



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company				Whiting Oil & Gas Corporation				
Well				Razor 21A-2815A				
Field				Wildcat				
County				Weld				
State				Colorado				
Location:				API # : 05-123-37847				
SHL: 330' FNL 627' FEL Lat/Long: 40.830272/-103.863322 SEC 21 TWP 10N RGE 58W				Other Services				
Permanent Datum				Ground Level		Elevation		
Log Measured From				Kelly Bushing		4832'		
Drilling Measured From				Kelly Bushing		17 FT		
Date				07-NOV-2013		K.B. 4849' D.F. 4848' G.L. 4832'		
Run Number				One				
Depth Driller				12,818 FT				
Depth Logger				5118 FT				
Bottom Logged Interval				5114 FT				
Top Log Interval				Surface				
Open Hole Size				9.625"				
Type Fluid				Water				
Density / Viscosity				8.34 LB/GAL				
Max. Recorded Temp.				186 F				
Estimated Cement Top				47 FT				
Time Well Ready				ROA				
Time Logger on Bottom				---				
Equipment Number				HD 0255				
Location				Fort Lupton, CO				
Recorded By				Greg Jackson				
Witnessed By				Gary Chandler				
Borehole Record				Tubing Record				
Run Number		Bit	From	To	Size	Weight	From	To
Casing Record		Size (in)	Wgt (lbs/Ft)	Grade	Top	Bottom		
Surface Casing		9 5/8	36	J-55	Surface	1646 FT		
Intermediate #1		7	29	HCL-80	Surface	6340 FT		
Intermediate #2								
Liner		4 1/2	11.6	HCL-80	5099 FT	12,817 FT		

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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

Radial Cement Bond is Primary Log  
RCBL Logged with 1500 PSI Induced pressure @ surface  
Estimated Top of Cement @ 47'

Thank you for choosing FMC Technologies Completion Services, Inc.

Main Pass



Logged with 1500 PSI Induced Surface Pressure

Database File:processed\_11-07-13\_whiting\_razor 21a-2815a\_rbl.db

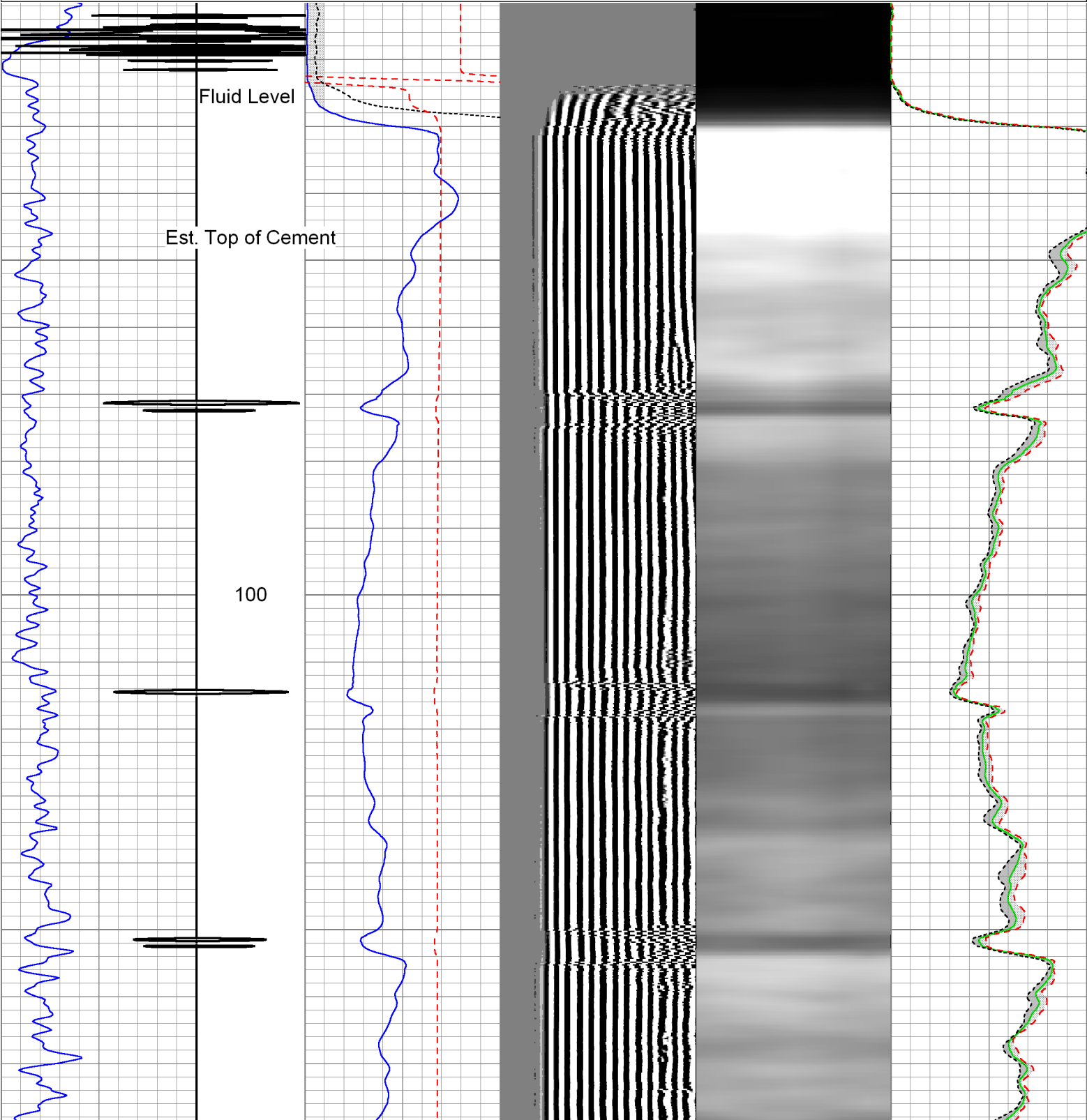
Dataset Pathname:rcbl2

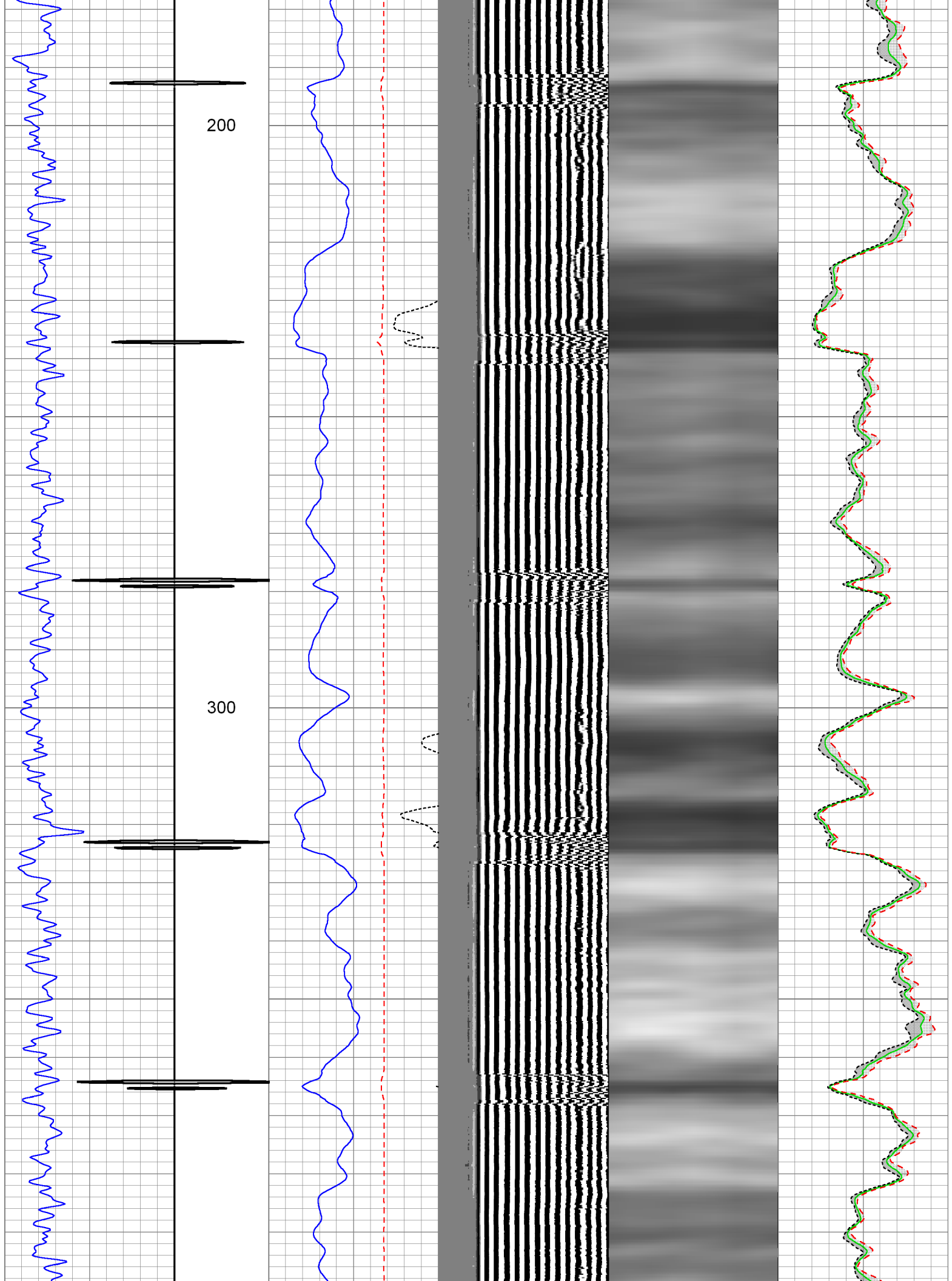
Presentation Format:rbl007

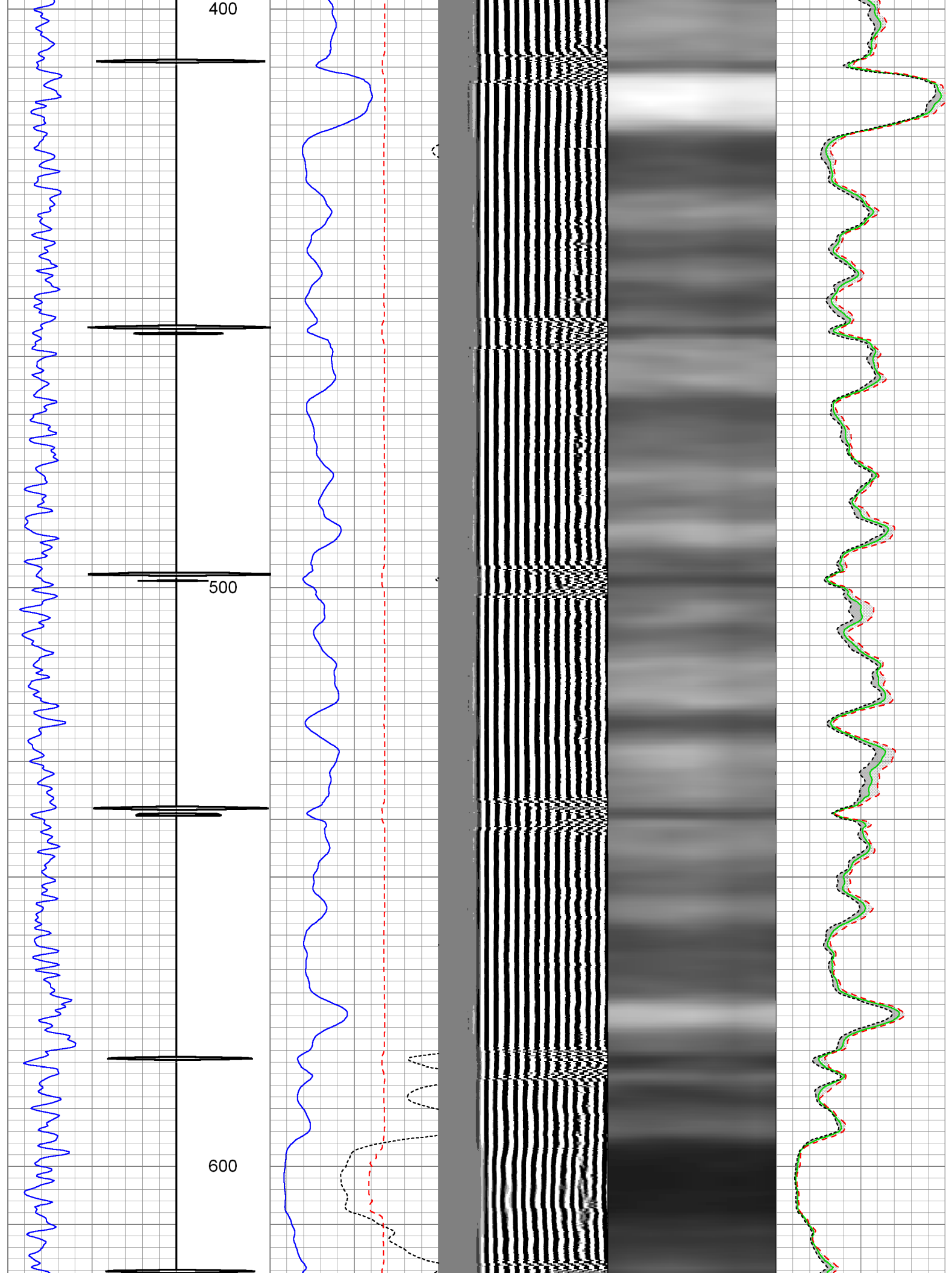
Dataset Creation:Thu Nov 07 13:11:45 2013 by Log SCH 111116

Charted by:Depth in Feet scaled 1:240

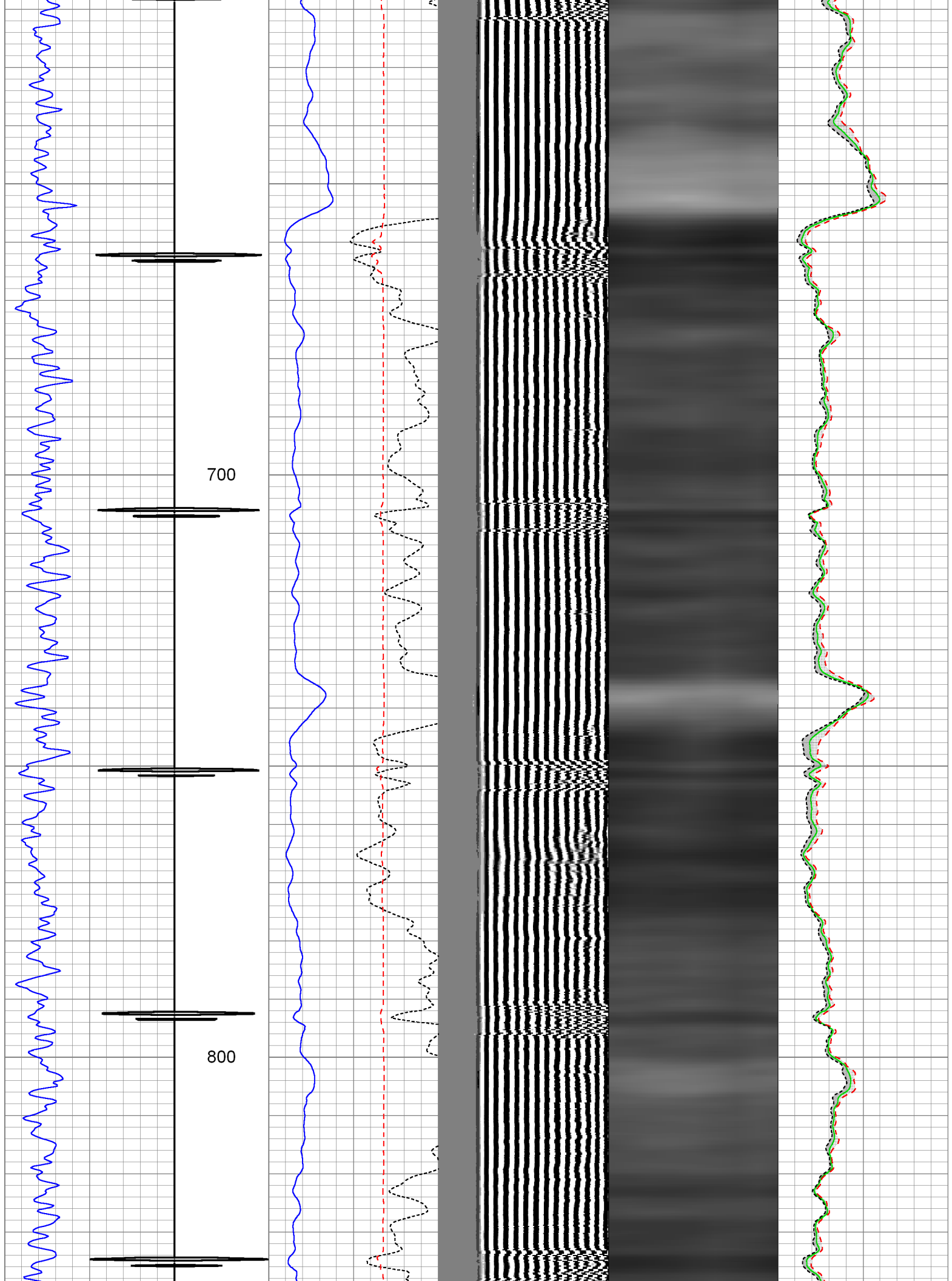
Gamma Ray		3' Amplitude		5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI) 150	0	(mV) 100	200	1200			0	100
Collar Locator		3' Amplitude x 5						Minimum Amplitude	
		0	(mV) 20					0	100
		3' Travel Time						Maximum Amplitude	
		650	(usec) 150					0	100

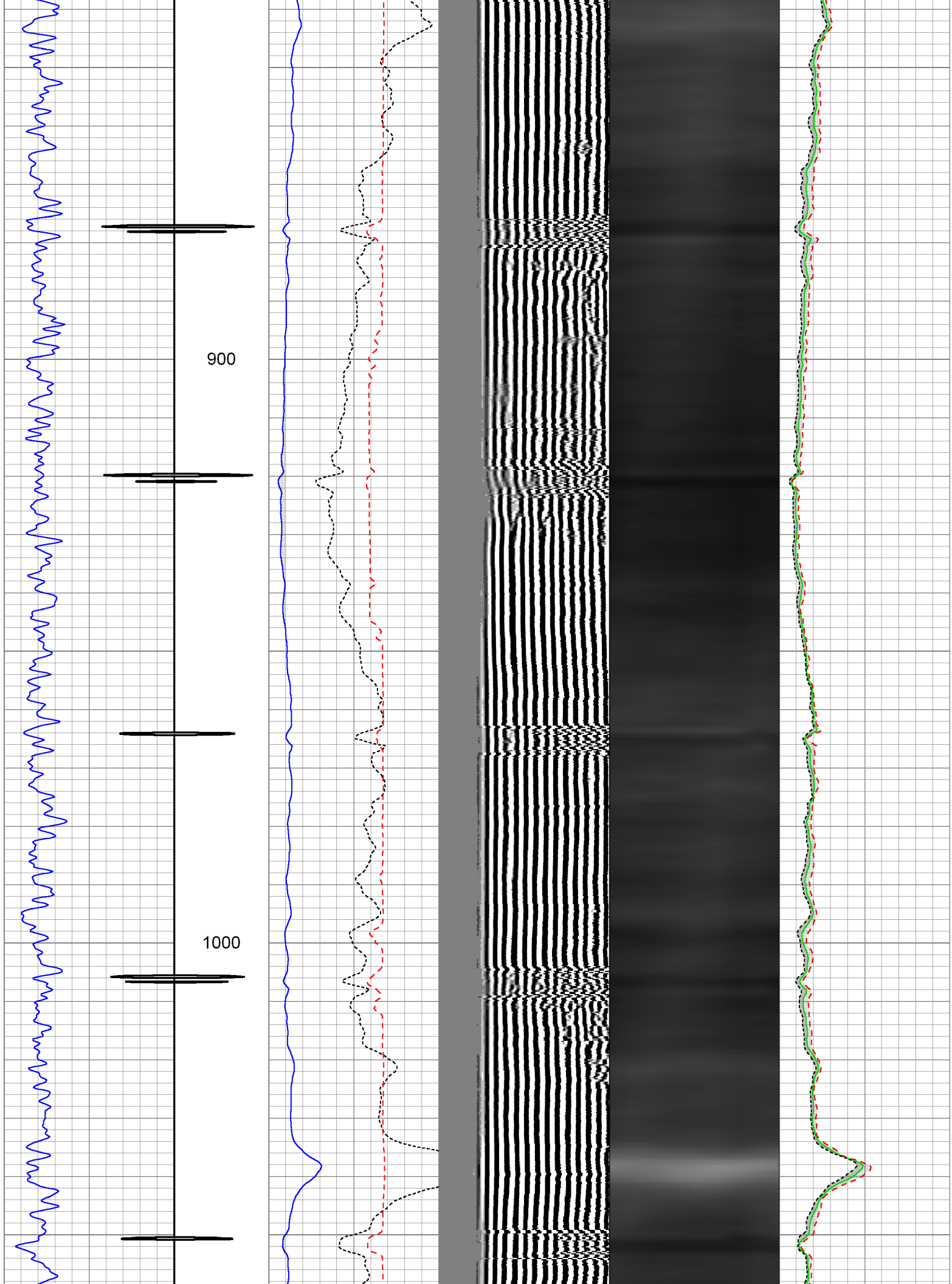


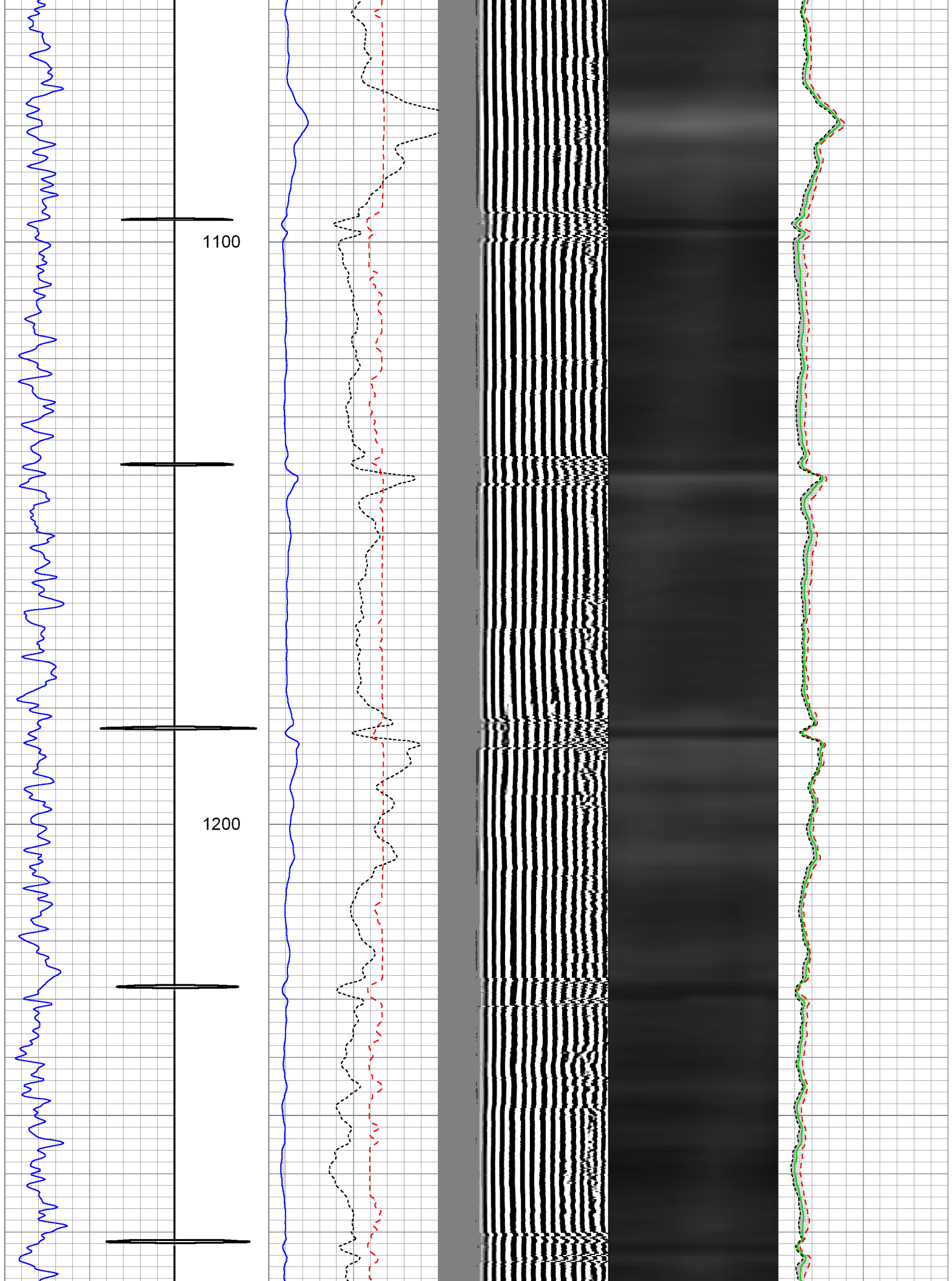


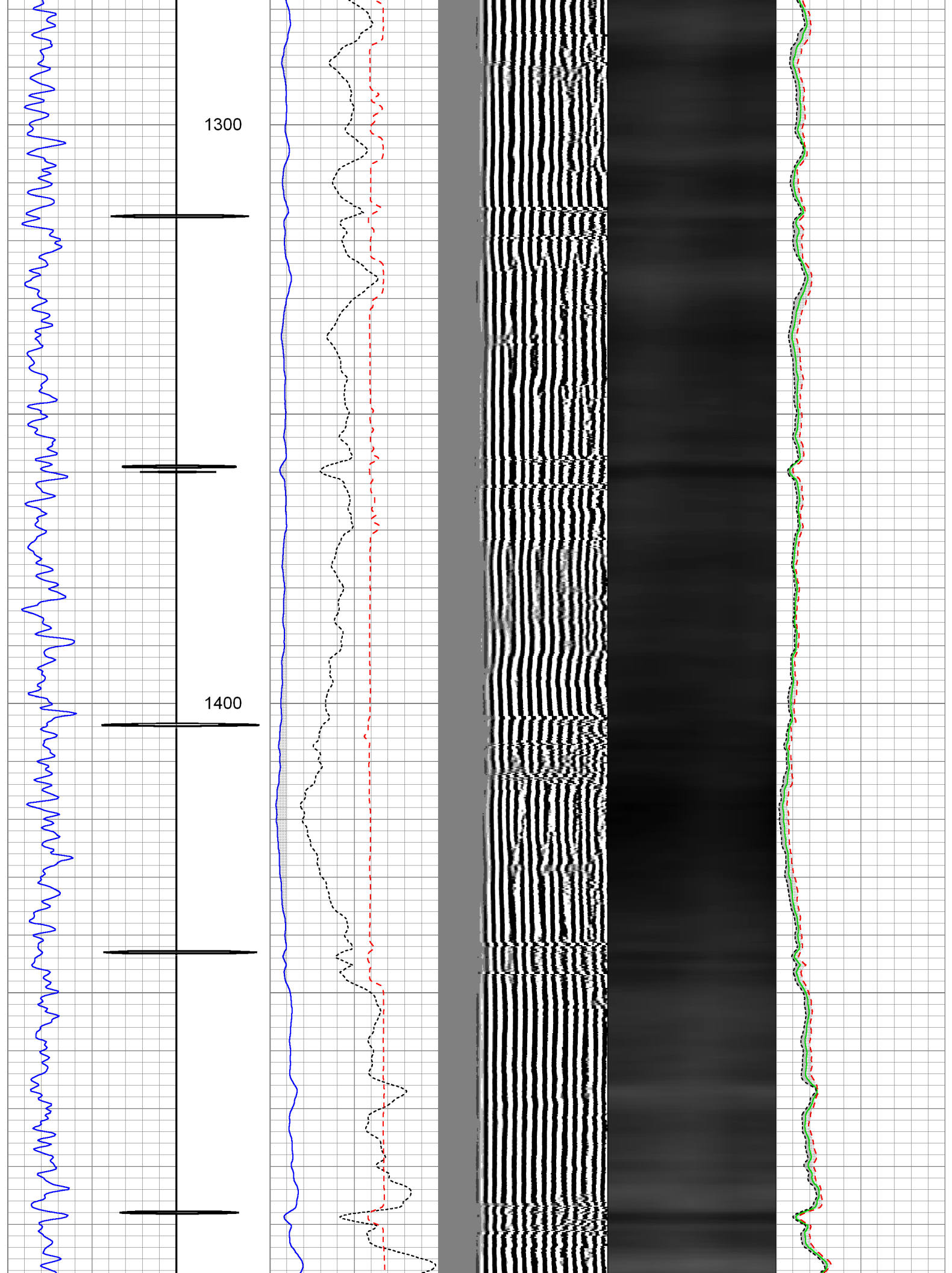


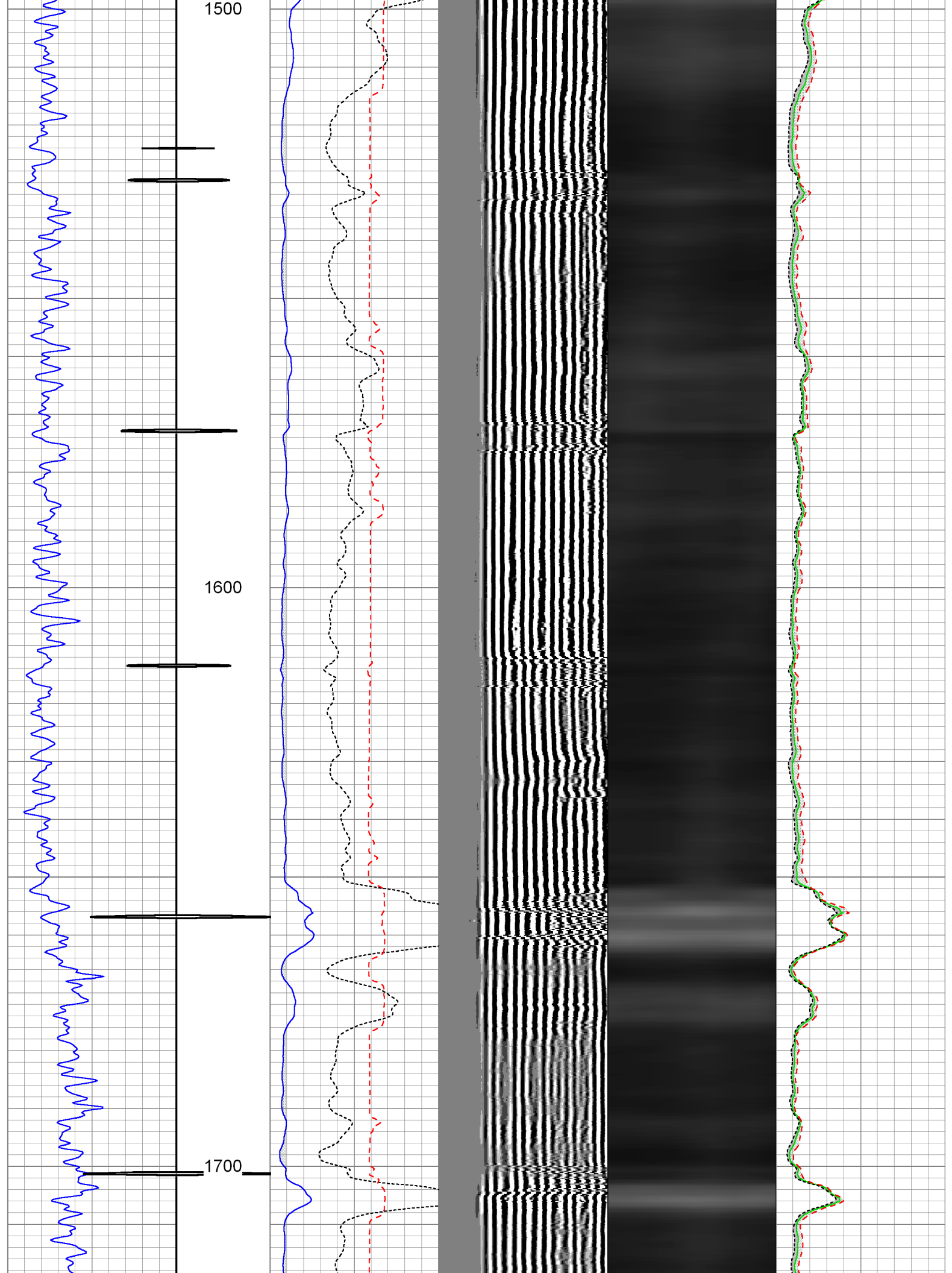


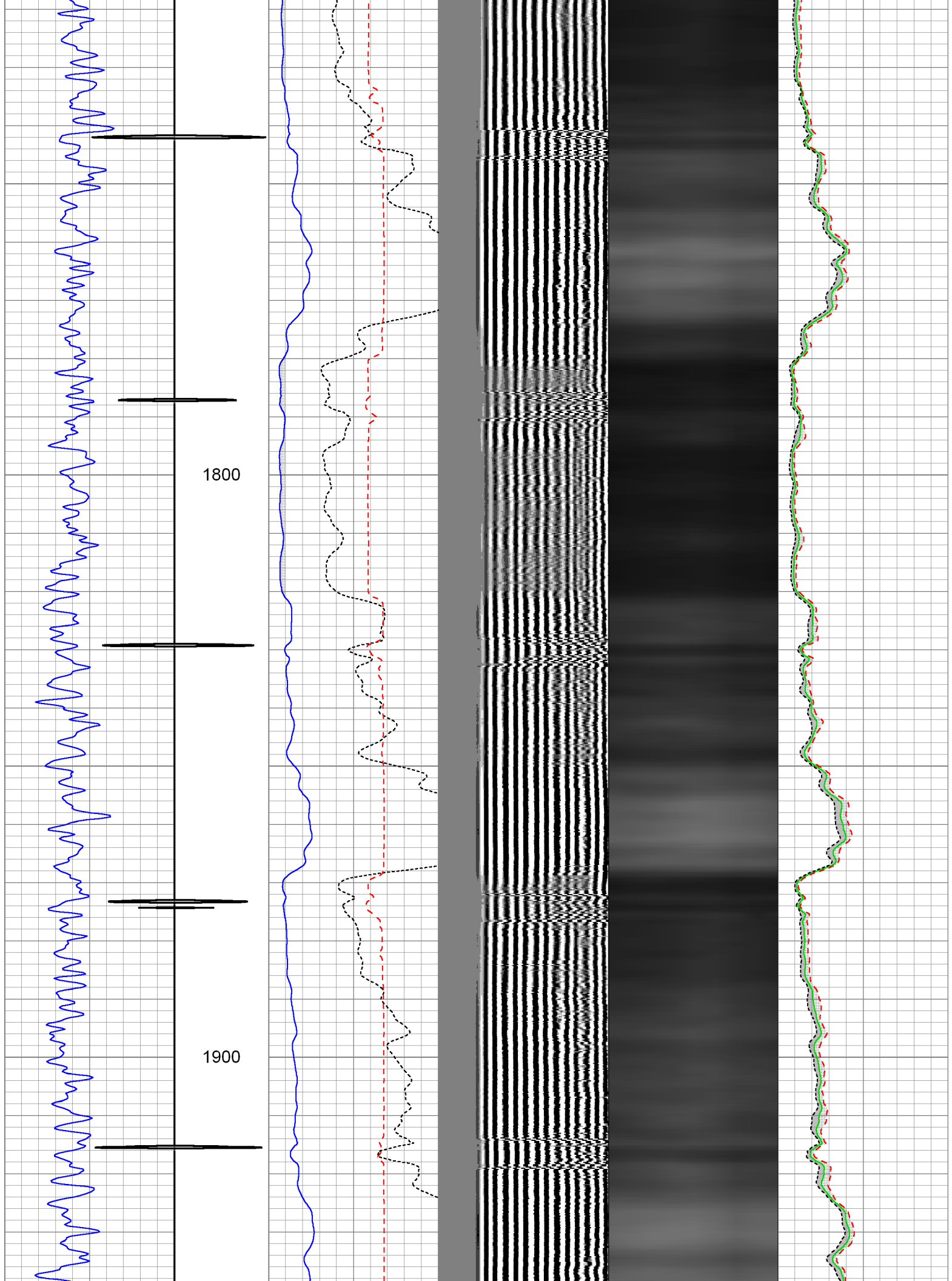




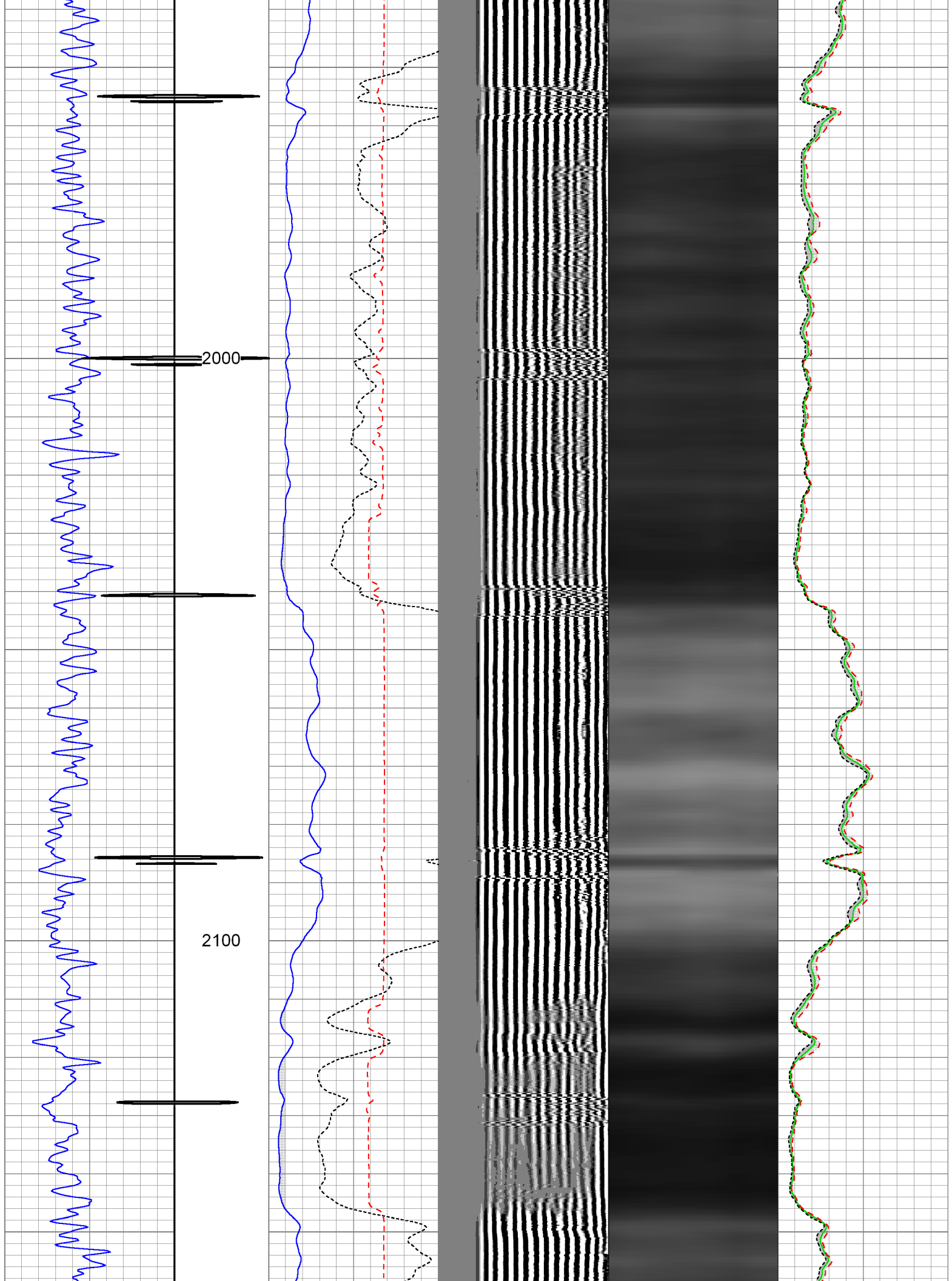


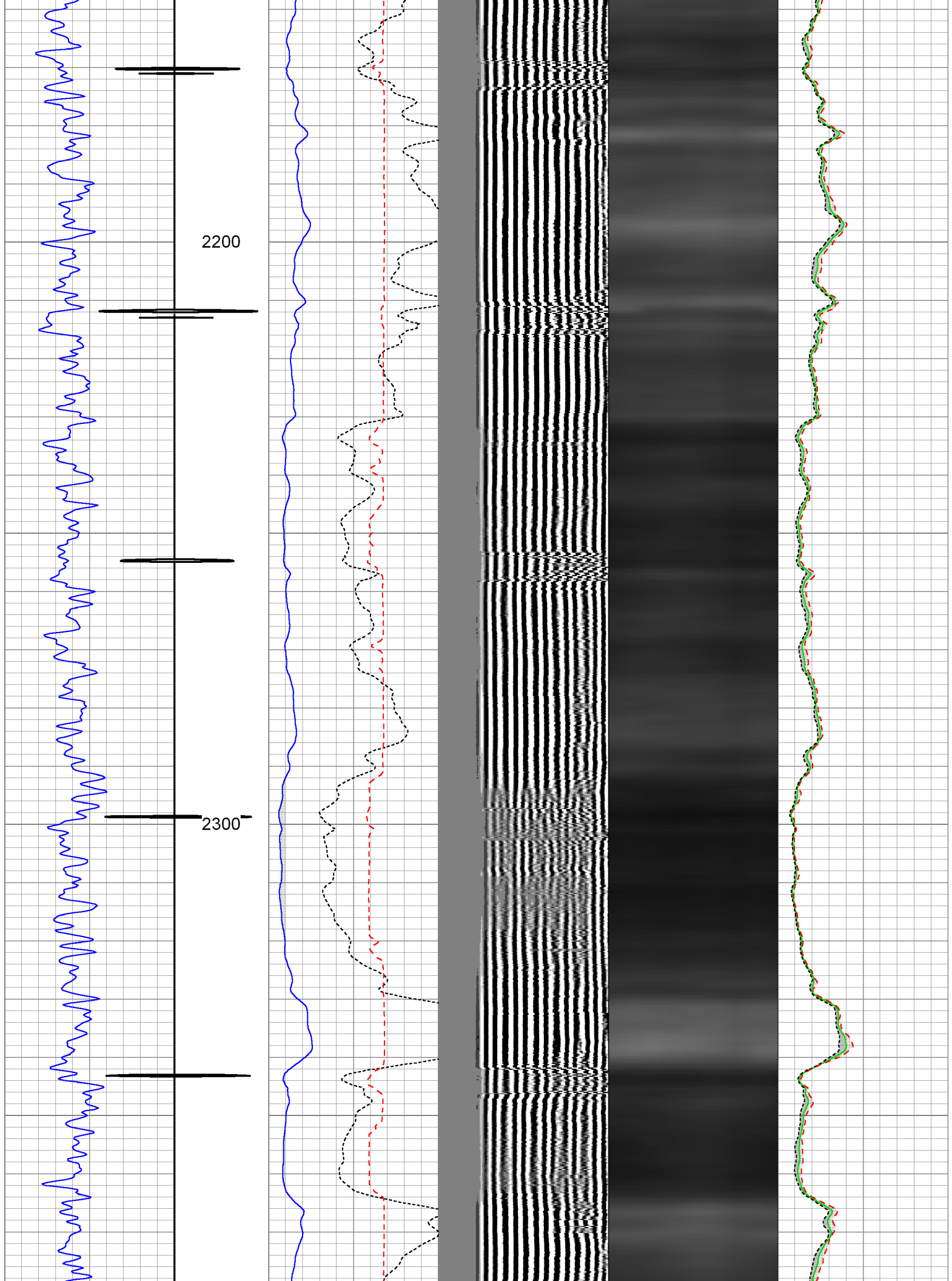


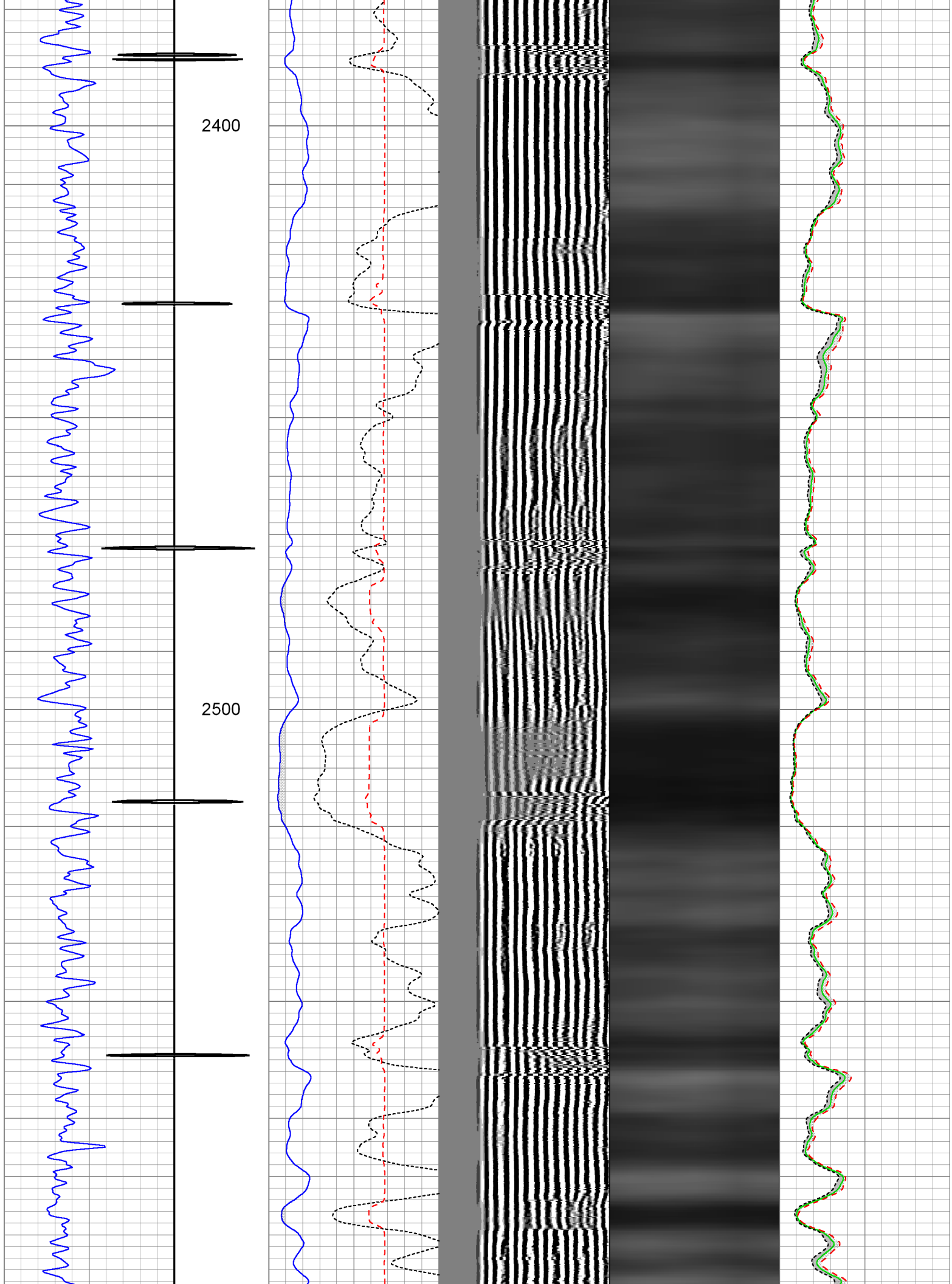


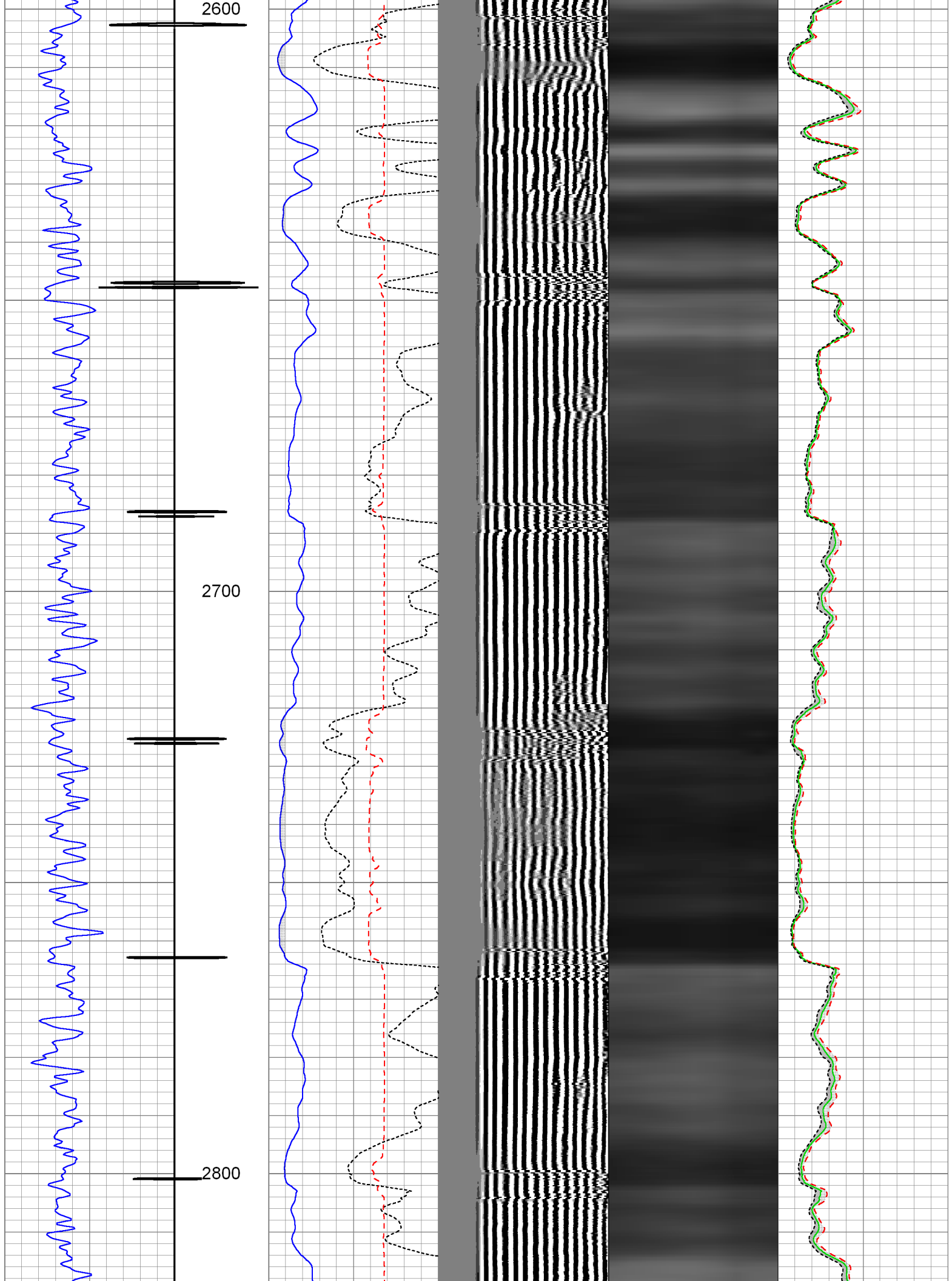


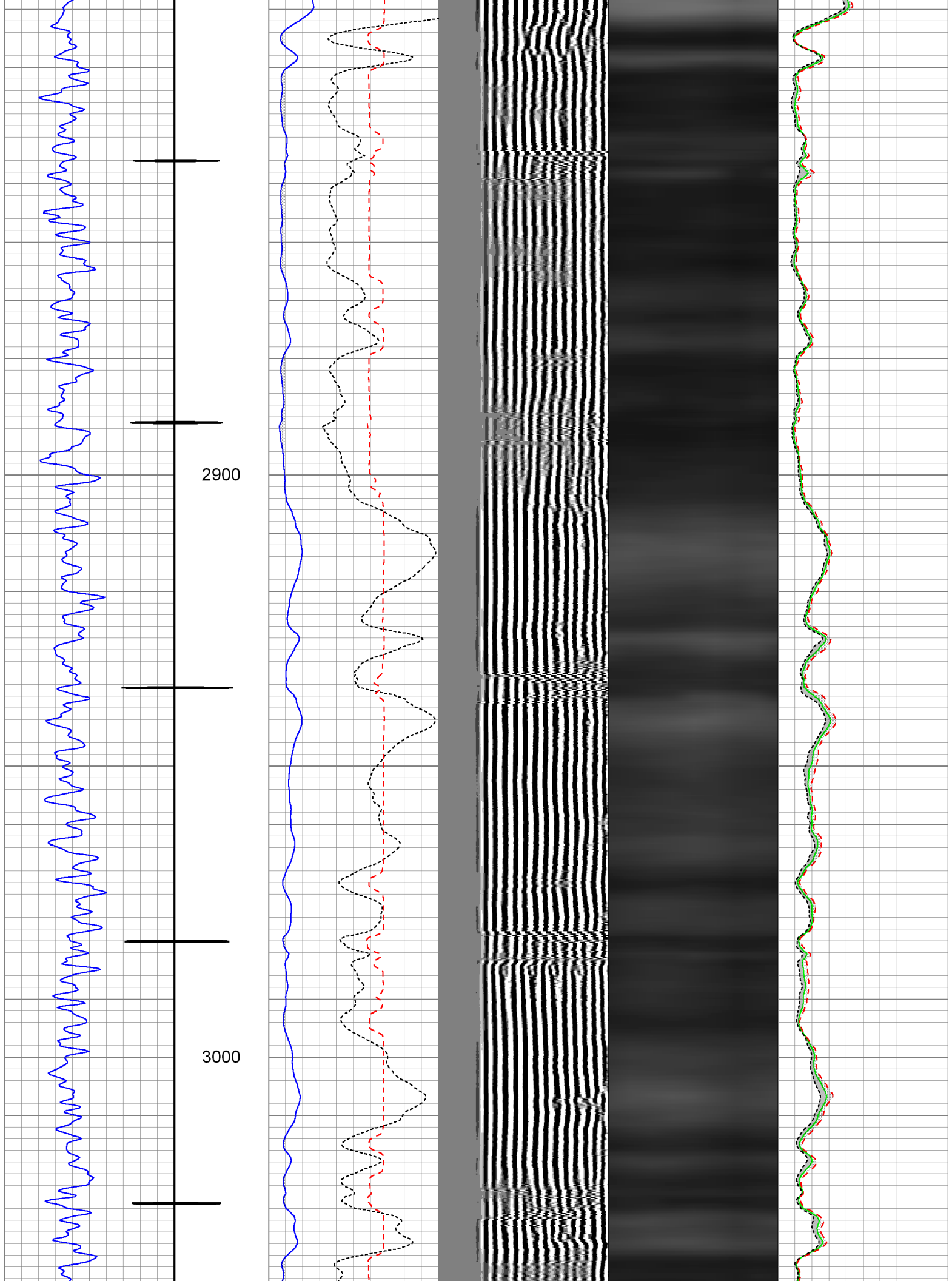




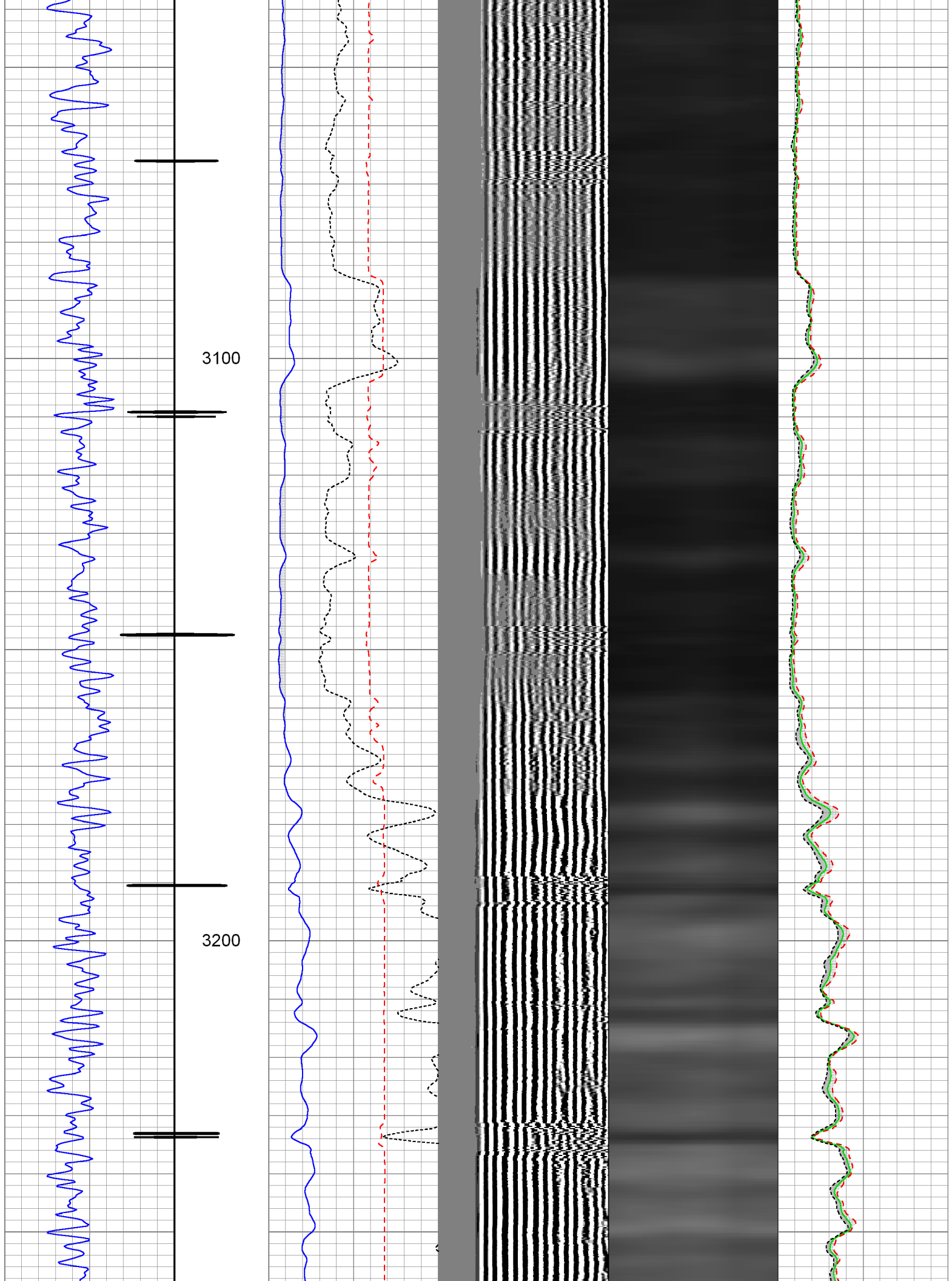




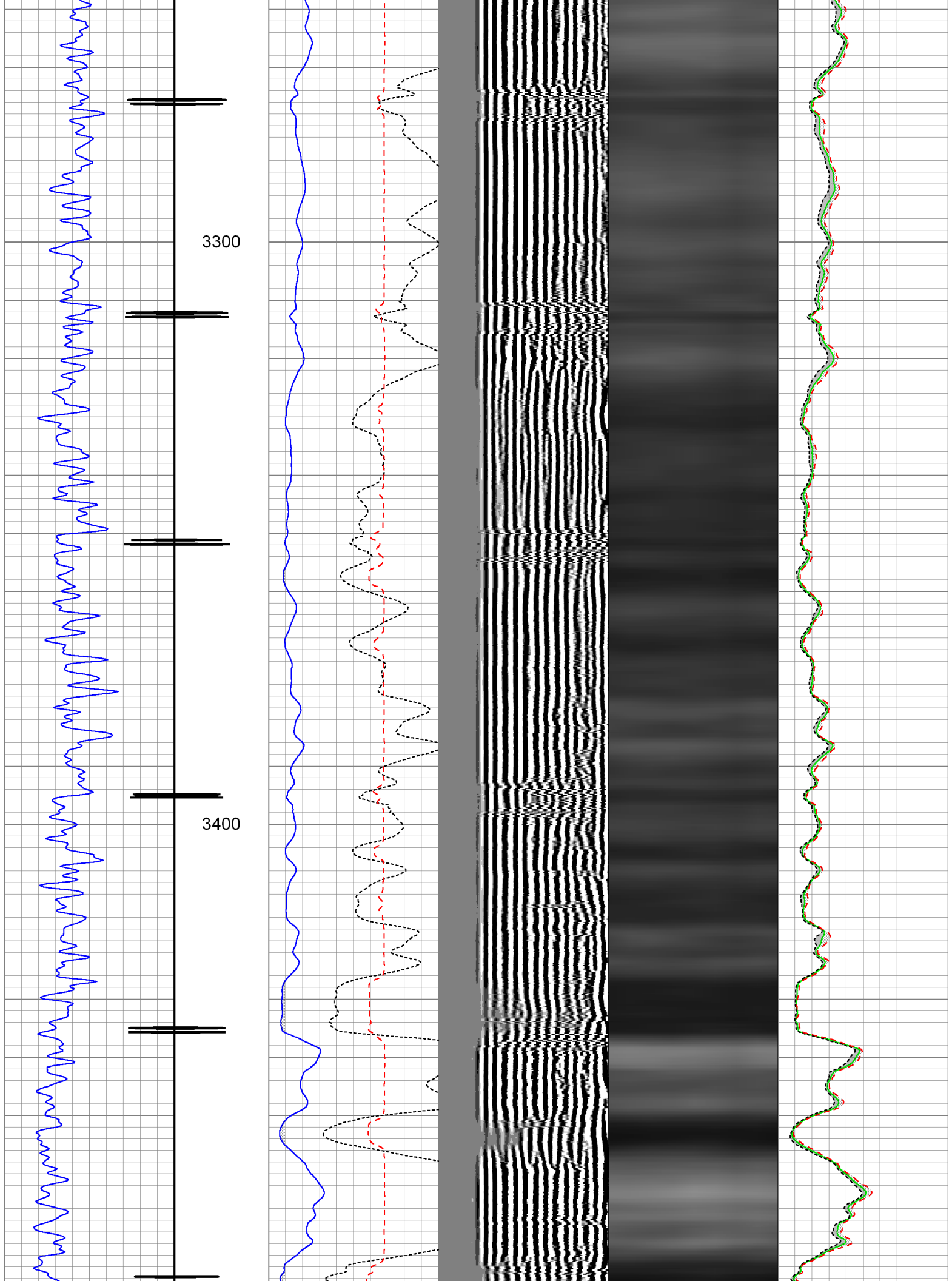


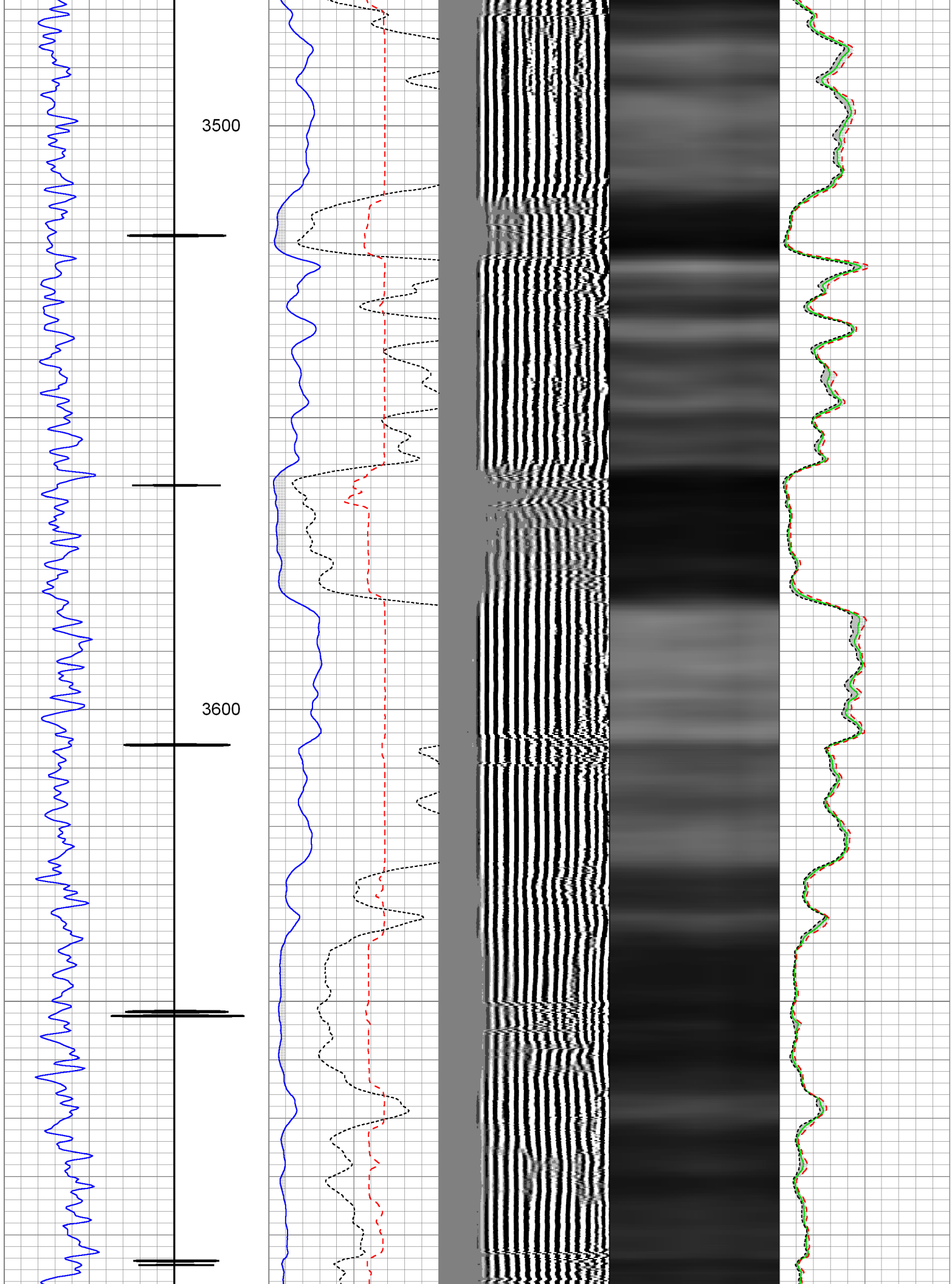








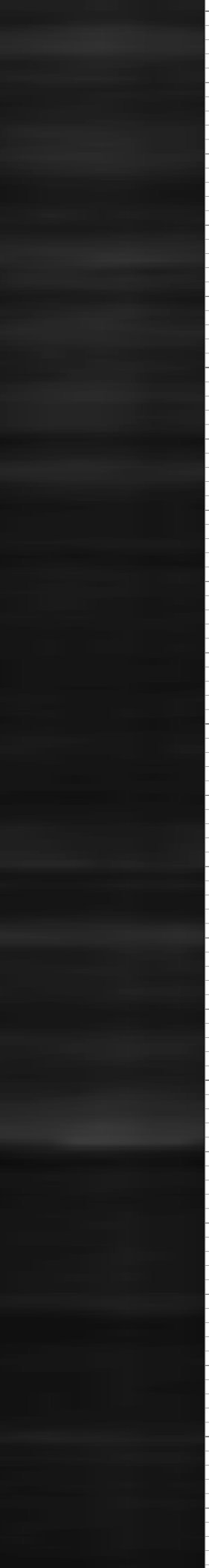
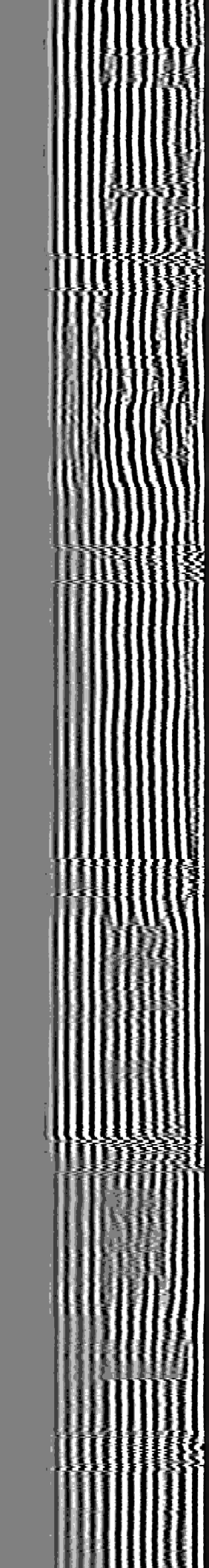
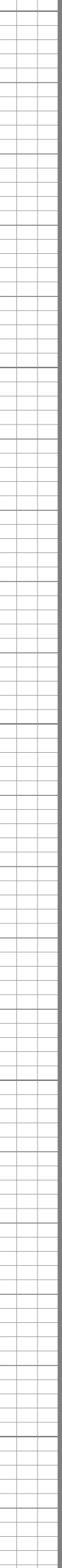
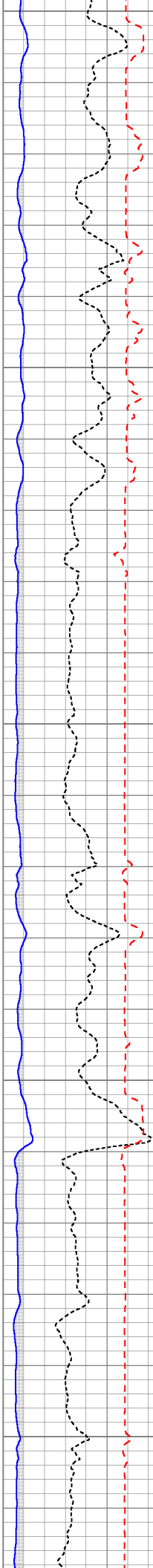
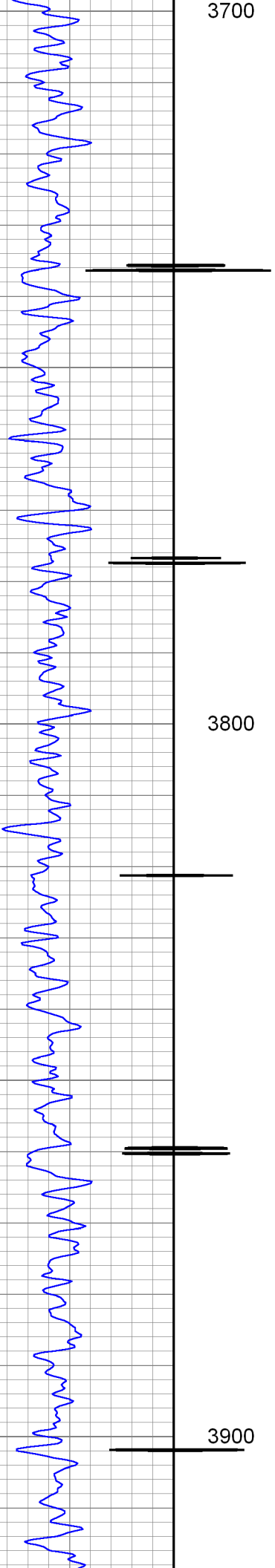


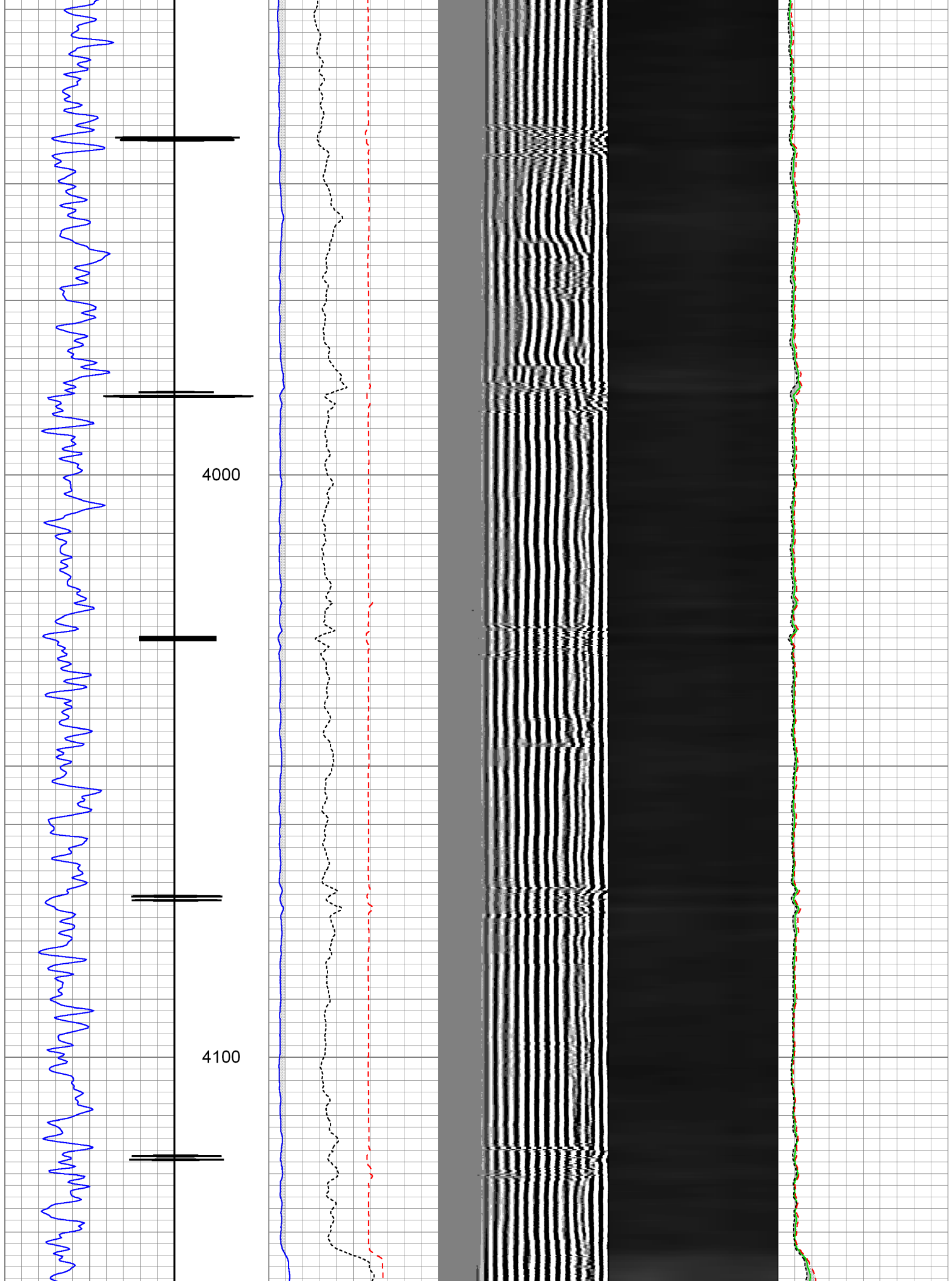


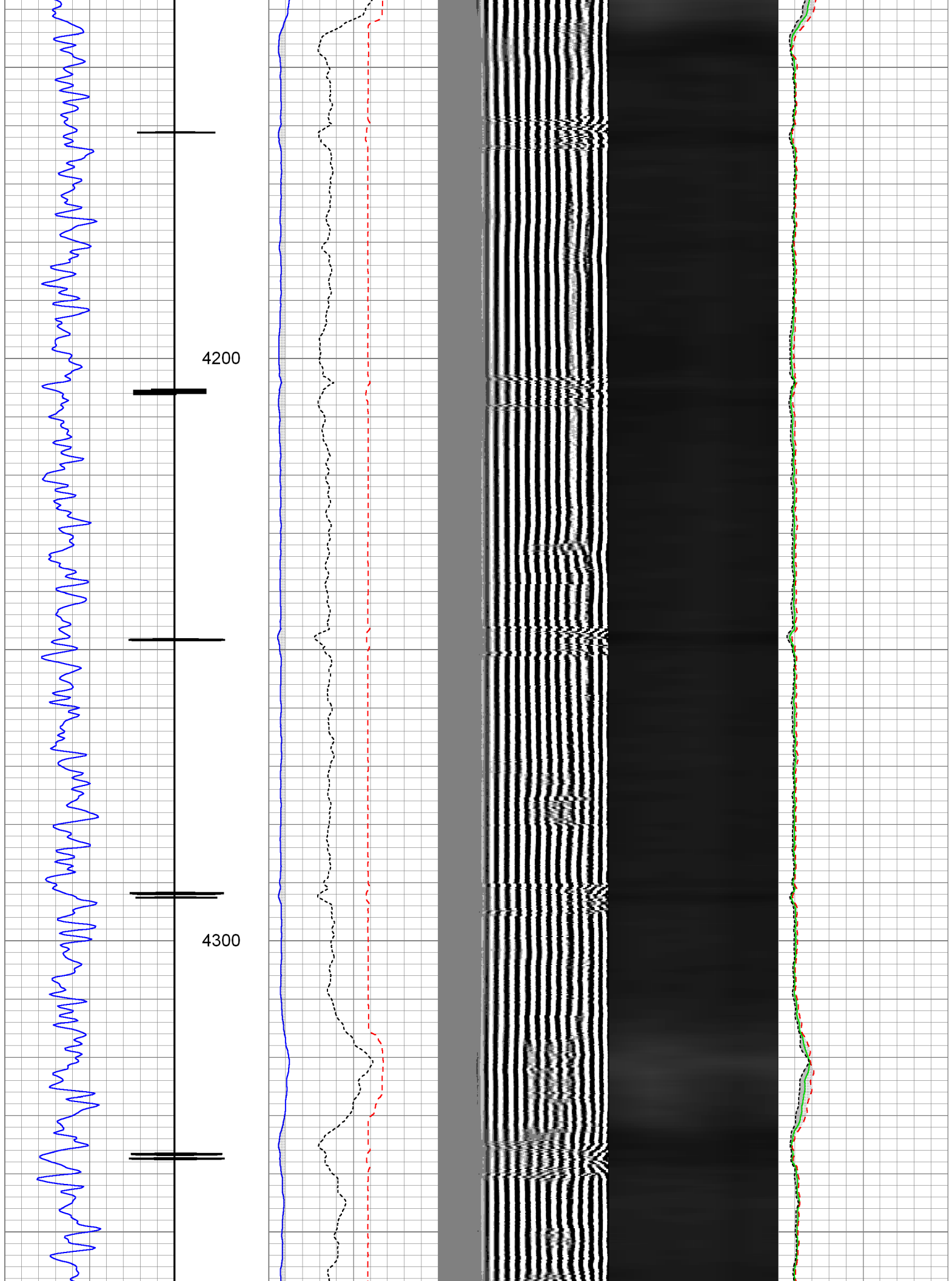
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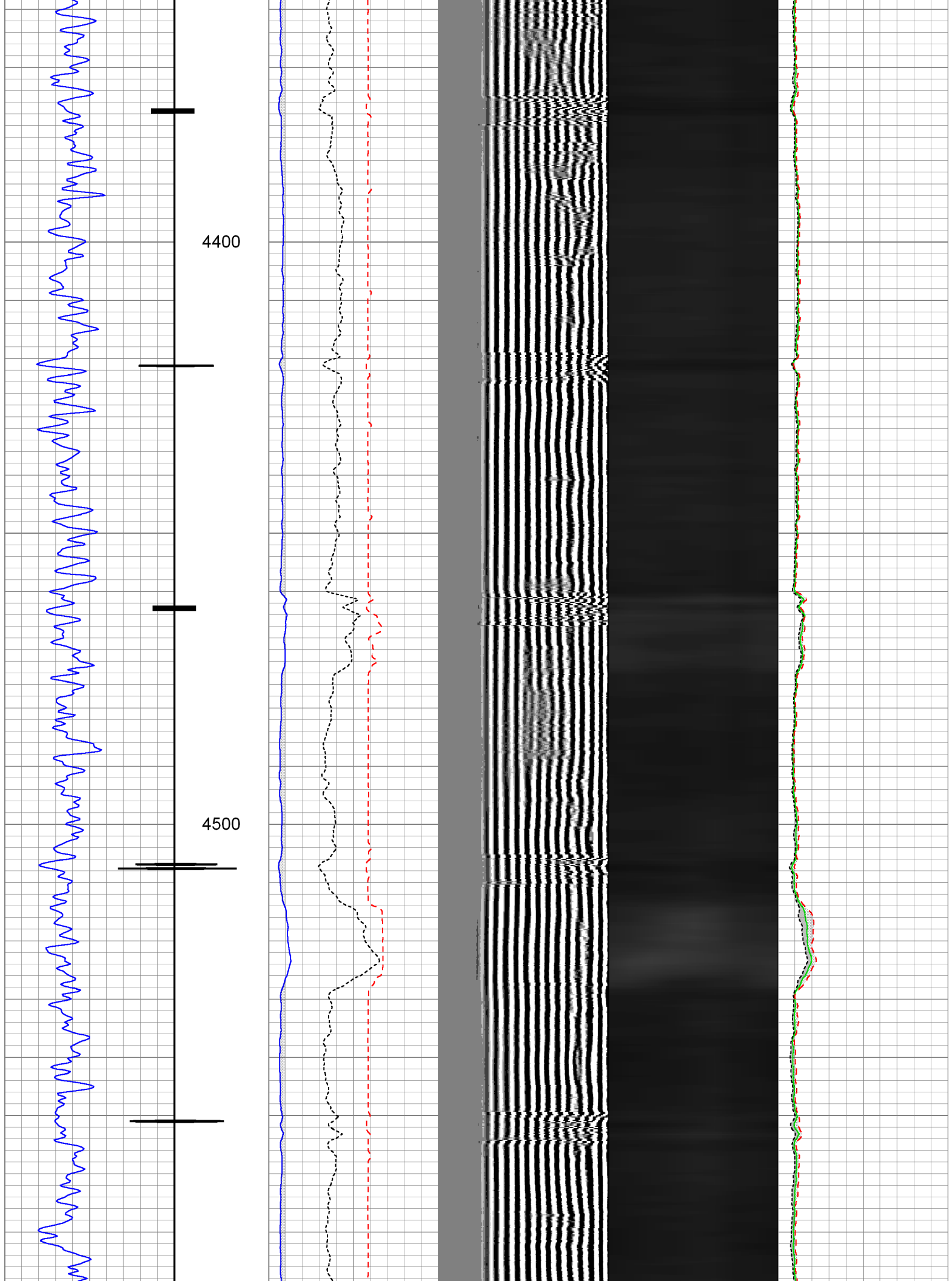
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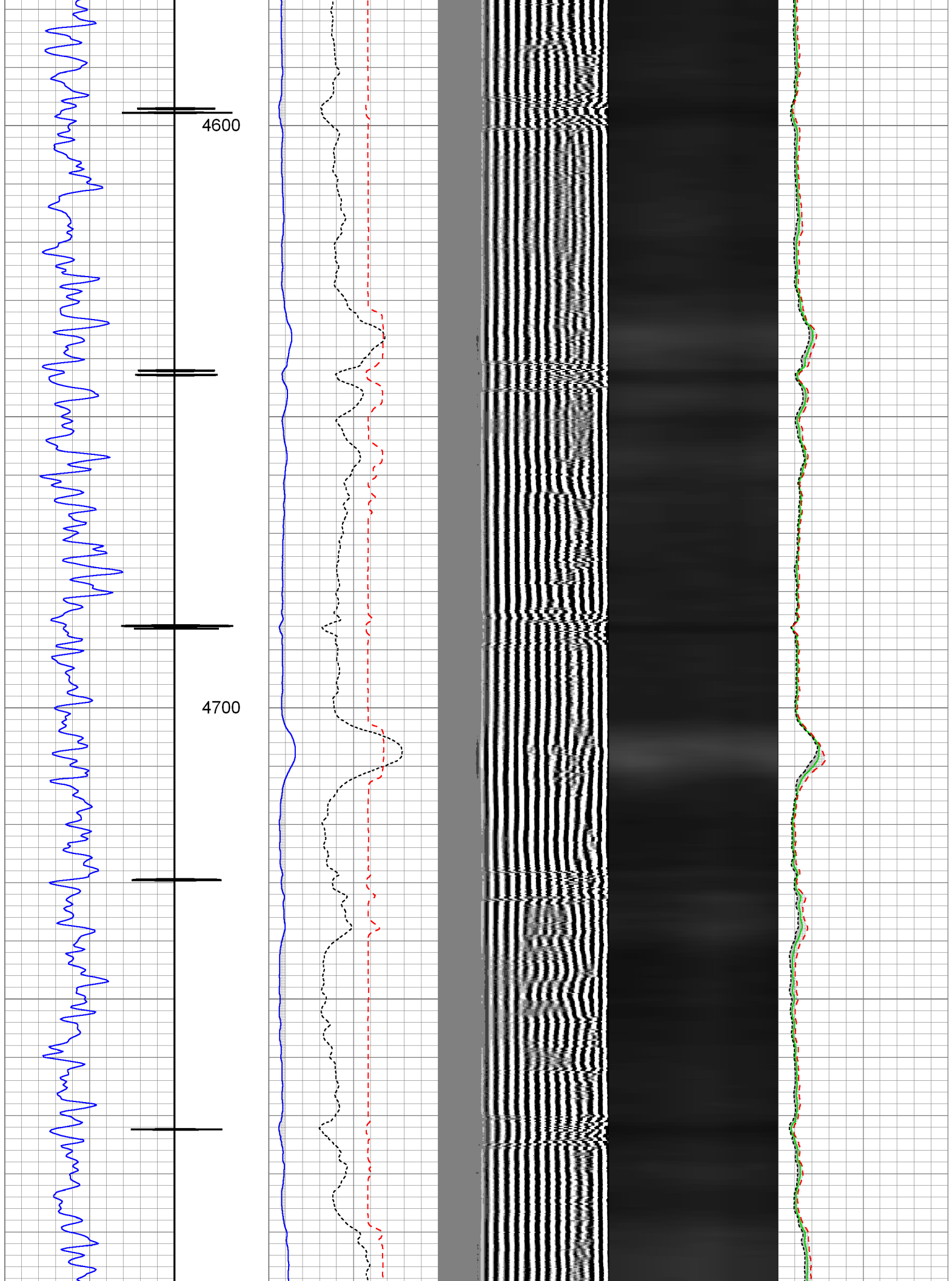


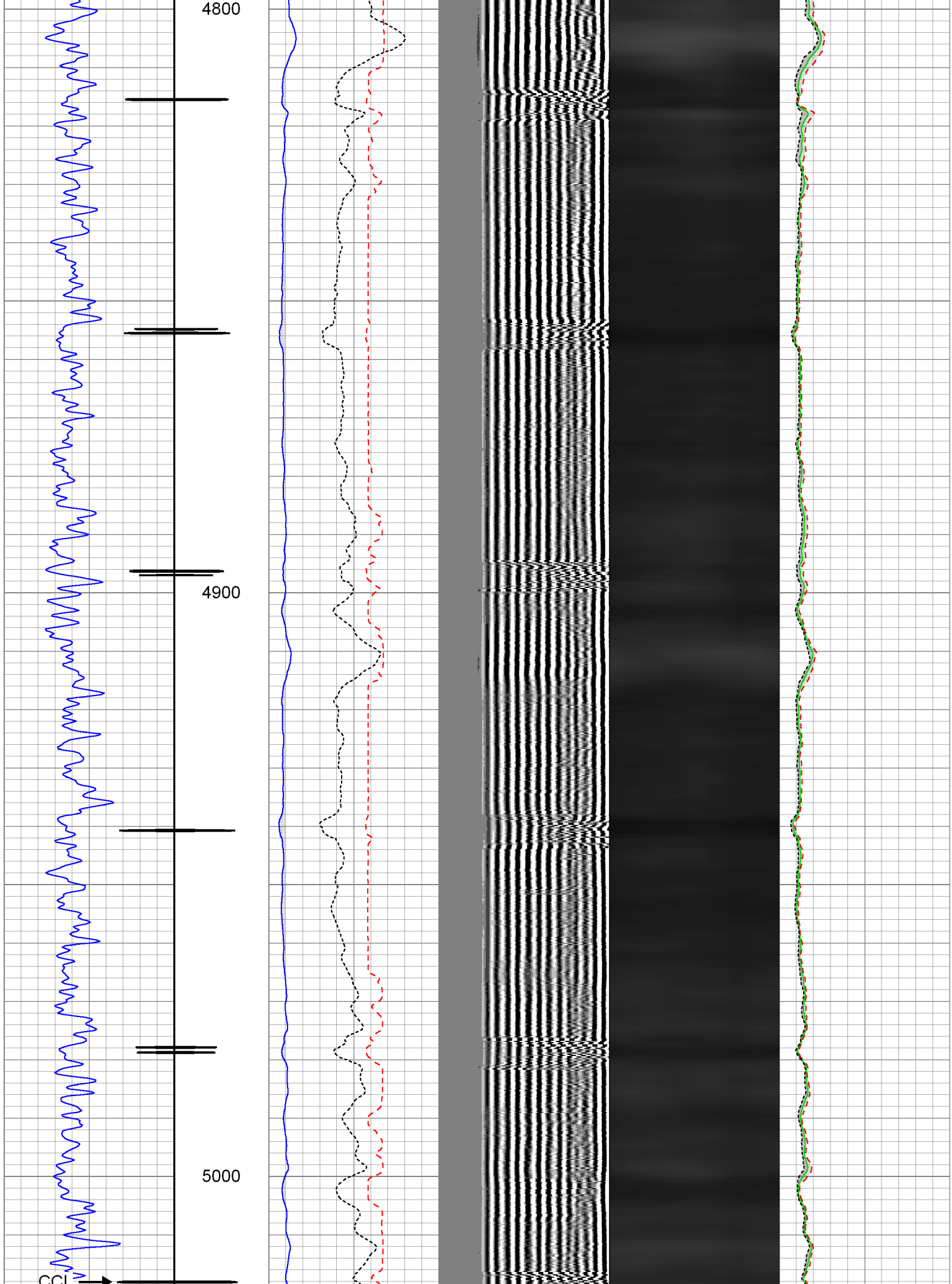


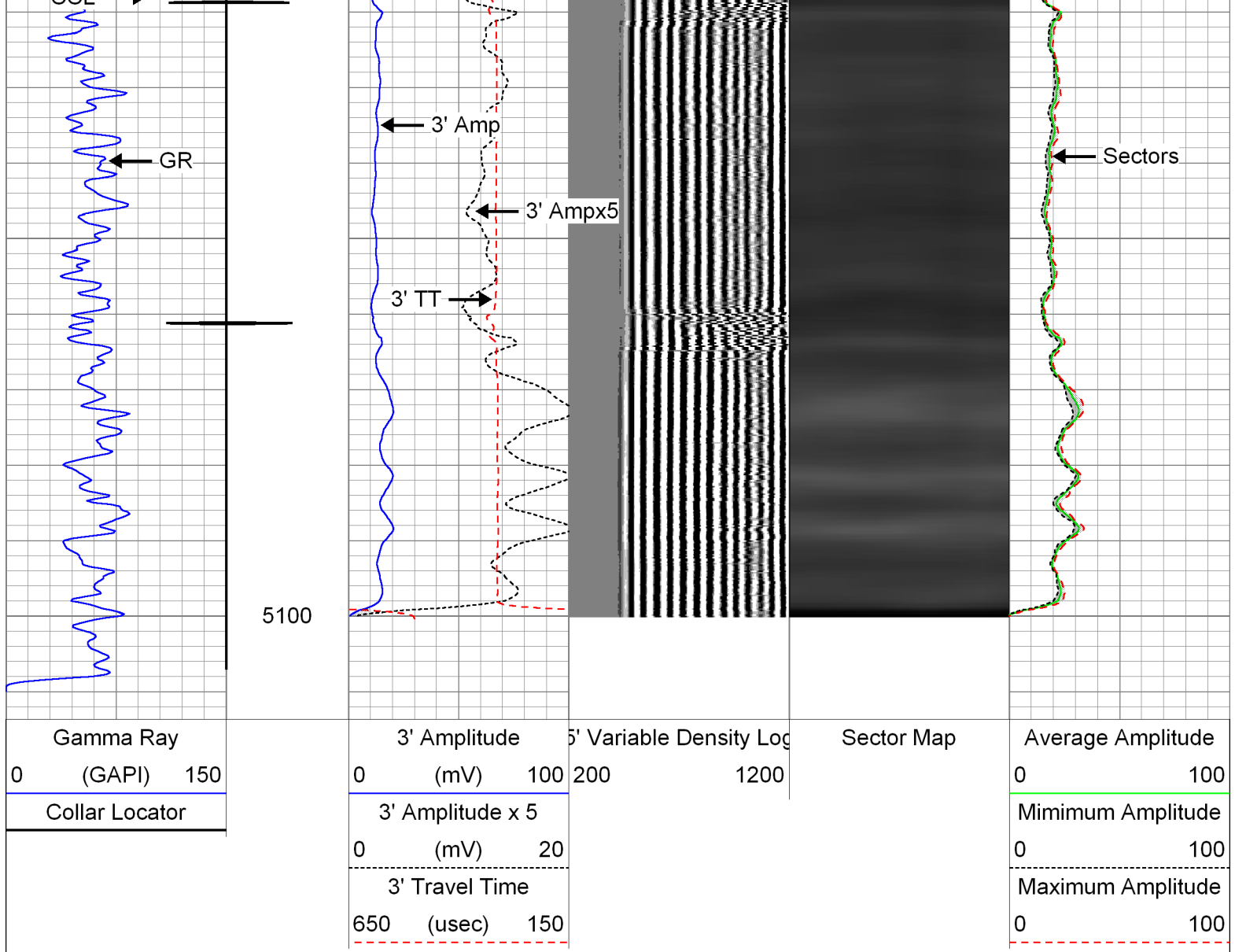








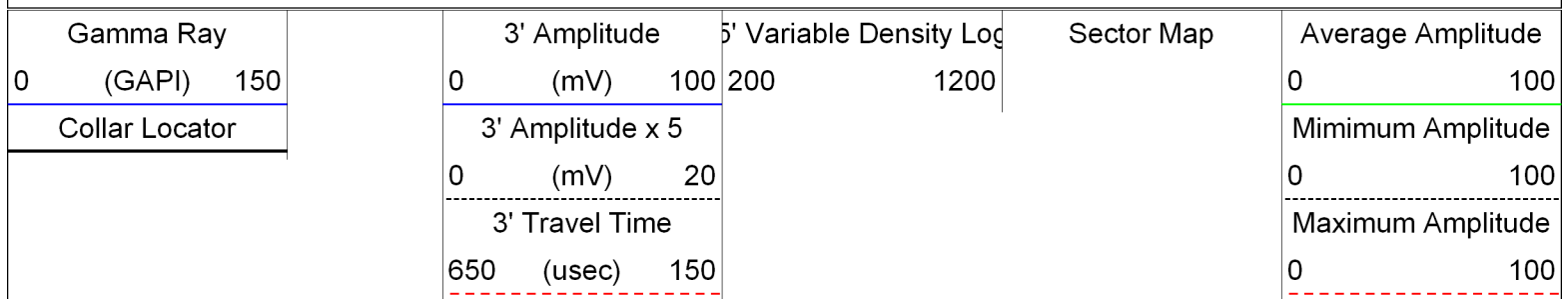




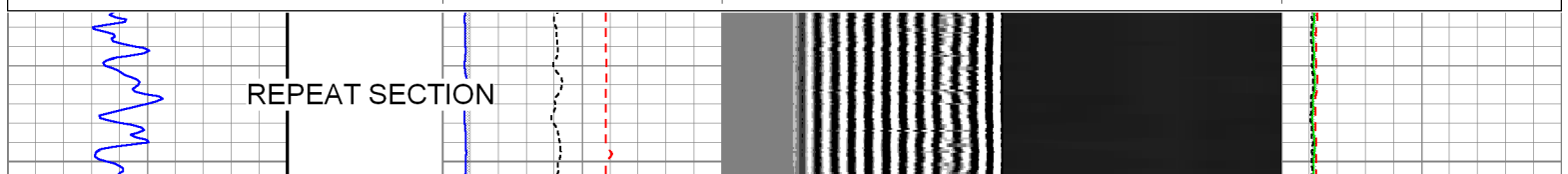
## Repeat Pass

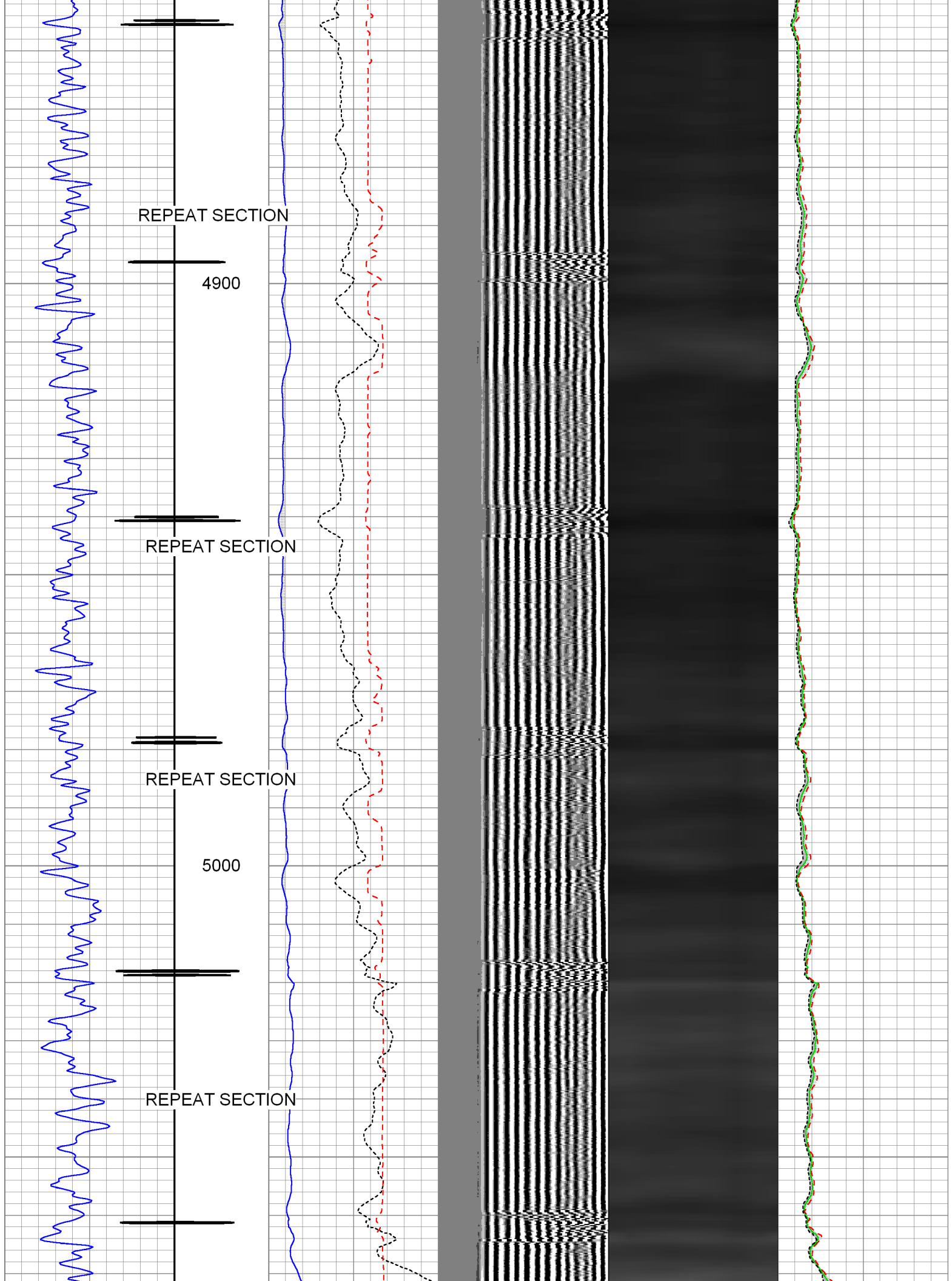
Logged with 1500 PSI Induced Surface Pressure

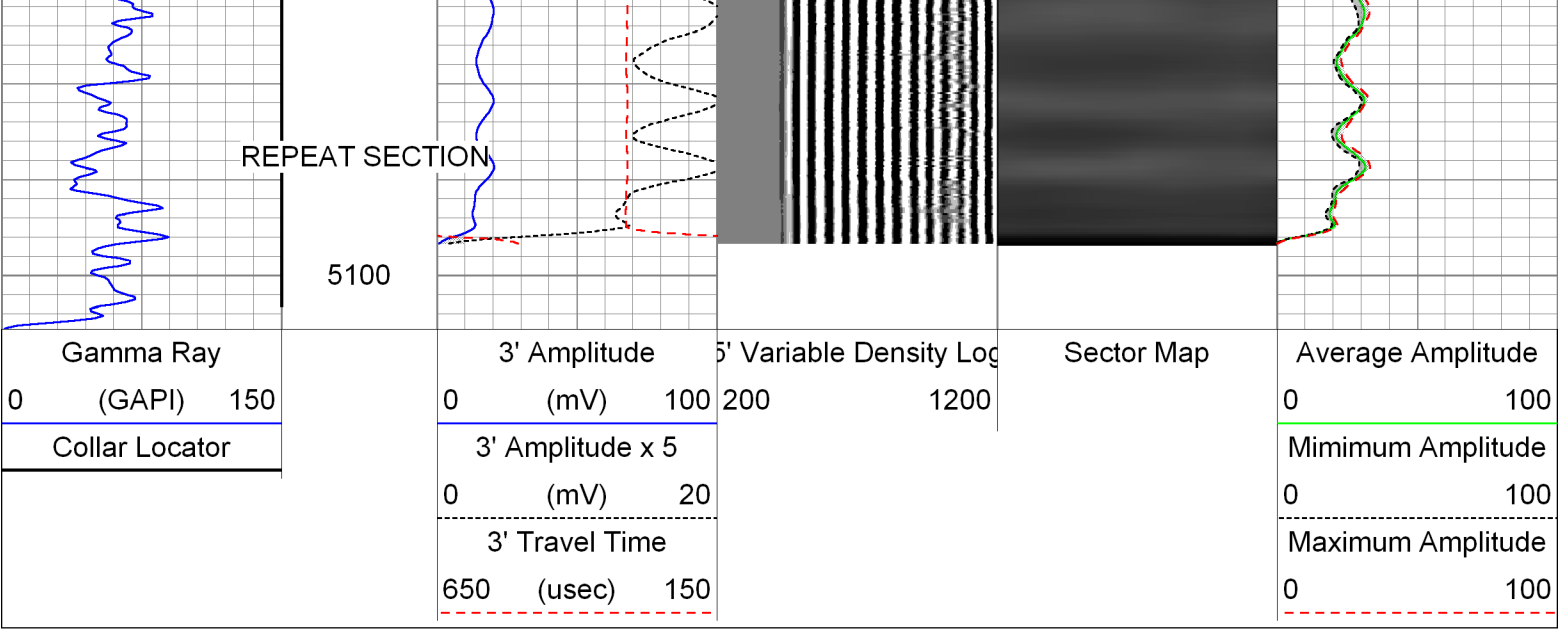
Database File: processed\_11-07-13\_whiting\_razor 21a-2815a\_rbl.db  
 Dataset Pathname: rcb11  
 Presentation Format: rbt007  
 Dataset Creation: Thu Nov 07 13:05:52 2013 by Log SCH 111116  
 Charted by: Depth in Feet scaled 1:240






REPEAT SECTION







Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
RHeadVolt	19.55		Titan_1_11_16	1.04	1.69	5.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	16.68					
WVF3FT	14.57		Probe_RADII-C-2-3/4" (FW1302-002in7") Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.21	2.75	100.00
WVFCAL	14.57					
WVFS1	14.57					
WVFS2	14.57					
WVFS3	14.57					
WVFS4	14.57					
WVFS5	14.57					
WVFS6	14.57					
WVFS7	14.57					
WVFS8	14.57					
WVF5FT	13.57					
CCL	6.59		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00

DCCL	6.59					
GR	5.25		Probe_CCL_GR-2.75"Digital (FW1211-0264.58 Probe 2-3/4" Digital CCL / Gamma Ray Combined		2.75	55.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset:		PROCESSED_11-07-13_Whiting_Razor 21A-2815A_RBL.db: field/well/run1/rcbl2				
Total Length:		23.47 ft				
Total Weight:		190.00 lb				
O.D.		2.75 in				

Calibration Report	
Database File:	PROCESSED_11-07-13_Whiting_Razor 21A-2815A_RBL.db
Dataset Pathname:	rcbl2
Dataset Creation:	Thu Nov 07 13:11:45 2013 by Log SCH 111116

Gamma Ray Calibration Report		
Serial Number:	FW1211-026	
Tool Model:	2.75"Digital	
Performed:	Tue May 21 11:02:45 2013	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.5	cps
Sensitivity:	0.5800	GAPI/cps

Segmented Cement Bond Log Calibration Report		
Serial Number:	FW1302-002in7"	
Tool Model:	2-3/4"	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	229.351	ft

Master Calibration, performed Thu Nov 07 09:22:26 2013:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.009	0.738	0.800	62.165	84.271	0.007
CAL	1.003	1.001				
5'	0.010	0.748	0.800	62.165	83.234	-0.054
SUM						
S1	0.015	0.747	0.000	100.000	136.517	-2.031
S2	0.014	0.717	0.000	100.000	142.225	-2.033
S3	0.013	0.703	0.000	100.000	144.825	-1.846
S4	0.014	0.708	0.000	100.000	144.015	-2.004
S5	0.014	0.729	0.000	100.000	139.740	-1.897
S6	0.010	0.773	0.000	100.000	131.133	-1.351



S6	0.013	0.772	0.000	100.000	128.462	-1.695
S7	0.013	0.792	0.000	100.000	128.462	-1.695
S8	0.013	0.782	0.000	100.000	130.052	-1.664

Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	1.003	1.001	1.000	0.000

Air Zero Calibration, performed Thu Nov 07 09:16:11 2013:

	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	



Company Whiting Oil & Gas Corporation  
Well Razor 21A-2815A  
Field Wildcat  
County Weld  
State Colorado