



**RADIAL BOND LOG
WITH GAMMA RAY**

Pioneer Energy Services

Company **WHITING OIL & GAS CORP.**
Well **HORSETAIL 07F-1839**
Field **WILDCAT**
County **WELD** State **CO.**

Comp. **WHITING OIL & GAS CORP.**
Well **HORSETAIL 07F-1839**
Field **WILDCAT**
Co. **WELD**
State **CO.**

Location: API #: 0512341771 Other Services
SHL: 2547' FNL & 2239' FWL
SENVW
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	14119'		
Depth Logger	6122'		
Bottom Log Interval	6122'		
Top Log Interval	SURFACE		
Open Hole Size	8.5"		
Type Fluid	WBM		
Fluid Level	SURFACE		
Fluid Density	N/A		
Max. Recorded Temperature	201 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' 2026'
Production Casing	5.5"	20#	0' 14119'
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 -8'

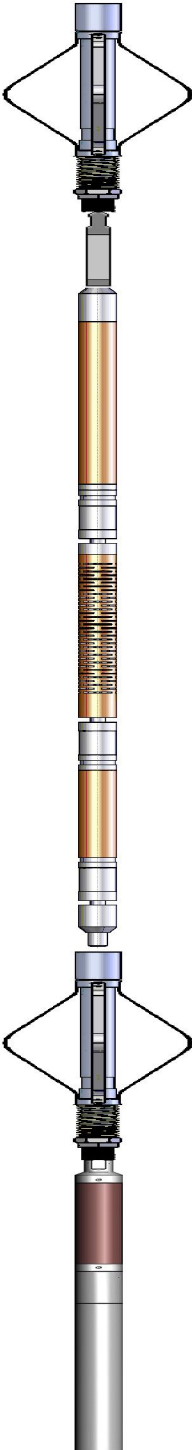
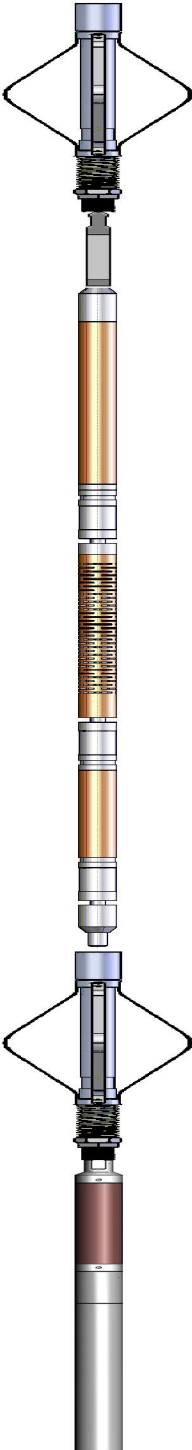
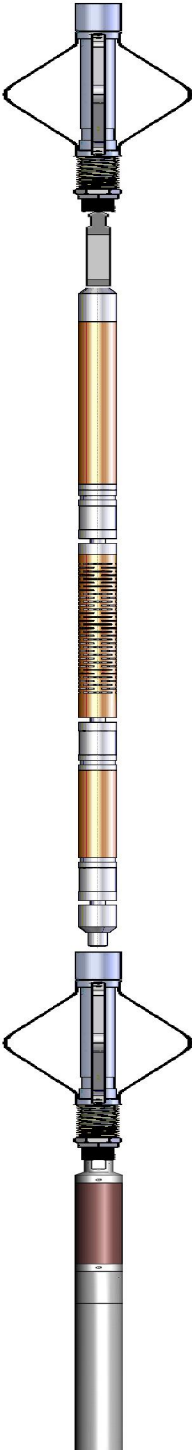
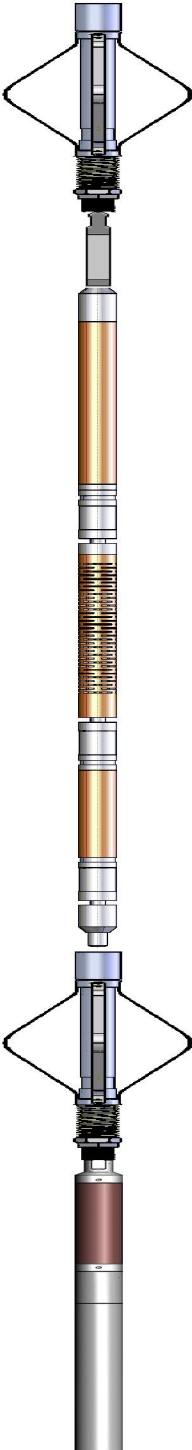
S.O. 290169


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	CMTTKCOR	CSTKCOR	SZCOR	CASED?	NPORSEL	CMNTTHCK in
TEMP	On	On	On	Yes	Sandstone	0
PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF	CASETHCK in
0	20	0	2.2	0.08	0	0
CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in		
5.5	0	0	198	8.5		

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	19.45		Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
			Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			SCBL-275 Probe w Temp New Mod (141119.17) Probe Radii Bond Tool with Temperature	119.17	2.75	95.00
WVFS8	17.21					
WVFS7	17.21					
WVFS6	17.21					
WVFS5	17.21					
WVFS4	17.21					
WVFS3	17.21					
WVFS2	17.21					
WVFS1	17.21					
WVFCAL	17.21					
WVF3FT	17.21					
WVF5FT	16.21					
CCL\$2 CCL\$1	9.19 9.19		Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
GR	7.85		GR-GC_6PIN (FW1404-112) Probe 6 Pin GR275-0001 rev.1	4.82	2.75	


CNLSC CNSSC	2.05 1.64		CNT-275BL (120508) Probe 2.75 Digital CNT	5.00	2.75	76.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00
Dataset: 290169.db: field/well/run1/RBLFINAL Total length: 26.04 ft Total weight: 204.00 lb O.D.: 2.75 in						

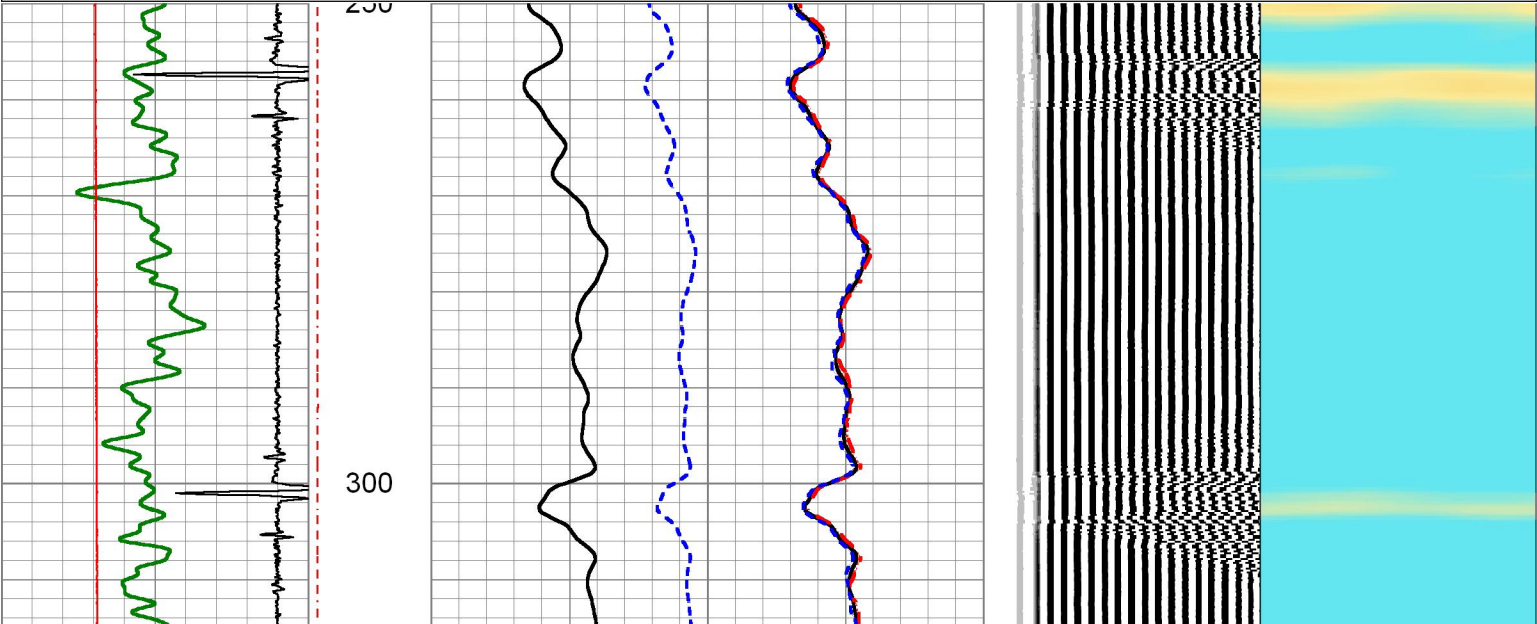


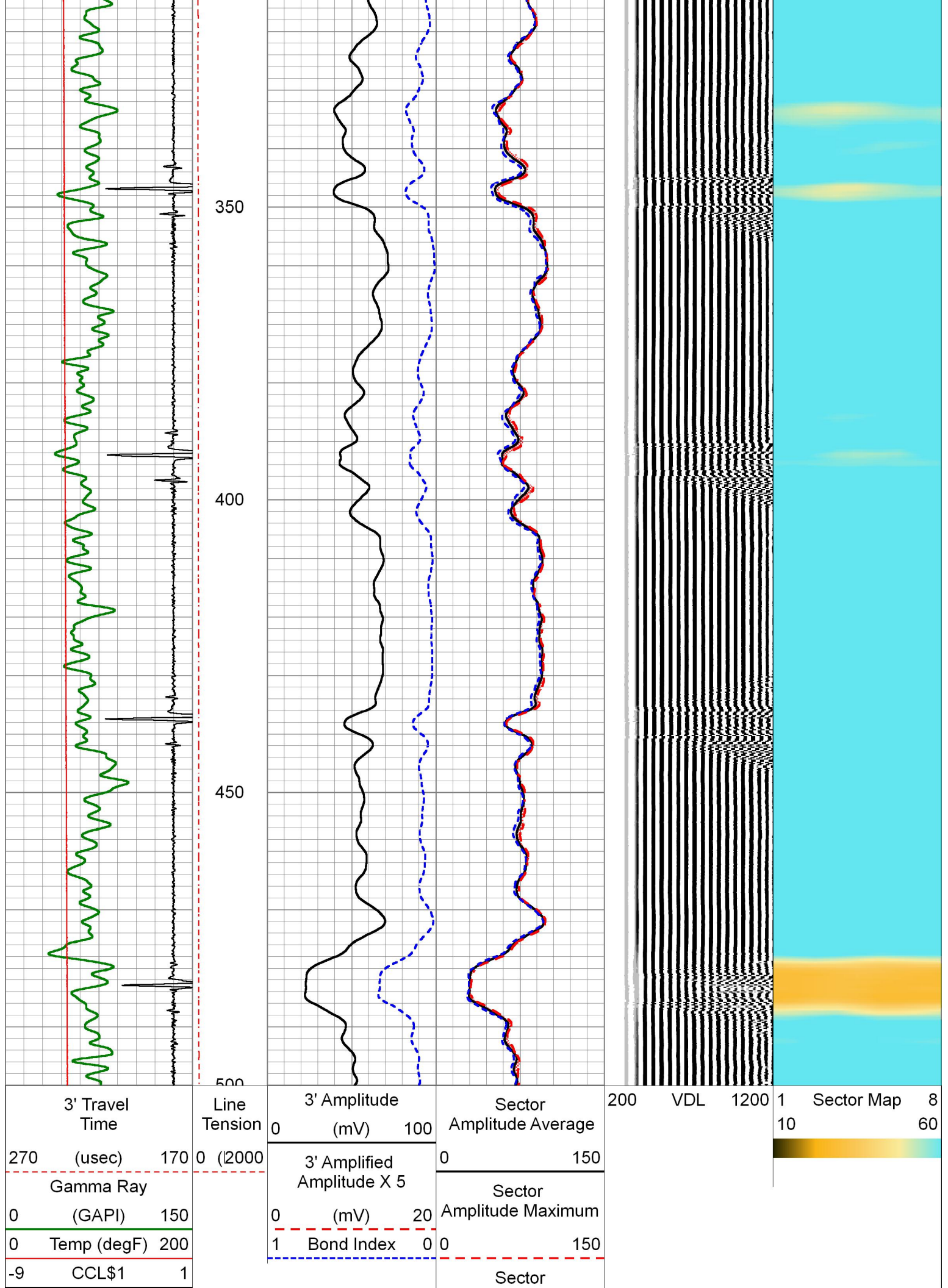
FREEPIPE PASS

1500 PSI ON WELL WHILE LOGGING

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Dataset Pathname	FREEPIPE
Presentation Format	pinr_scbl
Dataset Creation	Wed Apr 20 16:18:52 2016
Charted by	Depth in Feet scaled 1:240

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

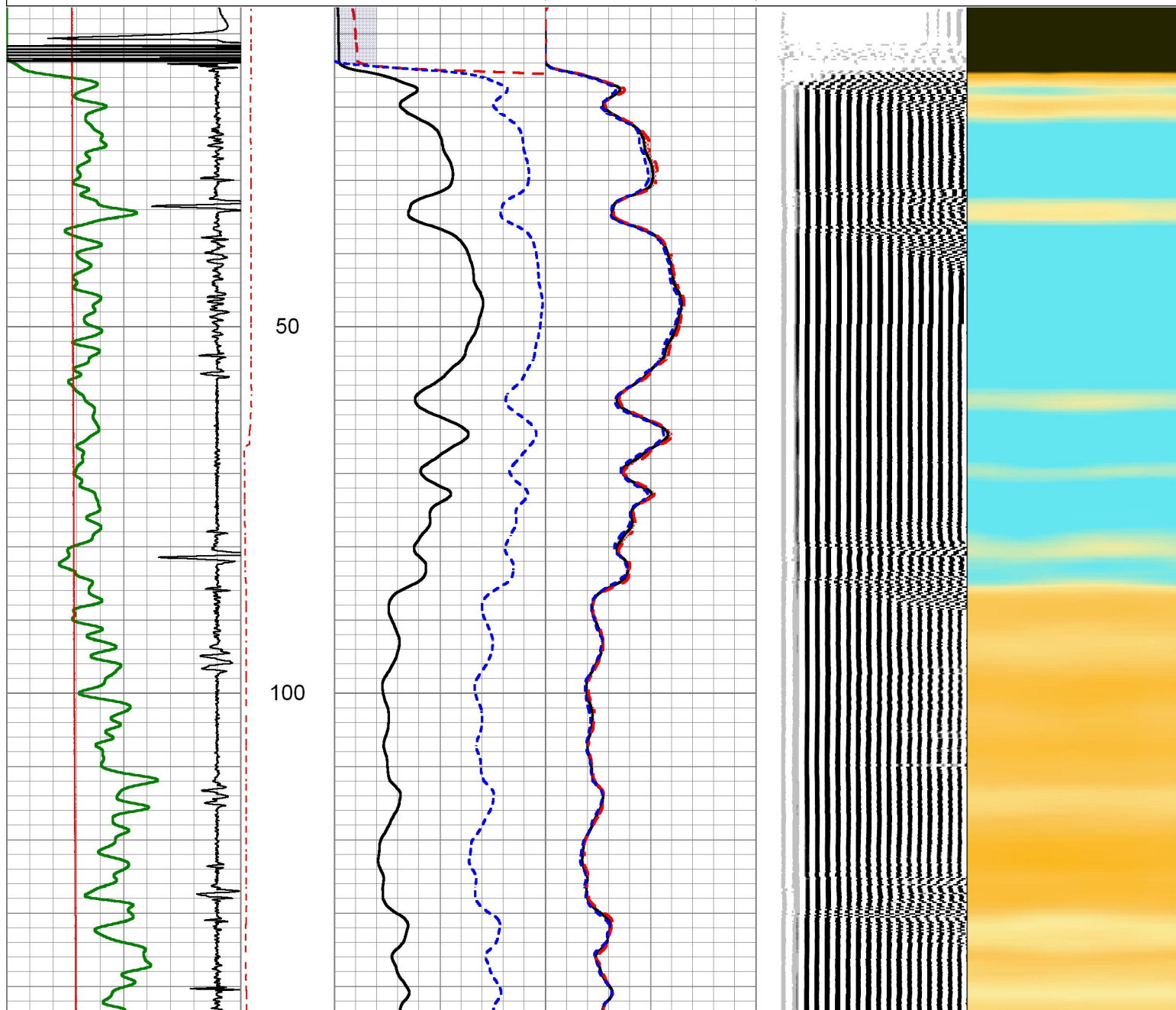


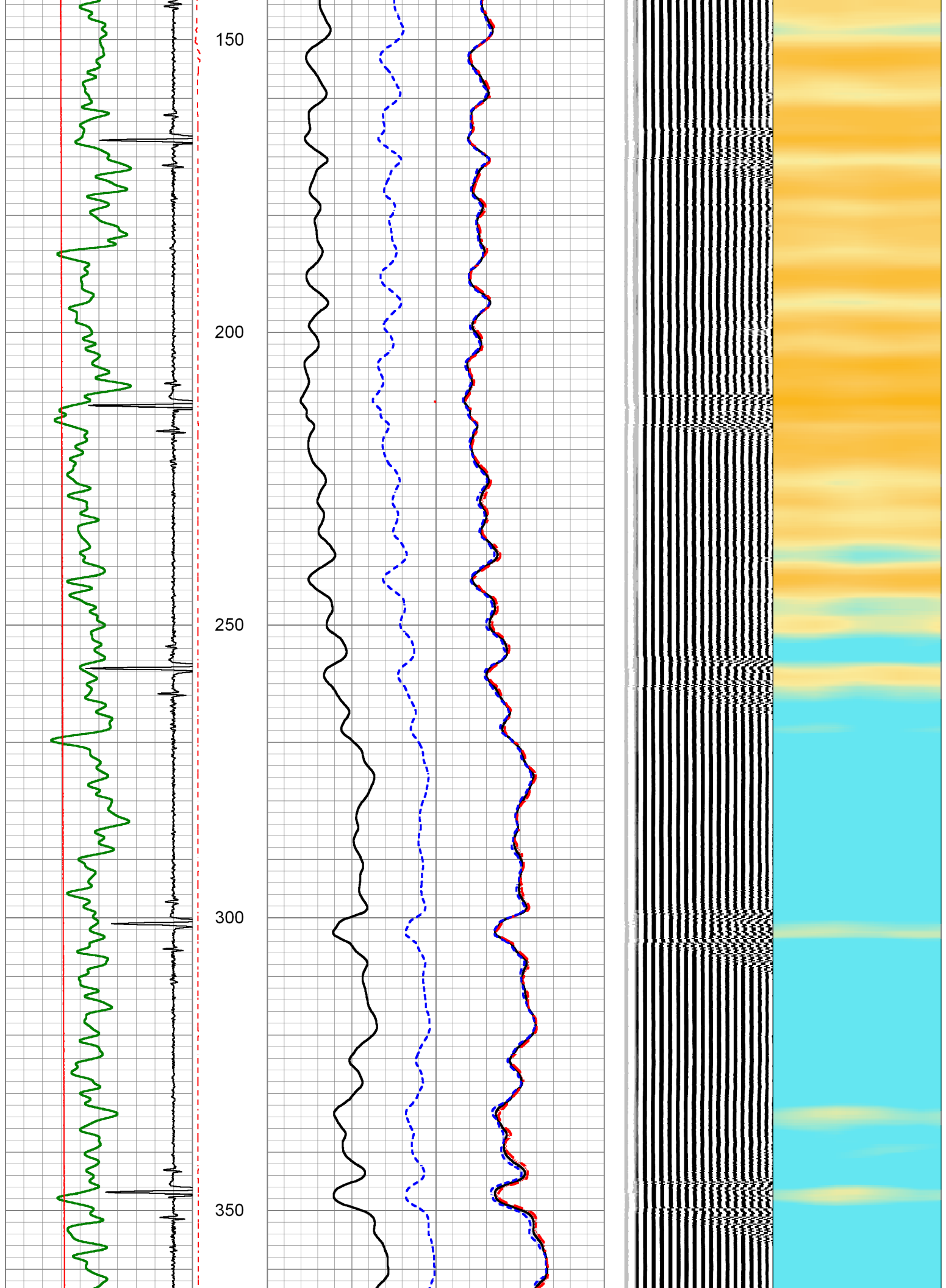


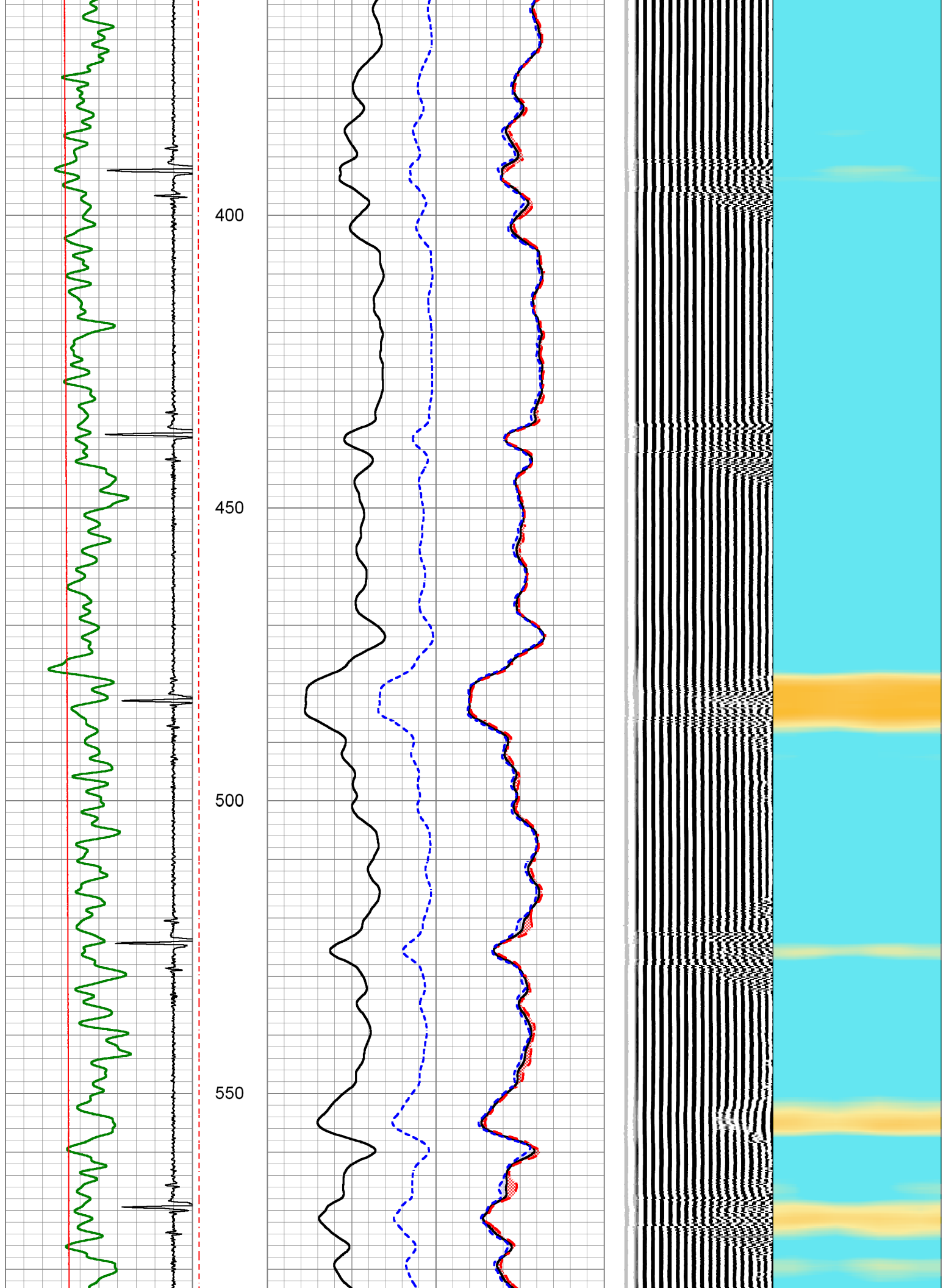
Amplitude Minimum
0 150

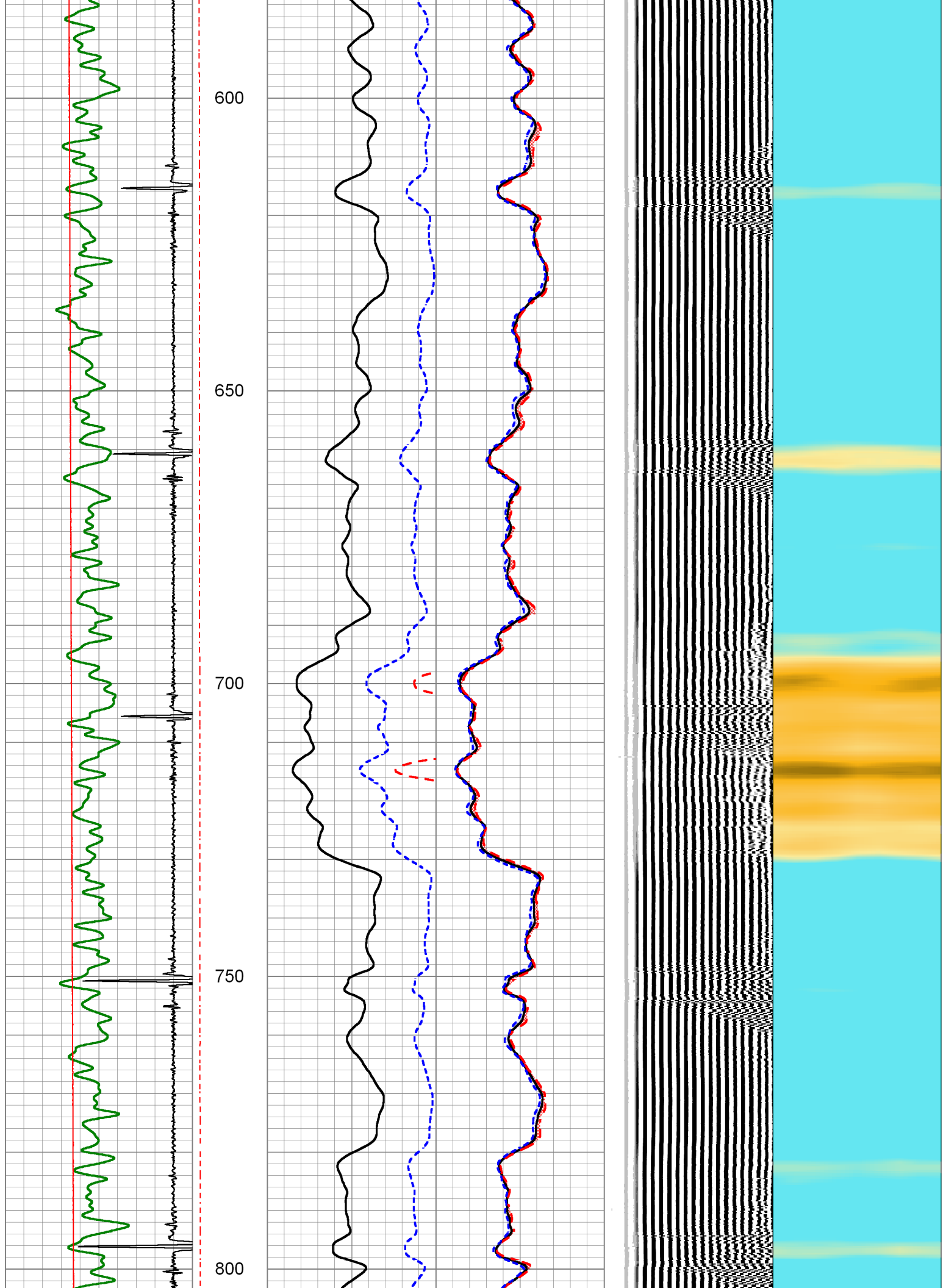
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Dataset Pathname RBLFINAL
Presentation Format pinr_scbl
Dataset Creation Wed Apr 20 16:17:24 2016
Charted by Depth in Feet scaled 1:240

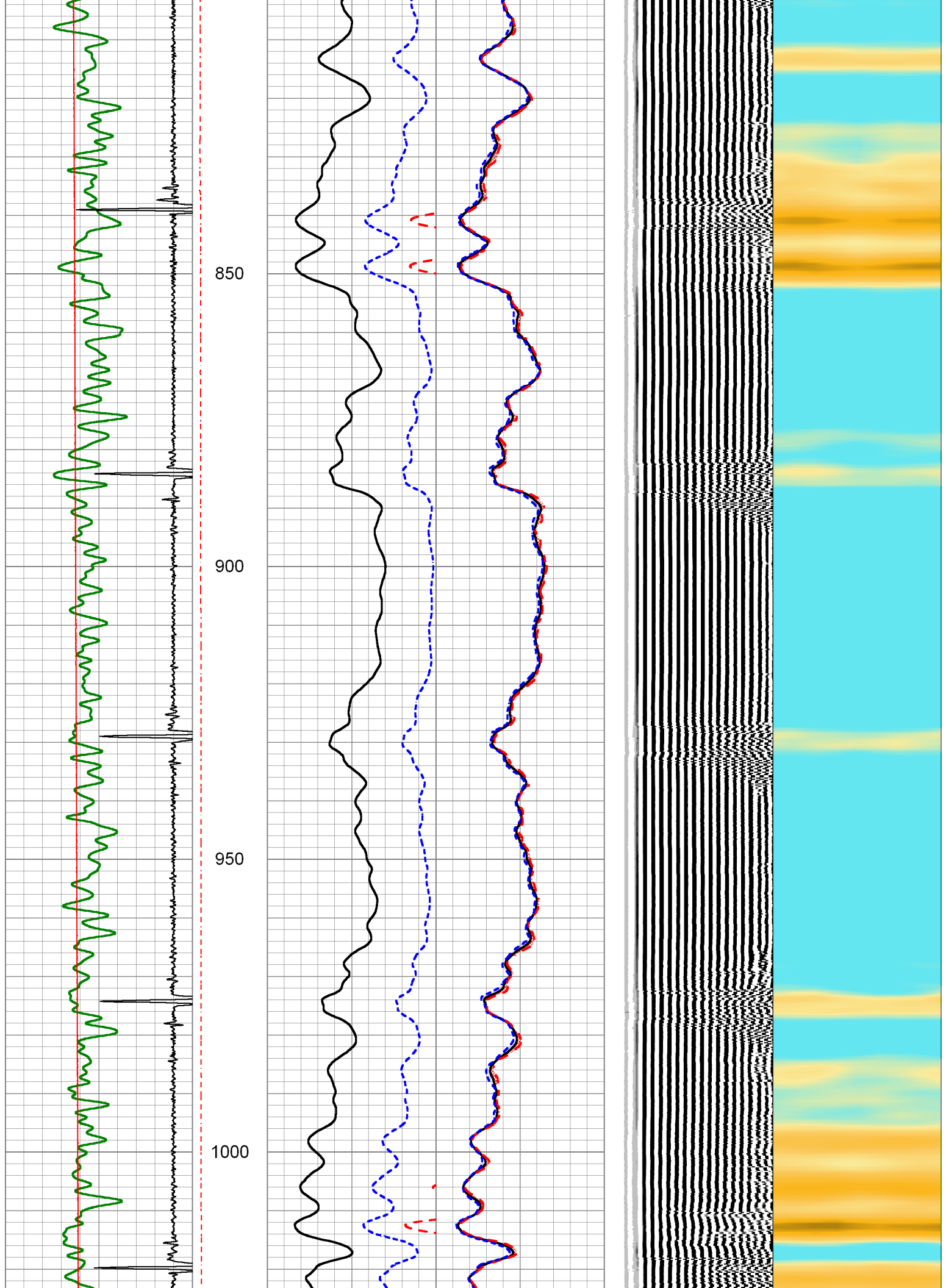
3' Travel Time (usec)	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200	Sector Map	8
		0 100	0 150					
270	0 (2000)	3' Amplified Amplitude X 5						
0		0 (mV) 20	Sector Amplitude Maximum					
0		1 Bond Index 0	0 150					
-9			Sector Amplitude Minimum					
			0 150					

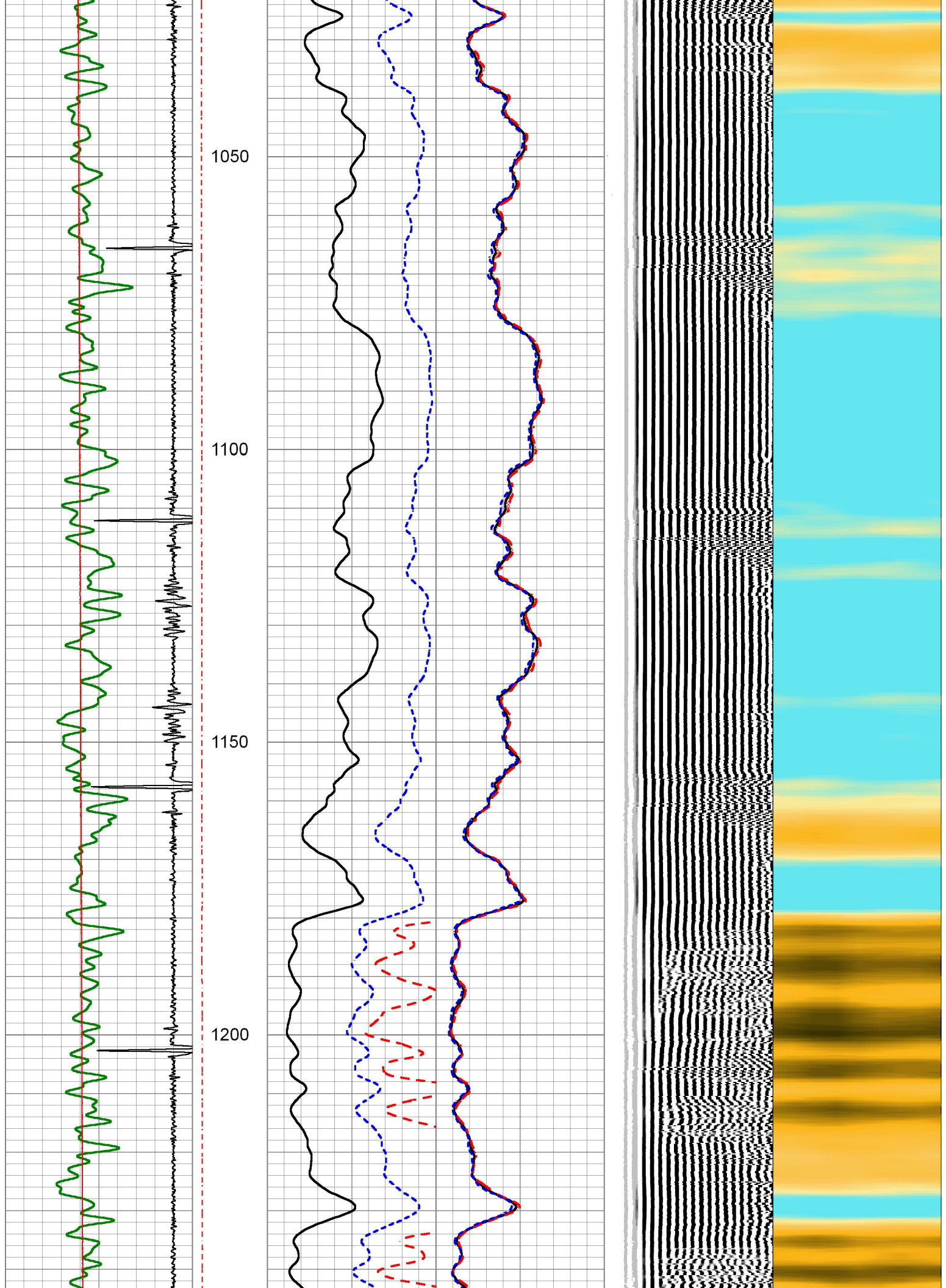


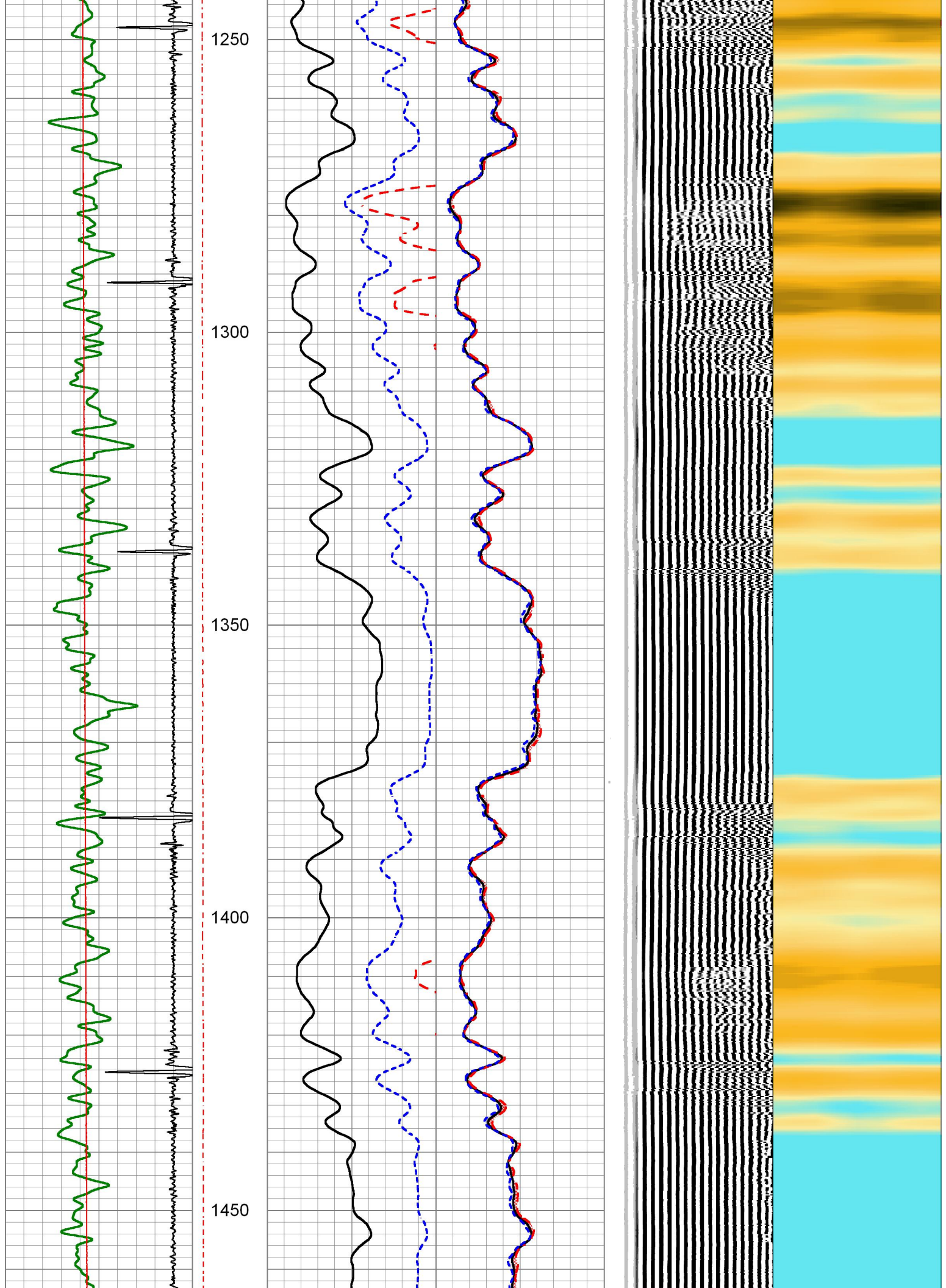


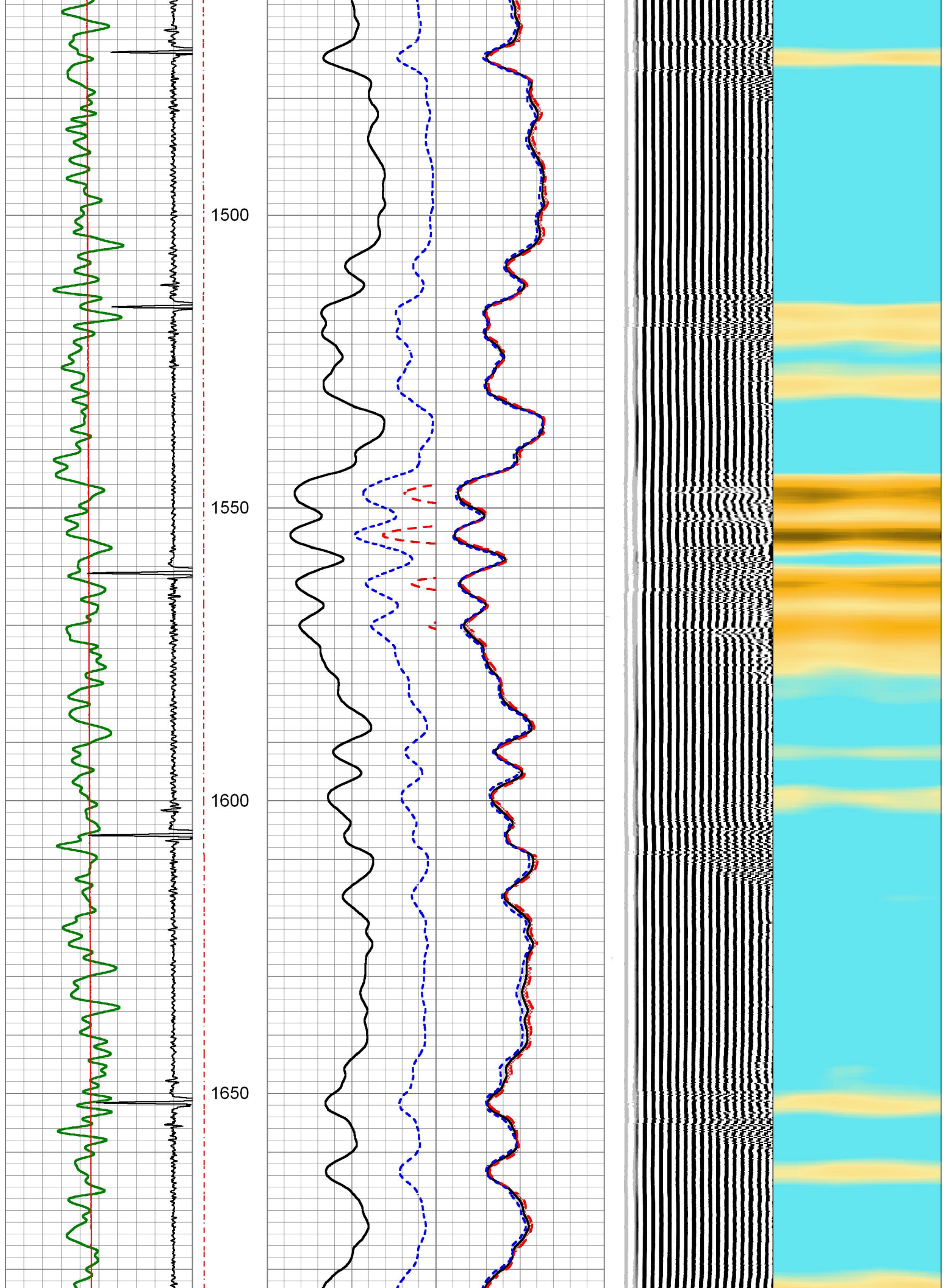


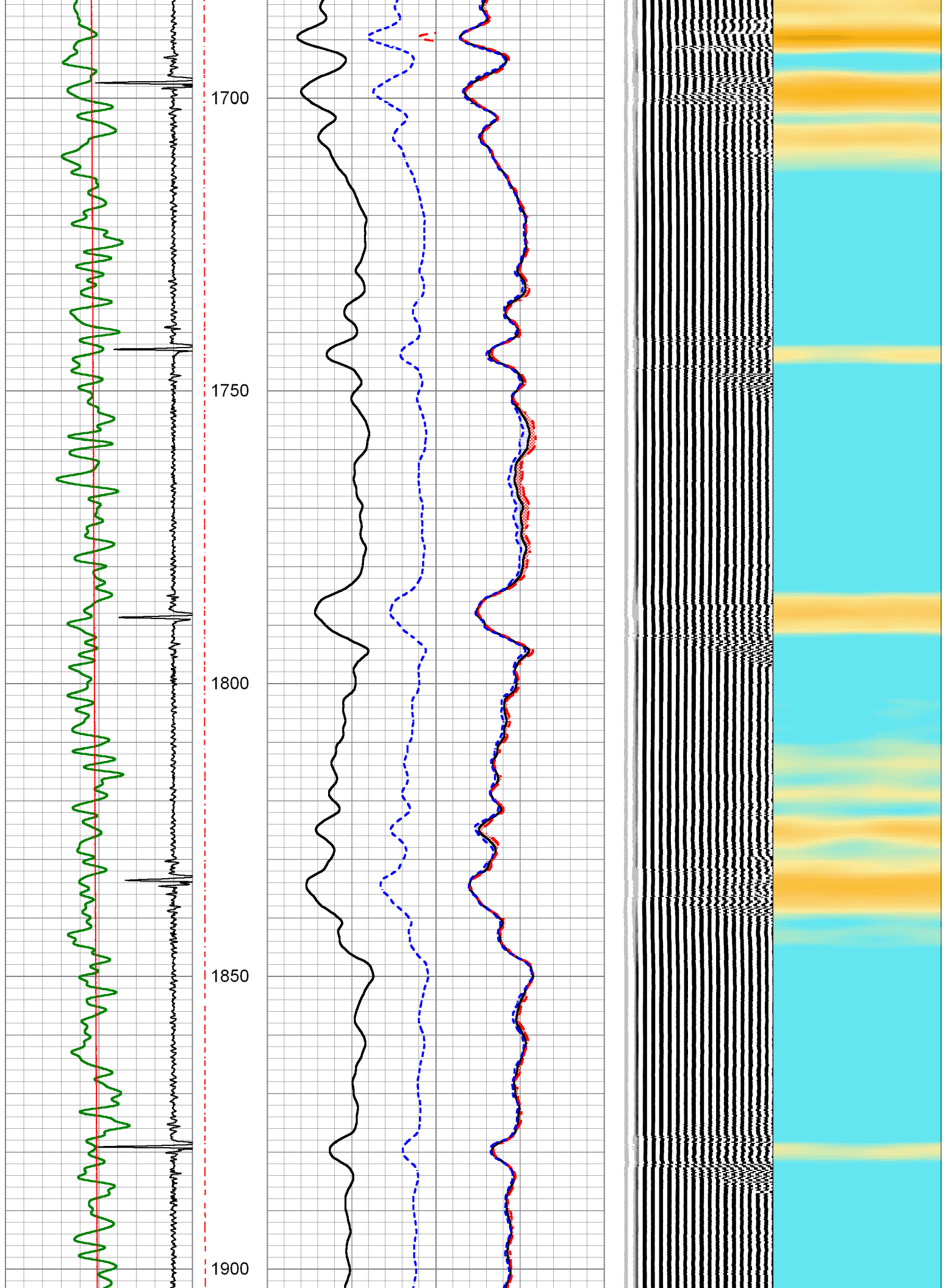


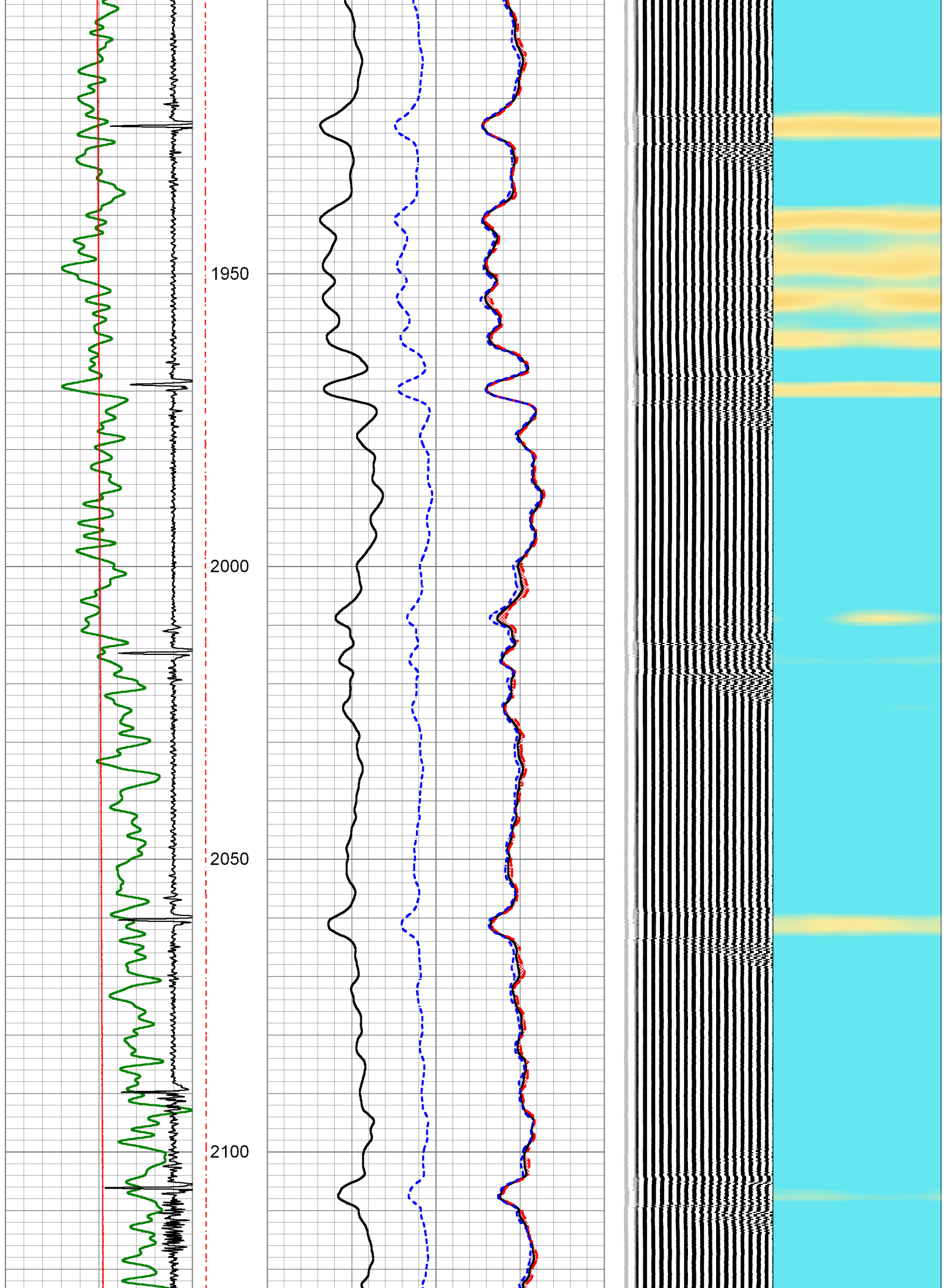


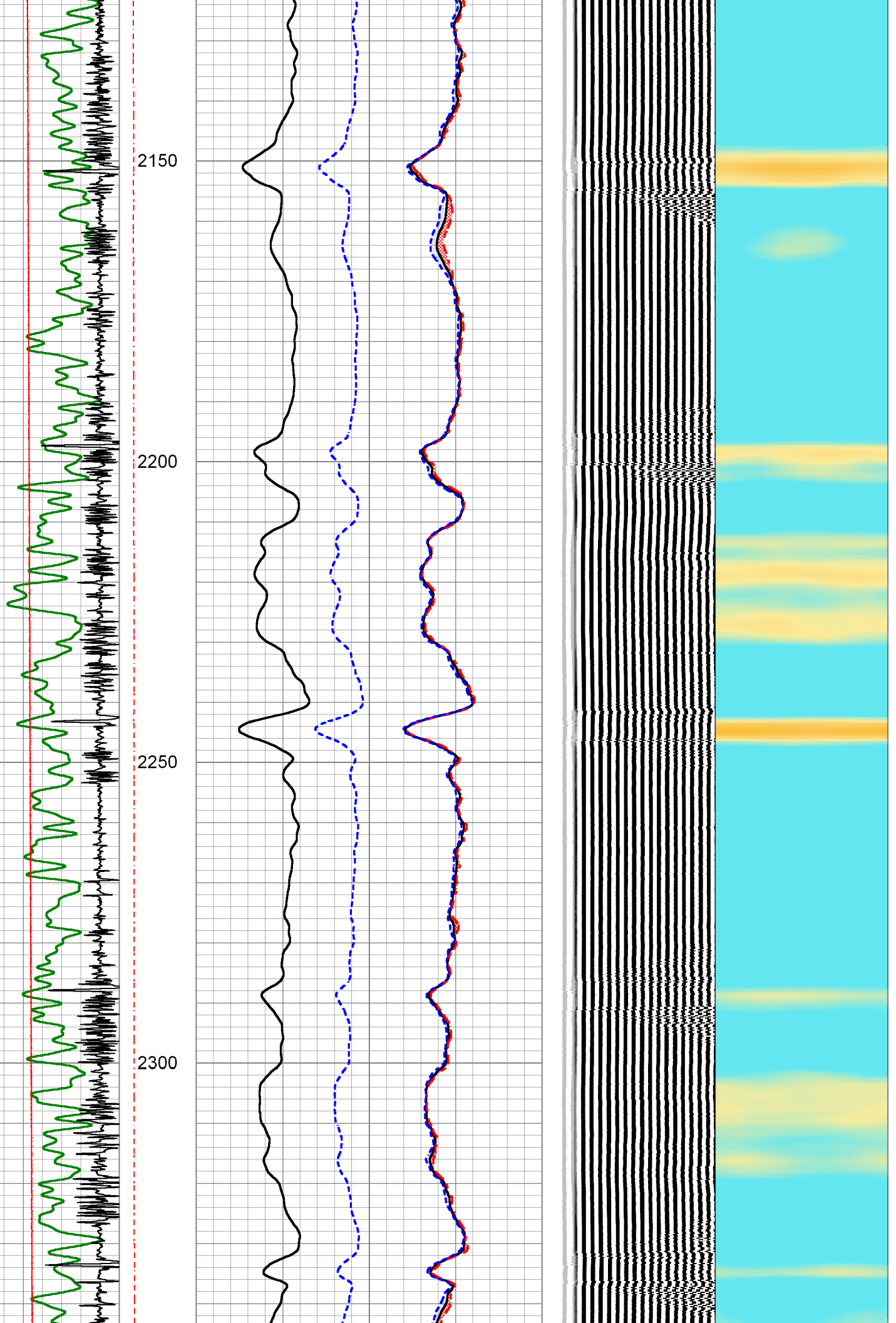


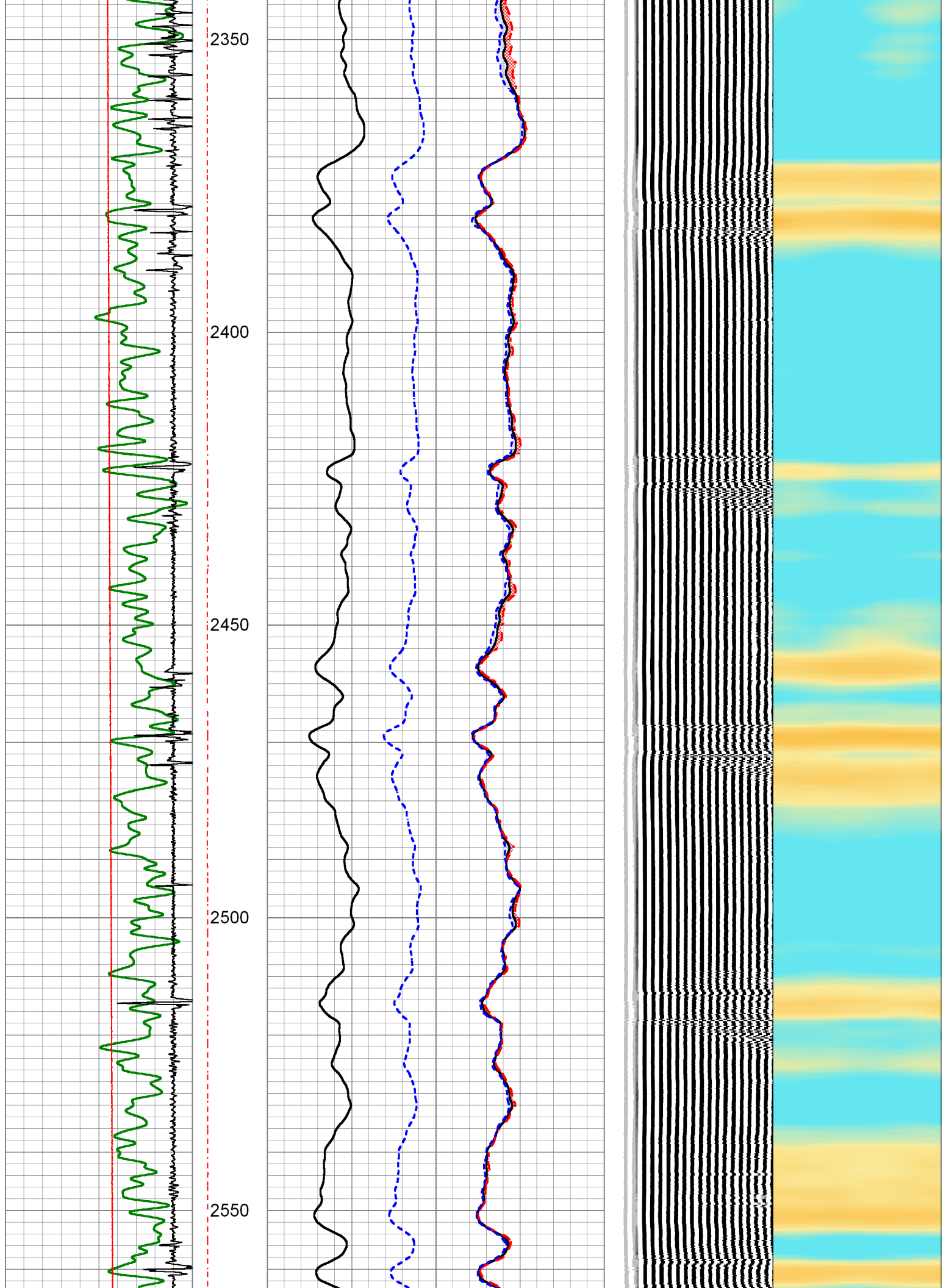


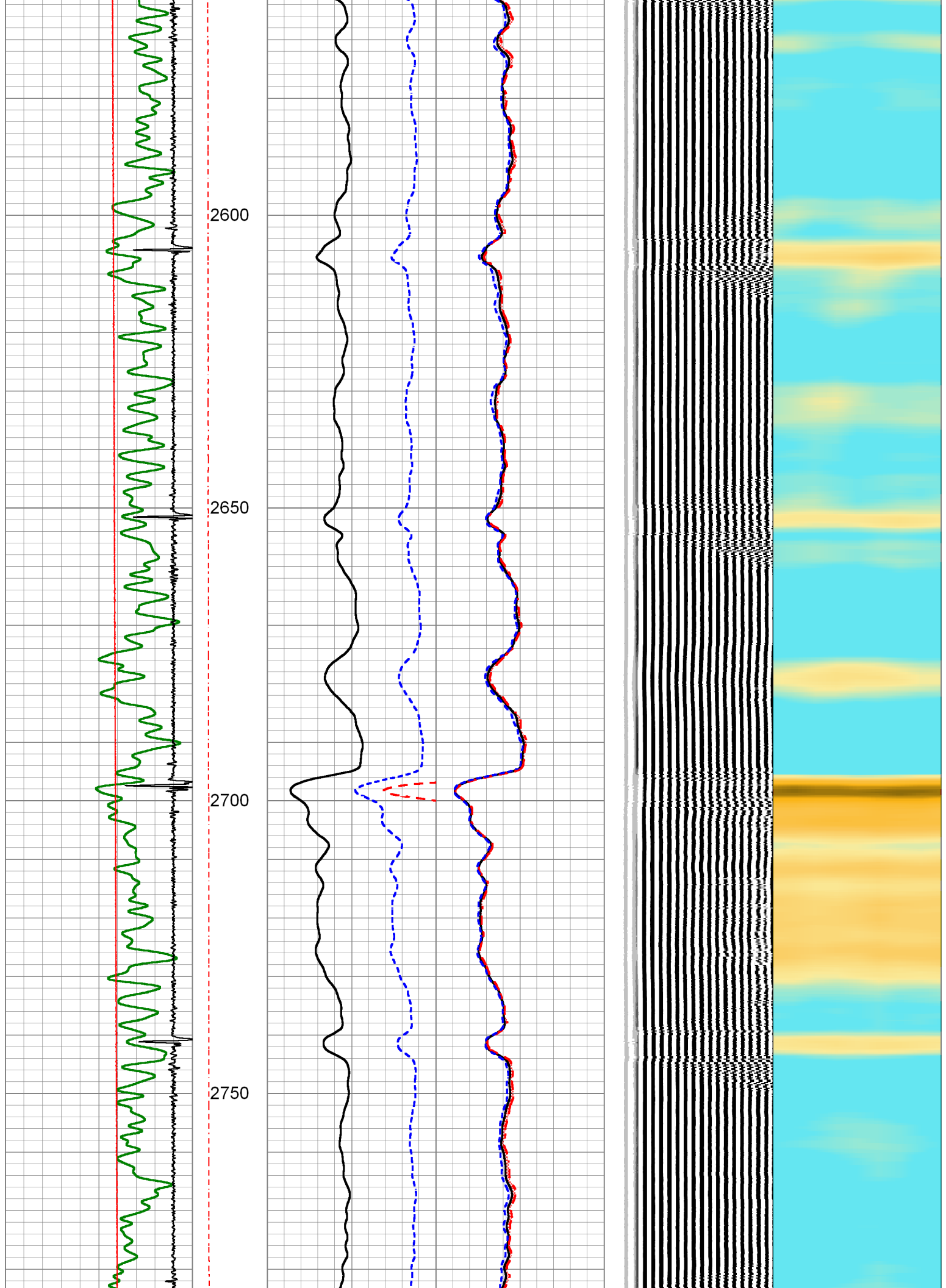


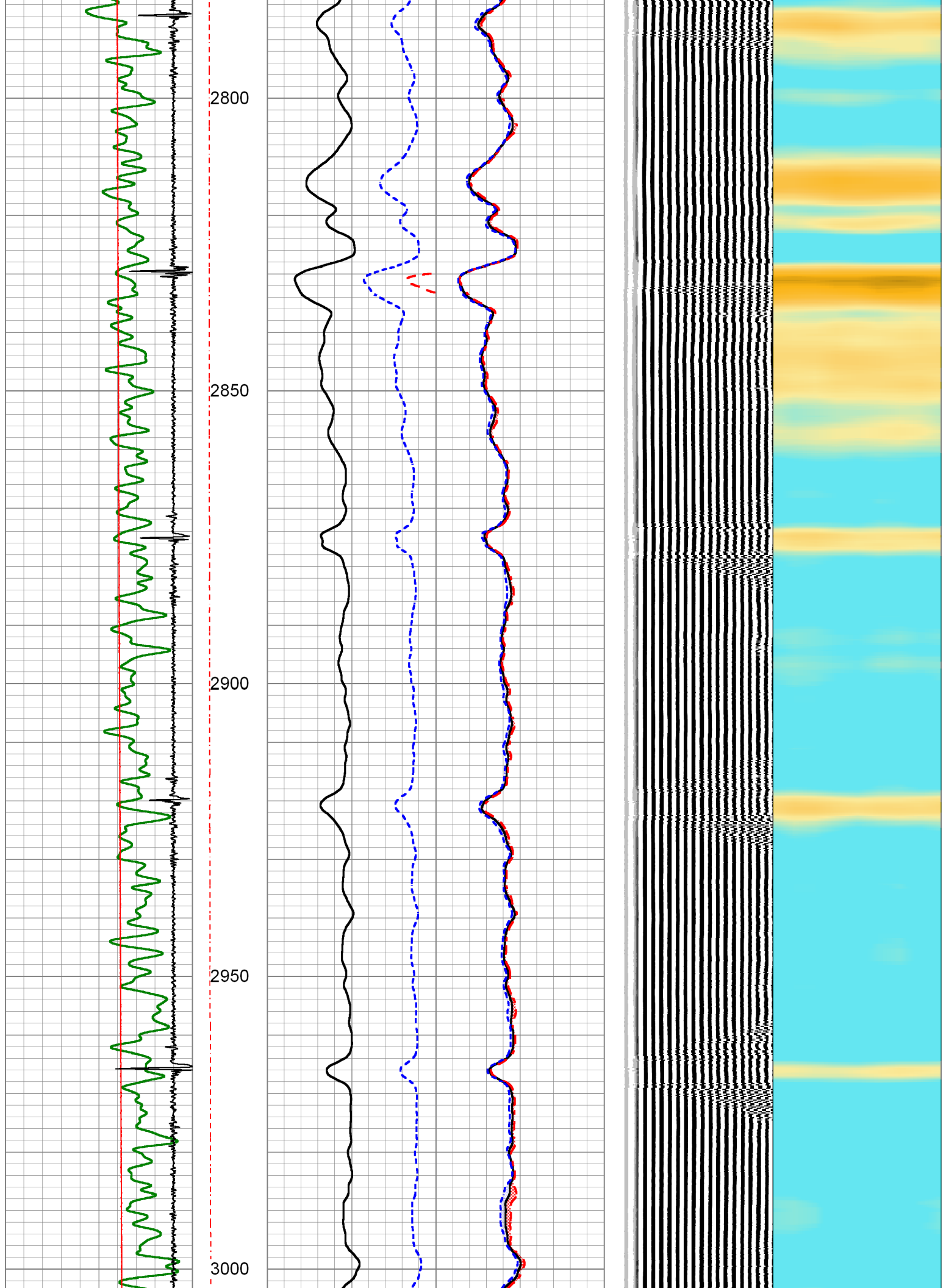


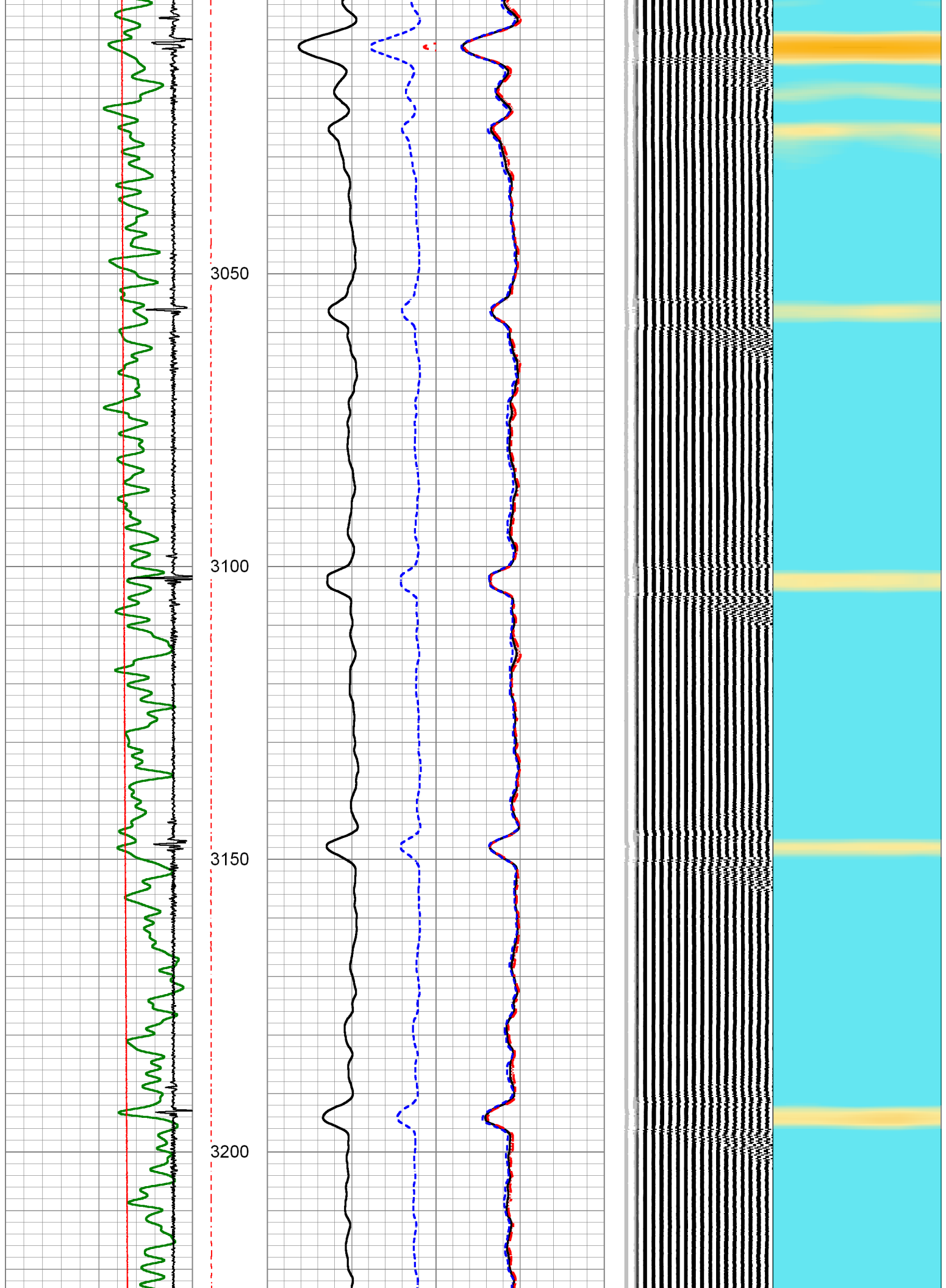


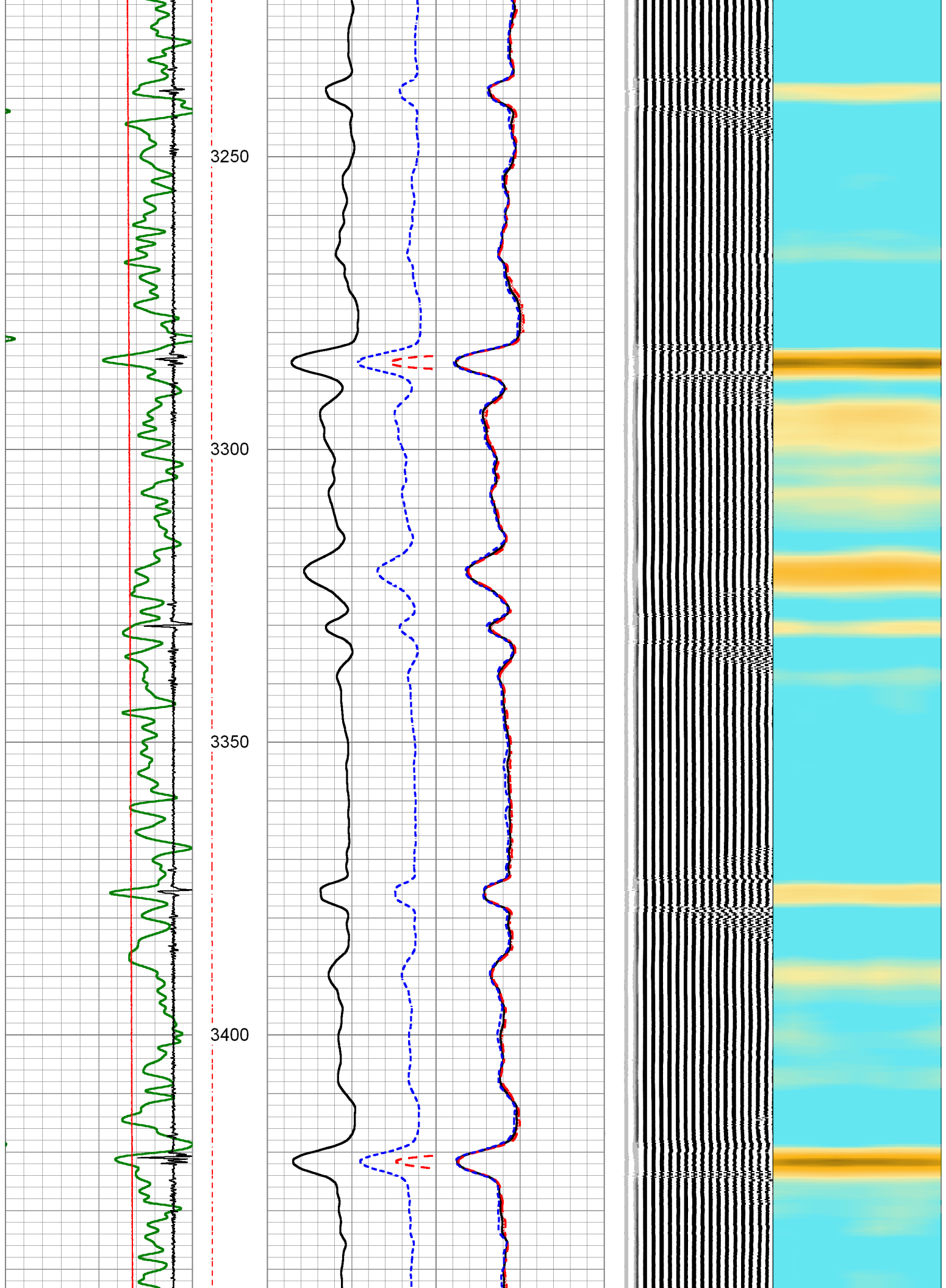


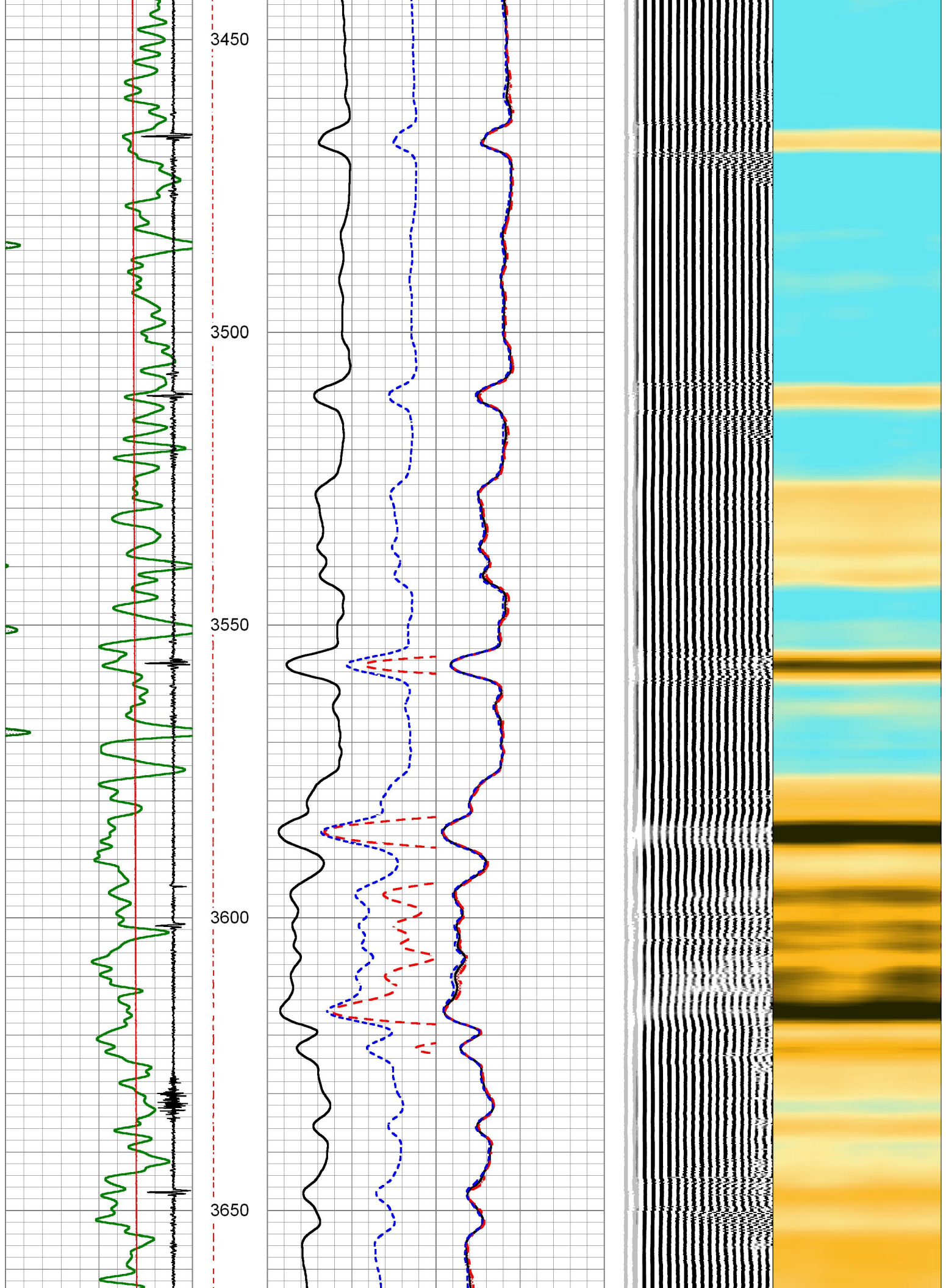


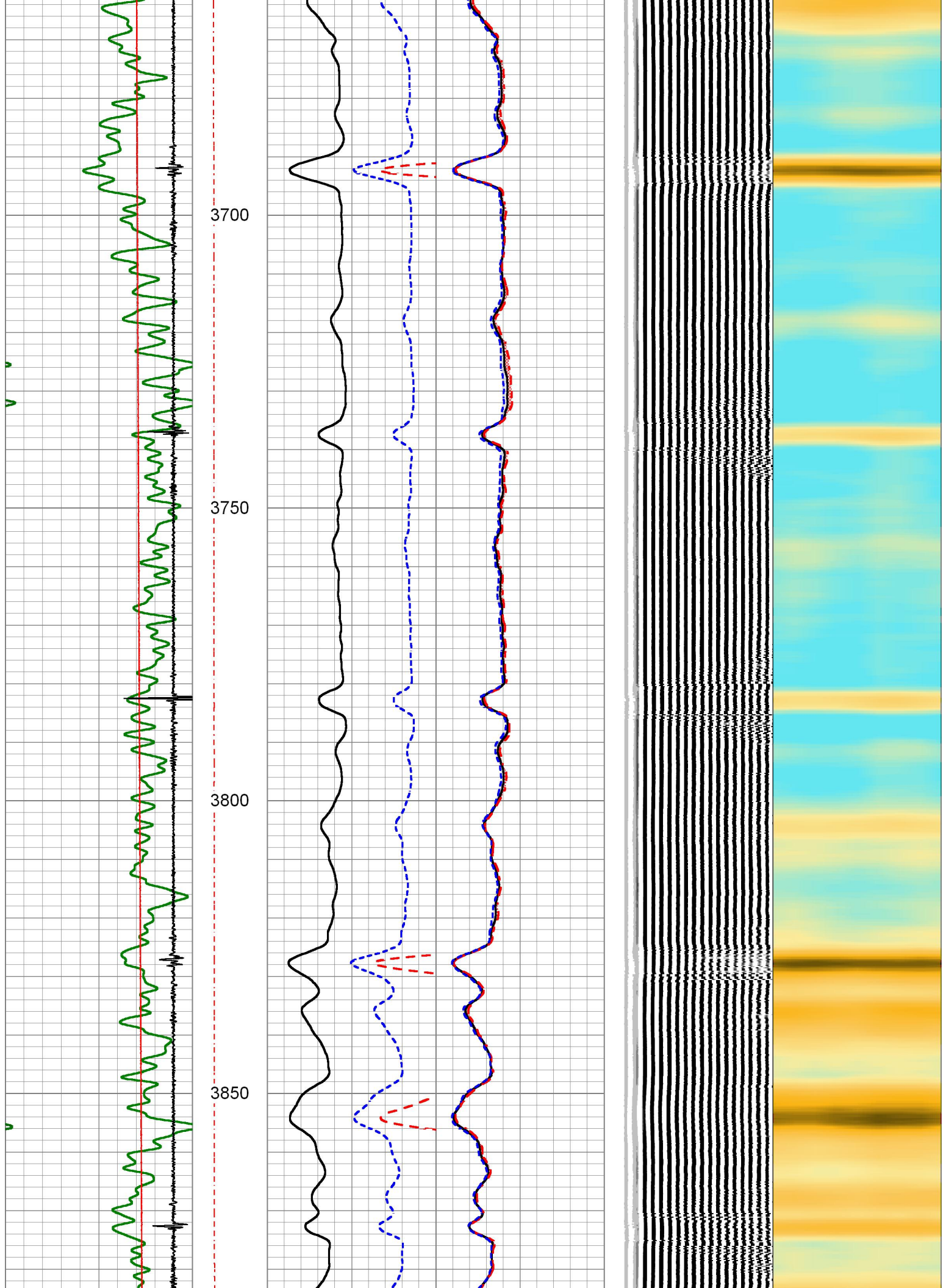


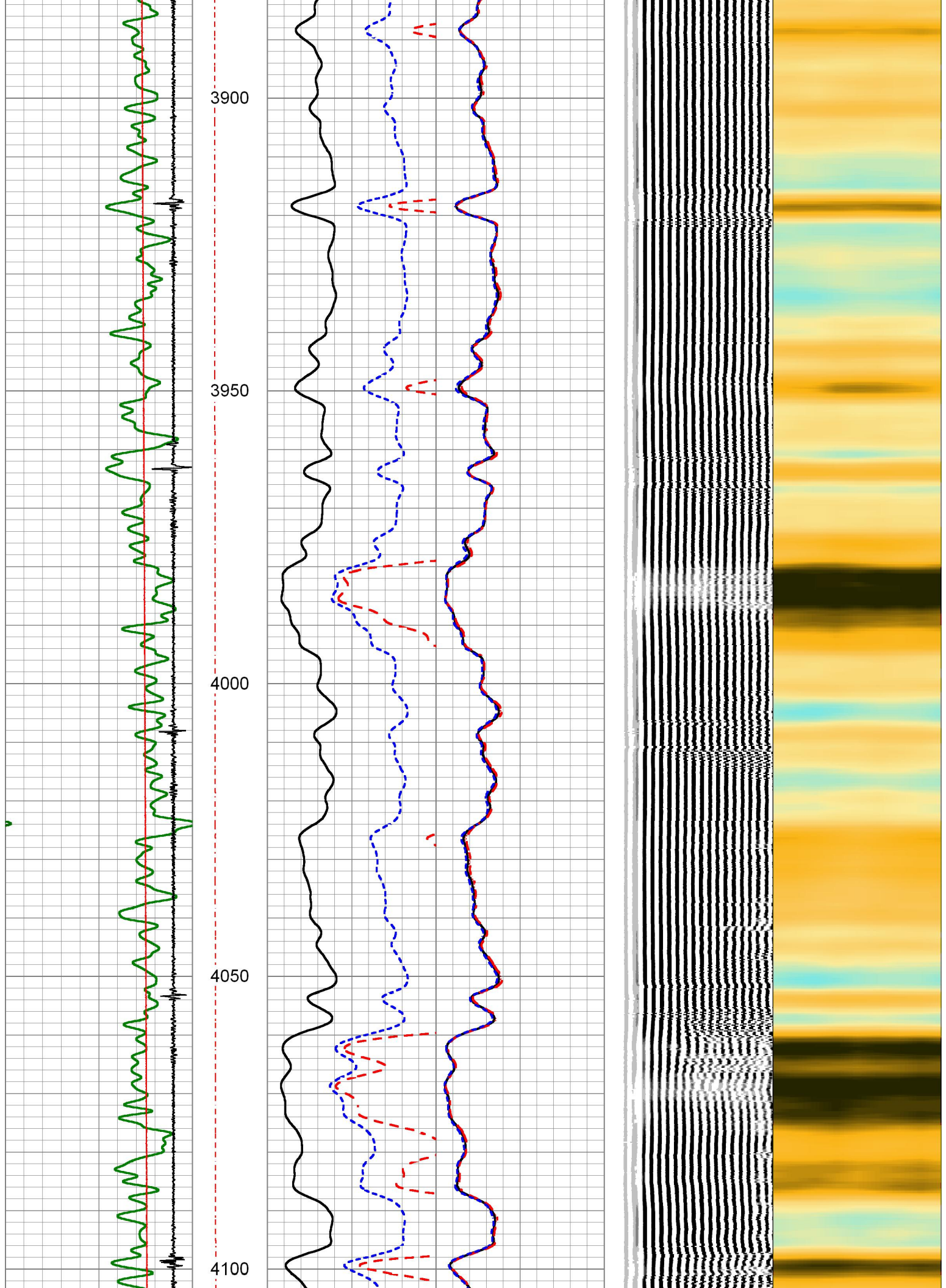


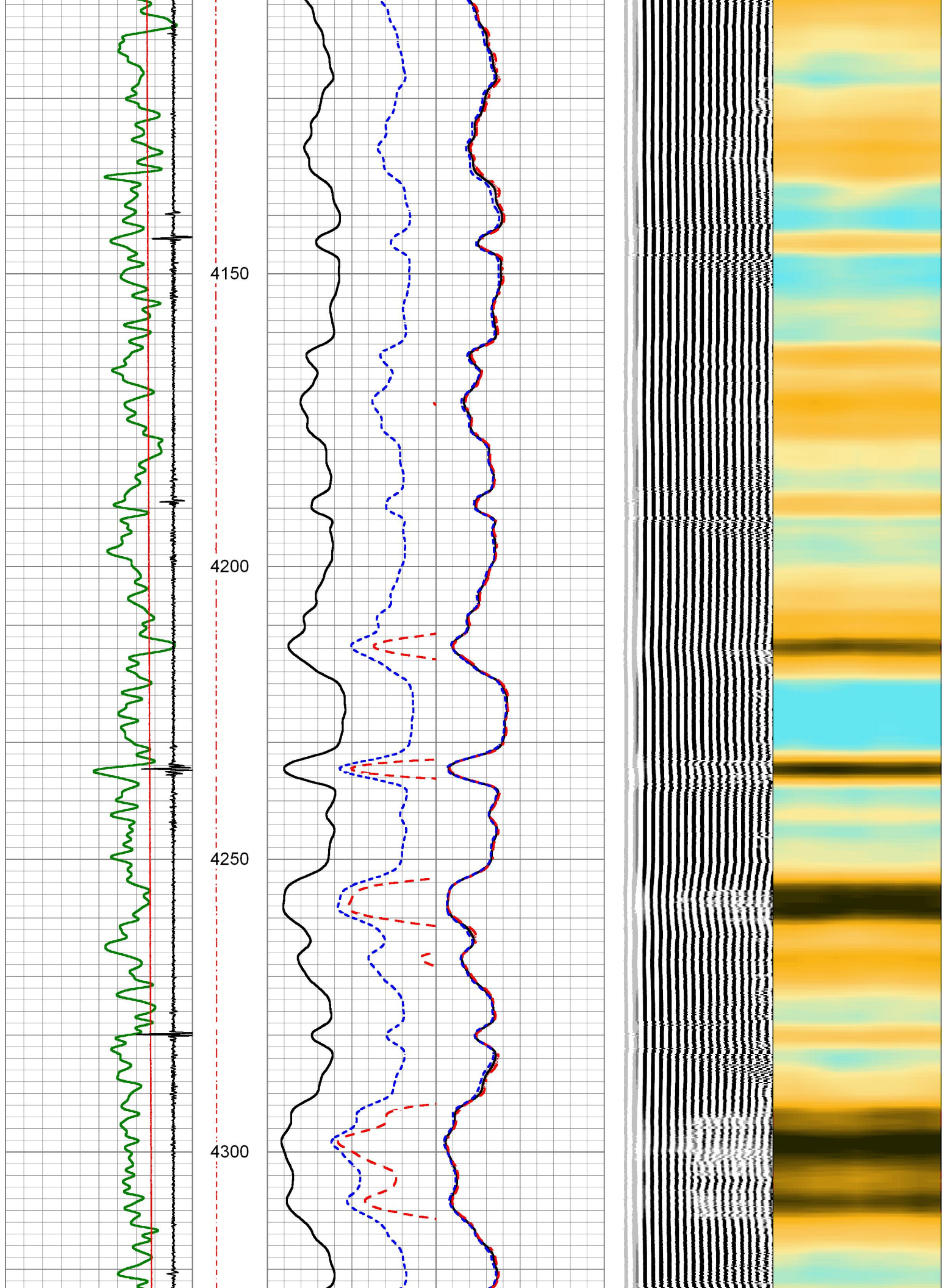


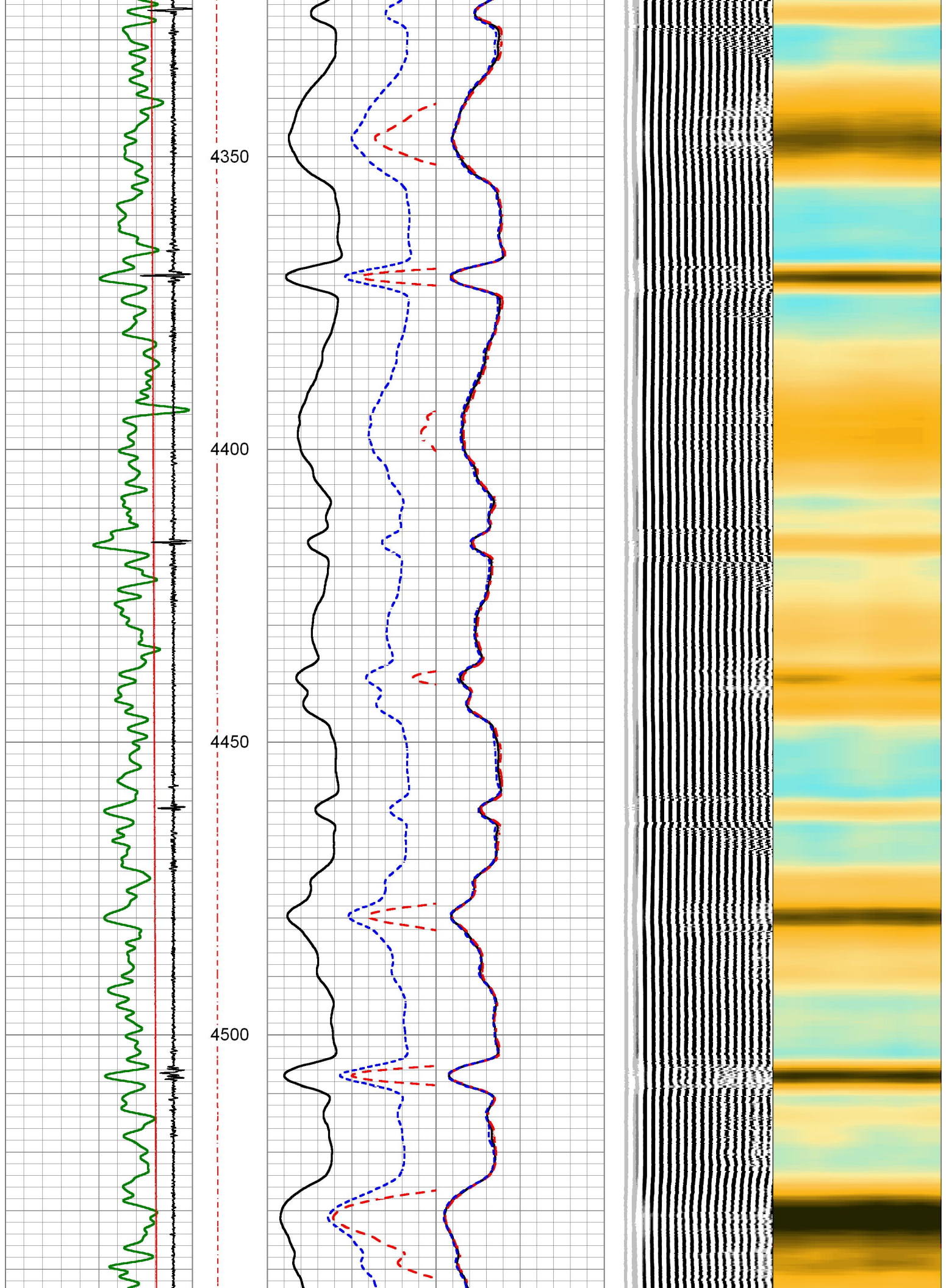


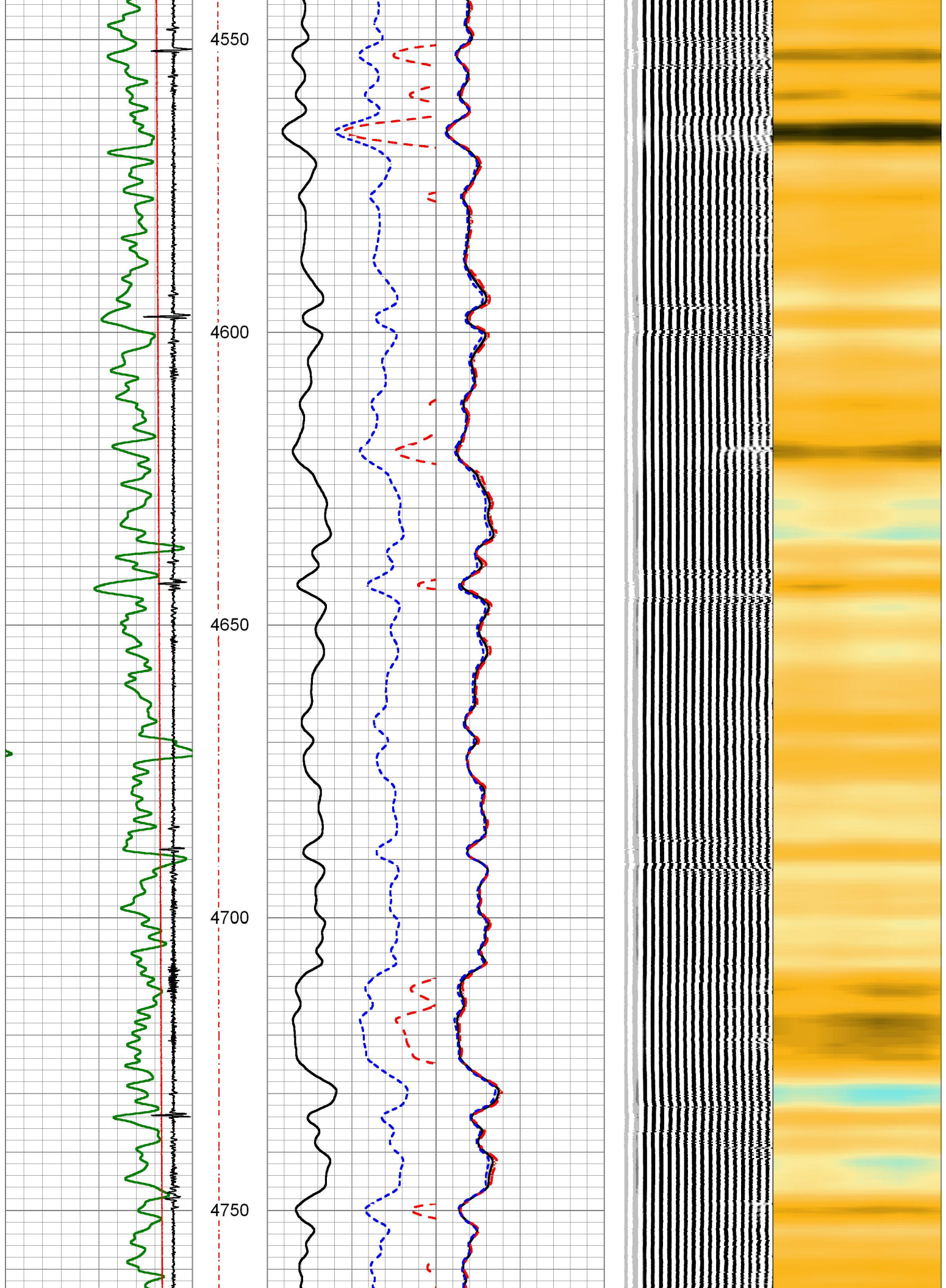


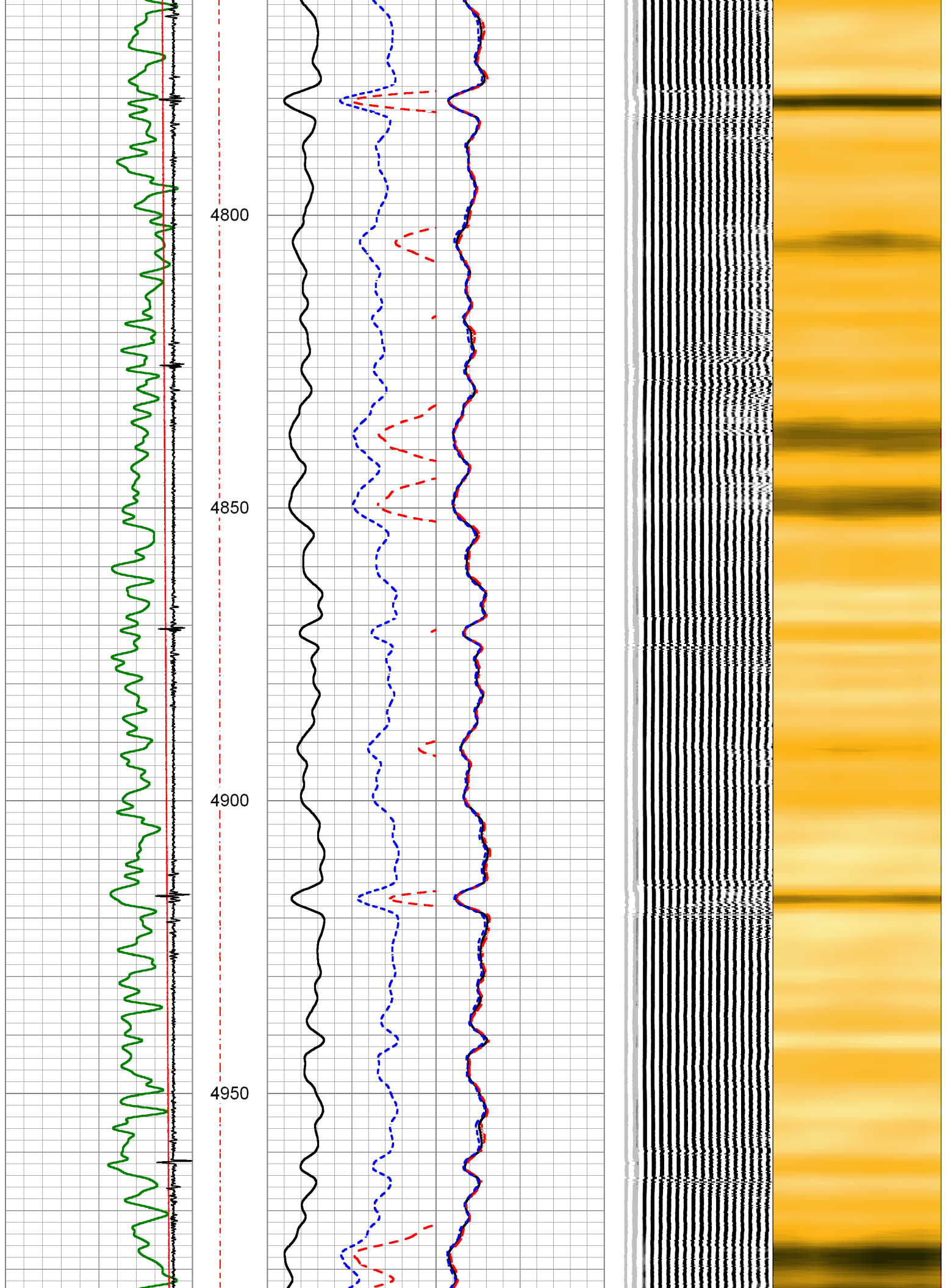


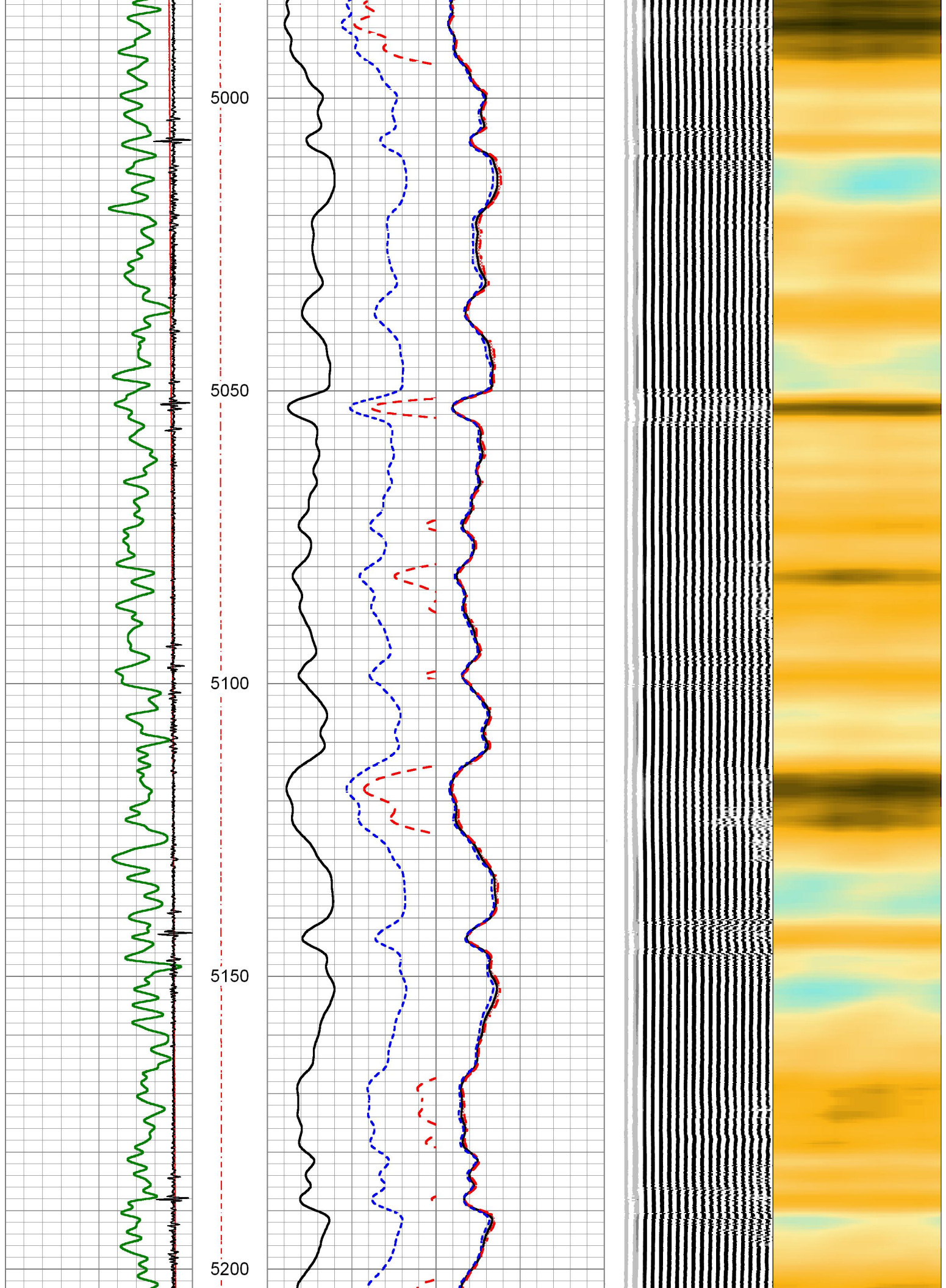


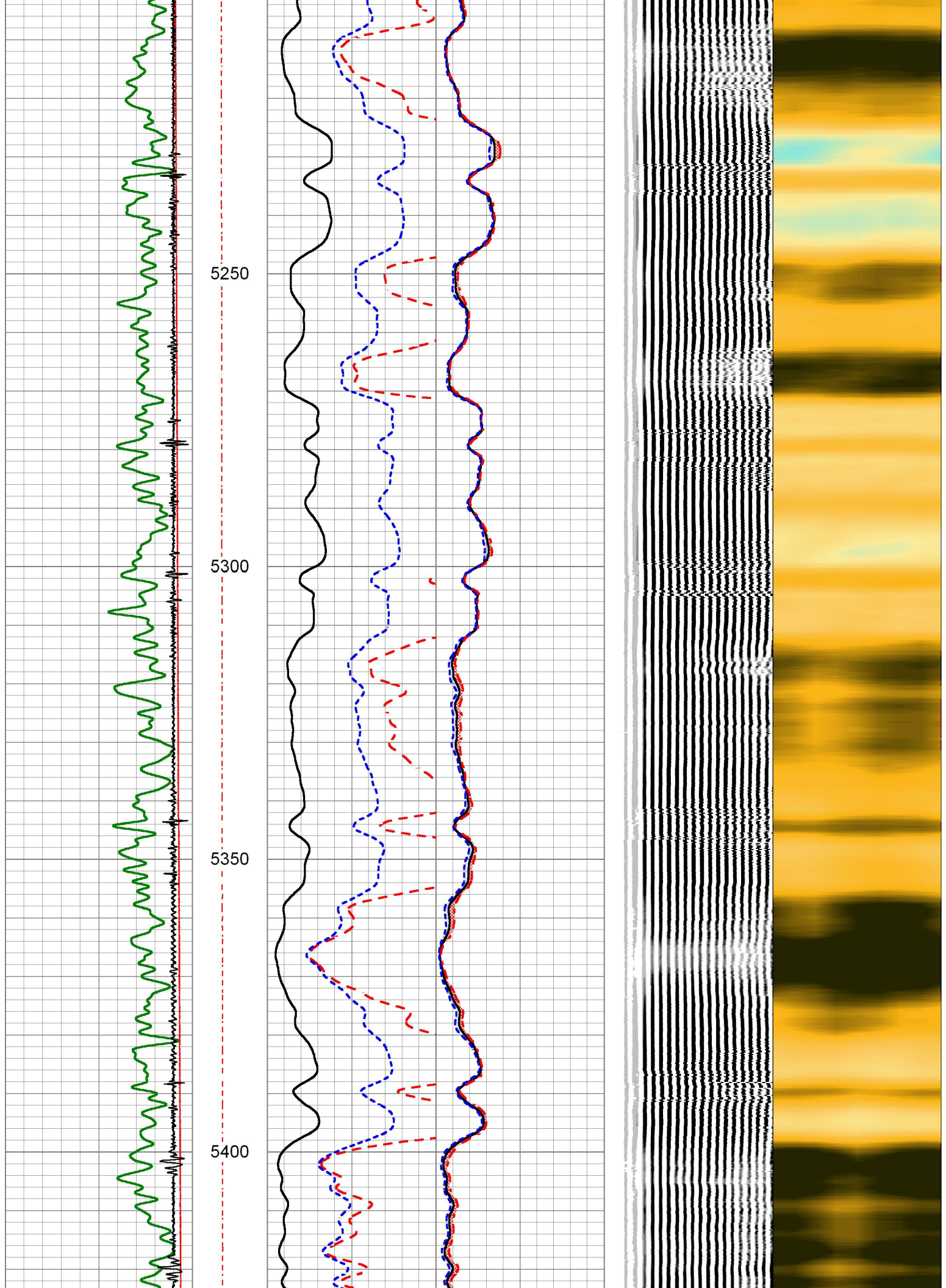


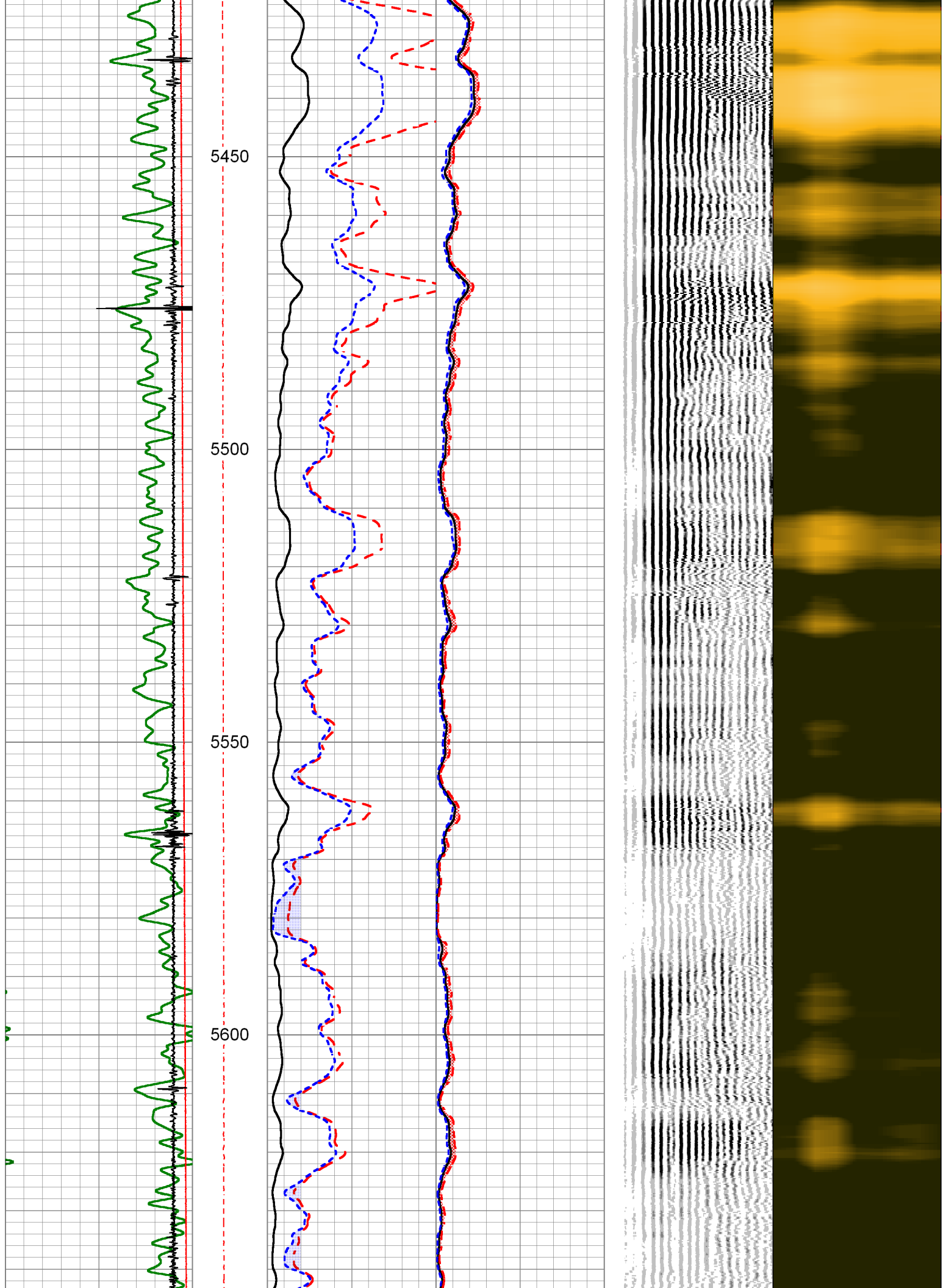


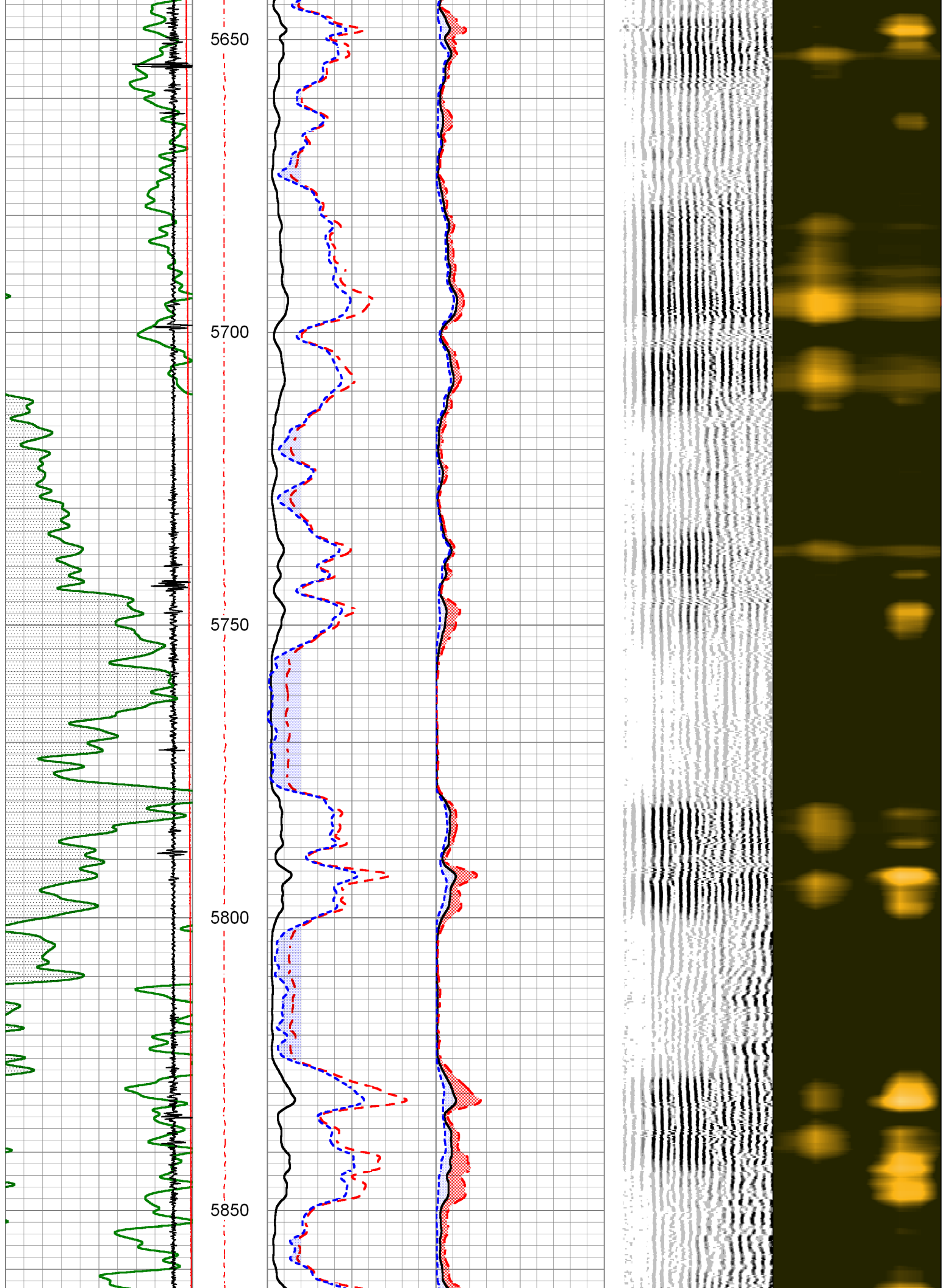


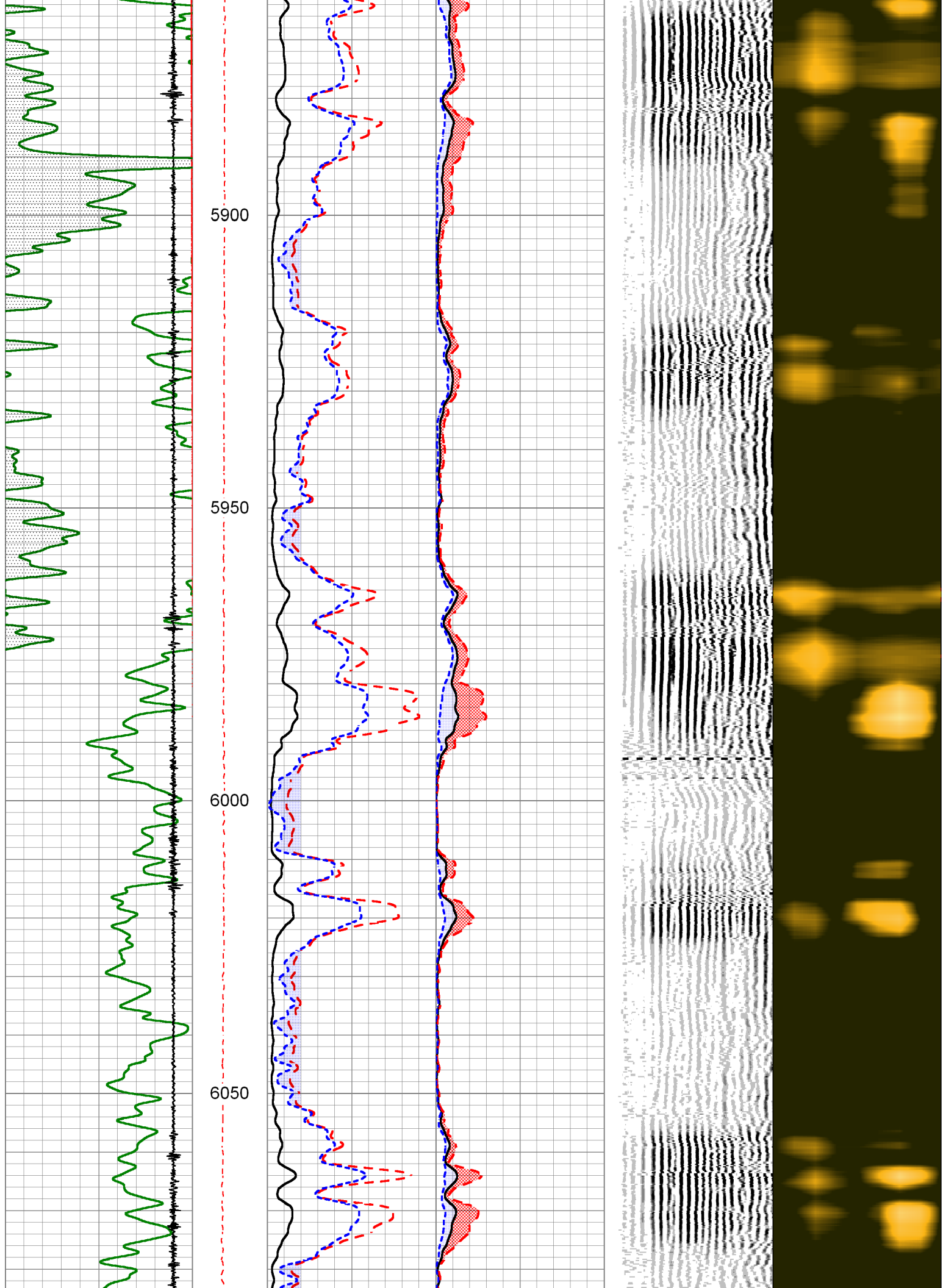


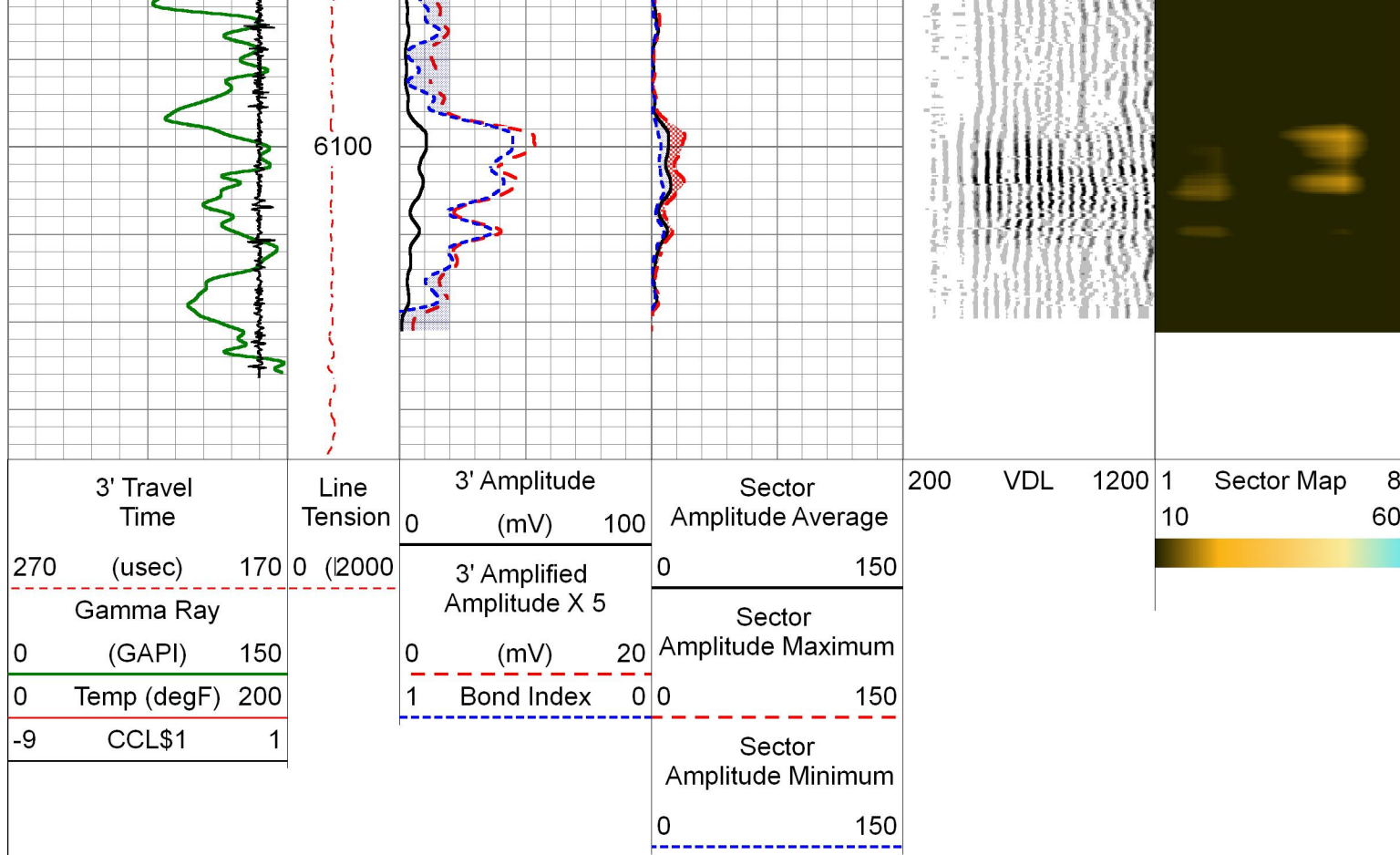













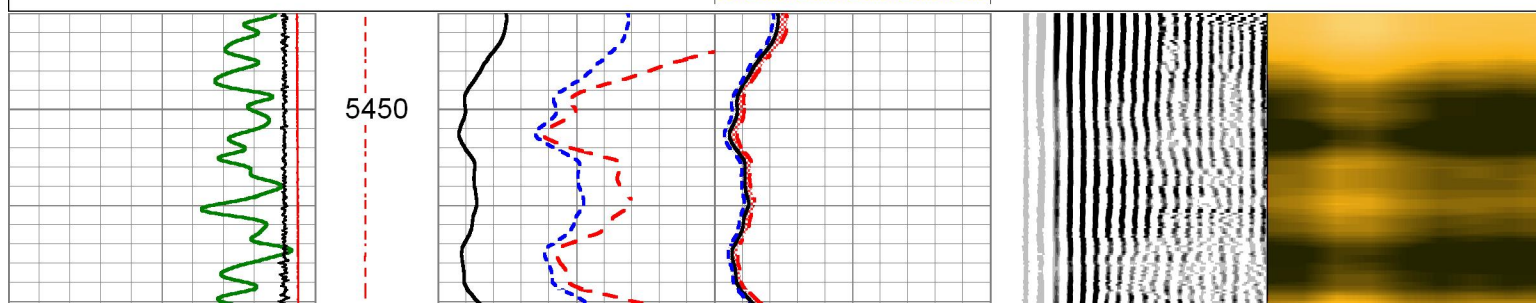
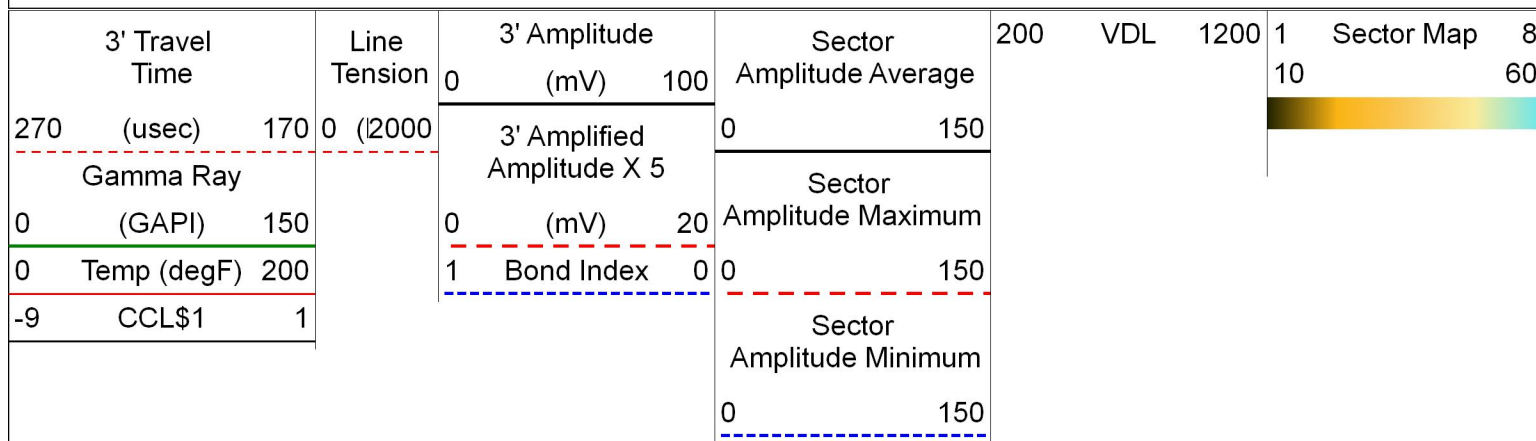


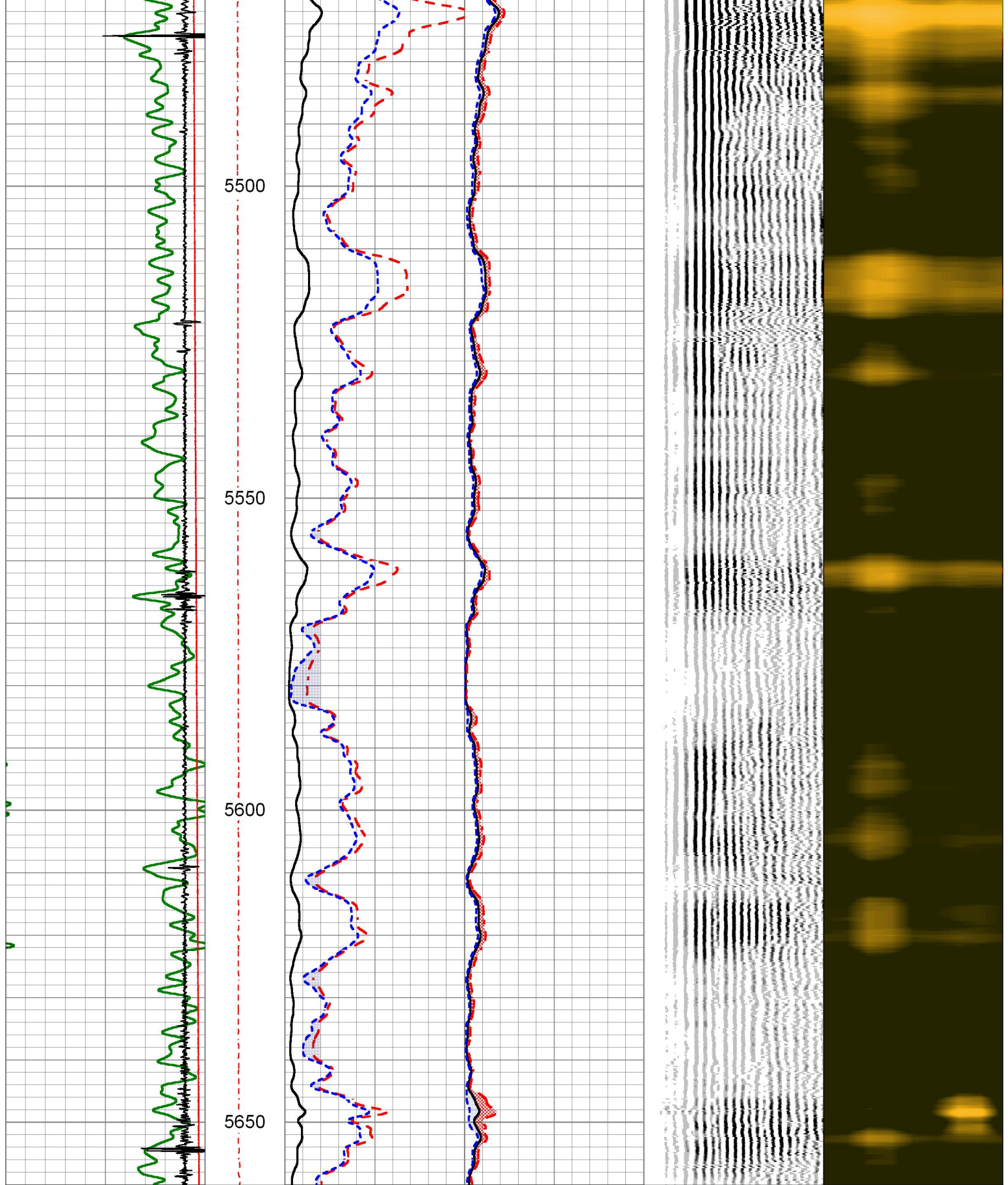
PIONEER
Pioneer Energy Services

REPEAT SECTION

1500 PSI ON WELL WHILE LOGGING

Database File	290169.db
Dataset Pathname	REPEAT
Presentation Format	pinr_scbl
Dataset Creation	Wed Apr 20 16:15:06 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
Gamma Ray						Sector Amplitude Maximum							
0	(GAPI)	150	0	(mV)	20								
0	Temp (degF)	200	1	Bond Index	0	0	150						

-9	CCL\$1	1	Sector Amplitude Minimum
			0 150

Calibration Report	
Database File	290169.db
Dataset Pathname	RBLFINAL
Dataset Creation	Wed Apr 20 16:17:24 2016

Compensated Neutron Calibration Report
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Serial Number:	120508
Tool Model:	275BL

CALIBRATION	Thu May 03 15:03:35 2012			
Detector	Readings		Target	Normalization
Short Space	4420.07	cps	0.00	cps
Long Space	780.48	cps	0.00	cps
				1.0000
				1.0000

PRE-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

POST-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	FW1404-112
Tool Model:	GC_6PIN
Performed:	(Not Performed)
Calibrator Value:	1.0
	GAPI
Background Reading:	0.0
Calibrator Reading:	1.0
	cps
	cps
Sensitivity:	1.0000
	GAPI/cps

Segmented Cement Bond Log Calibration Report
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Serial Number:	141166
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Tool Model: 275 Probe w Temp New Mod

Calibration Casing Diameter: 5.500 in
Calibration Depth: 360.256 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.024	1.506	2.200	71.921	47.032	1.086
CAL	0.002	1.762				
5'	0.018	1.255	2.200	71.921	56.364	1.179
SUM						
S1	-0.005	1.477	0.000	100.000	67.485	0.305
S2	0.028	1.579	0.000	100.000	64.464	-1.816
S3	0.030	1.614	0.000	100.000	63.102	-1.868
S4	0.028	1.588	0.000	100.000	64.095	-1.768
S5	0.021	1.529	0.000	100.000	66.304	-1.362
S6	0.021	1.464	0.000	100.000	69.304	-1.464
S7	0.027	1.413	0.000	100.000	72.152	-1.930
S8	0.029	1.454	0.000	100.000	70.167	-2.003

Temperature Calibration Report

Serial Number: 141166
Tool Model: 275 Probe w Temp New Mod
Performed: Tue Apr 16 12:54:03 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-1839
Field	WILDCAT
County	WELD
State	CO.