Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	MCELVAIN ENERGY, INC.
WELL	PRICE 14-5
FIELD	LIANOS SE
PROVINCE/COUNTY	SHERMAN
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1717' FNL & 388' FWL SE NW SW NW

SEC	TWP	RGE	Other Services
14	6S	37W	MPD/MDN SGS
API Number 15-181-20597			MML
Permit Number			MSS

Permanent Datum GL, Elevation 3441 feet	Elevations:	feet
Log Measured From KB	KB	3452.00
Drilling Measured From KB @ 11 FEET	DF	3450.00
	GL	3441.00

Date	23-NOV-2013			
Run Number	ONE			
Service Order	3547622			
Depth Driller	5082.00	feet		
Depth Logger	5078.00	feet		
First Reading	5075.00	feet		
Last Reading	0.00	feet		
Casing Driller	352.00	feet		
Casing Logger	351.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.30 lb/USg	50.00 CP		
PH / Fluid Loss	10.50	8.00 ml/30Min		
Sample Source	FLOW LINE			
Rm @ Measured Temp	1.60 @ 49.0	ohm-m		
Rmf @ Measured Temp	1.28 @ 49.0	ohm-m		
Rmc @ Measured Temp	1.92 @ 49.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.60 @130.0	ohm-m		
Time Since Circulation	3 HRS			
Max Recorded Temp	130.00	deg F		
Equipment / Base	13057	LIB		
Recorded By	J. LAPOINT		R. HOFFMAN	
Witnessed By	L. NICHOLSON			
JOB #	LB 13-331			

BOREHOLE RECORD

Last Edited: 24-NOV-2013 07:12

Bit Size inches	Depth From feet	Depth To feet
7.875	351.00	5078.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	351.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, SGS, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  TWO 0.5 INCH STANDOFFS USED ON MSS.
  0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1847 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1071 CU. FT.

- RIG: H2 DRILLING

- ENGINEER: J. LAPOINT AND R. HOFFMAN

- OPERATOR(S): K. RINEHART AND C. RAMIREZ

- LCM: 8 LBS/PBL

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta
Recorded on 24-NOV-2013 02:52
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

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
0 -5000

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

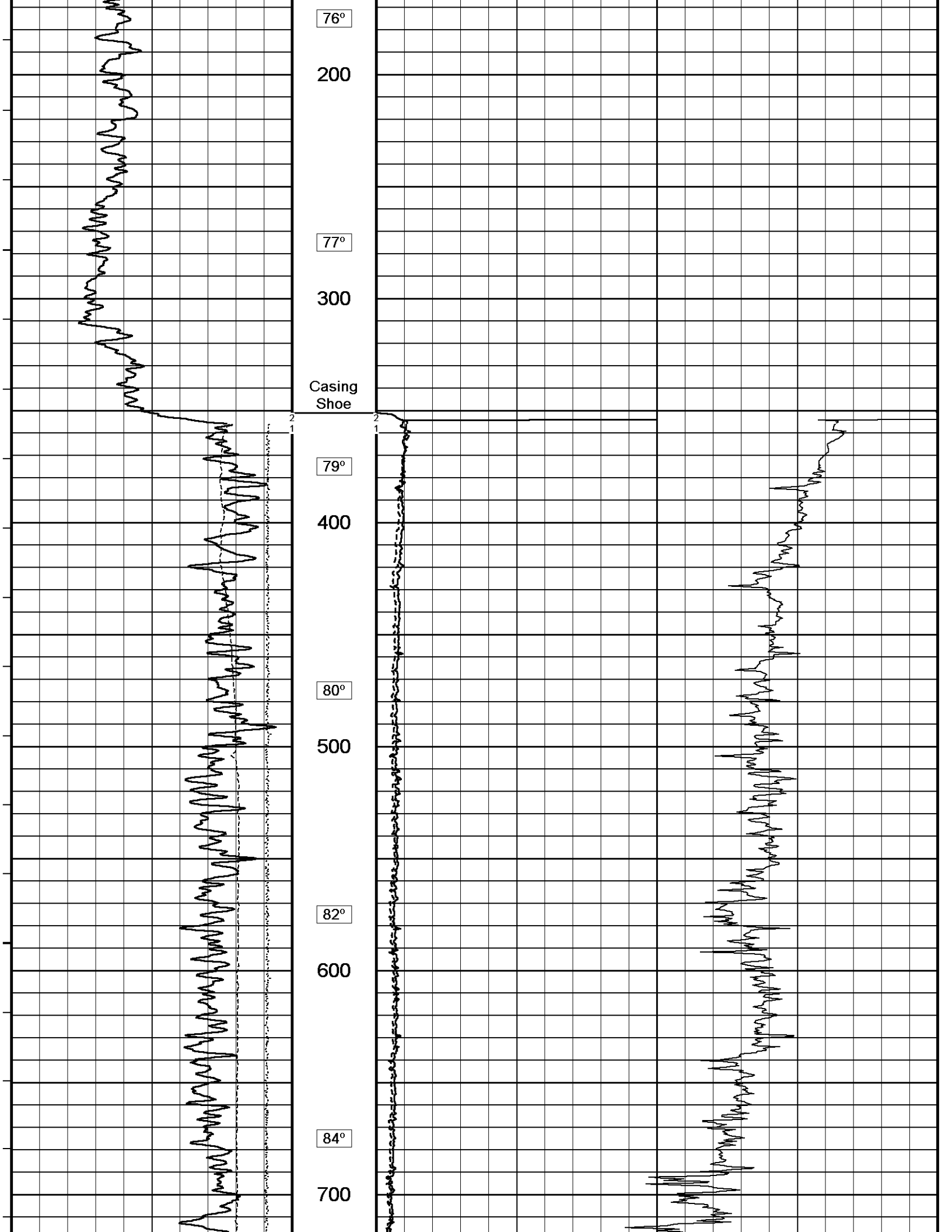
Shallow FE
ohm metres
0 25 50

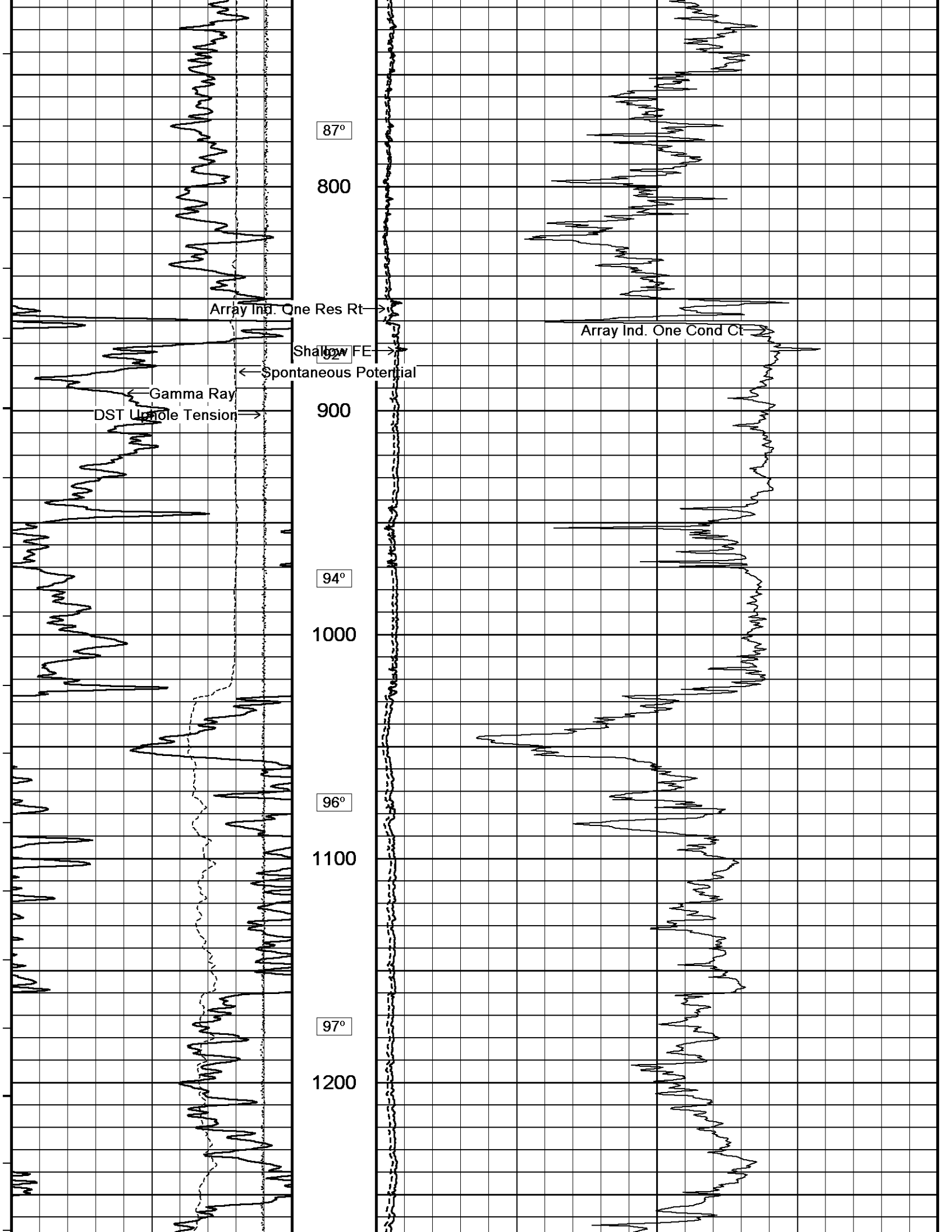
Array Ind. One Res Rt
ohm metres
0 25 50

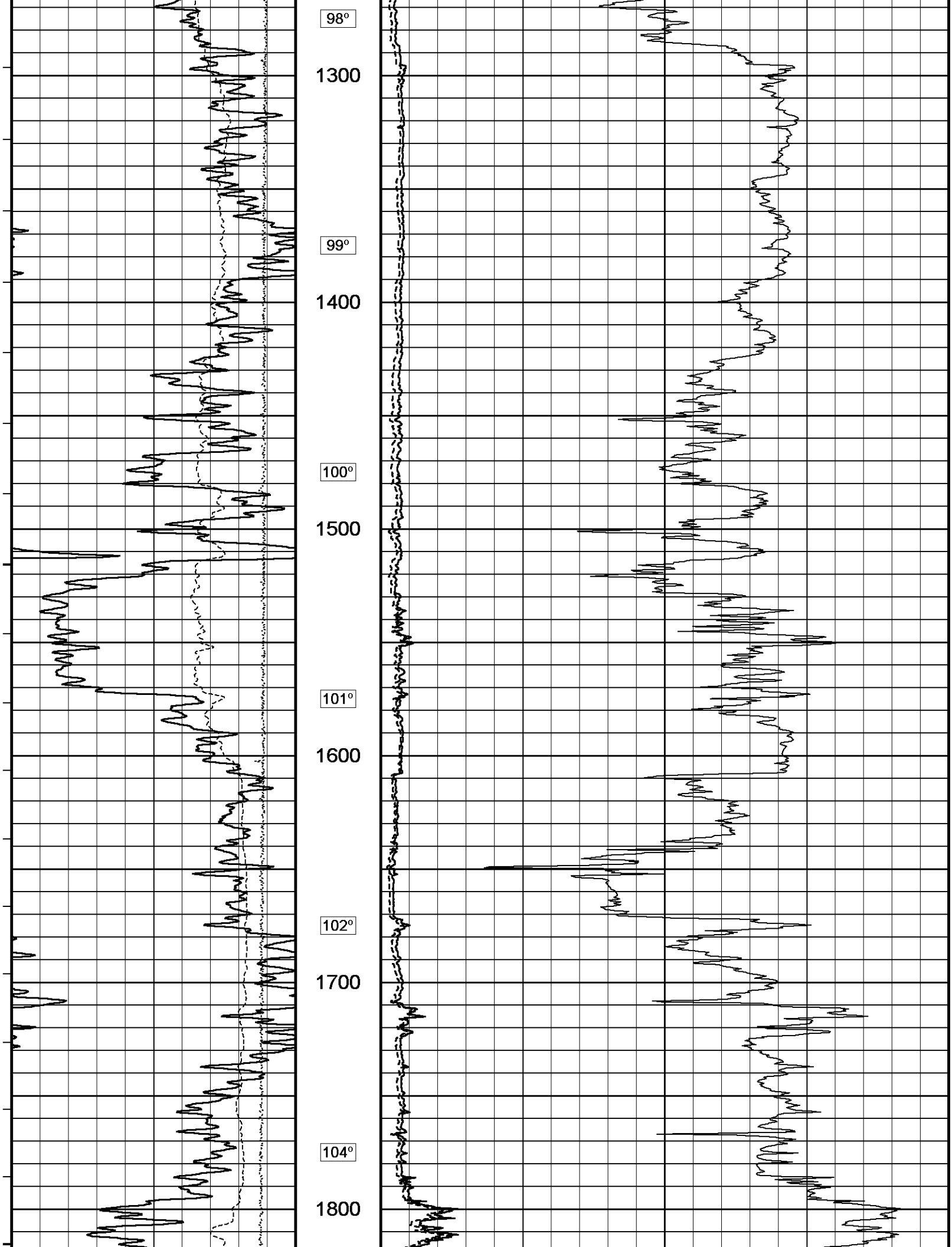
0

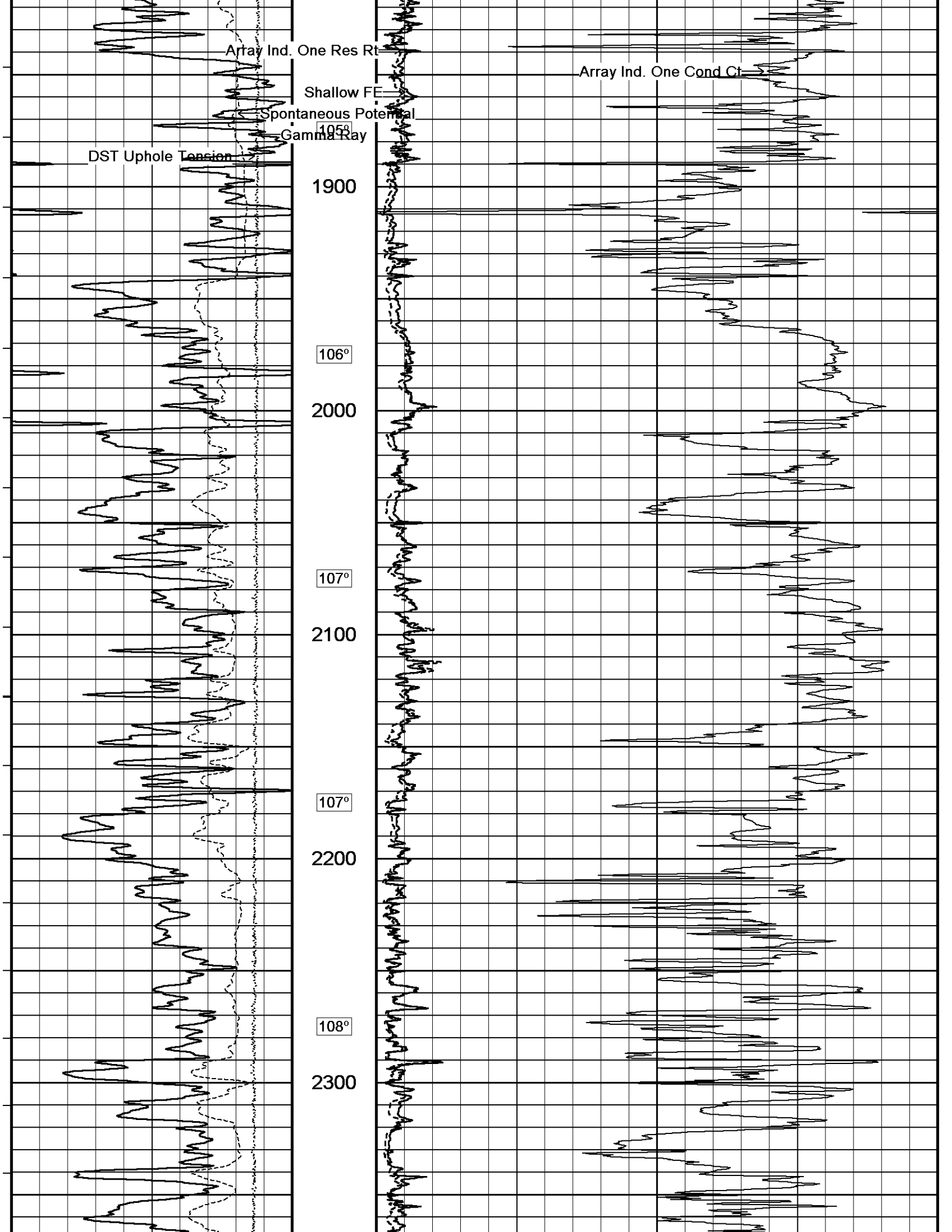
73°

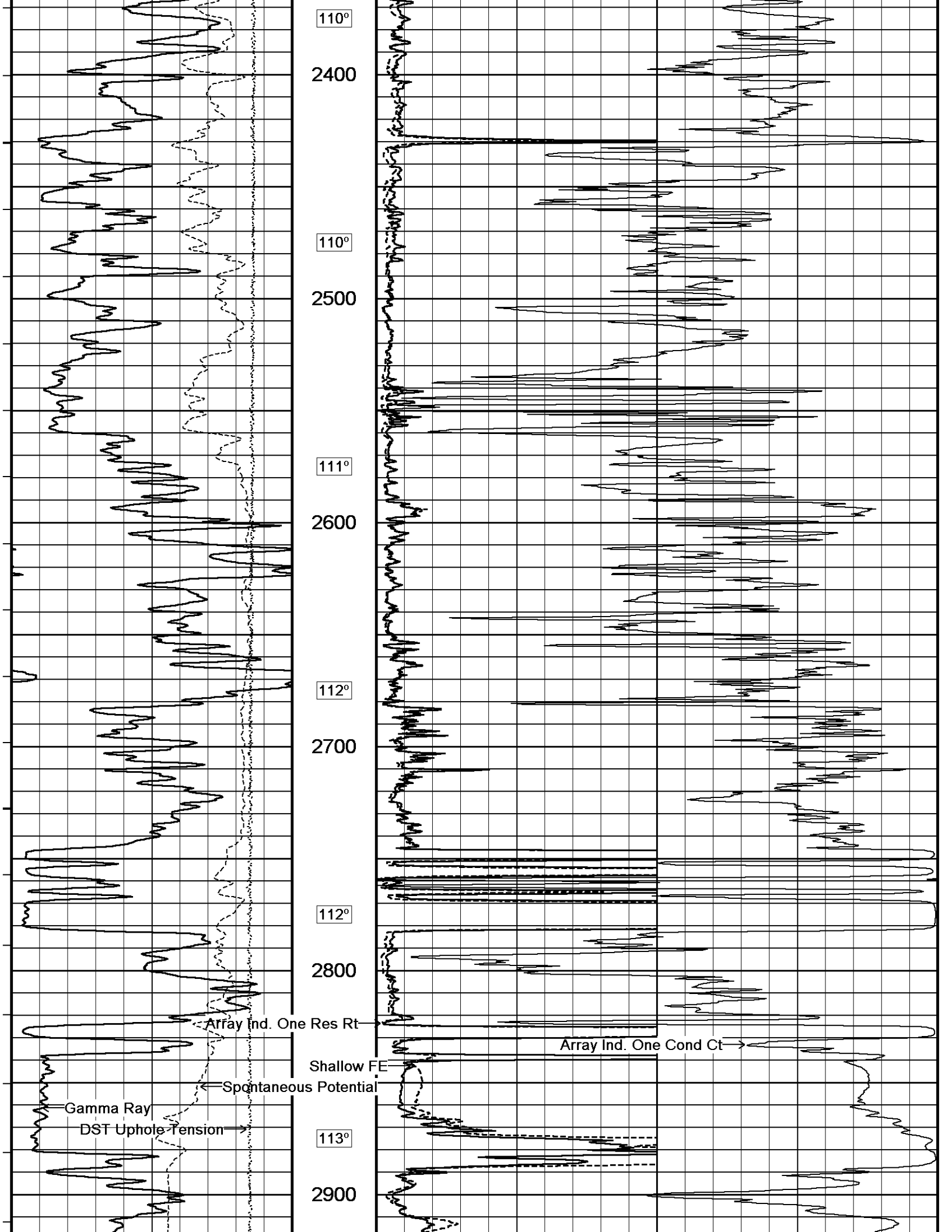
100

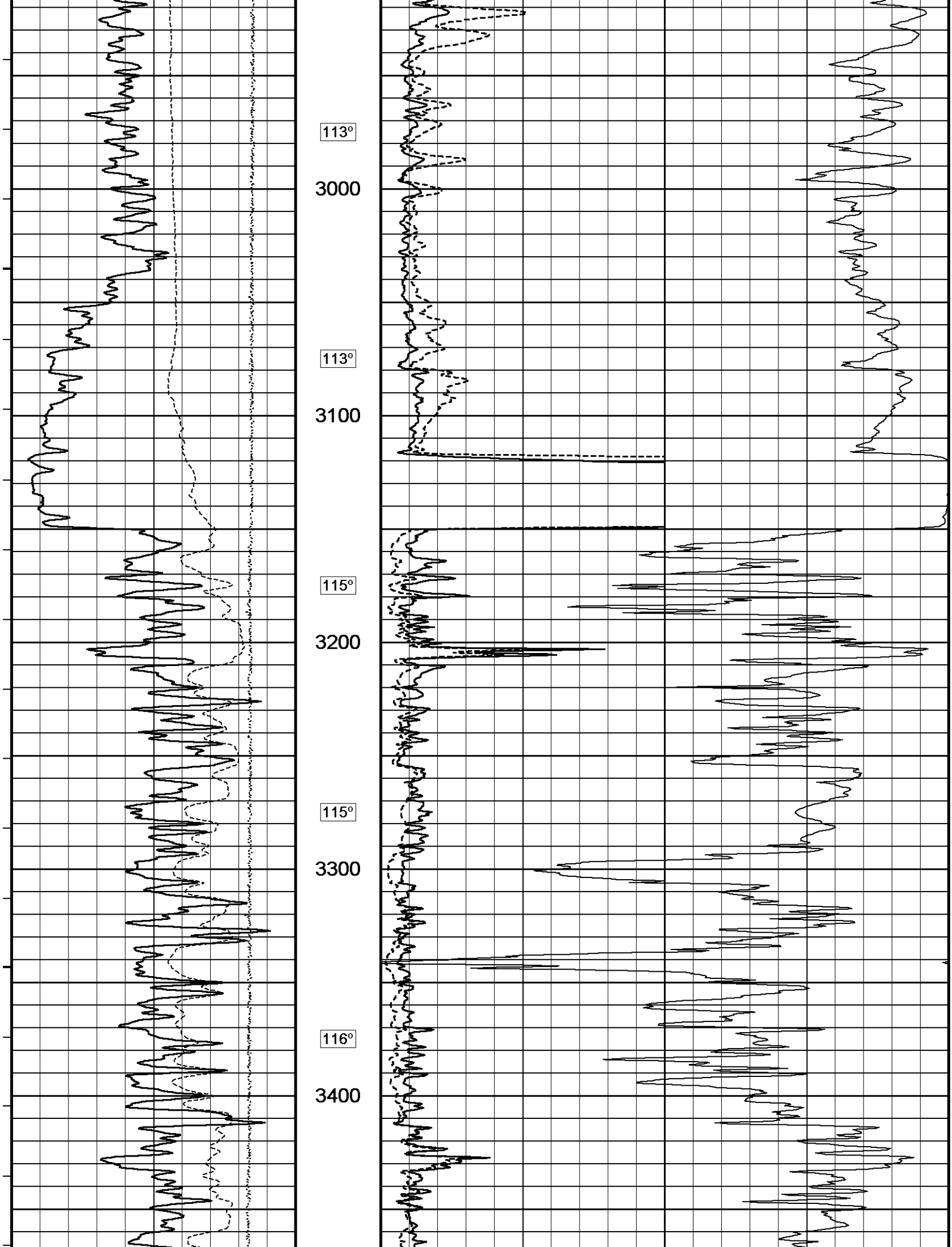

76°
200
77°
300
Casing
Shoe
79°
400
80°
500
82°
600
84°
700

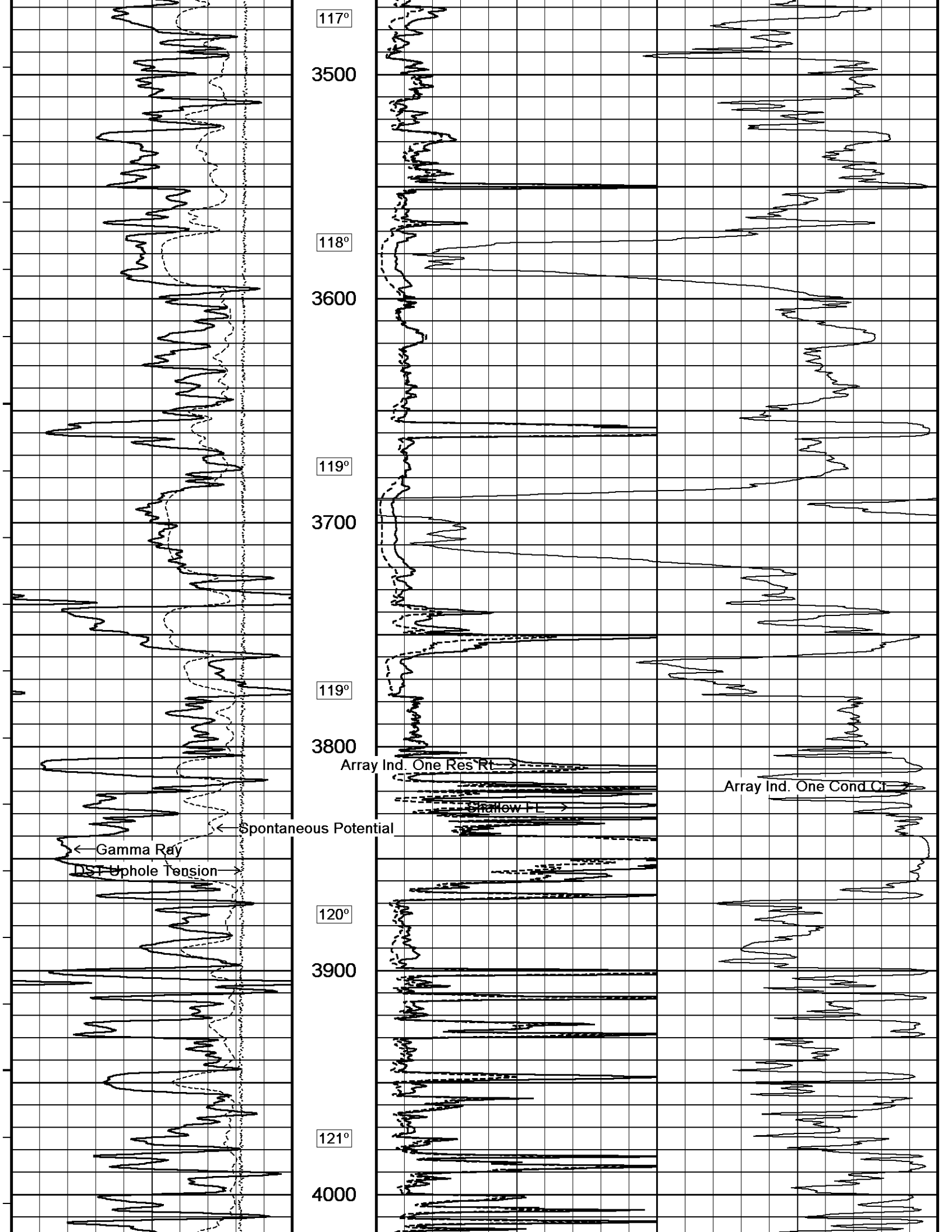

87°
800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
92°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
900
94°
1000
96°
1100
97°
1200

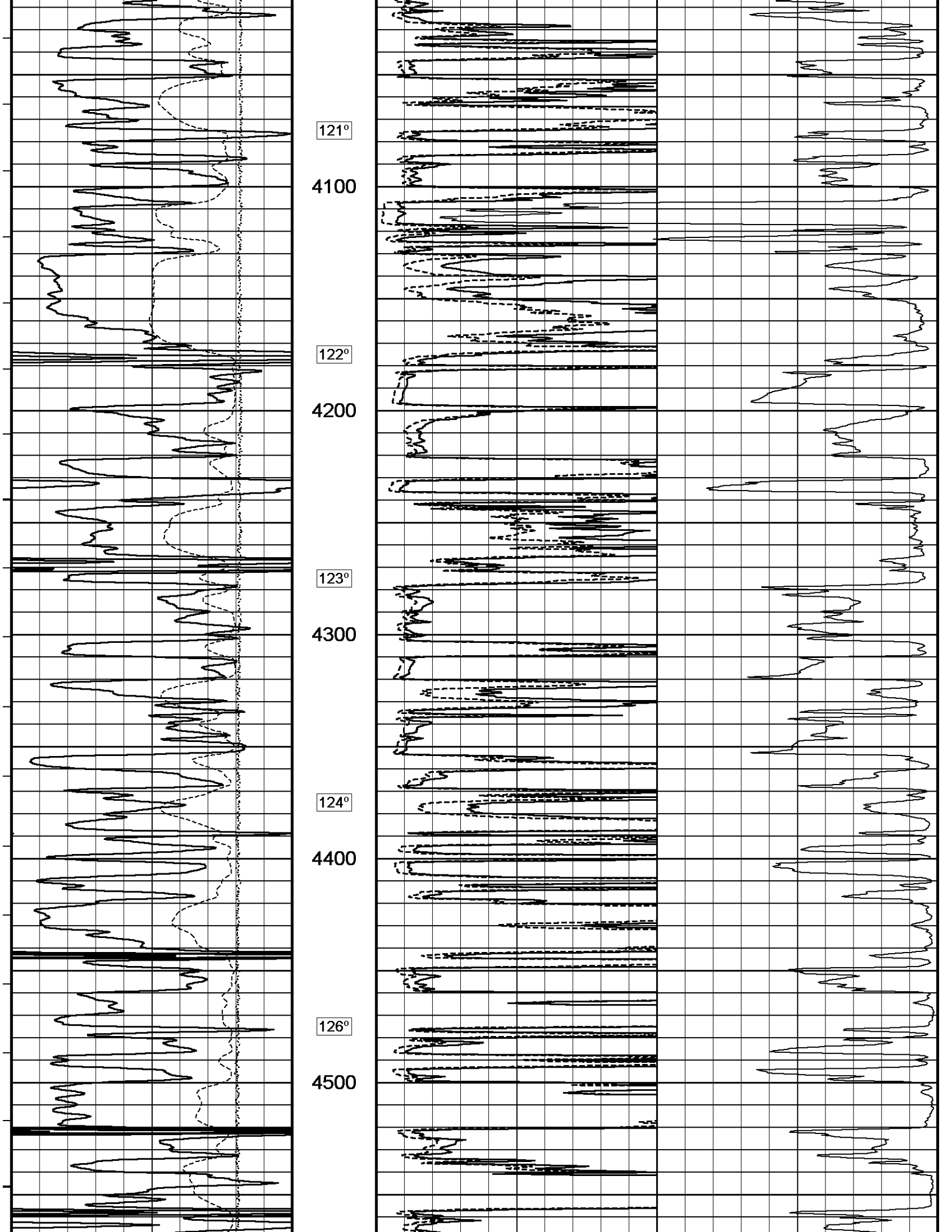

98°
1300
99°
1400
100°
1500
101°
1600
102°
1700
104°
1800

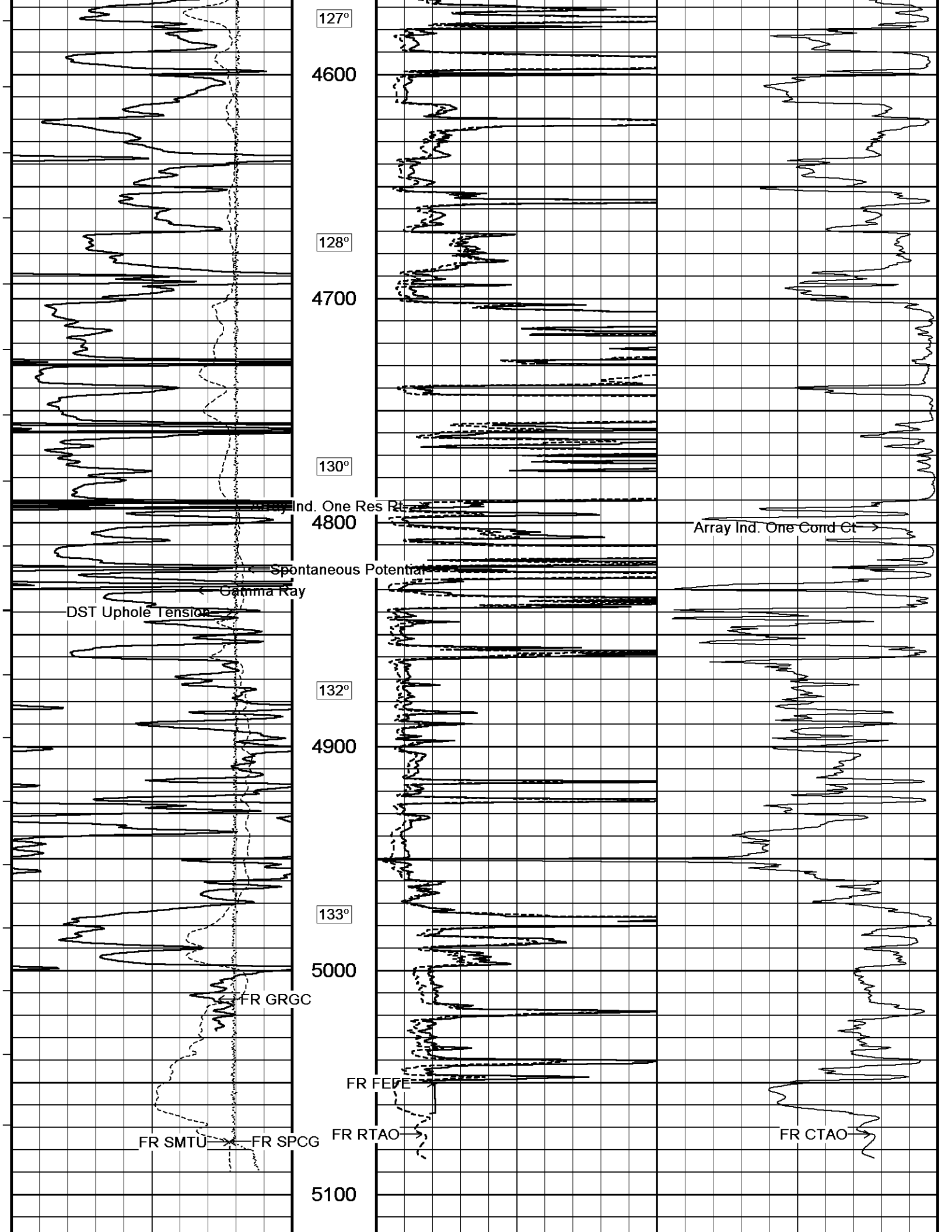

Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct
105°
1900
106°
2000
107°
2100
107°
2200
108°
2300

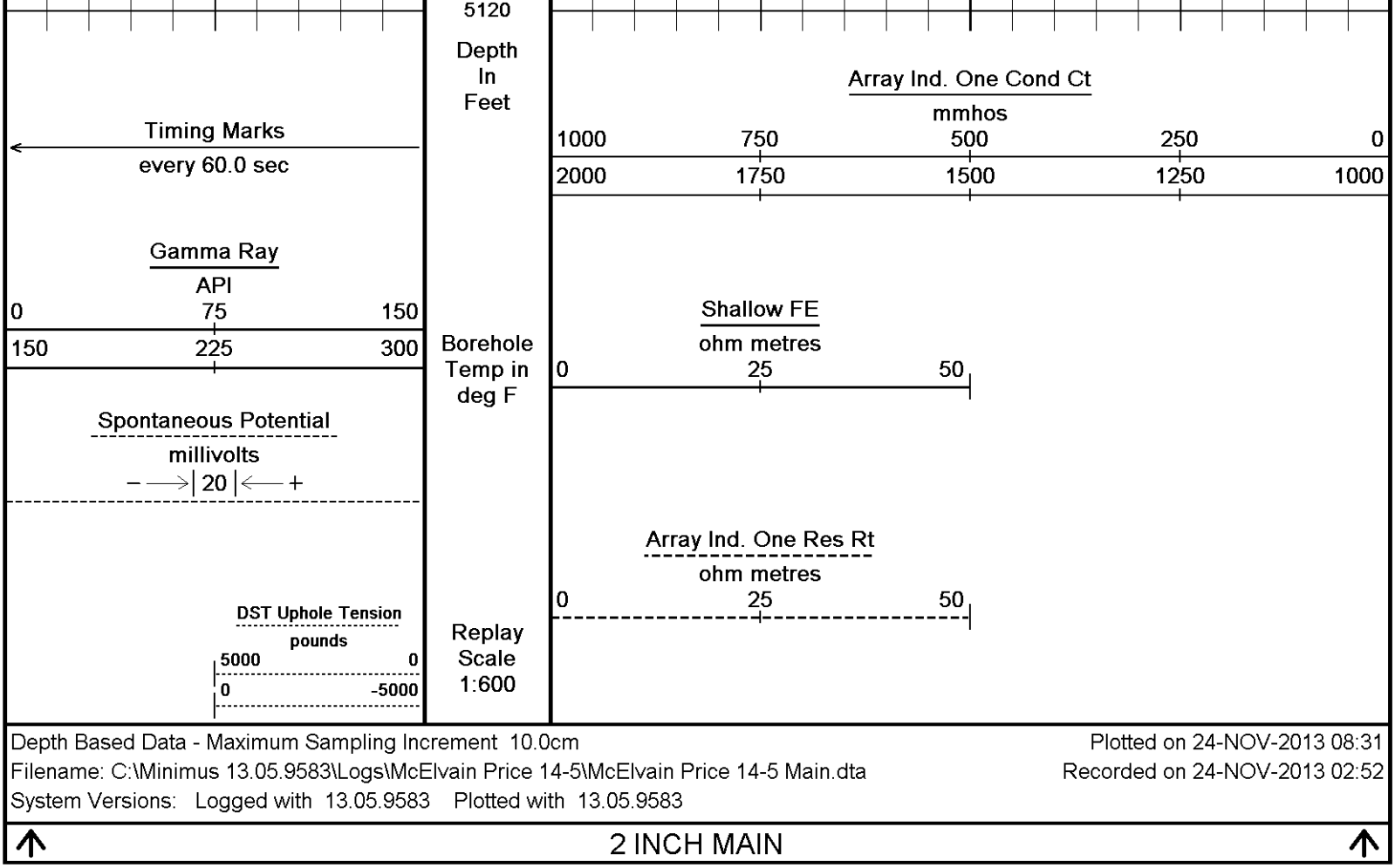

110°
2400
110°
2500
111°
2600
112°
2700
112°
2800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
113°
2900


113°
3000
113°
3100
115°
3200
115°
3300
116°
3400


117°
3500
118°
3600
119°
3700
119°
3800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow I L
Spontaneous Potential
Gamma Ray
DST Uphole Tension
120°
3900
121°
4000


121°
4100
122°
4200
123°
4300
124°
4400
126°
4500


127°
4600
128°
4700
130°
Array Ind. One Res Rt
4800
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
DST Uphole Tension
132°
4900
133°
5000
FR GRGC
FR FEPE
FR RTAO
FR CTAO
FR SMTU
FR SPCG
5100

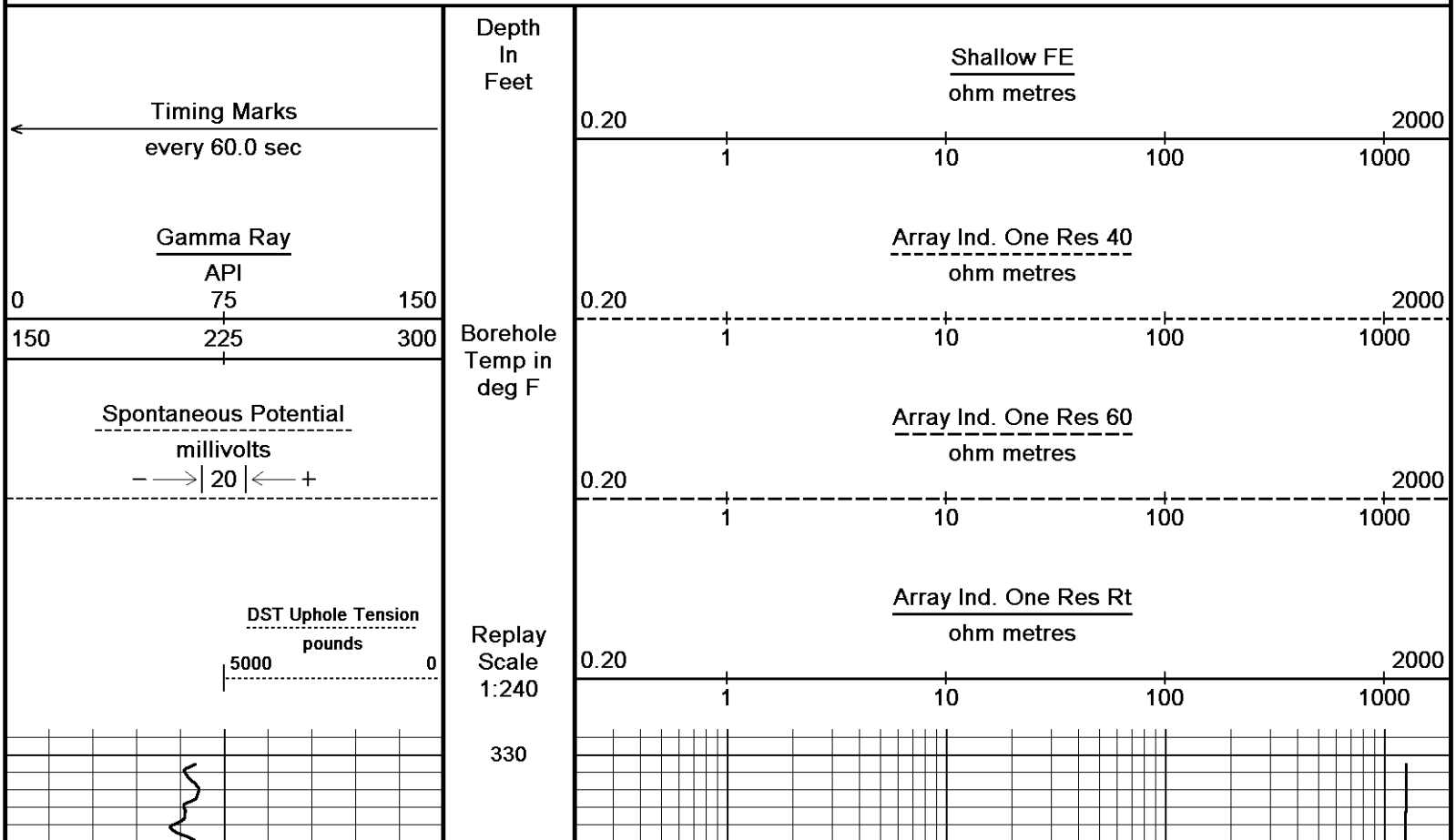


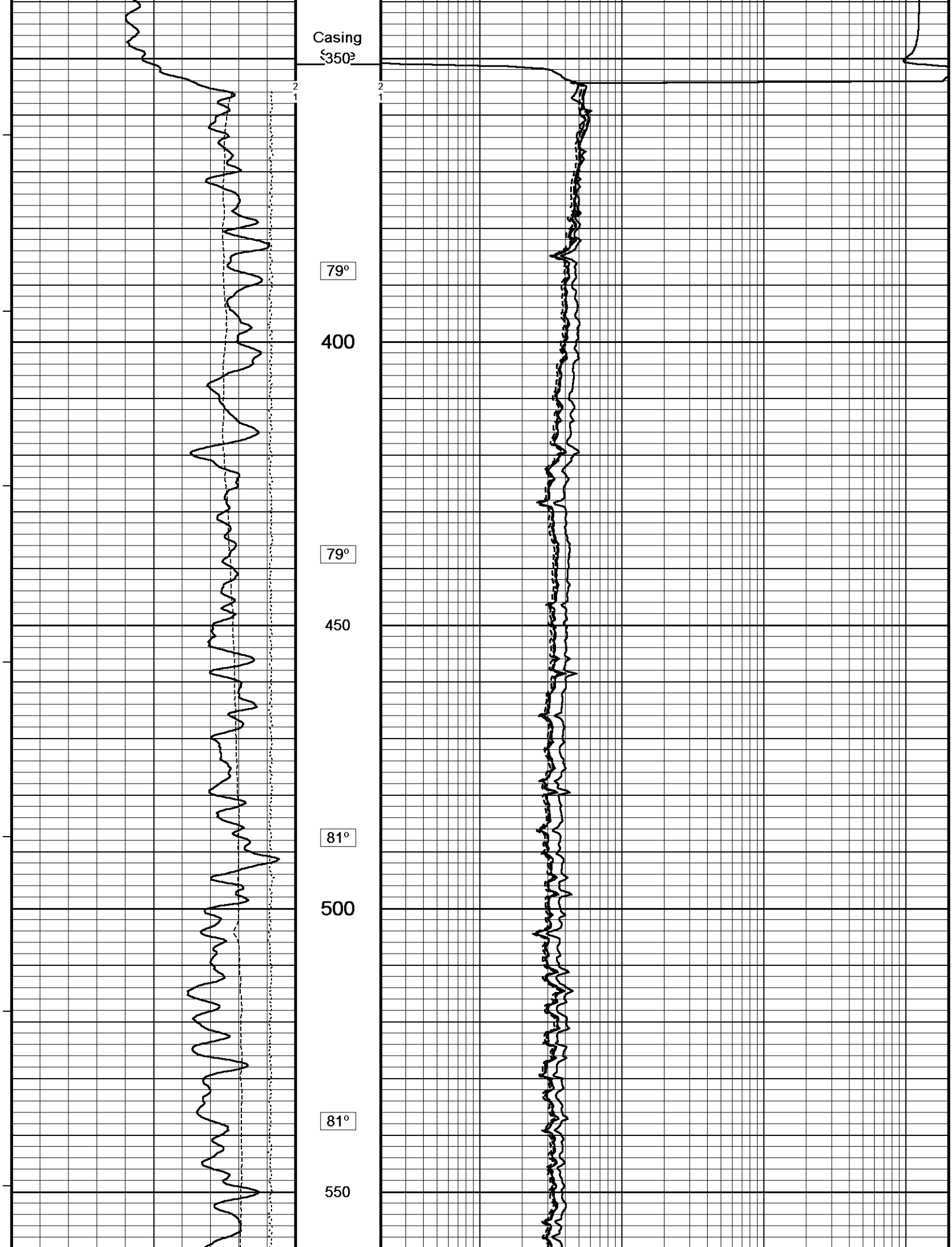
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta
Recorded on 24-NOV-2013 02:52
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

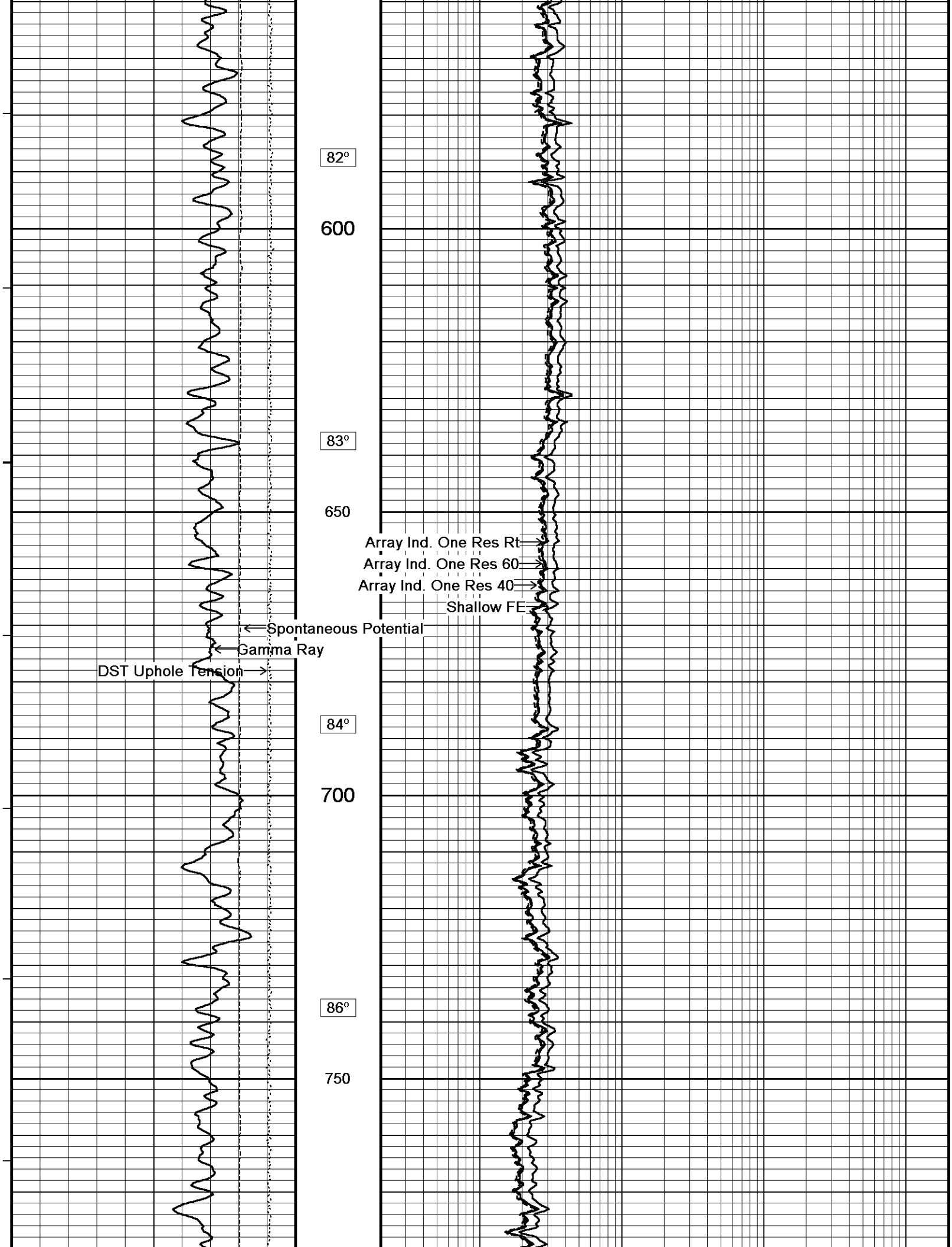
2 INCH MAIN

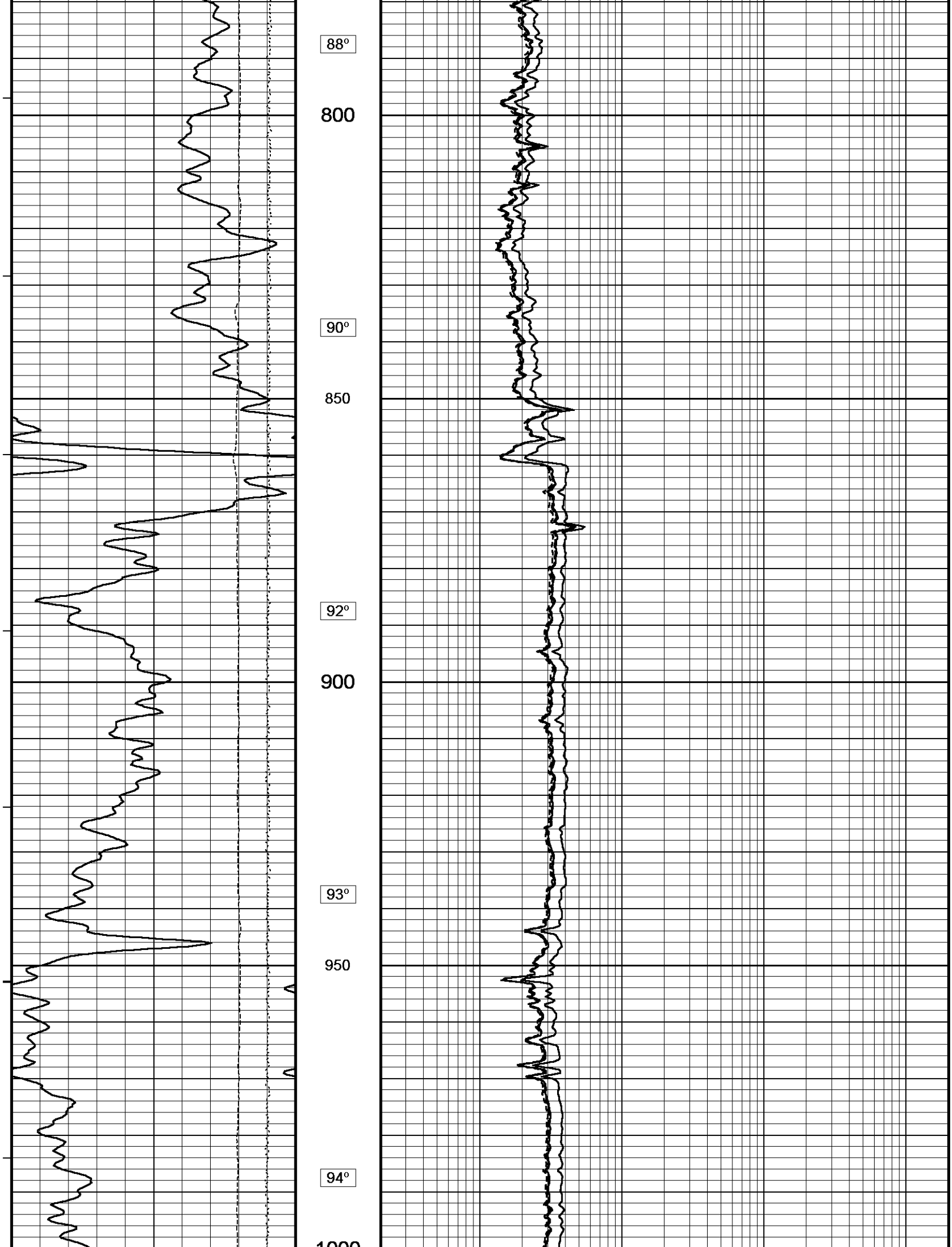
5 INCH MAIN

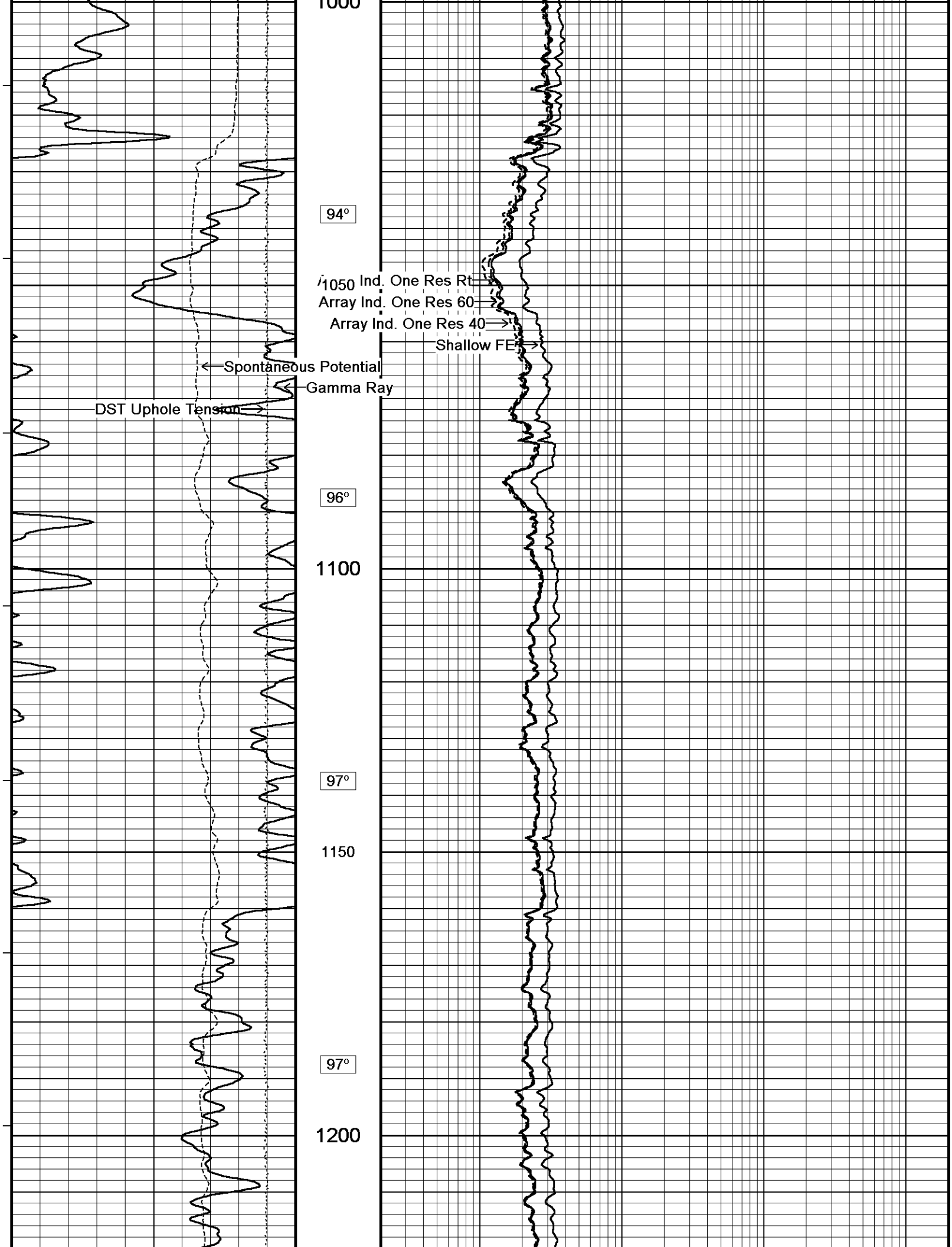
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta
Recorded on 24-NOV-2013 02:52
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

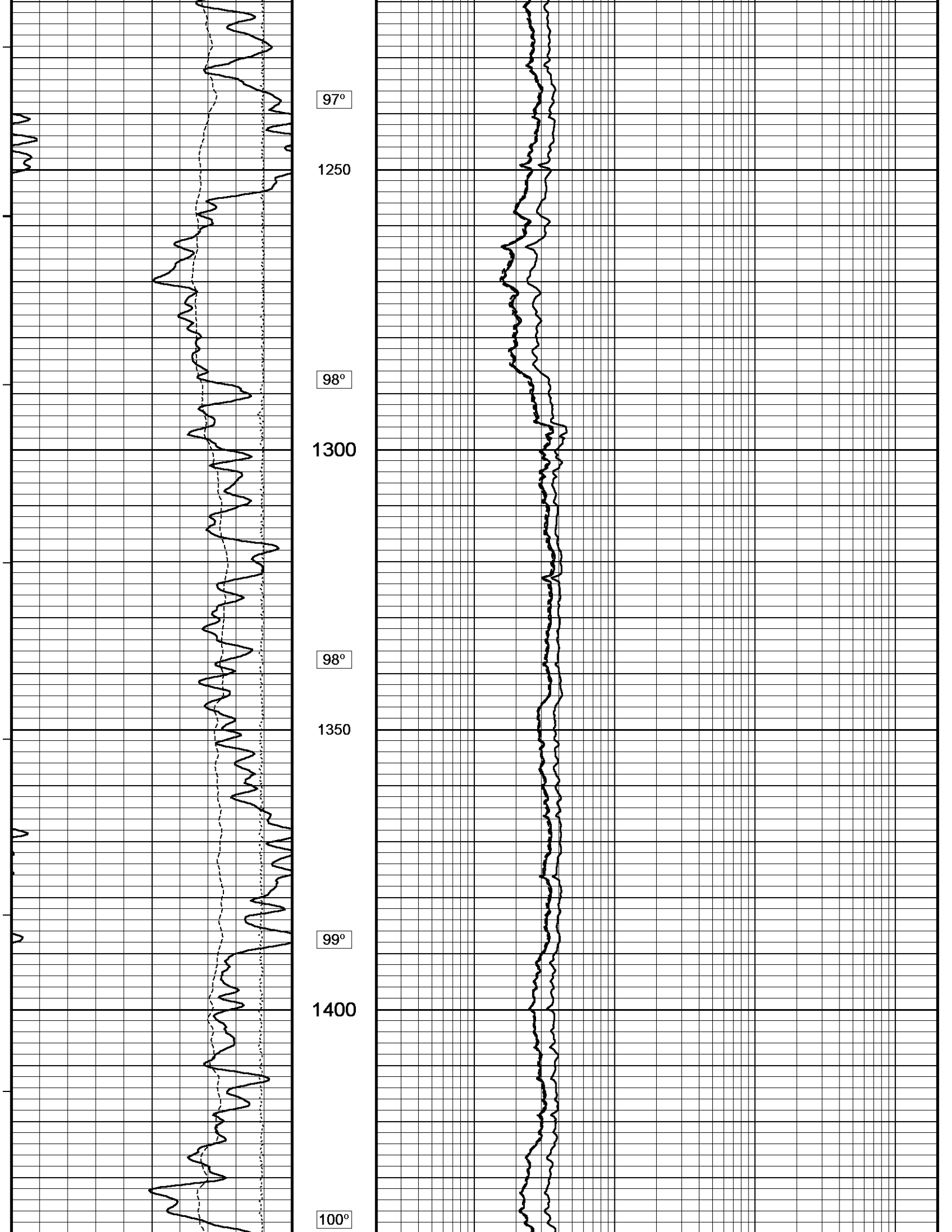


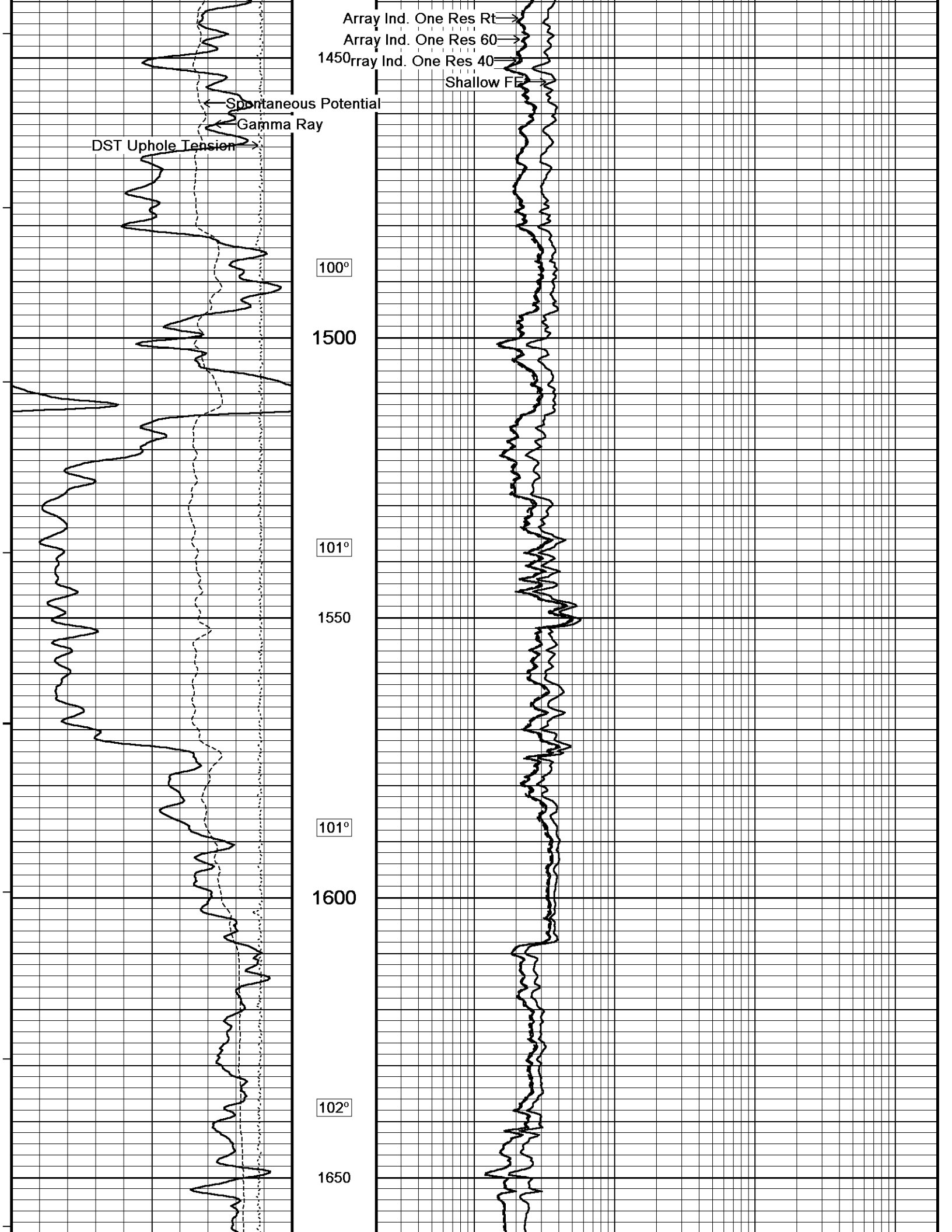

Casing
350
79°
400
79°
450
81°
500
81°
550

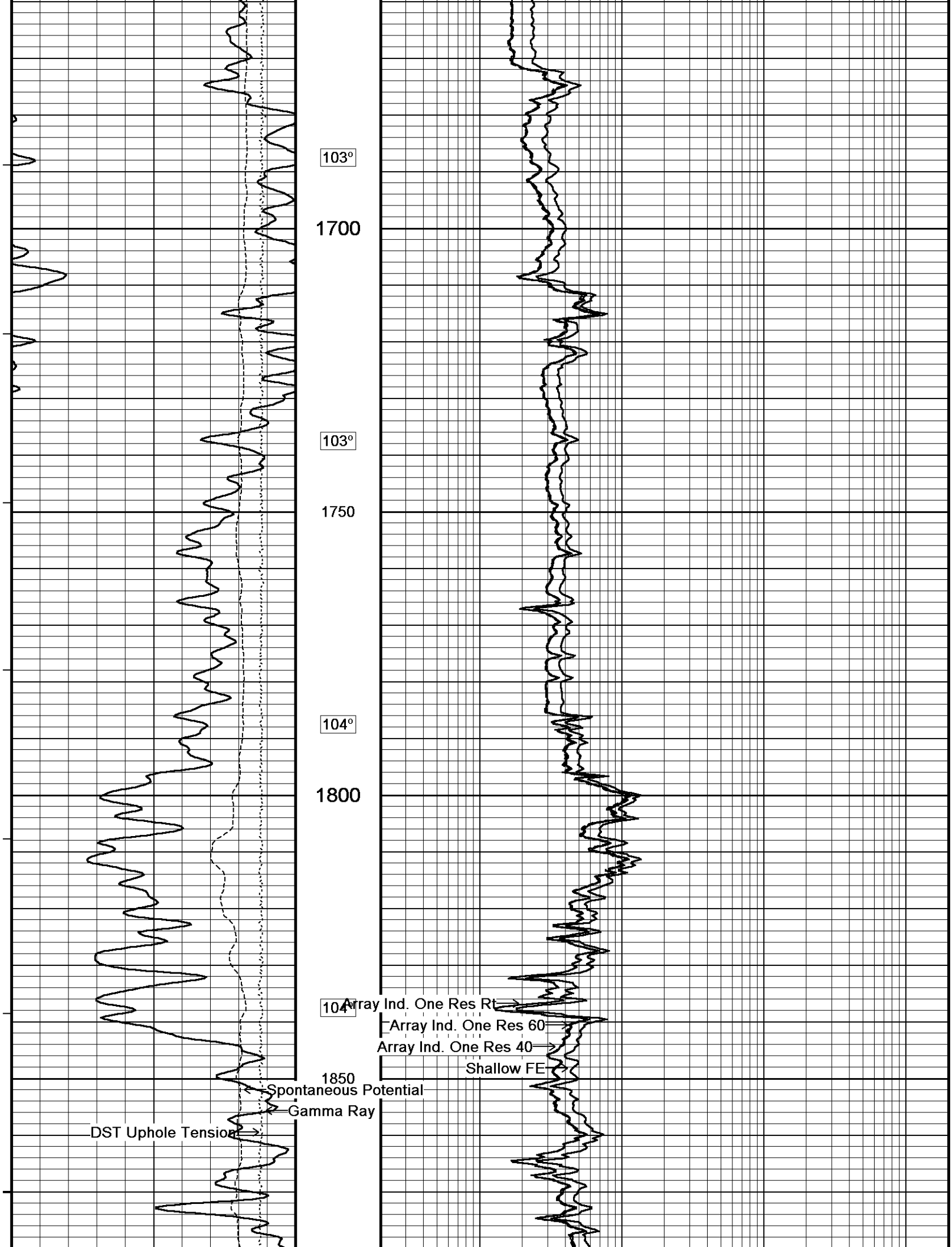

82°
600
83°
650
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
84°
700
86°
750

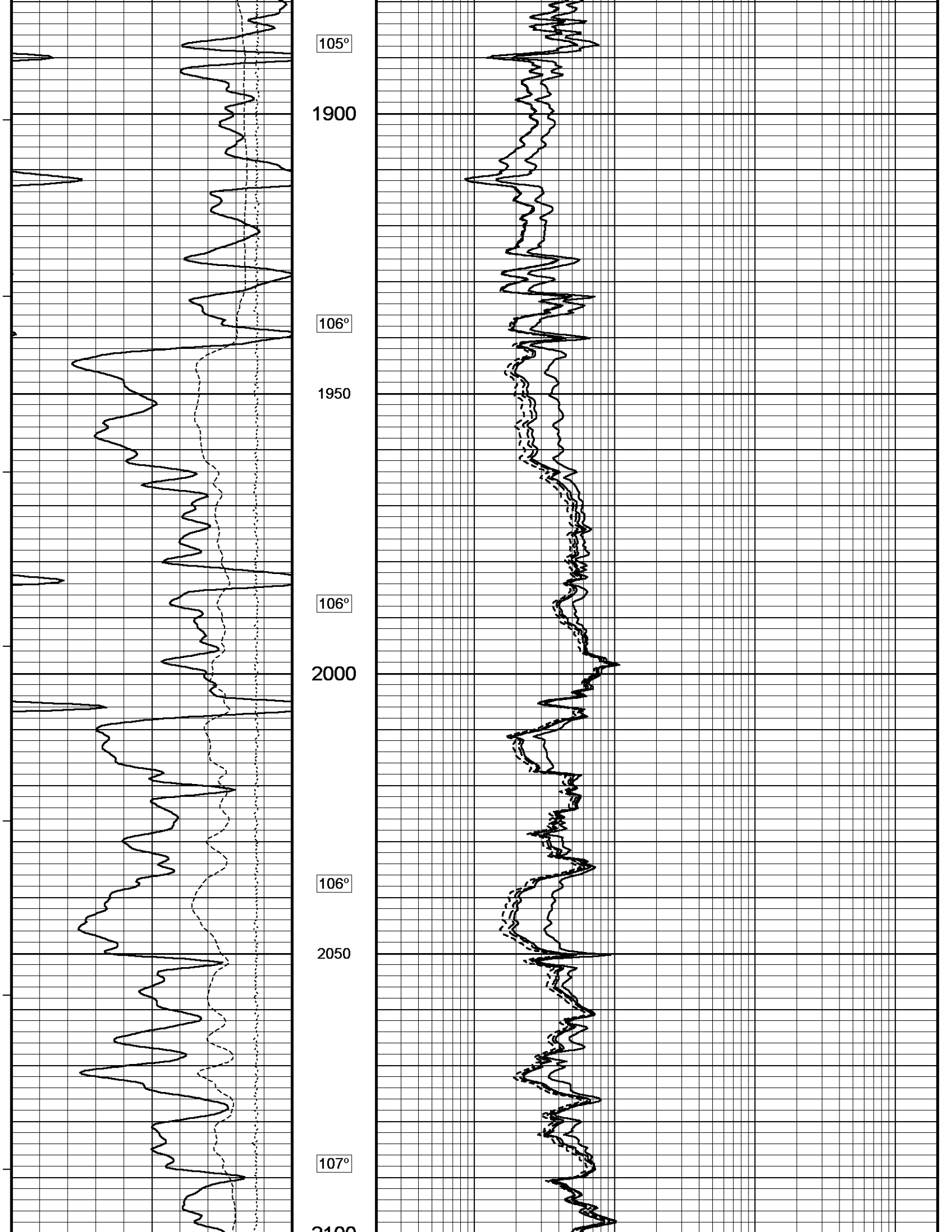

88°
800
90°
850
92°
900
93°
950
94°
1000

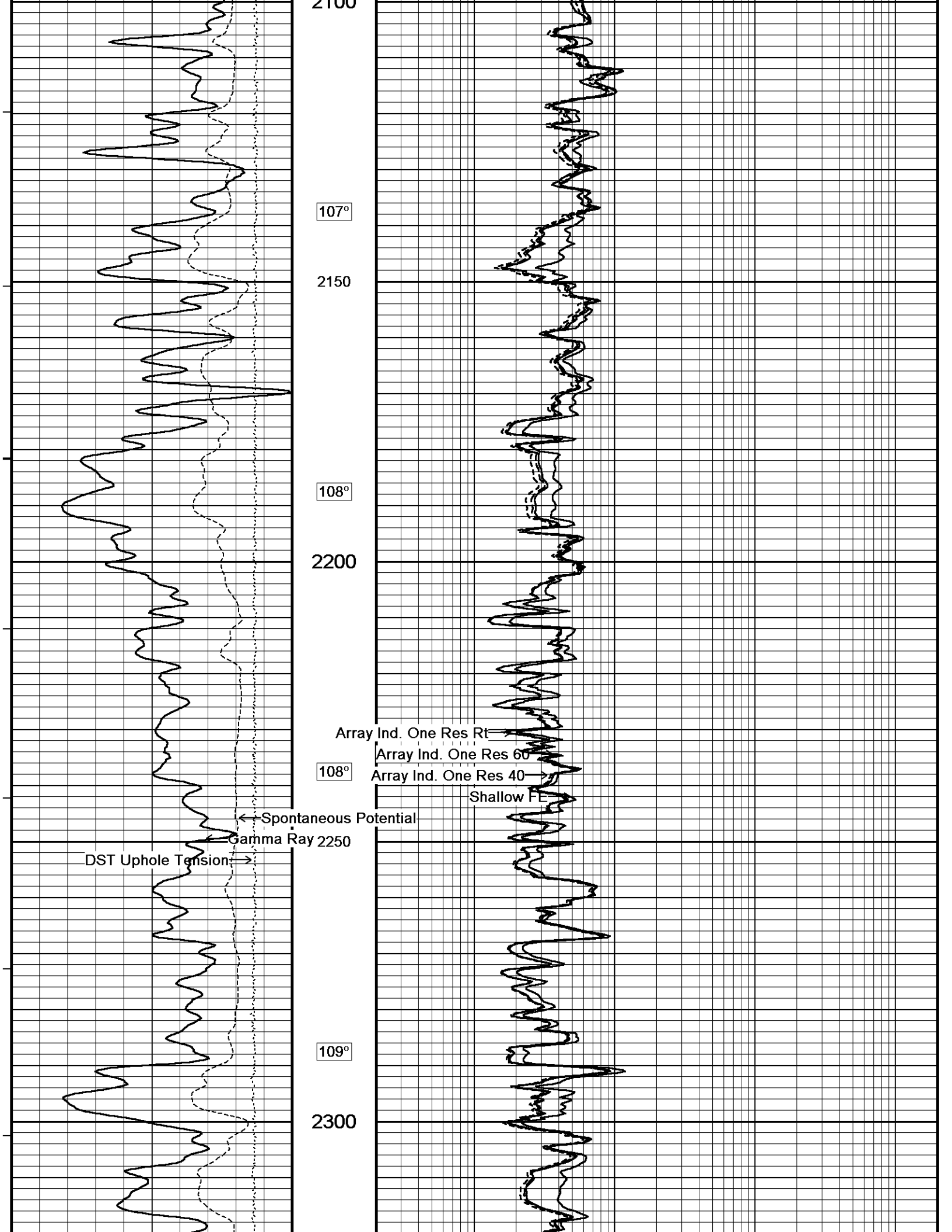

1000
94°
1050
Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
96°
1100
97°
1150
97°
1200

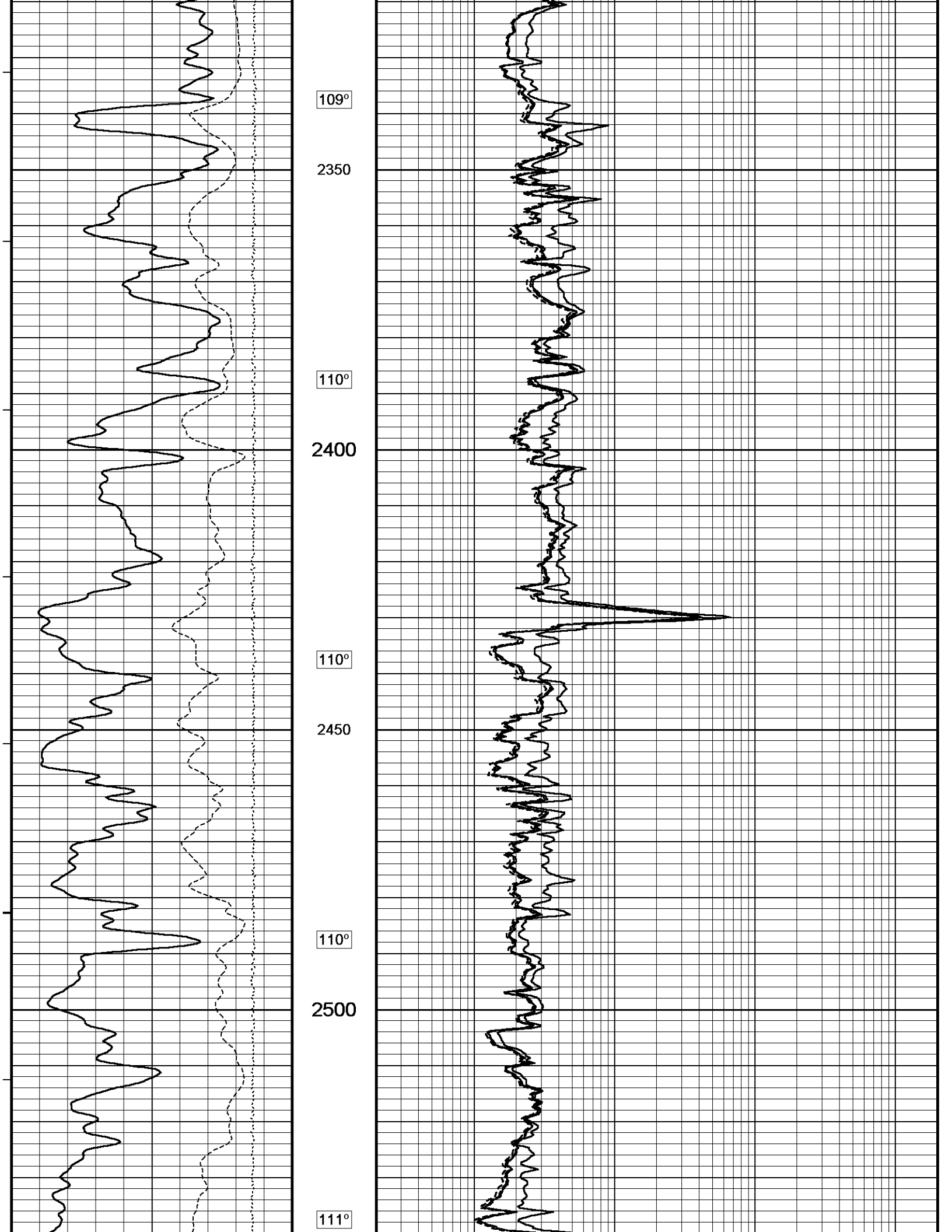

97°
1250
98°
1300
98°
1350
99°
1400
100°

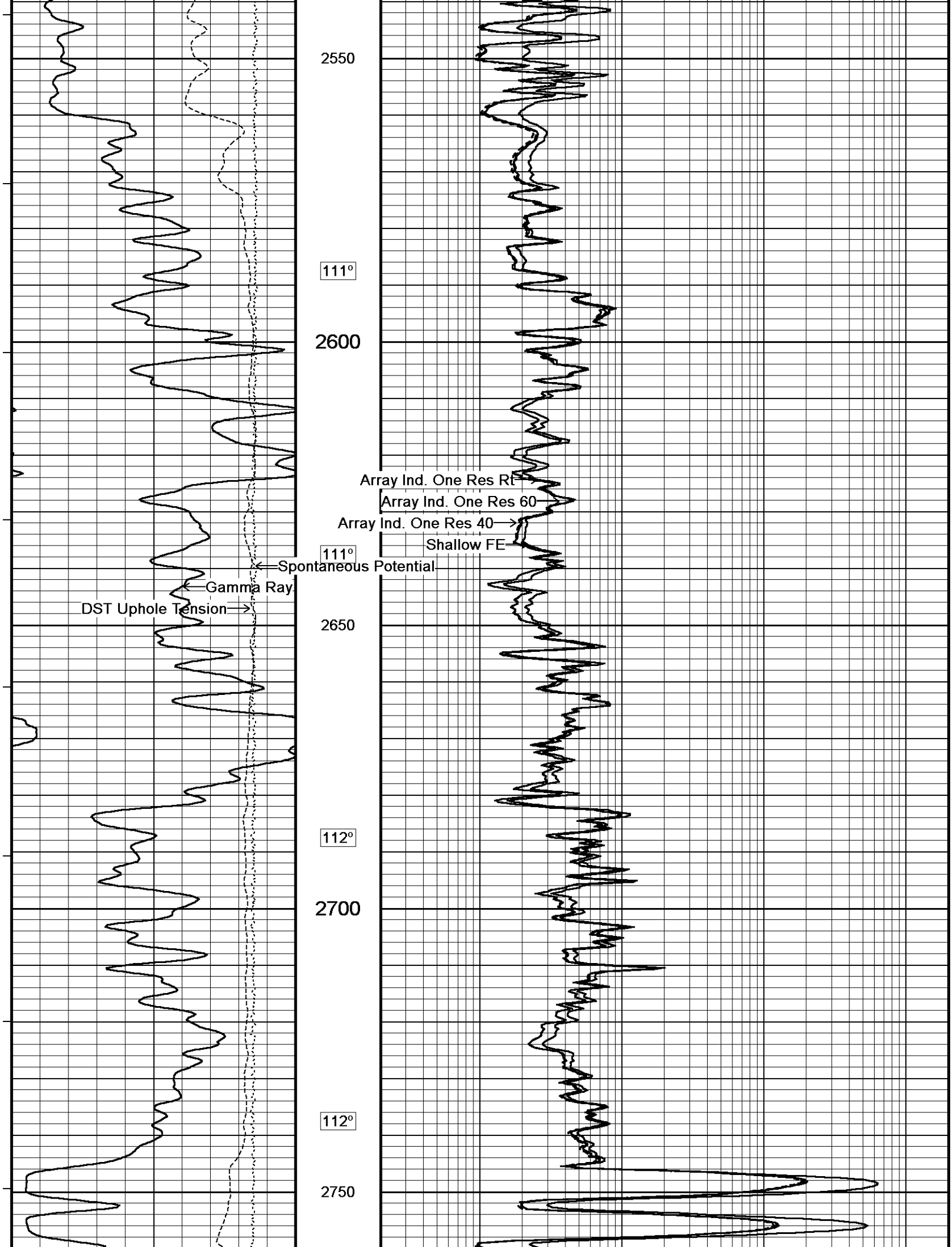

Array Ind. One Res Rt
Array Ind. One Res 60
1450rray Ind. One Res 40
Shallow FF
Spontaneous Potential
Gamma Ray
DST Uphole Tension
100°
1500
101°
1550
101°
1600
102°
1650

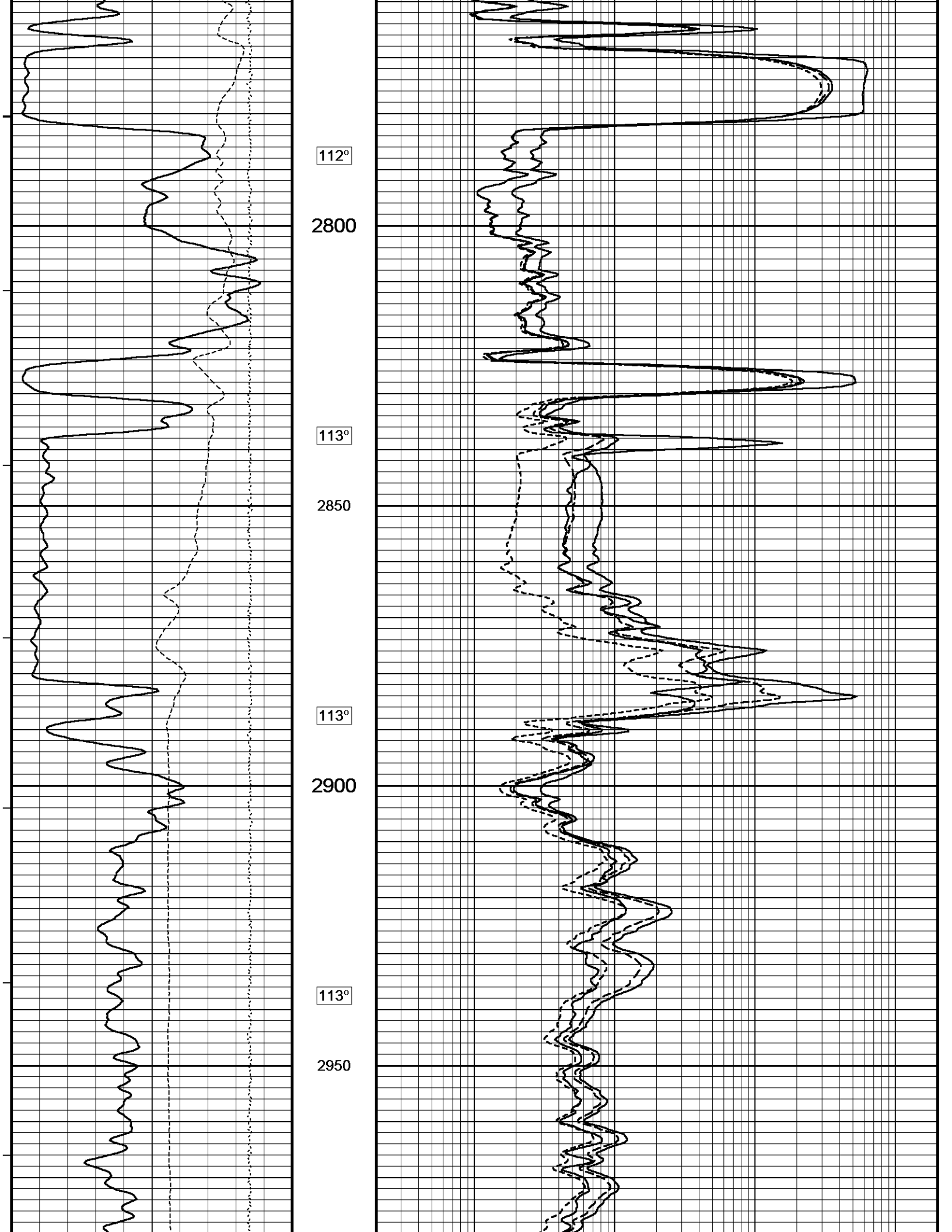

103°
1700
103°
1750
104°
1800
104°
1850
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension

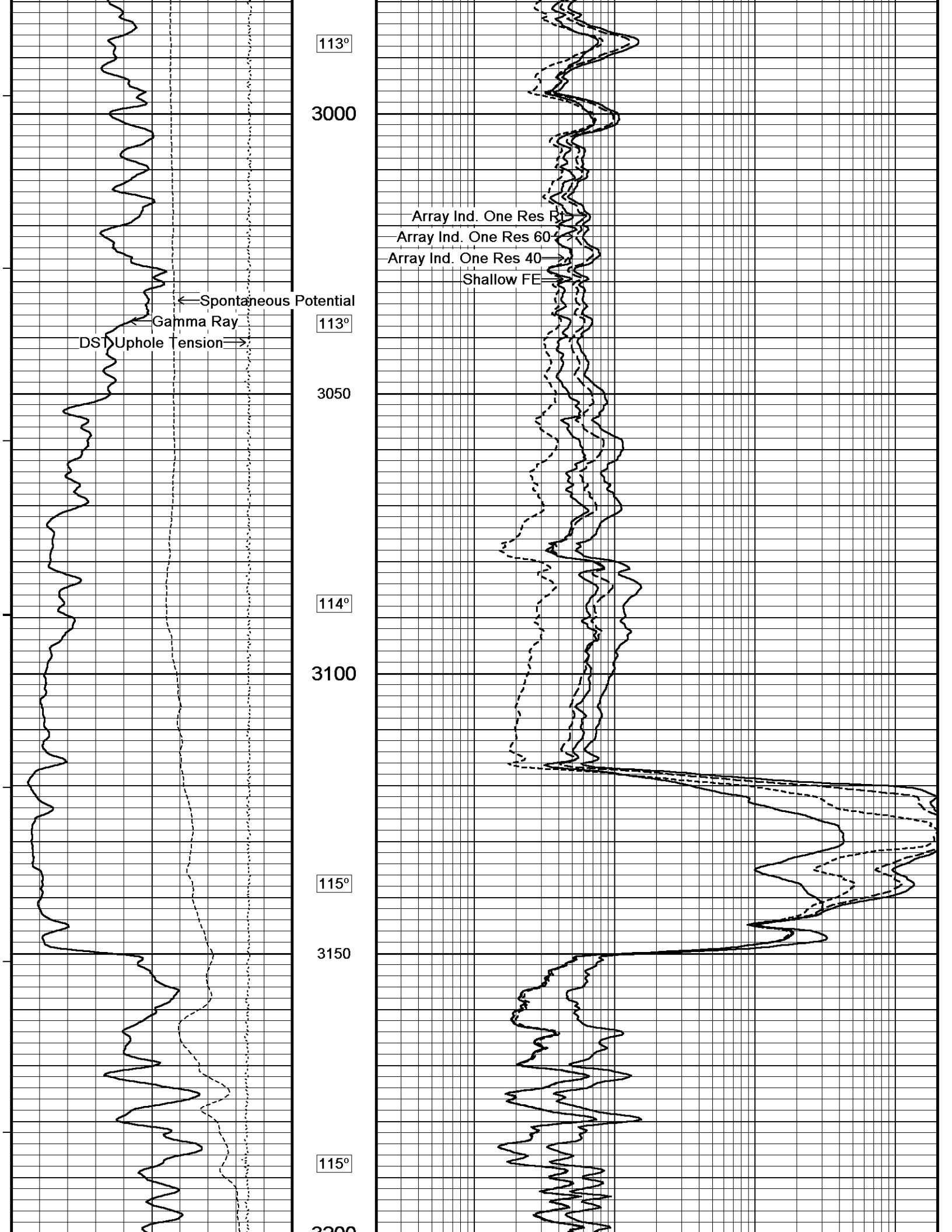

105°
1900
106°
1950
106°
2000
106°
2050
107°
2100

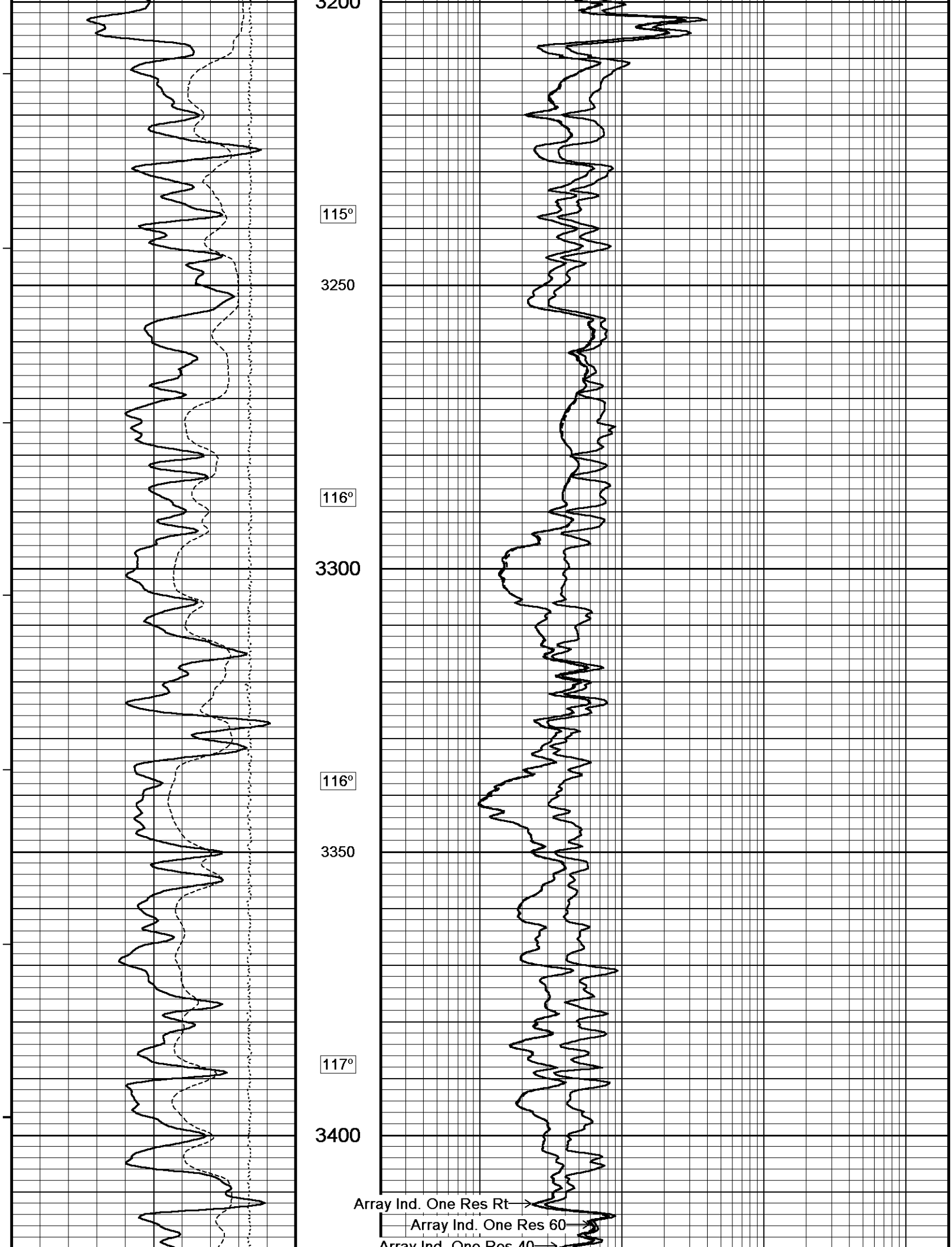

2100
107°
2150
108°
2200
Array Ind. One Res Rt
Array Ind. One Res 60
108°
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
2250
DST Uphole Tension
109°
2300

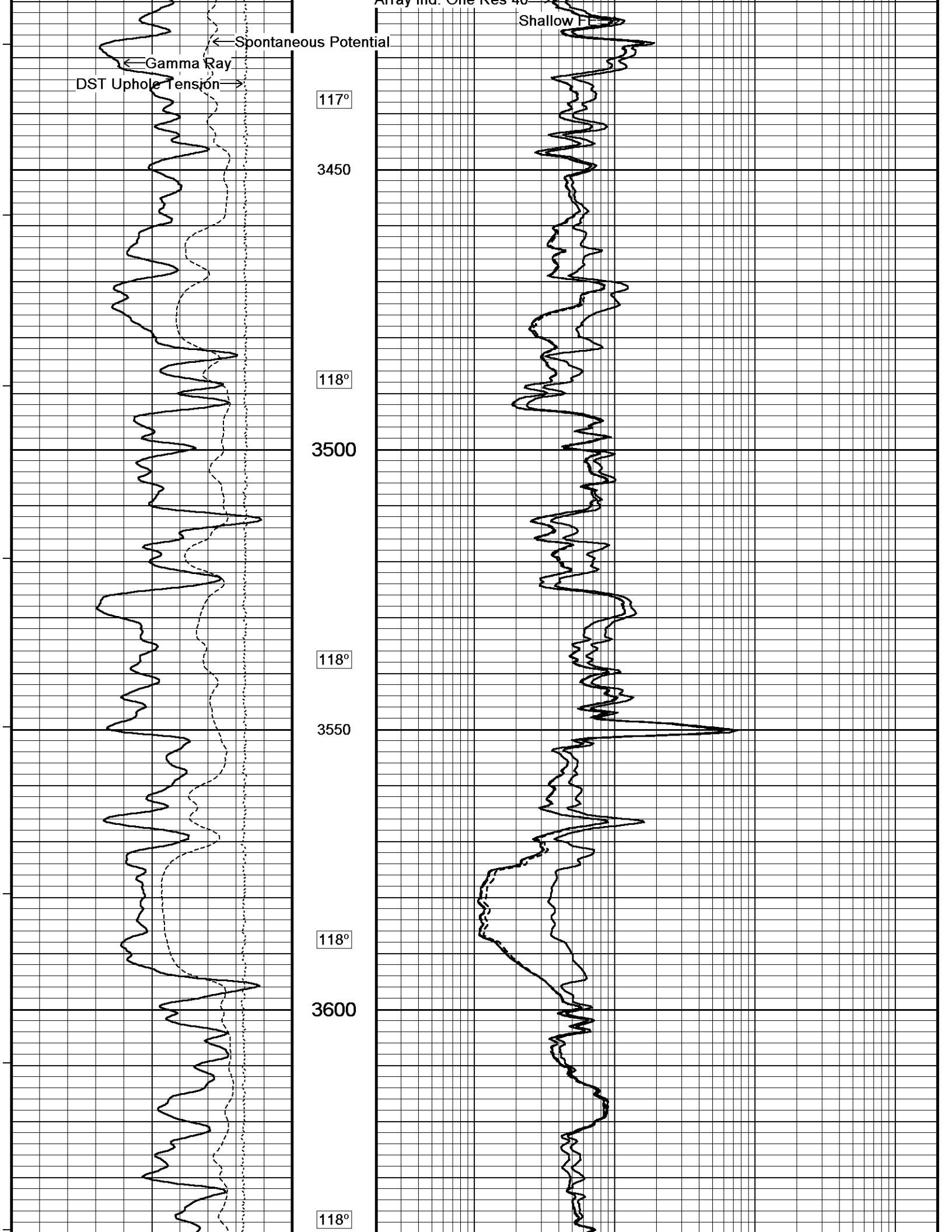

109°
2350
110°
2400
110°
2450
110°
2500
111°

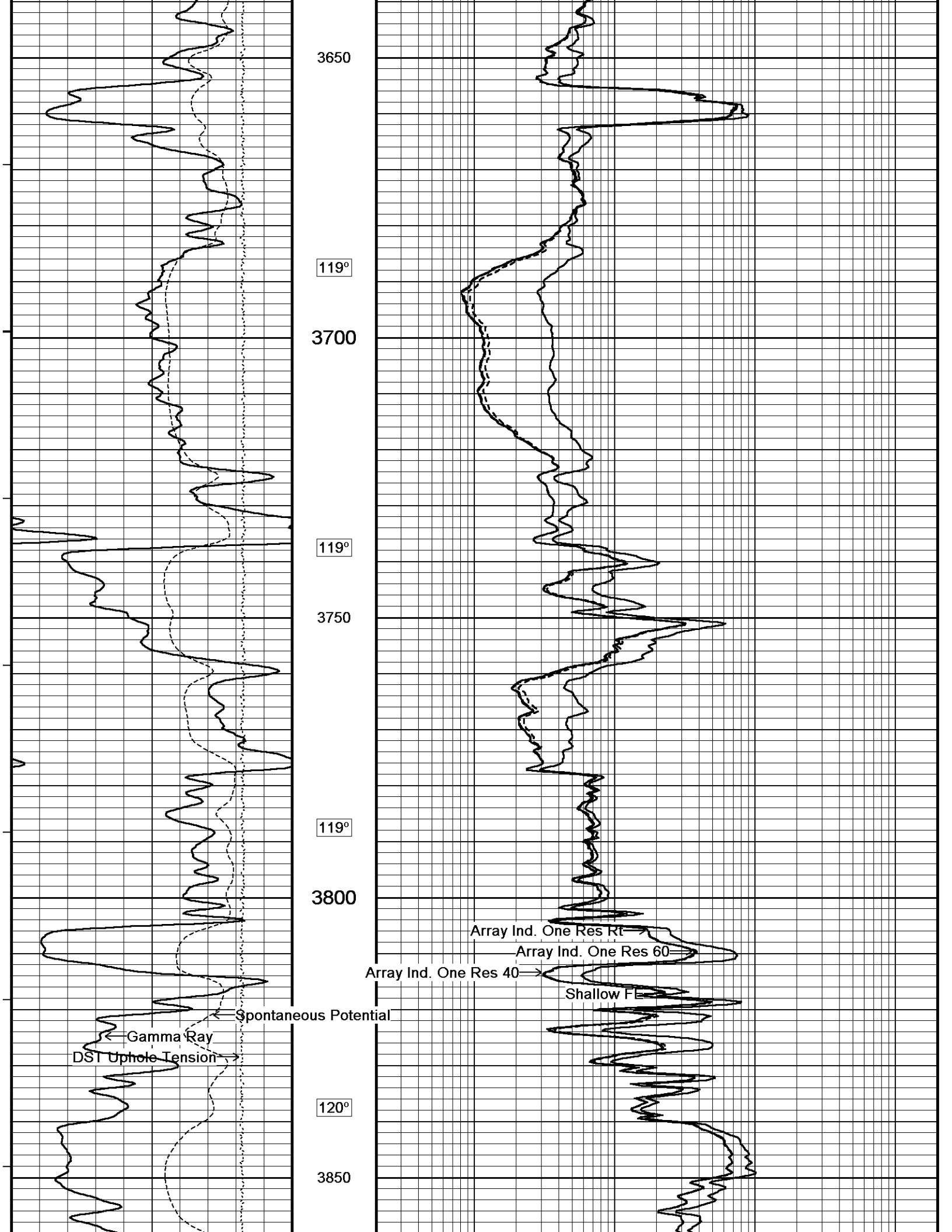

2550
111°
2600
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
111°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2650
112°
2700
112°
2750

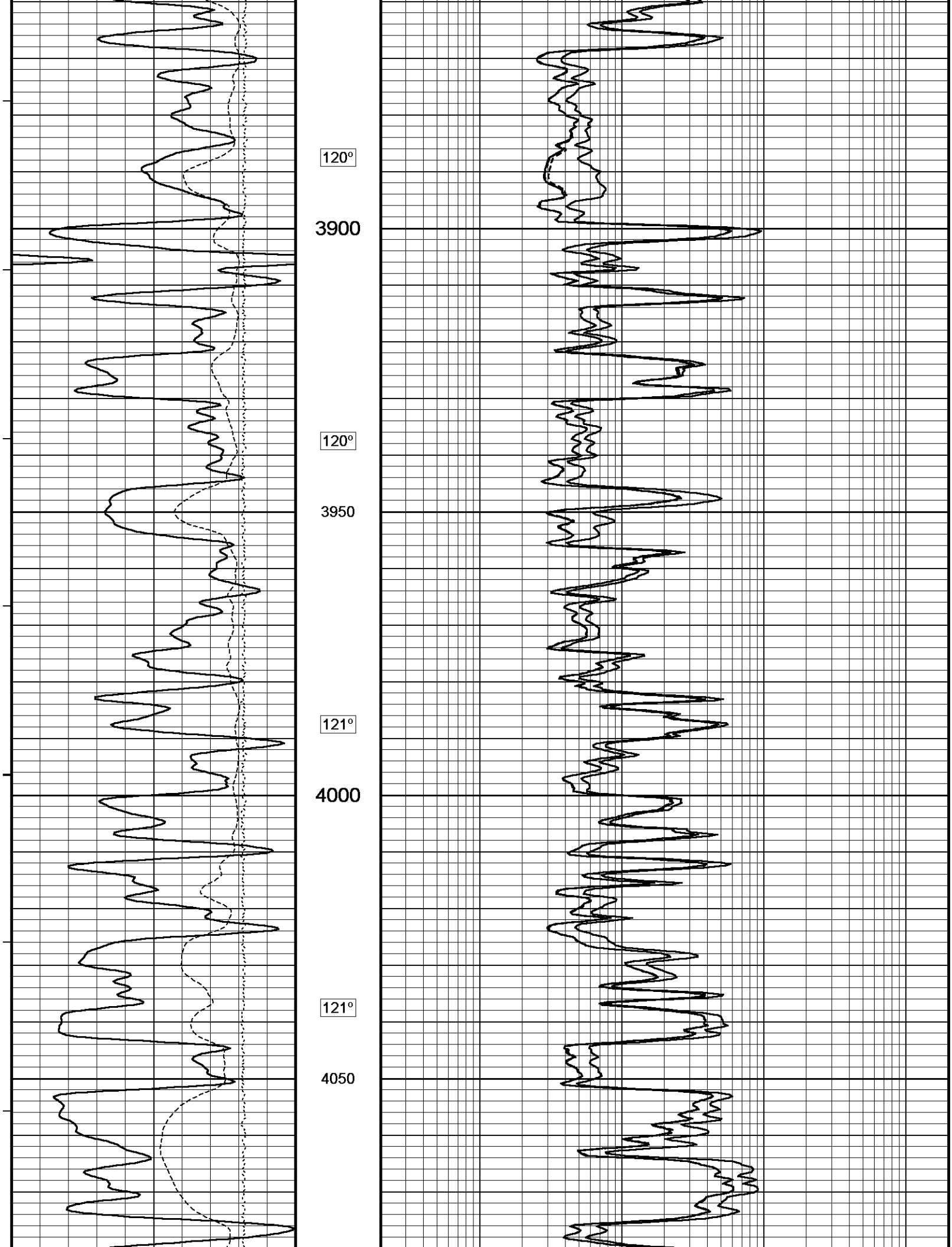

112°
2800
113°
2850
113°
2900
113°
2950

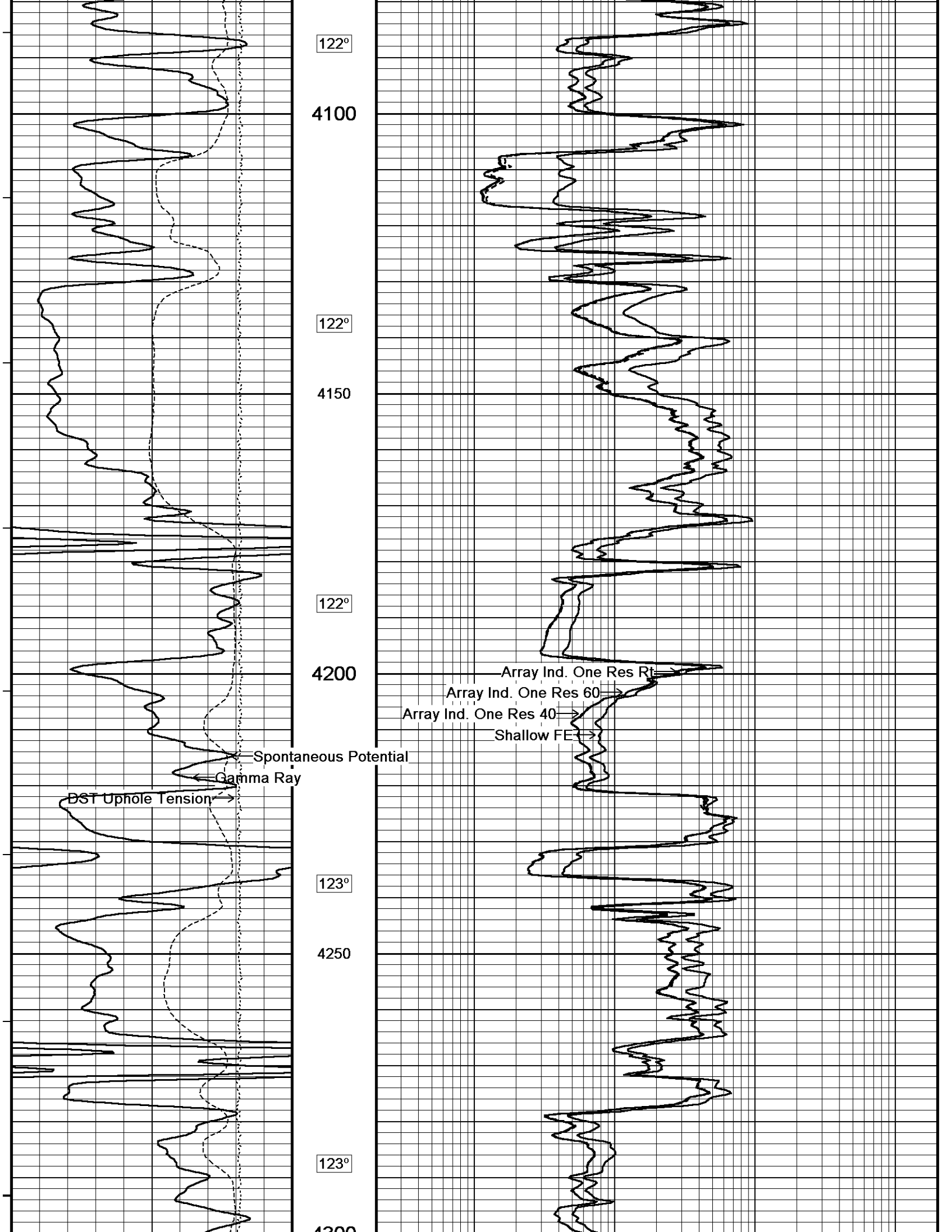

113°
3000
Array Ind. One Res R1
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
113°
3050
114°
3100
115°
3150
115°

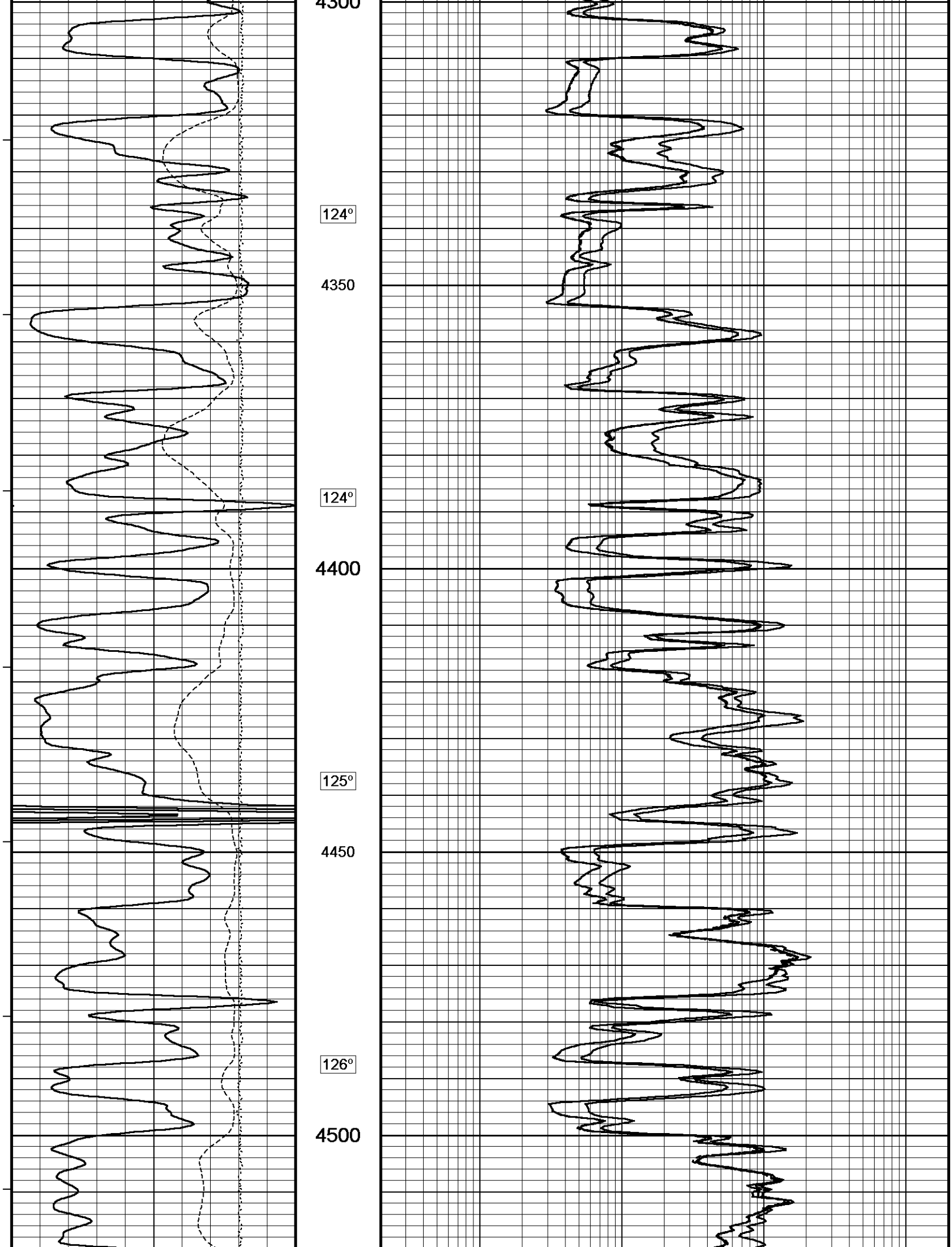

3200
115°
3250
116°
3300
116°
3350
117°
3400
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40

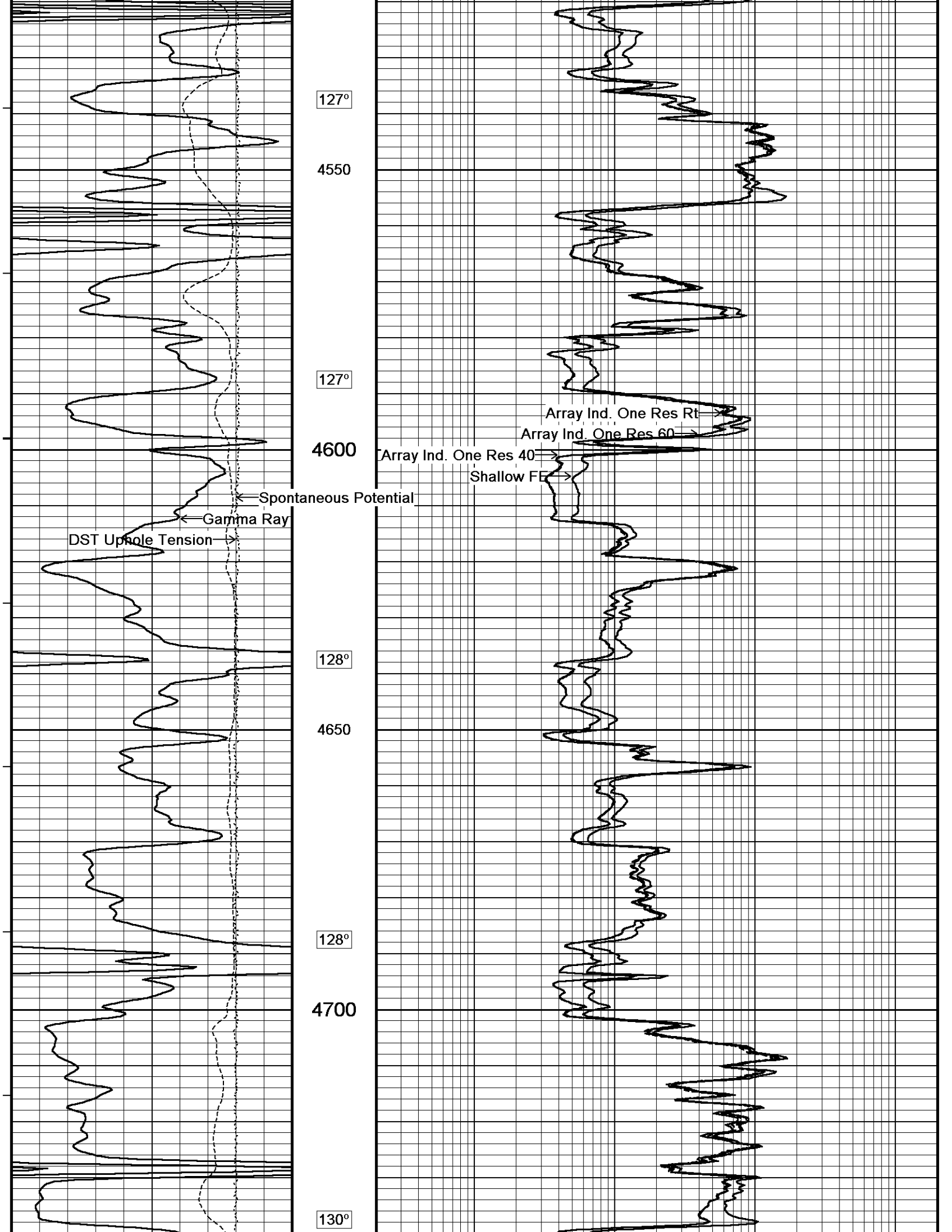

Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
117°
3450
118°
3500
118°
3550
118°
3600
118°

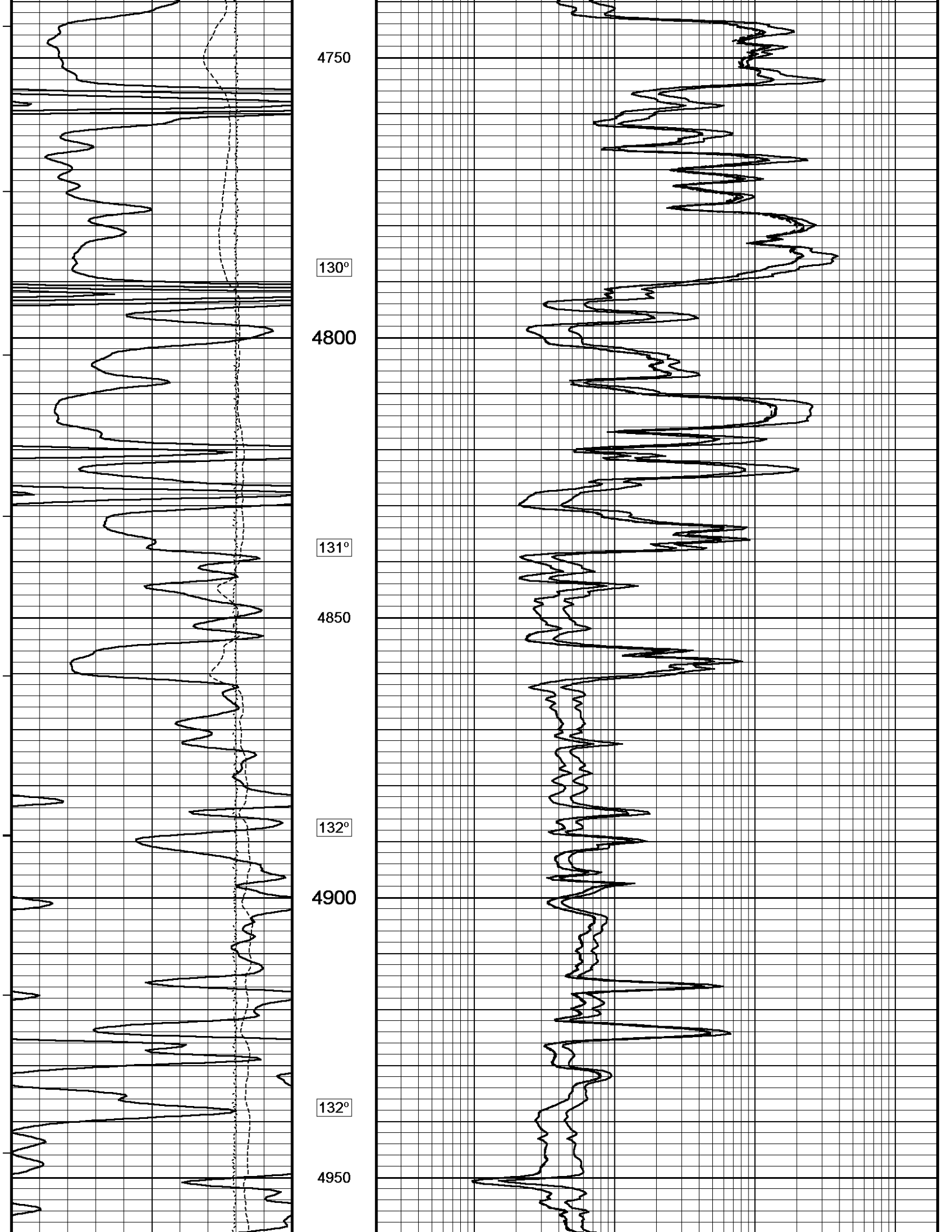

3650
119°
3700
119°
3750
119°
3800
120°
3850
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension

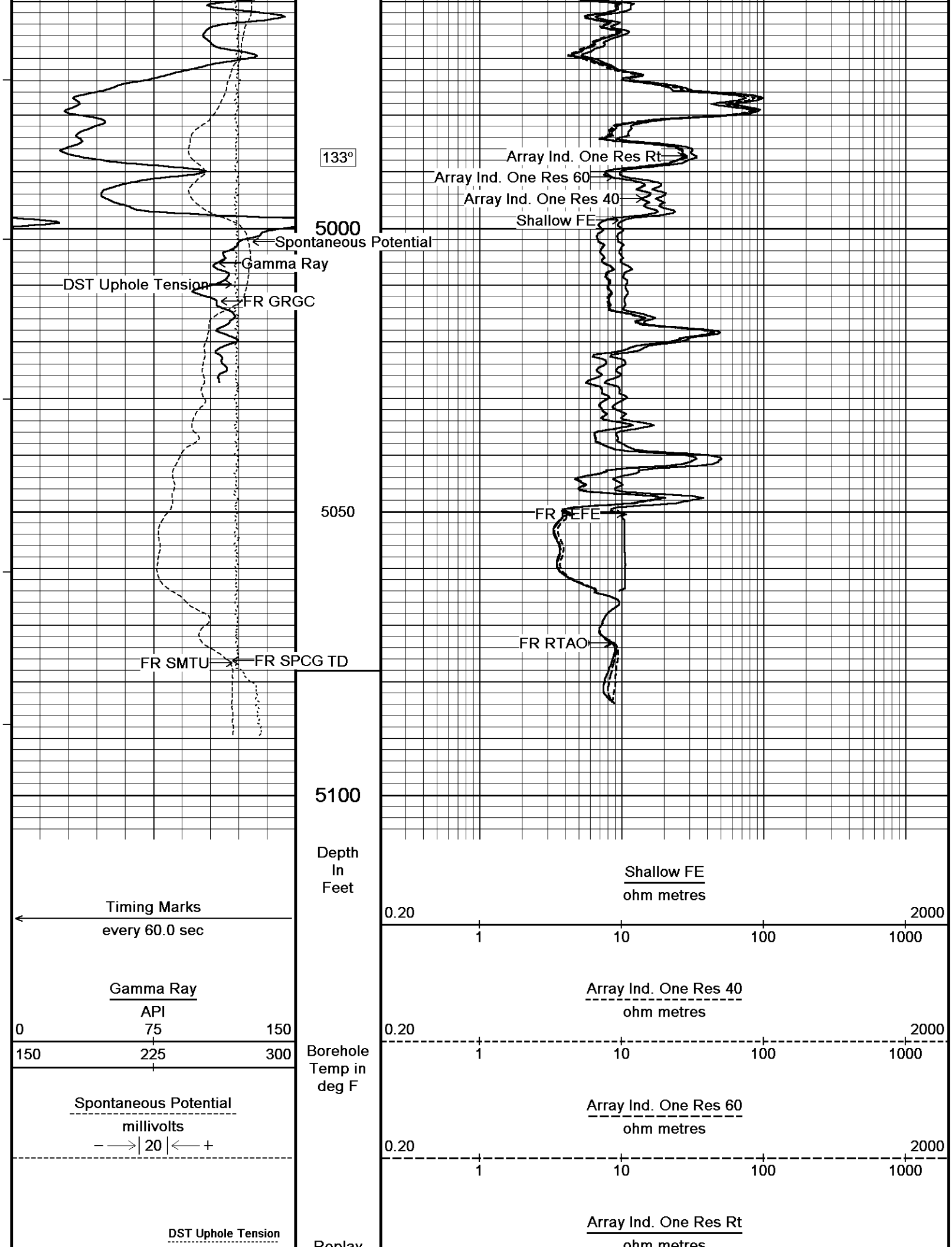

120°
3900
120°
3950
121°
4000
121°
4050


122°
4100
122°
4150
122°
4200
123°
4250
123°
4300
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension


4300
124°
4350
124°
4400
125°
4450
126°
4500


127°
4550
127°
Array Ind. One Res Rt
Array Ind. One Res 60
4600
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
128°
4650
128°
4700
130°


4750
130°
4800
131°
4850
132°
4900
132°
4950


133°
5000
5050
5100
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
FR SMTU
FR SPCG TD
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR RTAO
Depth
In
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
20
DST Uphole Tension
Borehole
Temp in
deg F
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
ohm metres
Array Ind. One Res 60
ohm metres
Array Ind. One Res Rt
ohm metres

pounds
5000 0

Replay Scale 1:240

ohm metres
0.20 2000
1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta
Recorded on 24-NOV-2013 02:52
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

5 INCH MAIN

HI-RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 High Res.dta
Recorded on 24-NOV-2013 01:03
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

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

HVI every 10 cu ft

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

Spontaneous Potential
millivolts
− → | 20 | ← +

Annular Integral every 10 cu ft

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

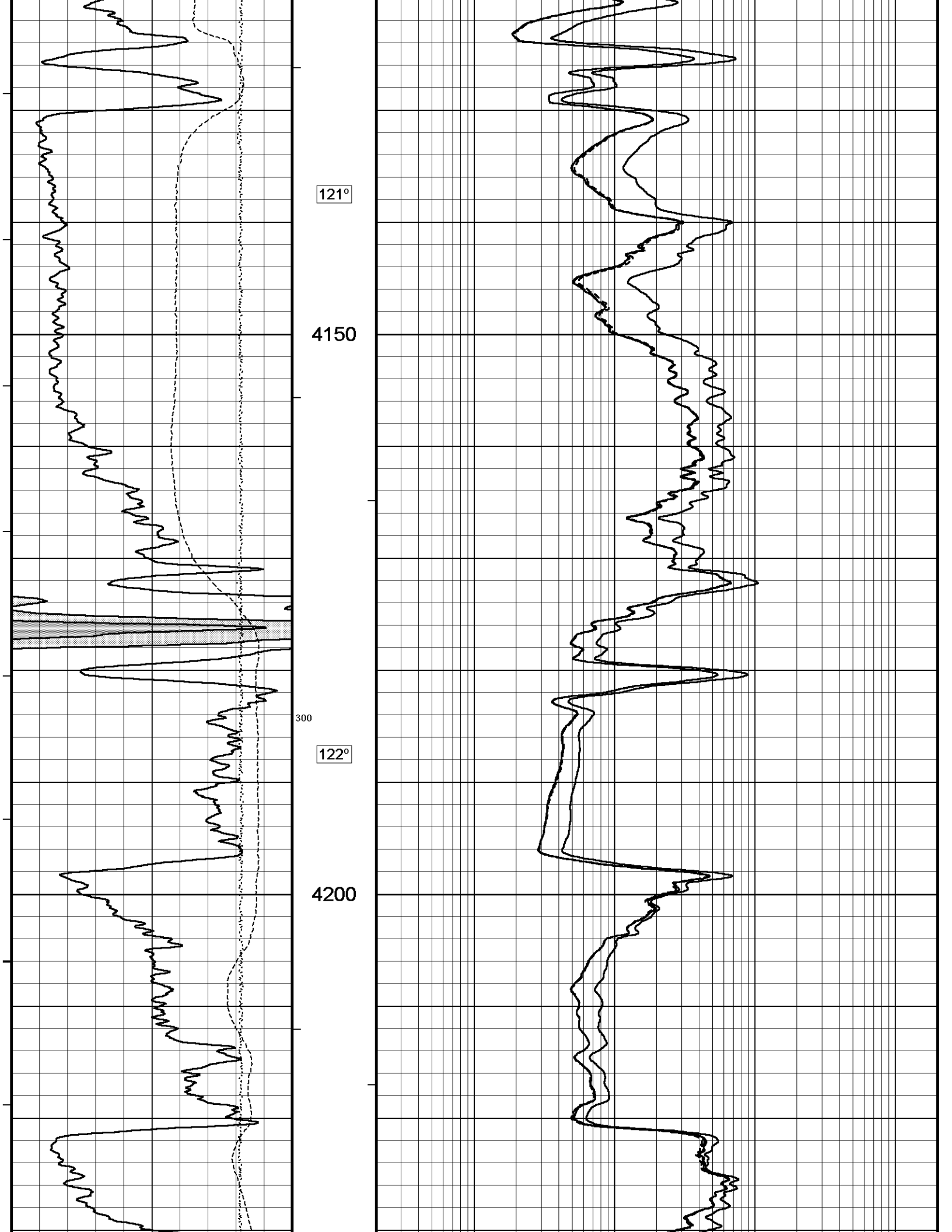
DST Uphole Tension
pounds
5000 0

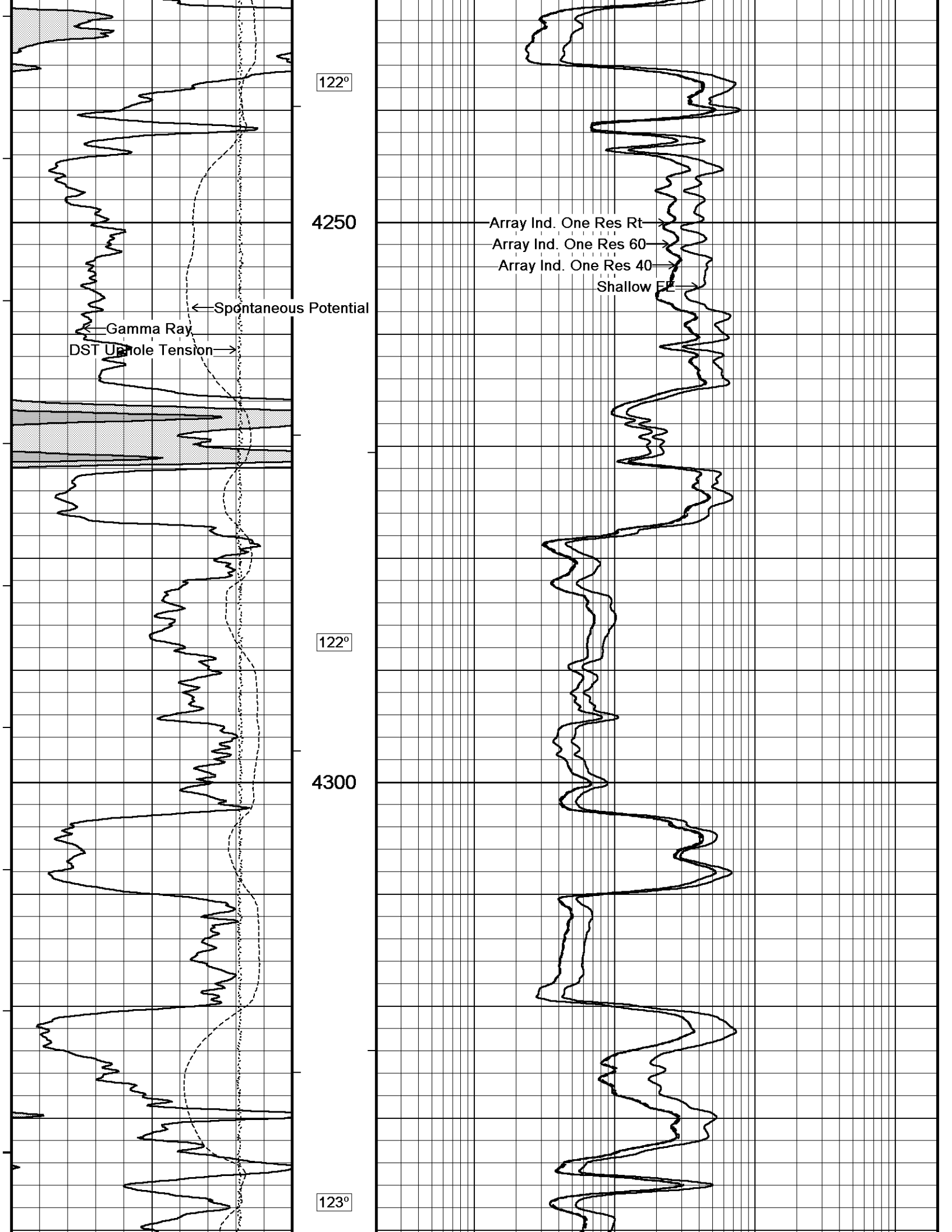
Replay Scale 1:120

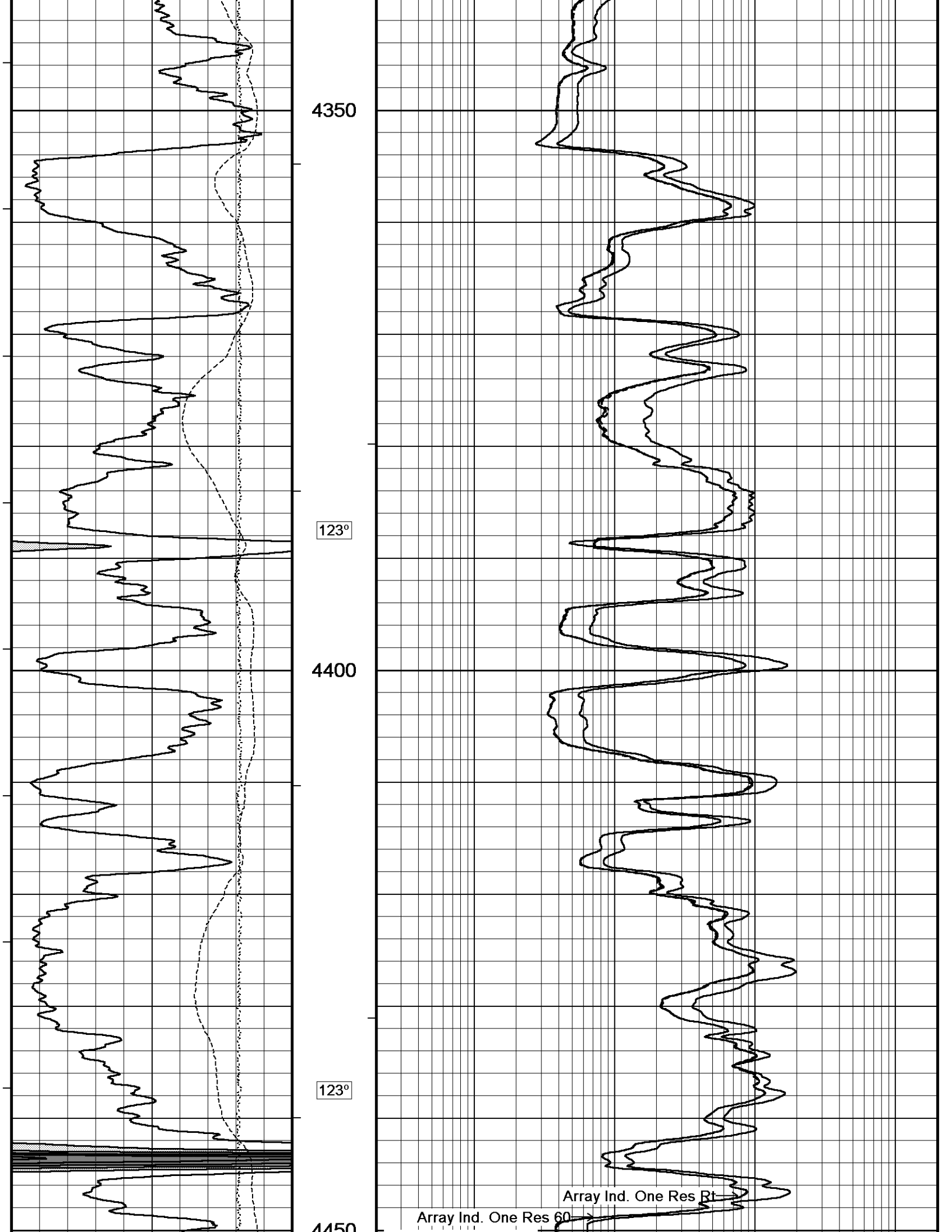
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

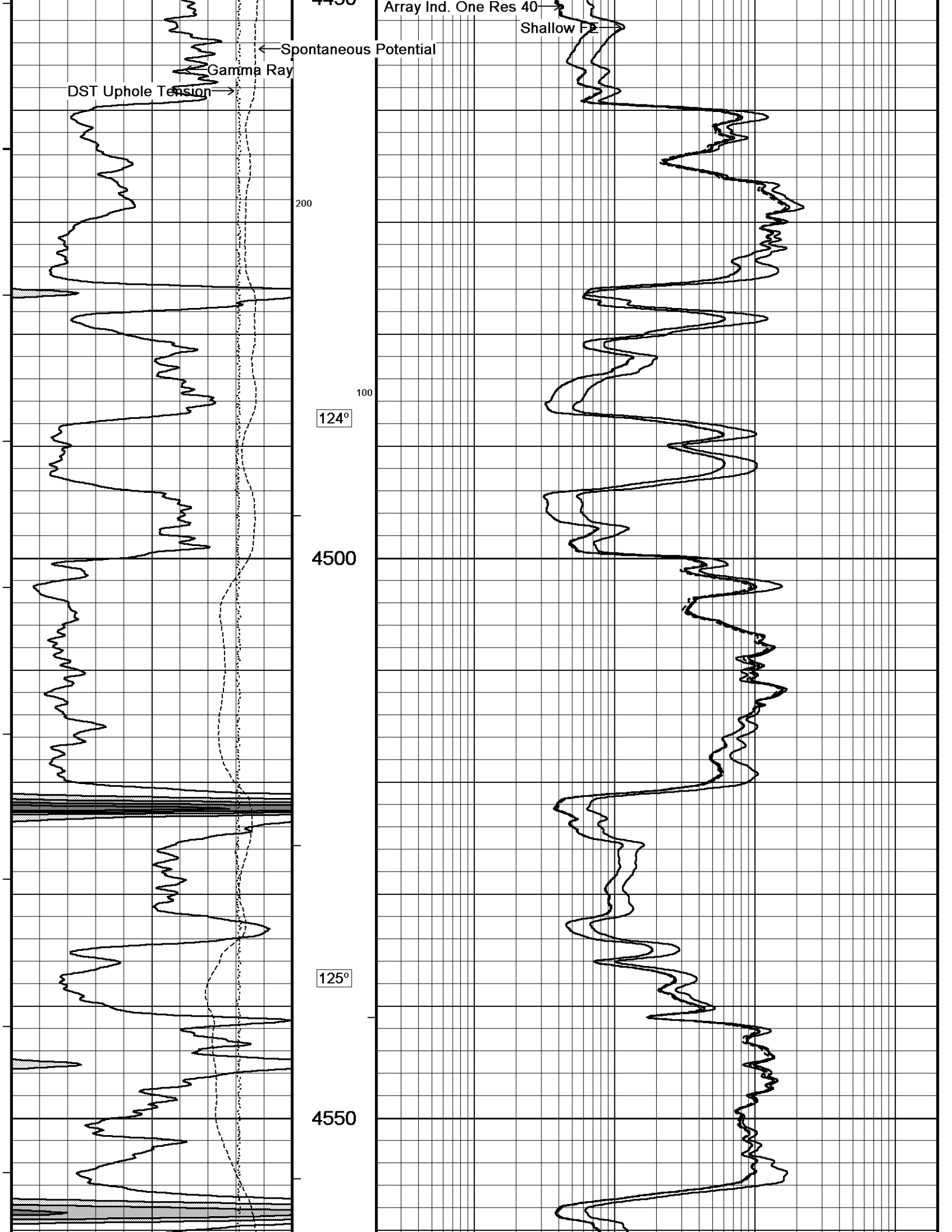
4078

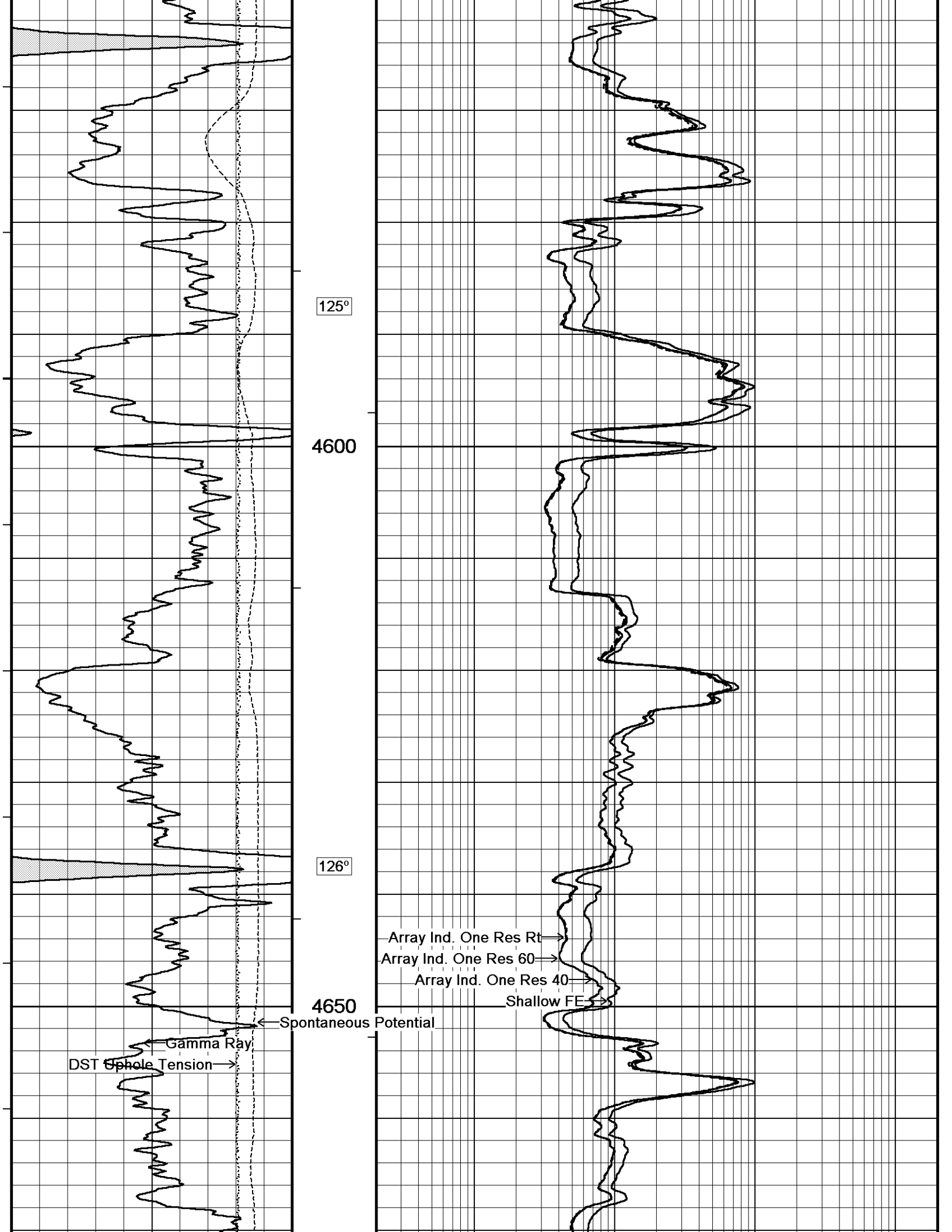
4100

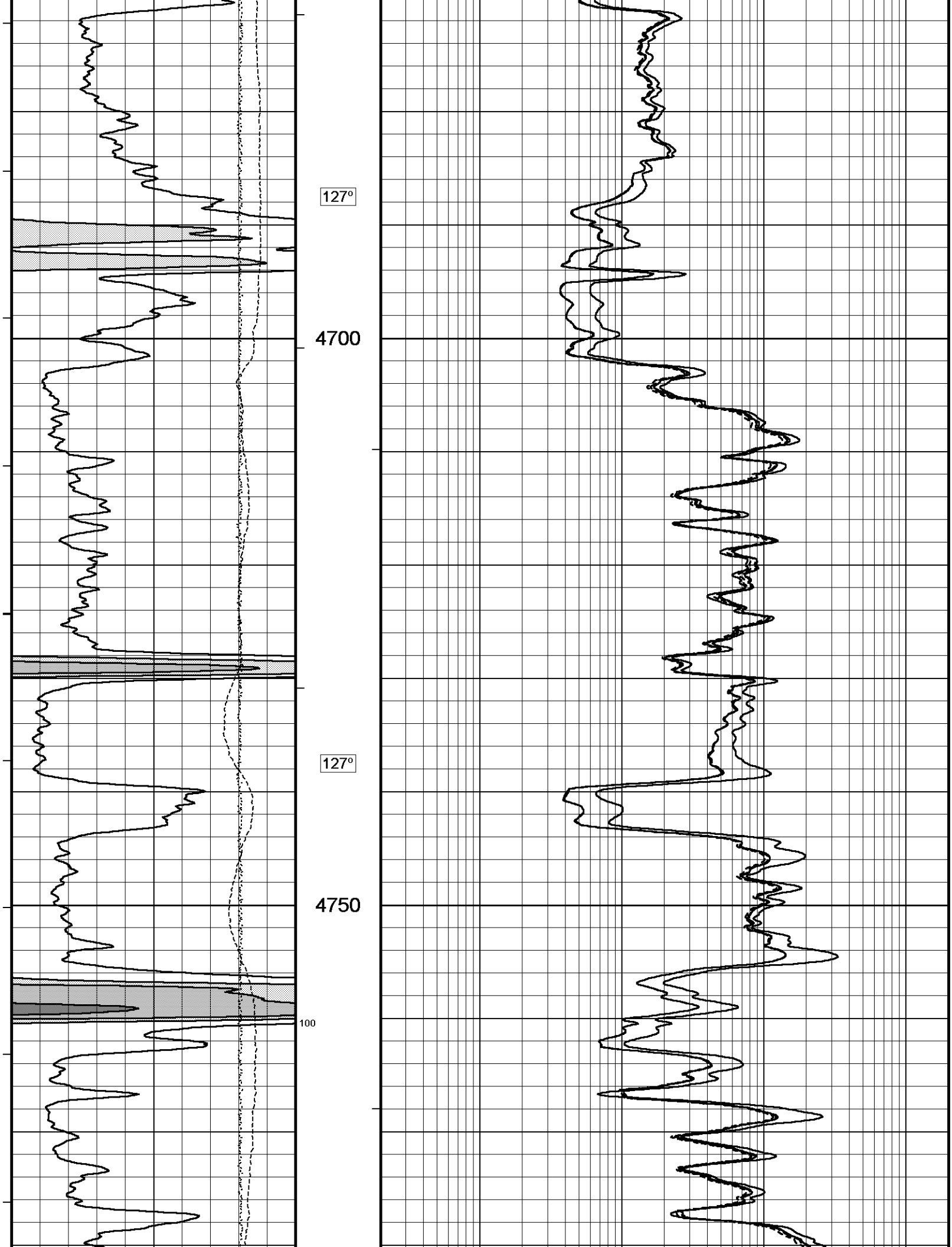

121°
4150
300
122°
4200

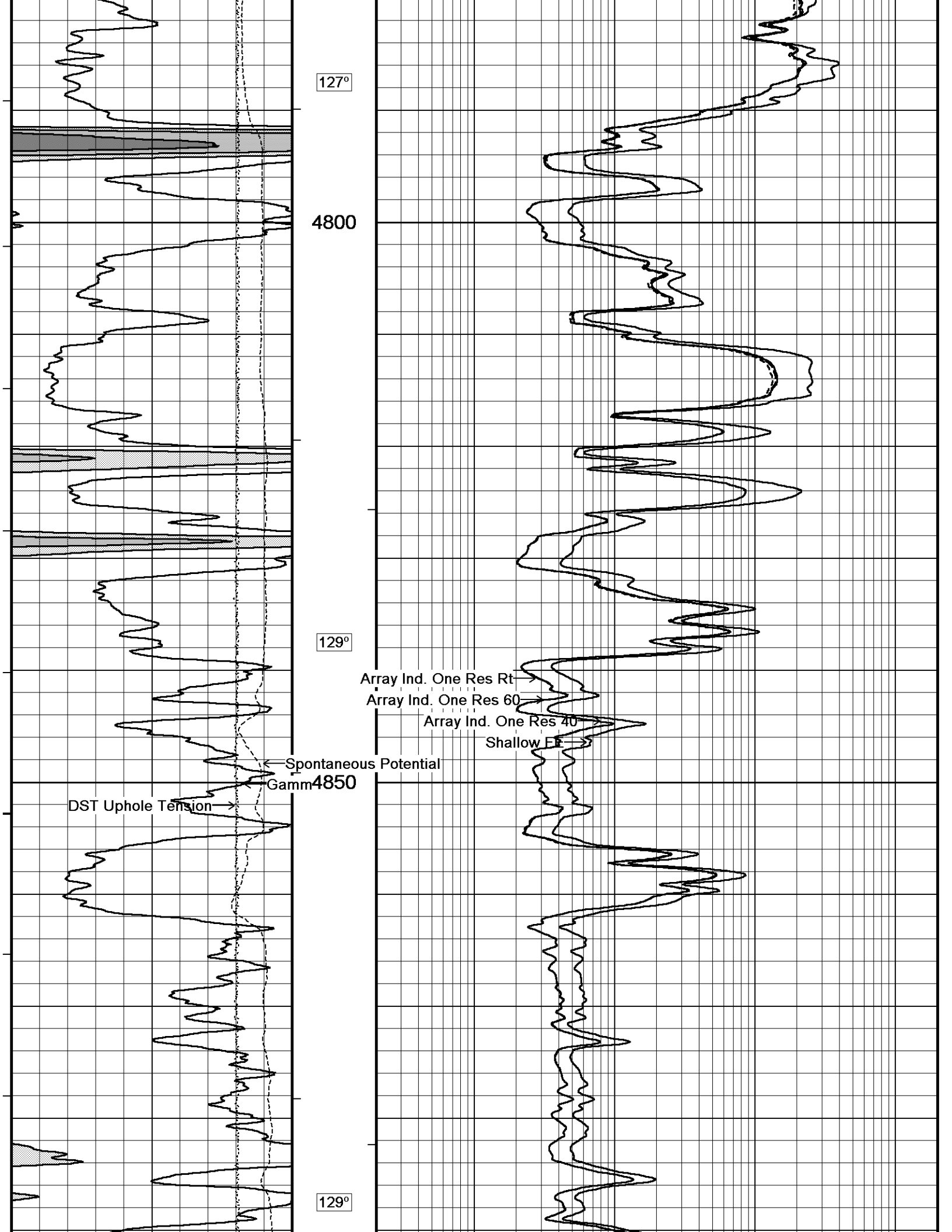

122°
4250
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
122°
4300
123°

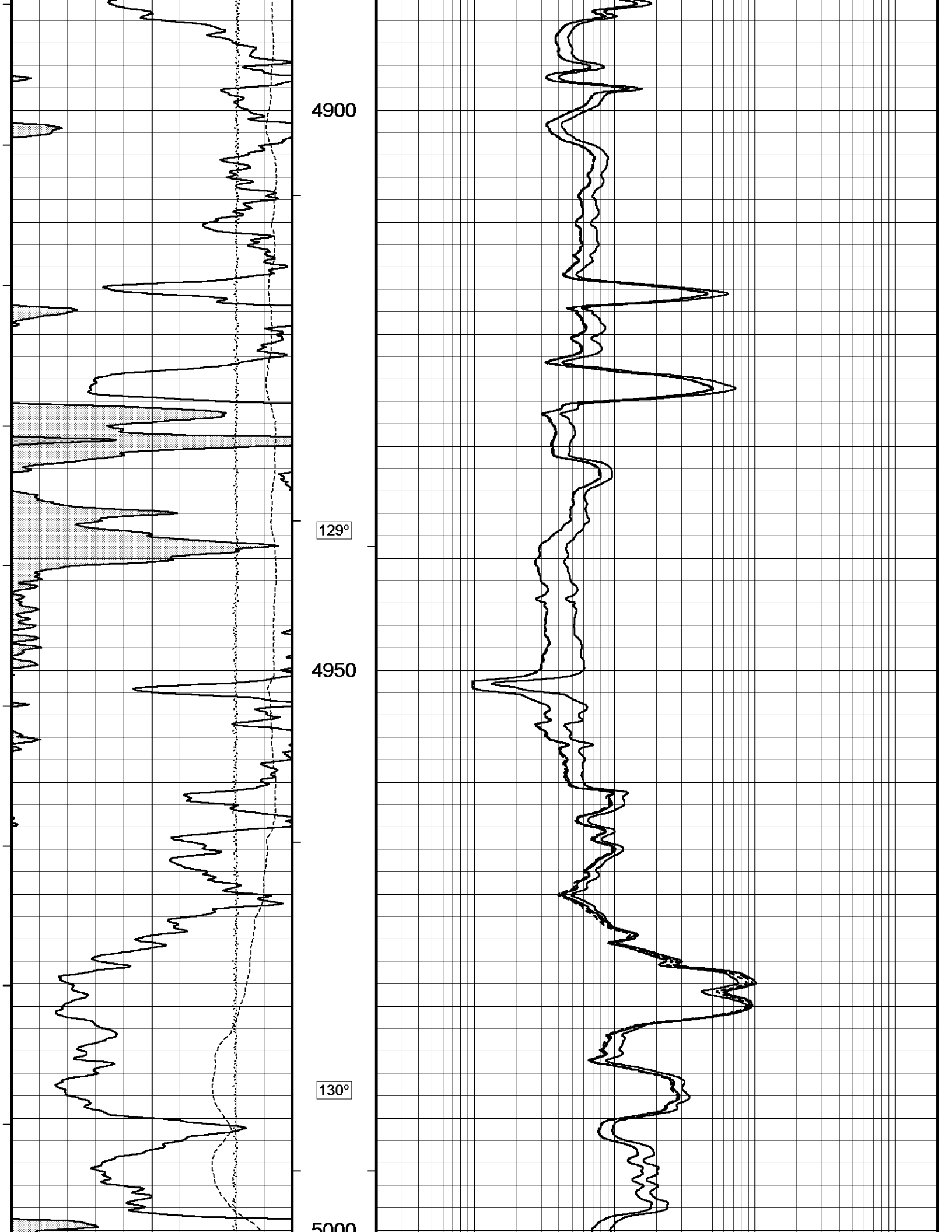

4350
123°
4400
123°
Array Ind. One Res Rt
Array Ind. One Res 60
4450

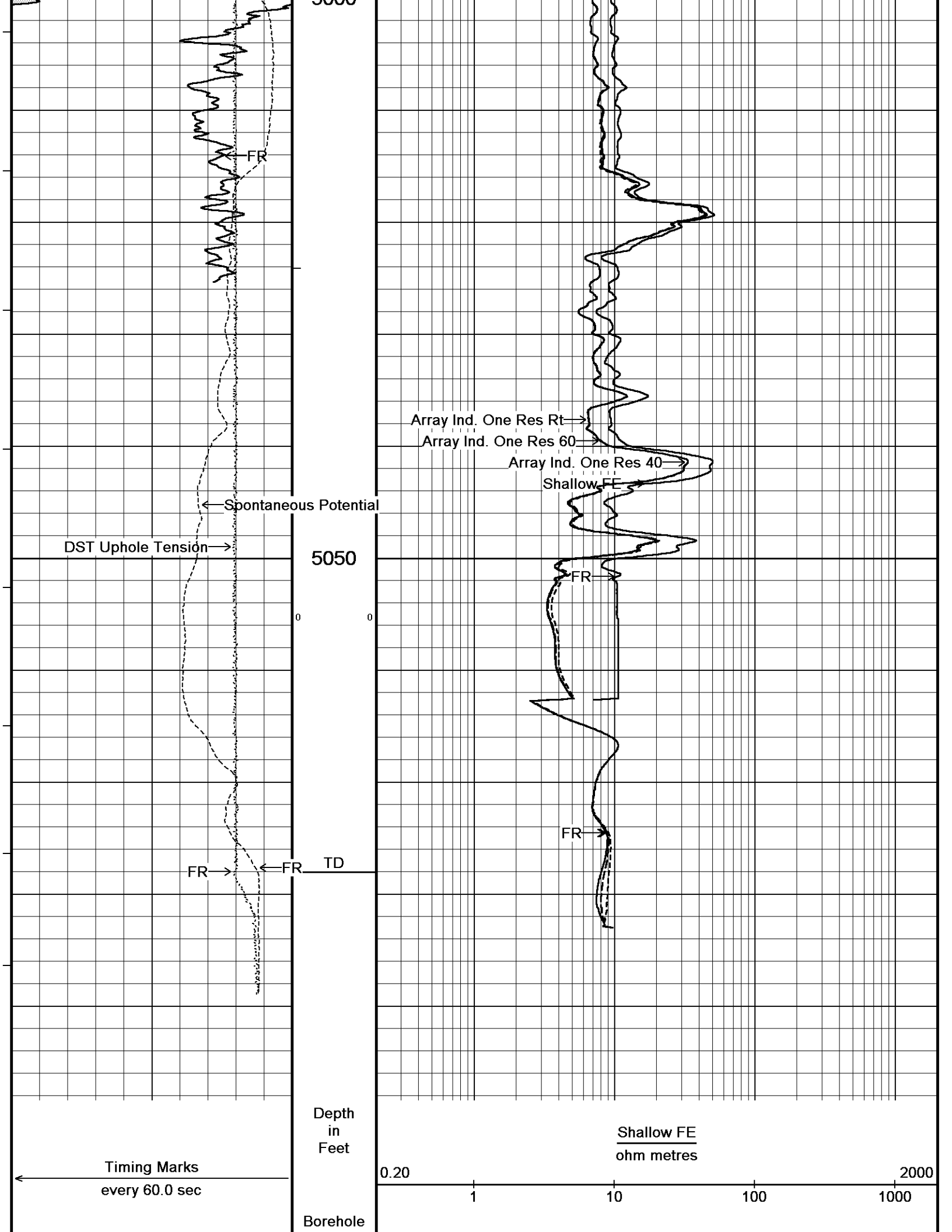

Array Ind. One Res 40
Shallow Fo
Spontaneous Potential
Gamma Ray
DST Uphole Tension
200
100
124°
4500
125°
4550


125°
4600
126°
4650
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension


127°
4700
127°
4750
100


127°
4800
129°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Ft
Spontaneous Potential
Gamm4850
DST Uphole Tension
129°


4900
129°
4950
130°
5000


FR
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
DST Uphole Tension
5050
0
0
FR
FR
FR
FR
TD
Depth
in
Feet
Timing Marks
every 60.0 sec
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Borehole

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
– → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:120

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

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 High Res.dta
Recorded on 24-NOV-2013 01:03
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

HI-RES

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 24-NOV-2013 08:31
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Repeat.dta
Recorded on 24-NOV-2013 01:03
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

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

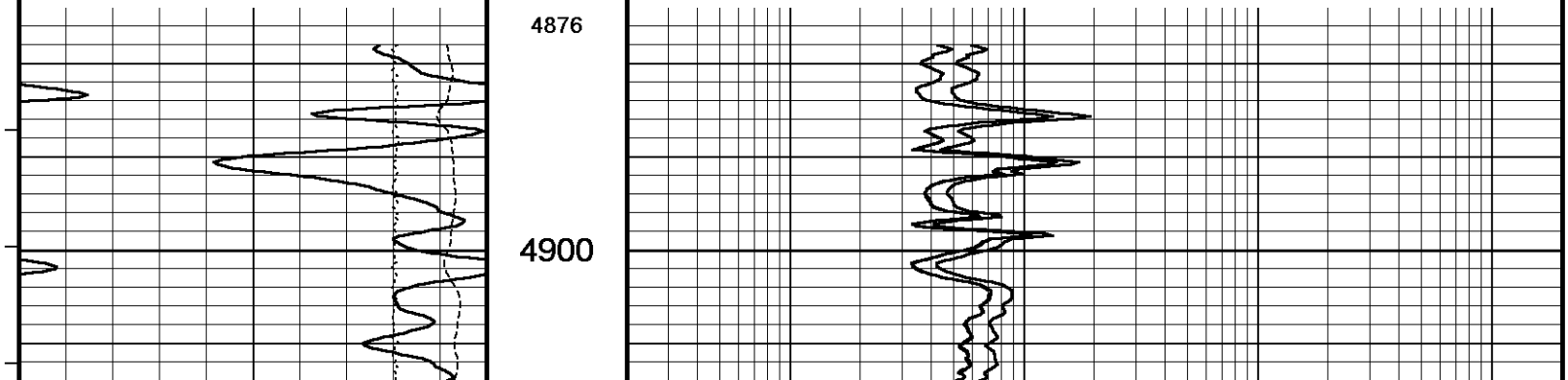
Replay Scale 1:240

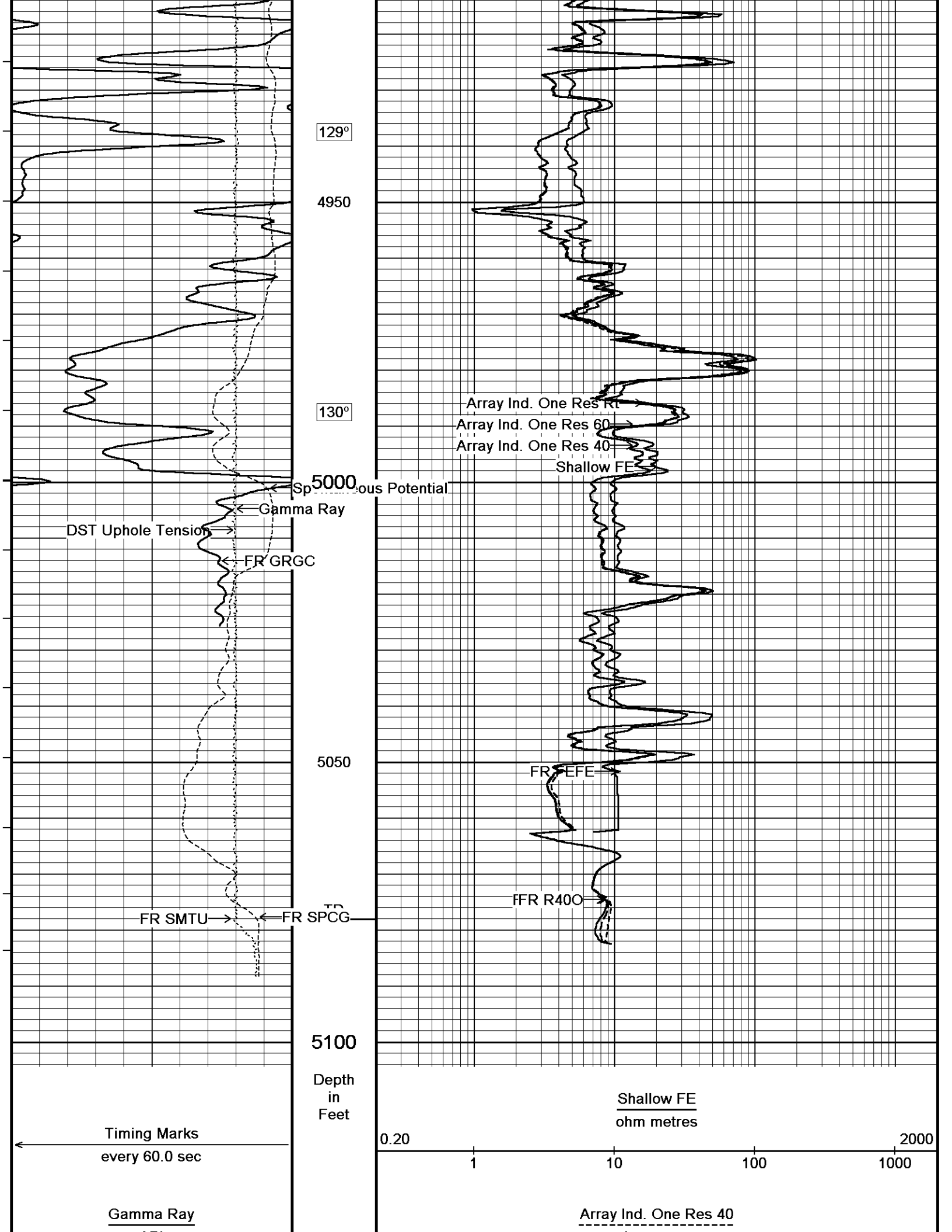
Shallow FE
ohm metres
0.20 2000
1 10 100 1000

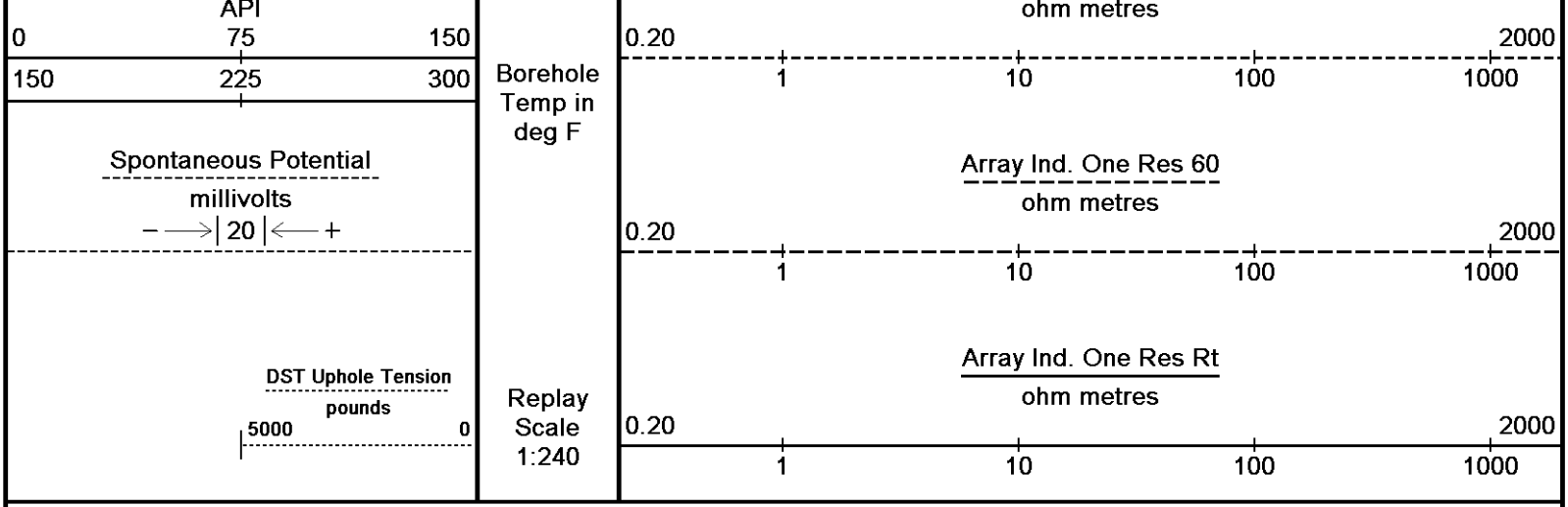
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

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




129°
4950
130°
5000
5050
5100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
FR EFE
FR R40O
FR SMTU
FR SPCG
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 24-NOV-2013 08:31

Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Repeat.dta — Recorded on 24-NOV-2013 01:03

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Repeat.dta

General Constants All 000

Last Edited on 23-NOV-2013,18:00

General Parameters		
Mud Resistivity	1.600	ohm-metres
Mud Resistivity Temperature	49.000	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	5.500	inches
Caliper for Differential Caliper	MMR Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 24-NOV-2013 00:08

Reading No	Measured	Calibrated (lbs)
1	16041.21	0.00
2	17578.24	586.40

SP Calibration MCG-D.K 442

Field Calibration on 21-NOV-2013 09:58

	Measured	Calibrated (mV)
Reference 1	101.5	101.0
Reference 2	-100.1	-100.0

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 29-OCT-2013,14:34

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

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 29-OCT-2013,14:34

Pre-filter Length	11

Gamma Calibration MCG-D.K 442

Field Calibration on 21-NOV-2013 09:45

	Measured	Calibrated (API)
Background	72	48
Calibrator (Gross)	1151	773
Calibrator (Net)	1079	725

Gamma Constants MCG-D.K 442

Last Edited on 23-NOV-2013,18:00

Gamma Calibrator Number	GRC38	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

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.	68.00	Deg F
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	MCG External Temperature	

Caliper Calibration MMR-A 11

Base Calibration on 08-NOV-2013 10:58
Field Calibration on 21-NOV-2013 09:33

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14402	5.98
2	17571	7.97
3	20586	9.86
4	24421	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.75	7.97

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 08-NOV-2013 10:46
Field Check on 21-NOV-2013 09:36

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	58.6	5.0	25.0
Micro Inverse	15.4	76.2	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	78.1	78.1
Micro Inverse	59.8	59.8

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 18-APR-2013,13:52

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

Neutron Calibration MDN-A.B 65

Base Calibration on 20-NOV-2013 11:14
Field Check on 20-NOV-2013 11:32

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3004	93	3714	110
Ratio	32.208		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1696	2451
Ratio	0.692	

Field Check

	Calibrated (cps)	
	1693	2463
Ratio	0.687	

Neutron Constants MDN-A.B 65

Last Edited on 23-NOV-2013,18:01

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	Constant Value	
Temperature	68.00	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 08-NOV-2013 11:12
Field Check on 21-NOV-2013 09:38

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.9	126.8
Base Check		281.1
Field Check		281.2

FE Constants MFE-B.J 352

Last Edited on 23-NOV-2013,18:01

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-A.A 55

Last Edited on 23-NOV-2013,18:01

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 29-OCT-2013,14:20

	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 29-OCT-2013,14:20

Pre-filter Length 11

Induction Calibration MAI-A.A 45

Base Calibration on 21-MAY-2013,16:47
Field Check on 21-NOV-2013 09:40

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 0.0 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			18.5	3851.6

2	31.7	3629.5	
3	28.6	3049.4	
4	18.3	2079.1	
Deep	16.1	1911.1	
Medium	42.5	4060.7	
Shallow	49.5	5483.5	
Array Temperature		62.9	Deg F

Induction Constants MAI-A.A 45

Last Edited on 23-NOV-2013,18:02

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	

Photo Density Calibration MPD-B 31

Base Calibration on 20-NOV-2013 10:41
Field Check on 20-NOV-2013 10:47

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	45885	23182	59556	30836
Reference 2	18785	1902	24941	2541

Field Check at Base

671.6	820.8

Field Check

670.2	825.6

PE Calibration

Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	123	595		
Reference 1	19304	45771	0.425	0.371
Reference 2	5624	18702	0.304	0.272

Field Check at Base

	122.7	594.8
Field Check		
	124.5	591.8

Density Constants MPD-B 31

Last Edited on 23-NOV-2013,18:01

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	1.11	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-B 31

Base Calibration on 20-NOV-2013 10:19
Field Calibration on 20-NOV-2013 10:21

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18720	3.99
2	27472	5.98
3	36127	7.97
4	44368	9.86
5	53568	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.90	7.97

Spectral Gamma Calibration SGS-E.J 150

Base Calibration on 19-APR-2013,17:21
Field Calibration on 19-APR-2013,17:21

Base Calibration

Potassium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	79.9	23.1	2.2	0.8	1.4
Calibrator (Gross)	204.7	109.8	22.0	0.9	1.3
Calibrator (Net)	124.8	86.7	19.7	0.2	-0.1

	K %	U ppm	Th ppm
Concentrations	5.8	0.0	0.0

Uranium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	79.9	23.1	2.2	0.8	1.4
Calibrator (Gross)	480.7	164.8	14.5	7.2	4.1
Calibrator (Net)	400.8	141.7	12.3	6.5	2.7

	K %	U ppm	Th ppm
Concentrations	0.0	9.8	0.0

Thorium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	79.9	23.1	2.2	0.8	1.4
Calibrator (Gross)	397.7	137.8	11.3	6.3	15.0
Calibrator (Net)	317.8	114.7	9.0	5.6	13.6

	K %	U ppm	Th ppm
Concentrations	0.0	0.0	44.3

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	79.9	23.1	2.2	0.8	1.4
Calibrator (Gross)	914.0	361.7	43.2	12.9	17.8
Calibrator (Net)	834.0	338.5	41.0	12.1	16.4

Field Calibration

Gamma Ray

	Measured	Calibrated (API)
Background	112	23
Calibrator (Gross)	1354	273
Calibrator (Net)	1242	250

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	79.9	23.1	2.2	0.8	1.4
Calibrator (Gross)	914.0	361.7	43.2	12.9	17.8
Calibrator (Net)	834.0	338.5	41.0	12.1	16.4

Spectral Gamma Constants SGS-E.J 150

Last Edited on 23-NOV-2013,18:01

Background Calibrator Number	0	
Mixture Calibrator Number	147-1	
Potassium Calibrator Number	148-1	
Uranium Calibrator Number	150-1	
Thorium Calibrator Number	149-1	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Repeat.dta

CBH-C, Cablehead, 11 pin
CBH-CA 170 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

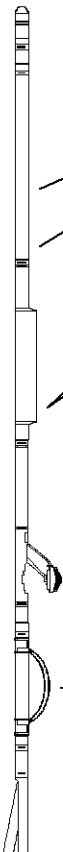
Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Spectral Gamma Ray Sub
SGS-E.J 150 LG: 7.78 ft WT: 105.8 lb OD: 3.54 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



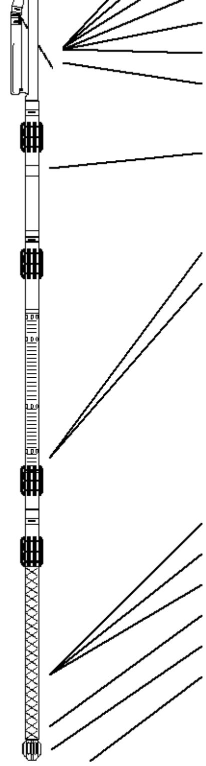
63.79 ft GRGC - Gamma Ray
60.89 ft CGXT - MCG External Temperature

54.33 ft GCGR - Uranium Stripped Gamma
54.33 ft GRSG - SGS Gamma Ray

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
Compact Focussed Electric MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in	26.24 ft	FEFE - Shallow FE
Compact Sonic MSS-A.A 55 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in	12.96 ft	DT35 - 3-5' Compensated Sonic
	12.96 ft	SPRL - Wyllie Lime. Sonic Por.
Compact Induction MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in	3.34 ft	R60O - Array Ind. One Res 60
	3.34 ft	R40O - Array Ind. One Res 40
	3.34 ft	RTAO - Array Ind. One Res Rt
	0.23 ft	SPCG - Spontaneous Potential
Total Length: 71.47 ft Weight: 586.4 lb	Tool Zero	(0.13ft from bottom)
	-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	MCELVAIN ENERGY, INC.
WELL	PRICE 14-5
FIELD	LIANOS SE
PROVINCE/COUNTY	SHERMAN
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3452.00	feet	First Reading	5075.00	feet
Elevation Drill Floor	3450.00	feet	Depth Driller	5082.00	feet
Elevation Ground Level	3441.00	feet	Depth Logger	5078.00	feet

Weatherford®

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

Weatherford

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	MCELVAIN ENERGY, INC.
WELL	PRICE 14-5
FIELD	LIANOS SE
PROVINCE/COUNTY	SHERMAN
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1717' FNL & 388' FWL SE NW SW NW

SEC	TWP	RGE	Other Services
14	6S	37W	MPD/MDN MML MSS SGS

API Number 15-181-20597
Permit Number

Permanent Datum GL, Elevation 3441 feet
Log Measured From KB
Drilling Measured From KB @ 11 FEET

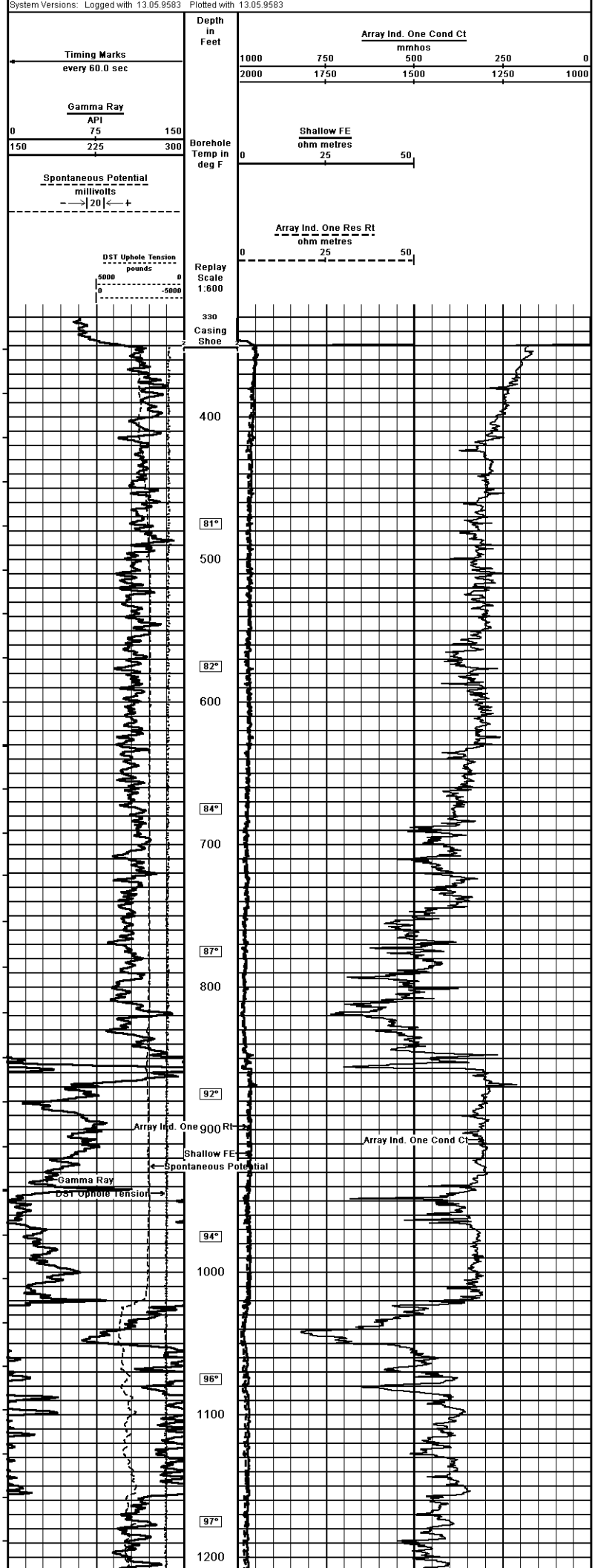
Elevations: feet
KB 3452.00
DF 3450.00
GL 3441.00

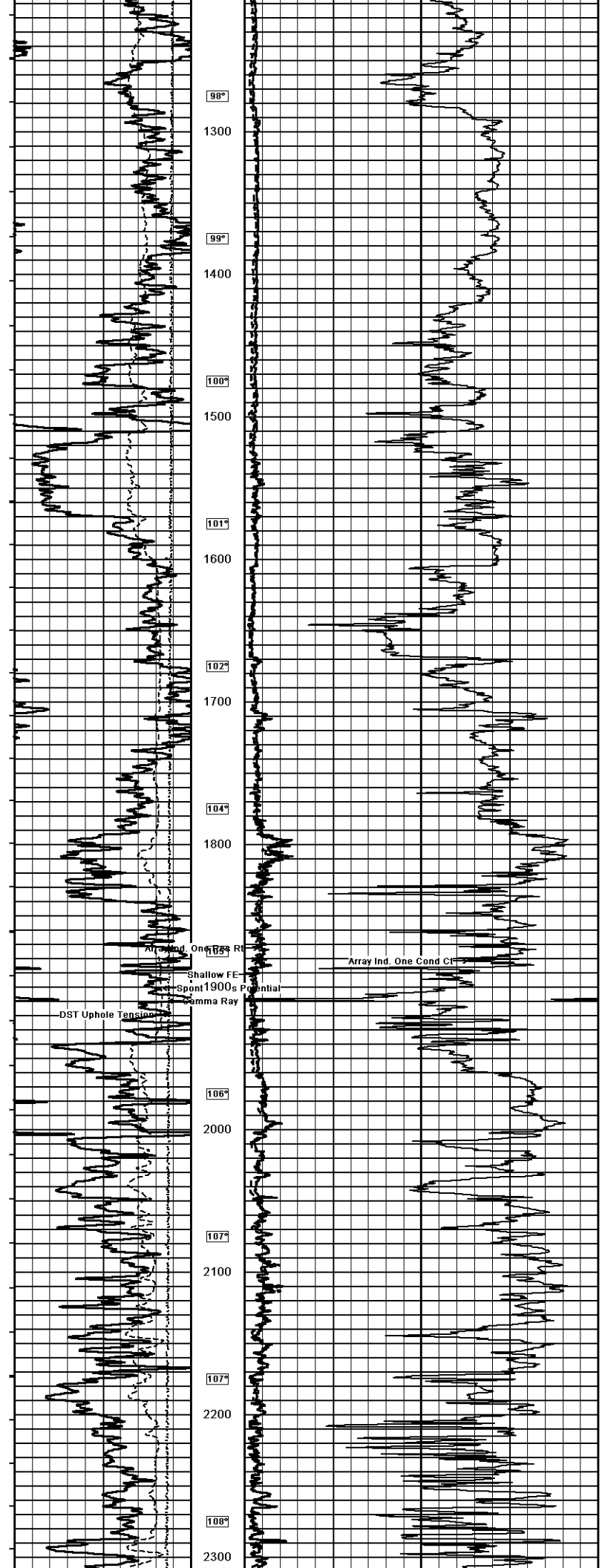
Date	23-NOV-2013		
Run Number	ONE		
Service Order	3547622		
Depth Driller	5082.00	feet	
Depth Logger	5078.00	feet	
First Reading	5075.00	feet	
Last Reading	0.00	feet	
Casing Driller	352.00	feet	
Casing Logger	351.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.30 lb/USg	50.00 CP	
PH / Fluid Loss	10.50	8.00 ml/30Min	
Sample Source	FLOW LINE		
Rm @ Measured Temp	1.60 @ 49.0	ohm-m	
Rmf @ Measured Temp	1.28 @ 49.0	ohm-m	
Rmc @ Measured Temp	1.92 @ 49.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.60 @130.0	ohm-m	
Time Since Circulation	3 HRS		
Max Recorded Temp	130.00	deg F	
Equipment / Base	13057	LIB	
Recorded By	J. LAPOINT		R. HOFFMAN
Witnessed By	L. NICHOLSON		
JOB #	LB 13-331		

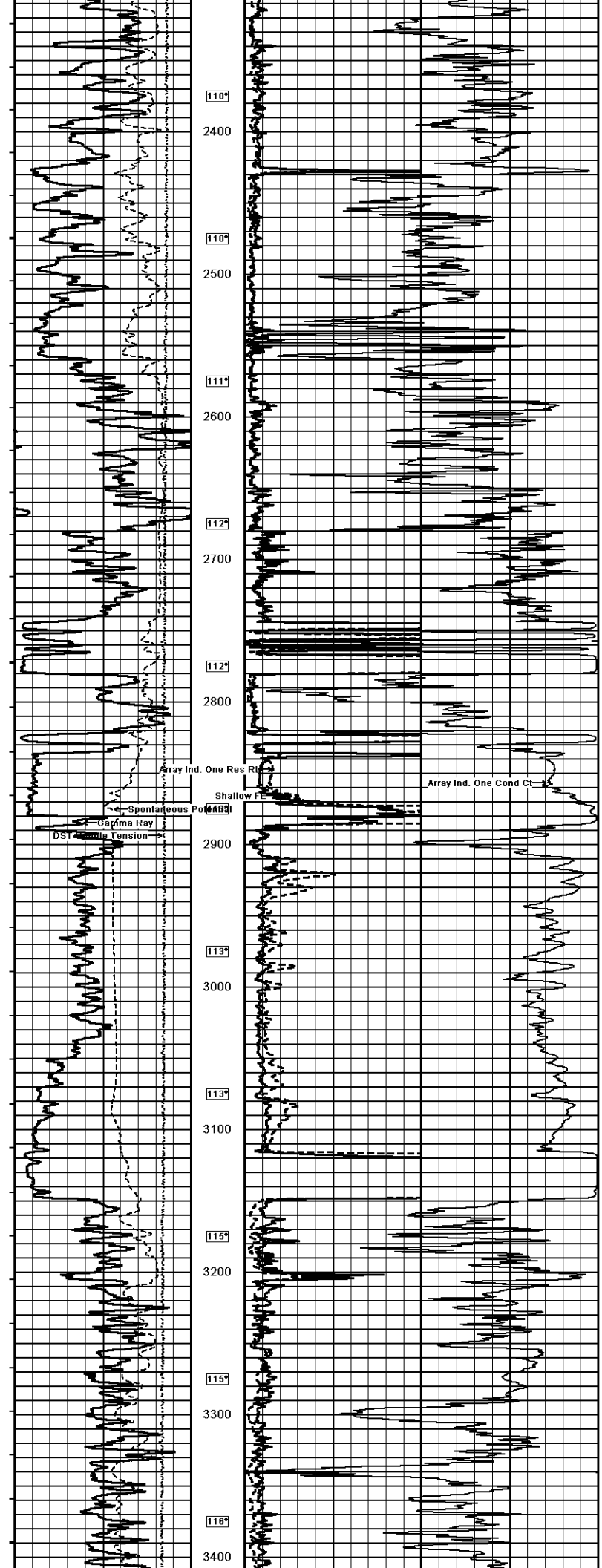
1 INCH MAIN

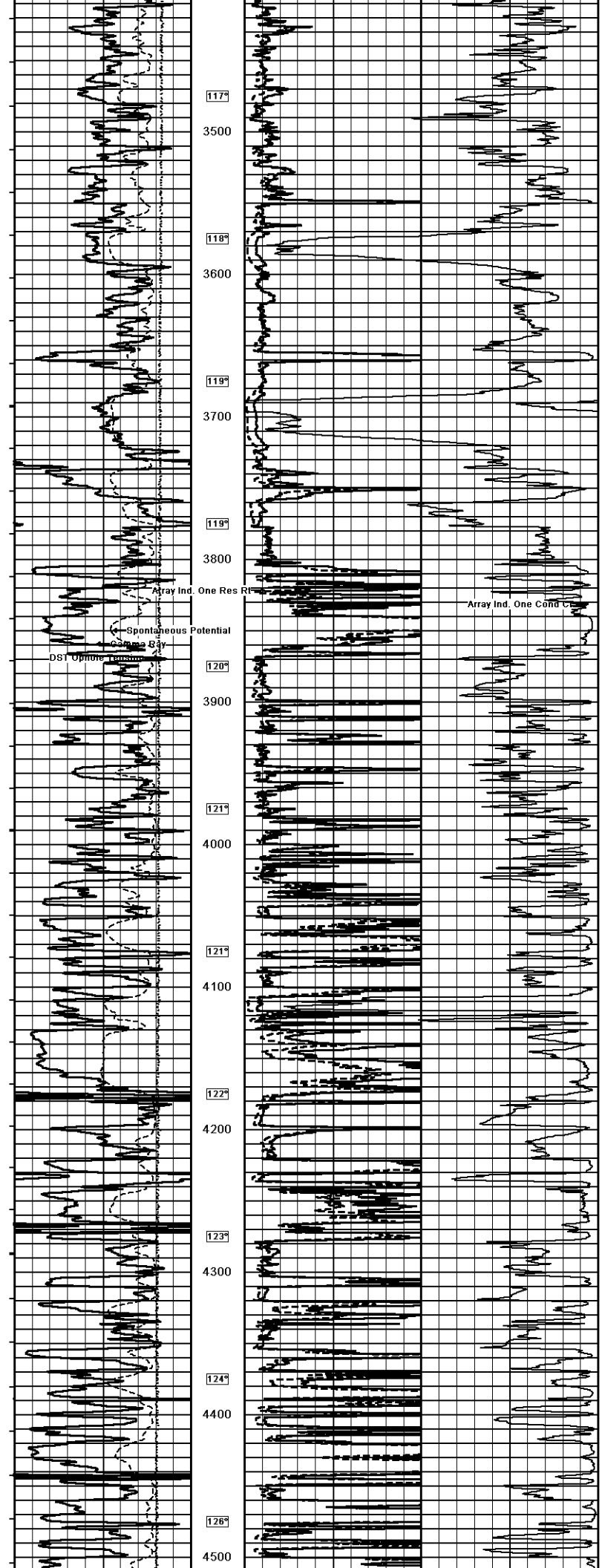
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta

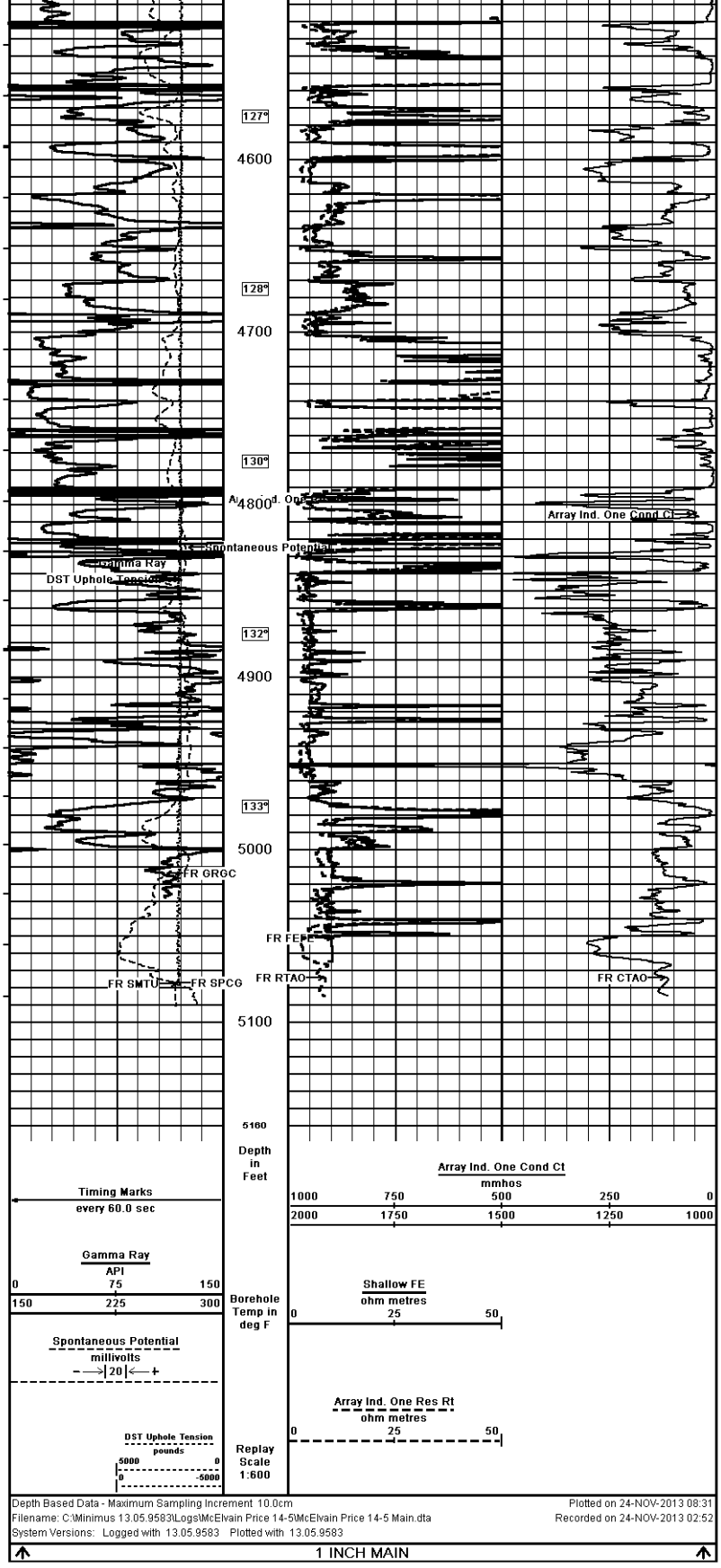
Plotted on 24-NOV-2013 08:31
Recorded on 24-NOV-2013 02:52


System Versions: Logged with 13.05.9583 Plotted with 13.05.9583
Depth in Feet
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
0 -5000
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
330
Casing Shoe
400
81°
500
82°
600
84°
700
87°
800
92°
900
94°
1000
96°
1100
97°
1200
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct


98°
1300
99°
1400
100°
1500
101°
1600
102°
1700
104°
1800
Array Ind. One Cond Cl
Shallow FE
Spont
1900s Potential
Gamma Ray
DST Uphole Tension
106°
2000
107°
2100
107°
2200
108°
2300


110°
2400
110°
2500
111°
2600
112°
2700
112°
2800
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Hole Tension
Array Ind. One Cond Ct
2900
113°
3000
113°
3100
115°
3200
115°
3300
116°
3400


117"
3500
118"
3600
119"
3700
119"
3800
120"
3900
121"
4000
121"
4100
122"
4200
123"
4300
124"
4400
126"
4500
Array Ind. One Res RI
Array Ind. One Cond CI
Spontaneous Potential
Gamma Ray
DSI Opnole Tension



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 24-NOV-2013 08:31

Filename: C:\Minimus 13.05.9583\Logs\McElvain Price 14-5\McElvain Price 14-5 Main.dta — Recorded on 24-NOV-2013 02:52

System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

1 INCH MAIN

COMPANY	MCELVAIN ENERGY, INC.
WELL	PRICE 14-5
FIELD	LIANOS SE
PROVINCE/COUNTY	SHERMAN
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3452.00	feet	First Reading	5075.00	feet
Elevation Drill Floor	3450.00	feet	Depth Driller	5082.00	feet
Elevation Ground Level	3441.00	feet	Depth Logger	5078.00	feet

Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG