



**RADIAL BOND LOG
WITH GAMMA RAY**

Pioneer Energy Services

Company **WHITING OIL & GAS CORP.**
Well **HORSETAIL 07F-1808**
Field **WILDCAT**
County **WELD** State **CO.**

Comp. **WHITING OIL & GAS CORP.**
Well **HORSETAIL 07F-1808**
Field **WILDCAT**
Co. **WELD**
State **CO.**

Location: API #: 0512341779 Other Services
SHL: 2550' FNL & 2329' 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	14060'		
Depth Logger	5960'		
Bottom Log Interval	5960'		
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' 1982'
Production Casing	5.5"	20#	0' 14060'
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. 290167

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:		

Calibration Report

Database File 290167.db
 Dataset Pathname FINAL
 Dataset Creation Wed Apr 20 09:18:50 2016

Gamma Ray Calibration Report

Serial Number: 111211
 Tool Model: 275 Probe GR-CCL Dig
 Performed: Tue Apr 19 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: 422.65 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.531	2.200	71.921	45.549	2.200
CAL	0.002	1.762				
5'	0.000	1.363	2.200	71.921	51.153	2.200
SUM						
S1	-0.023	1.536	0.000	100.000	64.114	1.501
S2	0.000	1.630	0.000	100.000	61.357	-0.000
S3	0.000	1.626	0.000	100.000	61.497	-0.000
S4	0.000	1.577	0.000	100.000	63.426	-0.000
S5	0.000	1.507	0.000	100.000	66.364	-0.000
S6	0.000	1.460	0.000	100.000	68.491	-0.000
S7	0.000	1.455	0.000	100.000	68.749	-0.000
S8	0.000	1.508	0.000	100.000	66.332	-0.000

Temperature Calibration Report

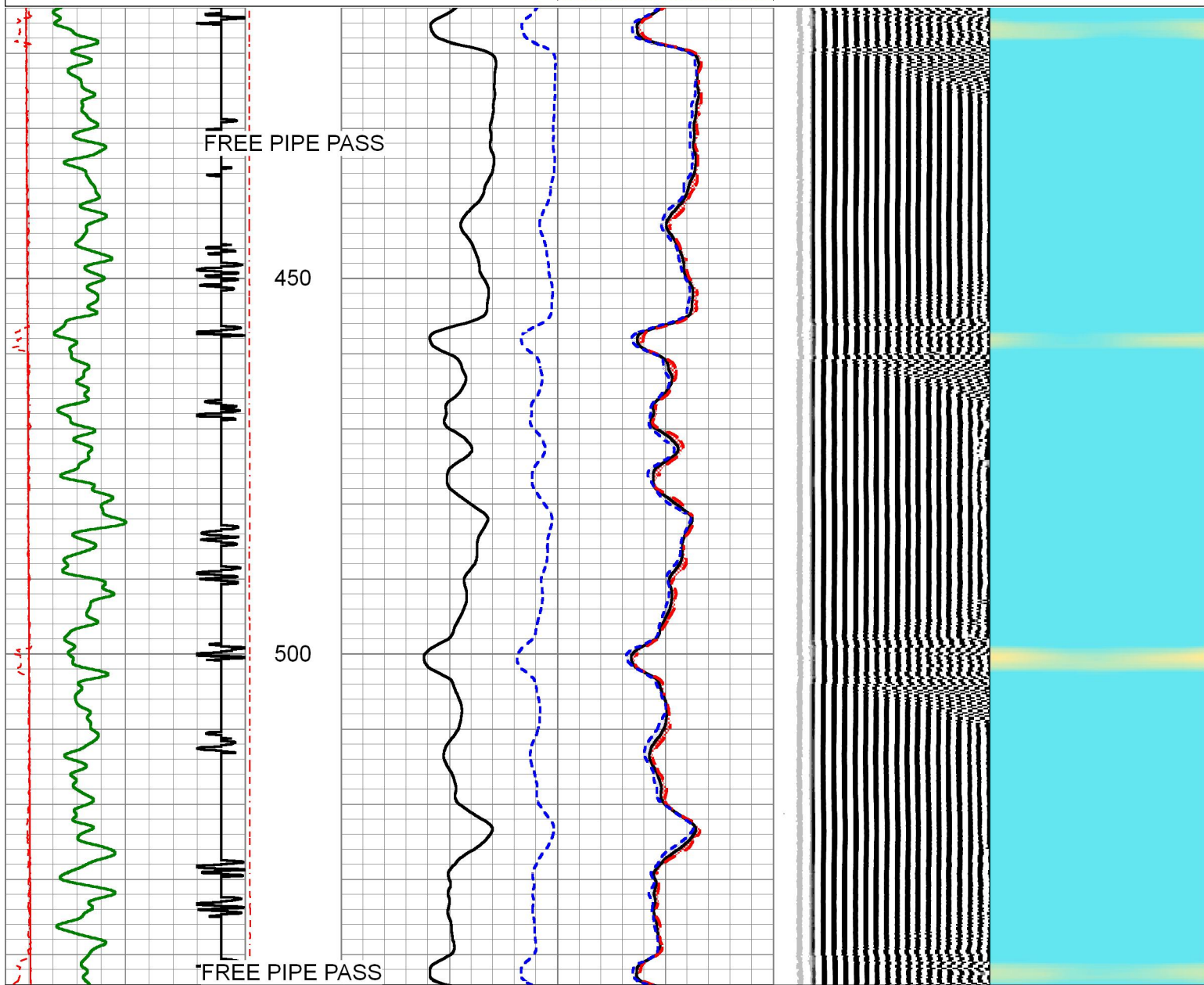
Serial Number: 141166
 Tool Model: 275 Probe w Temp New Mod
 Performed: Tue Apr 16 12:24:08 2016

	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	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
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Database File 290167.db
Dataset Pathname FREEPIPE
Presentation Format pinr_scb1
Dataset Creation Wed Apr 20 09:21:15 2016
Charted by Depth in Feet scaled 1:240

3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
270 (usec)	0 (2000)	0 100	0 150				10		60
-9 Collar Locator 1		3' Amplified Amplitude X 5							
Gamma Ray		0 (mV) 20	Sector Amplitude Maximum						
0 (GAPI) 150		1 Bond Index 0	0 150						
50 Temp (degF) 200			Sector Amplitude Minimum						
			0 150						



3' Travel	Line	3' Amplitude	Sector	200	VDL	1200	1	Sector Map	8
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Time	270 (usec)	170	Tension	0 (2000)	3' Amplitude (mV)	0 100	Amplitude Average	0 150	10 60
-9 Collar Locator	1				3' Amplified Amplitude X 5				
Gamma Ray					0 (mV)	20	Sector Amplitude Maximum		
0 (GAPI)	150				1 Bond Index	0	0 150		
50 Temp (degF)	200						Sector Amplitude Minimum		
							0 150		



END OF FREE PIPE PASS

1500 PSI ON WELL WHILE LOGGING

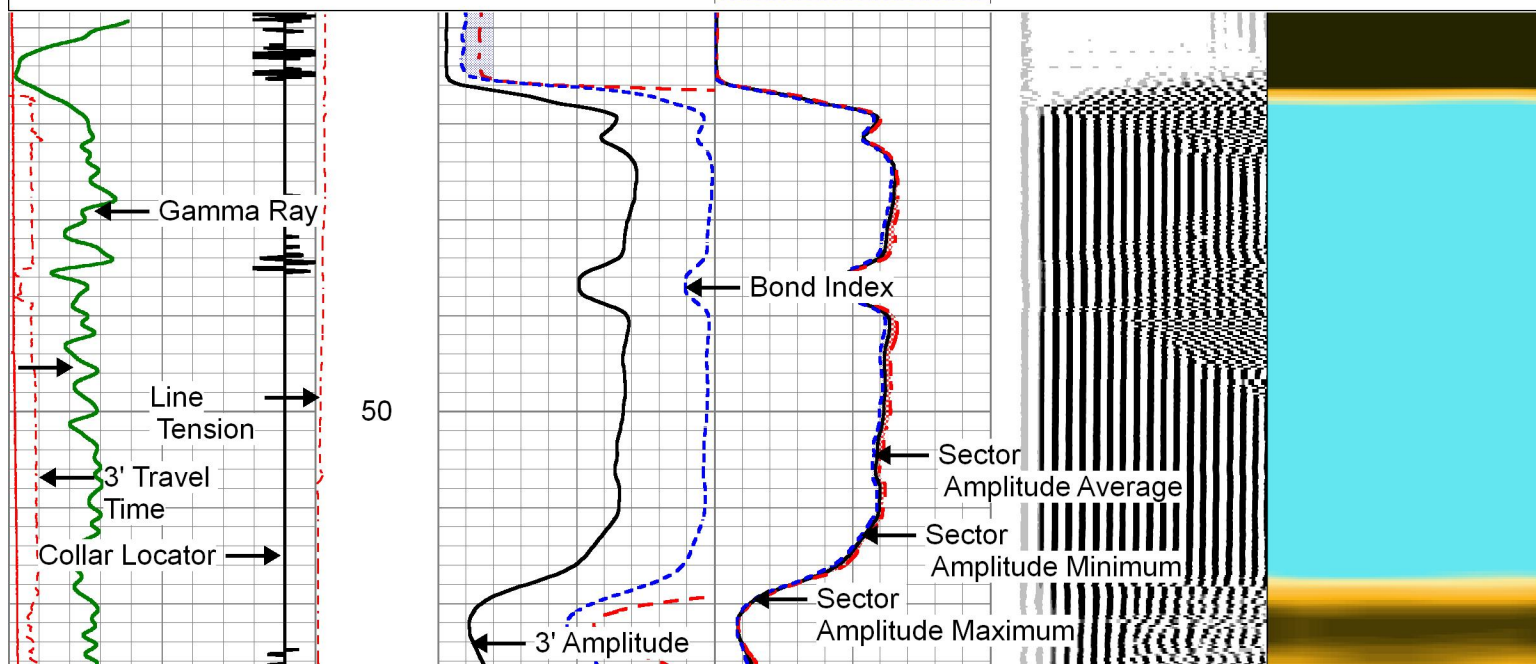


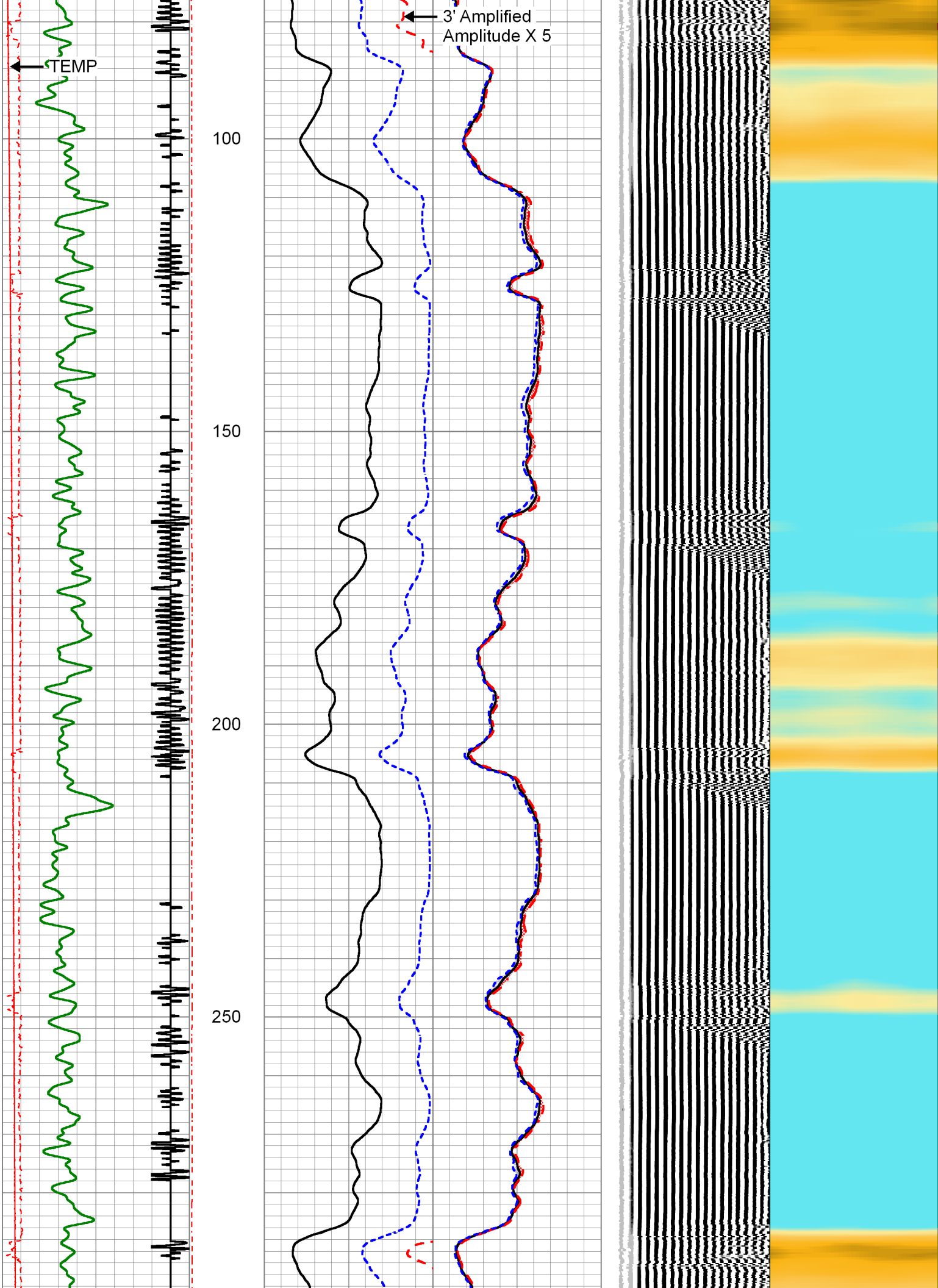
MAIN PASS

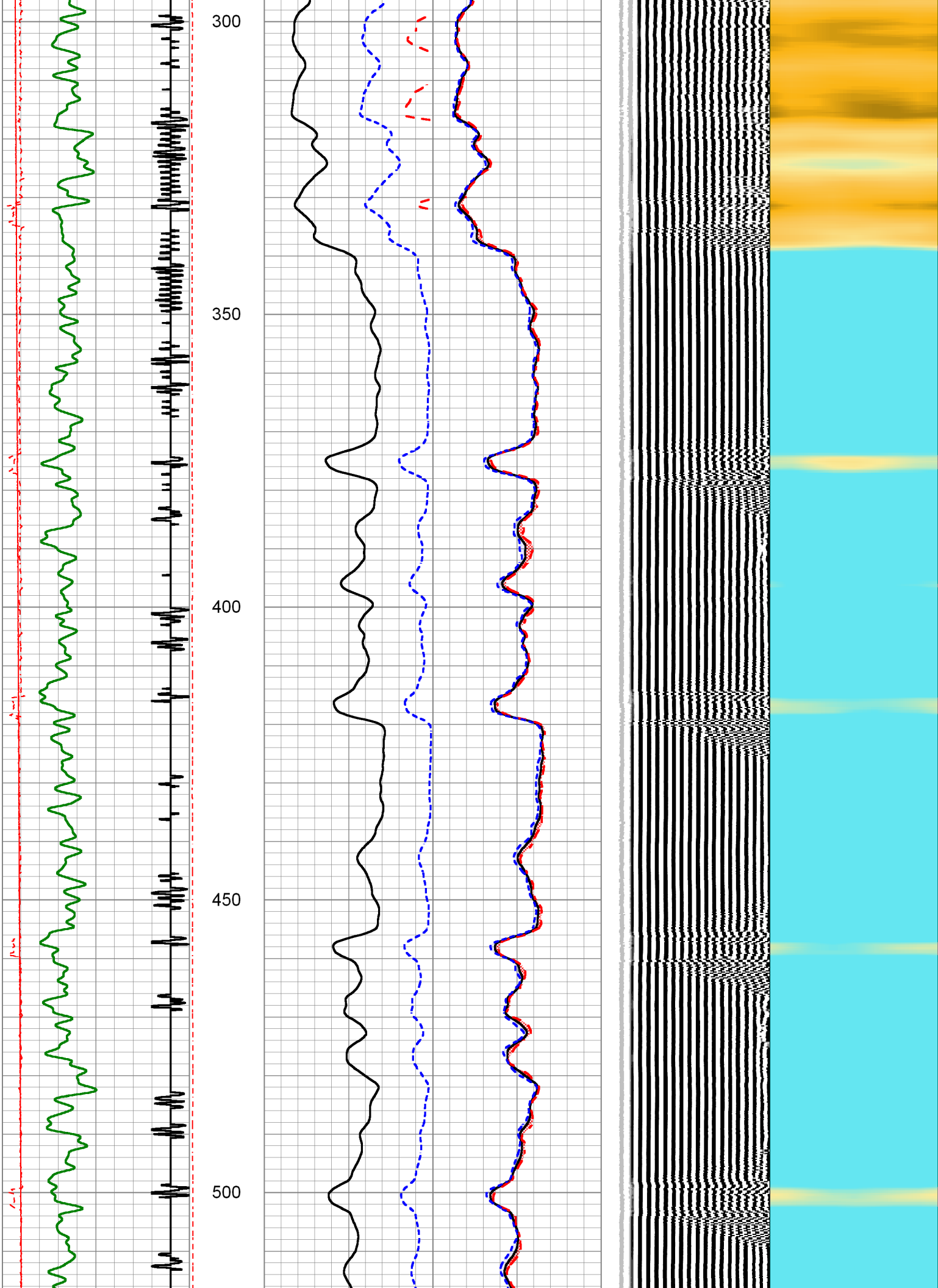
1500 PSI ON WELL WHILE LOGGING

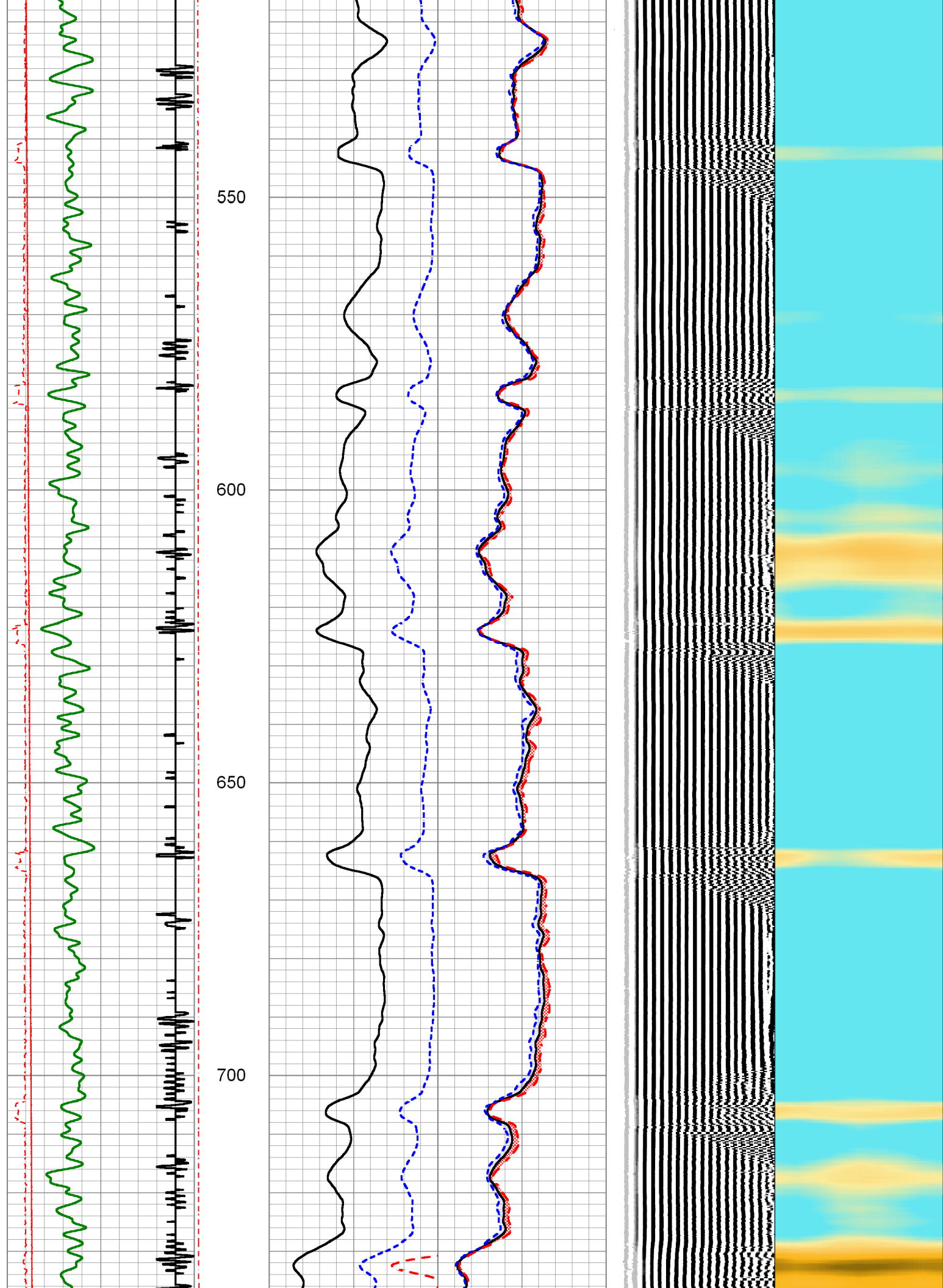
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Dataset Pathname FINAL
Presentation Format pinr_scbl
Dataset Creation Wed Apr 20 09:18:50 2016
Charted by Depth in Feet scaled 1:240

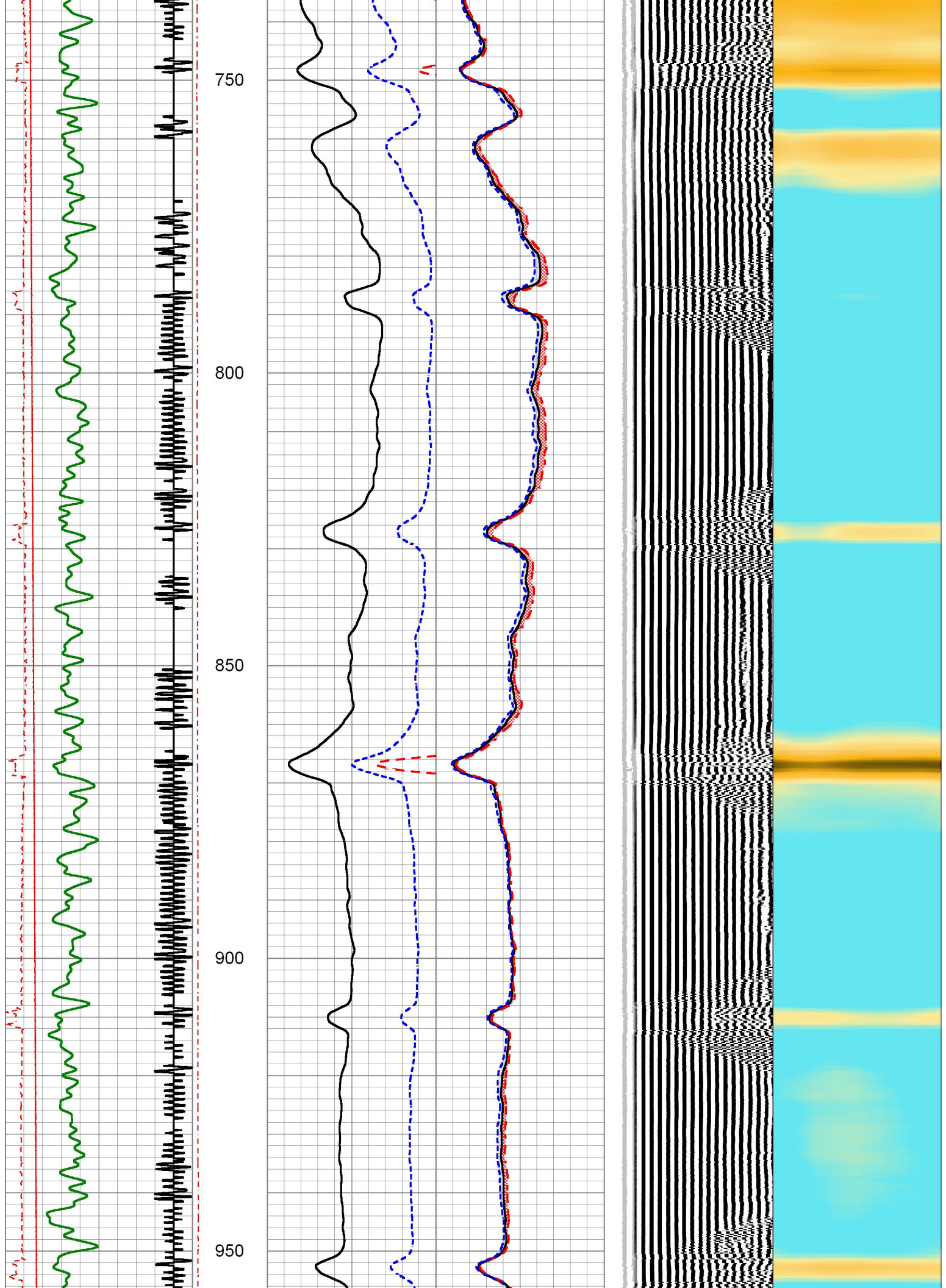
3' Travel Time	270 (usec)	170	Line Tension	0 (2000)	3' Amplitude (mV)	0 100	Sector Amplitude Average	200 VDL 1200	1 8	Sector Map	10 60
-9 Collar Locator	1				3' Amplified Amplitude X 5		0 150				
Gamma Ray					0 (mV)	20	Sector Amplitude Maximum				
0 (GAPI)	150				1 Bond Index	0	0 150				
50 Temp (degF)	200						Sector Amplitude Minimum				
							0 150				

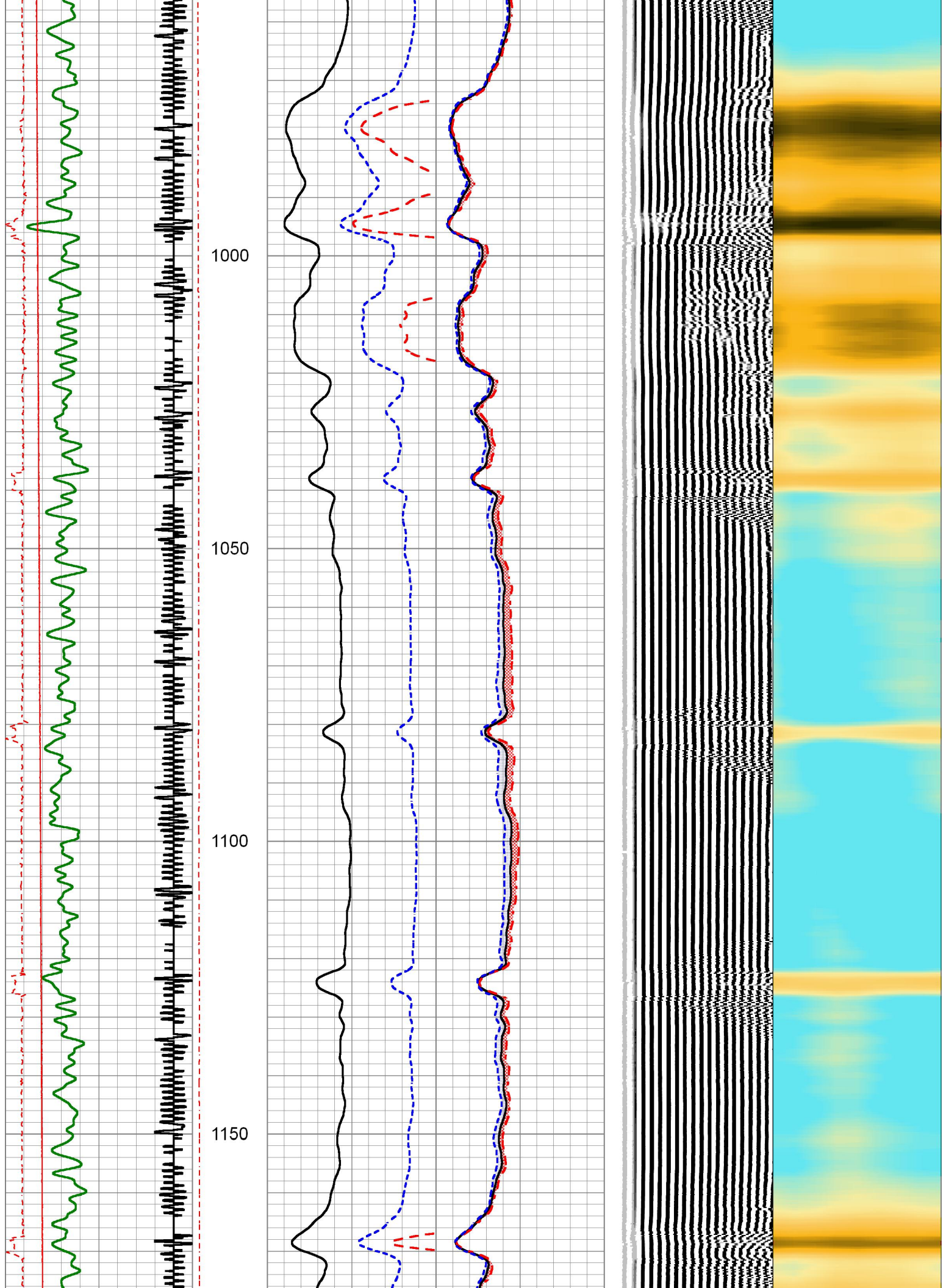


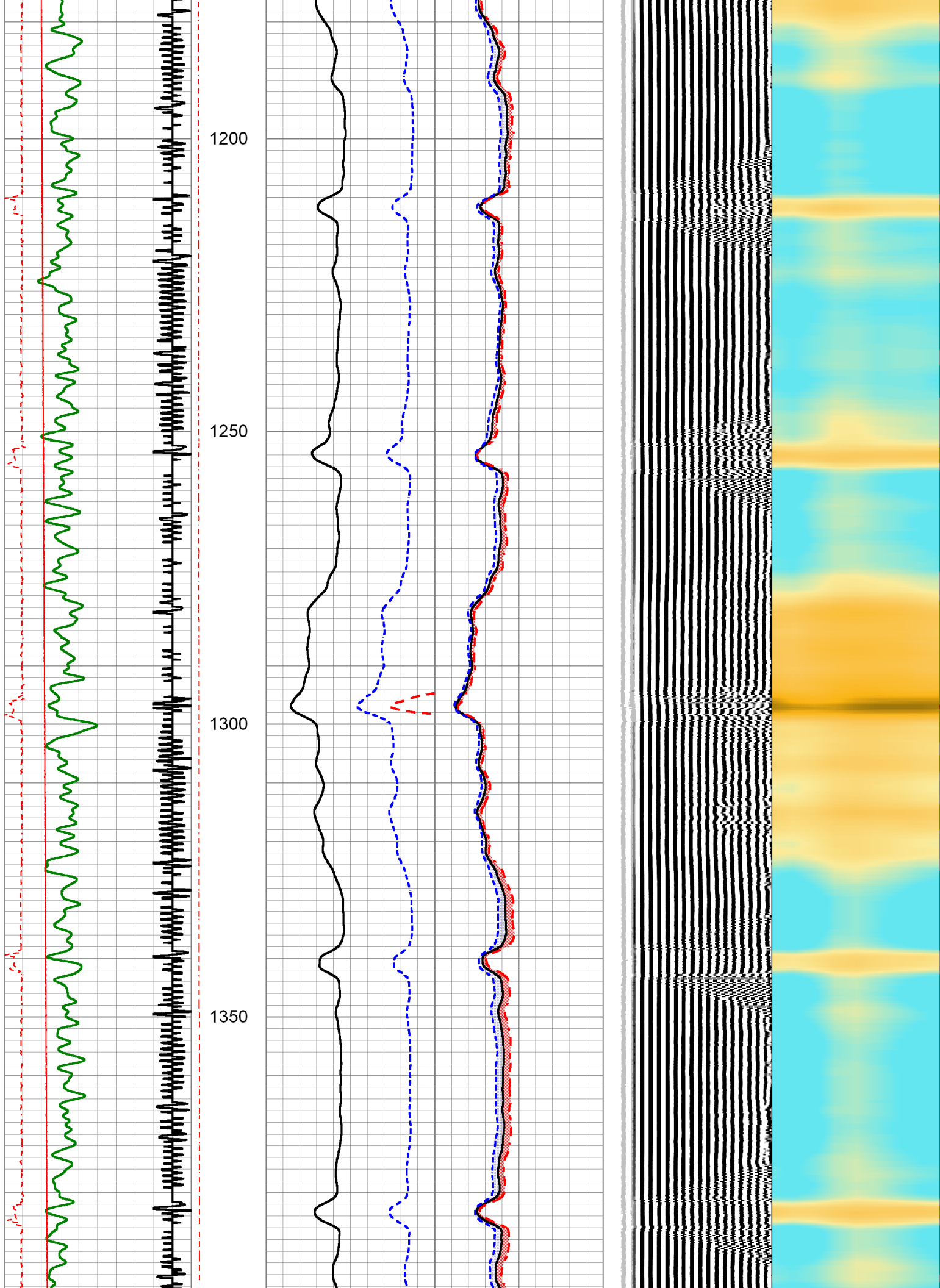


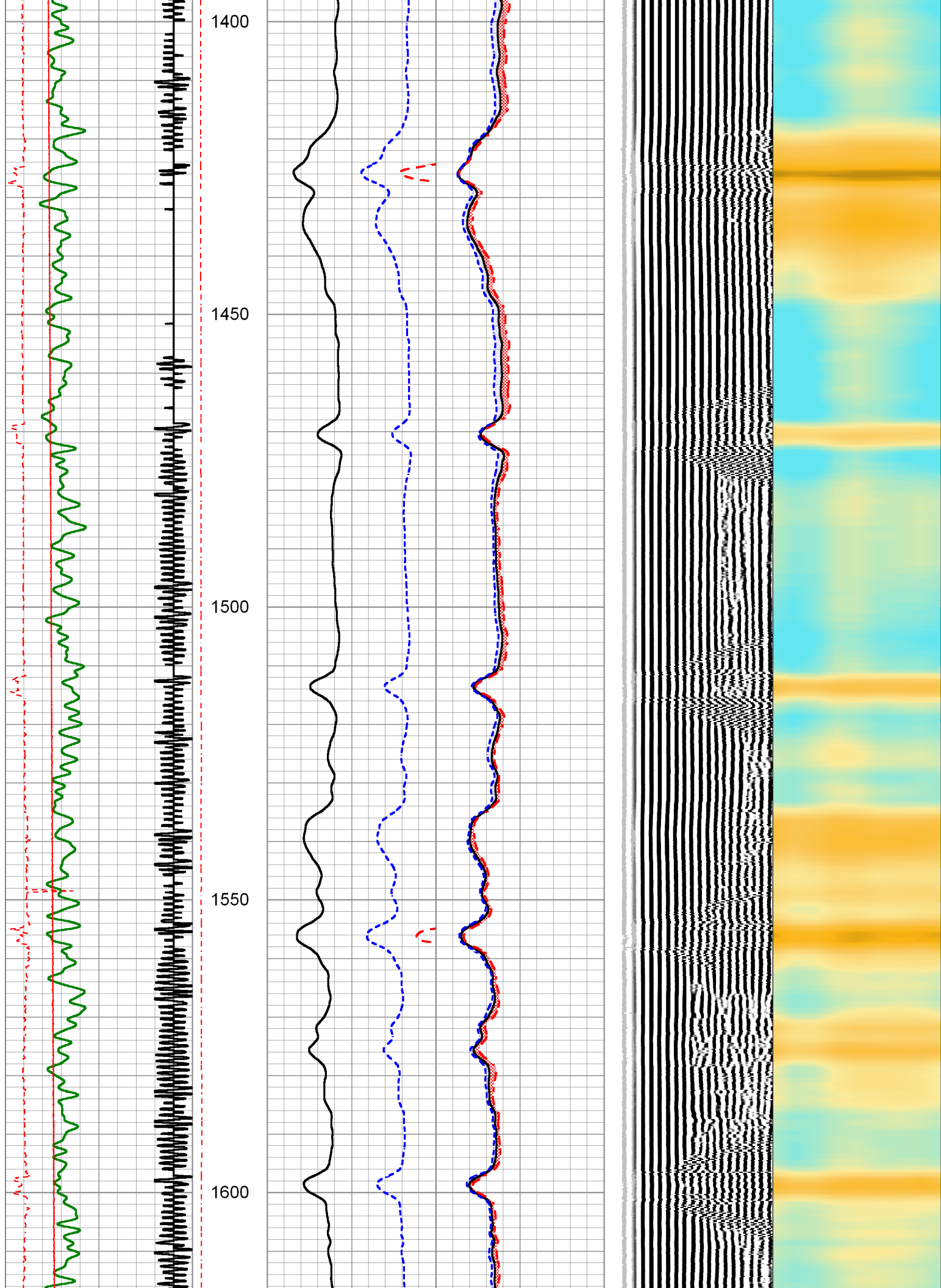


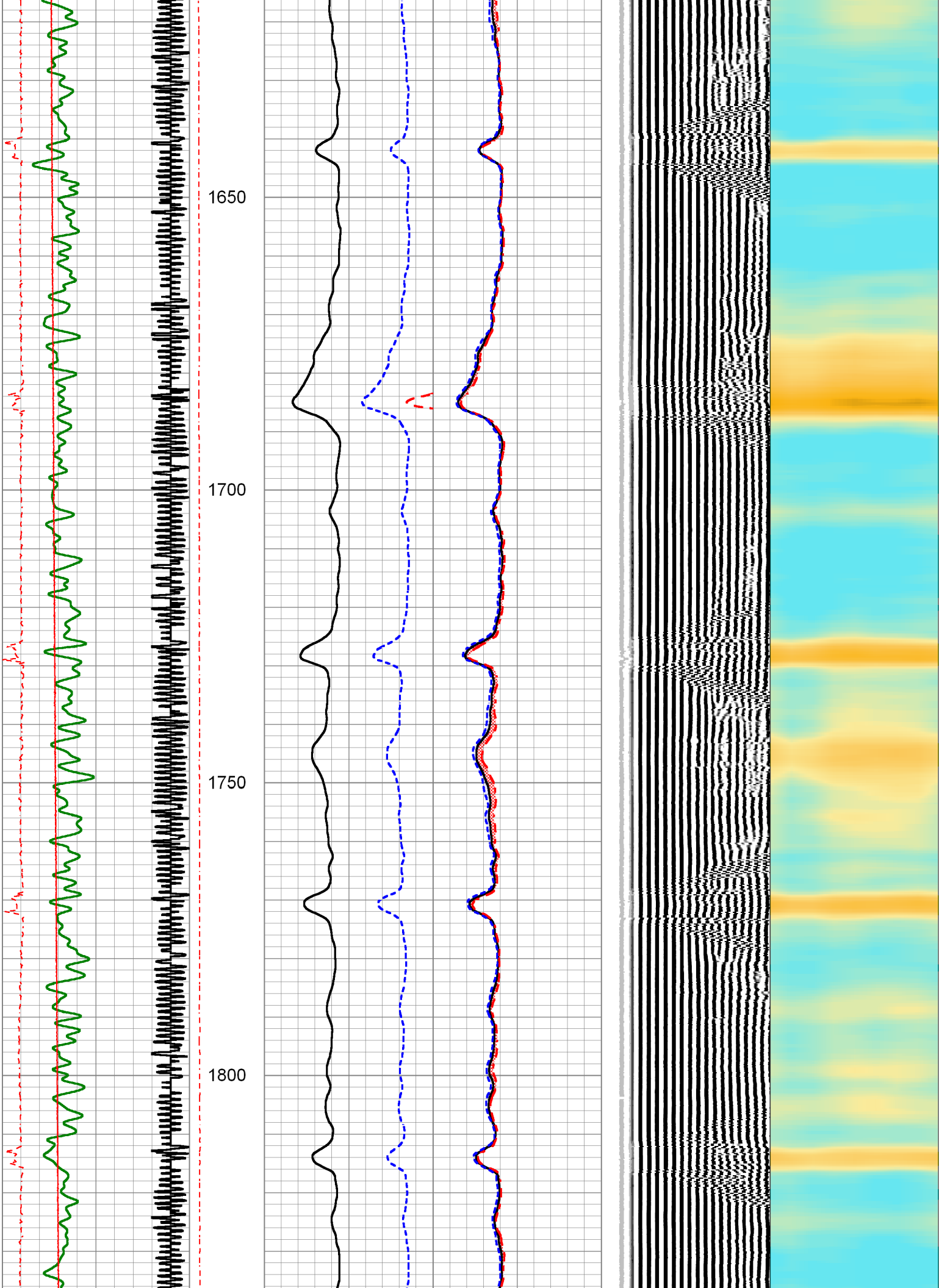


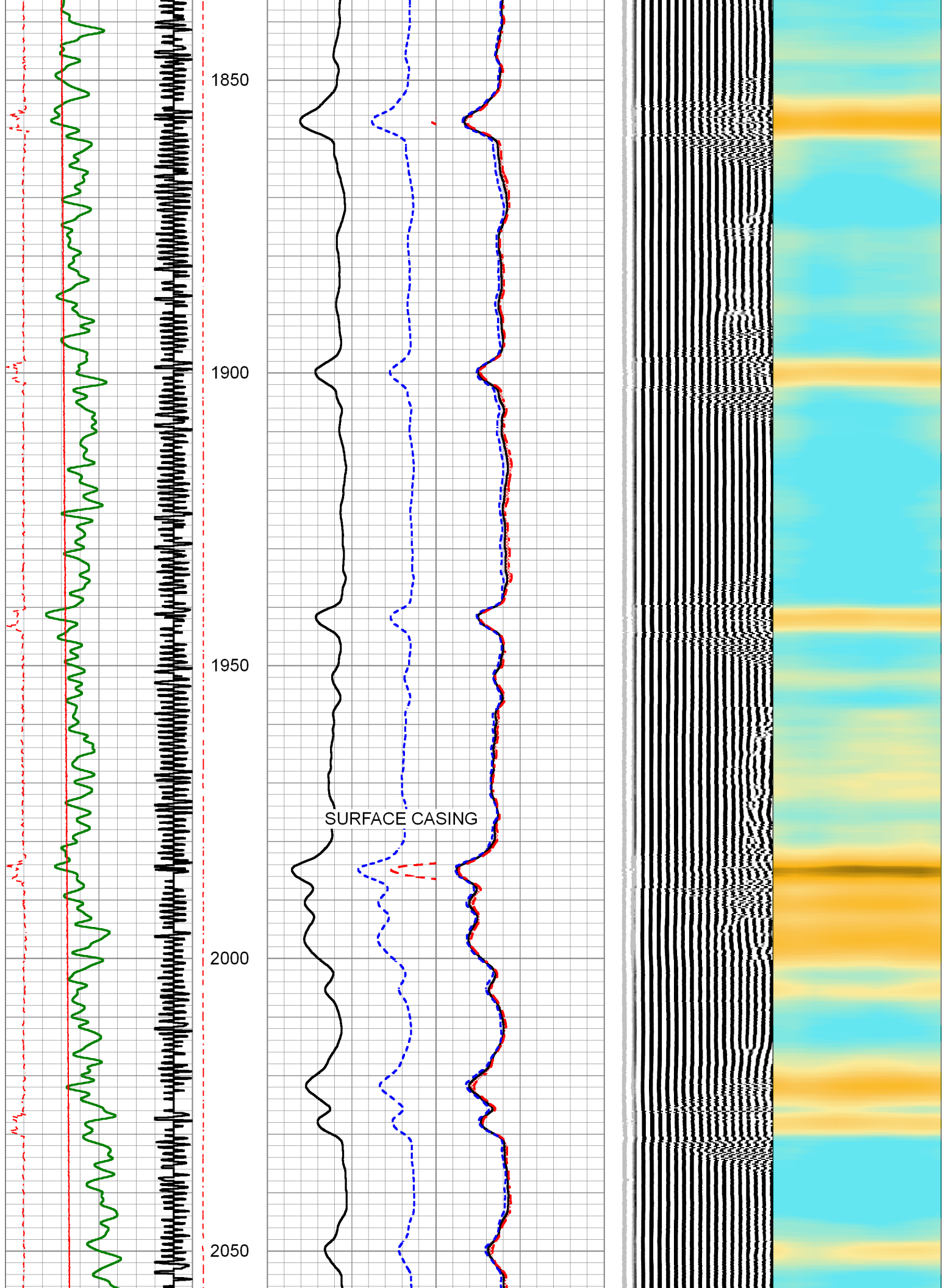


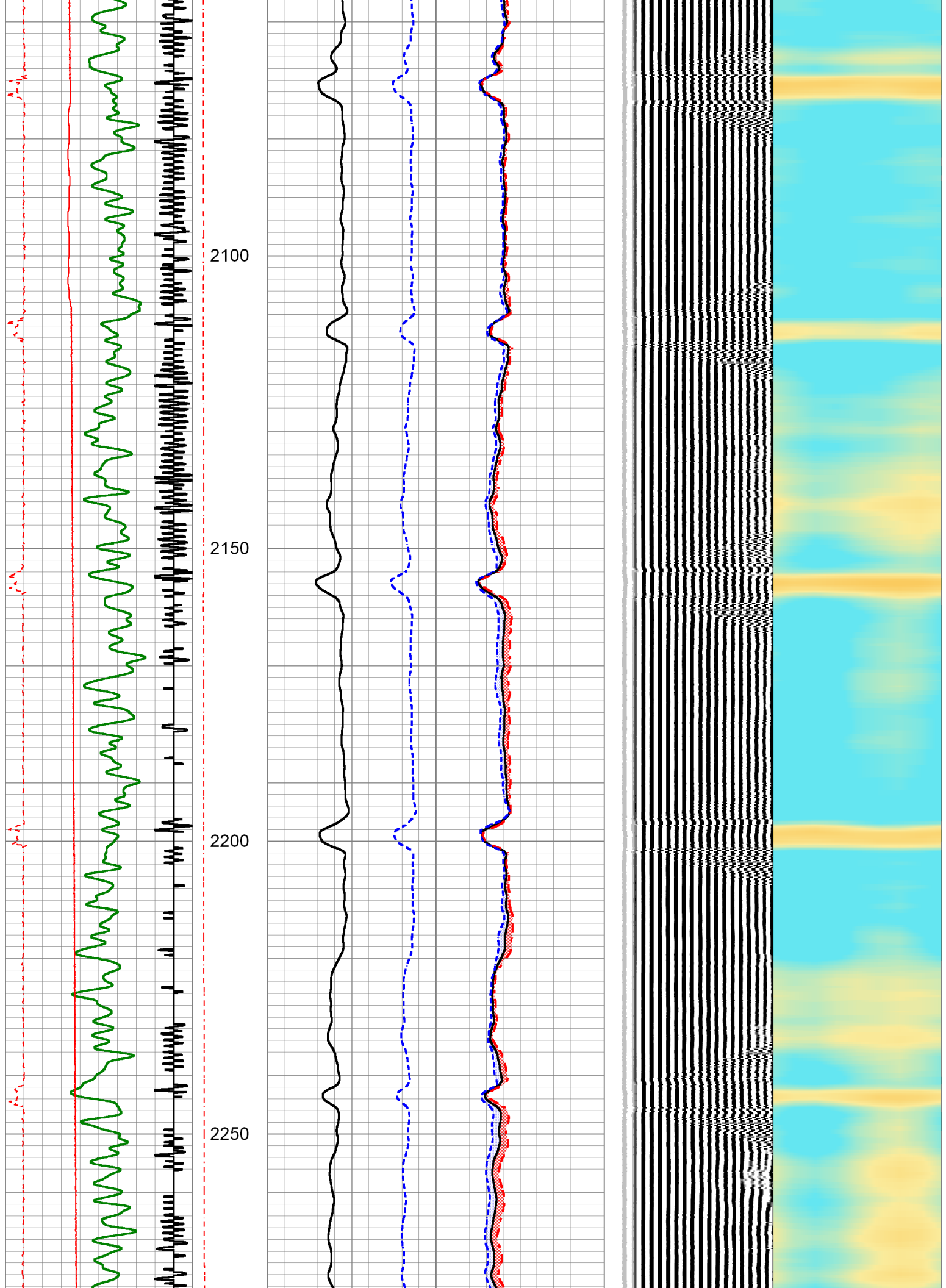


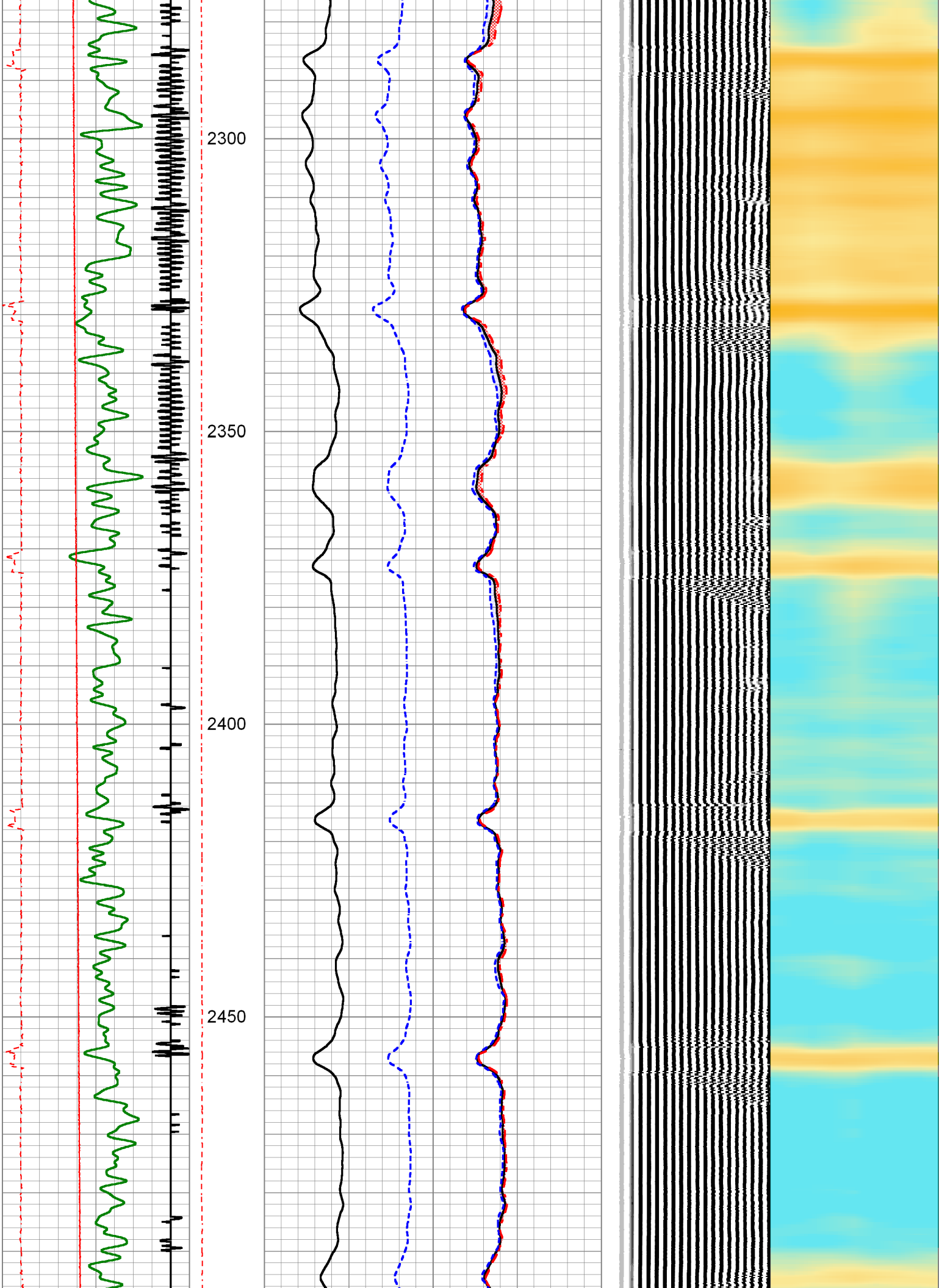


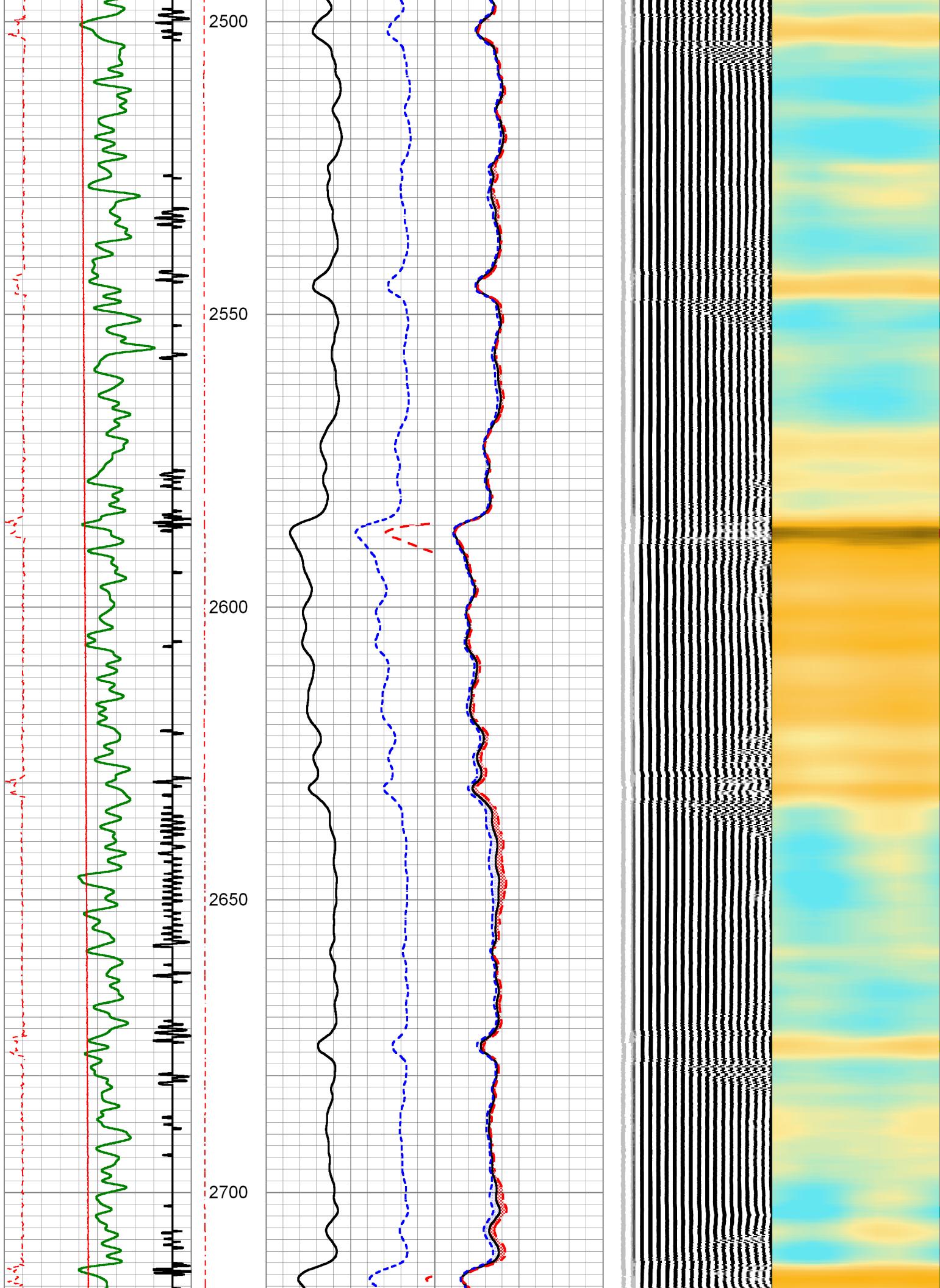


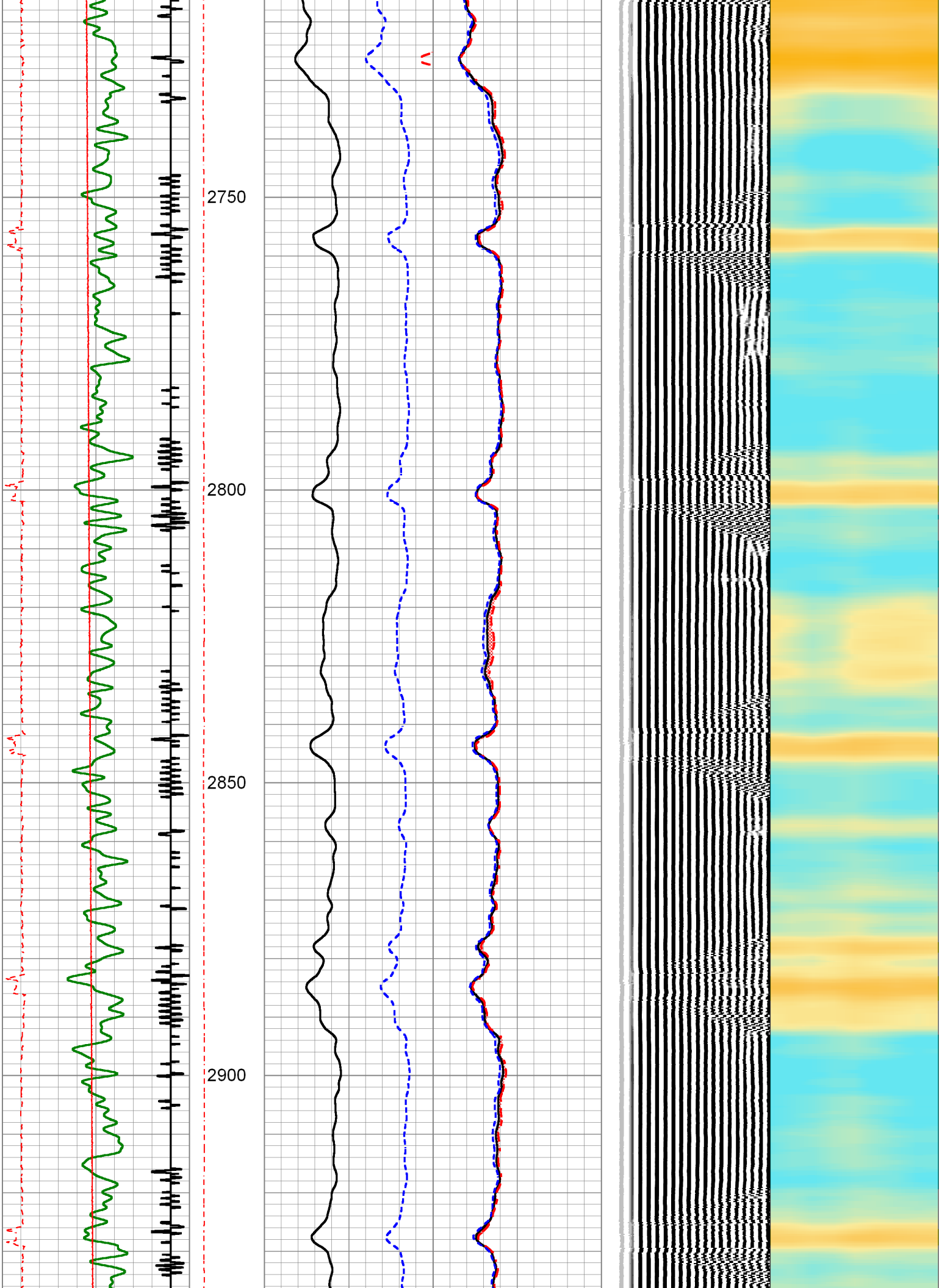


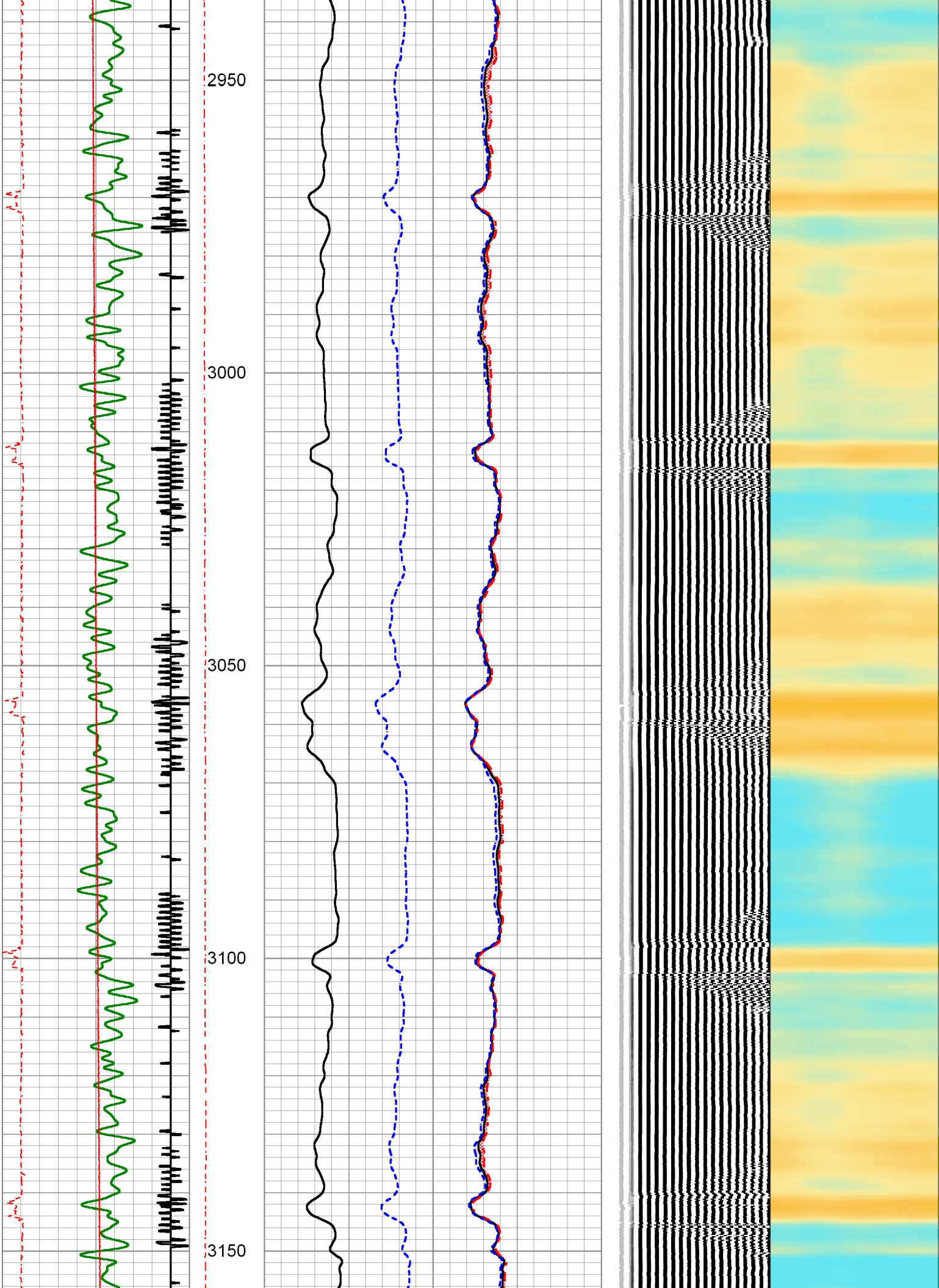


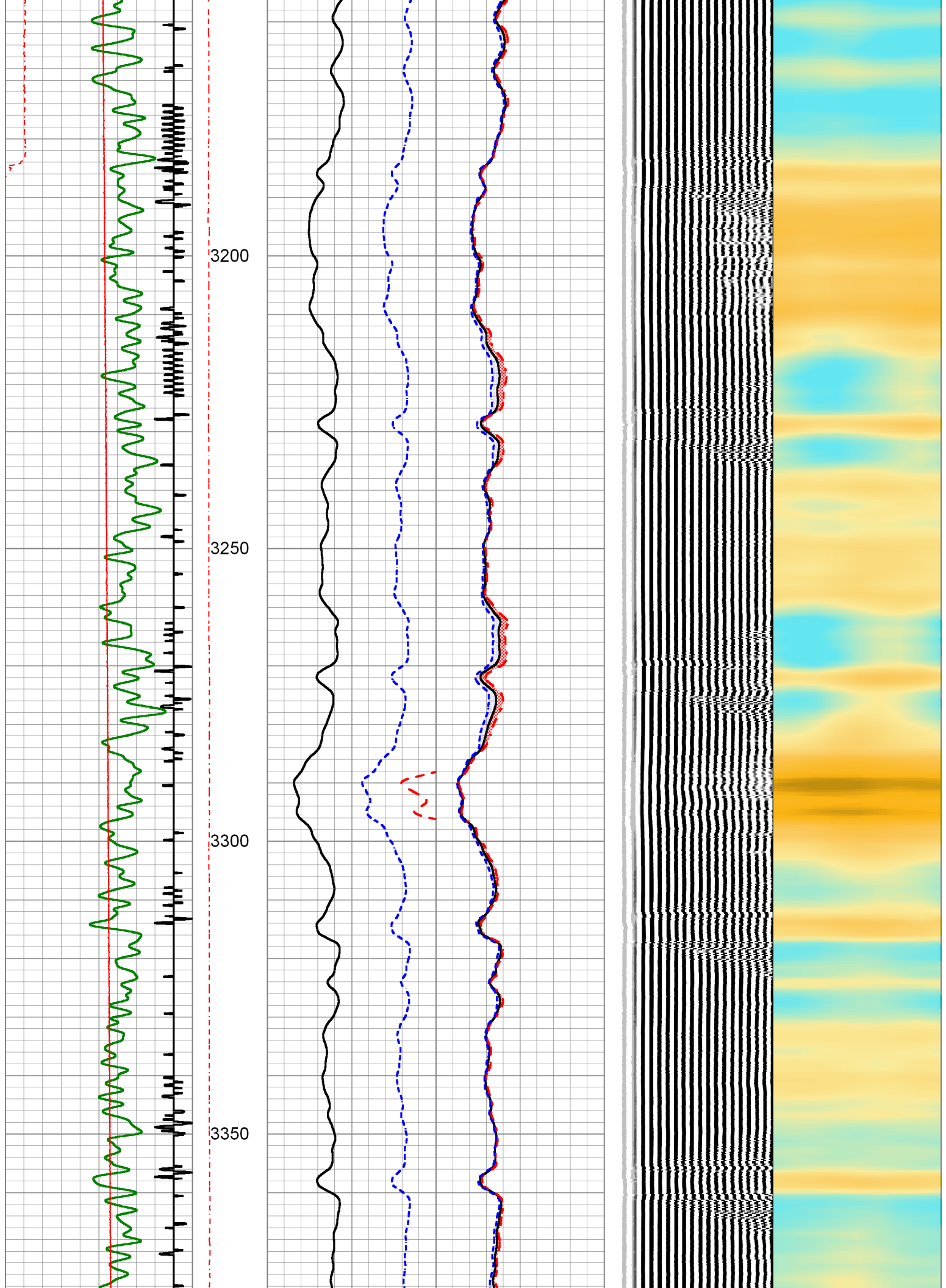


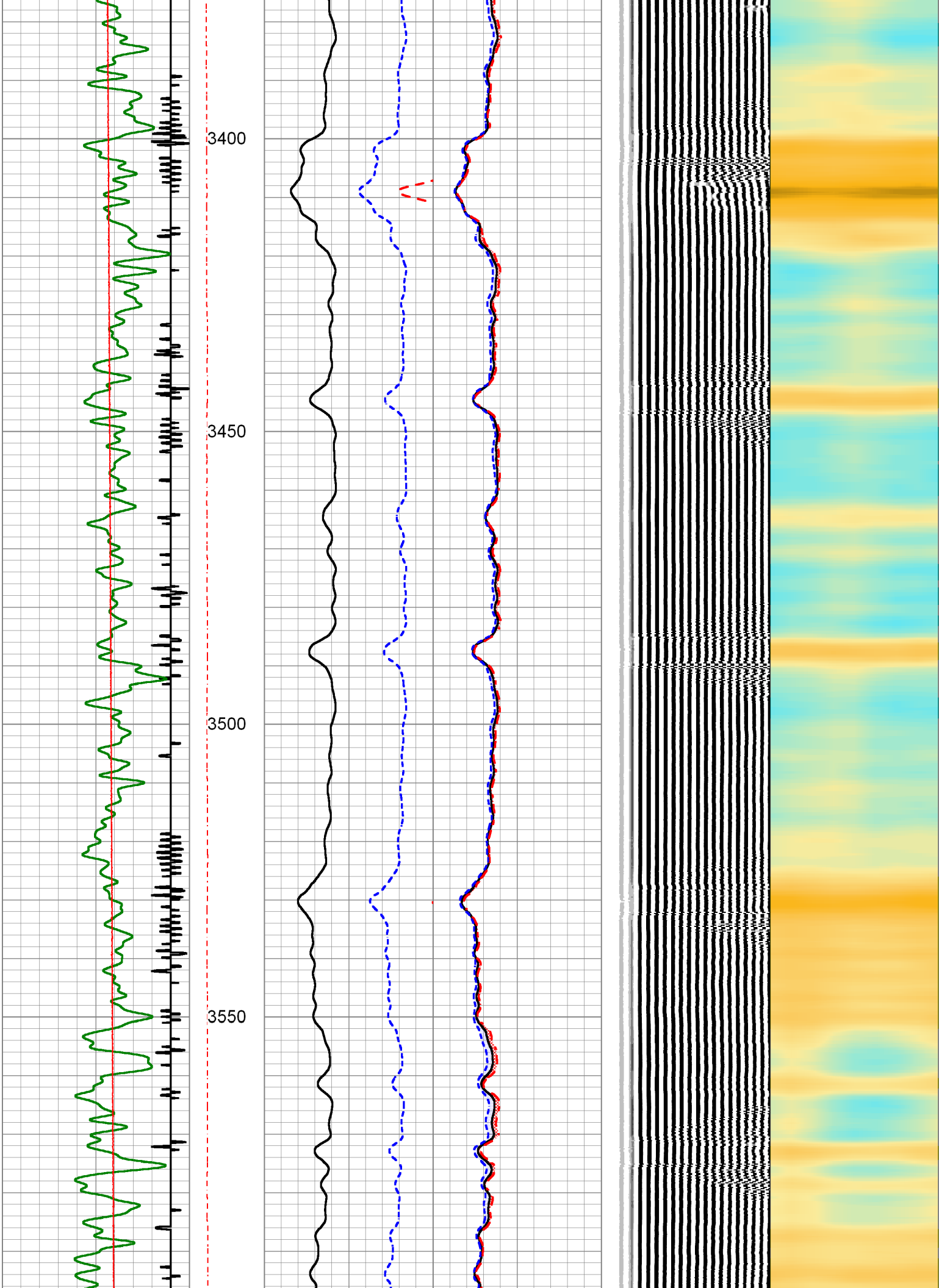


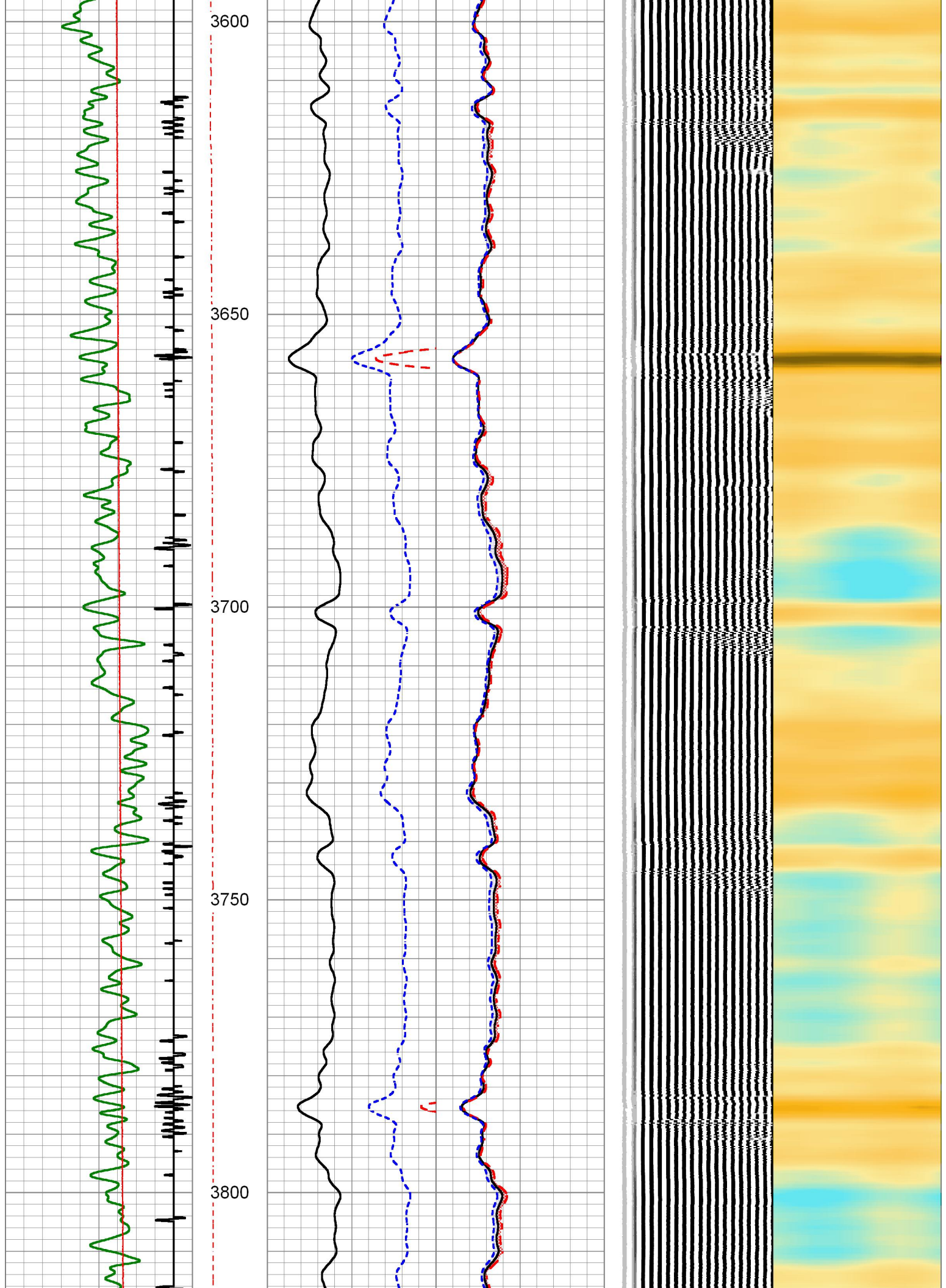


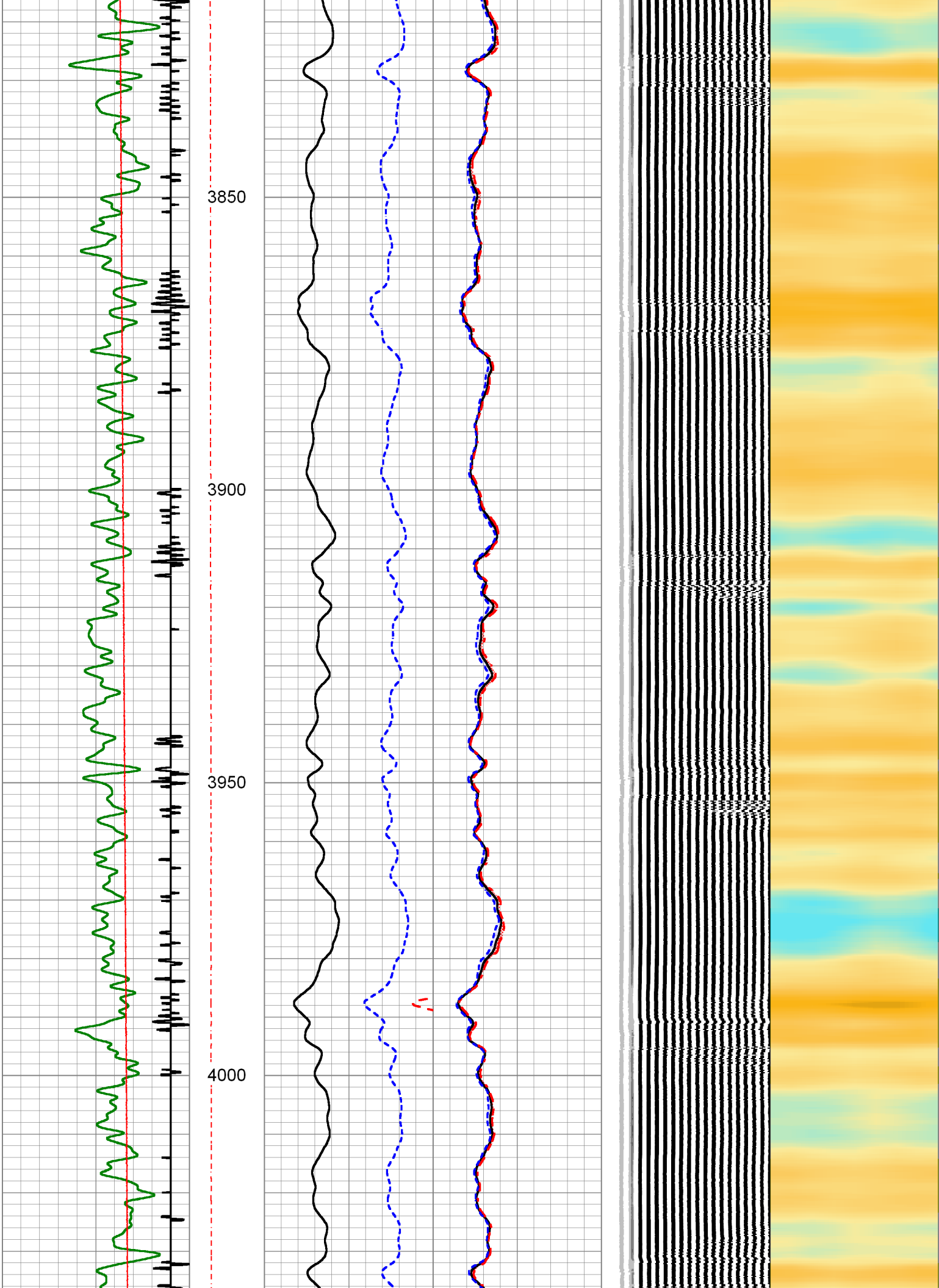


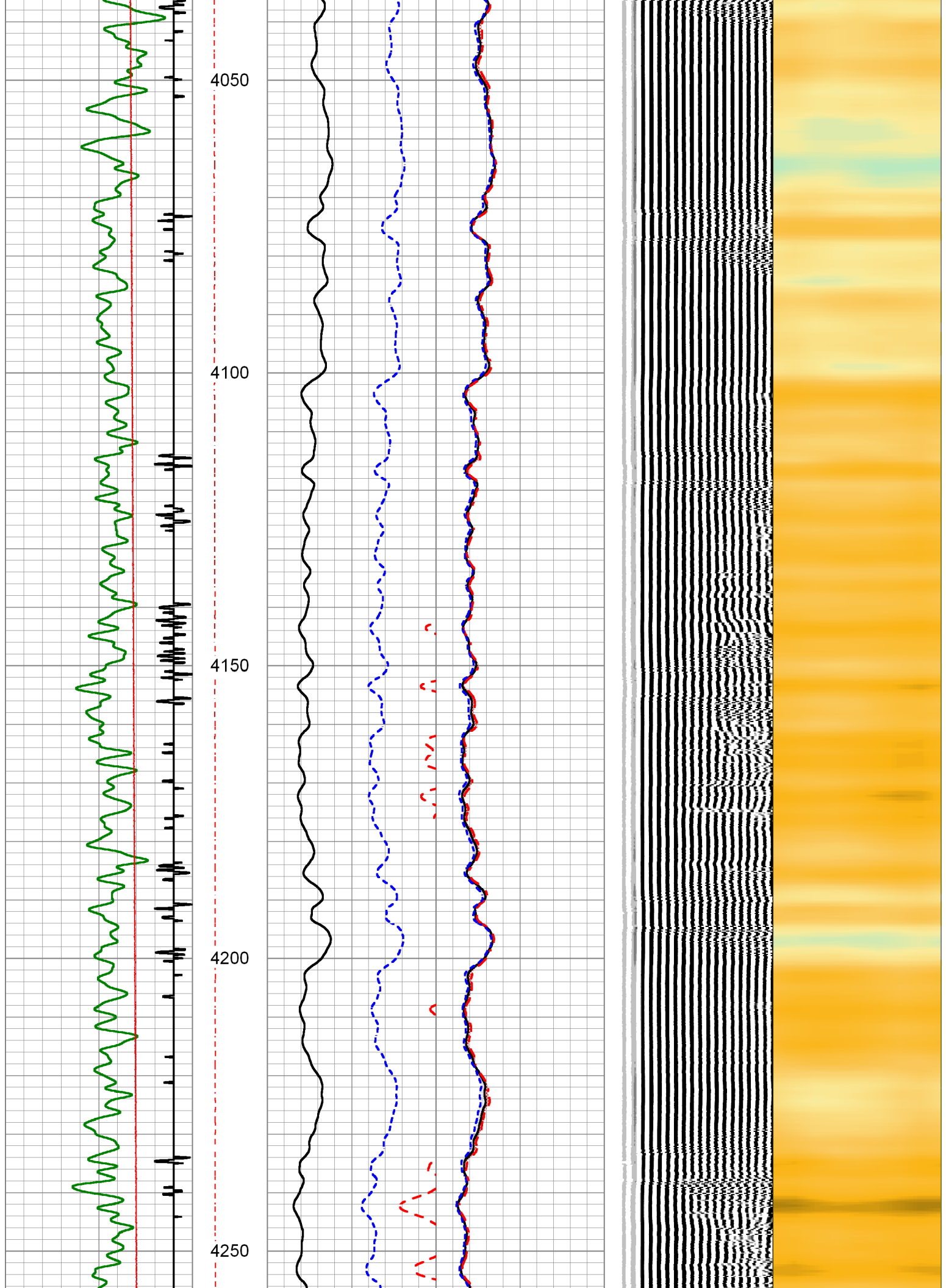


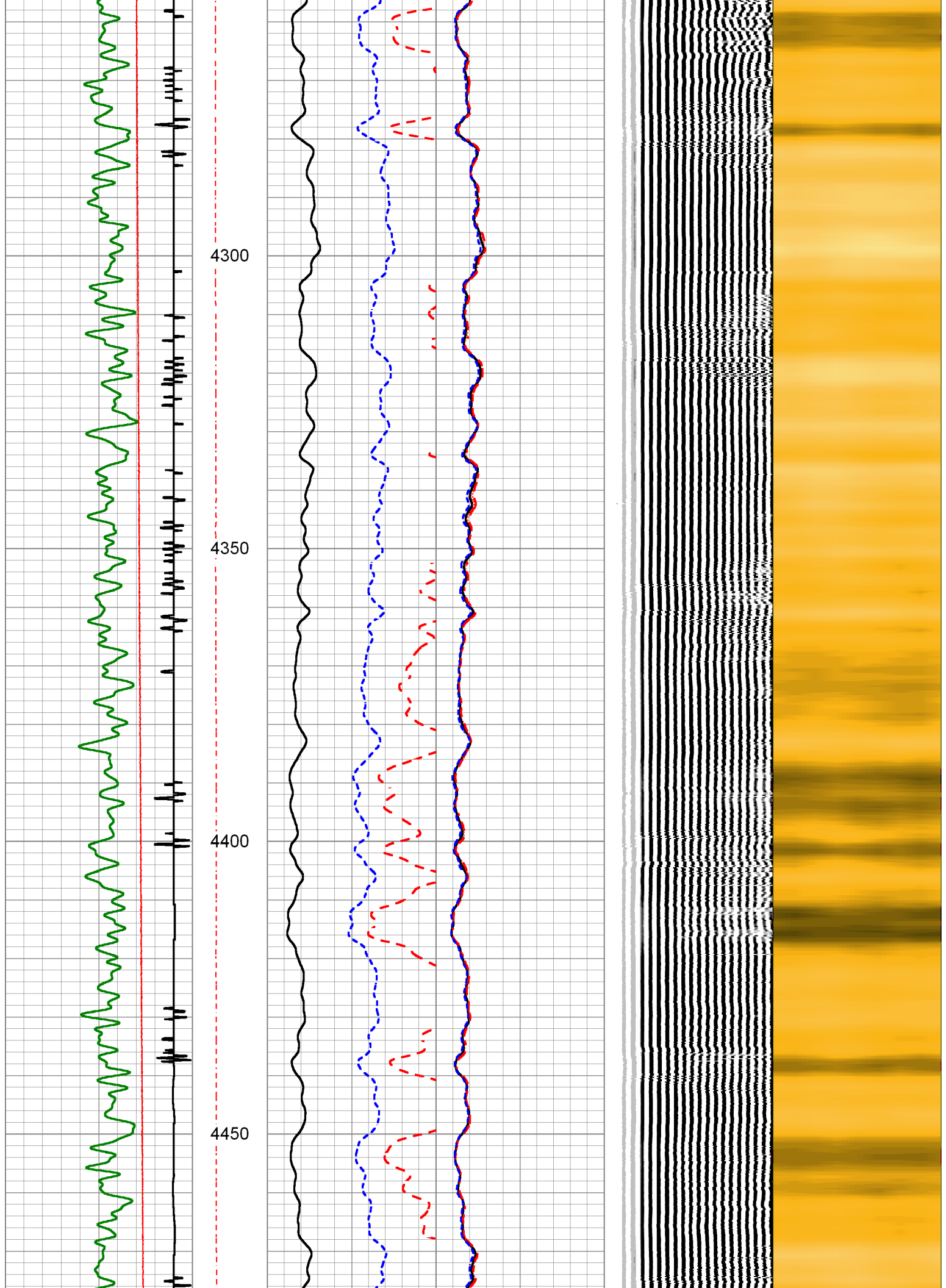


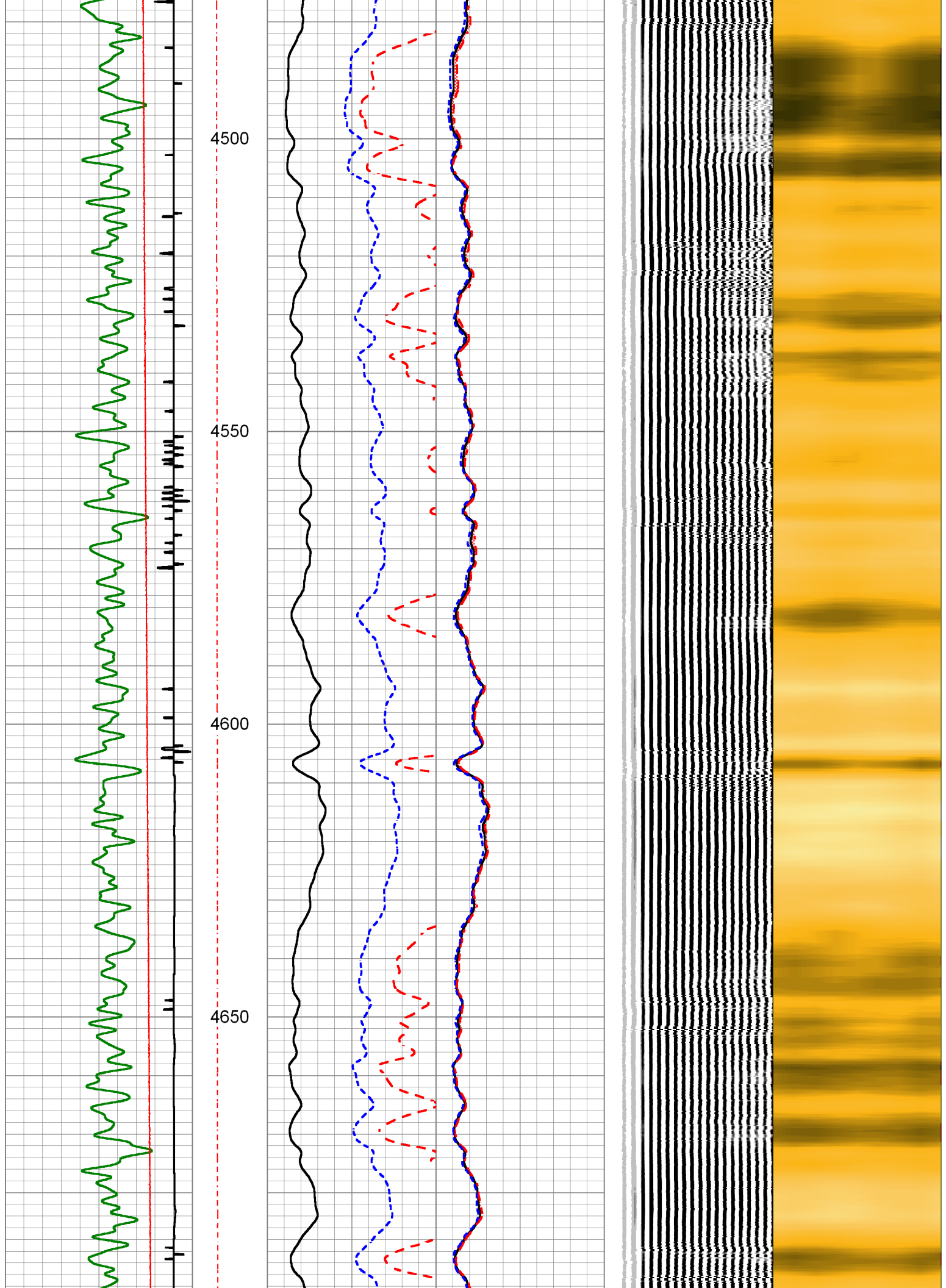


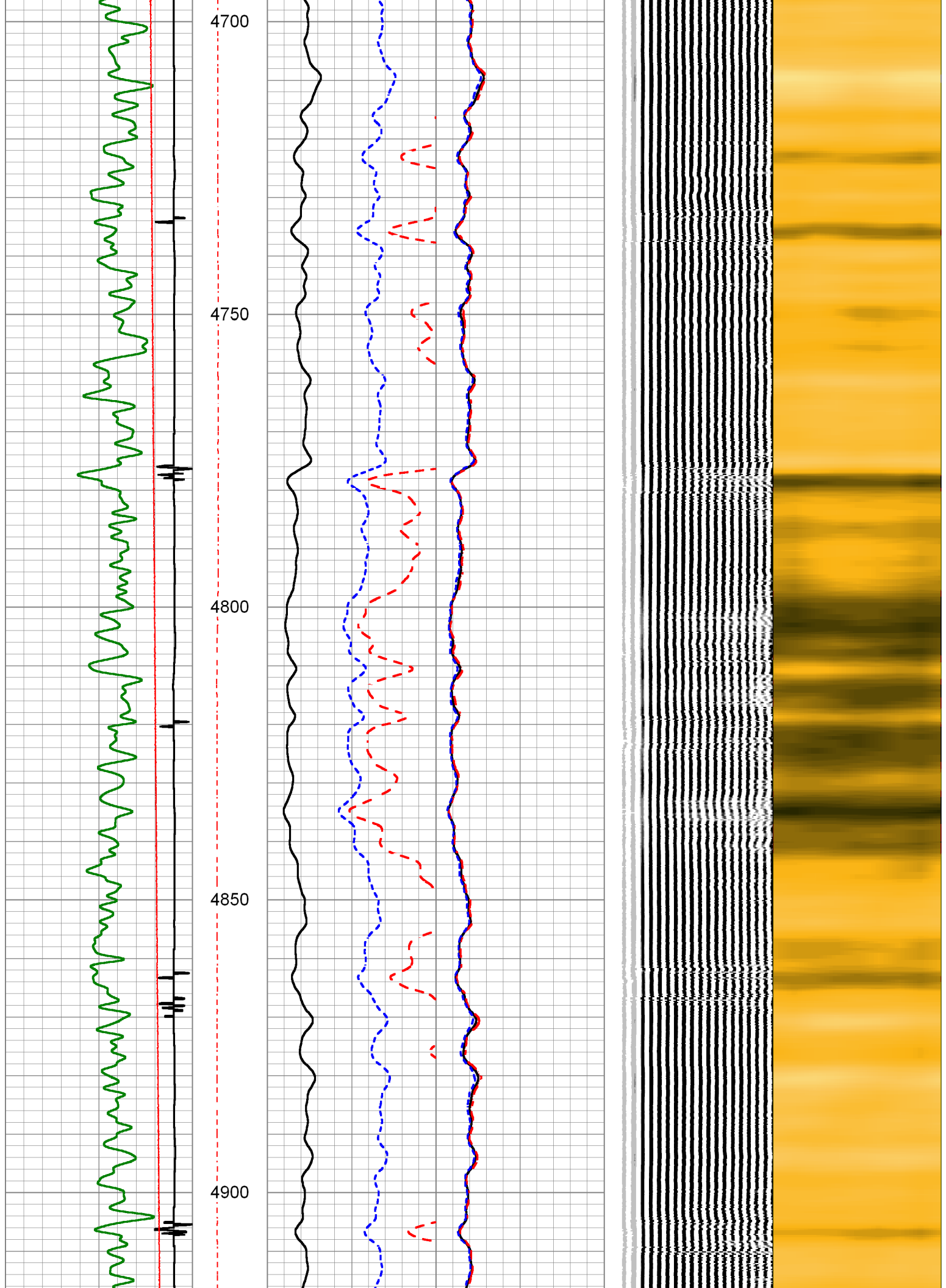


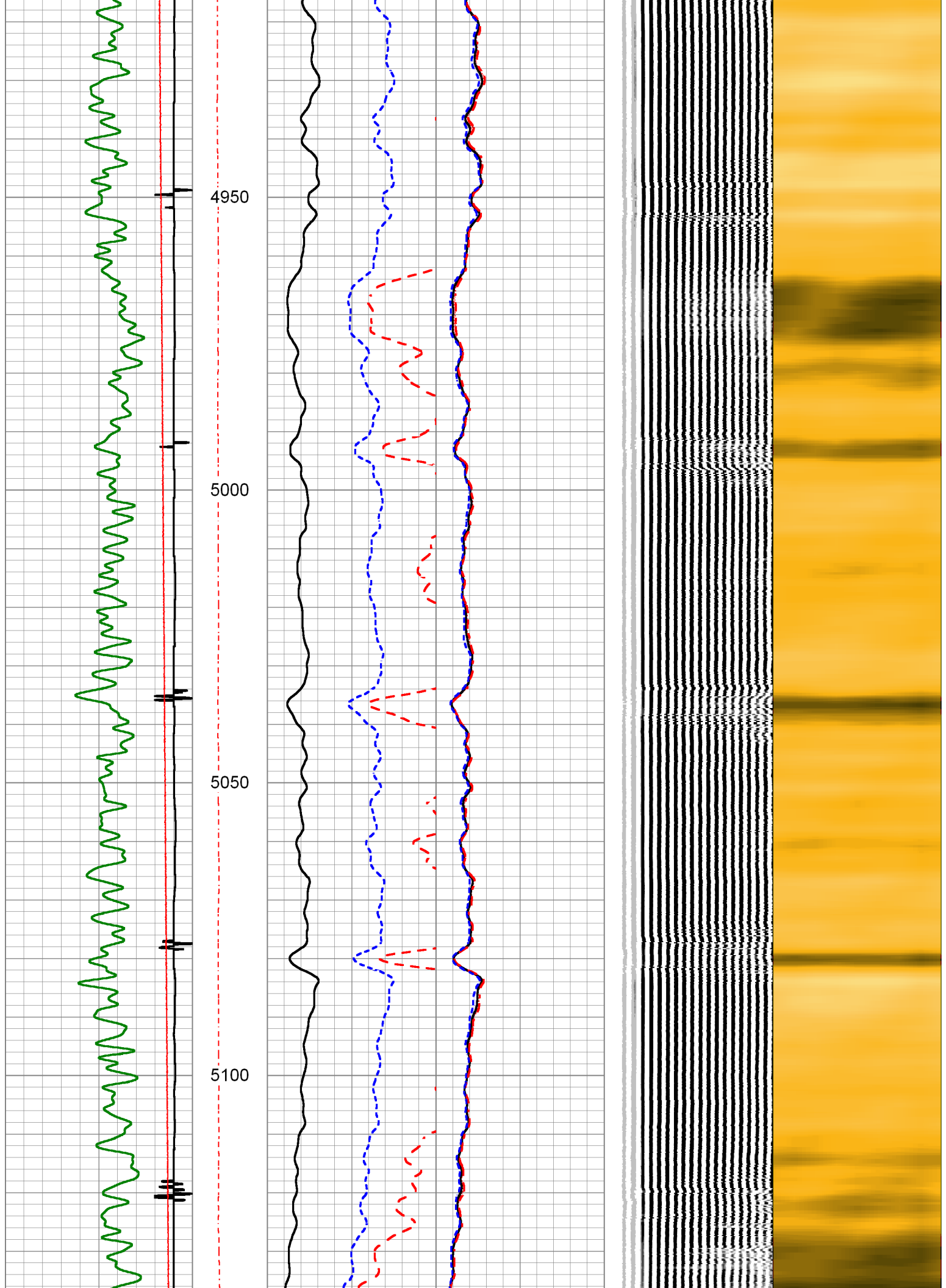


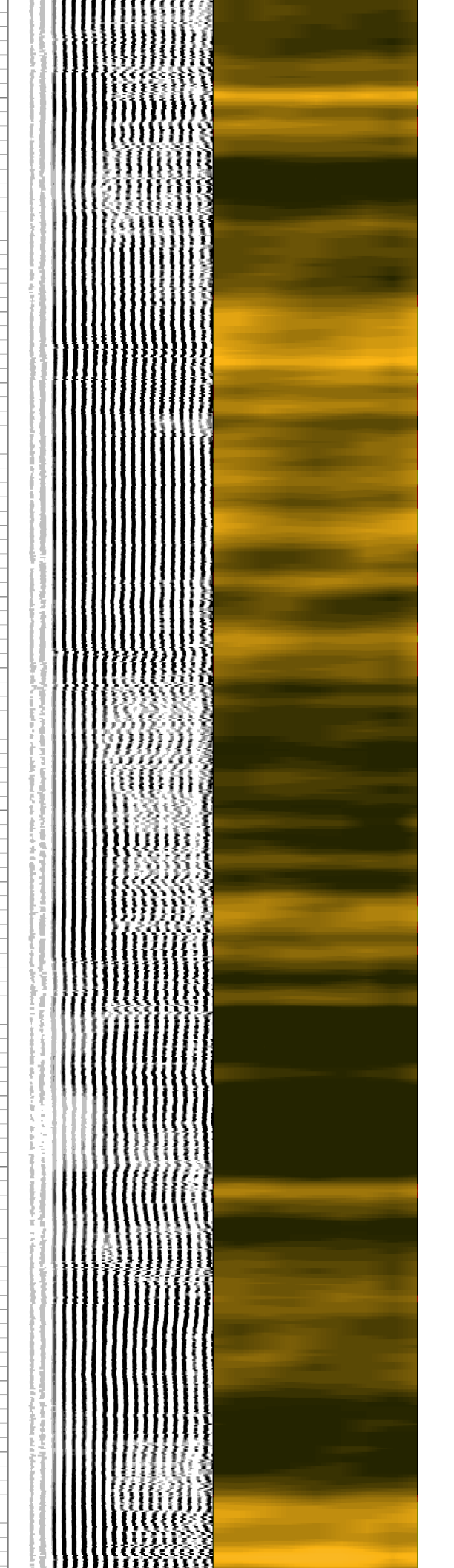
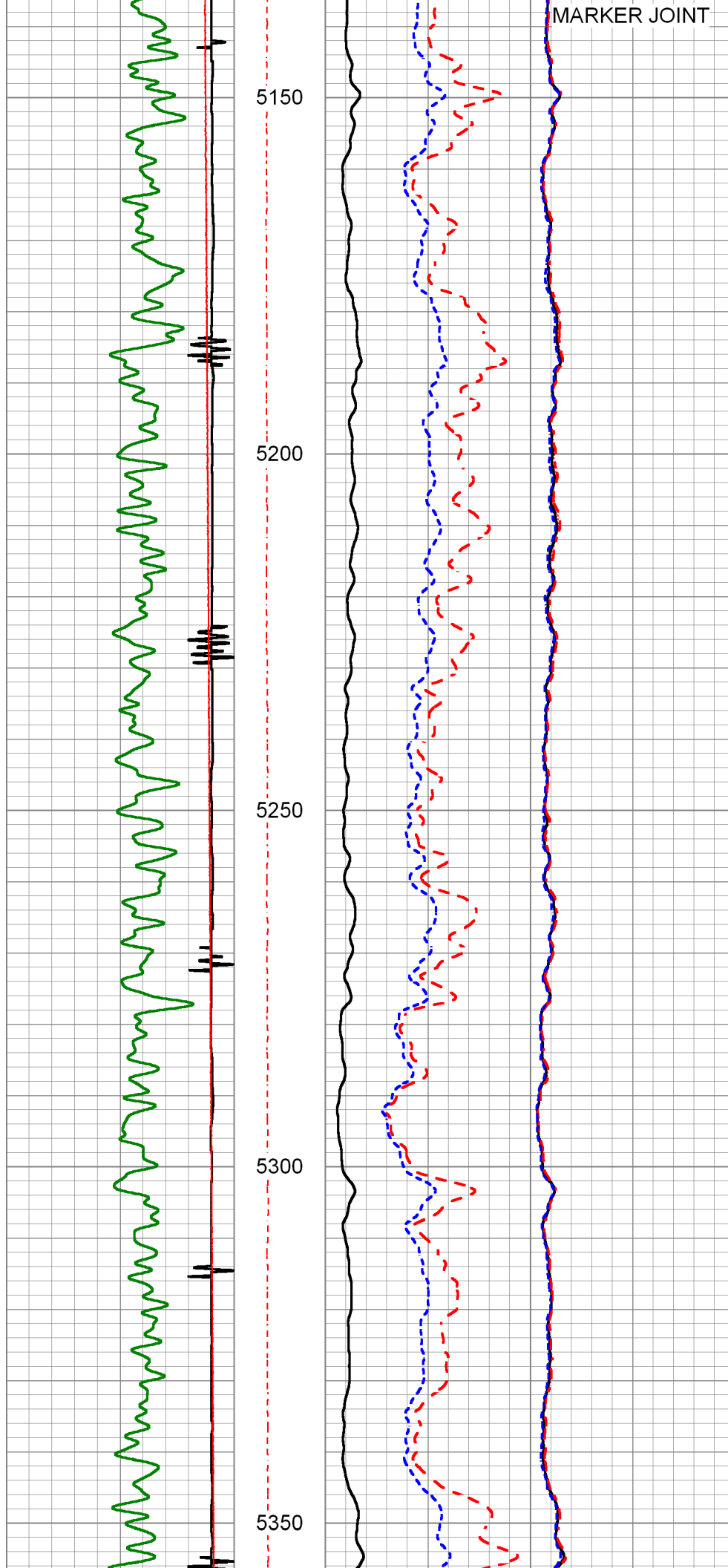


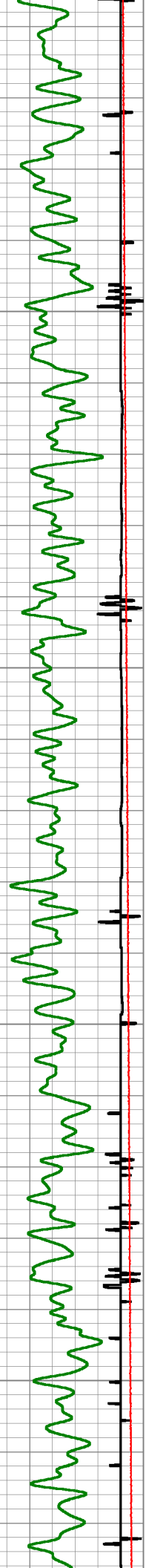










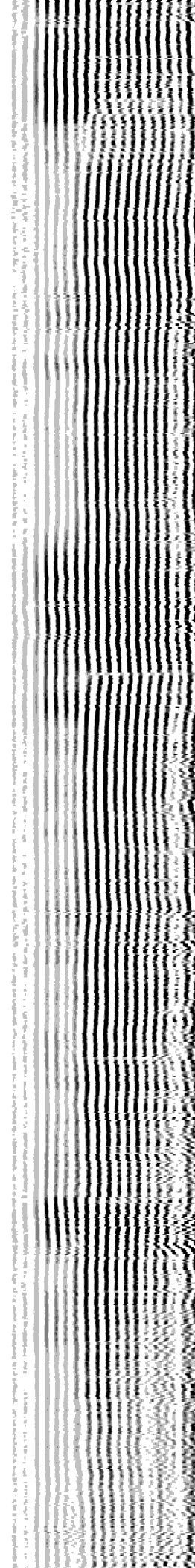
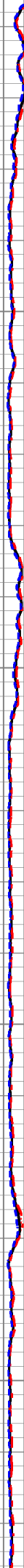
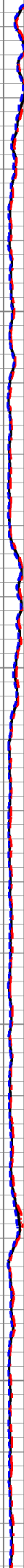
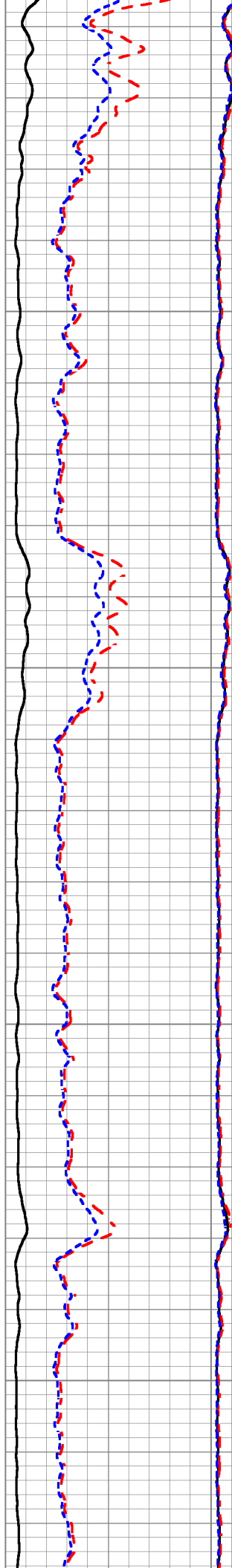


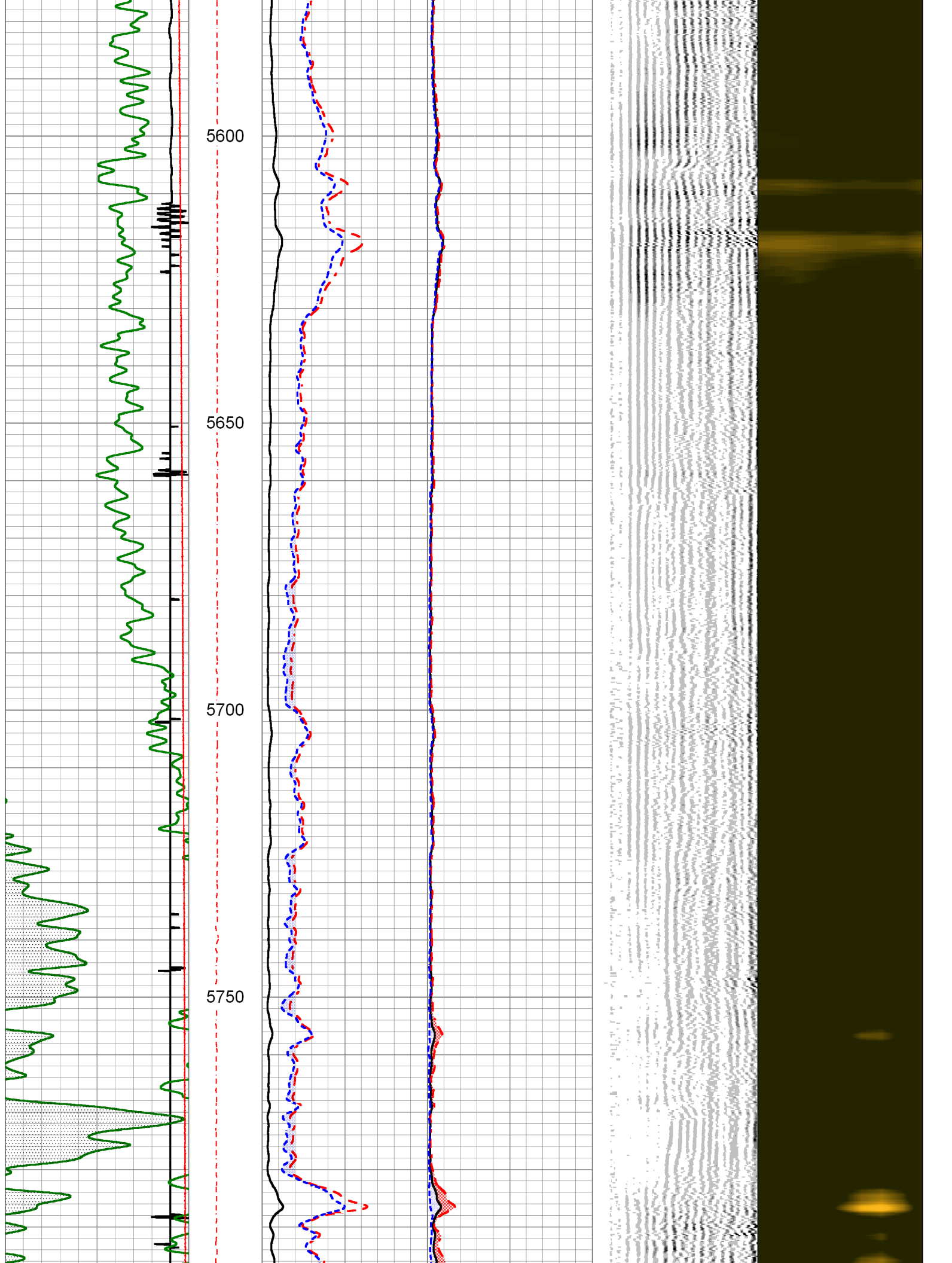
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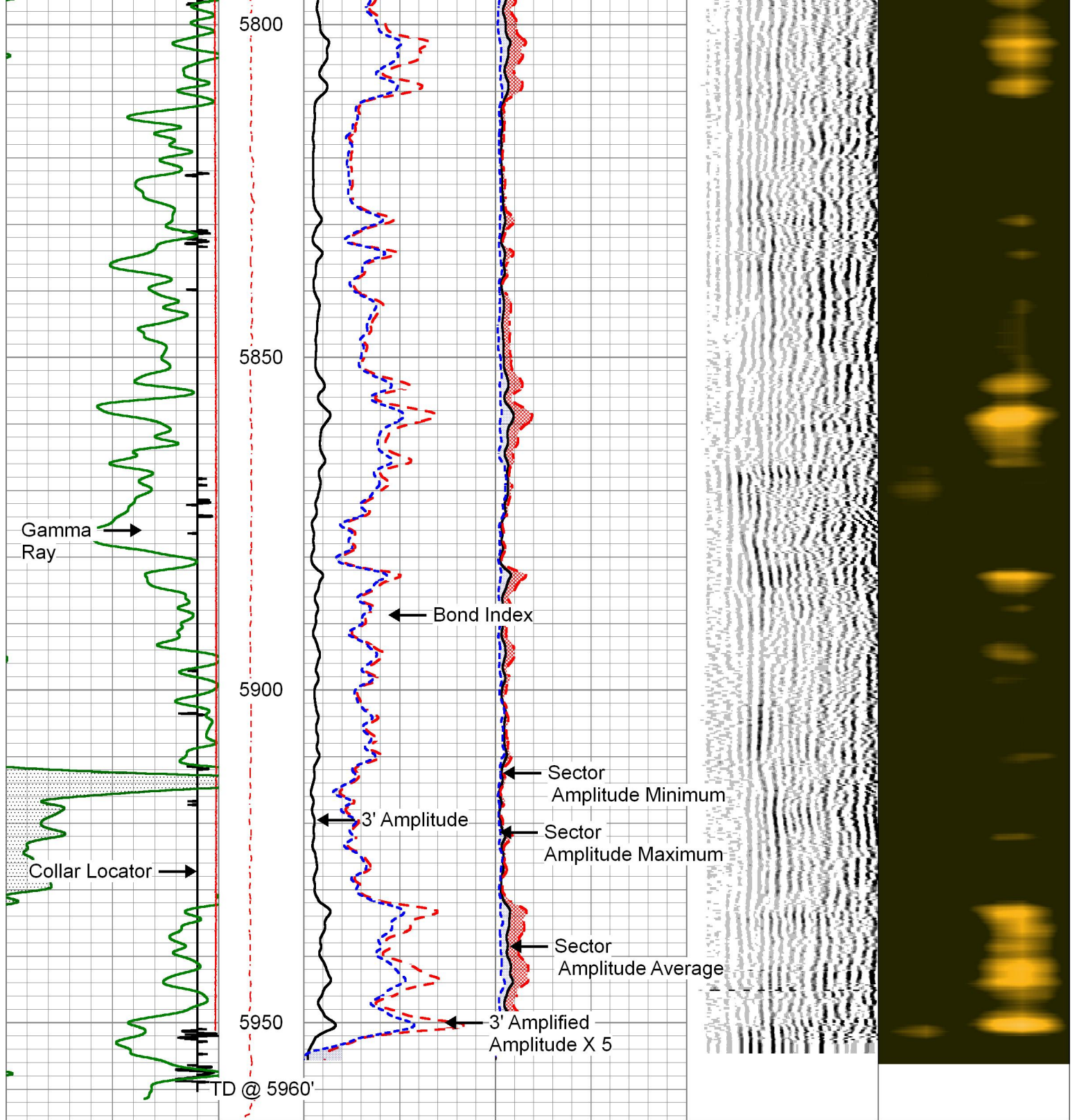
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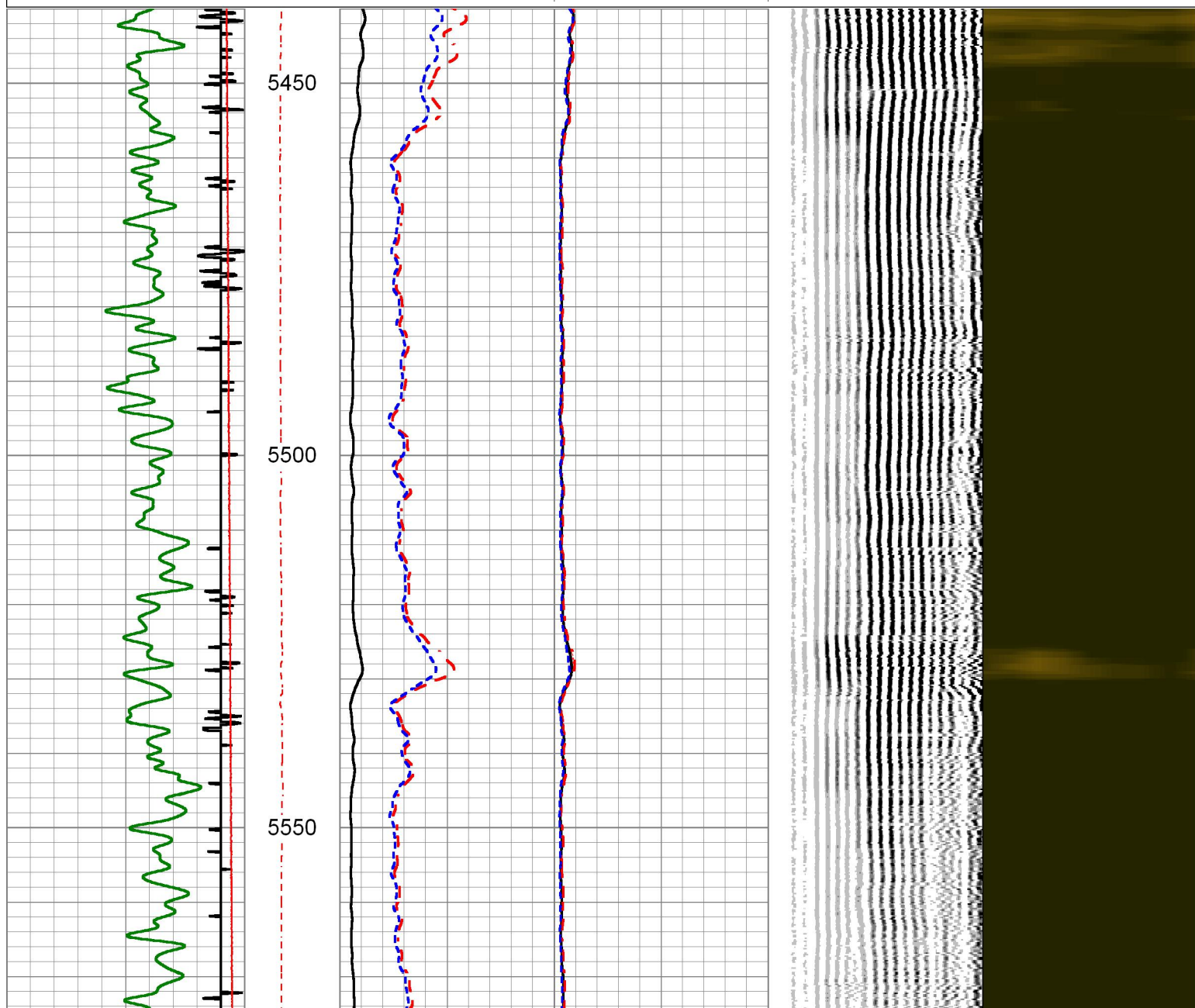


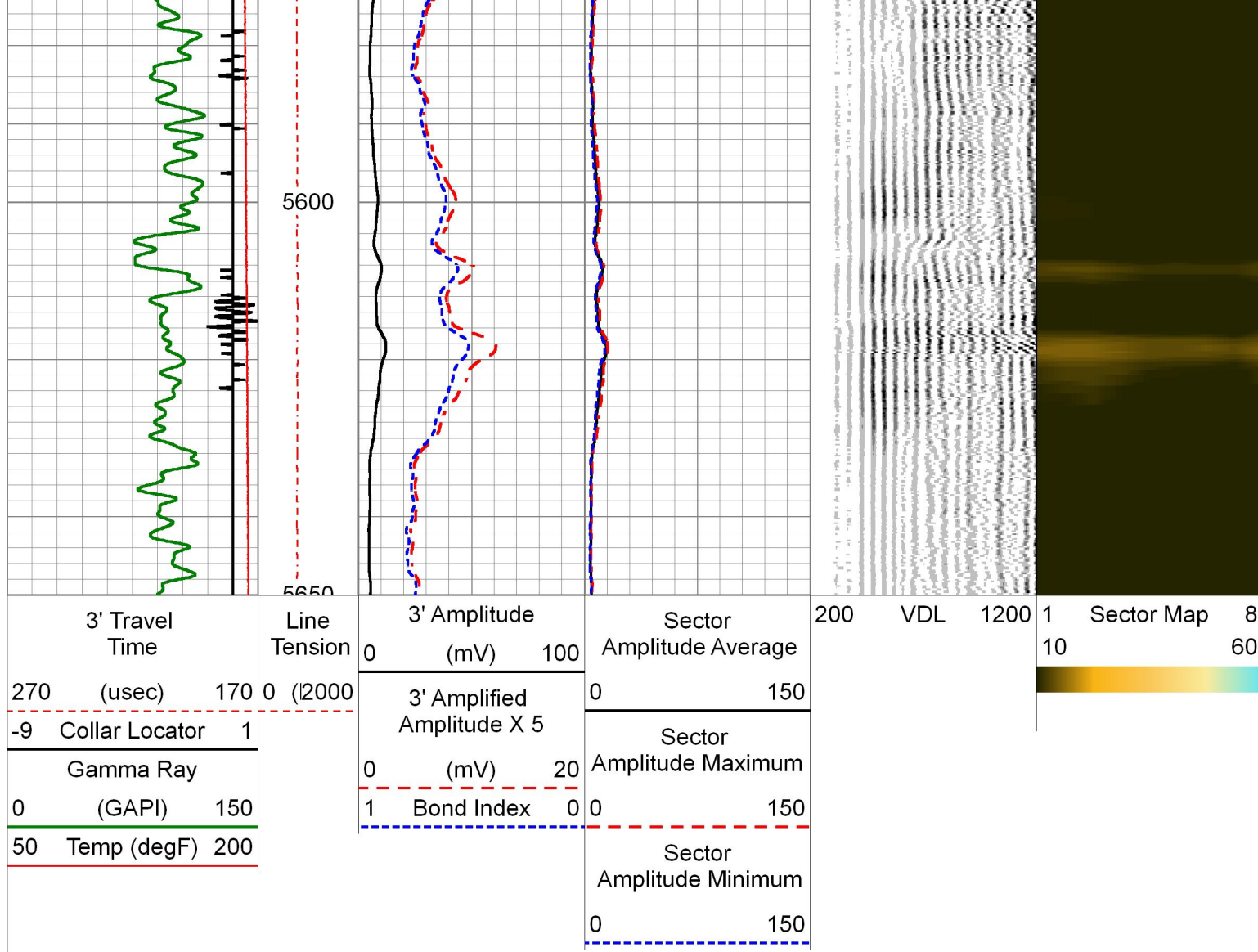


3' Travel Time			Line Tension	3' Amplitude		Sector		200	VDL	1200	1	Sector Map	8
270	(usec)	170		0	(mV)	100	Amplitude Average						
-9 Collar Locator 1			0 (2000	3' Amplified Amplitude X 5		0 150							
Gamma Ray			0	(mV)	20	Sector Amplitude Maximum							
0 (GAPI) 150			1	Bond Index	0	0 150							
50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

Database File 290167.db
Dataset Pathname REPEAT
Presentation Format pinr_scb1
Dataset Creation Wed Apr 20 16:01:18 2016
Charted by Depth in Feet scaled 1:240

3' Travel Time		Line Tension	3' Amplitude (mV)		Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
(usec)			0	100							
270		0 (2000)	3' Amplified Amplitude X 5		0	150			10		60
-9	Collar Locator				Sector Amplitude Maximum						
	Gamma Ray		0 (mV)		0	150					
0	(GAPI)		1 Bond Index		0	150					
50	Temp (degF)	200			Sector Amplitude Minimum						
					0	150					





Calibration Report

Database File 290167.db
 Dataset Pathname FINAL
 Dataset Creation Wed Apr 20 09:18:50 2016

Gamma Ray Calibration Report

Serial Number: 111211
 Tool Model: 275 Probe GR-CCL Dig
 Performed: Tue Apr 19 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: 422.65 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.531	2.200	71.921	45.549	2.200
CAL	0.002	1.762				
5'	0.000	1.363	2.200	71.921	51.153	2.200
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S1	-0.023	1.536	0.000	100.000	64.114	1.501
S2	0.000	1.630	0.000	100.000	61.357	-0.000
S3	0.000	1.626	0.000	100.000	61.497	-0.000
S4	0.000	1.577	0.000	100.000	63.426	-0.000
S5	0.000	1.507	0.000	100.000	66.364	-0.000
S6	0.000	1.460	0.000	100.000	68.491	-0.000
S7	0.000	1.455	0.000	100.000	68.749	-0.000
S8	0.000	1.508	0.000	100.000	66.332	-0.000

Temperature Calibration Report

Serial Number: 141166
Tool Model: 275 Probe w Temp New Mod
Performed: Tue Apr 16 12:24:08 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-1808
Field	WILDCAT
County	WELD
State	CO.