CML MESSENGER SHUTTLE
ARRAY INDUCTION
COMPOSITE LOG

Weatherford®

COMPANY	VESS OIL CORP.
WELL	MCCORD 'A' 20H
FIELD	BEMIS SHUTTS
PROVINCE/COUNTY	ELLIS
COUNTRY/STATE	KANSAS
LOCATION	1680' FNL & 788' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
26	11S	17W	MPD/MDN CMI
			CXD

API Number 1505126218010
Permit Number

Permanent Datum G.L., Elevation 2091 feet
Log Measured From KB
Drilling Measured From KB @ 9.6 Feet

Elevations:	feet
KB	2100.60
DF	2099.00
GL	2091.00

Date	11-NOV-2011		23-NOV-2011	
Run Number	ONE		TWO	
Depth Driller	3740.00 feet		5805.00 feet	
Depth Logger	3737.00 feet		5805.00 feet	
First Reading	3737.00 feet		5780.00 feet	
Last Reading	1279.00 feet		3740.00 feet	
Casing Driller	1279.00 feet		3740.00 feet	
Casing Logger	1279.00 feet		3740.00 feet	
Bit Size	8.750 inches		6.125 inches	
Hole Fluid Type	WATER BASED		CHEM	
Density / Viscosity	9.20 lb/USg	55.00 CP	9.20 lb/USg	63.00 CP
PH / Fluid Loss	10.50	6.40 ml/30Min	10.50	6.80 ml/30Min
Sample Source	FLOWLINE		FLOWLINE	
Rm @ Measured Temp	0.70 @ 78.0 ohm-m		0.80 @ 55.0 ohm-m	
Rmf @ Measured Temp	0.60 @ 75.0 ohm-m		0.64 @ 55.0 ohm-m	
Rmc @ Measured Temp	0.82 @ 75.0 ohm-m		0.96 @ 55.0 ohm-m	
Source Rmf / Rmc	MEASURE	MEASURE	CALC	CALC
Rm @ BHT	0.56 @100.0 ohm-m		0.41 @105.0 ohm-m	
Time Since Circulation	5.8 HOURS		6 HOURS	
Max Recorded Temp	100.00 deg F		105.00 deg F	
Equipment Name	HALLIBURTON		COMPACT	
Equipment / Base	107829	LIBERA	18006	OKC
Recorded By	C. MARLOWE		D. ROWELL	
Witnessed By	R MARTIN / M ANDREPONT		R. MARTIN	

Last Edited: 23-NOV-2011 10:42

RUN #2 BOREHOLE RECORD

Bit Size inches	Depth From feet	Depth To feet
6.125	3740.00	5805.00

RUN #2 CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	3740.00	26.00

REMARKS

RUN #1
LOGGED BY HALLIBURTON
ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING
CHLORIDES REPORTED AT 3400 PPM
GPS COORDINATES 39°04' N _99°10' W

RUN #2
LOGGED BY WEATHERFORD
WLS LOGGING SOFTWARE VERSION 11.02.3186 WAS USED
ALL LOGS WERE SET TO DEPTH WITH MWD GAMMA RAY
LAT: 39.06994 N
LONG: 99.16968 W
DRILL PIPE DEPTH DURING DEPLOYMENT: 5680
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 5780
4.5 INCH PRODUCTION CASING USED TO CALCULATE AHV
OPERATORS: M FISHER, J. TURNER
S.O: 3534253

RIG: MAVERICK 106

COMPOSITE
GAMMA RAY MERGED AT 3695' ALL OTHER DATA MERGE AT 3742'

.

2 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 02-DEC-2011 17:20
Filename: C:\DOCUME~1\hopkinjg\LOCALS~1\Temp\Weatherford ...\McCord 'A' 20H_(Composite)_.dta
Recorded on
System Versions: Plotted with 12.01.3513

Gamma Ray
gapi
0 75 150
150 225 300

Depth in Feet

Array Ind. Four Cond Ct
mmho
1000 750 500 250 0
2000 1750 1500 1250 1000

90in Conductivity 2ft Re
mmo/m
1000 750 500 250 0
2000 1750 1500 1250 1000

Array Ind. Four Res 20
ohmm
0 50 100
0 500 1000

20in Resistivity 2ft Res
ohmm
0 50 100
0 500 1000

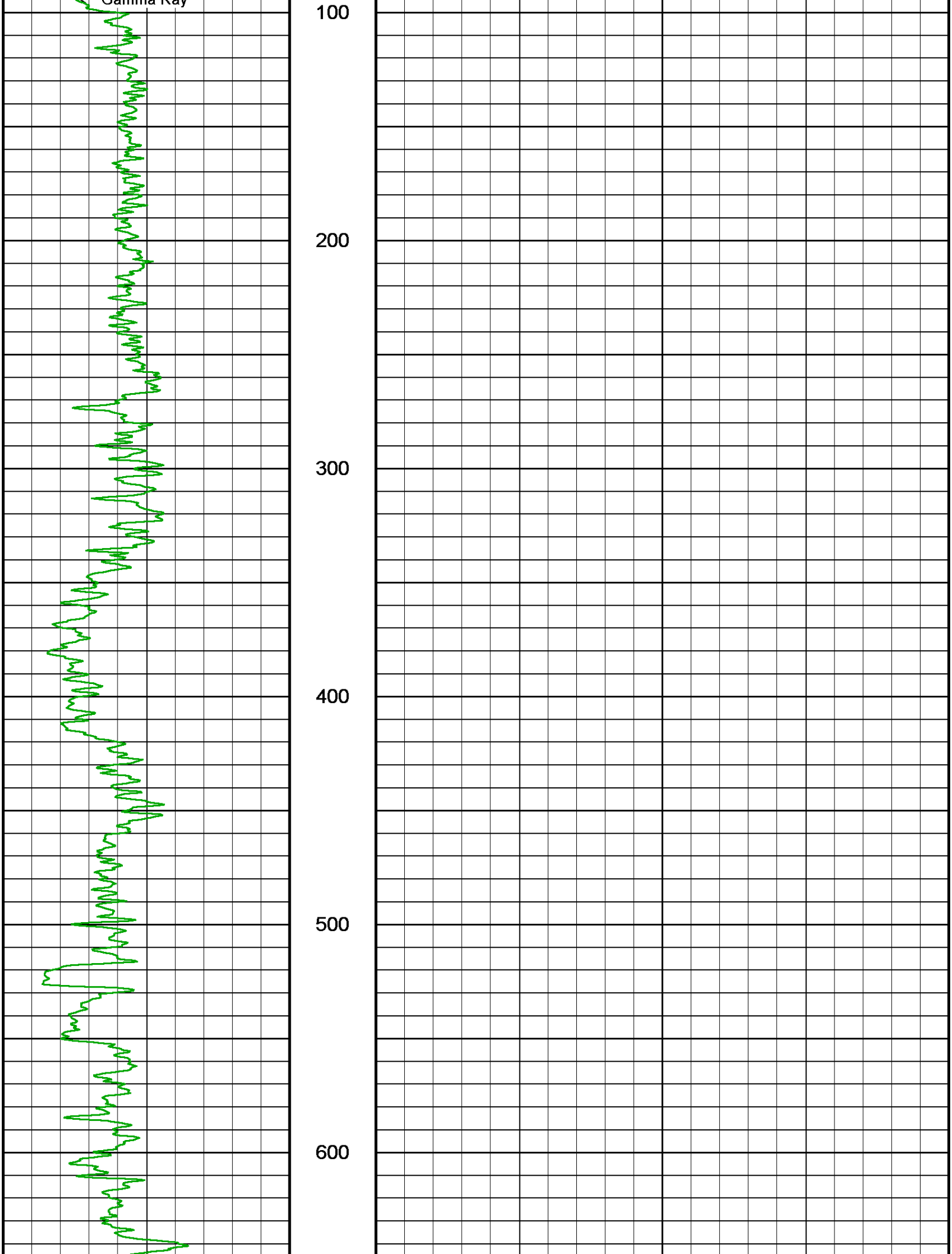
Array Ind. Four Res Rt
ohmm
0 50 100
0 500 1000

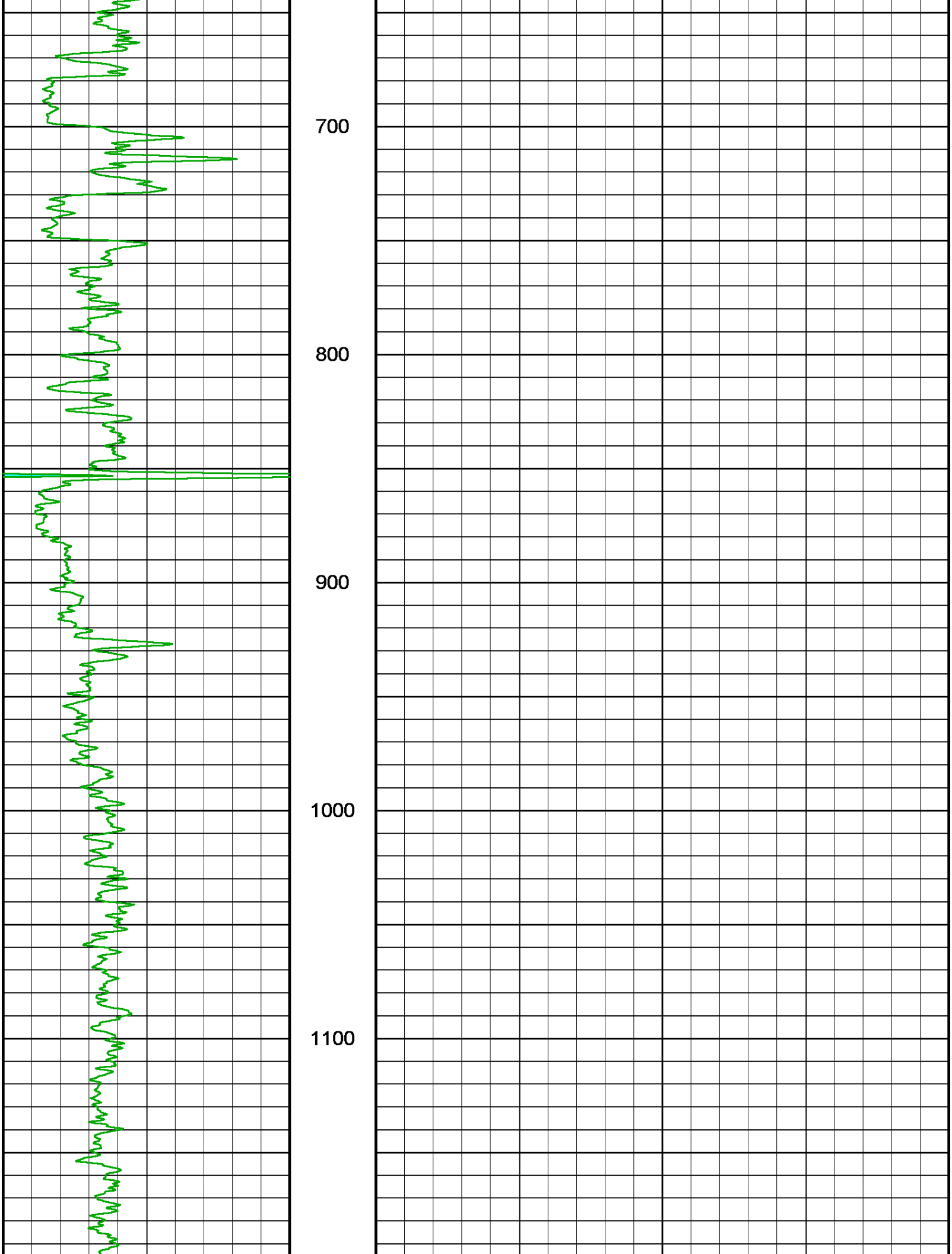
RT
ohmm
0 50 100
0 500 1000

Replay Scale 1:600

10

Gamma Ray


Gamma Ray
100
200
300
400
500
600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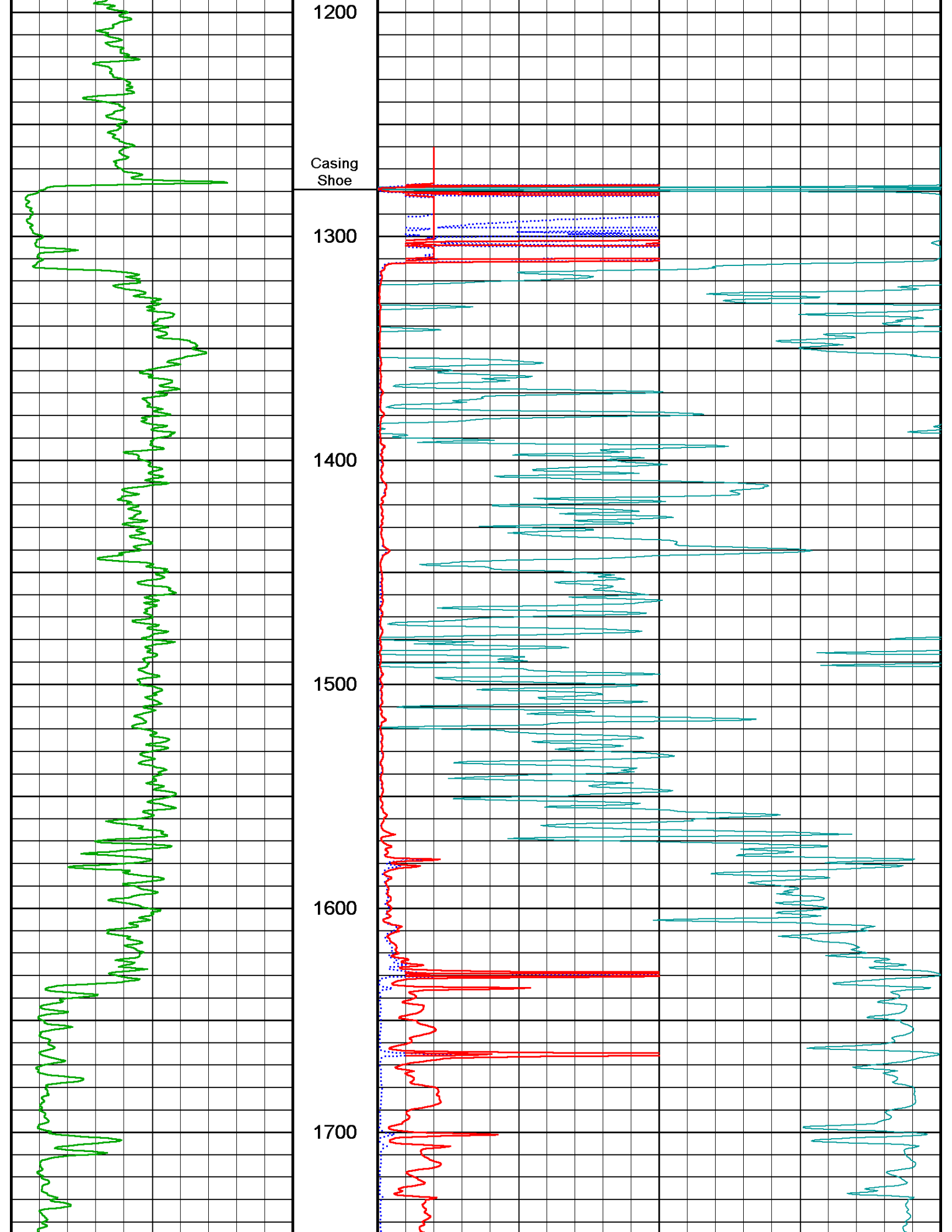
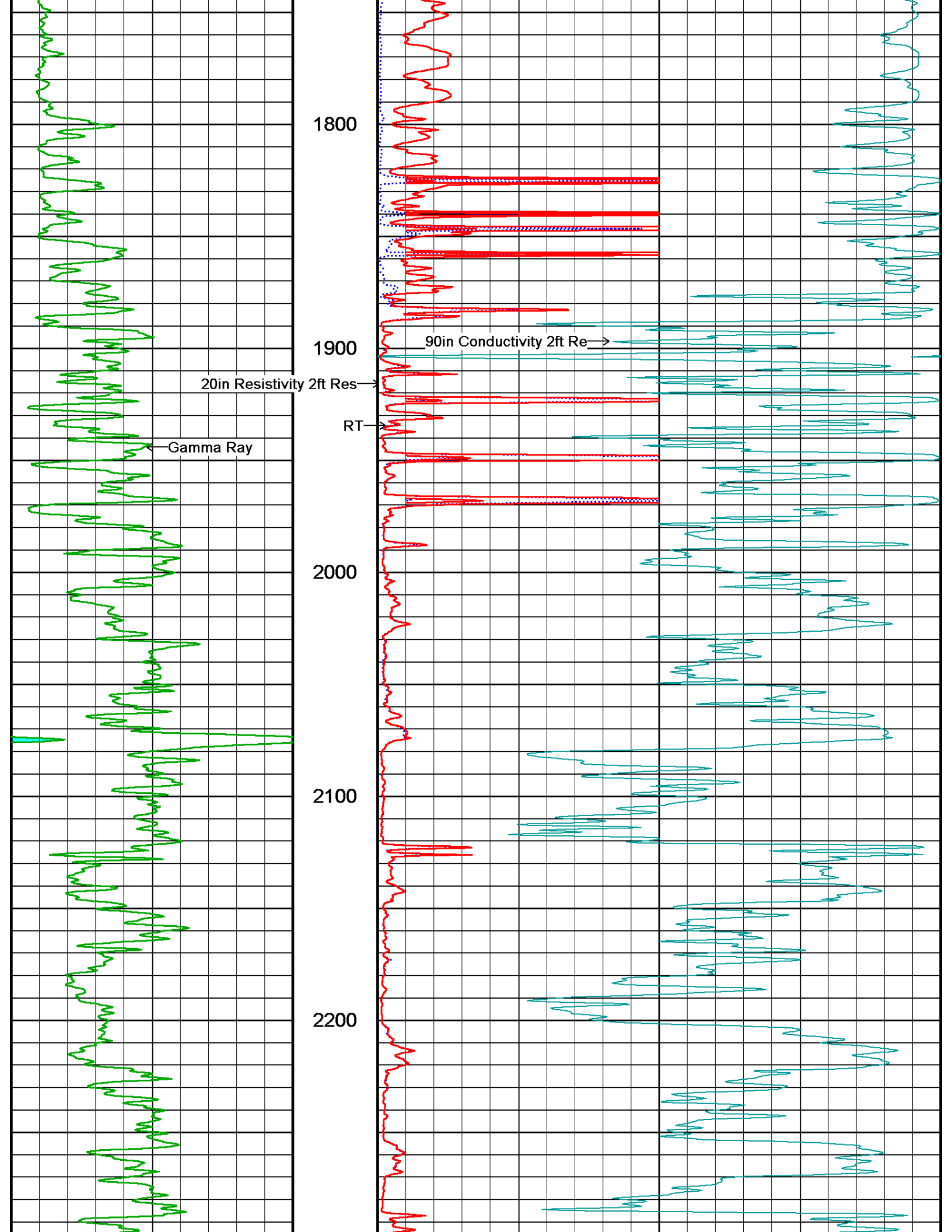
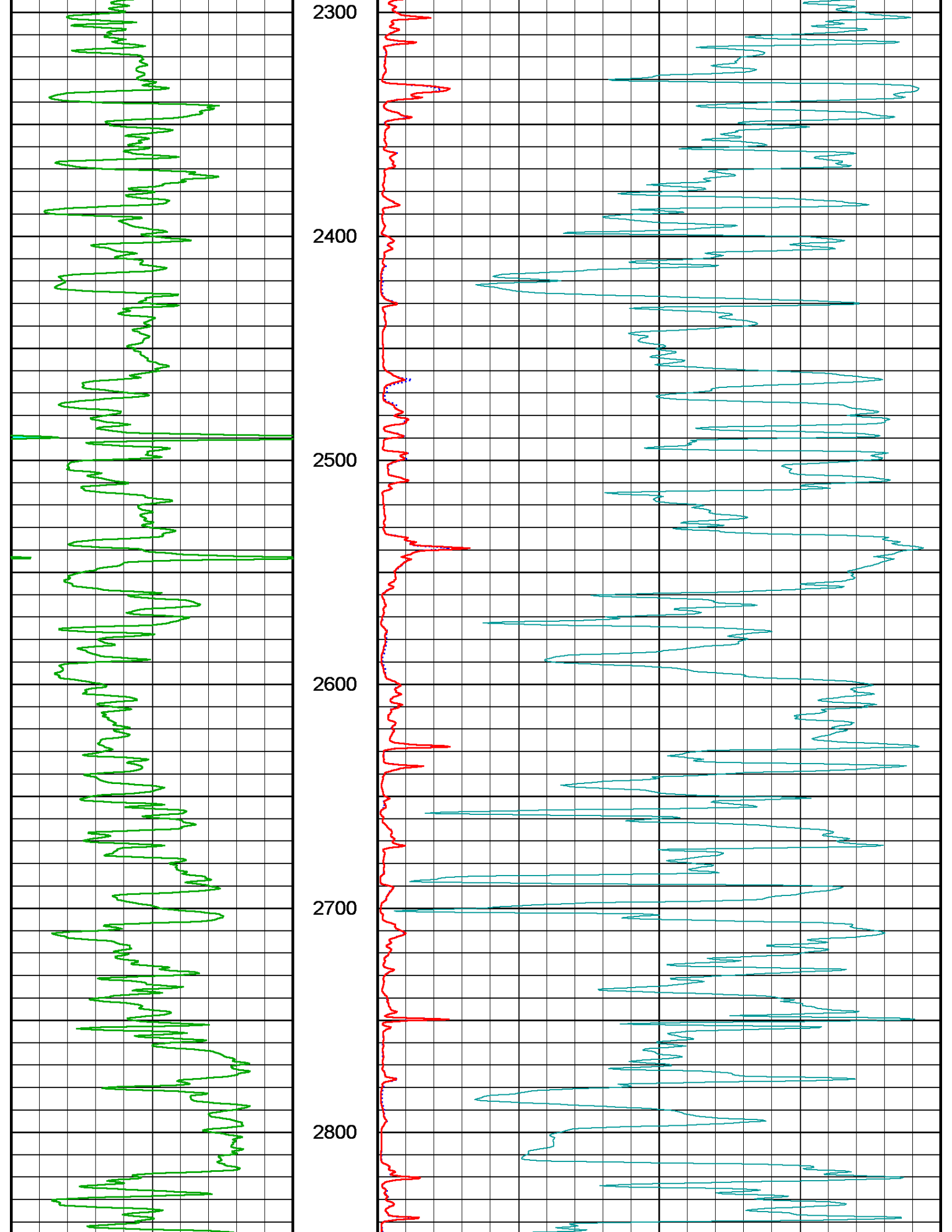
800
900
1000
1100


1200
Casing
Shoe
1300
1400
1500
1600
1700


1800
1900
2000
2100
2200
90in Conductivity 2ft Re
20in Resistivity 2ft Res
RT
Gamma Ray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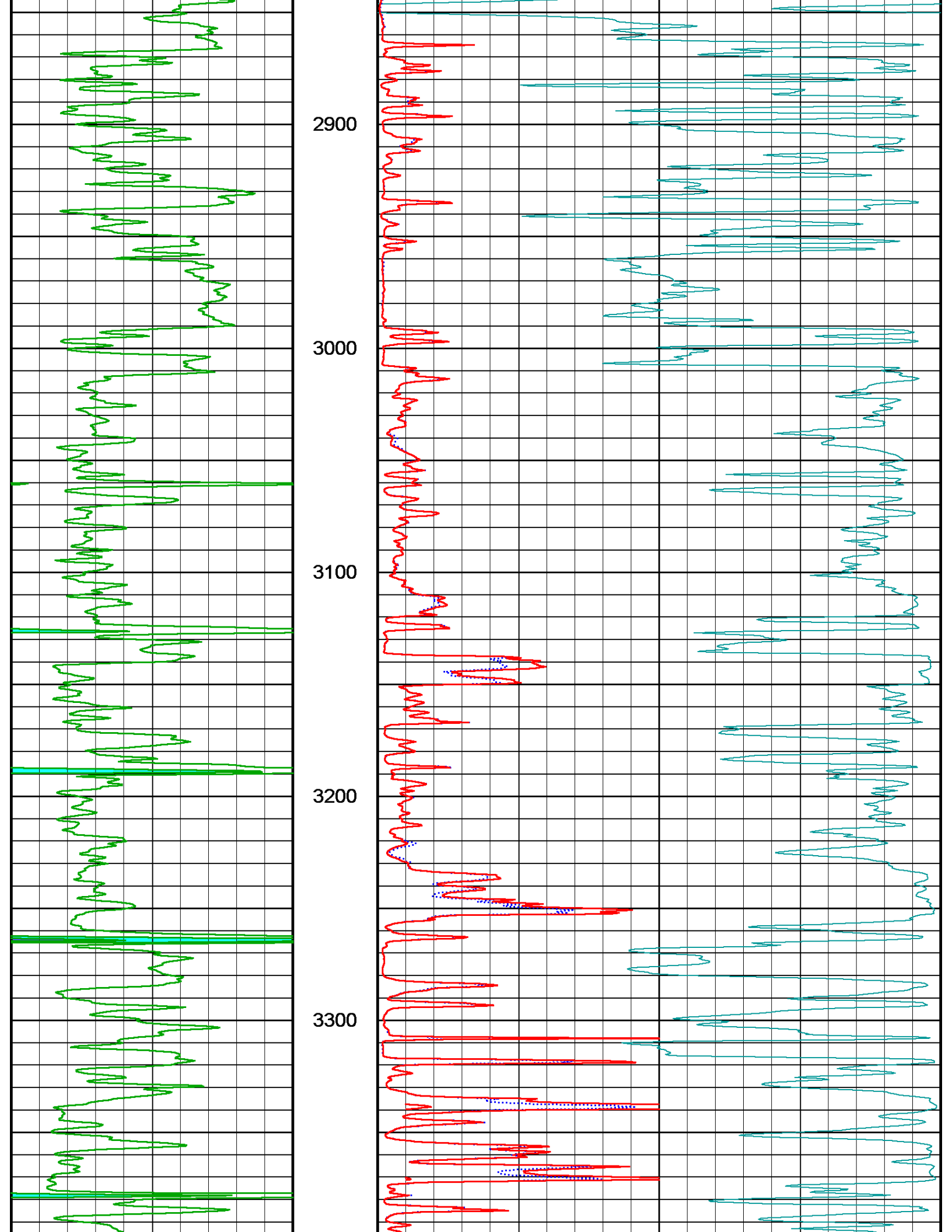
2400
2500
2600
2700
2800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3100
3200
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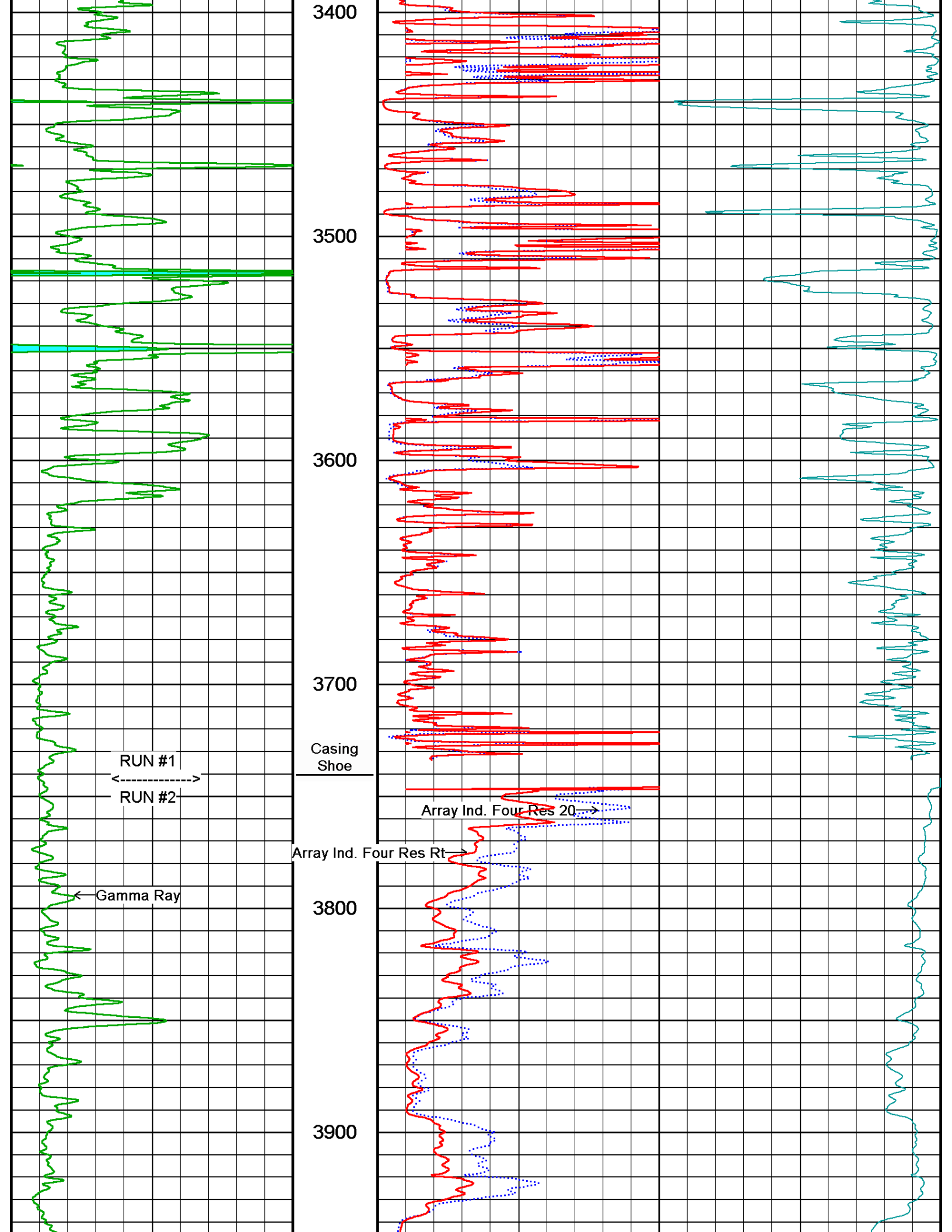
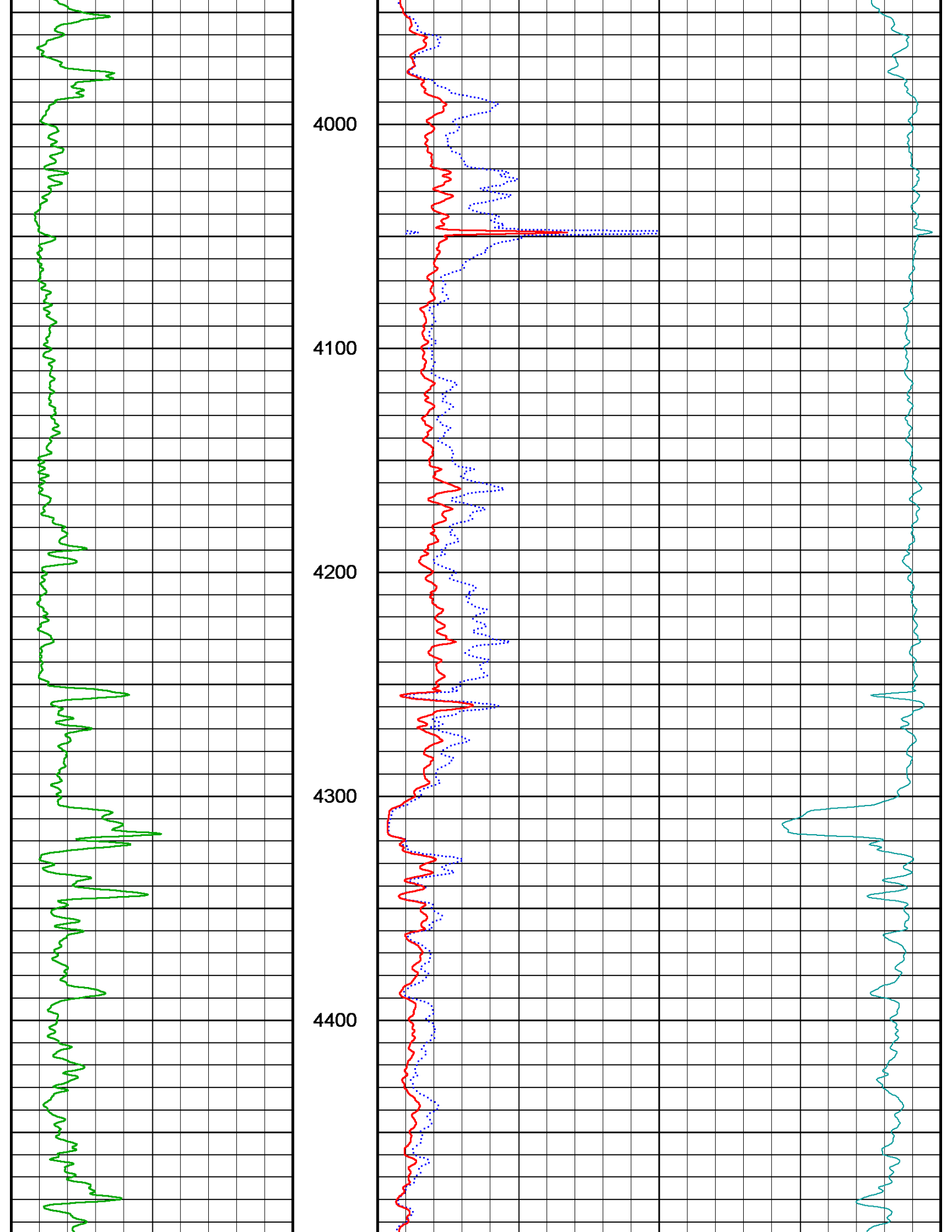

3400
3500
3600
3700
Casing
Shoe
RUN #1
<----------->
RUN #2
Array Ind. Four Res 20
Array Ind. Four Res Rt
Gamma Ray
3800
3900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4300
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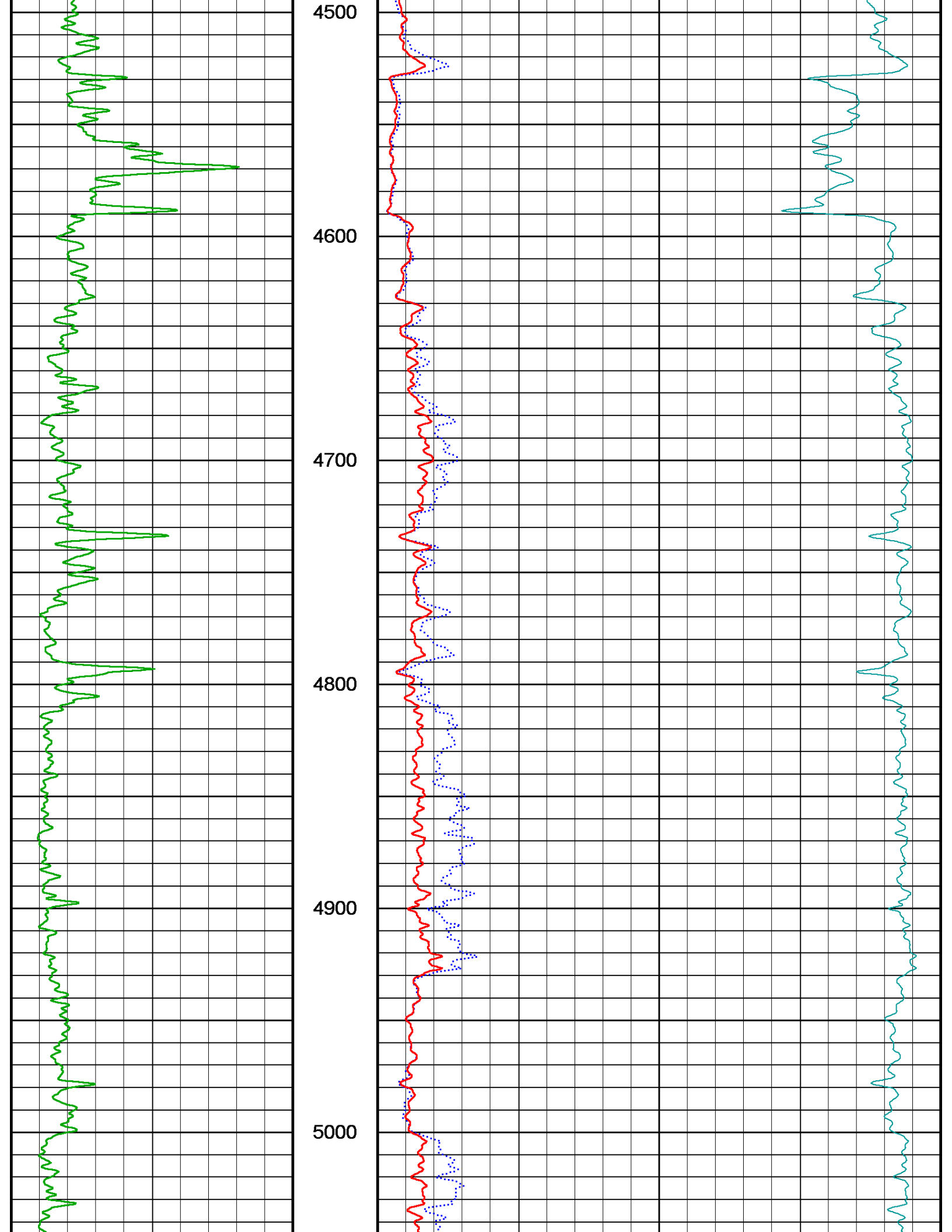
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4600
4700
4800
4900
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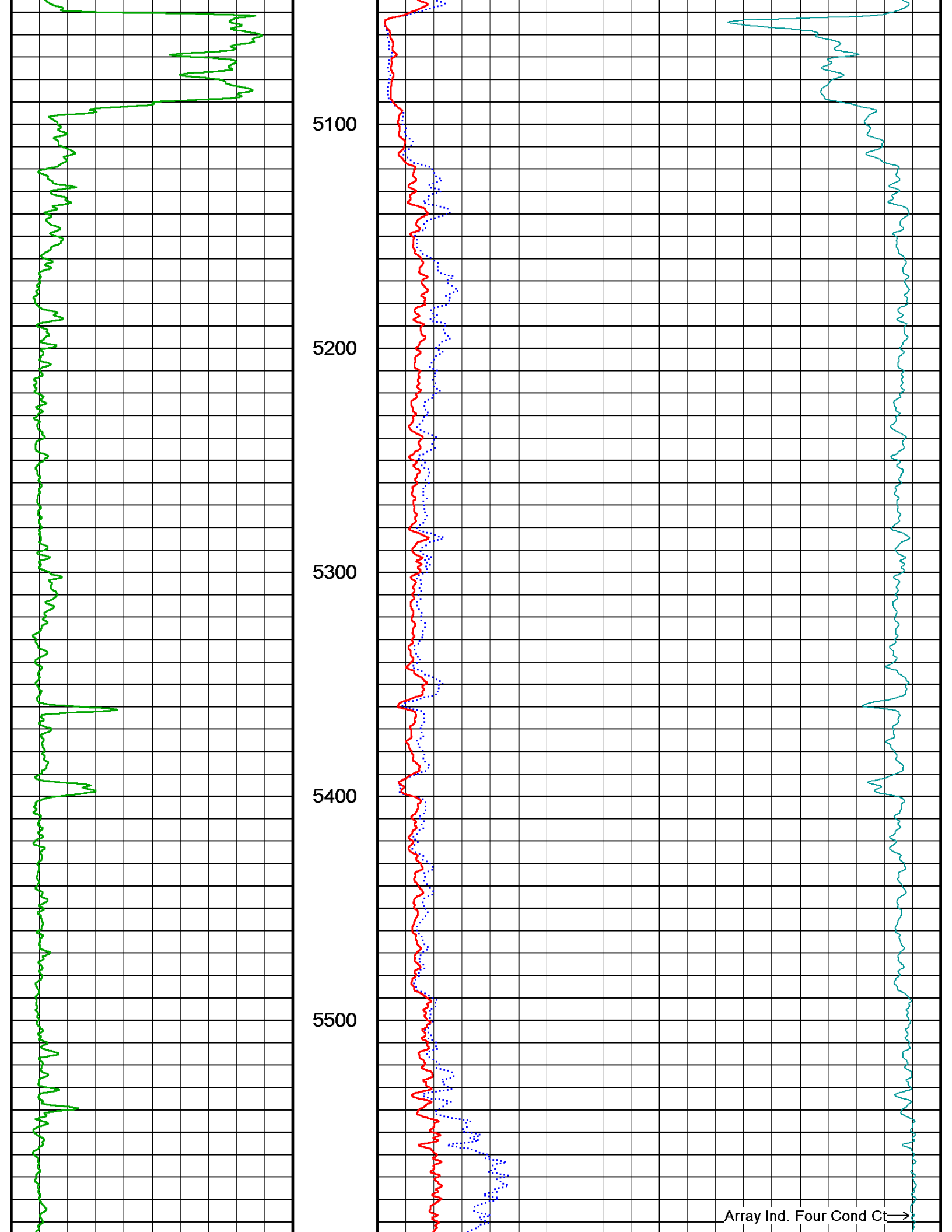
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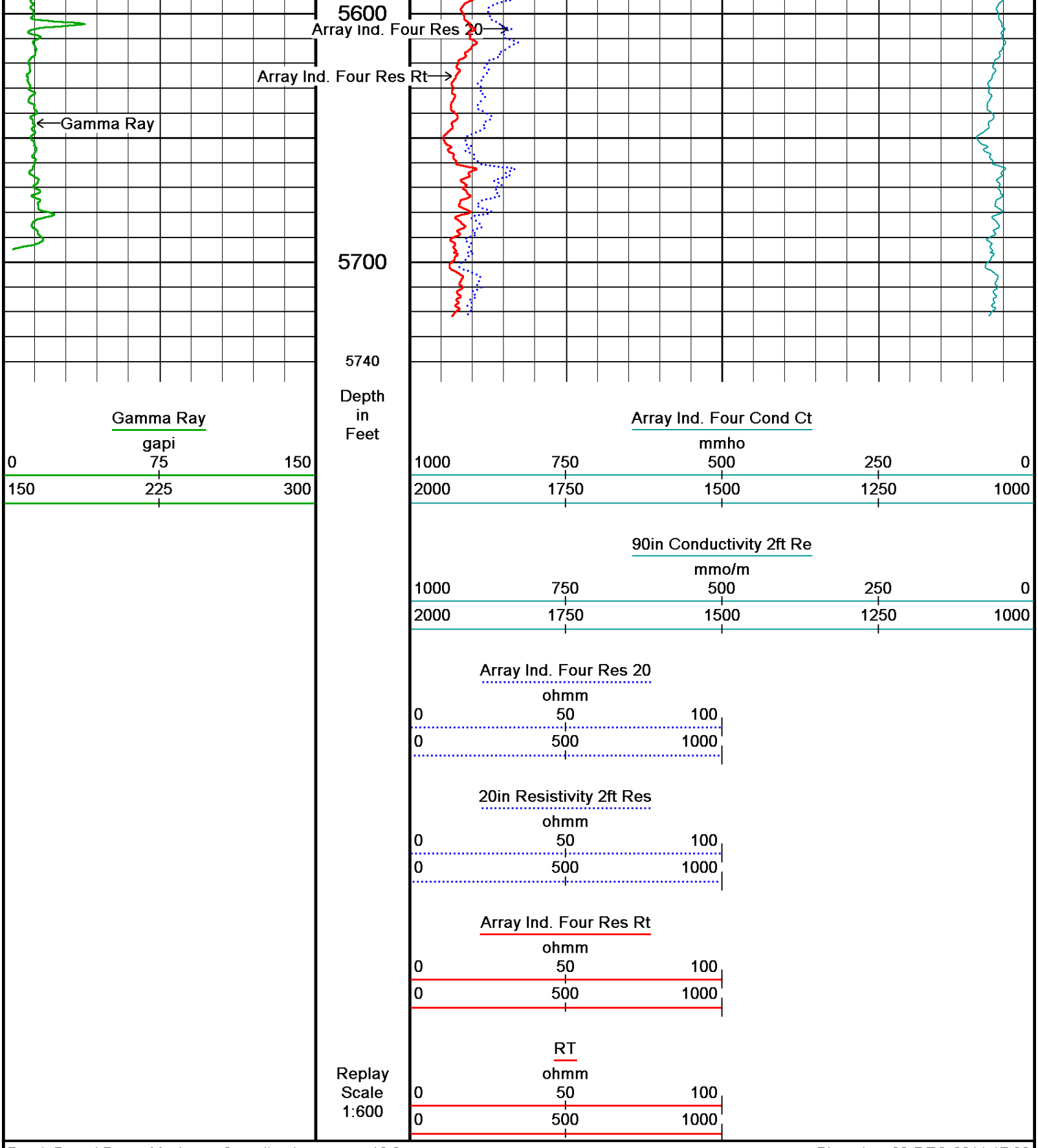
5300
5400
5500
Array Ind. Four Cond Ct⟶



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 02-DEC-2011 17:20
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2 INCH MAIN LOG

5 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 02-DEC-2011 17:20
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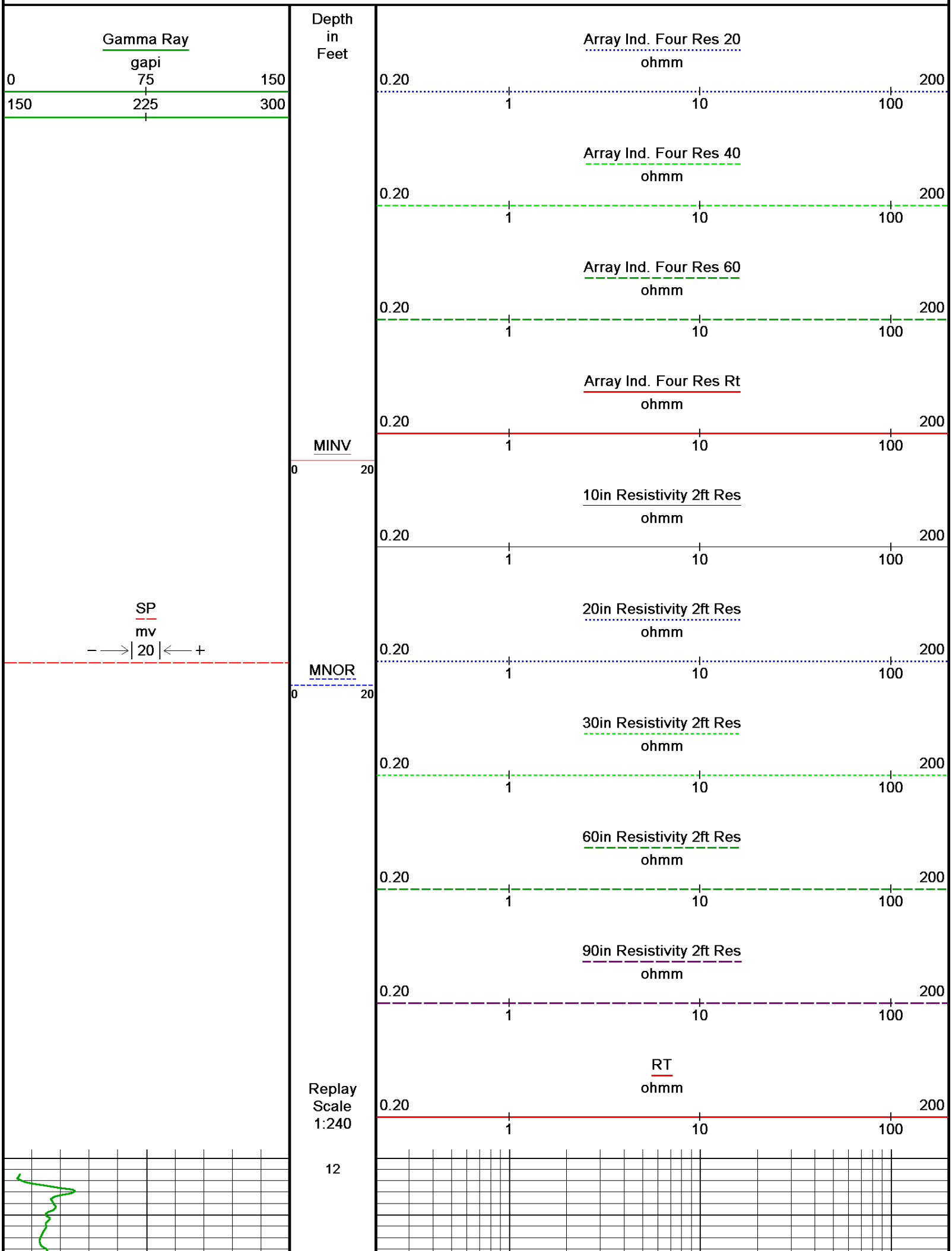
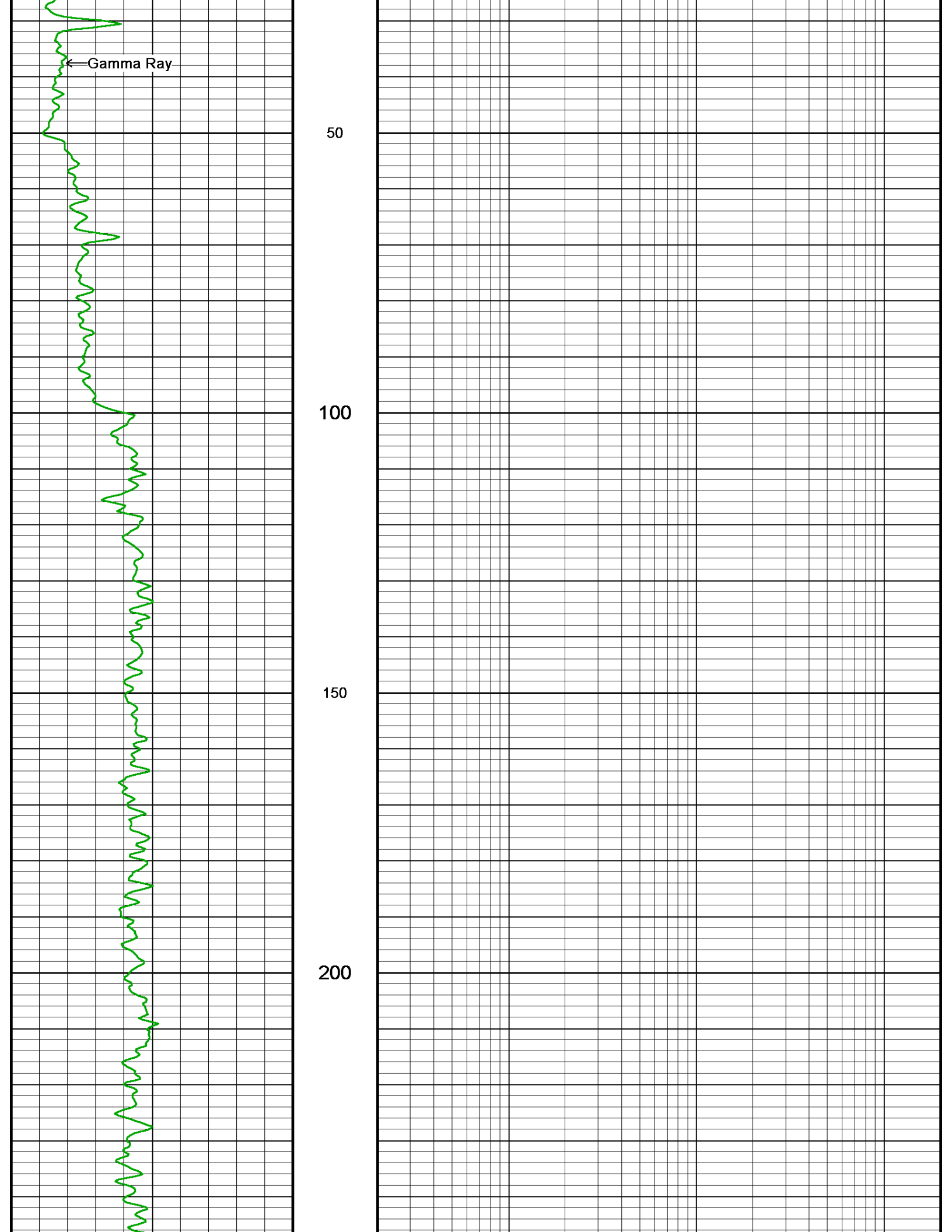
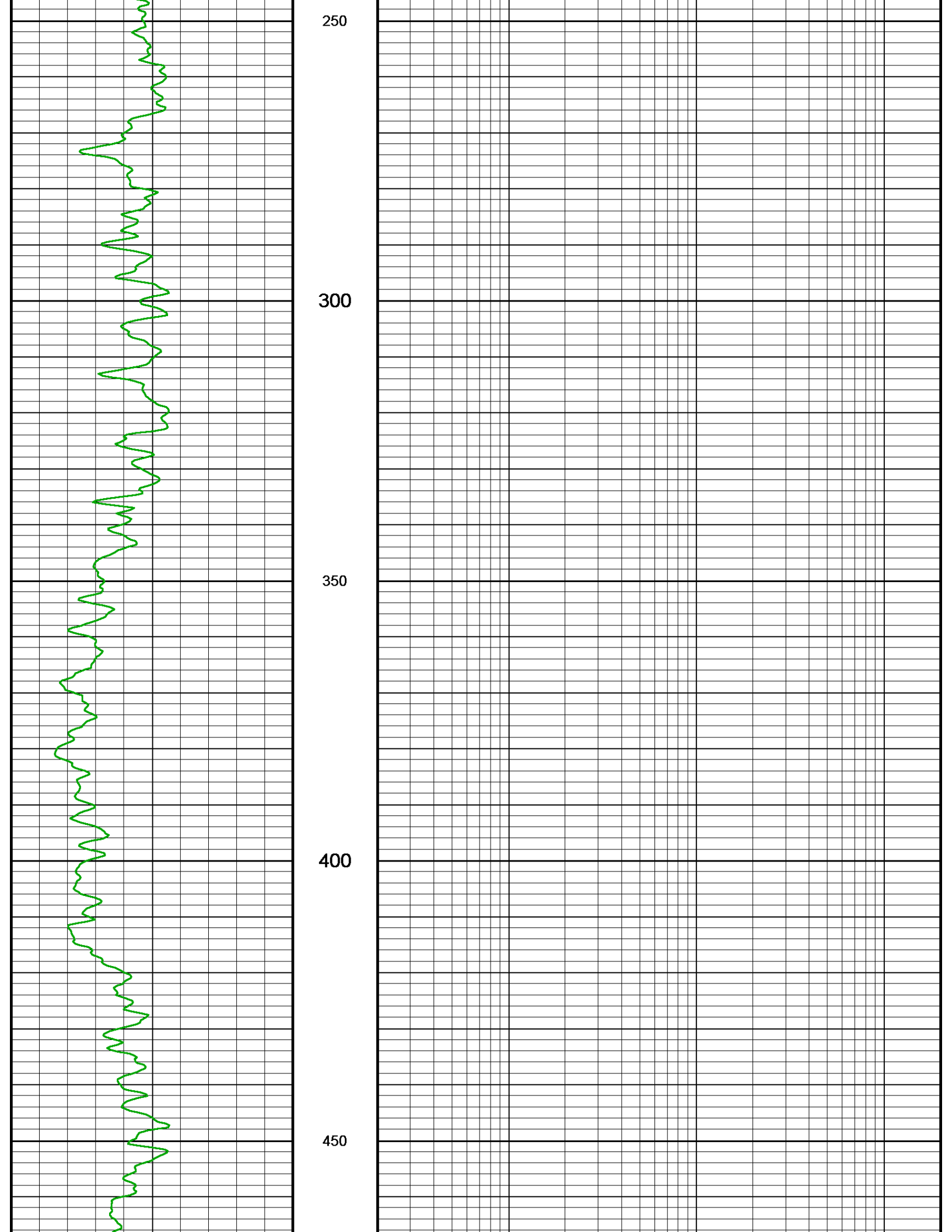

Gamma Ray
gapi
0
75
150
150
225
300
Depth
in
Feet
Array Ind. Four Res 20
ohmm
0.20
200
1
10
100
Array Ind. Four Res 40
ohmm
0.20
200
1
10
100
Array Ind. Four Res 60
ohmm
0.20
200
1
10
100
Array Ind. Four Res Rt
ohmm
0.20
200
1
10
100
MINV
0
20
10in Resistivity 2ft Res
ohmm
0.20
200
1
10
100
SP
mv
20
20in Resistivity 2ft Res
ohmm
0.20
200
1
10
100
MNOR
0
20
30in Resistivity 2ft Res
ohmm
0.20
200
1
10
100
60in Resistivity 2ft Res
ohmm
0.20
200
1
10
100
90in Resistivity 2ft Res
ohmm
0.20
200
1
10
100
RT
ohmm
0.20
200
1
10
100
Replay
Scale
1:240
12


Gamma Ray
50
100
150
200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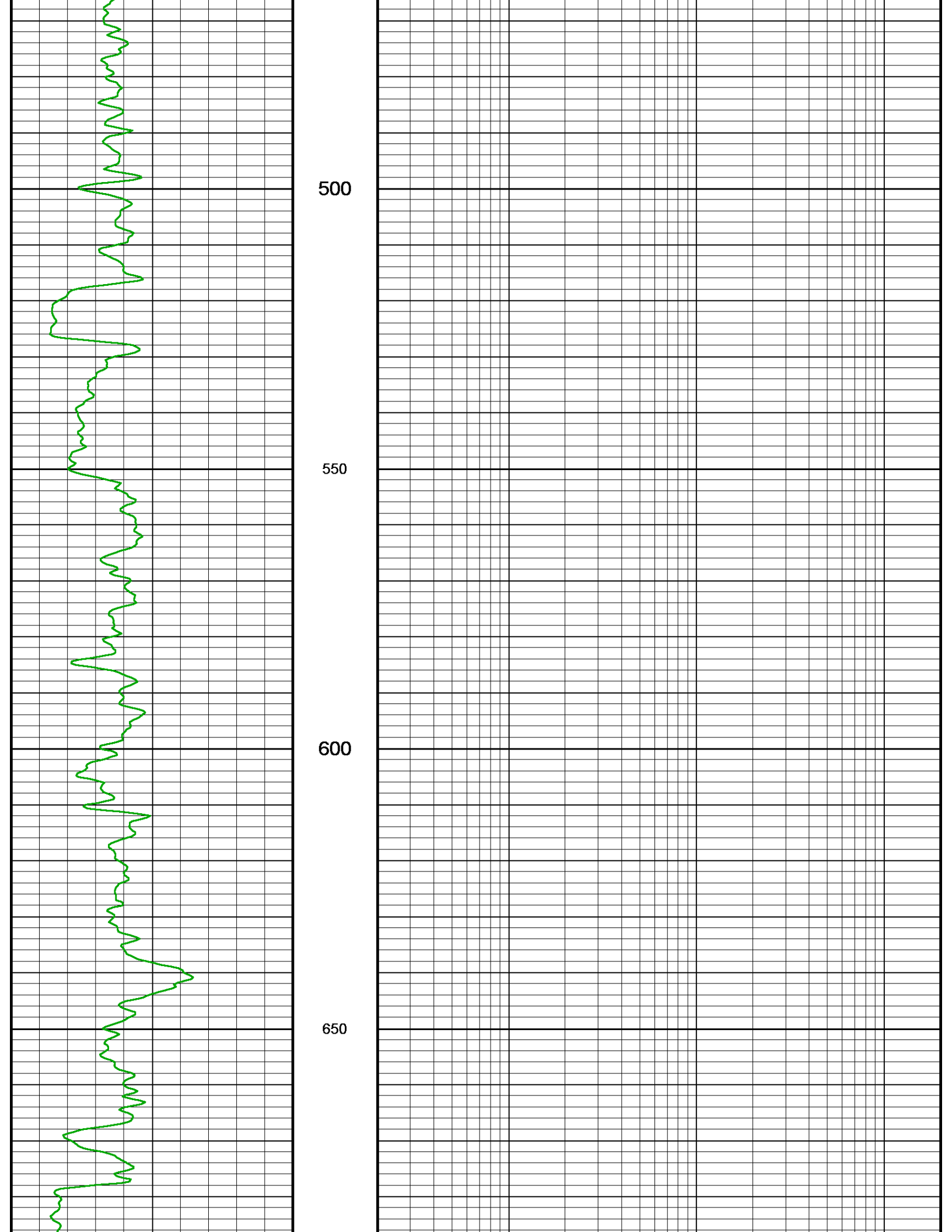
300
350
400
450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600
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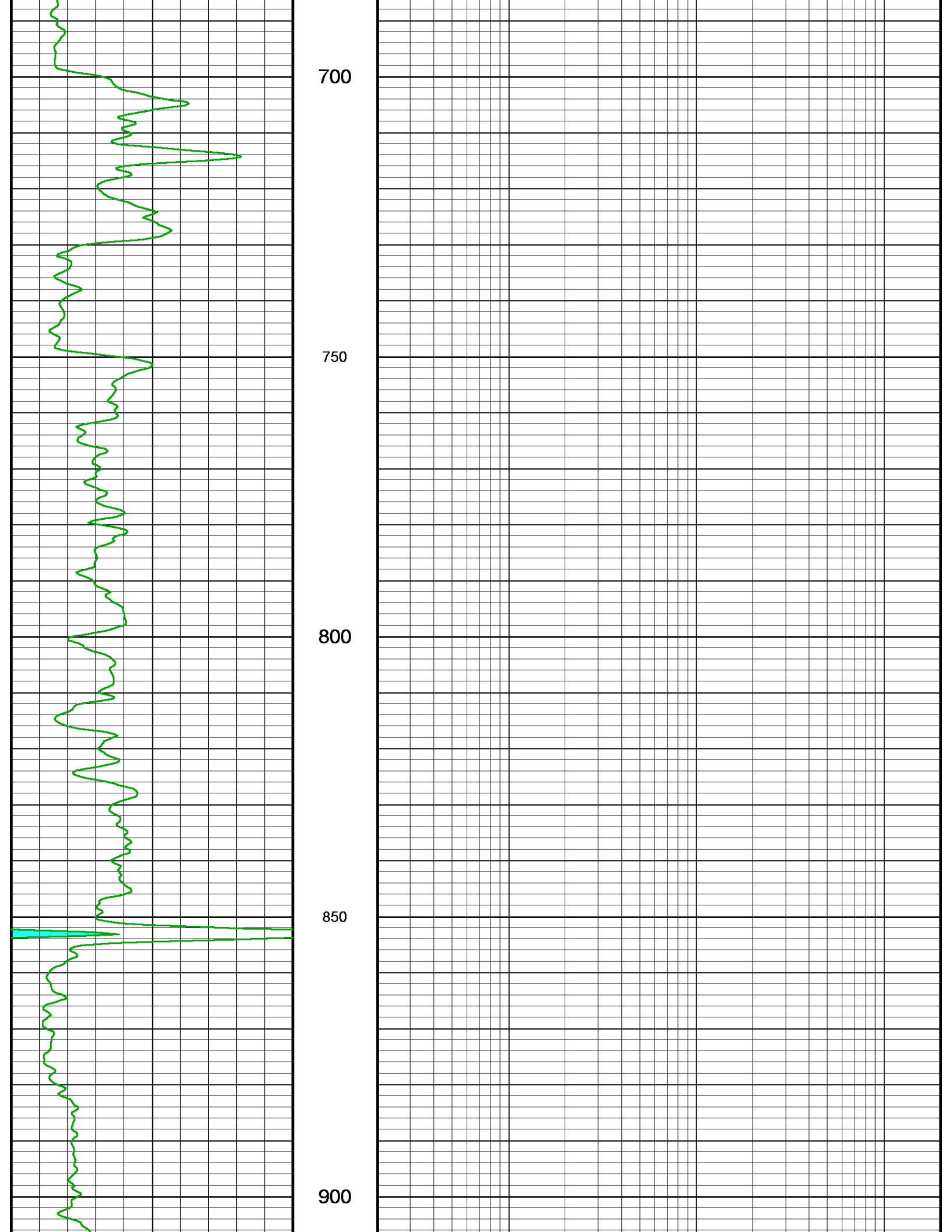
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750
800
850
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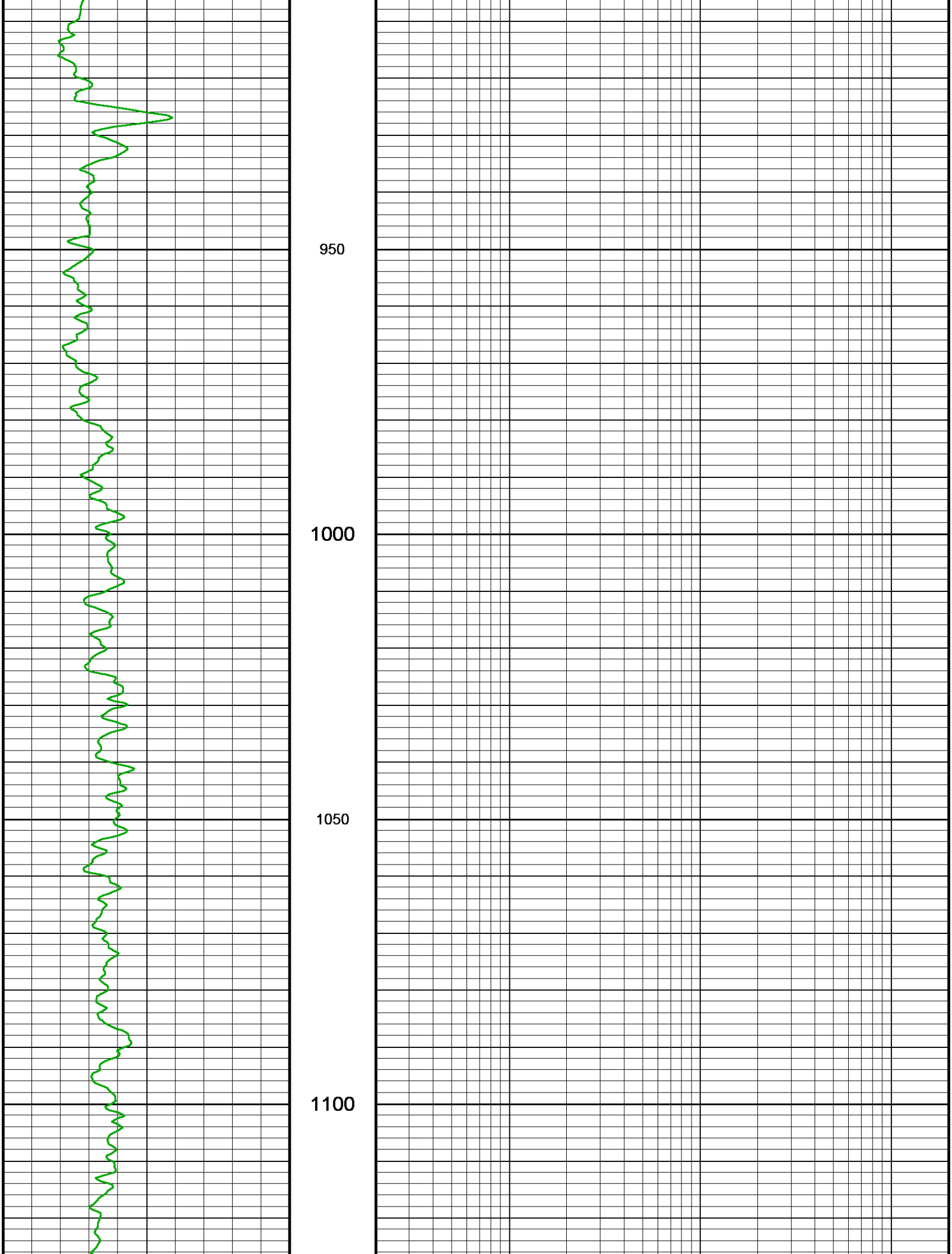
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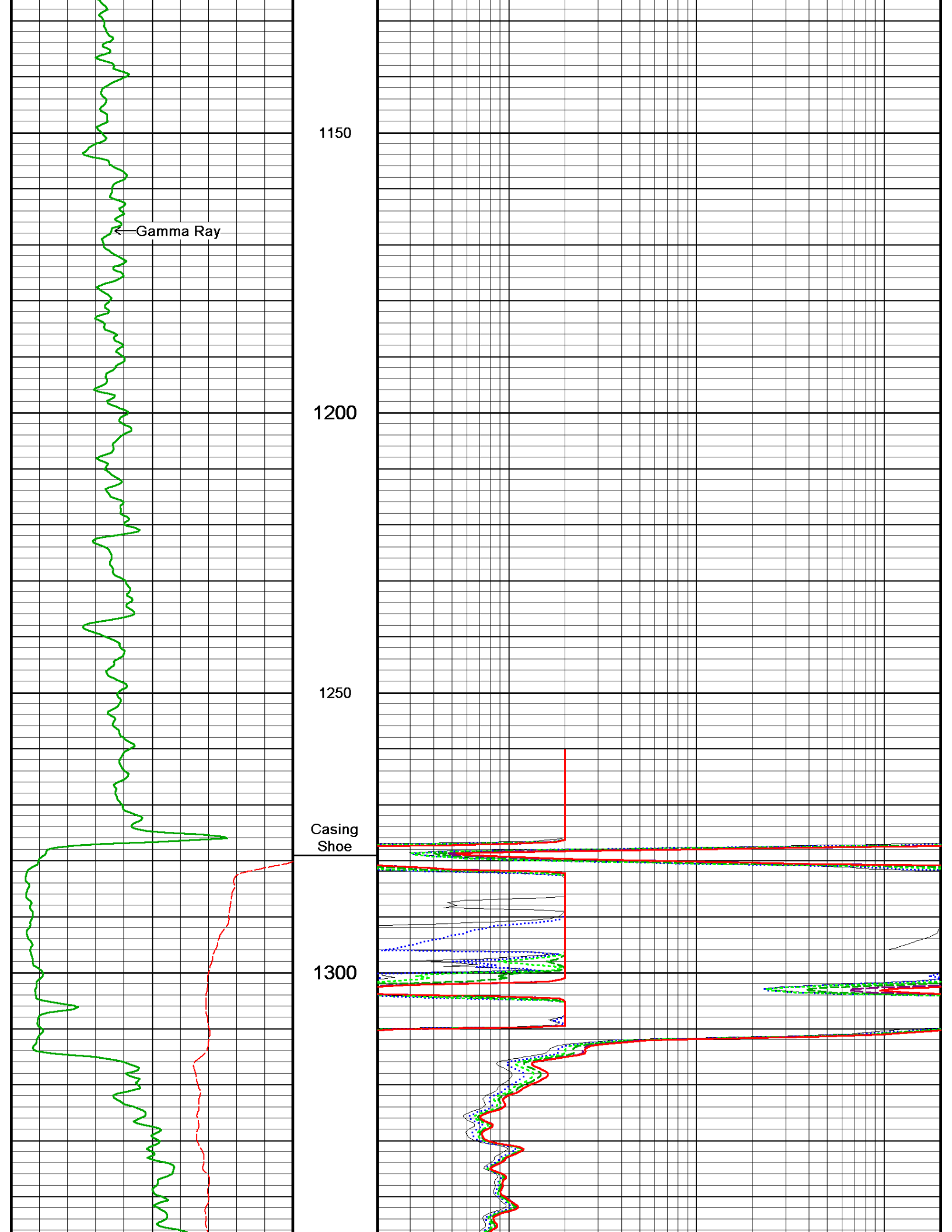
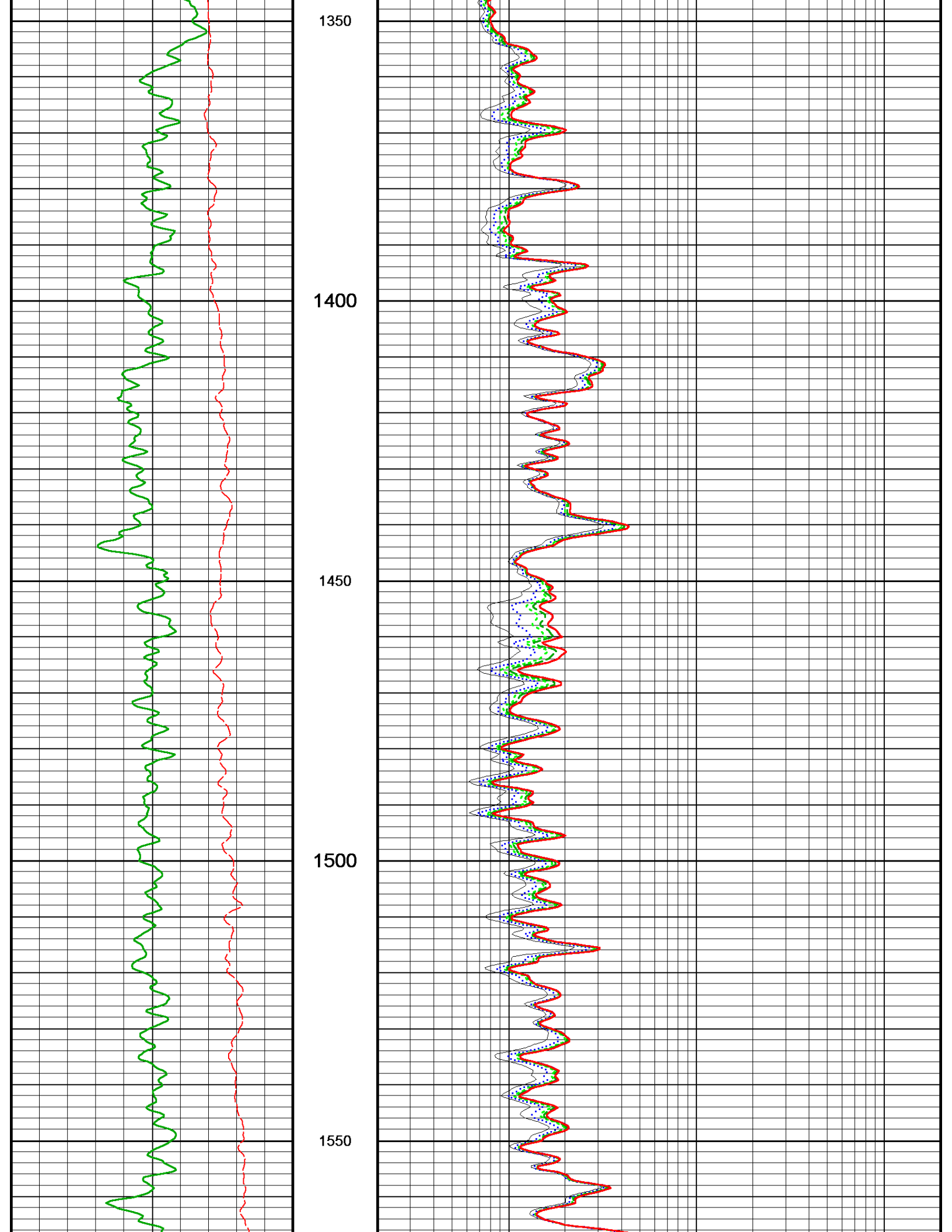
1000
1050
1100


1150
Gamma Ray
1200
1250
Casing
Shoe
1300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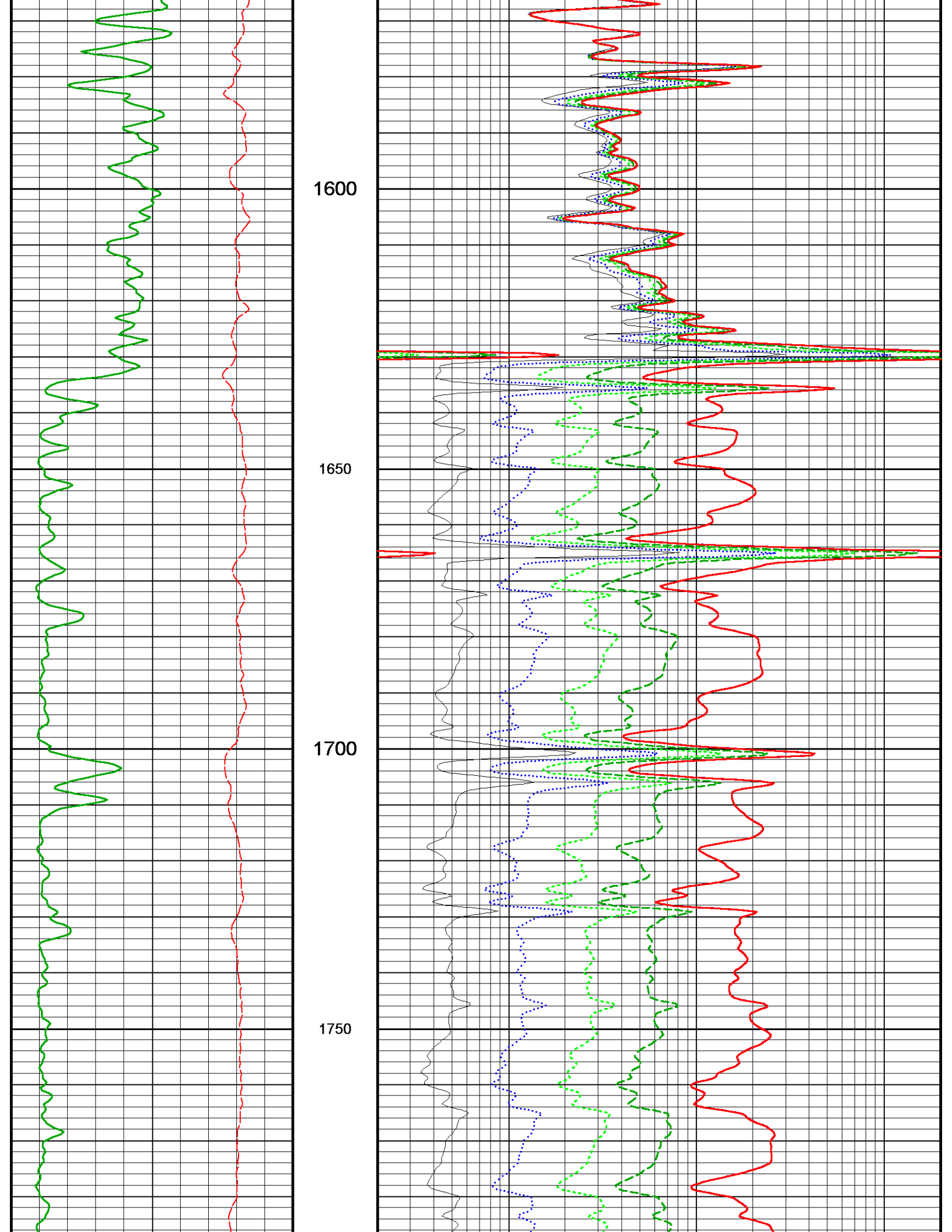
1400
1450
1500
1550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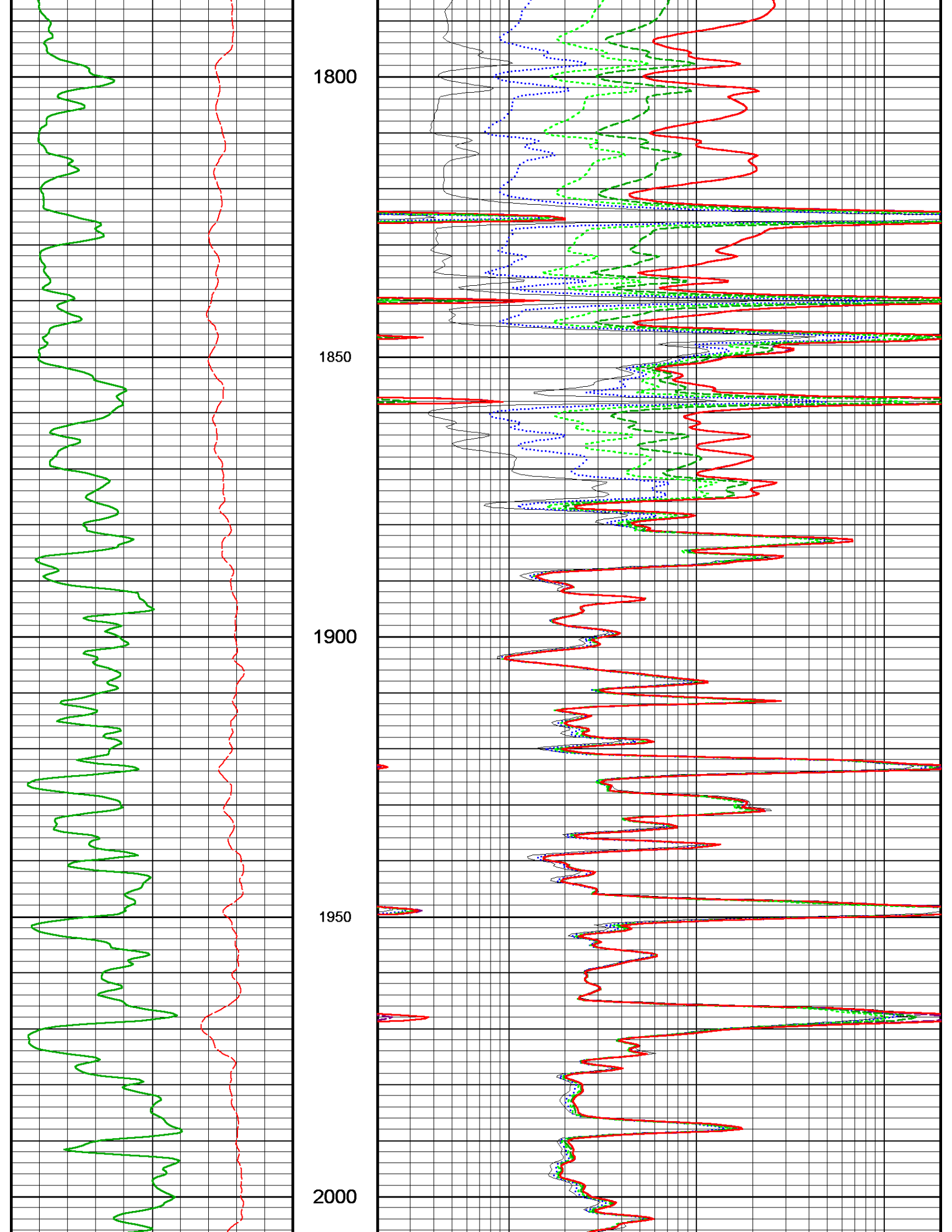
1650
1700
1750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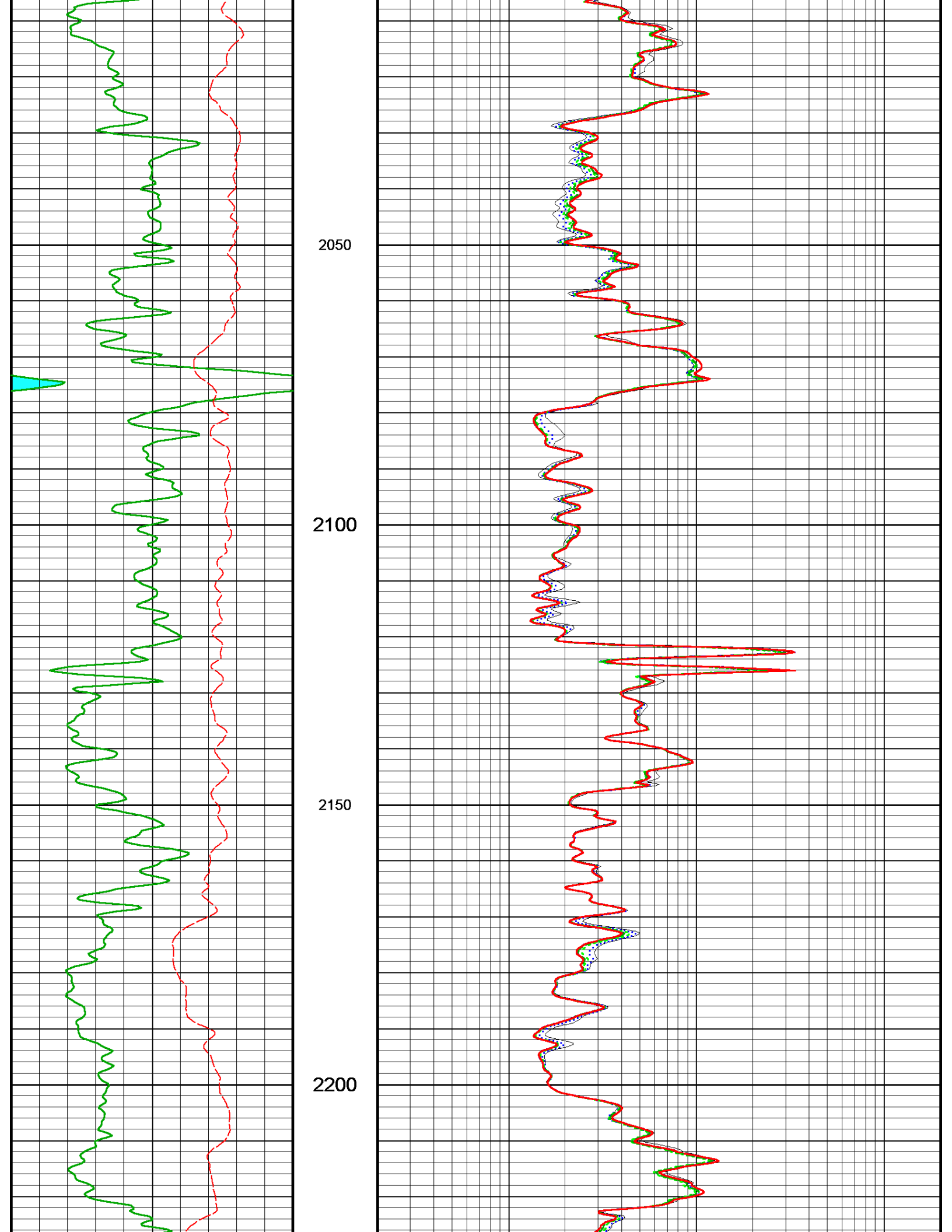
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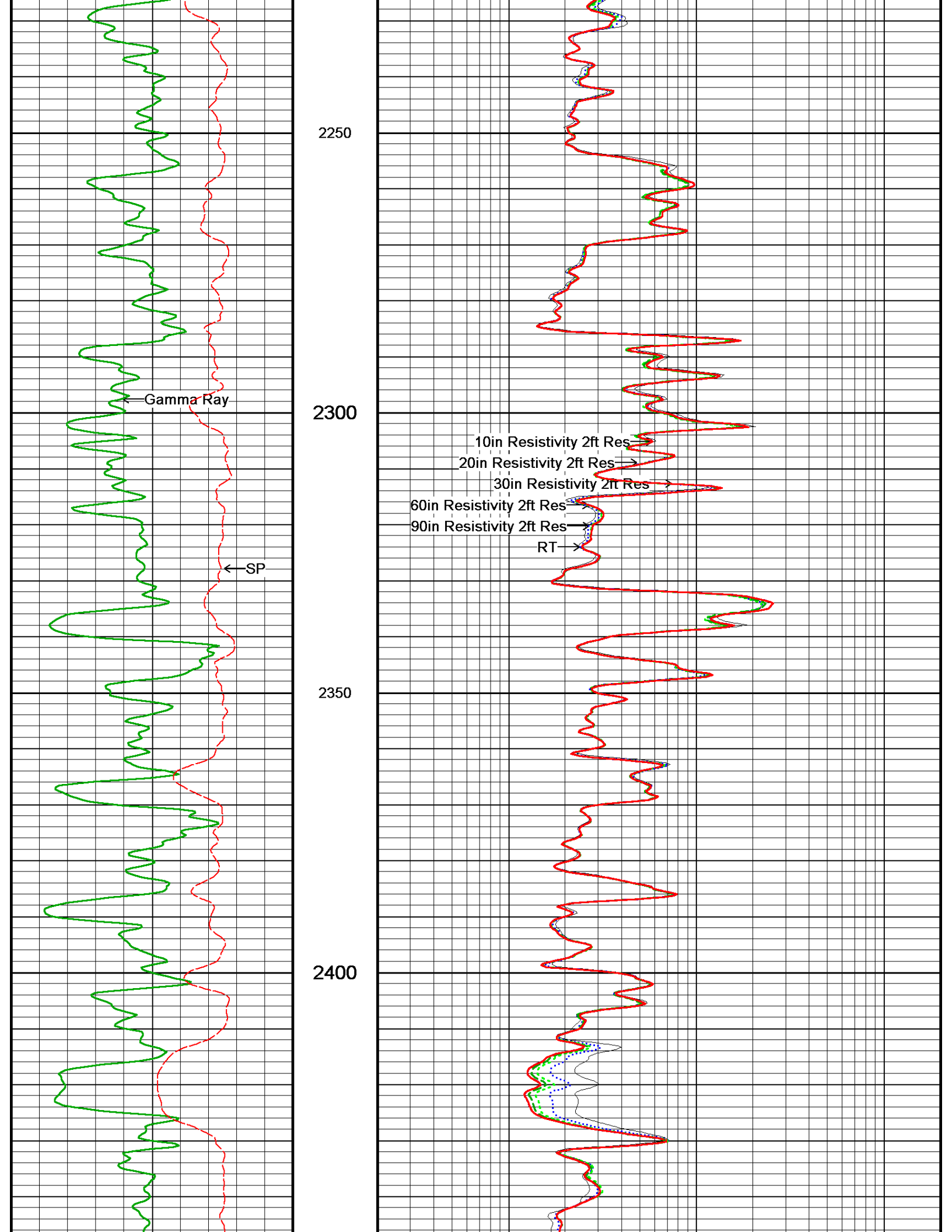
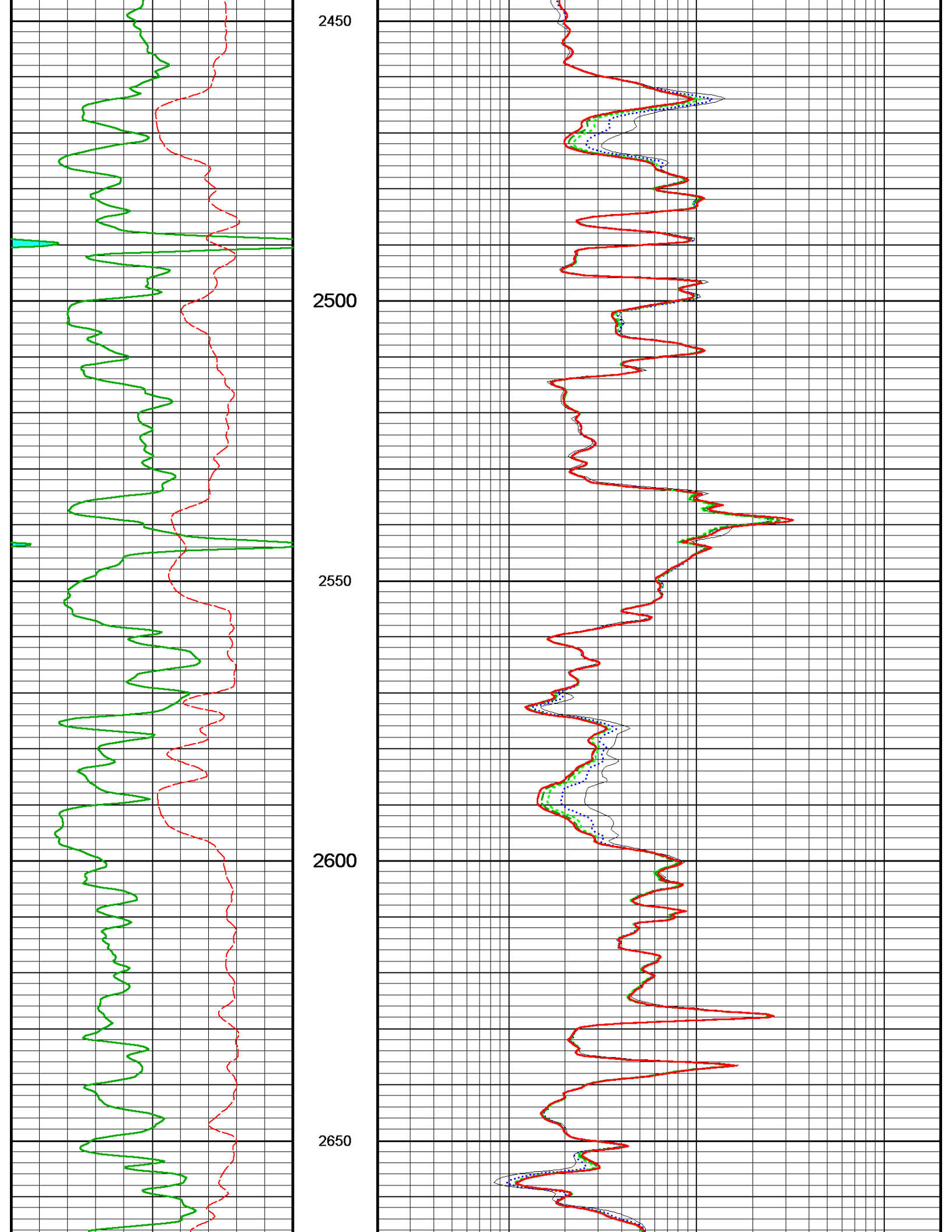
2150
2200


2250
2300
2350
2400
Gamma Ray
SP
10in Resistivity 2ft Res
20in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
90in Resistivity 2ft Res
RT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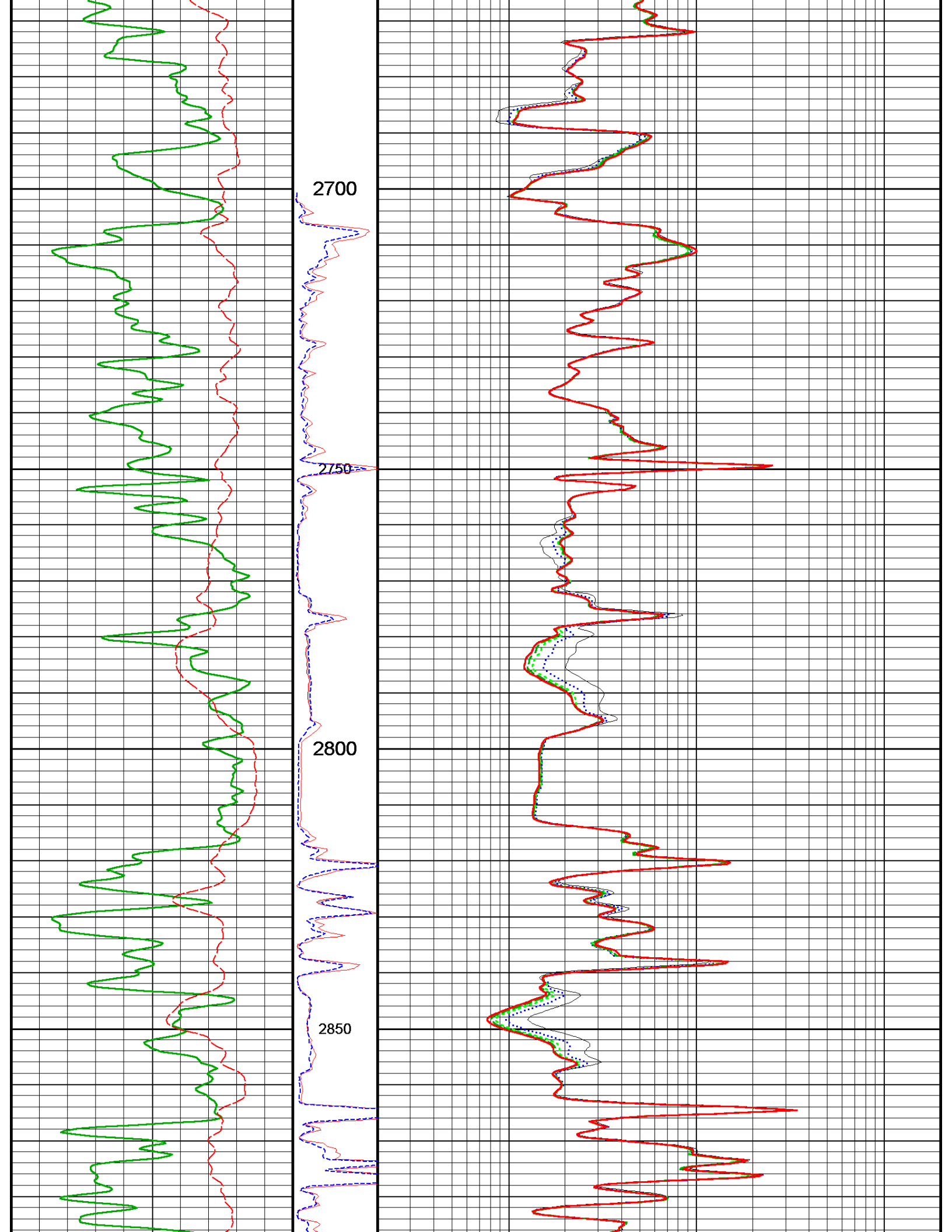
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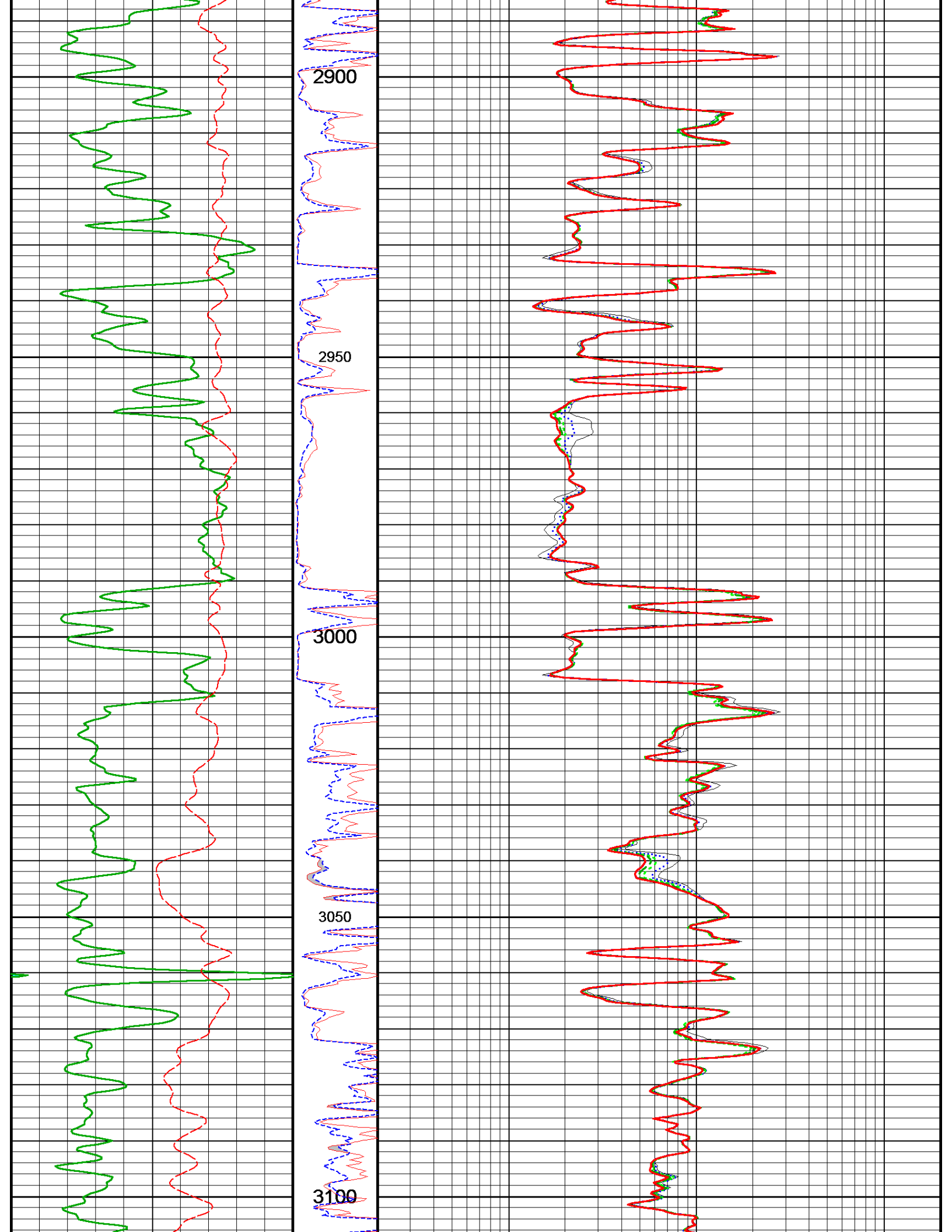
2750
2800
2850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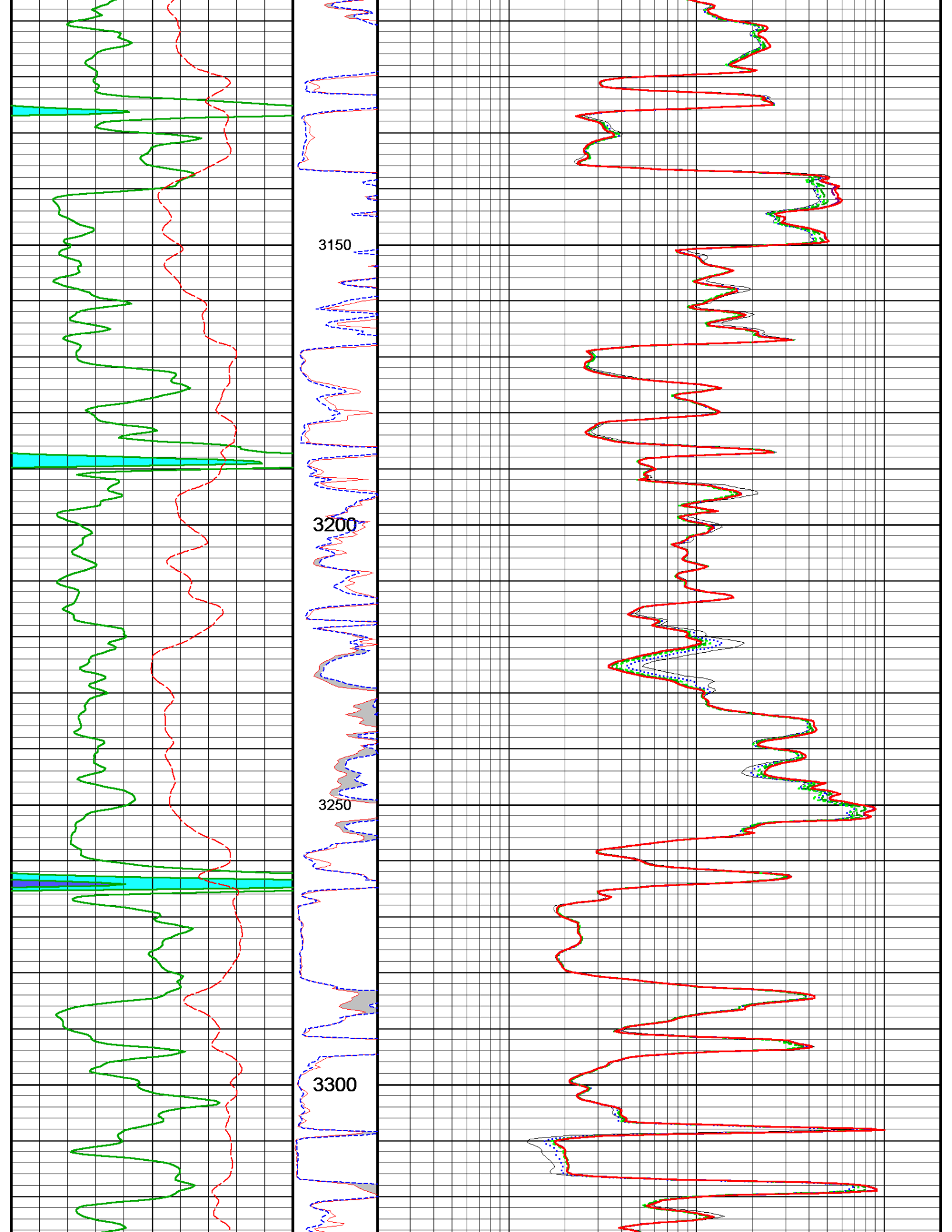
3000
3050
3100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3200
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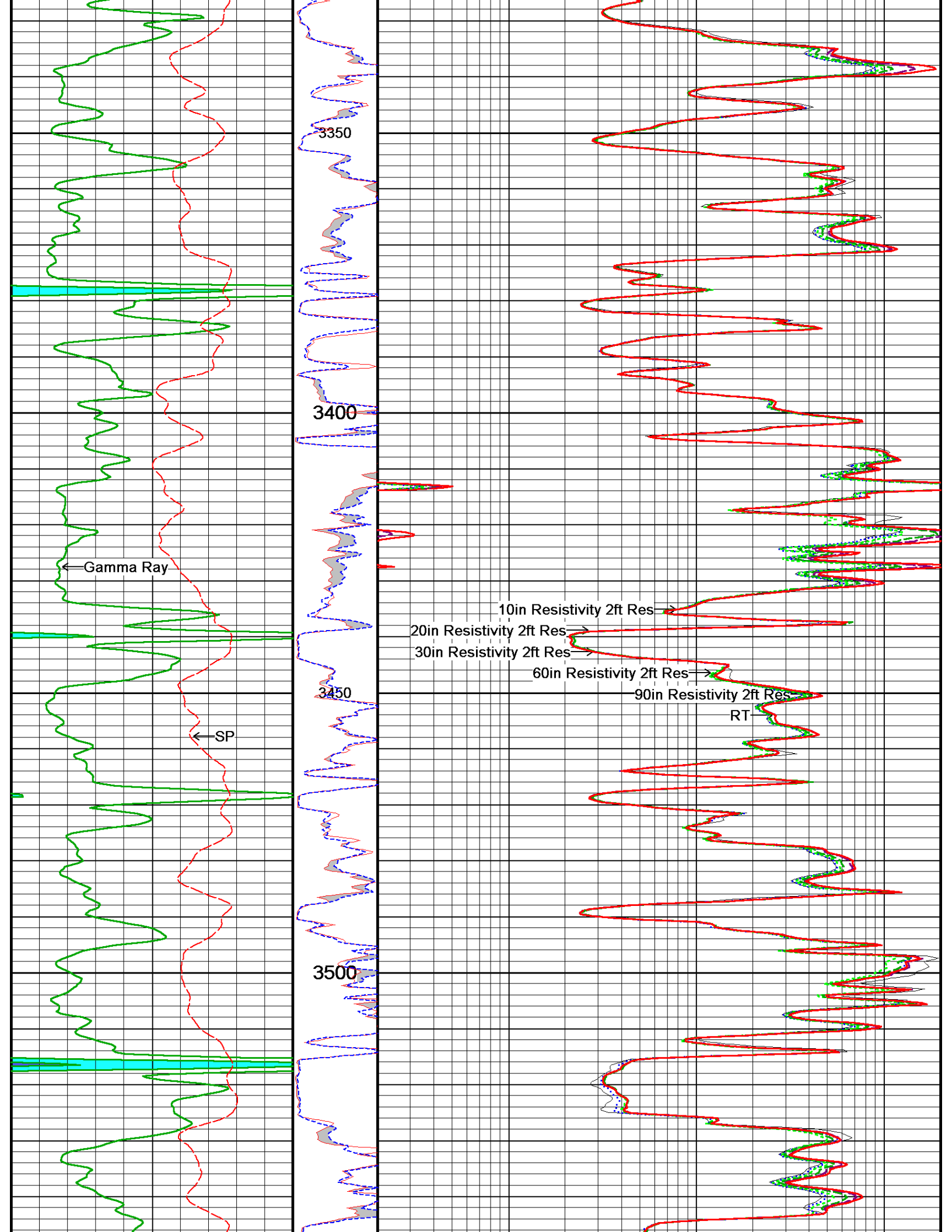
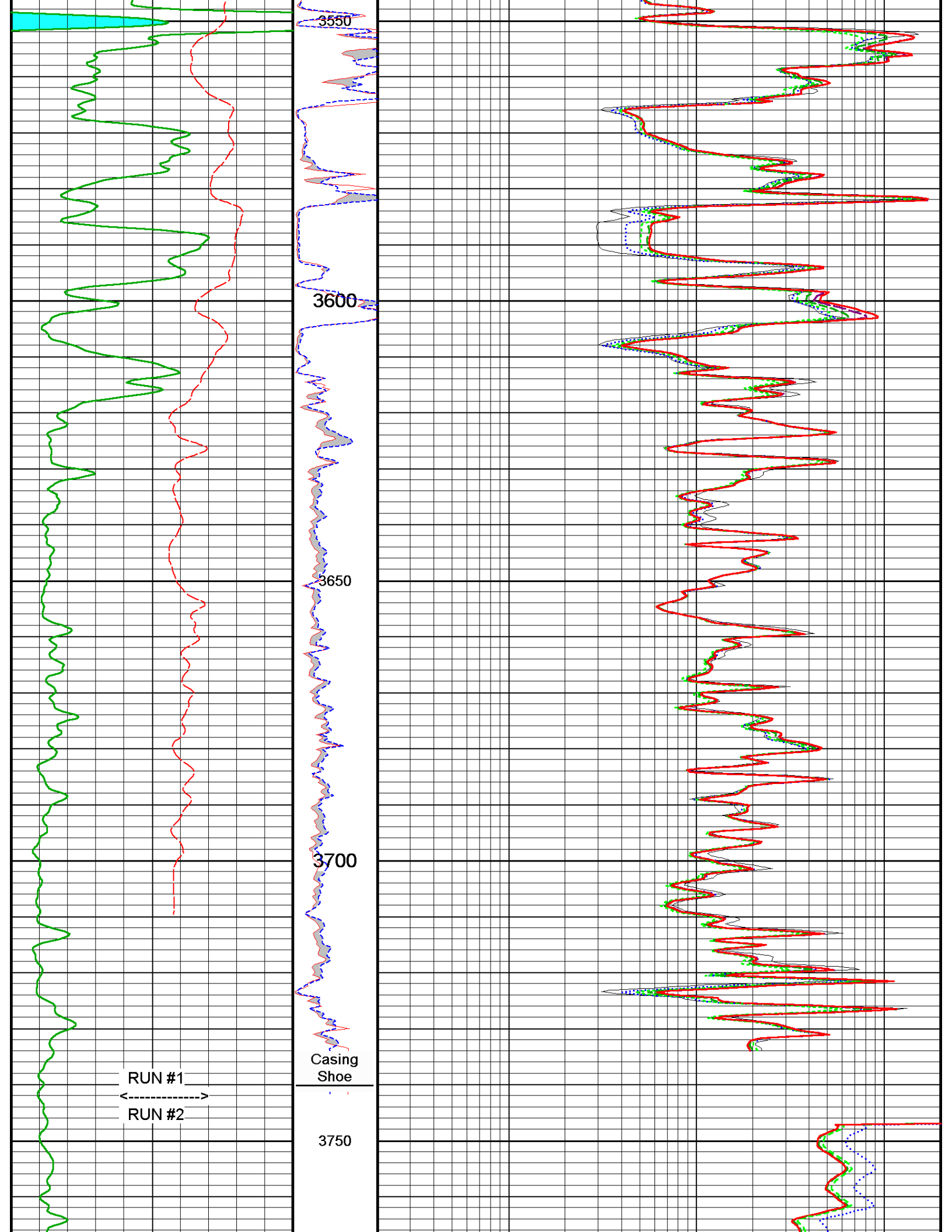
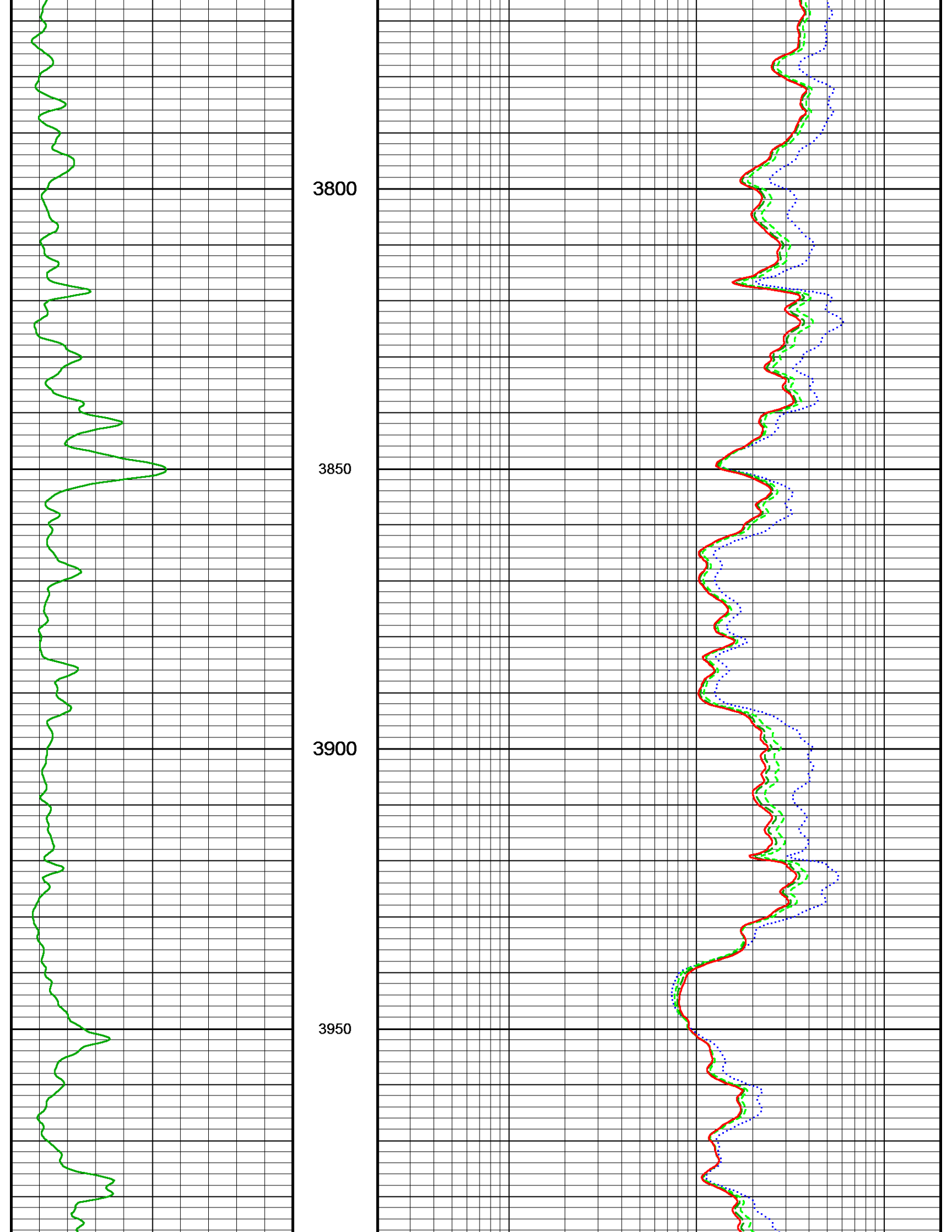

3350
3400
3450
3500
Gamma Ray
SP
10in Resistivity 2ft Res
20in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
90in Resistivity 2ft Res
RT


3550
3600
3650
3700
Casing
Shoe
3750
RUN #1
<----------->
RUN #2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3850
3900
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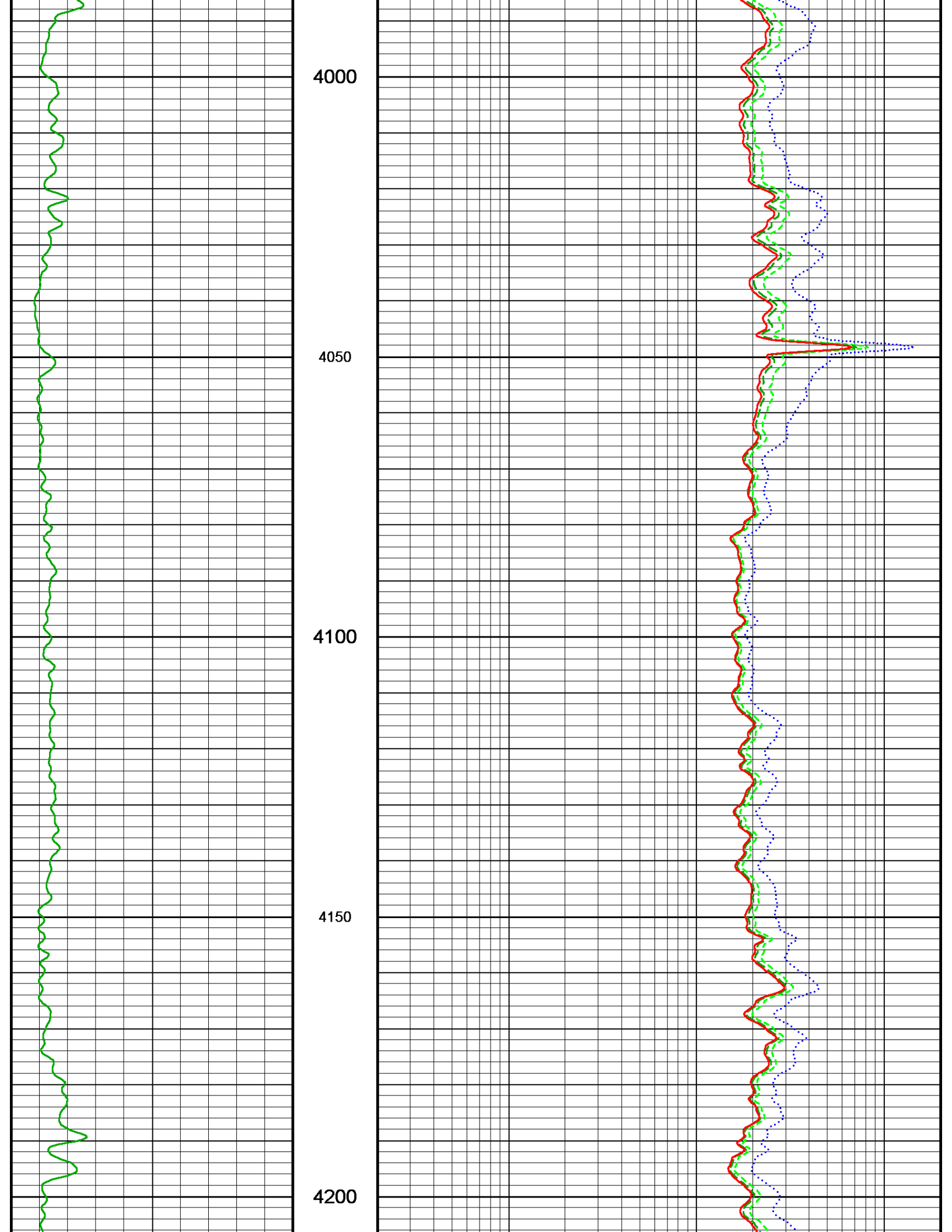
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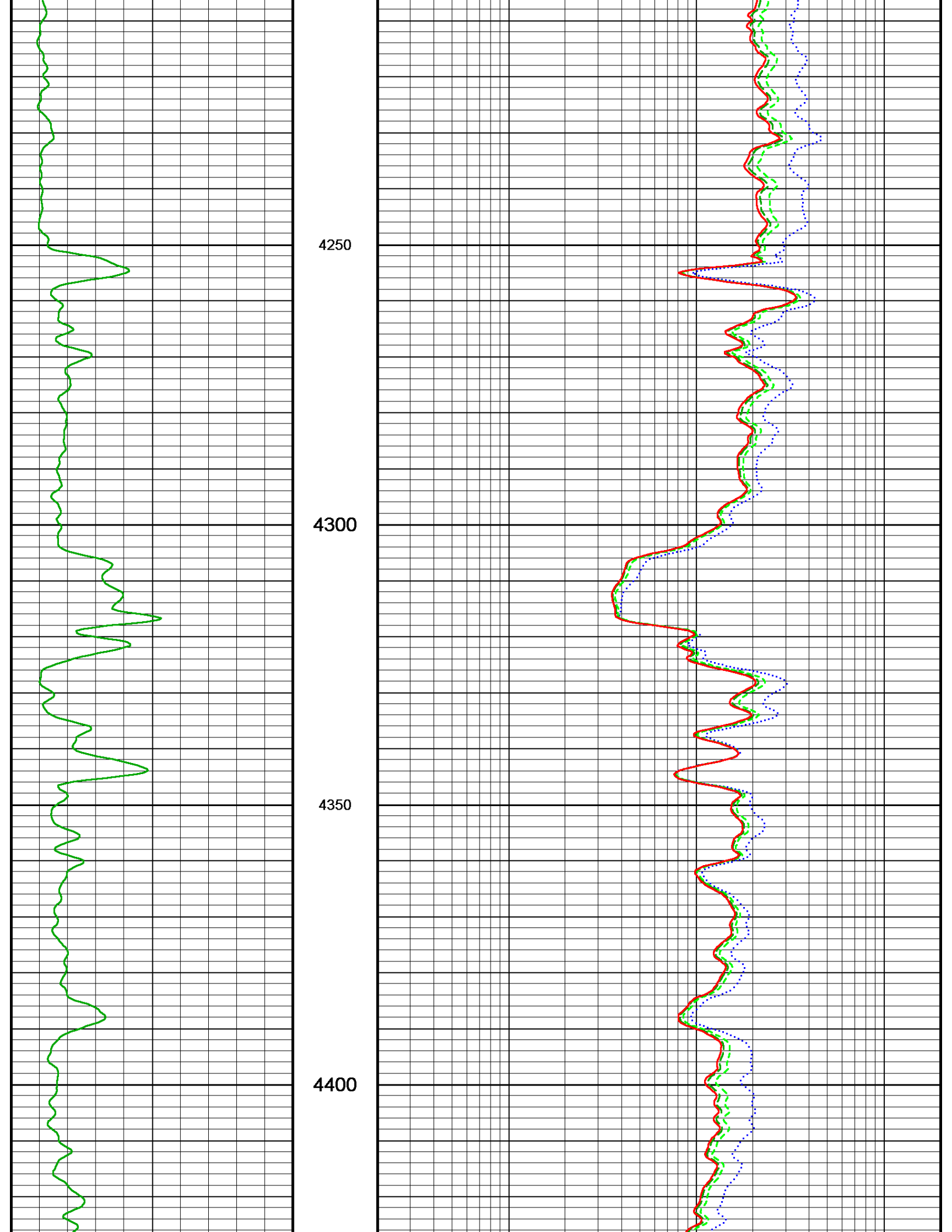
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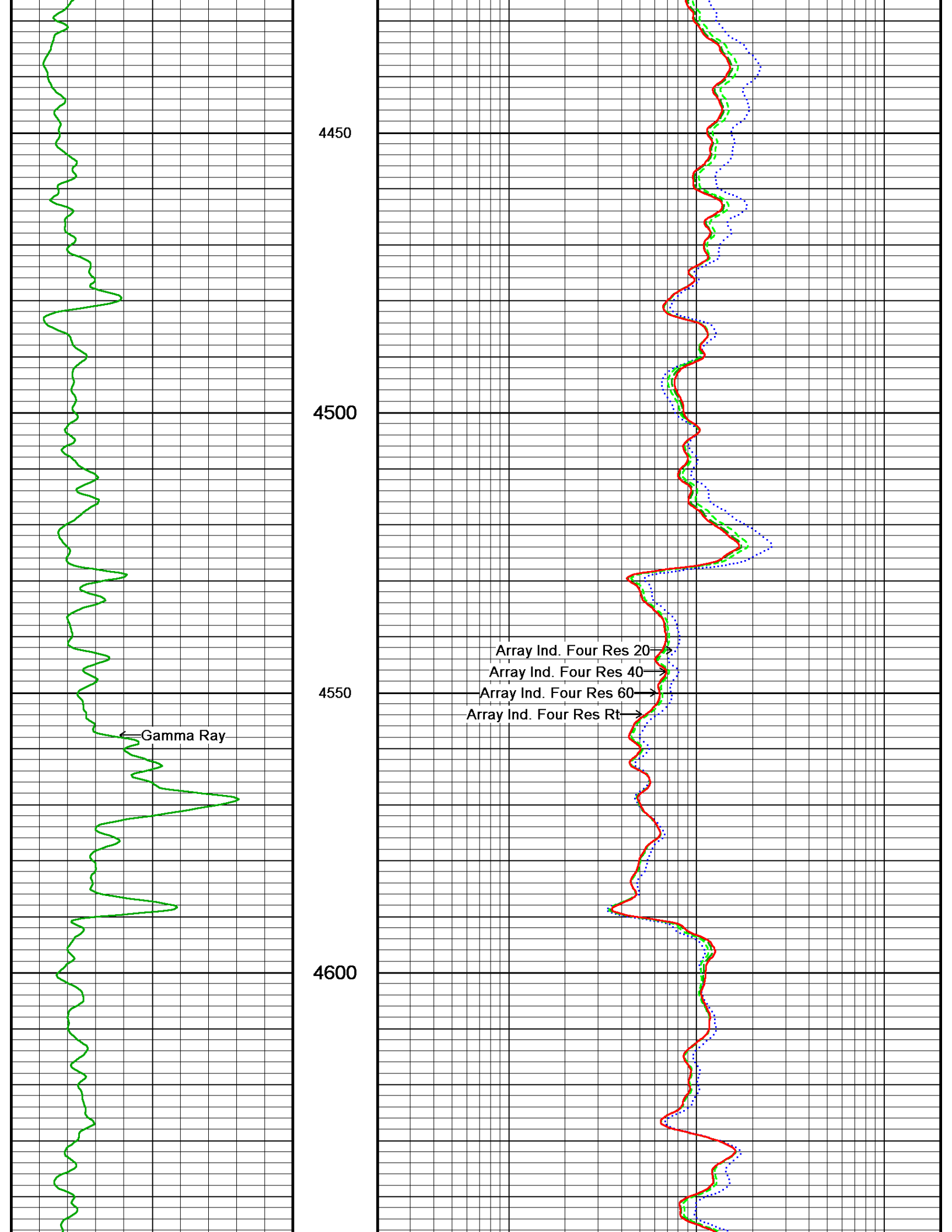
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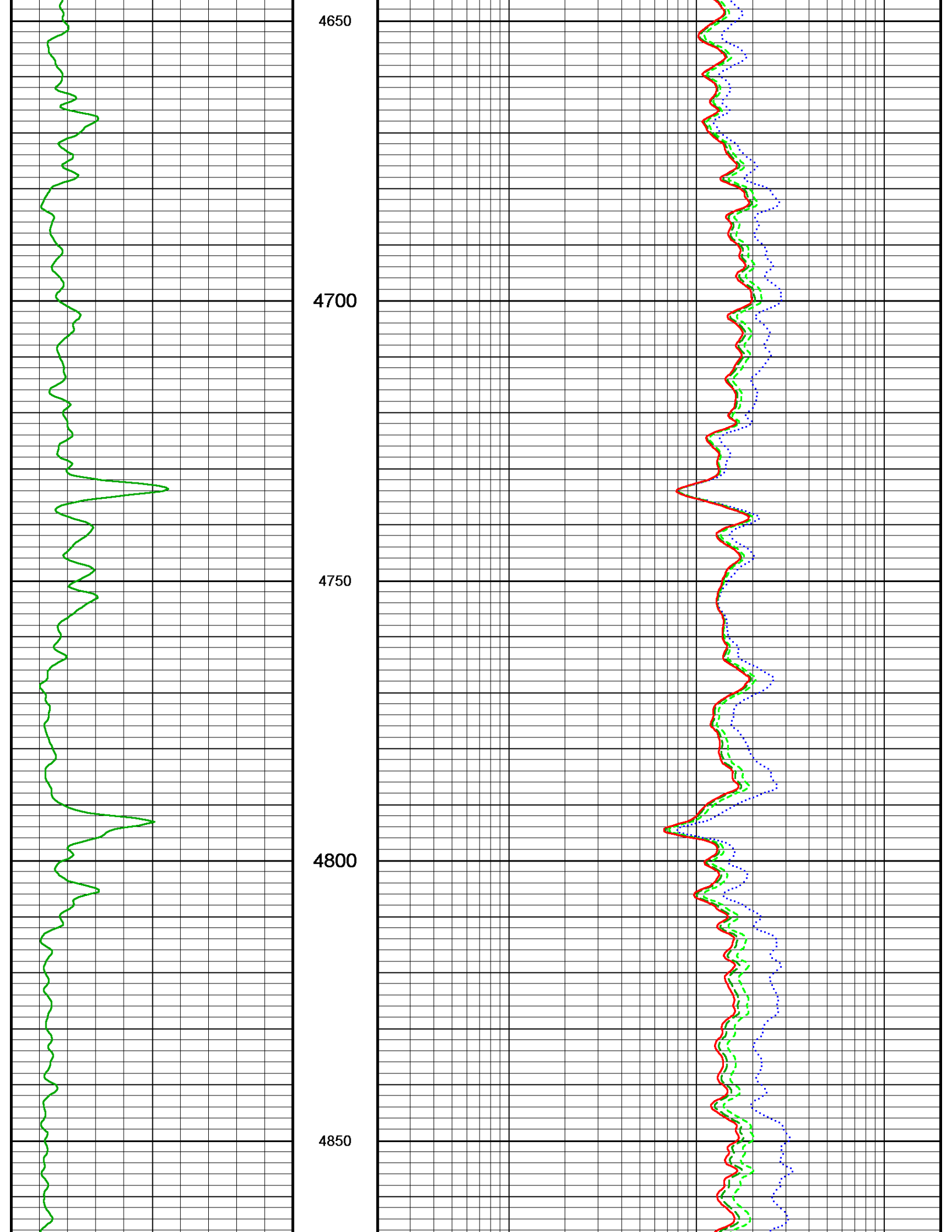
4500
4550
4600
Gamma Ray
Array Ind. Four Res 20
Array Ind. Four Res 40
Array Ind. Four Res 60
Array Ind. Four Res Rt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4750
4800
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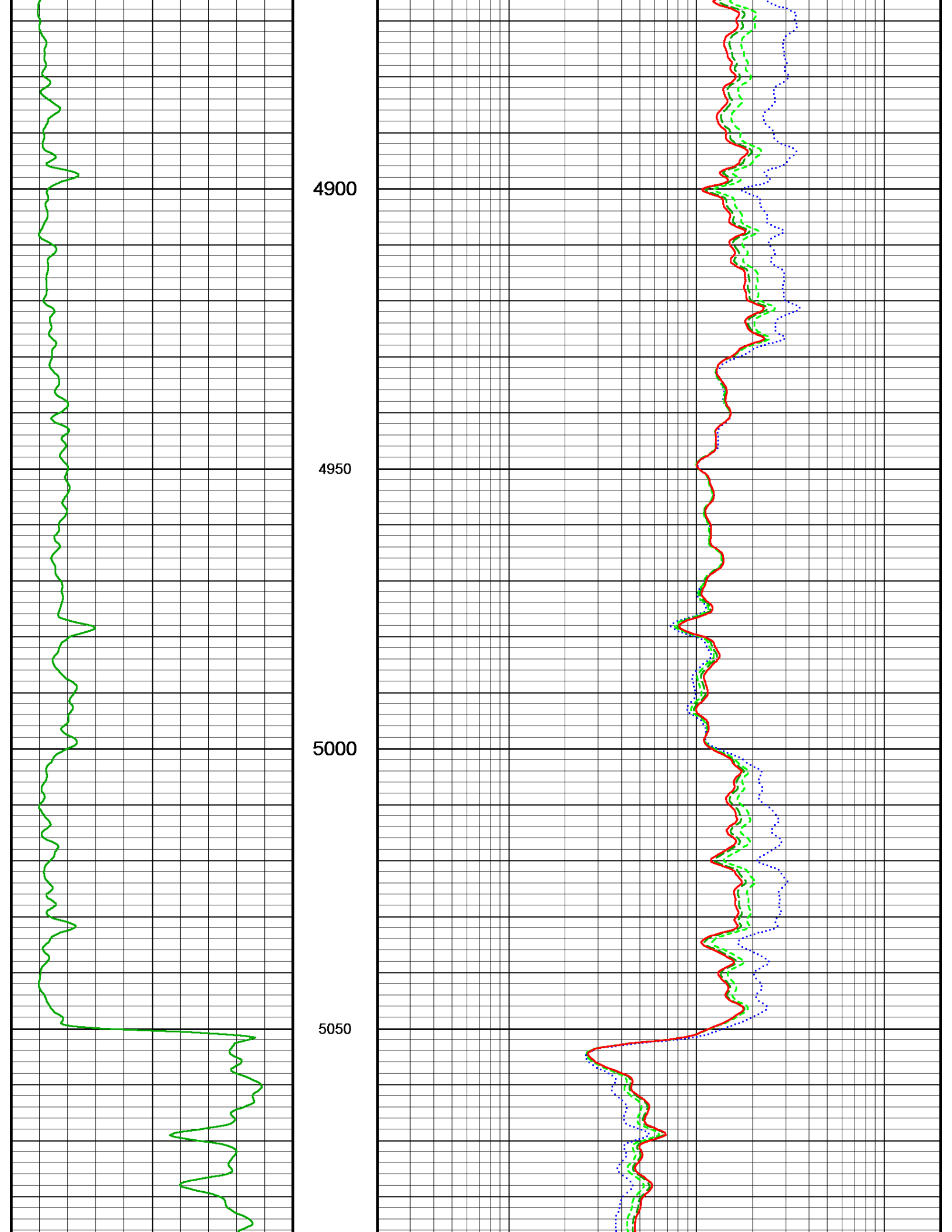
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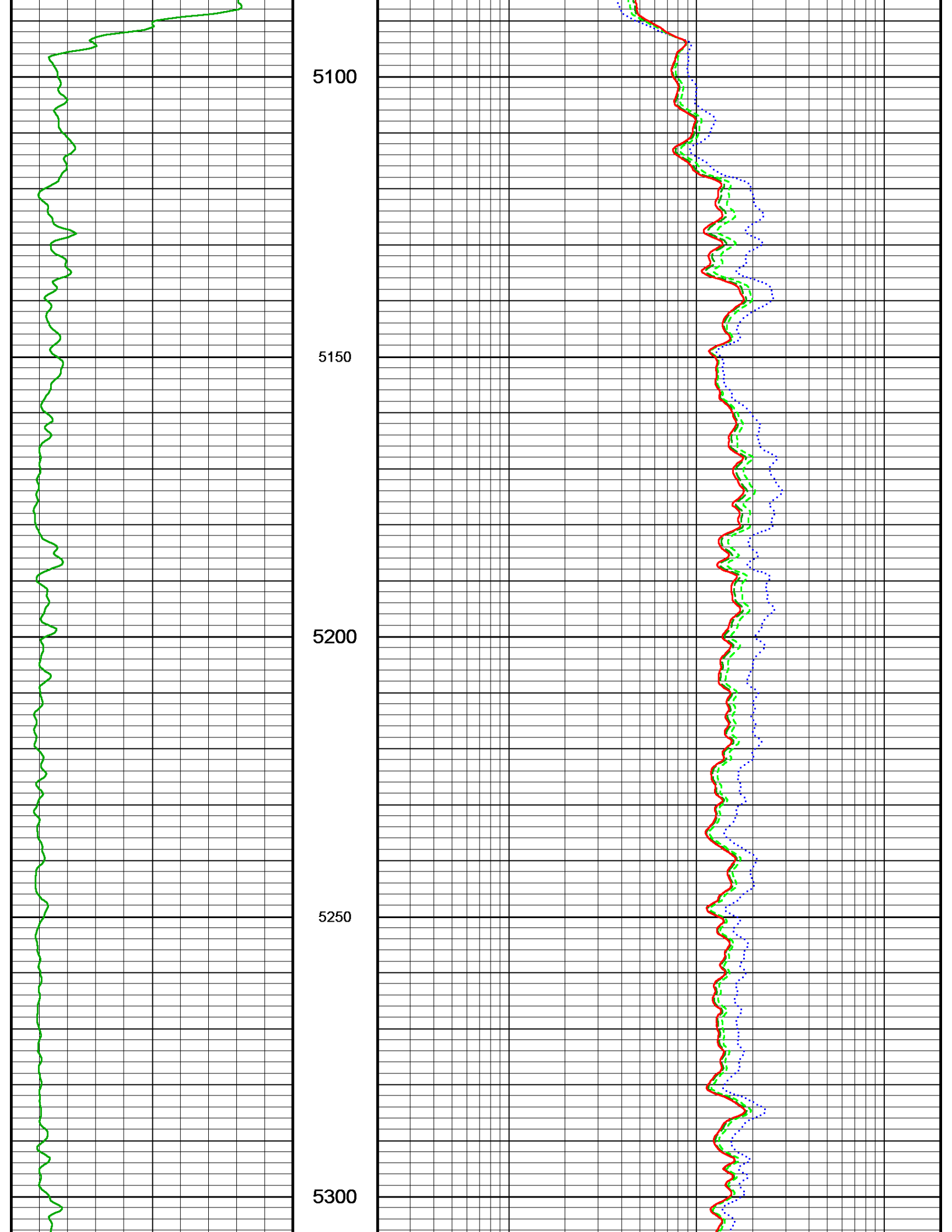
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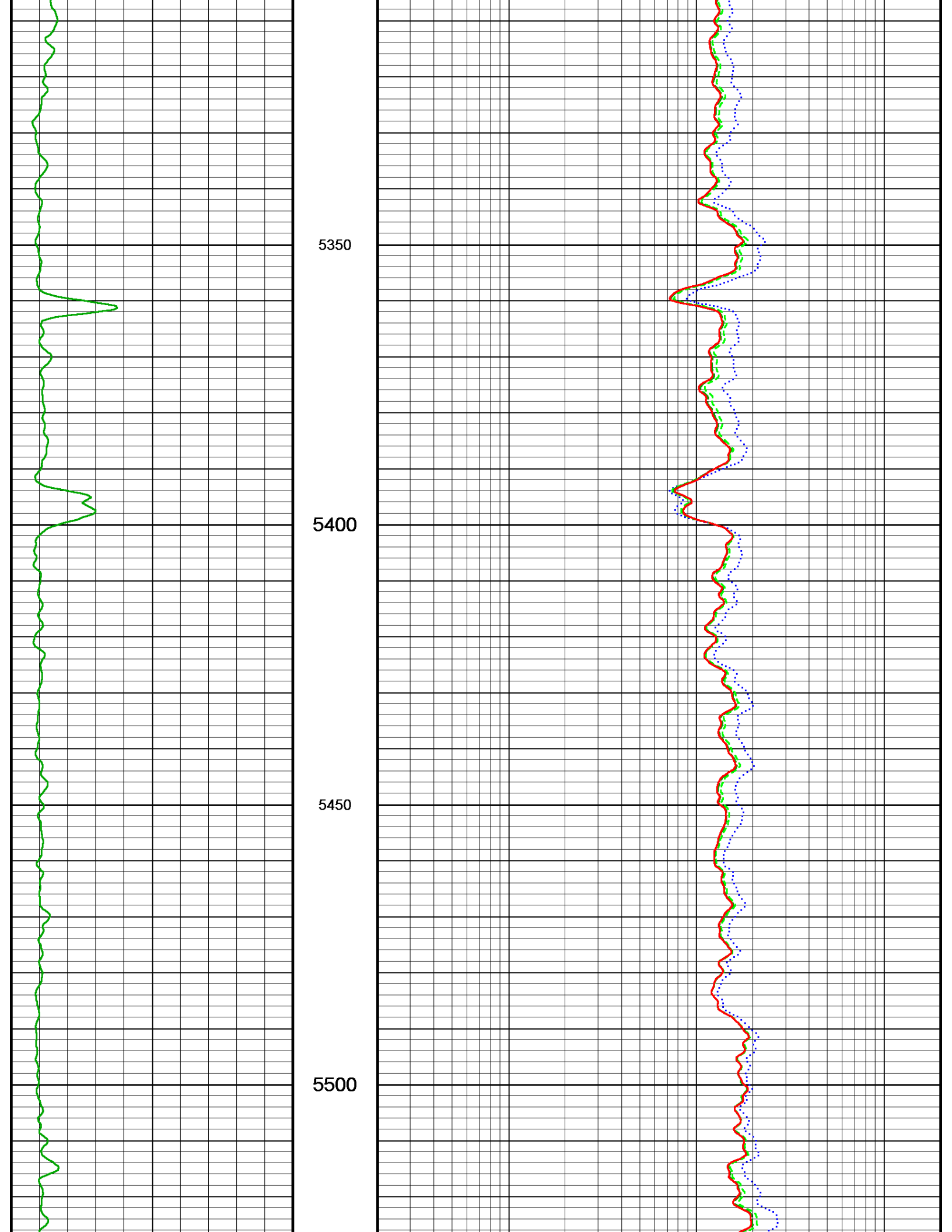
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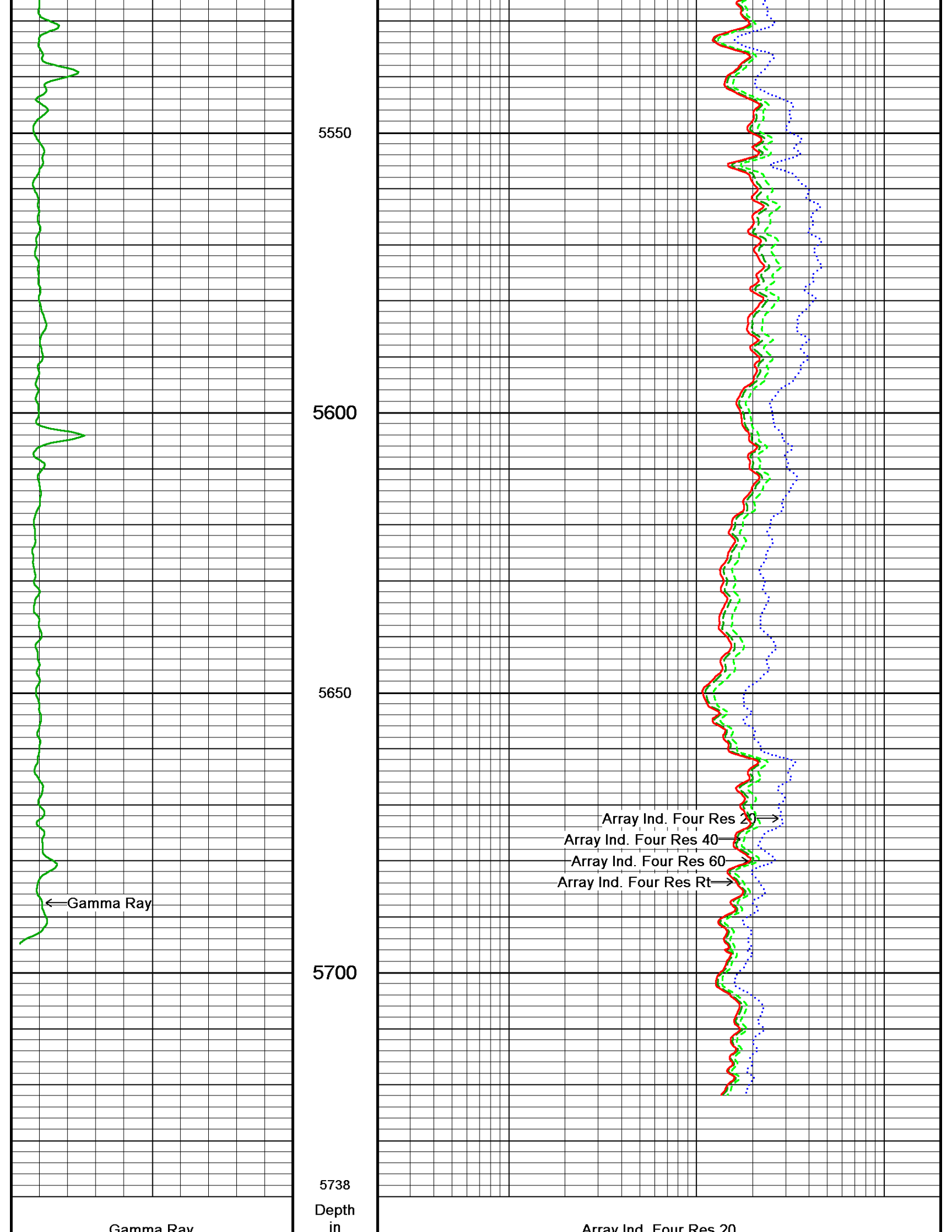
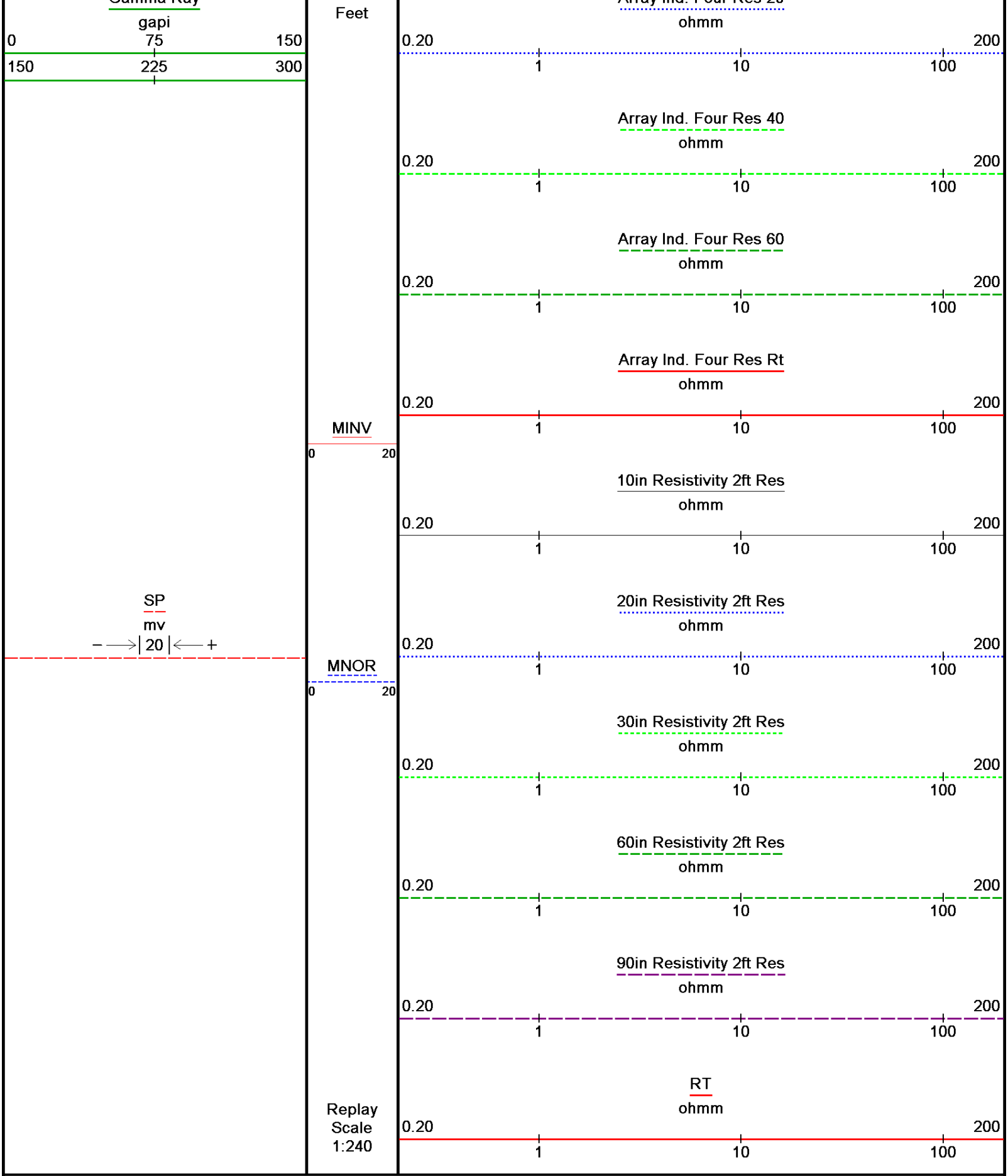

5550
5600
5650
5700
5738
Depth
in
Gamma Ray
Array Ind. Four Res 20
Array Ind. Four Res 40
Array Ind. Four Res 60
Array Ind. Four Res Rt
⟸Gamma Ray



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 02-DEC-2011 17:20
Filename: C:\DOCUME~1\hopkinjg\LOCALS~1\Temp\Weatherford ...\McCord 'A' 20H_(Composite)_.dta
Recorded on
System Versions: Plotted with 12.01.3513

5 INCH MAIN LOG

RUN #2
BEFORE SURVEY CALIBRATION

General Constants All 000

Last Edited on 23-NOV-2011 11:17

General Parameters		
Mud Resistivity	0.800	ohm-metres
Mud Resistivity Temperature	55.000	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	MIE Caliper X	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 29-MAR-2011 01:00

Reading No	Measured	Calibrated (lbs)
1	15152.07	0.00
2	19175.97	2000.00

MMS Parameters MMS-E.B 167

Last Edited on 21-NOV-2011 19:06

Logging Parameters		
Firmware Version	2v40	
Caliper Open On	MAI	
Caliper Open Delay	0.0	minutes
Caliper Closed On	Unknown	
Caliper Closed Delay	N/A	minutes
Sample Rate	1.00	seconds
Use Deep Sleep	No	
Delay Deep Sleep	N/A	
Deep Sleep Wake Time	N/A	minutes
Deep Sleep Wake on Temperature	N/A	
Deep Sleep Wake Temperature	N/A	degrees C
Deep Sleep Wake on Pressure	N/A	
Deep Sleep Wake Pressure	N/A	psi
MMI Pad Pressure	8.0	
Release Parameters		
Pulse Duration Base Level	10.0	seconds
Pulse Duration Transition Time	10.0	seconds
Pulse Duration Status Pulse From	20.0	seconds
Pulse Duration Caliper Close From	55.0	seconds
Pulse Duration Caliper Open From	60.0	seconds
Pulse Duration Release Pulse From	110.0	seconds
Pulse Duration Release Pulse To	280.0	seconds
Pulse Release Duration	240.0	seconds
Pulse Discriminator Pressure Band	32.0	seconds
Pulse Pressure Discriminator	106.0	seconds
Use Negative Pulsing	No	
Good Status Reply Open Hole	65535.0	seconds
Good Status Reply Cased Hole	20.0	seconds
Bad Status Reply	60.0	seconds
Status Pulse To	30.0	seconds
Caliper Close To	0.0	seconds
Caliper Open To	70.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MIM,MIE,MAI

Gamma Calibration MGS-C L136

Gamma Calibration MGS-C.J 136

Field Calibration on 17-NOV-2011 08:02

	Measured	Calibrated (API)
Background	40	28
Calibrator (Gross)	1043	724
Calibrator (Net)	1004	696

Gamma Constants MGS-C.J 136

Last Edited on 22-NOV-2011 23:02

Gamma Calibrator Number	36	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MGS-C.J 136

Field Calibration on 17-NOV-2011 08:02

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MGS-C.J 136

Last Edited on

Pre-filter Length	11

SP Calibration MGS-C.J 136

Field Calibration on 30-MAR-2011 10:03

	Measured	Calibrated (mV)
Reference 1	102.2	98.7
Reference 2	-94.7	-98.3

Neutron Calibration MDN-B.J 388

Base Calibration on 12-OCT-2011 09:45
Field Check on 17-NOV-2011 08:09

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2961	90	3714	110
Ratio	33.000		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2455	3622
Ratio	0.678	

Field Check

	Calibrated (cps)	
	2497	3633
Ratio	0.687	

Neutron Constants MDN-B.J 388

Last Edited on 18-NOV-2011 13:52

Neutron Source Id	P31112B	
Neutron Jig Number	N639	
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	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	None	
Temperature	20.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Magnetometer Parameters MIE-A.A 209

Date Of Last Magnetometer Calibration 26-NOV-2010,12:01

	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.001951	-1.007691
Offset	0.007782	-0.016800	0.011730

Magnetometer Constants MIE-A.A 209

Last Edited on

Magnetometer Calibrator Number	000

Accelerometer Parameters MIE-A.A 209

Date Of Last Accelerometer Calibration: 25-NOV-2010,12:19

	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.113214	-1.109979	-1.101653
Offset	0.005467	0.005399	0.010368

Accelerometer Constants MIE-A.A 209

Last Edited on 25-NOV-2010 12:25

Accelerometer Calibrator Number: 000

Accelerometer Temperature Characterisation

X Accelerometer

Serial Number	826			
Calibration Date	01-Jan-1998			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.32377e-005	-1.87334e-008	9.07324e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.71389e-004	4.55326e-007	4.58364e-010

Y Accelerometer

Serial Number	617			
Calibration Date	11-May-2008			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.76675e-005	6.93464e-010	2.98691e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.56882e-004	5.72598e-007	2.37496e-010

Z Accelerometer

Serial Number	844			
Calibration Date	01-Jan-1998			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	-1.21769e-005	-1.46867e-008	-6.44015e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.73539e-004	4.65657e-007	2.88996e-010

Caliper Calibration MIE-A.A 209

Base Calibration on 25-NOV-2010 07:56
Field Calibration on 17-NOV-2011 07:55

Base Calibration

Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)
1	26963	26793	5.96
2	36961	37191	7.97
3	46401	44863	9.84
4	58072	58409	11.91
5	0	0	0.00

Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24829	25688	24937	24692	5.96
2	33487	34230	33721	33433	7.97
3	40559	41186	42962	42856	9.84
4	51771	52426	51758	51697	11.91
5	0	0	0	0	0.00

Field Calibration

Measured Pads 1-5 Caliper(in)	Measured Pads 3-7 Caliper(in)	Actual Caliper(in)
6.06	5.97	5.96

Measured Pad 2 Caliper(in)	Measured Pad 4 Caliper(in)	Measured Pad 6 Caliper(in)	Measured Pad 8 Caliper(in)	Actual Caliper(in)
3.01	2.98	3.02	3.04	5.96

Caliper Constants MIE-A.A 209

Last Edited on 25-NOV-2010 07:57

Caliper Difference for BRKT	0.120	inches

Navigation Constants MIE-A.A 209

Last Edited on 17-NOV-2011 09:51

Magnetic Declination	4.80	degrees	East

Imager Pad Check MIE-A.A 209

Field Check on

Pad 1	Pad Not Tested	Pad 5	Pad Not Tested
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested

Compact Micro Imager Constants MIE-A.A 209

Last Edited on 17-NOV-2011 09:51

Sonde Configuration	Imager Mode	degrees
Arm-Pad Kit	0	
Centre Pad 1 Rotational Offset	0.00	
Image/Borehole Ovality Reference	Azimuth of Pad 1	degrees
Non Active Buttons	Omit	feet
Search Angle	45.00	feet
Correlation Interval	3.28	mAmp
Correlation Step	1.64	mAmp
Current Offset	0.0000	
Squasher Start	0.0500	
Image Processing	Enabled	

High Resolution Temperature Calibration MAI-B.J 391

Field Calibration on 19-OCT-2011 11:50

	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-B.J 391

Last Edited on

Pre-filter Length	11

Induction Calibration MAI-B.J 391

Base Calibration on 19-OCT-2011 11:50
Field Check on 17-NOV-2011 07:39

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.1	473.5	9.3	966.2
2	6.0	381.9	7.6	821.4
3	3.8	262.4	5.2	566.0
4	2.3	133.8	2.6	279.2

Array Temperature 76.6 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High	
1	0.0	0.0	11.7	3820.4	
2	0.0	0.0	29.8	3516.4	
3	0.0	0.0	27.0	3009.6	
4	0.0	0.0	18.4	2063.4	
Deep	0.0	0.0	15.2	1956.4	
Medium	0.0	0.0	40.3	3959.2	
Shallow	0.0	0.0	46.4	5212.7	
Array Temperature		0.0		52.3	Deg F

Induction Constants MAI-B.J 391

Last Edited on 23-NOV-2011 10:03

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.	MGS 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-C.J 393

Base Calibration on 14-NOV-2011 06:09
Field Calibration on 17-NOV-2011 07:45

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14534	4.01
2	24031	5.96
3	32482	7.98
4	40112	9.86
5	48560	11.88
6	N/A	N/A

Field Calibration

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

Photo Density Calibration MPD-C.J 393

Base Calibration on 19-OCT-2011 10:31
Field Check on 17-NOV-2011 07:52

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58016	27308	59869	31110
Reference 2	24483	2694	24557	2522

Field Check at Base

1260.5	1380.6

Field Check

1245.1	1363.2

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	235	1137		
Reference 1	23358	57816	0.408	0.369
Reference 2	6927	24347	0.288	0.271

Field Check at Base

235.4	1137.5

Field Check

230.6	1122.1

Density Constants MPD-C.J 393

Last Edited on 22-NOV-2011 23:02

Density Source Id	p31112b
Nylon Calibrator Number	18006
Aluminium Calibrator Number	18006
Density Shoe Profile	4 inch
Caliper Source for Processing	Density Caliper

PE Correction to Density	Not Applied	
Mud Density	1.10	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	0.03	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix density (gm/cc)	Depth (m)
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	

RUN #2

DOWNHOLE EQUIPMENT

C:\DOCUME~1\hopkinjg\LOCALS~1\Temp\Weatherford PreView\0\TC CMI TOOLSTRING.dta

RUNNING TOOL
MLK-A 1 LG: 4.87 ft WT: 30.9 lb OD: 2.24 in

EMPTY EXT BATTERY
MLK-A 2 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

EMPTY EXT BATTERY
MLK-A 3 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

SKJ-D Compact Knuckle Joint
SKJ-D 30 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MBS-G.A 200v Compact Battery Sub
MBS-G.A 112 LG: 16.66 ft WT: 132.3 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 167 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 63 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 136 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 140 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

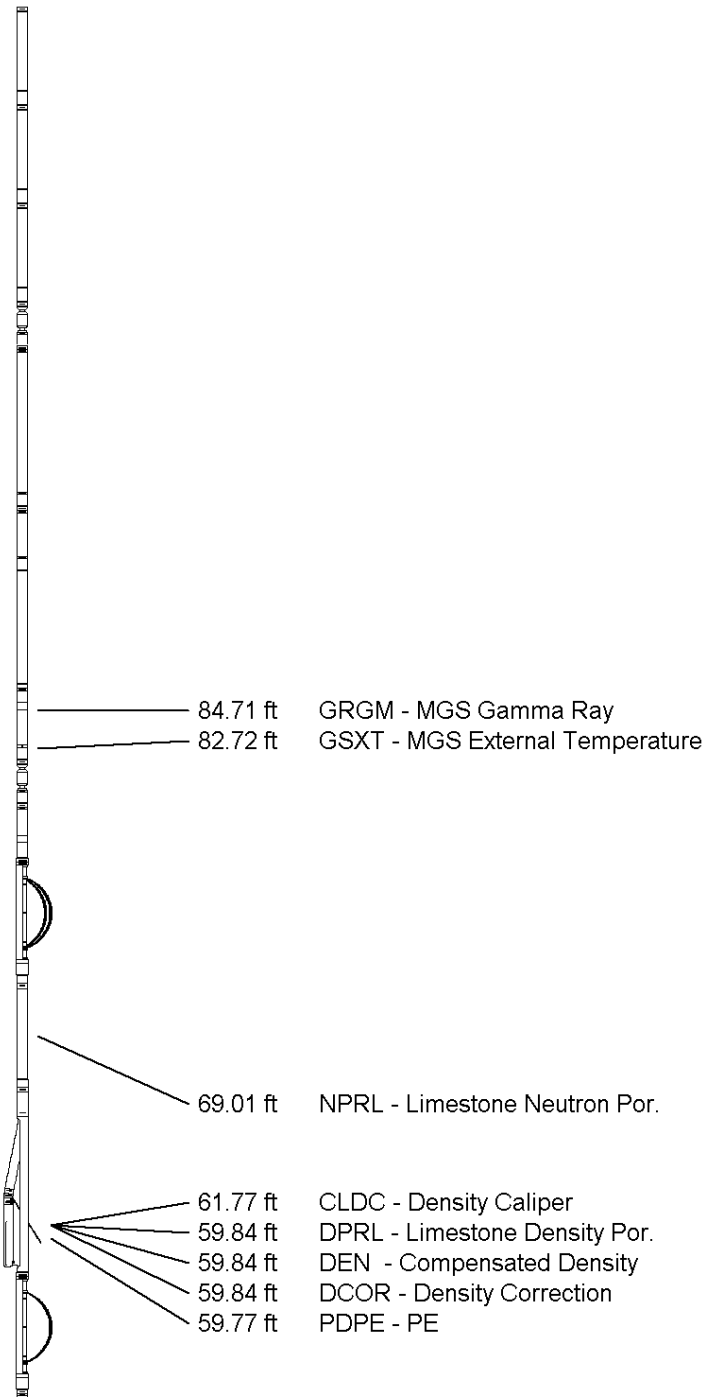
SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 208 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 259 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 388 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 393 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 277 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in



SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 451 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 207 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 572 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 479 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 62 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 209 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

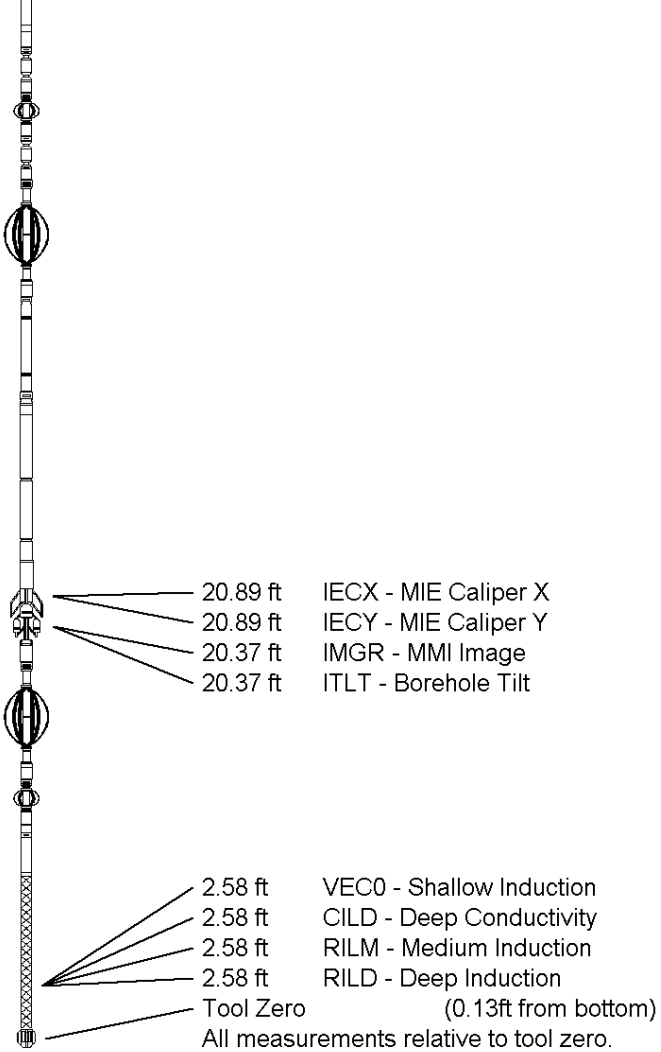
Compact MMI Electrode Section
MIE-A.A 209 LG: 13.96 ft WT: 99.2 lb OD: 4.10 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 590 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 184 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 391 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 144.53 ft Weight: 919.3 lb



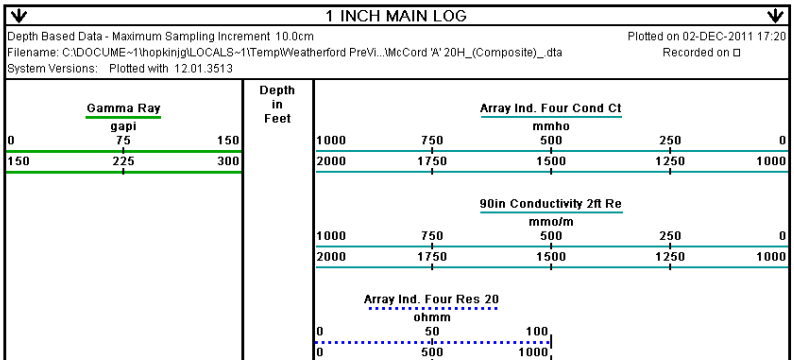
COMPANY	VESS OIL CORP.
WELL	MCCORD 'A' 20H
FIELD	BEMIS SHUTTS
PROVINCE/COUNTY	ELLIS
COUNTRY/STATE	KANSAS

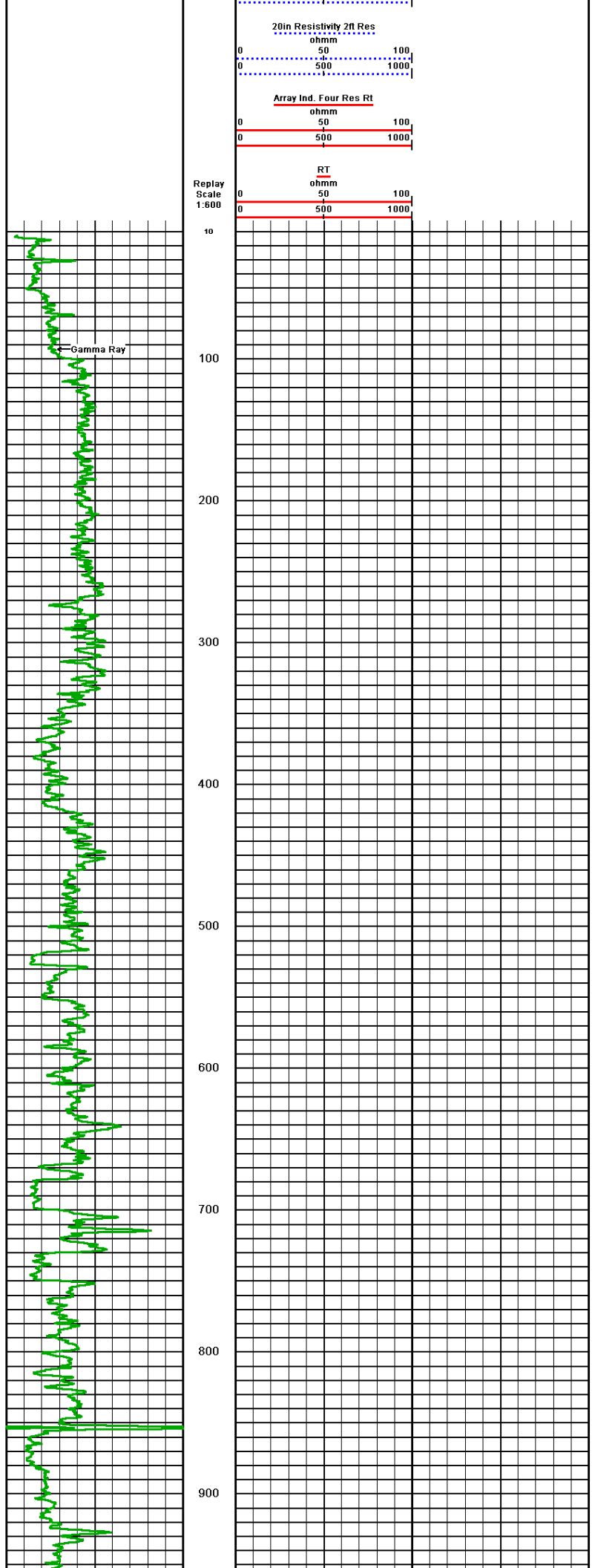
Elevation Kelly Bushing	2100.60	feet	First Reading	3737.00	feet
Elevation Drill Floor	2099.00	feet	Depth Driller	3740.00	feet
Elevation Ground Level	2091.00	feet	Depth Logger	3737.00	feet

Weatherford®

CML MESSENGER SHUTTLE
ARRAY INDUCTION
COMPOSITE LOG

40 Years of Wireline 1970 2010

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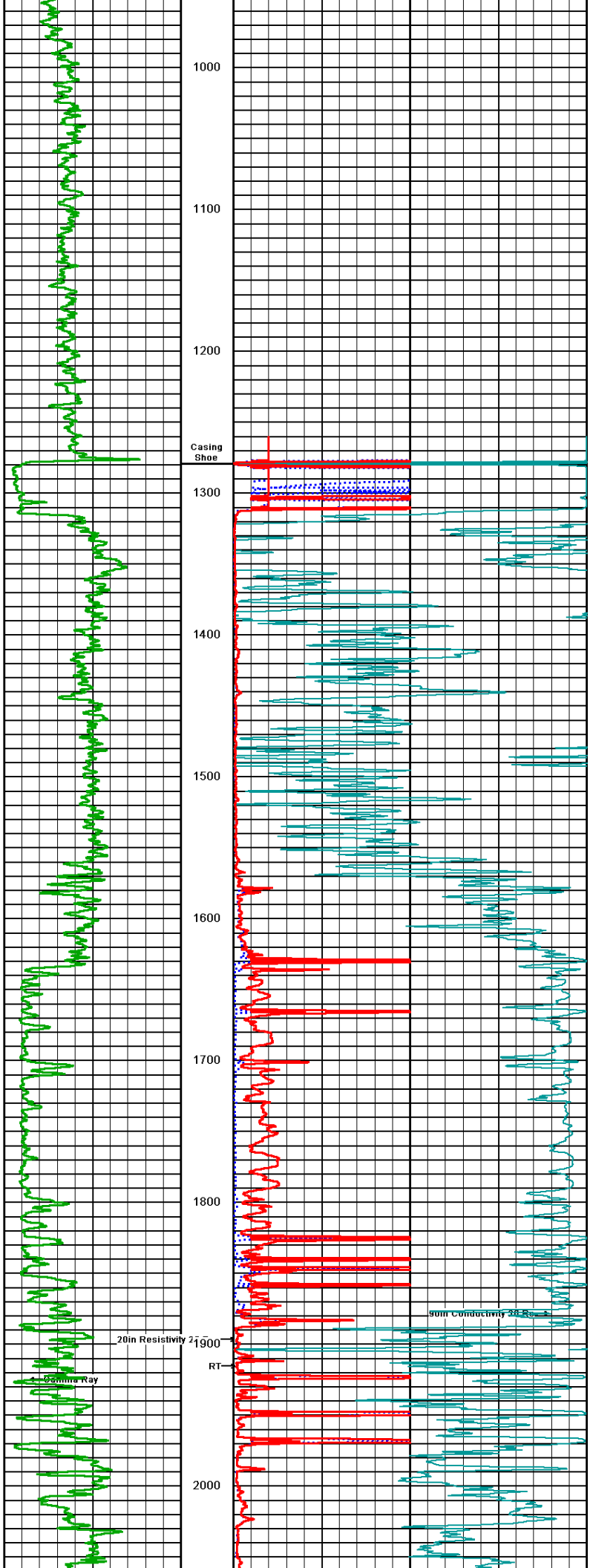
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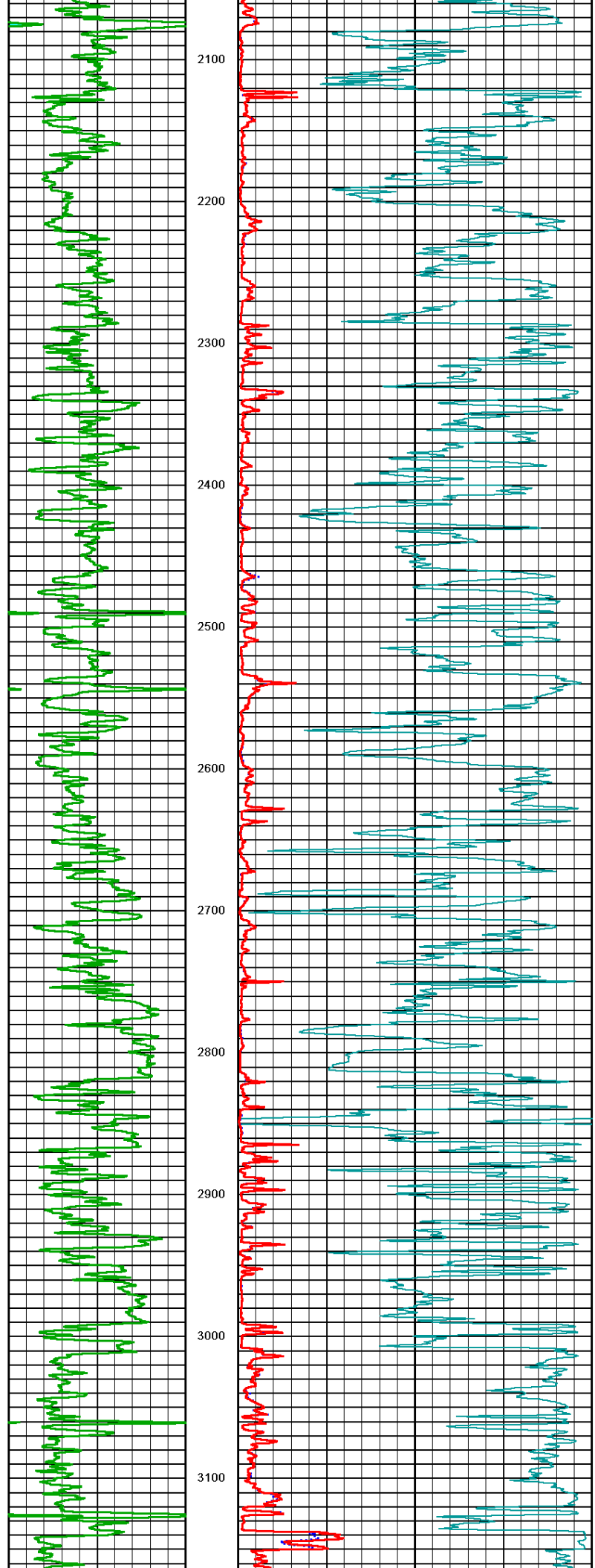
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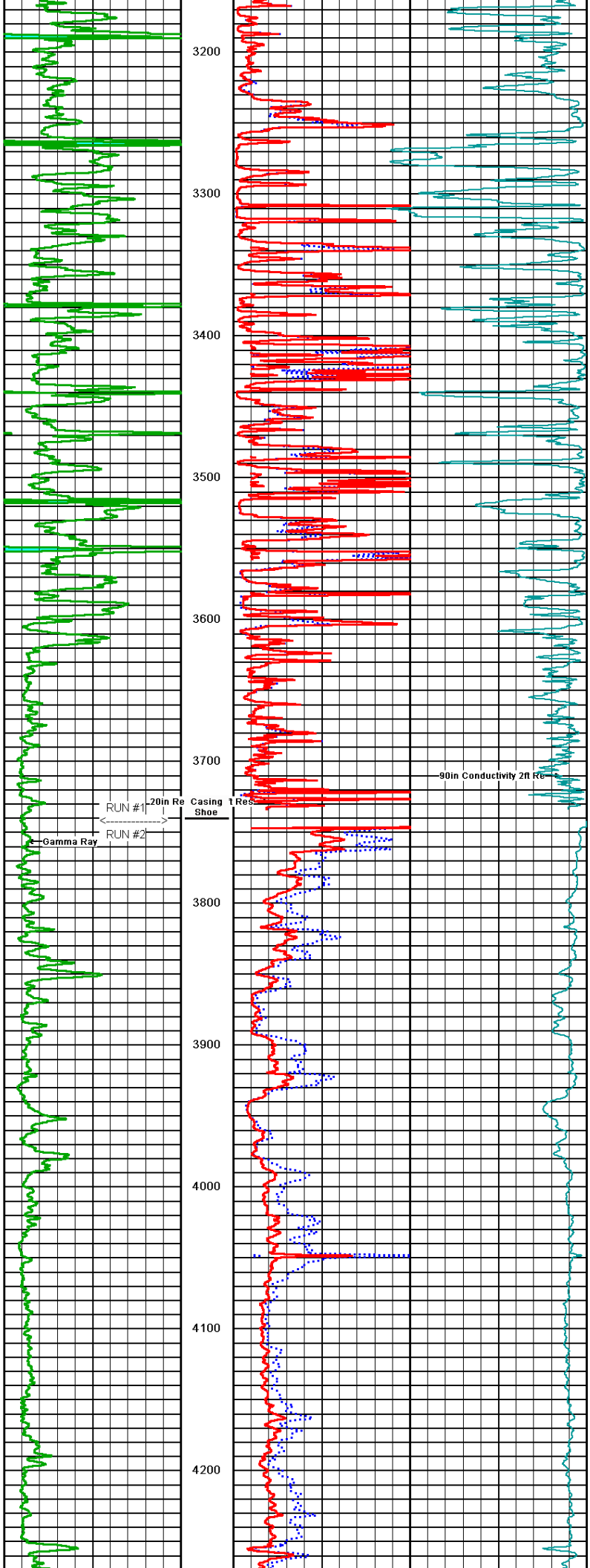
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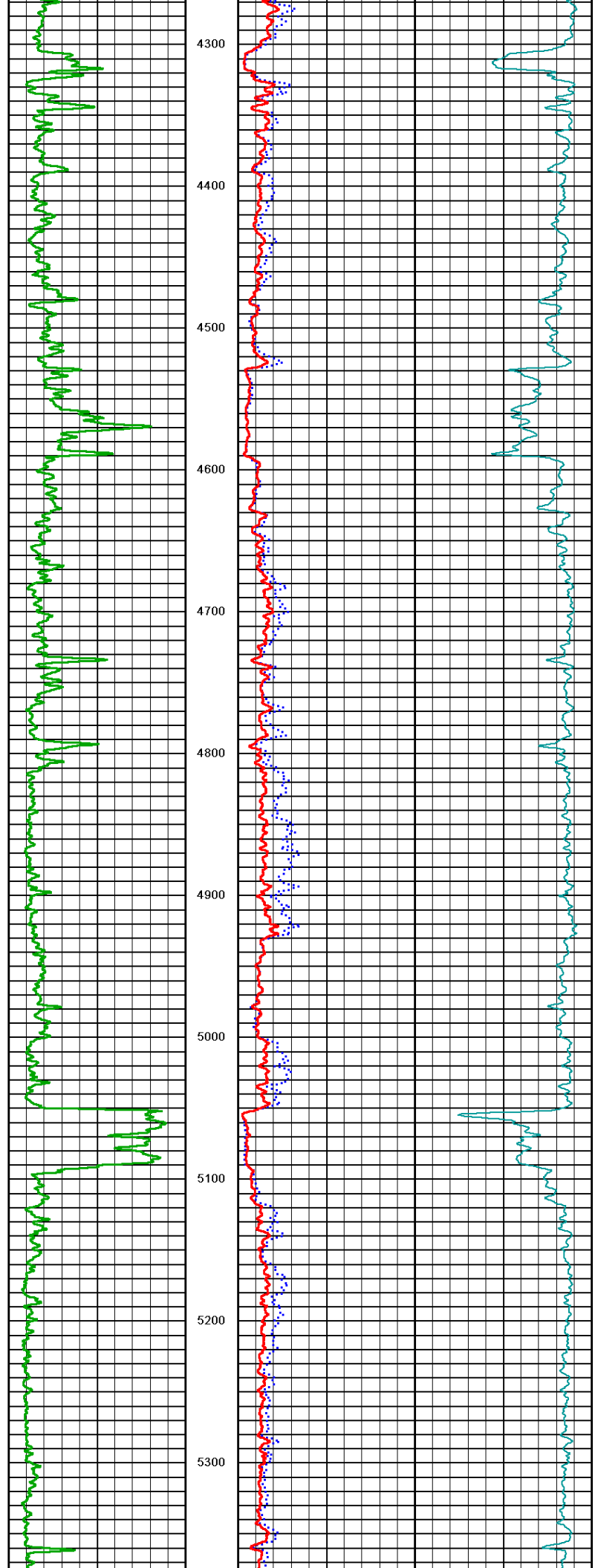
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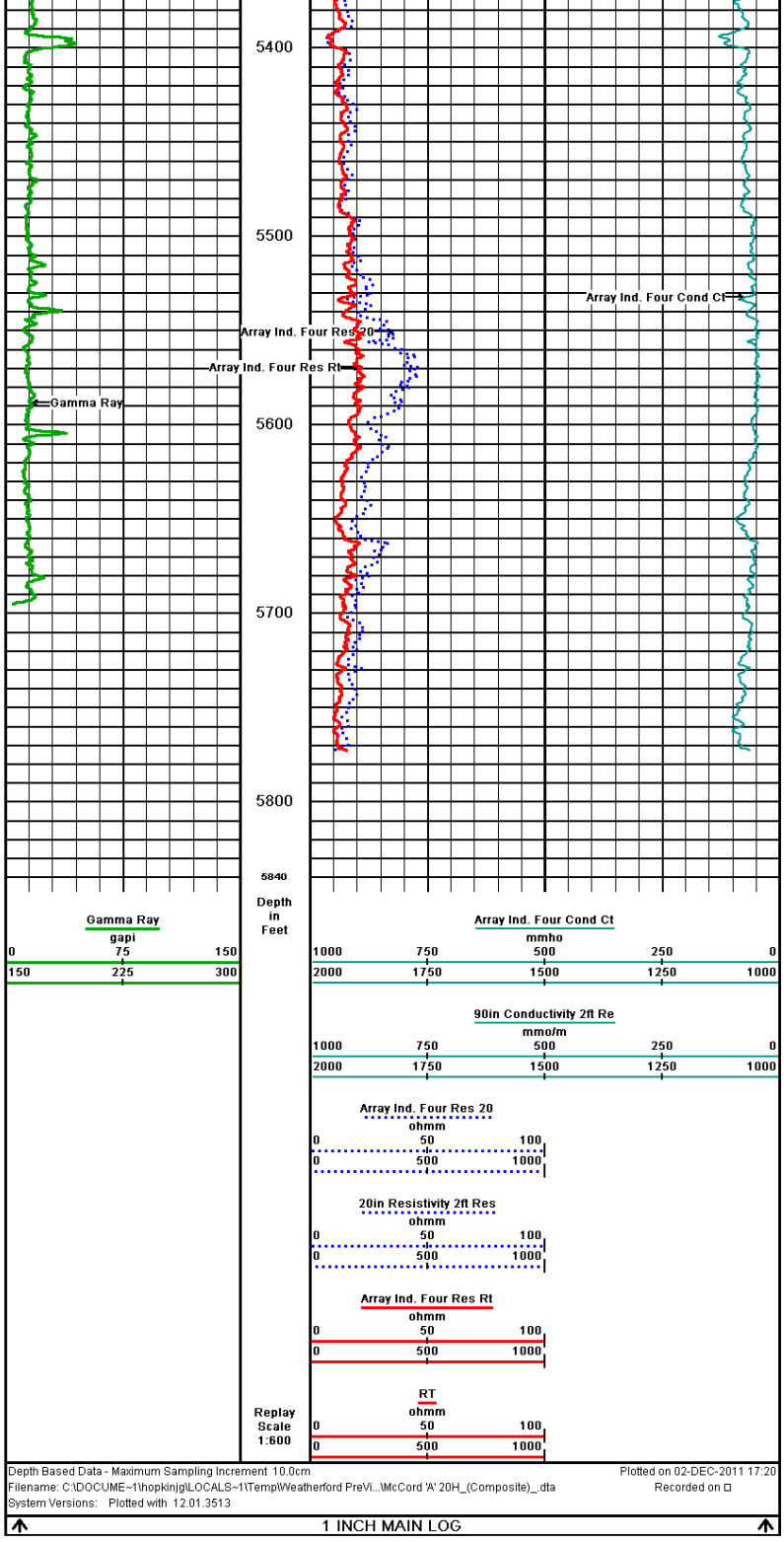

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