MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Petroleum Property Services, Inc.
Well Richards-Fund A #4
Field McClain
County Nemaha State Kansas

Location: API # : 15-131-20248-00-00
SW SE NW SE
1436 FSL & 1958 FEL
SEC 7 TWP 4S RGE 14E

Other Services
CNL/CDL
MEL/BHCS

Permanent Datum Ground Level Elevation 1241
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Elevation
K.B. 1249
D.F.
G.L. 1241

Date	10/11/2022		
Run Number	One		
Depth Driller	3740		
Depth Logger	3736		
Bottom Logged Interval	3735		
Top Log Interval	350		
Casing Driller	8.625 @ 381		
Casing Logger	388		
Bit Size	7.875		
Type Fluid in Hole	Chemical		
Salinity,ppm CL	1200		
Density / Viscosity	8.9 55		
pH / Fluid Loss	9.5 9.0		
Source of Sample	Flowline		
Rm @ Meas. Temp	1.5 @ 72		
Rmf @ Meas. Temp	1.13 @ 72		
Rmc @ Meas. Temp	2.03 @ 72		
Source of Rmf / Rmc	Charts		
Rm @ BHT	0.92 @ 118		
Operating Rig Time	4 Hours		
Max Rec. Temp. F	118		
Equipment Number	P-24		
Location	Hays		
Recorded By	T. Martin		
Witnessed By	Curtis Covey		

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

Wetmore, KS, 5 W on Hwy 9 to South Rd,
4 N to 80th Rd, 1/2 E, N into

Log Measured From: Kelly Bushing 8 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew	This Log Record Was Witnessed By
Engineer: T. Martin	Primary Witness: Curtis Covey
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
GR	32.75		GR-M&W (106)	3.00	3.50	50.00
CNLSC	29.65		CNT-M&W (207-MW)	5.00	3.50	100.00
CNSSC	28.90					
			CDL-M&W (307-11)	8.50	4.00	250.00
LSD	20.60					
DCAL	20.58					
SSD	20.10					
RLL3F	15.50					
RLL3	15.50					
			DIL-M&W (501 HT)	18.25	3.50	220.00
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: ppsi_richards-fund a #4.db: field/well/Stack/pass3.1
Total length: 34.75 ft
Total weight: 620.00 lb
O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\ppsi_richards-fund a #4.db
Dataset field/well/Stack/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	118	5.5	0	1	2	2.71

NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-40	80	Off	3736

Variable Description

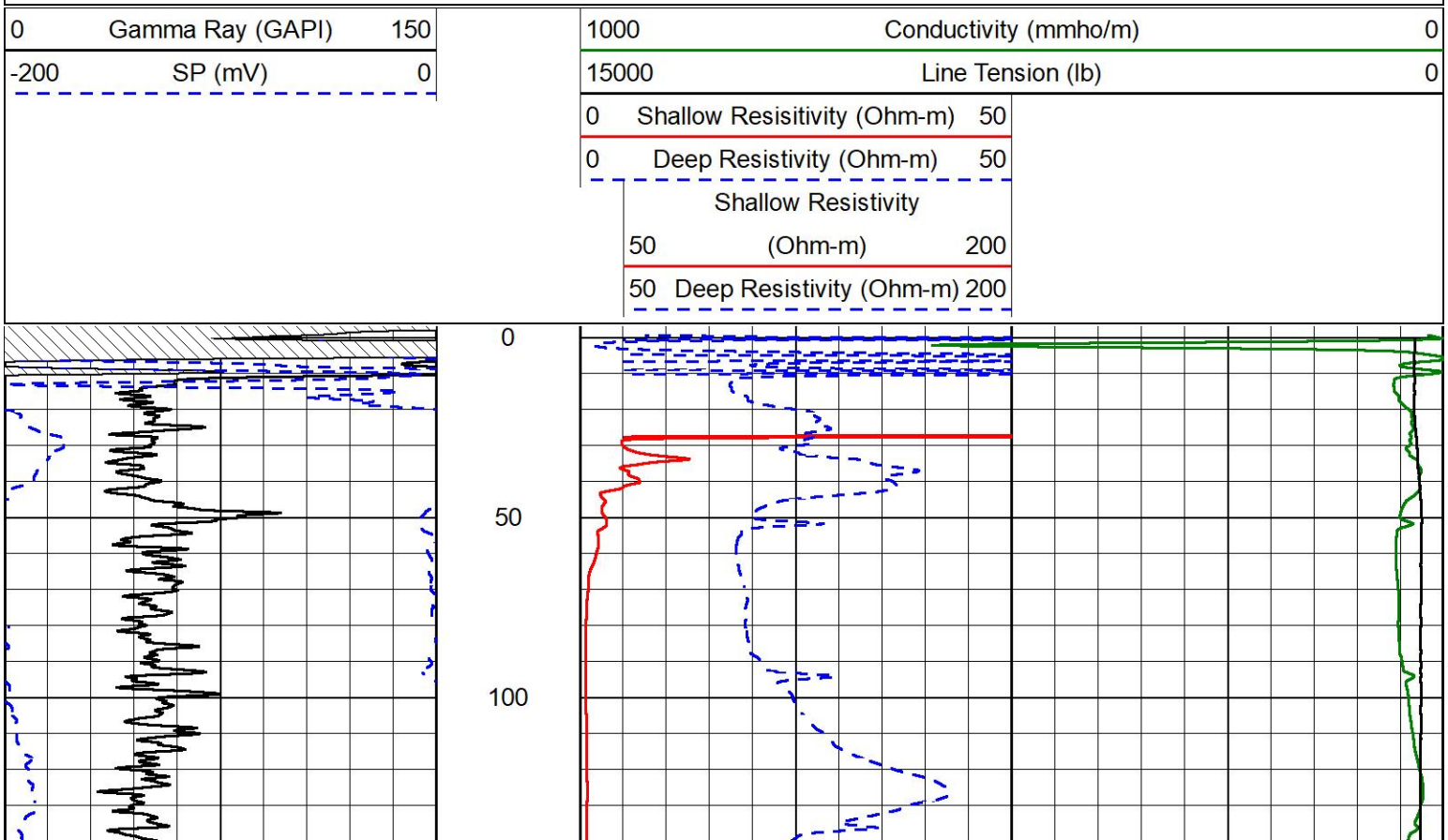
A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM : Medium Sonde Error Correction
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

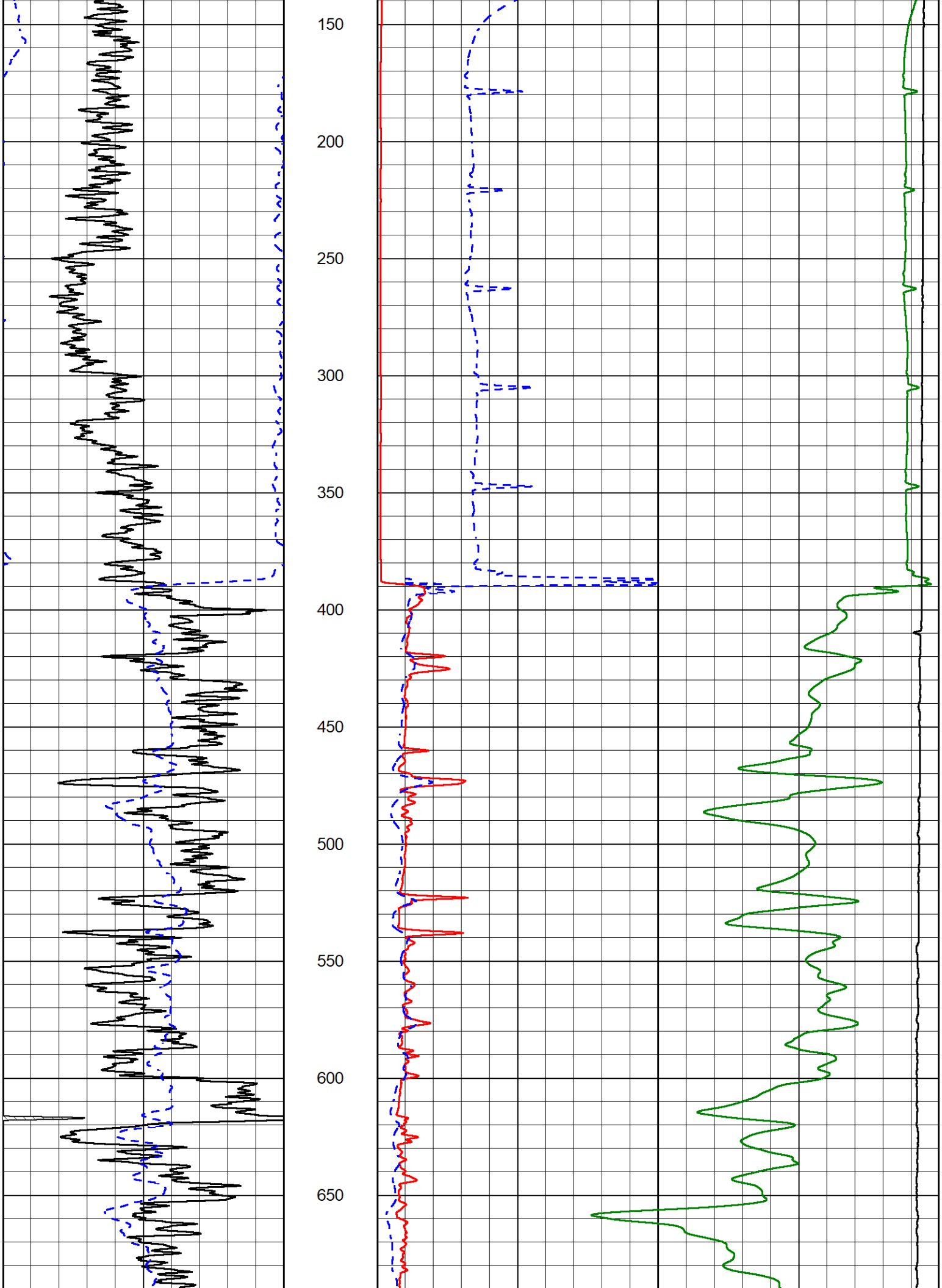
MIDWEST WIRELINE

2" SCALE RESISTIVITY

MAIN PASS

Database File	ppsi_richards-fund a #4.db
Dataset Pathname	Stack/pass3.2
Presentation Format	_dil2in
Dataset Creation	Tue Oct 11 21:22:50 2022
Charted by	Depth in Feet scaled 1:600

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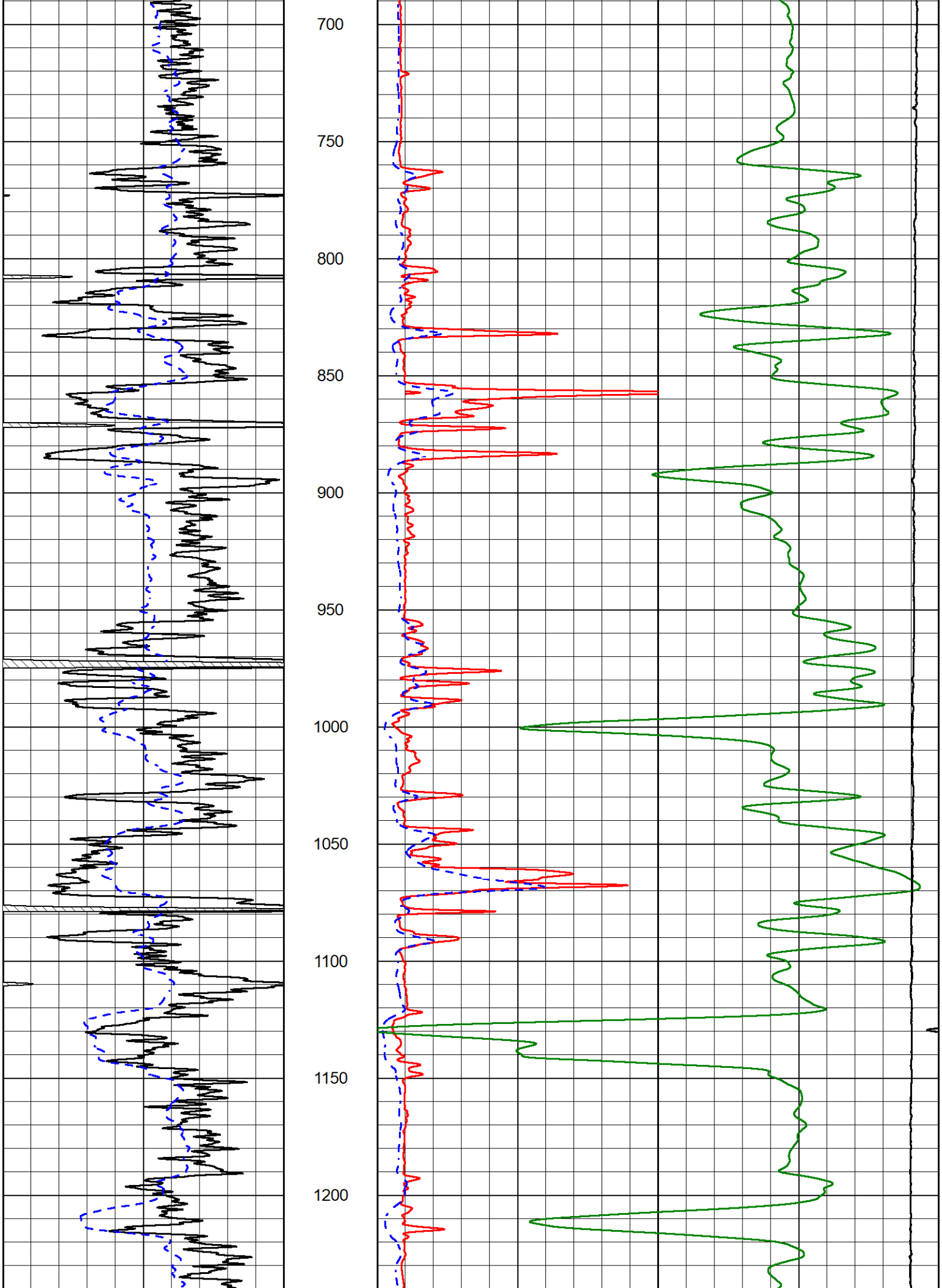
200
250
300
350
400
450
500
550
600
650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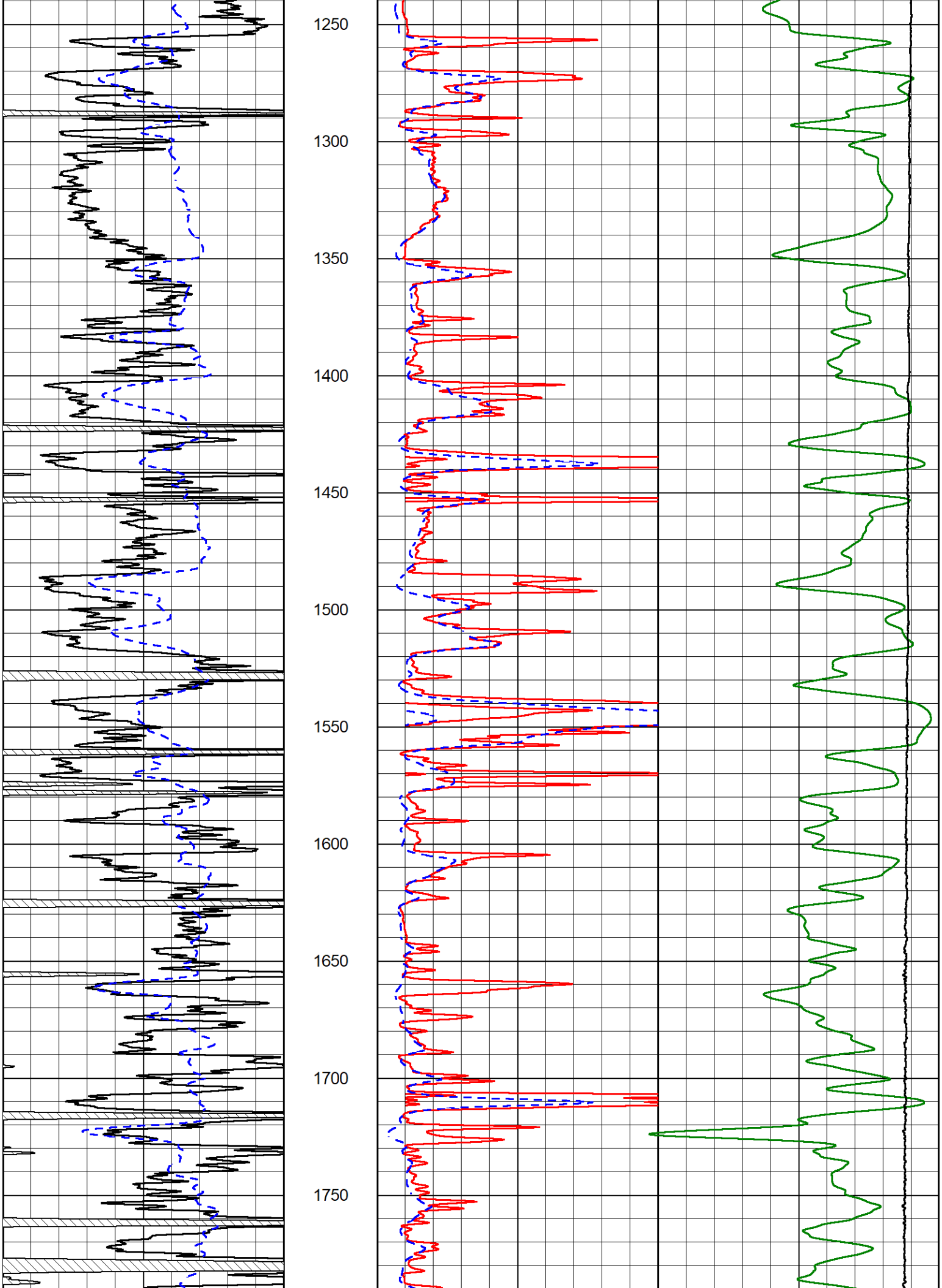
950
1000
1050
1100
1150
1200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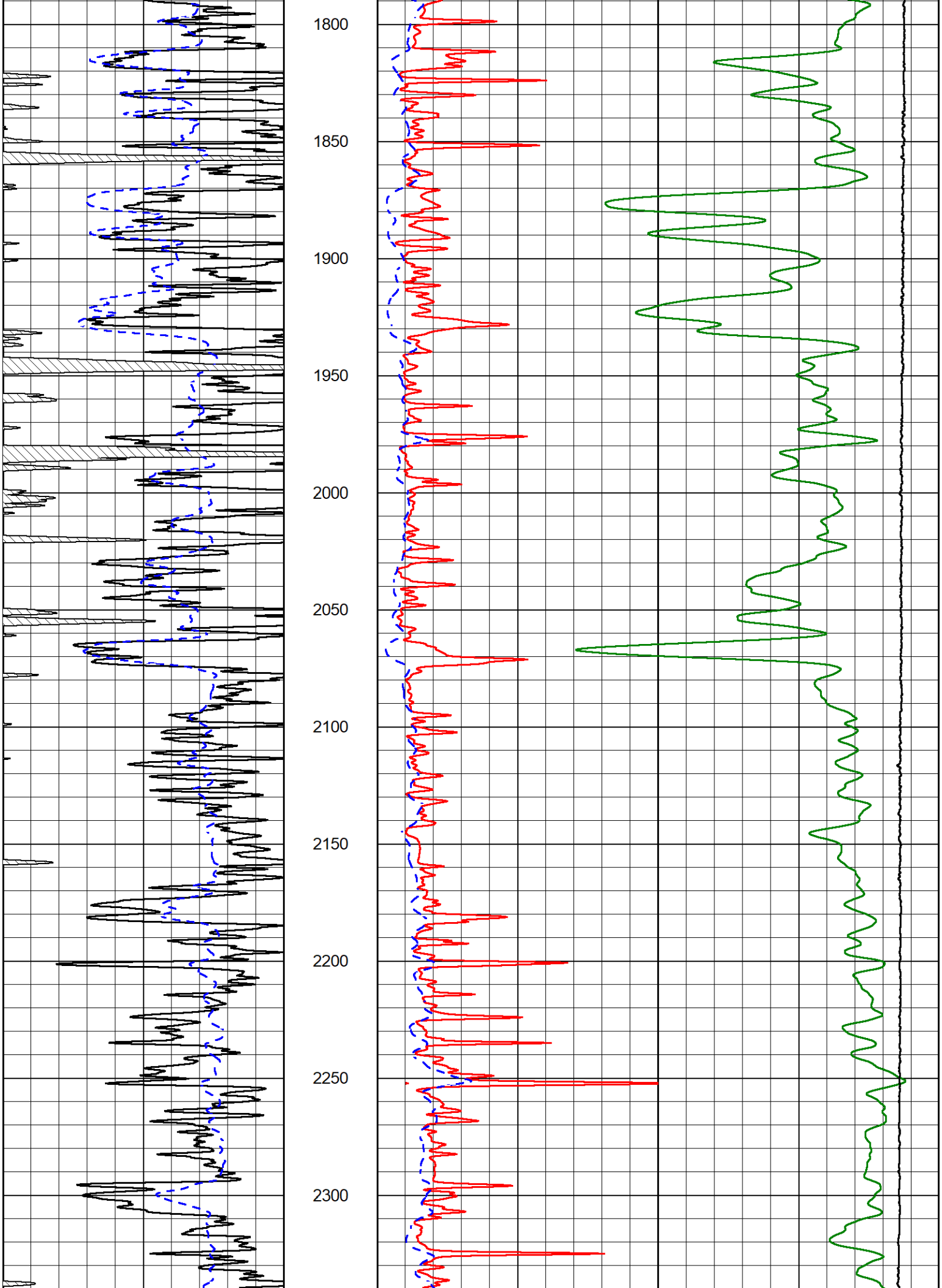
1650
1700
1750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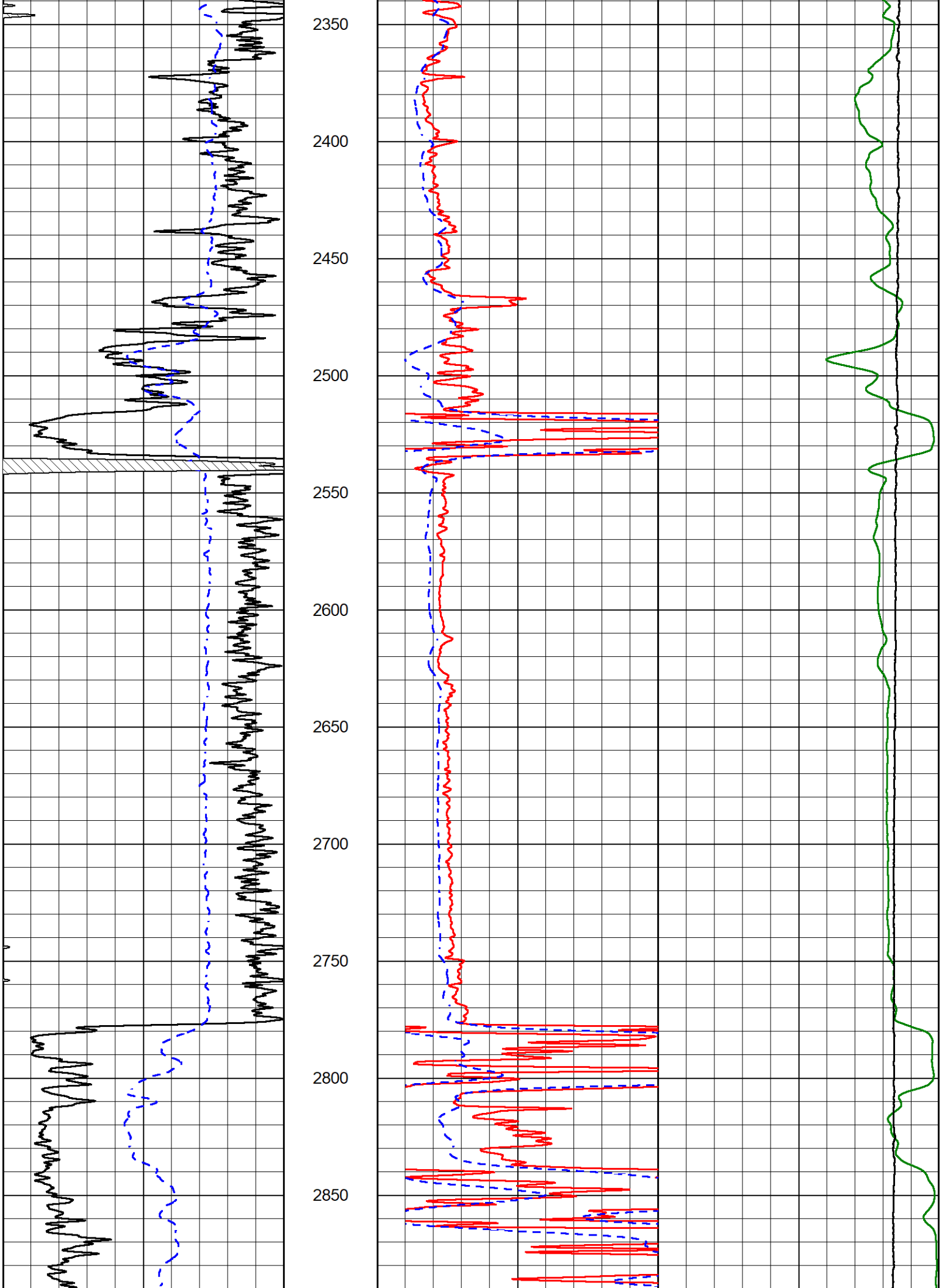
2050
2100
2150
2200
2250
2300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2650
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2750
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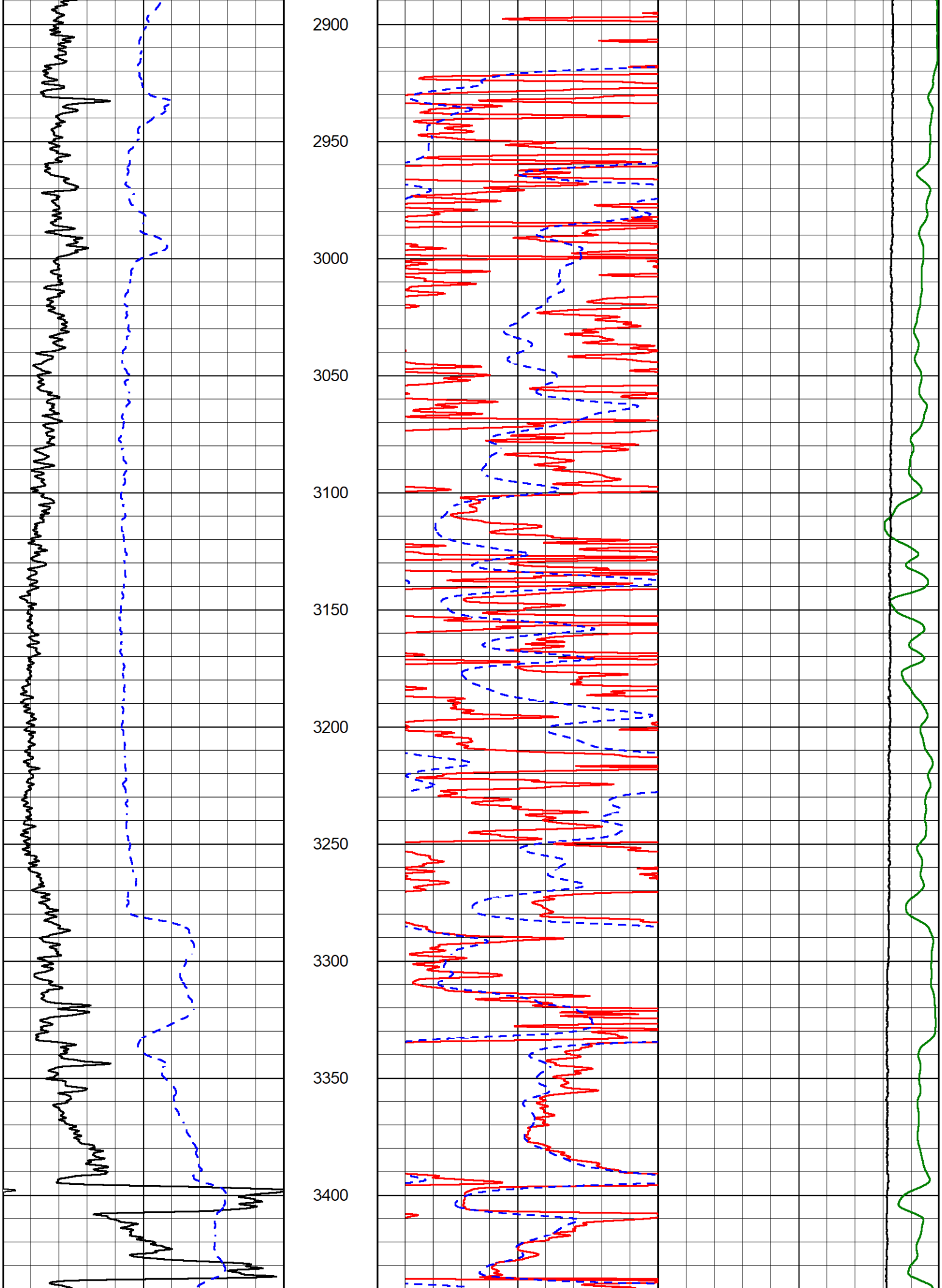
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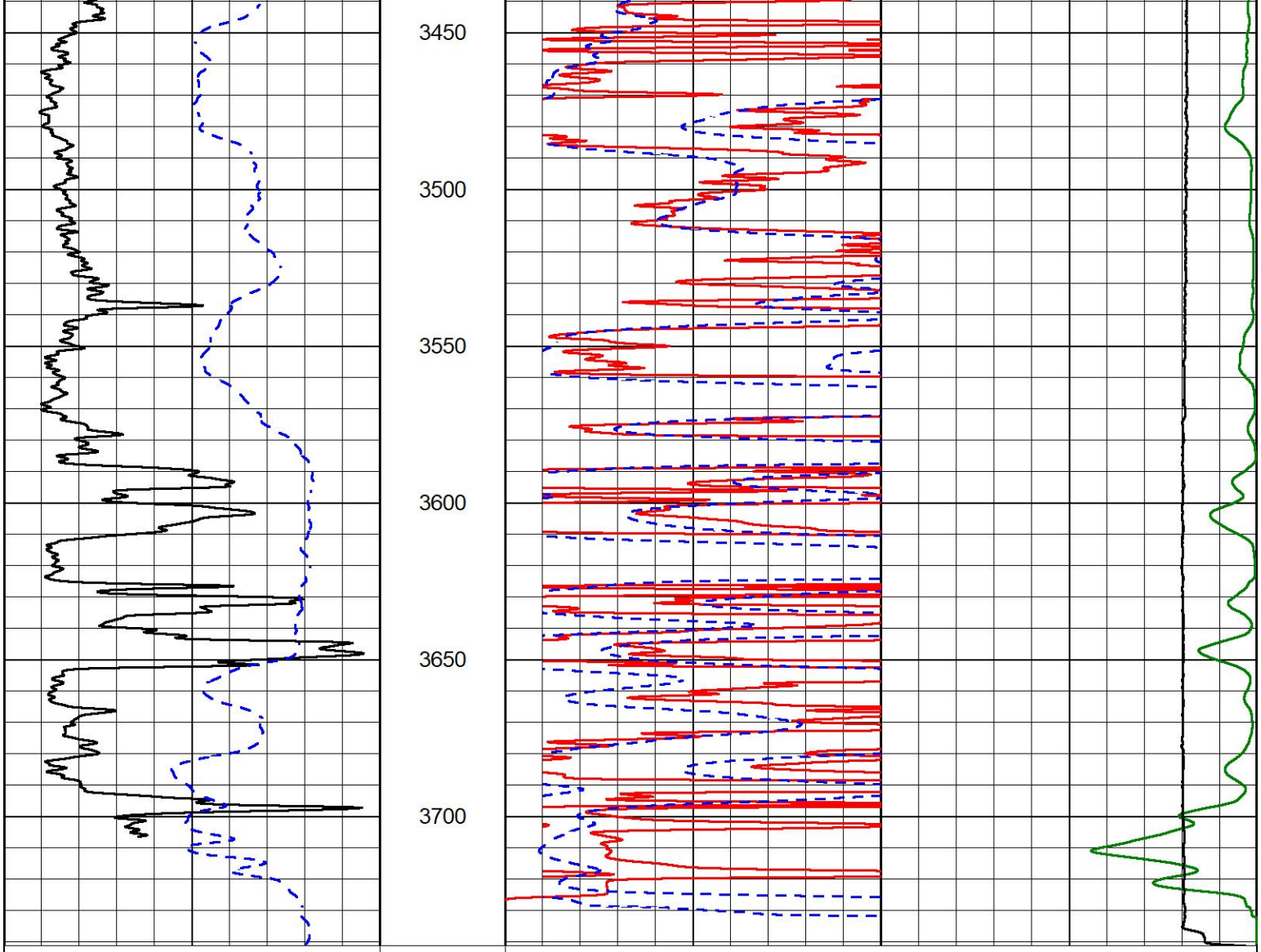
3050
3100
3150
3200
3250
3300
3350
3400



MIDWEST WIRELINE

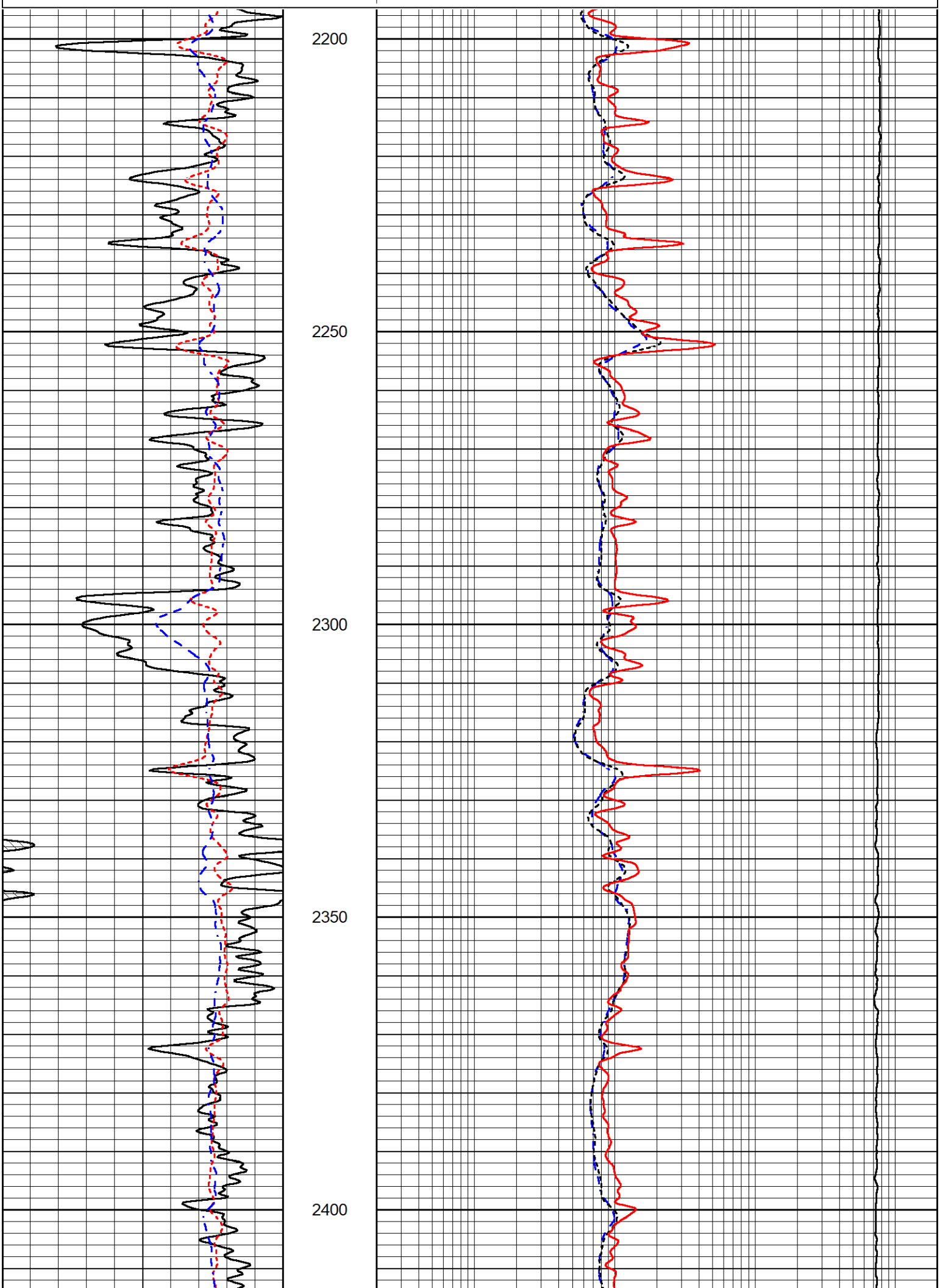
DETAIL SECTION

MAIN PASS

Database File	ppsi_richards-fund a #4.db
Dataset Pathname	Stack/pass3.1
Presentation Format	_dil
Dataset Creation	Tue Oct 11 21:23:03 2022
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0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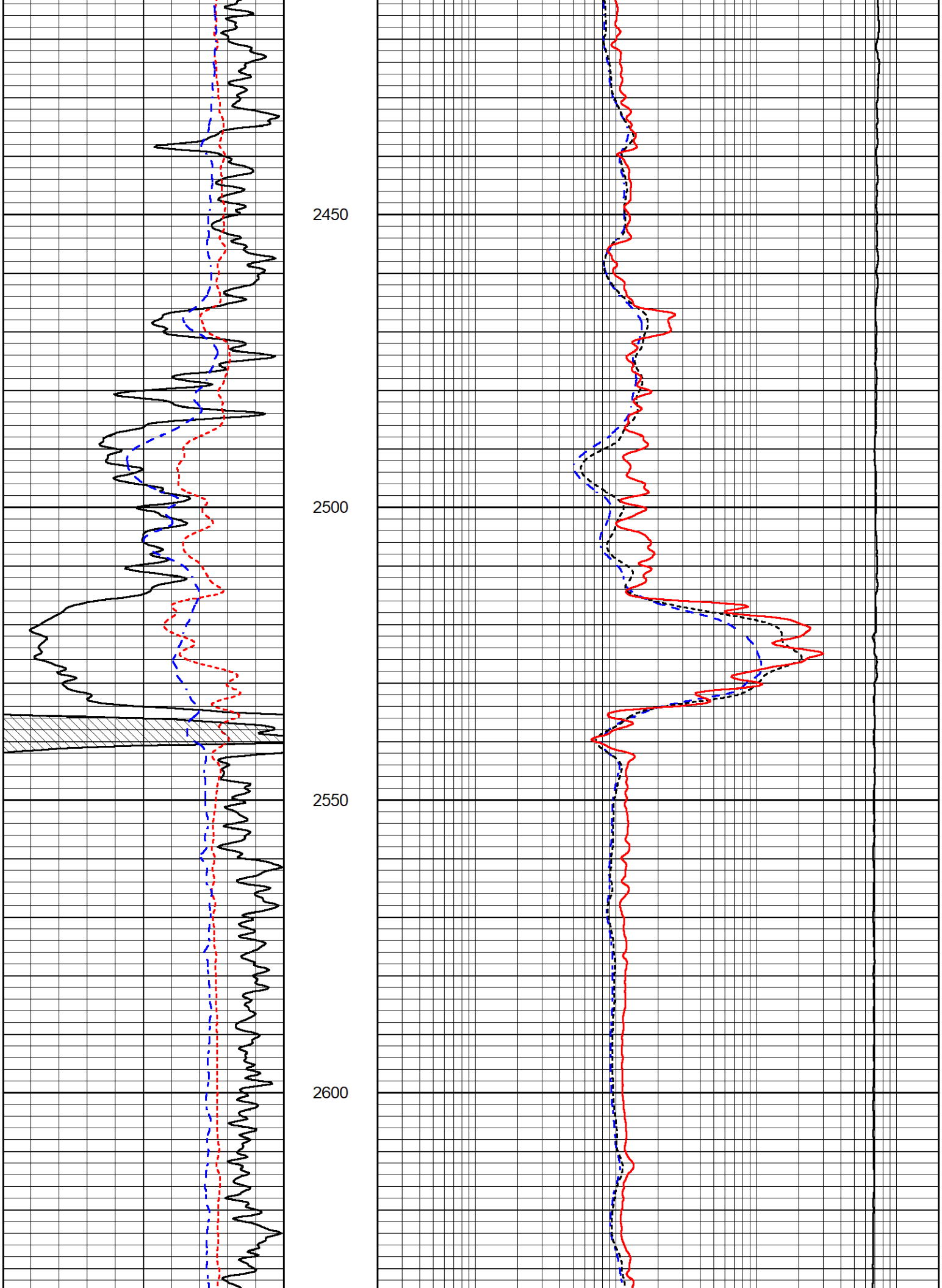
2250
2300
2350
2400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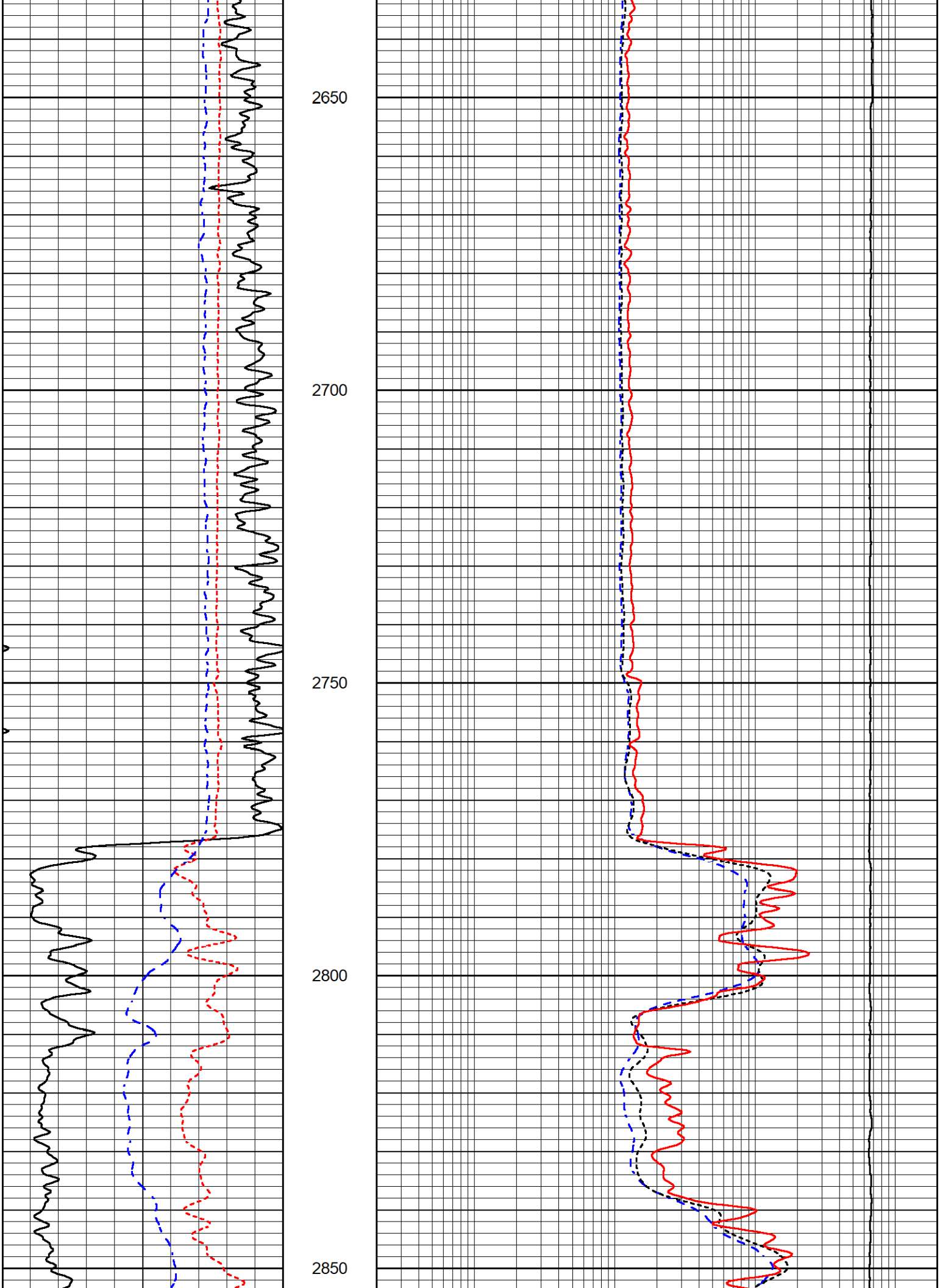
2500
2550
2600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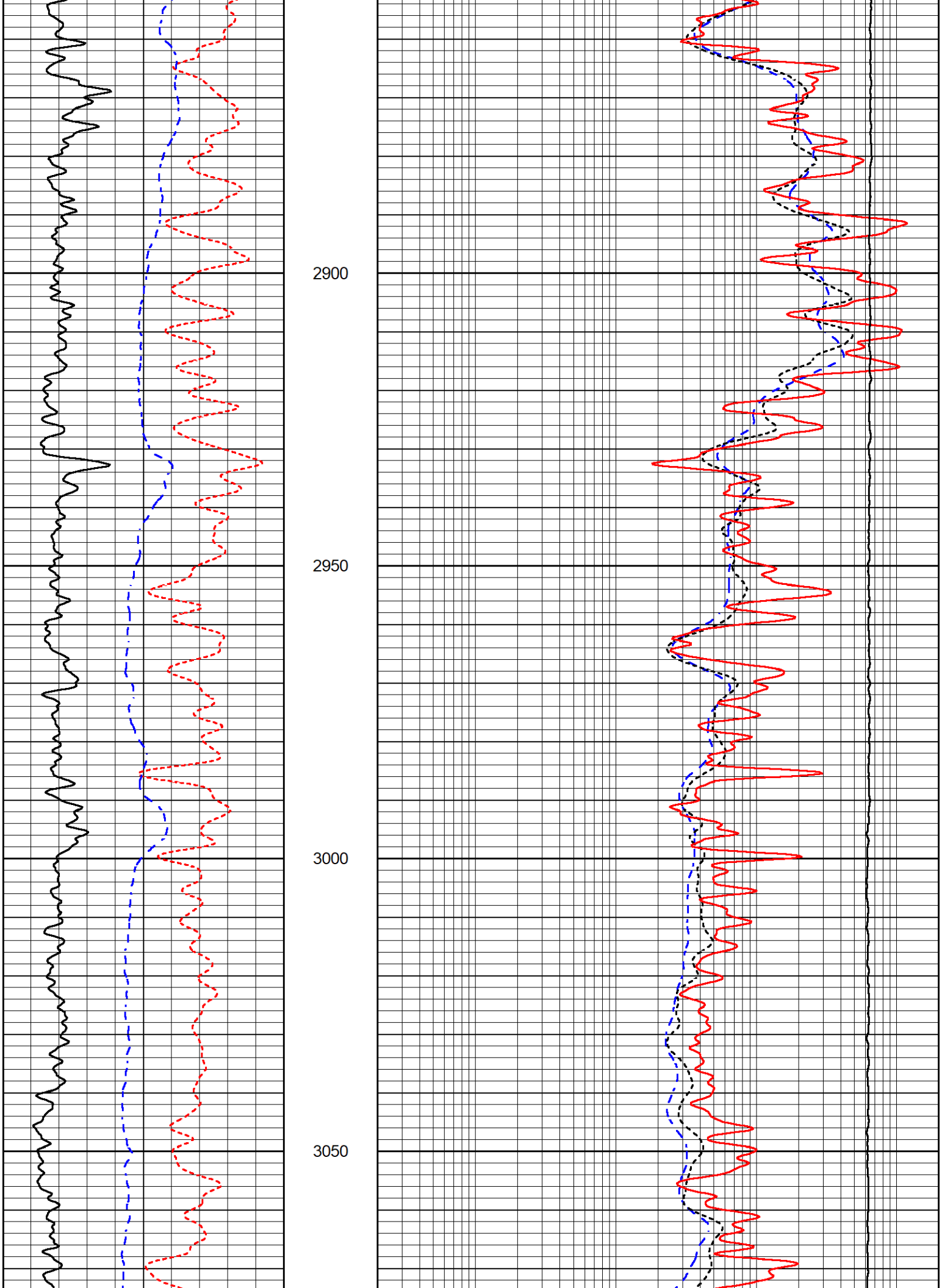
2700
2750
2800
2850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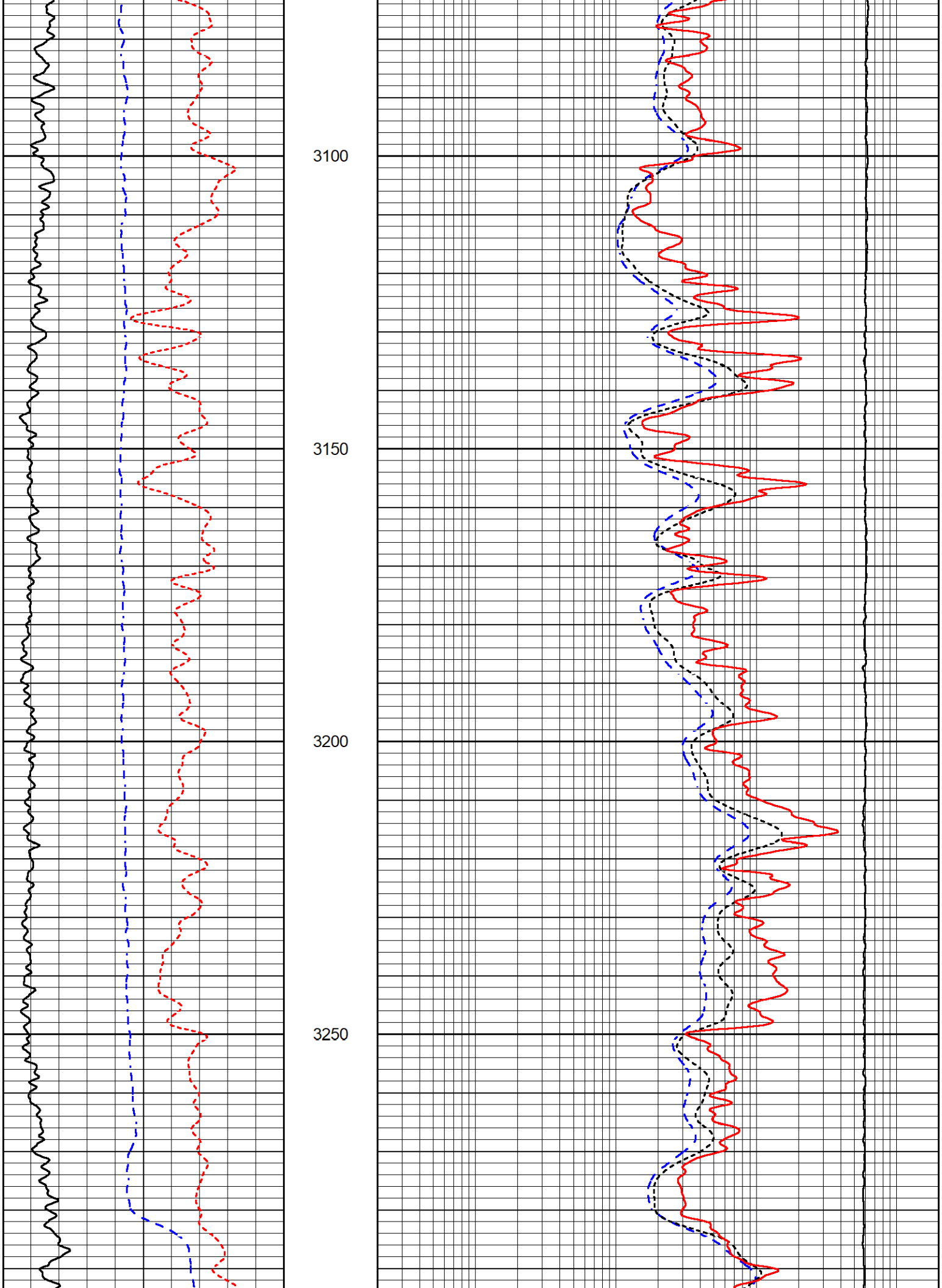
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3200
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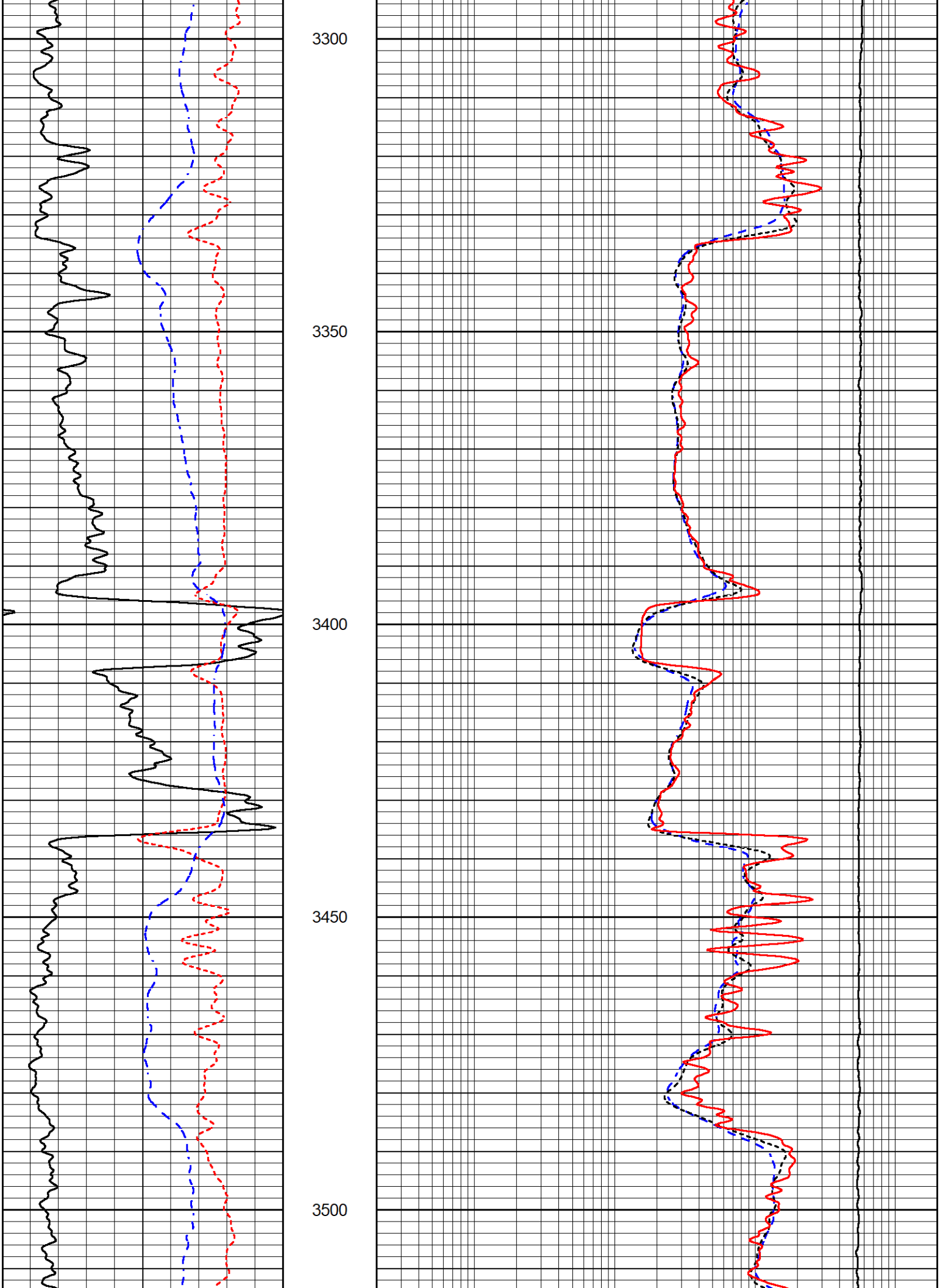
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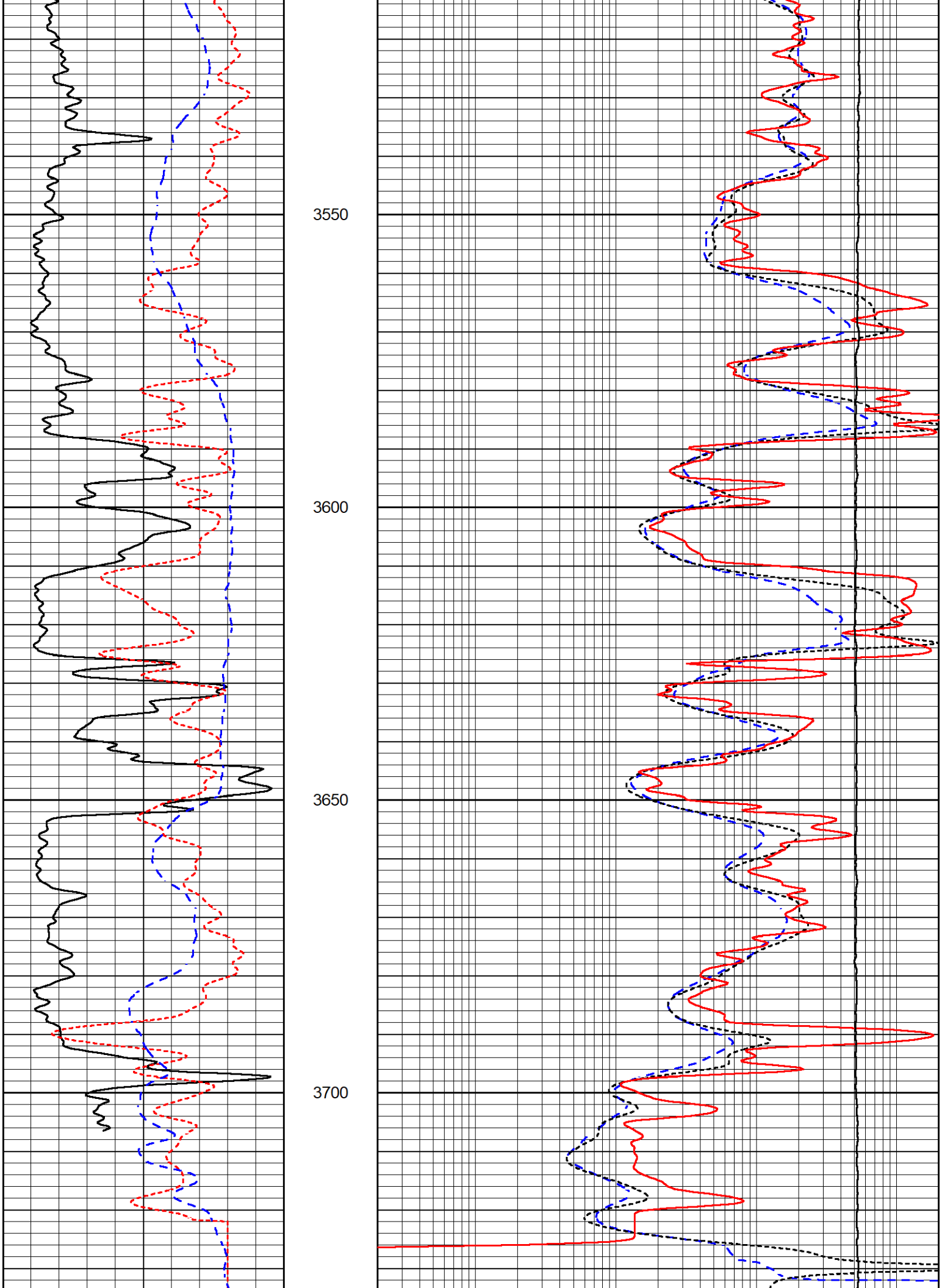

3550
3600
3650
3700

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

MIDWEST WIRELINE

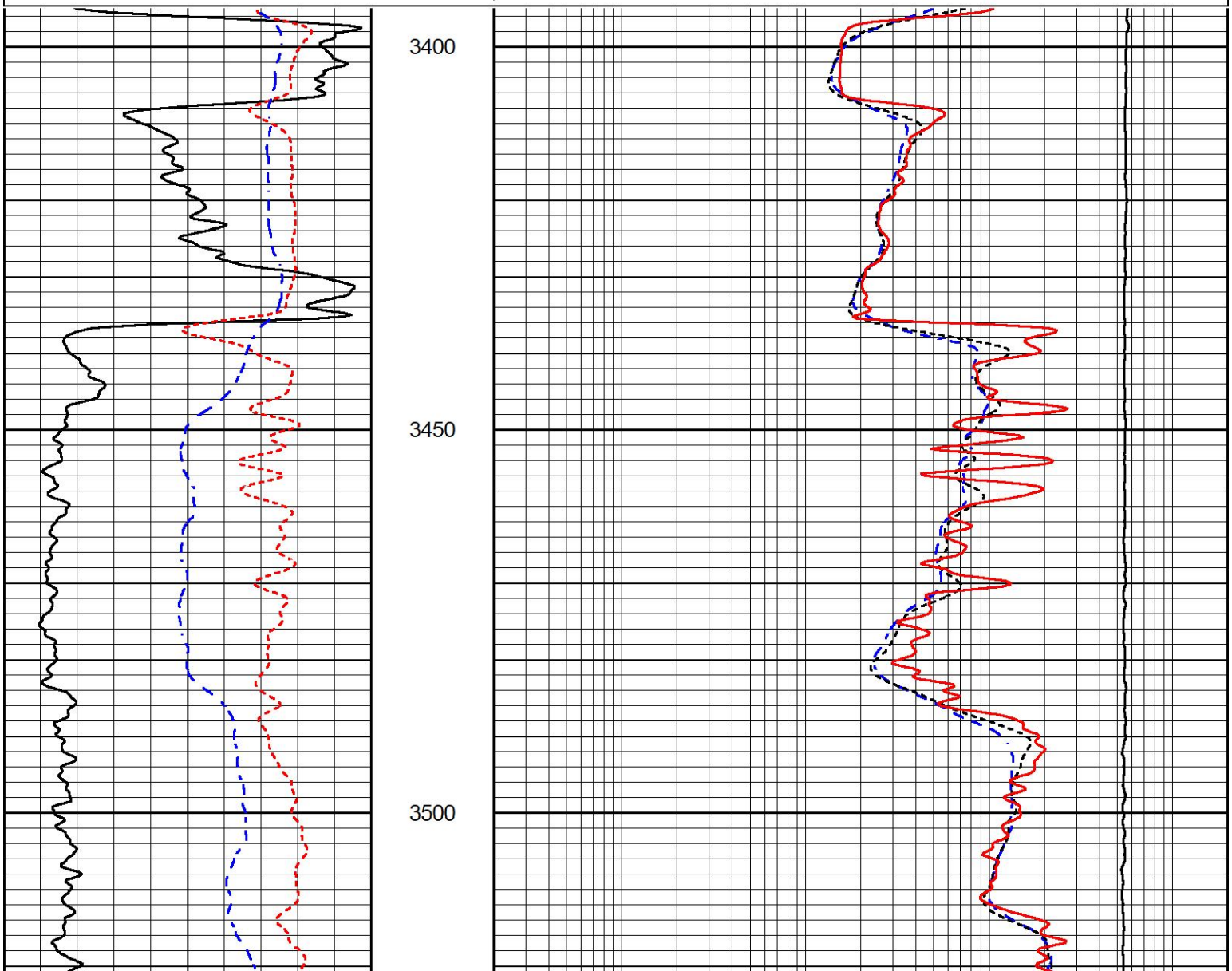
REPEAT SECTION

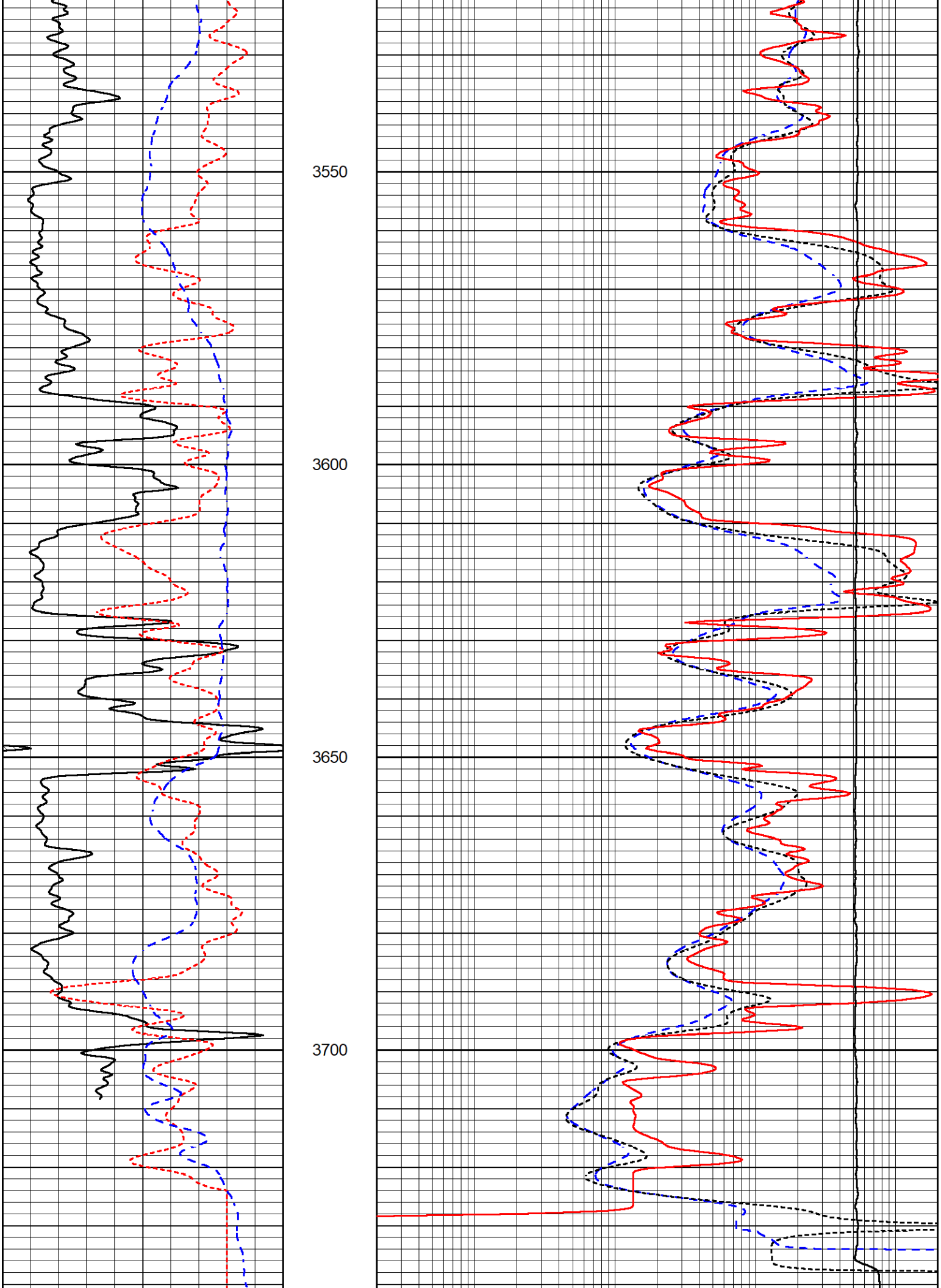
REPEAT PASS

Database File	ppsi_richards-fund a #4.db
Dataset Pathname	Stack/pass2.1
Presentation Format	_dil
Dataset Creation	Tue Oct 11 20:37:40 2022
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0




3550
3600
3650
3700

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

Calibration Report

Database File	ppsi_richards-fund a #4.db
Dataset Pathname	Stack/pass3.1
Dataset Creation	Tue Oct 11 21:23:03 2022

Dual Induction Calibration Report

Serial-Model:	501 HT-M&W
Surface Cal Performed:	Thu Sep 22 17:20:27 2022

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		m	b
Deep	83.639	487.104	0.000	183.000	mmho/m	0.455	-36.500
Medium	113.335	1585.690	0.000	442.000	mmho/m	0.305	-32.500

Compensated Density Calibration Report

Serial-Model:	307-11-M&W
Source #:	20762B
Master Calibration Performed:	Sat Aug 27 10:20:16 2022

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3600.52	4768.22	cps
Aluminum	2.670	g/cc	693.98	3106.20	cps

Spine Angle = 75.41 Density/Spine Ratio = 0.538

	Size		Reading
Small Ring	6.00	in	1.16
Large Ring	18.00	in	1.01

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W

CALIBRATION

Detector	Readings		Target		Normalization
Short Space	6240.00	cps	1000.00	cps	1.6025
Long Space	460.00	cps	1000.00	cps	1.9500

PRE-SURVEY VERIFICATION

	Detector	Readings		Measured		Target	
1)	Short Space		cps				
	Long Space		cps		pu		pu

2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	106	
Tool Model:	M&W	
Performed:	Fri Dec 3 15:10:46 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	24.0	cps
Calibrator Reading:	637.0	cps
Sensitivity:	0.5500	GAPI/cps

MIDWEST WIRELINE

Company	Petroleum Property Services, Inc.
Well	Richards-Fund A #4
Field	McClain
County	Nemaha
State	Kansas