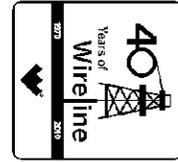




**Weatherford**<sup>®</sup>

**ARRAY INDUCTION  
SHALLOW FOCUSED  
ELECTRIC LOG**

COMPANY FUTURE PETROLEUM CO. LLC.  
WELL WEST MADDIX UNIT #1  
FIELD WEST MADDIX UNIT  
PROVINCE/COUNTY COWLEY  
COUNTRY/STATE U.S.A. / KANSAS  
LOCATION 1041' FNL & 684 FWL  
SW SE NW NW



SEC	TWP	RGE	Other Services
11	33S	5E	MPD/MDN
API Number	15-035-24429		MML
Permit Number			
Permanent Datum G.L., Elevation 1272 feet			
Log Measured From K.B. @ 10 FEET above Permanent Datum			
Drilling Measured From K.B.			
Date	10-JUN-2011		Elevations: KB 1282.00 DF 1280.00 GL 1272.00

Run Number	ONE		
Depth Driller	3203.00	feet	
Depth Logger	3207.00	feet	
First Reading	3204.00	feet	
Last Reading	213.00	feet	
Casing Driller	213.00	feet	
Casing Logger	213.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.30 lb/USg	8.80 CP	
PH / Fluid Loss	9.00	49.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.07 @ 97.0	ohm-m	
Rmf @ Measured Temp	0.86 @ 97.0	ohm-m	
Rmc @ Measured Temp	1.28 @ 97.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.93 @ 112.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	112.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13025	LIB	
Recorded By	L. SCOTT		
Witnessed By	TERRY MADDEN		ROGER MARTIN
S.O. / JOB #	3531122		LIB11-129

**BOREHOLE RECORD**

Last Edited: 10-JUN-2011 21:57

Bit Size inches	Depth From feet	Depth To feet
7.875	213.00	3207.00

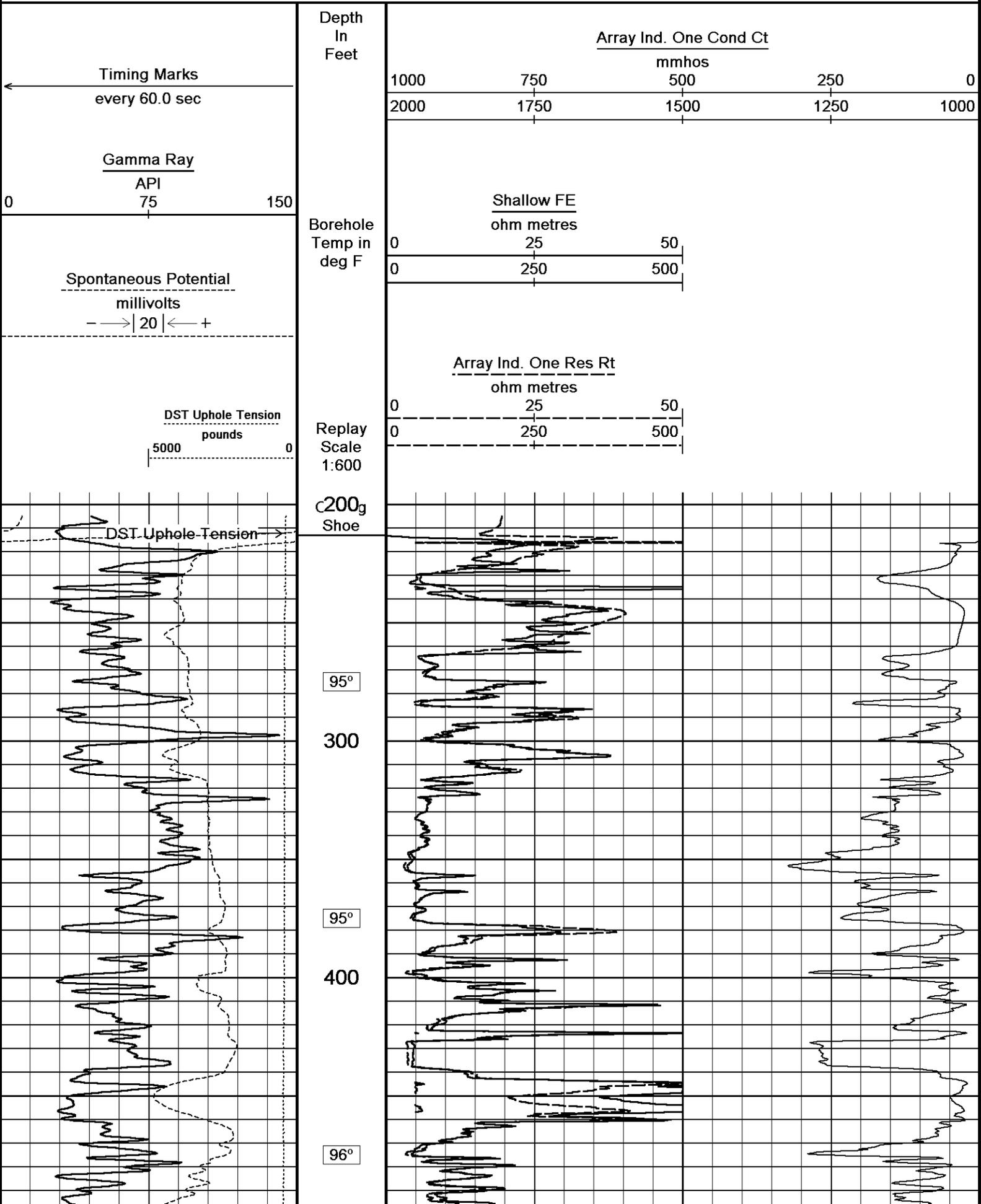
**CASING RECORD**

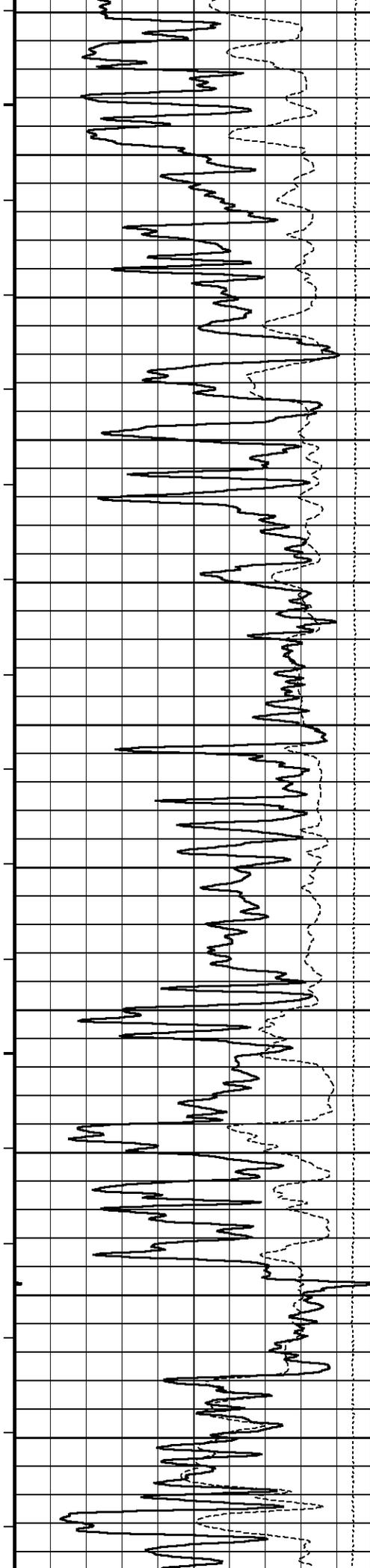
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	213.00	24.00

**REMARKS**

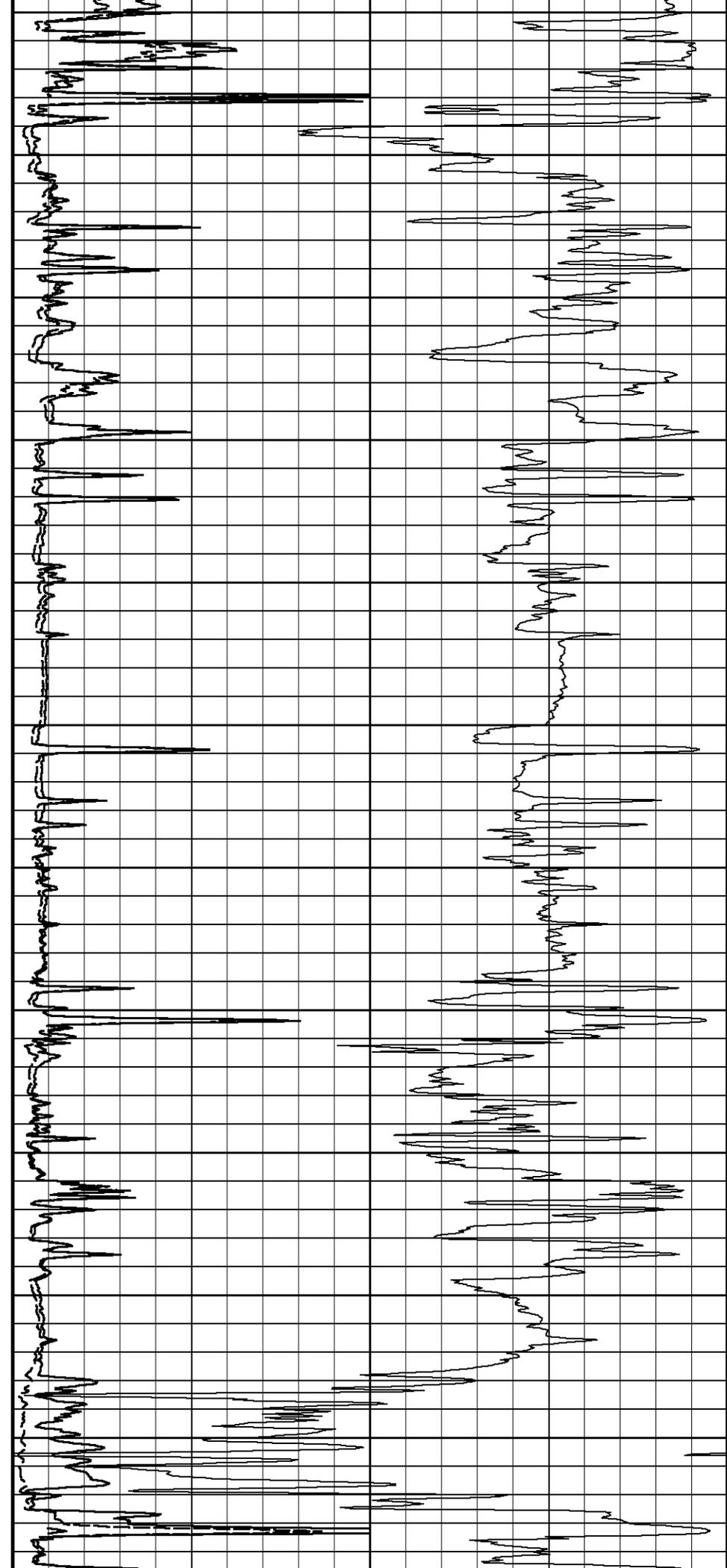
Tools Used: MPD, MCG, MDN, MFE, MAI, MML  
 Hardware: MPD: 8 inch profile plate used. MAI, MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.  
 2.71 G/CC Limestone density matrix used to calculate porosity.  
 Borehole rugosity, tight pulls, and washouts will affect data quality.  
 All intervals logged and scaled per customer's request.  
 Annular volume with 4.5 inch production casing = 1002cu. ft.  
 Service order #3531122  
 Rig: Val Rig #3  
 Engineer: L. Scott  
 Operator(s): J. LaPoint

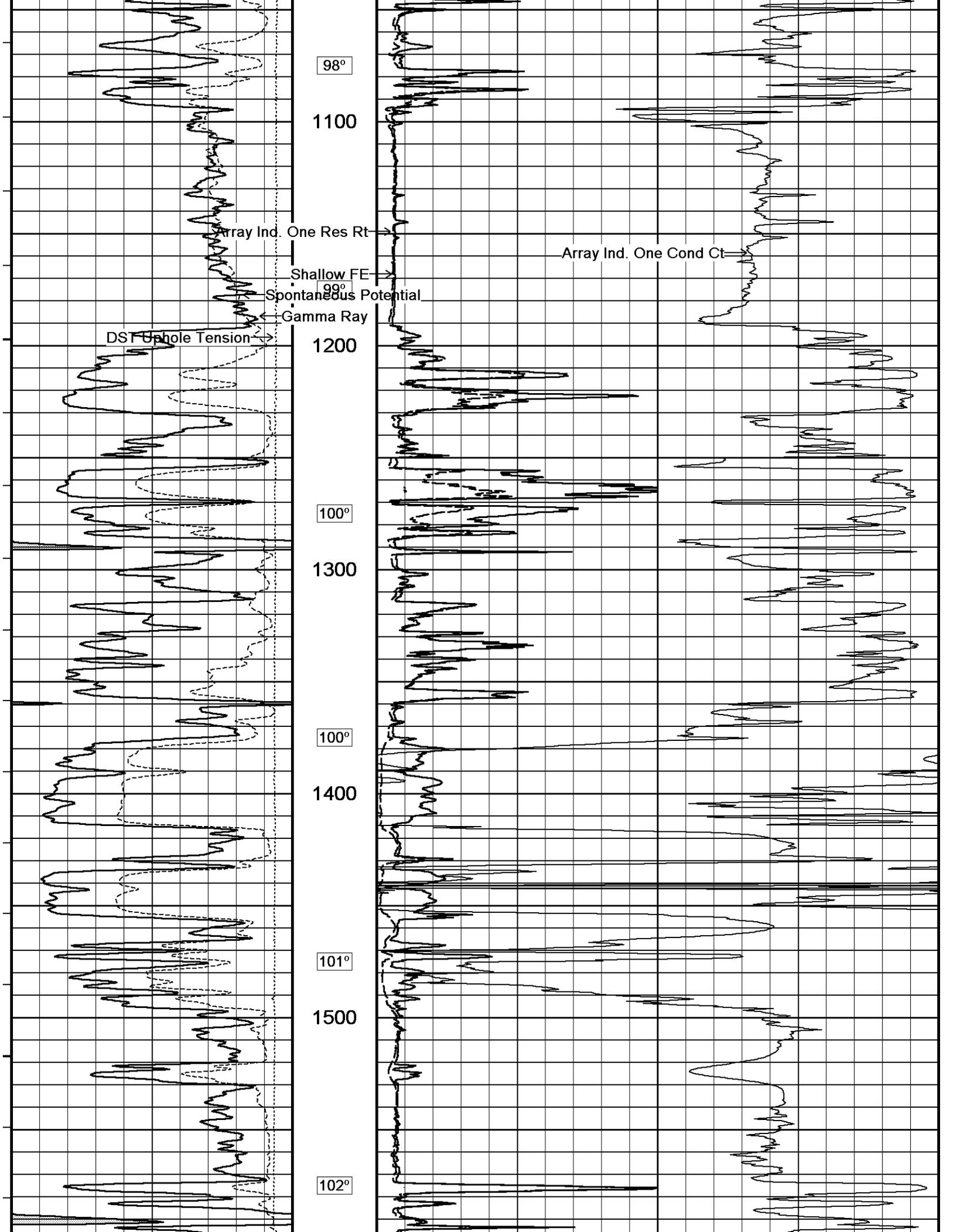
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

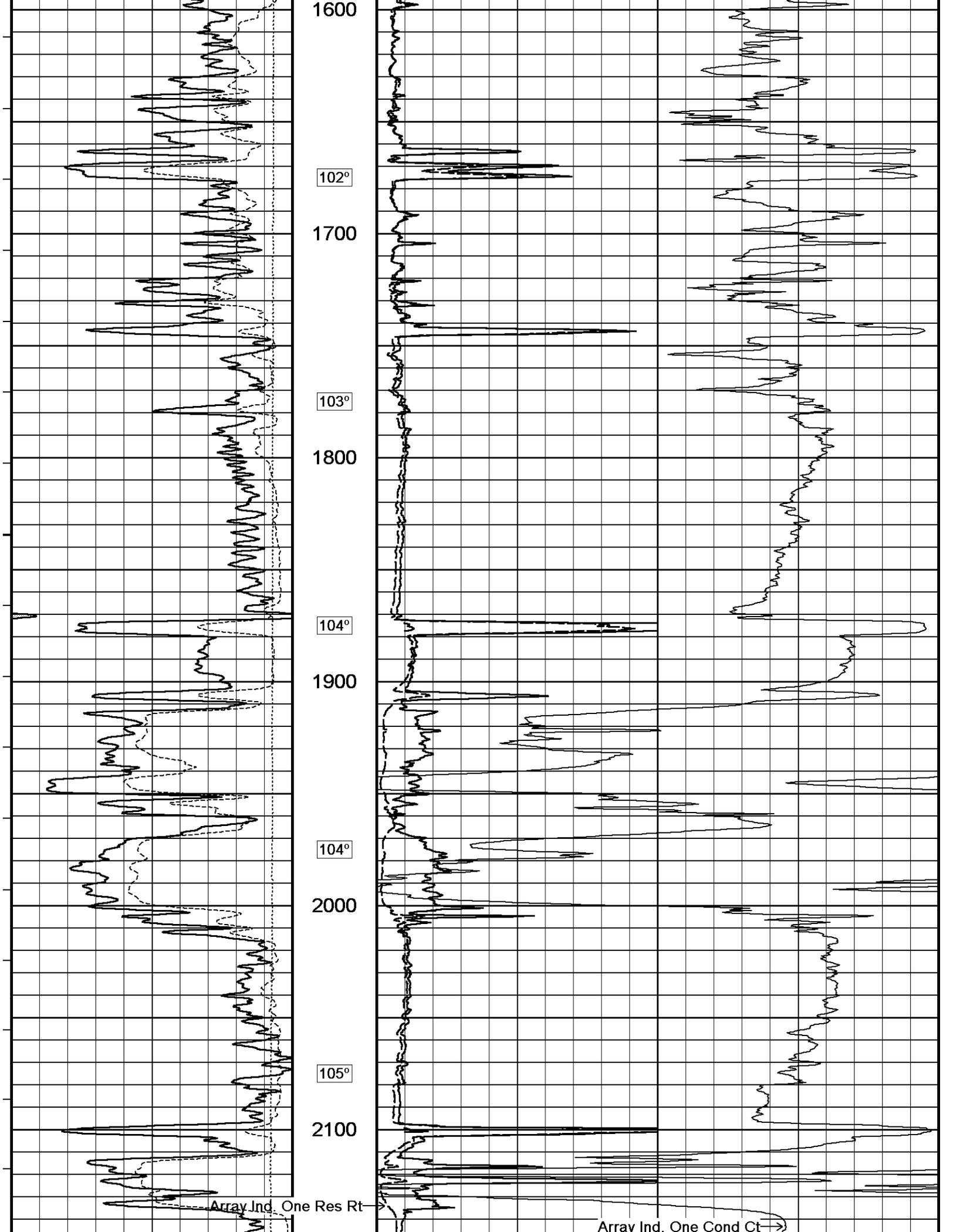


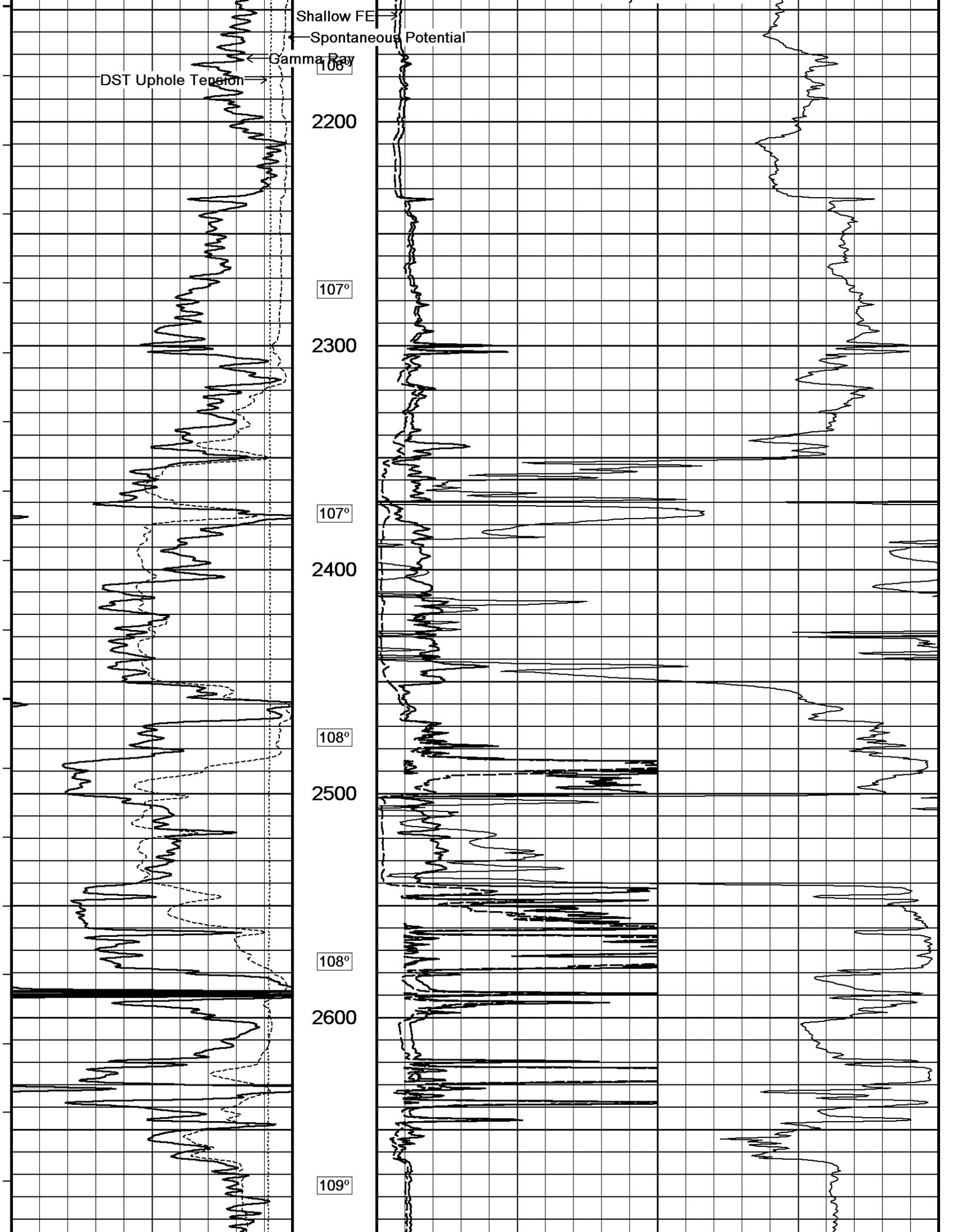


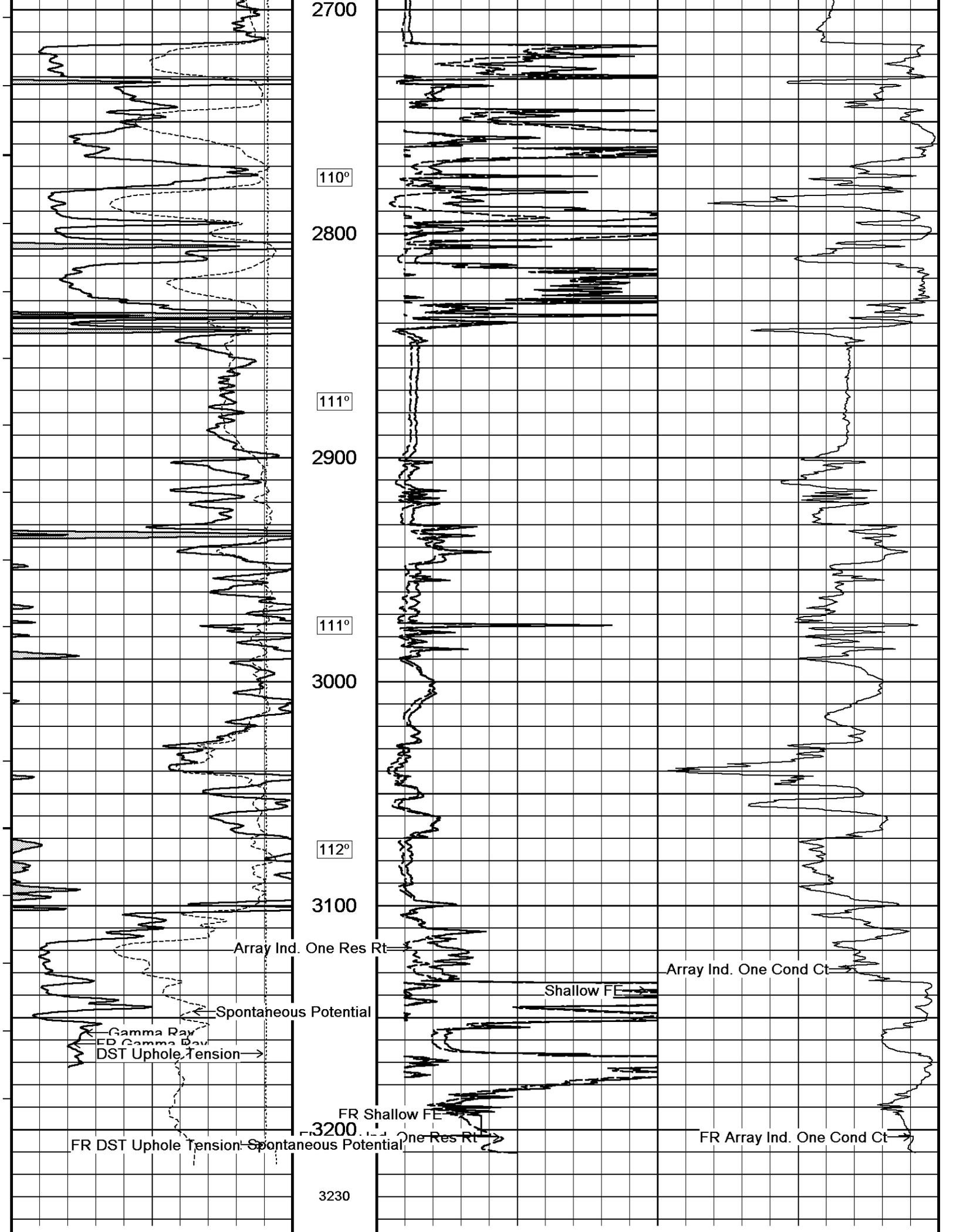
500  
96°  
600  
97°  
700  
98°  
800  
98°  
900  
98°  
1000

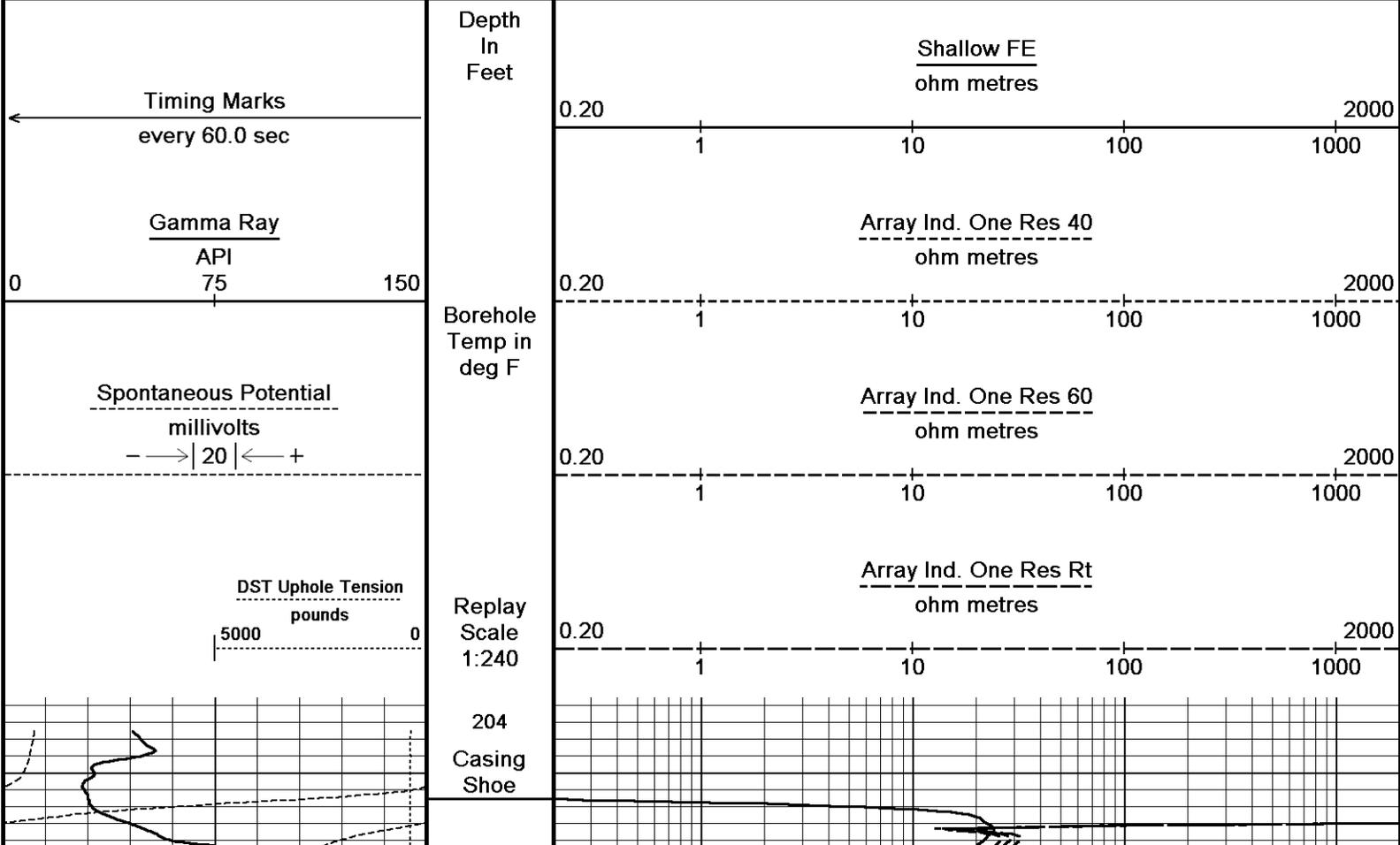
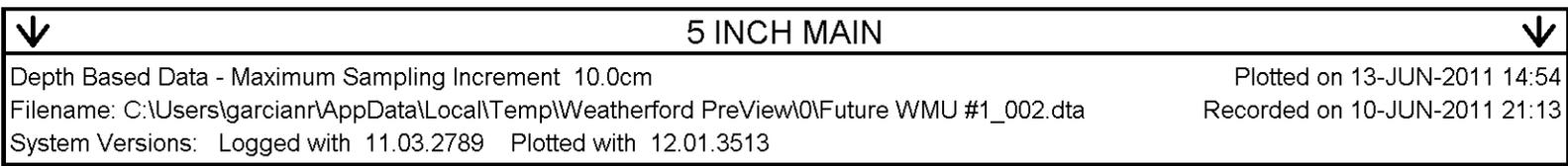
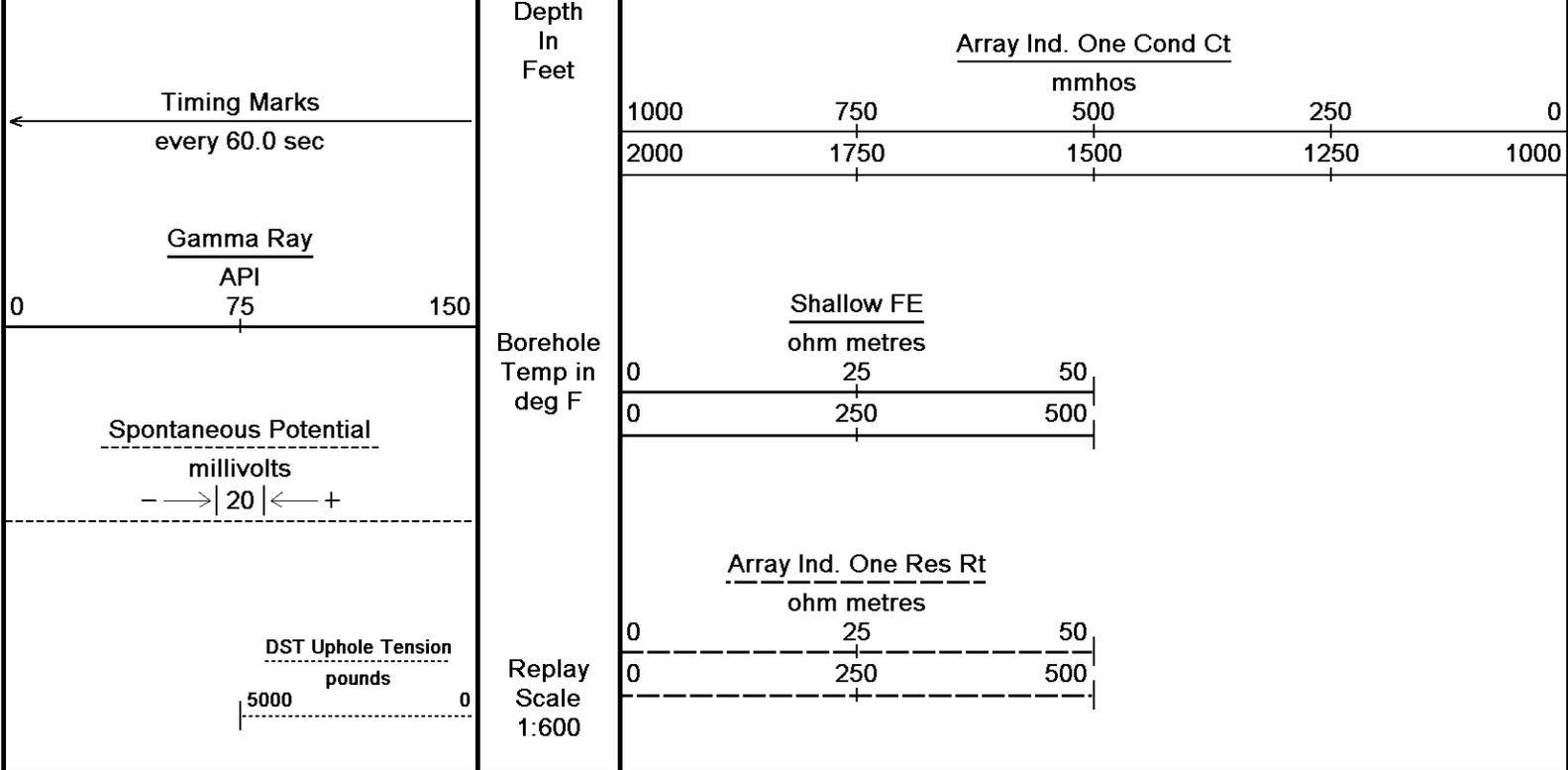


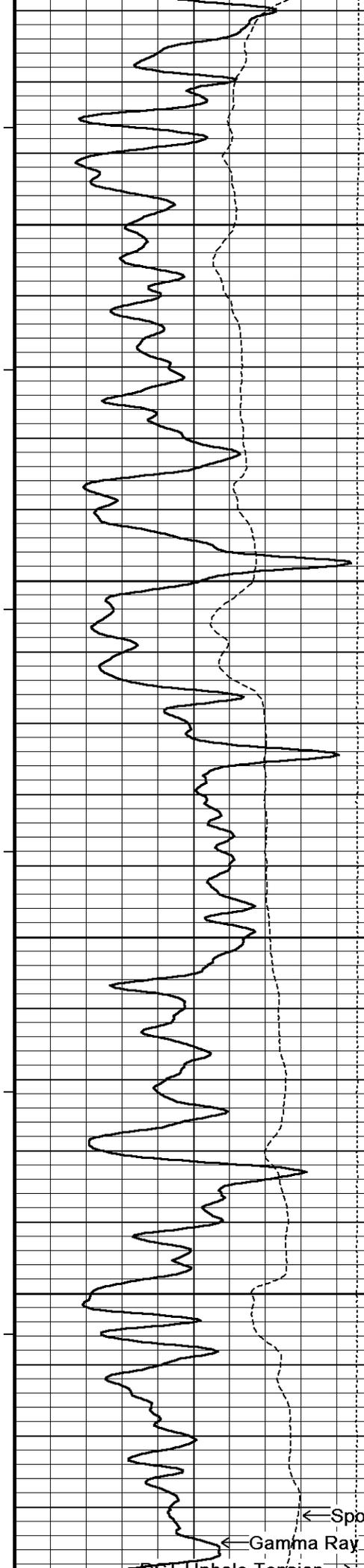












250

95°

300

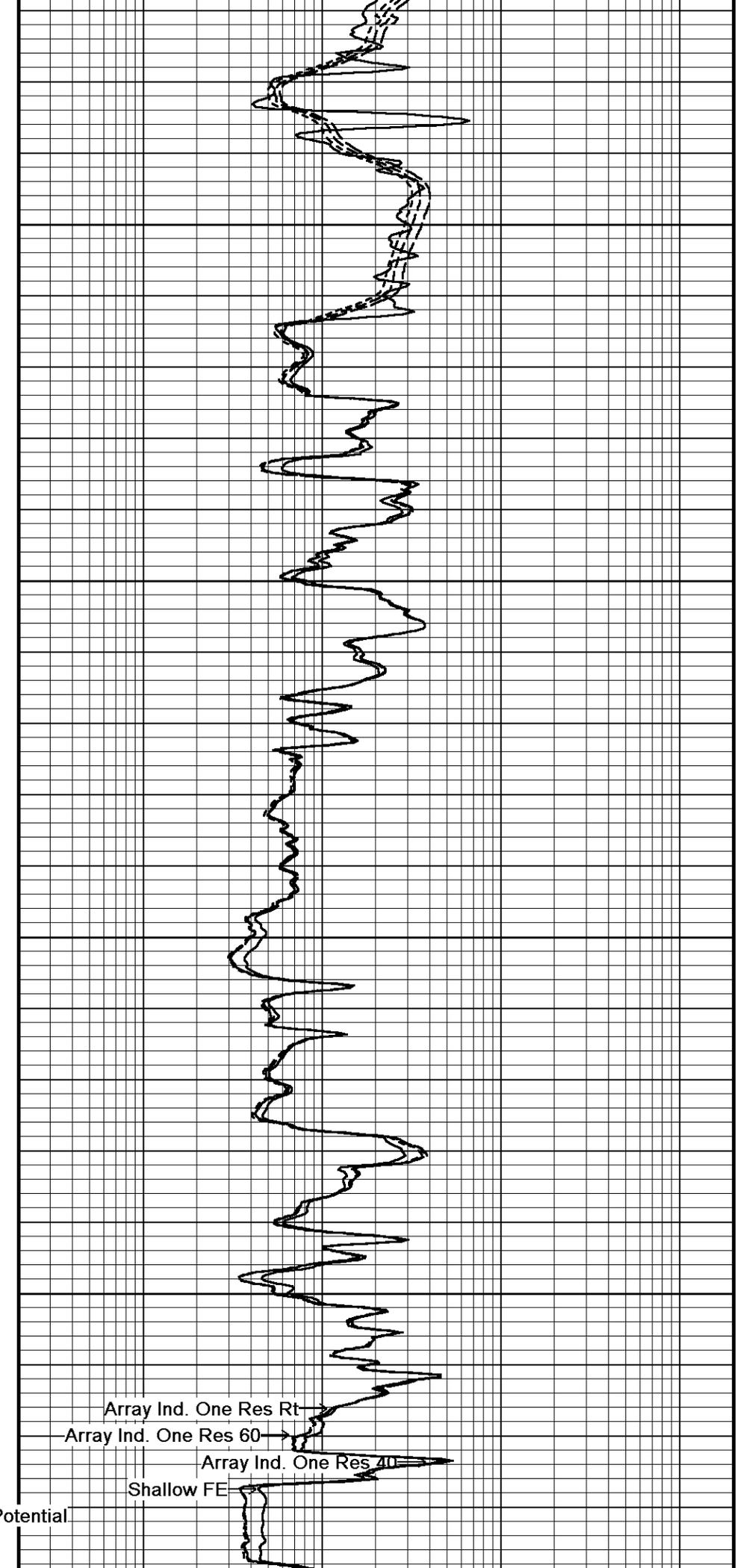
95°

350

95°

400

96°



Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

← Spontaneous Potential

← Gamma Ray

DST Uprhole Version

450

96°

500

96°

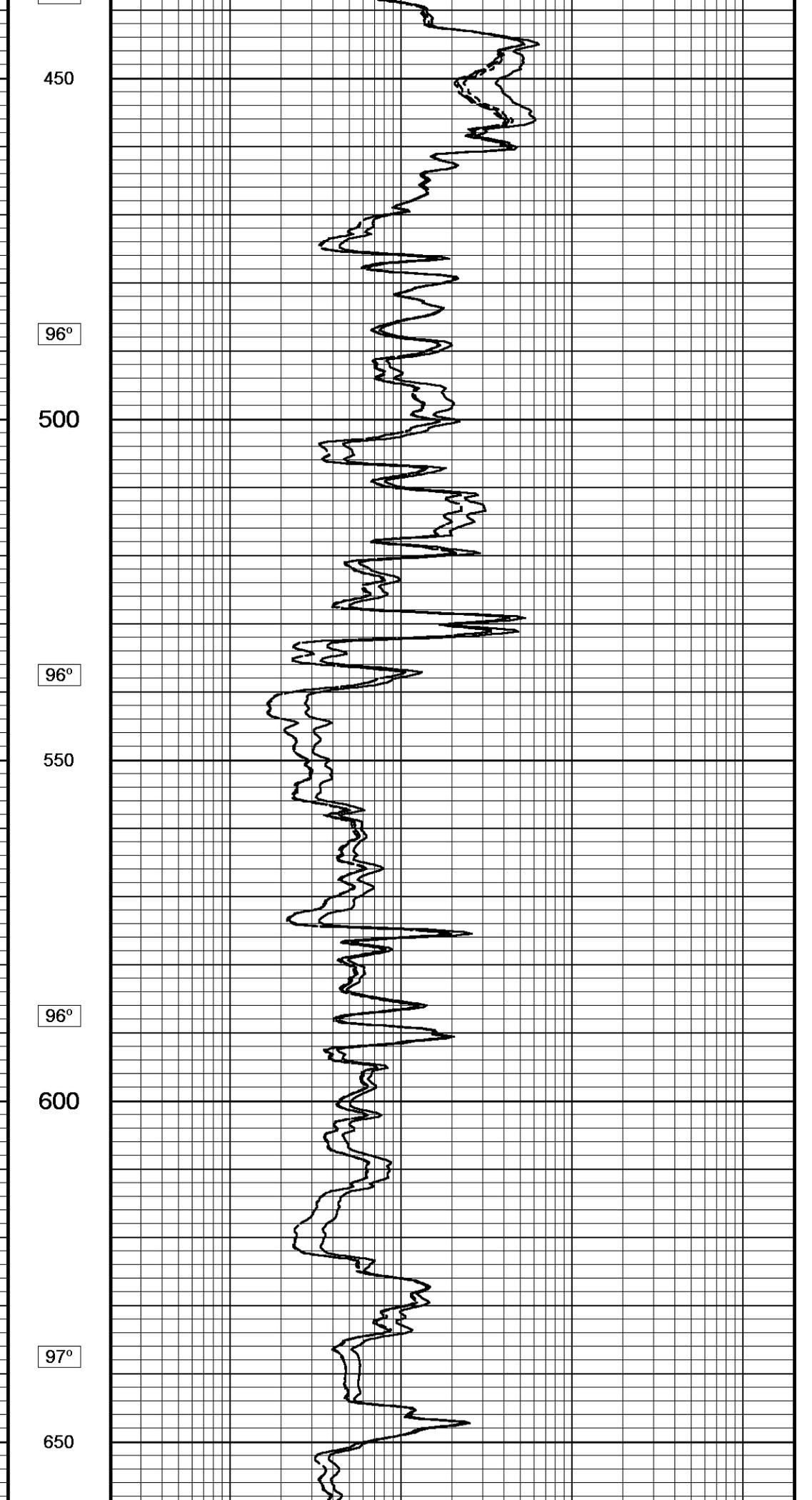
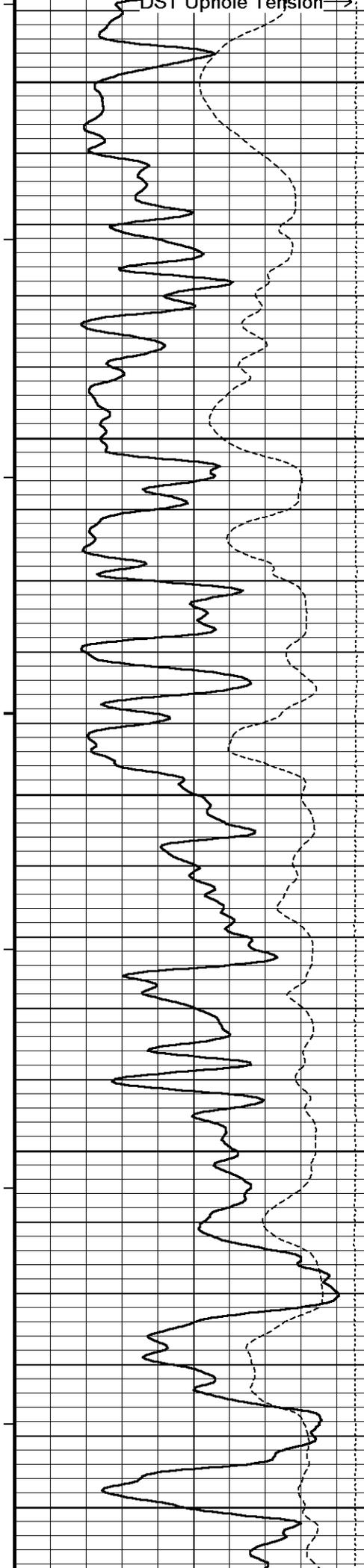
550

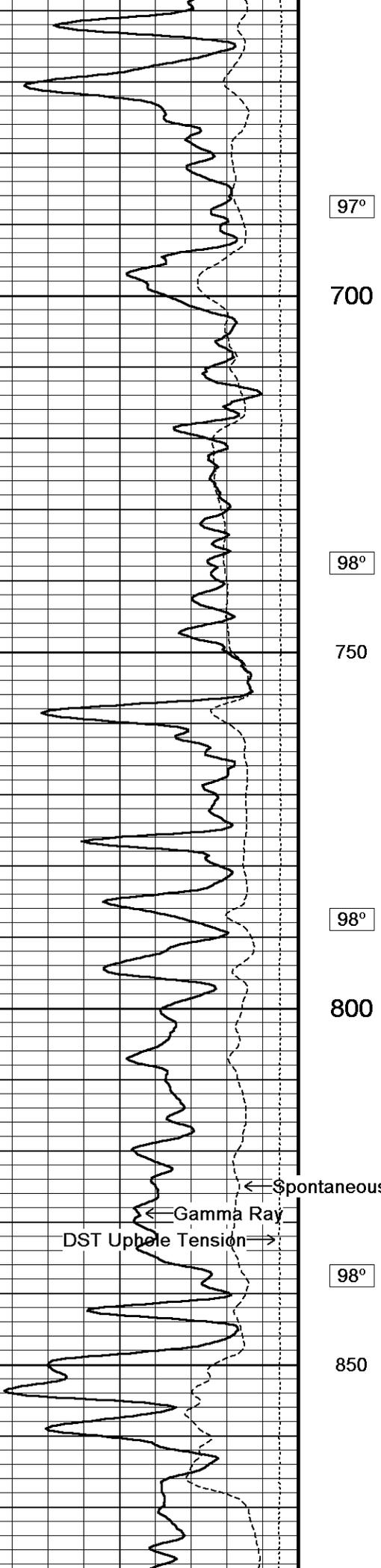
96°

600

97°

650





97°

700

98°

750

98°

800

← Spontaneous Potential

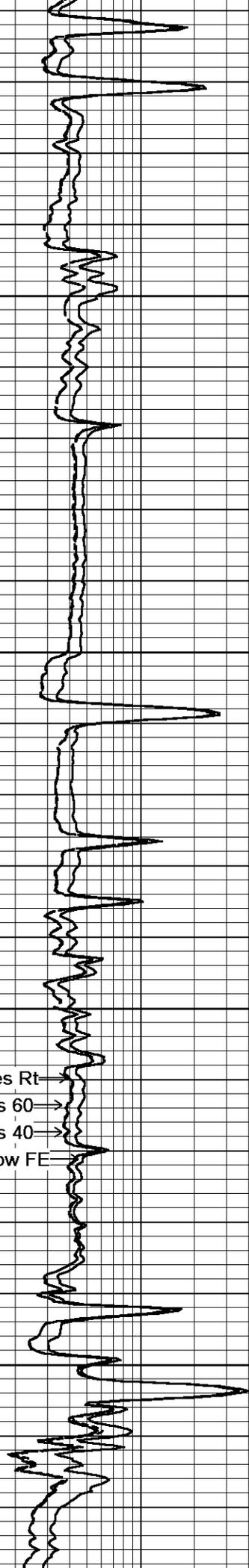
← Gamma Ray

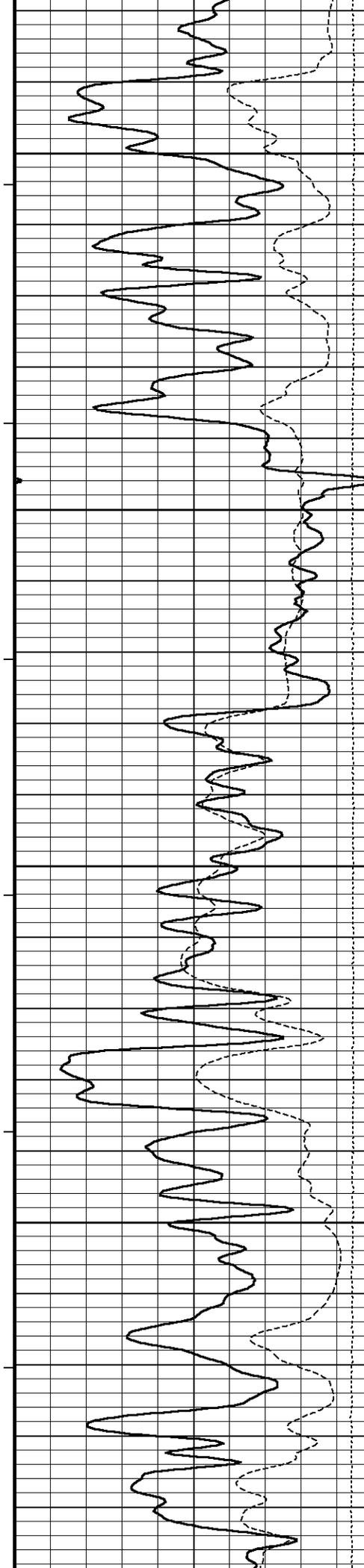
DST Uphole Tension →

98°

850

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





98°

900

98°

950

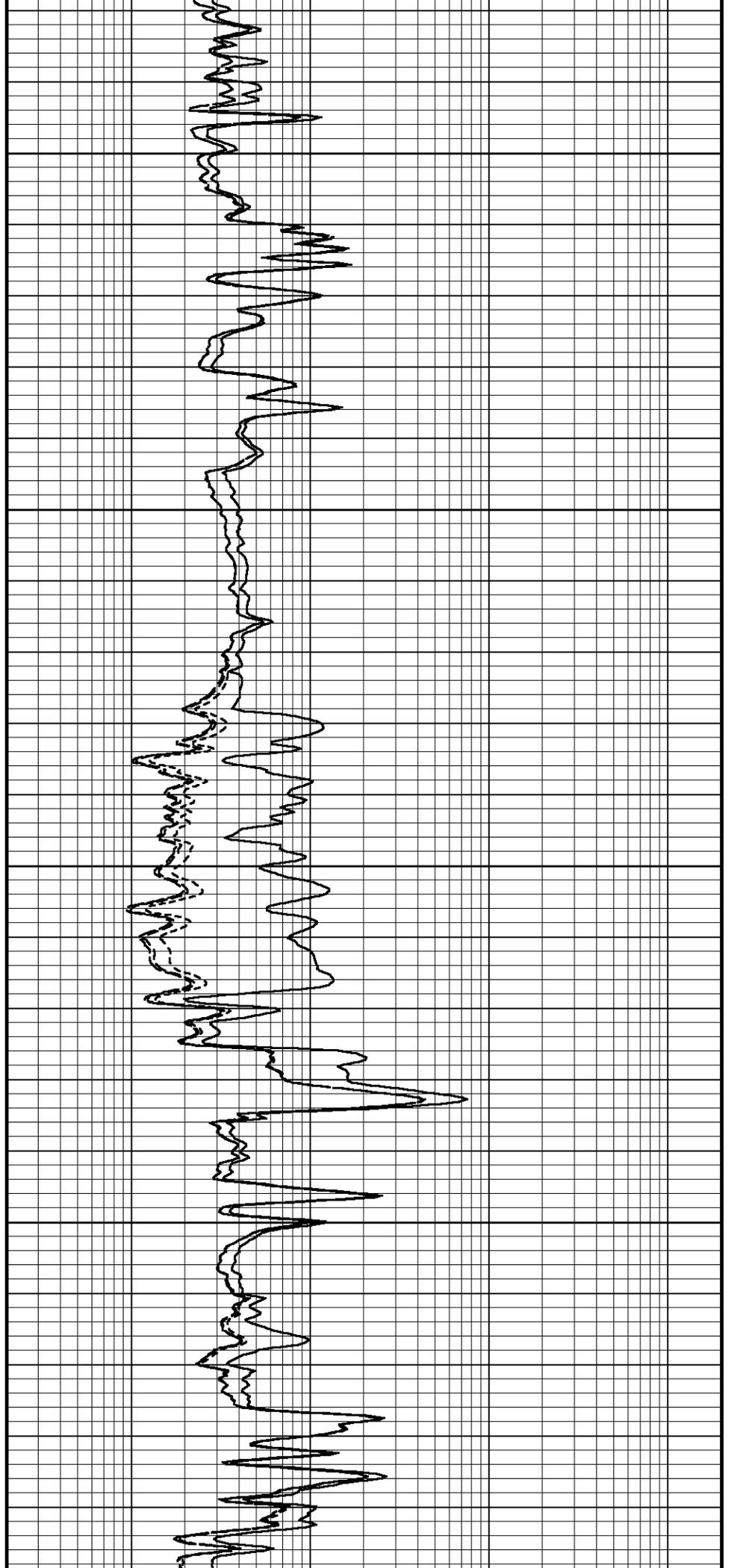
98°

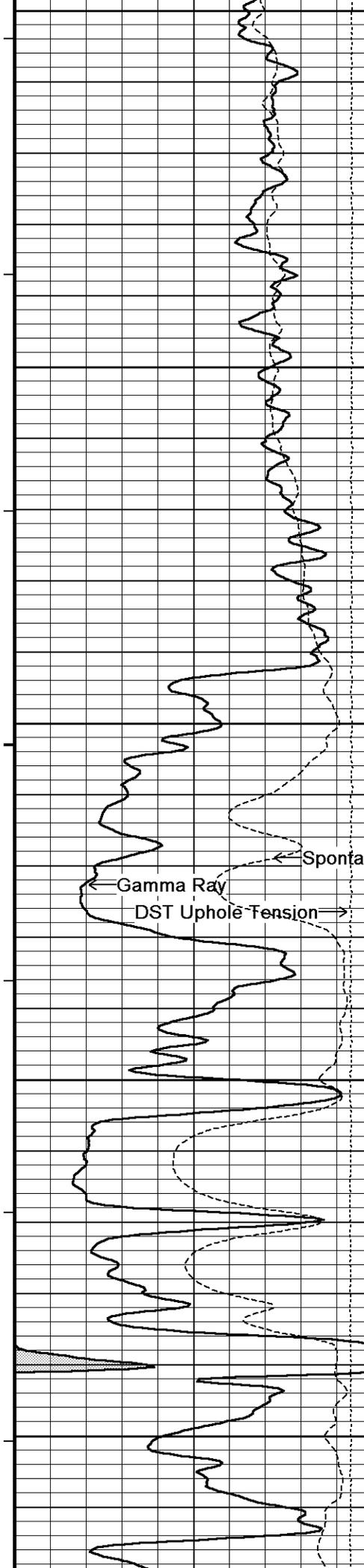
1000

98°

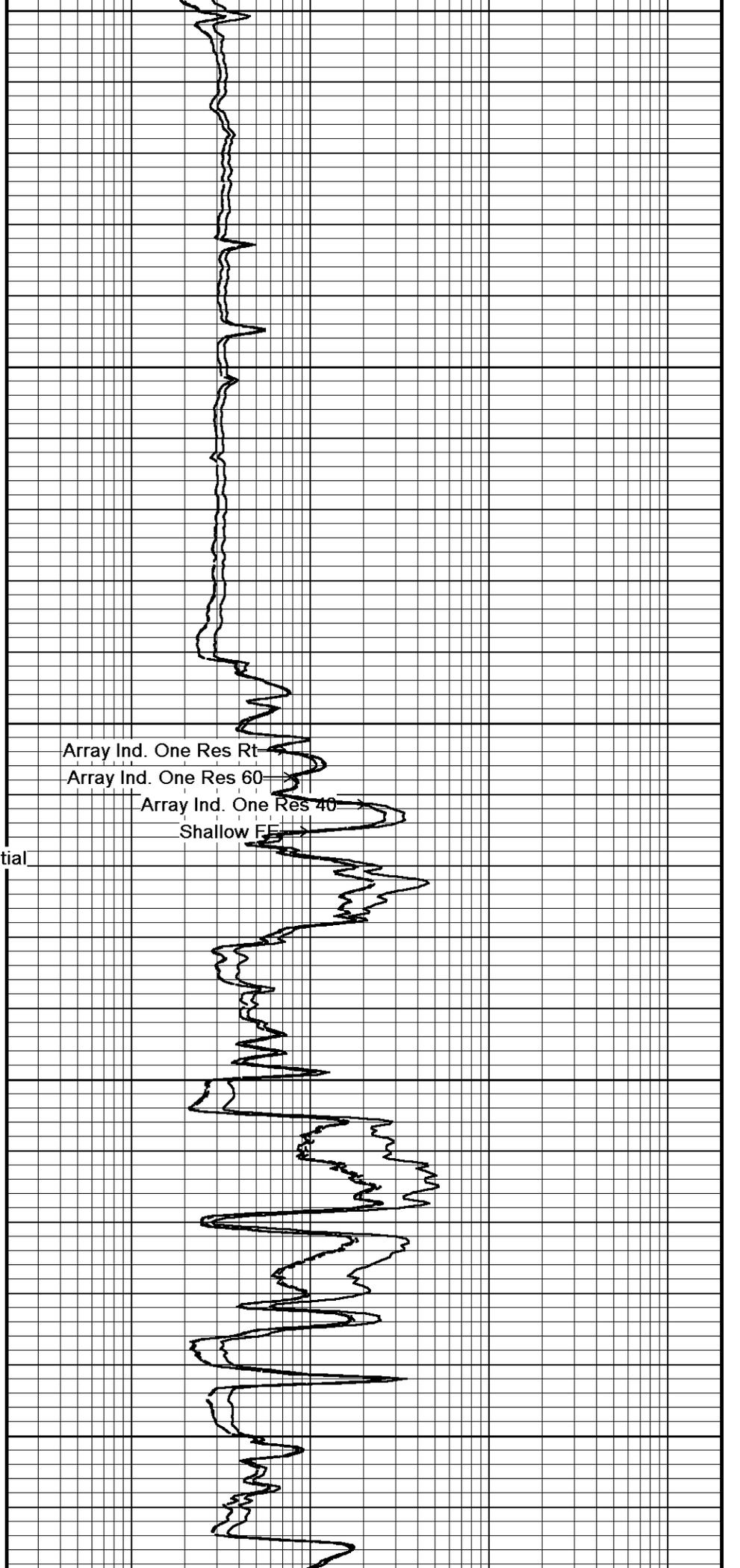
1050

99°

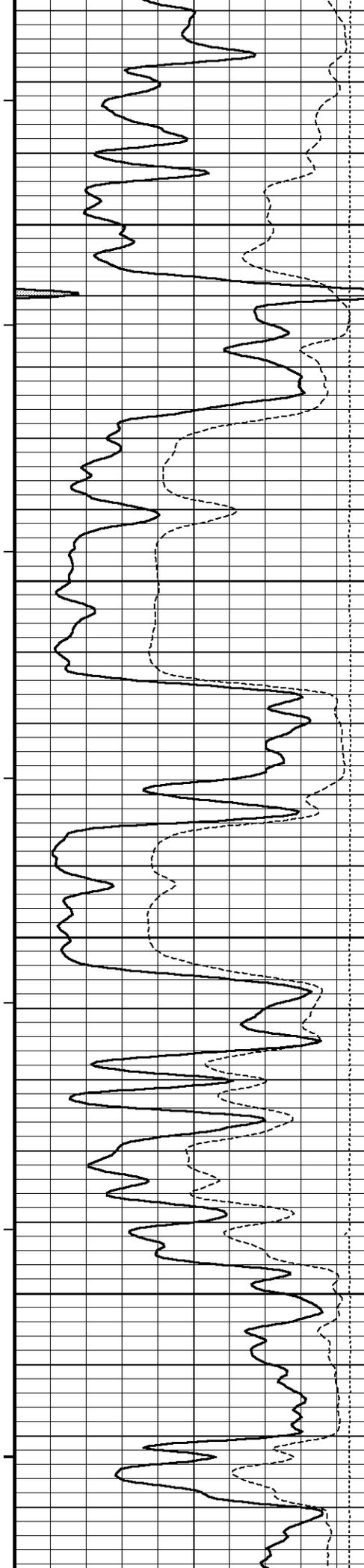




1100  
99°  
1150  
99°  
1200  
100°  
1250  
100°  
1300



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



100°

1350

100°

1400

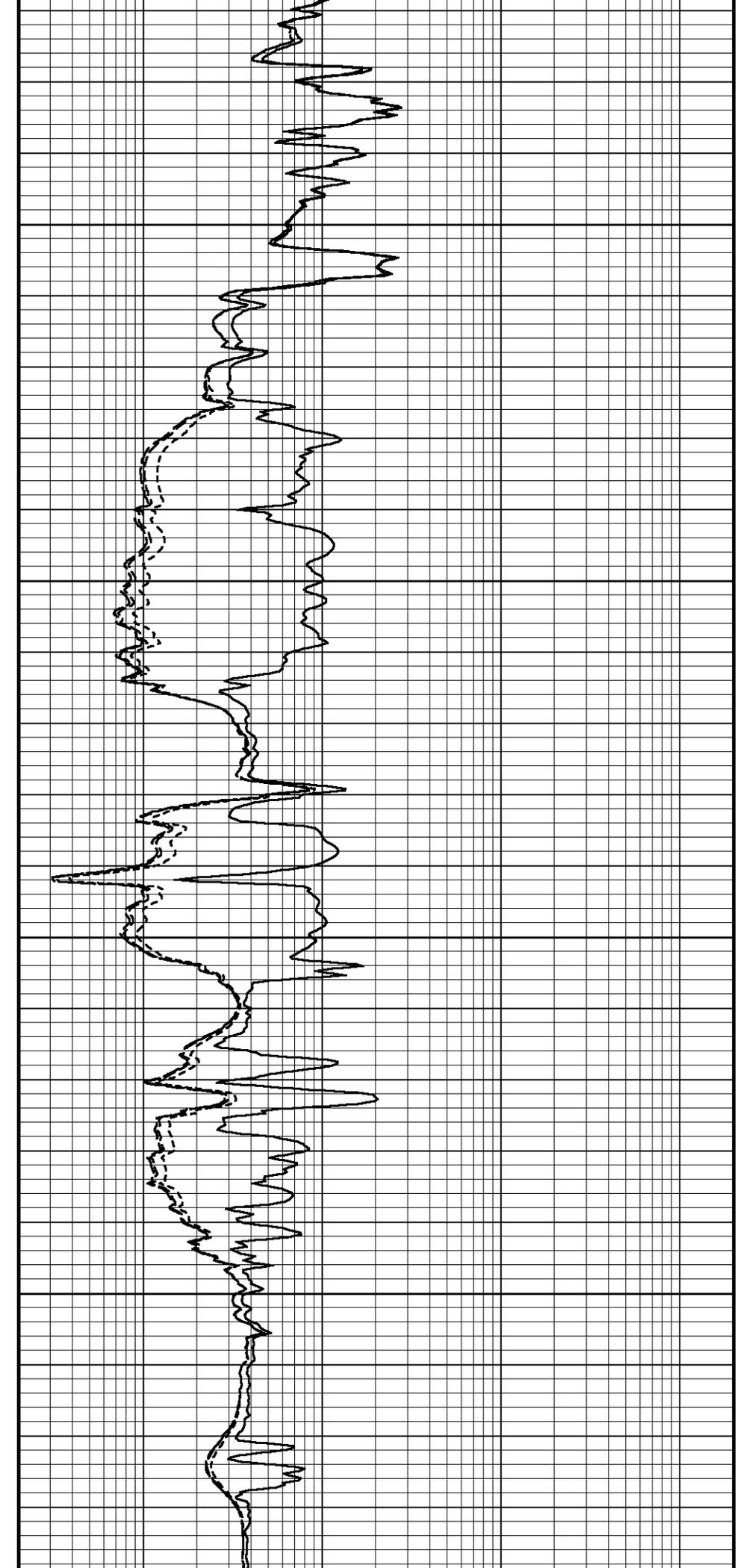
100°

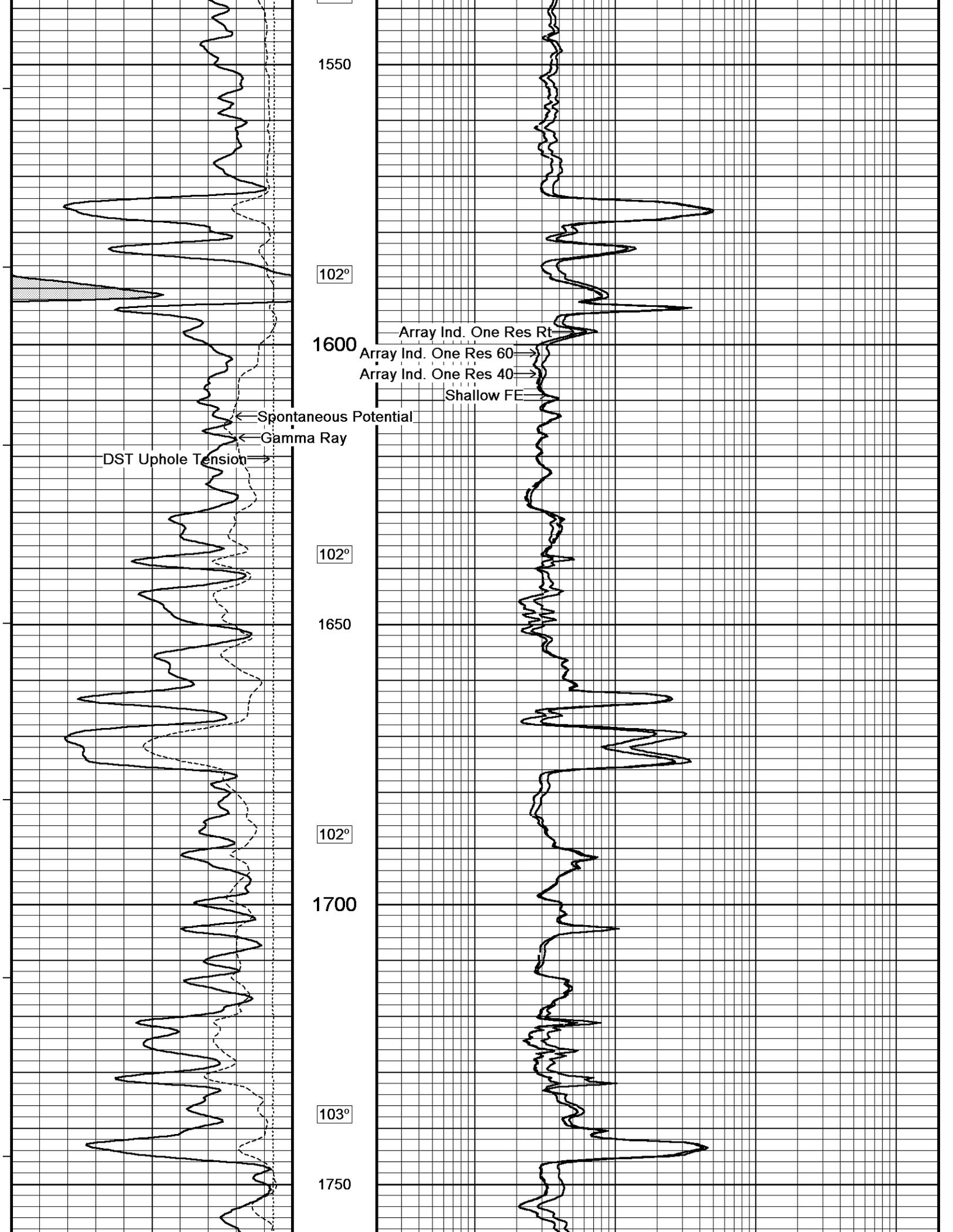
1450

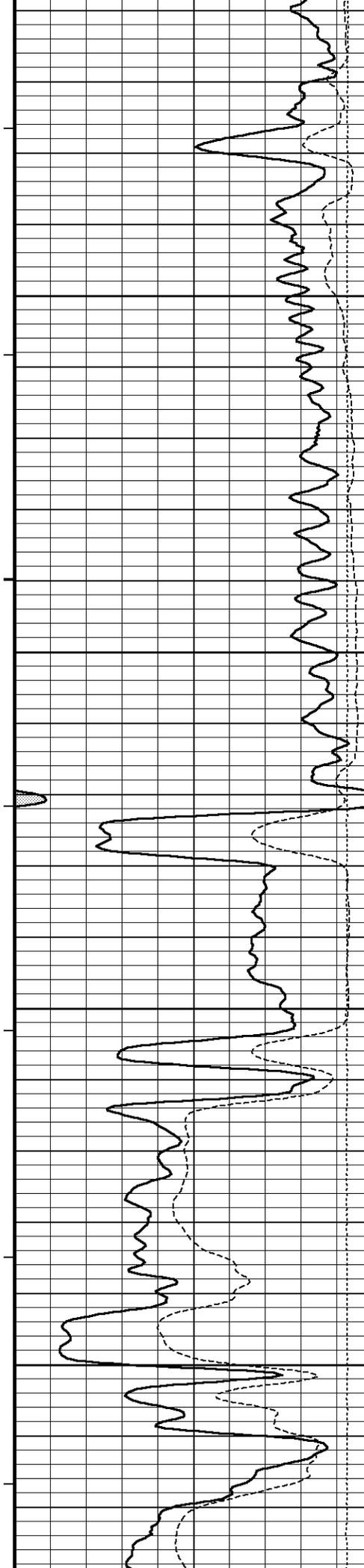
101°

1500

102°







103°

1800

103°

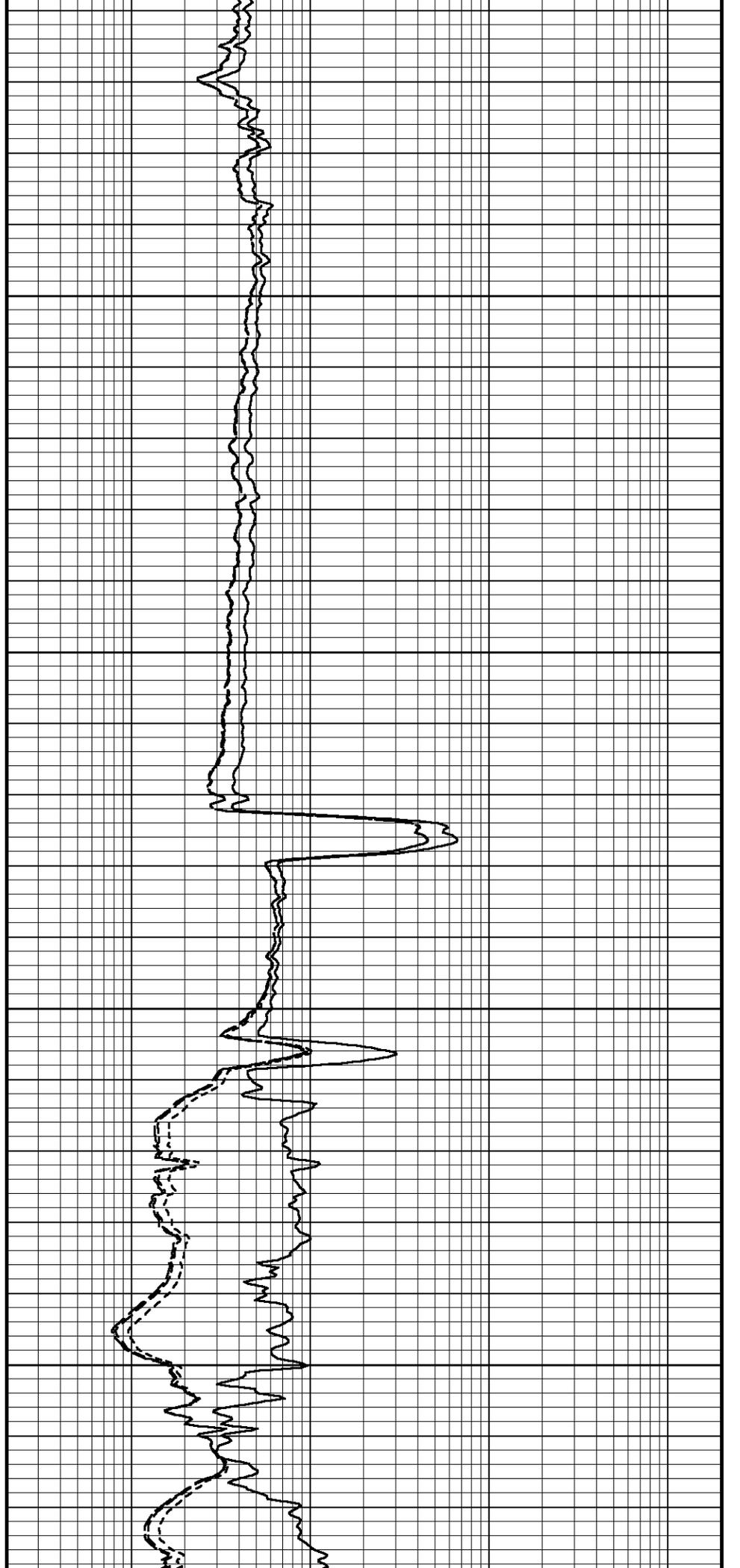
1850

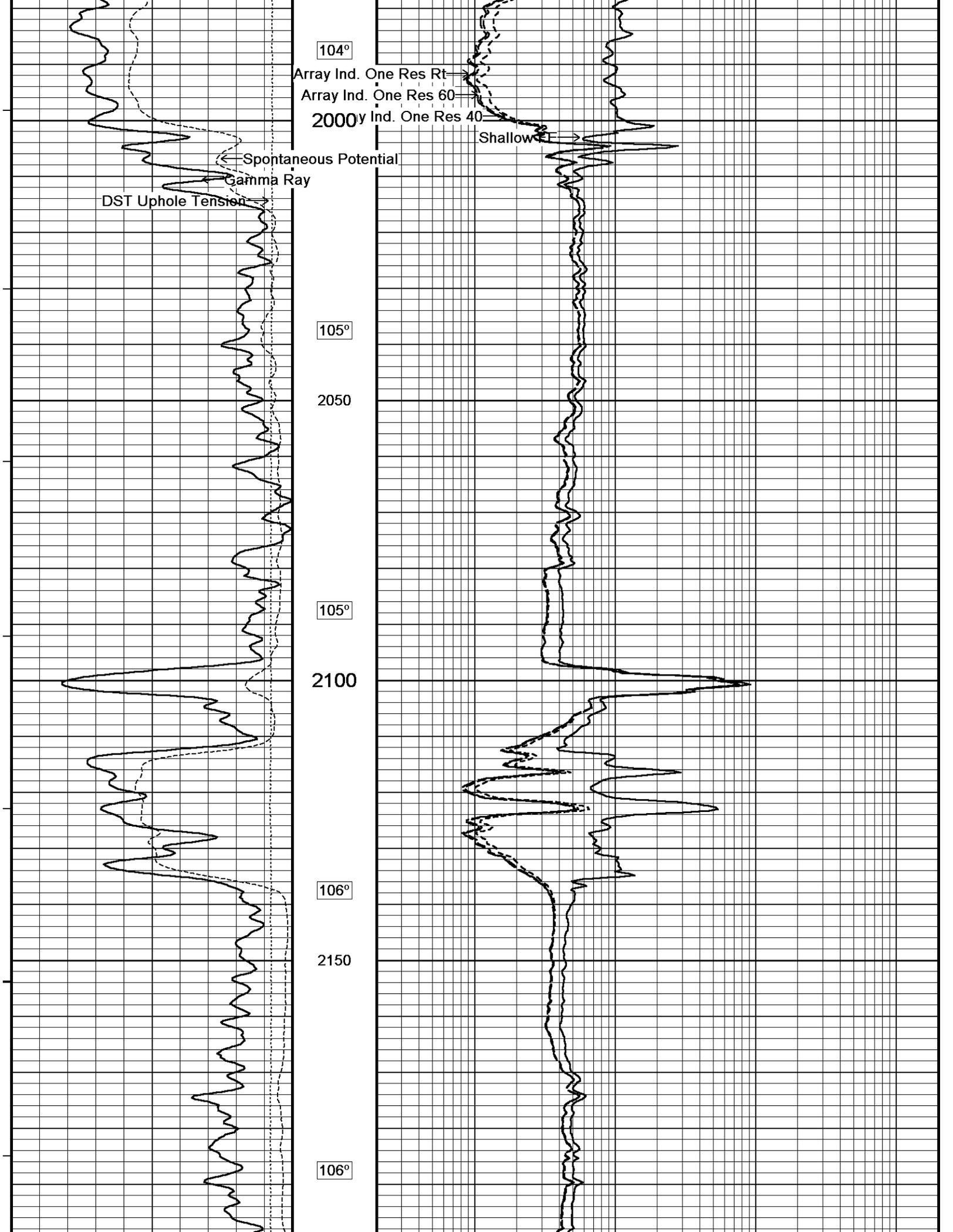
104°

1900

104°

1950





104°

Array Ind. One Res Rt

Array Ind. One Res 60

2000y Ind. One Res 40

Shallow EF

Spontaneous Potential

Gamma Ray

DST Uphole Tension

105°

2050

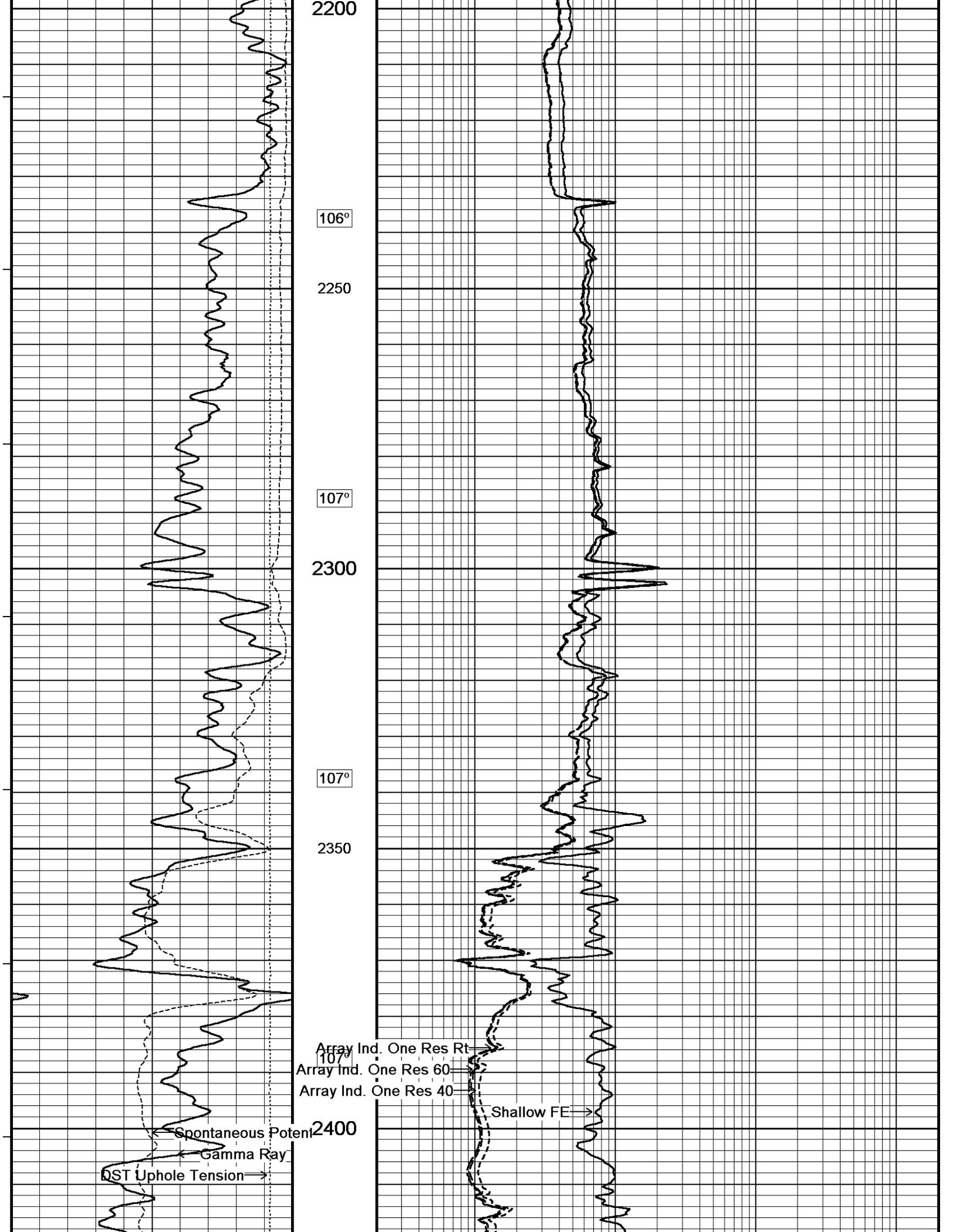
105°

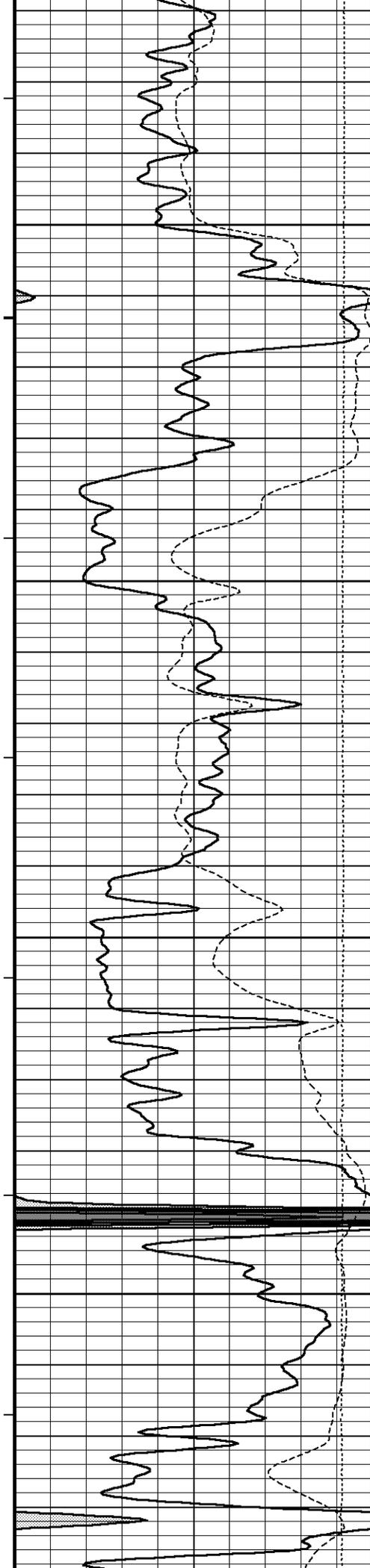
2100

106°

2150

106°





108°

2450

108°

2500

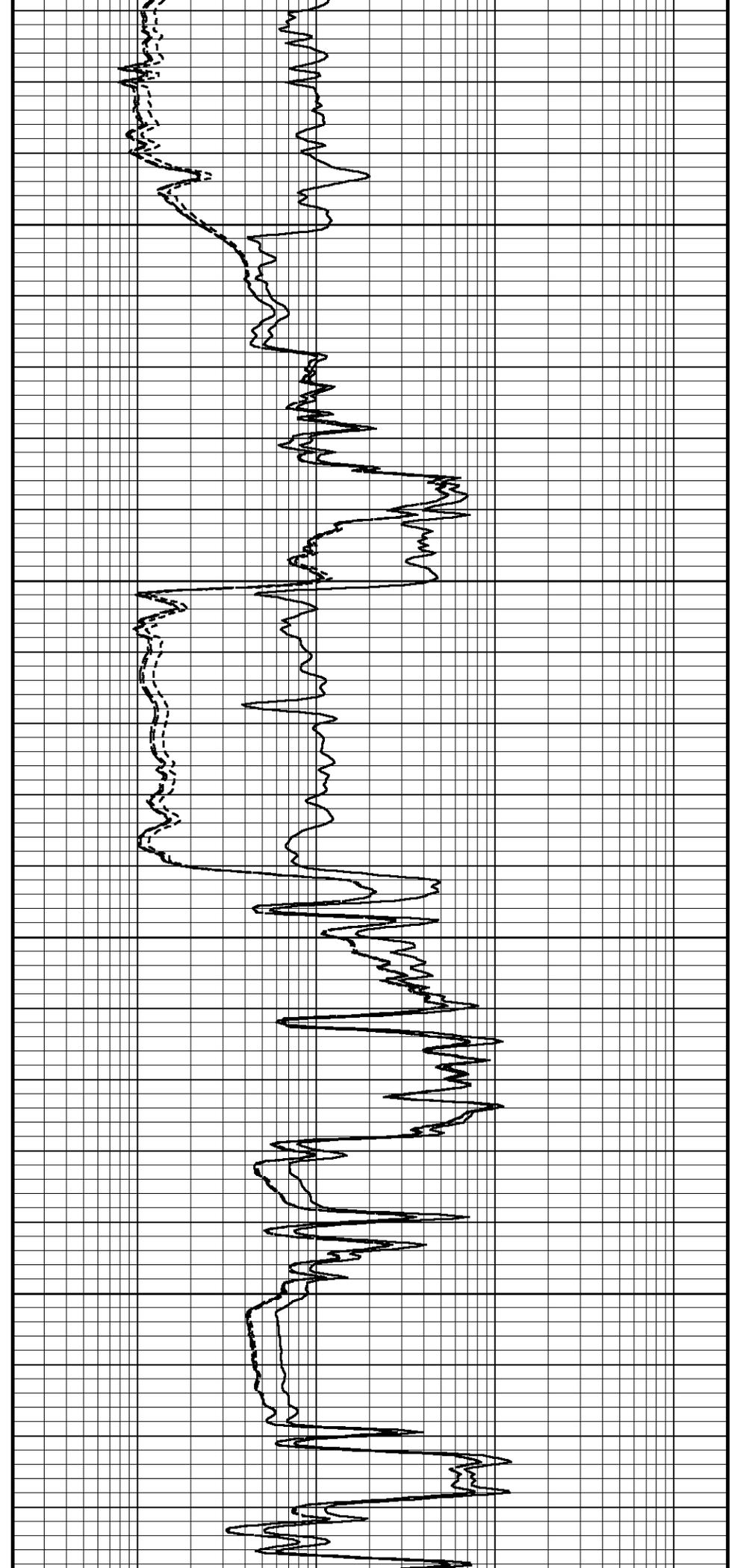
108°

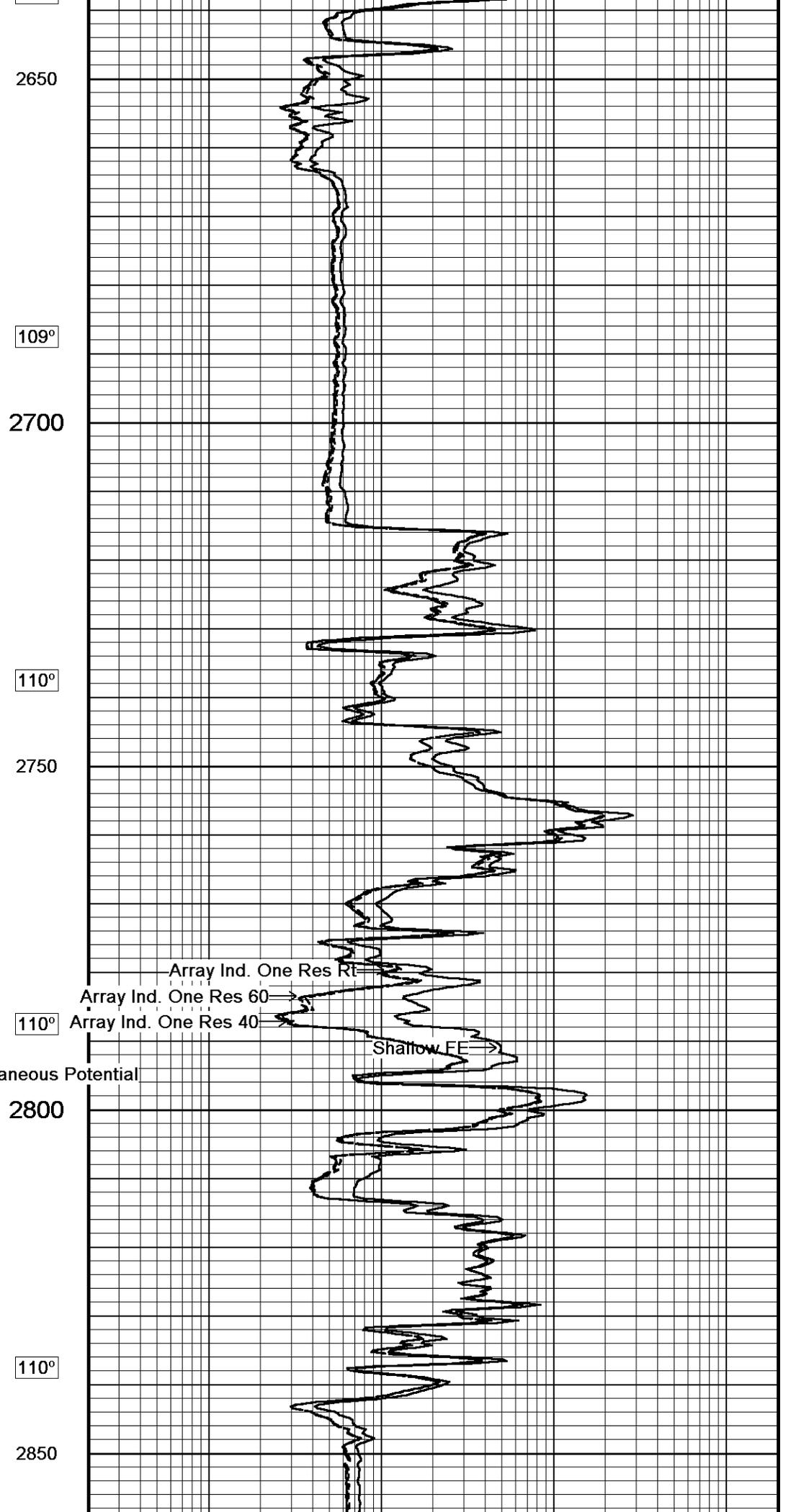
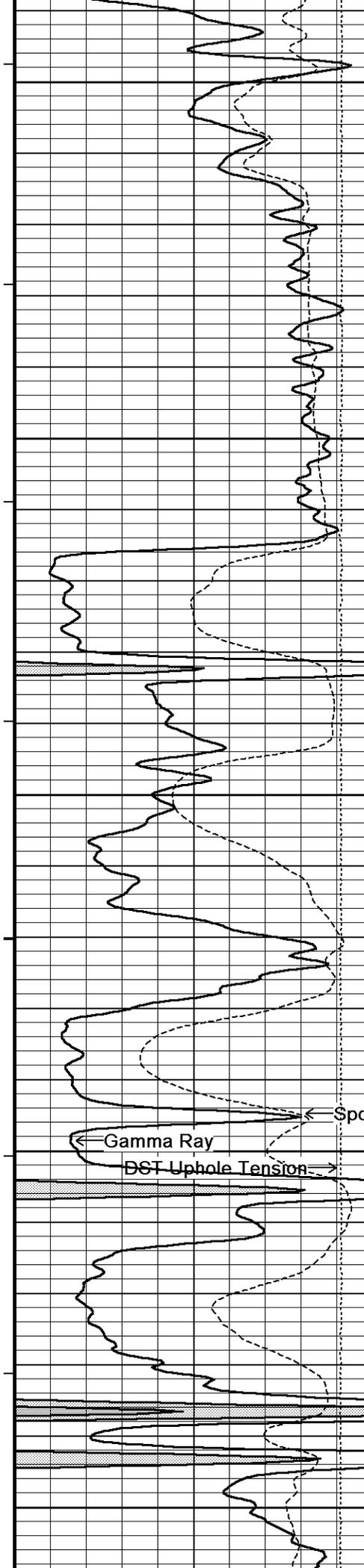
2550

109°

2600

109°





2650

109°

2700

110°

2750

110°

2800

110°

2850

Array Ind. One Res Rt

Array Ind. One Res 60

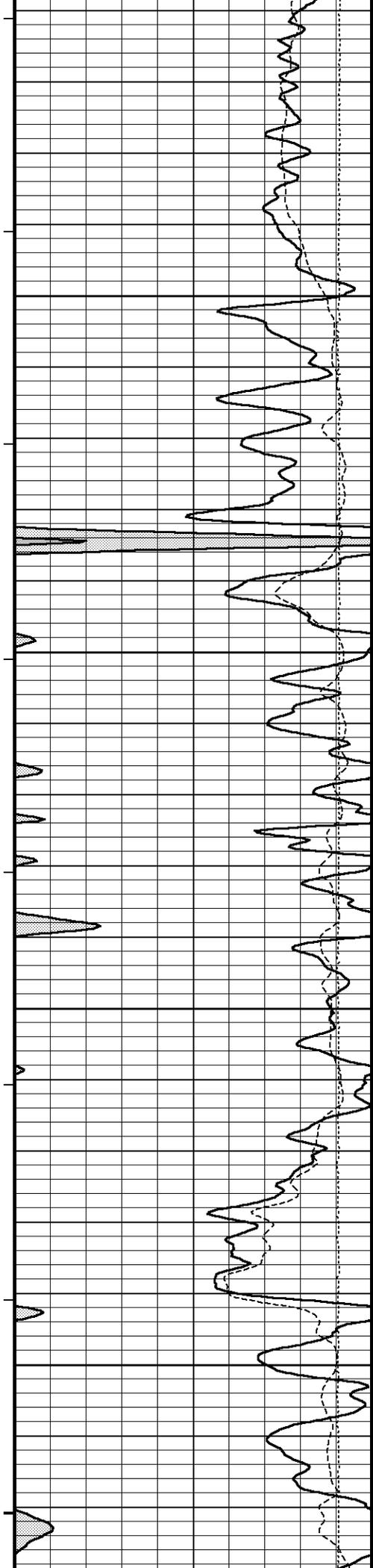
Array Ind. One Res 40

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension



111°

2900

111°

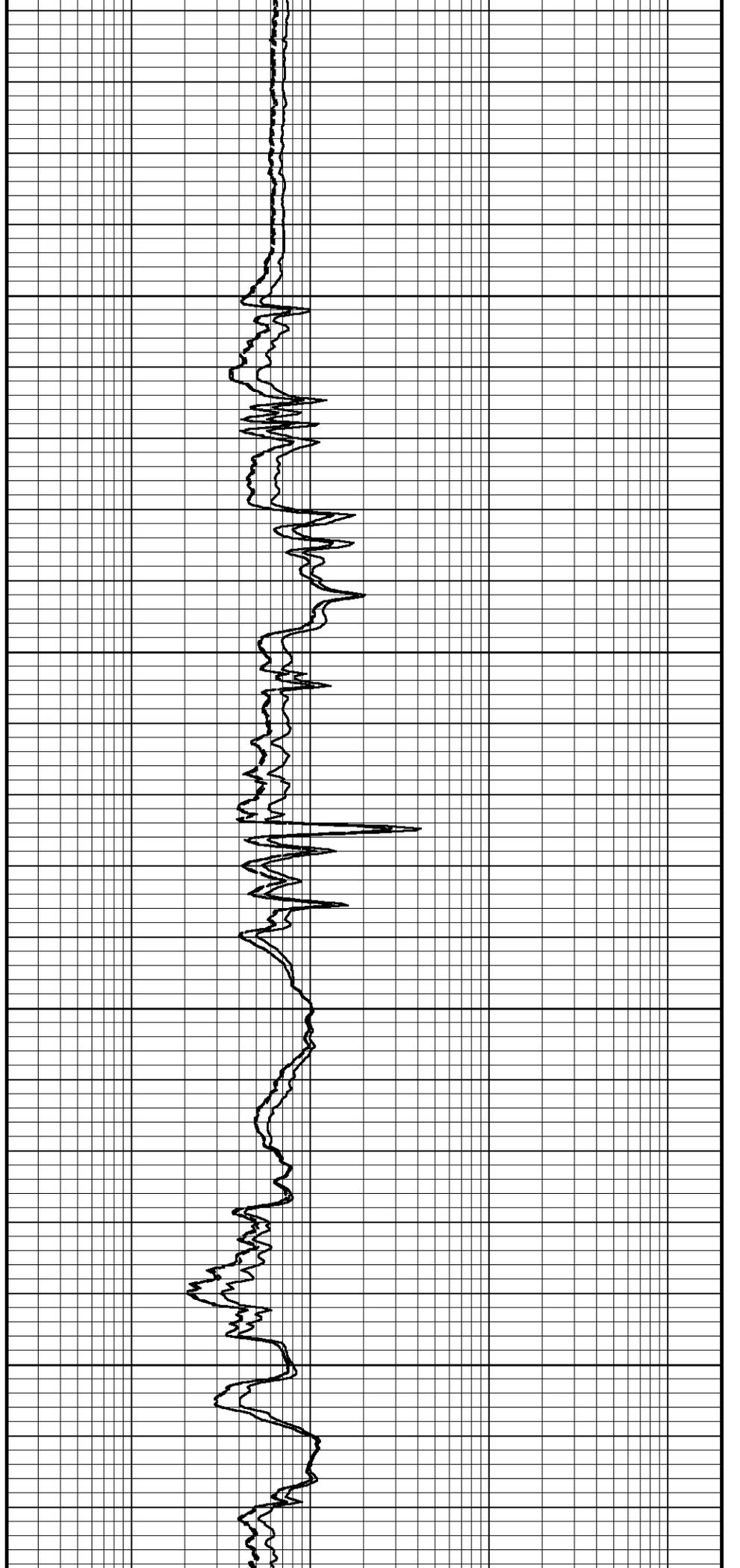
2950

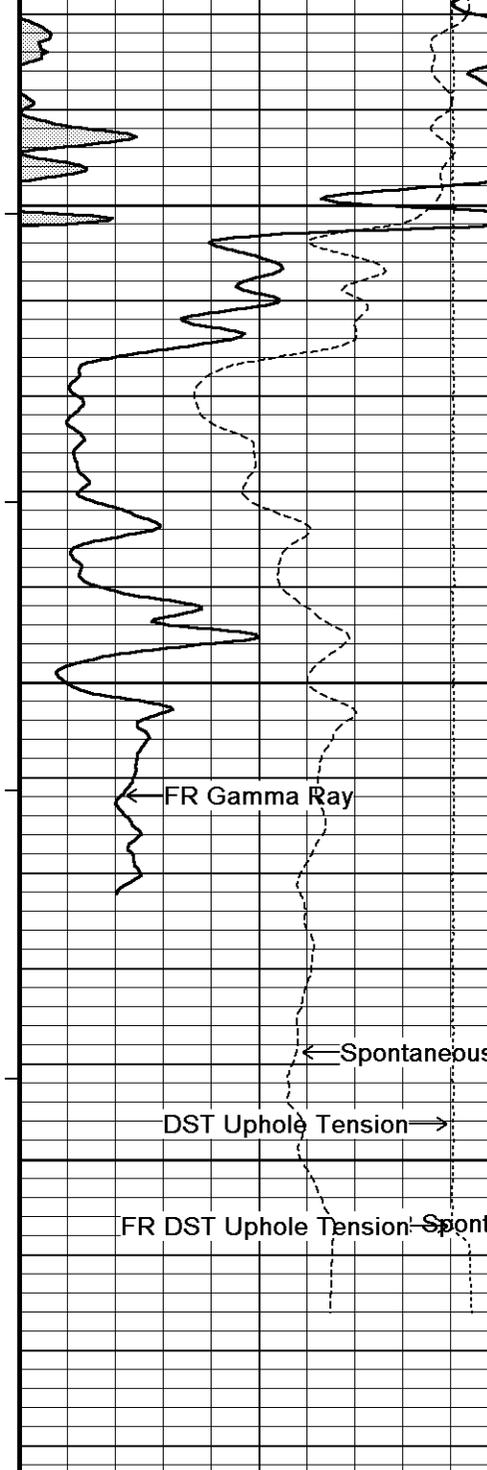
112°

3000

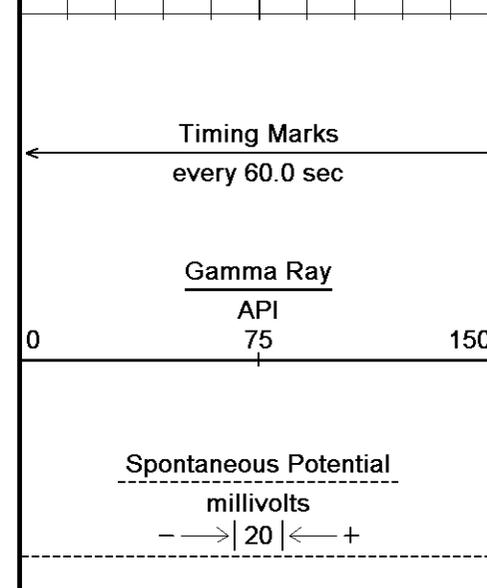
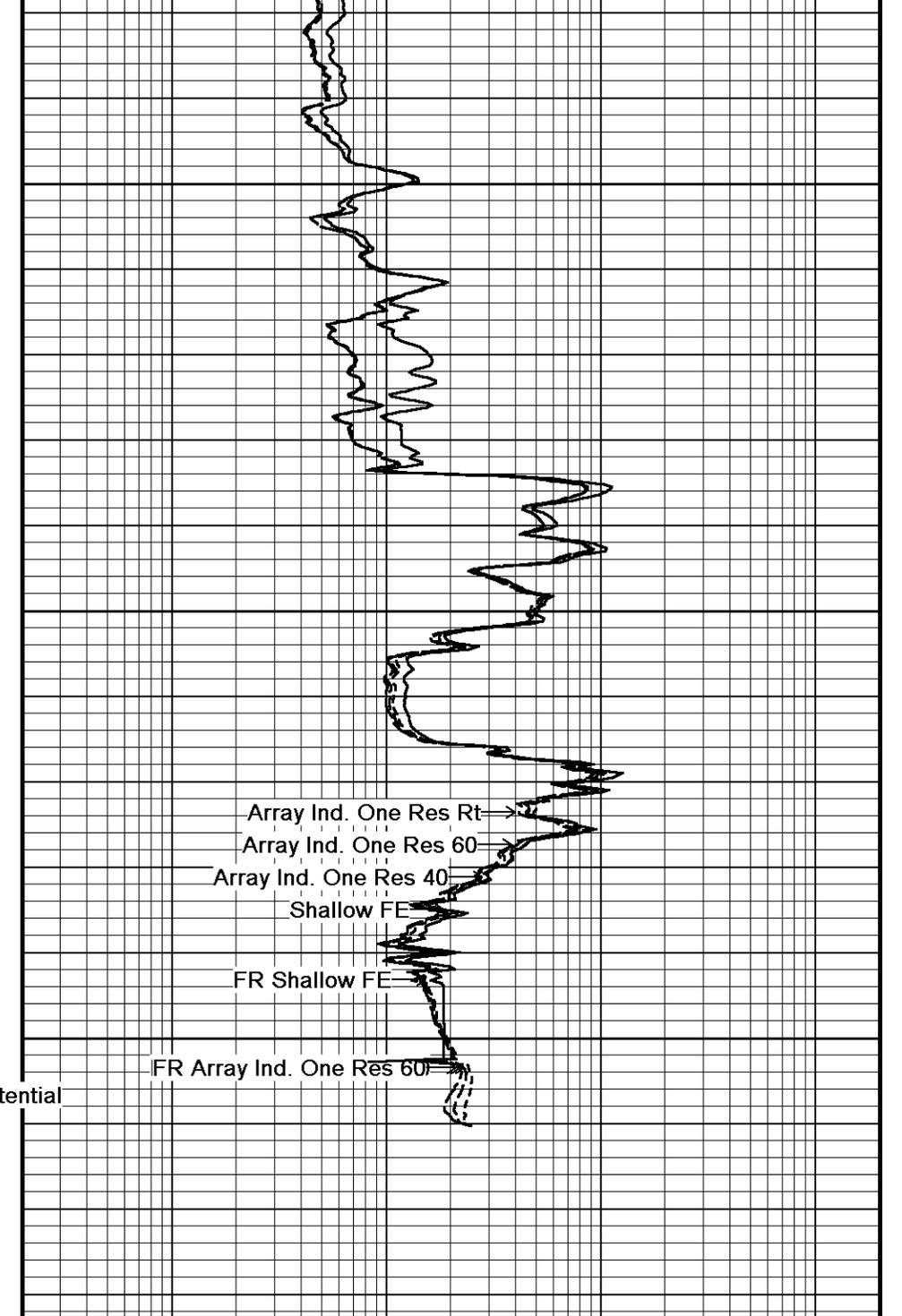
112°

3050

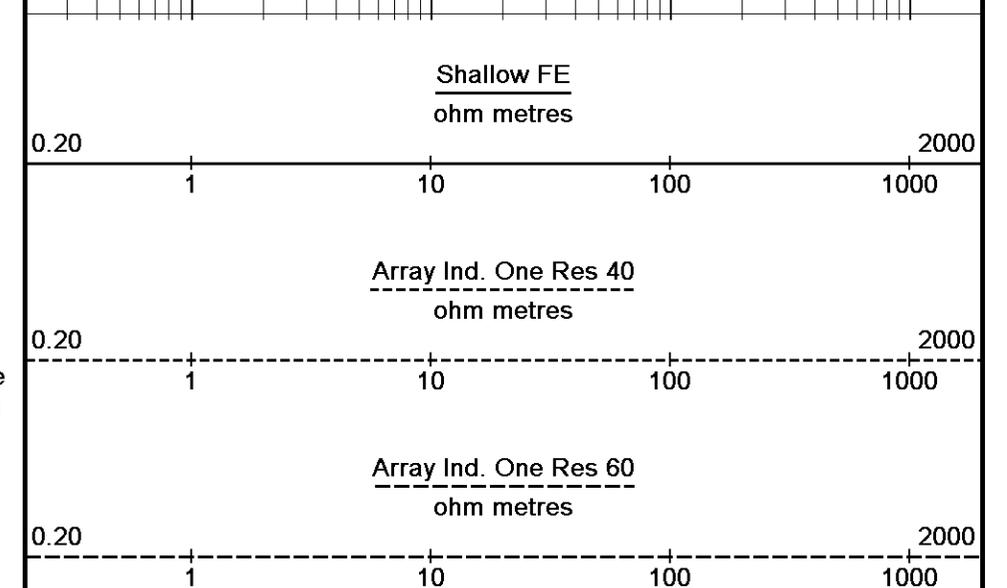


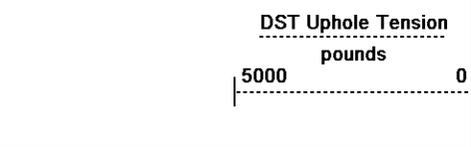


112°  
3100  
112°  
3150  
3200  
3232  
Depth In Feet

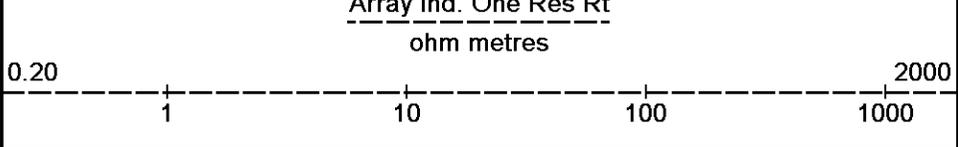


Timing Marks every 60.0 sec  
Gamma Ray API  
0 75 150  
Borehole Temp in deg F





Replay  
Scale  
1:240

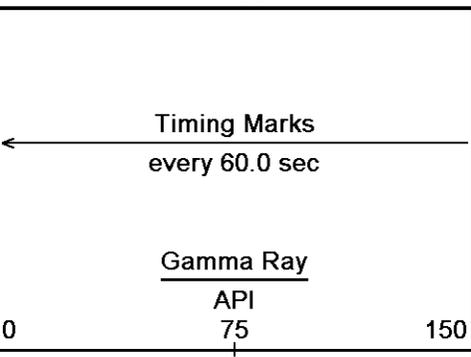


Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 13-JUN-2011 14:54  
 Filename: C:\Users\garciar\AppData\Local\Temp\Weatherford PreView\0\Future WMU #1\_002.dta  
 Recorded on 10-JUN-2011 21:13  
 System Versions: Logged with 11.03.2789 Plotted with 12.01.3513

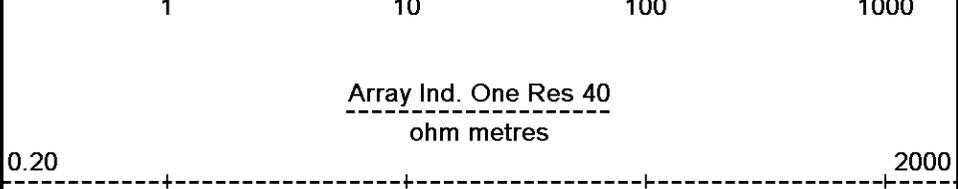
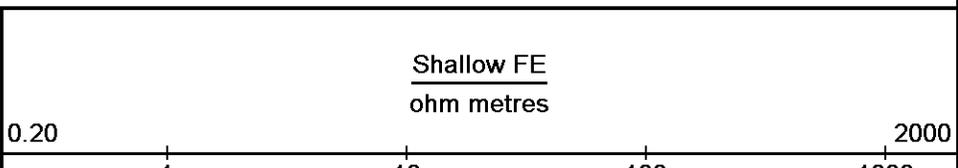
↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

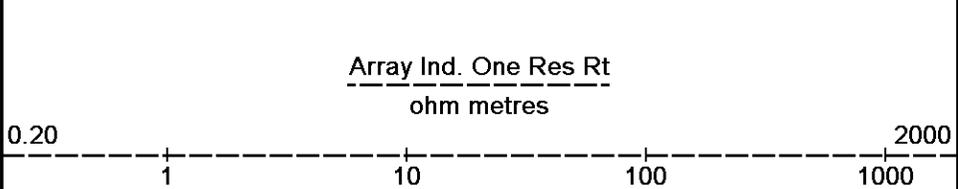
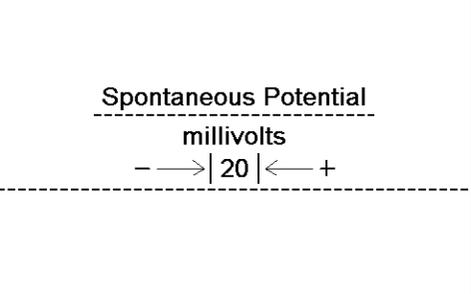
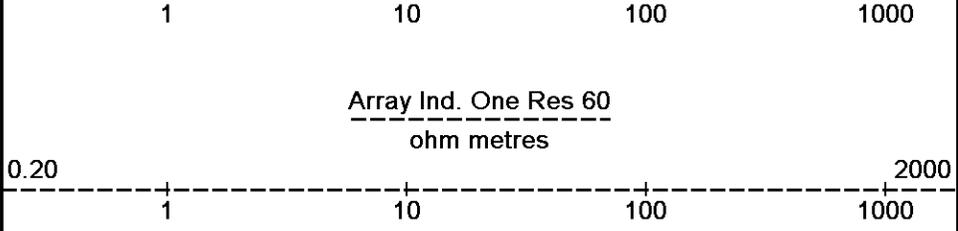
Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 13-JUN-2011 14:54  
 Filename: C:\Users\garciar\AppData\Local\Temp\Weatherford PreView\0\Future WMU #1\_001.dta  
 Recorded on 10-JUN-2011 20:52  
 System Versions: Logged with 11.03.2789 Plotted with 12.01.3513



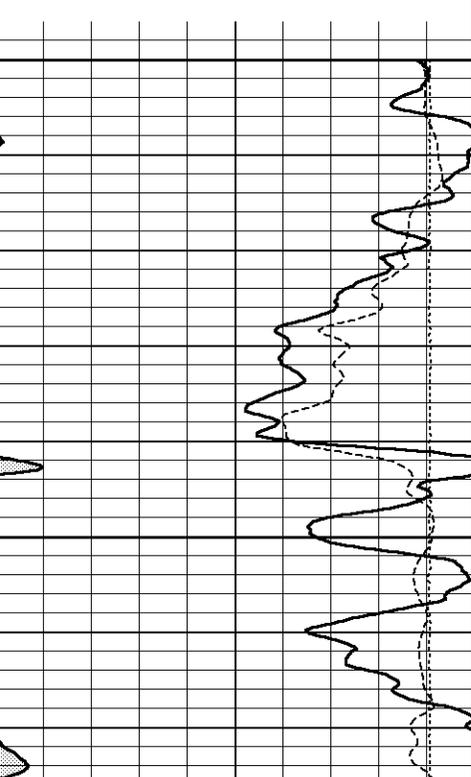
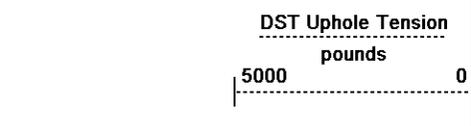
Depth  
in  
Feet



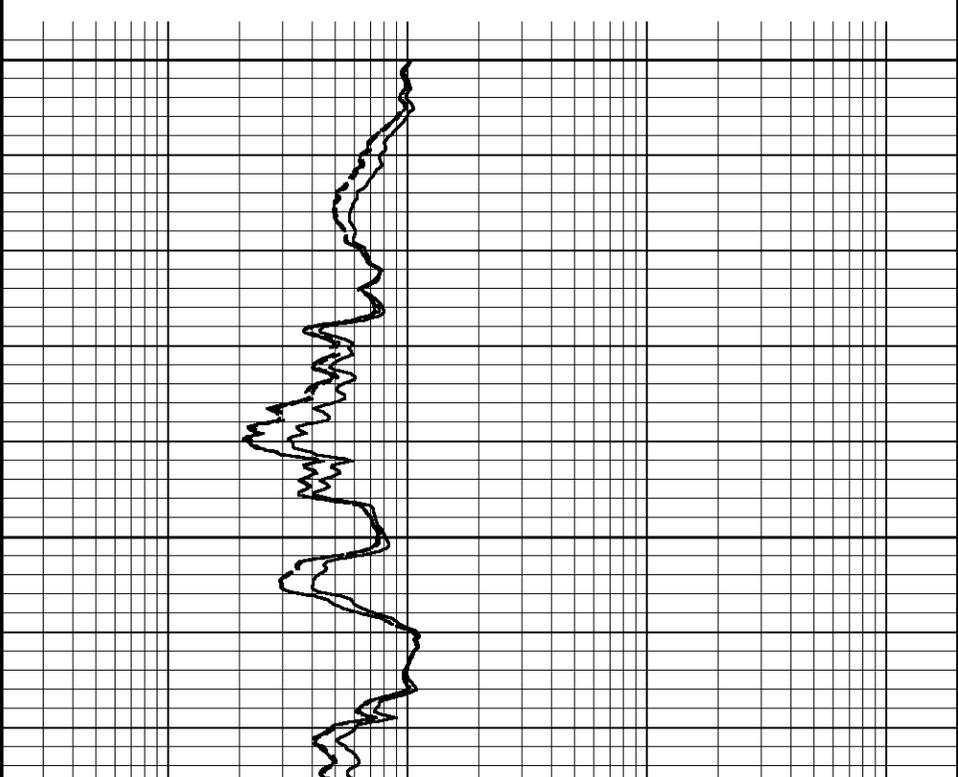
Borehole  
Temp in  
deg F

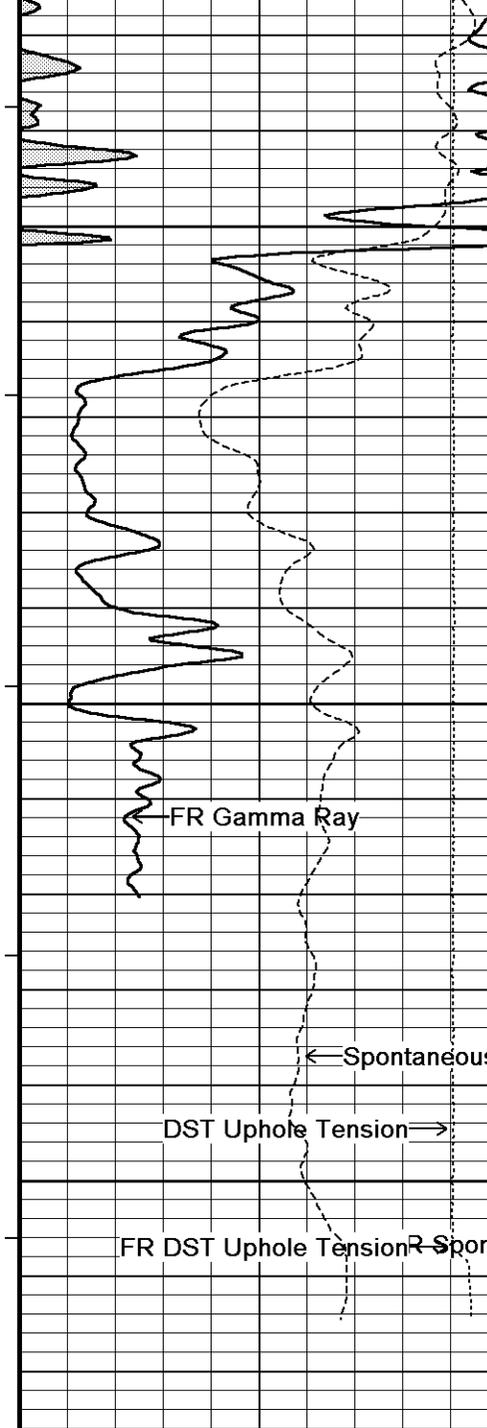


Replay  
Scale  
1:240



3000  
  
111°  
  
3050





111°

3100

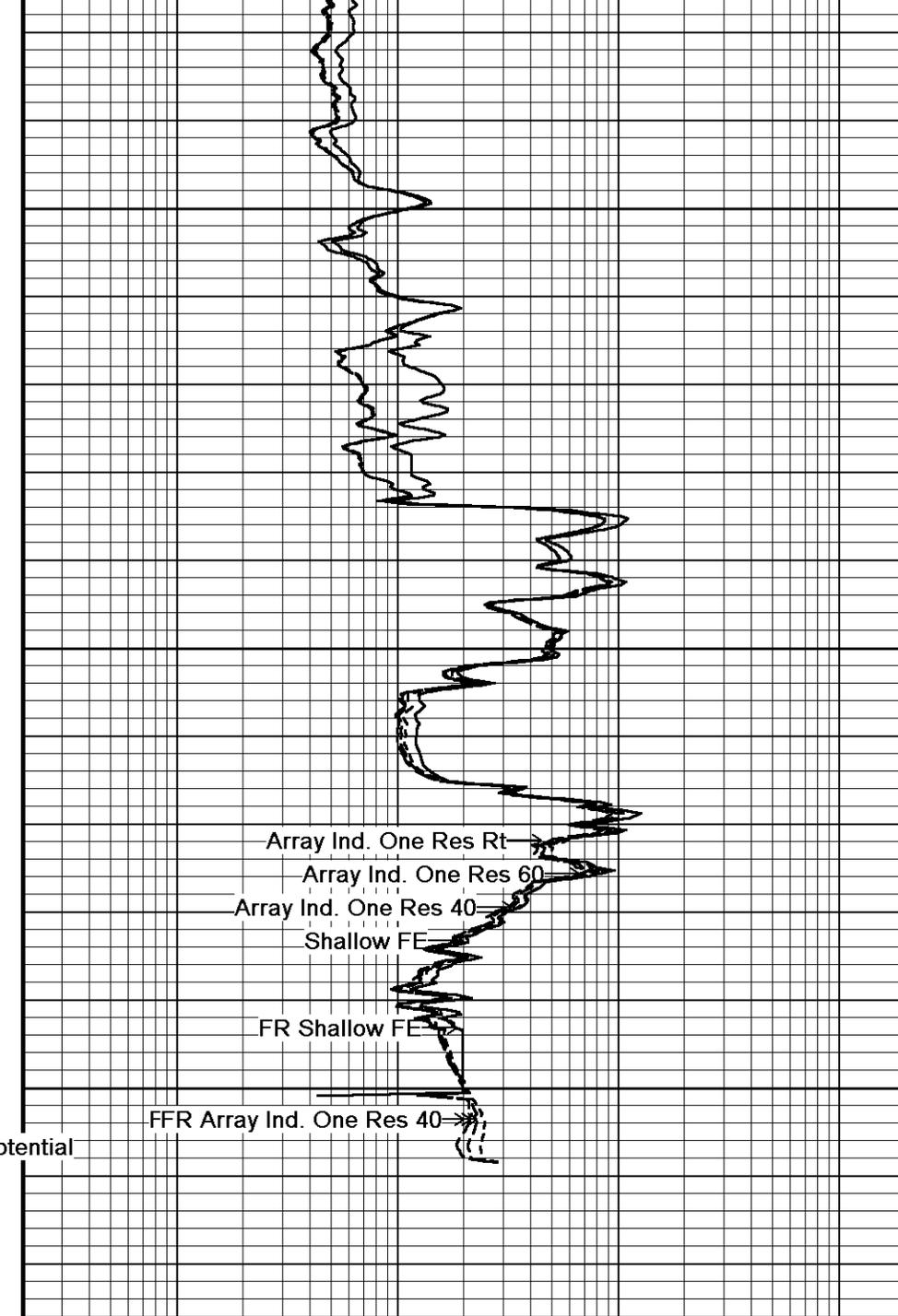
111°

3150

3200

3224

Depth in Feet



Timing Marks every 60.0 sec

Gamma Ray API

0 75 150

Spontaneous Potential millivolts

--> | 20 | <-- +

DST Uphole Tension

Shallow FE ohm metres

0.20 1 10 100 1000 2000

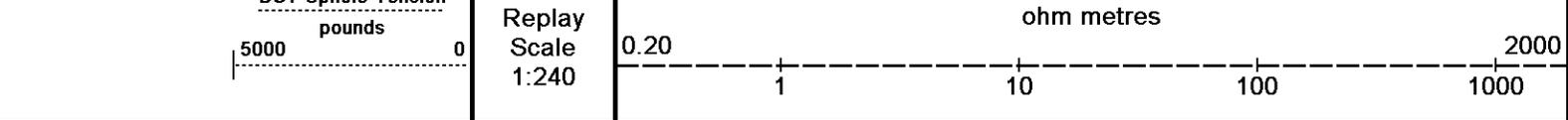
Array Ind. One Res 40 ohm metres

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



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 13-JUN-2011 14:54  
 Filename: C:\Users\garcian\AppData\Local\Temp\Weatherford PreView\0\Future WMU #1\_001.dta Recorded on 10-JUN-2011 20:52  
 System Versions: Logged with 11.03.2789 Plotted with 12.01.3513

↑ REPEAT SECTION ↑

### BEFORE SURVEY CALIBRATION

C:\Users\garcian\AppData\Local\Temp\Weatherford PreView\0\Future WMU #1.dta

General Constants All 000 Last Edited on 10-JUN-2011 19:13

**General Parameters**

Mud Resistivity	1.070	ohm-metres
Mud Resistivity Temperature	97.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	Base Density Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000

Down-hole Tension Calibration All 000 Field Calibration on 30-JUN-2010 01:00

Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00

Down-hole Tension Calibration SMS 0 Field Calibration on 30-JUN-2010 01:00

Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00

High Resolution Temperature Calibration MCG-C 139 Field Calibration on 03-SEP-2010 12:23

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

High Resolution Temperature Constants MCG-C 139 Last Edited on

Pre-filter Length 11

SP Calibration MCG-C 139 Field Calibration on 04-MAR-2011 06:37

	Measured	Calibrated (mV)
Reference 1	103.7	100.0
Reference 2	-96.9	-100.0

Gamma Calibration MCG-C 139 Field Calibration on 10-JUN-2011 10:39

	Measured	Calibrated (API)
Background	66	44
Calibrator (Gross)	1151	769
Calibrator (Net)	1085	725

Gamma Constants MCG-C 139 Last Edited on 08-JUN-2011 11:02

Gamma Calibrator Number grc38

Mud Density	1.00	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 11-MAR-2011 11:10  
Field Check on 10-JUN-2011 10:27

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	2.6	12.8
Micro Inverse	15.6	78.3	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.1	32.1
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 10-JUN-2011 10:26

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	0.5110
Micro Inverse K Factor	0.3380
Standoff Offset	N/A inches

Caliper Calibration MML-A 16

Base Calibration on 11-MAR-2011 11:20  
Field Calibration on 10-JUN-2011 10:29

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13875	5.98
2	17350	7.97
3	20581	9.86
4	24656	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.02	5.98

Neutron Calibration MDN-A.B 66

Base Calibration on 11-MAR-2011 13:54  
Field Check on 10-JUN-2011 10:34

Base Calibration

Ratio	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3091	97	3714	110
	31.957		33.764	

Field Calibrator at Base

Calibrated (cps)
1660 2371
Ratio 0.700

Field Check

Calibrated (cps)
1669 2386
Ratio 0.699

Neutron Constants MDN-A.B 66

Last Edited on 10-JUN-2011 10:30

Neutron Source Id	P58125B
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	Constant Value
Formation Pressure	0.00 kpsi
Temperature Source	Constant Value
Temperature	68.00 degrees F
Mud Salinity	0.00 kppm
Formation Fluid Salinity Source	Constant Value

Formation Fluid Salinity 0.00 kppm  
 Barite Mud Correction Not Applied

FE Calibration MFE-A.A 52		Base Calibration on 11-MAR-2011 10:55 Field Check on 10-JUN-2011 10:15	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	965.7	126.8	
Base Check		279.9	
Field Check		279.8	

FE Constants MFE-A.A 52		Last Edited on 10-JUN-2011 10:13	
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	

High Resolution Temperature Calibration MAI-A.A 167		Field Calibration on 17-JAN-2011 18:32	
	Measured	Calibrated(Deg F)	
Lower	1.00	33.80	
Upper	11.00	51.80	

High Resolution Temperature Constants MAI-A.A 167		Last Edited on	
Pre-filter Length	11		

Induction Calibration MAI-A.A 167		Base Calibration on 11-MAR-2011 09:58 Field Check on 10-JUN-2011 10:13			
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	0.0	0.0	13.0	3838.5	
2	0.0	0.0	29.6	3476.3	
3	0.0	0.0	29.2	3052.1	
4	0.0	0.0	19.8	2081.0	
Deep	0.0	0.0	18.6	2048.1	
Medium	0.0	0.0	42.3	3990.2	
Shallow	0.0	0.0	43.1	5053.6	
Array Temperature	0.0		70.0		Deg F

Induction Constants MAI-A.A 167		Last Edited on 10-JUN-2011 12:09			
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 35

Base Calibration on 11-MAR-2011 11:34  
Field Calibration on 10-JUN-2011 10:25

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17936	3.99
2	28079	5.98
3	38384	7.97
4	48048	9.86
5	59047	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.09	5.98

Photo Density Calibration MPD-B 35

Base Calibration on 11-MAR-2011 11:54  
Field Check on 10-JUN-2011 10:22

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	57876	27553	59556	30836
Reference 2	23524	2615	24941	2541

Field Check at Base

1175.2	1398.5
--------	--------

Field Check

1169.3	1393.2
--------	--------

PE Calibration

Base Calibration	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	211	1039		
Reference 1	21426	57673	0.375	0.371
Reference 2	6234	23377	0.270	0.272

Field Check at Base

211.2	1039.0
-------	--------

Field Check

210.0	1031.3
-------	--------

Density Constants MPD-B 35

Last Edited on 10-JUN-2011 18:55

Density Source Id	p50557b
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 (ft)	
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	
0.00	0.00	

### DOWNHOLE EQUIPMENT

C:\Users\garcianr\AppData\Local\Temp\Weatherford PreView\0\Future WMU #1.dta

Compact Comms Gamma  
MCG-C 139 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log  
MML-A 16 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

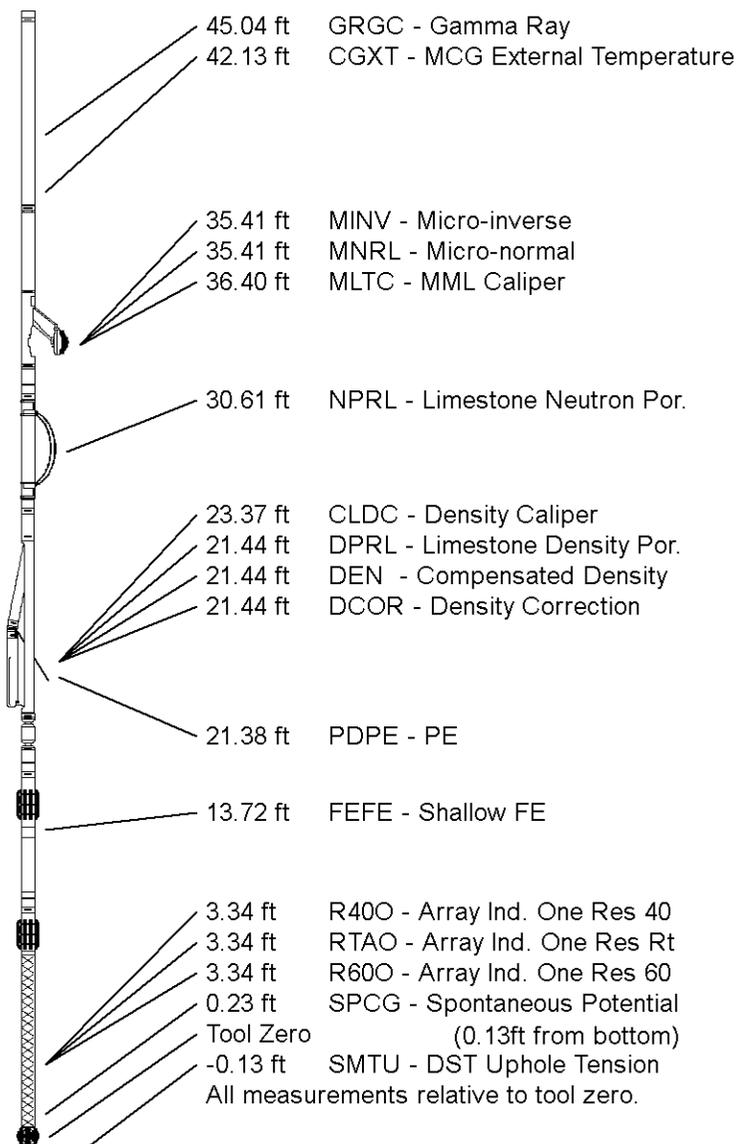
Compact Density/Caliper  
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 36 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focused Electric  
MFE-A.A 52 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: 50.32 ft Weight: 407.9 lb



COMPANY  
WELL

FUTURE PETROLEUM CO. LLC.  
WEST MADDIX UNIT #1

FIELD  
 PROVINCE/COUNTY  
 COUNTRY/STATE

WEST MADDIX UNIT  
 COWLEY  
 U.S.A. / KANSAS

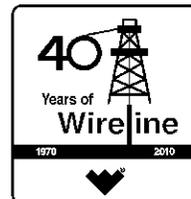
Elevation Kelly Bushing 1282.00 feet  
 Elevation Drill Floor 1280.00 feet  
 Elevation Ground Level 1272.00 feet

First Reading 3204.00 feet  
 Depth Driller 3203.00 feet  
 Depth Logger 3207.00 feet



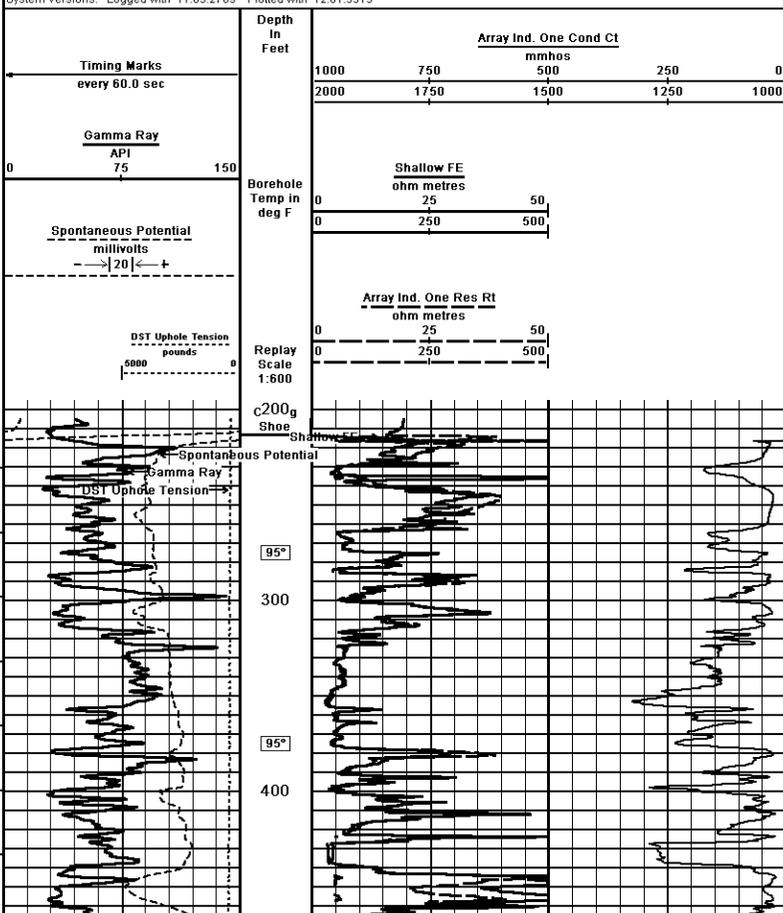
**Weatherford**

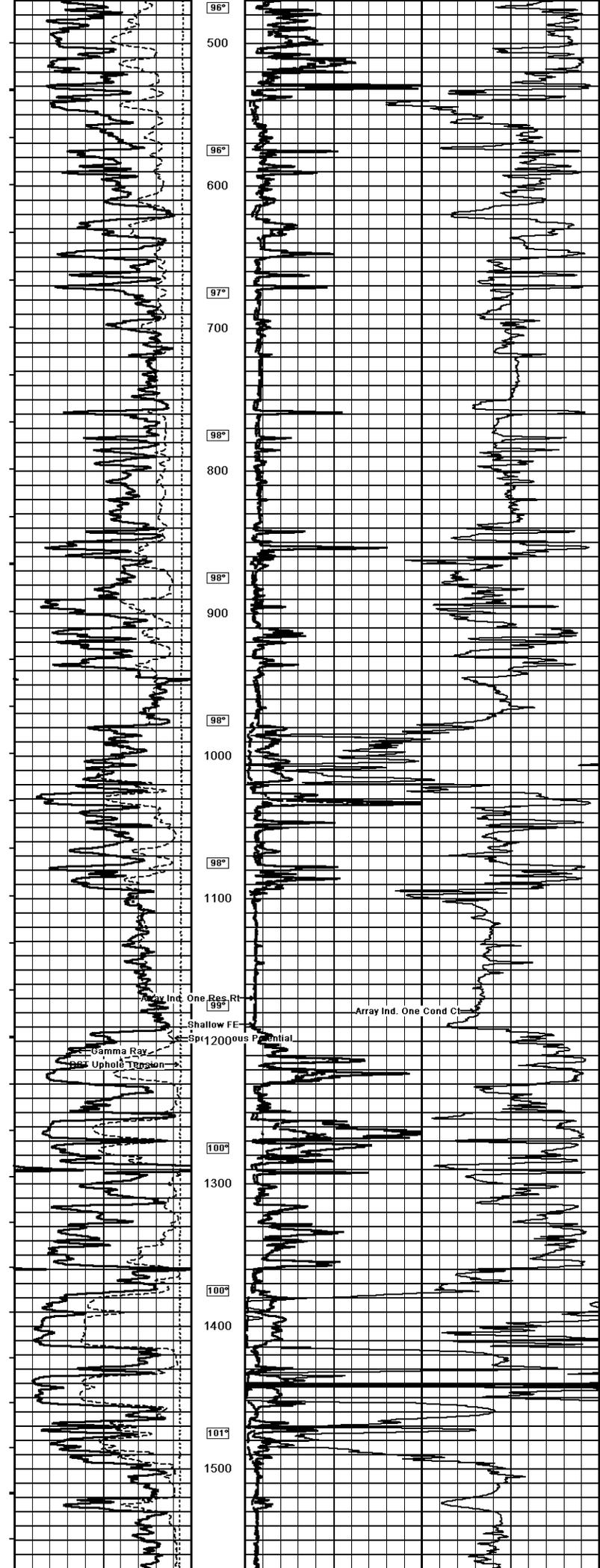
ARRAY INDUCTION  
 SHALLOW FOCUSED  
 ELECTRIC LOG

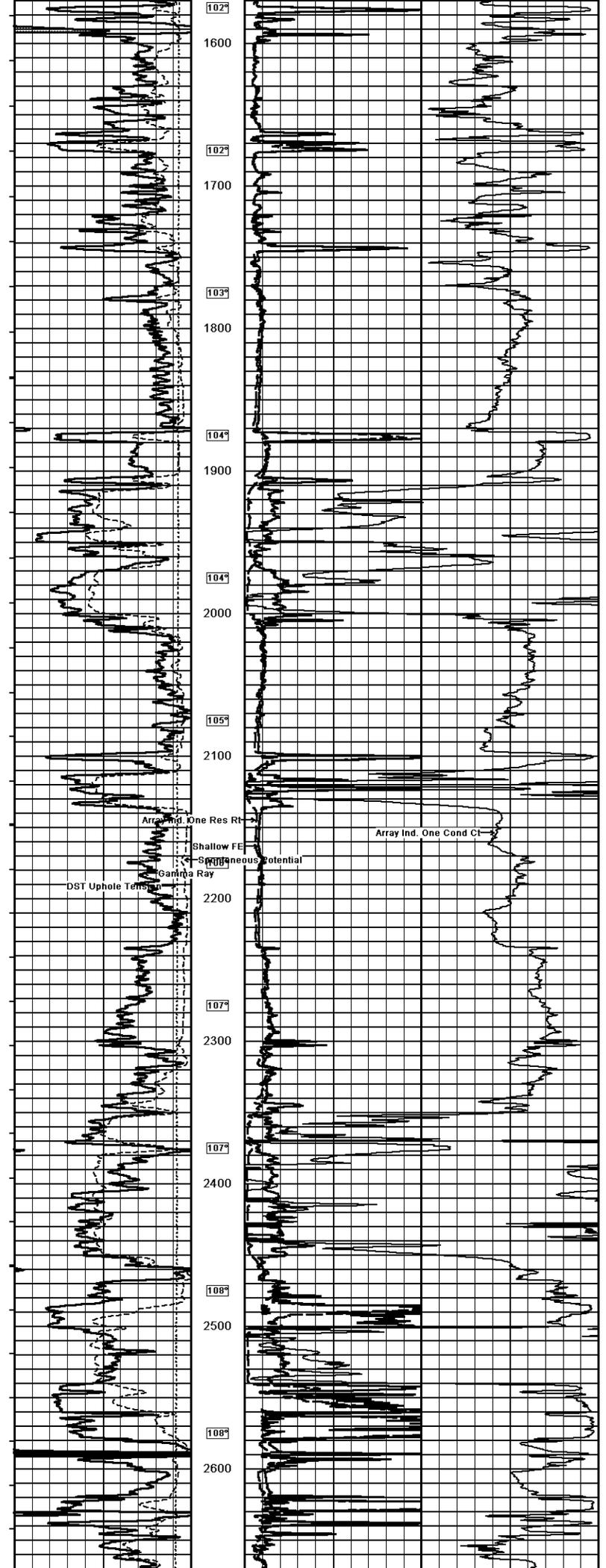


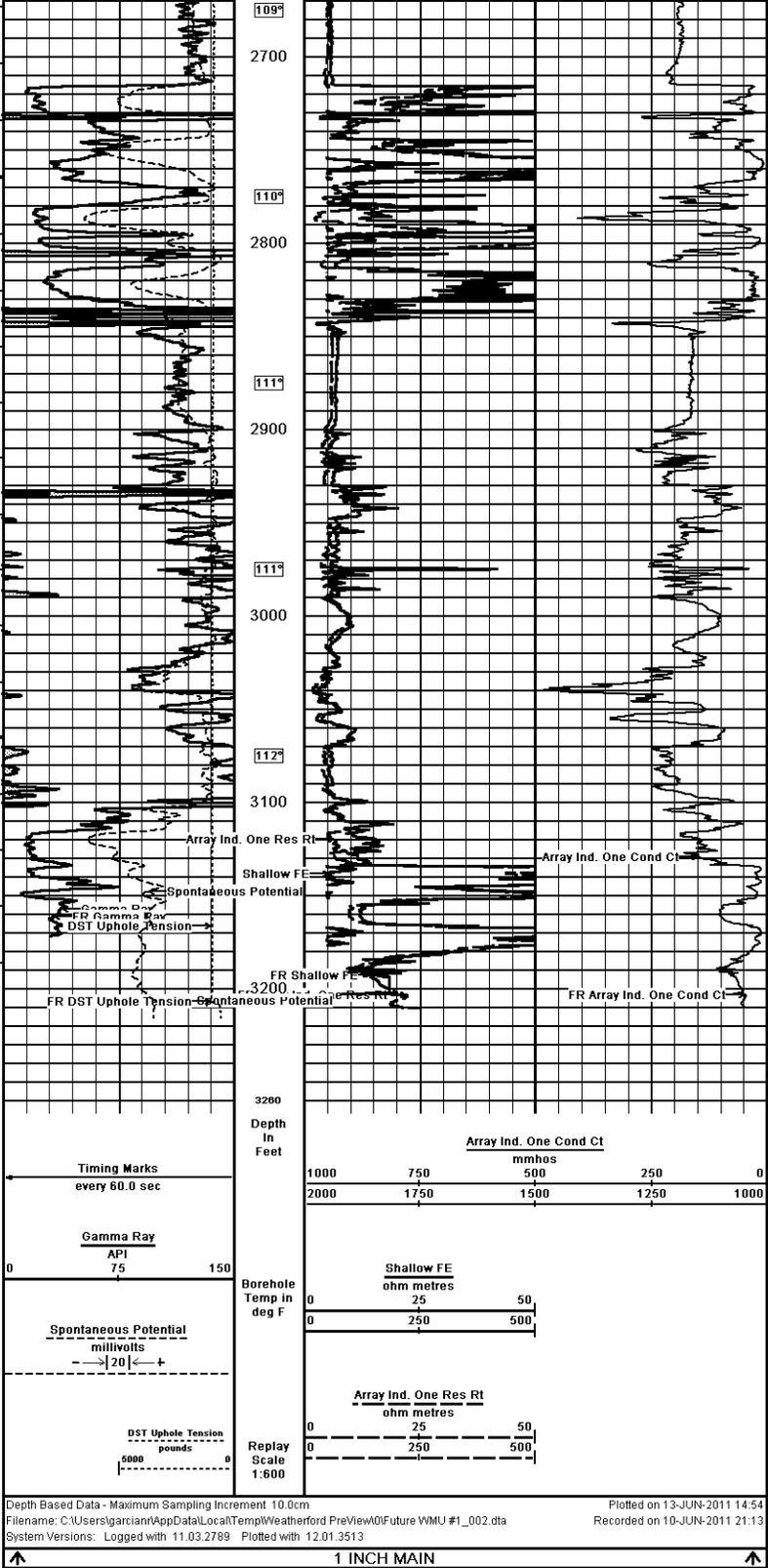
<b>Weatherford</b>		<b>ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG</b>	
COMPANY: FUTURE PETROLEUM CO., LLC. WELL: WEST MADDIX UNIT #1 PROVINCE/COUNTY: COWLEY COUNTRY/STATE: U.S.A. / KANSAS LOCATION: 1041' ENL & 684' FWL SW SE NW NW			
SEC: 11	TYPE: 33S	USE: SE	Other Services: MFL/MDM
ART Number: 15-095-24429	Permanent Datum G.L. Elevation 1272 feet Log Measured From K.B.I. @ 10 FEET above Permanent Datum Drilling Measured From K.B.I.		
Date: 10-JUN-2011	Run Number: ONE	Depth Driller: 3203.00	Depth Logger: 3207.00
First Reading: 3204.00	Last Reading: 213.00	Casing Driller: 213.00	Casing Logger: 213.00
Bit Size: 7.875	Flow Fluid Type: CHEMICAL	Density/Viscosity: 9.30	PH/Fluid Loss: 9.00
Sample Source: FLOWLINE	Flow Rate: 1.07 @ 97.0	Rm @ Measured Temp: 0.86 @ 97.0	Rm @ Measured Temp: 1.28 @ 97.0
Source Rm/Temp: CALC	Rm @ BHT: 0.93 @ 112.0	Time since Circulation: 4 HOURS	Max Recorded Temp: 112.00
Equipment Name: COMPACT	Equipment Base: LSCOTT	Recorded By: TERRI MADDOEN	Witnessed By: ROGER MARTIN
Log # 1708 #	3531122	1811-179	

1 INCH MAIN  
 Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 13-JUN-2011 14:54  
 Filename: C:\Users\garciar\AppData\LocalTemp\Weatherford PreView\0\Future VMU #1\_002.dta  
 Recorded on 10-JUN-2011 21:13  
 System Versions: Logged with 11.03.2789 Plotted with 12.01.3513









COMPANY FUTURE PETROLEUM CO. LLC.  
 WELL WEST MADDIX UNIT #1  
 FIELD WEST MADDIX UNIT  
 PROVINCE/COUNTY COWLEY  
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	1282.00	feet	First Reading	3204.00	feet
Elevation Drill Floor	1280.00	feet	Depth Driller	3203.00	feet
Elevation Ground Level	1272.00	feet	Depth Logger	3207.00	feet

**Weatherford** ARRAY INDUCTION  
 SHALLOW FOCUSED  
 ELECTRIC LOG

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 13-JUN-2011 14:54  
 Filename: C:\Users\lgarcian\AppData\Local\Temp\Weatherford PreView\0\Future VMU #1\_002.dta  
 Recorded on 10-JUN-2011 21:13  
 System Versions: Logged with 11.03.2789 Plotted with 12.01.3513  
 1 INCH MAIN

