



Weatherford

**ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG**

COMPANY		O'BRIEN ENERGY RESOURCES CORP.			
WELL		CHARITY MAY #1A-9			
FIELD		ANGEL SOUTH			
PROVINCE/COUNTY		MEADE			
COUNTRY/STATE		USA / KANSAS			
LOCATION		2204' FSL & 341' FWL SE-NW-NW-SW			
SEC 9	TWP 33S	RGE 29W	Other Services		
Latitude	37.190402837	MPD/MDN		MML	
Longitude	-100.488076598				
API Number	15-119-21422				
Permanent Datum GL, Elevation 2630.9 feet					Elevations: KB 2643.90 DF 2641.90 GL 2630.90
Log Measured From KB, 13.00 feet above Permanent Datum					
Drilling Measured From KB					
Date	19-JUN-2018				
Run Number	ONE				
Service Order	7055-216446647				
Depth Driller	6350.00				feet
Depth Logger	6351.00				feet
First Reading	6348.00				feet
Last Reading	1526.00				feet
Casing Driller	1527.00				feet
Casing Logger	1526.00				feet
Bit Size	7.875				inches
Hole Fluid Type	CHEMICAL				
Density / Viscosity	8.90 lb/USg		58.00 sec/qt		
PH / Fluid Loss	10.50		8.80 ml/30Min		
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.94 @ 92.0				ohm-m
Rmf @ Measured Temp	0.75 @ 92.0				ohm-m
Rmc @ Measured Temp	1.13 @ 92.0				ohm-m
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.71 @122.0				ohm-m
Time Since Circulation	3 HOURS				
Max Recorded Temp	123.00		deg F		
Equipment / Base	13096		LIB		
Recorded By	JUSTIN HICKS				
Witnessed By	DANA GREATHOUSE				PETER DEBENHAM

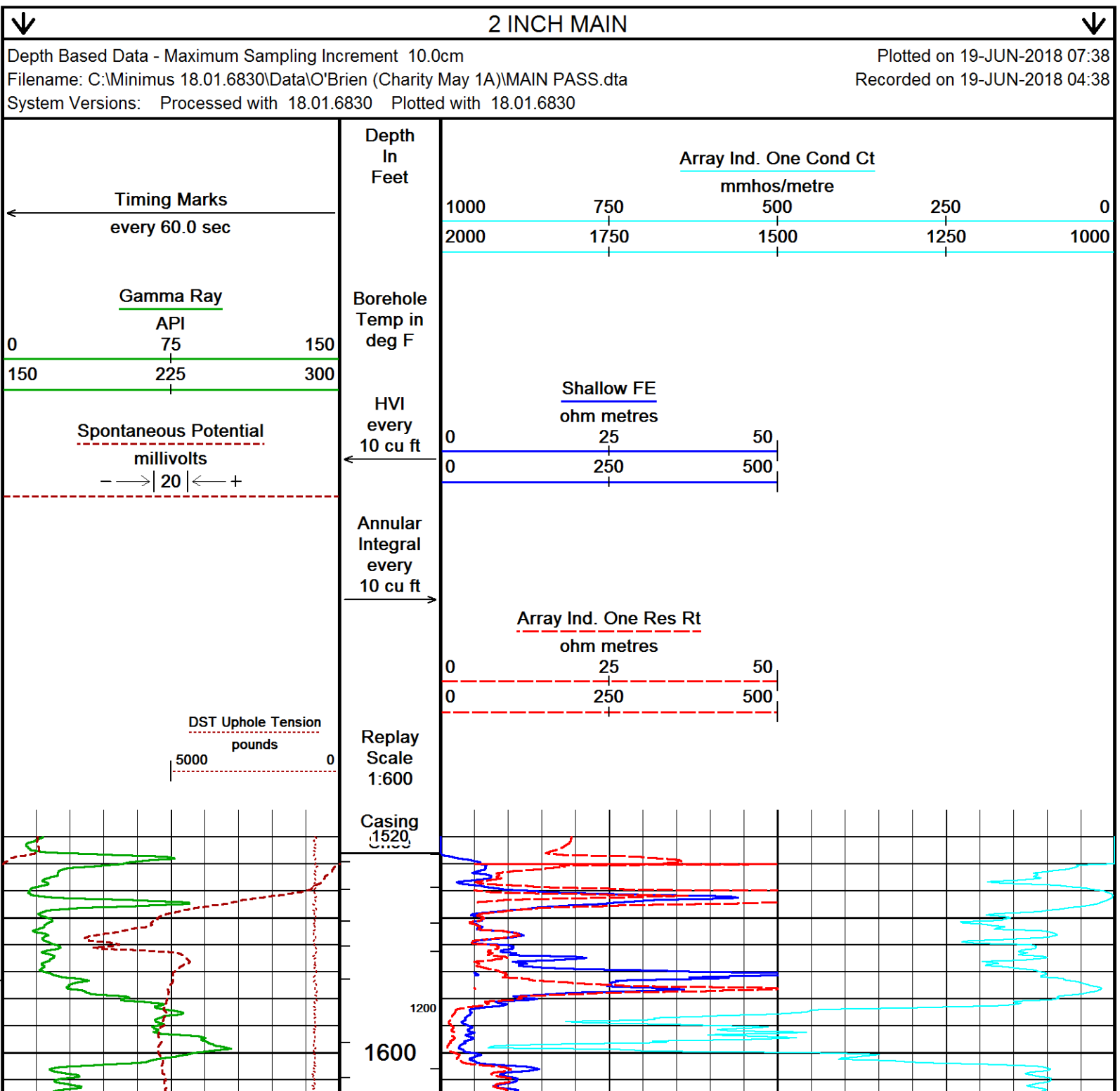
BOREHOLE RECORD					Last Edited: 19-JUN-2018 02:58
Bit Size inches		Depth From feet		Depth To feet	
7.875		1527.00		6350.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	1527.00	24.00	

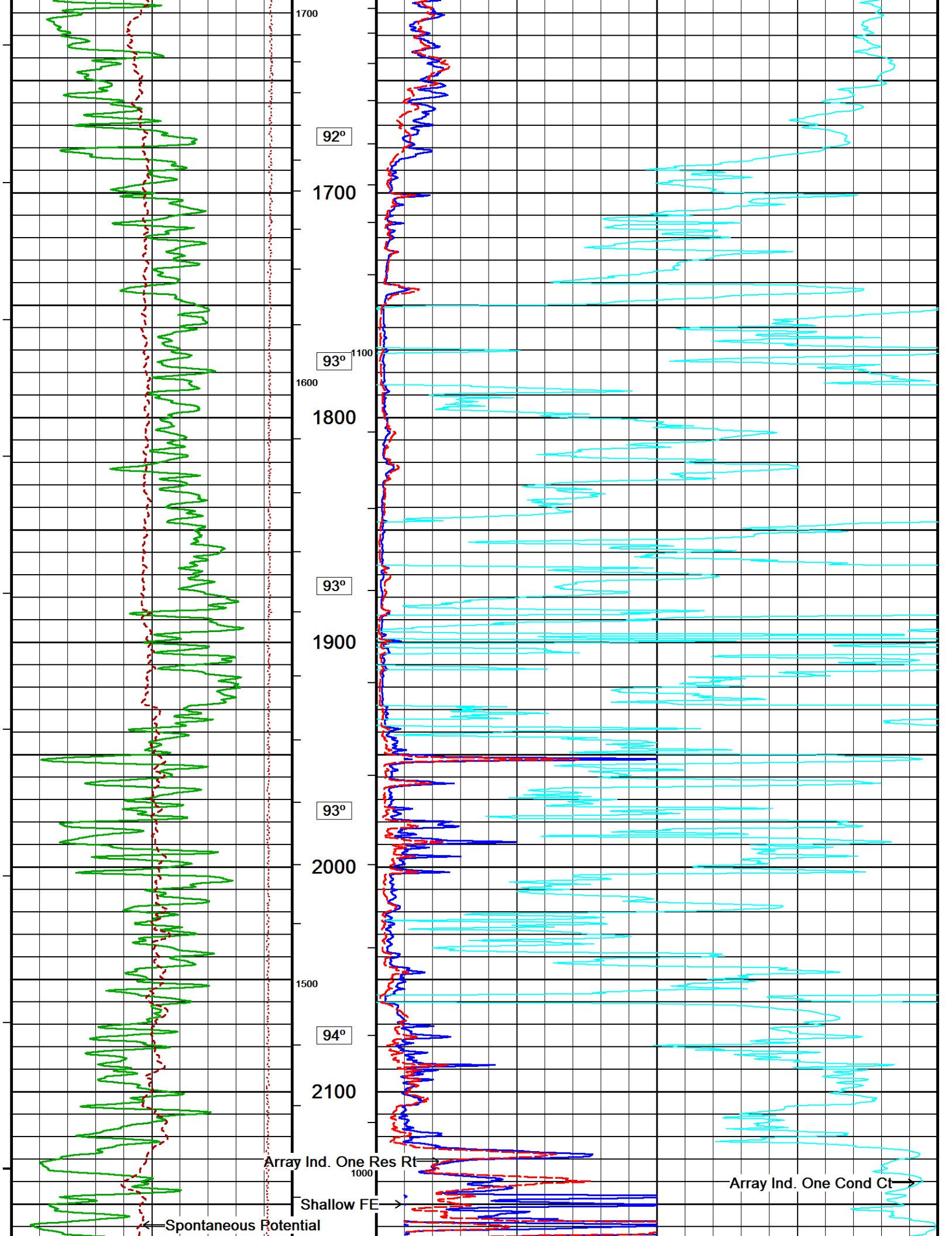
REMARKS
- RUN ONE: MCB, SHA, MCG, MML, MDN, MPD, SKJ, MFE, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1772 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1240 CU.FT.
- RIG: DUKE DRILLING, RIG 9
- ENGINEER: J. HICKS

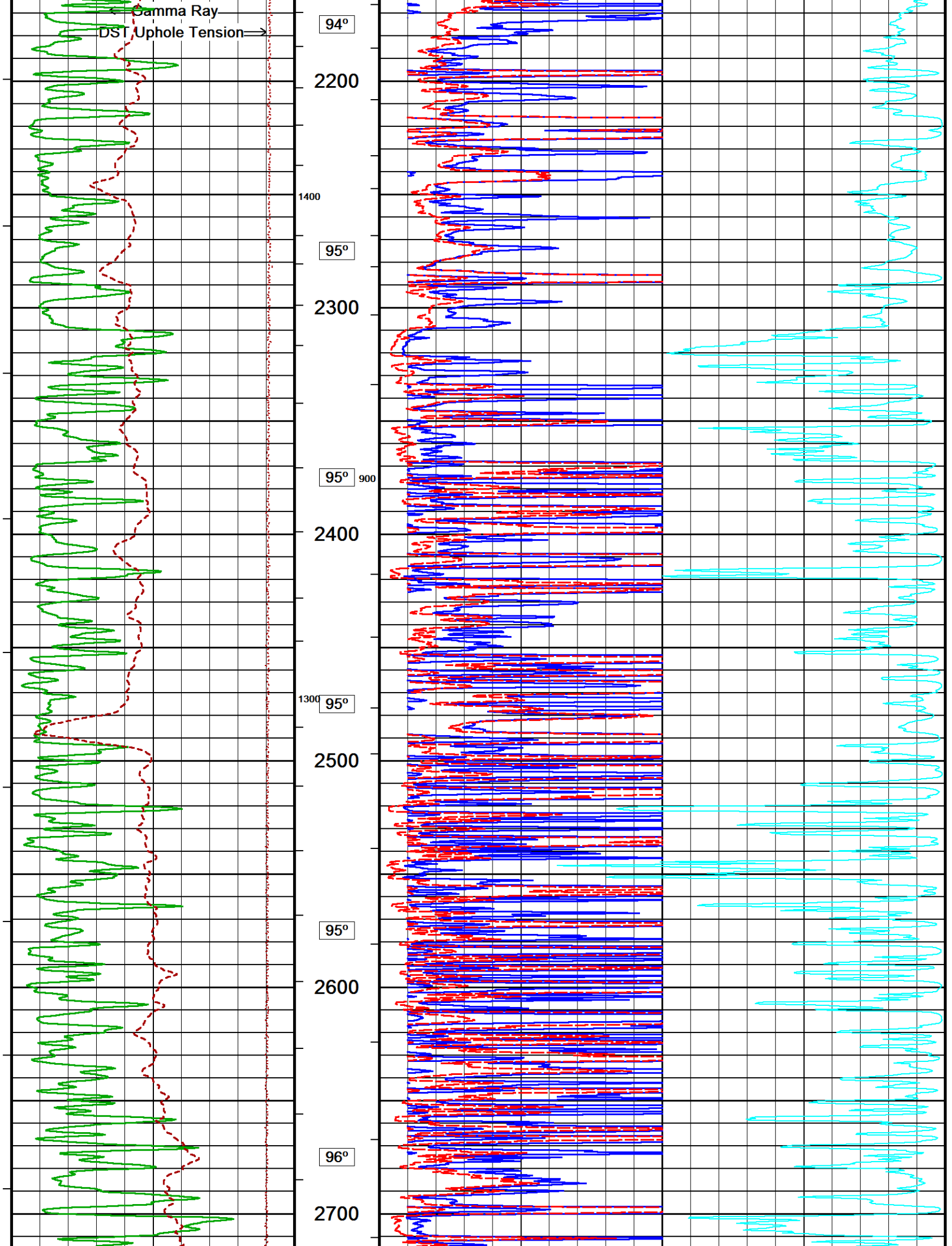
ENGINEER: G. FICKO

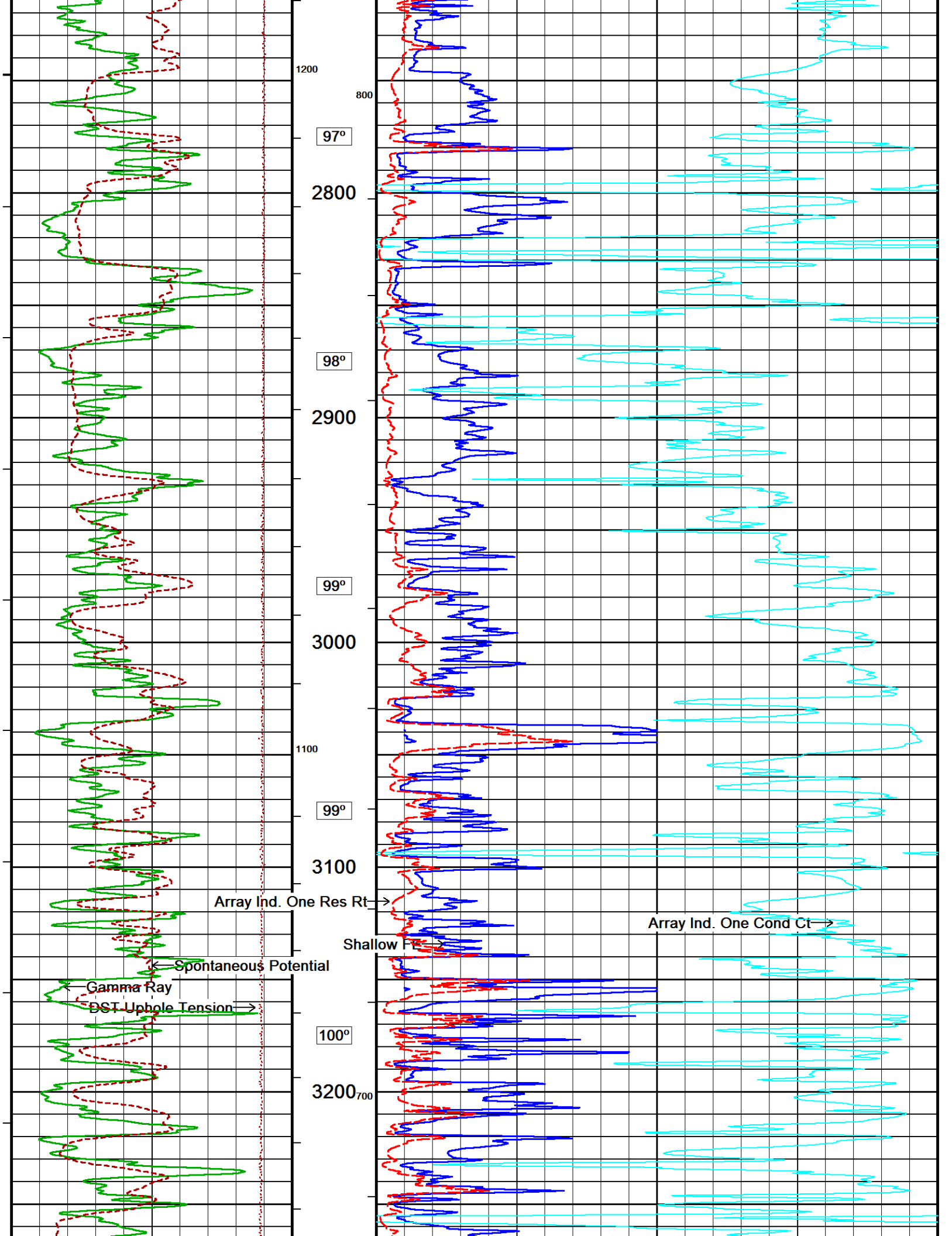
- OPERATOR: B. TOVAR, B. COPELAND

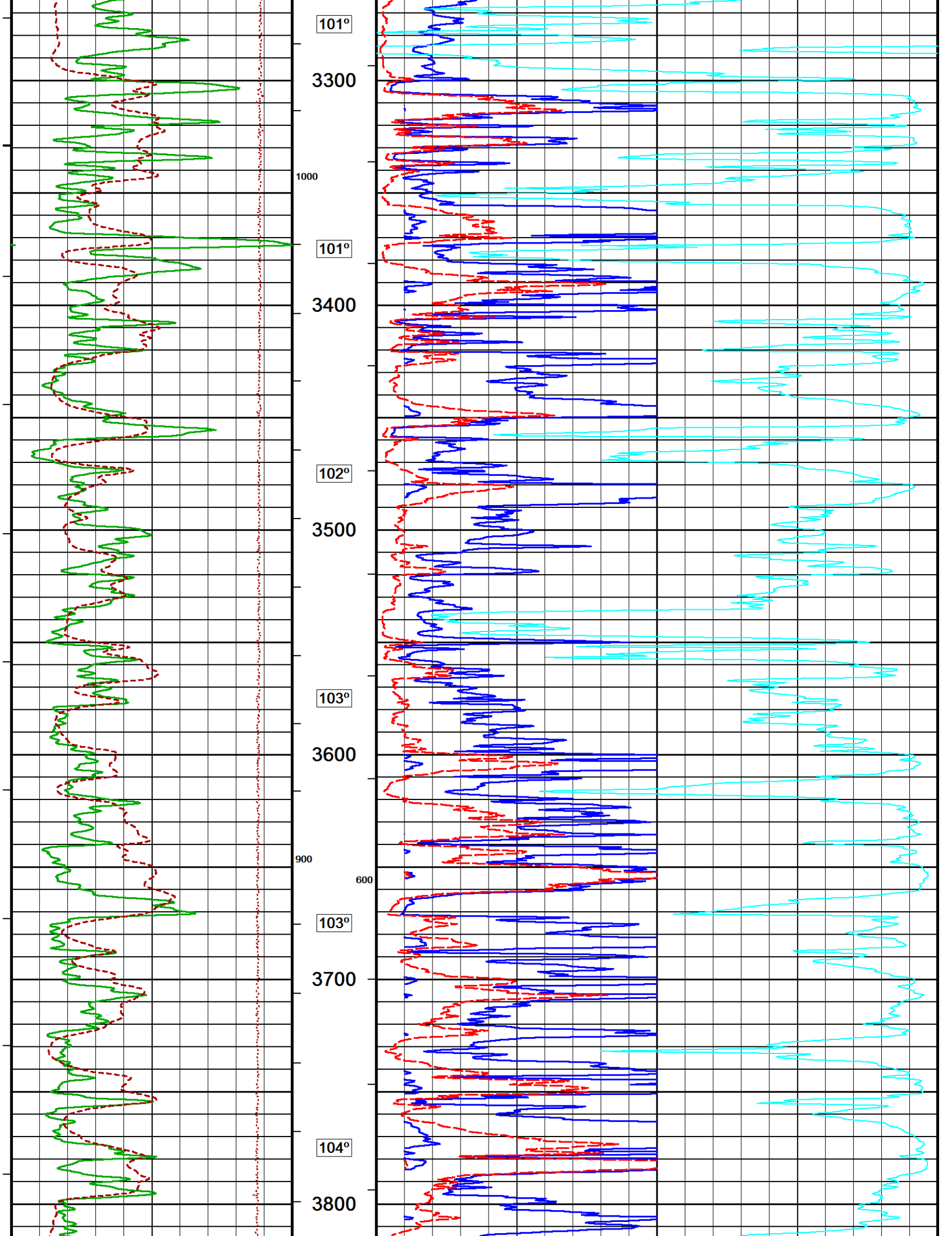
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

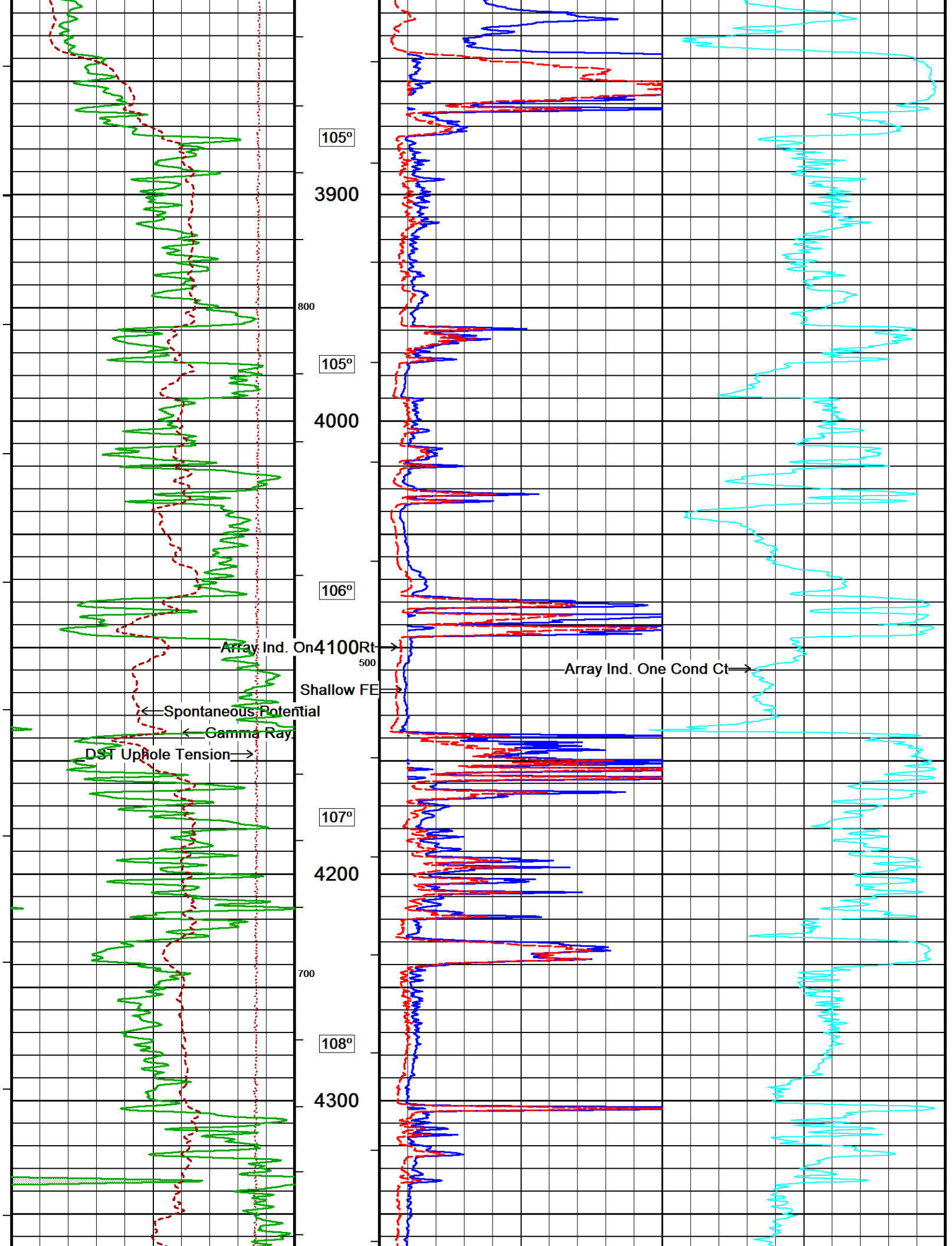


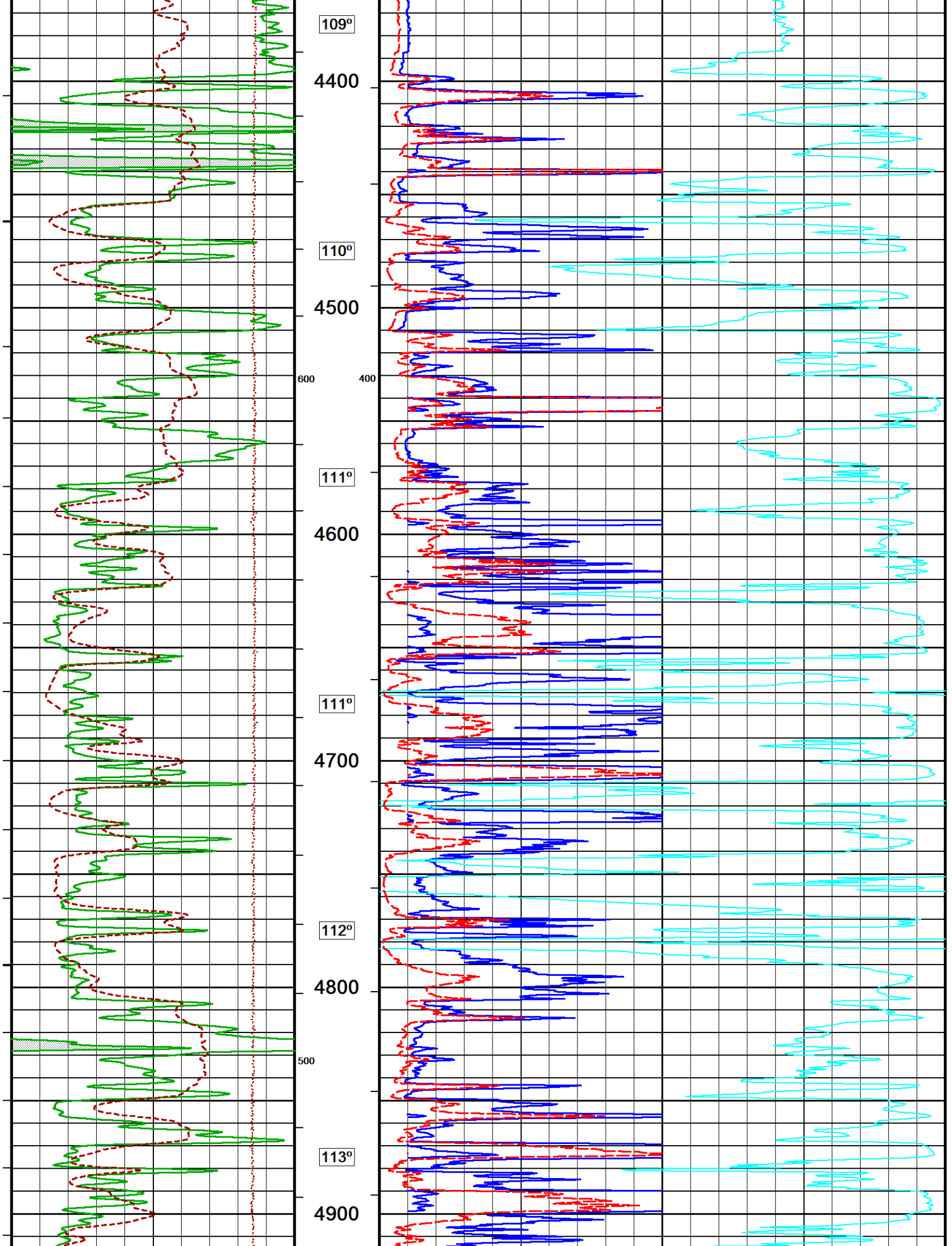


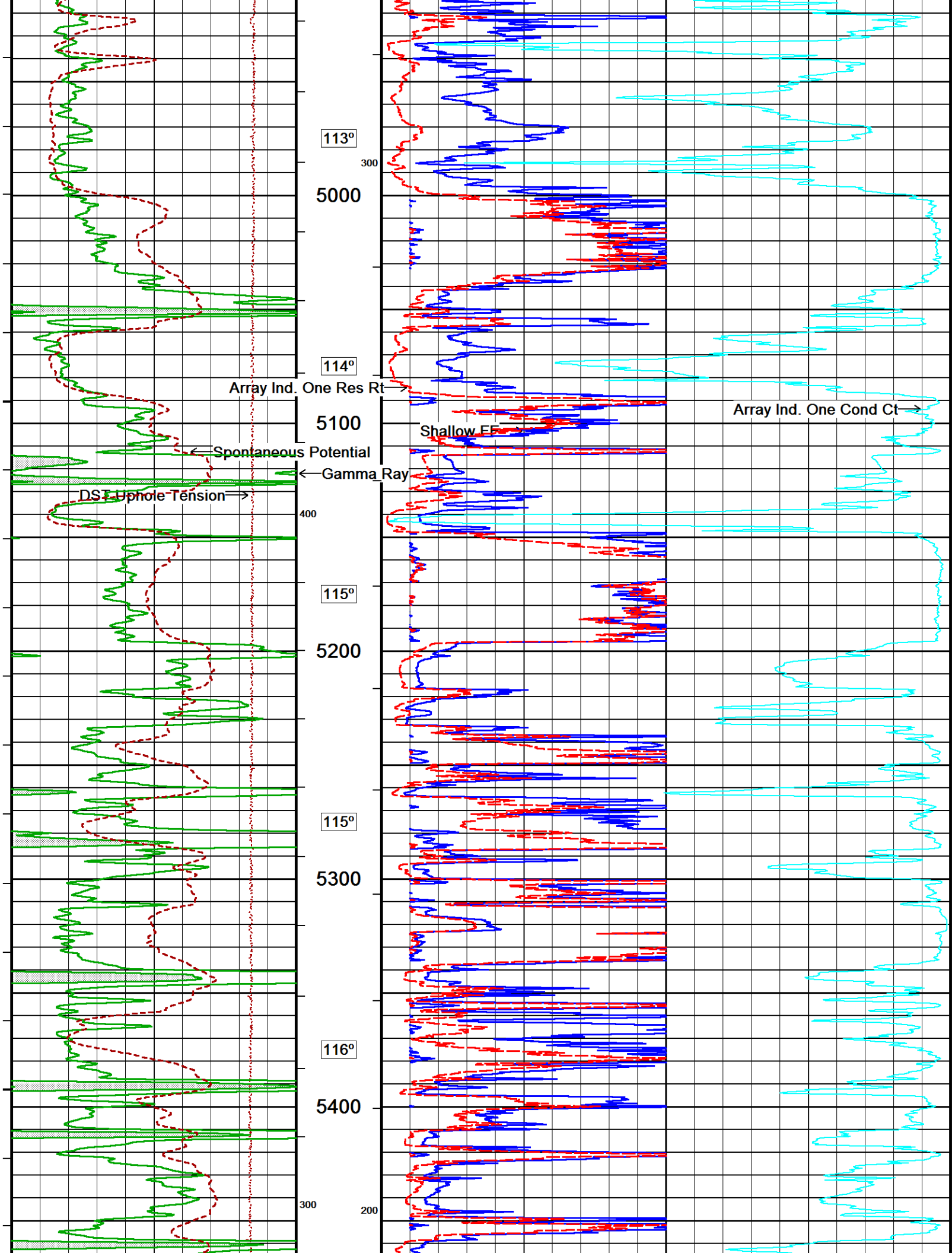


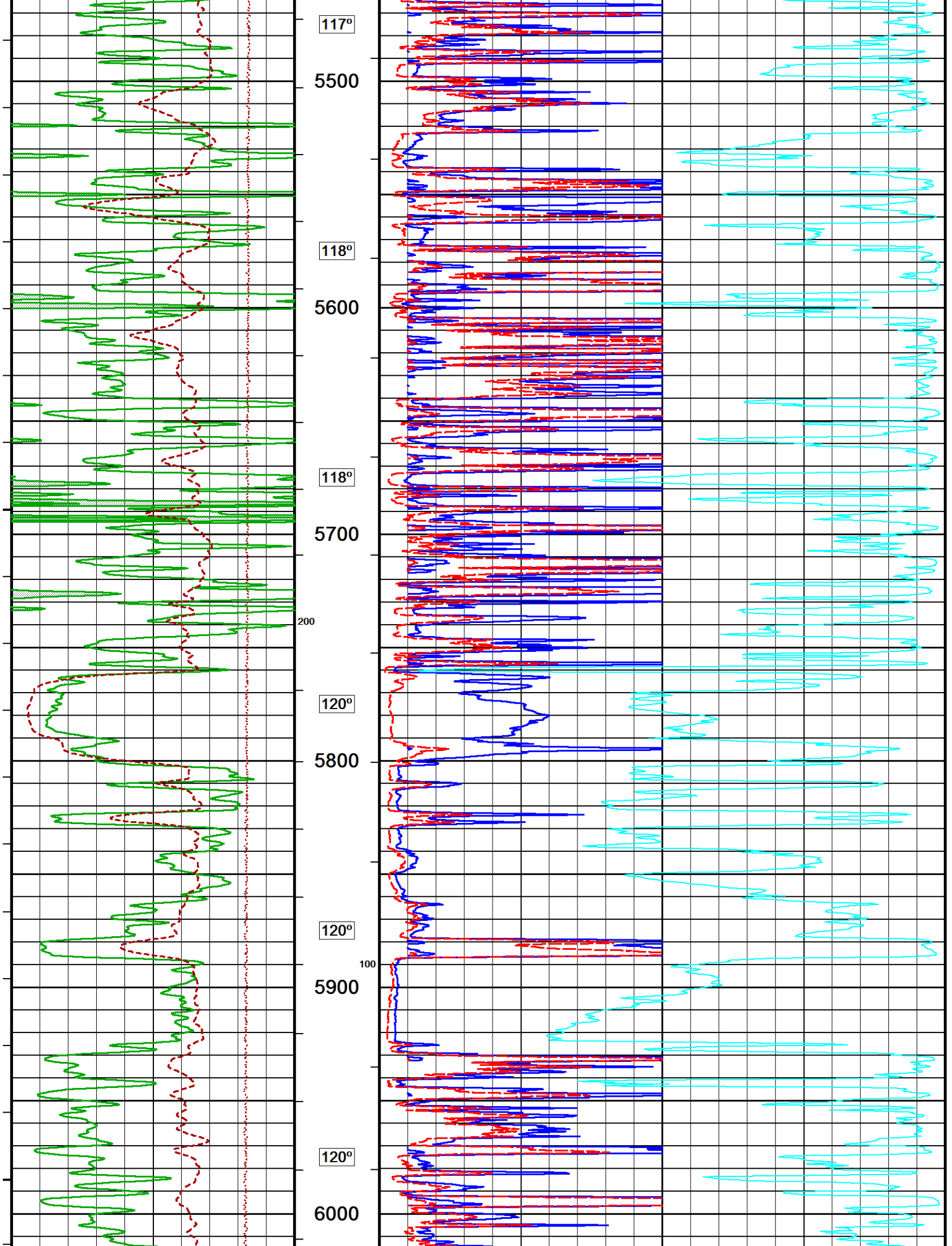


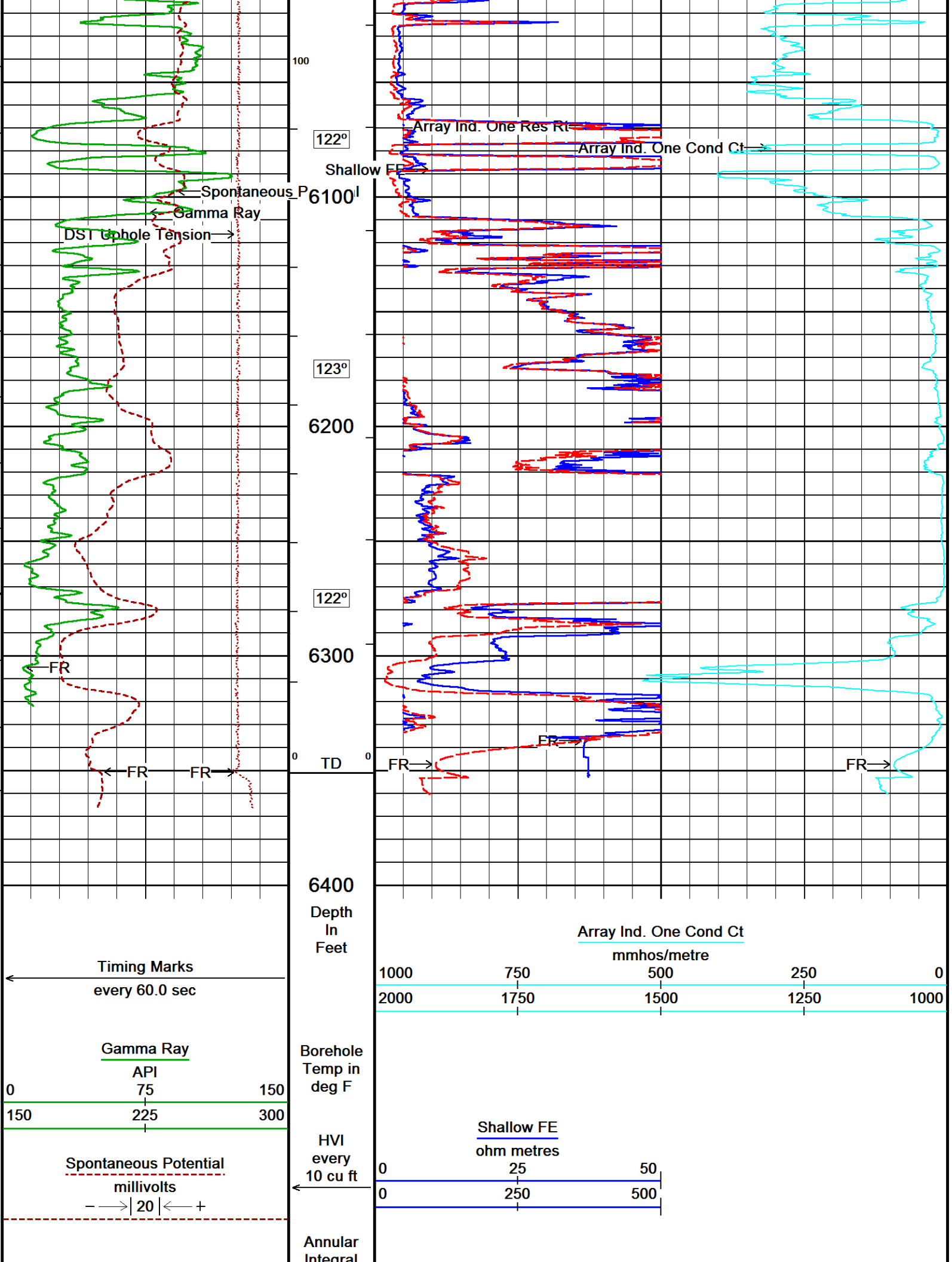


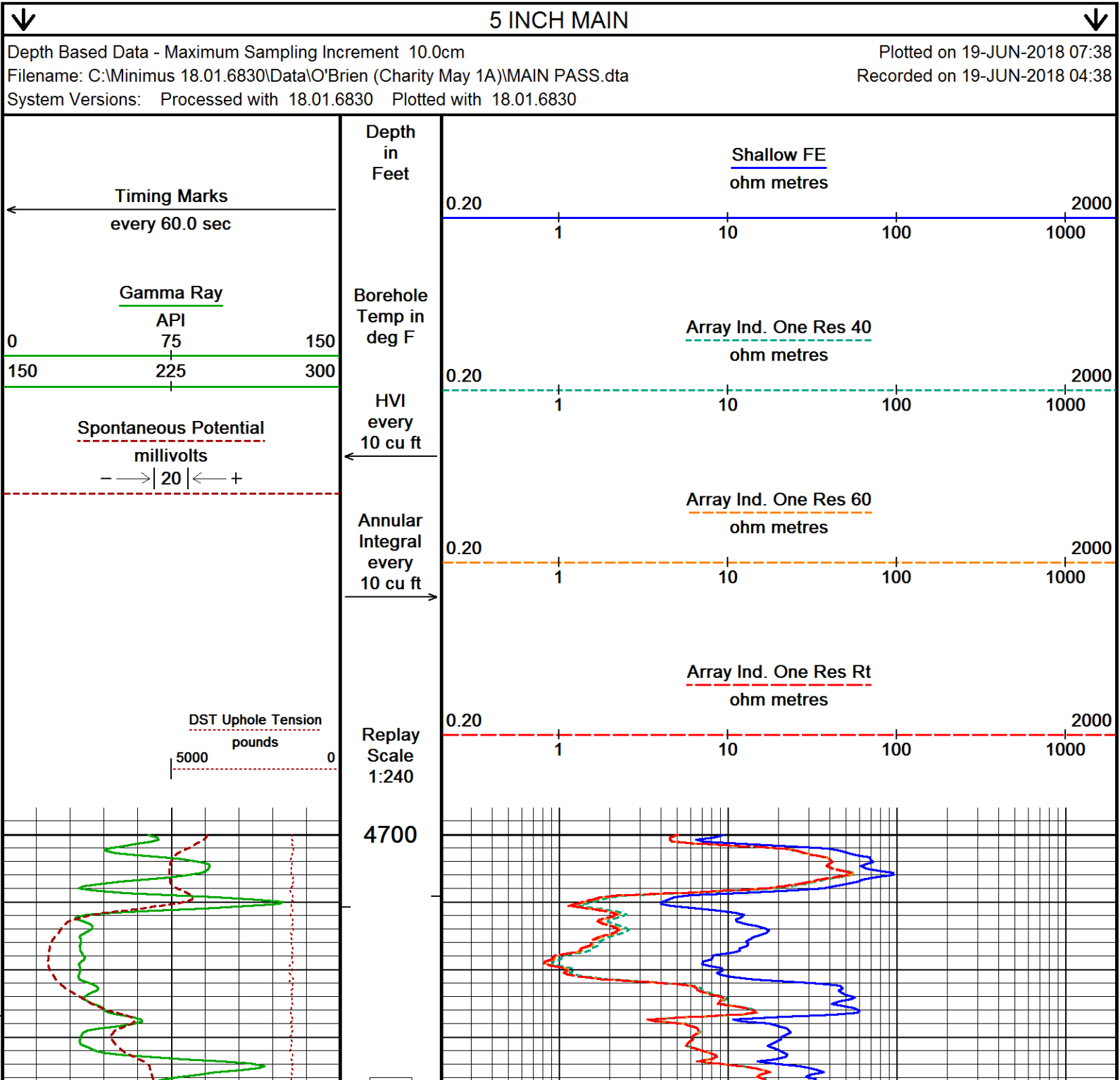
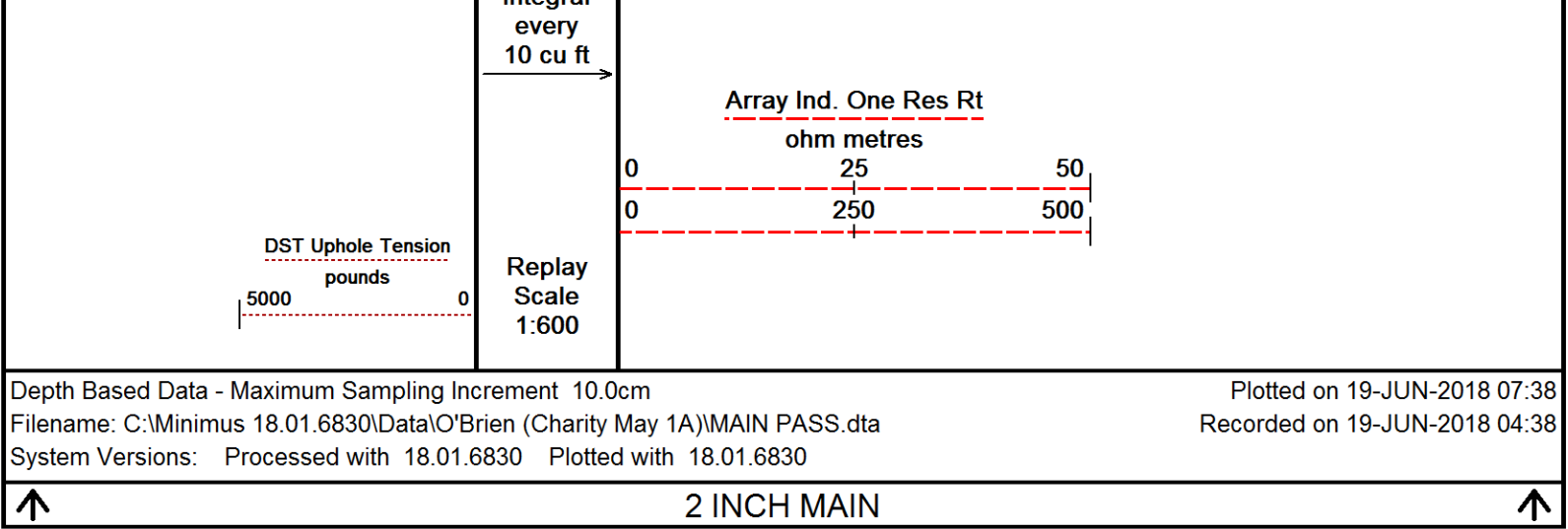


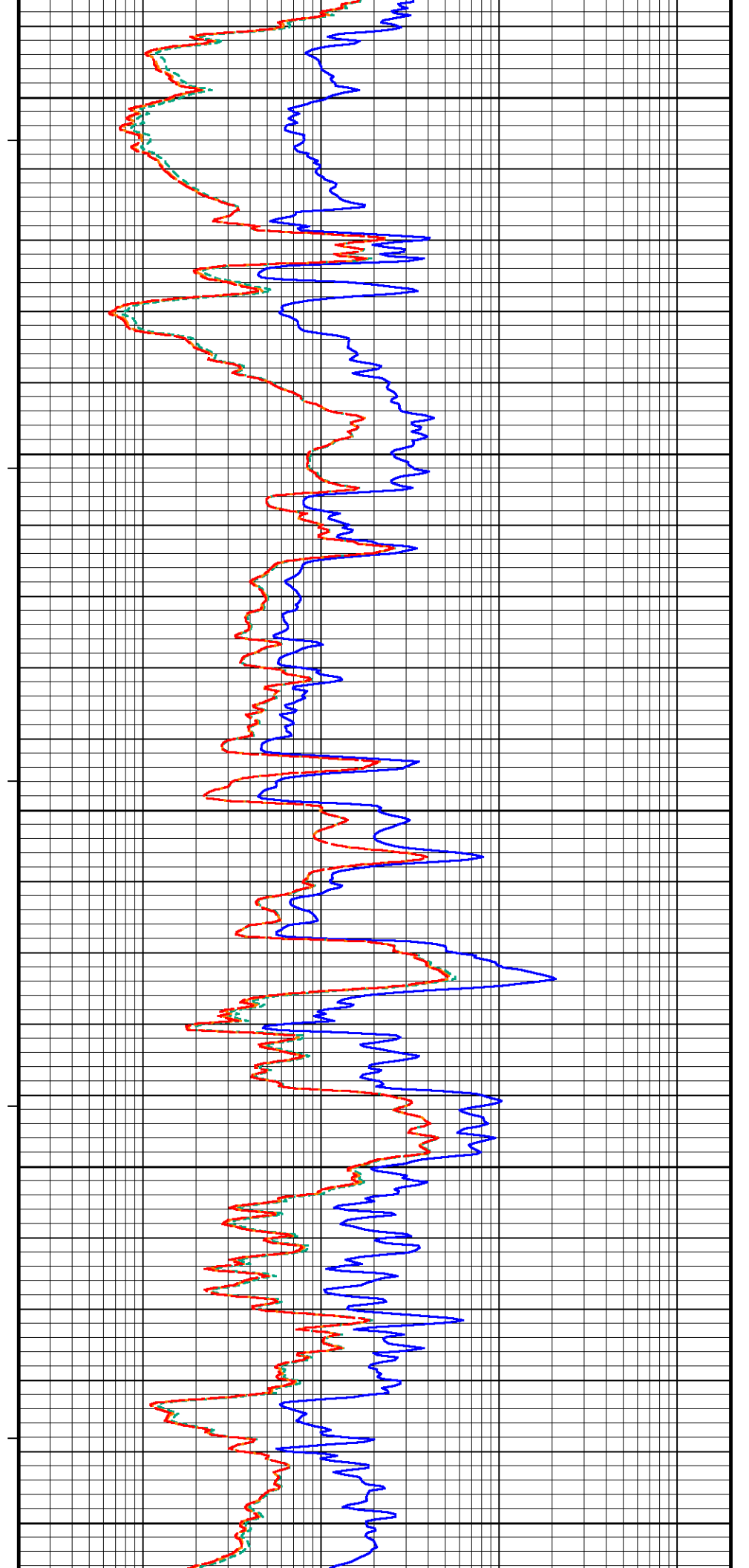
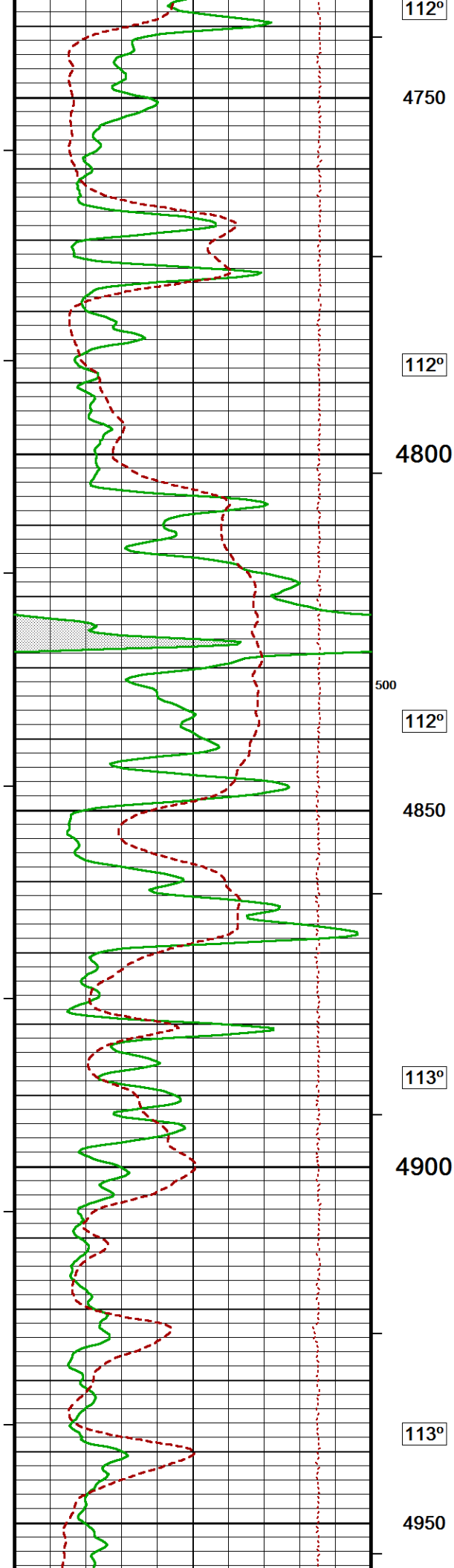


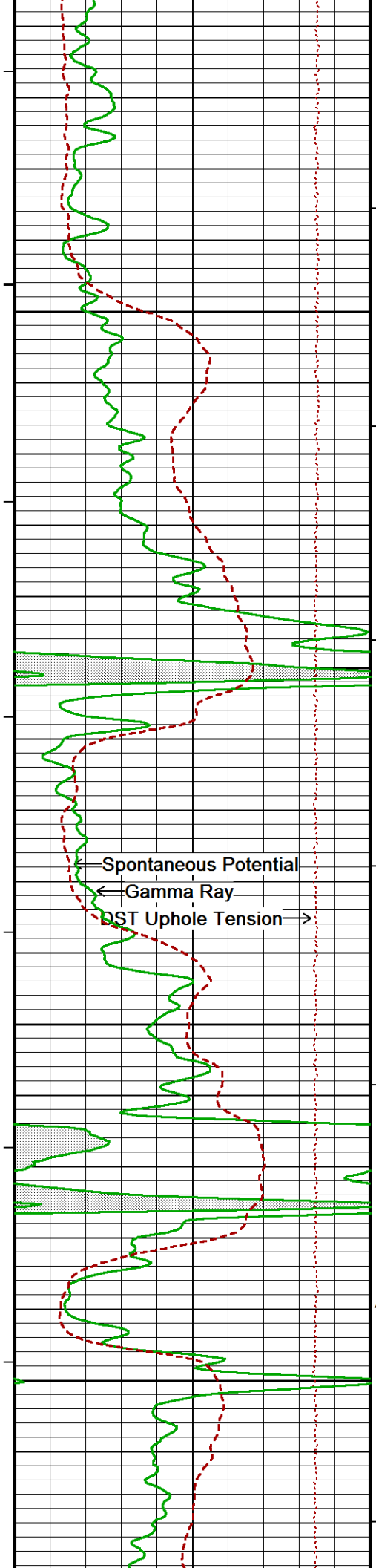




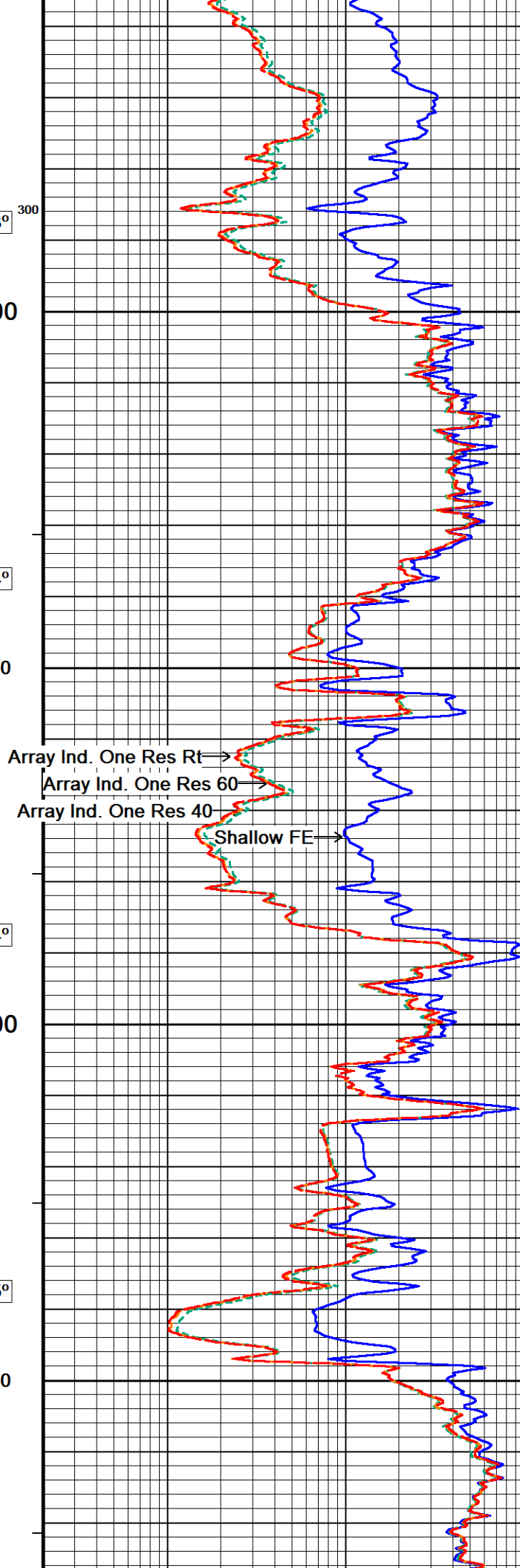


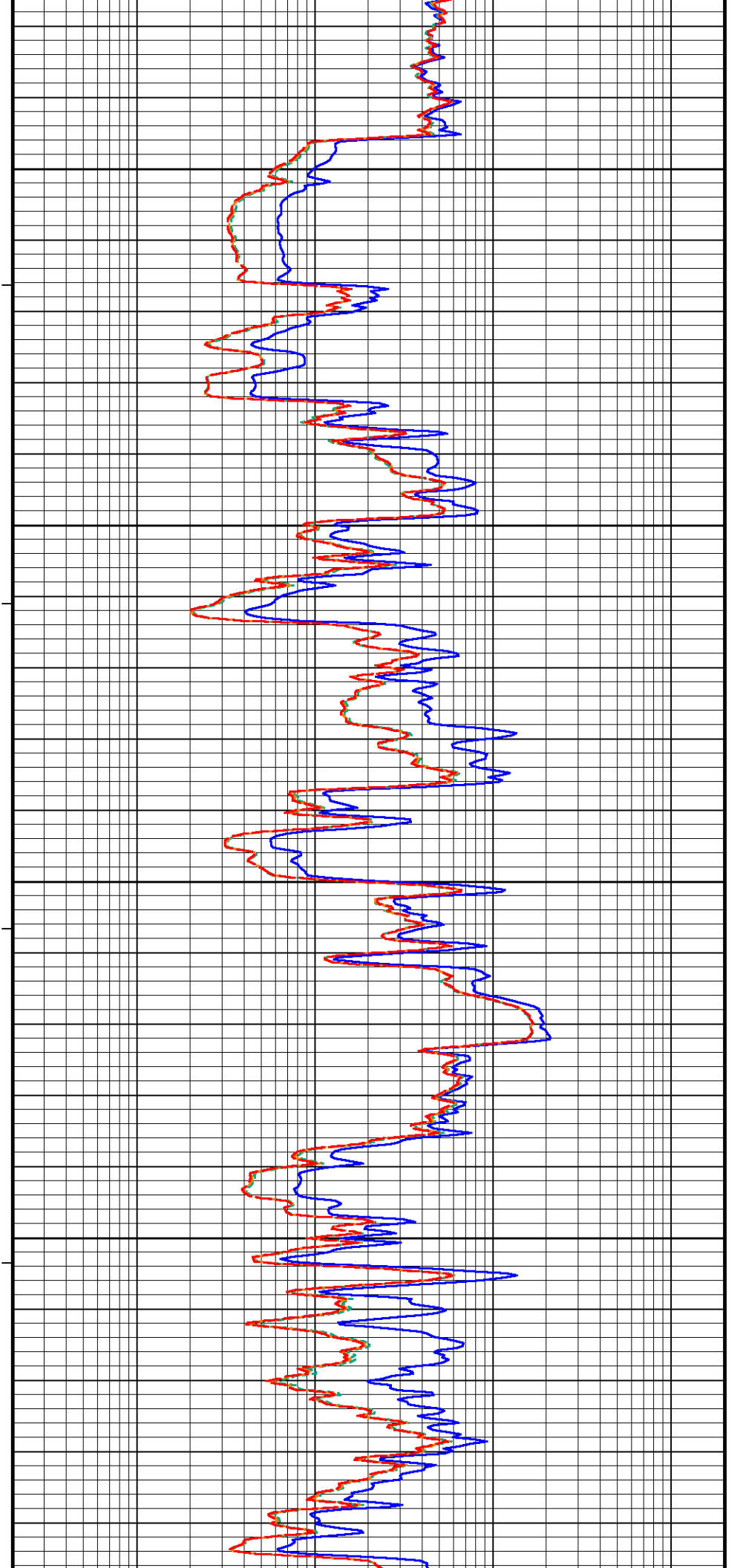
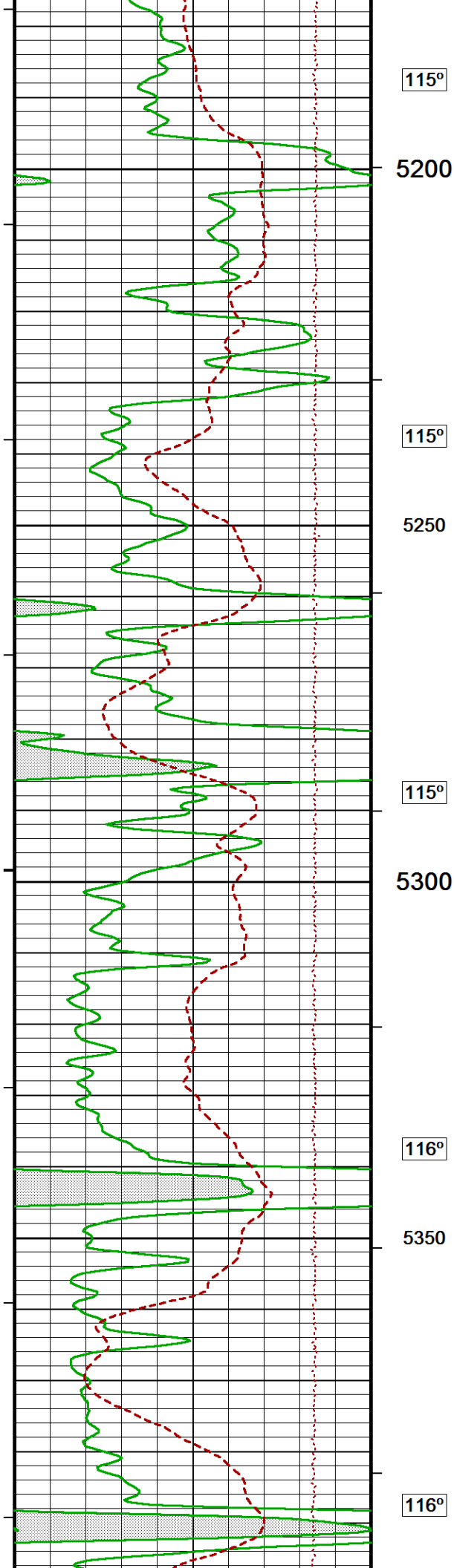


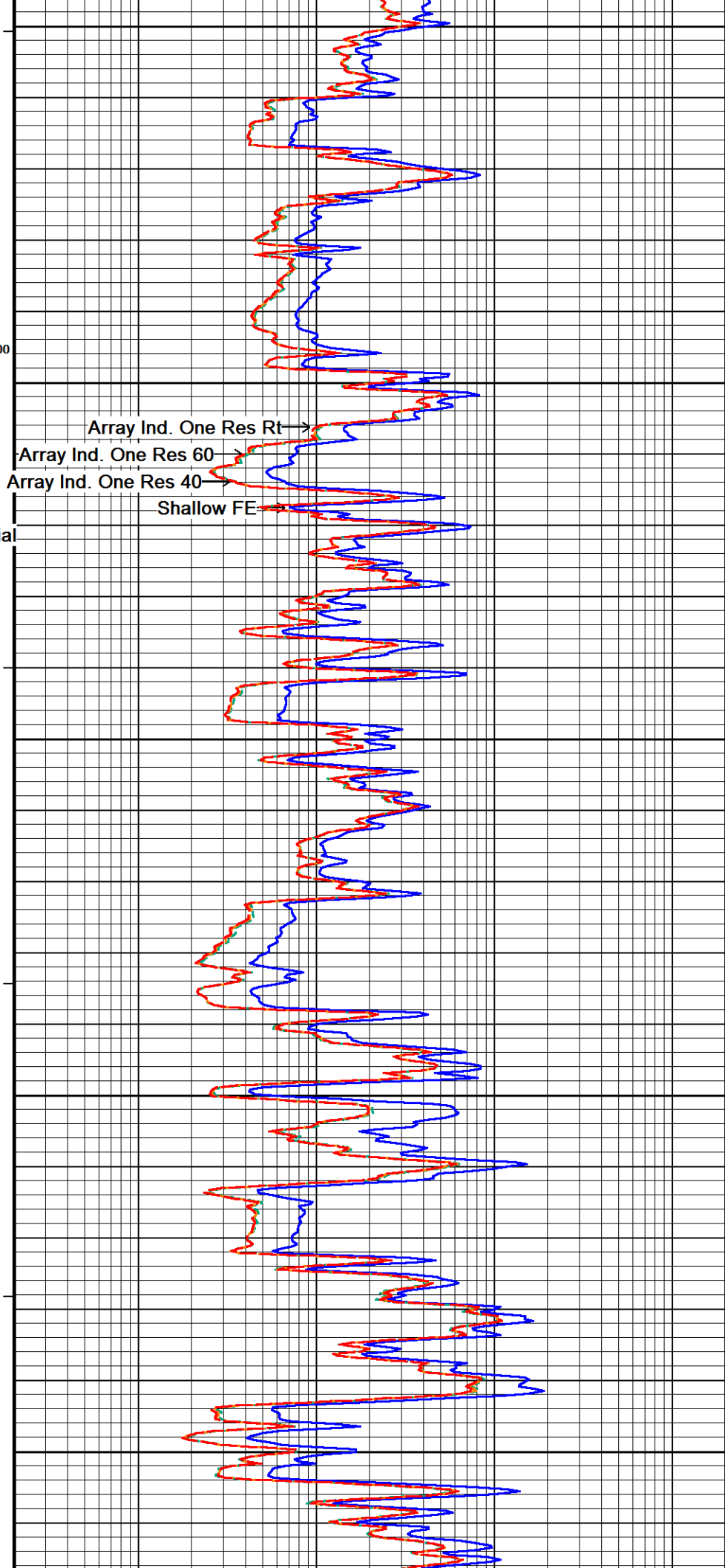
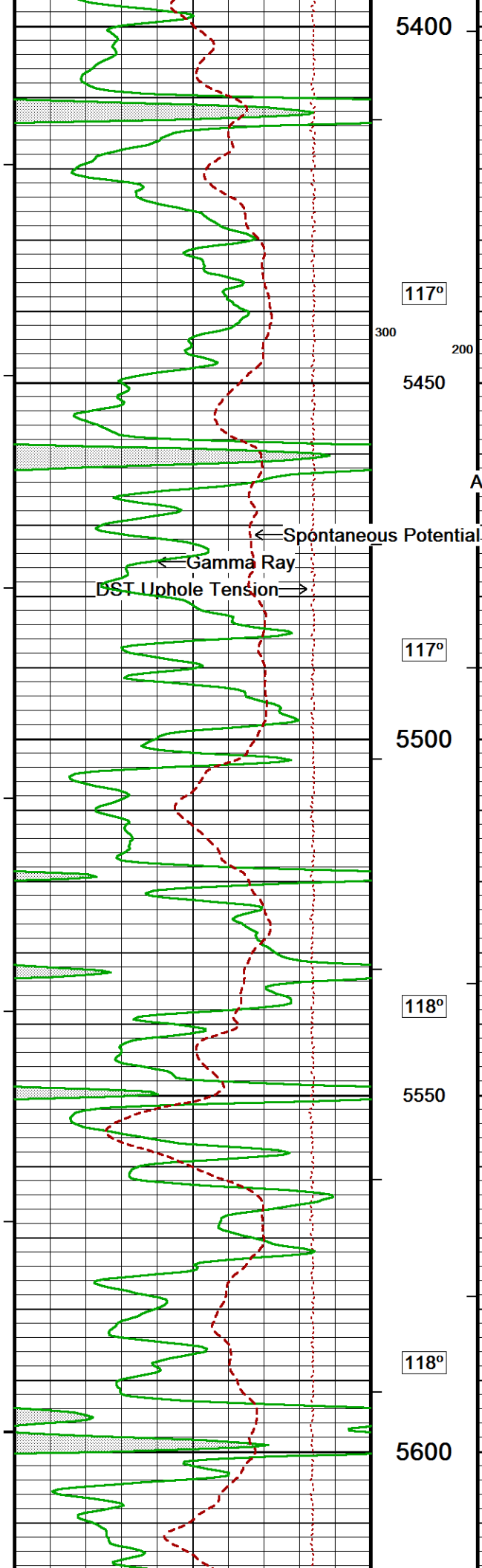


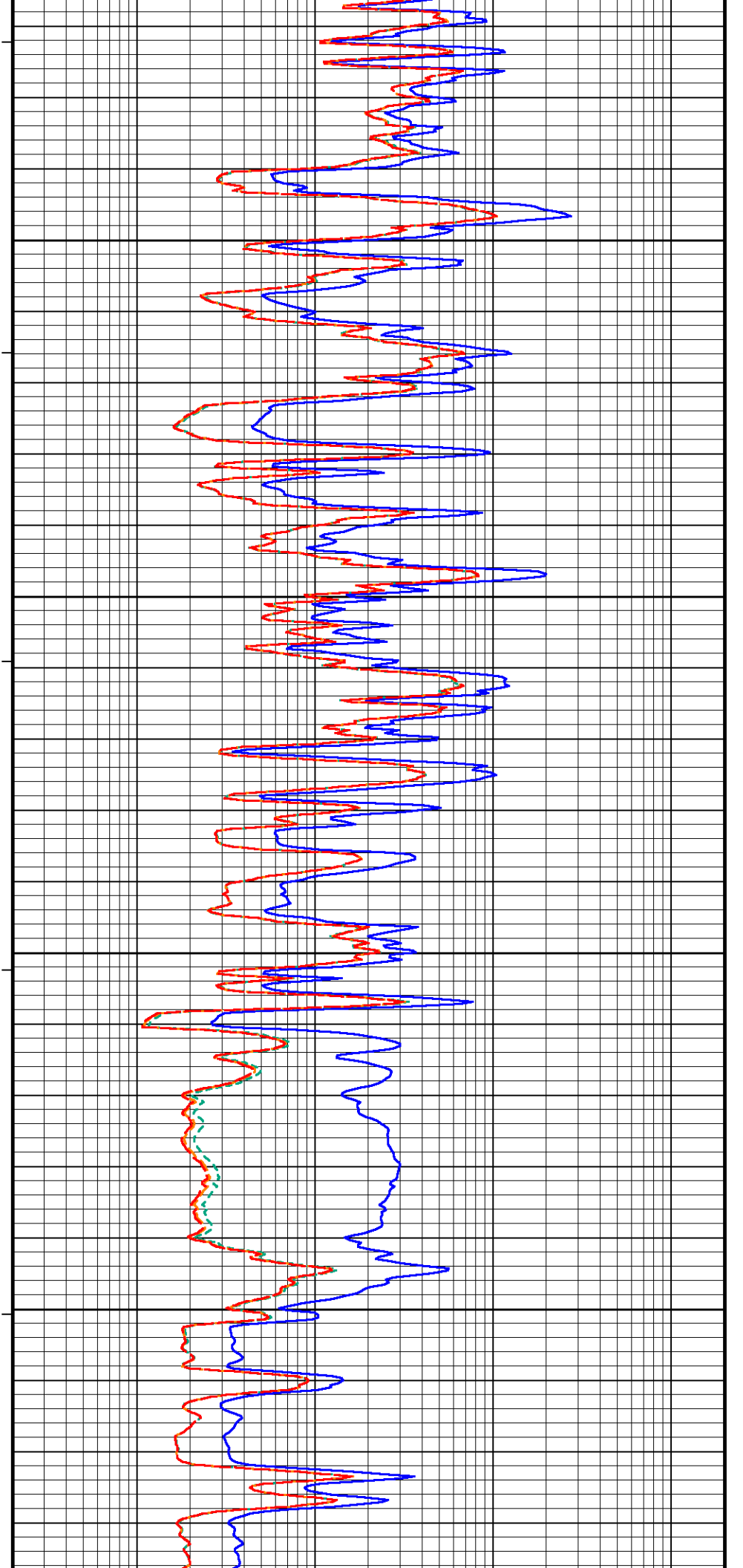
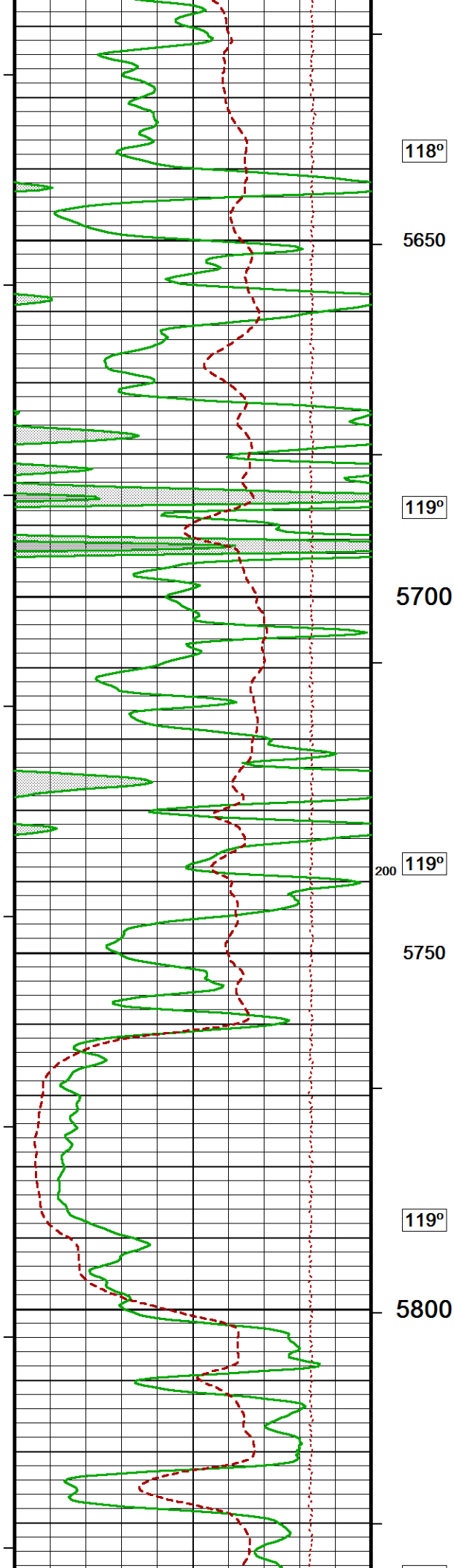


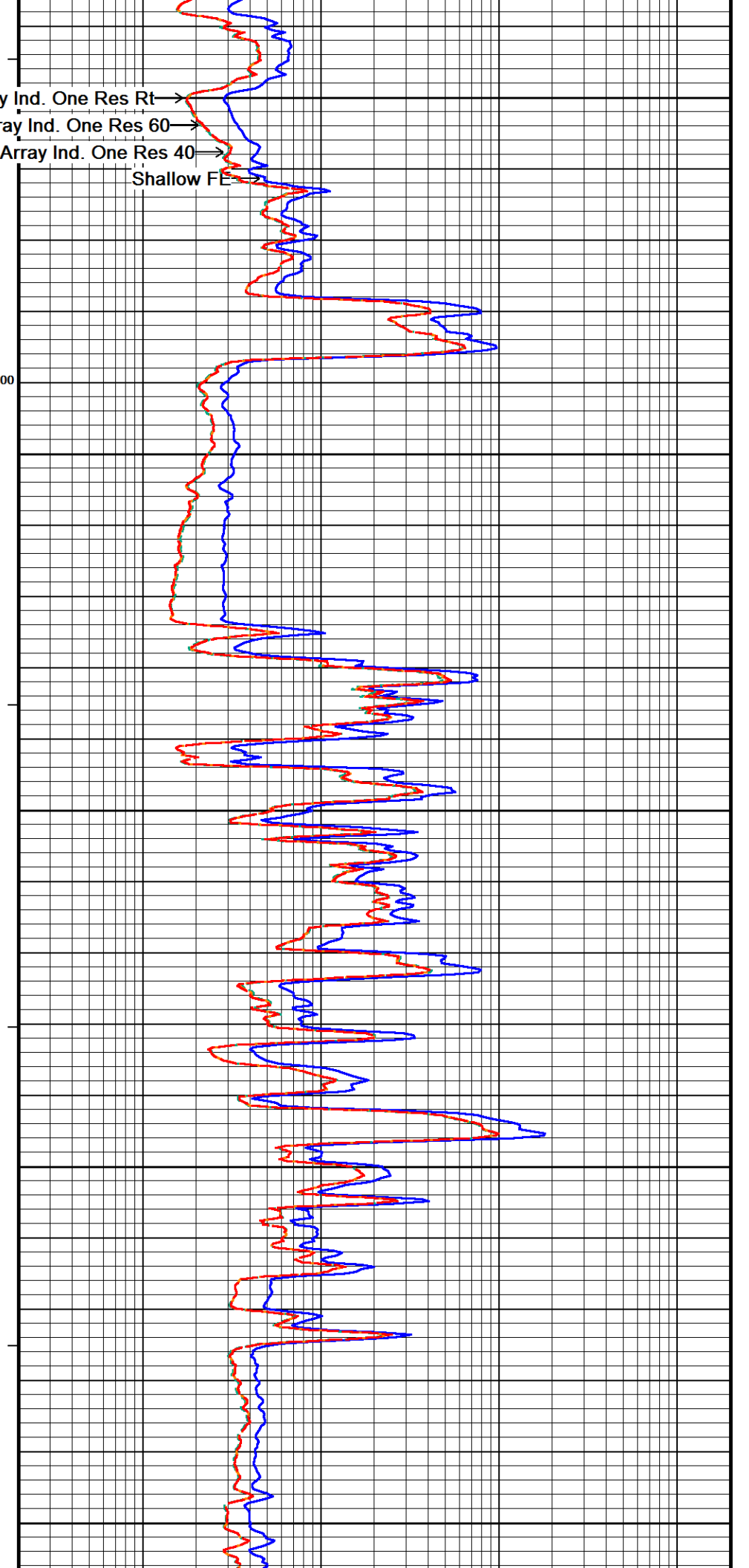
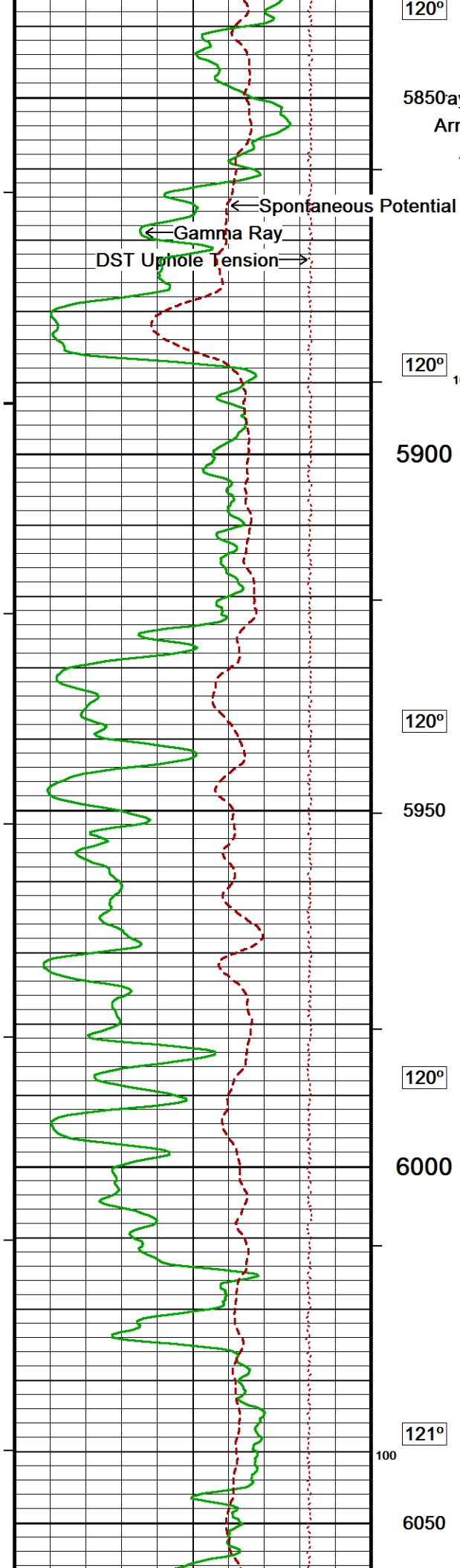
113° 300
5000
114°
5050
114°
5100
115° 400
5150

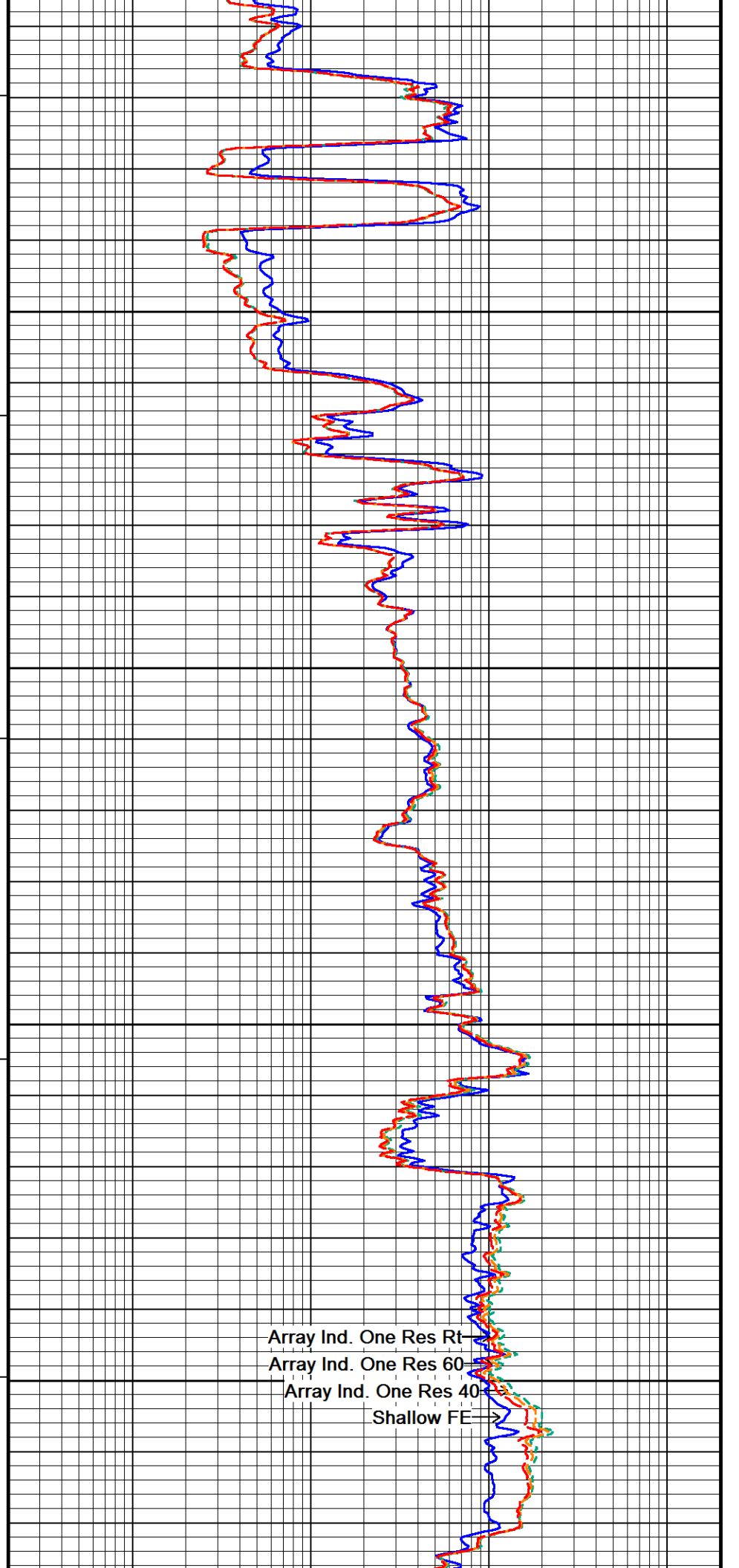
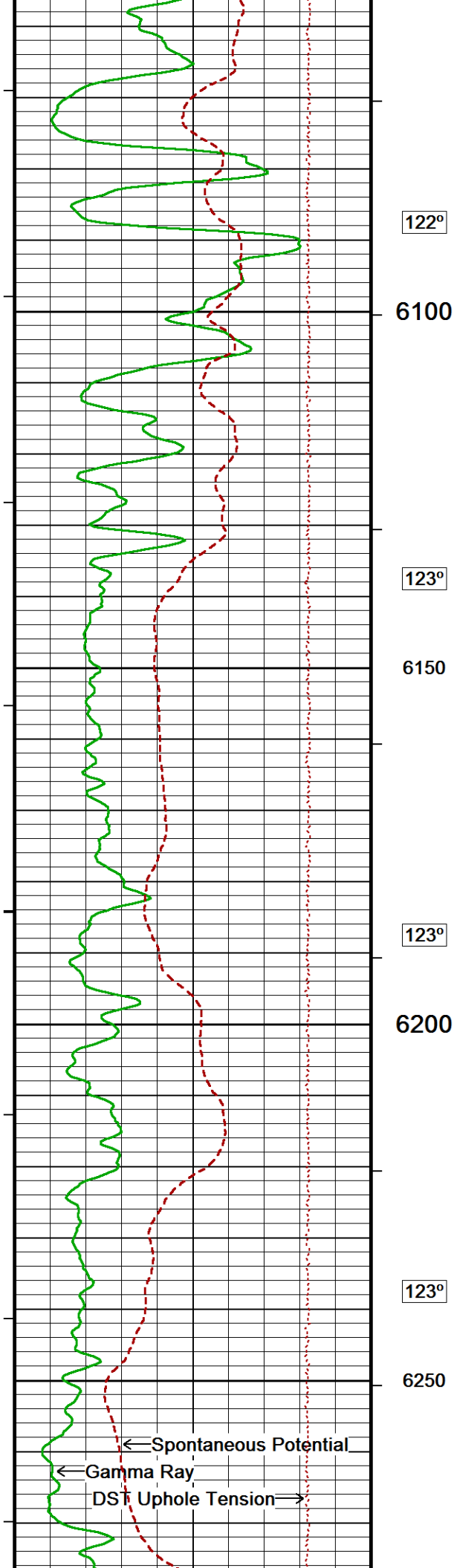


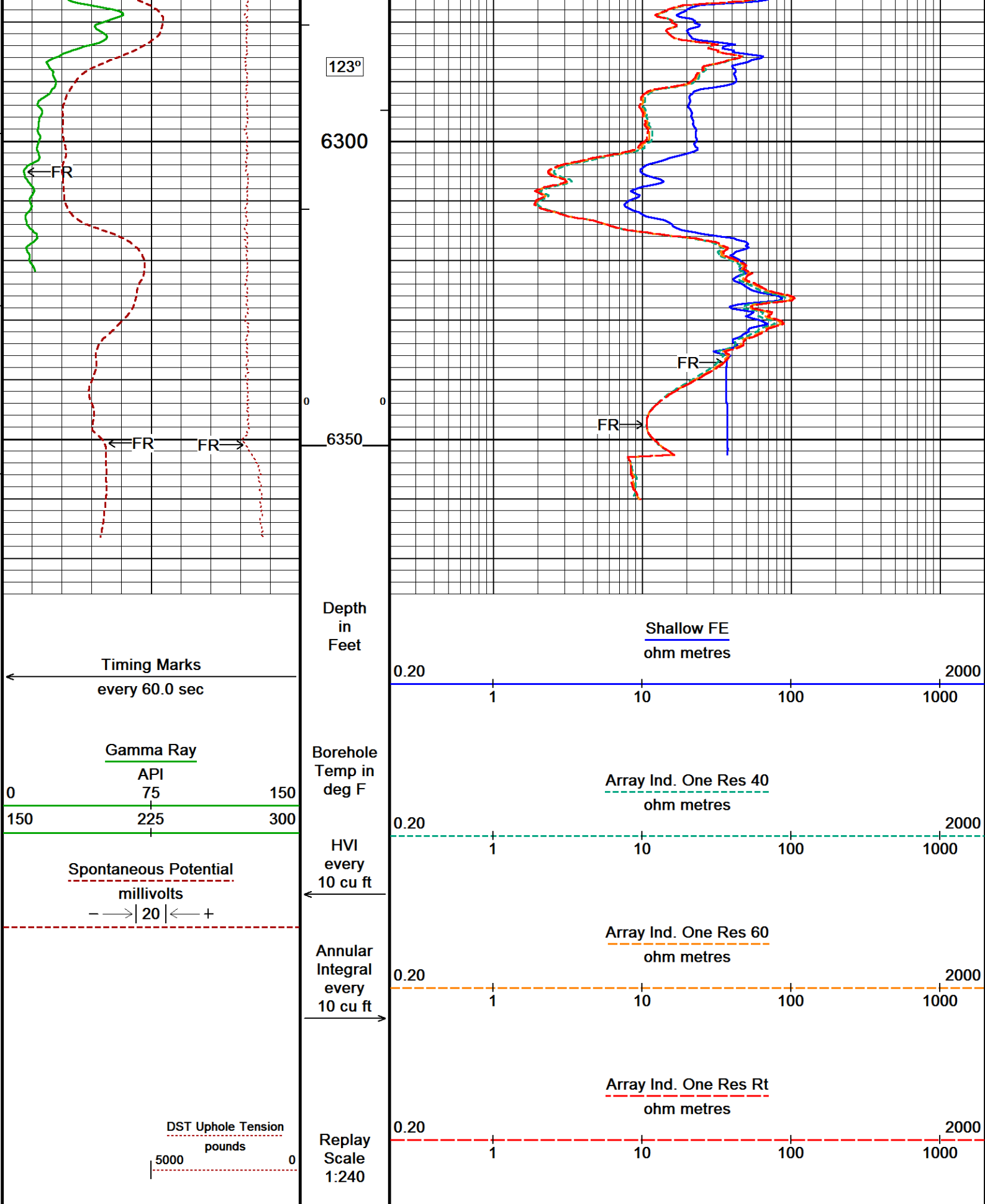


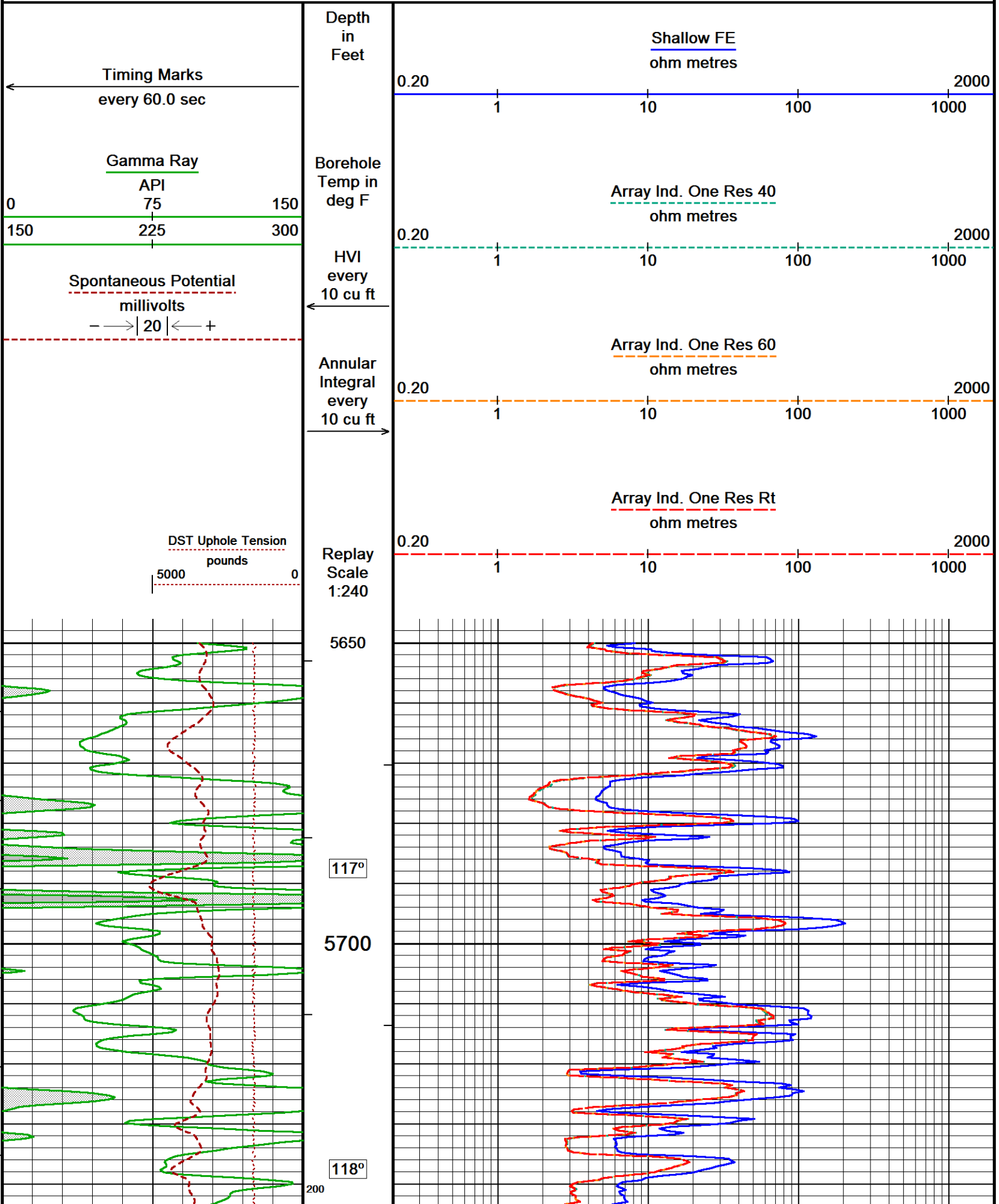


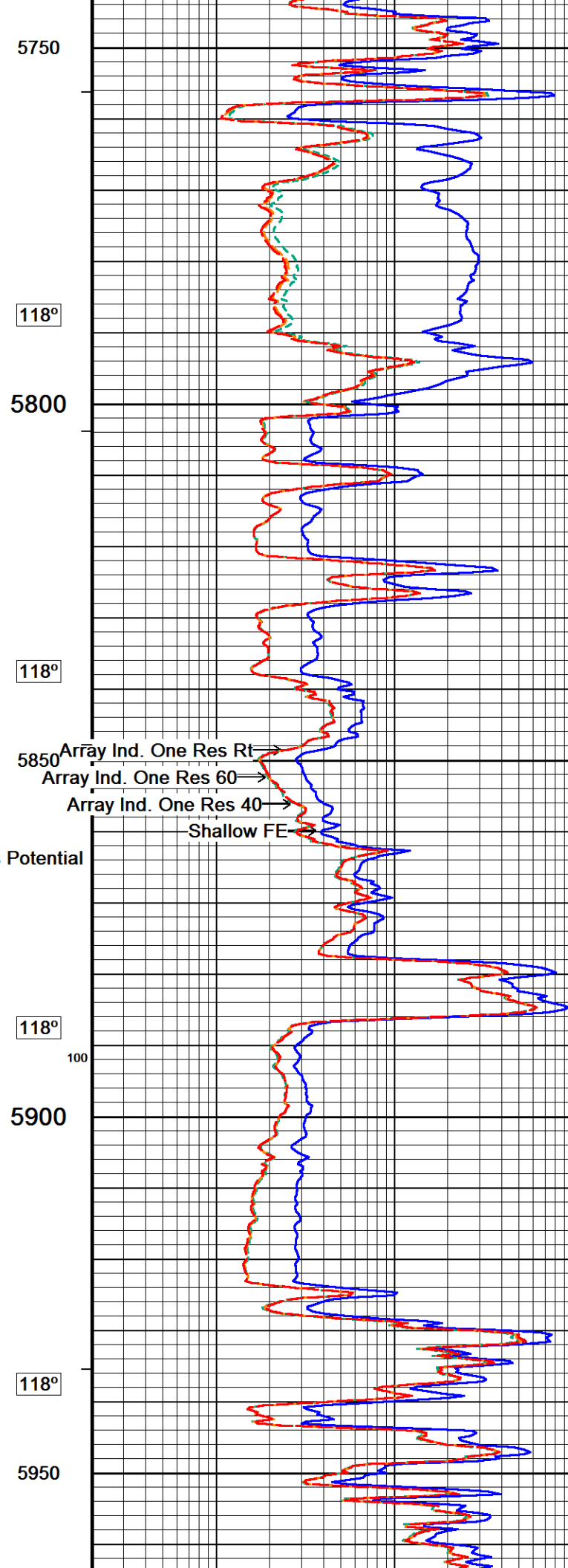
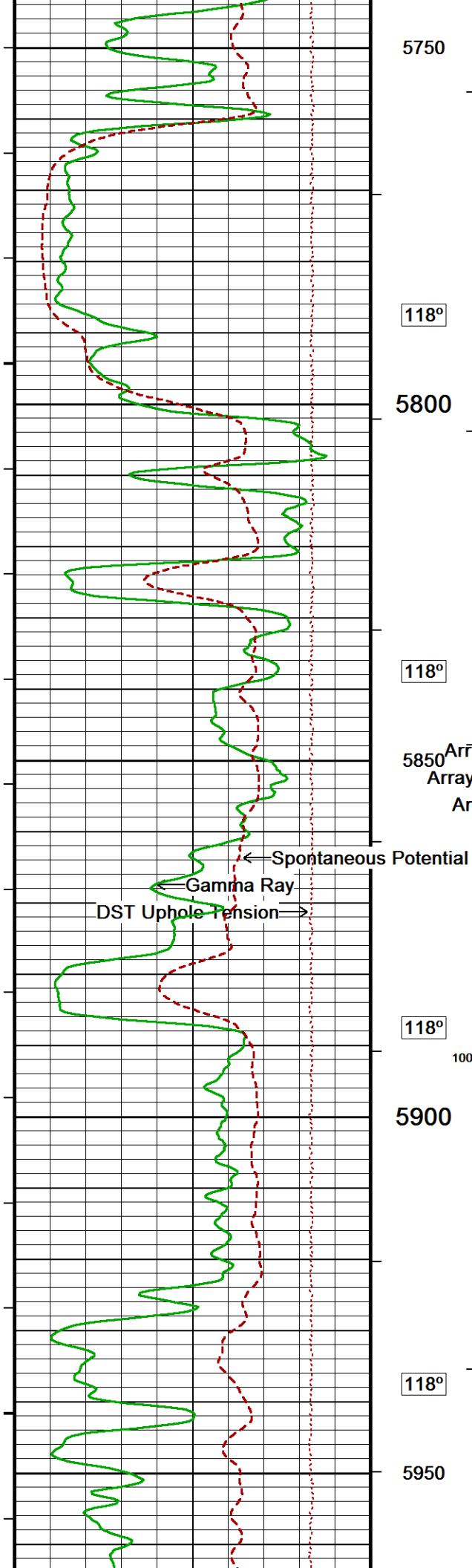


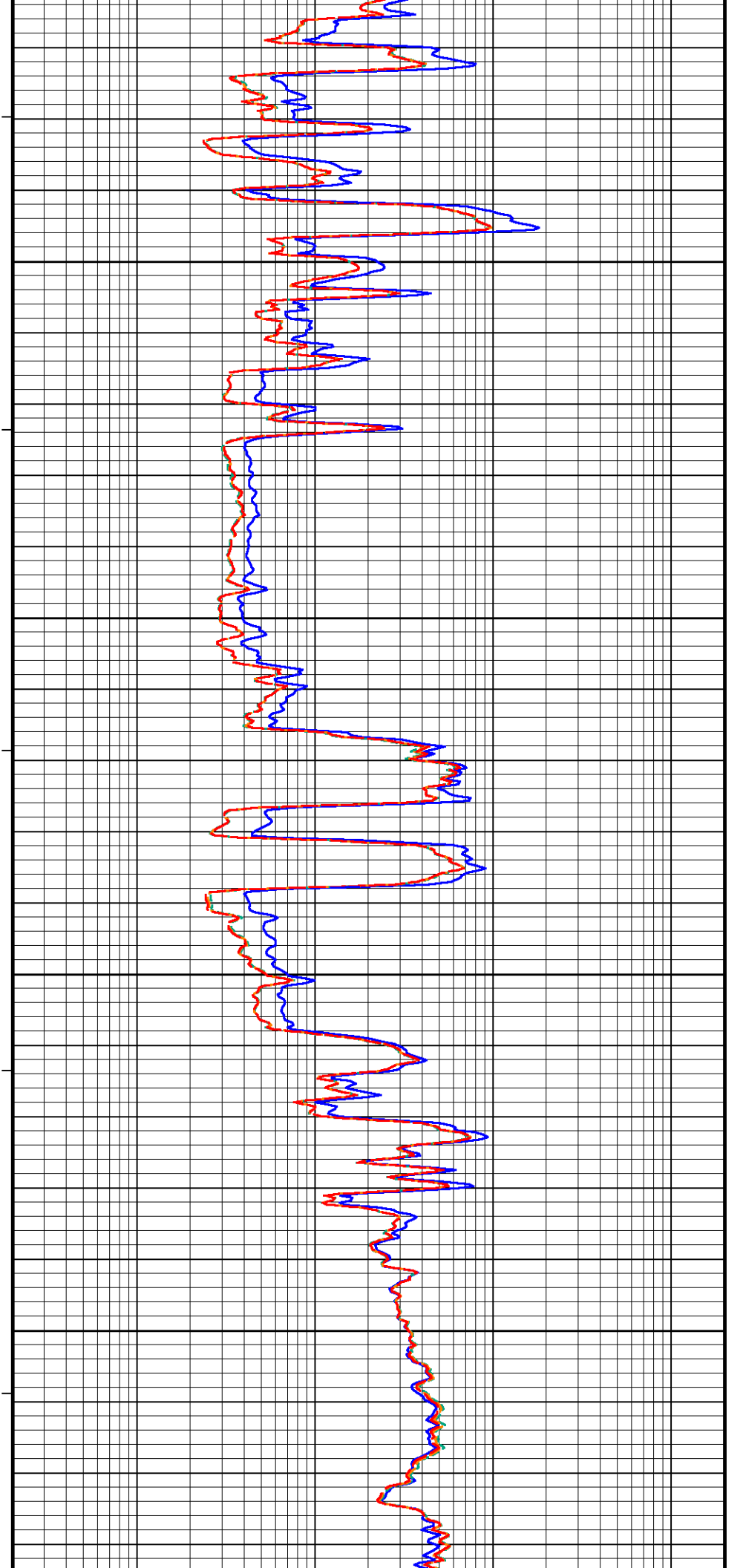
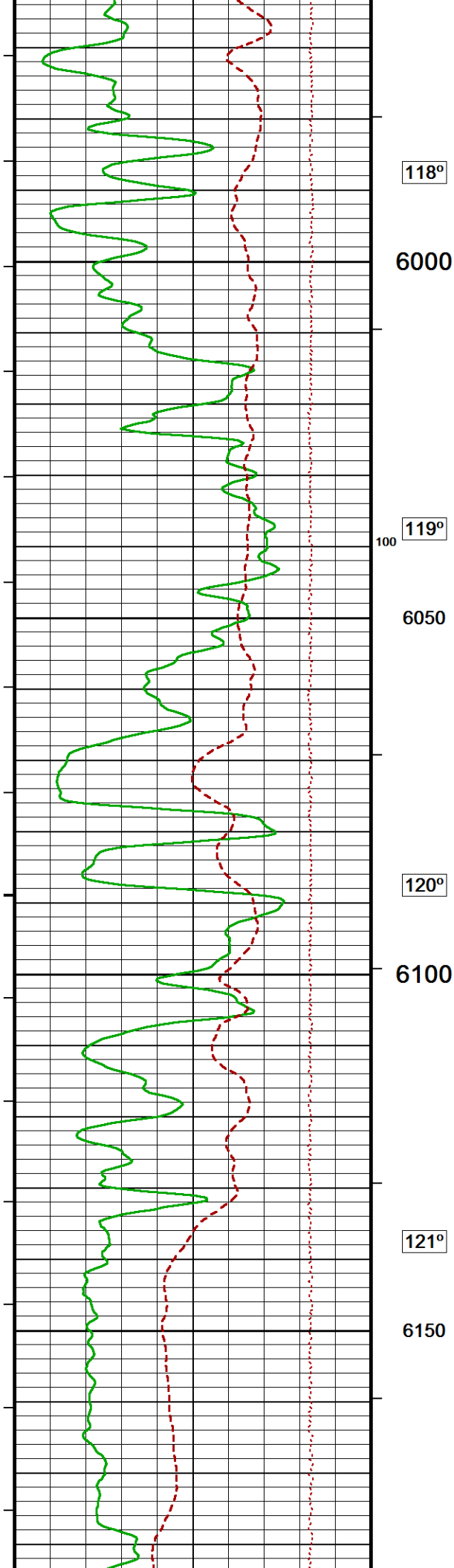


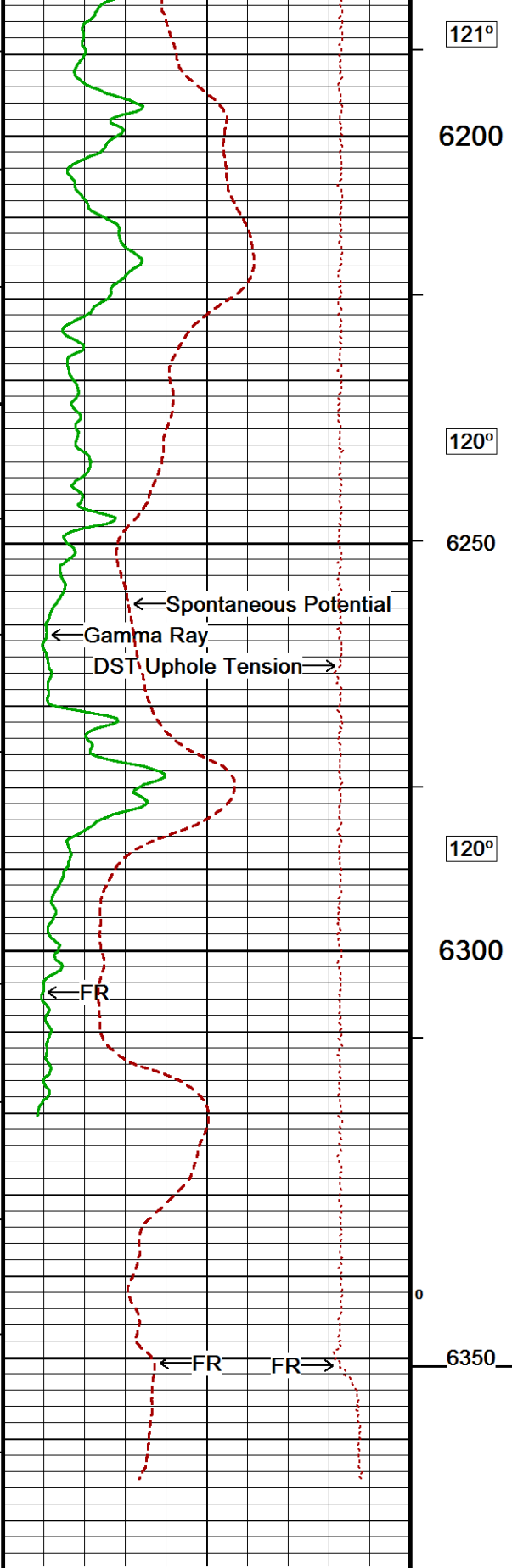










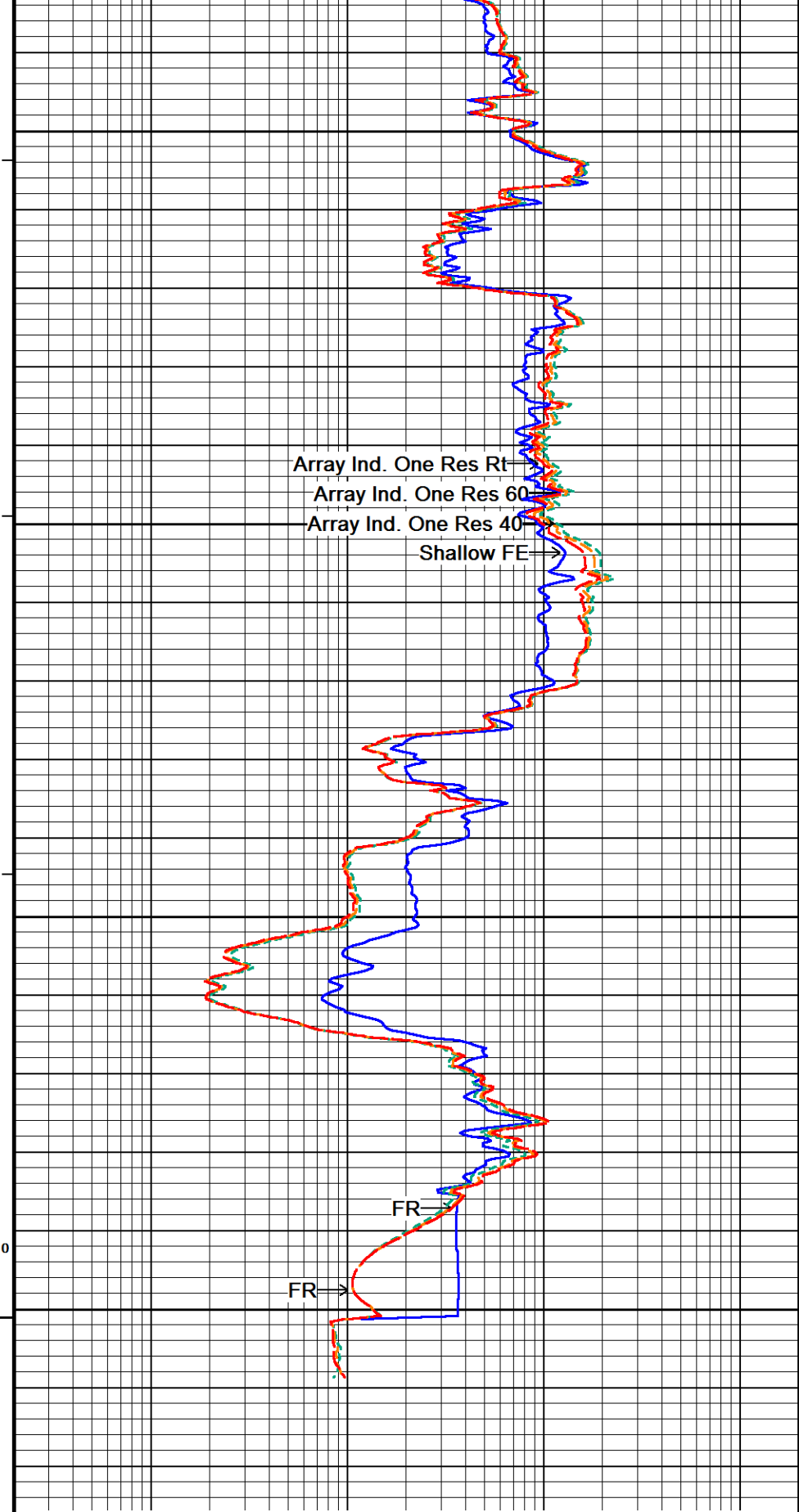


Timing Marks
every 60.0 sec

Gamma Ray

Depth
in
Feet

Borehole



Shallow FE
ohm metres

0.20

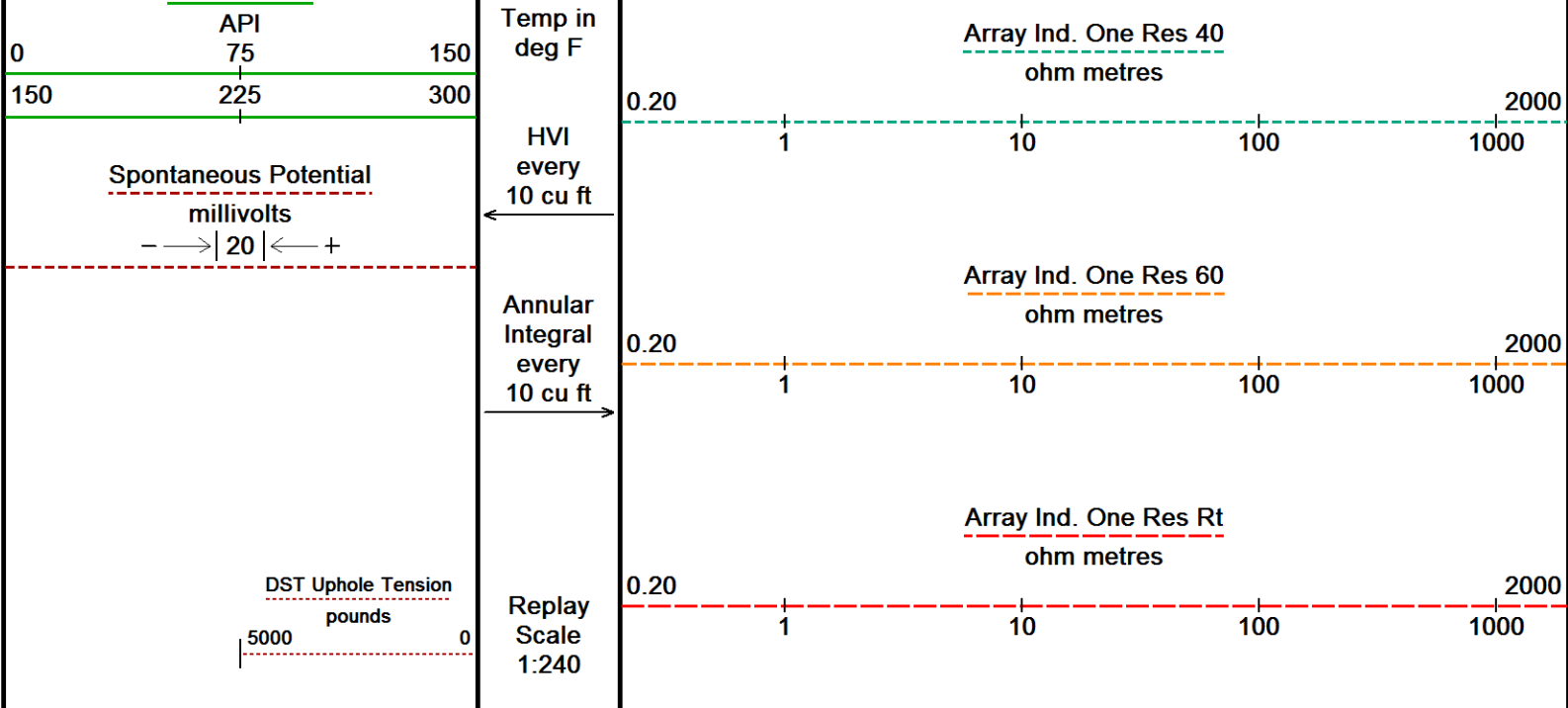
1

10

100

1000

2000



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 19-JUN-2018 07:38

Filename: C:\Minimus 18.01.6830\Data\O'Brien (Charity May 1A)\REPEAT PASS.dta

Recorded on 19-JUN-2018 03:37

System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

↑

REPEAT SECTION

↑

↓

10 INCH HIGH RESOLUTION

↓

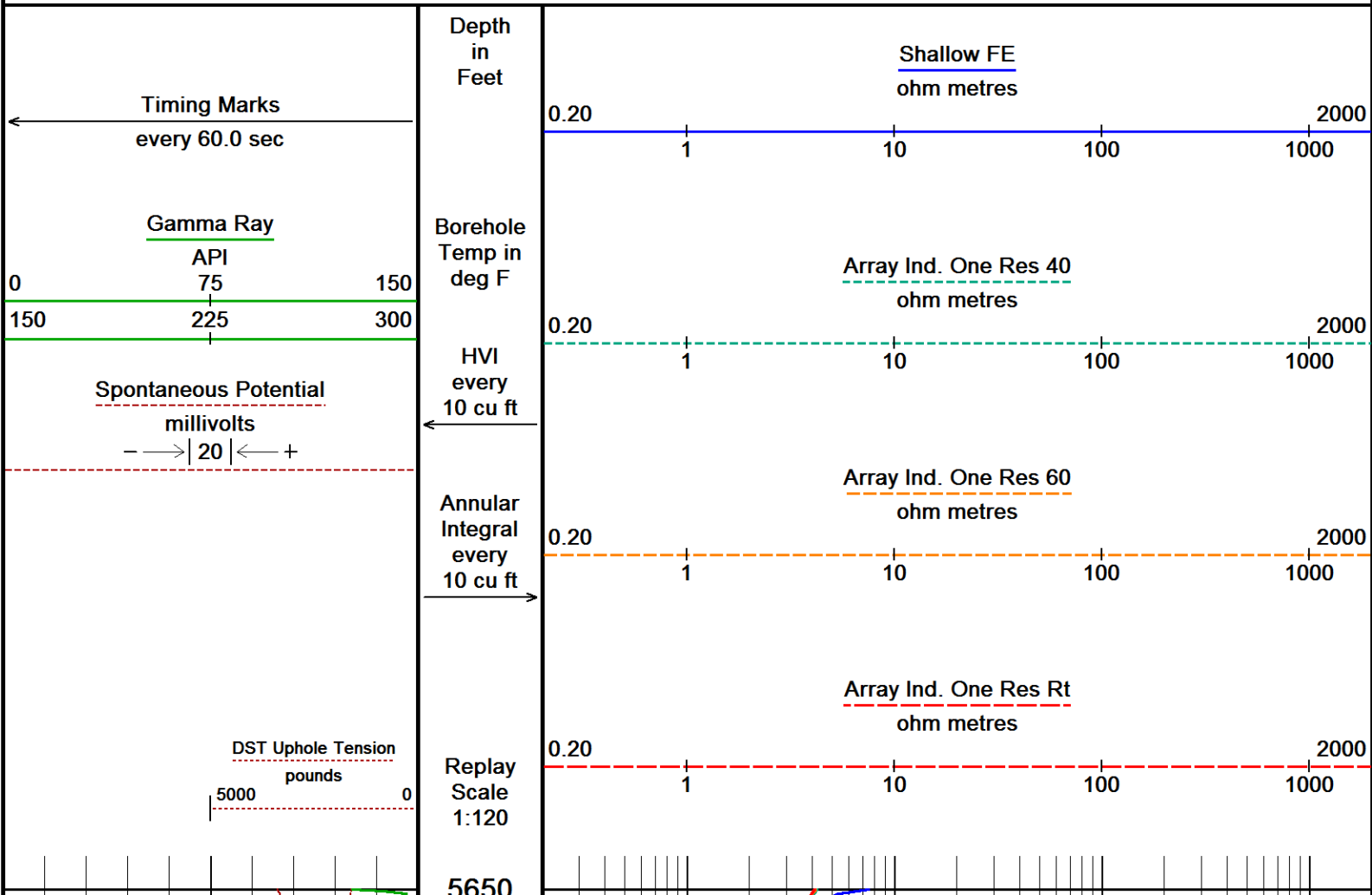
Depth Based Data - Maximum Sampling Increment 2.5cm

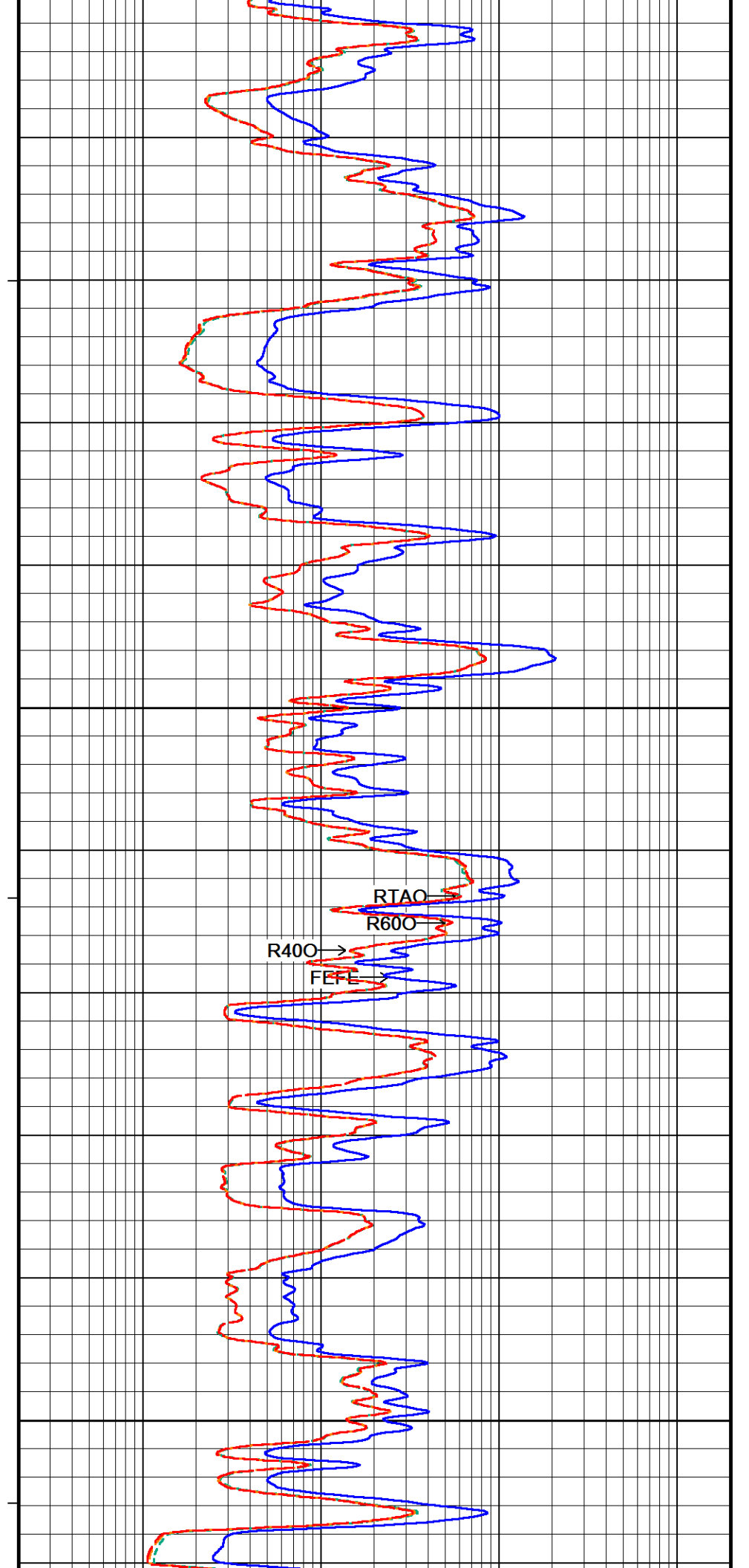
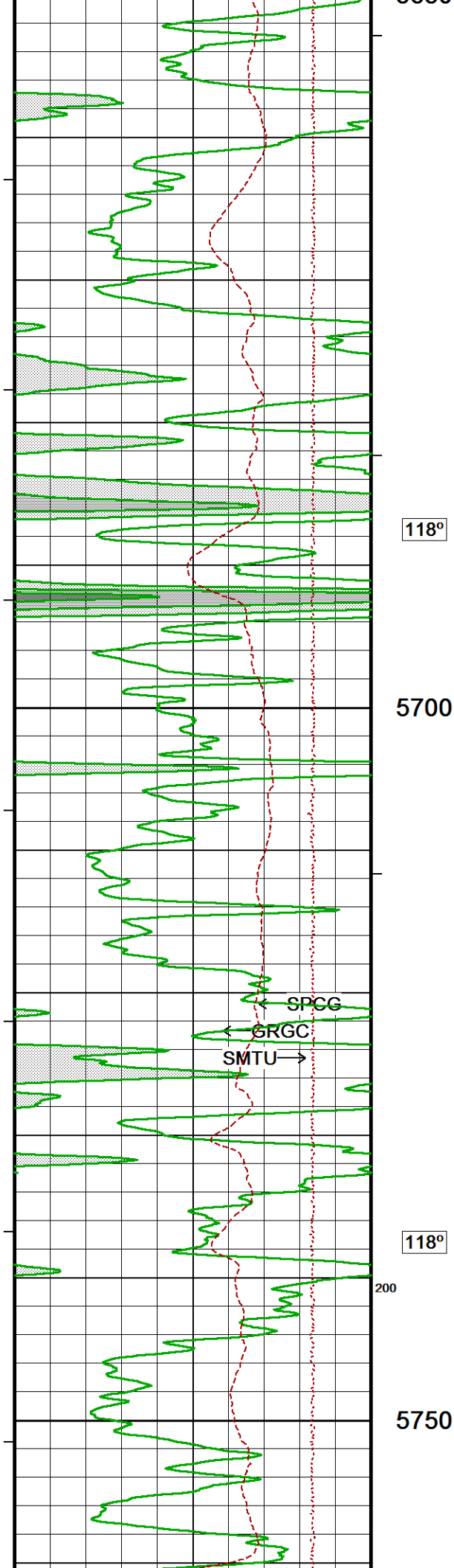
Plotted on 19-JUN-2018 07:38

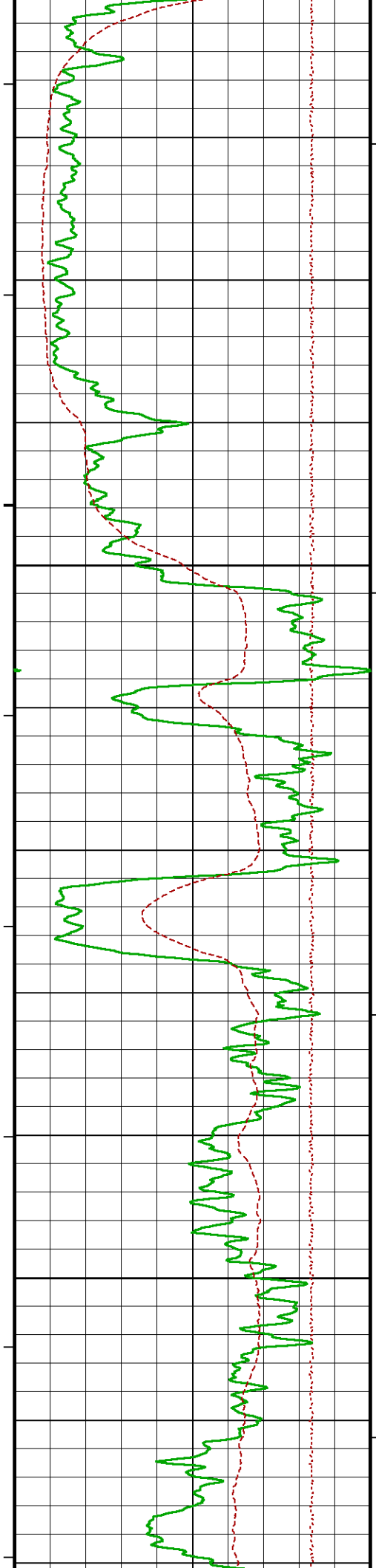
Filename: C:\Minimus 18.01.6830\Data\O'Brien (Charity May 1A)\HIGH RES PASS.dta

Recorded on 19-JUN-2018 03:37

System Versions: Logged with 18.01.6830 Plotted with 18.01.6830





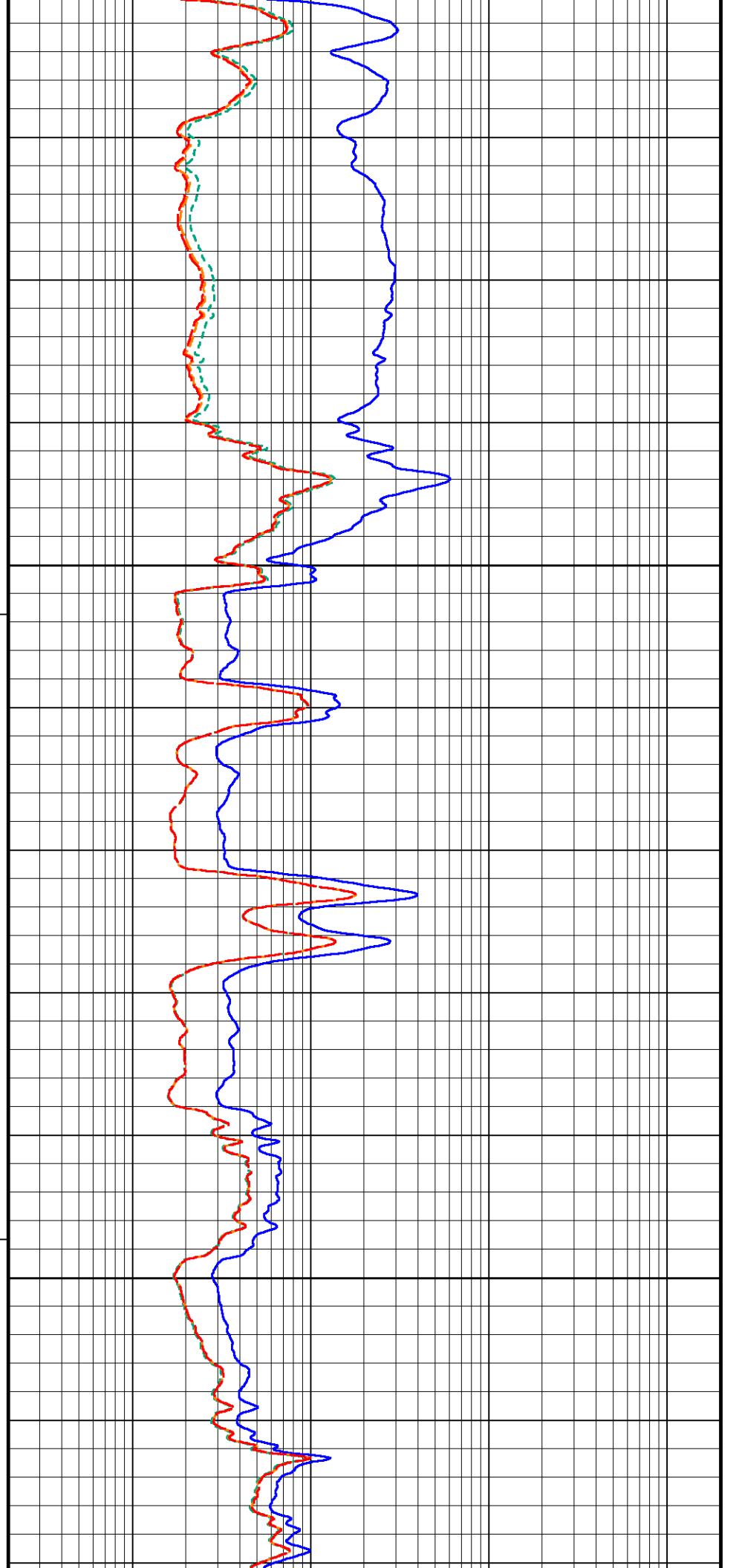


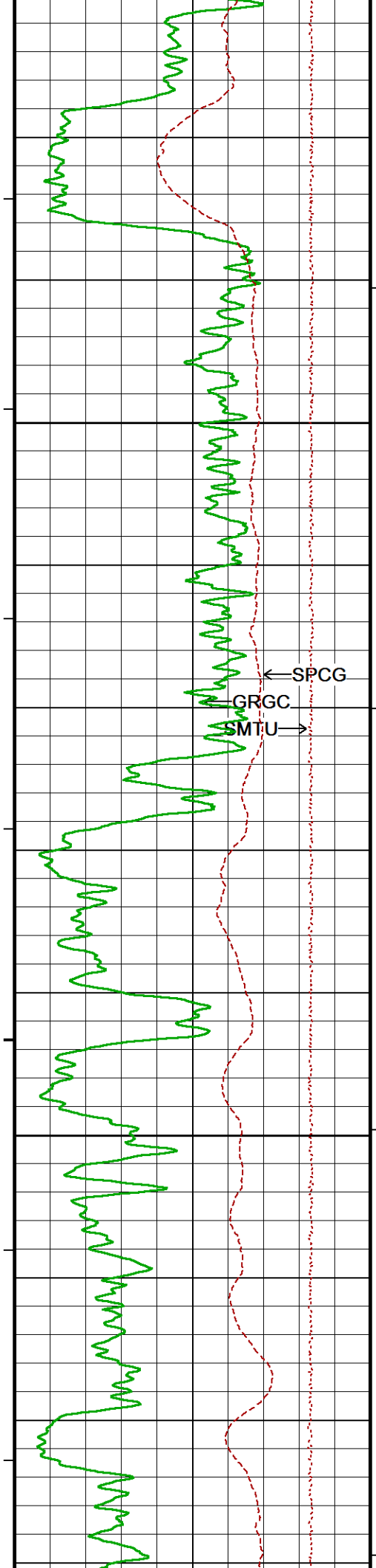
118°

5800

118°

5850





118°

100

5900

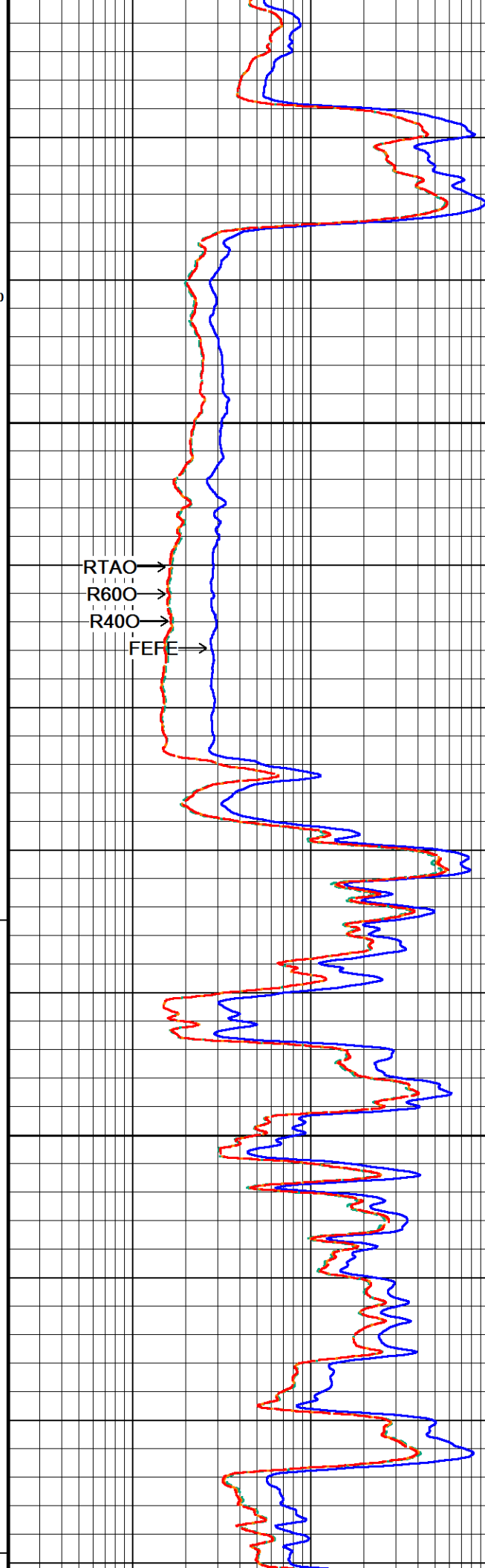
← SPCG

GRGC

SMTU →

118°

5950

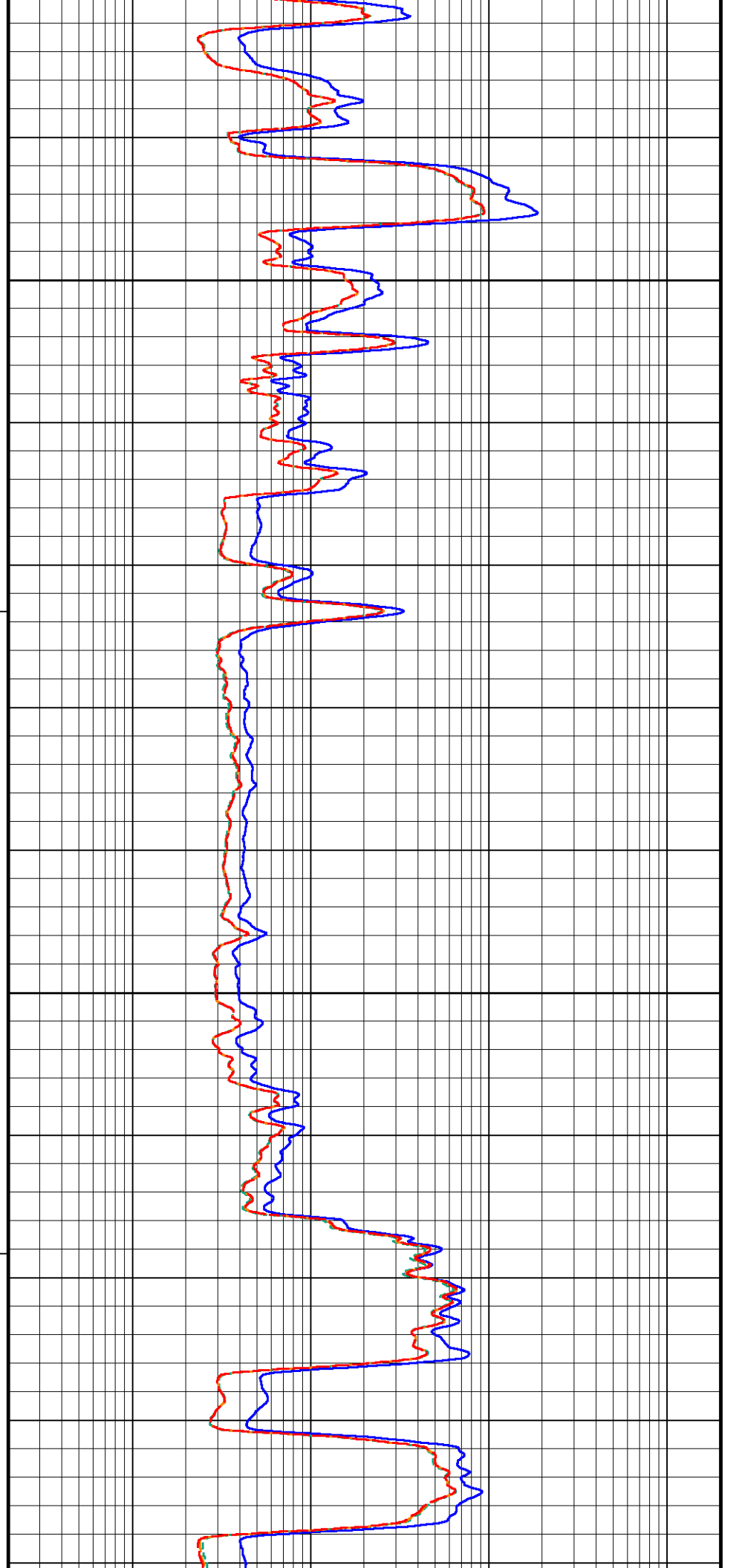
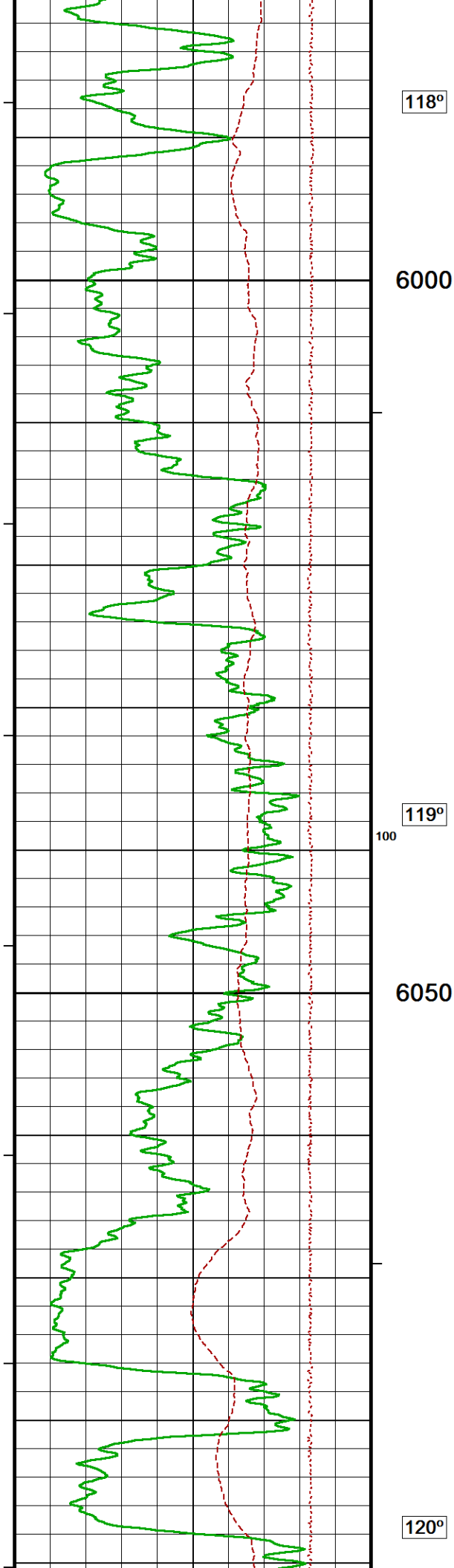


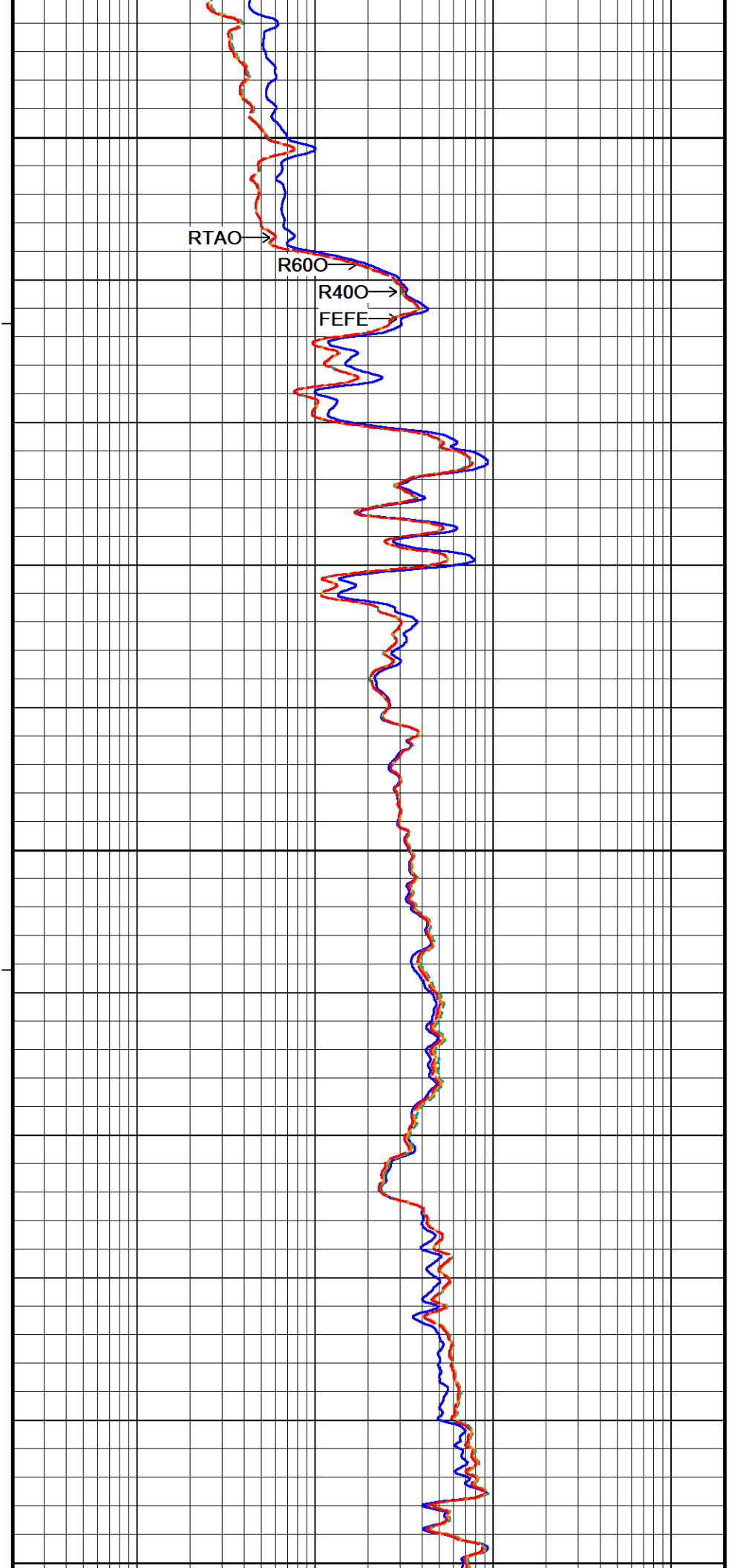
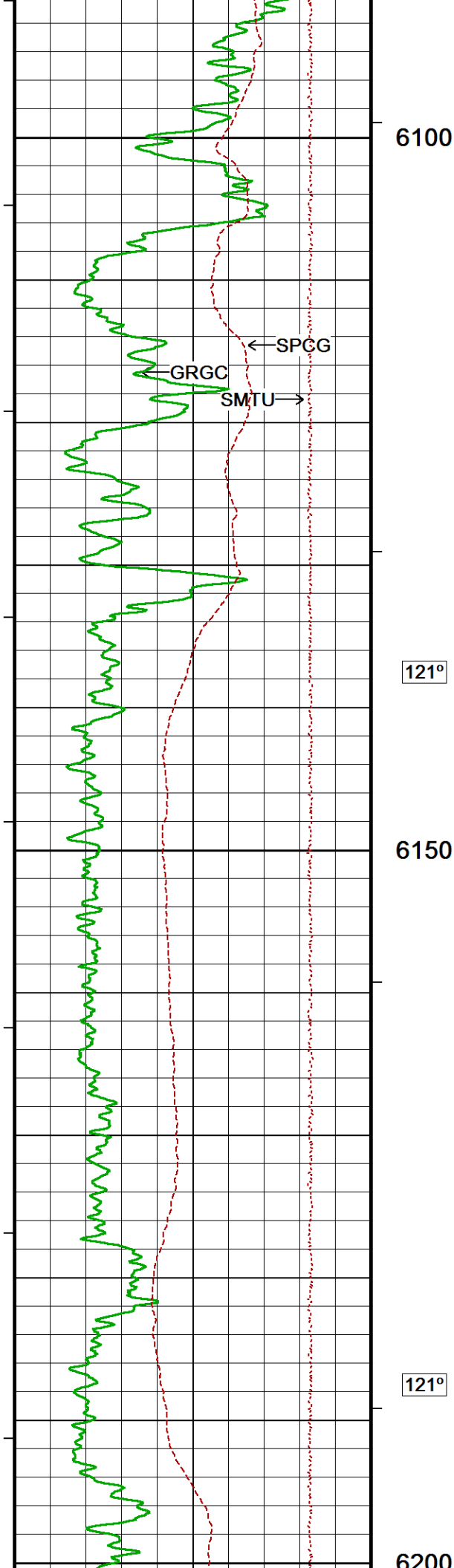
RTAO →

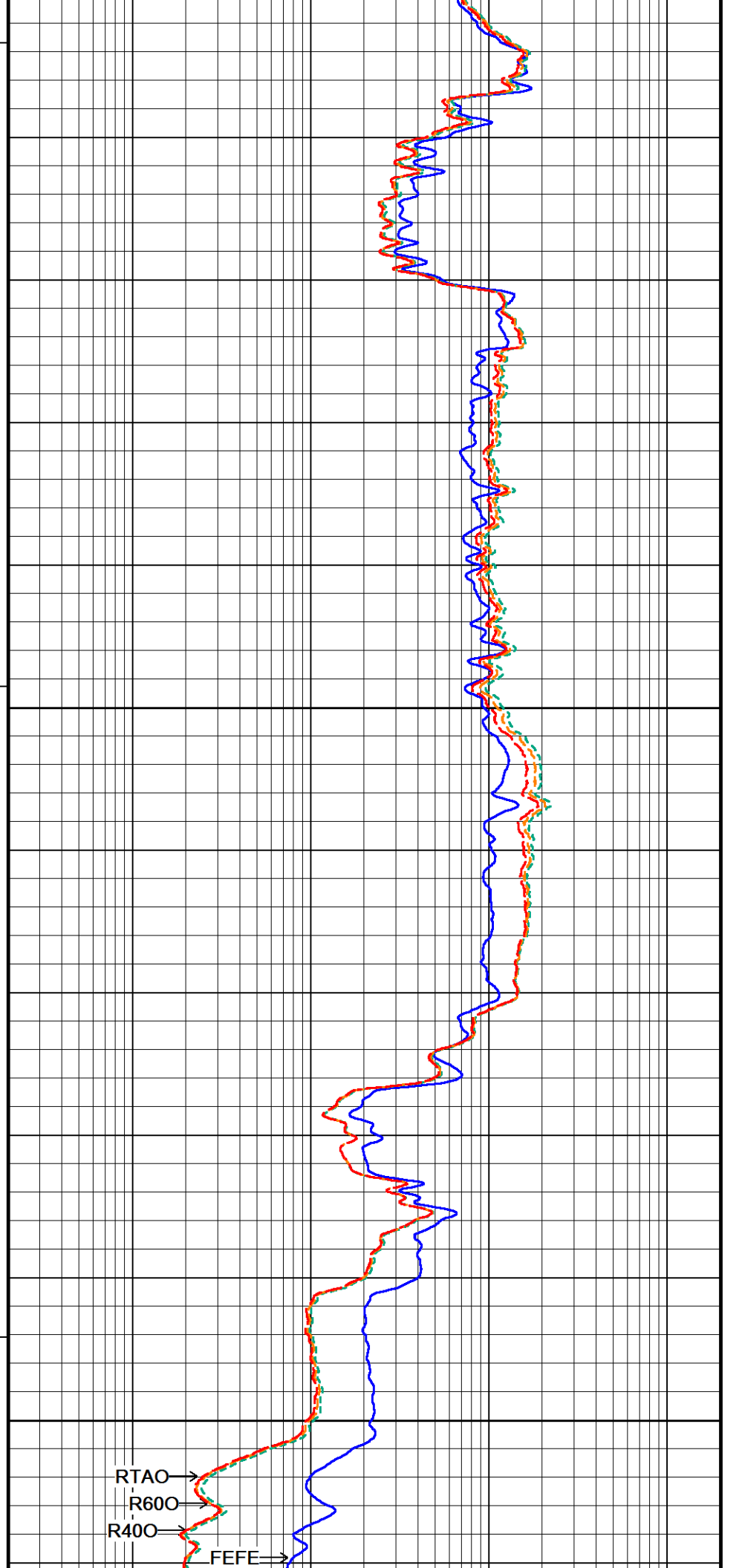
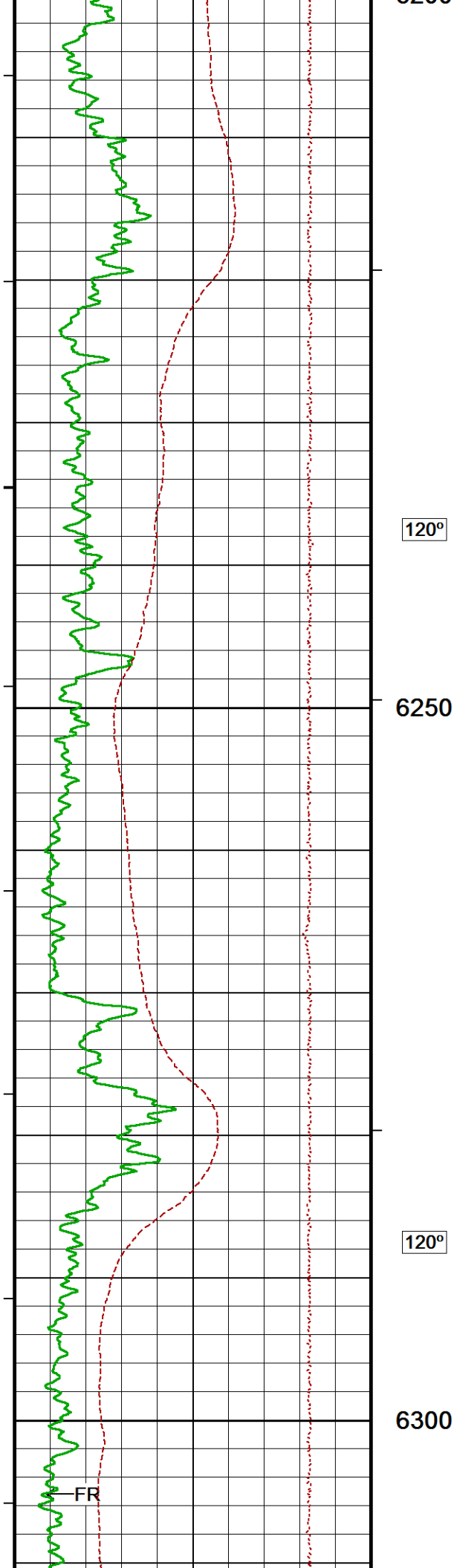
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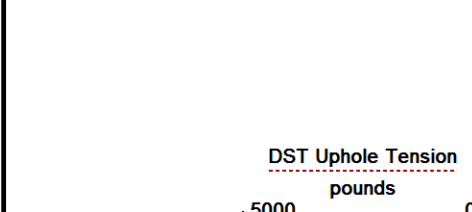
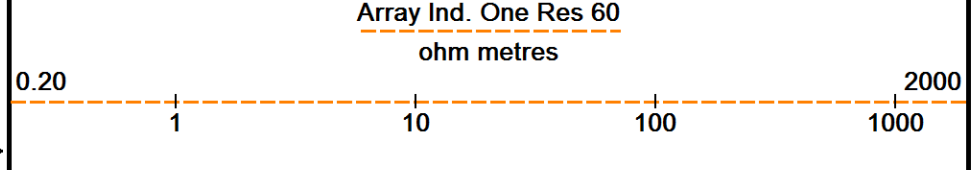
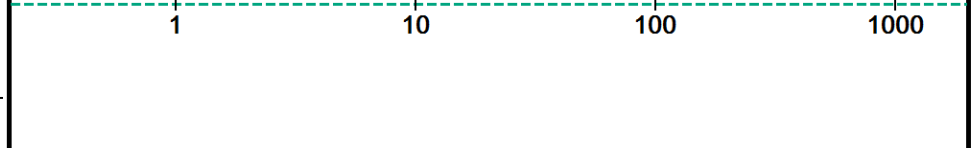
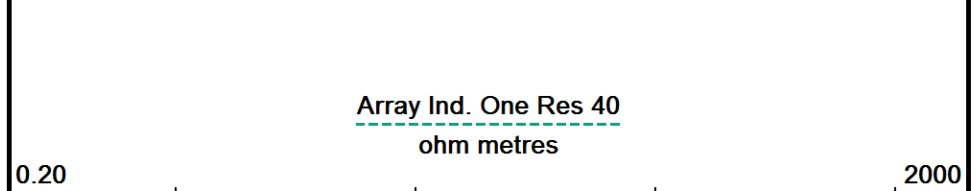
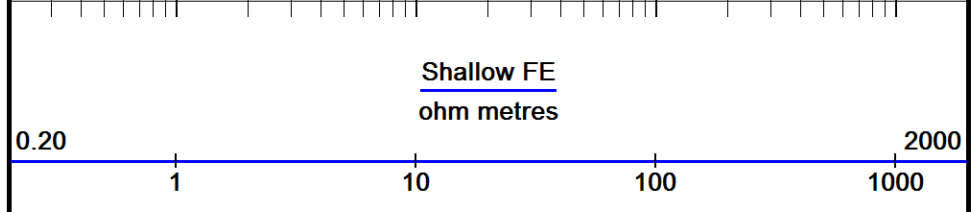
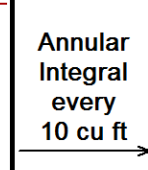
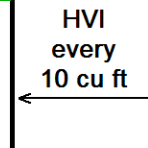
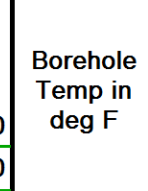
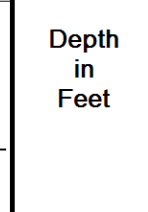
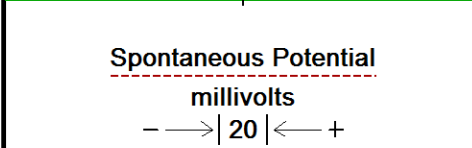
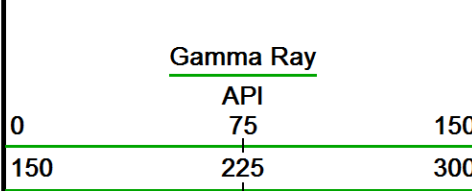
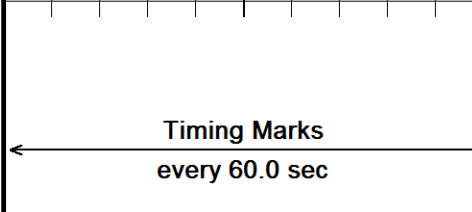
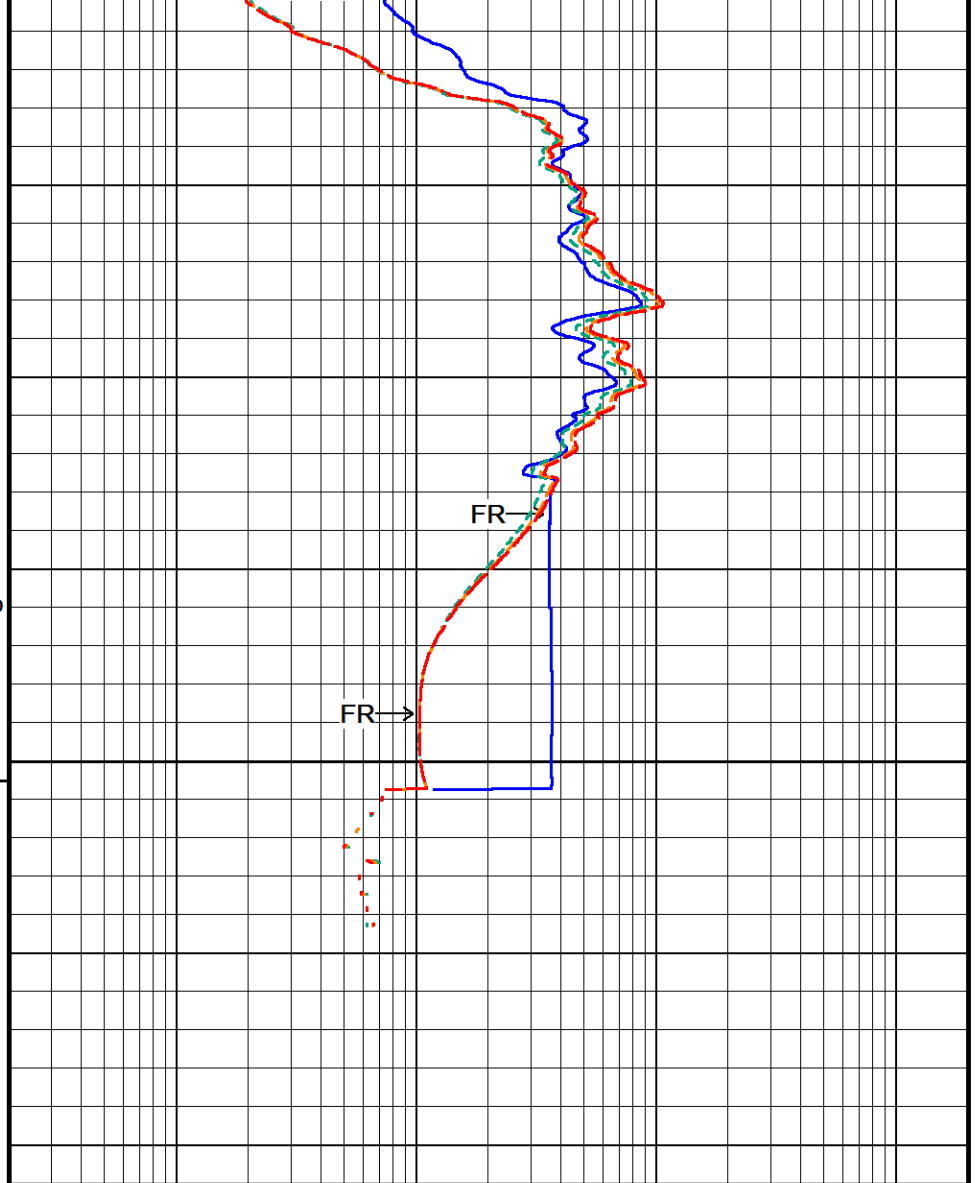
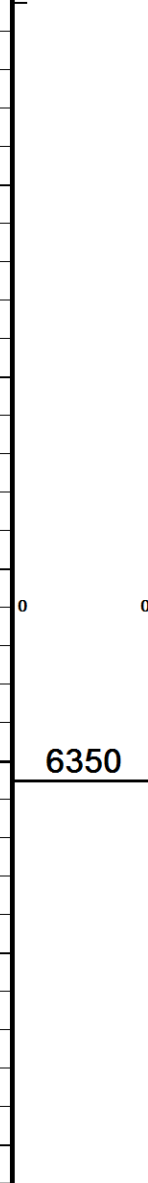
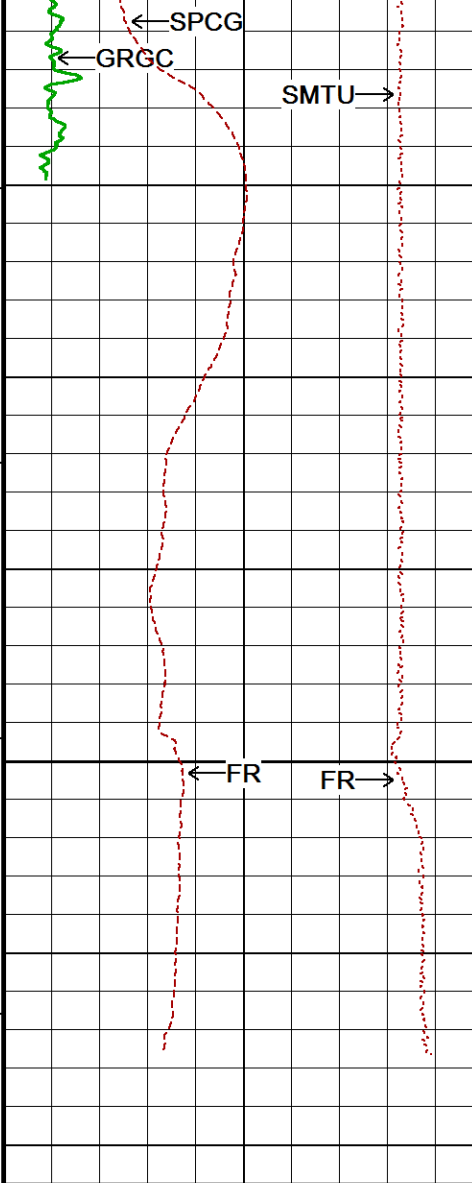
R40O →

FERE →









Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 19-JUN-2018 07:38

Filename: C:\Minimus 18.01.6830\Data\O'Brien (Charity May 1A)\HIGH RES PASS.dta

Recorded on 19-JUN-2018 03:37

System Versions: Logged with 18.01.6830 Plotted with 18.01.6830



10 INCH HIGH RESOLUTION



BEFORE SURVEY CALIBRATION

C:\Minimus 18.01.6830\Data\O'Brien (Charity May 1A)\REPEAT PASS.dta

General Constants All 000

Last Edited on 19-JUN-2018,03:11

General Parameters

Mud Resistivity	0.940	ohm-metres
Mud Resistivity Temperature	82.000	degrees F
Water Level	0.000	feet
Borehole Fluid 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	Density Caliper	

Rwa Parameters

Porosity used	Crossplot Porosity
Resistivity used	Array Ind. Two Res Rt
RWA Constant A	0.620
RWA Constant M	2.150
SW/APOR Tool Source	0.000

Down-hole Tension Calibration SMS 0

Field Calibration on 18-JUN-2018 12:36

Reading No	Measured	Calibrated (lbs)
1	15436.84	0.00
2	16614.12	522.50

Gamma Calibration MCG-D.A 246

Field Calibration on 18-JUN-2018 03:51

	Measured	Calibrated (API)
Background	57	39
Calibrator (Gross)	734	495
Calibrator (Net)	676	456

Gamma Calibration Tolerances MCG-D.A 246

Ratio	1.483	1.40 1.475 1.55	Counts/API
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Gamma Constants MCG-D.A 246

Last Edited on 19-JUN-2018,02:57

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.07	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-D.A 246

Field Calibration on 18-JUN-2018,03:47

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	212.00	212.00

High Resolution Temperature Constants MCG-D.A 246

Last Edited on 07-JUN-2018,10:42

Pre-filter Length	11
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	Measured	Calibrated (mV)
Reference 1	103.5	100.0
Reference 2	-96.9	-100.1

Micro Normal and Micro Inverse Calibration MMR-B.A 91

Base Calibration on 16-JUN-2018,03:08
Field Check on 18-JUN-2018 03:31

	Resistor 1 (ohm)	Resistor 2 (ohm)
	10.0	50.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Micro Normal	10.2 49.8	5.1 25.6
Micro Inverse	9.9 49.4	3.4 16.9
Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.9	93.9
Micro Inverse	62.3	62.3

Micro Normal & Micro Inverse Calibration Tolerance MMR-B.A 91

Micro Normal Res. 1	10.2		ohm	Micro Normal Res. 2	49.8		ohm
Micro Inverse Res. 1	9.9		ohm	Micro Inverse Res. 2	49.4		ohm
Micro Normal Base Check	93.9		ohm-m				
Micro Inverse Base Check	62.3		ohm-m				
Micro Normal Field Check	93.9		ohm-m				
Micro Inverse Field Check	62.3		ohm-m				

Micro Normal and Micro Inverse Constants MMR-B.A 91

Last Edited on 13-APR-2018,05:04

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	0.0000 inches

Caliper Calibration MMR-B.A 91

Base Calibration on 07-JUN-2018 13:30
Field Calibration on 18-JUN-2018,03:34

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	13946	5.98
2	17303	7.97
3	20607	9.86
4	24616	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.98	7.97

Caliper Calibration Tolerances MMR-B.A 91

Short Arm Field Cal.	7.98		in
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Micro-Resistivity Caliper Constants MMR-B.A 91

Sonde Configuration	Resistivity Mode
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Micro Laterolog Calibration MMR-B.A 91

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

	Resistor 1 (ohm)		Resistor 2 (ohm)	
	0.0		0.0	
Base Calibration				
	Measured		Calibrated (ohm-m)	
	Ref 1	Ref 2	Ref 1	Ref 2
	0.0	0.0	0.0	0.0
	Base Check (ohm-m)		Field Check (ohm-m)	

Micro Laterolog Constants MMR-B.A 91

Pad Type	6 in Solid Nylon B23059	
Standoff Offset	0.0000	inches
Micro Laterolog K Factor	0.0128	
Micro Laterolog Rm K Factor	N/A	
Mudcake Thickness Correction Constants		
Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	20.00	Degrees C
Mud Cake Resistivity Source	Constant Value	
Temp. for Rmc Corr.	MCG External Temperature	

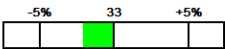
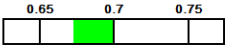
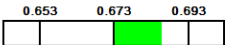
Neutron Calibration MDN-B.A 292

Base Calibration on 18-JUN-2018,03:47

Field Check on 18-JUN-2018 03:58

Base Calibration				
	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2945	91	3714	110
Ratio	32.304		33.764	
Field Calibrator at Base				
			Calibrated (cps)	
			2179	3239
Ratio			0.673	
Field Check				
			Calibrated (cps)	
			2196	3203
Ratio			0.685	

Neutron Calibration Tolerances MDN-B.A 292

Ratio	32.304	
Base Check	0.673	
Field Check	0.685	

Neutron Constants MDN-B.A 292

Last Edited on 18-JUN-2018,03:53

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Modified Ratio	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

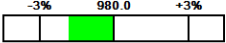
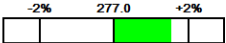
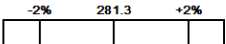
FE Calibration MFE-A.A 135

Base Calibration on 07-JUN-2018 13:53

Field Check on 18-JUN-2018,03:48

	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	1000.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	962.0	126.8

Base Check	281.3
Field Check	281.3

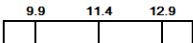
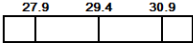
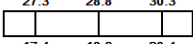
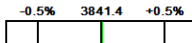
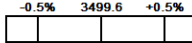
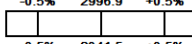
FE Calibration Tolerances MFE-A.A 135	
Reference 2	962.0  ohm
Base Check	281.3  ohm-m
Field Check	281.3  ohm-m

FE Constants MFE-A.A 135		Last Edited on 18-JUN-2018,03:48	
Running Mode	No Sleeve		
MFE K Factor	0.1268		
Borehole Correction Constants			
Sonde Position	0.5	inches	
Hole Size Source	Density Caliper		
Hole Size Constant Value	N/A	inches	
Rm Source	Global Value: Temperature Corrected		
Temp. for Rm Corr.	MCG External Temperature		

High Resolution Temperature Calibration MAI-A.A 111		Field Calibration on 18-JUN-2018,03:48
	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 111		Last Edited on 26-JUN-2014,15:06
Pre-filter Length	11	

Induction Calibration MAI-A.A 111		Factory Loop Calibration 07-JUN-2018 14:52
		Field Check on 18-JUN-2018,03:48
Factory Loop Calibration		
High Conductivity Reference Resistor	3.3 ohm	
Low Conductivity Reference Resistor	333.3 ohm	
Measured Signal (unitless)		Reference Conductivity (mmho/m)
Array	Low High	Low High
1 (near)	17.6 473.6	9.3 966.2
2	6.4 385.9	7.6 821.4
3	3.2 264.0	5.2 566.0
4 (far)	2.1 135.5	2.6 279.2
Array Temperature	23.0	Deg F
Tool Checks		
Factory Reference (mmho/m)		Before Survey (mmho/m)
Array	Low High	Low High
1 (near)	11.4 3841.4	11.5 3842.1
2	29.4 3499.6	29.4 3499.9
3	28.8 2996.9	28.8 2997.1
4 (far)	18.9 2041.5	18.9 2041.6
Array Temperature	83.6	84.7 Deg F

Induction Check Tolerances MAI-A.A 111	
Low Array 1	11.5  mmho/m
Low Array 2	29.4  mmho/m
Low Array 3	28.8  mmho/m
Low Array 4	18.9  mmho/m
High Array 1	3842.1  mmho/m
High Array 2	3499.9  mmho/m
High Array 3	2997.1  mmho/m
High Array 4	2041.6  mmho/m

Induction Constants MAI-A.A 111		Last Edited on 18-JUN-2018,03:48
Induction Model	RtAP-WBM	

Borehole Correction Constants			
Tool Centred		No	
Hole Size Source		Density Caliper	
Hole Size Constant Value		N/A	inches
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
Rm Source	Global Value: Temperature Corrected		
Temp. for Rm Corr.	MCG External Temperature		
Borehole Correction Method	Default		
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
Symmetrised Receiver Gains			
Receiver 1		1.00	
Receiver 2		1.00	
Receiver 3		1.00	
Receiver 4		1.00	
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-C.A 216			Base Calibration on 07-JUN-2018 14:09
			Field Calibration on 18-JUN-2018 03:33
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14245	3.99	
2	22960	5.98	
3	31650	7.97	
4	39952	9.86	
5	49231	11.92	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	7.98	7.97	

Caliper Calibration Tolerances MPD-C.A 216				
Long Arm Field Cal.	7.98	7.57 7.97 8.37	in	

Photo Density Calibration MPD-C.A 216				Base Calibration on 07-JUN-2018 14:35	
				Field Check on 18-JUN-2018 03:40	
Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
		Near	Far	Near	Far
Background		1007	1198		

Background	1007	1190		
Reference 1	50088	24364	59556	30836
Reference 2	19851	2273	24941	2541

Field Check at Base

1006.9 1197.8

Field Check

999.4 1191.4

PE Calibration

Base Calibration

Measured

Calibrated

	WS	WH	Ratio	Ratio
Background	184	903		
Reference 1	21030	49928	0.425	0.371
Reference 2	5765	19740	0.296	0.272

Field Check at Base

184.4 903.5

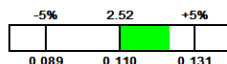
Field Check

184.2 900.5

Photo Density Calibration Tolerances MPD-C.A 216

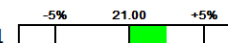
Near Density Ratio

2.60



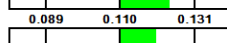
Far Density Ratio

21.54



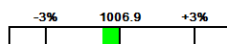
PE Calibration

0.120



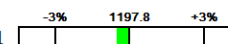
Near Den. Field Check

999.4



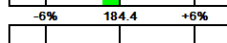
Far Den. Field Check

1191.4



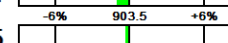
PE WS Field Check

184.2



PE WH Field Check

900.5



Density Constants MPD-C.A 216

Last Edited on 19-JUN-2018,02:57

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	1.07	gm/cc
Mud Density Type		
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	
Precision Enhanced Density Processing	Not Applied	
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 18.01.6830\Data\O'Brien (Charity May 1A)\REPEAT PASS.dta

11B Tension Cablehead

MCB-A 1 LG: 2.18 ft WT: 19.8 lb OD: 2.244 in

Compact Swivel Head Adaptor

SHA-J.B 724 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in



45.66 ft GRGC - MCG Gamma Ray

Compact Comms Gamma
MCG-D.A 246 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-B.A 91 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-B.A 292 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

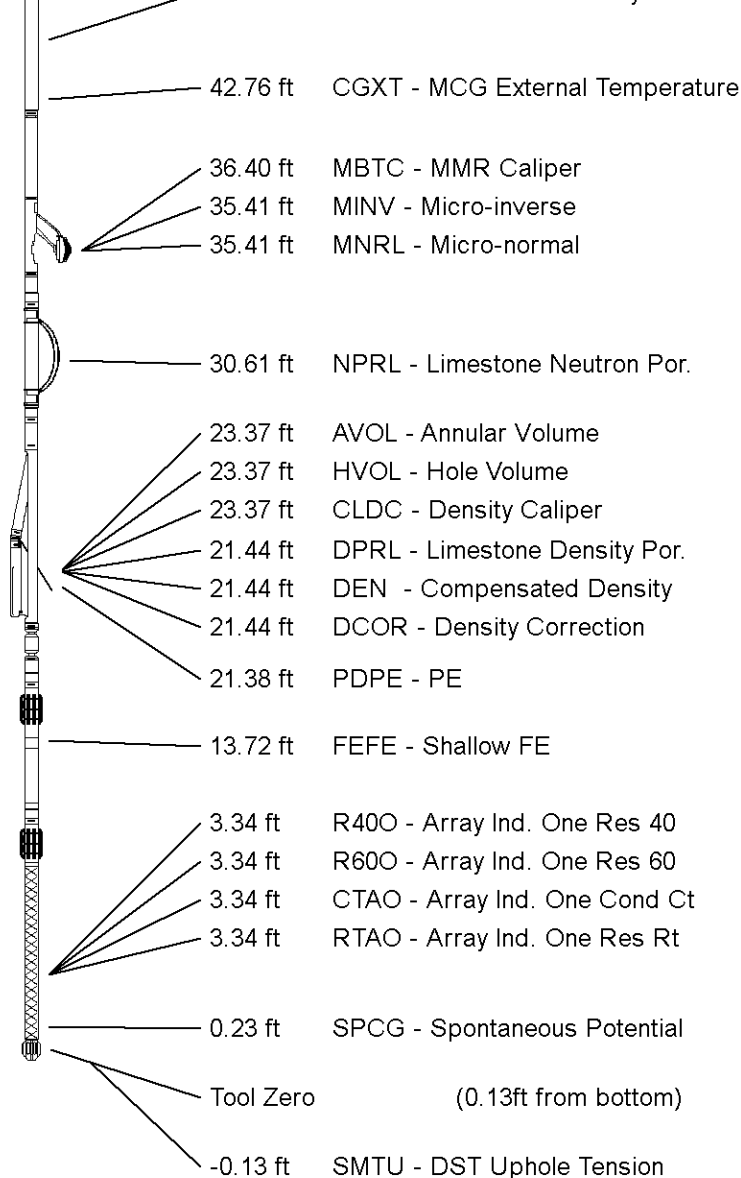
Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 55.43 ft Weight: 449.7 lb



All measurements relative to tool zero.

COMPANY O'BRIEN ENERGY RESOURCES CORP.
WELL CHARITY MAY #1A-9
FIELD ANGEL SOUTH
PROVINCE/COUNTY MEADE
COUNTRY/STATE USA / KANSAS

Elevation Kelly Bushing	2643.9	feet	First Reading	6348.00	feet
Elevation Drill Floor	2641.9	feet	Depth Driller	6350.00	feet
Elevation Ground Level	2630.9	feet	Depth Logger	6351.00	feet



Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

		COMPANY	O'BRIEN
		WELL	CHARITY
		FIELD	ANGEL S
		PROVINCE/COUNTY	MEADE
		COUNTRY/STATE	USA / KA
		LOG LOCATION	2204 / FSNV
SEC. 9	TWP. 35S	R6E. 28W	
Latitude	37.16402637		
Longitude	-100.66807659		
UTM Number	15S-119421042		
Permanent Datum Q, Elevation 2630			
Log Measured From KB, 13.00 feet abo			
Drilling Measured From KB			
Date	19 JUN 2004		
Run Number	ONE		
Service Order	7055-2		
Depth Driller	6350.00		
Depth Logger	6351.00		
First Reading	6348.00		
Last Reading	1526.00		
Casing Driller	1527.00		
Casing Logger	1526.00		
Bit Size	7.875		
Hole Fluid Type	CHEMIC		
Density /Viscosity	8.90		
pH /Fluid Loss	10.50		
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.94 @		
Rm @ Measured Temp	0.75 @		
Rm @ Measured Temp	1.13 @		
Source Rm / Rmc	CALC		
Rm @ BHT	0.71 @		
Time Since Circulation	3 HOUR		
Max Recorded Temp	123.00		
Equipment /Base	13096		
Recorded By	JUSTIN		
Missed By	DANAC		

1 INCH MAIN

Depth Based Data - Maximum Sampling Increment: 10.0cm
 Filename: C:\Minimus 18.01.6830\Data\O'Brien (Charity May 1A)\MAIN PASS.dta
 System Versions: Processed with: 18.01.6830 Plotted with: 18.01.6830
 Plotted on 19-JUN-2018 07:38
 Recorded on 19-JUN-2018 04:38

Depth In Feet

Timing Marks
every 60.0 sec

Gamma Ray
API 75 150 300

Spontaneous Potential
millivolts
- - - - - 20 - - - - -

DST Uphole Tension
pounds
5000 0

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

Borehole Temp in deg F

HVI every 10 cu ft
Shallow FE
ohm metres
0 25 50
0 250 500

Annular Integral every 10 cu ft

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Replay Scale 1:600

Casing (1500)

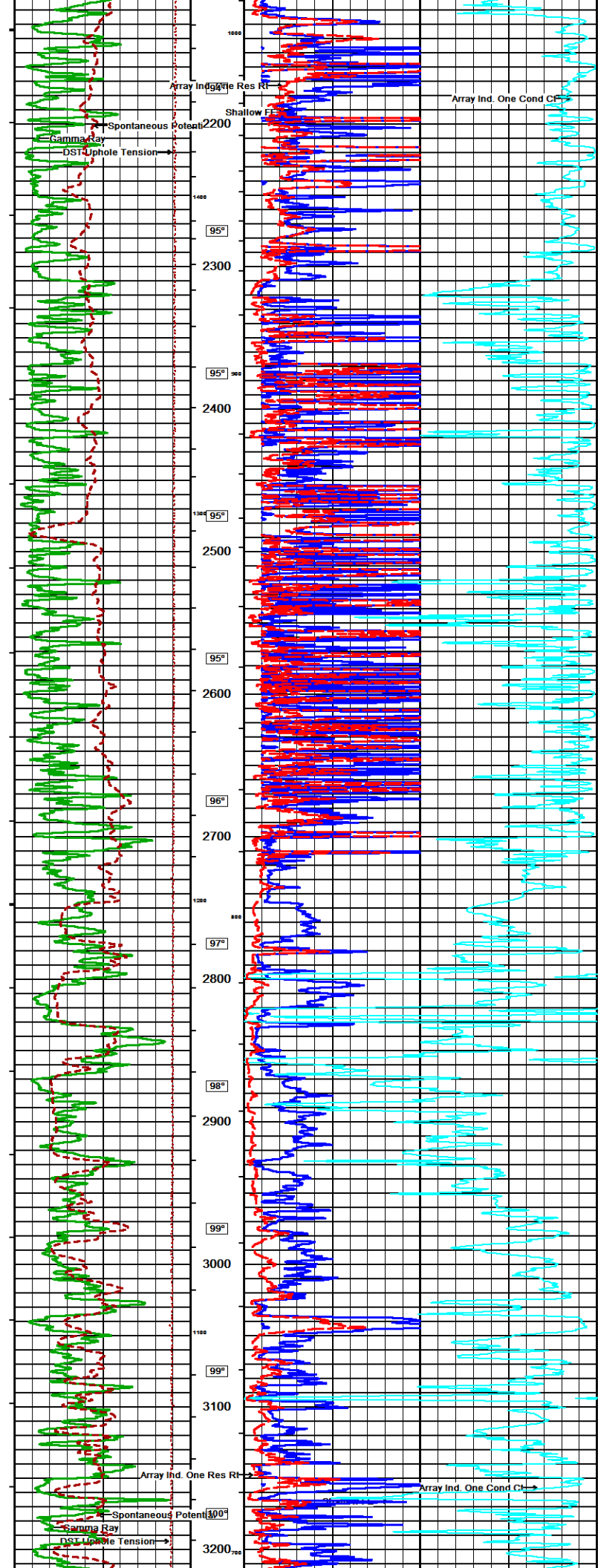
92°

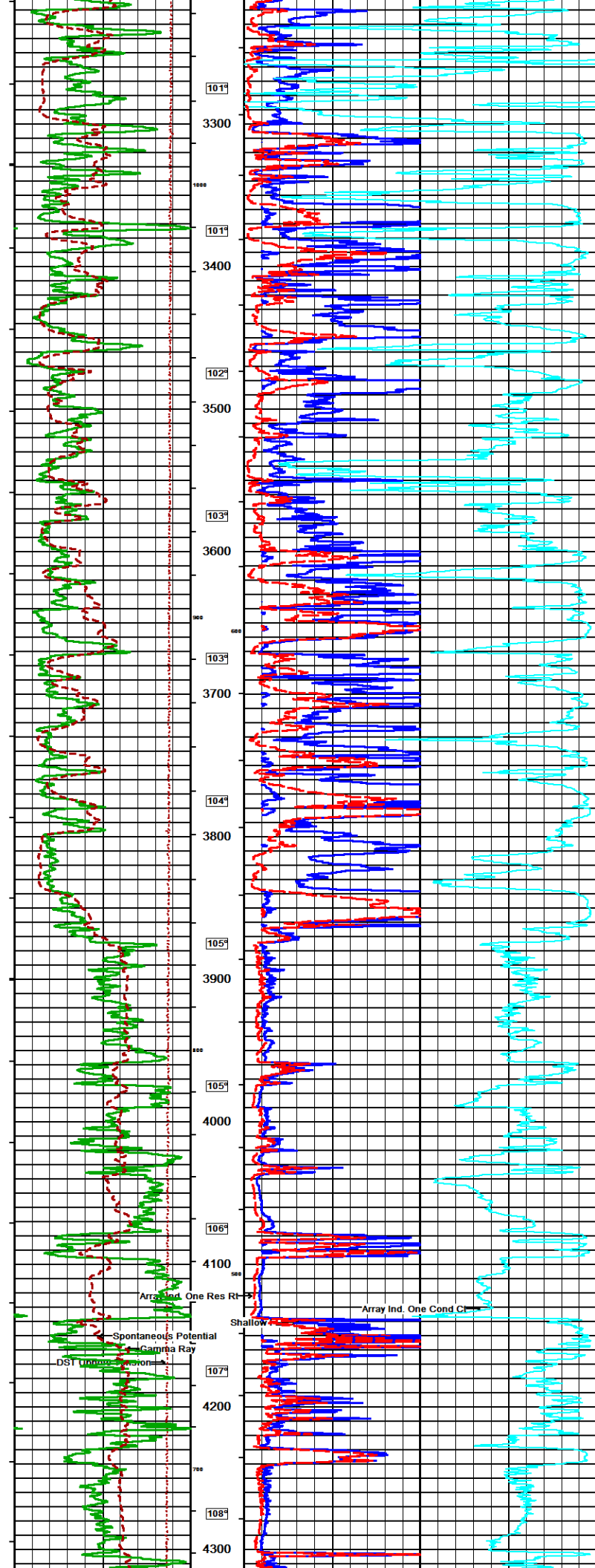
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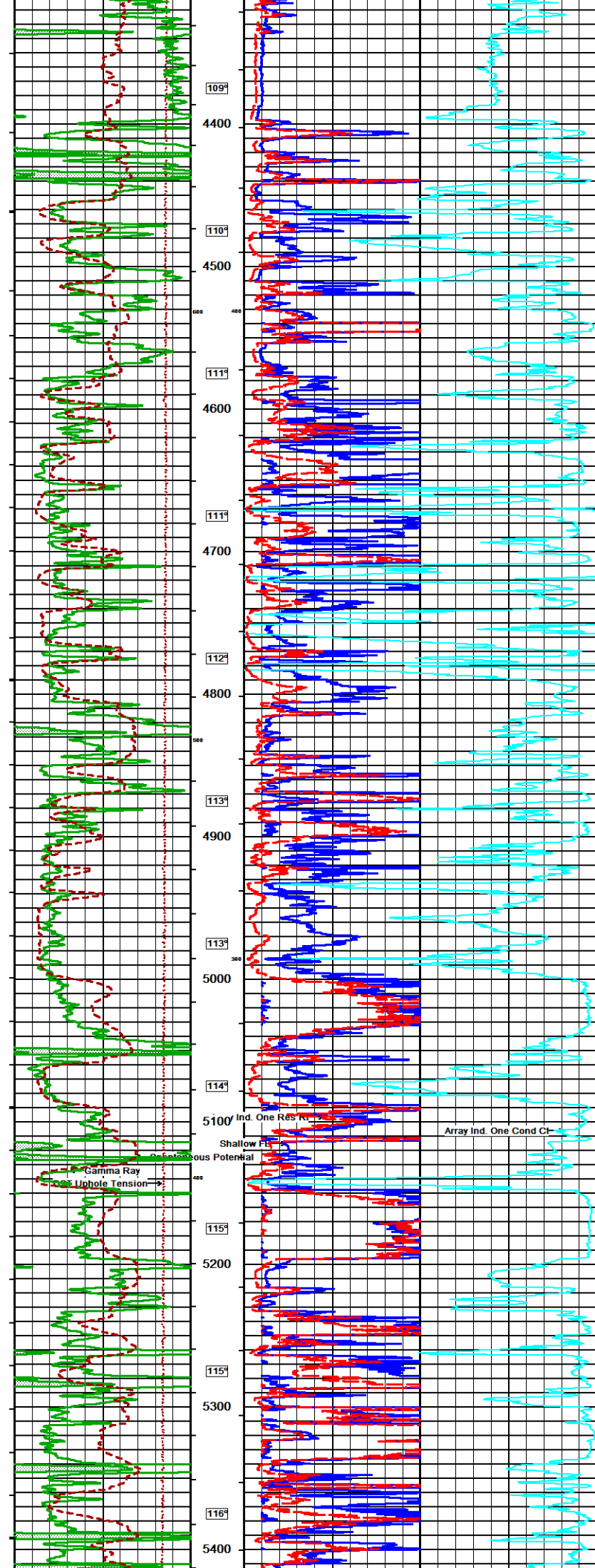
93°

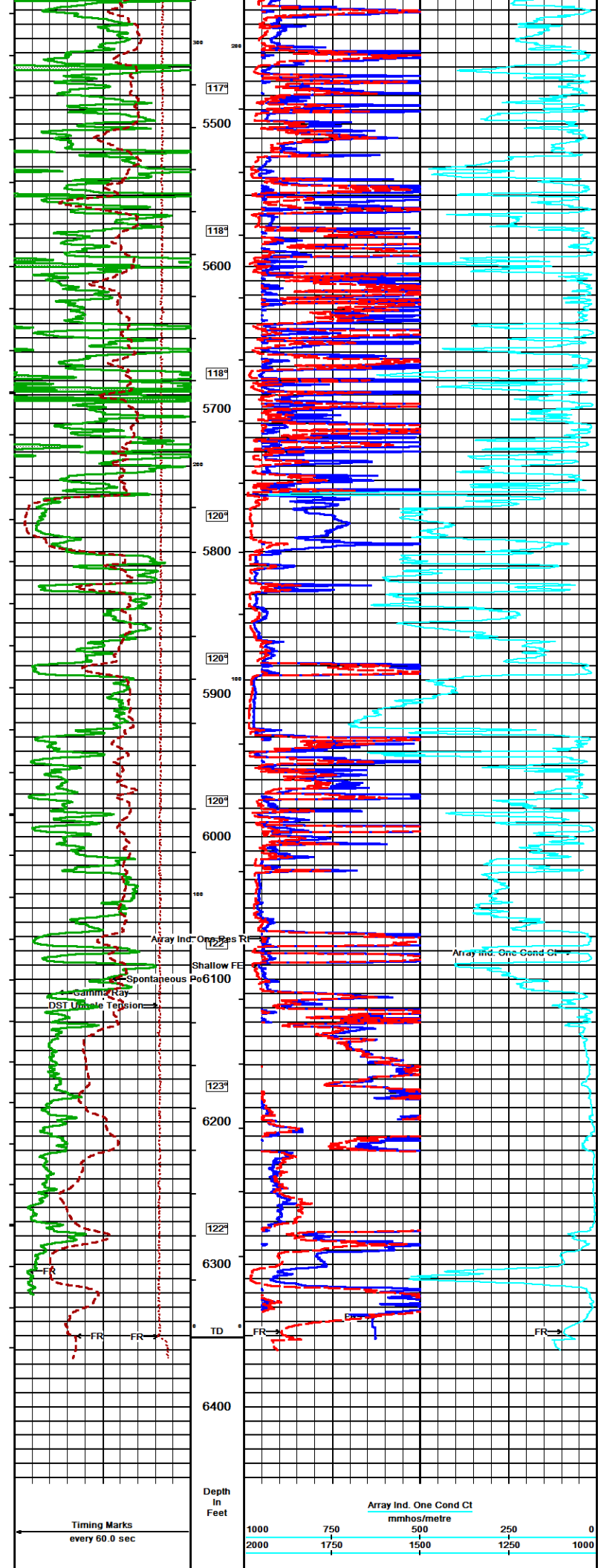
93°

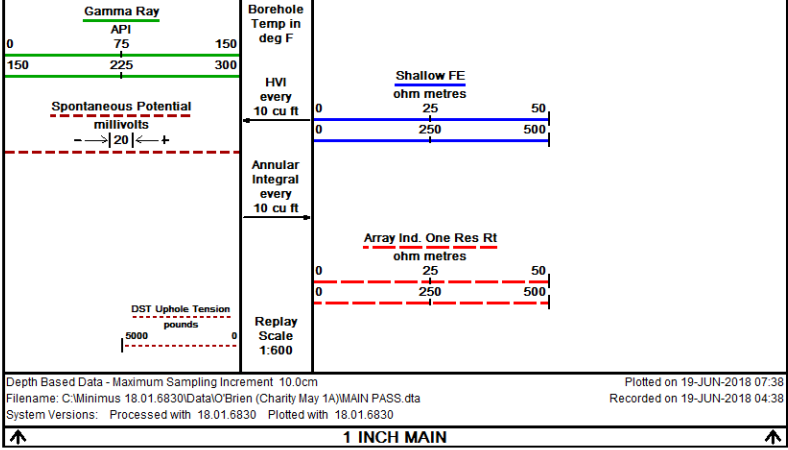
94°











COMPANY		O'BRIEN ENERGY RESOURCES CORP.			
WELL		CHARITY MAY #1A-9			
FIELD		ANGEL SOUTH			
PROVINCE/COUNTY		MEADE			
COUNTRY/STATE		USA / KANSAS			
Elevation Kelly Bushing	2643.9	feet	First Reading	6348.00	feet
Elevation Drill Floor	2641.9	feet	Depth Driller	6350.00	feet
Elevation Ground Level	2630.9	feet	Depth Logger	6351.00	feet
 Weatherford [®]			ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG		