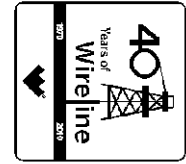




Weatherford

**ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**



COMPANY GRAND MESA OPERATING
WELL SPONEY #1-33
FIELD WILDCAT
PROVINCE/COUNTY GOVE
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 1052' FSL & 583' FWL

SEC TWP RGE Other Services
33 13S 31W MDN/MPD
API Number 15-063-21926 MML
Permit Number

Permanent Datum G.L., Elevation 2929 feet
Log Measured From K.B. @ 5 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations: feet
KB 2934.00
DF 2932.00
GL 2929.00

Date	28-JUL-2011	
Run Number	ONE	
Depth Driller	4680.00	feet
Depth Logger	4675.00	feet
First Reading	4672.00	feet
Last Reading	221.00	feet
Casing Driller	222.00	feet
Casing Logger	221.00	feet
Bit Size	7.875	inches
Hole Fluid Type	CHEMICAL	
Density / Viscosity	9.40 lb/USg	52.00 CP
PH / Fluid Loss	9.50	9.60 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	1.05 @ 91.0	ohm-m
Rmf @ Measured Temp	0.84 @ 91.0	ohm-m
Rmc @ Measured Temp	1.26 @ 91.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.80 @120.0	ohm-m
Time Since Circulation	4 HOURS	
Max Recorded Temp	120.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13057	LIB
Recorded By	R. HOFFMAN	
Witnessed By	BOB PETERSEN	
S.O. # / JOB #	3531112	3531112

BOREHOLE RECORD

Last Edited: 28-JUL-2011 04:27

Bit Size inches	Depth From feet	Depth To feet
7.875	221.00	4675.00

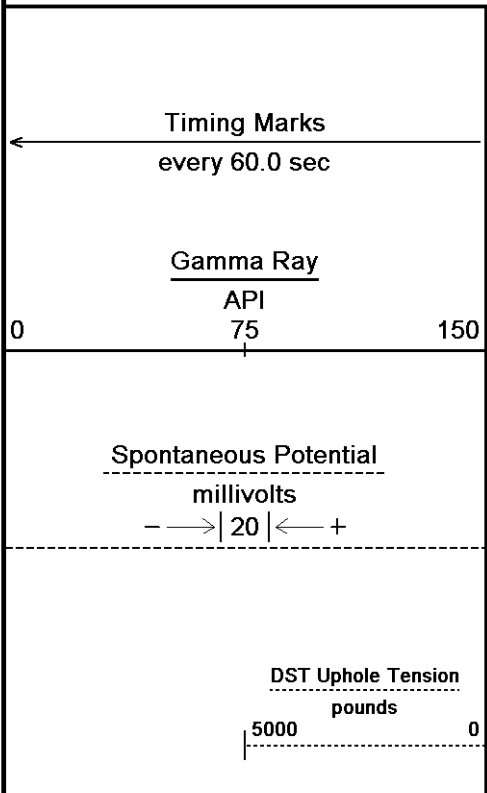
CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	221.00	24.00

REMARKS

Tools Ran: MCG, MML, MDN, MPD, SKJ, 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.
Annular volume with 5.5 inch production casing = 240 cu. ft.
Service order #3531112
Rig: Murfin Drilling Rig #24
Engineer: R. Hoffman
Operator(s): J. LaPoint

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

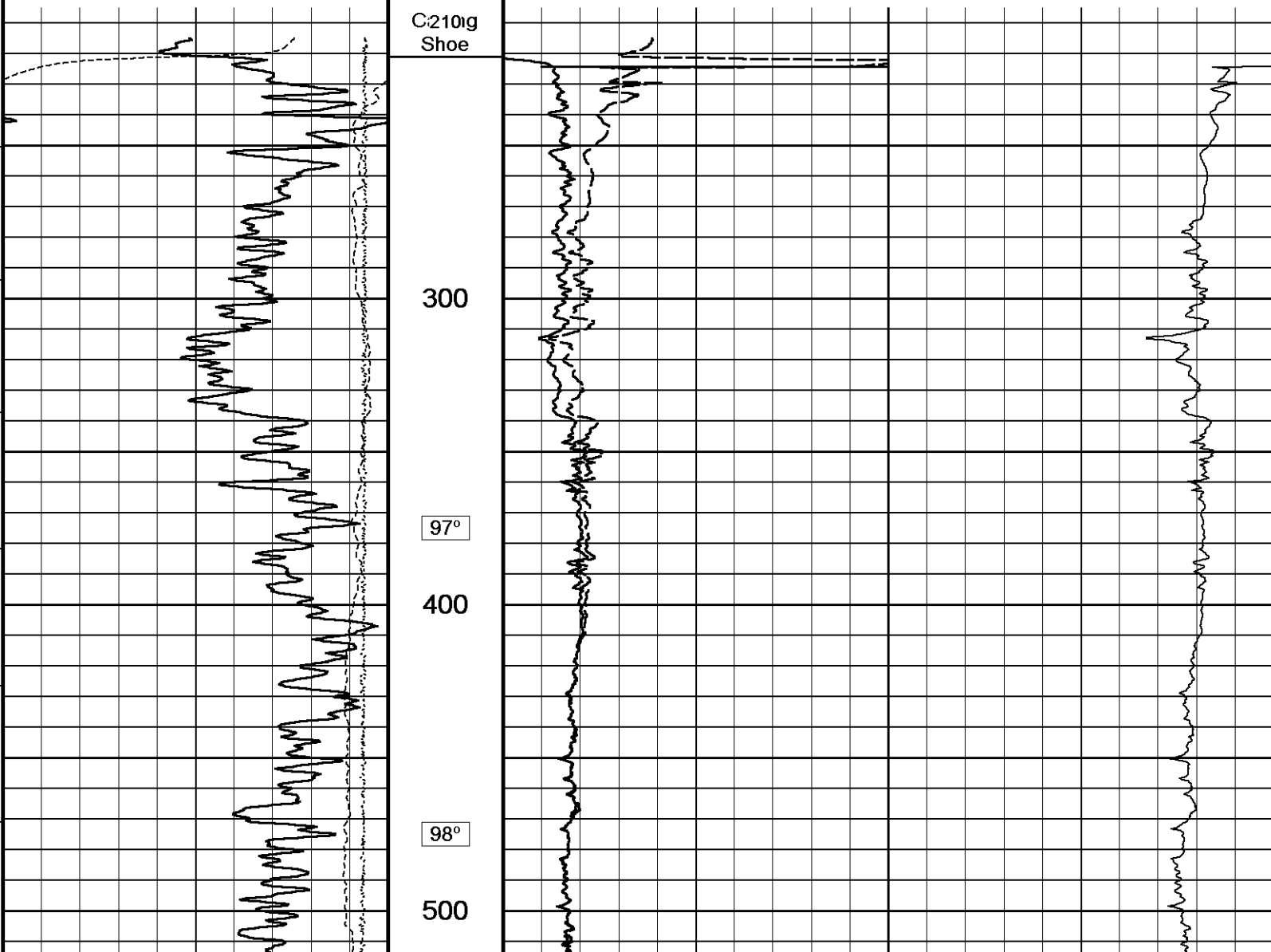
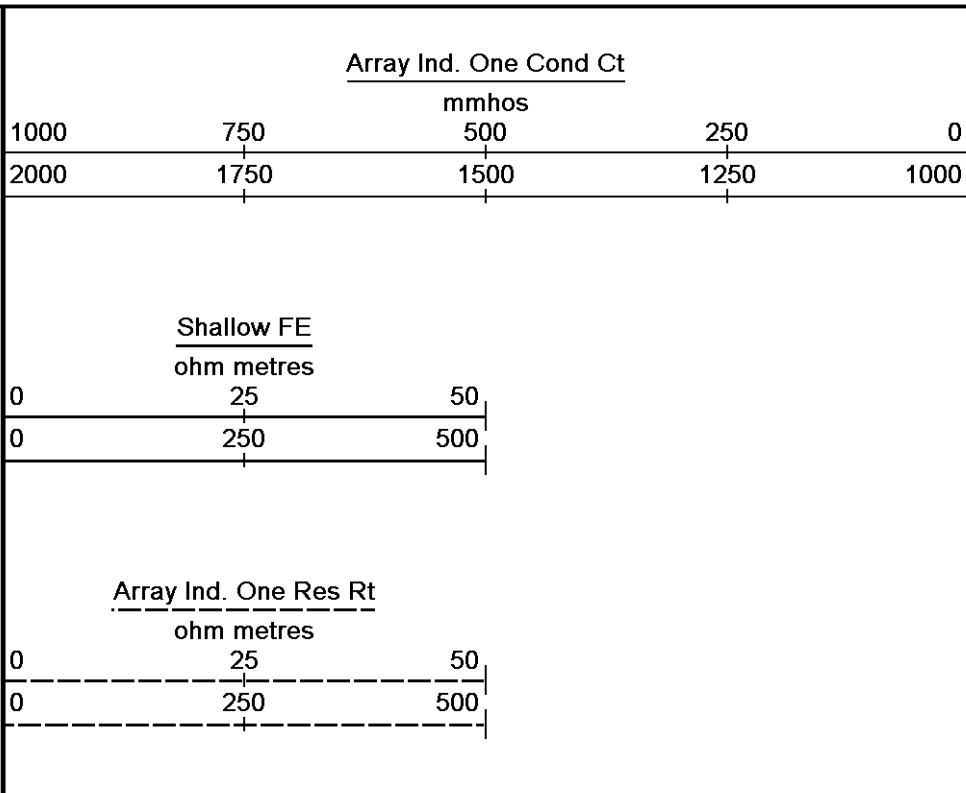


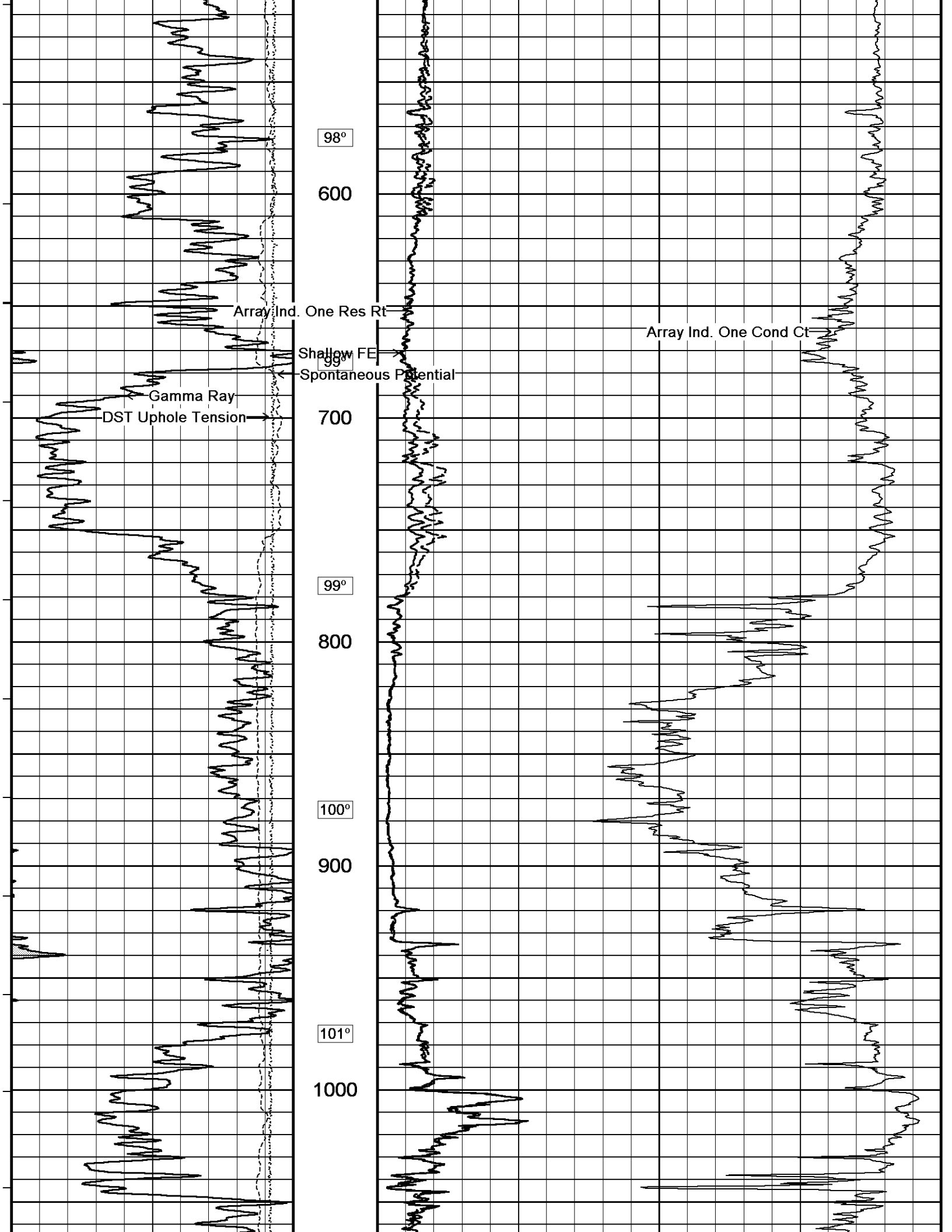
Depth
In
Feet

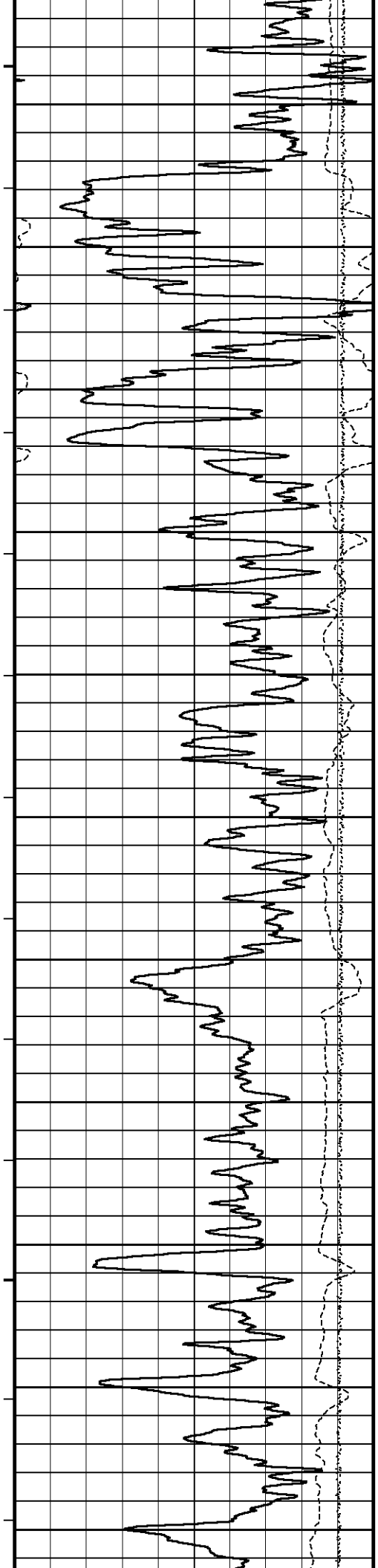
Borehole
Temp in
deg F

Replay
Scale
1:600

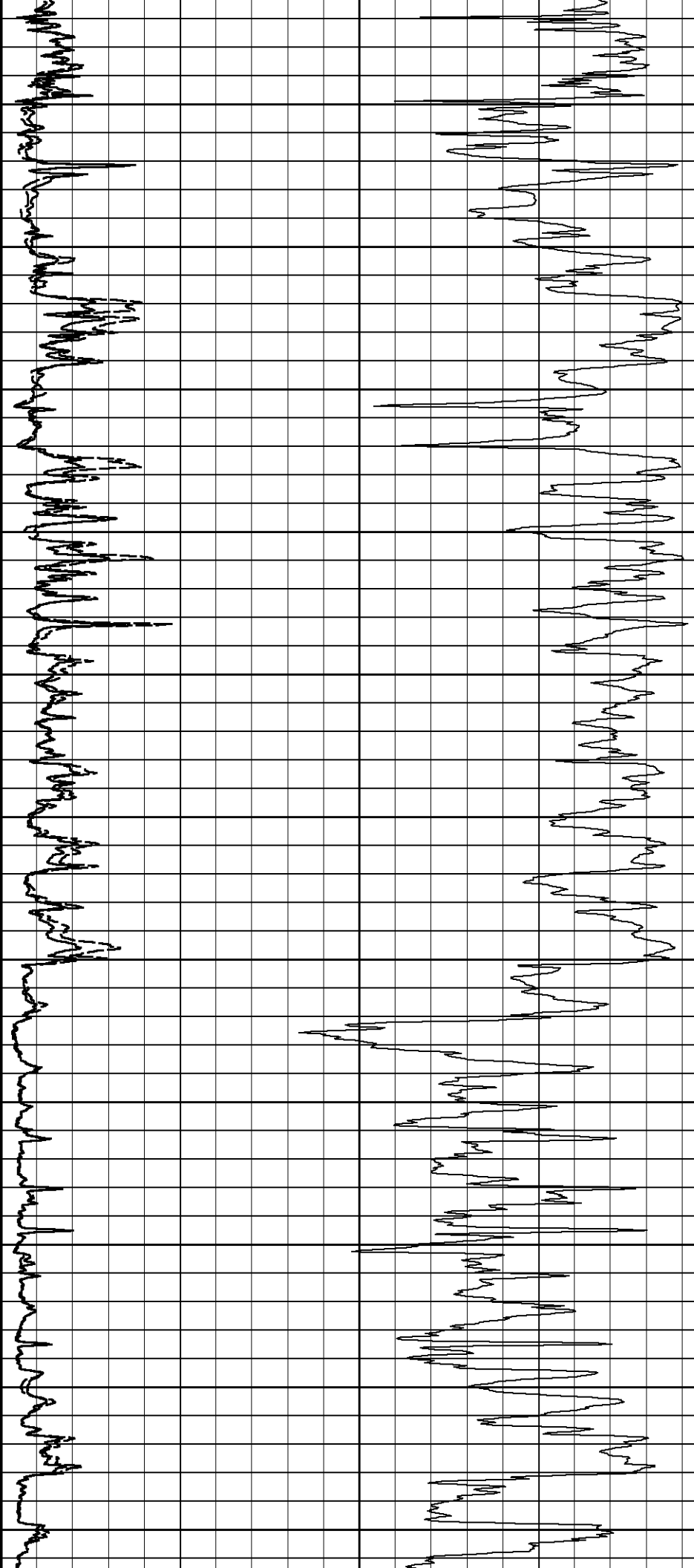
C210g
Shoe

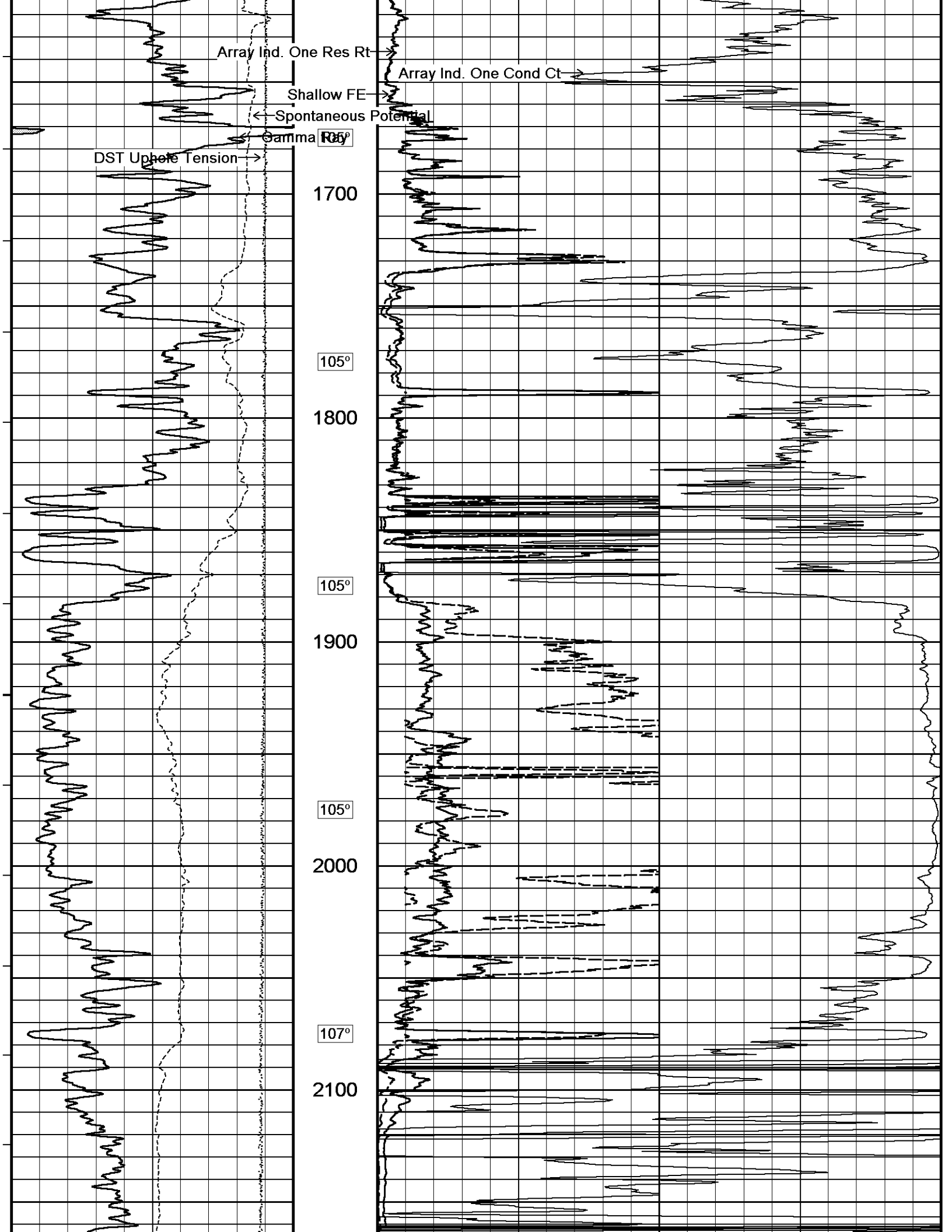


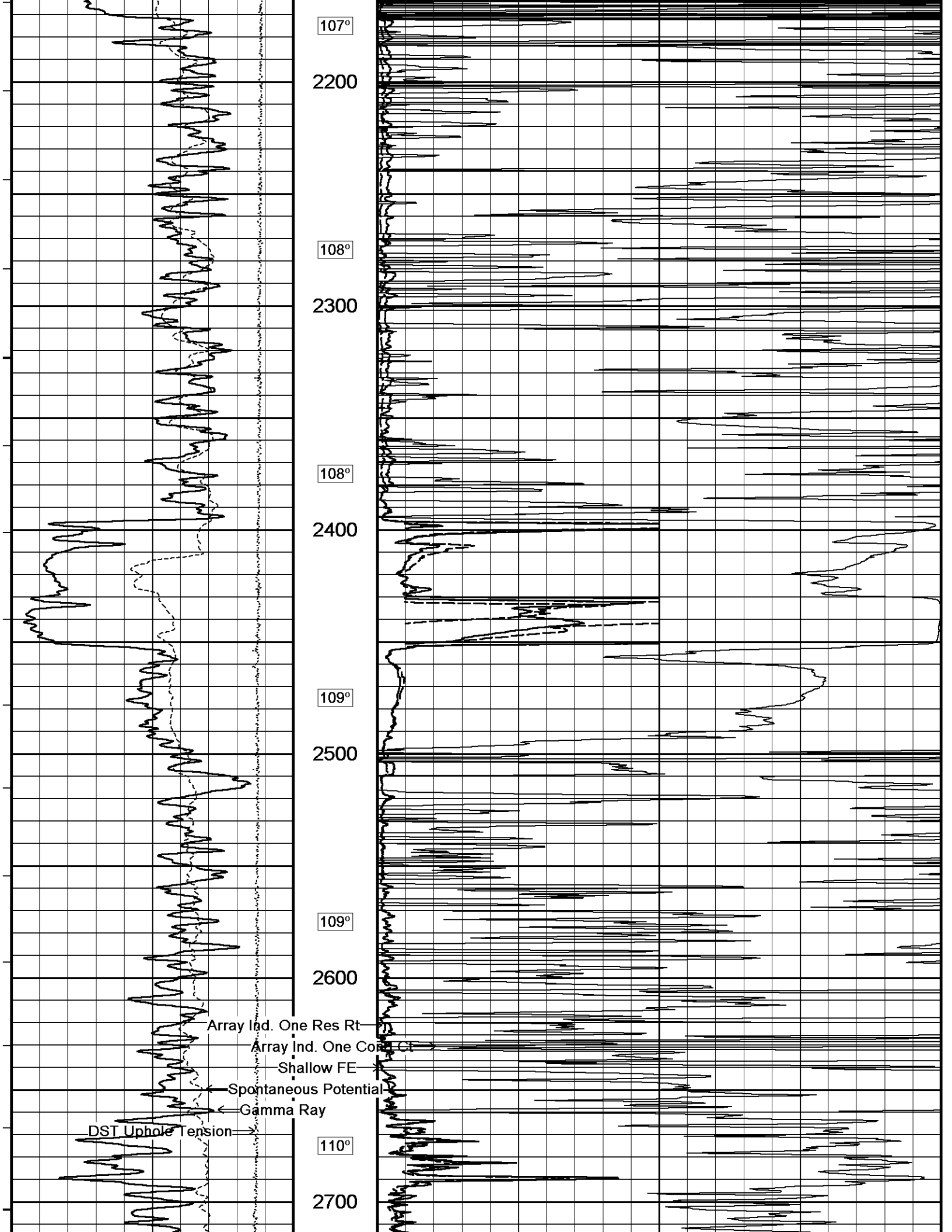


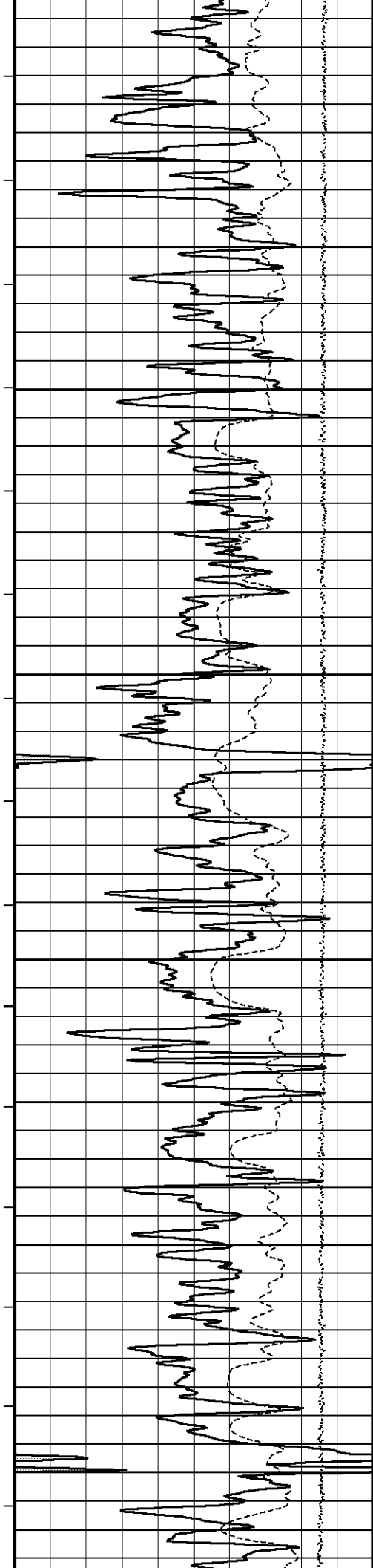


101°
1100
102°
1200
103°
1300
104°
1400
104°
1500
105°
1600









110°

2800

111°

2900

111°

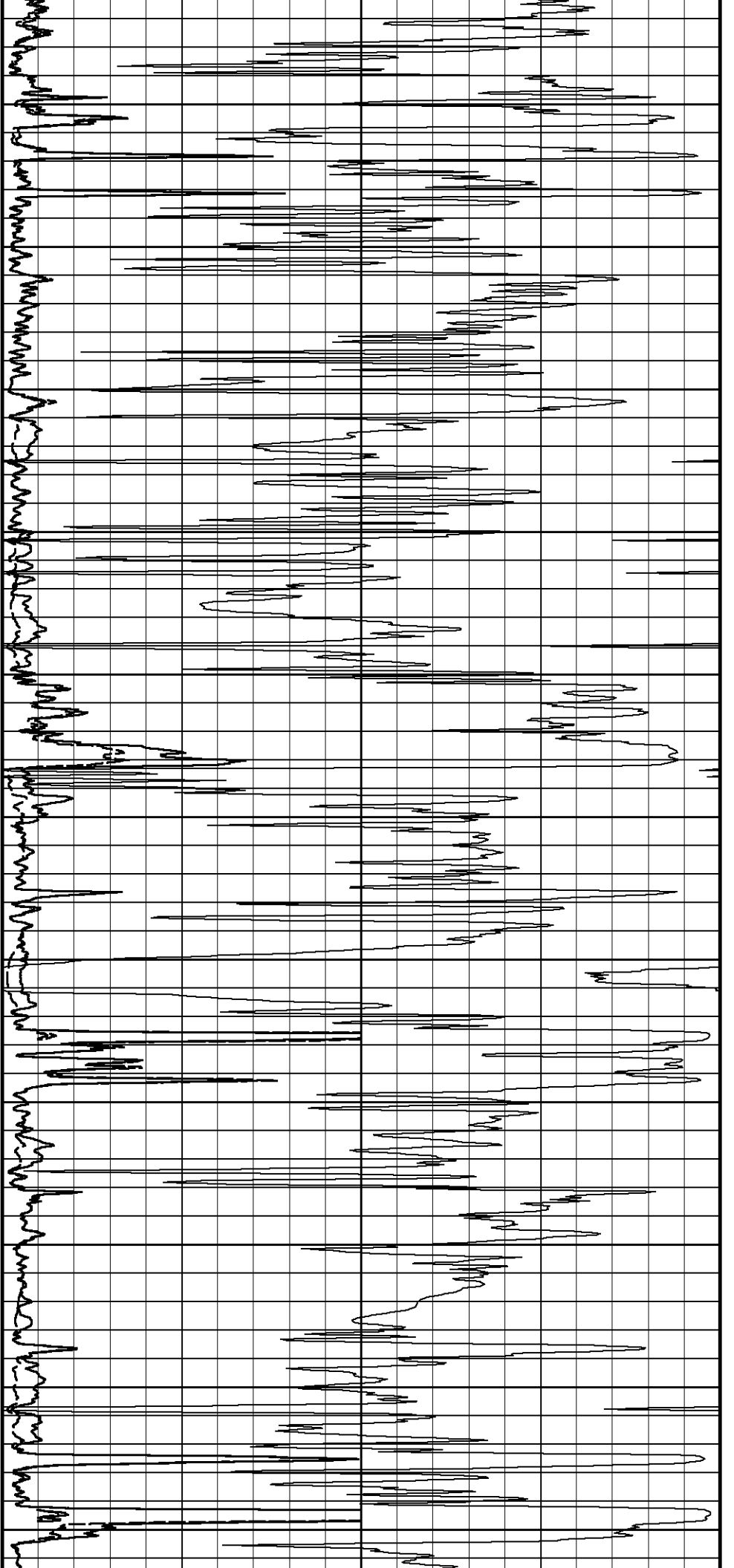
3000

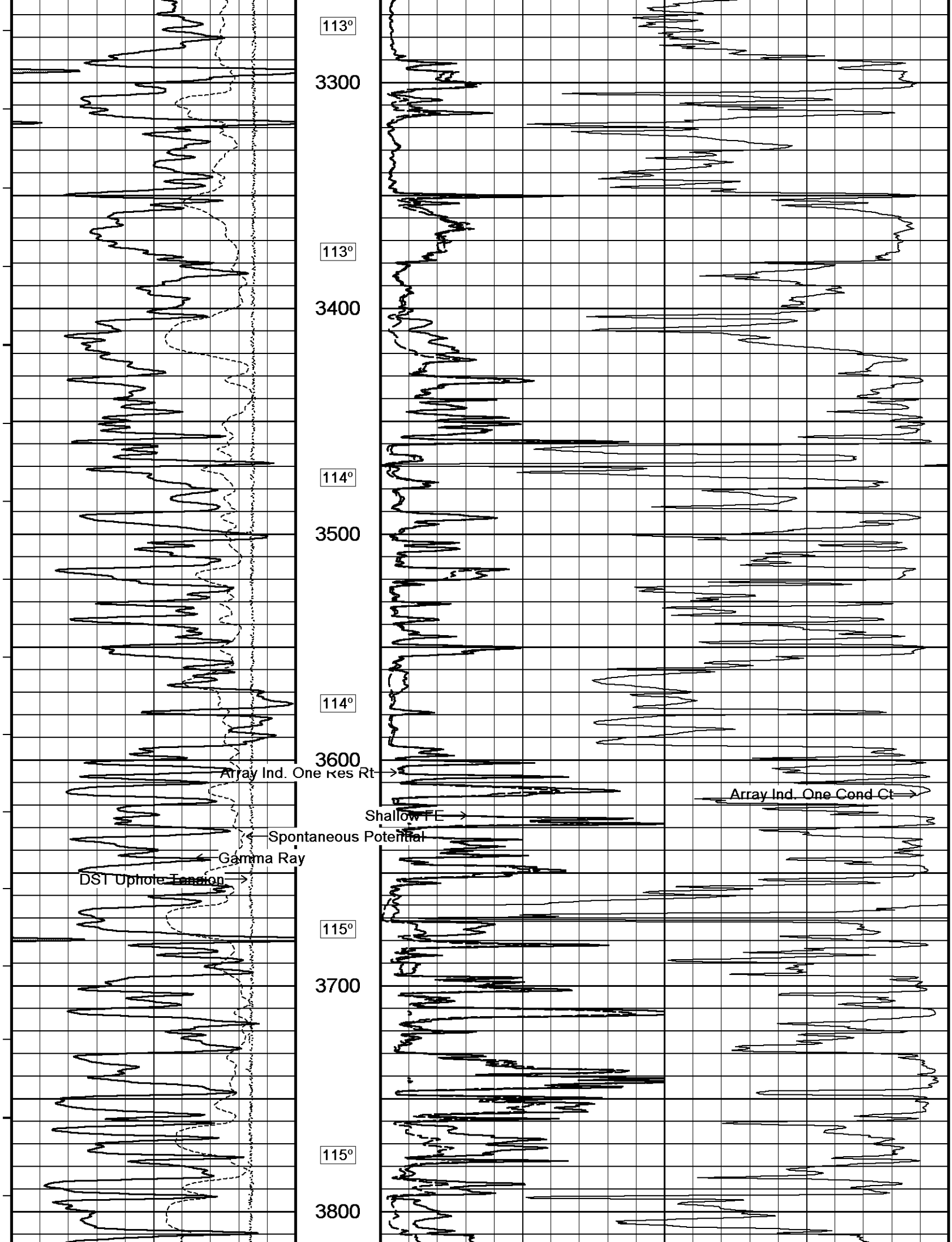
112°

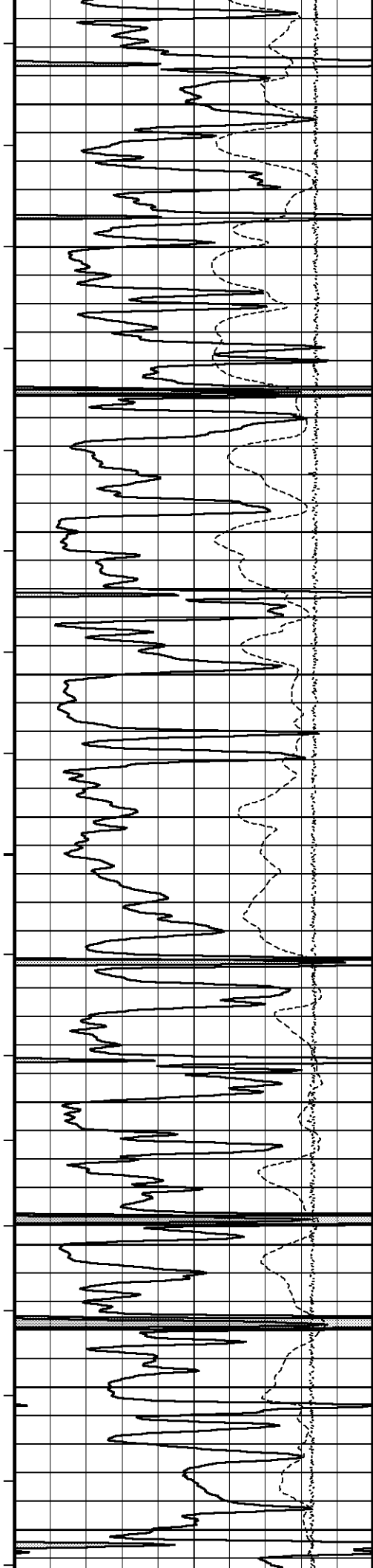
3100

112°

3200







116°

3900

116°

4000

117°

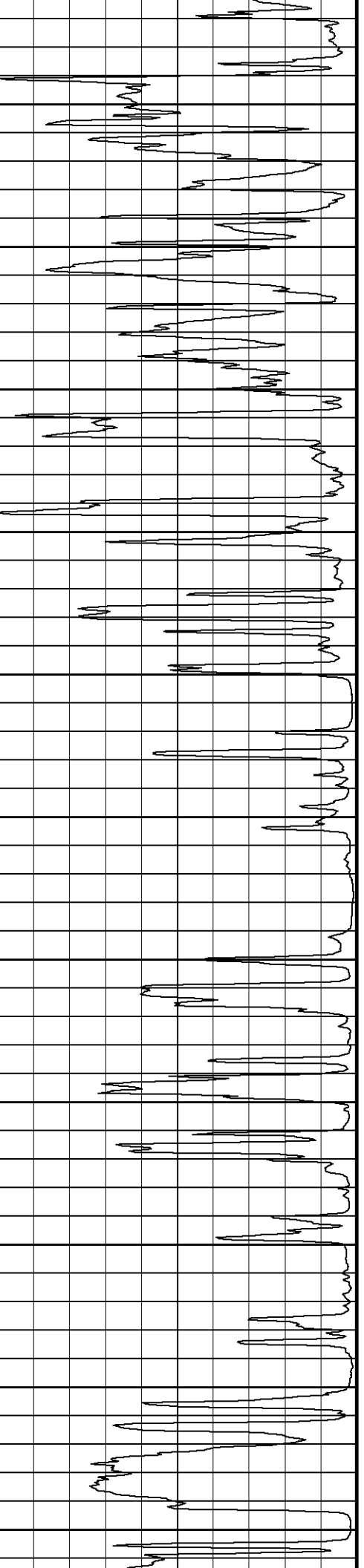
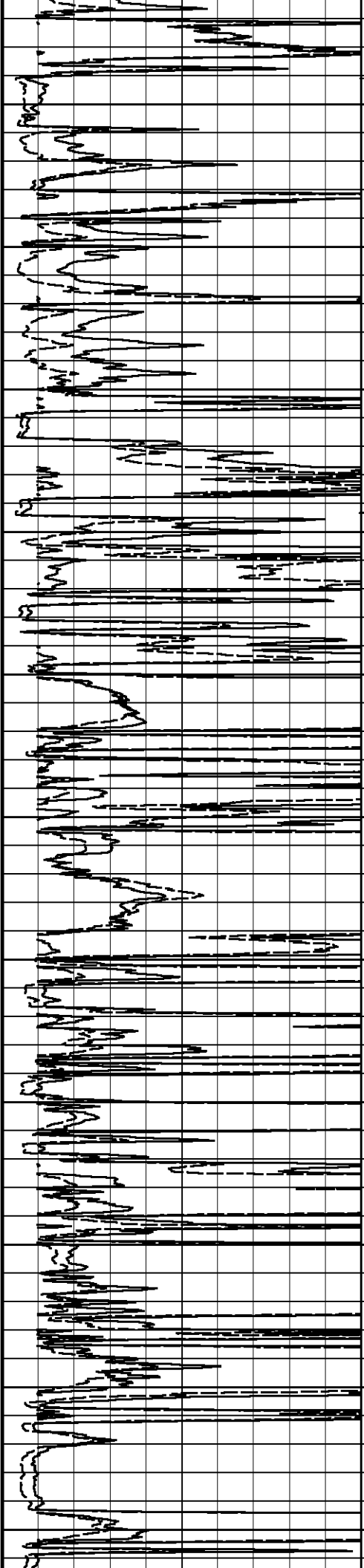
4100

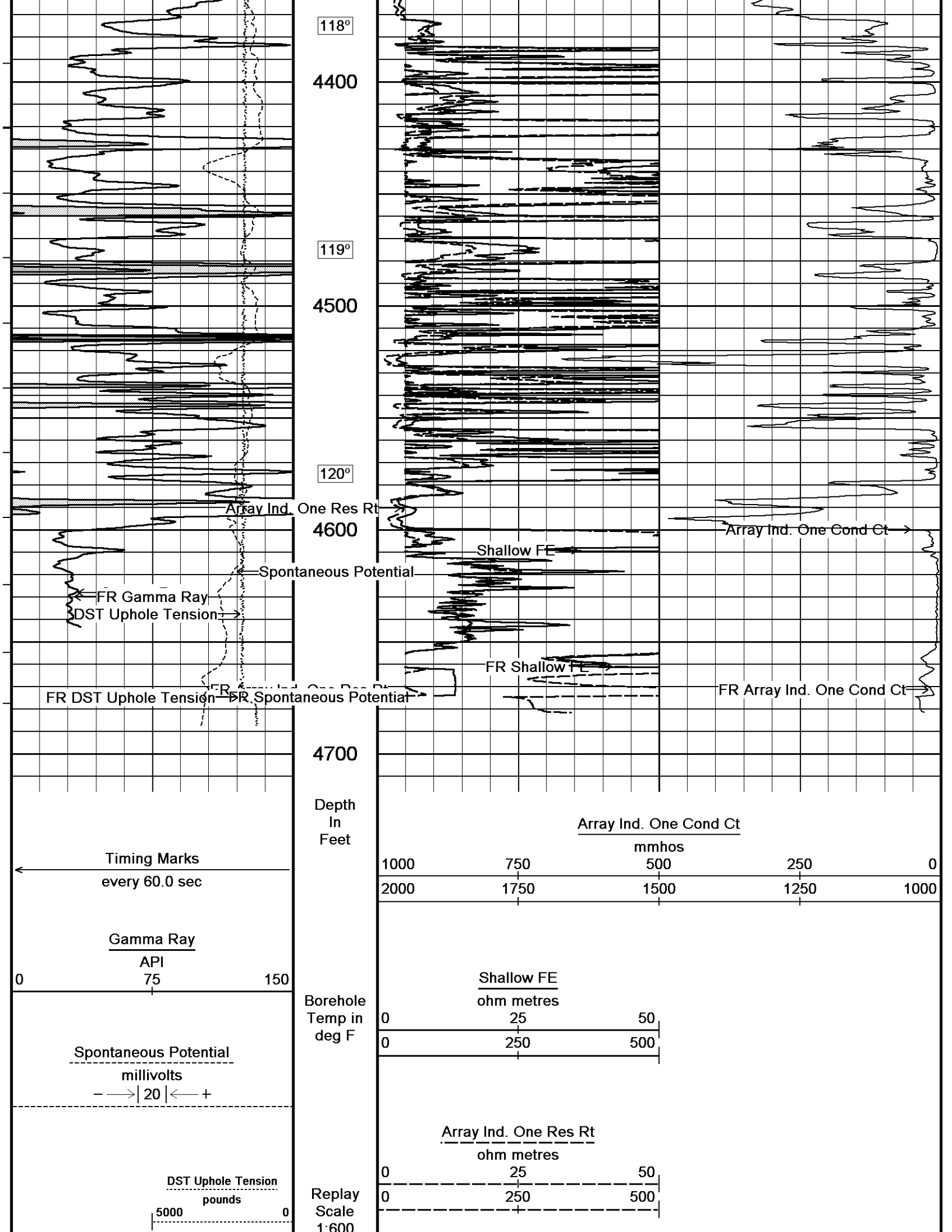
117°

4200

118°

4300





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 31-AUG-2011 09:38

Filename: C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherf...Grand Mesa Sponey #1-33_002.dta

Recorded on 28-JUL-2011 02:24

System Versions: Logged with 11.02.3186 Plotted with 12.01.3513



2 INCH MAIN PASS



5 INCH MAIN PASS



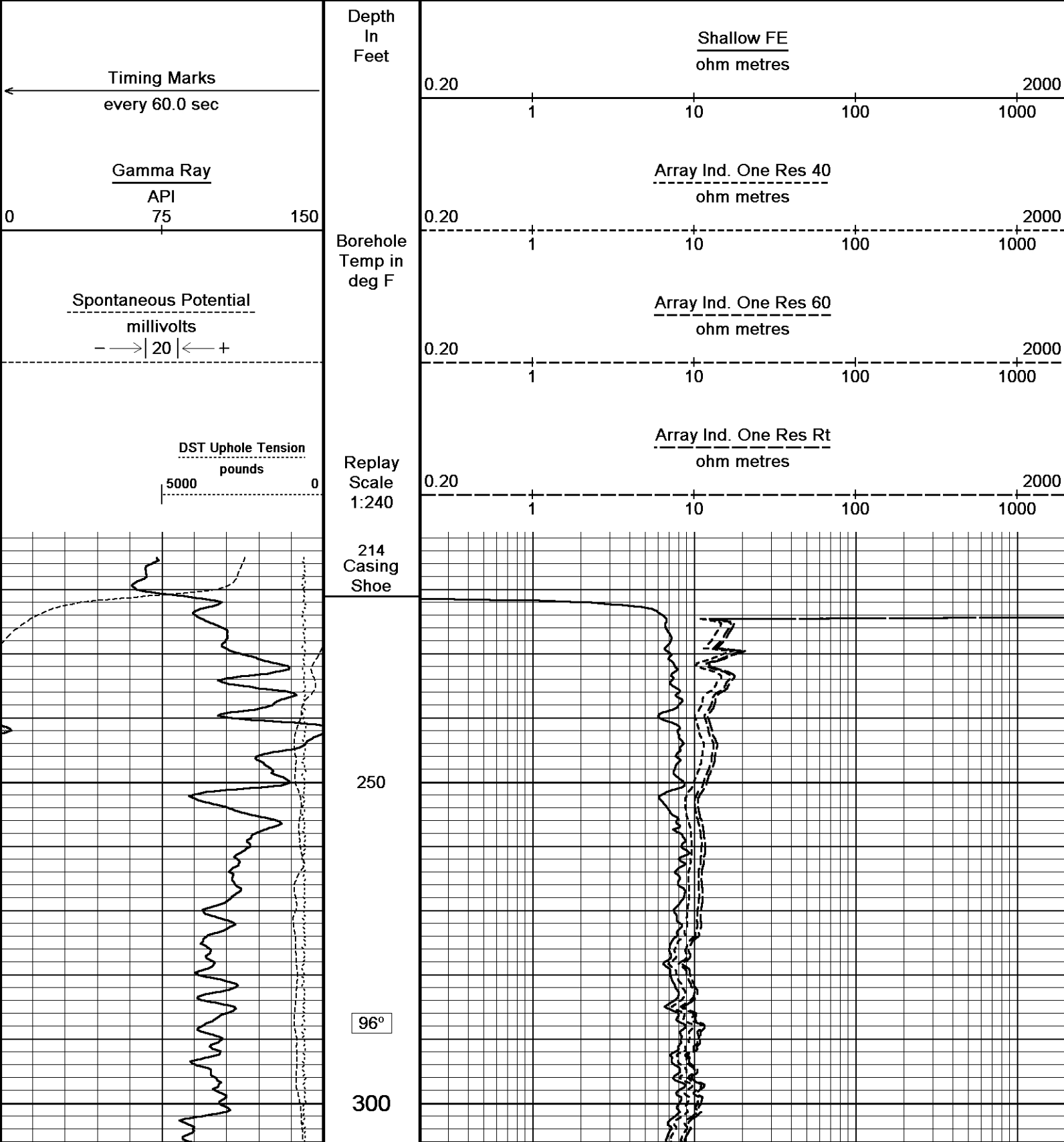
Depth Based Data - Maximum Sampling Increment 10.0cm

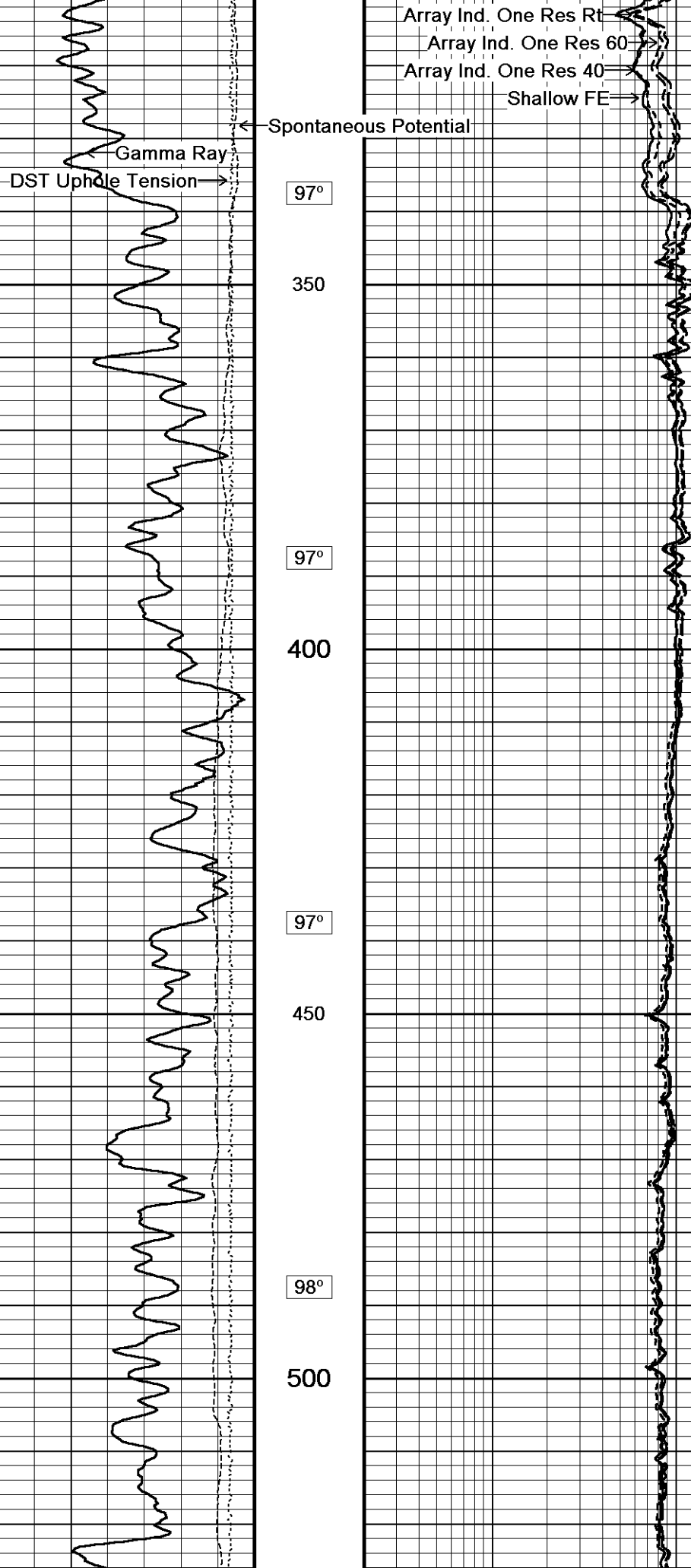
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Recorded on 28-JUL-2011 02:24

System Versions: Logged with 11.02.3186 Plotted with 12.01.3513





Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

97°

350

97°

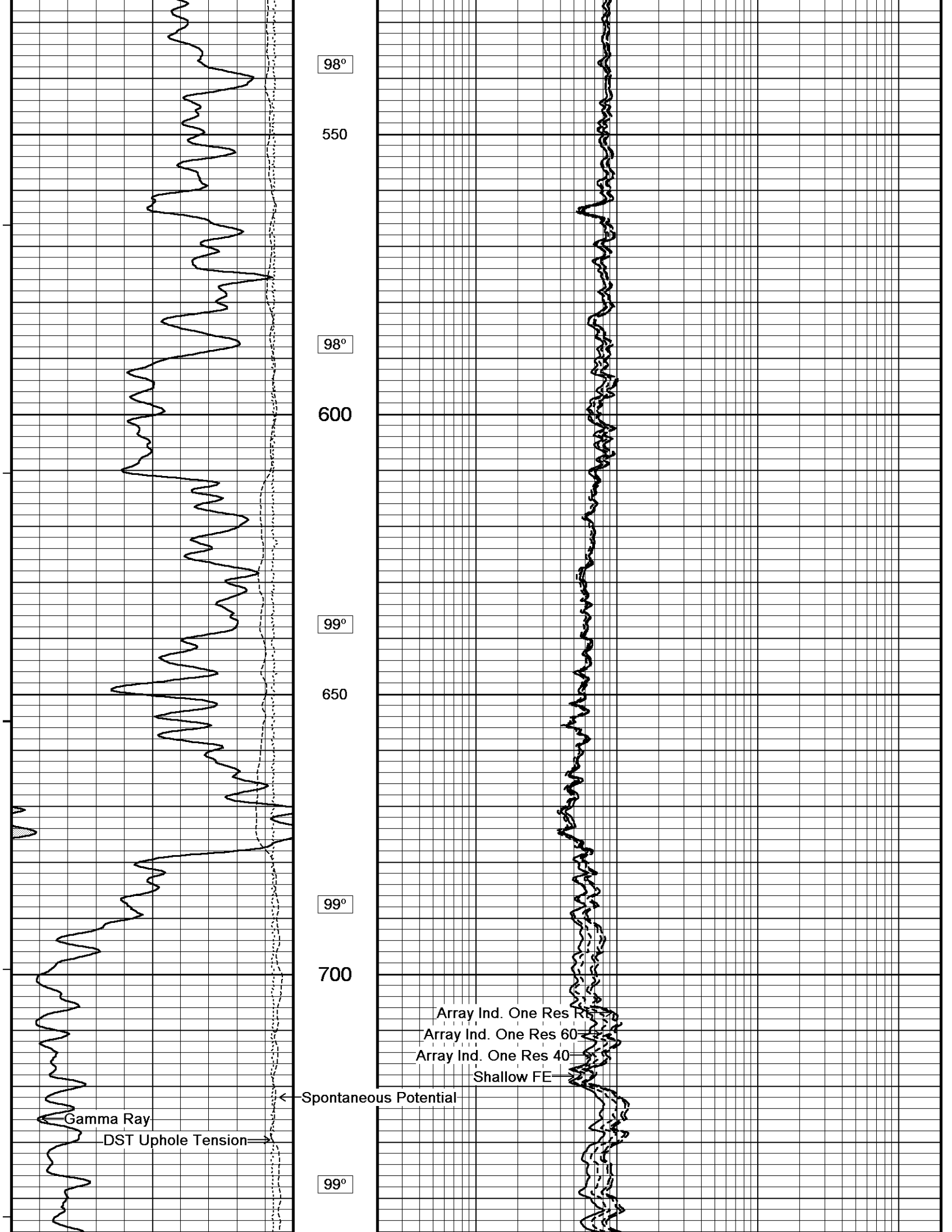
400

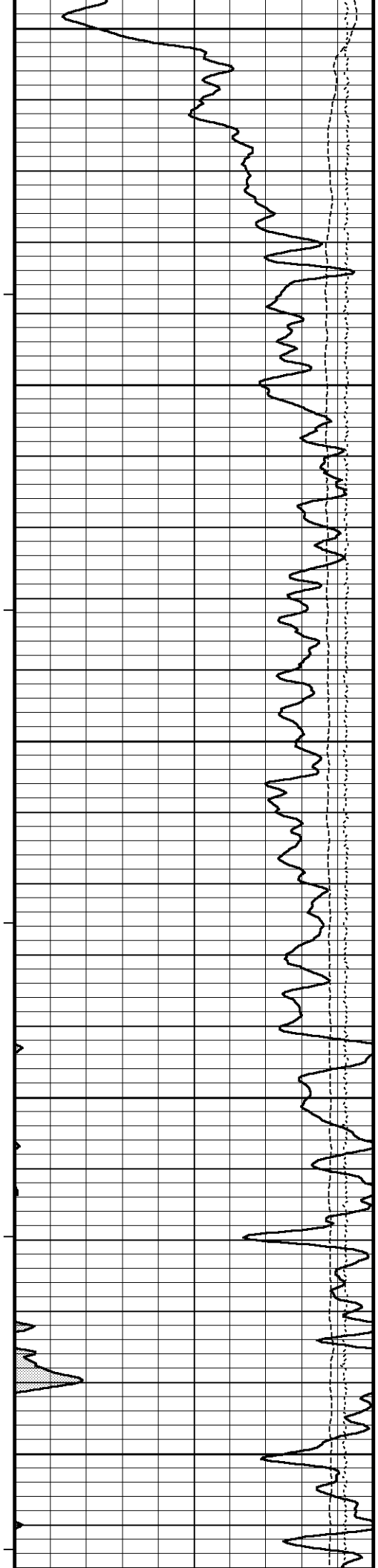
97°

450

98°

500





750

100°

800

100°

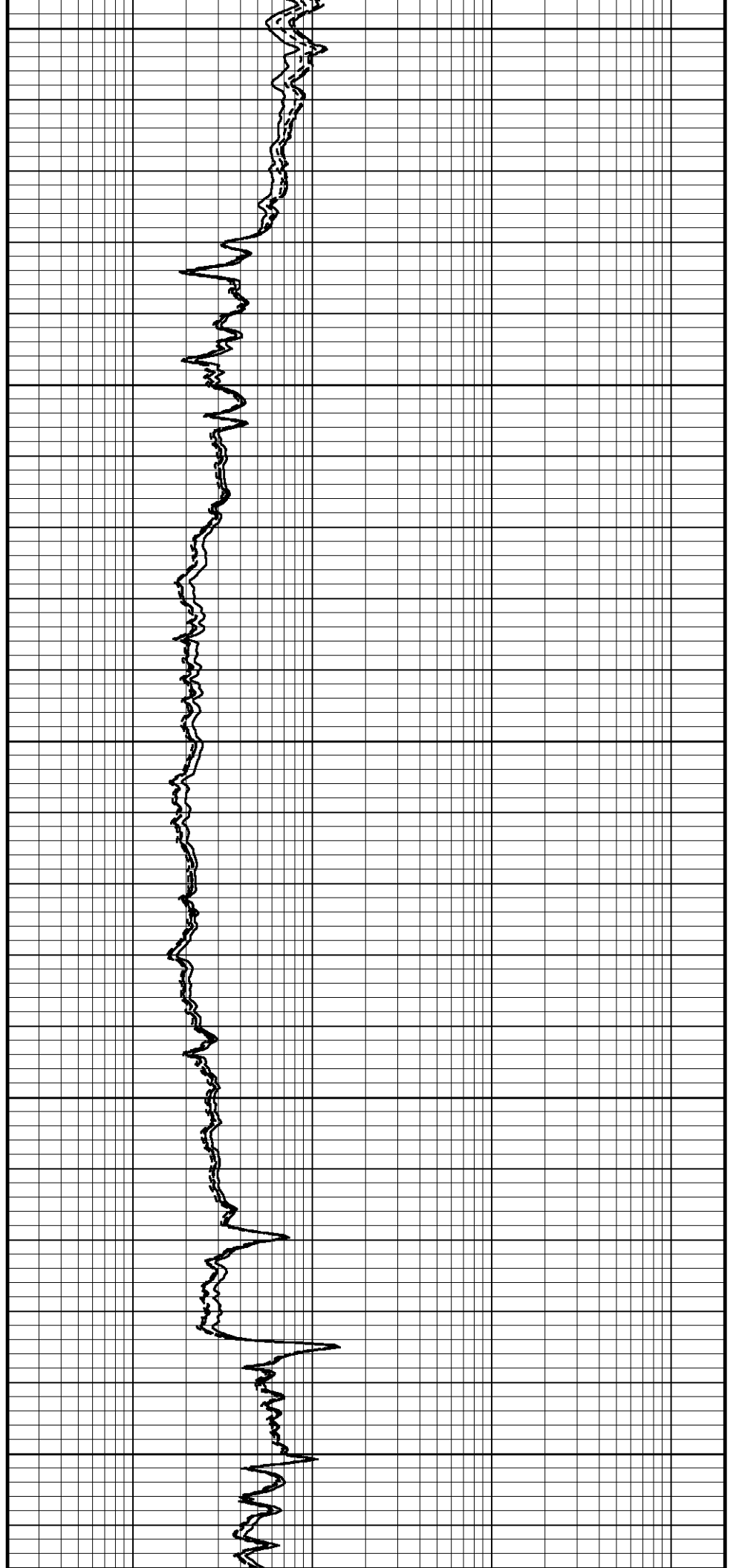
850

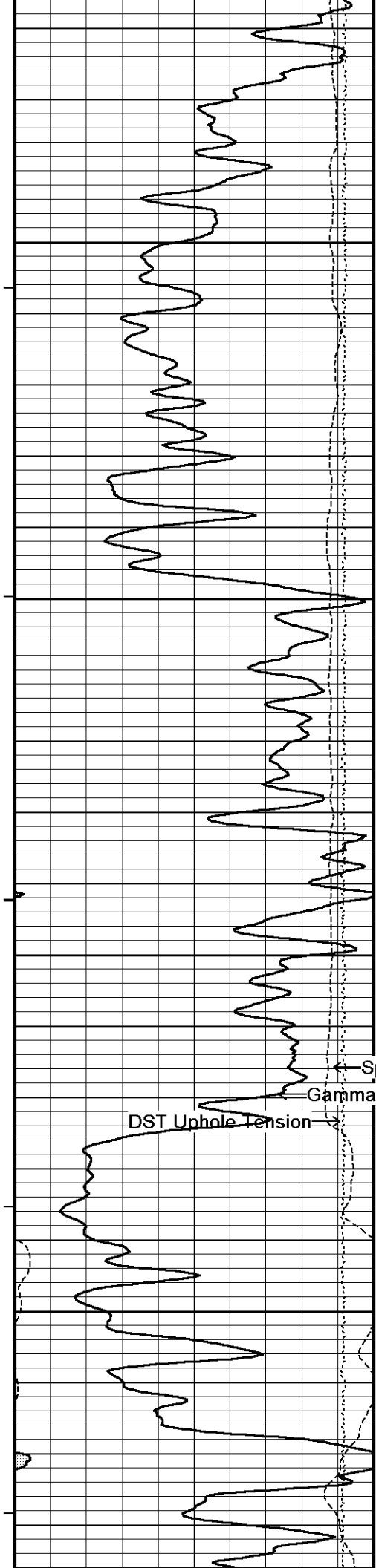
100°

900

101°

950





101°

1000

101°

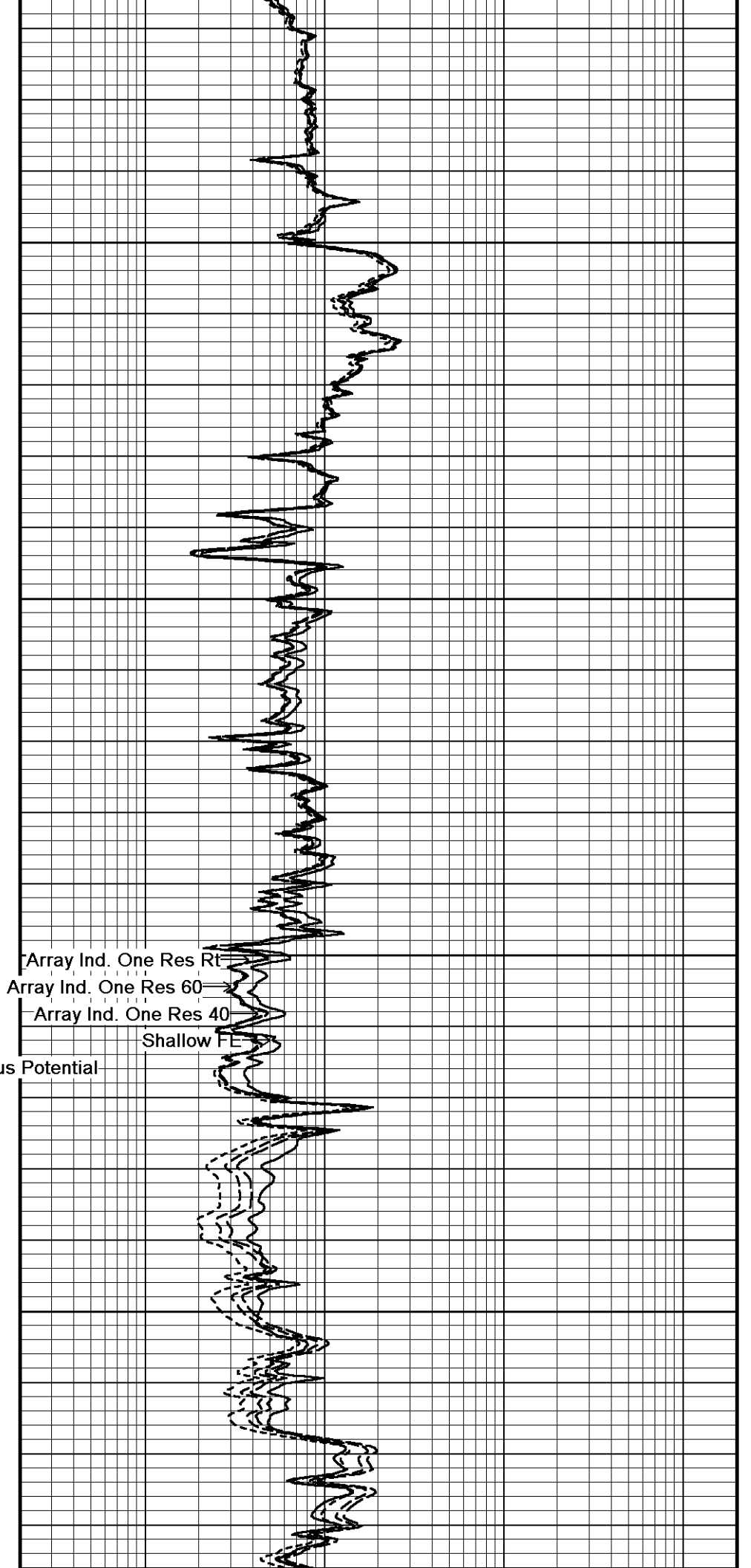
1050

101°

1100

102°

1150



Array Ind. One Res Rt

Array Ind. One Res 60

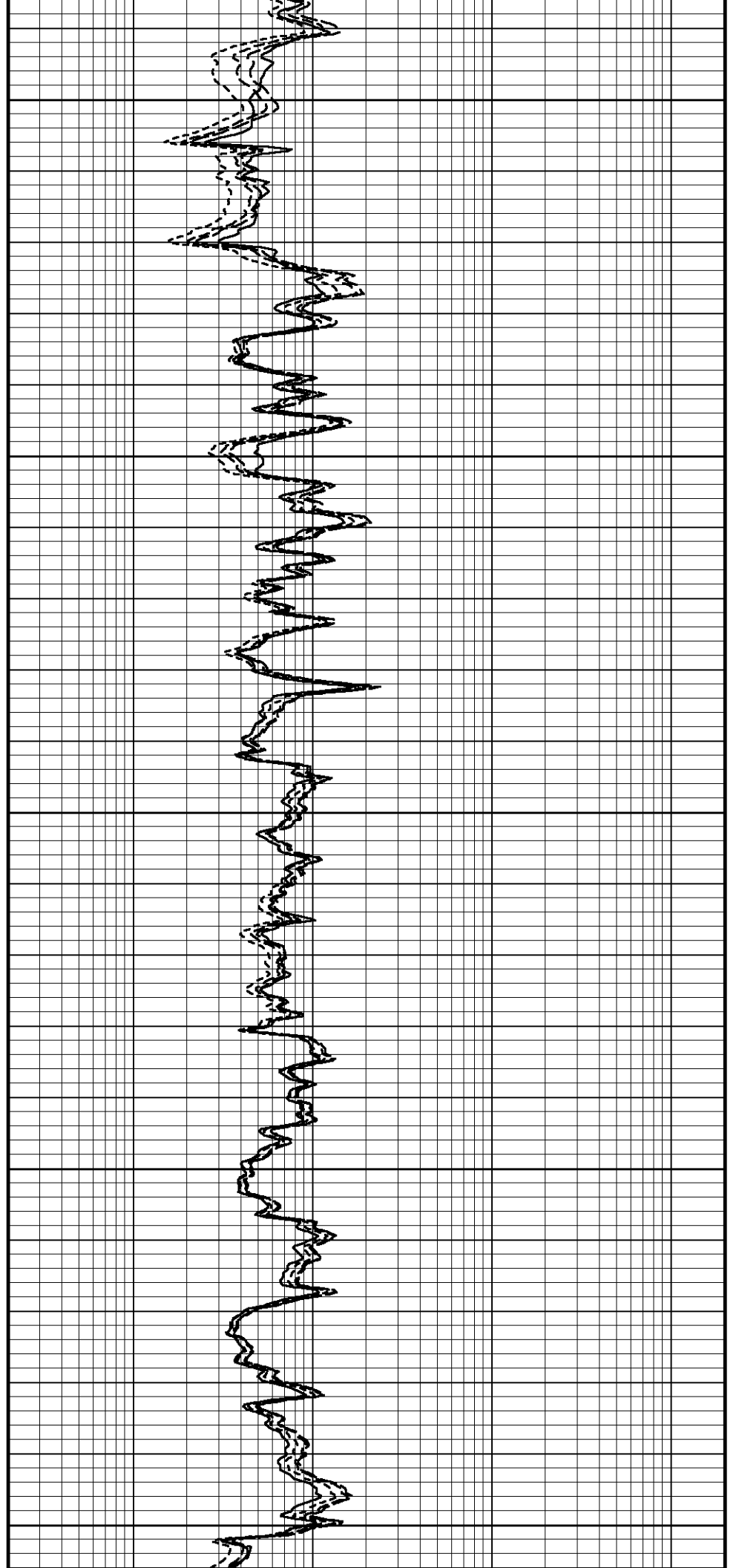
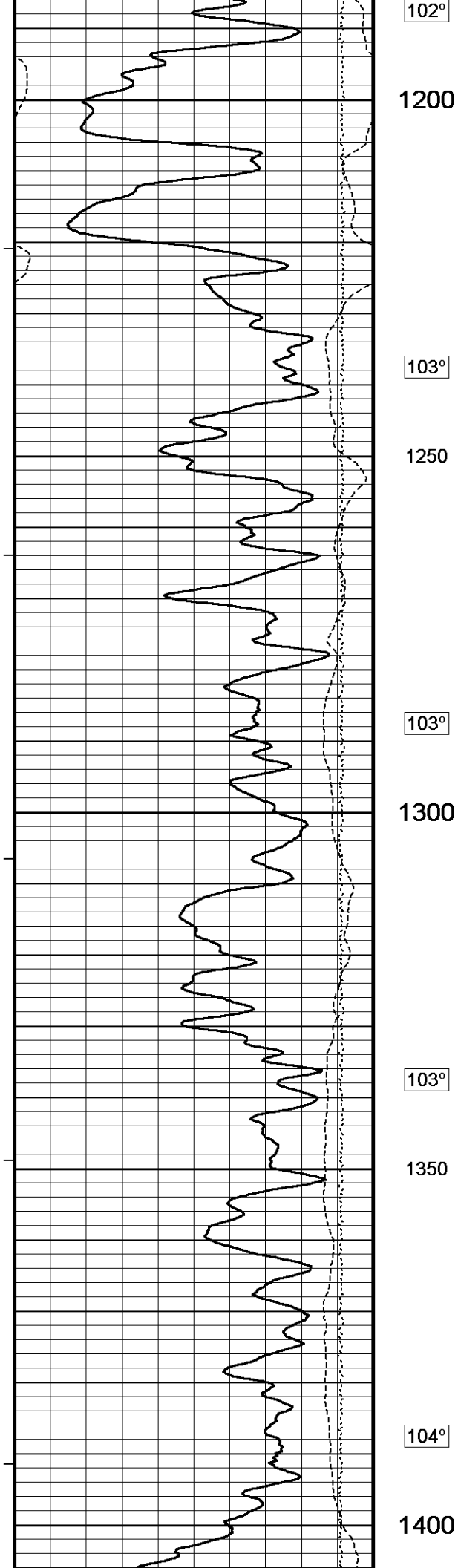
Array Ind. One Res 40

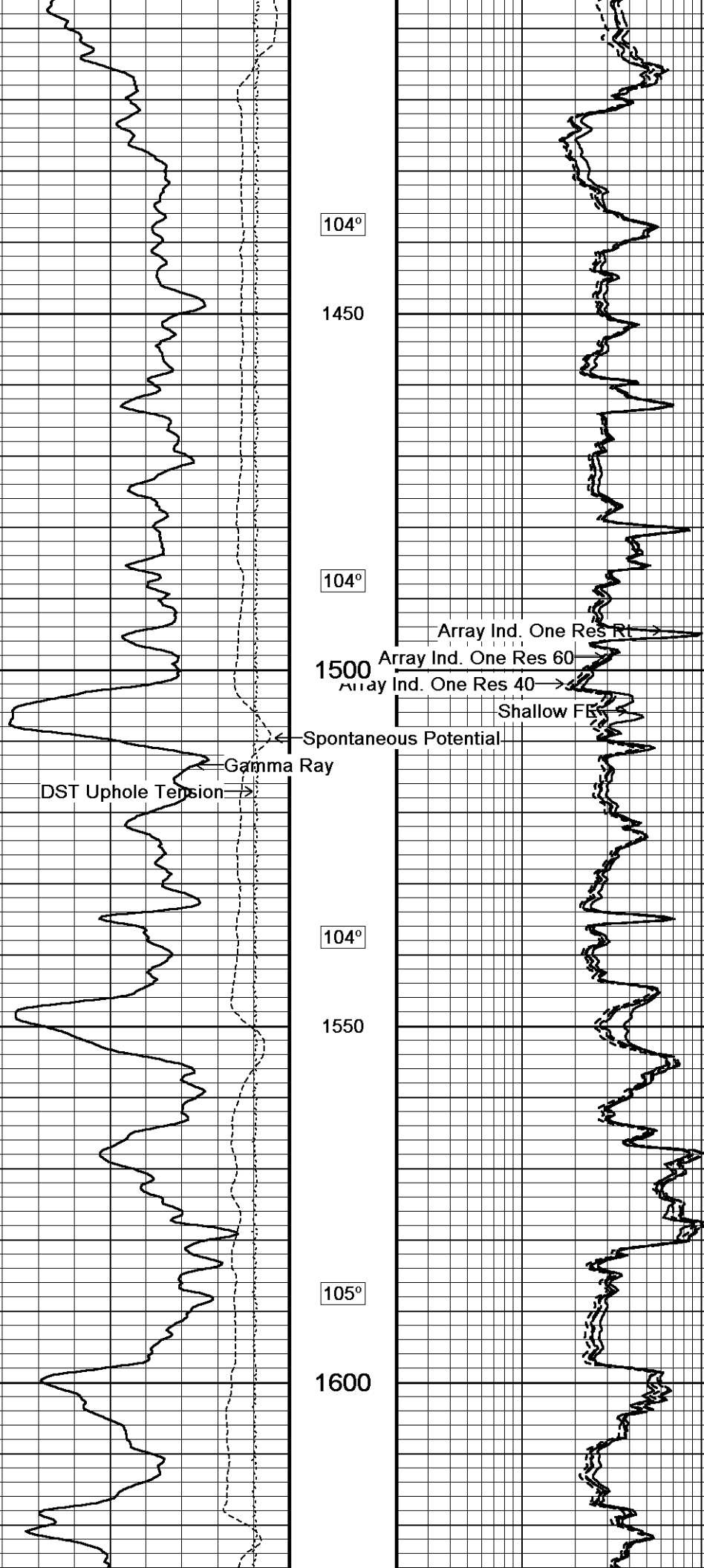
Shallow FF

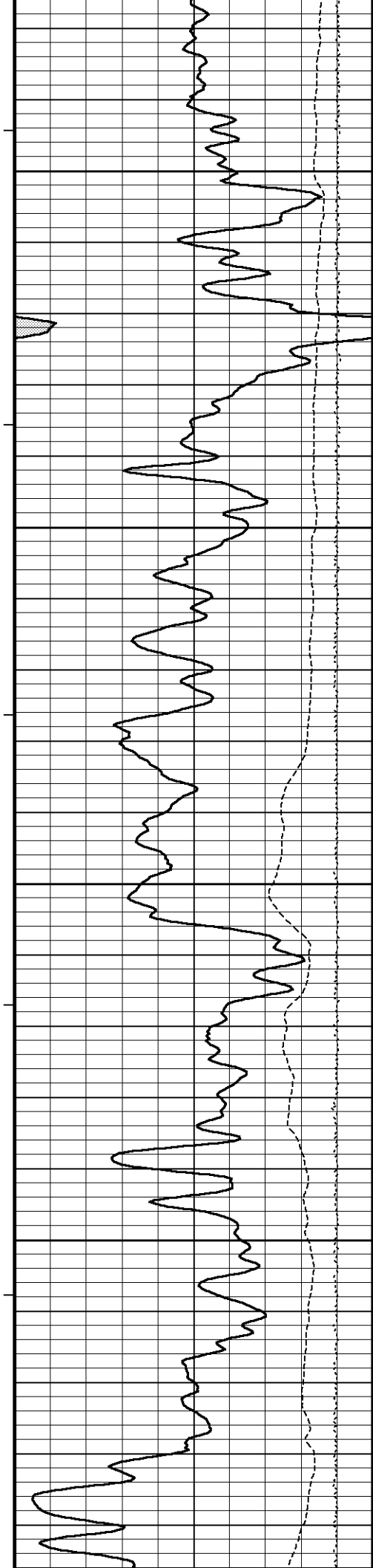
Spontaneous Potential

Gamma Ray

DST Uphole Tension







105°

1650

105°

1700

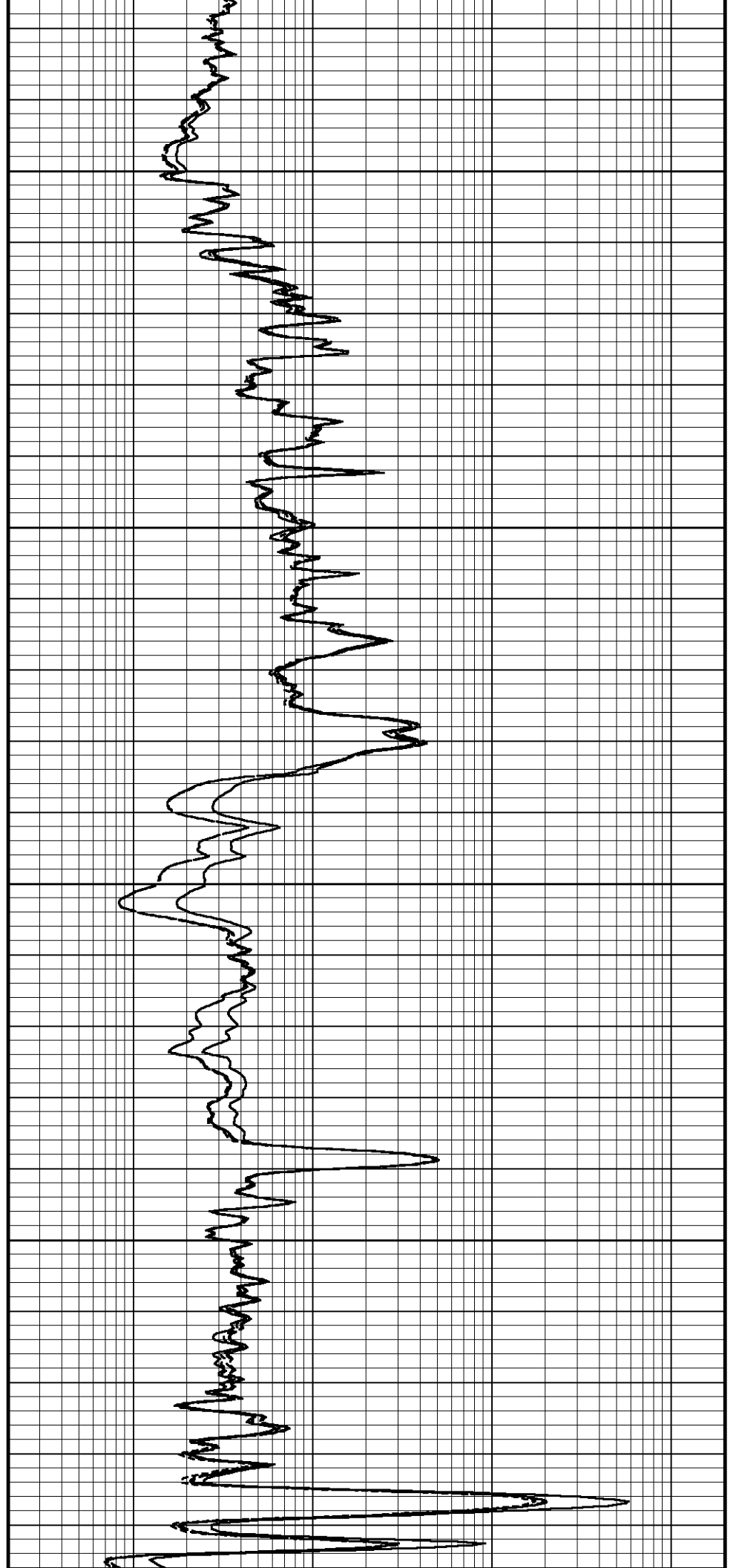
105°

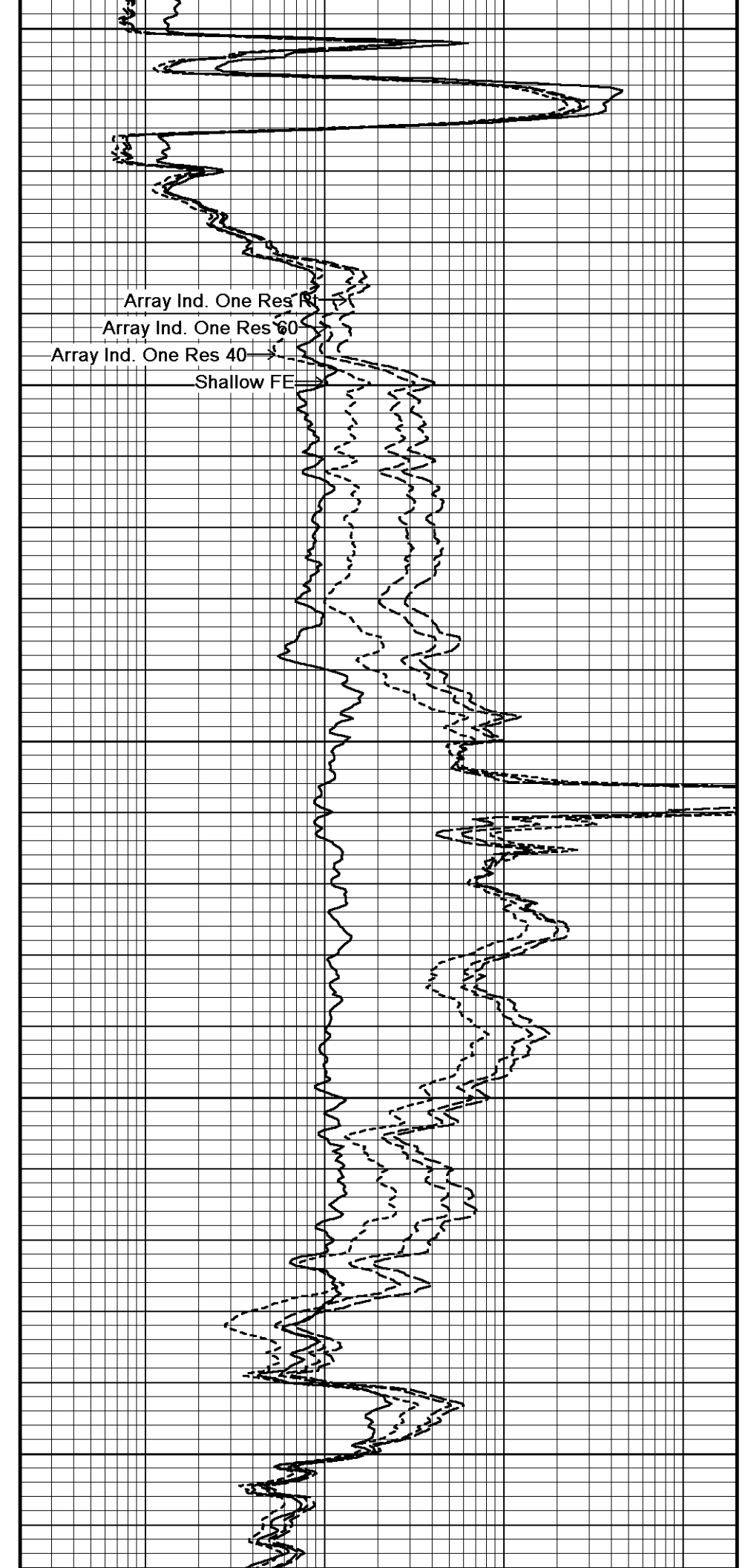
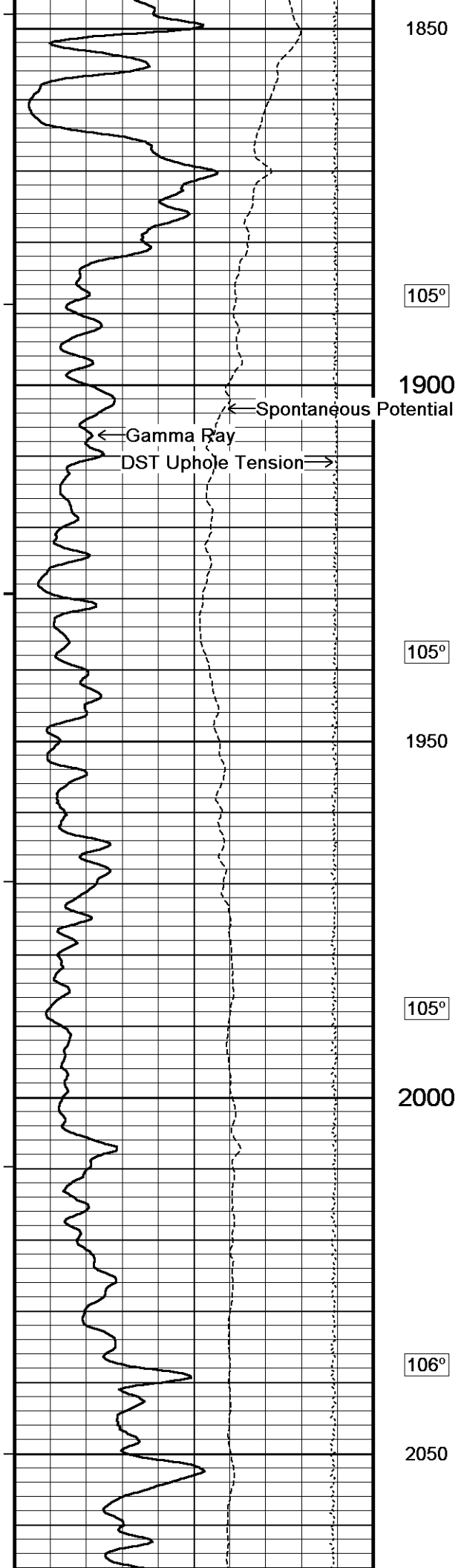
1750

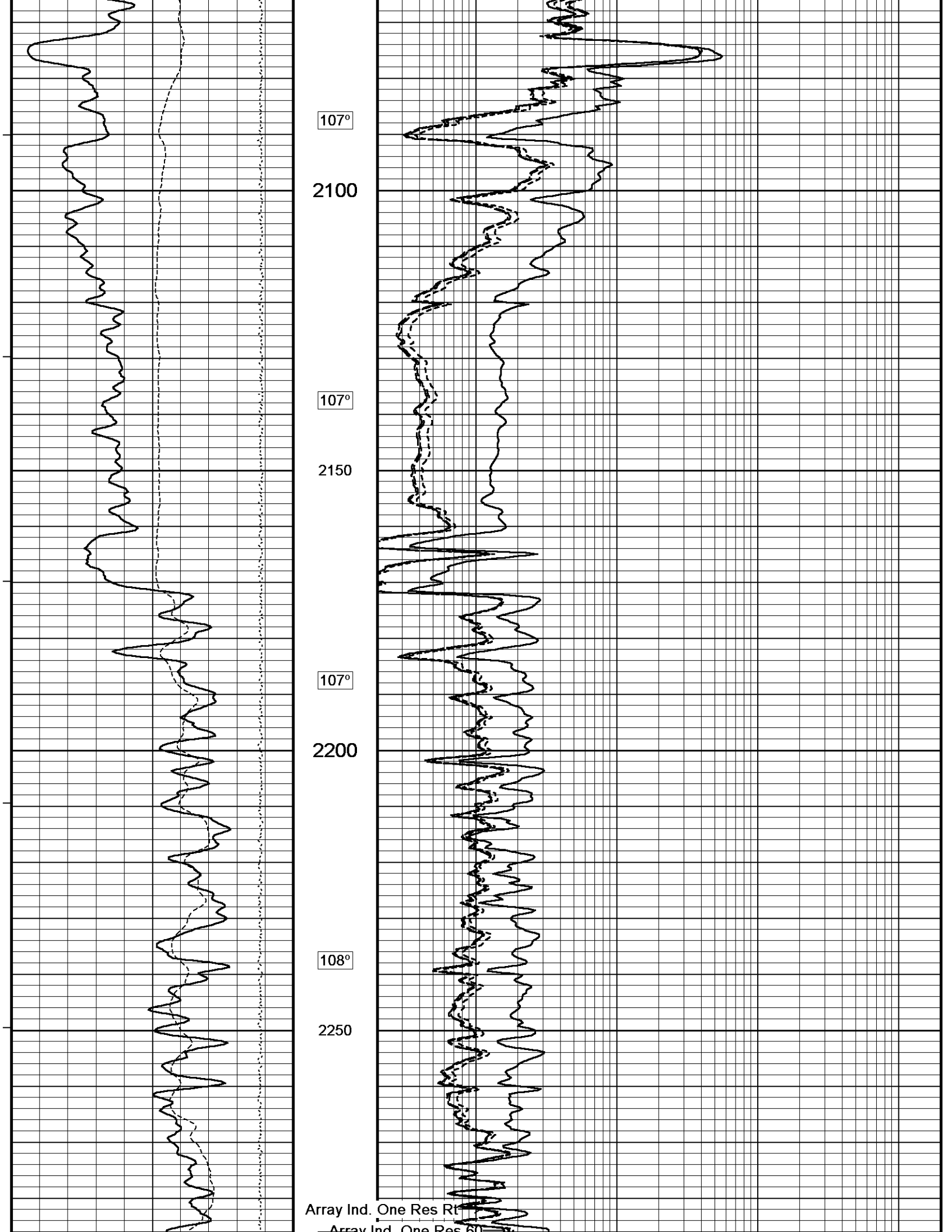
105°

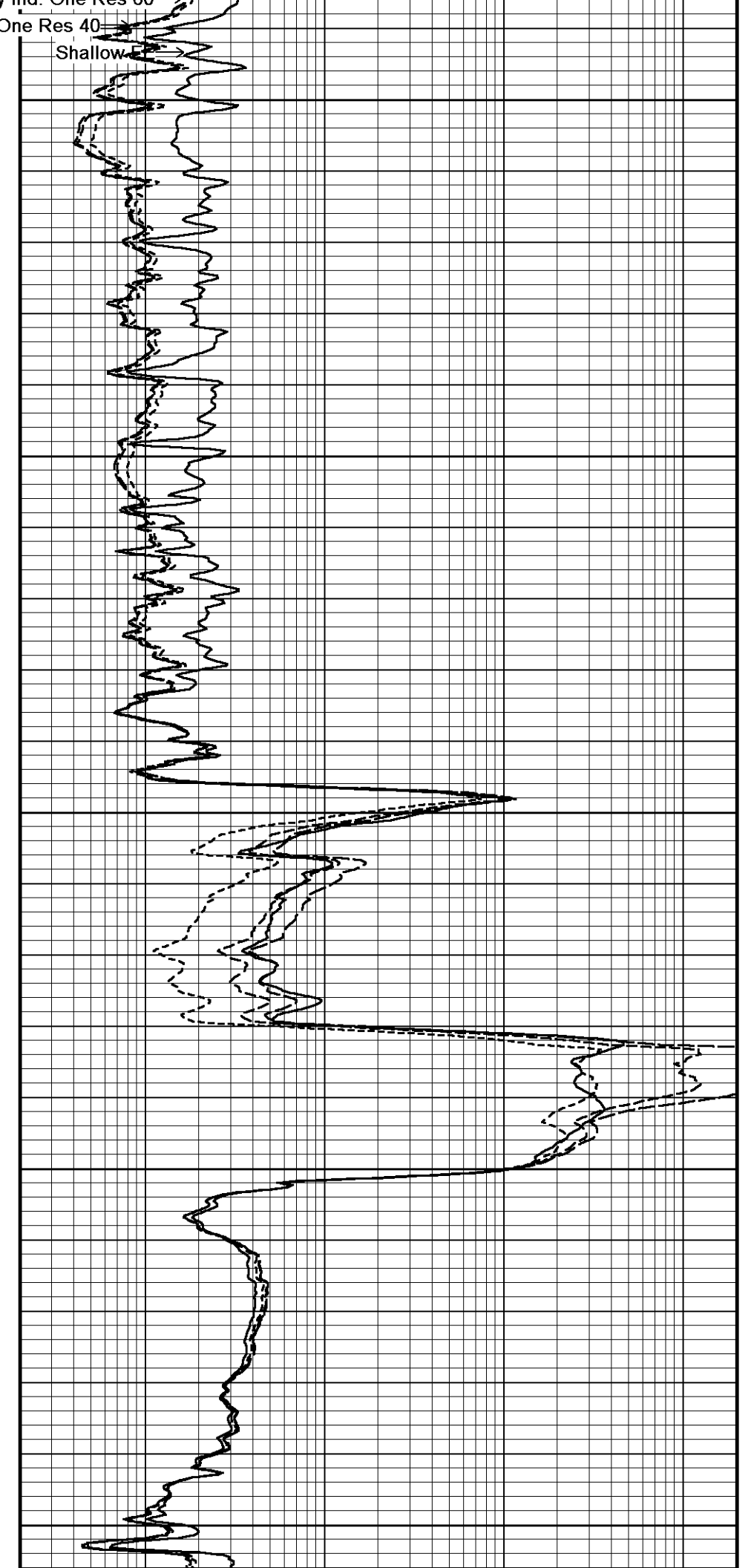
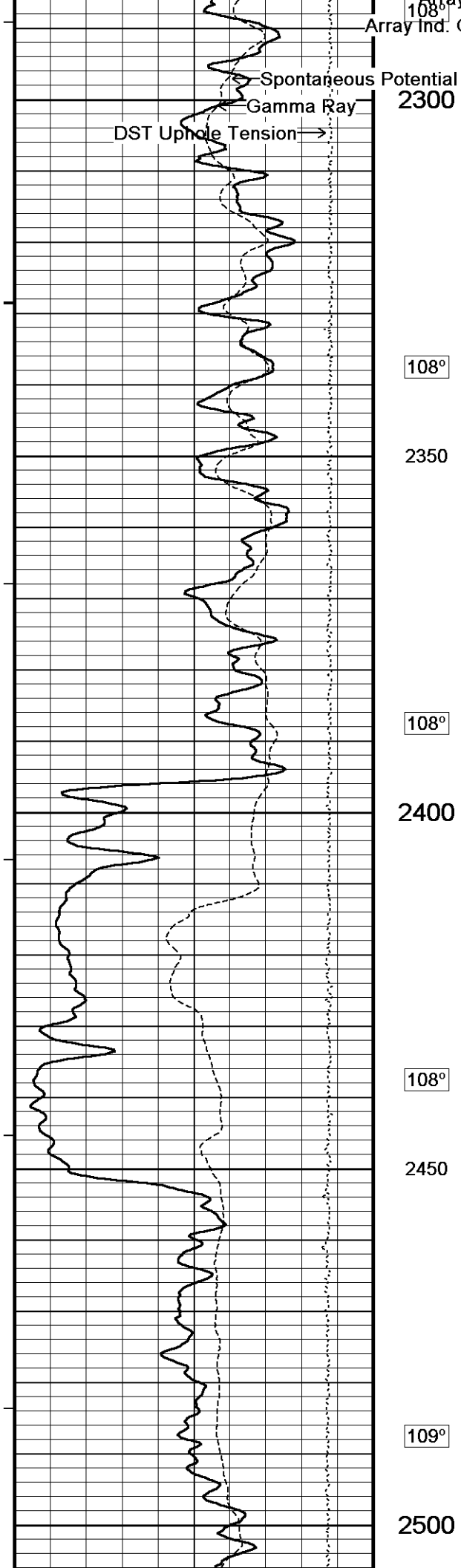
1800

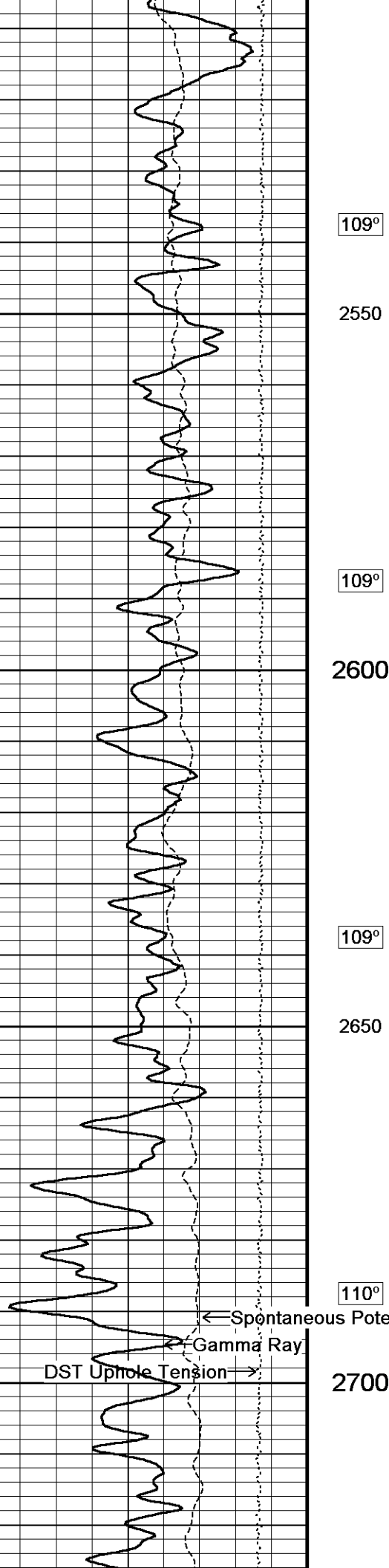
105°











109°

2550

109°

2600

109°

2650

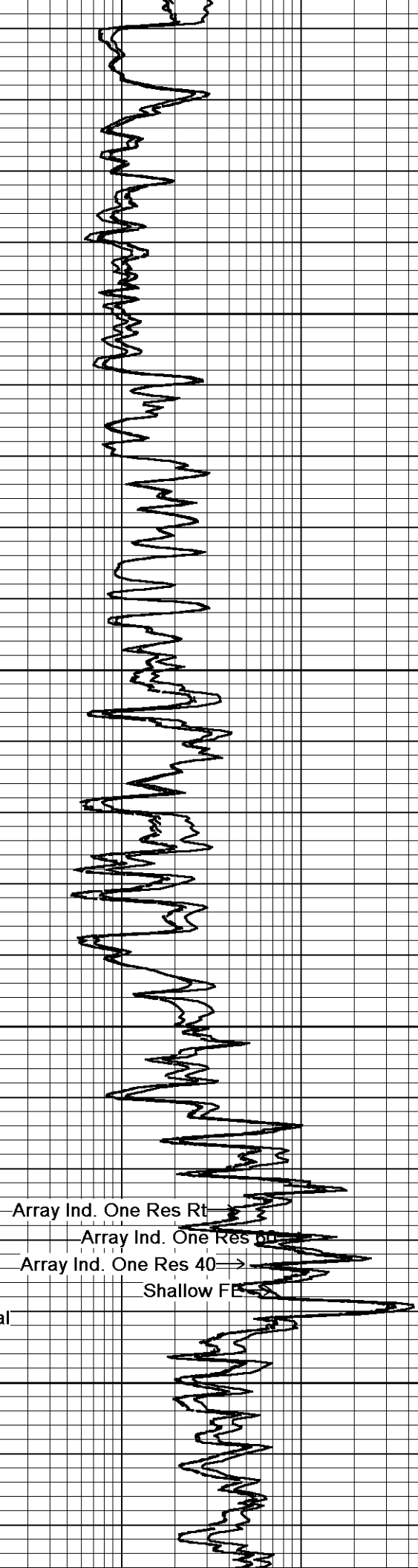
110°

2700

DST Uphole Tension

Spontaneous Potential

Gamma Ray

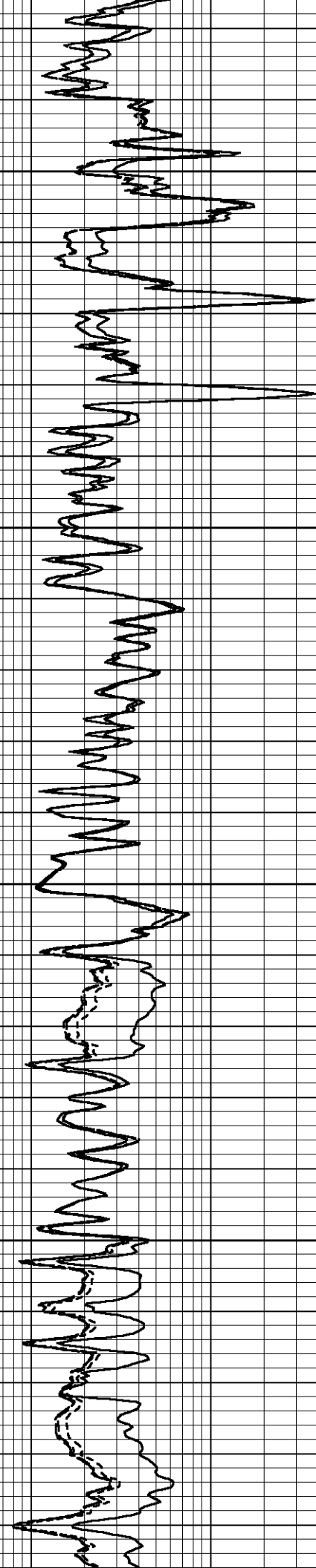
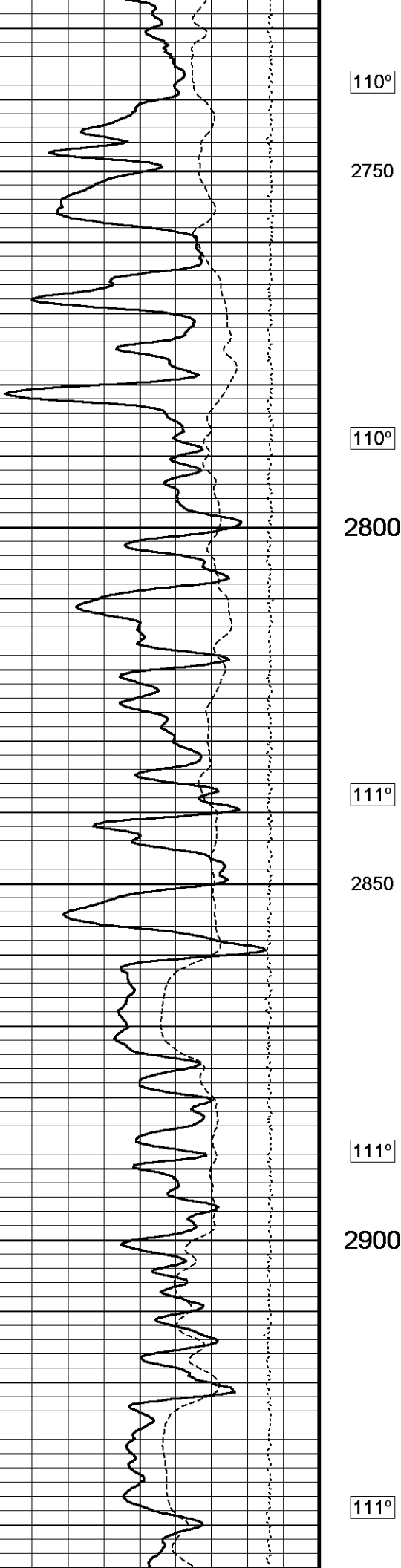


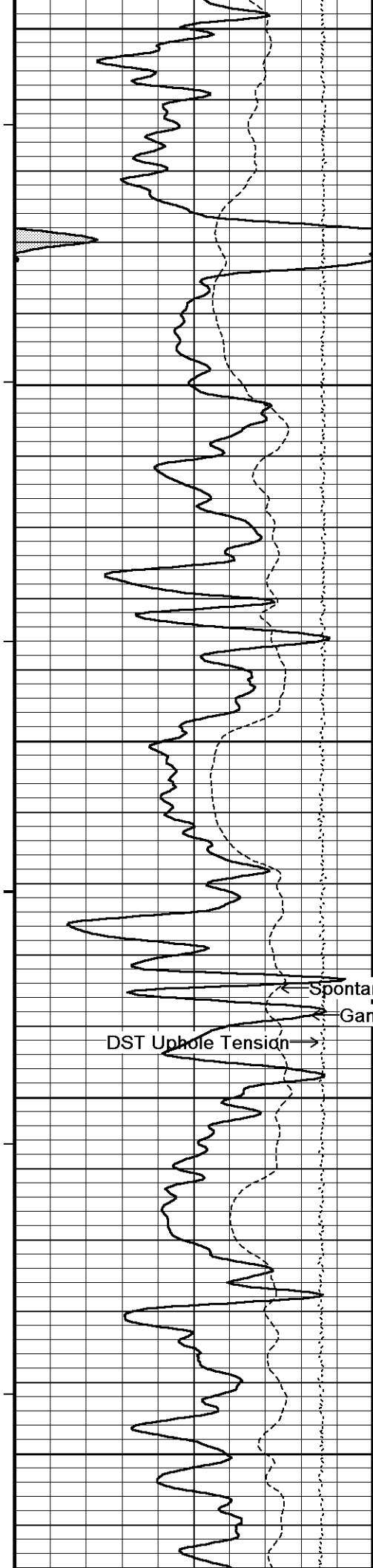
Array Ind. One Res Rt

Array Ind. One Res 40

Array Ind. One Res 40

Shallow FE





2950

111°

3000

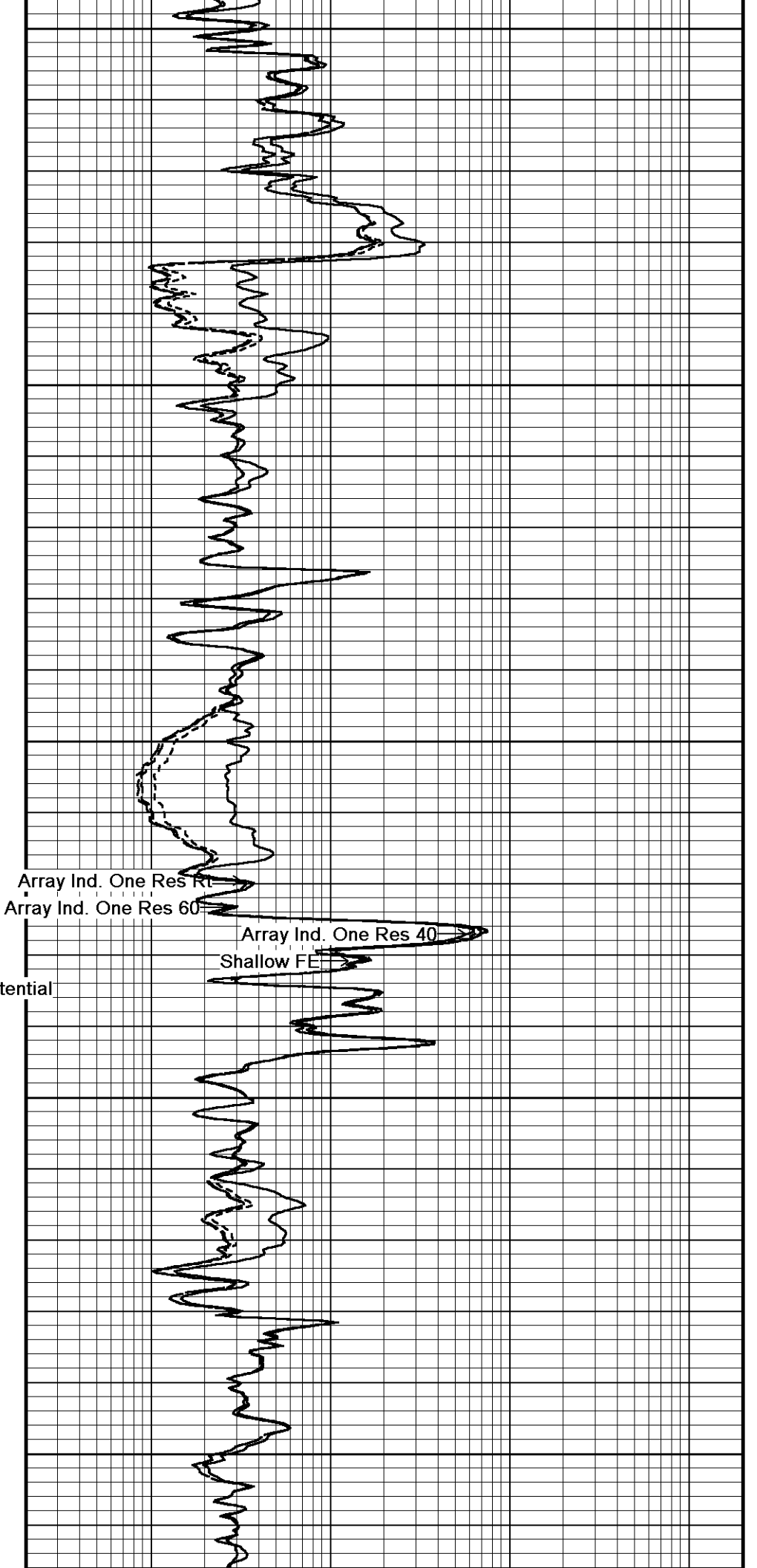
111°

3050

3100

112°

3150



Array Ind. One Res Rt

Array Ind. One Res 60

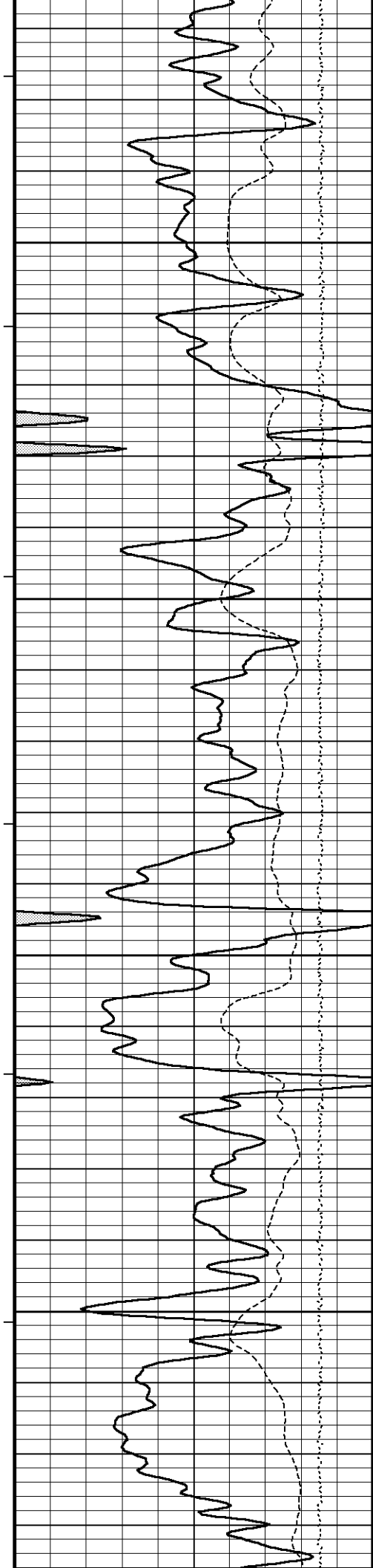
Array Ind. One Res 40

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension



112°

3200

112°

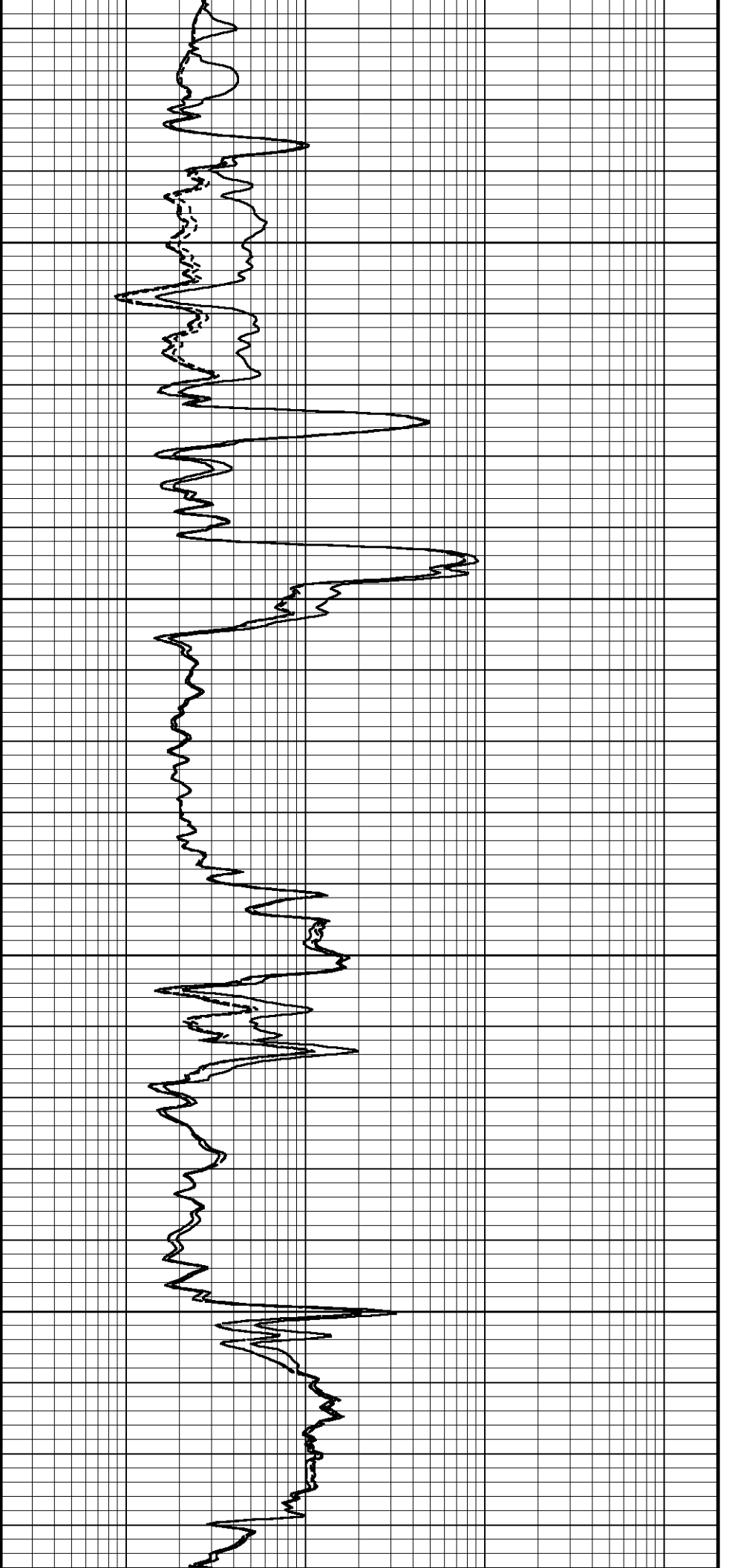
3250

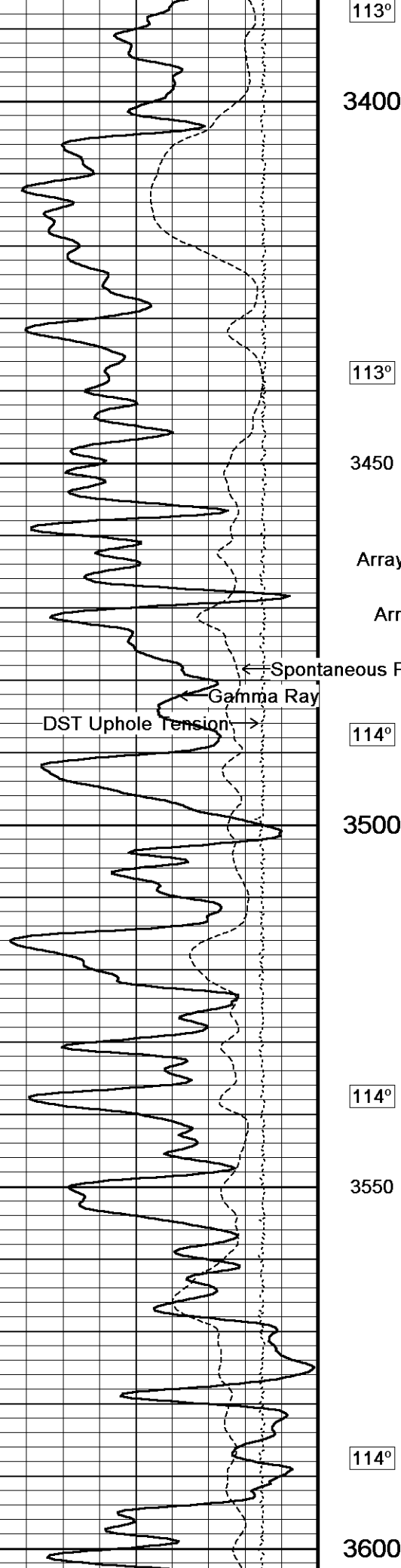
113°

3300

113°

3350





113°

3400

113°

3450

114°

3500

114°

3550

114°

3600

3600

Array Ind. One Res Rt

Array Ind. One Res 60

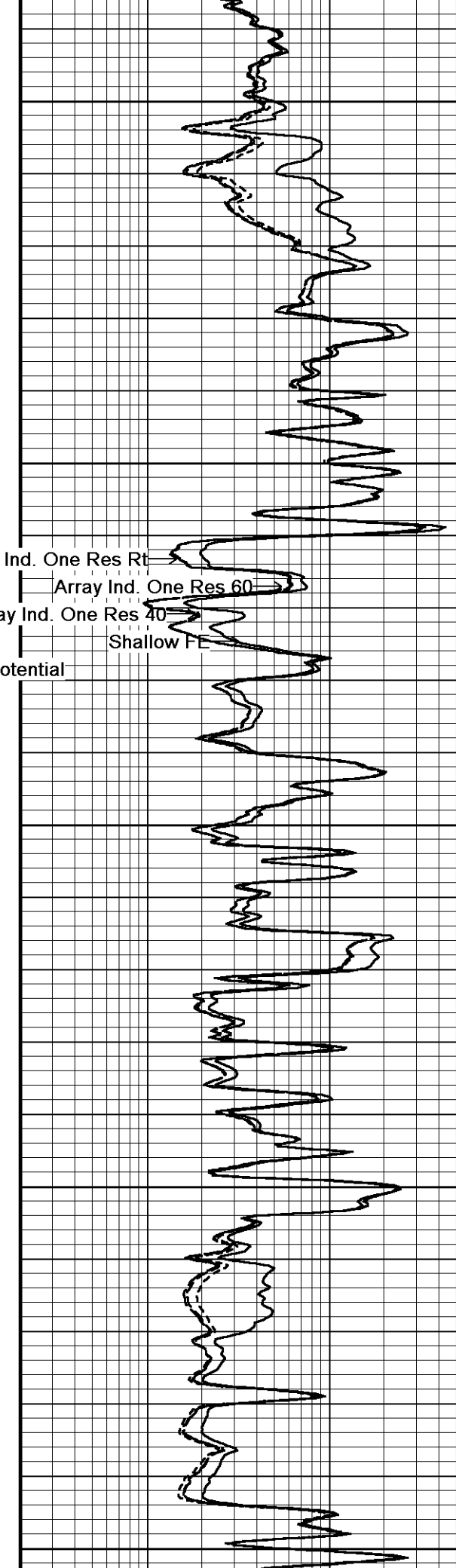
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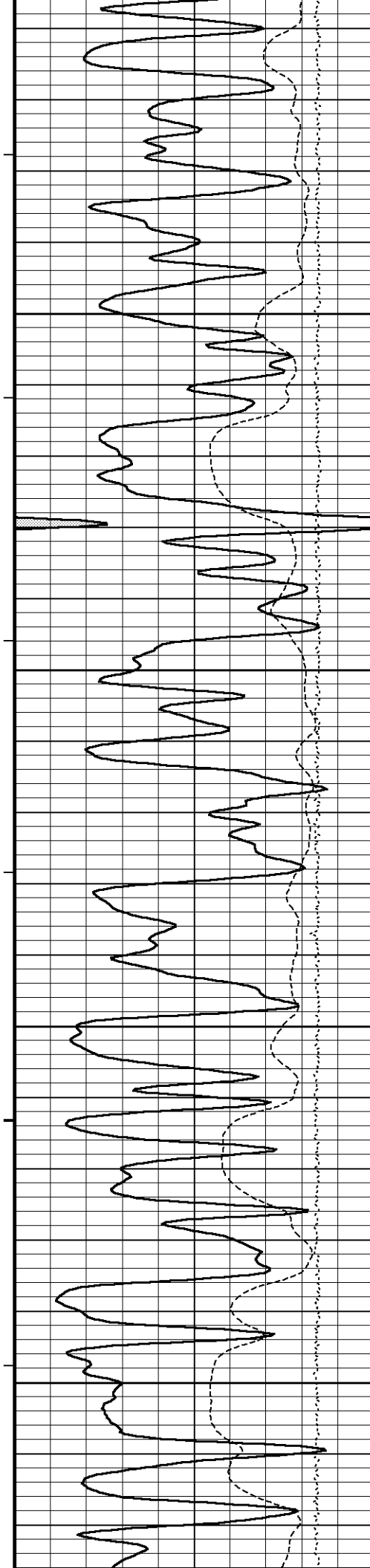
Shallow F

Spontaneous Potential

Gamma Ray

DST Uphole Tension





115°

3650

115°

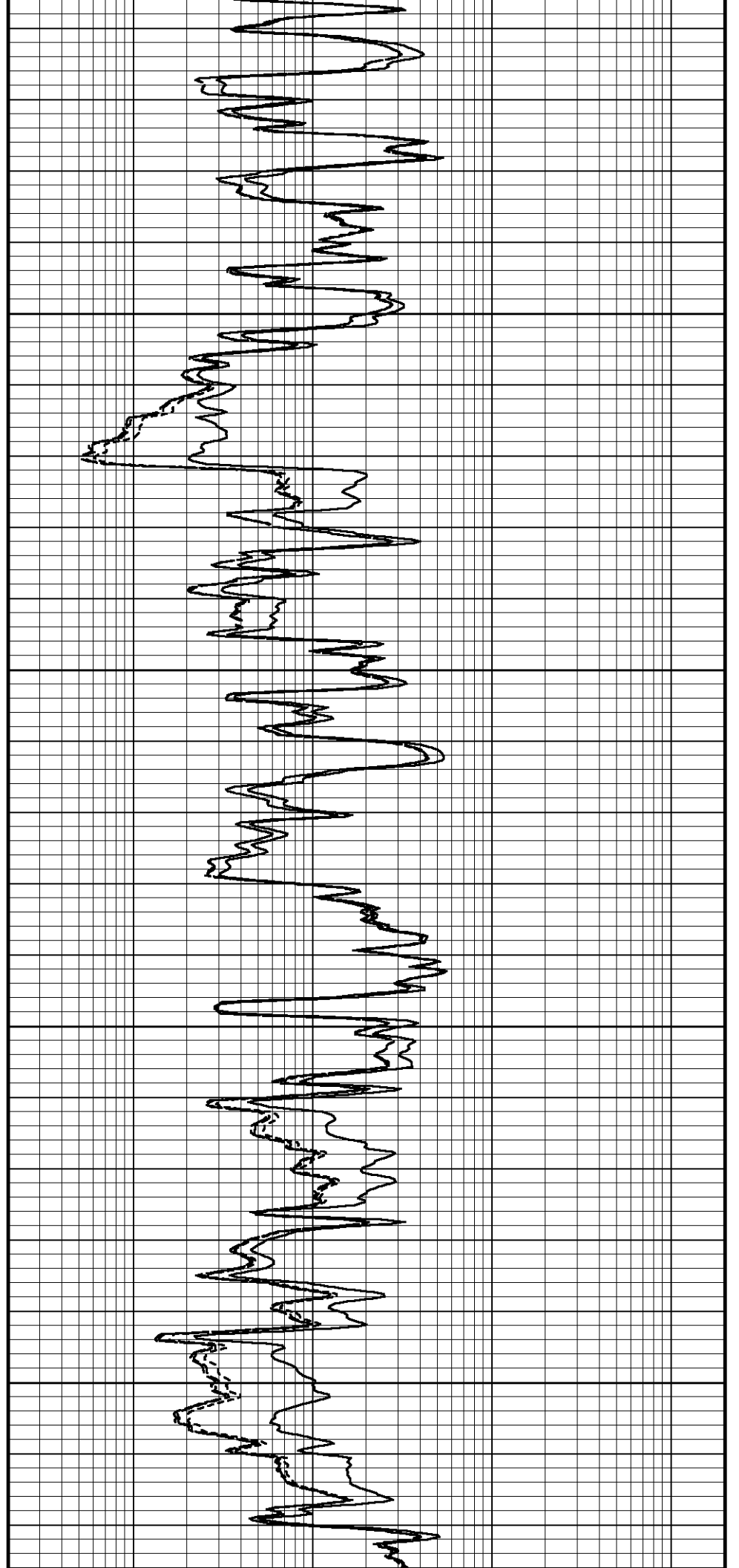
3700

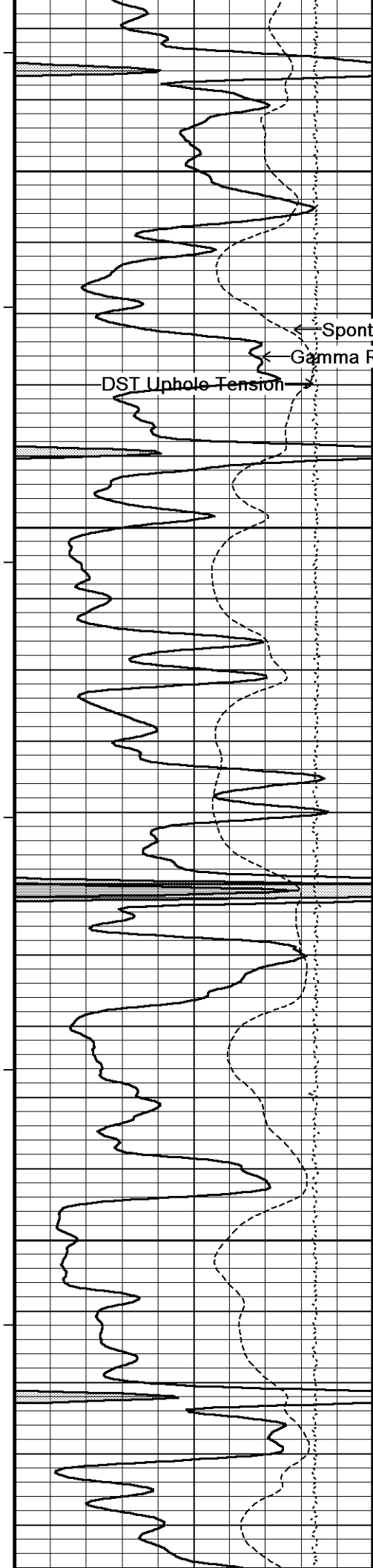
115°

3750

115°

3800





115°

3850

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FF

116°

3900

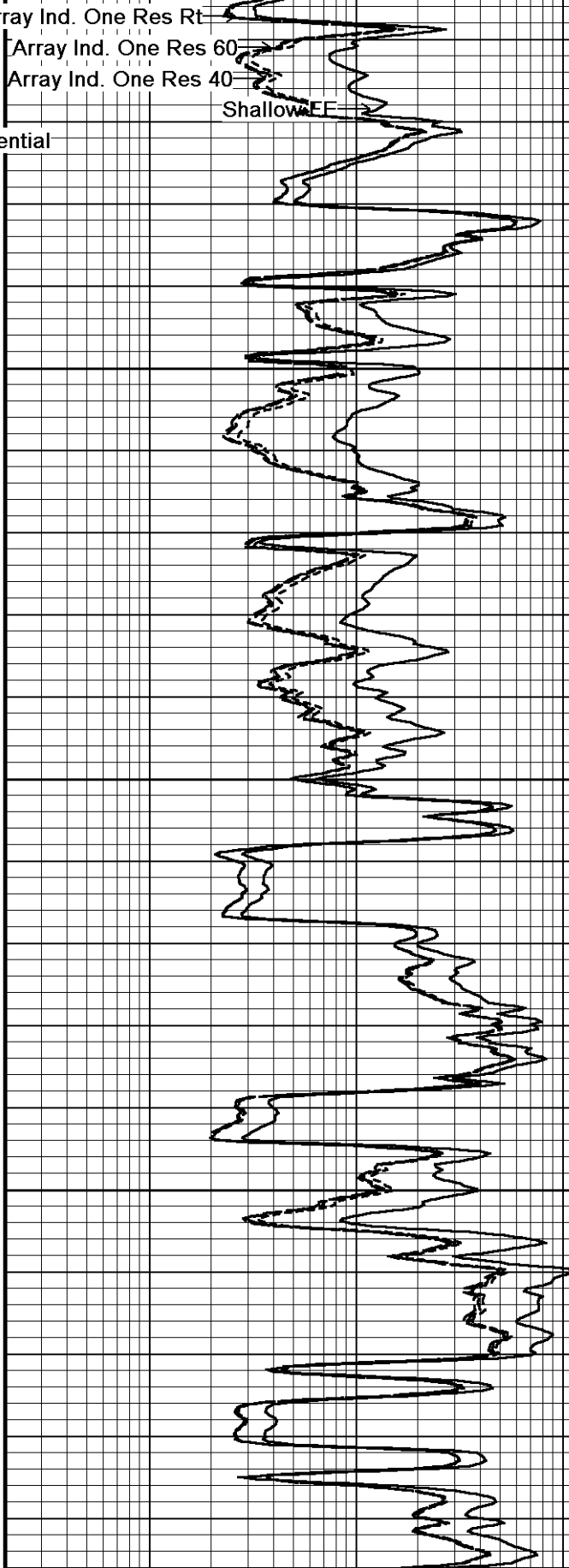
116°

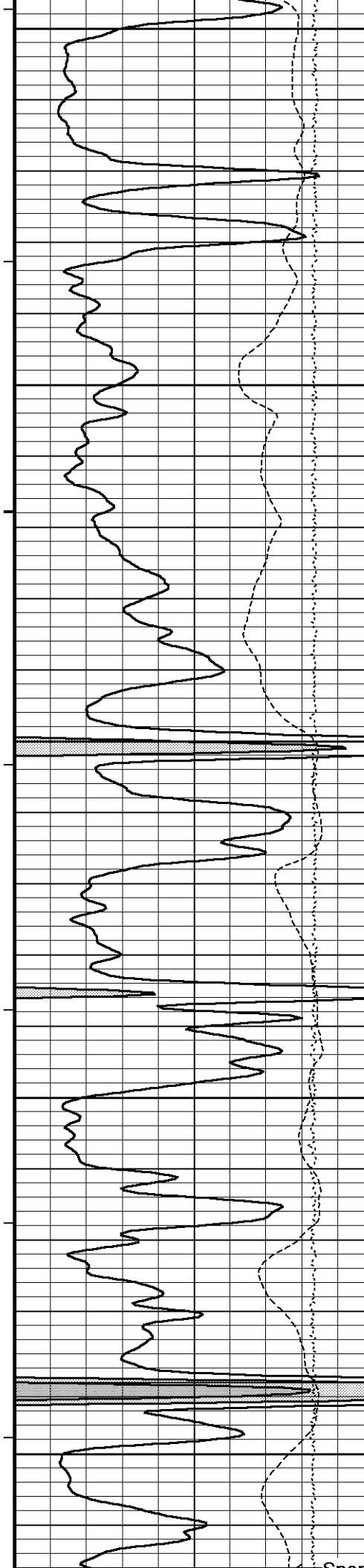
3950

116°

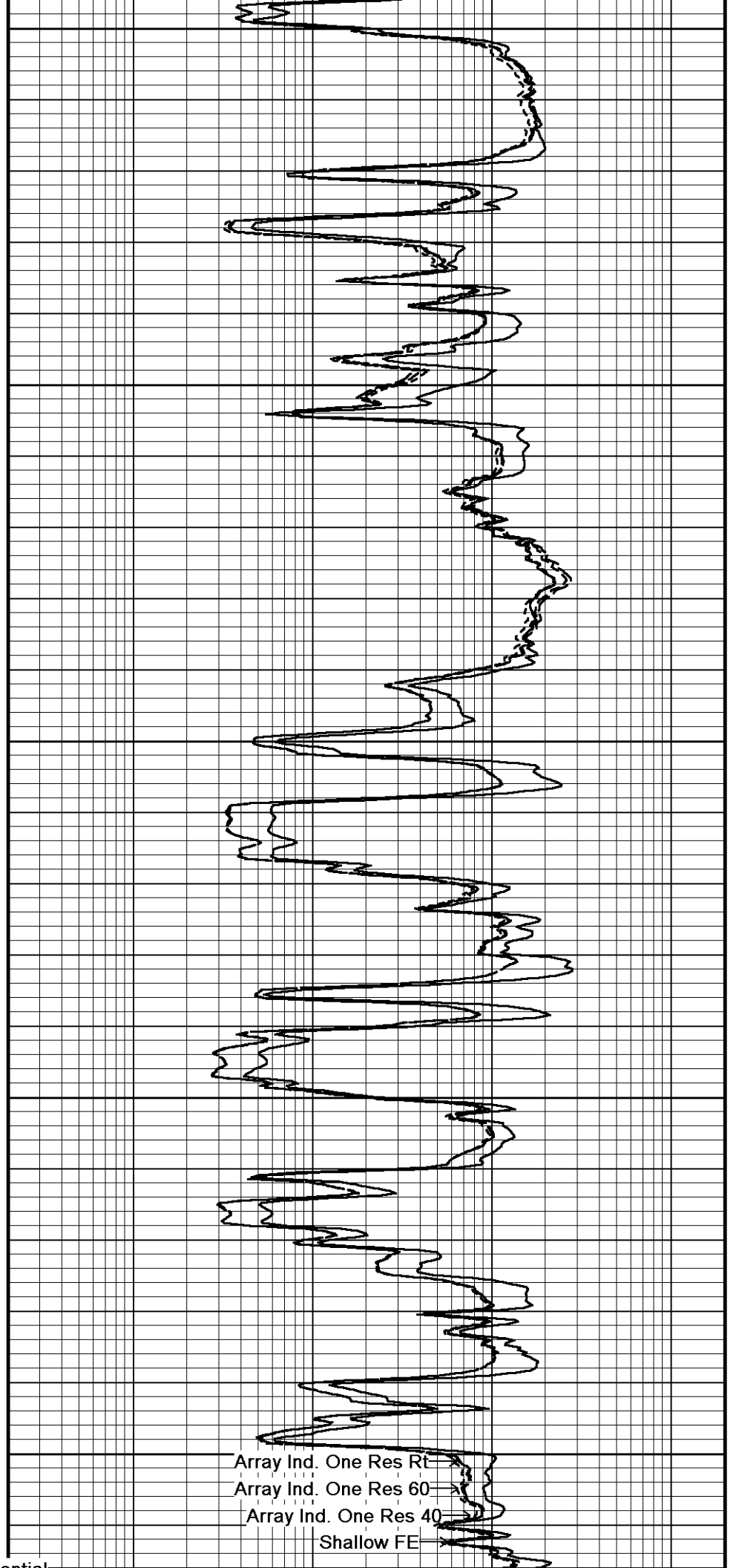
4000

117°



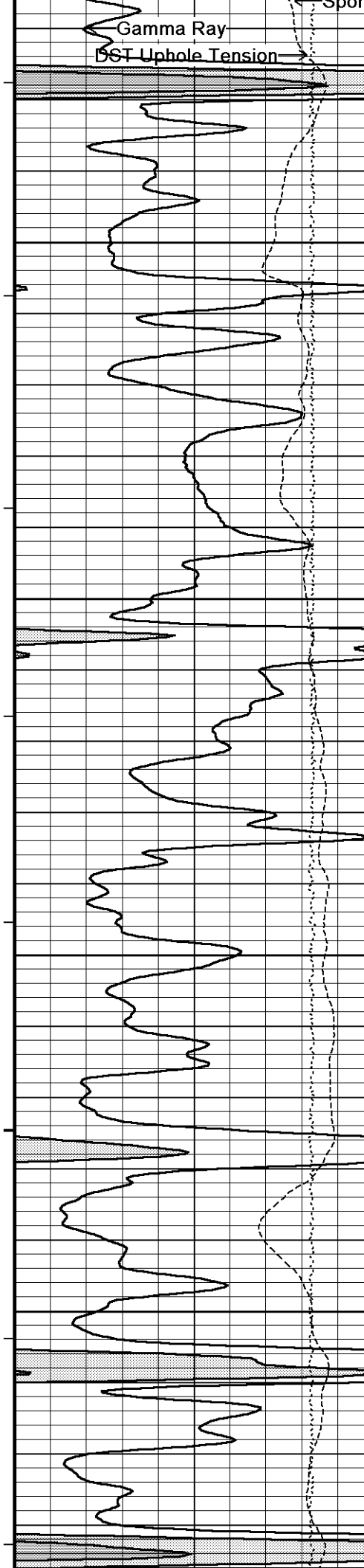


4050
117°
4100
117°
4150
117°
4200
118°
4250



Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE

Spontaneous Potential



Spontaneous Potential

118°

4300

118°

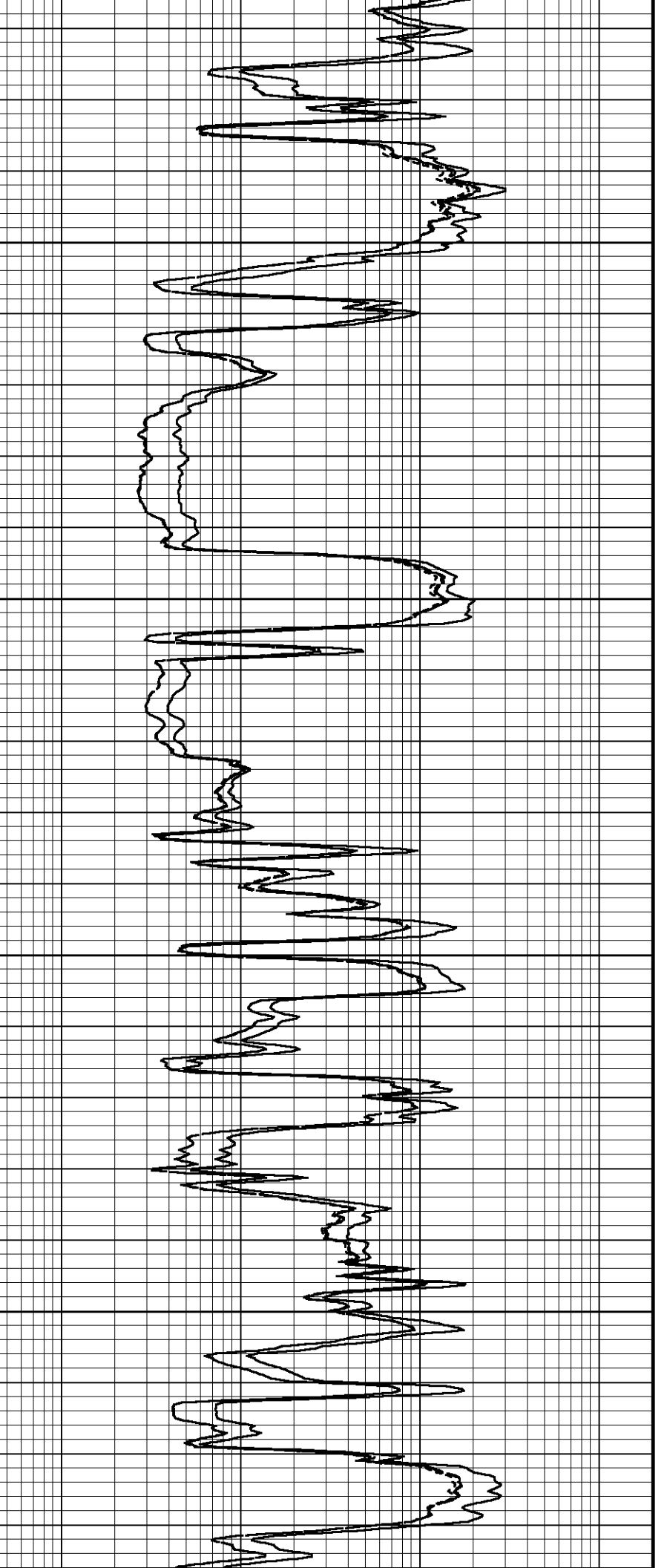
4350

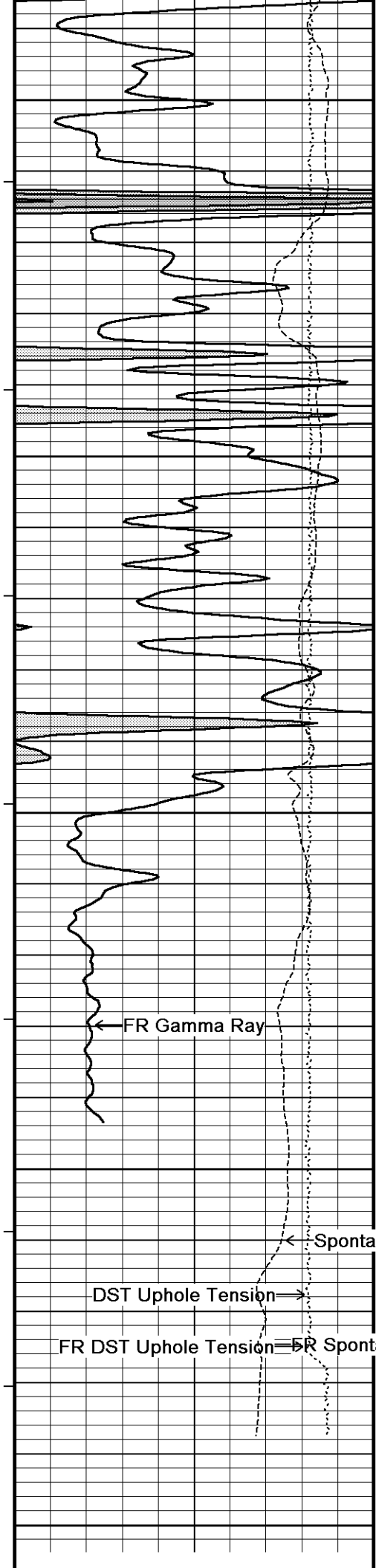
118°

4400

118°

4450





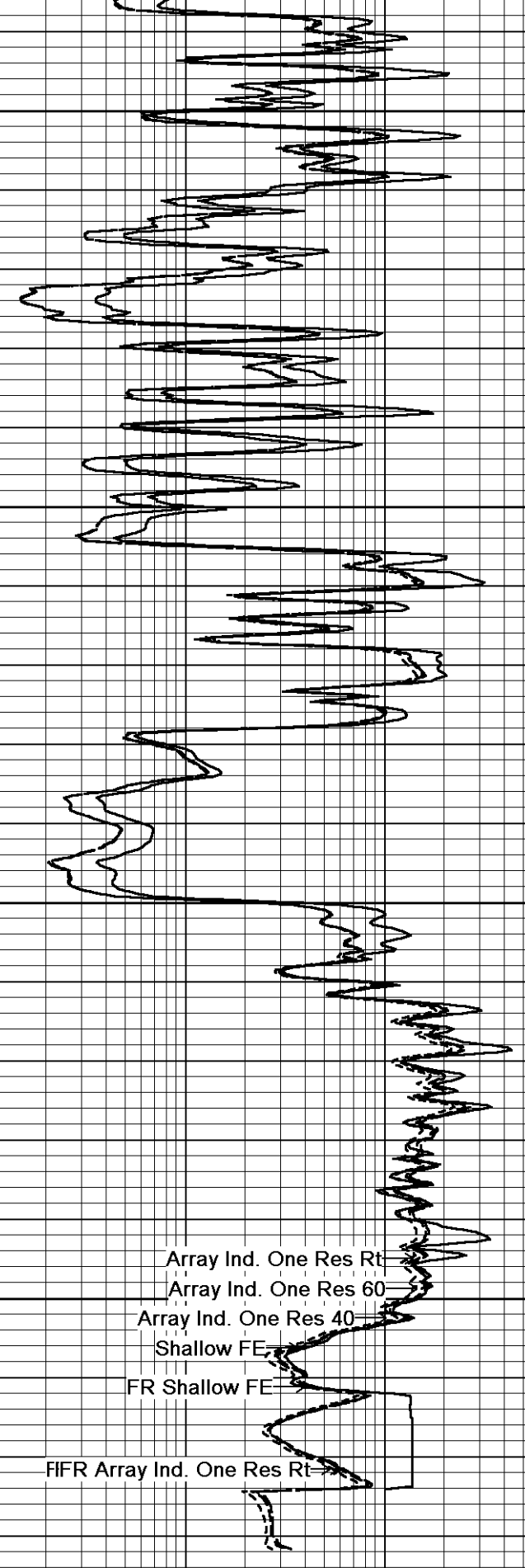
119°
4500
120°
4550
120°
4600
120°
4650
4700
Depth

← FR Gamma Ray

← Spontaneous Potential

DST Uphole Tension →

FR DST Uphole Tension ← FR Spontaneous Potential



Array Ind. One Res Rt

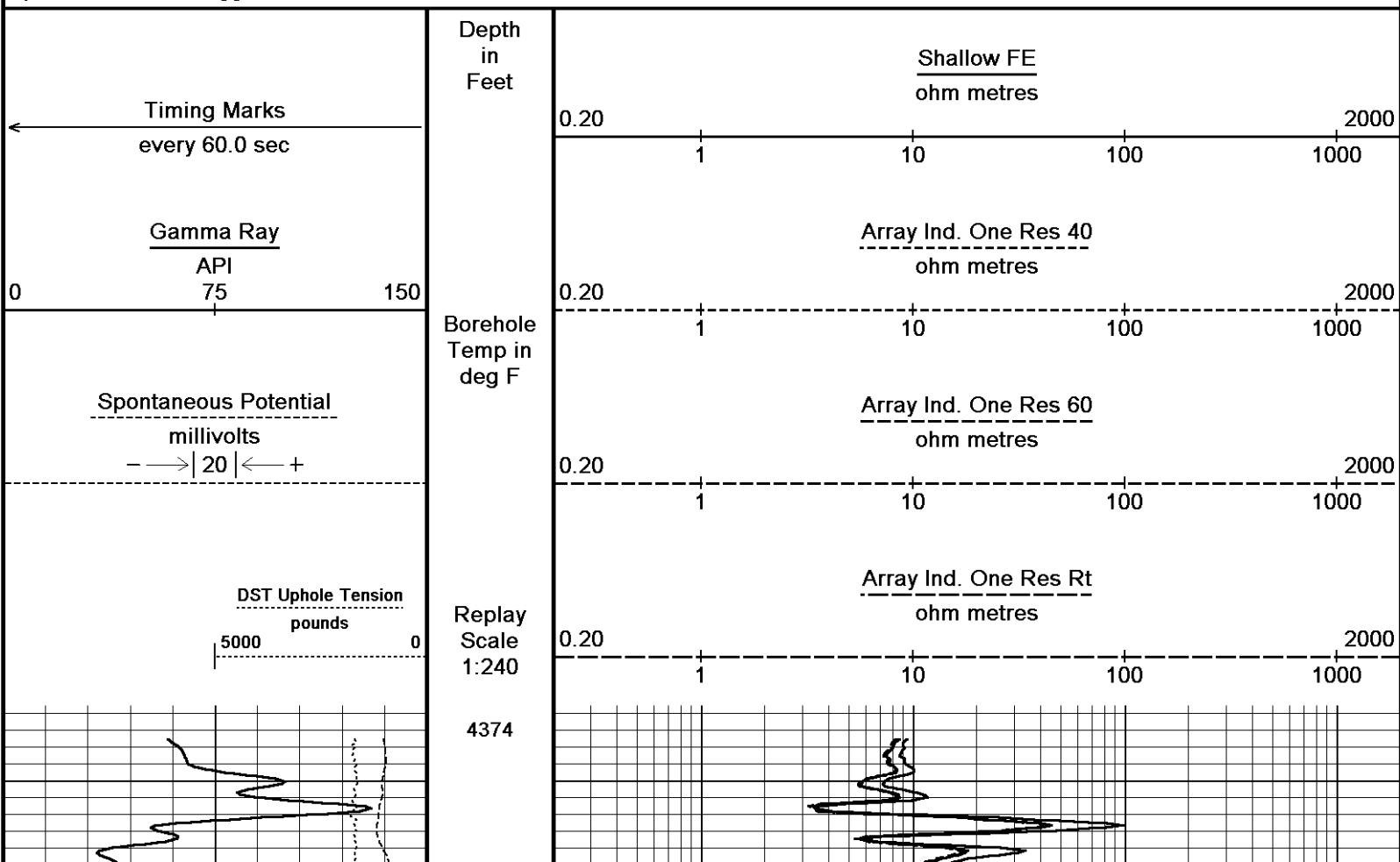
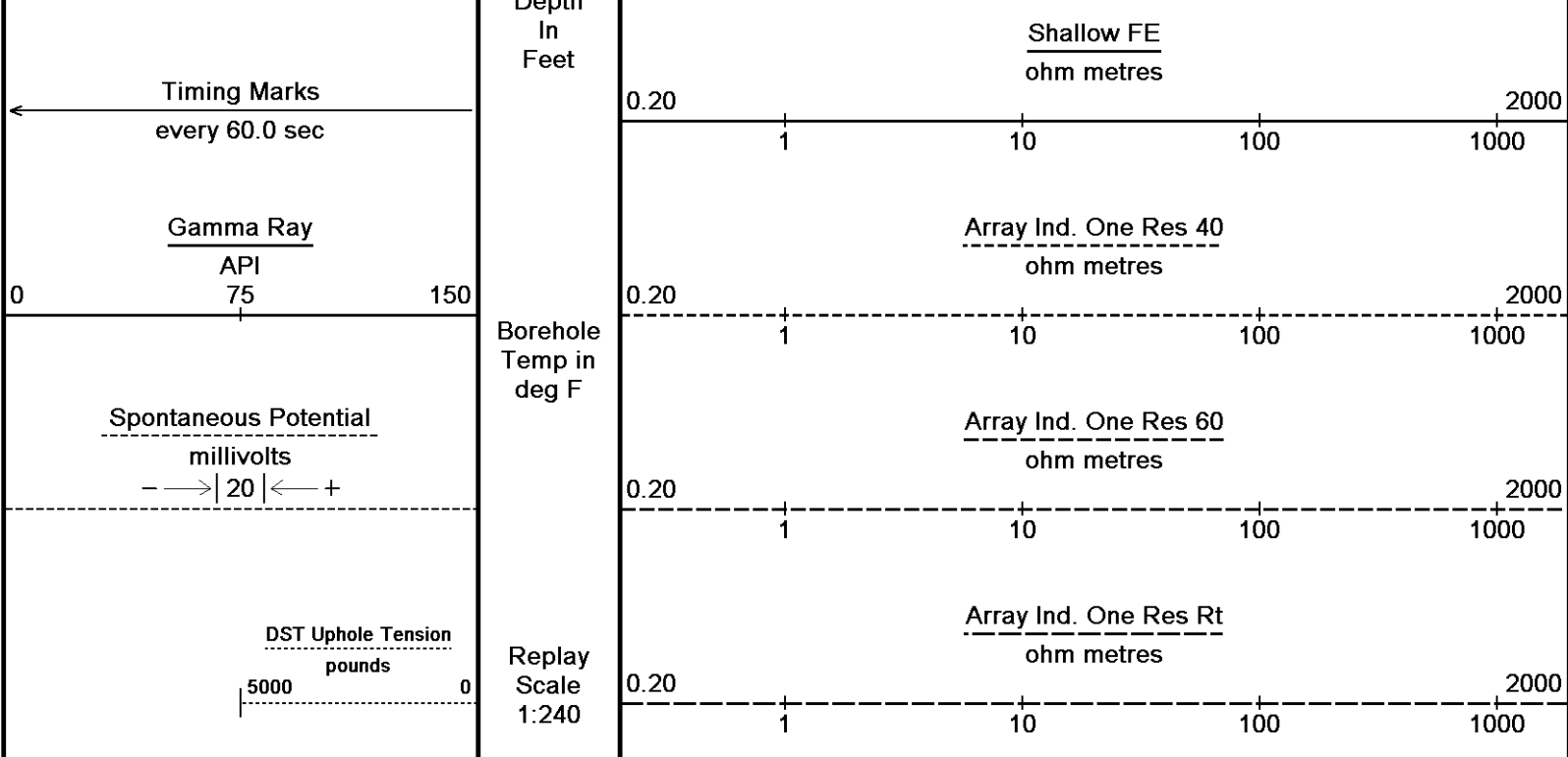
Array Ind. One Res 60

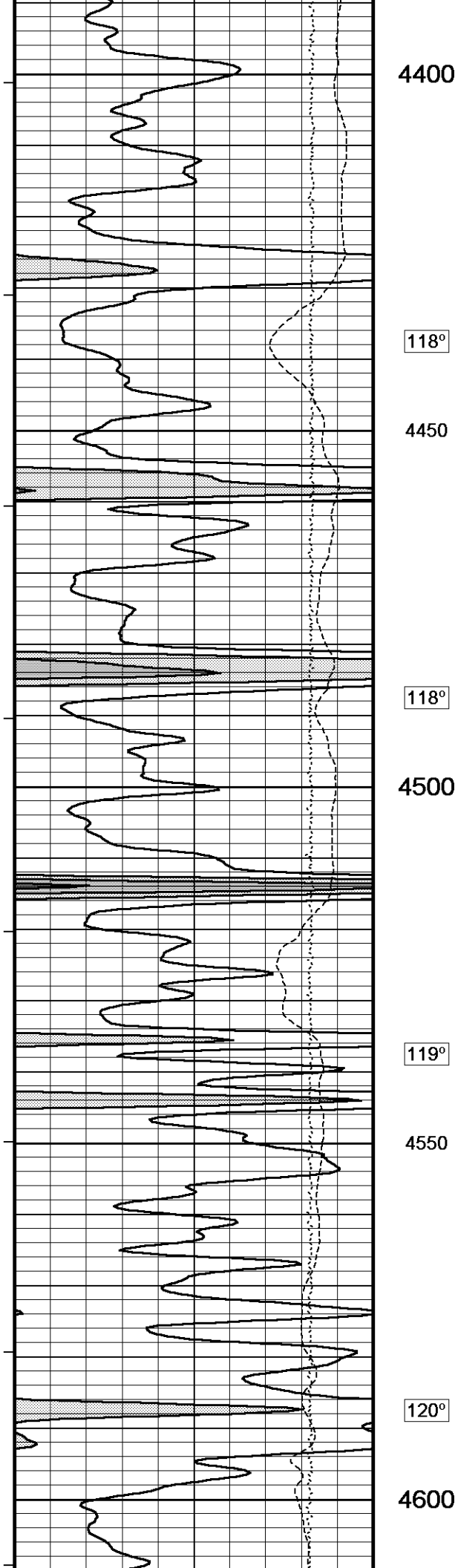
Array Ind. One Res 40

Shallow FE

FR Shallow FE

FIFR Array Ind. One Res Rt





4400

118°

4450

118°

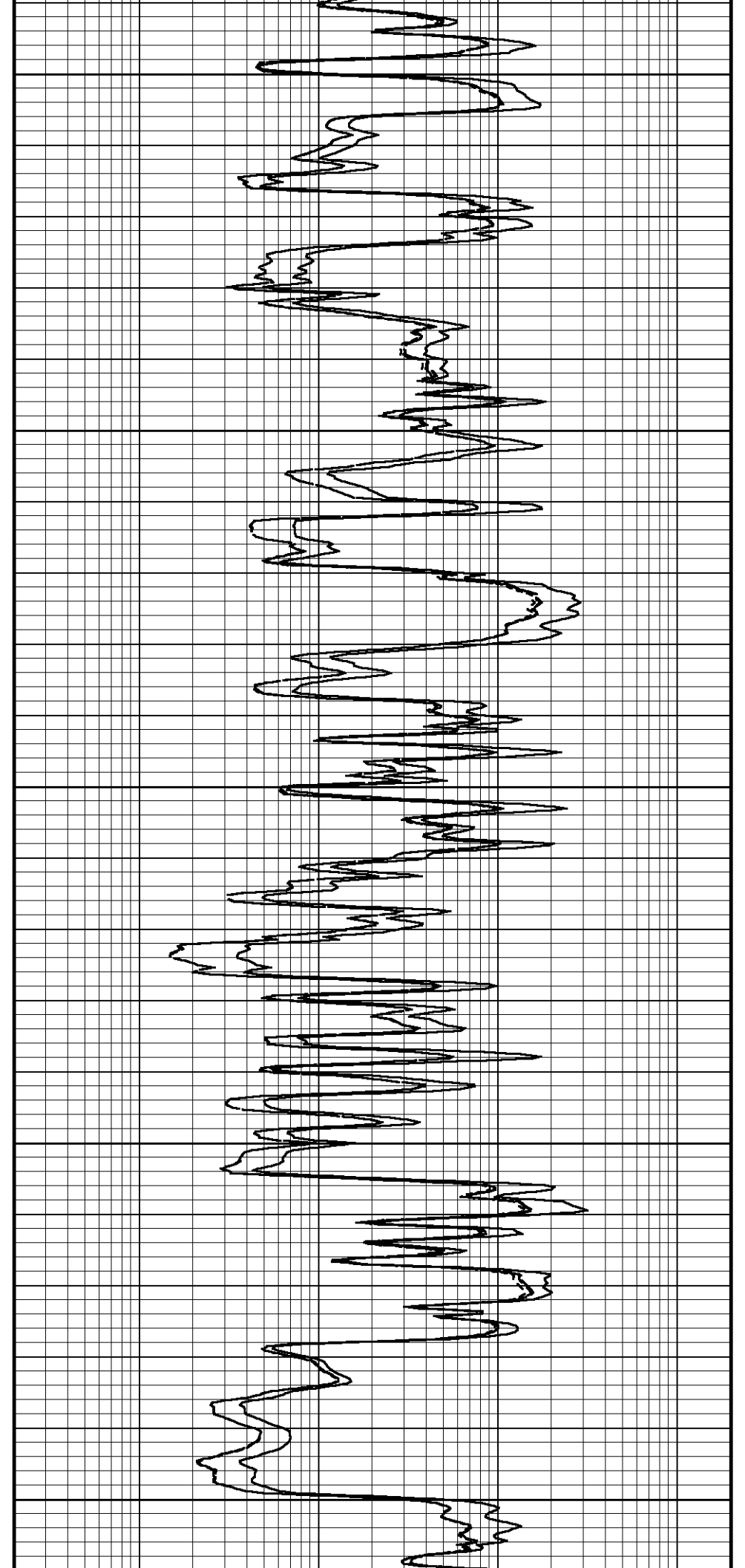
4500

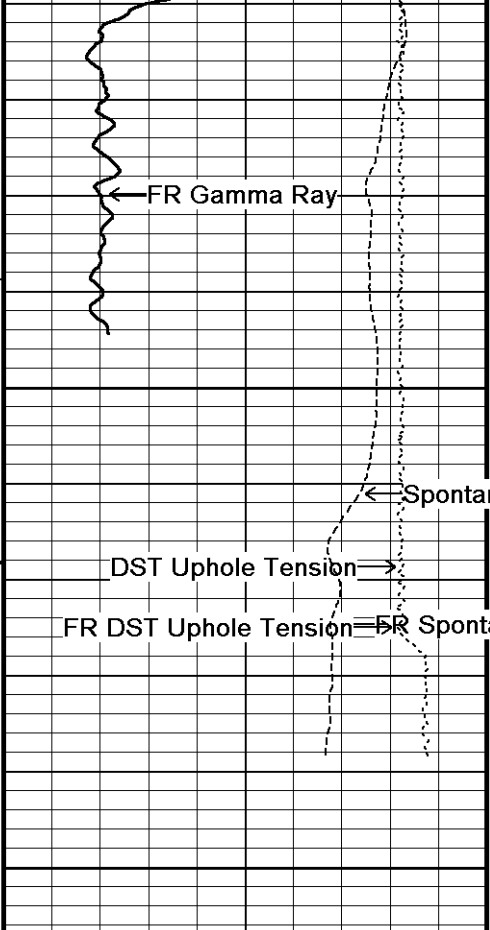
119°

4550

120°

4600



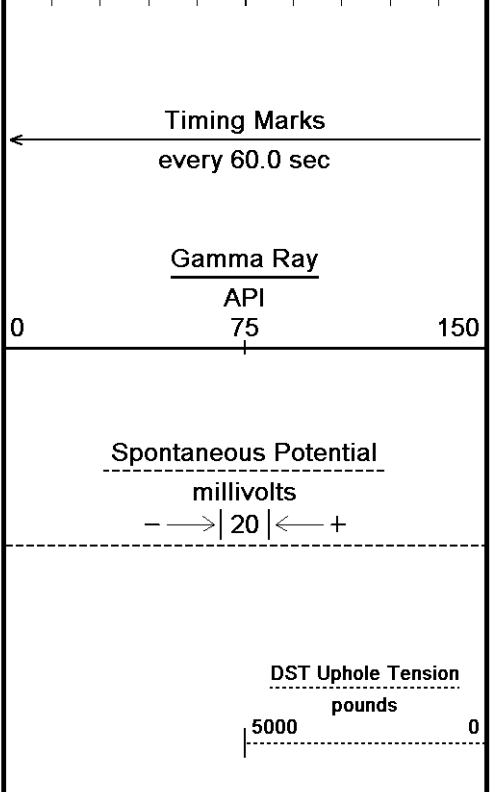
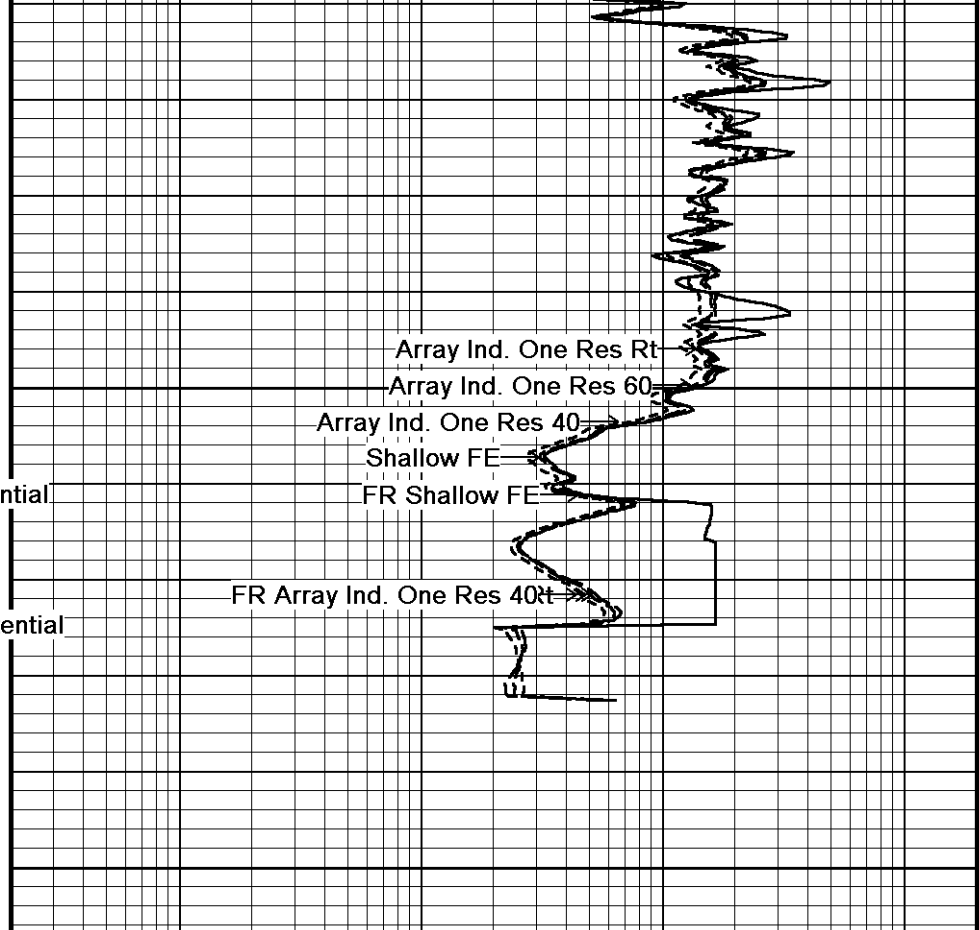


119°

4650

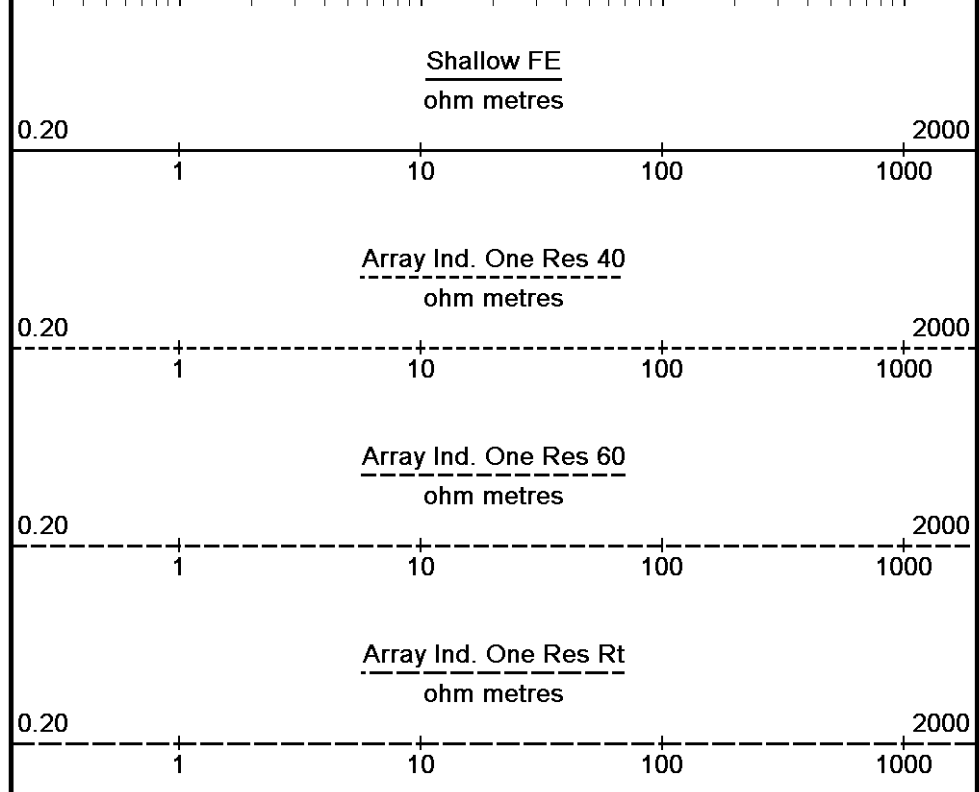
4700

Depth in Feet



Borehole Temp in deg F

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 31-AUG-2011 09:38

Filename: C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherf...Grand Mesa Sponey #1-33_001.dta

Recorded on 28-JUL-2011 02:04

System Versions: Logged with 11.02.3186 Plotted with 12.01.3513

↑ 5 INCH REPEAT PASS ↑

BEFORE SURVEY CALIBRATION

C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherford PreView\0\Grand Mesa Sponey #1-33_002.dta

General Constants All 000

Last Edited on 28-JUL-2011 01:48

General Parameters		
Mud Resistivity	1.050	ohm-metres
Mud Resistivity Temperature	91.000	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	1.000	
RWA Constant M	2.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 05-JUN-2011 05:37

Reading No	Measured	Calibrated (lbs)
1	13499.89	0.00
2	14983.70	496.00

High Resolution Temperature Calibration MCG-B 34

Field Calibration on 05-MAR-2011 23:56

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

High Resolution Temperature Constants MCG-B 34

Last Edited on

Pre-filter Length	11
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SP Calibration MCG-B 34

Field Calibration on 11-JUL-2011 13:13

	Measured	Calibrated (mV)
Reference 1	106.9	100.0
Reference 2	-94.7	-100.0

Gamma Calibration MCG-B 34

Field Calibration on 27-JUL-2011 15:31

	Measured	Calibrated (API)
Background	70	48
Calibrator (Gross)	1122	773
Calibrator (Net)	1053	725

Gamma Constants MCG-B 34

Last Edited on 28-JUL-2011 01:47

Gamma Calibrator Number	grc38	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 16-MAY-2011 10:23
Field Check on 27-JUL-2011 15:16

Base Calibration					
		Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	
Micro Normal	12.1	60.1	2.6	12.8	
Micro Inverse	15.6	78.3	1.7	8.4	
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	32.2		32.2		
Micro Inverse	16.3		16.3		

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 19-JUL-2011 12:17

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	0.5110
Micro Inverse K Factor	0.3380
Standoff Offset	N/A inches

Caliper Calibration MML-A 4

Base Calibration on 16-MAY-2011 10:38
Field Calibration on 27-JUL-2011 15:15

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14953	5.98
2	18280	7.97
3	21656	9.86
4	25588	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.03	5.98

Neutron Calibration MDN-A.B 65

Base Calibration on 03-JUL-2011 00:27
Field Check on 27-JUL-2011 15:37

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3269	103	3714	110
Ratio	31.795		33.764	

Field Calibrator at Base

Calibrated (cps)
1562 2227
Ratio 0.701

Field Check

Calibrated (cps)
1562 2257
Ratio 0.692

Neutron Constants MDN-A.B 65

Last Edited on 28-JUL-2011 01:47

Neutron Source Id	757	
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
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 21-JUN-2011 11:19
Field Check on 27-JUL-2011 15:13

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	953.6	126.8
Base Check		281.3
Field Check		281.2

FE Constants MFE-A.A 55

Last Edited on 28-JUL-2011 01:46

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

High Resolution Temperature Calibration MAI-A.A 45

Field Calibration on 13-AUG-2010 14:31

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 45

Last Edited on

Pre-filter Length 11

Induction Calibration MAI-A.A 45

Base Calibration on 13-AUG-2010 14:32
Field Check on 27-JUL-2011 15:49

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	14.5	473.5	9.3	966.2
2	5.2	373.4	7.6	821.4
3	2.8	260.6	5.2	566.0
4	1.6	132.2	2.6	279.2

Array Temperature 86.2 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	20.4	3847.5
2	0.0	0.0	33.4	3633.0
3	0.0	0.0	30.3	3051.2
4	0.0	0.0	20.6	2094.3
Deep	0.0	0.0	18.2	1920.9
Medium	0.0	0.0	43.5	4052.1
Shallow	0.0	0.0	50.8	5477.8

Array Temperature 0.0 97.4 Deg F

Induction Constants MAI-A.A 45

Last Edited on 28-JUL-2011 01:45

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper		
Hole Size for Borehole Correction	N/A	inches	
Tool Centred	No		
Stand-off Type	Fins		
Stand-off	0.50	inches	
Number of Fins on Stand-off	8.0000		
Stand-off Fin Angle	45.00	degrees	
Stand-off Fin Width	0.5000	inches	
Borehole Corr. Rm Source	Temperature Corr		
Temp. for Rm Corr.	MCG External Temperature		
Squasher Start	0.0020	mhos/metre	
Squasher Offset	N/A	mhos/metre	

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	

WIREHOLE EQUIPMENT

C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherford PreView\0\Grand Mesa Sponey #1-33_002.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-B 34 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

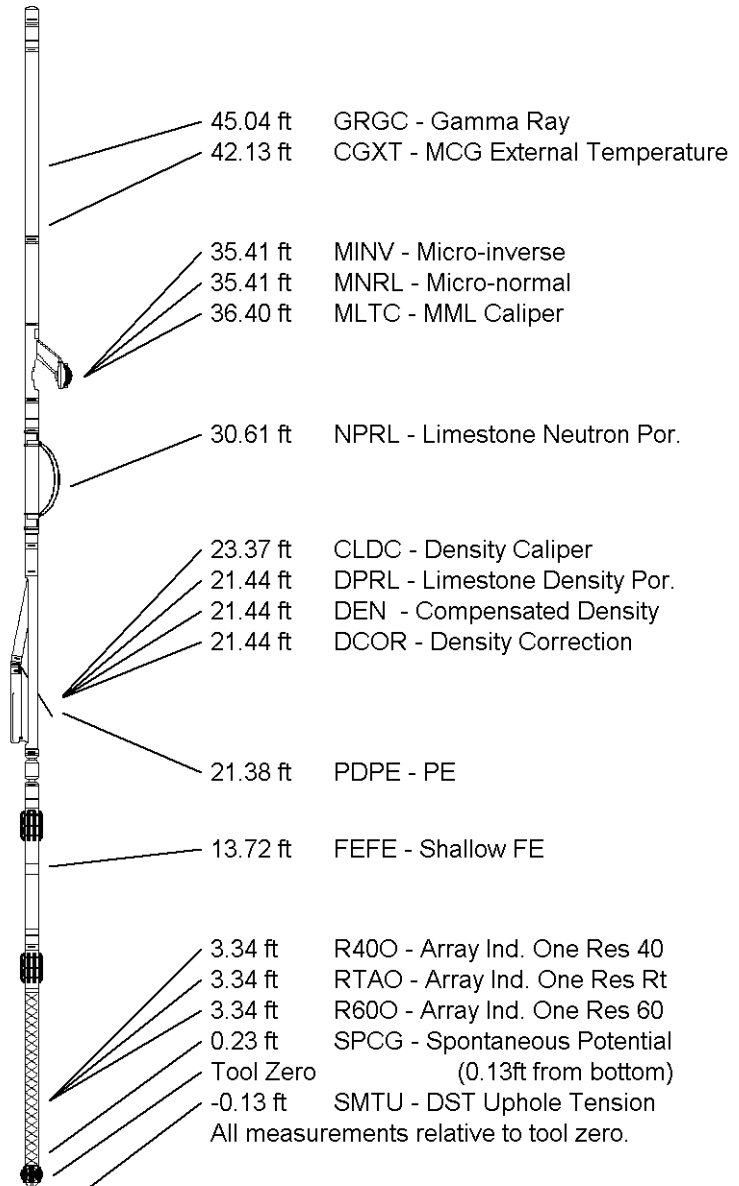
Compact Density/Caliper
 MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint
 SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focused 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: 51.90 ft Weight: 423.3 lb



COMPANY	GRAND MESA OPERATING		
WELL	SPONEY #1-33		
FIELD	WILDCAT		
PROVINCE/COUNTY	GOVE		
COUNTRY/STATE	U.S.A. / KANSAS		


Elevation Kelly Bushing	2934.00	feet	First Reading	4672.00	feet
Elevation Drill Floor	2932.00	feet	Depth Driller	4680.00	feet
Elevation Ground Level	2929.00	feet	Depth Logger	4675.00	feet



ARRAY INDUCTION

SHALLOW FOCUSED

ELECTRIC LOG



Job Number	15-04
Print Number	138
Formant Datum	
Log Measured from	
Drilling Measured to	
Date	
Run Number	
Depth Driller	
First Reading	
Last Reading	
Casing Driller	
Bit Size	
Hole Fluid Type	
Density/Viscosity	
PH / Fluid Loss	
Sample Source	
Run @ Measured To	
Run @ Measured From	
Source Firm / Rm	
Run @ Measured To	
Run @ Measured From	
Equipment Name	
Equipment Base	
Recorded By	
Checked By	
Job #	

Weatherford

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG



GRAND MESA OPERATING
SPONEY #1-33
WILD CAT
GOVE
U.S.A. / KANSAS
1052' FSL & 583' FWL

ROSE 31W
MML

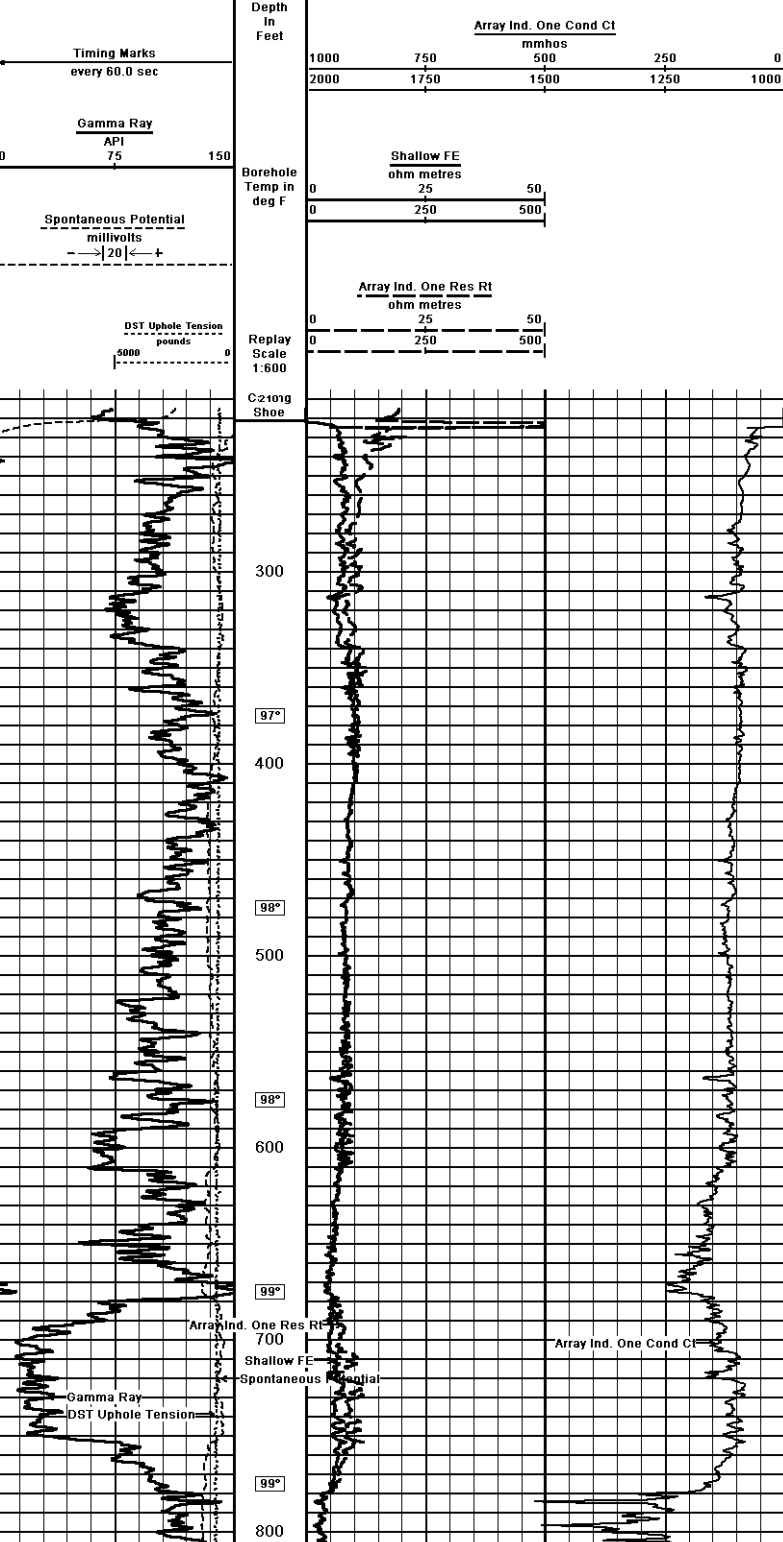
Other Services
MCM/MPD

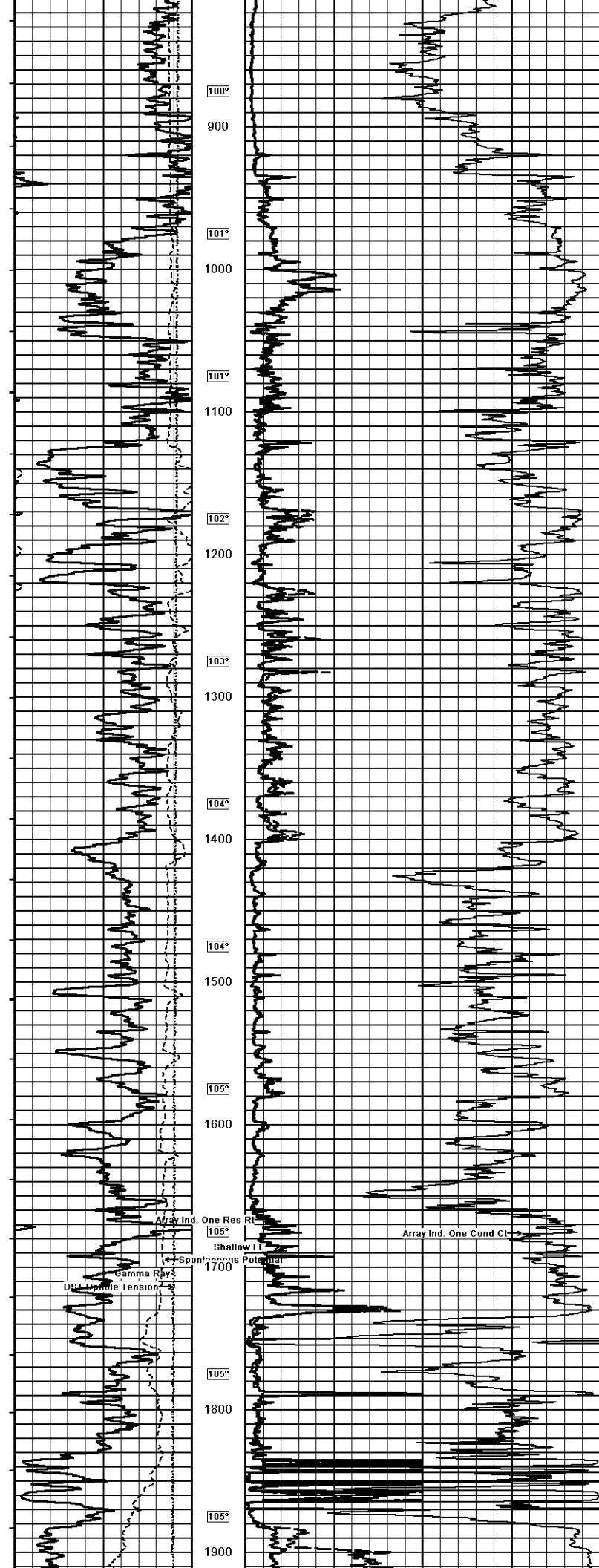
Elevation: 2823 feet
Elevation:
KB 2834.00
DF 2832.00
OL 2829.00

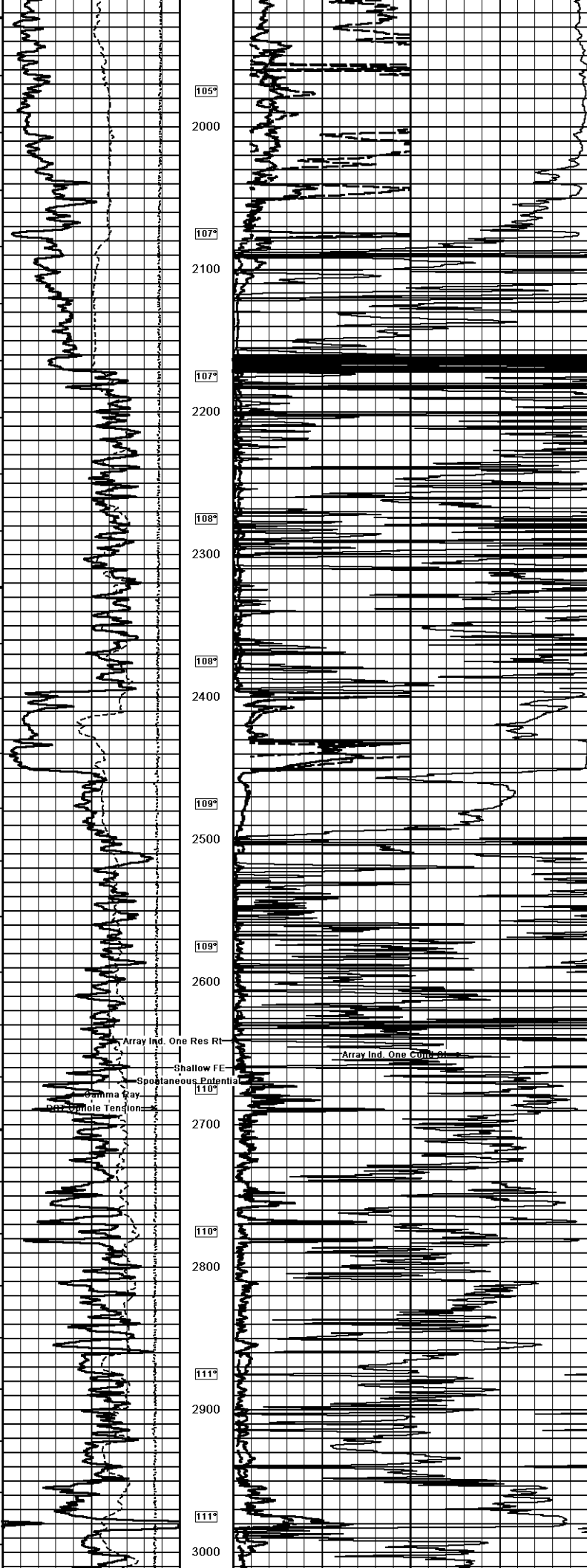
28-JUL-2011	ONE	feet
4680.00	feet	
4675.00	feet	
4672.00	feet	
221.00	feet	
222.00	feet	
221.00	feet	
7.875	inches	
CHEMICAL	52.00 CP	
9.40	BU/Sg	
9.60	m/20min	
FLOWLINE	1.05 @ 31.0	ohm-cm
0.84 @ 31.0	ohm-cm	
1.36 @ 31.0	ohm-cm	
CALC	CALC	
0.80 @ 20.0	ohm-cm	
4 HOURS	deg F	
120.00	deg F	
COMPACT		
13057	LB	
R. HOFFMAN		
BOB PETERSEN		
3531112		

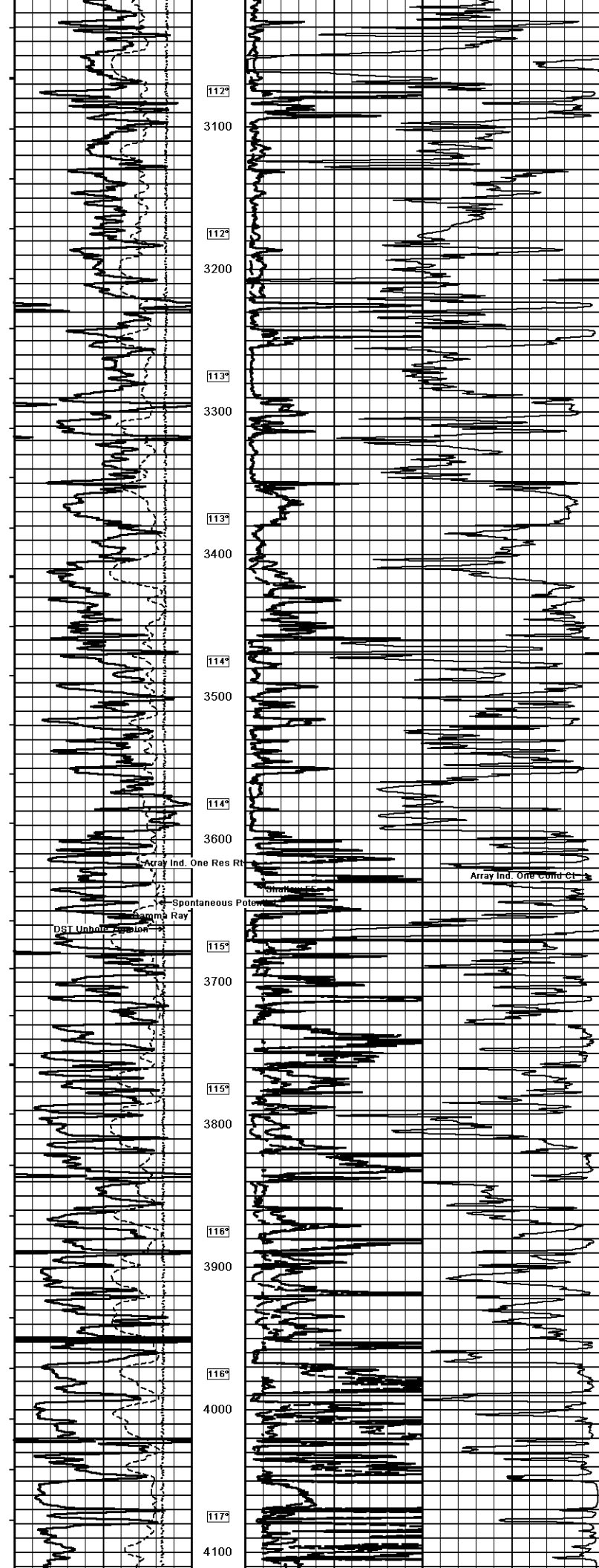
1 INCH MAIN PASS

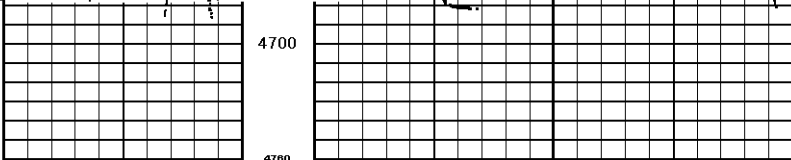
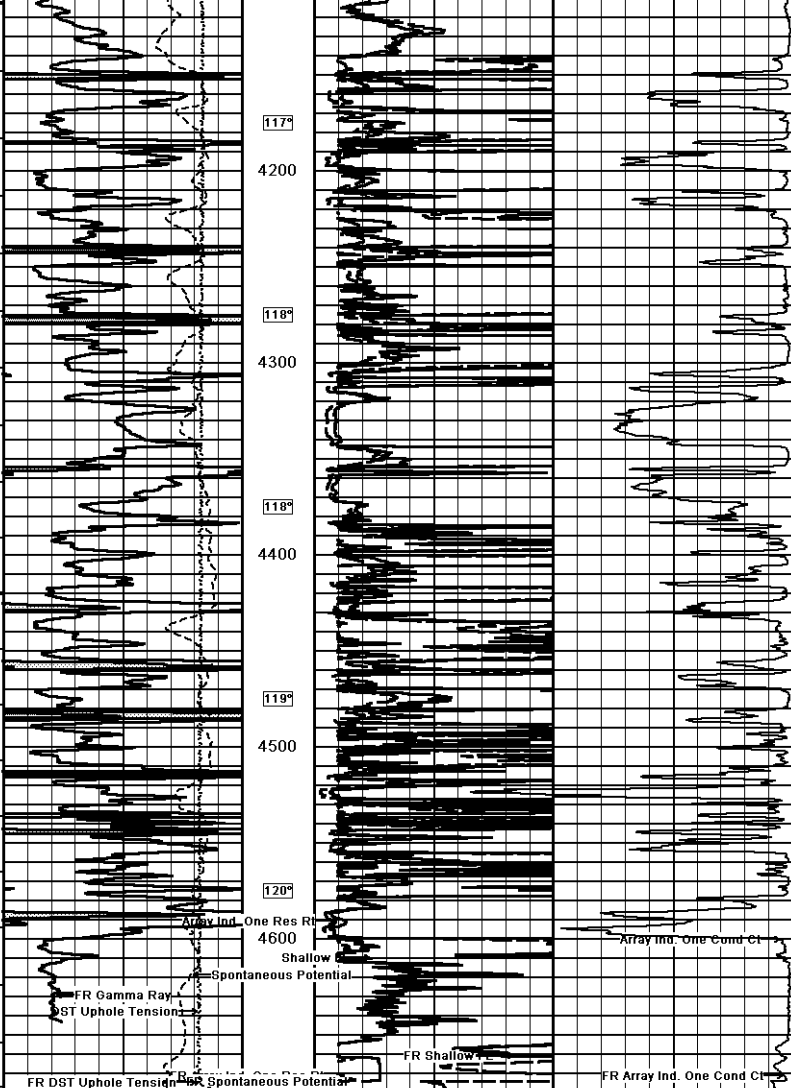
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 31-AUG-2011 09:38
Filename: C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherford P...Grand Mesa Sponey #1-33_002.dta
Recorded on 28-JUL-2011 02:24
System Versions: Logged with 11.02.3186 Plotted with 12.01.3513











Timing Marks every 60.0 sec

Gamma Ray API 0 75 150

Spontaneous Potential millivolts - -> 20 <- +

DST Uphole Tension pounds 0 5000

Depth in Feet

4700

4760

Array Ind. One Cond Ct mmhos

2000 750 500 250 0

1000 1750 1500 1250 1000

Borehole Temp in deg F

0 25 50

0 250 500

Array Ind. One Res Rt ohm metres

0 25 50

0 250 500

Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 31-AUG-2011 09:38

Filename: C:\DOCUME~1\sysadmin\LOCALS~1\Temp\Weatherford P...Grand Mesa Sponey #1-33_002.dta

Recorded on 28-JUL-2011 02:24

System Versions: Logged with 11.02.3186 Plotted with 12.01.3513

1 INCH MAIN PASS

COMPANY GRAND MESA OPERATING

WELL SPONEY #1-33

FIELD WILDCAT

PROVINCE/COUNTY GOVE

COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2934.00	feet	First Reading	4672.00	feet
Elevation Drill Floor	2932.00	feet	Depth Driller	4680.00	feet
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Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

