PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company MUSTANG ENERGY CORPORATION
Well GASKILL RANGE #1
Field WILDCAT
County LOGAN
State KANSAS

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Well GASKILL RANGE #1
Field WILDCAT
County LOGAN State KANSAS

Location: API #: 15-109-21600-00-00
330' FSL & 2540' FEL
SEC 23 TWP 12S RGE 36W

Permanent Datum GROUND LEVEL Elevation 3196'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
MEL

Elevation
K.B. 3204'
D.F. N/A
G.L. 3196'

Date	11/6/2019			
Run Number	ONE			
Depth Driller	4800'			
Depth Logger	4799'			
Bottom Logged Interval	4798'			
Top Log Interval	280'			
Casing Driller	8.625" @ 306'			
Casing Logger	306'			
Bit Size	7.875"			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	11000			
Density / Viscosity	9.2 51			
pH / Fluid Loss	10.0 9.2			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.70 @ 72			
Rmf @ Meas. Temp	0.53 @ 72			
Rmc @ Meas. Temp	0.95 @ 72			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	0.41 @ 124			
Operating Rig Time	3 HOURS			
Max Rec. Temp. F	124			
Equipment Number	P-24			
Location	HAYS			
Recorded By	IAN MABB			
Witnessed By	JASON T. ALM			

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Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

WIONONA, KS.
WEST 1 MILE TO RD 220, SOUTH 3 MILES TO VISTA RD,
WEST 2 MILES, SOUTH INTO

Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: JASON T. ALM
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\mustang_gaskill_range_1.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	124	5.5	0	1	2	2.71

NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	4	5	412	0	Off	4799

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (89)	3.00	3.50	50.00
GR	33.00					
CNLSC	29.90		CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	29.15					
			CDL-M&W (817-947)	8.50	4.00	250.00
LSD	20.85					
DCAL	20.83					
SSD	20.35					
RLL3F	15.80					
RLL3	15.80					
			DIL-PSI HIGH TEMP (952-828)	18.50	3.50	220.00
CILD	8.00					

CILM	4.70					
SP	0.20					

Dataset: mustang_gaskill_range_1.db: field/well/stack/pass3.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in

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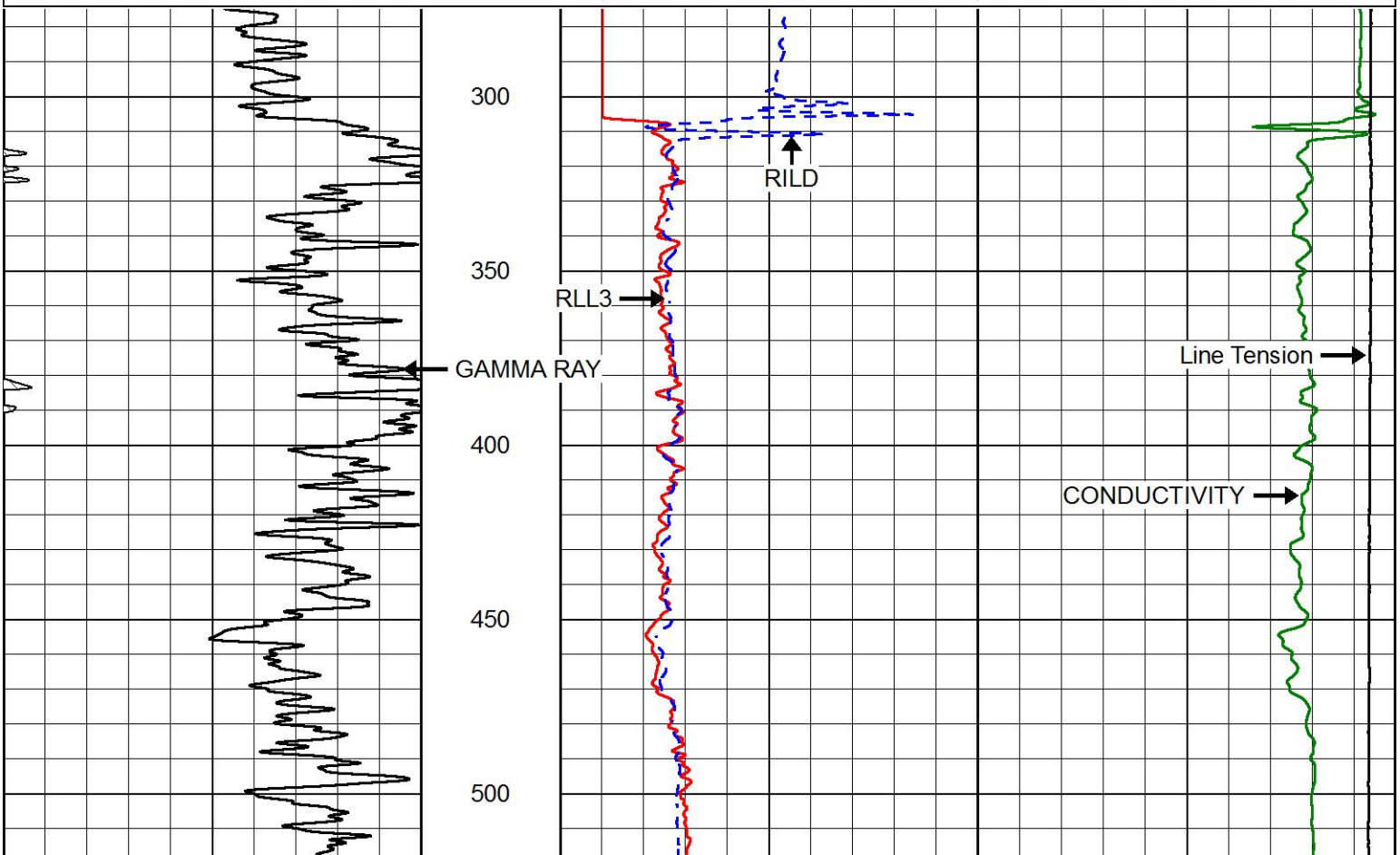
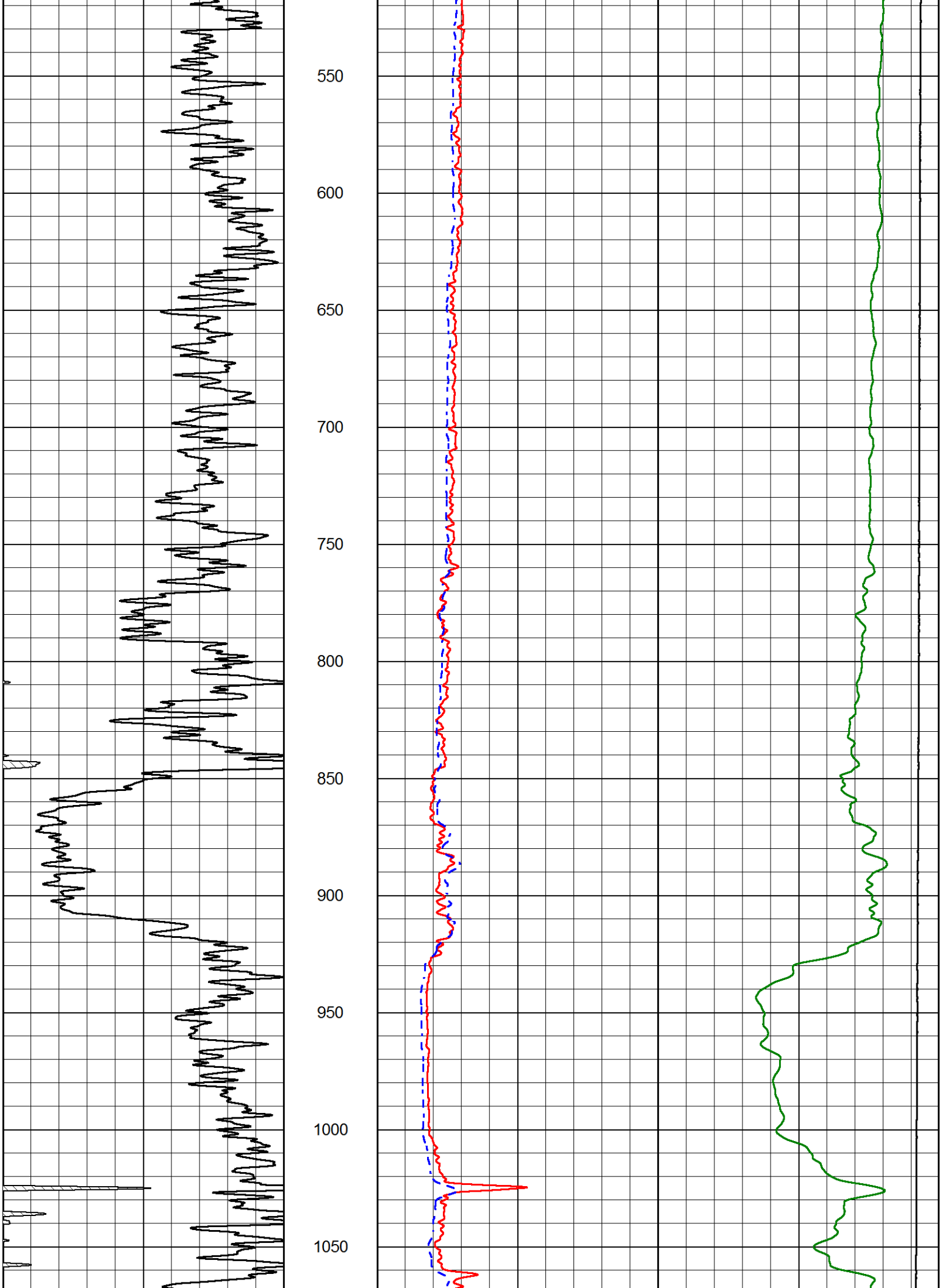
MAIN PASS

Database File	mustang_gaskill_range_1.db
Dataset Pathname	stack/pass4.1
Presentation Format	_dil2in
Dataset Creation	Wed Nov 06 13:48:32 2019
Charted by	Depth in Feet scaled 1:600

GAMMA RAY
0 (GAPI) 150

1000 CONDUCTIVITY (mmho/m) 0
15000 Line Tension (lb) 0
0 RLL3 (Ohm-m) 50
50 RLL3 (Ohm-m) 500
0 RILD (Ohm-m) 50
50 Deep Resistivity (Ohm-m) 500

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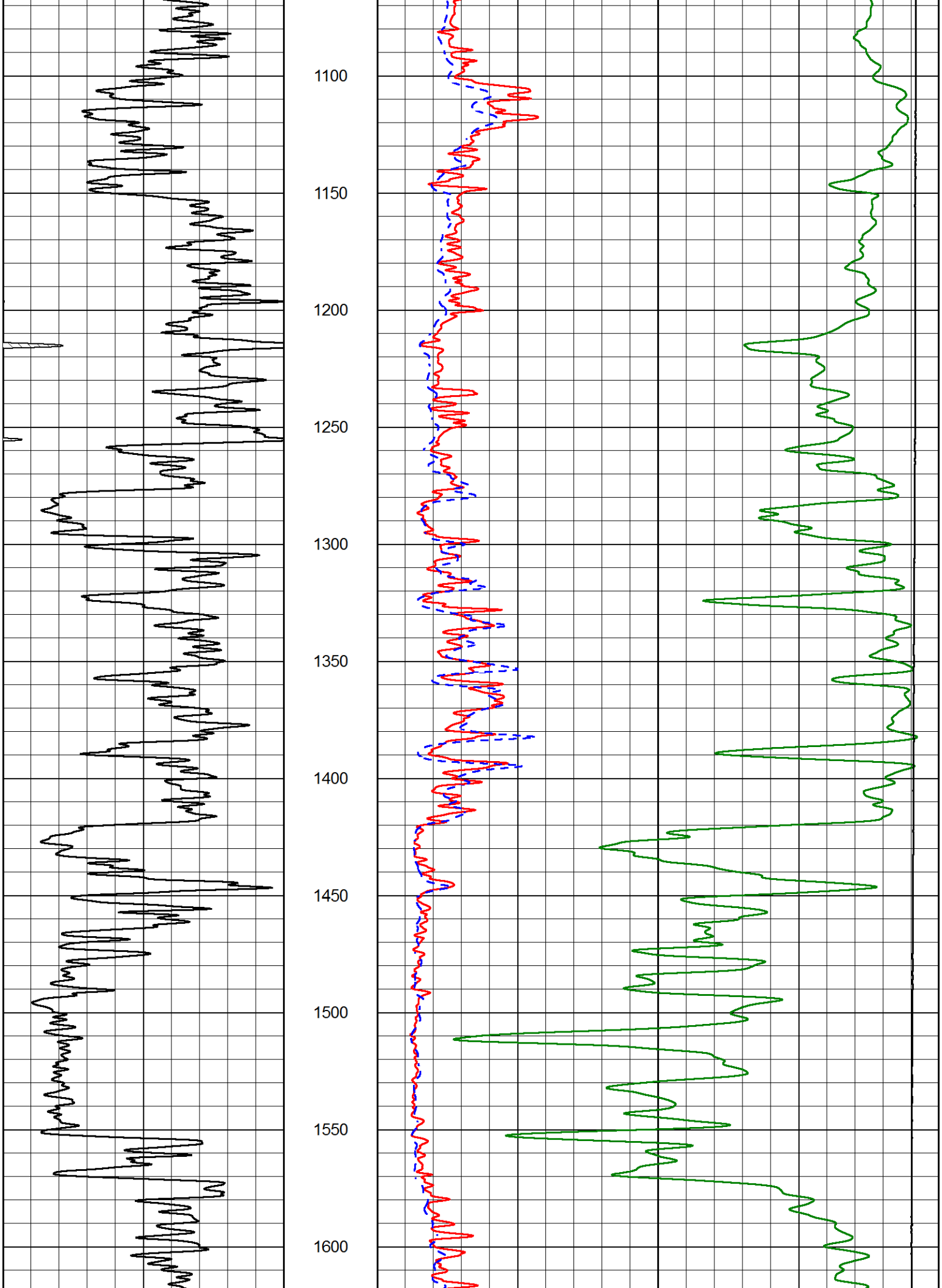
600
650
700
750
800
850
900
950
1000
1050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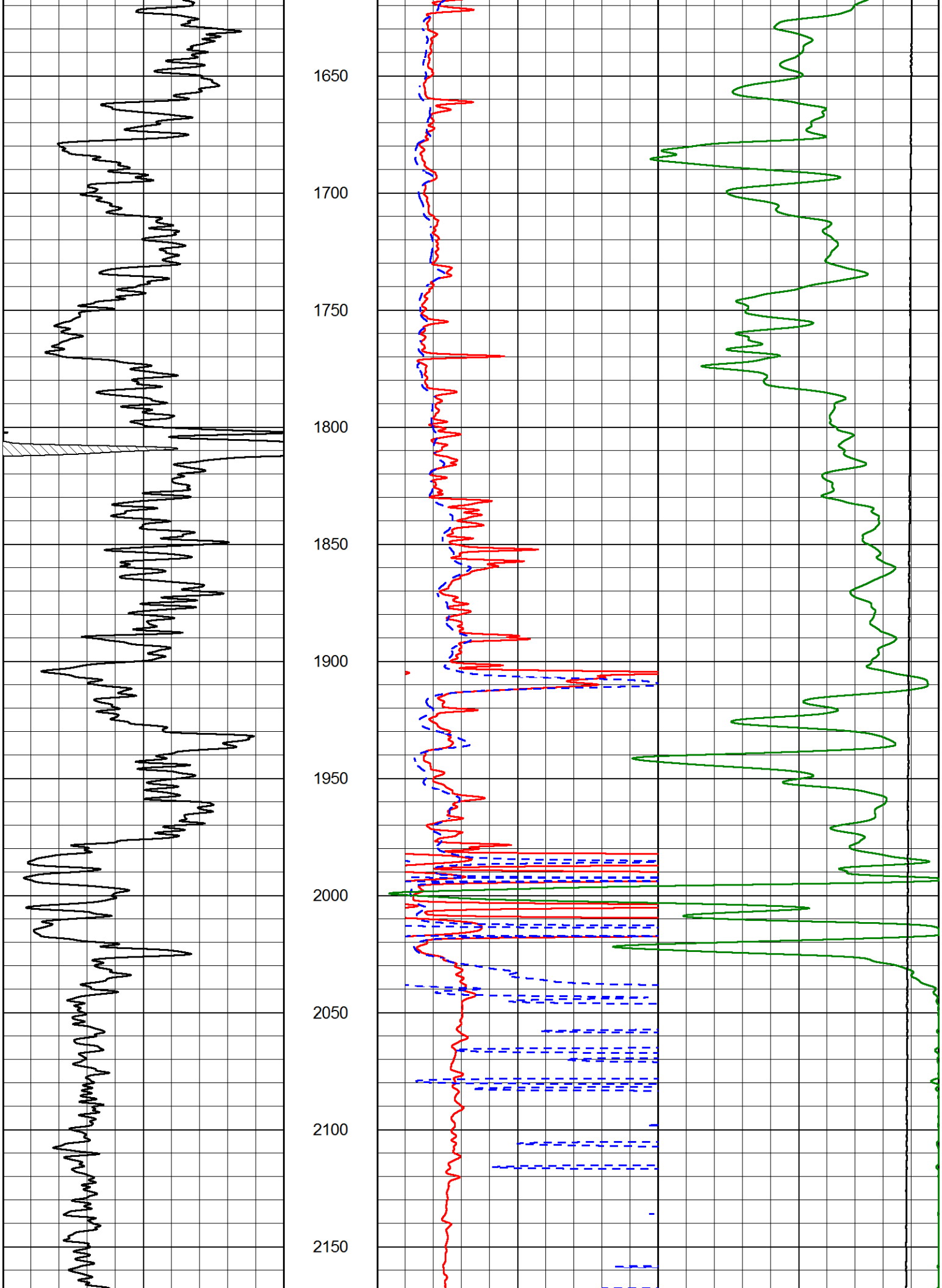
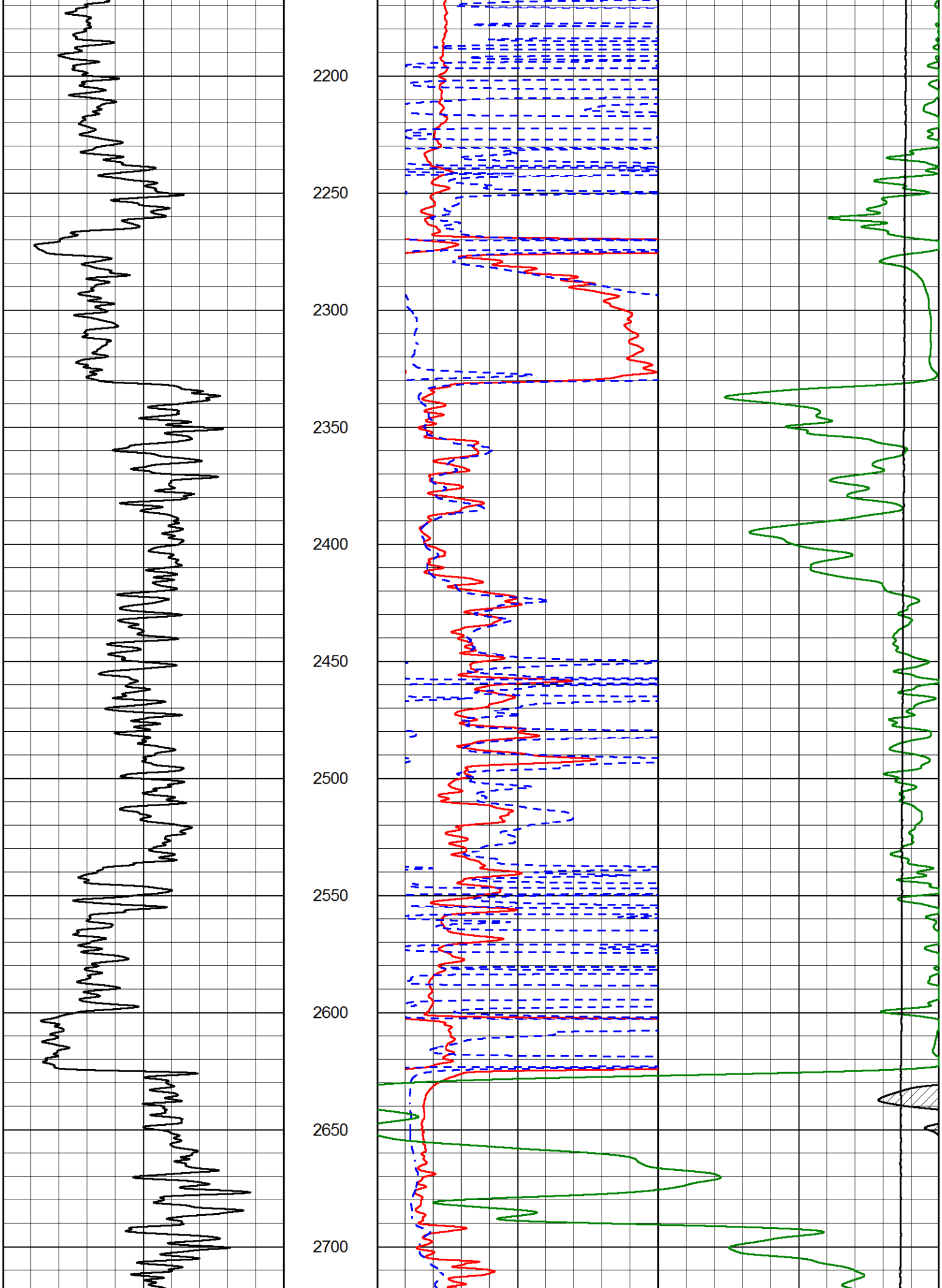
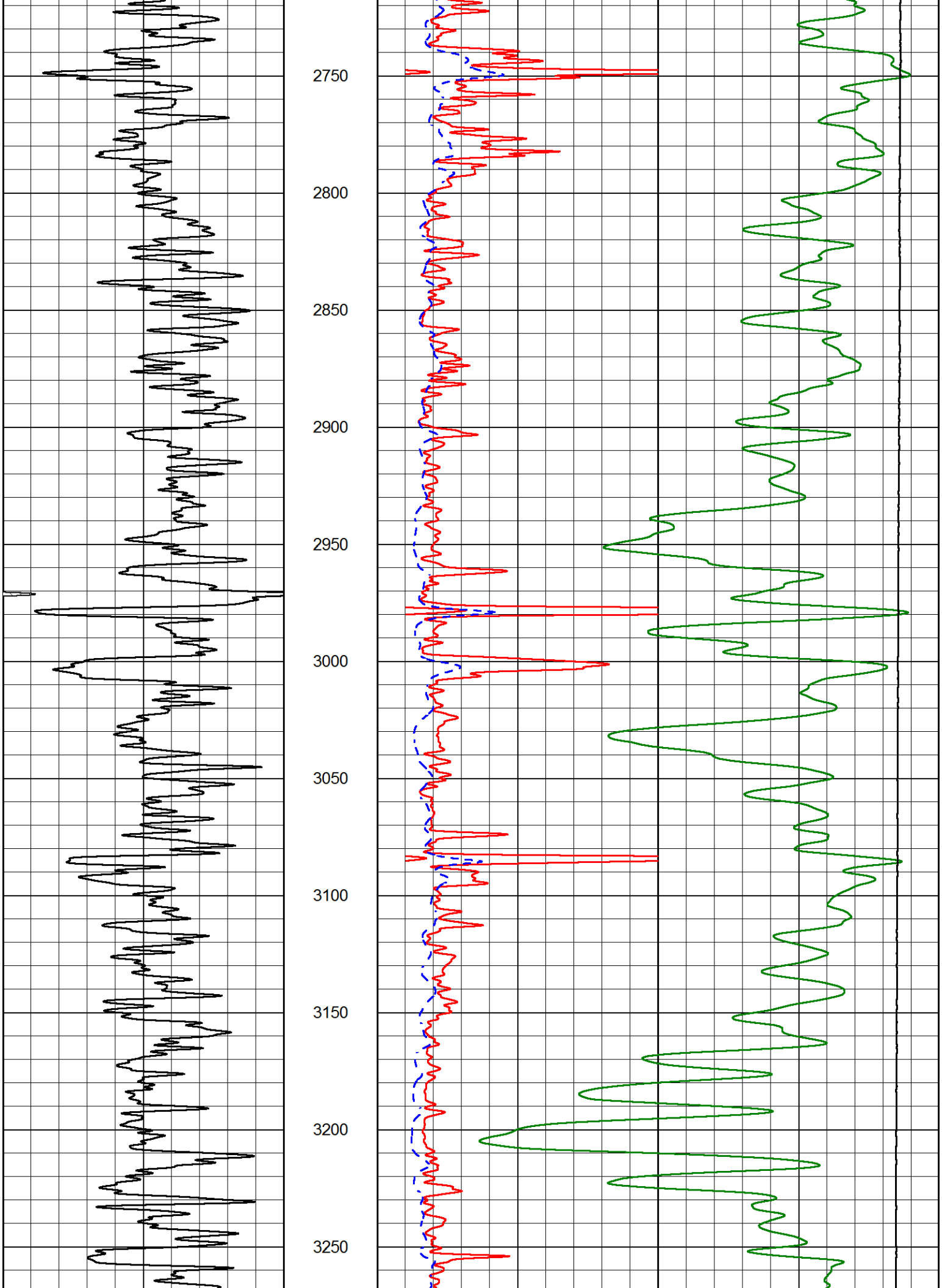
1200
1250
1300
1350
1400
1450
1500
1550
1600


1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150


2200
2250
2300
2350
2400
2450
2500
2550
2600
2650
2700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2800
2850
2900
2950
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3050
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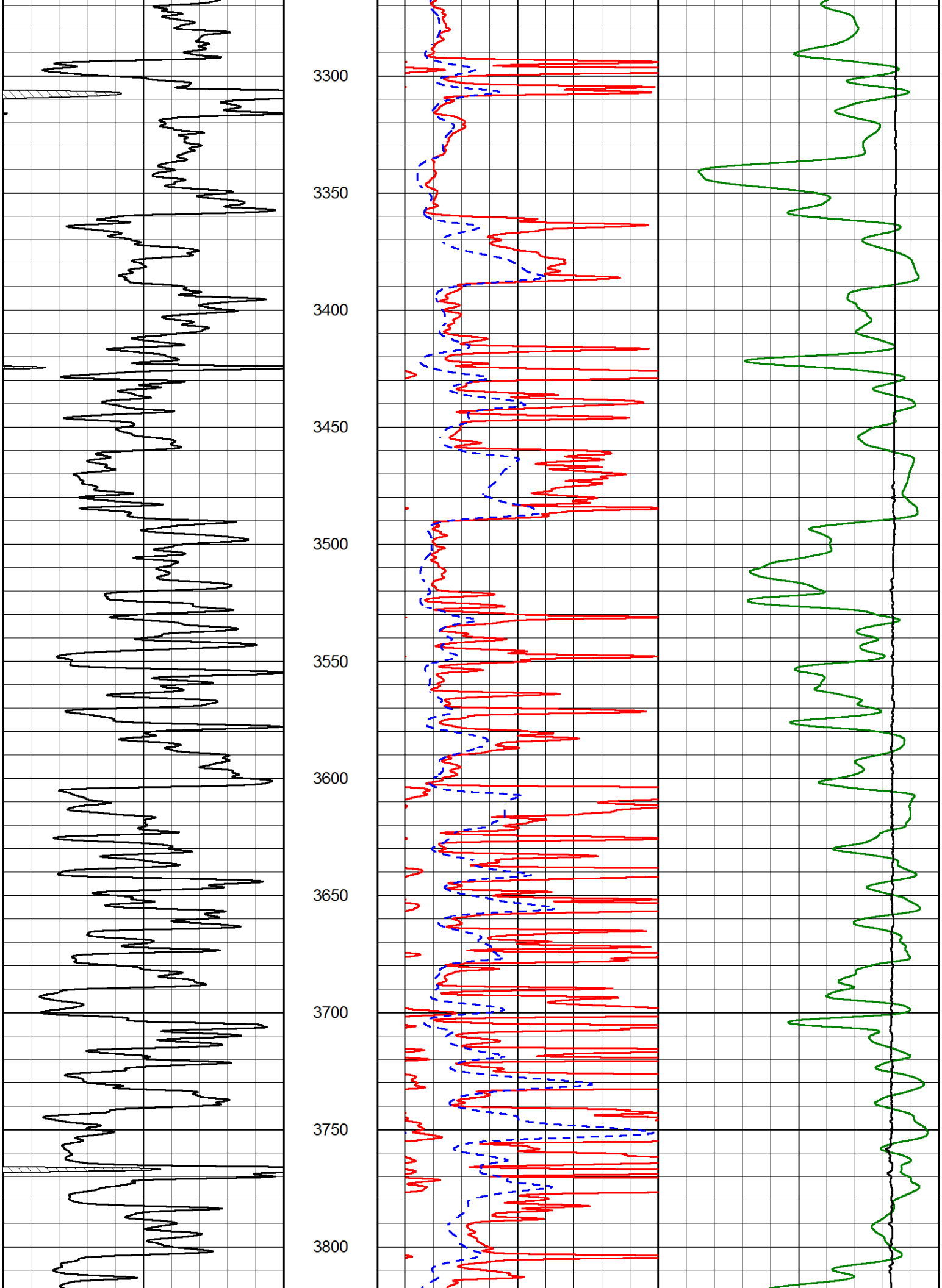
3150
3200
3250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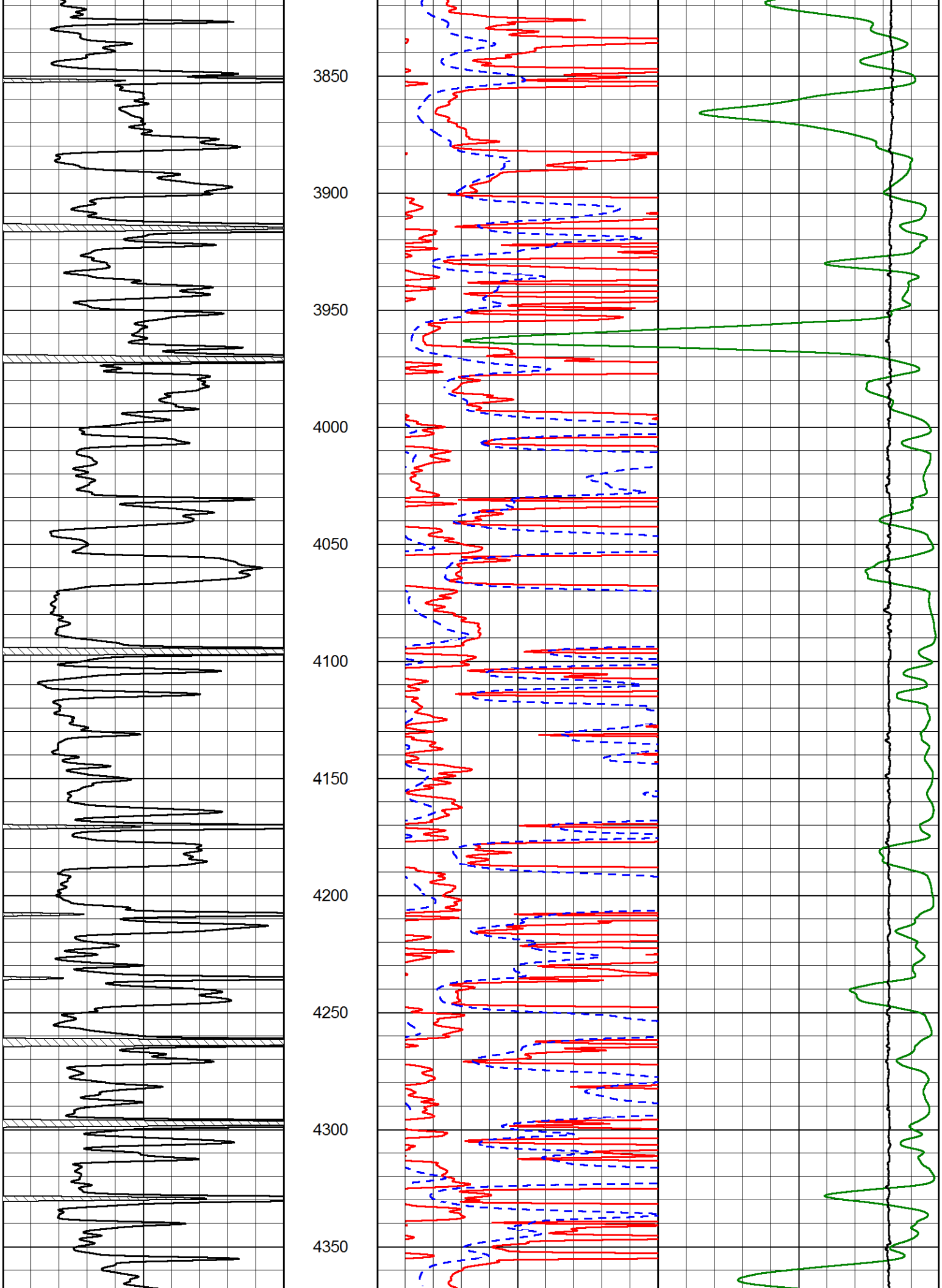
3350
3400
3450
3500
3550
3600
3650
3700
3750
3800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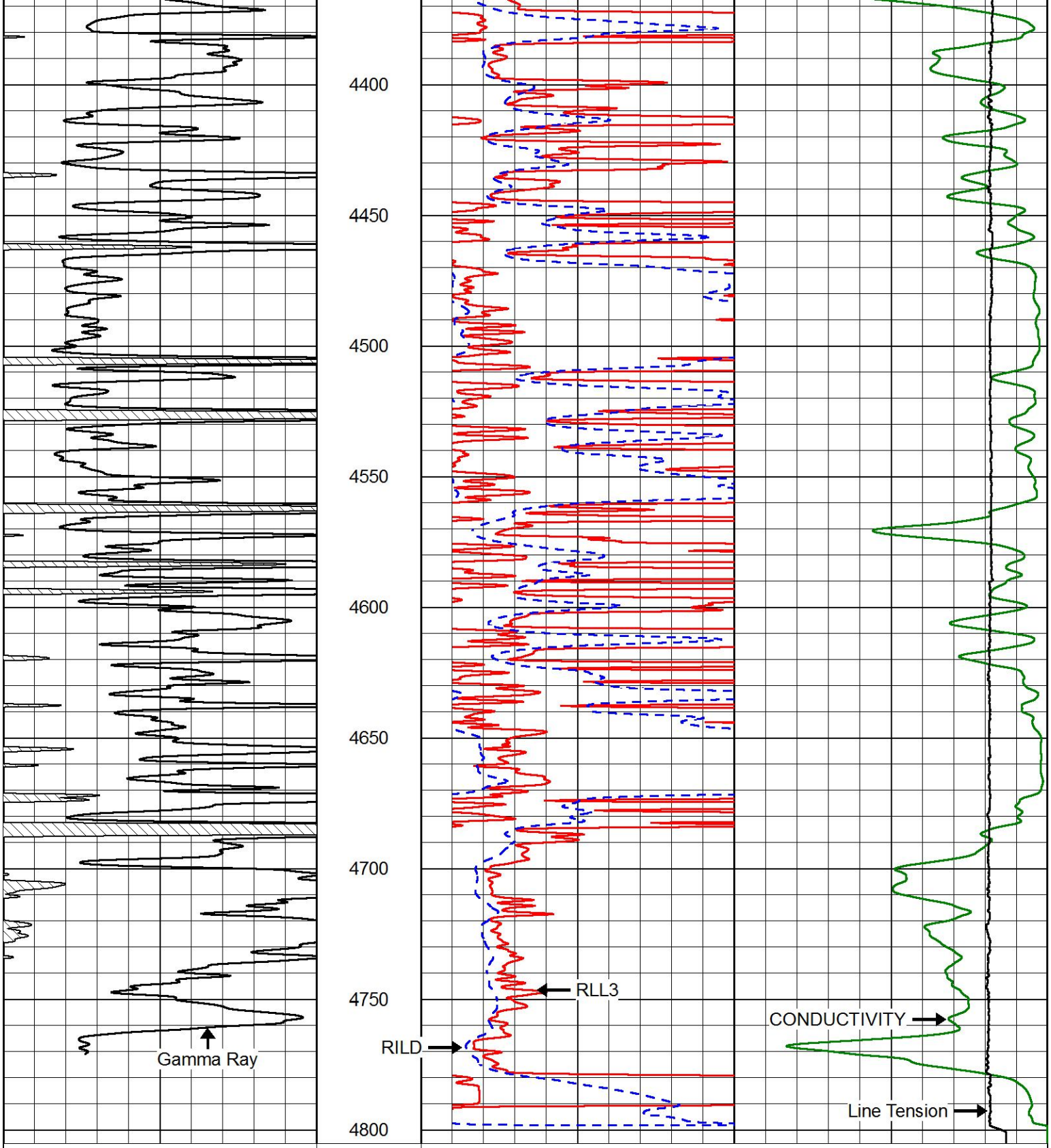
3900
3950
4000
4050
4100
4150
4200
4250
4300
4350


4400
4450
4500
4550
4600
4650
4700
4750
4800
RLL3
RILD
CONDUCTIVITY
Line Tension
Gamma Ray
GAMMA RAY
0 (GAPI) 150
1000 CONDUCTIVITY (mmho/m) 0
15000 Line Tension (lb) 0
0 RLL3 (Ohm-m) 50
50 RLL3 (Ohm-m) 500
0 RILD (Ohm-m) 50
50 Deep Resistivity (Ohm-m) 500

MAIN PASS

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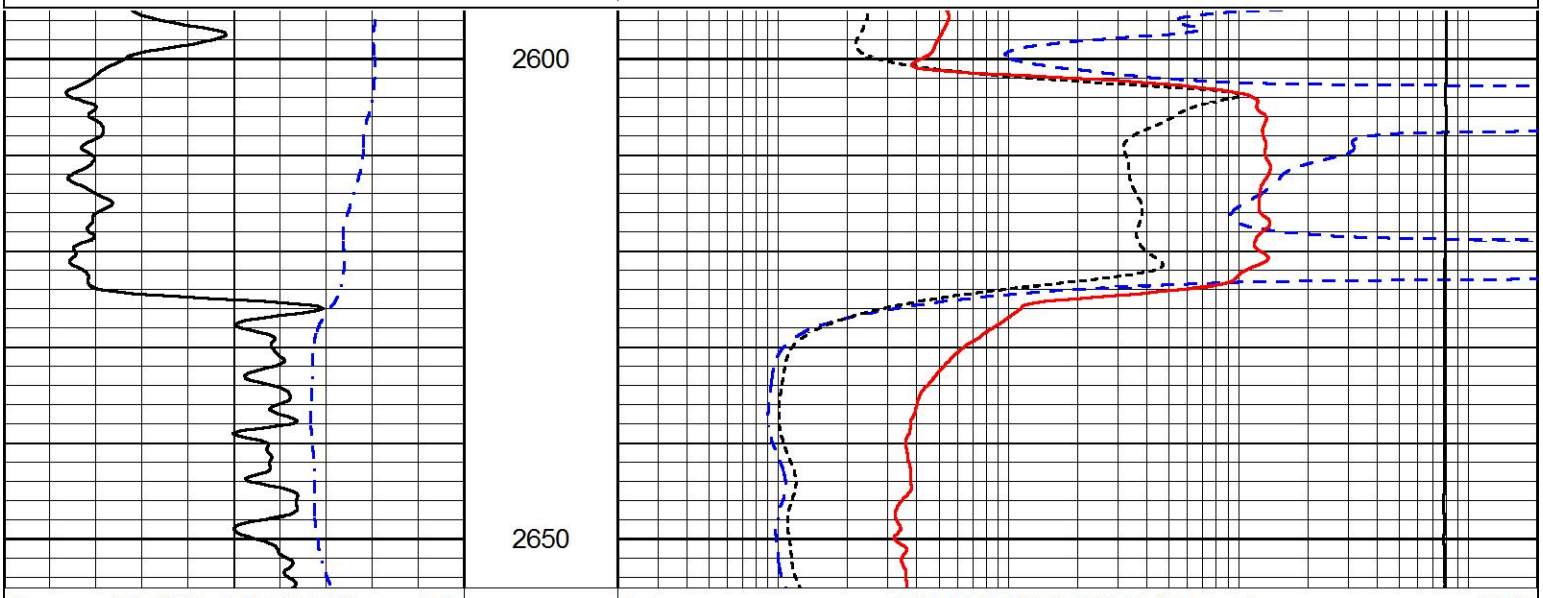
MAIN PASS

Database File	mustang_gaskill_range_1.db
Dataset Pathname	stack/pass4.1
Presentation Format	_dil
Dataset Creation	Wed Nov 06 13:48:32 2019
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-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



0	GAMMA RAY (GAPI)	150
-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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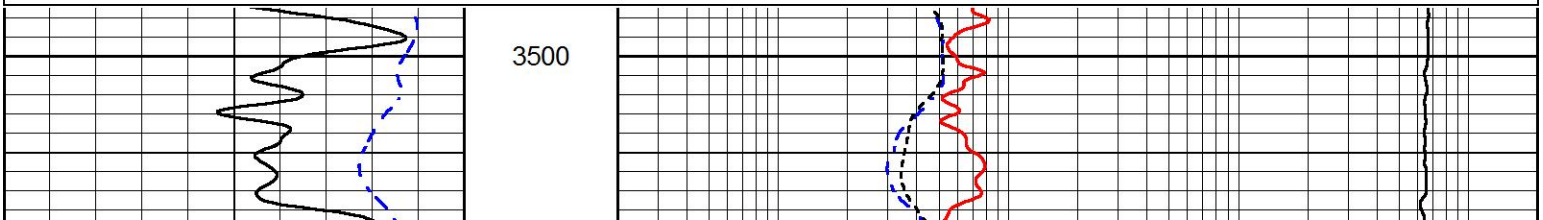
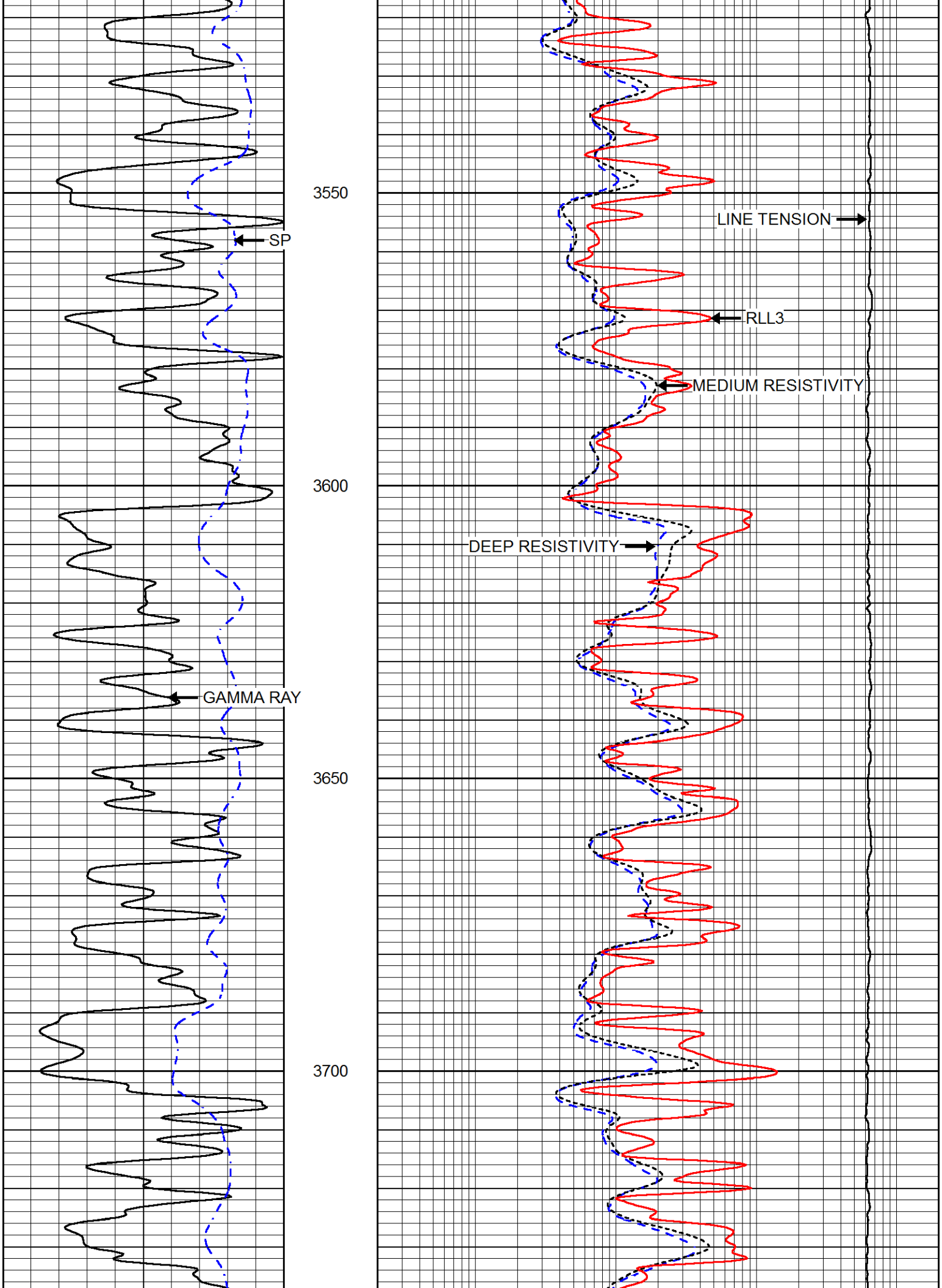
MAIN PASS

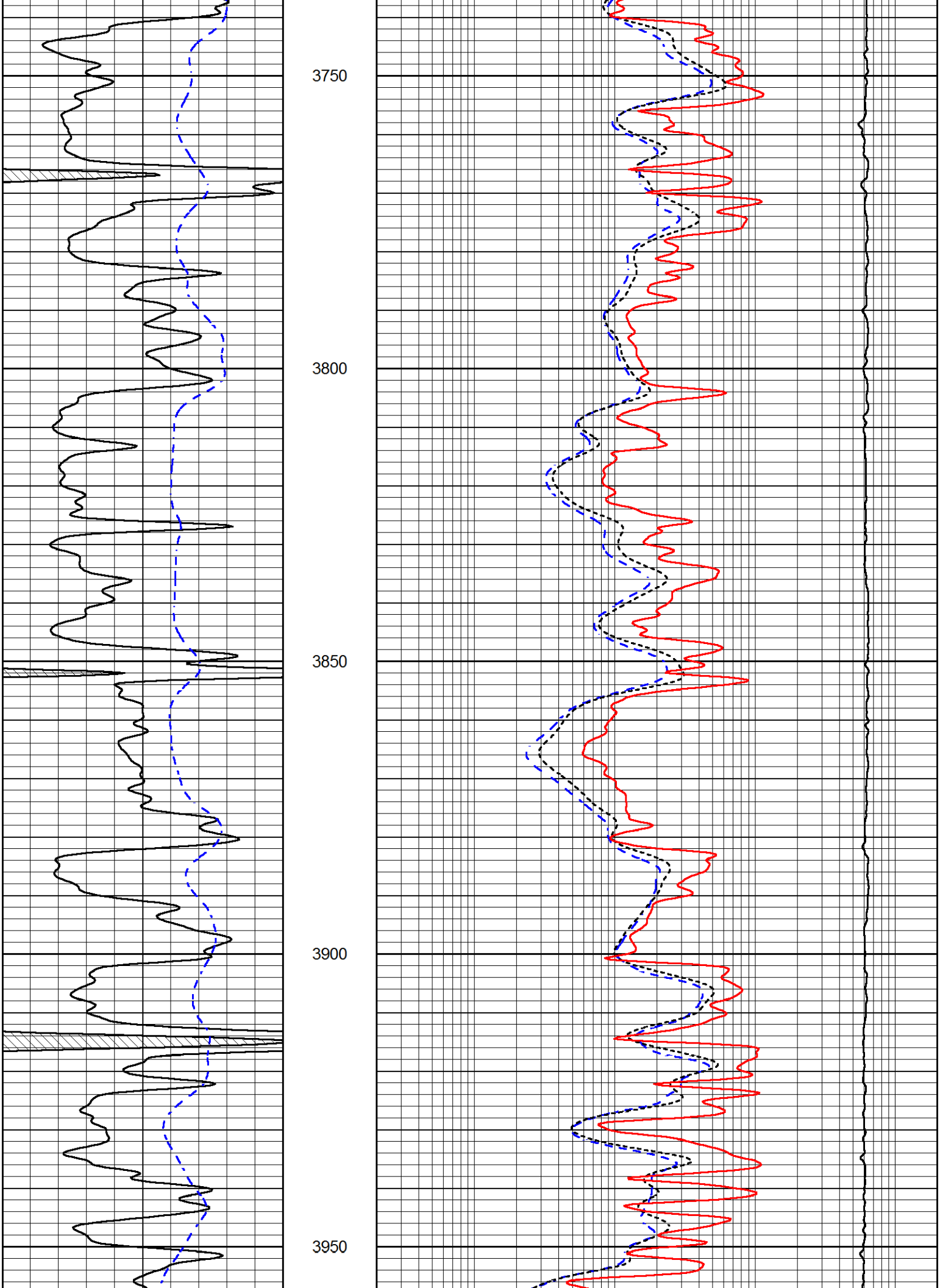
Database File	mustang_gaskill_range_1.db
Dataset Pathname	stack/pass3.1
Presentation Format	_dil
Dataset Creation	Wed Nov 06 13:13:57 2019
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-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
SP
GAMMA RAY
LINE TENSION
RLL3
MEDIUM RESISTIVITY
DEEP RESISTIVITY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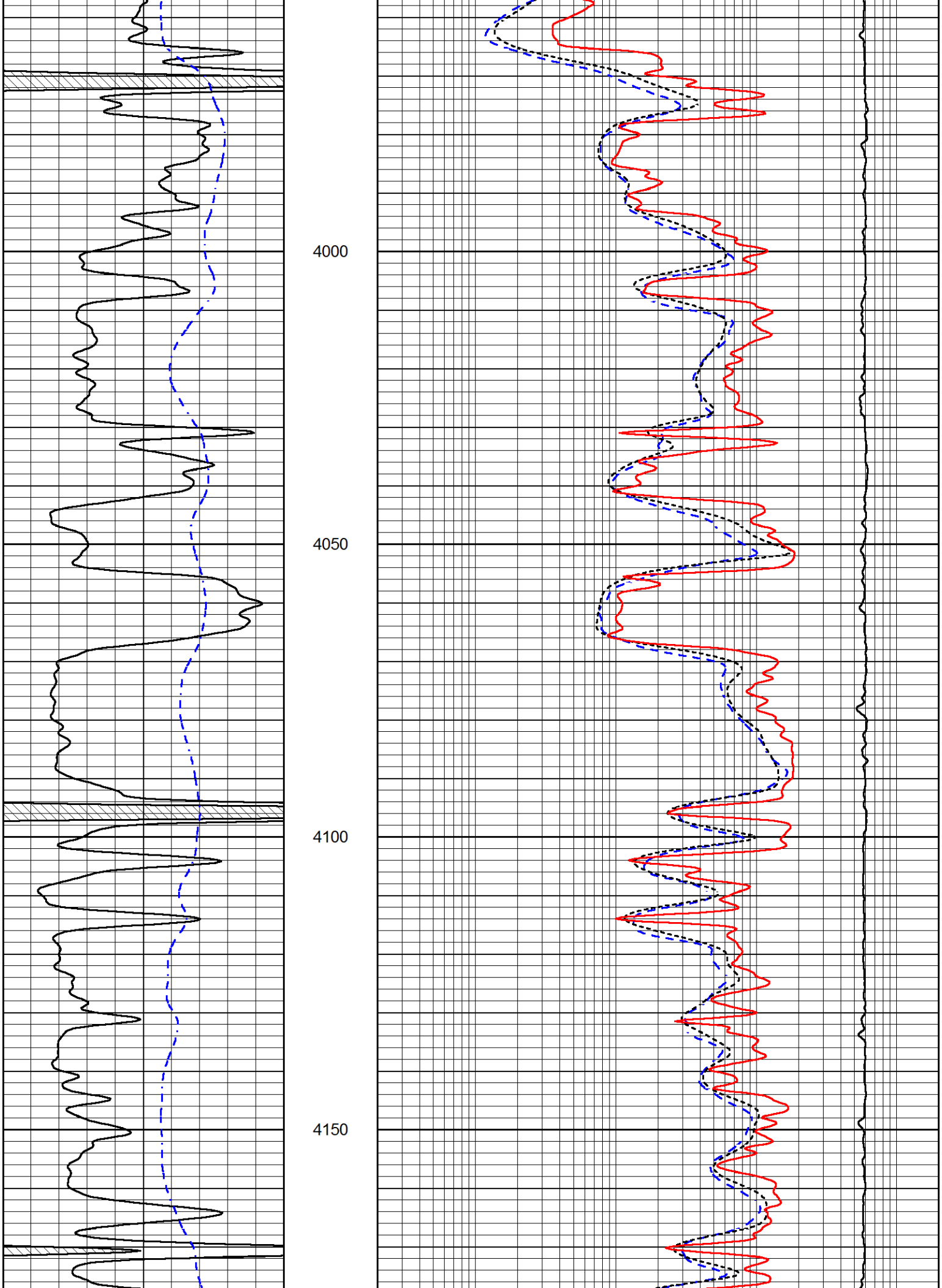
3850
3900
3950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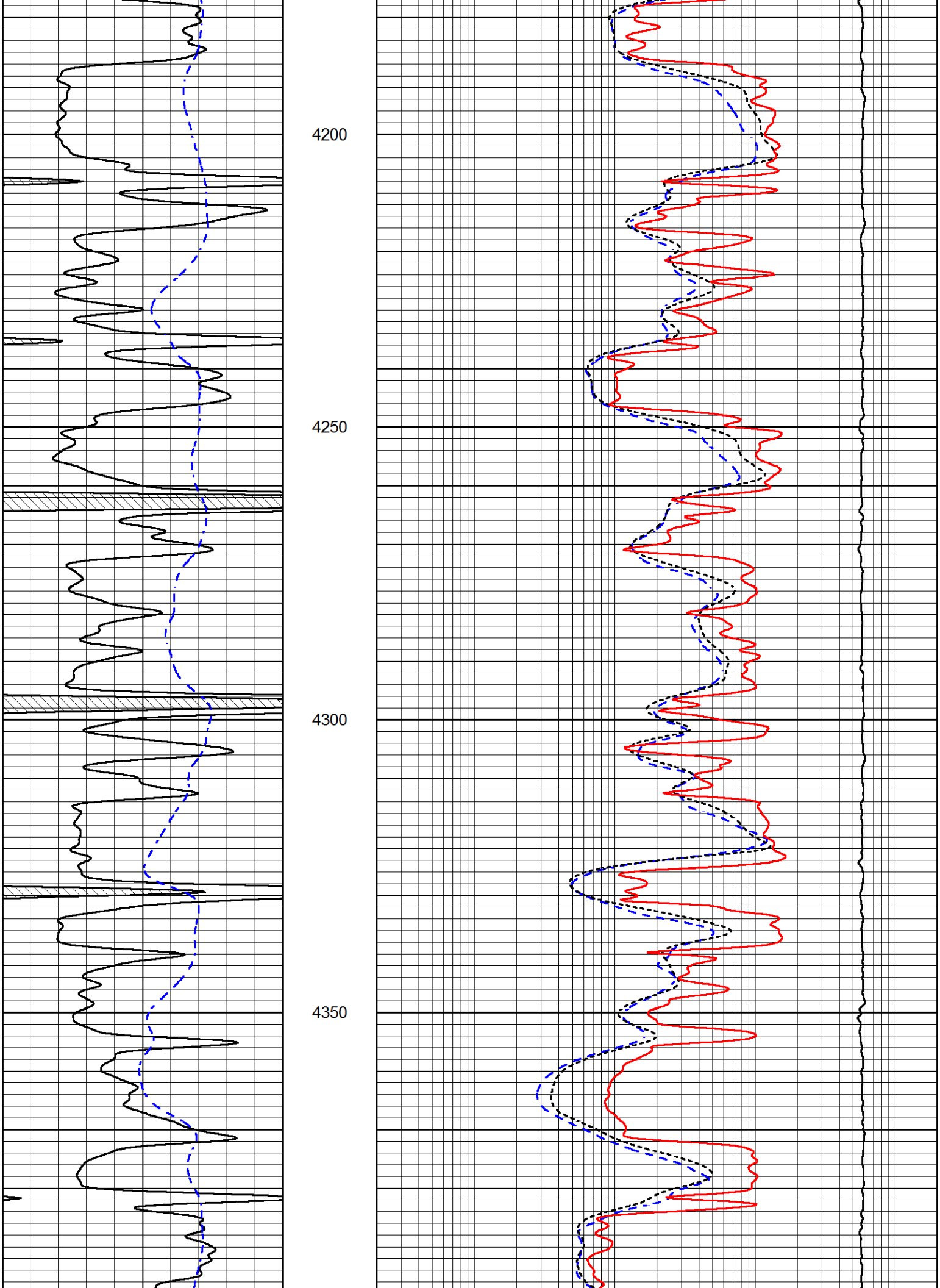
4100
4150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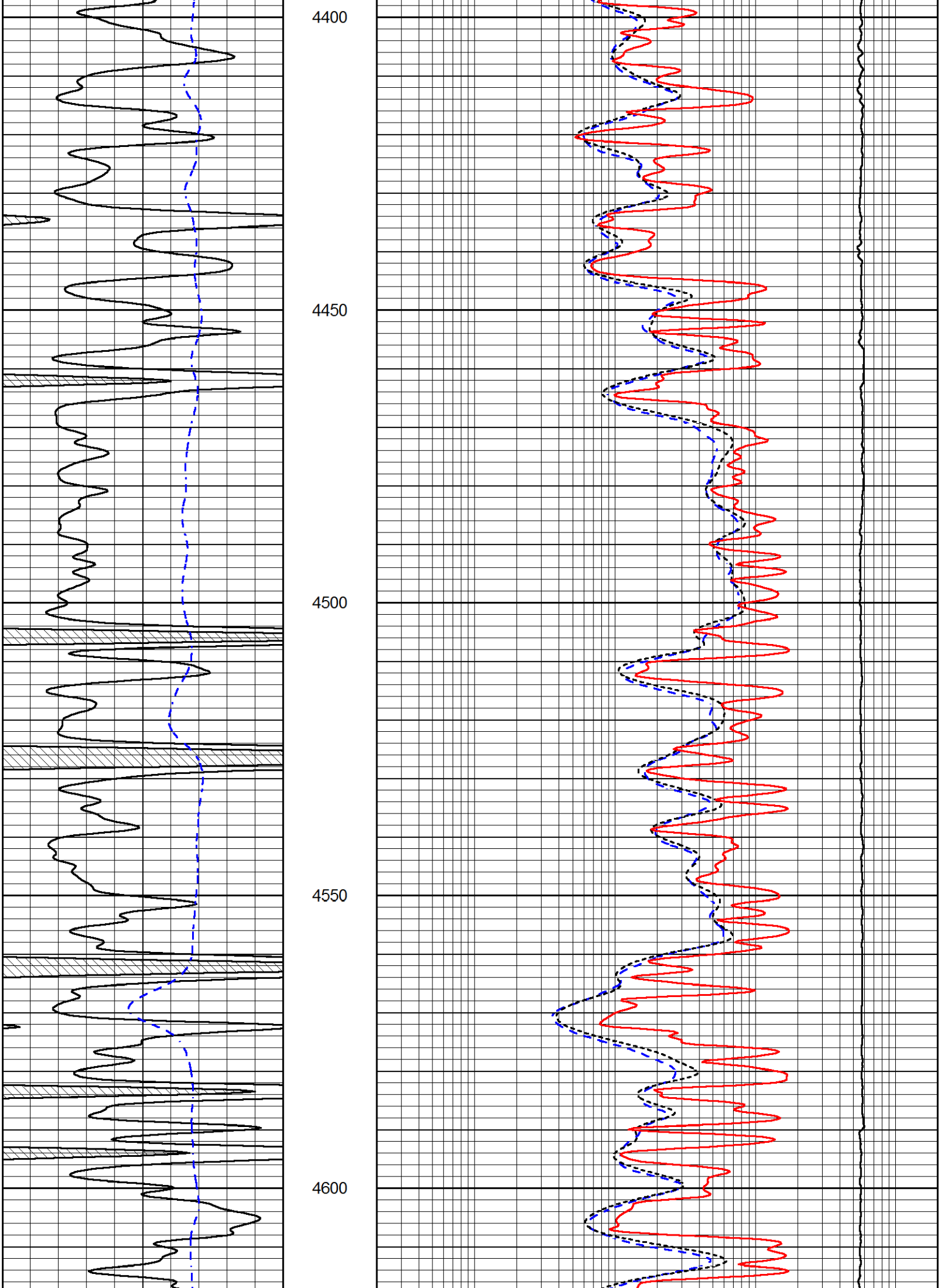
4250
4300
4350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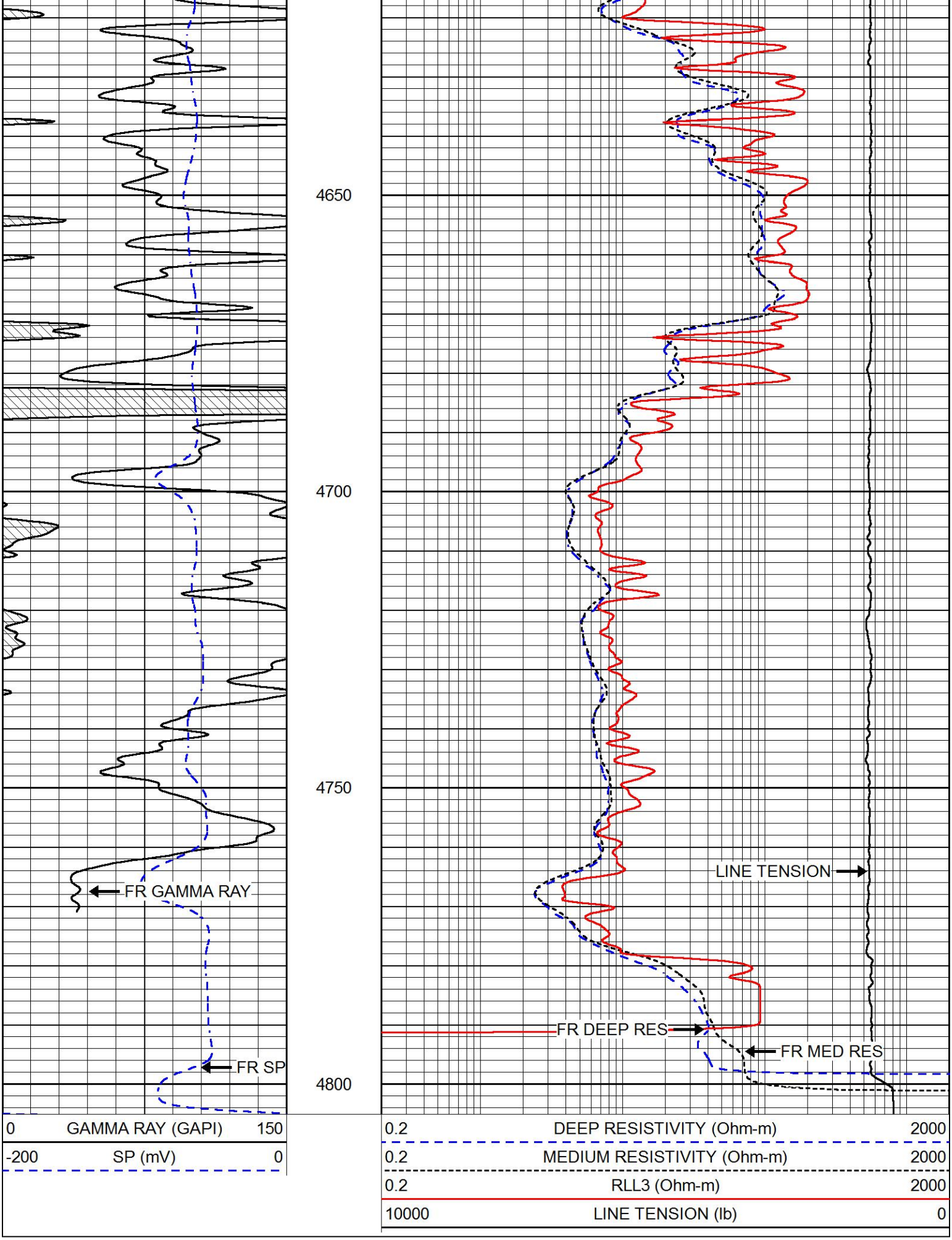
4450
4500
4550
4600


4650
4700
4750
4800
FR GAMMA RAY
FR SP
LINE TENSION
FR DEEP RES
FR MED RES
0 GAMMA RAY (GAPI) 150
-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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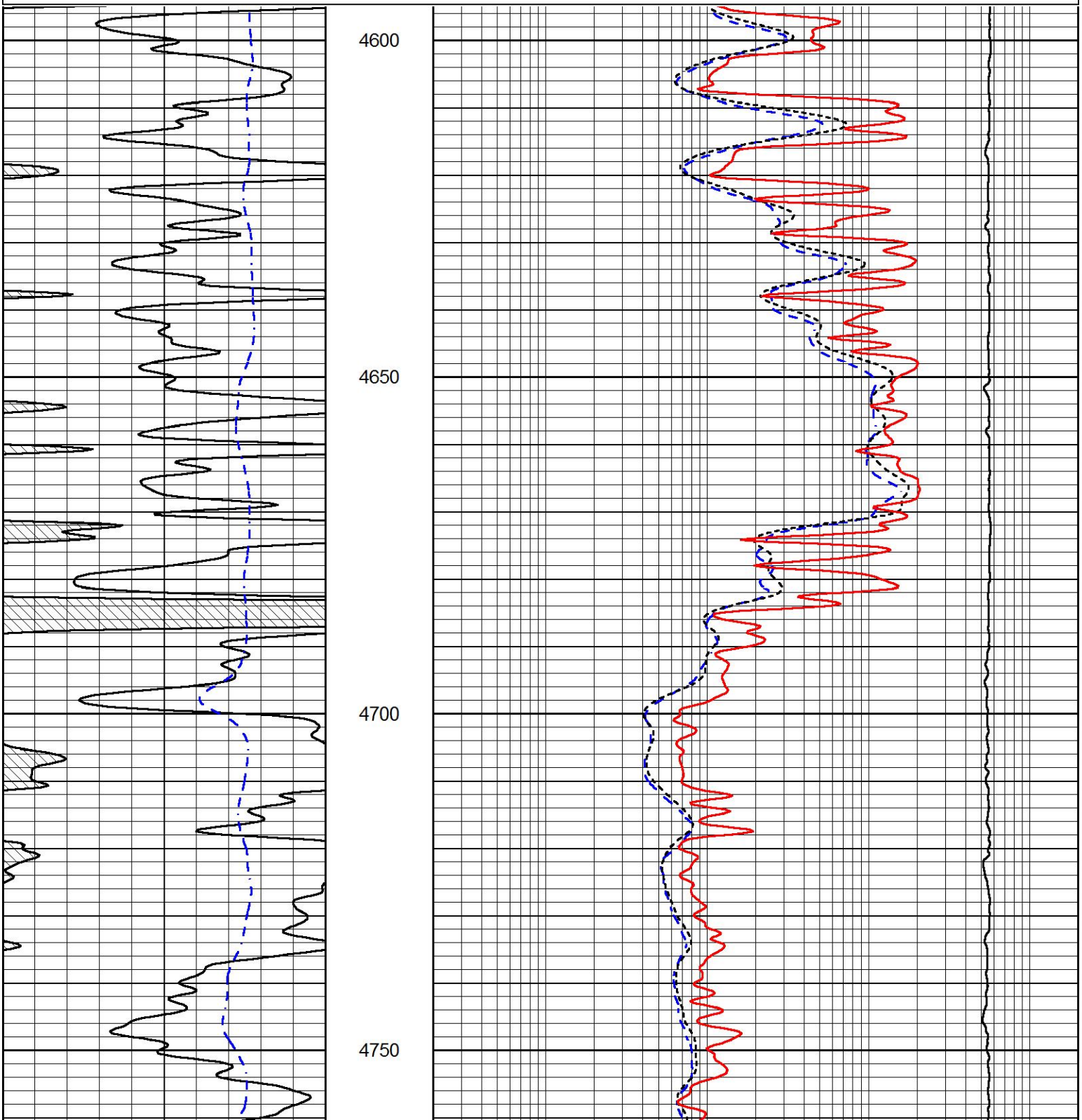
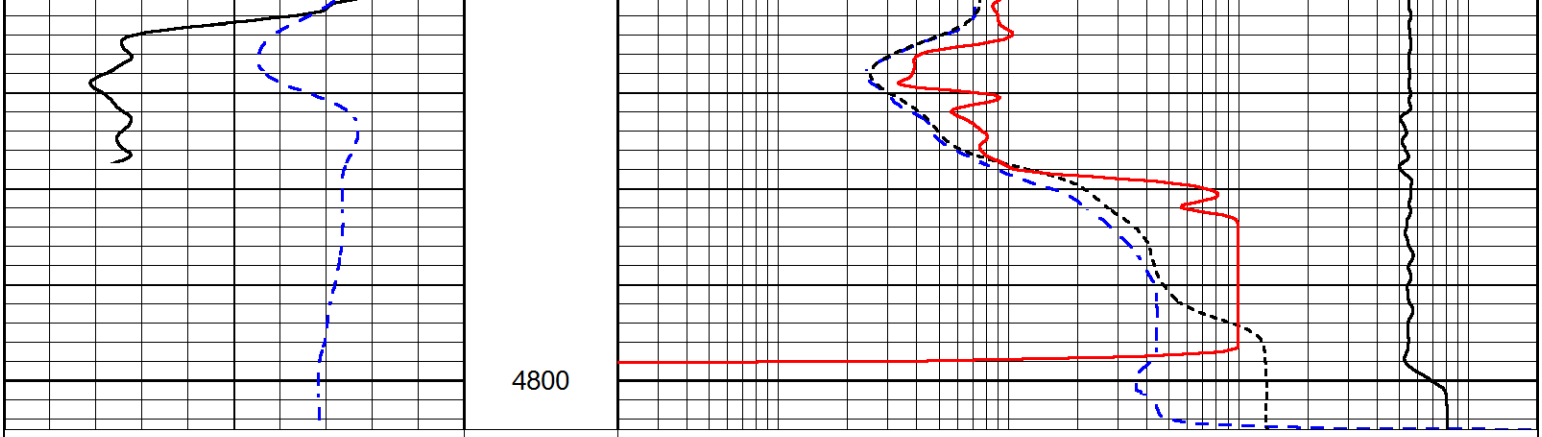
REPEAT SECTION

Database File	mustang_gaskill_range_1.db
Dataset Pathname	stack/pass2.1
Presentation Format	_dil
Dataset Creation	Wed Nov 06 13:09:23 2019
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-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	mustang_gaskill_range_1.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Wed Nov 06 13:13:57 2019

Dual Induction Calibration Report

Serial-Model:	952-828-PSI HIGH TEMP
Calibration Performed:	Wed Oct 09 13:38:53 2019

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.400	-27.500
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.275	-27.000

Compensated Density Calibration Report

Serial-Model:	817-947-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Tue Sep 24 21:18:50 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.690	g/cc	1141.85	3762.09	cps

Spine Angle = 74.89

Density/Spine Ratio = 0.537

	Size		Reading
Small Ring	4.50	in	1.02
Large Ring	15.00	in	1.34

Compensated Neutron Calibration Report

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

Calibration Performed: WED FEB 13 10:30:30 2019

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

Gamma Ray Calibration Report

Serial Number:	89	
Tool Model:	M&W	
Calibration Performed:	Fri Aug 24 11:16:10 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

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Company	MUSTANG ENERGY CORPORATION
Well	GASKILL RANGE #1
Field	WILDCAT
County	LOGAN
State	KANSAS