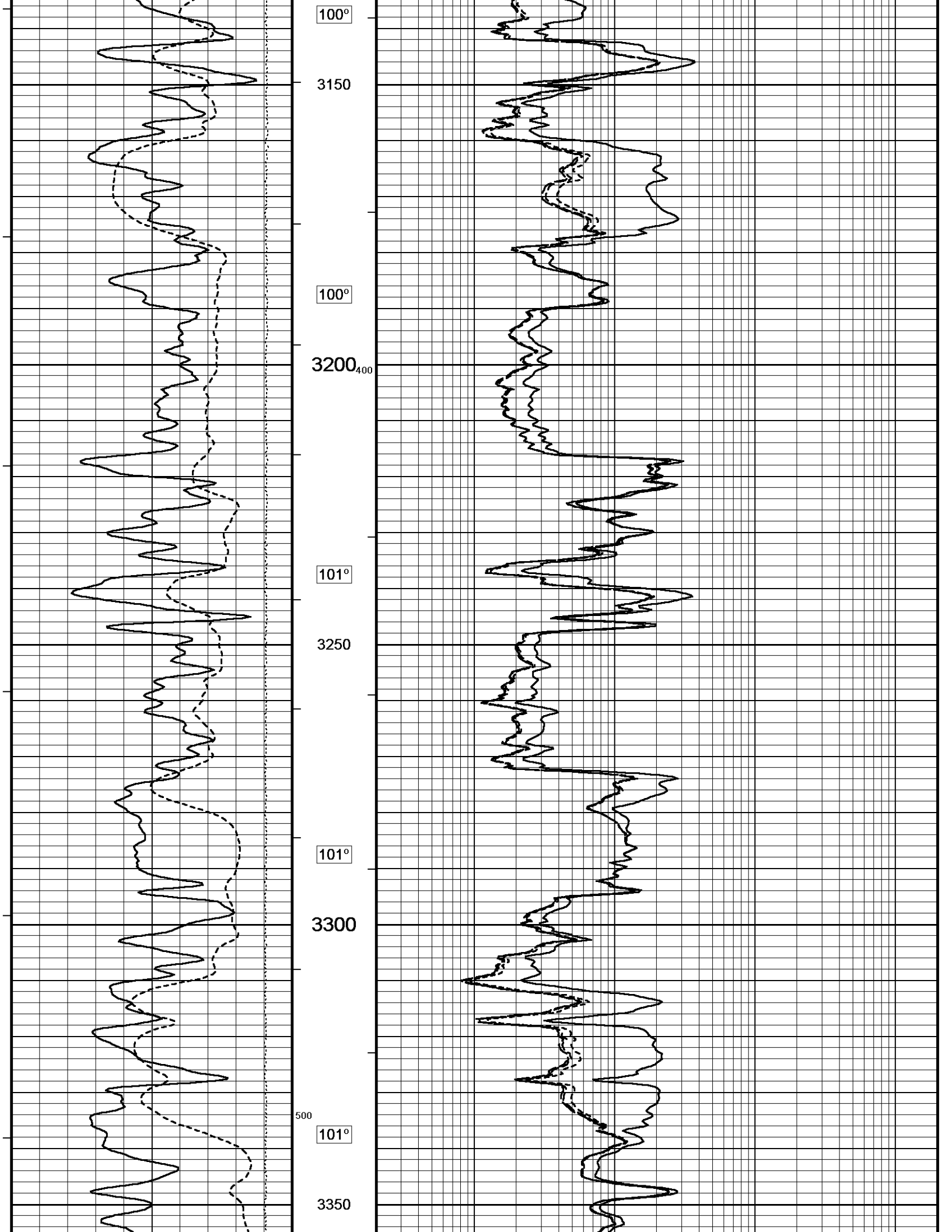


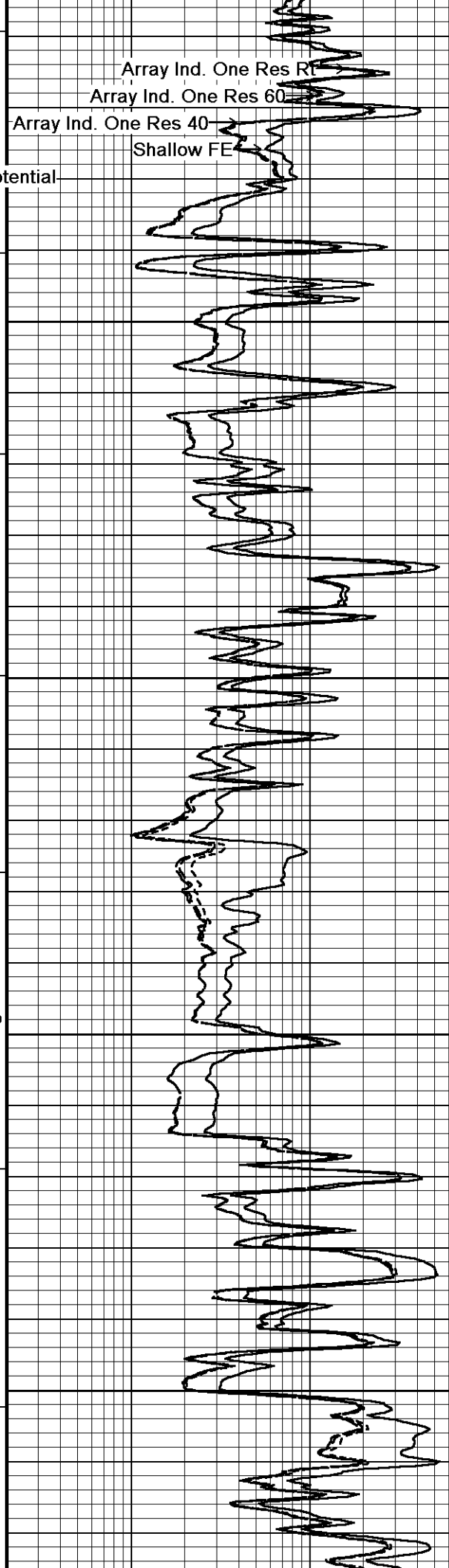
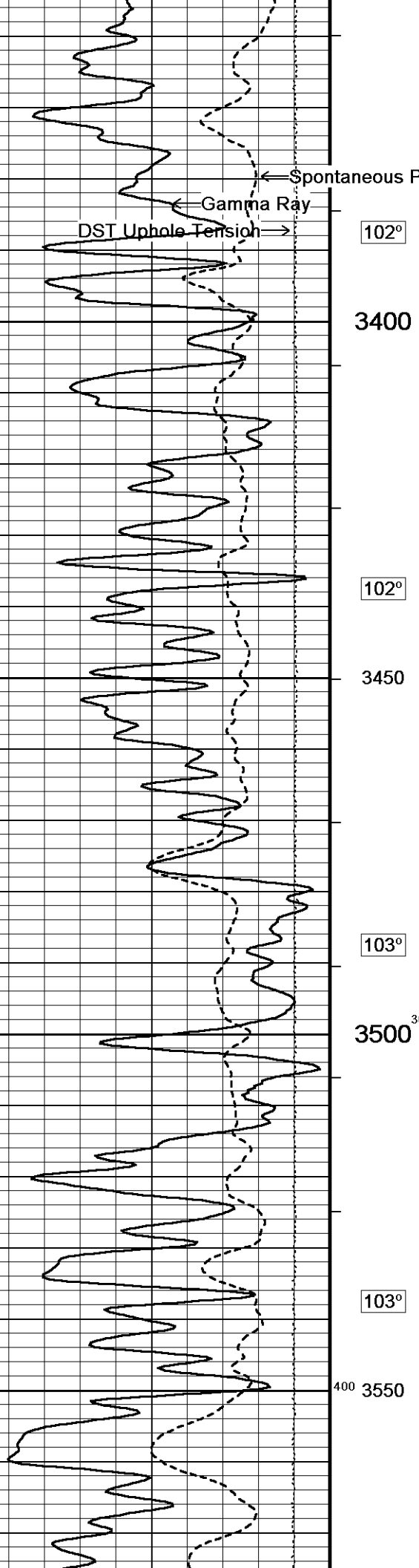












Array Ind. One Res RT
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

102°

3400

102°

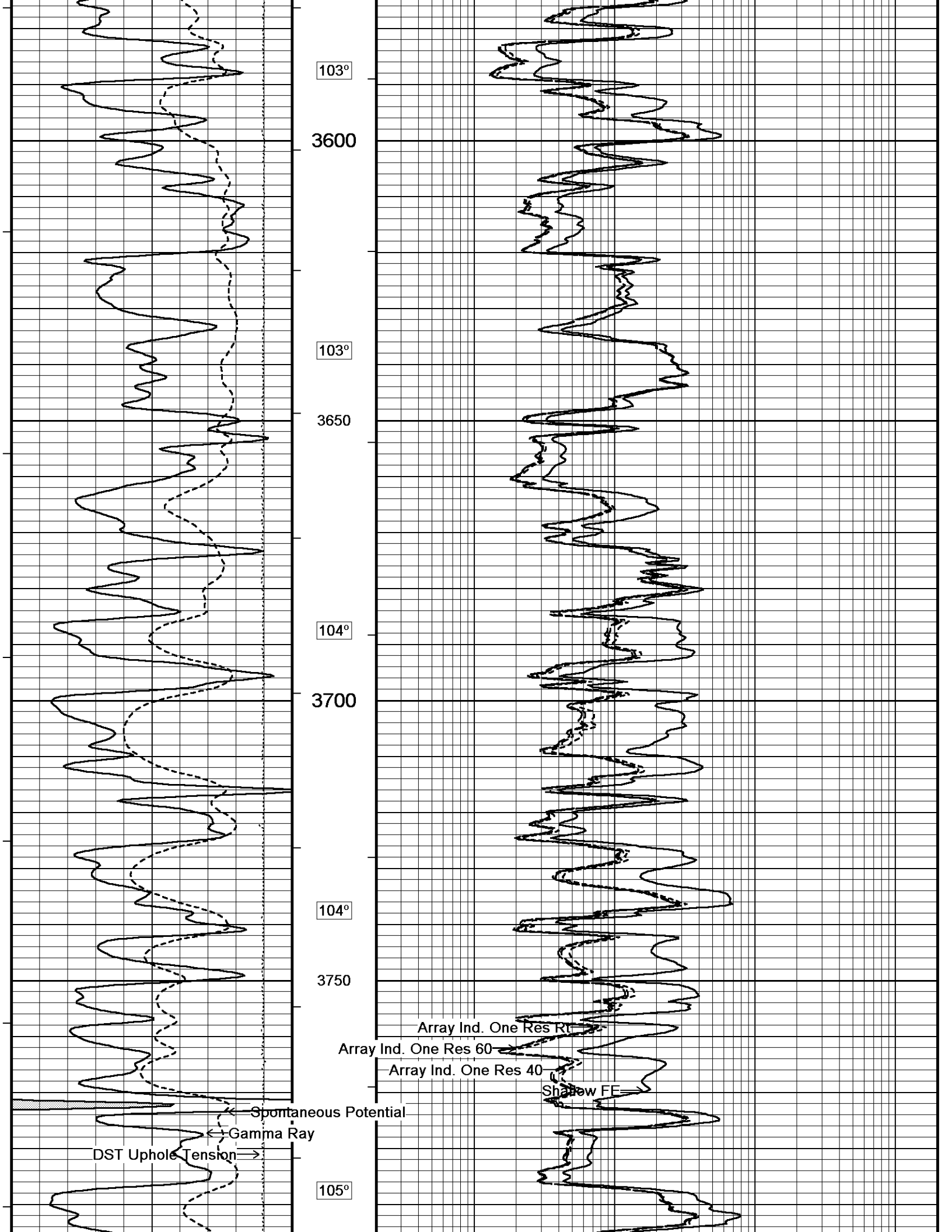
3450

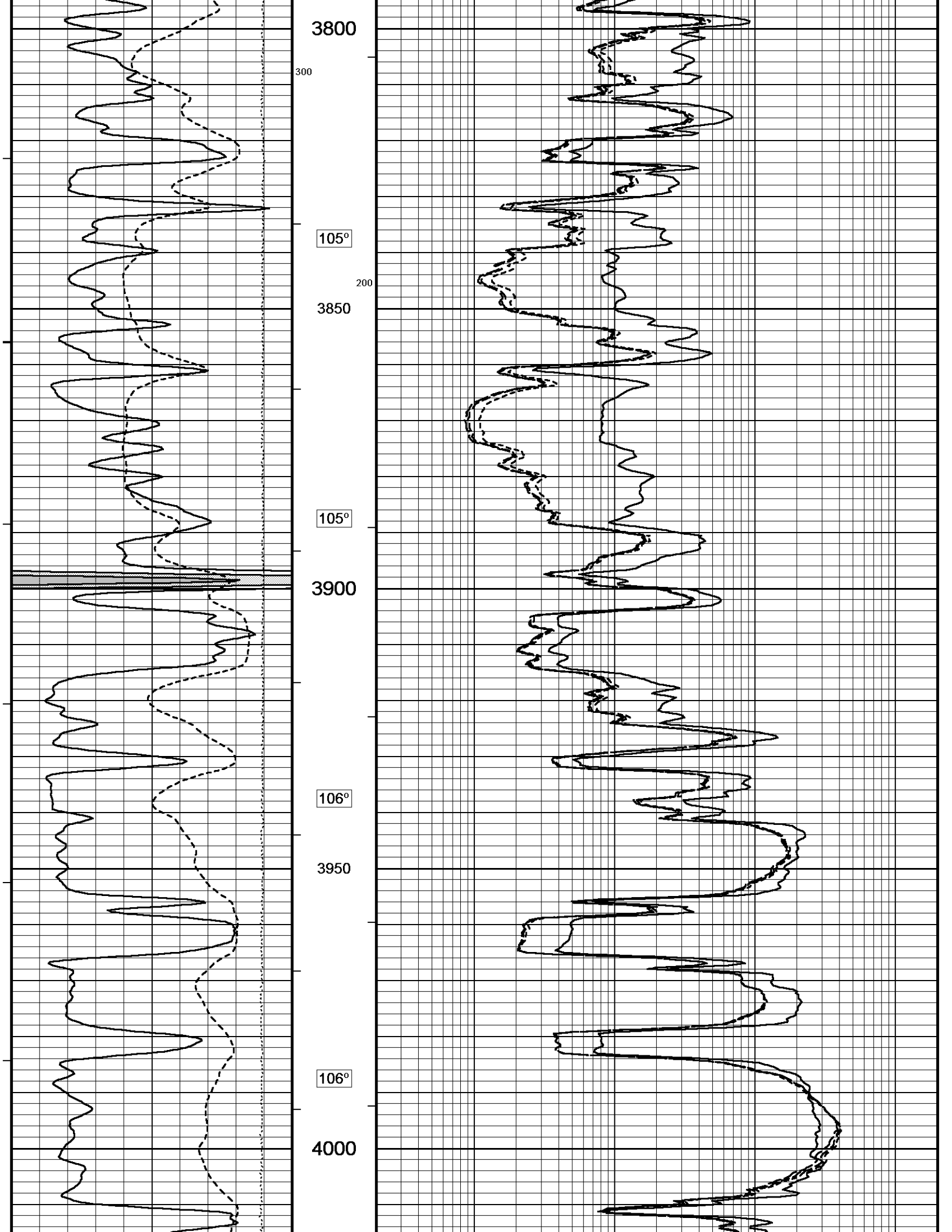
103°

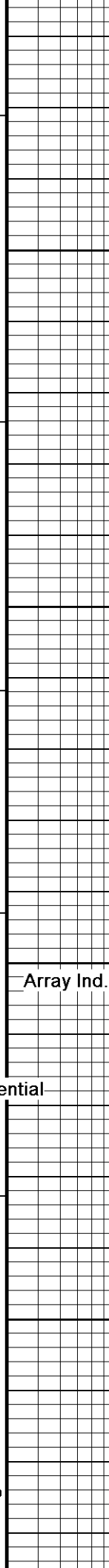
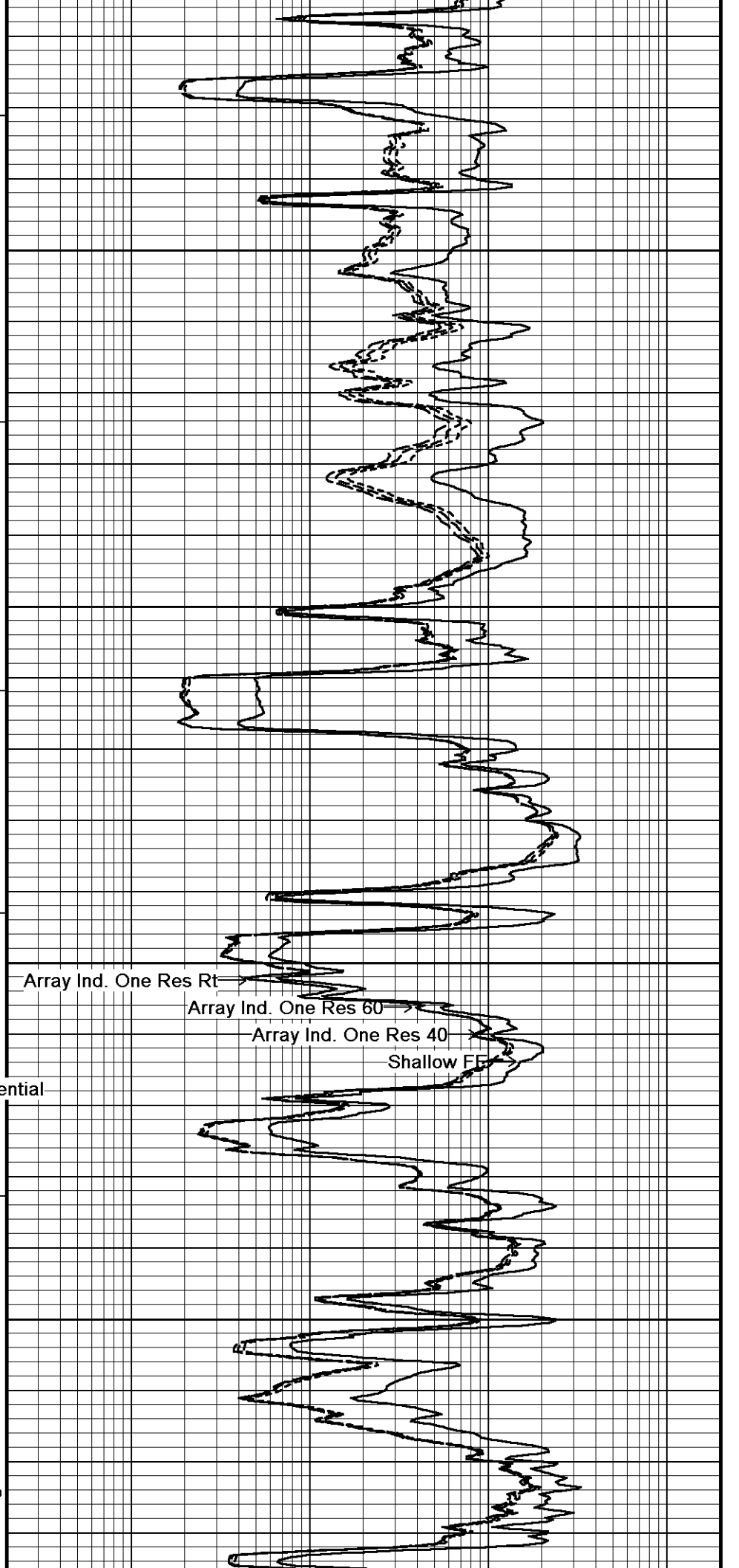
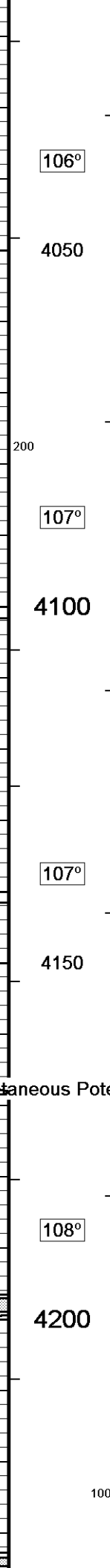
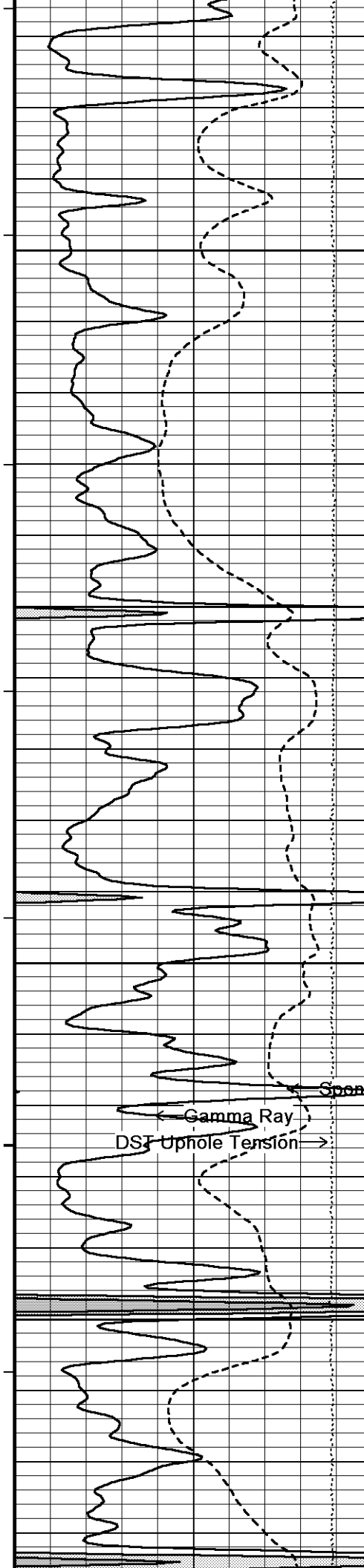
3500³⁰⁰

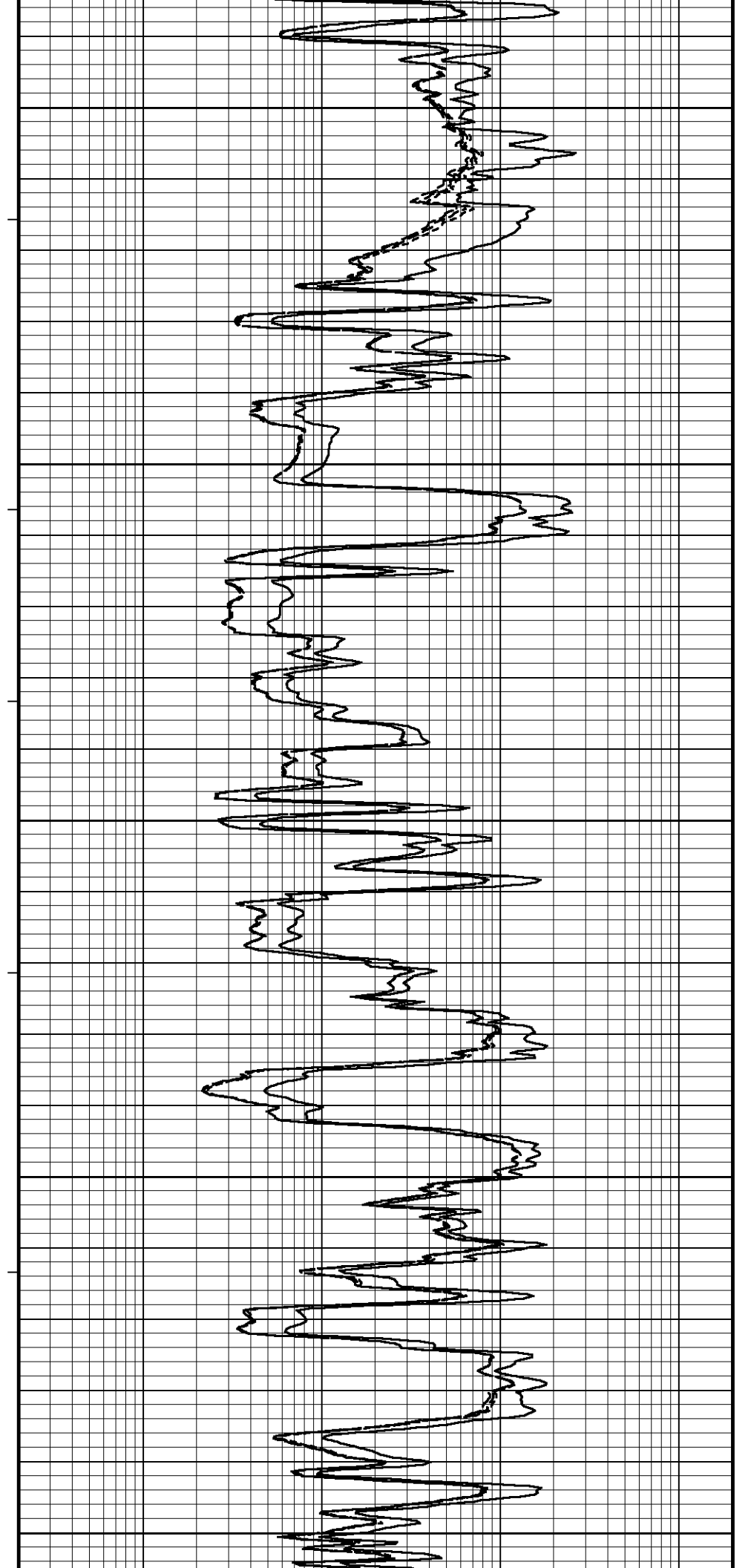
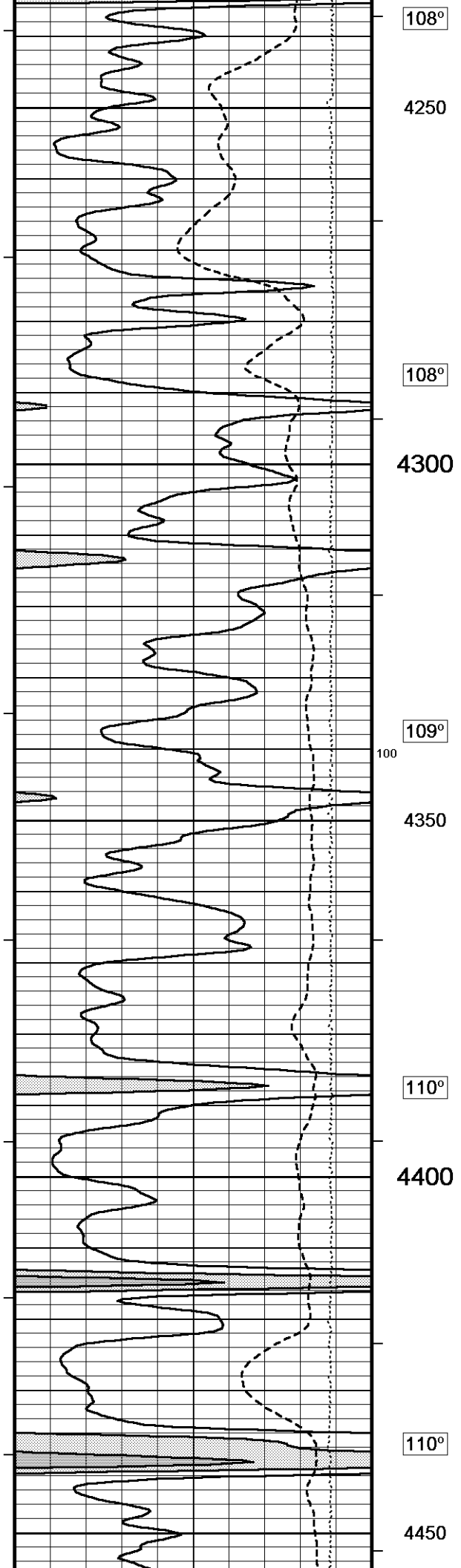
103°

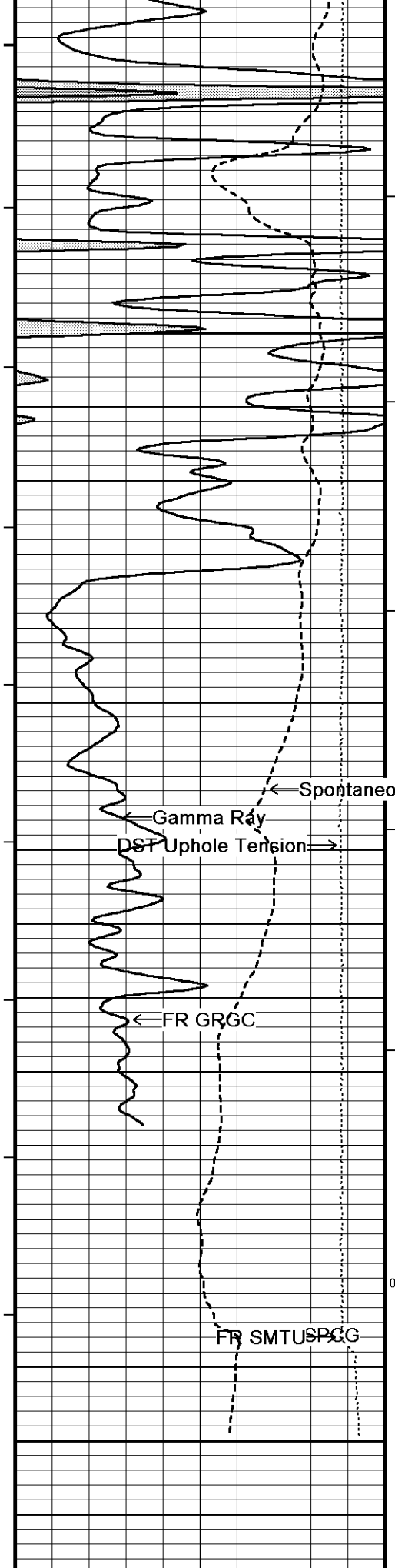
3550⁴⁰⁰











111°

4500

112°

4550

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

← FR GRGC

111°

4600

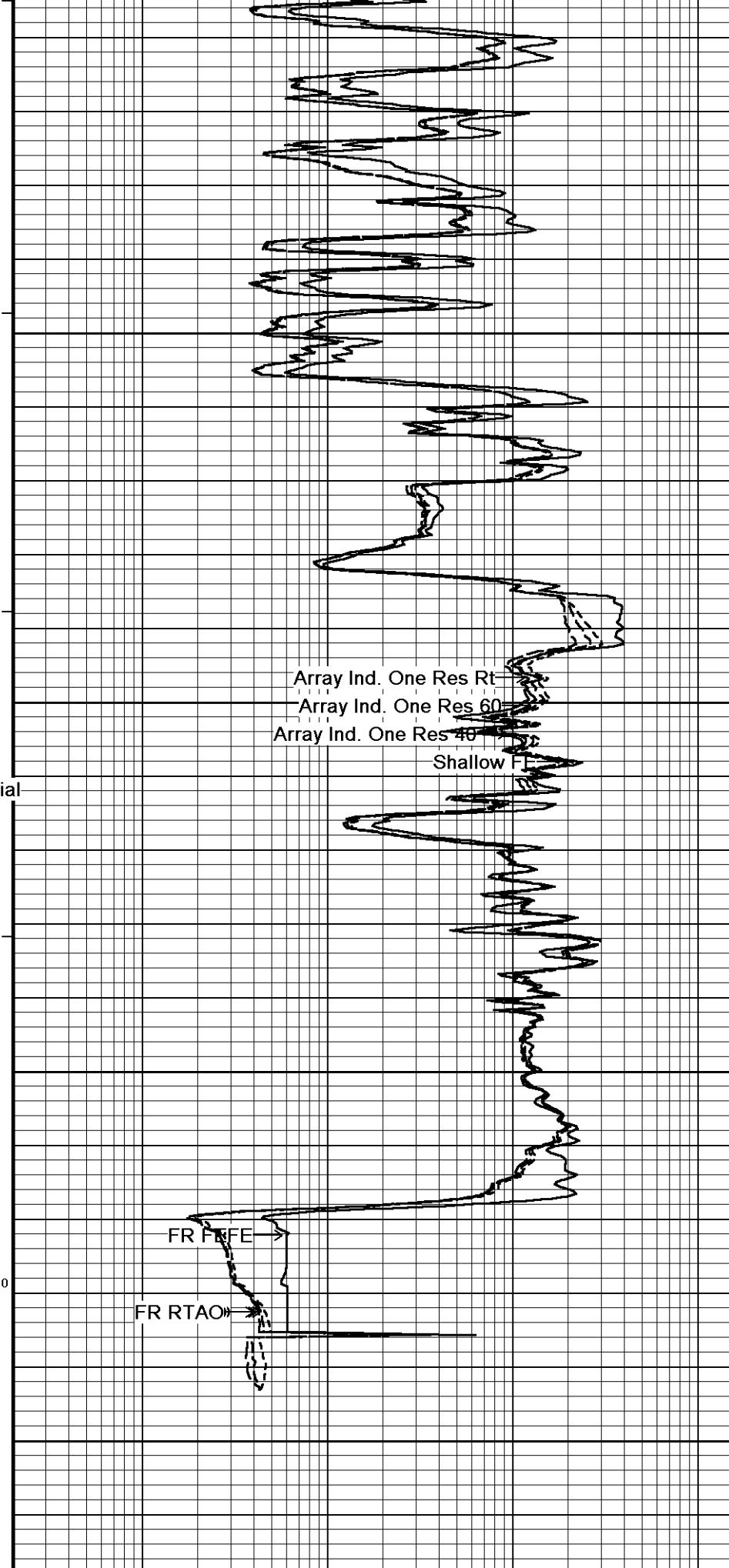
0

FR SMTUSPCG

4650

4664

Depth In



Array Ind. One Res Rt

Array Ind. One Res 60

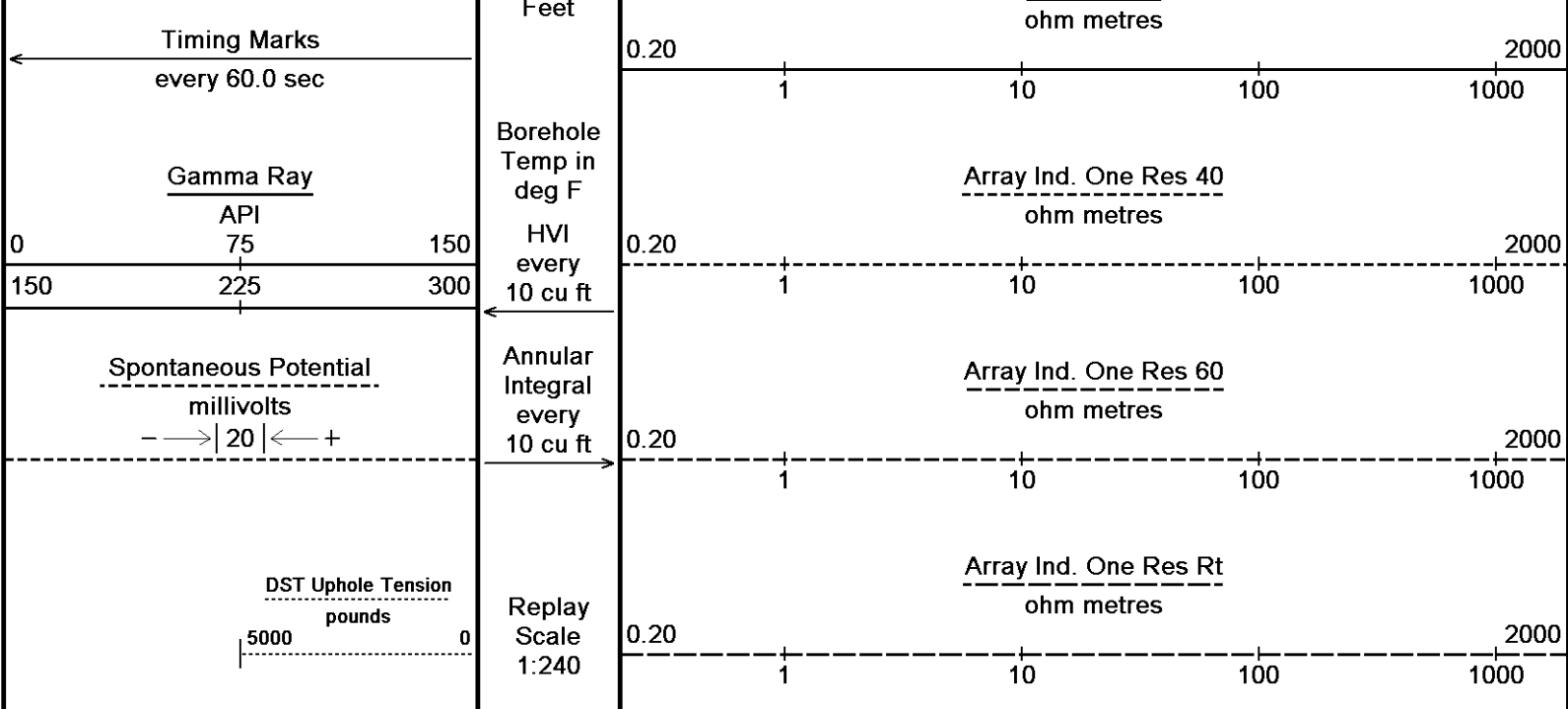
Array Ind. One Res 40

Shallow FE

FR FIFE →

FR RTAO →

Shallow FE

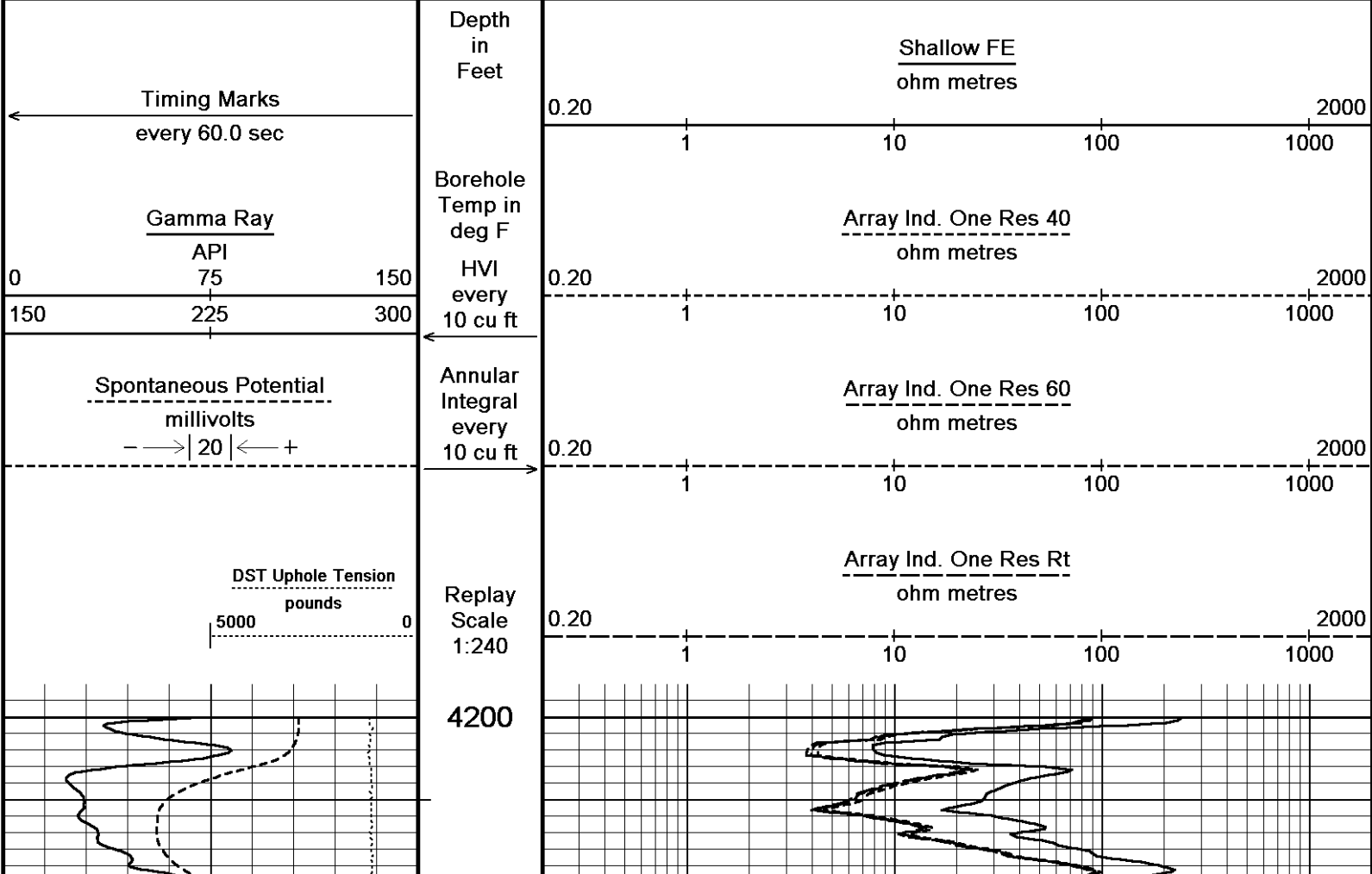


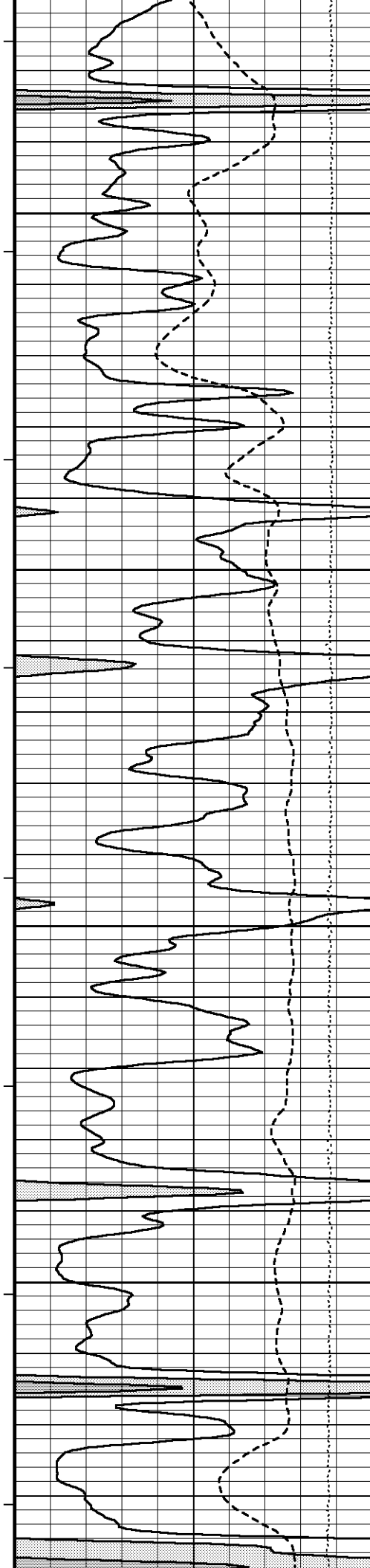
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 03-JAN-2014 22:03
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↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 03-JAN-2014 22:03
 Filename: C:\Minimus 13.05.9583\Log\O'Brien Resou...\O'Brien Resources LLC Colt 45 FBC 2 Repeat.dta Recorded on 03-JAN-2014 18:14
 System Versions: Logged with 13.05.9583 Plotted with 13.05.9583





107°

4250

107°

4300

107°

4350

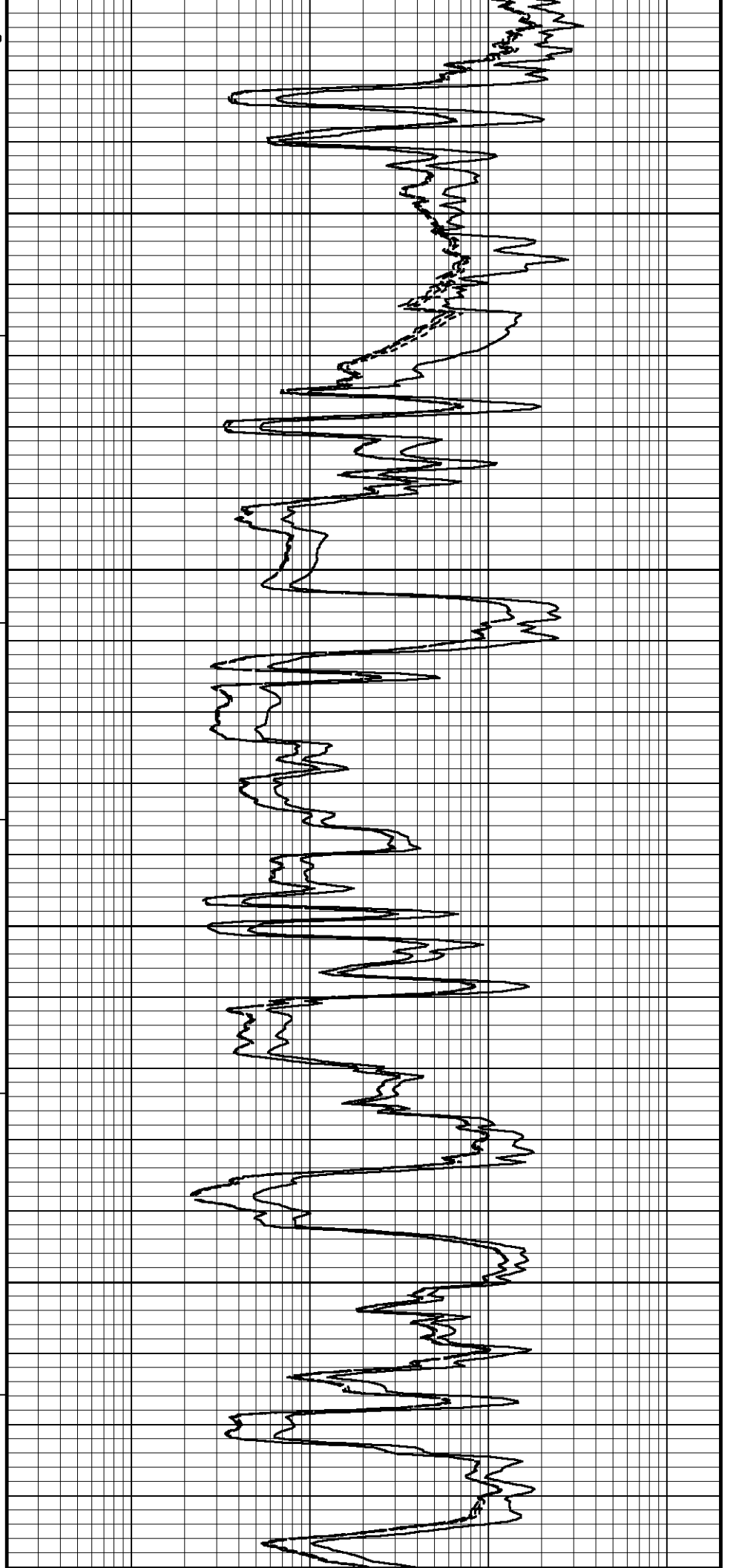
108°

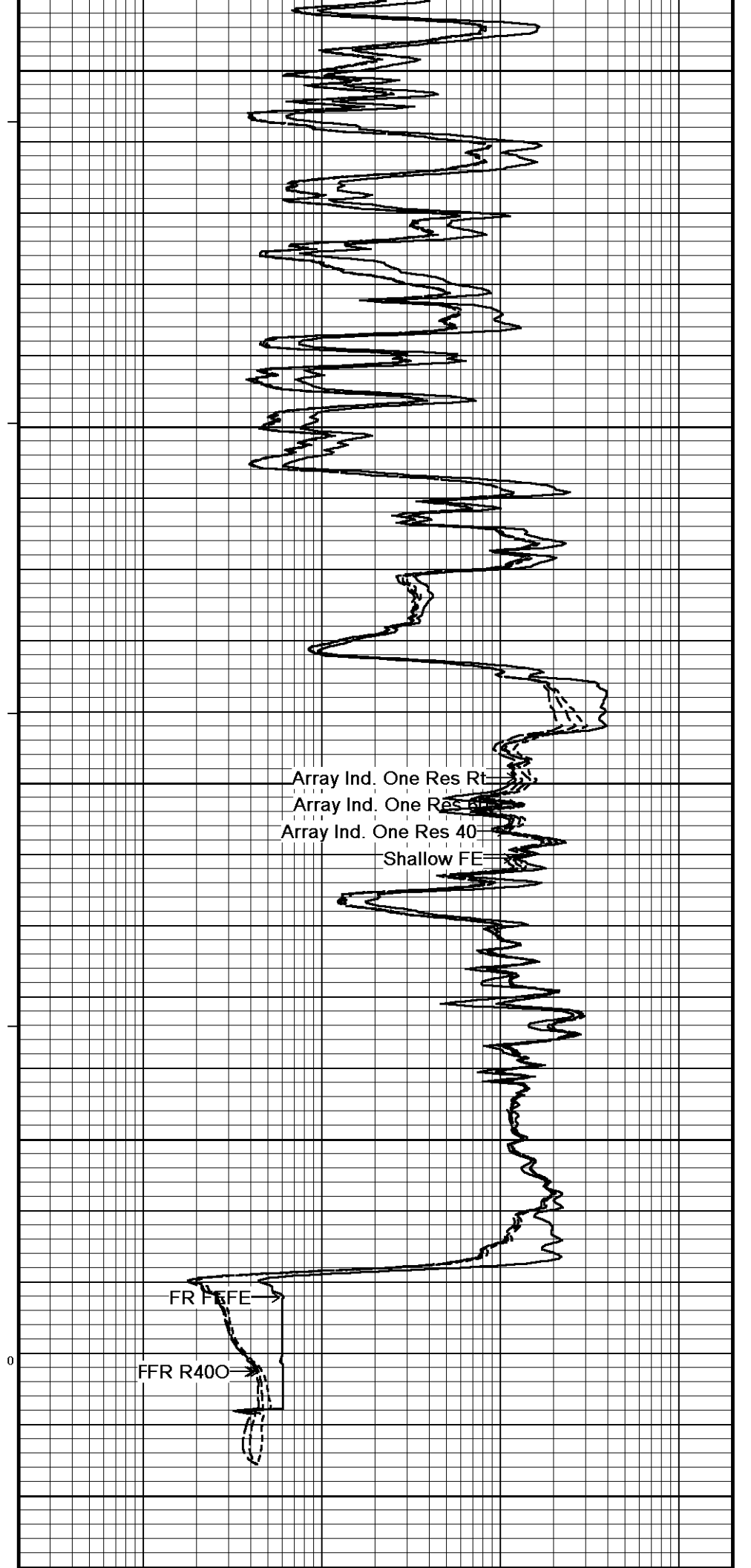
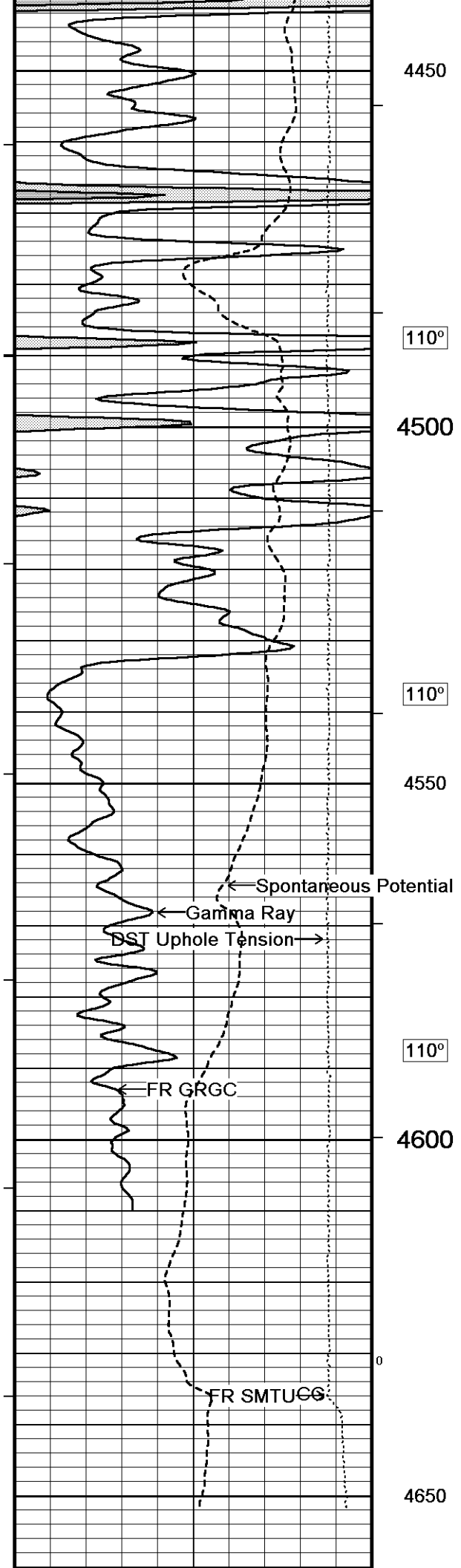
4400

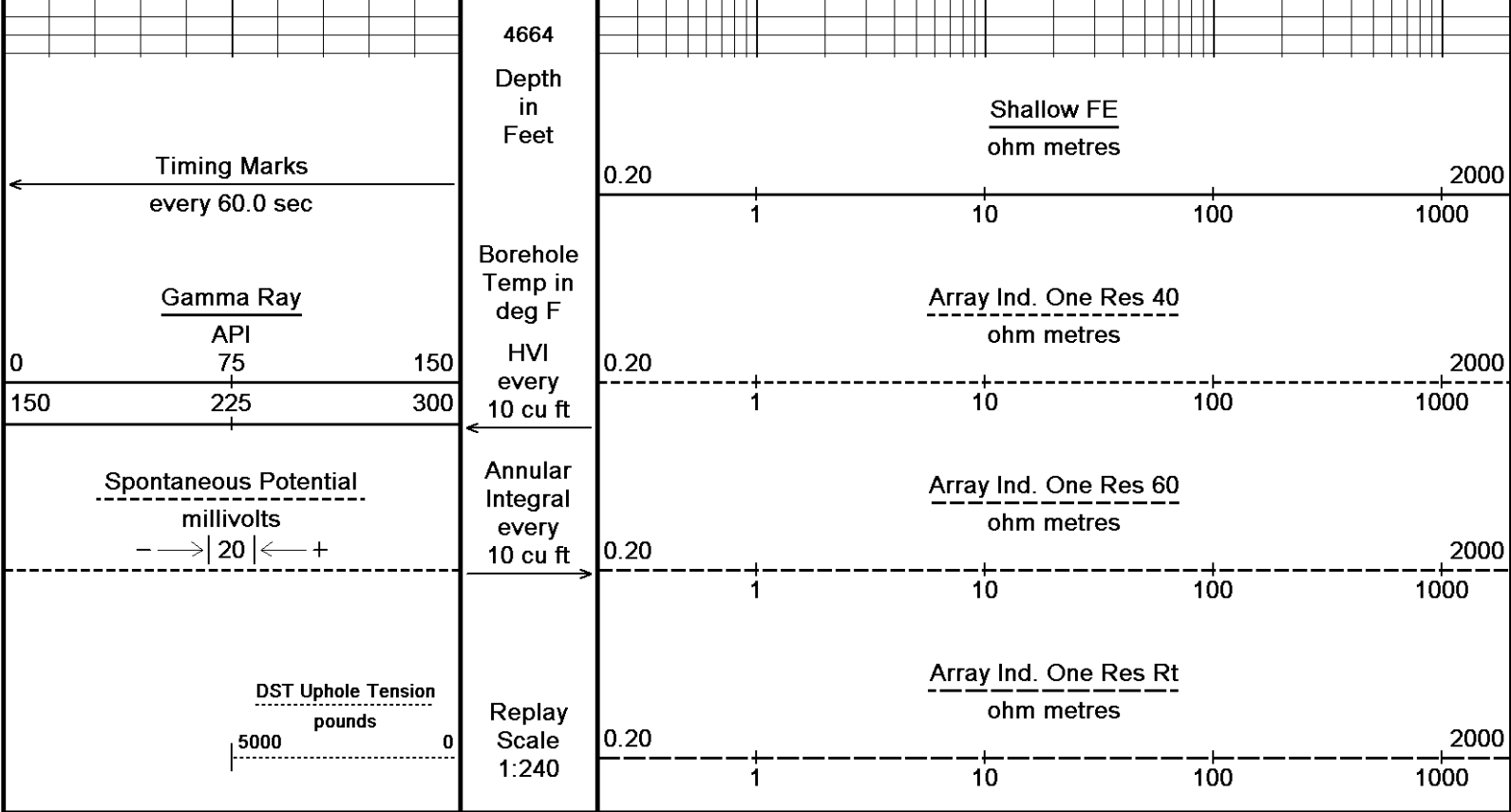
109°

100

100







Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 03-JAN-2014 22:03
 Filename: C:\Minimus 13.05.9583\Log\O'Brien Res...\O'Brien Resources LLC Colt 45 FBC 2 Repeat.dta Recorded on 03-JAN-2014 18:14
 System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 13.05.9583\Log\O'Brien Resources LLC Colt 45 FBC 2\O'Brien Resources LLC Colt 45 FBC 2 Main.dta

General Constants All 000 Last Edited on 03-JAN-2014,17:32

General Parameters		
Mud Resistivity	1.030	ohm-metres
Mud Resistivity Temperature	74.800	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	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Gamma Calibration MCG-D.K 469 Field Calibration on 30-DEC-2013 14:00

	Measured	Calibrated (API)
Background	67	46
Calibrator (Gross)	1131	771
Calibrator (Net)	1064	725

Gamma Constants MCG-D.K 469 Last Edited on 03-JAN-2014,16:09

Gamma Calibrator Number	GRC38
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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 30-DEC-2013,14:00
	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 30-DEC-2013,14:00
Pre-filter Length	11		

FE Calibration MFE-B.J 353			Base Calibration on 30-DEC-2013 12:34
			Field Check on 30-DEC-2013 12:42
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	964.4	126.8	
Base Check		280.9	
Field Check		280.9	

FE Constants MFE-B.J 353			Last Edited on 03-JAN-2014,16:07
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 30-DEC-2013 15:55
Base Calibration						
Test Loop Calibration						
Channel	Low	High	Measured	Low	High	Calibrated (mmho/m)
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	3839.5	12.1	3839.4		
2	29.3	3477.7	29.3	3477.6		
3	29.0	3053.6	28.9	3053.6		
4	19.7	2082.0	19.7	2082.0		
Deep	18.5	2049.2	18.5	2049.2		
Medium	42.1	3992.2	42.1	3992.2		
Shallow	42.6	5055.4	42.5	5055.3		
Array Temperature		59.6		59.6		Deg F

Induction Constants MAI-A.A 167			Last Edited on 03-JAN-2014,16:07
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		

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-C.A 216

Base Calibration on 30-DEC-2013 16:06
Field Calibration on 30-DEC-2013 16:08

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:\Minimus 13.05.9583\Log\O'Brien Resources LLC Colt 45 FBC 2\O'Brien Resources LLC Colt 45 FBC 2 Main.dta

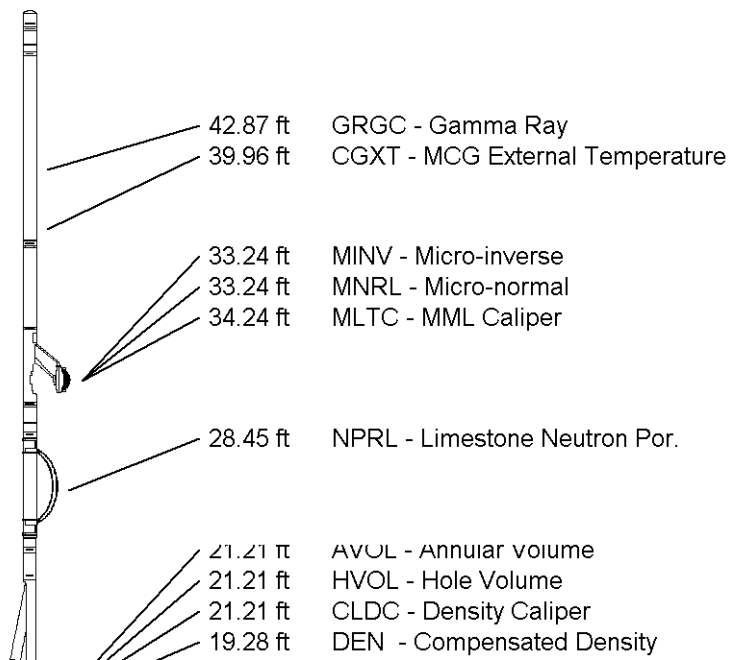
3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

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

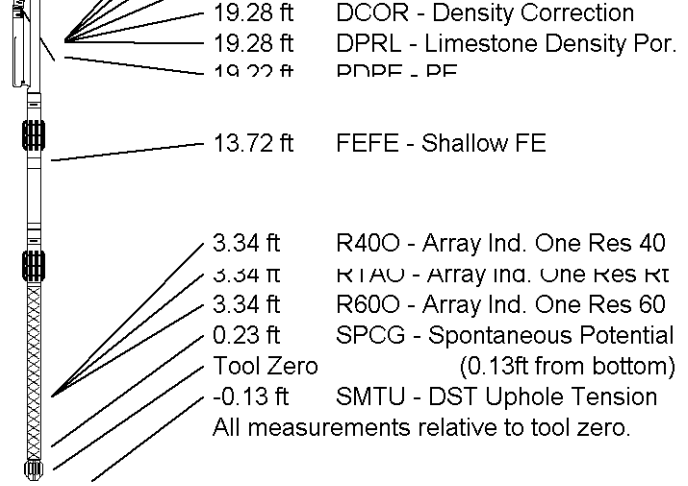
Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in



Compact Focused Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 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: 49.73 ft Weight: 399.0 lb



COMPANY O'BRIEN RESOURCES LLC
WELL COLT 45 FBC 2
FIELD WILDCAT
PROVINCE/COUNTY LANE
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2853.00	feet	First Reading	4632.66	feet
Elevation Drill Floor	2851.00	feet	Depth Driller	4635.00	feet
Elevation Ground Level	2848.00	feet	Depth Logger	4636.00	feet

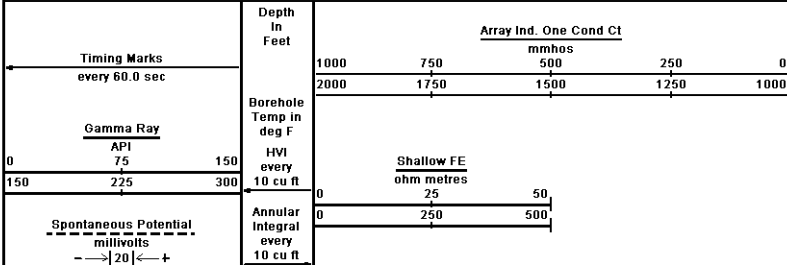


ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

Weatherford

Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	O'BRIEN RESOURCES LLC	WELL	COLT 45 FBC 2
FIELD	WILDCAT	PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS	LOCATION	720' FNL & 2424' FEL NW SW NW NE
SEC	175	RSE	30W
Log Number	15-101-22478	Other Services	MLL
Permanent Datum GL, Elevation	2848 feet	Log Measured From	KB
Drilling Measured From	KB @ 5 FEET	Drilling Measured From	KB @ 5 FEET
Date	03-JAN-2014	Run Number	ONE
Service Order	3547682	Depth Driller	4635.00 feet
Depth Driller	4635.00 feet	Depth Logger	4632.66 feet
First Reading	4632.66 feet	Log Reading	245.00 feet
Casing Driller	245.00 feet	Casing Logger	246.00 feet
Bit Size	7.875 inches	Hole Fluid Type	CHEMICAL
Density/viscosity	9.40 lb/USg	CP	45.00
PH/Fluid Loss	10.50	MLDP/IT	5.20
Sample Source	MUD/PIT	Form @ Measured Temp	1.03 @ 74.8 ohm-in
Form @ Measured Temp	0.82 @ 74.8 ohm-in	Form @ Measured Temp	1.24 @ 74.8 ohm-in
Form @ Measured Temp	1.24 @ 74.8 ohm-in	Source Form/Temp	CALC
Form @ BHT	0.71 @ 111.0 ohm-in	Time since Circulation	4 HOURS
Time since Circulation	4 HOURS	Star Recorded Temp	113.00 deg F
Star Recorded Temp	113.00 deg F	Equipment/Type	LIB
Equipment/Type	LIB	Recorded by	DEREK CARTER
Recorded by	DEREK CARTER	Witnessed by	KOERT TALBOT
Witnessed by	KOERT TALBOT	DOB #	1B14-004

1 INCH MAIN
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 03-JAN-2014 22:03
Filename: C:\Minimus 13.05.9583\Log\O'Brien Resources...O'Brien Resources LLC Colt 45 FBC 2 Main.dta
Recorded on 03-JAN-2014 18:58
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:600

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Casing
2:40

300

81°

83°

500

85°

600

85°

700

87°

800

88°

900

1000

88°

1100

88°

1200

Array Ind. One Res Rt

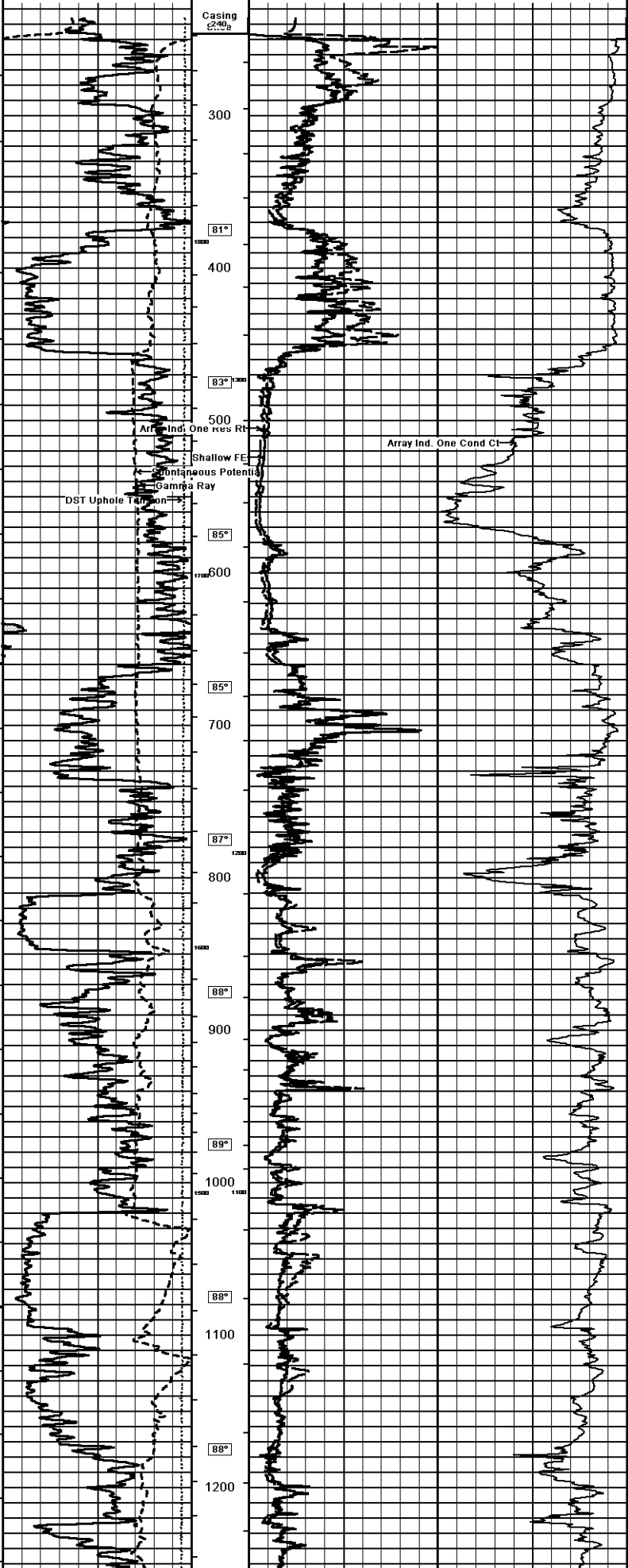
Array Ind. One Cond Cl

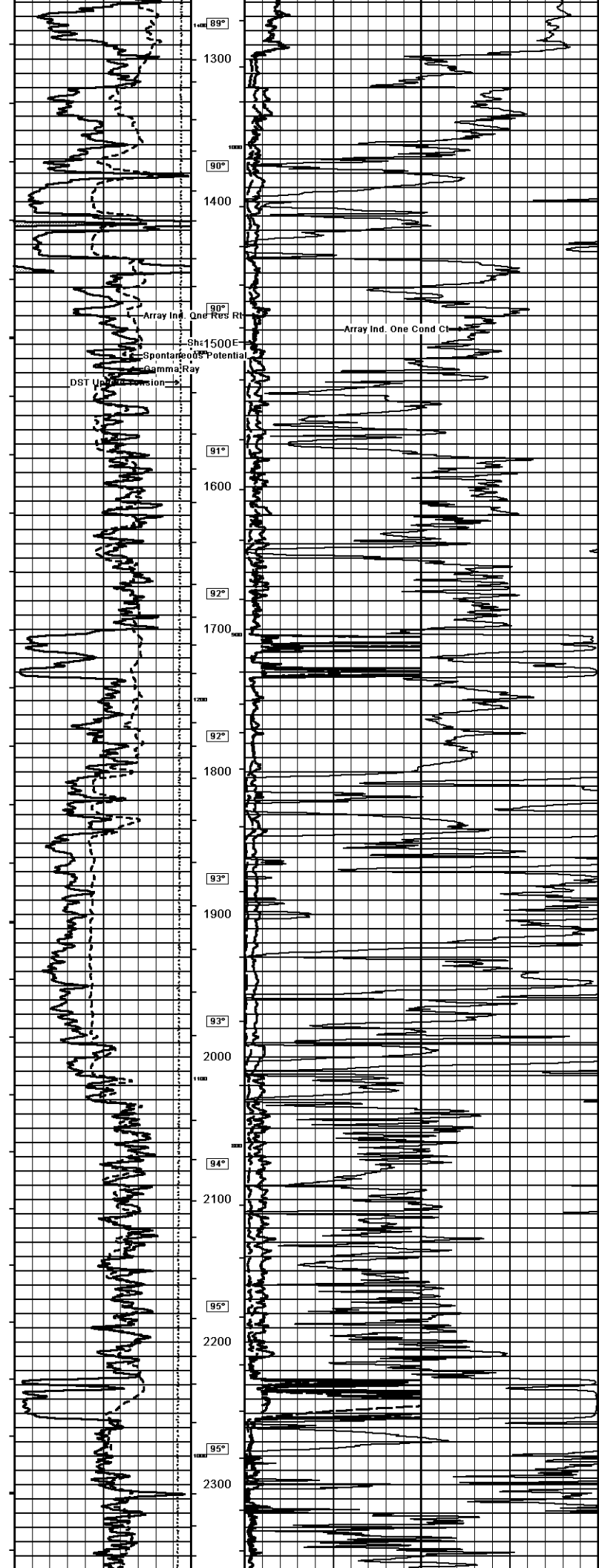
Shallow FE

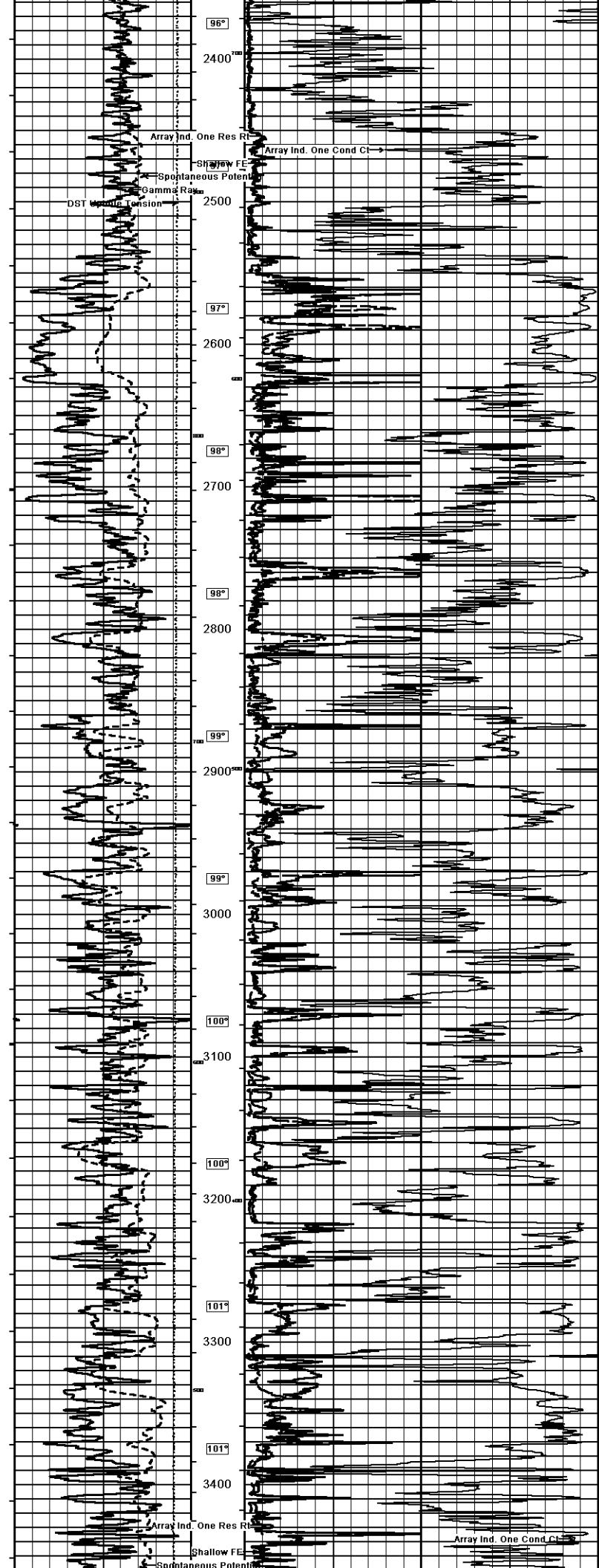
Spontaneous Potential

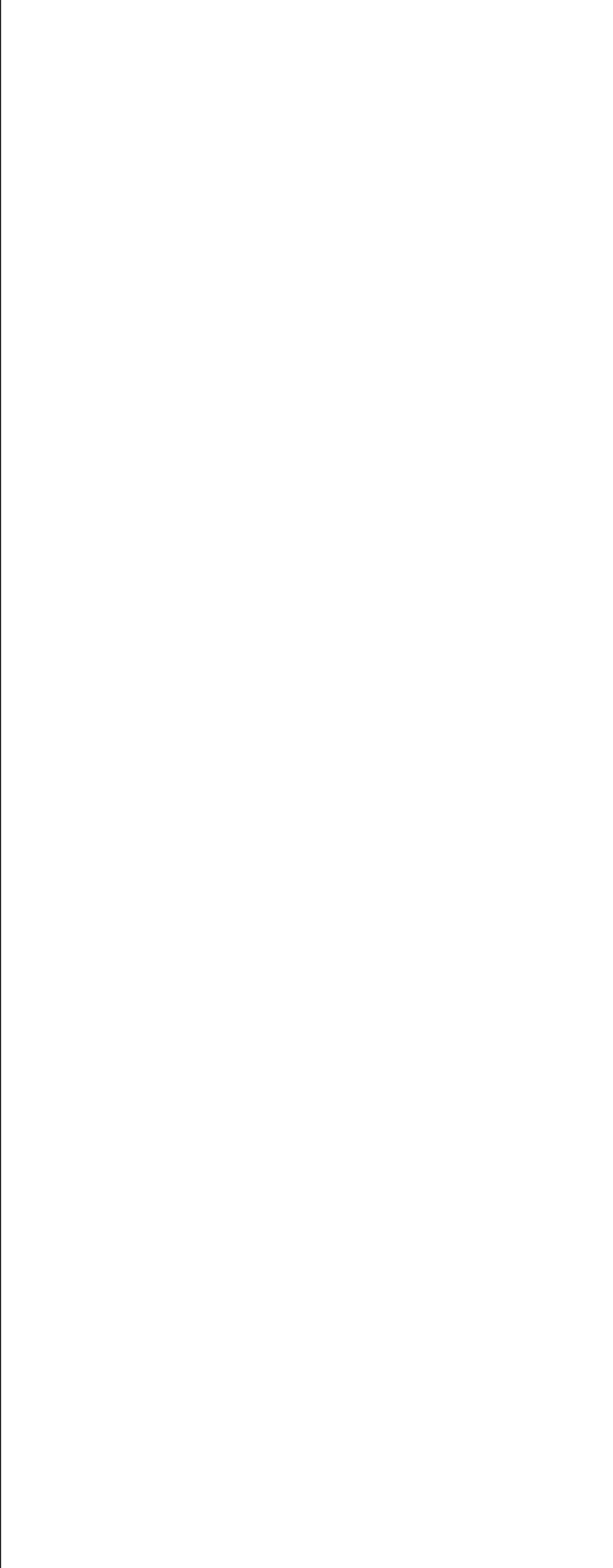
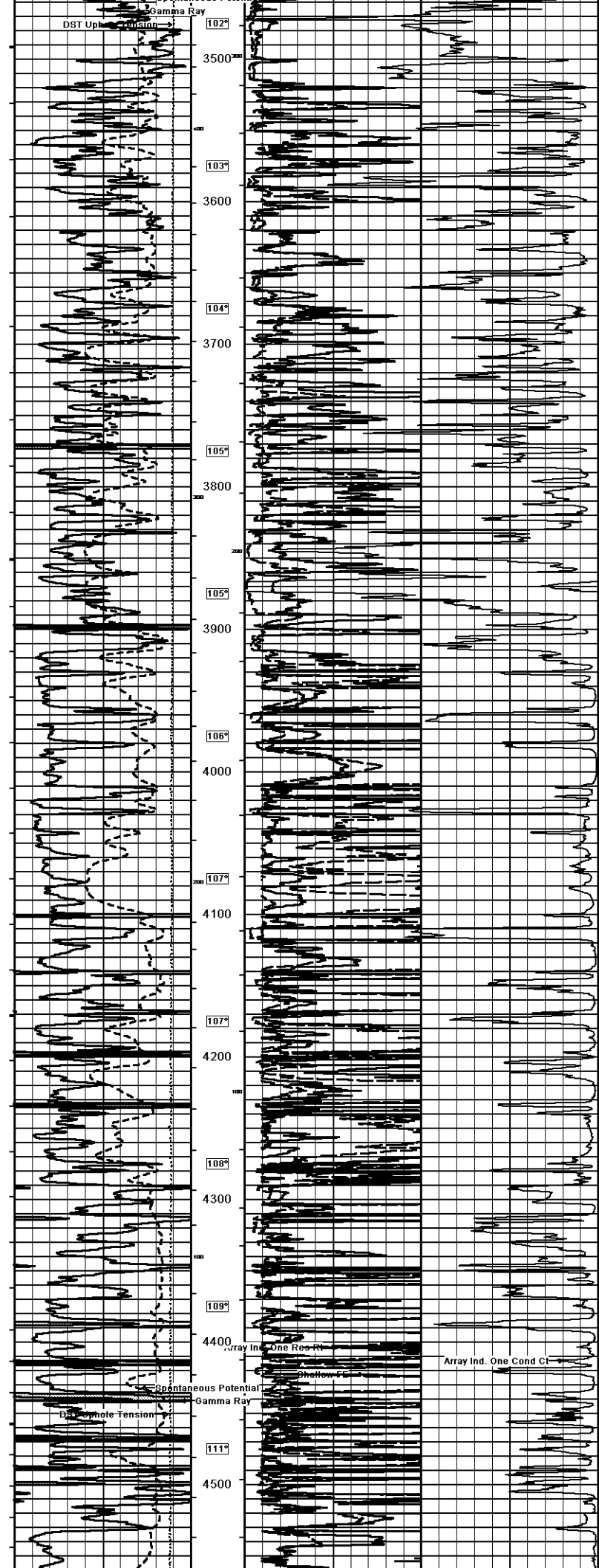
Gamma Ray

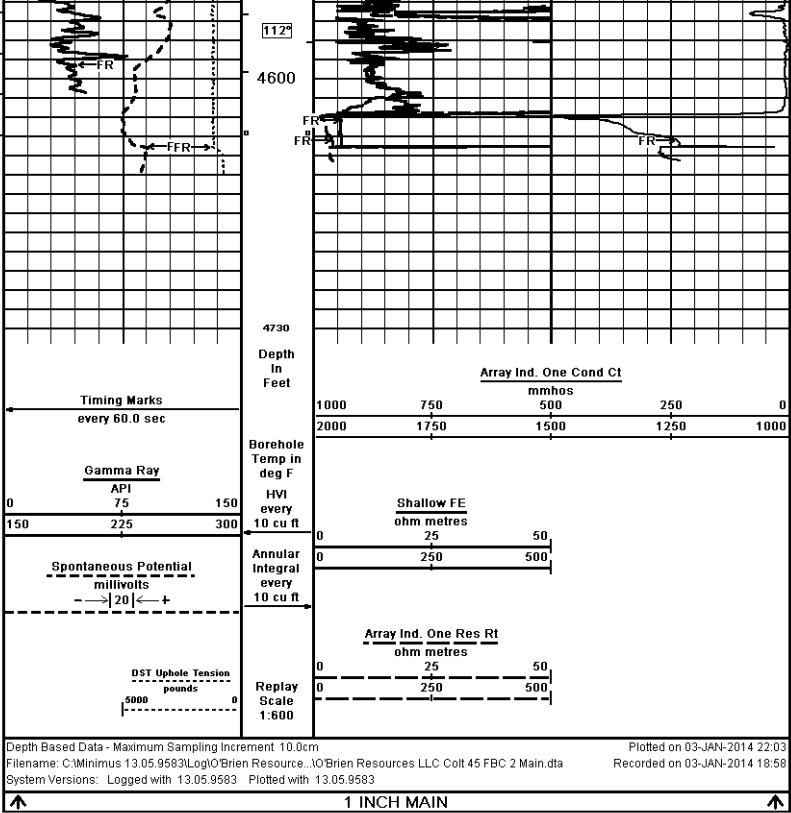
DST Uphole Tension












COMPANY O'BRIEN RESOURCES LLC
 WELL COLT 45 FBC 2
 FIELD WILDCAT
 PROVINCE/COUNTY LANE
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 ARRAY INDUCTION
 SHALLOW FOCUSED
 ELECTRIC LOG