



ARRAY INDUCTION - RTAP SHALLOW FOCUSED ELECTRIC LOG

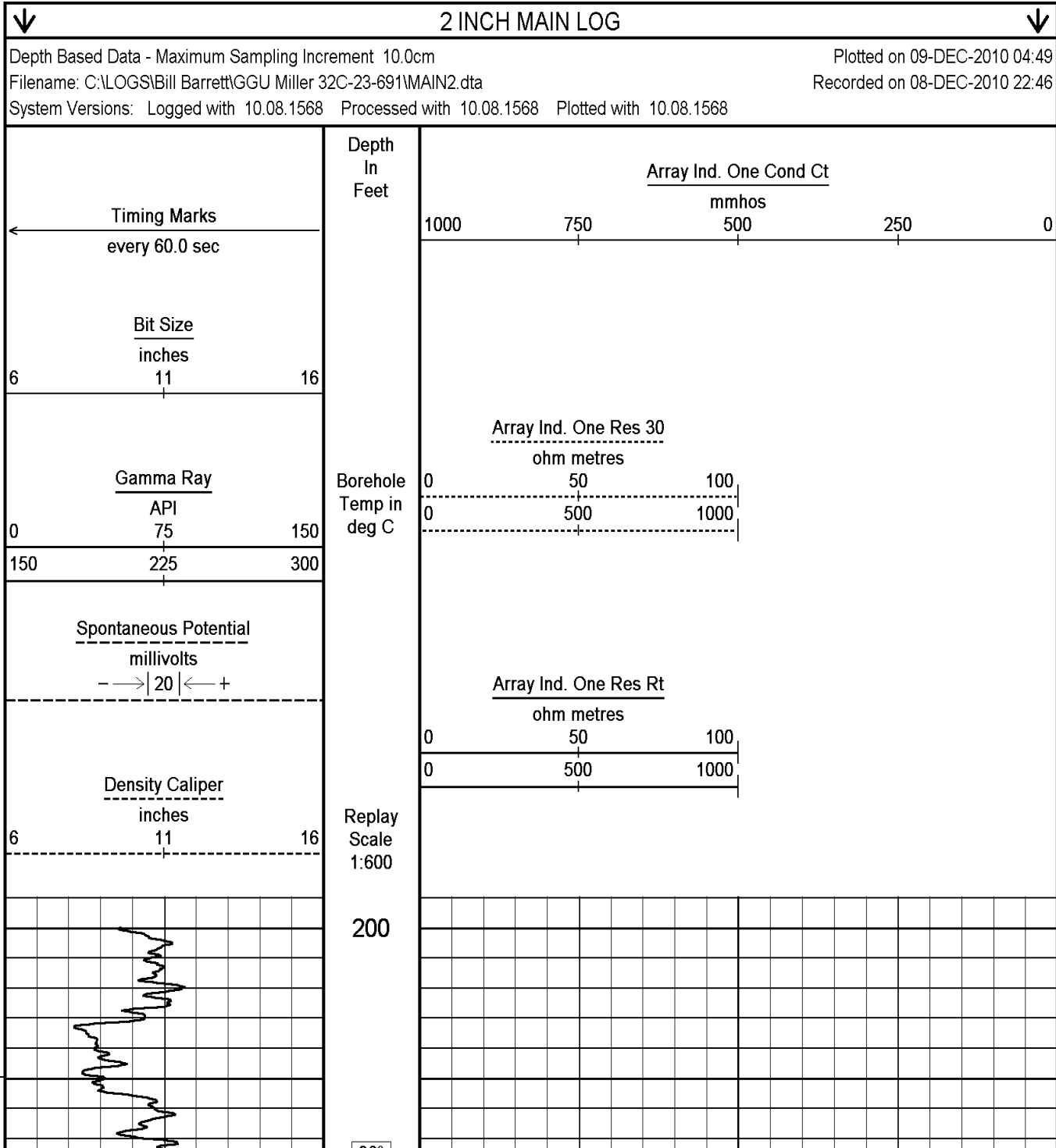
COMPANY				BILL BARRETT CORPORATION			
WELL				GGU MILLER 23C-32-691			
FIELD				GIBSON GULCH			
PROVINCE/COUNTY				GARFIELD			
COUNTRY/STATE				U.S.A. / COLORADO			
LOCATION				SHL: 1256' FSL & 2297' FWL BHL: 2130' FSL & 1990' FWL			
SEC	TWP	RGE	Other Services				
32	6S	91W	MPD/MDN				
API Number		05-045-19430					
Permit Number							
Permanent Datum G.L., Elevation 6121 feet							
Log Measured From K.B. @ 23 FEET above Permanent Datum							
Drilling Measured From K.B.							
Date	8-DEC-2010			Elevations:		feet	
				KB		6144.00	
				DF		6143.00	
				GL		6121.00	
Run Number	ONE						
Depth Driller	7333.00			feet			
Depth Logger	7335.00			feet			
First Reading	7321.00						
Last Reading	200.00						
Casing Driller	781.00			feet			
Casing Logger	785.00			feet			
Bit Size	7.880			inches			
Hole Fluid Type	LSND						
Density / Viscosity	10.60 lb/USg			58.00 CP			
PH / Fluid Loss	9.40			7.20 ml/30Min			
Sample Source	FLOW LINE						
Rm @ Measured Temp	2.45 @ 96.0			ohm-m			
Rmf @ Measured Temp	1.96 @ 96.0			ohm-m			
Rmc @ Measured Temp	2.94 @ 96.0			ohm-m			
Source Rmf / Rmc	CALC			CALC			
Rm @ BHT	1.25 @ 190.0			ohm-m			
Time Since Circulation	6 HOURS						
Max Recorded Temp	190.00			deg F			
Equipment Name	COMPACT						
Equipment / Base	13173			GD JCT			
Recorded By	M.RICHINS						
Witnessed By	C.CROW						

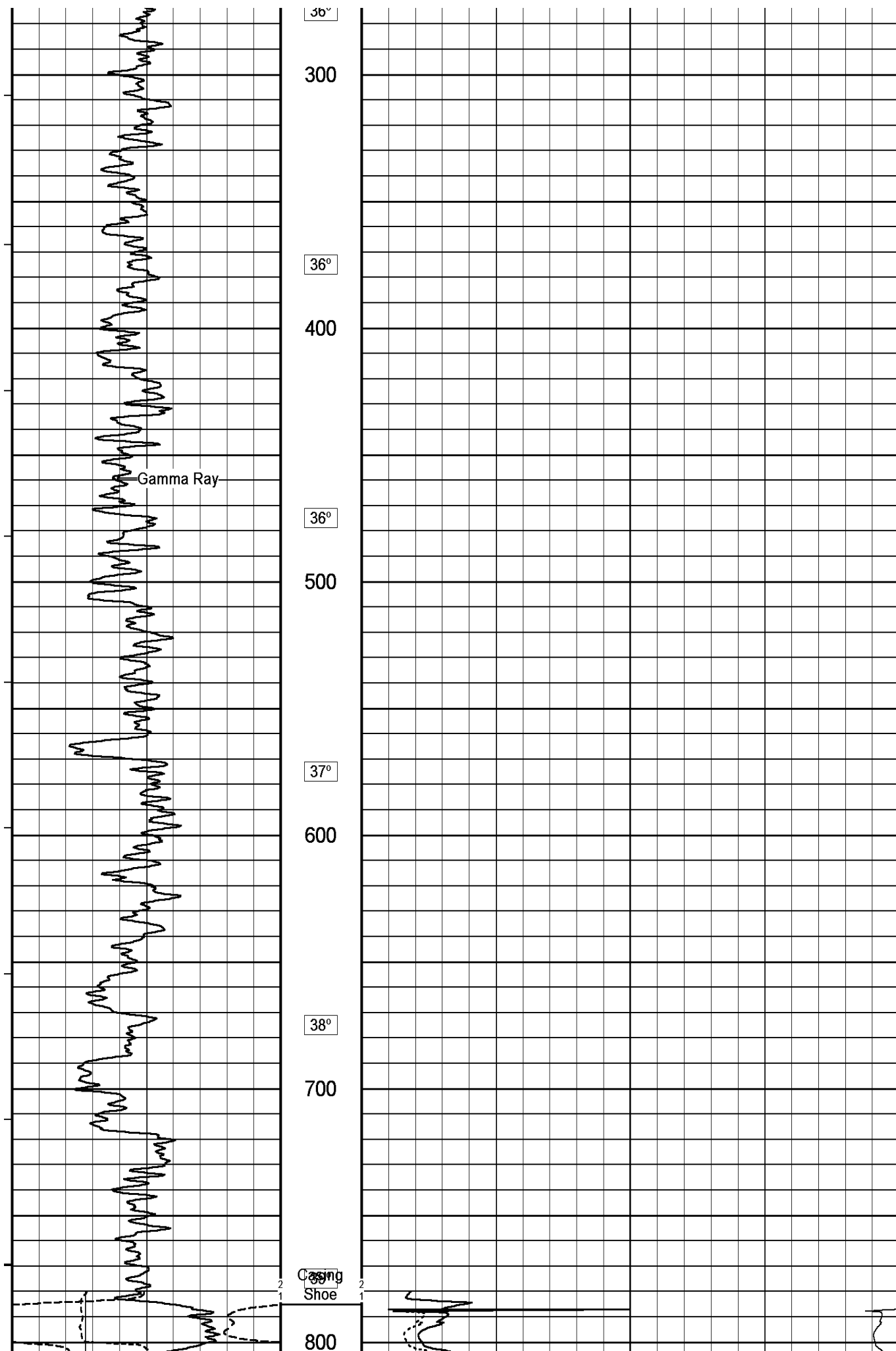
BOREHOLE RECORD			Last Edited: 08-DEC-2010 19:31	
Bit Size inches	Depth From feet	Depth To feet		
8.750	781.00	5521.00		
7.880	5521.00	7325.00		
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	781.00	36.00

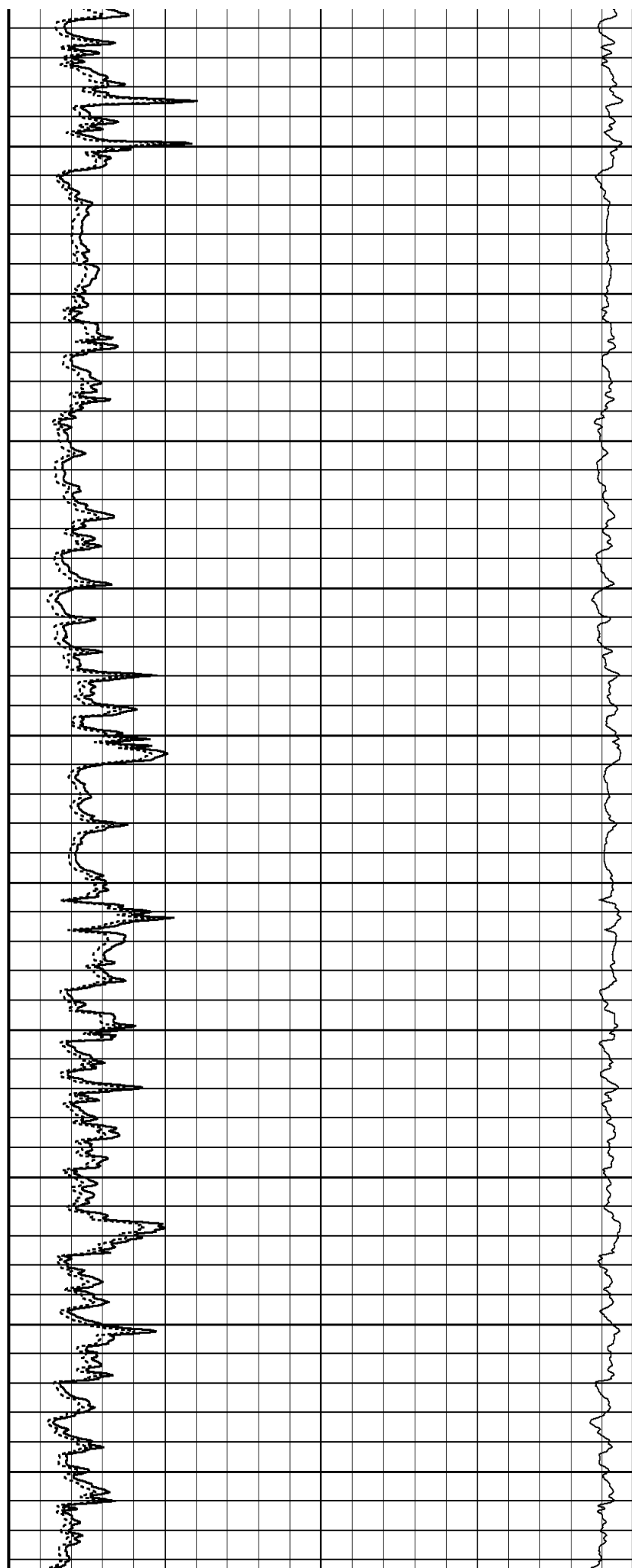
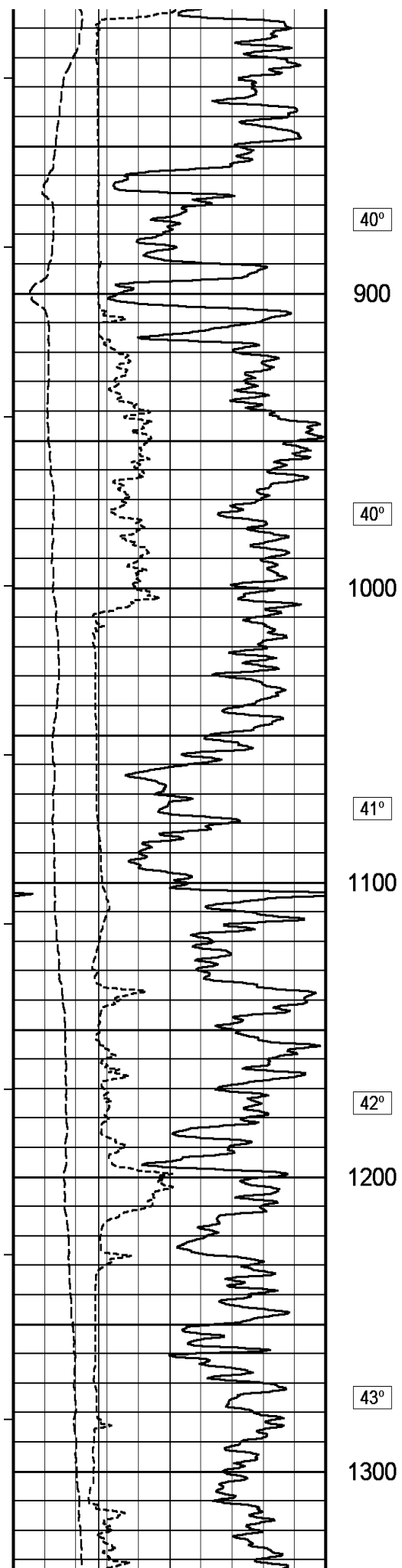
REMARKS	
TOOLS: SHA, MCG, MDN, MPD, SKJ, MFE AND MAI RAN IN COMBINATION.	
HARDWARE: MPD: 8 INCH PROFILE PLATE USED. ONE 0.5 INCH STANDOFFS USED ON INDUCTION. ONE 0.5 INCH STANDOFFS USED ON MFE. DUAL BOWSPRING USED ON NEUTRON.	
2.68 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.	
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.	
TIGHT PULLS, BOREHOLE SIZE, AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY.	
CALIPER CHECK IN CASING PRESENTED, REFERENCE I.D. = 8.92" (9 5/8", 36 LB/FT CASING)	
8.75 INCH BIT USED FROM SURFACE CASING TO 5521 FT.	

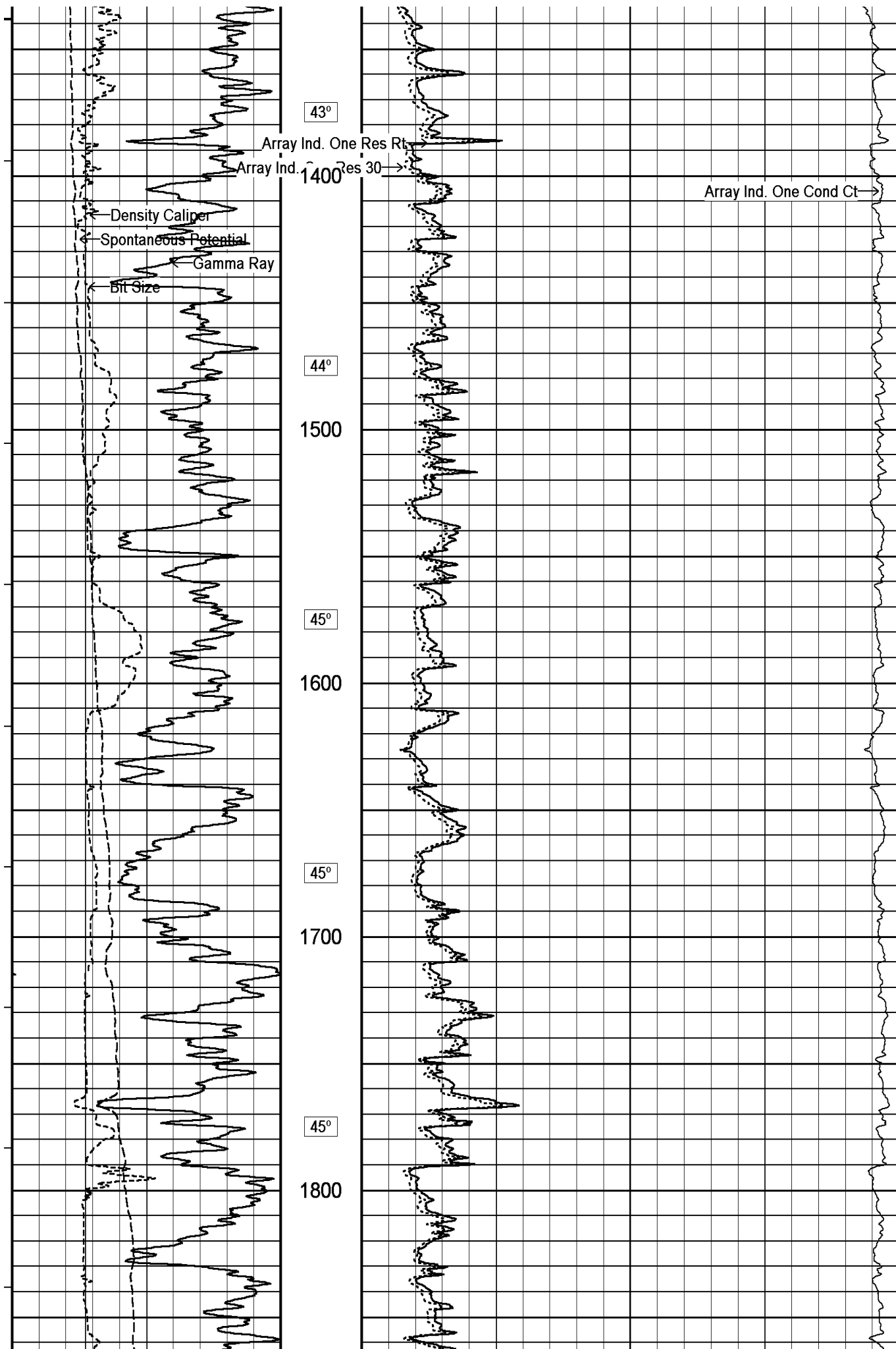
RIG: PATTERSON #307

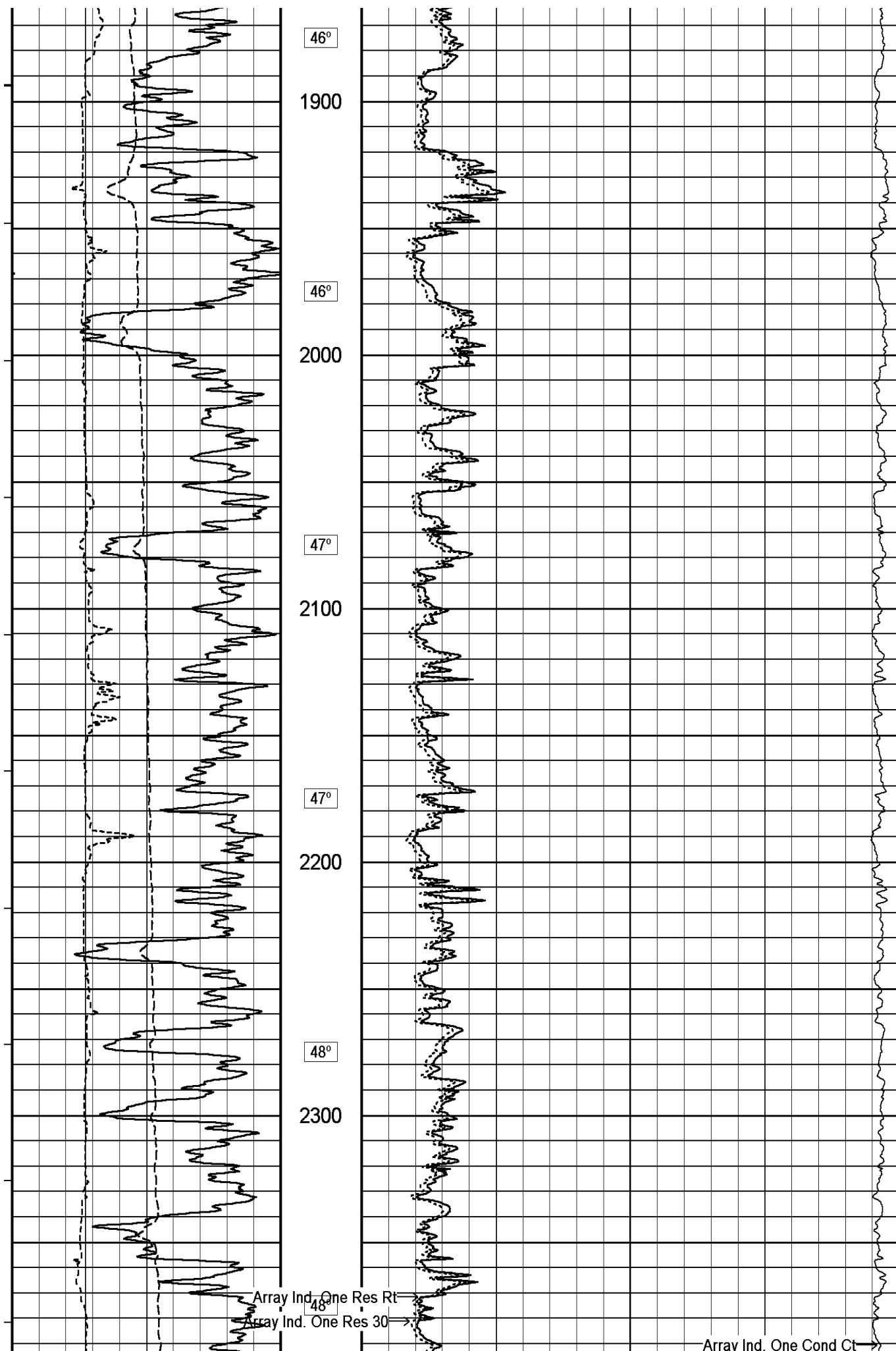
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

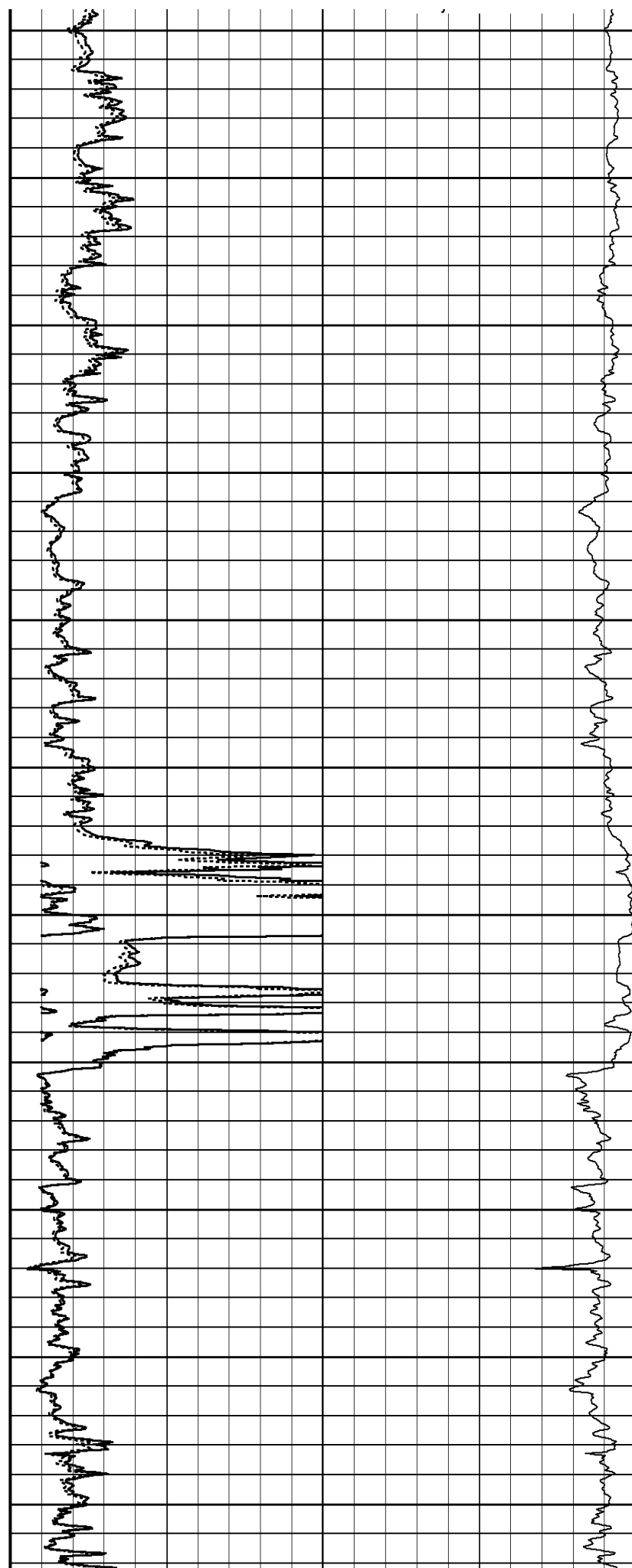
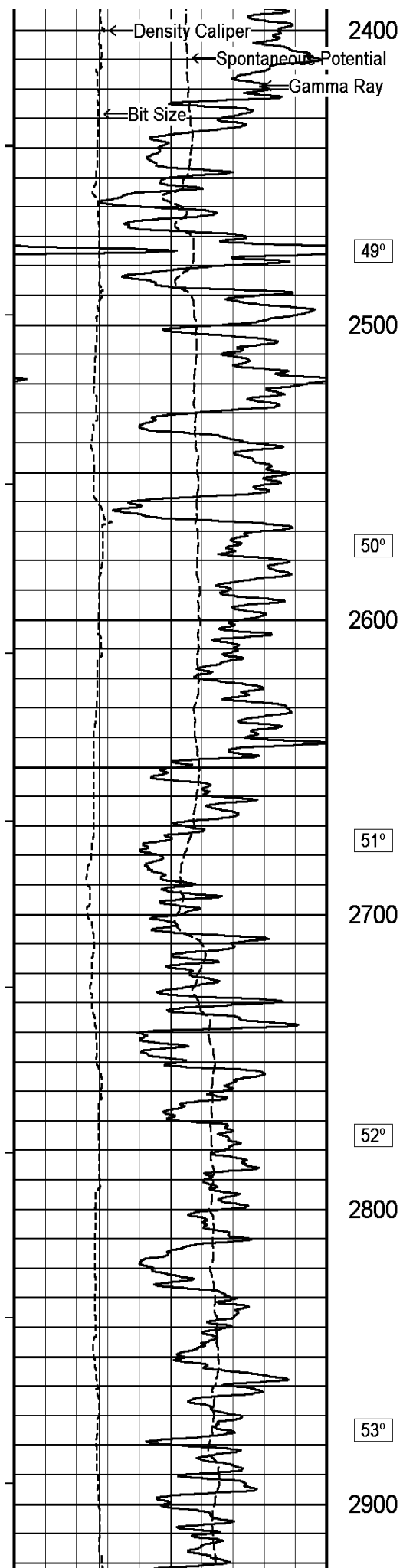


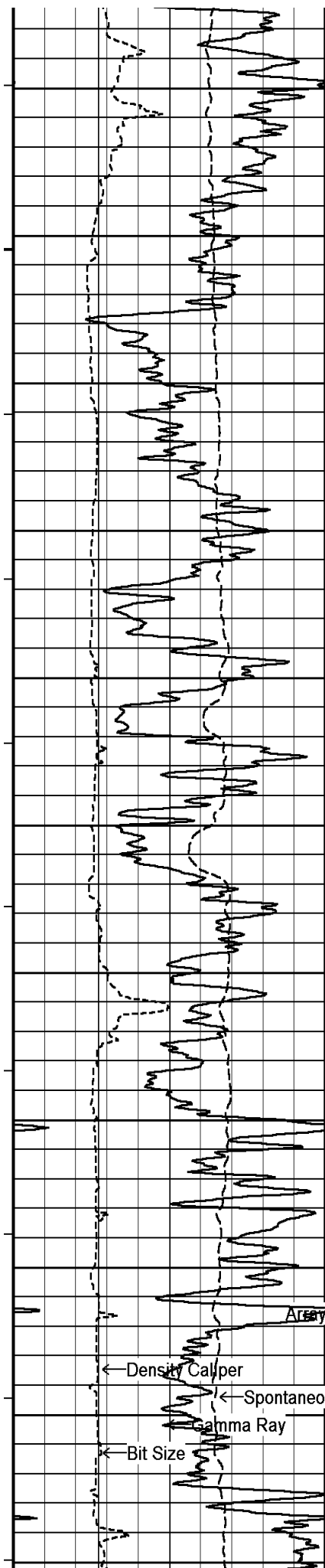












54°

3000

54°

3100

55°

3200

55°

3300

56°

Potential
3400

Array Ind. One Res 30

Density Caliper

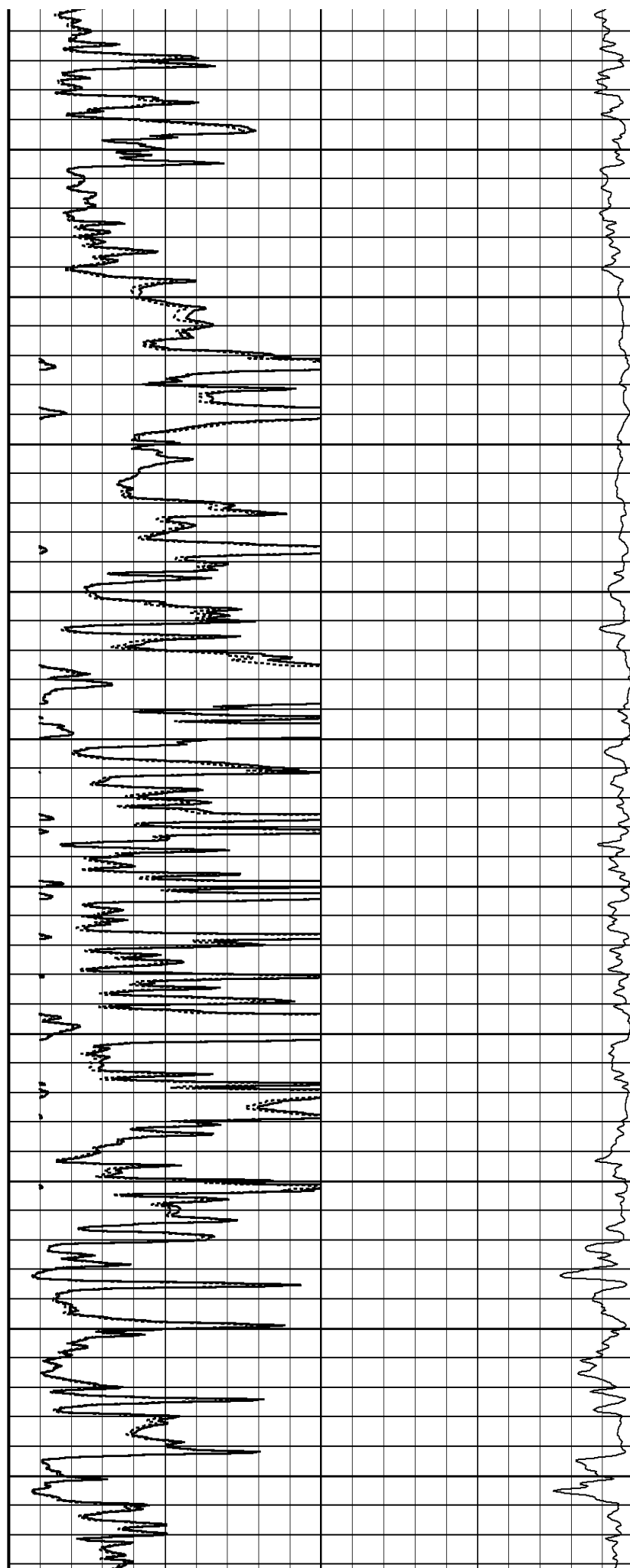
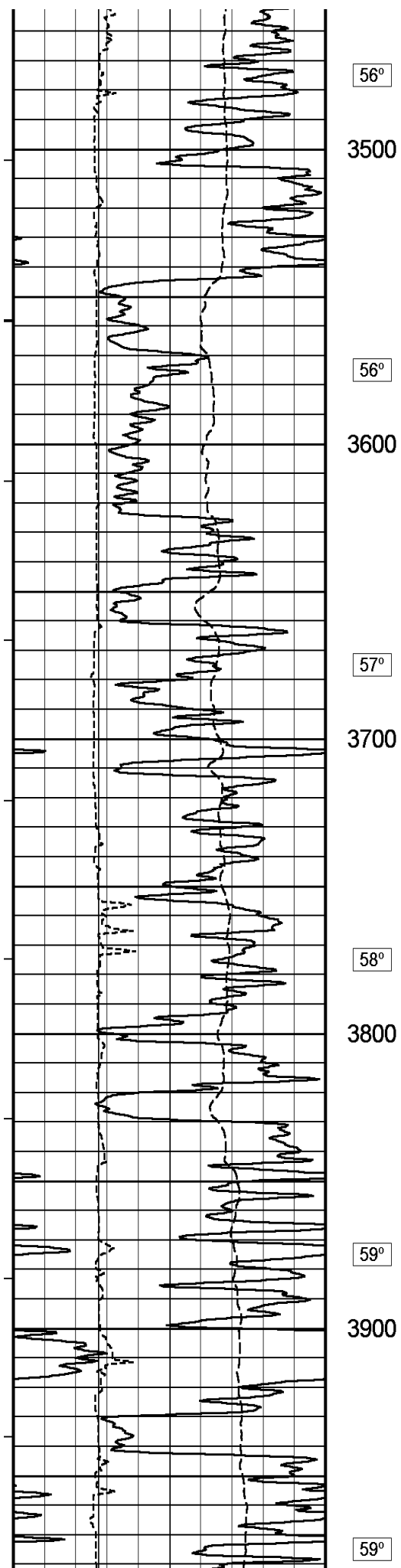
Spontaneous

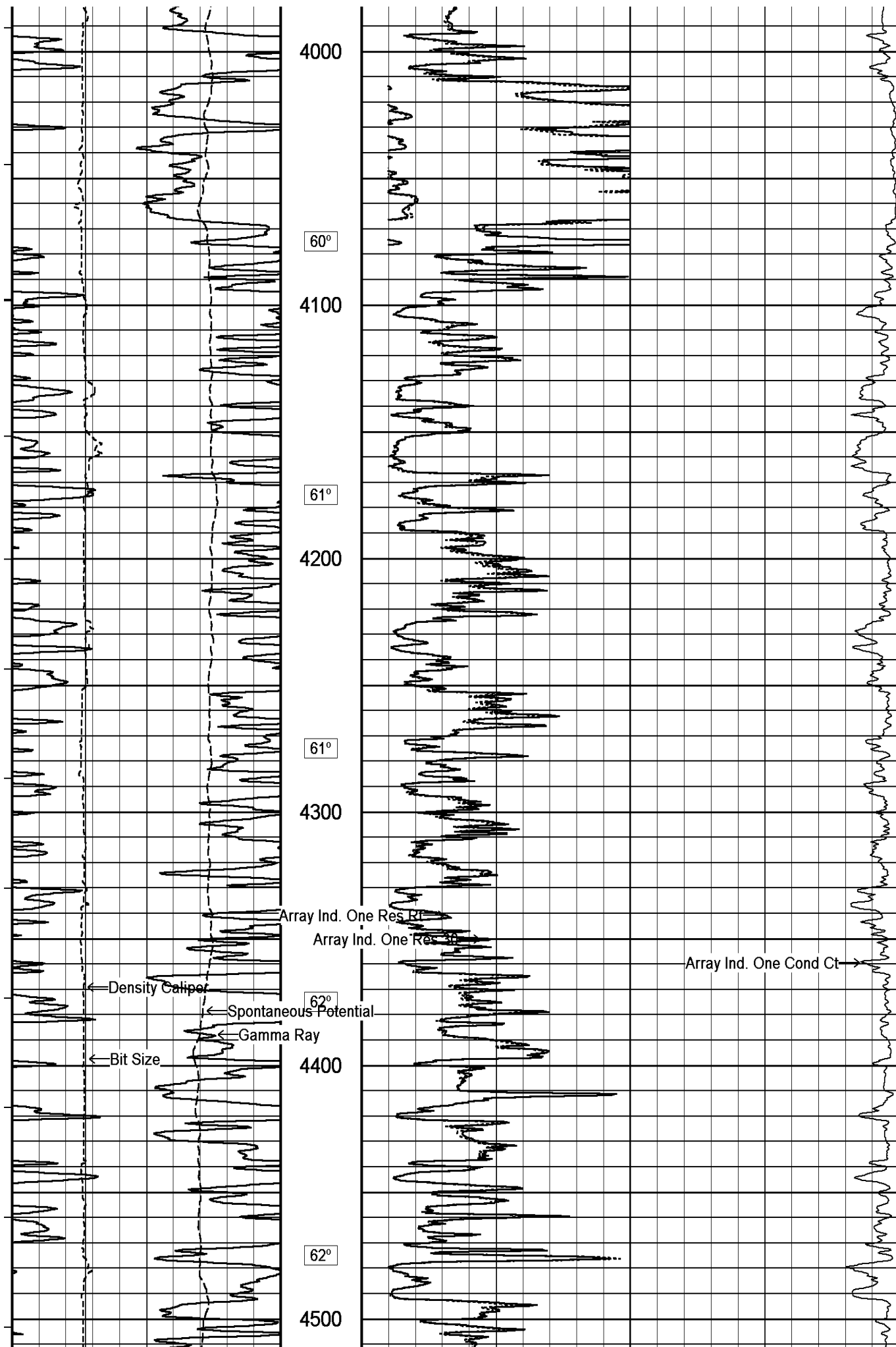
Gamma Ray

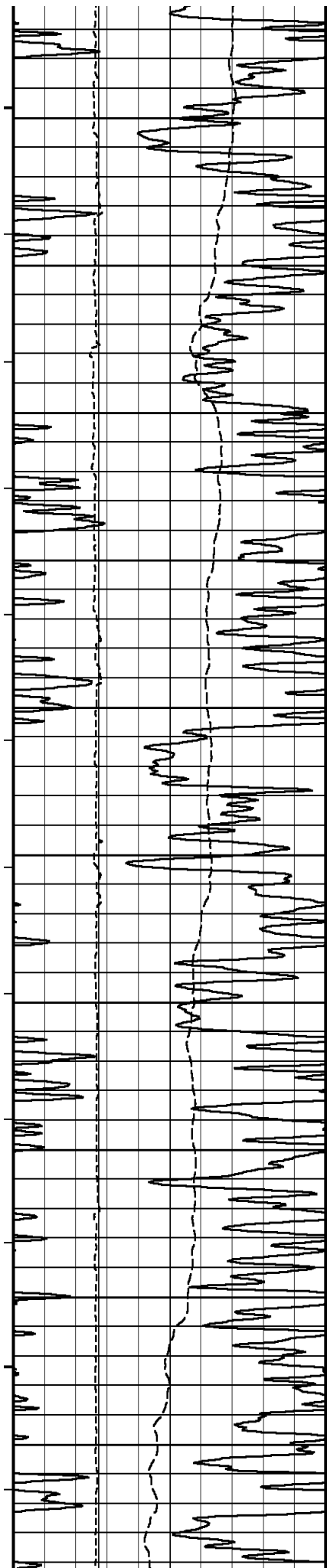
Bit Size

Array Ind. One Res Rt.

Array Ind. One Cond Ct







63°

4600

64°

4700

64°

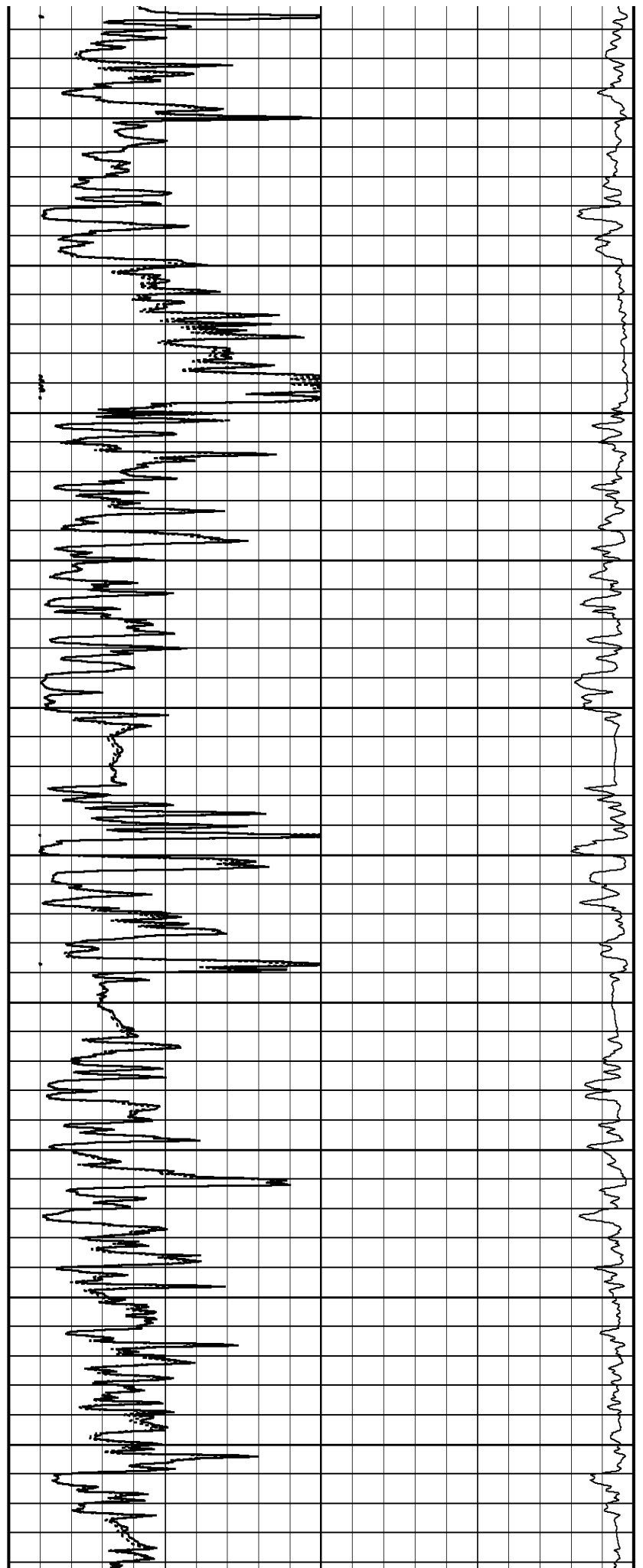
4800

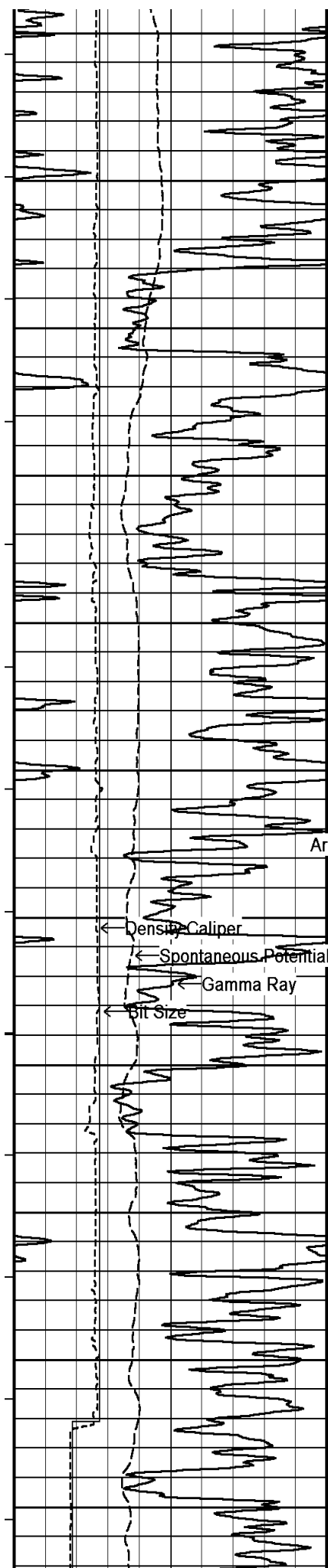
65°

4900

66°

5000





66°

5100

67°

5200

68°

5300

Array Ind. One Res Rt

Array Ind. One Res 30

Density Caliper

Spontaneous Potential

Gamma Ray

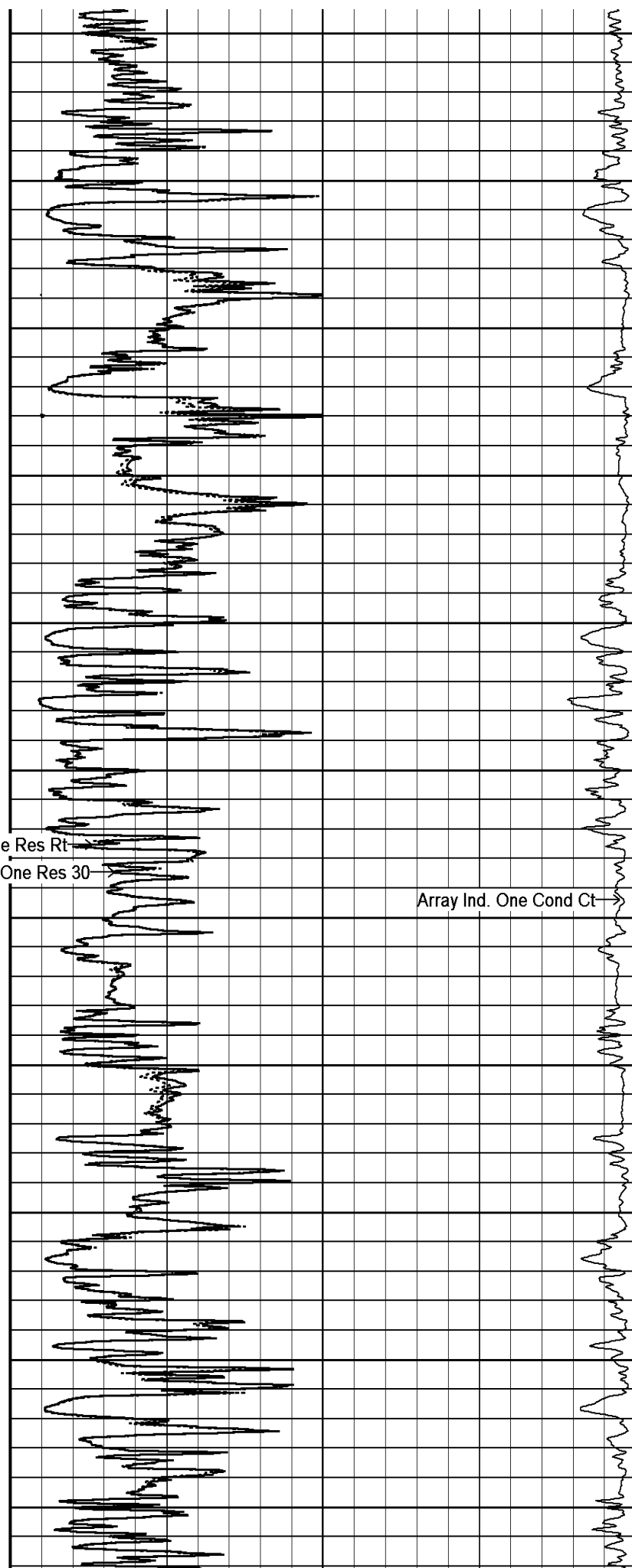
Bit Size

68°

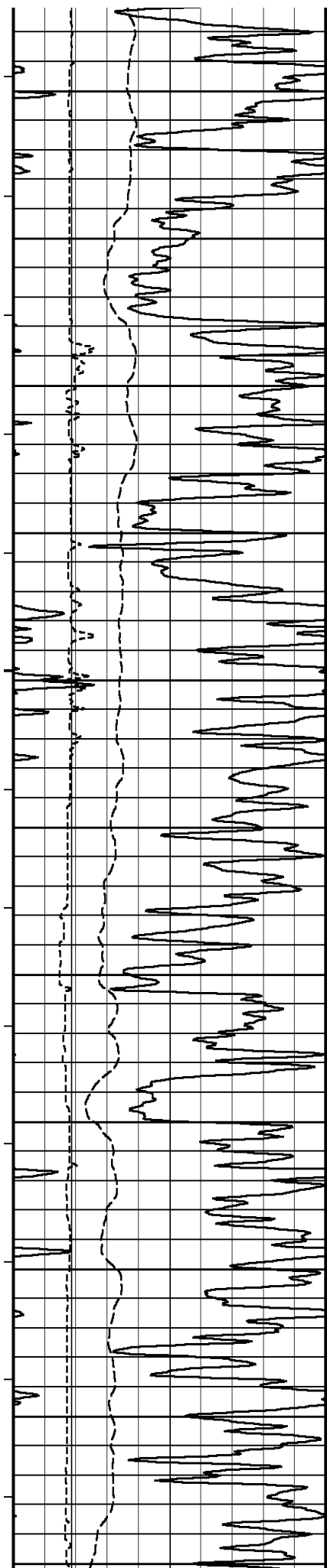
5400

69°

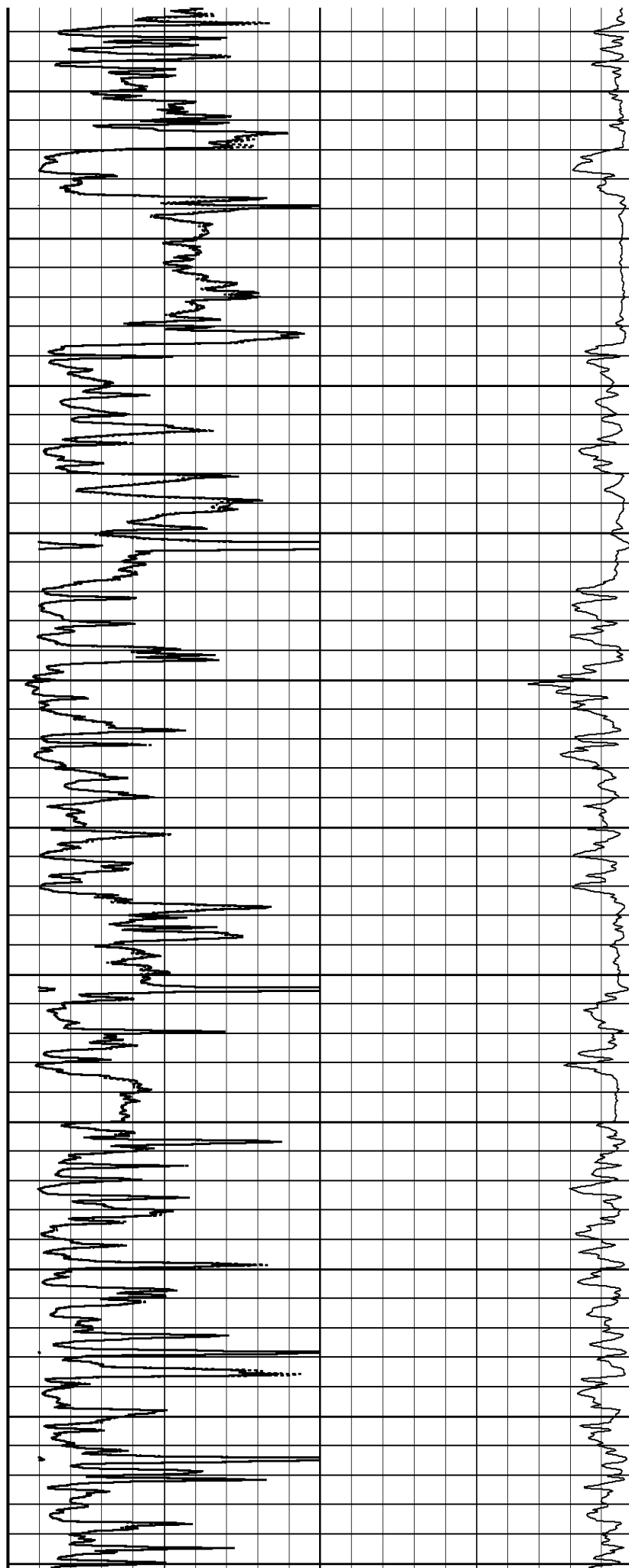
5500

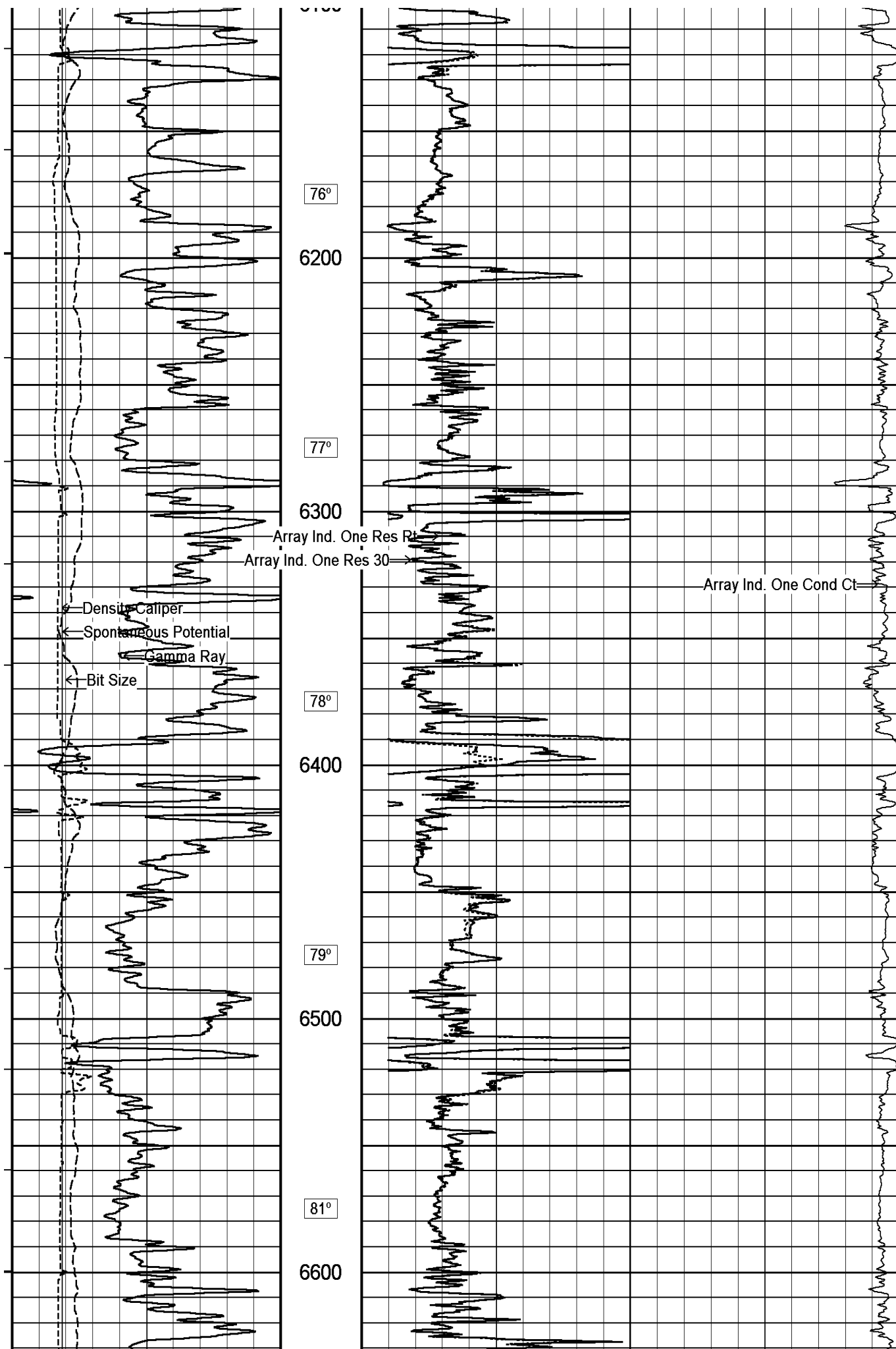


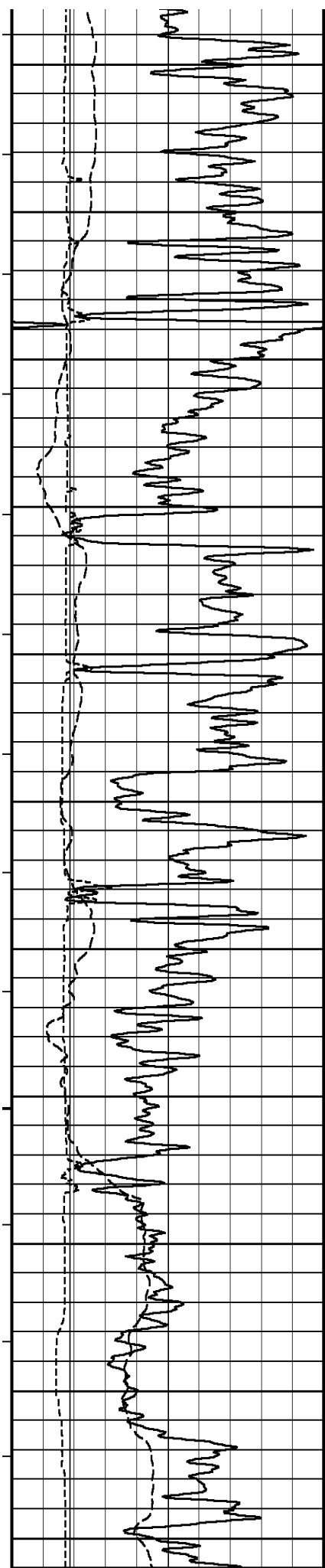
Array Ind. One Cond Ct



70° 5600 71° 5700 72° 5800 73° 5900 73° 6000 75° 6100







81°

6700

82°

6800

83°

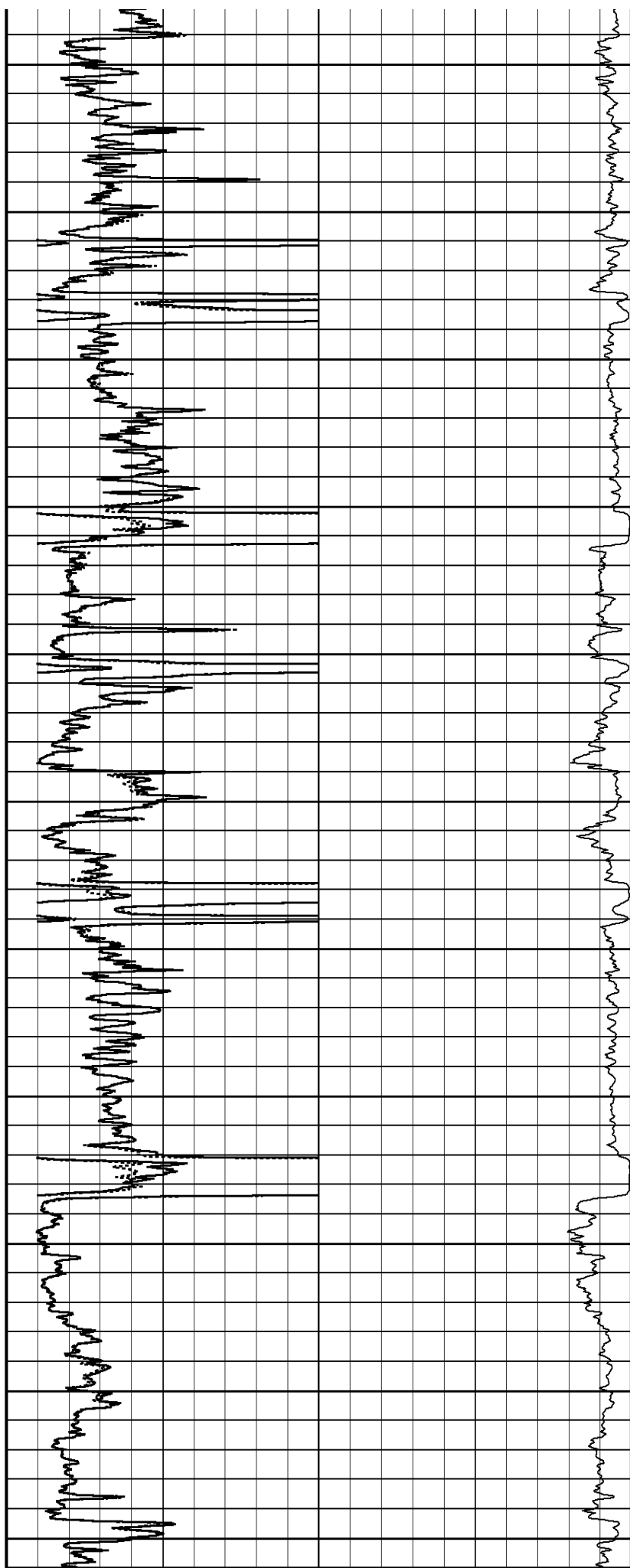
6900

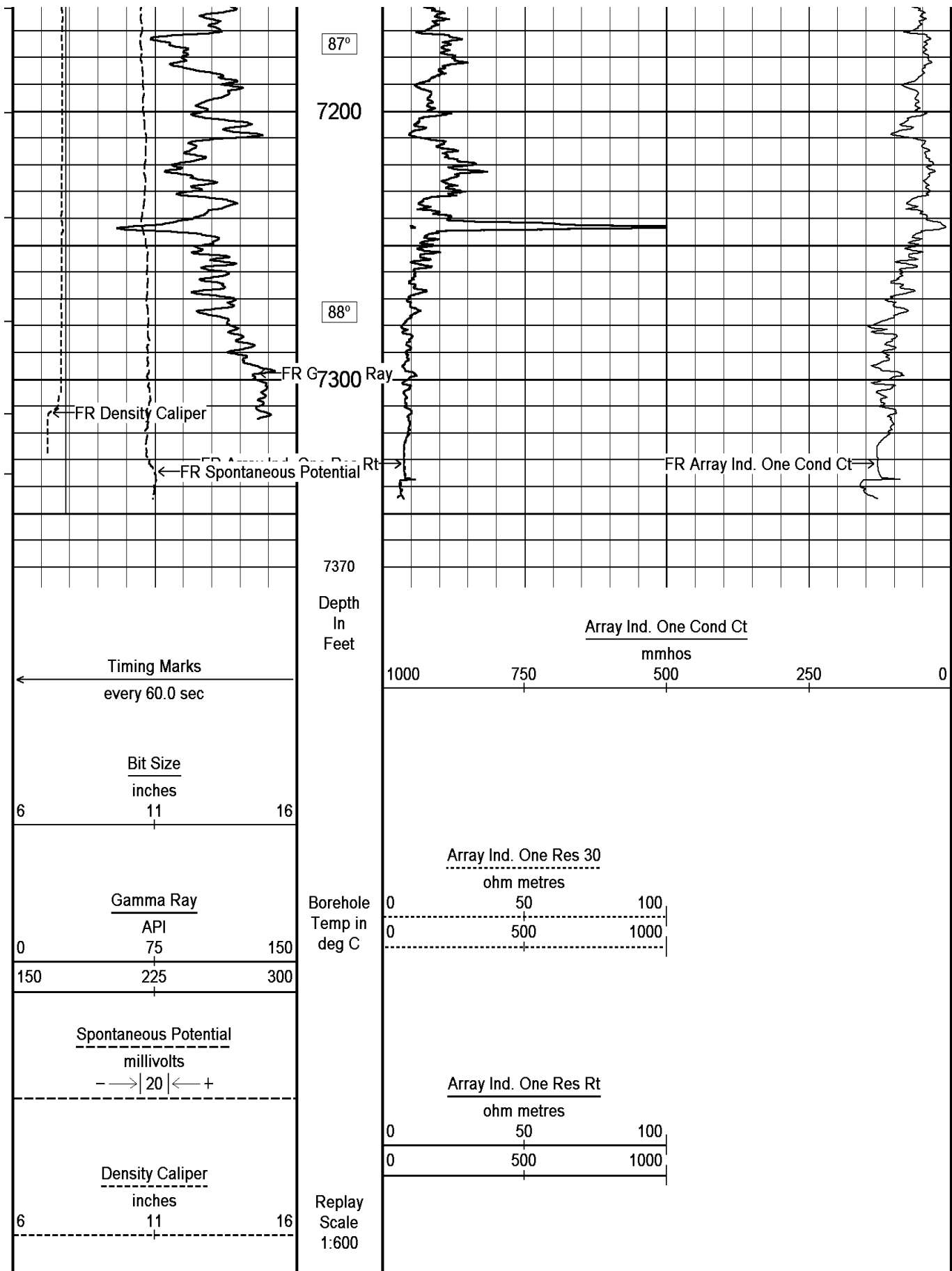
84°

7000

86°

7100





Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

System Versions: Logged with 10.08.1568 Processed with 10.08.1568 Plotted with 10.08.1568

Plotted on 09-DEC-2010 04:49

Recorded on 08-DEC-2010 22:46

2 INCH MAIN LOG

5 INCH MAIN LOG

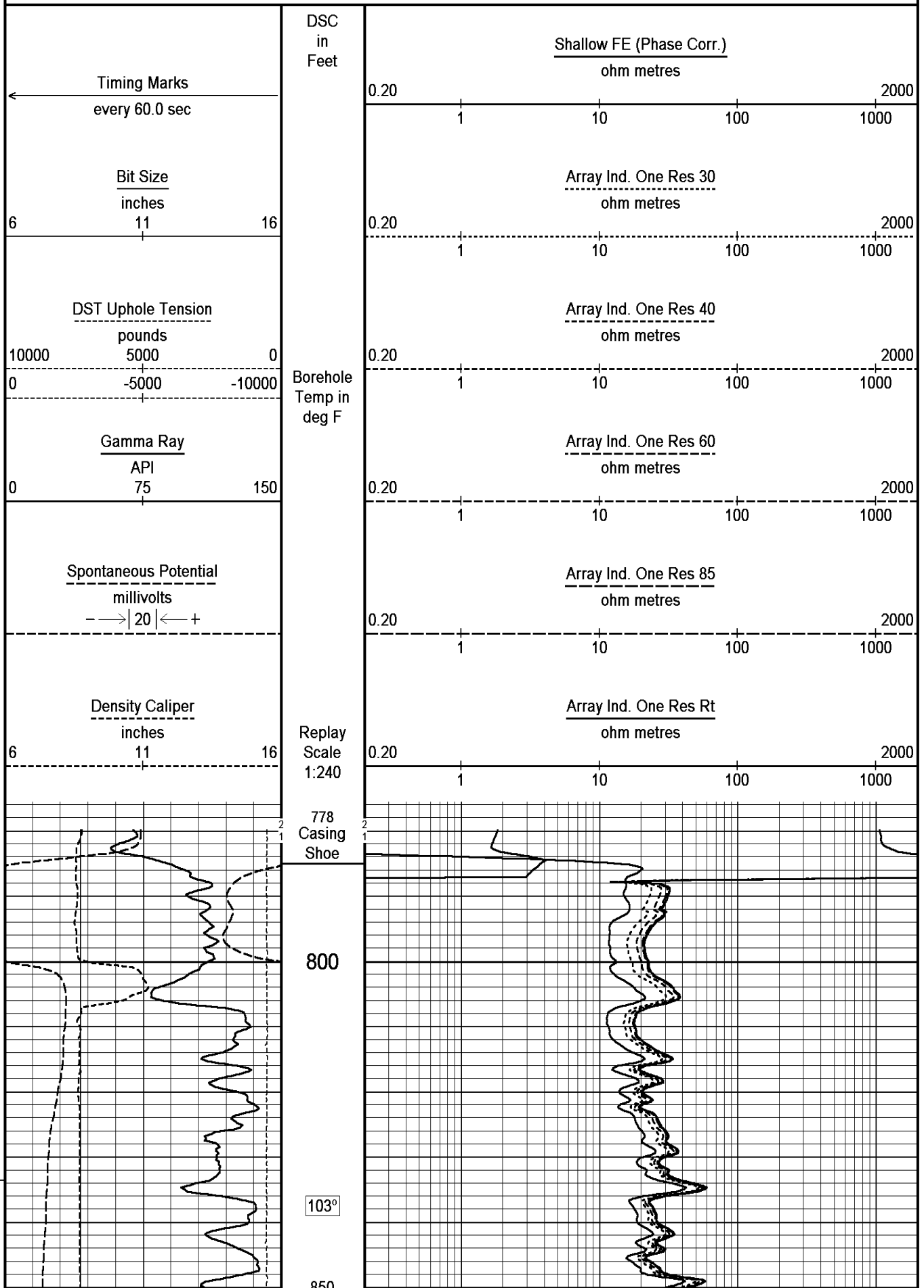
Depth Based Data - Maximum Sampling Increment 10.0cm

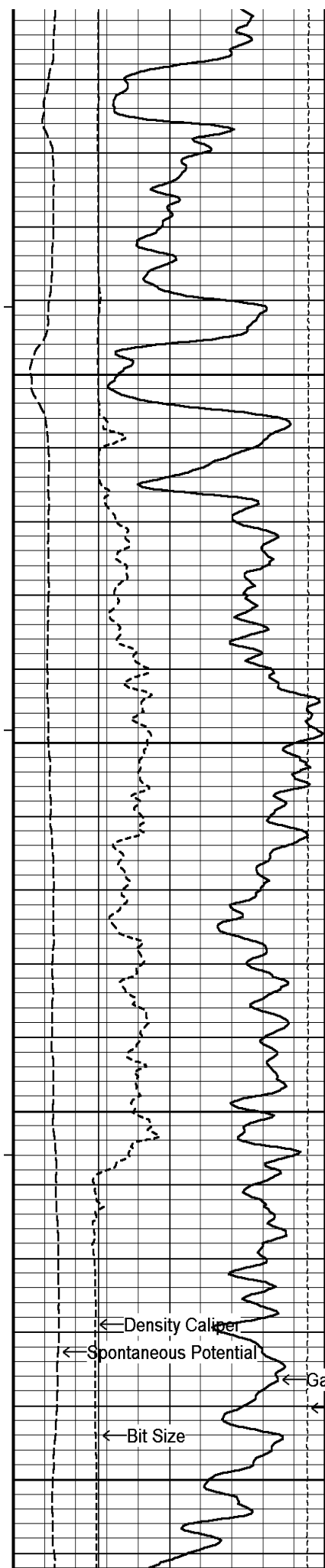
Plotted on 09-DEC-2010 04:49

Filename: C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

Recorded on 08-DEC-2010 22:46

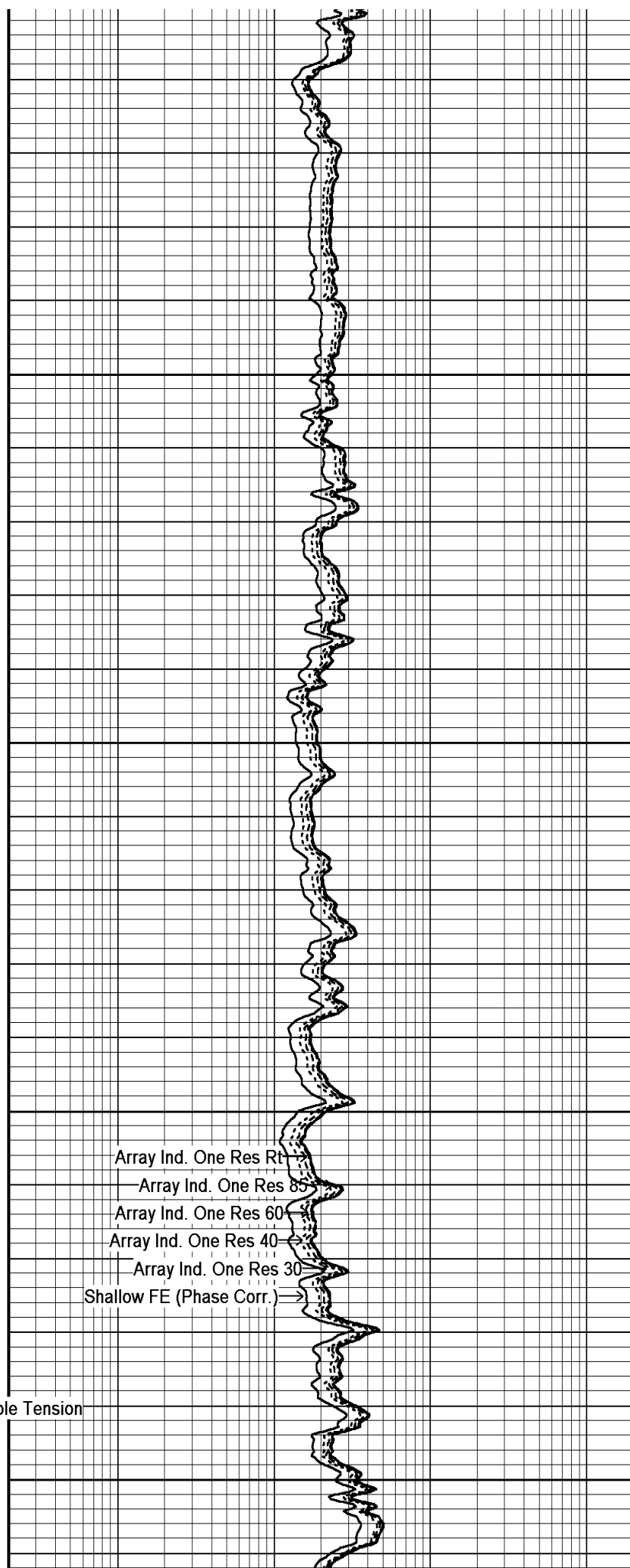
System Versions: Logged with 10.08.1568 Processed with 10.08.1568 Plotted with 10.08.1568



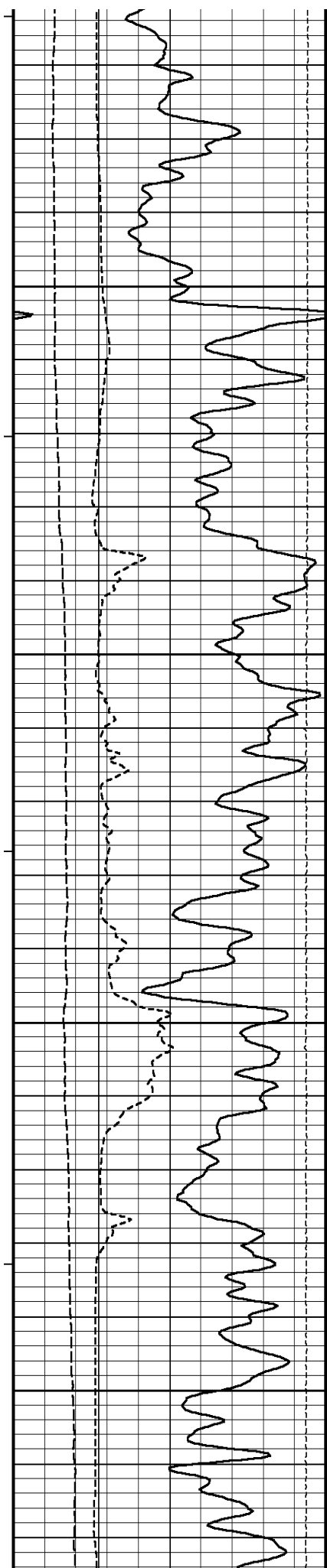


104°
900
104°
950
105°
1000
105°
1050

← Density Caliper
← Spontaneous Potential
← Bit Size
← Gamma Ray
← DST Uphole Tension



Array Ind. One Res Rt
Array Ind. One Res 85
Array Ind. One Res 60
Array Ind. One Res 40
Array Ind. One Res 30
Shallow FE (Phase Corr.)



106°

1100

107°

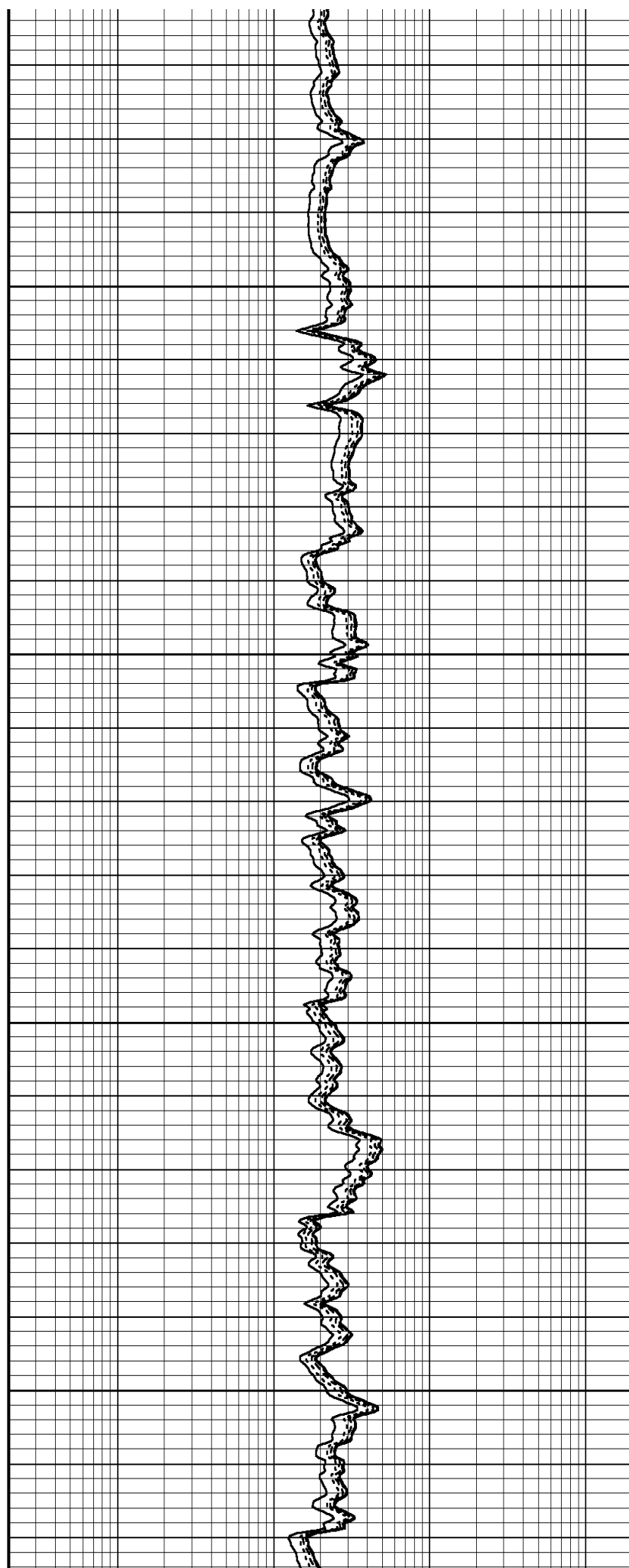
1150

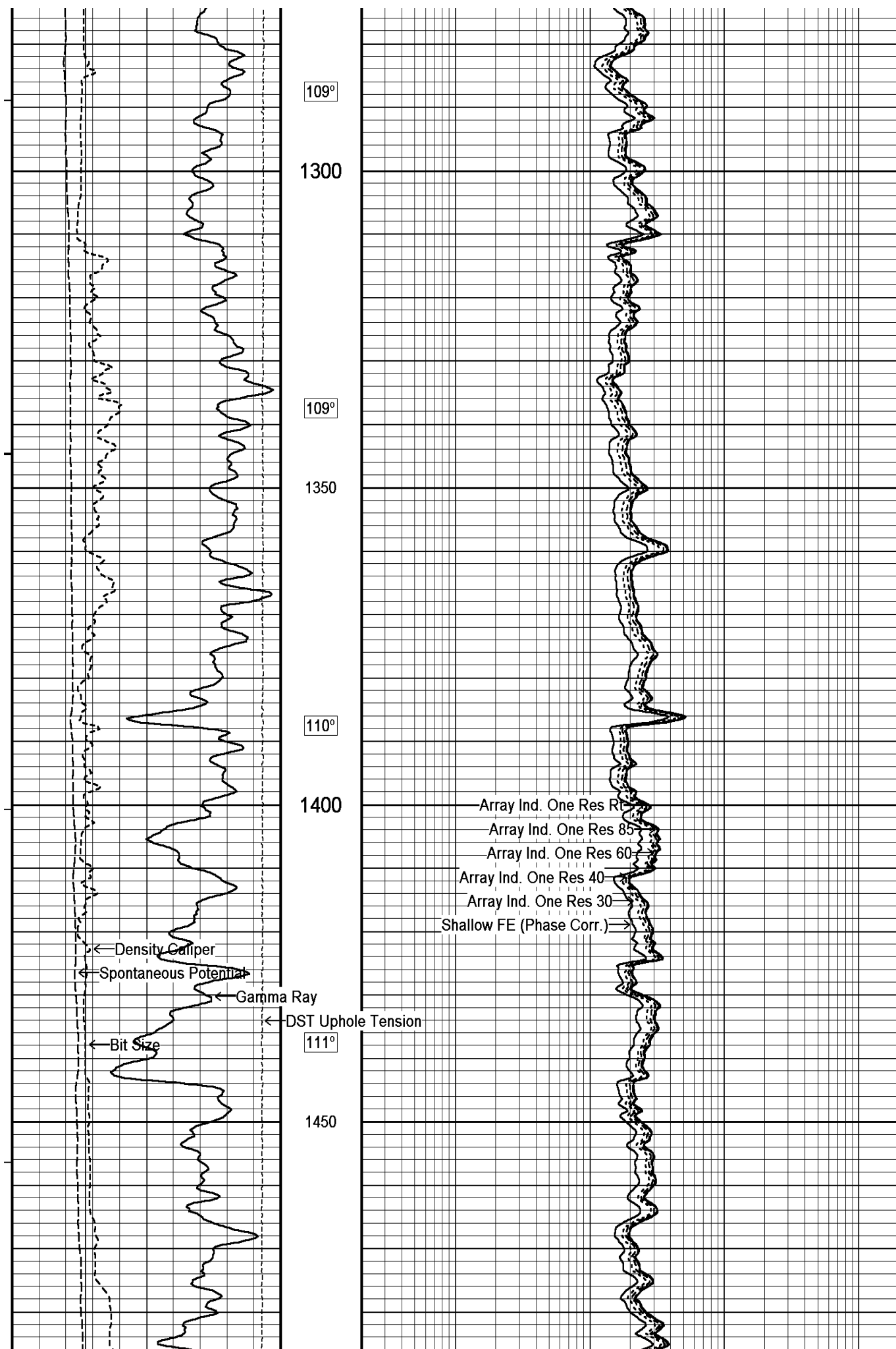
107°

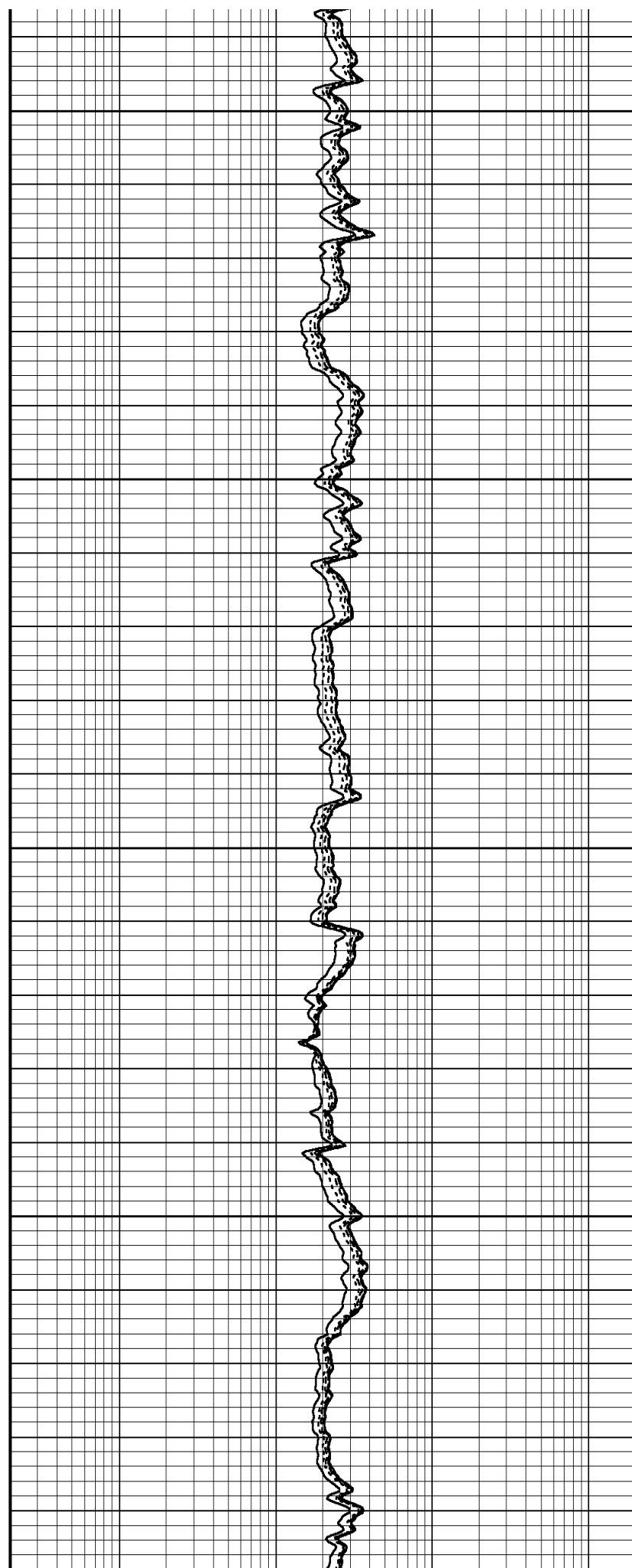
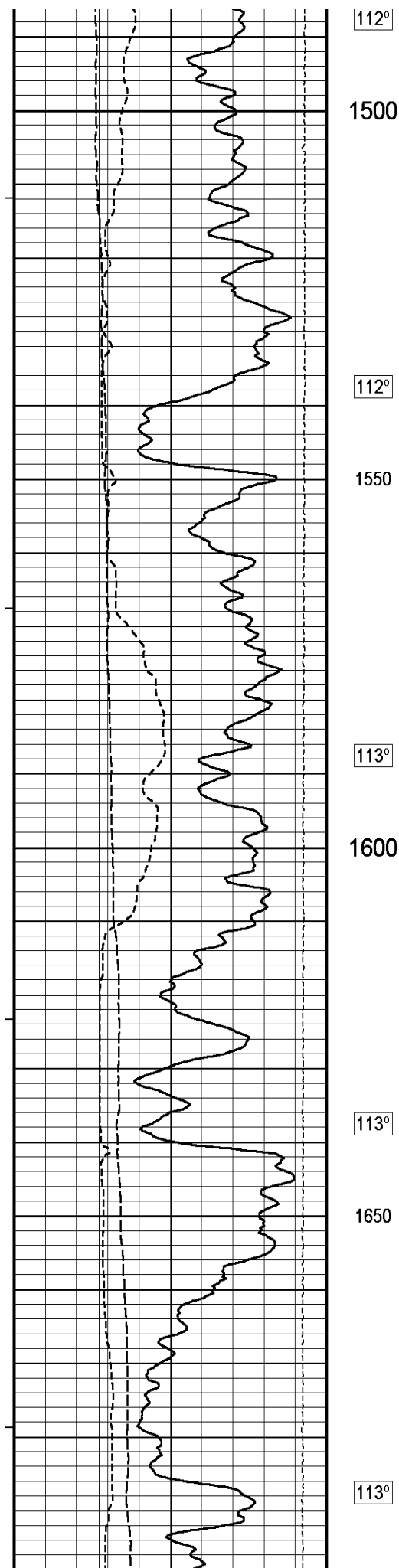
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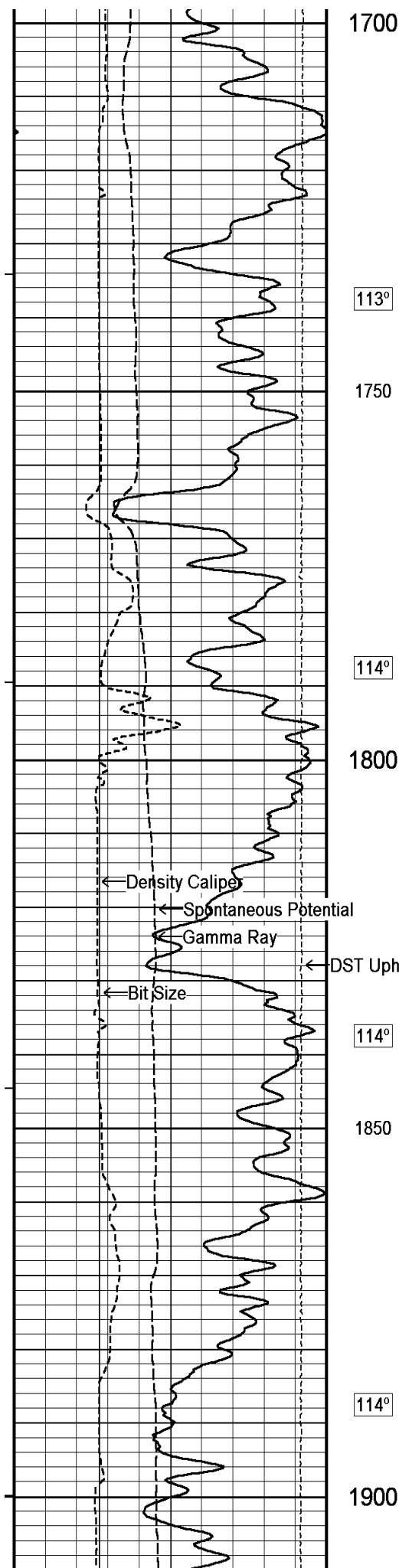
108°

1250









1700

113°

1750

114°

1800

114°

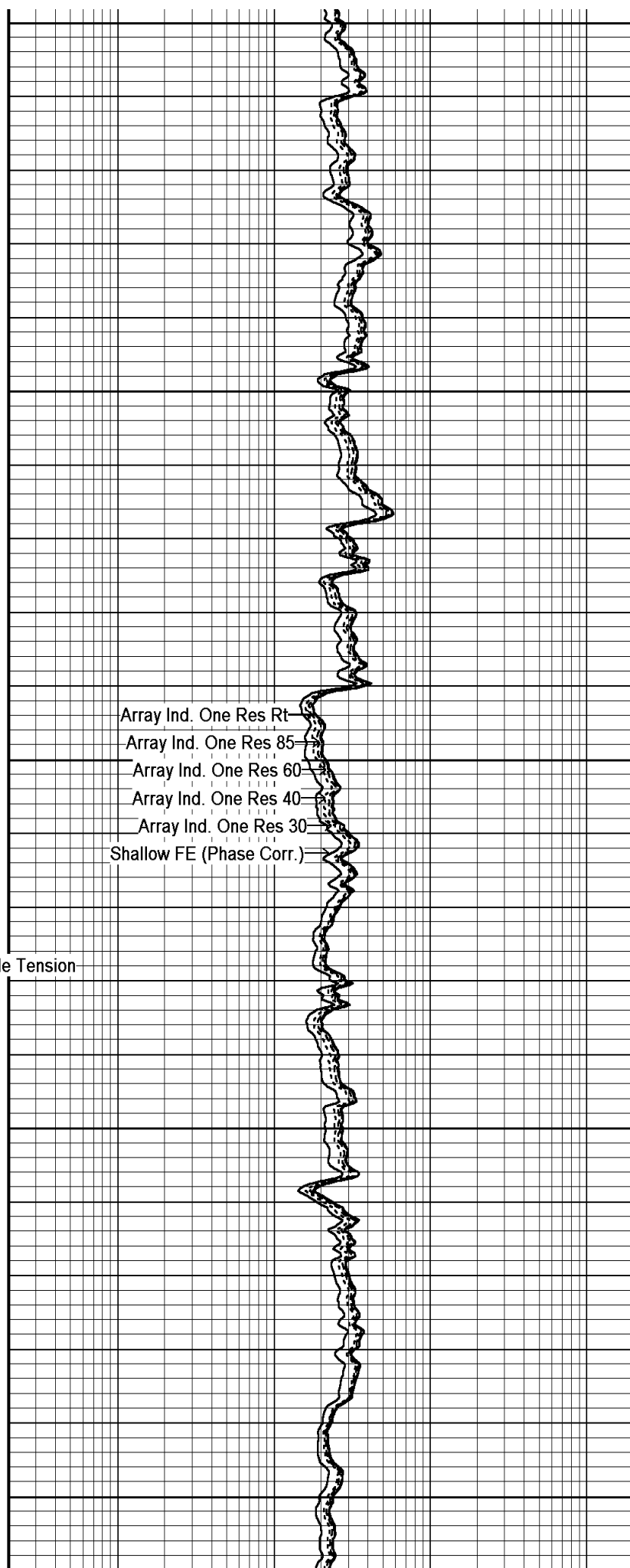
1850

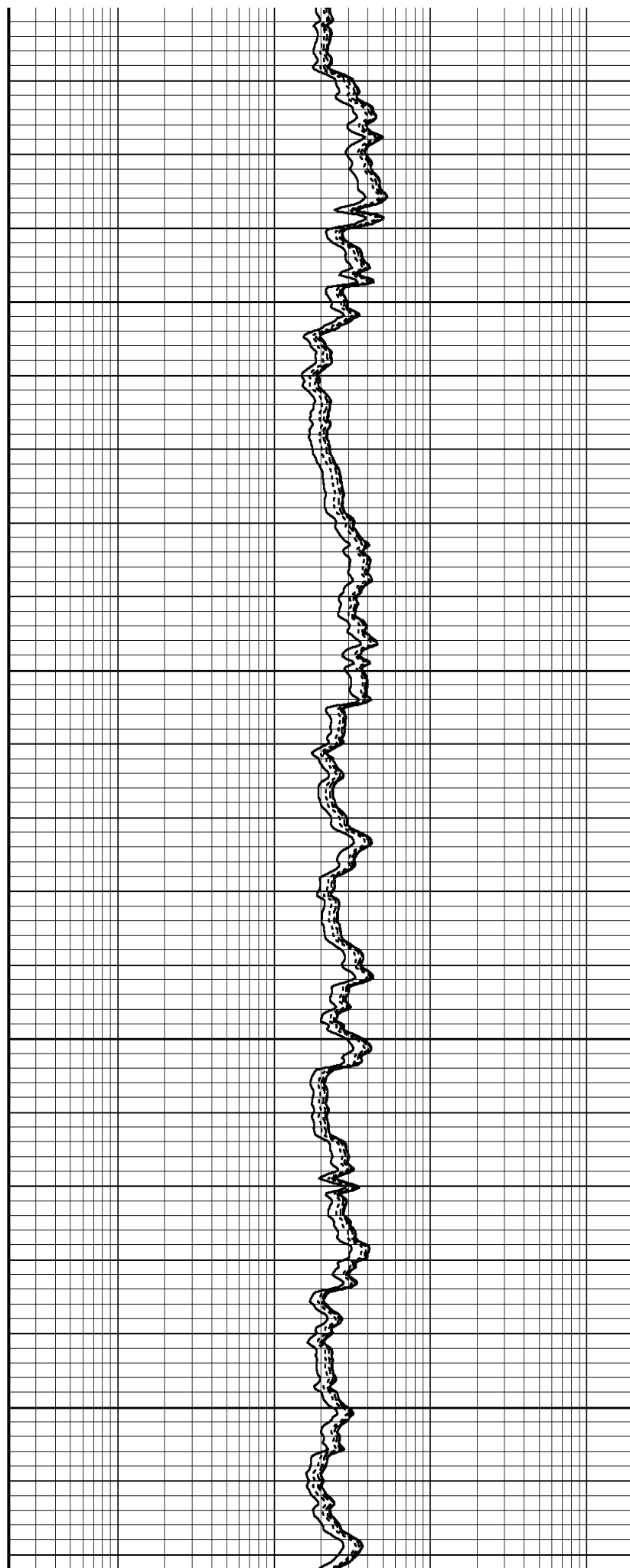
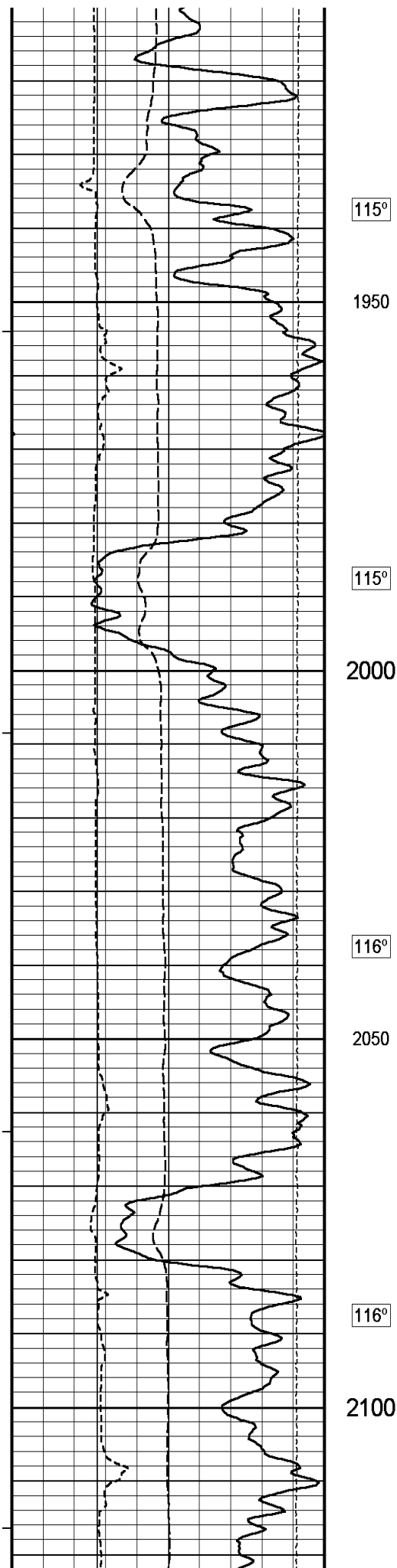
114°

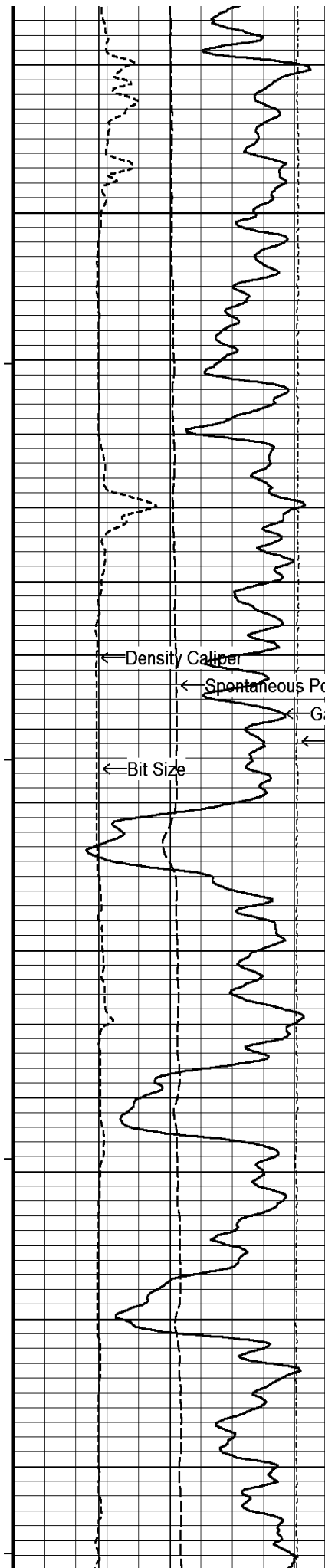
1900

DST Uphole Tension

Array Ind. One Res Rt
Array Ind. One Res 85
Array Ind. One Res 60
Array Ind. One Res 40
Array Ind. One Res 30
Shallow FE (Phase Corr.)







117°

2150

117°

2200

Density Caliper

Spontaneous Potential

Gamma Ray

DST Uphole Tension

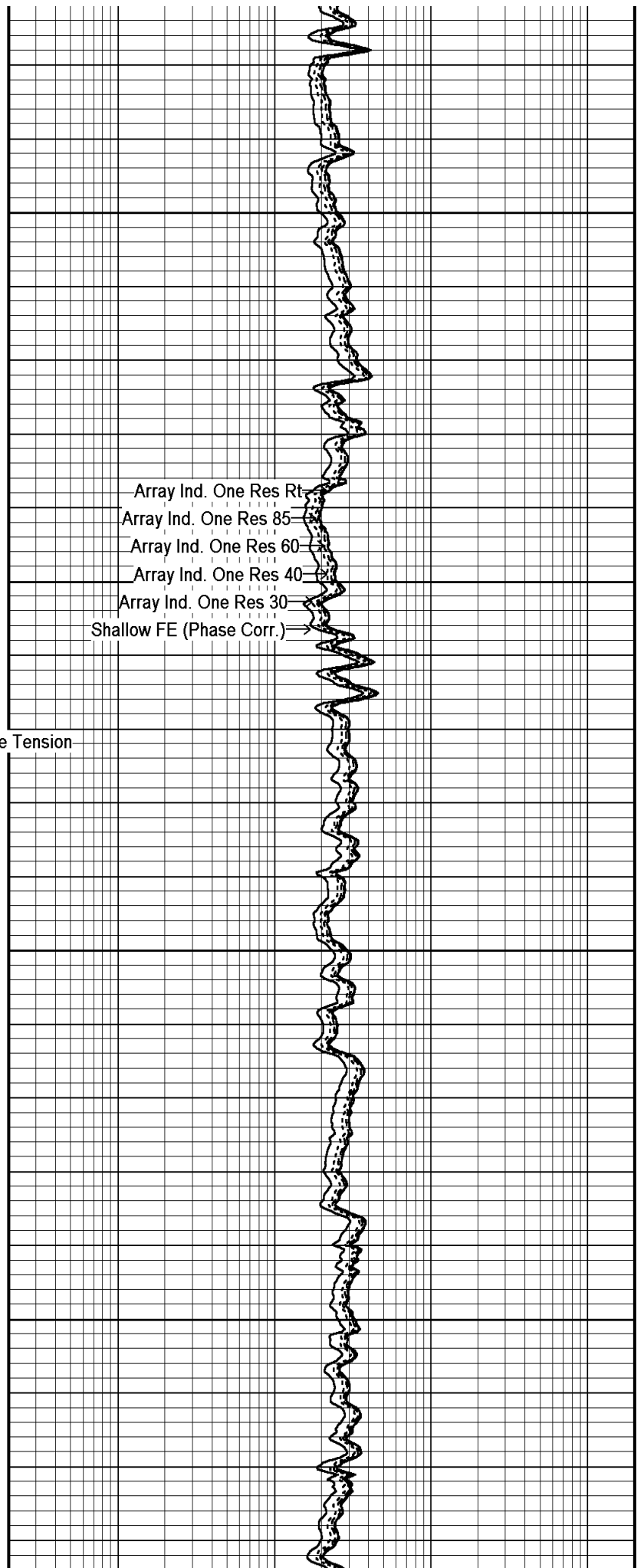
Bit Size

118°

2250

118°

2300



Array Ind. One Res Rt

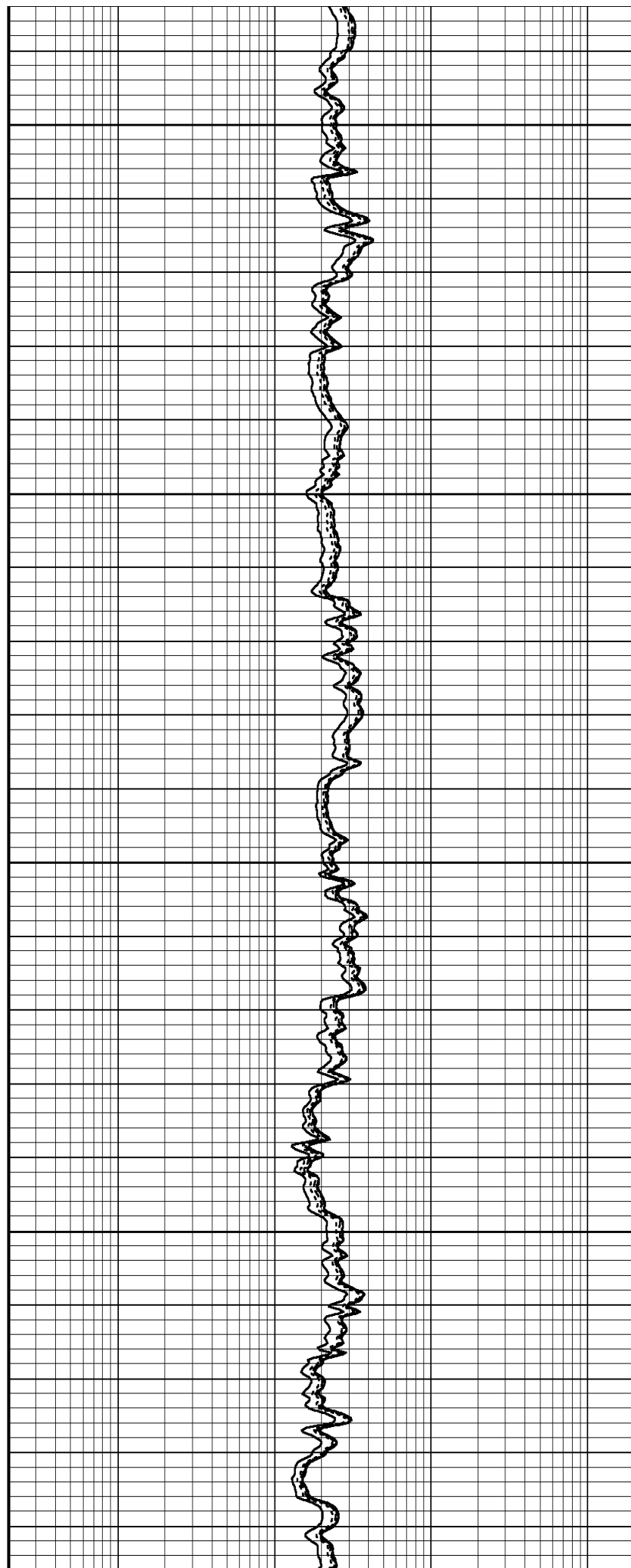
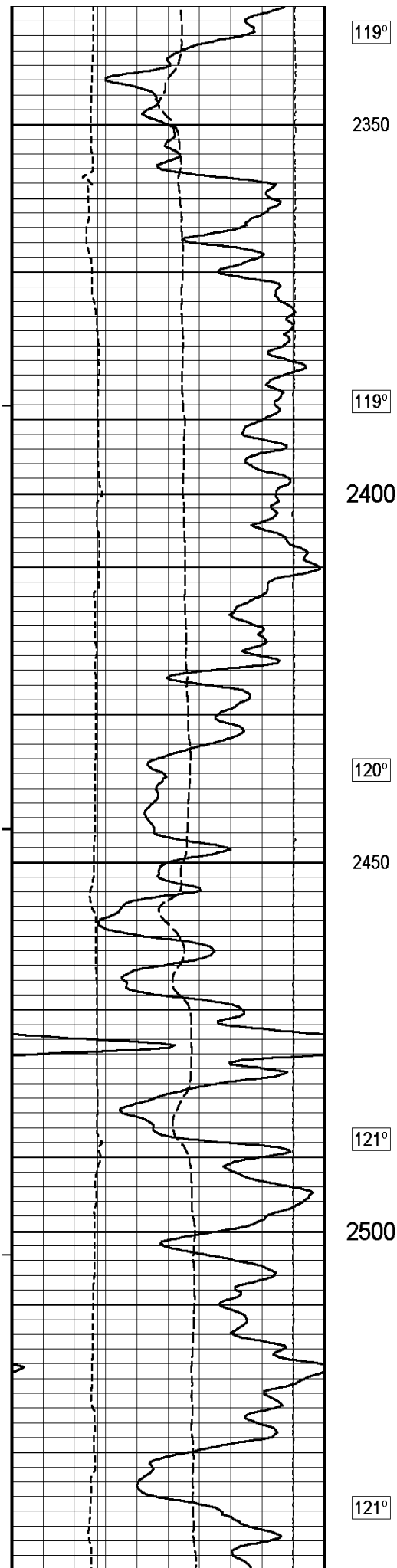
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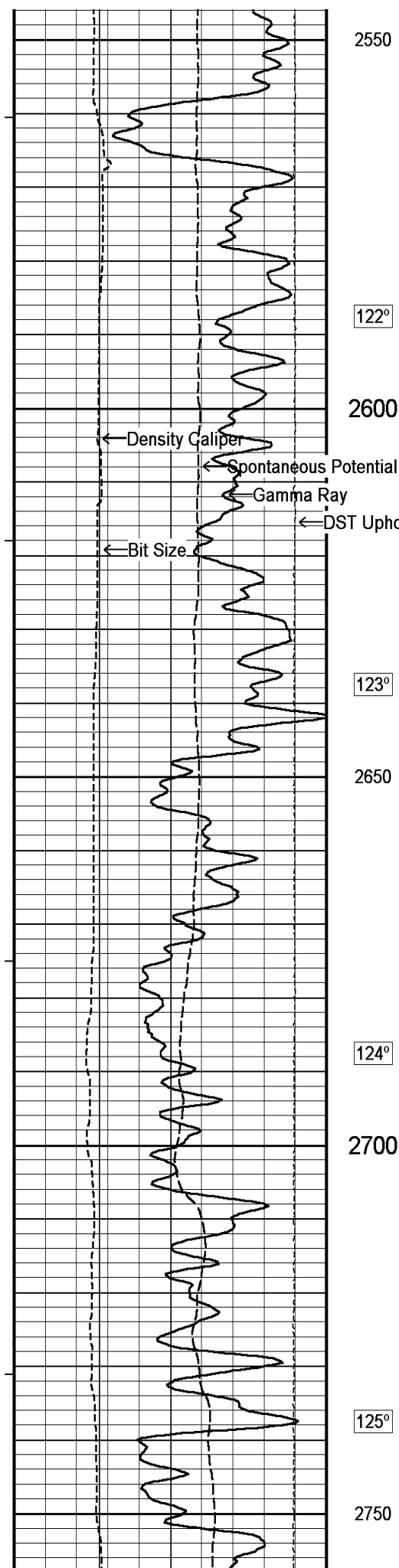
Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)





2550

122°

2600

123°

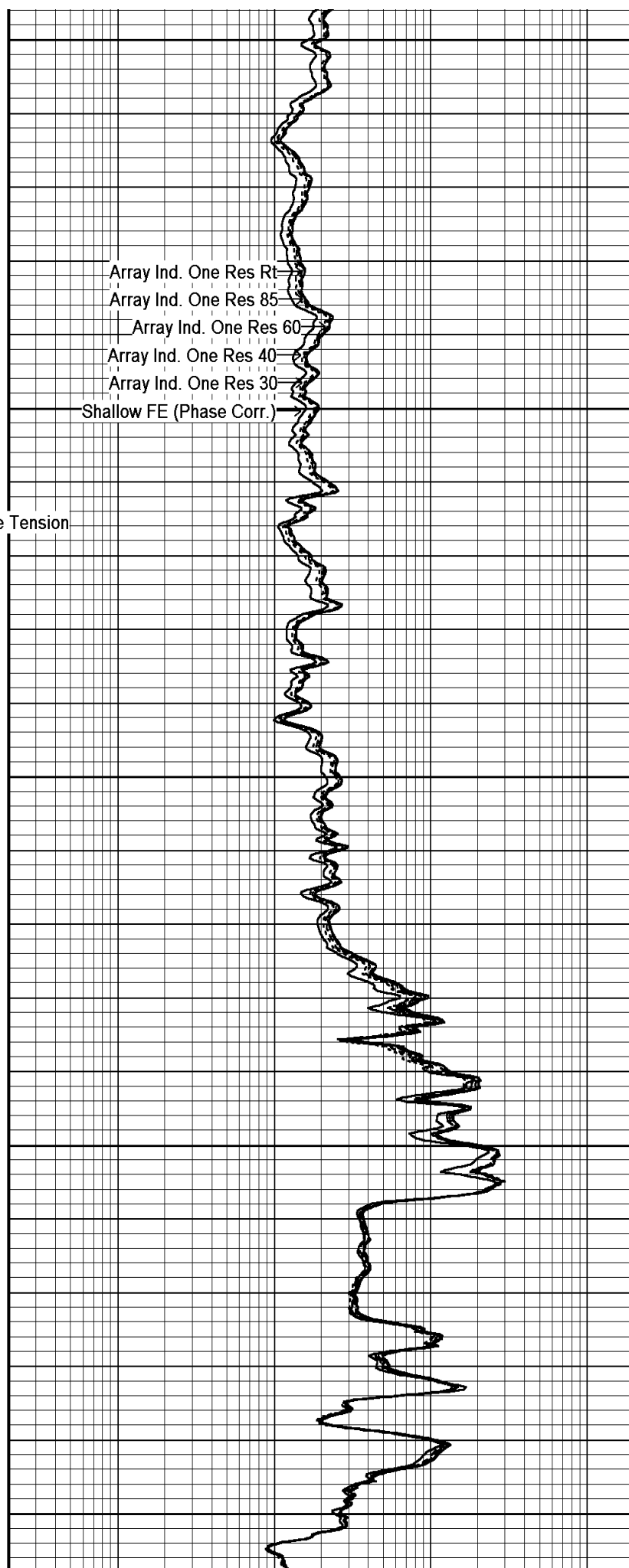
2650

124°

2700

125°

2750



Array Ind. One Res Rt

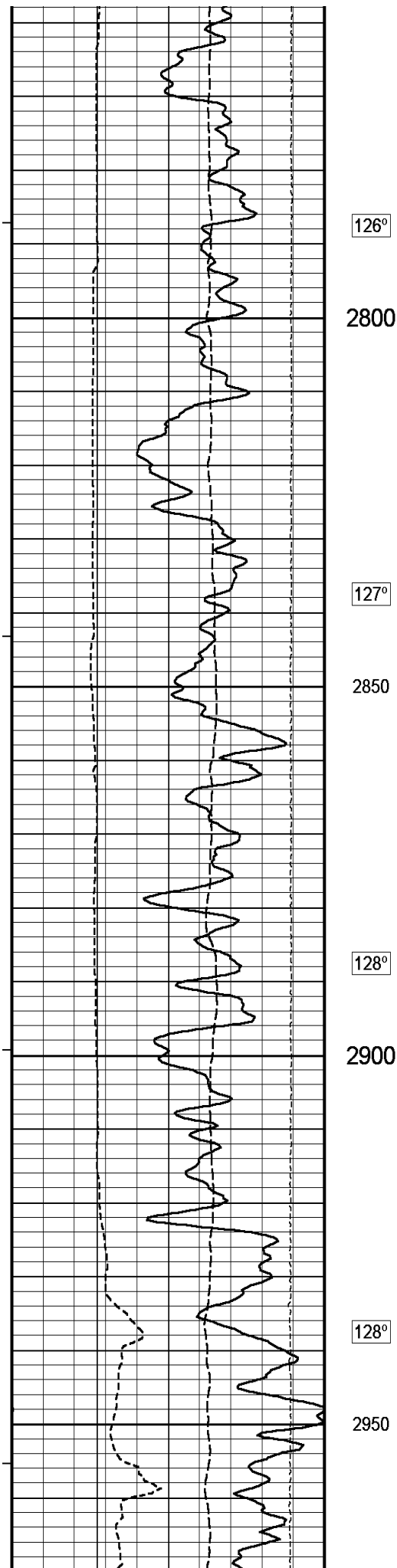
Array Ind. One Res 85

Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)



126°

2800

127°

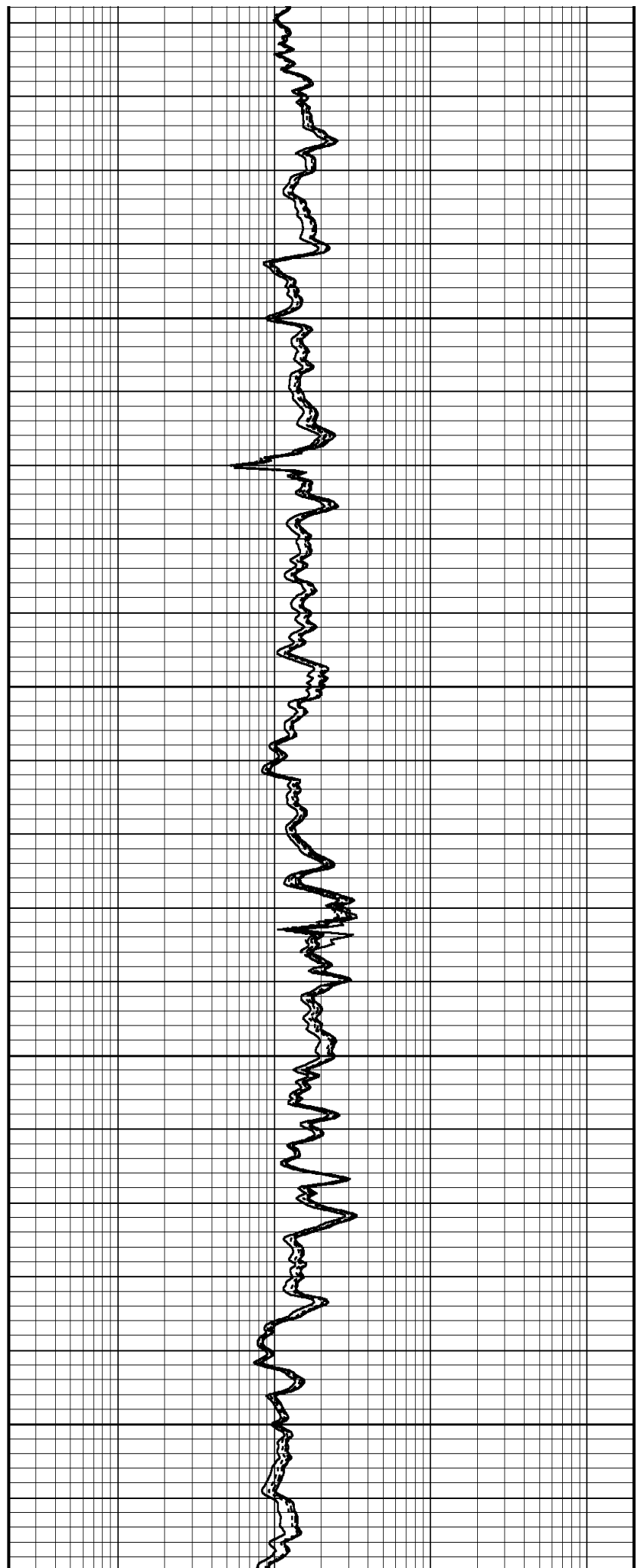
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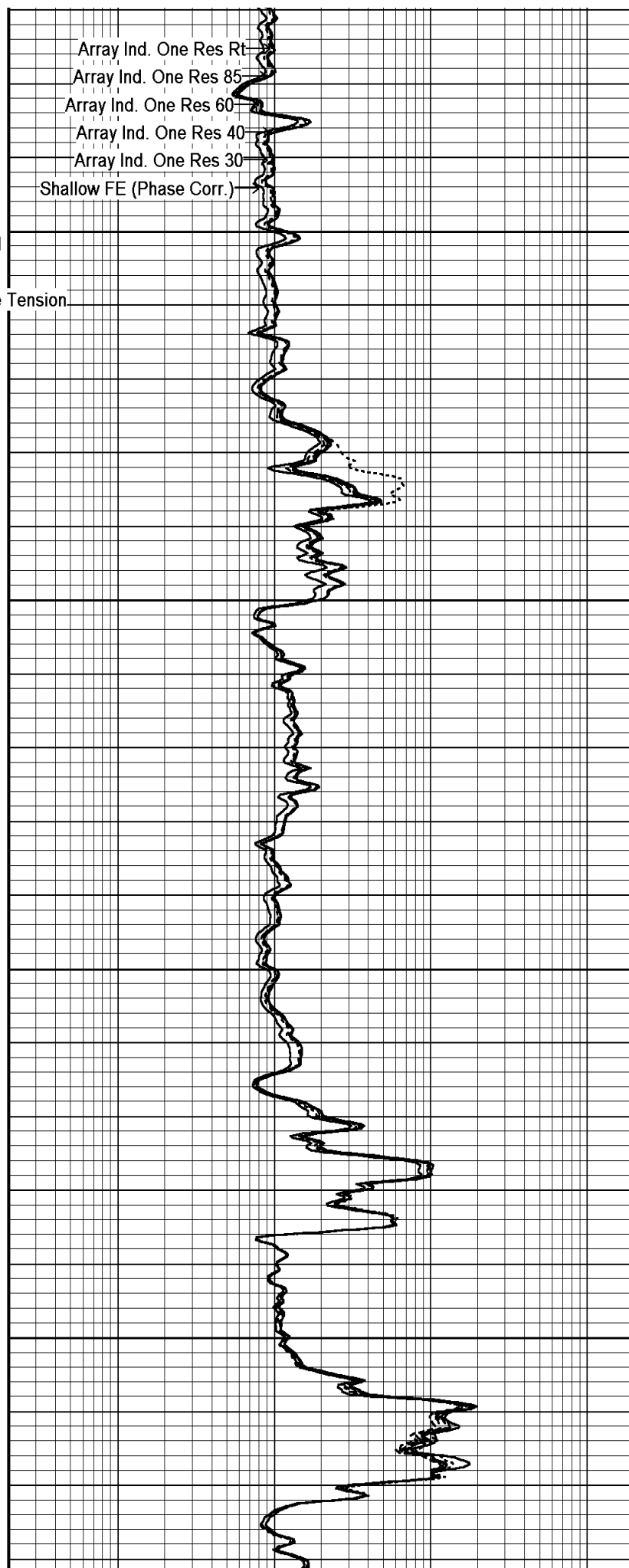
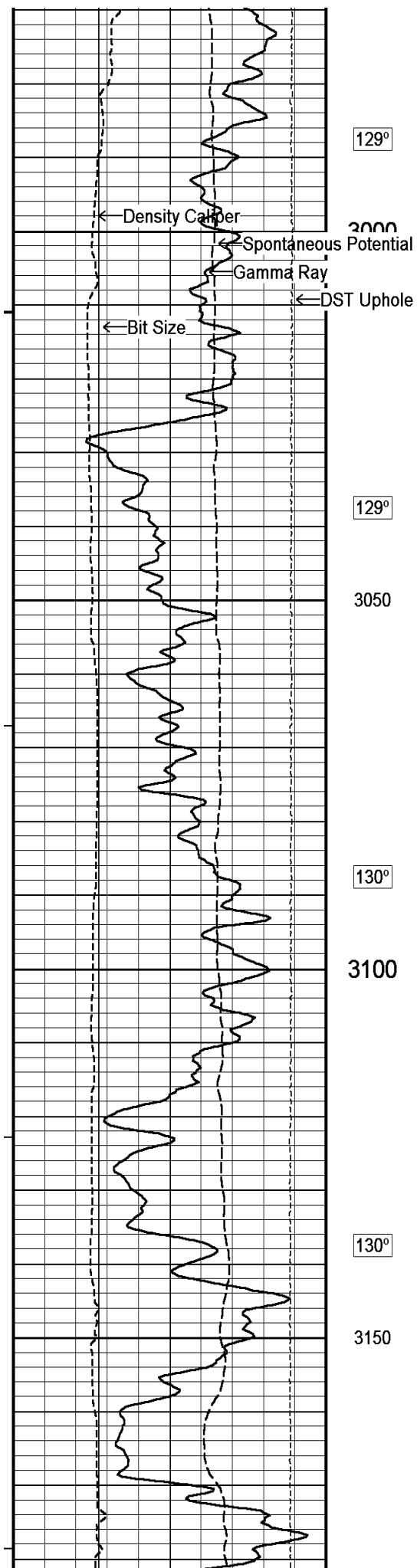
128°

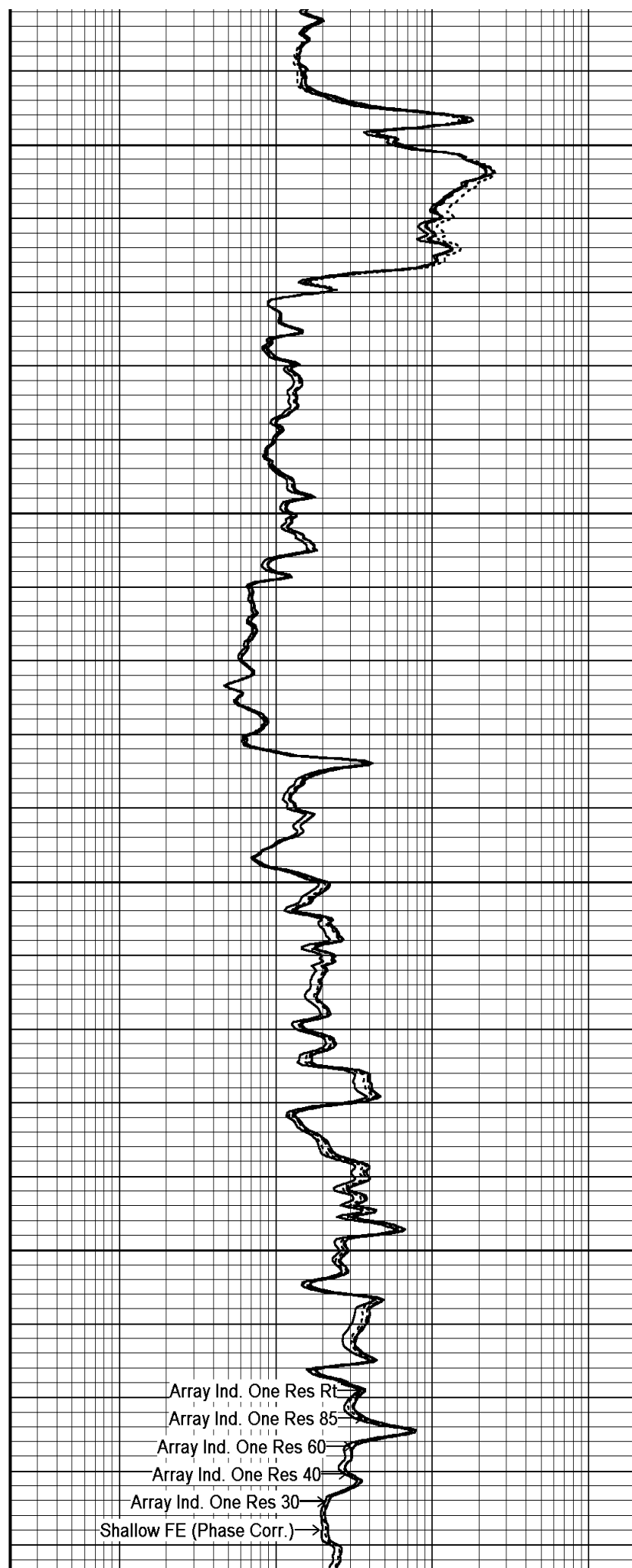
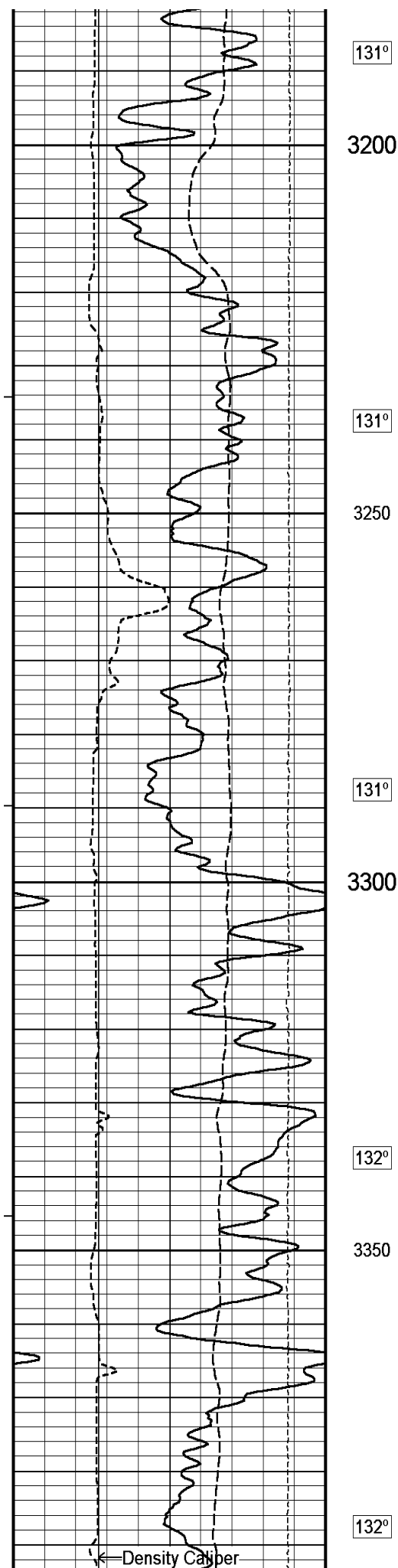
2900

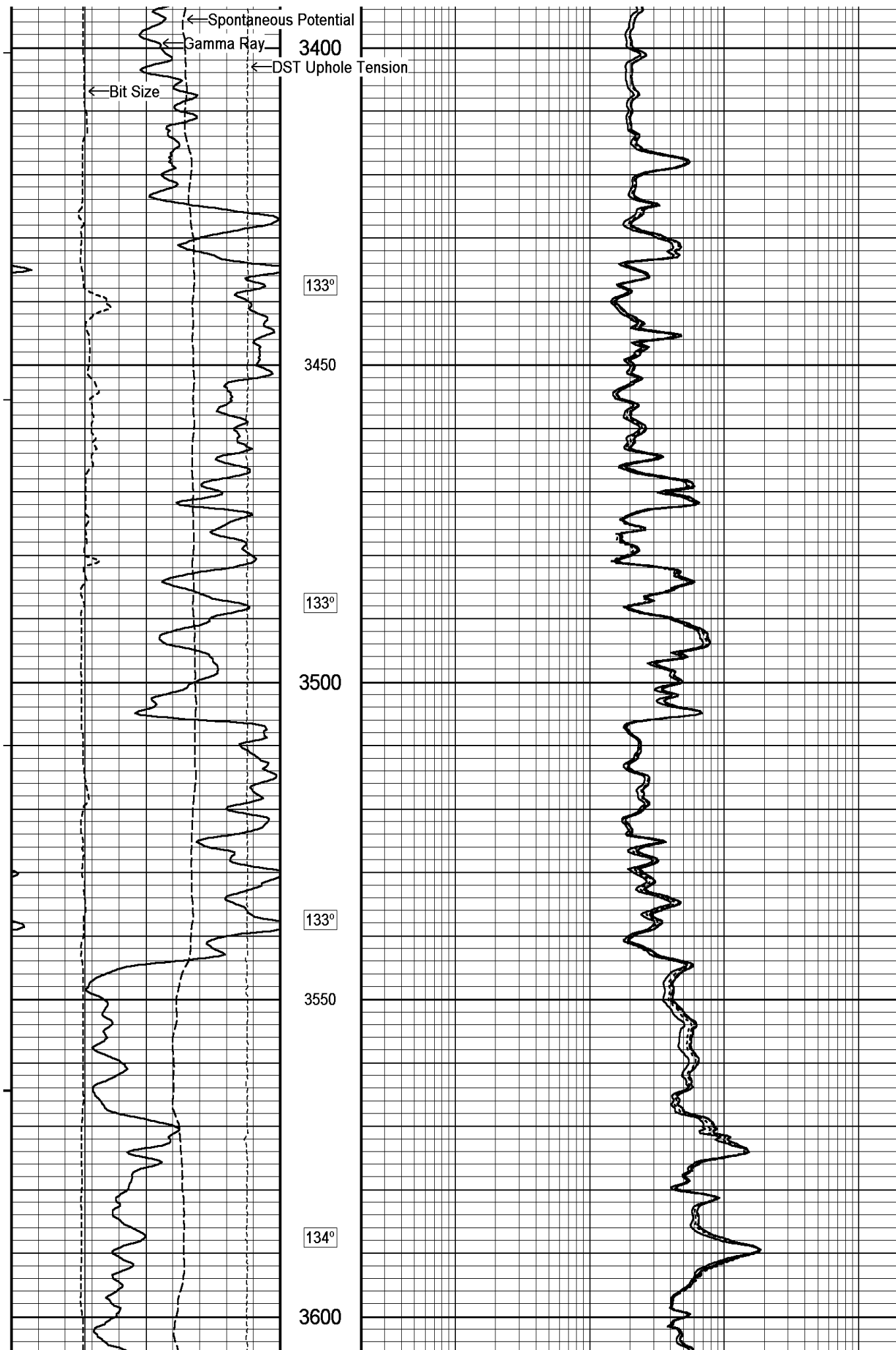
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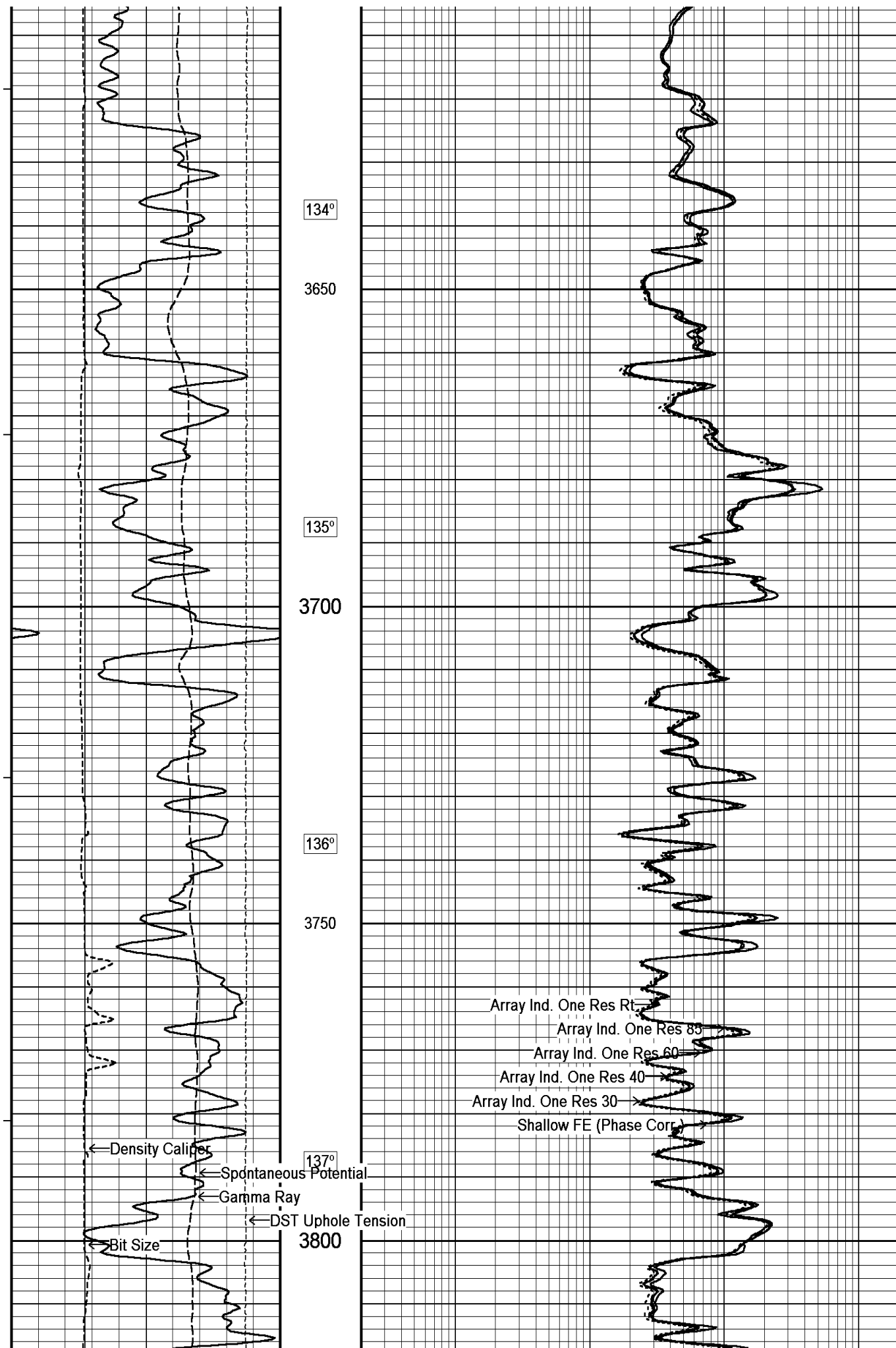
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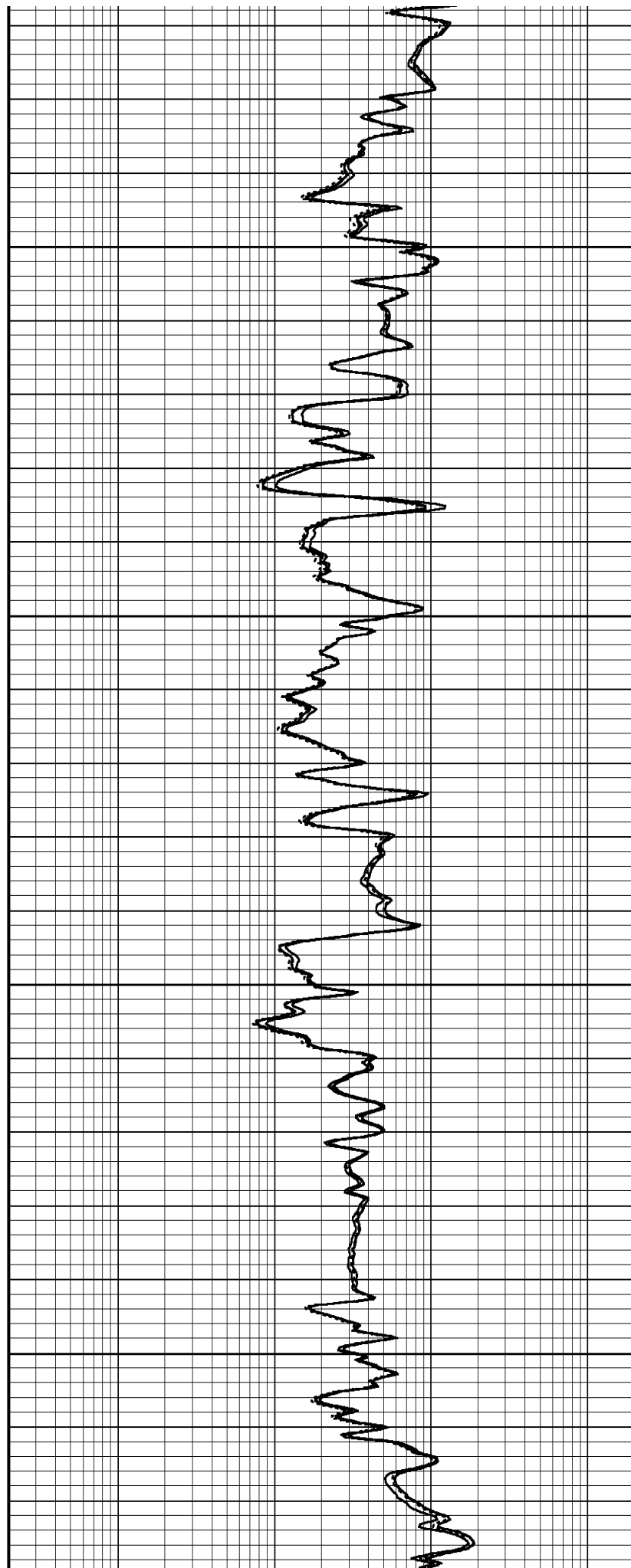
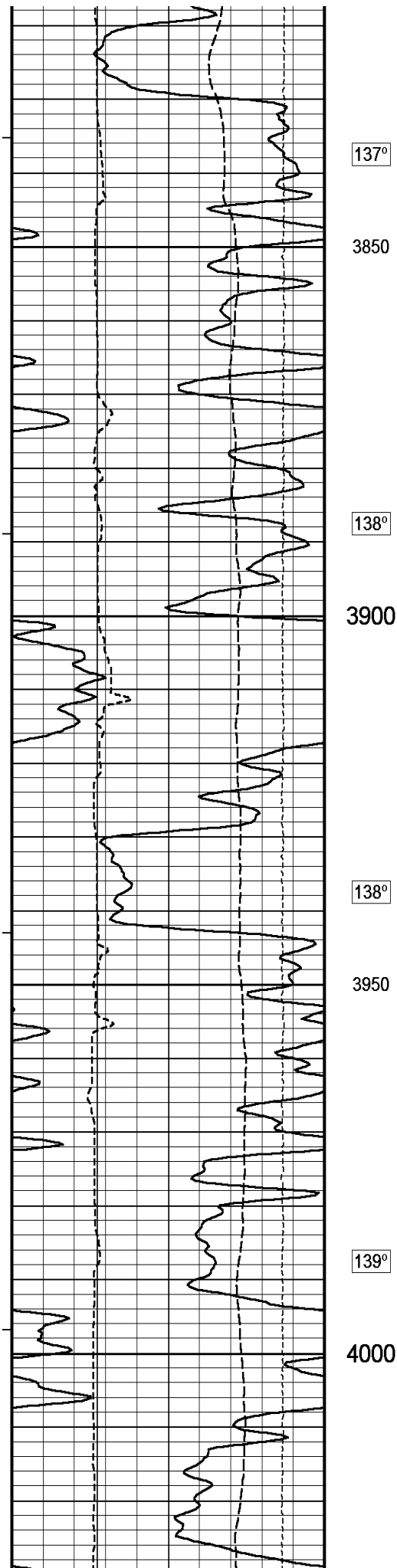


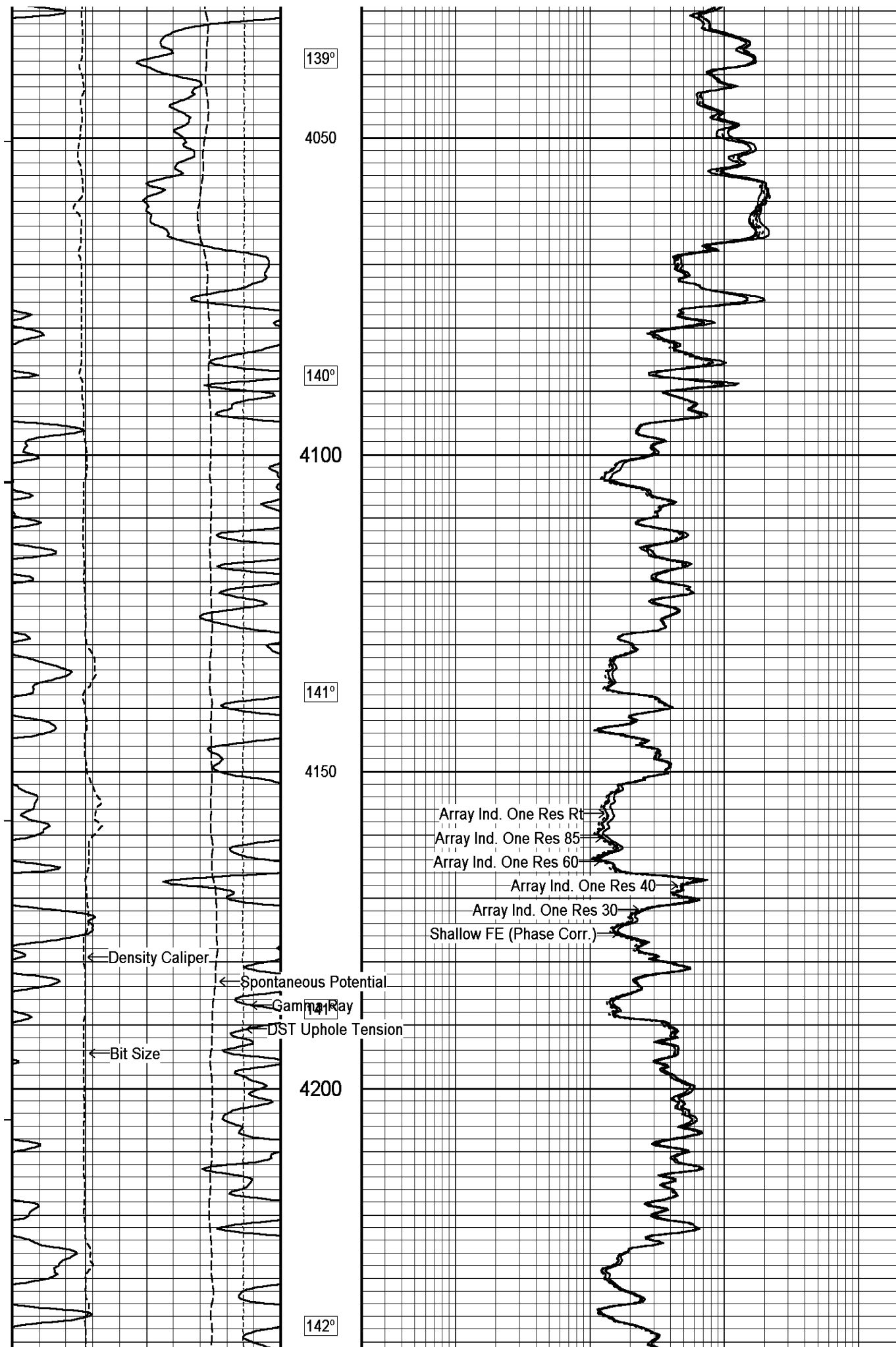


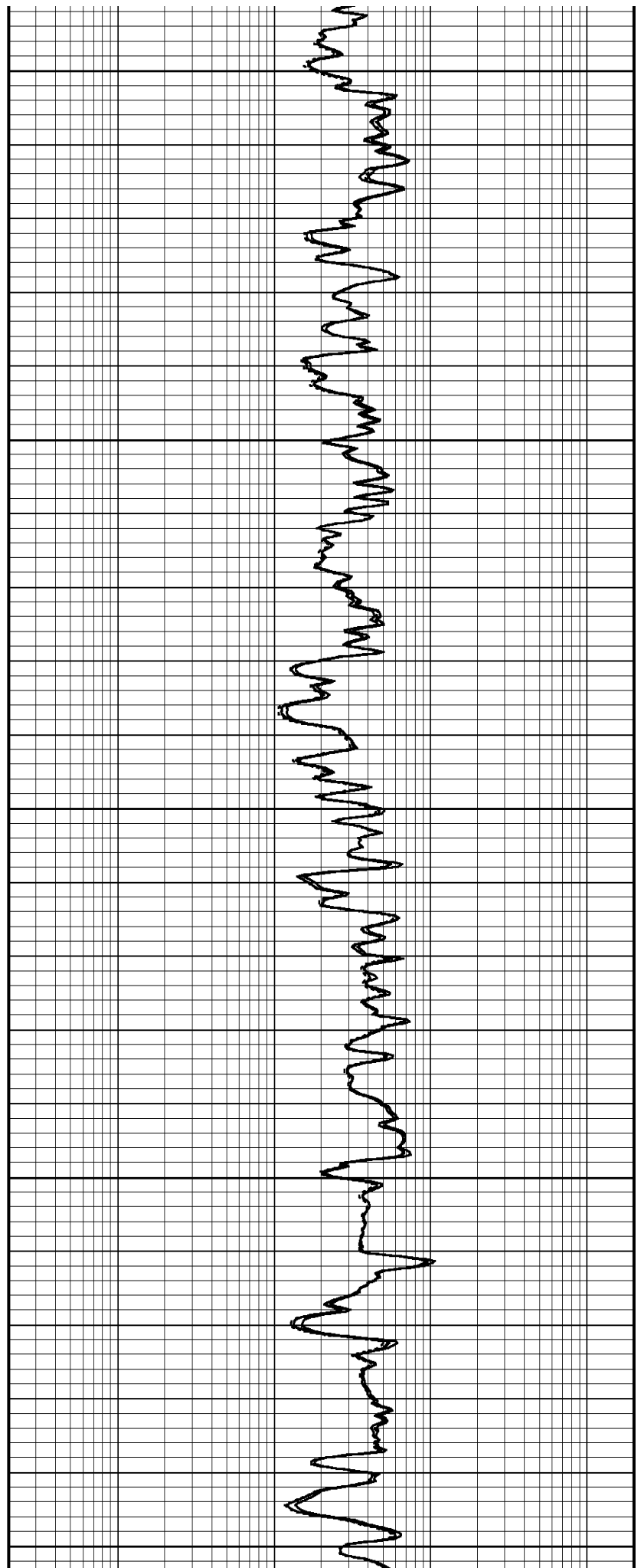
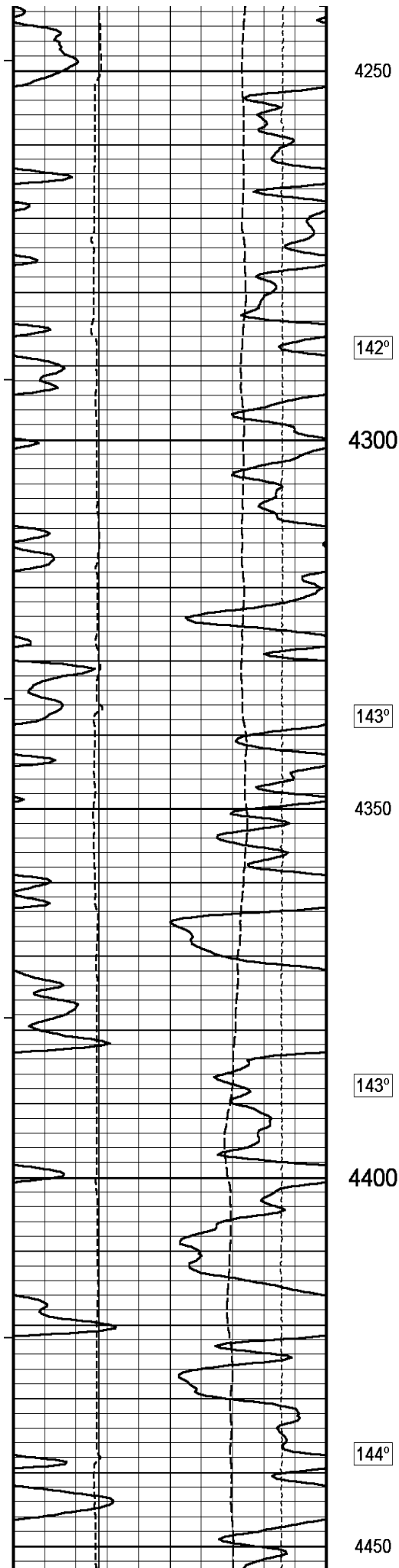


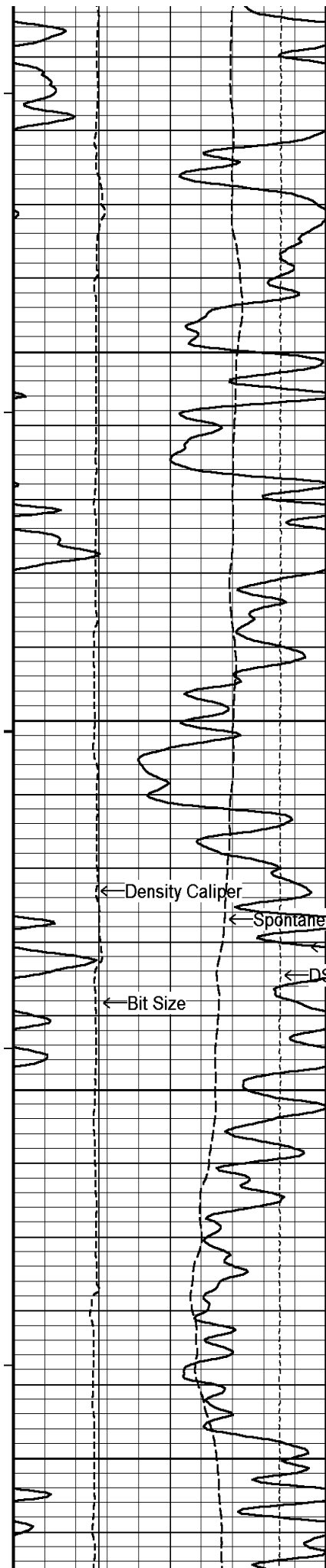












144°

4500

145°

4550

← Density Caliper

← Spontaneous Potential

← Gamma Ray

← DST Uphole Tension

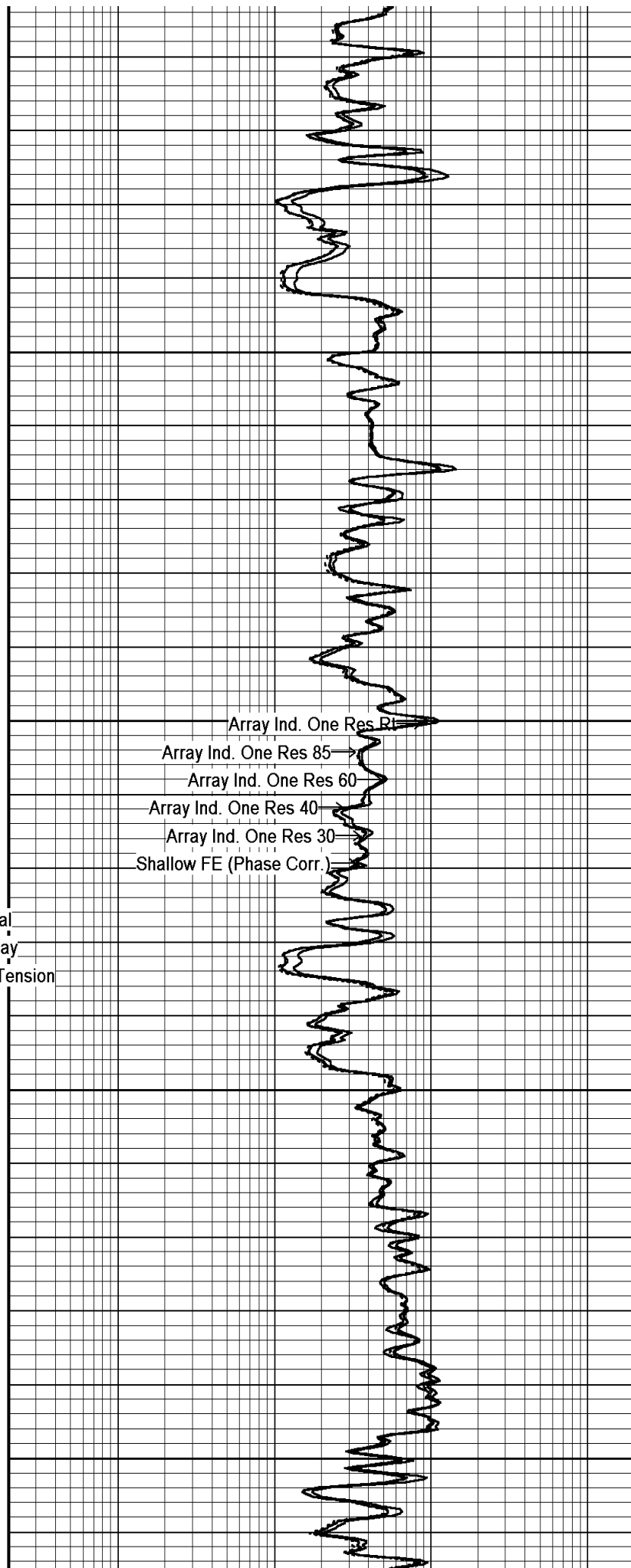
← Bit Size

145°

4600

146°

4650



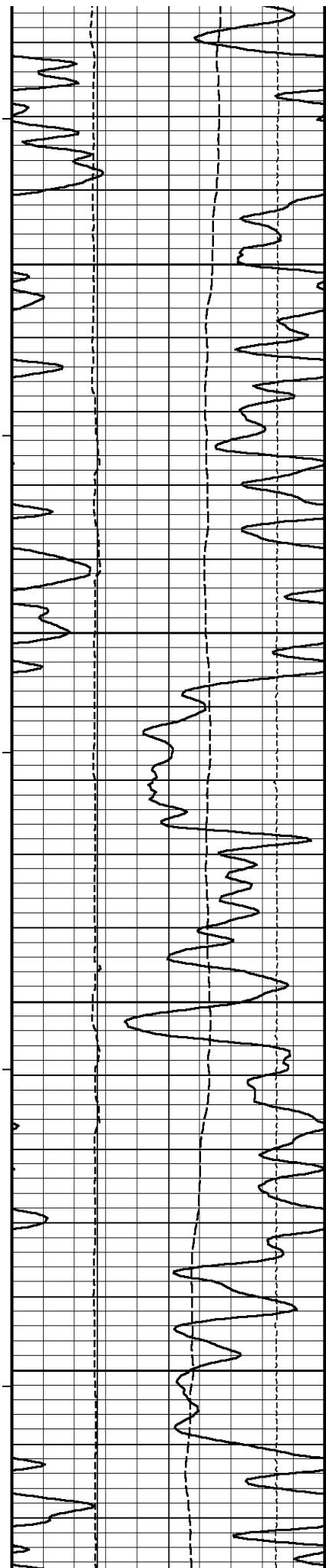
Array Ind. One Res 85

Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)



147°

4700

147°

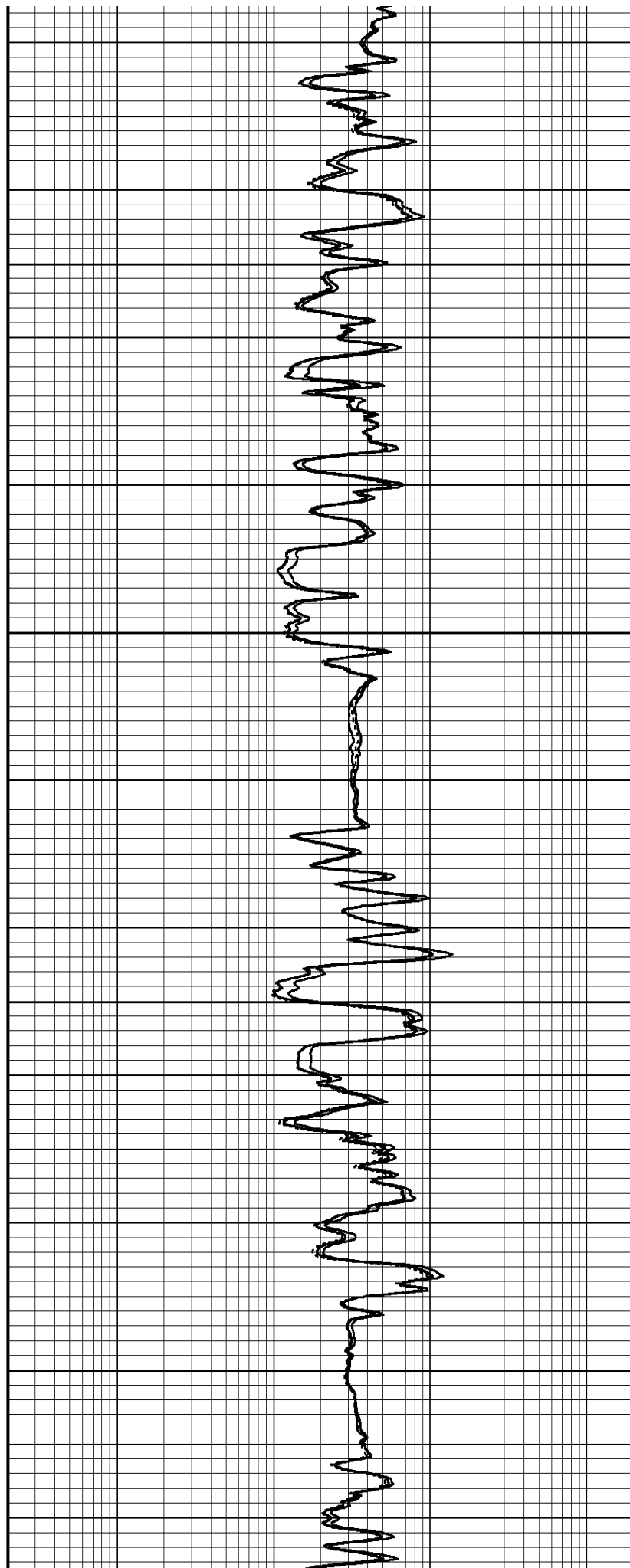
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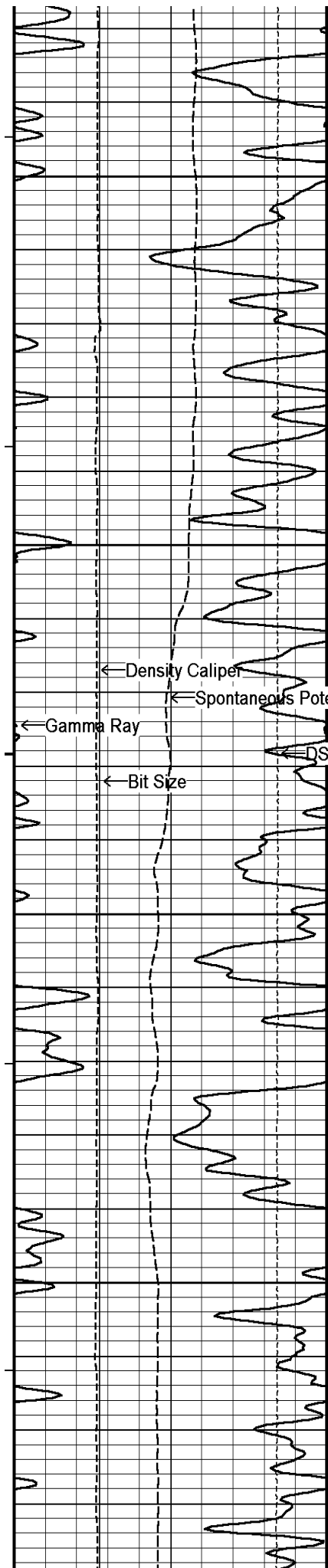
148°

4800

149°

4850





149°

4900

150°

4950

← Density Caliper

← Spontaneous Potential

← Gamma Ray

← Bit Size

← DST Uphole Tension

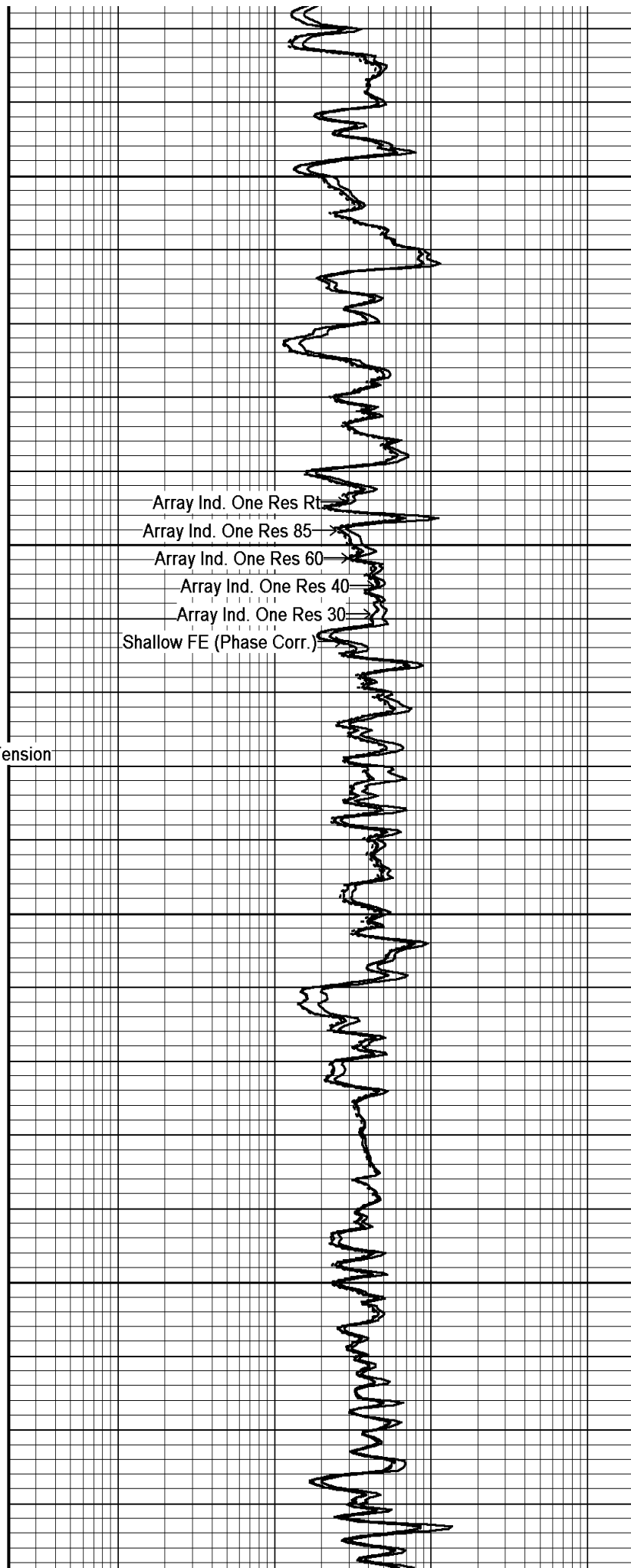
150°

5000

151°

5050

151°



Array Ind. One Res Rt

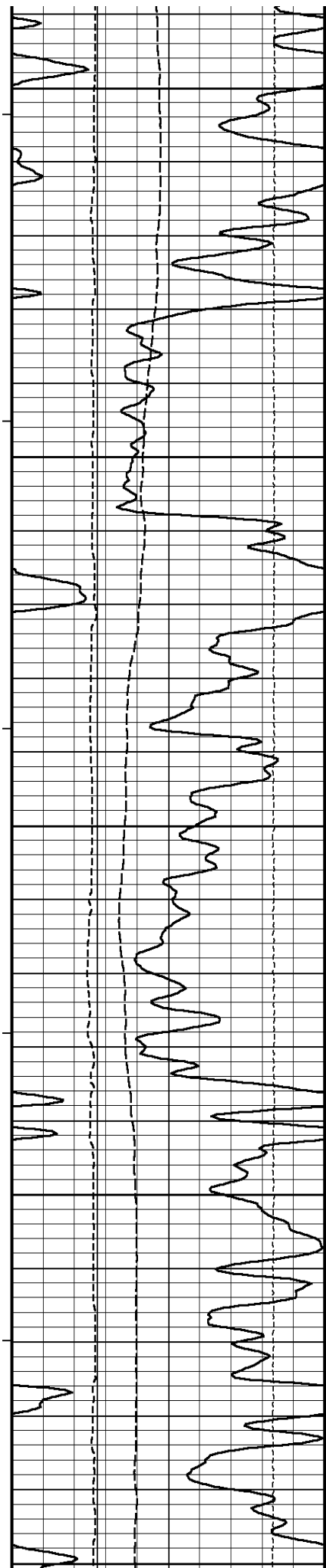
Array Ind. One Res 85

Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)



5100

152°

5150

153°

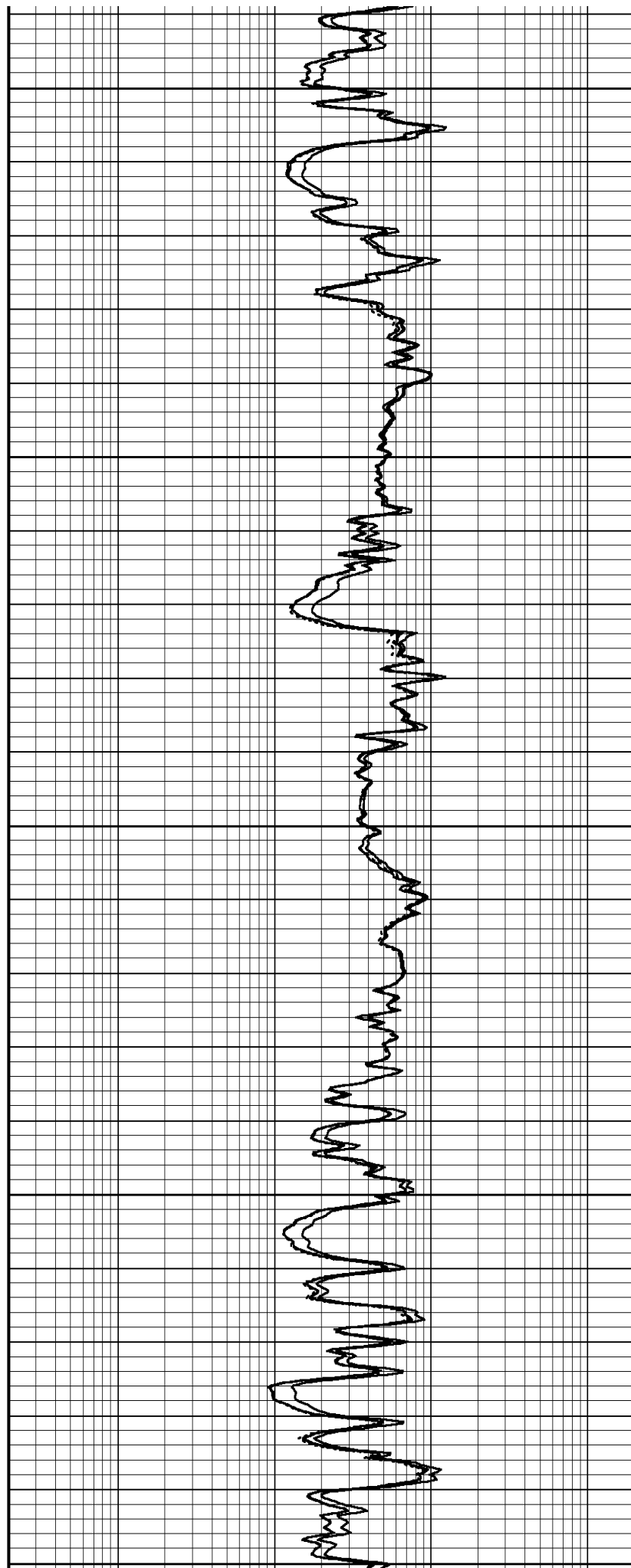
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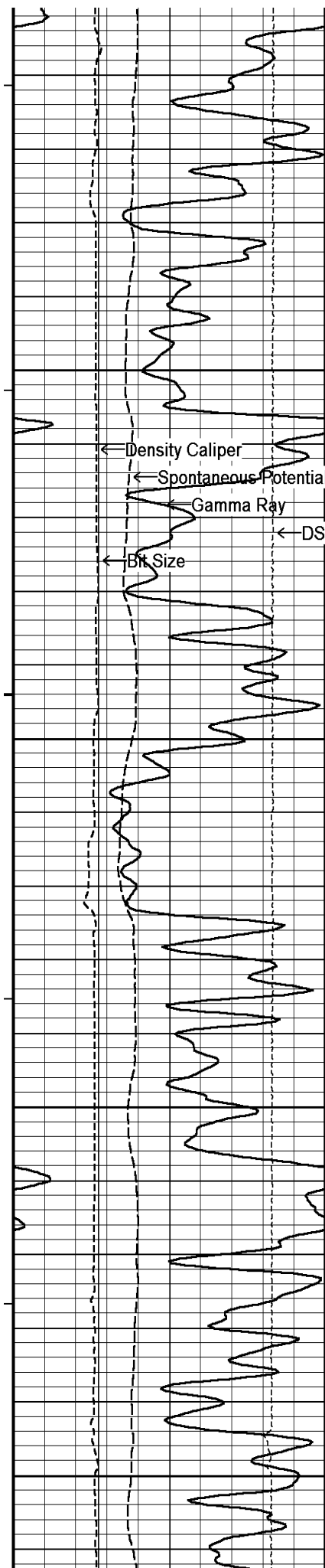
153°

5250

154°

5300





155°

5350

155°

5400

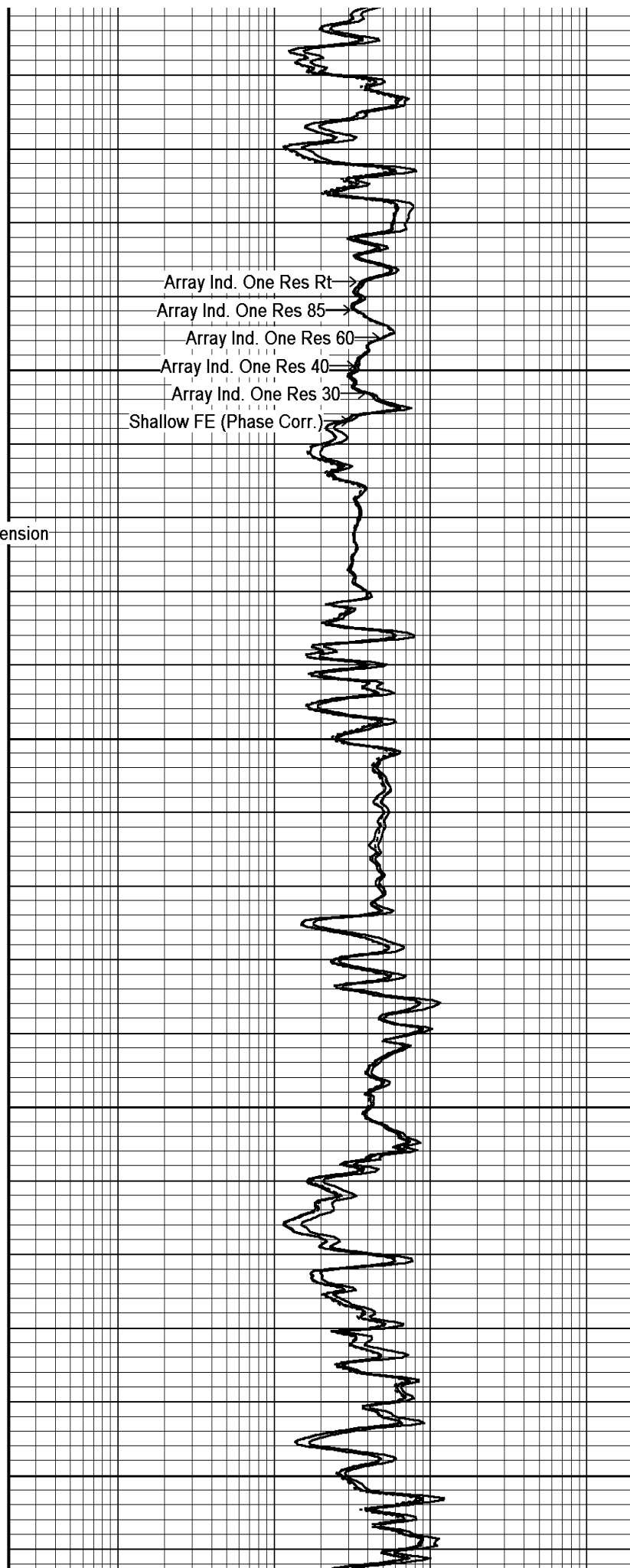
156°

5450

157°

5500

DST Uphole Tension



Array Ind. One Res Rt

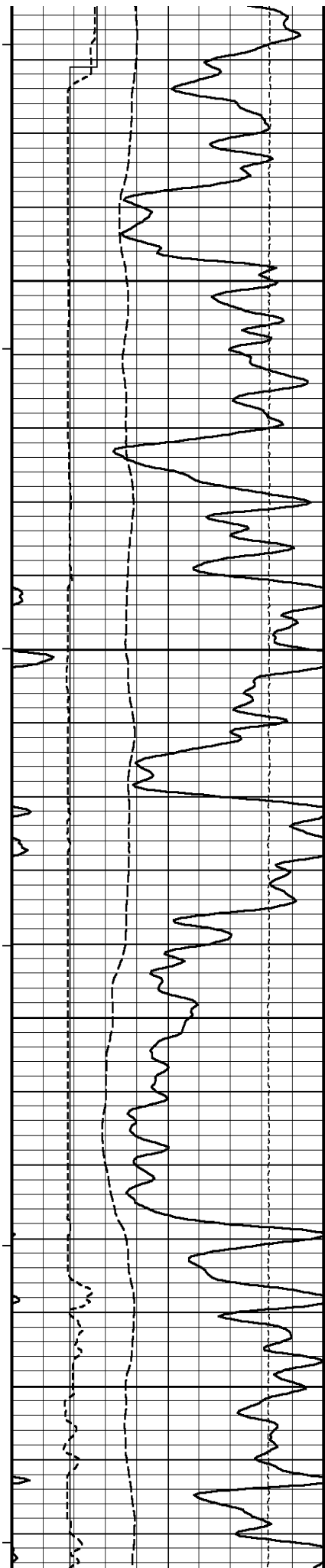
Array Ind. One Res 85

Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)



157°

5550

158°

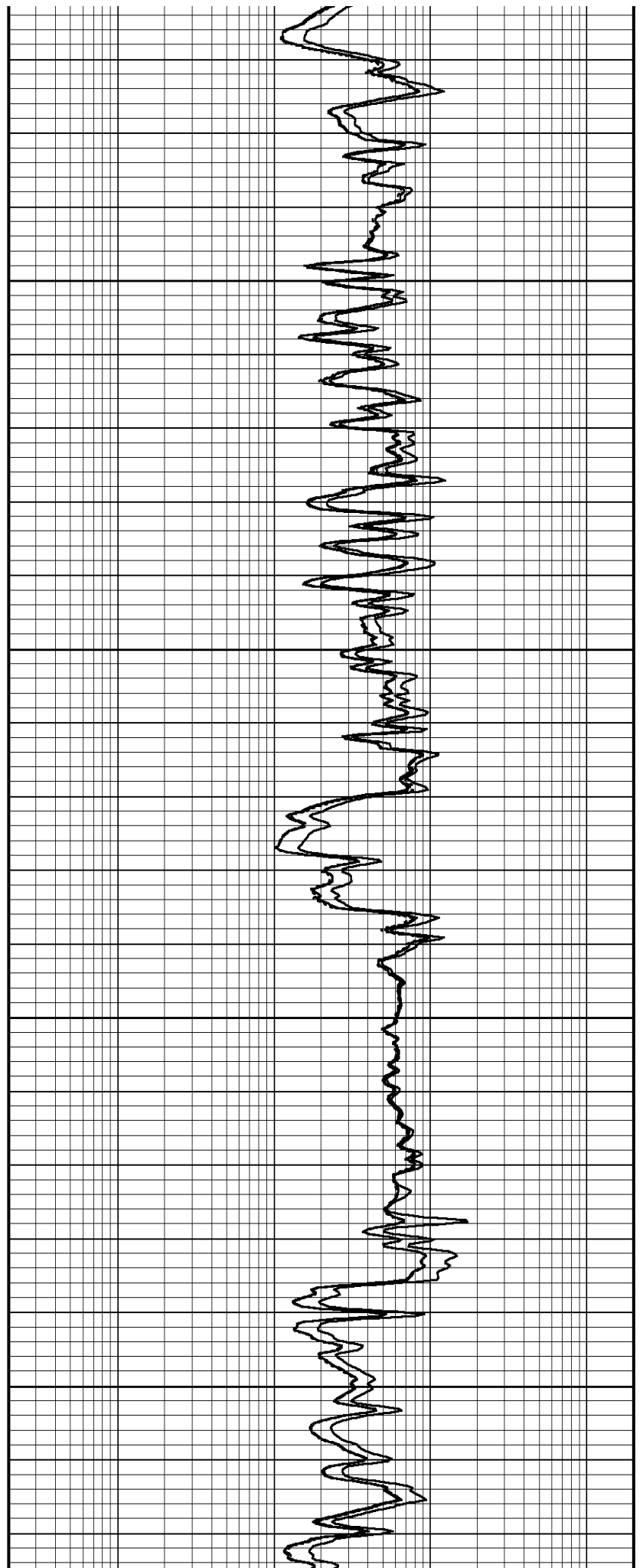
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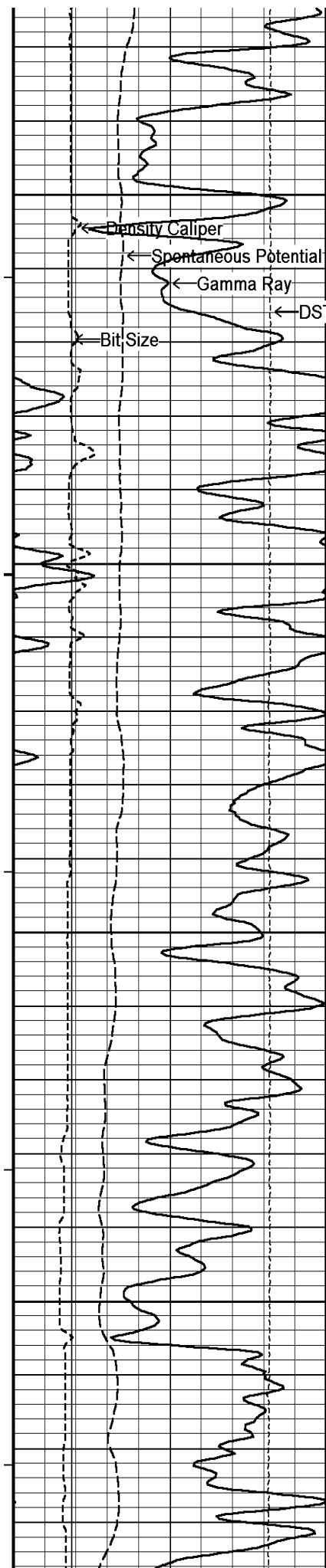
159°

5650

160°

5700





160°

5750

161°

5800

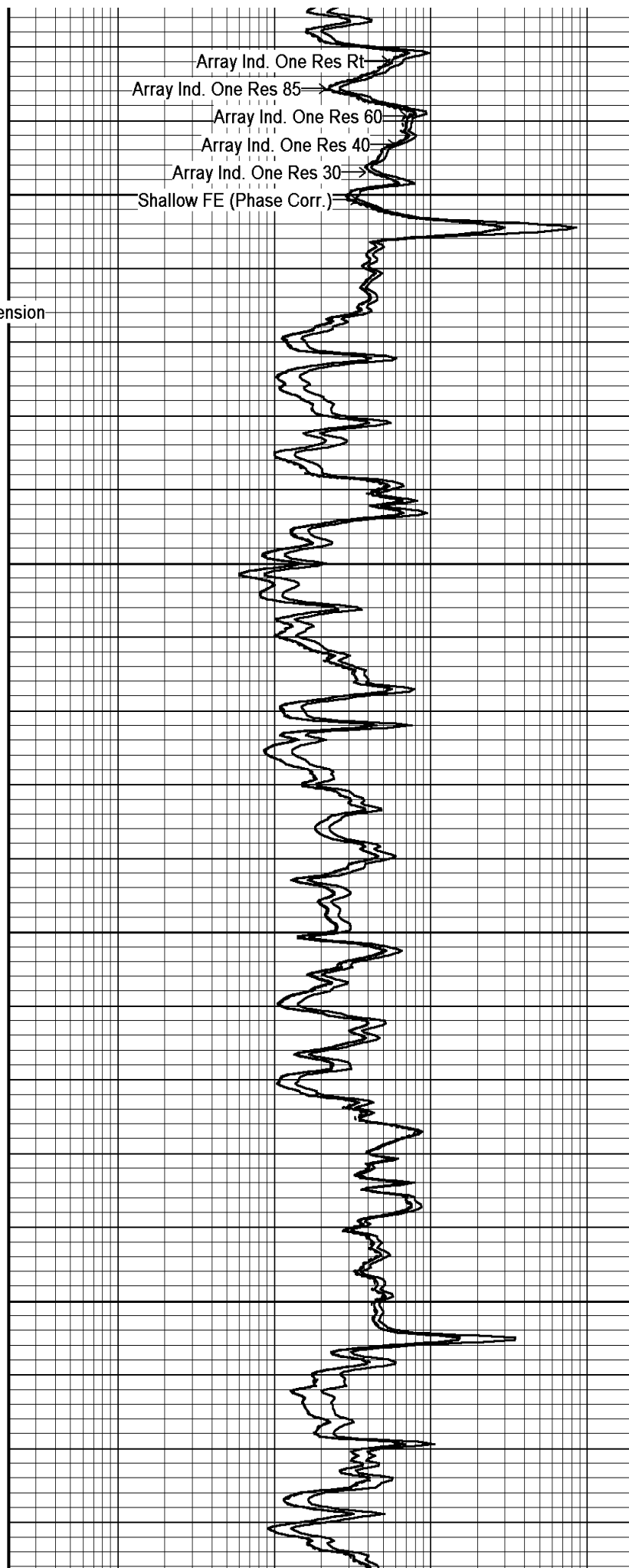
162°

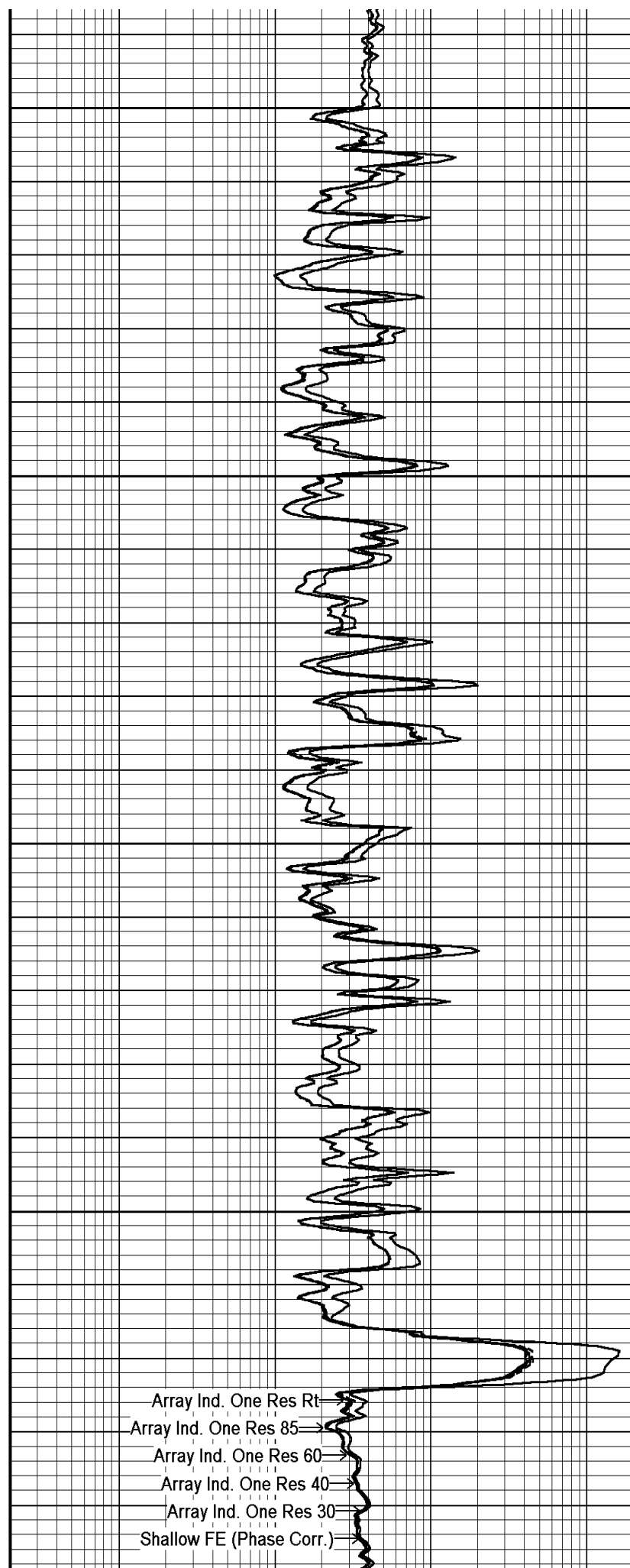
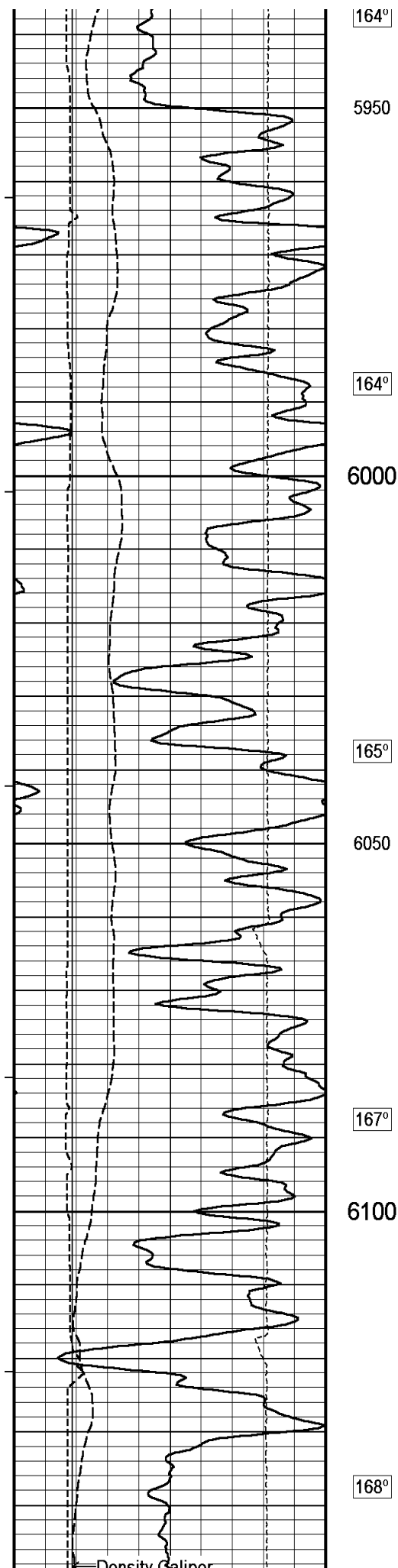
5850

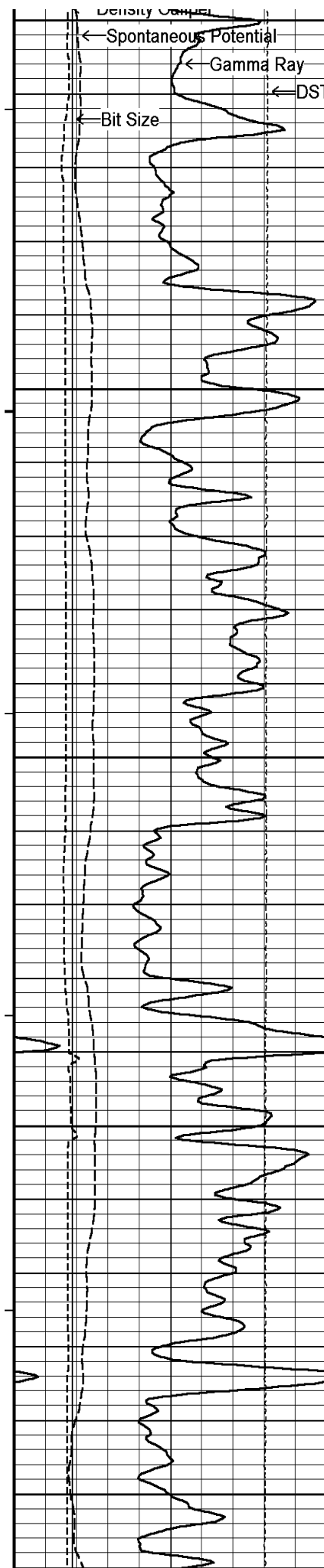
163°

5900

DST Uphole Tension







6150

169°

6200

169°

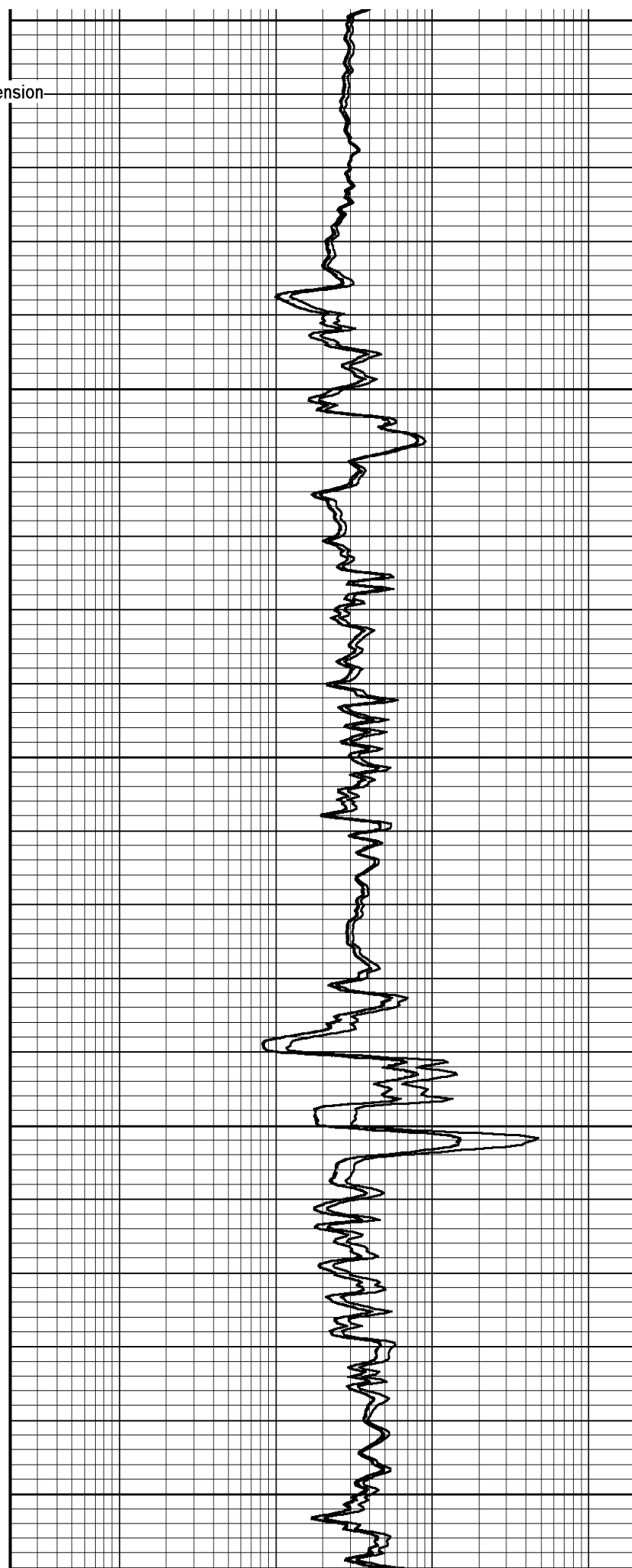
6250

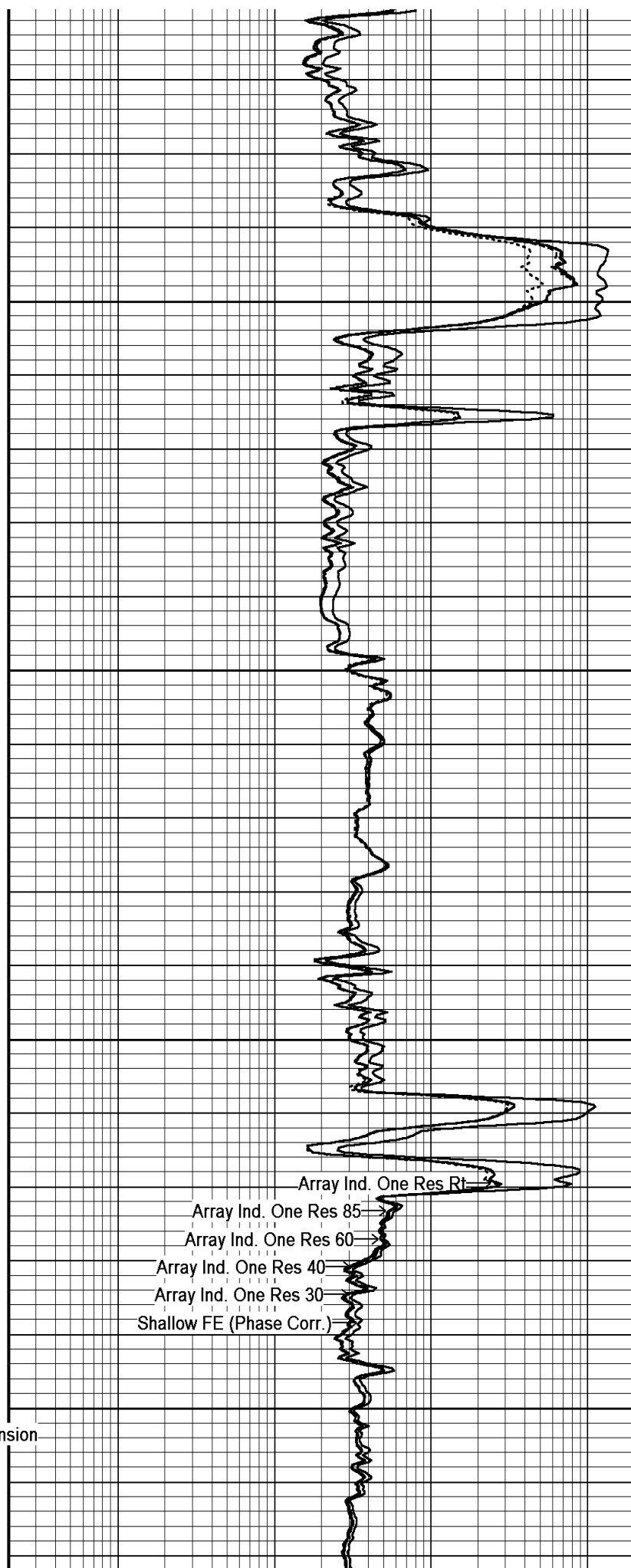
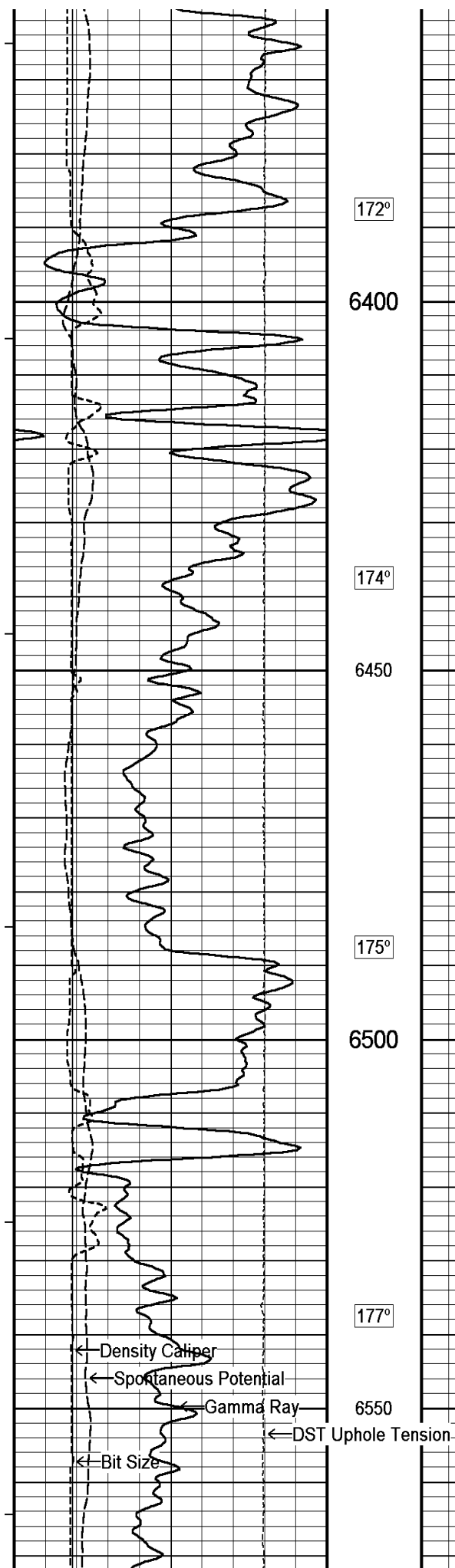
170°

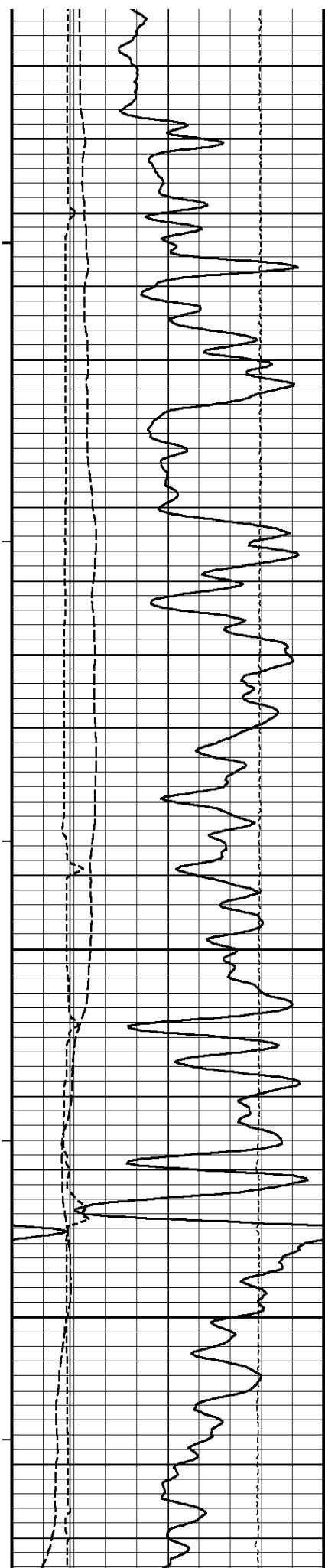
6300

171°

6350







177°

6600

177°

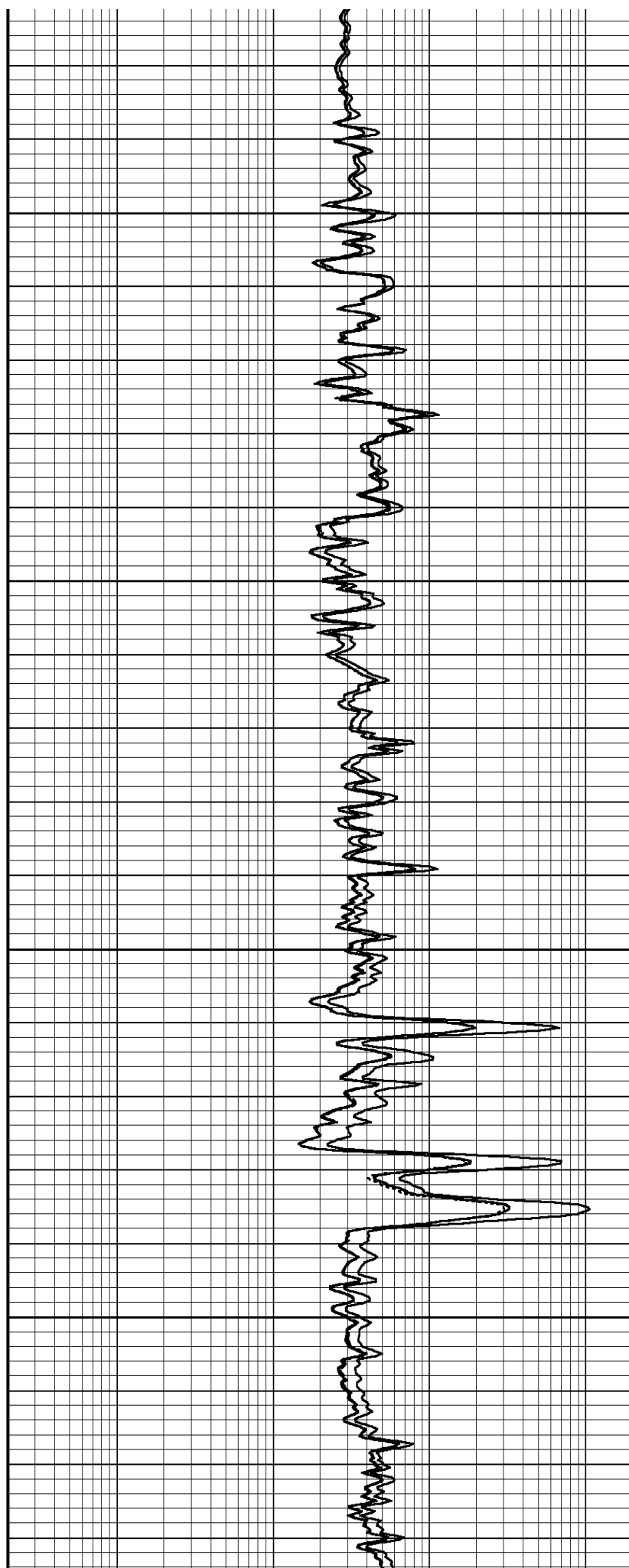
6650

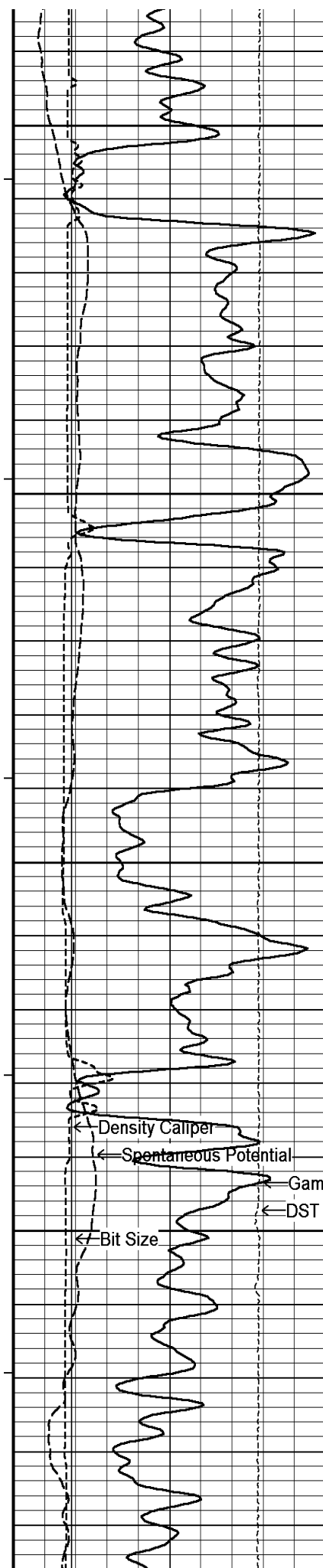
178°

6700

179°

6750





179°

6800

181°

6850

182°

6900

Density Caliper

Spontaneous Potential

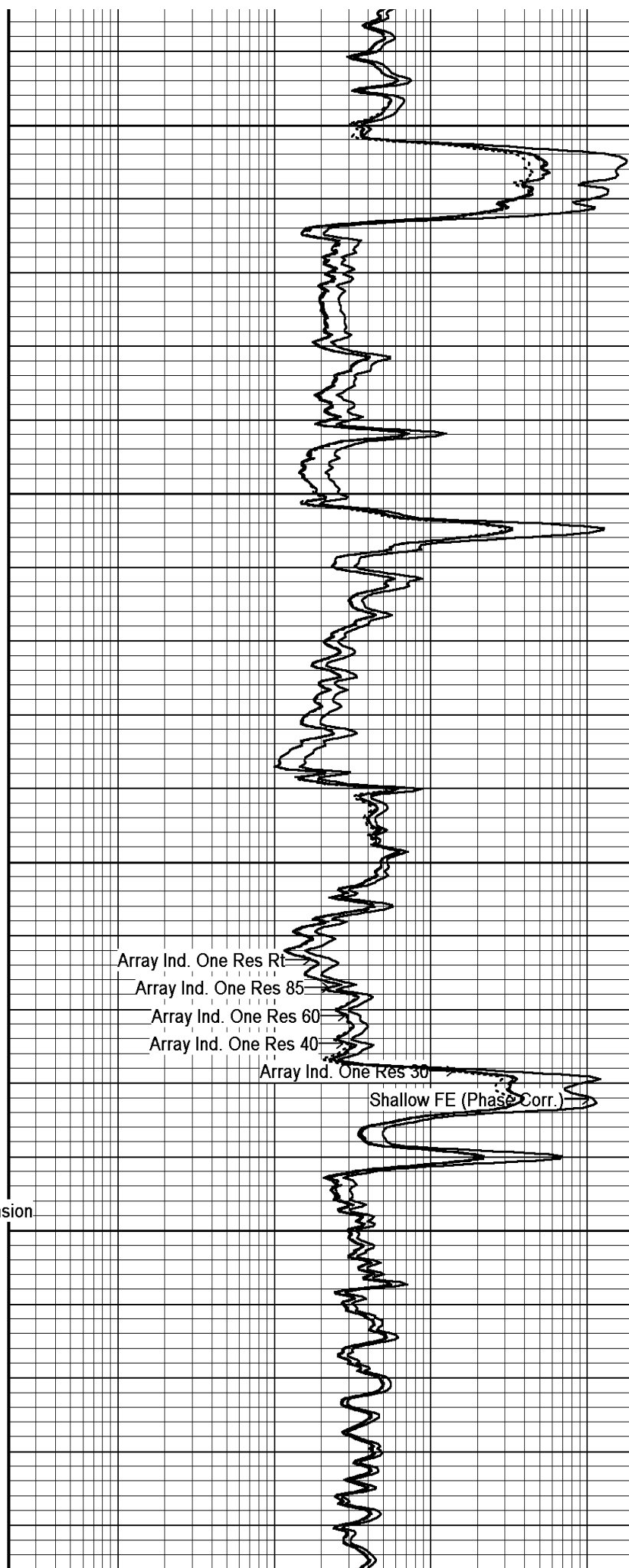
Gamma Ray

DST Uphole Tension

Bit Size

6950

184°



Array Ind. One Res Rt

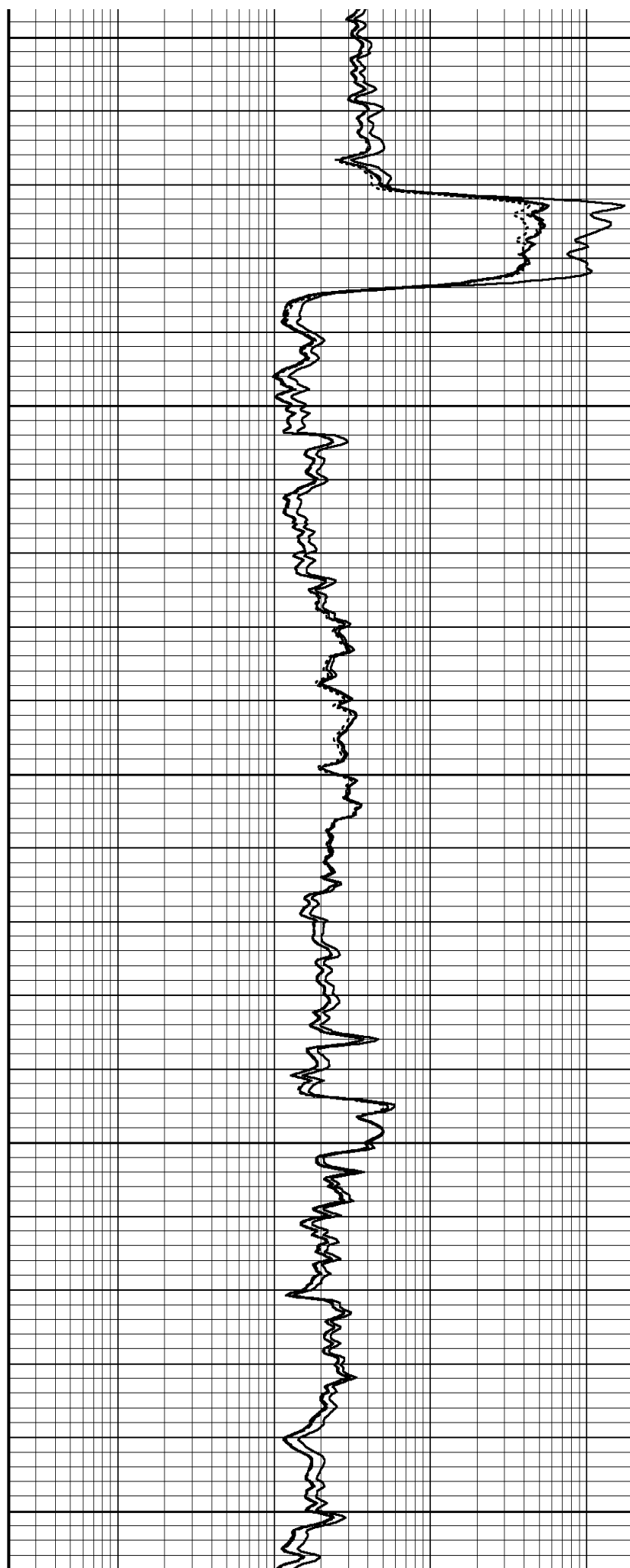
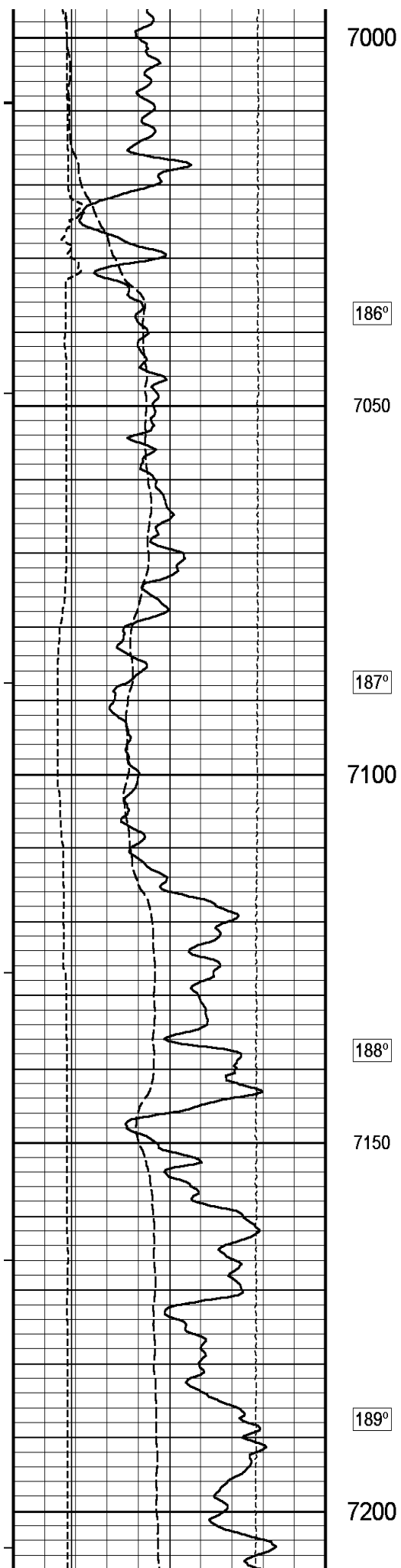
Array Ind. One Res 85

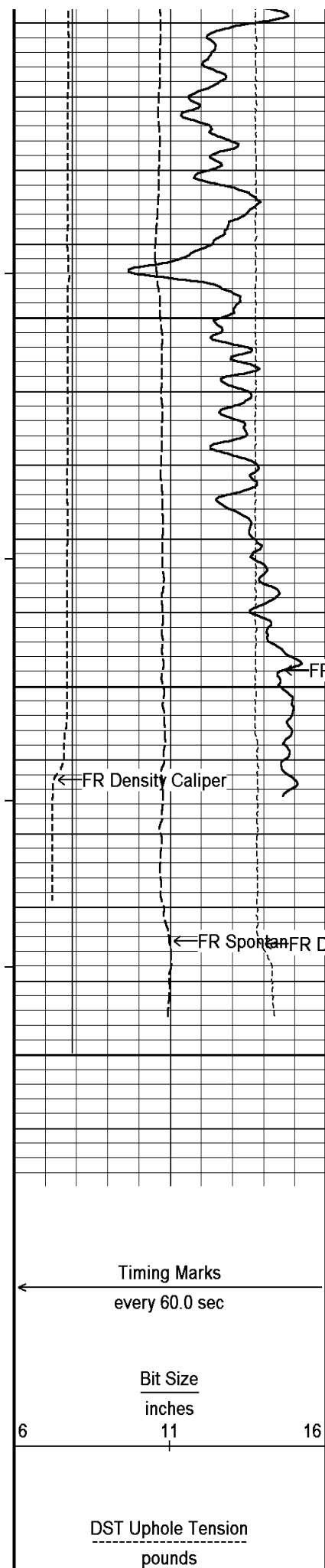
Array Ind. One Res 60

Array Ind. One Res 40

Array Ind. One Res 30

Shallow FE (Phase Corr.)





190°

7250

190°

FR Gamma Ray
7300

FR Density Caliper

FR Spontaneous Potential
FR DST Uphole Tension

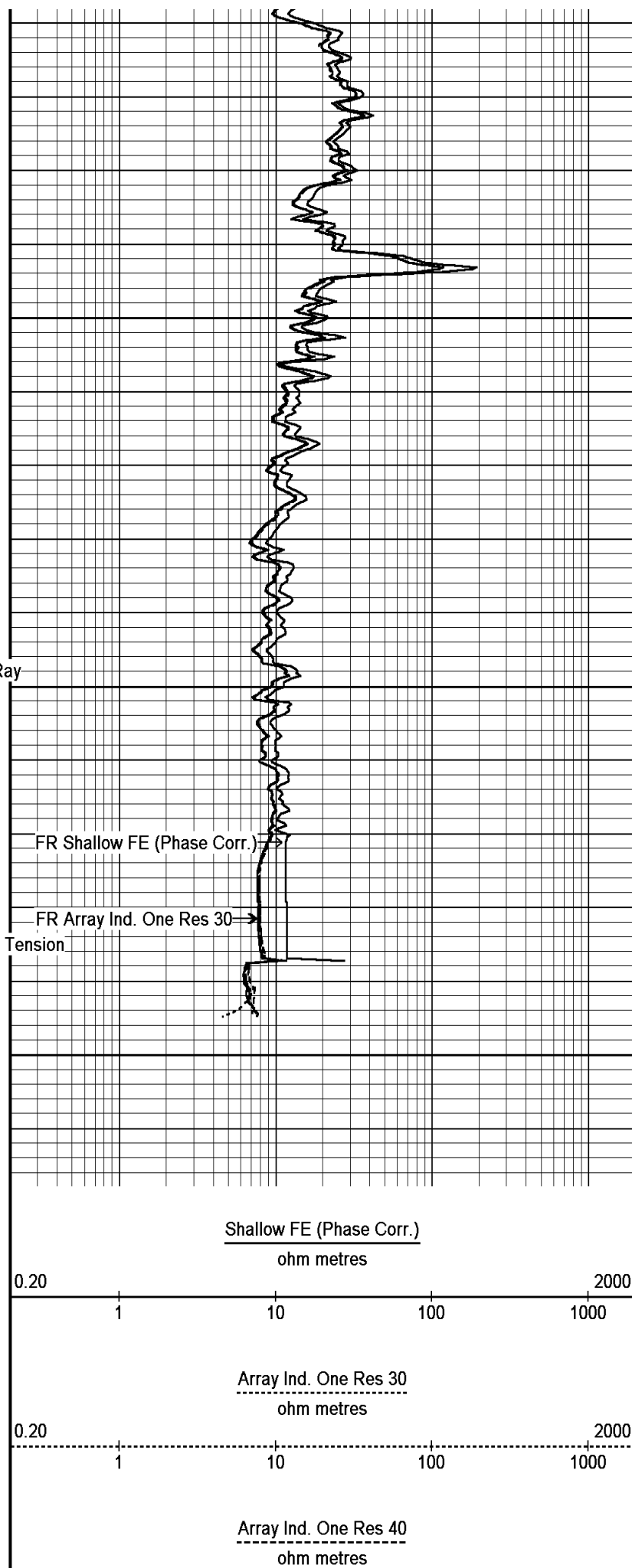
7350

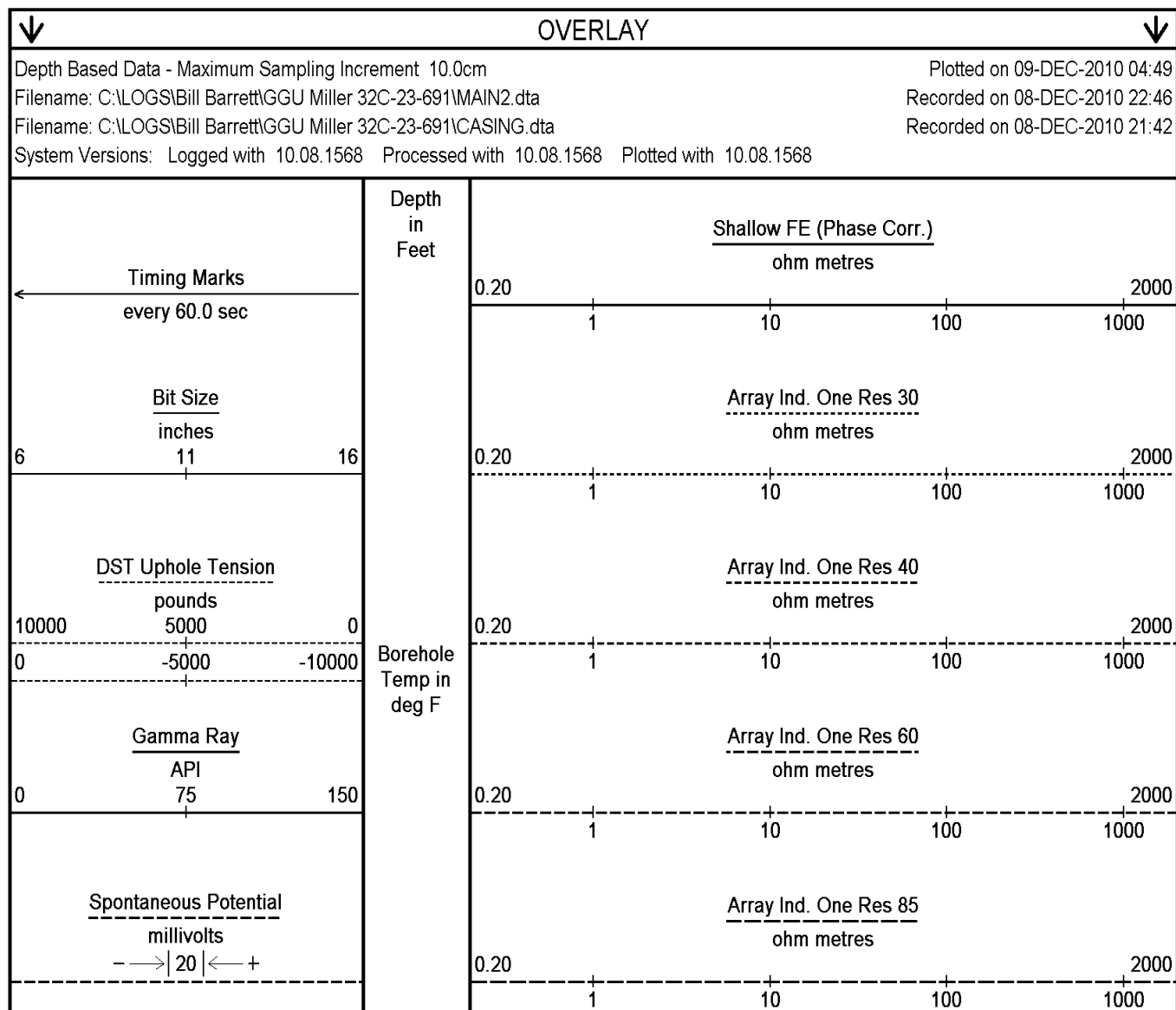
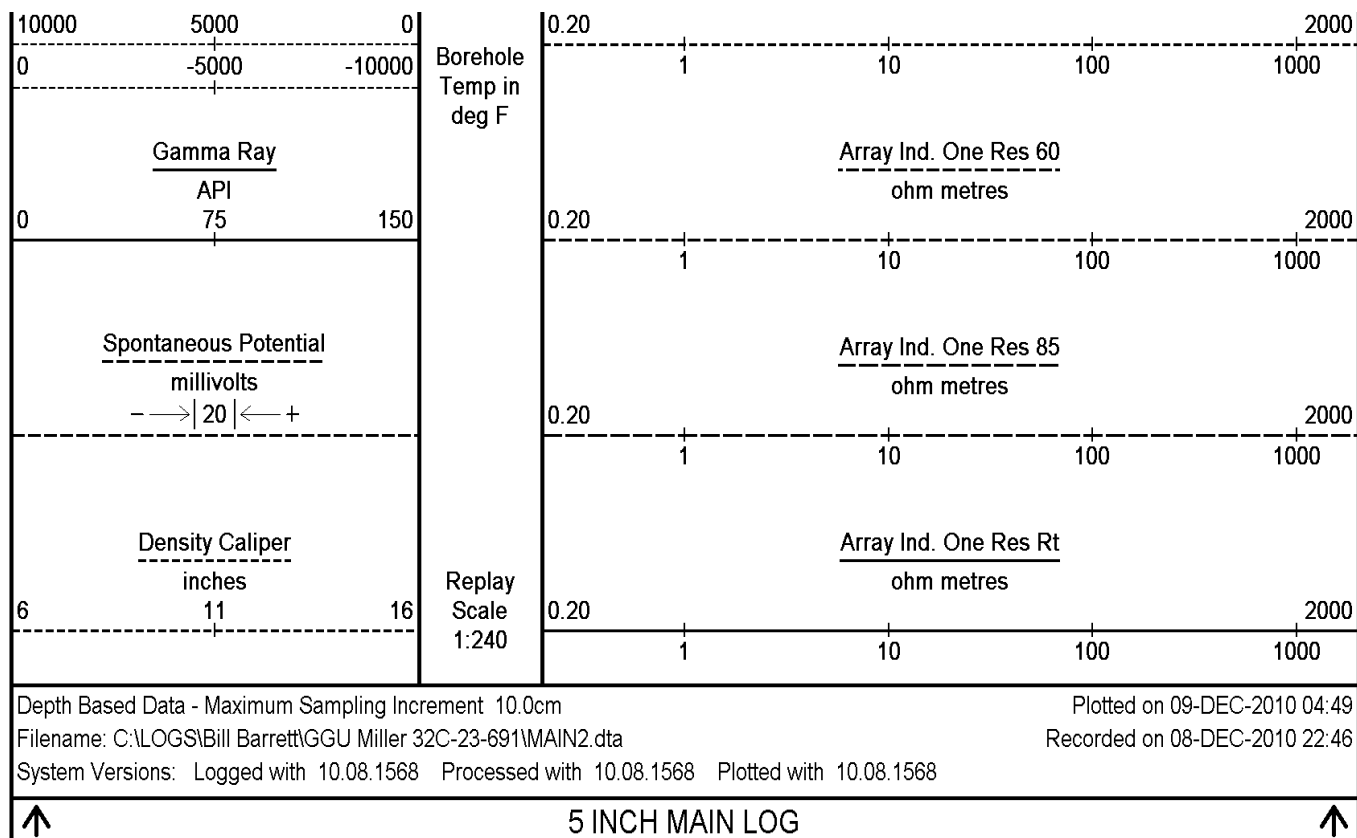
7366
DSC
in
Feet

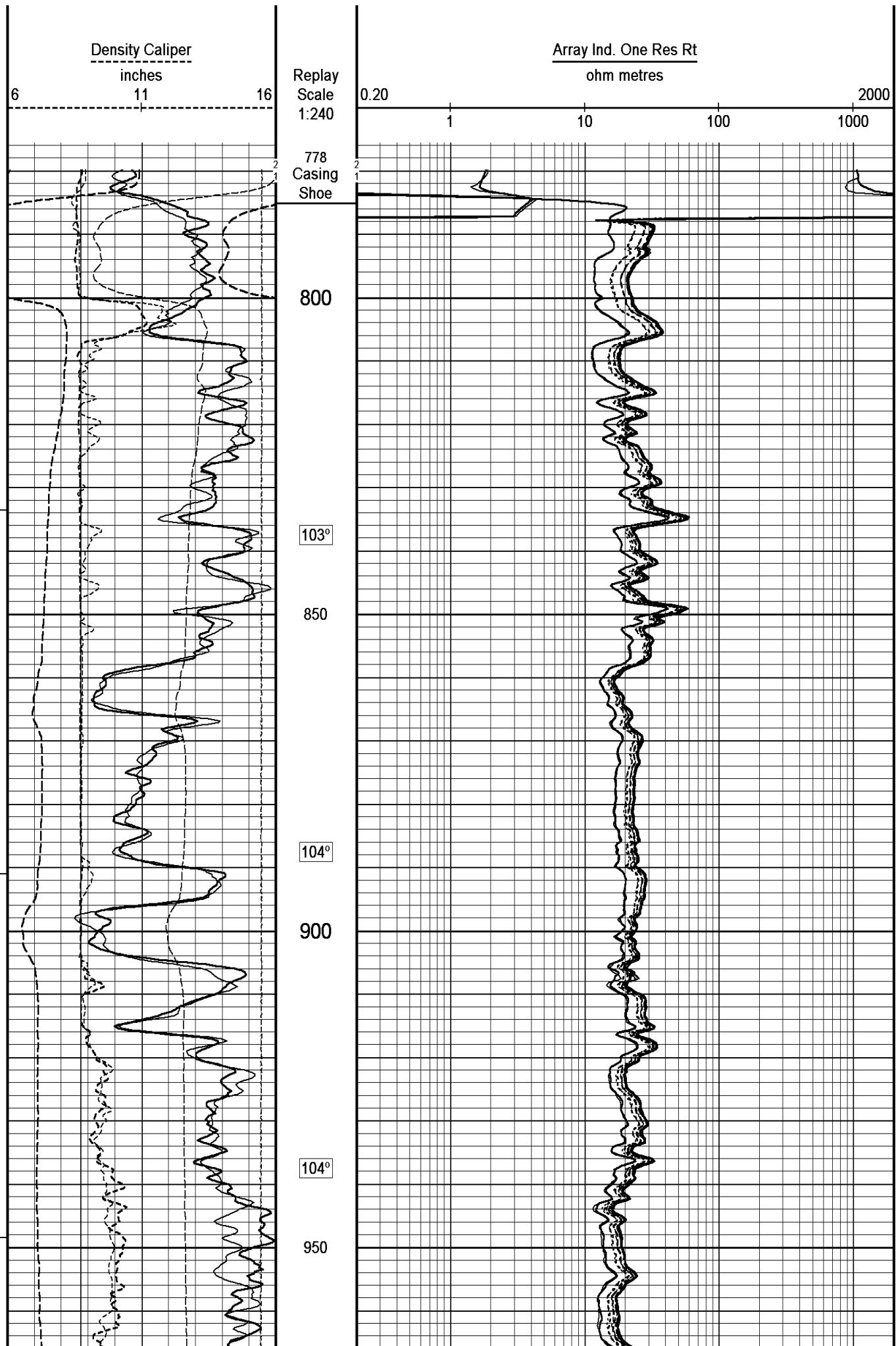
Timing Marks
every 60.0 sec

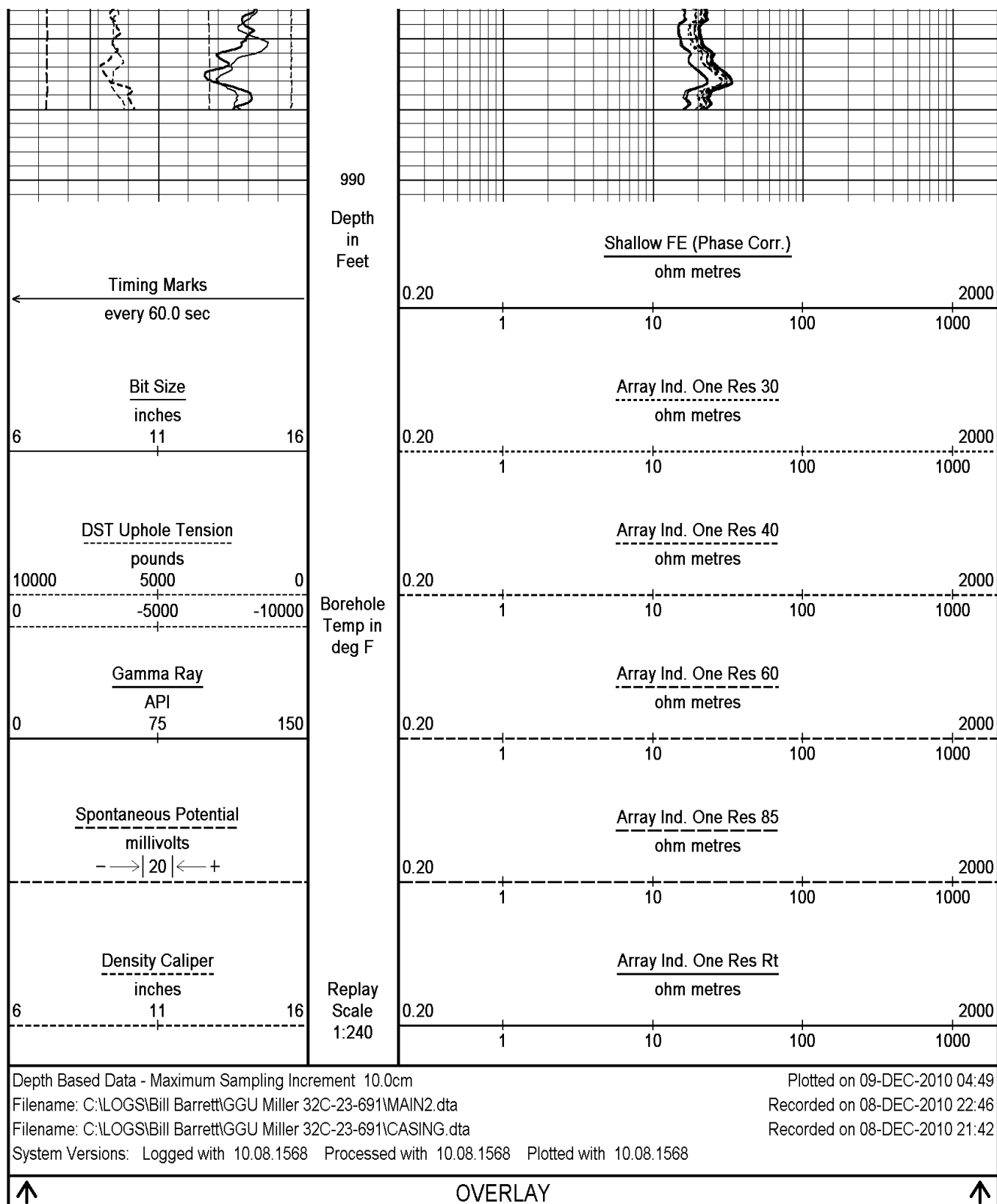
Bit Size
inches
11

DST Uphole Tension
pounds









BEFORE SURVEY CALIBRATION

C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta

General Constants All 000

Last Edited on 08-DEC-2010,19:31

General Parameters

Mud Resistivity	2.450	ohm-metres
Mud Resistivity Temperature	96.000	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	4.500	inches	
Caliper for Differential Caliper	None		
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 000			
			Field Calibration on 08-DEC-2010 21:25
Reading No	Measured	Calibrated (lbs)	
1	10099.40	0.00	
2	11155.73	360.00	
High Resolution Temperature Calibration MCG 192			
			Field Calibration on 08-DEC-2010,19:18
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG 192			
			Last Edited on 08-DEC-2010,19:18
Pre-filter Length	11		
SP Calibration MCG 192			
			Field Calibration on 08-DEC-2010,19:18
	Measured	Calibrated (mV)	
Reference 1	102.5	101.0	
Reference 2	-98.8	-101.0	
Gamma Calibration MCG 192			
			Field Calibration on 08-DEC-2010,21:35
	Measured	Calibrated (API)	
Background	135	92	
Calibrator (Gross)	1471	1004	
Calibrator (Net)	1336	912	
Gamma Constants MCG 192			
			Last Edited on 08-DEC-2010,19:18
Gamma Calibrator Number	GRC-072		
Mud Density	1.00	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
Neutron Calibration MDN 160			
			Base Calibration on 30-NOV-2010,21:21
			Field Check on 08-DEC-2010,21:35
Base Calibration			
	Measured		Calibrated (cps)
	Near	Far	Near Far
	3208	98	3714 110
Ratio	32.812		33.764
Field Calibrator at Base			
			Calibrated (cps)
			1323 1983
Ratio	0.667		
Field Check			
			Calibrated (cps)
			1313 1981
Ratio	0.663		
Neutron Constants MDN 160			
			Last Edited on 08-DEC-2010,19:19
Neutron Source Id	1056		
Neutron Jig Number	5922		
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	7.00	cu	
Dolomite Sigma	4.70	cu	
Formation Pressure Source	None		
Formation Pressure	N/A	kpsi	
Temperature Source	None		
Temperature	N/A	degrees F	
Mud Salinity	0.00	kppm	
Formation Fluid Salinity Source	None		
Formation Fluid Salinity	N/A	kppm	
Barite Mud Correction	Not Applied		
FE Calibration MFE 085		Base Calibration on 12-NOV-2010 11:03 Field Check on 08-DEC-2010 21:28	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	9.7	1.3	
Reference 2	964.3	126.8	
Base Check		282.0	
Field Check		282.1	
FE Constants MFE 085		Last Edited on 08-DEC-2010,19:21	
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 213		Field Calibration on 08-DEC-2010,19:21	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MAI 213		Last Edited on 08-DEC-2010,19:21	
Pre-filter Length	11		
Induction Calibration MAI 213		Base Calibration on 20-NOV-2010,09:51 Field Check on	
Base Calibration			
Test Loop Calibration	Measured	Calibrated (mmho/m)	
Channel	Low High	Low High	
1	16.8 462.4	9.3 966.2	
2	6.2 381.7	7.6 821.4	
3	3.6 254.8	5.2 566.0	
4	2.3 132.3	2.6 279.2	
Array Temperature	73.6	Deg F	
Channel	Base Check (mmho/m)	Field Check (mmho/m)	
	Low High	Low High	
1	0.0 0.0	0.0 0.0	
2	0.0 0.0	0.0 0.0	
3	0.0 0.0	0.0 0.0	
4	0.0 0.0	0.0 0.0	
Deep	0.0 0.0	0.0 0.0	
Medium	0.0 0.0	0.0 0.0	
Shallow	0.0 0.0	0.0 0.0	
Array Temperature	0.0	0.0	Deg F
Induction Constants MAI 213		Last Edited on 08-DEC-2010 19:21	

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	6.0000		
Stand-off Fin Angle	60.00	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 167

Base Calibration on 17-NOV-2010 16:07
Field Calibration on 08-DEC-2010, 19:20

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	18710	4.00
2	27104	5.96
3	35068	7.98
4	43201	9.86
5	52390	11.88
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	6.00	5.96

Photo Density Calibration MPD 167

Base Calibration on 17-NOV-2010 15:52
Field Check on 08-DEC-2010 21:32

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	48981	19042	53237	19445
Reference 2	22577	3078	25135	2545
Field Check at Base				
	1182.7	1754.2		
Field Check				
	1178.9	1761.7		

PE Calibration				
Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	214	1054		
Reference 1	14834	48805	0.306	0.320
Reference 2	5846	22443	0.263	0.274
Field Check at Base				
	214.2	1053.8		
Field Check				
	213.6	1053.4		
Density Constants MPD 167				Last Edited on 08-DEC-2010,19:20
Density Source Id	P50561B			
Nylon Calibrator Number	532			
Aluminium Calibrator Number	532			
Density Shoe Profile	8 inch			
Caliper Source for Processing	Density Caliper			
PE Correction to Density	Not Applied			
Mud Density	1.27 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)			
2.68	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			

AFTER SURVEY CALIBRATION					
C:\LOGS\Bill Barrett\GGU Miller 32C-23-691\MAIN2.dta					
FE Check MFE 085			Before Survey Check 08-DEC-2010 21:28 After Survey Check on 09-DEC-2010 01:24		
	Before (ohm-m)		After (ohm-m)		
	282.1		281.7		
Induction Check MAI 213			Before Survey Check on After Survey Check on 09-DEC-2010 01:23		
Channel	Before Survey (mmho/m)		After Survey (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	17.6	3937.4	
2	0.0	0.0	32.5	3539.8	
3	0.0	0.0	30.8	3113.9	
4	0.0	0.0	20.3	2096.7	
Deep	0.0	0.0	18.7	2078.4	
Medium	0.0	0.0	44.9	4087.3	
Shallow	0.0	0.0	48.8	5159.0	
Array Temperature	0.0		93.4		
Photo Density Check MPD 167			Before Survey Check on 08-DEC-2010 21:32 After Survey Check on 09-DEC-2010 01:28		
Density Check					
	Near		Far		
	Before	After	Before	After	
	1178.9	1176.8	1761.7	1749.9	

ARRAY INDUCTION - RTAP
SHALLOW FOCUSED
ELECTRIC LOG

BILL BARRETT CORPORATION
GGU MILLER 23C-32-691

UNITY
GARFIELD

U.S.A. / COLORADO

SHL: 1256' FSL & 2297' FWL

BHL: 2130' FSL & 1990' FWL

Other Services

91W/ MFD/MDN

05-045-19430

05-045-19430

05-045-19430

05-045-19430

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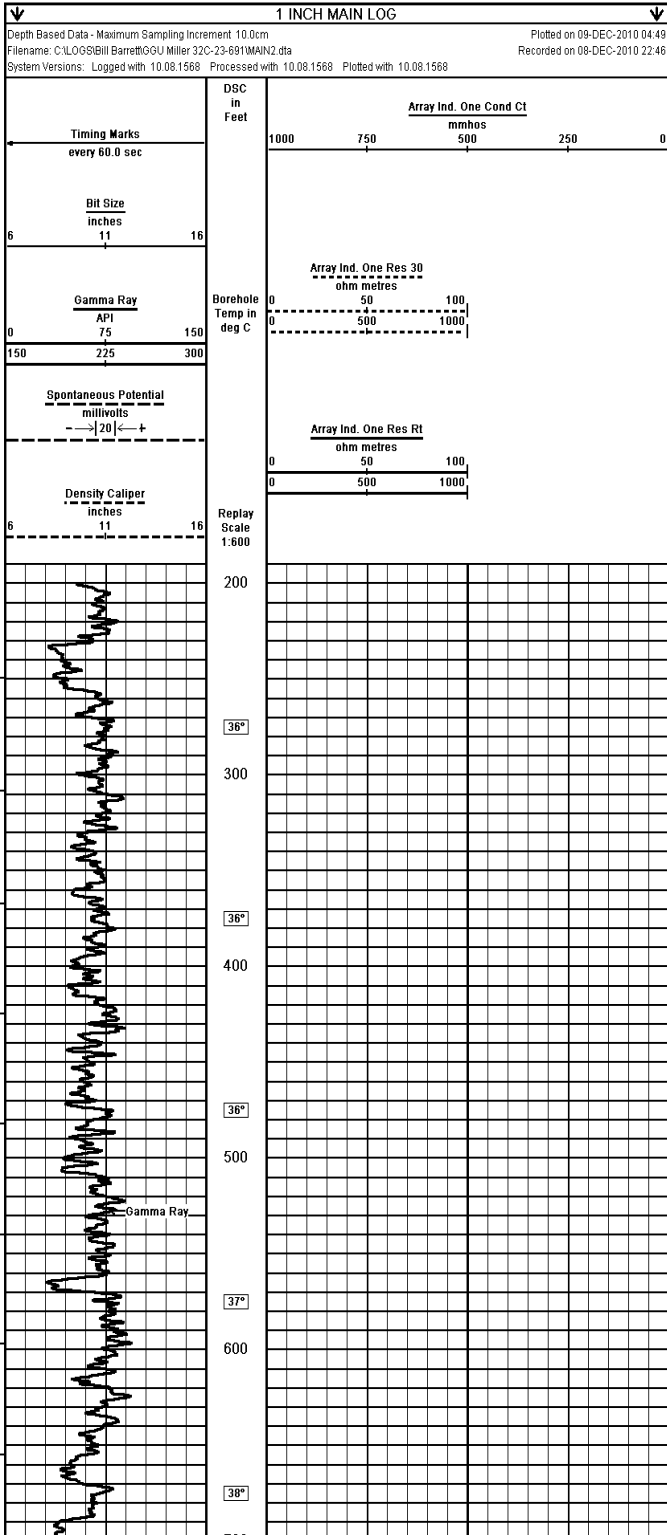
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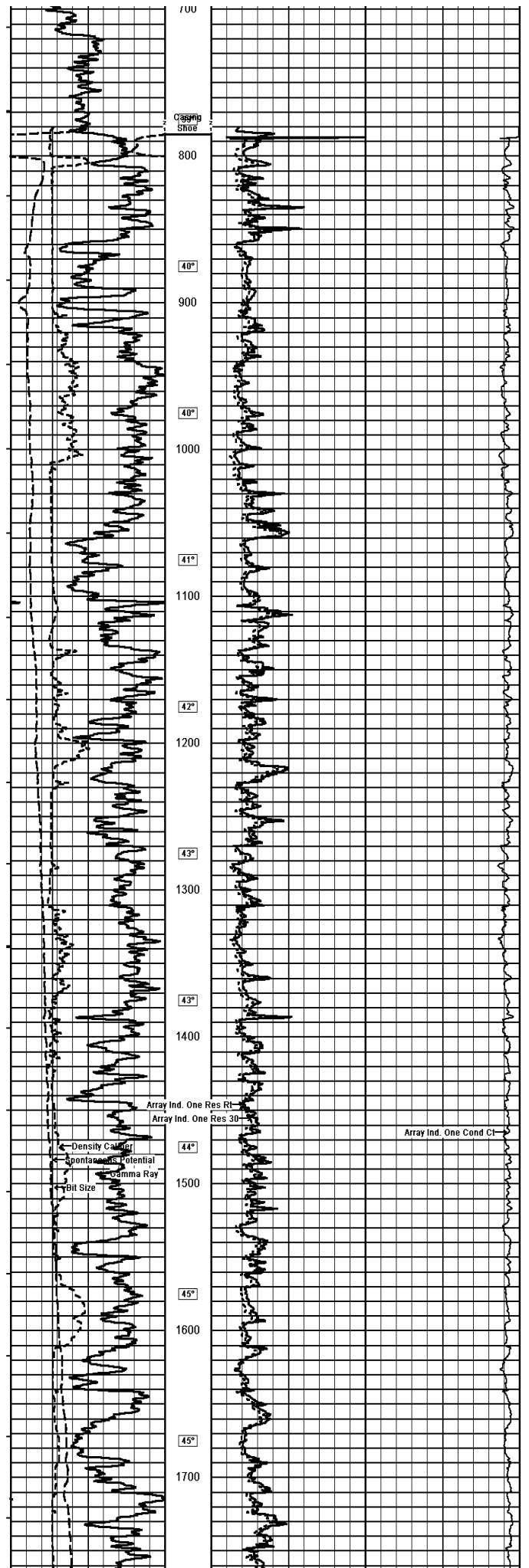
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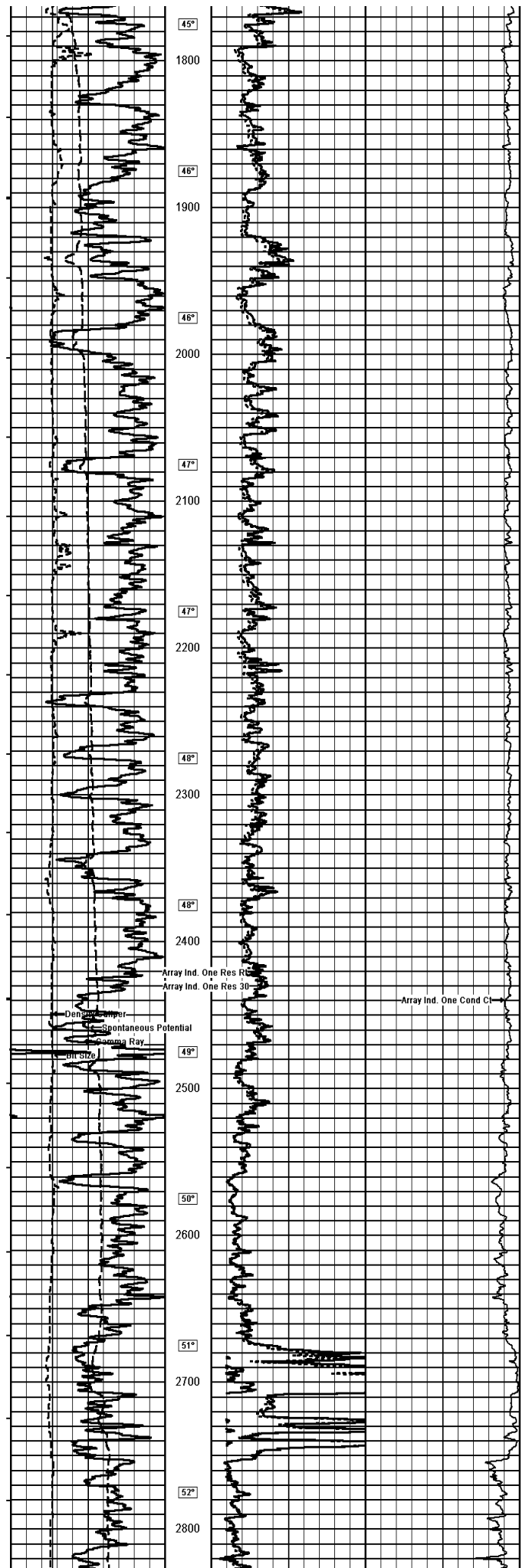
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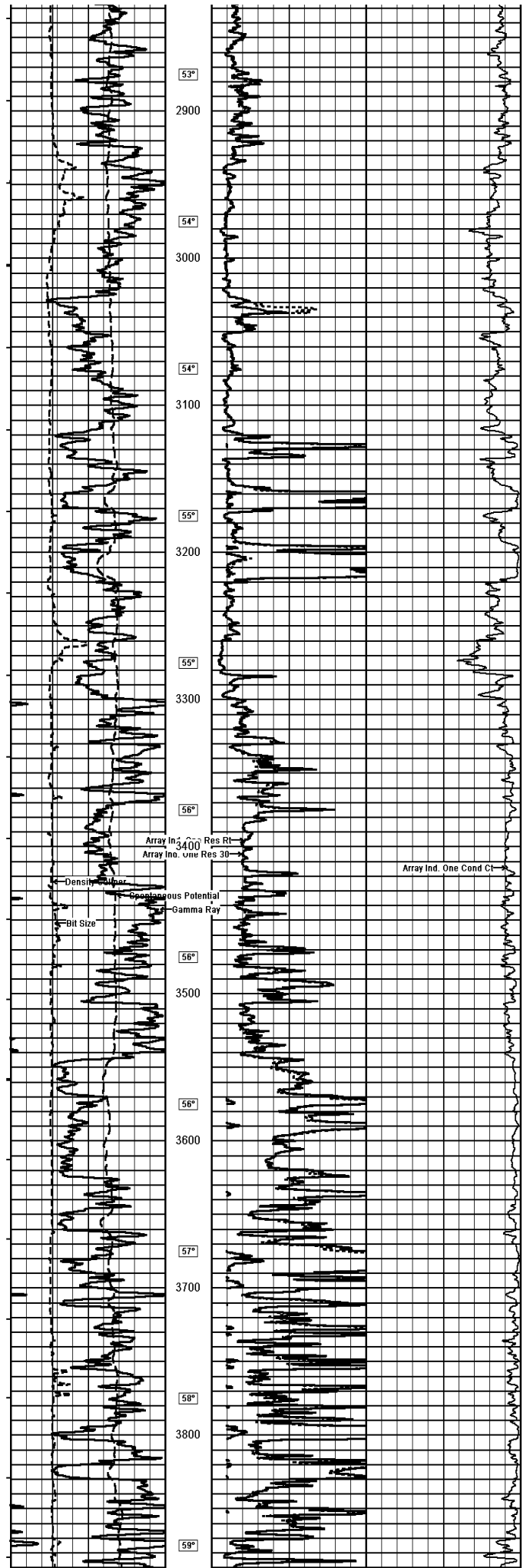
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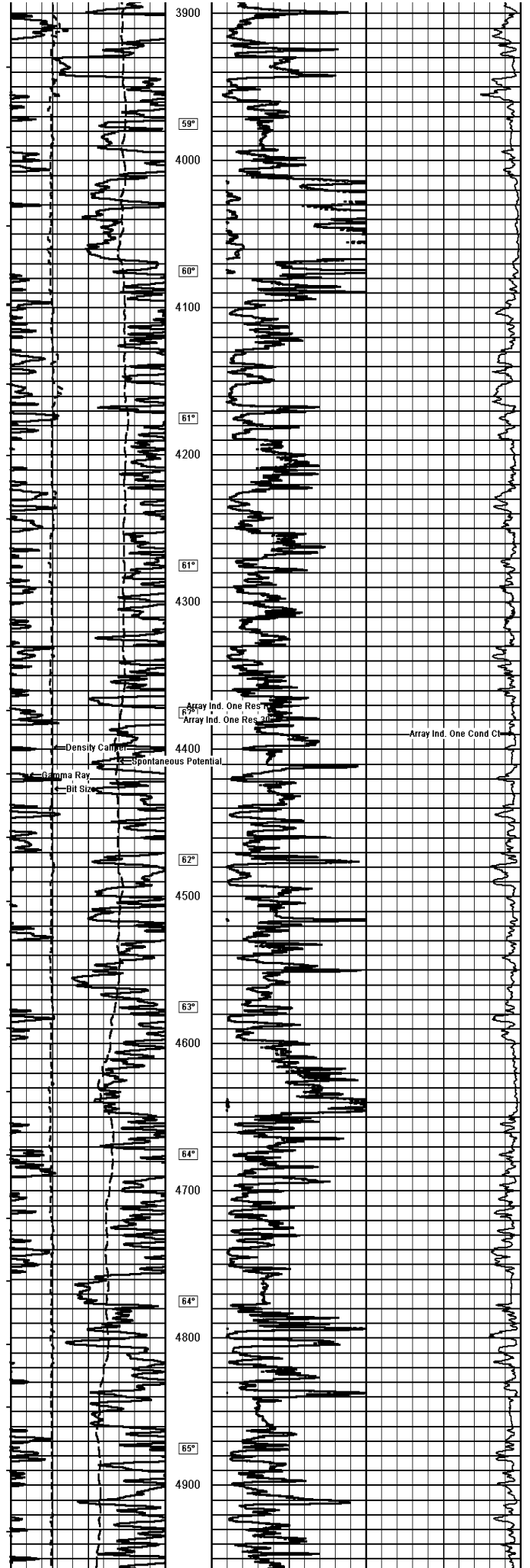
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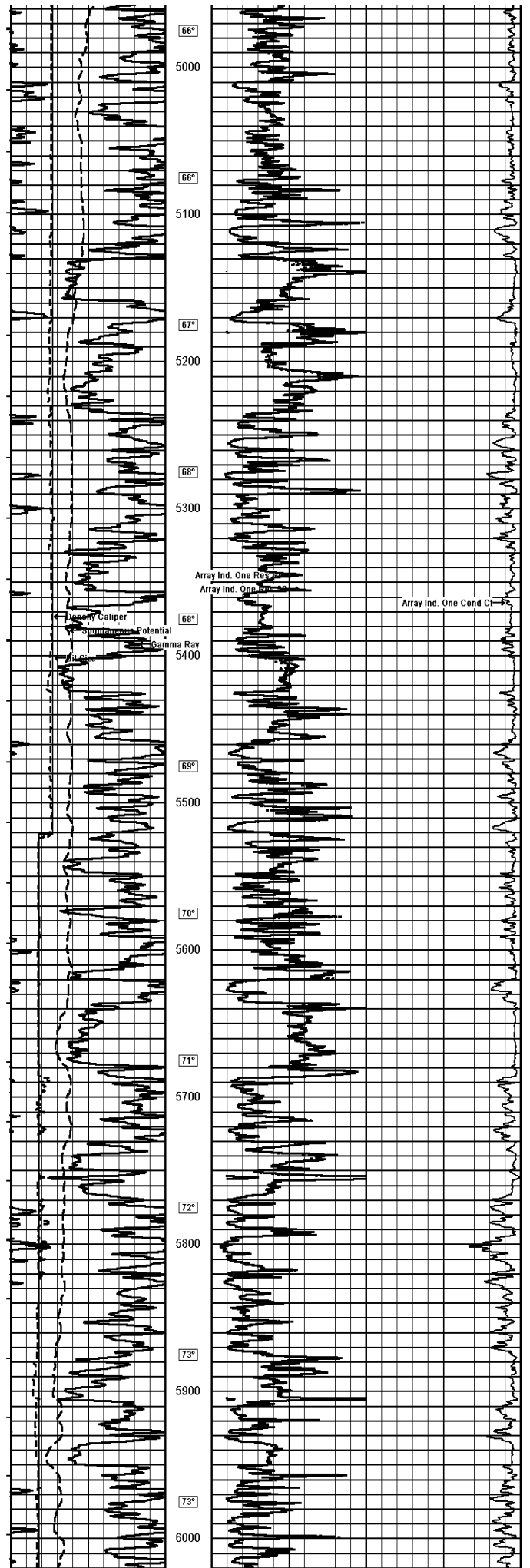


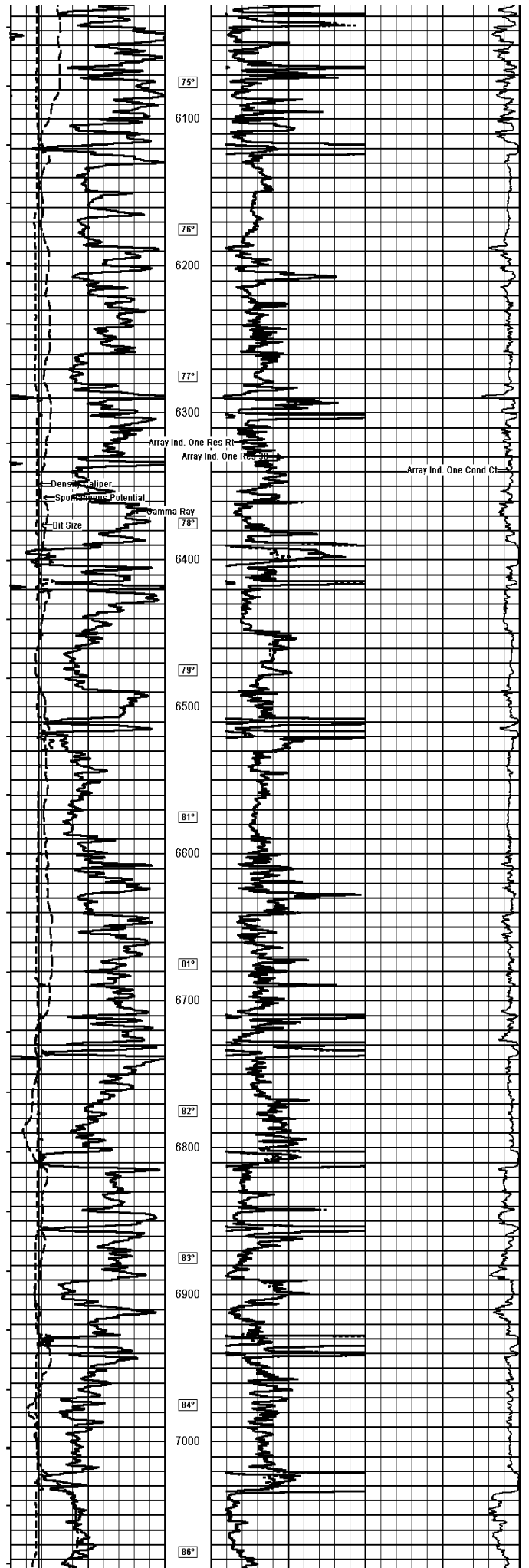


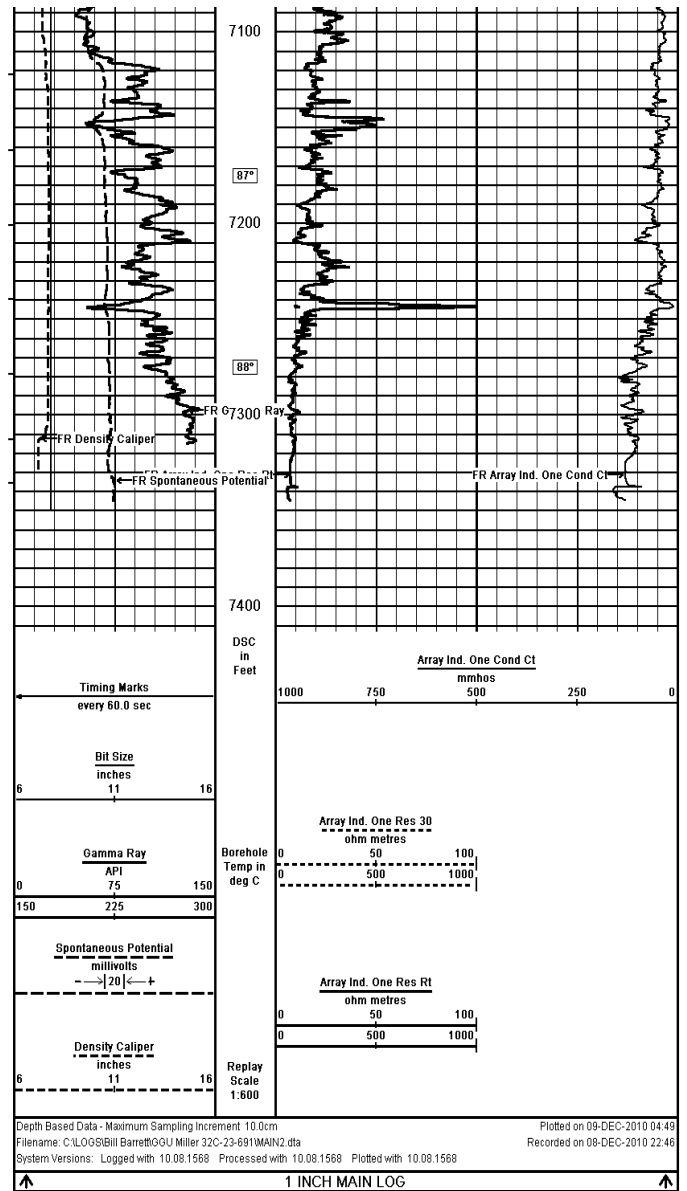













COMPANY		BILL BARRETT CORPORATION			
WELL		GGU MILLER 23C-32-691			
FIELD		GIBSON GULCH			
PROVINCE/COUNTY		GARFIELD			
COUNTRY/STATE		U.S.A. / COLORADO			
Elevation Kelly Bushing	6144.00	feet	First Reading	7321.00	
Elevation Drill Floor	6143.00	feet	Depth Driller	7333.00	feet
Elevation Ground Level	6121.00	feet	Depth Logger	7335.00	feet
 ARRAY INDUCTION - RTAP					
SHALLOW FOCUSED					
ELECTRIC LOG					