Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	SHAKESPEARE OIL COMPANY
WELL	RUDOLPH #1-22
FIELD	WILDCAT
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1450' FSL & 1350' FEL

SEC	TWP	RGE	Other Services
22	17S	33W	MPD/MDN
API Number 15-171-20938			MML
Permit Number			MSS

Permanent Datum G.L., Elevation 3025 feet
Log Measured From KB
Drilling Measured From K.B. @ 10 FEET

Elevations:	feet
KB	3035.00
DF	3033.00
GL	3025.00

Date	16-APR-2013			
Run Number	ONE			
Service Order	3539888			
Depth Driller	4940.00	feet		
Depth Logger	4939.00	feet		
First Reading	4936.00	feet		
Last Reading	264.00	feet		
Casing Driller	267.00	feet		
Casing Logger	264.00	inches		
Bit Size	7.875			
Hole Fluid Type	CHEMICAL	lb/USg		
Density / Viscosity	9.30 lb/USg	55.00 CP		
PH / Fluid Loss	10.50	10.50		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.62 @ 74.0	ohm-m		
Rmf @ Measured Temp	0.50 @ 74.0	ohm-m		
Rmc @ Measured Temp	0.74 @ 74.0	ohm-m		
Source Rmf / Rmc	CALC	CLAC		
Rm @ BHT	0.39 @119.0	ohm-m		
Time Since Circulation	3 HOURS			
Max Recorded Temp	119.00	deg F		
Equipment / Base	13057	LIB		
Recorded By	J. LAPOINT		W. STAMBAUGH	
Witnessed By	TIM PRIEST			
JOB#	LB13-104			

BOREHOLE RECORD

Last Edited: 16-APR-2013 15:06

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4939.00

CASING RECORD

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

REMARKS

Tools Used: MCG, MML, MDN, MPD, MFE, MSS, MAI ran in combination.
Hardware: MPD: 8 inch profile plate used. MAI, MSS, MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Sonic porosity calculated using a Limestone scale (47.5 usec/ft).
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= 2325 cubic feet
Annular volume with 4.5 inch production casing TD to 3700ft = 375 cubic feet
Service order #3539888
Rig: H-D Drilling #2
Engineer: W. Stambaugh, J. LaPoint
Operator(s): B. Reeves

**** Software issue changed fluid loss to match Ph. Fluid Loss should be 8.8 ml/30min.****

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 28-APR-2013 15:42
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_002.dta
Recorded on 16-APR-2013 12:30
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Depth in Feet

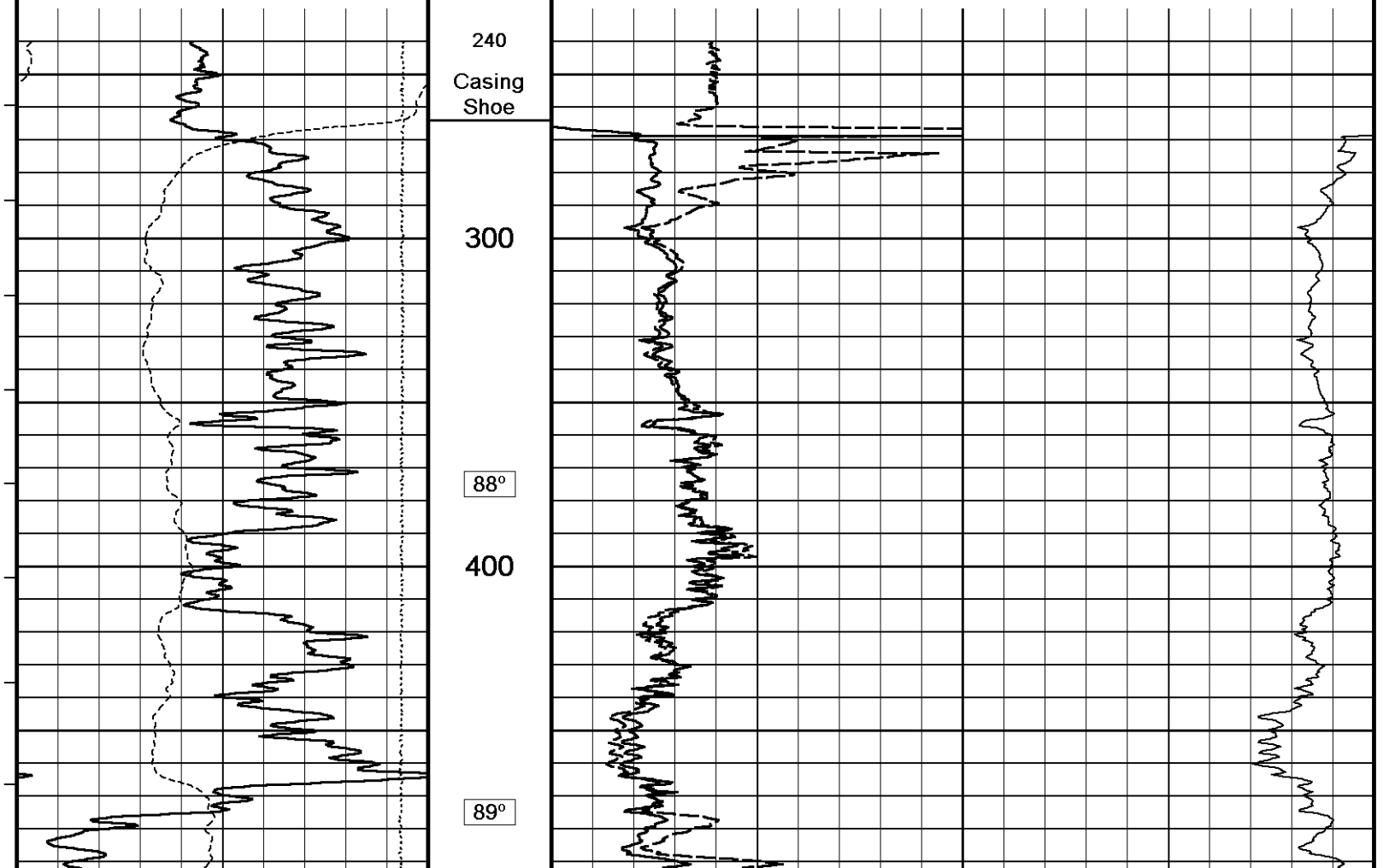
Borehole Temp in deg F

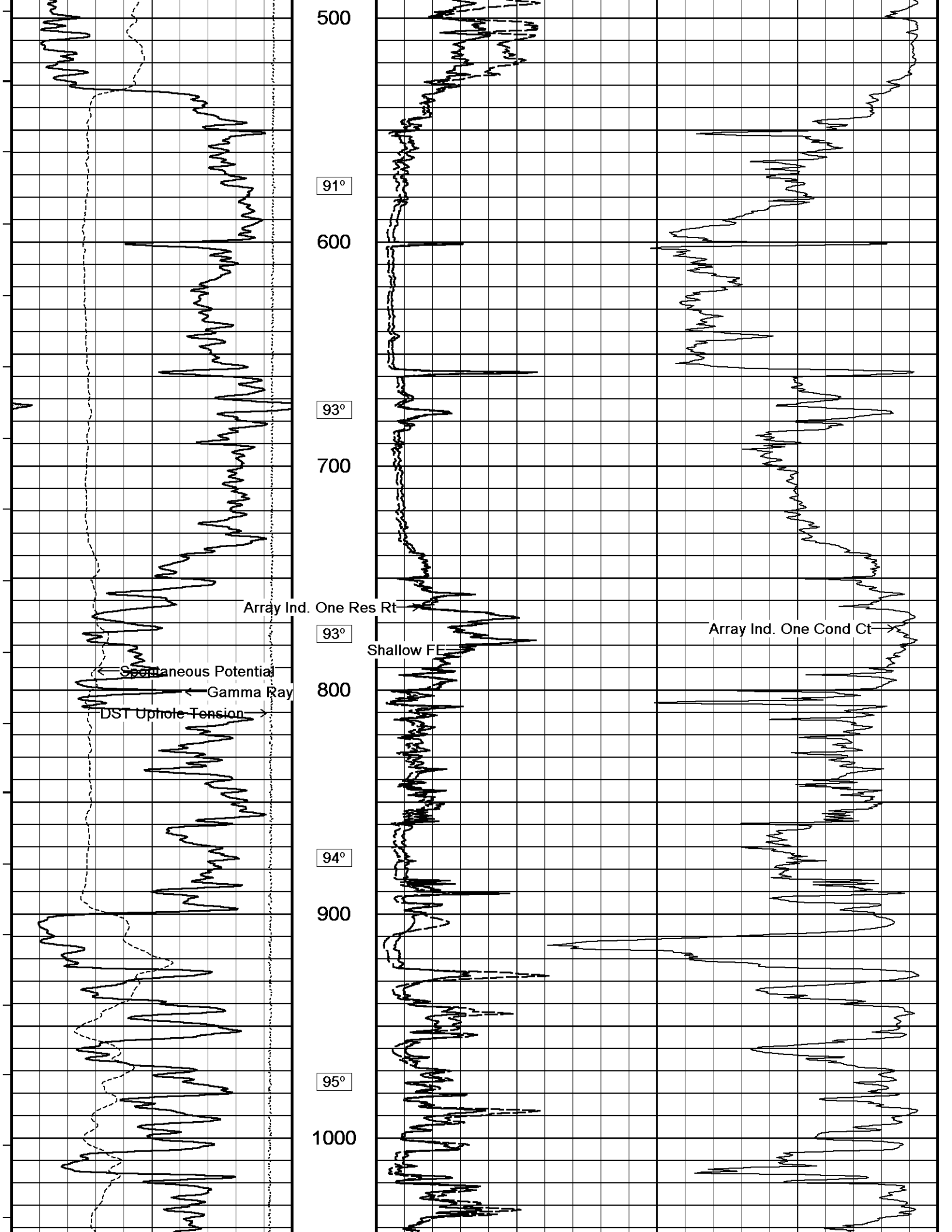
Replay Scale 1:600

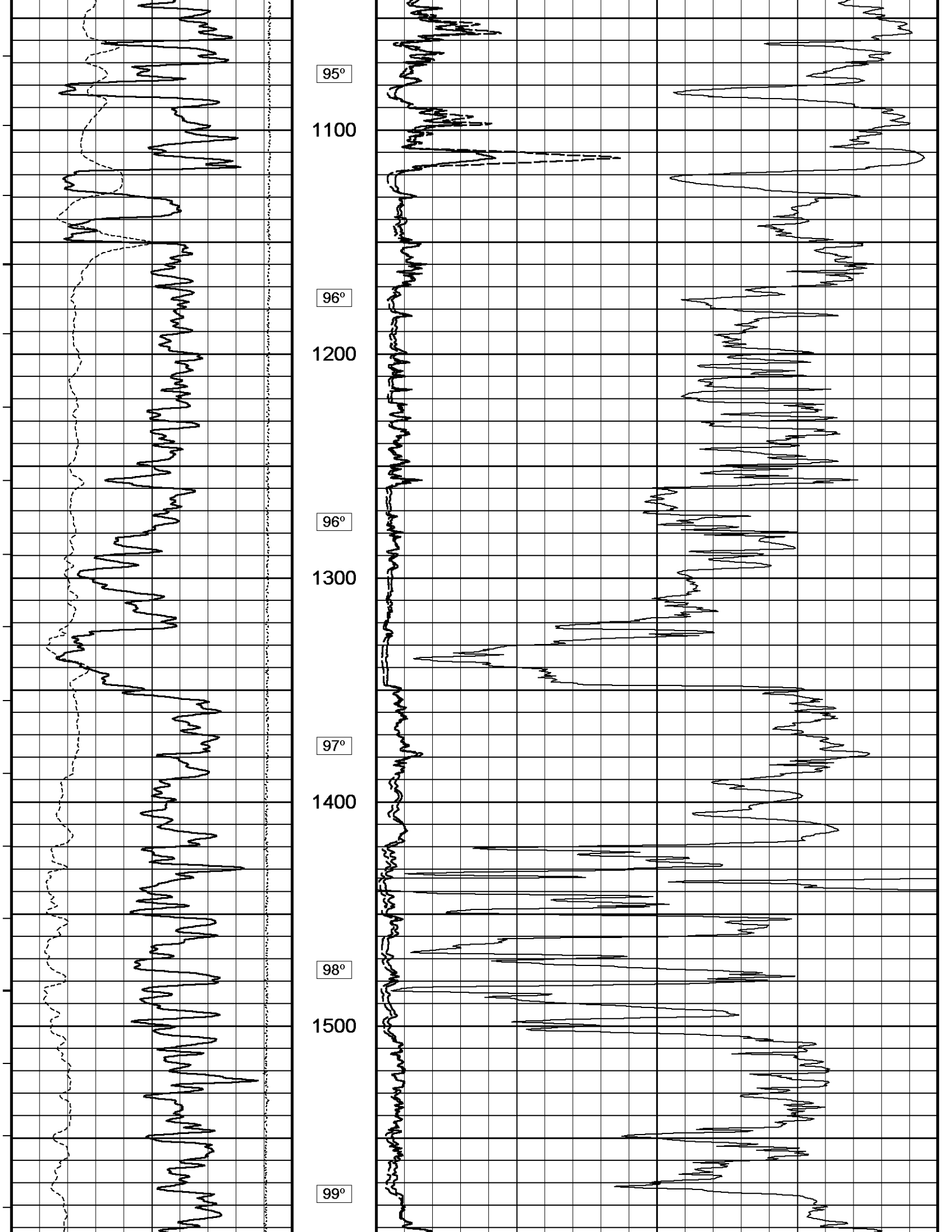
Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

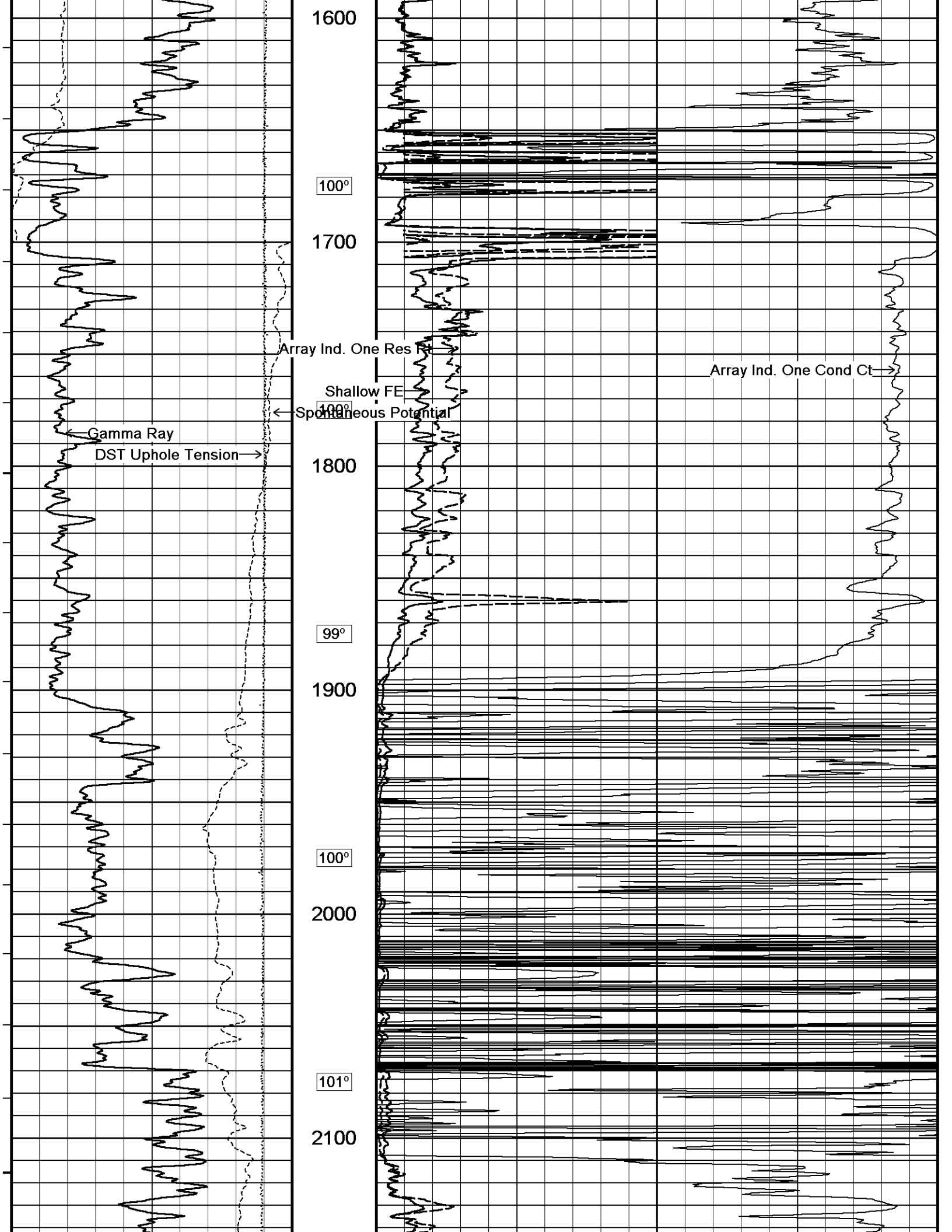
Shallow FE
ohm metres
0 25 50
0 250 500

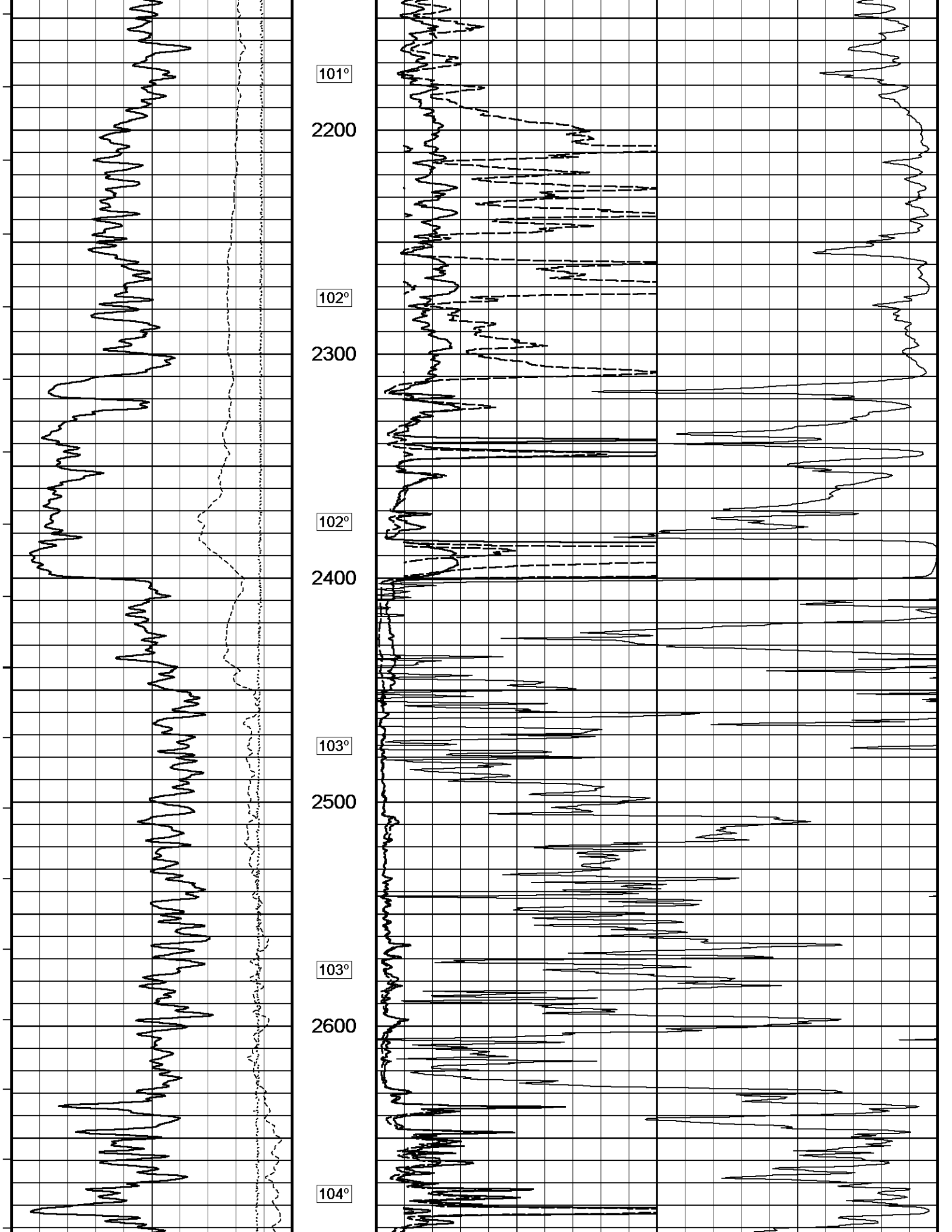
Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

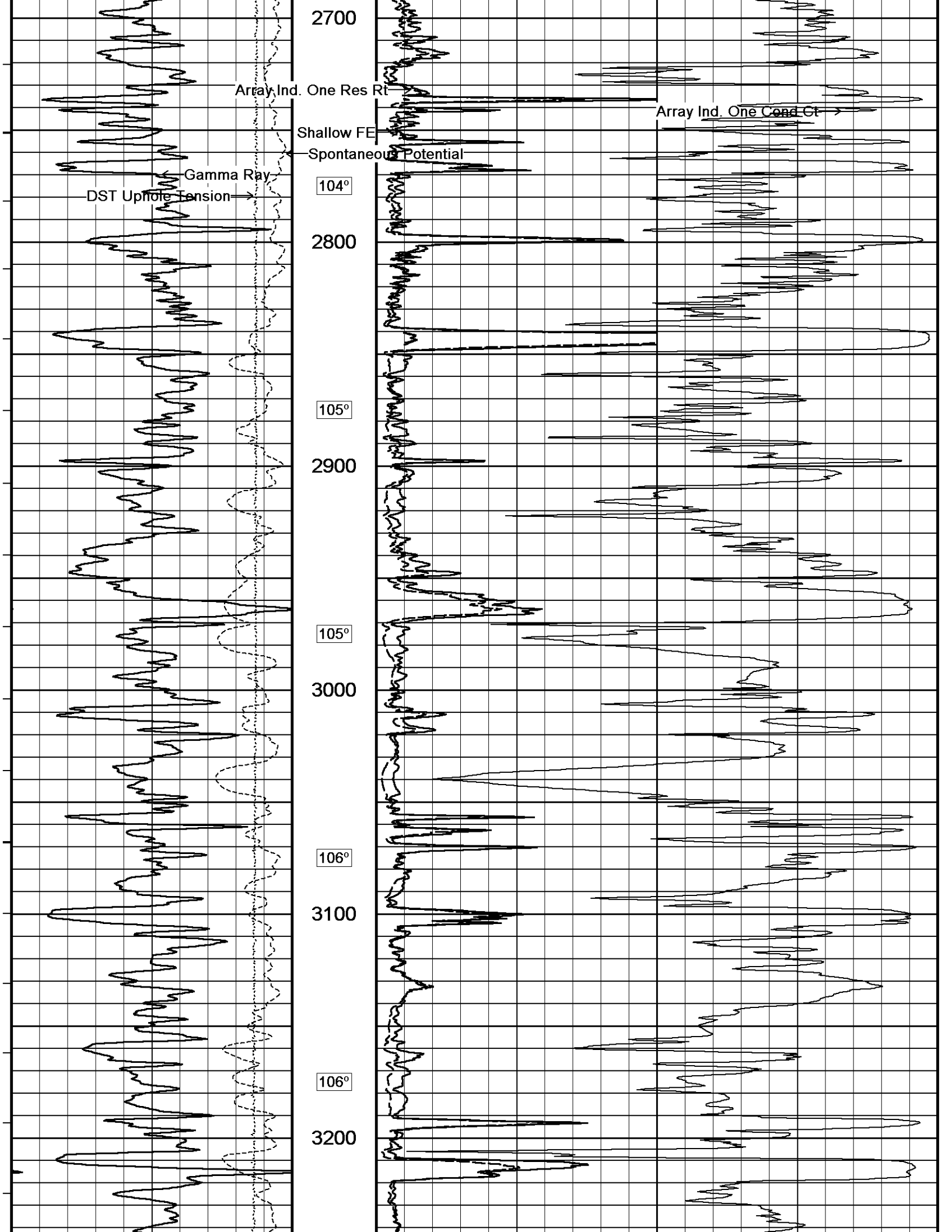


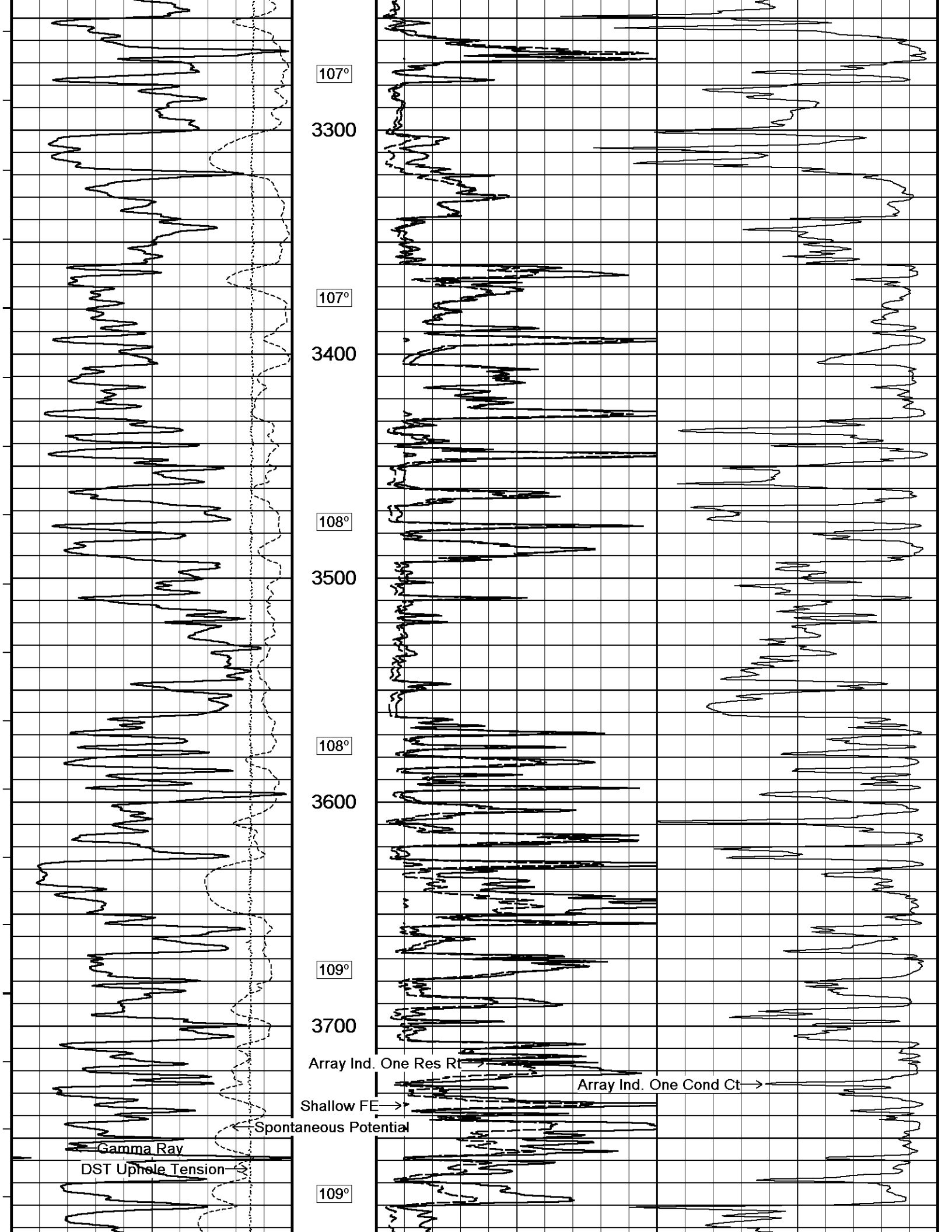

500
91°
600
93°
700
Array Ind. One Res Rt
93°
Shallow FE
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
800
DST Uphole Tension
94°
900
95°
1000

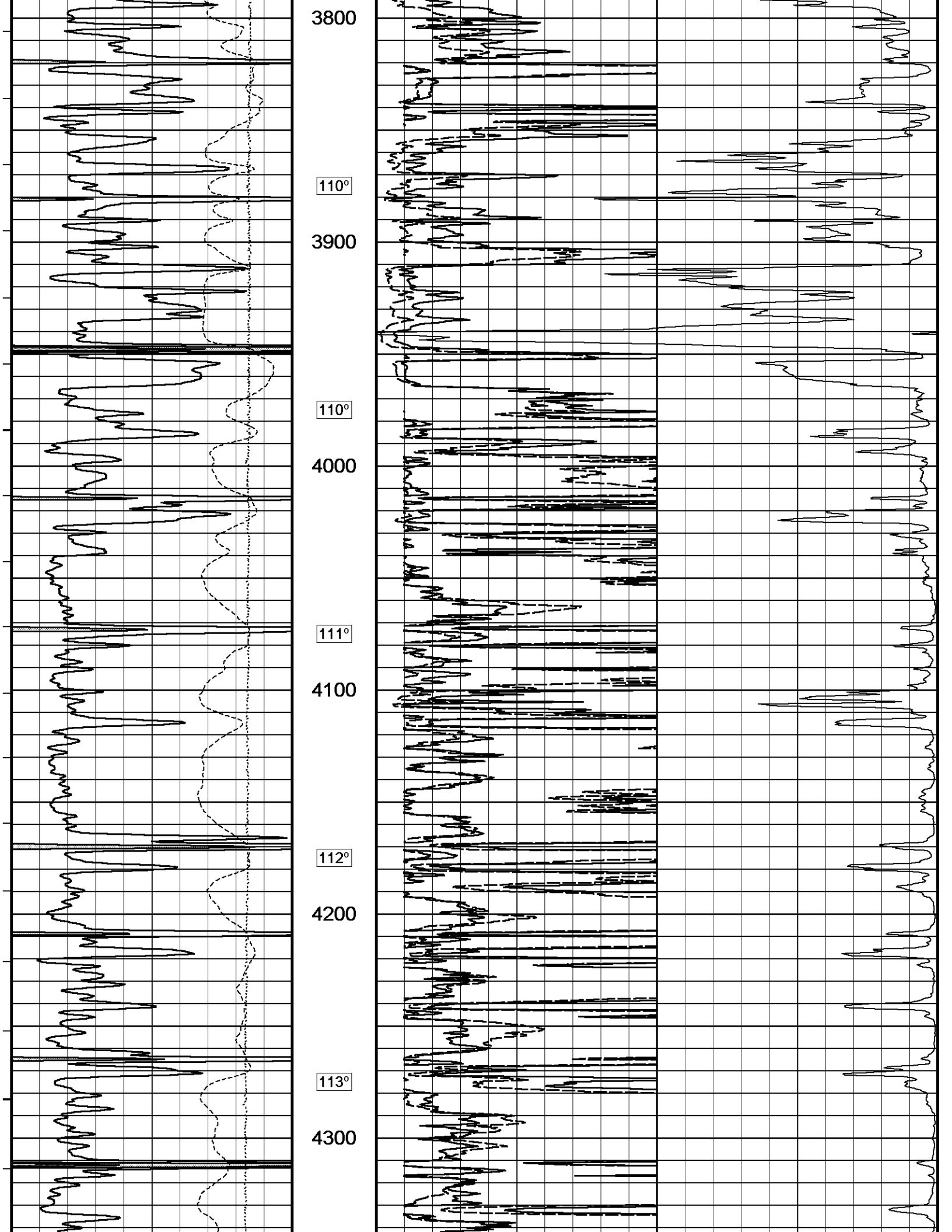

95°
1100
96°
1200
96°
1300
97°
1400
98°
1500
99°

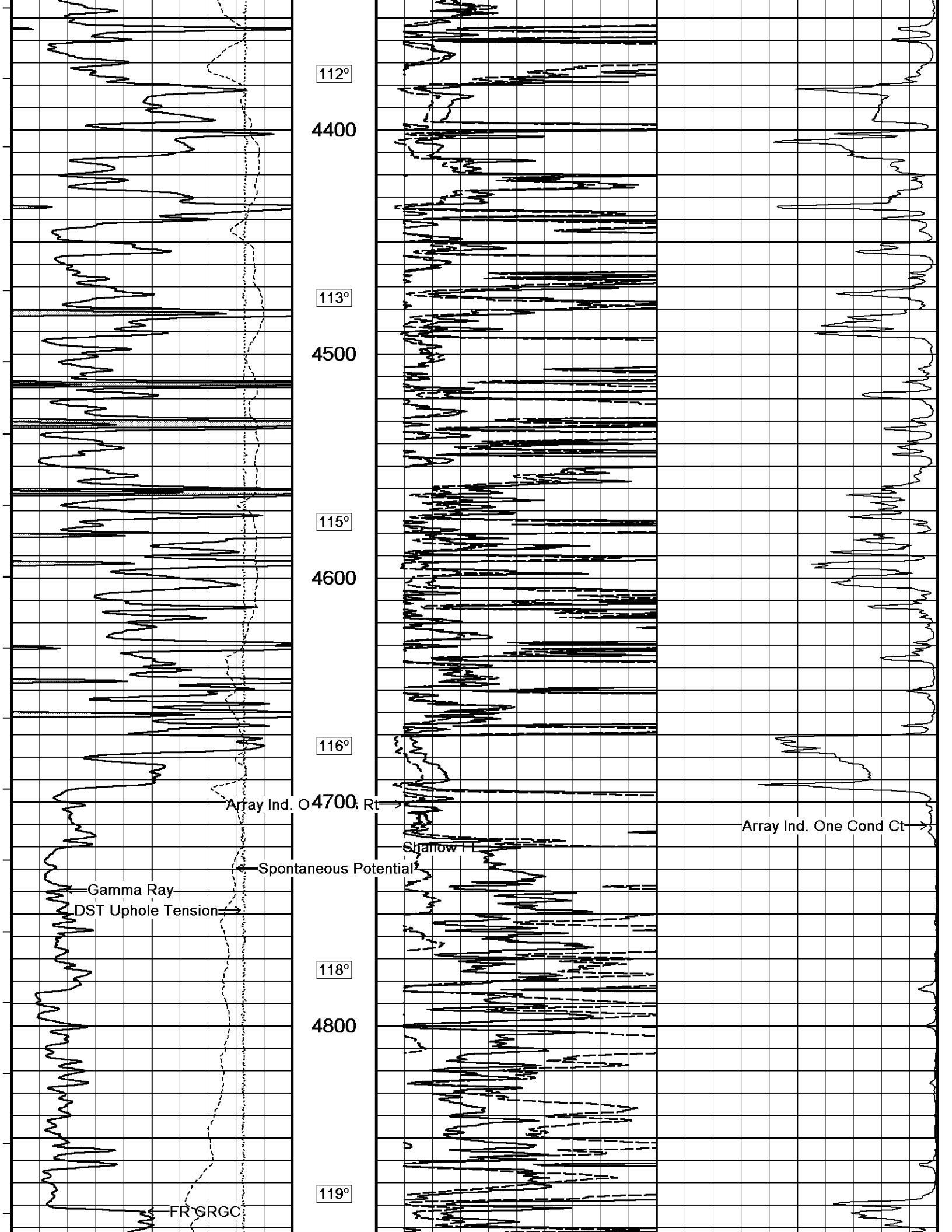

1600
100°
1700
Array Ind. One Res Rt
Shallow FE
100°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
1800
99°
1900
100°
2000
101°
2100
Array Ind. One Cond Ct

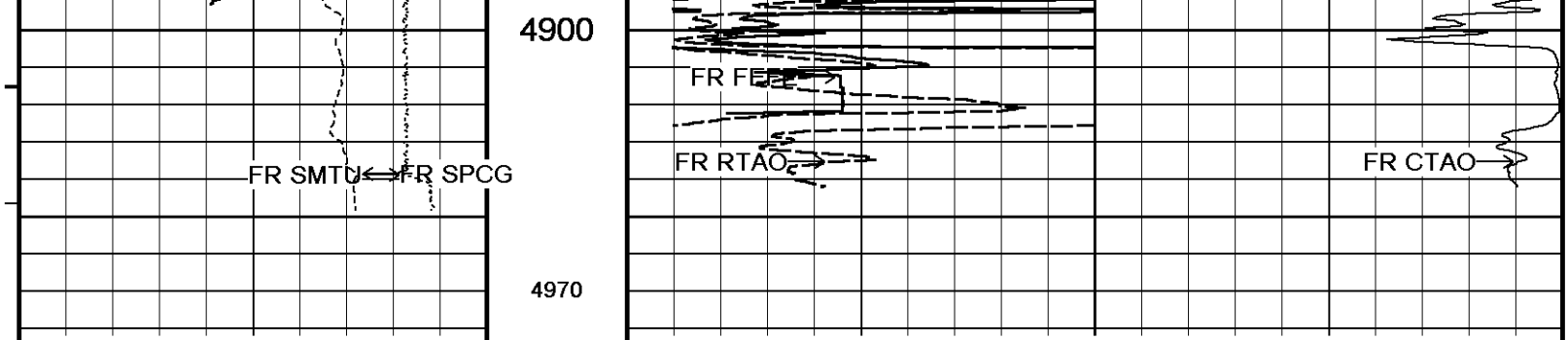

101°
2200
102°
2300
102°
2400
103°
2500
103°
2600
104°


2700
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
104°
2800
105°
2900
105°
3000
106°
3100
106°
3200


107°
3300
107°
3400
108°
3500
108°
3600
109°
3700
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
109°


3800
110°
3900
110°
4000
111°
4100
112°
4200
113°
4300


112°
4400
113°
4500
115°
4600
116°
4700
118°
4800
119°
Array Ind. O
Rt
Shallow I I
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
Array Ind. One Cond Ct



Depth in Feet

Timing Marks
every 60.0 sec

Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

Gamma Ray
API
0 75 150
150 225 300

Shallow FE
ohm metres
0 25 50
0 250 500

Borehole Temp in deg F

Spontaneous Potential
millivolts
− 20 +

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

DST Uphole Tension
pounds
5000 0

Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-APR-2013 15:43
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_002.dta — Recorded on 16-APR-2013 12:30
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

2 INCH MAIN

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-APR-2013 15:43
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_002.dta — Recorded on 16-APR-2013 12:30
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

Depth in Feet

Timing Marks
every 60.0 sec

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

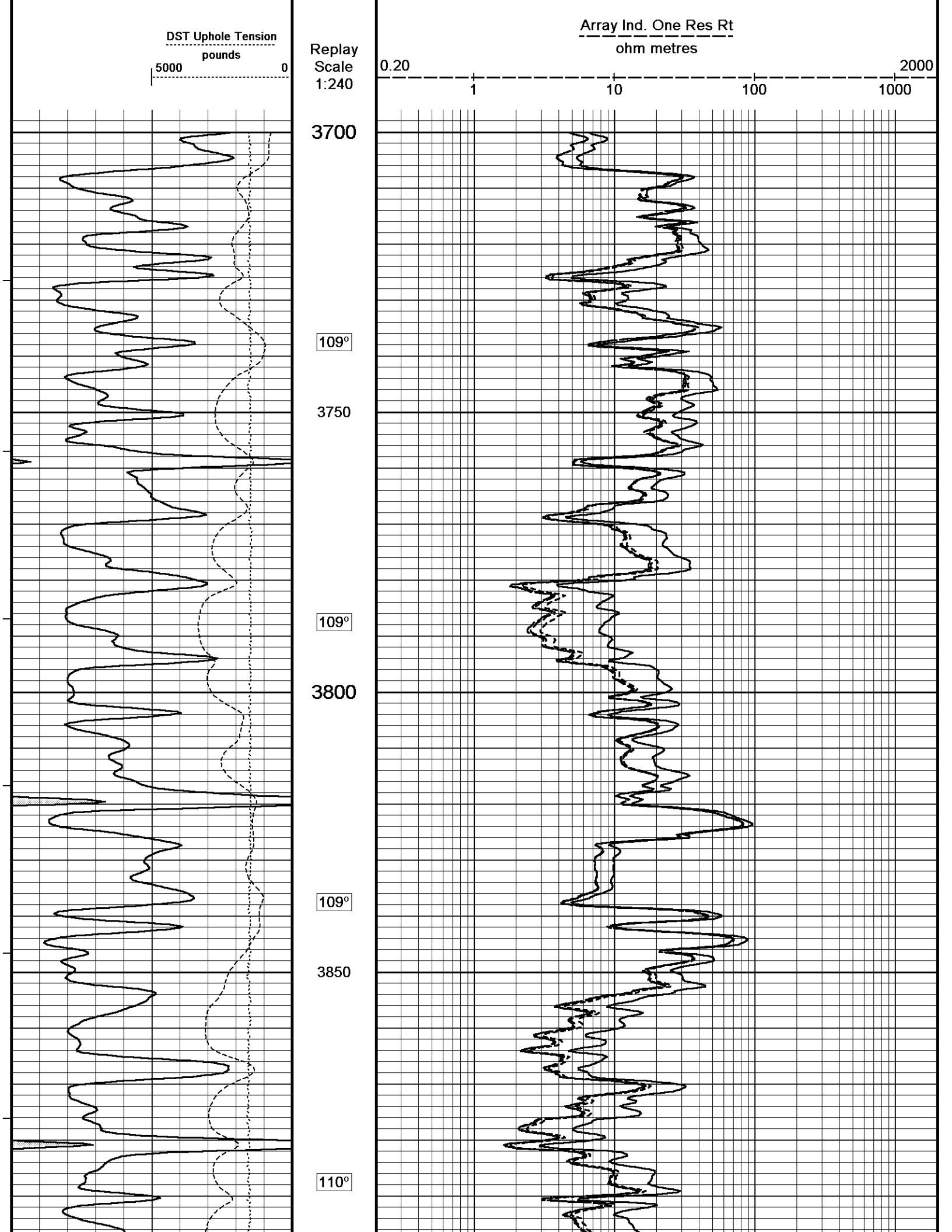
Gamma Ray
API
0 75 150
150 225 300

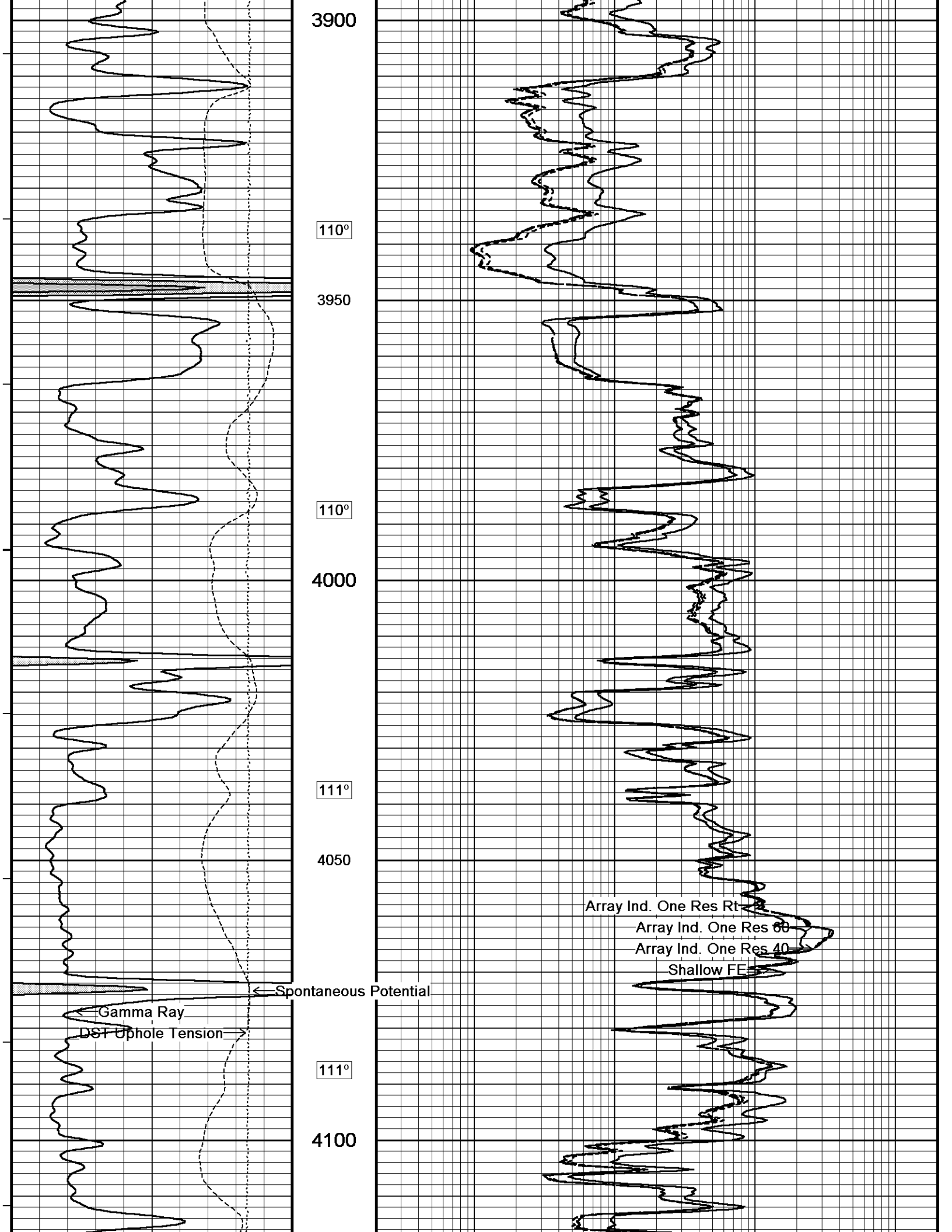
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

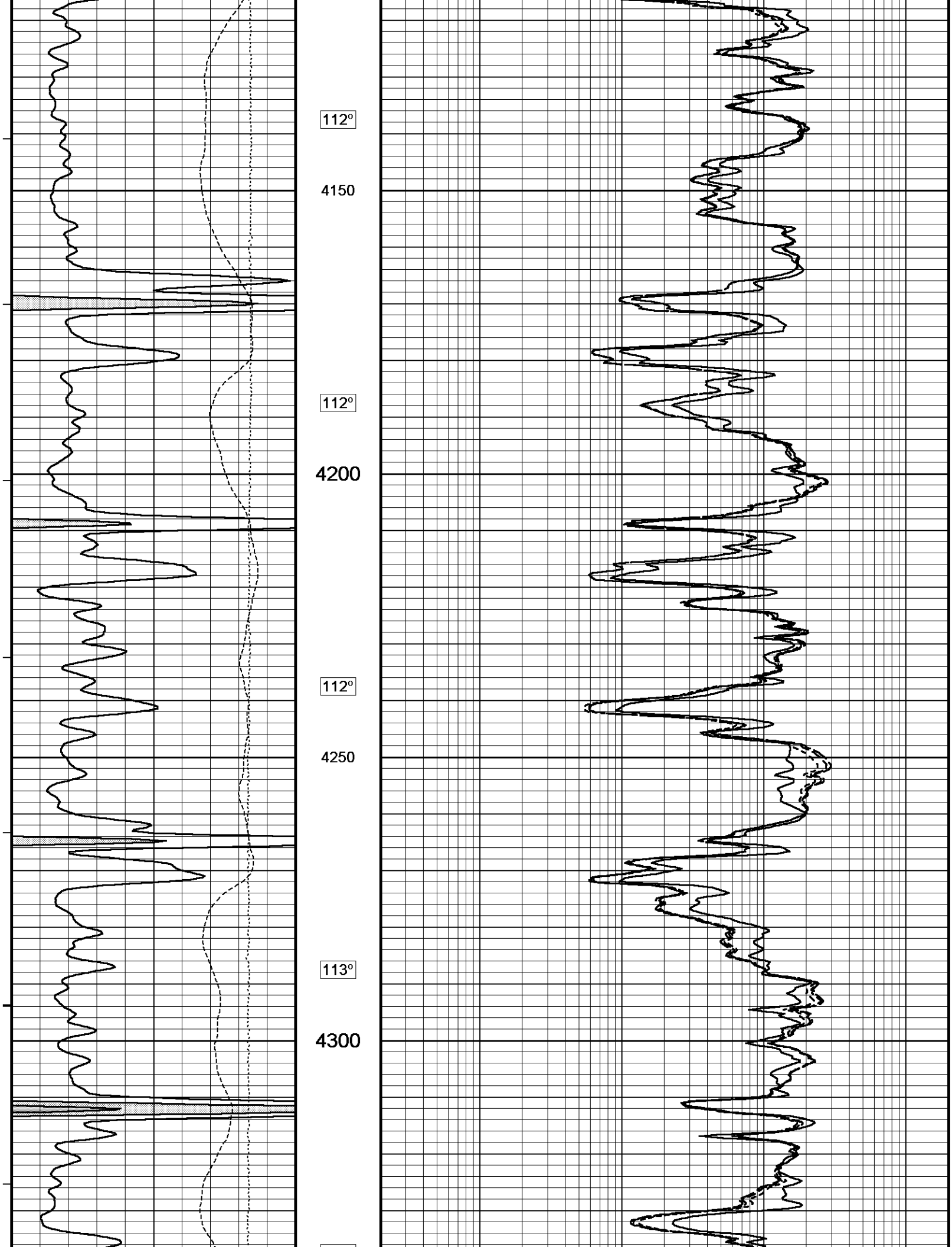
Borehole Temp in deg F

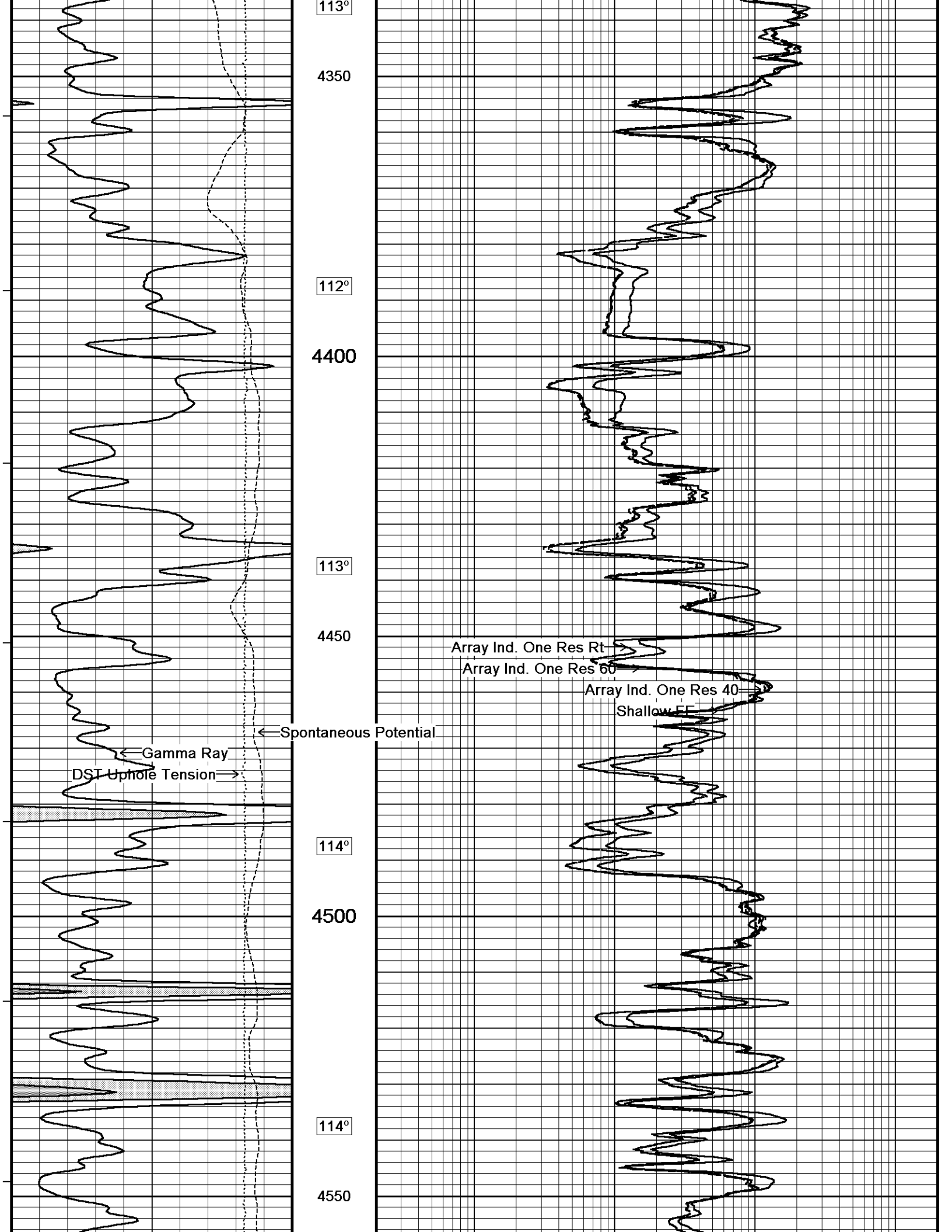
Spontaneous Potential
millivolts
− 20 +

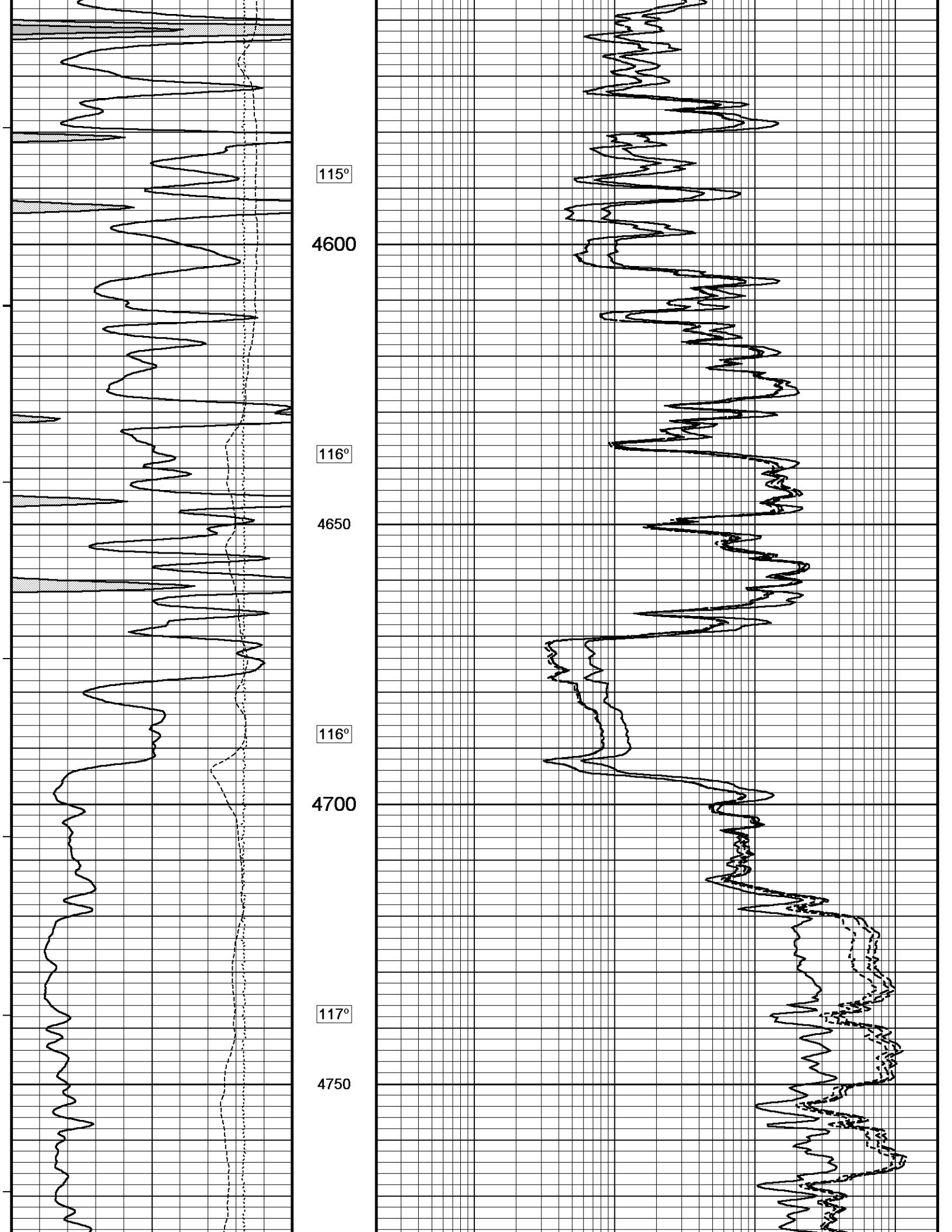
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

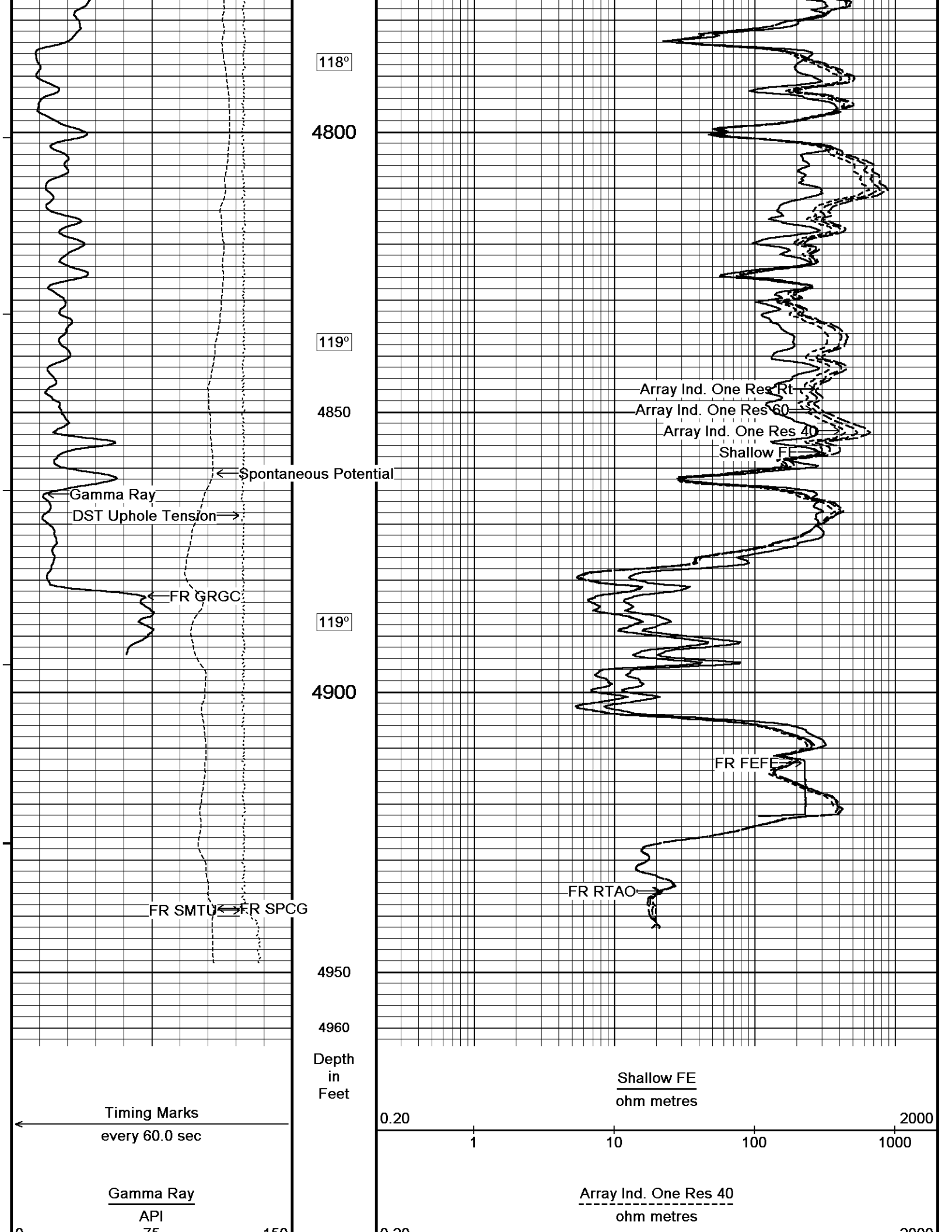

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
3700
109°
3750
109°
3800
109°
3850
110°

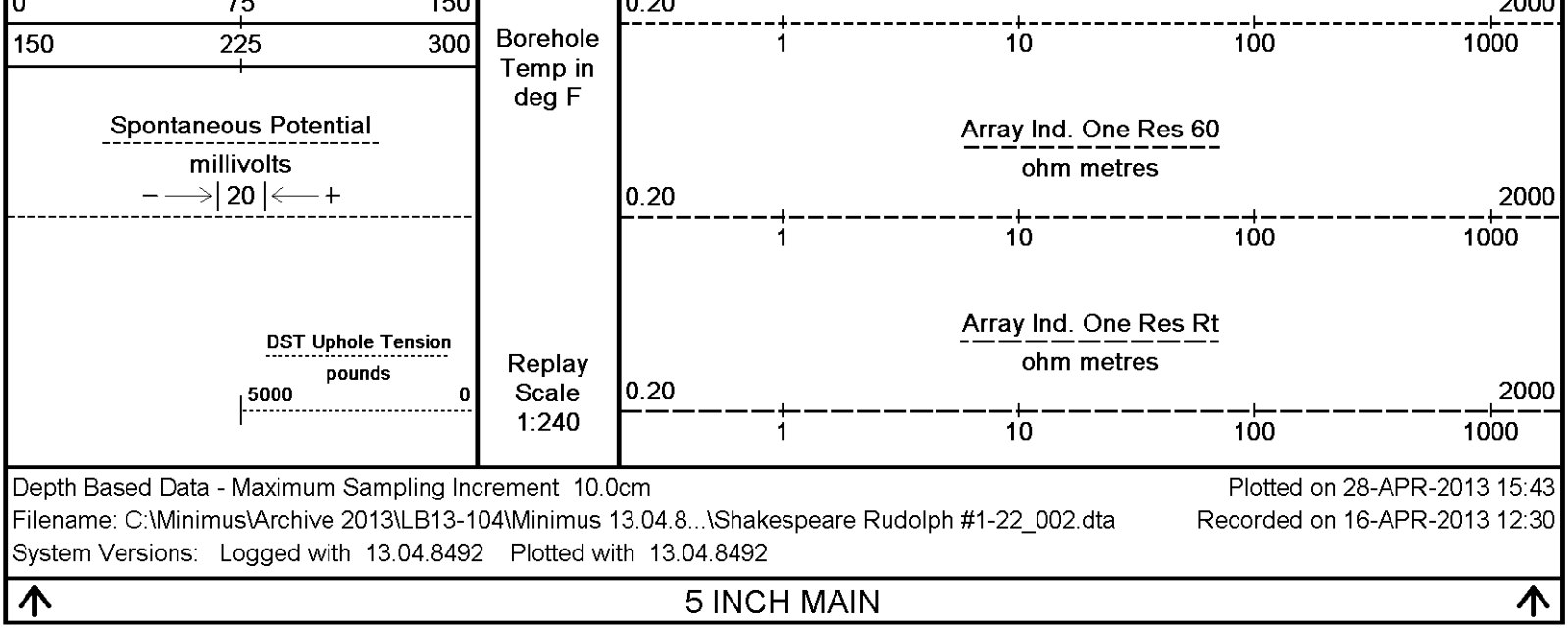

3900
110°
3950
110°
4000
111°
4050
111°
4100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DSI Uphole Tension


112°
4150
112°
4200
112°
4250
113°
4300


113°
4350
112°
4400
113°
4450
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FF
Spontaneous Potential
Gamma Ray
DST Uphole Tension
114°
4500
114°
4550


115°
4600
116°
4650
116°
4700
117°
4750


118°
4800
119°
4850
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
119°
4900
FR SMTU
FR SPCG
4950
4960
Depth
in
Feet
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR FEFE
FR RTAO
Timing Marks
every 60.0 sec
Gamma Ray
API
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
ohm metres

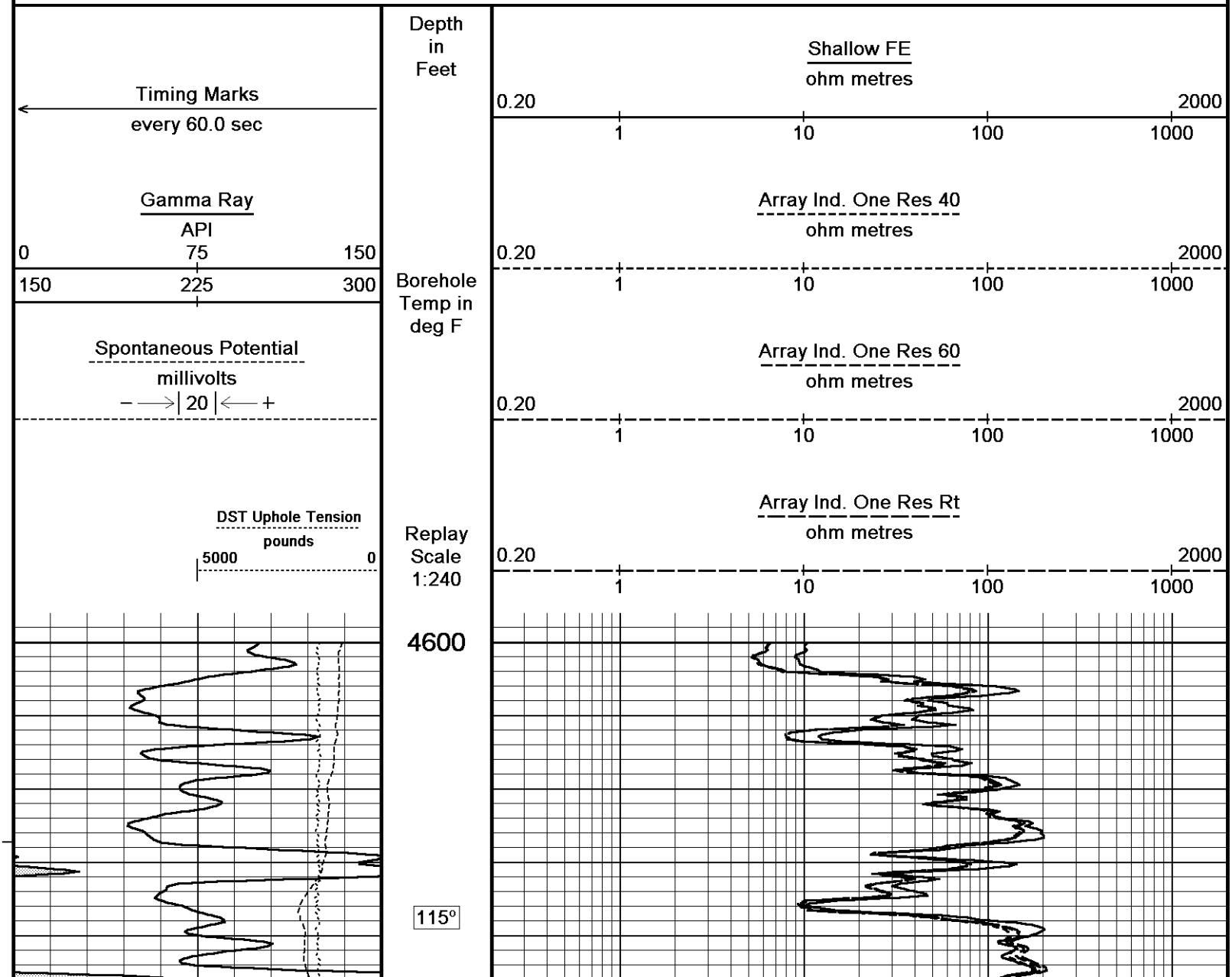


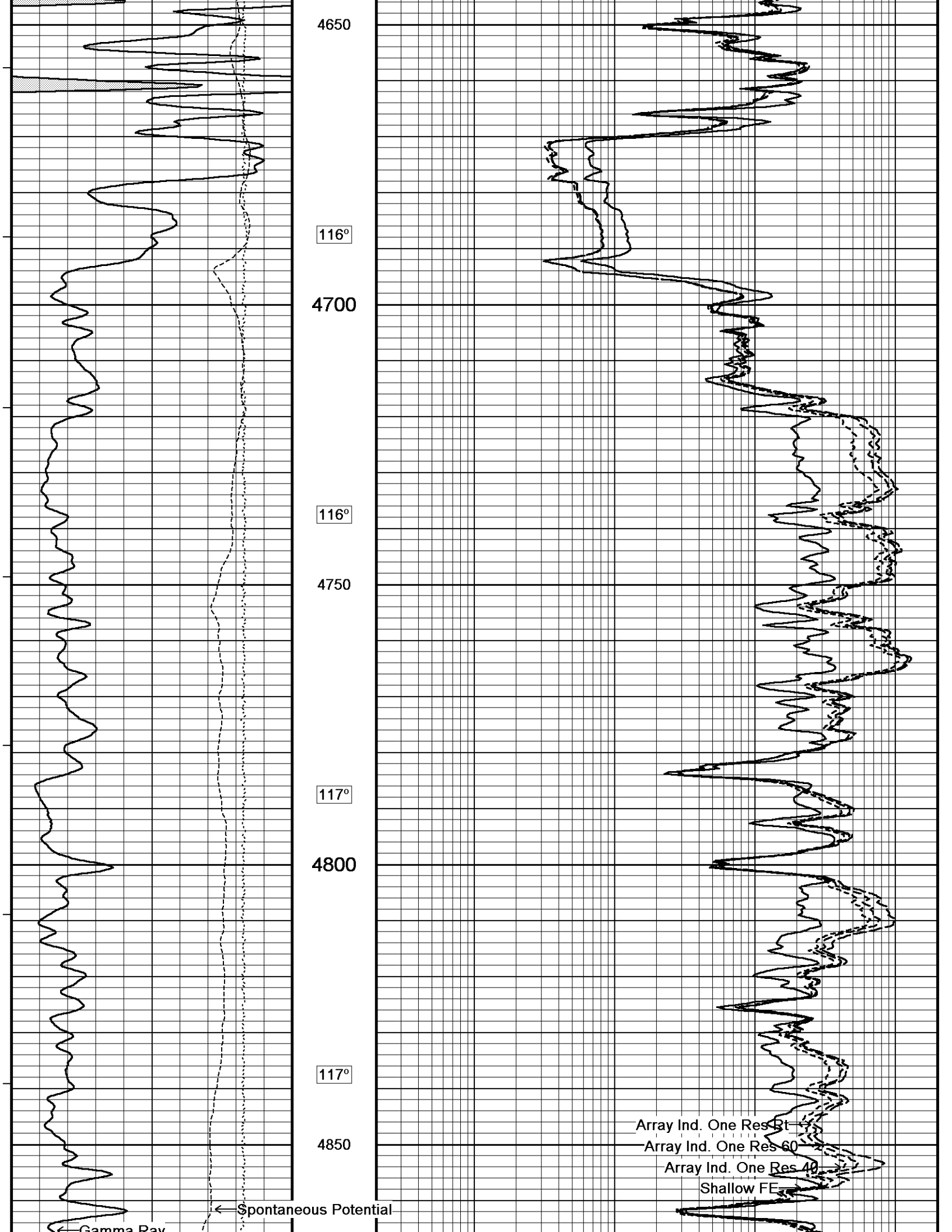
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-APR-2013 15:43
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_002.dta — Recorded on 16-APR-2013 12:30
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

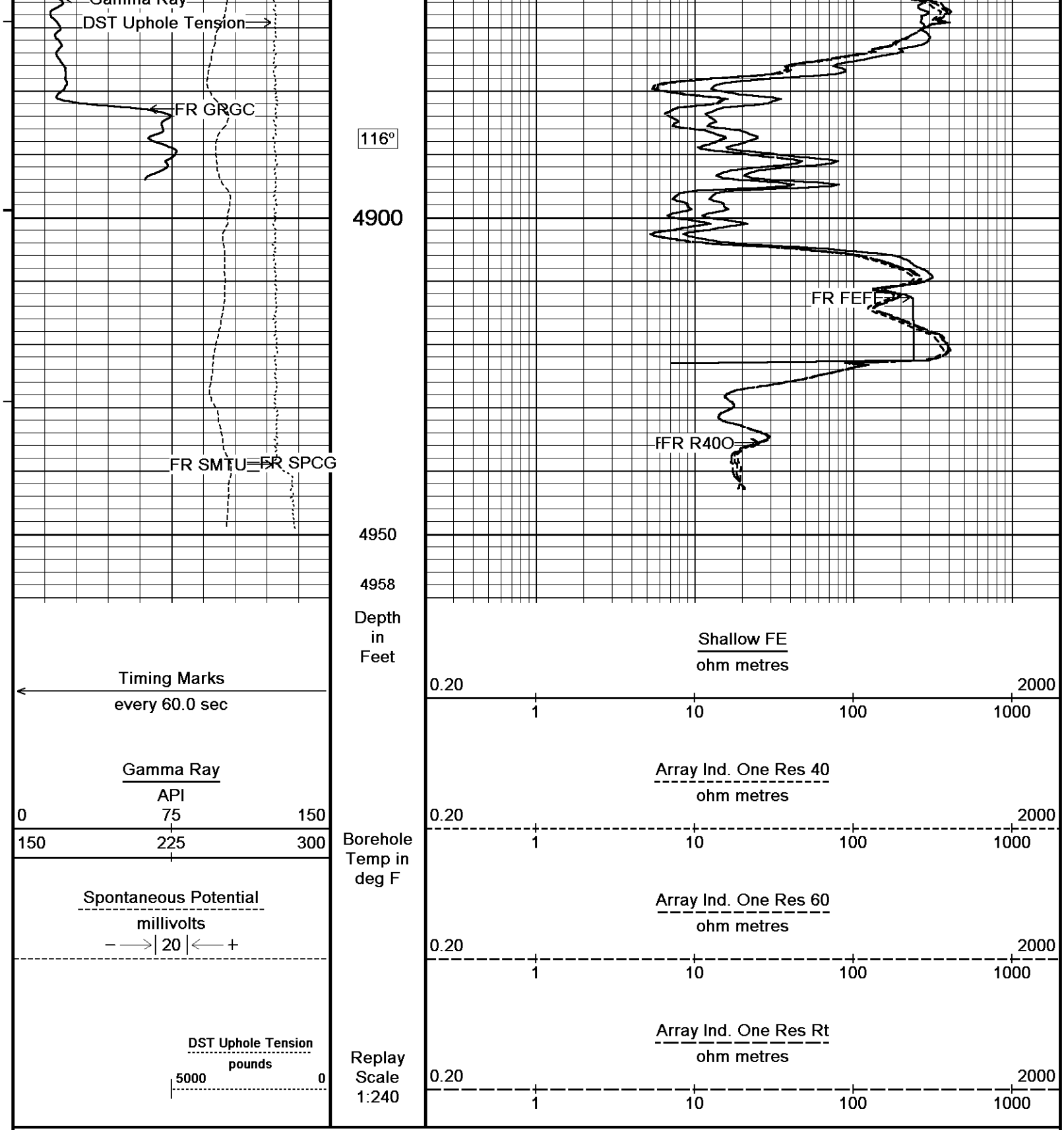
5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-APR-2013 15:43
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_001.dta — Recorded on 16-APR-2013 12:04
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492




4650
116°
4700
116°
4750
117°
4800
117°
4850
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-APR-2013 15:43

Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8...\Shakespeare Rudolph #1-22_001.dta — Recorded on 16-APR-2013 12:04

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8492_Data_Shakespeare Rudolph #1-22\Shakespeare Rudolph #1-22_001.dta

General Constants All 000 — Last Edited on 16-APR-2013,10:51

General Parameters

Mud Resistivity	0.620	ohm-metres
Mud Resistivity Temperature	74.000	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	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 13-APR-2013 20:15

Reading No	Measured	Calibrated (lbs)
1	14794.45	2.00
2	15339.36	383.60

Gamma Calibration MCG-B 34

Field Calibration on 10-APR-2013 10:25

	Measured	Calibrated (API)
Background	60	40
Calibrator (Gross)	1154	765
Calibrator (Net)	1095	725

Gamma Constants MCG-B 34

Last Edited on 16-APR-2013,10:46

Gamma Calibrator Number	GR38	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-B 34

Field Calibration on 29-MAR-2013,12:58

	Measured	Calibrated (mV)
Reference 1	101.0	100.0
Reference 2	-99.0	-100.0

High Resolution Temperature Calibration MCG-B 34

Field Calibration on 29-MAR-2013,12:58

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

High Resolution Temperature Constants MCG-B 34

Last Edited on 29-MAR-2013,12:58

Pre-filter Length	11

Micro Laterolog Calibration MMR-A 11

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

Base Calibration

Measured		Calibrated (ohm-m)	
Ref 1	Ref 2	Ref 1	Ref 2
0.0	0.0	0.0	0.0

Base Check (ohm-m)	Field Check (ohm-m)
0.0	0.0

Micro Laterolog Constants MMR-A 11

Last Edited on

Pad Type	6 in Solid Nylon B23059	
Micro Laterolog K Factor	0.0128	
Standoff Offset	0.0000	inches

Mudcake Thickness Correction Constants

Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches

Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	20.00	Degrees C
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	MCG External Temperature	

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 08-MAR-2013 17:36
Field Check on 10-APR-2013 10:27

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	12.4	60.0	5.0	25.0
Micro Inverse	15.5	77.5	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	76.3	76.3
Micro Inverse	58.7	58.7

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 05-NOV-2012,13:54

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	0.0000	inches

Caliper Calibration MMR-A 11

Base Calibration on 08-APR-2013 09:09
Field Calibration on 10-APR-2013 10:30

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13932	5.98
2	17063	7.97
3	20236	9.86
4	24170	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.93	5.98

Neutron Calibration MDN-A.B 65

Base Calibration on 13-MAR-2013 16:17
Field Check on 10-APR-2013 10:41

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	2980	92	3714	110
Ratio	32.499		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1736	2464
Ratio	0.705	

Field Check

	Calibrated (cps)	
	1736	2470
Ratio	0.680	

Neutron Constants MDN-A.B 65

Last Edited on 16-APR-2013,10:46

Neutron Source Id	PN-521	
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	None	
Temperature	N/A	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 352

Base Calibration on 16-JAN-2013 10:20
Field Check on 10-APR-2013 10:50

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.3	126.8
Base Check		281.2
Field Check		281.3

FE Constants MFE-B.J 352

Last Edited on 16-APR-2013,10:45

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 16-APR-2013,10:45

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	3-5' 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
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

High Resolution Temperature Calibration MAI-A.A 45

Field Calibration on 13-DEC-2012,10:54

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

High Resolution Temperature Constants MAI-A.A 45

Last Edited on 10-APR-2013,10:31

Pre-filter Length	11

Induction Calibration MAI-A.A 45

Base Calibration on 26-JUL-2012,09:22
Field Check on 10-APR-2013 10:52

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature	78.4	Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			18.4	3850.4	
2			31.7	3628.8	
3			28.7	3049.3	
4			18.3	2079.1	
Deep			16.1	1911.4	
Medium			42.5	4060.4	
Shallow			49.5	5481.9	
Array Temperature				60.4	Deg F

Induction Constants MAI-A.A 45

Last Edited on 16-APR-2013,10:45

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 31

Base Calibration on 28-MAR-2013 13:43
Field Calibration on 08-APR-2013 08:48

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16832	3.99
2	24690	5.98
3	33328	7.97
4	41600	9.86
5	50976	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	5.98

Photo Density Calibration MPD-B 31

Base Calibration on 13-MAR-2013 15:17
Field Check on 10-APR-2013 10:49

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	46119	23502	59556	30836
Reference 2	19149	1933	24941	2541

Field Check at Base

681.1	838.4

Field Check

679.5	834.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	125	604		
Reference 1	19219	46004	0.421	0.371
Reference 2	5674	19062	0.301	0.272

Field Check at Base

125.1	603.7

Field Check

124.6	603.1

Density Constants MPD-B 31

Last Edited on 16-APR-2013,10:46

Density Source Id	254	
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	

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	

DOWNHOLE EQUIPMENT

C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8492_Data_Shakespeare Rudolph #1-22\Shakespeare Rudolph #1-22_001.dta

Compact Comms Gamma
MCG-B 34 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

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

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

Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 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 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 61.30 ft Weight: 456.4 lb

56.02 ft	GRGC - Gamma Ray
53.11 ft	CGXT - MCG External Temperature
45.76 ft	MINV - MMR MicroLog Inverse
45.76 ft	MNRL - MMR MicroLog Normal
40.97 ft	NPRL - Limestone Neutron Por.
33.73 ft	AVOL - Annular Volume
33.73 ft	HVOL - Hole Volume
33.73 ft	CLDC - Density Caliper
31.80 ft	DPRL - Limestone Density Por.
31.80 ft	DEN - Compensated Density
31.80 ft	DCOR - Density Correction
31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
12.96 ft	DT35 - 3-5' Compensated Sonic
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R60O - Array Ind. One Res 60
3.34 ft	RTAO - Array Ind. One Res Rt
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	SHAKESPEARE OIL COMPANY
WELL	RUDOLPH #1-22
FIELD	WILDCAT

PROVINCE/COUNTY	SCOTT				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	3035.00	feet	First Reading	4936.00	feet
Elevation Drill Floor	3033.00	feet	Depth Driller	4940.00	feet
Elevation Ground Level	3025.00	feet	Depth Logger	4939.00	feet

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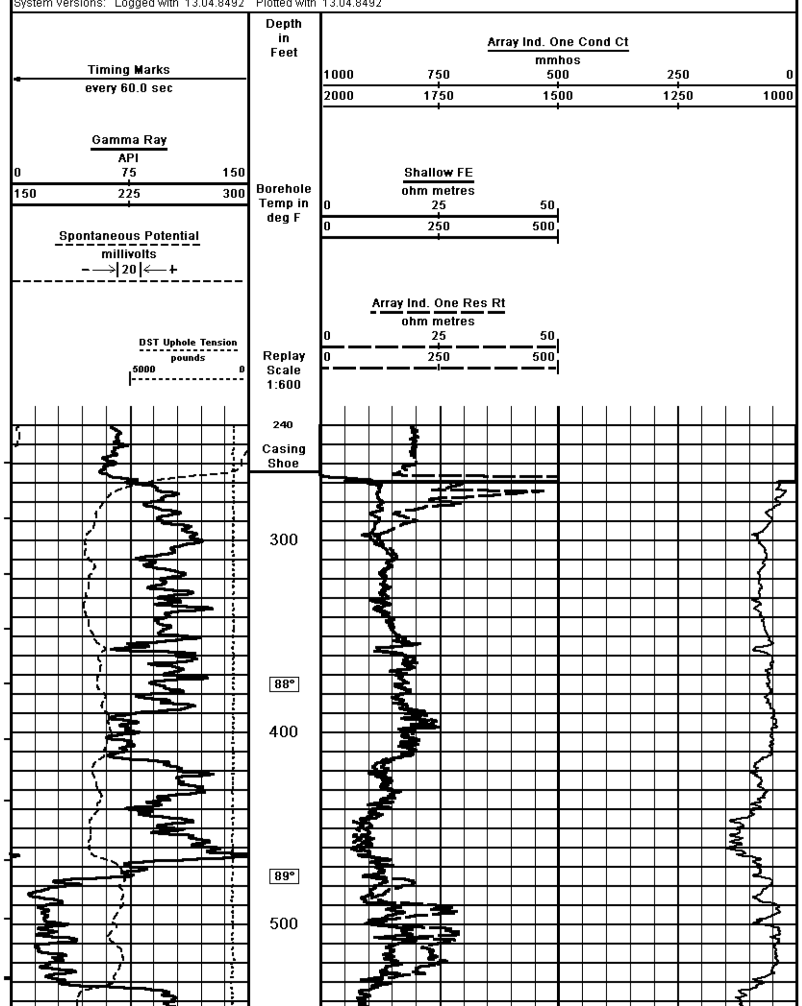
SHALLOW FOCUSED
ELECTRIC LOG

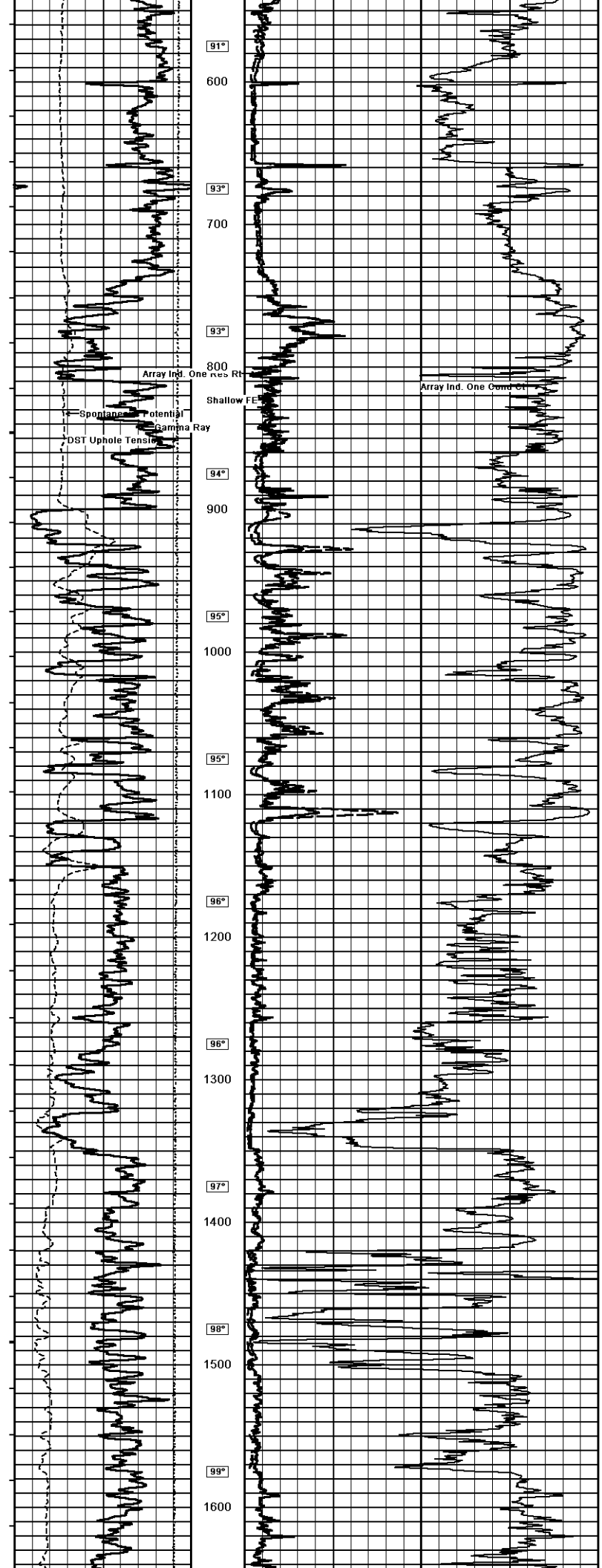
Weatherford — ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

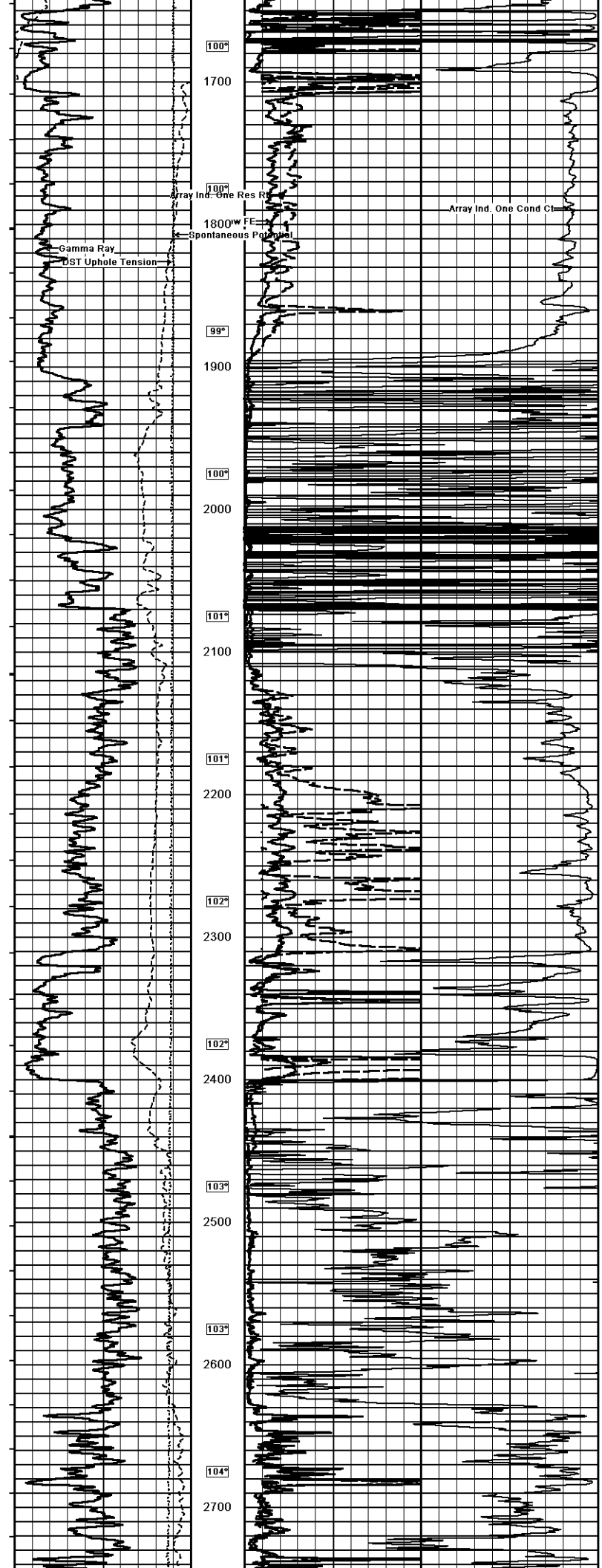
COMPANY	SHAKESPEARE OIL COMPANY		
WELL	RUDOLPH #1-22		
FIELD	WILDCAT		
PROVINCE/COUNTY	SCOTT		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1450' FSL & 1350' FEL		
SEC 22 / TWP 17S / RGE 33W		Other Services: MPD/MDN, MML, MSS	
API Number / Permit Number	15-171-20938		
Permanent Datum	G.L., Elevation 3025 feet	Elevations:	feet
Log Measured From	KB	KB	3035.00
Drilling Measured From	K.B. @ 10 FEET	DF	3033.00
		GL	3025.00
Date	16-APR-2013		
Run Number	ONE		
Service Order	3539888		
Depth Driller	4940.00	feet	
Depth Logger	4939.00	feet	
First Reading	4936.00	feet	
Last Reading	264.00	feet	
Casing Driller	267.00	feet	
Casing Logger	264.00	inches	
Bit Size	7.875		
Hole Fluid Type	CHEMICAL	lb/USg	
Density / Viscosity	9.30 lb/USg	55.00 CP	
PH / Fluid Loss	10.50	10.50	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.62 @ 74.0	ohm-m	
Rmf @ Measured Temp	0.50 @ 74.0	ohm-m	
Rmc @ Measured Temp	0.74 @ 74.0	ohm-m	
Source Rmf / Rmc	CALC	CLAC	
Rm @ BHT	0.39 @119.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	119.00	deg F	
Equipment / Base	13057	LIB	
Recorded By	J. LAPOINT		W. STAMBAUGH
Witnessed By	TIM PRIEST		
JOB#	LB13-104		

1 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 28-APR-2013 15:43
Filename: C:\Minimus\Archive 2013\LB13-104\Minimus 13.04.8492...\Shakespeare Rudolph #1-22_002.dta	Recorded on 16-APR-2013 12:30
System Versions: Logged with 13.04.8492 Plotted with 13.04.8492	




91°
600
93°
700
93°
800
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tensio
Array Ind. One Cond Ct
94°
900
95°
1000
95°
1100
96°
1200
96°
1300
97°
1400
98°
1500
99°
1600


100°
1700
100°
Array Ind. One Res Rt
1800
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
DST Uphole Tension
99°
1900
100°
2000
101°
2100
101°
2200
102°
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102°
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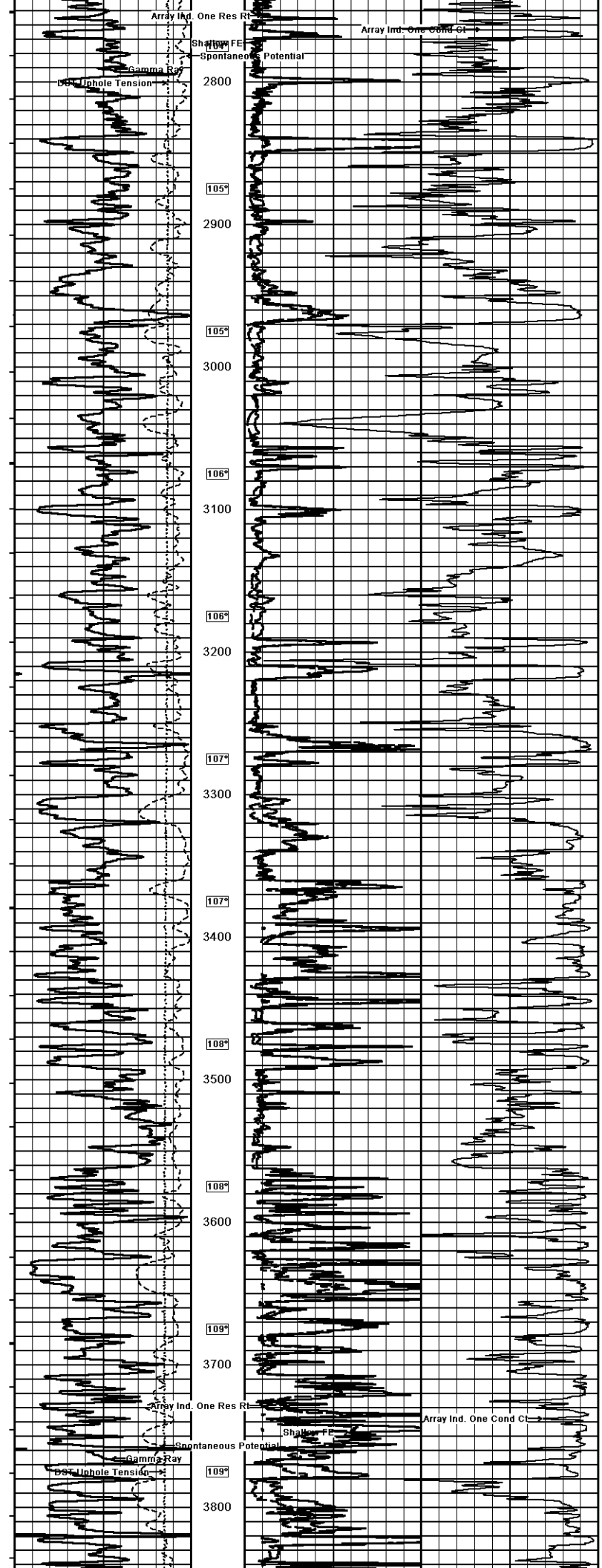
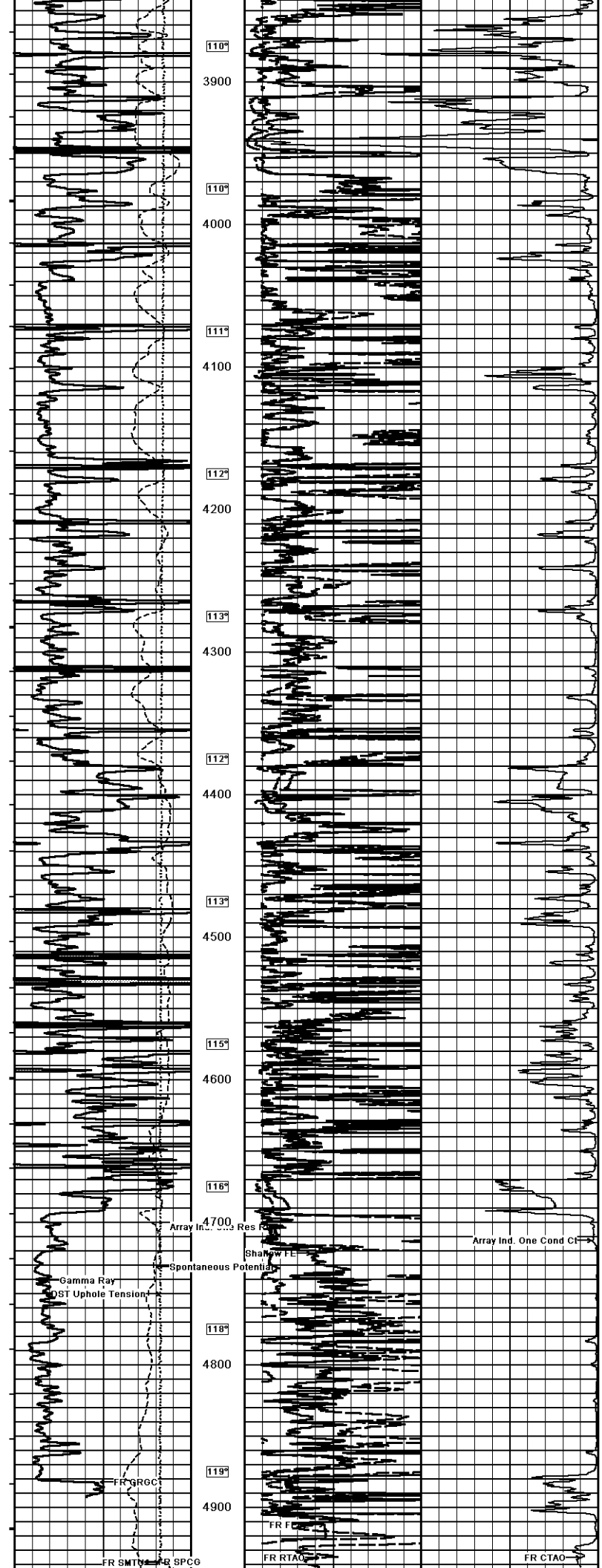
103°
2500
103°
2600
104°
2700


Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DOT Inhole Tension
Array Ind. One Cond Ct
2800
105°
2900
105°
3000
106°
3100
106°
3200
107°
3300
107°
3400
108°
3500
108°
3600
109°
3700
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DOT Inhole Tension
109°
3800


110"
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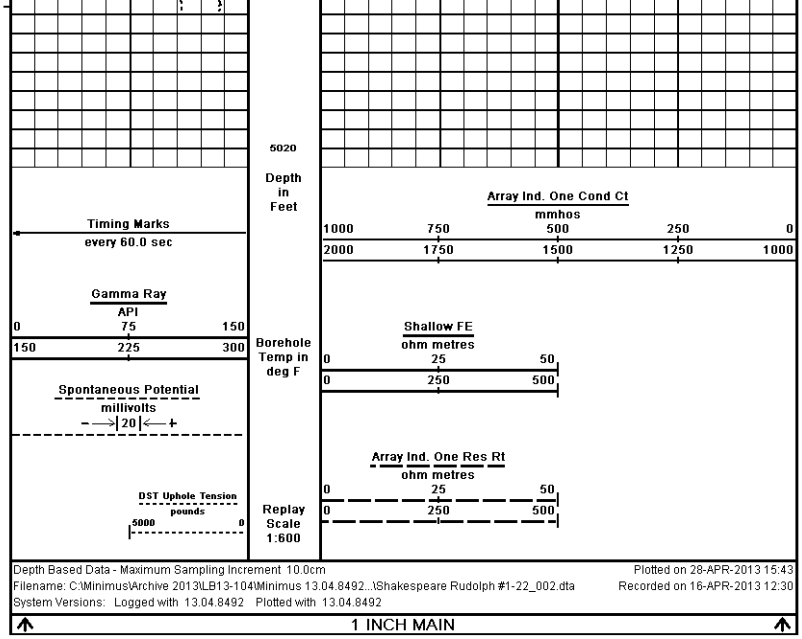
113"
4500
115"
4600
116"
4700
Array Ind. One Cond Cl
Shallow Fl
Spontaneous Potential
Gamma Ray
DST Uphole Tension
118"
4800
119"
FR GRGC
4900
FR RTAO
FR CTAO



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System Versions: Logged with 13.04.8492 Plotted with 13.04.8492

1 INCH MAIN

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WELL	RUDOLPH #1-22
FIELD	WILDCAT
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