



**PIONEER**

Pioneer Energy Services

**RADIAL BOND LOG  
WITH GAMMA RAY**

Company **WHITING OIL & GAS CORP.**  
Well **HORSETAIL 07F-1807**  
Field **WILDCAT**  
County **WELD** State **CO.**

Comp. **WHITING OIL & GAS CORP.**  
Well **HORSETAIL 07F-1807**  
Field **WILDCAT**  
Co. **WELD**  
State **CO.**

Location: API #: 0512341782 Other Services  
SHL: 2548' FNL & 2269' FWL  
SENV  
SEC 7 TWP 10N RGE 57W  
Permanent Datum GL Elevation 4899'  
Log Measured From KB 21 Above Perm. Datum  
Drilling Measured From KB G.L. 4899'

Date of Service	APRIL 20, 2016		
Run Number	1		
Depth Driller or PBTD	13496'		
Depth Logger	5920'		
Bottom Log Interval	5920'		
Top Log Interval	SURFACE		
Open Hole Size	8.5"		
Type Fluid	WBM		
Fluid Level	SURFACE		
Fluid Density	N/A		
Max. Recorded Temperature	196 F		
Max. Wellhead Pressure	1500 PSI		
Wellhead Connection	7-1/16" 10K		
Estimated Cement Top	SEE LOG		
Unit Number	P-01		
Wireline Size	9/32"		
Location	FT. MORGAN		
Recorded By	SHAUN STUMP		
Witnessed By	ED MOORE		
	Size	Wt/Ft	Top
Tubing Record			Bottom
Surface Casing	9.625"	36#	0' 1950'
Production Casing	5.5"	20#	0' 13496'
Liner Record			

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

**Comments**

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

1500 PSI ON WELL WHILE LOGGING

DEPTH CORRELATED TO MARKER JOINT -6'




S.O. 290168


THANK YOU FOR USING PIONEER ENERGY SERVICES!


Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: SHAUN STUMP	RBL	141166
Operator: CORY BURNS	GR/CCL	111211
Operator: SHAUN SCHUMAN		
Operator:		

Top - Bottom

BHTEMP_Src TEMP	PPT usec 0	CASEWGHT lb/ft 20	MAXAMPL mV 0	MINAMPL mV 2.2	MINATTN db/ft 0.08	SRFTEMP degF 0
CASETHCK in 0	CASEOD in 5.5	PERFS 0	TDEPTH ft 0	BOTTEMP degF 195	BOREID in 7.875	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	13.46		Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
WVFS8	11.23		SCBL-275 Probe w Temp New Mod (141119.17 Probe Radii Bond Tool with Temperature	11.23	2.75	95.00
WVFS7	11.23					
WVFS6	11.23					
WVFS5	11.23					
WVFS4	11.23					
WVFS3	11.23					
WVFS2	11.23					
WVFS1	11.23					
WVFCAL	11.23					
WVF3FT	11.23					
WVF5FT	10.23					
CCL	3.91		Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00

GR	1.17		GR_CCL-275 Probe GR-CCL Dig (1112114.54 Probe 2 3/4" Gamma Ray / CCL Digital	2.75	60.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38 1.00
Dataset: Total length: Total weight: O.D.:			290168.db: field/well/run1/FINAL 19.34 ft 202.00 lb 2.88 in		

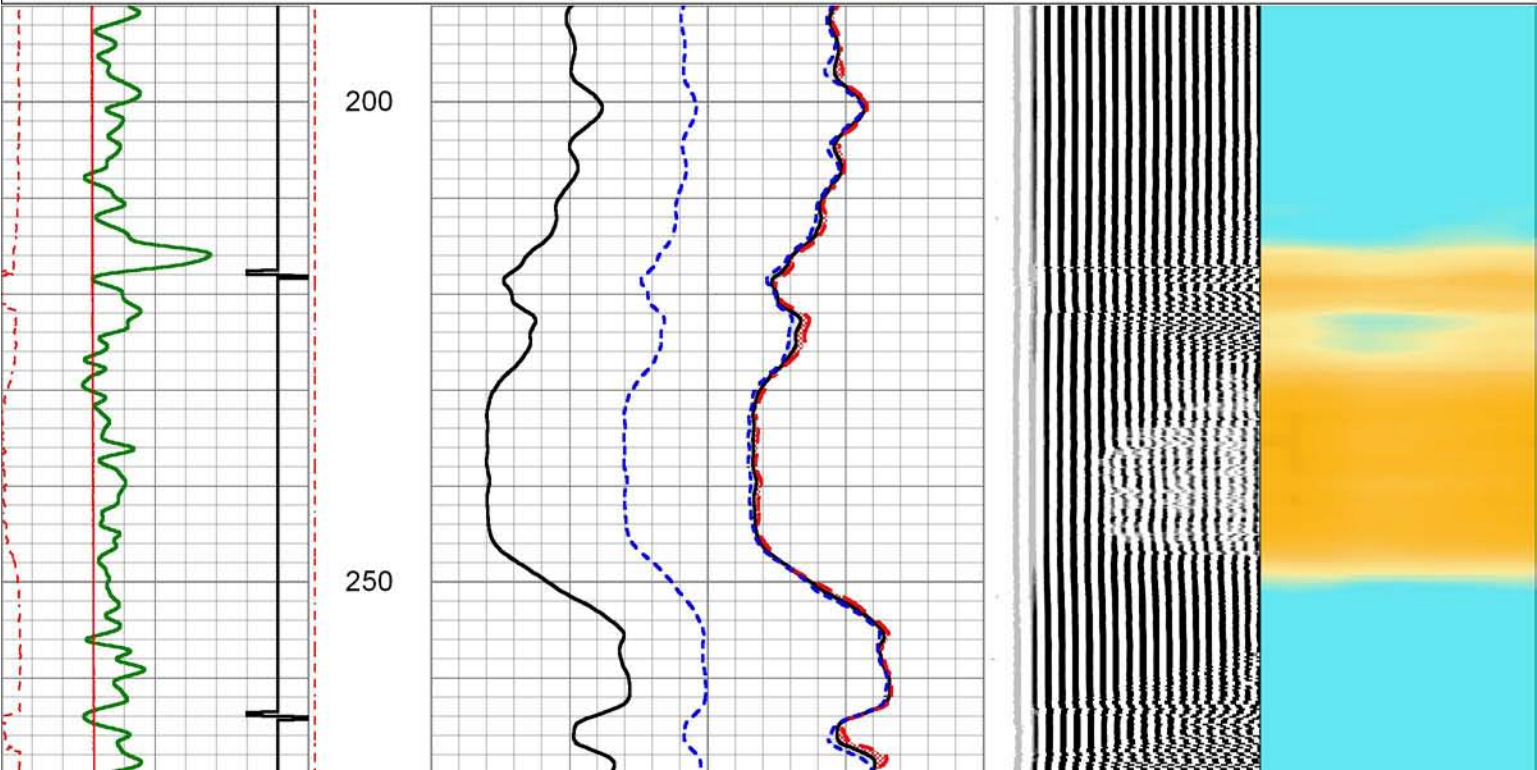


# FREE PIPE

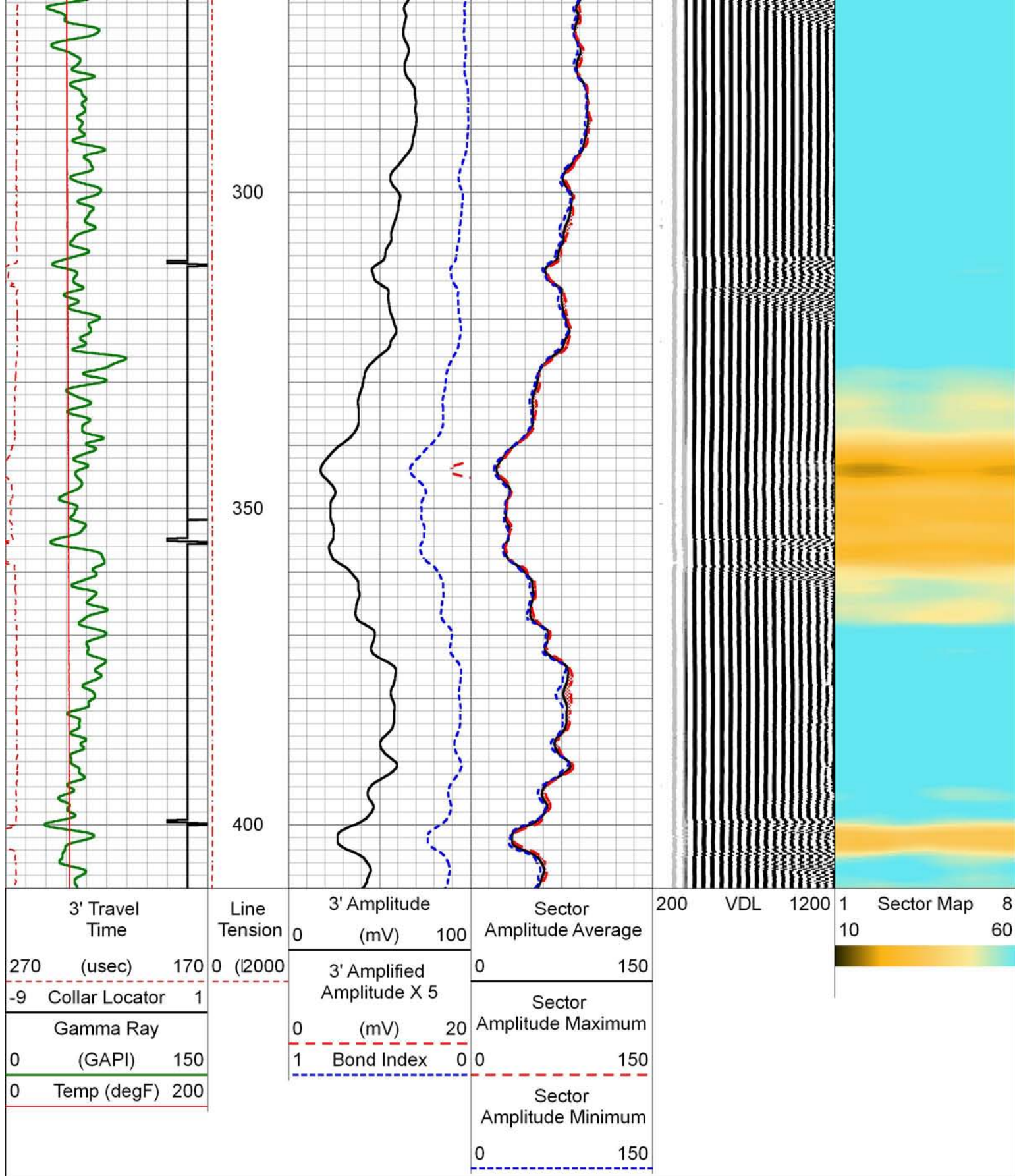
## 1500 PSI ON WELL WHILE LOGGING

Database File	290168.db
Dataset Pathname	pass4.1
Presentation Format	pinr_scbl
Dataset Creation	Wed Apr 20 12:31:11 2016
Charted by	Depth in Feet scaled 1:240

3' Travel Time			Line Tension	3' Amplitude		Sector Amplitude Average	200	VDL	1200	1	Sector Map	8		
		0		(mV)	100									
270	(usec)	170		3' Amplified Amplitude X 5									0	150
-9	Collar Locator	1												
Gamma Ray				0	(mV)								20	Sector Amplitude Maximum
0	(GAPI)	150		1	Bond Index								0	0
Temp (degF)					Sector Amplitude Minimum									
					0		150							







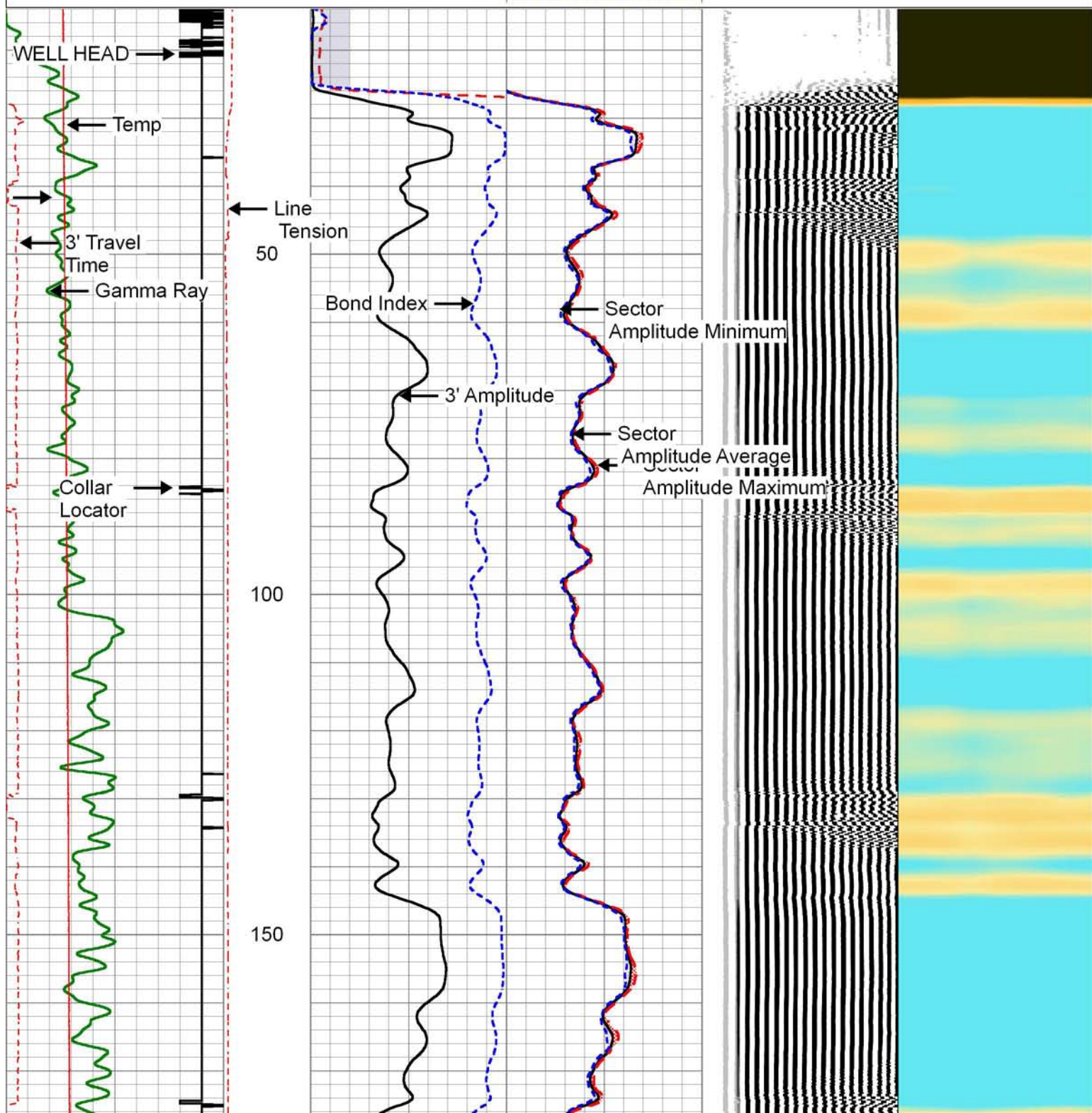
## MAIN PASS

1500 PSI ON WELL WHILE LOGGING

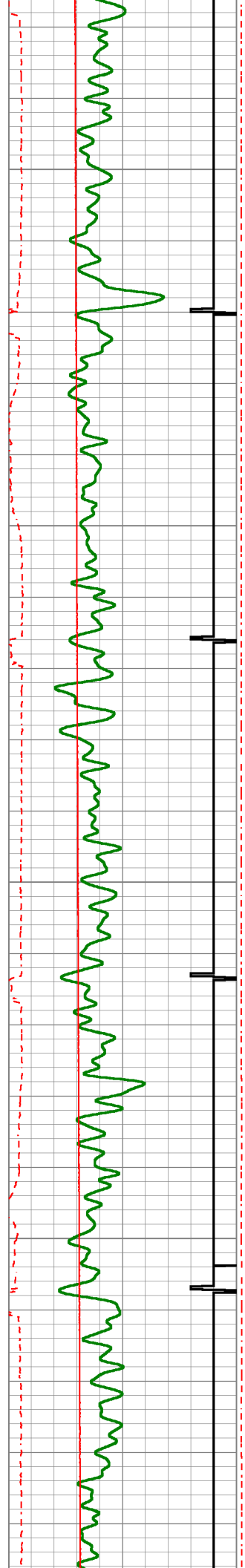


Database File 290168.db  
Dataset Pathname FINAL

3' Travel Time			Line Tension	3' Amplitude (mV)		Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
270 (usec)	170	0 (2000)		0	100							
-9 Collar Locator	1			3' Amplified Amplitude X 5		0 150						
Gamma Ray				0 (mV) 20		Sector Amplitude Maximum						
0 (GAPI)	150			1 Bond Index 0		0 150						
Temp (degF)						Sector Amplitude Minimum						
0	200					0 150						





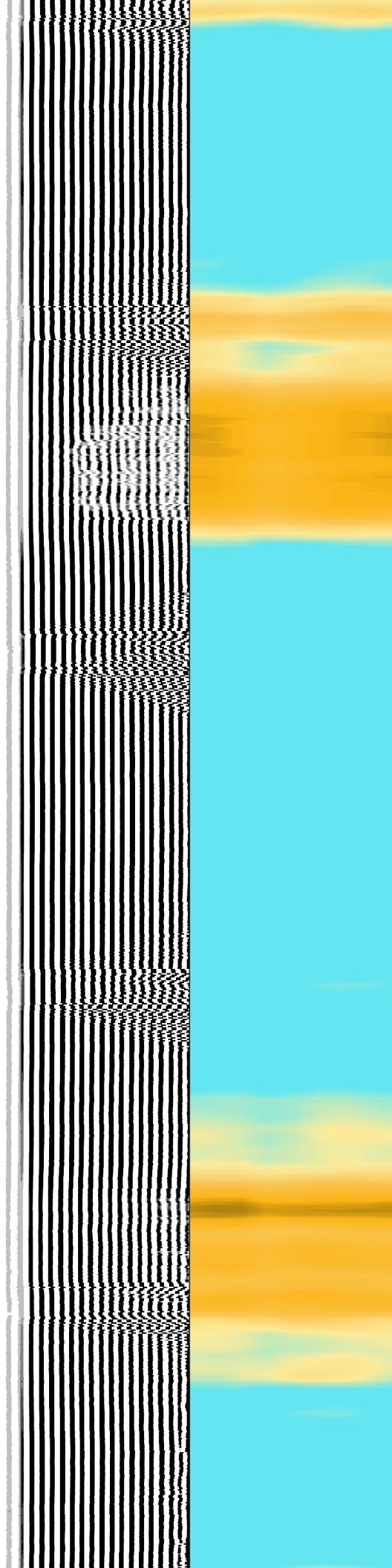
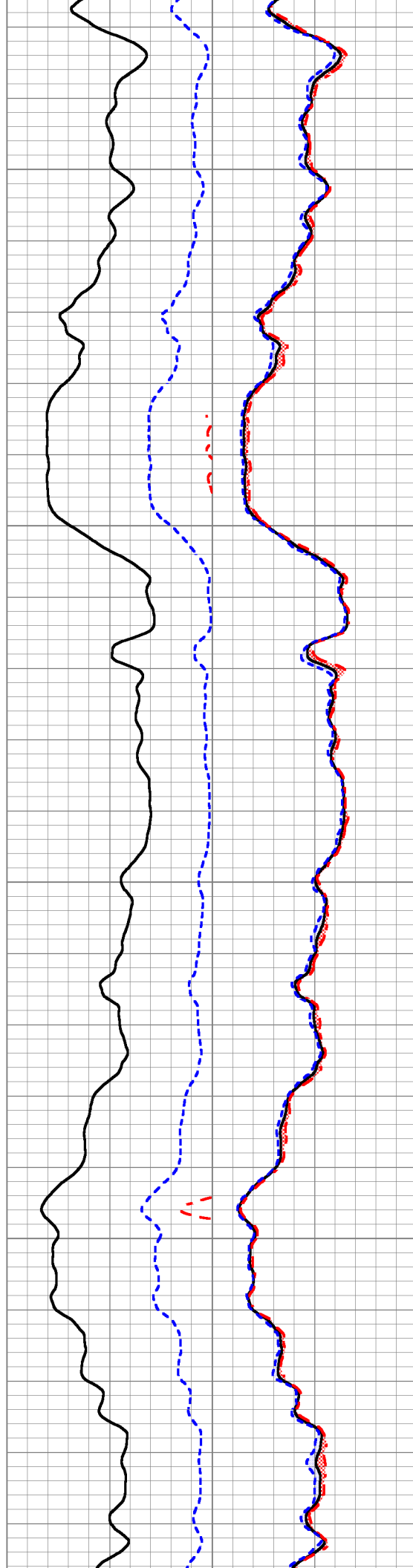


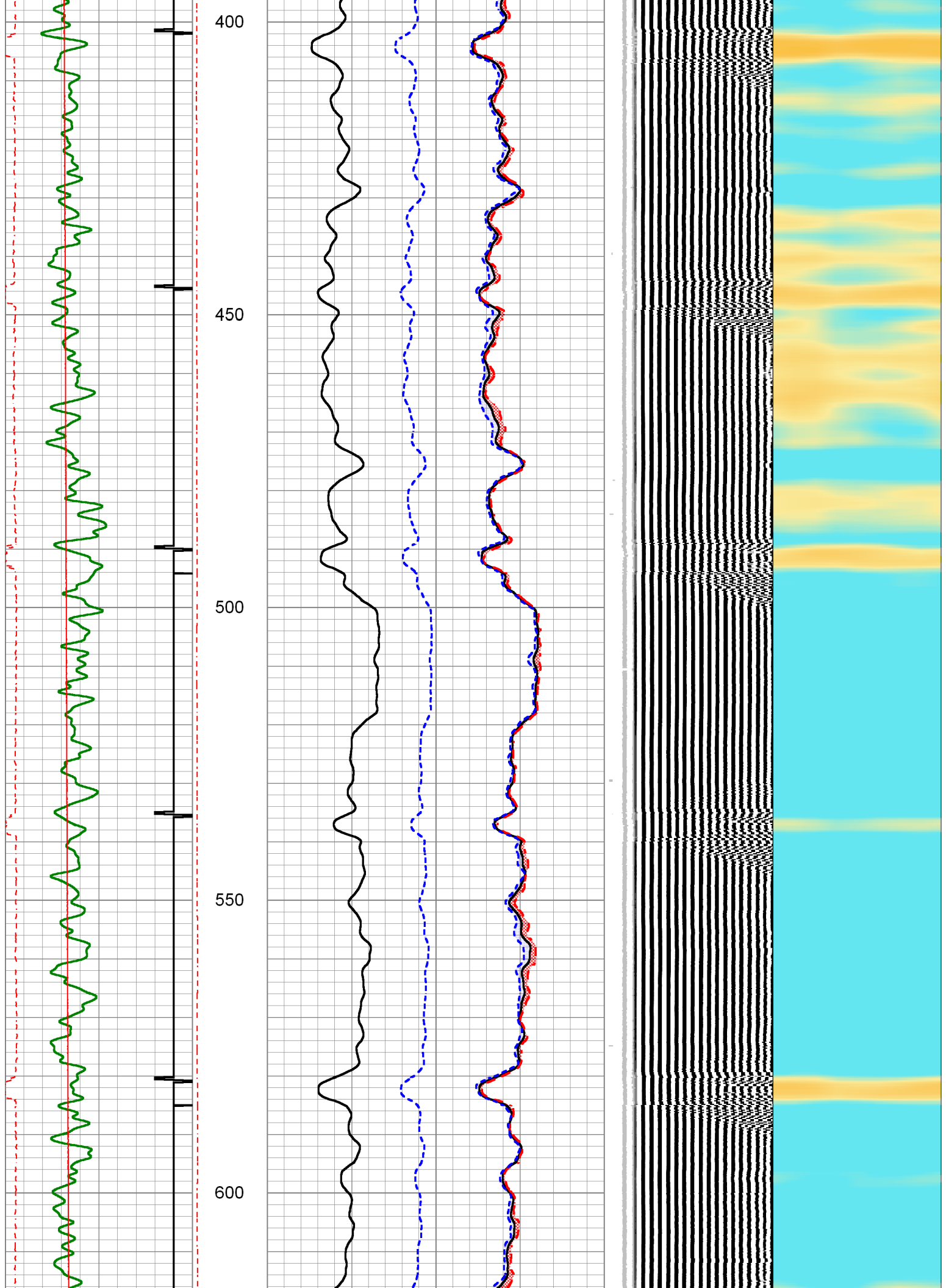
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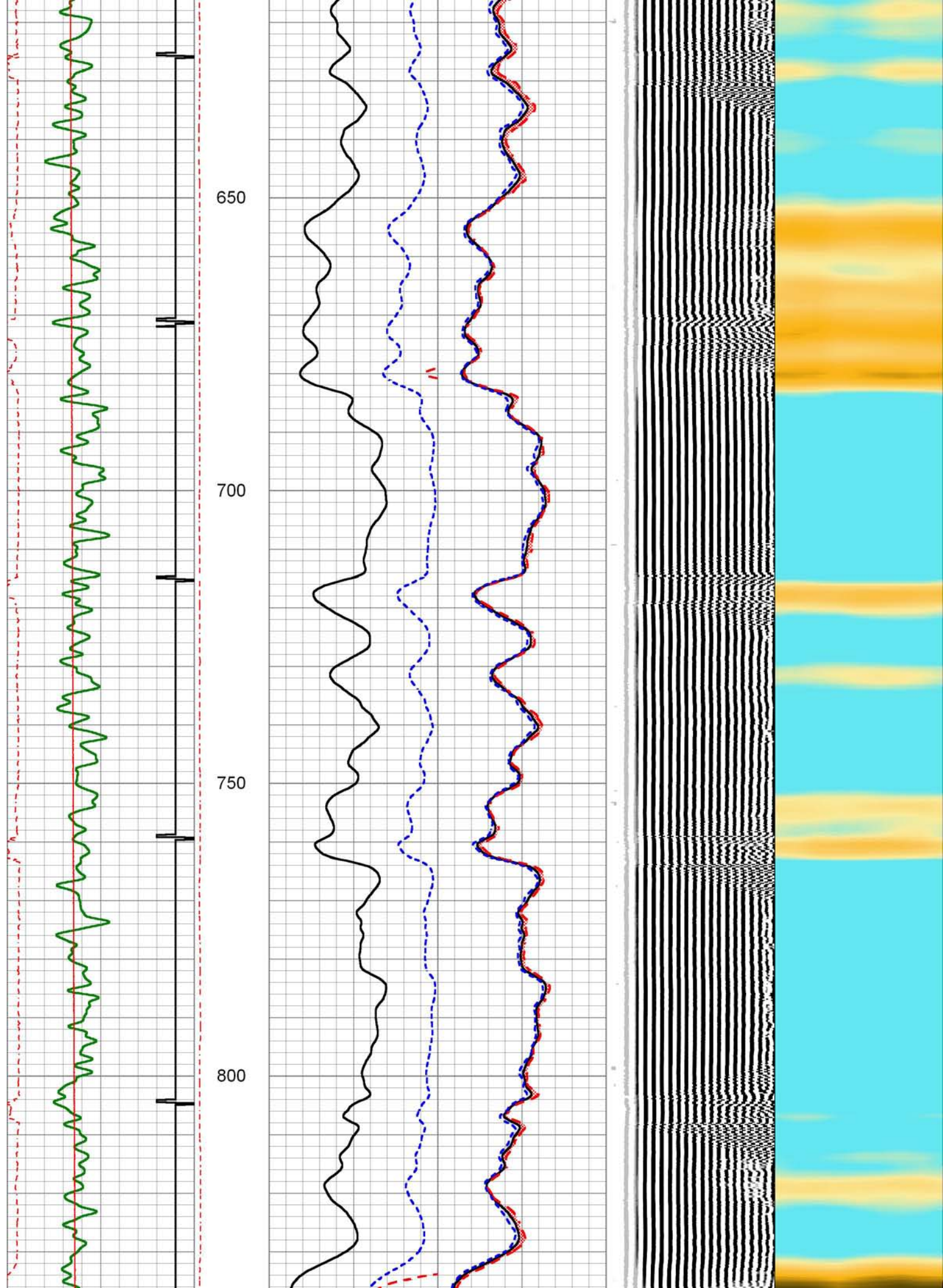
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300

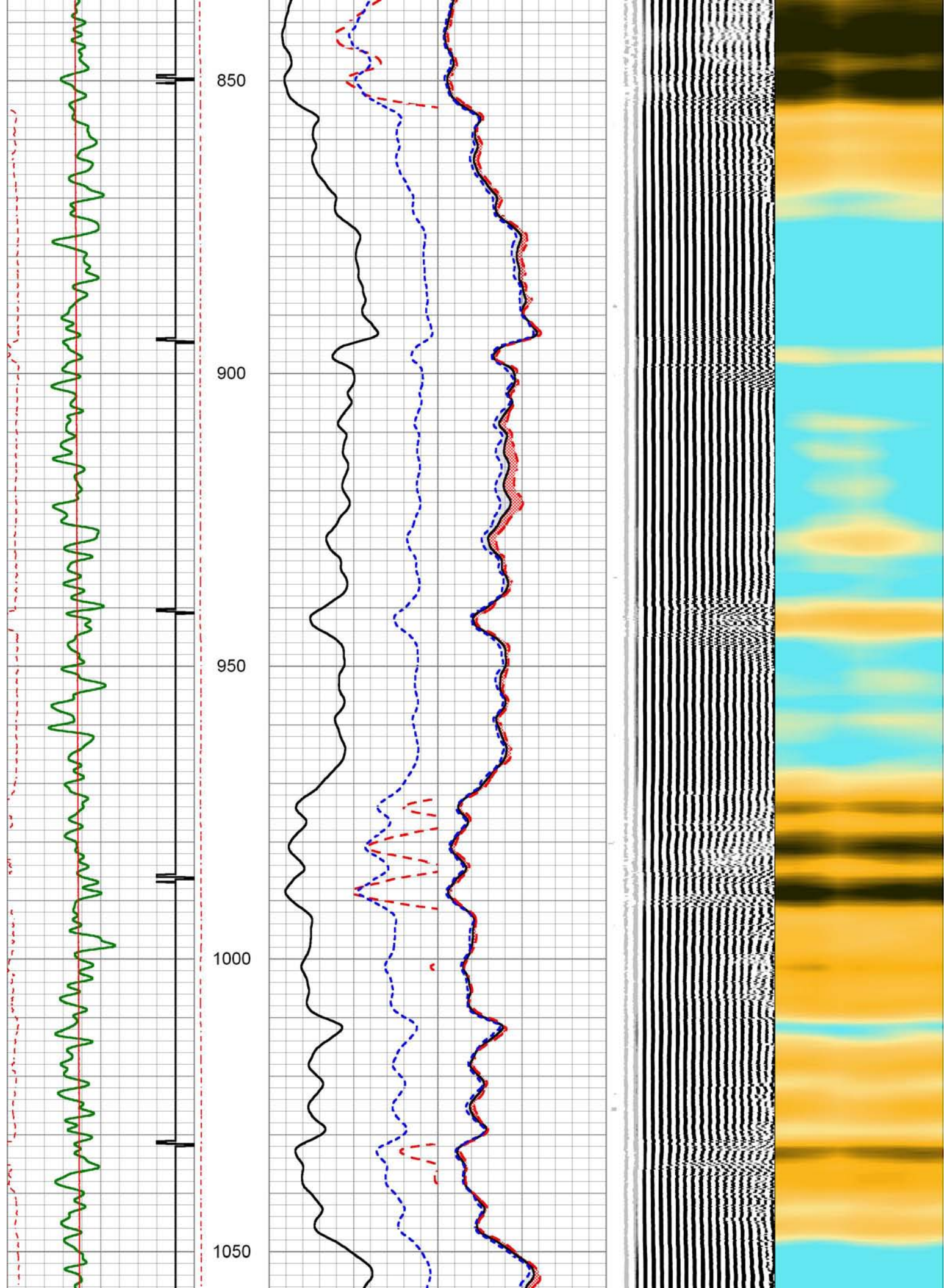
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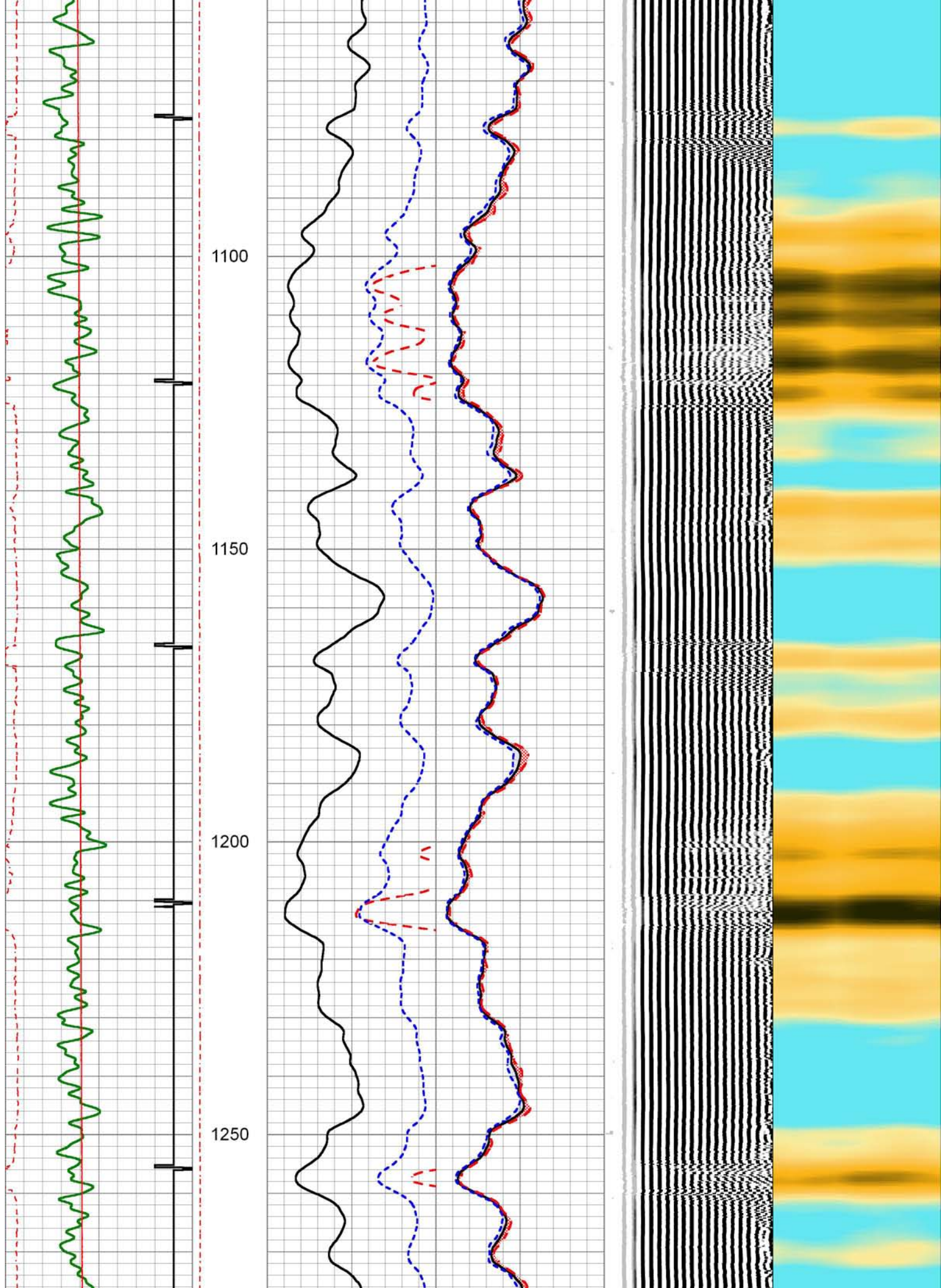




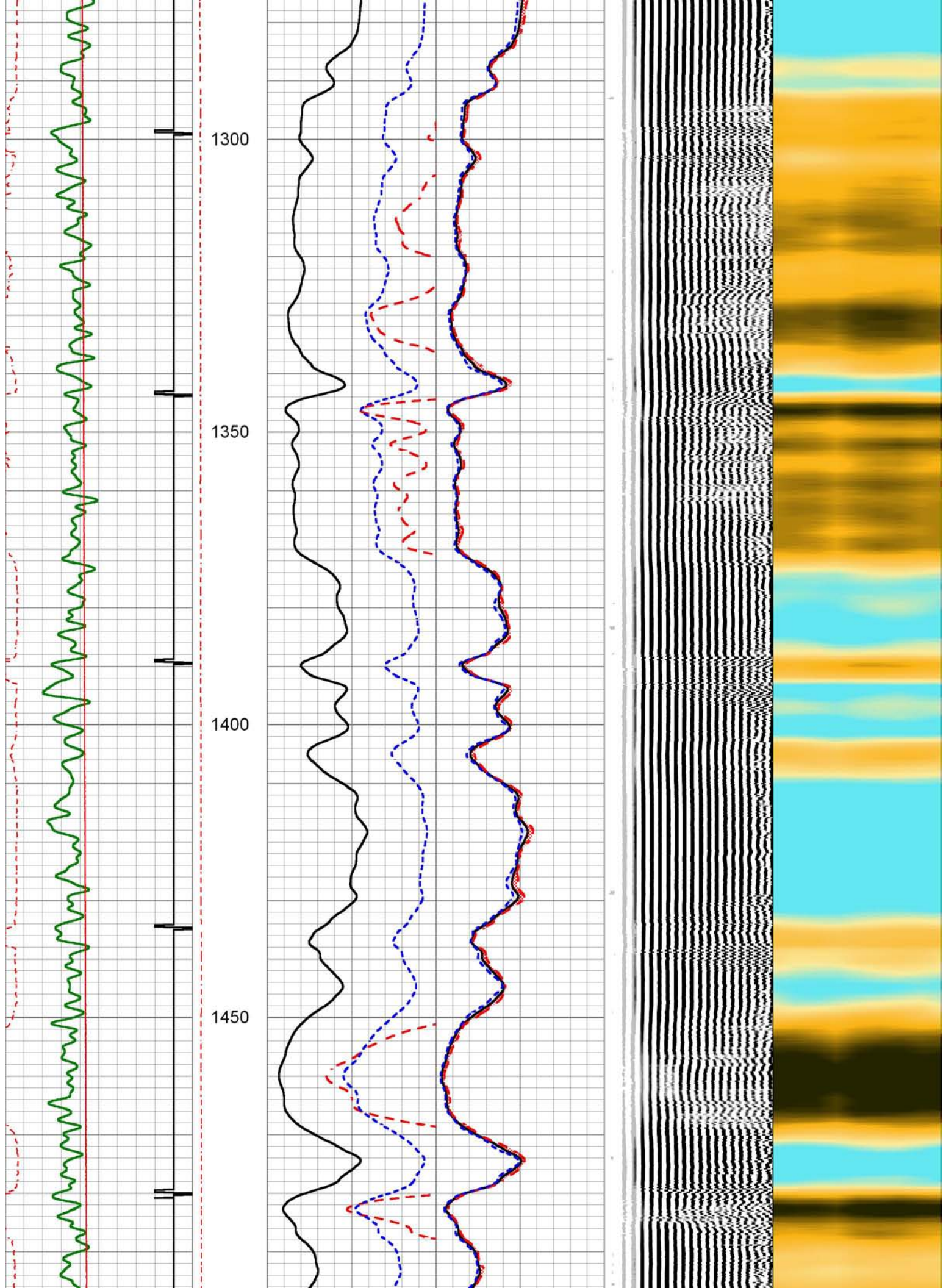




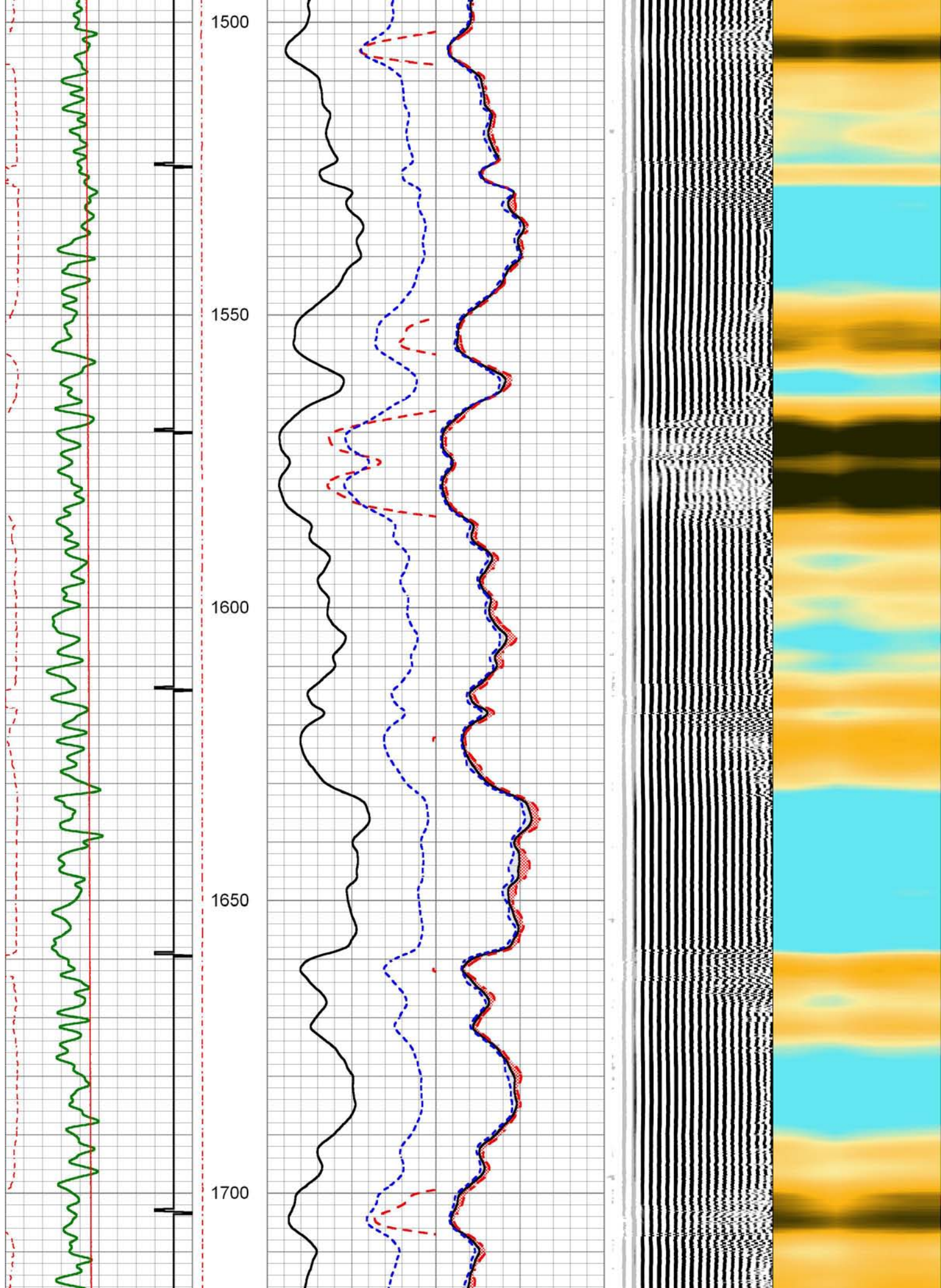




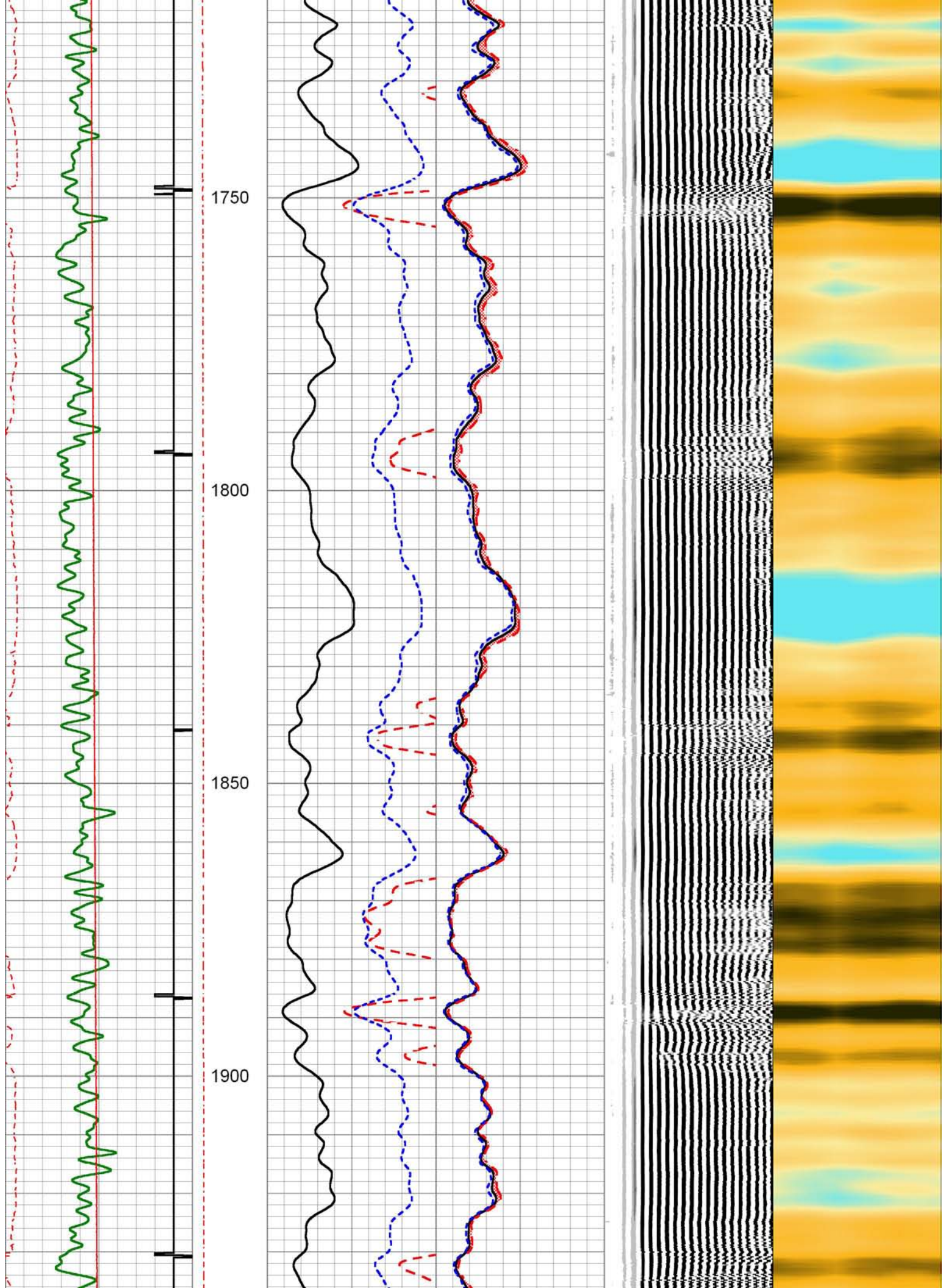




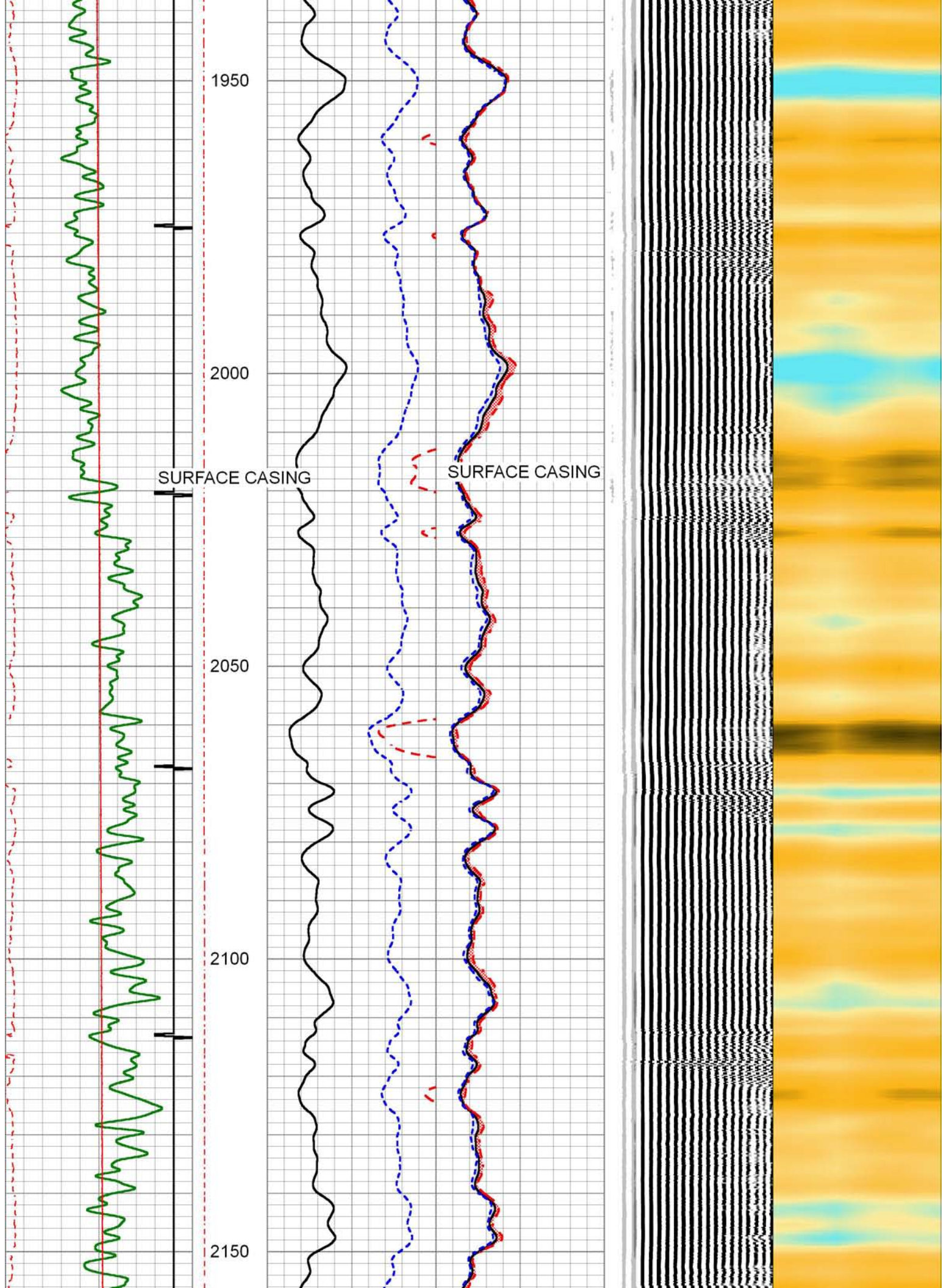




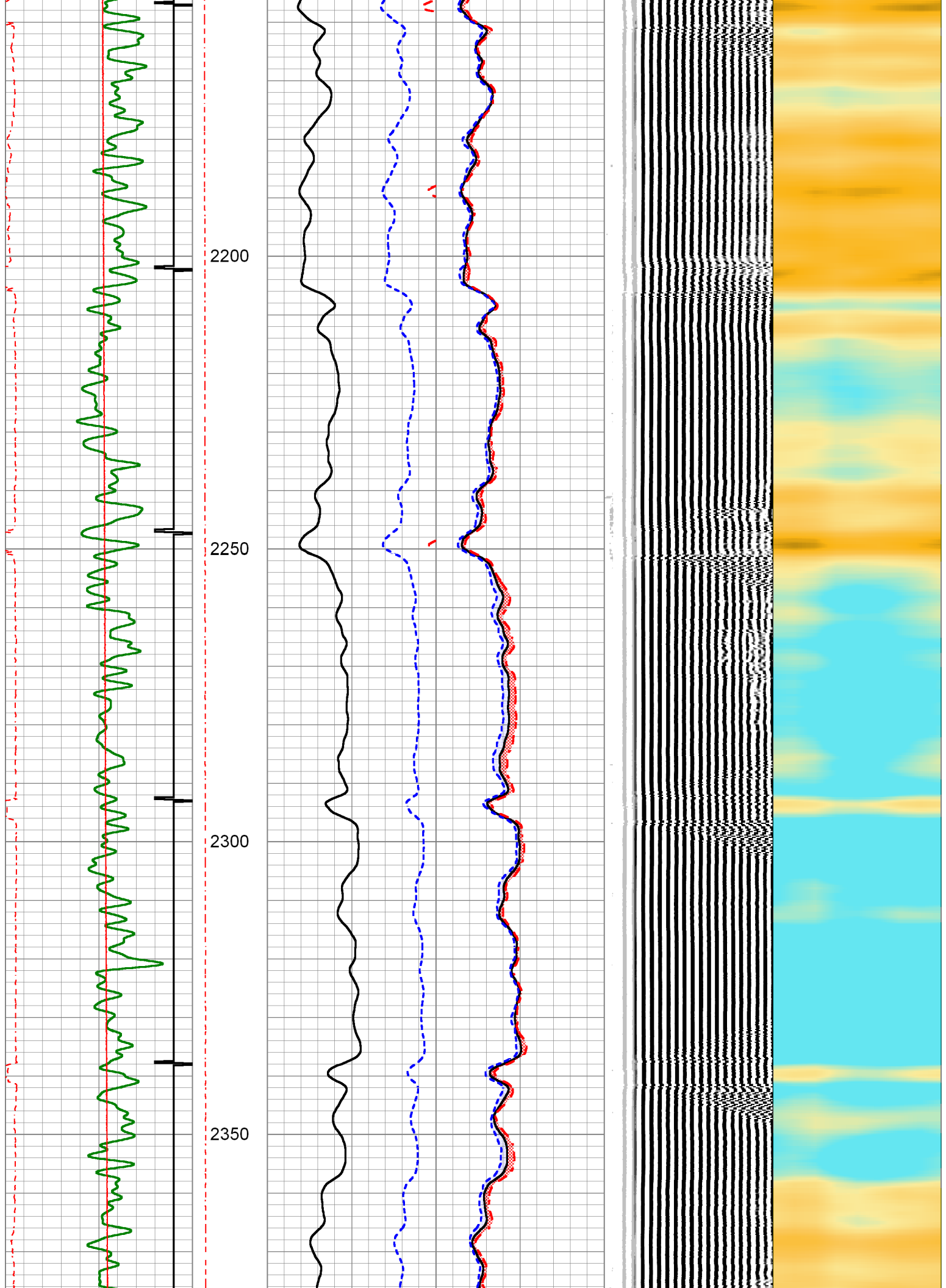


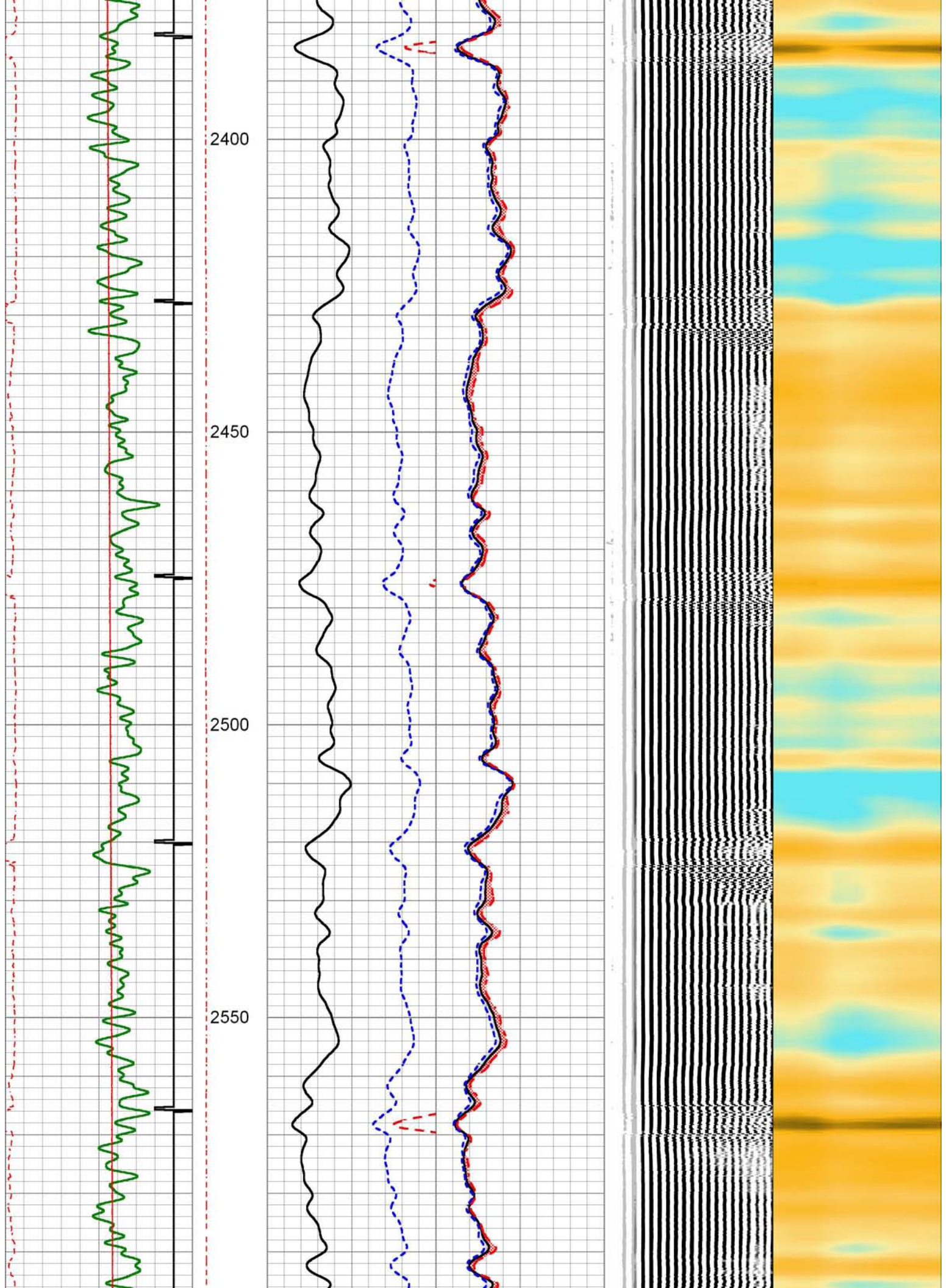


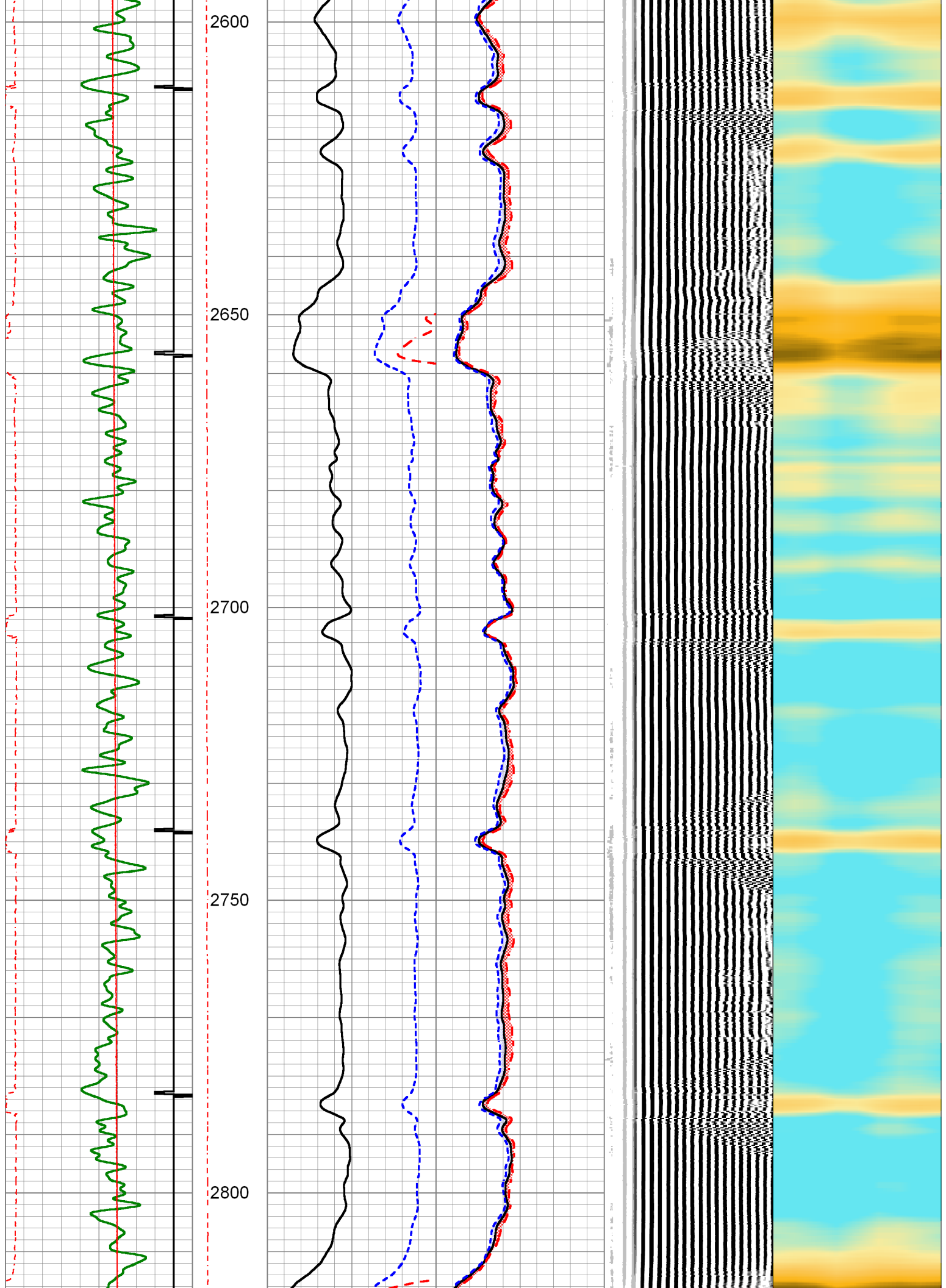




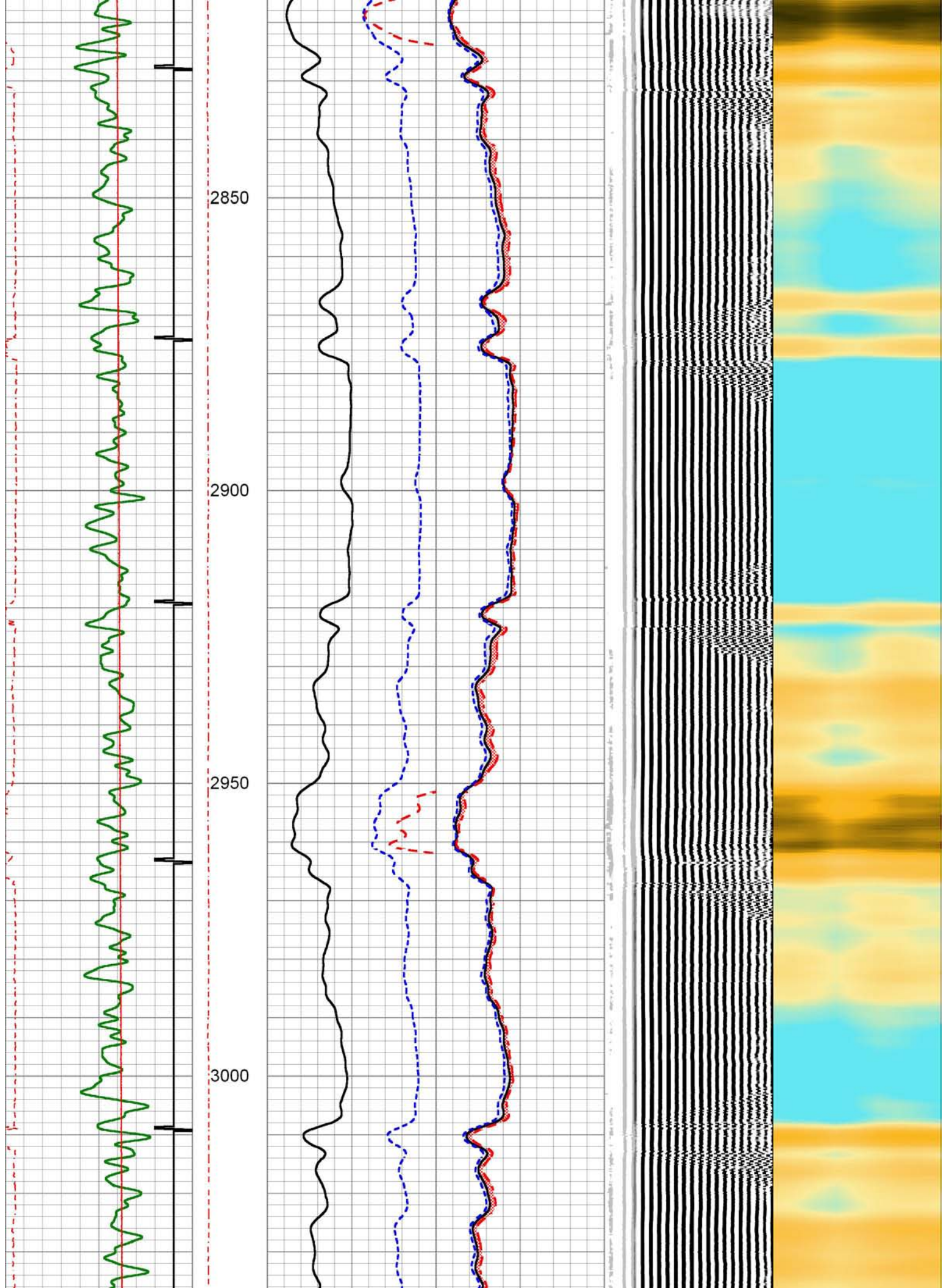




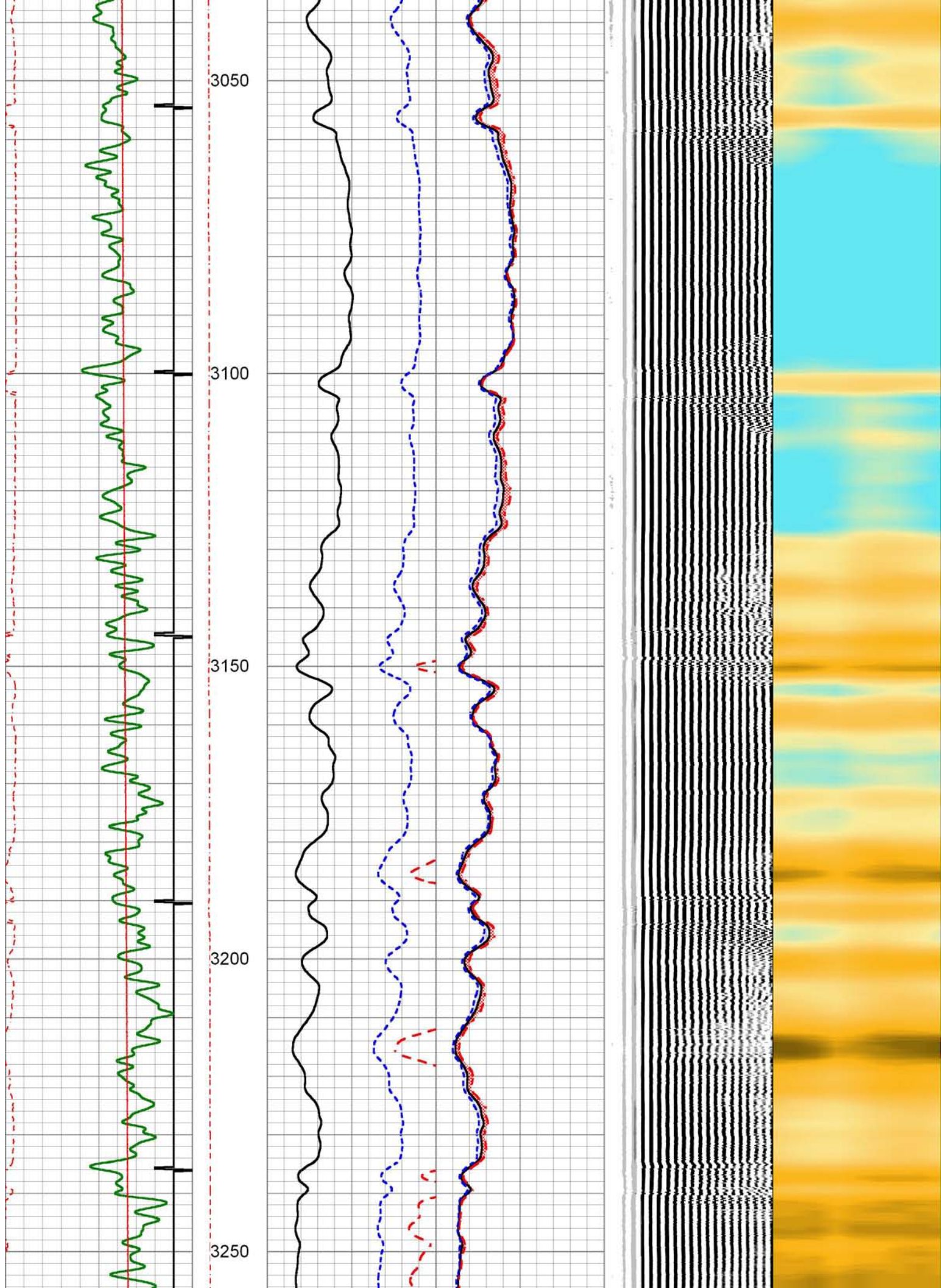




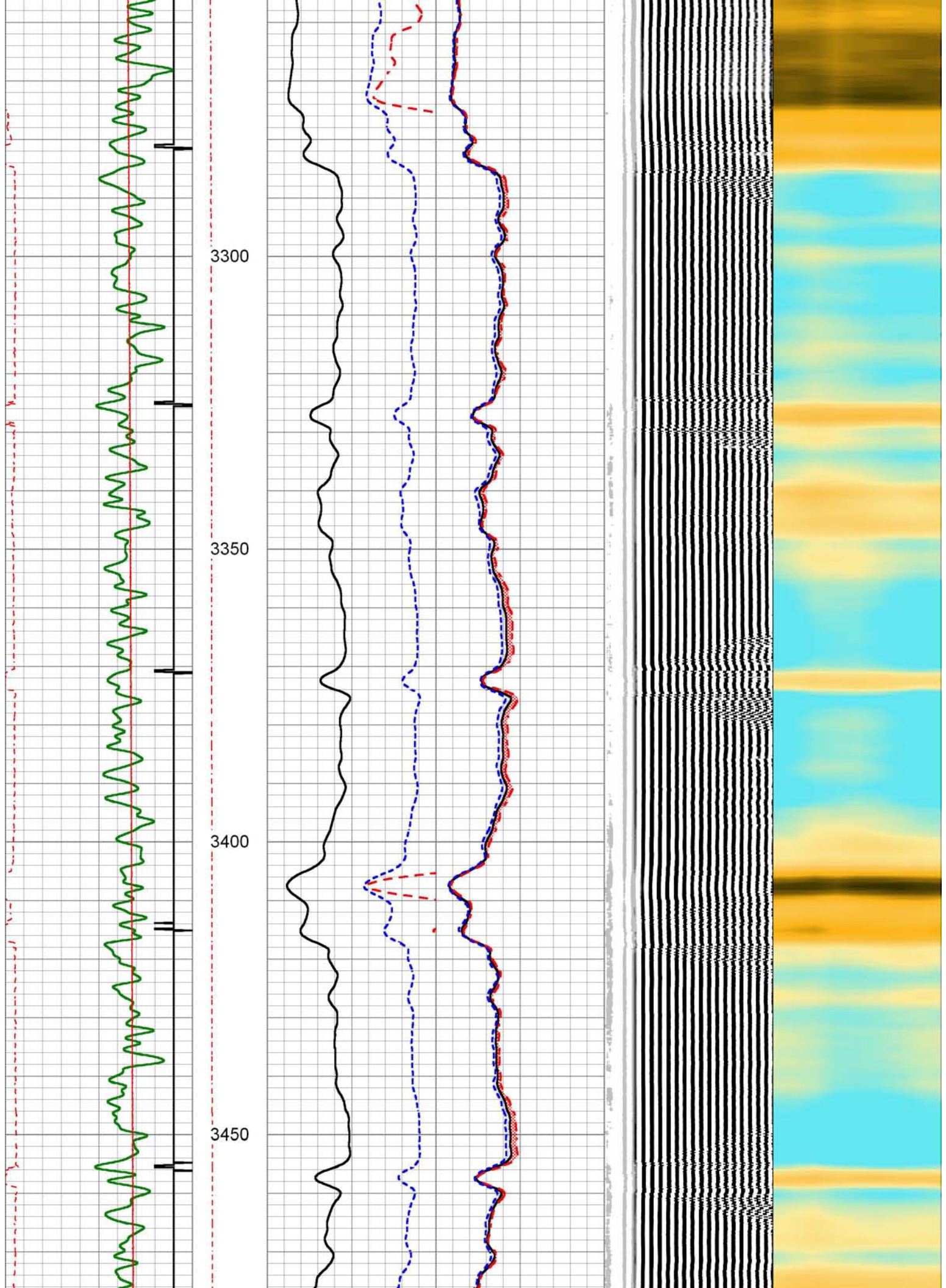




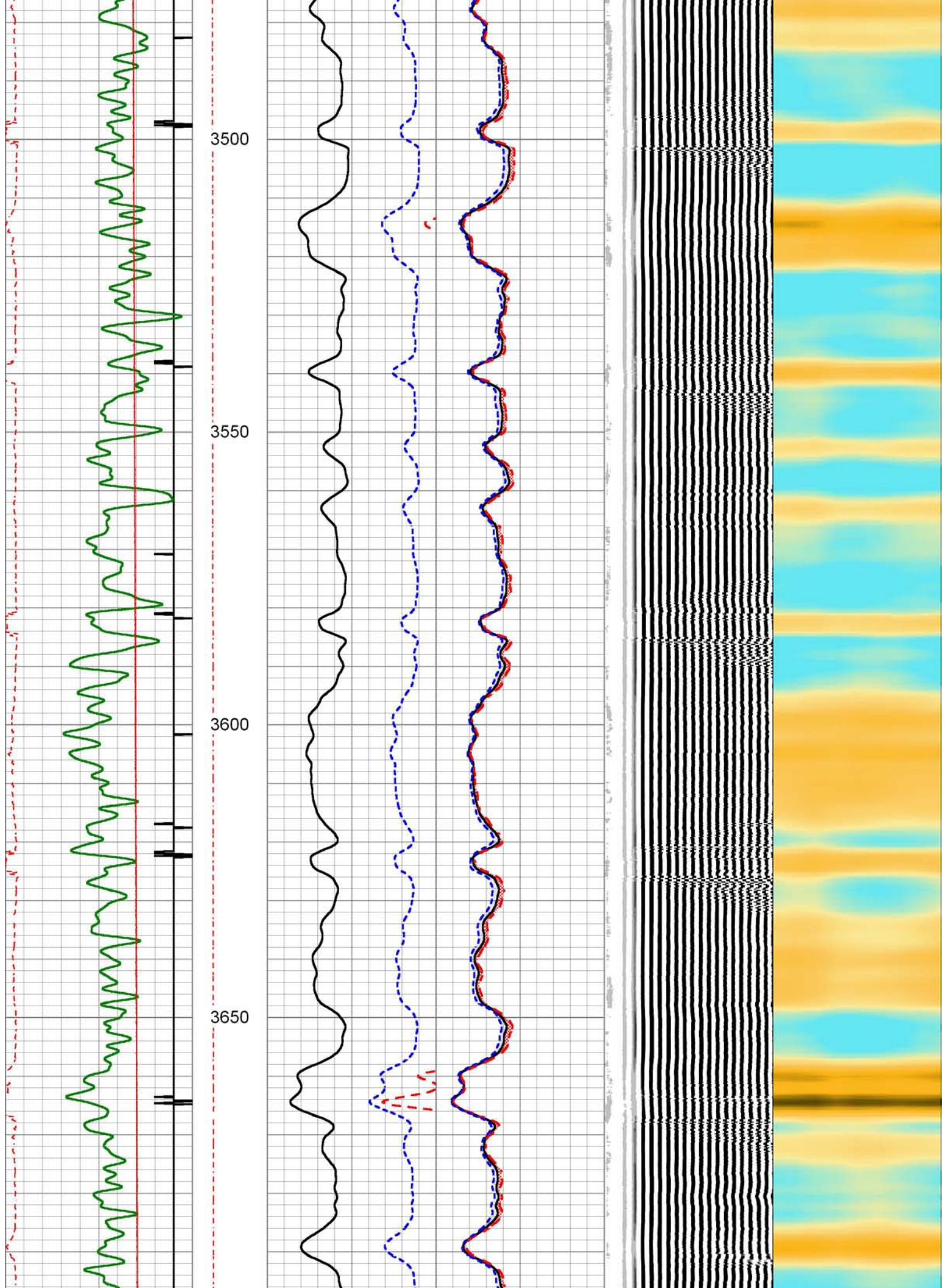




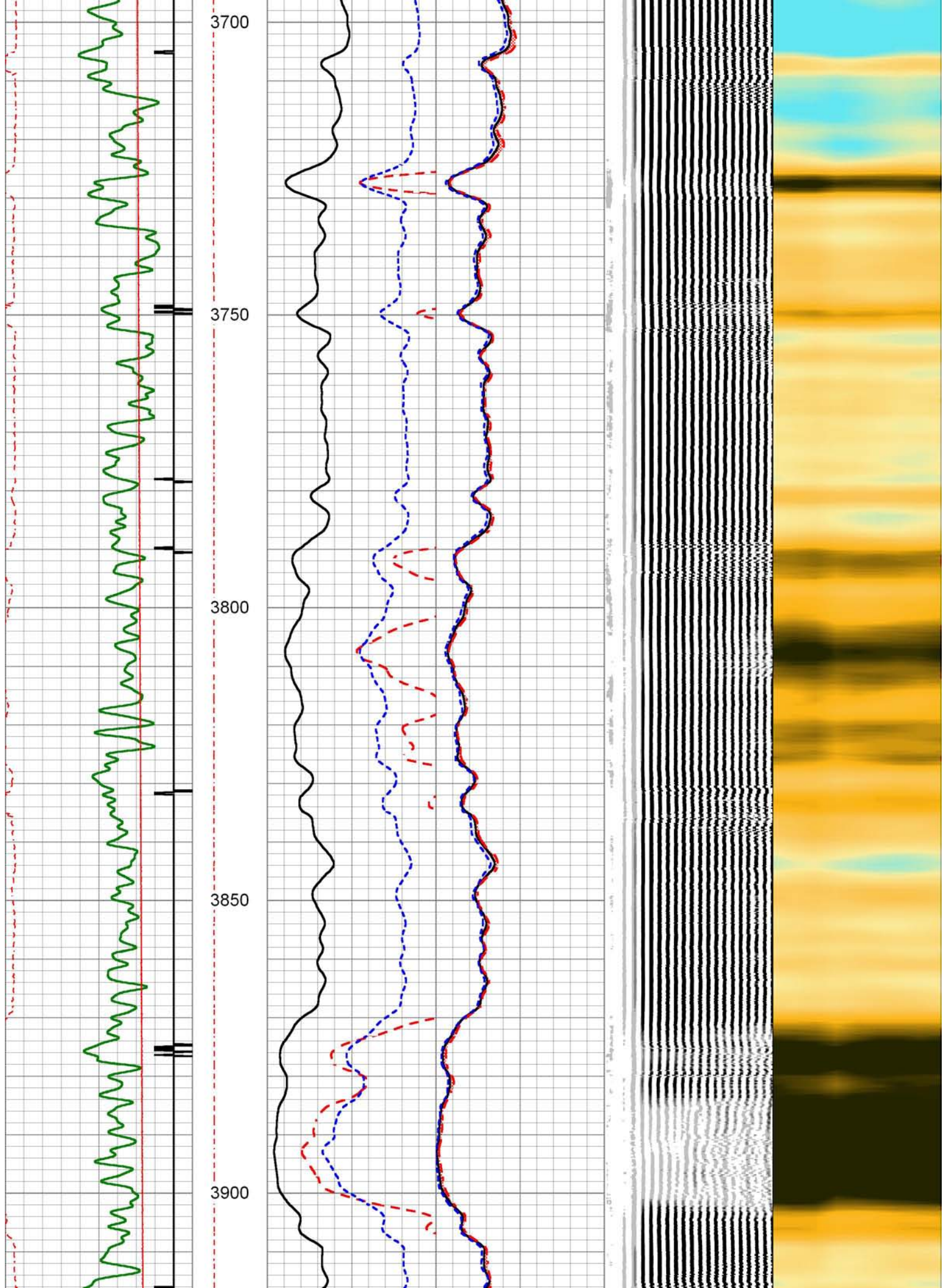


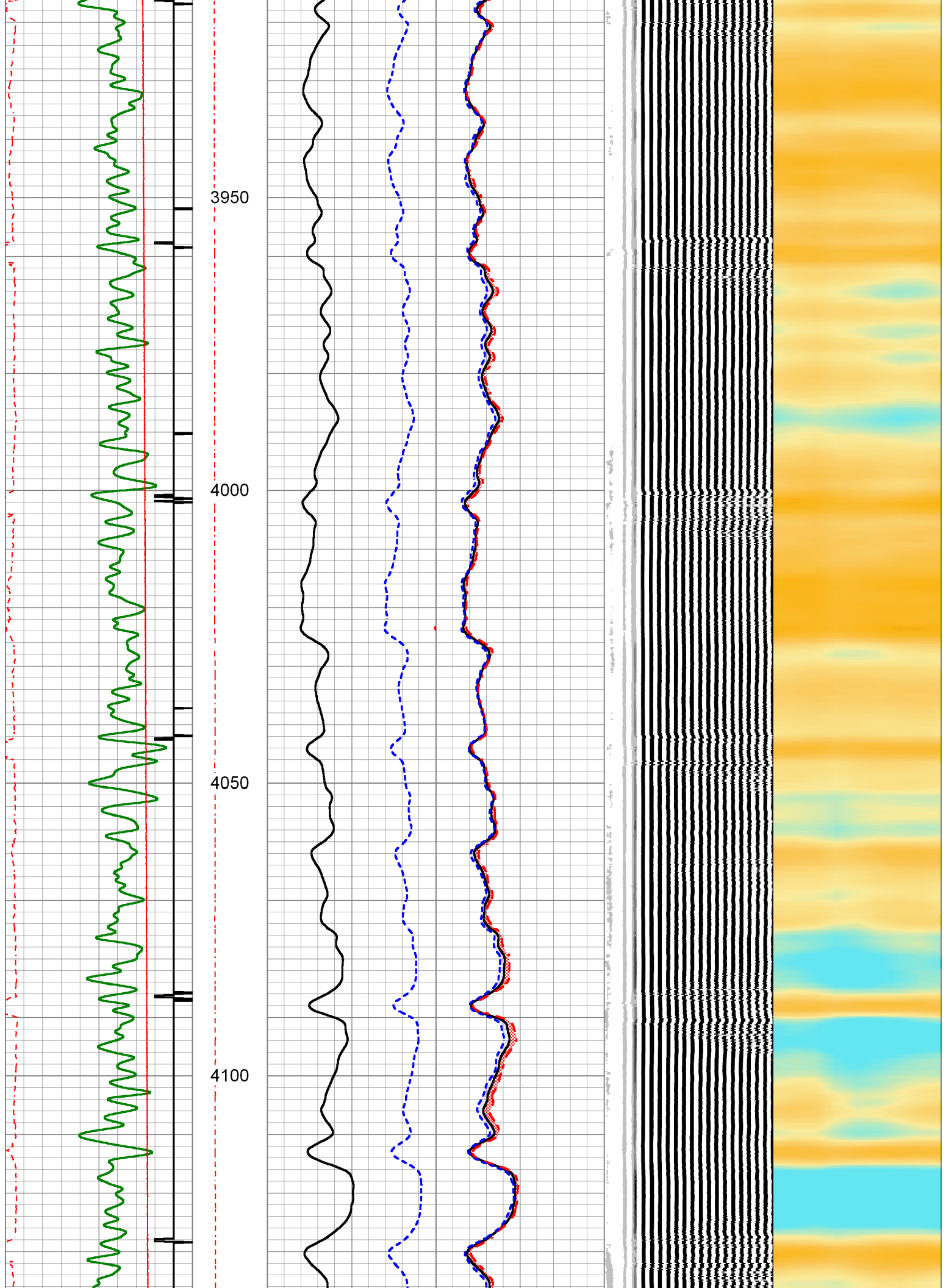




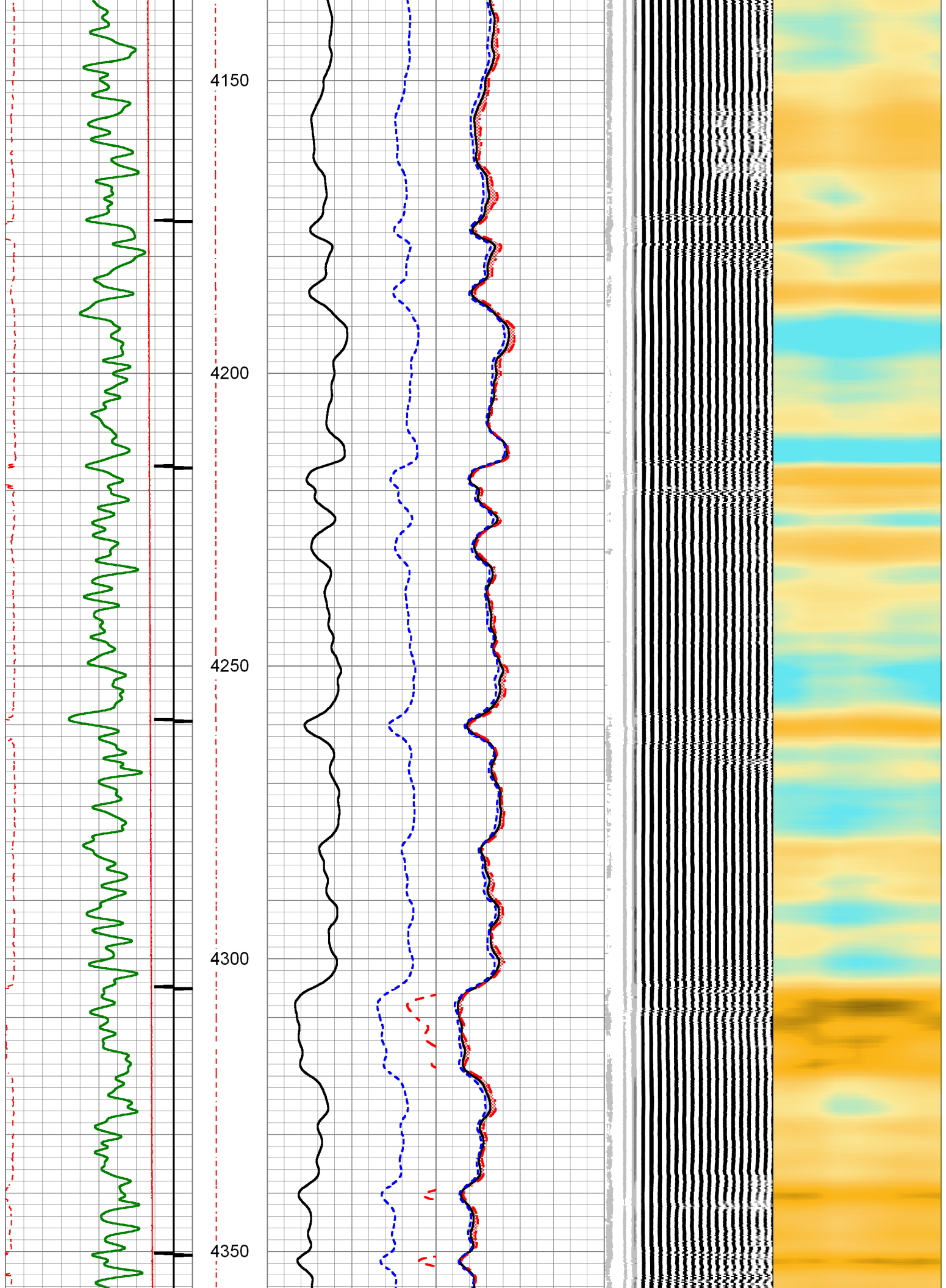


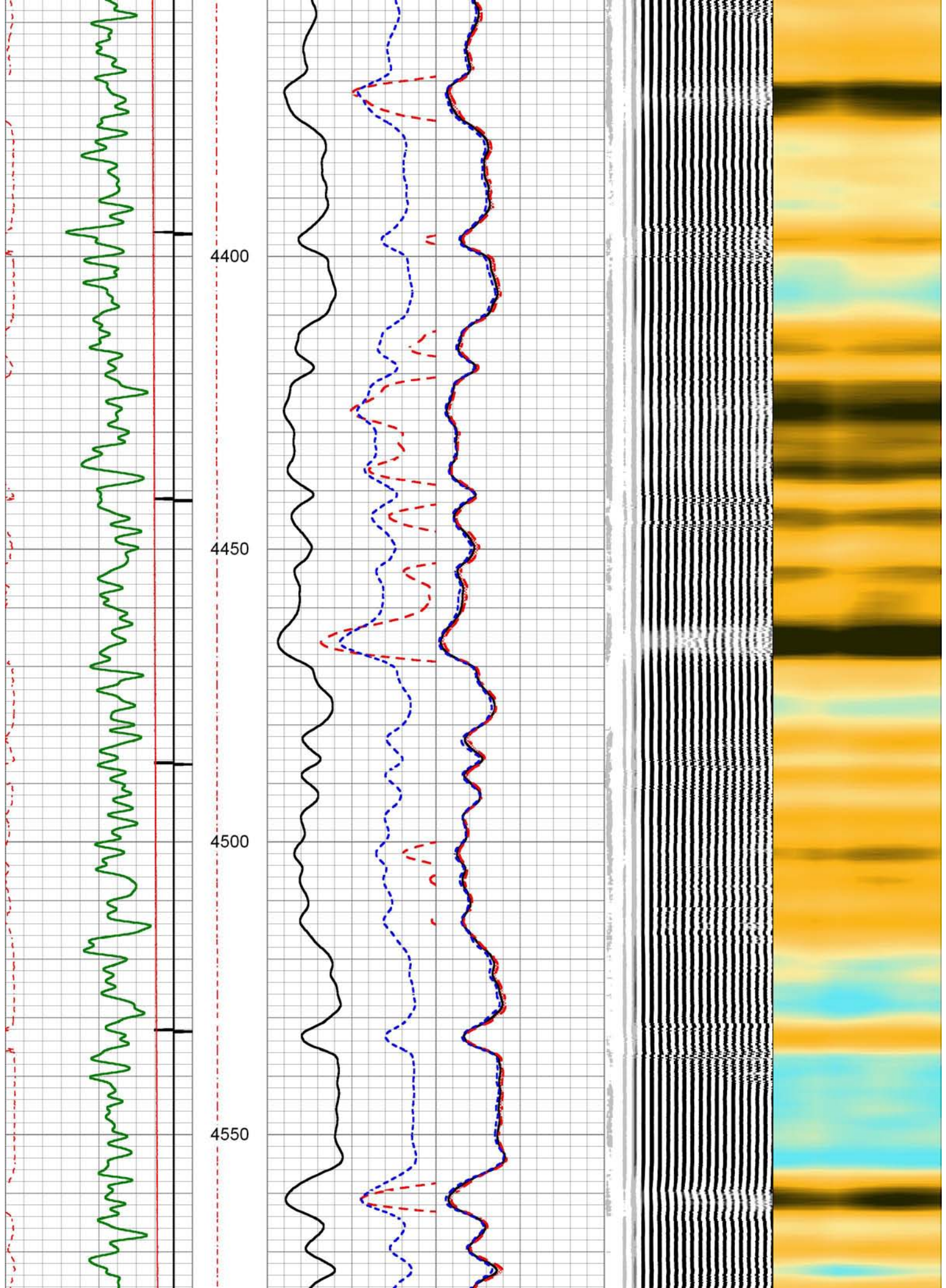




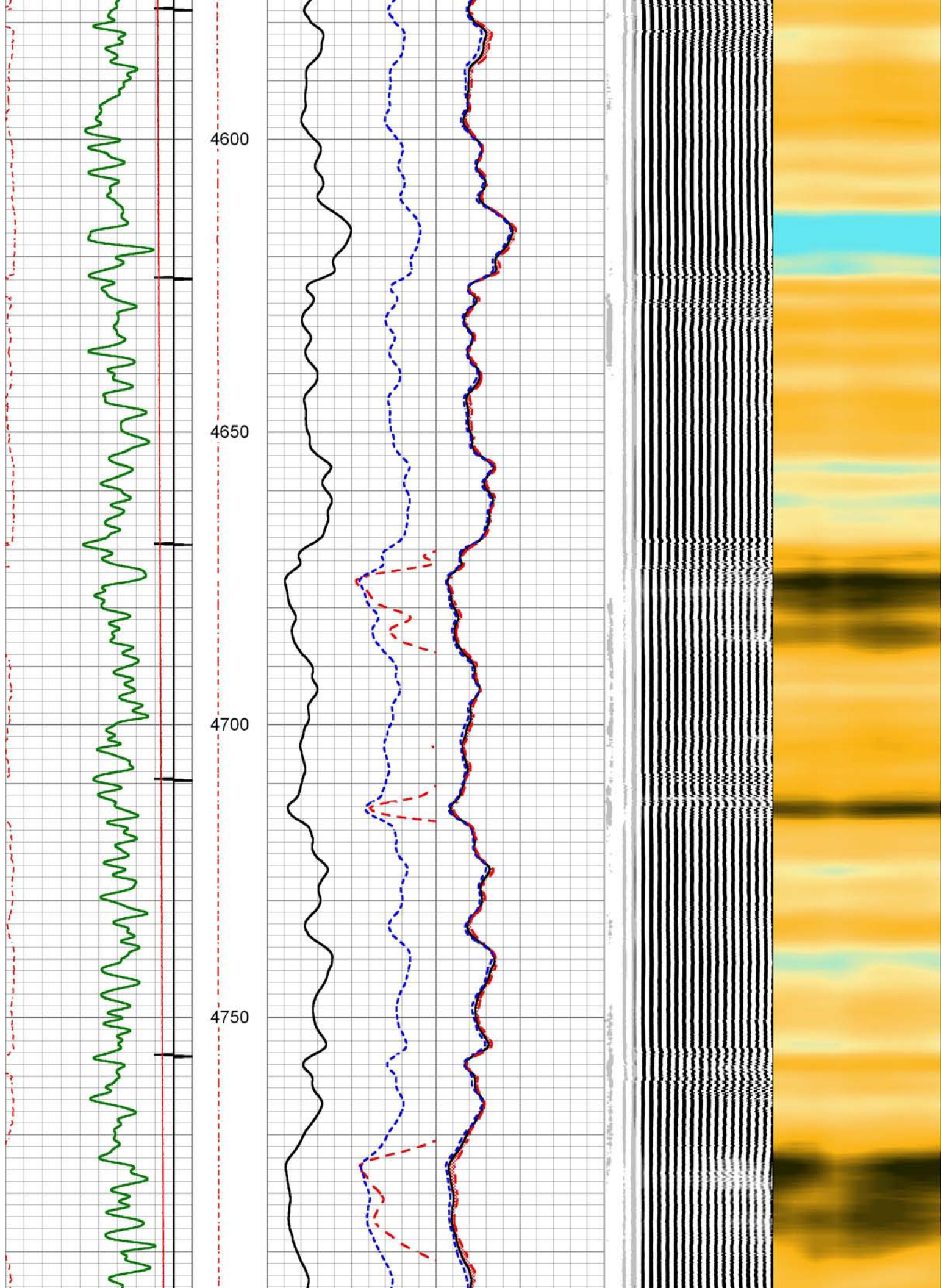


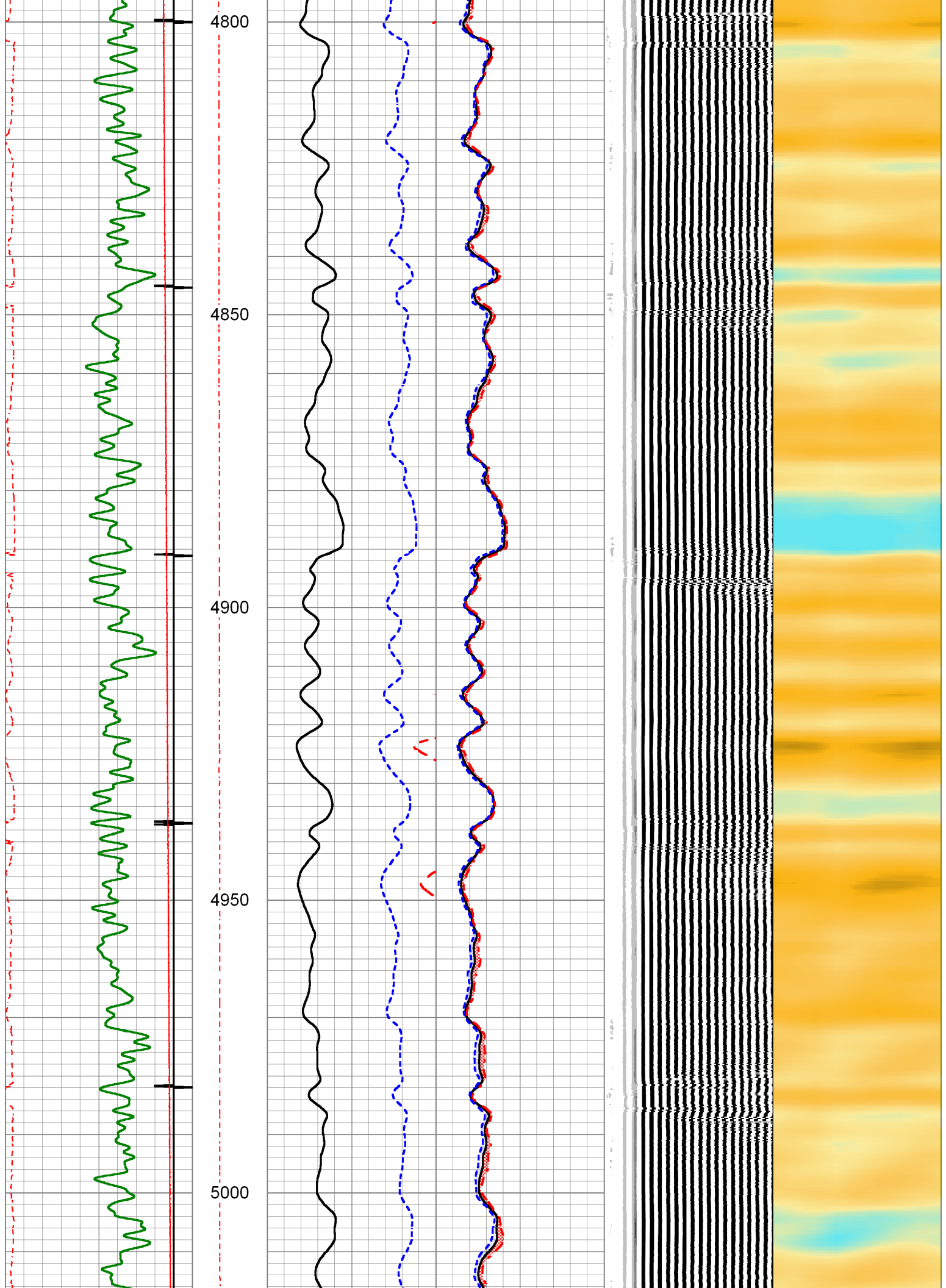




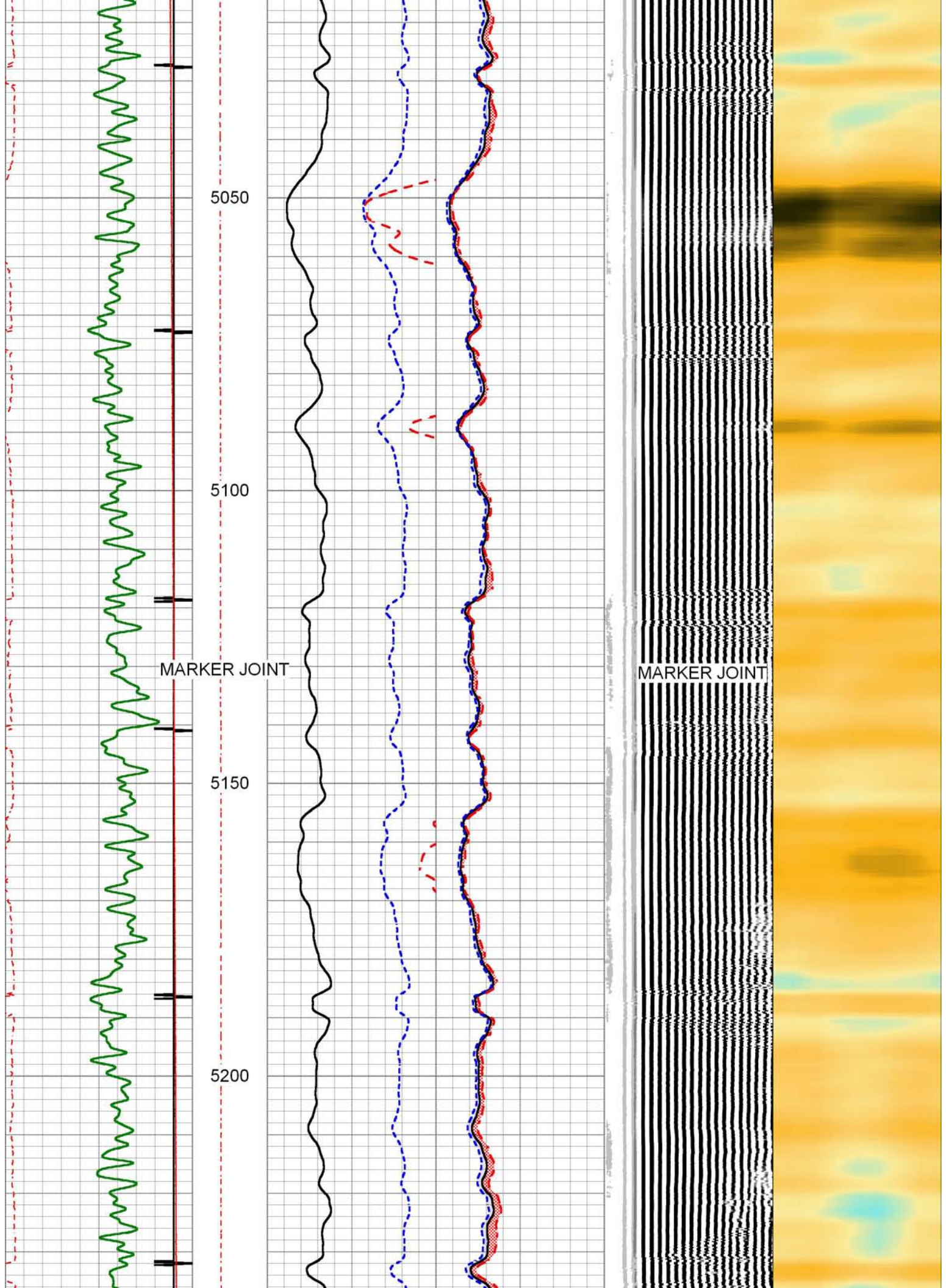




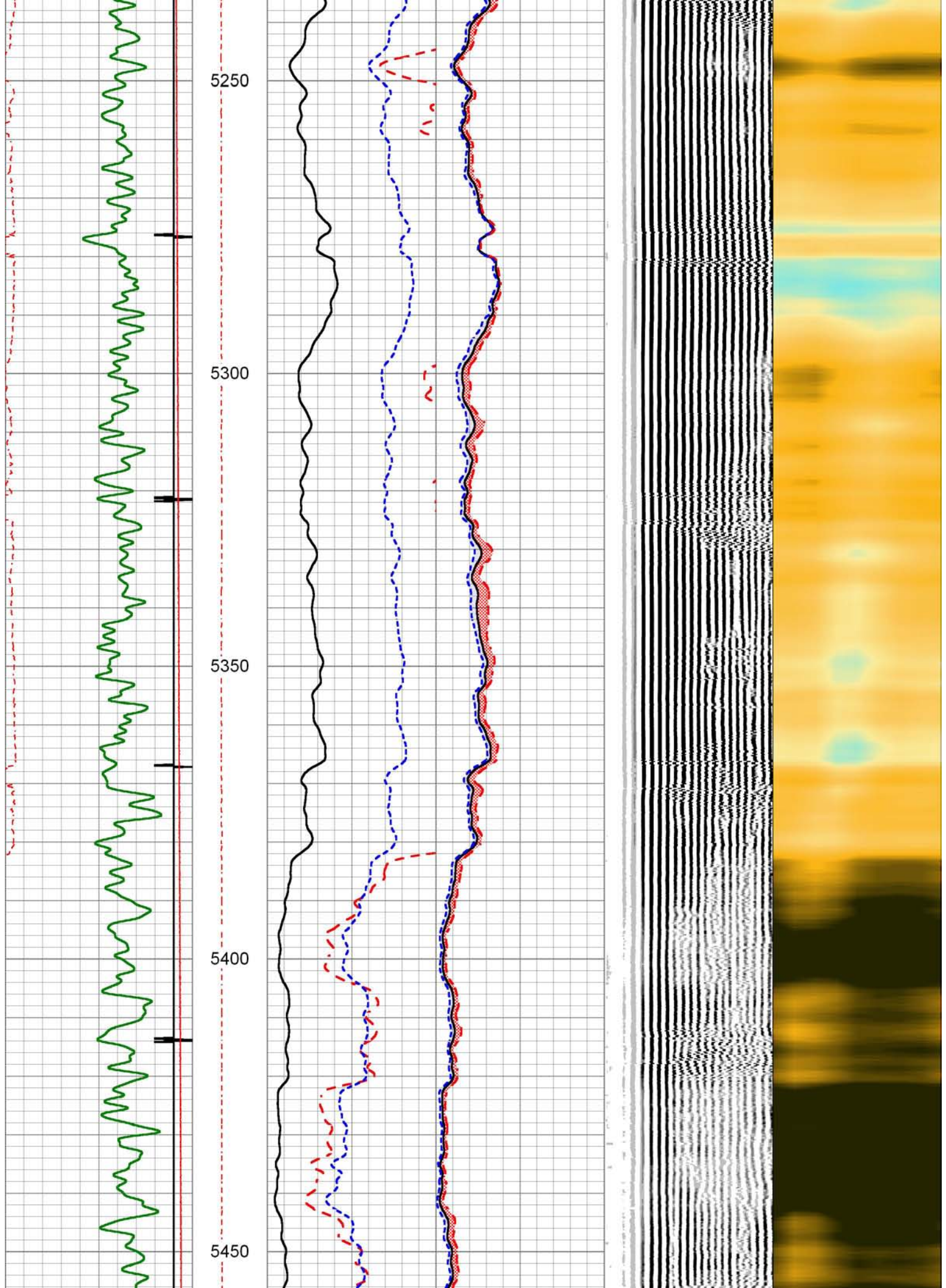




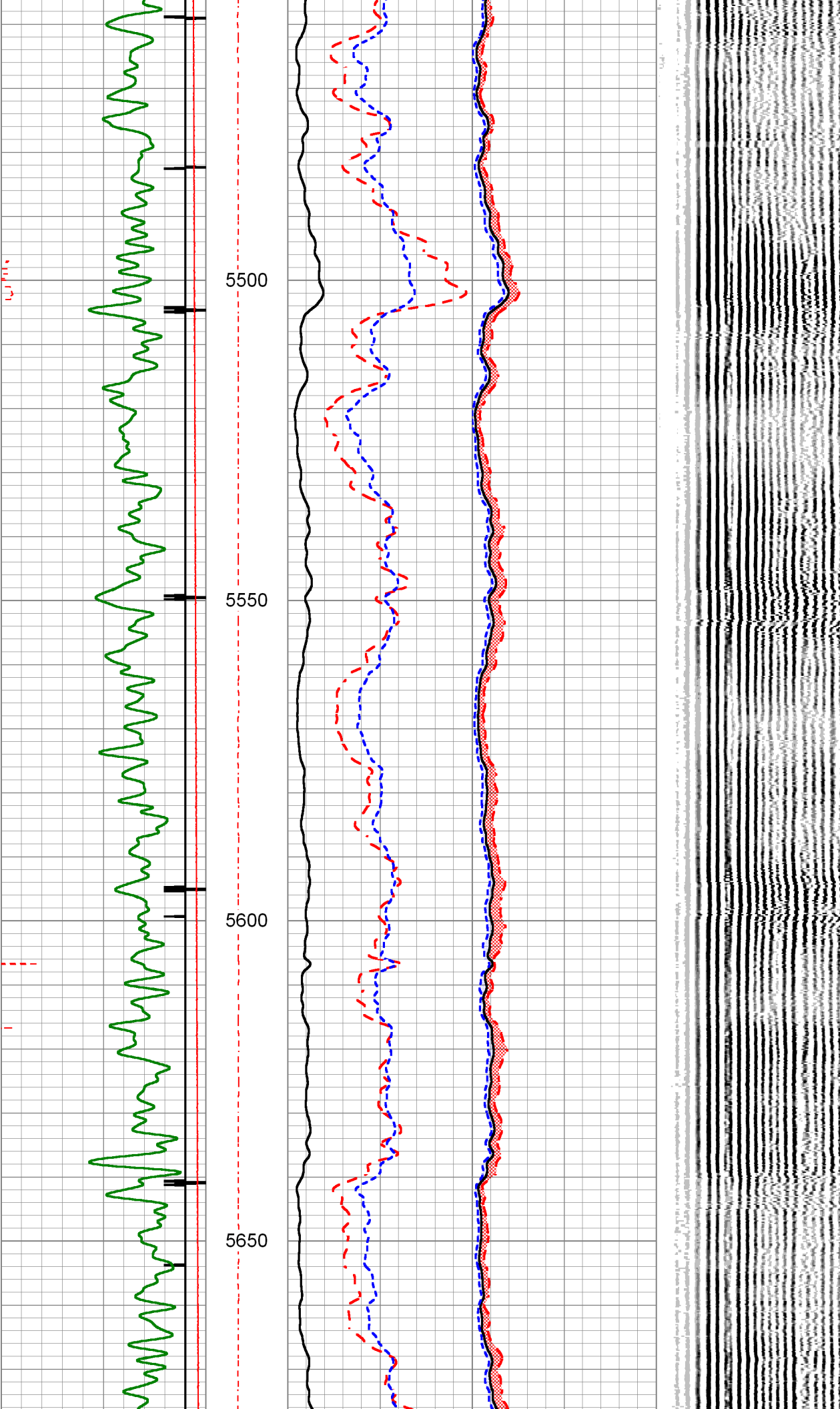


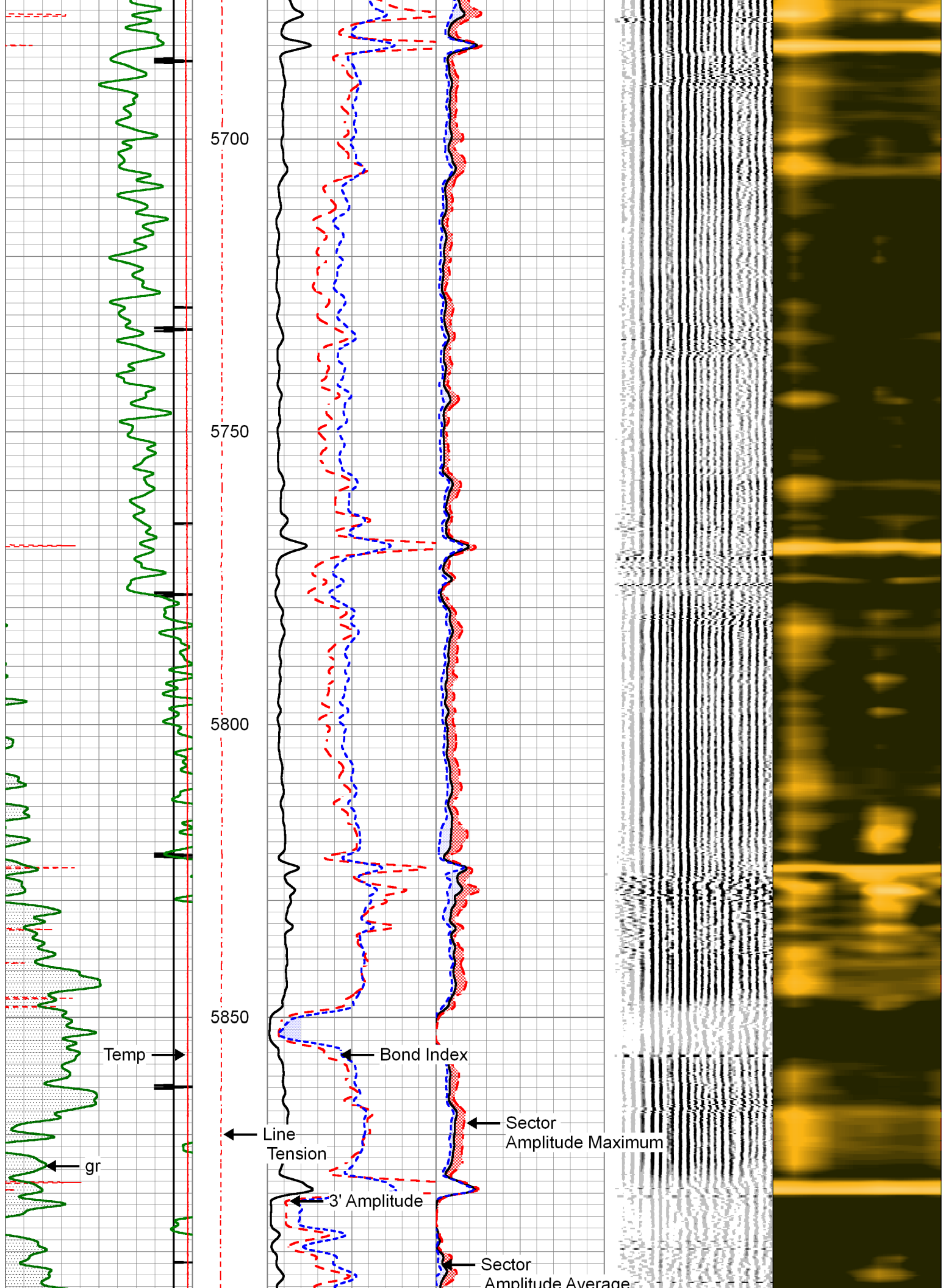




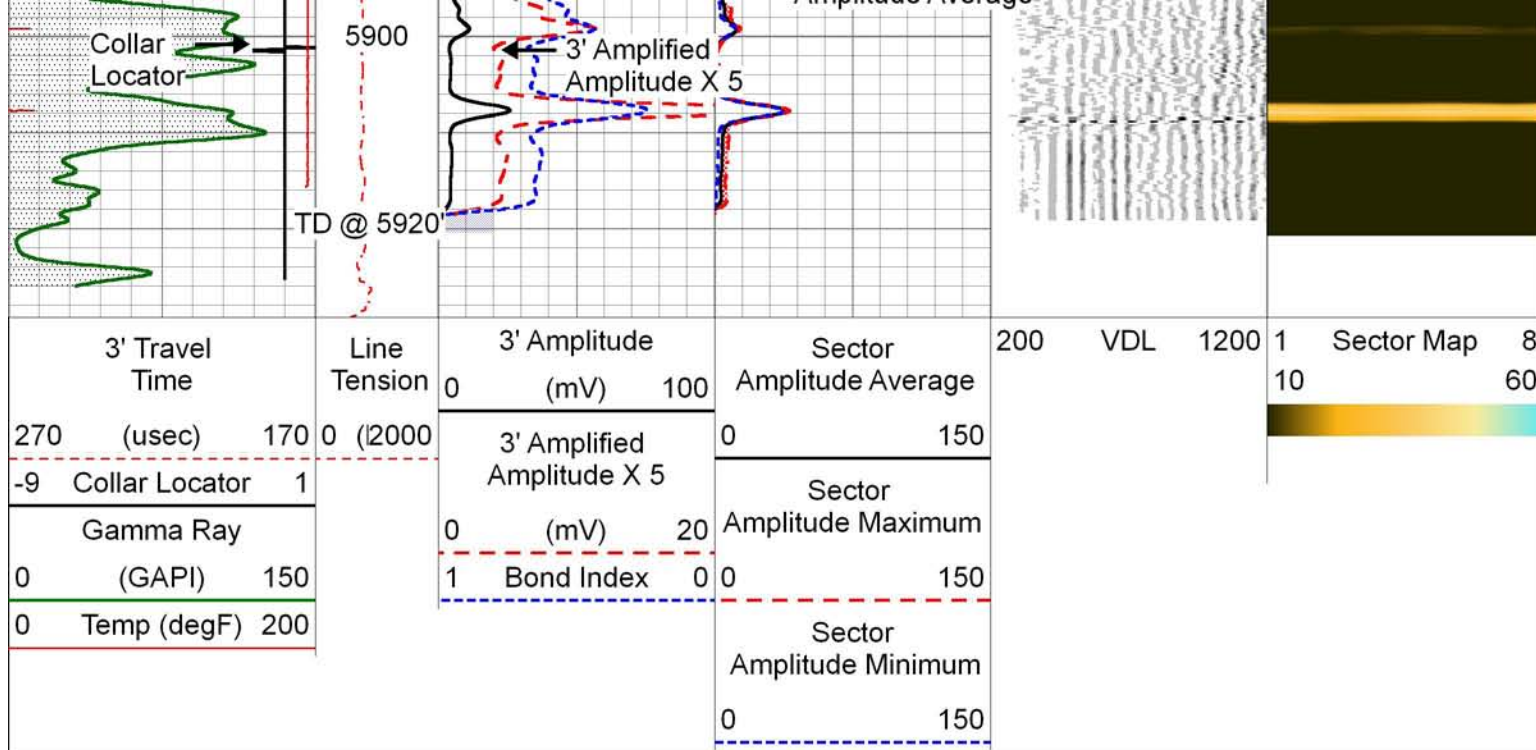












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Pioneer Energy Services

**END OF MAIN PASS**

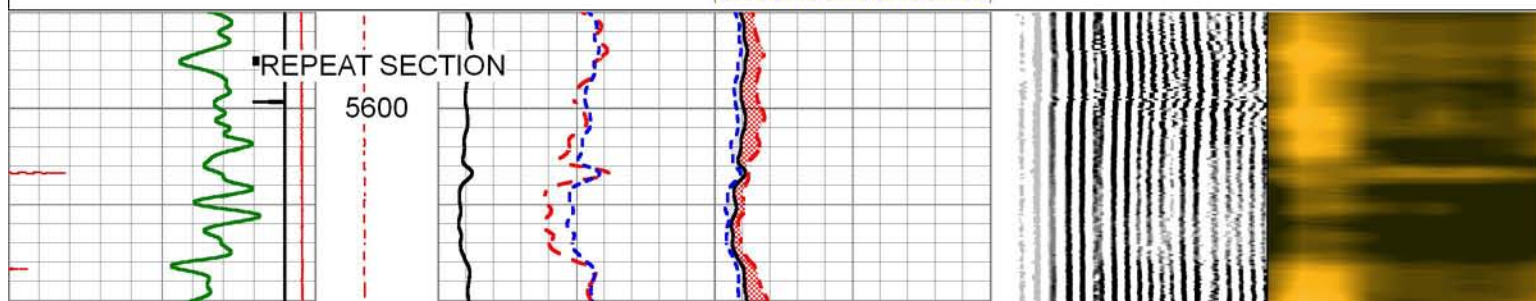
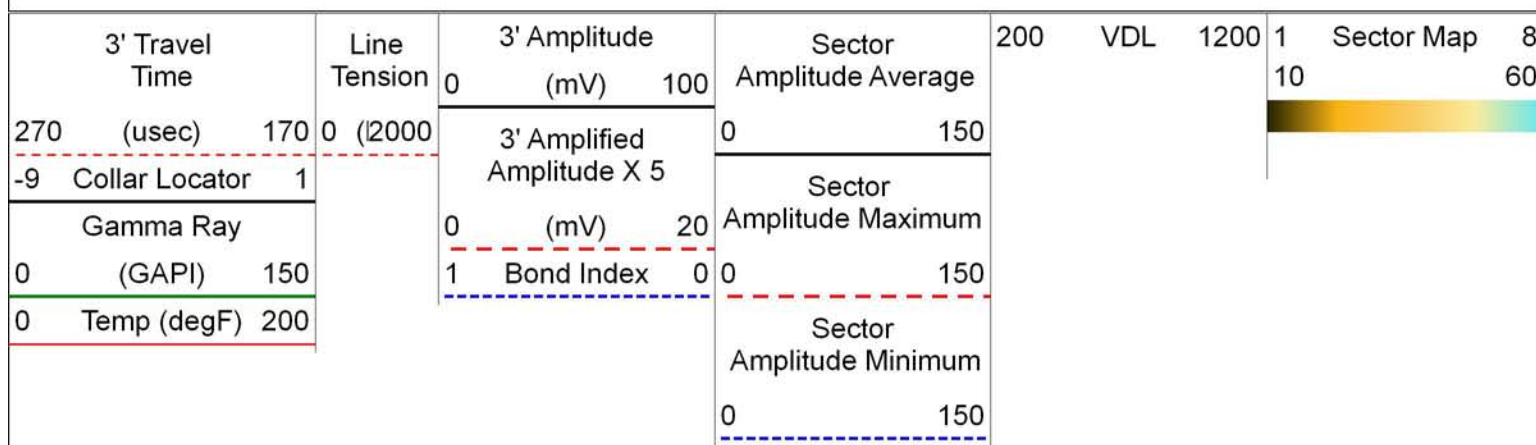
1500 PSI ON WELL WHILE LOGGING

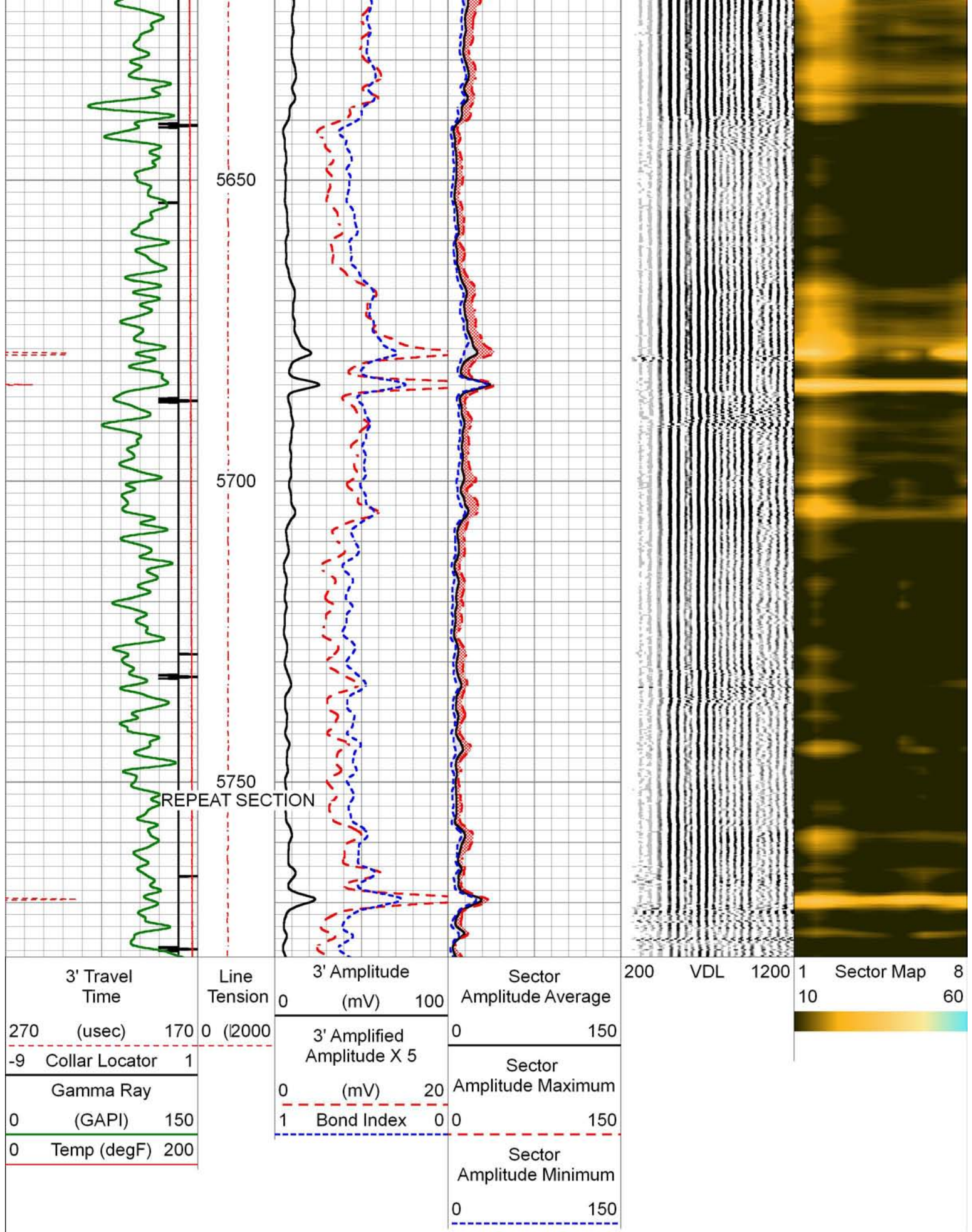
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**REPEAT SECTION**

1500 PSI ON WELL WHILE LOGGING

Database File 290168.db  
Dataset Pathname REPEAT2  
Presentation Format pinr\_scbl  
Dataset Creation Wed Apr 20 12:34:48 2016  
Charted by Depth in Feet scaled 1:240





### Calibration Report

Database File 290168.db  
Dataset Pathname FINAL



### Gamma Ray Calibration Report

Serial Number: 111211  
Tool Model: 275 Probe GR-CCL Dig  
Performed: Tue Apr 14 17:54:32 2016

Calibrator Value: 320.0 GAPI

Background Reading: 0.1 cps  
Calibrator Reading: 0.9 cps

Sensitivity: 0.8500 GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number: 141166  
Tool Model: 275 Probe w Temp New Mod

Calibration Casing Diameter: 5.500 in  
Calibration Depth: 285.625 ft

#### Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.044	1.457	2.200	71.921	49.327	0.045
CAL	0.002	1.762				
5'	0.037	1.183	2.200	71.921	60.855	-0.080
SUM						
S1	0.031	1.401	0.000	100.000	72.983	-2.256
S2	0.083	1.527	0.000	100.000	69.295	-5.781
S3	0.076	1.547	0.000	100.000	67.979	-5.156
S4	0.038	1.490	0.000	100.000	68.890	-2.622
S5	0.061	1.429	0.000	100.000	73.120	-4.482
S6	0.071	1.399	0.000	100.000	75.342	-5.383
S7	0.073	1.386	0.000	100.000	76.143	-5.545
S8	0.068	1.427	0.000	100.000	73.573	-5.002

### Temperature Calibration Report

Serial Number: 141166  
Tool Model: 275 Probe w Temp New Mod  
Performed: Tue Apr 19 17:54:03 2016

Reference Reading

Low Reference: 35.00 degF 0.09 degF  
High Reference: 212.00 degF 1.22 degF

Gain: 0.78  
Offset: 6.00  
Delta Spacing: 1



Company WHITING OIL & GAS CORP.  
Well HORSETAIL 07F-1807



Field

WILDCAT

County

WELD

State

CO.