MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Cholla Production, LLC
Well Wrangler #1-23
Field Walz
County Trego State Kansas
Location: API #: 15-195-23115-00-00
815' FSL & 1760' FEL
SEC 23 TWP 11S RGE 21W

Other Services: CNL/CDL, MEL/BHCS

Elevation: K.B. 2273', D.F. N/A, G.L. 2265'

Permanent Datum: Ground Level — Elevation 2265'
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Date	3/9/2021			
Run Number	One			
Depth Driller	3950'			
Depth Logger	3951'			
Bottom Logged Interval	3950'			
Top Log Interval	300'			
Casing Driller	8.625" @ 306'			
Casing Logger	306'			
Bit Size	7.875"			
Type Fluid in Hole	Chemical			
Salinity,ppm CL	3000			
Density / Viscosity	9.2 / 56			
pH / Fluid Loss	10.0 / 6.0			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.40 @ 60			
Rmf @ Meas. Temp	0.30 @ 60			
Rmc @ Meas. Temp	0.54 @ 60			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	0.21 @ 116			
Operating Rig Time	4 Hours			
Max Rec. Temp. F	116			
Equipment Number	P-24			
Location	HAYS			
Recorded By	D. Schmidt			
Witnessed By	Charlie Sturdavant			

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Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

I-70 and Riga Rd,
North to F Rd, 1 East to 390, 1 North,
1/2 East to location (stay north of farmstead)

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: D. Schmidt	Primary Witness: Charlie Sturdavant
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-M&W (233-M&W)	3.00	3.50	50.00
GR	40.58					
CNLSC	37.48		CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73					
			CDL-M&W (817-947)	8.50	4.00	250.00
LSD	28.43					
DCAL	28.42					
SSD	27.93					
			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
MCAL	19.83					
MI	19.83					
MN	19.83					
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: cholla_wrangler 1-23.db: field/well/stkml/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cholla_wrangler 1-23.db
Dataset field/well/stkml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	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	215	0	Off	0

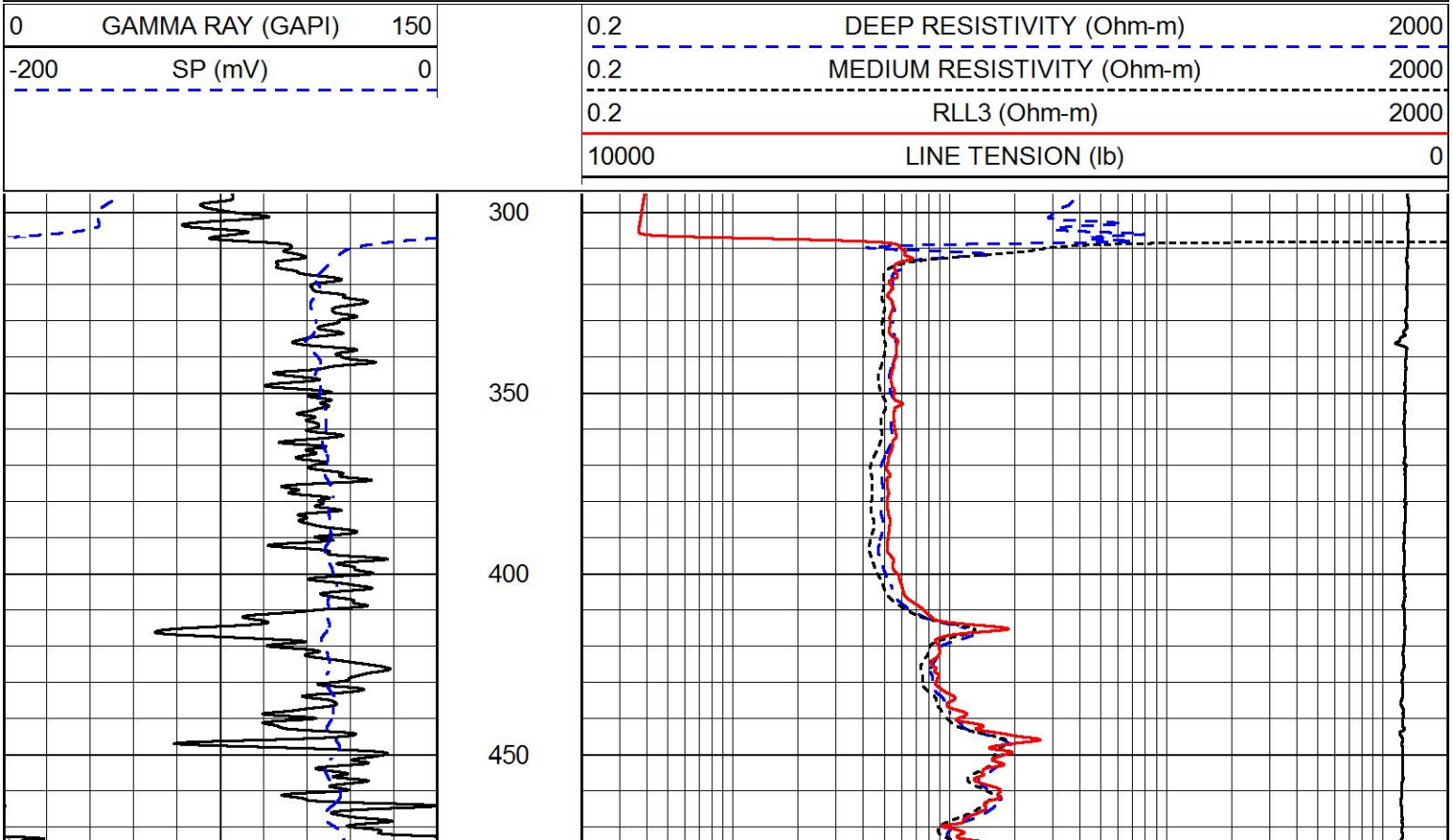
Variable Description

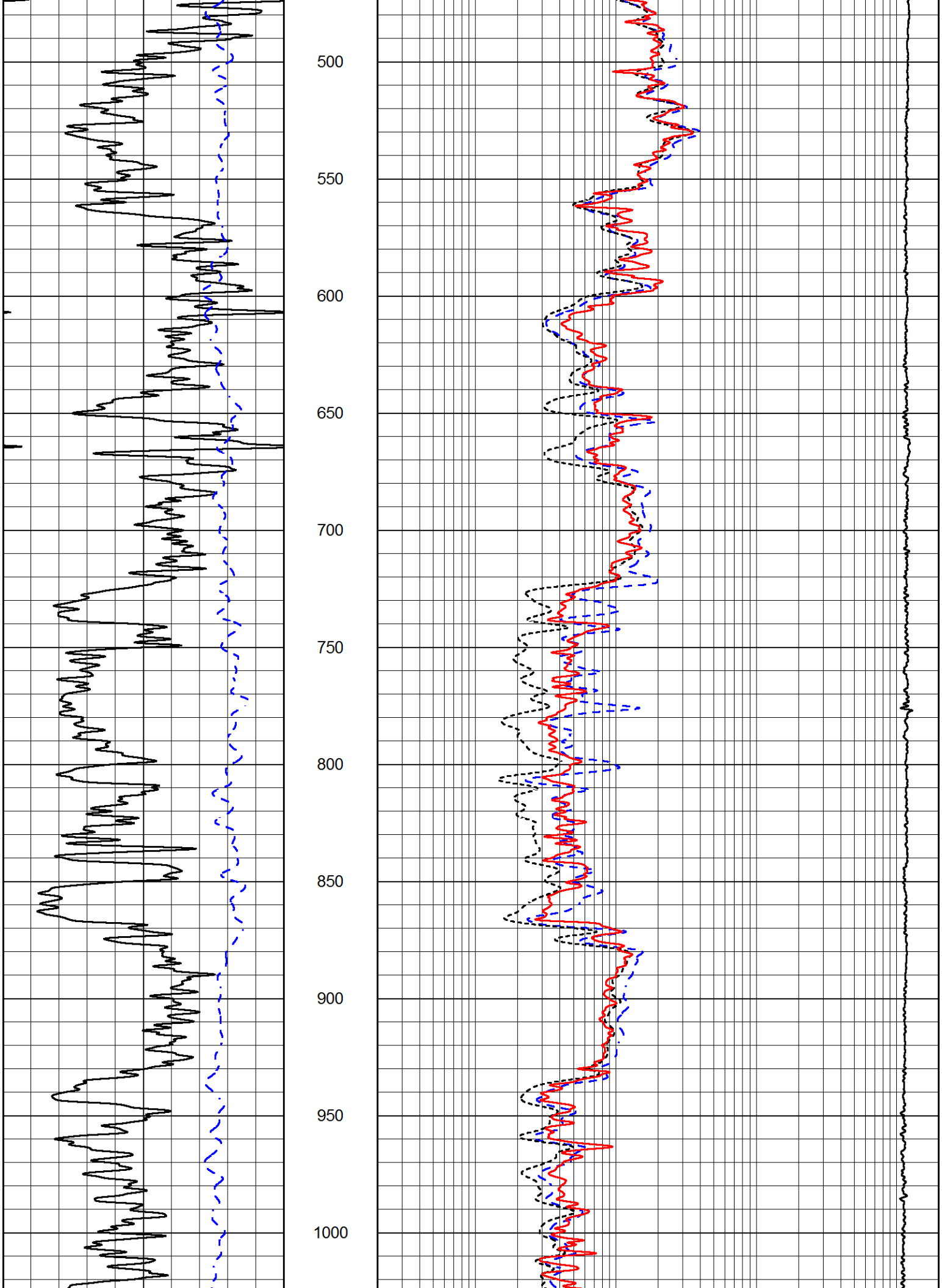
A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM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

MIDWEST WIRELINE

MAIN PASS

Database File	cholla_wrangler 1-23.db
Dataset Pathname	stkml/pass4.1
Presentation Format	_dil
Dataset Creation	Tue Mar 09 21:36:44 2021
Charted by	Depth in Feet scaled 1:600

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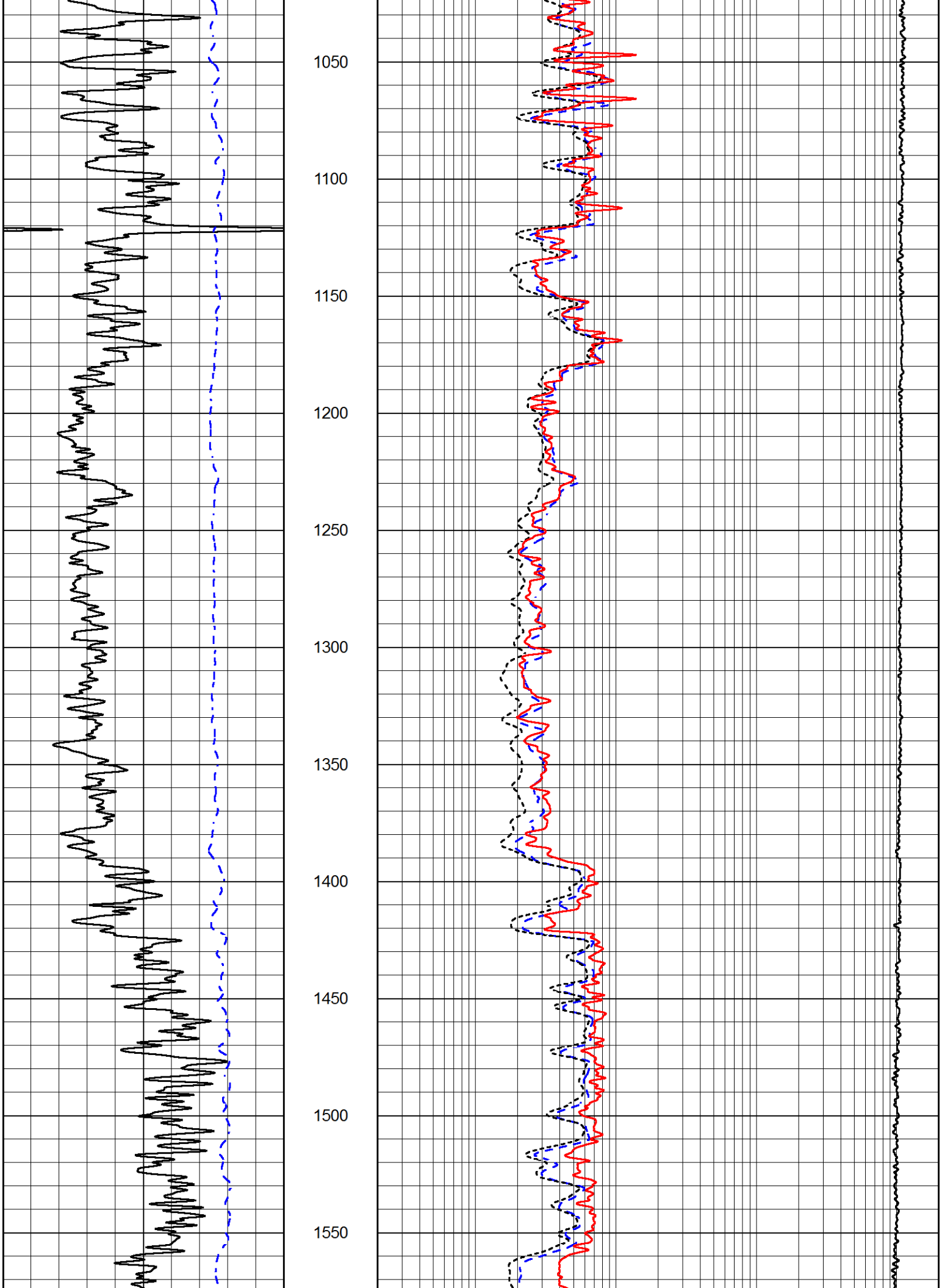
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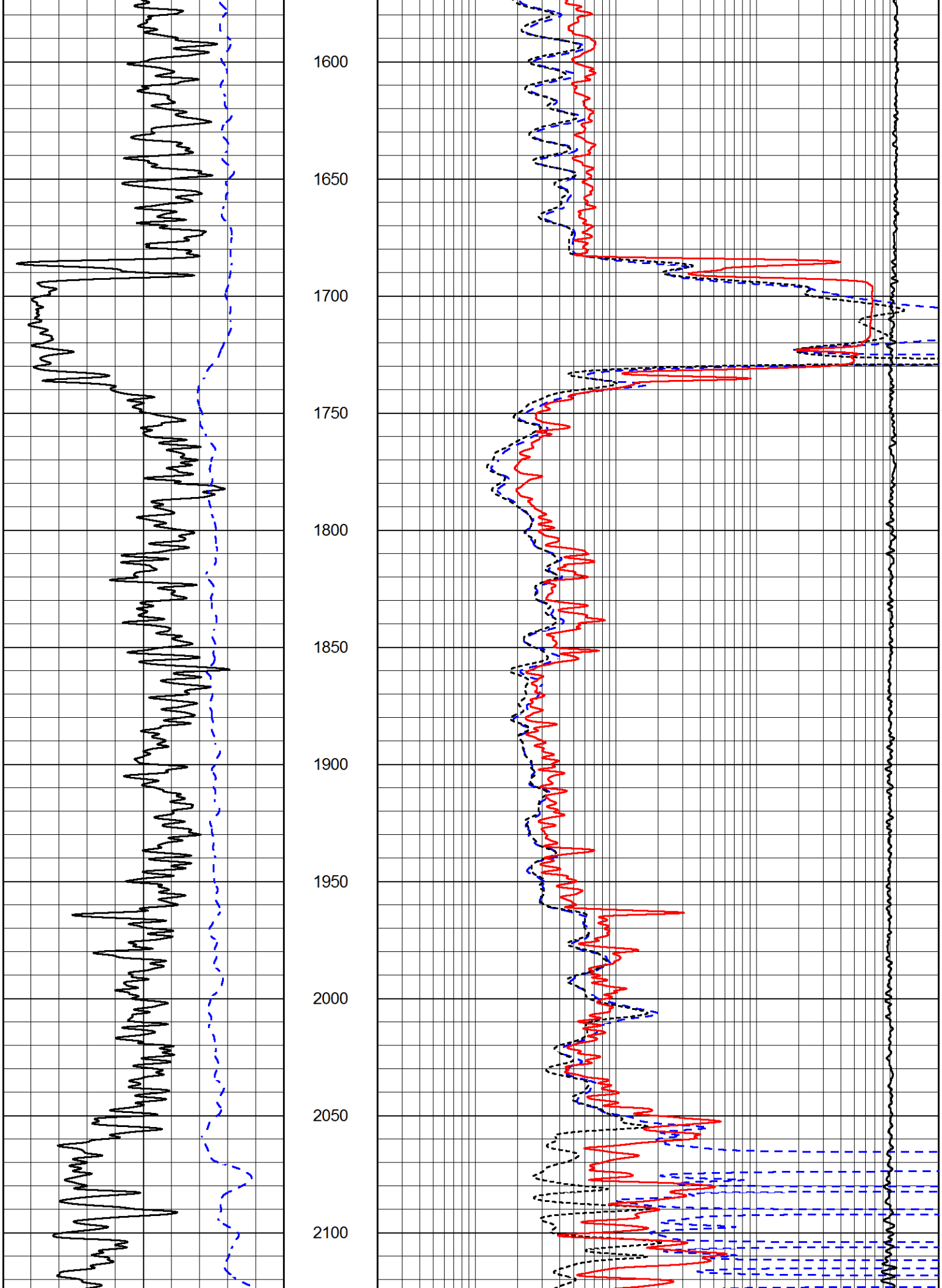
1550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2050
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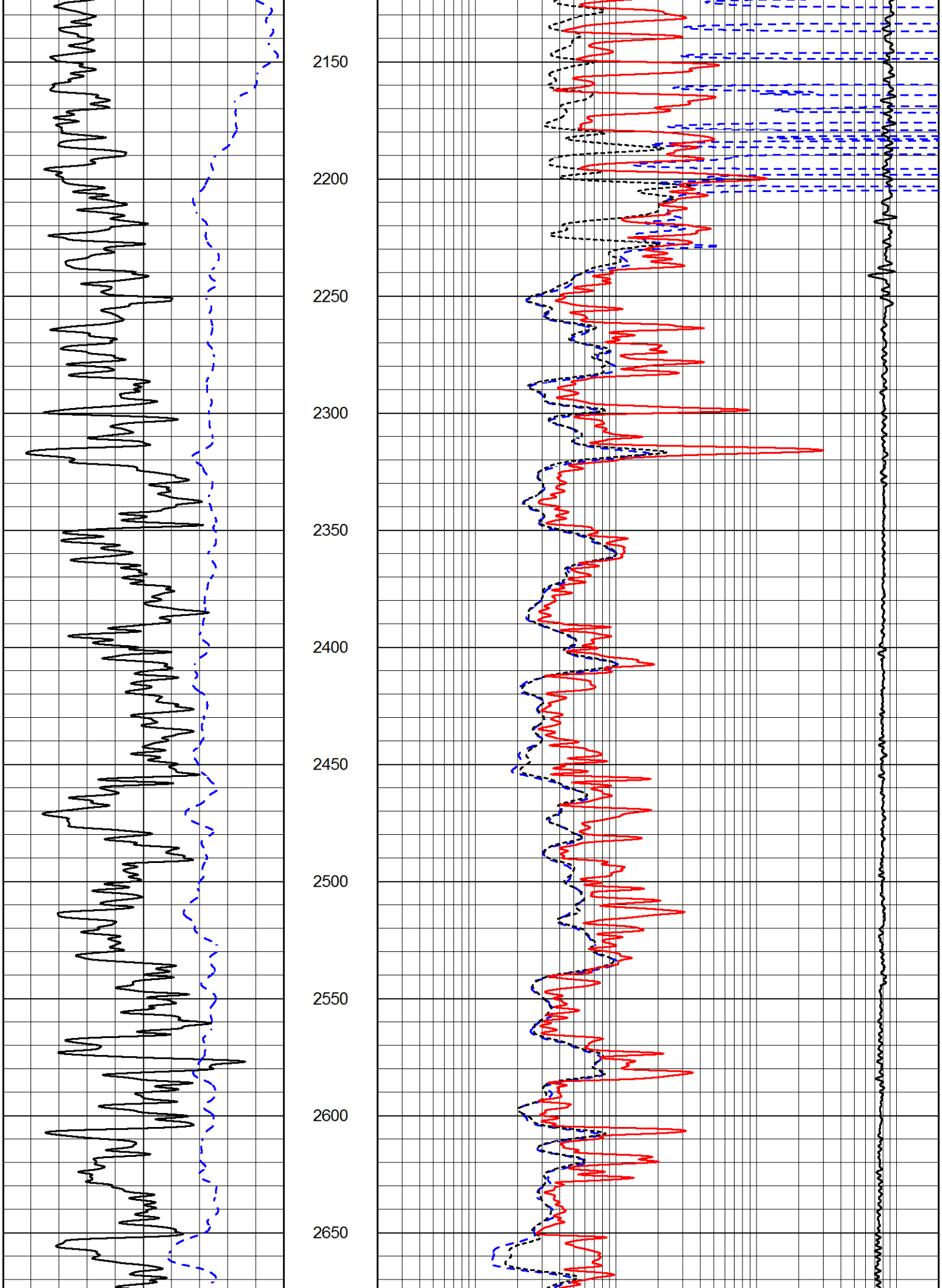
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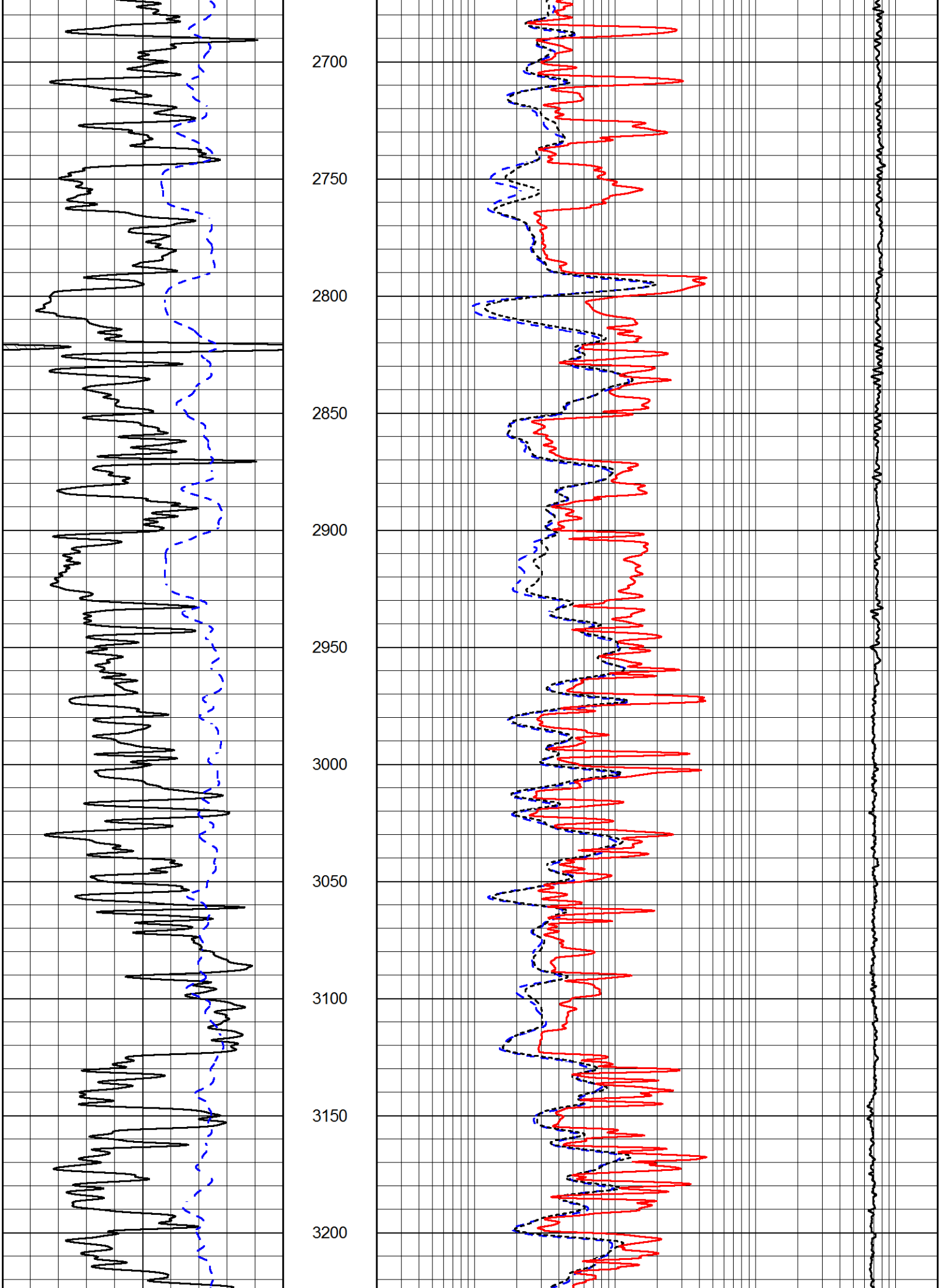
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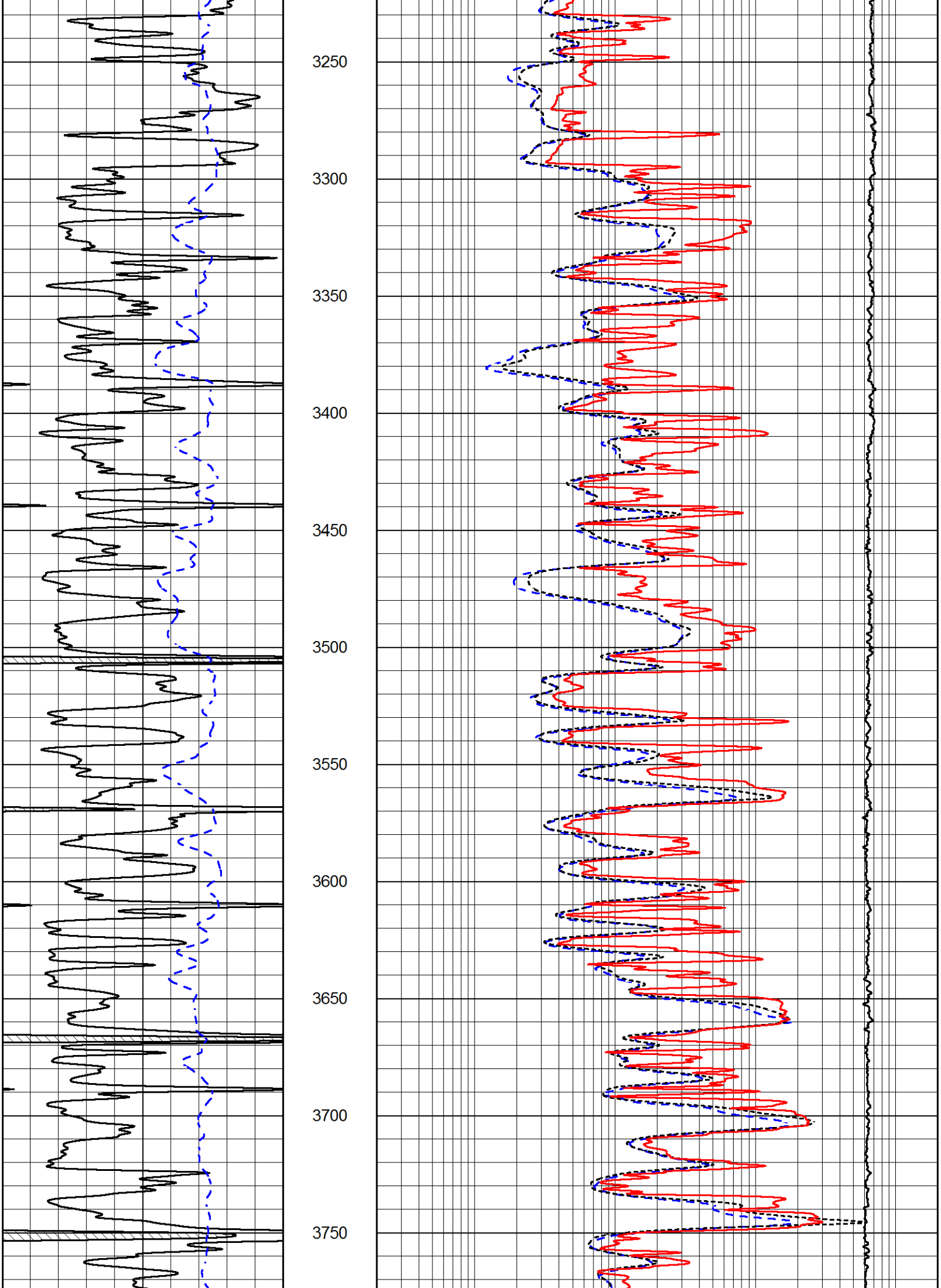
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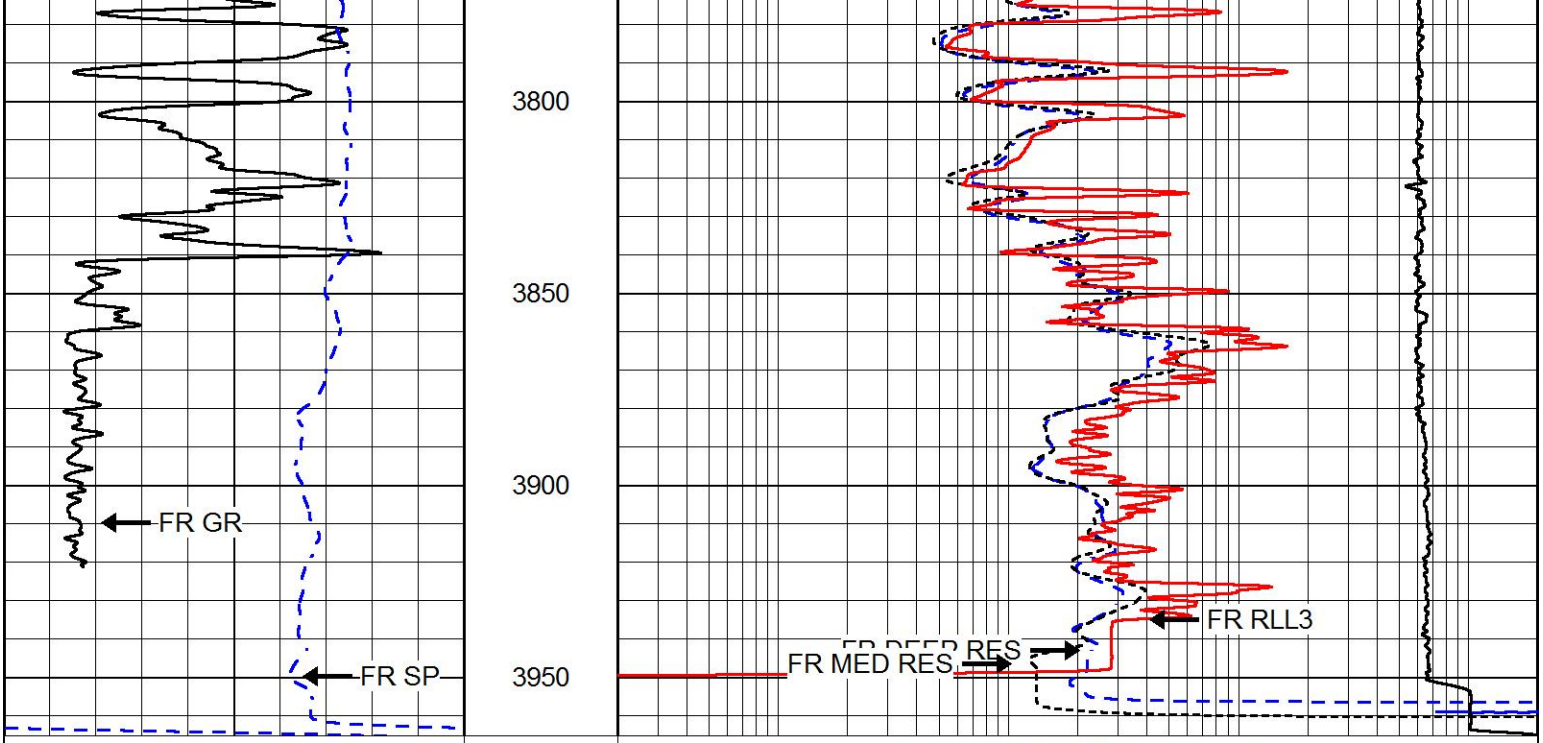

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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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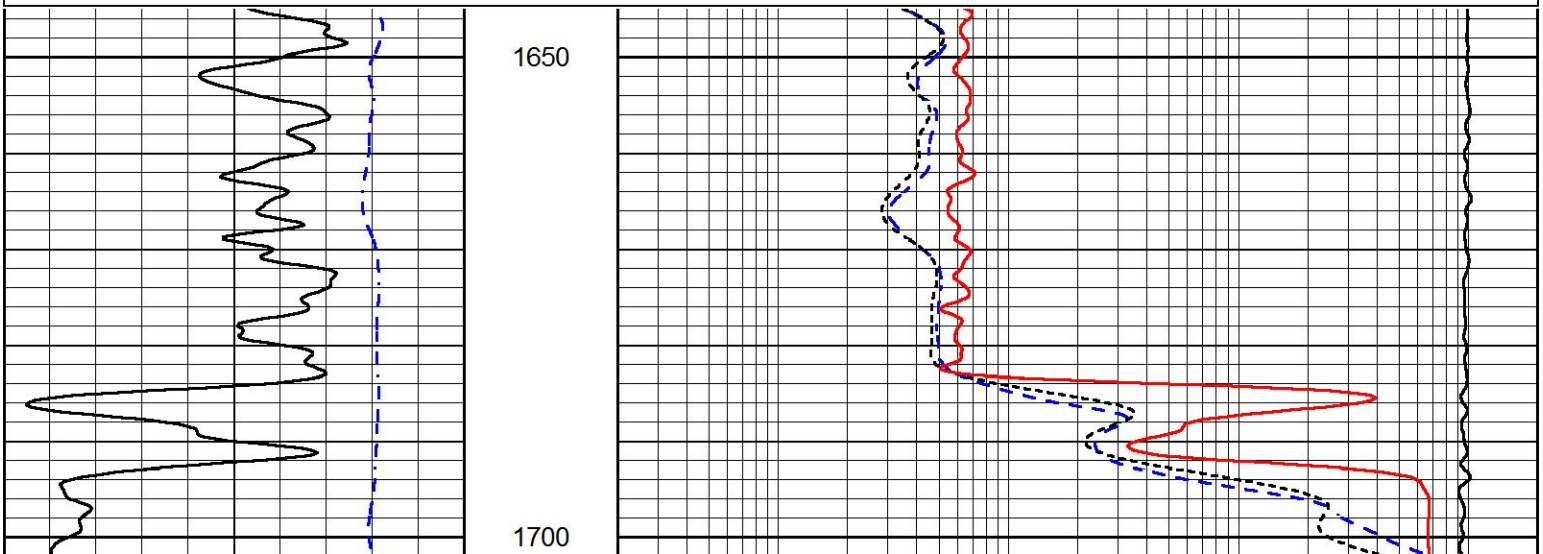
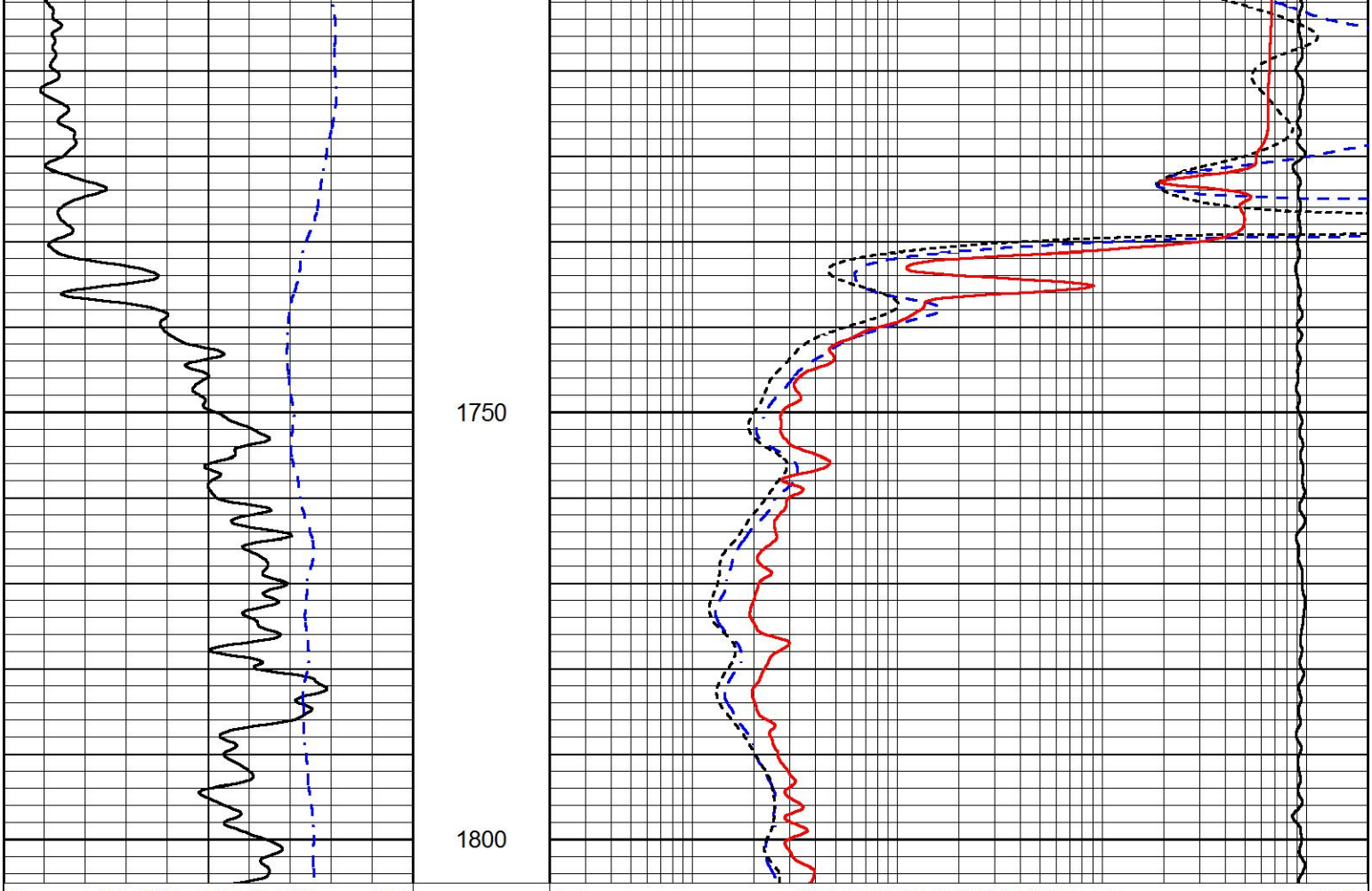
Database File	cholla_wrangler 1-23.db
Dataset Pathname	stkml/pass4.1
Presentation Format	_dil
Dataset Creation	Tue Mar 09 21:36:44 2021
Charted by	Depth in Feet scaled 1:240

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

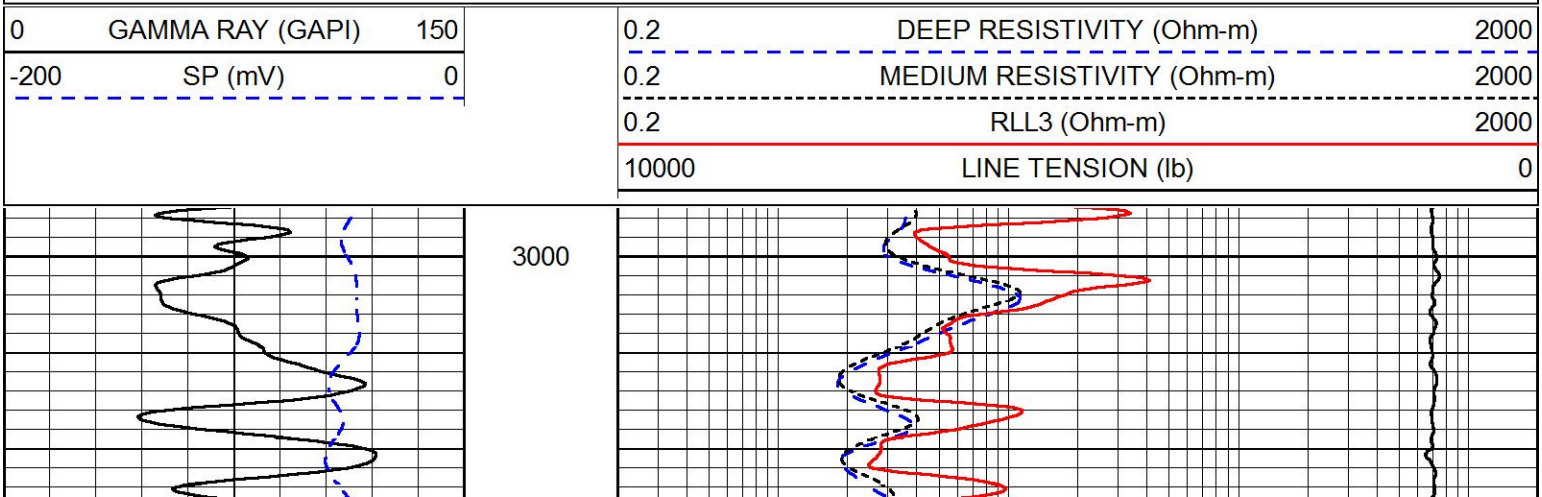


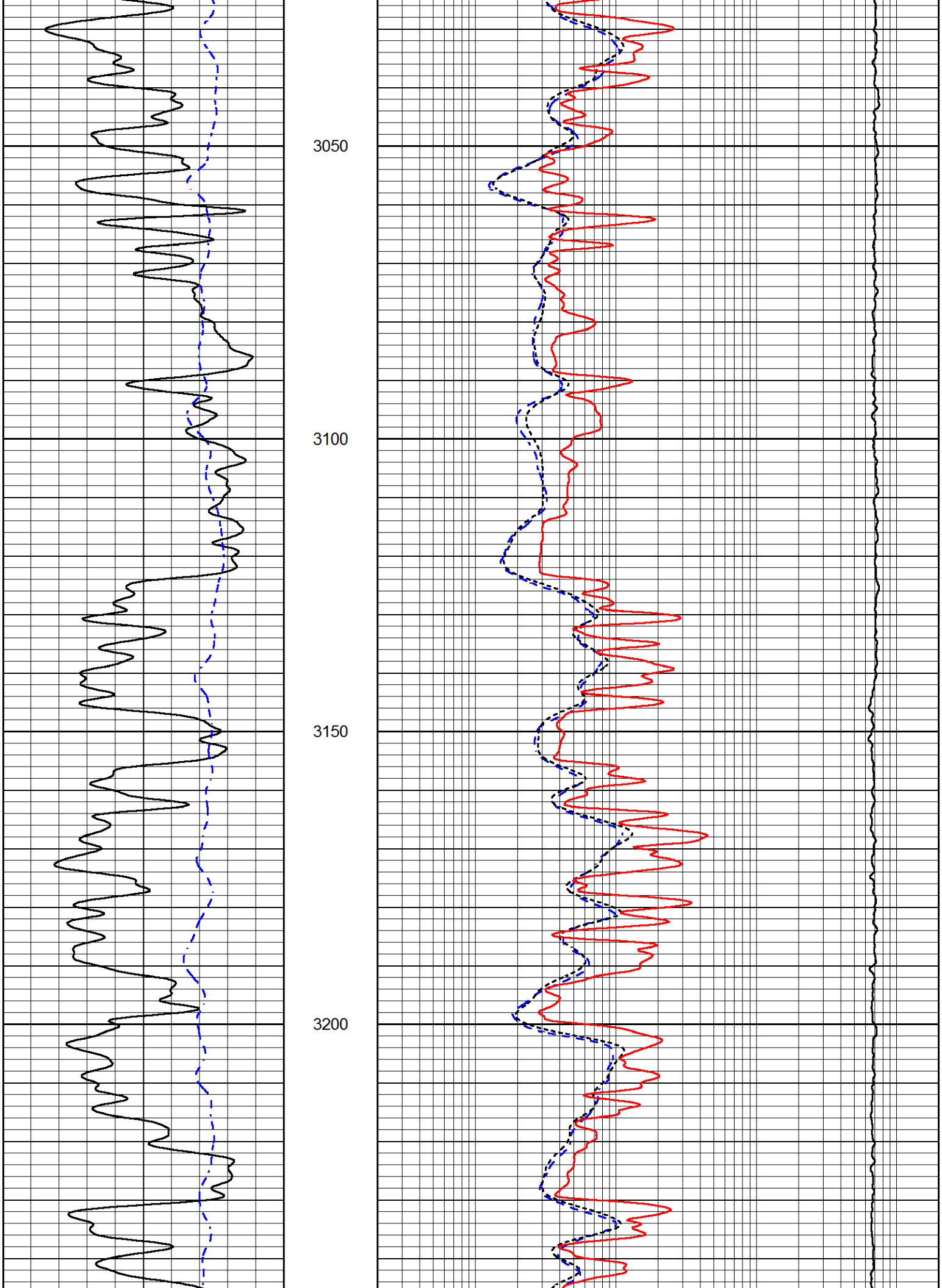


MAIN PASS

MIDWEST WIRELINE

Database File	cholla_wrangler 1-23.db
Dataset Pathname	stkml/pass3.1
Presentation Format	_dil
Dataset Creation	Tue Mar 09 21:15:48 2021
Charted by	Depth in Feet scaled 1:240

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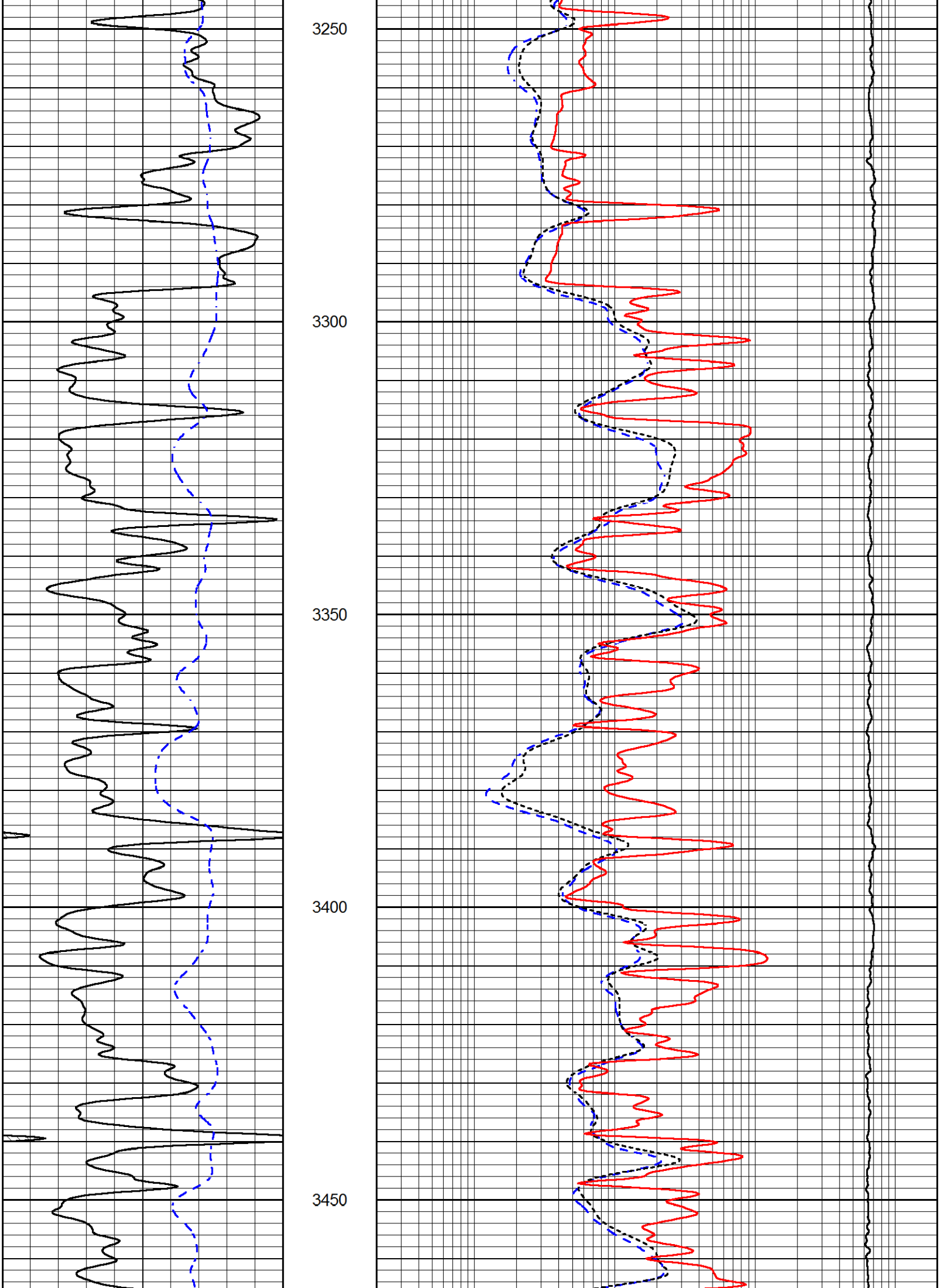
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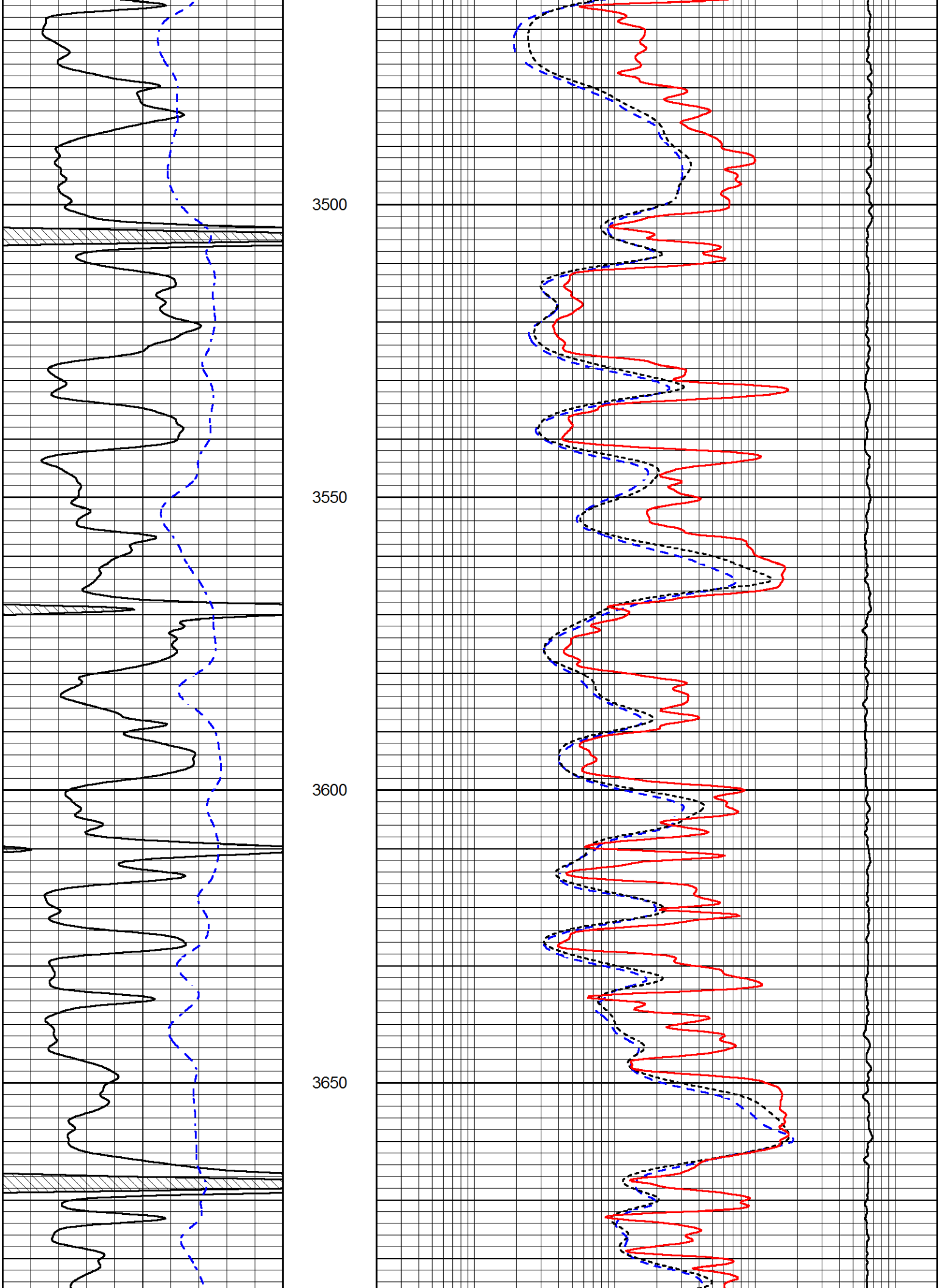
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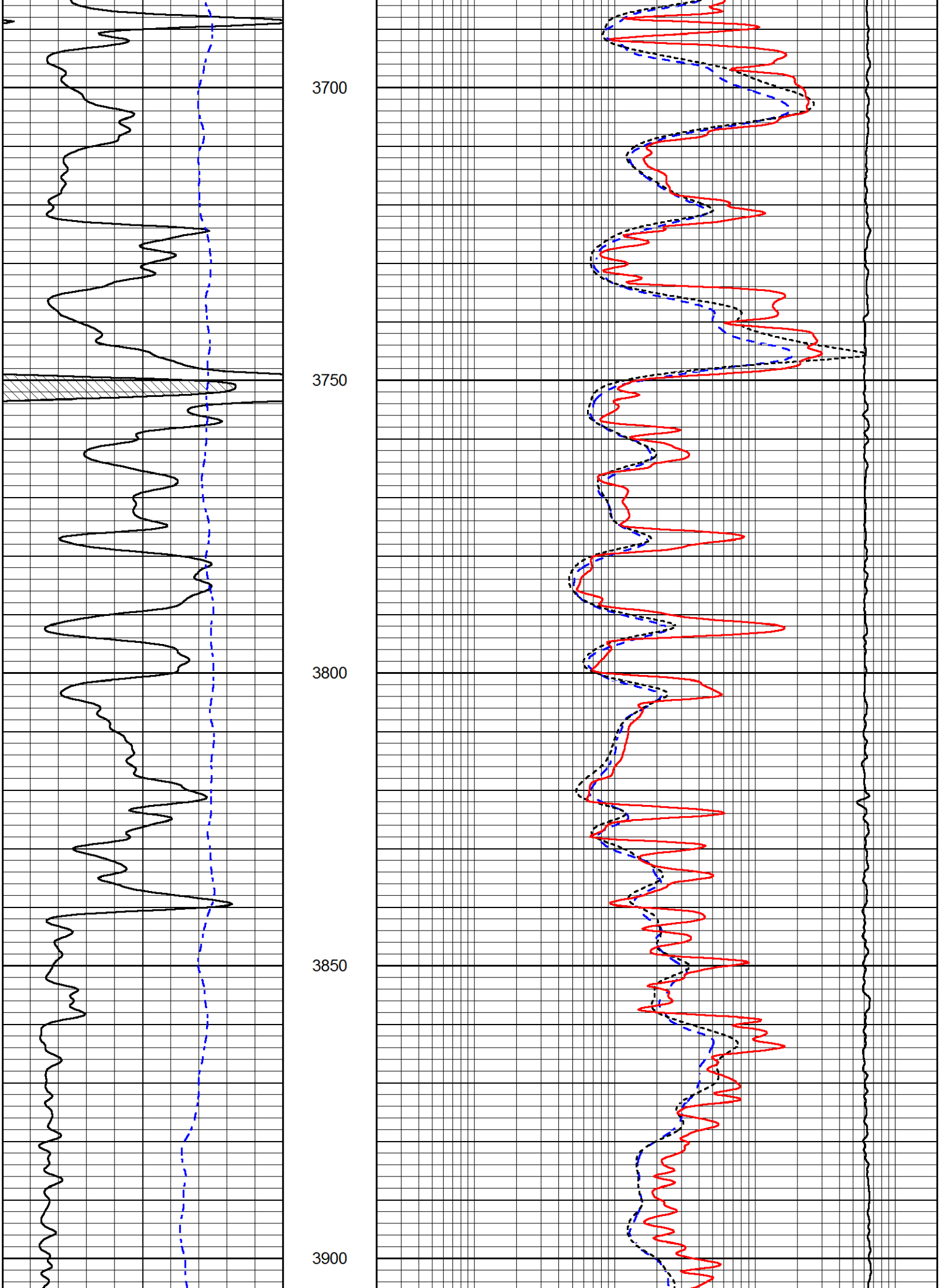
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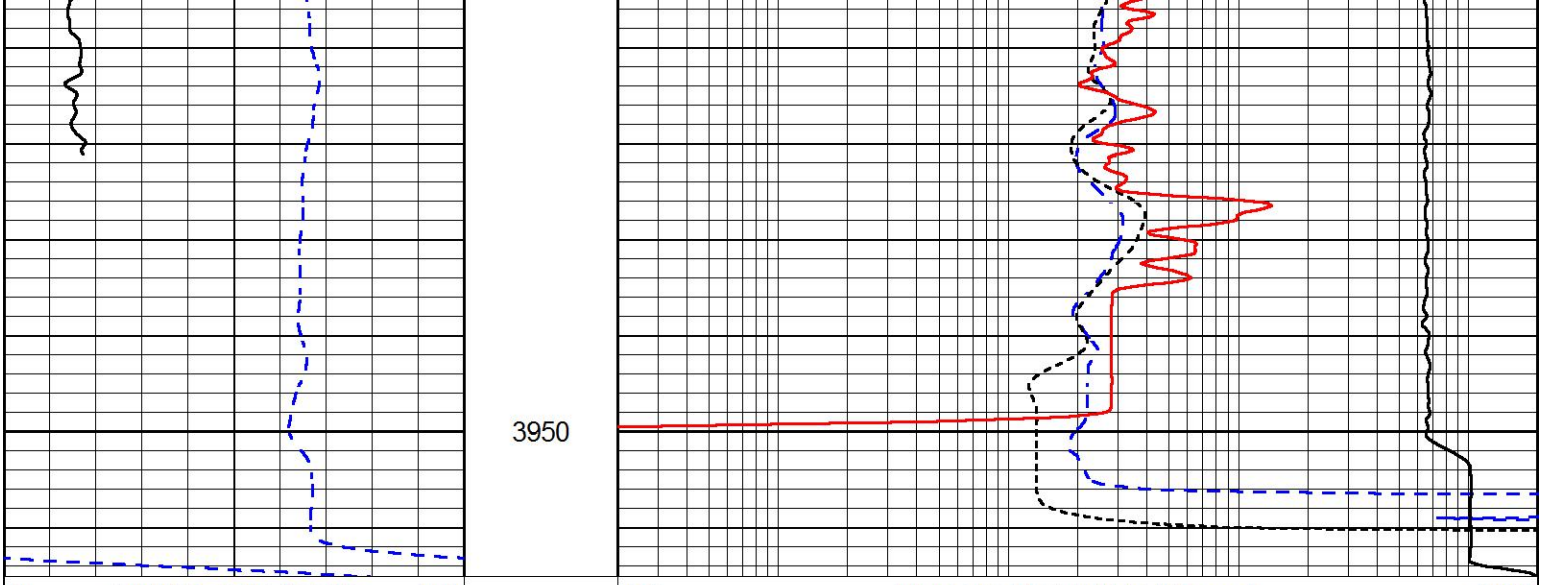


0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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

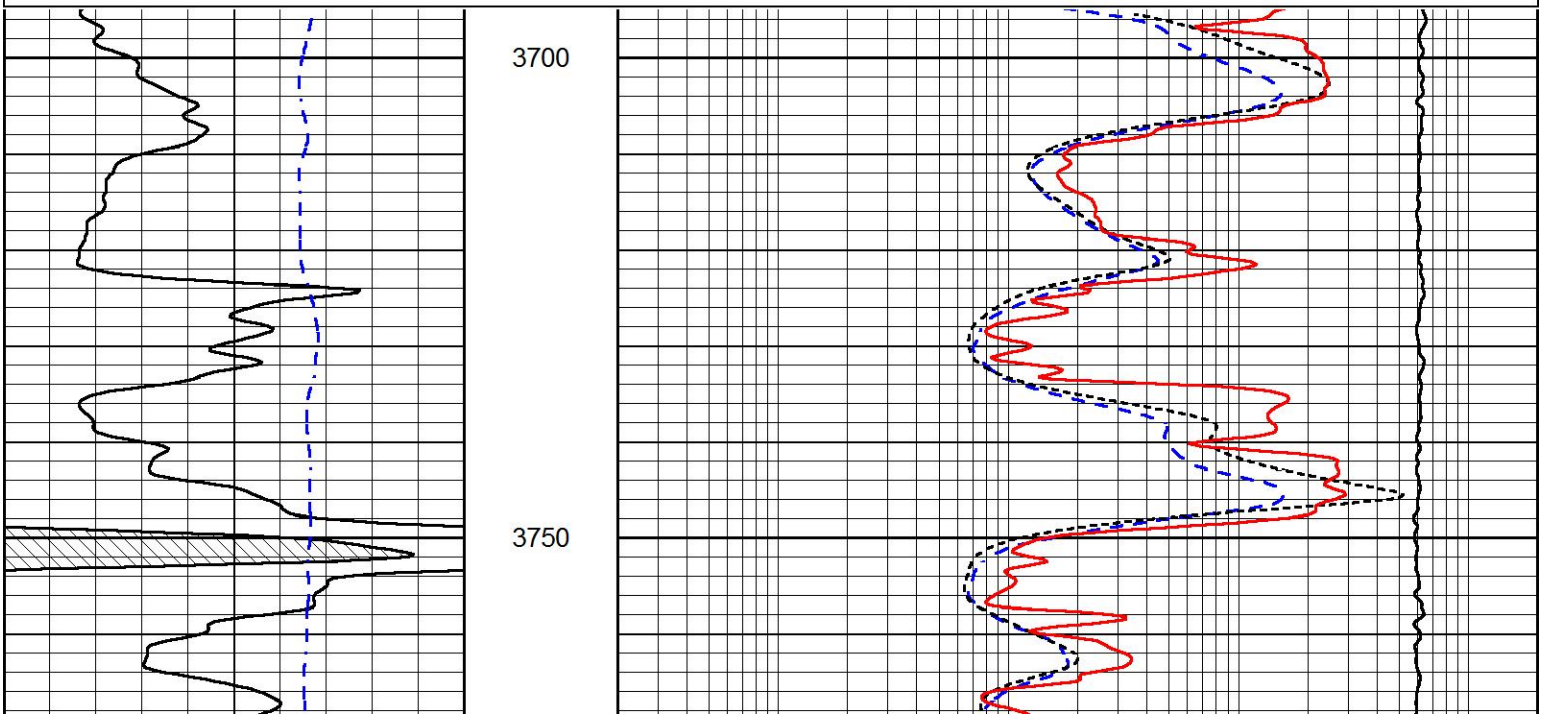
REPEAT SECTION

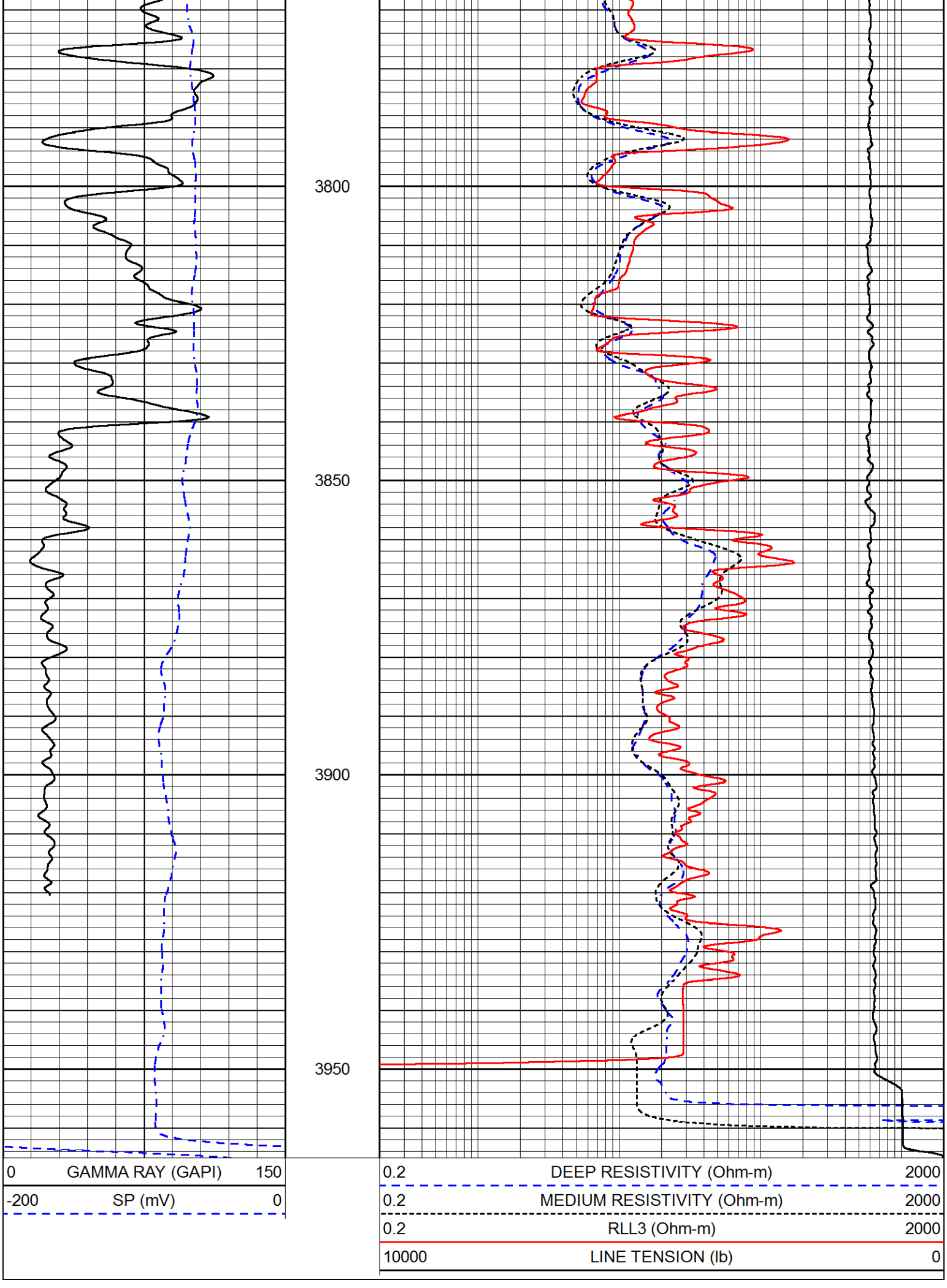
MIDWEST WIRELINE

Database File	cholla_wrangler 1-23.db
Dataset Pathname	stkml/pass2.1
Presentation Format	_dil
Dataset Creation	Tue Mar 09 21:19:05 2021
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




3800
3850
3900
3950
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 cholla_wrangler 1-23.db
Dataset Pathname stkml/pass3.1
Dataset Creation Tue Mar 09 21:15:48 2021

Dual Induction Calibration Report

Serial-Model: 952-828-PSI HIGH TEMP
Calibration Performed: Wed Mar 03 05:24:49 2021

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.455	-33.000
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.325	-30.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
Performed: Wed Mar 03 05:24:59 2021

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	12000.0000	-0.3000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	13000.0000	0.3000
Caliper	1.0033	1.0841	5.0000	16.5000	in	142.3500	-138.6000

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Wed Mar 03 05:25:05 2021

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.675	g/cc	1141.85	3762.09	cps

Spine Angle = 74.89

Density/Spine Ratio = 0.529

	Size		Reading
Small Ring	4.50	in	1.02
Large Ring	14.50	in	1.23

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: WED MAR 3 7:30:30 2021

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:	233-M&W	
Tool Model:	M&W	
Calibration Performed:	Wed Mar 03 05:25:33 2021	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps