Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	GRAND MESA OPERATING
WELL	P-D #1-27
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	674' FNL & 196' FEL NE SE NE NE

SEC	TWP	RGE	Other Services
27	13S	31W	MPD/MDN MML

API Number 15-063-22029
Permit Number

Permanent Datum G.L., Elevation 2870 feet
Log Measured From KB
Drilling Measured From K.B. @ 5 FEET

Elevations:	feet
KB	2875.00
DF	2873.00
GL	2870.00

Date	23-SEP-2012			
Run Number	ONE			
Depth Driller	4662.00	feet		
Depth Logger	4663.00	feet		
First Reading	4660.00	feet		
Last Reading	218.00	feet		
Casing Driller	219.00	feet		
Casing Logger	218.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.10 lb/USg	67.00 CP		
PH / Fluid Loss	10.50	7.20 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.24 @ 94.0	ohm-m		
Rmf @ Measured Temp	0.99 @ 94.0	ohm-m		
Rmc @ Measured Temp	1.49 @ 94.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.97 @120.0	ohm-m		
Time Since Circulation	3 HOURS			
Max Recorded Temp	120.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13057	LIB		
Recorded By	R.HOFFMAN			
Witnessed By	BOB SHREIBER			
S.O. # / JOB #	3538924		LB12-256	

BOREHOLE RECORD

Last Edited: 23-SEP-2012 11:39

Bit Size inches	Depth From feet	Depth To feet
7.875	218.00	4663.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	218.00	24.00

REMARKS

Tools Ran: MCG, MML, MDN, MPD, MFE, MAI.
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE, and MAI 0.5 inch standoffs used.
2.71 g/cc Limestone Density Matrix used to calculate porosity.
All intervals logged and scaled per customer's request.
Tight pulls, washouts and borehole rugosity will affect data quality.
Annular volume with 5.5 inch production casing= 205 cu. ft.
Service order: #3538924
Rig: Murfin #24
Engineer: R. Hoffman
Operator(s): K. Rinehart

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta
Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

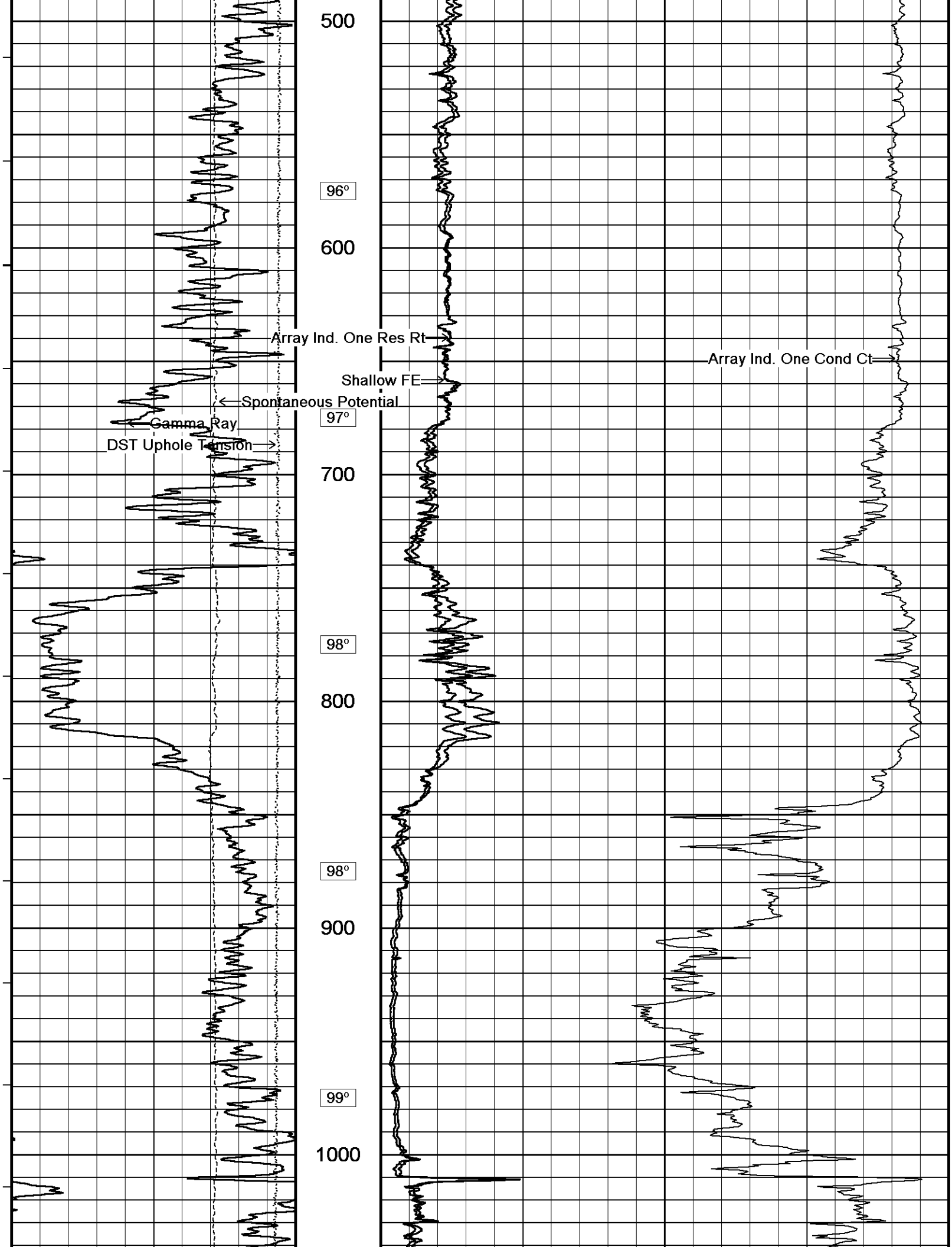
Replay Scale 1:600

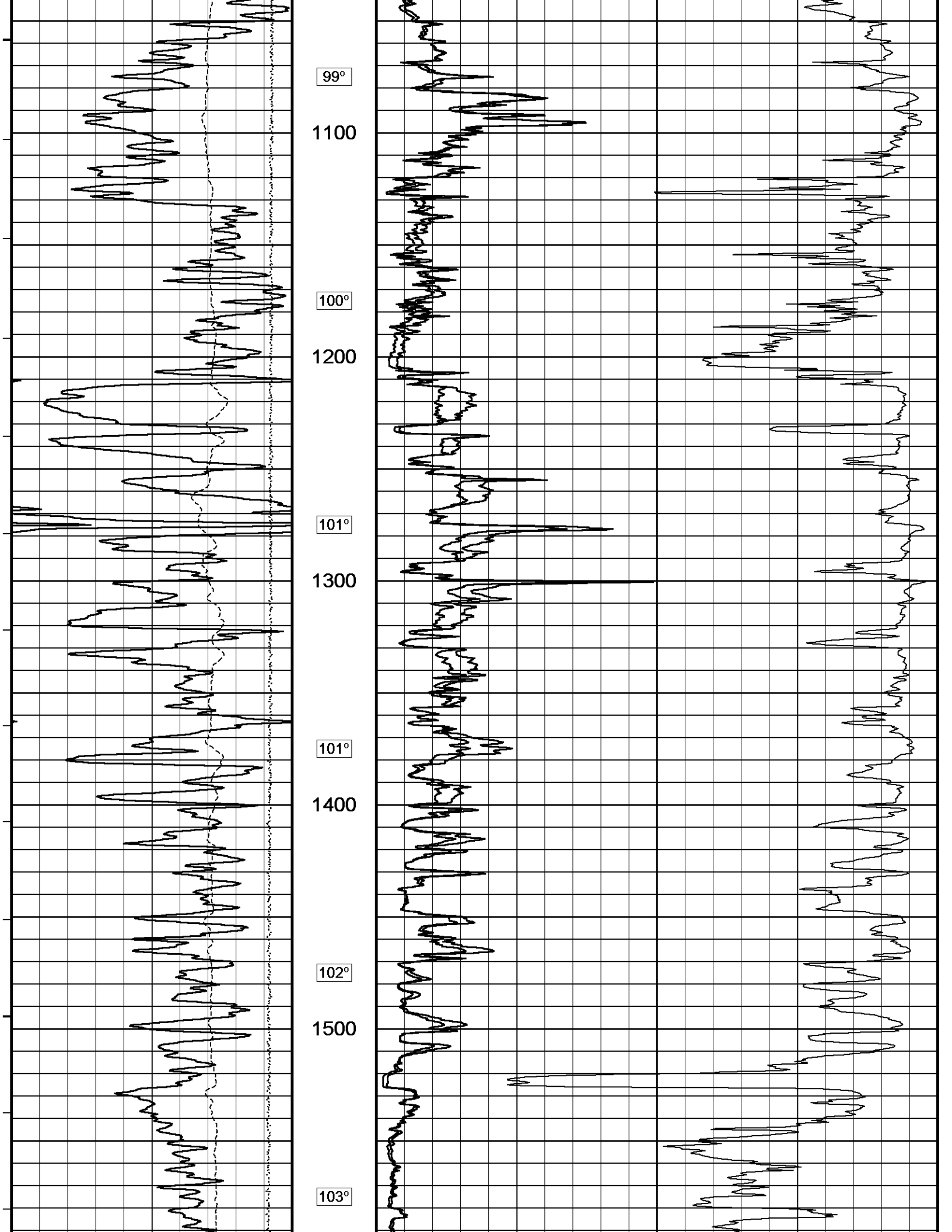
Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

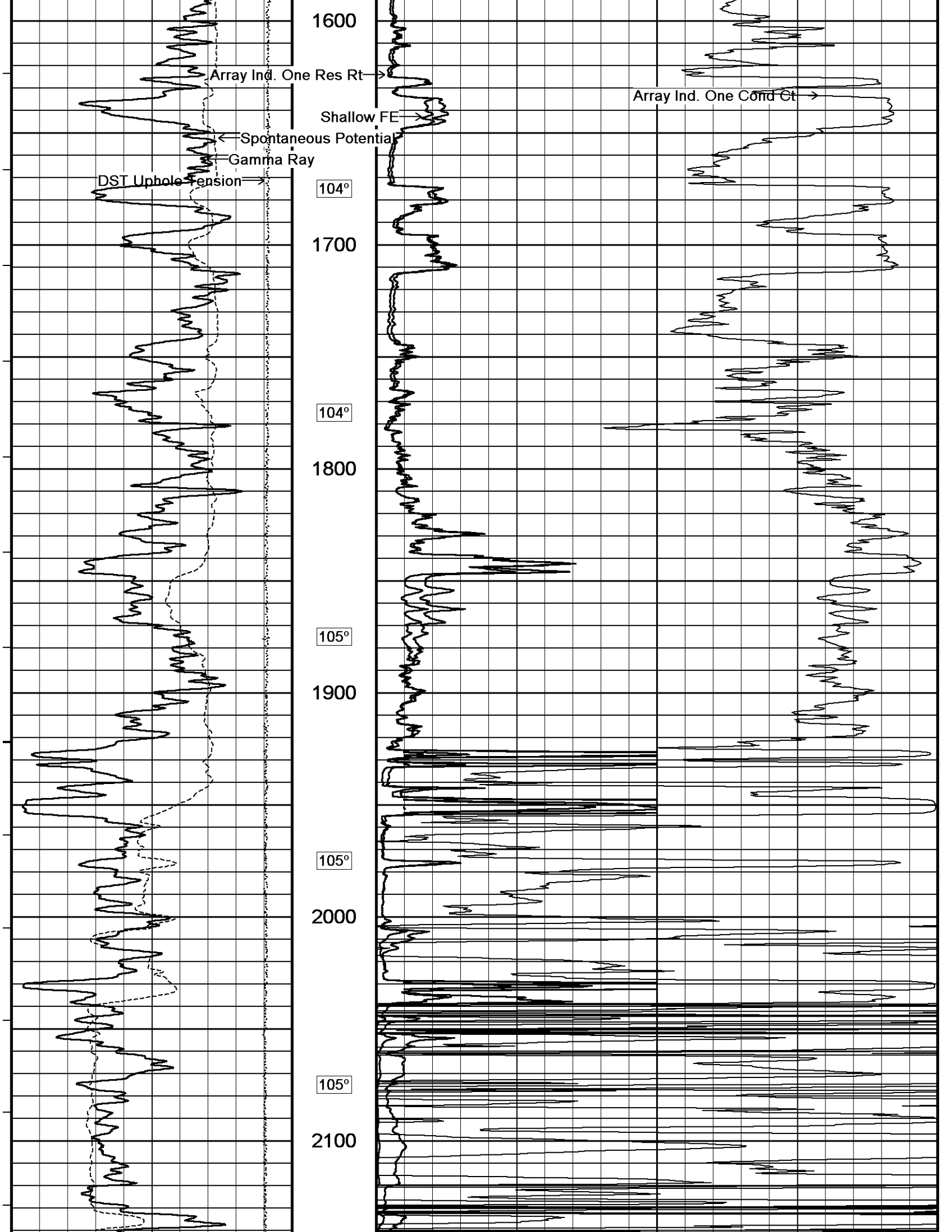
Shallow FE
ohm metres
0 25 50
0 250 500

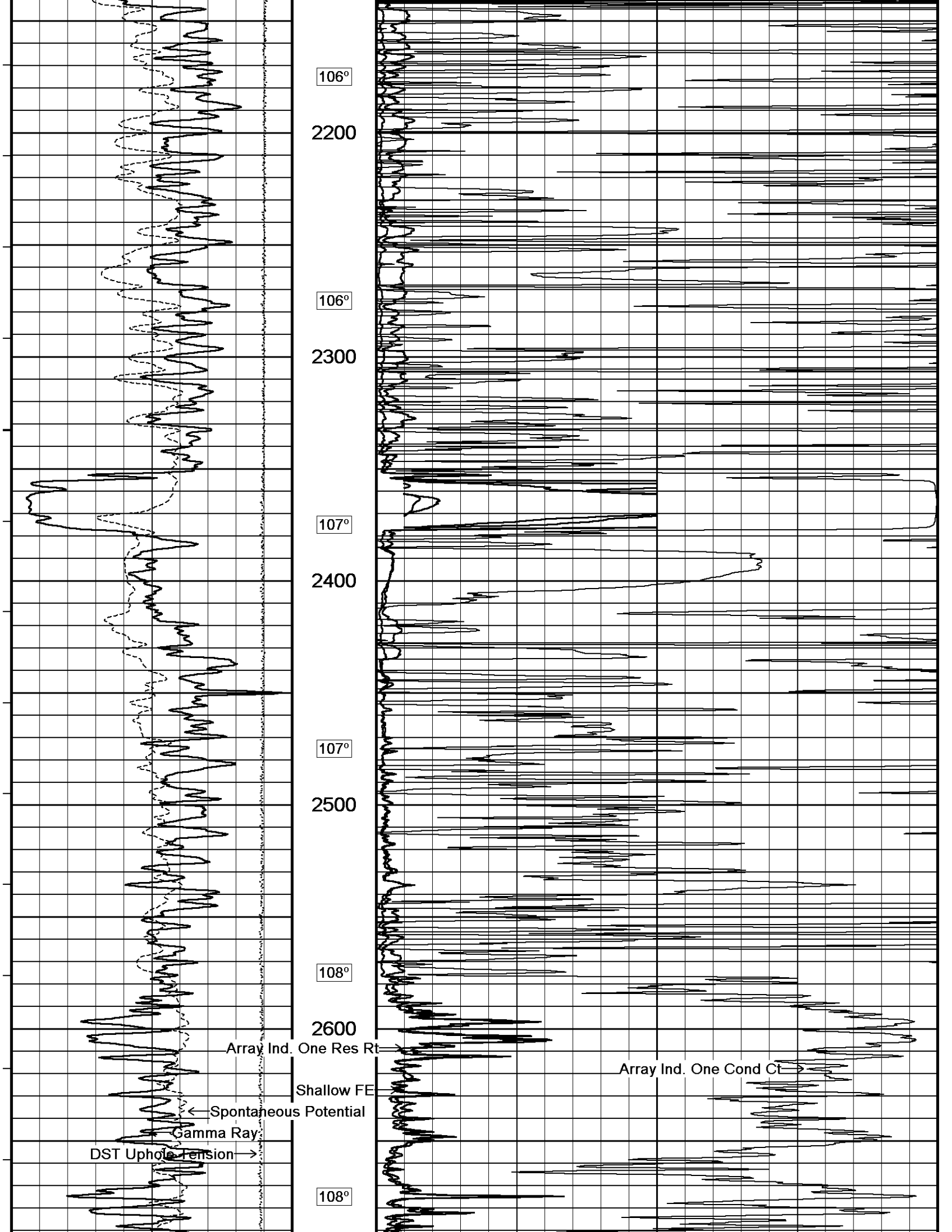
Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

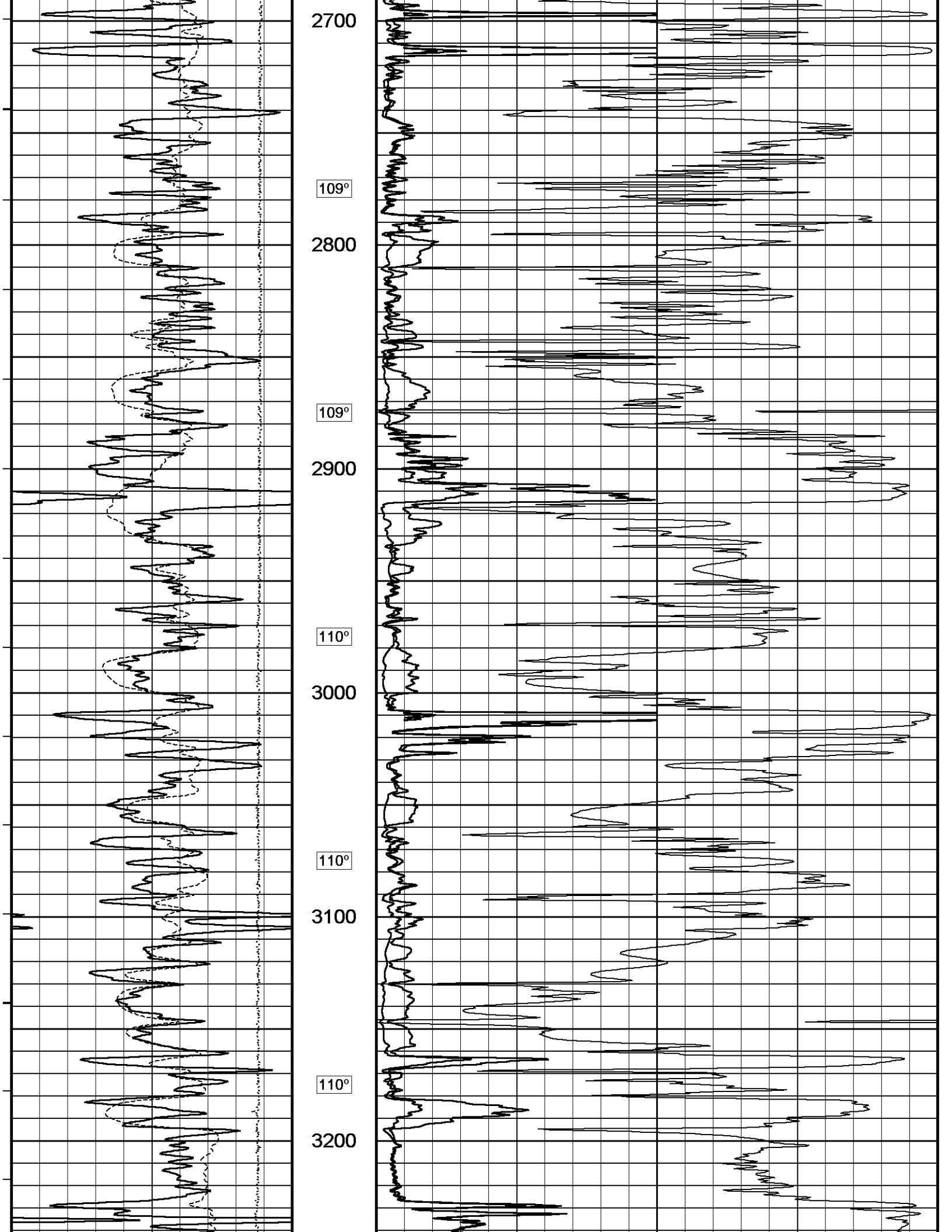
200
Casing Shoe
94°
300
95°
400
95°

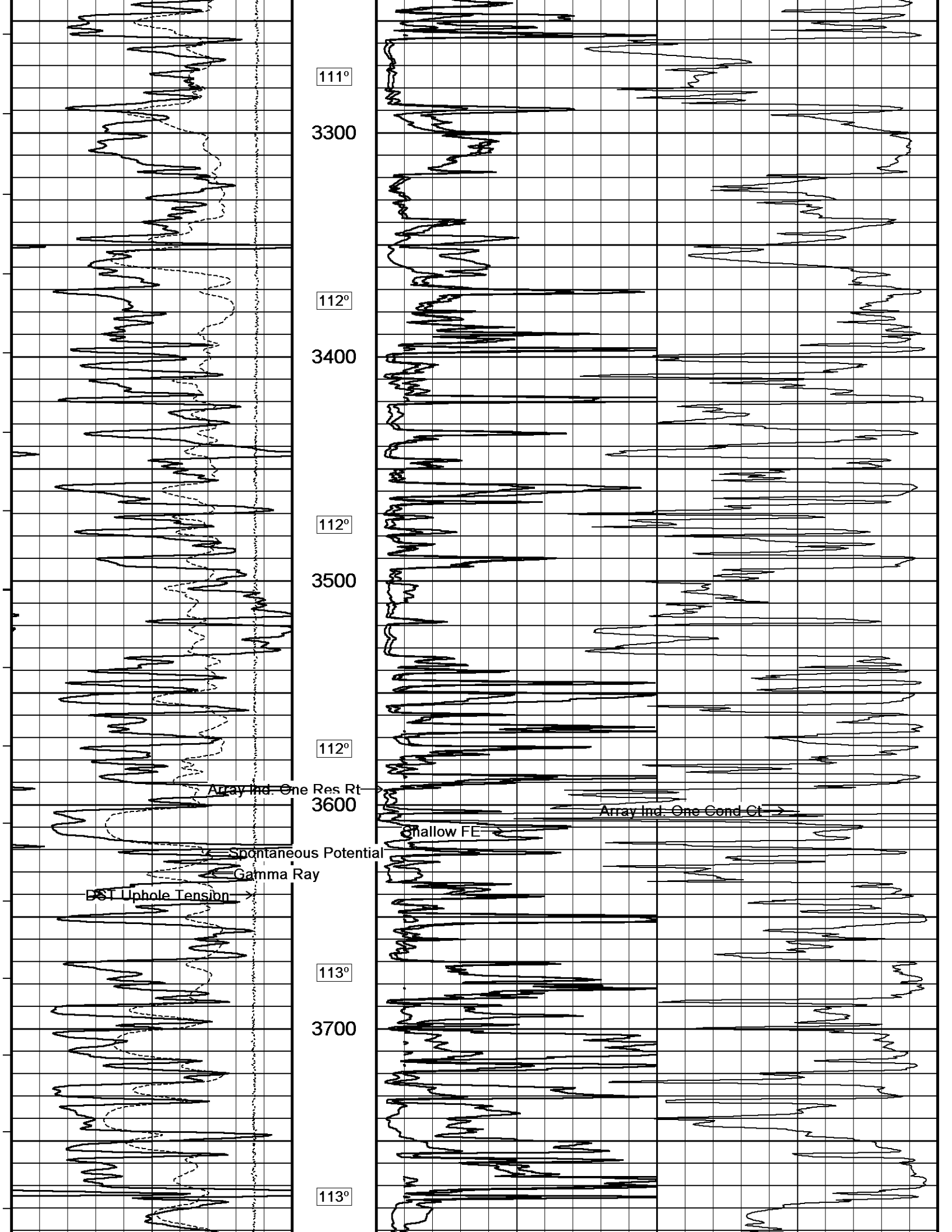

500
96°
600
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
97°
Gamma Ray
DST Uphole Tension
700
98°
800
98°
900
99°
1000
Array Ind. One Cond Ct

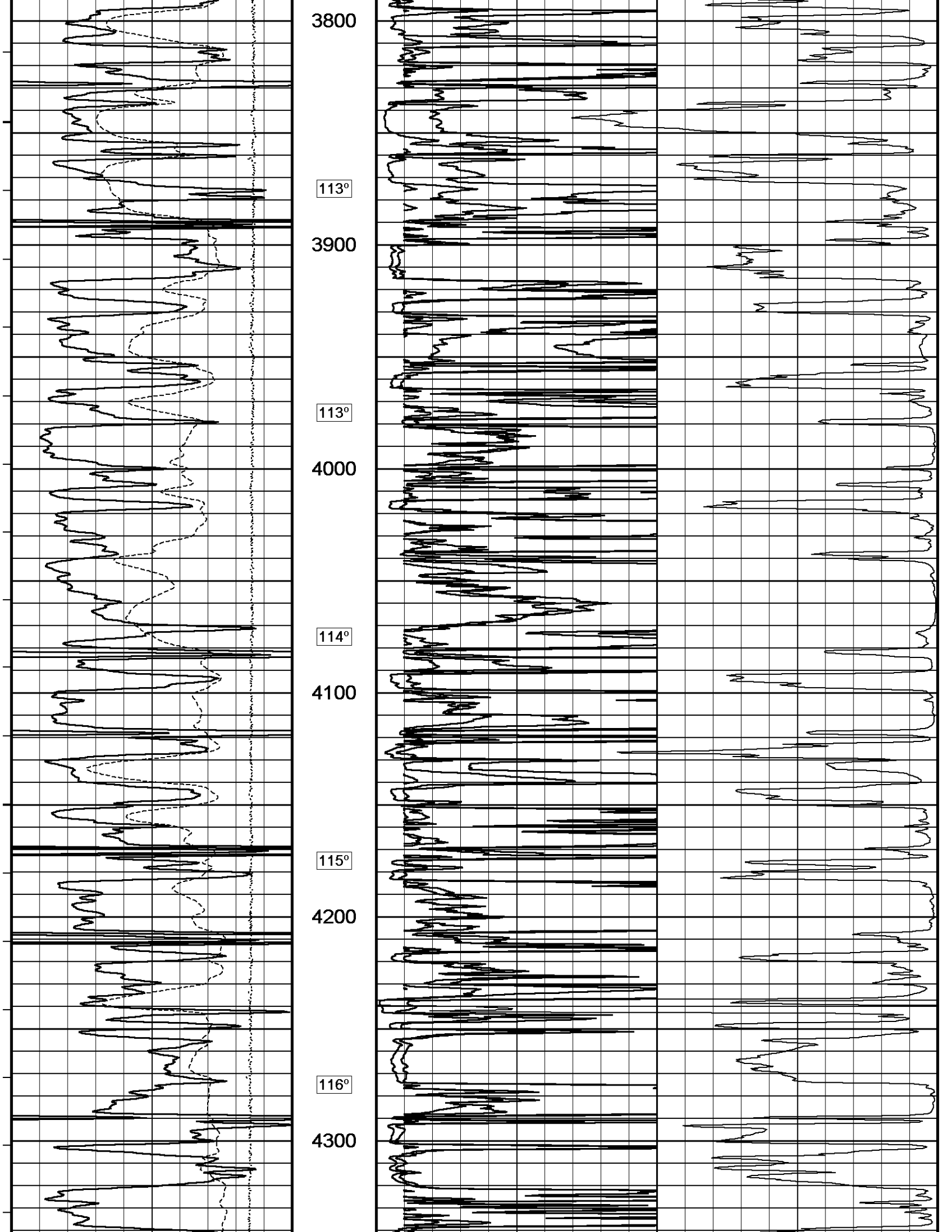

99°
1100
100°
1200
101°
1300
101°
1400
102°
1500
103°

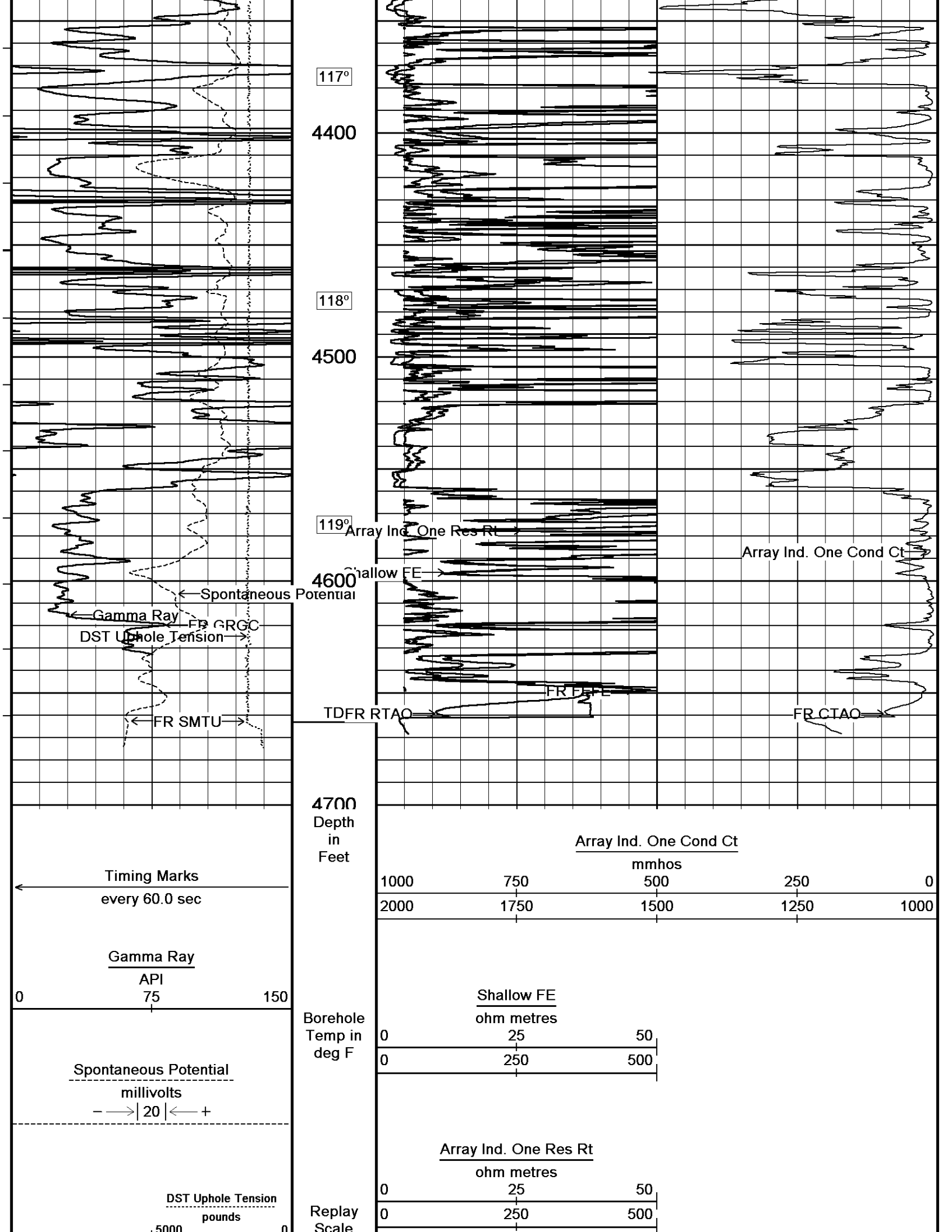

1600
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
104°
1700
104°
1800
105°
1900
105°
2000
105°
2100


106°
2200
106°
2300
107°
2400
107°
2500
108°
2600
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
108°


2700
109°
2800
109°
2900
110°
3000
110°
3100
110°
3200


111°
3300
112°
3400
112°
3500
112°
Array Ind. One Res Rt
3600
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
113°
3700
113°


3800
113°
3900
113°
4000
114°
4100
115°
4200
116°
4300


117°
4400
118°
4500
119°
4600
4700
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
FR GRGC
DST Uphole Tension
FR SMTU
TDFR RTAO
FR FEFE
Array Ind. One Cond Ct
FR CTAO
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
Spontaneous Potential
millivolts
20
DST Uphole Tension
pounds
5000
0
Borehole Temp in deg F
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
Replay Scale

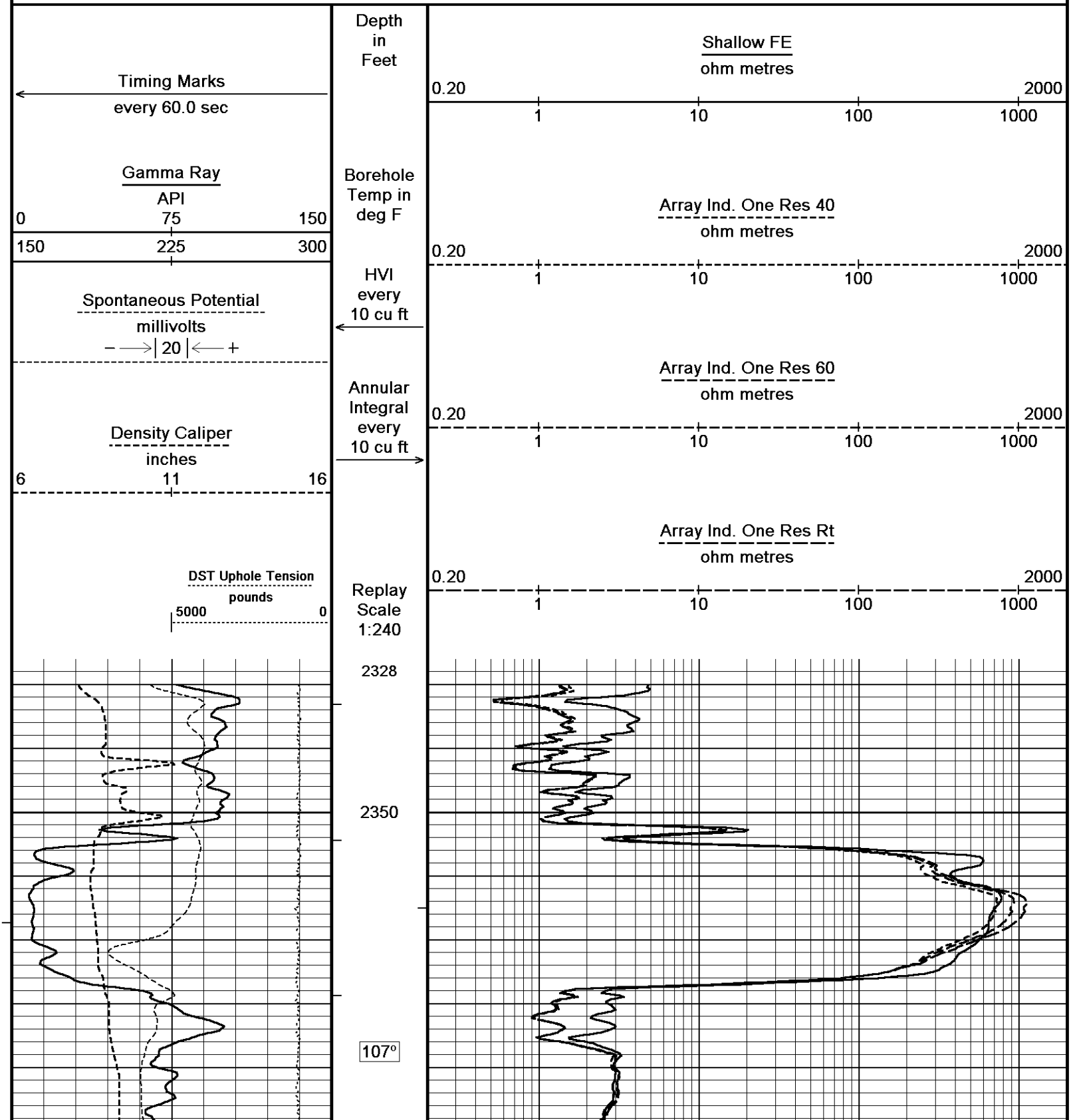
1:600

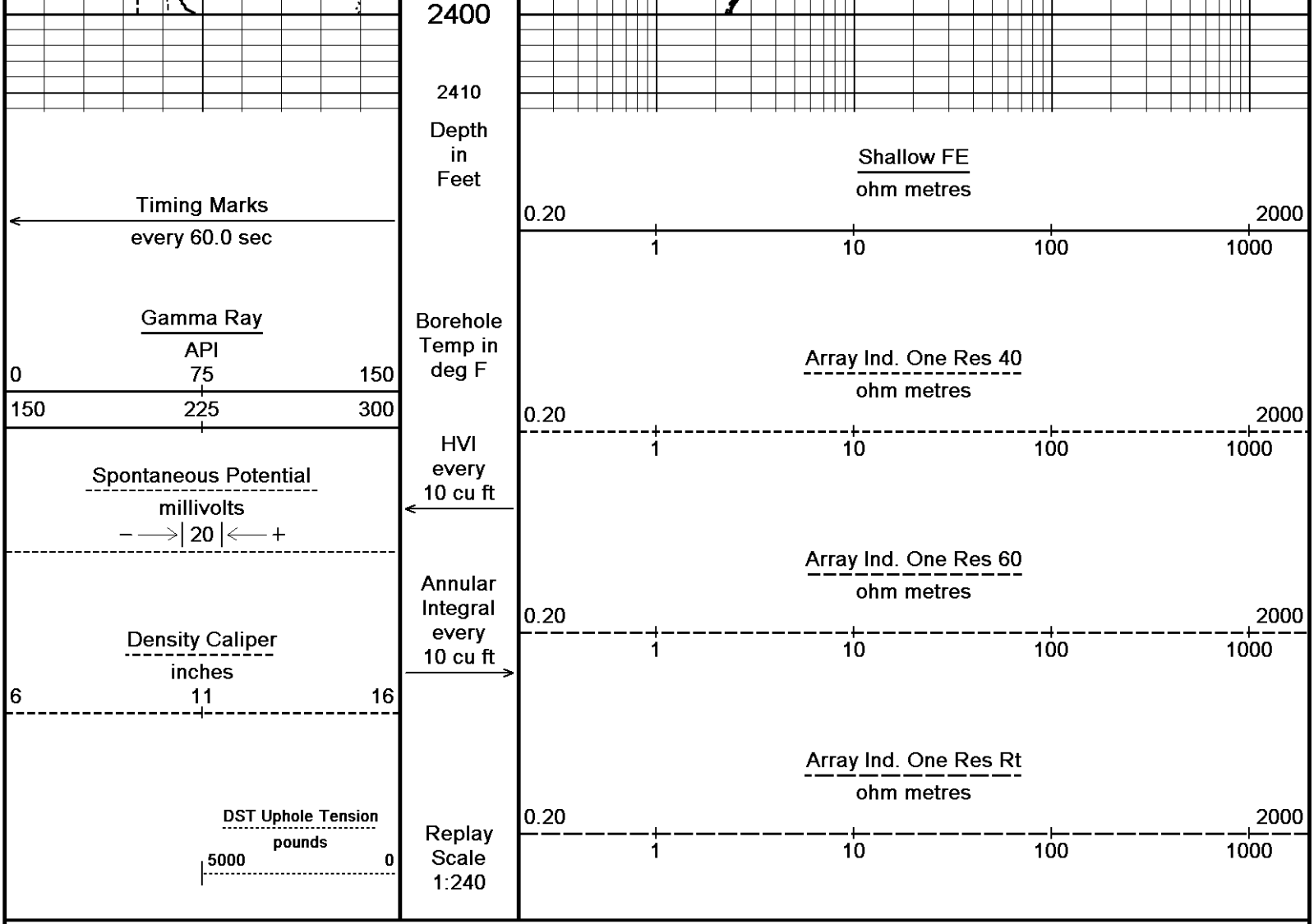
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta — Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

2 INCH MAIN

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta — Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



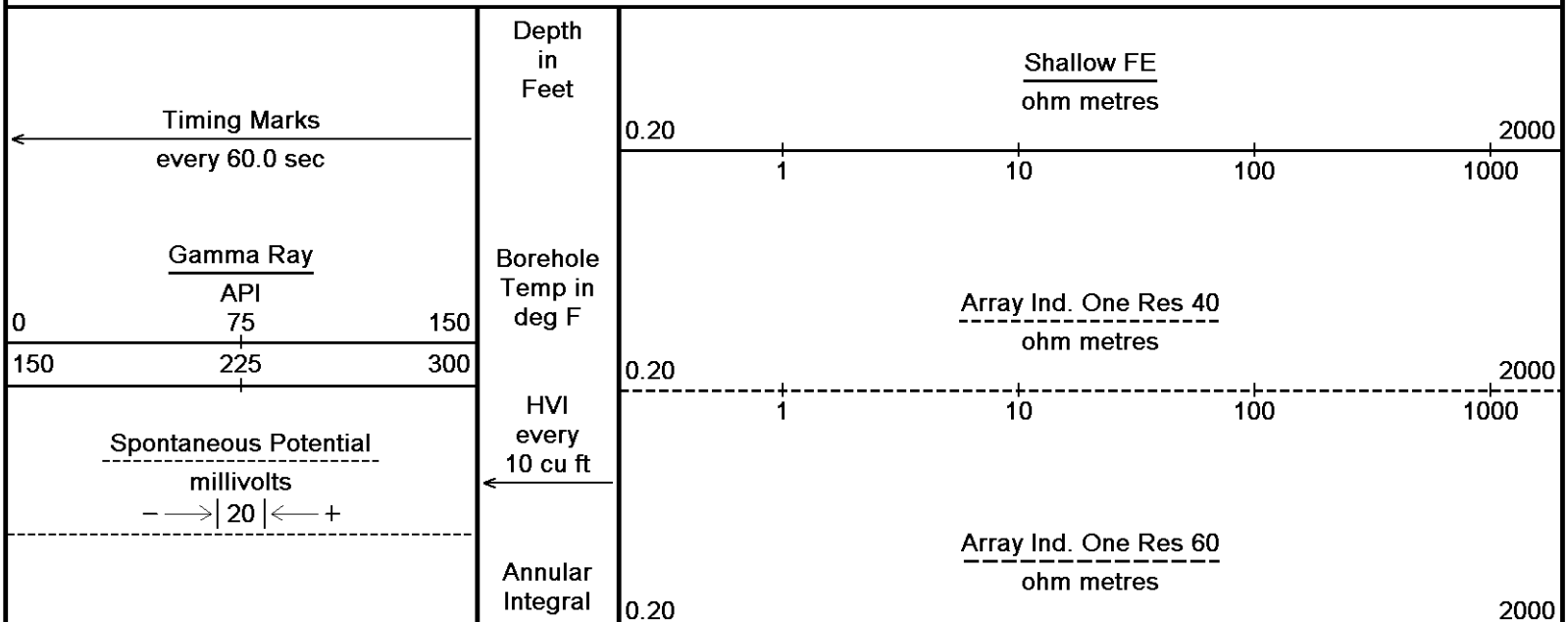


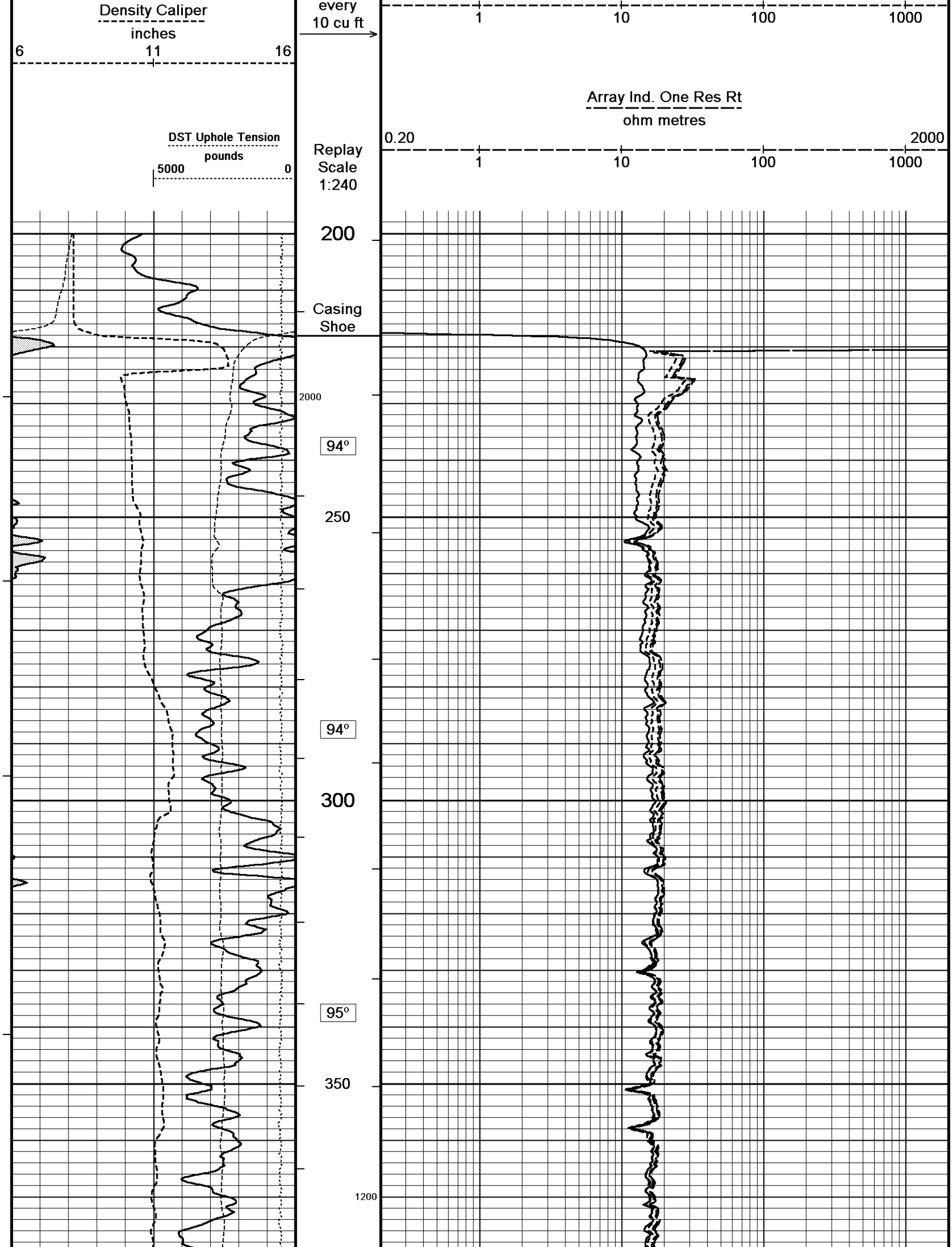
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta
Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

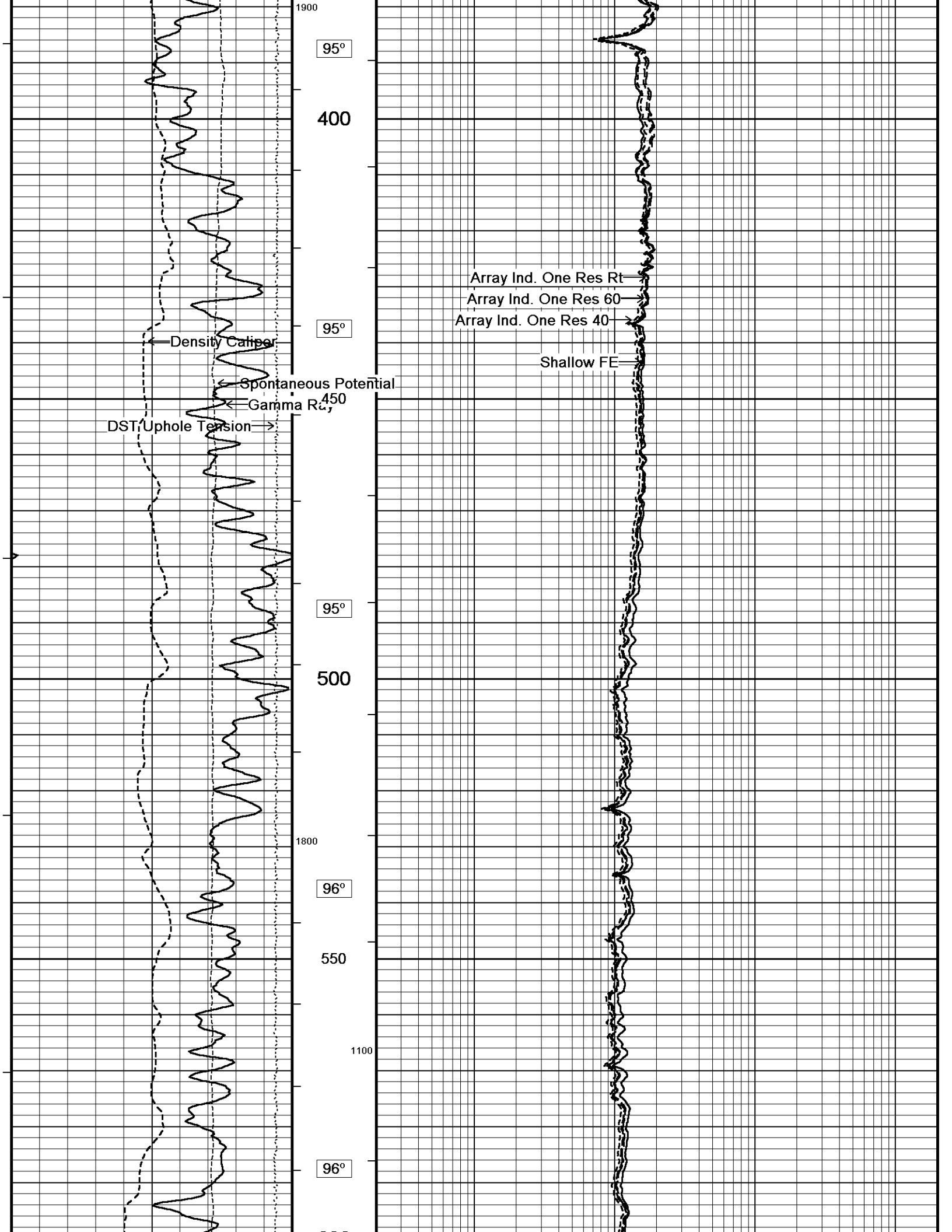
5 INCH MAIN

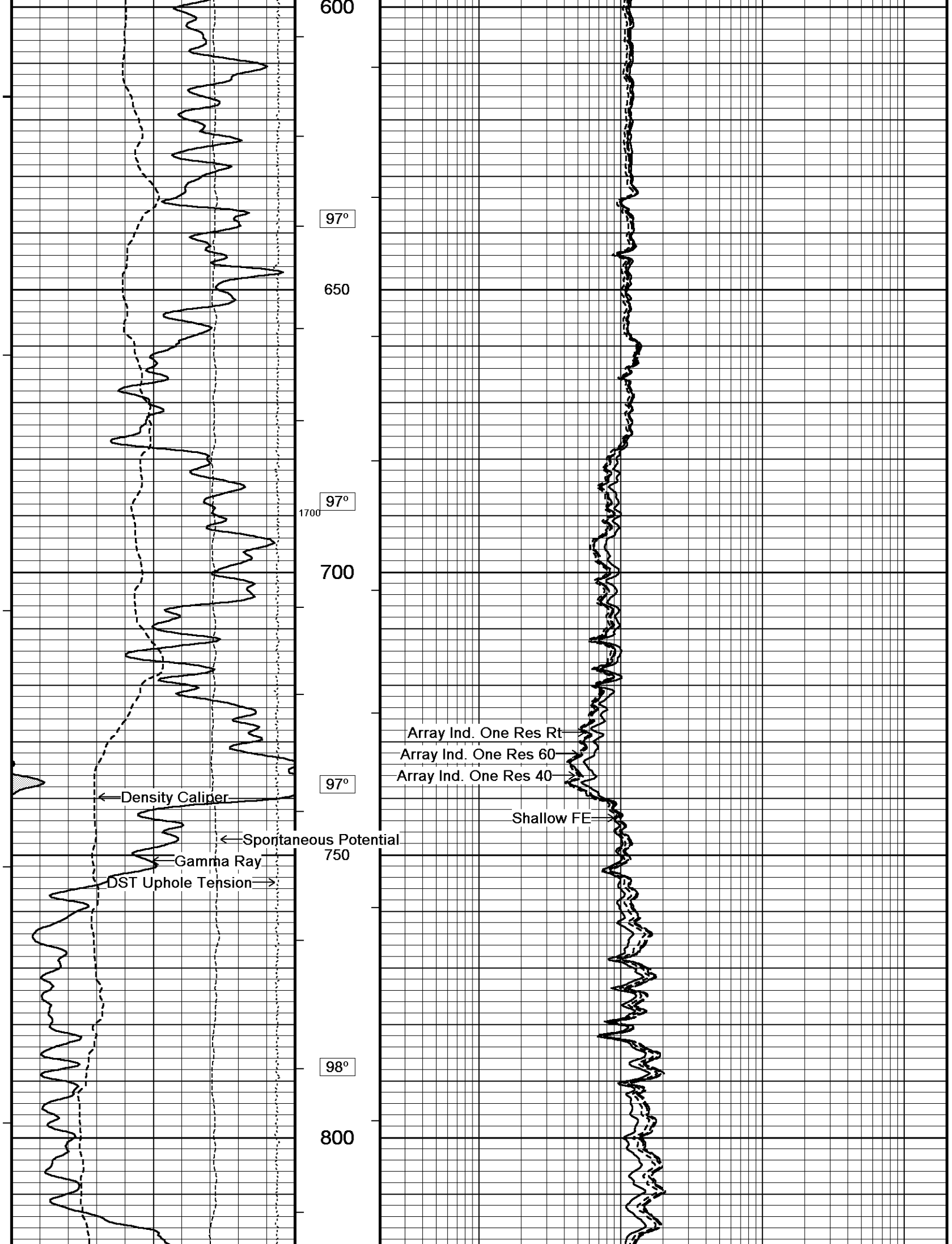
5 INCH MAIN

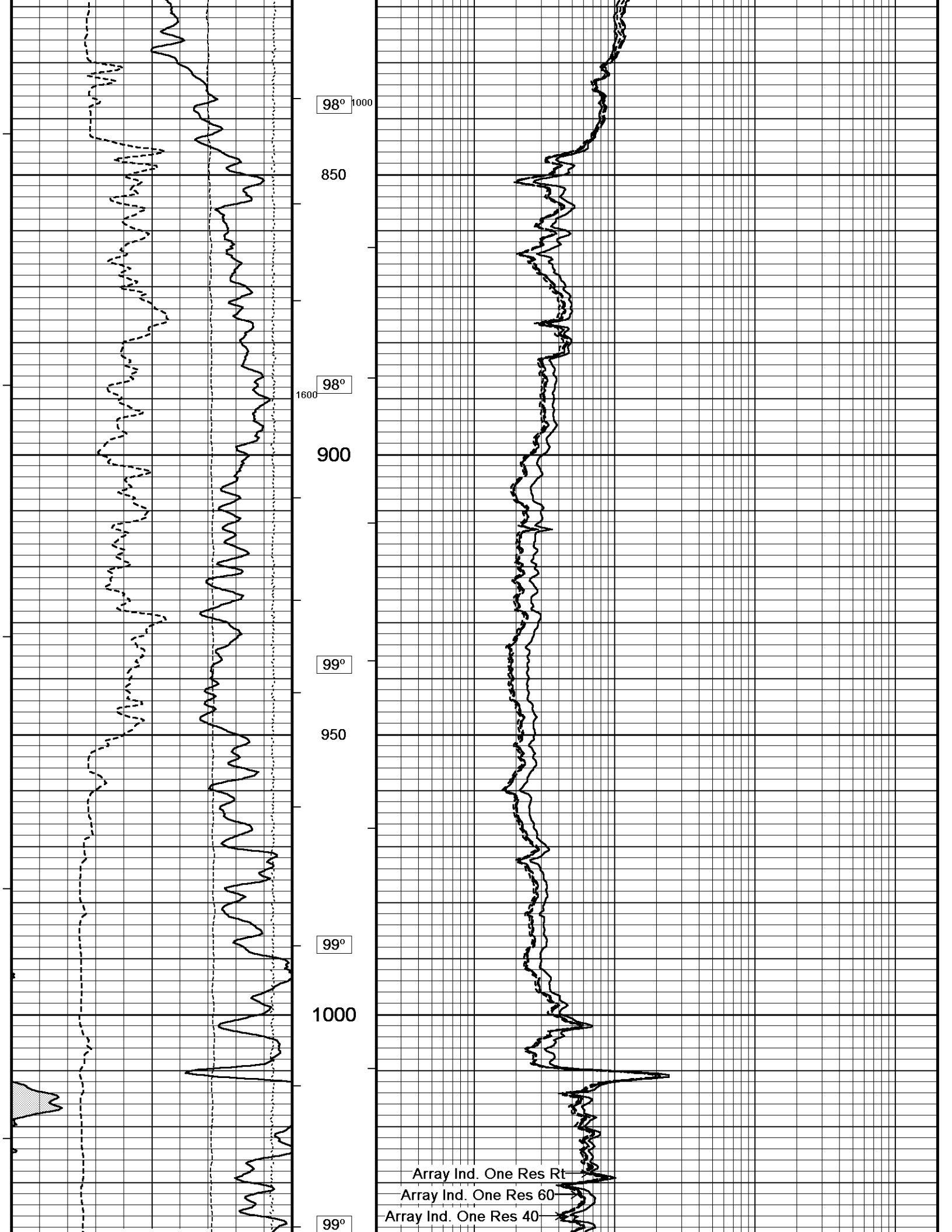
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta
Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

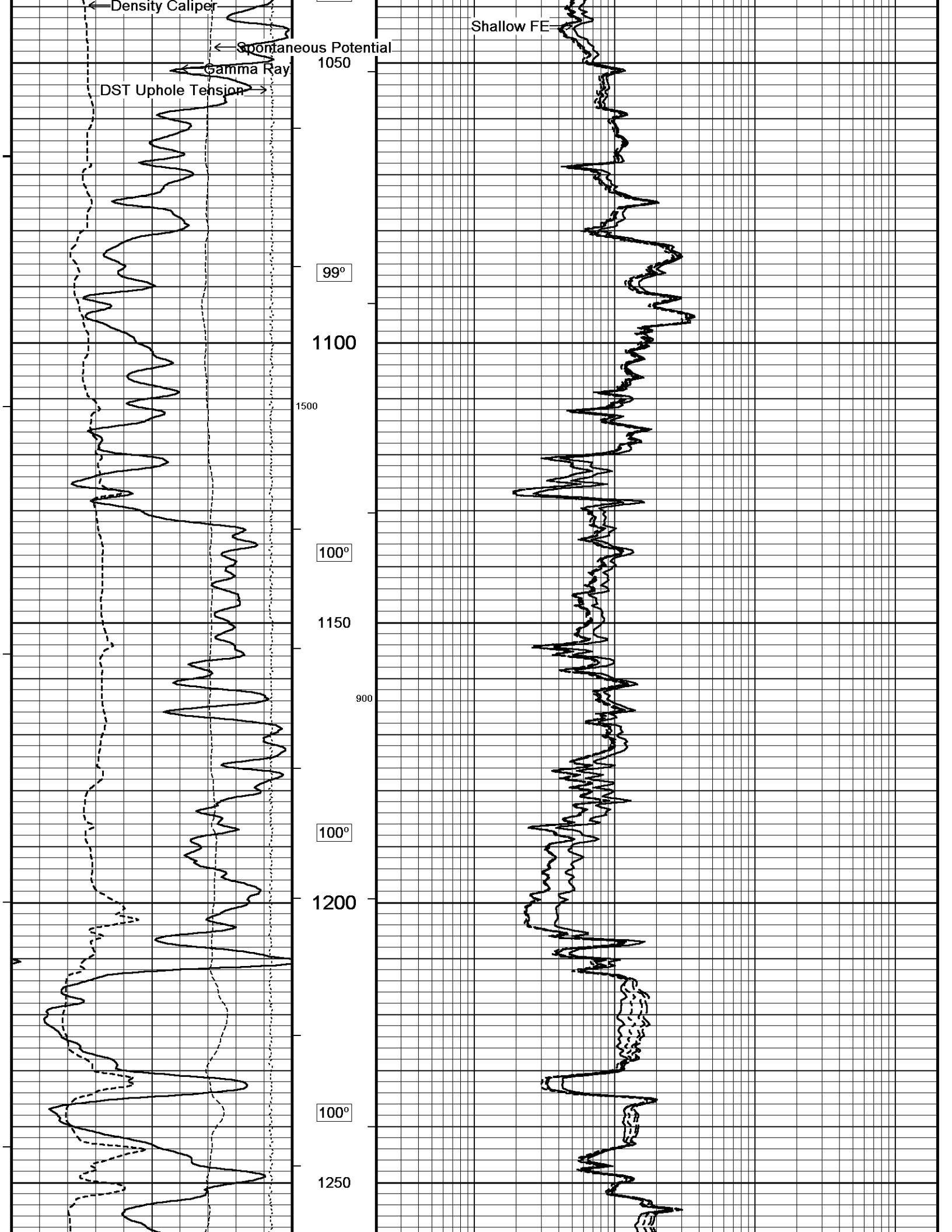


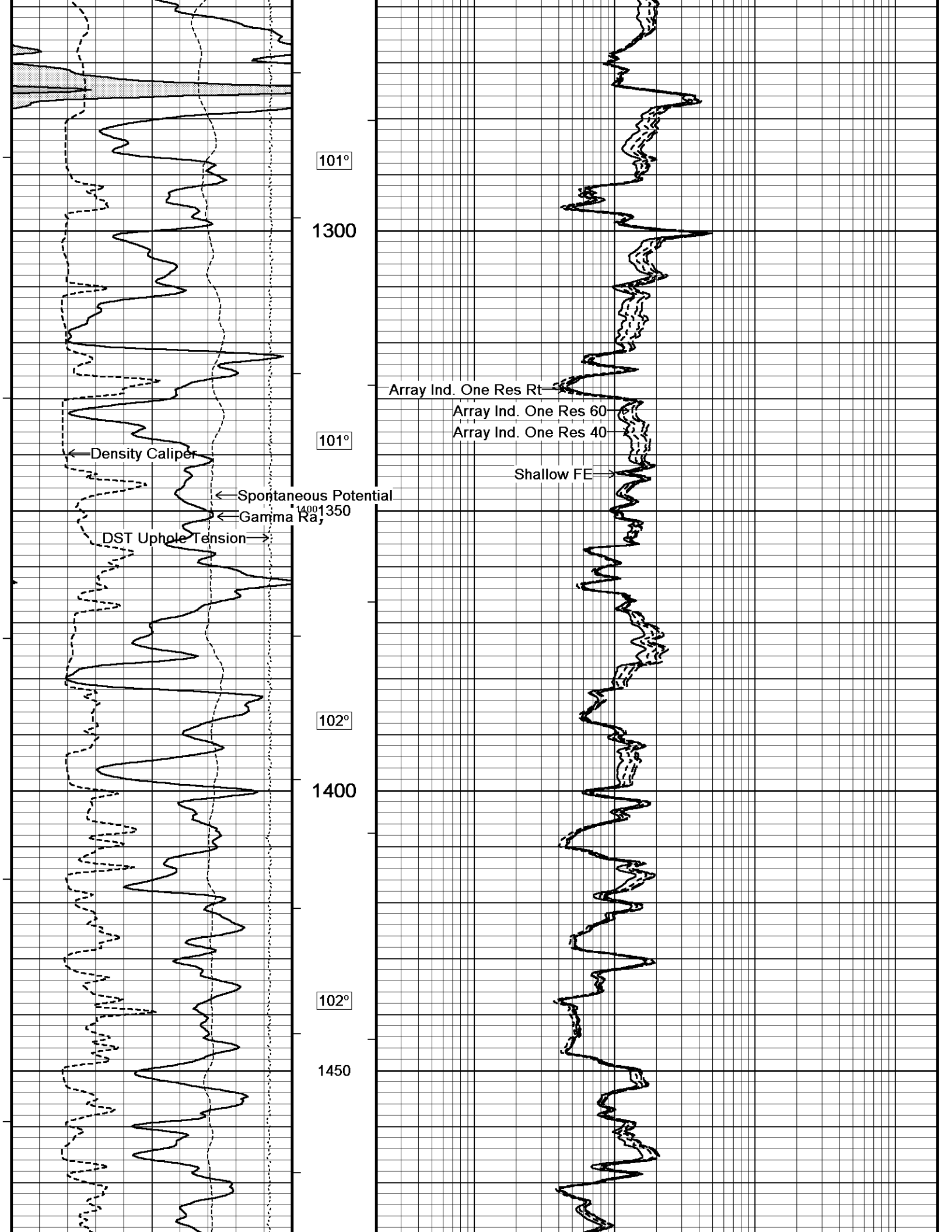

Density Caliper
inches
6
11
16
every
10 cu ft
1
10
100
1000
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
200
Casing
Shoe
2000
94°
250
94°
300
95°
350
1200

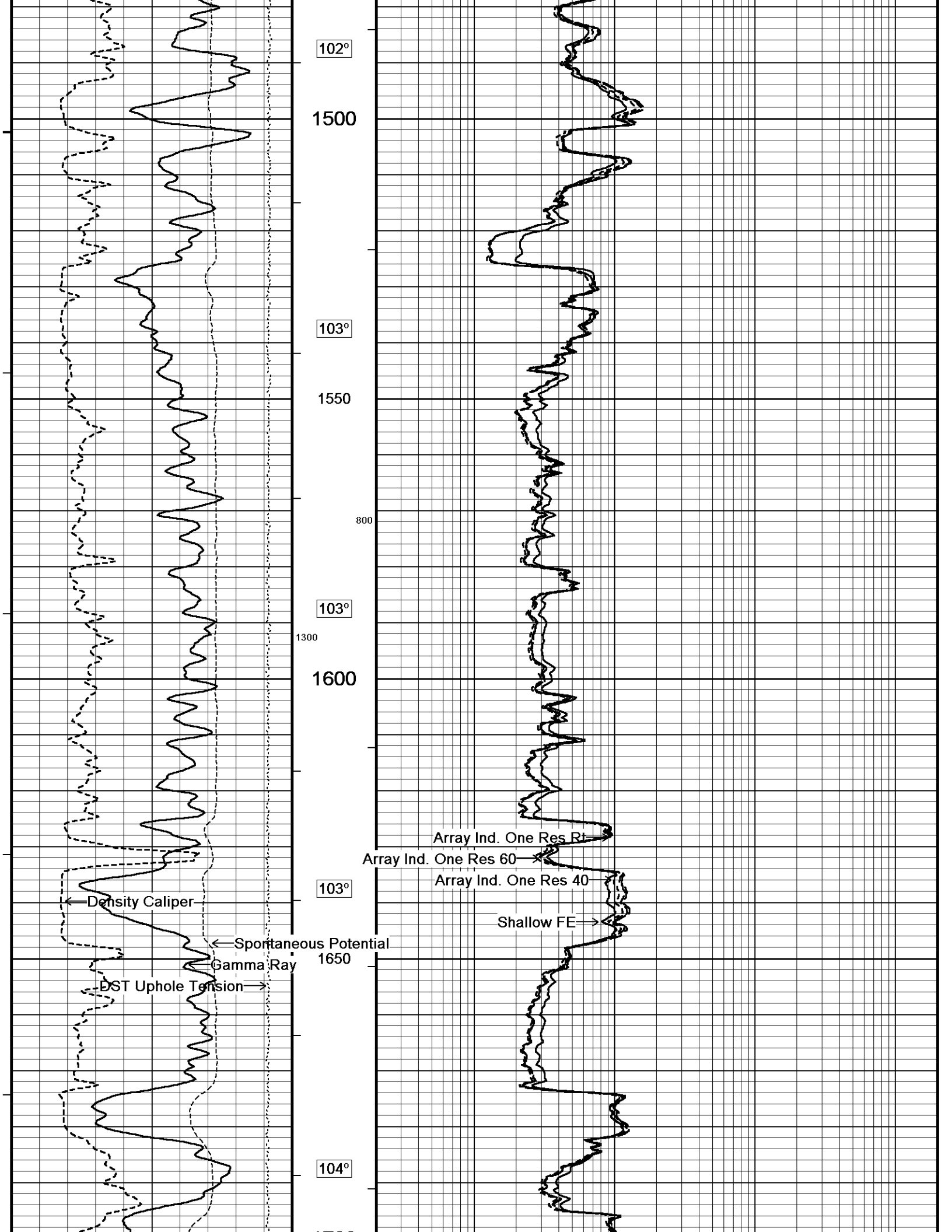

1900
95°
400
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
95°
Density Caliper
Shallow FE
Spontaneous Potential
450
Gamma Ray
DST Uphole Tension
95°
500
1800
96°
550
1100
96°

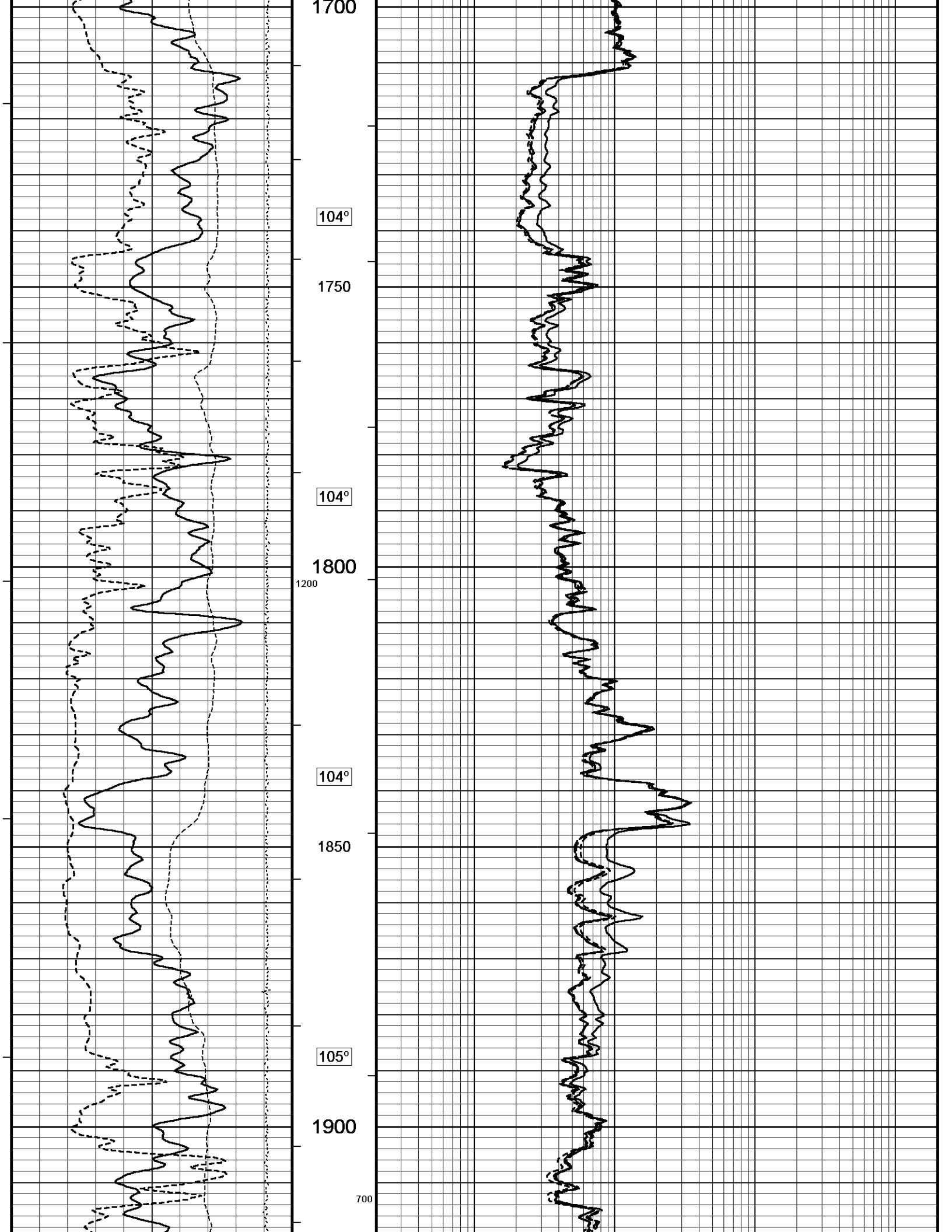

600
97°
650
97°
1700
700
97°
750
98°
800
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

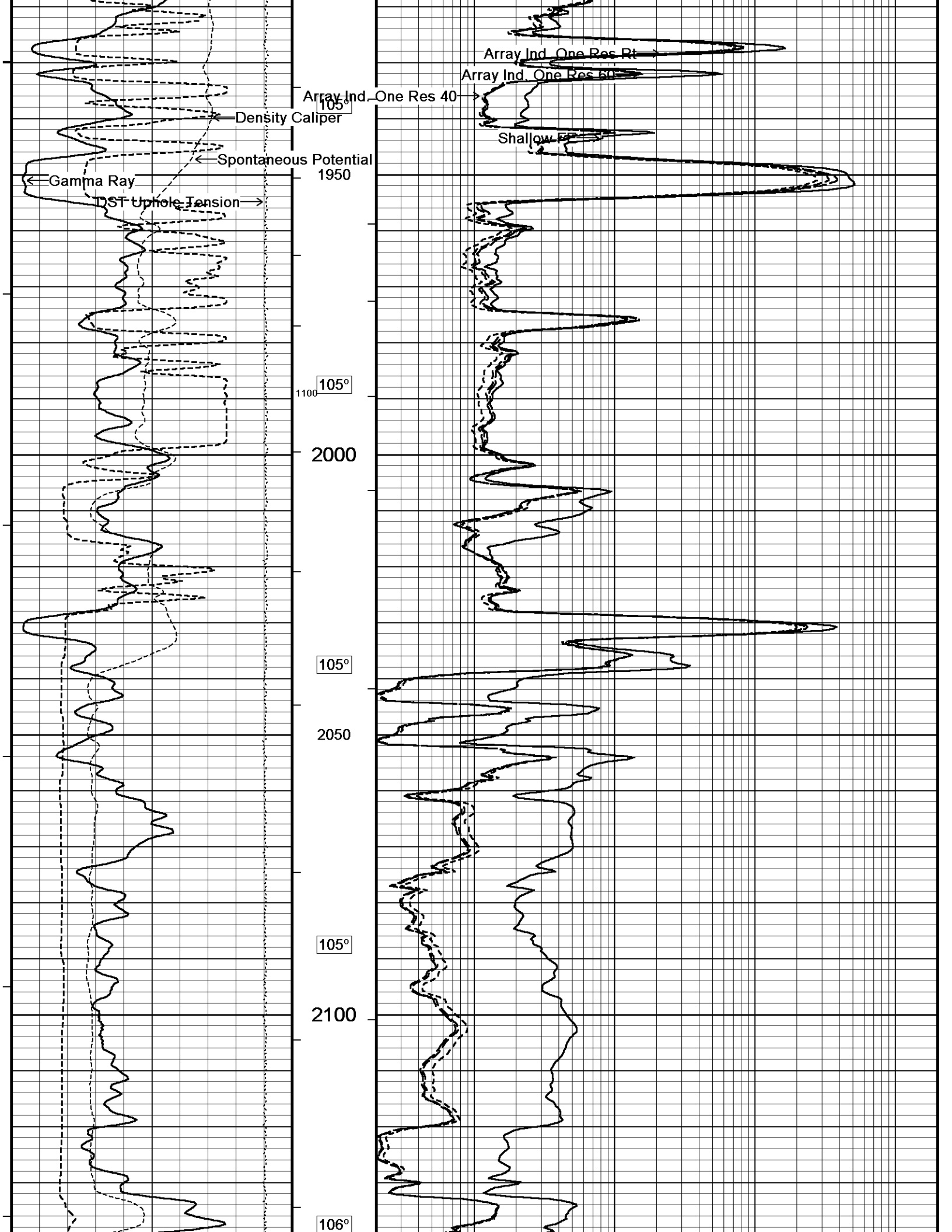

98°
1000
850
98°
1600
900
99°
950
99°
1000
99°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40

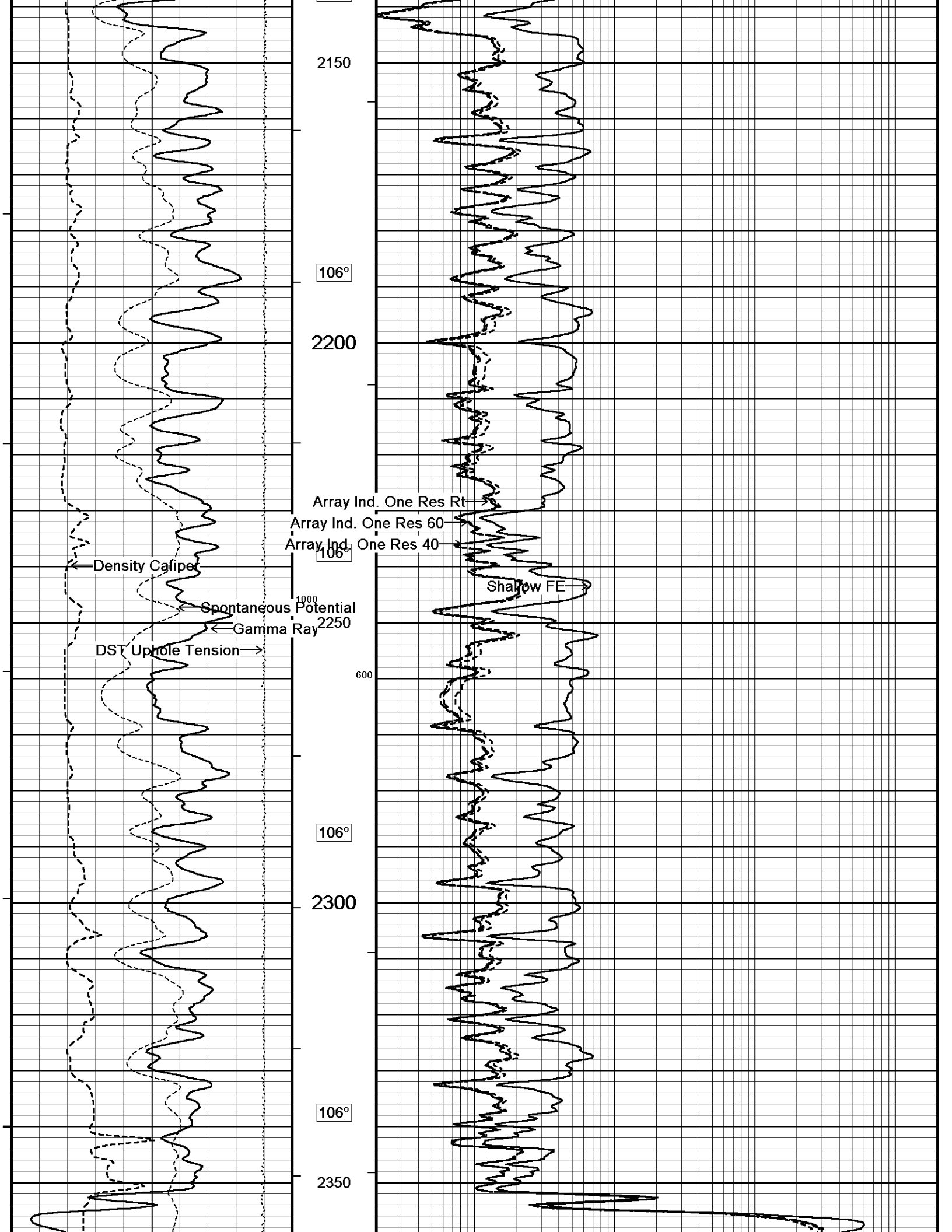

Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Shallow FE
1050
99°
1100
1500
100°
1150
900
100°
1200
100°
1250

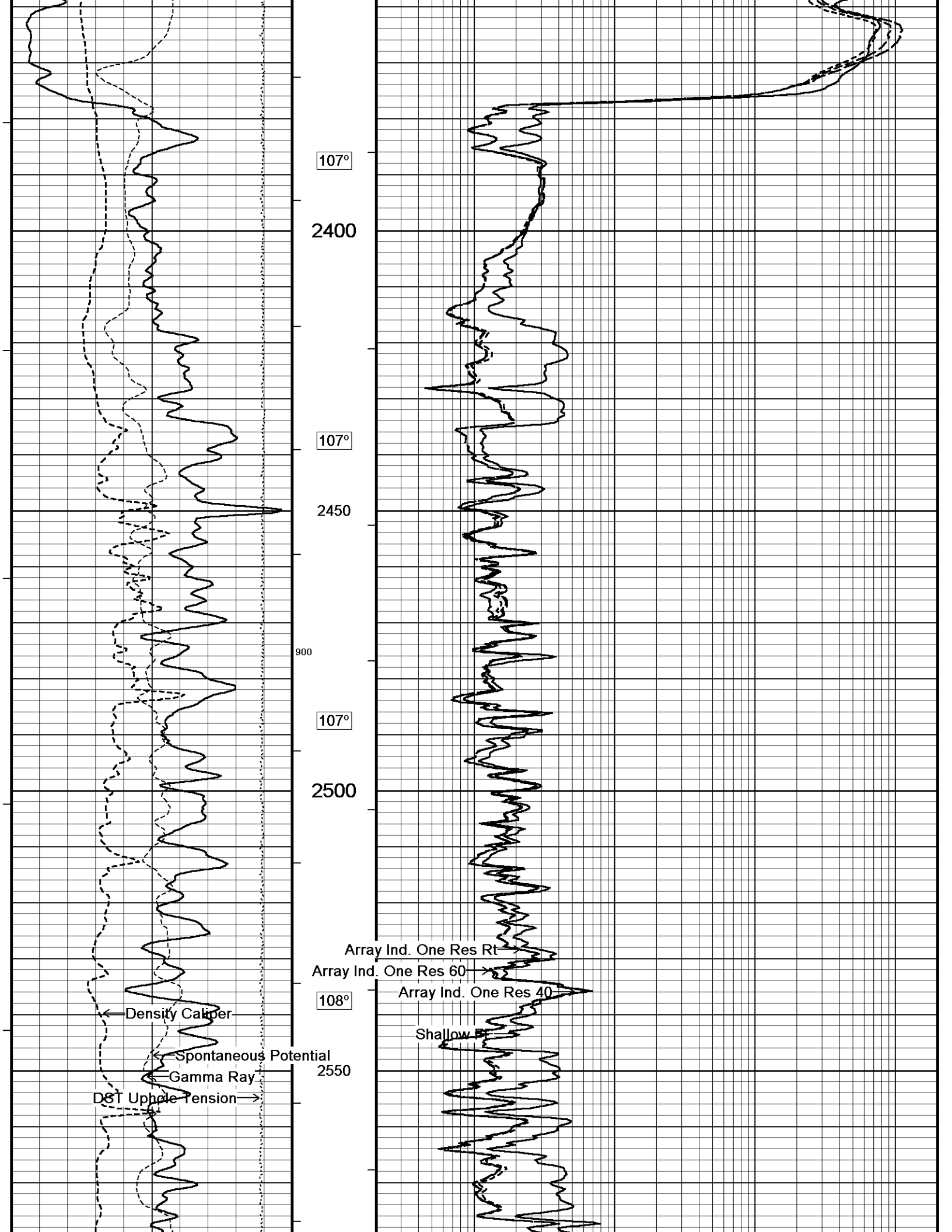

101°
1300
101°
Density Caliper
Spontaneous Potential
Gamma Ra
1400
1350
DST Uphole Tension
102°
1400
102°
1450
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE

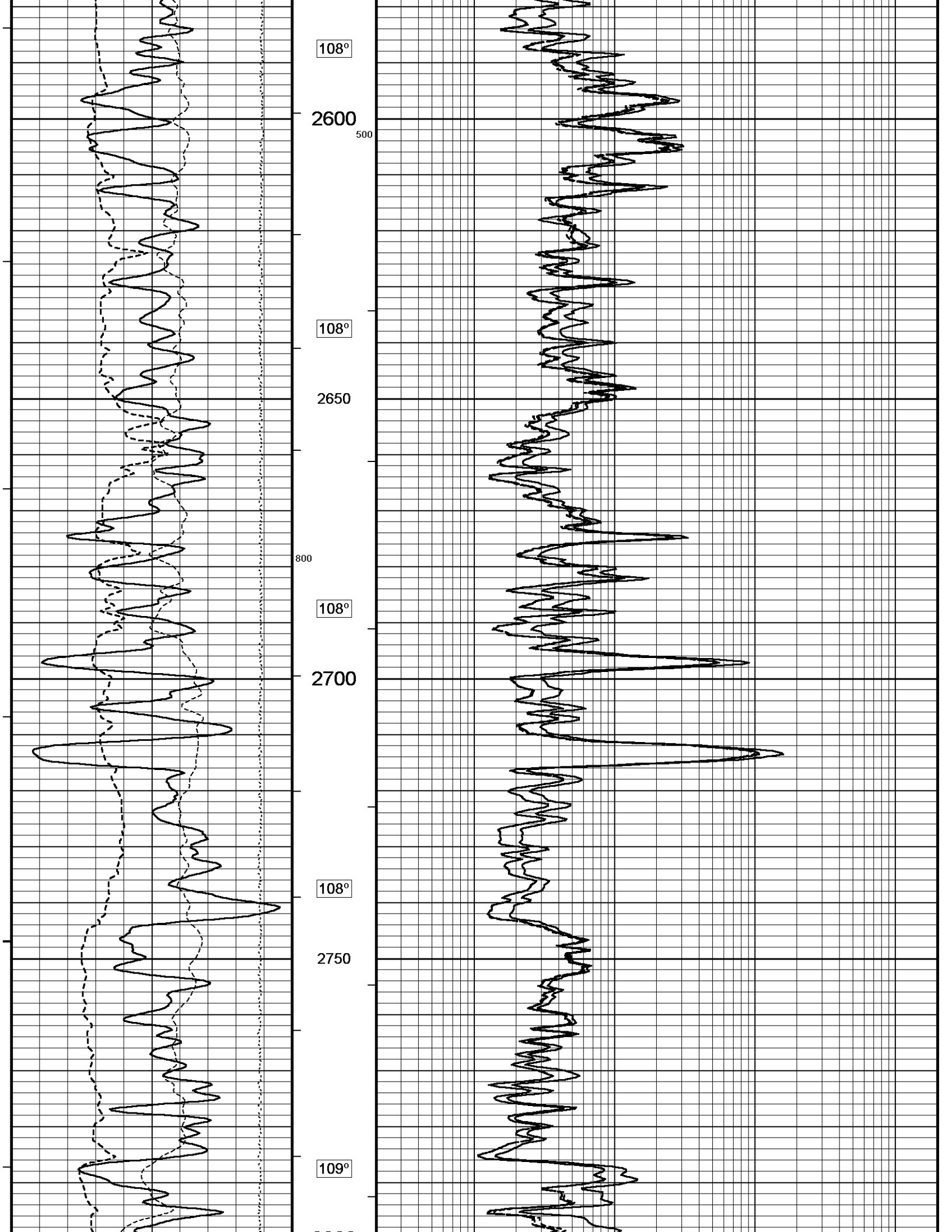

102°
1500
103°
1550
800
103°
1300
1600
Array Ind. One Res RI
Array Ind. One Res 60
Array Ind. One Res 40
103°
Density Caliper
Shallow FE
Spontaneous Potential
1650
Gamma Ray
DST Uphole Tension
104°

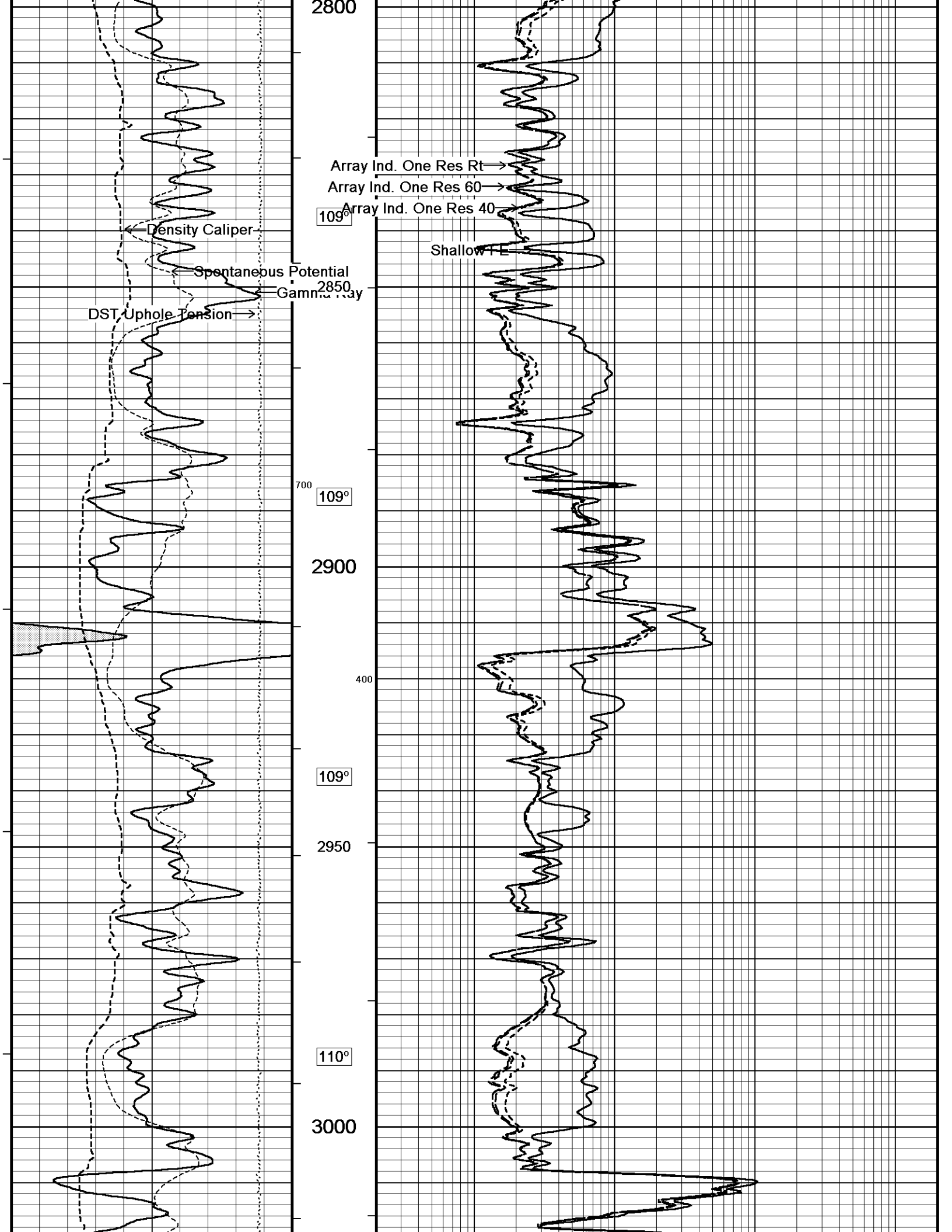

1700
104°
1750
104°
1800
1200
104°
1850
105°
1900
700

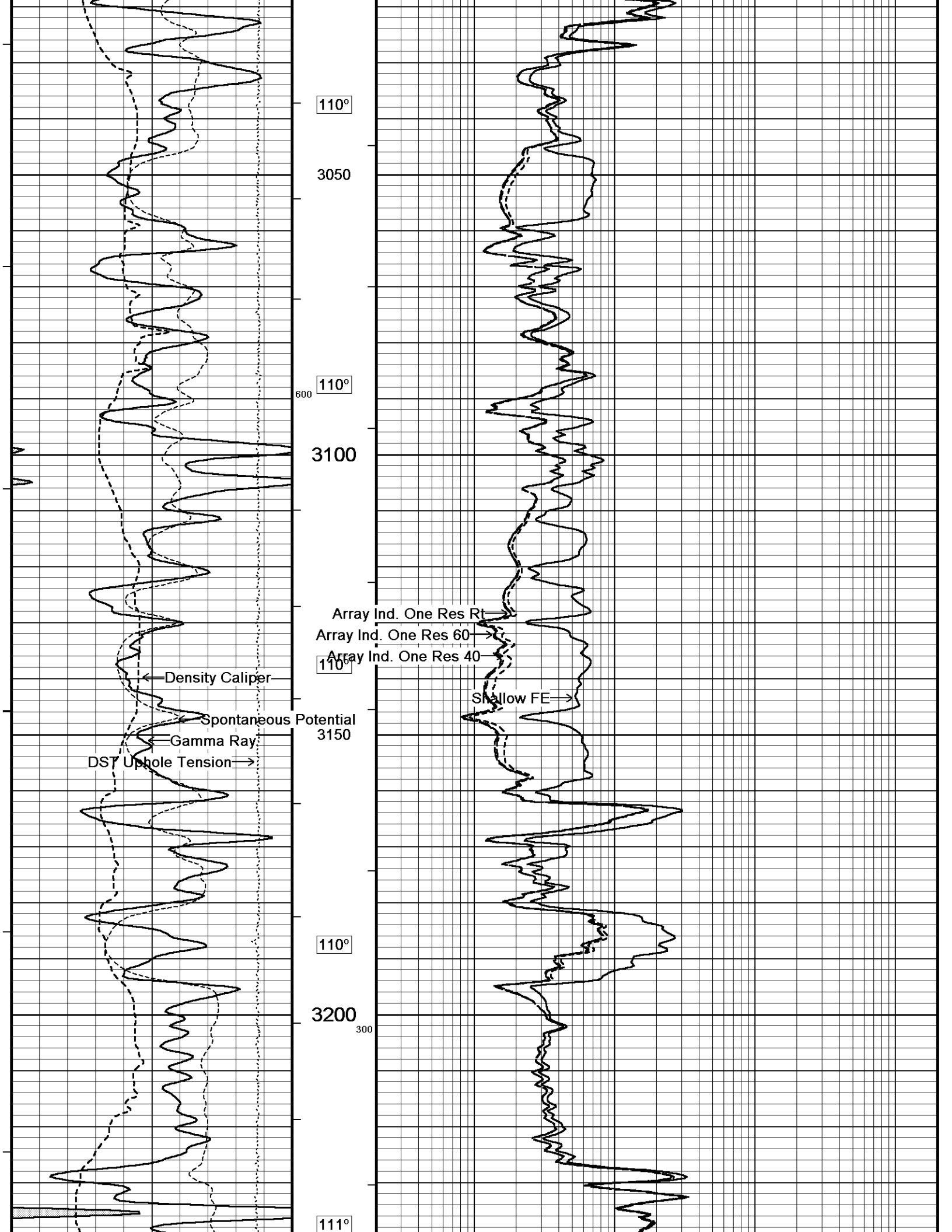

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
105°
1950
1100
105°
2000
105°
2050
105°
2100
106°

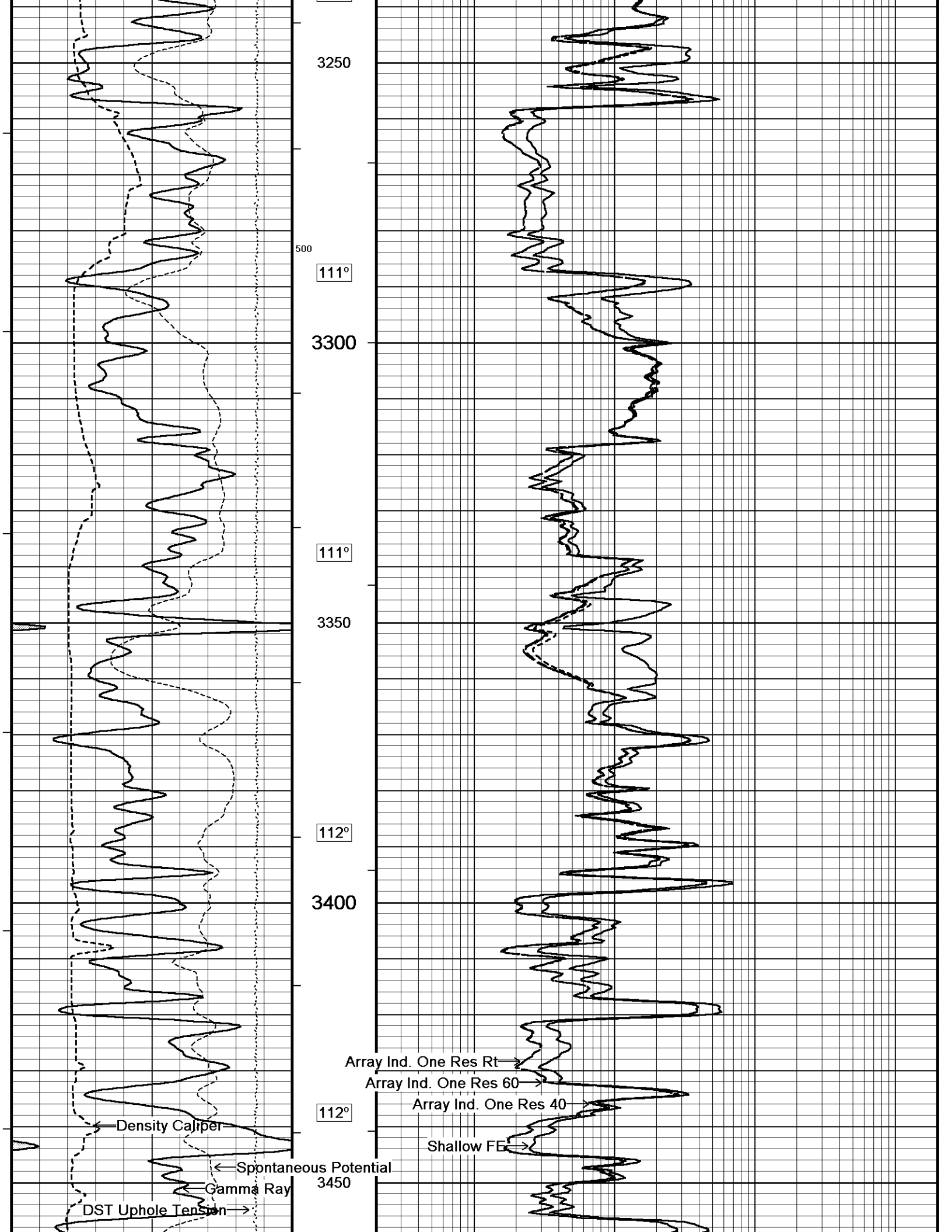

2150
106°
2200
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
106°
Density Caliper
Shallow FE
1000
Spontaneous Potential
2250
Gamma Ray
DST Uphole Tension
600
106°
2300
106°
2350

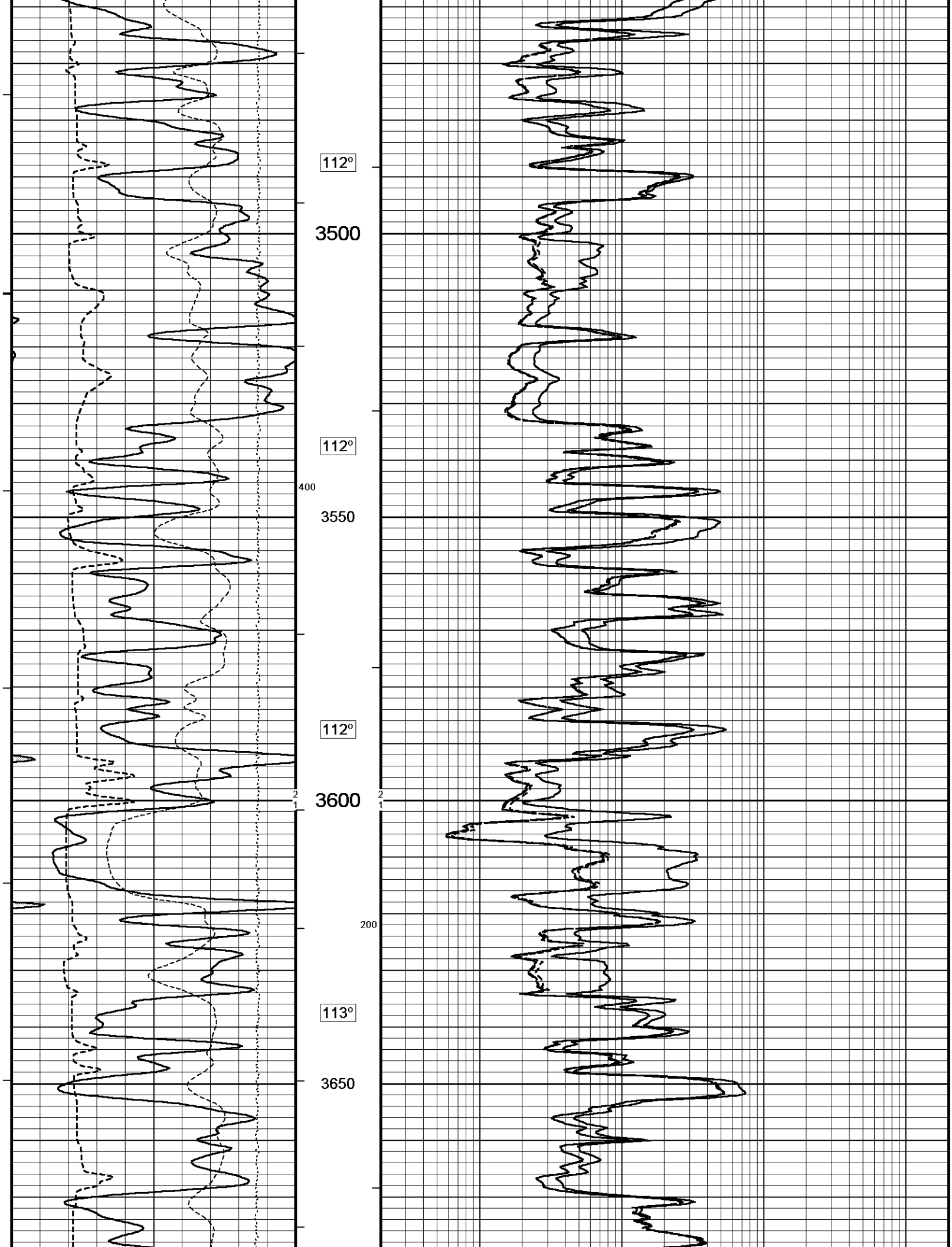

107°
2400
107°
2450
900
107°
2500
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
108°
Density Caliper
Shallow Ft
Spontaneous Potential
2550
Gamma Ray
DST Uphole Tension

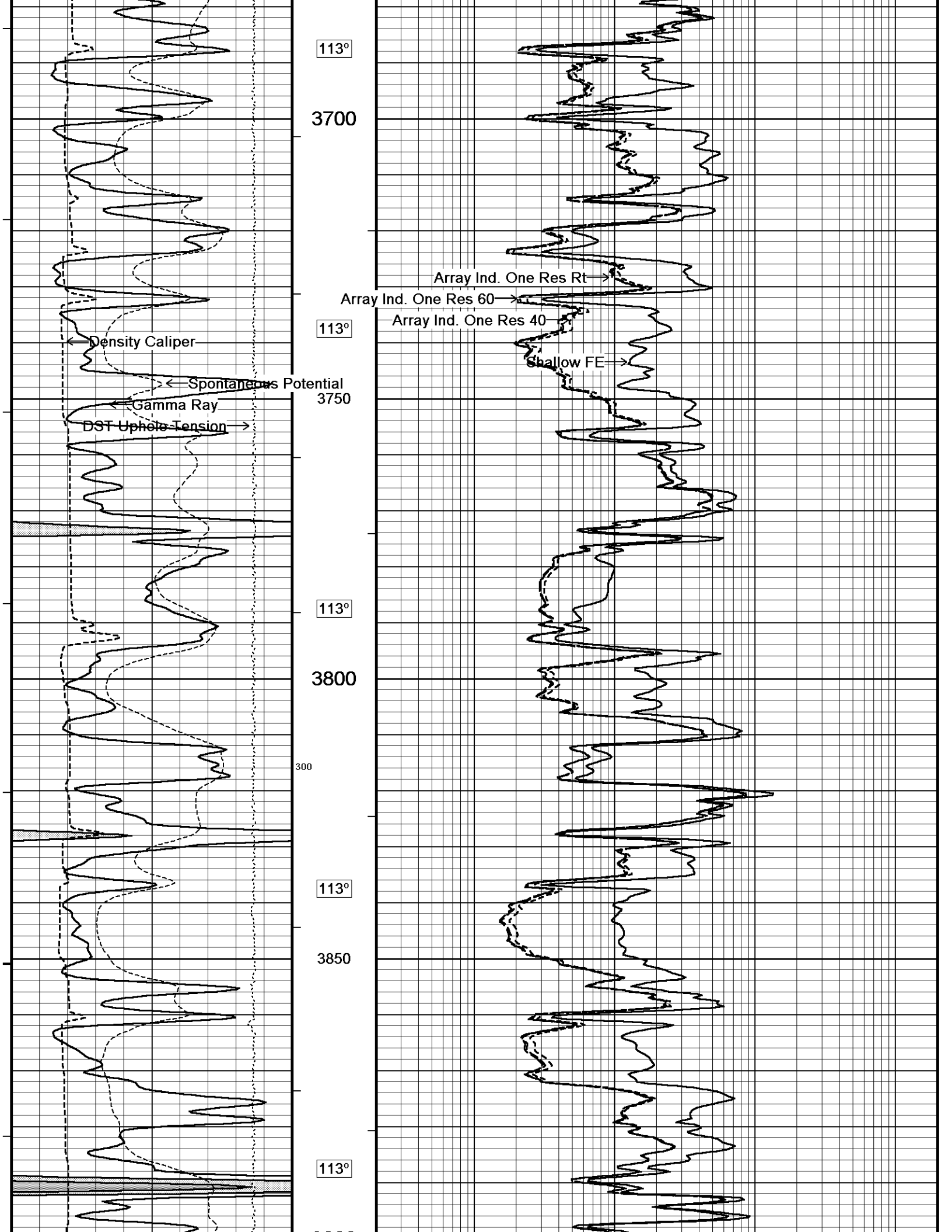

108°
2600
500
108°
2650
800
108°
2700
108°
2750
109°

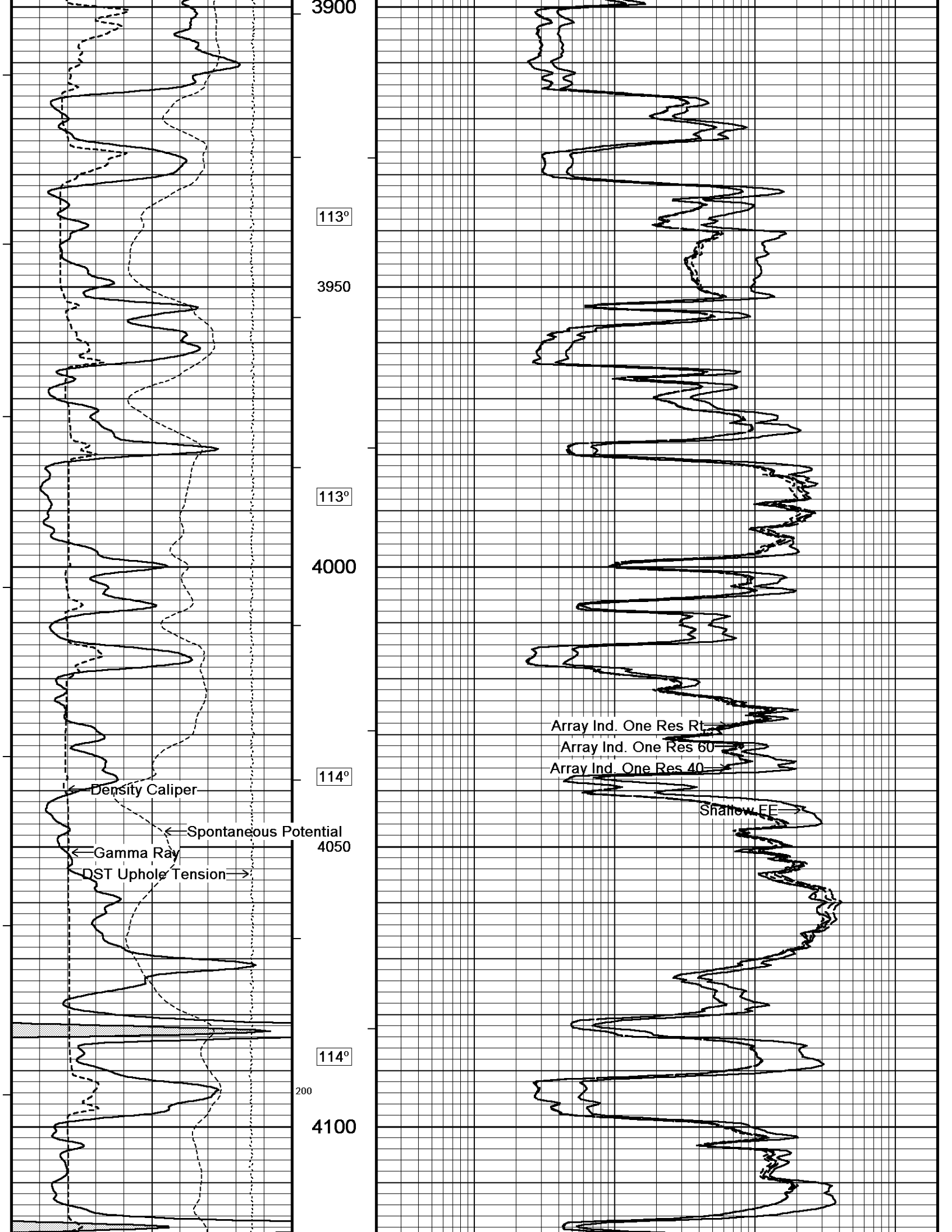

2800
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
109°
Density Caliper
Shallow LL
Spontaneous Potential
2850
Gamma Ray
DST Uphole Tension
700
109°
2900
400
109°
2950
110°
3000

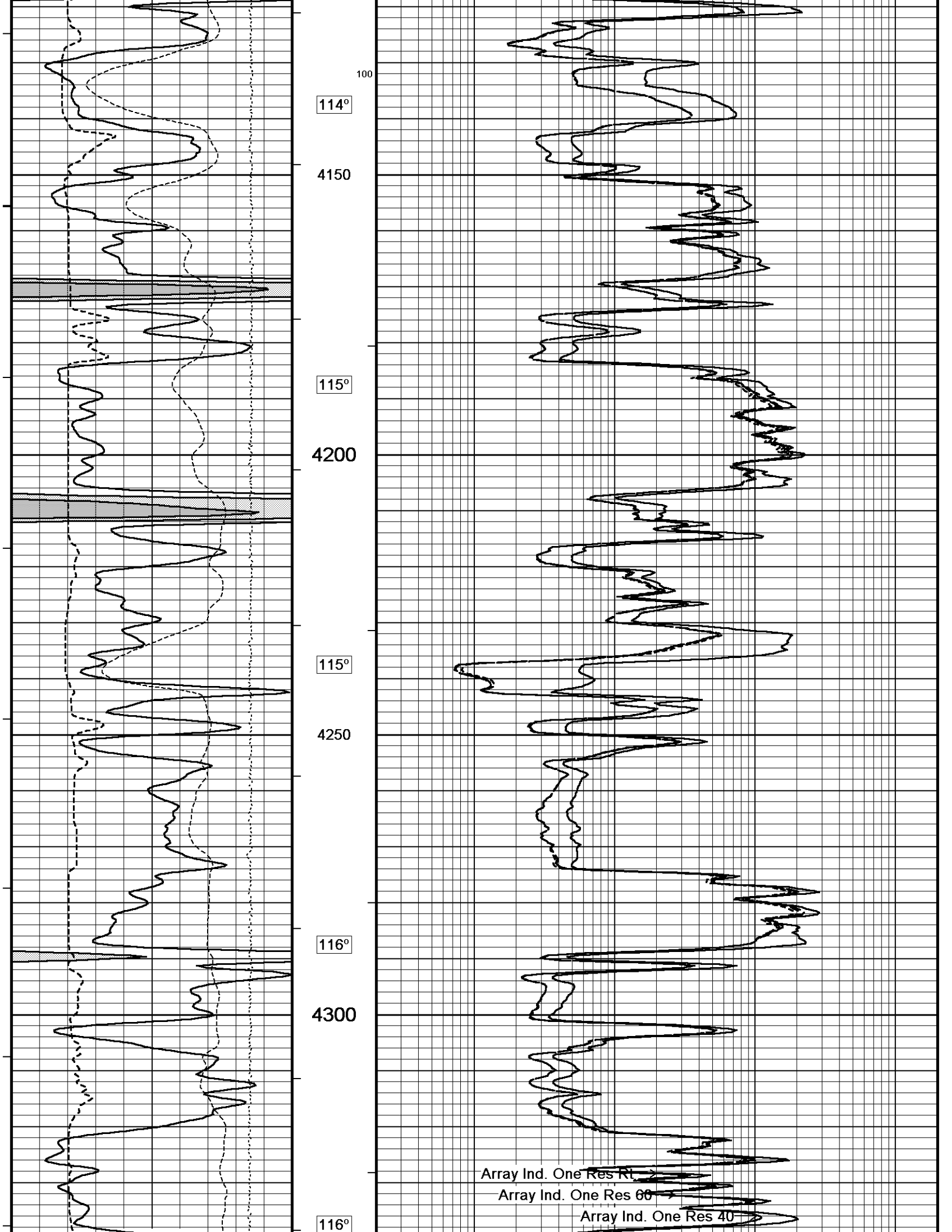

110°
3050
110°
600
3100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
110°
Density Caliper
Shallow FE
Spontaneous Potential
3150
Gamma Ray
DST Uphole Tension
110°
3200
300
111°

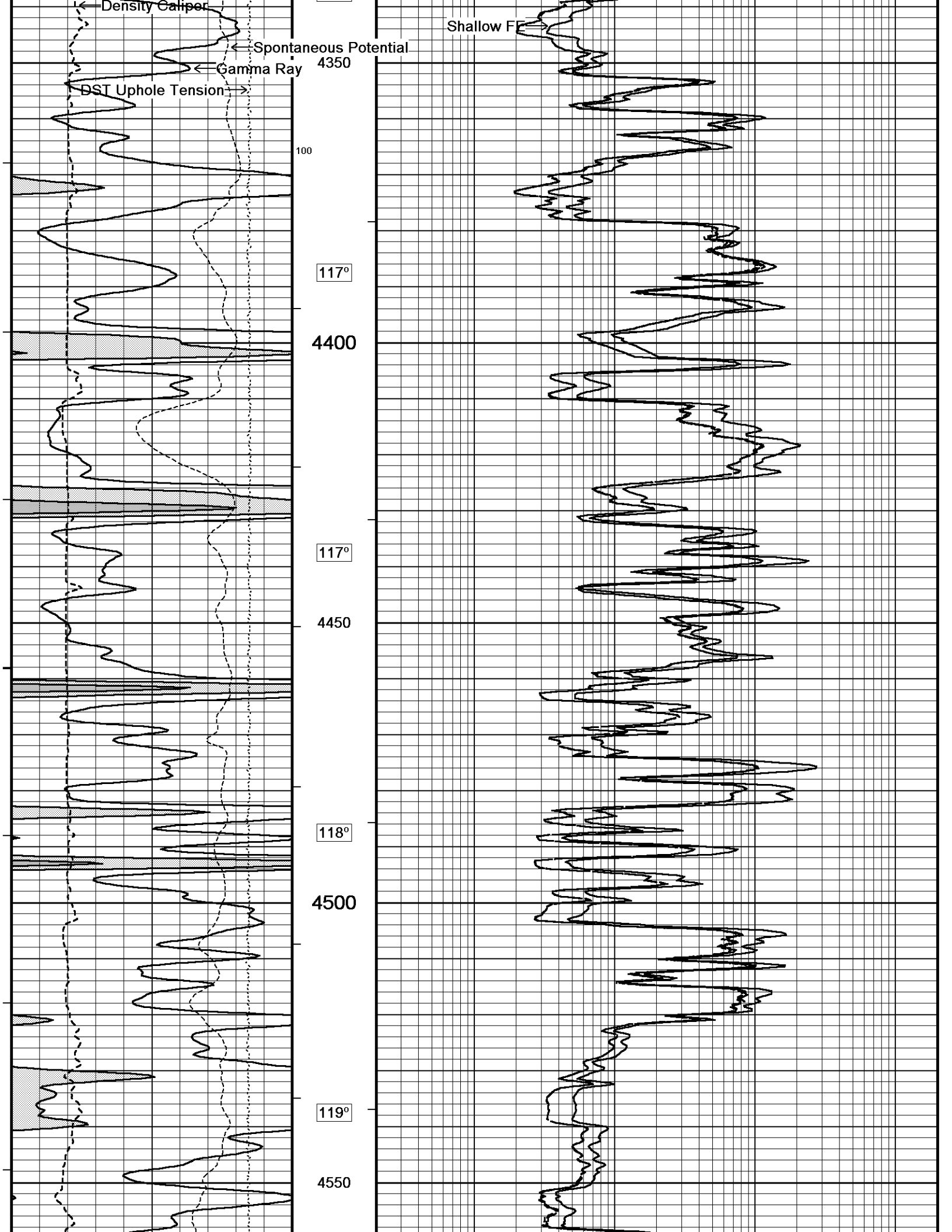

3250
500
111°
3300
111°
3350
112°
3400
112°
3450
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

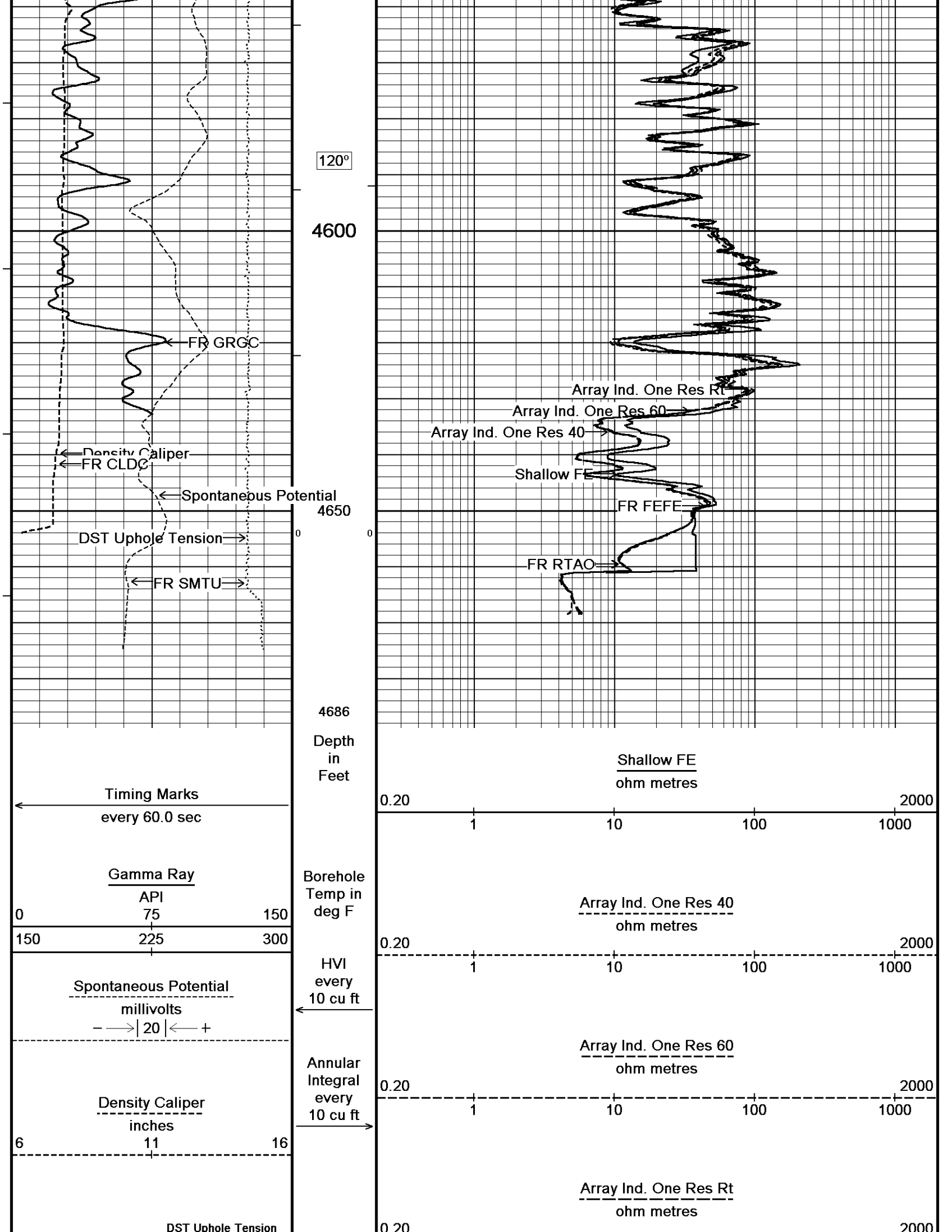

112°
3500
112°
400
3550
112°
2
1
3600
2
1
200
113°
3650


113°
3700
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
113°
Density Caliper
Shallow FE
Spontaneous Potential
3750
Gamma Ray
DST Uphole Tension
113°
3800
300
113°
3850
113°


3900
113°
3950
113°
4000
114°
4050
114°
200
4100
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE


100
114°
4150
115°
4200
115°
4250
116°
4300
116°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40


Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Shallow FE
4350
100
117°
4400
117°
4450
118°
4500
119°
4550


120°
4600
FR GRGC
Density Caliper
FR CLDC
Spontaneous Potential
4650
DST Uphole Tension
FR SMTU
0
0
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR FEFE
FR RTAO
4686
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
− 20 +
Density Caliper
inches
6
11
16
DST Uphole Tension
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 60
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res Rt
ohm metres
0.20
2000

pounds
5000 0

Replay Scale 1:240

1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta
Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

5 INCH MAIN

5 INCH REPEAT

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_001.dta
Recorded on 23-SEP-2012 11:22
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

Density Caliper
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

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

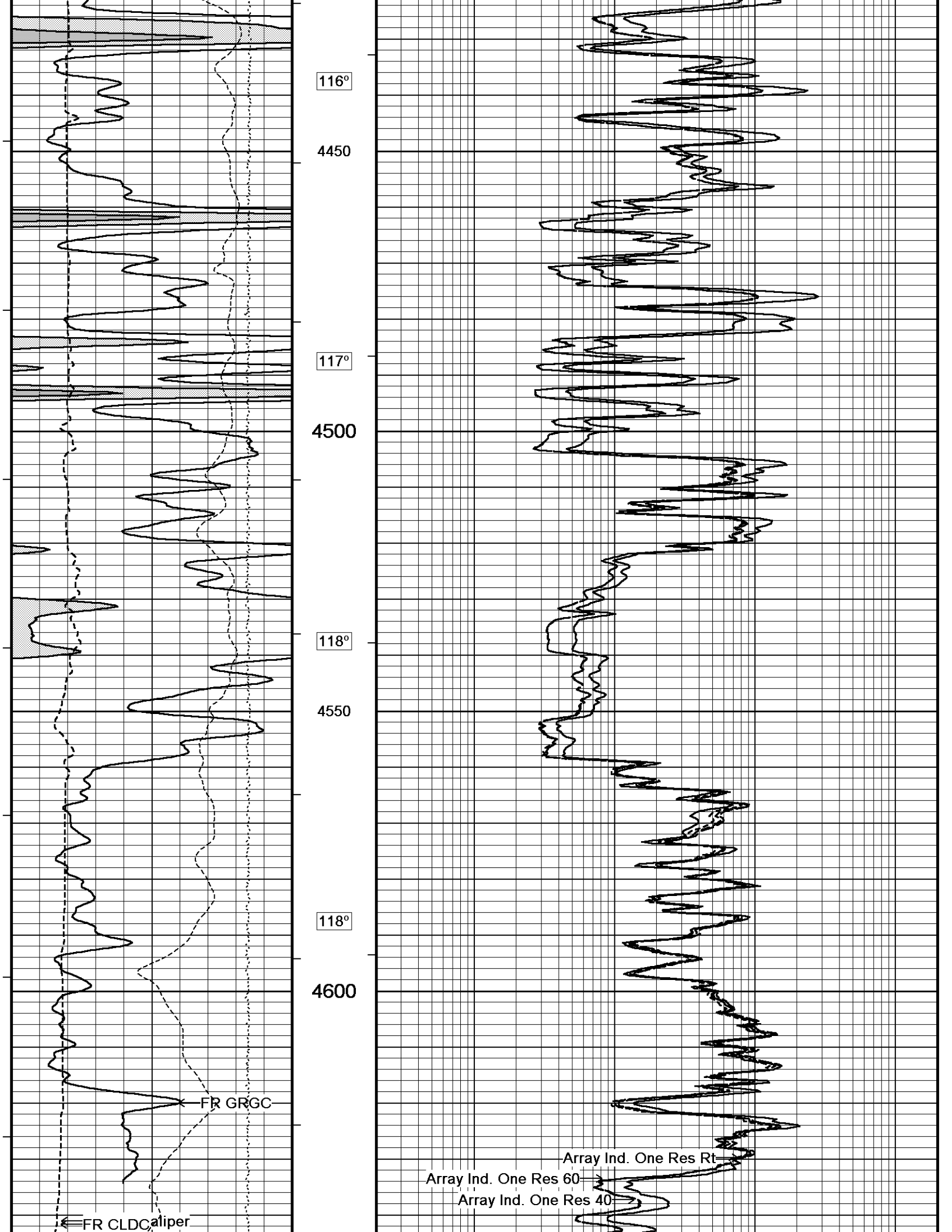
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

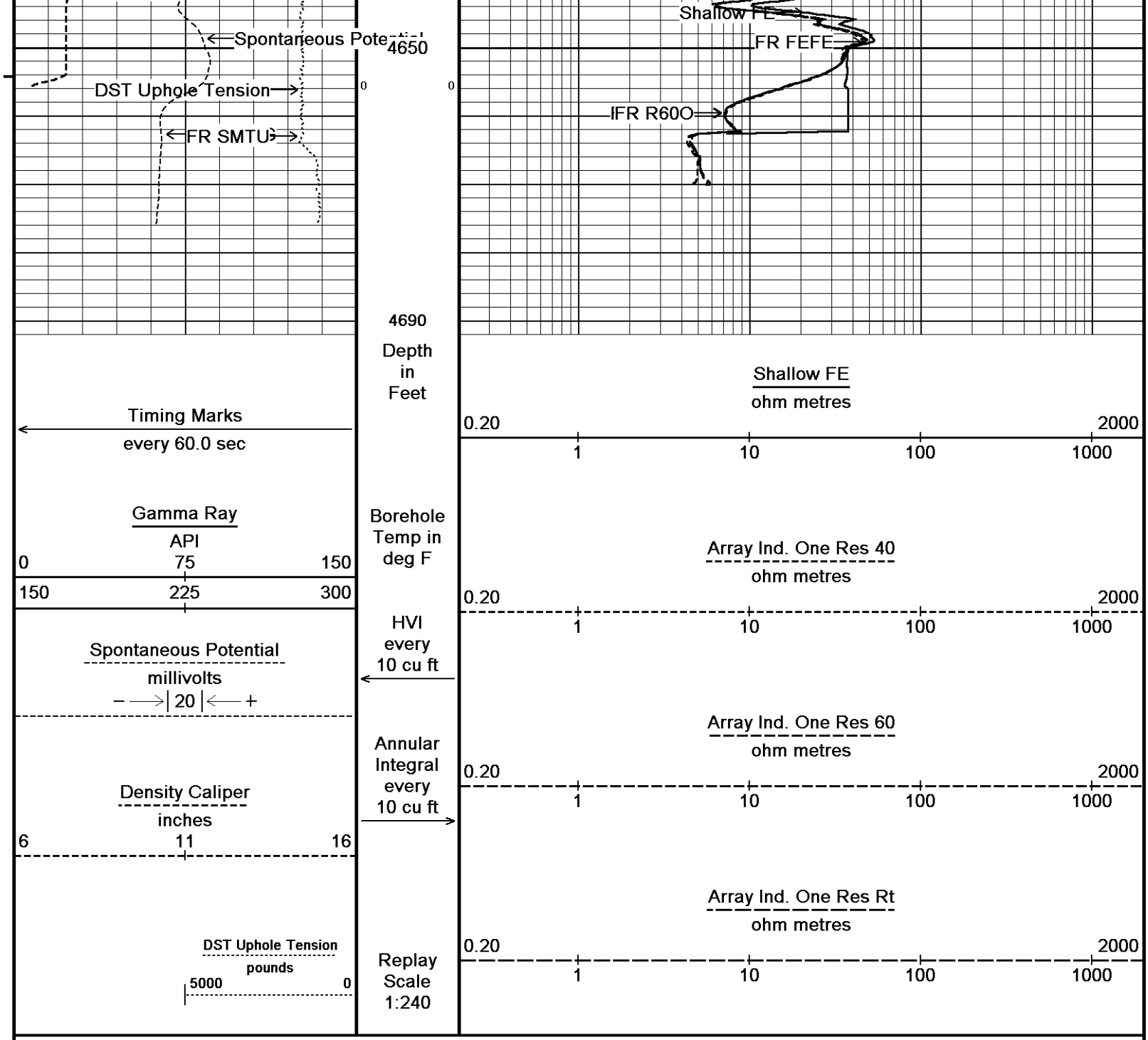
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

4358

100

4400


116°
4450
117°
4500
118°
4550
118°
4600
FR GRGC
FR CLDC
aliper
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 13:48
Filename: C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_001.dta
Recorded on 23-SEP-2012 11:22
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

5 INCH REPEAT

BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_Main.dta

General Constants All 000

Last Edited on 23-SEP-2012,10:02

General Parameters		
Mud Resistivity	1.240	ohm-metres
Mud Resistivity Temperature	94.000	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	

HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

Porosity used	Base Density Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Down-hole Tension Calibration SMS 0

Field Calibration on 23-SEP-2012 10:43

Reading No	Measured	Calibrated (lbs)
1	13629.25	0.00
2	13666.72	400.00

Gamma Calibration MCG-C 208

Field Calibration on 23-SEP-2012 00:17

	Measured	Calibrated (API)
Background	67	46
Calibrator (Gross)	1106	771
Calibrator (Net)	1039	725

Gamma Constants MCG-C 208

Last Edited on 23-SEP-2012,10:02

Gamma Calibrator Number	GR38	
Mud Density	1.09	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-C 208

Field Calibration on 03-AUG-2012 22:37

	Measured	Calibrated (mV)
Reference 1	100.2	101.0
Reference 2	-101.3	-101.0

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 03-AUG-2012,16:18

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

High Resolution Temperature Constants MCG-C 208

Last Edited on

Pre-filter Length	11

Caliper Calibration MML-A 4

Base Calibration on 27-AUG-2012 09:13
Field Calibration on 23-SEP-2012 00:13

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15511	5.98
2	18793	7.97
3	22115	9.86
4	26057	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.94	5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 27-AUG-2012 09:21
Field Check on 23-SEP-2012 00:11

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.5	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.8
Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 15-SEP-2012 14:38

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 15-SEP-2012,14:38

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	N/A	inches

Neutron Calibration MDN-A.B 65

Base Calibration on 28-AUG-2012 10:35
Field Check on 23-SEP-2012 00:21

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3134	97	3714	110
Ratio	32.240		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1654	2401
Ratio	0.689	

Field Check

	Calibrated (cps)	
	1650	2376
Ratio	0.695	

Neutron Constants MDN-A.B 65

Last Edited on 23-SEP-2012,00:17

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	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 27-AUG-2012 14:50
Field Check on 23-SEP-2012 00:03

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.9	126.8
Base Check		281.2
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 23-SEP-2012,05:15

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 45

Base Calibration on 26-JUL-2012,09:22
Field Check on 23-SEP-2012 00:02

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) 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) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	0.0	0.0	19.0	3851.7
2	0.0	0.0	31.8	3629.6
3	0.0	0.0	28.7	3049.8
4	0.0	0.0	18.3	2079.4
Deep	0.0	0.0	16.1	1911.6
Medium	0.0	0.0	42.5	4061.2
Shallow	0.0	0.0	49.7	5483.3
Array Temperature		0.0		70.6 Deg F

Induction Constants MAI-A.A 45

Last Edited on 22-SEP-2012,23:59

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	2.500	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	

High Resolution Temperature Calibration MAI-A.A 45

Field Calibration on 26-JUL-2012,09:09

	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

Pre-filter Length	11

Caliper Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:03
Field Calibration on 23-SEP-2012 00:05

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18576	3.99
2	27056	5.98

3	35613	7.97
4	44032	9.86
5	53360	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	5.98

Photo Density Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:22
Field Check on 23-SEP-2012 00:10

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	46103	23728	59556	30836
Reference 2	19270	1960	24941	2541

Field Check at Base

688.3	844.7

Field Check

687.8	848.7

PE Calibration

Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	127	604		
Reference 1	18457	45978	0.404	0.371
Reference 2	5504	19174	0.290	0.272

Field Check at Base

127.0	604.2

Field Check

127.2	602.6

Density Constants MPD-B 31

Last Edited on 23-SEP-2012,10:02

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	1.09	gm/cc
Mud Density Z/A Multiplier	1.13	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix density (gm/cc)	Depth (m)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Grand Mesa P-D #1-27\Grand Mesa P-D #1-27_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

42.87 ft GRGC - Gamma Ray

MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

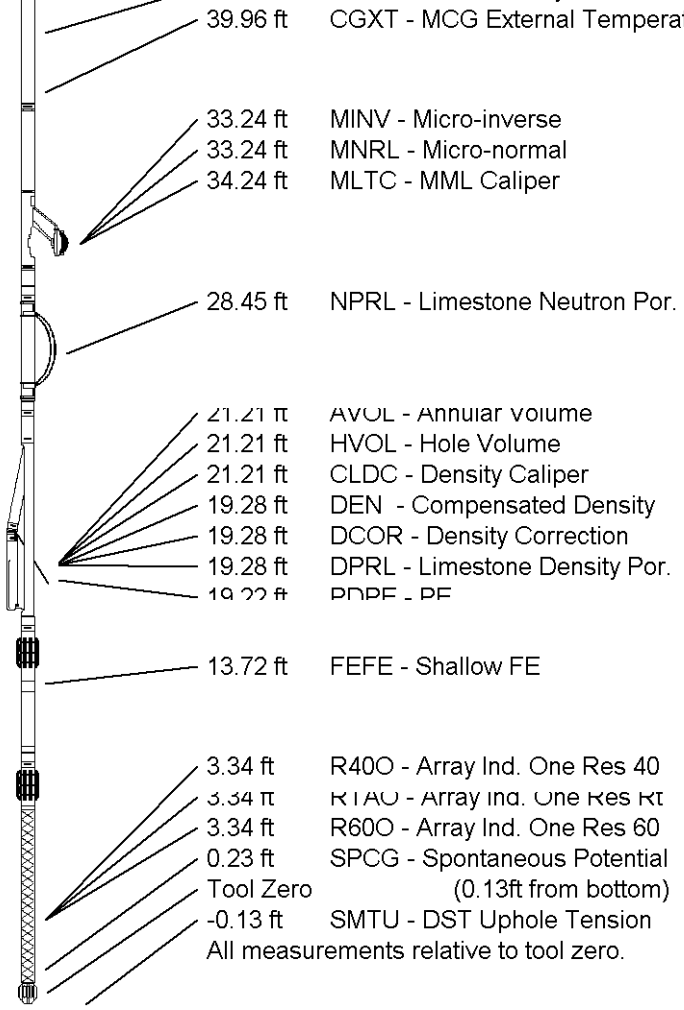
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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 Induction
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 49.73 ft Weight: 399.0 lb



39.96 ft CGXT - MCG External Temperature

33.24 ft MINV - Micro-inverse
33.24 ft MNRL - Micro-normal
34.24 ft MLTC - MML Caliper

28.45 ft NPRL - Limestone Neutron Por.

21.21 ft AVOL - Annular Volume
21.21 ft HVOL - Hole Volume
21.21 ft CLDC - Density Caliper
19.28 ft DEN - Compensated Density
19.28 ft DCOR - Density Correction
19.28 ft DPRL - Limestone Density Por.
19.22 ft PDPE - PE

13.72 ft FEFE - Shallow FE

3.34 ft R40O - Array Ind. One Res 40
3.34 ft R60O - Array Ind. One Res 60
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	GRAND MESA OPERATING
WELL	P-D #1-27
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2875.00	feet	First Reading	4660.00	feet
Elevation Drill Floor	2873.00	feet	Depth Driller	4662.00	feet
Elevation Ground Level	2870.00	feet	Depth Logger	4663.00	feet

Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford

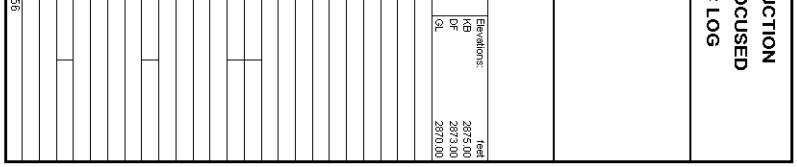
ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	GRAND MESA OPERATING
WELL	P-D #1-27
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	674' FNL & 196' FEL NE SE NE NE

SEC	TWP	RGE	Other Services
27	13S	31W	MPD/MDN MML

API Number 15-063-22029
Permanent Datum G.L. Elevation 2870 feet
Log Measured From KB
Drilling Measured From K.B. @ 5 FEET

Date	23-SEP-2012		
Run Number	ONE		
Depth Driller	4662.00	feet	
Depth Logger	4663.00	feet	
First Reading	4660.00	feet	
Last Reading	218.00	feet	
Casing Driller	219.00	feet	
Casing Logger	218.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.10	lbm/USg	67.00 CP
PH / Fluid Loss	10.50		7.20 ml/30Min
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.24 @ 94.0	ohm-m	
Rmf @ Measured Temp	0.99 @ 94.0	ohm-m	
Rmc @ Measured Temp	1.49 @ 94.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.97 @ 120.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	120.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13057	LIB	
Recorded By	R. HOFFMAN		
Witnessed By	BOB SHREIBER		
S.O. # / JOB #	3638924		
LB/12-23			



1 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
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Recorded on 23-SEP-2012 11:46
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Spontaneous Potential
millivolts
-→| 20 |←+

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:600

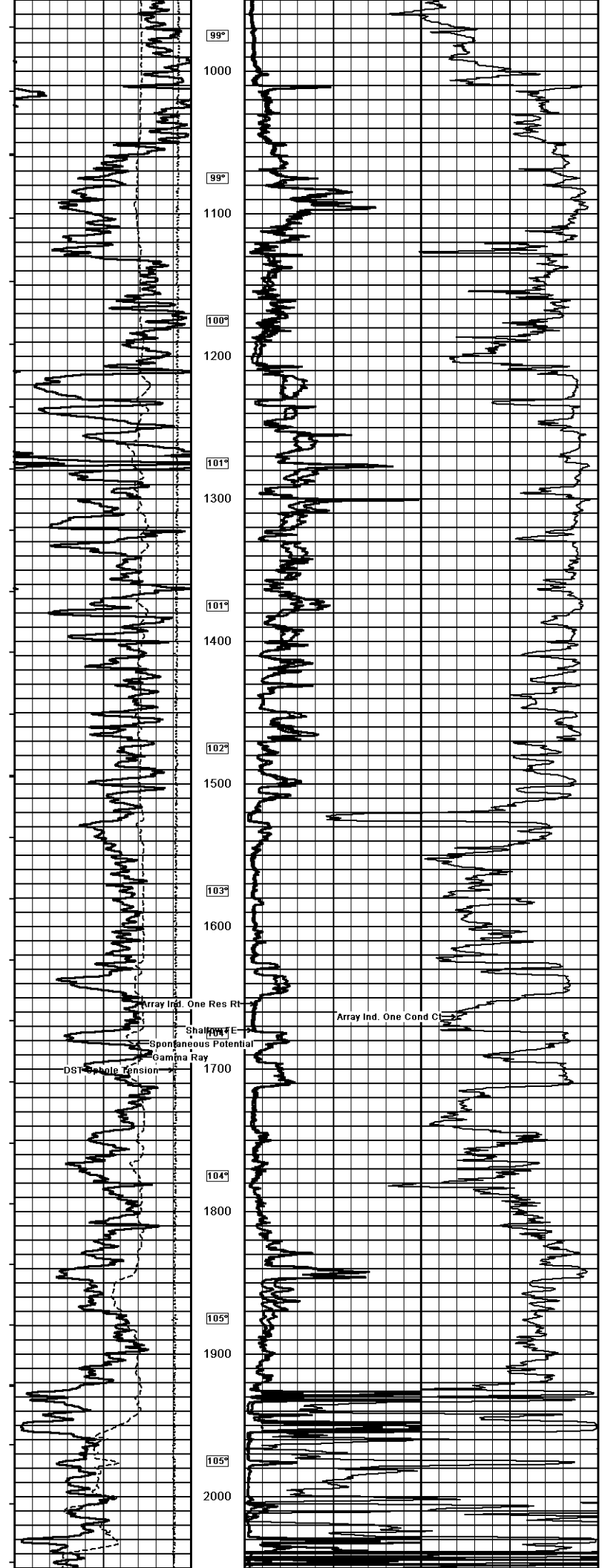
Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

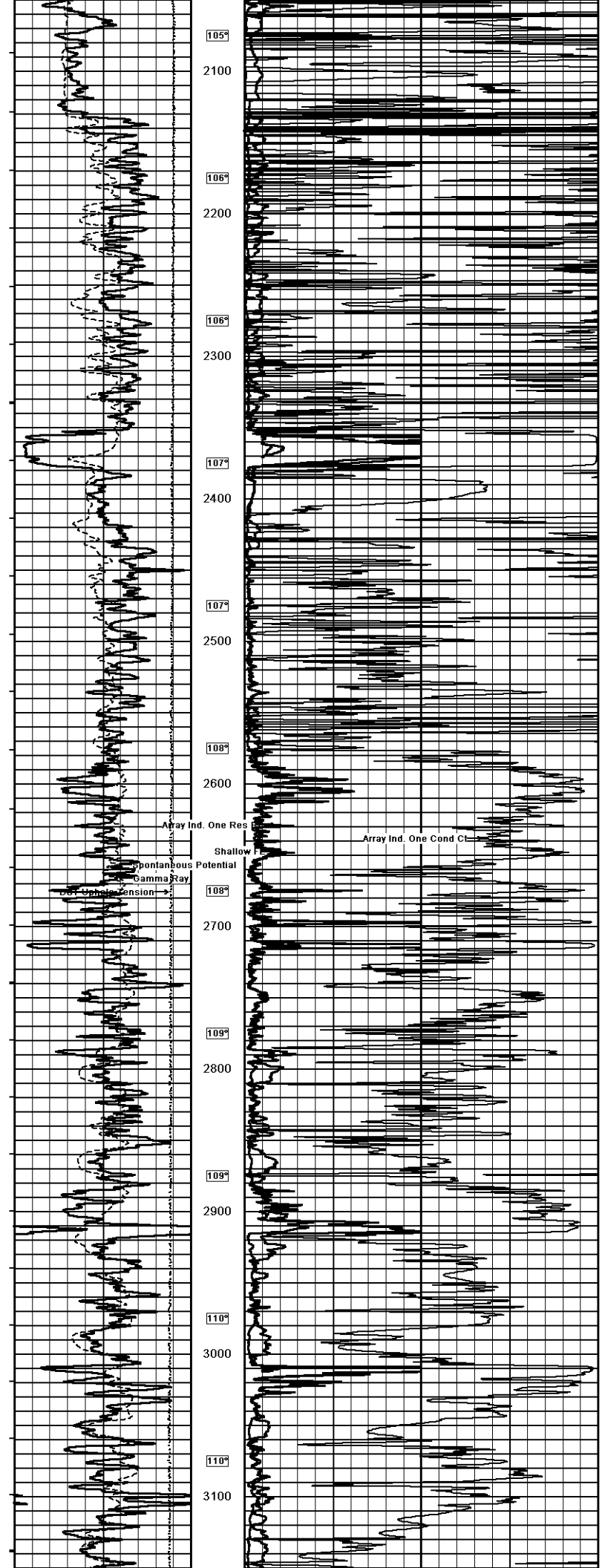
Shallow FE
ohm metres
0 25 50
0 250 500

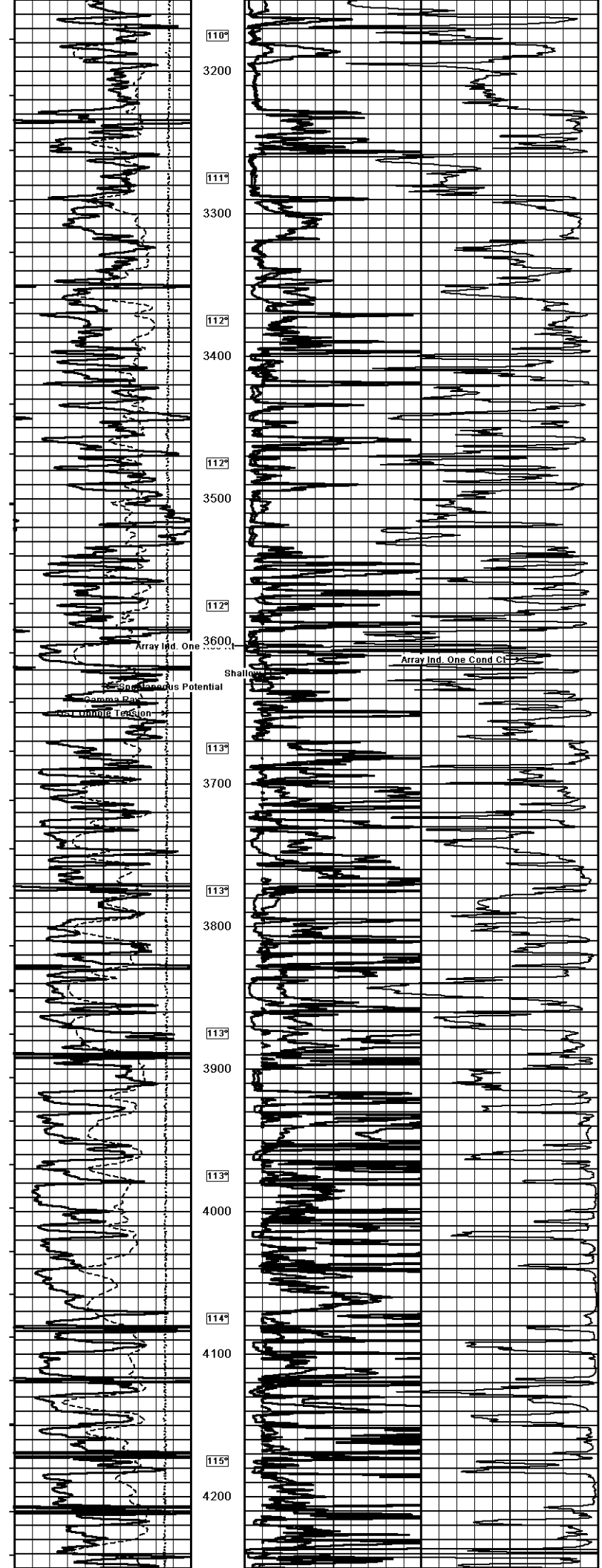
Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

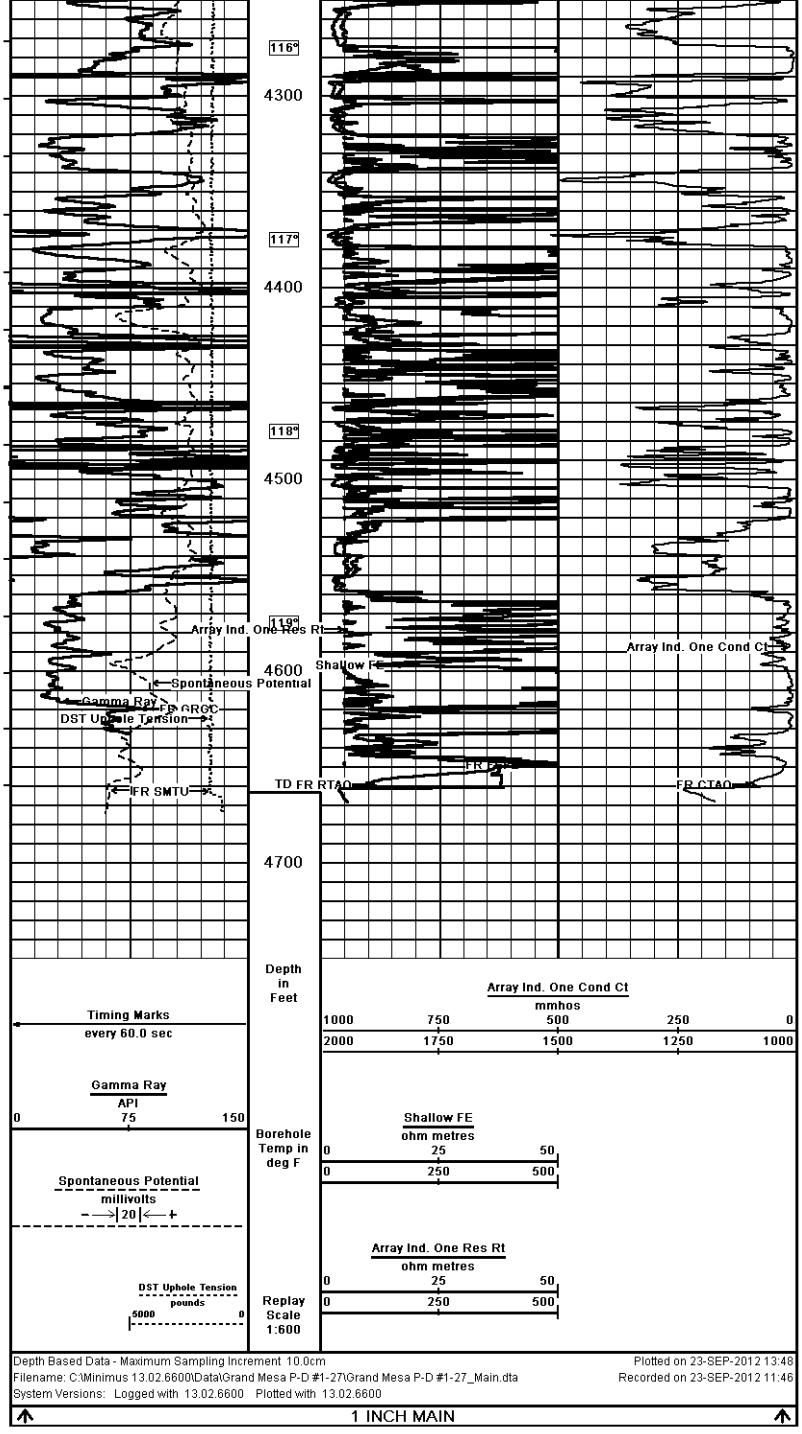
200
Casing Shoe
94°
300
95°
400
95°
500
96°
600
97°
700
98°
800
98°
900

Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct


99°
1000
99°
1100
100°
1200
101°
1300
101°
1400
102°
1500
103°
1600
Array Ind. One Res Rt
Array Ind. One Cond C
Spontaneous Potential
Gamma Ray
DST Cable Tension
1700
104°
1800
105°
1900
105°
2000


105°
2100
106°
2200
106°
2300
107°
2400
107°
2500
108°
2600
Array Ind. One Res
Shallow
Spontaneous Potential
Gamma Ray
108°
Array Ind. One Cond Ct
2700
109°
2800
109°
2900
110°
3000
110°
3100


110°
3200
111°
3300
112°
3400
112°
3500
112°
3600
Array Ind. One
Array Ind. One Cond Ct
Shallow
Spontaneous Potential
Gamma Ray
CST Cable Tension
113°
3700
113°
3800
113°
3900
113°
4000
114°
4100
115°
4200



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System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

1 INCH MAIN

COMPANY	GRAND MESA OPERATING
WELL	P-D #1-27
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2875.00	feet	First Reading	4660.00	feet
Elevation Drill Floor	2873.00	feet	Depth Driller	4662.00	feet
Elevation Ground Level	2870.00	feet	Depth Logger	4663.00	feet

Weatherford

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SHALLOW FOCUSED
ELECTRIC LOG