ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford®

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	VANDERPOOL #2-5
FIELD	UNNAMED
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	2755' FSL & 1101' FWL

SEC	TWP	RGE	Other Services
5	34S	28W	MPD/MDN
API Number 15-119-21323			MML
Permit Number			

Permanent Datum G.L., Elevation 2360 feet
Log Measured From KB
Drilling Measured From K.B. @ 12 FEET

Elevations:	feet
KB	2372.00
DF	2370.00
GL	2360.00

Date	05-AUG-2012		
Run Number	ONE		
Depth Driller	6400.00 feet		
Depth Logger	6392.00 feet		
First Reading	6389.00 feet		
Last Reading	1488.00 feet		
Casing Driller	1493.00 feet		
Casing Logger	1488.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	1.08 g/c3	68.00 CP	
PH / Fluid Loss	10.50	5.20 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.01 @102.0	ohm-m	
Rmf @ Measured Temp	0.81 @102.0	ohm-m	
Rmc @ Measured Temp	1.20 @102.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.79 @131.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	131.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13057	LIB	
Recorded By	R. HOFFMAN		
Witnessed By	AUSTIN GARNER		ROGER PEARSON
S.O. # / JOB #	3534569		LB12-203

BOREHOLE RECORD

Last Edited: 05-AUG-2012 20:49

Bit Size inches	Depth From feet	Depth To feet
7.875	1488.00	6392.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1488.00	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.
Total hole volume from TD to Surface casing = 1951 cu. ft.
Annular volume with 4.5 inch production casing TD to 3000ft = 399 cu. ft.
Service order: #3534569
Rig: Duke Drilling Rig #6
Engineer: R. Hoffman
Operator(s): B. Reeves

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta
Recorded on 05-AUG-2012 18:21
System Versions: Logged with 13.02.6600 Processed 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 | ← +

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

Array Ind. One Res Rt
ohm metres
0 25 50

1470 Casing Shoe

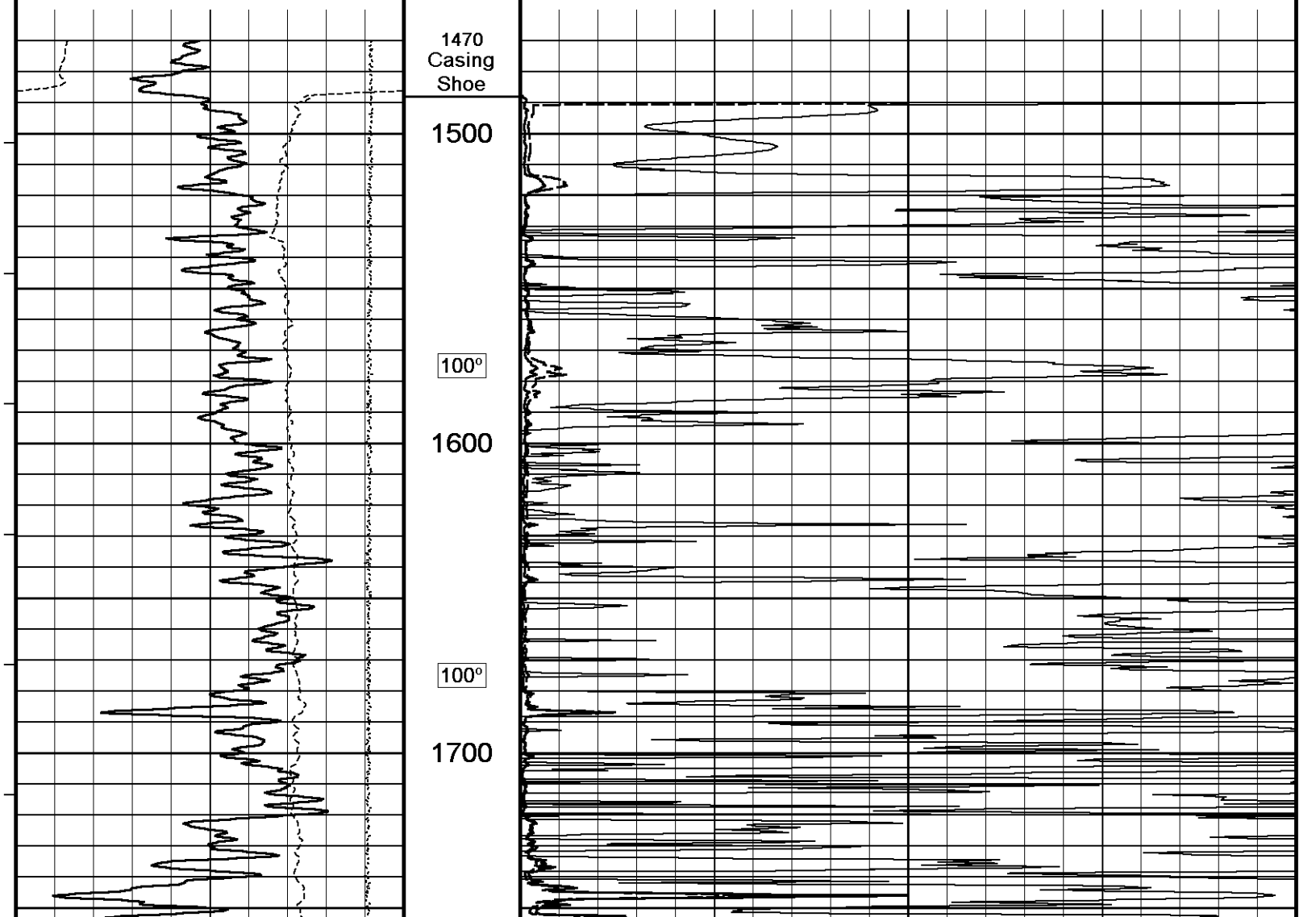
1500

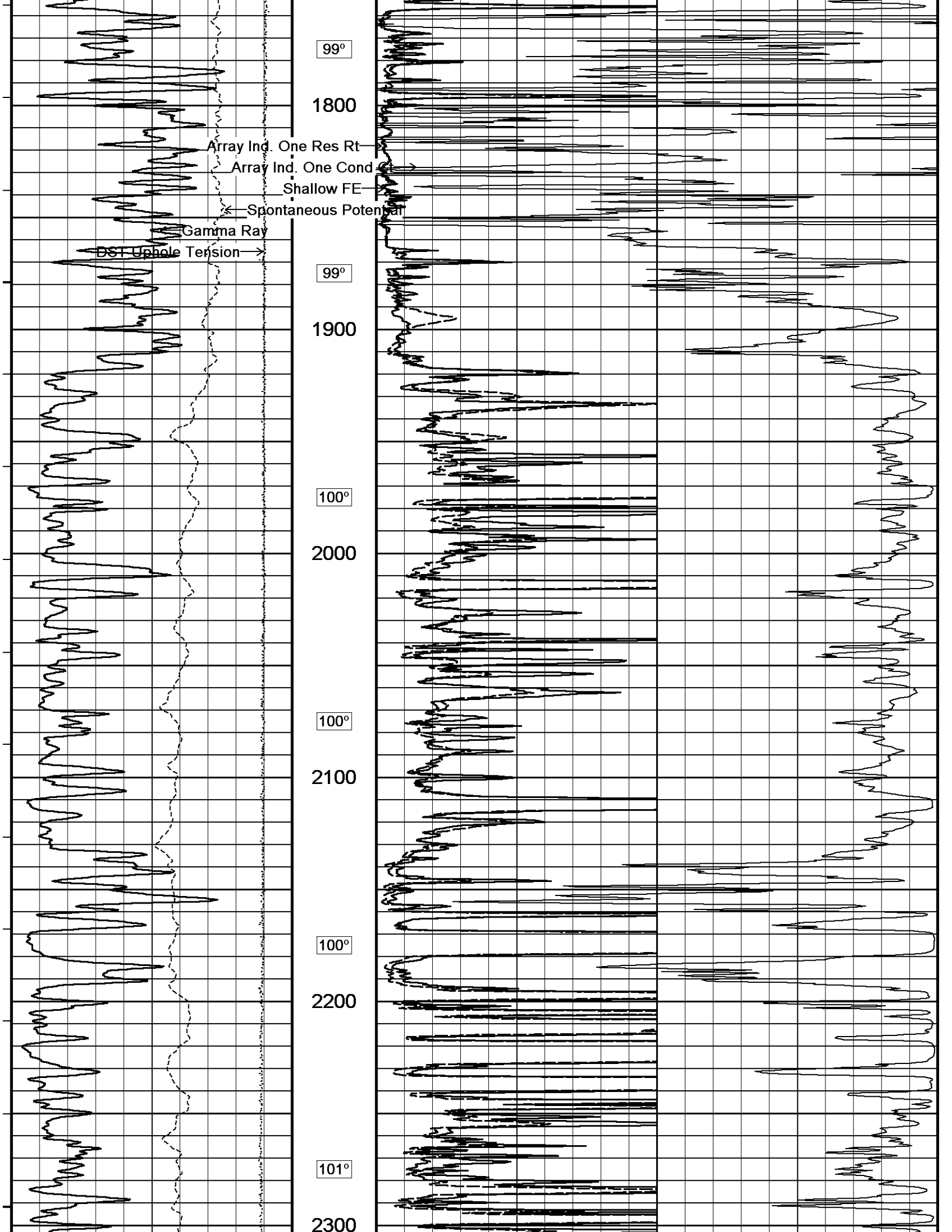
100°

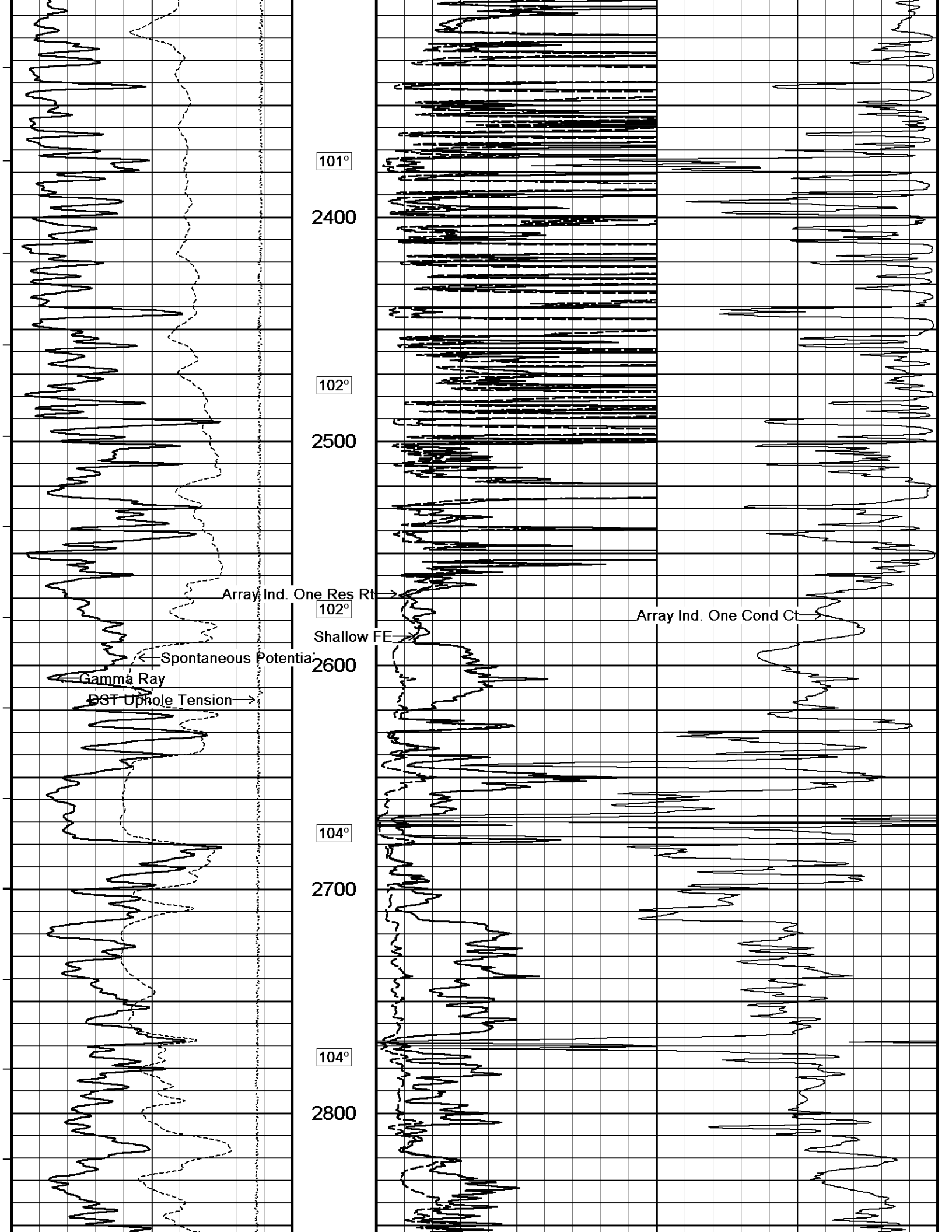
1600

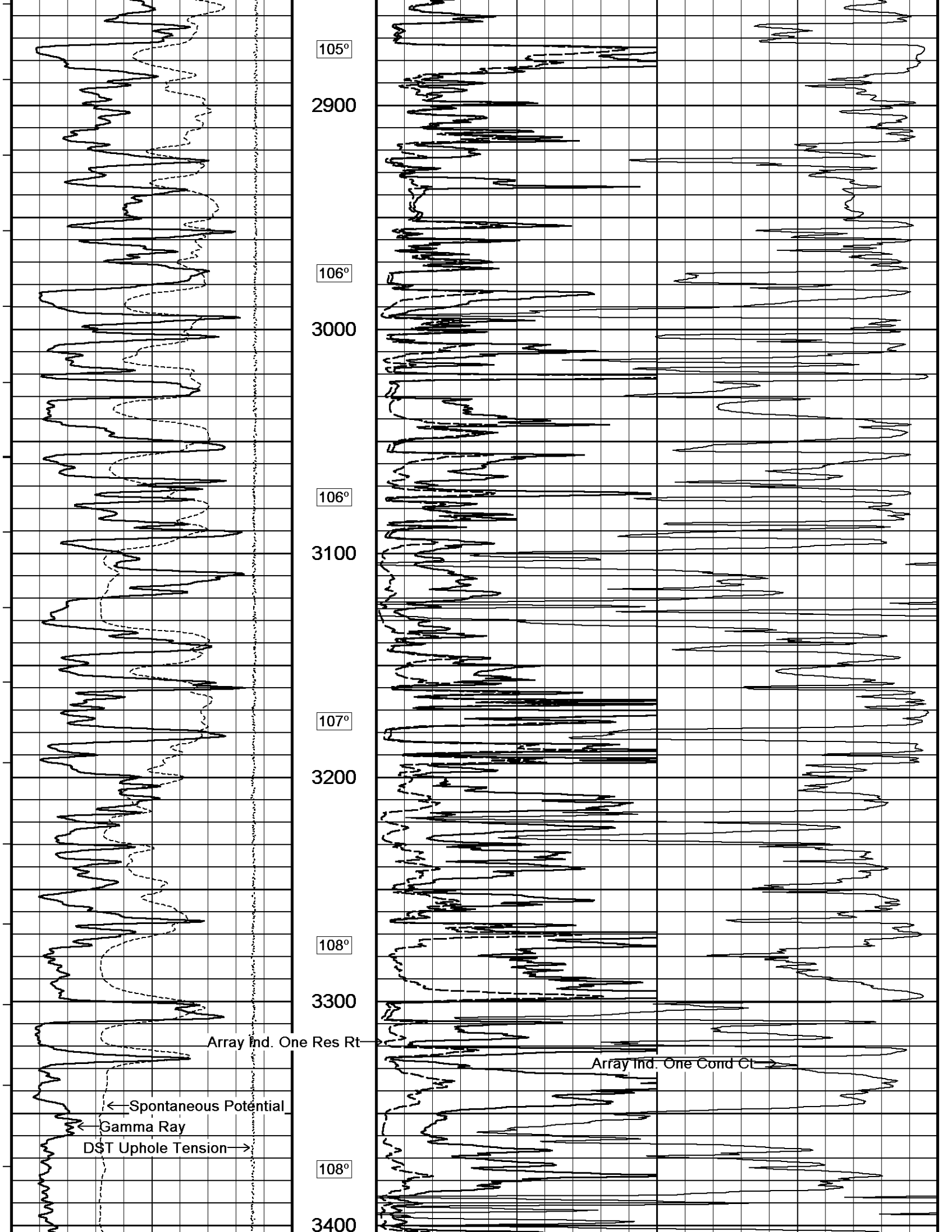
100°

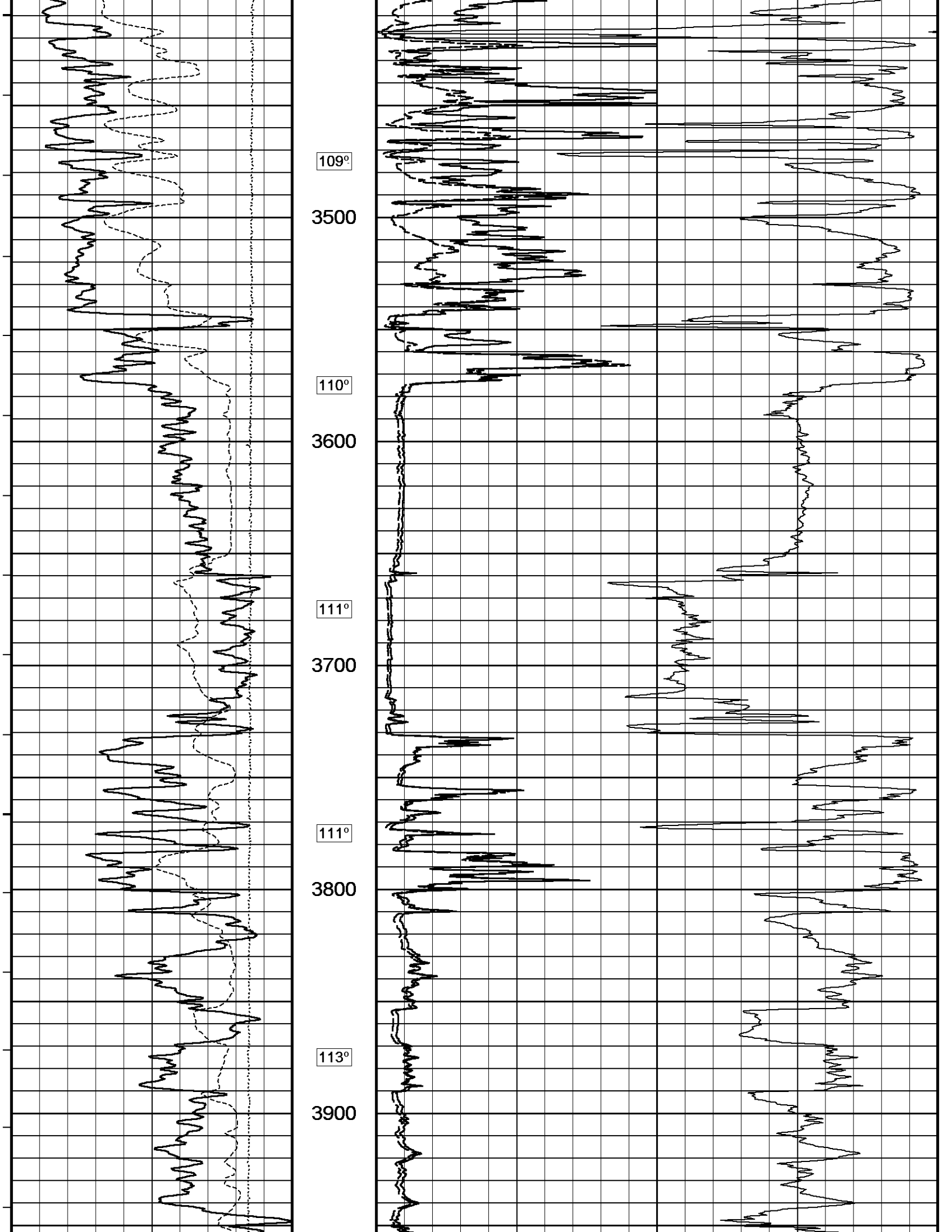
1700

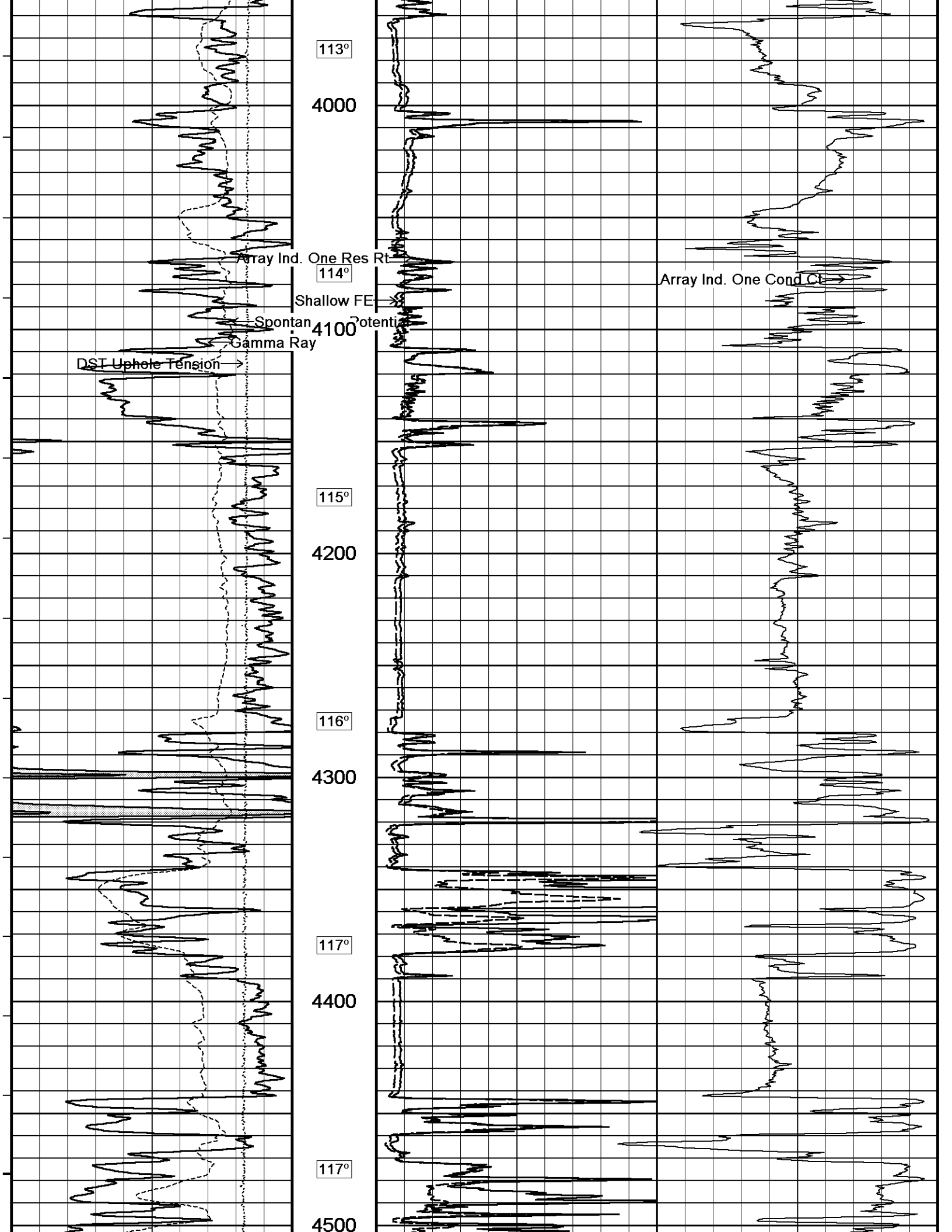


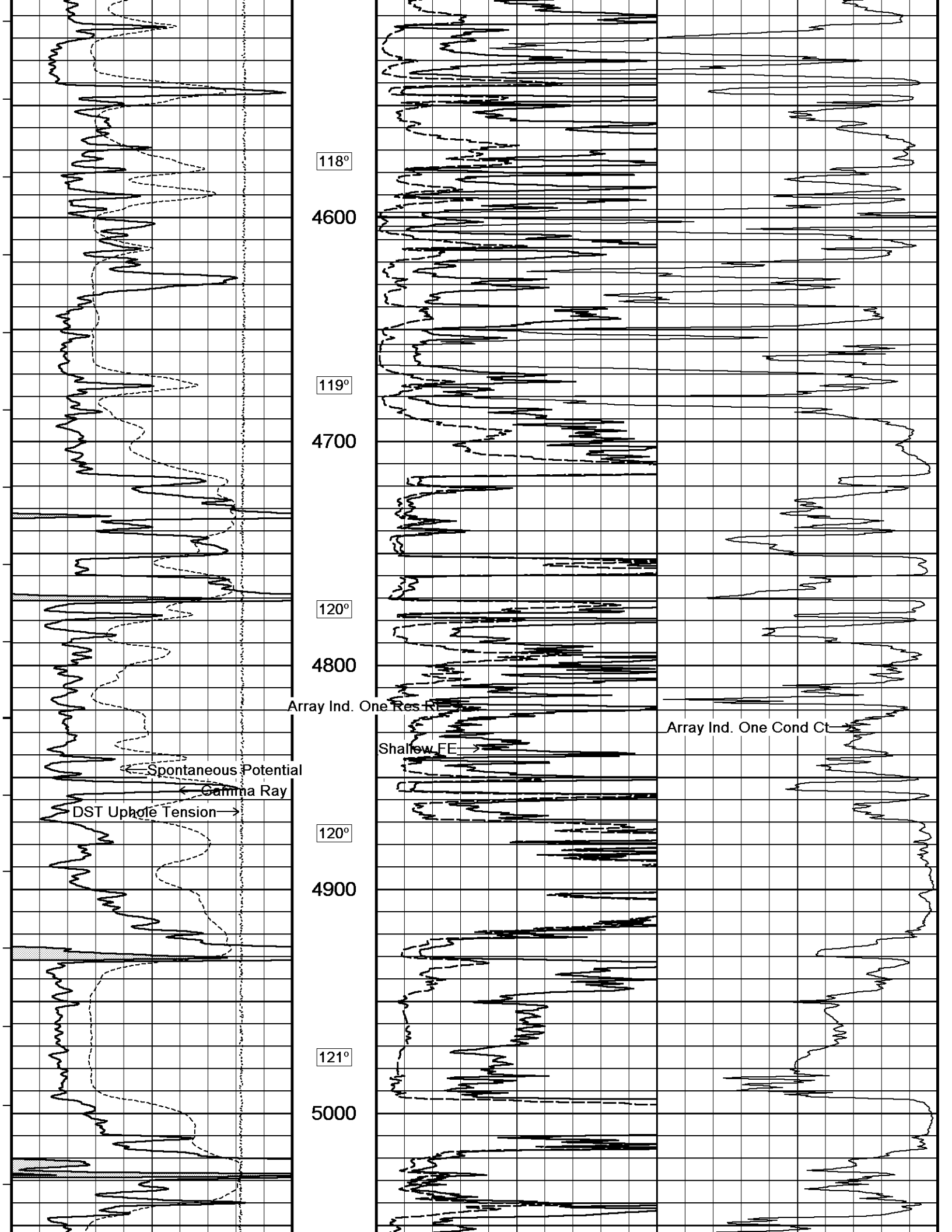

99°
1800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
99°
1900
100°
2000
100°
2100
100°
2200
101°
2300

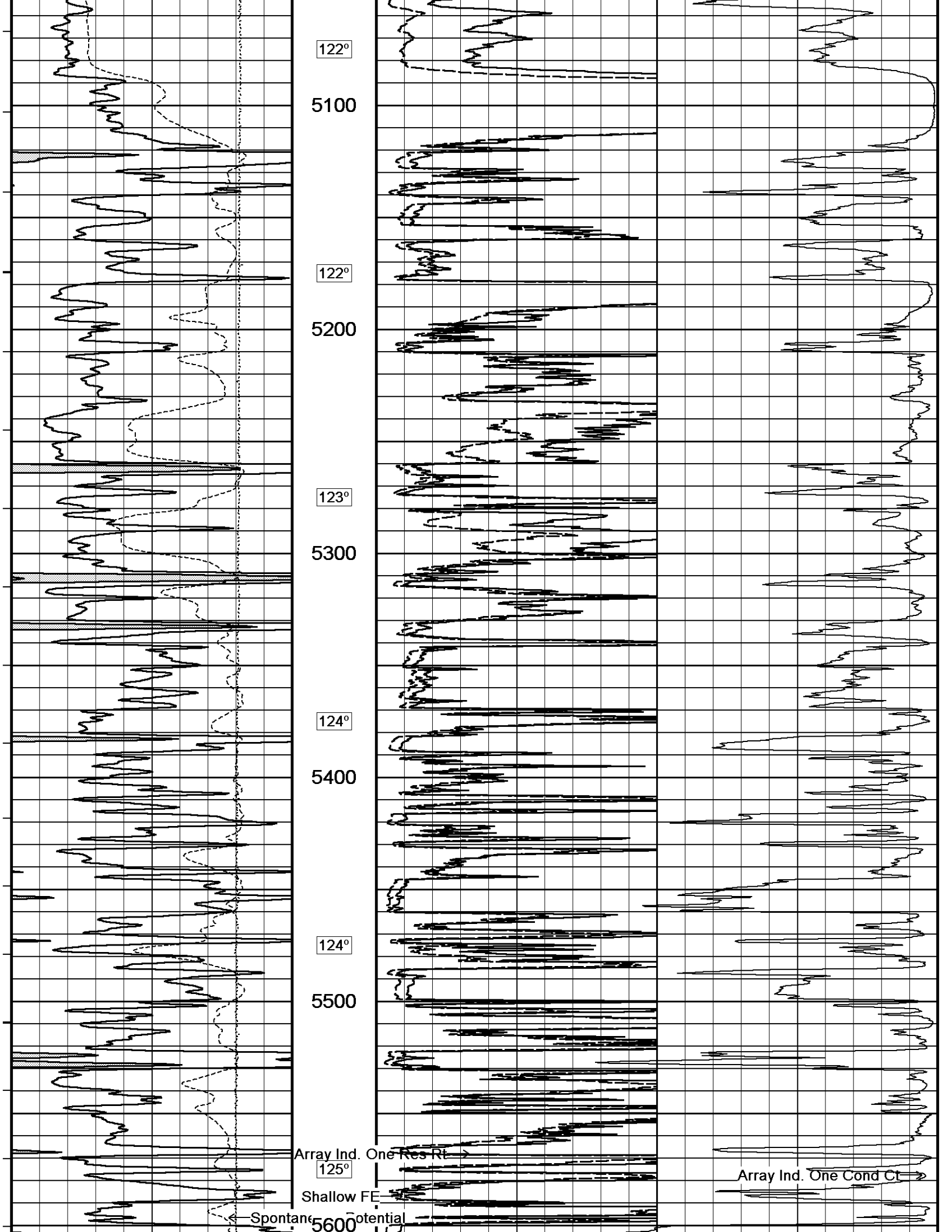

101°
2400
102°
2500
Array Ind. One Res Rt
102°
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
2600
Gamma Ray
DST Uphole Tension
104°
2700
104°
2800

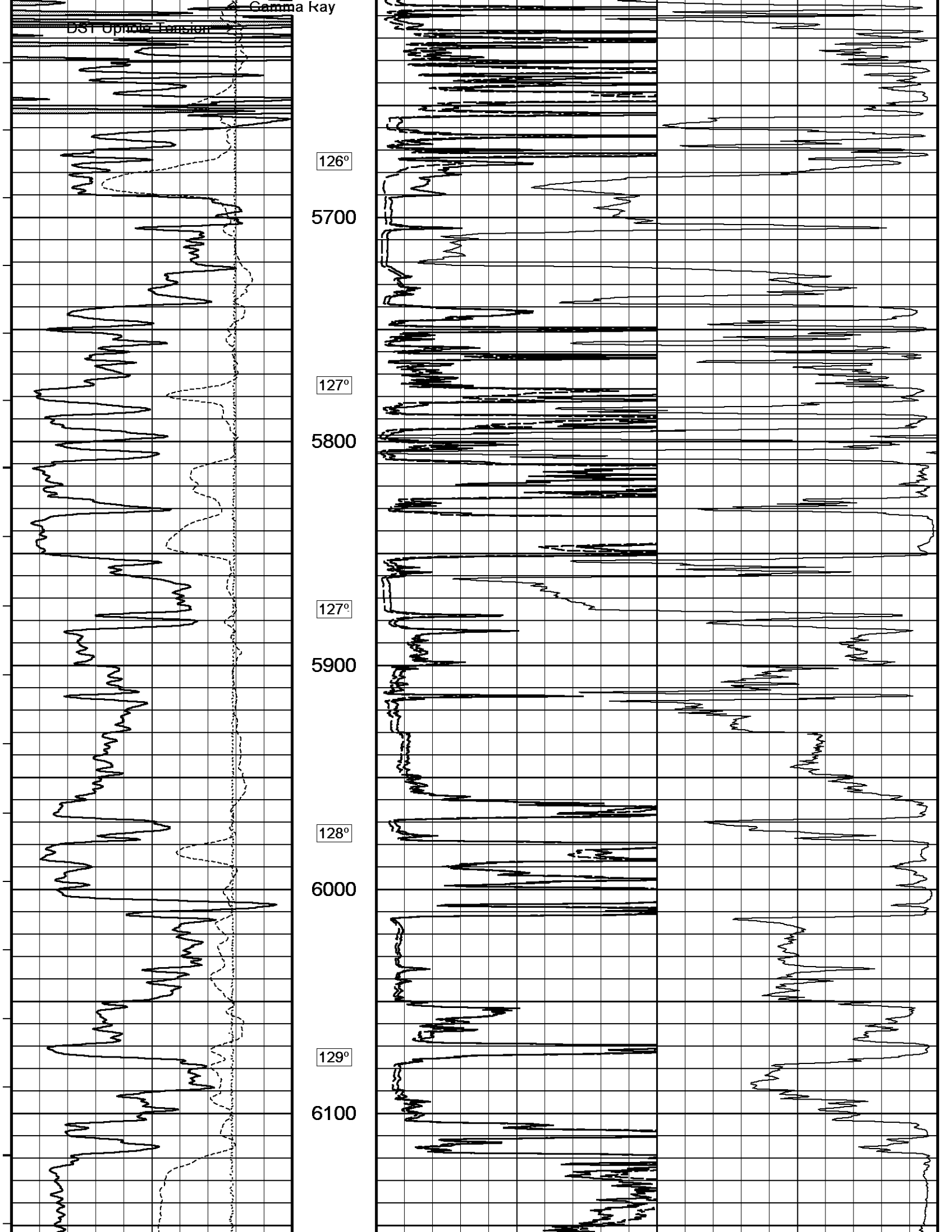

105°
2900
106°
3000
106°
3100
107°
3200
108°
3300
Array Ind. One Res Rt
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
DST Uphole Tension
108°
3400

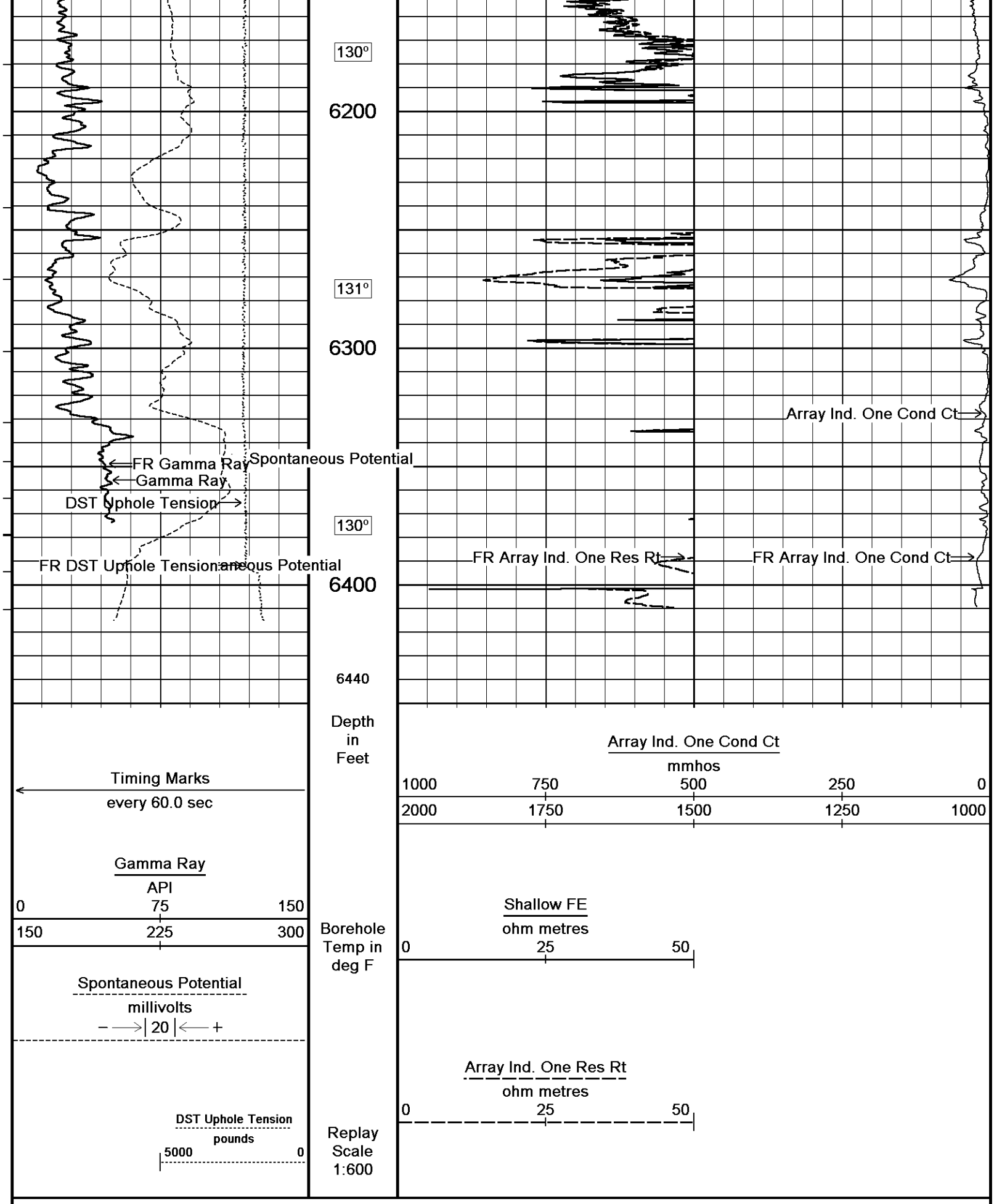

109°
3500
110°
3600
111°
3700
111°
3800
113°
3900


113°
4000
Array Ind. One Res Rt
114°
Shallow FE
Spontan
Potenti
4100
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct
115°
4200
116°
4300
117°
4400
117°
4500


118°
4600
119°
4700
120°
4800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
120°
4900
121°
5000


122°
5100
122°
5200
123°
5300
124°
5400
124°
5500
125°
5600
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Array Ind. One Cond Ct


Gamma Ray
DST Uphole Tension
126°
5700
127°
5800
127°
5900
128°
6000
129°
6100



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta
Recorded on 05-AUG-2012 18:21
System Versions: Logged with 13.02.6600 Processed 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 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta
Recorded on 05-AUG-2012 18:21
System Versions: Logged with 13.02.6600 Processed 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 1 10 100 1000 2000

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

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

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

1468

Casing Shoe

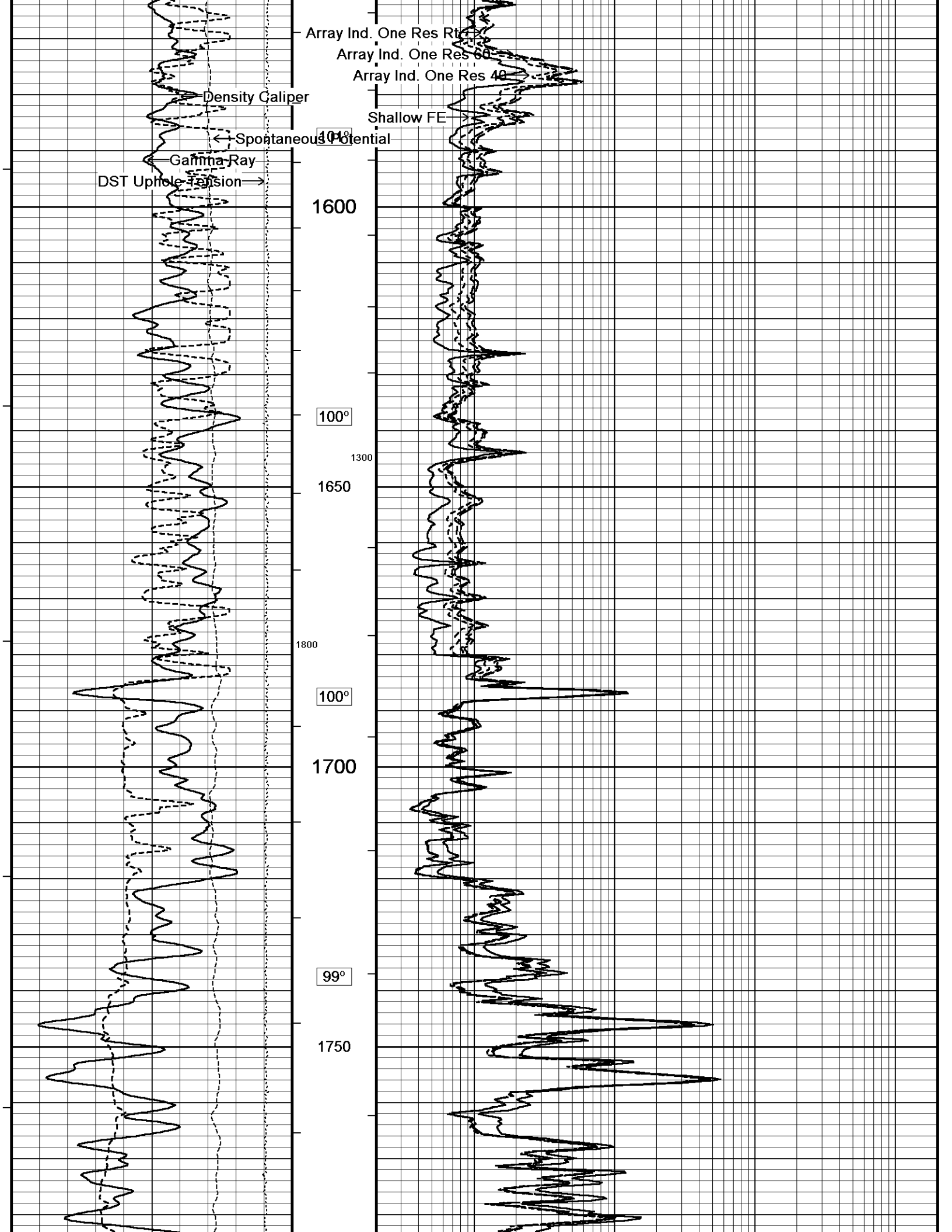
1500

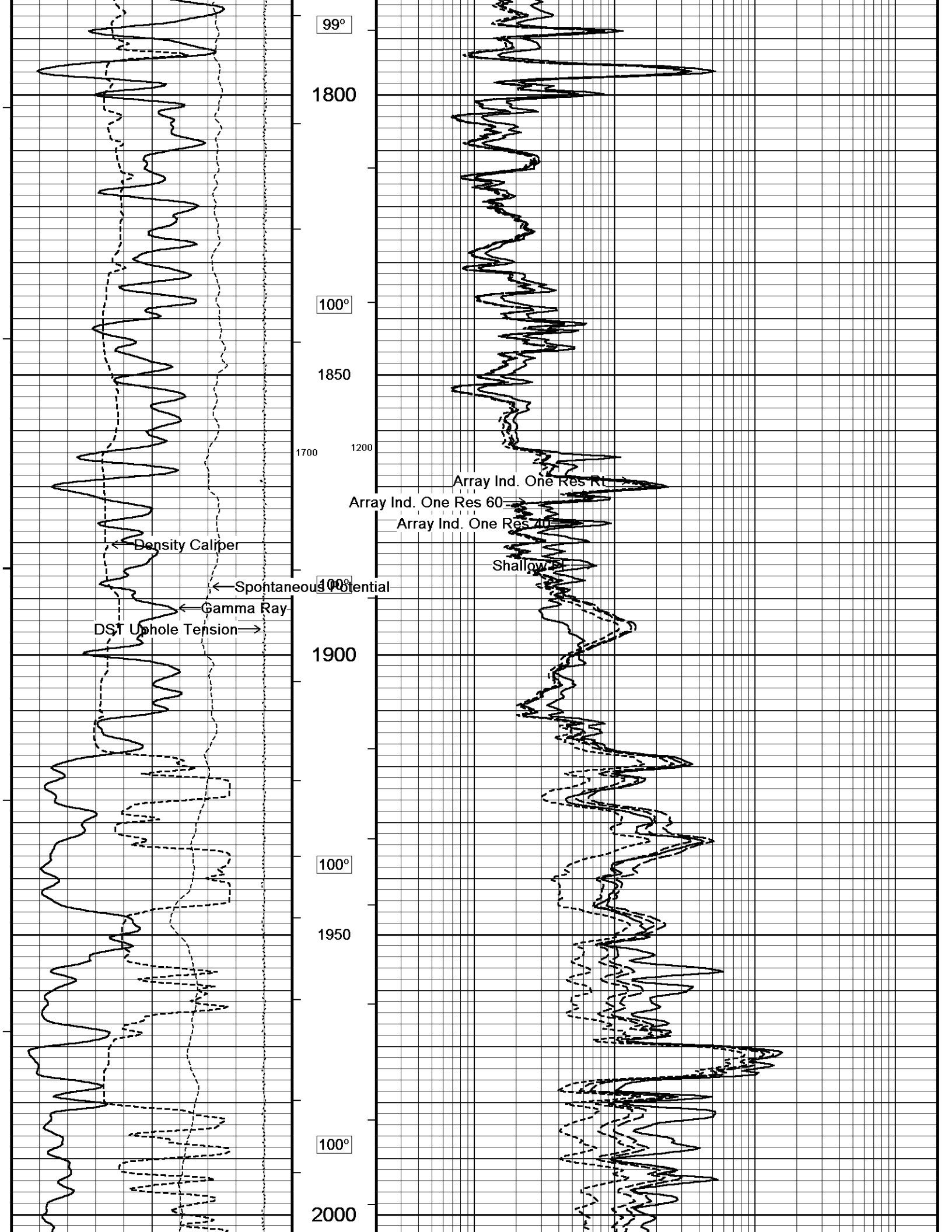
1400

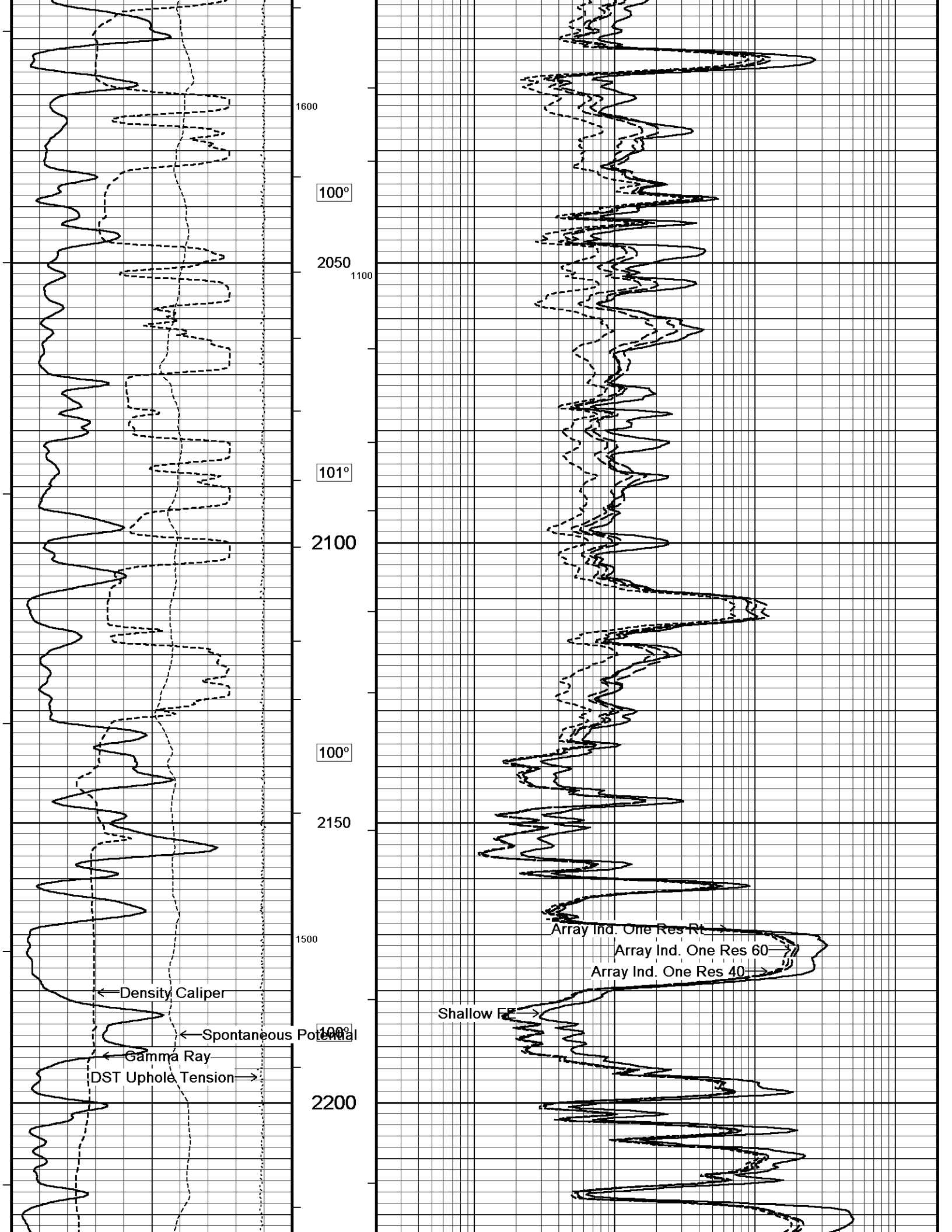
100°

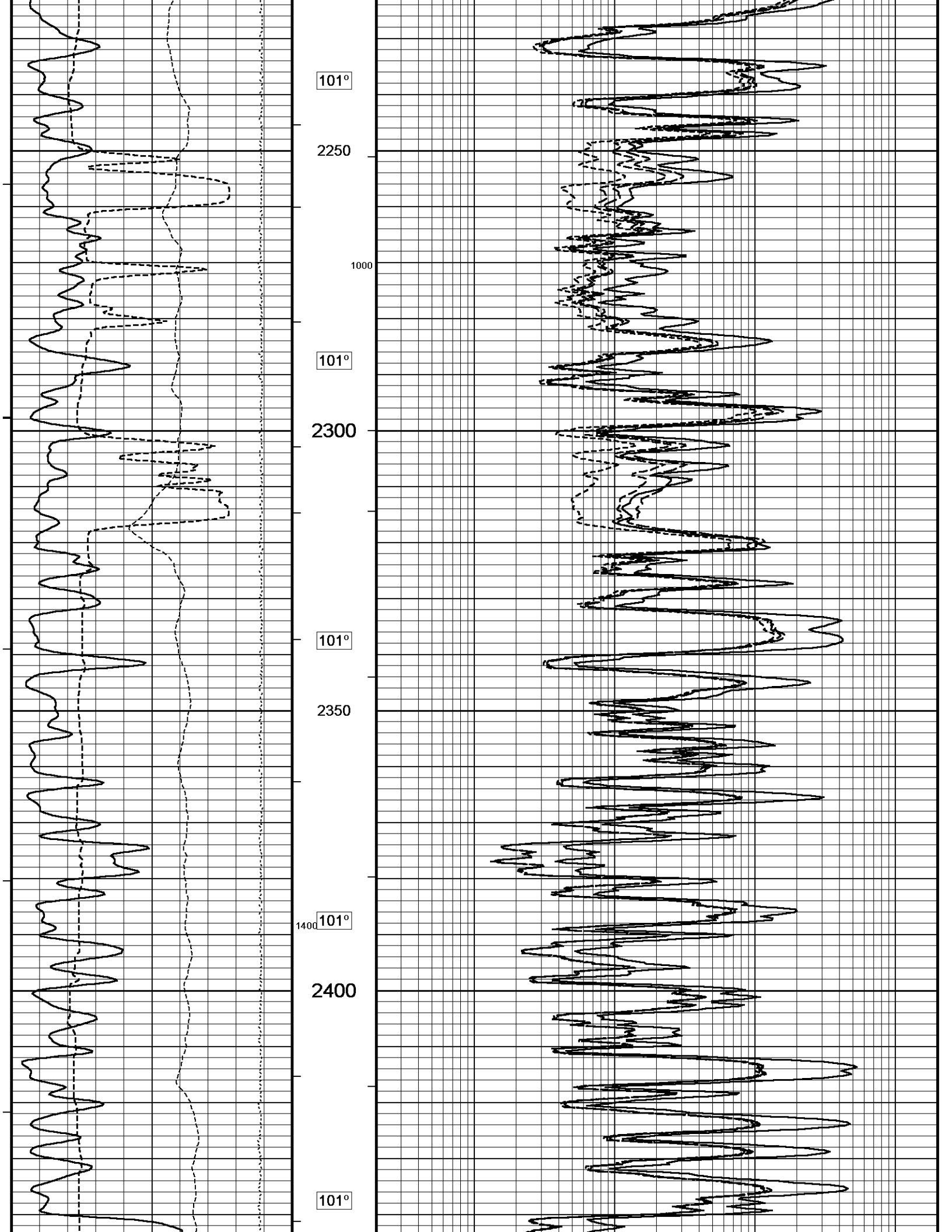
1550

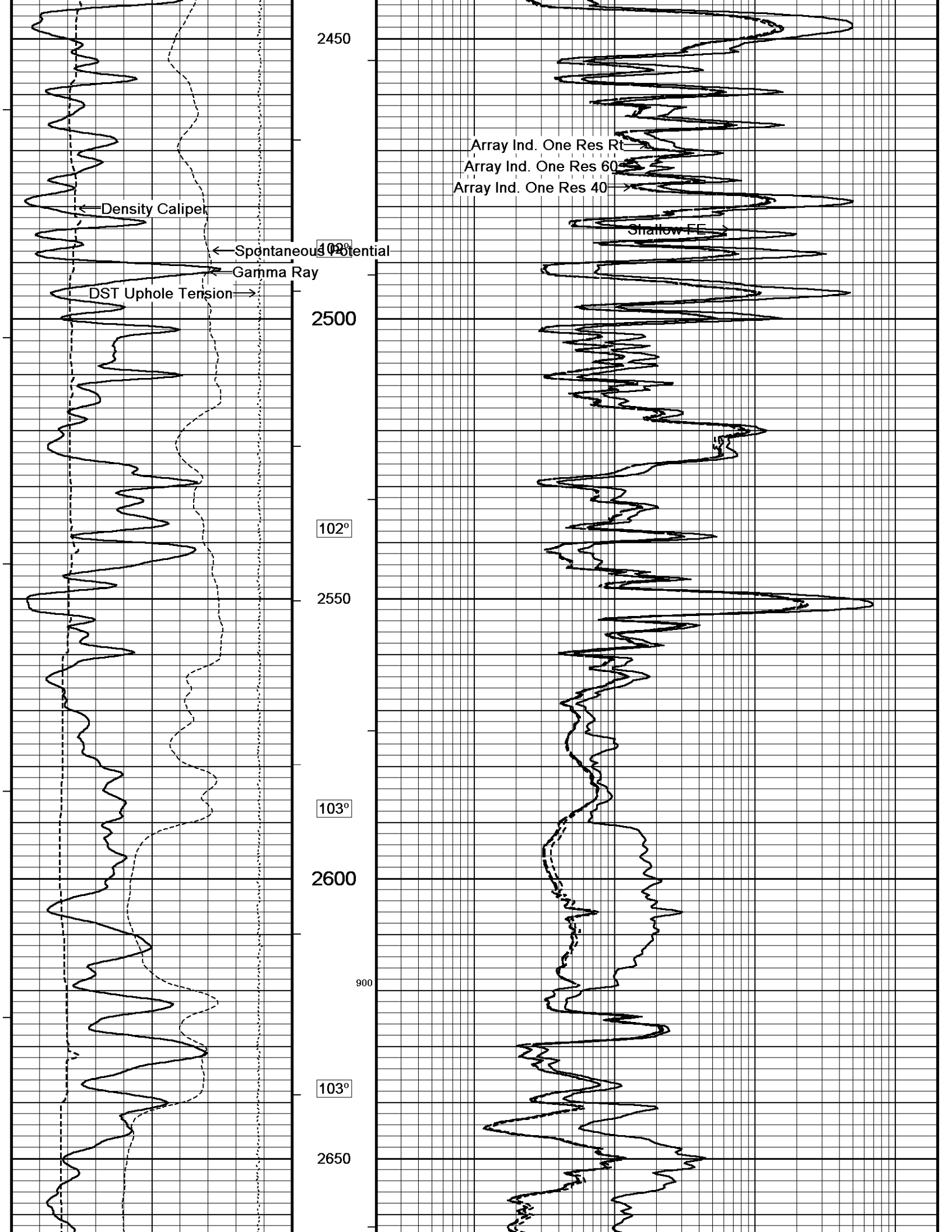
1900

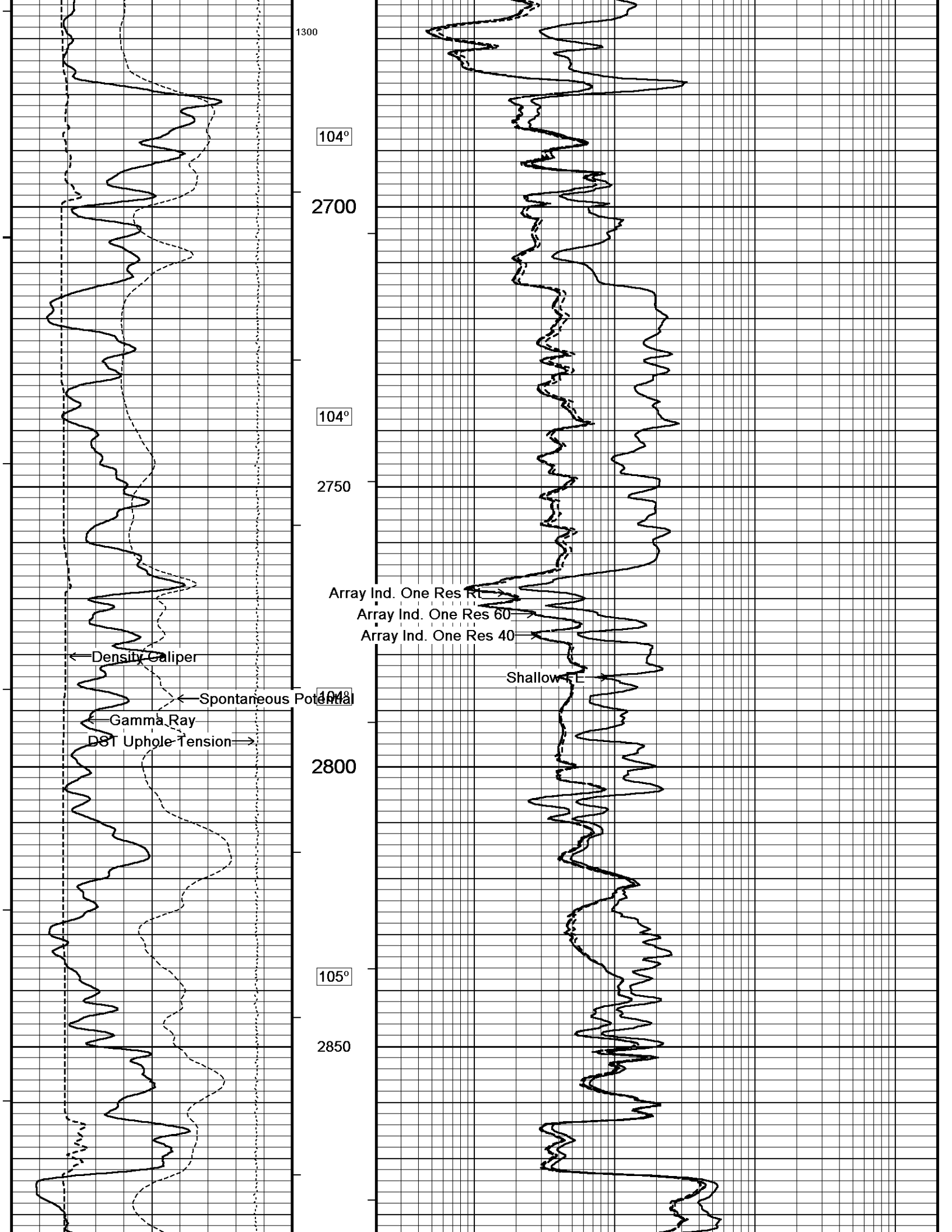

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
1600
100°
1300
1650
1800
100°
1700
99°
1750

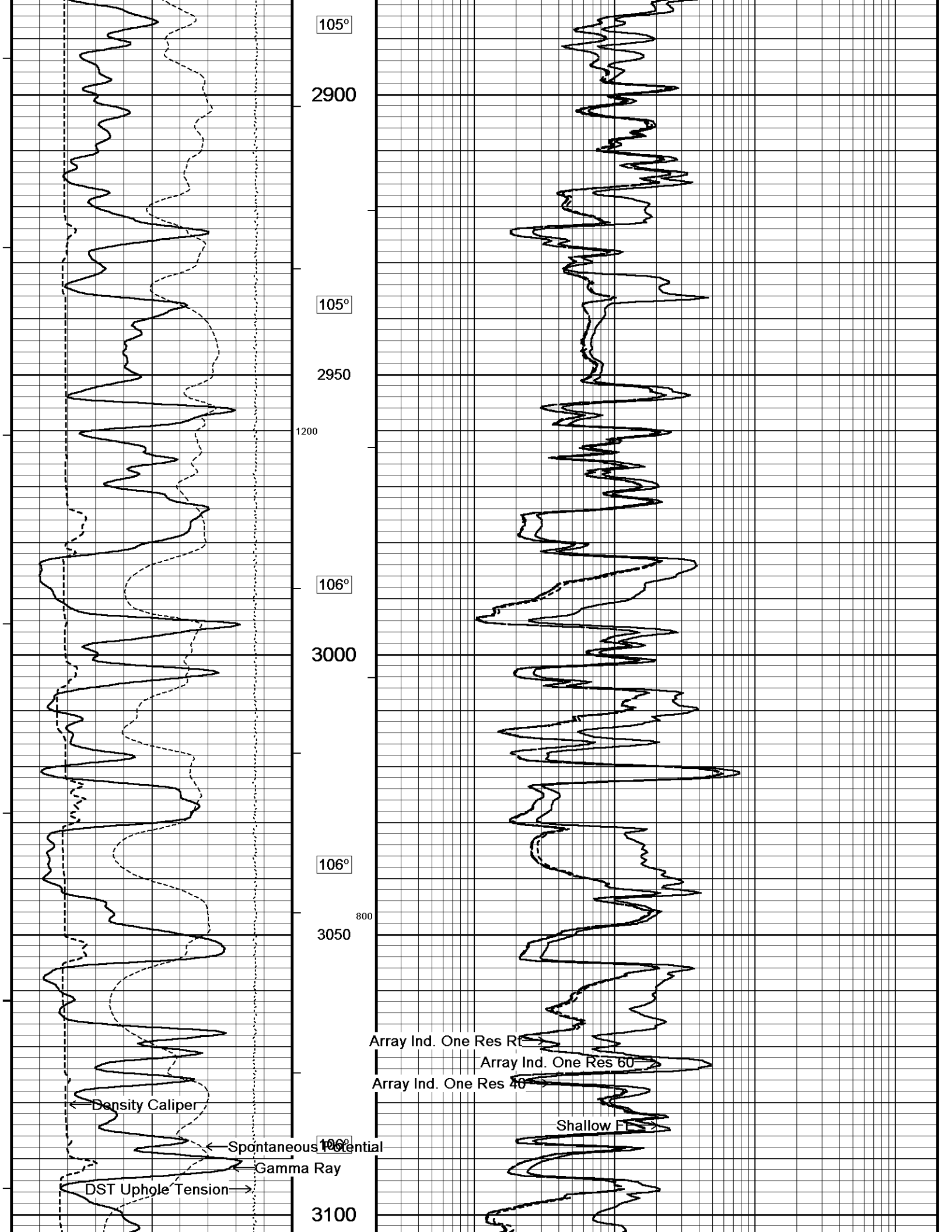

99°
1800
100°
1850
1700
1200
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Rt
Density Caliper
100°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
1900
100°
1950
100°
2000

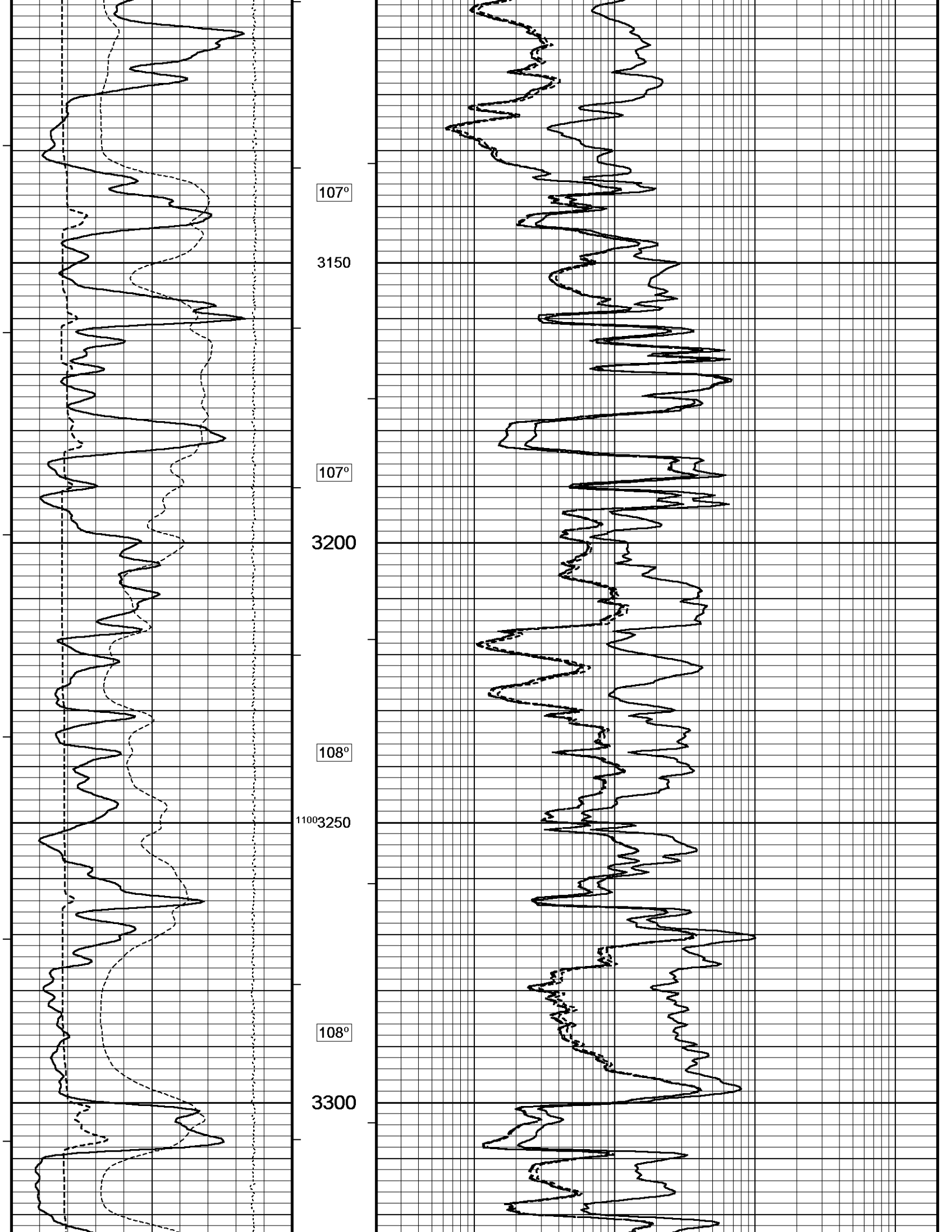

1600
100°
2050
1100
101°
2100
100°
2150
1500
100°
2200
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Ft

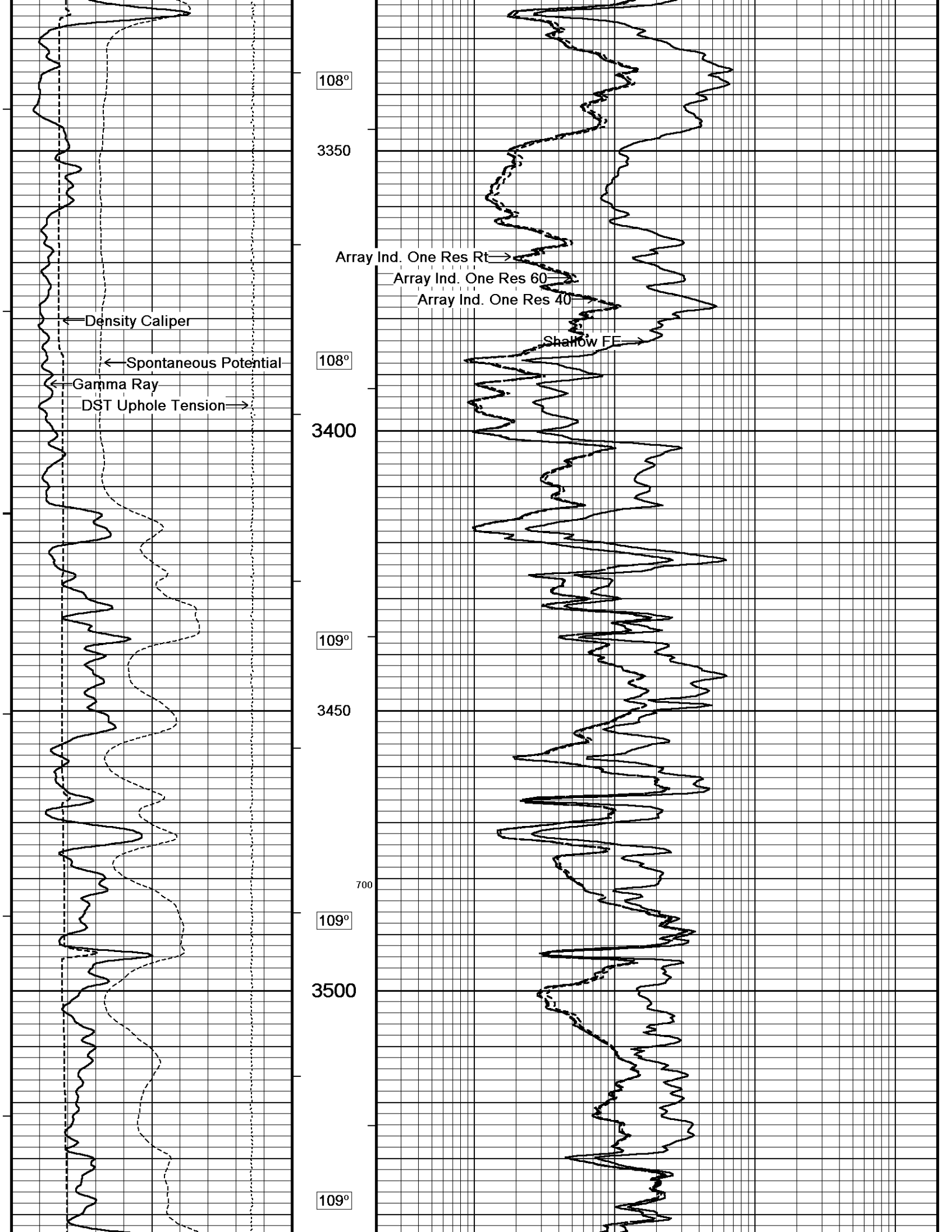

101°
2250
1000
101°
2300
101°
2350
1400
101°
2400
101°

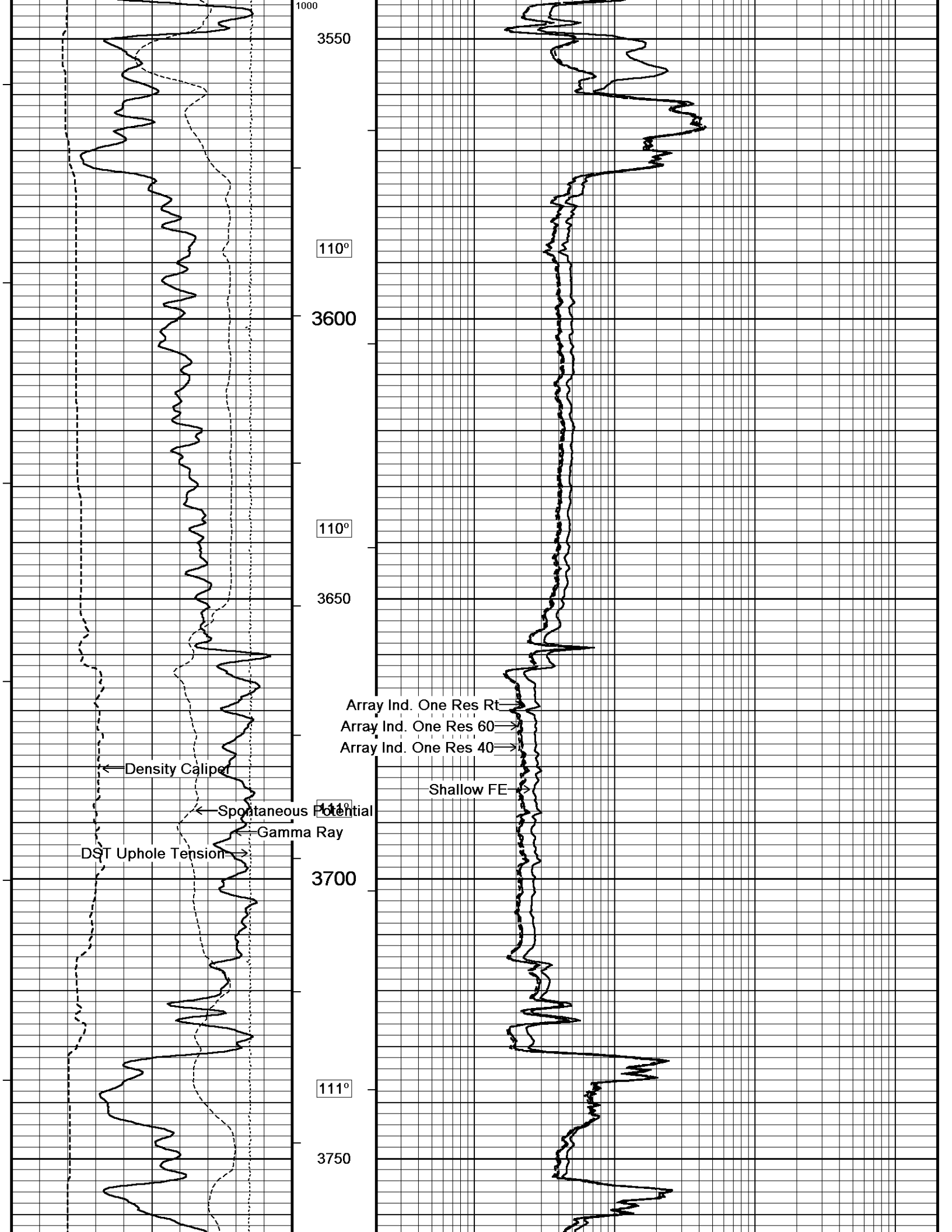

2450
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
102°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2500
102°
2550
103°
2600
900
103°
2650

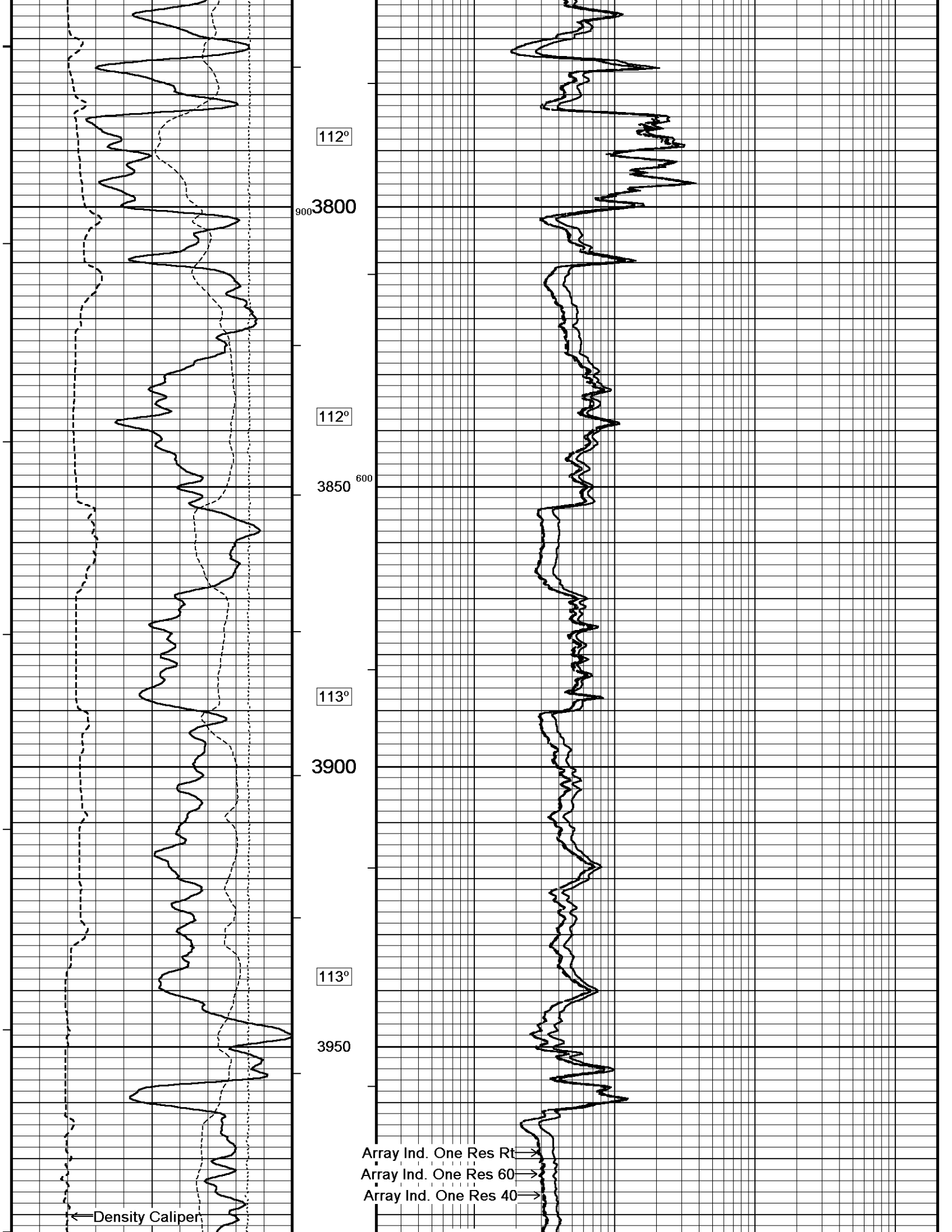

1300
104°
2700
104°
2750
Array Ind. One Res RL
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow LL
104°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2800
105°
2850

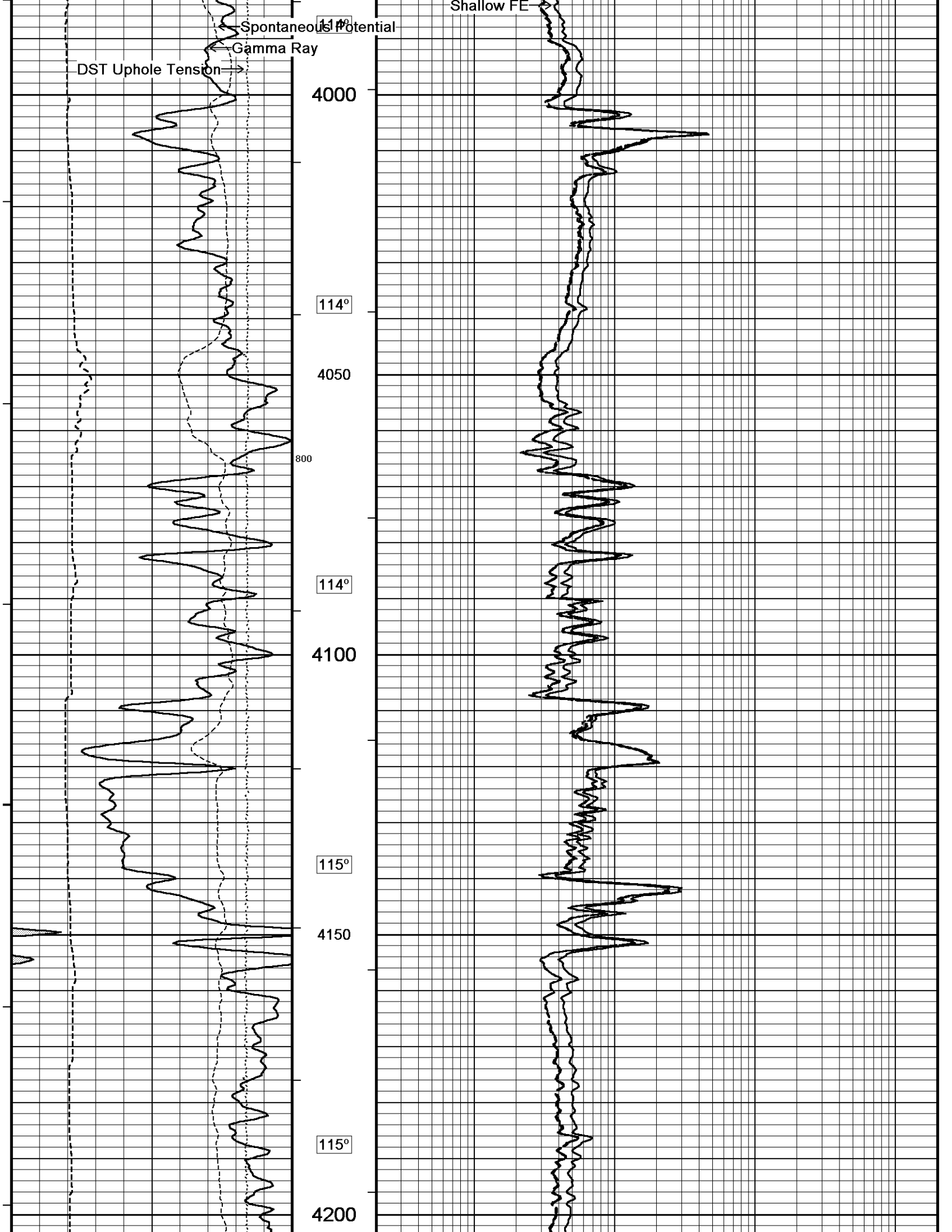

105°
2900
105°
2950
1200
106°
3000
106°
3050
800
106°
3100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Ft
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

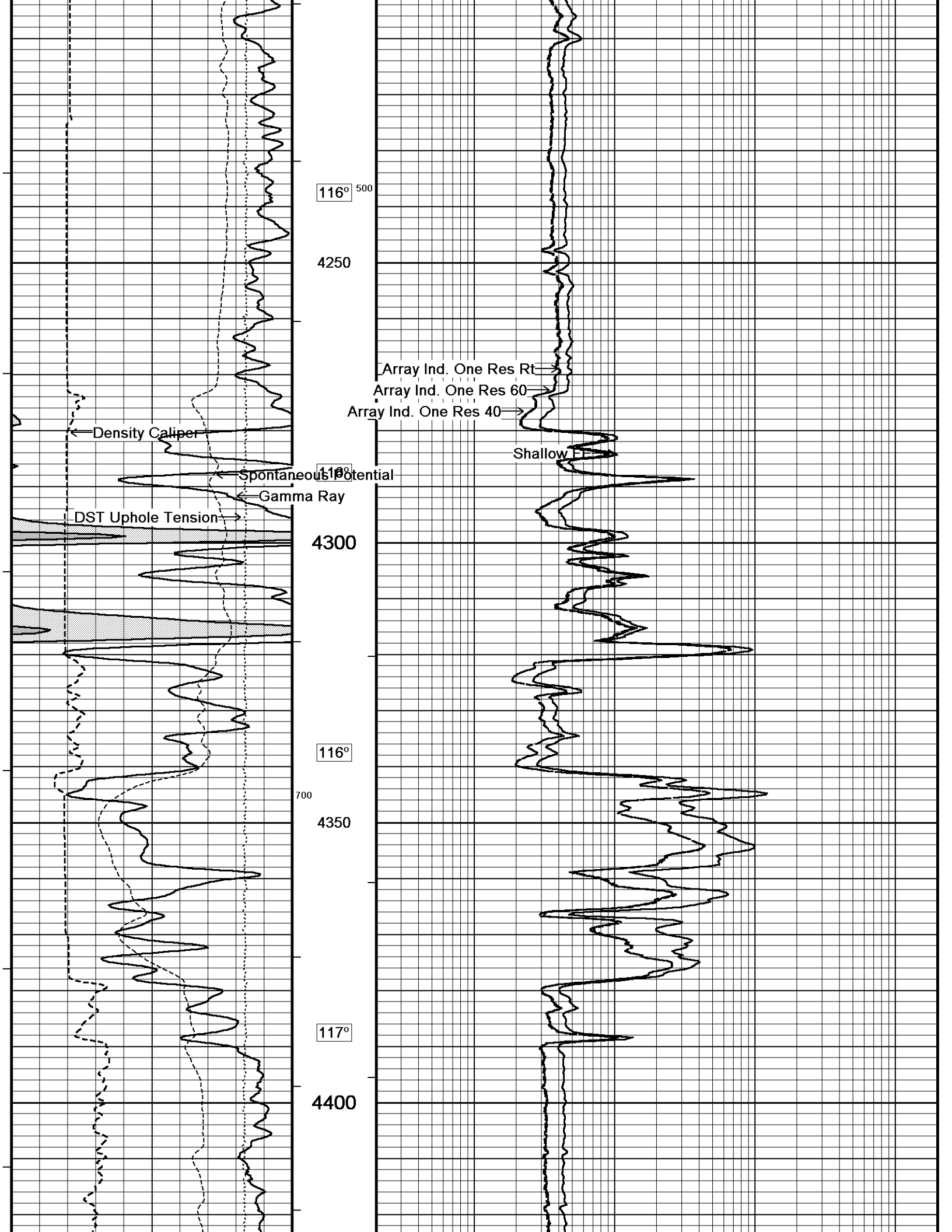

107°
3150
107°
3200
108°
1100 3250
108°
3300

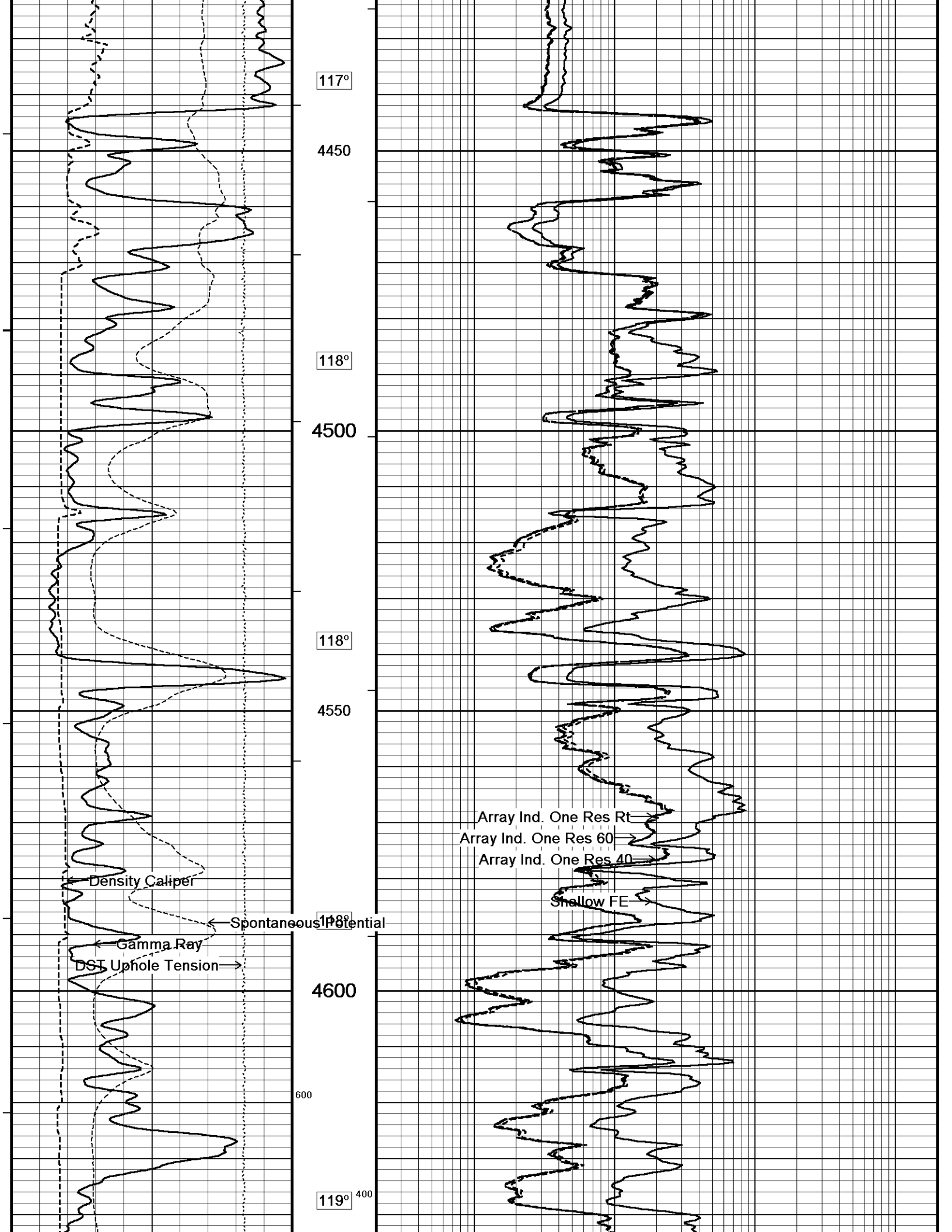

108°
3350
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
108°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3400
109°
3450
700
109°
3500
109°

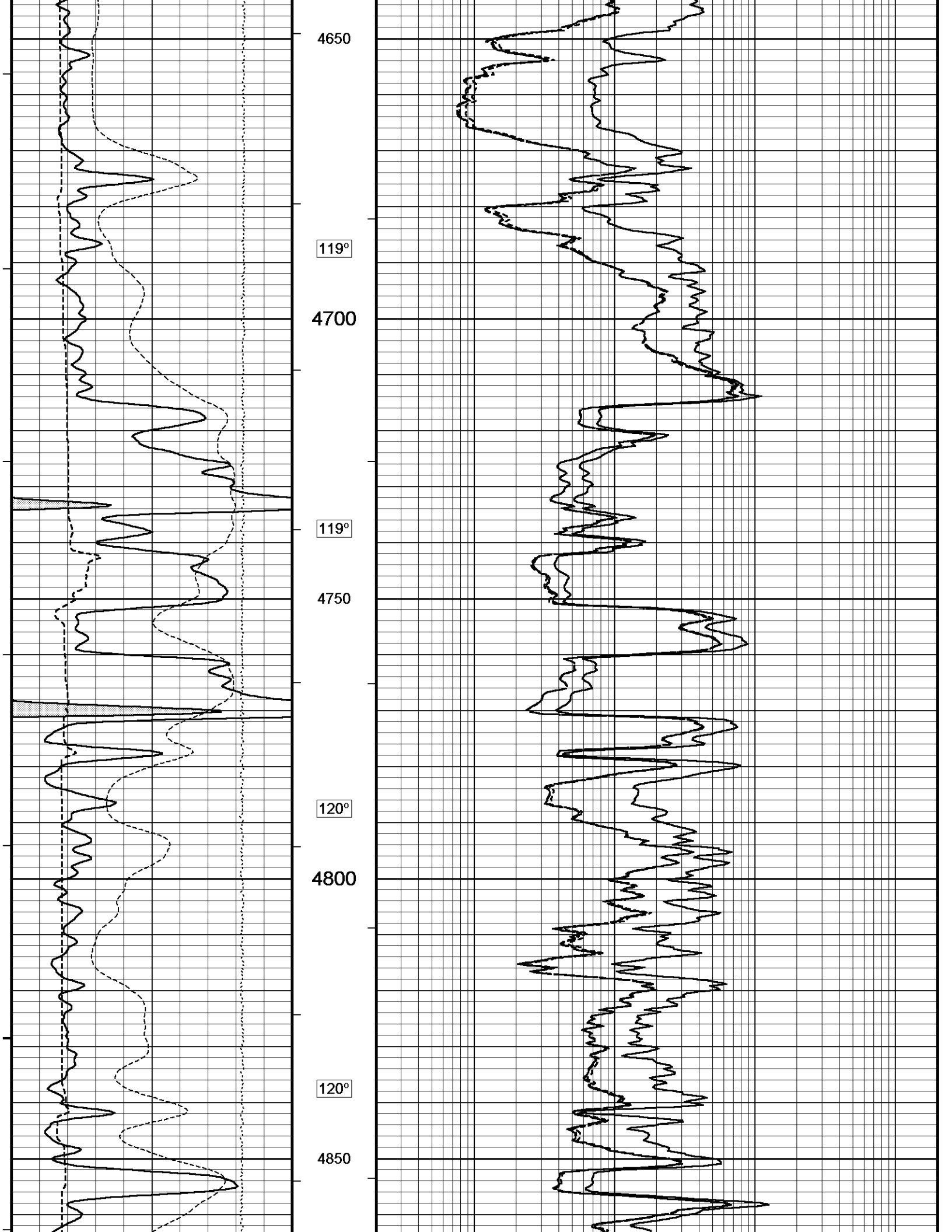

1000
3550
110°
3600
110°
3650
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
111°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3700
111°
3750

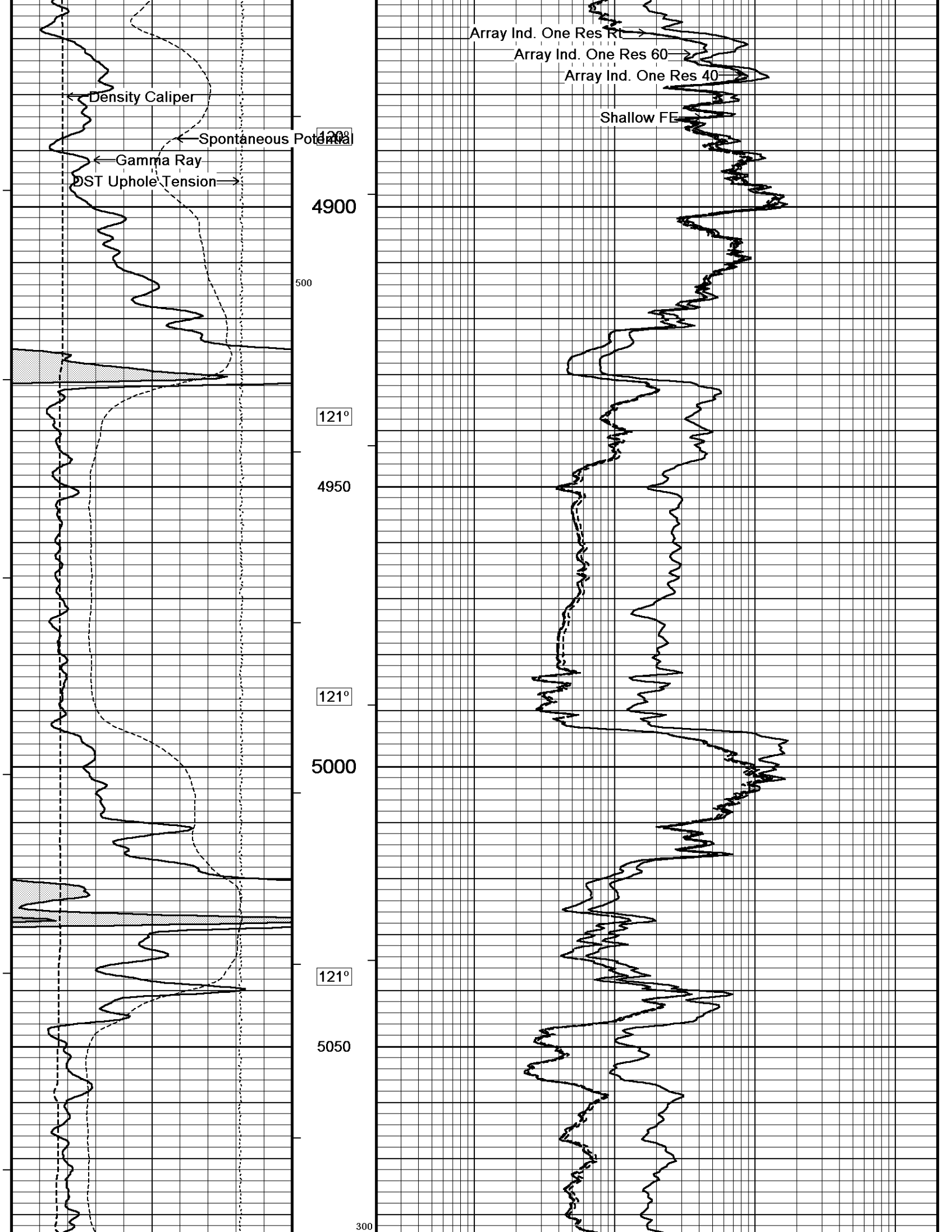

112°
900 3800
112°
3850 600
113°
3900
113°
3950
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper

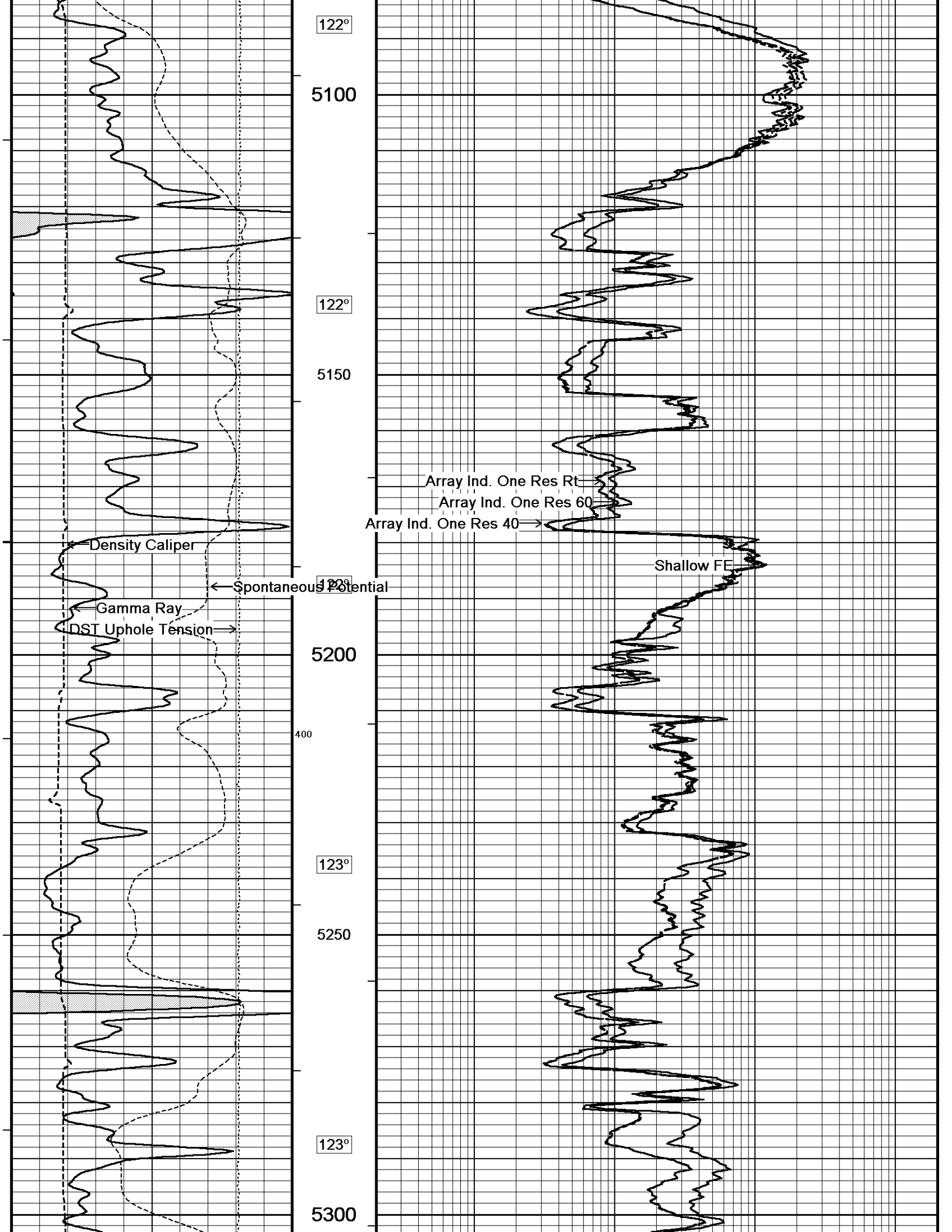

Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
4000
114°
4050
800
114°
4100
115°
4150
115°
4200

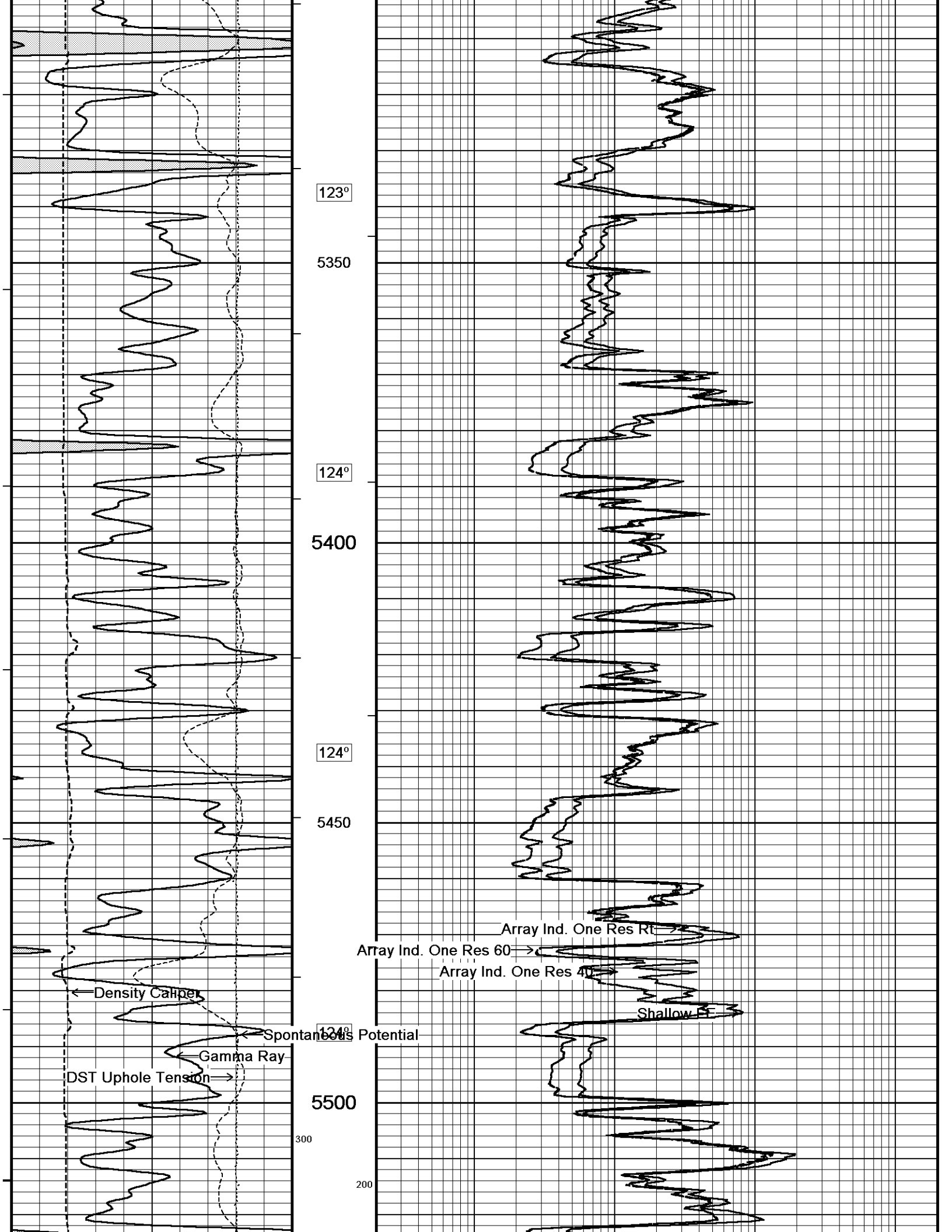

116° 500
4250
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow
Spontaneous Potential
Gamma Ray
DST Uphole Tension
4300
116°
700
4350
117°
4400

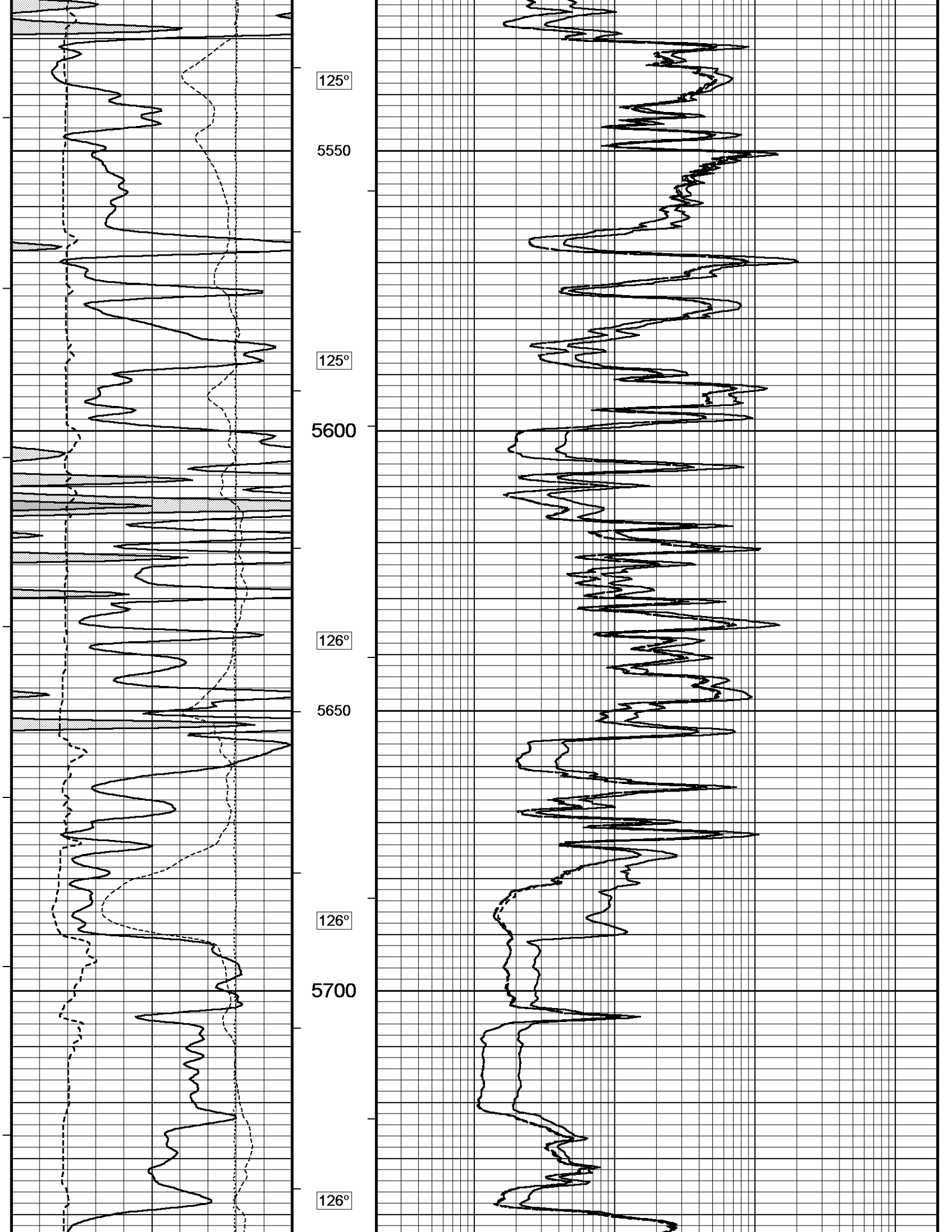

117°
4450
118°
4500
118°
4550
118°
4600
119°
600
400
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

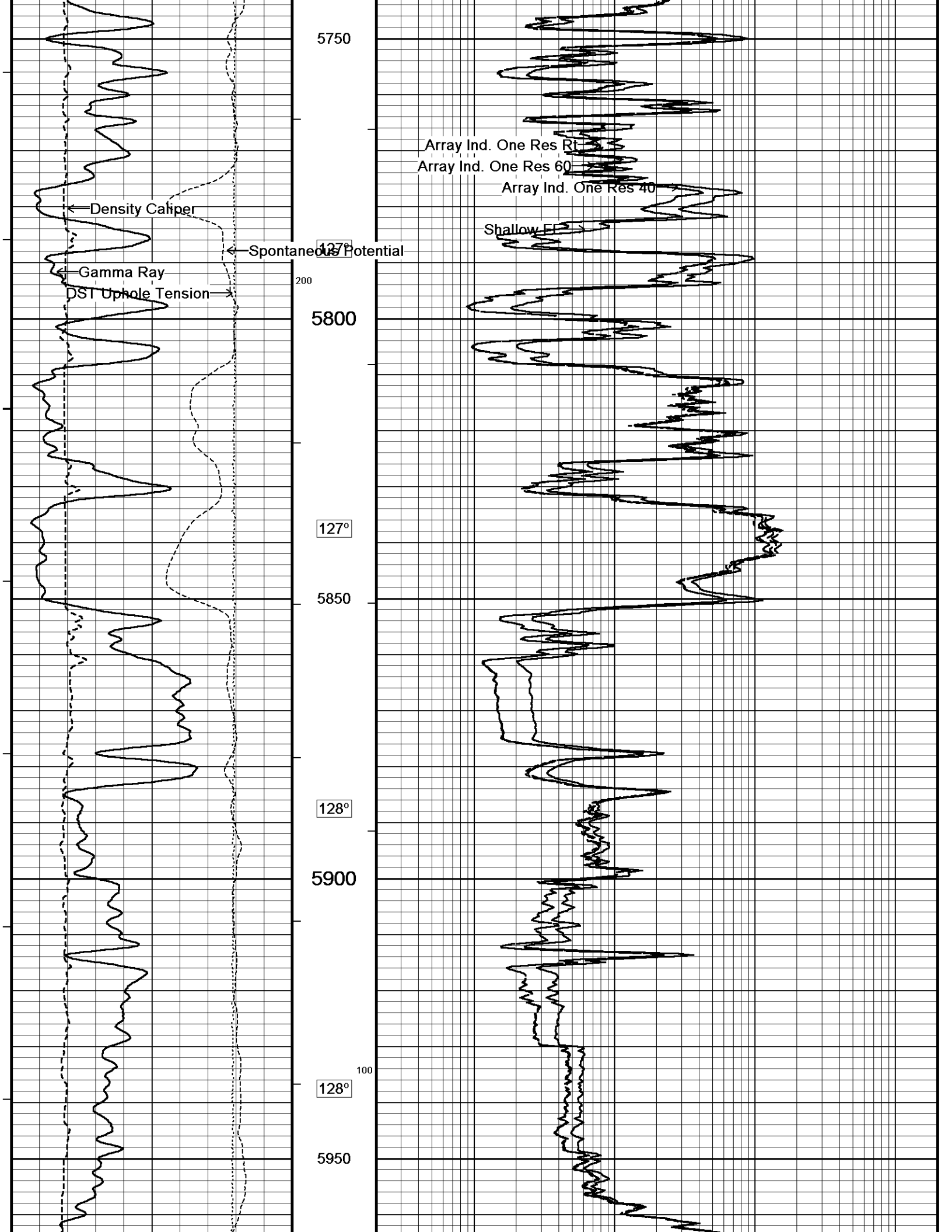

4650
119°
4700
119°
4750
120°
4800
120°
4850

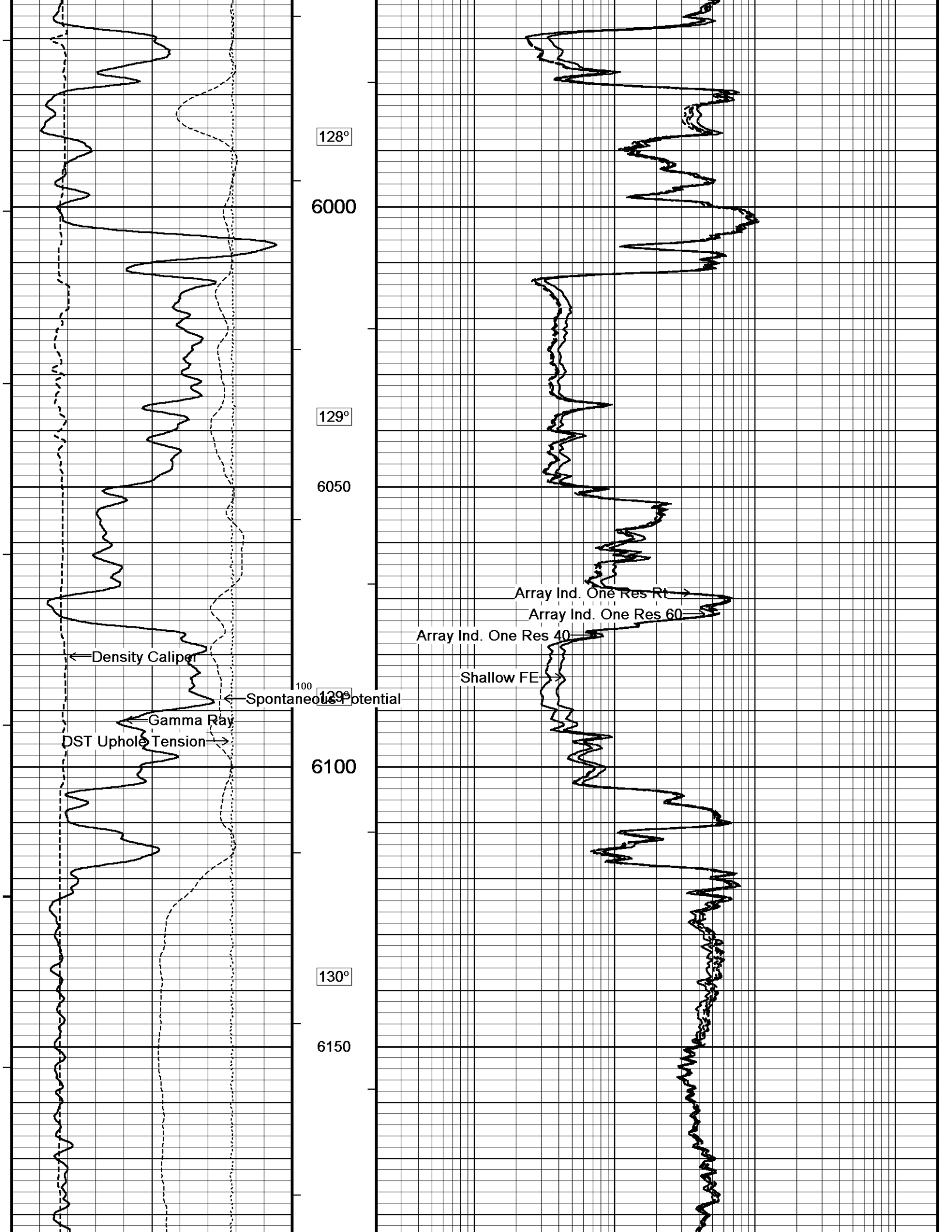

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
120°
4900
500
121°
4950
121°
5000
121°
5050
300

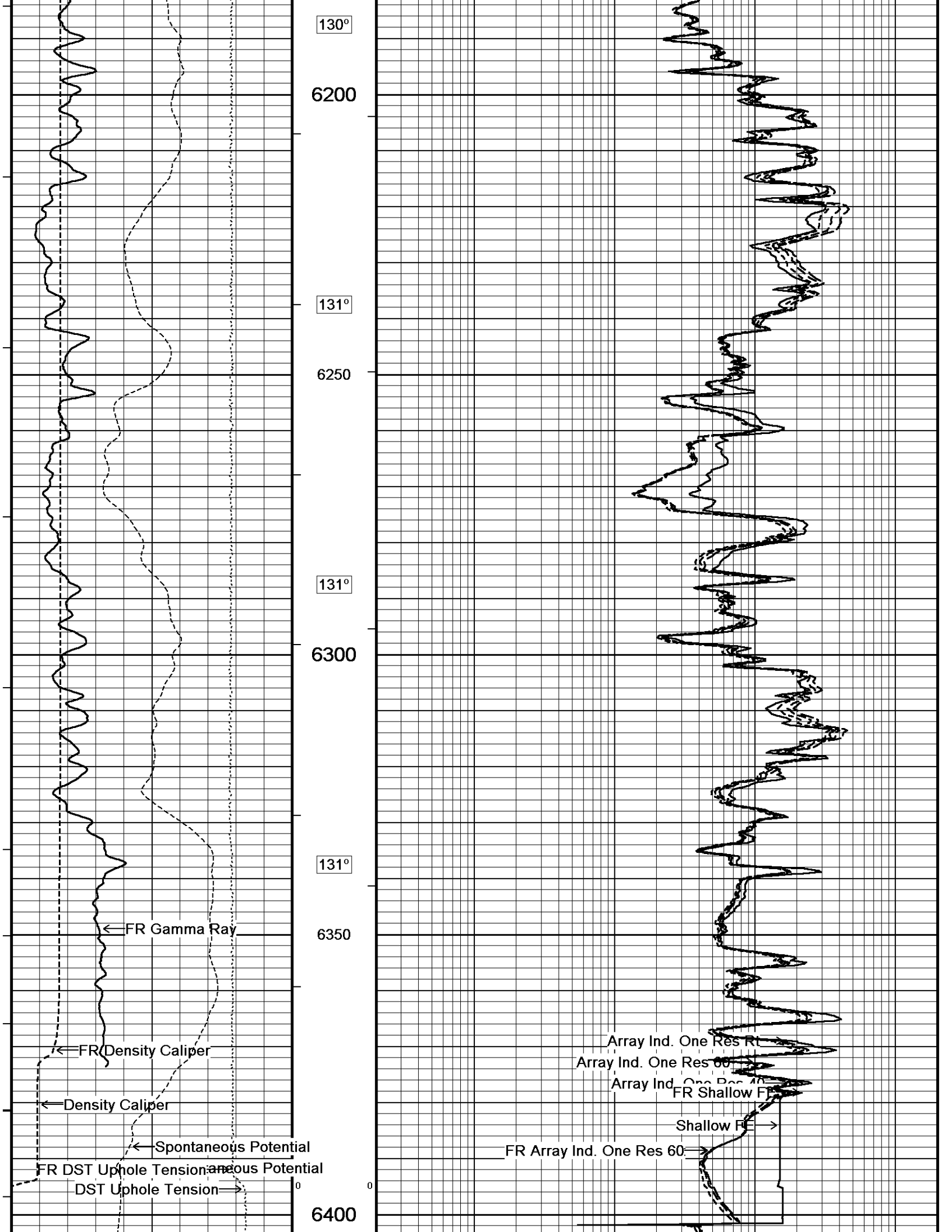

122°
5100
122°
5150
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
5200
400
123°
5250
123°
5300

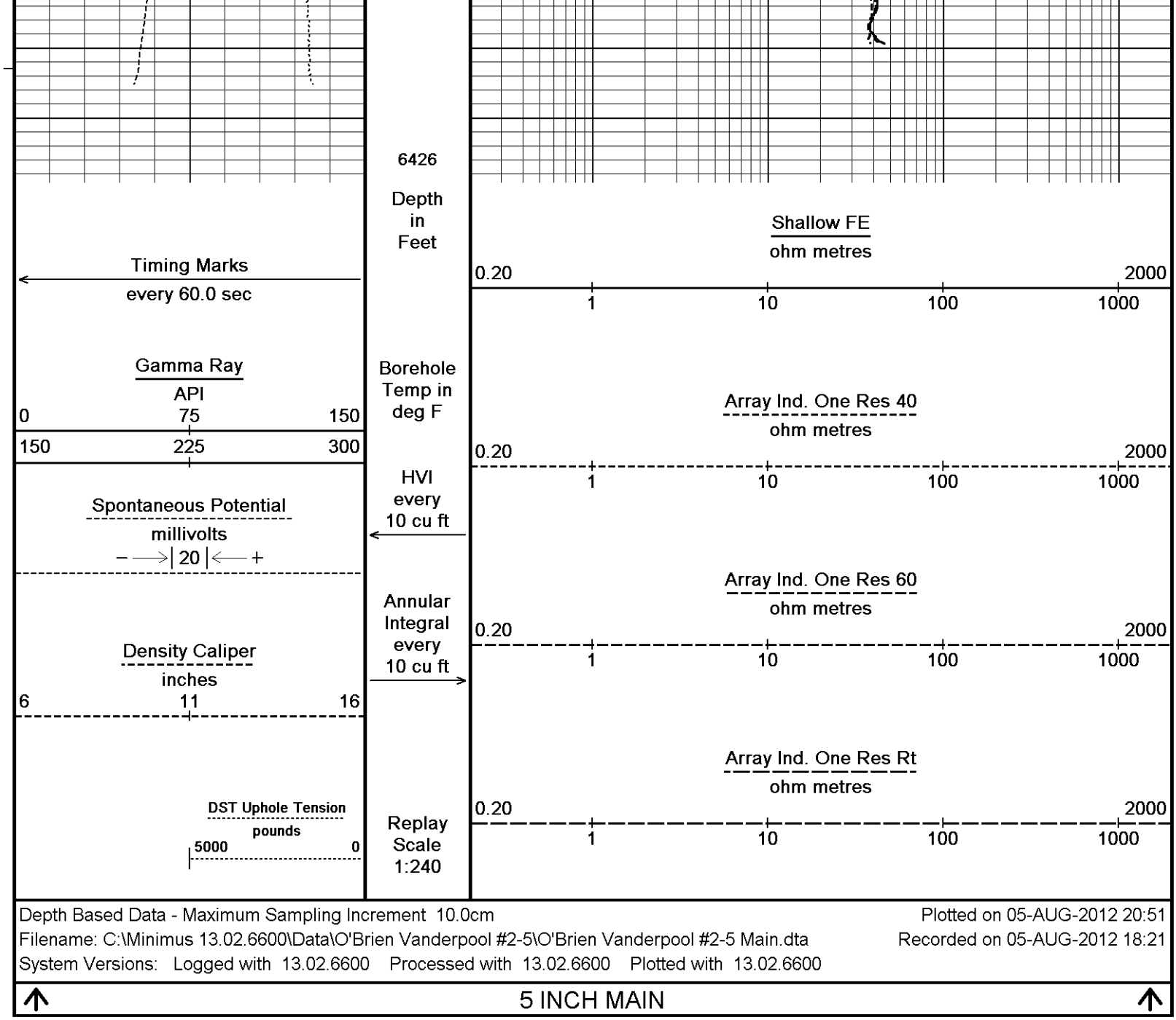

123°
5350
124°
5400
124°
5450
124°
5500
300
200
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FF


125°
5550
125°
5600
126°
5650
126°
5700
126°


5750
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Fl
Density Caliper
127°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
200
5800
127°
5850
128°
5900
100
128°
5950


128°
6000
129°
6050
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
100
129°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
6100
130°
6150


130°
6200
131°
6250
131°
6300
131°
6350
6400
FR Gamma Ray
FR Density Caliper
Density Caliper
Spontaneous Potential
FR DST Uphole Tension
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
FR Shallow Ft
Shallow Ft
FR Array Ind. One Res 60

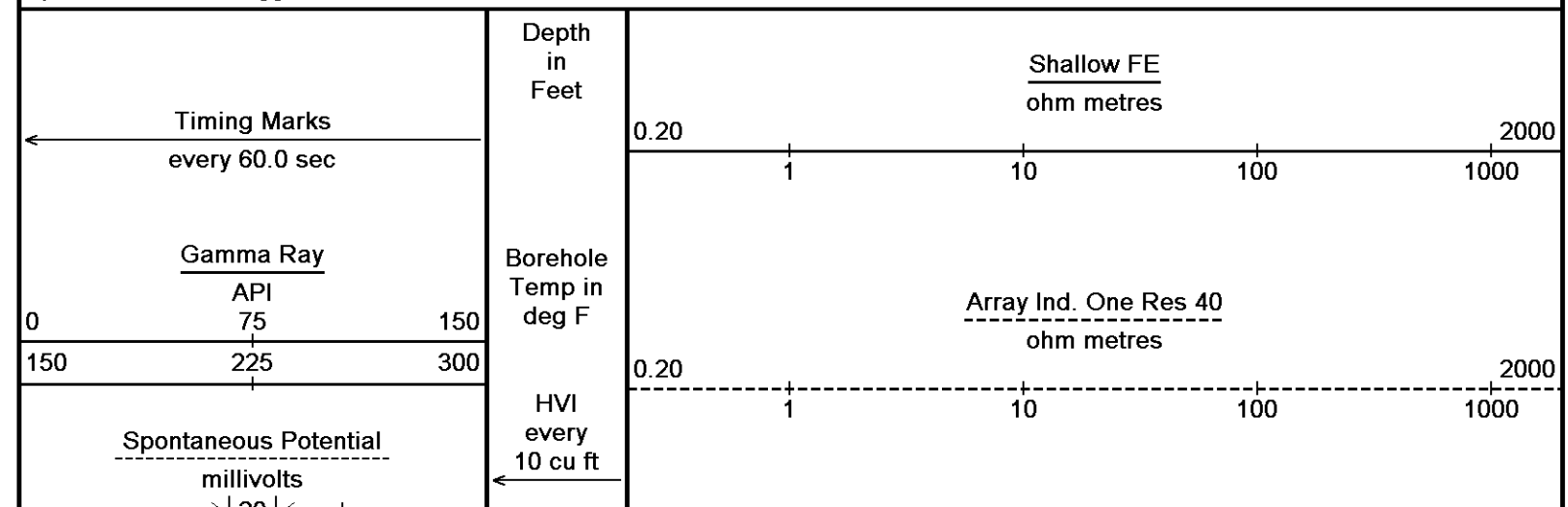


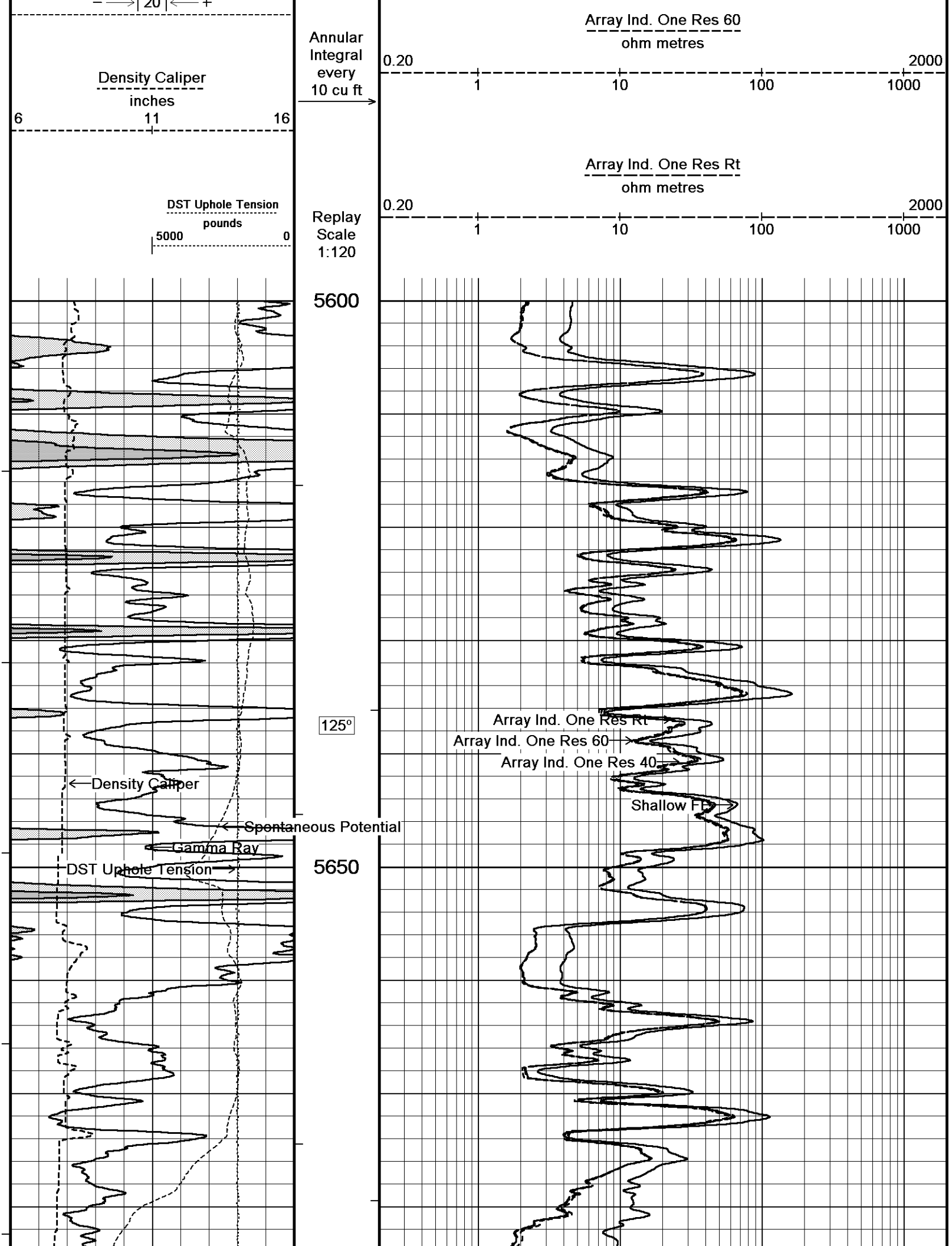
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta
Recorded on 05-AUG-2012 18:21
System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600

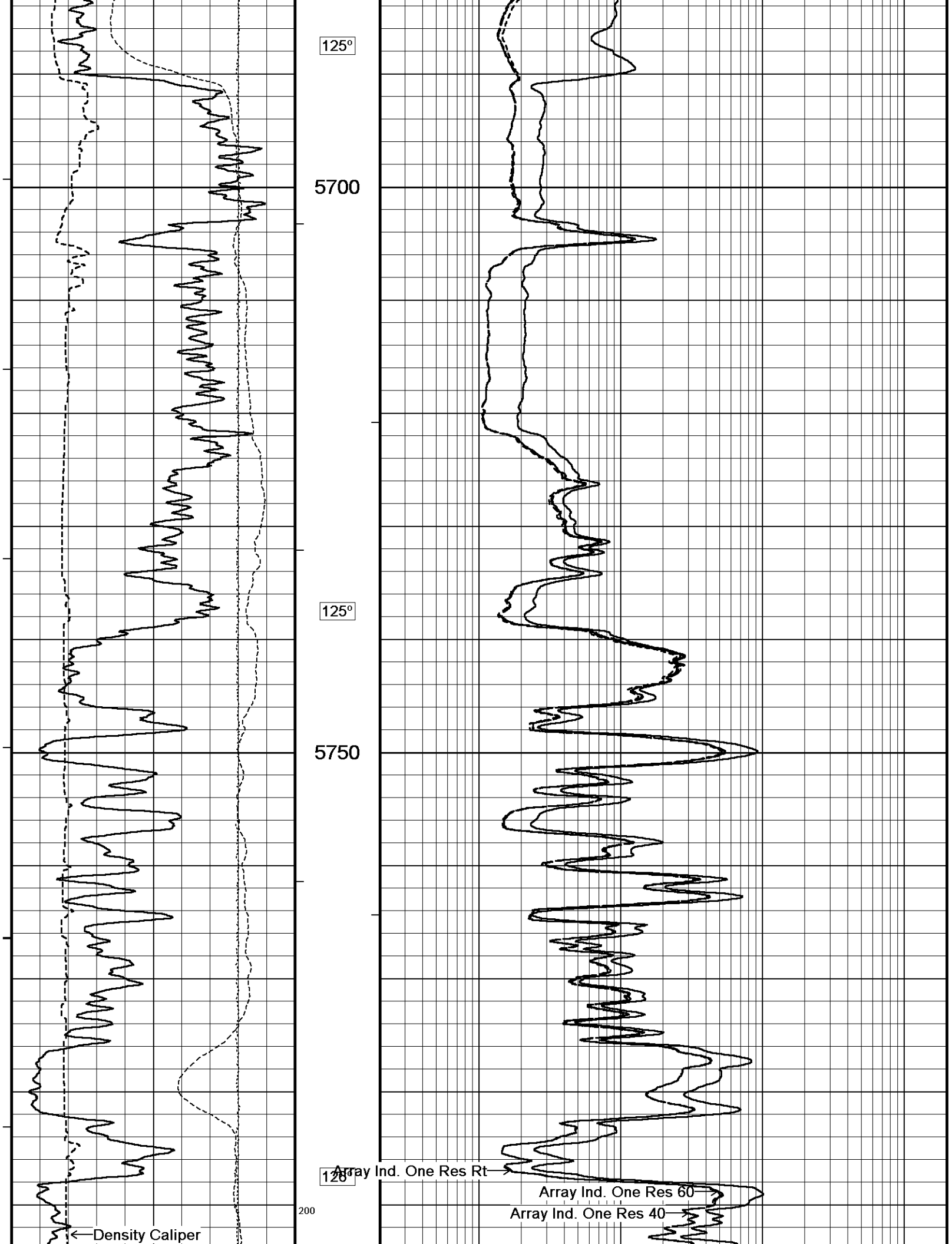
5 INCH MAIN

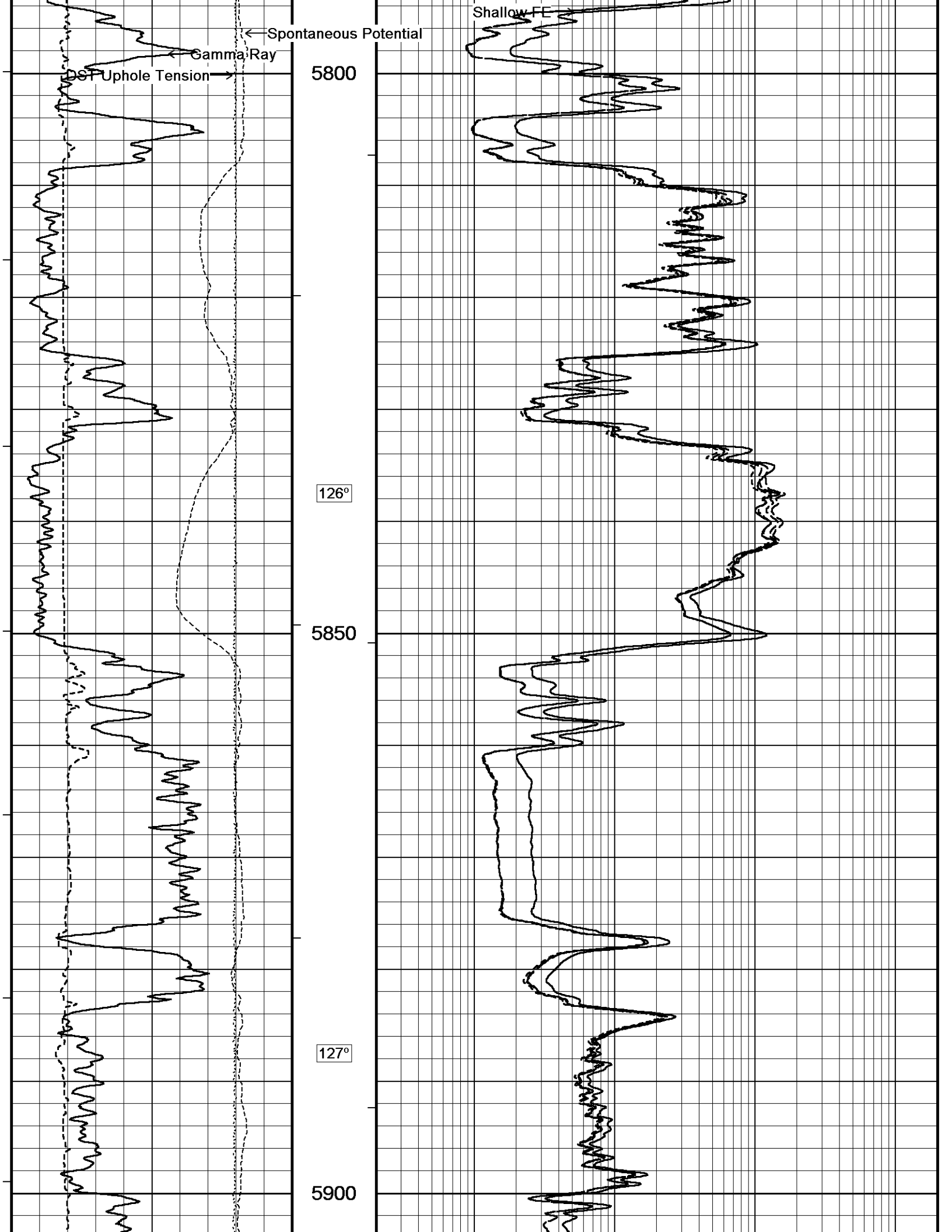
10 INCH HI-RES

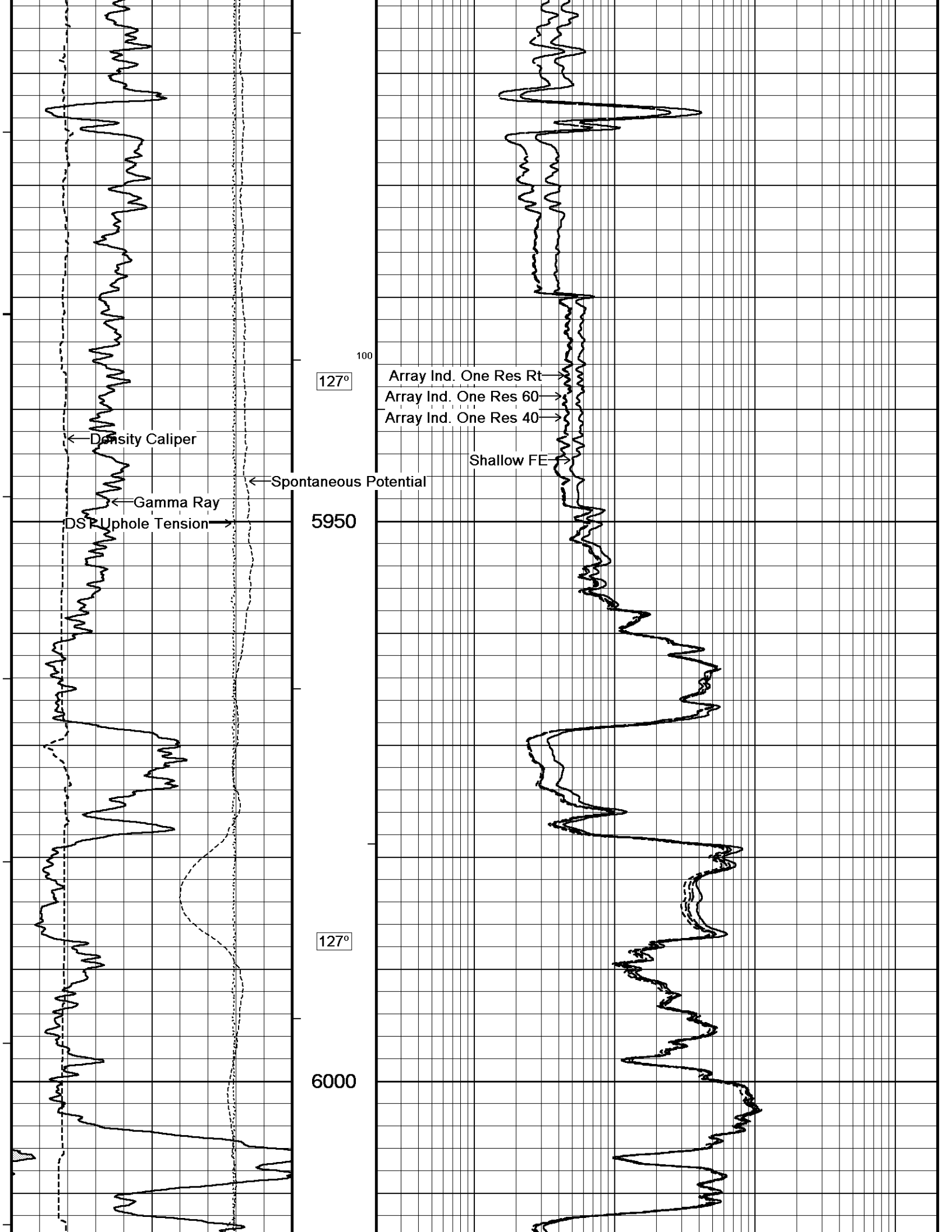
Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Hi-Res.dta
Recorded on 05-AUG-2012 17:20
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

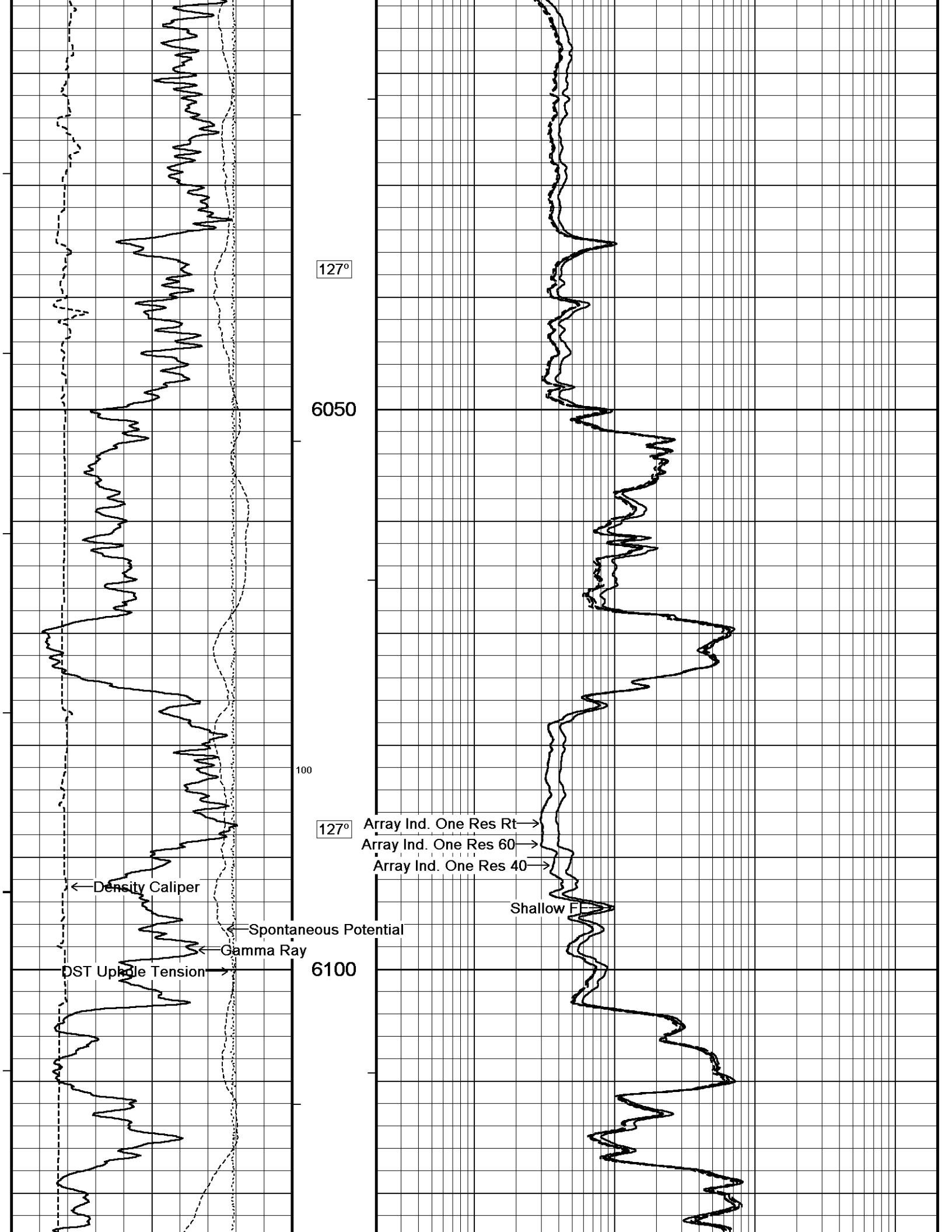


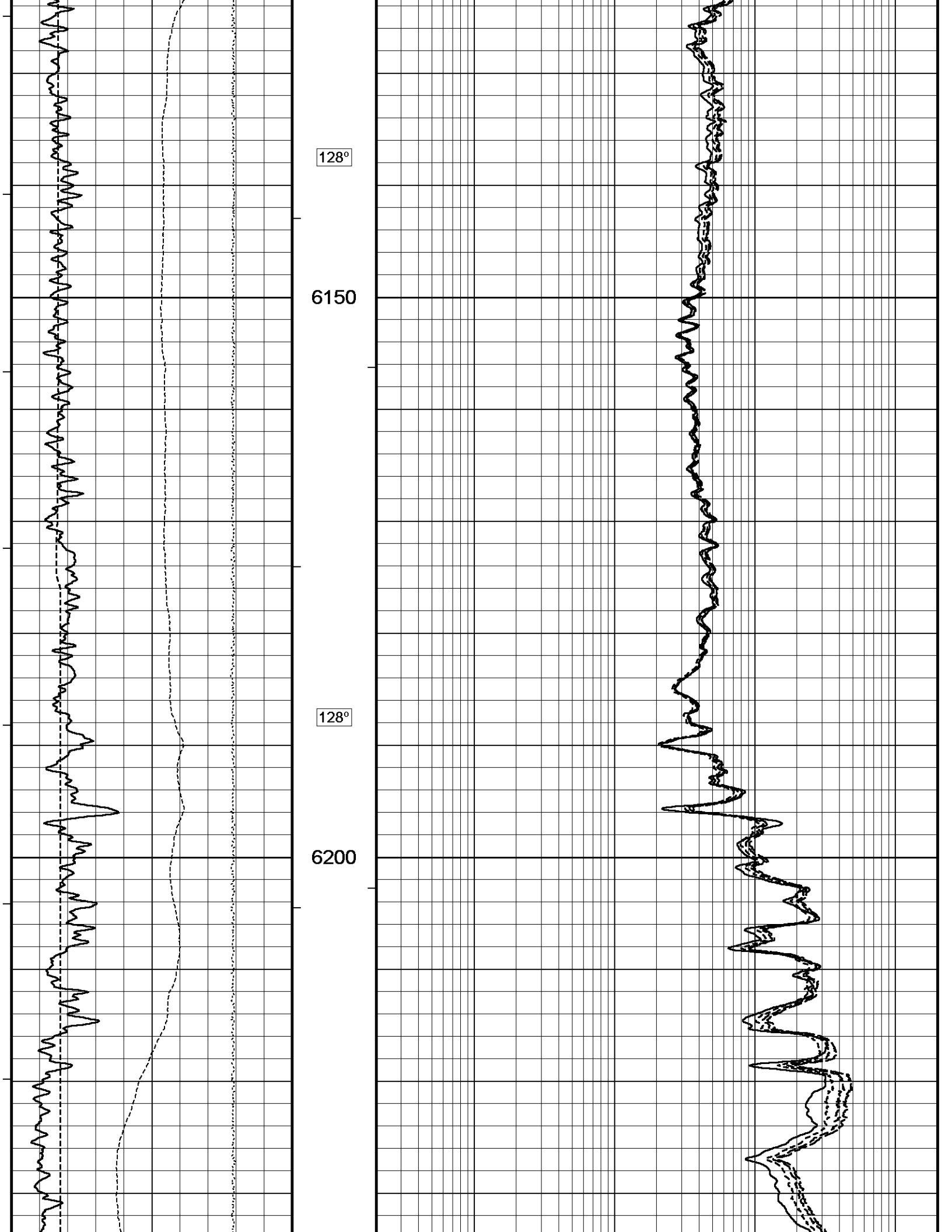

– 20 +
Density Caliper
inches
6
11
16
Annular Integral every 10 cu ft
Array Ind. One Res 60
ohm metres
0.20
1
10
100
1000
2000
Array Ind. One Res Rt
ohm metres
0.20
1
10
100
1000
2000
DST Uphole Tension
pounds
5000
0
Replay Scale 1:120
5600
5650
125°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

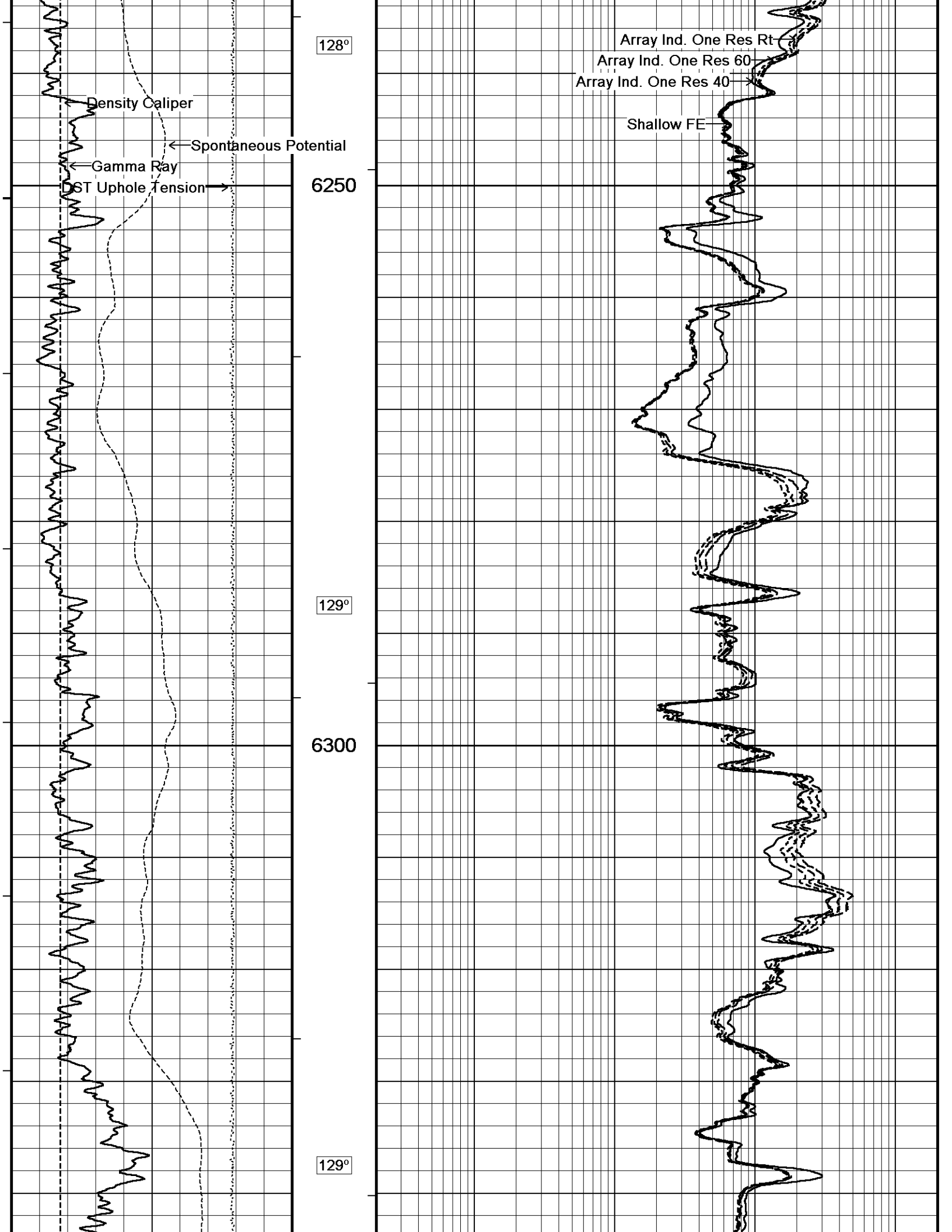

125°
5700
125°
5750
128°
200
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper

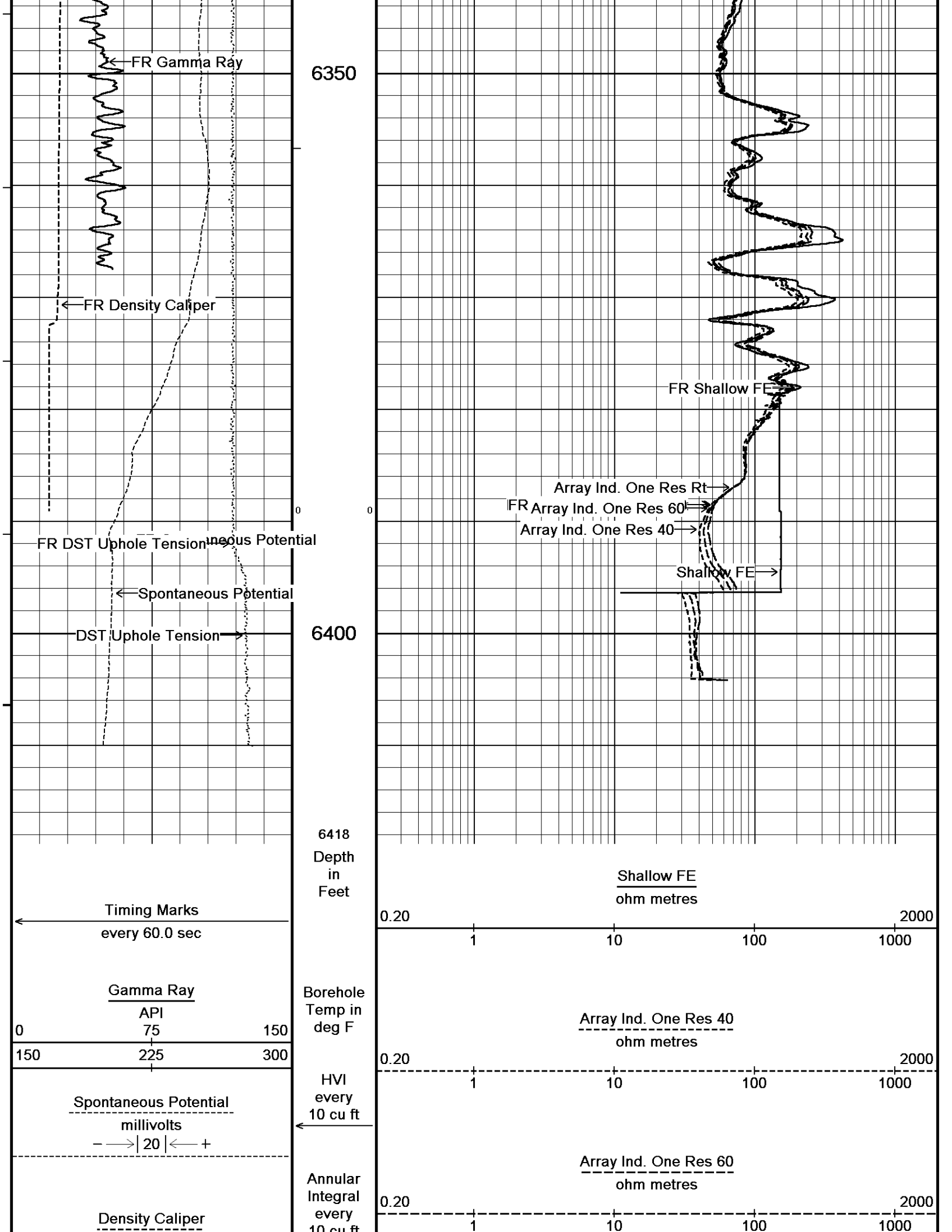

Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
5800
126°
5850
127°
5900


100
127°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Density Caliper
Spontaneous Potential
Gamma Ray
DSP Uphole Tension
5950
127°
6000


127°
6050
100
127°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow F
Spontaneous Potential
Gamma Ray
DST Uphole Tension
6100


128°
6150
128°
6200


128°
Density Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
6250
129°
6300
129°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE


FR Gamma Ray
6350
FR Density Caliper
FR Shallow FE
Array Ind. One Res Rt
FR Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
0
0
FR DST Uphole Tension
neous Potential
Spontaneous Potential
6400
DST Uphole Tension
6418
Depth in Feet
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole Temp in deg F
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
HVI every 10 cu ft
Spontaneous Potential
millivolts
– 20 +
Array Ind. One Res 60
ohm metres
0.20
2000
1
10
100
1000
Annular Integral every 10 cu ft
Density Caliper

inches
6 11 16

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

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

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Hi-Res.dta
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Plotted on 05-AUG-2012 20:51
Recorded on 05-AUG-2012 17:20

10 INCH HI-RES

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Repeat.dta
System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600

Plotted on 05-AUG-2012 20:51
Recorded on 05-AUG-2012 17:20

Timing Marks
every 60.0 sec

Depth
in
Feet

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

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

HVI
every
10 cu ft

Spontaneous Potential
millivolts
– → | 20 | ← +

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

Annular
Integral
every
10 cu ft

Density Caliper
inches
6 11 16

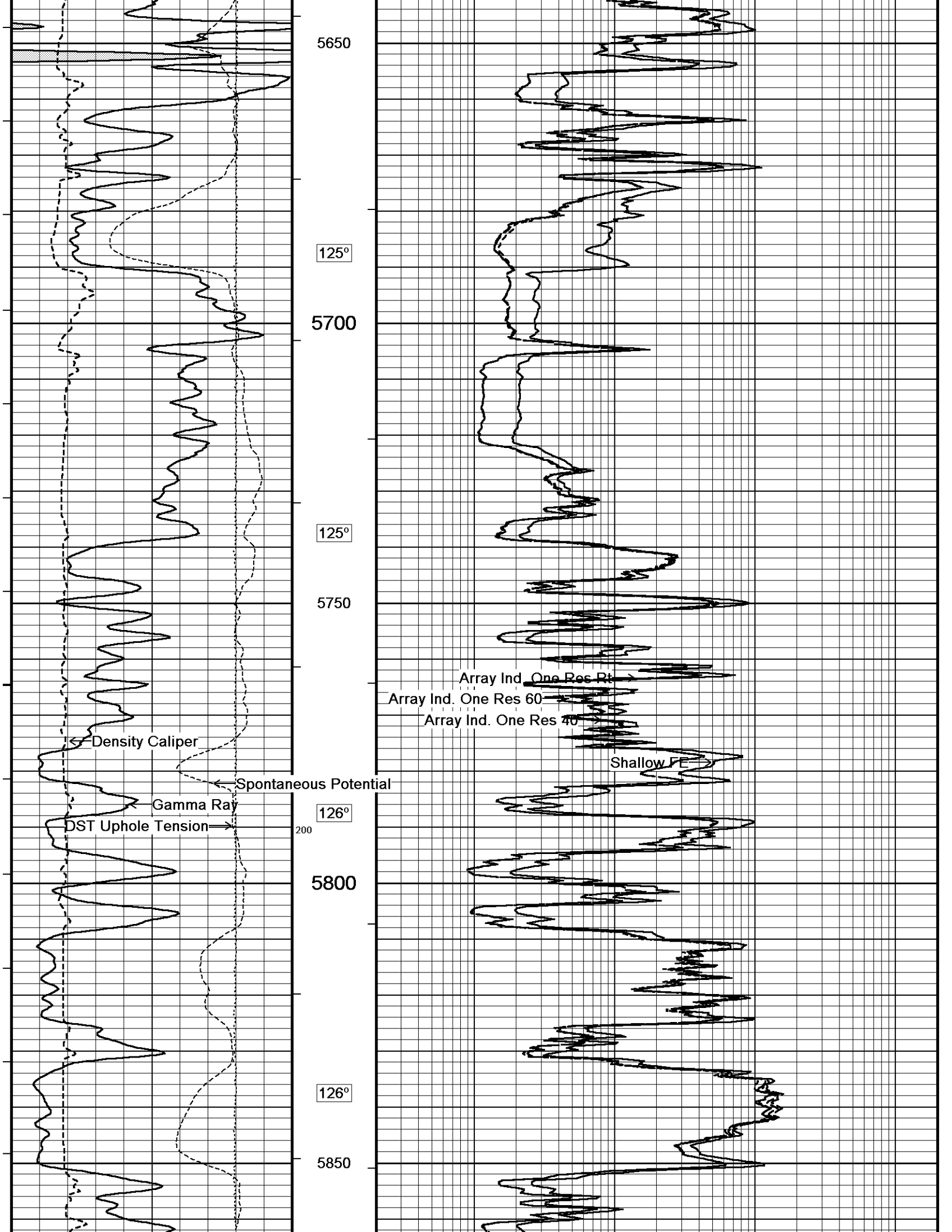
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

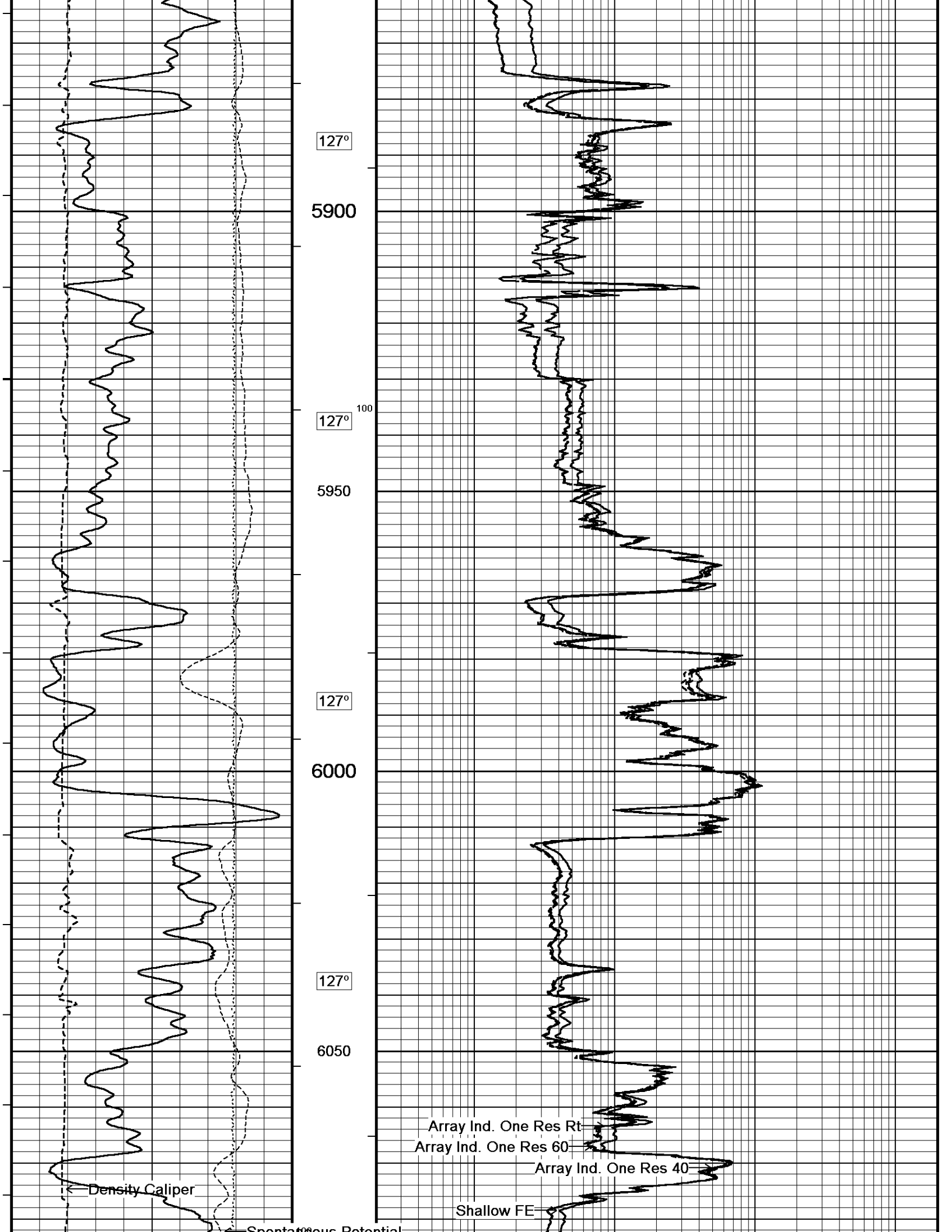
DST Uphole Tension
pounds
5000 0

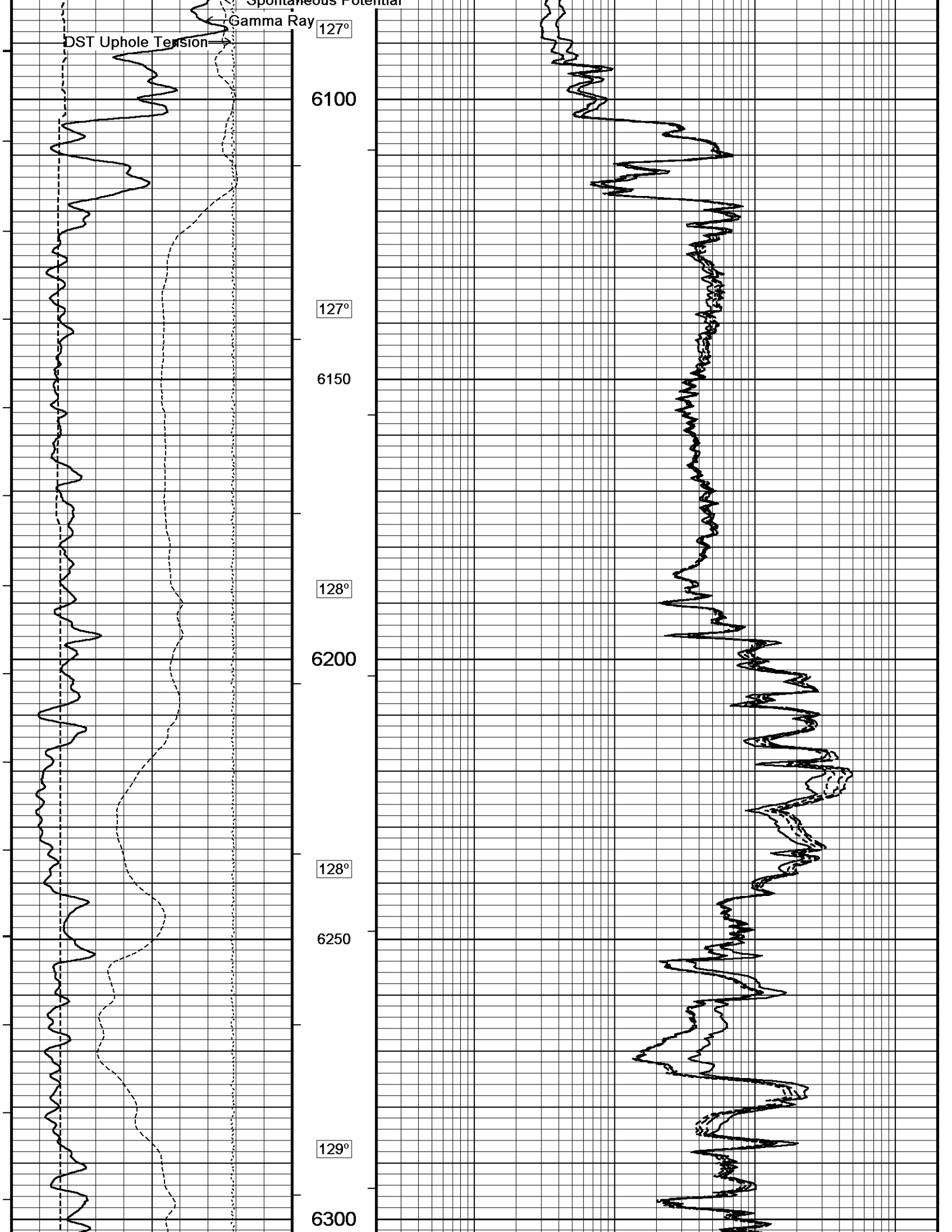
Replay
Scale
1:240

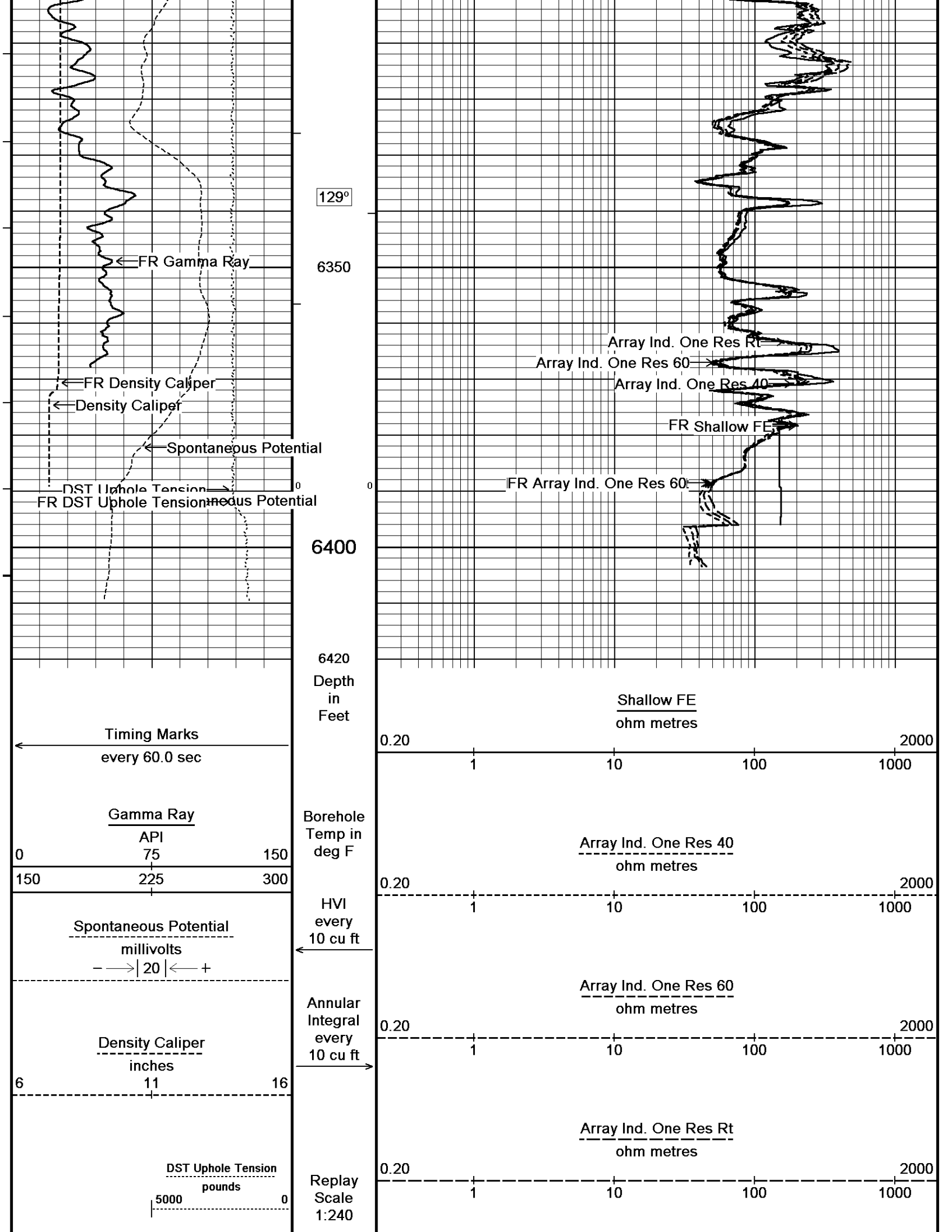
5600

125°


5650
125°
5700
125°
5750
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Density Caliper
Shallow FE
Spontaneous Potential
Gamma Ray
126°
DST Uphole Tension
200
5800
126°
5850


127°
5900
127°
100
5950
127°
6000
127°
6050
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
127°
6100
127°
6150
128°
6200
128°
6250
129°
6300


129°
6350
FR Gamma Ray
FR Density Caliper
Density Caliper
Spontaneous Potential
DST Uphole Tension
FR DST Uphole Tension
Spontaneous Potential
0
0
6400
6420
Depth in Feet
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
FR Shallow FE
FR Array Ind. One Res 60
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
Borehole Temp in deg F
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
HVI every 10 cu ft
Spontaneous Potential
millivolts
20
Annular Integral every 10 cu ft
Array Ind. One Res 60
ohm metres
0.20
2000
1
10
100
1000
Density Caliper
inches
6
11
16
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Repeat.dta — Recorded on 05-AUG-2012 17:20
System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5.dta

General Constants All 000

Last Edited on 05-AUG-2012,16:06

General Parameters		
Mud Resistivity	1.010	ohm-metres
Mud Resistivity Temperature	102.000	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. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 05-AUG-2012 16:34

Reading No	Measured	Calibrated (lbs)
1	16094.82	0.00
2	16575.01	399.00

Gamma Calibration MCG-C 208

Field Calibration on 03-AUG-2012 22:27

	Measured	Calibrated (API)
Background	79	54
Calibrator (Gross)	1135	779
Calibrator (Net)	1056	725

Gamma Constants MCG-C 208

Last Edited on 05-AUG-2012,16:06

Gamma Calibrator Number	GR38	
Mud Density	1.08	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

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:59
Field Check on 03-AUG-2012 22:21

Base Calibration

	Measured	Calibrated (ohm-m)
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2

Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.4	5.0	25.0

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

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 02-AUG-2012,09:13

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

Caliper Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:53
Field Calibration on 03-AUG-2012 22:21

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15504	5.98
2	18771	7.97
3	22124	9.86
4	25894	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 26-JUL-2012 11:25
Field Check on 03-AUG-2012 22:33

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3179	99	3714	110
Ratio	32.263		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1621	2347
Ratio	0.691	

Field Check

	Calibrated (cps)	
	1614	2231
Ratio	0.723	

Neutron Constants MDN-A.B 65

Last Edited on 02-AUG-2012,09:24

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-A.A 55

Base Calibration on 24-JUL-2012 09:23
Field Check on 03-AUG-2012 22:12

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	968.0	126.8

Base Check	276.7
Field Check	276.7

FE Constants MFE-A.A 55

Last Edited on 04-AUG-2012,23:27

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 03-AUG-2012 22:11

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	19.8	3852.9
2	0.0	0.0	32.0	3630.1
3	0.0	0.0	28.8	3050.0
4	0.0	0.0	18.4	2079.5
Deep	0.0	0.0	16.2	1911.6
Medium	0.0	0.0	42.6	4061.3
Shallow	0.0	0.0	50.1	5484.3
Array Temperature	0.0		82.4	Deg F

Induction Constants MAI-A.A 45

Last Edited on 04-AUG-2012,23:27

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

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 26-JUL-2012 09:16
Field Calibration on 03-AUG-2012 22:14

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17567	3.99
2	26416	5.98
3	35056	7.97
4	43488	9.86
5	52816	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.97	5.98

Photo Density Calibration MPD-B 31

Base Calibration on 26-JUL-2012 10:02
Field Check on 03-AUG-2012 22:20

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	48085	24200	59556	30836
Reference 2	19674	1989	24941	2541

Field Check at Base

692.2	849.9

Field Check

691.9	854.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	127	608		
Reference 1	19234	47953	0.404	0.371
Reference 2	5695	19580	0.293	0.272

Field Check at Base

126.7	608.3

Field Check

126.9	606.5

Density Constants MPD-B 31

Last Edited on 05-AUG-2012,16:06

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	1.08	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\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5.dta

Compact Comms Gamma
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

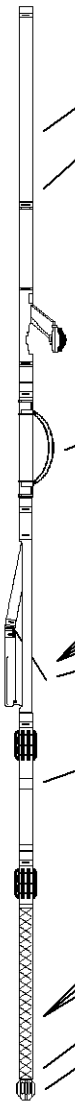
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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

Compact Focussed Electric
MFE-A.A 55 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: 48.16 ft Weight: 383.6 lb



42.87 ft	GRGC - Gamma Ray
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	CLDC - Density Caliper
19.28 ft	DPRL - Limestone Density Por.
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
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	O'BRIEN ENERGY RESOURCES CORP.
WELL	VANDERPOOL #2-5
FIELD	UNNAMED
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2372.00	feet	First Reading	6389.00	feet
Elevation Drill Floor	2370.00	feet	Depth Driller	6400.00	feet
Elevation Ground Level	2360.00	feet	Depth Logger	6392.00	feet

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

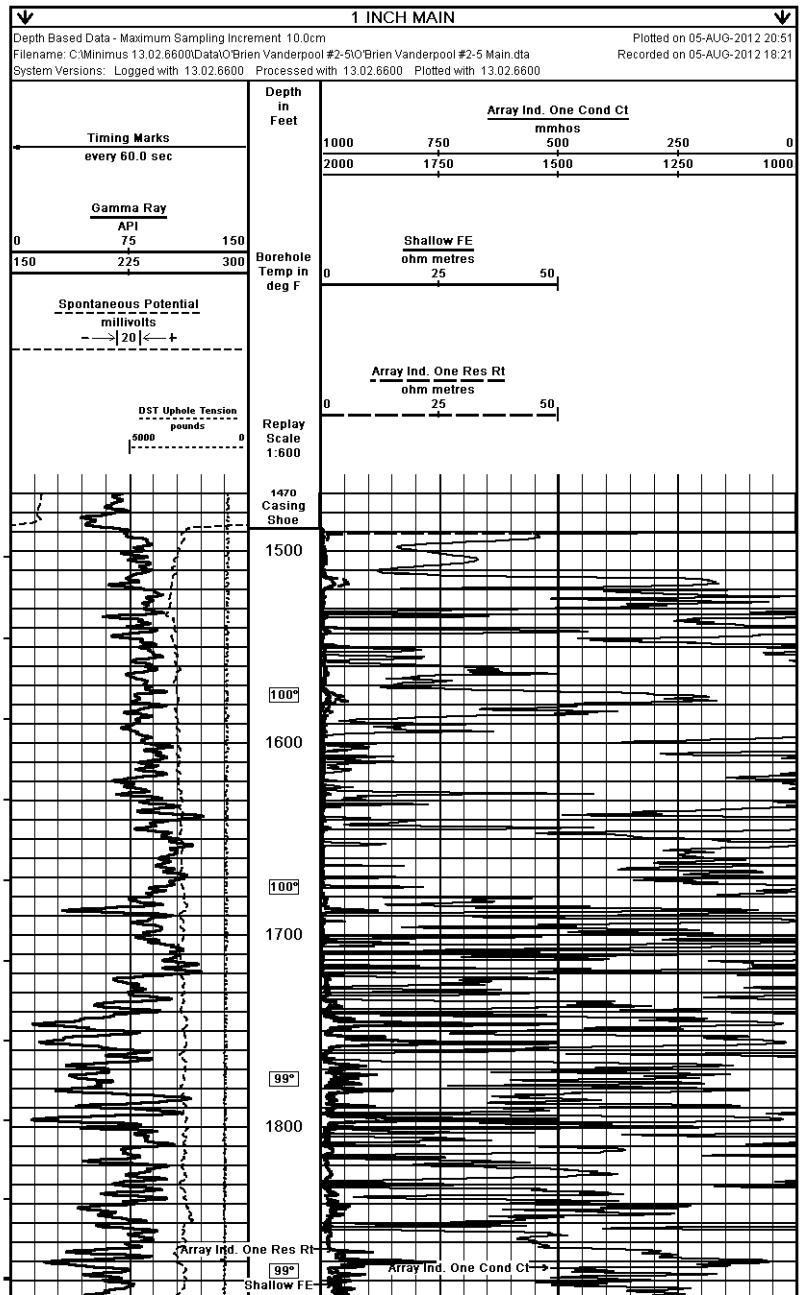
Weatherford®

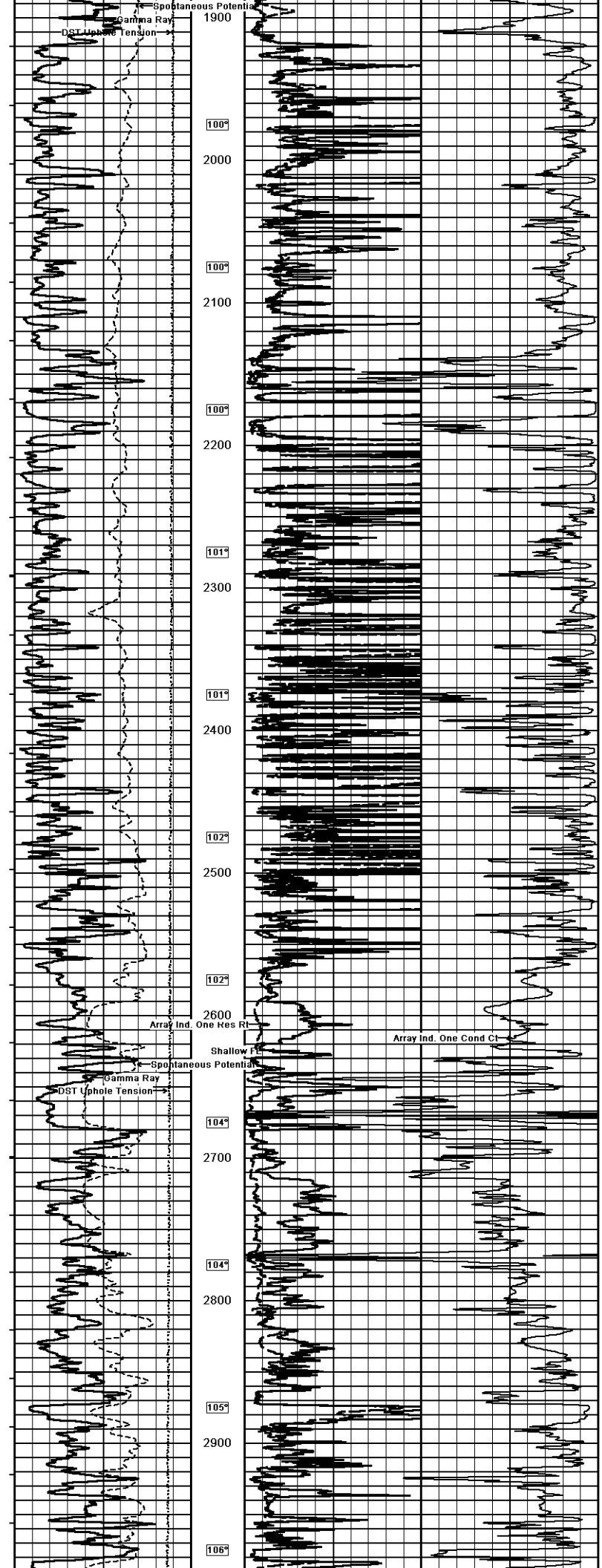
COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	VANDERPOOL #2-5
FIELD	UNNAMED
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	2755' FSL & 1101' FWL
SEC	5
TWP	34S
RGE	28W
API Number	15-119-21323
Other Services	MPD/MDN MML
Permanent Datum G.L. Elevation 2360 feet	
Log Measured From KB	12 FEET above Permanent Datum
Drilling Measured From K.B. @ 12 FEET	
Elevations: KB 2372.00 feet, DF 2370.00, GL 2360.00	
Date	05-AUG-2012
Run Number	ONE
Depth Driller	6400.00 feet
Depth Logger	6392.00 feet
First Reading	6389.00 feet
Last Reading	1488.00 feet
Casing Driller	1493.00 feet
Casing Logger	1488.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density/Viscosity	1.08 gr/c3 68.00 CP
PH / Fluid Loss	10.50 5.20 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	1.01 @102.0 ohm-m
Rmf @ Measured Temp	0.81 @102.0 ohm-m
Rmc @ Measured Temp	1.20 @102.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.79 @131.0 ohm-m
Time Since Circulation	4 HOURS
Max Recorded Temp	131.00 deg F
Equipment Name	COMPACT
Equipment / Base	13057 LIB
Recorded By	R. HOFFMAN
Witnessed By	AUSTIN GARNER
S.O. # / JOB #	3534569 LB12-203 ROGER PEARSON

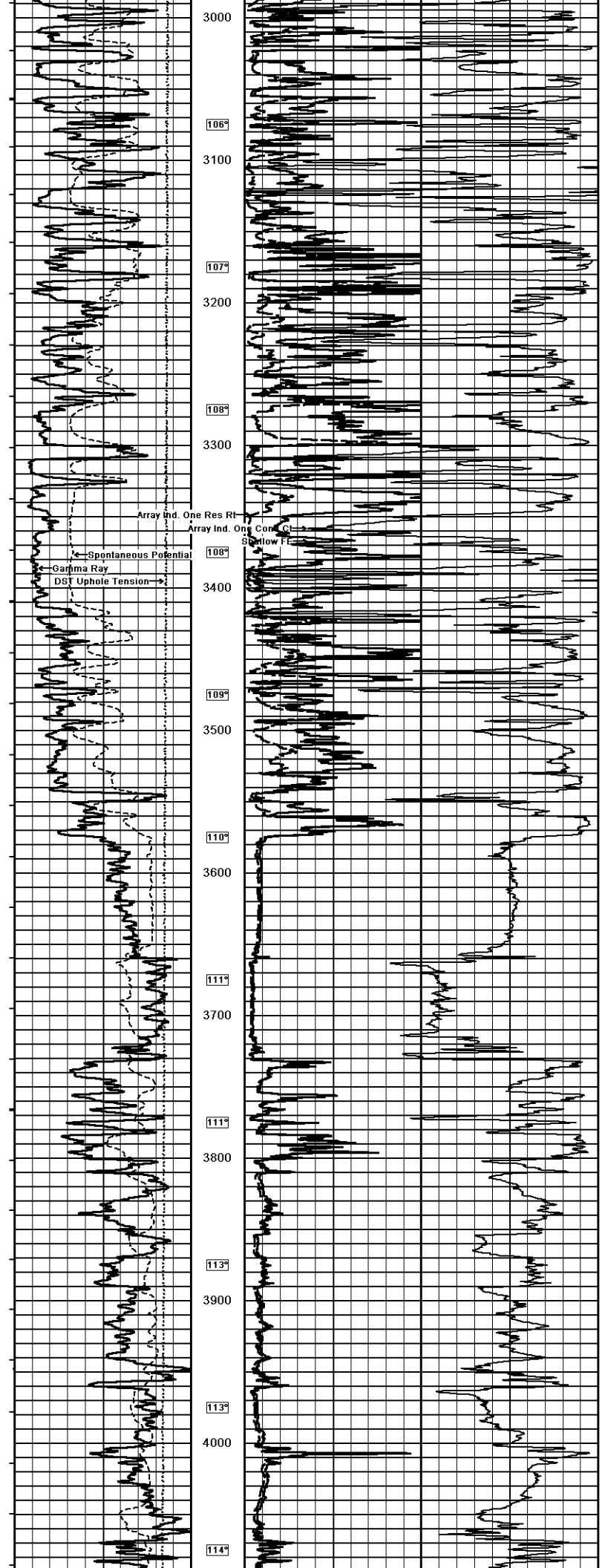
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

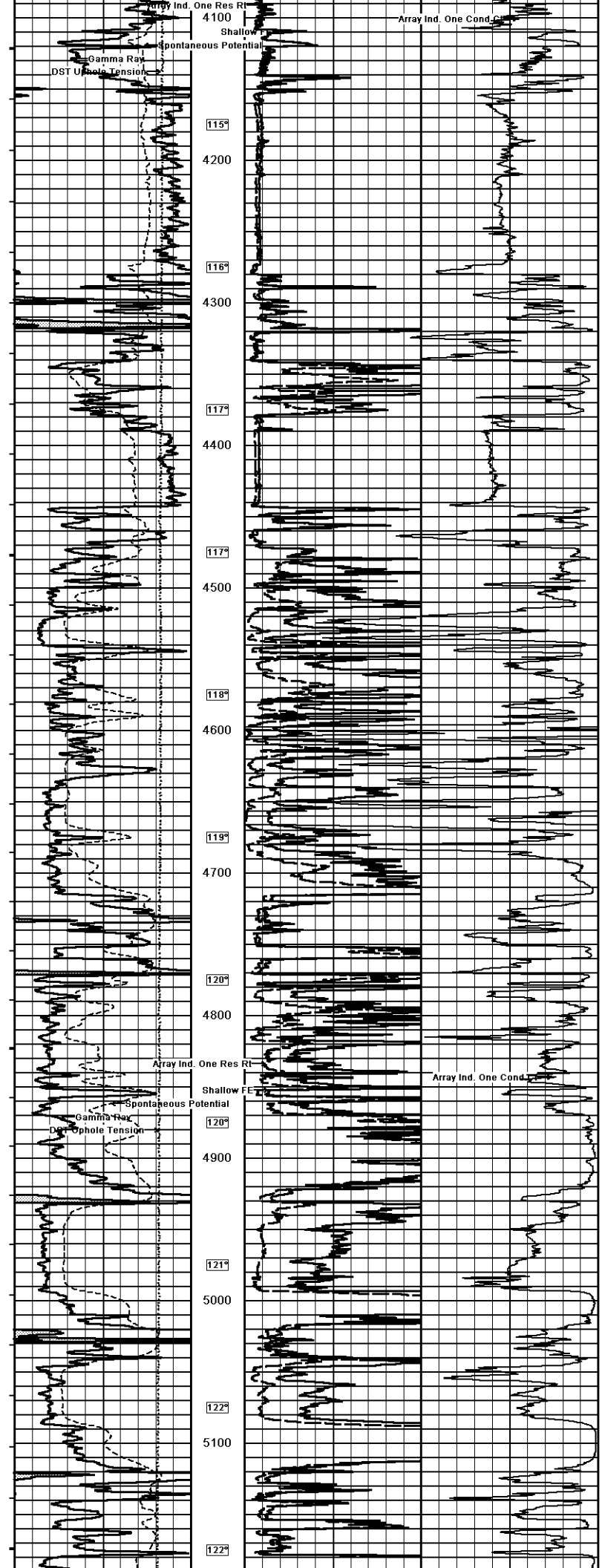
1 INCH MAIN

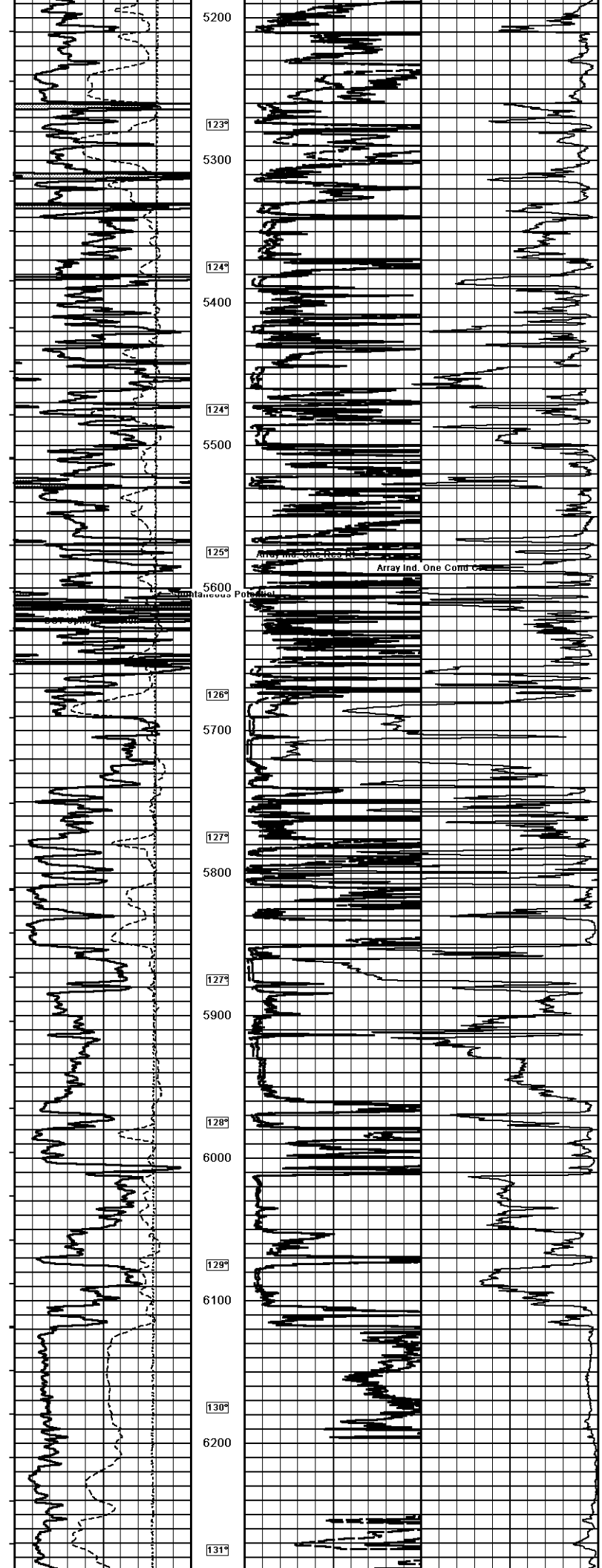
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-AUG-2012 20:51
Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta
Recorded on 05-AUG-2012 18:21
System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600

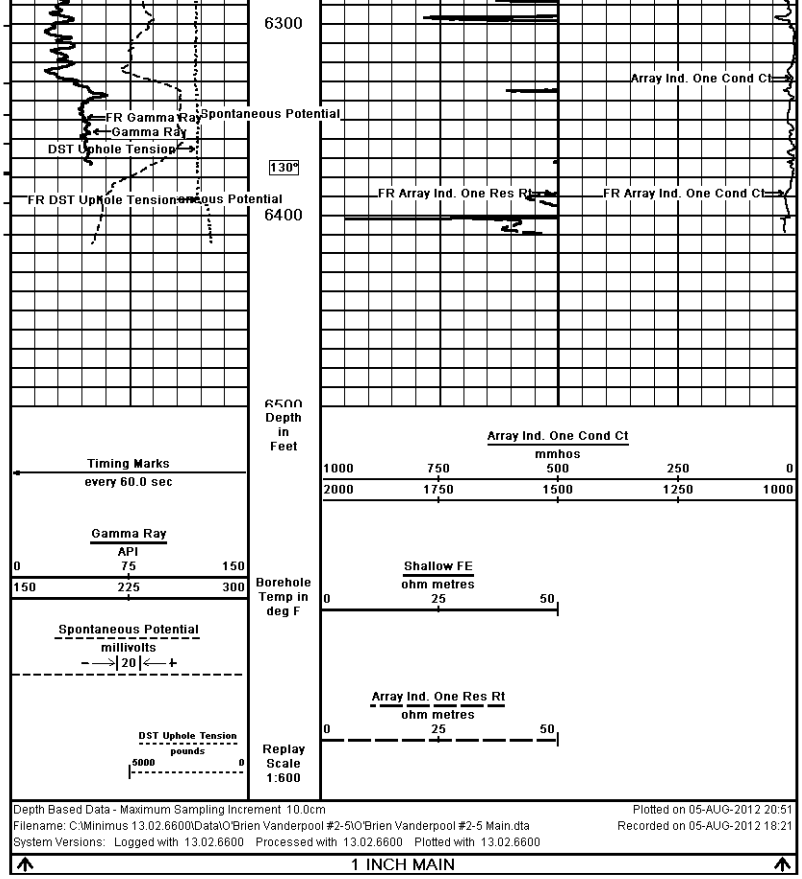



Spontaneous Potential
Gamma Ray
DST Uphole Tension
1900
100°
2000
100°
2100
100°
2200
101°
2300
101°
2400
102°
2500
102°
2600
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow Ft
Spontaneous Potential
Gamma Ray
DST Uphole Tension
104°
2700
104°
2800
105°
2900
106°


3000
106°
3100
107°
3200
108°
3300
Array Ind. One Res Rt
Array Ind. One Cond Ct
Sonflow FE
108°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3400
109°
3500
110°
3600
111°
3700
111°
3800
113°
3900
113°
4000
114°


Array Ind. One Res Rt
Array Ind. One Cond Cnd
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
4100
115°
4200
116°
4300
117°
4400
117°
4500
118°
4600
119°
4700
120°
4800
Array Ind. One Res Rt
Array Ind. One Cond Cnd
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
120°
4900
121°
5000
122°
5100
122°


5200
123°
5300
124°
5400
124°
5500
125°
Array Ind. One Reso Ri
Array Ind. One Cond Co
5600
Simultaneous Porosity
126°
5700
127°
5800
127°
5900
128°
6000
129°
6100
130°
6200
131°



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-AUG-2012 20:51

Filename: C:\Minimus 13.02.6600\Data\O'Brien Vanderpool #2-5\O'Brien Vanderpool #2-5 Main.dta — Recorded on 05-AUG-2012 18:21

System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600

1 INCH MAIN

COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	VANDERPOOL #2-5
FIELD	UNNAMED
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2372.00	feet	First Reading	6389.00	feet
Elevation Drill Floor	2370.00	feet	Depth Driller	6400.00	feet
Elevation Ground Level	2360.00	feet	Depth Logger	6392.00	feet

Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG