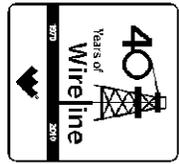




Weatherford[®]

**ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG**

COMPANY GRAND MESA OPERATING COMPANY, INC
WELL SMITH #1-34
FIELD WILDCAT
PROVINCE/COUNTY LOGAN
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 1896' FNL & 2374' FWL



SEC 34 TWP 12S RGE 32W Other Services MPD/MDN MML
API Number 15-109-20959
Permit Number

Permanent Datum G.L., Elevation 2978 feet
Log Measured From K.B. @ 5 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations: feet
KB 2983.00
DF 2982.00
GL 2978.00

Date	18-NOV-2010
Run Number	ONE
Depth Driller	4670.00 feet
Depth Logger	4667.00 feet
First Reading	4664.00 feet
Last Reading	209.00 feet
Casing Driller	209.00 feet
Casing Logger	209.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.30 lb/USg 62.00 CP
PH / Fluid Loss	10.00 8.00 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	1.59 @ 77.0 ohm-m
Rmf @ Measured Temp	1.27 @ 77.0 ohm-m
Rmc @ Measured Temp	1.91 @ 77.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	1.09 @ 112.0 ohm-m
Time Since Circulation	4 HOURS
Max Recorded Temp	112.00 deg F
Equipment Name	COMPACT
Equipment / Base	13096 LIB
Recorded By	LYNN SCOTT
Witnessed By	STEVE STRIBLING
S.O.# / JOB#	3524623 LB10-291

BOREHOLE RECORD			Last Edited: 18-NOV-2010 11:20
Bit Size inches	Depth From feet	Depth To feet	
7.875	209.00	4667.00	

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	209.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
 Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
 2.71 G/CC Limestone density matrix used to calculate porosity.
 Borhole 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=183 cu. ft.
 Service order #3524623
 Rig: Murfin #24
 Engineer: L. Scott
 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.

2 Inch Main Pass

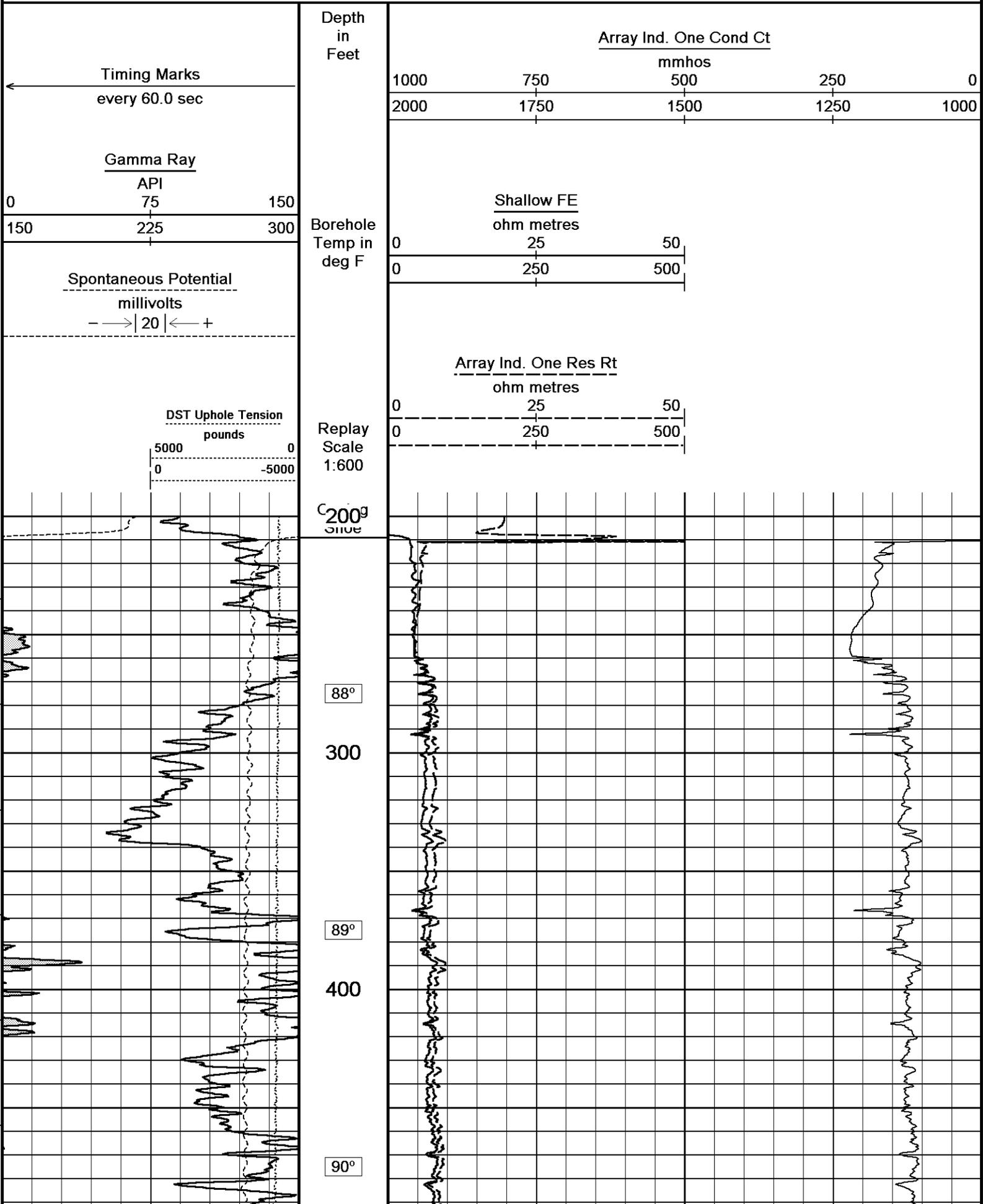
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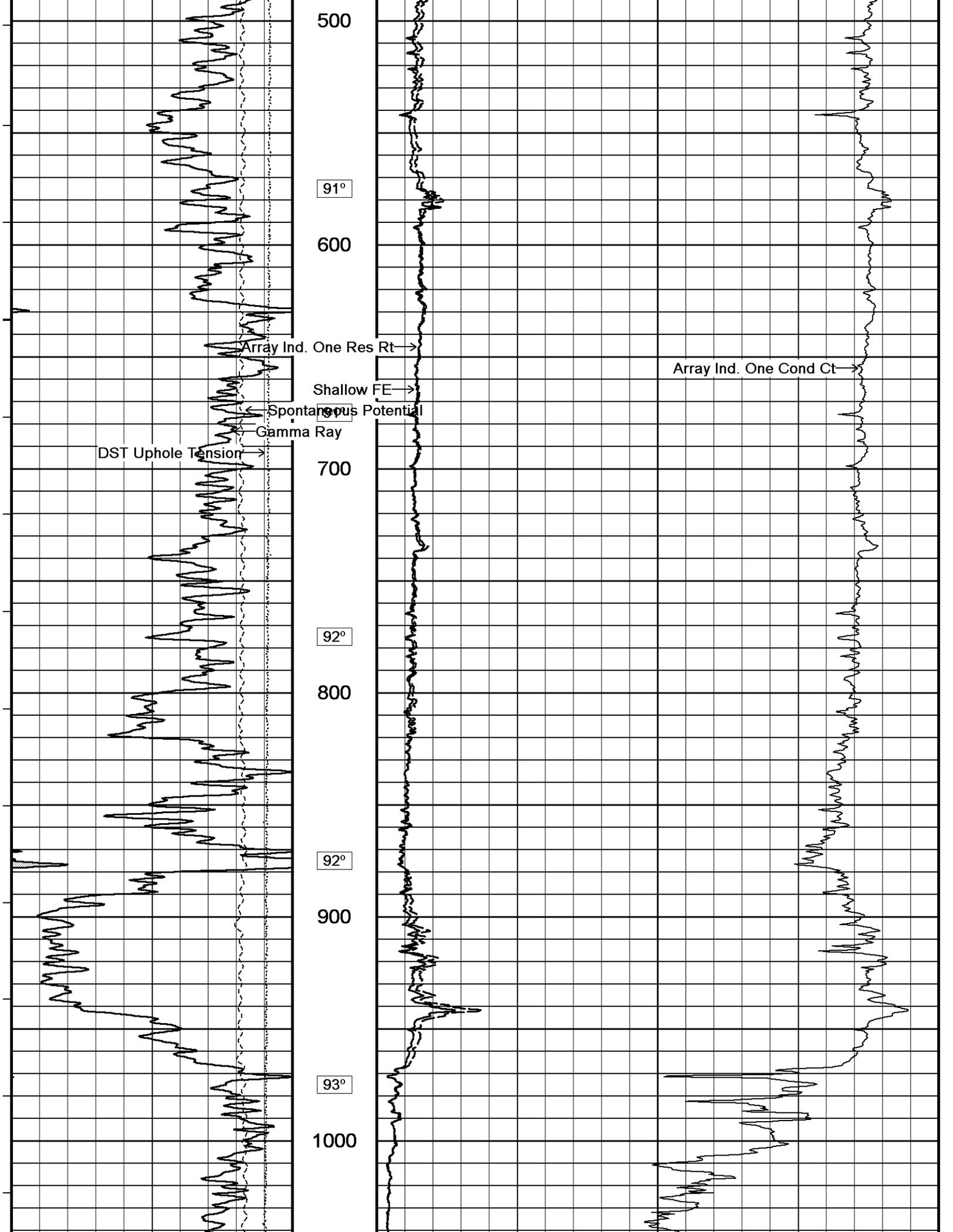
Plotted on 18-NOV-2010 13:59

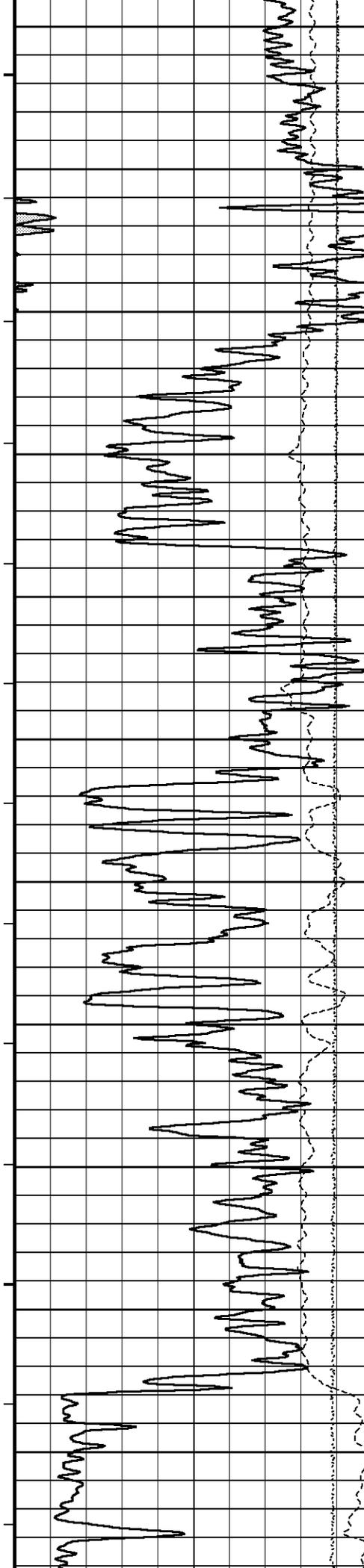
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Recorded on 18-NOV-2010 11:35

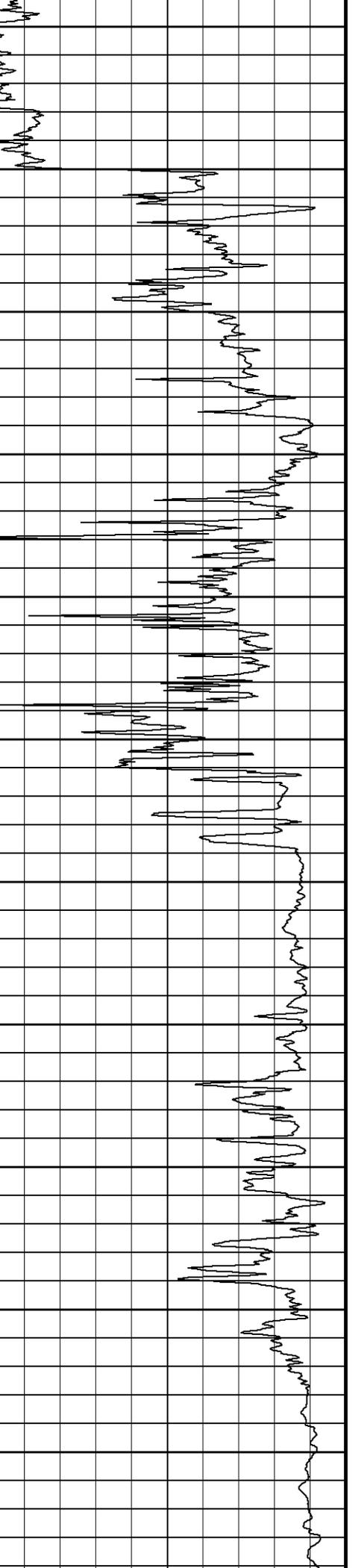
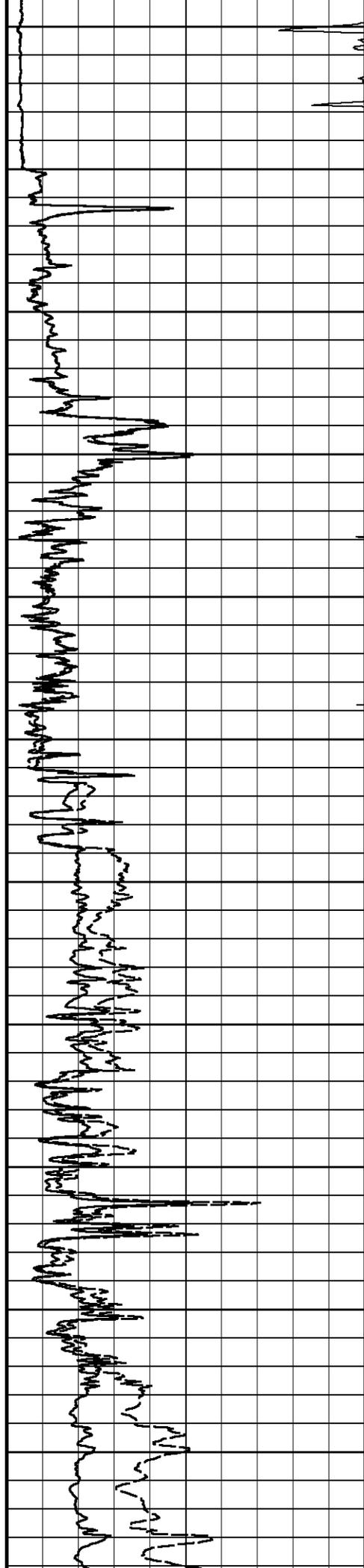
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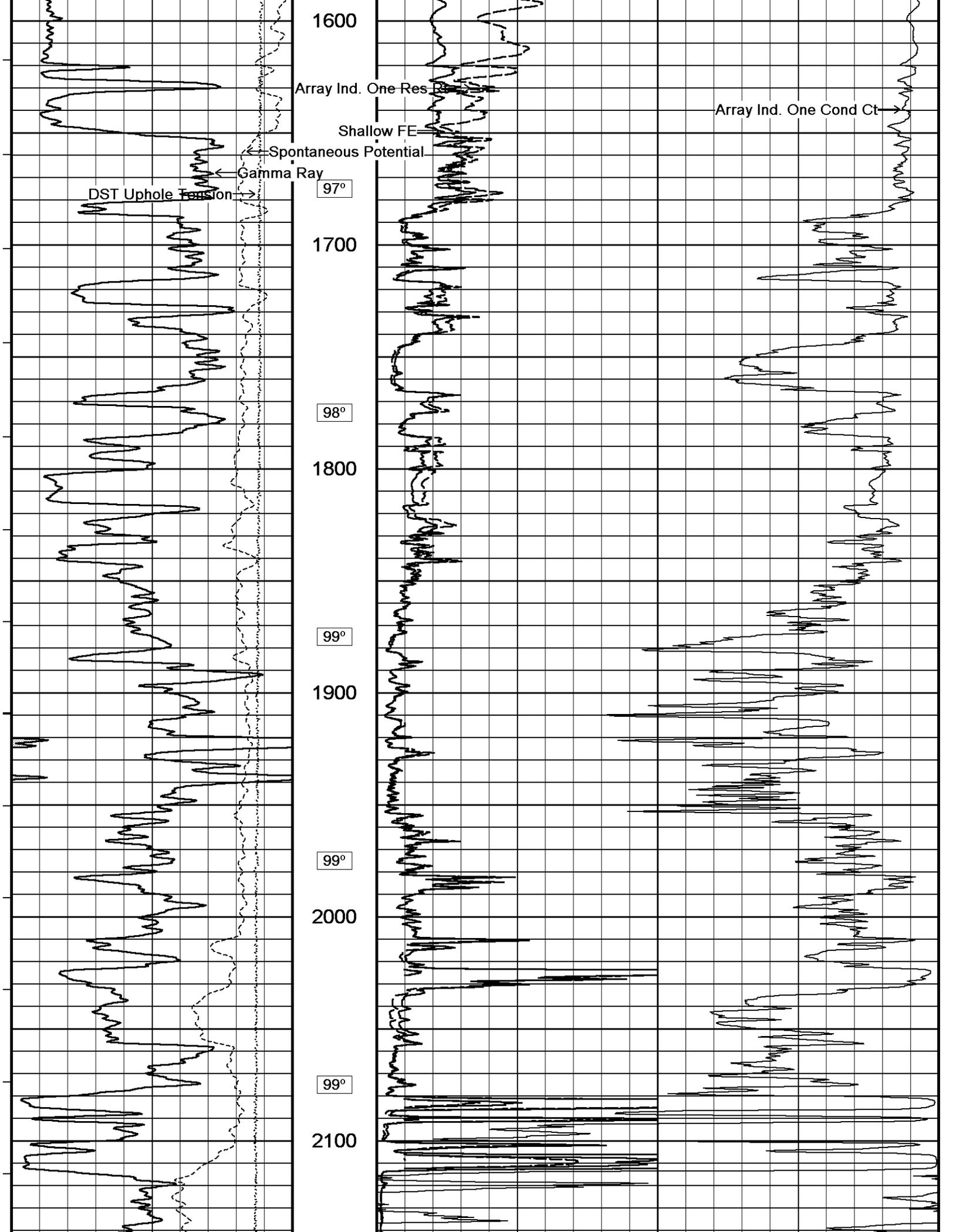


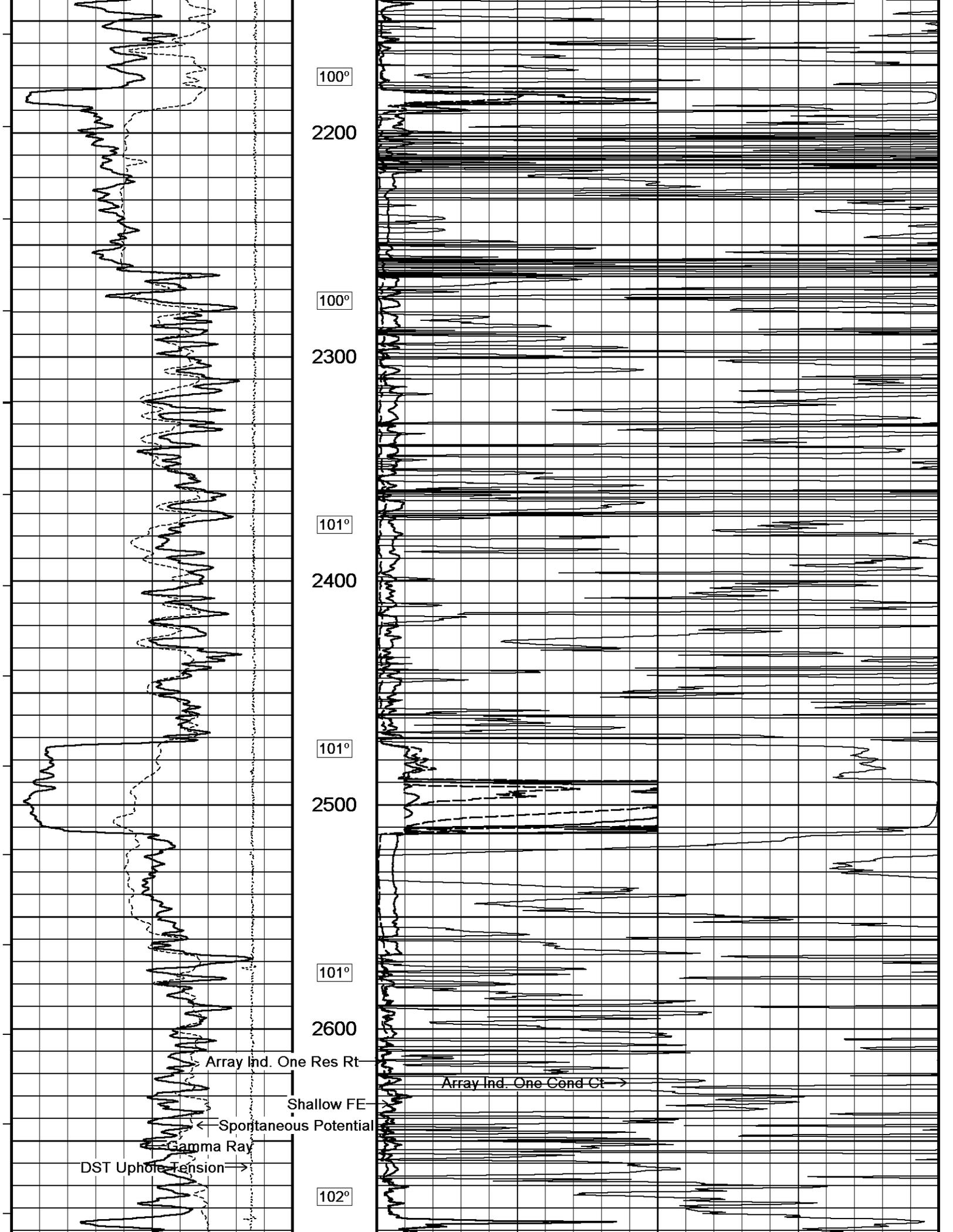


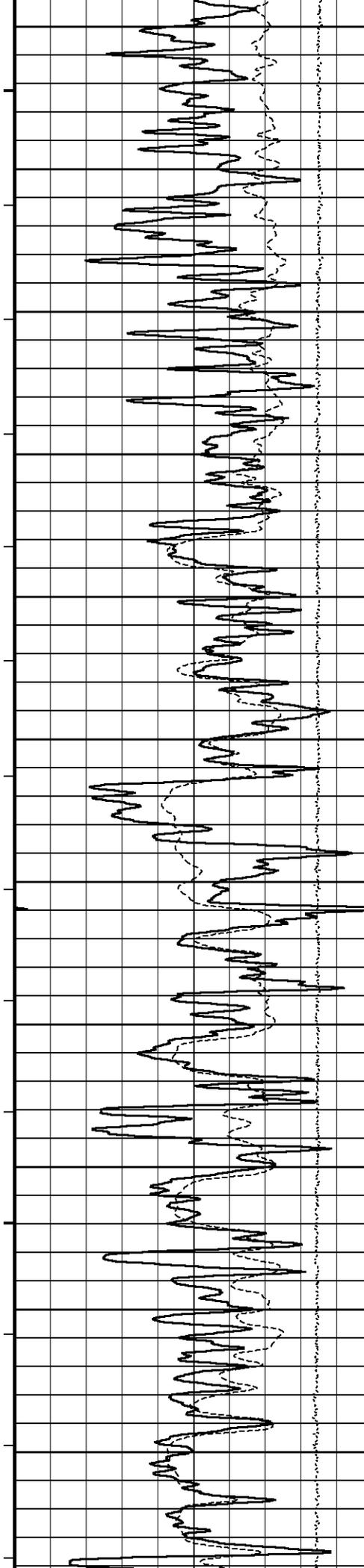


94°
1100
95°
1200
95°
1300
96°
1400
96°
1500
97°









2700

103°

2800

103°

2900

104°

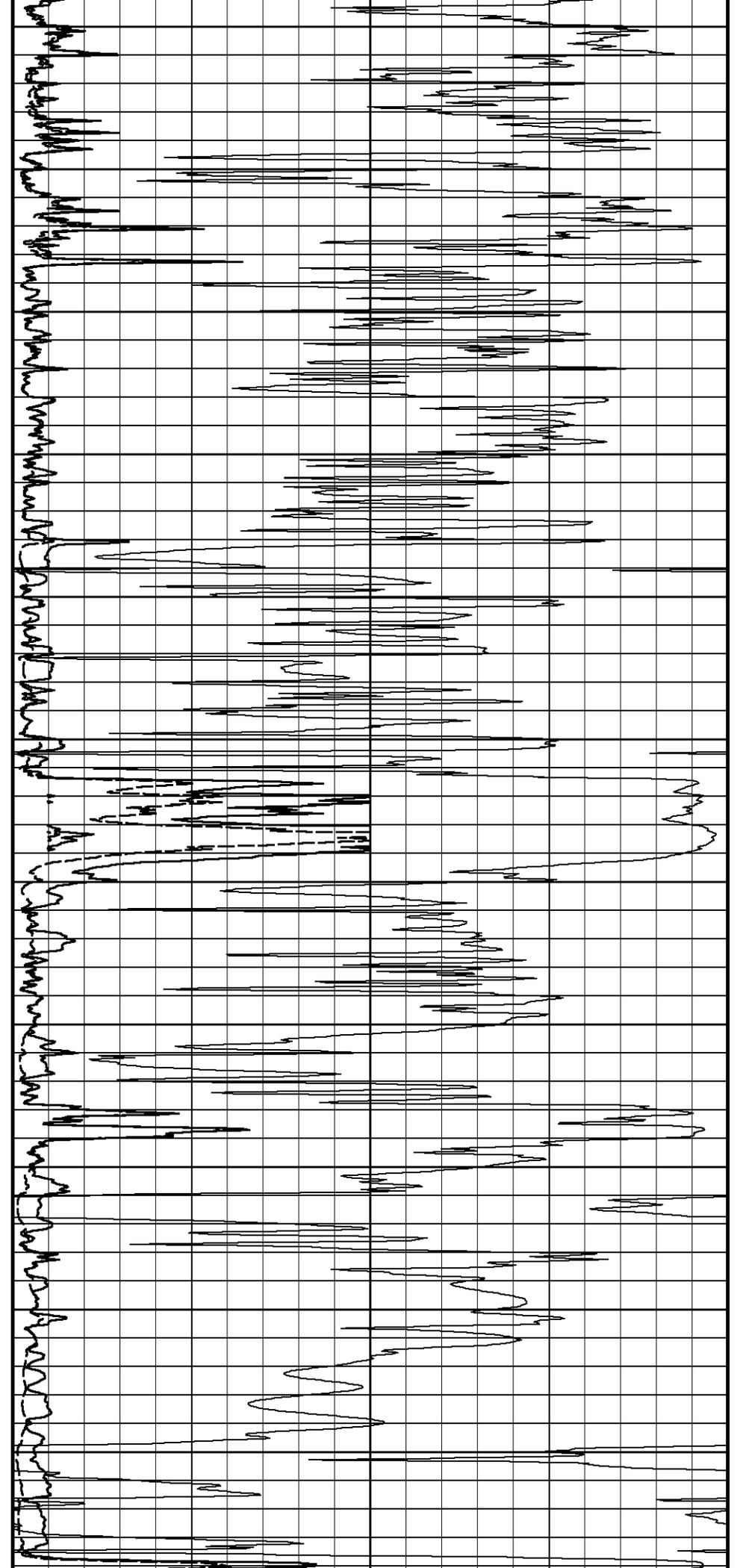
3000

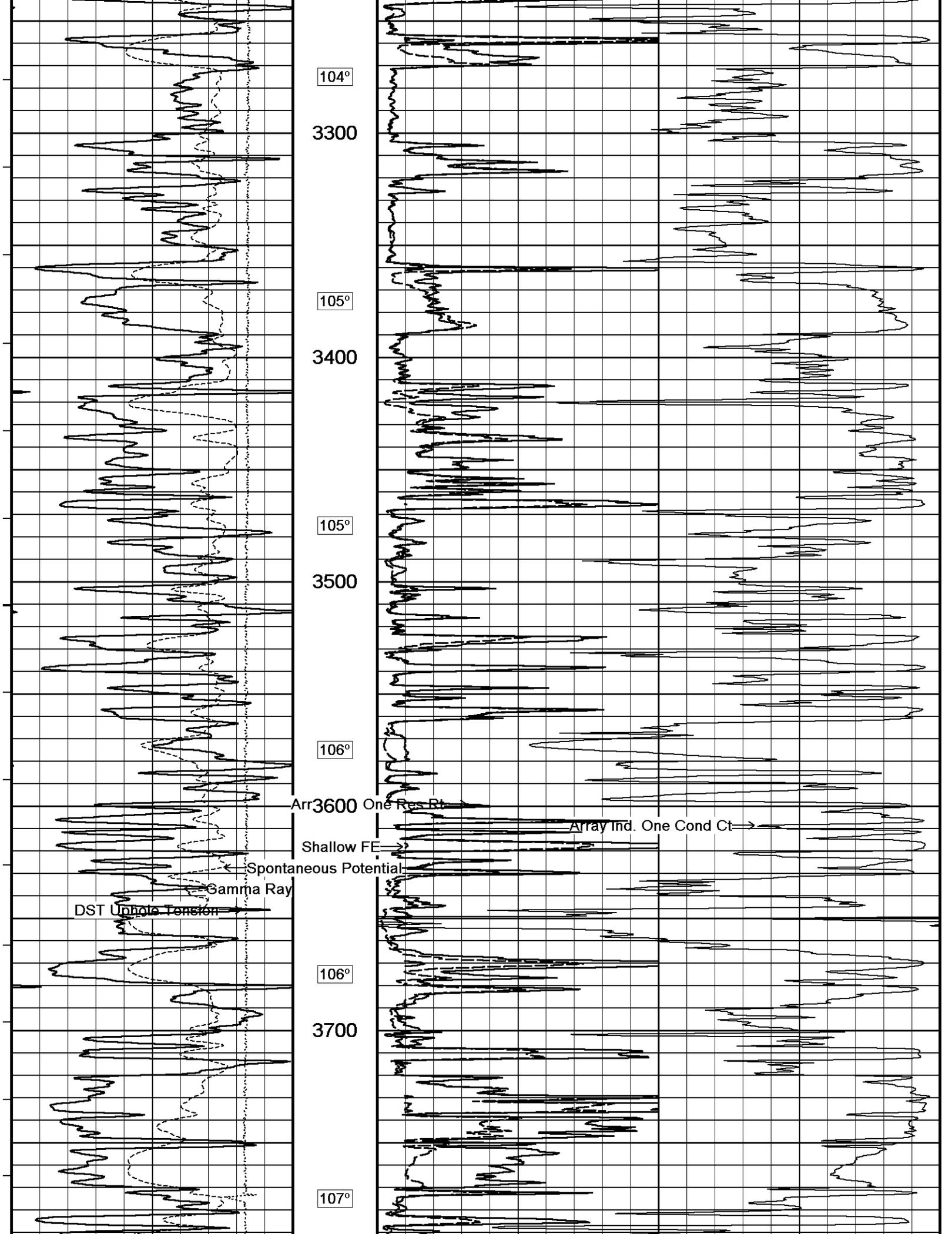
104°

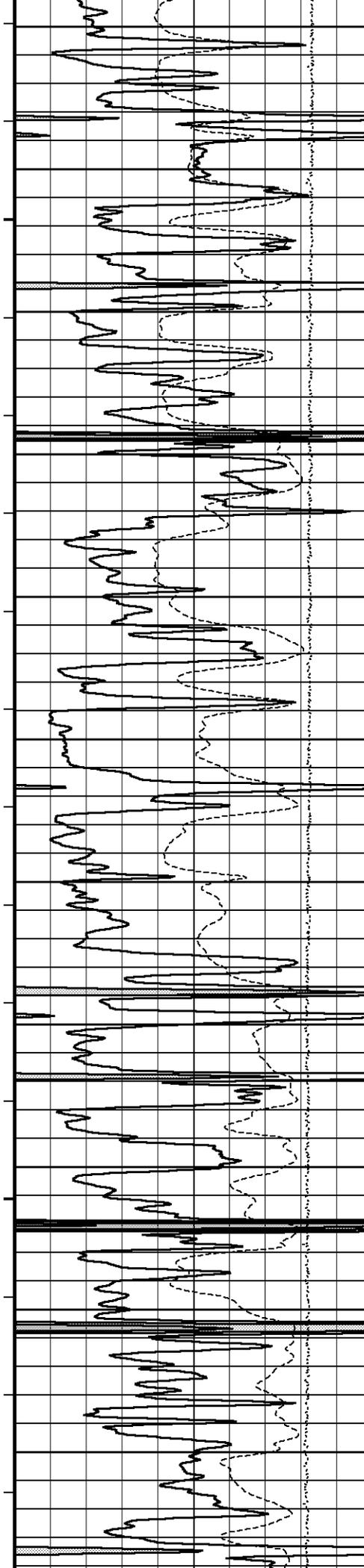
3100

104°

3200







3800

107°

3900

107°

4000

108°

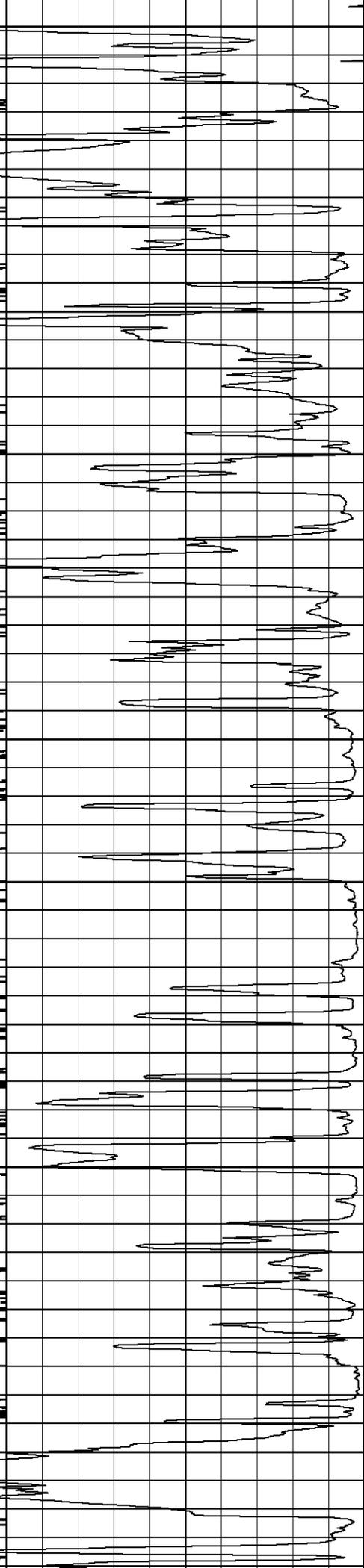
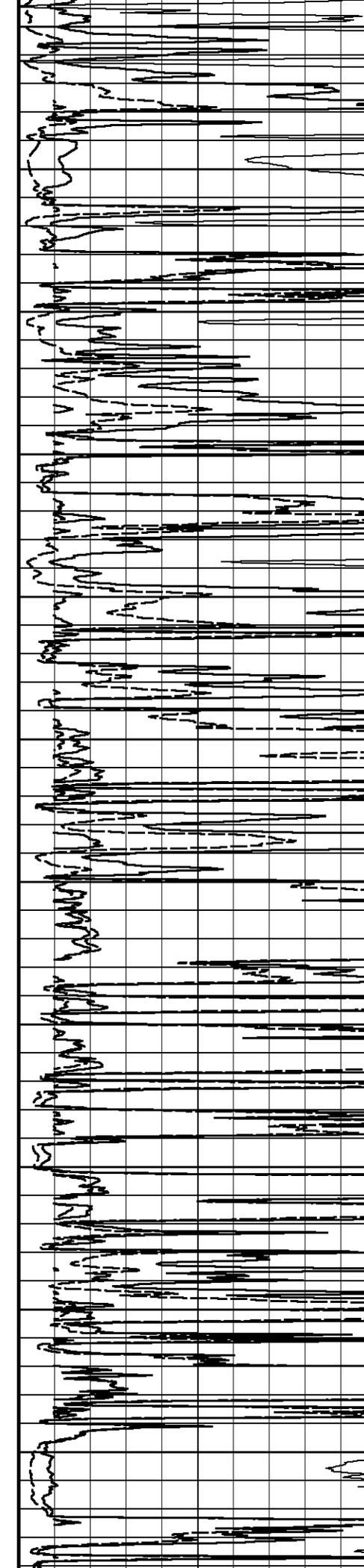
4100

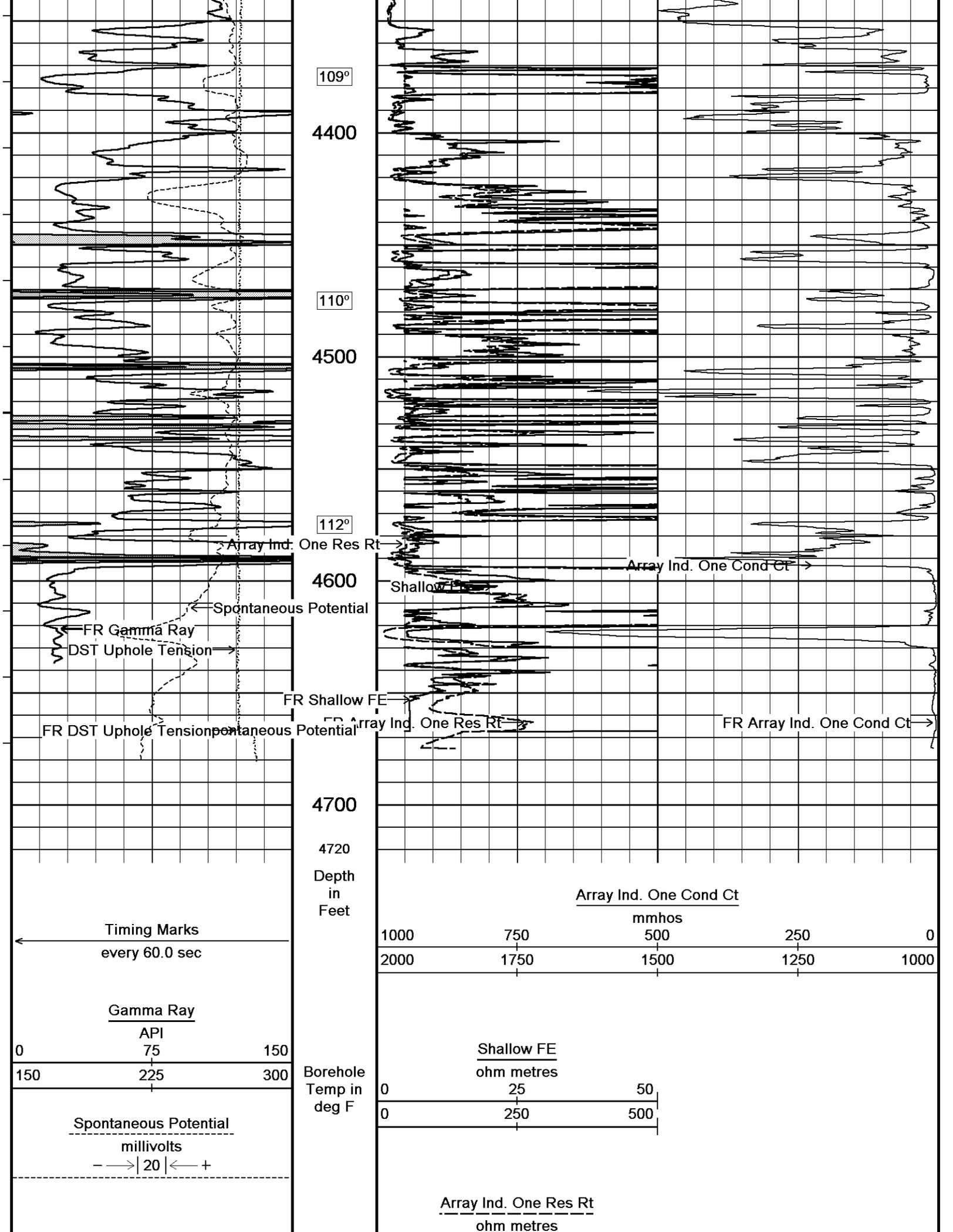
108°

4200

108°

4300





109°

4400

110°

4500

112°

4600

4700

4720

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
- - -> | 20 | <- - +

Borehole
Temp in
deg F

Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

Array Ind. One Res Rt
ohm metres

Array Ind. One Res Rt

Array Ind. One Cond Ct

Shallow FE

Spontaneous Potential

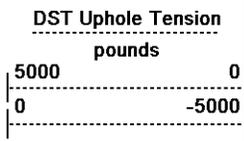
FR Gamma Ray
DST Uphole Tension

FR Shallow FE

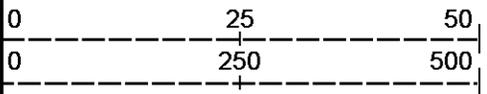
FR Array Ind. One Res Rt

FR Array Ind. One Cond Ct

FR DST Uphole Tension Spontaneous Potential



Replay
Scale
1:600

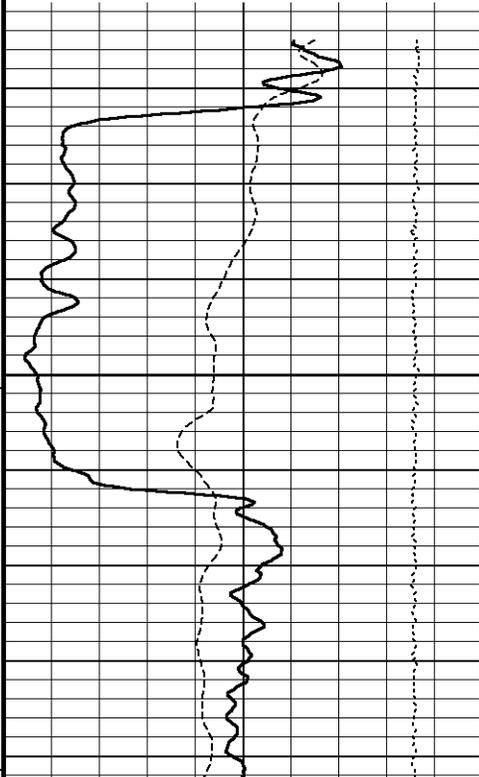
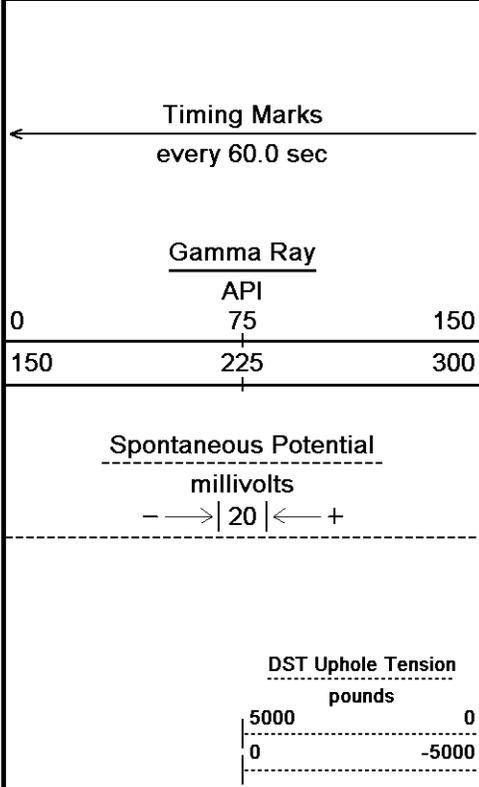


Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 18-NOV-2010 13:59
 Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_002.dta
 Recorded on 18-NOV-2010 11:35
 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

2 Inch Main Pass

5 Inch Main Pass

Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 18-NOV-2010 13:59
 Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_002.dta
 Recorded on 18-NOV-2010 11:35
 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198



Depth
in
Feet

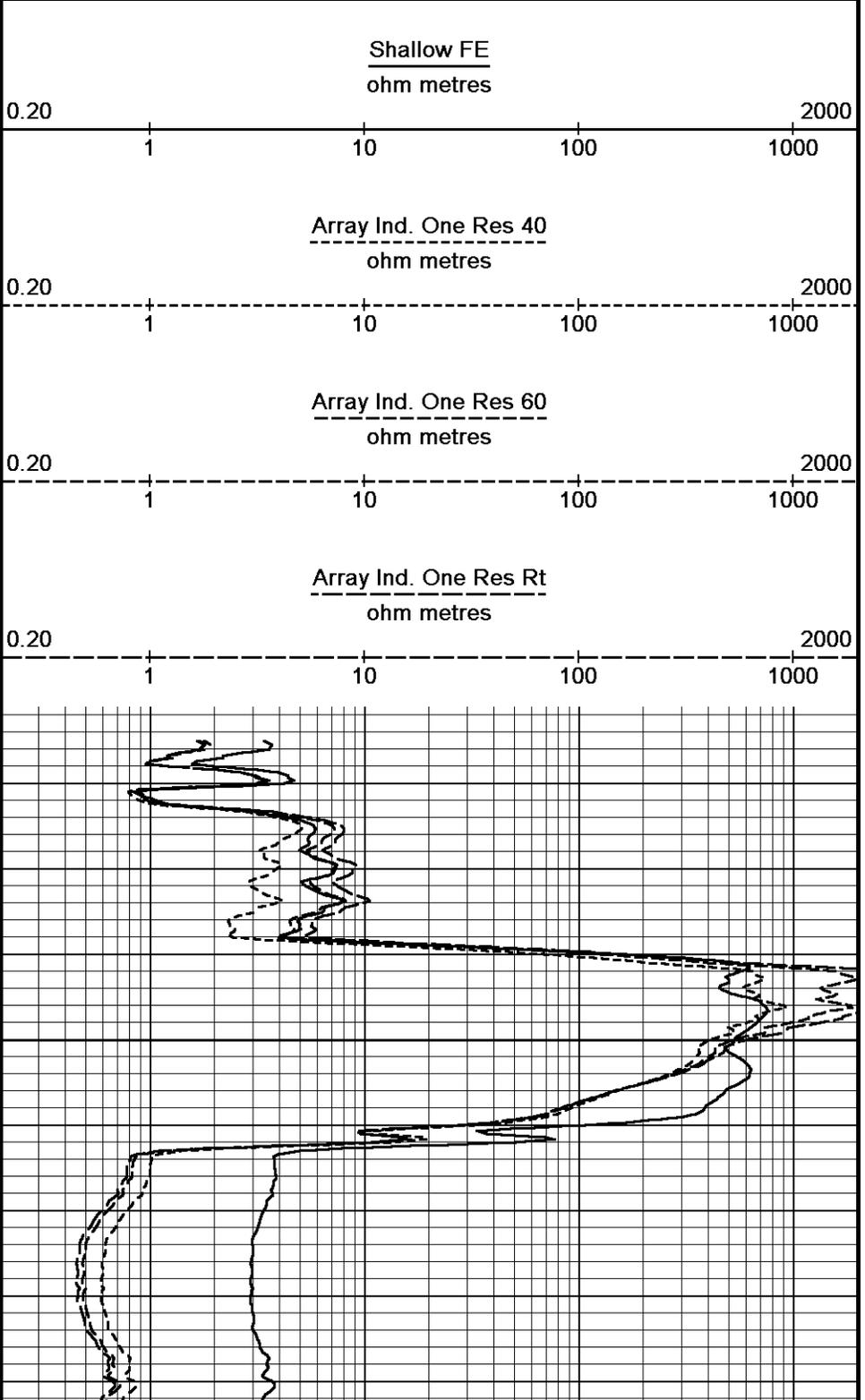
Borehole
Temp in
deg F

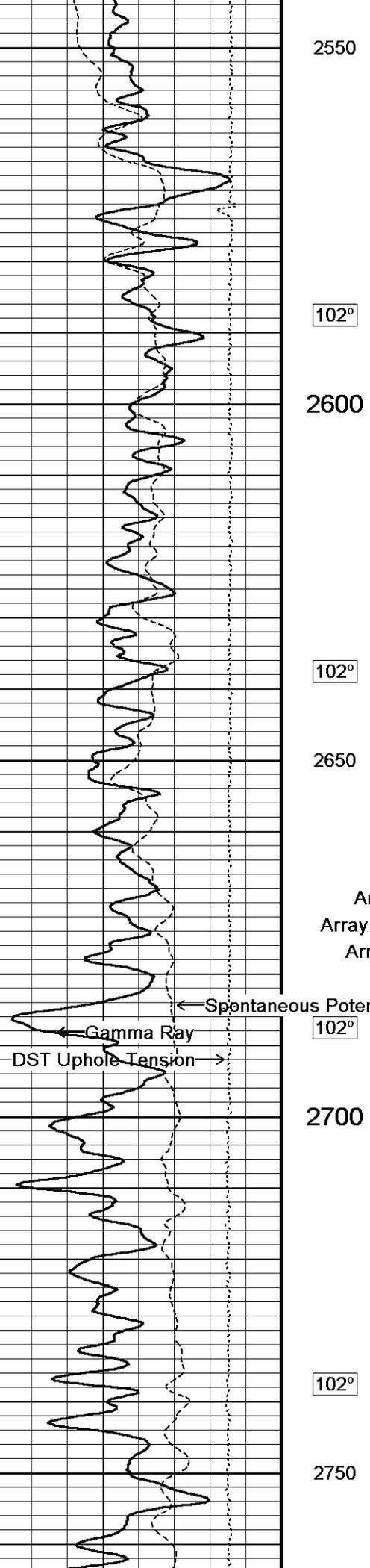
Replay
Scale
1:240

2464

2500

101°





2550

102°

2600

102°

2650

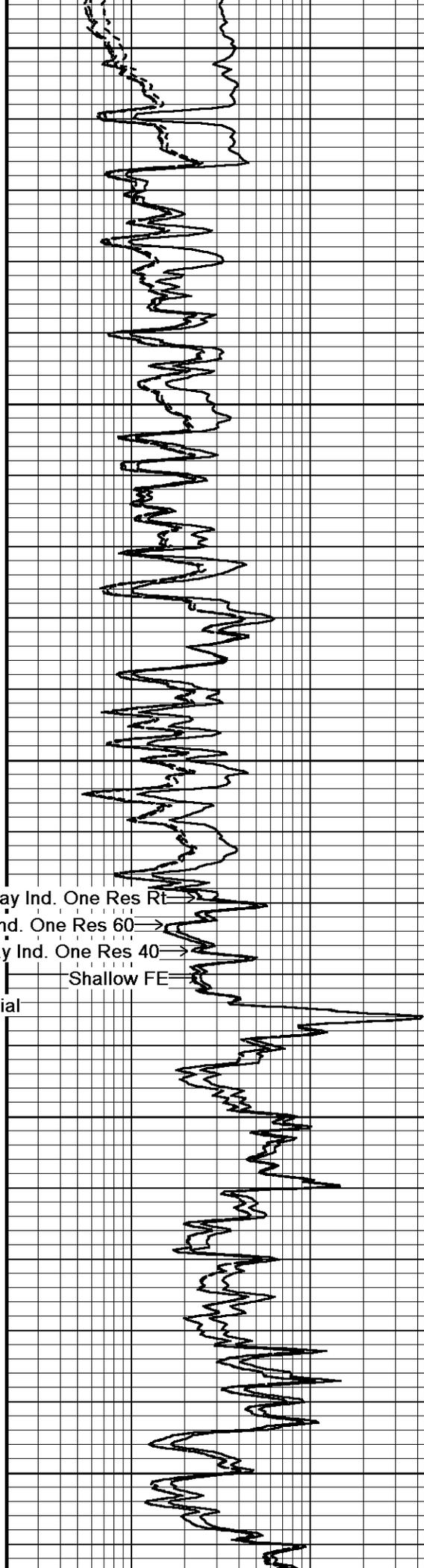
102°

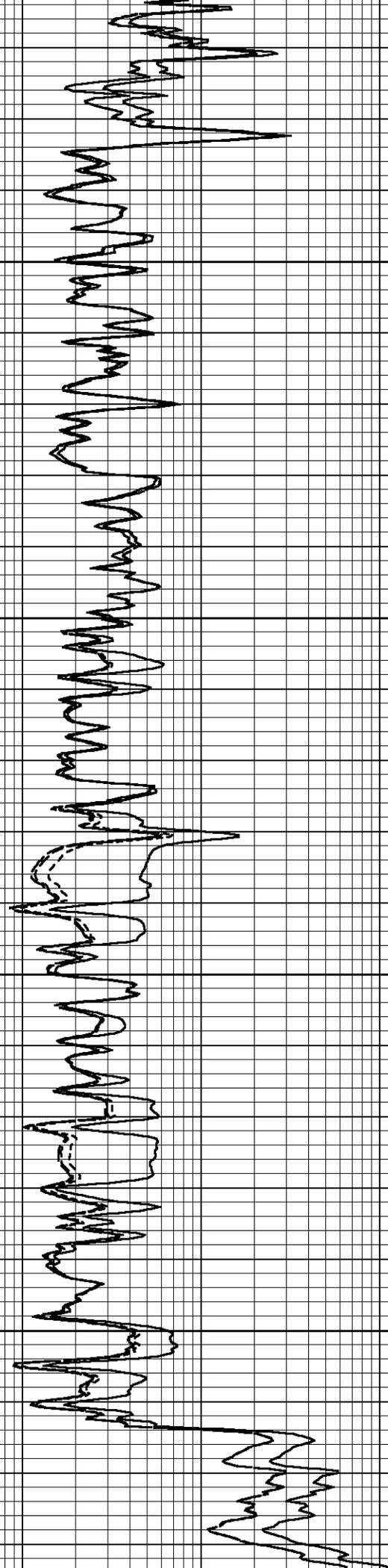
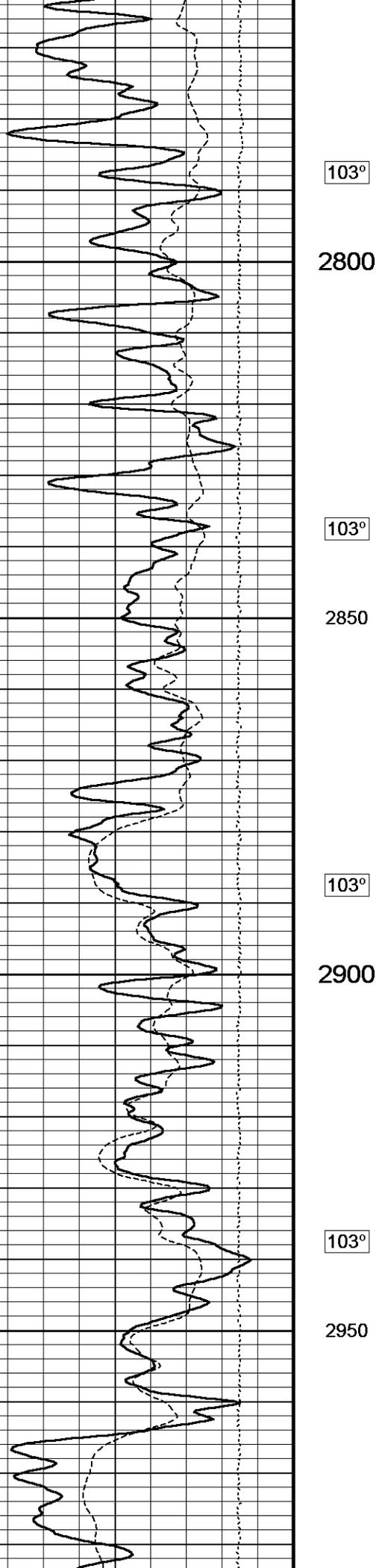
2700

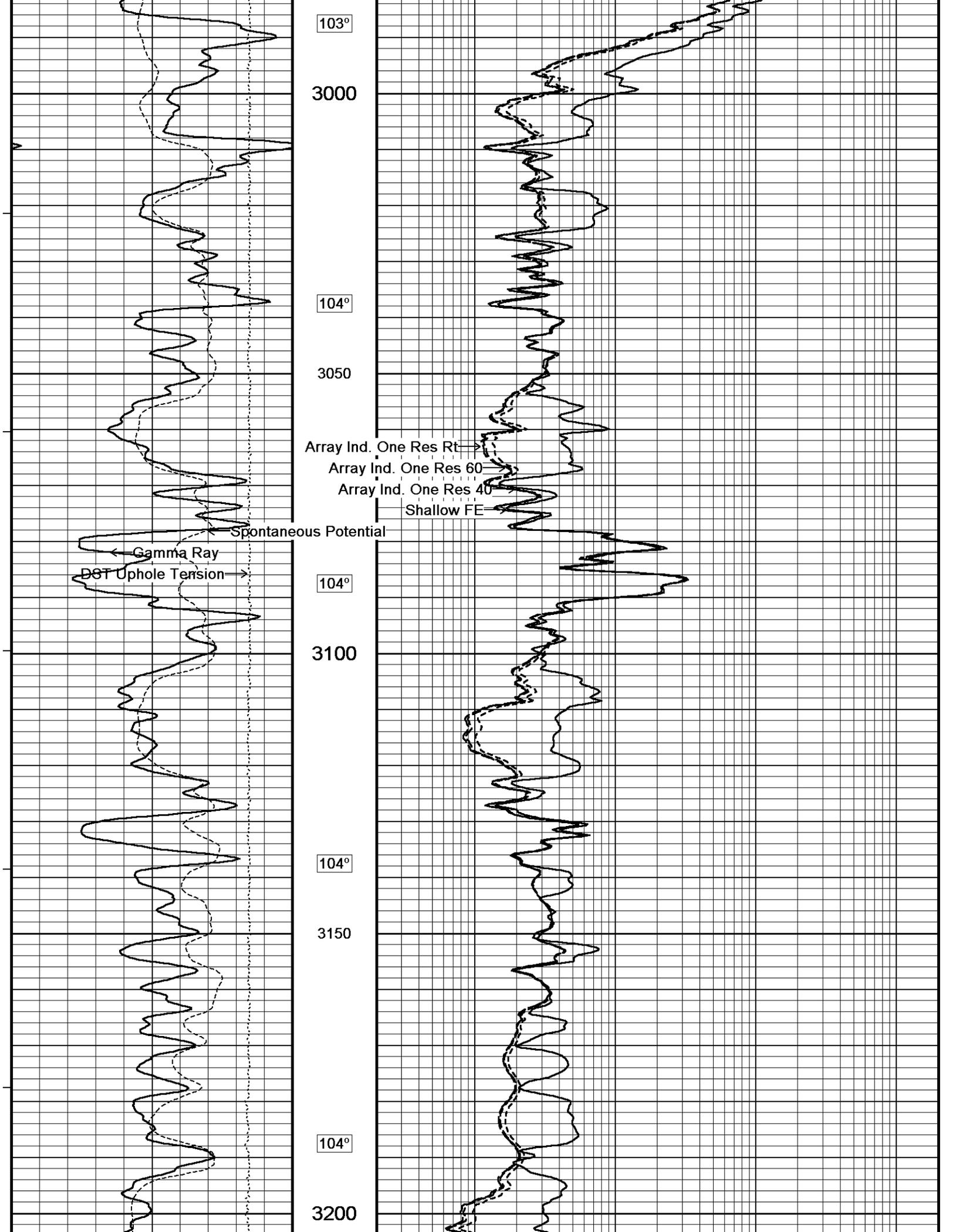
102°

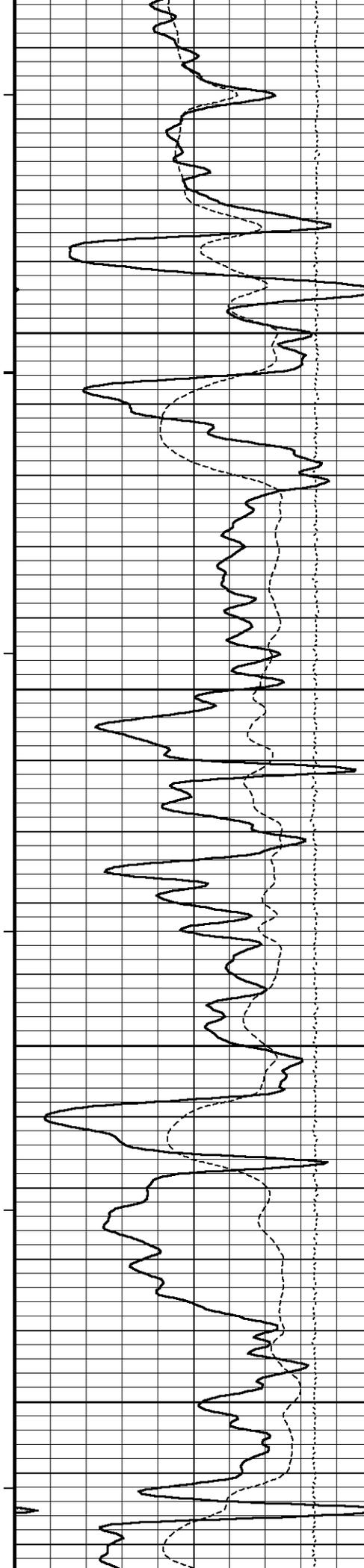
2750

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









104°

3250

105°

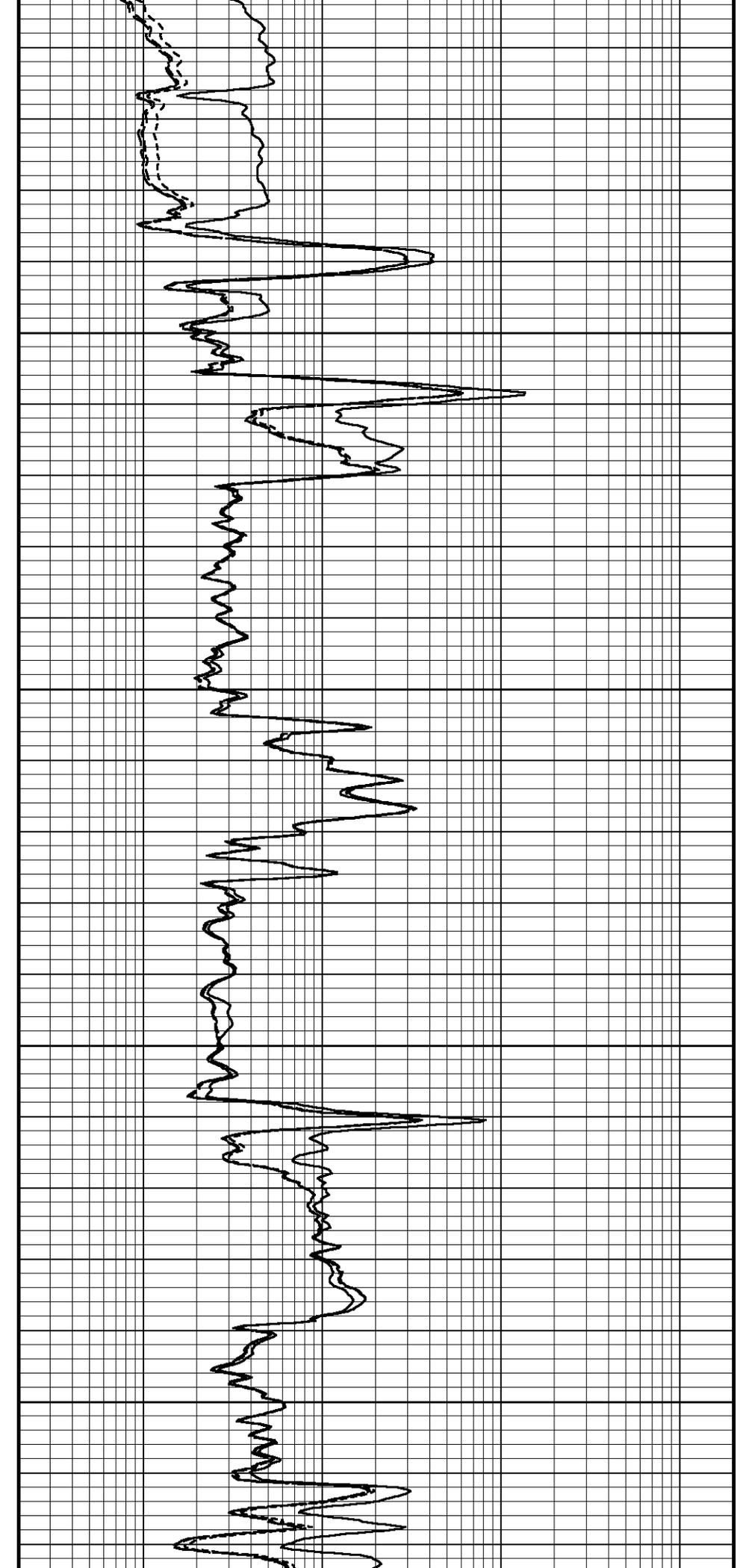
3300

105°

3350

105°

3400



105°

3450

Array Ind. One Res Pt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

105°

3500

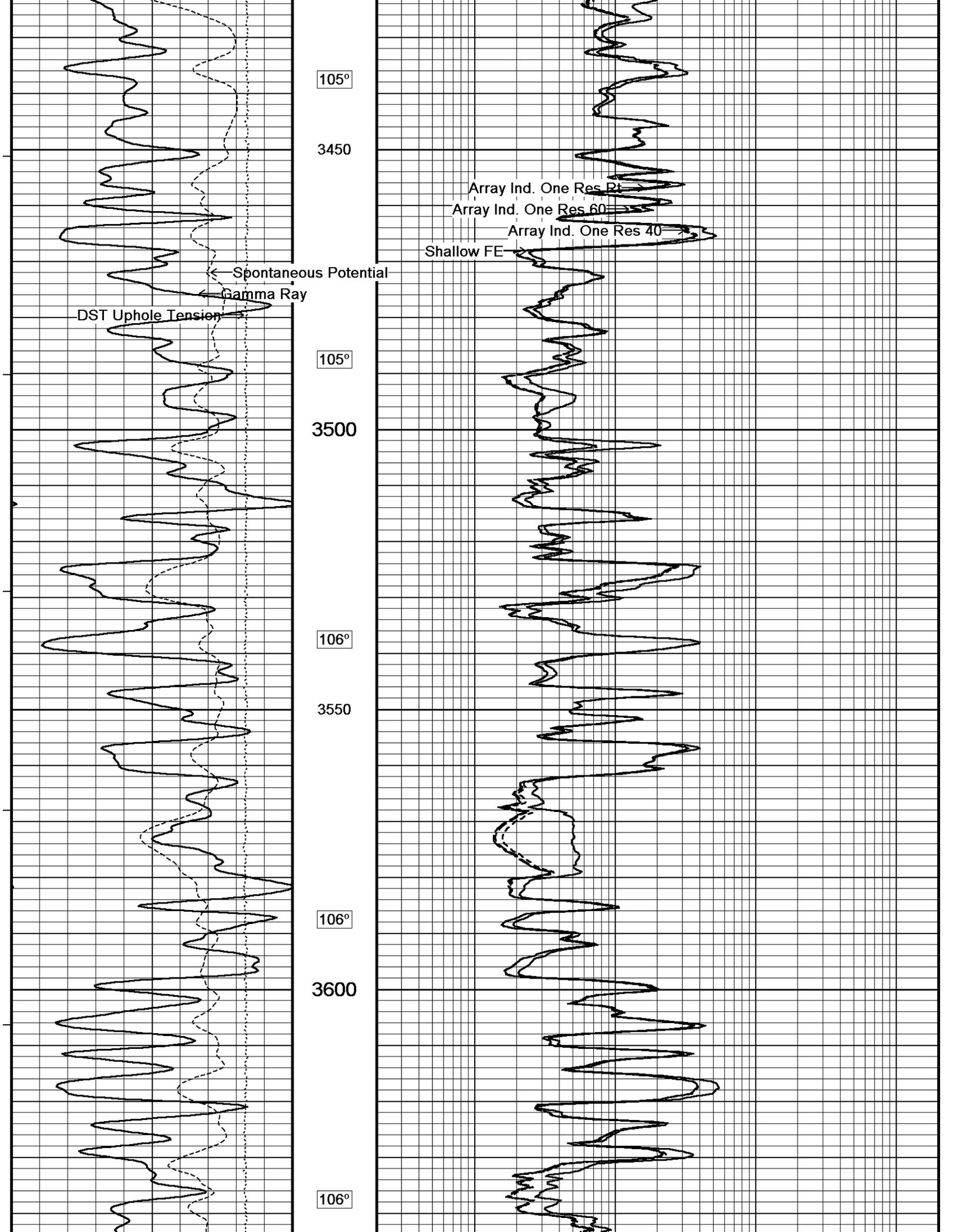
106°

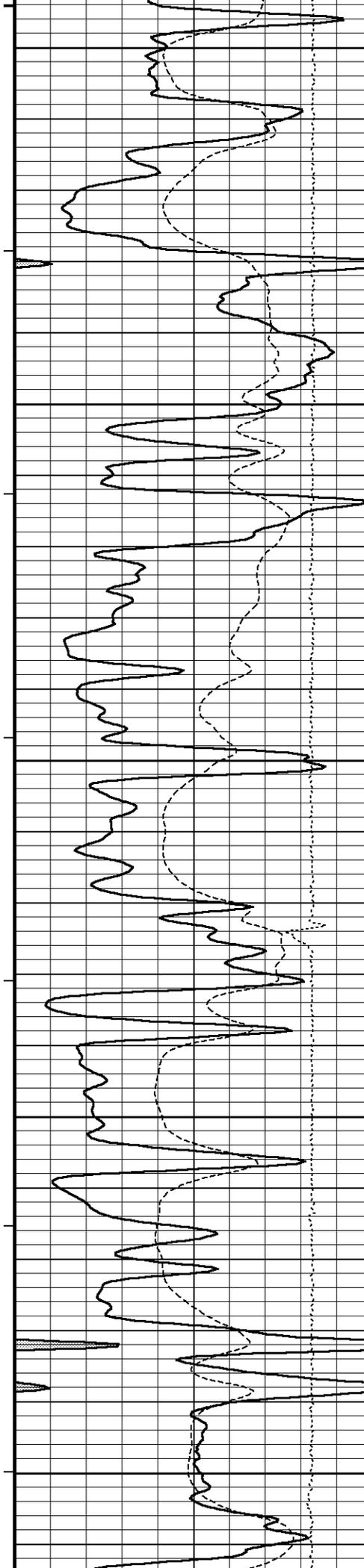
3550

106°

3600

106°





3650

106°

3700

107°

3750

107°

3800

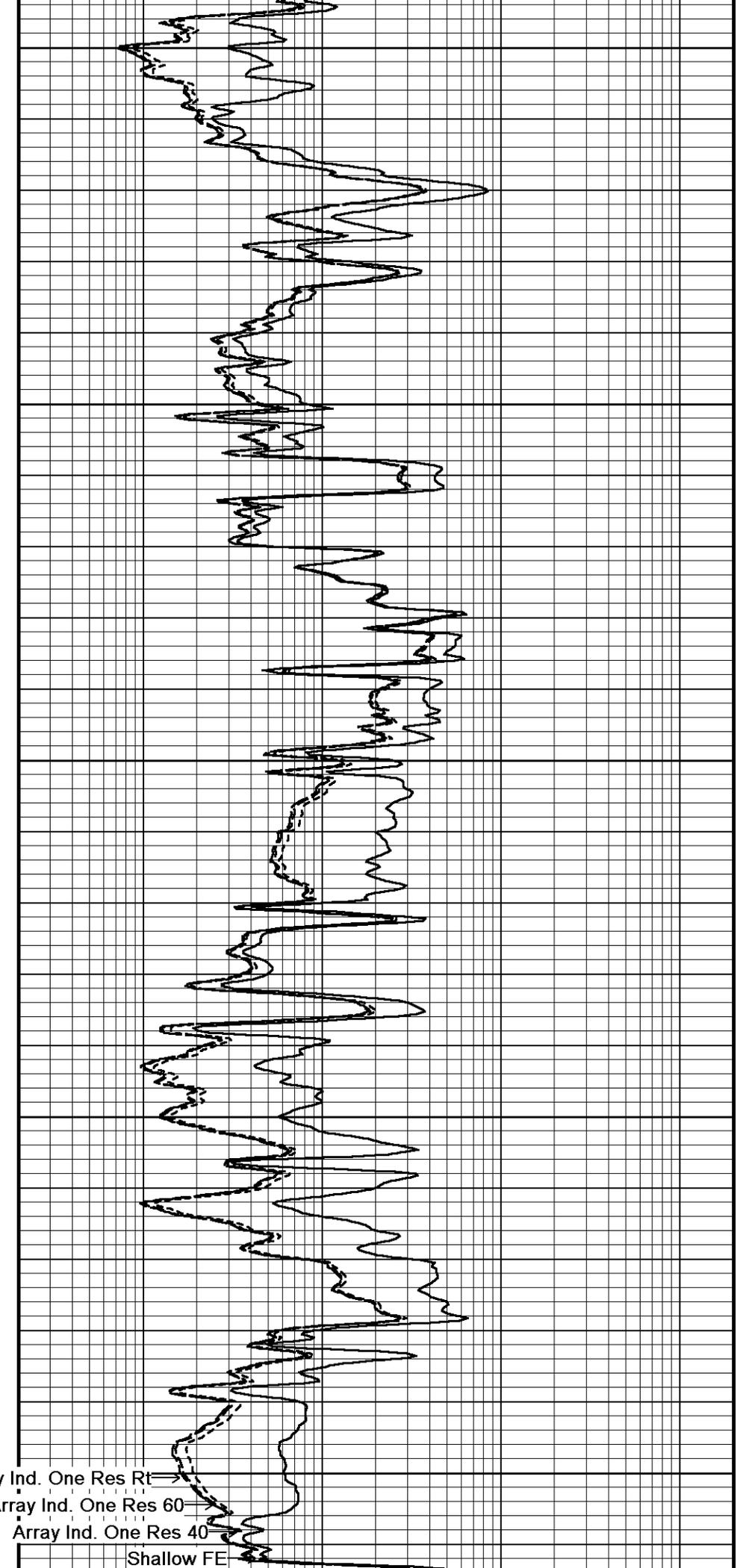
107°

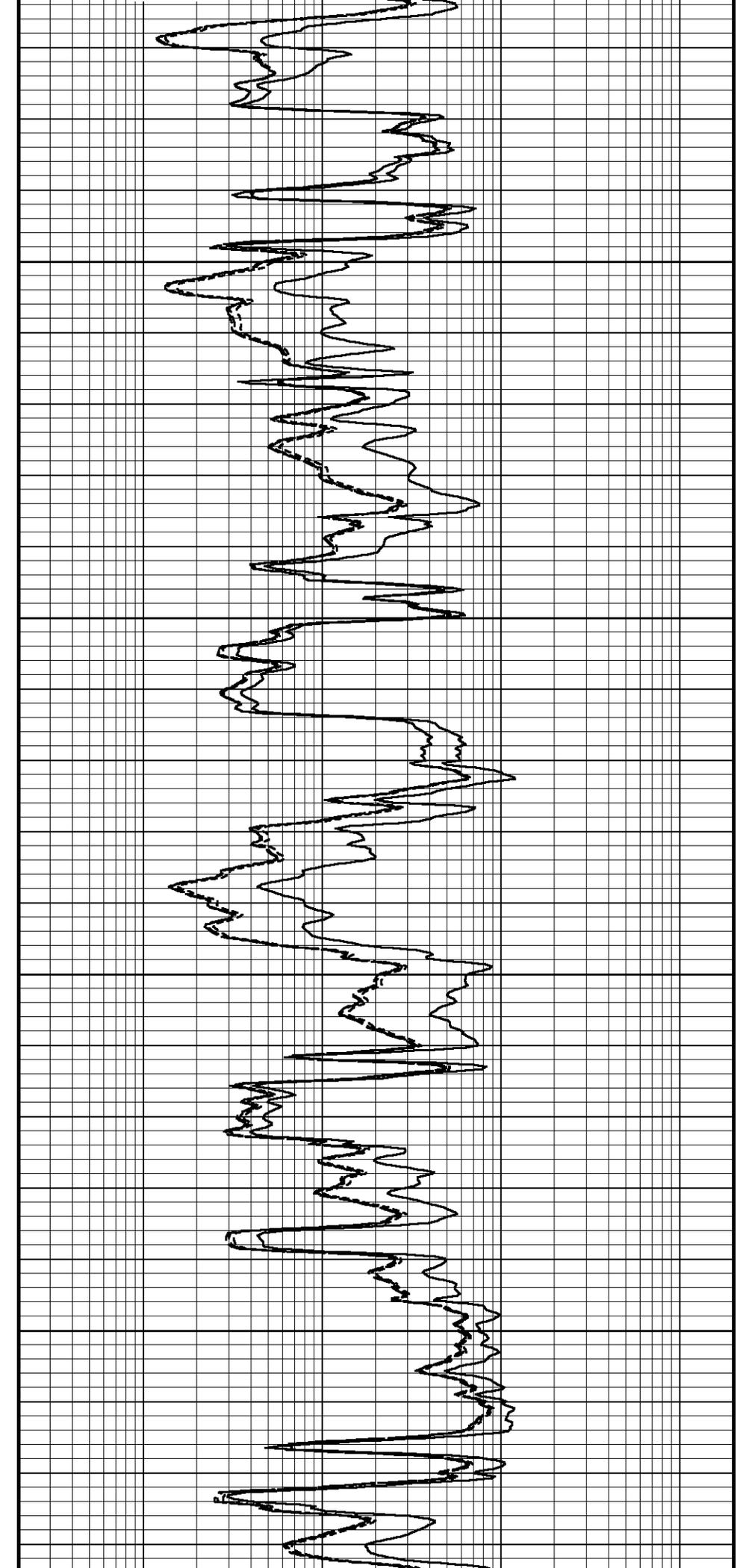
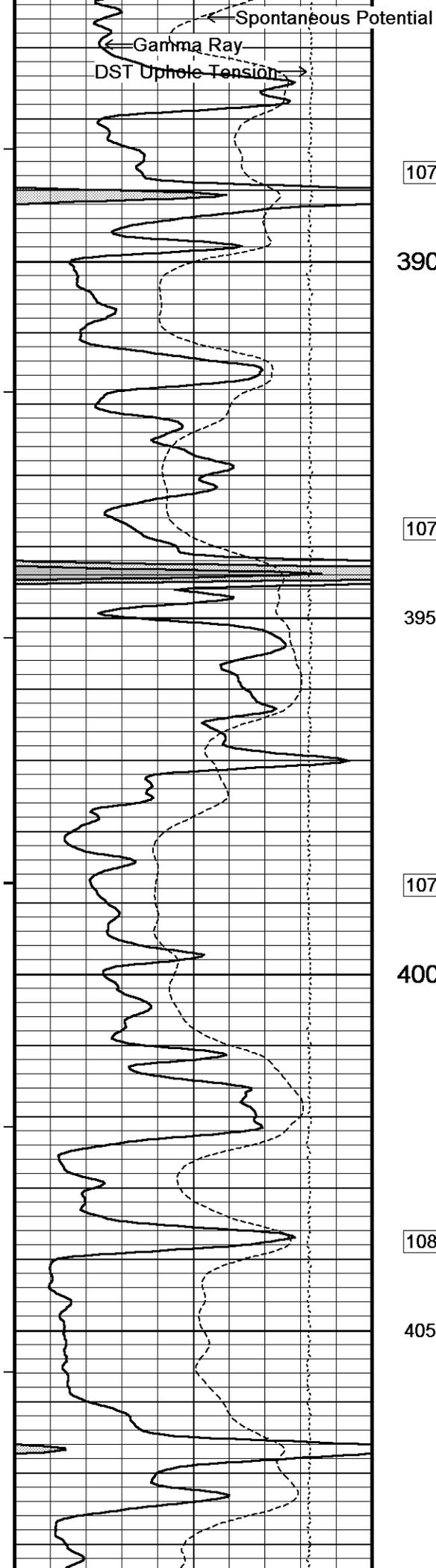
3850 \rightarrow Array Ind. One Res Rt

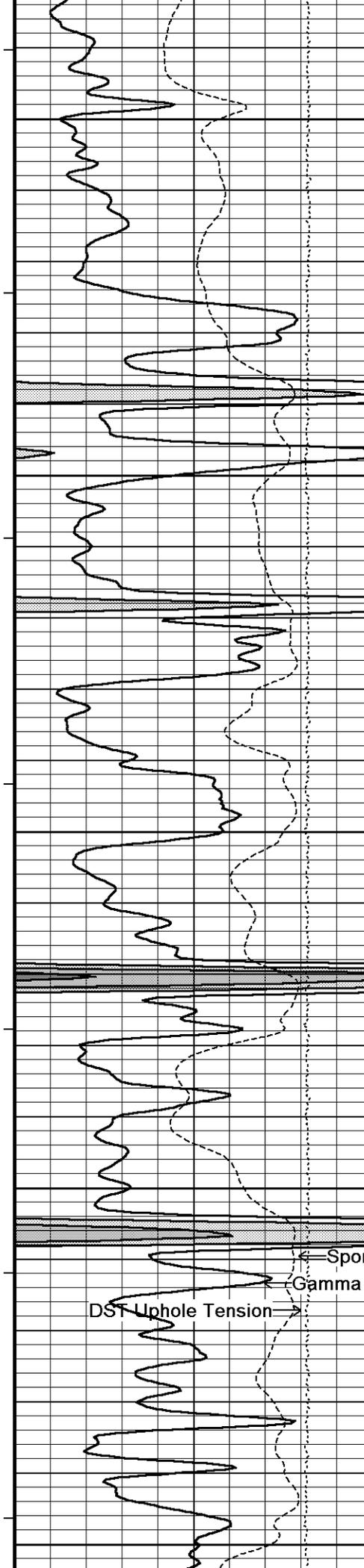
Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE







108°

4100

108°

4150

108°

4200

108°

4250

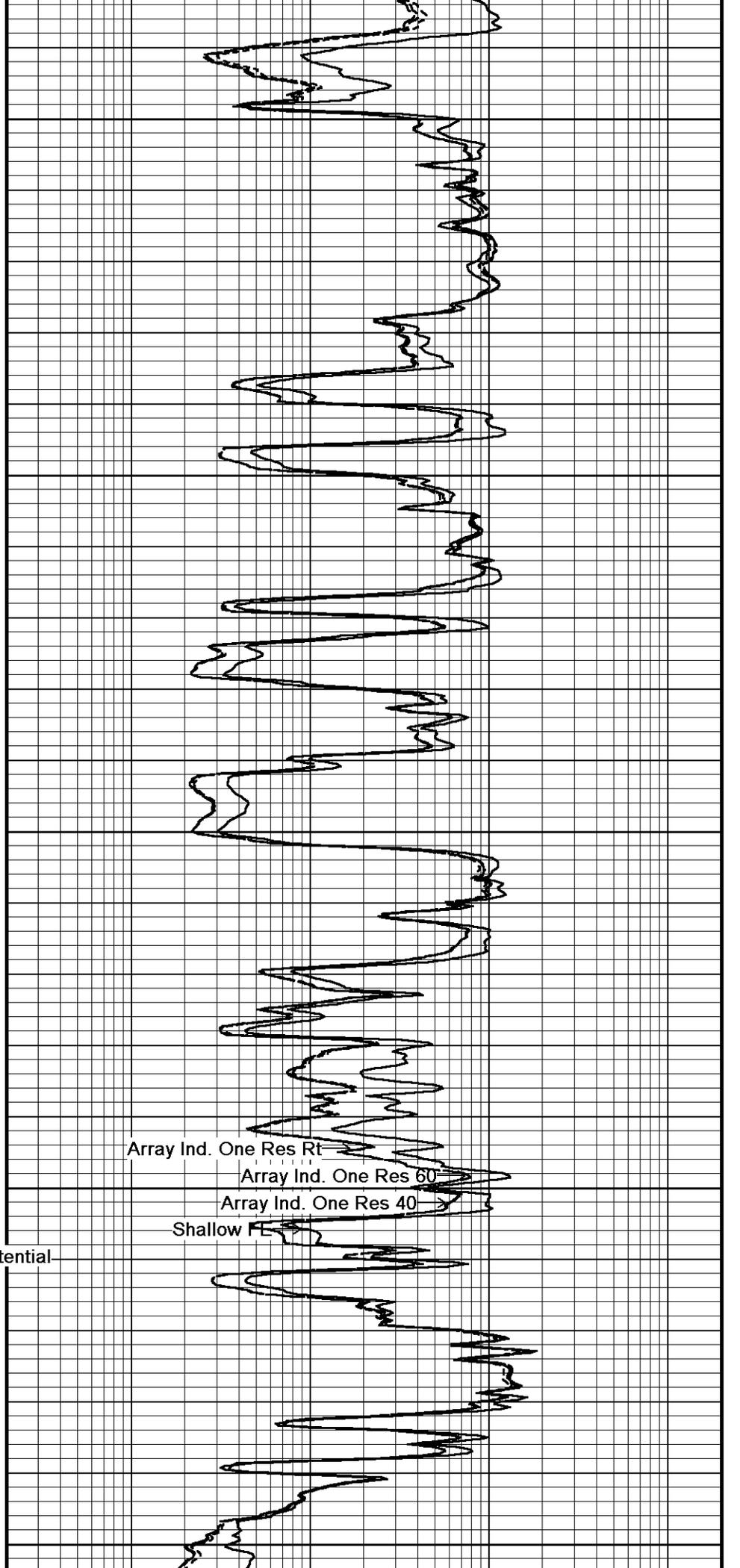
← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

108°

4300

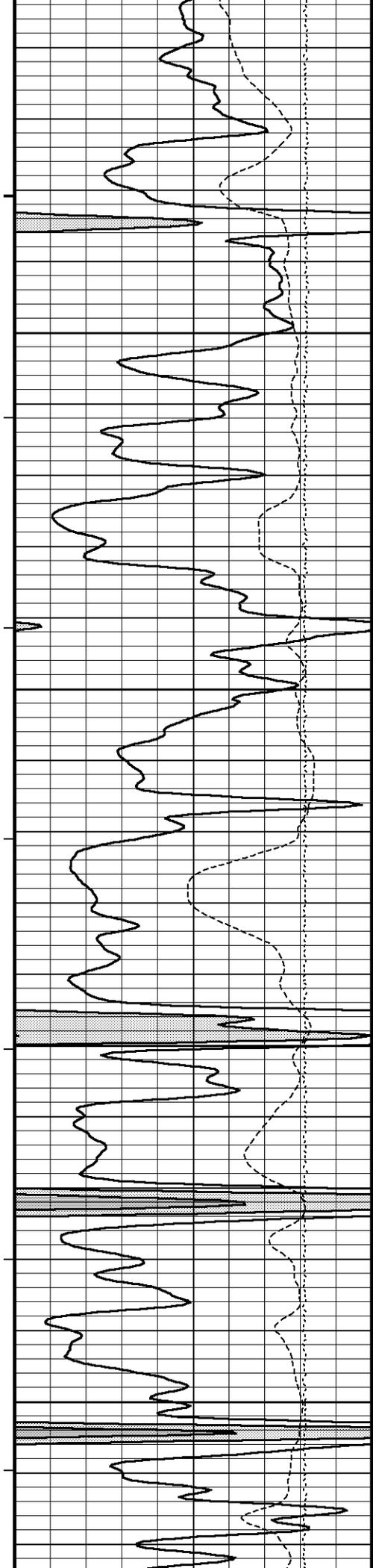


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow F



109°

4350

109°

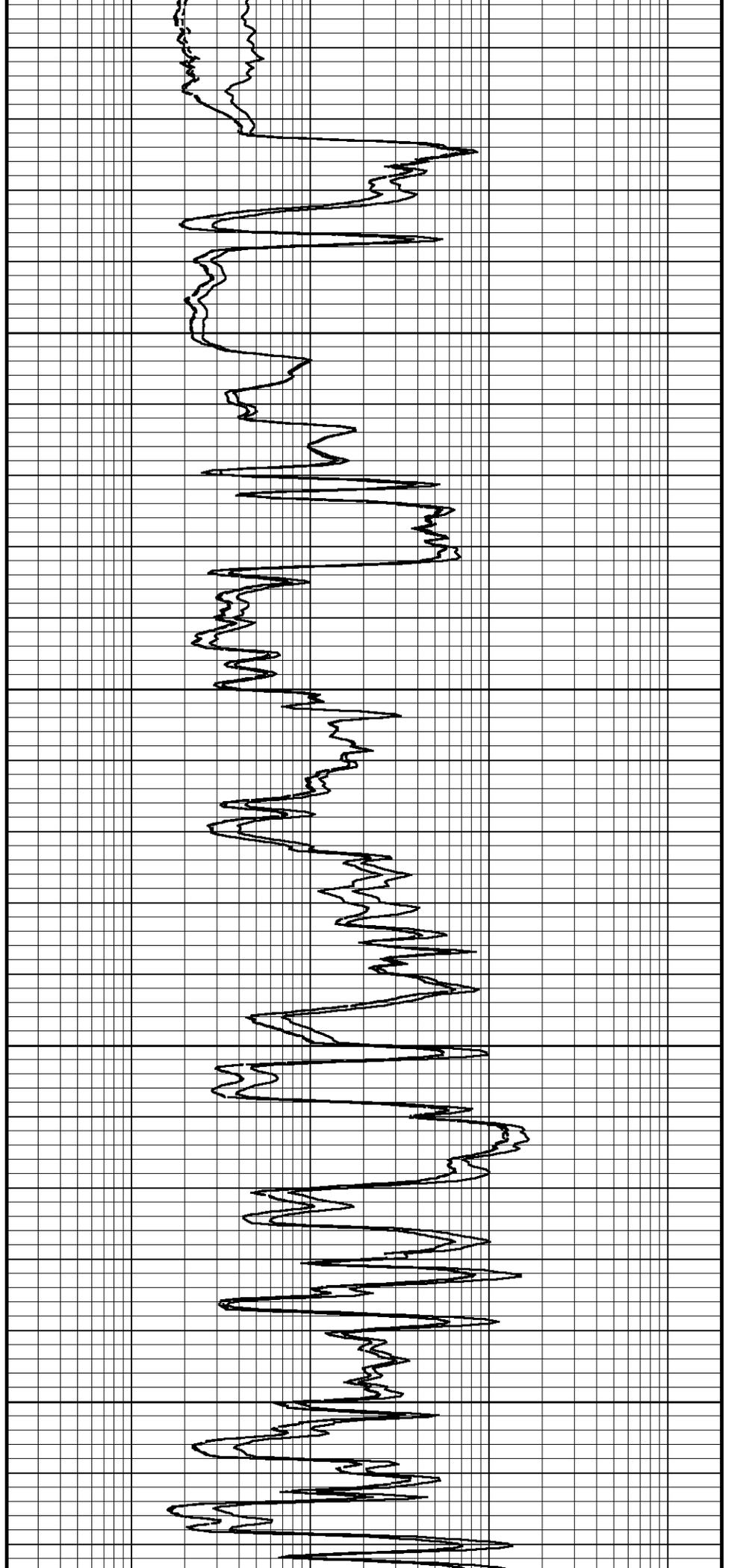
4400

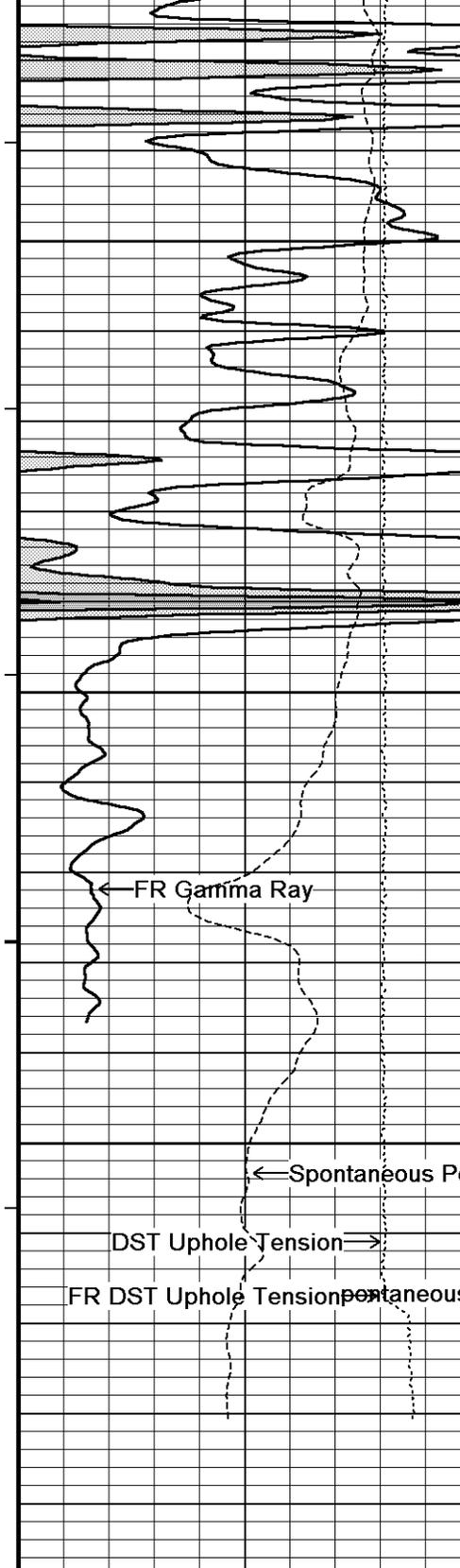
109°

4450

110°

4500





111°

4550

112°

4600

111°

4650

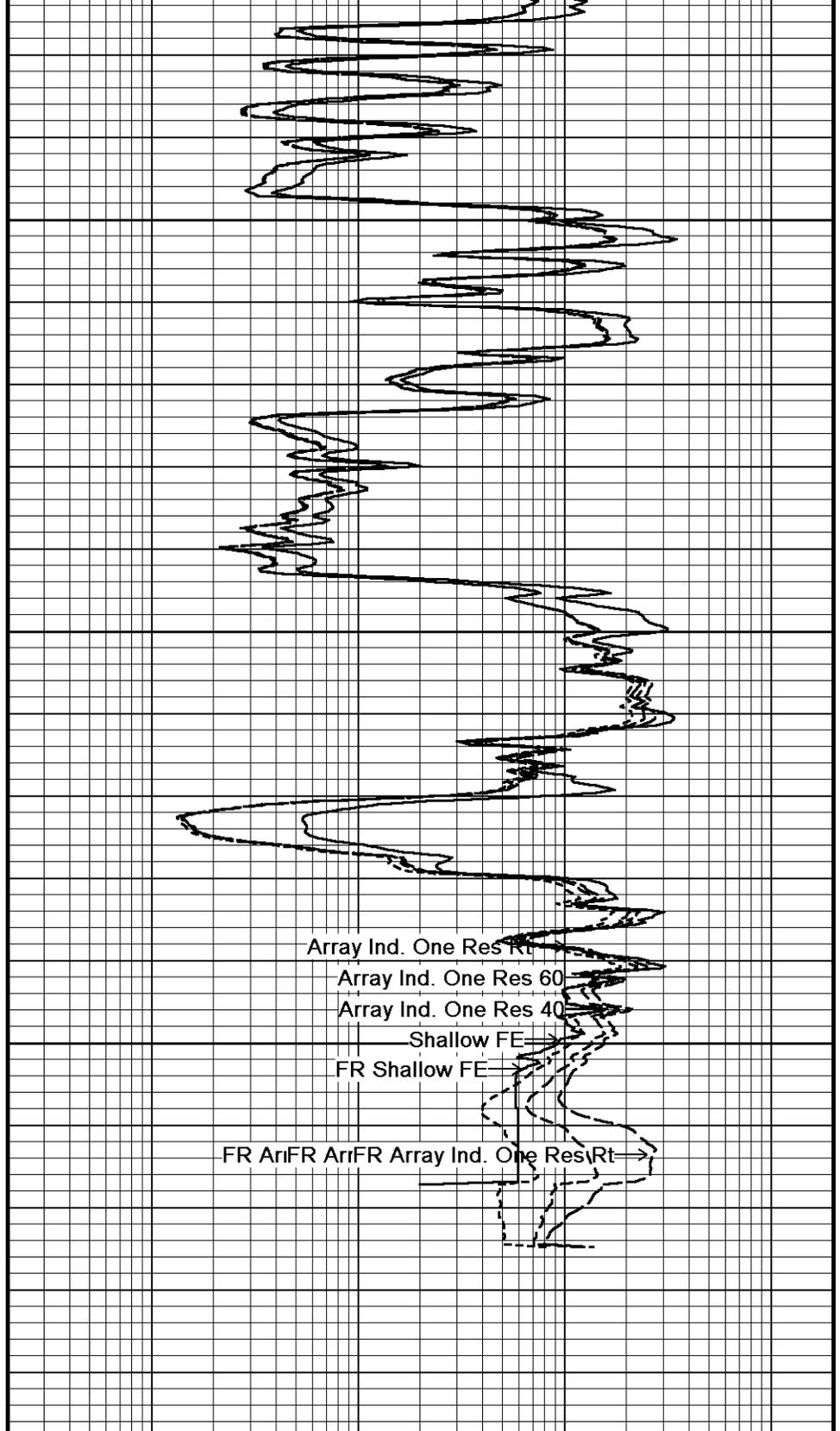
4696
Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

0	75	150
150	225	300

Borehole
Temp in
deg F



Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

FR Shallow FE

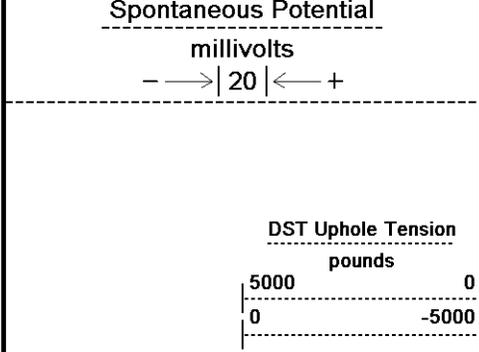
FR Arr FR Arr FR Array Ind. One Res Rt

Shallow FE
ohm metres

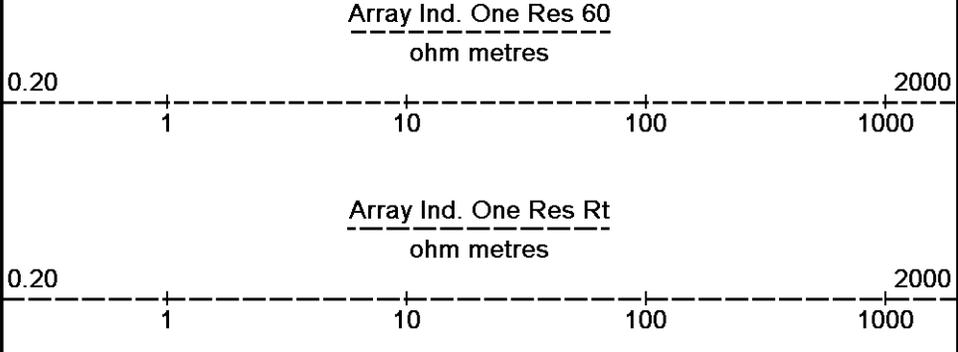
0.20 1 10 100 1000 2000

Array Ind. One Res 40
ohm metres

0.20 1 10 100 1000 2000



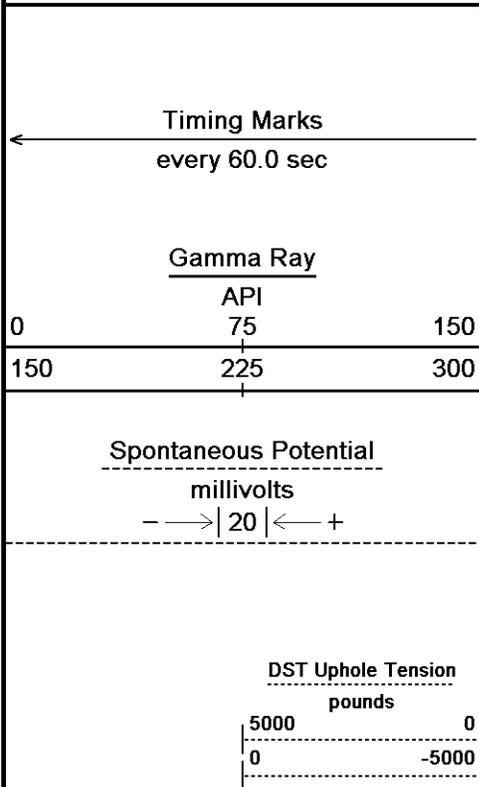
Replay
Scale
1:240



Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 18-NOV-2010 13:59
 Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_002.dta
 Recorded on 18-NOV-2010 11:35
 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

↑ 5 Inch Main Pass ↑

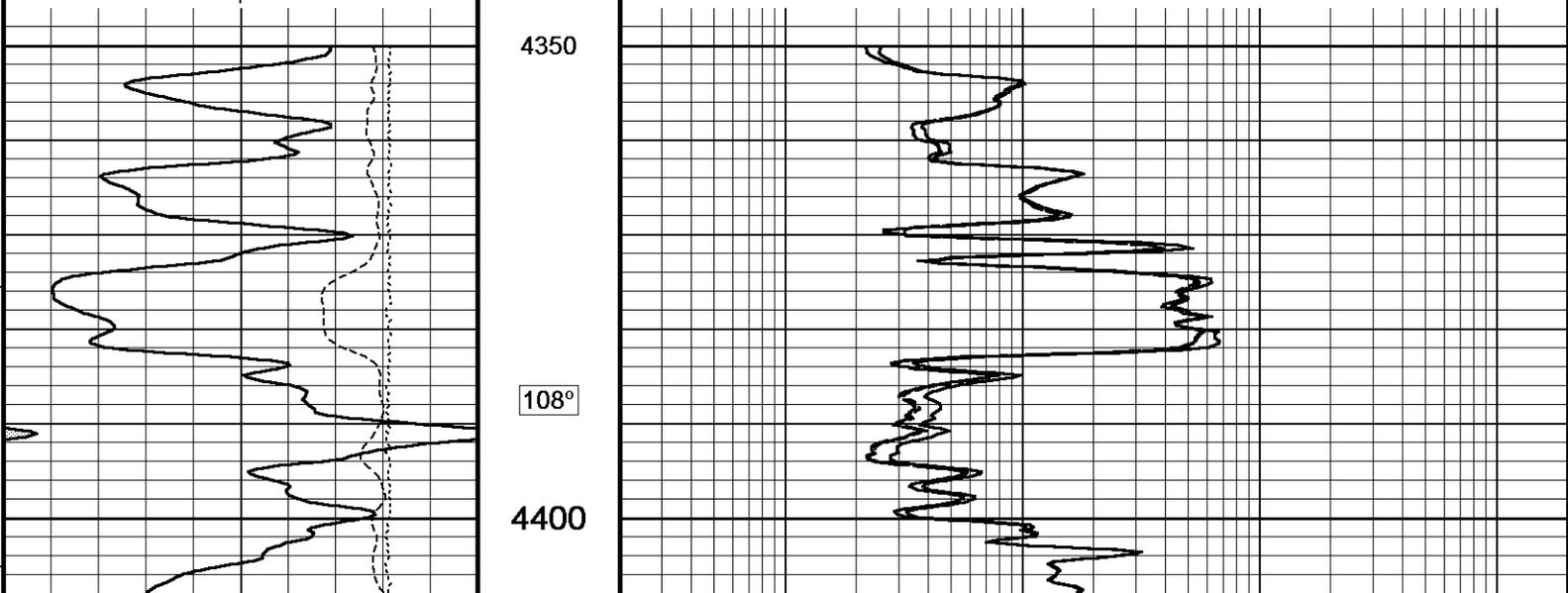
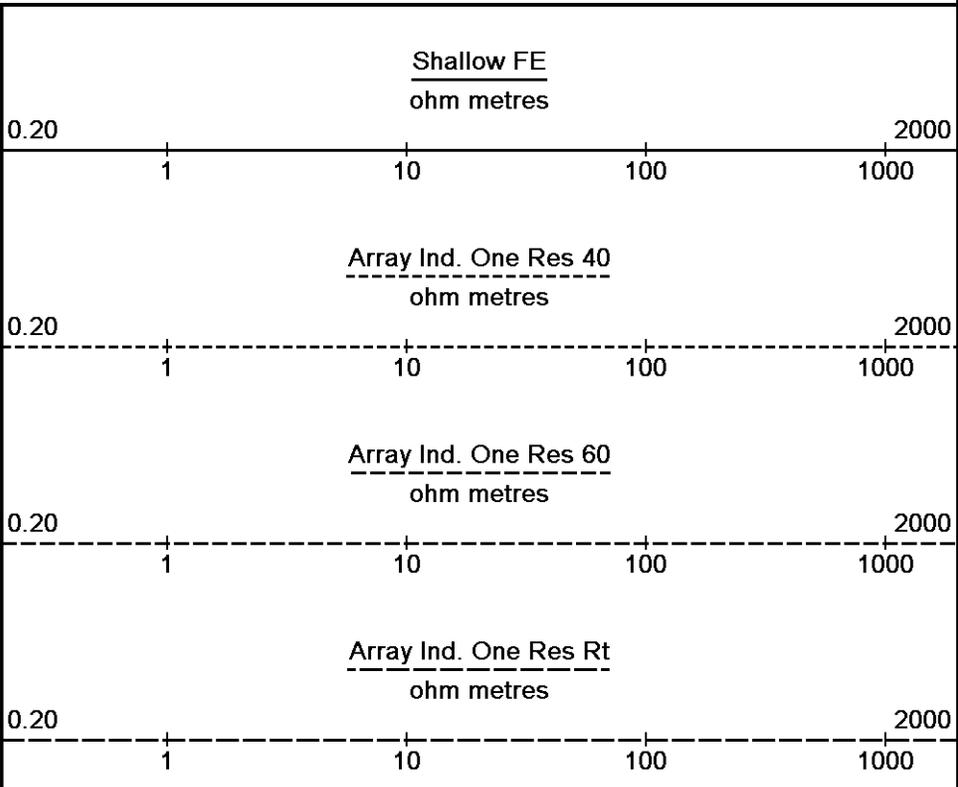
↓ Repeat Section ↓
 Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 18-NOV-2010 13:59
 Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_001.dta
 Recorded on 18-NOV-2010 11:13
 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

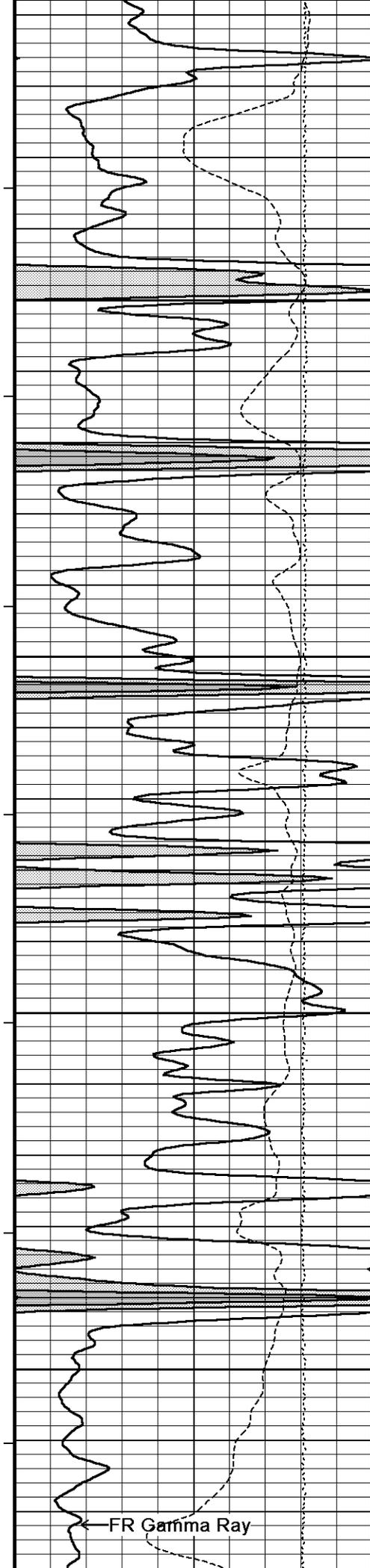


Depth
in
Feet

Borehole
Temp in
deg F

Replay
Scale
1:240





109°

4450

109°

4500

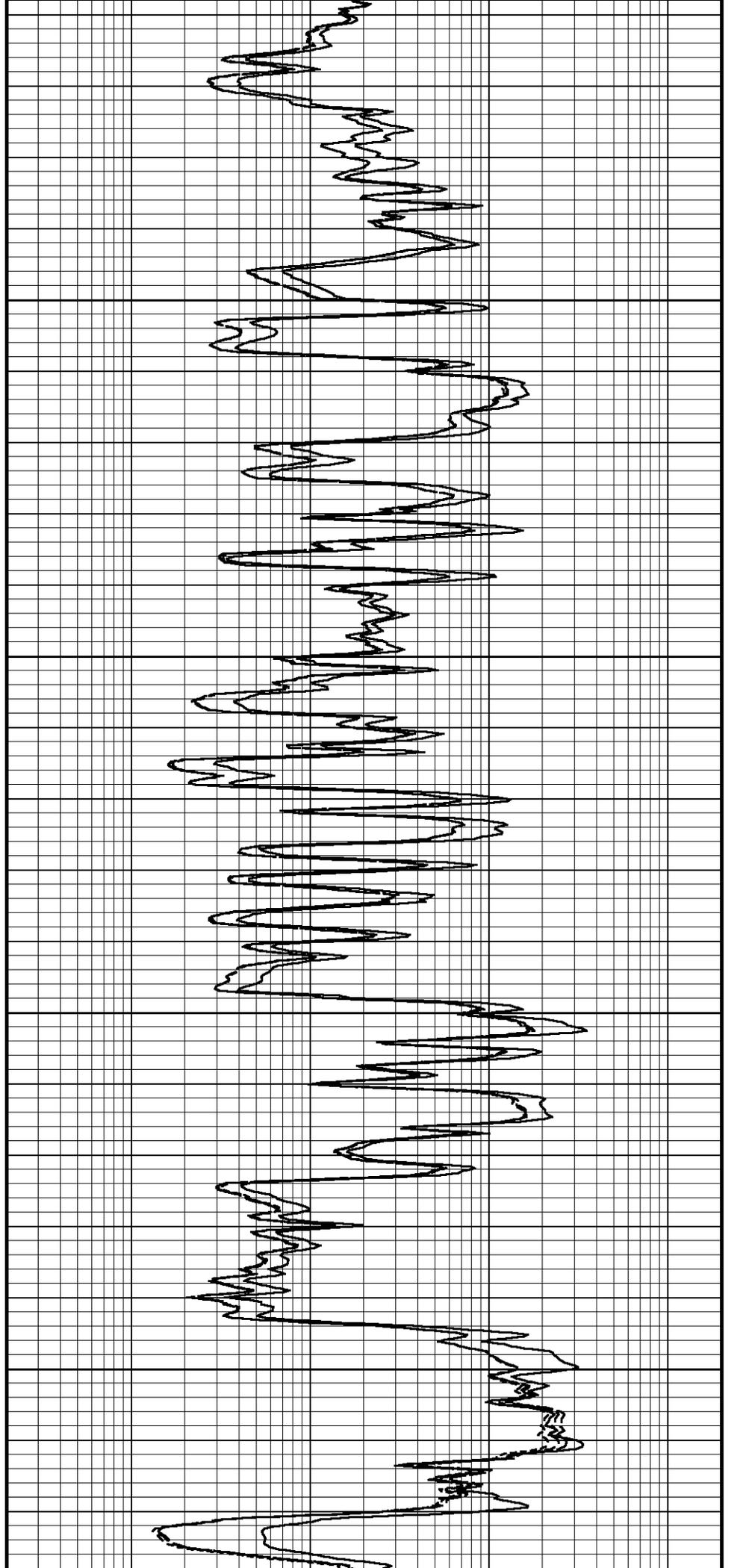
110°

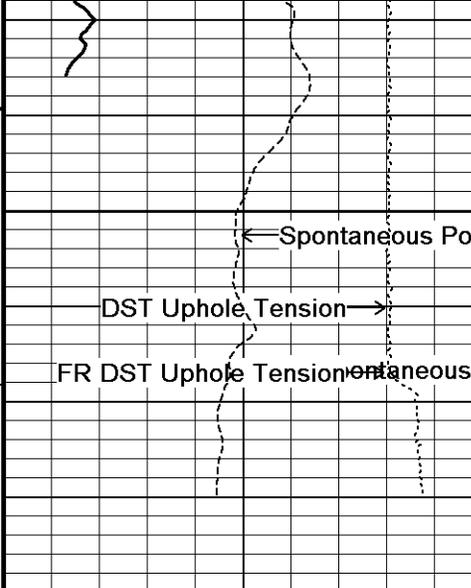
4550

110°

4600

← FR Gamma Ray



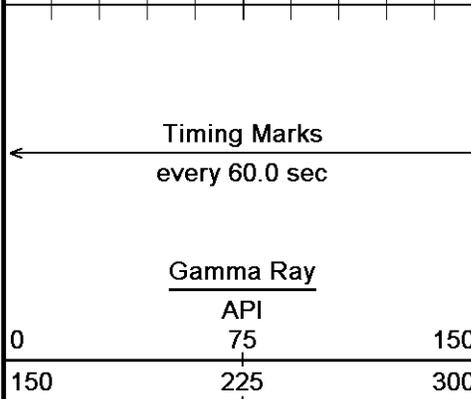
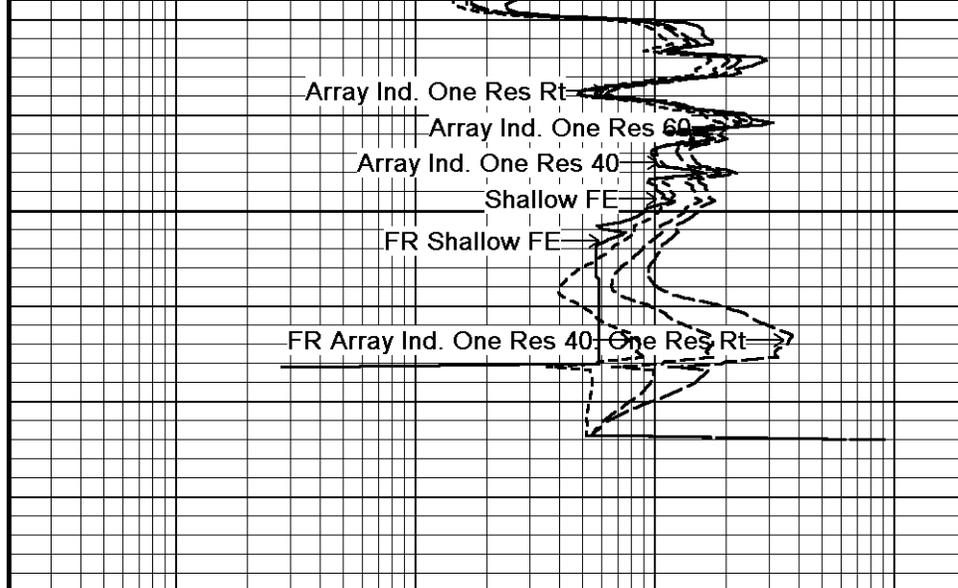


110°

4650

4690

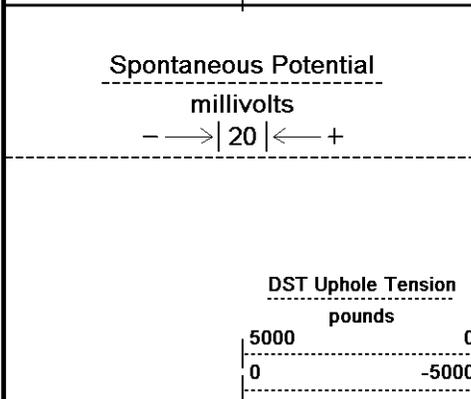
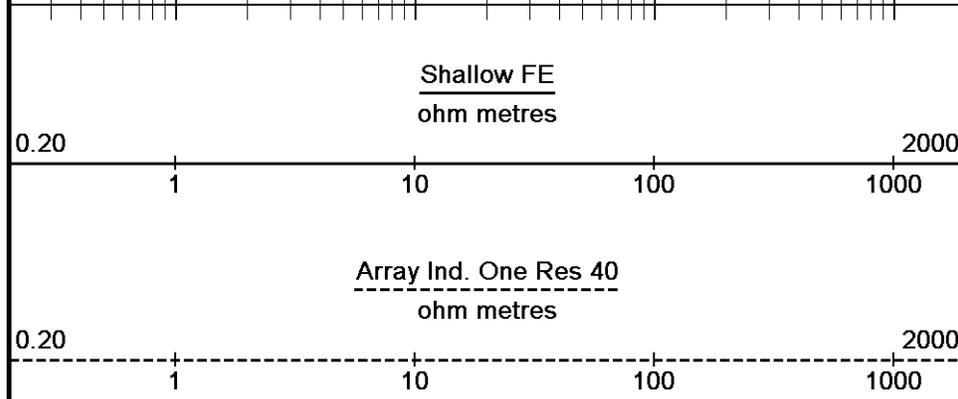
Depth in Feet



4690

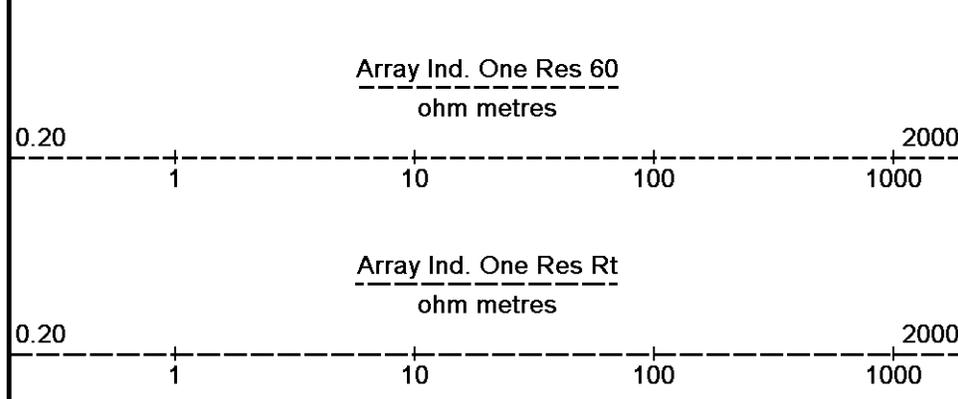
Depth in Feet

Borehole Temp in deg F



Borehole Temp in deg F

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_001.dta

System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

Plotted on 18-NOV-2010 13:59

Recorded on 18-NOV-2010 11:13

↑ Repeat Section ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34.dta

General Constants All 000

Last Edited on 18-NOV-2010,10:07

General Parameters

Mud Resistivity 1.590 ohm-metres

Mud Resistivity Temperature 77.000 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	Limestone Density Por.
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000

High Resolution Temperature Calibration MCG-B 67			Field Calibration on 06-AUG-2010,10:40
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-B 67		Last Edited on 06-AUG-2010,10:39
Pre-filter Length	11	

SP Calibration MCG-B 67			Field Calibration on 09-SEP-2010 13:54
	Measured	Calibrated (mV)	
Reference 1	104.1	100.0	
Reference 2	-95.6	-100.0	

Gamma Calibration MCG-B 67			Field Calibration on 17-NOV-2010 18:06
	Measured	Calibrated (API)	
Background	63	43	
Calibrator (Gross)	732	499	
Calibrator (Net)	669	456	

Gamma Constants MCG-B 67			Last Edited on 18-NOV-2010,09:55
Gamma Calibrator Number	grcc141		
Mud Density	1.12	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 12-NOV-2010 14:02 Field Check on 17-NOV-2010 17:56
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 17-NOV-2010,17:54
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 12-NOV-2010 13:52 Field Calibration on 17-NOV-2010 17:57
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14910	5.96	
2	18255	7.98	
3	21651	9.95	
4	25473	11.91	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.95	5.96	

Neutron Calibration MDN-A.B 41	Base Calibration on 13-OCT-2010 12:02
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Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3163	98	3714	110
Ratio	32.297		33.764	

Field Calibrator at Base

	Calibrated (cps)
	2080
Ratio	0.687

Field Check

	Calibrated (cps)
	2082
Ratio	0.694

Neutron Constants MDN-A.B 41

Last Edited on 18-NOV-2010,09:55

Neutron Source Id	p31124b		
Neutron Jig Number	nj5736		
Epithermal Neutron	No		
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.12	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	MCG External Temperature		
Temperature	N/A	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 67

Base Calibration on 12-NOV-2010 13:38
Field Check on 17-NOV-2010 17:53

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	961.4	126.8
Base Check		280.8
Field Check		280.8

FE Constants MFE-A.A 67

Last Edited on 17-NOV-2010,17:51

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 188

Field Calibration on 02-AUG-2010,11:00

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

High Resolution Temperature Constants MAI-A.A 188

Last Edited on

Pre-filter Length	11
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Induction Calibration MAI-A.A 188

Base Calibration on 09-SEP-2010,10:03
Field Check on 17-NOV-2010 17:51

Base Calibration		Measured		Calibrated (mmho/m)	
Test Loop Calibration	Channel	Low	High	Low	High
	1	16.5	472.3	9.3	966.2
	2	6.0	378.3	7.6	821.4

3	3.5	260.7	5.2	566.0
4	1.1	135.1	2.6	279.2

Array Temperature 82.2 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	13.3	3849.6
2	0.0	0.0	30.6	3571.8
3	0.0	0.0	28.4	3042.6
4	0.0	0.0	21.1	2040.2
Deep	0.0	0.0	18.1	1924.8
Medium	0.0	0.0	40.3	4057.8
Shallow	0.0	0.0	44.9	5365.3
Array Temperature	0.0		49.2	Deg F

Induction Constants MAI-A.A 188

Last Edited on 17-NOV-2010,17:48

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 61

Base Calibration on 13-OCT-2010 11:11
Field Calibration on 17-NOV-2010 17:54

Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	19181	4.01	
2	29014	5.96	
3	39136	7.98	
4	49217	9.95	
5	59496	11.91	
6	N/A	N/A	

Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	6.00	5.96	

Density Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Base Calibration				
Reference 1	41790	18625	59556	30836
Reference 2	16181	1657	24941	2541

Field Check at Base
682.5 840.7

Field Check
679.8 839.8

PE Calibration	Base Calibration	Measured		Calibrated
		WS	WH	Ratio
				Ratio
	Background	124	608	
	Reference 1	16630	41682	0.402
	Reference 2	4501	16101	0.282

Field Check at Base
124.3 608.4

Field Check
125.8 607.2

Density Constants MPD-B 61

Last Edited on 18-NOV-2010,09:54

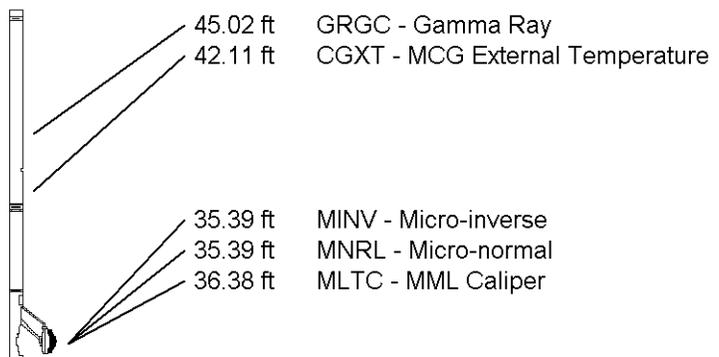
Density Source Id	20718b	
Nylon Calibrator Number	dnce695	
Aluminium Calibrator Number	dacd698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry 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	0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34.dta

Compact Comms Gamma
MCG-B 67 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 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

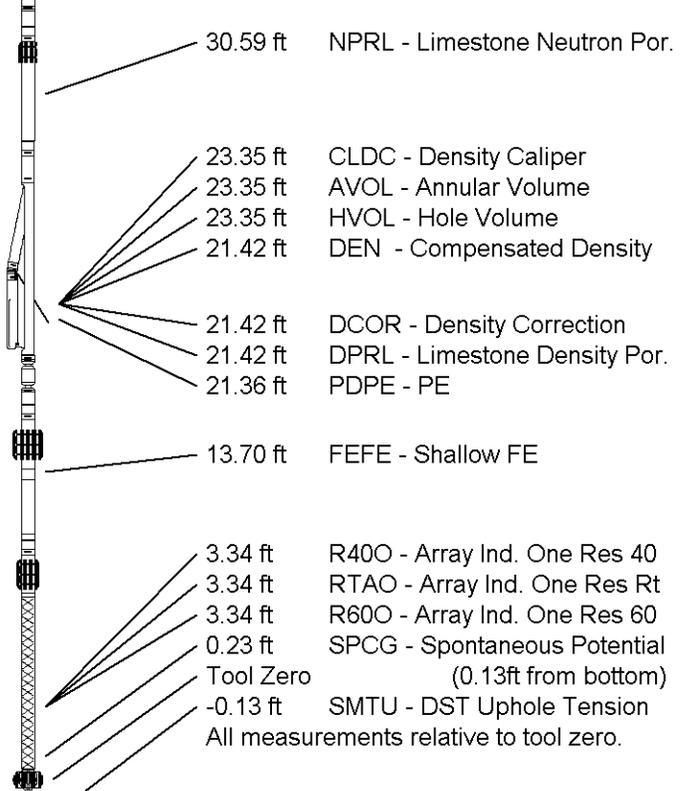
Compact Density/Caliper
MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focused Electric
MFE-A.A 67 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.30 ft Weight: 407.9 lb



COMPANY GRAND MESA OPERATING COMPANY, INC.
WELL SMITH #1-34
FIELD WILDCAT
PROVINCE/COUNTY LOGAN
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2983.00	feet	First Reading	4664.00	feet
Elevation Drill Floor	2982.00	feet	Depth Driller	4670.00	feet
Elevation Ground Level	2978.00	feet	Depth Logger	4667.00	feet

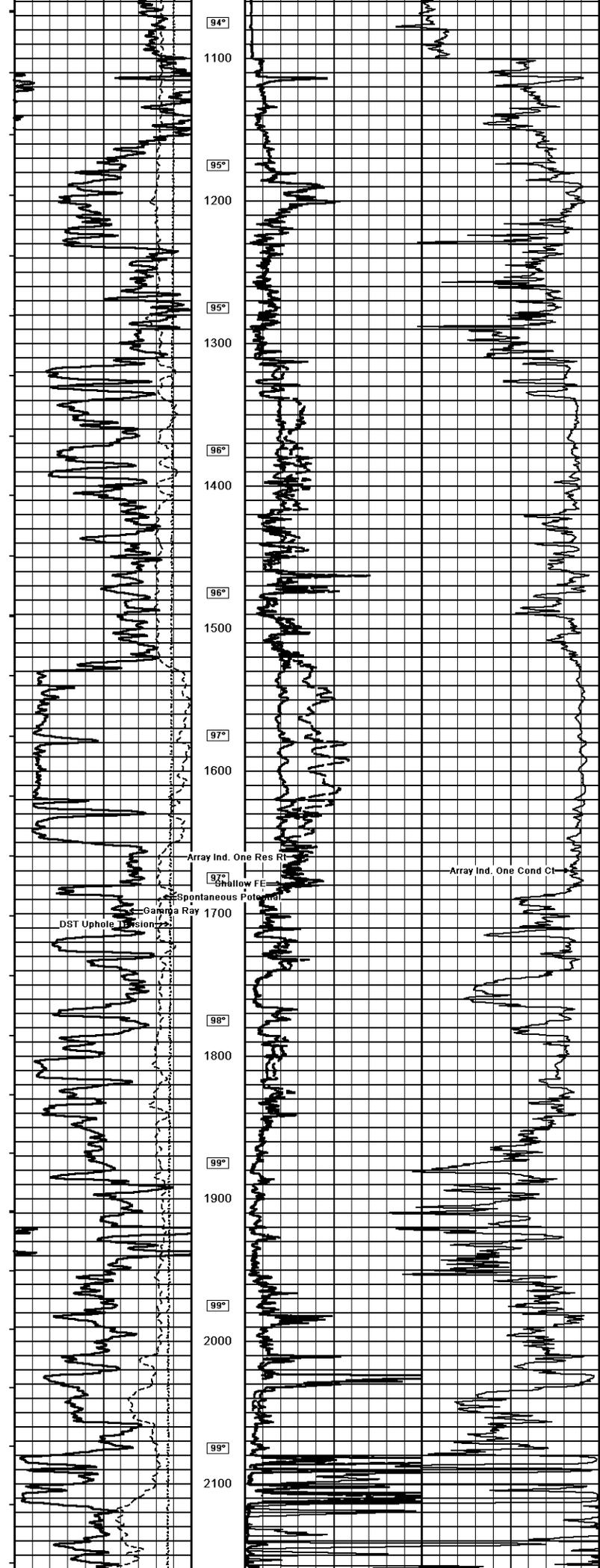


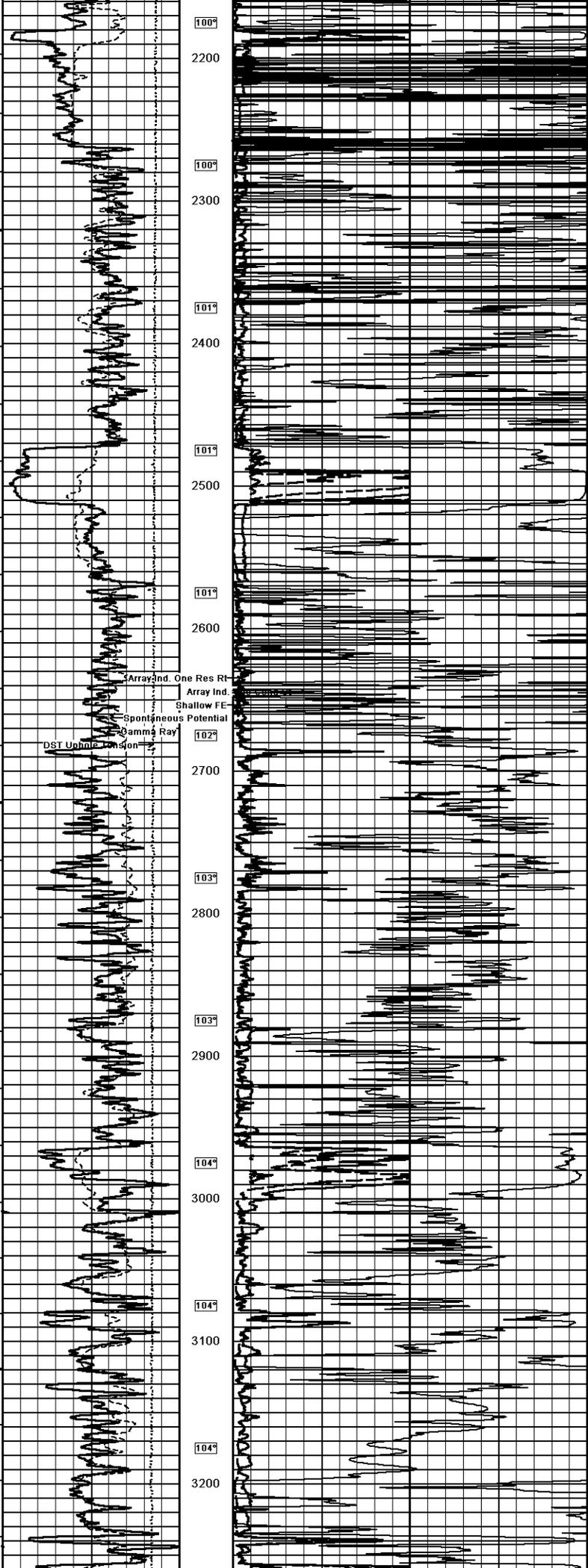
Weatherford[®]

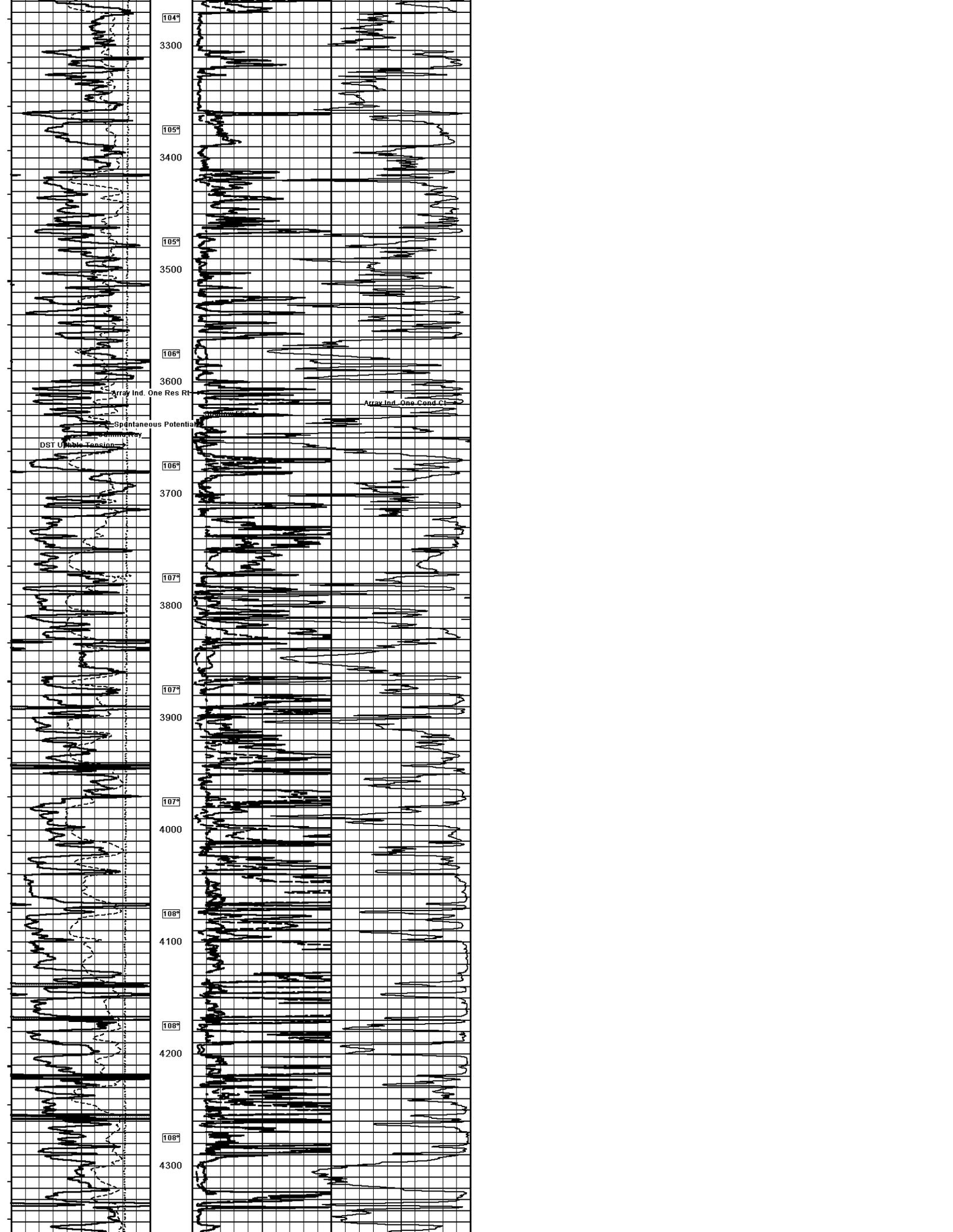
**ARRAY INDUCTION
 SHALLOW FOCUSED
 ELECTRIC LOG**

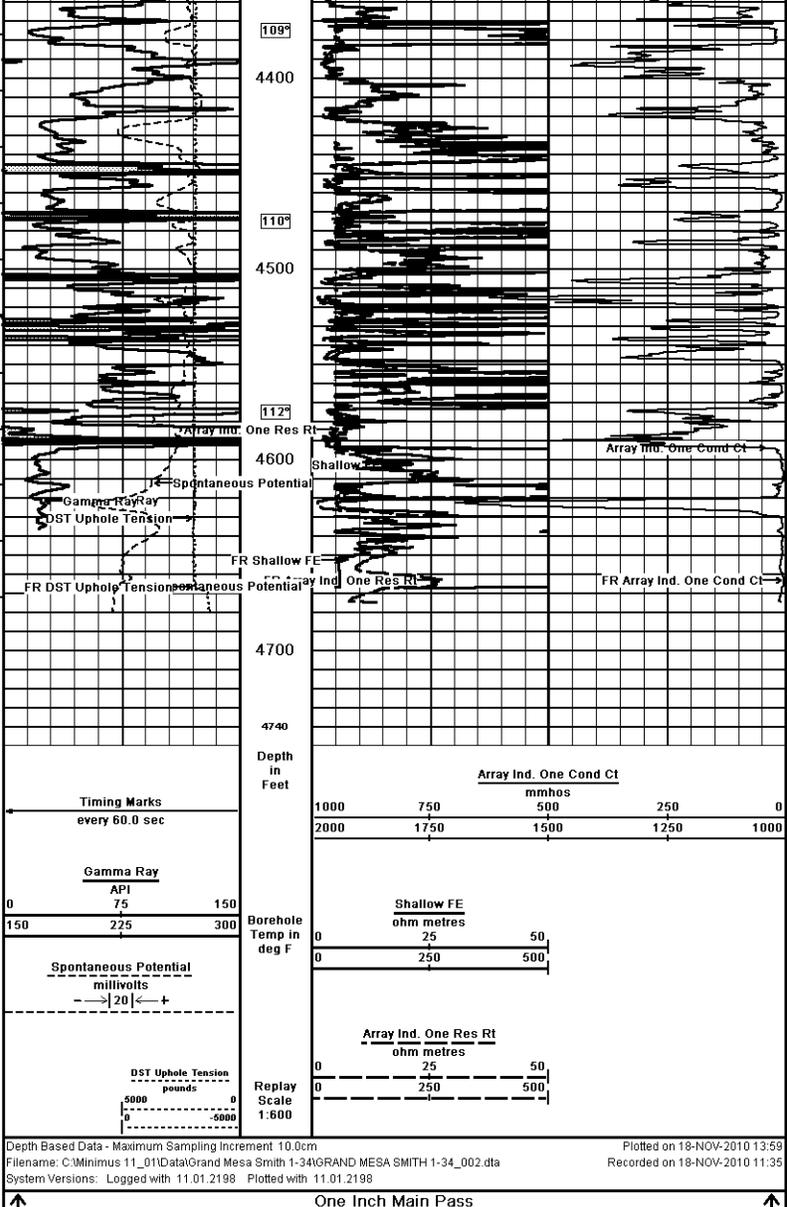


Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY: GRAND MESA OPERATING COMPANY, INC.		WELL: SMITH #1-34	
FIELD: WILDCAT		PROVINCE/COUNTY: LOGAN	
COUNTRY/STATE: U.S.A. / KANSAS		LOCATION: 1898' FNL & 2374' FWL	
LOG NUMBER: 15-108-20993	DATE: 18-NOV-2010	LOG MEASURED FROM: K.B. @ 5 FEET ABOVE PERMANENT DATUM	LOG MEASURED FROM: K.B.
Run Number	ONE	Depth Driller	4670.00 feet
First Reading	4664.00 feet	Depth Logger	4667.00 feet
Casing Driller	209.00 feet	Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL	Density/Viscosity	9.30 lb/USG @ 62.00 CP
Sample Source	FLOWLINE	PH/Fluid Loss	10.00 @ 8.00 m/30min
Rm @ Measured Temp	1.59 @ 77.0 oF	Rm @ Measured Temp	1.27 @ 77.0 oF
Rm @ Measured Temp	1.91 @ 77.0 oF	Rm @ Measured Temp	1.91 @ 77.0 oF
Time Since Circulation	4 HOURS	Max Recorded Temp	112.00 deg F
Equipment Name	COMPACT	Equipment Base	13006
Recorded By	LYNN SCOTT	Witnessed By	STEVE STEMBLING
LOG #	3524023	LOG #	1810-291









Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 18-NOV-2010 13:59
 Filename: C:\Minimus 11_01\Data\Grand Mesa Smith 1-34\GRAND MESA SMITH 1-34_002.dta
 Recorded on 18-NOV-2010 11:35
 System Versions: Logged with 11.01.2198 Plotted with 11.01.2198

One Inch Main Pass

COMPANY	GRAND MESA OPERATING COMPANY, INC.		
WELL	SMITH #1-34		
FIELD	WILDCAT		
PROVINCE/COUNTY	LOGAN		
COUNTRY/STATE	U.S.A. / KANSAS		
Elevation Kelly Bushing	2983.00	feet	First Reading
Elevation Drill Floor	2982.00	feet	Depth Driller
Elevation Ground Level	2978.00	feet	Depth Logger
			4664.00
			4670.00
			4667.00



Weatherford

ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG



40
years of
Wireline