



Weatherford
180

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY

SHAKESPEARE OIL COMPANY, INC.

WELL

FREY 3-9

FIELD

STRATFORD WEST

PROVINCE/COUNTY

LOGAN

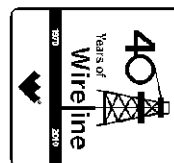
COUNTRY/STATE

U.S.A./KANSAS

LOCATION

2520' FSL & 1000' FEL

SE/4



SEC

TWP

9

13S

RGE

32W

Other Services
MPD/MDN

API Number

15-109-20993

MML

MSS

Permanent Datum G.L., Elevation 2989 feet

Log Measured From K.B. @ 10 FEET above Permanent Datum

Drilling Measured From K.B.

Elevations:

KB
DF
GL

feet
2999.00
2997.00
2989.00

Date

02-MAY-2011

Run Number

ONE

Depth Driller

4710.00

feet

Depth Logger

4706.00

feet

First Reading

4703.00

feet

Last Reading

224.00

feet

Casing Driller

224.00

feet

Casing Logger

224.00

feet

Bit Size

7.875

inches

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.40

lb/USg

57.00

CP

PH / Fluid Loss

9.50

9.60

ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

1.25 @ 75.0

ohm-m

Rmf @ Measured Temp

1.0 @ 75.0

ohm-m

Rmc @ Measured Temp

1.50 @ 75.0

ohm-m

Source Rmf / Rmc

CALC

CALC

ohm-m

Rm @ BHT

0.83 @ 113.0

ohm-m

Time Since Circulation

4 hours

Max Recorded Temp

113.00

deg F

Equipment Name

COMPACT

Equipment / Base

13025

LIB

BOREHOLE RECORD

Last Edited: 02-MAY-2011 09:43

Bit Size
inches

7.875

Depth From
feet

224.00

Depth To
feet

4706.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

0.00

Shoe Depth
feet

224.00

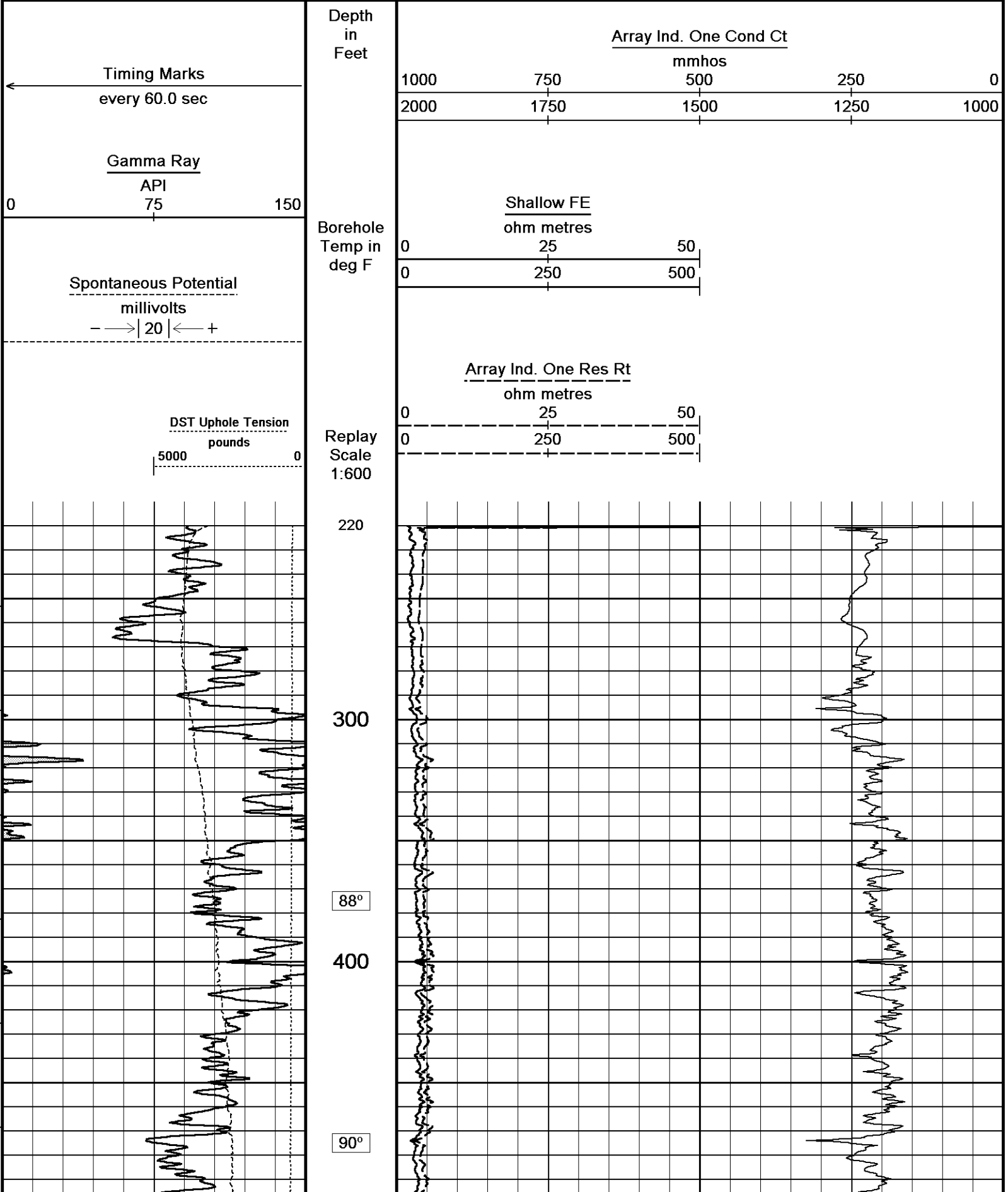
Weight
pounds/ft

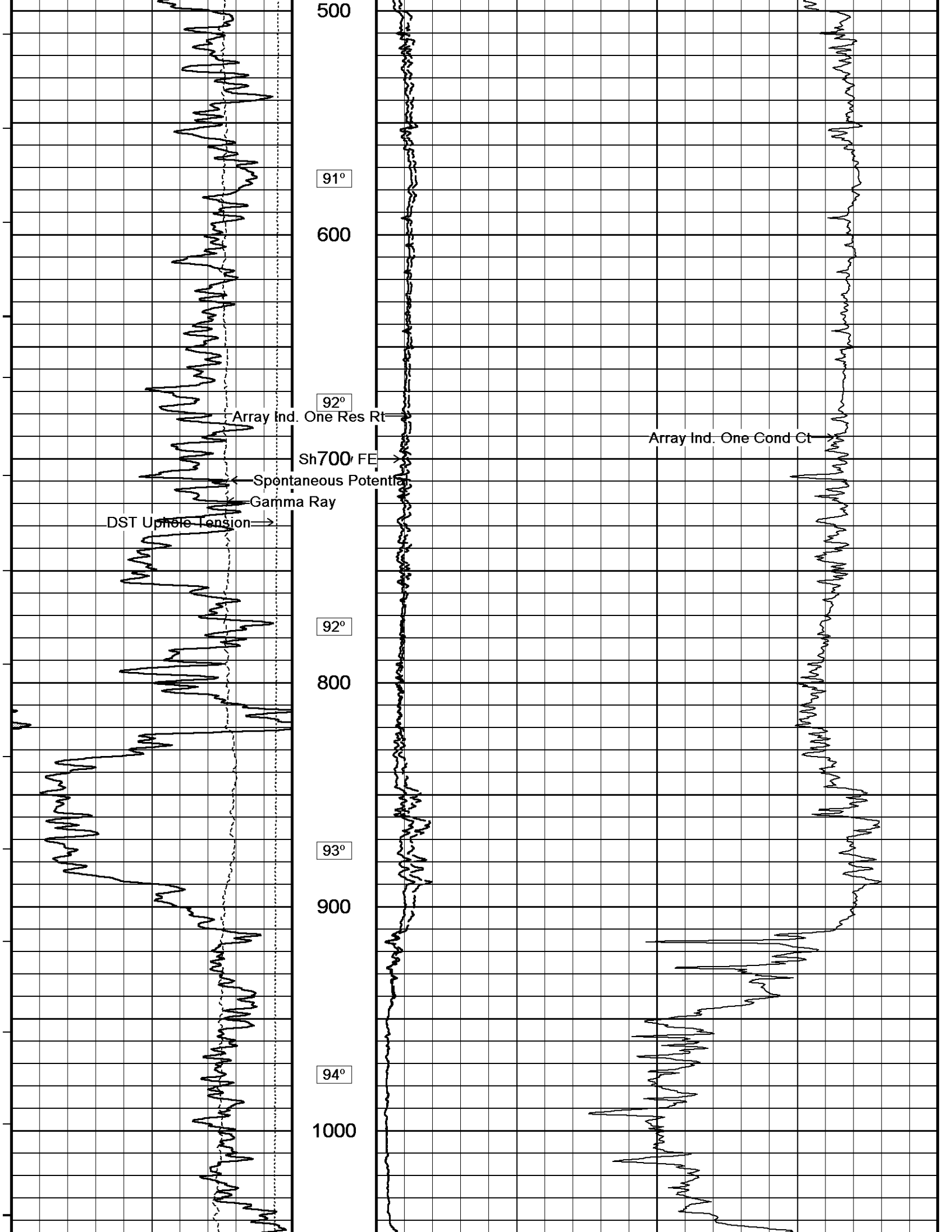
24.00

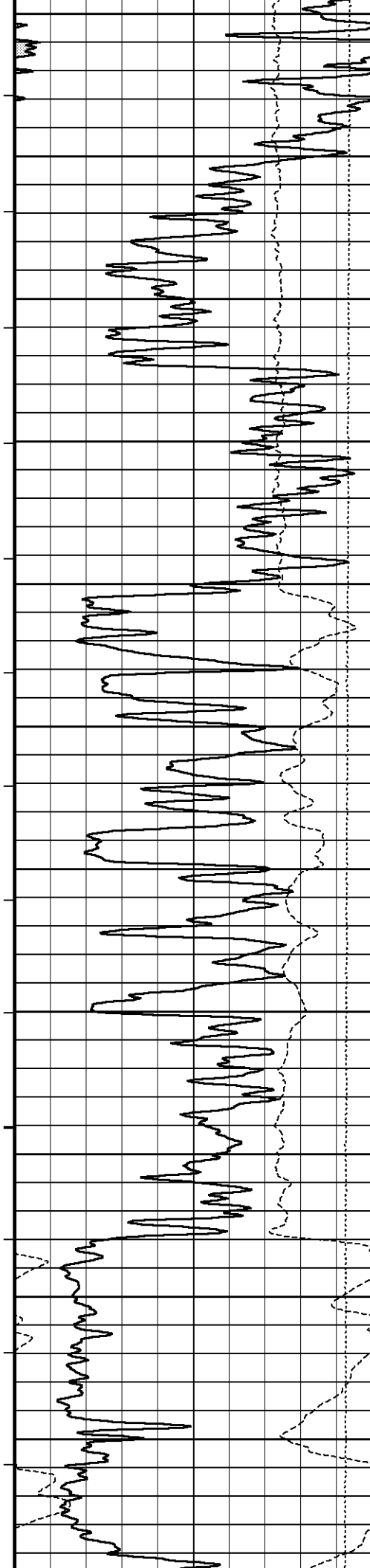
REMARKS

Tools Used: MAI, MPD, MCG, MDN, MML, MFE, SKJ, MSS
Hardware: MPD: 8 inch profile plate. MAI, MSS and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Sonic porosity calculated on a limestone scale (47.5 usec/ft).
Borehole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 520 cu. ft.
Total hole volume with out production casing= 900 cu. ft.
Service order #3529184
Rig: H-D Drilling #2
Engineer: S. Tottey, A. Sill
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.







95°

1100

95°

1200

96°

1300

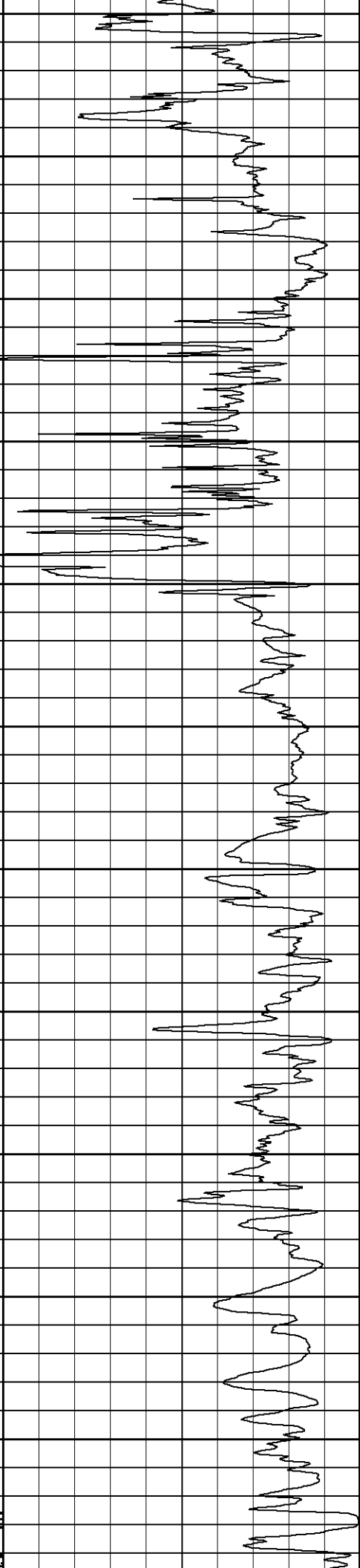
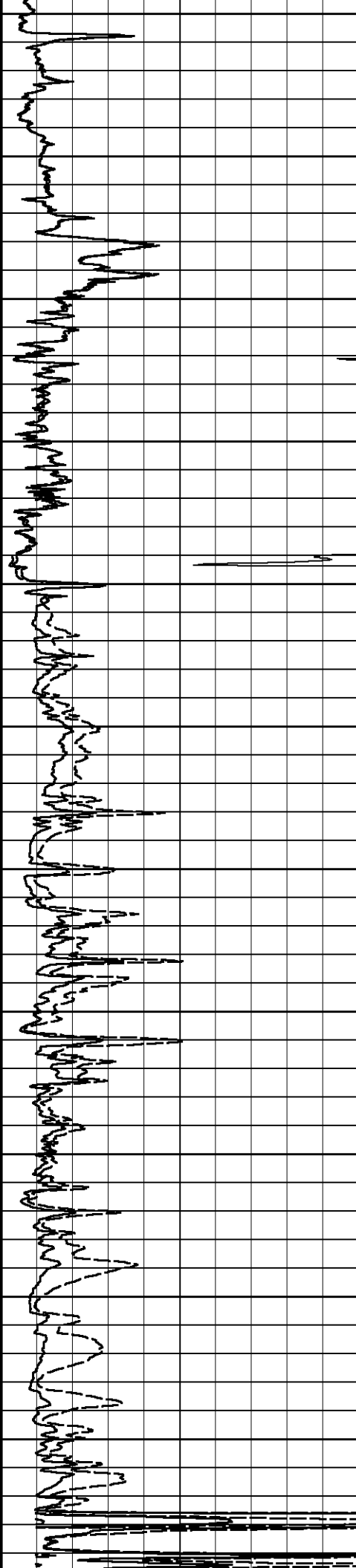
96°

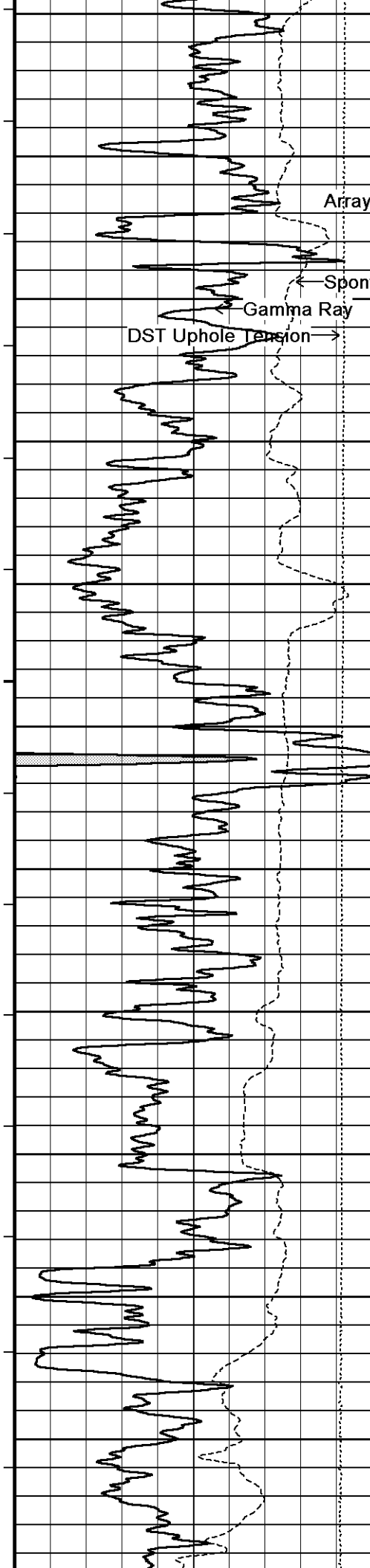
1400

97°

1500

97°





Array Ind. One Res Rt

98°

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

1600

1700

98°

1800

99°

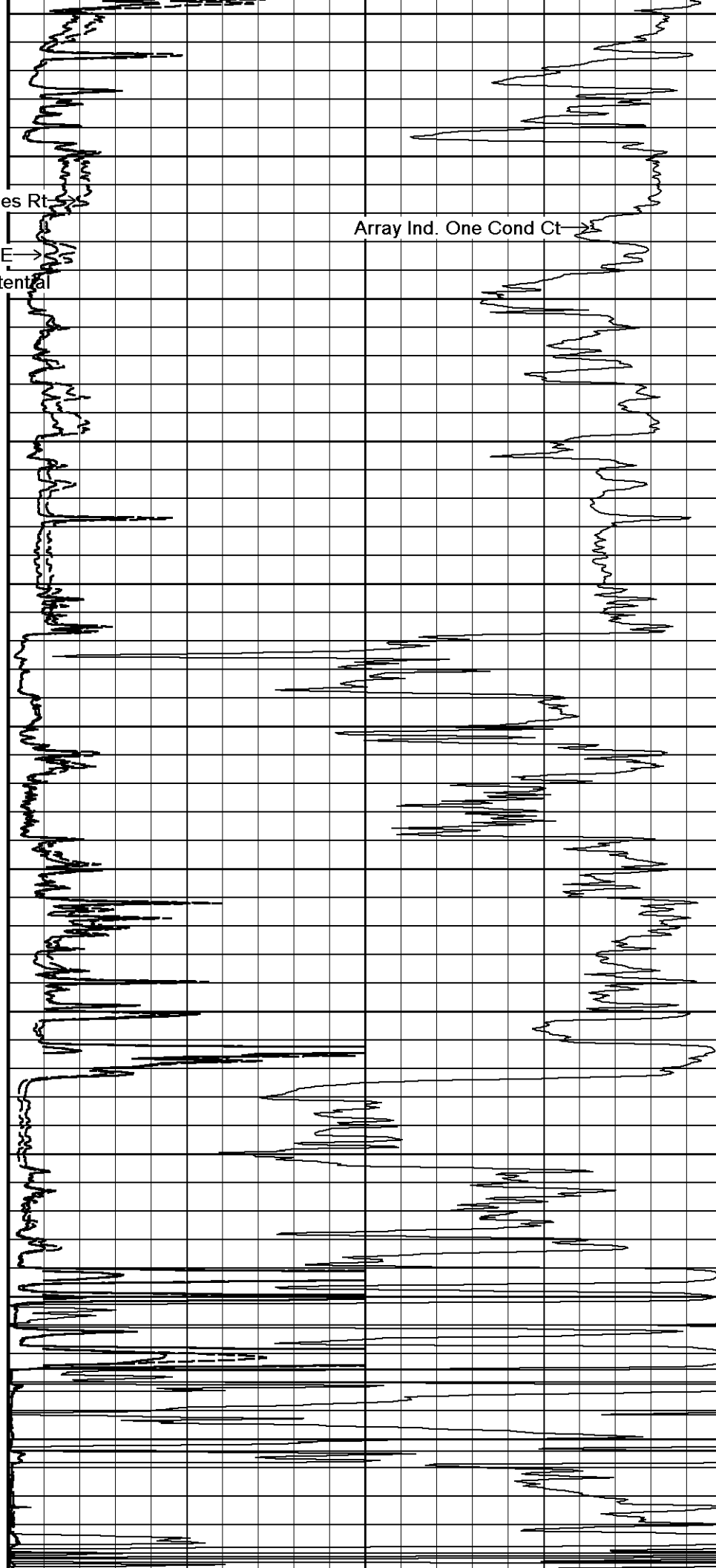
1900

99°

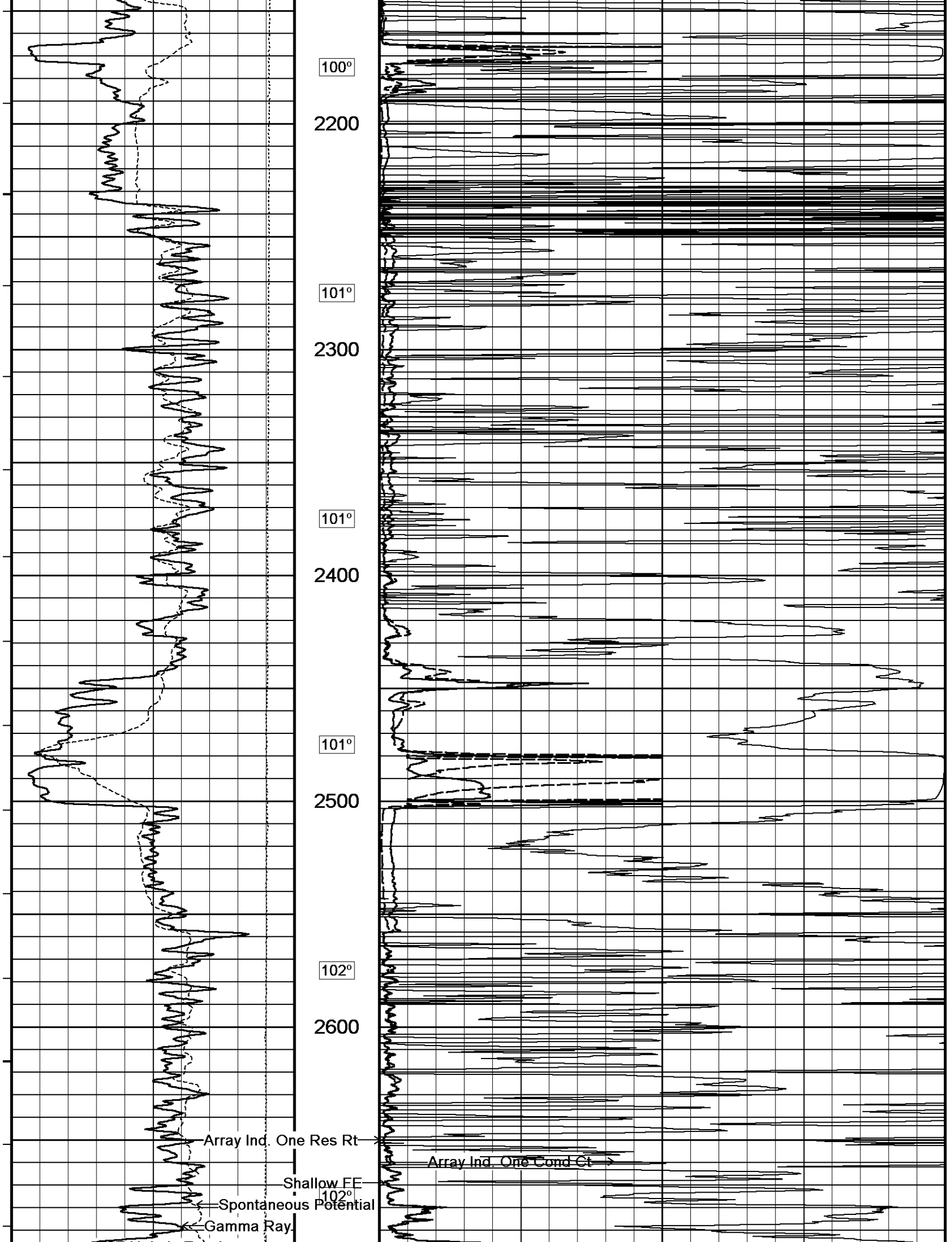
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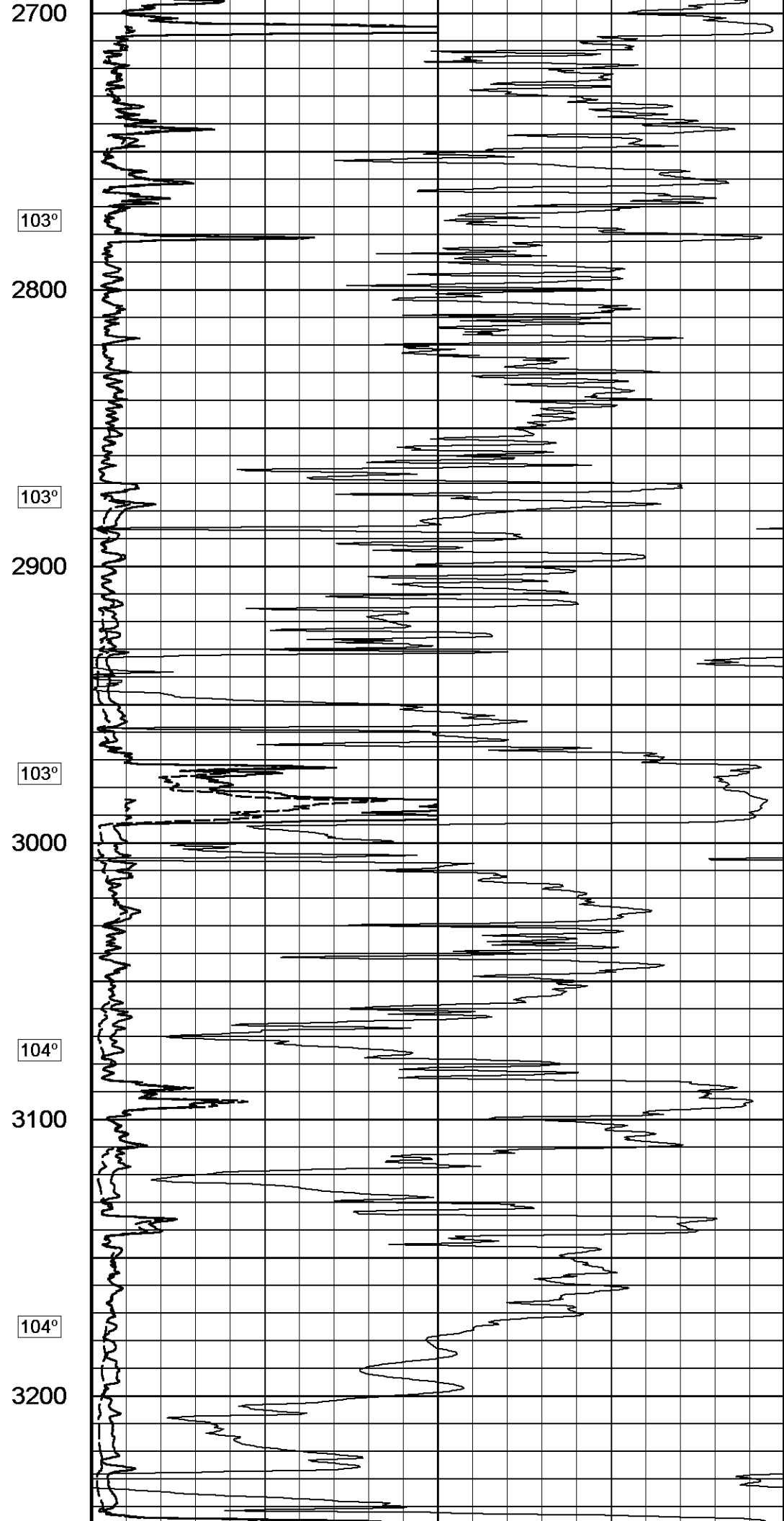
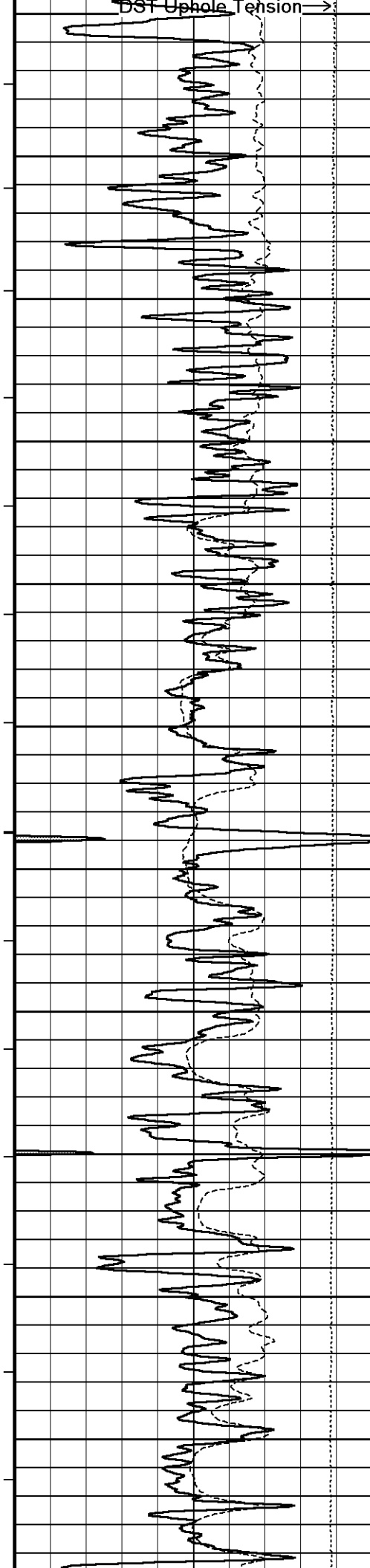
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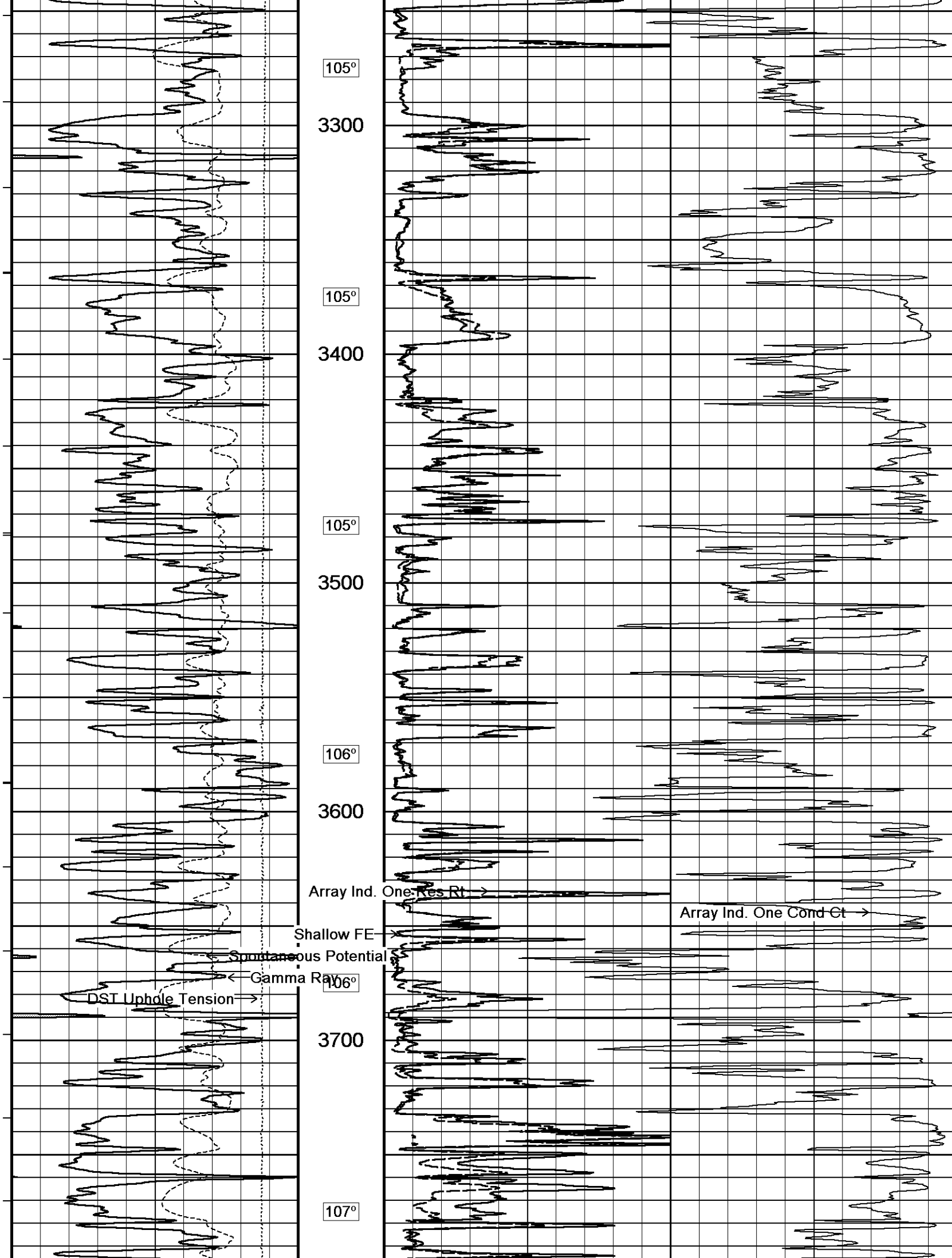
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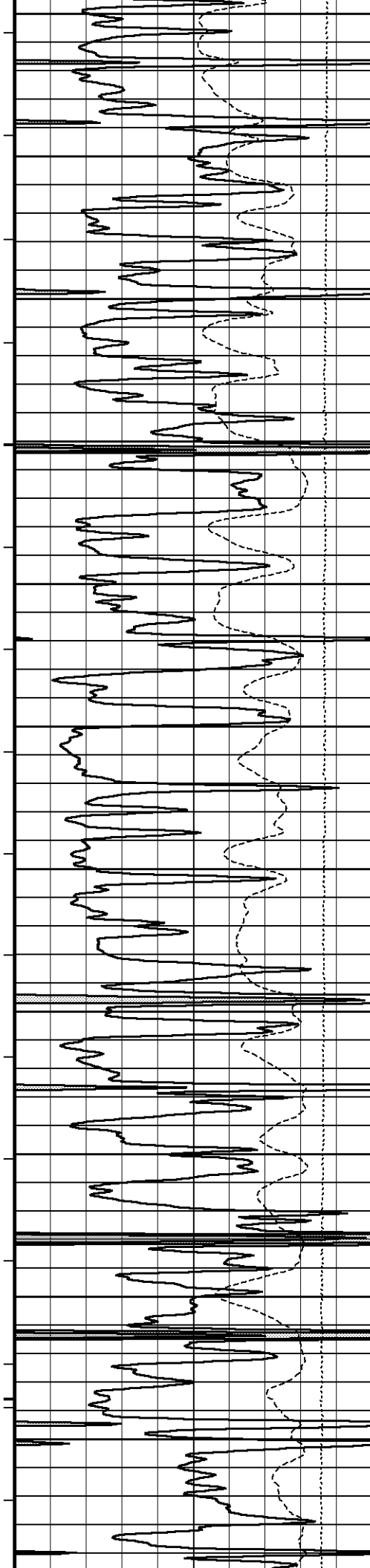


Array Ind. One Cond Ct









3800

107°

3900

108°

4000

108°

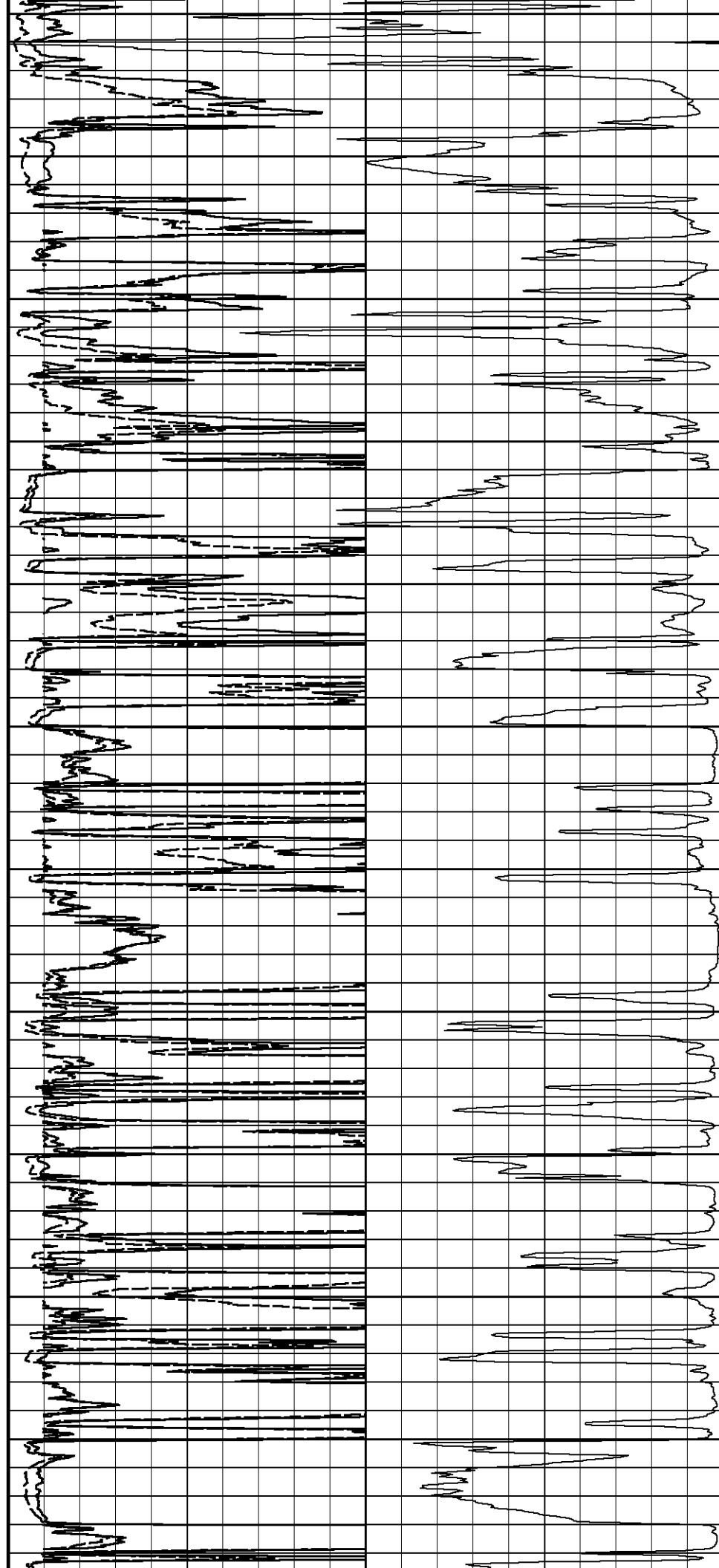
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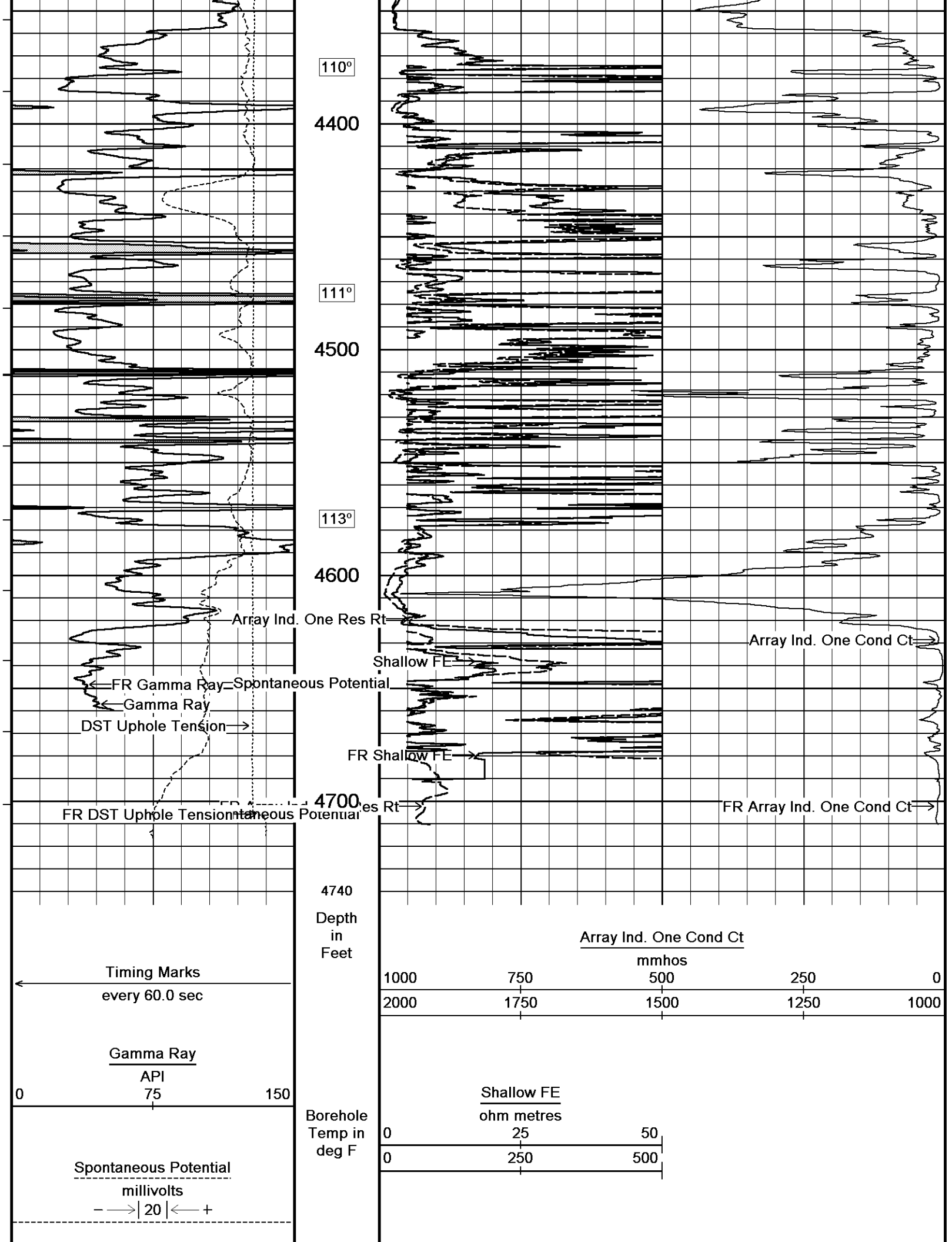
109°

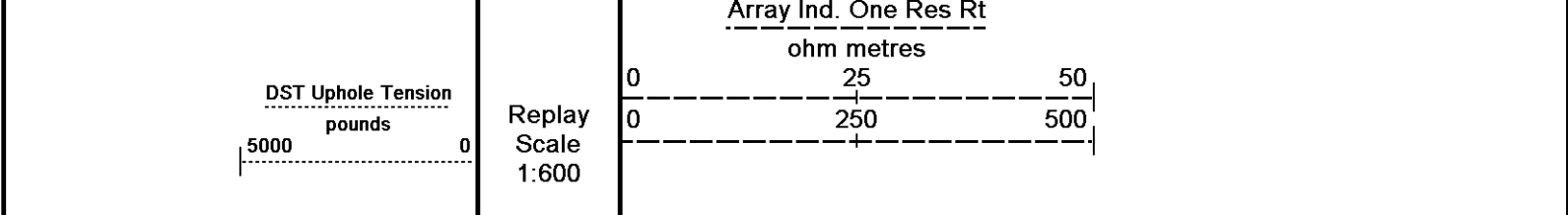
4200

109°

4300





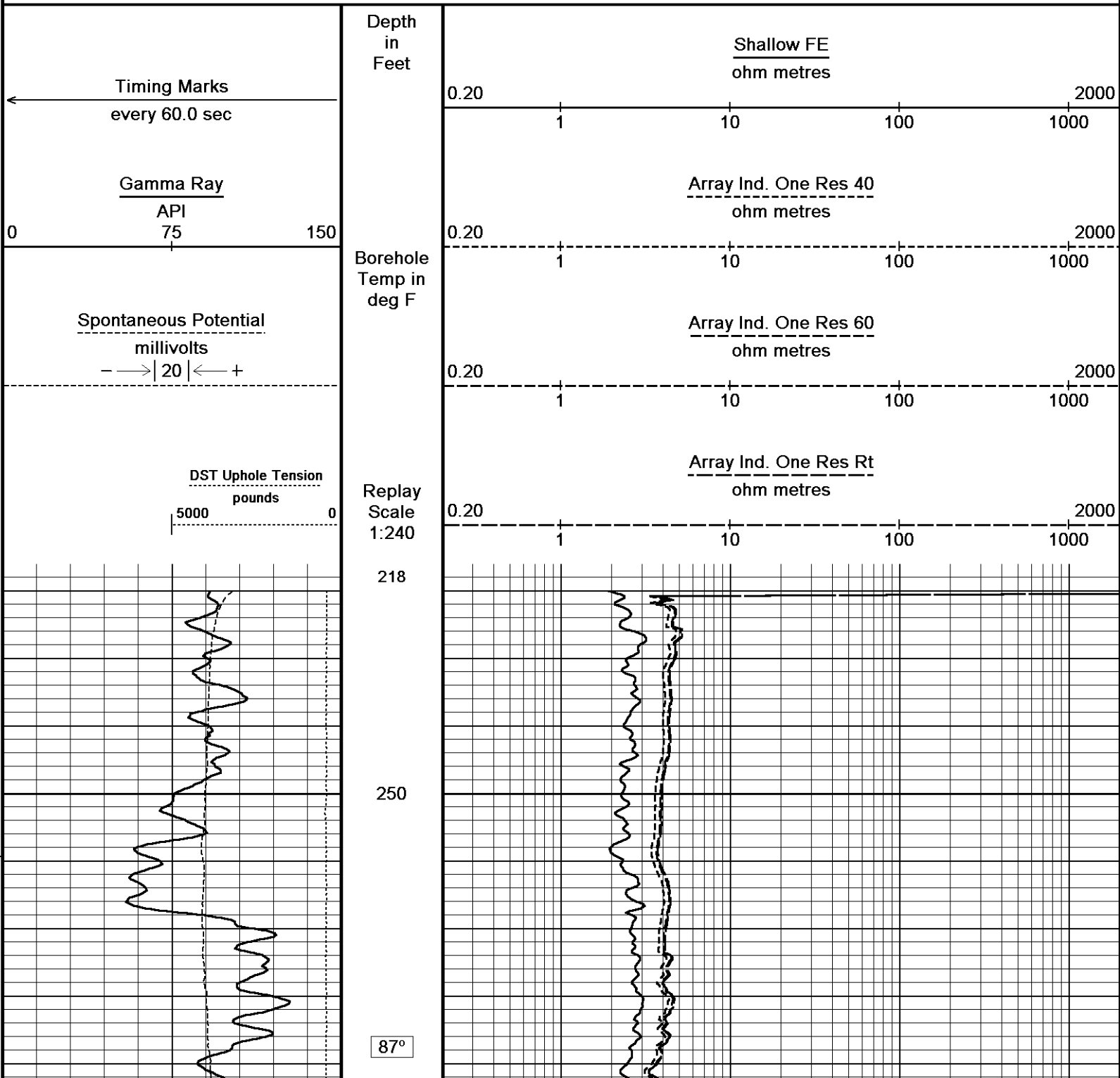


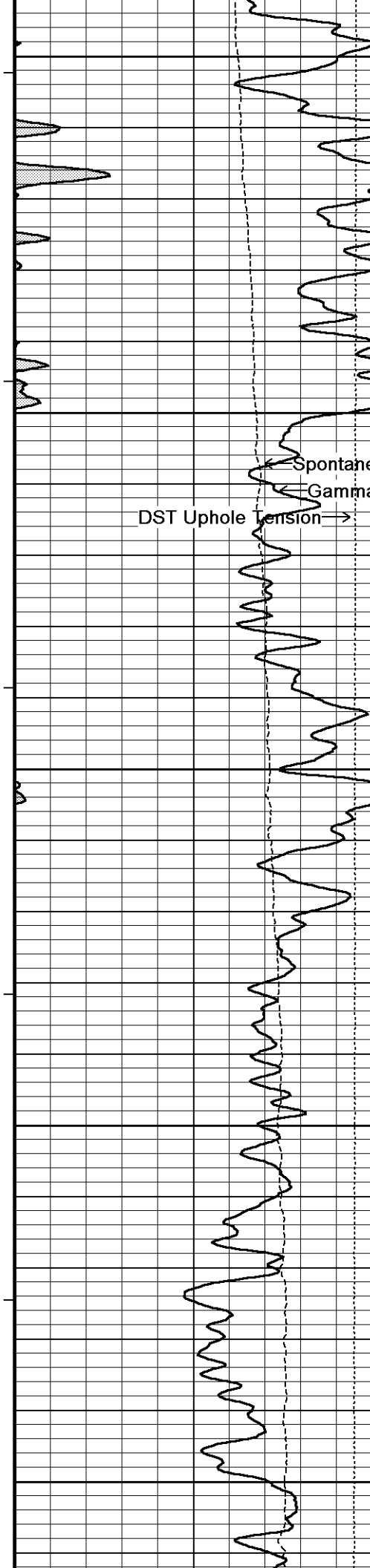
Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 02-MAY-2011 10:36
Filename: C:\Minimus 11.03.2789\Data\Shakespear Frey 3-9\Frey 3-9_002.dta	Recorded on 02-MAY-2011 08:14
System Versions: Logged with 11.03.2789 Plotted with 11.03.2789	

↑ 2 INCH MAIN ↑

↓ 5 INCH MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 02-MAY-2011 10:36
Filename: C:\Minimus 11.03.2789\Data\Shakespear Frey 3-9\Frey 3-9_002.dta	Recorded on 02-MAY-2011 08:14
System Versions: Logged with 11.03.2789 Plotted with 11.03.2789	





300

87°

350

Spontaneous Potential

Gamma Ray

DST Up-hole tension

88°

400

89°

450

90°

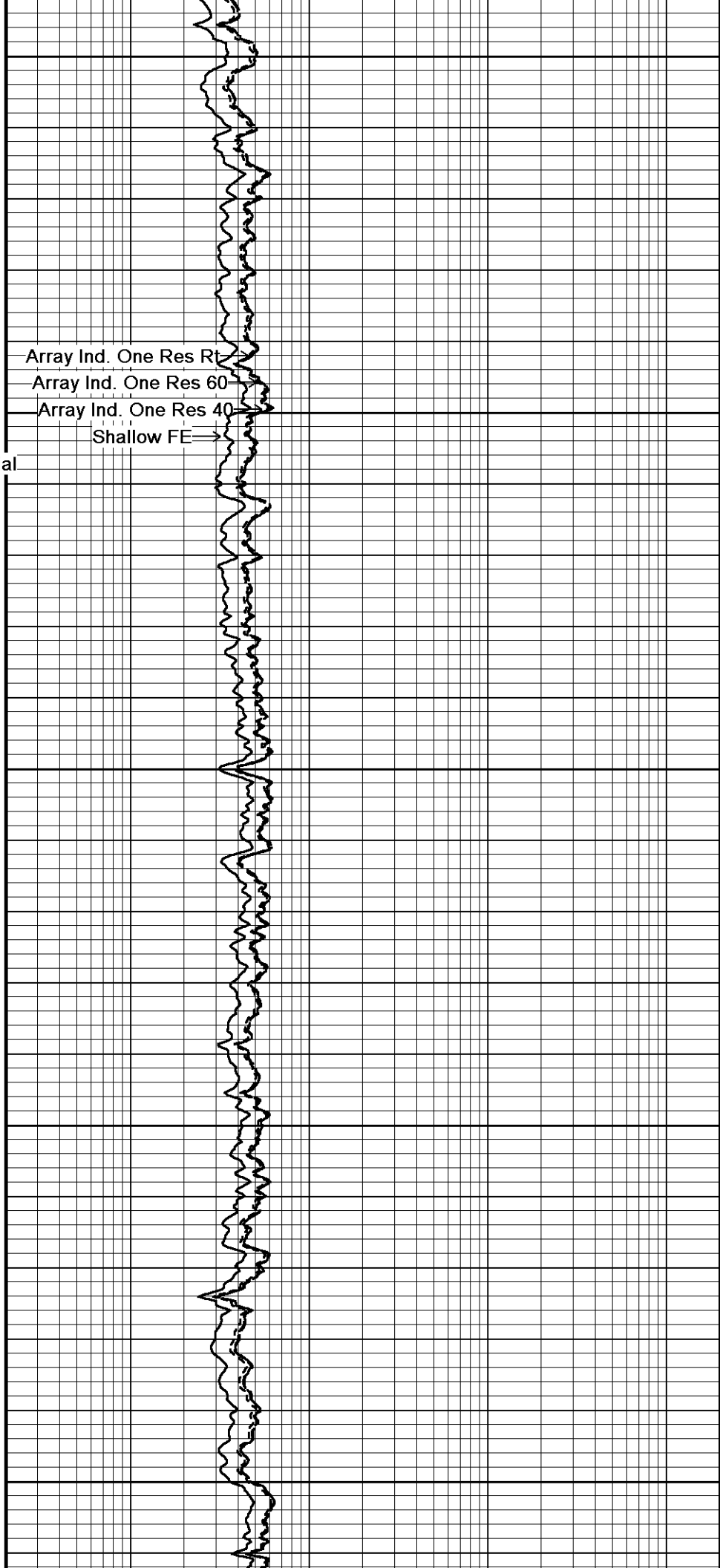
500

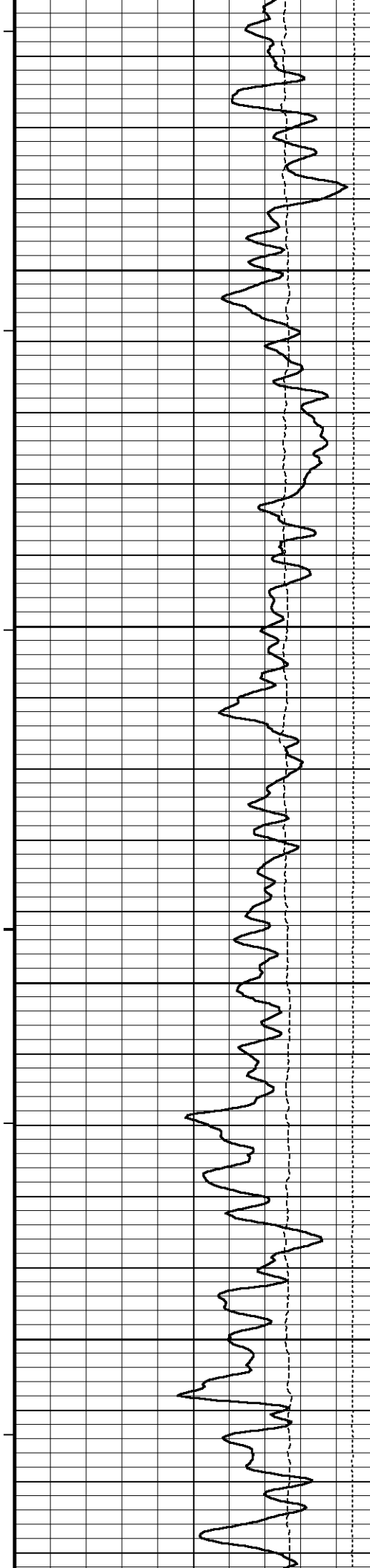
Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE





90°

550

91°

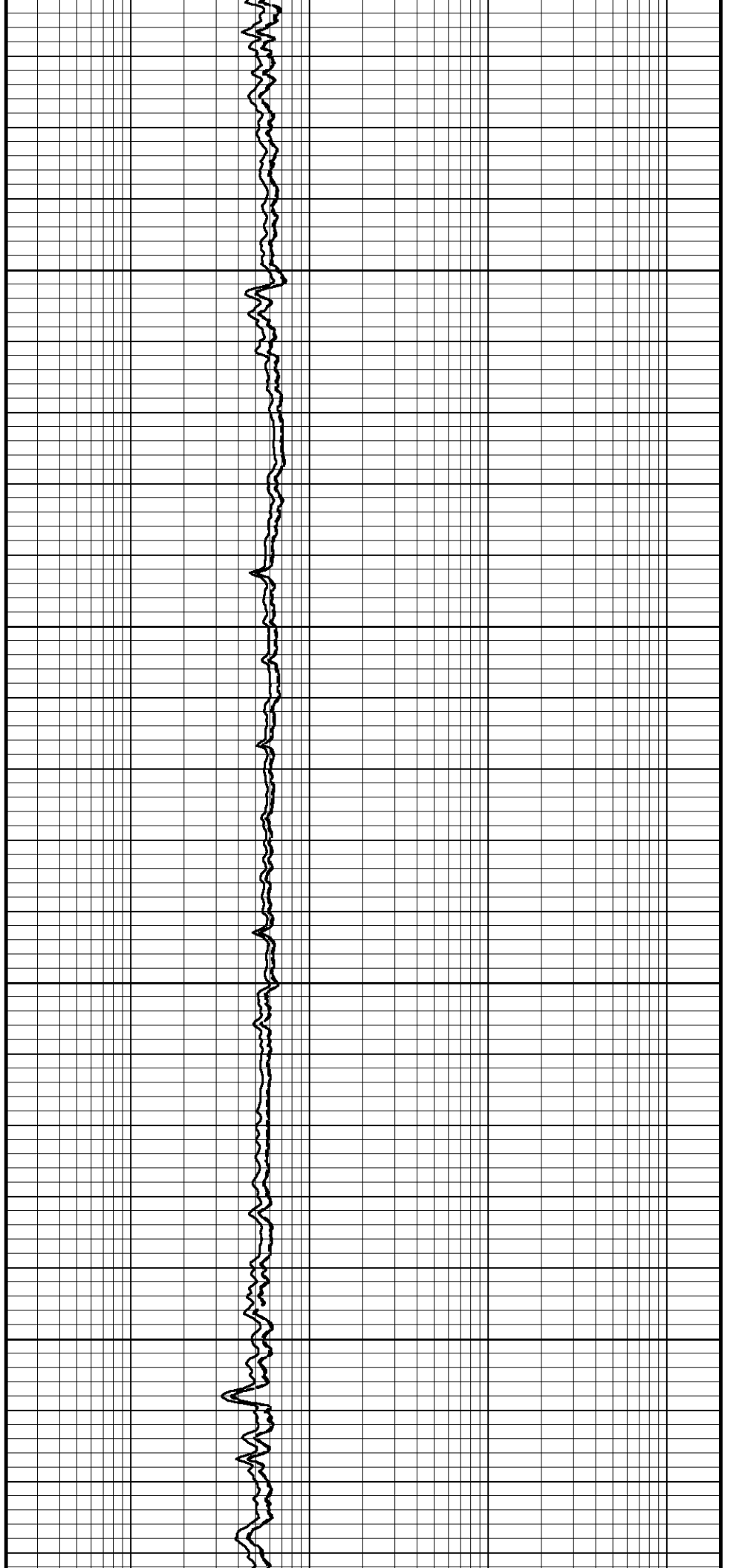
600

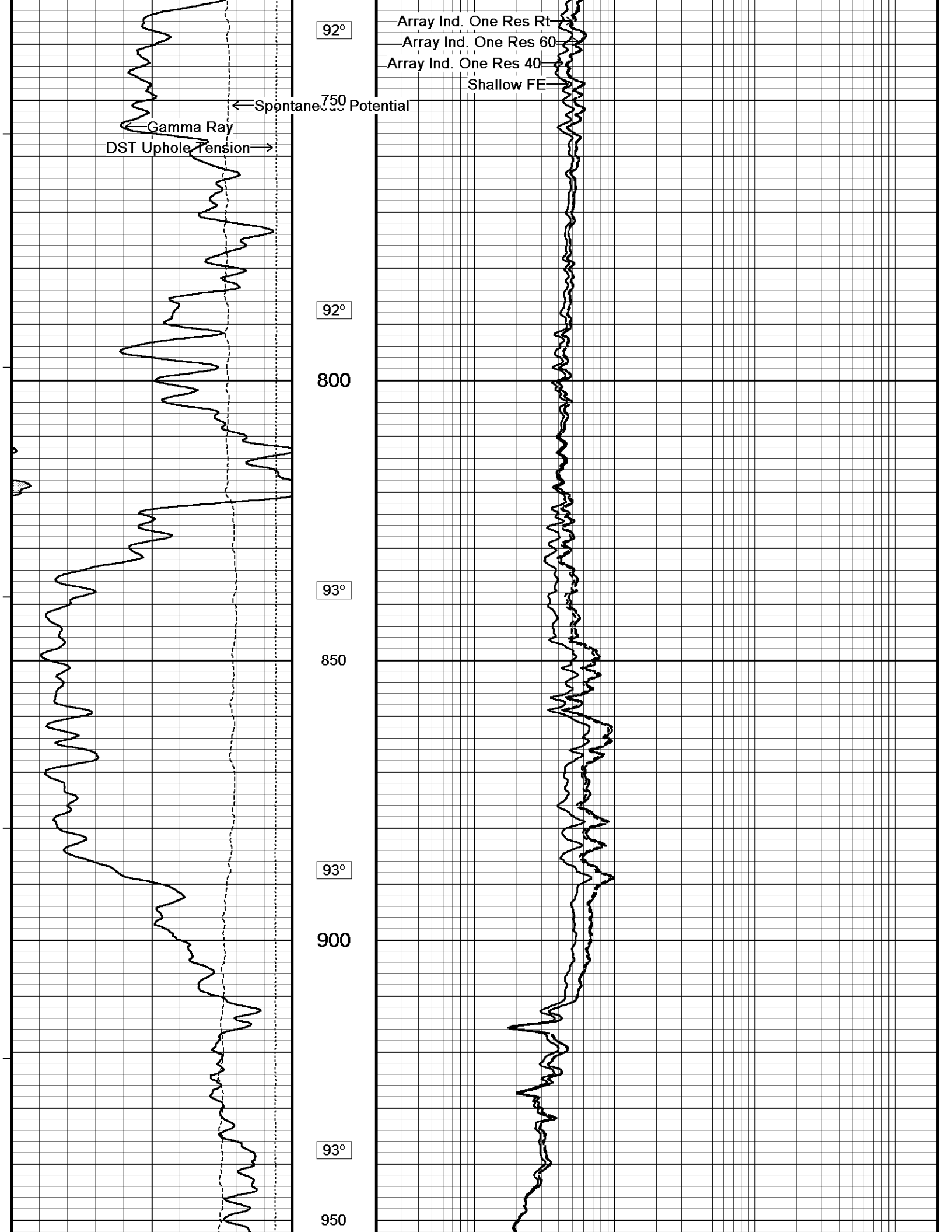
92°

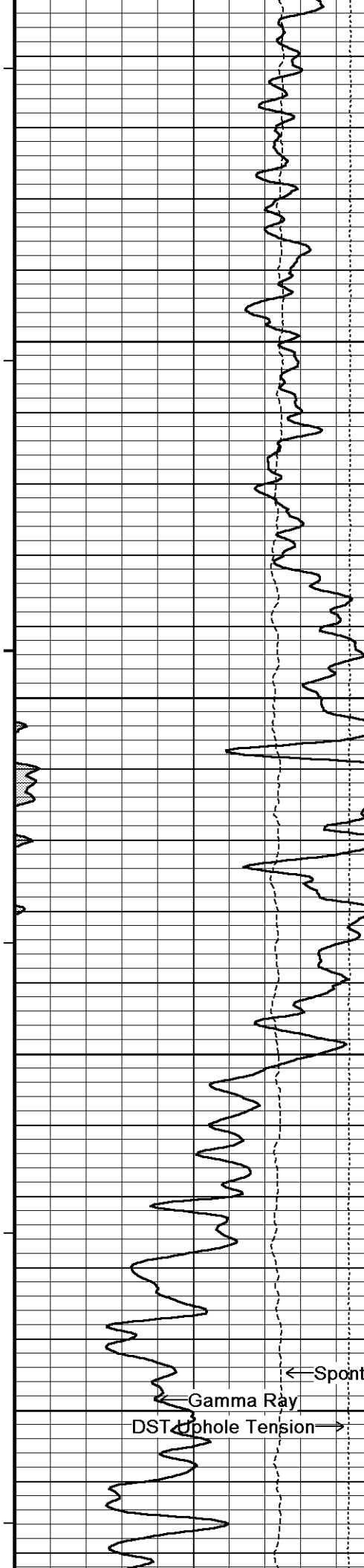
650

92°

700







94°

1000

94°

1050

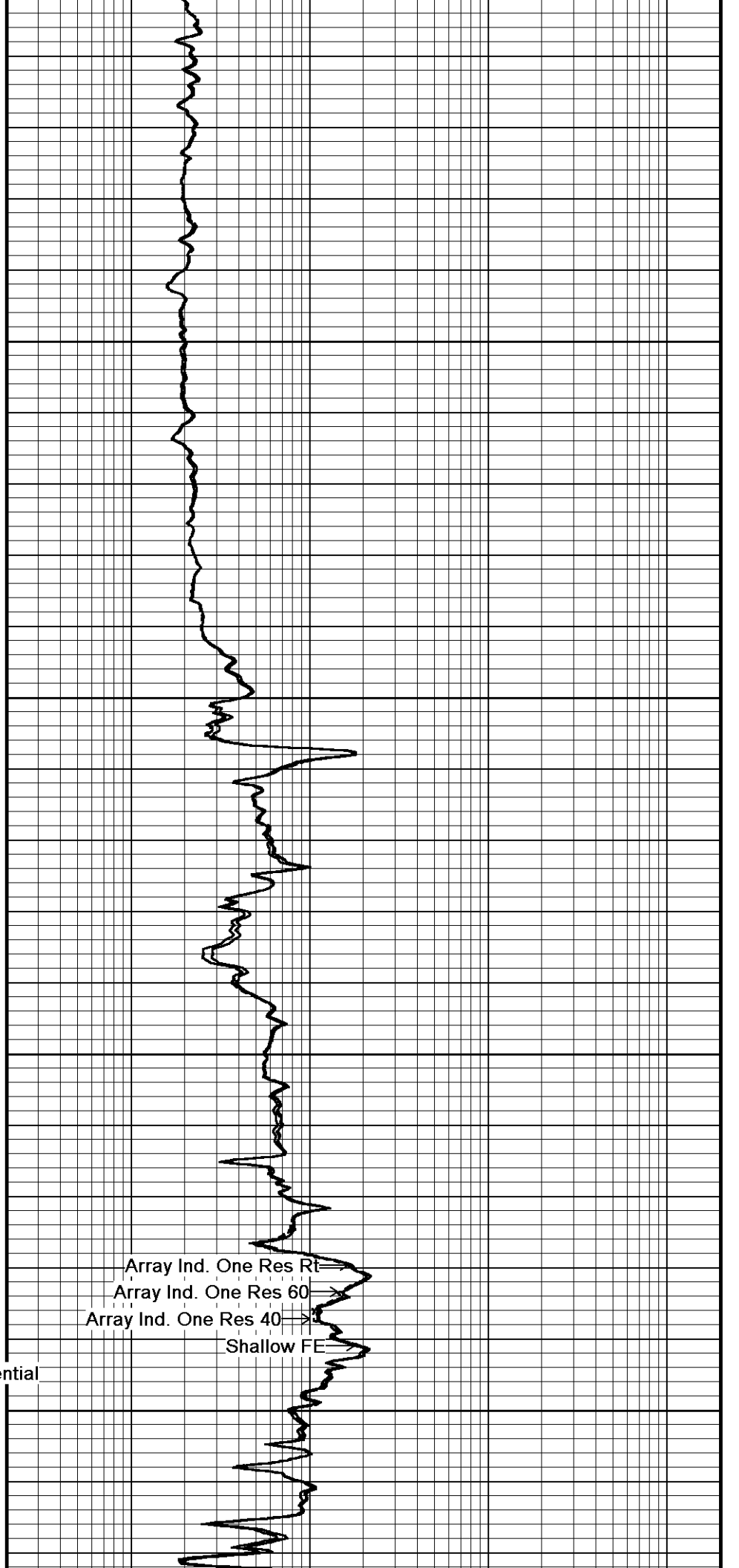
95°

1100

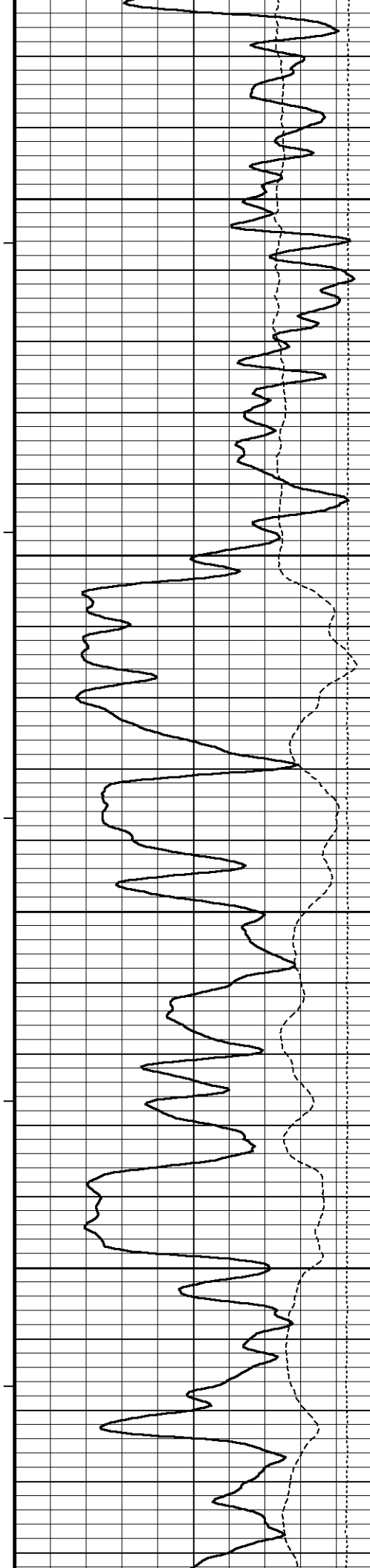
95°

1150

← Spontaneous Potential
Gamma Ray
DST Uphole Tension →



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



95°

1200

96°

1250

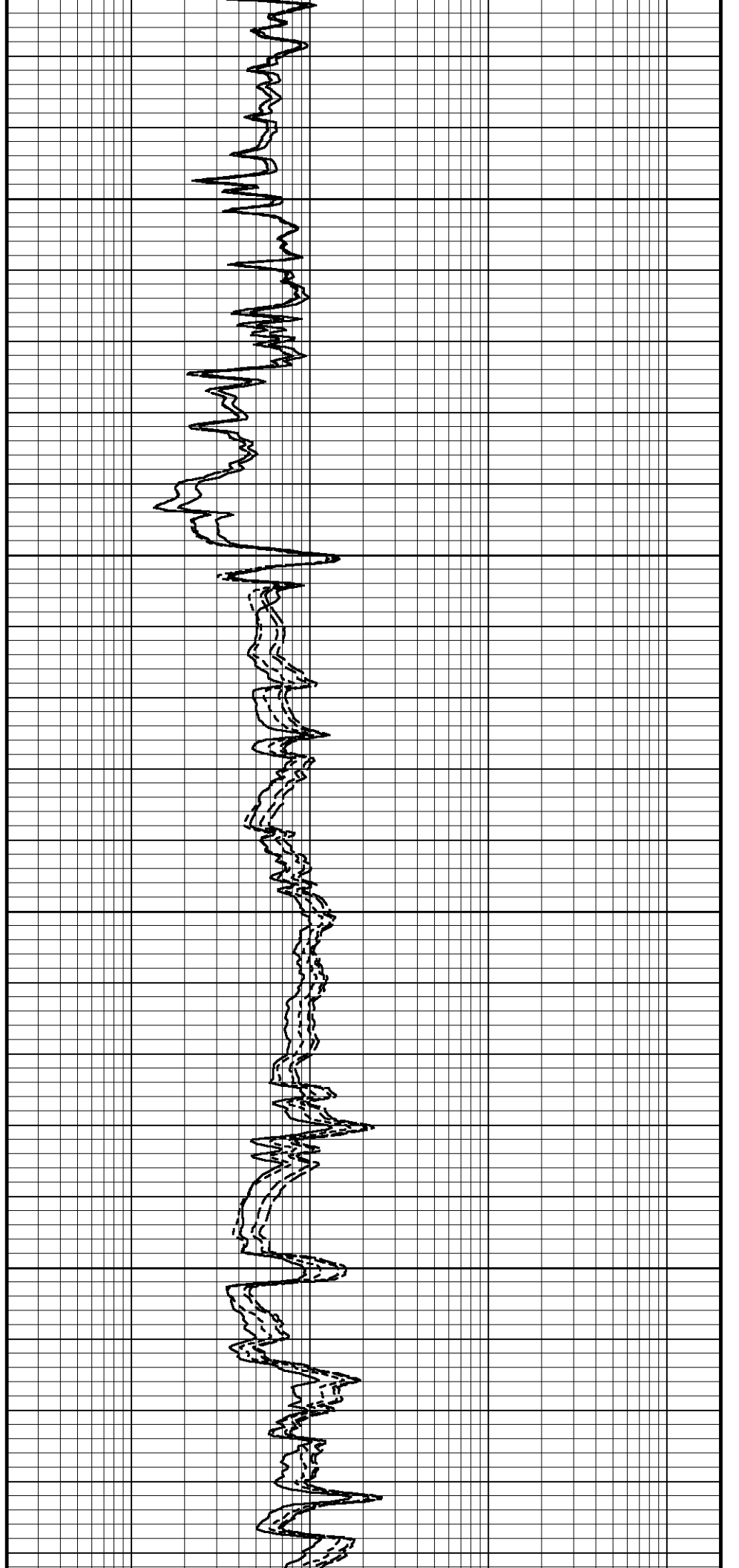
96°

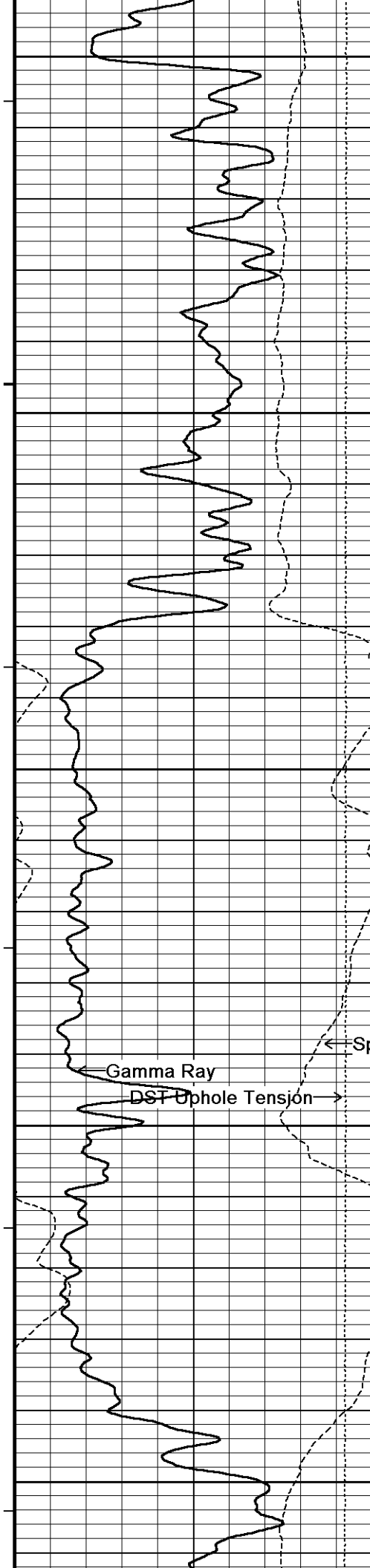
1300

96°

1350

96°





1400

97°

1450

97°

1500

97°

← Spontaneous Potential

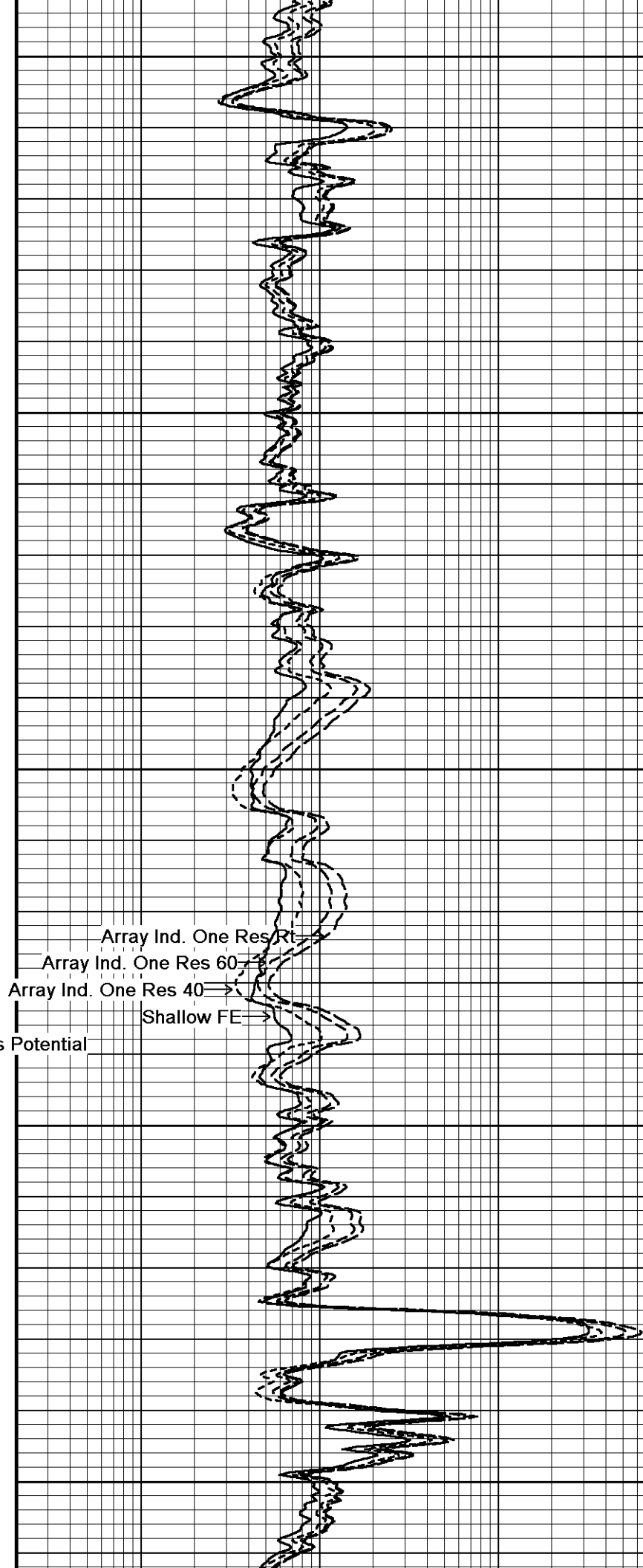
Gamma Ray

DST Uphole Tension →

1550

97°

1600

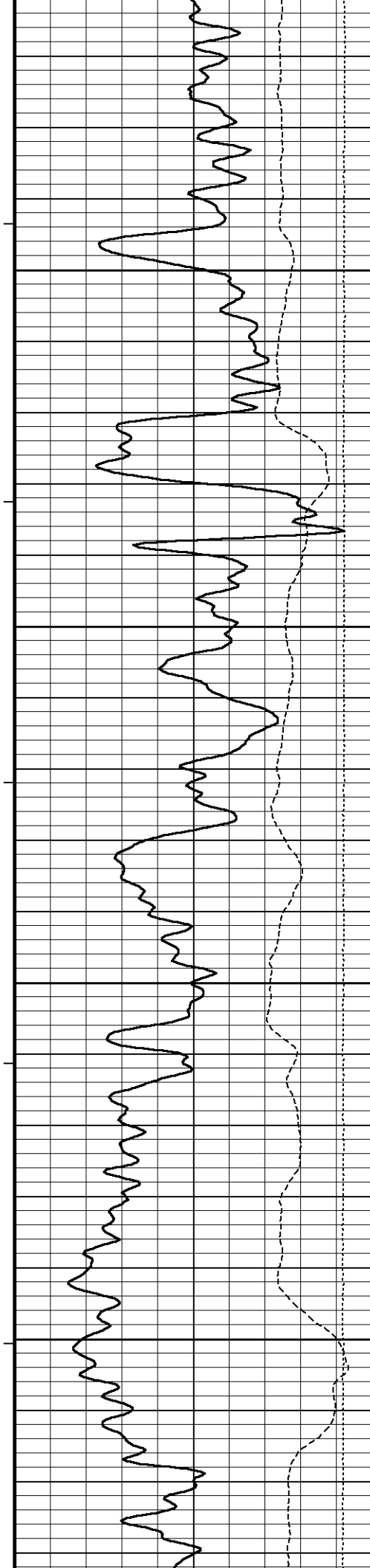


Array Ind. One Res RT

Array Ind. One Res 60

Array Ind. One Res 40 →

Shallow FE →



97°

1650

98°

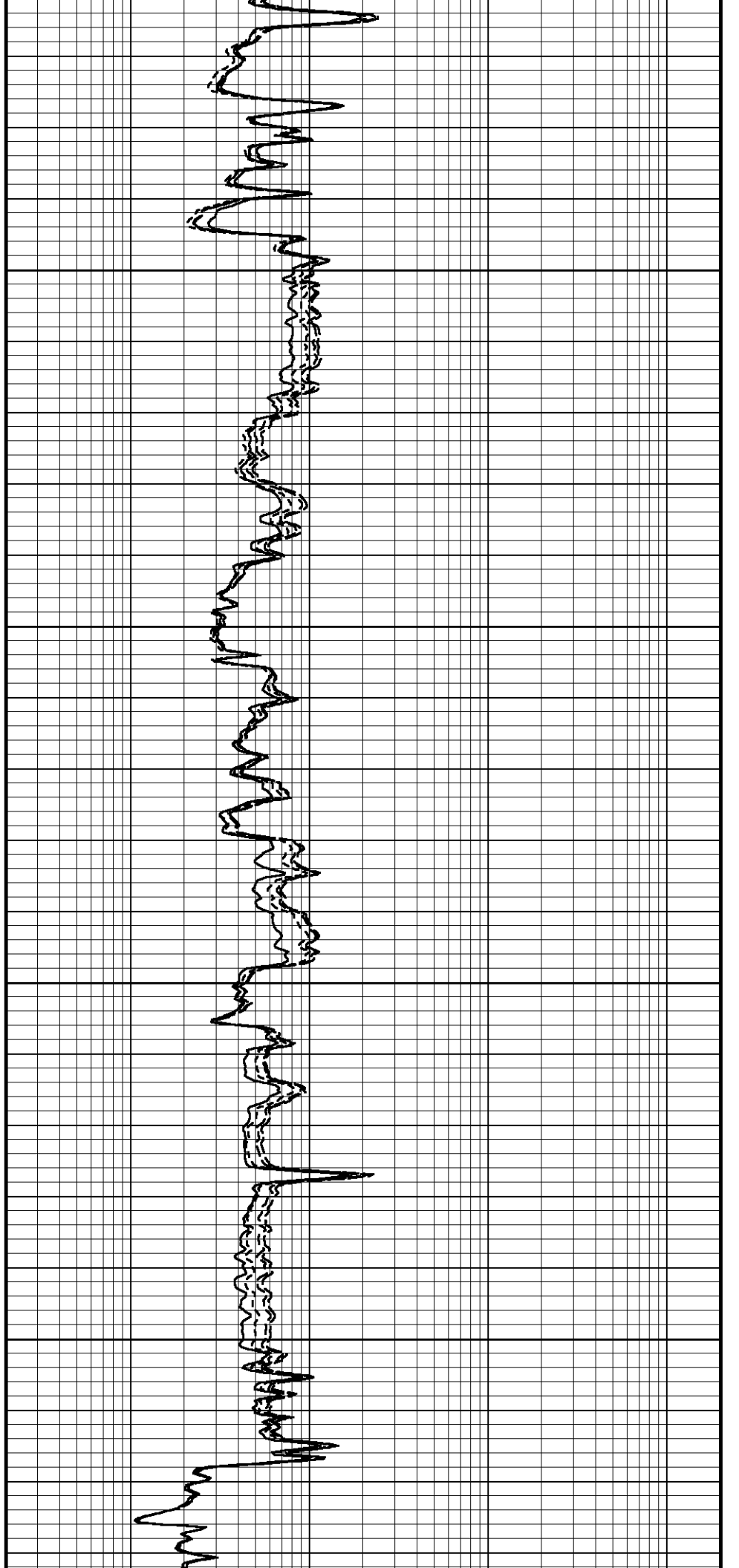
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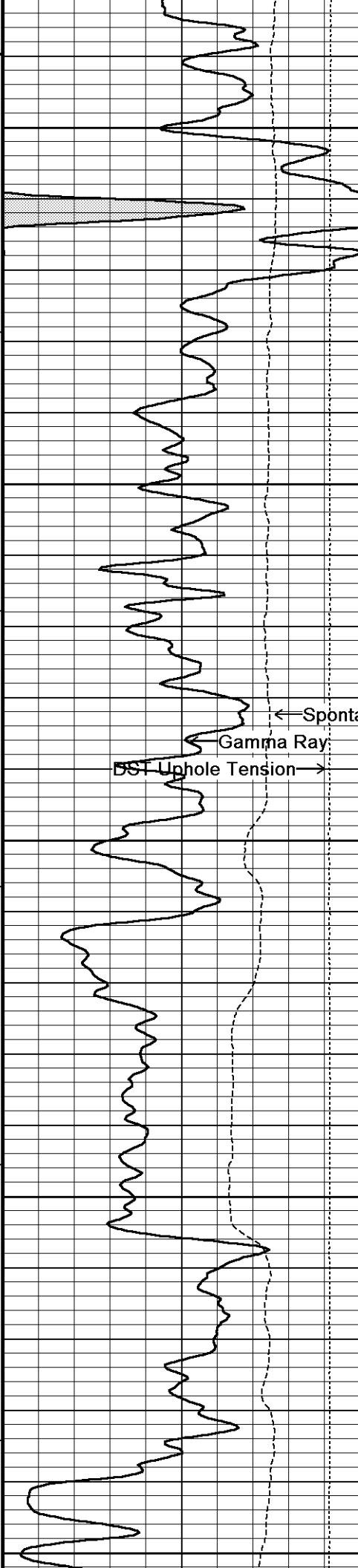
98°

1750

98°

1800





98°

1850

99°

1900

← Spontaneous Potential

Gamma Ray

DST Uphole Tension →

99°

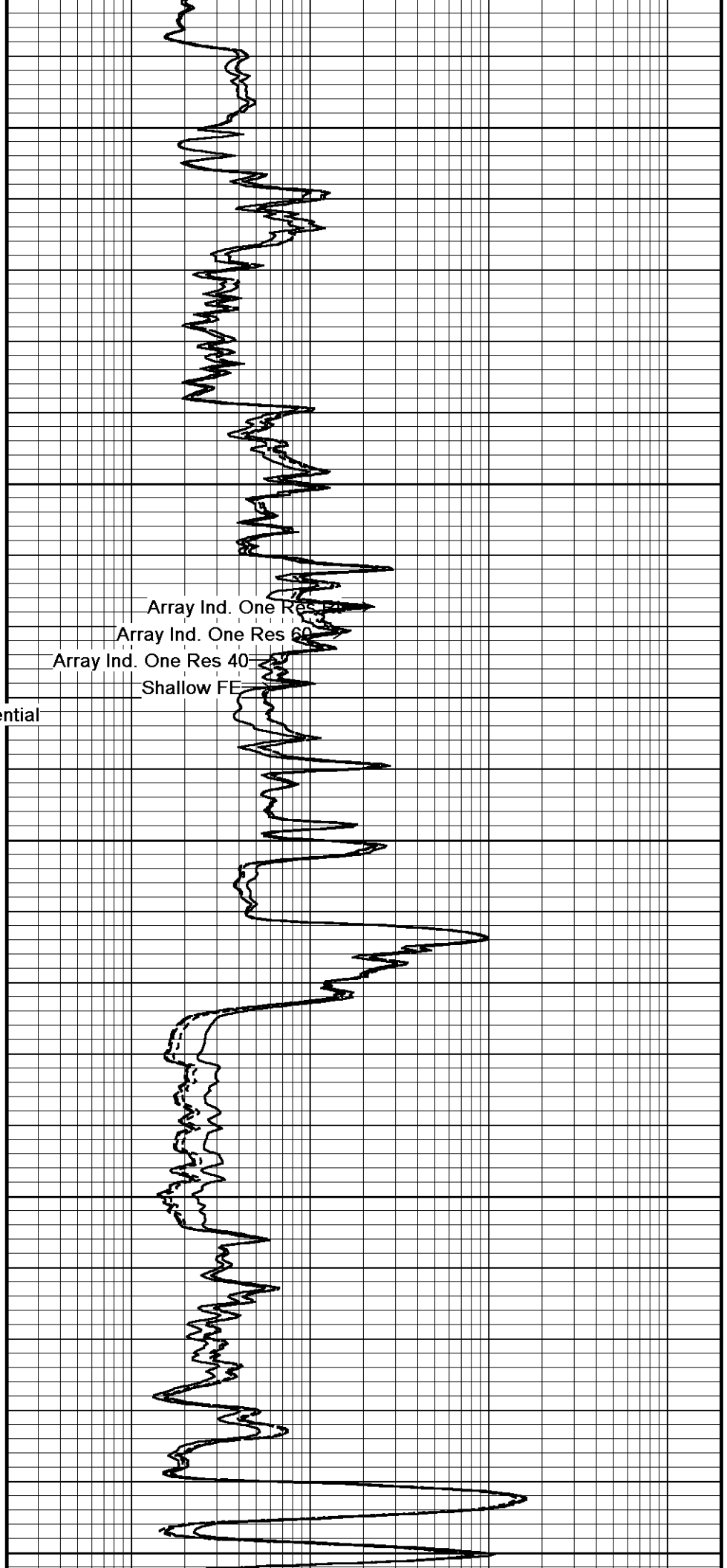
1950

99°

2000

100°

2050

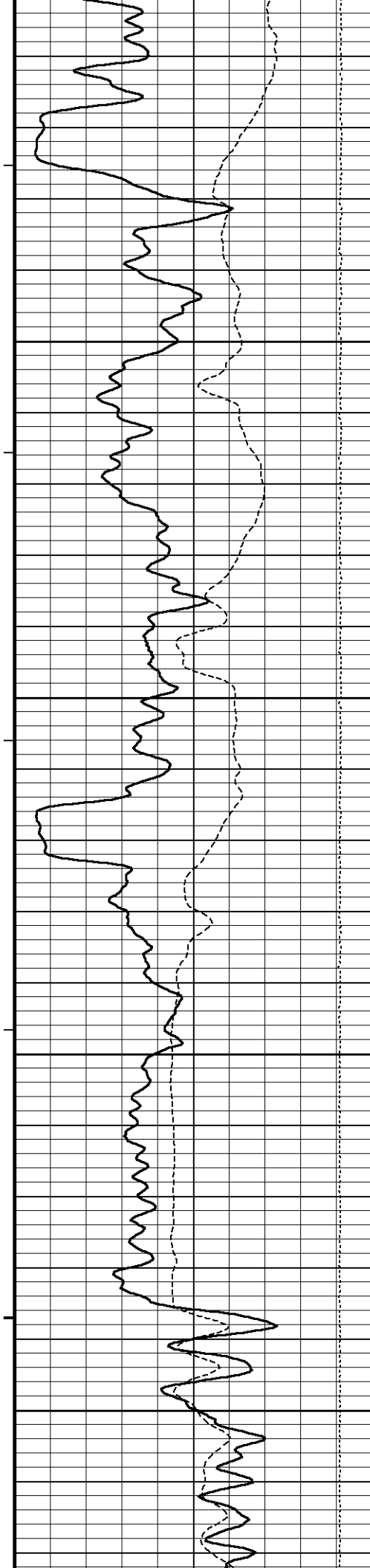


Array Ind. One Res 60

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FEs



100°

2100

100°

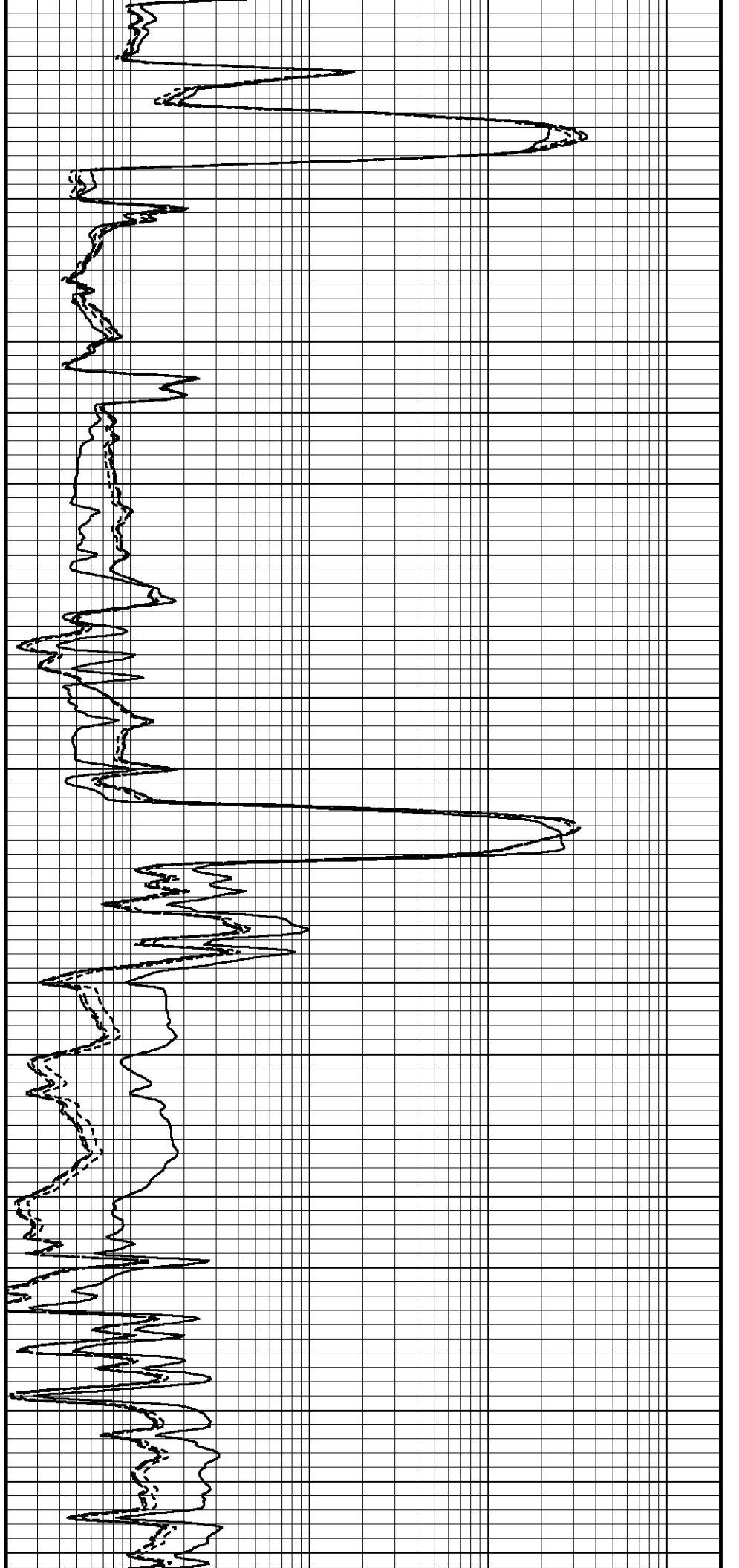
2150

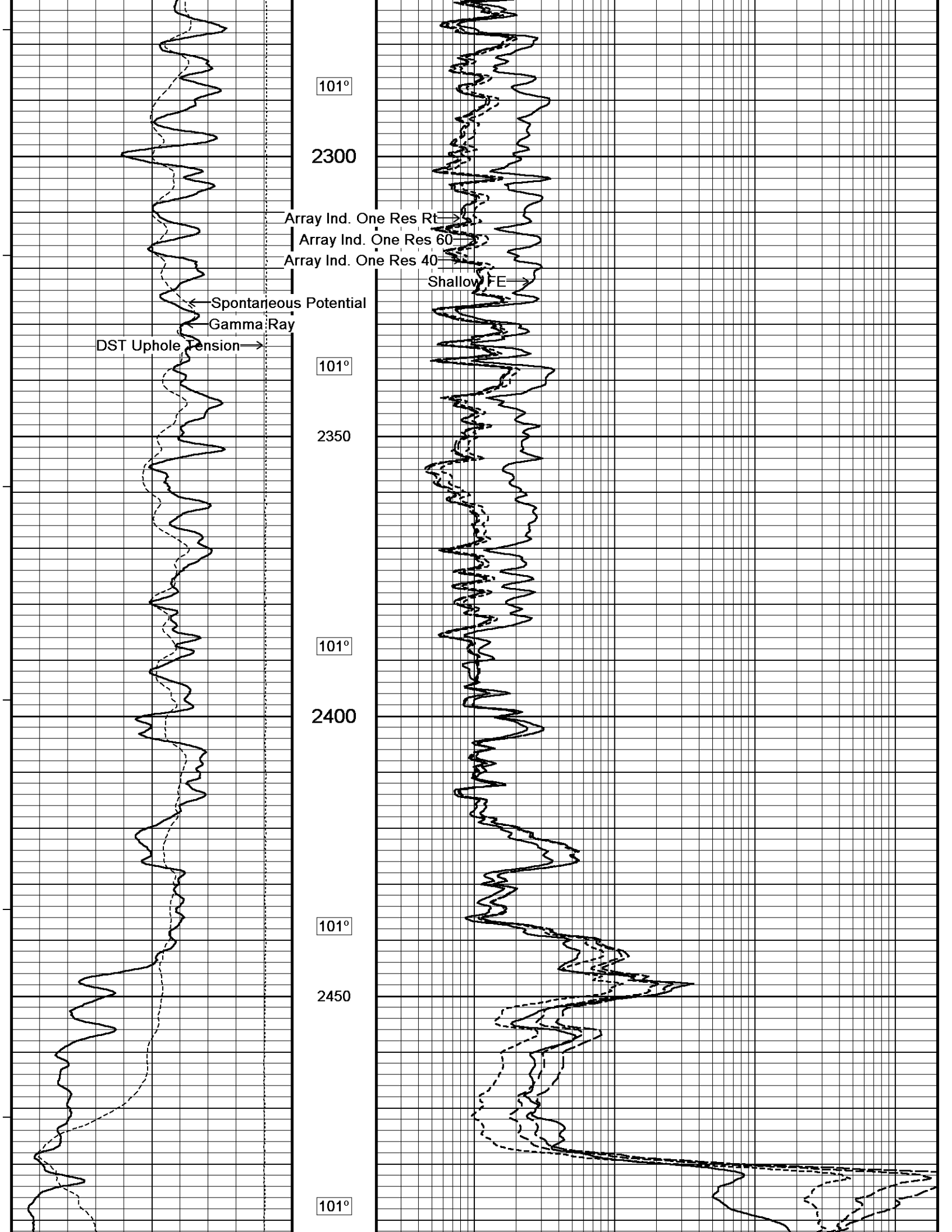
100°

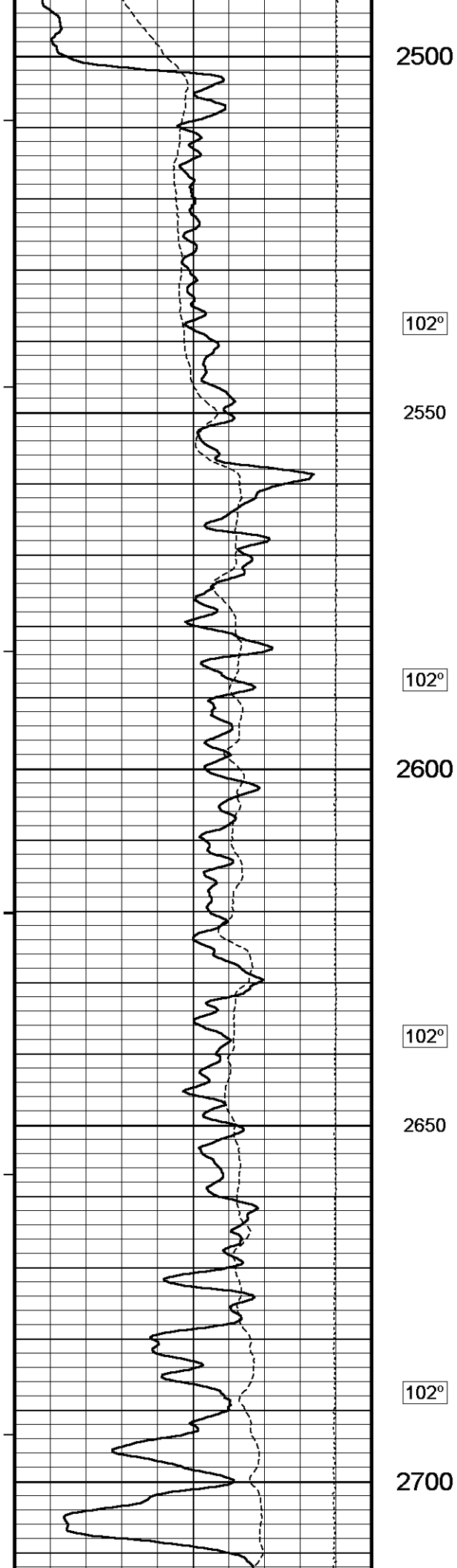
2200

100°

2250







2500

102°

2550

102°

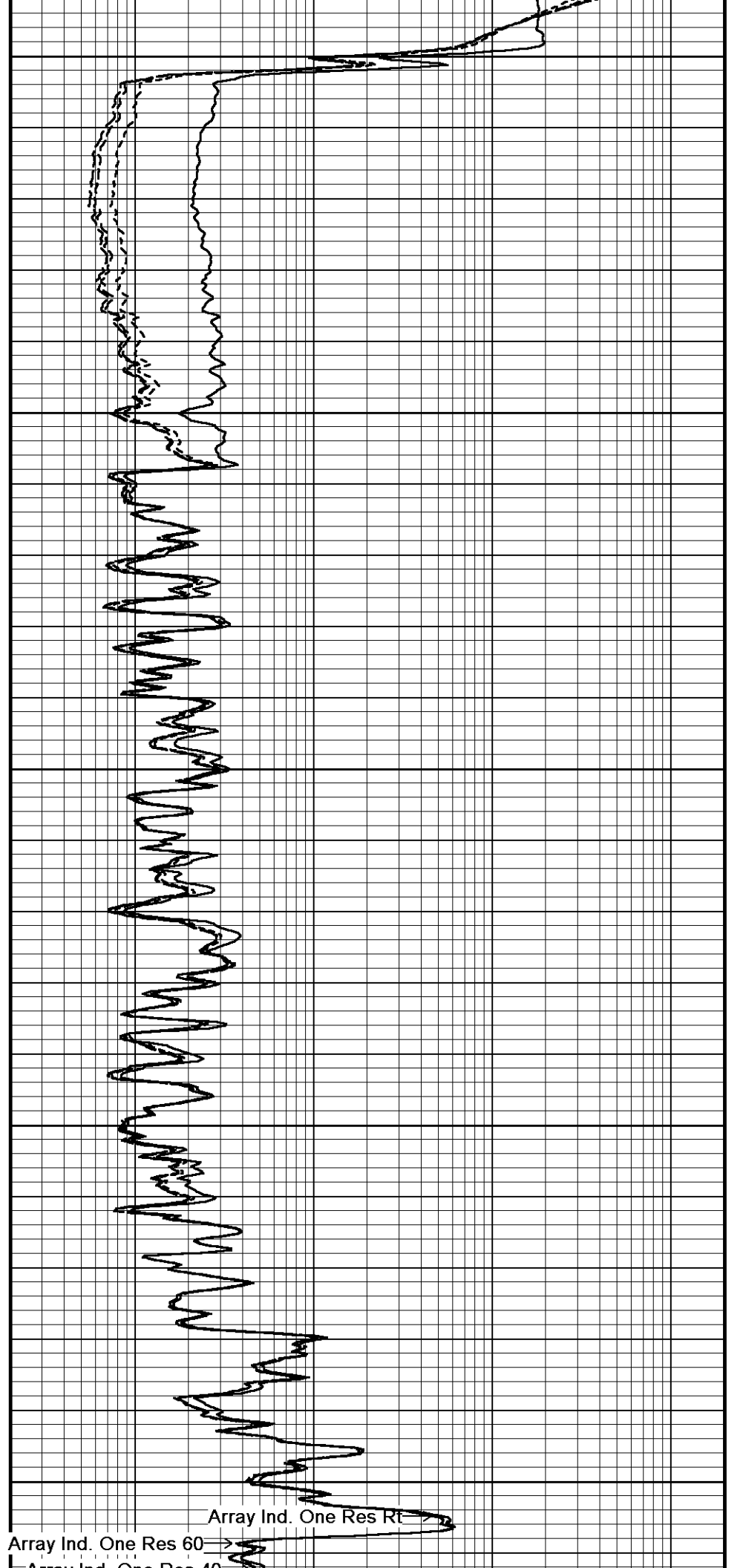
2600

102°

2650

102°

2700



Array Ind. One Res RT

Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 40

Shallow FE-23

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

103°

2750

103°

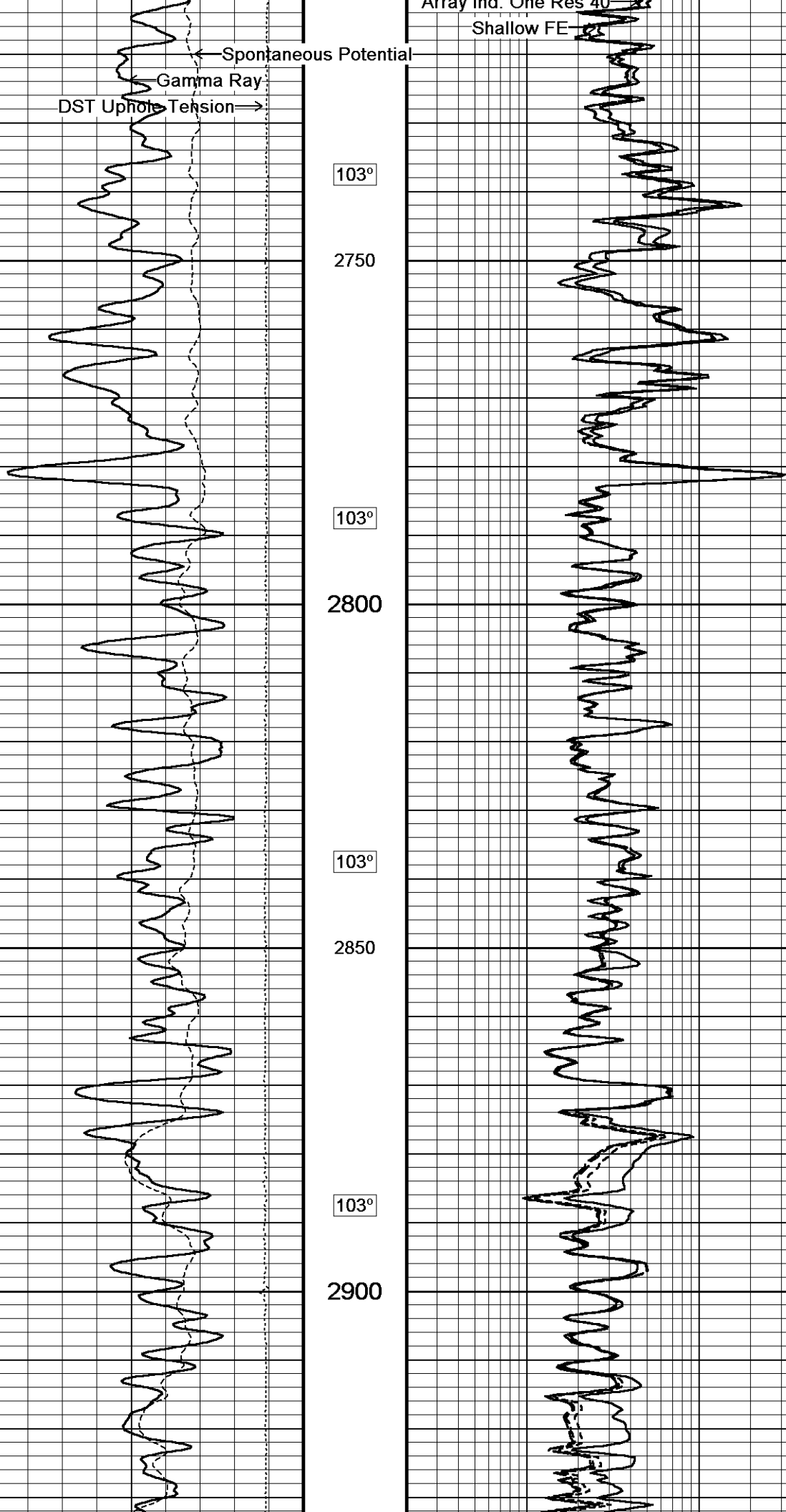
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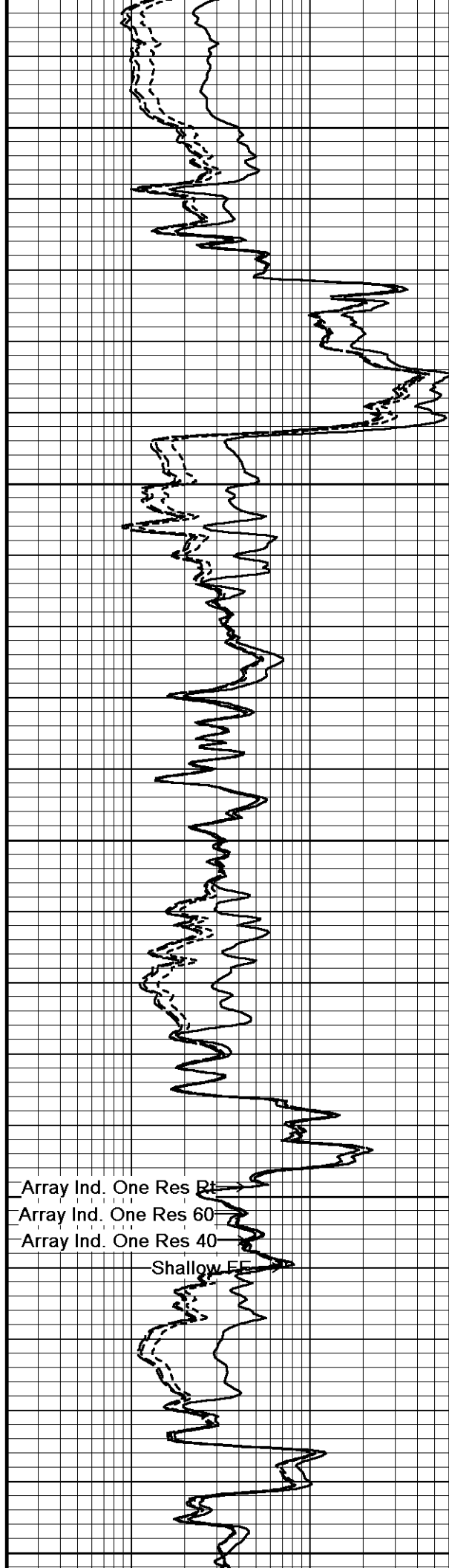
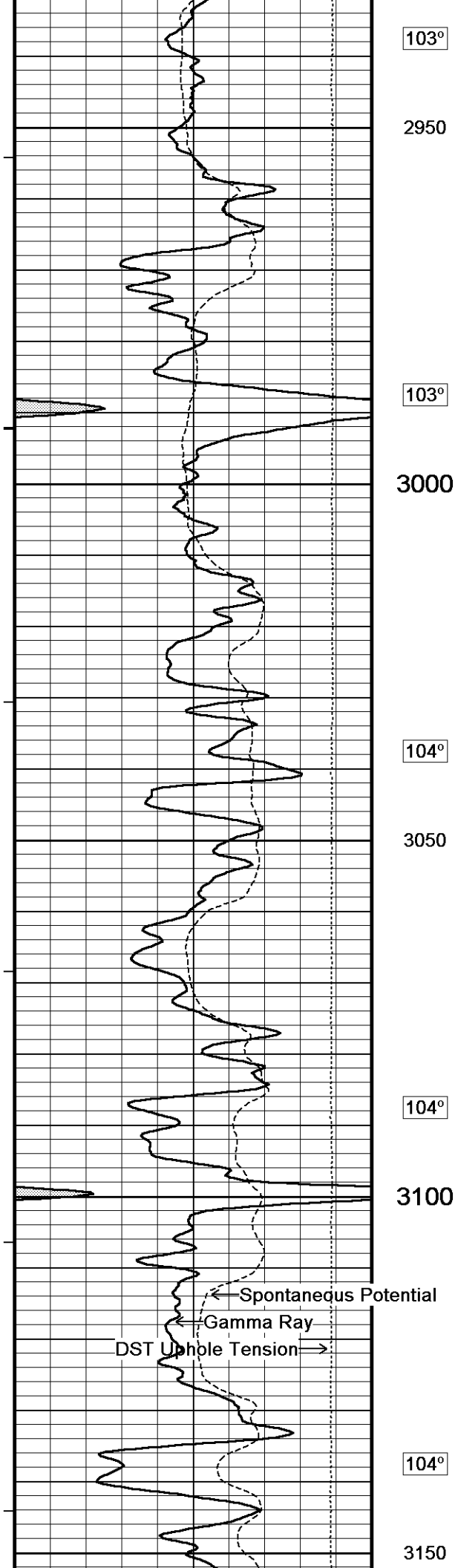
103°

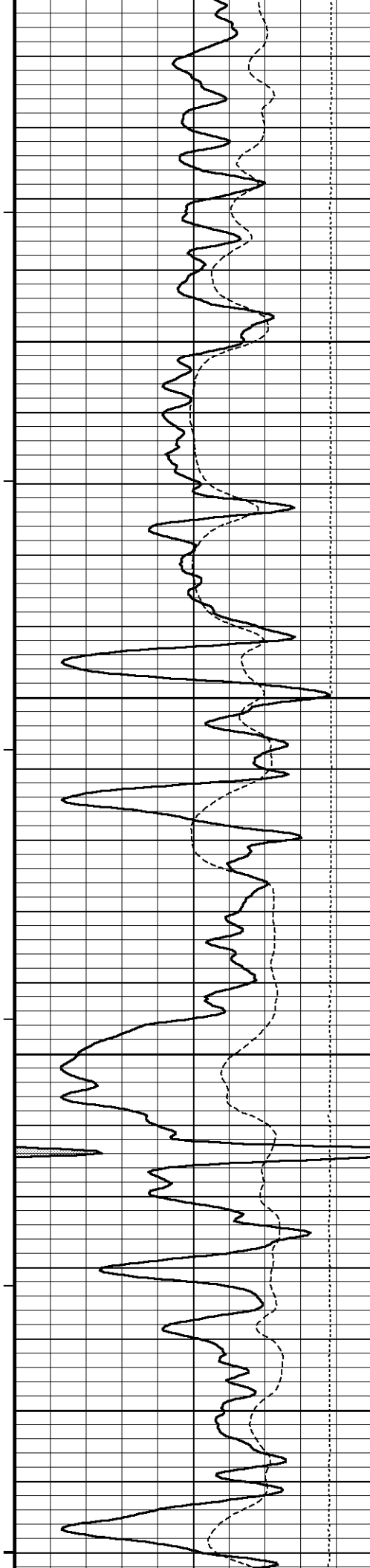
2850

103°

2900







104°

3200

104°

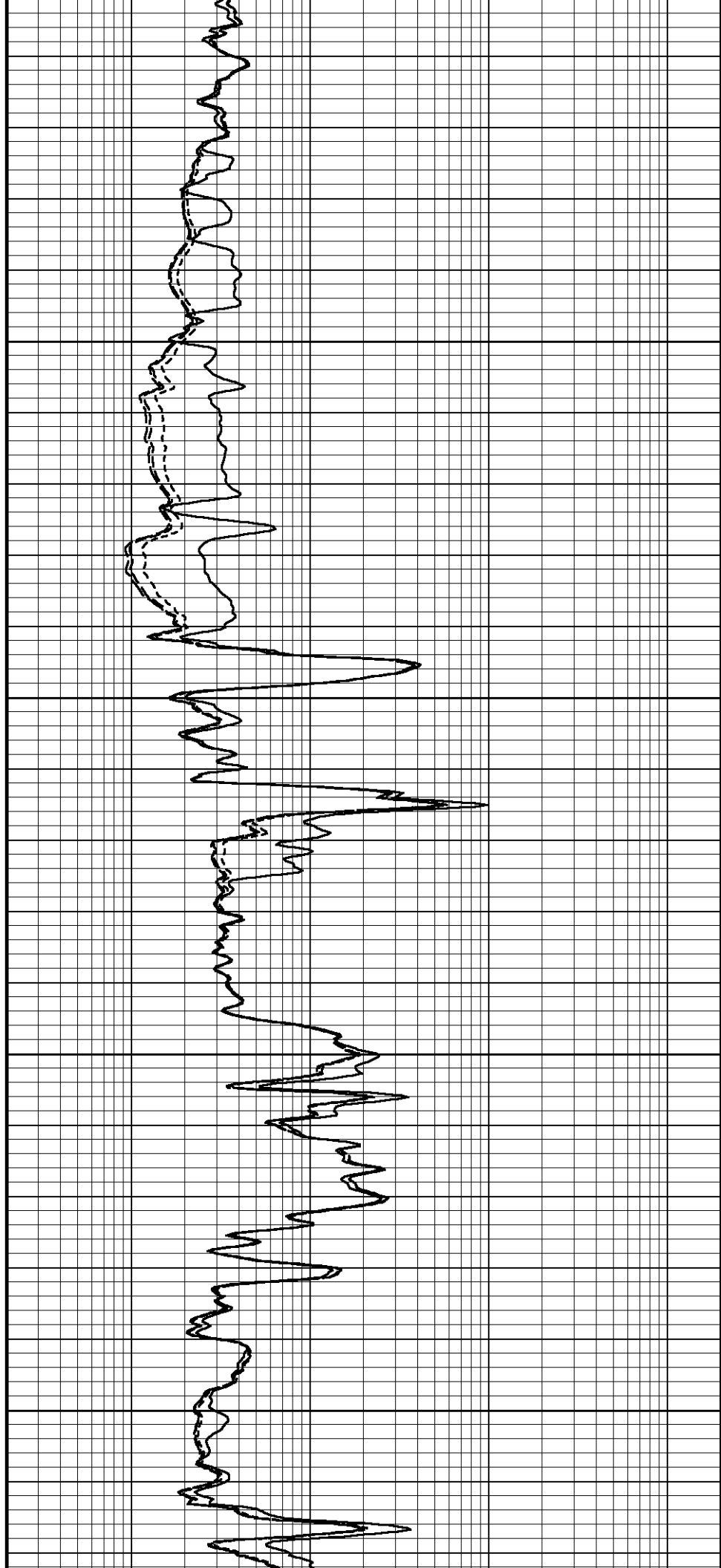
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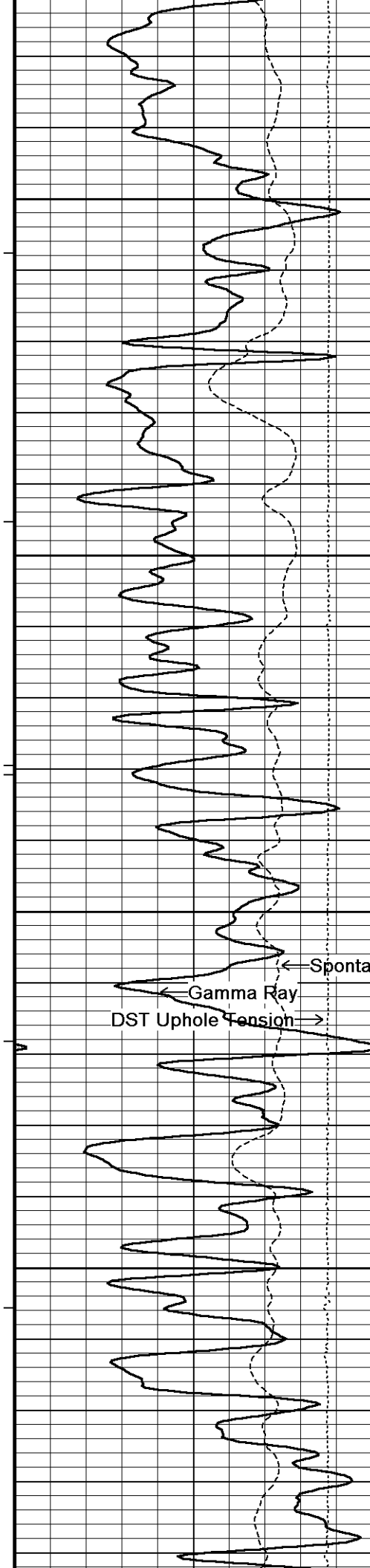
105°

3300

105°

3350





105°

3400

105°

3450

105°

3500

106°

3550

106°

Array Ind. One Res Rt

Array Ind. One Res 60

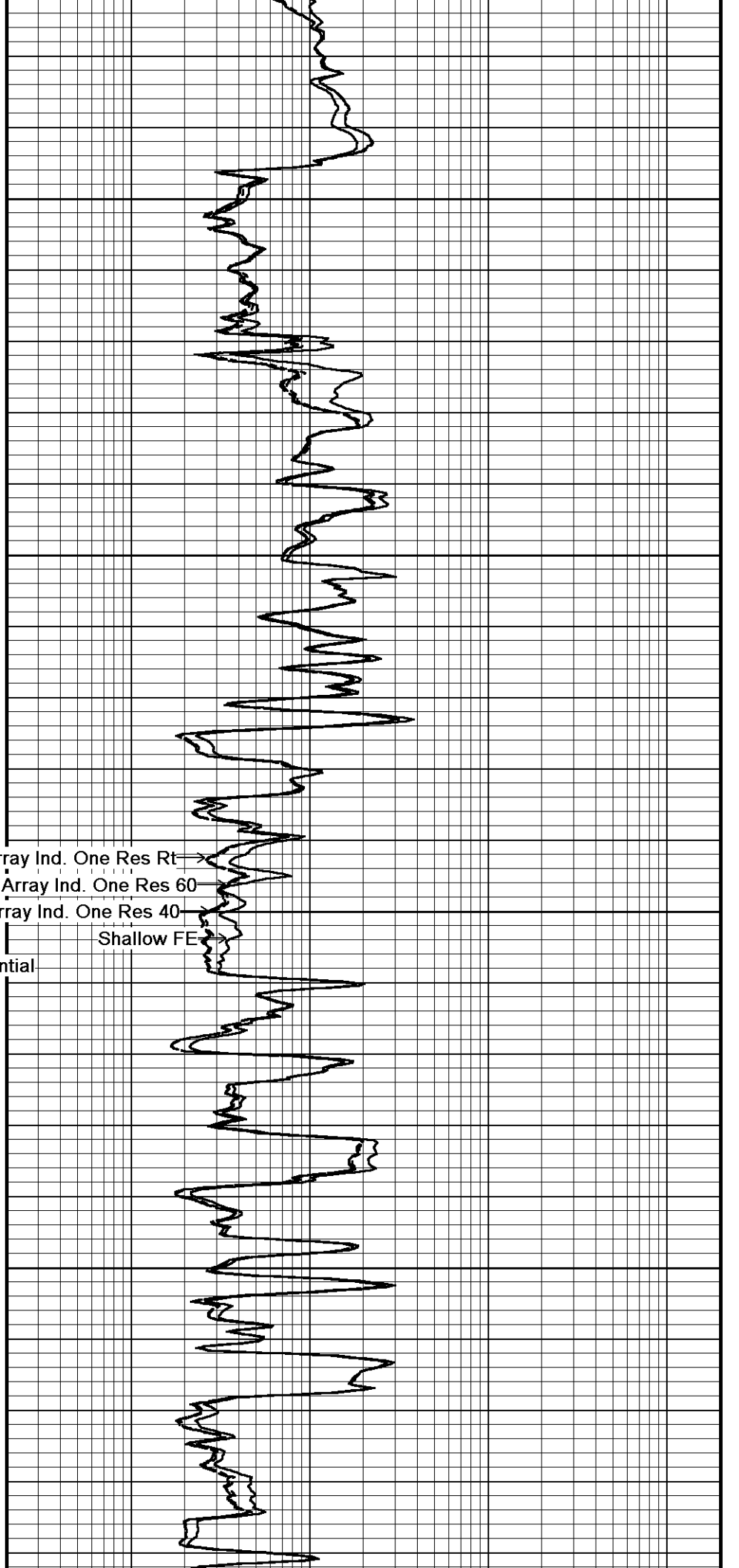
Array Ind. One Res 40

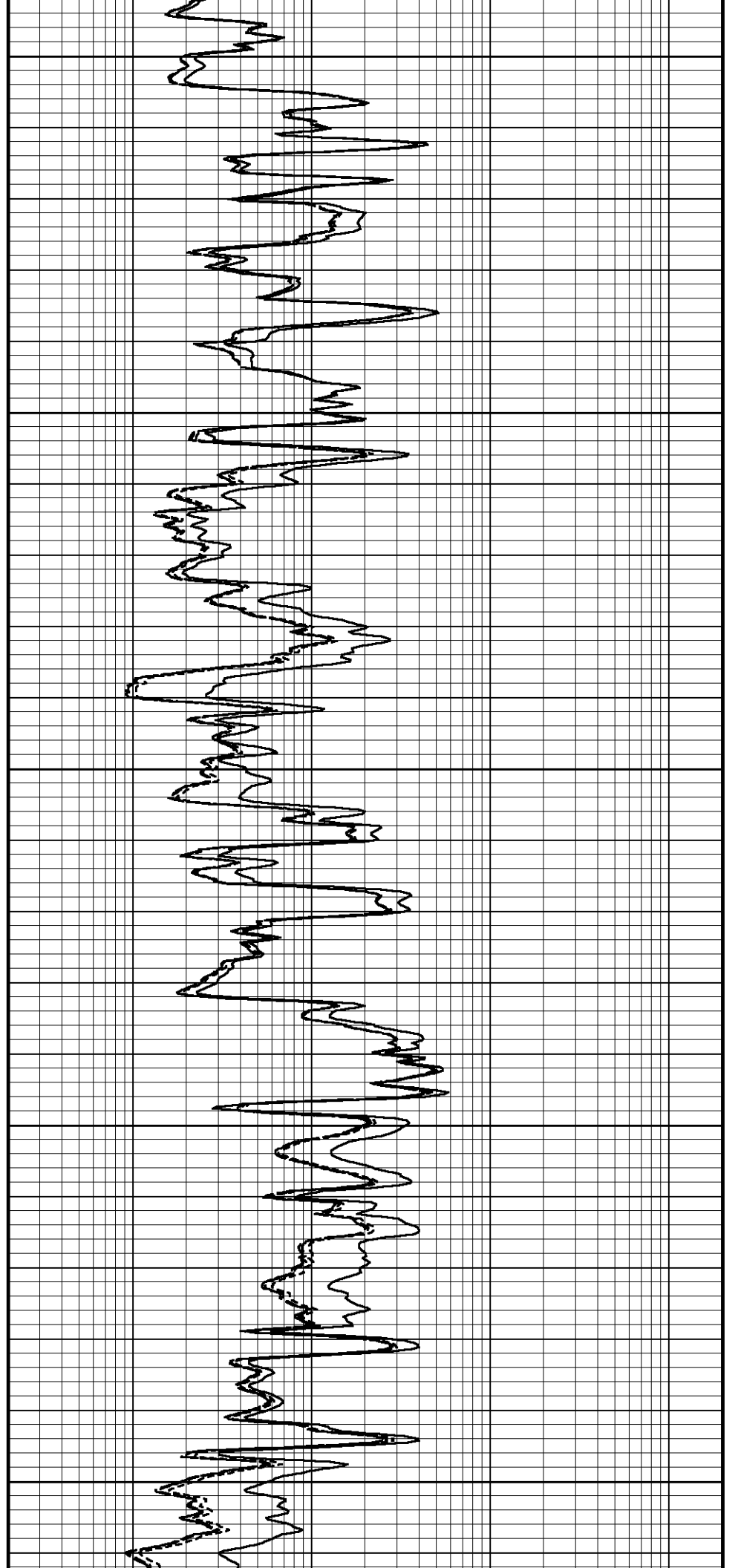
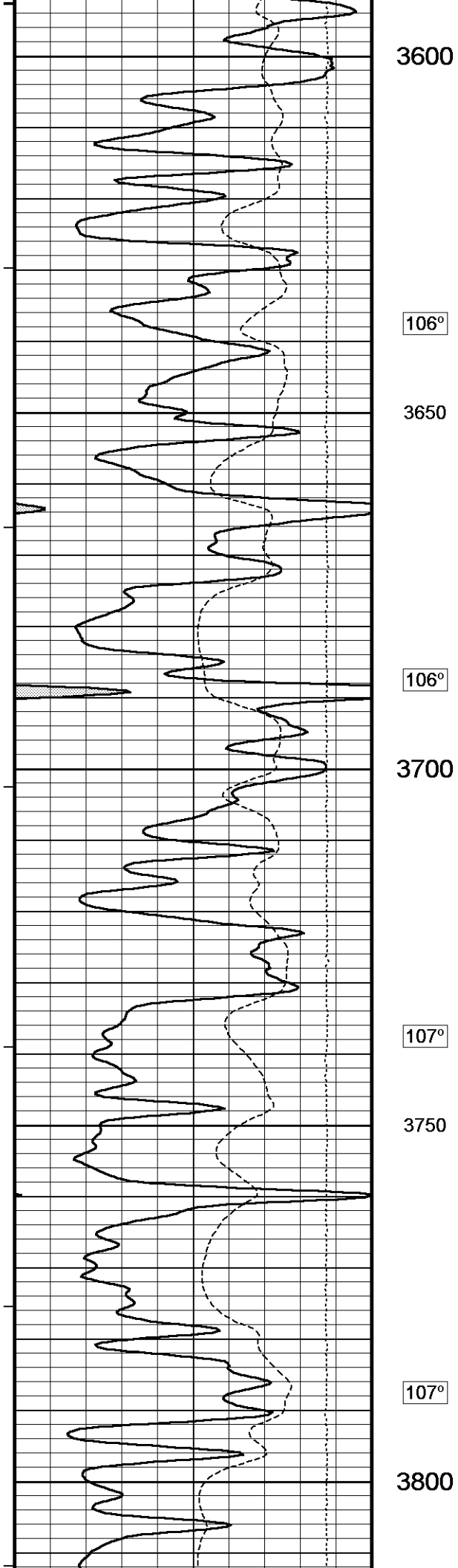
Shallow FE

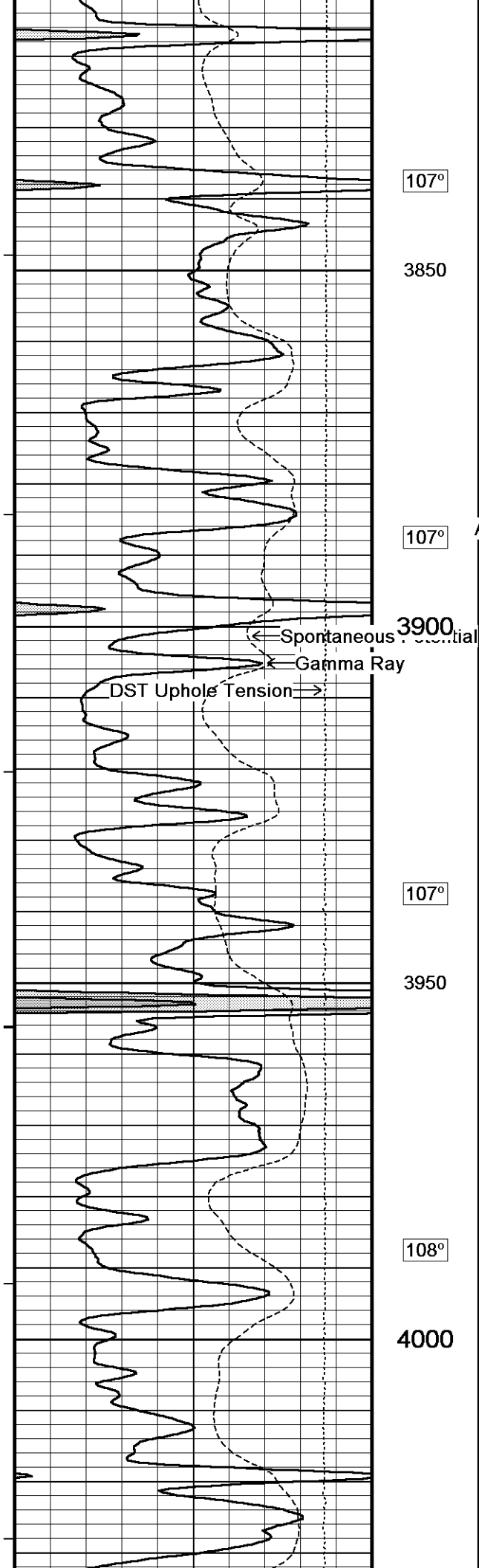
Spontaneous Potential

Gamma Ray

DST Uphole Tension







107°

3850

107°

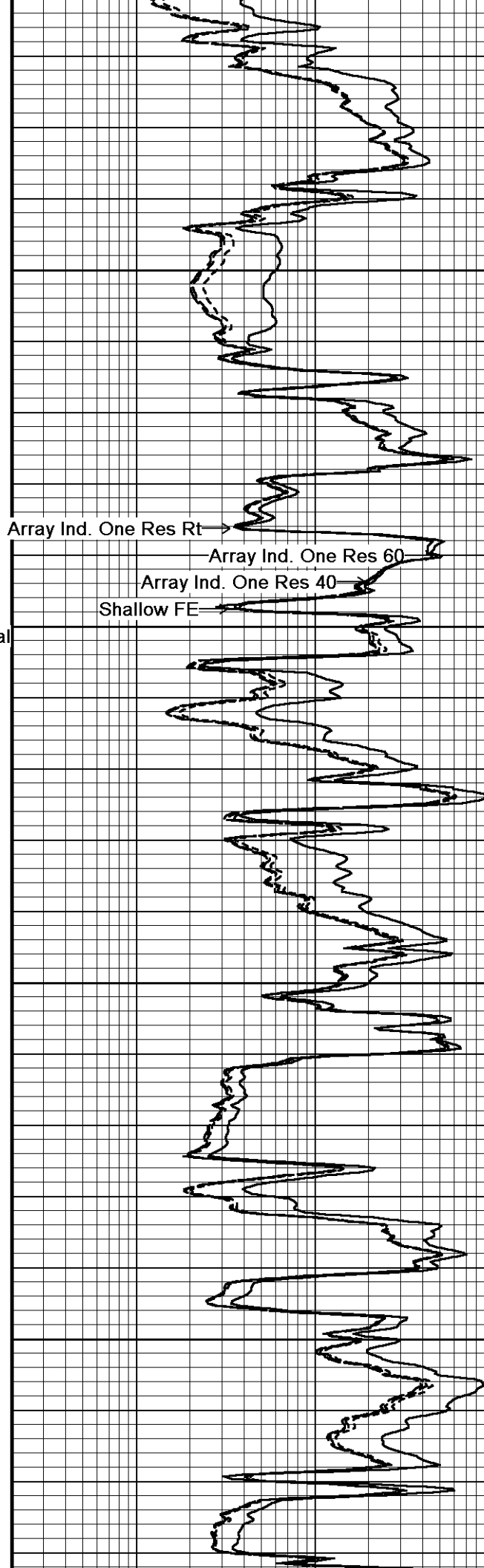
3900

107°

3950

108°

4000

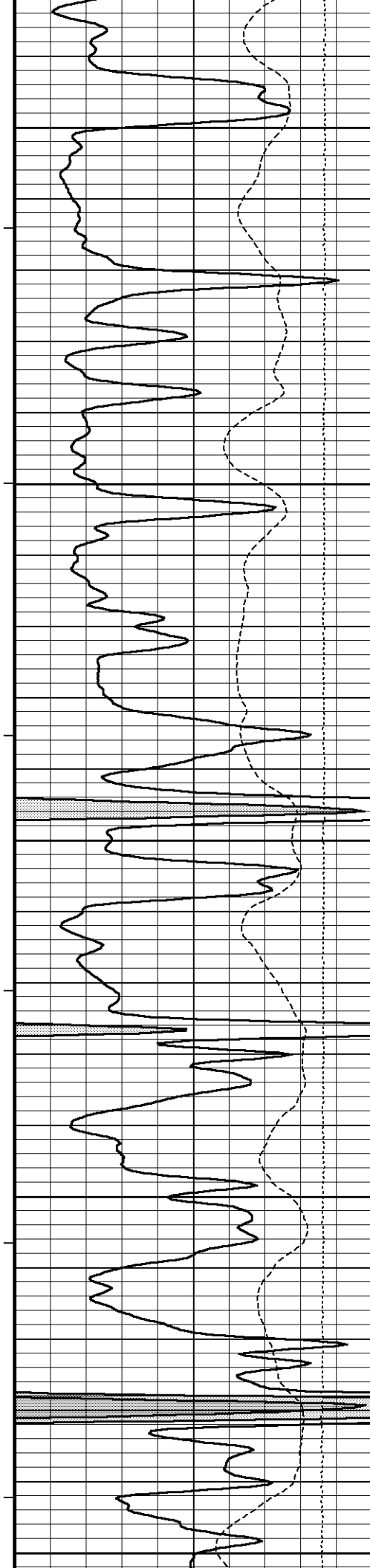


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE



108°

4050

108°

4100

109°

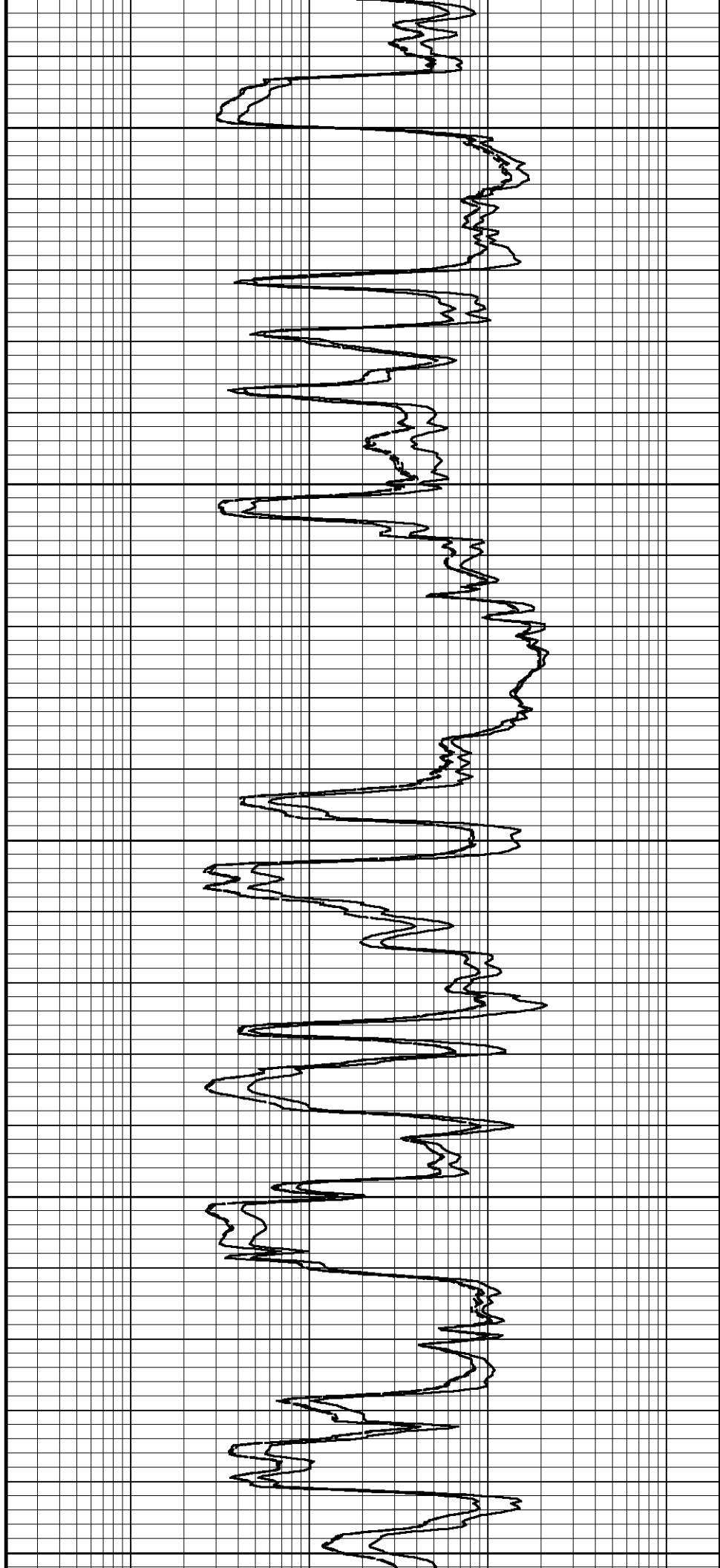
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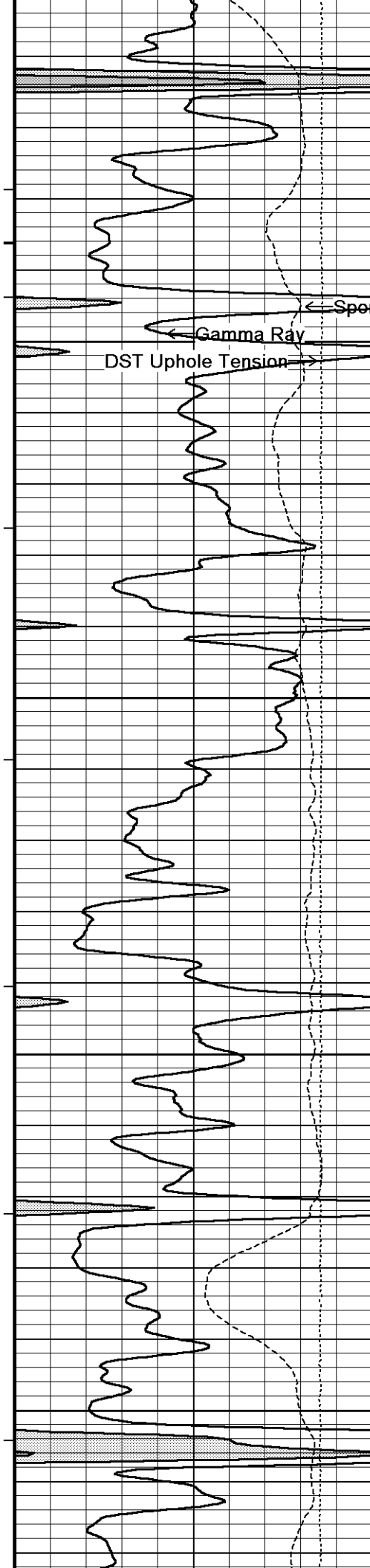
109°

4200

109°

4250





109°

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

4300

109°

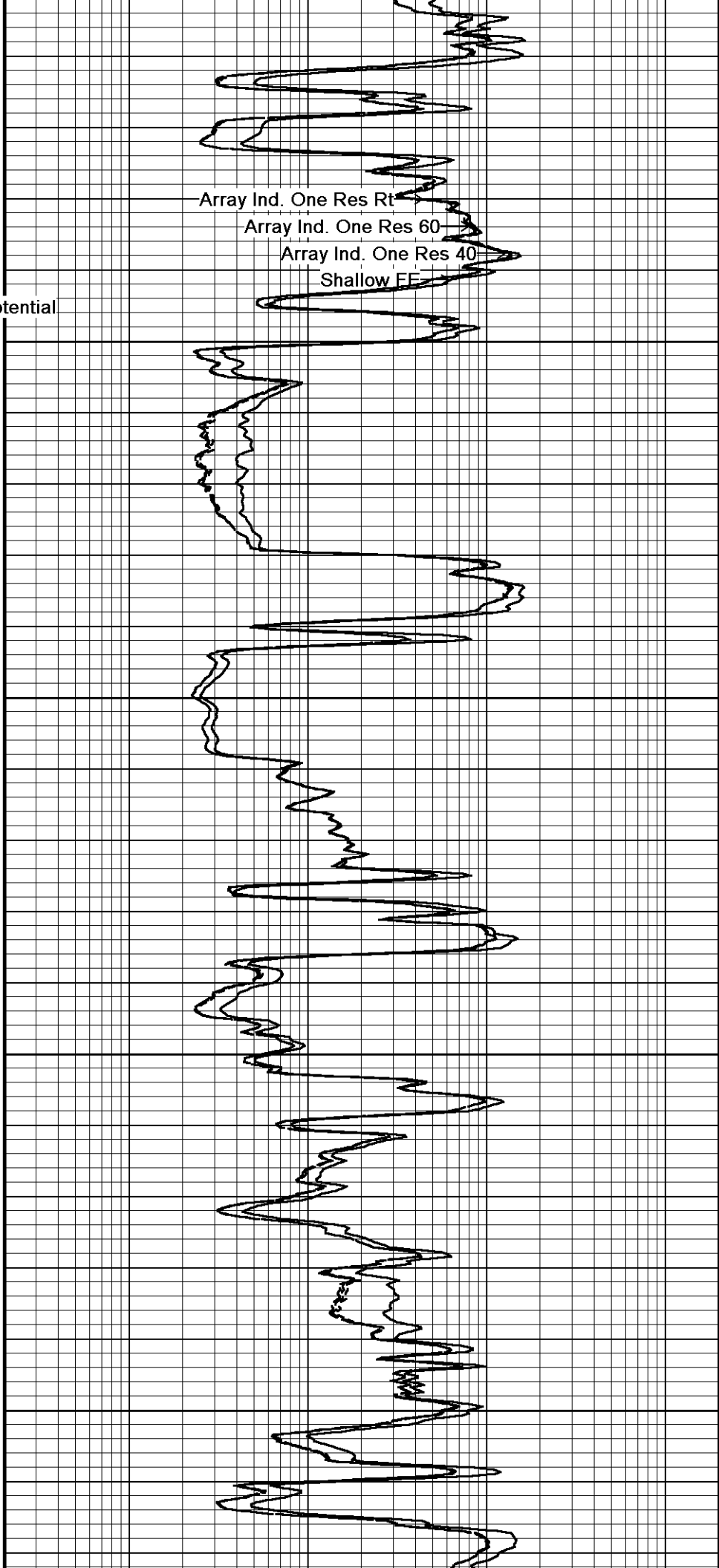
4350

110°

4400

110°

4450

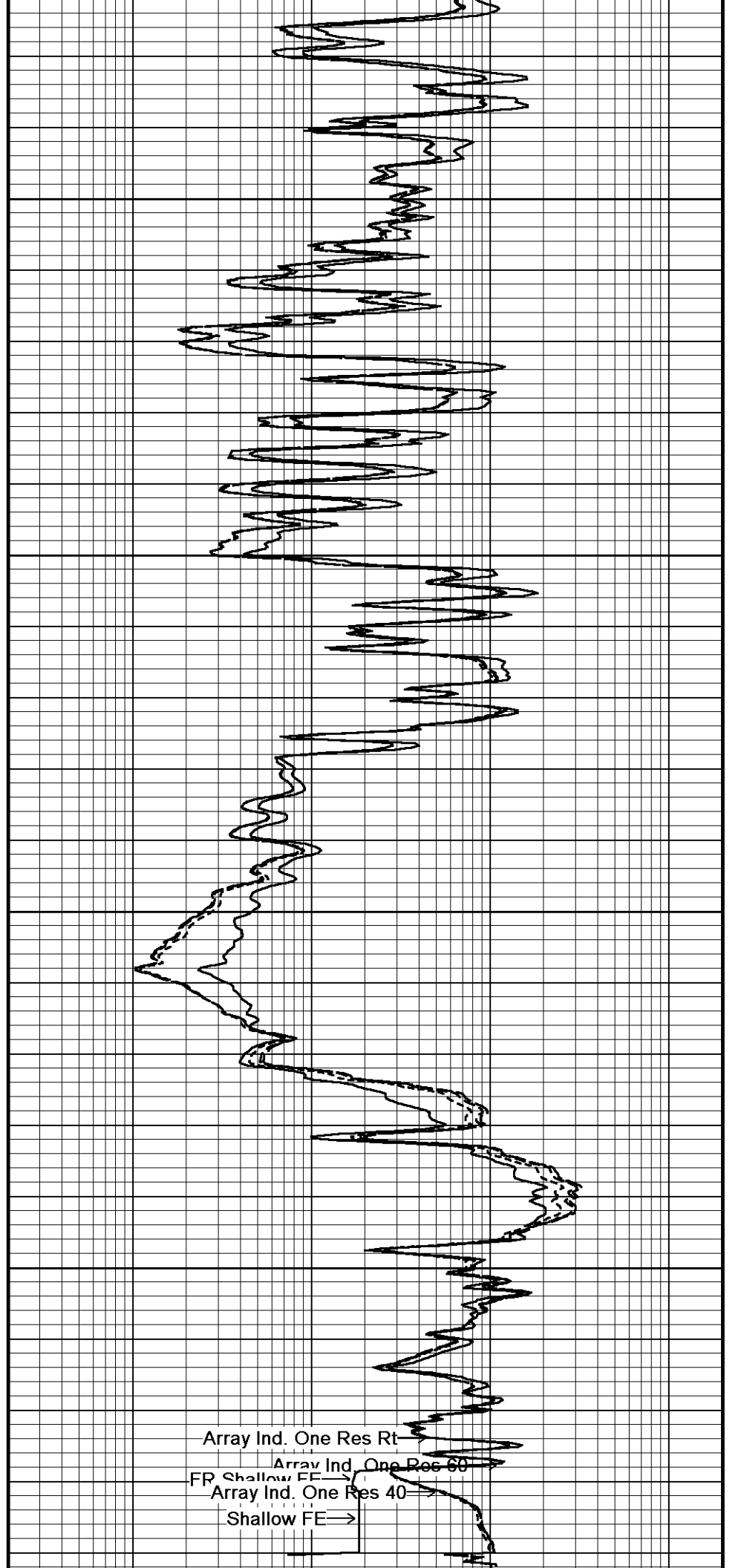
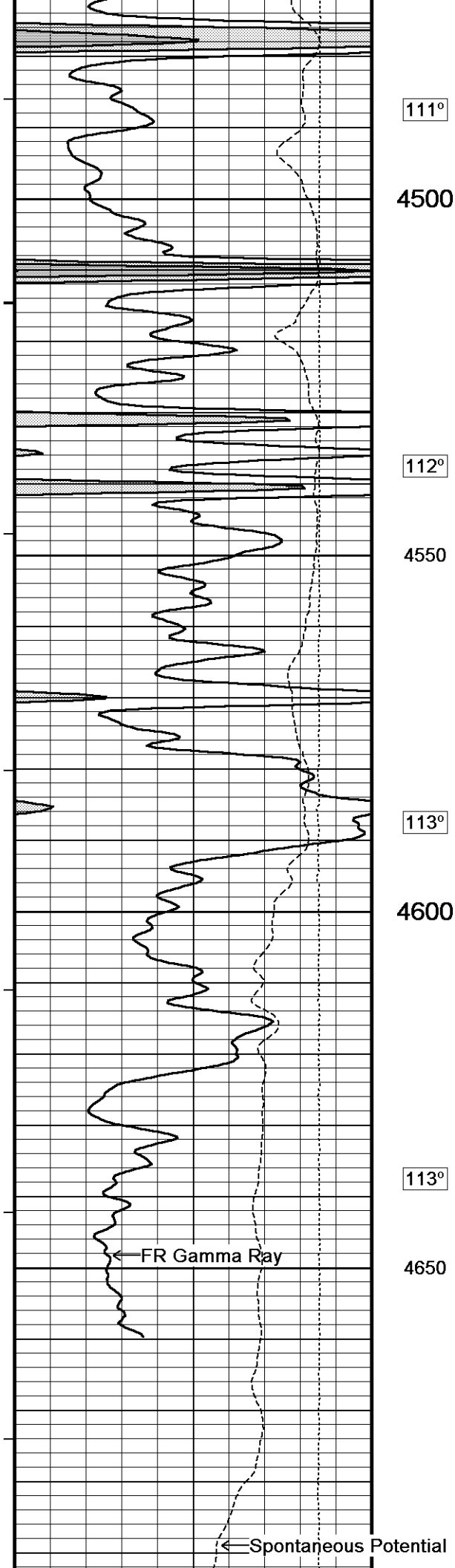


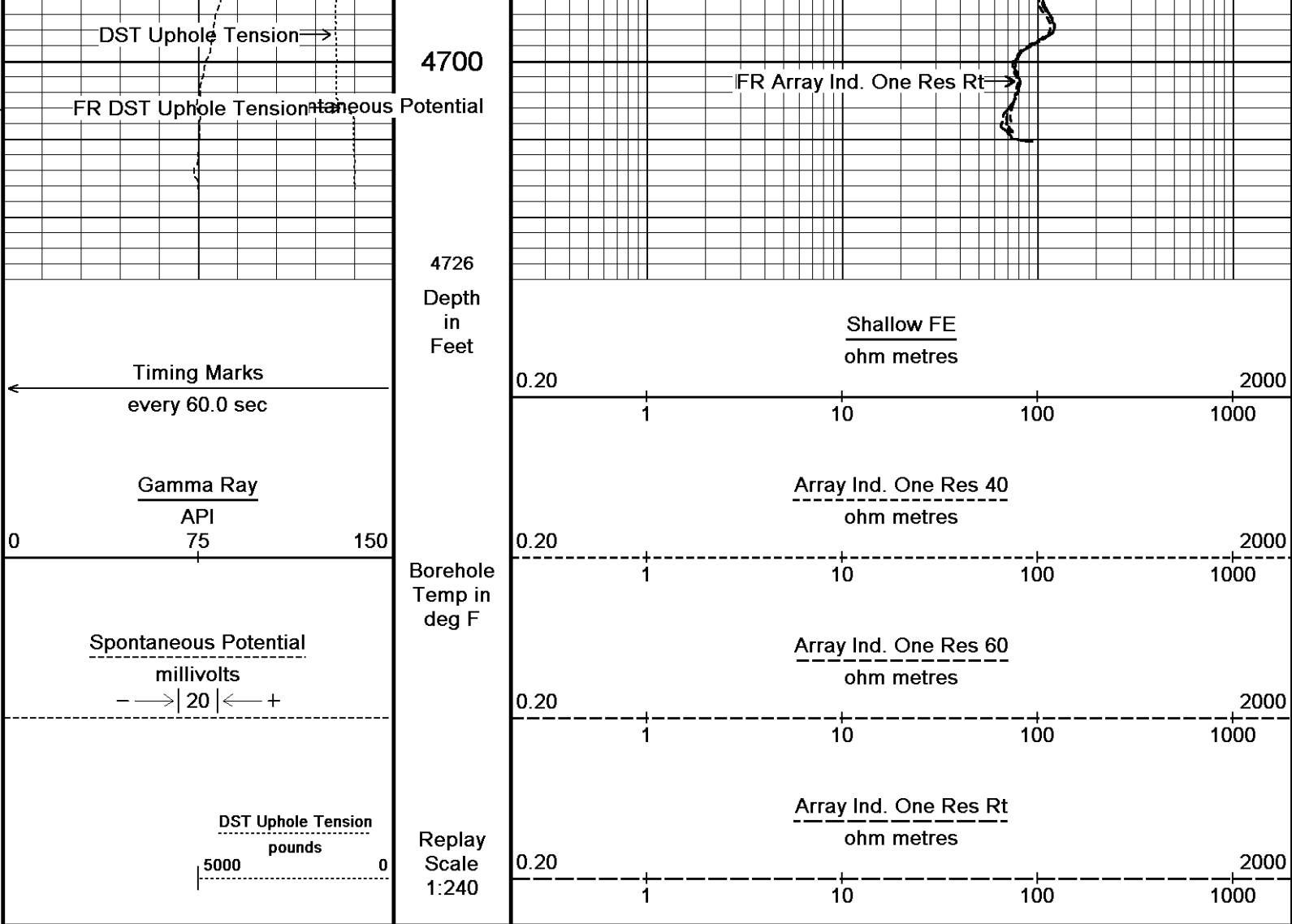
Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FF



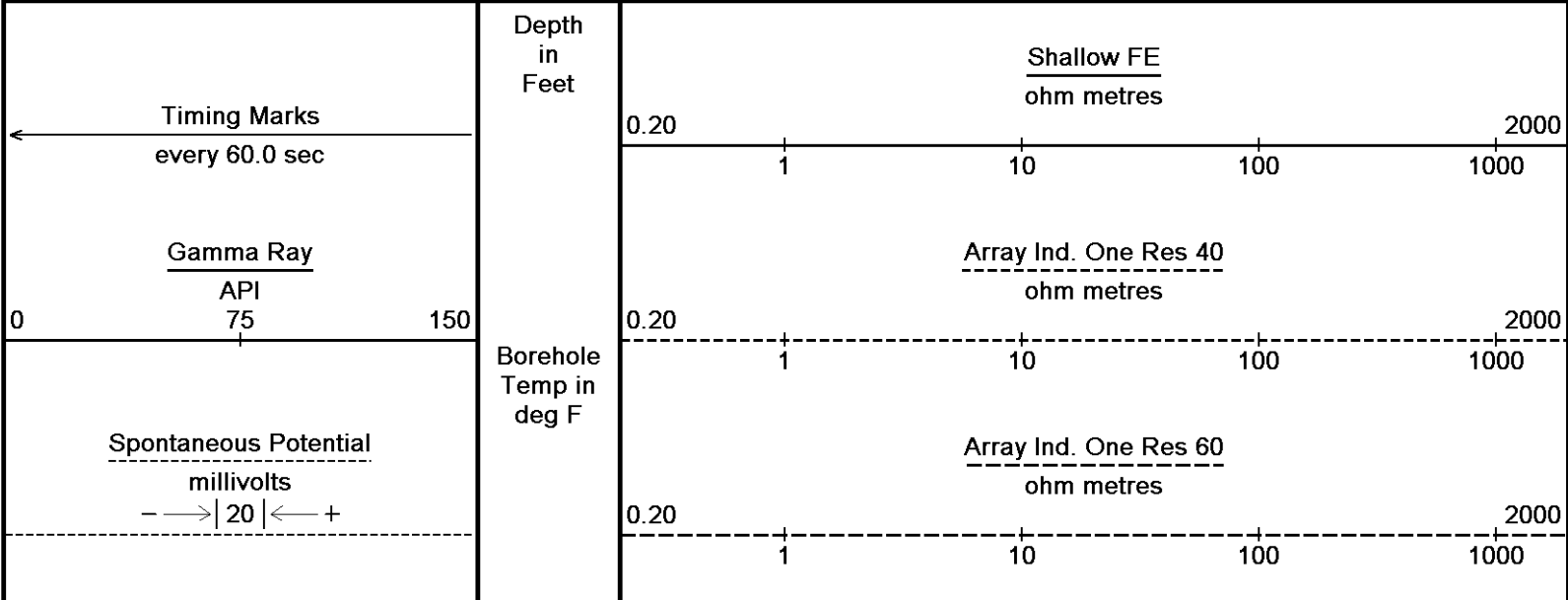


Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 02-MAY-2011 10:36
Filename: C:\Minimus 11.03.2789\Data\Shakespear Frey 3-9\Frey 3-9_002.dta	Recorded on 02-MAY-2011 08:14
System Versions: Logged with 11.03.2789 Plotted with 11.03.2789	

↑	5 INCH MAIN	↑
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↓	REPEAT SECTION	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 02-MAY-2011 10:36
Filename: C:\Minimus 11.03.2789\Data\Shakespear Frey 3-9\Frey 3-9_001.dta	Recorded on 02-MAY-2011 07:53
System Versions: Logged with 11.03.2789 Plotted with 11.03.2789	



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Array Ind. One Res Rt
ohm metres

0.20 1 10 100 1000 2000

4450

109°

4500

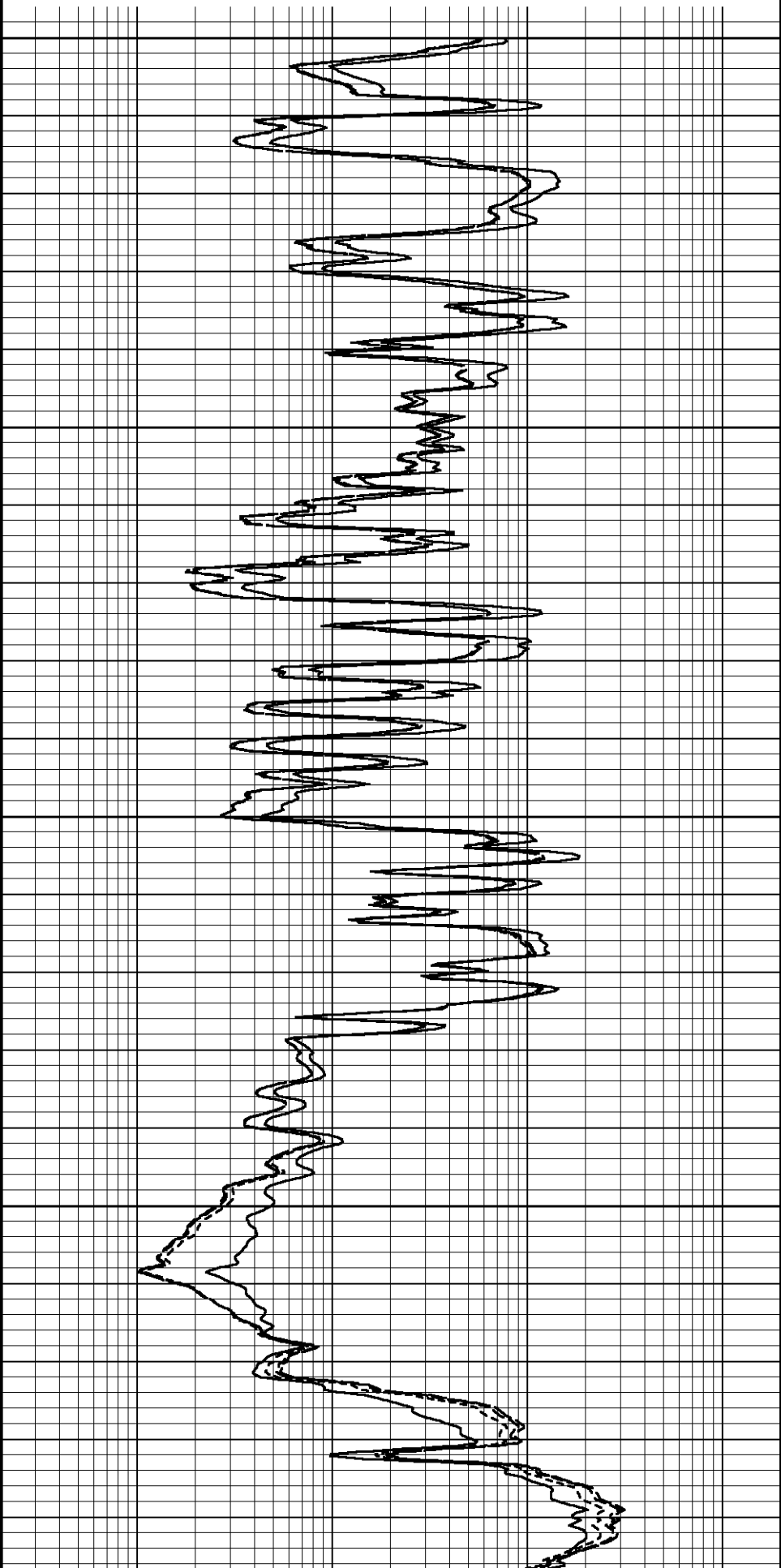
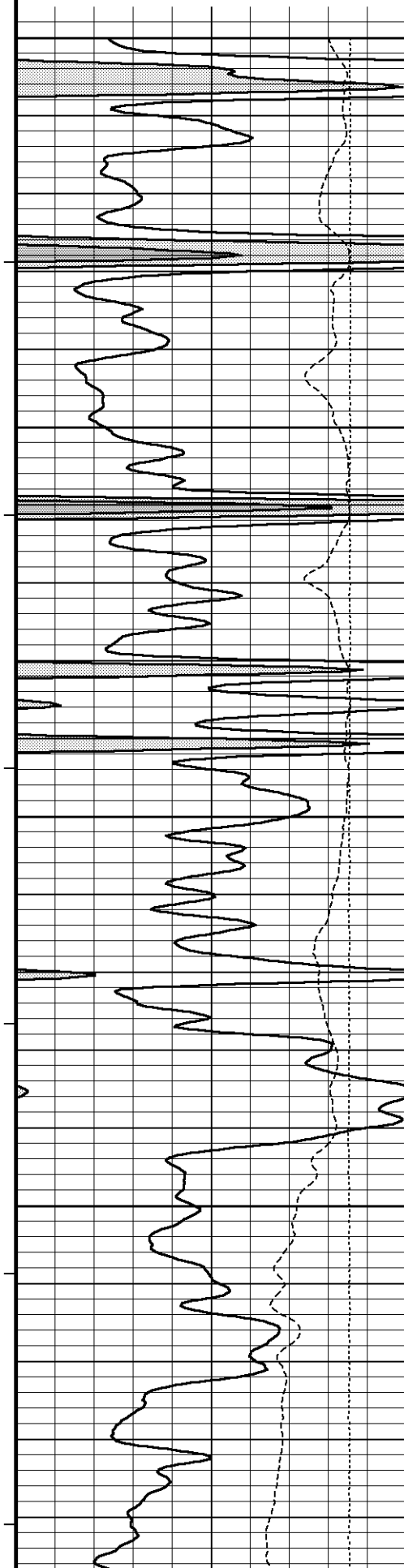
110°

4550

111°

4600

111°



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 All 000		
		Field Calibration on 30-JUN-2010
Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00
Down-hole Tension Calibration SMS 0		
		Field Calibration on 30-JUN-2010
Reading No	Measured	Calibrated (lbs)
1	14112.01	10.00
2	15164.79	427.00
High Resolution Temperature Calibration MCG-C 139		
		Field Calibration on 03-SEP-2010,11:23
	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00
High Resolution Temperature Constants MCG-C 139		
		Last Edited on
Pre-filter Length	11	
SP Calibration MCG-C 139		
		Field Calibration on 04-MAR-2011 06:37
	Measured	Calibrated (mV)
Reference 1	103.7	100.0
Reference 2	-96.9	-100.0
Gamma Calibration MCG-C 139		
		Field Calibration on 25-APR-2011 20:54
	Measured	Calibrated (API)
Background	92	61
Calibrator (Gross)	1187	786
Calibrator (Net)	1095	725
Gamma Constants MCG-C 139		
		Last Edited on 28-APR-2011,22:25
Gamma Calibrator Number	grc38	
Mud Density	1.08	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 16		
		Base Calibration on 11-MAR-2011 11:10
		Field Check on 25-APR-2011 20:38
Base Calibration		
Channel	Resistor 1	Measured Resistor 2
Micro Normal	12.2	60.2
Micro Inverse	15.6	78.3
Channel	Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	2.6	12.8
Micro Inverse	1.7	8.4
Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.1	32.1
Micro Inverse	16.3	16.3
Micro Normal and Micro Inverse Constants MML-A 16		
		Last Edited on 11-APR-2011,09:08
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	0.5110	

Micro Normal K Factor	0.3380	
Micro Inverse K Factor	N/A	inches
Standoff Offset		

Caliper Calibration MML-A 16			Base Calibration on 11-MAR-2011 11:20	
			Field Calibration on 25-APR-2011 20:37	
Base Calibration				
Reading No		Measured	Calibrator Size (in)	
1		13875	5.98	
2		17350	7.97	
3		20581	9.86	
4		24656	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 66				Base Calibration on 11-MAR-2011 13:54	
				Field Check on 25-APR-2011 20:50	
Base Calibration					
		Measured		Calibrated (cps)	
	Near	Far		Near	Far
	3091	97		3714	110
Ratio		31.957		33.764	
Field Calibrator at Base					
				Calibrated (cps)	
				1660	2371
Ratio				0.700	
Field Check					
				Calibrated (cps)	
				1673	2396
Ratio				0.698	

Neutron Constants MDN-A.B 66			Last Edited on 28-APR-2011,22:25		
Neutron Source Id	P58125B				
Neutron Jig Number	5824NE				
Epithermal Neutron	No				
Caliper Source for Processing	Density Caliper				
Stand-off	0.00	inches			
Mud Density	1.08	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			
Formation Fluid Salinity Source	Constant Value				
Formation Fluid Salinity	0.00	kppm			
Barite Mud Correction	Not Applied				

FE Calibration MFE-A.A 52			Base Calibration on 11-MAR-2011 10:55	
			Field Check on 25-APR-2011 20:34	
Base Calibration				
	Measured		Calibrated (ohm-m)	
Reference 1	0.0		0.0	
Reference 2	965.7		126.8	
Base Check			279.9	
Field Check			279.9	

FE Constants MFE-A.A 52			Last Edited on 28-APR-2011,22:25		
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 126

Last Edited on 11-APR-2011,08:33

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)	Depth (ft)
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00

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
Sonic 2 Despiker	N/A

High Resolution Temperature Calibration MAI-A.A 167

Field Calibration on 17-JAN-2011,18:32

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.80

High Resolution Temperature Constants MAI-A.A 167

Last Edited on

Pre-filter Length	11
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Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.3	474.2	9.3	966.2
2	6.3	388.4	7.6	821.4
3	3.3	259.4	5.2	566.0
4	1.9	133.0	2.6	279.2

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	12.0	3842.1
2	0.0	0.0	29.3	3480.2
3	0.0	0.0	28.9	3055.9
4	0.0	0.0	19.7	2083.5
Deep	0.0	0.0	18.4	2050.7
Medium	0.0	0.0	42.1	3995.2
Shallow	0.0	0.0	42.5	5059.1

Array Temperature 0.0 57.8 Deg F

Induction Constants MAI-A.A 167

Last Edited on 24-APR-2011,22:39

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	

Caliper Calibration MPD-B 35

Base Calibration on 11-MAR-2011 11:34

Field Calibration on 25-APR-2011 20:40

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17936	3.99
2	28079	5.98
3	38384	7.97
4	48048	9.86

4	48048	9.80
5	59047	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.02	5.98

Photo Density Calibration MPD-B 35

Base Calibration on 11-MAR-2011 11:54
Field Check on 25-APR-2011 20:44

Density Calibration Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	57876	27553	59556	30836
Reference 2	23524	2615	24941	2541

Field Check at Base

1175.2	1398.5
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Field Check

1171.2	1390.3
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PE Calibration

Base Calibration

	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	211	1039		
Reference 1	21426	57673	0.375	0.371
Reference 2	6234	23377	0.270	0.272

Field Check at Base

211.2	1039.0
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Field Check

210.1	1035.0
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Density Constants MPD-B 35

Last Edited on 02-MAY-2011,06:38

Density Source Id	p50557b
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	1.13 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
0.00	0.00

DOWNHOLE EQUIPMENT

C:\Minimus 11.03.2789\Data\Shakespeare Frey 3-9\Frey 3-9.dta

Compact Comms Gamma
MCG-C 139 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



57.56 ft
54.65 ft

GRGC - Gamma Ray
CGXT - MCG External Temperature

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

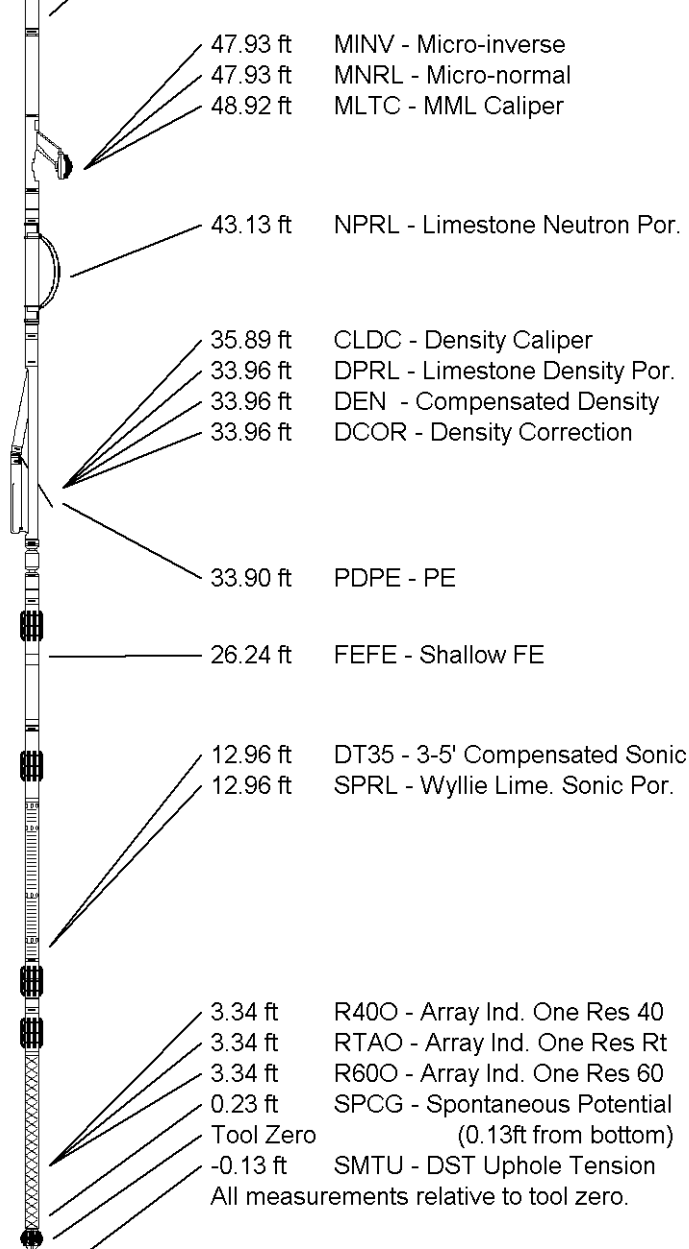
SKJ-D.A Compact Knuckle Joint
SKJ-D.A 36 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 52 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.84 ft Weight: 480.6 lb



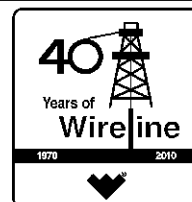
COMPANY SHAKESPEARE OIL COMPANY, INC.
WELL FREY 3-9
FIELD STRATFORD WEST
PROVINCE/COUNTY LOGAN
COUNTRY/STATE U.S.A./KANSAS

Elevation Kelly Bushing	2999.00	feet	First Reading	4703.00	feet
Elevation Drill Floor	2997.00	feet	Depth Driller	4710.00	feet
Elevation Ground Level	2989.00	feet	Depth Logger	4706.00	feet



Weatherford®

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG



Weatherford		SHA	FRE	STR	LOG	U.S.	SE/A
COMPANY		SHA	FRE	STR	LOG	U.S.	SE/A
WELL							
PROVINCE/COUNTY							
COUNTRY/STATE							
LOCATION							
SEC							
TWP							
R							
Permit Number	15-09-20983						
Permanent Datum (G.L., Elevall							
Log Measured From (K.B. @ 10							
Drilling Measured From (K.B.							
Date							
Run Number							
Depth Driller							
Depth Logger							
First Reading							
Last Reading							
Casing Driller							
Casing Logger							
Bit Size							
Hole Fluid Type							
Density/Viscosity							
PH/Fluid Loss							
Sample Source							
Rm @ Measured Temp							
Rmt @ Measured Temp							
Rmtc @ Measured Temp							
Source Rmt/ Rmtc							
Rm @ BHT							
Time Since Circulation							
Max Recorded Temp							
Equipment Name							
Equipment Base							
Recorded by							
Witnessed by							
CO #0067							

KESPEARE OIL COMPANY, INC.					
Y 3-9					
WATFORD WEST					
KAN					
A,KANSAS					
P FSL & 1000' FEL					
on 2899 feet					
FEET above Permanent Datum					
DNE					
7170.00	feet				
7170.00	feet				
7170.00	feet				
7170.00	feet				
724.00	feet				
724.00	feet				
724.00	feet				
724.00	feet				
875	Inches				
CHEMICAL					
IDU/Sg	67.00 CP				
50	mi/30min				
LOWLINE					
1.25 @ 75.0	ohmm				
1.0 @ 75.0	ohmm				
1.50 @ 75.0	ohmm				
CALC	CALC				
30.83 @ 113.0	ohmm				
1 hours					
deg F					
COMPACT					
LIB					
T TOTTEY					
STEIN DAVIS					
52539184					
LEI11-087					

40
inches
Warning
↓

Feet:
2899.00
2897.00
2895.00

HB
DF
DL

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY	SHAKESPEARE OIL COMPANY, INC.
WELL	FREY 3-9
FIELD	STRATFORD WEST

PROVINCE/COUNTY			LOGAN		
COUNTRY/STATE			U.S.A./KANSAS		
Elevation Kelly Bushing	2999.00	feet	First Reading	4703.00	feet
Elevation Drill Floor	2997.00	feet	Depth Driller	4710.00	feet
Elevation Ground Level	2989.00	feet	Depth Logger	4706.00	feet
			ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG 		