



**Radial Cement Bond  
Gamma Ray  
Casing Collar Log**

**Company** Kerr-McGee Oil & Gas Onshore, L.P.  
**Well** Miller X31-04  
**Field** Wattenberg  
**County** Weld  
**State** Colorado

**Company** Kerr-McGee Oil & Gas Onshore, L.P.  
**Well** Miller X31-04  
**Field** Wattenberg  
**County** Weld  
**State** Colorado

**Location:** SEC 31 TWP 2N RGE 65W  
 API #: 05-123-33299  
 Permanent Datum Ground Level Elevation 5009'  
 Log Measured From Ground Level 0 FT  
 Drilling Measured From Kelly Bushing  
 Other Services GR/JB CIBP Cement  
 Elevation K.B. 5024' D.F. --- G.L. 5009'

Date	04-FEB-2021				
Run Number	Four				
Depth Driller	8046 FT				
Depth Logger	3001 FT				
Bottom Logged Interval	2986 FT				
Top Log Interval	Surface				
Open Hole Size	7.875"				
Type Fluid	Water				
Density / Viscosity	8.34 lb/gal				
Max. Recorded Temp.	122°F				
E. estimated Cement Top	See Log				
Time Well Ready	ROA				
Time Logger on Bottom	11:48				
E. equipment Number	HD-0325				
Location	Platteville, CO				
Recorded By	M. Steinman				
Witnessed By	Taux Deal				
Run Number	Borehole Record		Tubing Record		
	Bit	From	To	Size	
				Weight	
				From	
				To	
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom
Surface Casing	8.5/8	24	J-55	Surface	1064 FT
Intermediate #1	4.1/2	11.6	M-80	Surface	8038 FT
Intermediate #2					
Inner					

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

**Comments**

**Log ran as per customer request**  
**Depth referenced to Ground Level at 0 FT**  
**Adjusted +1 FT to correlate with Ground Level**  
**Log ran with 500 PSI Surface Induced Pressure**  
**Logging tools were clean and free of debris upon completion of operations**  
  
**Thank you for choosing Reliance Oilfield Services, LLC!!**

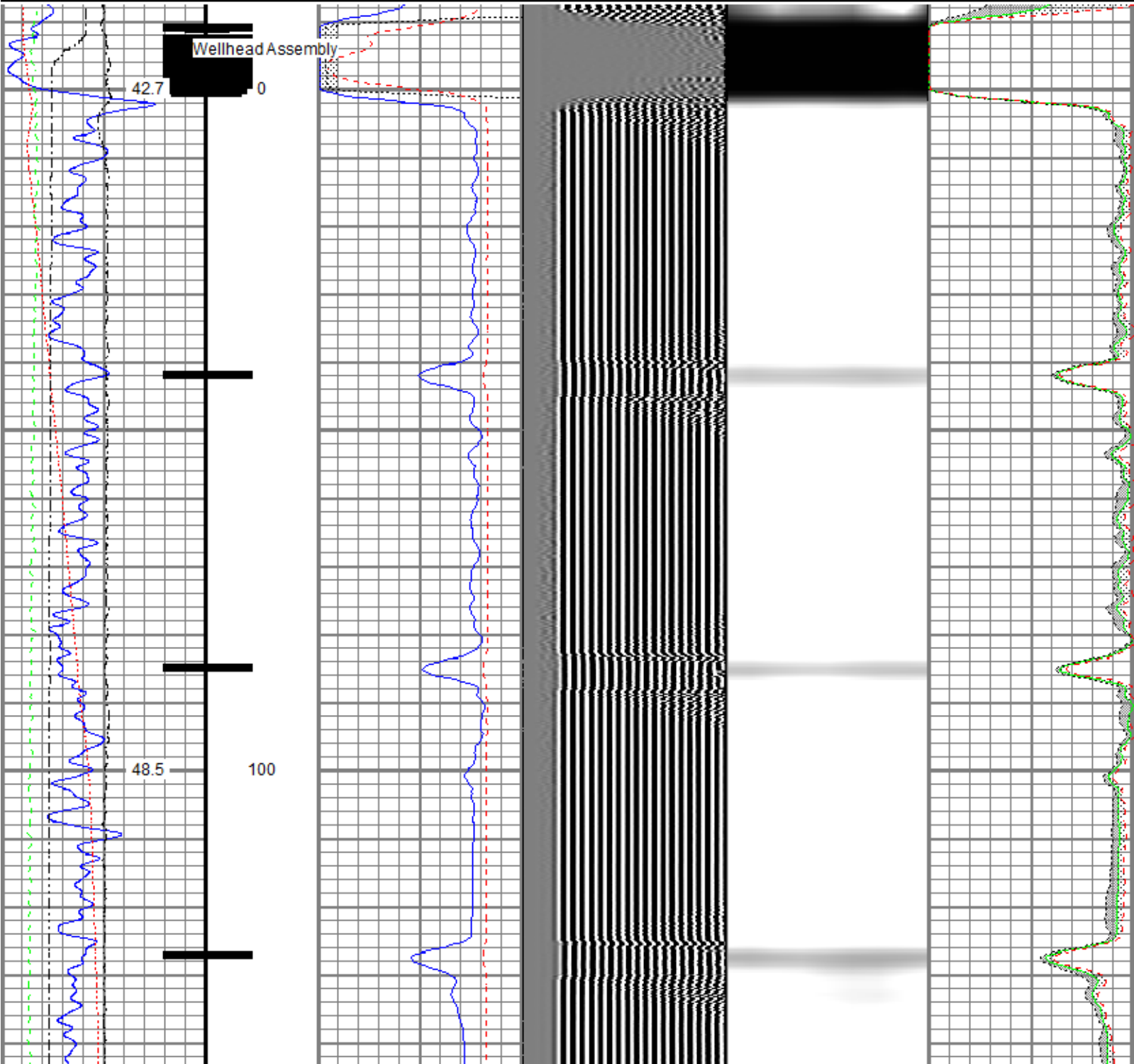
**Main Pass**

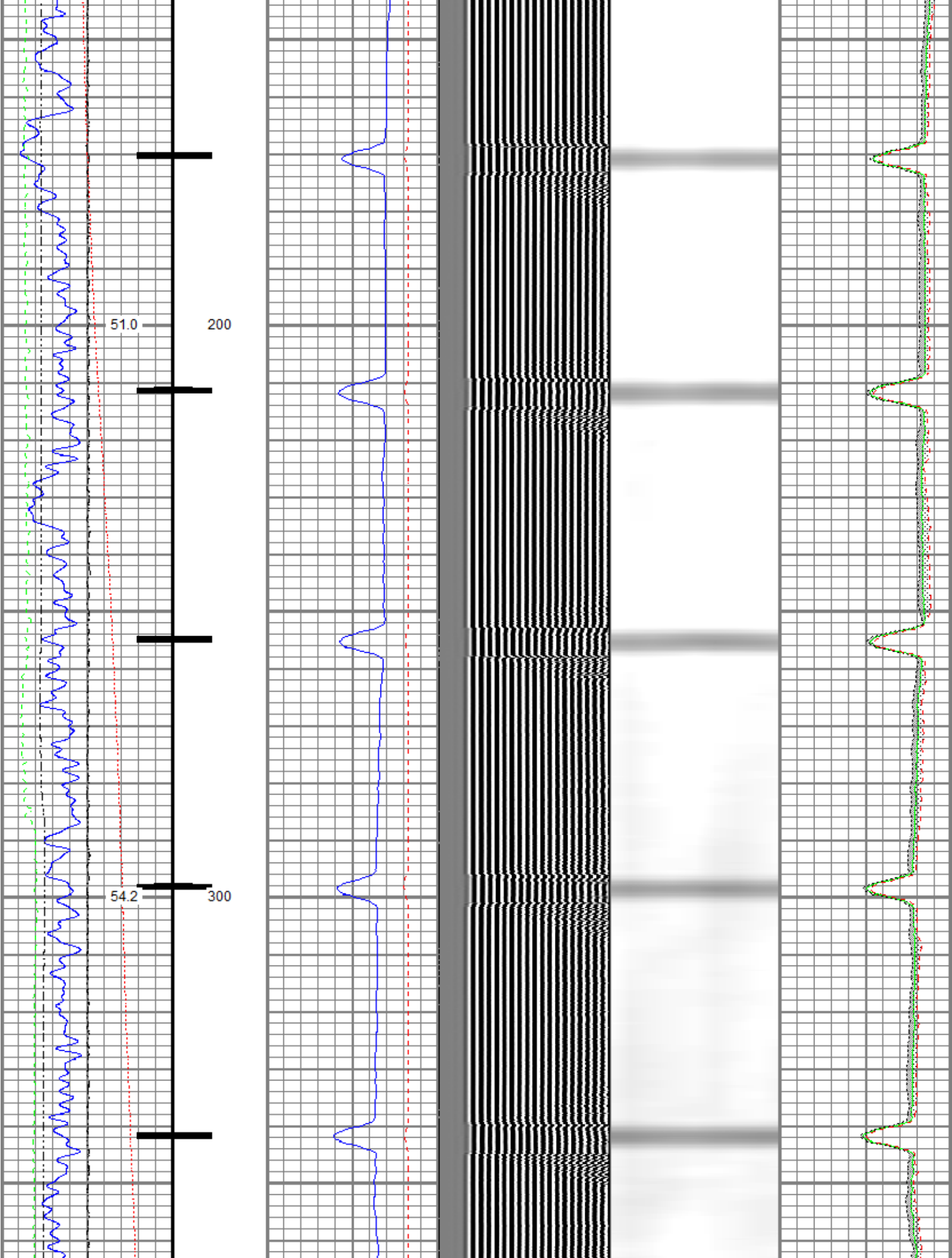


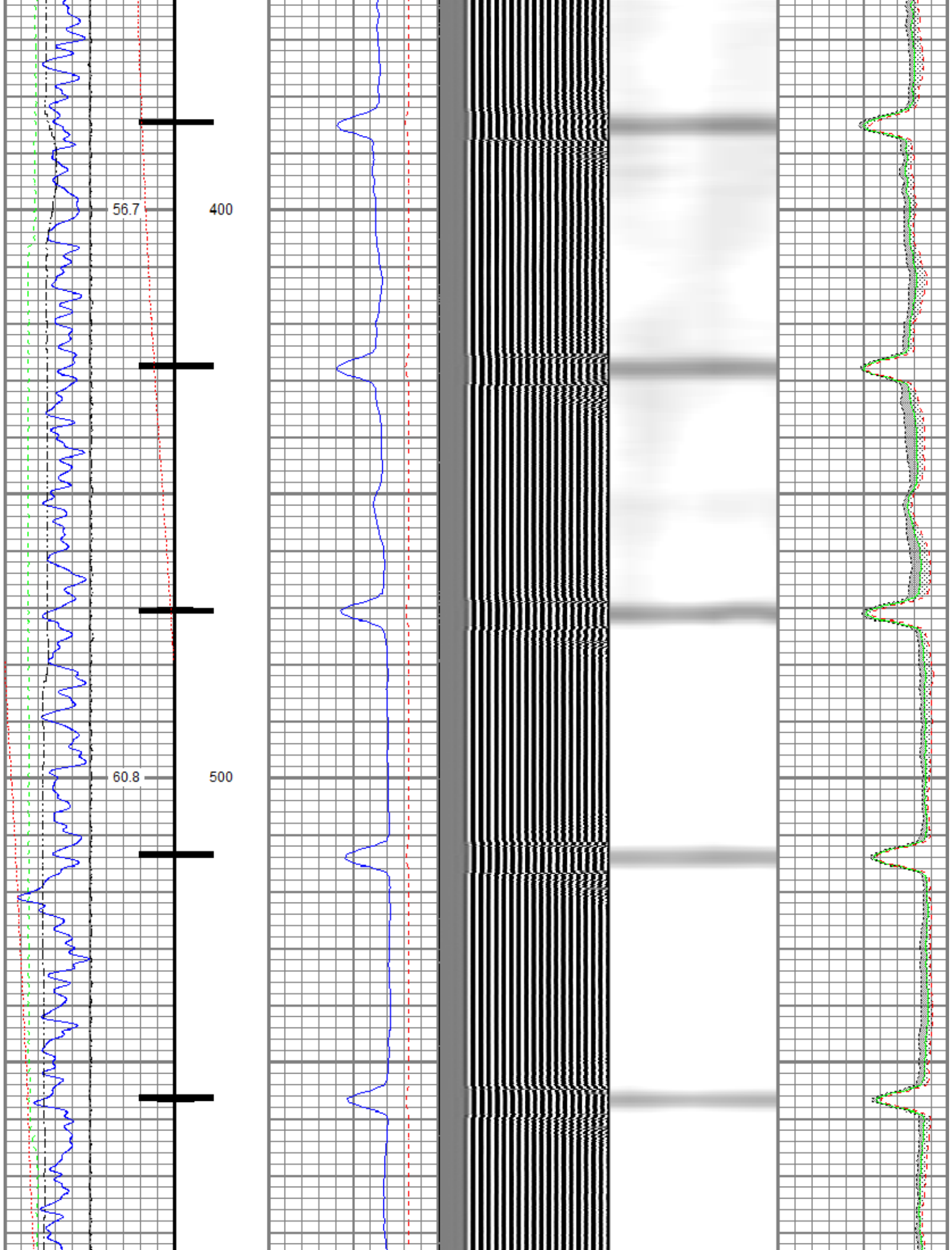
Recorded With 500 PSI Surface Induced Pressure

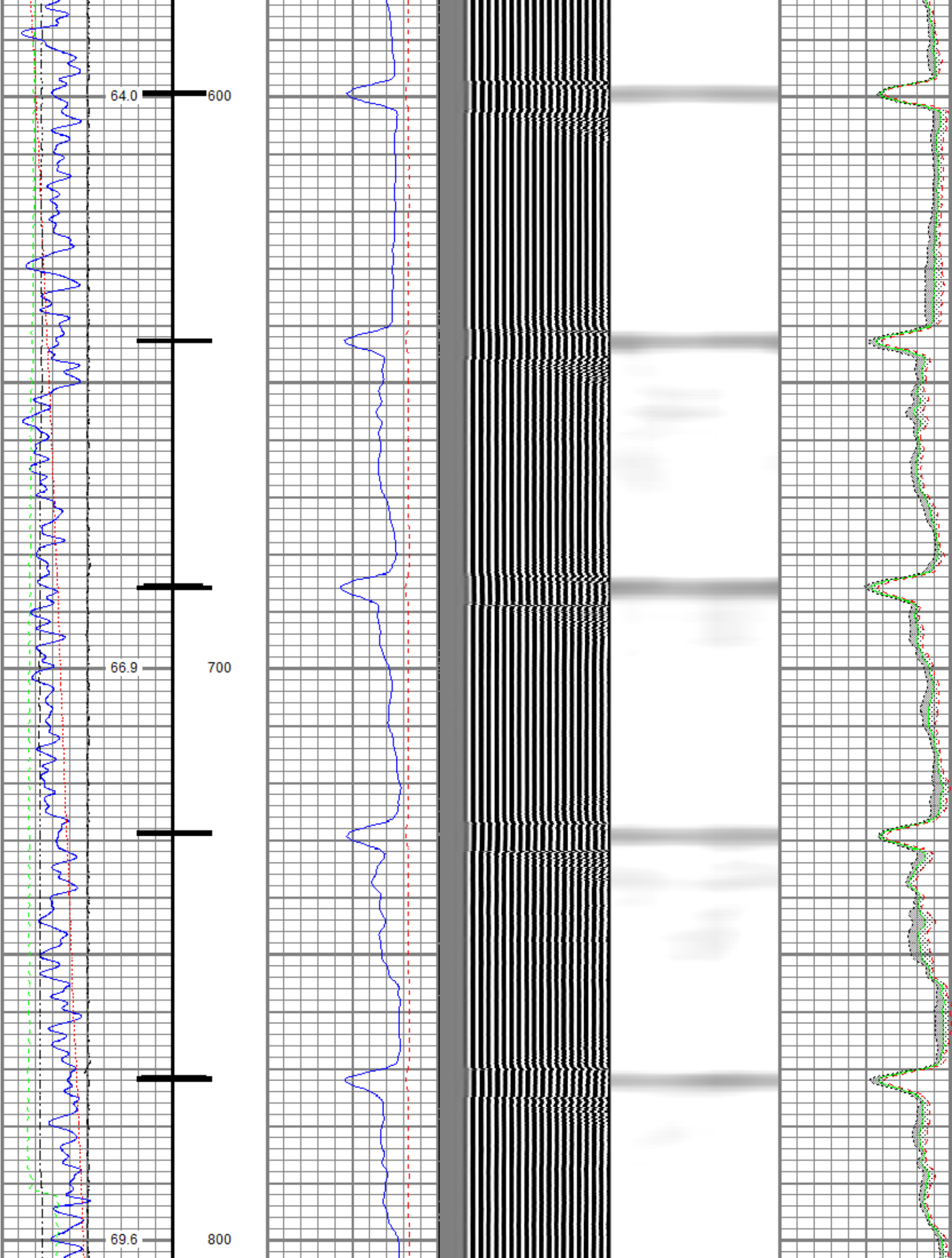
Database File	oxy\0512333299_oxy_miller x31-04_rbl_02-04-21\0512333299_oxy_miller x31-04_rbl_02-04-21.db
Dataset Pathname	main/pass1.11
Presentation Format	ros_radrii
Dataset Creation	Mon Feb 08 08:28:55 2021
Charted by	Depth in Feet scaled 1:240

Gamma Ray (GAPI) 120	0 3' Amplitude (mV) 100	5' Variable Density Log (usec) 1200	Sector Map	0 Average Amplitude 100
Casing Collar Locator	0 3' Amplitude x 5 (mV) 20			Minimum Amplitude
0 Temperature (degF) 20	0 3' Travel Time (usec) 150			0 100
Line Speed (ft/min) 150				Maximum Amplitude
0 Line Tension (lb) 2000				0 100
Differential Temperature (degF) 2				

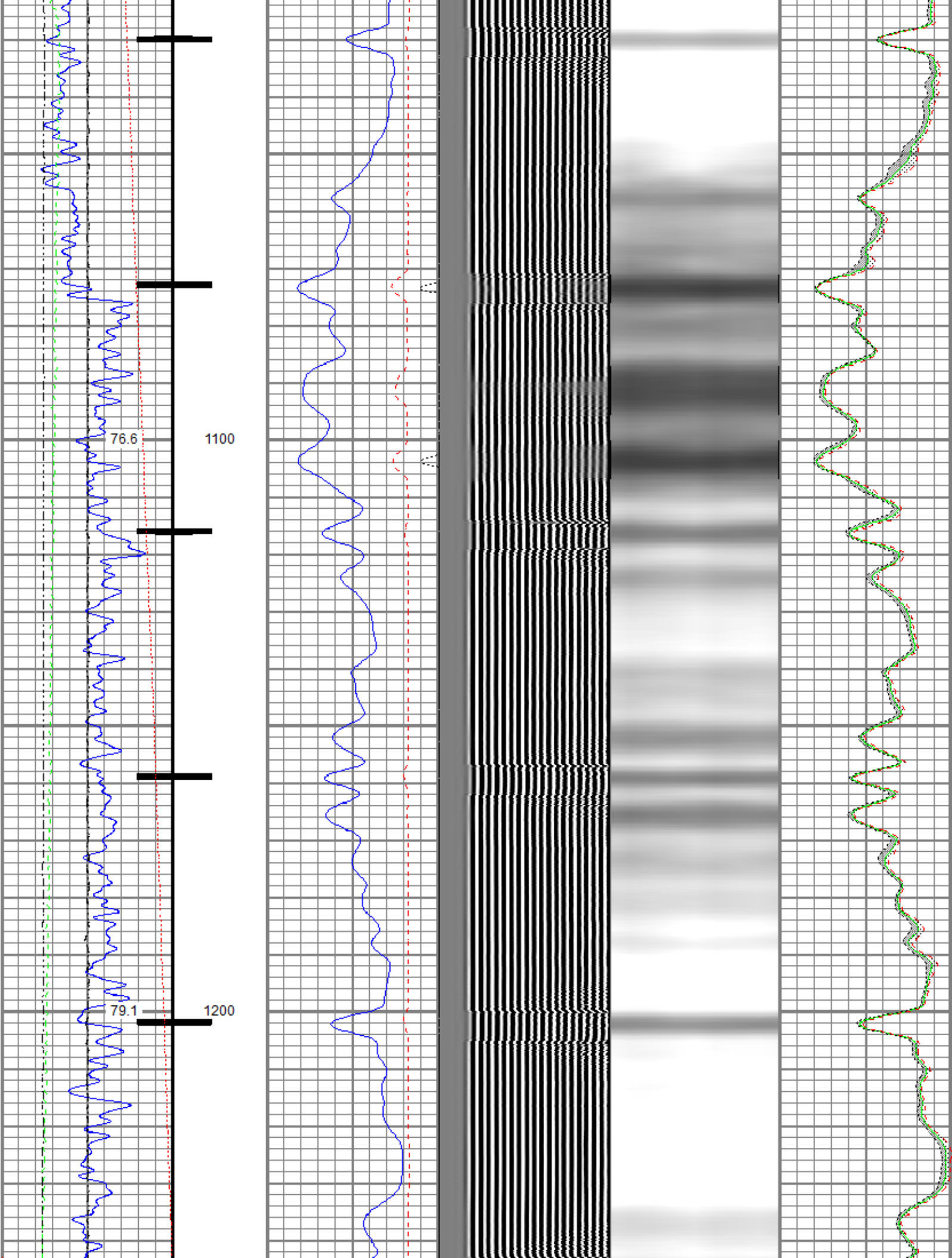


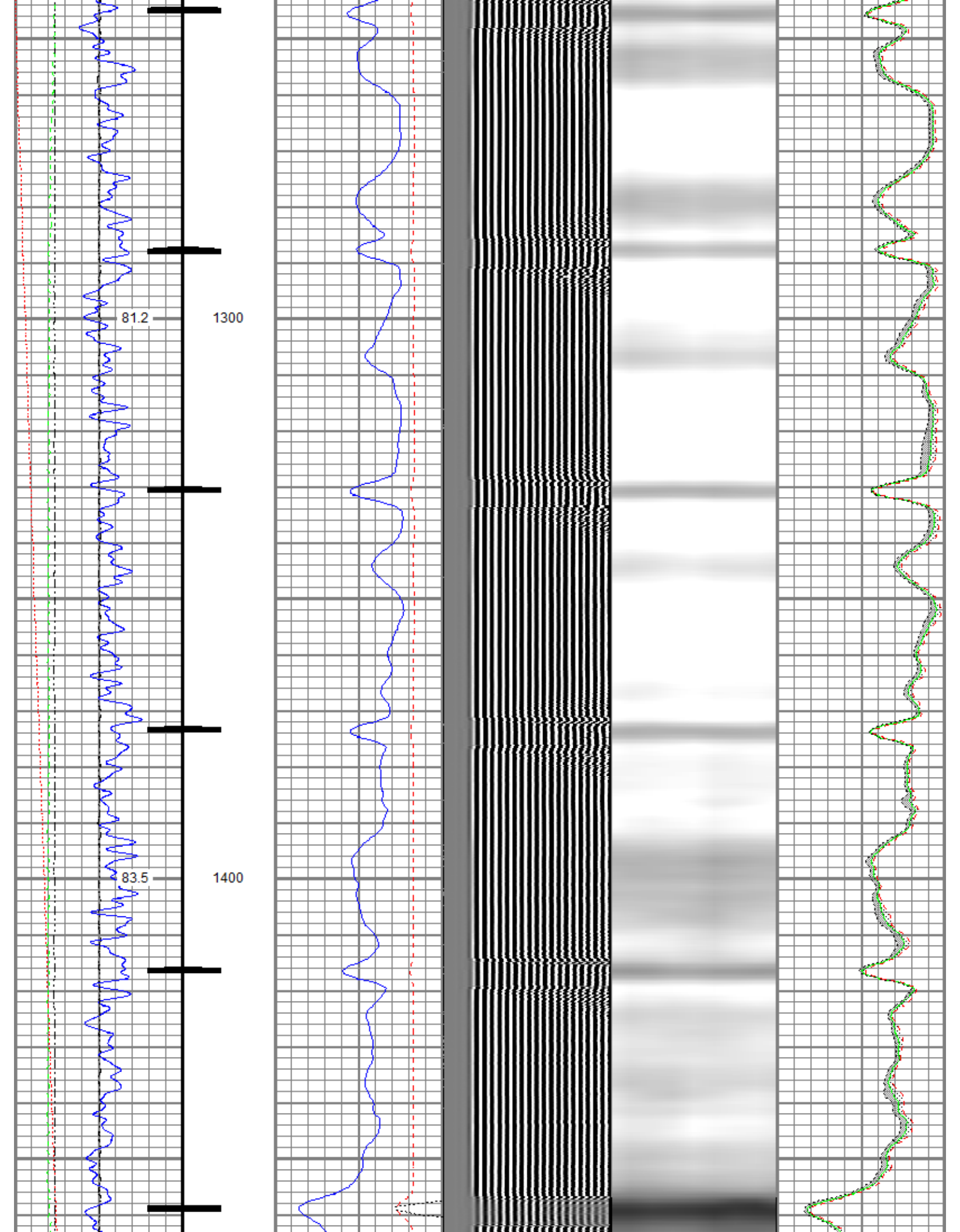


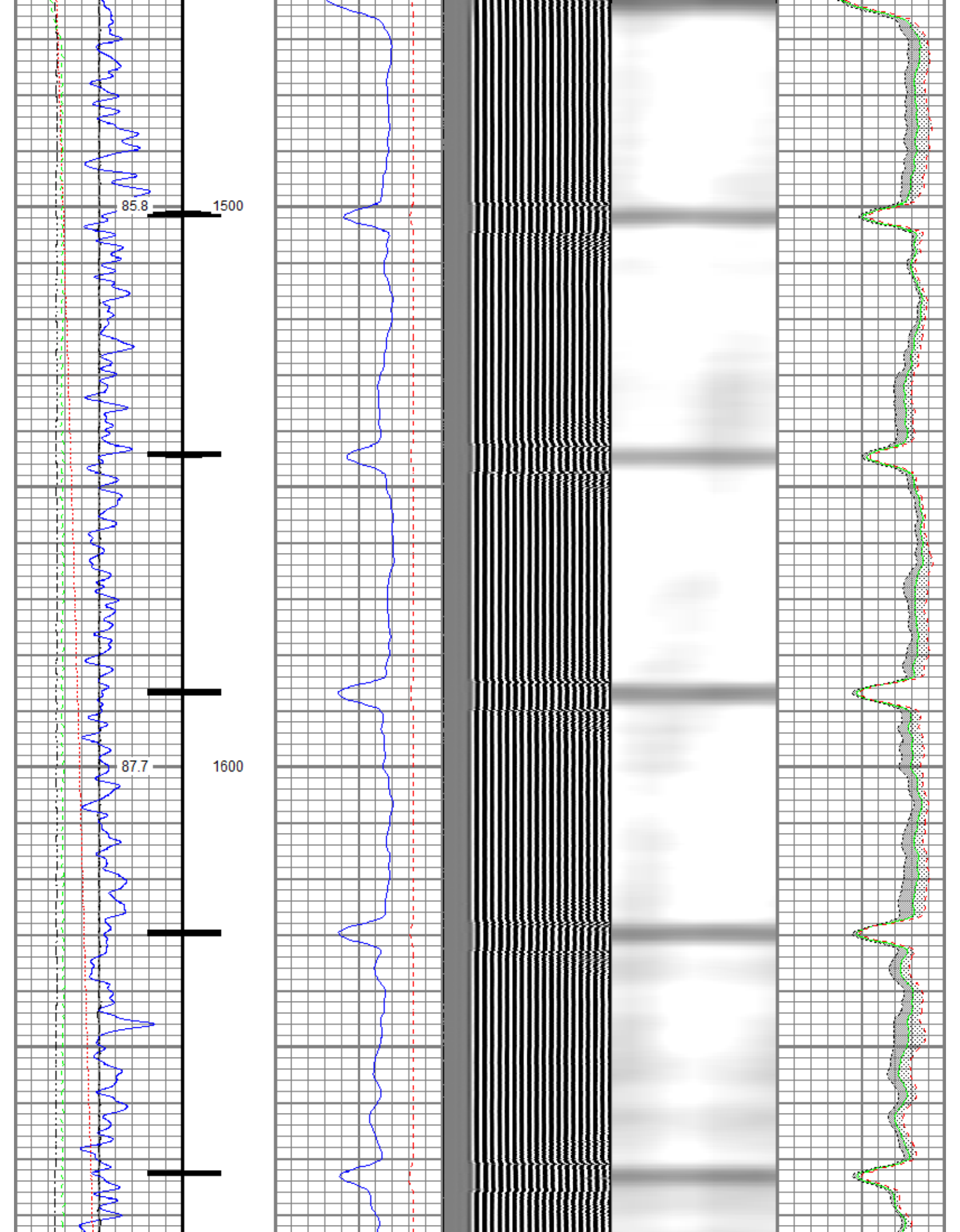


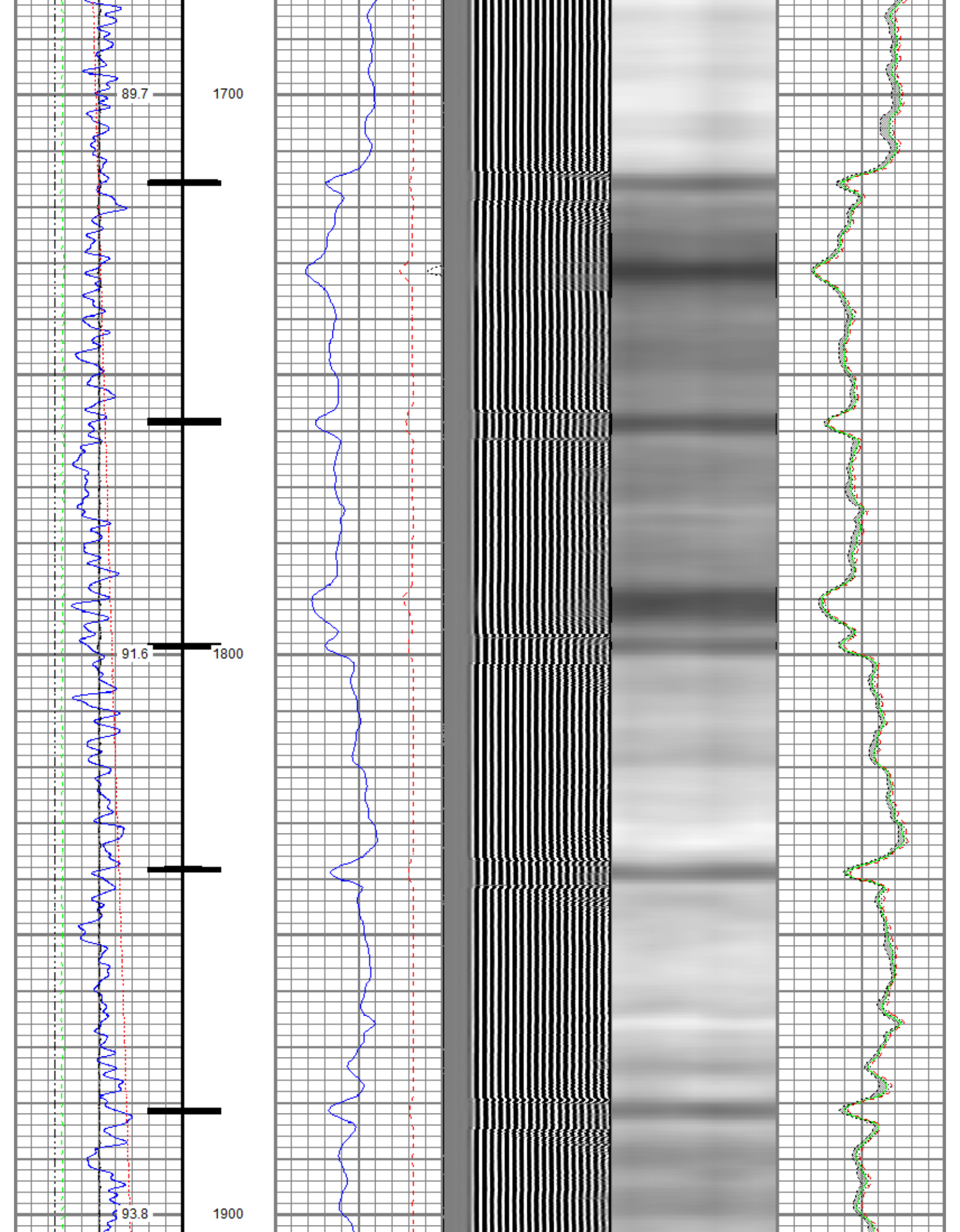


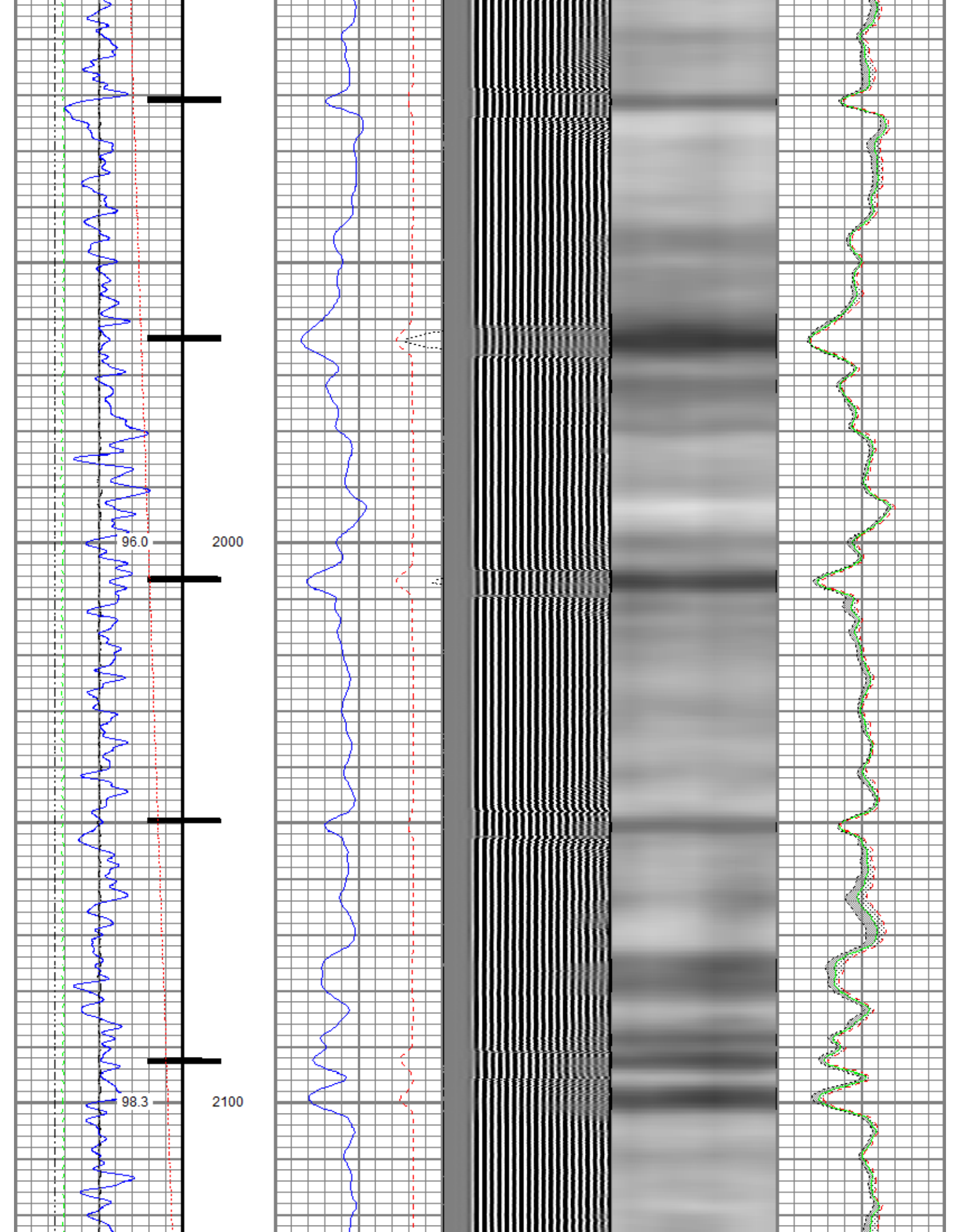


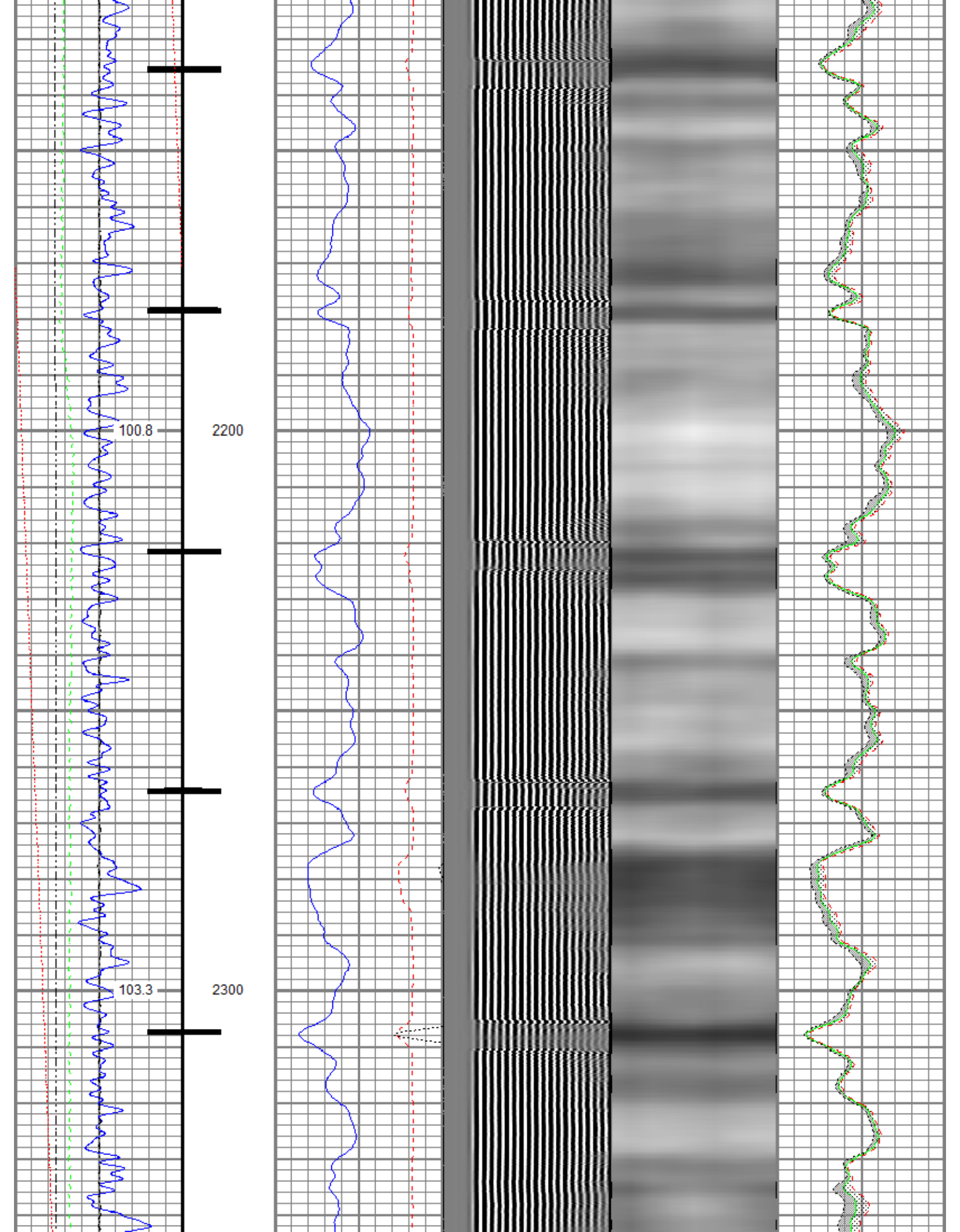


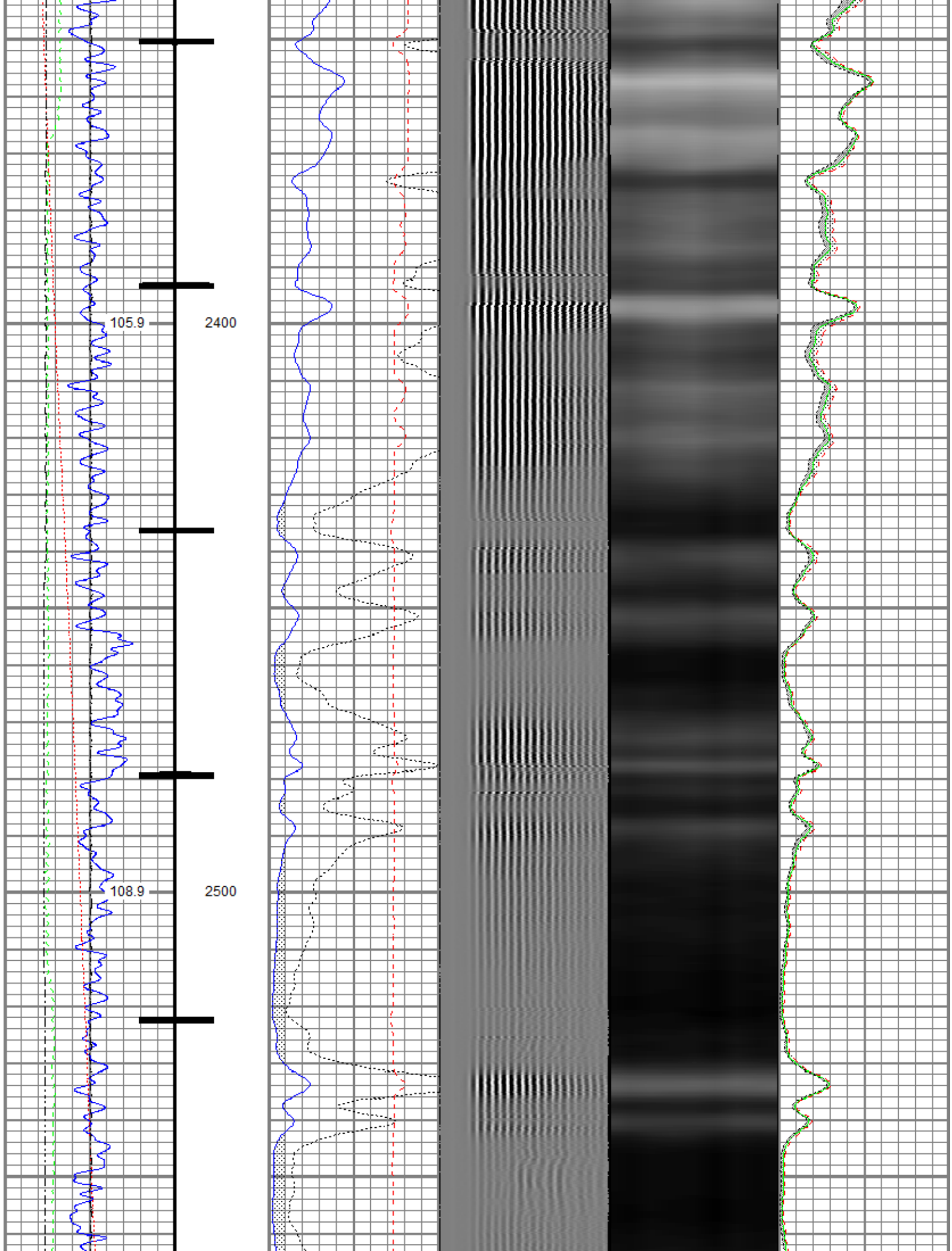


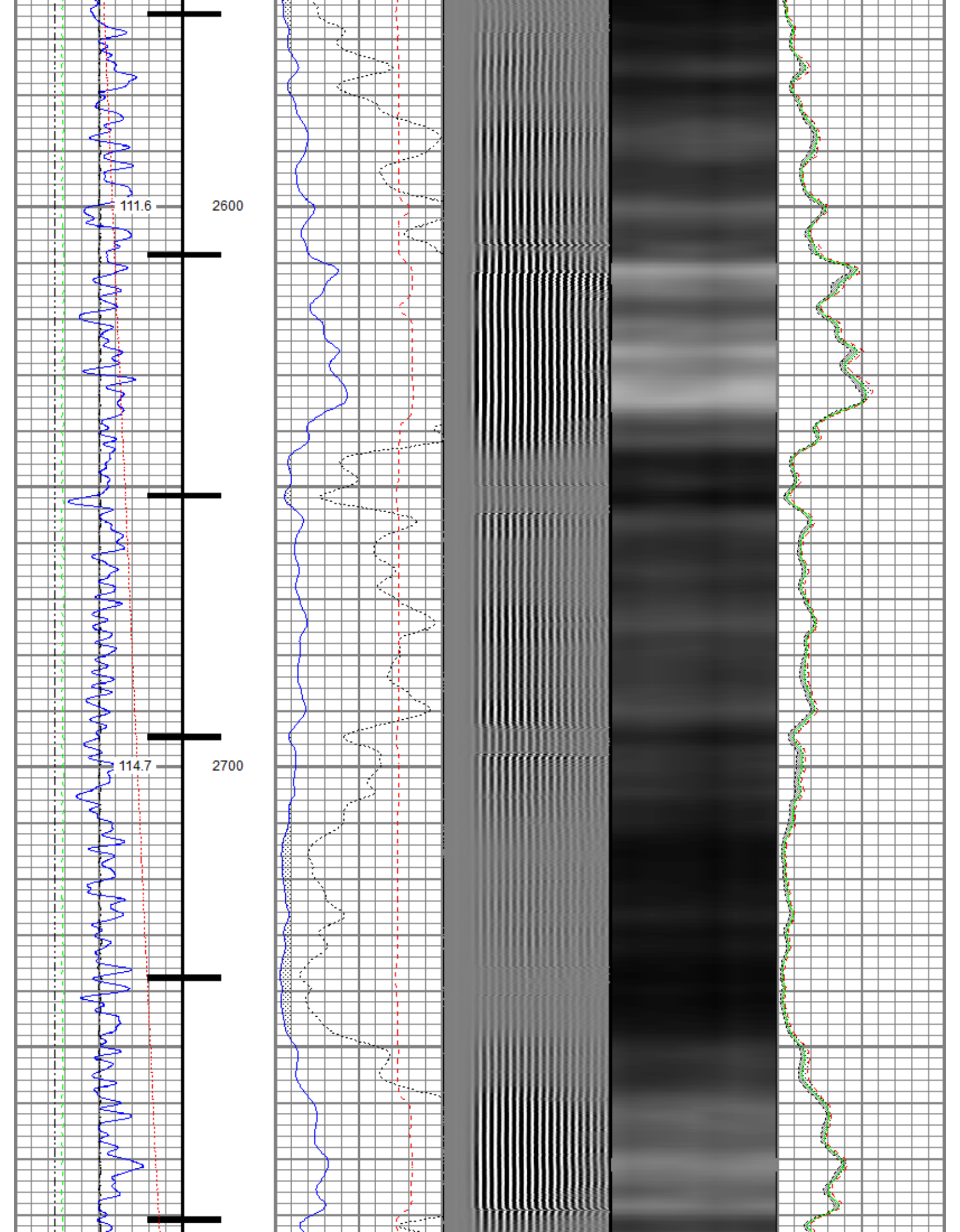


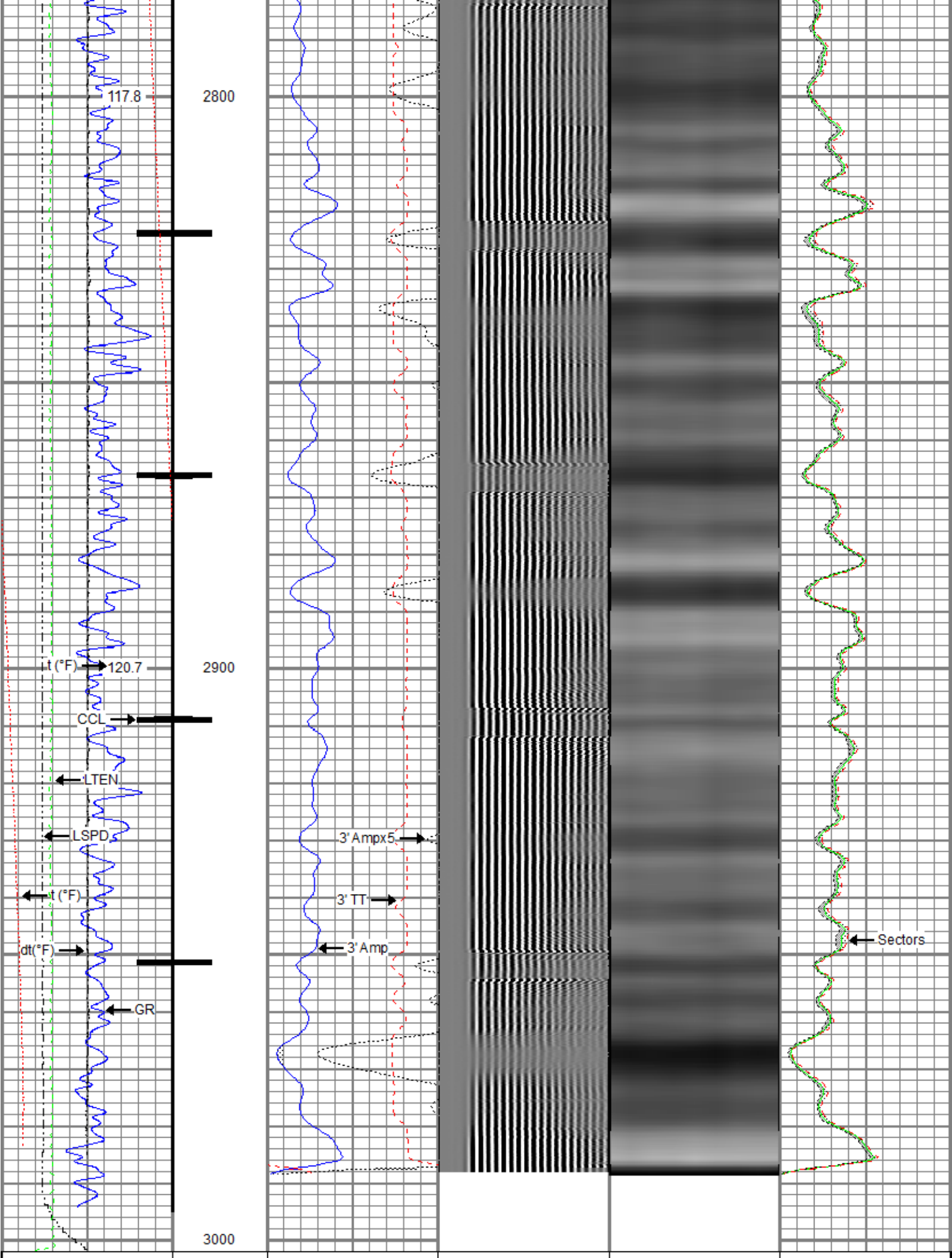












Gamma Ray		
0 (GAPI)	120	
Casing Collar Locator		
0 Temperature (degF)	20	
Line Speed		
-150 (ft/min)	150	
0 Line Tension (lb)	2000	
Differential Temperature		
-2 (degF)	2	

0 3' Amplitude (mV)	100
3' Amplitude x 5	
0 (mV)	20
3' Travel Time	
650 (usec)	150

5' Variable Density Log		
200 (usec)	1200	

Sector Map

0 Average Amplitude	100
Minimum Amplitude	
0	100
Maximum Amplitude	
0	100



# Repeat Pass

Recorded With 500 PSI Surface Induced Pressure

Database File oxy\0512333299\_oxy\_miller x31-04\_rbl\_02-04-21\0512333299\_oxy\_miller x31-04\_rbl\_02-04-21.db  
 Dataset Pathname repeat/pass1.2  
 Presentation Format ros\_radrii  
 Dataset Creation Mon Feb 08 08:34:26 2021  
 Charted by Depth in Feet scaled 1:240

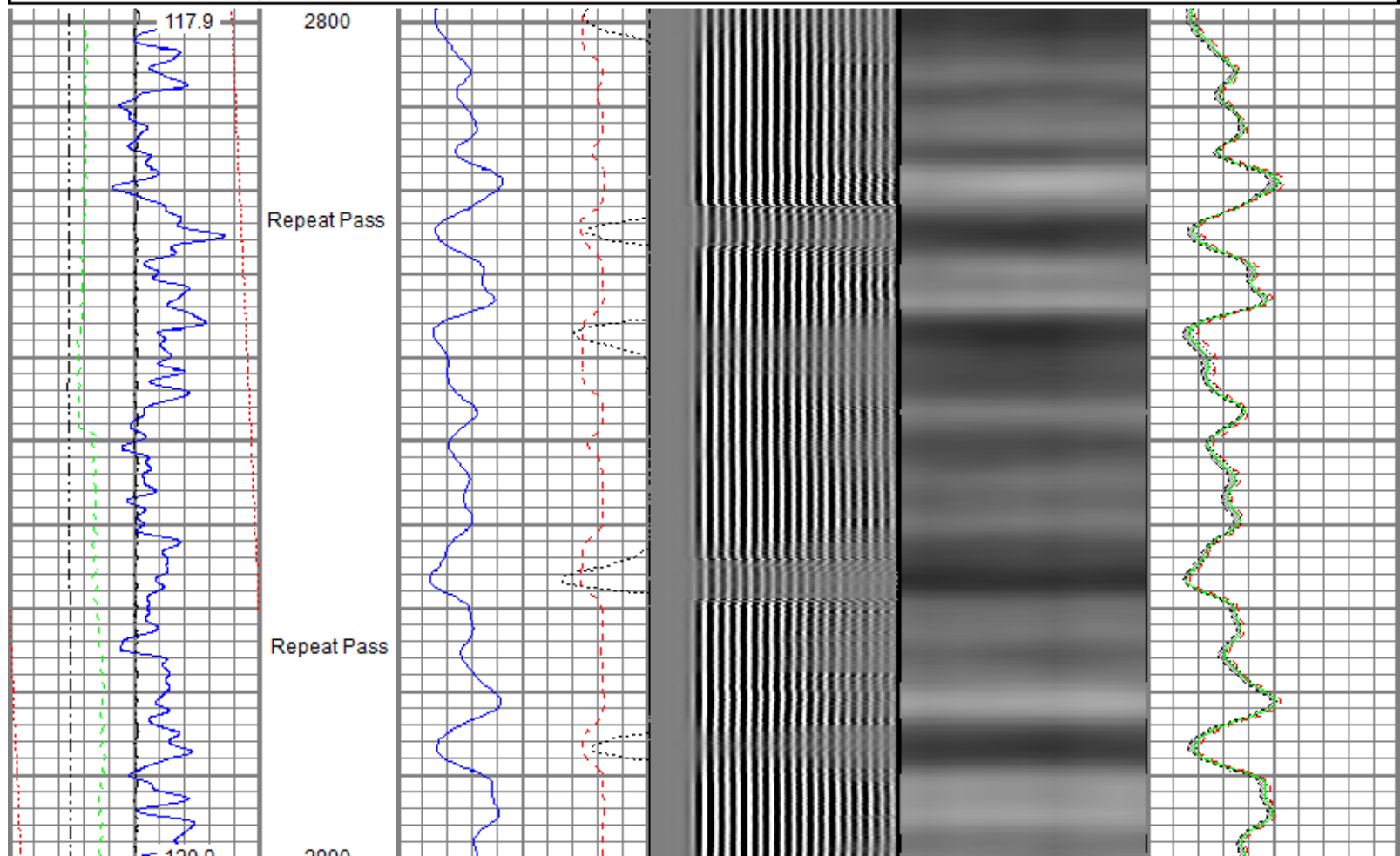
Gamma Ray		
0 (GAPI)	120	
0 Temperature (degF)	20	
Line Speed		
-150 (ft/min)	150	
0 Line Tension (lb)	2000	
Differential Temperature		
-2 (degF)	2	

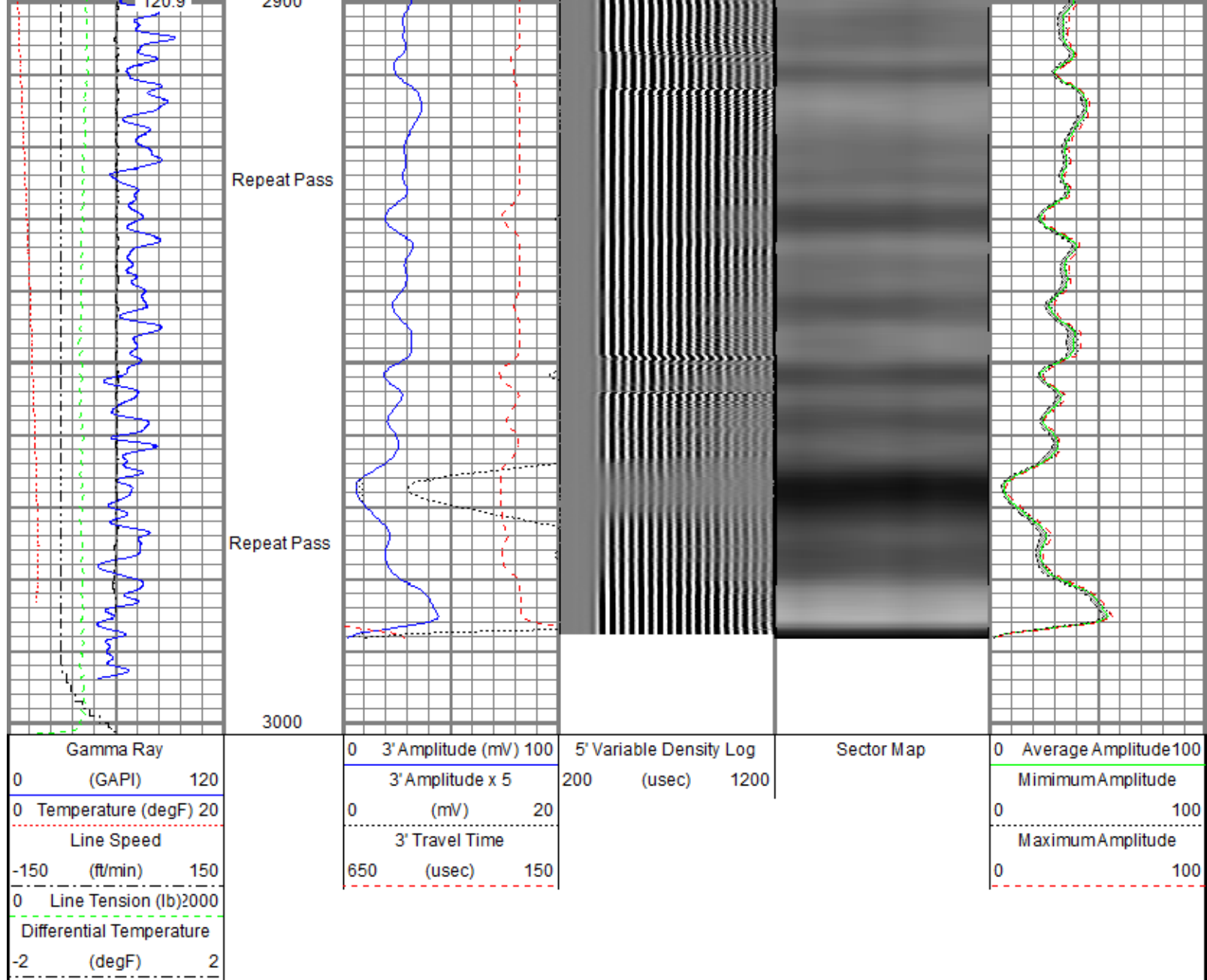
0 3' Amplitude (mV)	100
3' Amplitude x 5	
0 (mV)	20
3' Travel Time	
650 (usec)	150

5' Variable Density Log		
200 (usec)	1200	

Sector Map

0 Average Amplitude	100
Minimum Amplitude	
0	100
Maximum Amplitude	
0	100





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	17.04		Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	3.60
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
			Probe Radii-2750 RBT (120855)	9.39	2.75	105.00

WVFS8	14.81		Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub			
WVFS7	14.81					
WVFS6	14.81					
WVFS5	14.81					
WVFS4	14.81					
WVFS3	14.81					
WVFS2	14.81					
WVFS1	14.81					
WVFCAL	14.81					
WVF3FT	14.81					
WVF5FT	13.81					
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
CCL\$2	6.80					
CCL\$1	6.80					
GR	5.46		Probe GR-CCL-2750 6PB (FW1810-044) Probe 2-3/4" rev.1 Digital Scintillation Gamma Ray/CCL Combined with 6 Pin Bottom for CNT	4.80	2.75	55.00
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
LOCTIM	0.00					
UTCTIM	0.00					

Dataset: 0512333299\_oxy\_miller x31-04\_rbl\_02-04-21.db: field/well/main/pass1.11  
 Total length: 23.86 ft  
 Total weight: 223.60 lb  
 O.D.: 2.75 in

Calibration Report

Database File c:\programdata\warrior\data\oxy\0512333299\_oxy\_miller x31-04\_rbl\_02-04-21\0512333299\_oxy\_miller x31-04\_rbl\_02-04-21.db  
 Dataset Pathname main/pass1.11  
 Dataset Creation Mon Feb 08 08:28:55 2021

Gamma Ray Calibration Report

Serial Number: FW1810-044  
 Tool Model: 2750 6PB  
 Performed: Tue Dec 3 09:24:53 2019  
 Calibrator Value: 637.0 GAPI  
 Background Reading: 105.3 cps  
 Calibrator Reading: 1221.0 cps  
 Sensitivity: 0.5709 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: 120855  
 Tool Model: 2750 RBT  
 Calibration Casing Diameter: 4.500 in

Calibration Casing Diameter: 4.500 in  
 Calibration Depth: 8.871 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	0.460	0.800	81.196	174.921	0.679
CAL	0.660	0.954				
5'	0.015	0.439	0.800	81.196	189.693	-2.061
SUM						
S1	0.001	0.442	0.000	100.000	226.509	-0.229
S2	-0.001	0.479	0.000	100.000	208.269	0.247
S3	-0.003	0.497	0.000	100.000	199.957	0.636
S4	-0.001	0.497	0.000	100.000	200.728	0.178
S5	-0.000	0.470	0.000	100.000	212.734	0.085
S6	0.001	0.443	0.000	100.000	225.967	-0.174
S7	-0.001	0.434	0.000	100.000	230.114	0.142
S8	-0.004	0.416	0.000	100.000	237.558	1.067

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.660	0.954	1.000	0.000

Air Zero Calibration, performed Thu Feb 4 10:42:53 2021:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.000		0.000			0.000
5'	0.000		0.000			0.000
SUM						
S1	0.000		0.000			0.000
S2	0.000		0.000			0.000
S3	0.000		0.000			0.000
S4	0.000		0.000			0.000
S5	0.000		0.000			0.000
S6	0.000		0.000			0.000
S7	0.000		0.000			0.000
S8	0.000		0.000			0.000

Temperature Calibration Report

Serial Number: 120855  
 Tool Model: 2750 RBT  
 Performed: Wed Dec 18 13:34:18 2019

	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF

Gain: 0.89  
 Offset: 0.60  
 Delta Spacing: 1



Company: Kerr-McGee Oil & Gas Onshore, L.P.  
 Well: Miller X31-04  
 Field: Wattenberg

County  
State

Weld  
Colorado