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Pioneer Energy Services

DUAL INDUCTION LOG

Company LARSON ENGINEERING, INC.
Well GLAVES #2
Field ENICE NORTHEAST
County NESS State KANSAS
Location: API # : 15-135-26001-00-00
2310' FSL & 894' FWL
SEC 11 TWP 16S RGE 26W

Other Services
CNL/CDL
MEL

Elevation
K.B. 2620'
D.F. N/A
G.L. 2610'

Permanent Datum GROUND LEVEL Elevation 2610'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Date	5/7/2018			
Run Number	ONE			
Depth Driller	4624'			
Depth Logger	4629'			
Bottom Logged Interval	4628'			
Top Log Interval	200'			
Casing Driller	8.625" @ 263'			
Casing Logger	263'			
Bit Size	7.845"			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	2800			
Density / Viscosity	9.0 63			
pH / Fluid Loss	9.5 8.3			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.75 @ 65			
Rmf @ Meas. Temp	0.56 @ 65			
Rmc @ Meas. Temp	1.01 @ 65			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	0.40 @ 122			
Operating Rig Time	3 HOURS			
Max Rec. Temp. F	122			
Equipment Number	91			
Location	HAYS			
Recorded By	IAN MABB			
Witnessed By	VERN SCHRAG			

<<< Fold Here >>>

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

UTICA, KS.
FROM INTERSECTION OF HWY 4 & D ROAD, NORTH 2 1/2 MILES, EAST INTO

Log Measured From: KELLY BUSHING 10 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: VERN SCHRAG
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

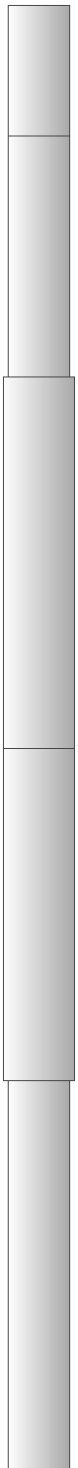
DatabaseC:\ProgramData\Warrior\Data\larson_glaves_2.db
Dataset field/well/stackmel/pass3.1/_vars_

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-45	0

SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	0	0	5.5	0	0	100	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (89)	3.00	3.50	50.00
GR	40.58					
			CNT-M&W (207-MW)	5.50	3.50	100.00
CNLSC	37.48					
CNSSC	36.73					
			CDL-M&W (227-771)	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 (933 (HT))	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					

Dataset:	larson_glaves_2.db: field/well/stackmel/pass3.1
Total length:	43.08 ft
Total weight:	685.00 lb
O.D.:	4.00 in

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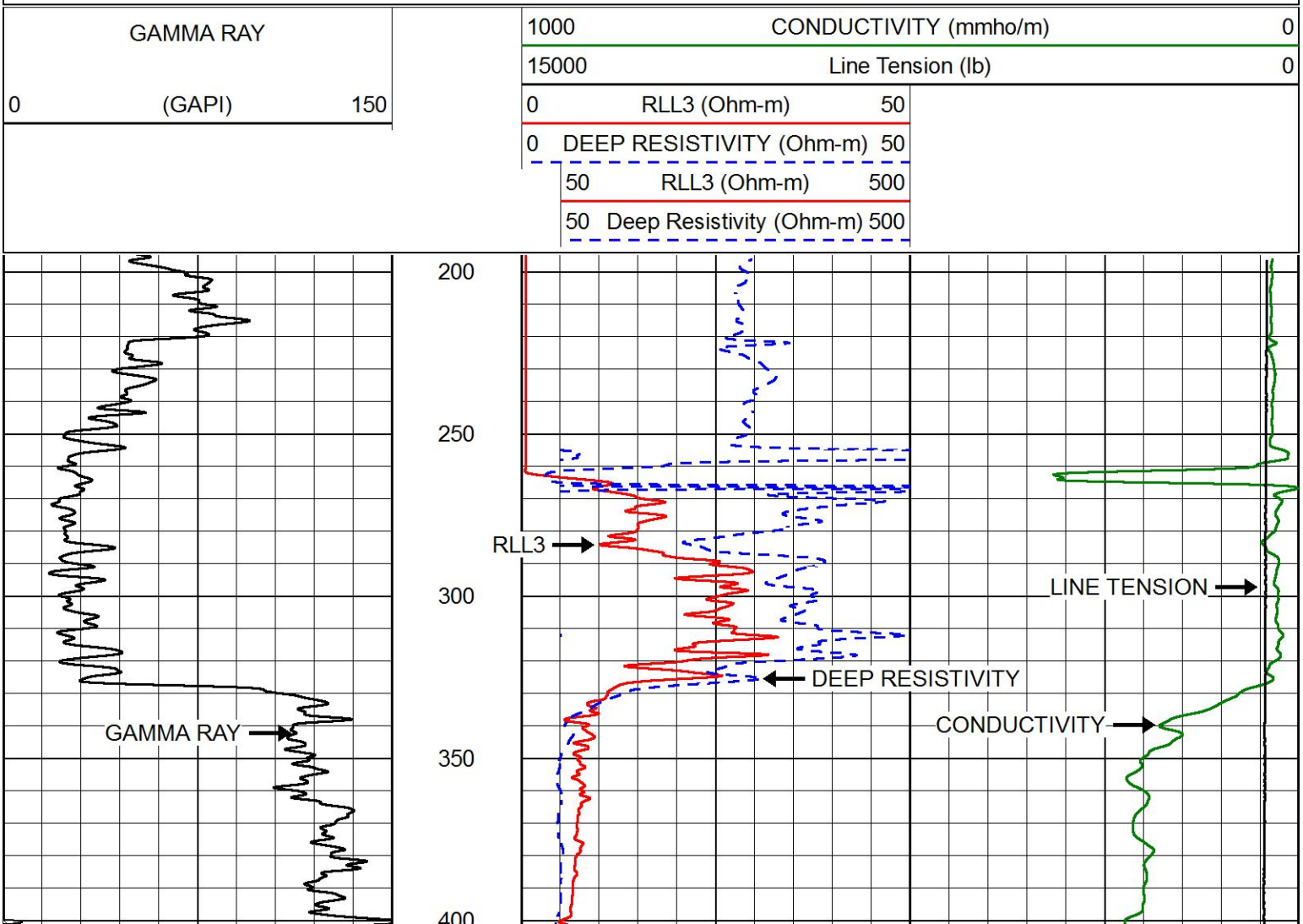
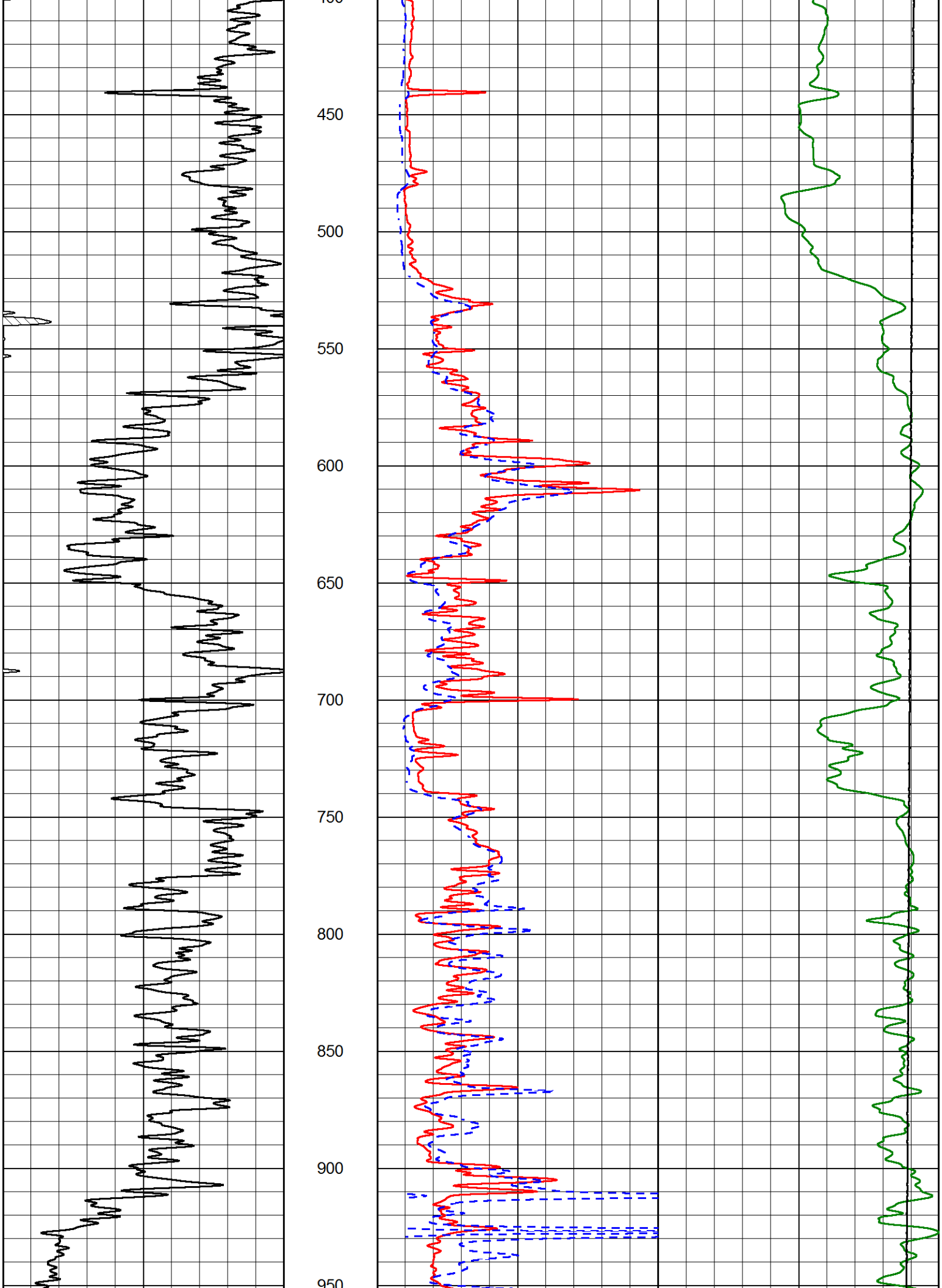
MAIN PASS

Database File	larson_glaves_2.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	dil2in
Dataset Creation	Mon May 07 13:51:17 2018
Charted by	Depth in Feet scaled 1:600

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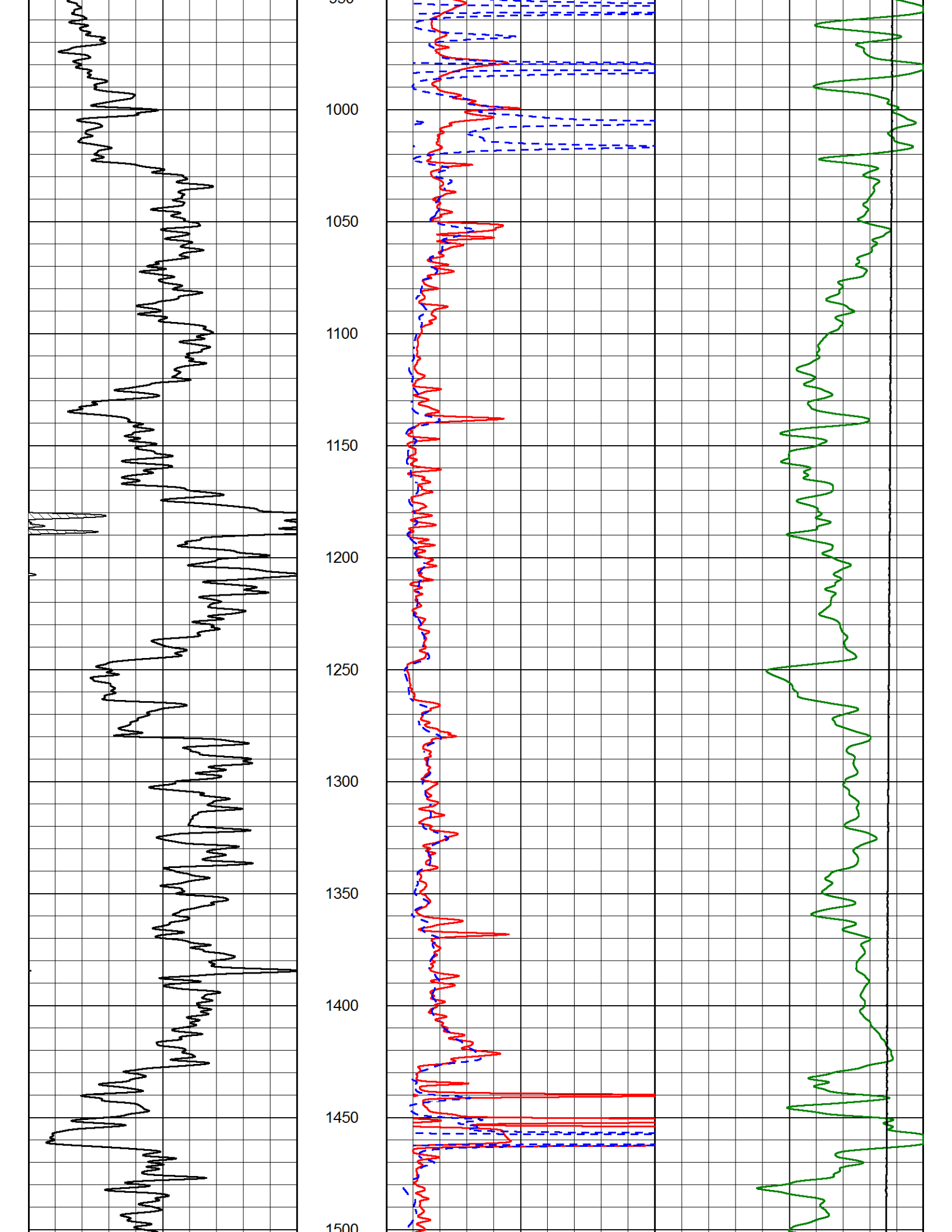
500
550
600
650
700
750
800
850
900
950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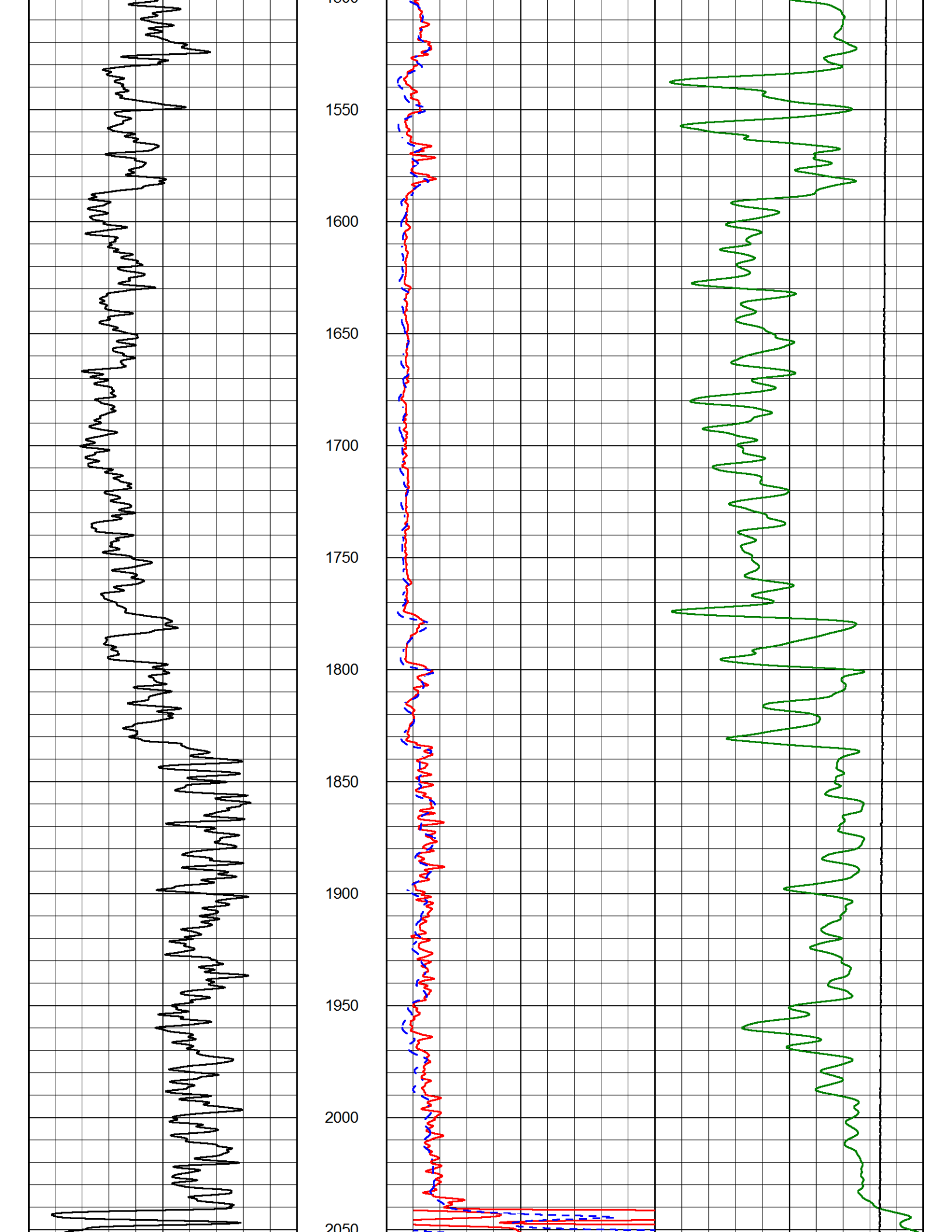
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500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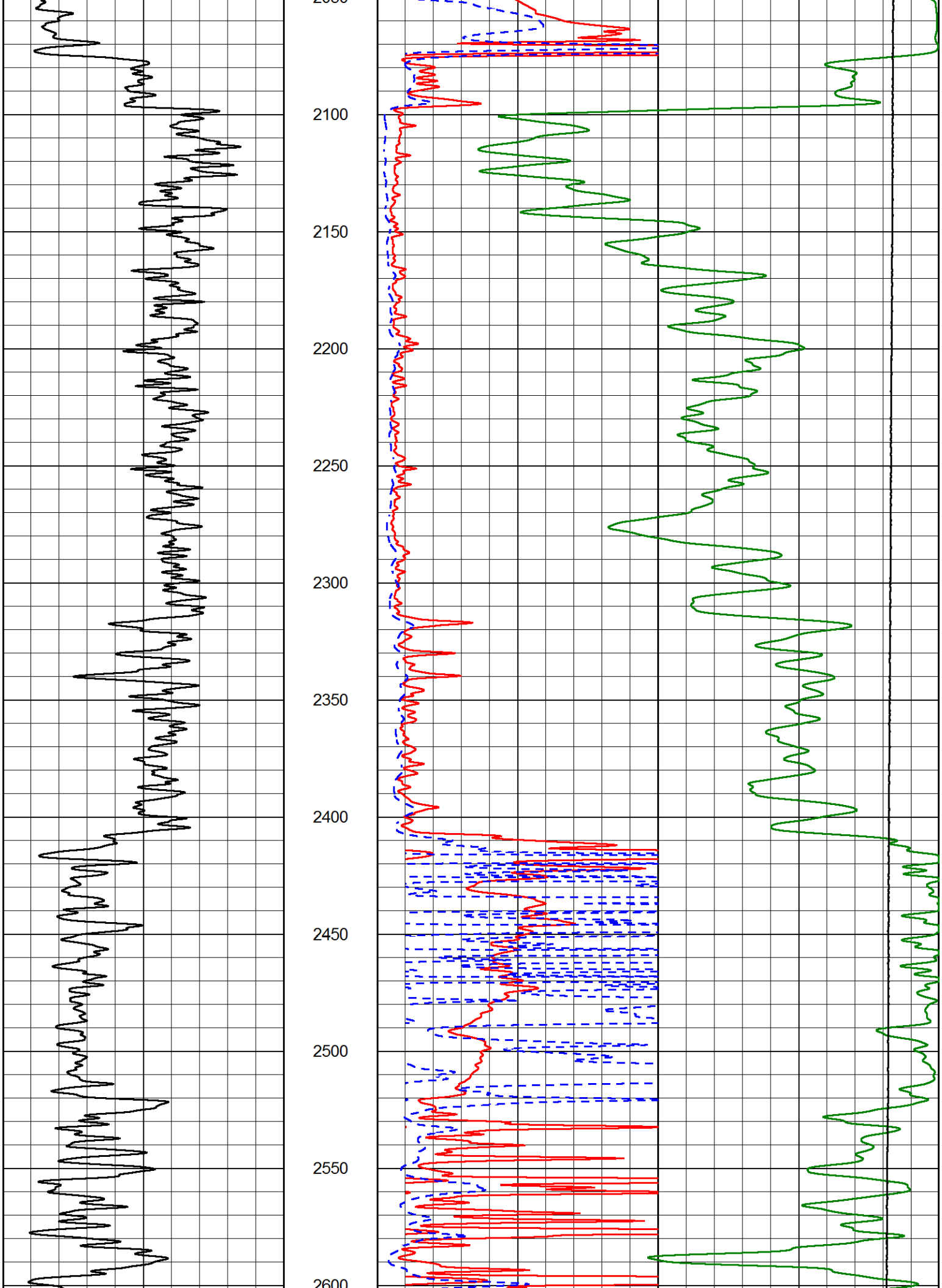
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050


2100
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2300
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2400
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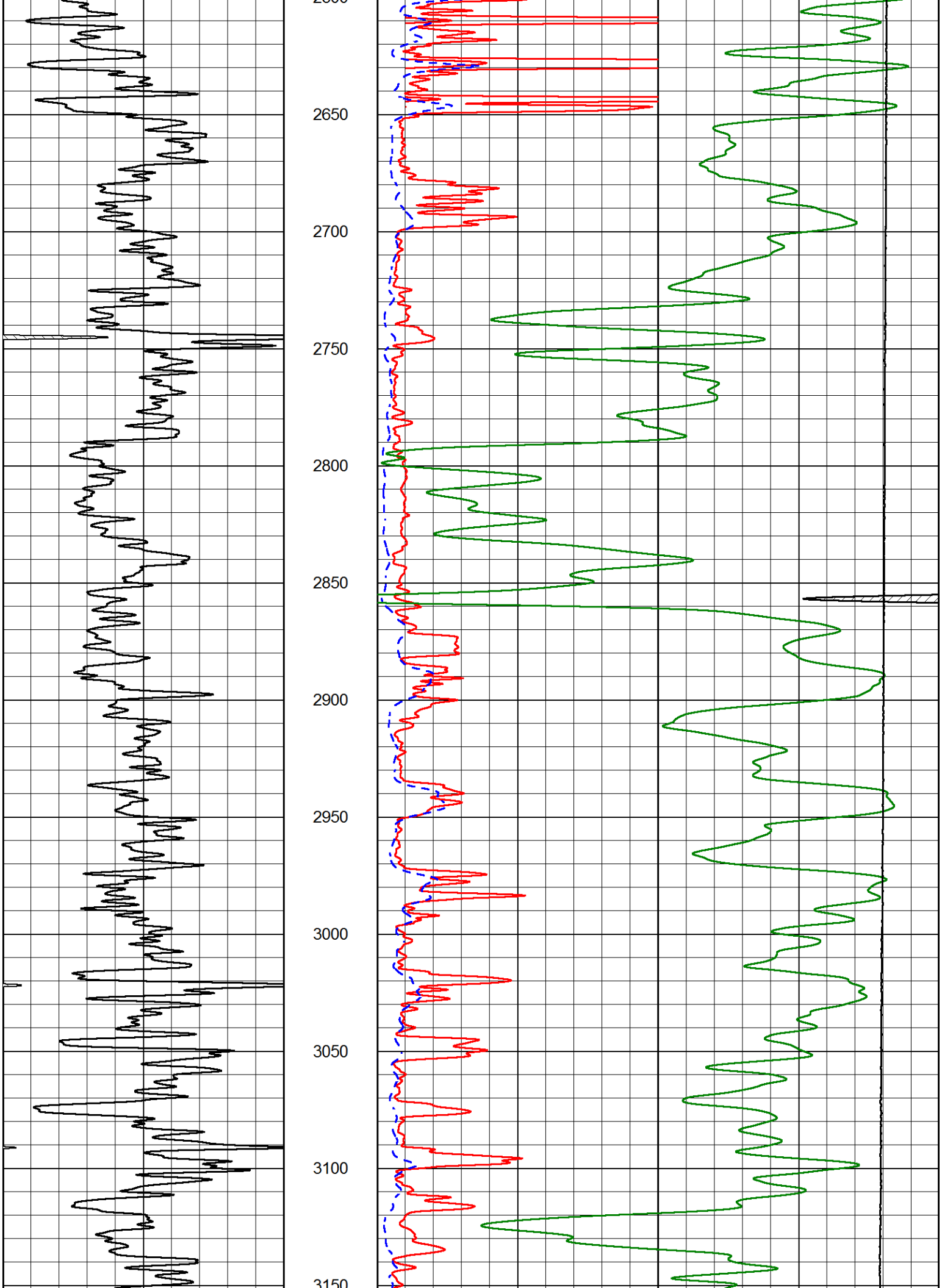
2500
2550
2600


2650
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2750
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2850
2900
2950
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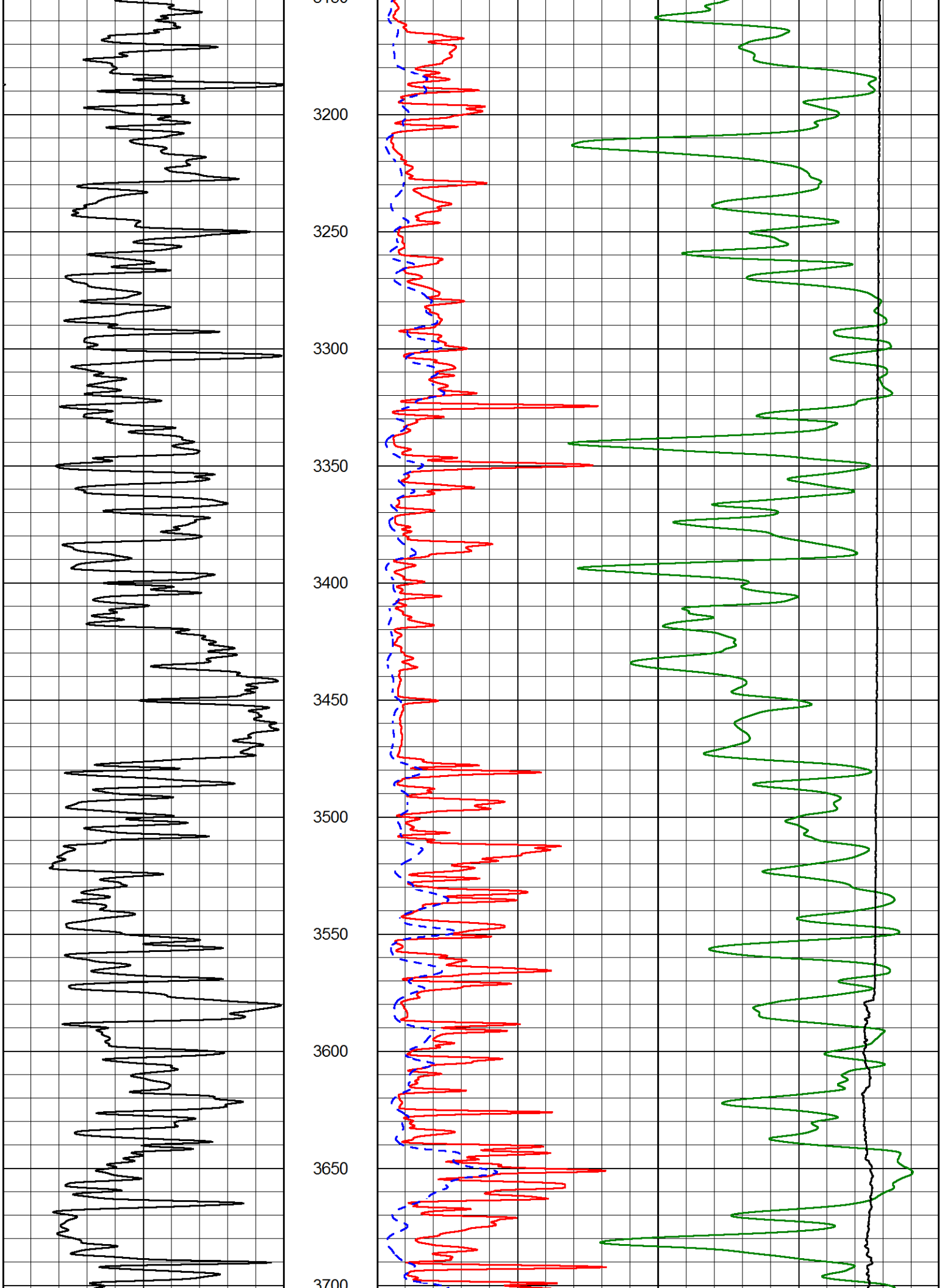
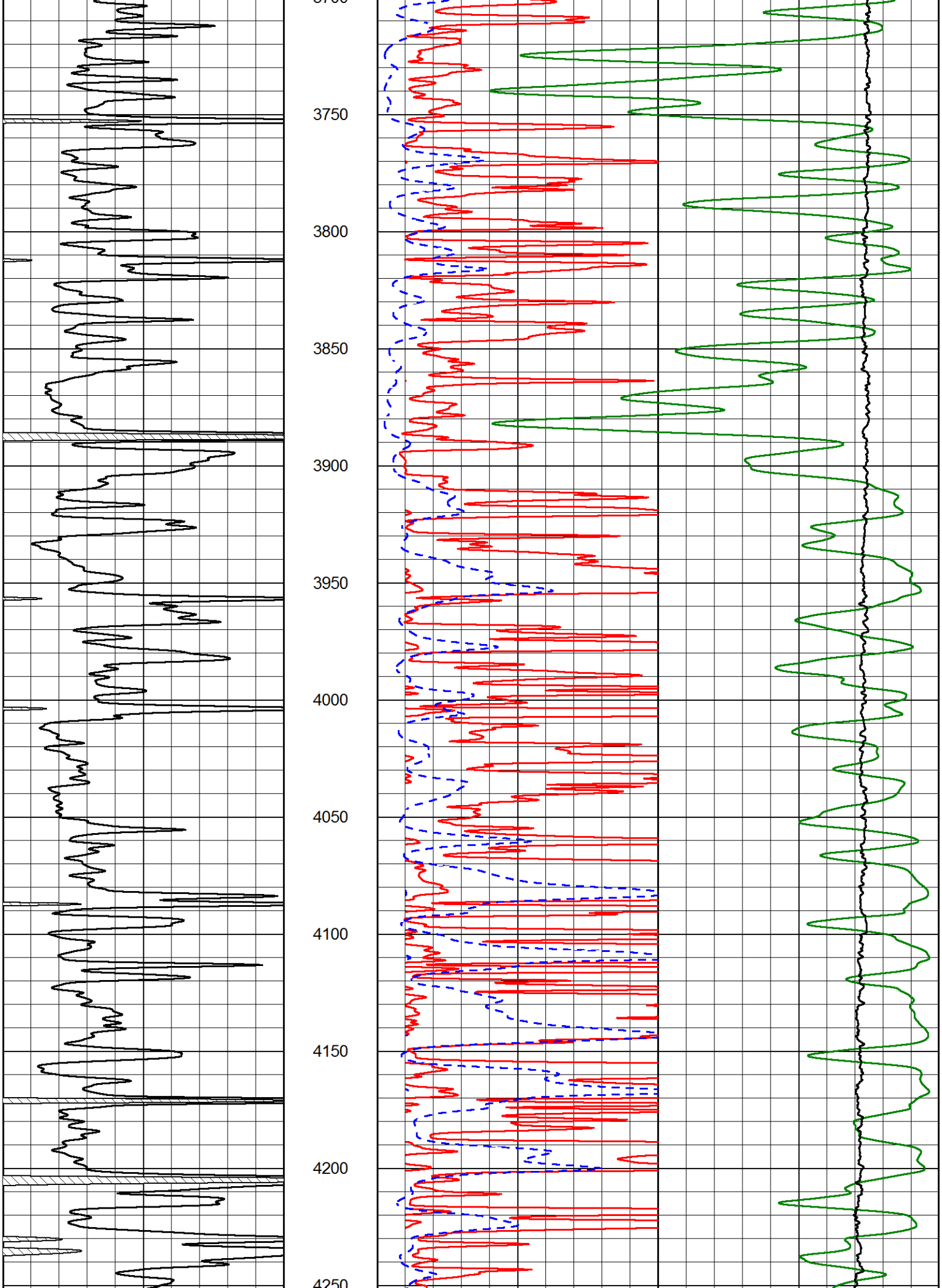
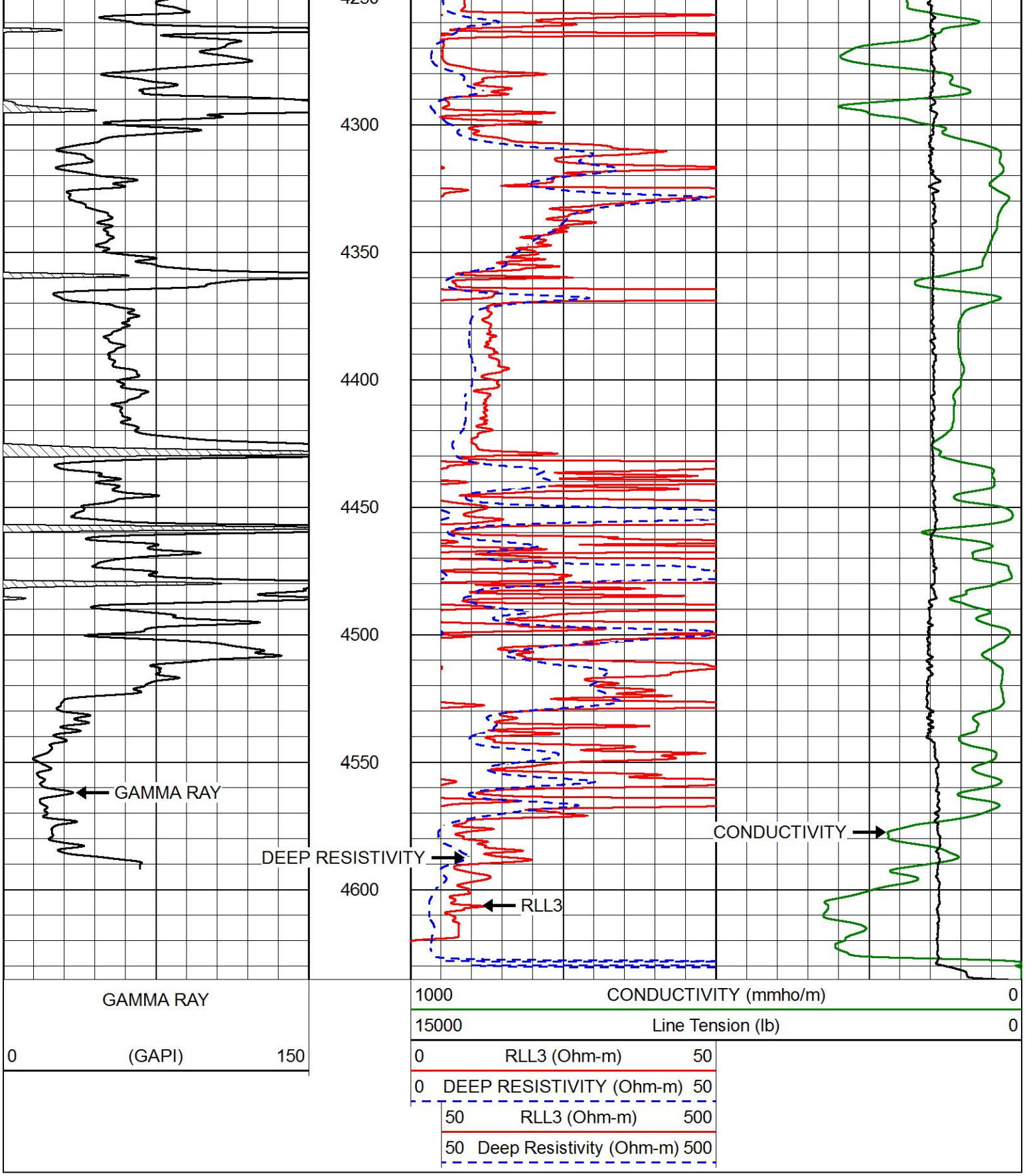
3050
3100
3150


3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700


3750
3800
3850
3900
3950
4000
4050
4100
4150
4200
4250



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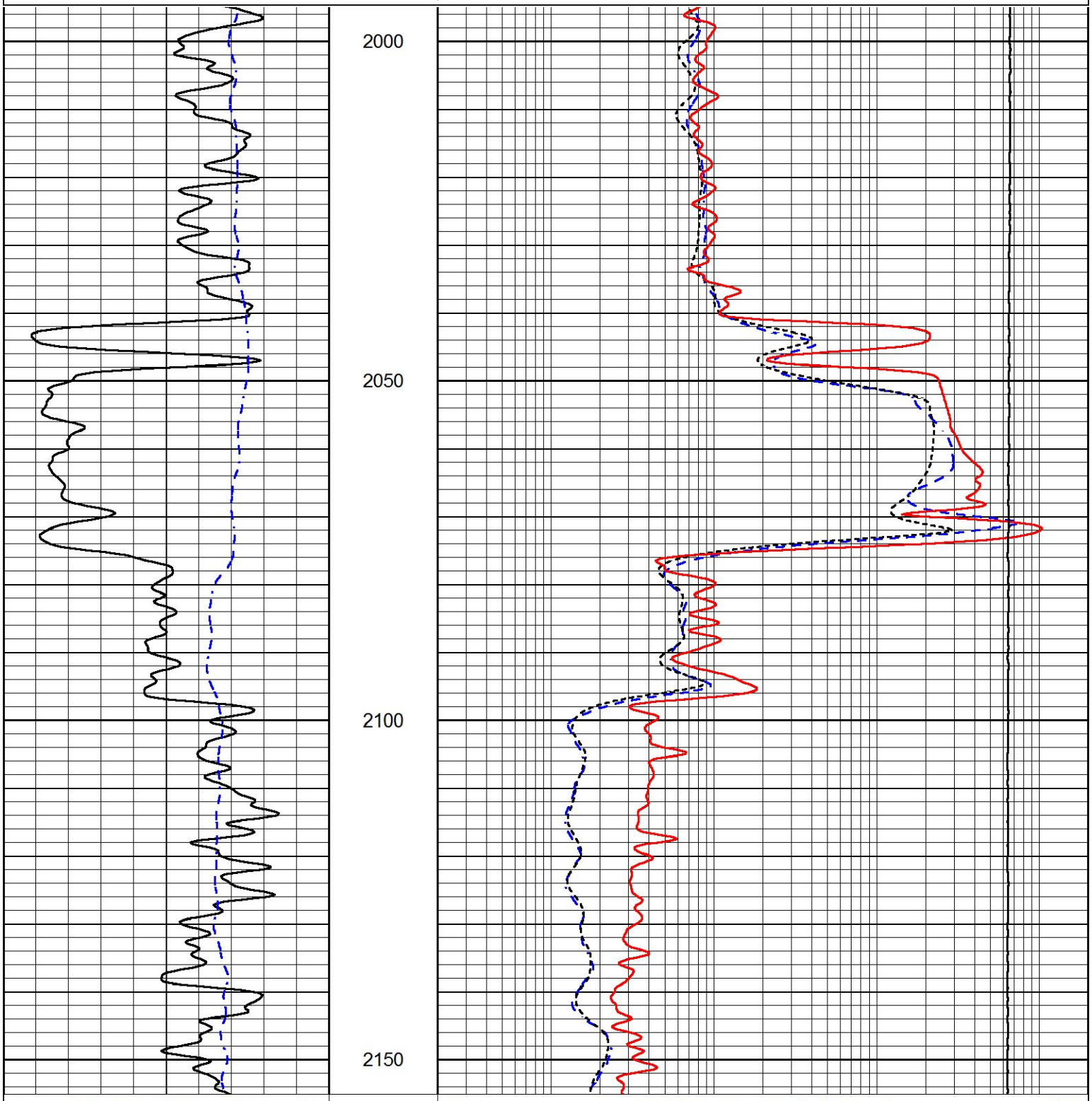
MAIN PASS

Database File	larson_glaves_2.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	dil

Dataset Creation Mon May 07 13:51:17 2018
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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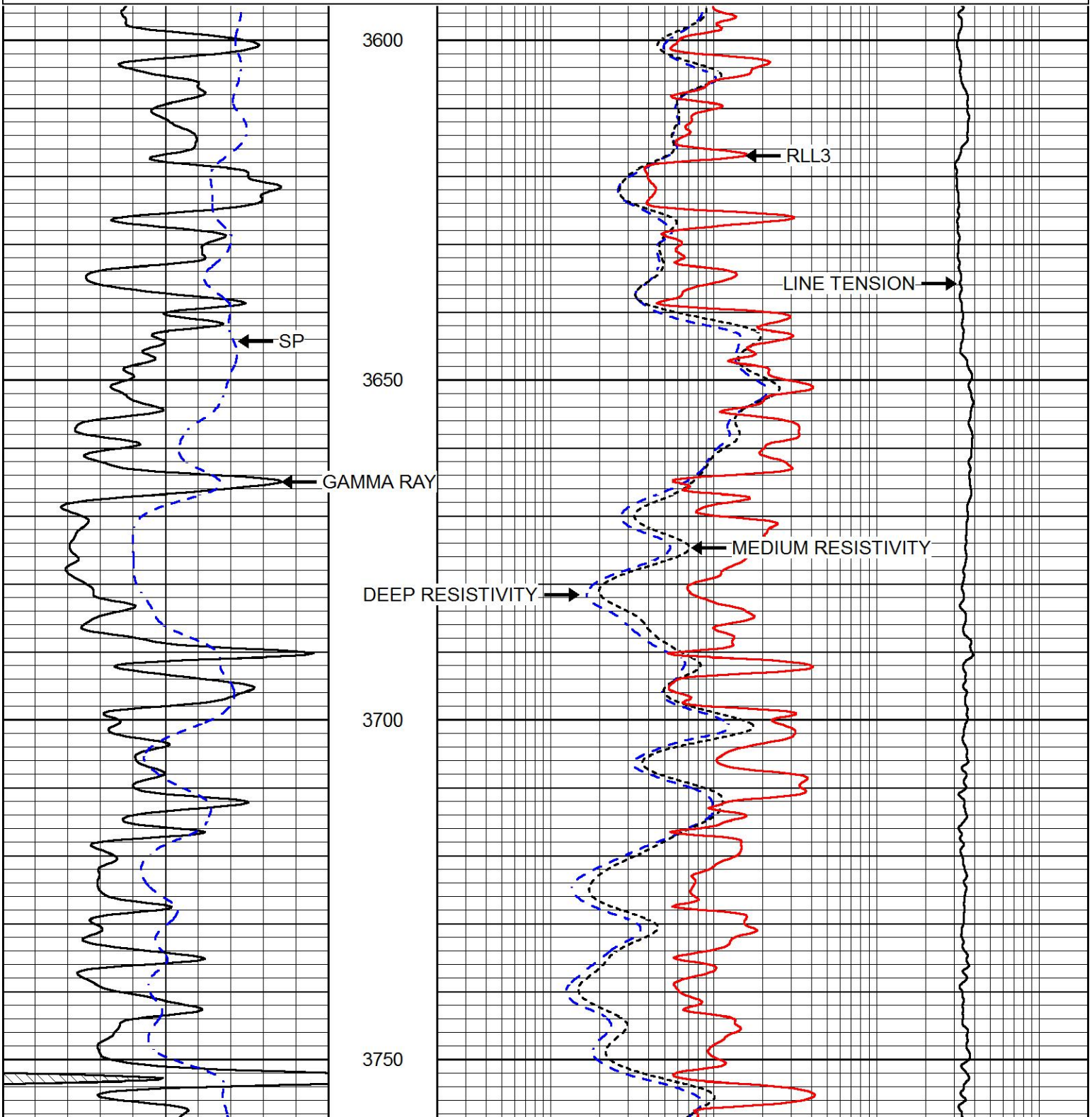
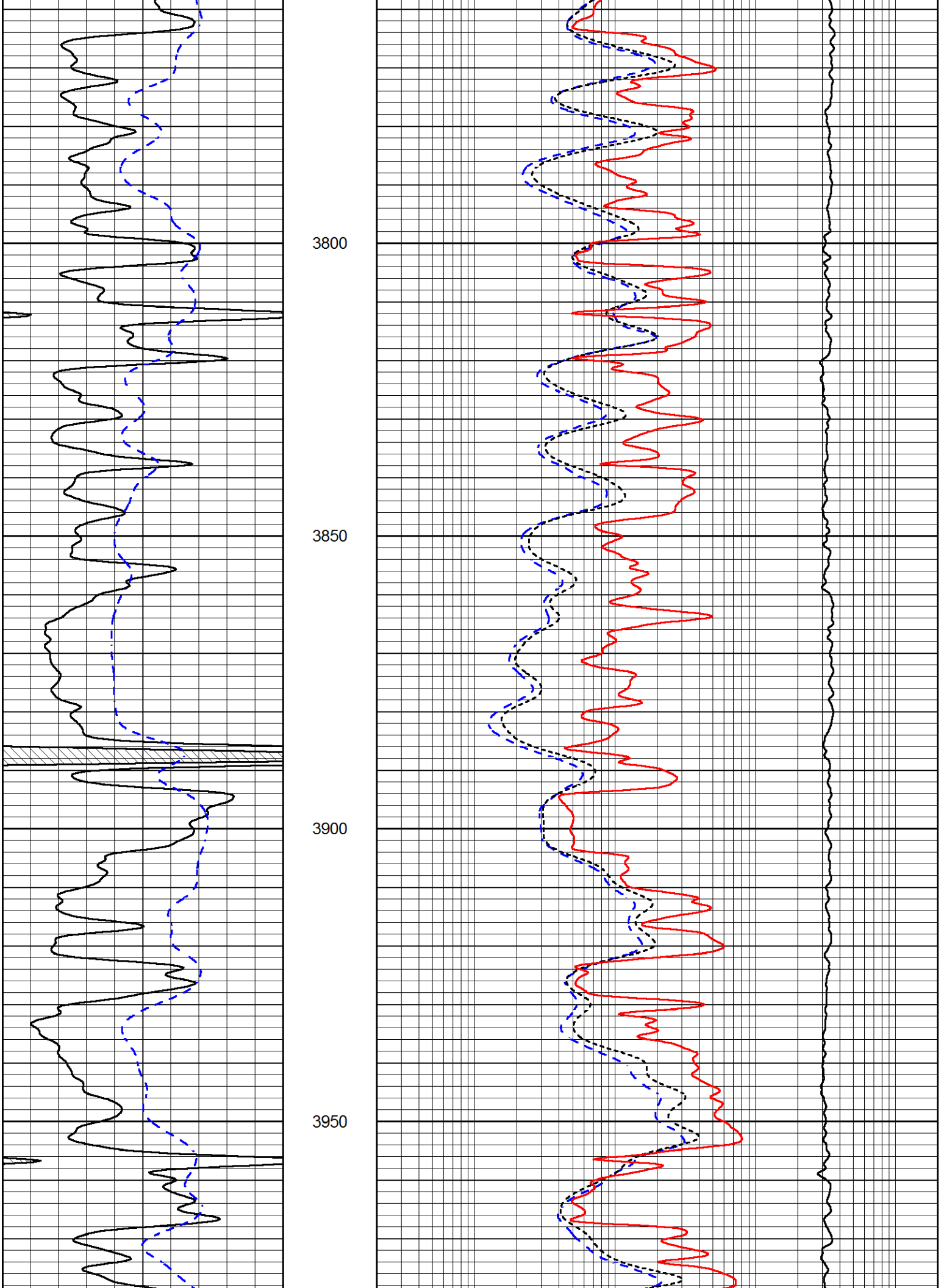
MAIN PASS

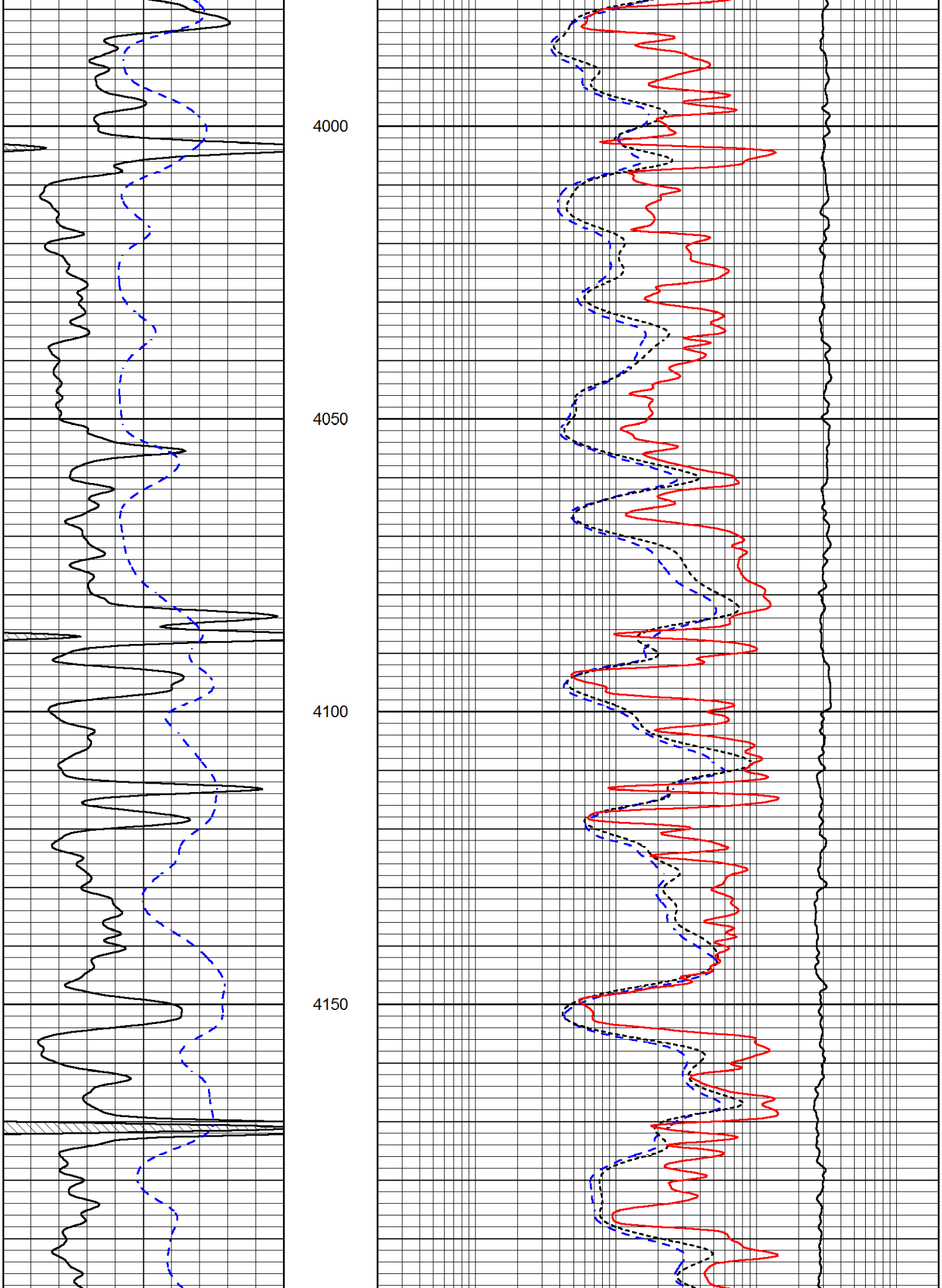
Database File	larson_glaves_2.db
Dataset Pathname	stackmel/pass3.1
Presentation Format	dil
Dataset Creation	Mon May 07 12:57:14 2018
Charted by	Depth in Feet scaled 1:240

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


4000
4050
4100
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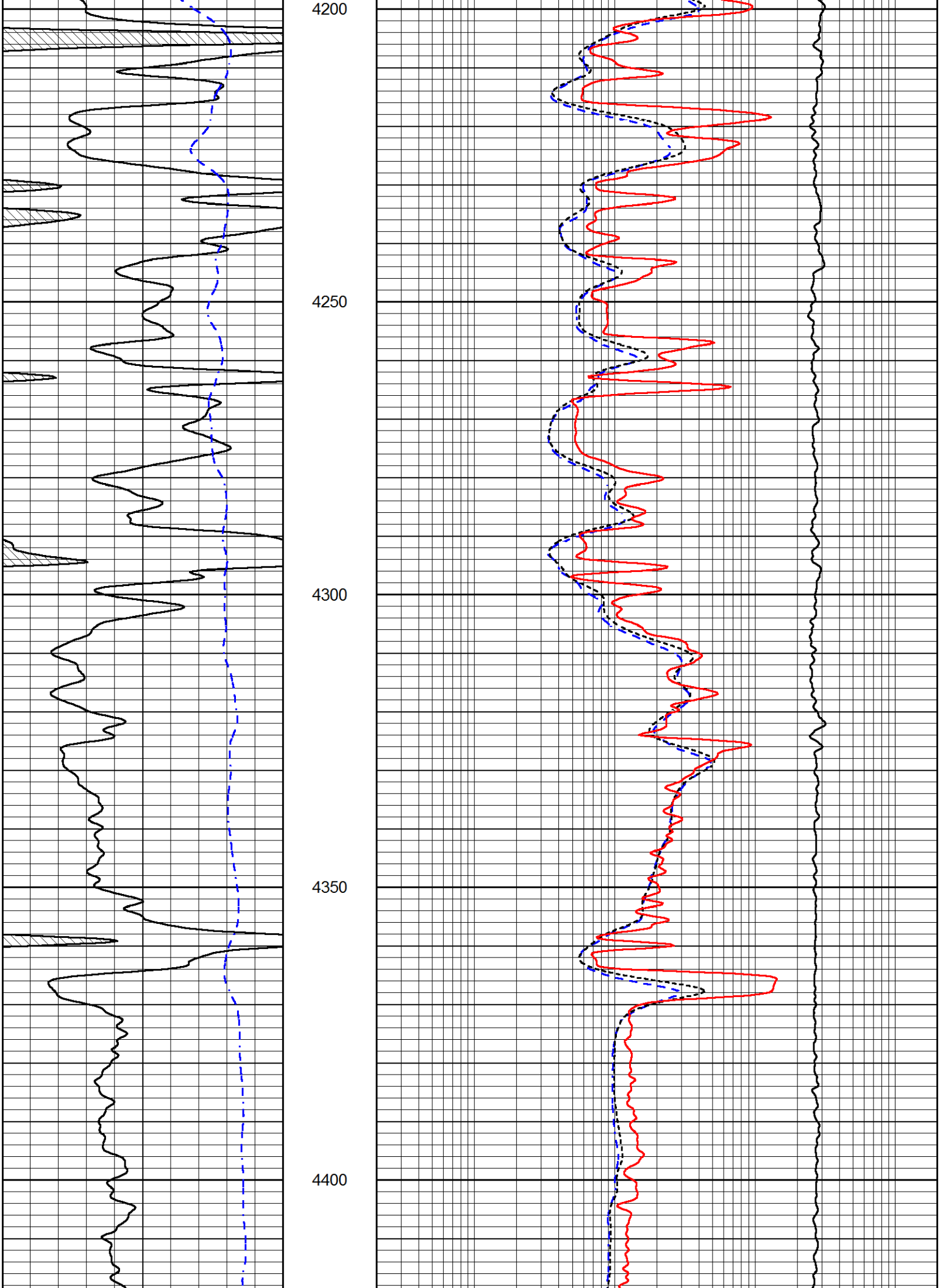
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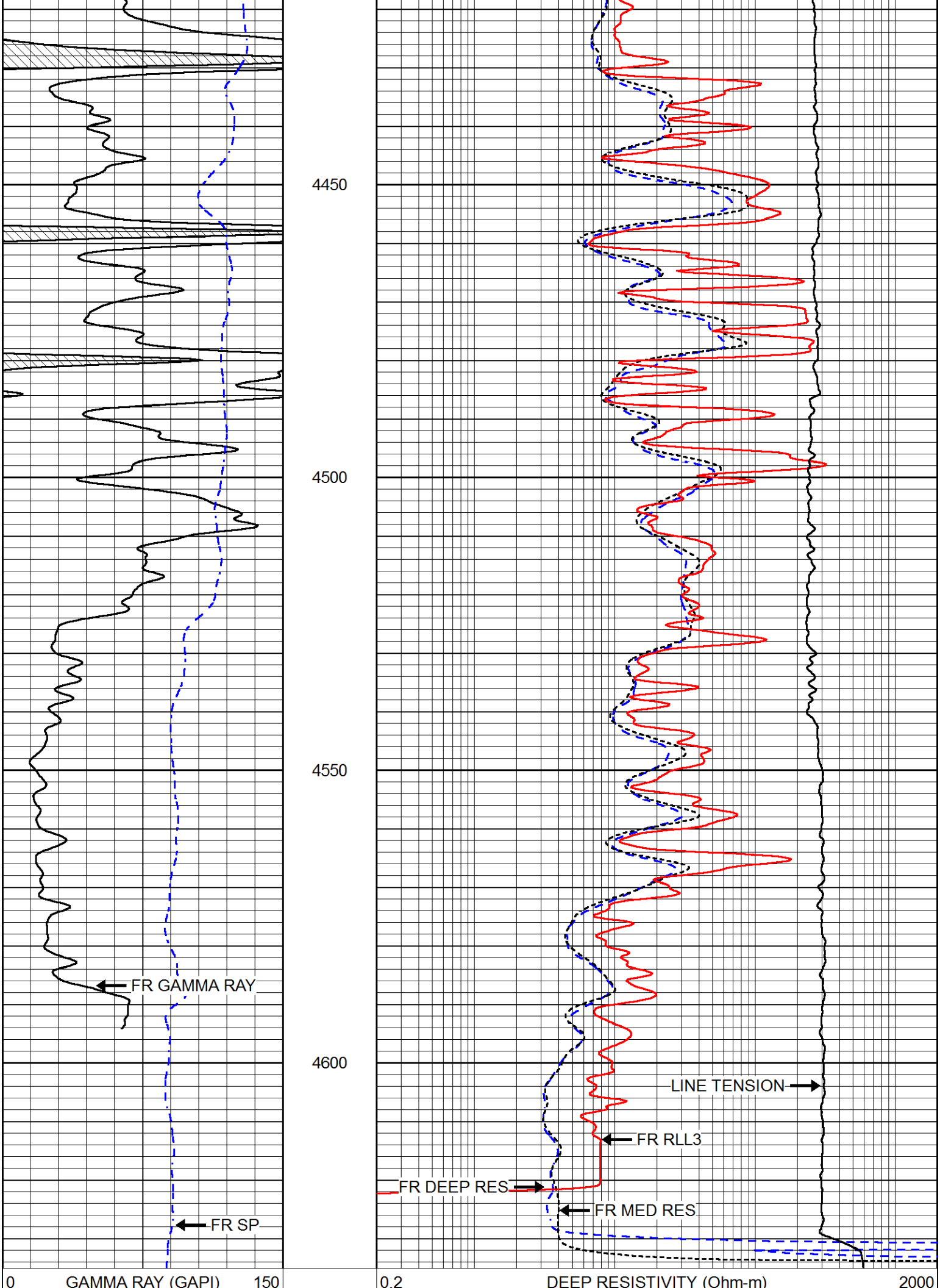
4300
4350
4400


4450
4500
4550
4600
FR GAMMA RAY
FR SP
LINE TENSION
FR RLL3
FR DEEP RES
FR MED RES
0
GAMMA RAY (GAPI)
150
0.2
DEEP RESISTIVITY (Ohm-m)
2000

-200	SP (mV)	0

0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0

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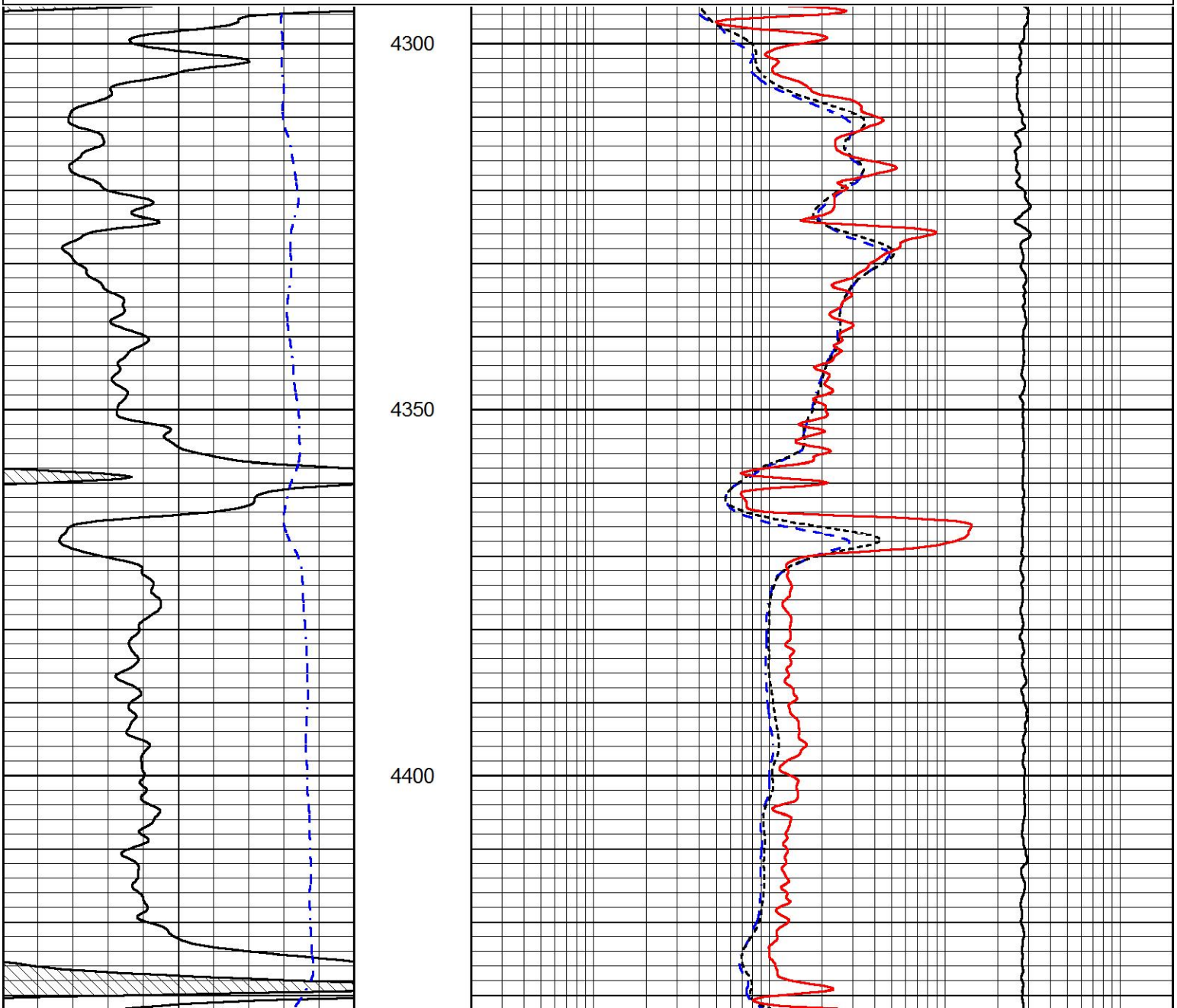
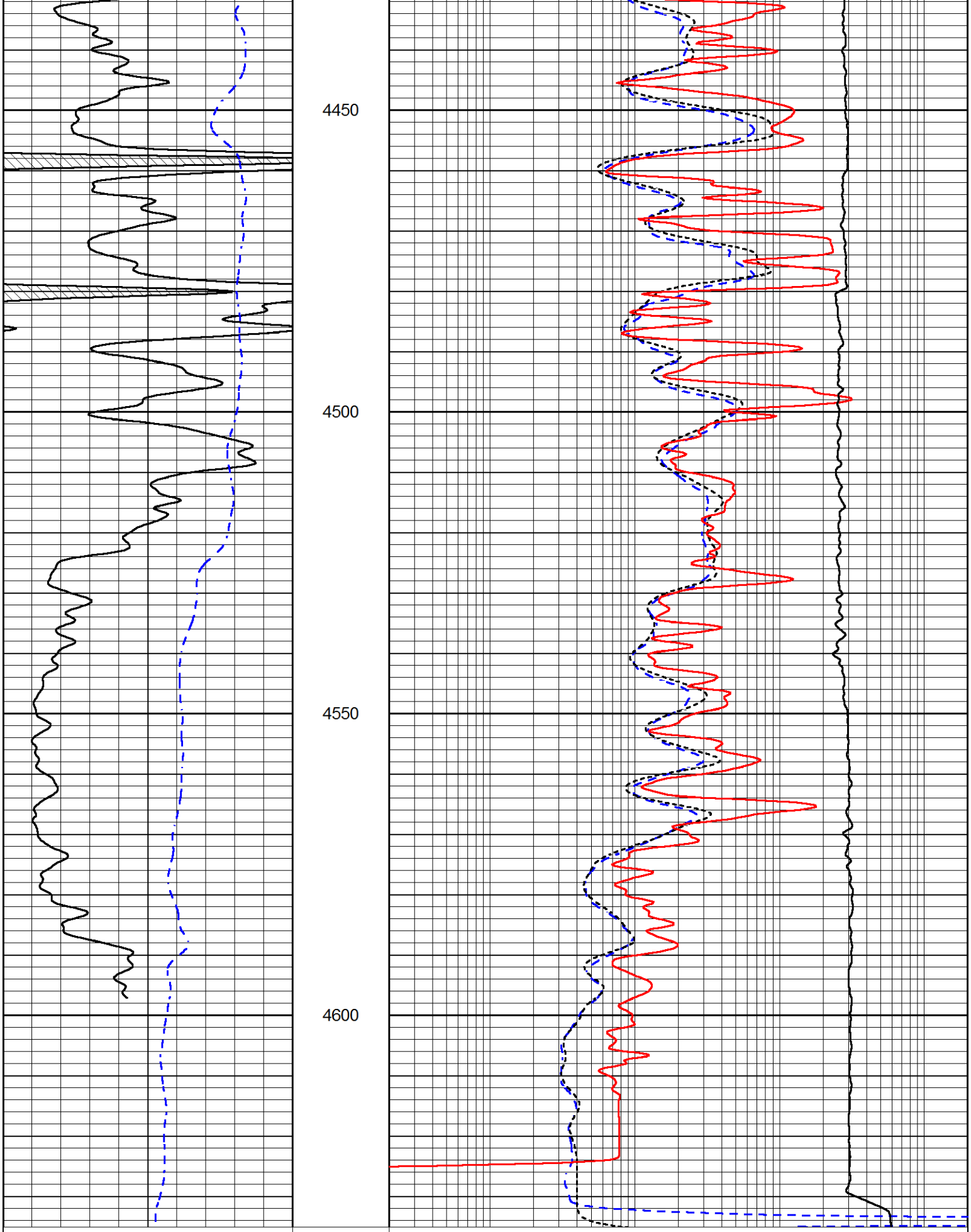
REPEAT SECTION

Database File	larson_glaves_2.db
Dataset Pathname	stackmel/pass2.1
Presentation Format	dil
Dataset Creation	Mon May 07 12:32:22 2018
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




4450
4500
4550
4600
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	larson_glaves_2.db
Dataset Pathname	stackmel/pass3.1
Dataset Creation	Mon May 07 12:57:14 2018

Dual Induction Calibration Report

Serial-Model:	933 (HT)-PSI HIGH TEMP
Calibration Performed:	Mon Apr 23 14:01:41 2018

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-17.000
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500

Microlog Calibration Report

Serial-Model:	PSI-01-PSIML
Performed:	Mon Apr 16 11:11:21 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	19000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model:	227-771-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Fri Mar 09 21:14:39 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4919.18	6345.34	cps
Aluminum	2.665	g/cc	911.94	4081.94	cps

Spine Angle = 75.33

Density/Spine Ratio = 0.522

	Size		Reading
Small Ring	8.00	in	1.84
Large Ring	22.00	in	1.46

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	MON APR 16 10:30:30 2018

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:	Mon Jan 15 11:20:44 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	LARSON ENGINEERING, INC.
Well	GLAVES #2
Field	ENICE NORTHEAST
County	NESS
State	KANSAS