PIONEER

Pioneer Energy Services

Dual Induction Log

API No.	15-135-25870-00-00
Company	LARSON ENGINEERING, INC.
Well	LIVINGSTON-KSU NO. 1-26
Field	ARNOLD
County	NESS
State	KANSAS
Location	N/2-NE-NE-NE 157' FNL & 330' FWL
Sec:	26
Twp:	16S
Rge:	25W
Other Services	CNL/CDL MEL
Elevation	K.B. 2575 D.F. G.L. 2566
Permanent Datum	GROUND LEVEL Elevation 2566
Log Measured From	KELLY BUSHING 9 Ft. Above Perm. Datum
Drilling Measured From	KELLY BUSHING

Date	5/27/15			
Run Number	ONE			
Depth Driller	4605			
Depth Logger	4603			
Bottom Logged Interval	4602			
Top Log Interval	250			
Casing Driller	8.625 @ 254			
Casing Logger	256			
Bit Size	7.875			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	3,700			
Density / Viscosity	9.4	57		
pH / Fluid Loss	9.5	8.0		
Source of Sample	Flowline			
Rm @ Meas. Temp	.68 @ 75			
Rmf @ Meas. Temp	.51 @ 75			
Rmc @ Meas. Temp	.92 @ 75			
Source of Rmf / Rmc	Charts			
Rm @ BHT	.42 @ 122			
Operating Rig Time	4 HOURS			
Max Rec. Temp. F	122			
Equipment Number	15			
Location	Hays			
Recorded By	J. HENRICKSON			
Witnessed By	VERN SCHRAG			

<<< Fold Here >>>

Comments

Thank you for using Pioneer Energy Services
785.625.3858

ARNOLD KANSAS
3/4 WEST, SOUTH INTO(RIGHT OFF HIGHWAY)

Log Variables

DatabaseC:\ProgramData\Warrior\Data\larson_livingston_ksu_1_26.db
Dataset field/well/stack/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	396	0

SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	57	0	5.5	0	4598	100	7.875

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	33.00					
			CNT-M&W (CNT-825)	5.50	3.50	100.00
CNLSC	29.86					
CNSSC	29.11					
			CDL-M&W (94-965)	8.50	4.00	250.00
LSD	20.85					
DCAL	20.83					
SSD	20.35					
RLL3F	15.80					
RLL3	15.80					
			DIL-PSI1985 (1985)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					

Dataset: larson_livingston_ksu_1_26.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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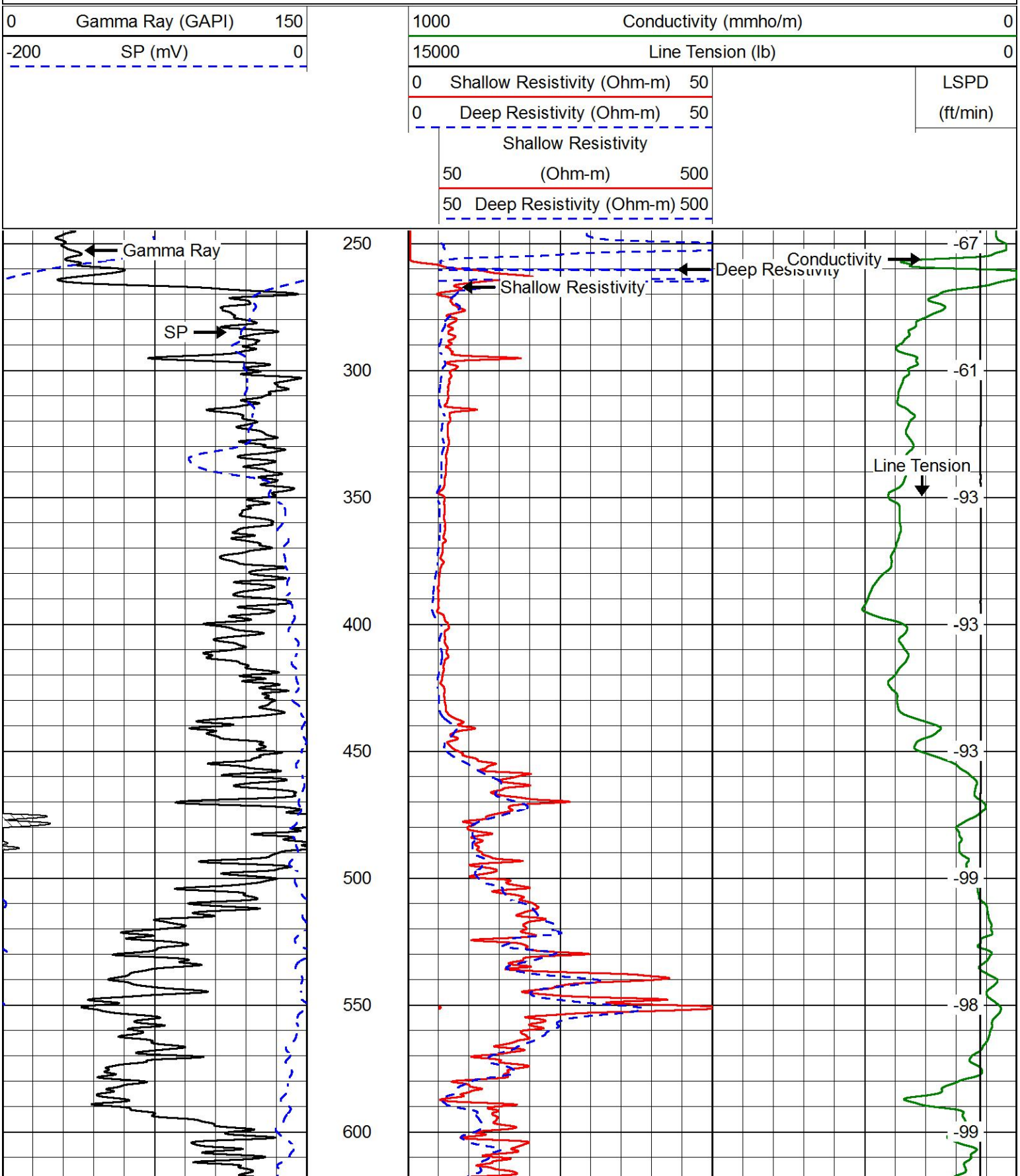
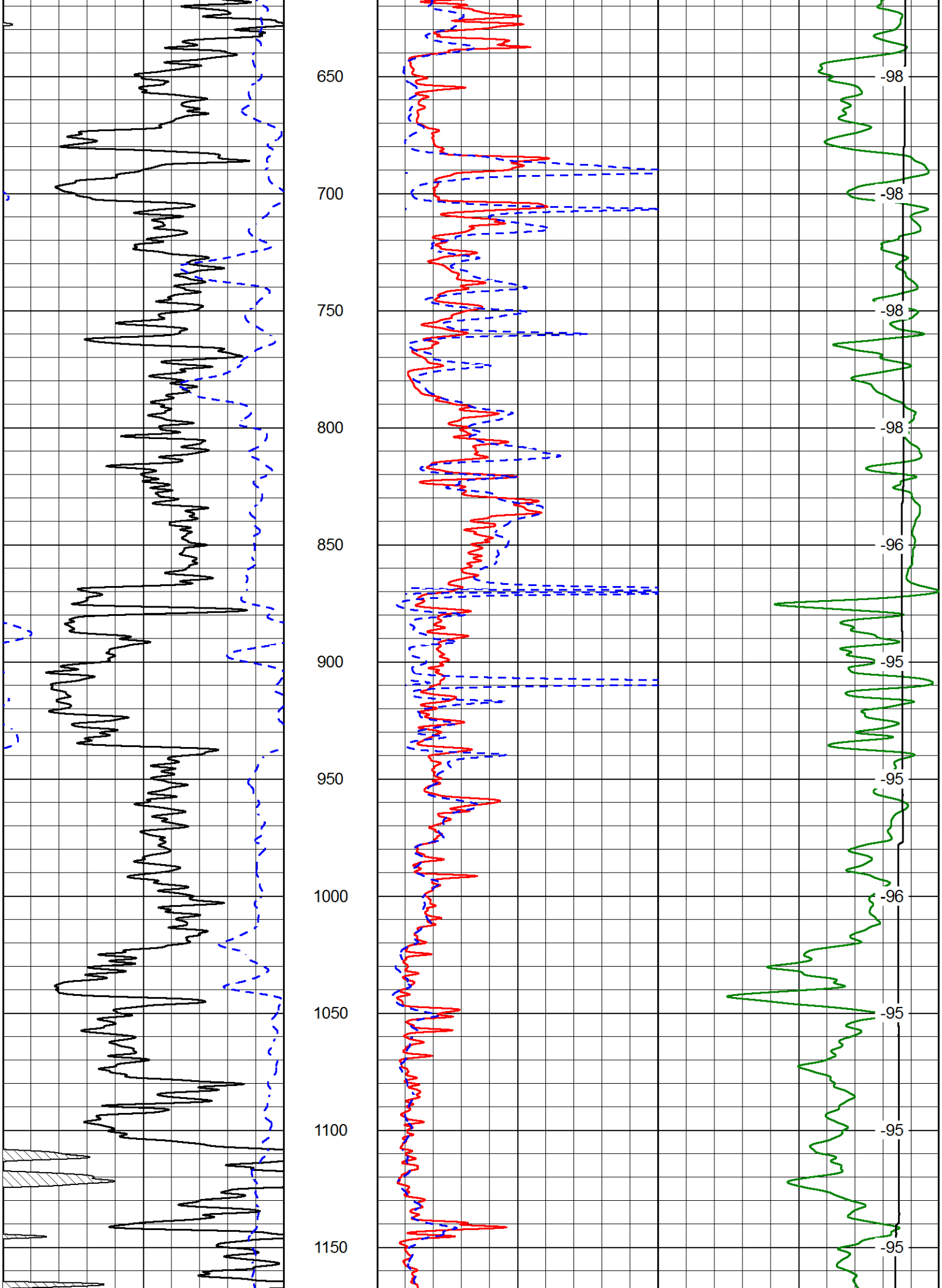
MAIN PASS

Database File	larson_livingston_ksu_1_26.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil2in
Dataset Creation	Wed May 27 04:14:48 2015
Charted by	Depth in Feet scaled 1:600

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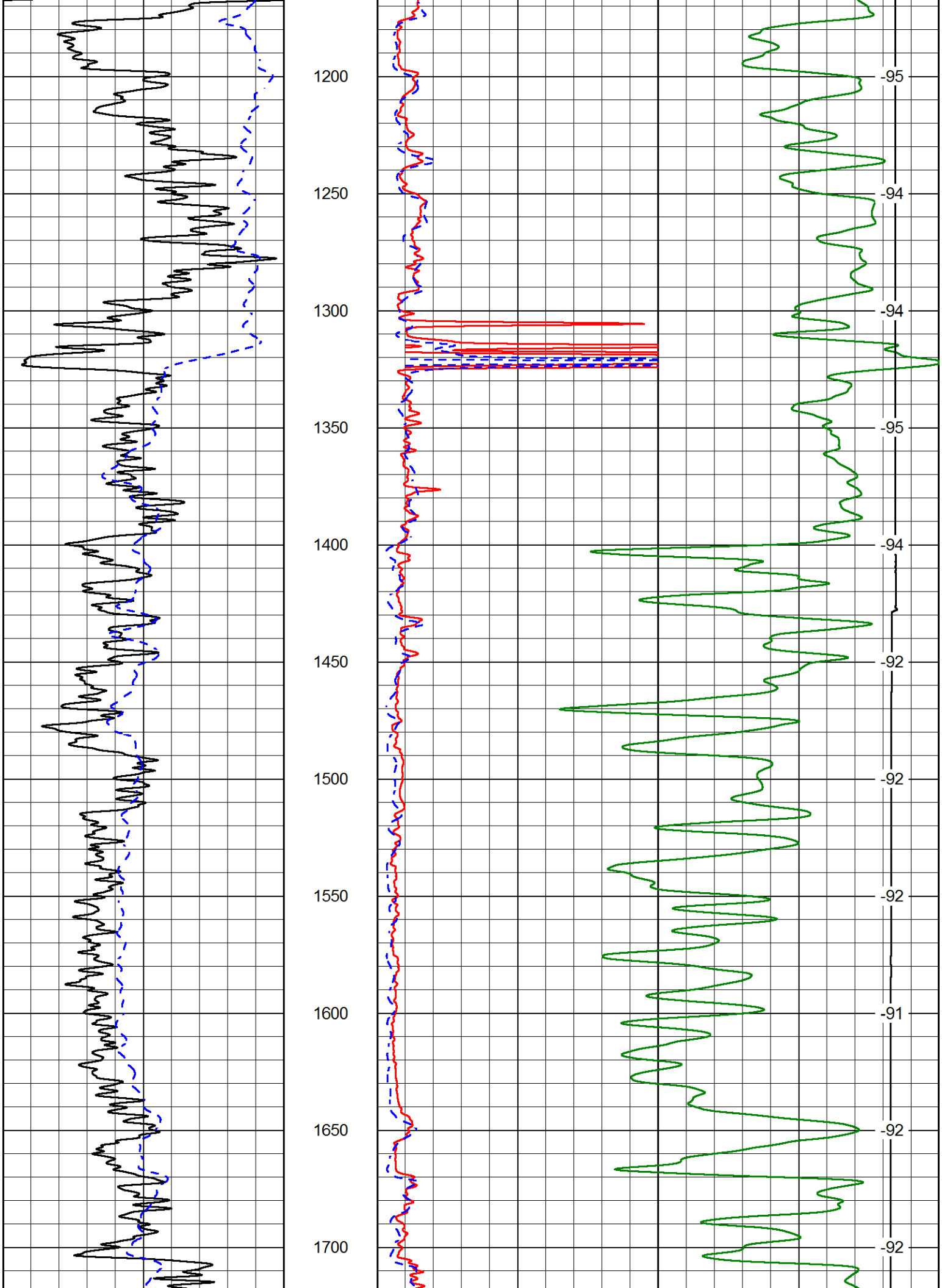
-95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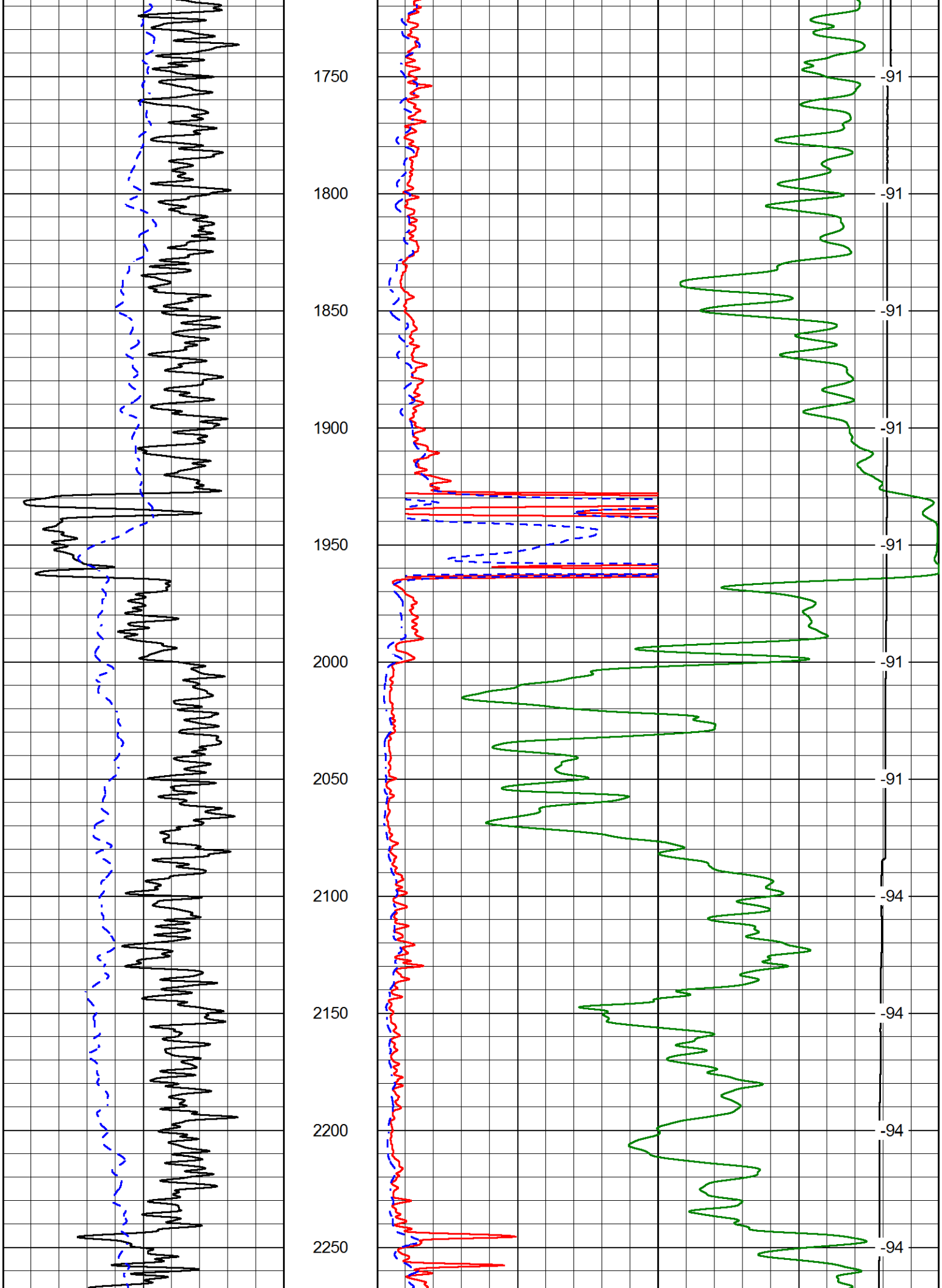
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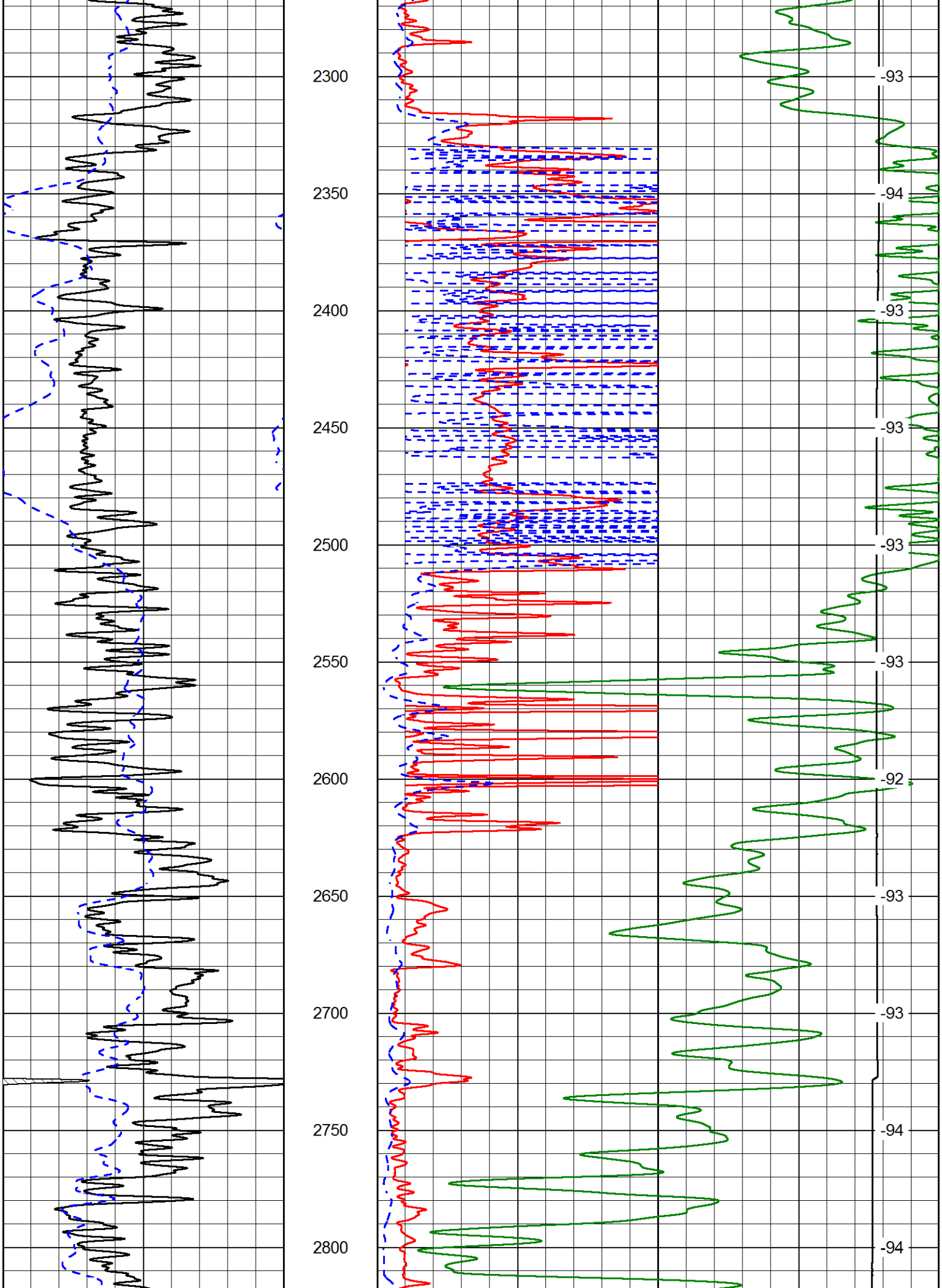
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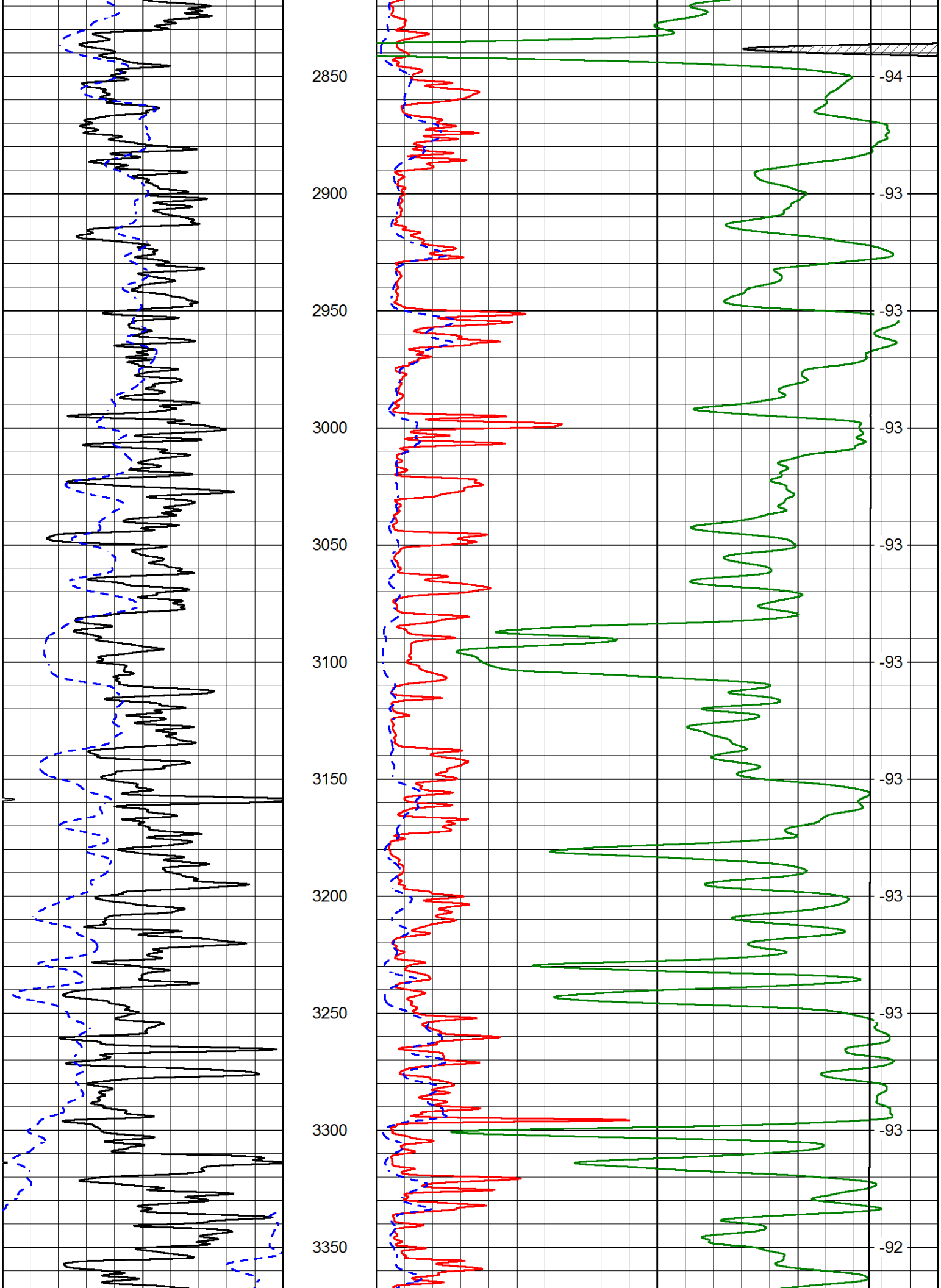
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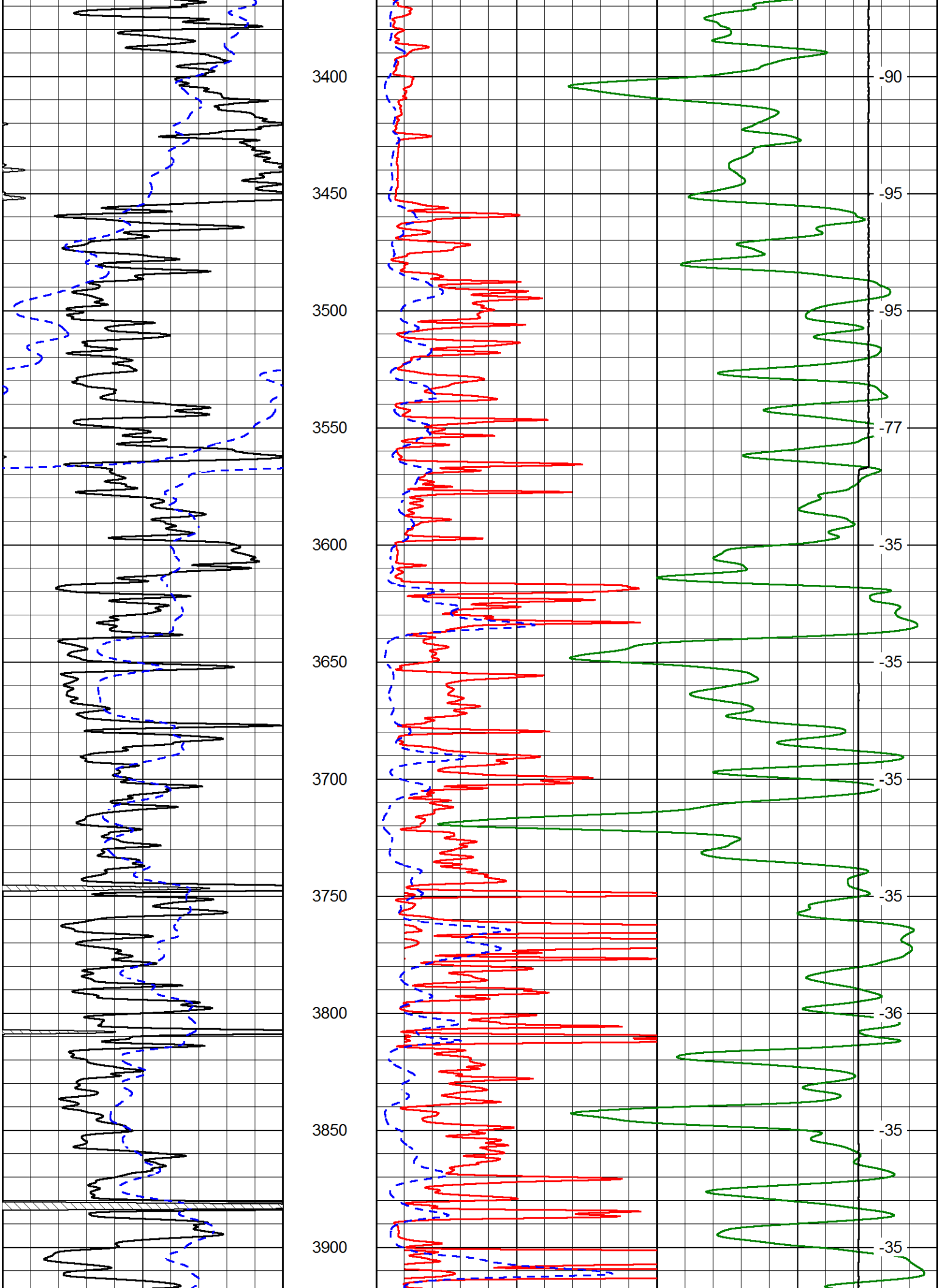
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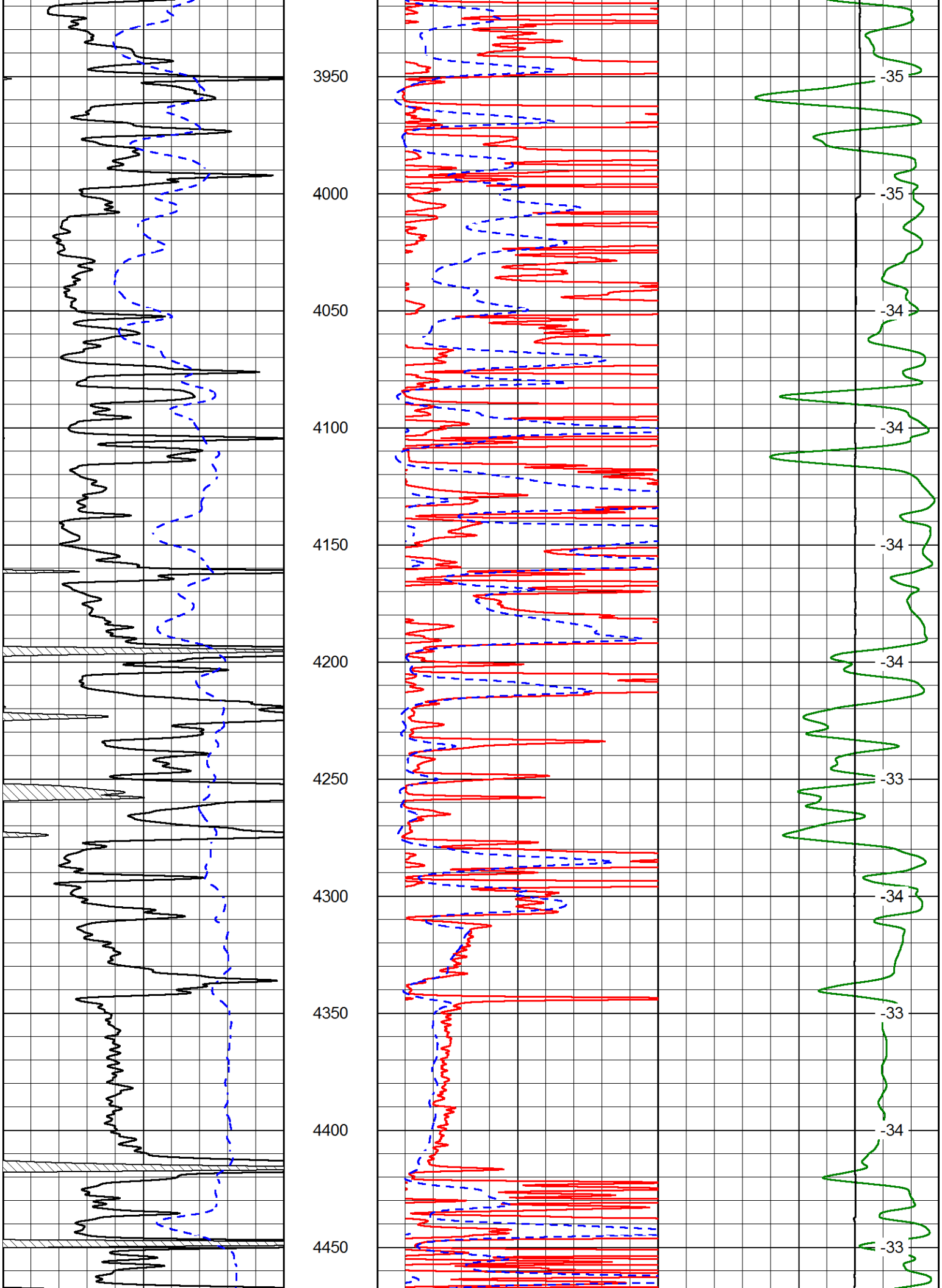
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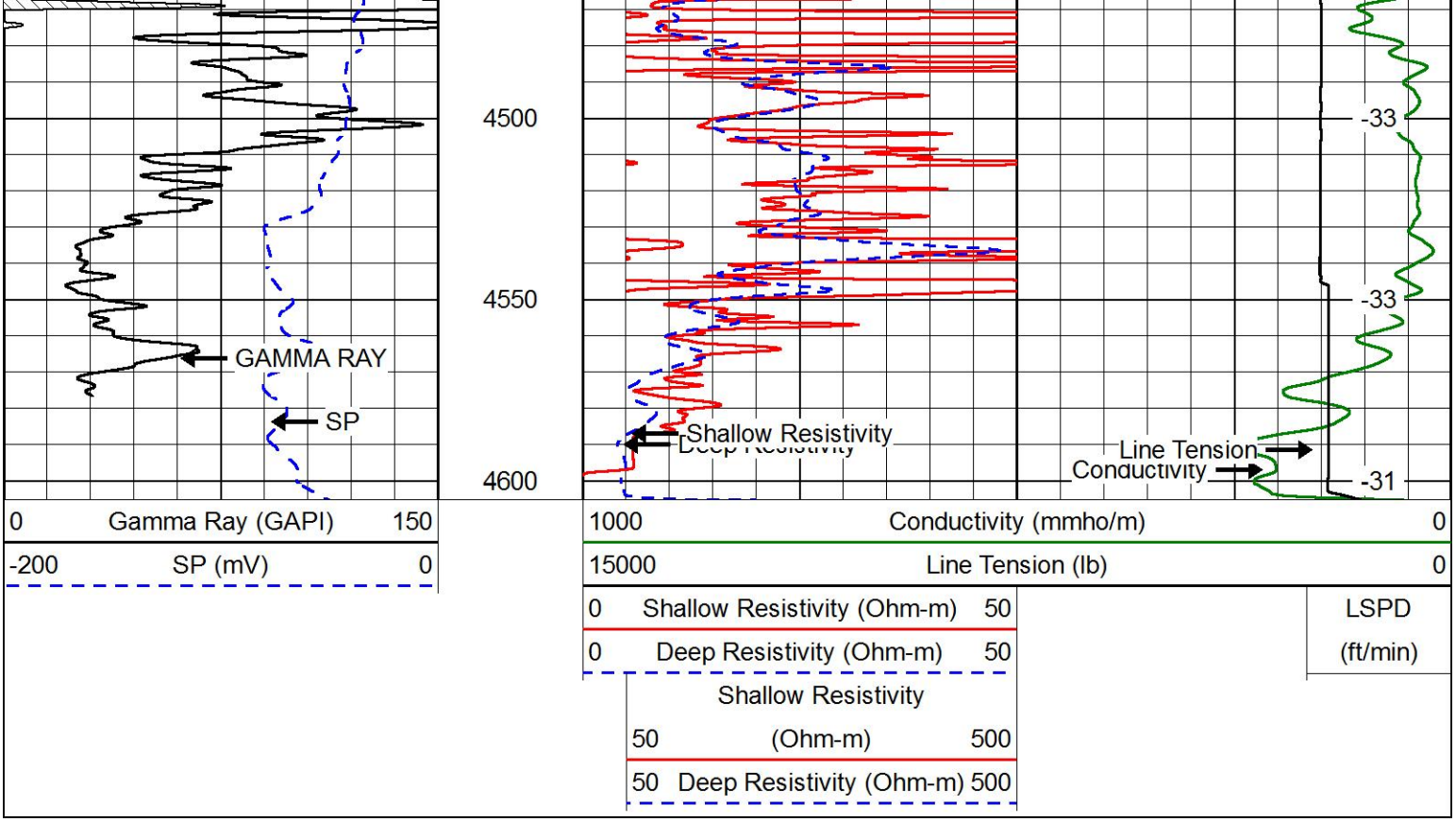
-33



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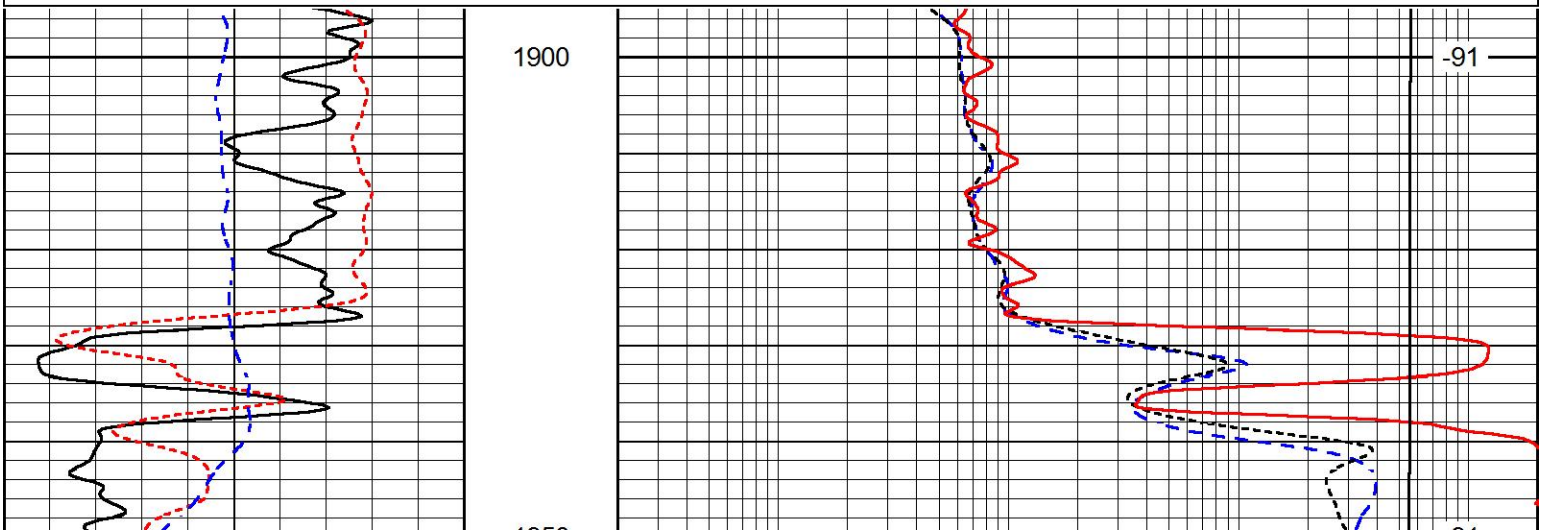
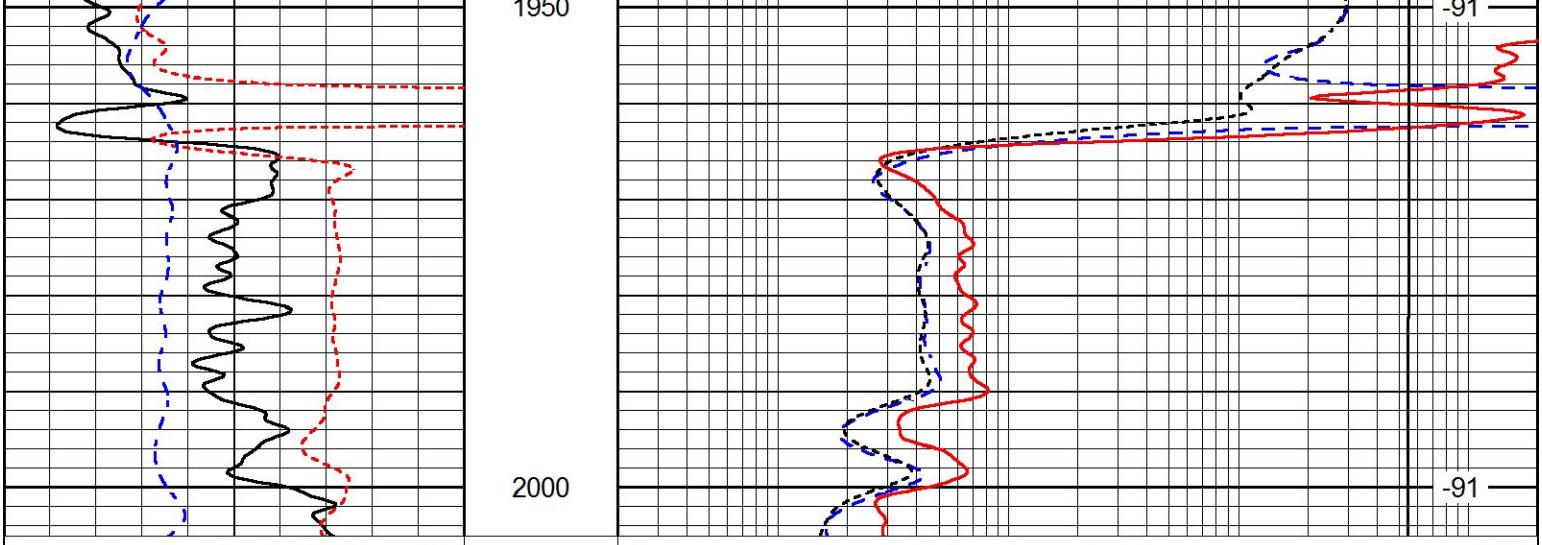
MAIN PASS

Database File	larson_livingston_ksu_1_26.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Wed May 27 04:14:48 2015
Charted by	Depth in Feet scaled 1:240





0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

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

LSPD (ft/min)

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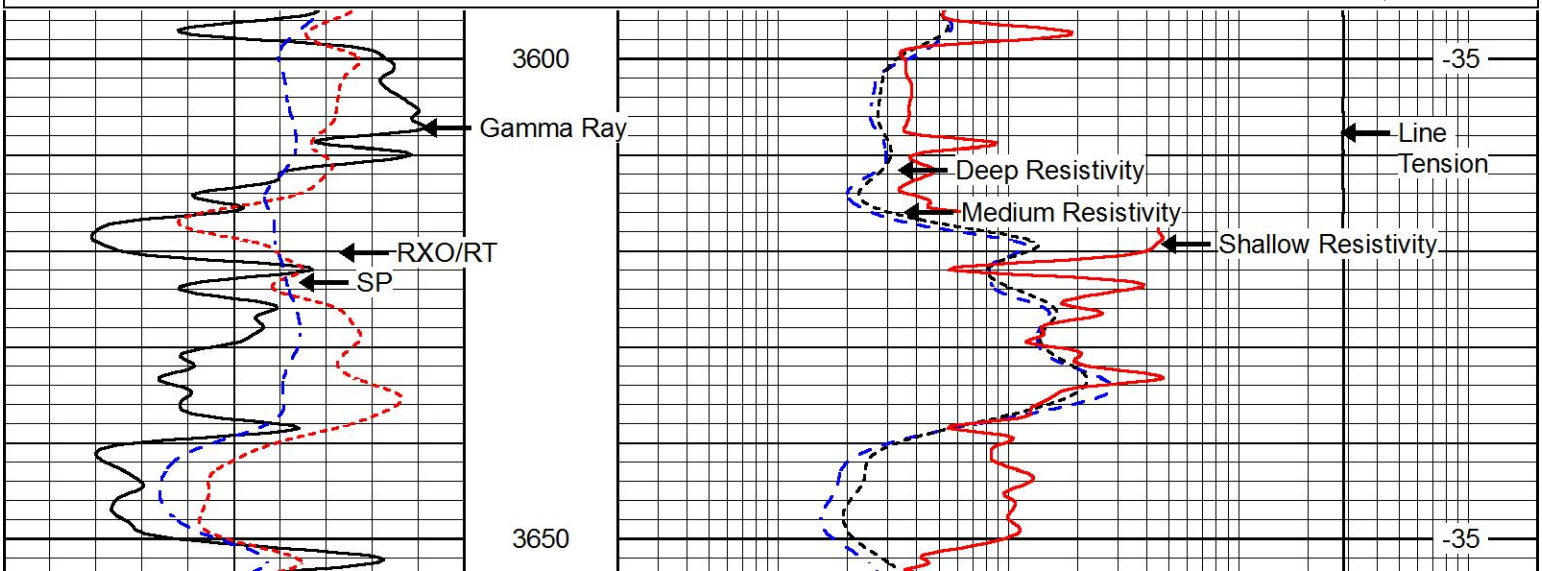
MAIN PASS

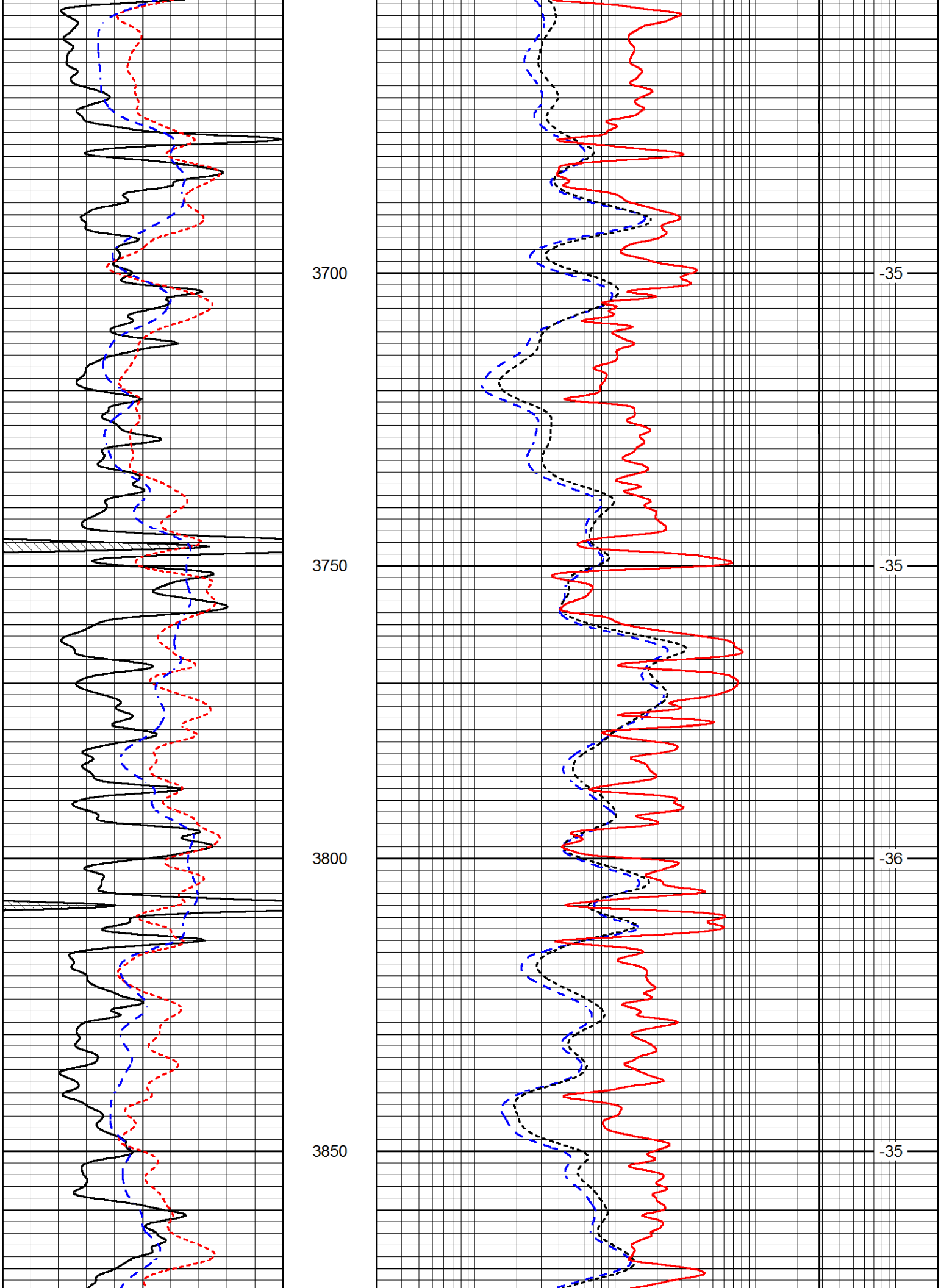
Database File	larson_livingston_ksu_1_26.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Wed May 27 04:14:48 2015
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

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

LSPD (ft/min)

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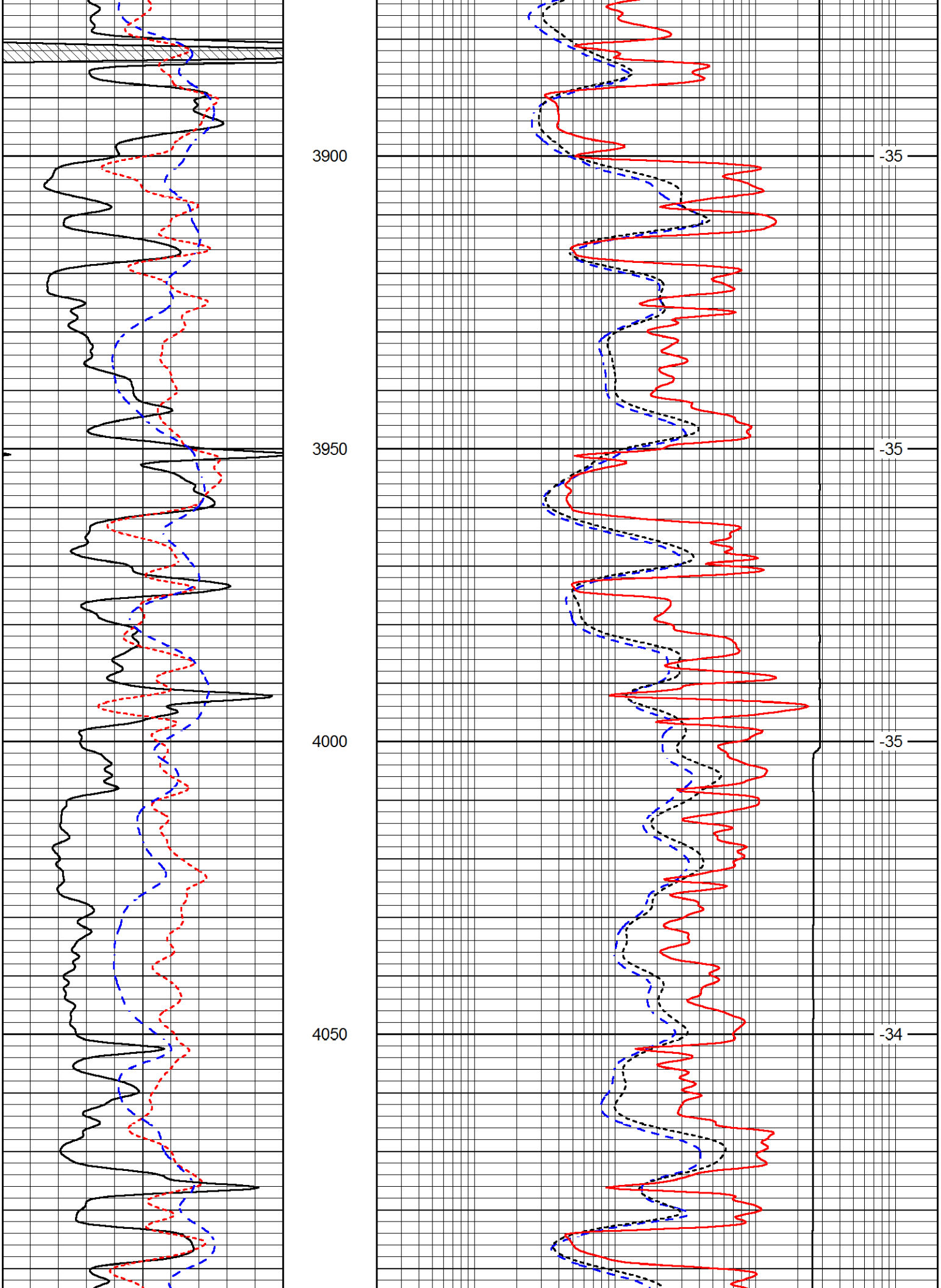
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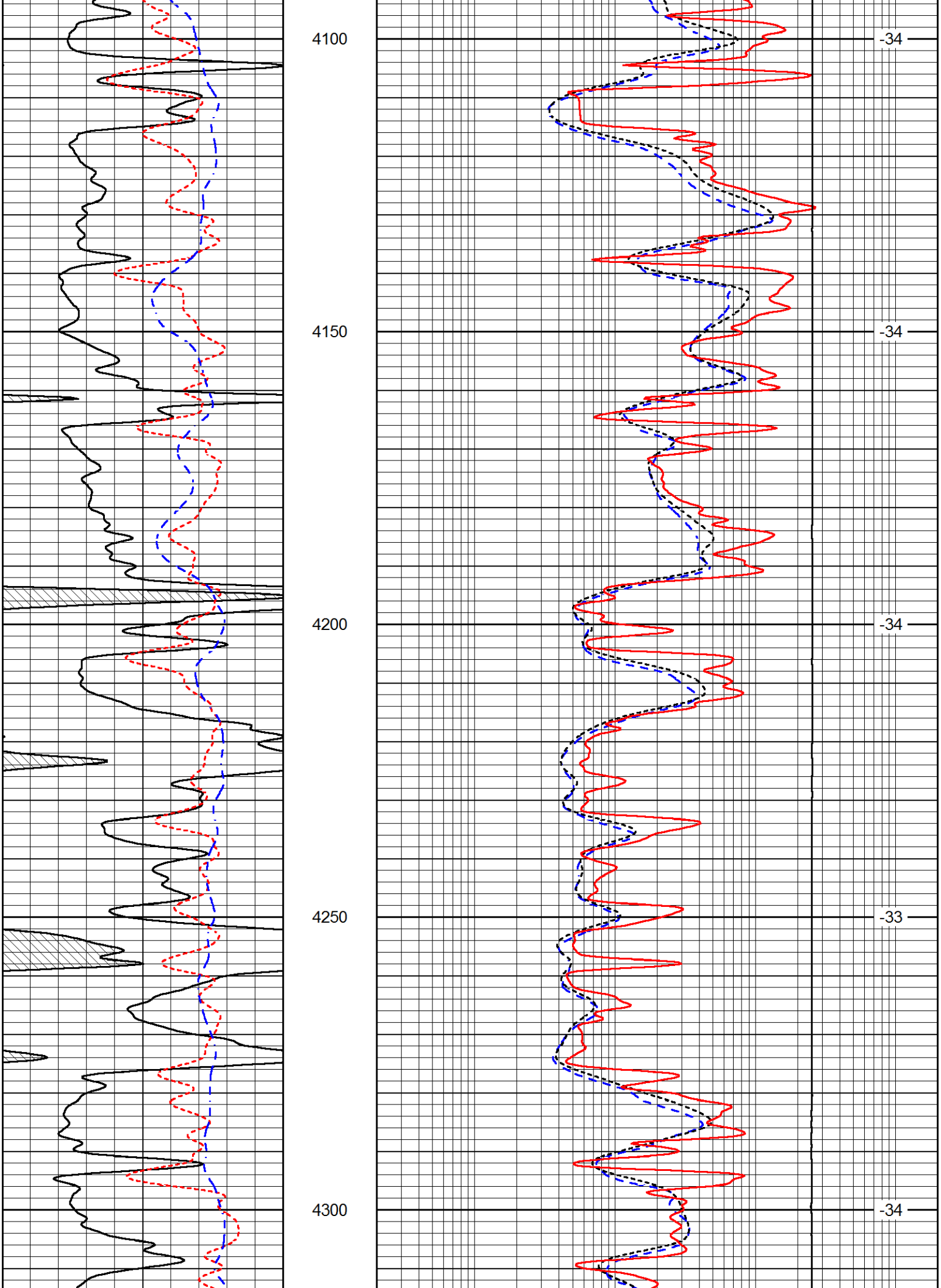
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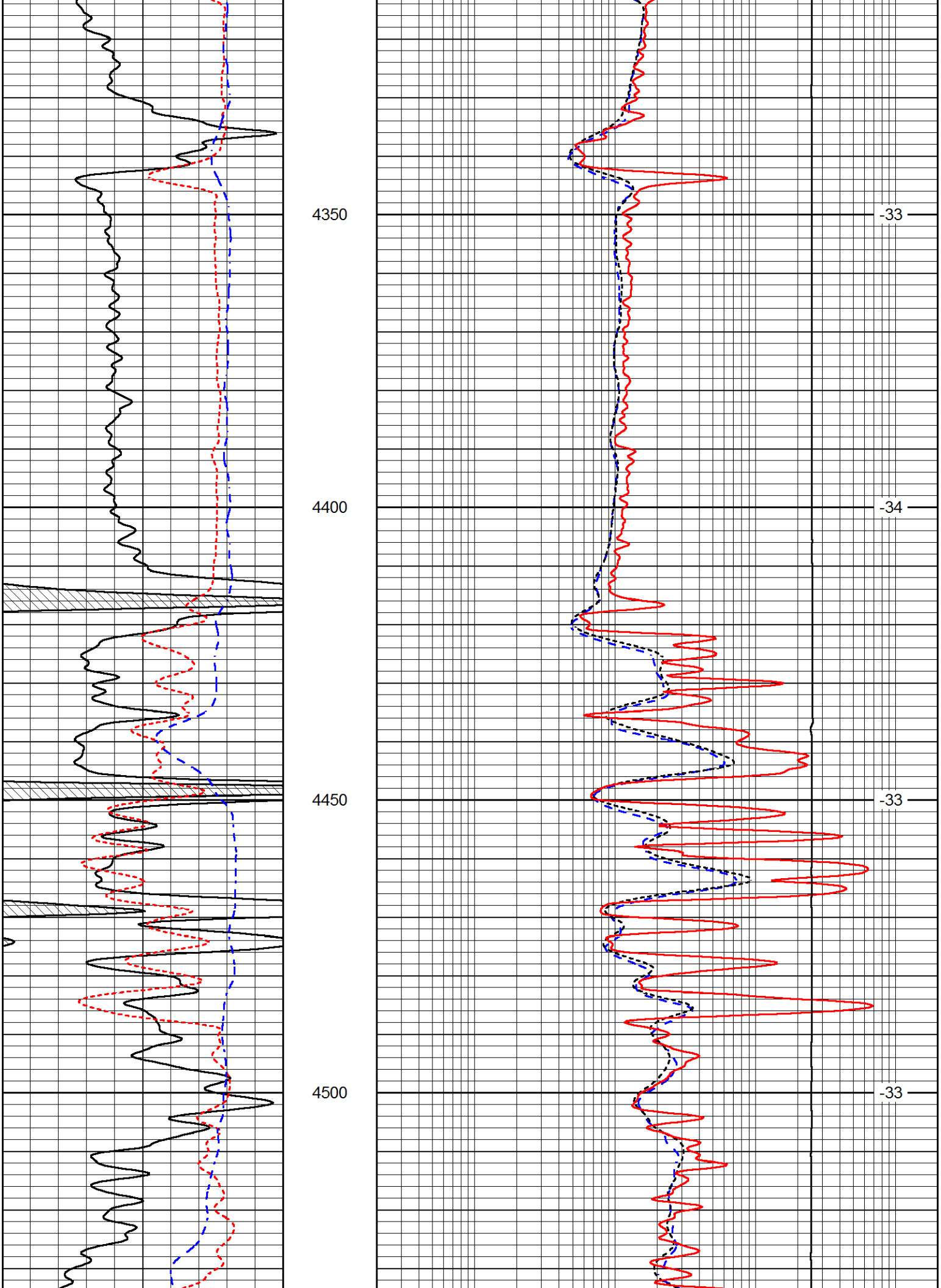
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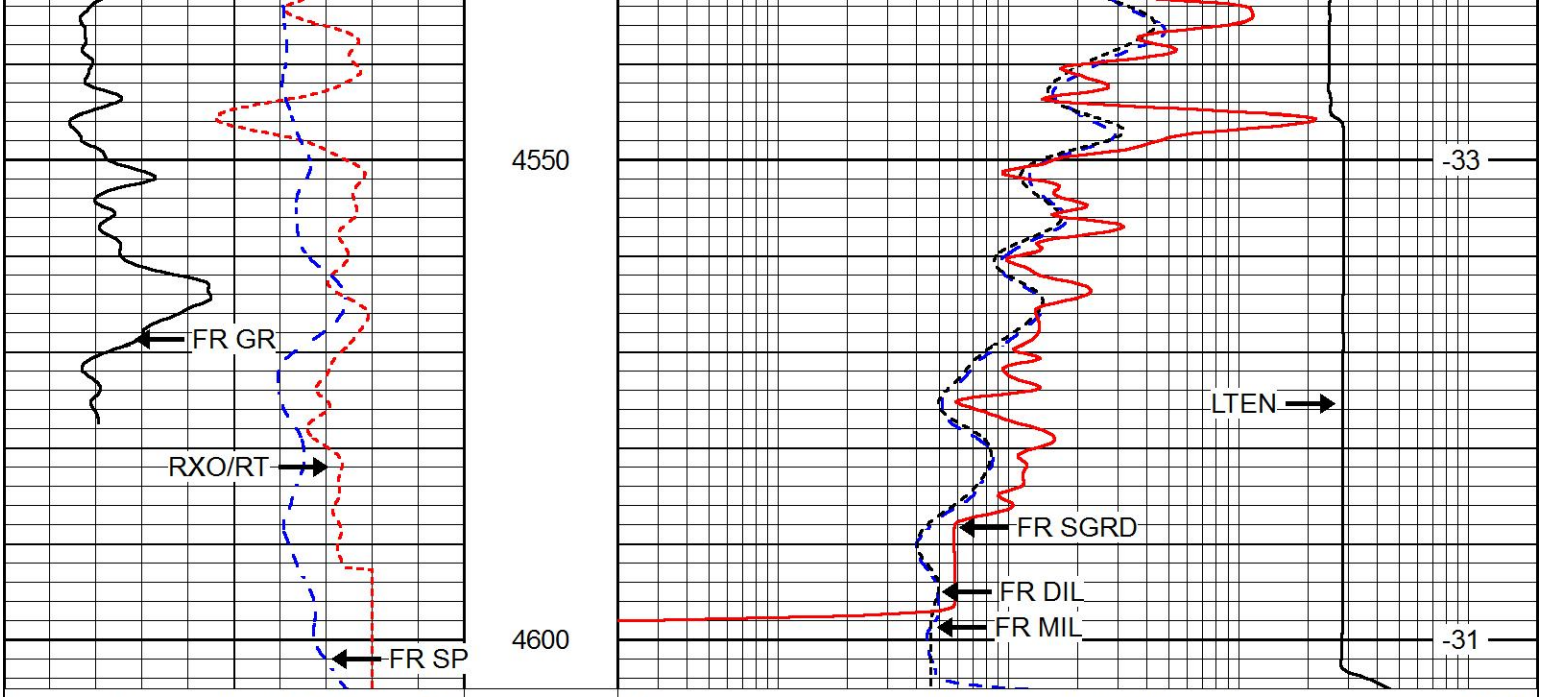
4500
-33
-34
-33
-33



0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

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

LSPD
(ft/min)

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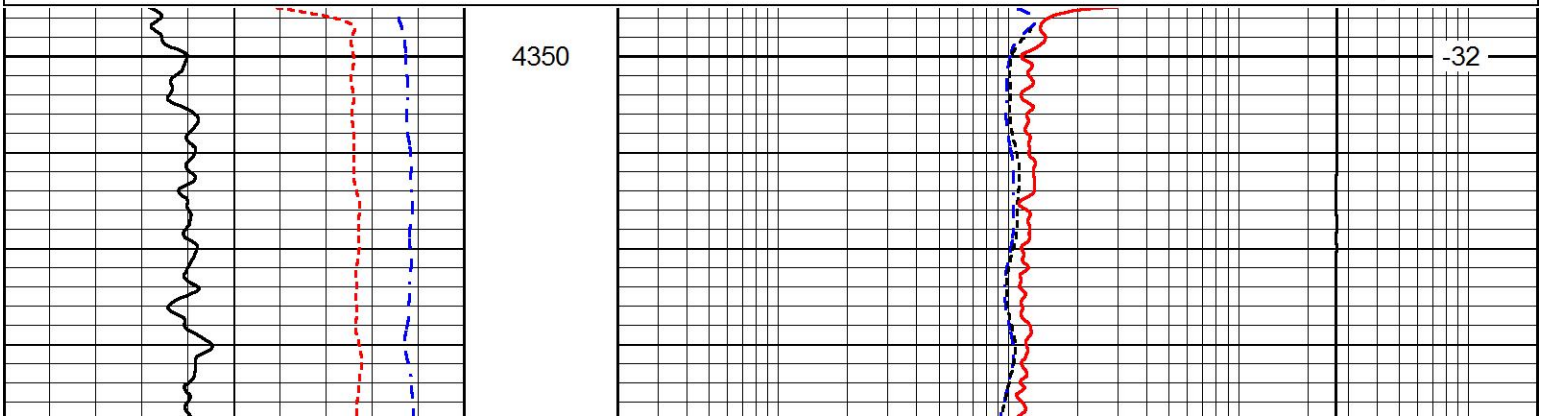
REPEAT SECTION

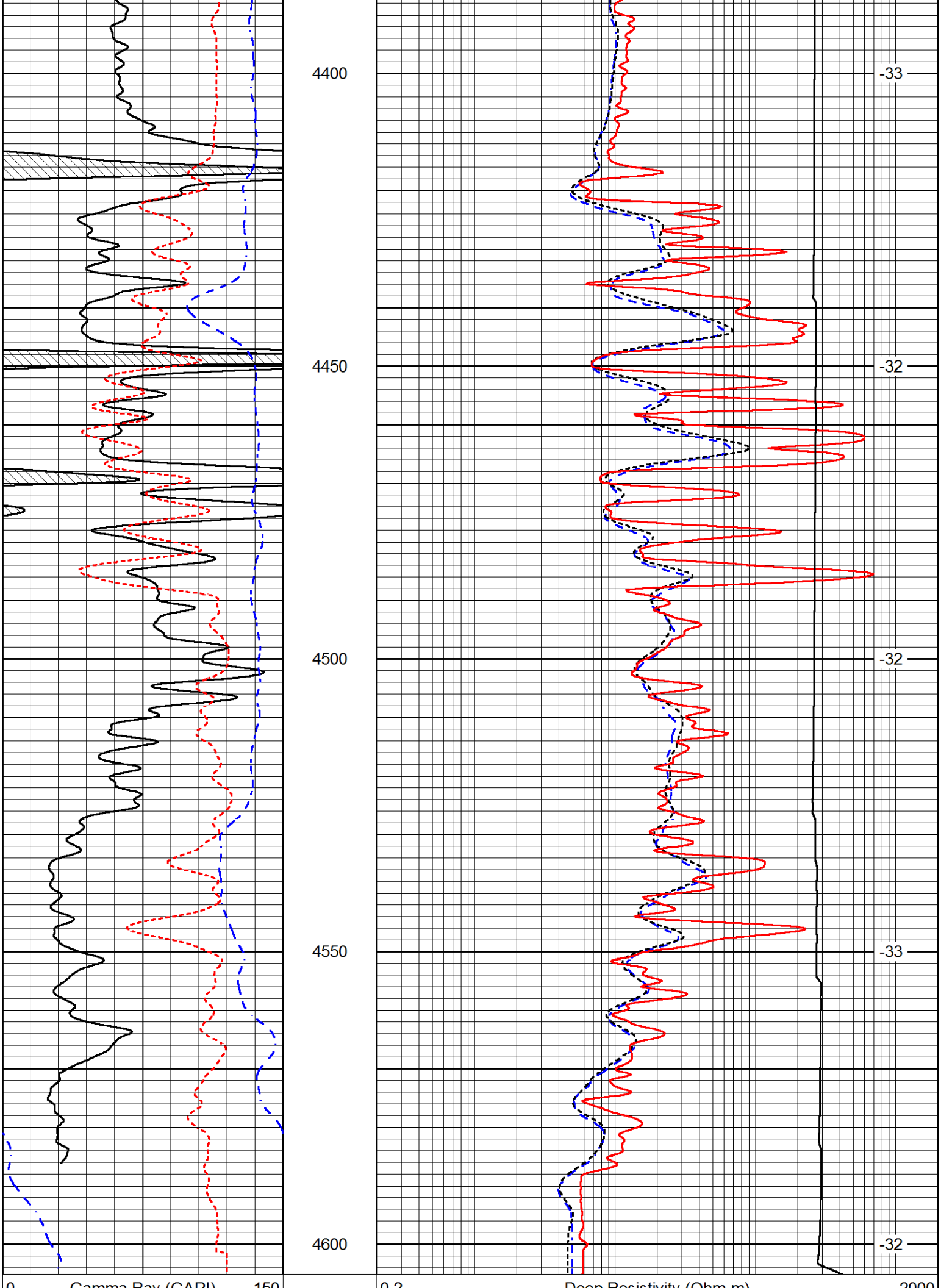
Database File	larson_livingston_ksu_1_26.db
Dataset Pathname	stack/pass2.1
Presentation Format	dil
Dataset Creation	Wed May 27 03:20:29 2015
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

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

LSPD
(ft/min)




4400
4450
4500
4550
4600
-33
-32
-32
-33
-32
0
Gamma Ray (GAPI)
150
0.2
Deep Resistivity (Ohm-m)
2000

0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0
		LSPD (ft/min)

Calibration Report

Database File	larson_livingston_ksu_1_26.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Wed May 27 04:14:48 2015

Dual Induction Calibration Report

Serial-Model:	1985-PSI1985
Calibration Performed:	Thu Apr 23 11:27:30 2015

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.450	-29.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.340	-27.000

Compensated Density Calibration Report

Serial-Model:	94-965-M&W
Source / Verifier:	16954B / 601
Master Calibration Performed:	Wed Apr 22 10:03:39 2015

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	5782.14	7492.41	cps
Aluminum	2.685	g/cc	1038.09	4675.93	cps

Spine Angle = 74.65

Density/Spine Ratio = 0.522

	Size		Reading
Small Ring	4.00	in	1.03
Large Ring	14.00	in	1.45

Compensated Neutron Calibration Report

Serial Number:	CNT-825
Tool Model:	M&W
Calibration Performed:	Tue Apr 21 10:09:01 2015

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

Tool Model:	M&W	
Calibration Performed:	Wed Apr 22 10:09:28 2015	
Calibrator Value:	100.0	GAPI
Background Reading:	65.0	cps
Calibrator Reading:	207.0	cps
Sensitivity:	0.5700	GAPI/cps

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Company	LARSON ENGINEERING, INC.
Well	LIVINGSTON-KSU NO. 1-26
Field	ARNOLD
County	NESS
State	KANSAS