Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	SHAKESPEARE OIL COMPANY, INC.
WELL	PETERSON #2-8
FIELD	STRATFORD WEST
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	850' FSL & 1750' FWL SW/4 SE NW SE SW

SEC	TWP	RGE	Other Services
8	13S	32W	MPD/MDN MML

API Number 15-109-21095
Permit Number

Permanent Datum G.L., Elevation 2971 feet
Log Measured From KB
Drilling Measured From K.B. @ 10 FEET

Elevations:	feet
KB	2981.00
DF	2979.00
GL	2971.00

Date	23-SEP-2012			
Run Number	ONE			
Depth Driller	4680.00	feet		
Depth Logger	4685.00	feet		
First Reading	4682.00	feet		
Last Reading	222.00	feet		
Casing Driller	226.00	feet		
Casing Logger	222.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	48.00 CP		
PH / Fluid Loss	11.00	6.40 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.14 @ 93.0	ohm-m		
Rmf @ Measured Temp	0.91 @ 93.0	ohm-m		
Rmc @ Measured Temp	1.37 @ 93.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.92 @115.0	ohm-m		
Time Since Circulation	3 HOURS			
Max Recorded Temp	115.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13057	LIB		
Recorded By	R. HOFFMAN			
Witnessed By	STEVE DAVIS			
S.O. / JOB#	3538923		LB12-255	

BOREHOLE RECORD

Last Edited: 23-SEP-2012 07:26

Bit Size inches	Depth From feet	Depth To feet
7.875	222.00	4685.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	222.00	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= 162 cu. ft.
Total hole volume from TD to Surface casing= 1838 cu. ft.
Service order: #3538923
Rig: Val #7
Engineer: R. Hoffman
Operator(s): K. Rinehart

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta
Recorded on 23-SEP-2012 06:12
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 | ← +

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

200
Casing Shoe

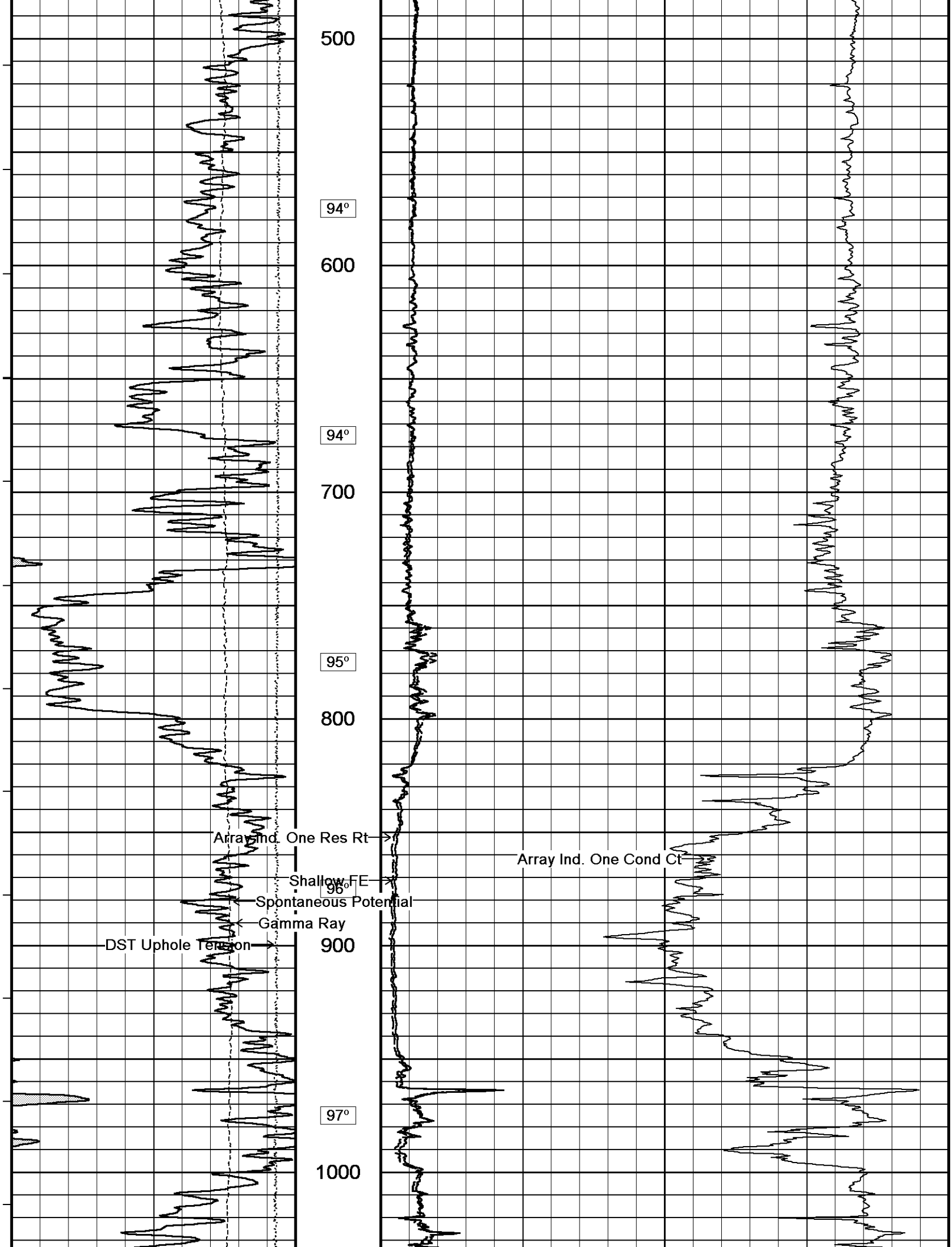
91°

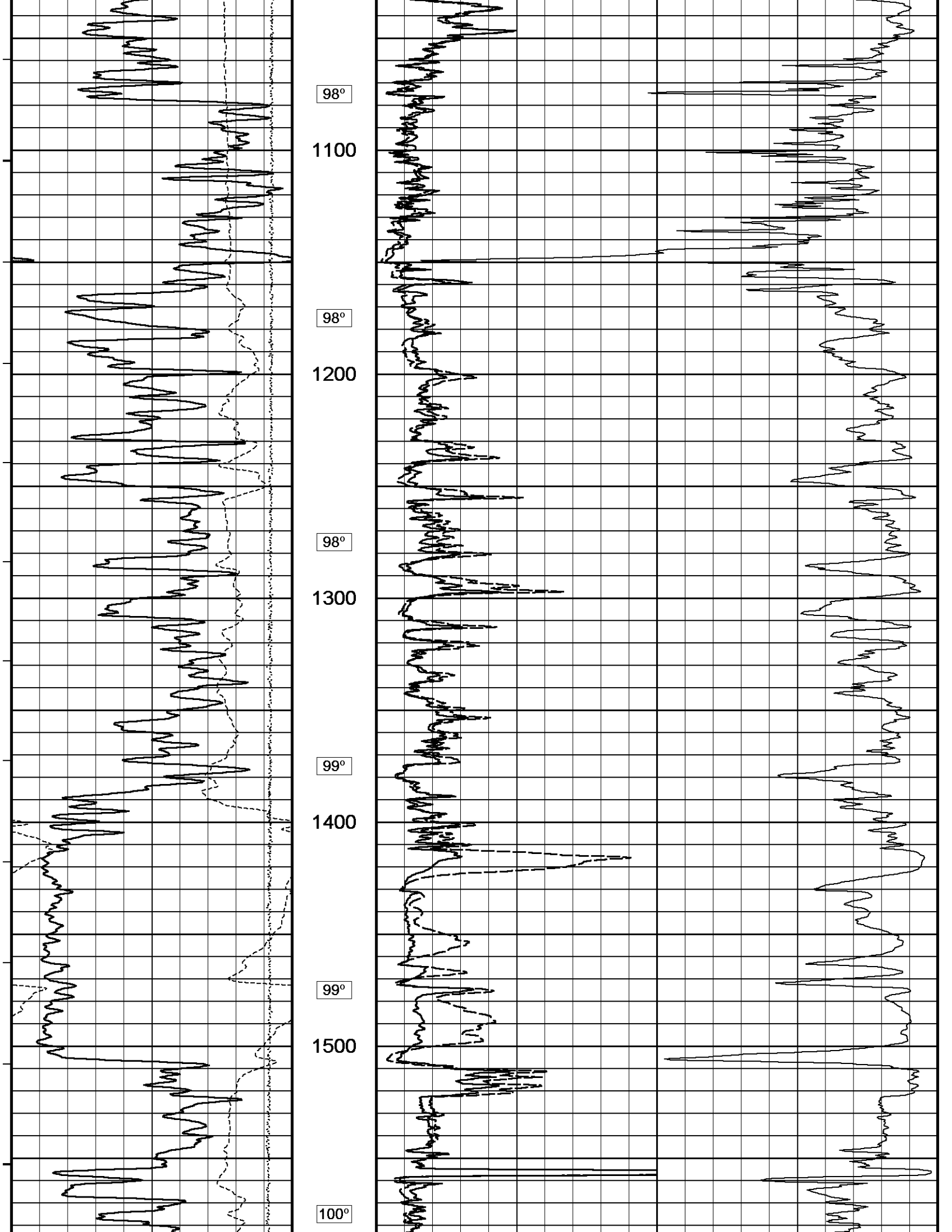
300

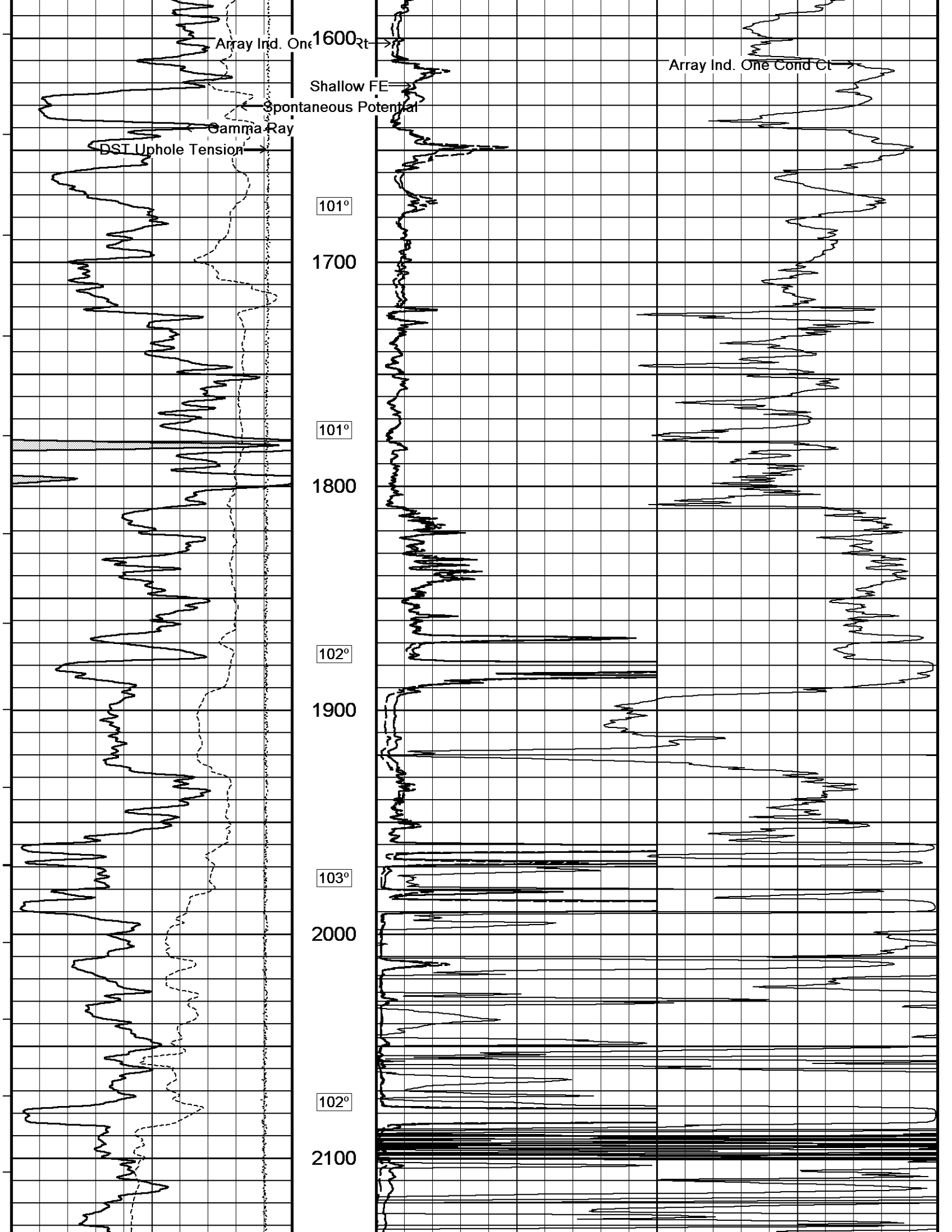
93°

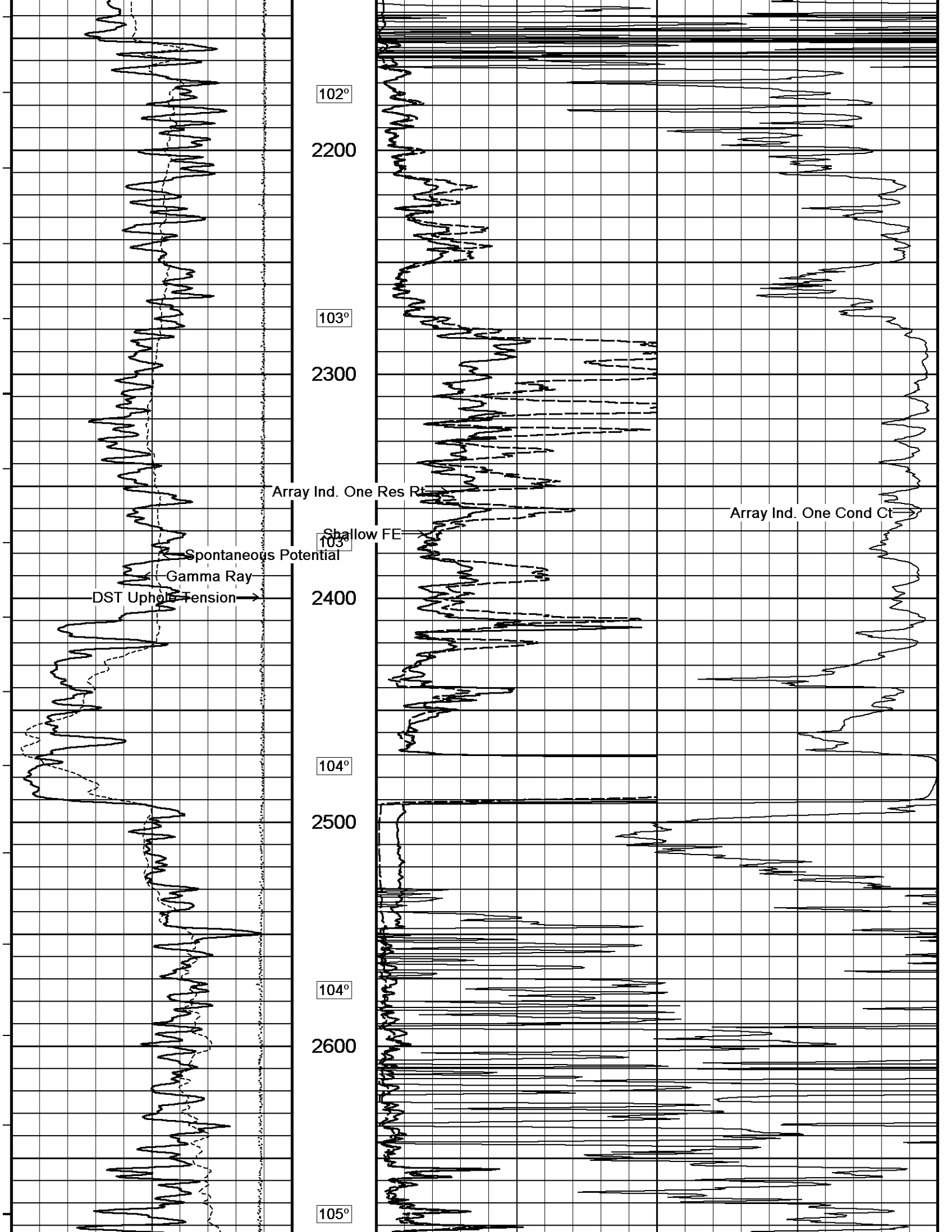
400

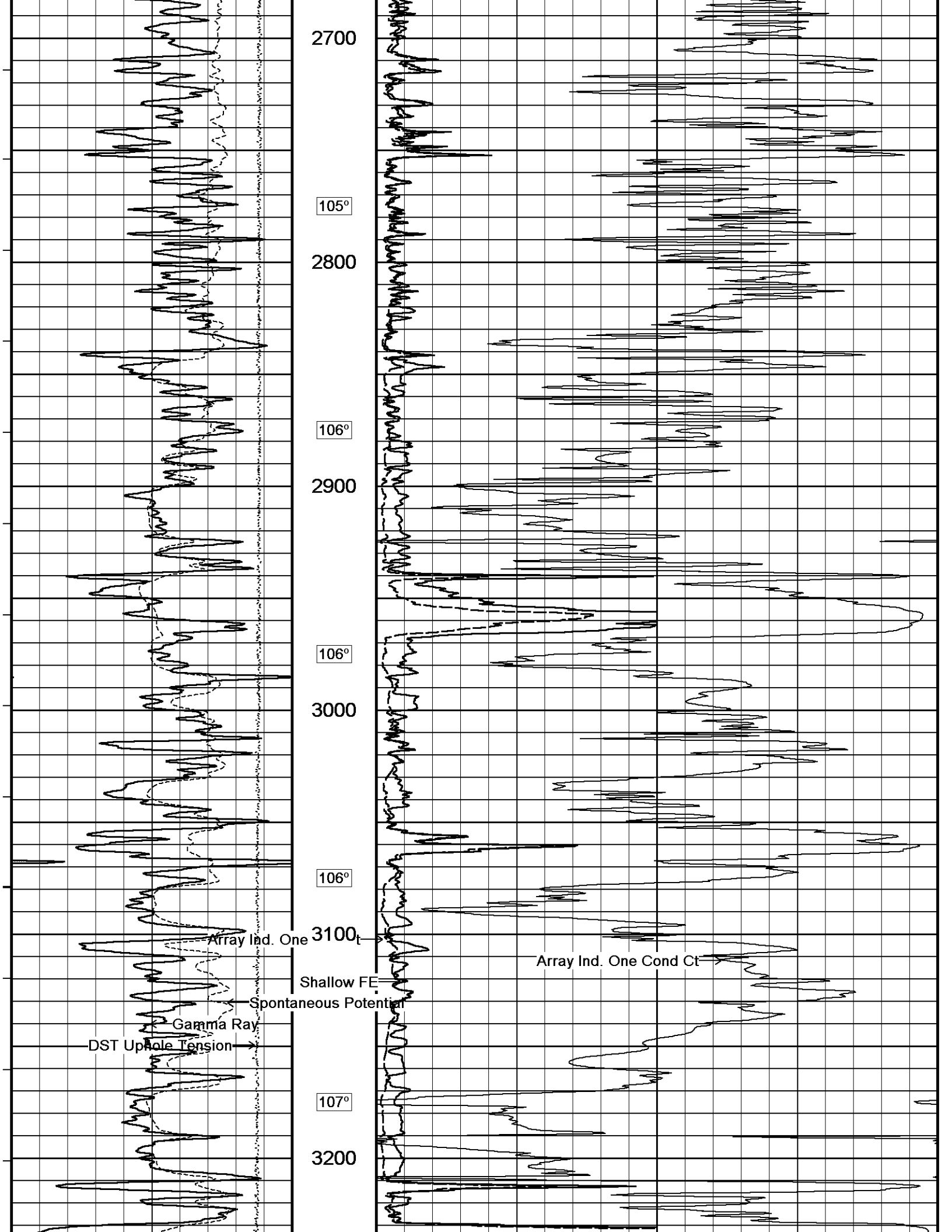
94°

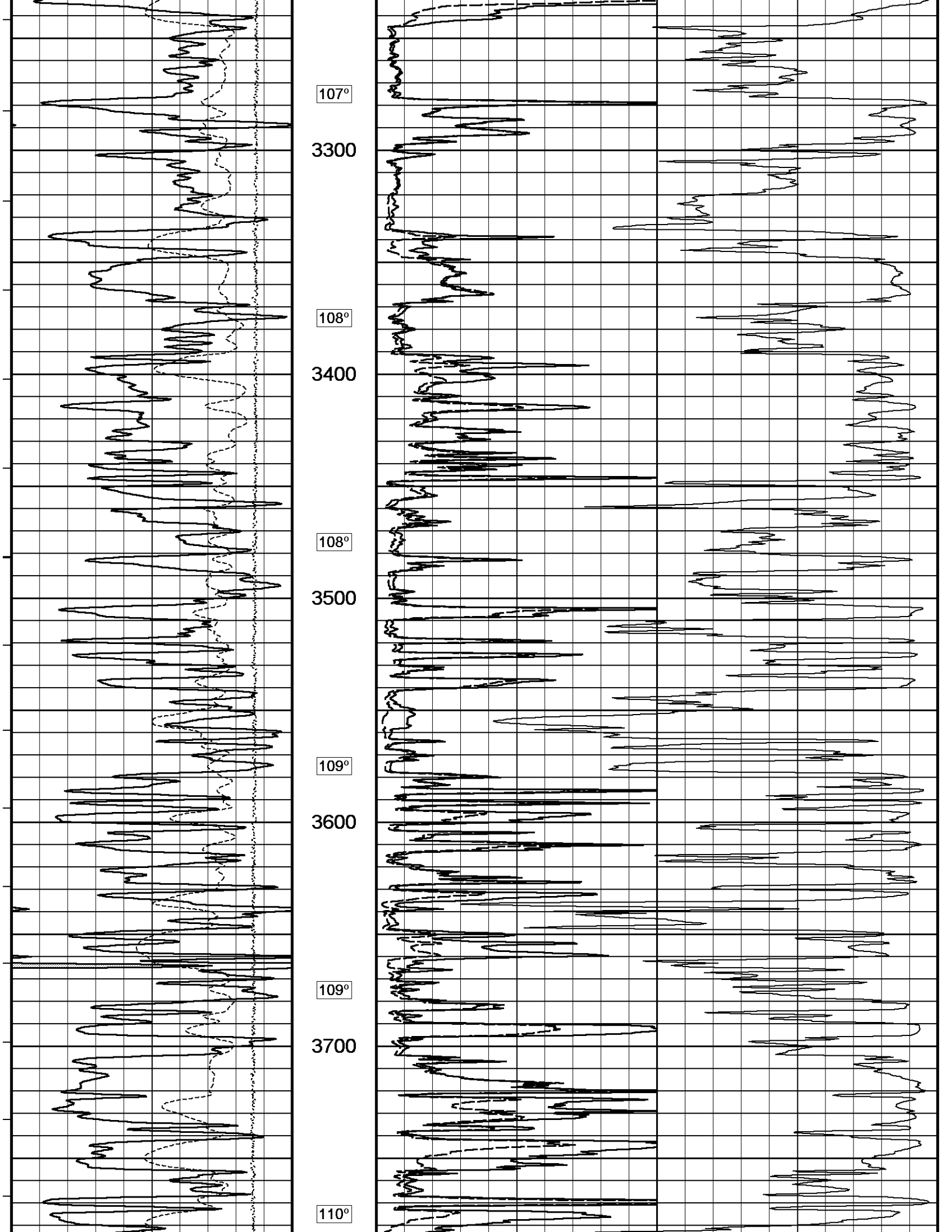

500
94°
600
94°
700
95°
800
Array Ind. One Res Rt
Shallow FE
96°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
900
Array Ind. One Cond Ct
97°
1000

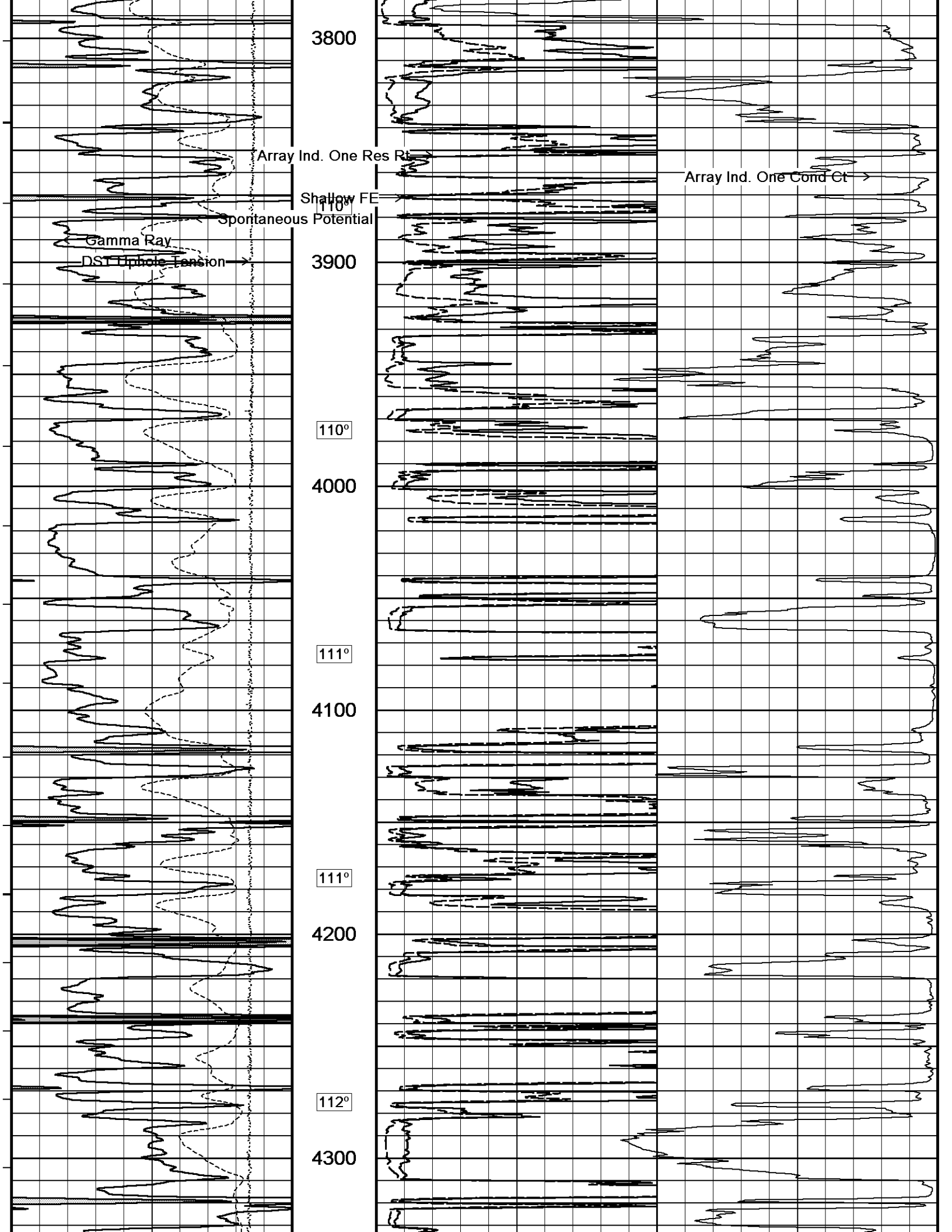

98°
1100
98°
1200
98°
1300
99°
1400
99°
1500
100°

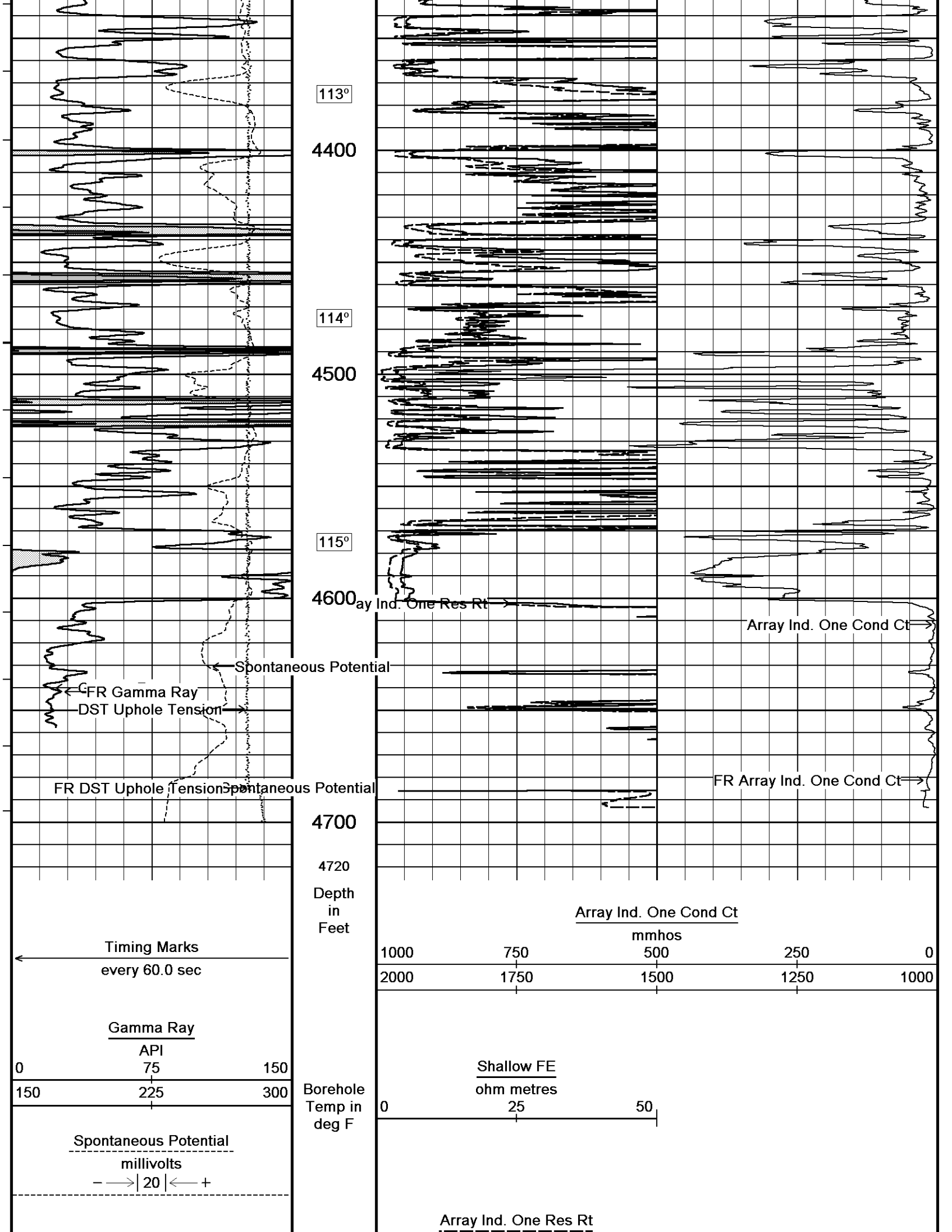

Array Ind. One
1600
Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DSI Uphole Tension
101°
1700
101°
1800
102°
1900
103°
2000
102°
2100
Array Ind. One Cond Ct


102°
2200
103°
2300
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
103°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2400
104°
2500
104°
2600
105°


2700
105°
2800
106°
2900
106°
3000
106°
3100
107°
3200
Array Ind. One
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension


107°
3300
108°
3400
108°
3500
109°
3600
109°
3700
110°


3800
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
110°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3900
110°
4000
111°
4100
111°
4200
112°
4300


113°
4400
114°
4500
115°
4600
ay Ind. One Res Rt
Array Ind. One Cond Ct
Spontaneous Potential
FR Gamma Ray
DST Uphole Tension
FR DST Uphole Tension
pontaneous Potential
FR Array Ind. One Cond Ct
4700
4720
Depth
in
Feet
Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000
Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Shallow FE
ohm metres
0 25 50
Borehole
Temp in
deg F
Spontaneous Potential
millivolts
− → | 20 | ← +
Array Ind. One Res Rt

ohm metres
0 25 50

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:600

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12
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 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12
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

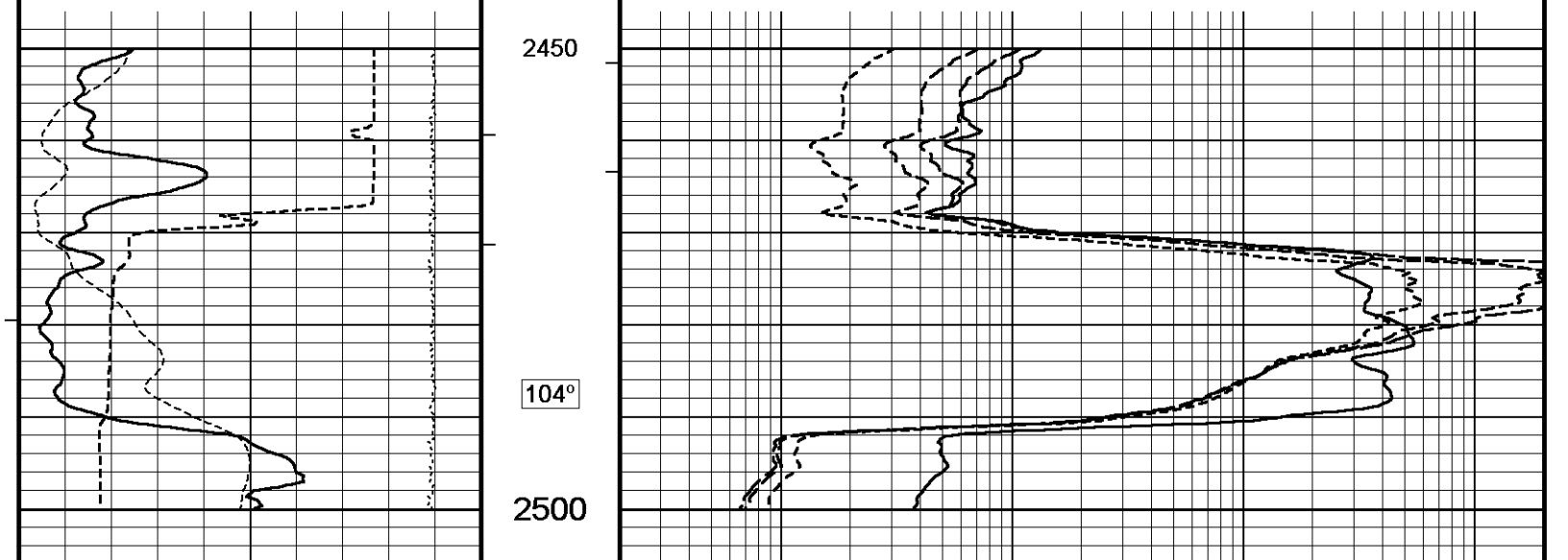
Replay
Scale
1:240

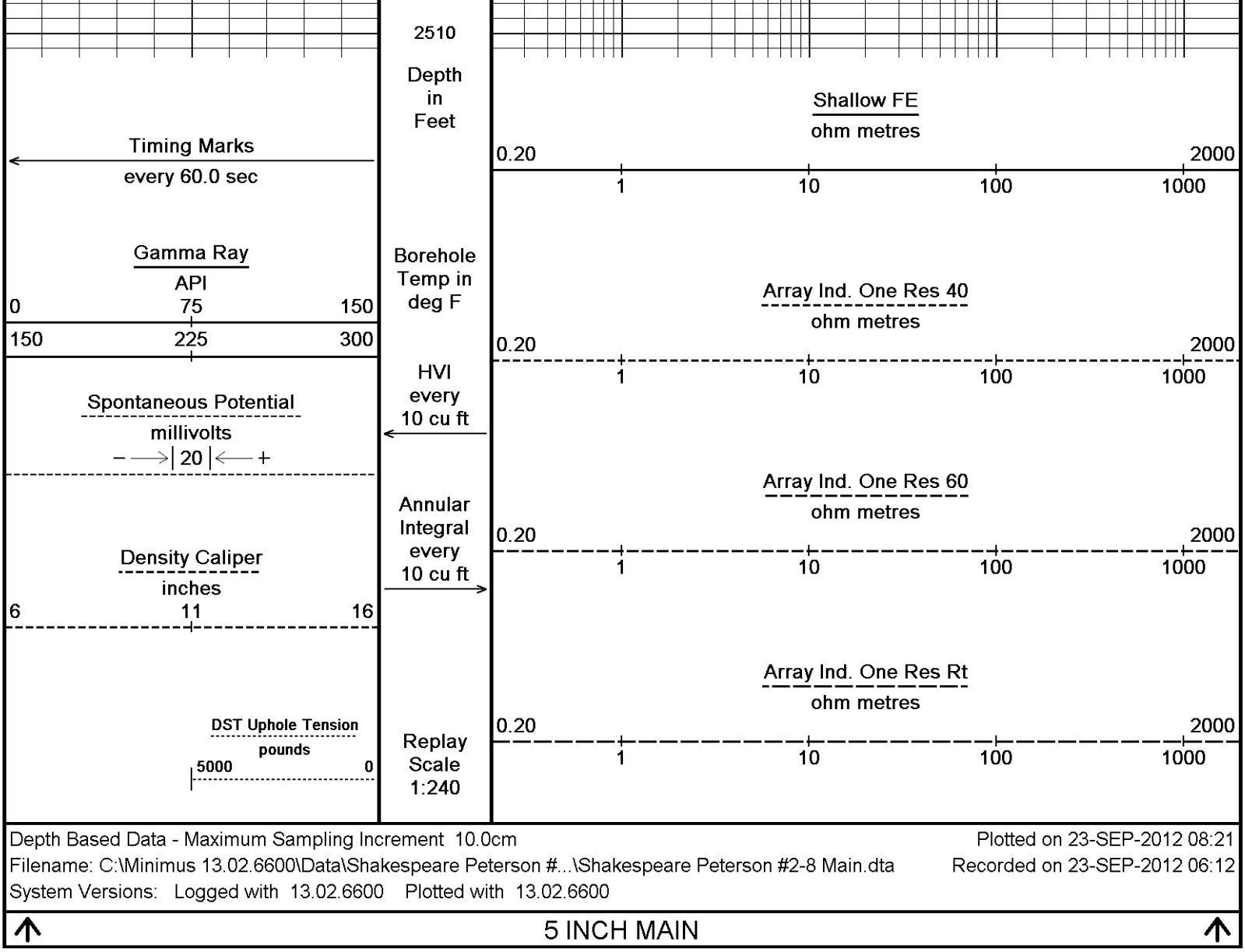
Shallow FE
ohm metres
0.20 1 10 100 2000

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

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

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



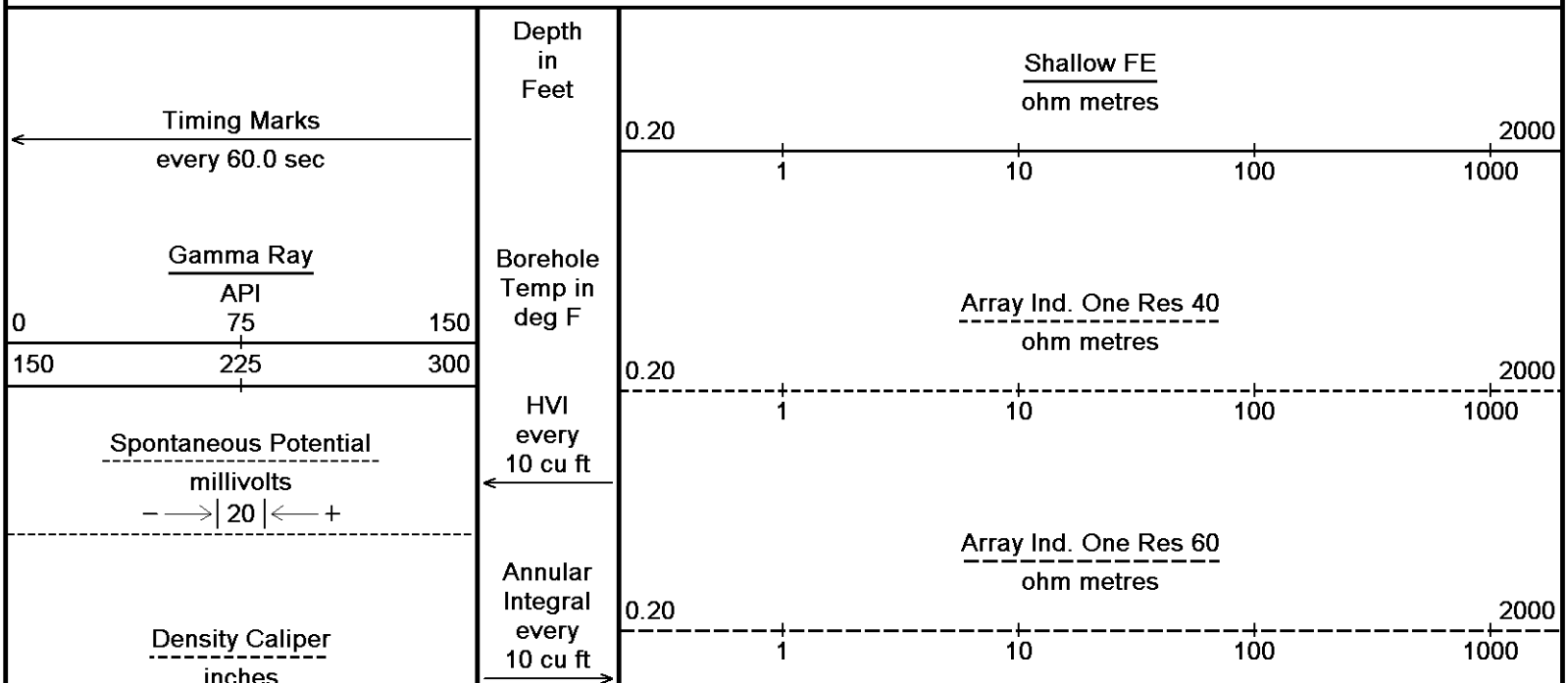


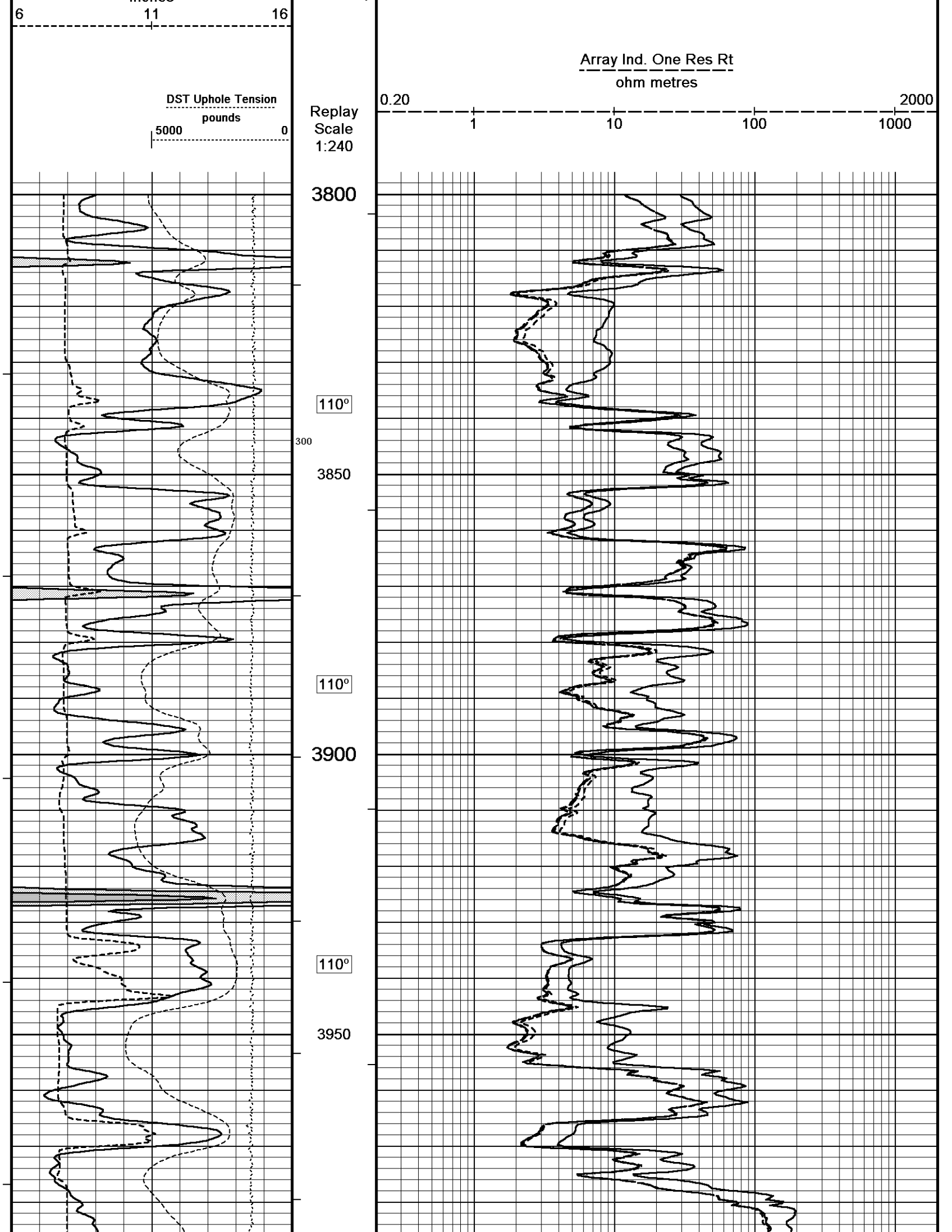
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

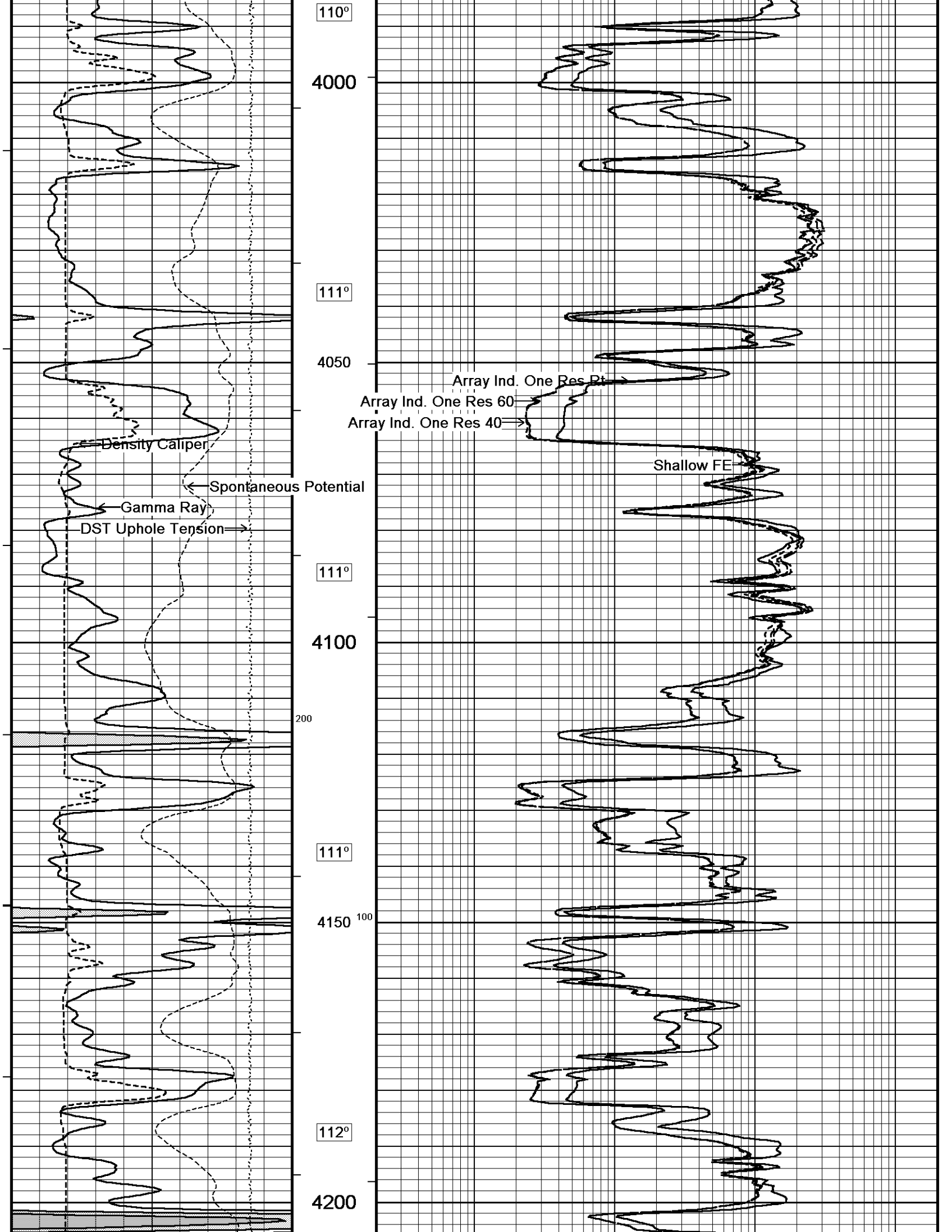
5 INCH MAIN

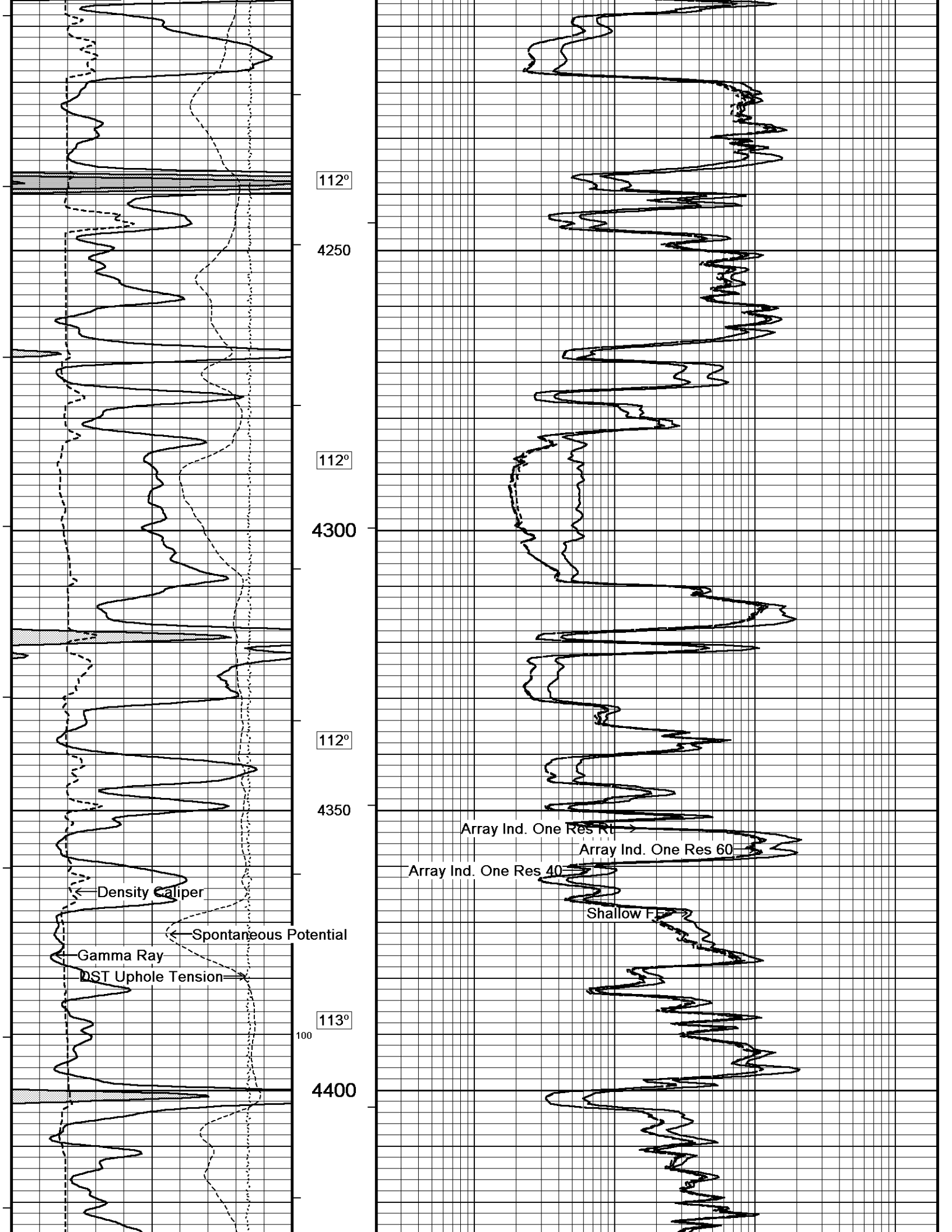
5 INCH MAIN

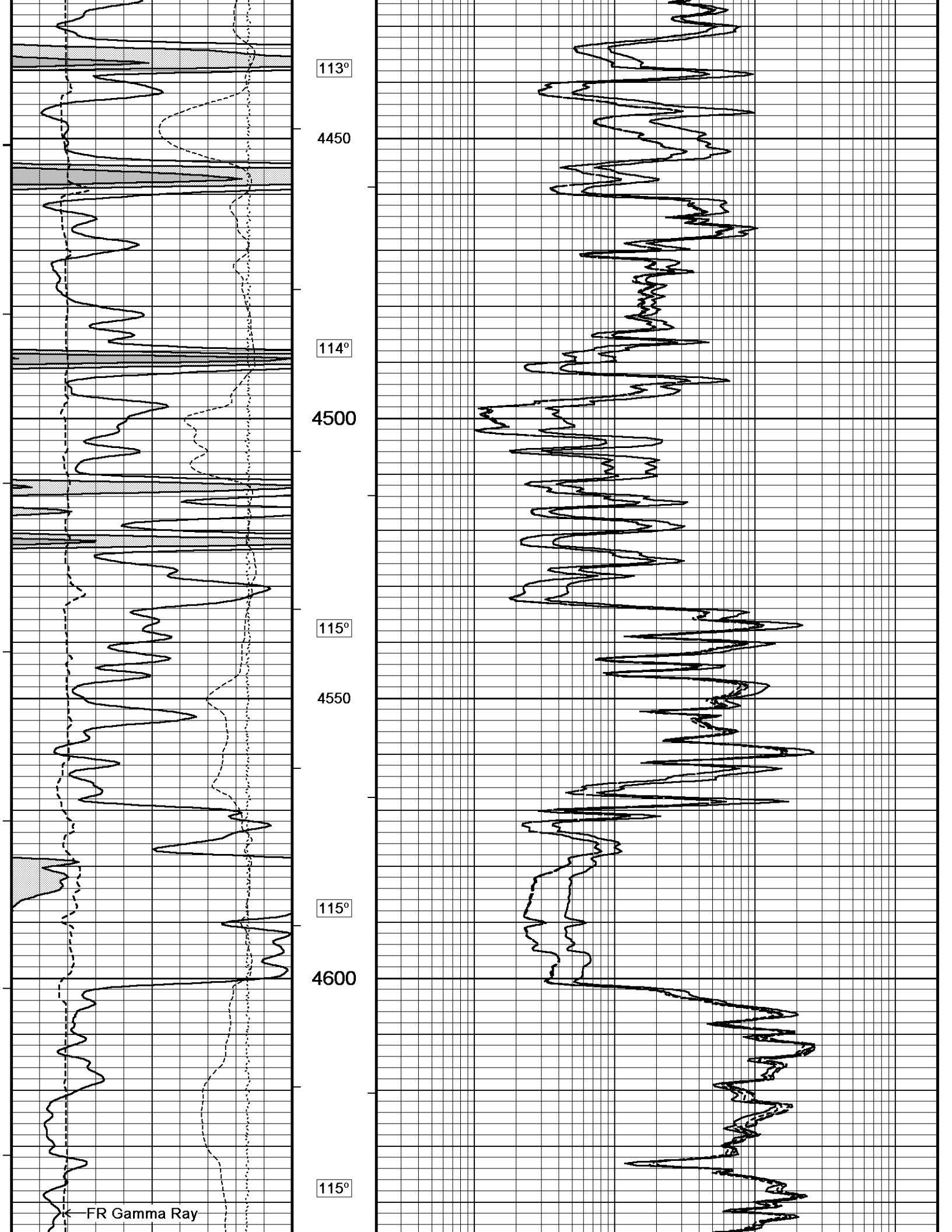
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

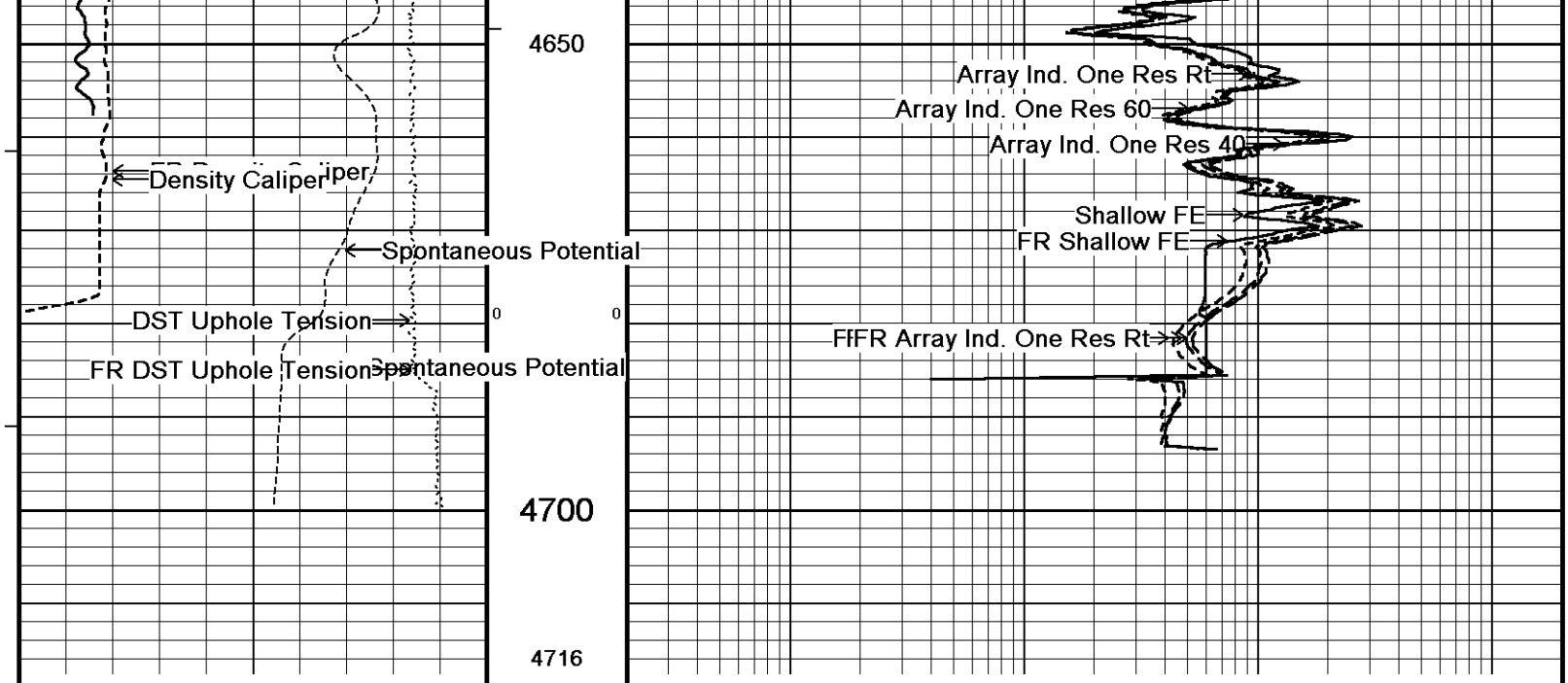



6
11
16
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
3800
110°
300
3850
110°
3900
110°
3950


110°
4000
111°
4050
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
111°
4100
200
111°
4150
100
112°
4200


112°
4250
112°
4300
112°
4350
113°
100
4400
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


113°
4450
114°
4500
115°
4550
115°
4600
115°
FR Gamma Ray



4716

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
pounds
5000 0

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

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #...\Shakespeare Peterson #2-8 Main.dta
Recorded on 23-SEP-2012 06:12
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

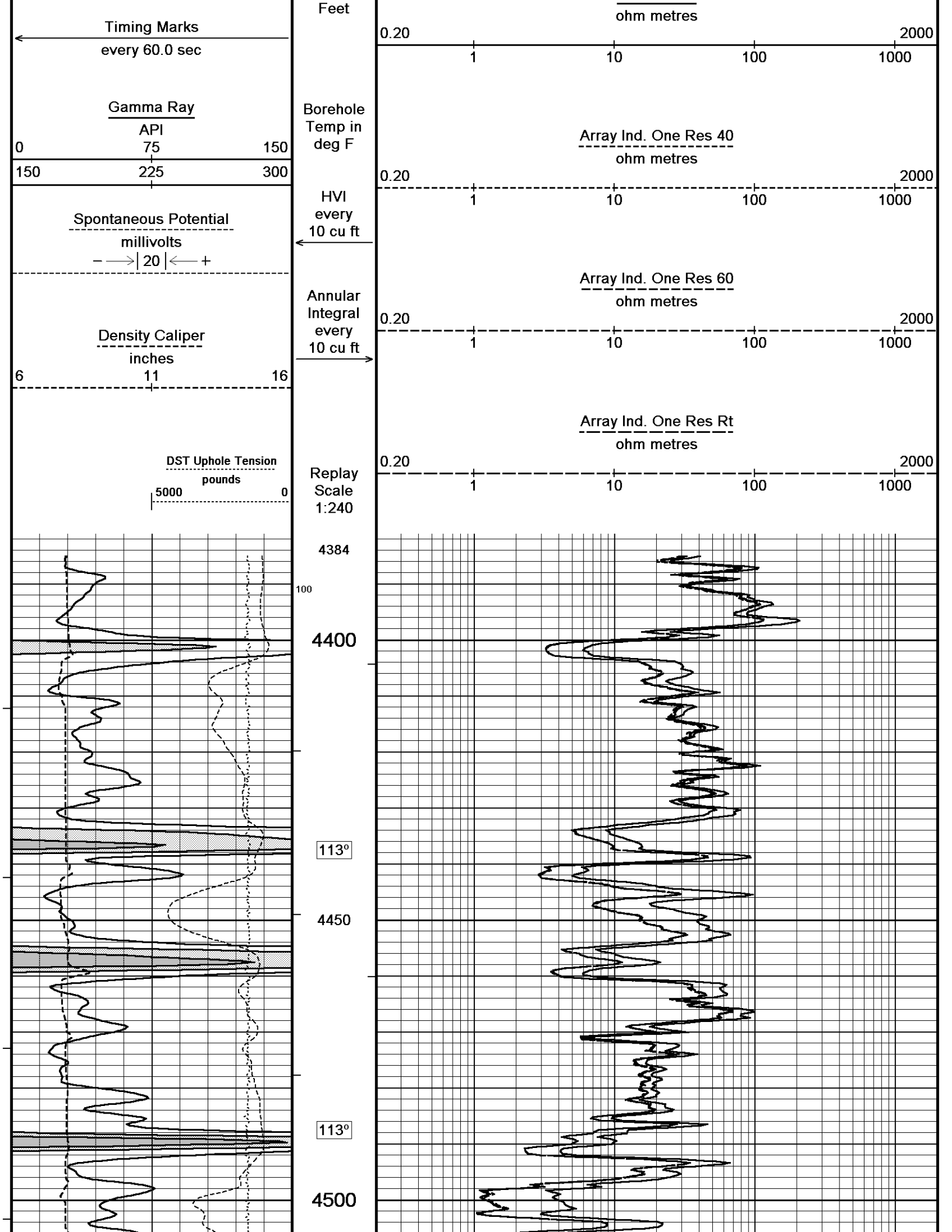
5 INCH MAIN

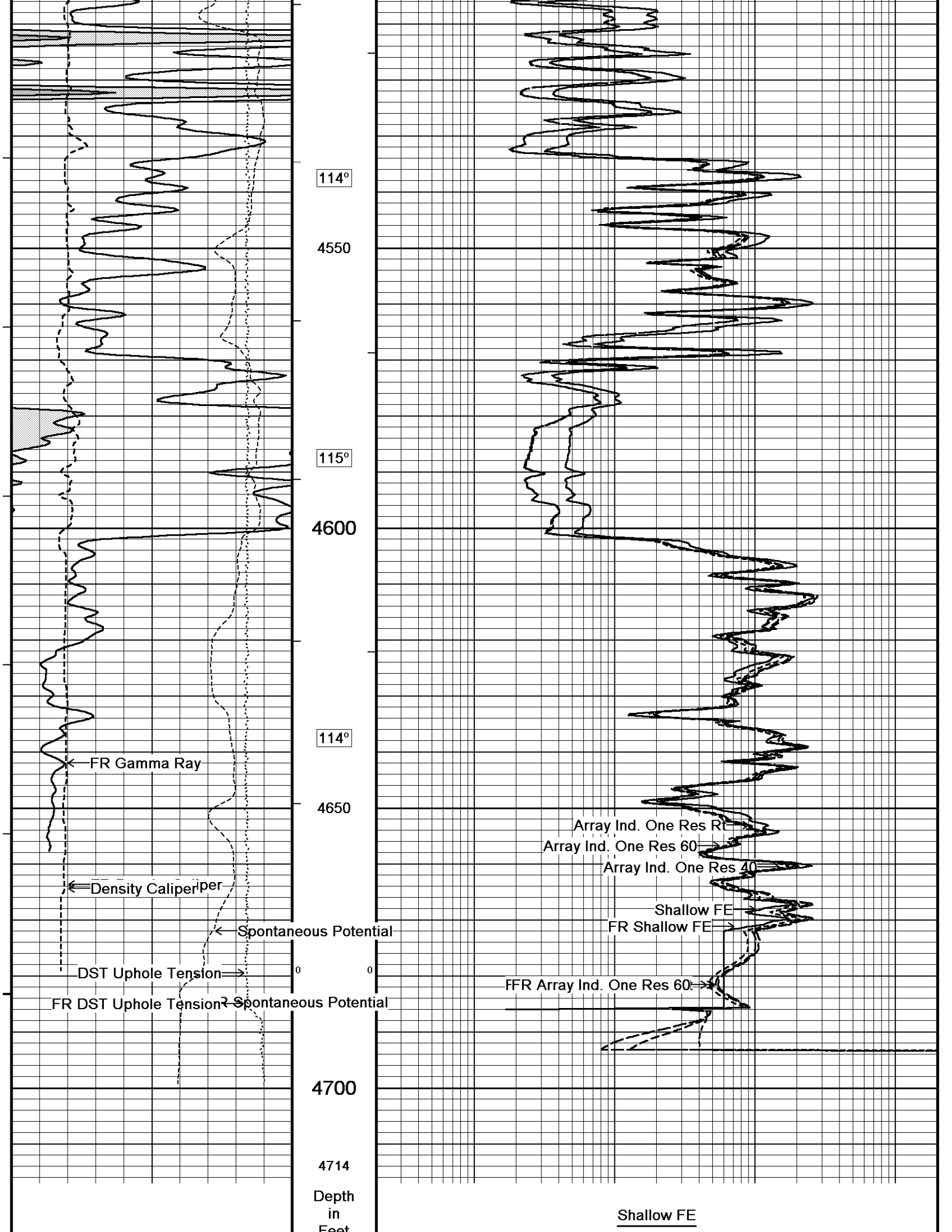
REPEAT SECTION

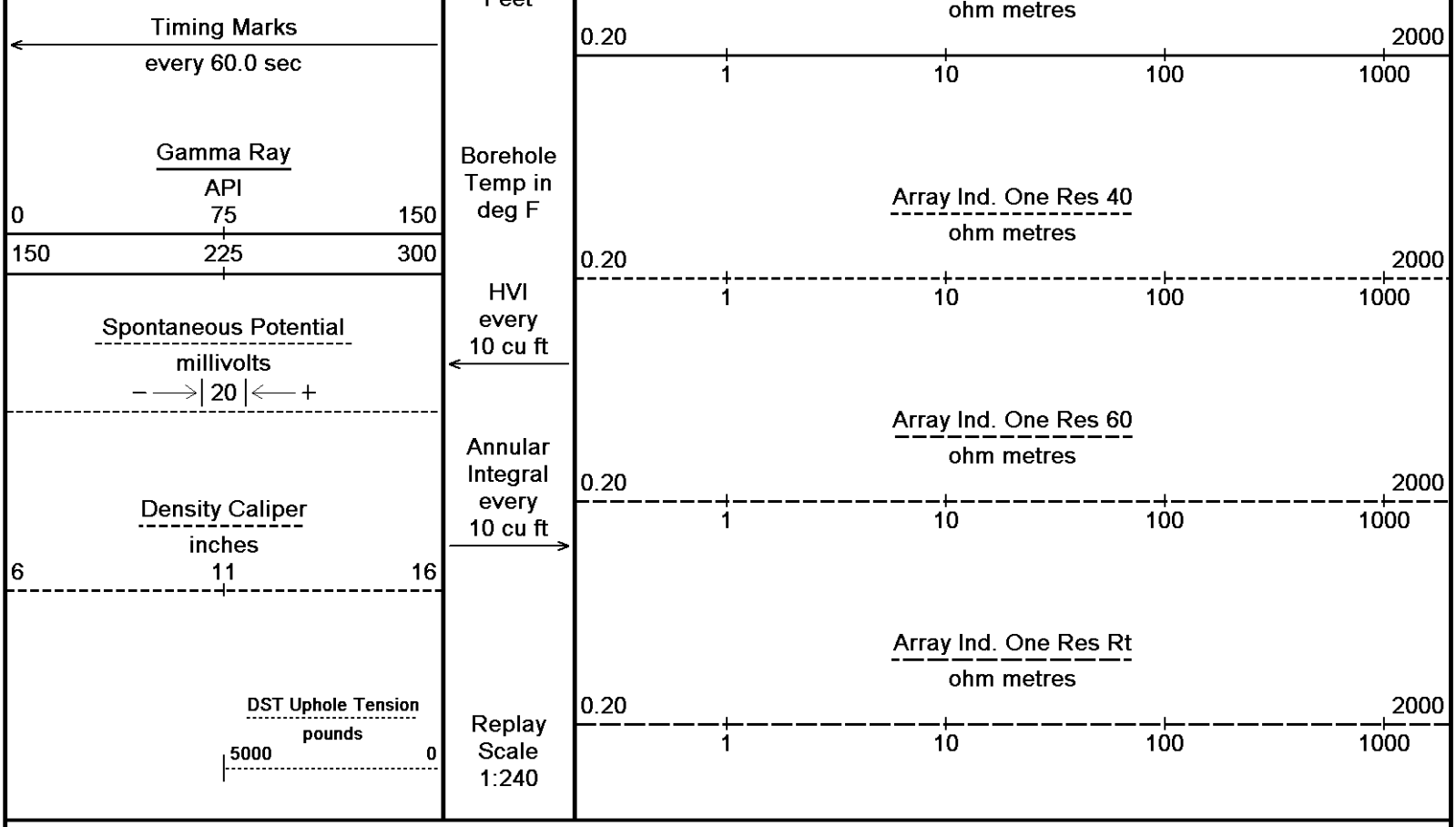
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterso...\Shakespeare Peterson #2-8 Repeat.dta
Recorded on 23-SEP-2012 05:52
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

Depth in

Shallow FE


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
Feet
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
4384
100
4400
113°
4450
113°
4500
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
Array Ind. One Res 60
Array Ind. One Res Rt


114°
4550
115°
4600
114°
4650
4700
4714
Depth
in
Feet
FR Gamma Ray
Density Caliper
Caliper
Spontaneous Potential
DST Uphole Tension
0
0
FR DST Uphole Tension
2
Spontaneous Potential
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR Shallow FE
FFR Array Ind. One Res 60
Shallow FE



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21

Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterso...\Shakespeare Peterson #2-8 Repeat.dta — Recorded on 23-SEP-2012 05:52

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Shakespeare Peterson #2-8\Shakespeare Peterson #2-8 Main.dta

General Constants All 000

Last Edited on 23-SEP-2012,04:00

General Parameters		
Mud Resistivity	1.140	ohm-metres
Mud Resistivity Temperature	93.000	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	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 05:02

Reading No	Measured	Calibrated (lbs)
1	13695.54	0.00
2	13994.89	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-2012,04:00

Gamma Calibrator Number	GR38	
Mud Density	1.10	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

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)	
Field Check	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 18-SEP-2012,12:42

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	WS	Measured WH	Ratio	Calibrated 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-2012,04:00

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	1.10	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
0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Shakespeare Peterson #2-8\Shakespeare Peterson #2-8 Main.dta

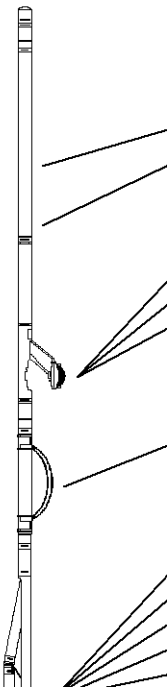
3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
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

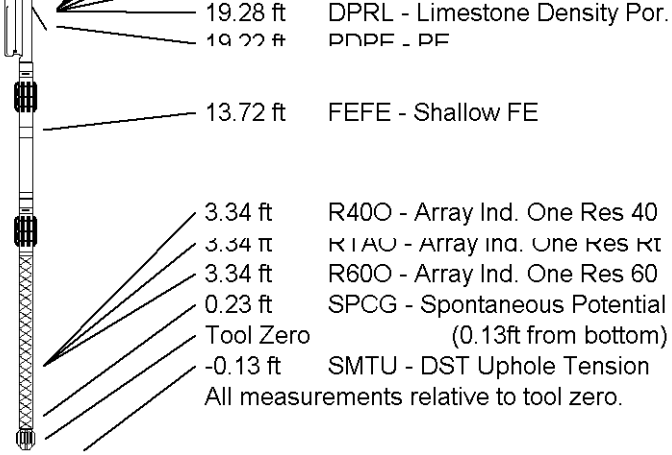


42.87 ft	GRGC - Gamma Ray
39.96 ft	CGXT - MCG External Temperature
33.24 ft	MINV - Micro-inverse
33.24 ft	MNRL - Micro-normal
34.24 ft	MLTC - MML Caliper
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction

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



COMPANY	SHAKESPEARE OIL COMPANY, INC.
WELL	PETERSON #2-8
FIELD	STRATFORD WEST
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2981.00	feet	First Reading	4682.00	feet
Elevation Drill Floor	2979.00	feet	Depth Driller	4680.00	feet
Elevation Ground Level	2971.00	feet	Depth Logger	4685.00	feet

Weatherford®

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SHALLOW FOCUSED
ELECTRIC LOG

Weatherford

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SHALLOW FOCUSED
ELECTRIC LOG

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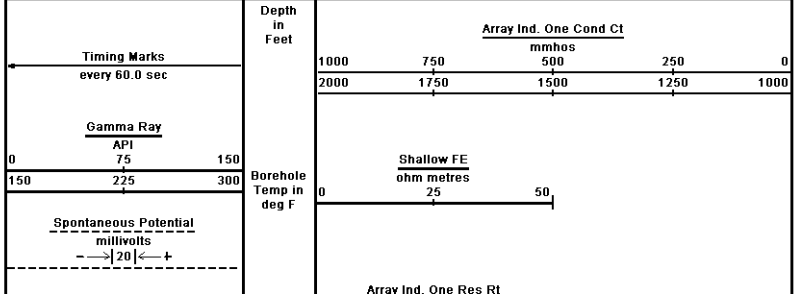
WELL	PETERSON #2-8
FIELD	STRATFORD WEST
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	850' FSL & 1750' FWL SW/4 SE NW SE SW

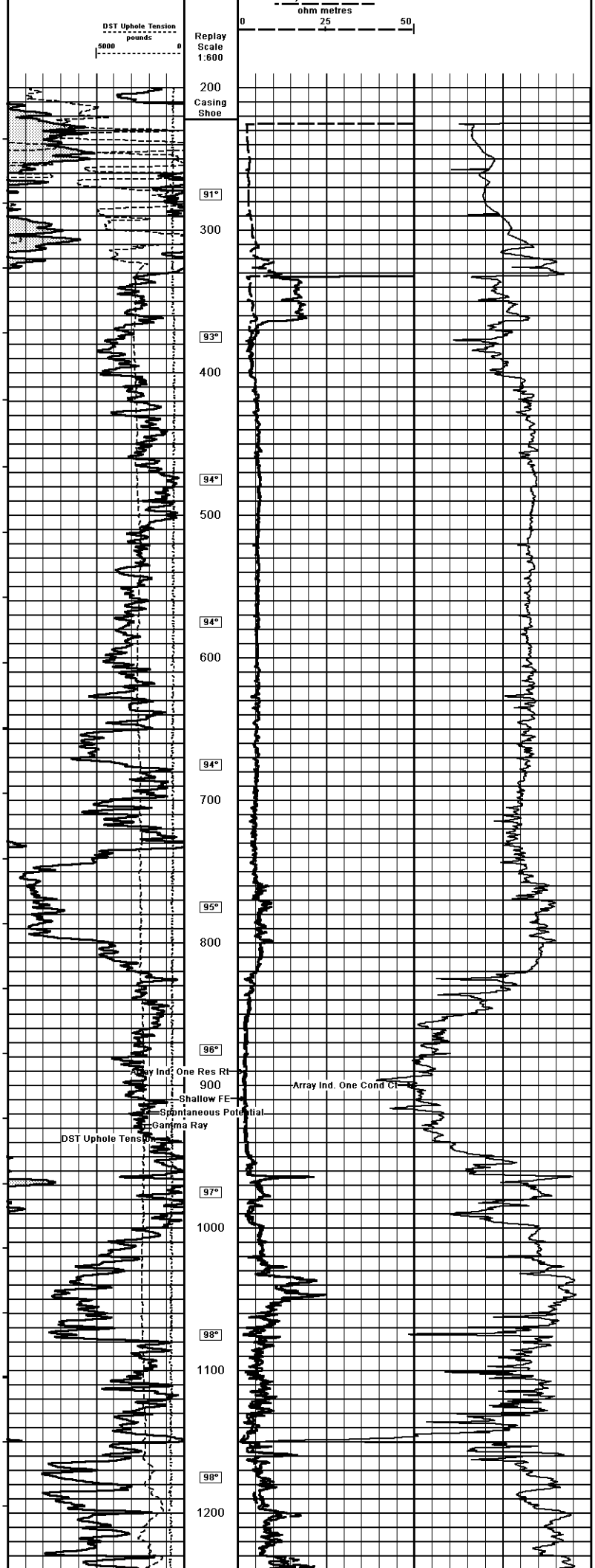
SEC	TWP	RGE	
8	13S	32W	
API Number			Other Services
Permit Number	15-109-21095		MPD/MDN MML
Permanent Datum G.L. Elevation 2971 feet			
Log Measured From KB 10 FEET			Elevations: feet
Drilling Measured From KB @ 10 FEET			KB 2981.00
			DF 2979.00
			GL 2971.00

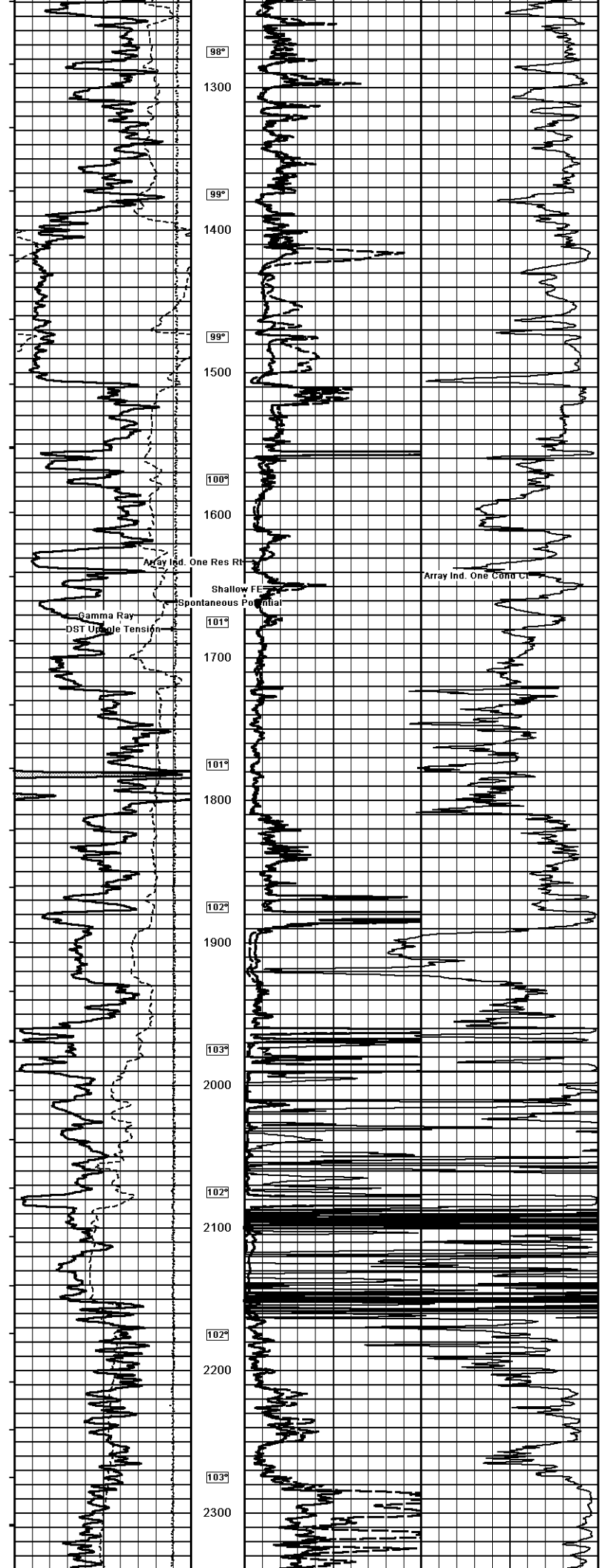
Date	23-SEP-2012	
Run Number	ONE	
Depth Driller	4680.00	feet
Depth Logger	4685.00	feet
First Reading	4682.00	feet
Last Reading	222.00	feet
Casing Driller	226.00	feet
Casing Logger	222.00	feet
Bit Size	7.875	inches
Hole Fluid Type	CHEMICAL	
Density / Viscosity	9.20 lbm/Usg	48.00 CP
PH / Fluid Loss	11.00	6.40 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	1.14 @ 93.0	ohm-m
Rmf @ Measured Temp	0.91 @ 93.0	ohm-m
Rmc @ Measured Temp	1.37 @ 93.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.92 @ 115.0	ohm-m
Time Since Circulation	3 HOURS	
Max Recorded Temp	115.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13057	LIB
Recorded By	R. HOFFMAN	
Witnessed By	STEVE DAVIS	
S.O. / JOB#	3538923	LB12-255

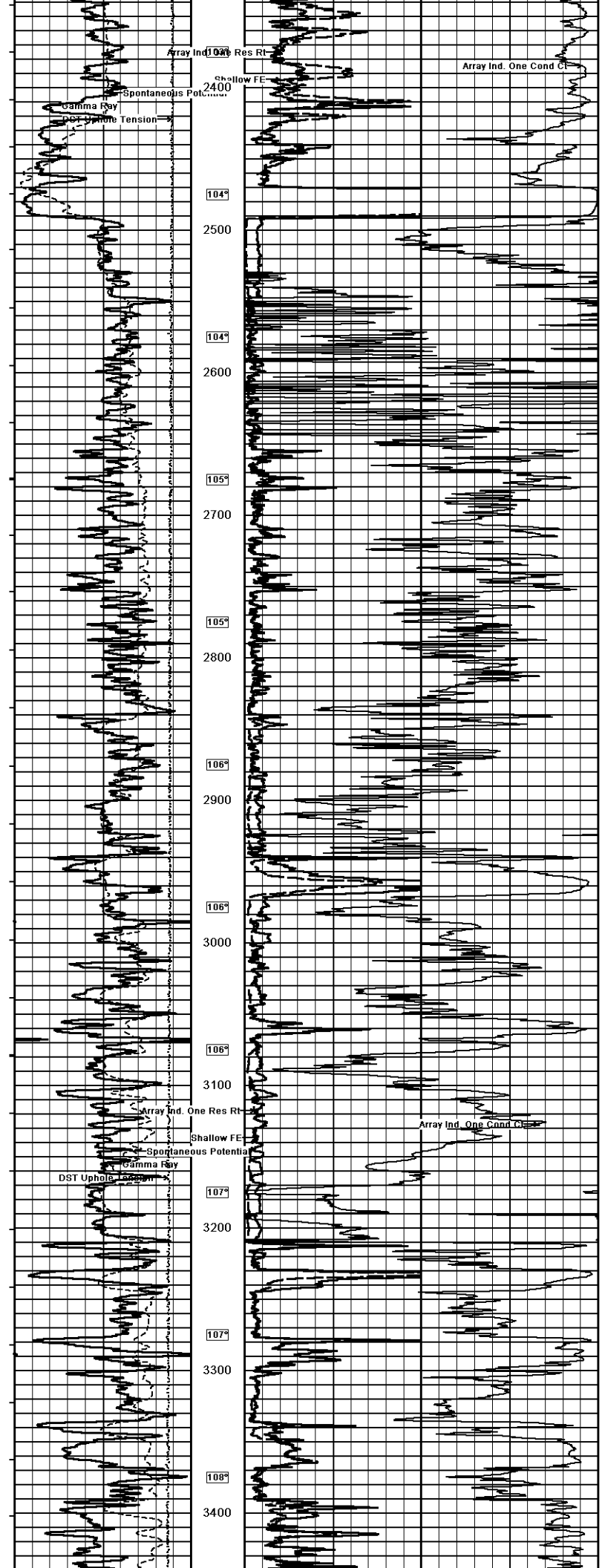
1 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #2-8\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600




DST Uphole Tension
pounds
5000
0
ohm metres
0
25
50
Replay
Scale
1:600
200
Casing
Shoe
91°
300
93°
400
94°
500
94°
600
94°
700
95°
800
96°
Array Ind. One Res Rt
900
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct
97°
1000
98°
1100
98°
1200


98°
1300
99°
1400
99°
1500
100°
1600
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Upsole Tension
101°
1700
Array Ind. One Cond Ct
101°
1800
102°
1900
103°
2000
102°
2100
102°
2200
103°
2300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Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct
2400
104°
2500
104°
2600
105°
2700
105°
2800
106°
2900
106°
3000
106°
3100
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct
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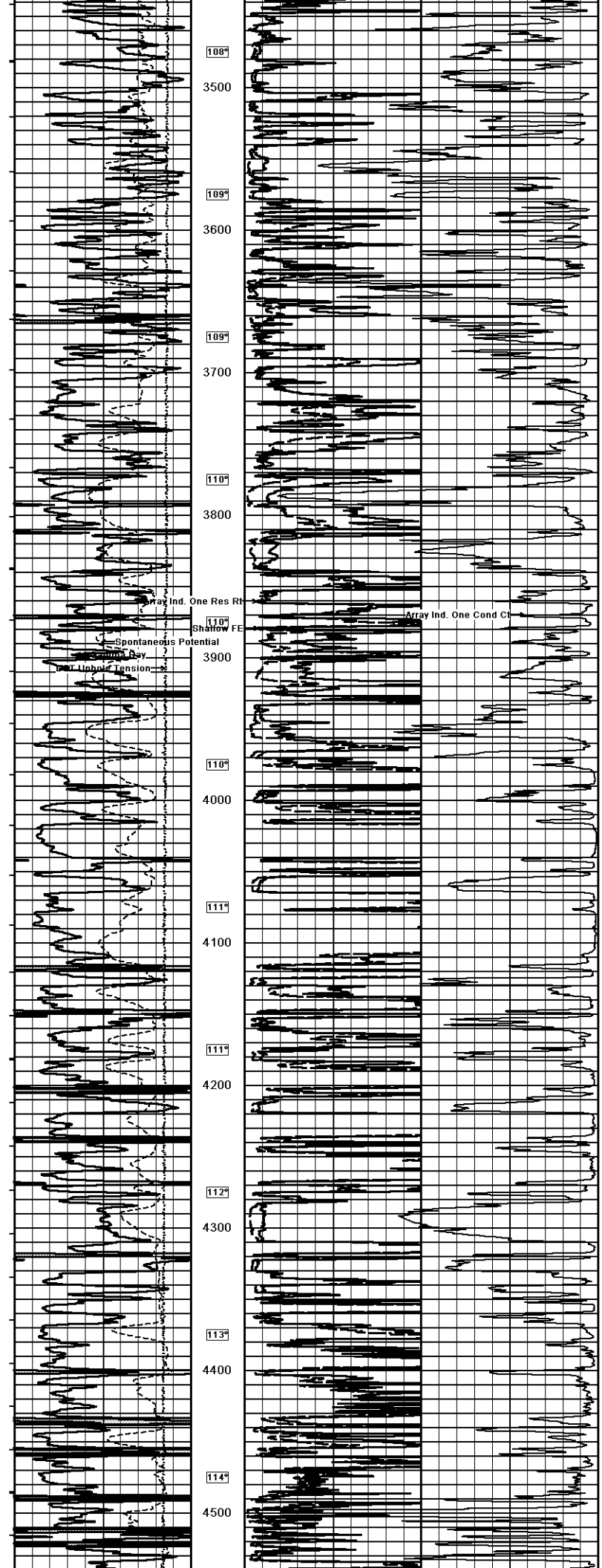
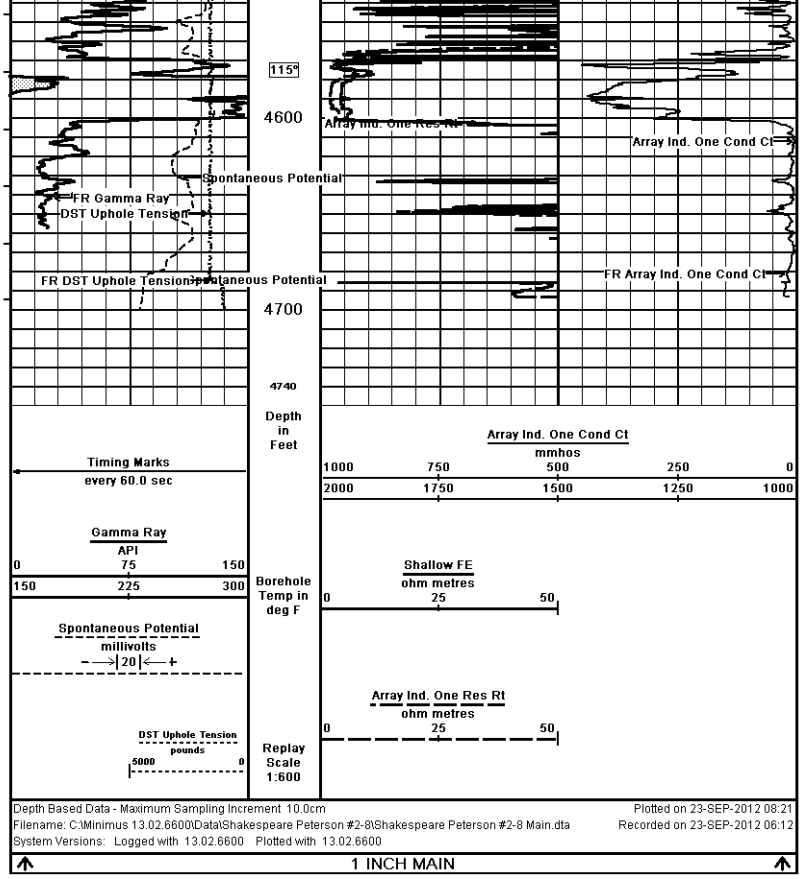
3200
107°
3300
108°
3400


108°
3500
109°
3600
109°
3700
110°
3800
Array Ind. One Res Rt
110°
Shallow FE
Spontaneous Potential
Gamma Ray
Unhold Tension
3900
110°
4000
111°
4100
111°
4200
112°
4300
113°
4400
114°
4500
Array Ind. One Cond Ct



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 23-SEP-2012 08:21

Filename: C:\Minimus 13.02.6600\Data\Shakespeare Peterson #2-8\Shakespeare Peterson #2-8 Main.dta — Recorded on 23-SEP-2012 06:12

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

1 INCH MAIN

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