



Weatherford

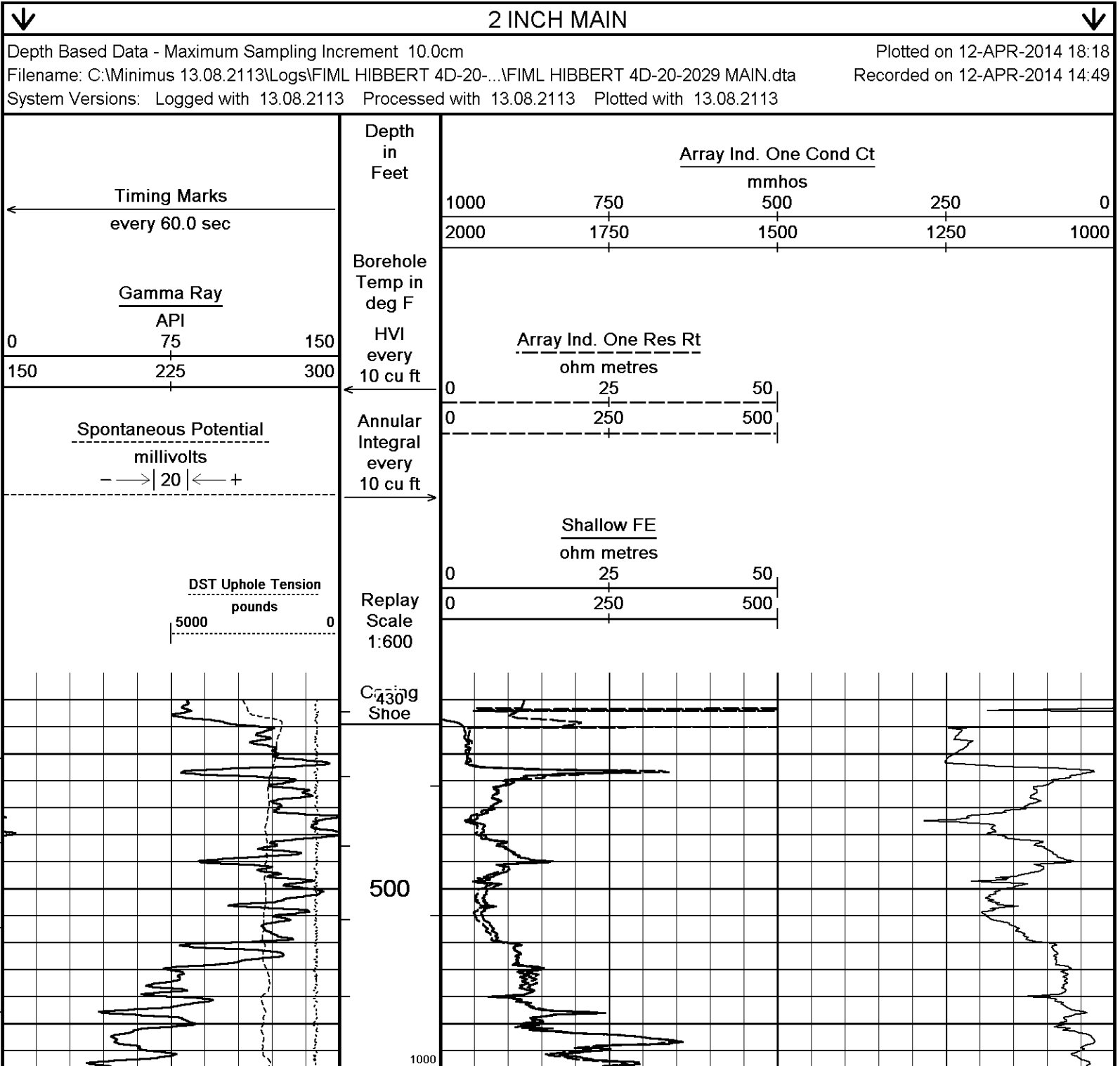
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

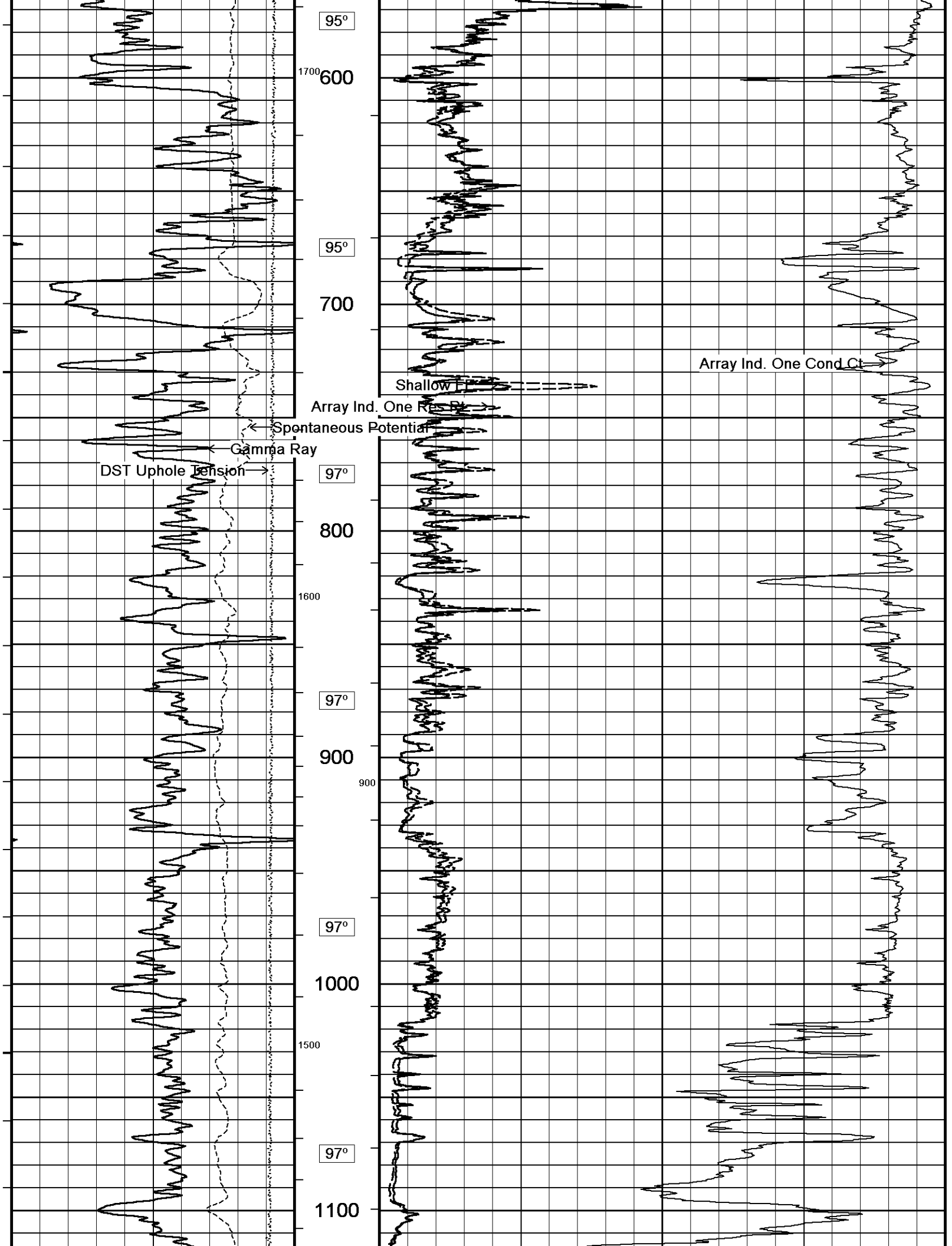
COMPANY			FIML NATURAL RESOURCES, LLC.		
WELL			HIBBERT 4D-20-2029		
FIELD			WILDCAT		
PROVINCE/COUNTY LANE			U.S.A. / KANSAS		
COUNTRY/STATE			1235' FNL & 1000' FNL		
LOCATION					
SEC 20	TWP 20S	RGE 29W	Other Services		MML
Latitude			MPD/MDN		
Longitude			MAI/MFE		
API Number	15-101-22502		MSS		
Permanent Datum GL, Elevation 2882 feet					
Log Measured From KB					
Drilling Measured From KB @ 10 FEET			Elevations: KB 2892.00 DF 2890.00 GL 2882.00		
Date	12-APR-2014				
Run Number	ONE				
Service Order	5872-84492996				
Depth Driller	4900.00		feet		
Depth Logger	4902.00		feet		
First Reading	4899.00		feet		
Last Reading	439.00		feet		
Casing Driller	437.00		feet		
Casing Logger	439.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEM				
Density / Viscosity	9.30 lb/USg		55.00 CP		
PH / Fluid Loss	10.50		7.00 ml/30Min		
Sample Source	PIT				
Rm @ Measured Temp	0.80 @ 96.0		ohm-m		
Rmf @ Measured Temp	0.64 @ 96.0		ohm-m		
Rmc @ Measured Temp	0.96 @ 96.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.65 @ 117.0		ohm-m		
Time Since Circulation	4 HRS				
Max Recorded Temp	117.00		deg F		
Equipment / Base	13057		LIB		
Recorded By	D. COLE				
Witnessed By	G. DOKE		K. TALBOT		
JOB #	LB 14-111				

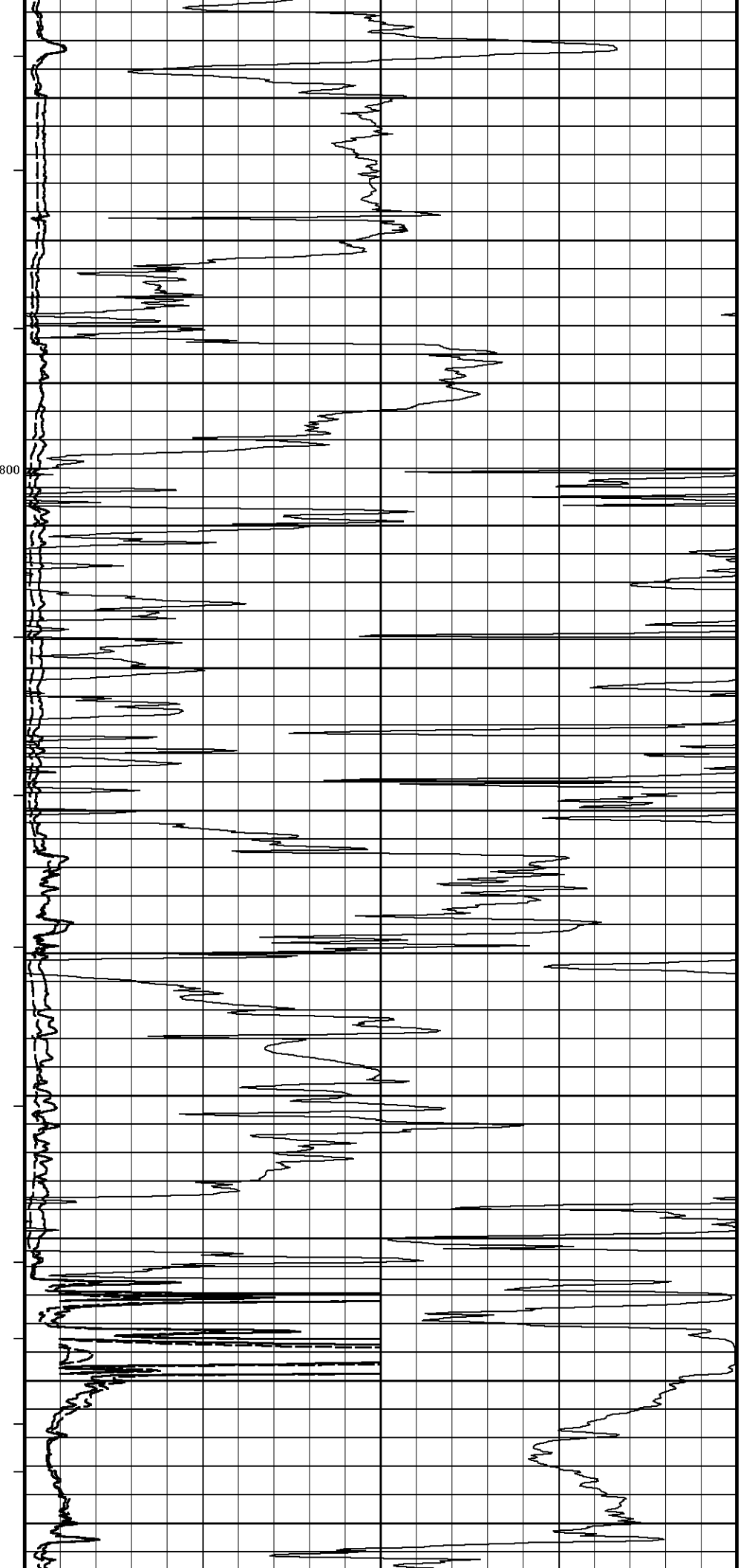
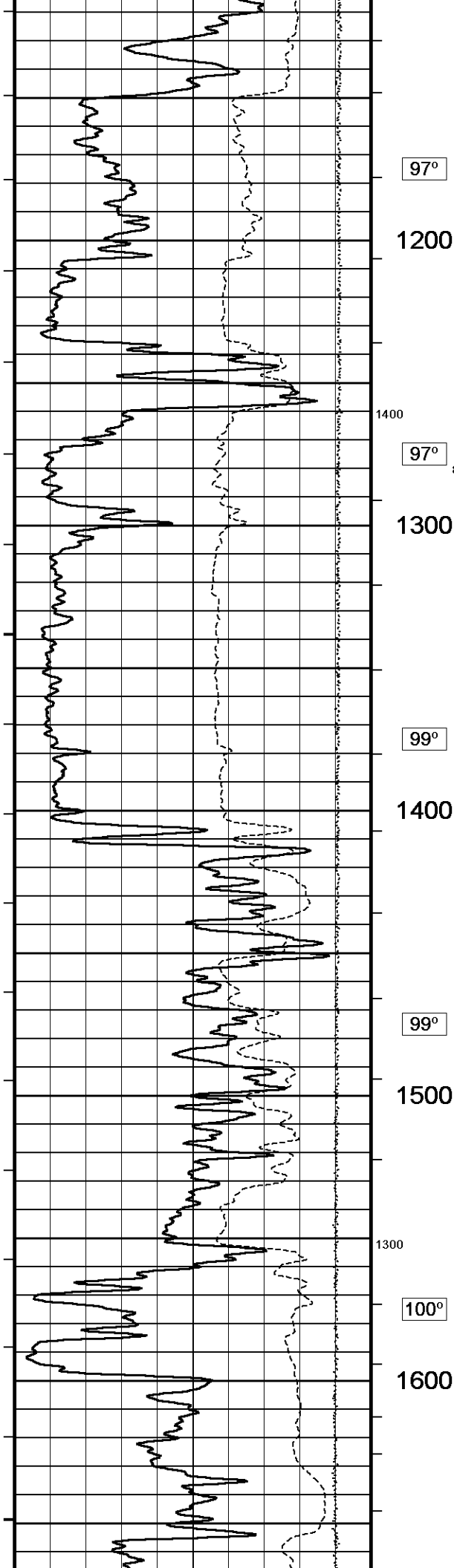
BOREHOLE RECORD			Last Edited: 12-APR-2014 11:38	
Bit Size inches	Depth From feet		Depth To feet	
7.875	437.00		4900.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	437.00	24.00

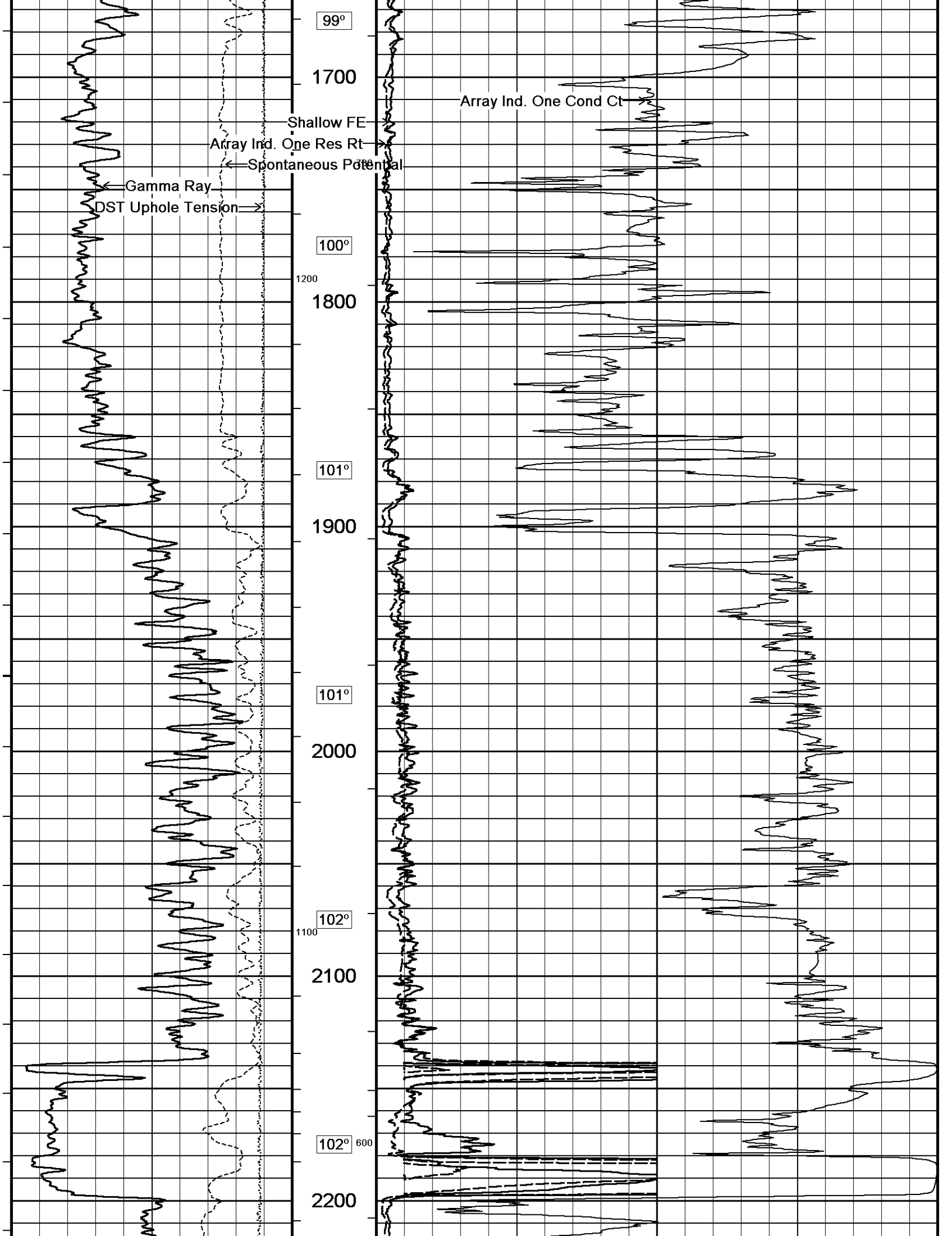
REMARKS
- SOFTWARE ISSUE: WLS 13.08.211.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS AND MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1760 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1025 CU.FT.

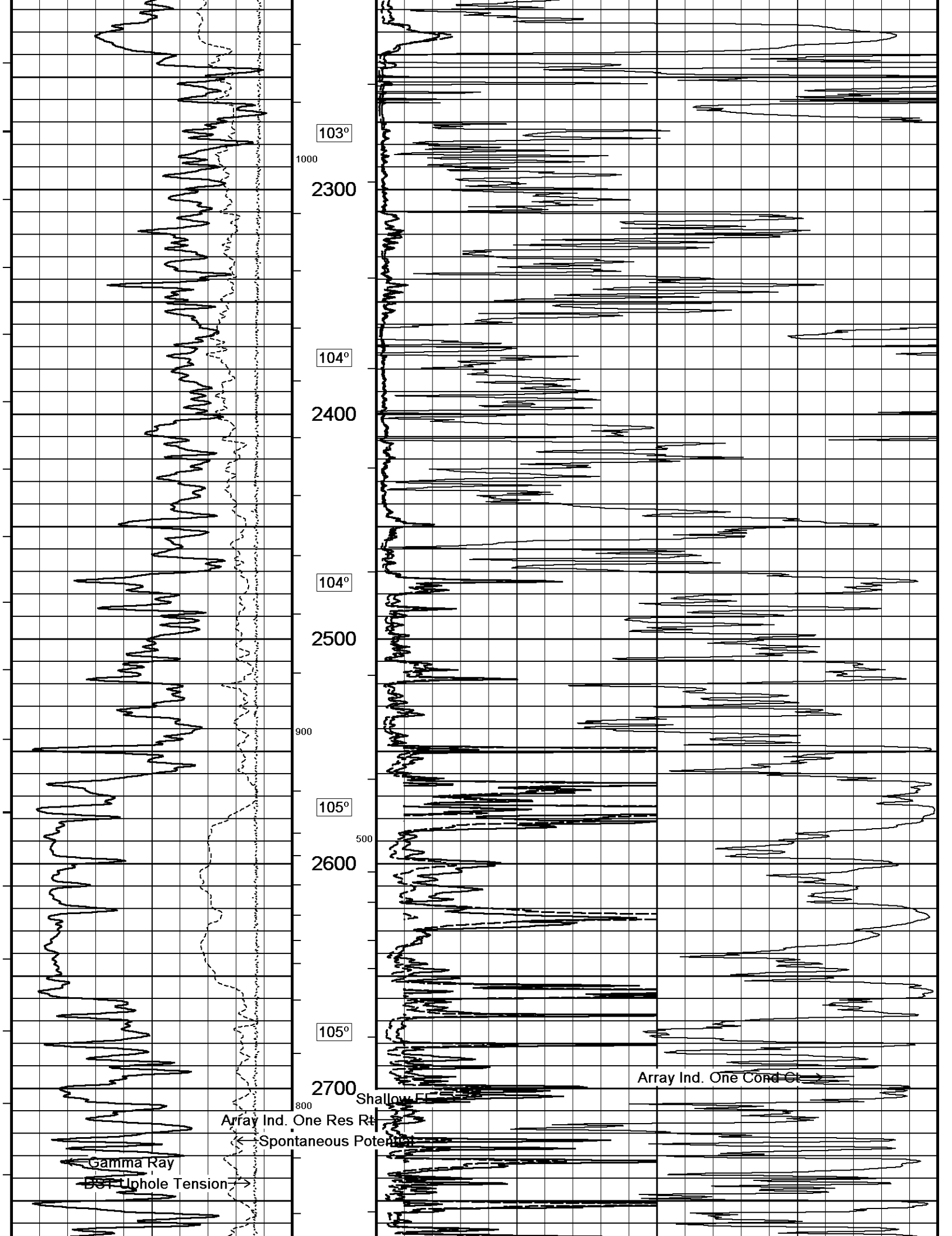
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

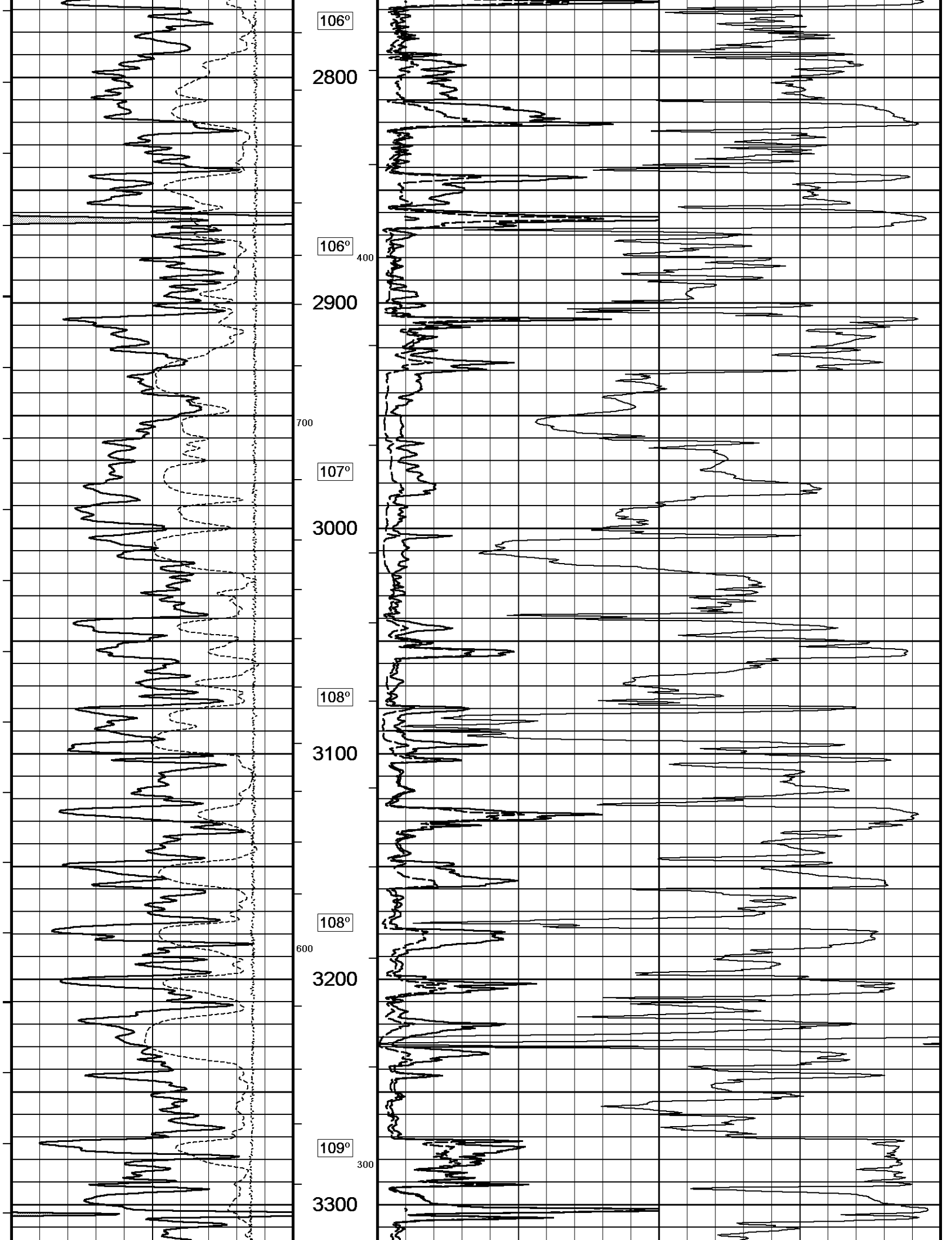


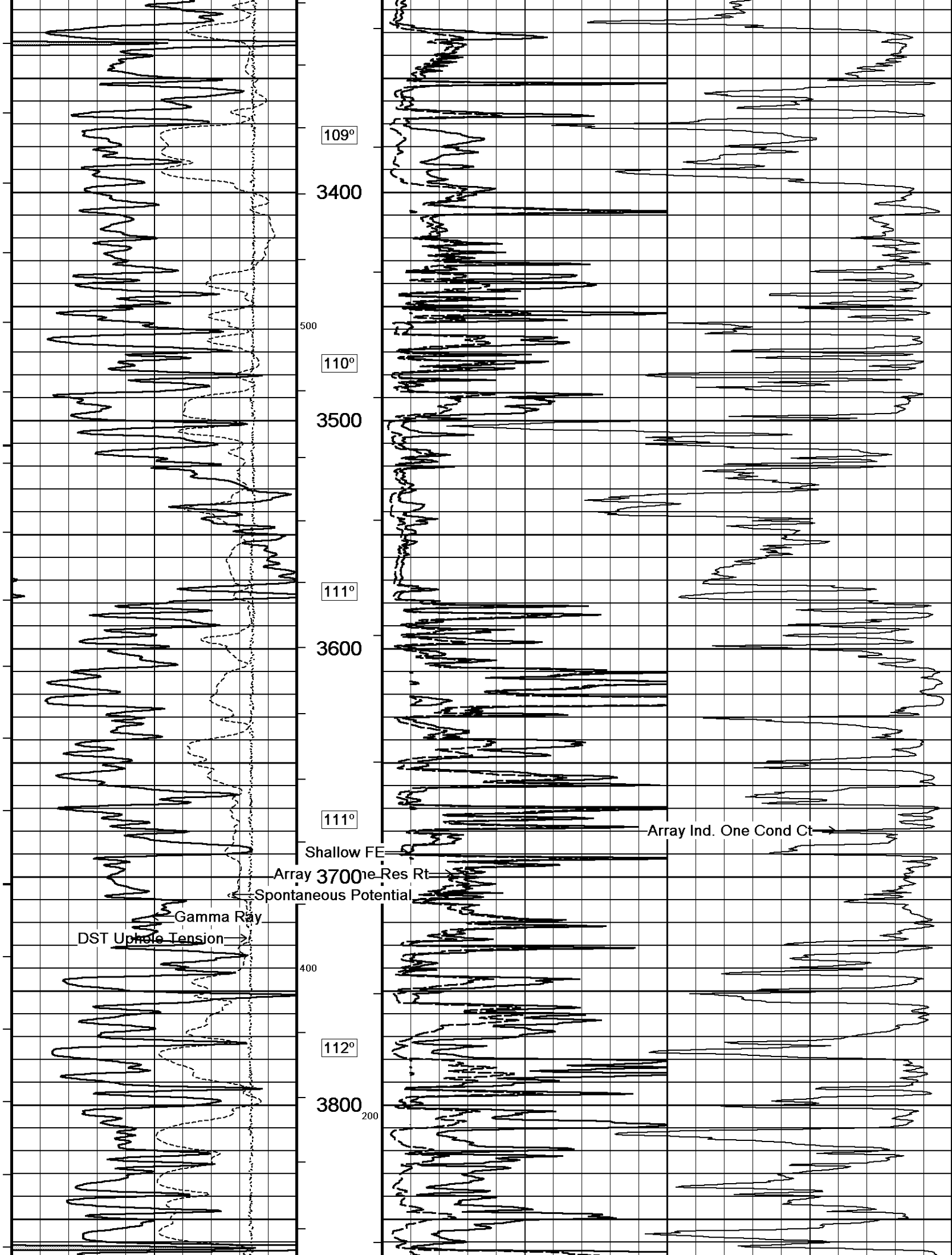


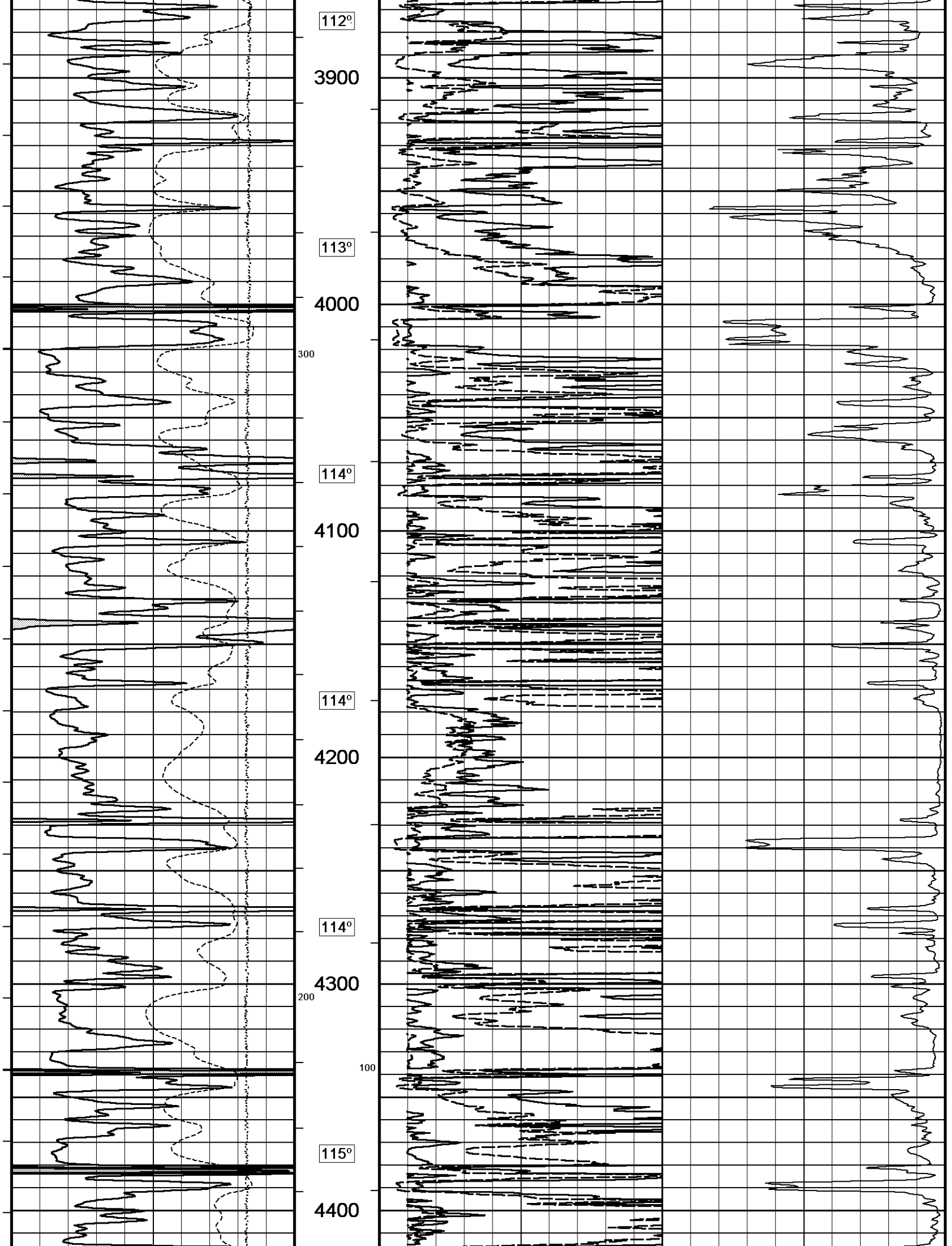


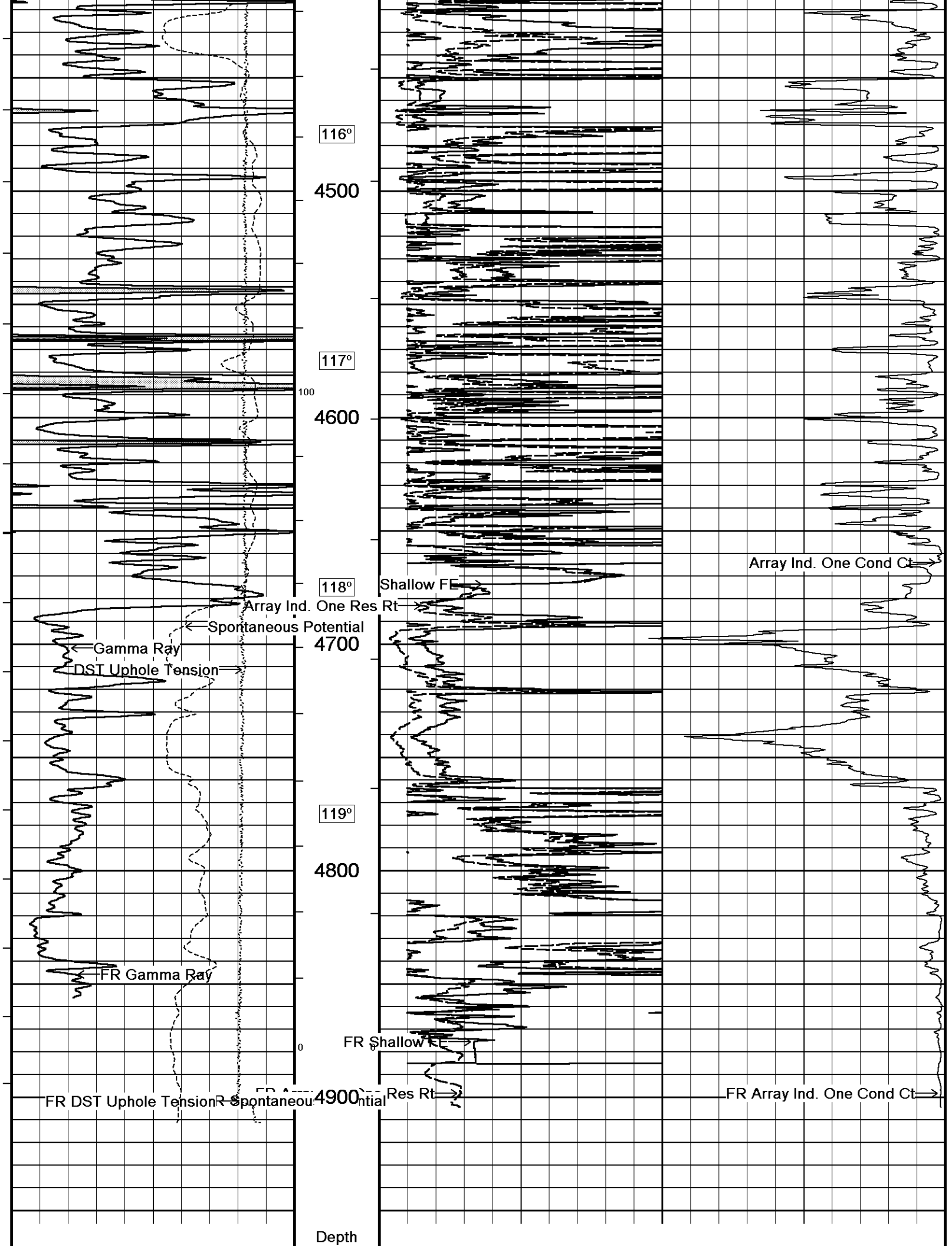


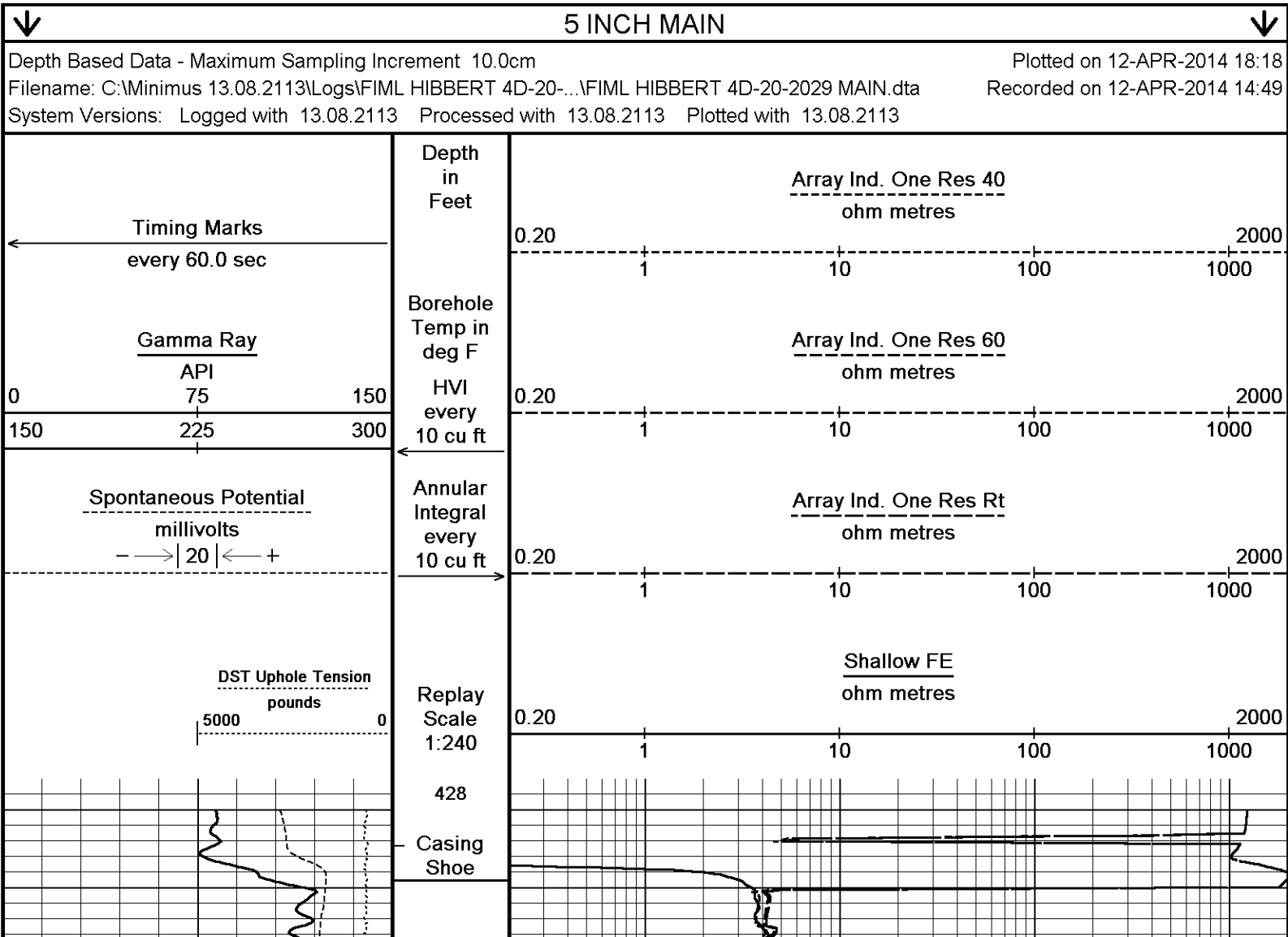
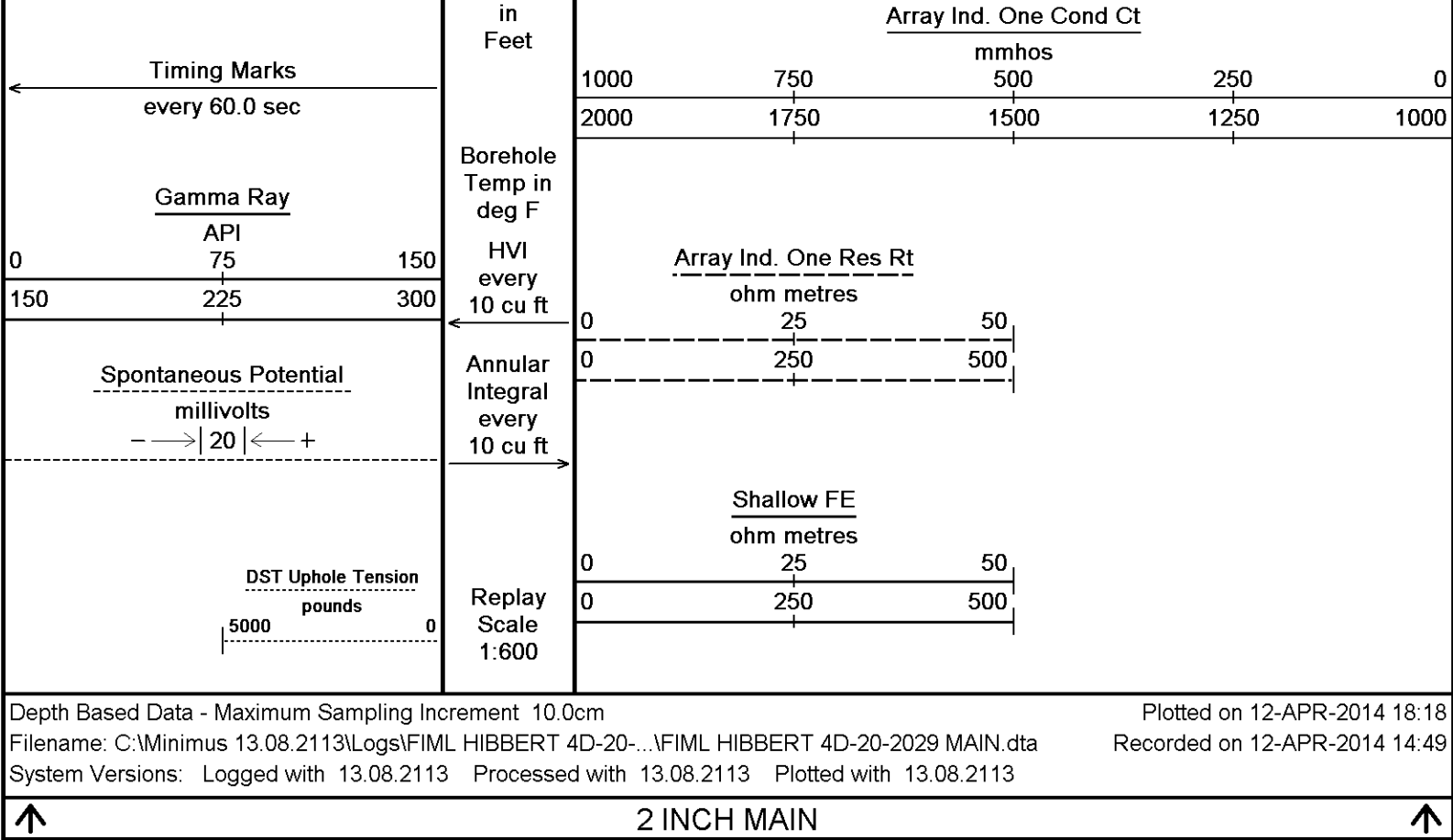


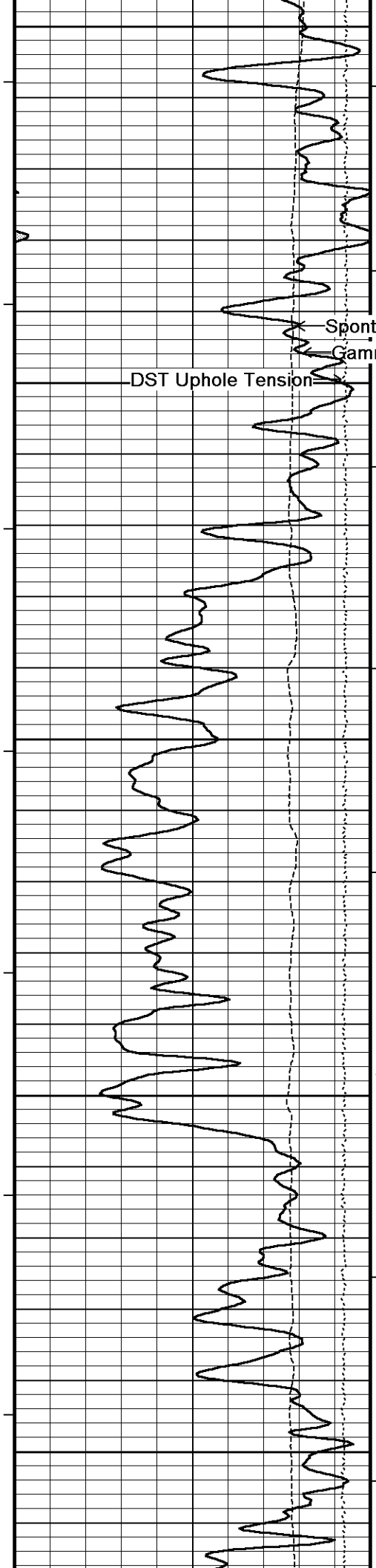












450

94°

Spontaneous Potential

Gamma Ray

DST Uphole Tension

500

94°

550

1000

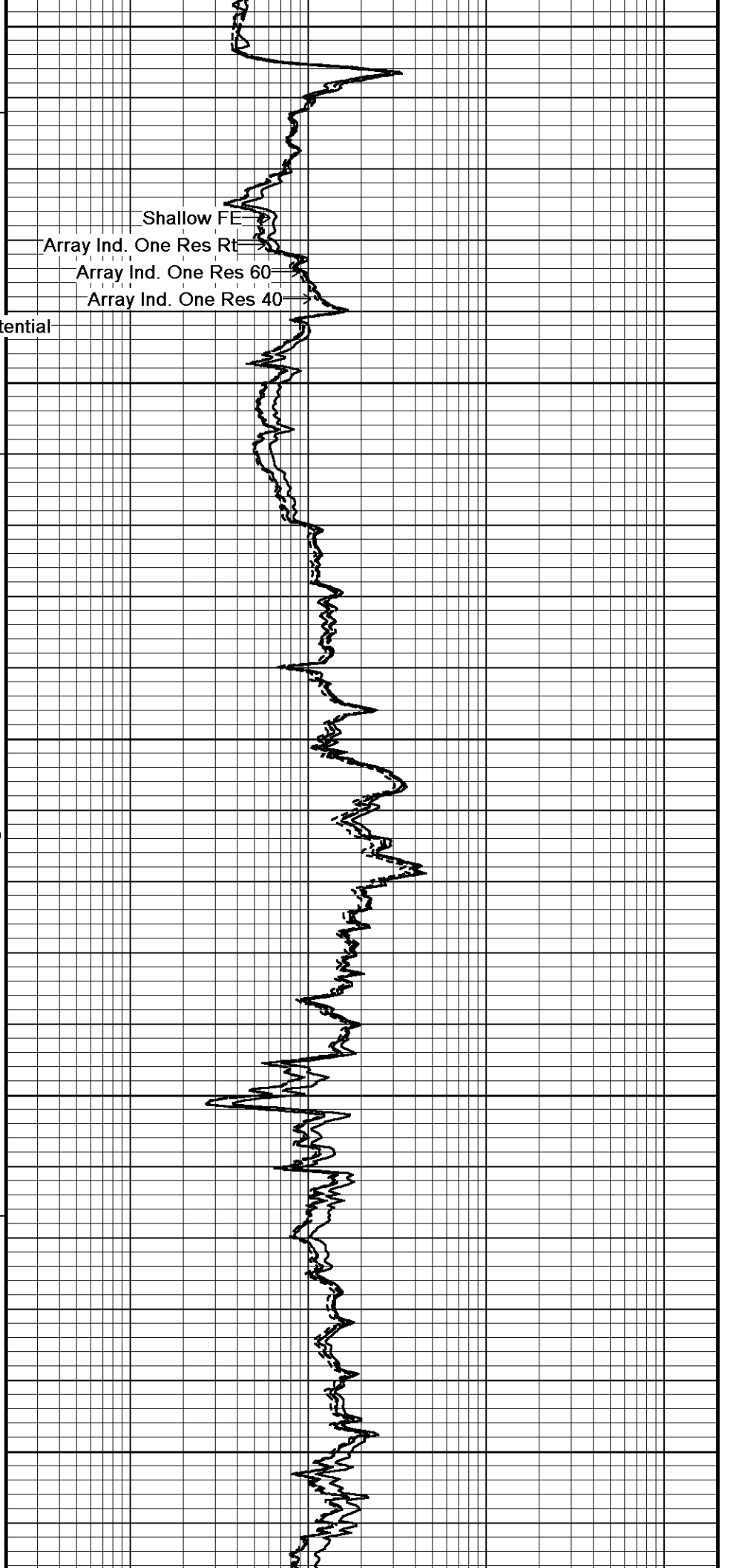
95°

1700

600

95°

650

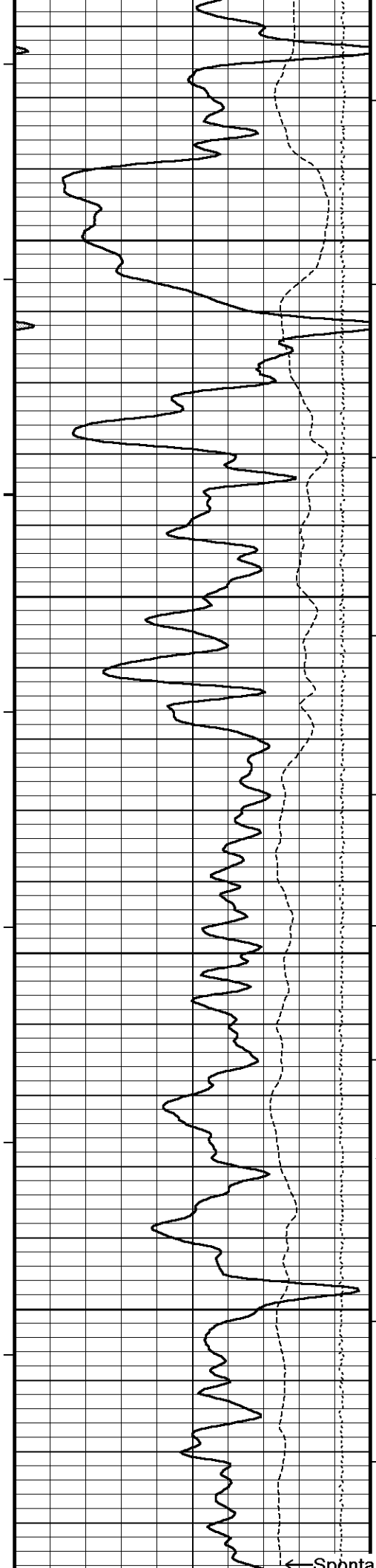


Shallow FE

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40



95°

700

96°

750

97°

800

1600

97°

850

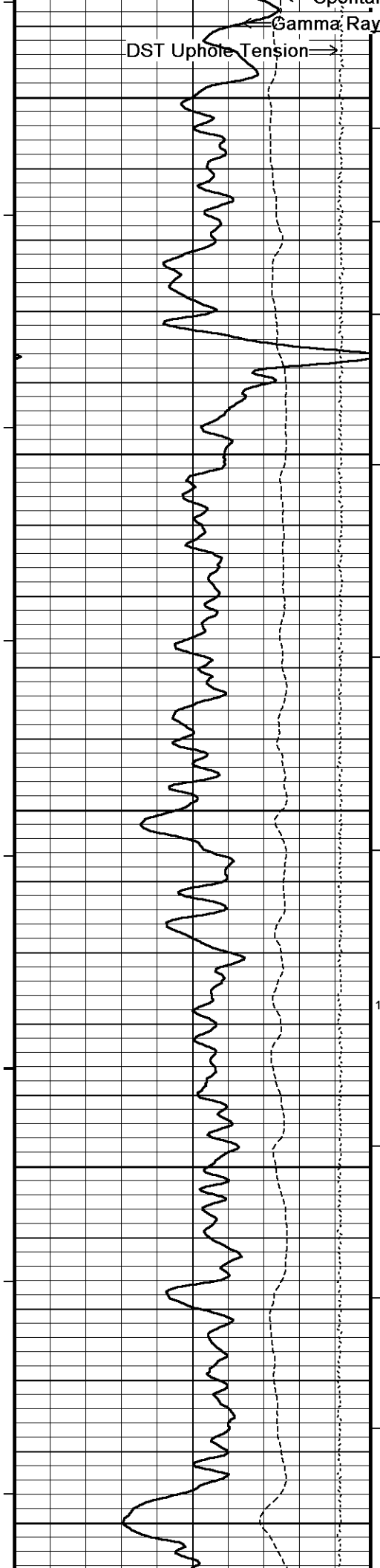
Shallow FE

Array Ind. One Res Rt

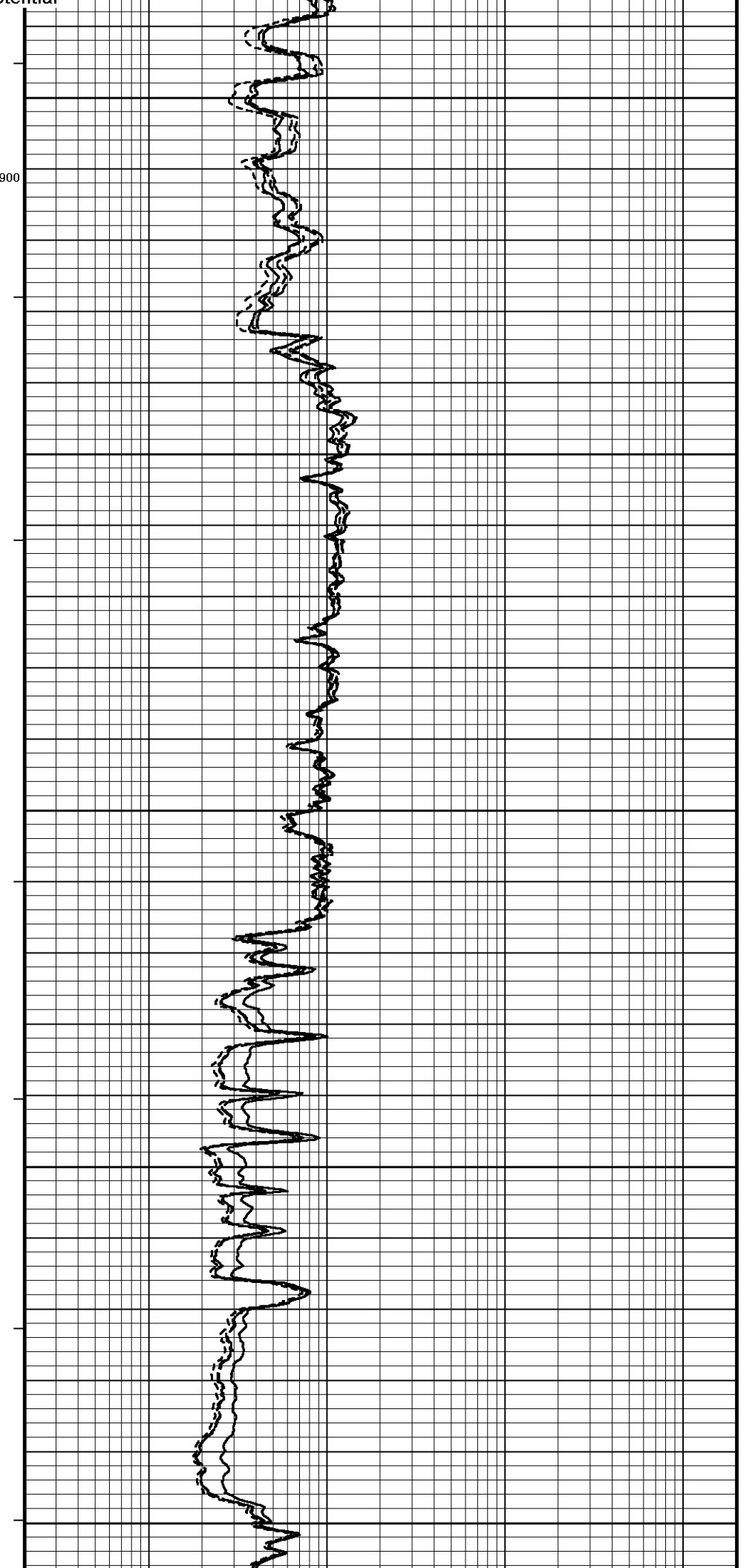
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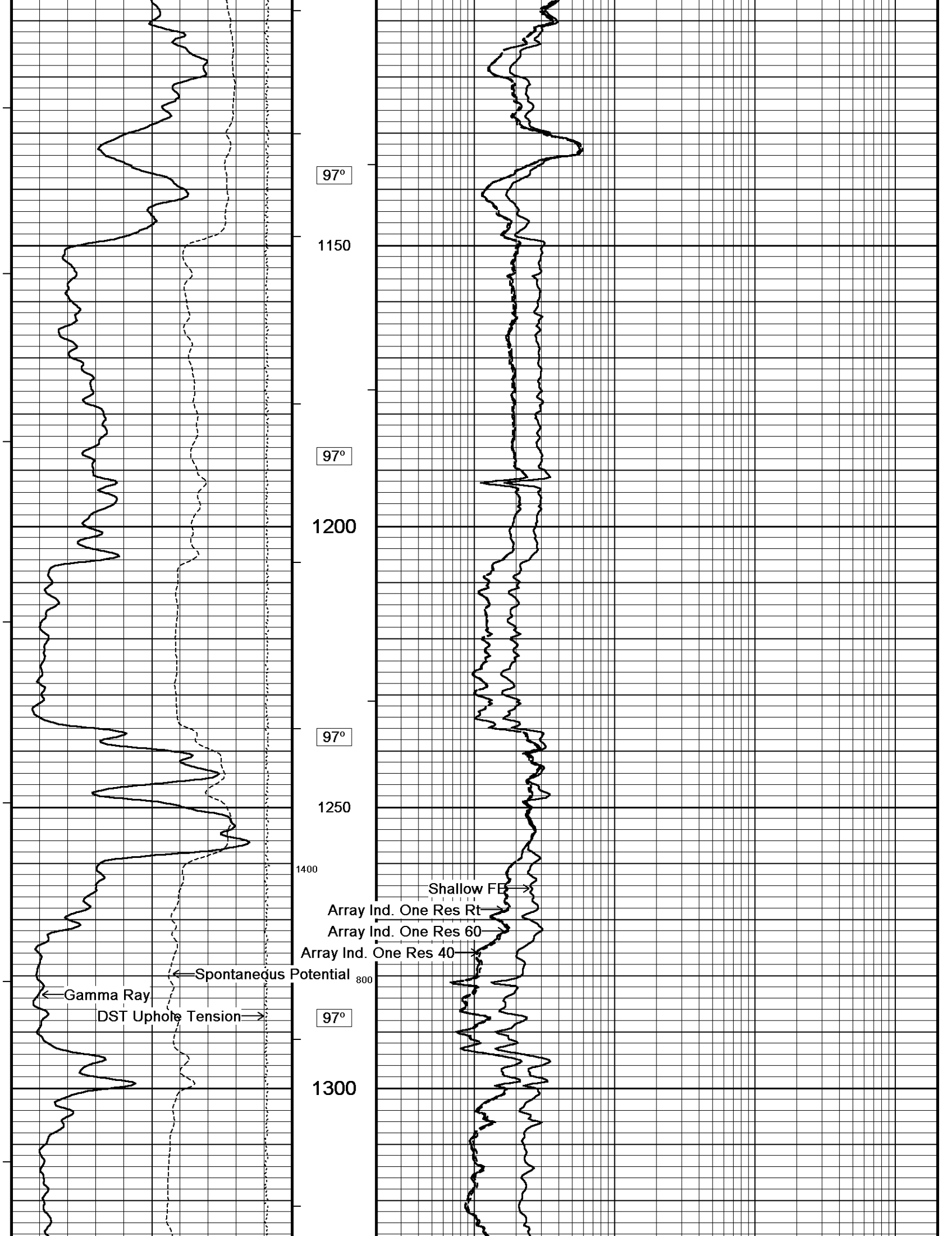
Array Ind. One Res 40

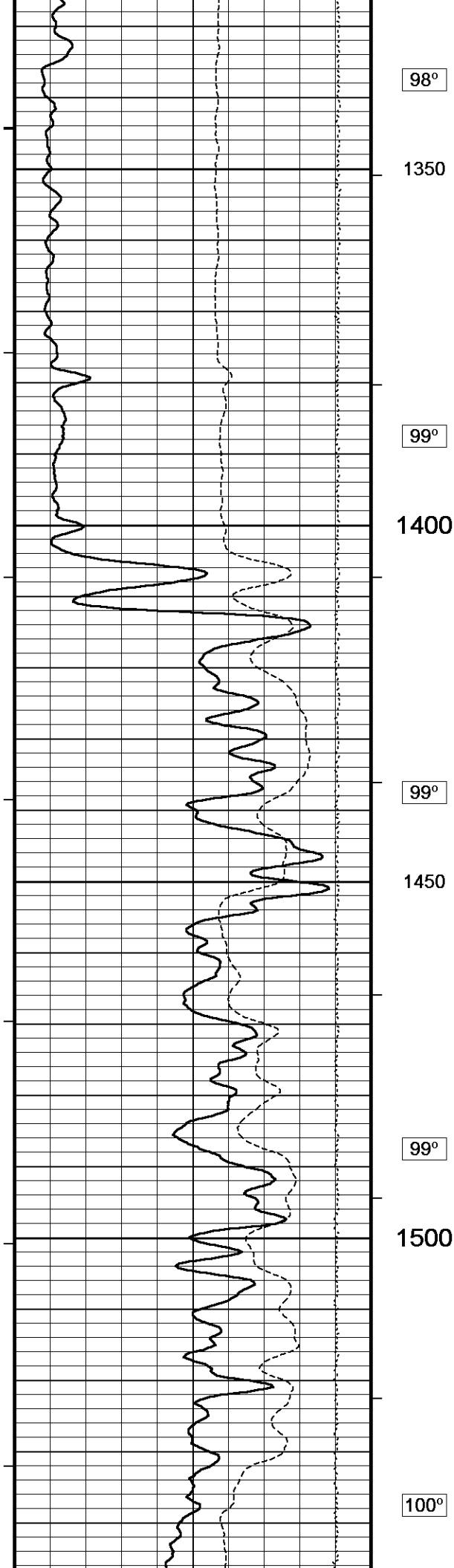
← Spontaneous Potential



900
950
1000
1050
1100







98°

1350

99°

1400

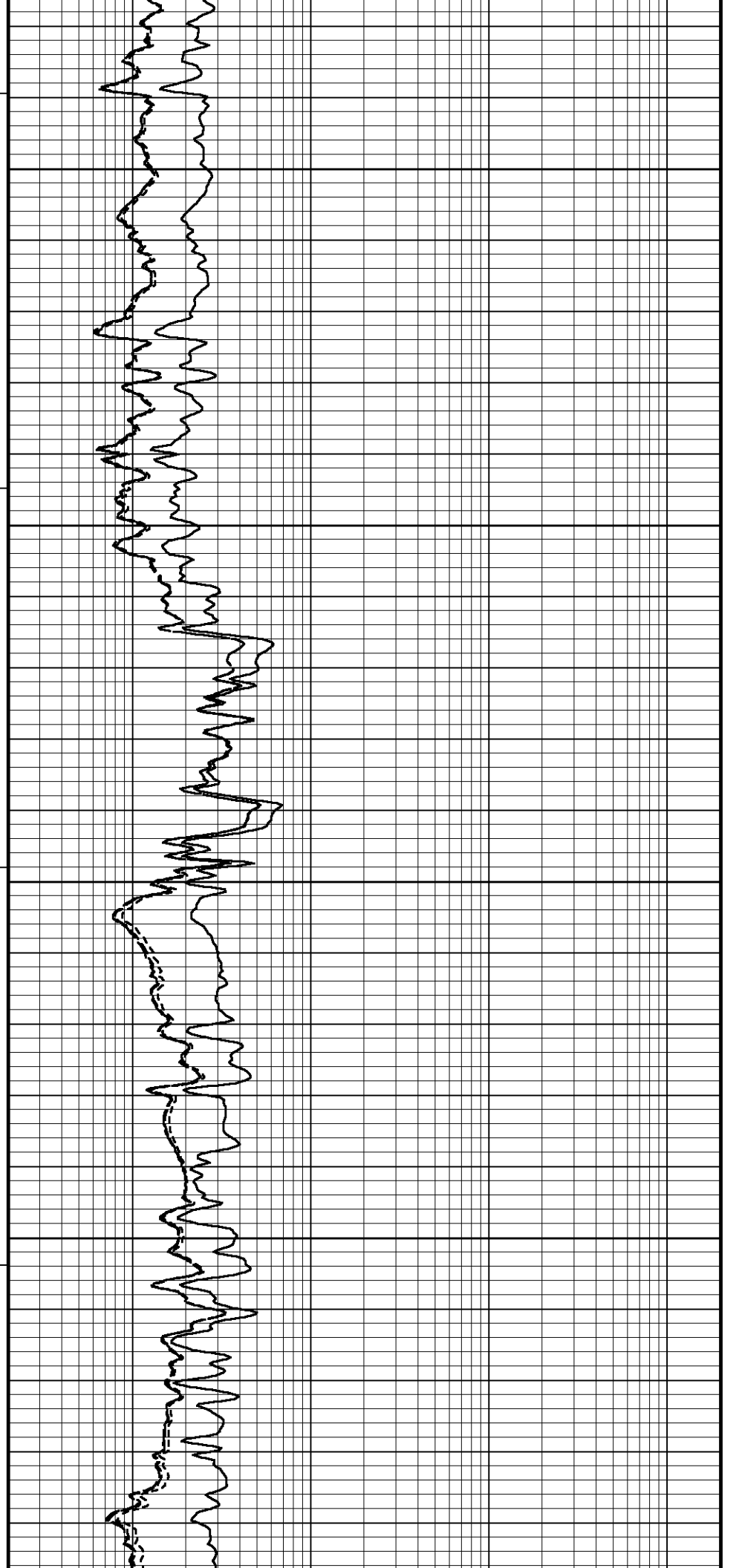
99°

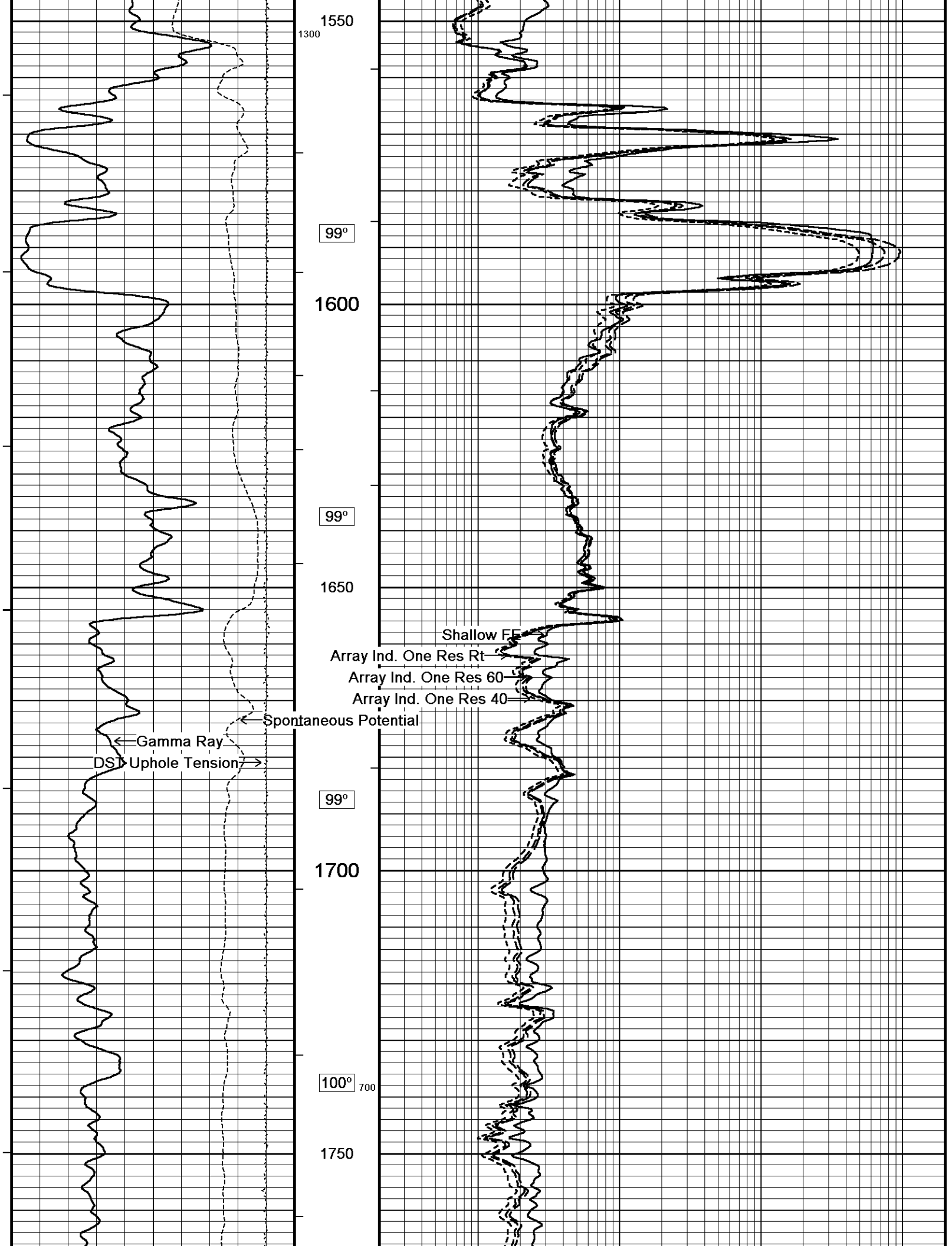
1450

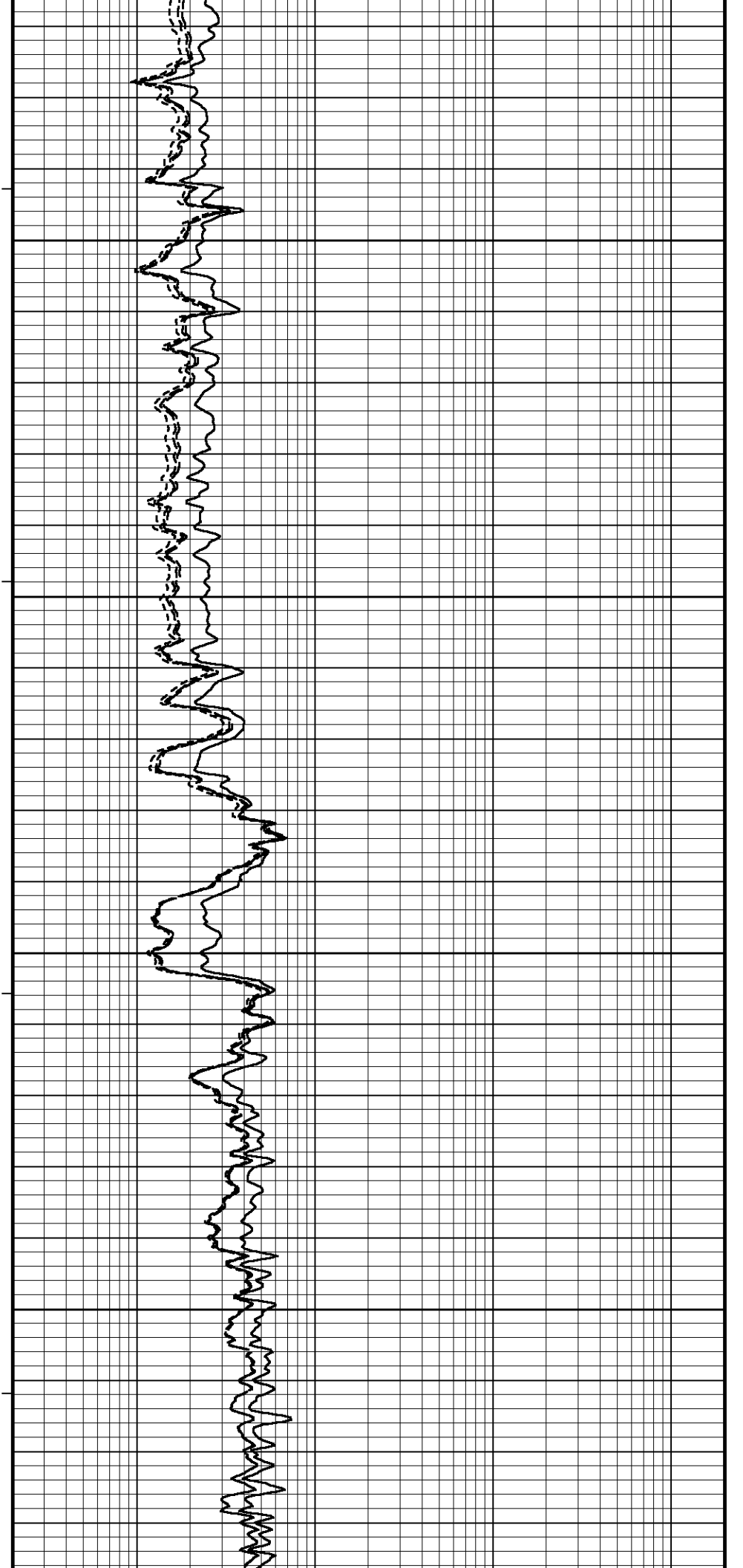
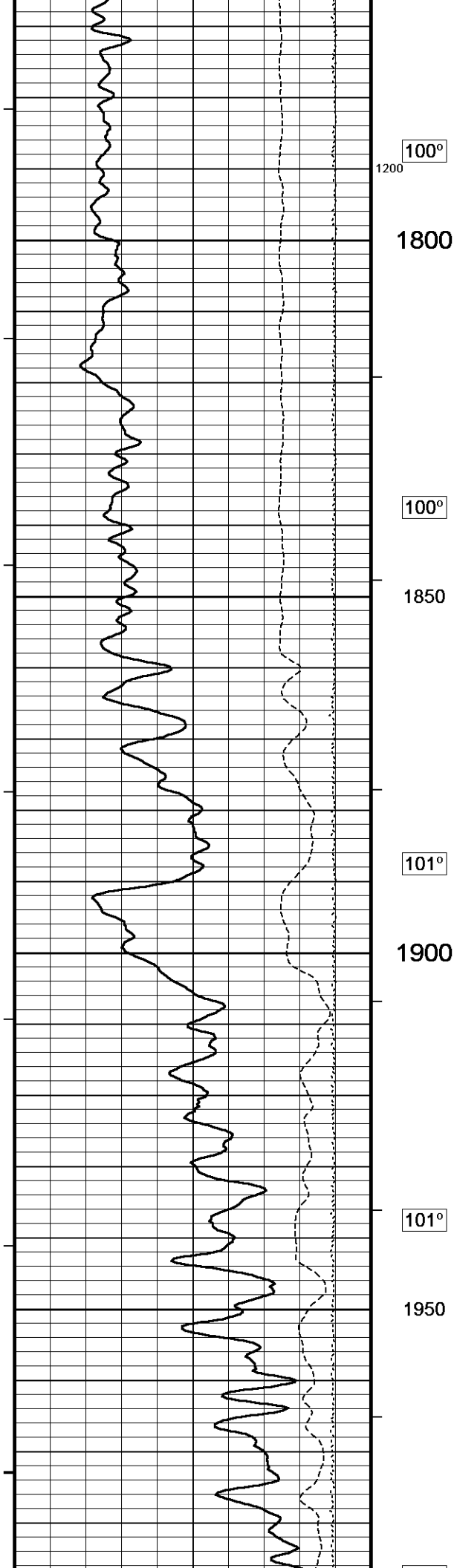
99°

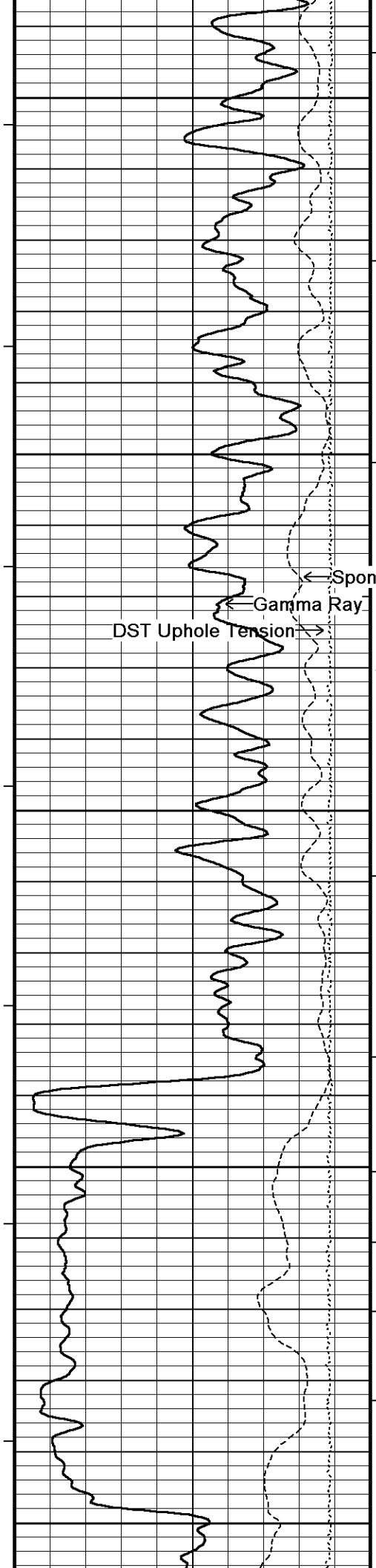
1500

100°









2000
2050
1100
2100
2150
600
2200

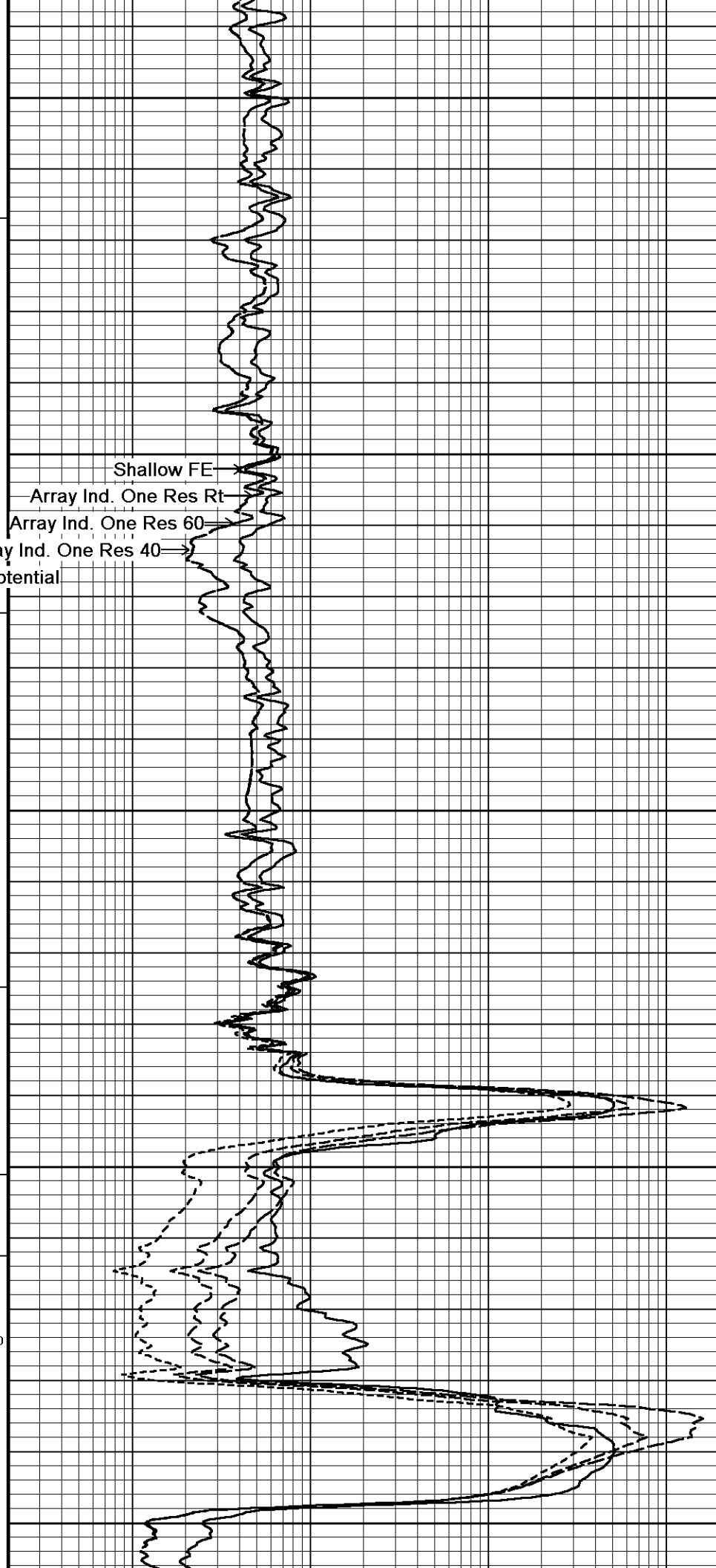
101°

102°

102°

102°

102°



Shallow FE

Array Ind. One Res Rt

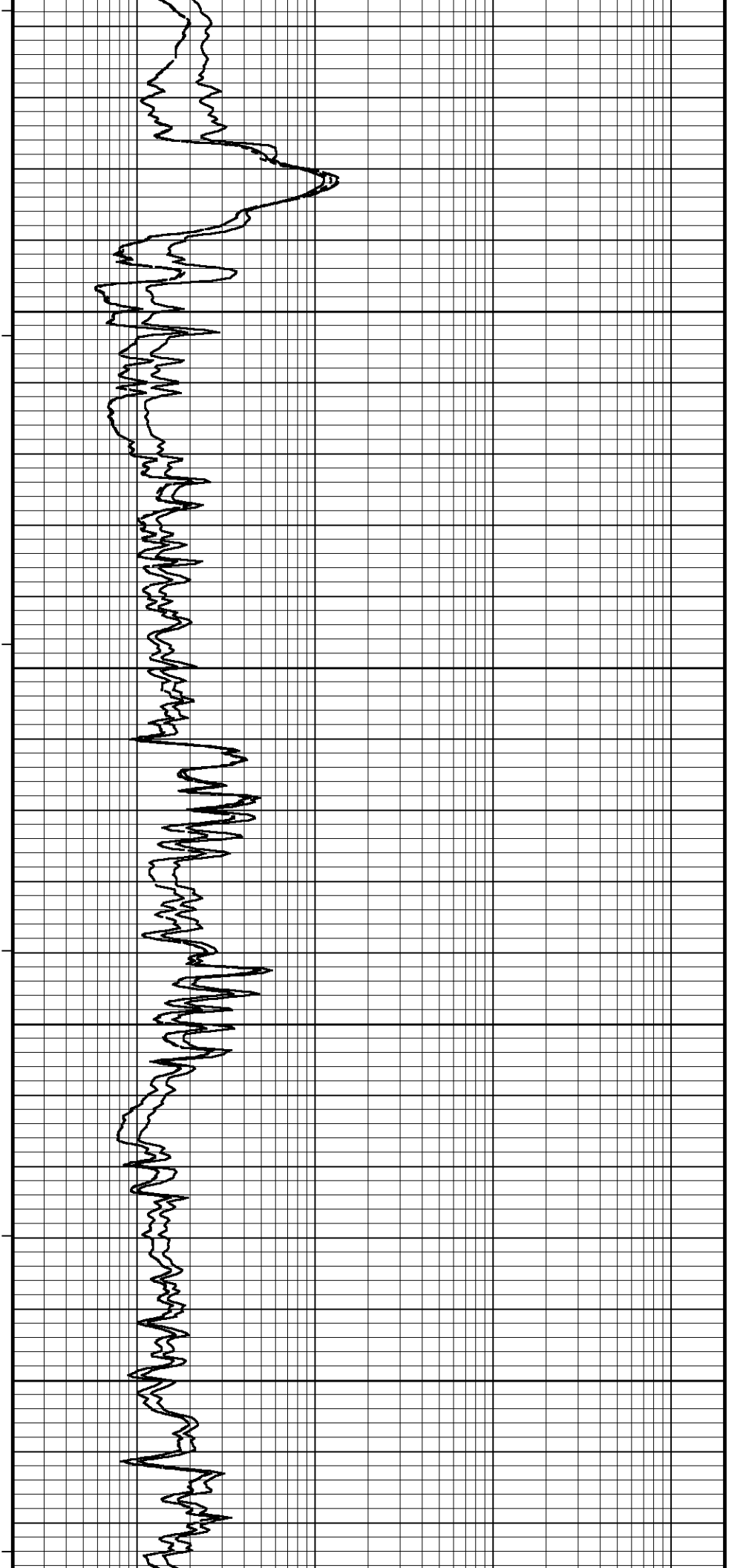
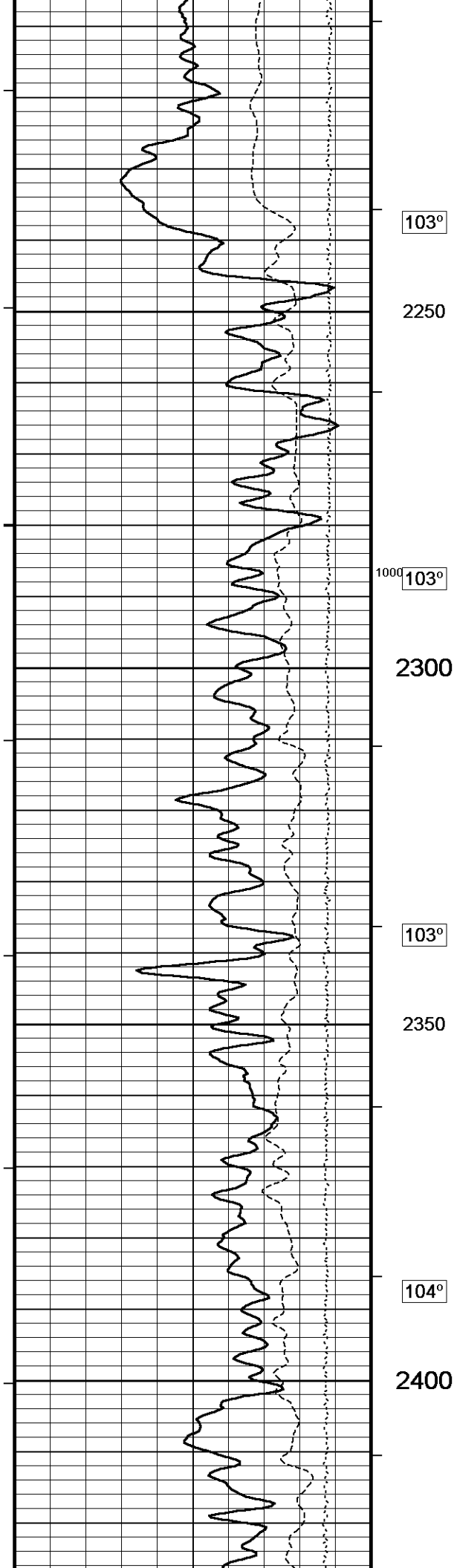
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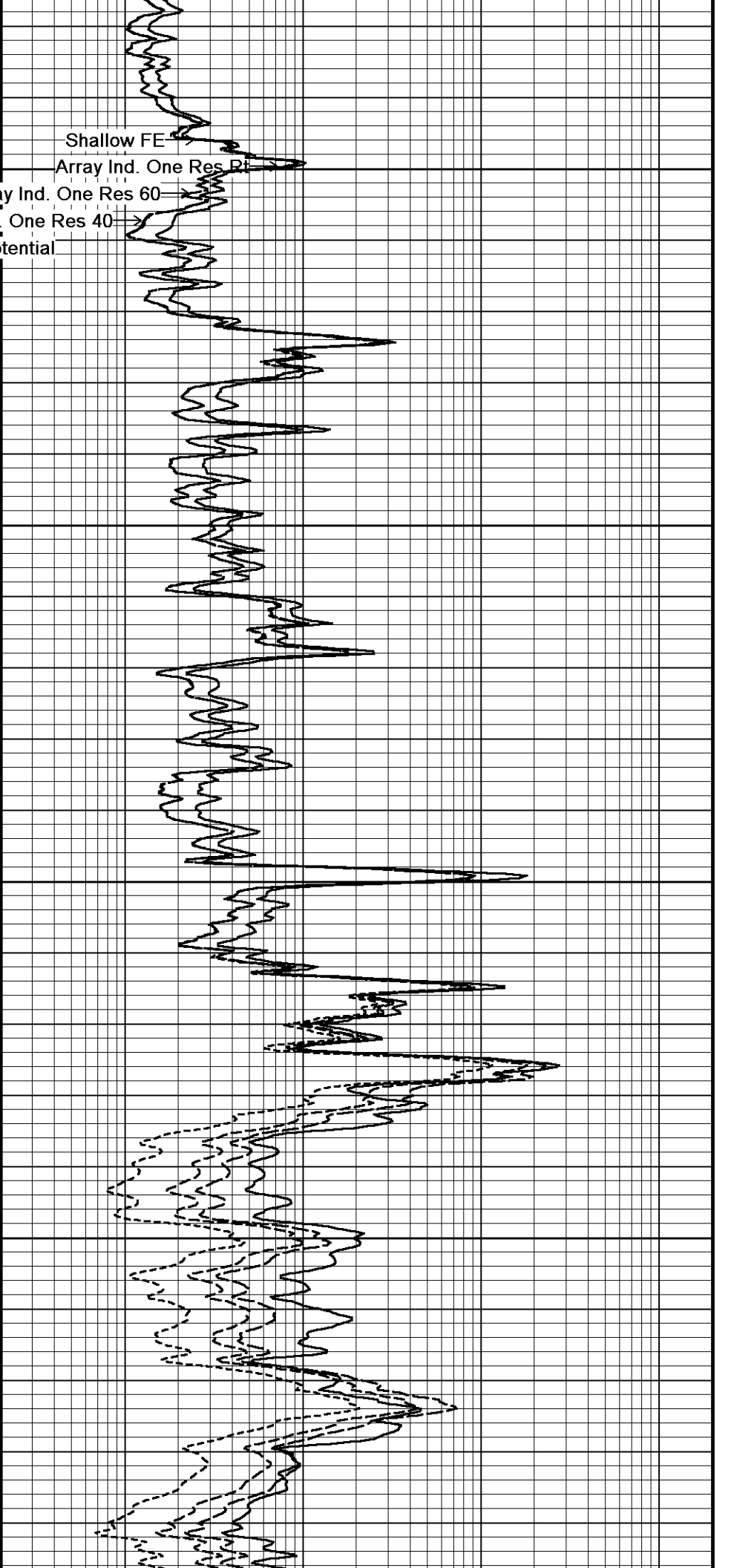
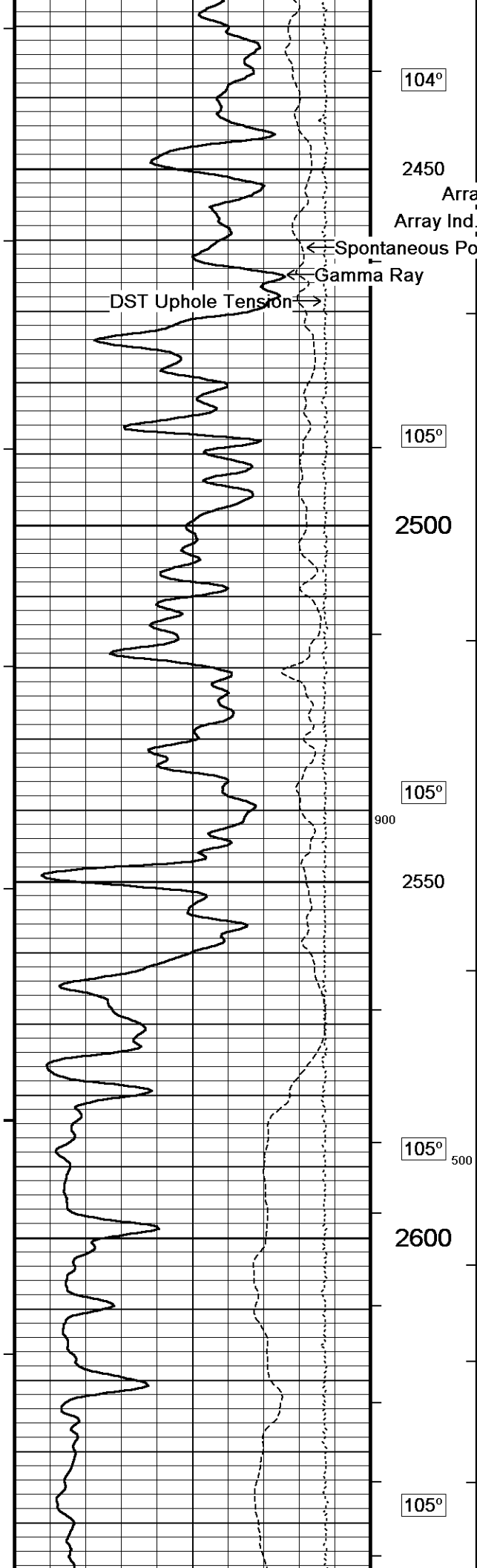
Array Ind. One Res 40

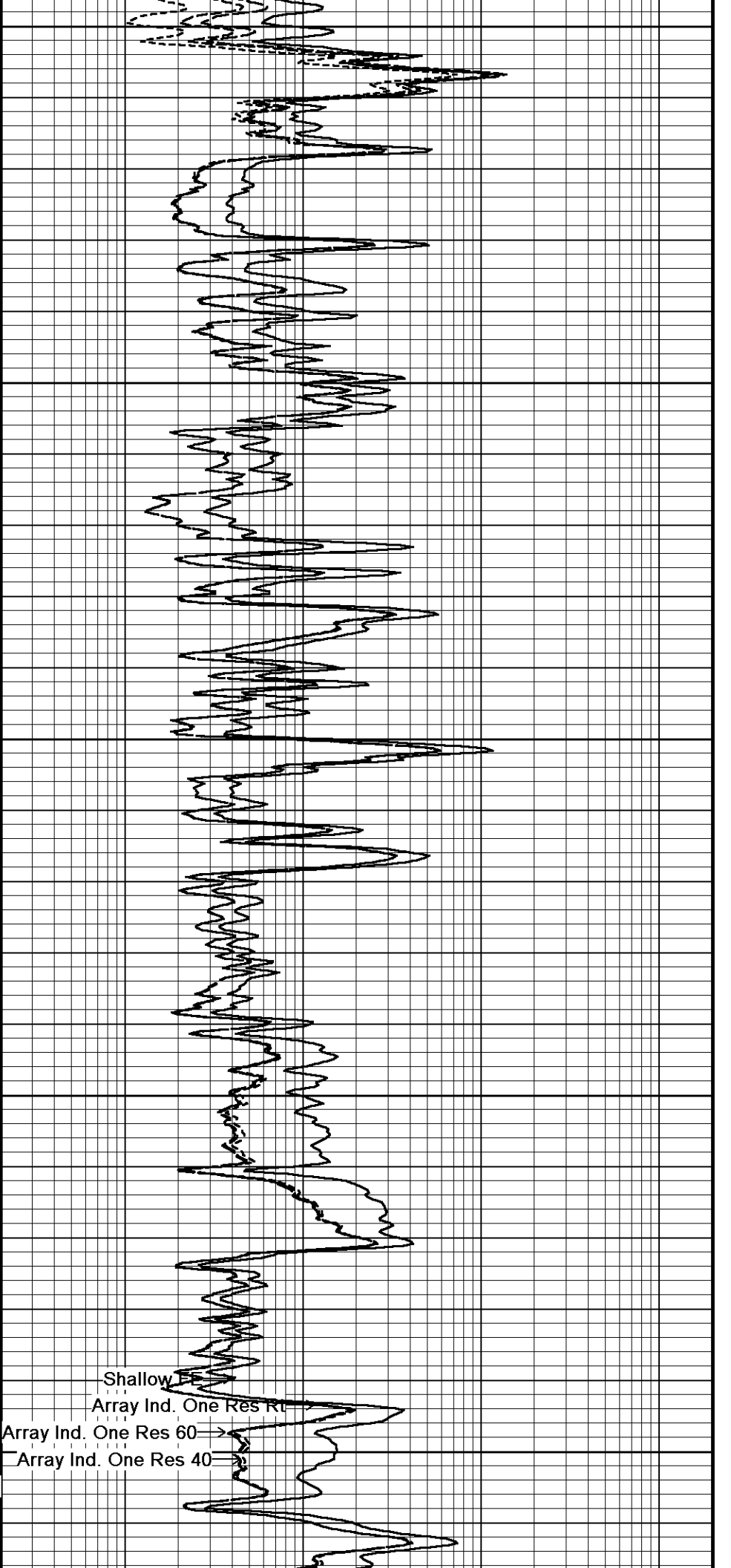
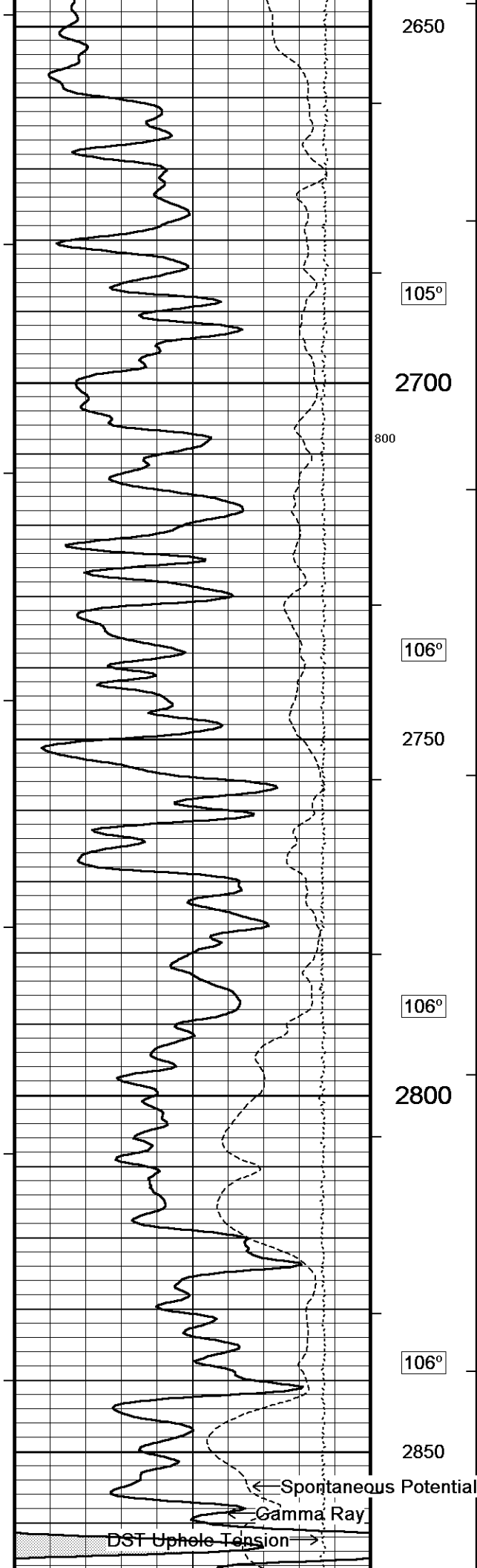
Spontaneous Potential

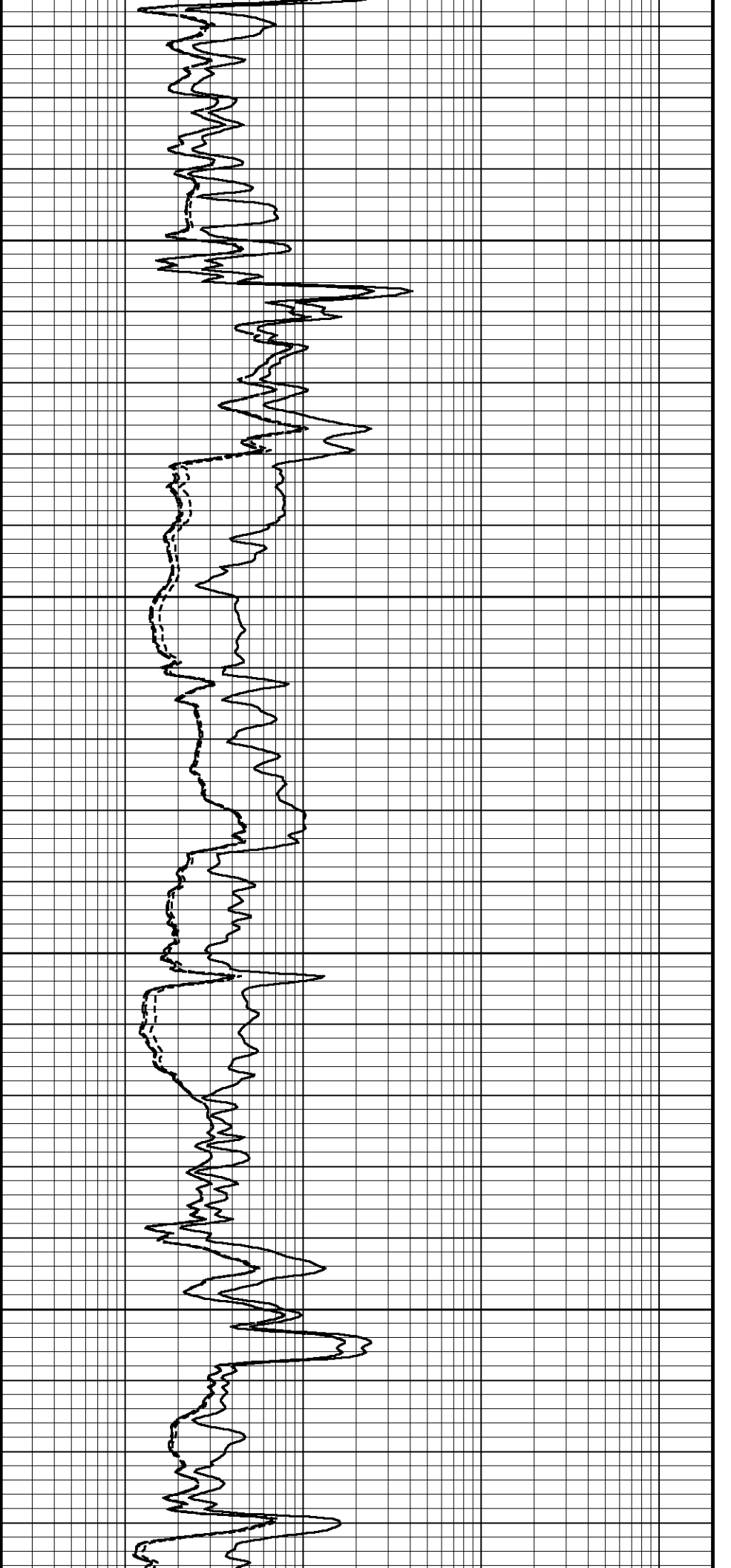
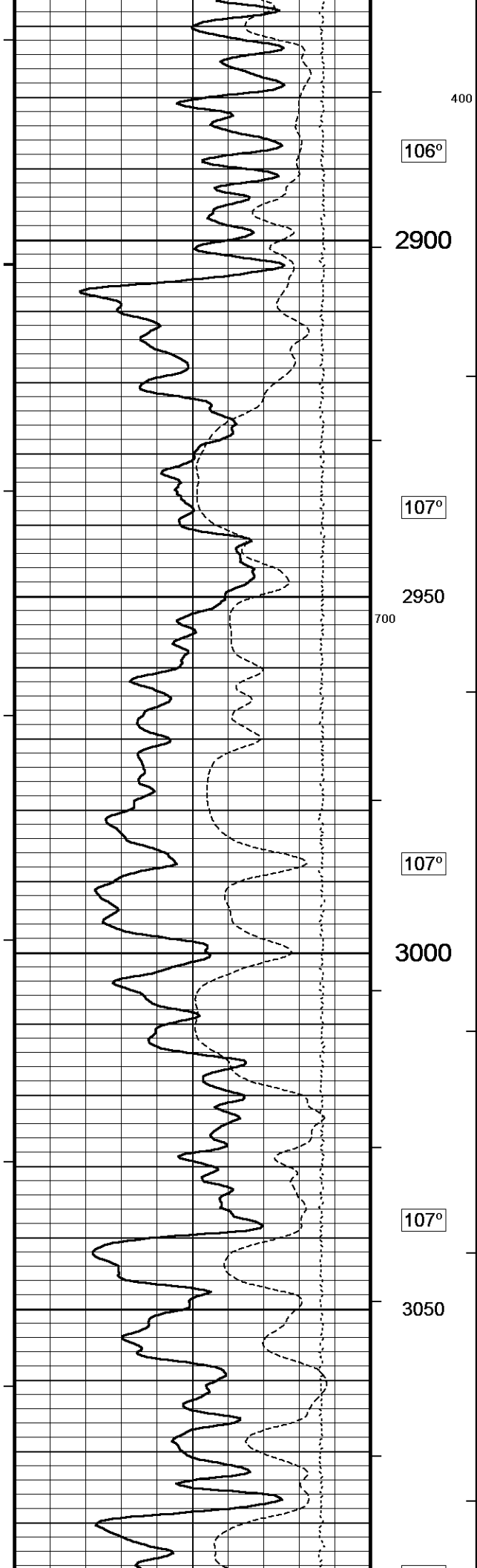
Gamma Ray

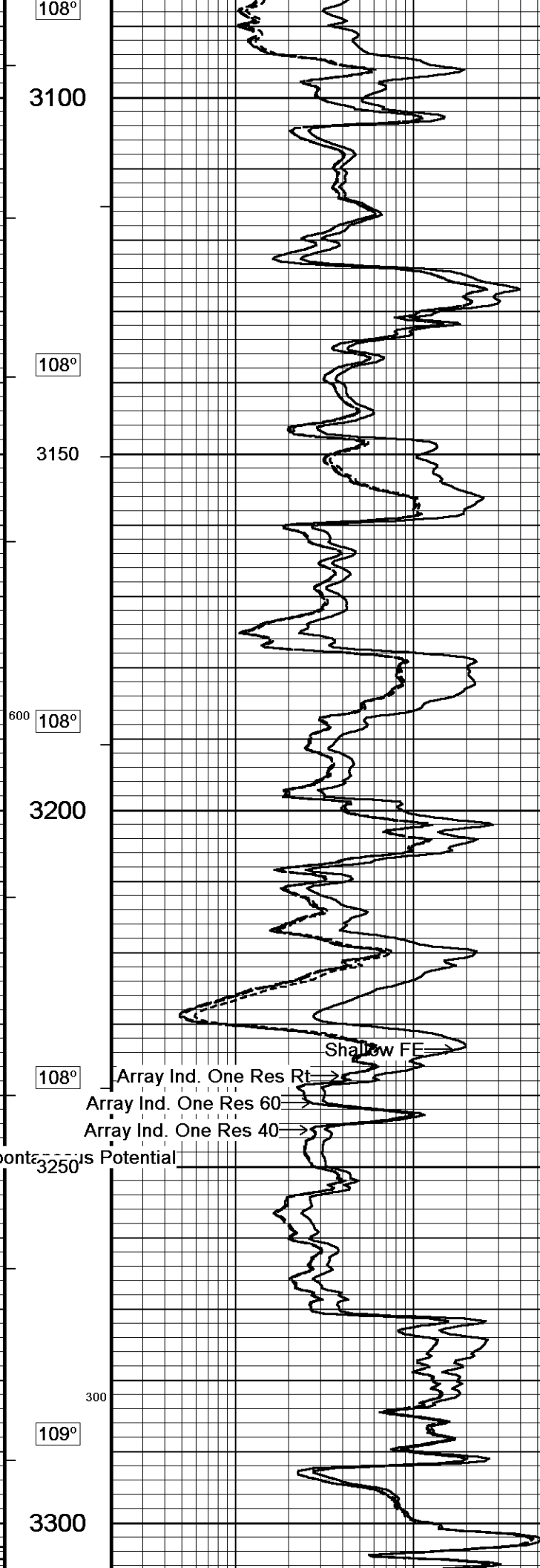
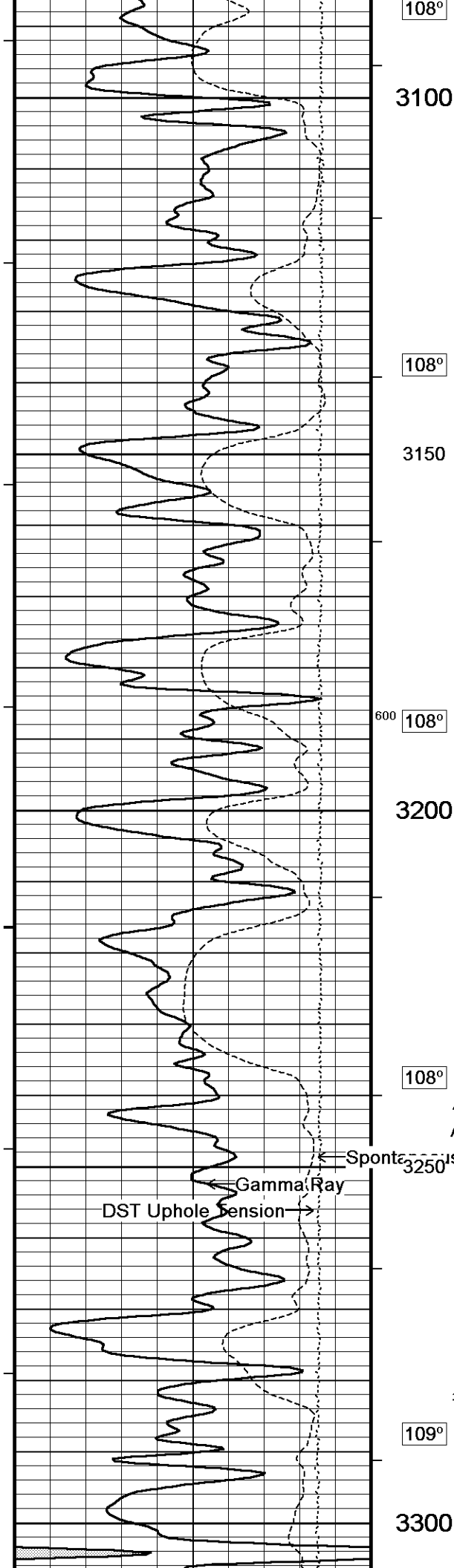
DST Uphole Tension

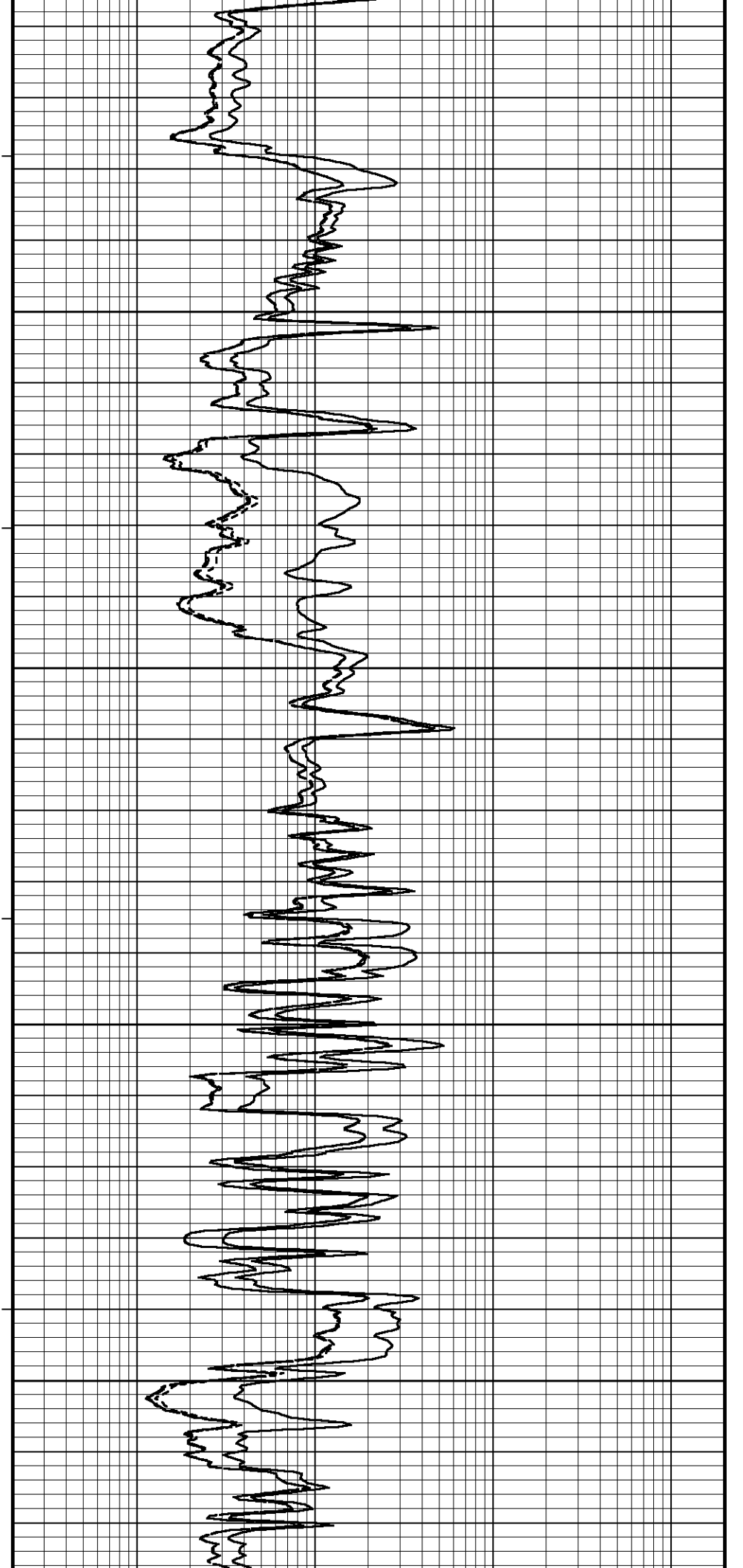
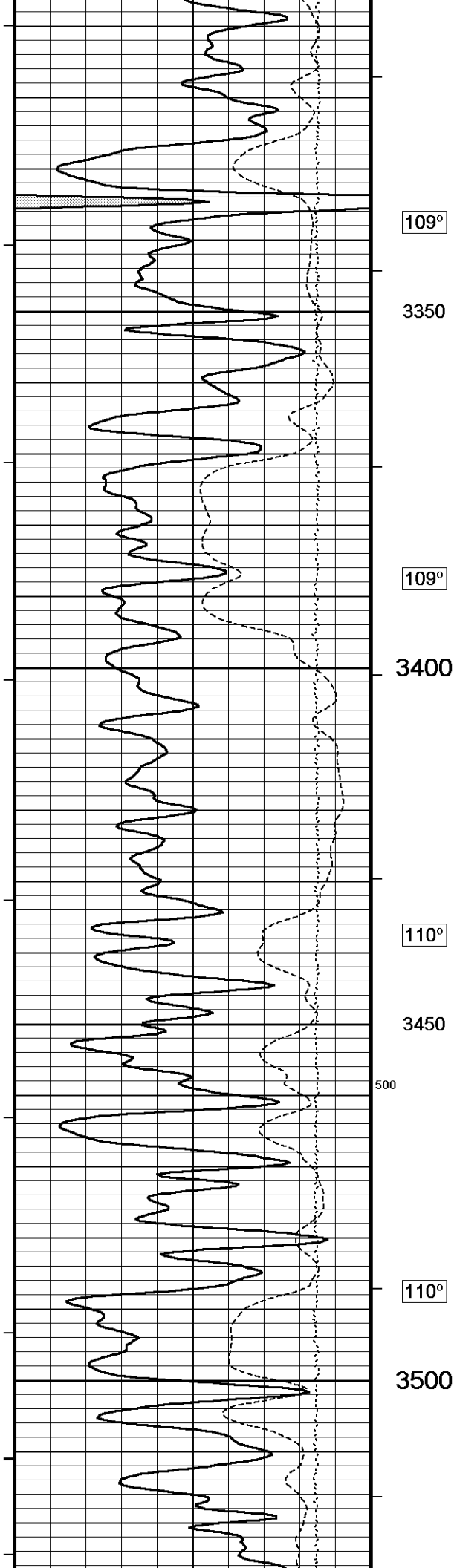


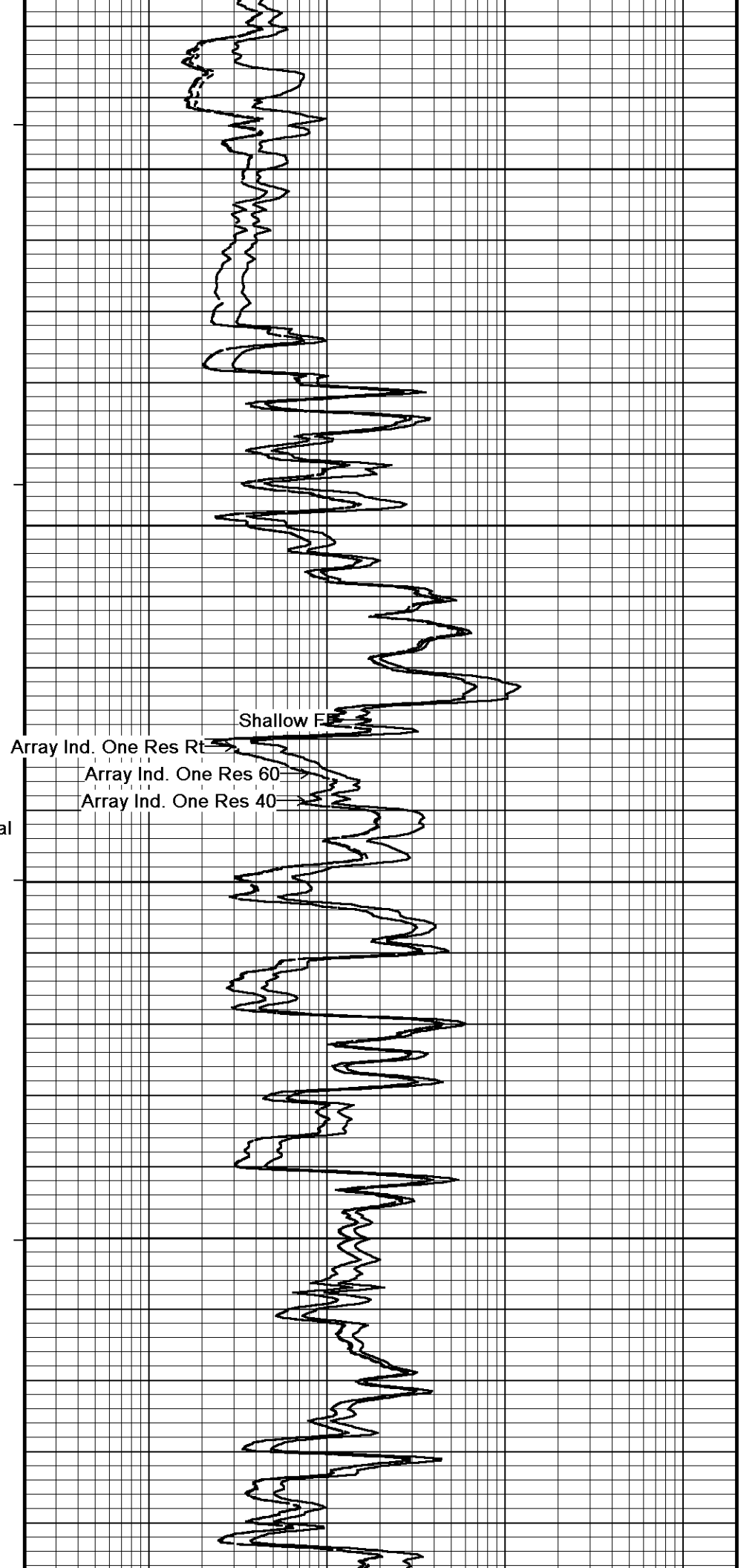
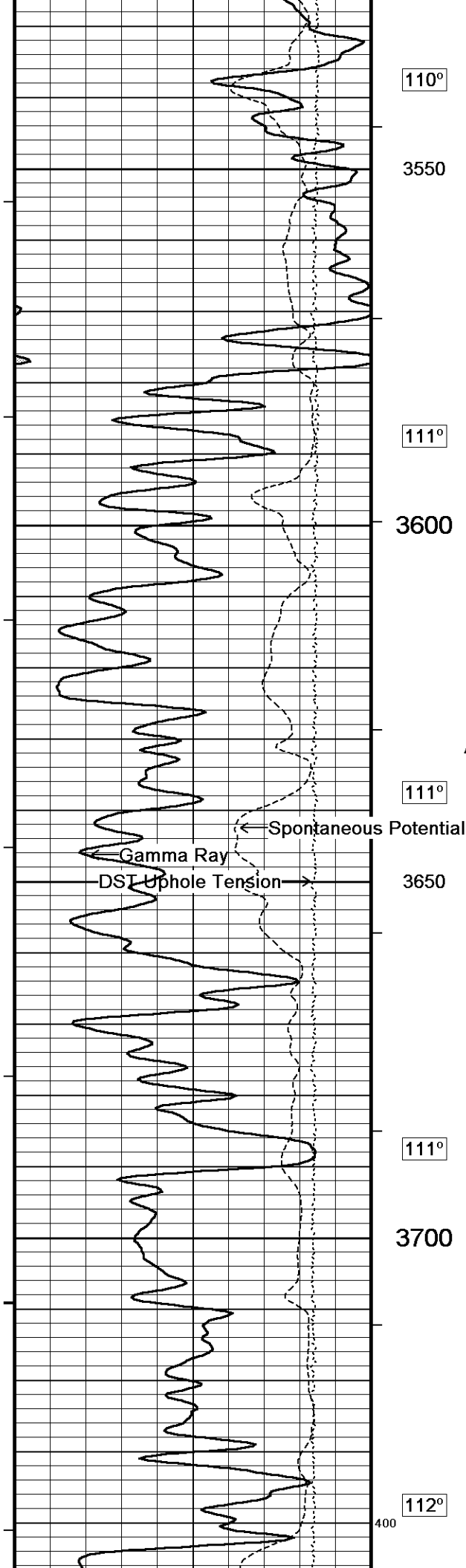


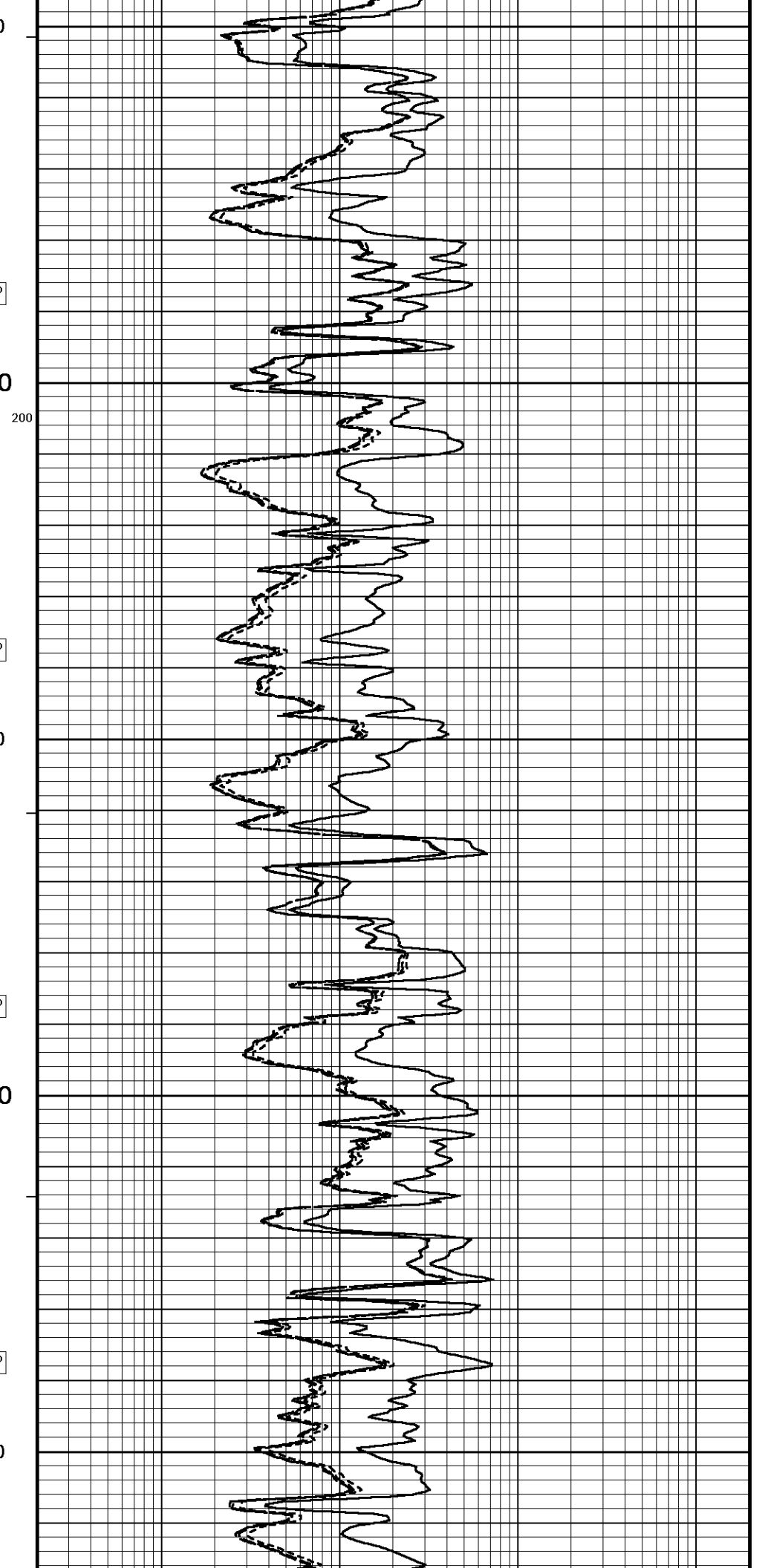
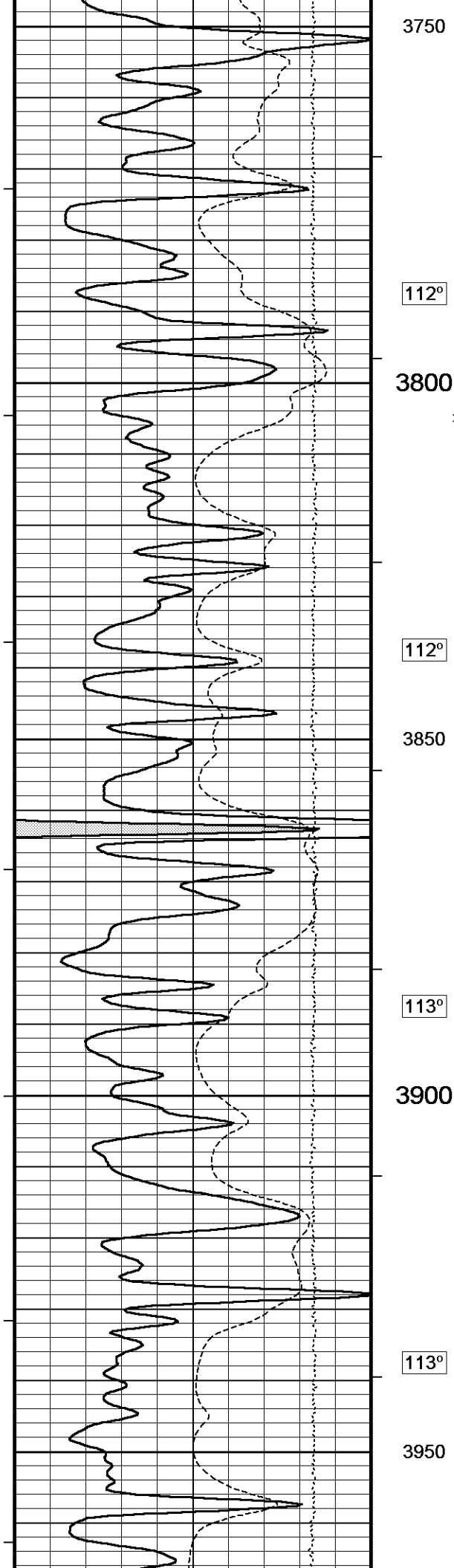


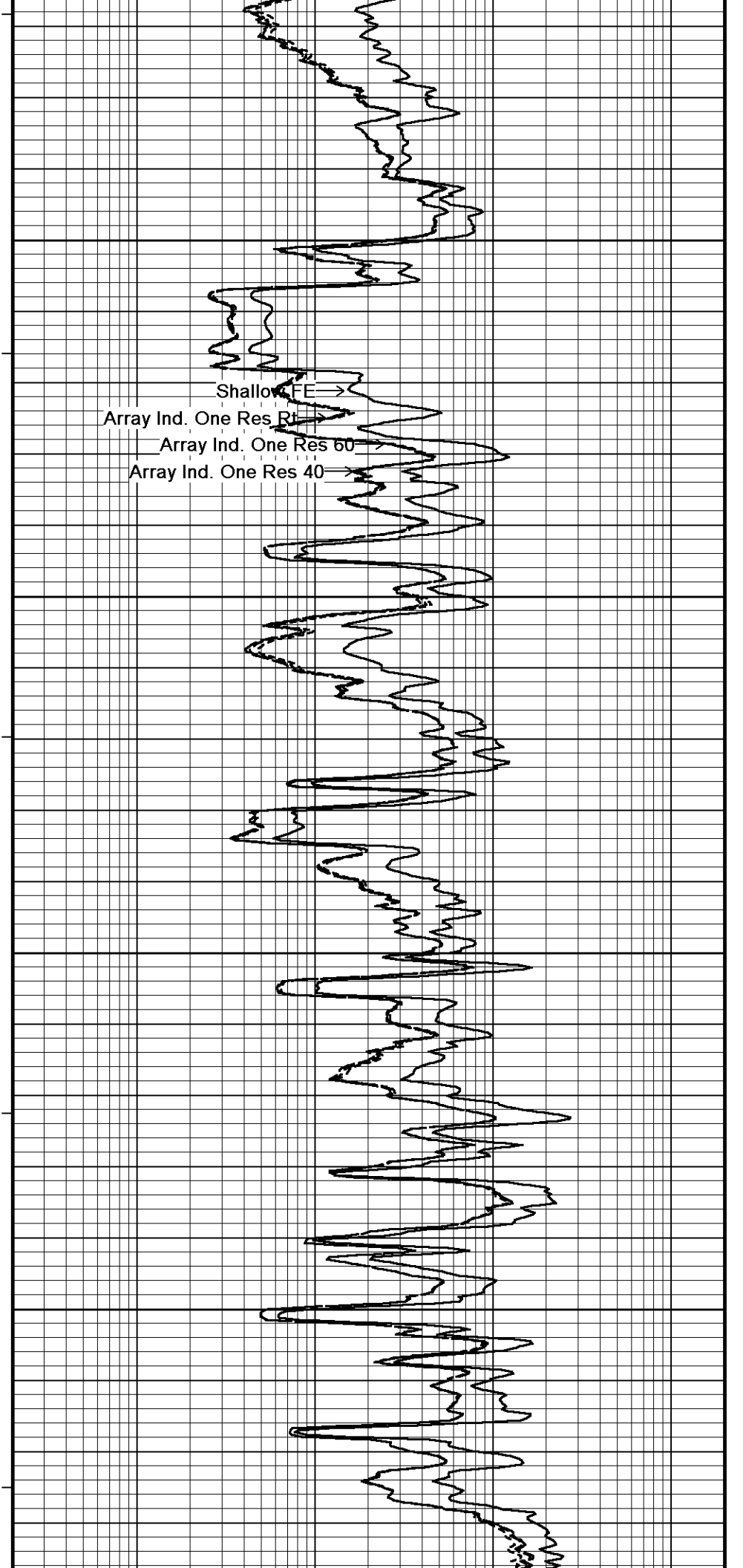
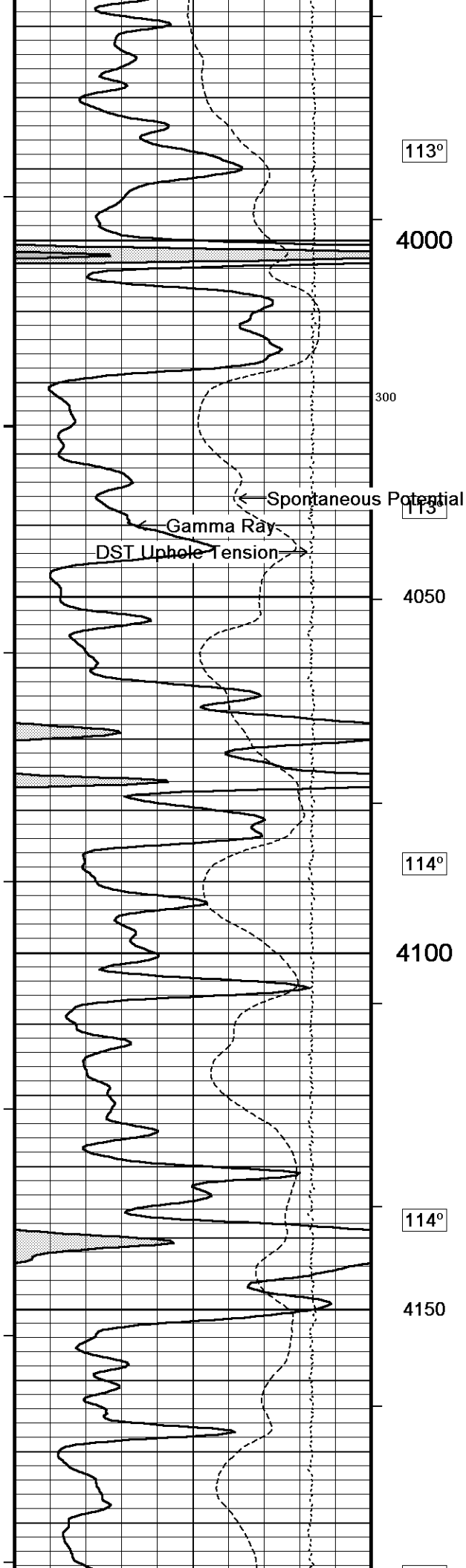


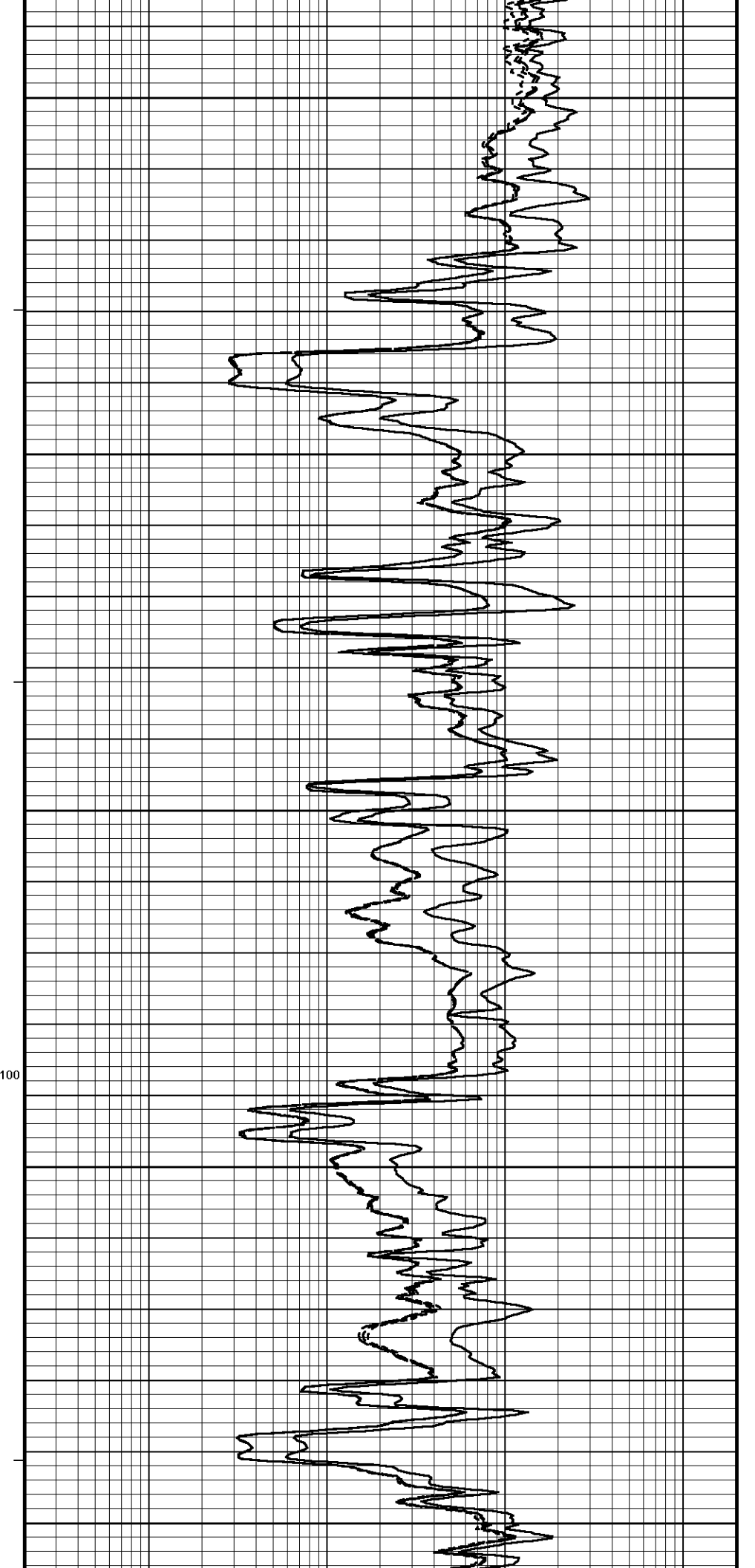
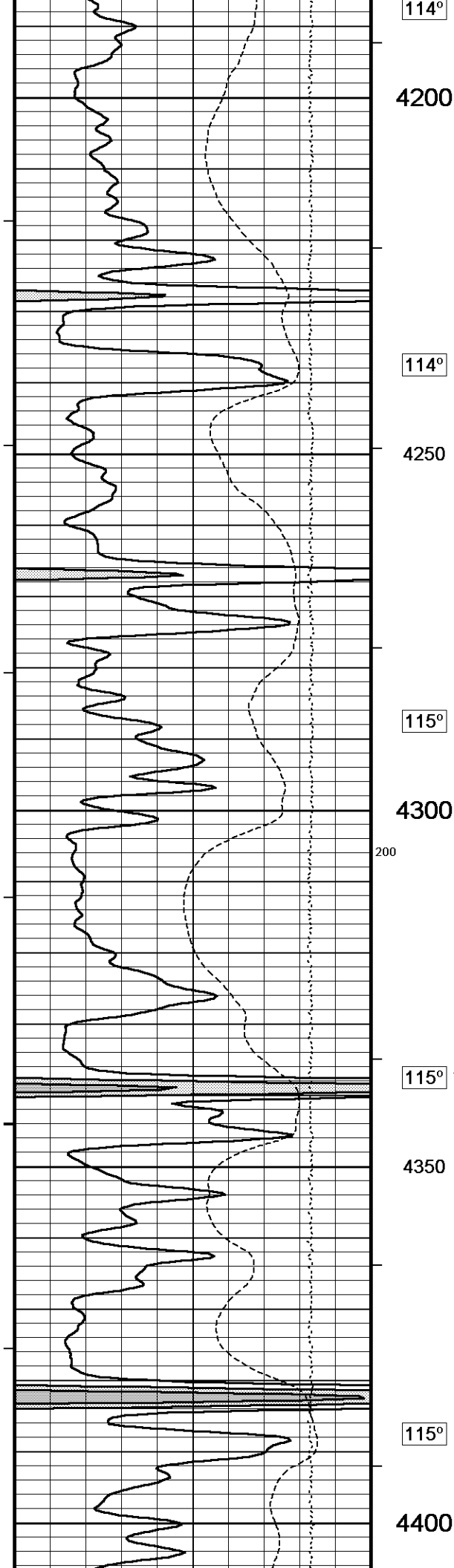


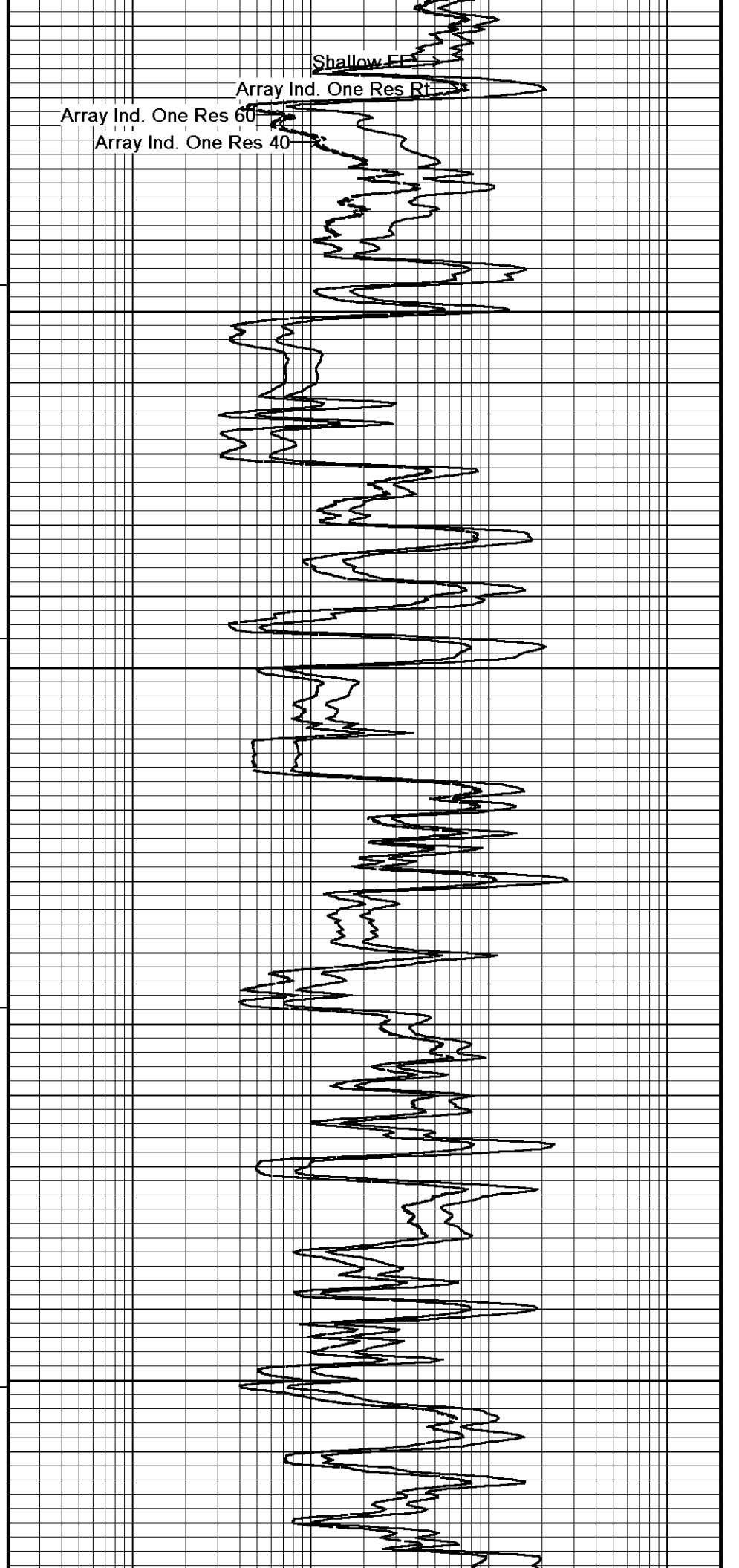
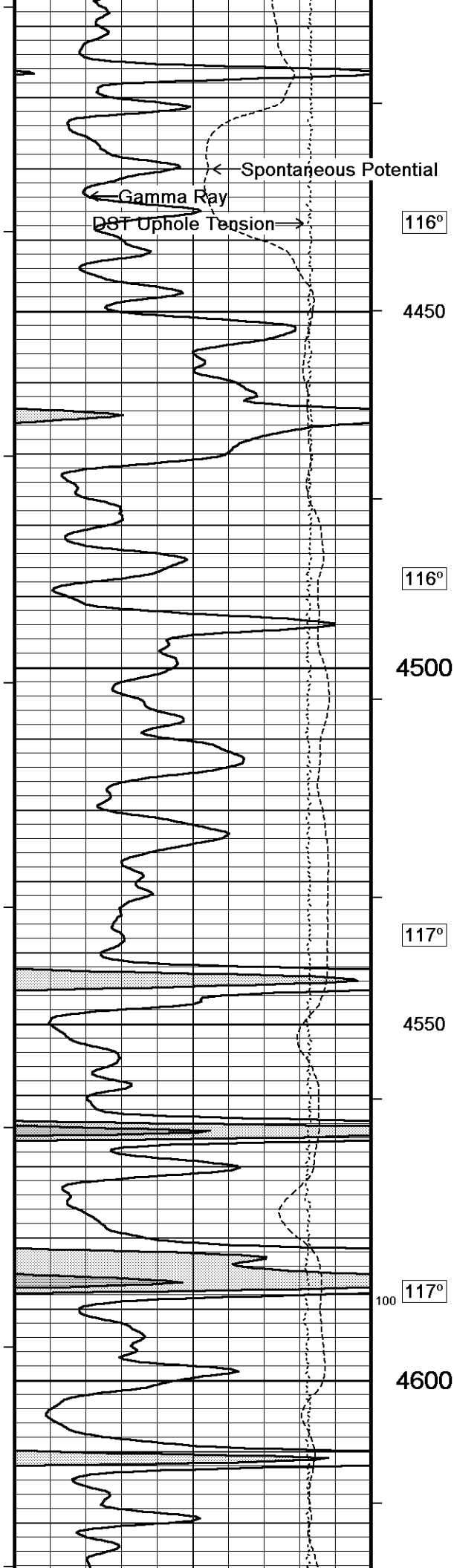


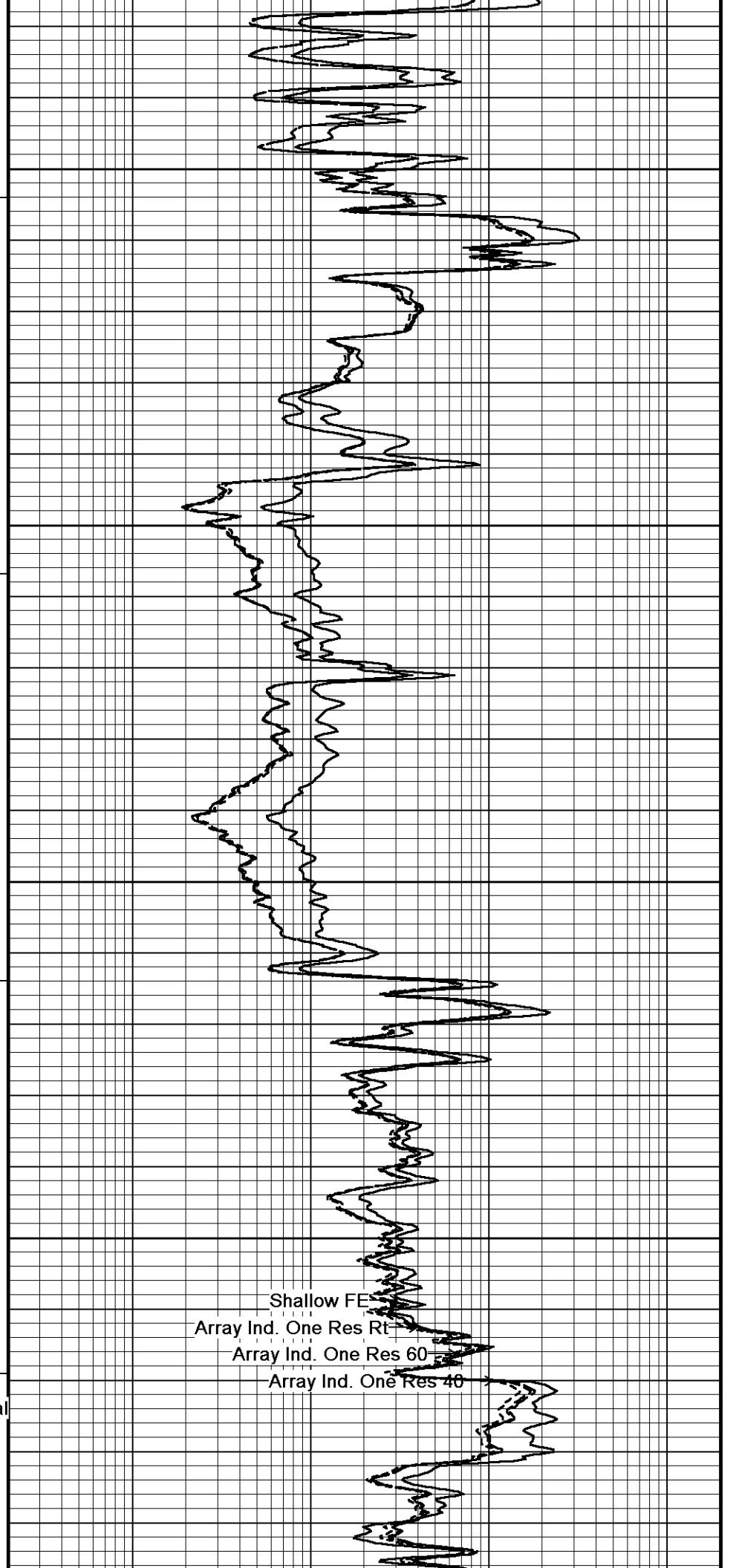
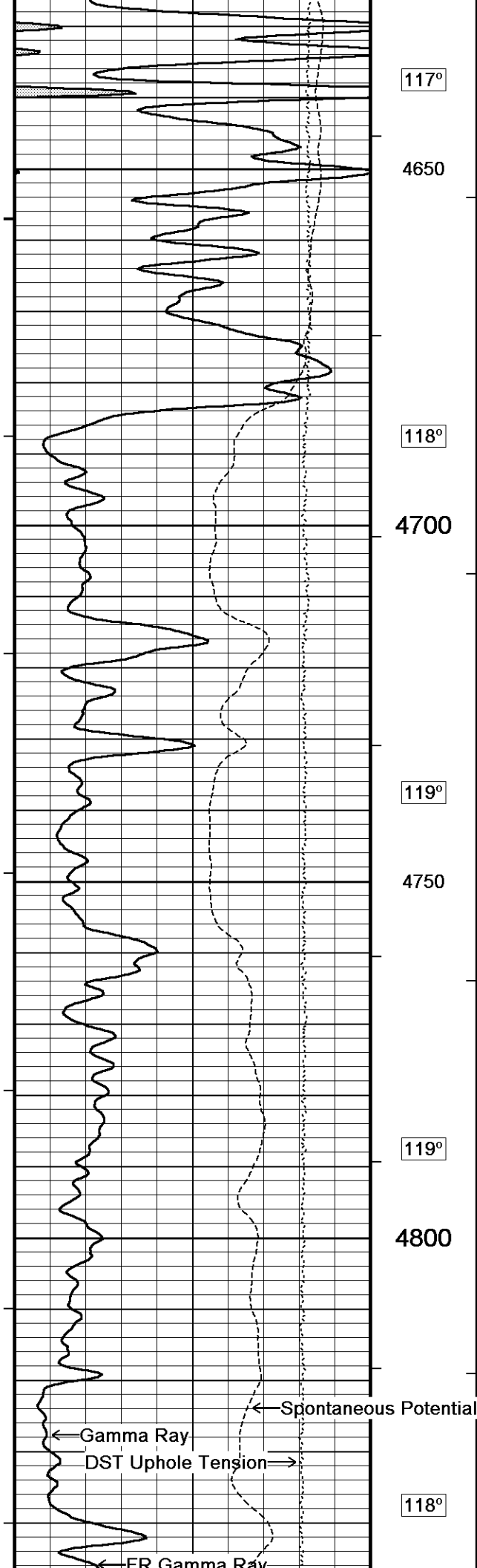


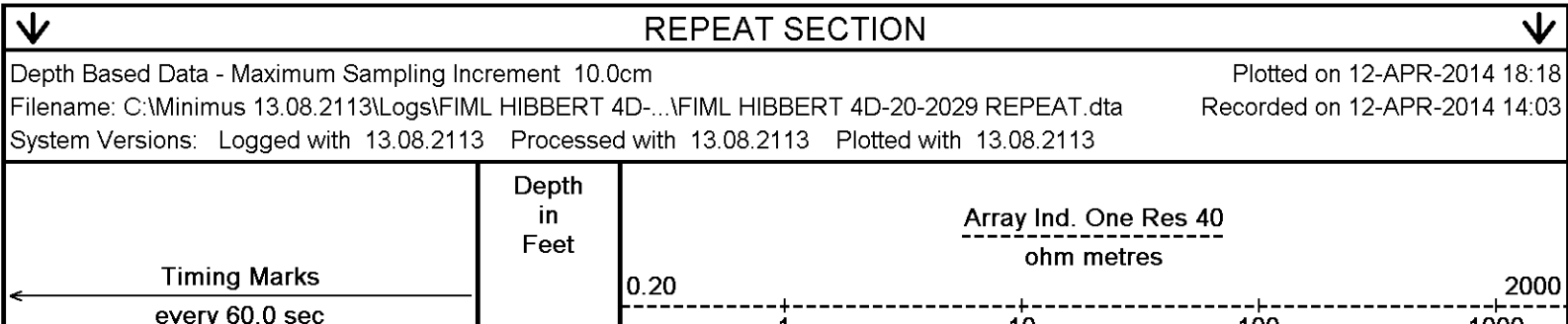
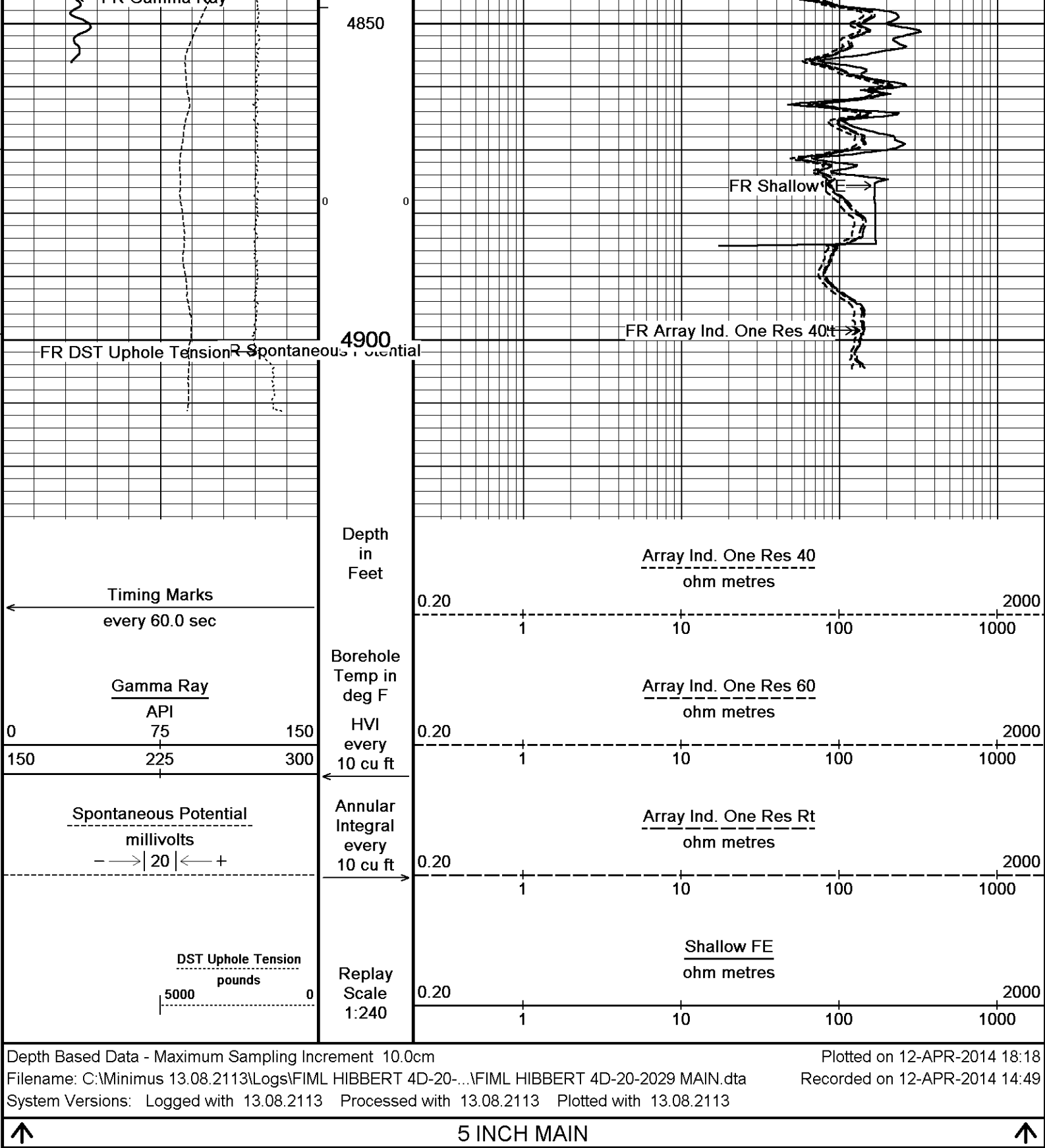


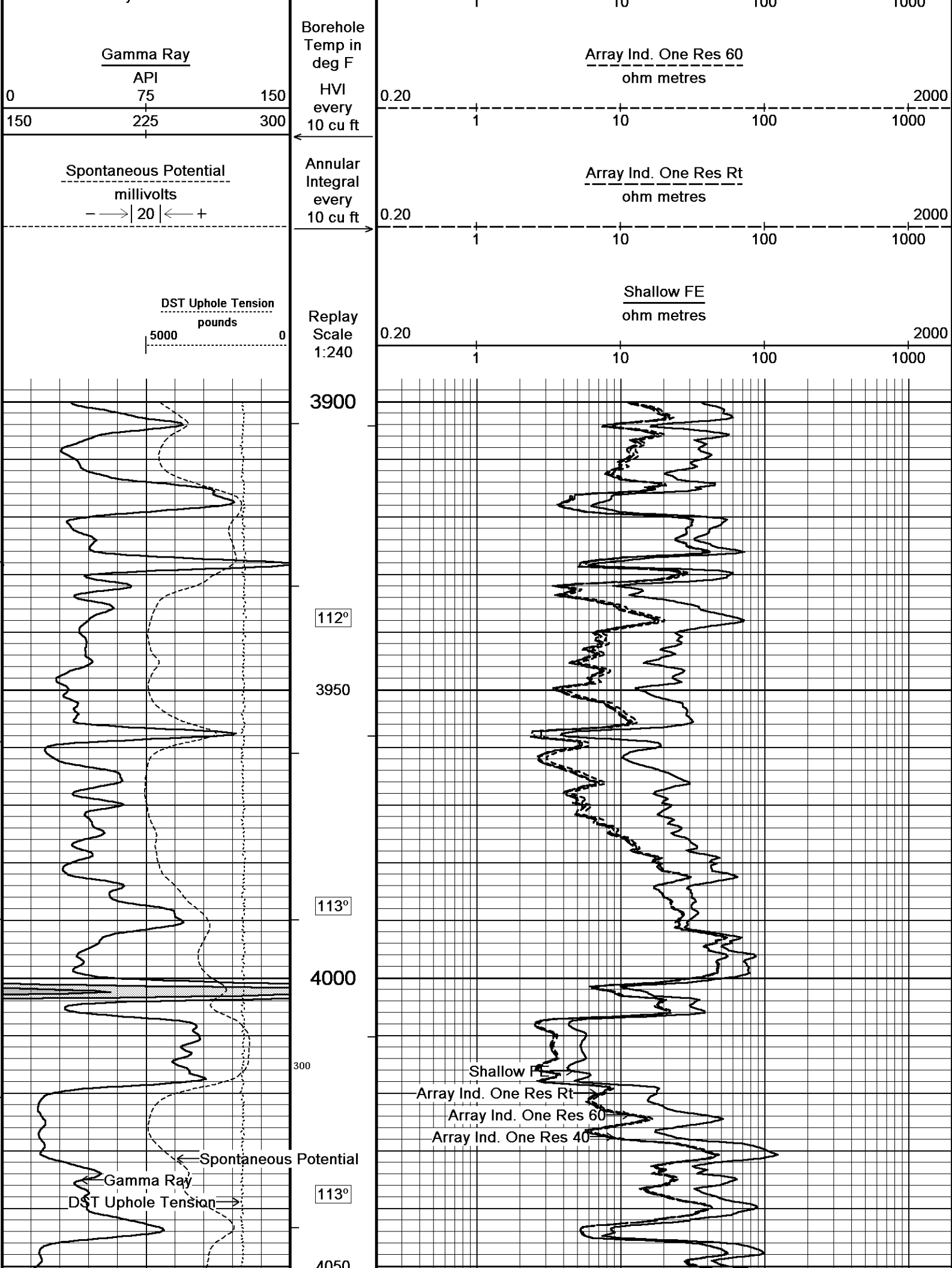


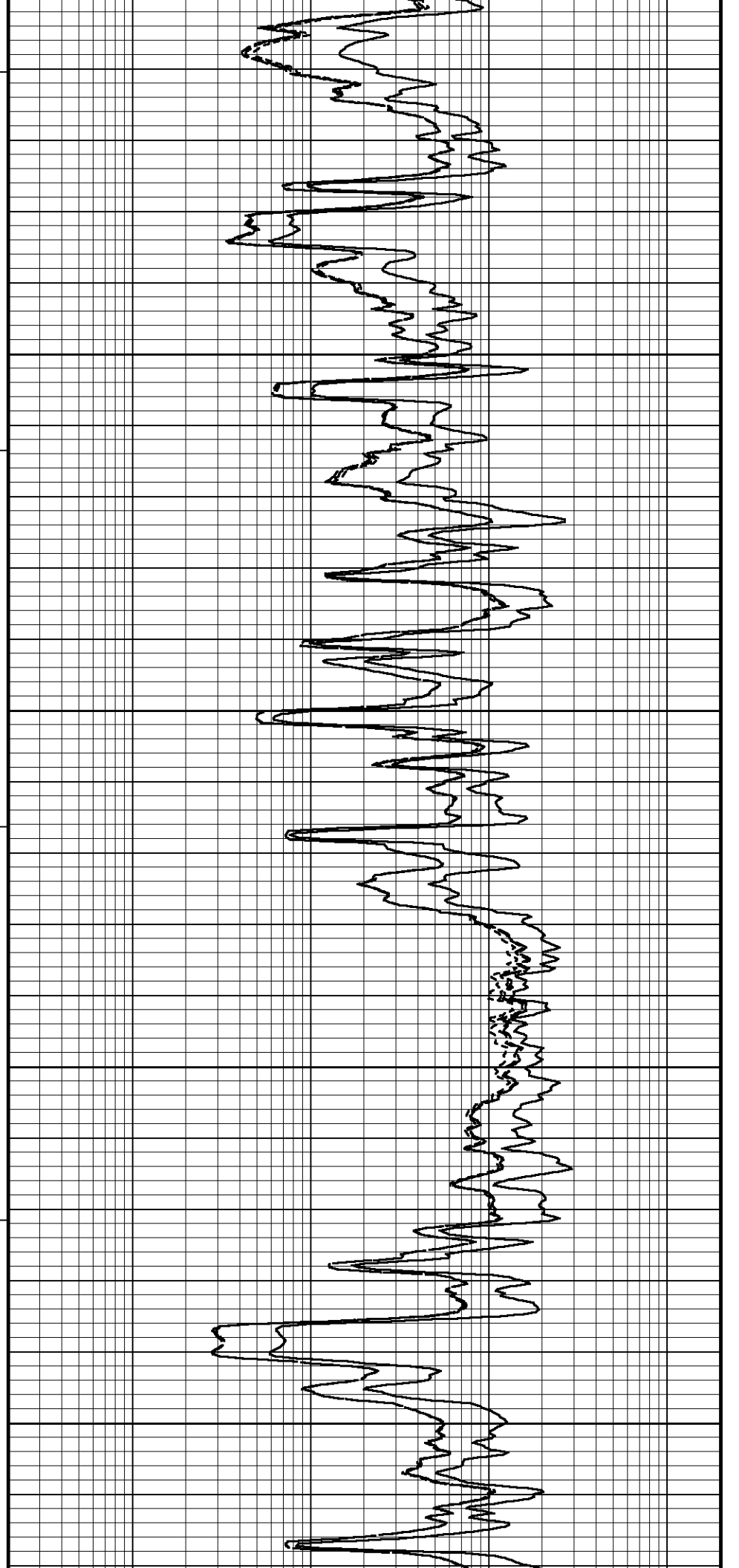
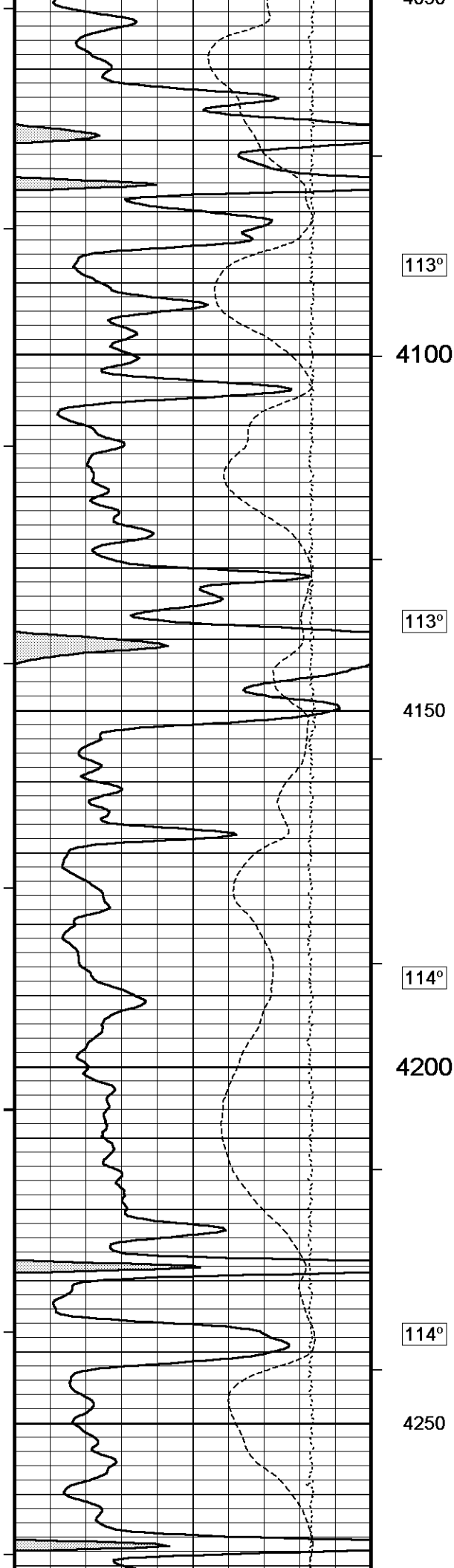


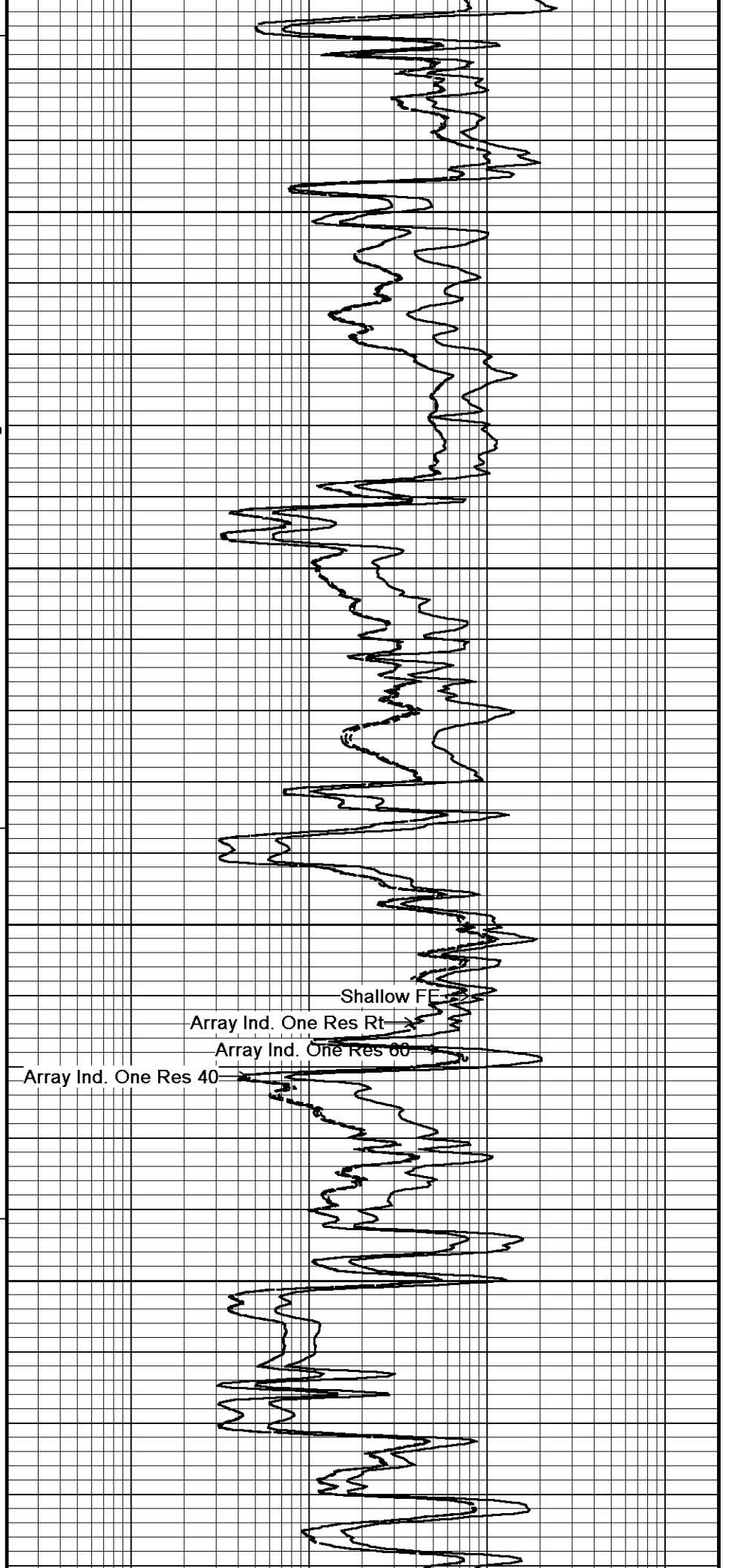
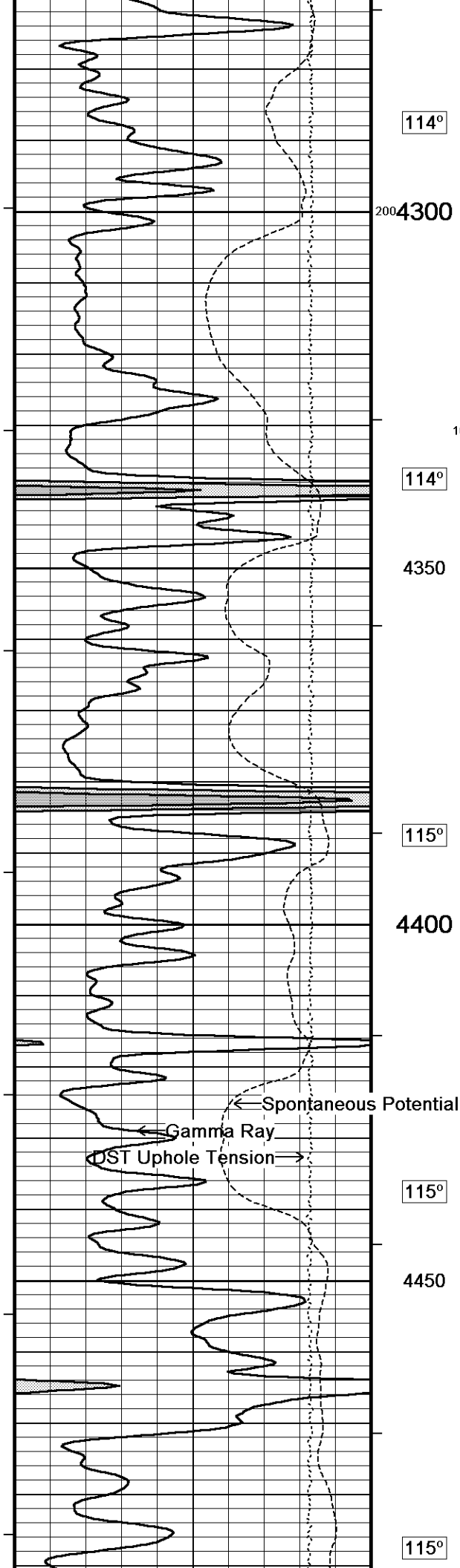


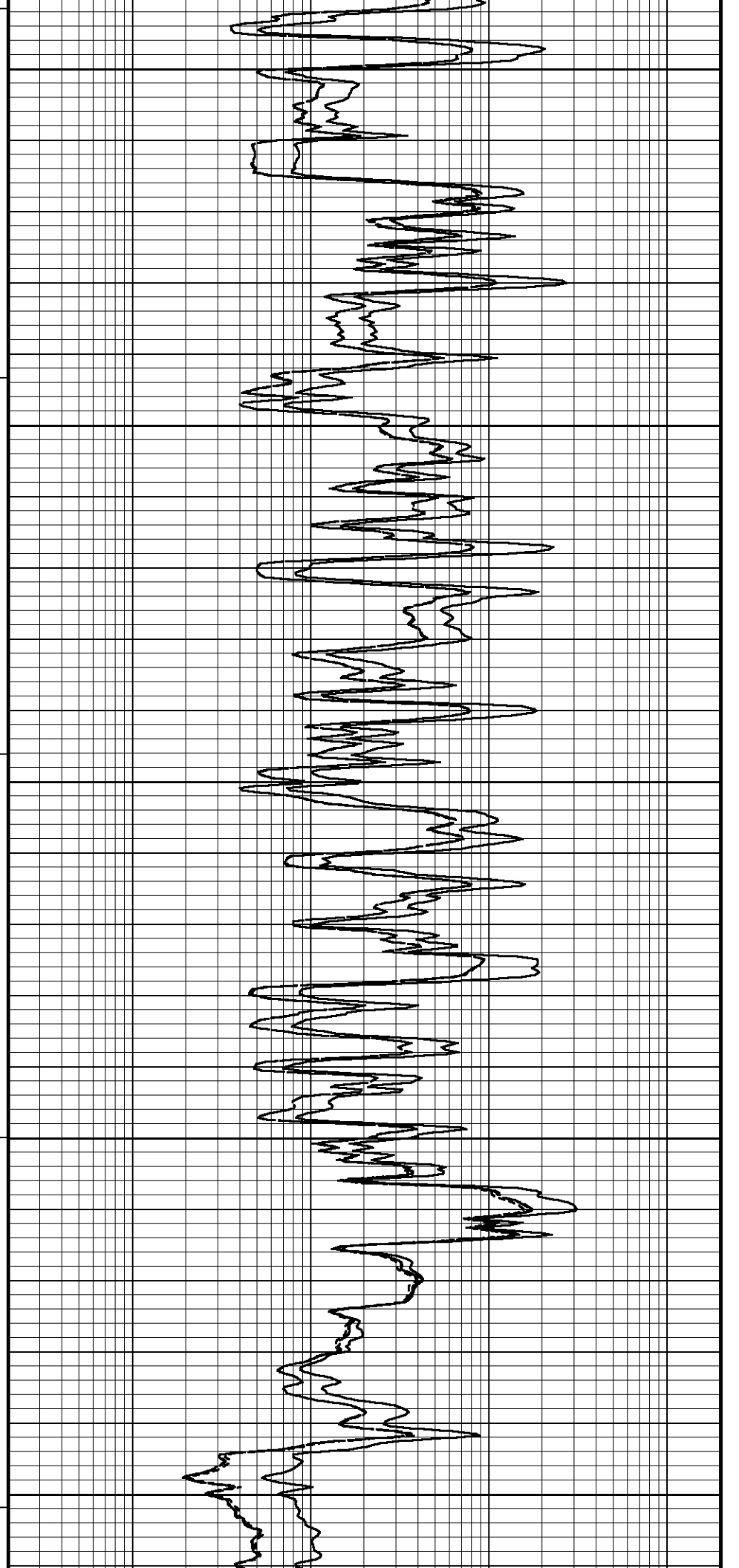
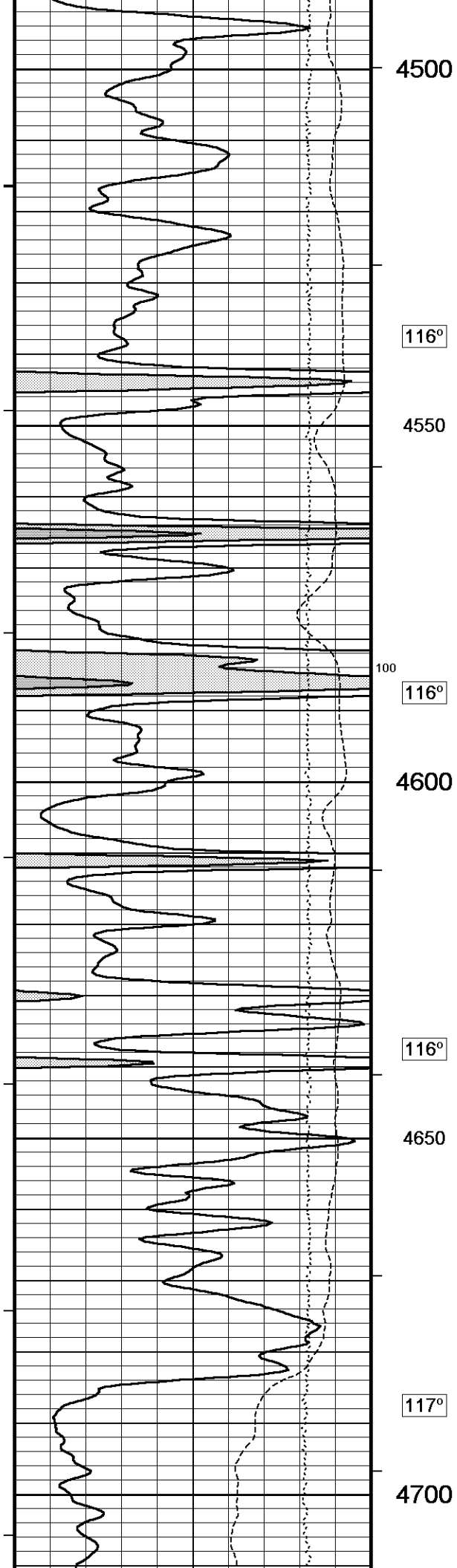


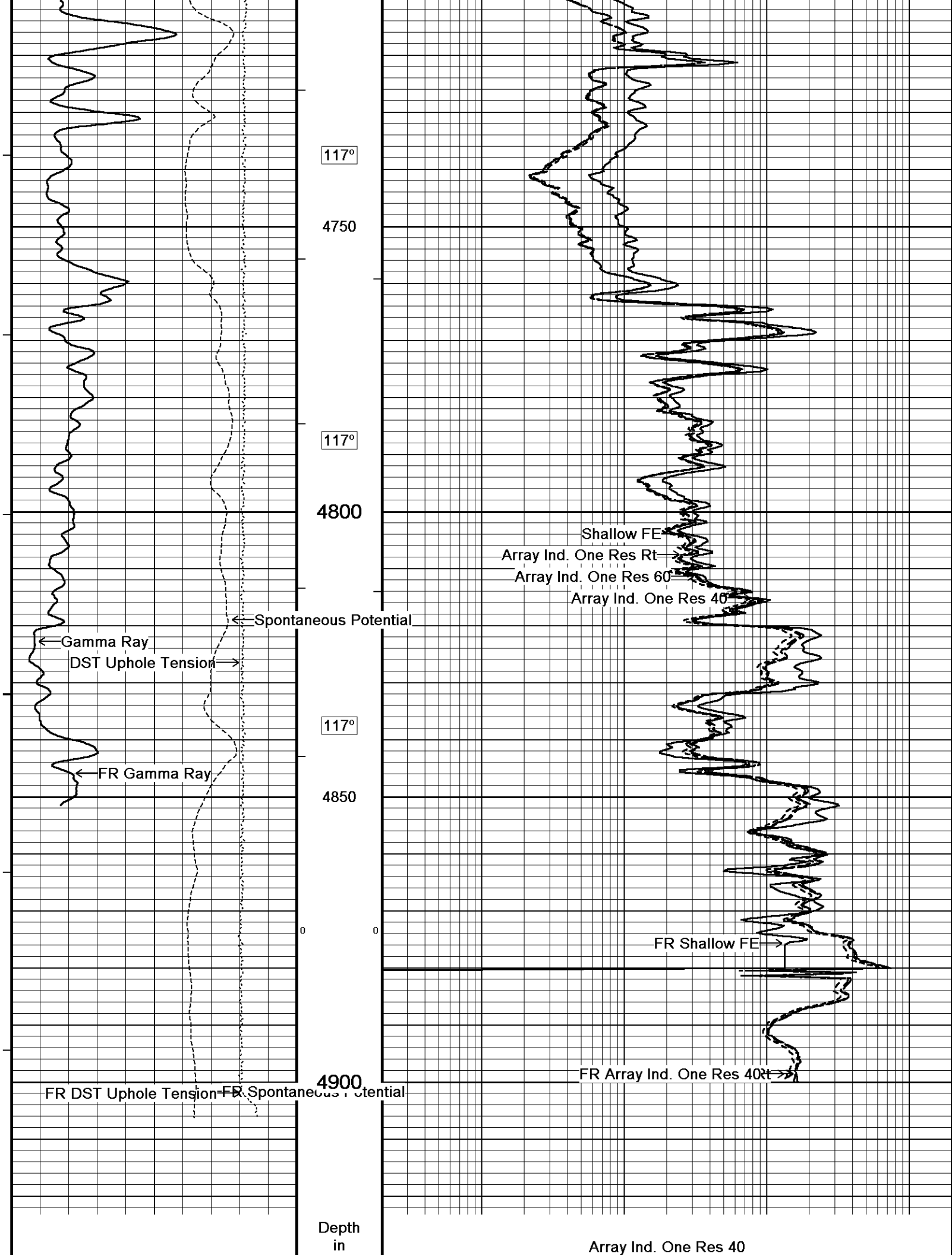


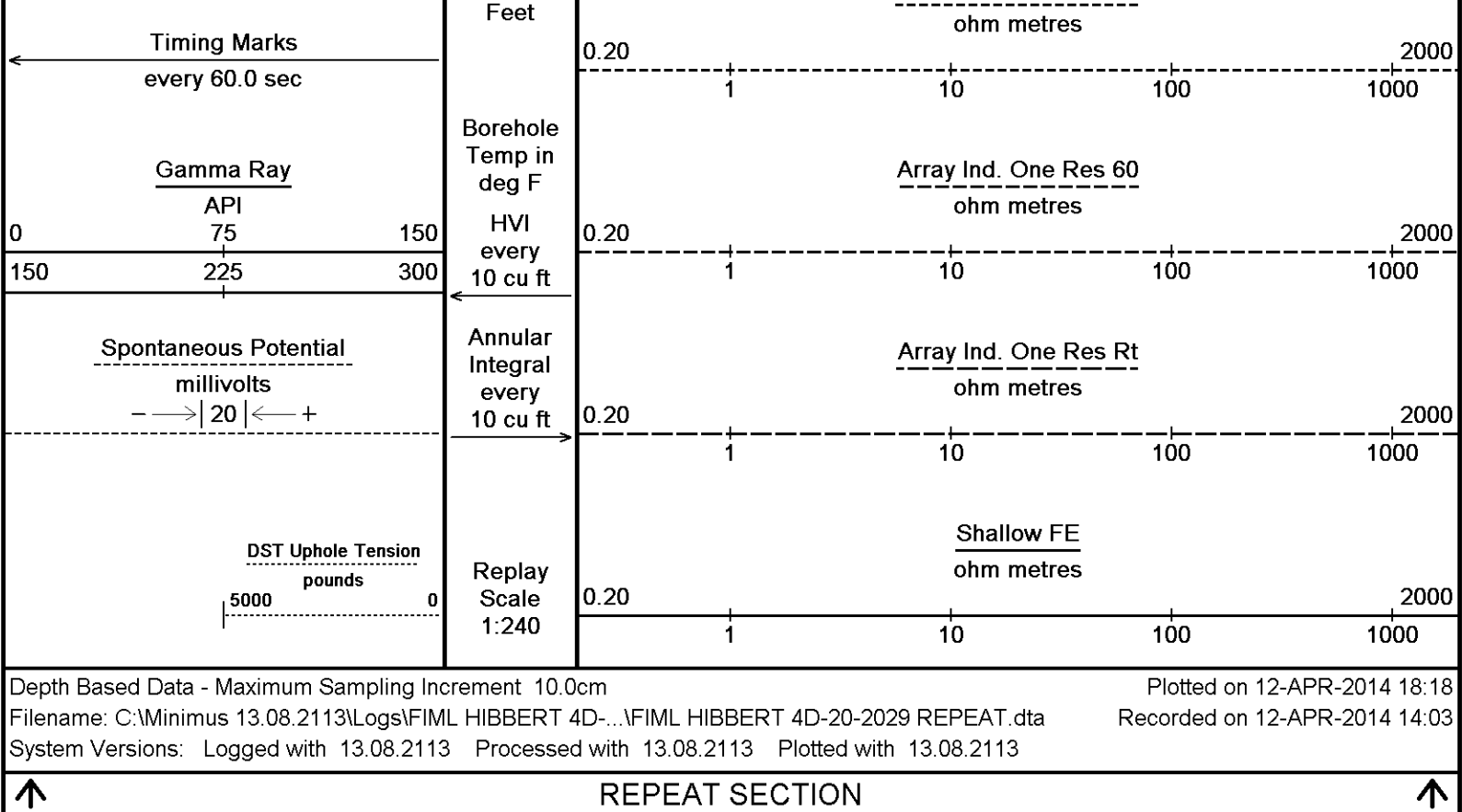












BEFORE SURVEY CALIBRATION			
C:\Minimus 13.08.2113\Logs\FIML HIBBERT 4D-20-2029\FIML HIBBERT 4D-20-2029 REPEAT.dta			
General Constants All 000		Last Edited on 12-APR-2014,13:35	
General Parameters			
Mud Resistivity	0.800	ohm-metres	
Mud Resistivity Temperature	96.000	degrees F	
Water Level	0.000	feet	
Borehole Fluid Processing	Water Level Switch		
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	MMR Caliper		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. Four Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 443		Field Calibration on 10-APR-2014 11:55	
	Measured	Calibrated (API)	
Background	75	49	
Calibrator (Gross)	1183	774	
Calibrator (Net)	1108	725	
Gamma Constants MCG-D.K 443		Last Edited on 12-APR-2014,13:35	
Gamma Calibrator Number GRC38			
Mud Density	1.11	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		

K Mud Type		Chlonide	0.00	%
K Mud Concentration				
High Resolution Temperature Calibration MCG-D.K 443				Field Calibration on 05-MAR-2014,20:50
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	75.00	75.00		
High Resolution Temperature Constants MCG-D.K 443				Last Edited on 05-MAR-2014,20:50
Pre-filter Length	11			
FE Calibration MFE-B.J 352				Base Calibration on 02-APR-2014 09:18 Field Check on 10-APR-2014 11:27
Base Calibration		Measured	Calibrated (ohm-m)	
Reference 1		0.0	0.0	
Reference 2		963.7	126.8	
Base Check			281.5	
Field Check			281.4	
FE Constants MFE-B.J 352				Last Edited on 12-APR-2014,13:22
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	Constant Value			
Temp. for Rm Corr.	N/A			
Stand-off	Centred	inches		
Induction Calibration MAI-A.A 158				Base Calibration on 03-APR-2014,15:01 Field Check on 10-APR-2014 11:23
Base Calibration				
Test Loop Calibration		Measured	Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.2	475.3	9.3	966.2
2	6.1	381.2	7.6	821.4
3	3.8	265.2	5.2	566.0
4	2.7	132.2	2.6	279.2
Array Temperature	22.3		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			12.5	3814.3
2			30.3	3530.5
3			27.4	2981.3
4			18.2	2097.5
Deep			15.0	1943.6
Medium			41.2	3887.3
Shallow			47.7	5236.3
Array Temperature			62.9	Deg F
Induction Constants MAI-A.A 158				Last Edited on 10-APR-2014,11:21
Induction Model		RtAP-WBM		
Caliper for Borehole Corr.		Density Caliper		
Hole Size for Borehole Correction	2.500	inches		
Tool Centred	No			
Stand-off Type	Fins			
Stand-off	0.50	inches		
Number of Fins on Stand-off	8.0000			
Stand-off Fin Angle	45.00	degrees		
Stand-off Fin Width	0.5000	inches		
Borehole Corr. Rm Source	Temperature Corr			
Temp. for Rm Corr.	Borehole Temp. Unfilt.			
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 31

Base Calibration on 02-APR-2014 10:39
Field Calibration on 10-APR-2014 11:42

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18192	3.99
2	27035	5.98
3	35696	7.97
4	44016	9.86
5	53216	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.91	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\FIML HIBBERT 4D-20-2029\FIML HIBBERT 4D-20-2029 REPEAT.dta

MCB-A 11B Tension Cablehead

MCB-A 170 LG: 2.18 ft WT: 19.8 lb OD: 2.240 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity

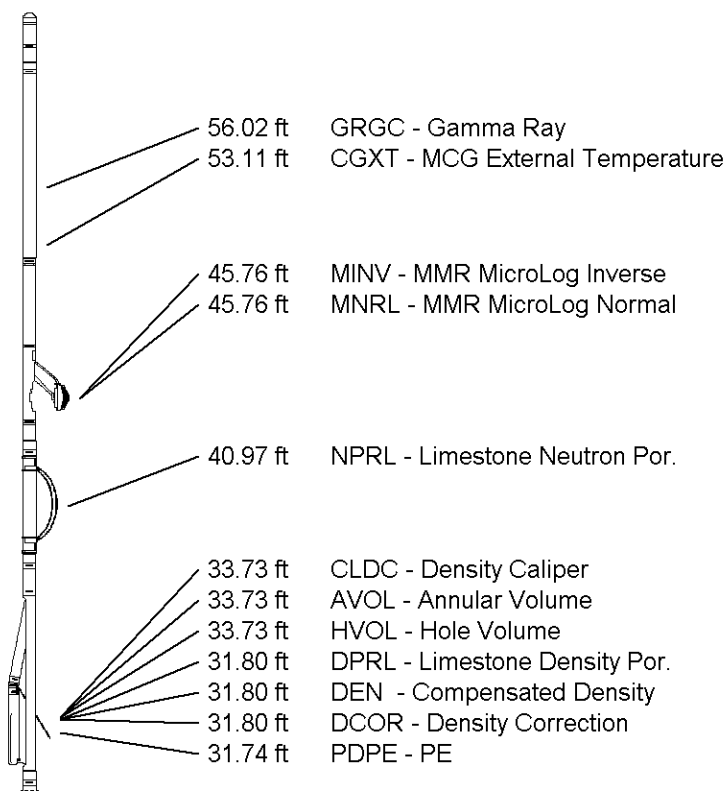
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

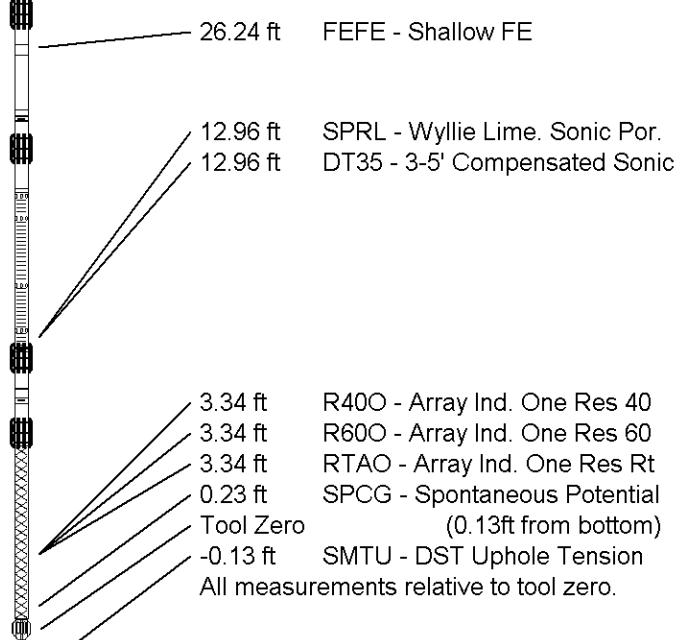


Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 63.48 ft Weight: 476.2 lb



COMPANY FIML NATURAL RESOURCES, LLC.
WELL HIBBERT 4D-20-2029
FIELD WILDCAT
PROVINCE/COUNTY LANE
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2892.00	feet	First Reading	4899.00	feet
Elevation Drill Floor	2890.00	feet	Depth Driller	4900.00	feet
Elevation Ground Level	2882.00	feet	Depth Logger	4902.00	feet



ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford

Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	FIML NATURAL RESOURCES, LLC.	WELL	HIBBERT 4D-20-2029
FIELD	WILDCAT	PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS	LOCATION	1235 FNL & 1000 FNL
SEC. 20	TPC 20S	FOSE 20W	Other Services
Latitude	36.101	Longitude	-94.001
UTM Zone	15-10T	UTM Easting	650000
Permanent Datum Q.L. Elevation	2882 feet	Log Measured From KB	@ 10 FEET
Drilling Measured From KB	@ 10 FEET	Run Number	ONE
Date	12-APR-2014	Service Order	587294422956
Depth Driller	4900.00	Depth Logger	4902.00
First Reading	4899.00	Feet	
Last Reading	437.00	Feet	
Casing Driller	439.00	Feet	
Casing Logger	7.875	Inches	
Bit Size	7.875	Inches	
Hole Fluid Type	CHEM	CP	55.00
Density/Viscosity	9.30 lb/USg	CP	7.00
PH/Fluid Loss	10.50	PH	7.00
Sample Source	PIT	PH	7.00
Em @ Measured Temp	0.80 @ 96.0	ohm-m	
Em @ Measured Temp	0.84 @ 96.0	ohm-m	
Em @ Measured Temp	0.96 @ 96.0	ohm-m	
Source Rmt/Rmc	CALC	ohm-m	
Rm @ BHT	0.65 @ 117.0	ohm-m	
Time Since Circulation	4 HRS	deg F	
Max Recorded Temp	117.00	deg F	
Equipment/Case	D COLE	LIB	
Recorded By	G DOKE	K TALBOT	
UTM #	151411		

1 INCH MAIN

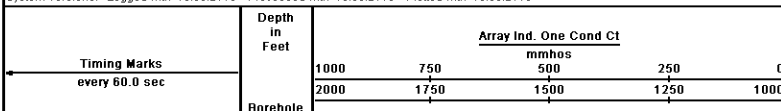
Depth Based Data - Maximum Sampling Increment 10.0cm

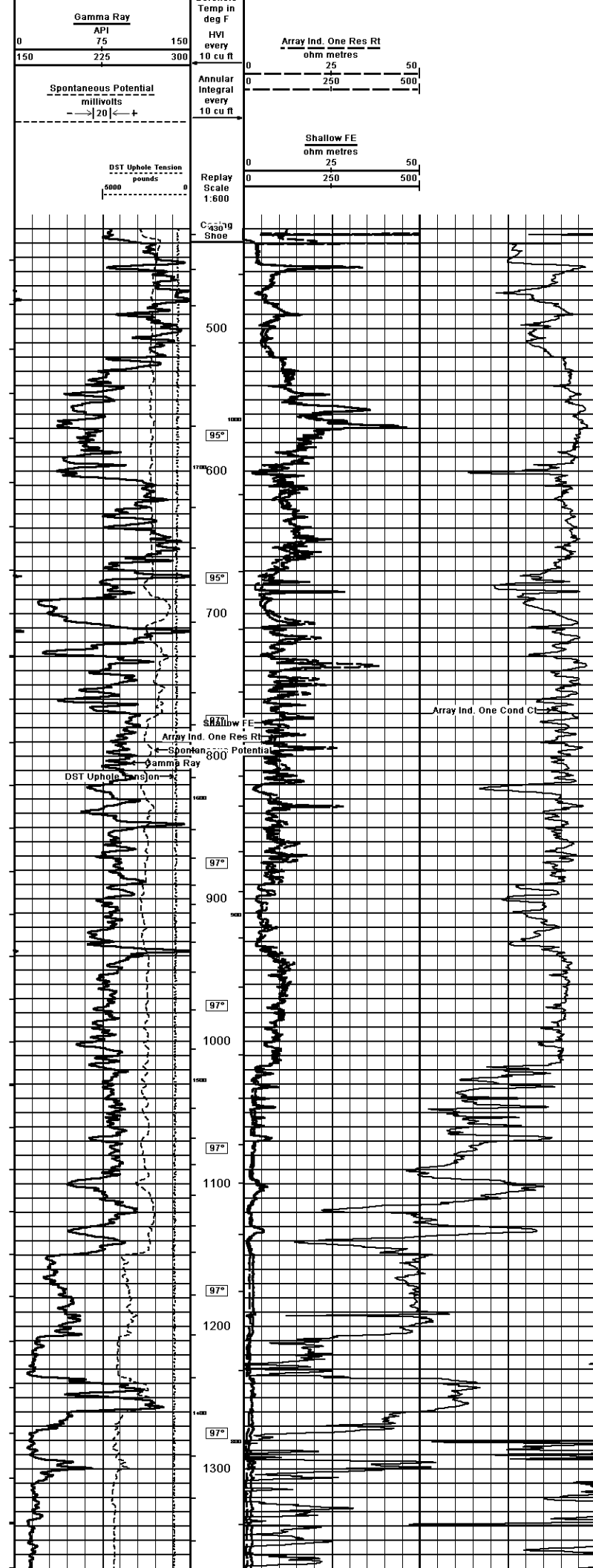
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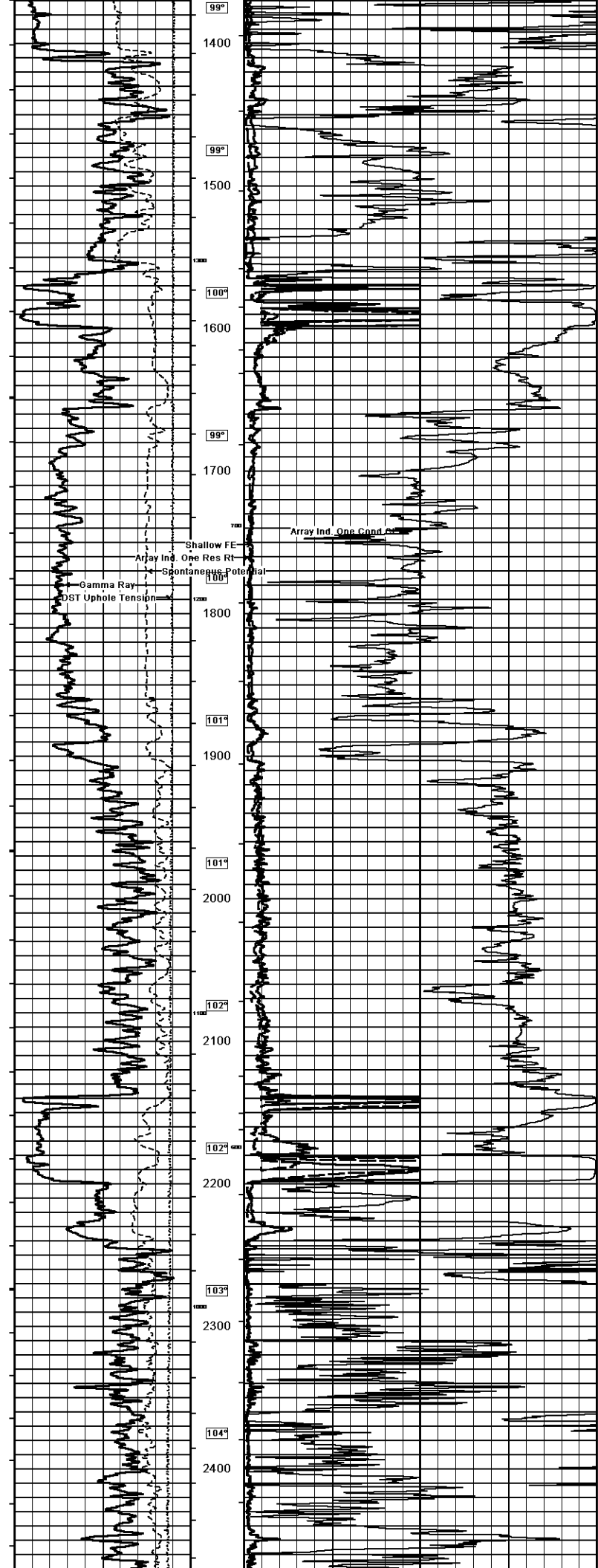
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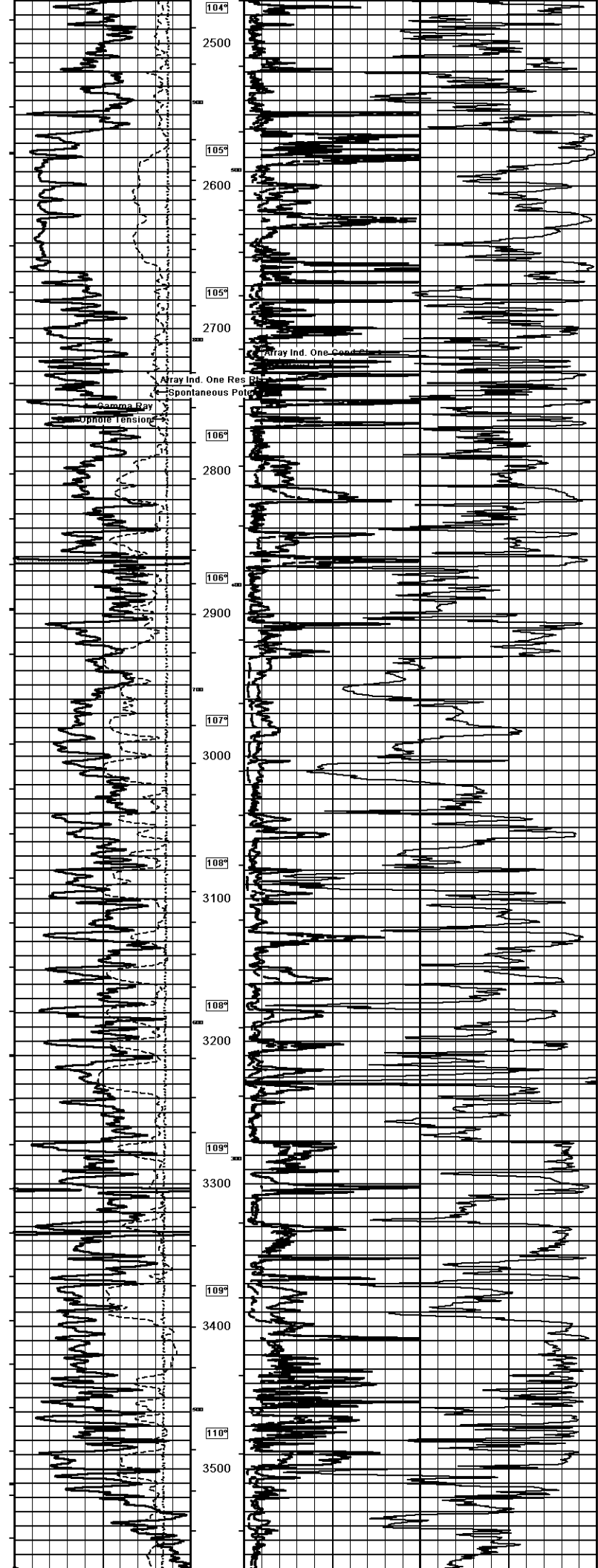
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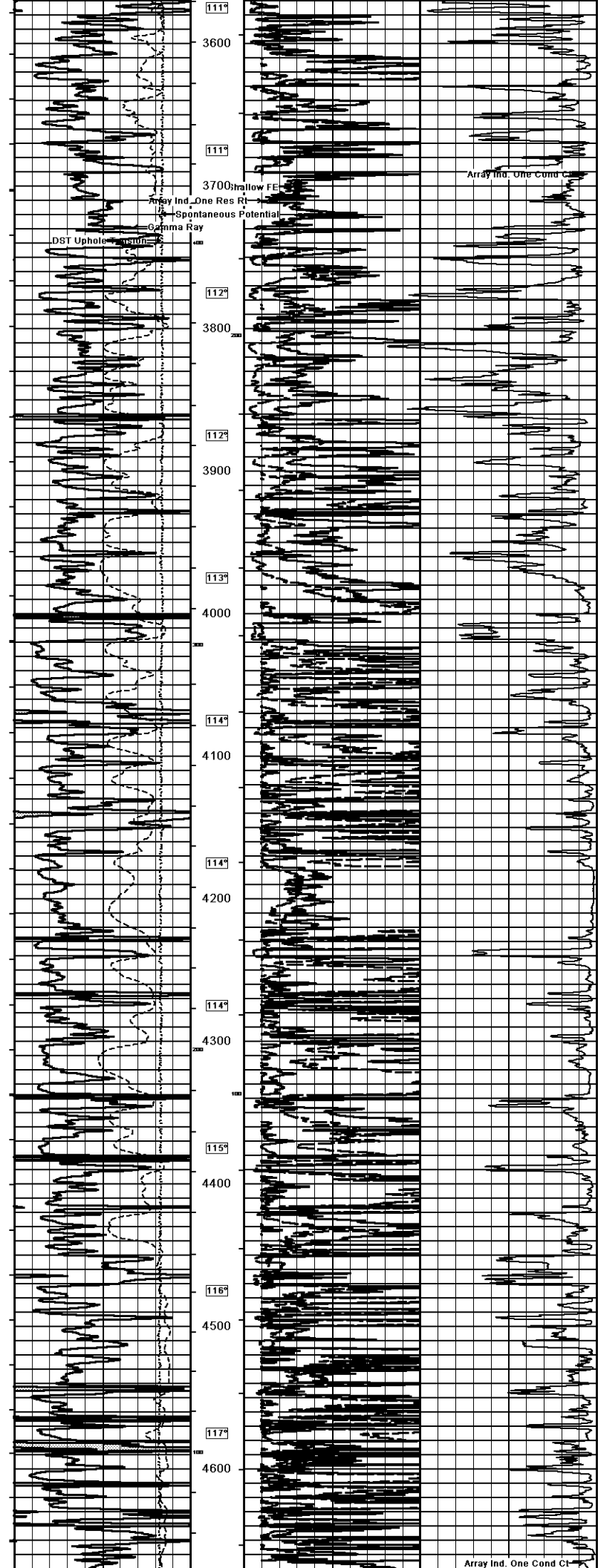
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

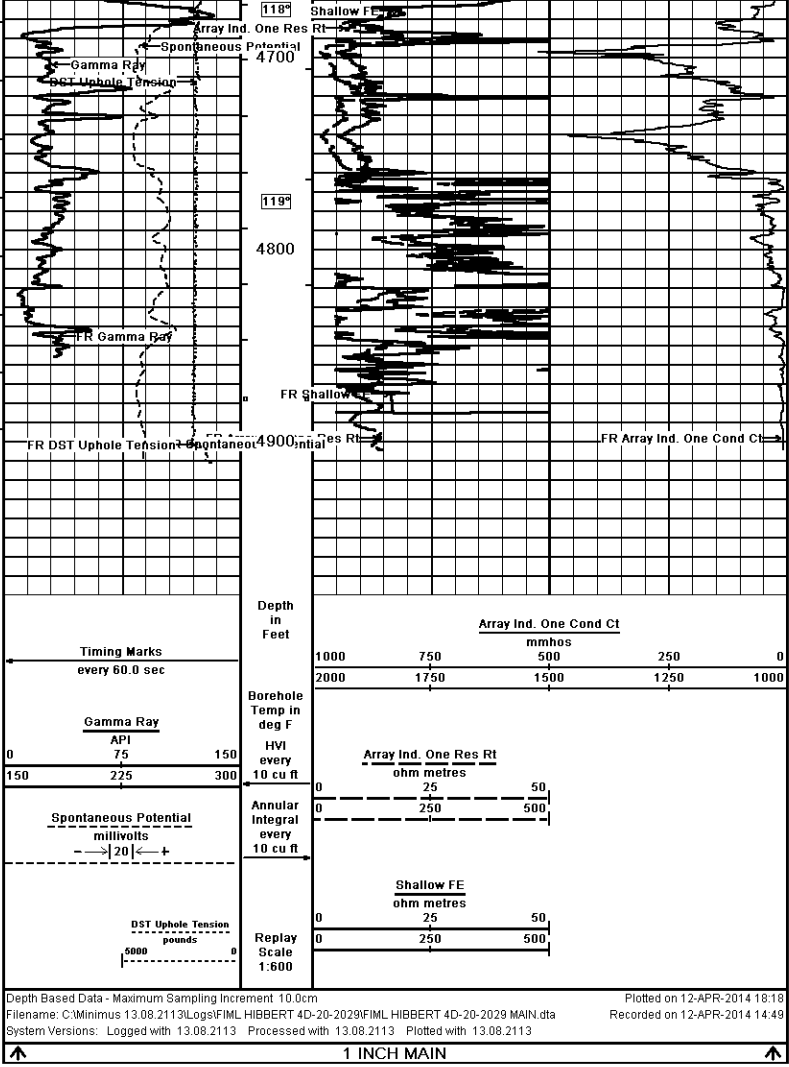












COMPANY		FIML NATURAL RESOURCES, LLC.			
WELL		HIBBERT 4D-20-2029			
FIELD		WILDCAT			
PROVINCE/COUNTY		LANE			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	2892.00	feet	First Reading	4899.00	feet
Elevation Drill Floor	2890.00	feet	Depth Driller	4900.00	feet
Elevation Ground Level	2882.00	feet	Depth Logger	4902.00	feet
		ARRAY INDUCTION			
		SHALLOW FOCUSED			
		ELECTRIC LOG			