



Weatherford®

**ARRAY INDUCTION
GAMMA RAY LOG**

COMPANY

SHAKESPEARE OIL CO., INC.

WELL

K OTTLEY 2-14

FIELD

WILDCAT

PROVINCE/COUNTY LOGAN

COUNTRY/STATE USA / KANSAS

LOCATION NW-SW-SE-SE 500' FSL & 1150' FEL

SEC 14 TWP 14S RGE 32W Other Services

Latitude 38.831151 DUAL SPACED NEUTRON

PHOTO DENSITY

Longitude -100.8393015 MICRO RESISTIVITY

API Number 15-109-21579

Permanent Datum Ground Level, Elevation 2791 feet

Log Measured From KB, 9.00 feet above Permanent Datum

Drilling Measured From KB

Elevations:
KB 2800.00
DF
GL 2791.00

Date 01-FEB-2019

Run Number ONE

Service Order 18148-236170428

Depth Driller 4550.00 feet

Depth Logger 4548.00 feet

First Reading 4544.60 feet

Last Reading 3500.00 feet

Casing Driller 264.00 feet

Casing Logger 262.00 feet

Bit Size 7.875 inches

Hole Fluid Type WATER BASED

Density / Viscosity 9.40 lb/USg 57.00 sec/qt

PH / Fluid Loss 10.00 9.60 ml/30Min

Sample Source FLOW LINE

Rm @ Measured Temp 0.45 @ 83.0 ohm-m

Rmf @ Measured Temp 0.40 @ 83.0 ohm-m

Rmc @ Measured Temp 0.54 @ 83.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 0.34 @ 111.0 ohm-m

Time Since Circulation 3.0 HOURS

Max Recorded Temp 111.00 deg F

Equipment / Base 13244 LIB

Recorded By S. WIGHT

Witnessed By TIM LAUER

BOREHOLE RECORD

Last Edited: 01-FEB-2019 07:24

Bit Size
inches

Depth From
feet

Depth To
feet

12.250

0.00

264.00

7.875

264.00

4550.00

CASING RECORD

Type

Size
inches

Depth From
feet

Shoe Depth
feet

Weight
pounds/ft

SURFACE

8.625

0.00

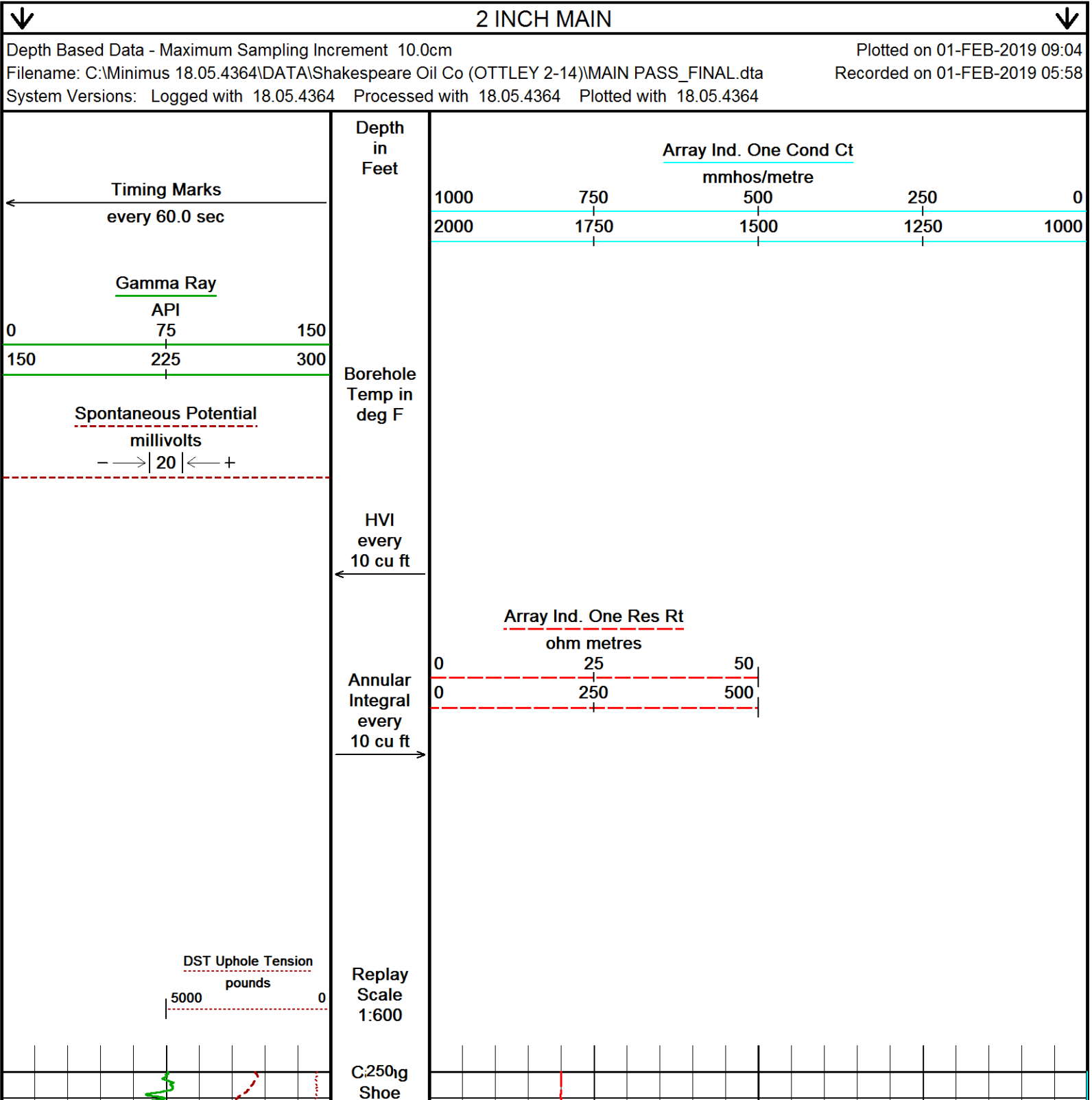
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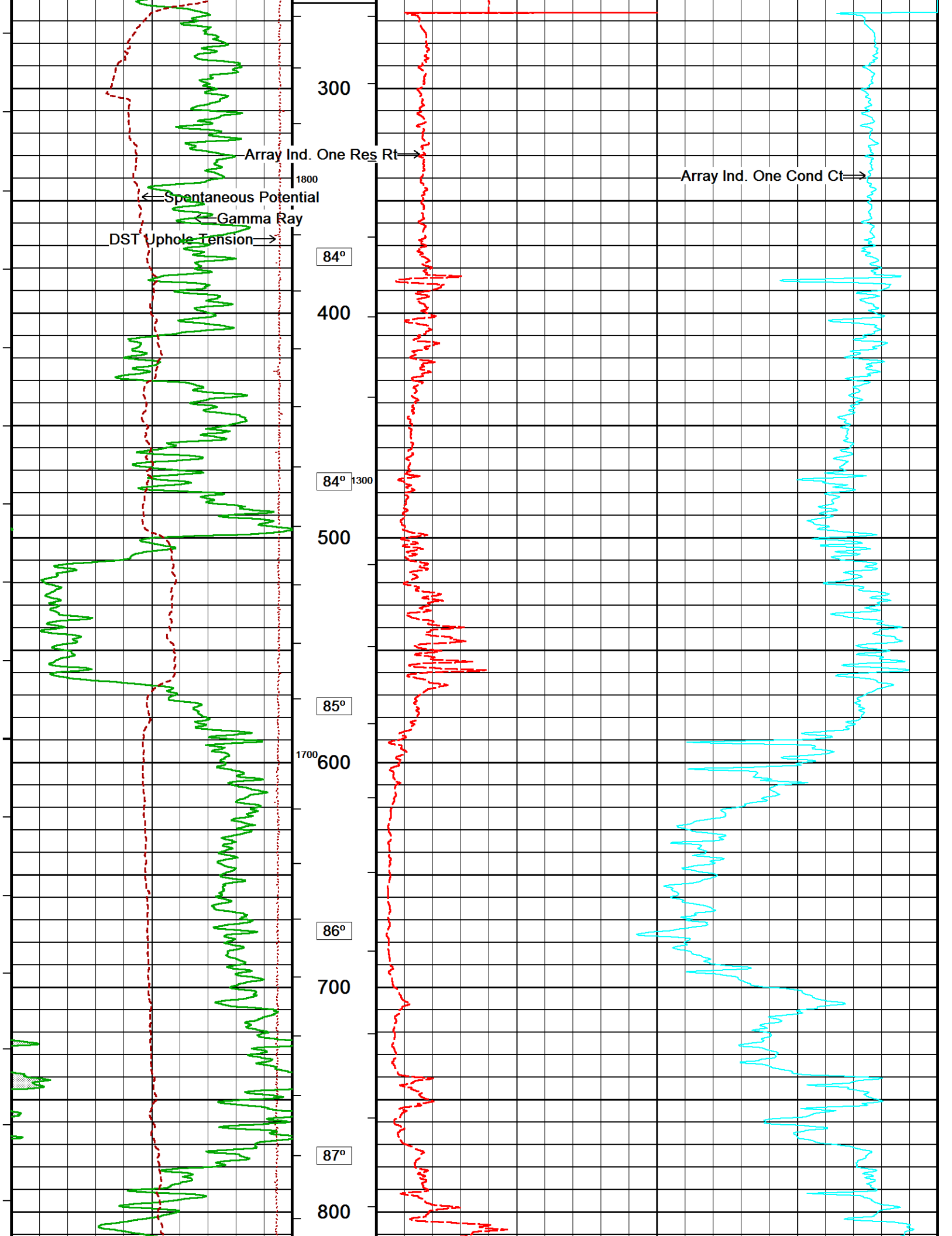
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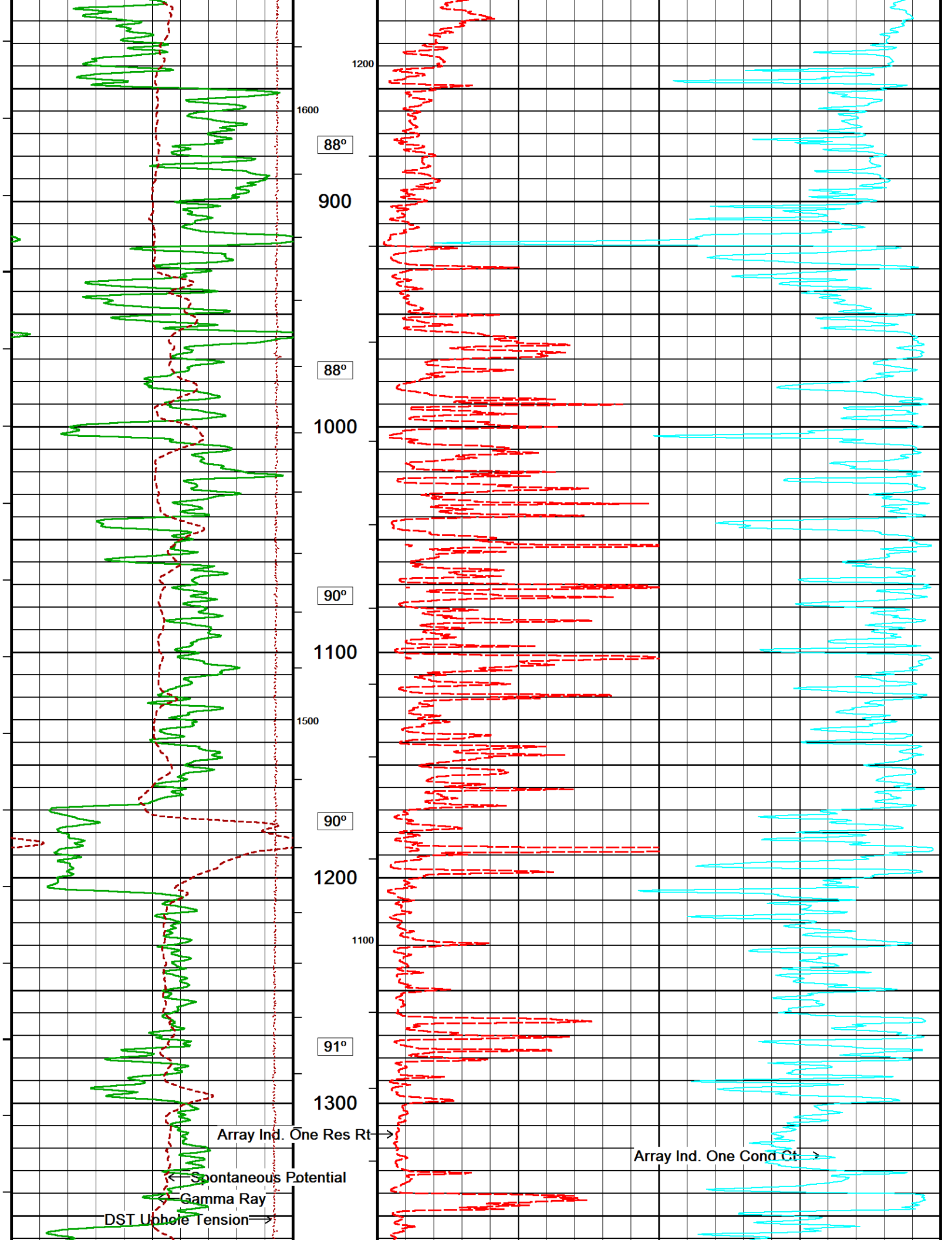
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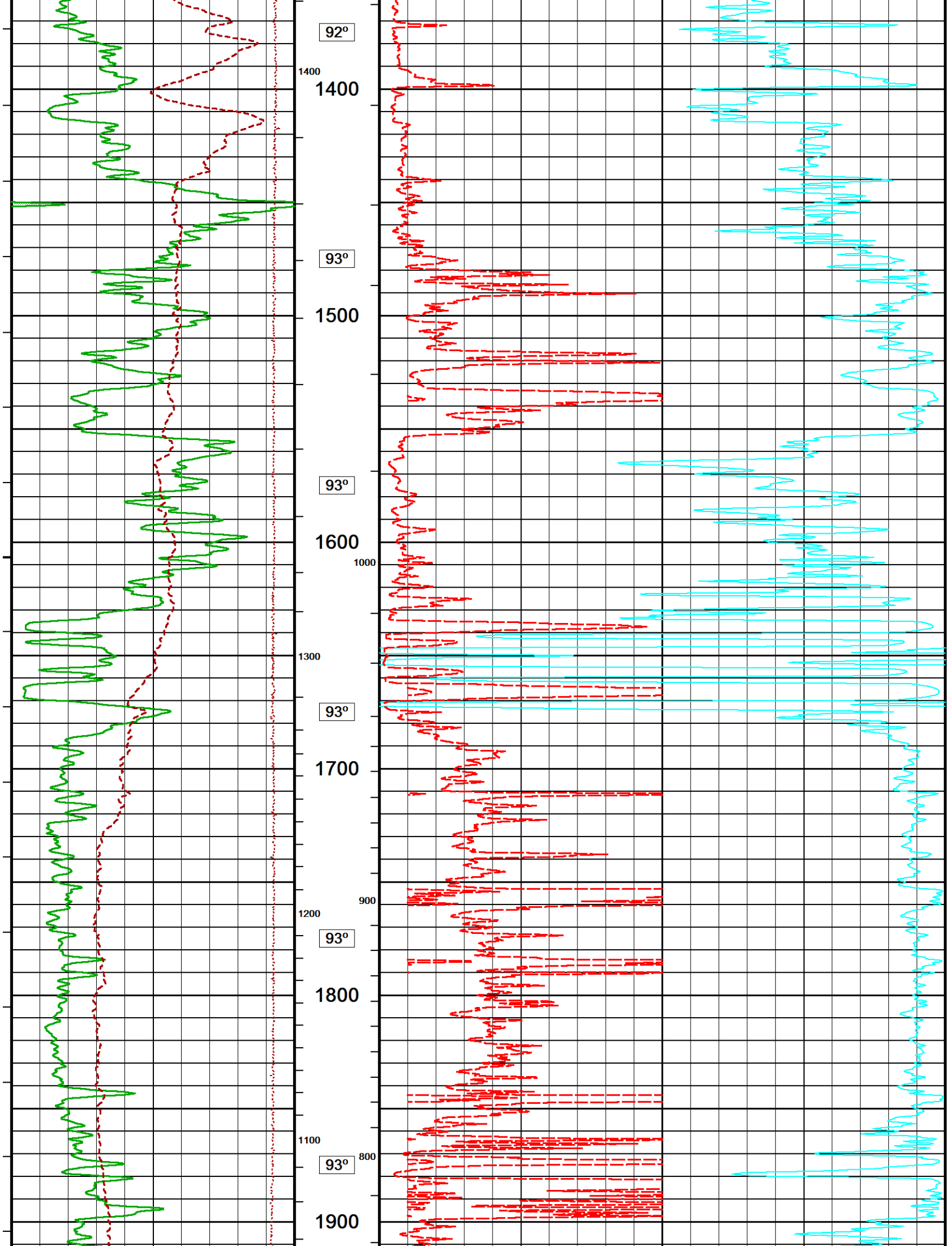
- RUN ONE: MCG, MML, MDN, MPD, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1835 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1360 CU.FT.
- RIG: DUKE #4.
- OPERATOR: B TOVAR, B COPELAND, D STEELE

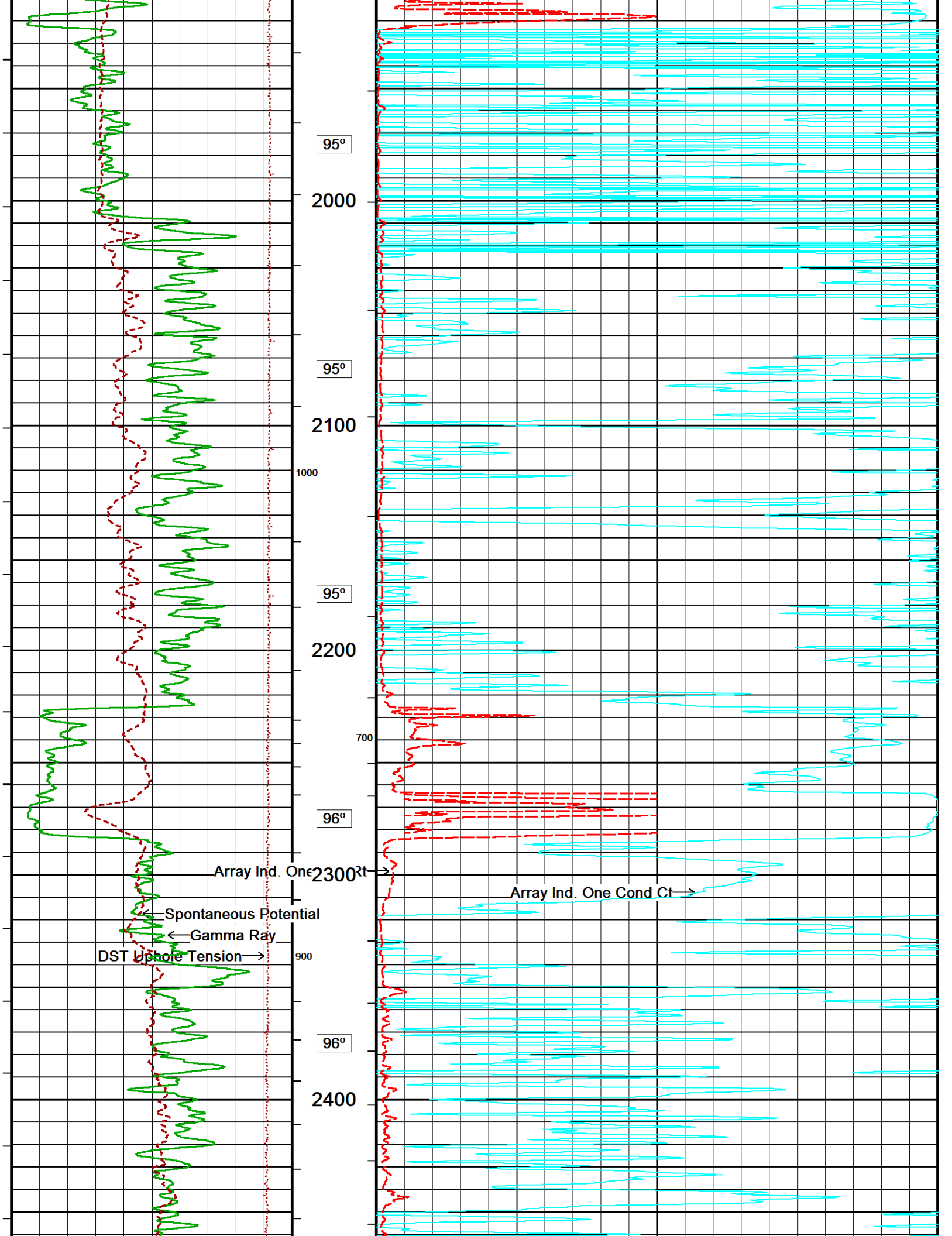
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will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

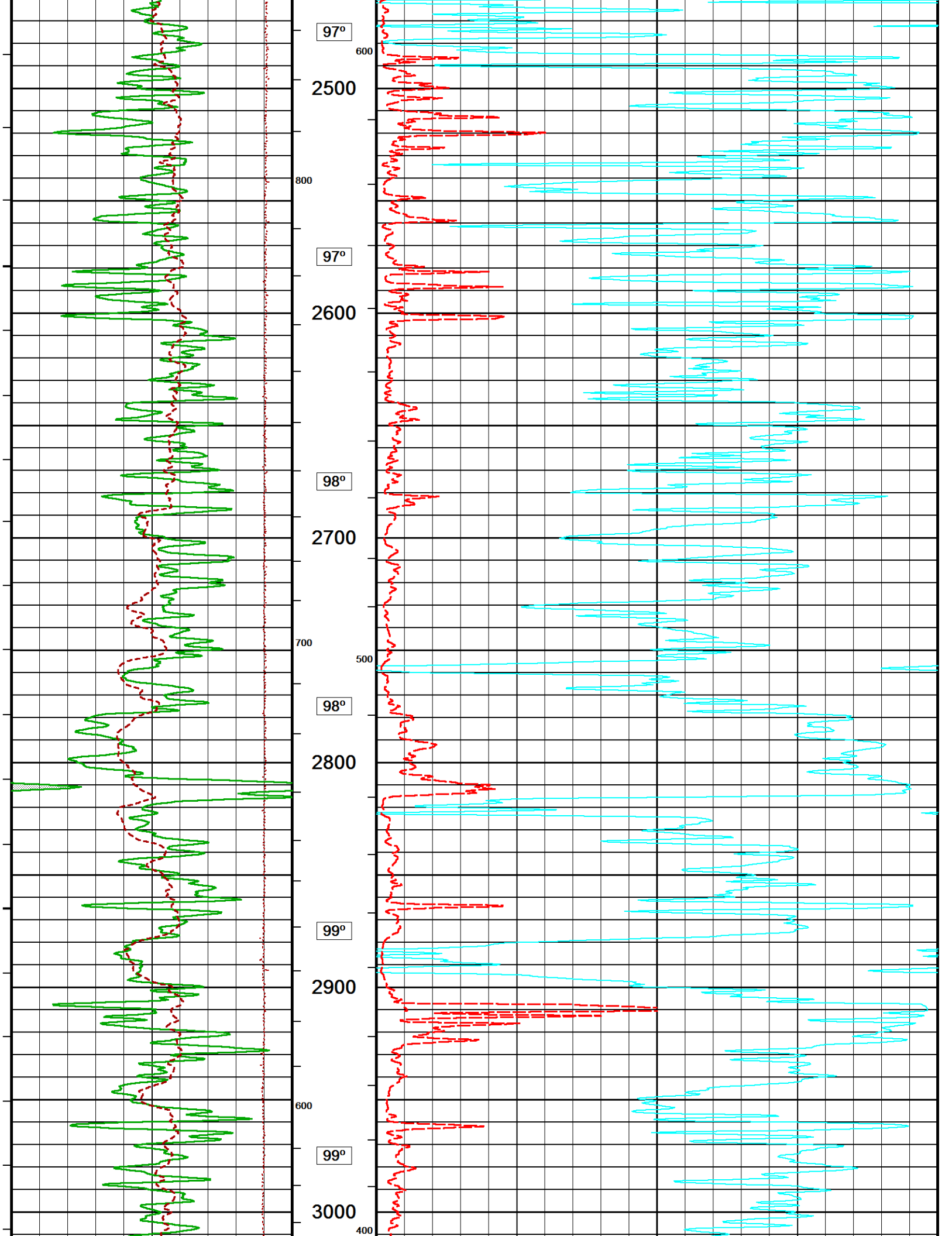


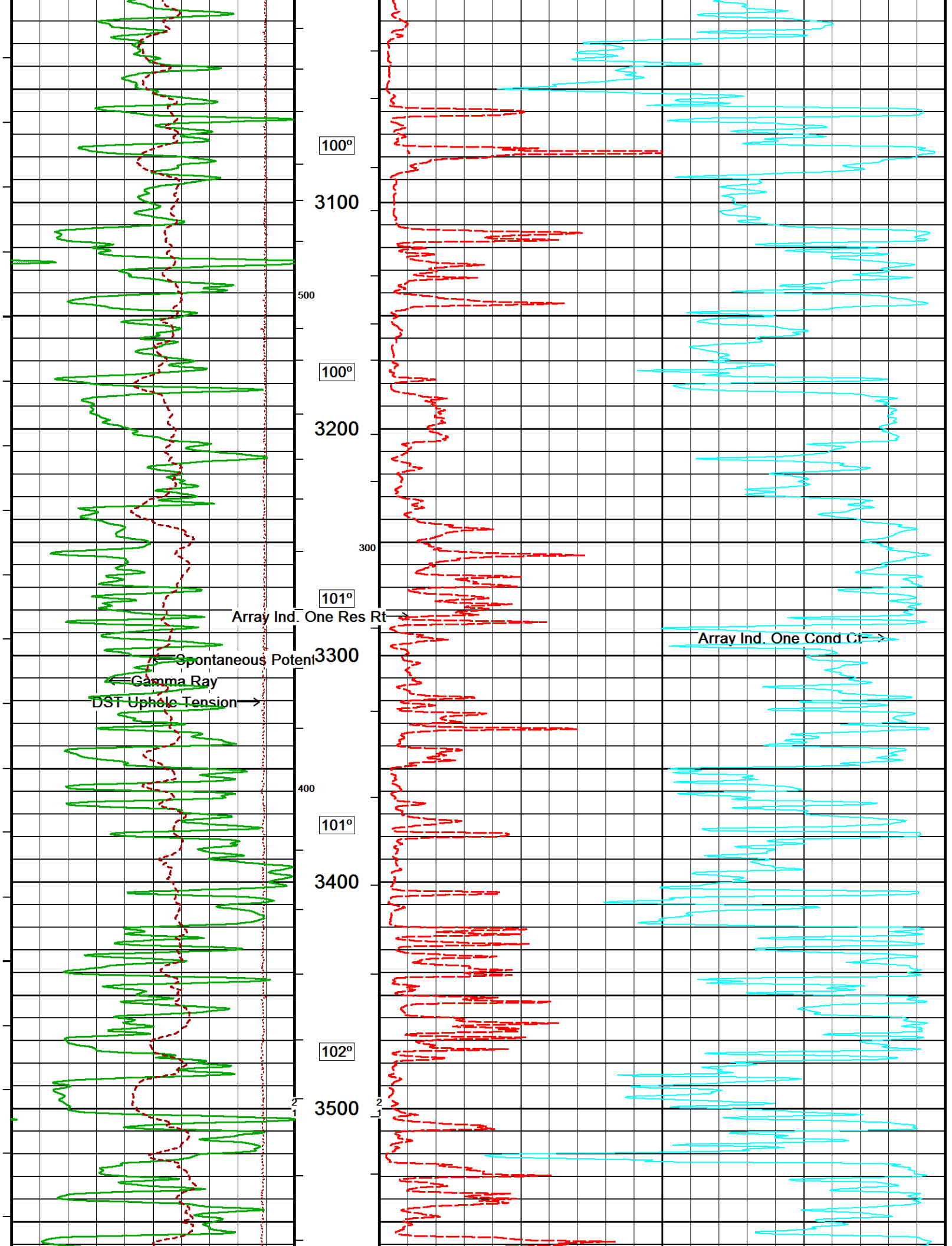


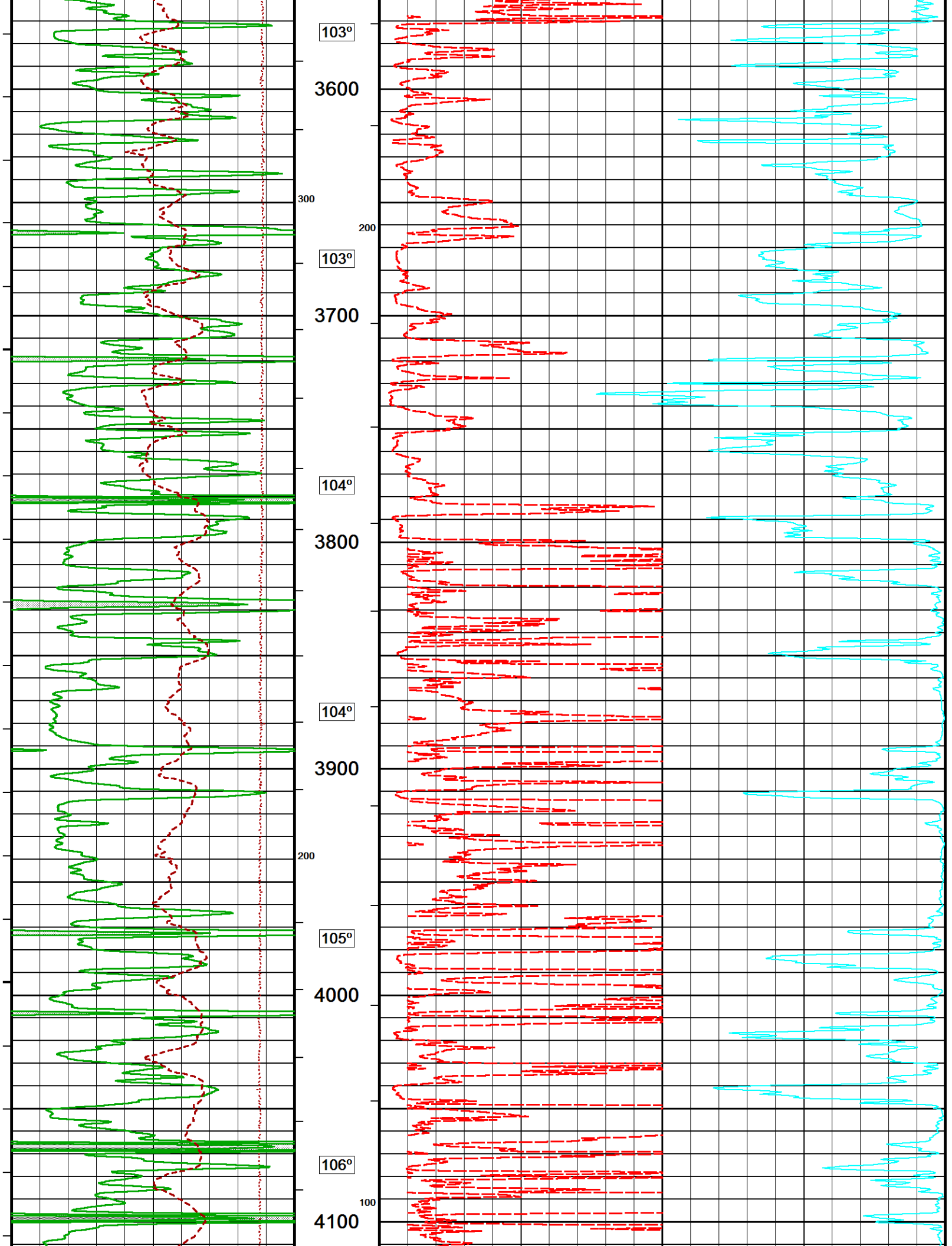


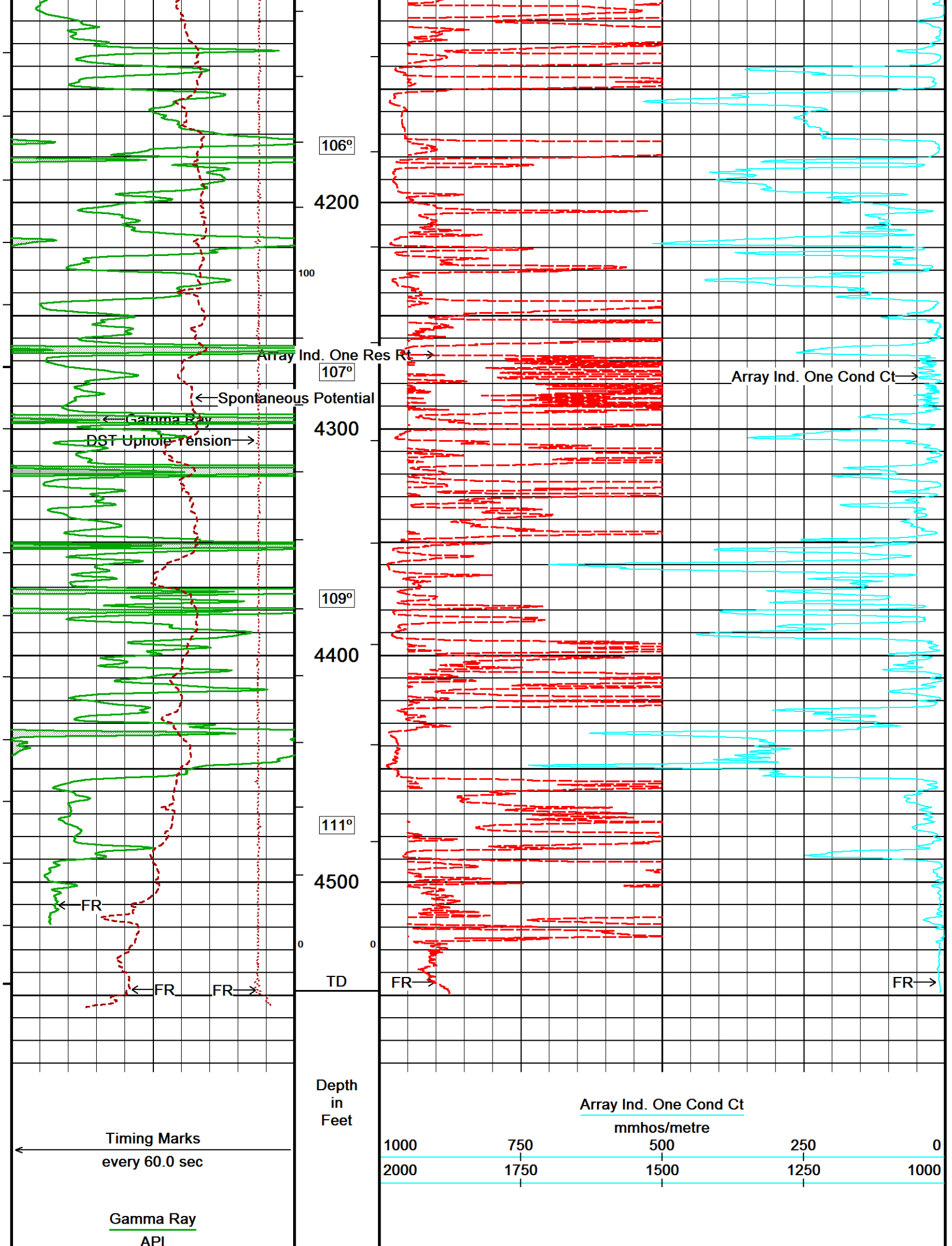


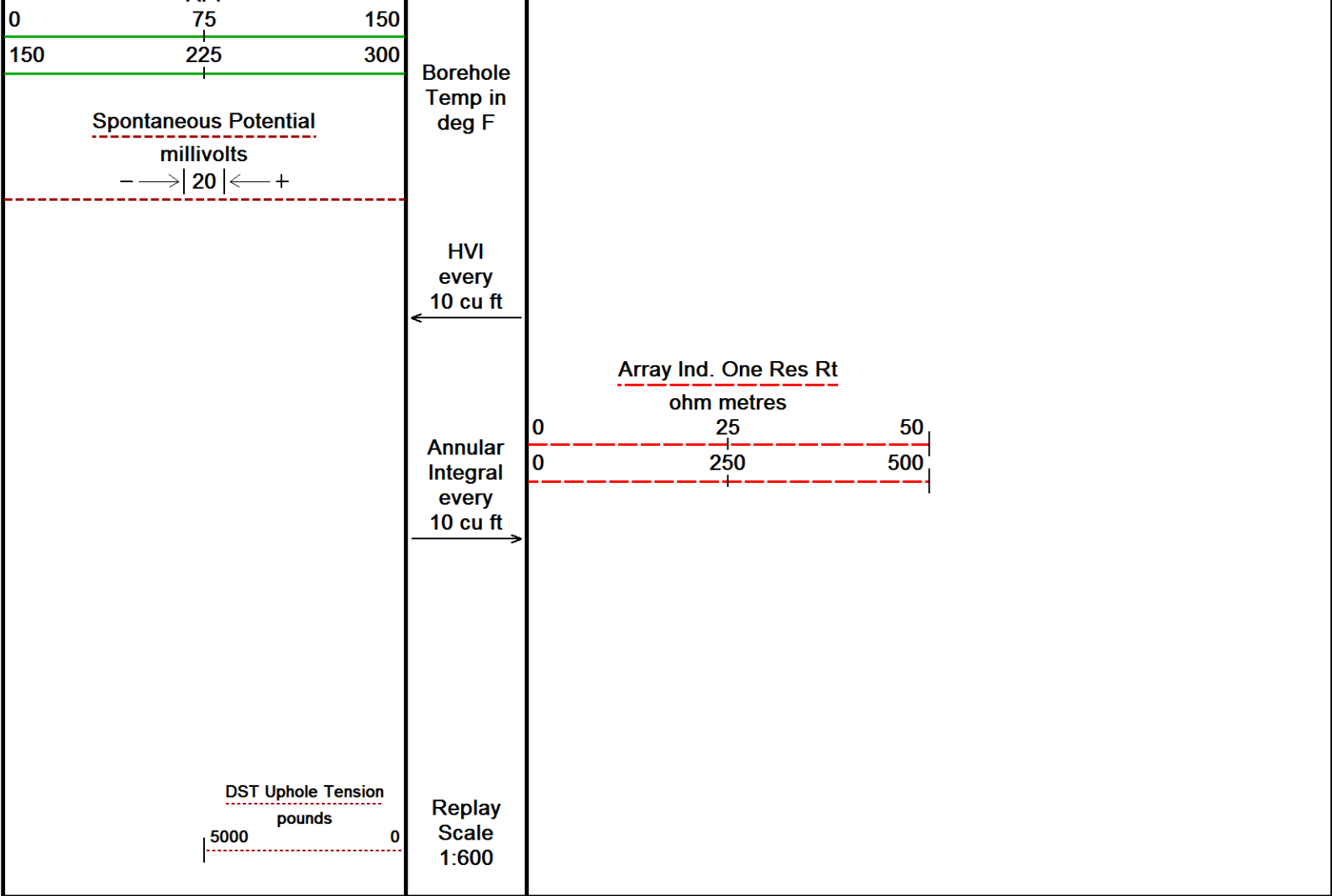










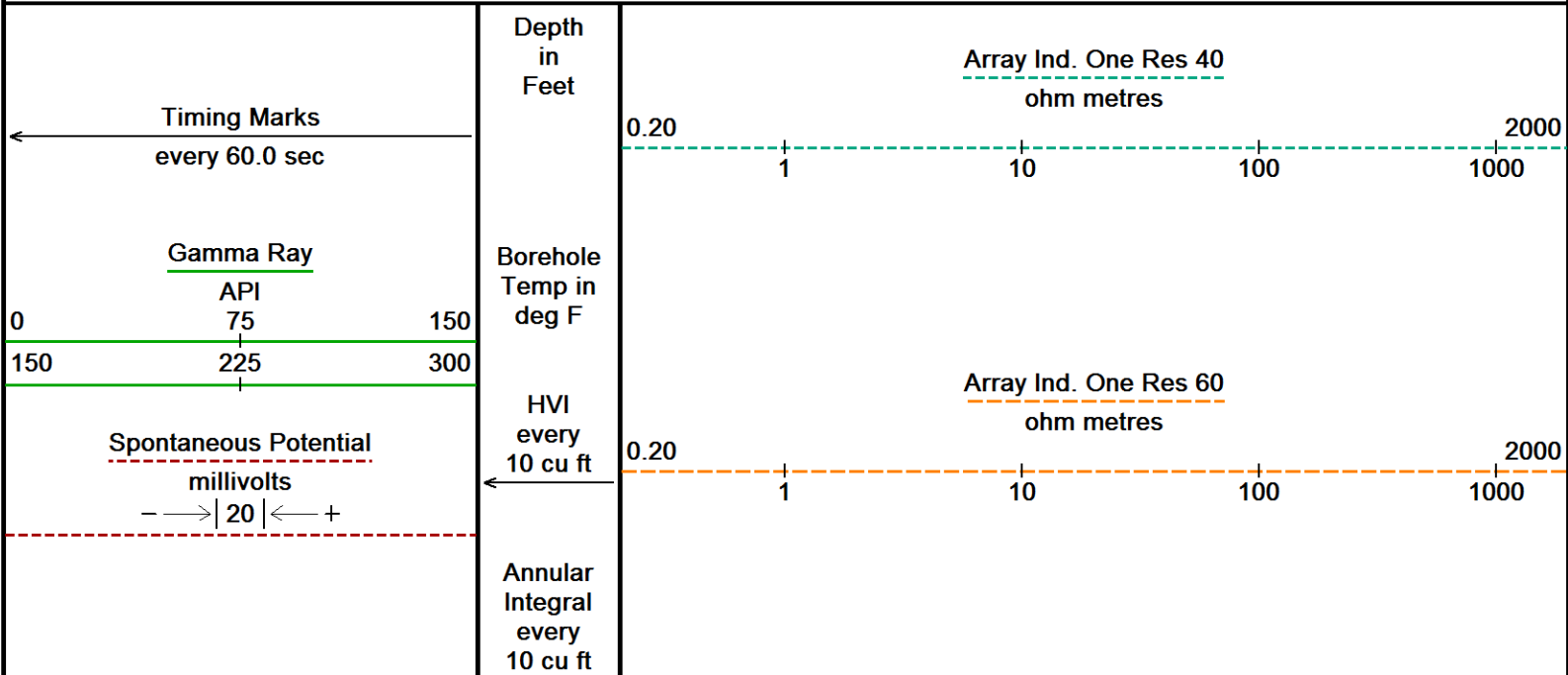


Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 01-FEB-2019 09:05
Filename: C:\Minimus 18.05.4364\DATA\Shakespeare Oil Co (OTTLEY 2-14)\MAIN PASS_FINAL.dta	Recorded on 01-FEB-2019 05:58
System Versions: Logged with 18.05.4364 Processed with 18.05.4364 Plotted with 18.05.4364	

↑	2 INCH MAIN	↑
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↓	5 INCH MAIN	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 01-FEB-2019 09:05
Filename: C:\Minimus 18.05.4364\DATA\Shakespeare Oil Co (OTTLEY 2-14)\MAIN PASS_FINAL.dta	Recorded on 01-FEB-2019 05:58
System Versions: Logged with 18.05.4364 Processed with 18.05.4364 Plotted with 18.05.4364	



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

250
Casing
Shoe

83°

300

83°

350

84°

400

Array Ind. One Res Rt
ohm metres

0.20

1

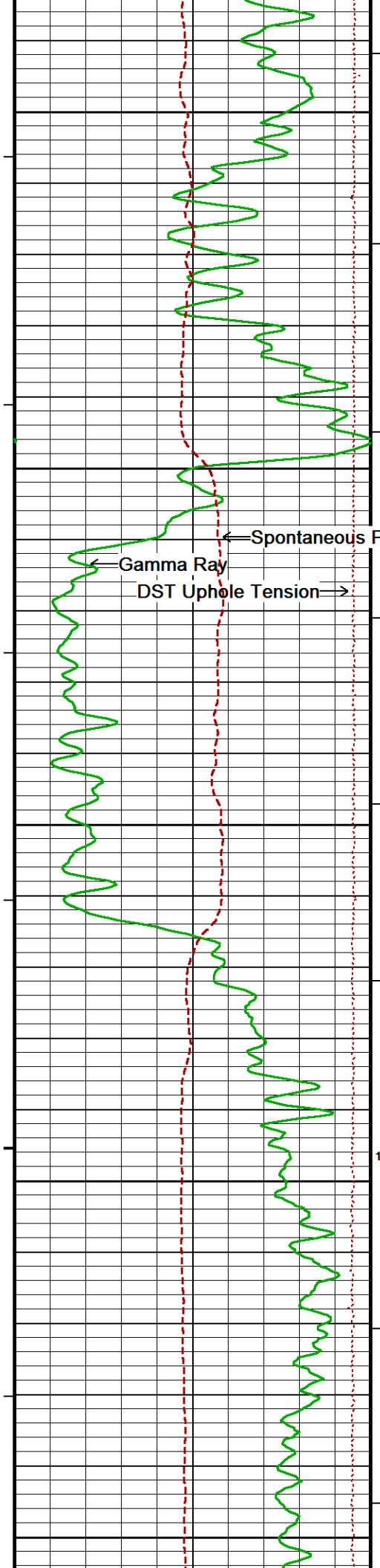
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100

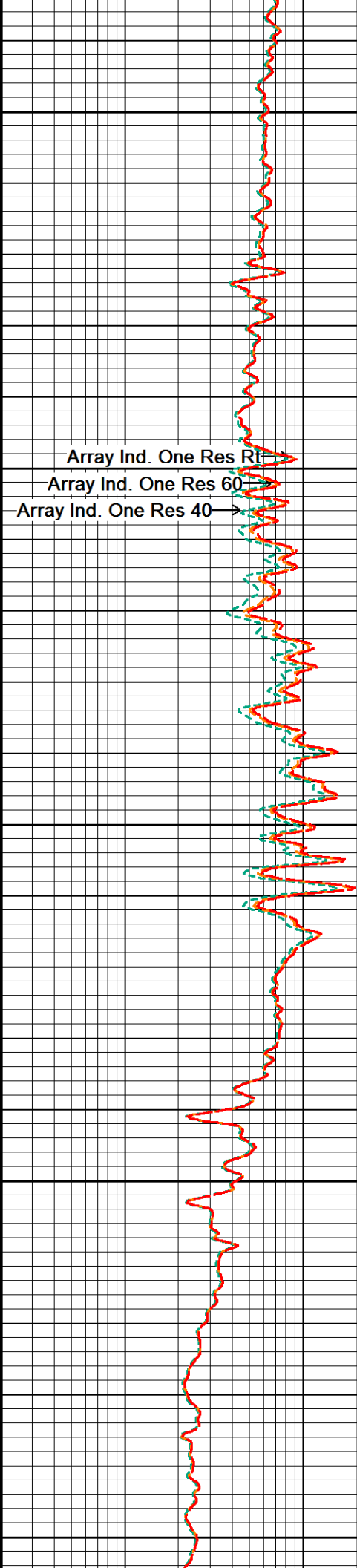
1000

2000

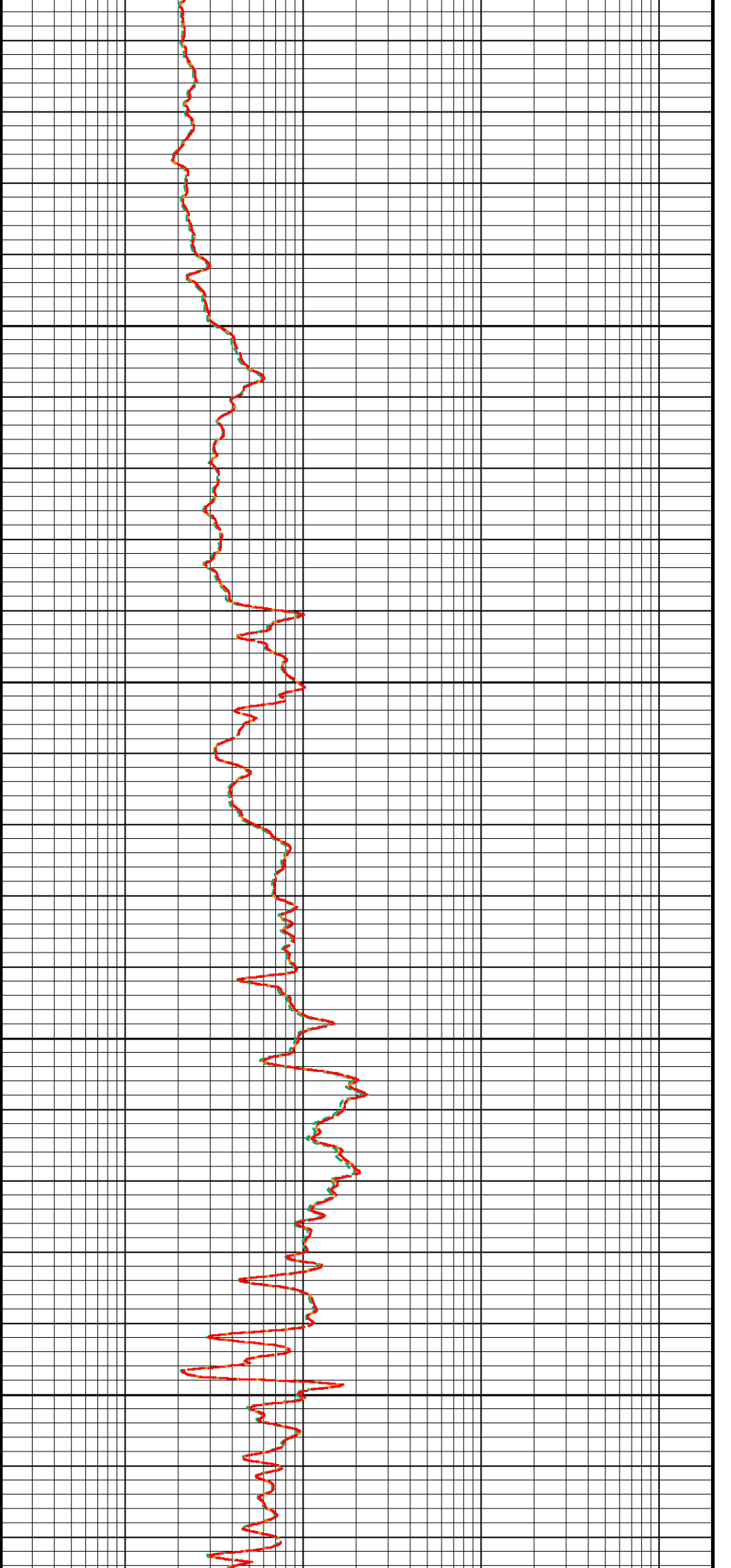
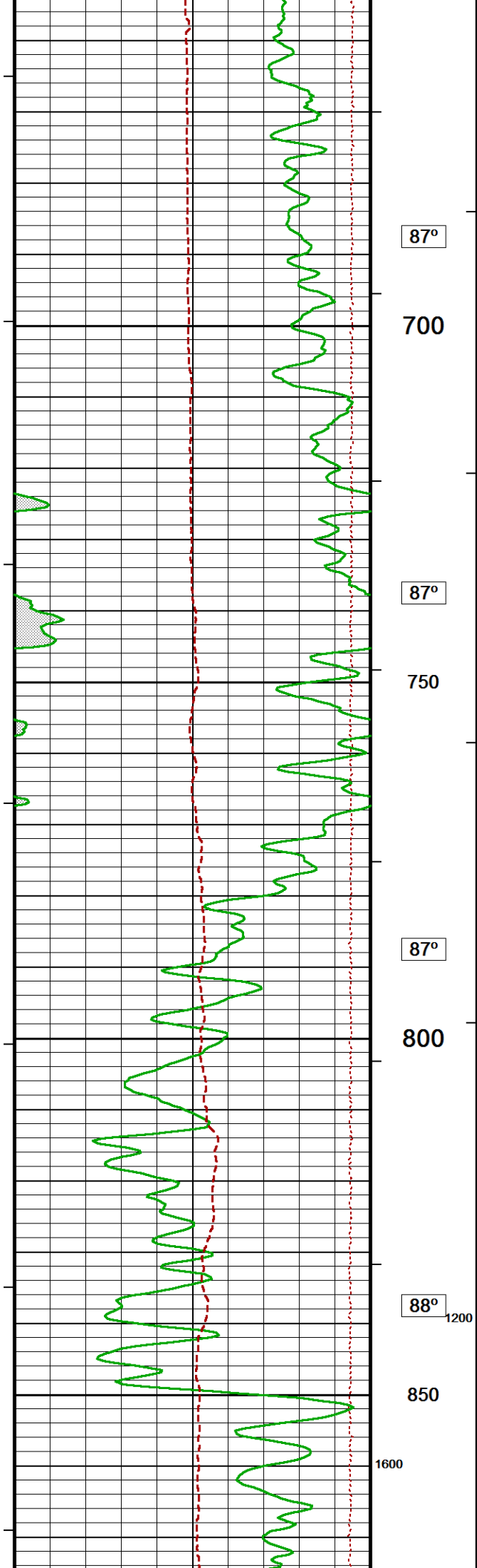
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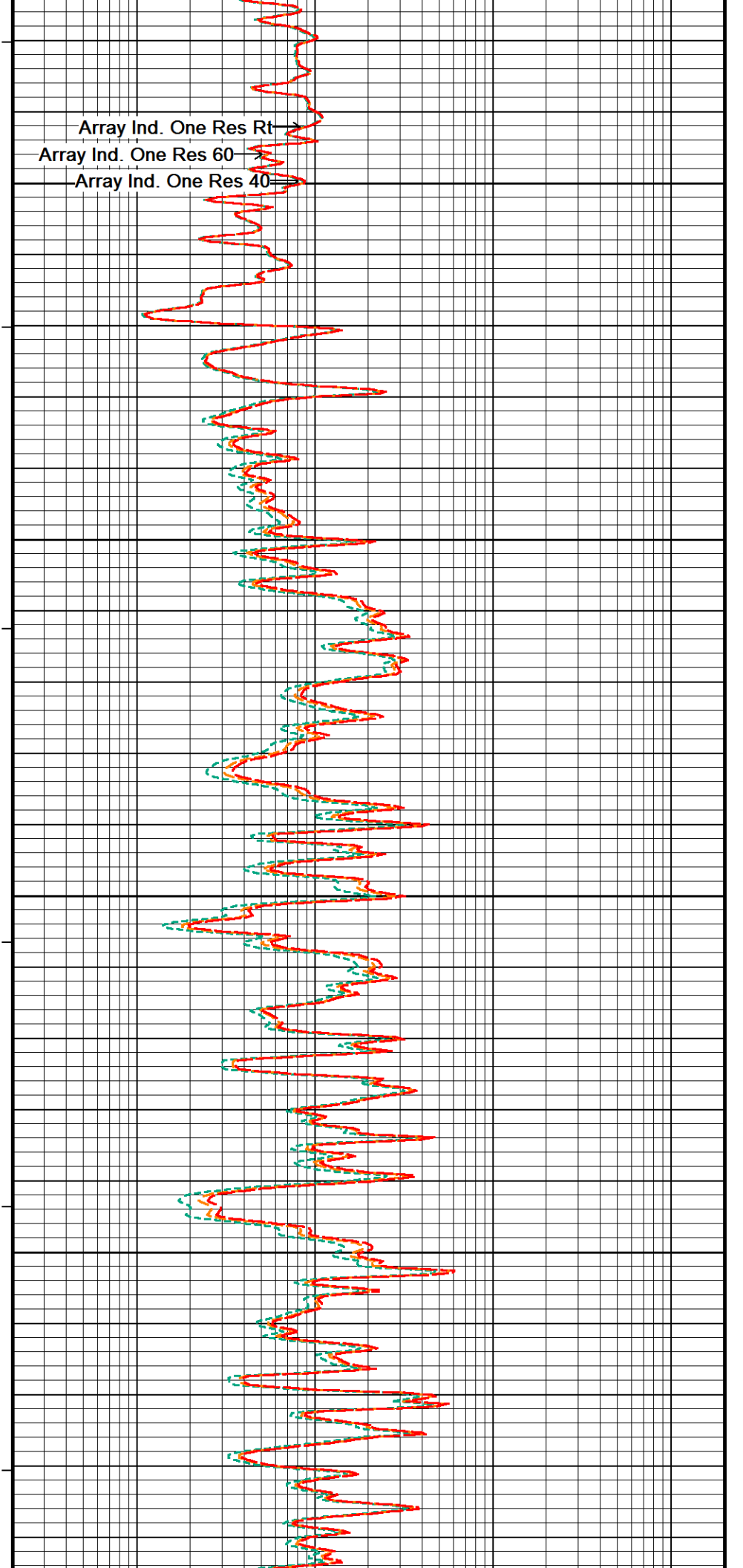
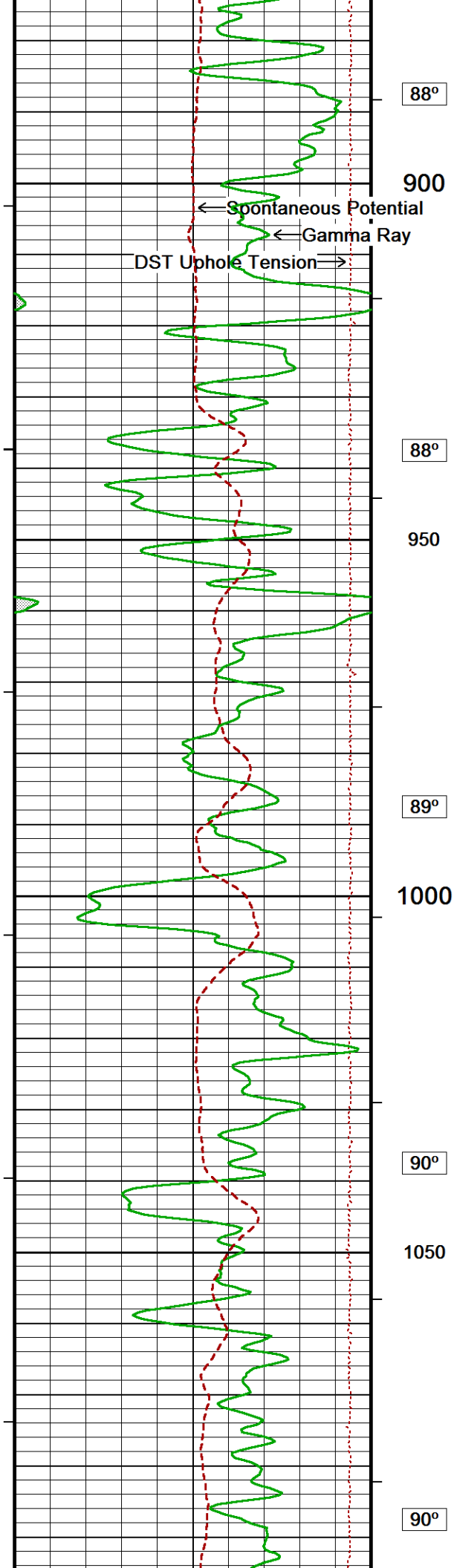


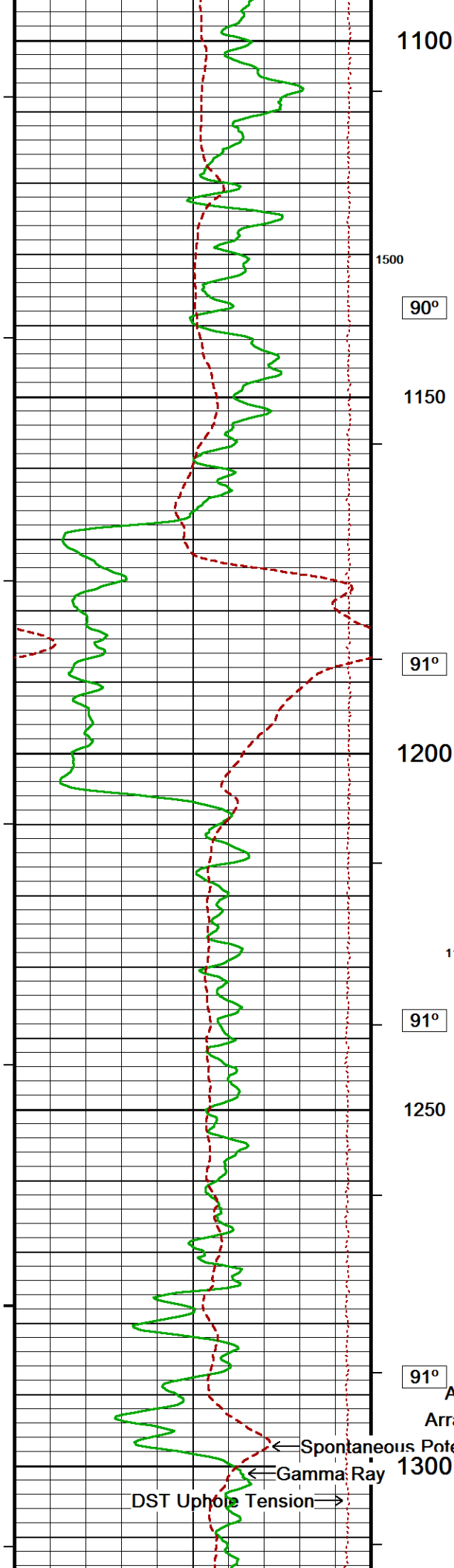
84°
450
1300
84°
500
85°
550
86°
1700
600
86°
650



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







1100

1500

90°

1150

91°

1200

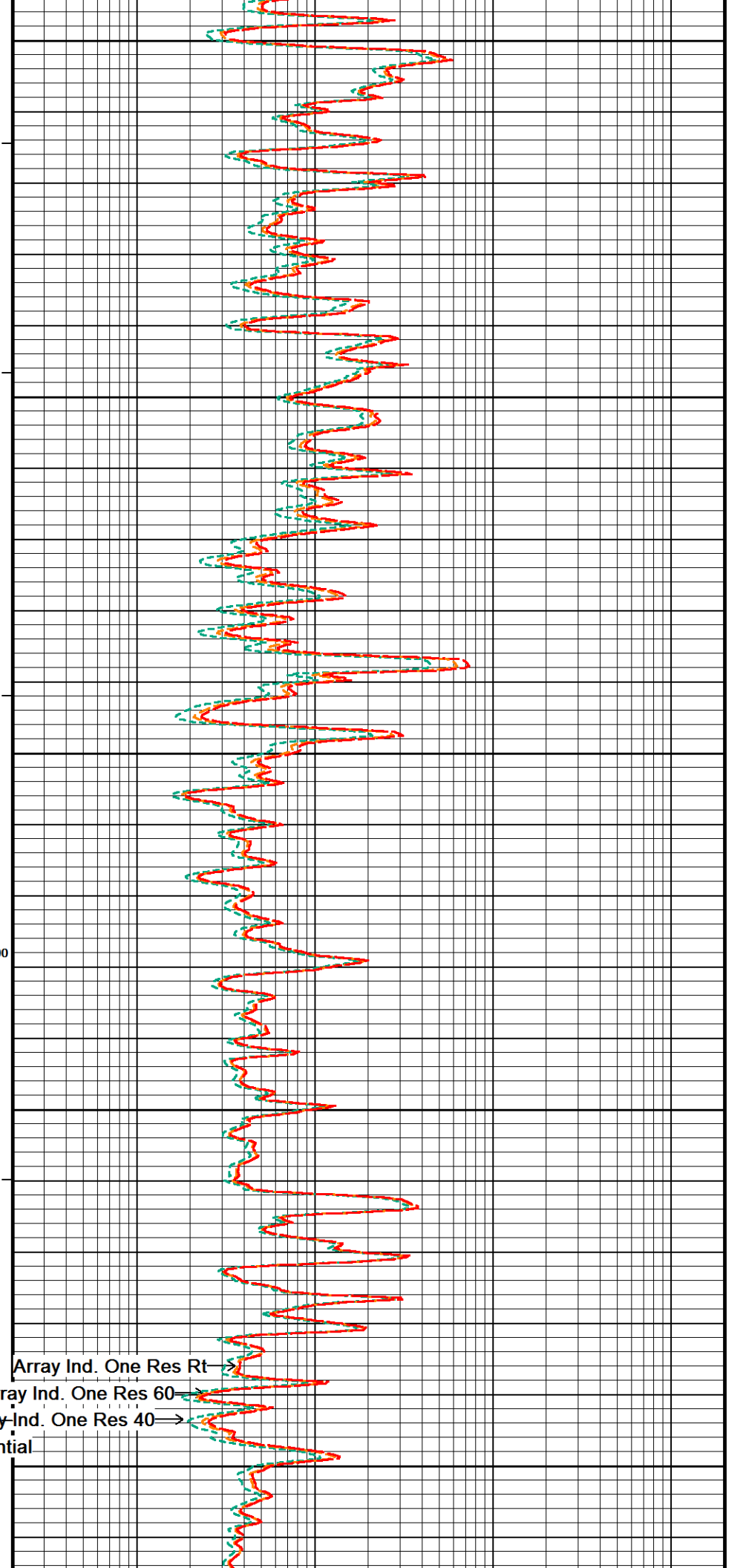
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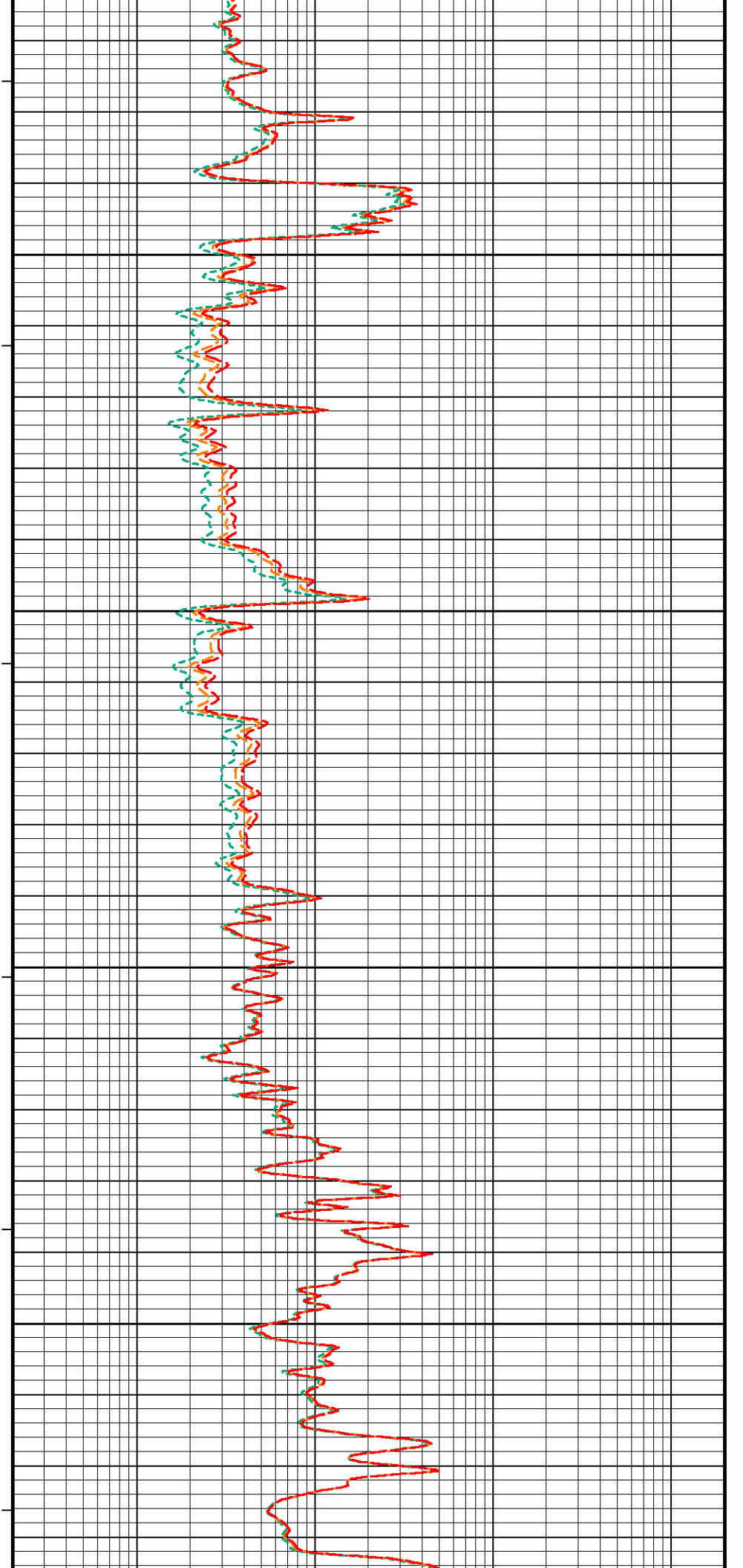
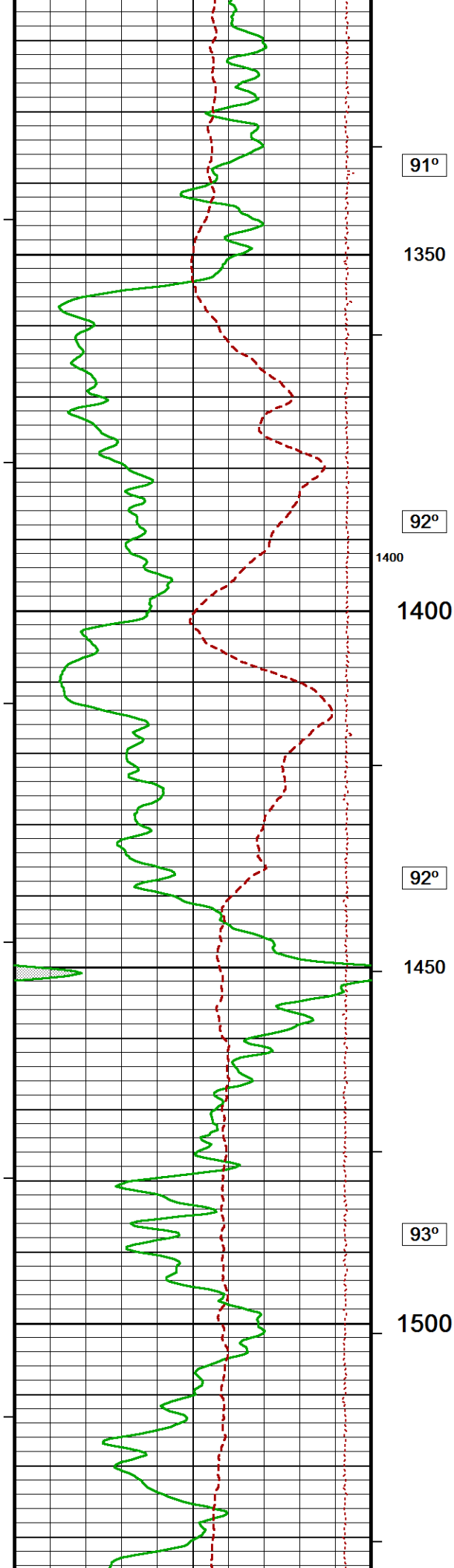
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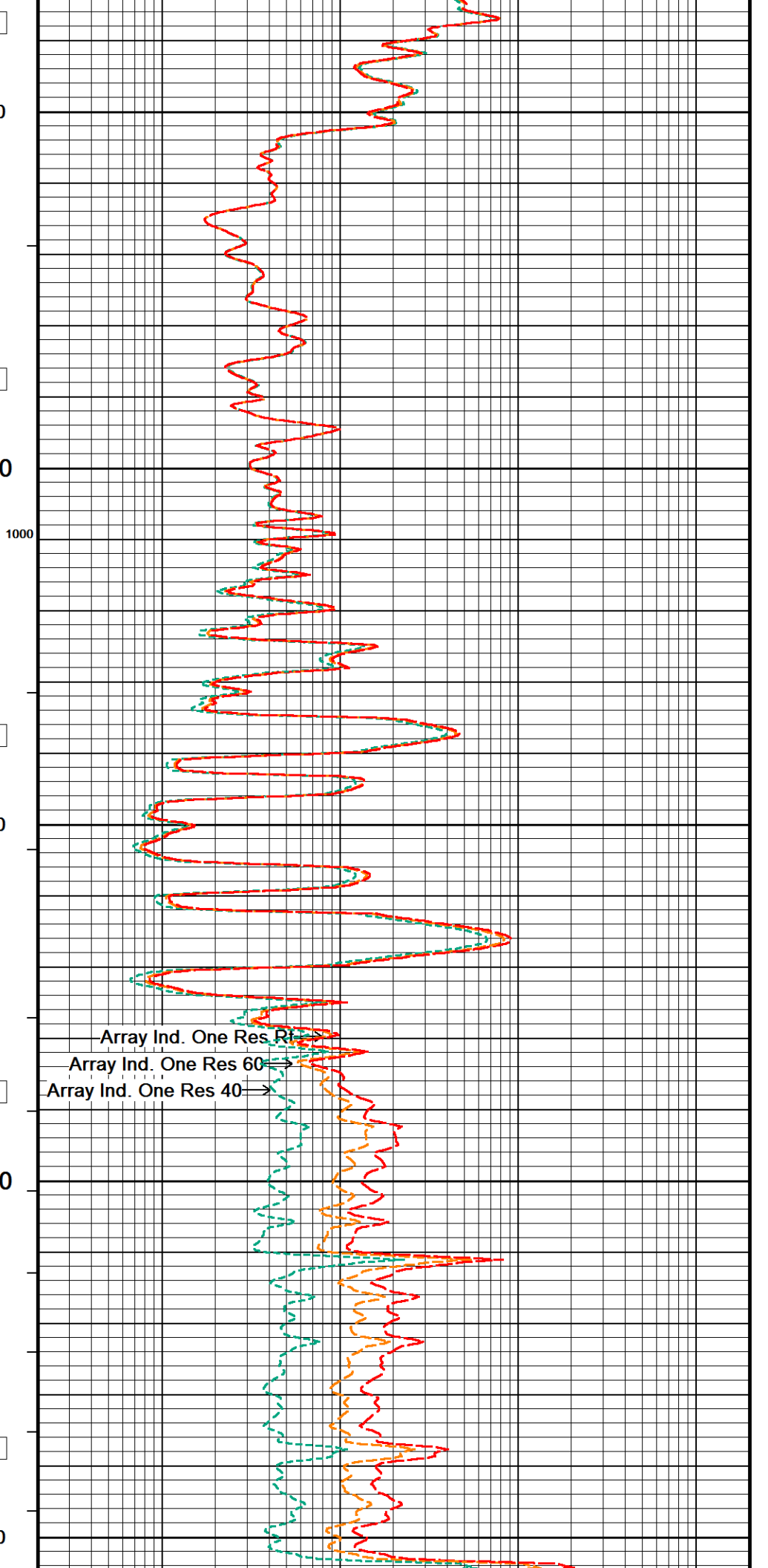
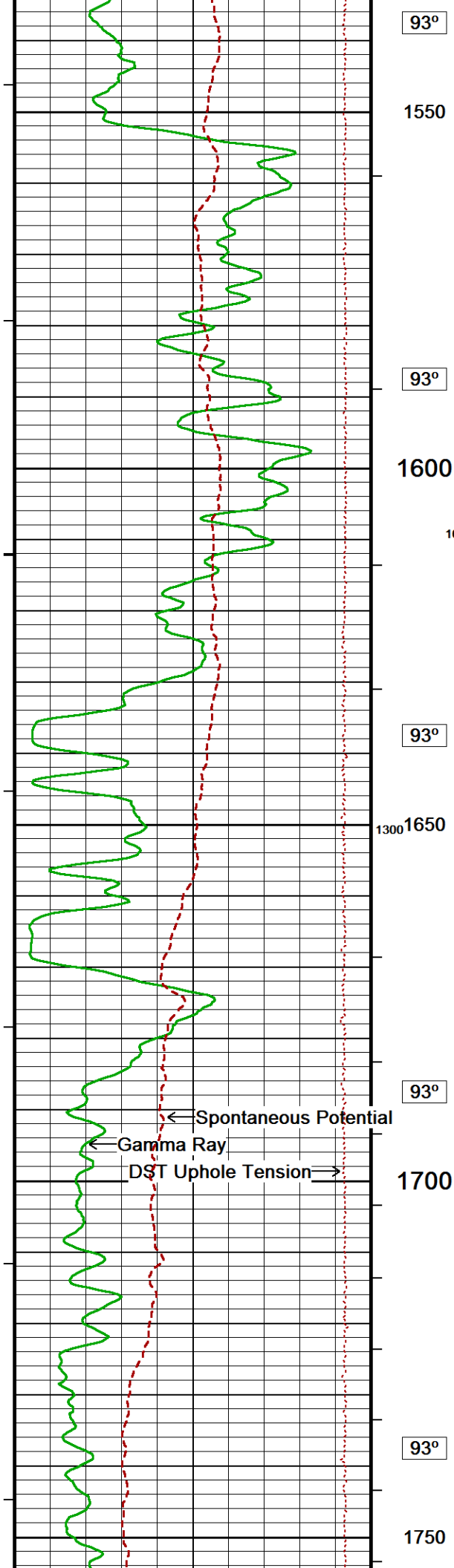
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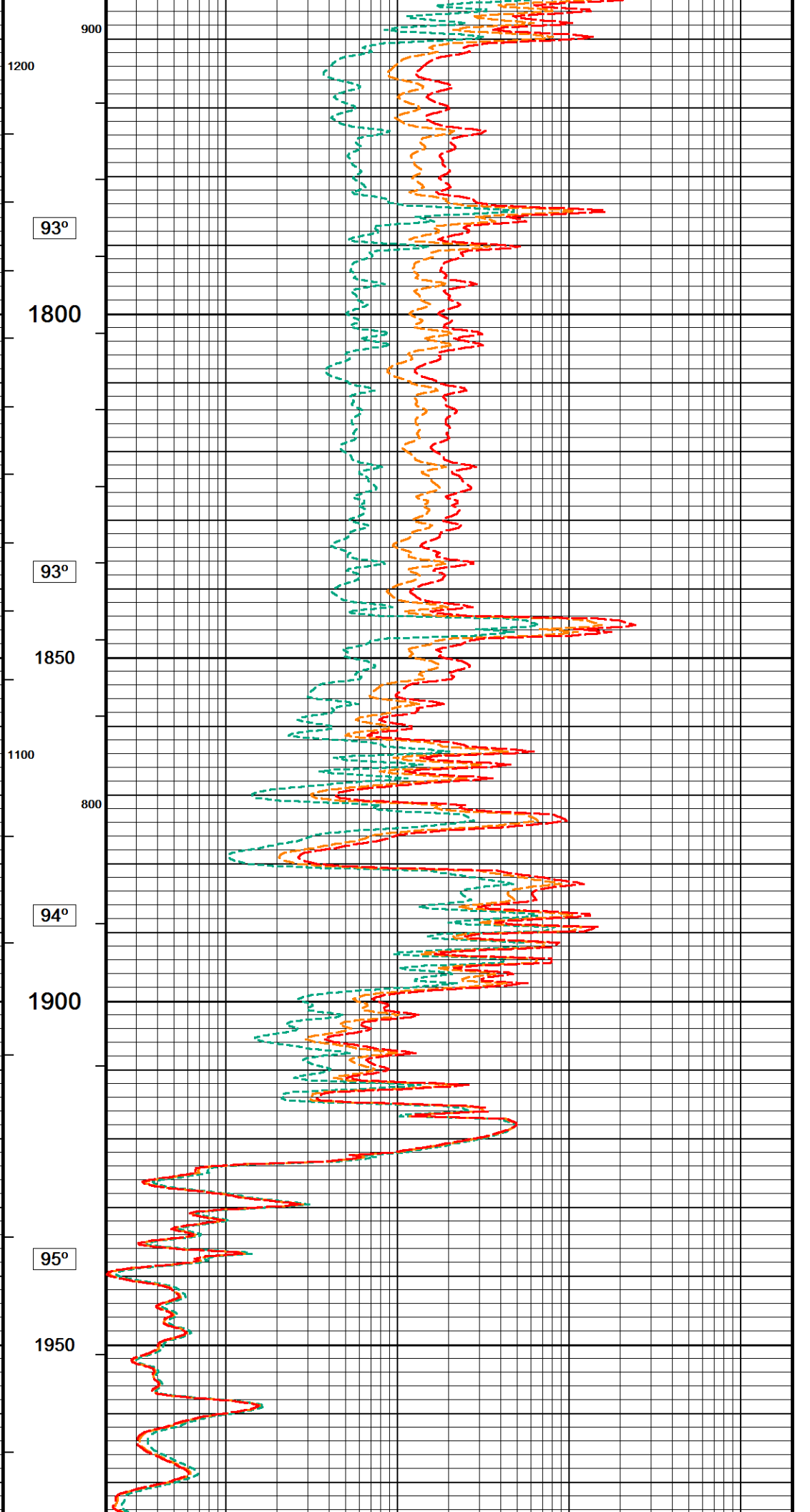
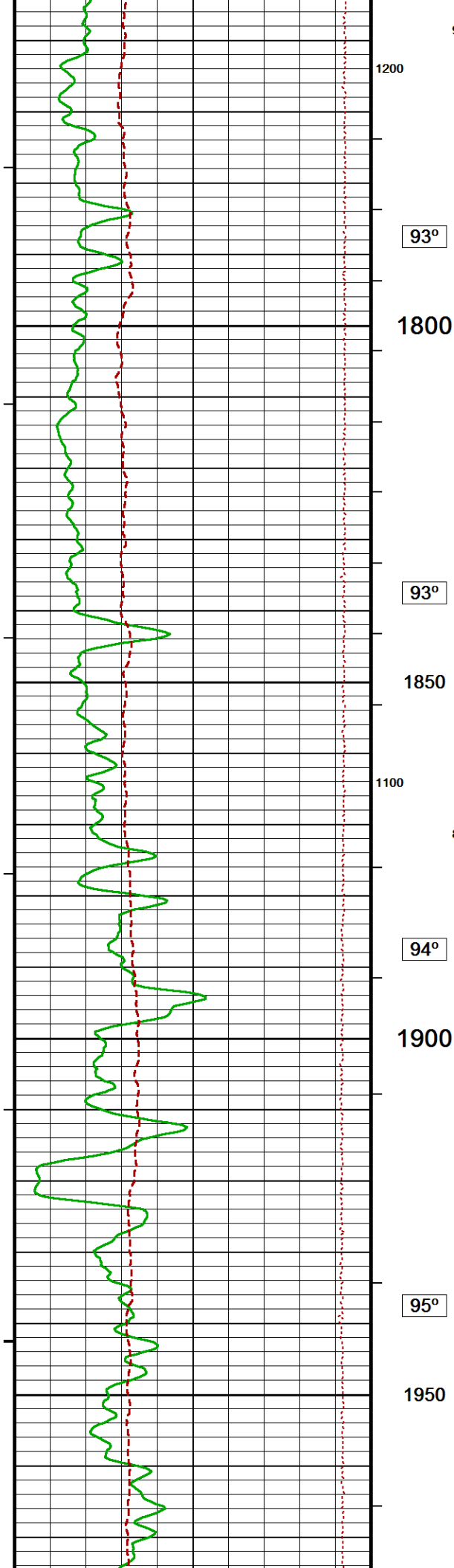
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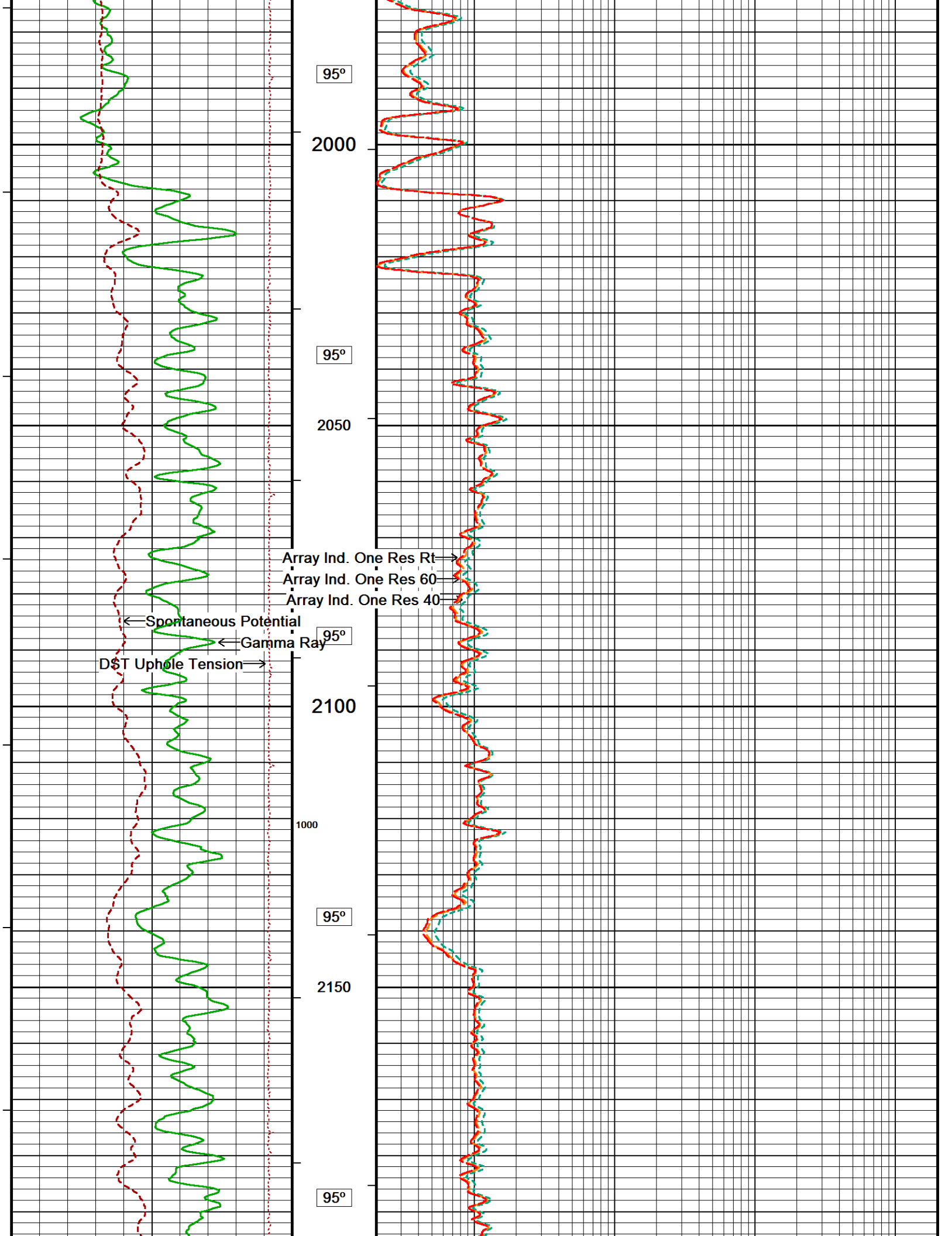
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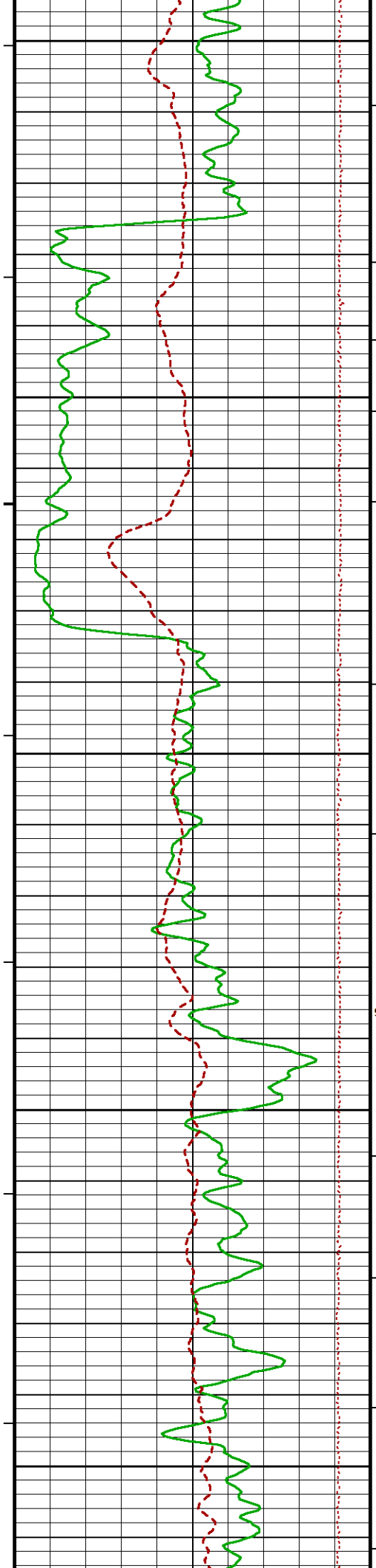












2200

95°

700

2250

96°

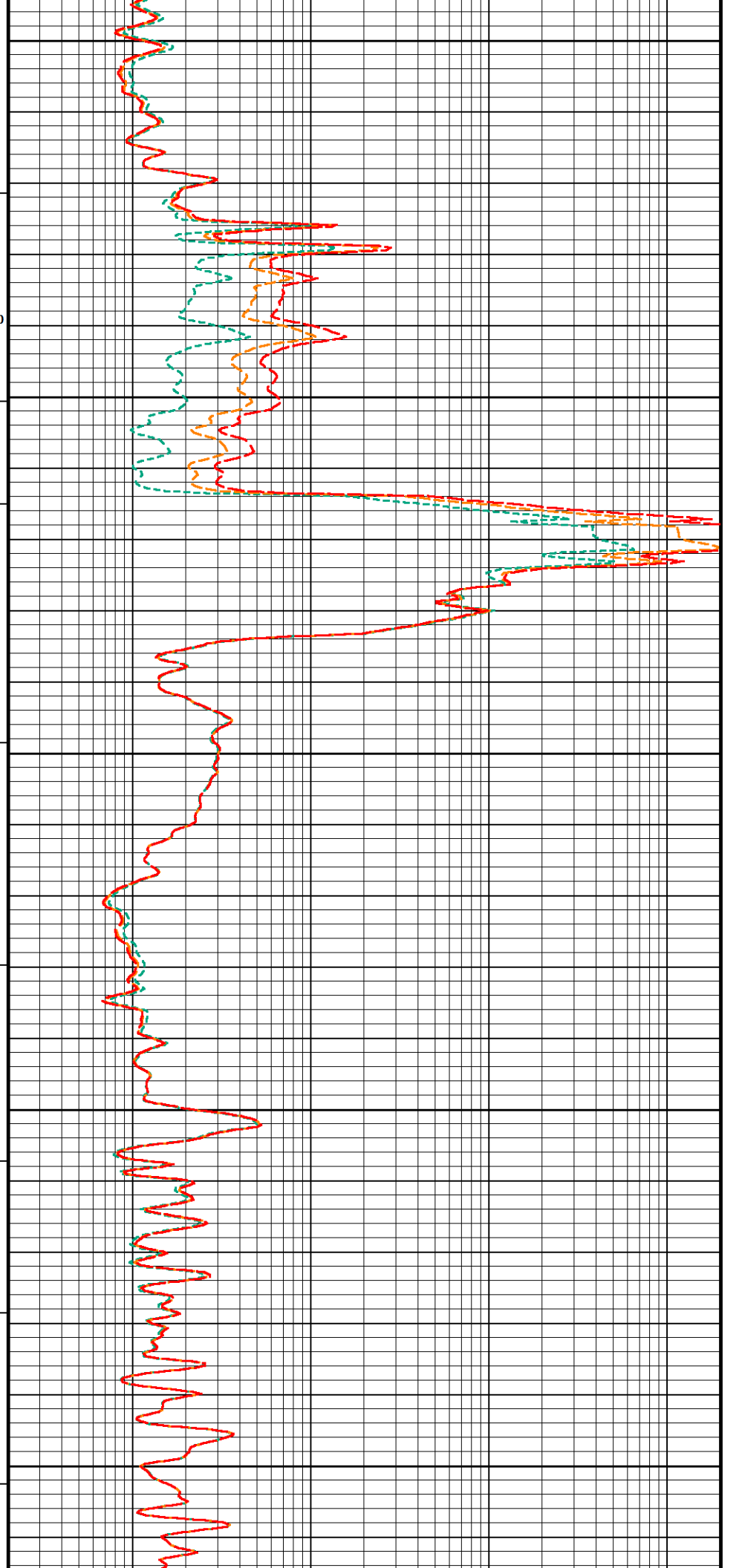
2300

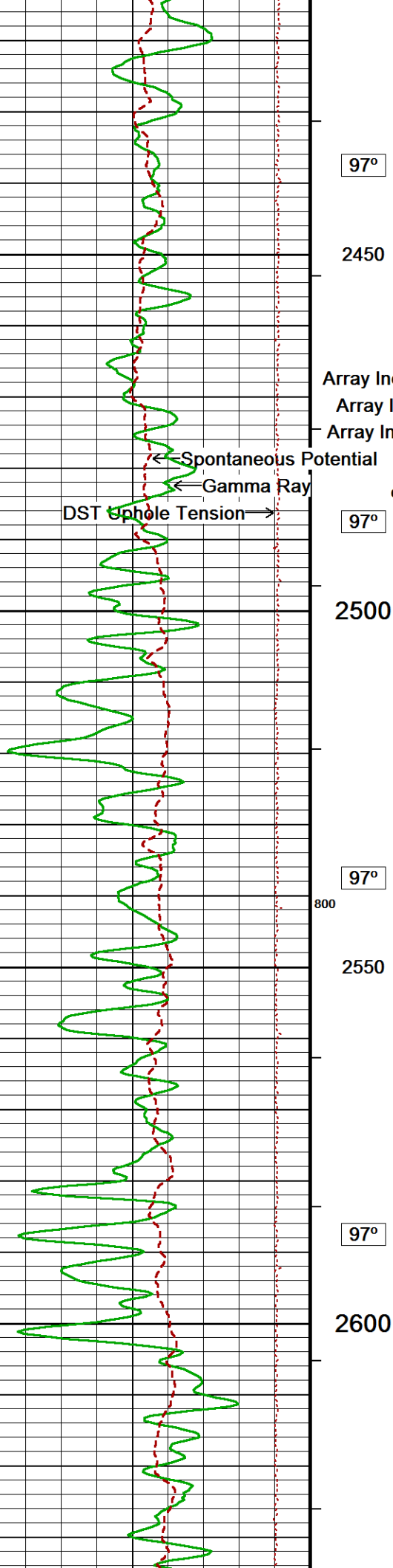
900 96°

2350

96°

2400





97°

2450

Array Ind. One Res Rt →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

97°

2500

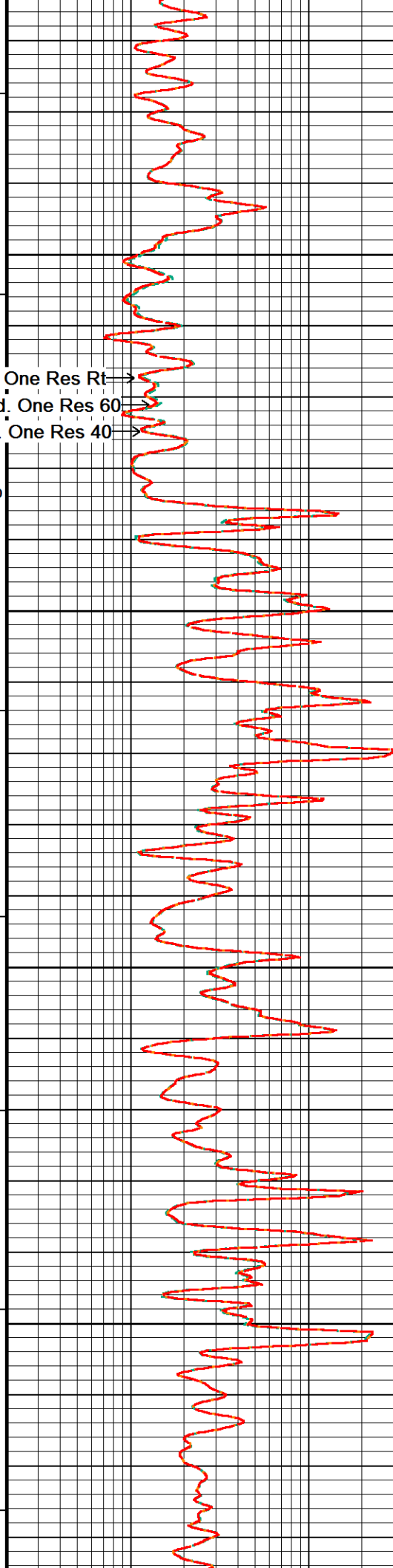
97°

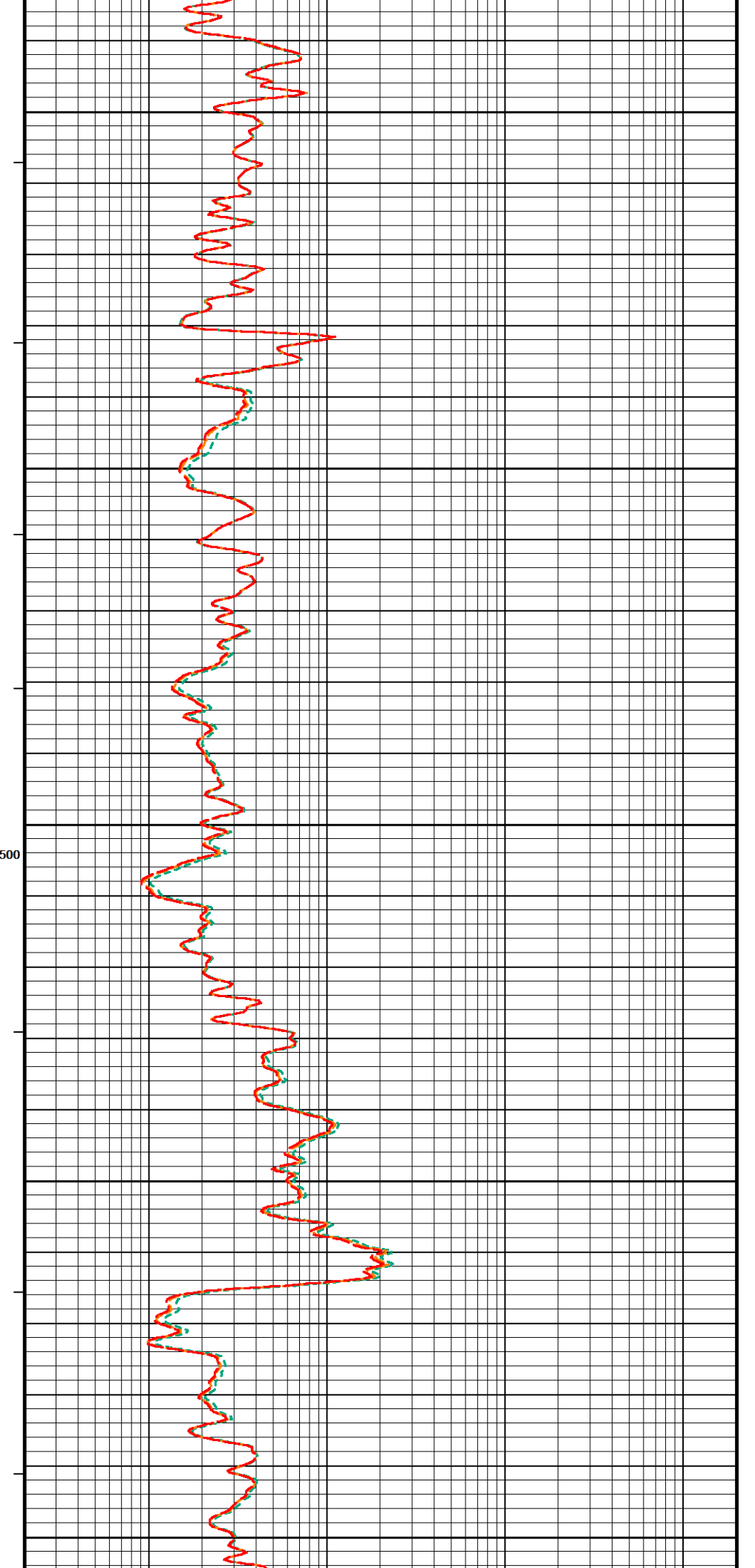
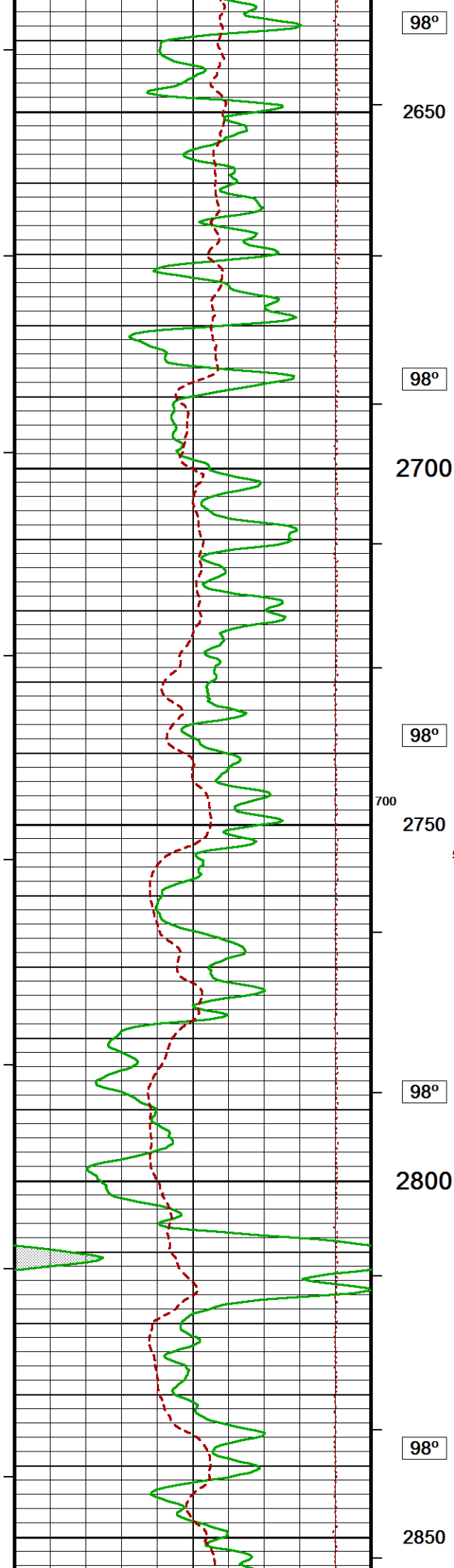
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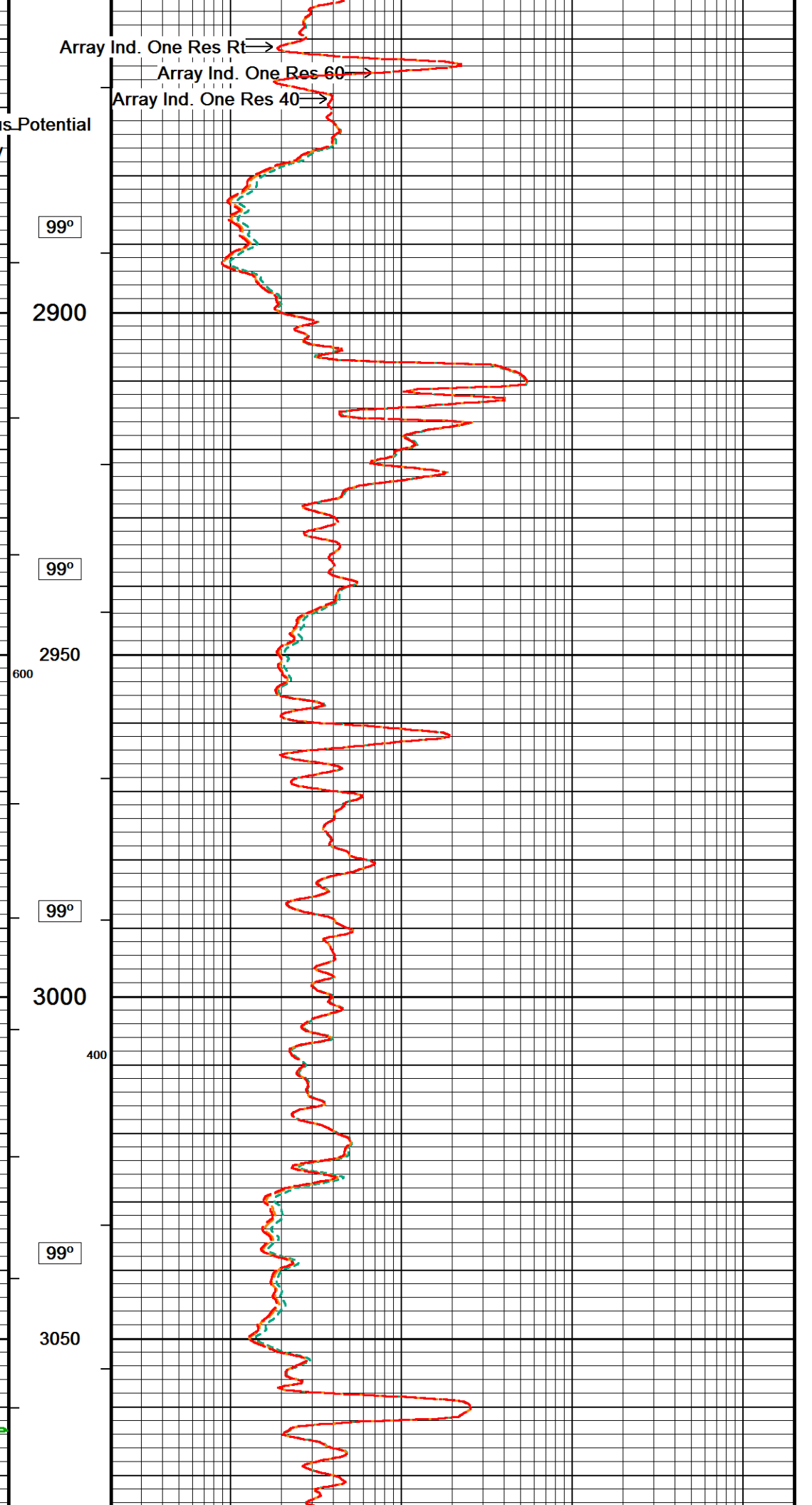
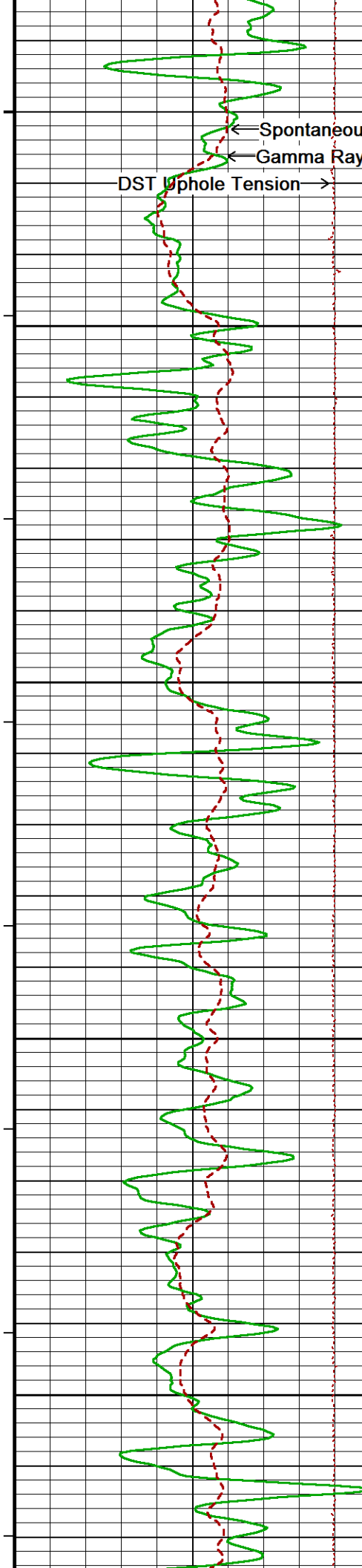
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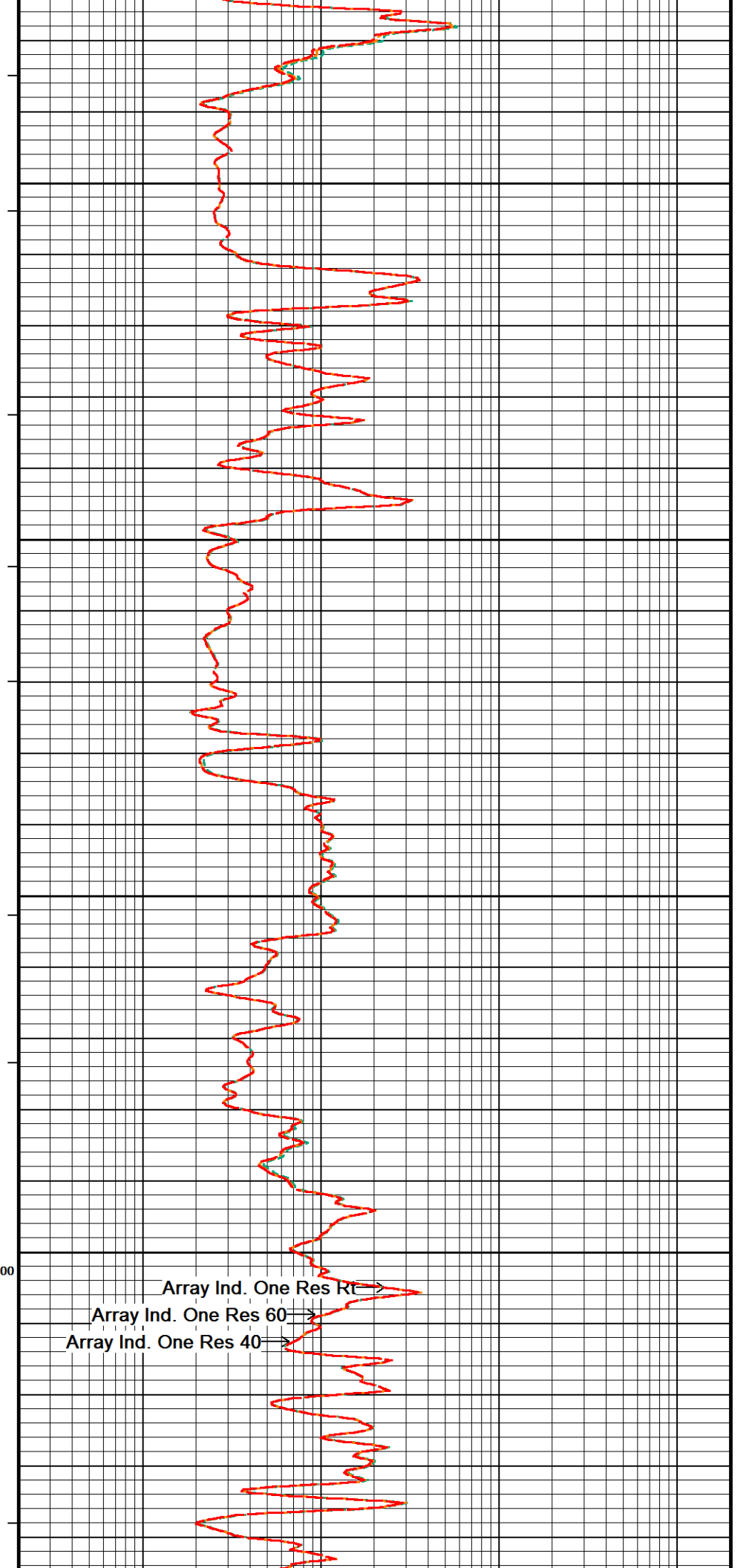
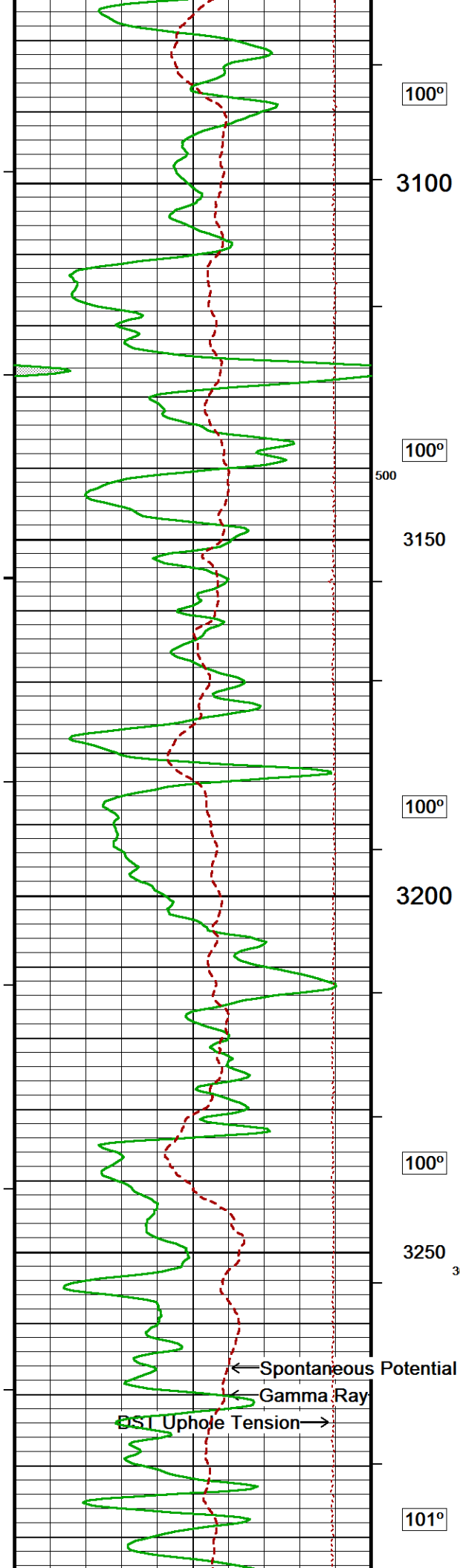
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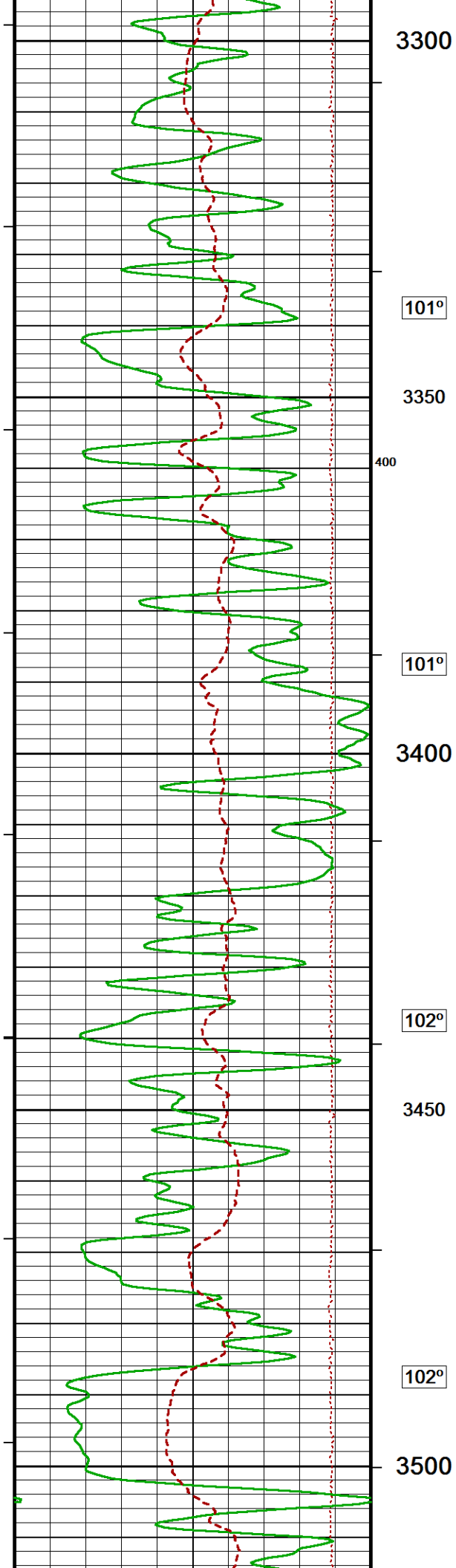
2600











3300

101°

3350

400

101°

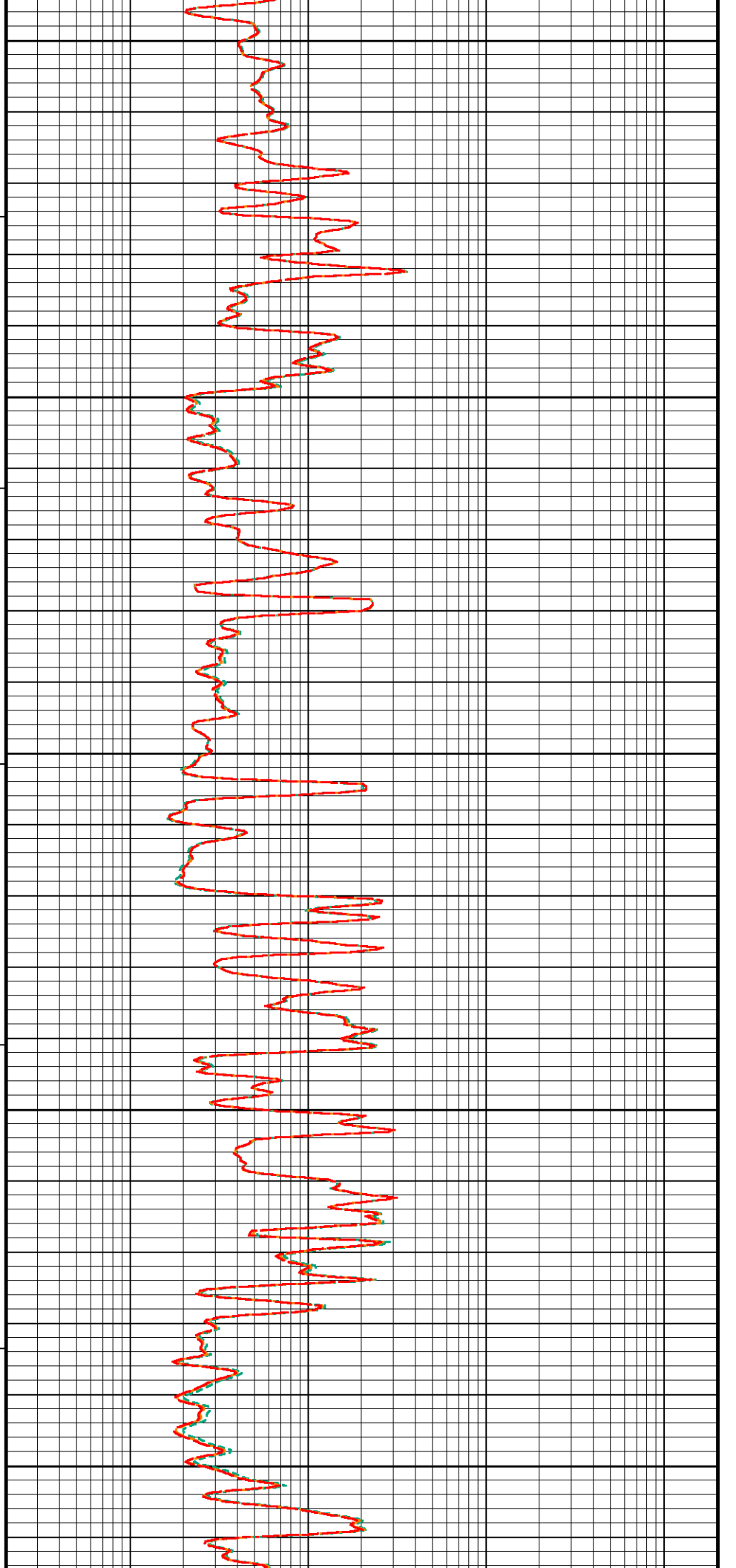
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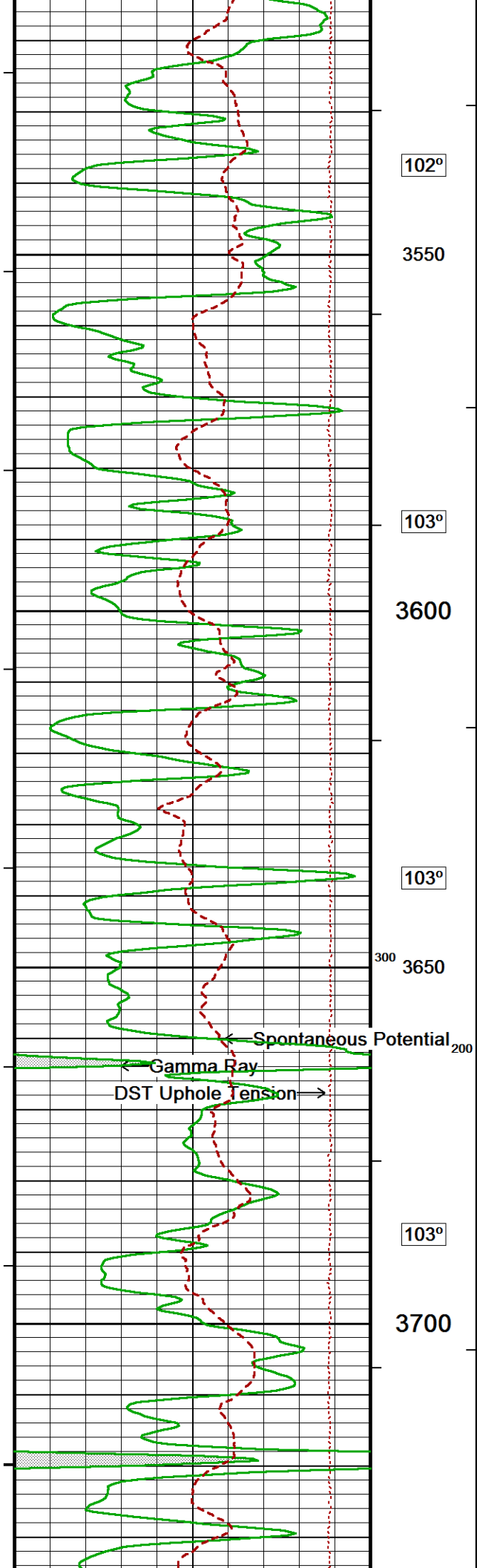
102°

3450

102°

3500





102°

3550

103°

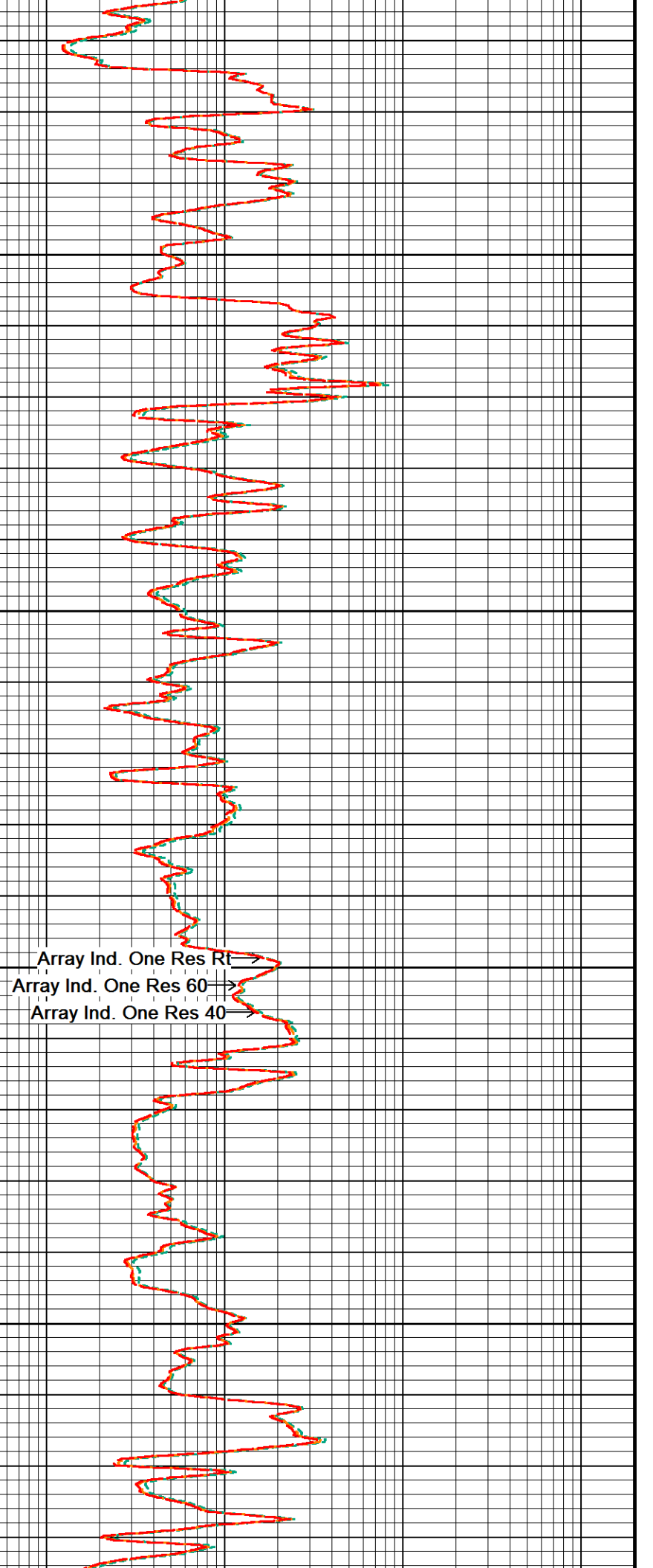
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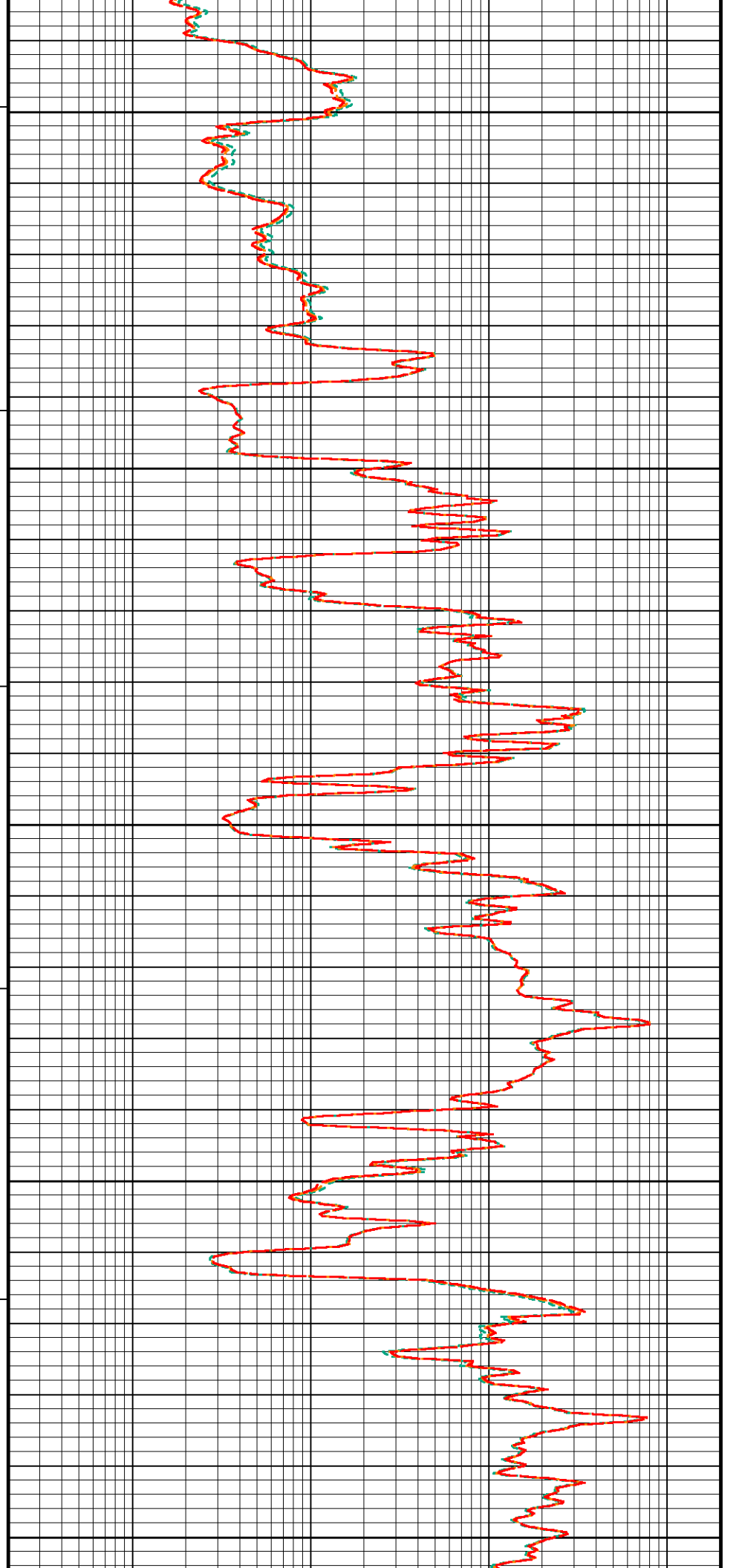
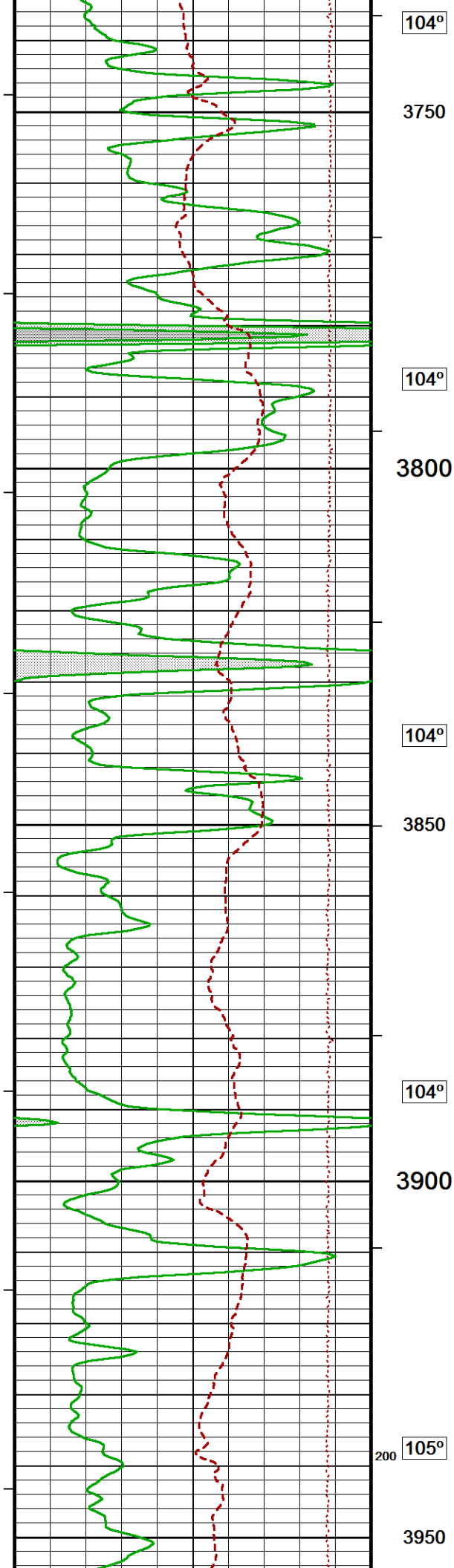
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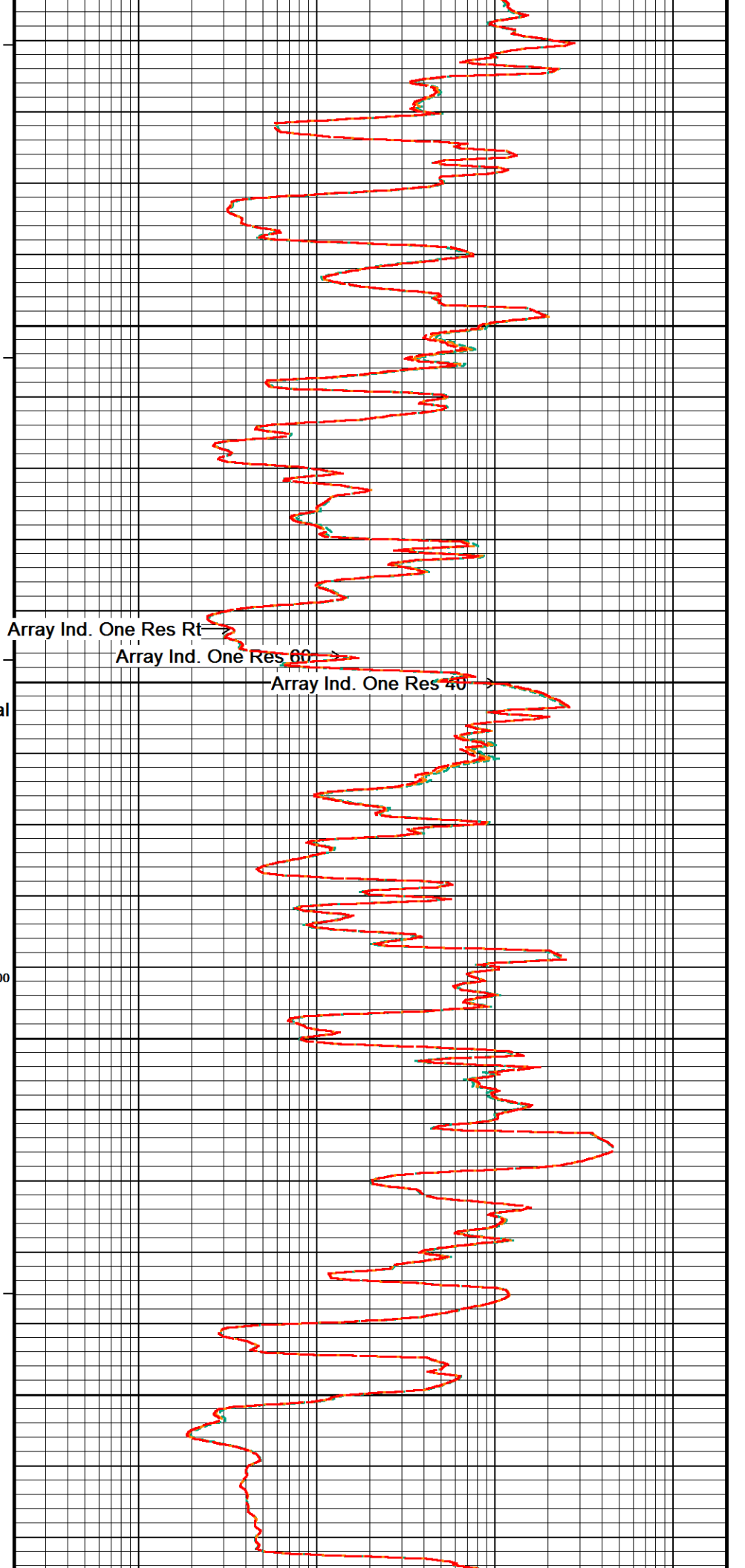
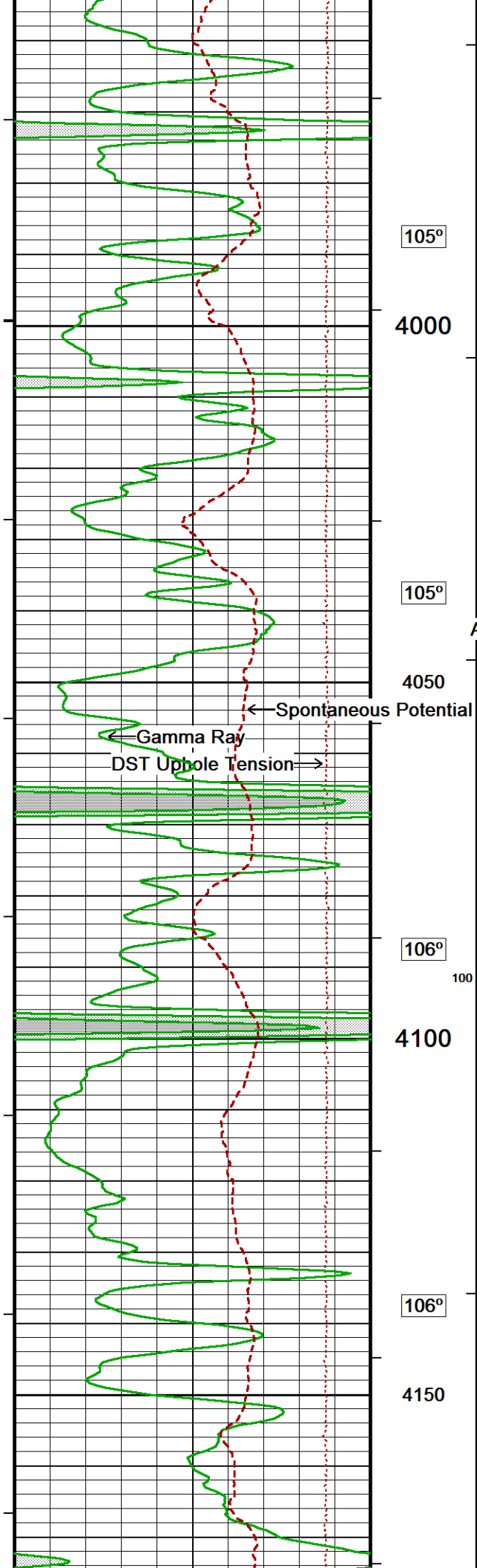
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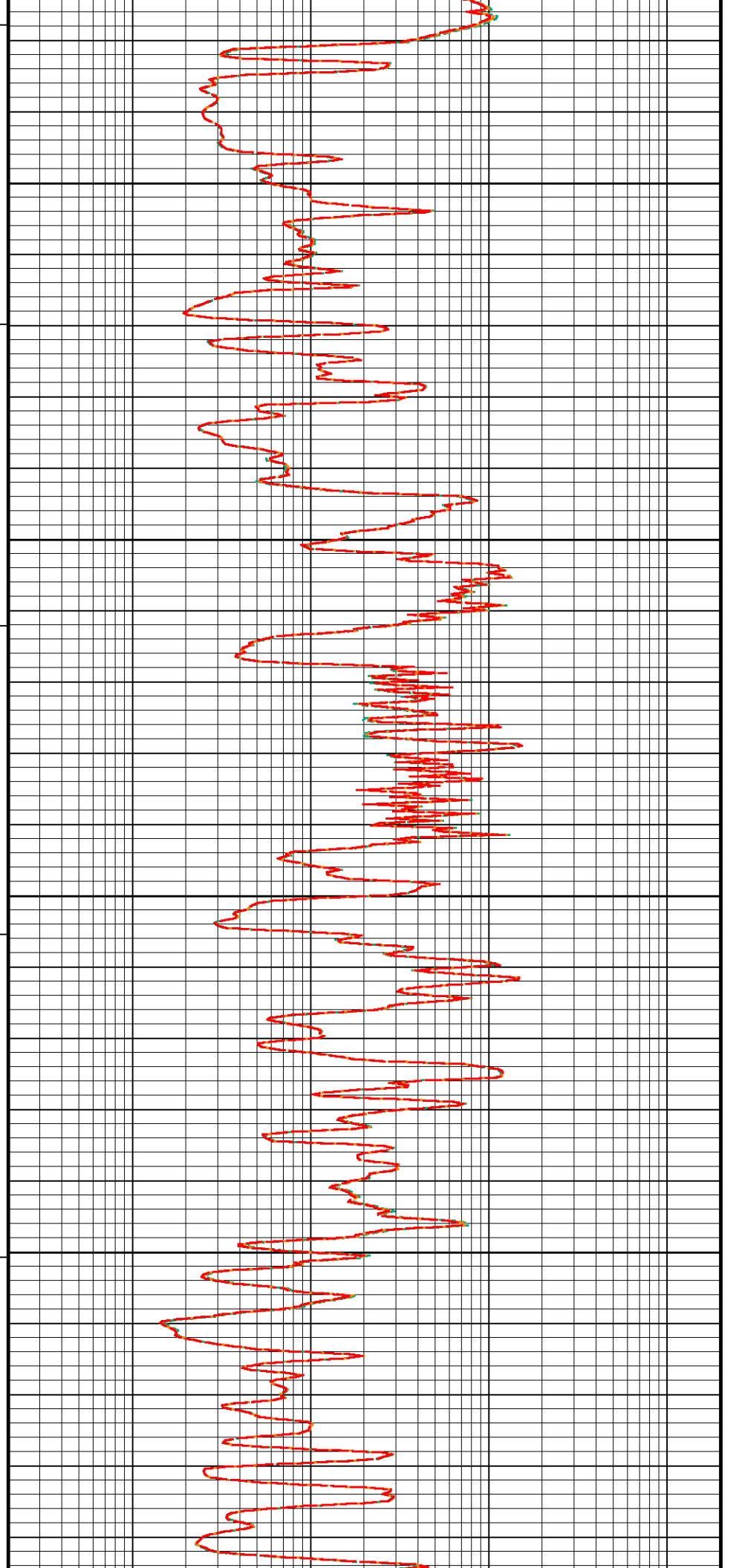
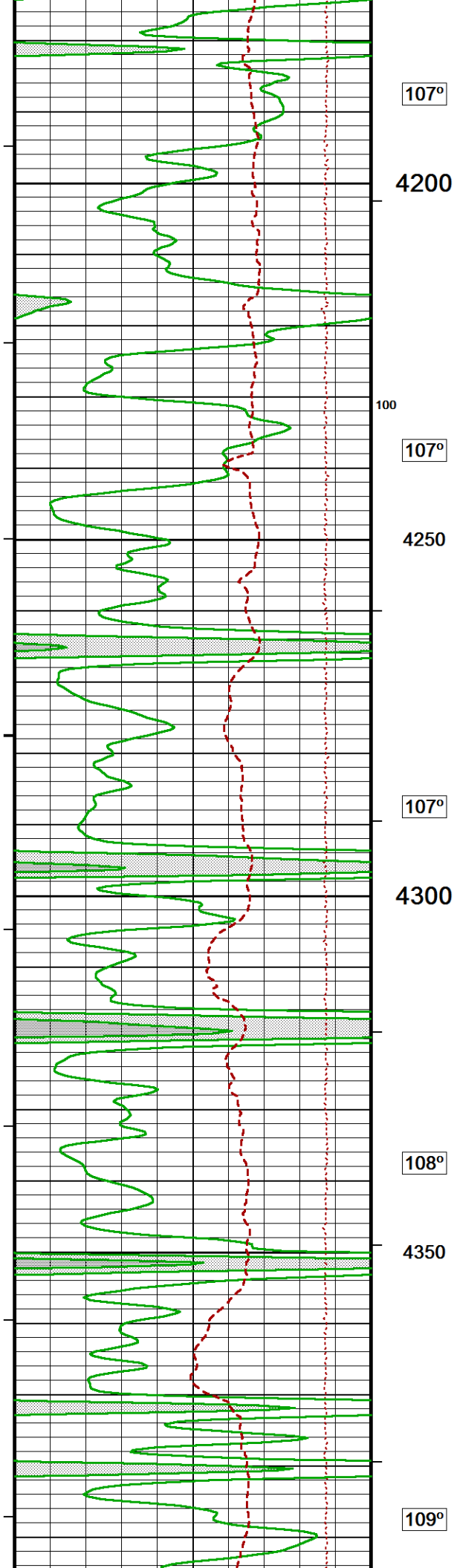
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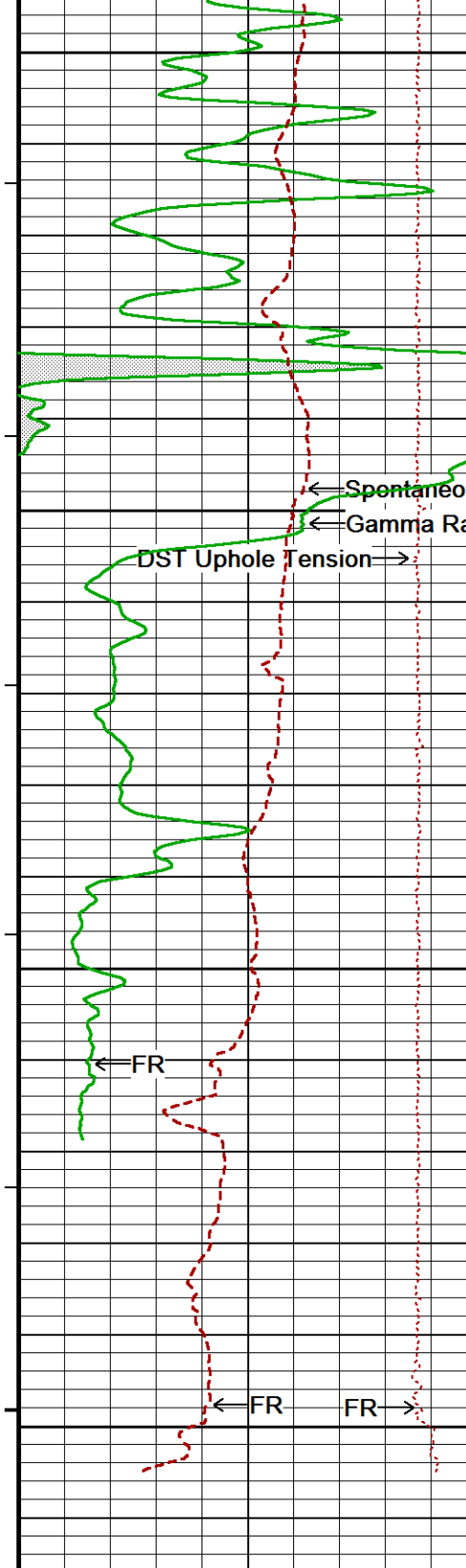
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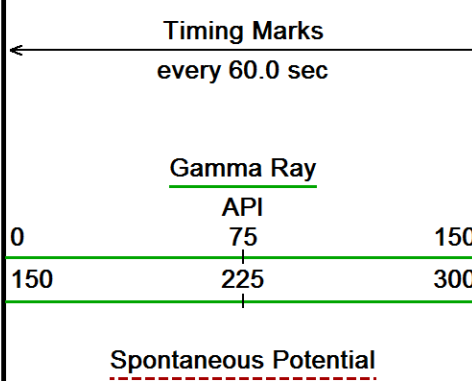
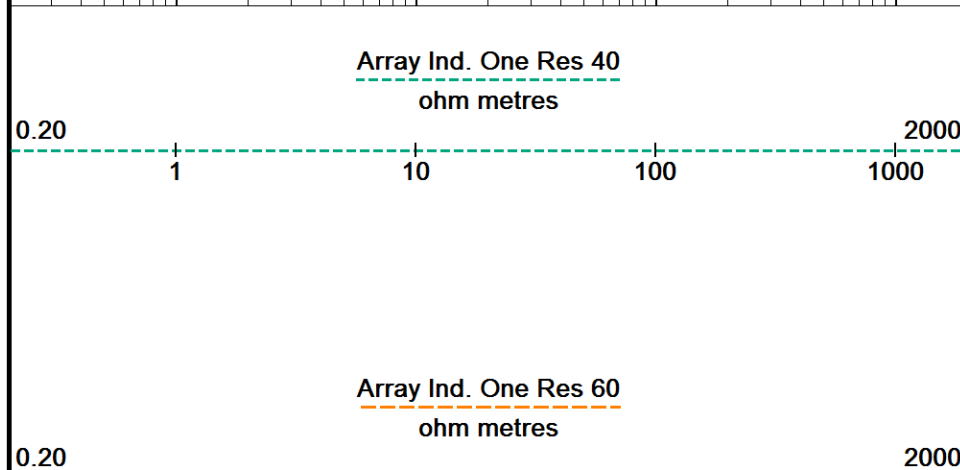
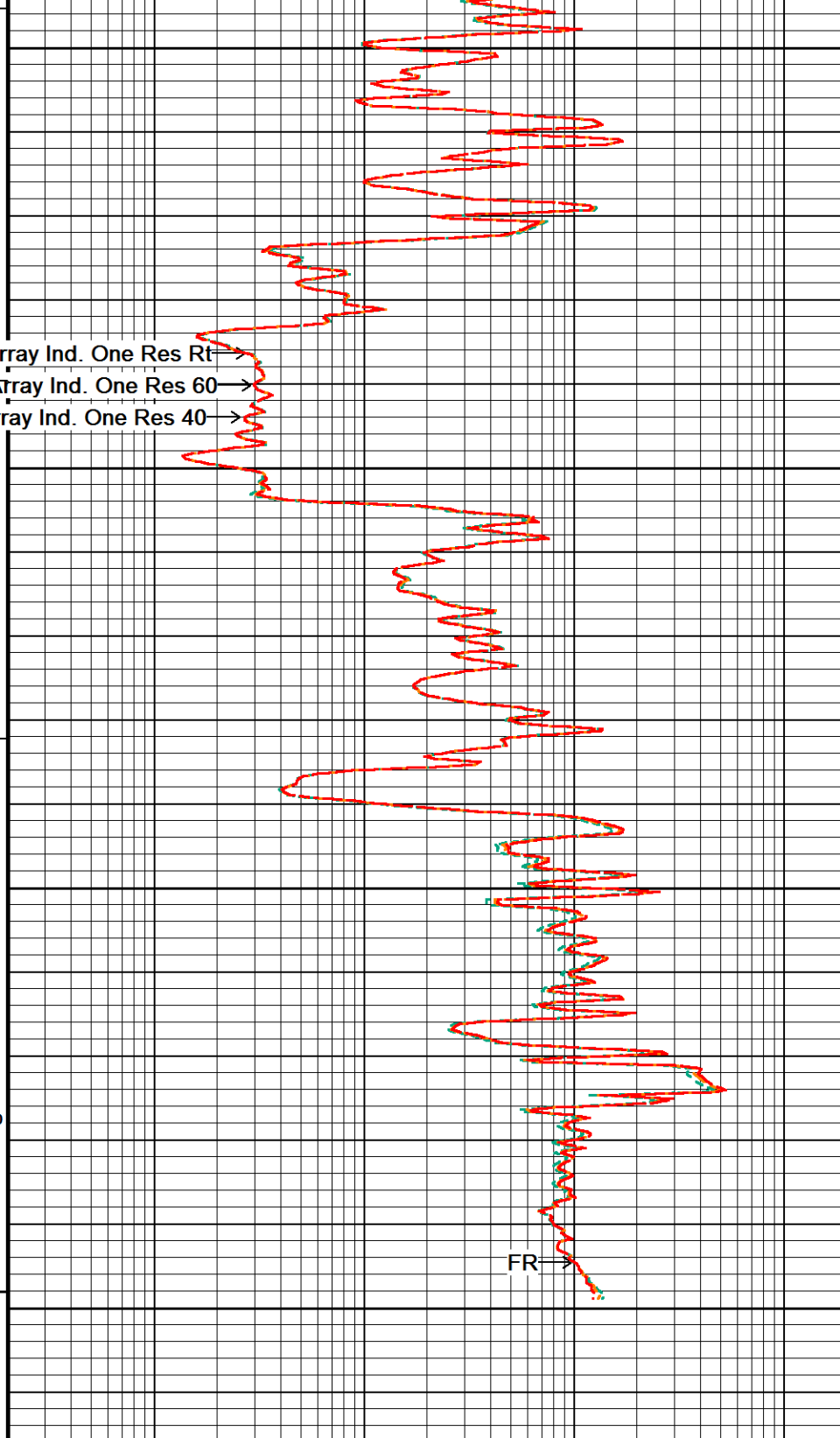


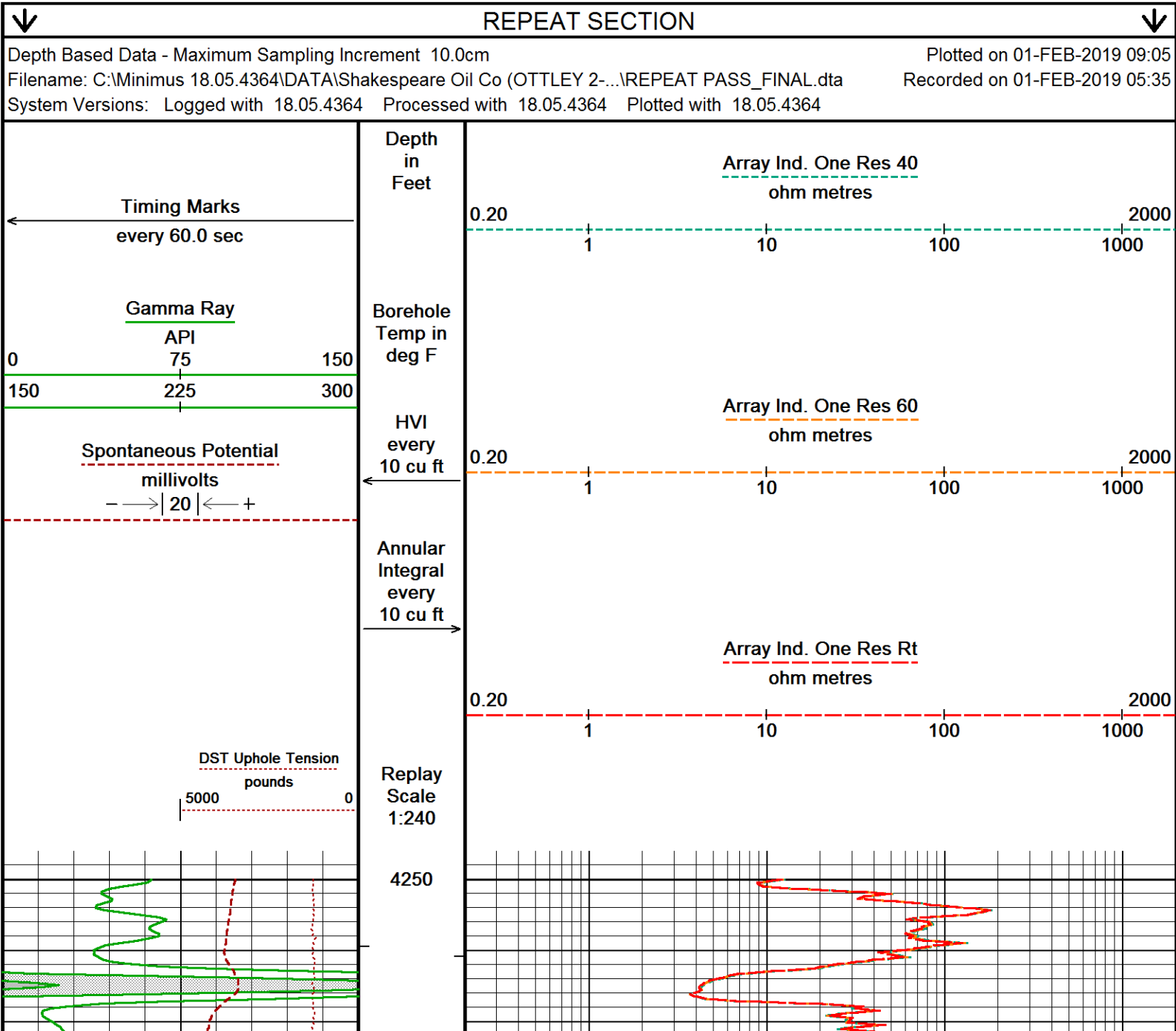
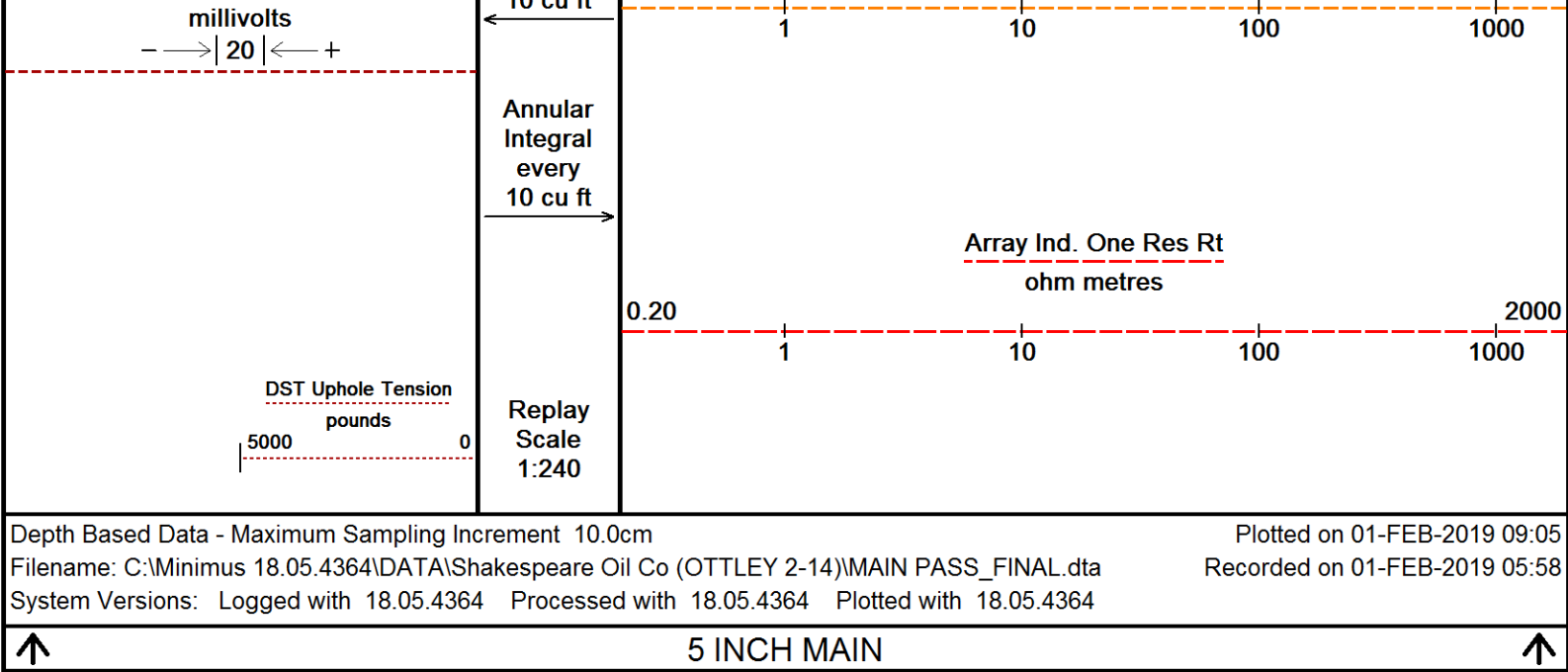


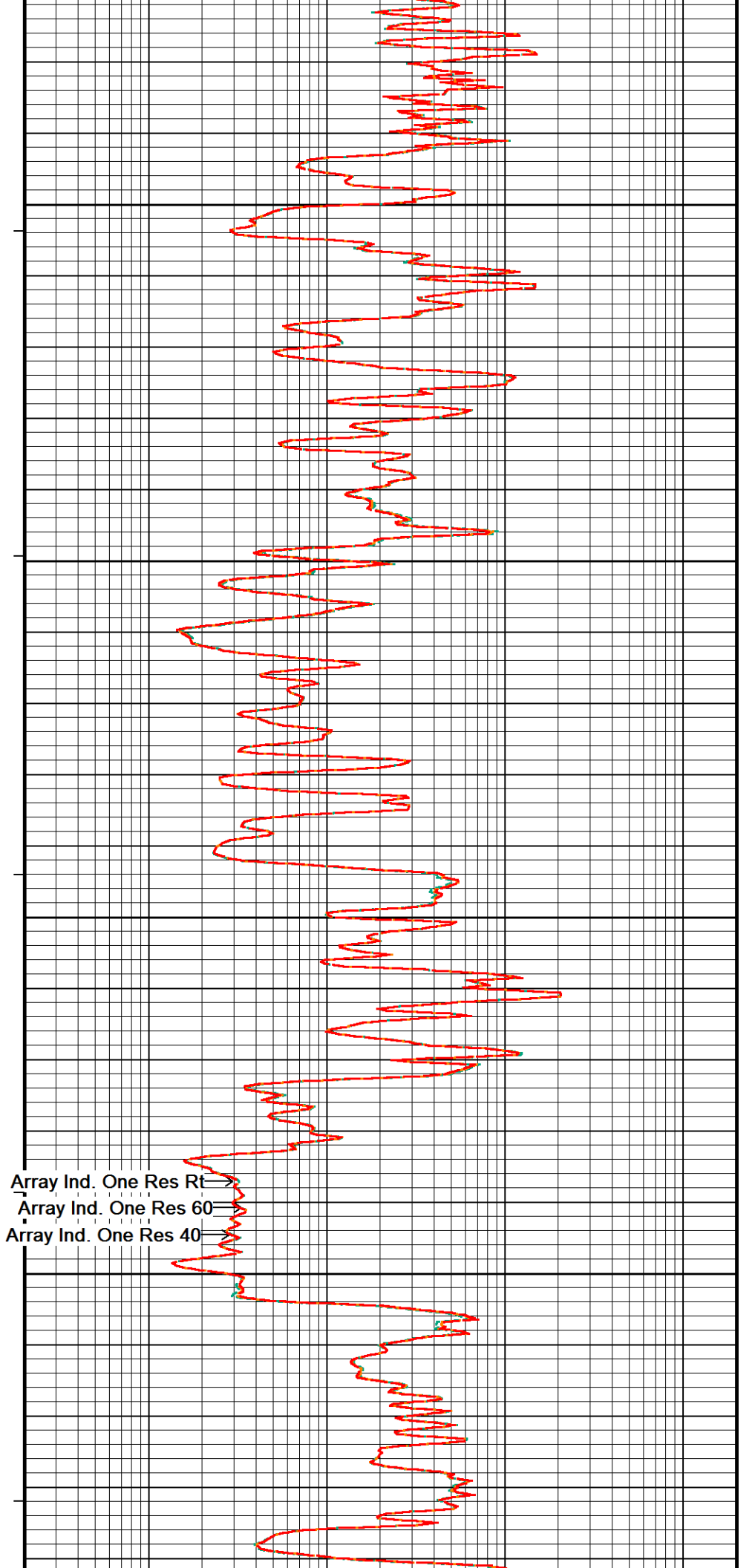
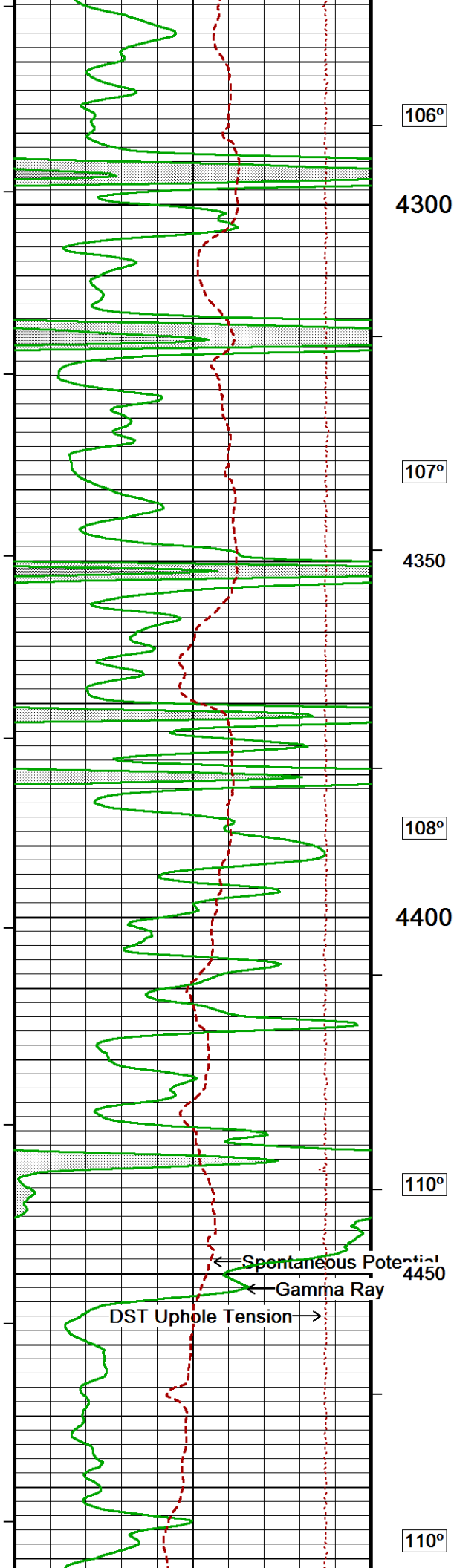


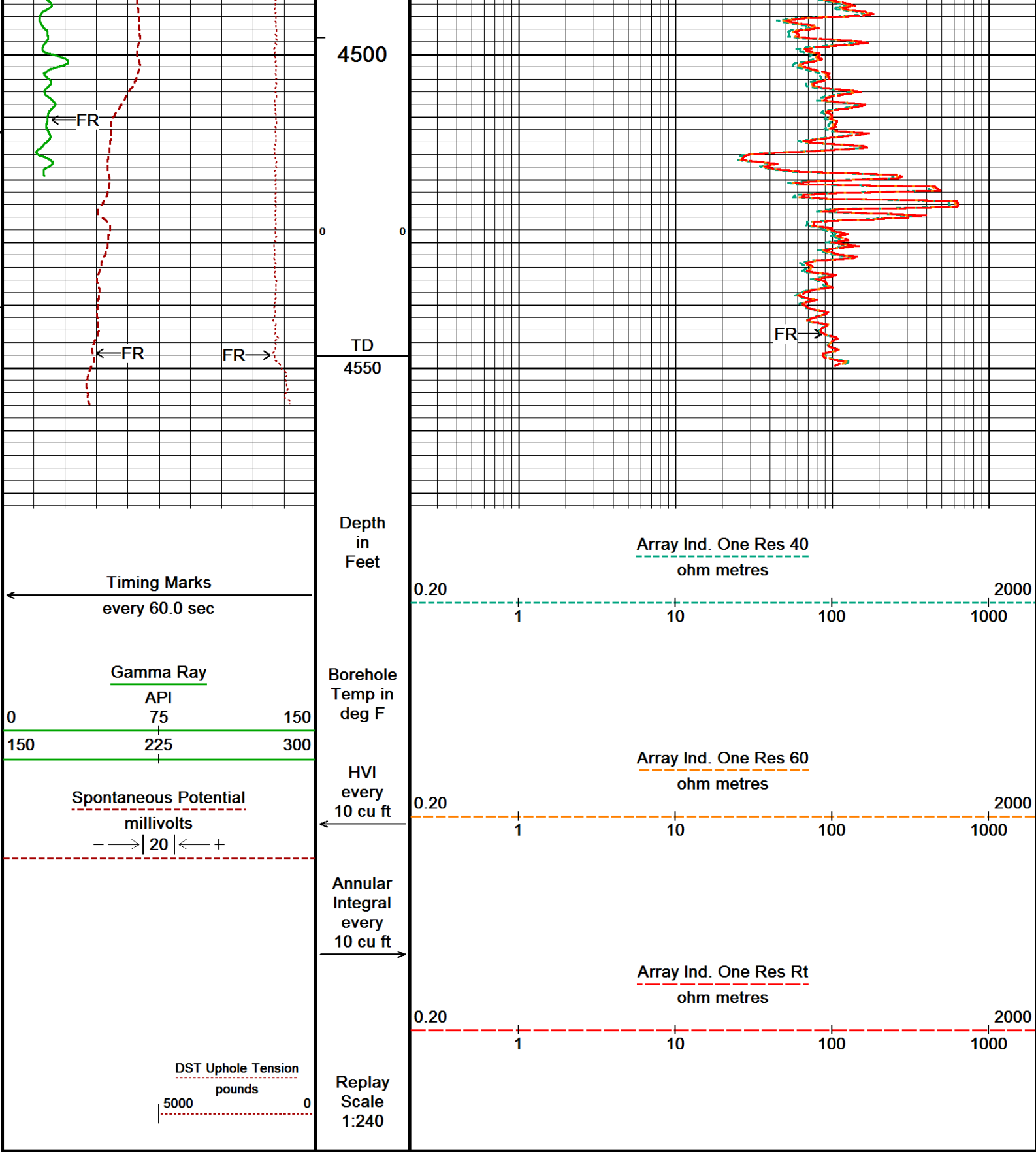


4400
111°
4450
111°
4500
0
TD
4550
Depth in Feet
Borehole Temp in deg F
HVI every 10 cu ft









Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 01-FEB-2019 09:05
Filename: C:\Minimus 18.05.4364\DATA\Shakespeare Oil Co (OTTLEY 2-...\REPEAT PASS_FINAL.dta Recorded on 01-FEB-2019 05:35
System Versions: Logged with 18.05.4364 Processed with 18.05.4364 Plotted with 18.05.4364

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
C:\Minimus 18.05.4364\DATA\Shakespeare Oil Co (OTTLEY 2-14)\MAIN PASS_FINAL.dta

General Constants All 000 Last Edited on 01-FEB-2019,08:32

General Parameters		
Mud Resistivity	0.450	ohm-metres
Mud Resistivity Temperature	83.000	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	MMR Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	MMR Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. Four 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 01-FEB-2019 04:18
Reading No	Measured	Calibrated (lbs)	
1	14340.40	0.00	
2	14867.91	377.00	

SP Calibration MCG-D.K 443			Field Calibration on 10-DEC-2018 15:37
	Measured	Calibrated (mV)	
Reference 1	100.8	99.9	
Reference 2	-98.4	-99.9	

High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 12-OCT-2018,05:20
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	212.00	212.00	

High Resolution Temperature Constants MCG-D.K 443			Last Edited on 12-OCT-2018,05:20
Pre-filter Length	11		

Gamma Calibration MCG-D.K 443			Field Calibration on 31-JAN-2019 17:18
	Measured	Calibrated (API)	
Background	79	54	
Calibrator (Gross)	744	510	
Calibrator (Net)	665	456	

Gamma Calibration Tolerances MCG-D.K 443		
Ratio	1.458	1.40 1.475 1.55 Counts/API

Gamma Constants MCG-D.K 443			Last Edited on 01-FEB-2019,04:57
Gamma Calibrator Number	MCGGRCC141		
GRC-M Calibrator Jig in Use?	NO		
Inactive Background Jig in Use?	NO		
Mud Density	1.13	gm/cc	
Caliper Source for Processing	MMR Caliper		
Tool Position	Eccentred		
Potassium Equivalence	Chloride		
K Mud Concentration	0.00	%	

Micro Normal and Micro Inverse Calibration MMR-B.A 91			Base Calibration on 18-JAN-2019 12:24	Field Check on 31-JAN-2019 16:51
	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	93.8	93.8
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	93.8		ohm-m				
Micro Inverse Base Check	62.3		ohm-m				
Micro Normal Field Check	93.8		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 18-JAN-2019 14:14
Field Calibration on 31-JAN-2019 16:54

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14078	5.98
2	17477	7.97
3	20615	9.86
4	24868	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.97	7.97

Caliper Calibration Tolerances MMR-B.A 91

Short Arm Field Cal.	7.97		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
	0.0	0.0
	0.0	0.0
	Base Check (ohm-m)	Field Check (ohm-m)
	0.0	0.0

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 Temp. 21.00
Mud Cake Resistivity Source Constant Value
Temp. for Rmc Corr. MCG External Temperature

Neutron Calibration MDN-B.A 292

Base Calibration on 07-JAN-2019,13:23
Field Check on 31-JAN-2019 17:01

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2910	91	3714	110
Ratio	31.871		33.764	

Field Calibrator at Base

	Calibrated (cps)
	2207 3209
Ratio	0.688

Field Check

	Calibrated (cps)
	2227 3174
Ratio	0.702

Neutron Calibration Tolerances MDN-B.A 292

Ratio	31.871	
Base Check	0.688	
Field Check	0.702	

Neutron Constants MDN-B.A 292

Last Edited on 31-JAN-2019,16:57

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Legacy	
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	

Induction Calibration MAI-B.J 390

Factory Loop Calibration 07-JAN-2019 10:28
Field Check on 31-JAN-2019 16:41

Factory Loop Calibration

High Conductivity Reference Resistor	3.3 ohm
Low Conductivity Reference Resistor	333.3 ohm

Array	Measured Signal (unitless)		Reference Conductivity (mmho/m)		Calibration	
	Low	High	Low	High	Gain	Offset
1 (near)	16.8	458.6	9.3	966.2	2.166	-27.2
2	6.3	377.7	7.6	821.4	2.191	-6.2
3	3.8	258.6	5.2	566.0	2.200	-3.0
4 (far)	1.9	132.3	2.6	279.2	2.121	-1.4
Array Temperature	77.9		Deg F			

Tool Checks

Array	Factory Reference (mmho/m)		Before Survey (mmho/m)	
	Low	High	Low	High
1 (near)	13.2	3960.1	13.2	3959.7
2	29.9	3563.5	30.0	3563.4
3	27.9	3061.4	28.0	3061.6
4 (far)	19.7	2087.8	19.7	2087.8

Array Temperature

64.9

65.0

Deg F

Induction Check Tolerances MAI-B.J 390

Low Array 1	13.2	11.7 13.2 14.7	mmho/m
Low Array 2	30.0	28.4 29.9 31.4	mmho/m
Low Array 3	28.0	26.4 27.9 29.4	mmho/m
Low Array 4	19.7	18.2 19.7 21.2	mmho/m

High Array 1	3959.7	-0.5% 3960.1 +0.5%	mmho/m
High Array 2	3563.4	-0.5% 3563.5 +0.5%	mmho/m
High Array 3	3061.6	-0.5% 3061.4 +0.5%	mmho/m
High Array 4	2087.8	-0.5% 2087.8 +0.5%	mmho/m

Induction Constants MAI-B.J 390

Last Edited on 01-FEB-2019,04:51

Induction Model RtAP-NC

Borehole Correction Constants

Tool Centred	No
Hole Size Source	Density Caliper
Hole Size Constant Value	N/A
Stand-off Type	Fins
Stand-off	0.50
Number of Fins on Stand-off	8.0000
Stand-off Fin Angle	45.00
Stand-off Fin Width	0.5000
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
Resistivity of Water for Apor and Sw	0.05
Resistivity of Mud Filtrate for Sw	0.00
Source for Rt	0.00
Source for Rxo	0.00

High Resolution Temperature Calibration MAI-B.J 390

Field Calibration on 15-MAY-2018,12:48

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-B.J 390

Last Edited on 06-MAR-2018,13:01

Pre-filter Length	11
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Caliper Calibration MPD-C.A 216

Base Calibration on 18-JAN-2019 17:06

Base Calibration

Reading No

Measured

Calibrator Size (in)

1	16199	3.99
2	24624	5.98
3	33344	7.97
4	41632	9.86
5	50912	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)

Actual Caliper (in)

7.93 7.97

Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal.

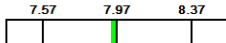
7.93  in

Photo Density Calibration MPD-C.A 216

Base Calibration on 18-JAN-2019 16:36

Field Check on 31-JAN-2019 16:50

Density Calibration

Base Calibration

Measured

Calibrated (sdu)

Near

Far

Near

Far

Background	993	1180		
Reference 1	46604	22300	59556	30836
Reference 2	18380	2158	24941	2541

Field Check at Base

993.3 1179.8

Field Check

994.6 1180.0

PE Calibration

Base Calibration

Measured

Calibrated

WS

WH

Ratio

Ratio

Background	179	890		
Reference 1	19088	46448	0.415	0.371
Reference 2	5249	18271	0.292	0.272

Field Check at Base

179.3 890.5

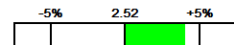
Field Check

183.0 894.1

Photo Density Calibration Tolerances MPD-C.A 216

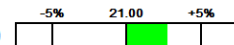
Near Density Ratio

2.62



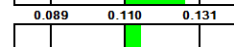
Far Density Ratio

21.59



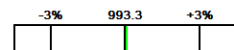
PE Calibration

0.115



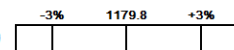
Near Den. Field Check

994.6



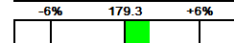
Far Den. Field Check

1180.0



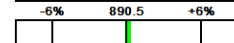
PE WS Field Check

183.0



PE WH Field Check

894.1



Density Constants MPD-C.A 216

Last Edited on 01-FEB-2019,05:51

Density Source Id	P50557B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	MMR Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	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	Applied	

Matrix Density (gm/cc)

2.71

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

Depth (ft)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

DOWNHOLE EQUIPMENT

C:\Minimus 18.05.4364\DATA\Shakespeare Oil Co (OTTLEY 2-14)\MAIN PASS_FINAL.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 717 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma

MCG-D.K 443 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

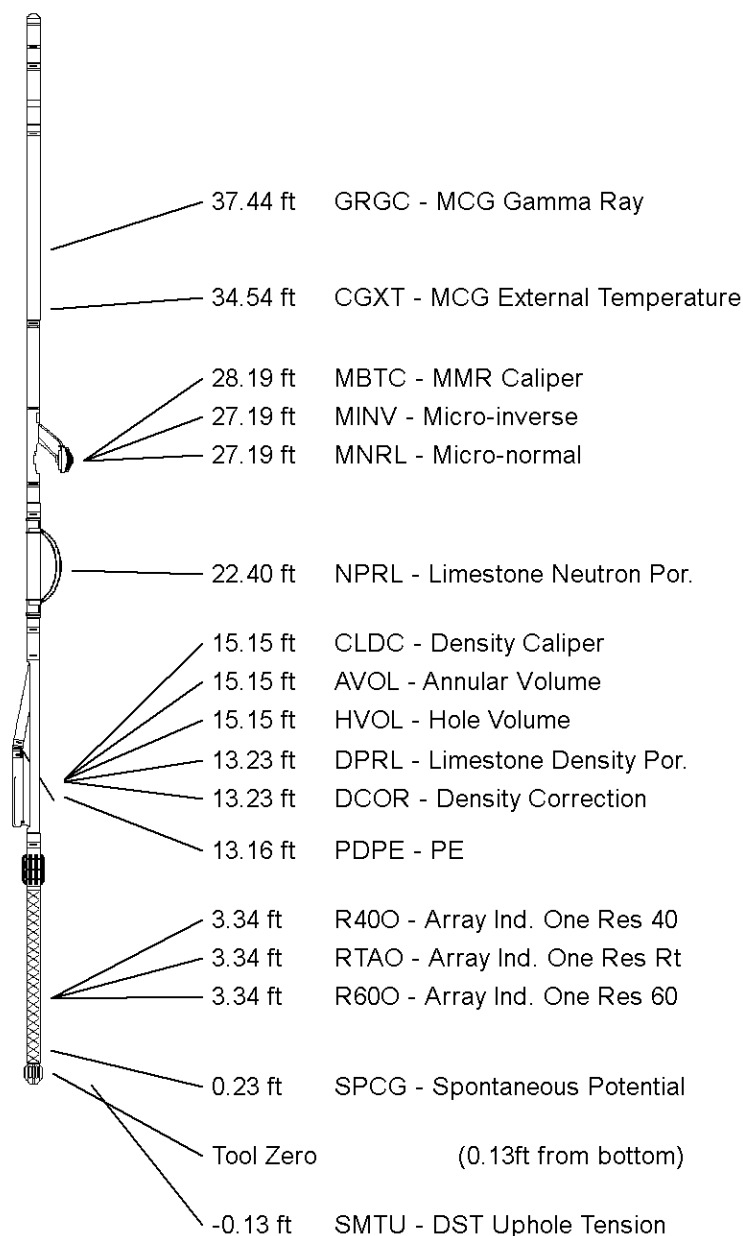
Compact Density/Caliper

MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Induction

MAI-B.J 390 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 47.21 ft Weight: 377.0 lb



All measurements relative to tool zero.

COMPANY

SHAKESPEARE OIL CO., INC.

WELL

K OTTLEY 2-14

FIELD

WILDCAT

PROVINCE/COUNTY

LOGAN

COUNTRY/STATE

USA / KANSAS

Elevation Kelly Bushing 2800 feet
Elevation Drill Floor feet
Elevation Ground Level 2791 feet

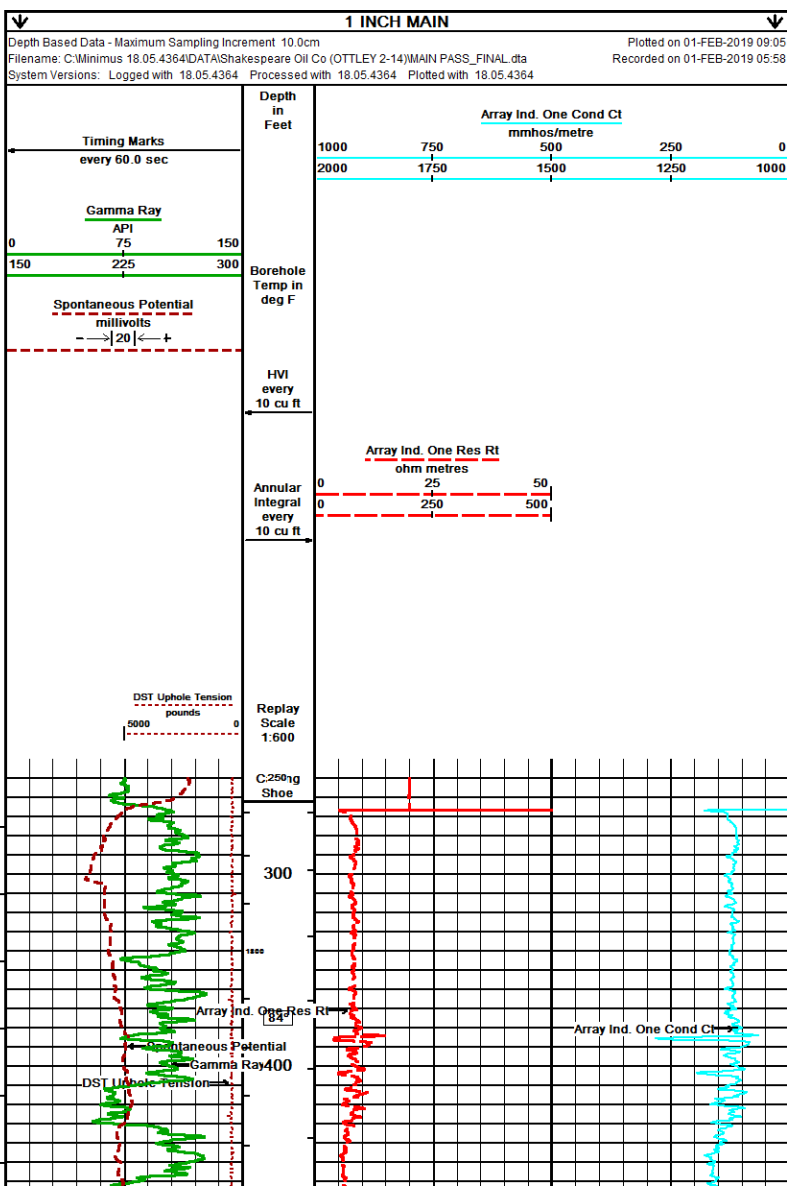
First Reading 4544.60 feet
Depth Driller 4550.00 feet
Depth Logger 4548.00 feet

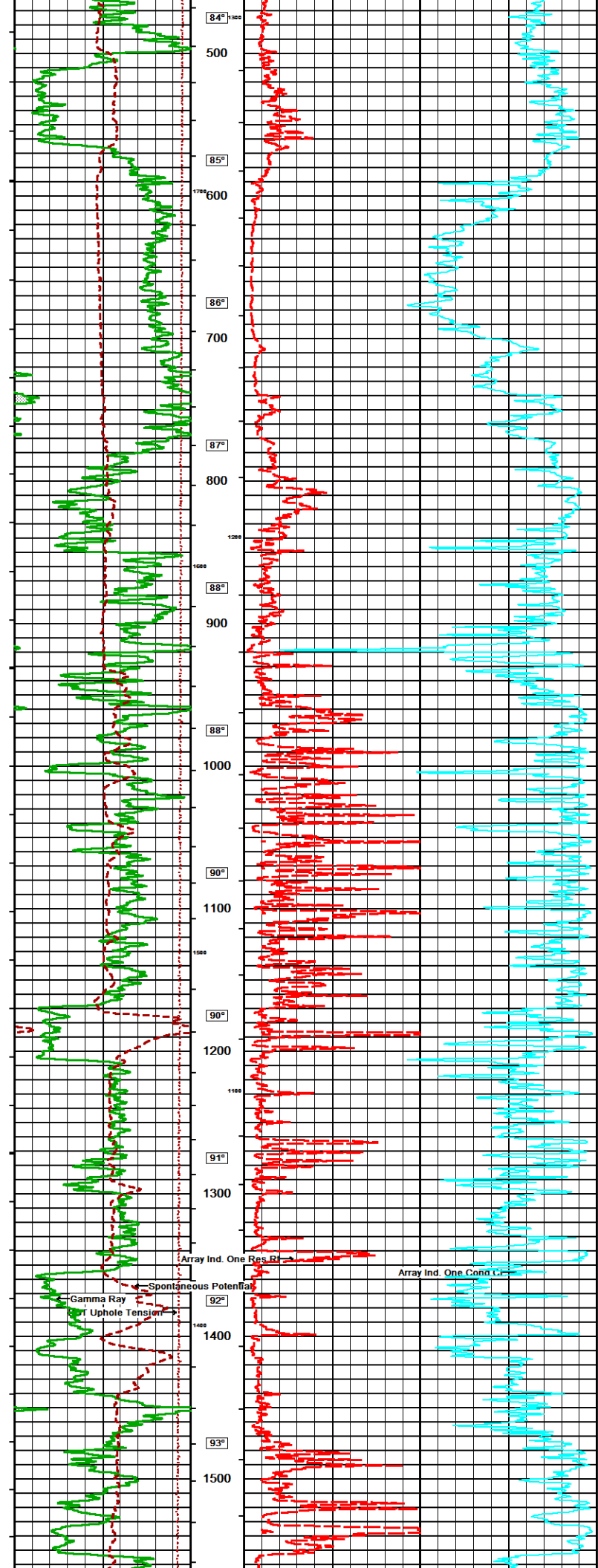


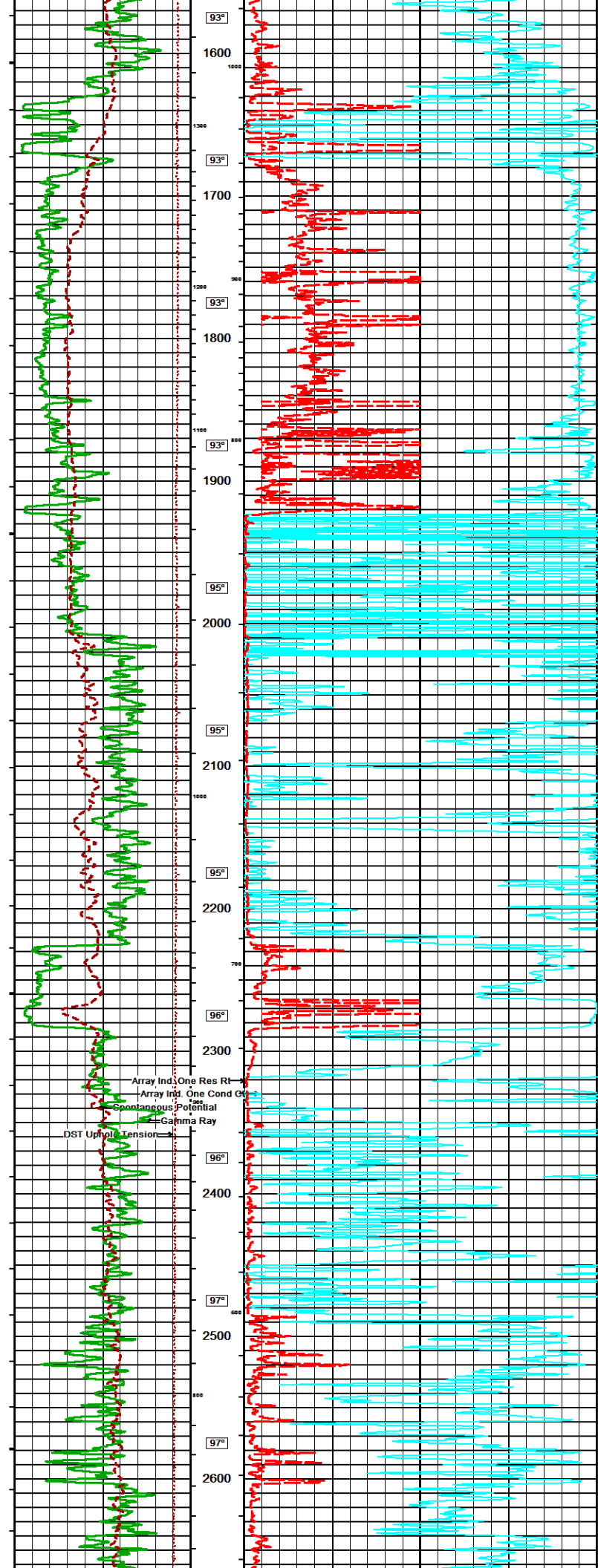
Weatherford®

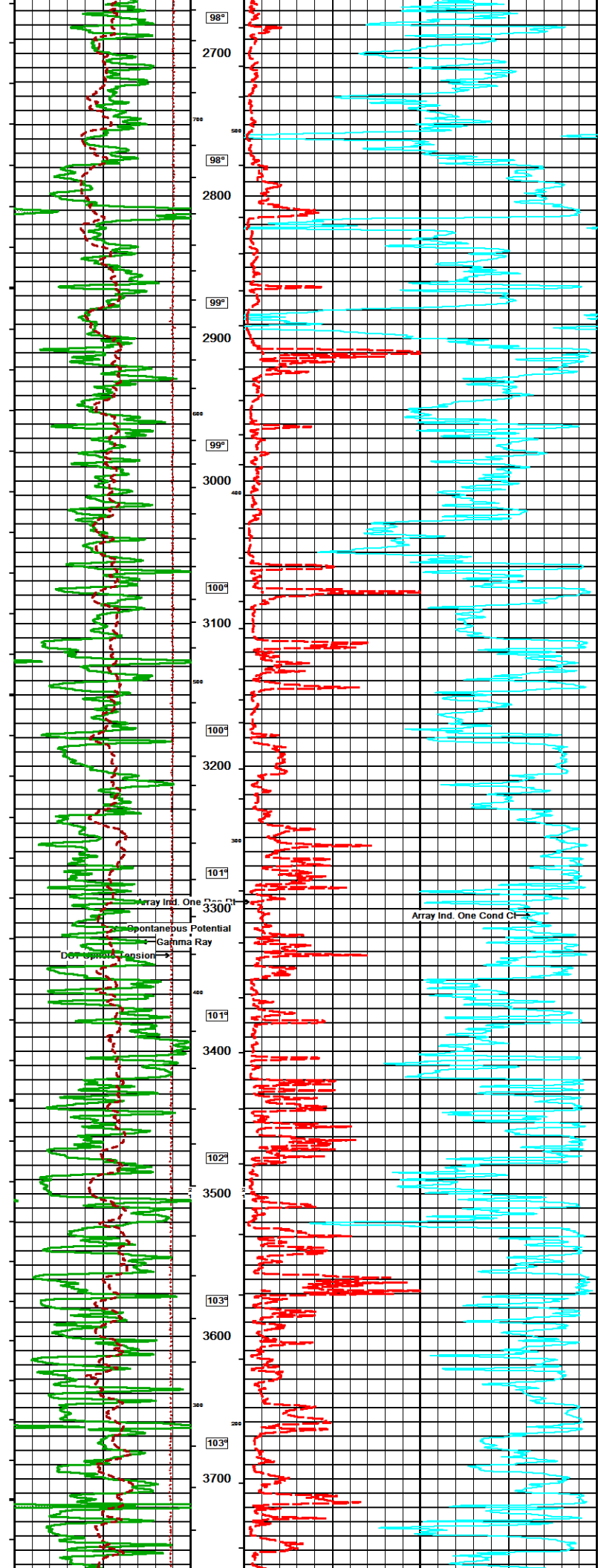
ARRAY INDUCTION GAMMA RAY LOG

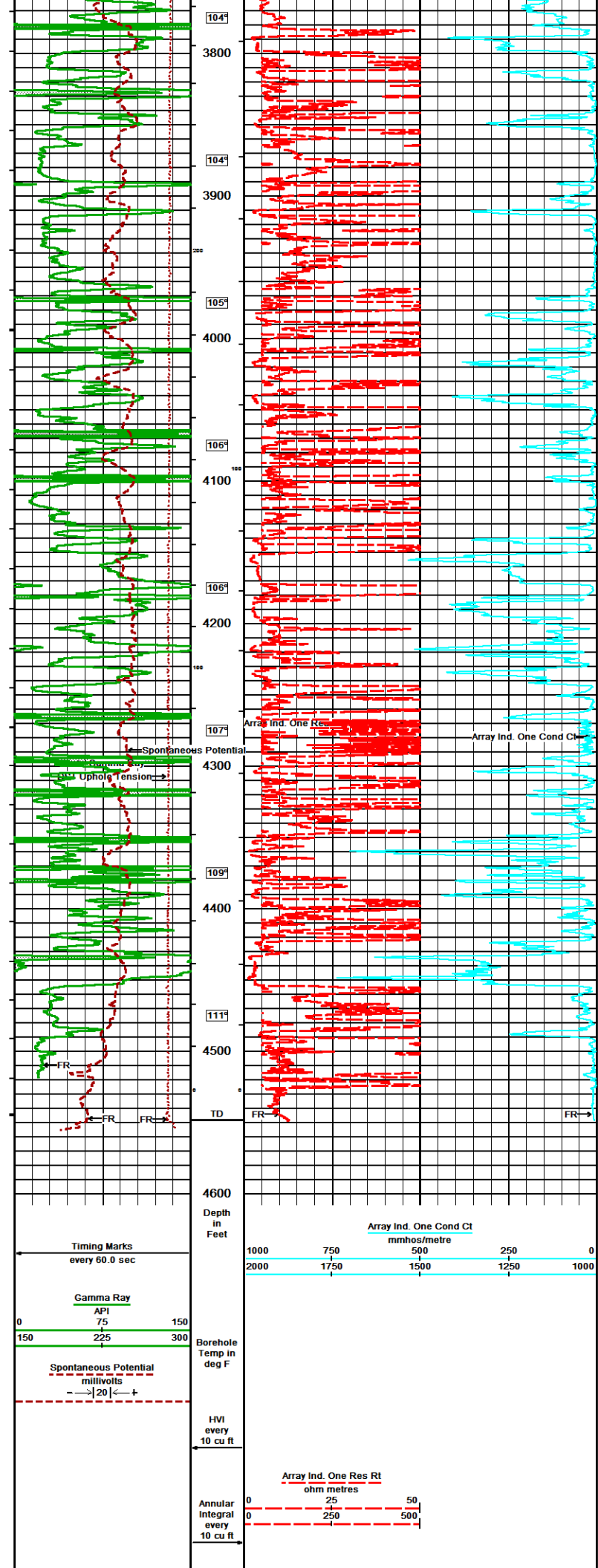
		ARRAY INDUCTION GAMMA RAY LOG	
			
COMPANY		SHAKEPEARE OIL CO., INC.	
WELL		K OTTLEY 2-14	
FIELD		WILDCAT	
PROVINCE/COUNTY		LOGAN	
COUNTRY/STATE		USA / KANSAS	
LOCATION		NW-SW-SE-SE 500' FSL & 1150' FEL	
SEC. 14	TYPE	14S	ROD 320' / Core Services
Latitude	38.83151		DUAL SPACED NEUTRON
Longitude	-100.839015		PHOTO DENSITY
Core Number	15-10921079		Evans: K9 DF GL
Permanent Datum Ground Level, Elevation 2791 feet			feet
Log Measured From KB, 9.00 feet above Permanent Datum			2800.00
Drilling Measured From KB			2791.00
Date	01-FEB-2019		
Run Number	ONE		
Service Order	18148-236170428		
Depth Driller	4550.00	feet	
Depth Logger	4548.00	feet	
First Reading	4544.60	feet	
Last Reading	3500.00	feet	
Casing Driller	254.00	feet	
Casing Logger	262.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	WATER BASED		
Density / Viscosity	9.40	lbm/gal	57.00
PH / Fluid Loss	10.00		9.60
Sample Source	FLOW LINE		
Rm @ Measured Temp	0.45 @ 83.0	ohm-m	
Rm @ Measured Temp	0.40 @ 83.0	ohm-m	
Rm @ Measured Temp	0.54 @ 83.0	ohm-m	
Source Rm / Rmc	CALC	CALC	
Rm @ BHT	0.34 @ 111.0	ohm-m	
Time Since Circulation	3.0 HOURS		
Max Recorded Temp	111.00	deg F	
Equipment / Base	13244	LB	
Recorded By	S. WIGHT		
Witnessed By	TIM LAUER		

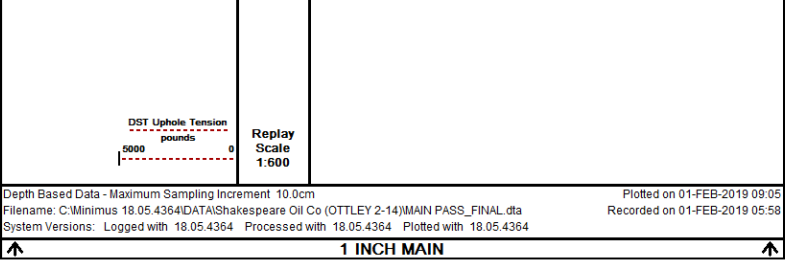












COMPANY	SHAKESPEARE OIL CO., INC.					
WELL	K OTTLEY 2-14					
FIELD	WILDCAT					
PROVINCE/COUNTY	LOGAN					
COUNTRY/STATE	USA / KANSAS					
Elevation Kelly Bushing	2800	feet	First Reading	4544.60	feet	
Elevation Drill Floor		feet	Depth Driller	4550.00	feet	
Elevation Ground Level	2791	feet	Depth Logger	4548.00	feet	
 ARRAY INDUCTION GAMMA RAY LOG						