



**PIONEER**

Pioneer Energy Services

**RADIAL BOND LOG  
WITH GAMMA RAY**

Company **WHITING OIL & GAS CORP**  
Well **HORSETAIL FEDERAL 07F-0640**  
Field **WILDCAT**  
County **WELD** State **CO**

Comp. **WHITING OIL & GAS CORP**  
Well **HORSETAIL FEDERAL 07F-0640**  
Field **WILDCAT**  
Co. **WELD**  
State **CO**

Location: API #: 05123417730000 Other Services  
SHL: 2599' FNL & 2297' 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 MAY 10, 2016

Run Number ONE

Depth Driller or PBTD 13435'

Depth Logger 6297'

Bottom Log Interval 6295'

Top Log Interval SURFACE

Open Hole Size 8.50"

Type Fluid WATER

Fluid Level SURFACE

Fluid Density 8.33 PPG

Max. Recorded Temperature 206 F

Max. Wellhead Pressure 1500 PSI

Wellhead Connection 7-1/16" 10K FLANGE

Estimated Cement Top SURFACE

Unit Number P53

Wireline Size 9/32"

Location FT MORGAN, CO

Recorded By SCHUMAN

Witnessed By MR ED MOORE

Size

Wt/Ft

Top

Bottom

Tubing Record  
Surface Casing 9.625"  
Production Casing 5.5"

36#  
20#

SURFACE  
SURFACE

1977'  
13551'

<<< Fold Here >>>

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.  
LOG CORRELATED -2' TO MARKER JOINT AT 5081'-5103'.  
NO FREE PIPE OUTSIDE OF SURF CASING TO RUN FREE PIPE PASS.  
CUSTOMER SPECIFIC LOG FORMAT PRESENTATION REQUIRED.

**THANK YOU FOR USING PIONEER ENERGY SERVICES!**

**Your Pioneer Energy Services Crew**

Engineer: SCHUMAN  
Operator: BURNS  
Operator: BRIGANTE  
Operator:

**Tool Data - Services**

SCBL  
GR

**Serial Number**

141166  
111211

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL
TEMP	in 8.5	degF 200	in 5.5	in 0	lb/ft 20	mV 71.9
MINAMPL	MINATTN	PERFS	PPT	SRFTEMP	TDEPTH	
mV 2.2	db/ft 0.08	0	usec 0	degF 0	ft 0	

Variable Description

BHTEMP\_Src : BHTEMP Input Source Selector

BOREID : Borehole I.D.

BOTTEMP : Bottom Hole Temperature

CASEOD : Casing O.D.

CASETHCK : Casing Thickness

CASEWGHT : Casing Weight

MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude

MINATTN : Minimum Attenuation

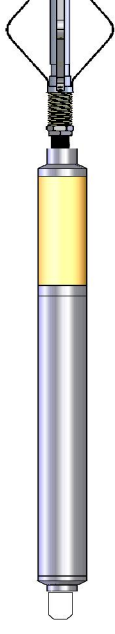
PERFS : Perforation Flag


PPT : Predicted Pipe Time

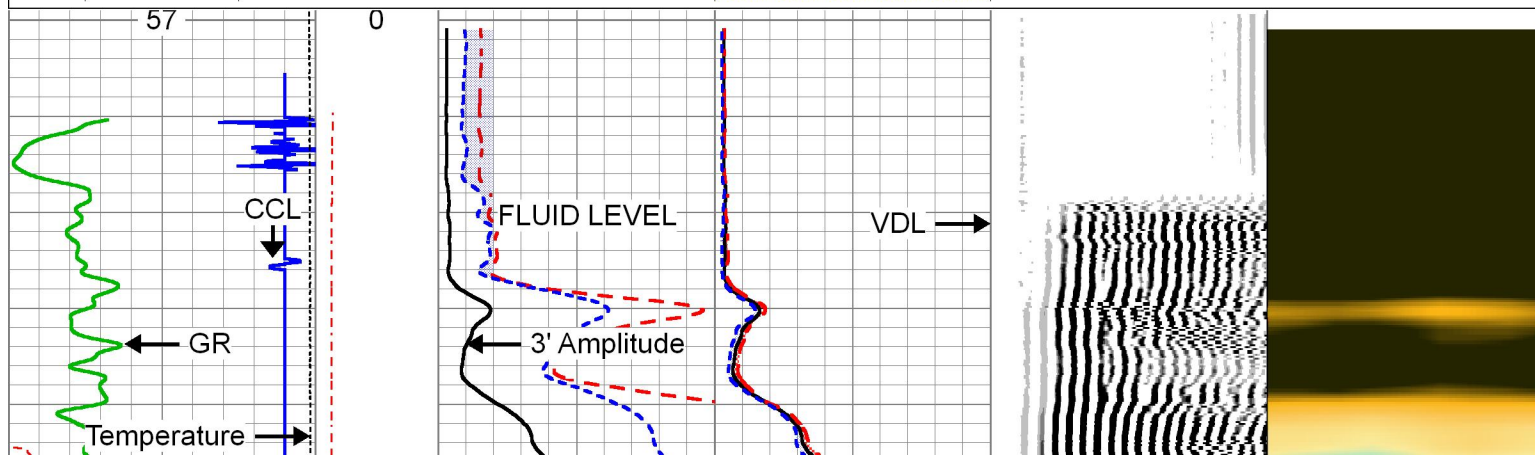
SRFTEMP : Surface Temperature

TDEPTH : Total Depth

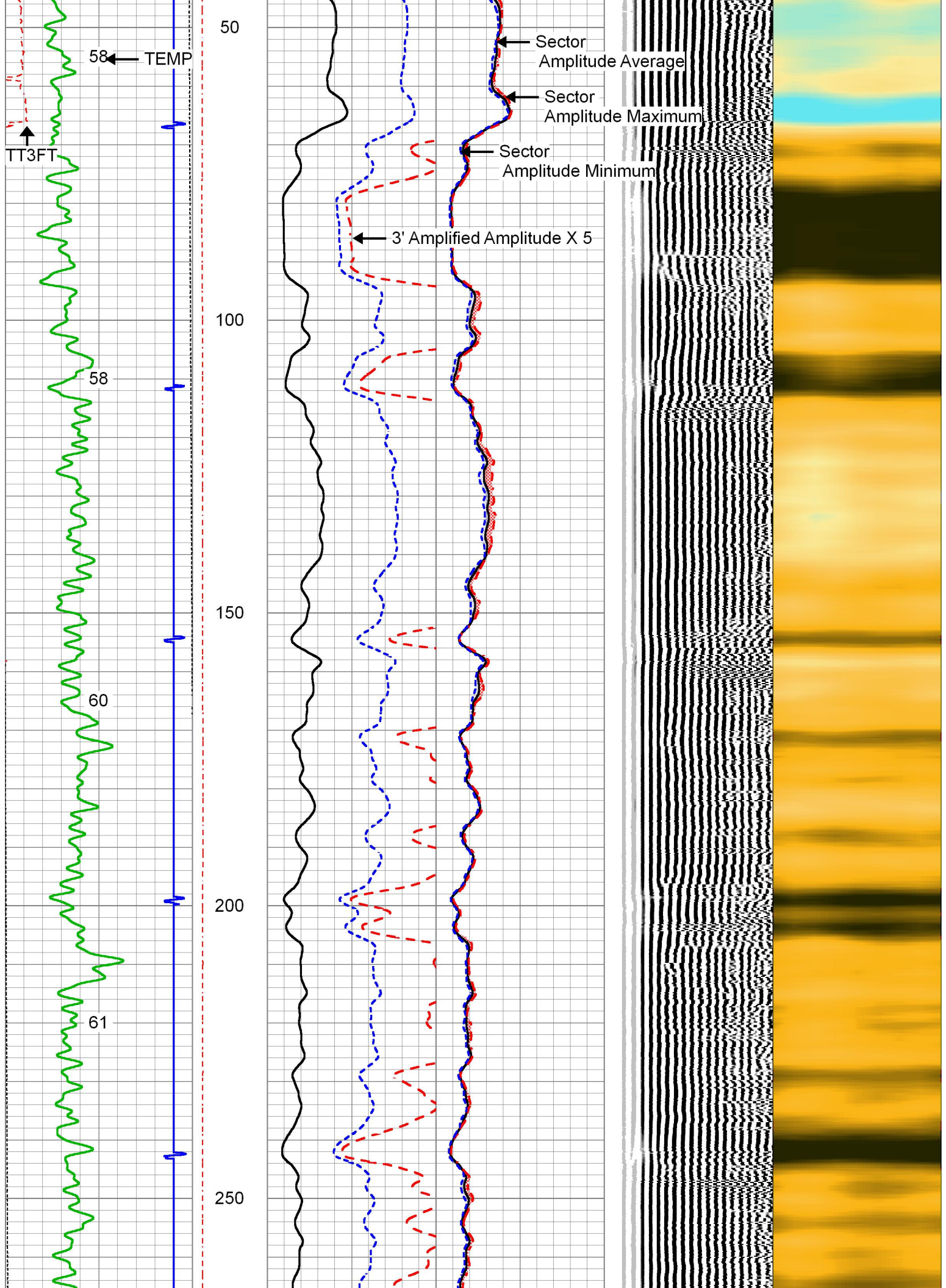
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	13.46		Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
			SCBL-275 Probe w Temp New Mod (14119.17) Probe Radii Bond Tool with Temperature	119.17	2.75	95.00
WVFS8	11.23					
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					
HEADVOLT	6.98					

CCL	3.91		Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
			GR_CCL-275 Probe GR-CCL Corrosion (F4.54108-1C2.75) Probe 2 3/4" Gamma Ray / CCL Corrosion Digital			60.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00
GR	1.17					
Dataset: horsetail federal 07f-0640_rbl.db: field/well/RBL/pass3 Total length: 19.34 ft Total weight: 202.00 lb O.D.: 2.88 in						

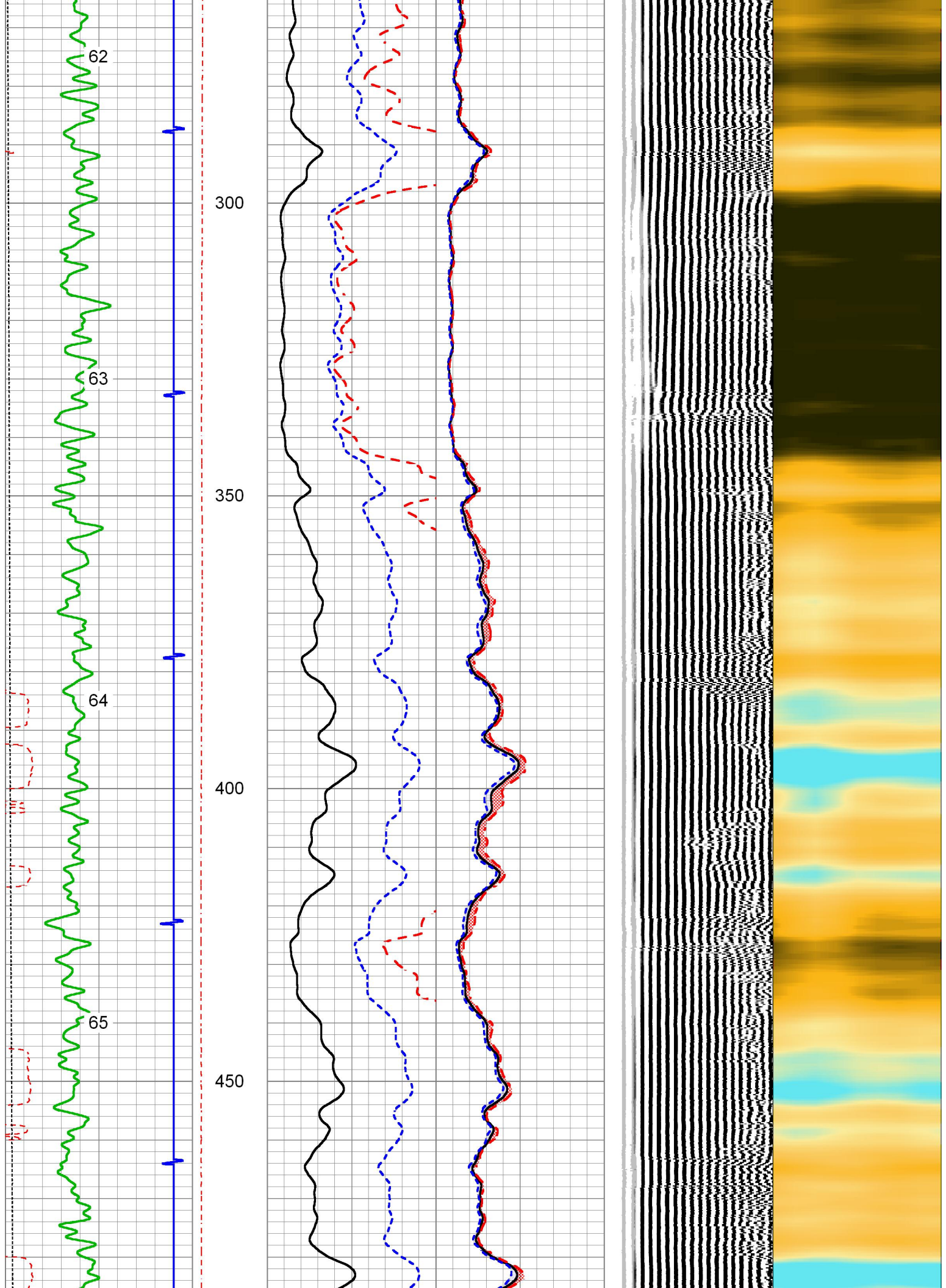
		<h1>MAIN LOG</h1> <h2>1500 PSI APPLIED AT SURFACE</h2>				
Database File	horsetail federal 07f-0640_rbl.db					
Dataset Pathname	RBL/pass3					
Presentation Format	pinr_scbl					
Dataset Creation	Tue May 10 14:17:50 2016					
Charted by	Depth in Feet scaled 1:240					
3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200
280 (usec)	0 (2000)	0 100	-5 150	1	Sector Map	8
-9 Collar Locator 1		3' Amplified Amplitude X 5				
Gamma Ray		0 (mV) 20	Sector Amplitude Maximum			
0 (GAPI) 150		1 Bond Index 0	-5 150			
60 TEMP (degF) 210			Sector Amplitude Minimum			
TEMP (degF)			-5 150			

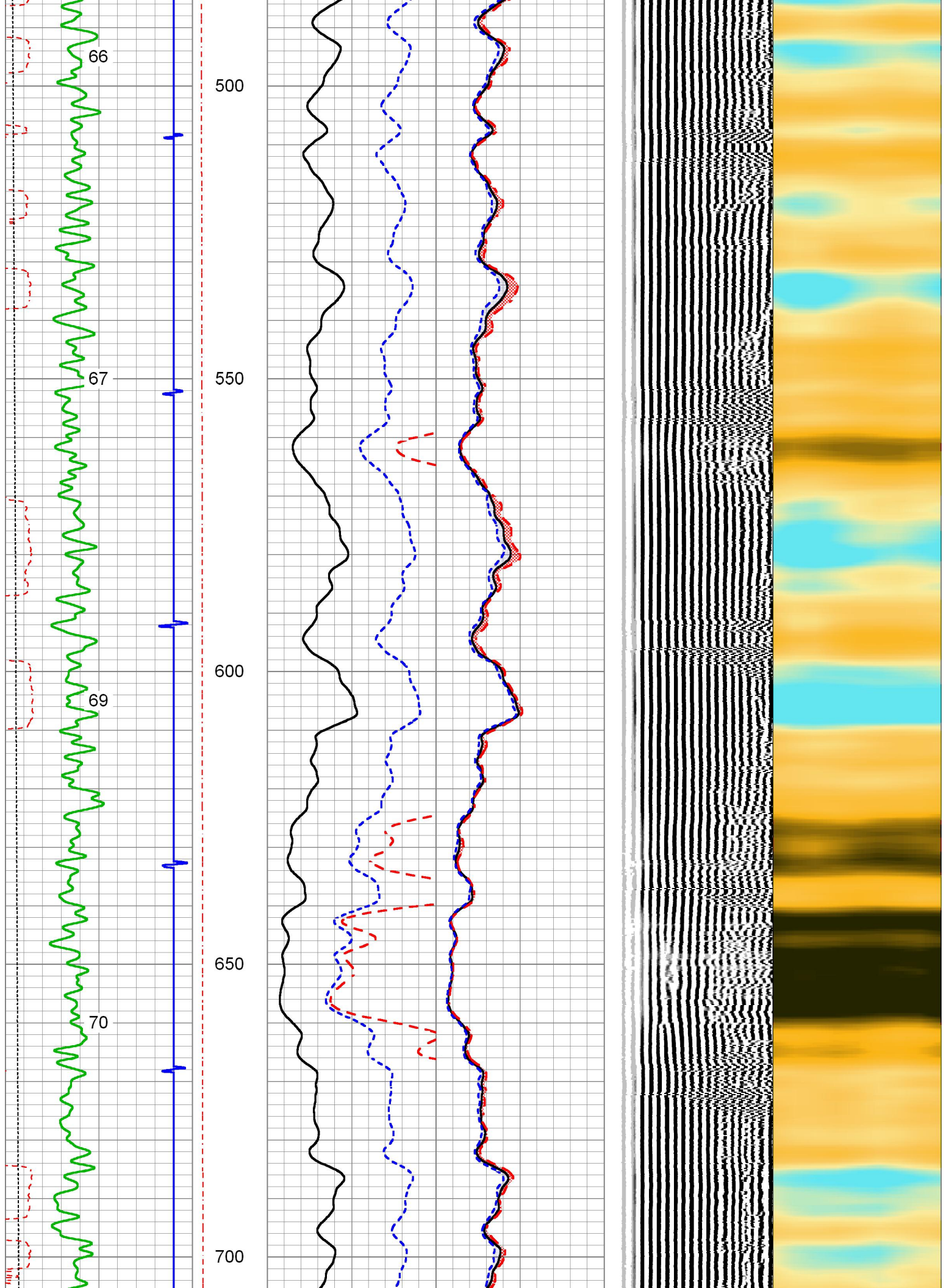




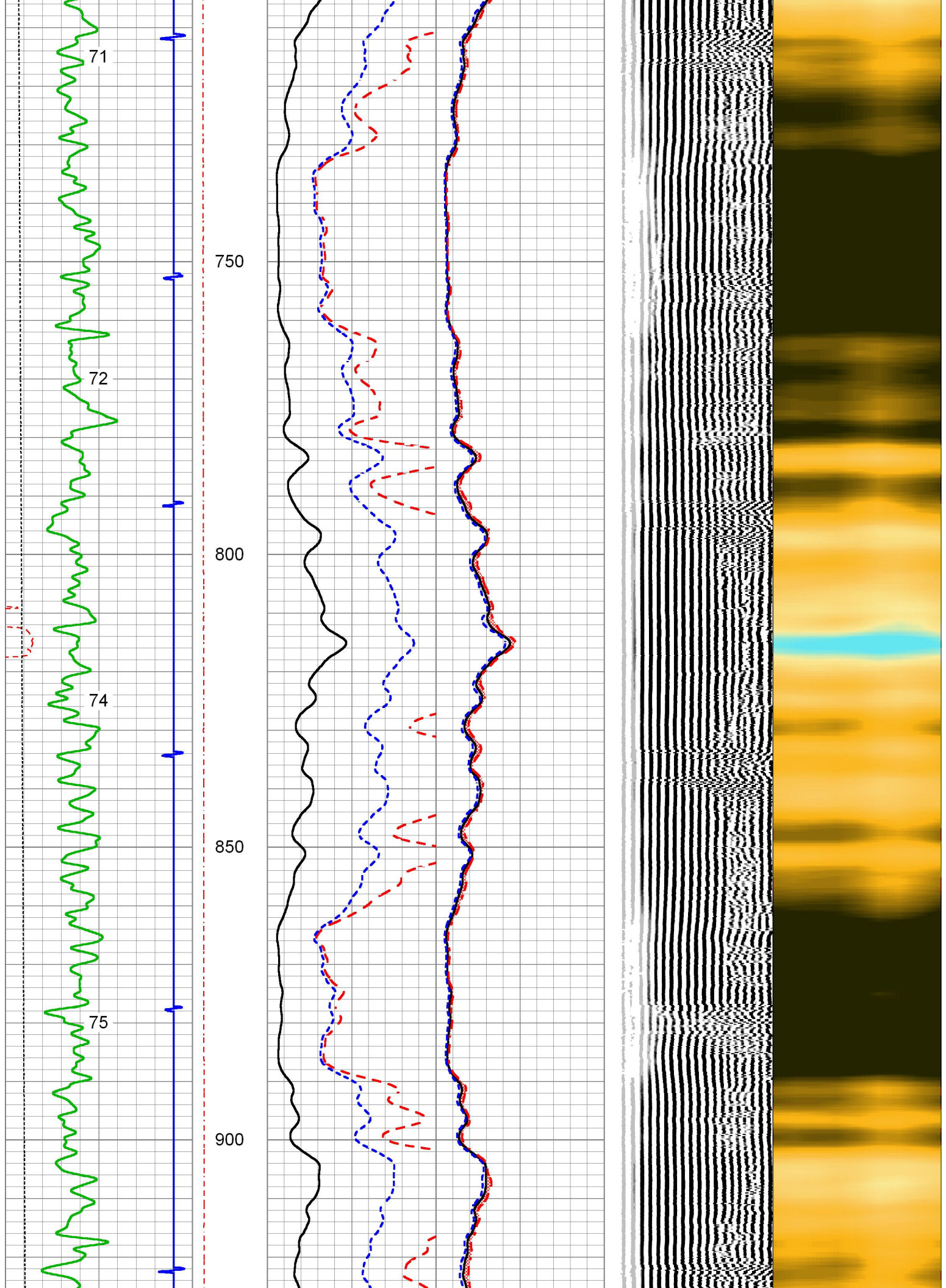




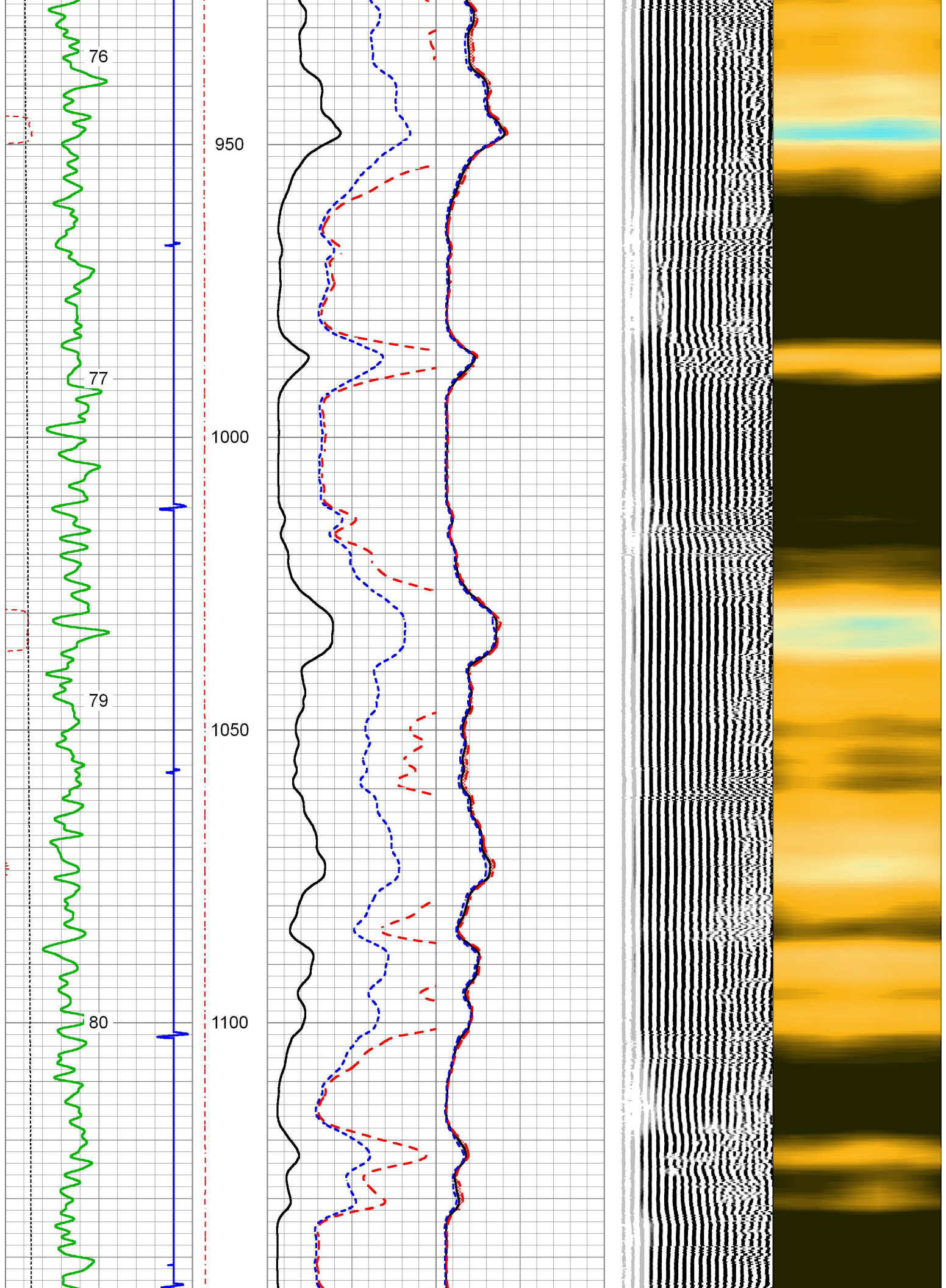


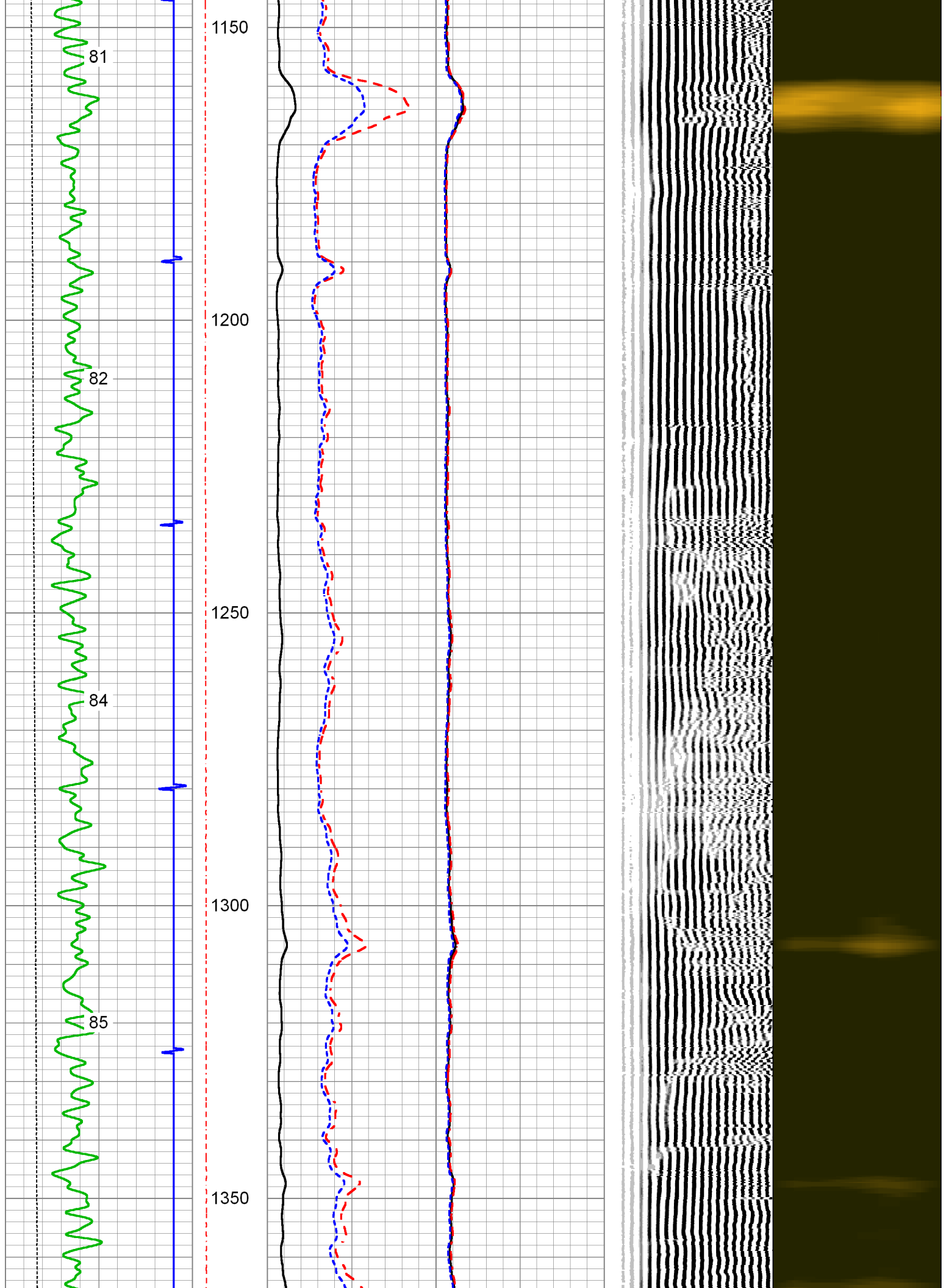


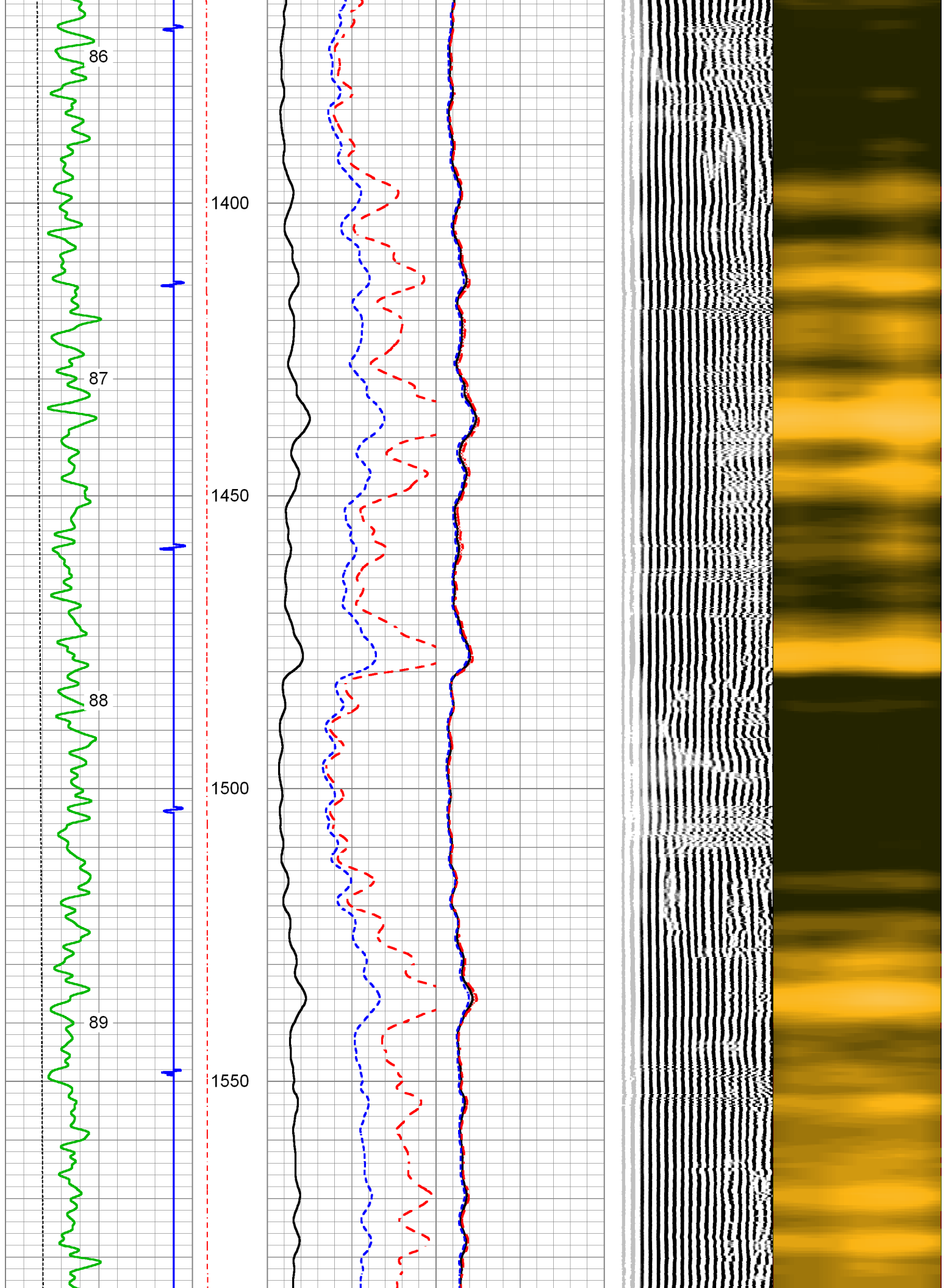




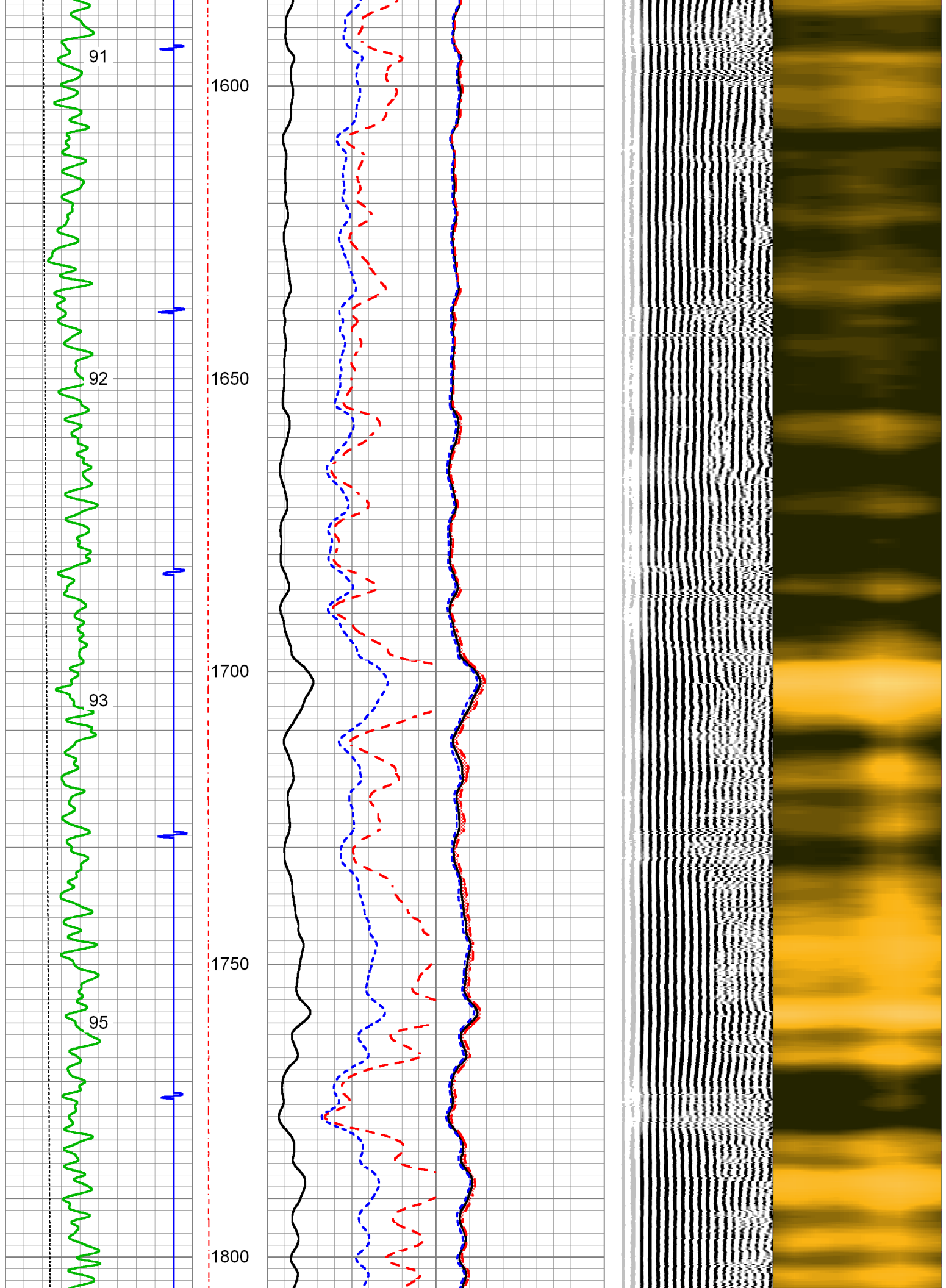


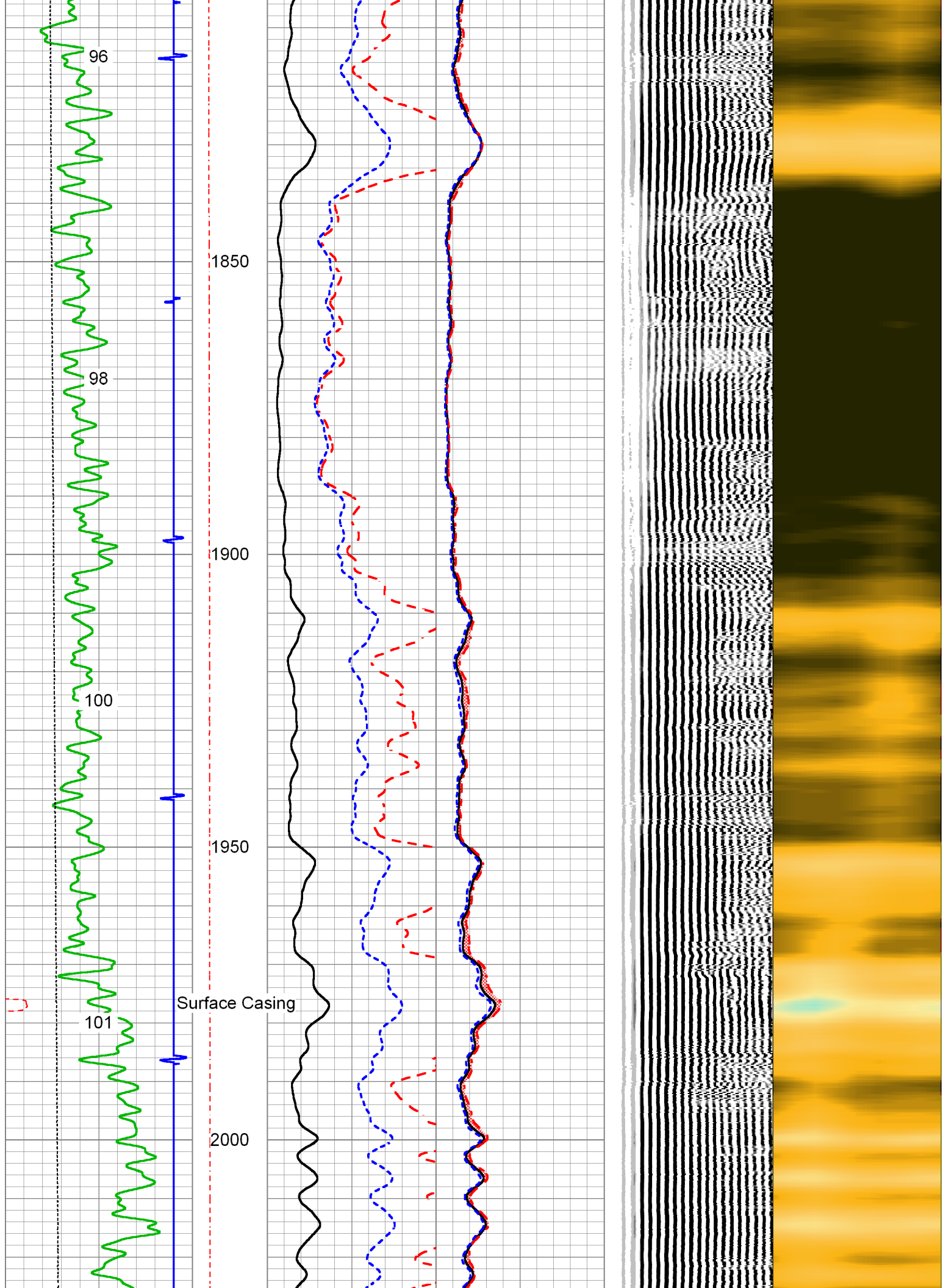


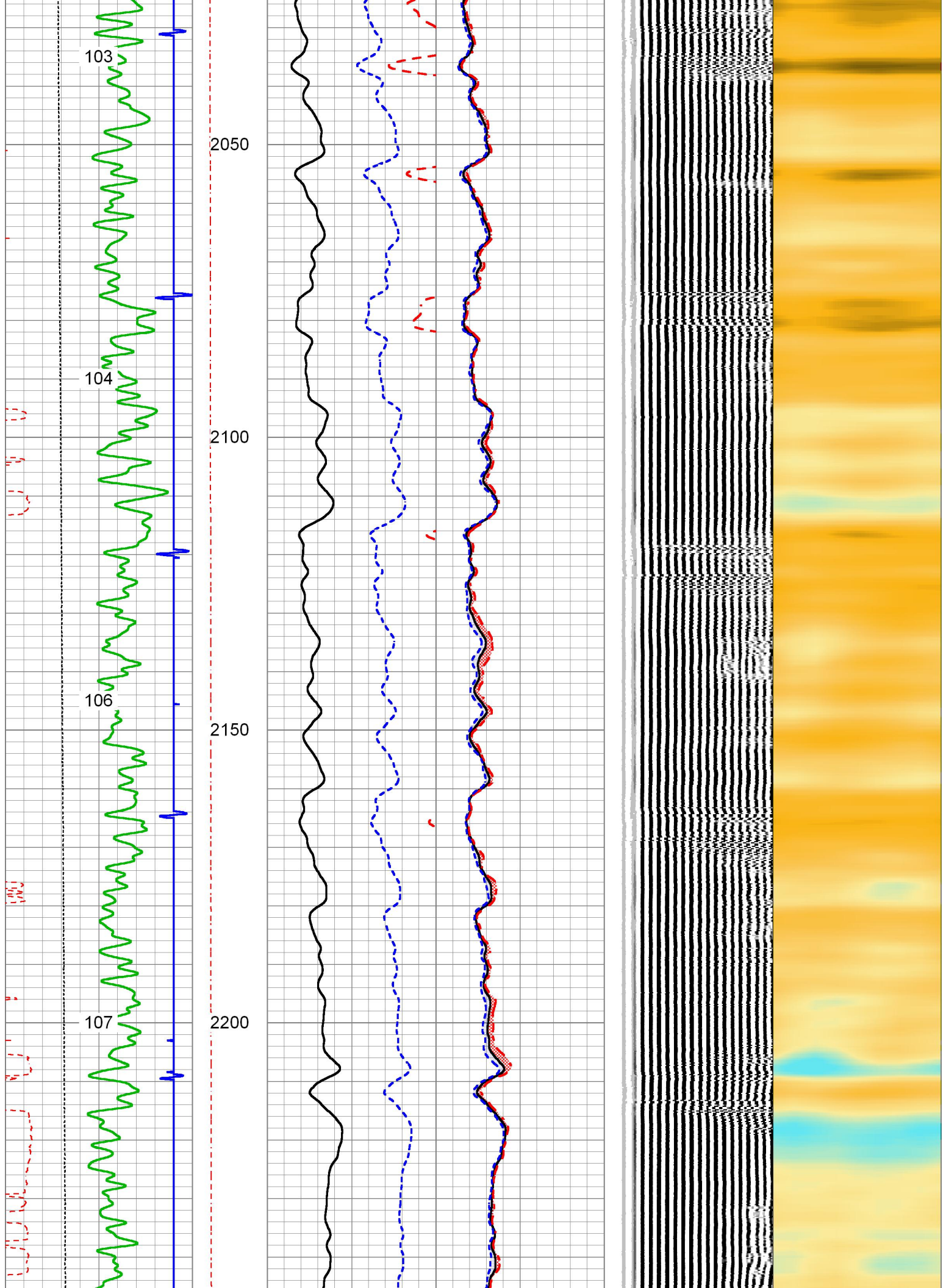




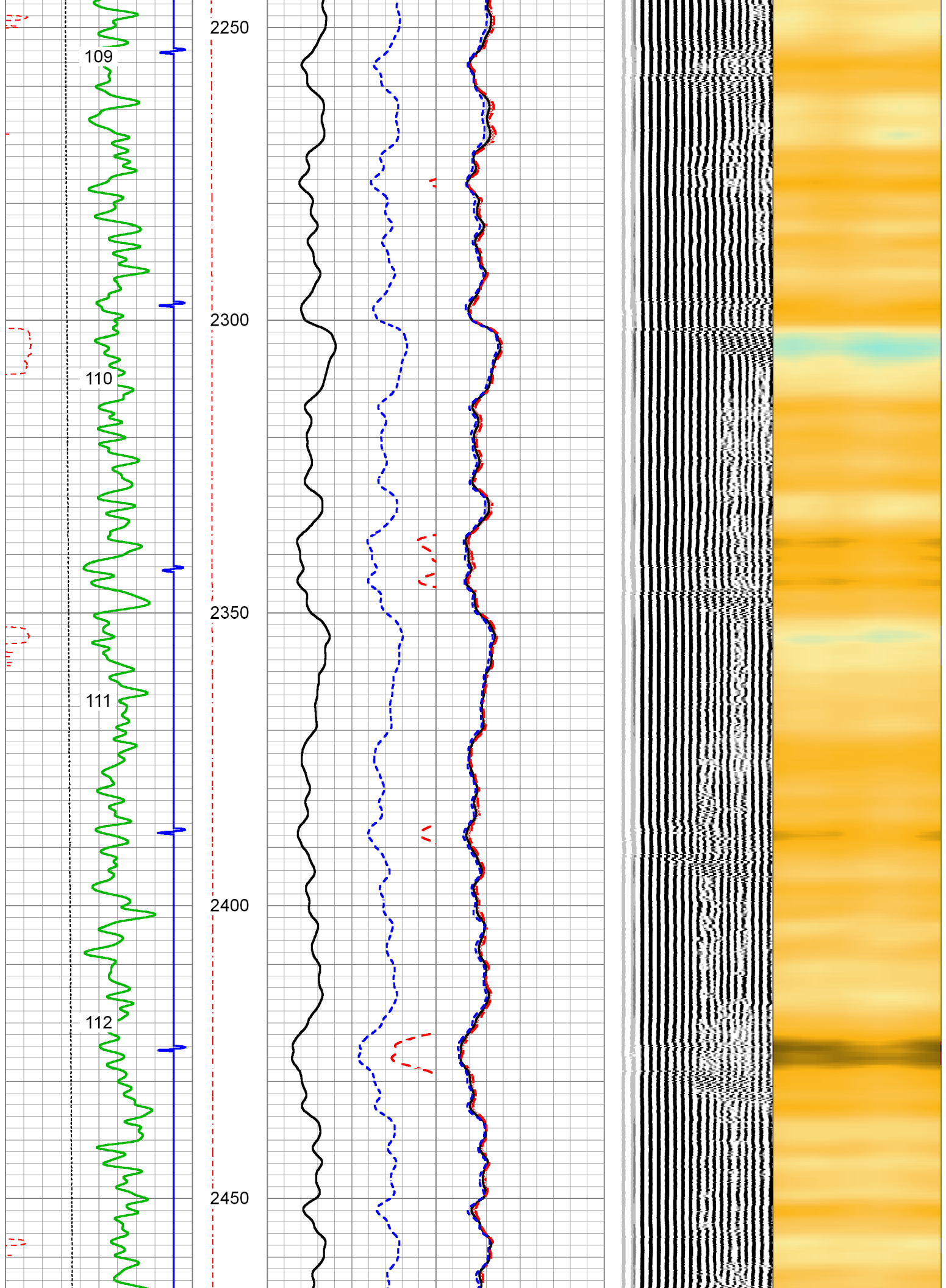


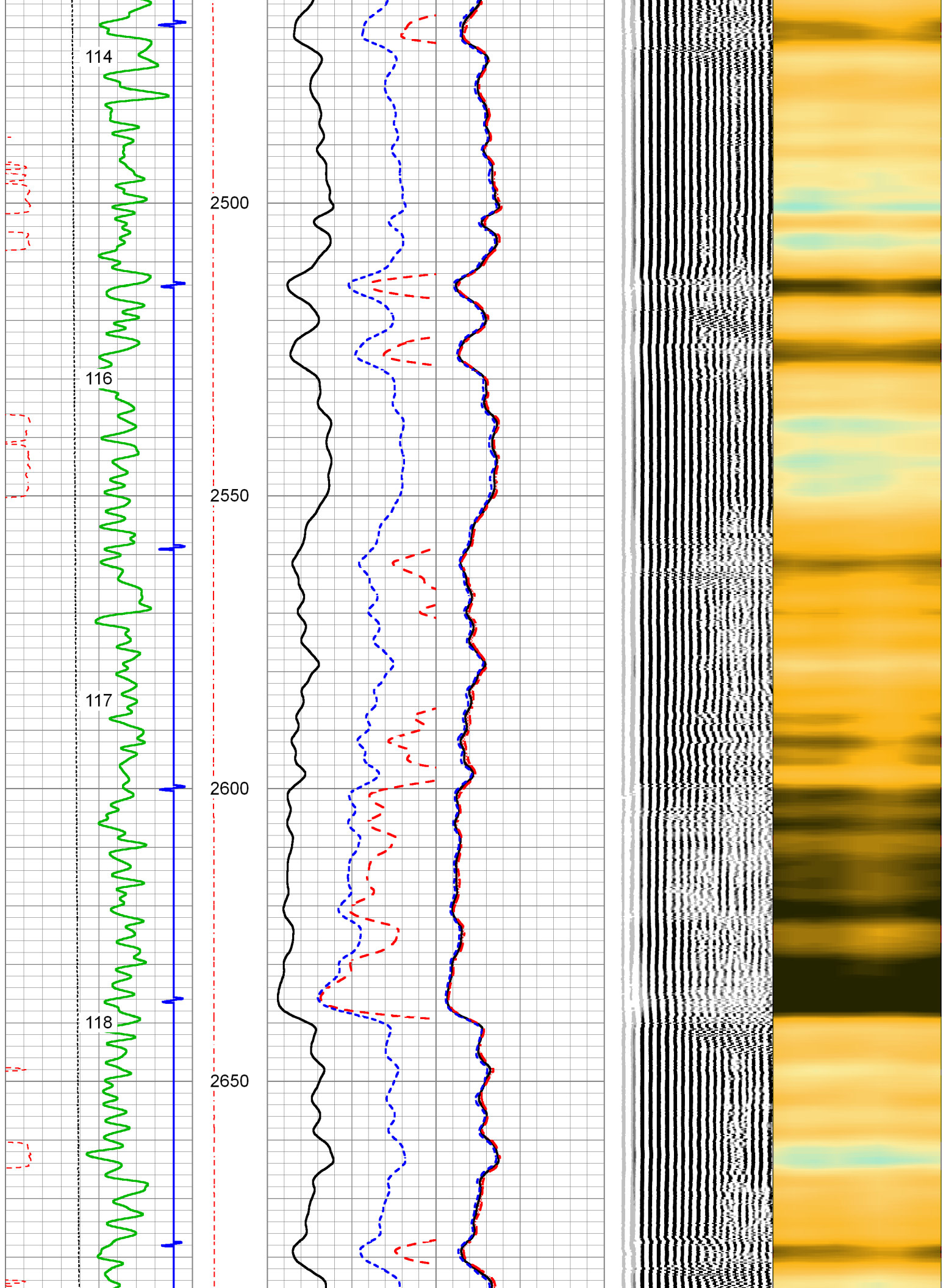


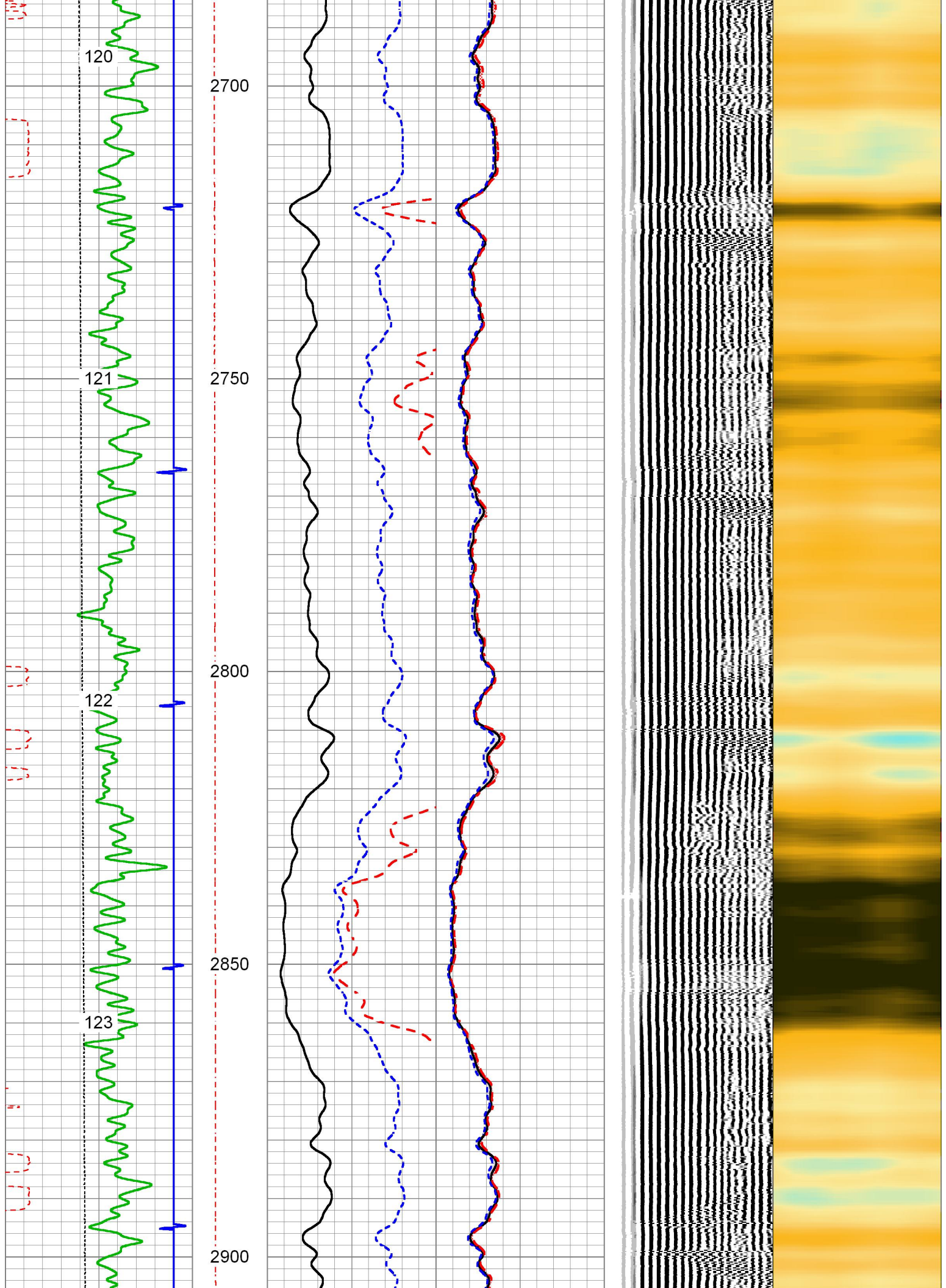




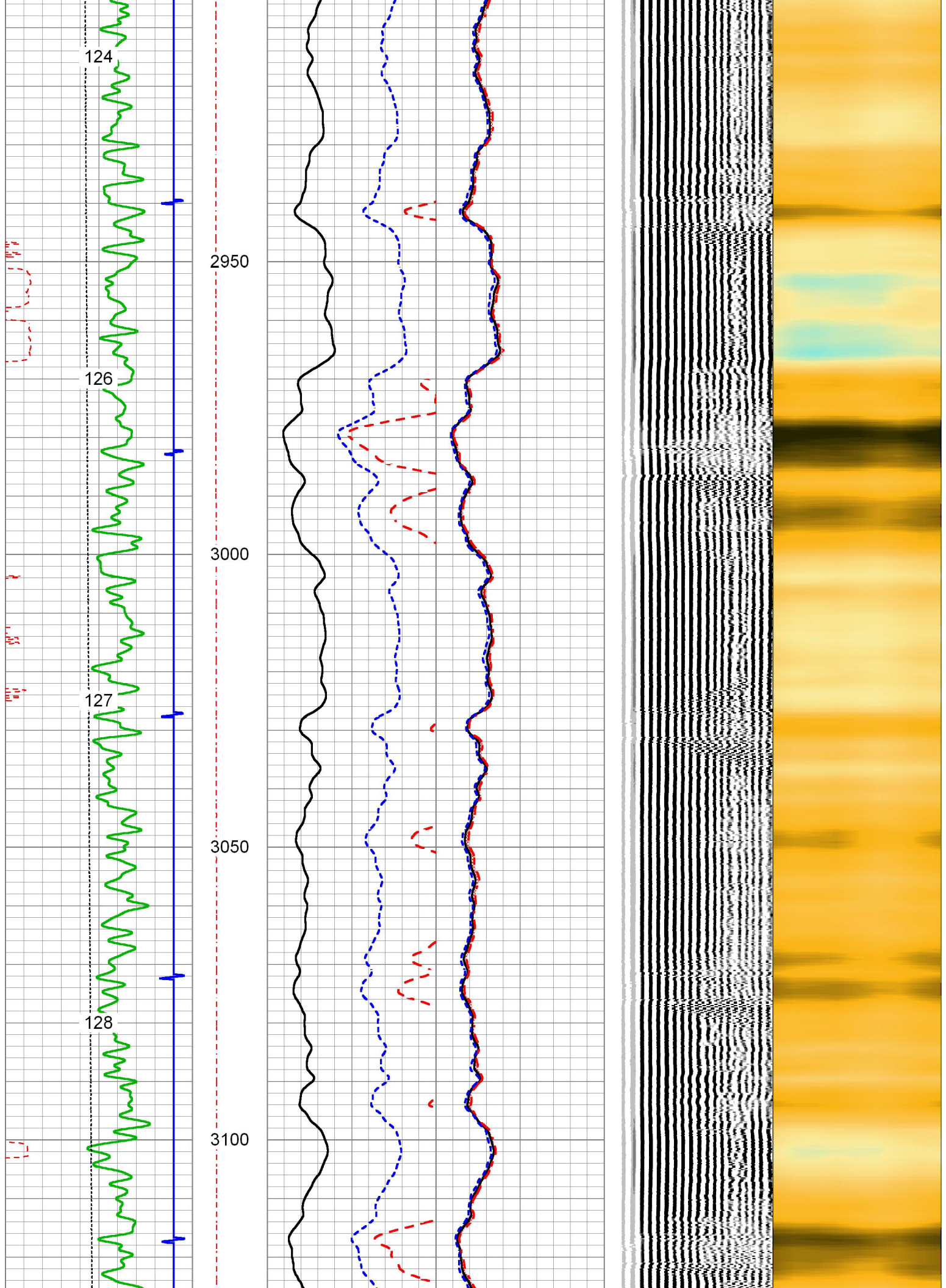


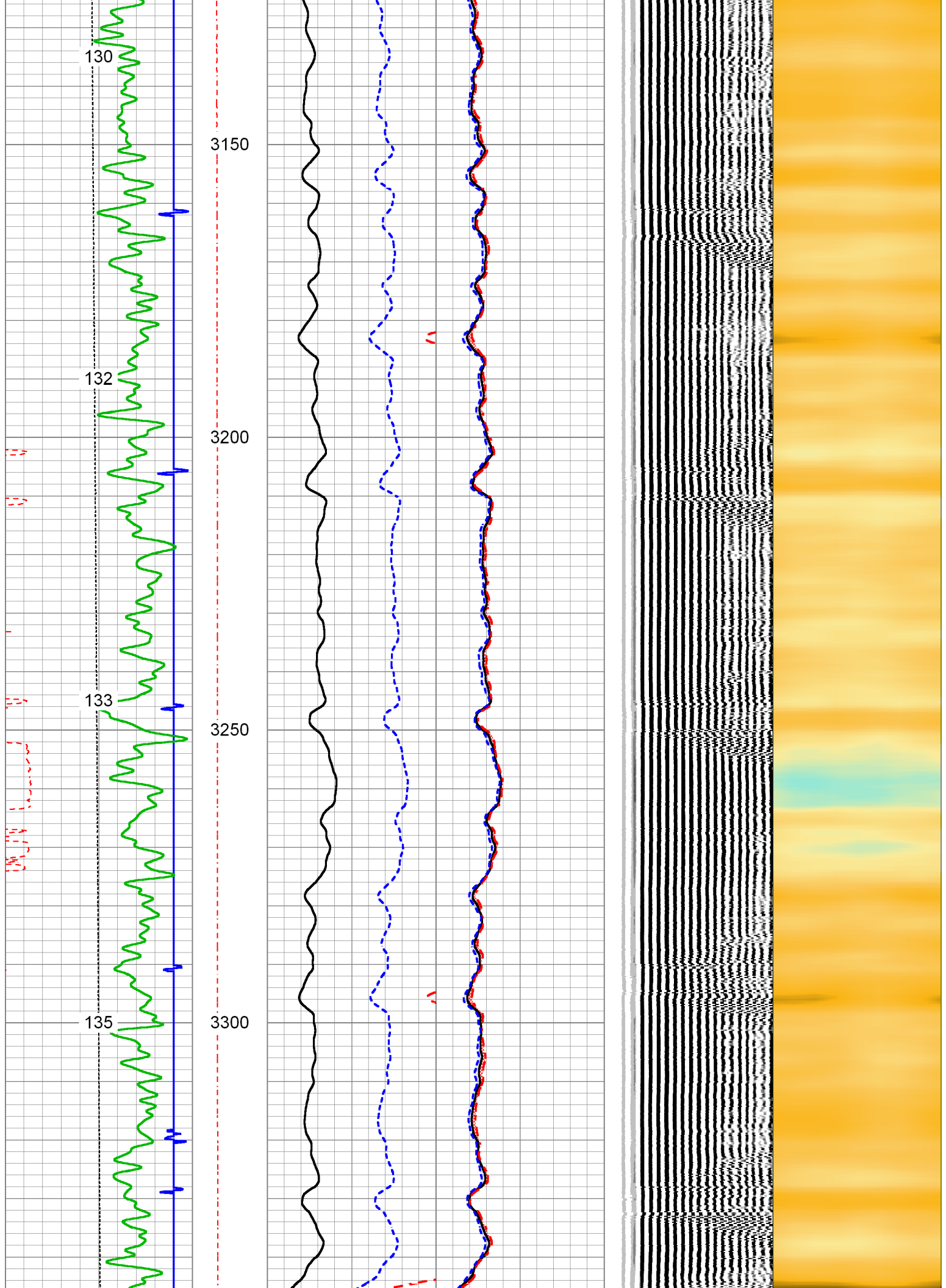


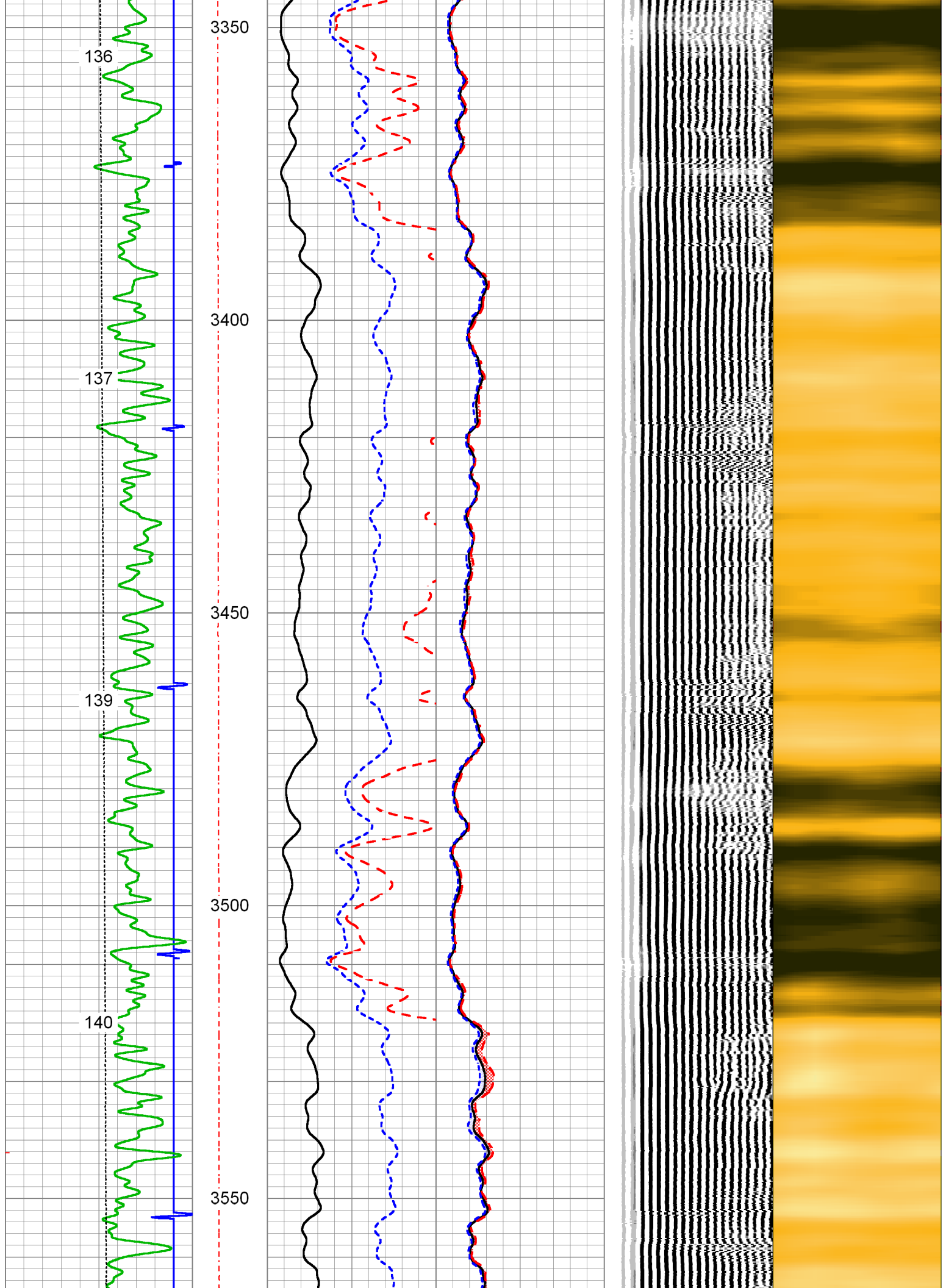




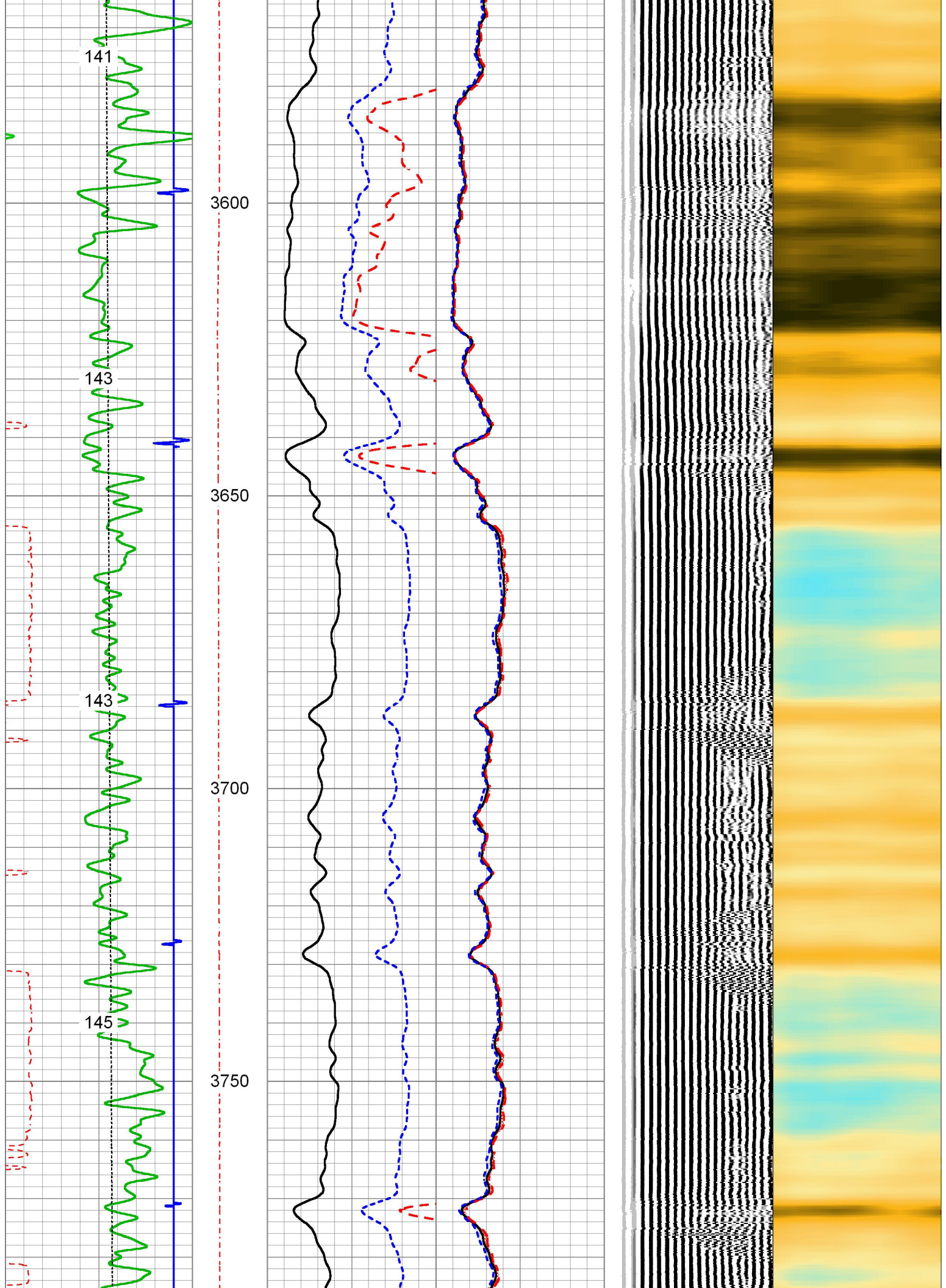


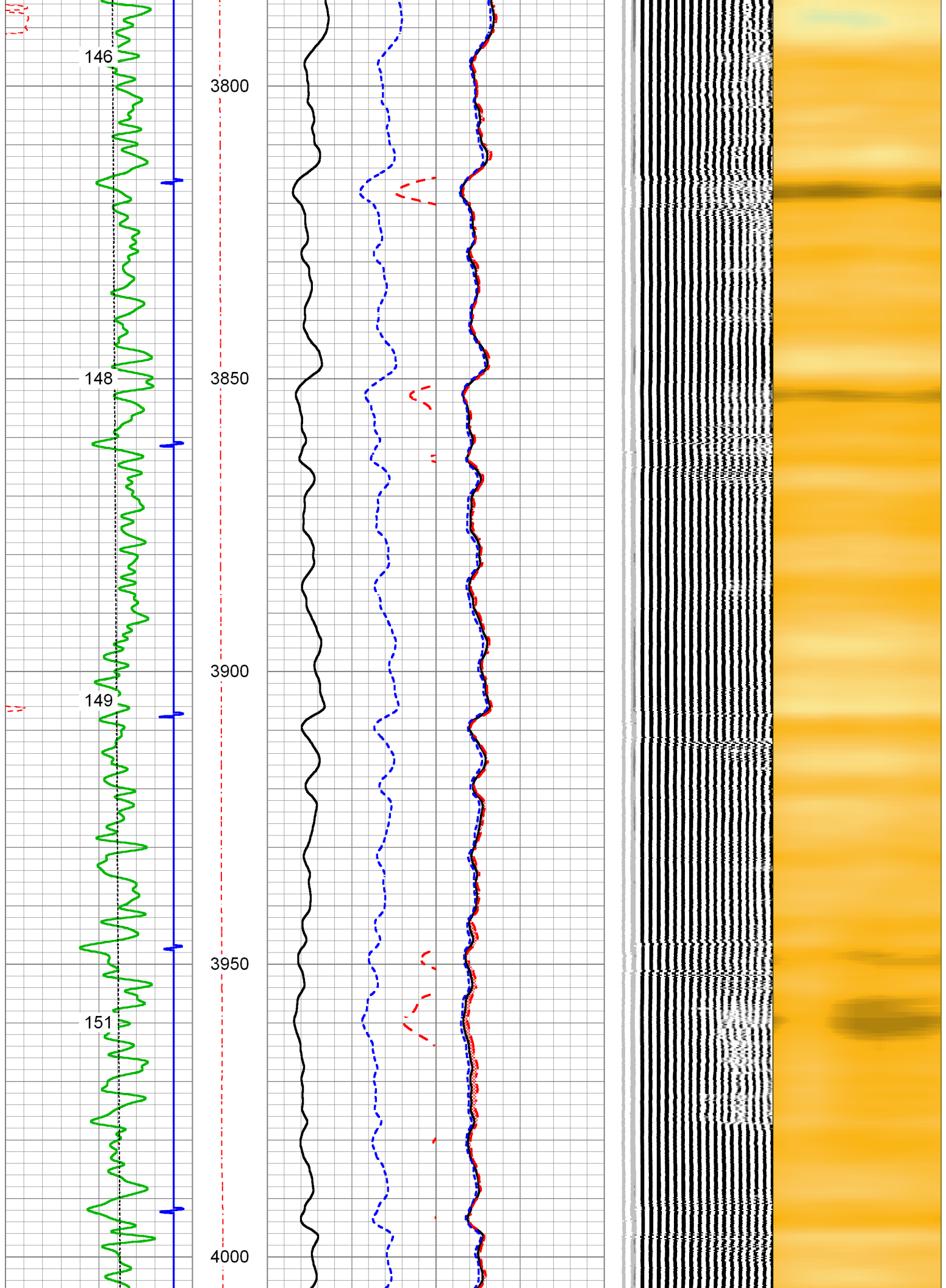


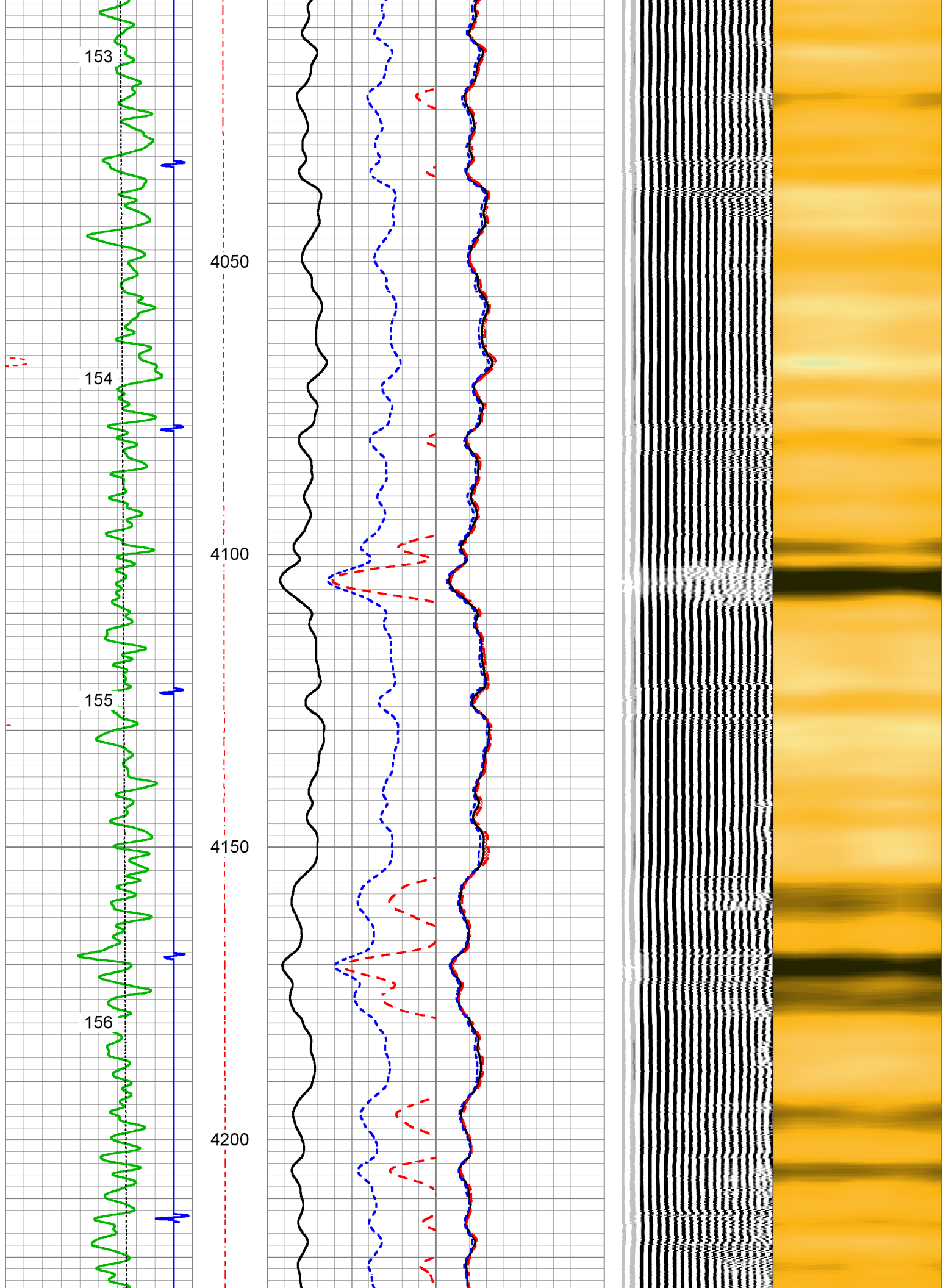




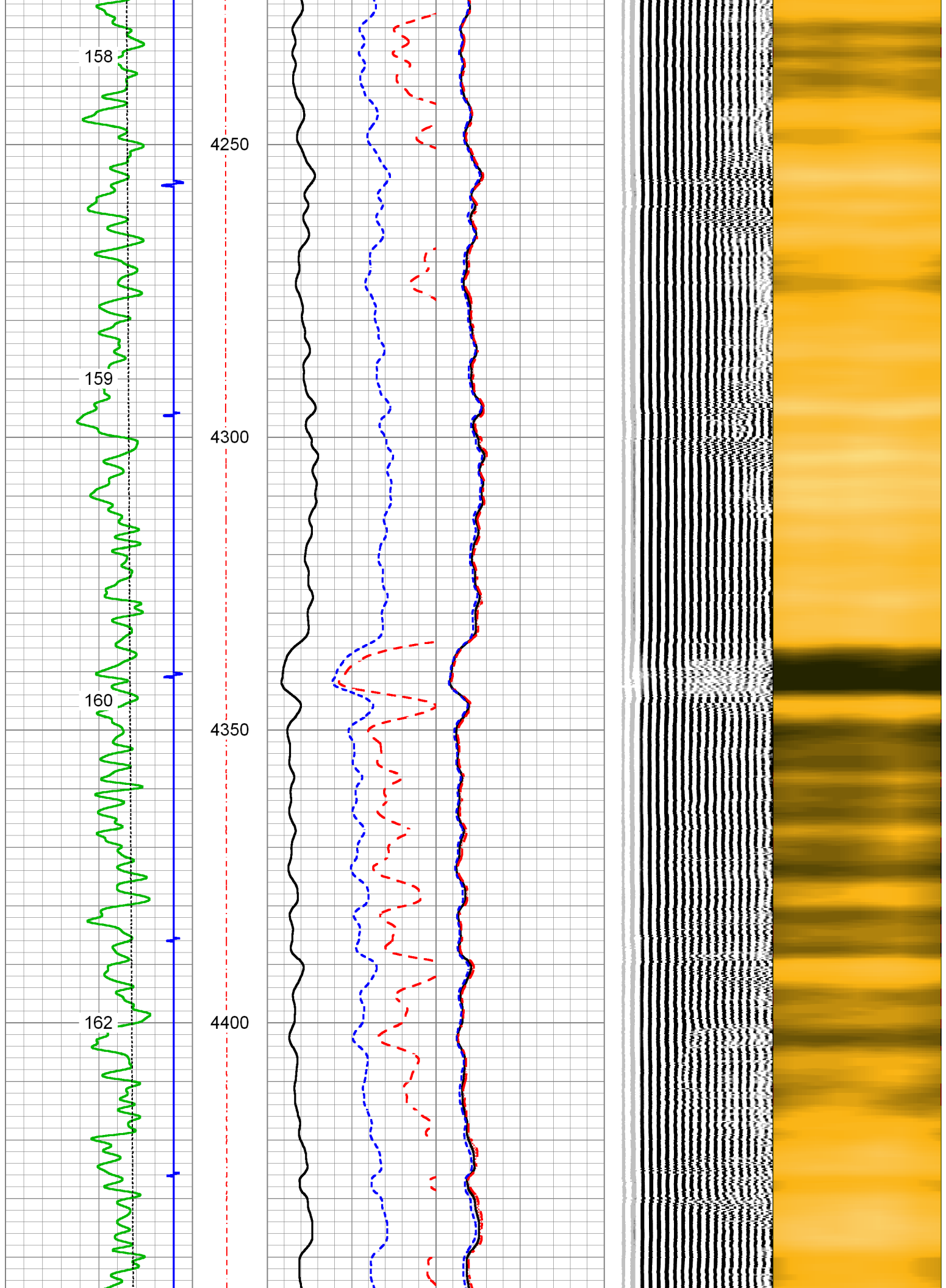


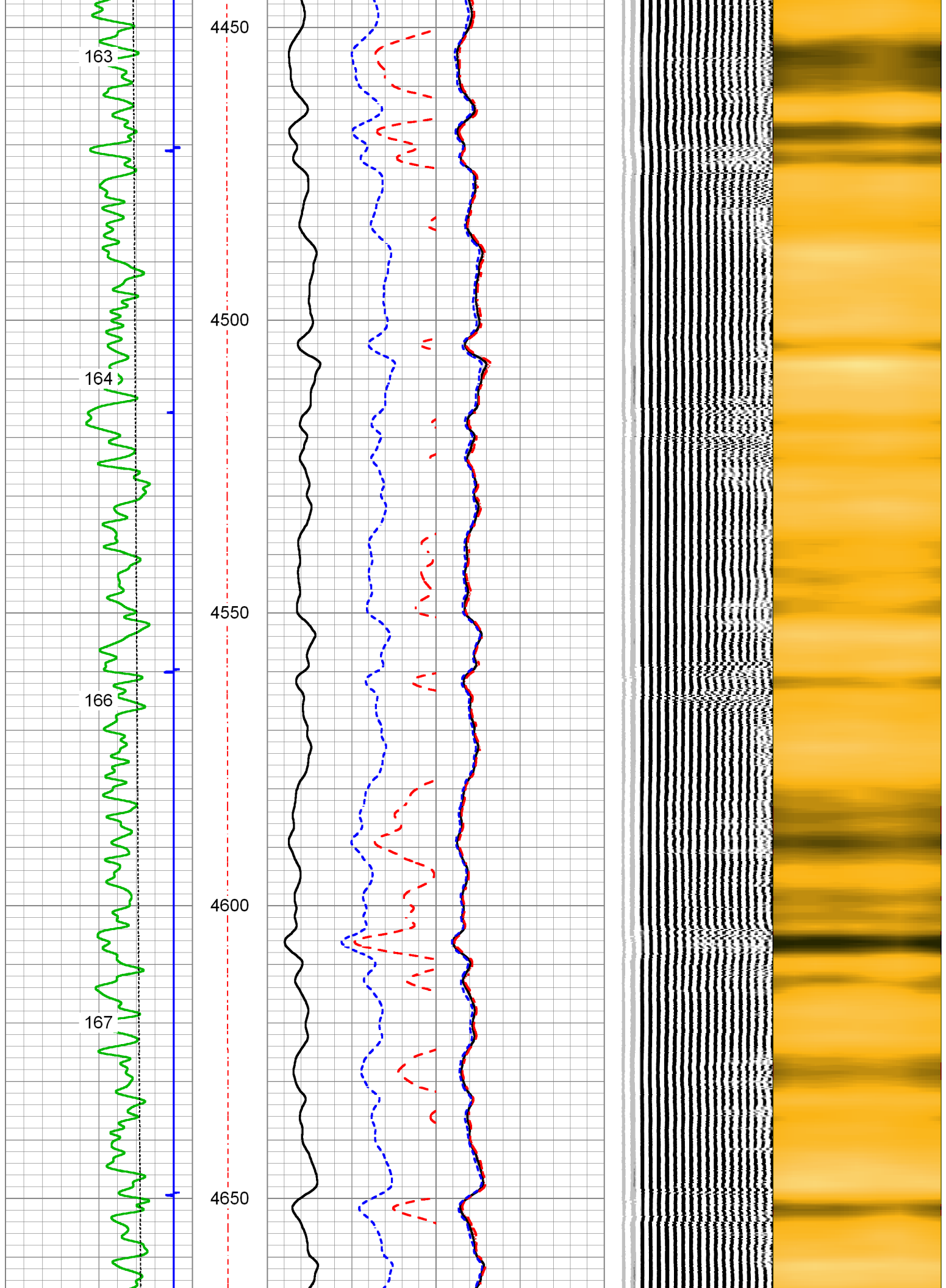


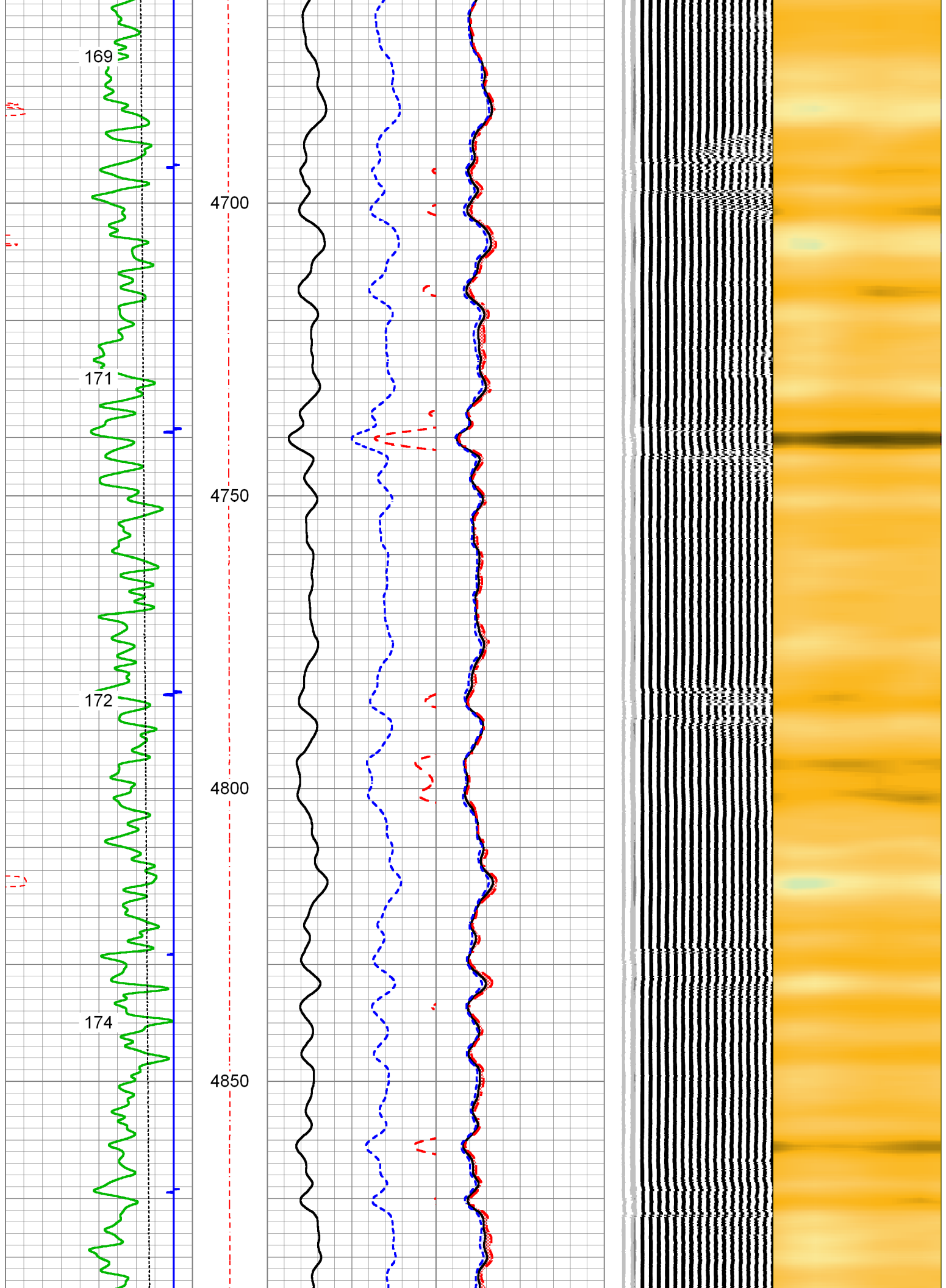




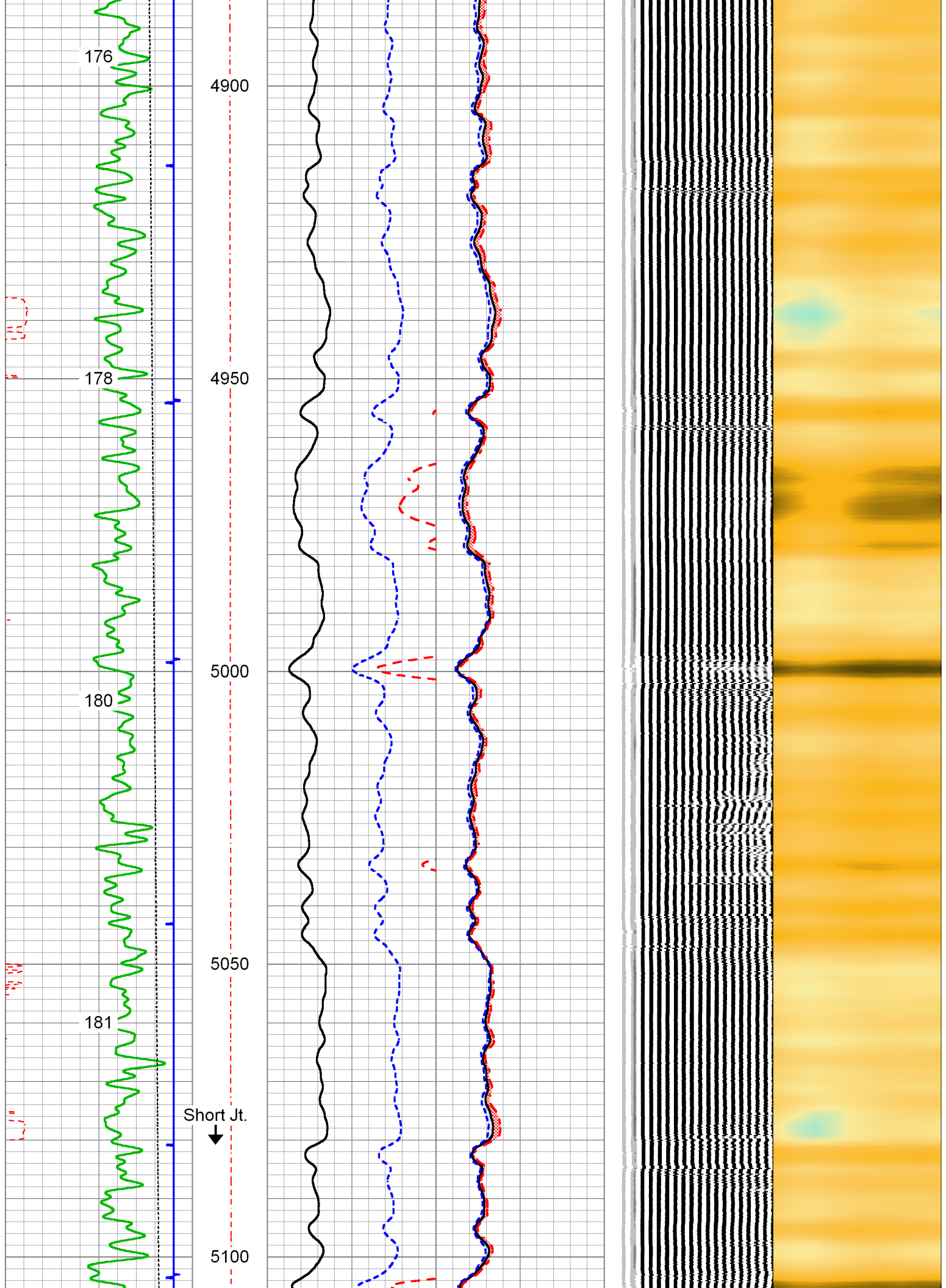


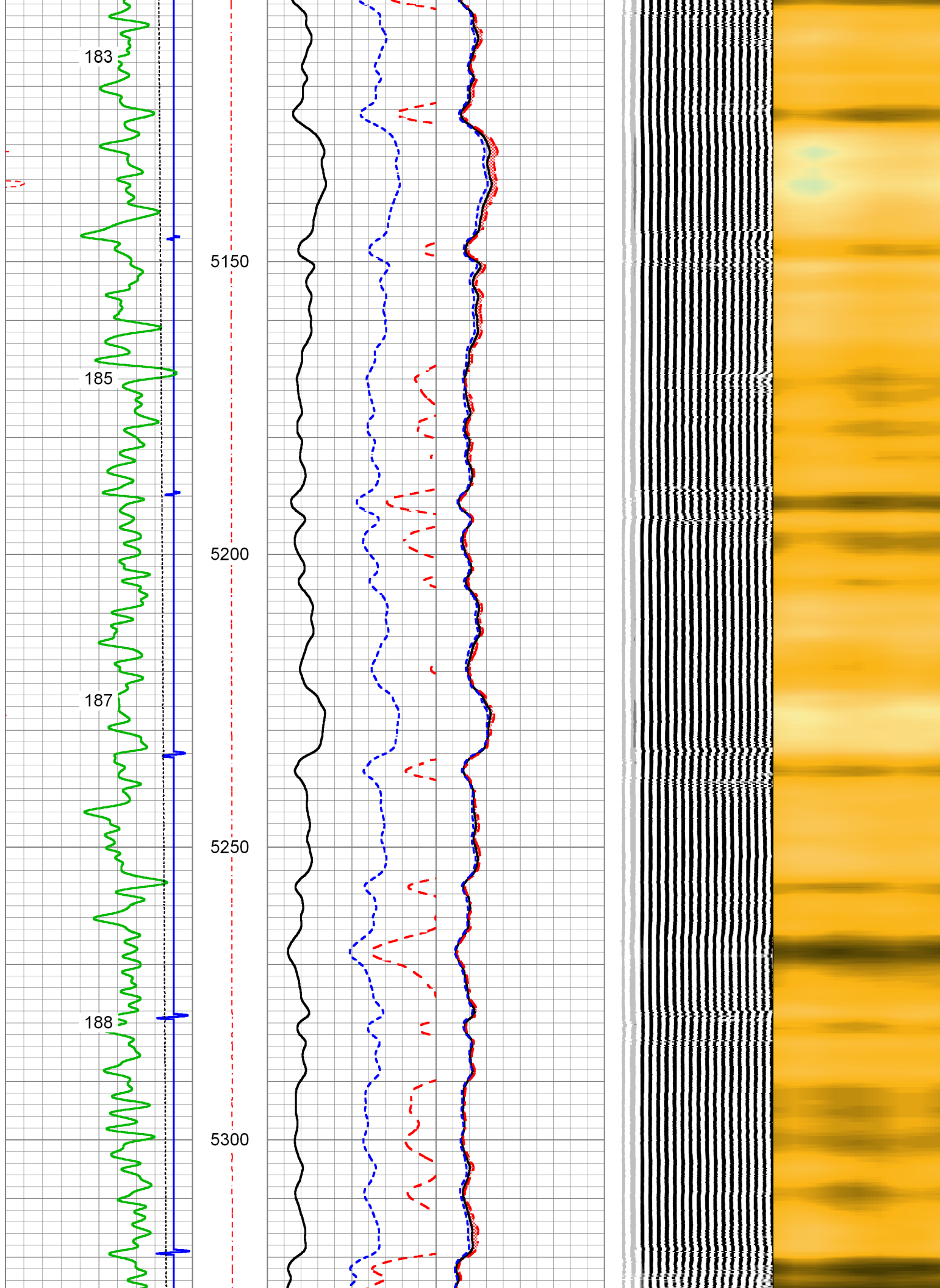












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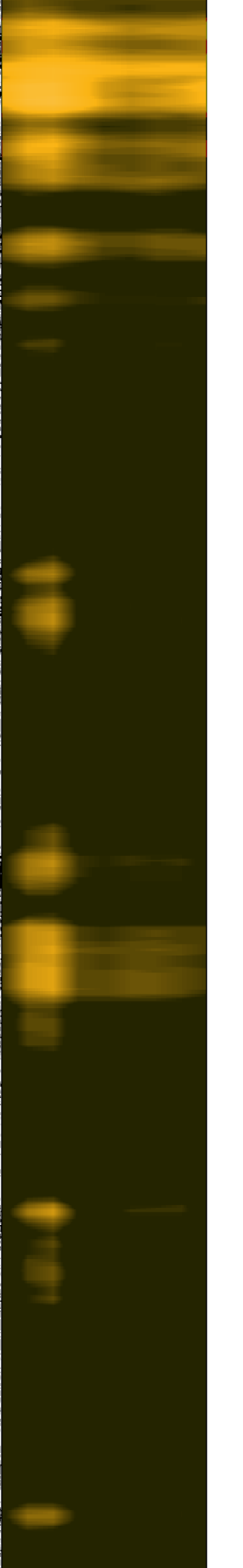
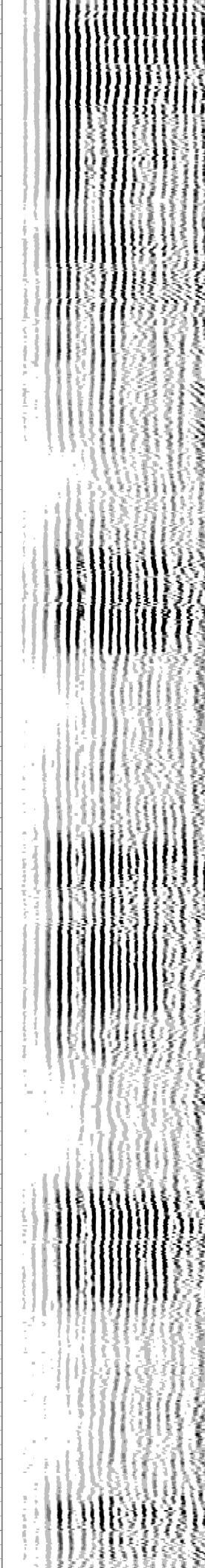
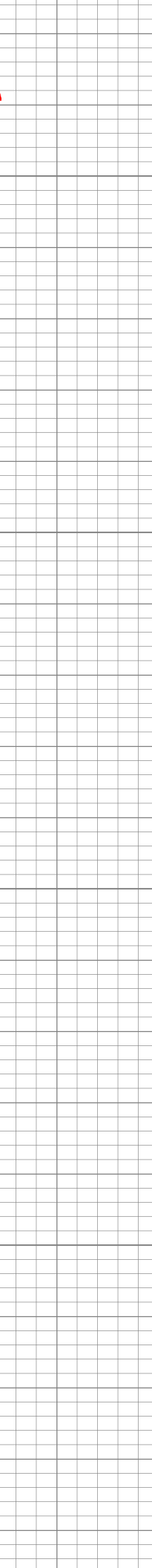
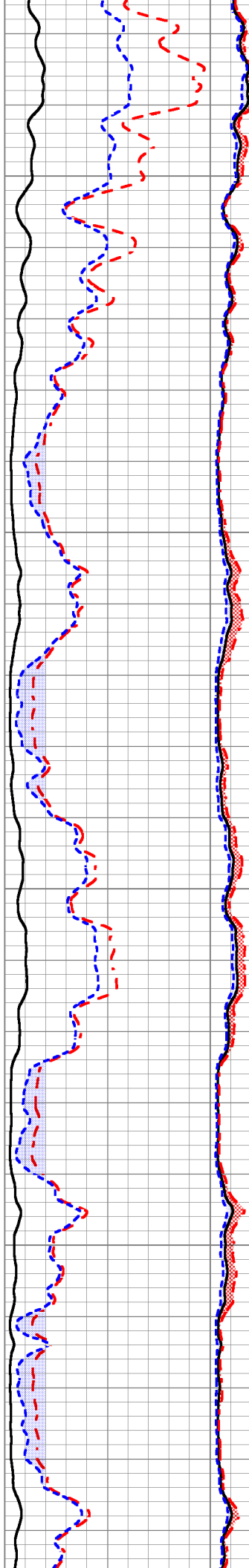
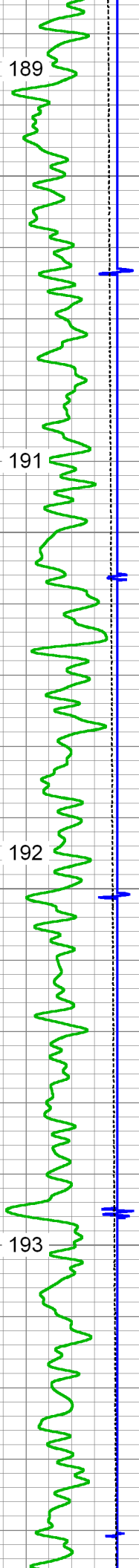
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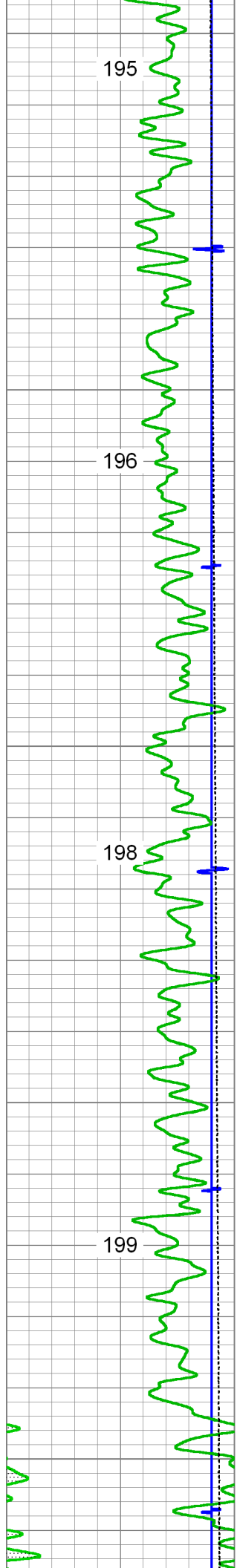
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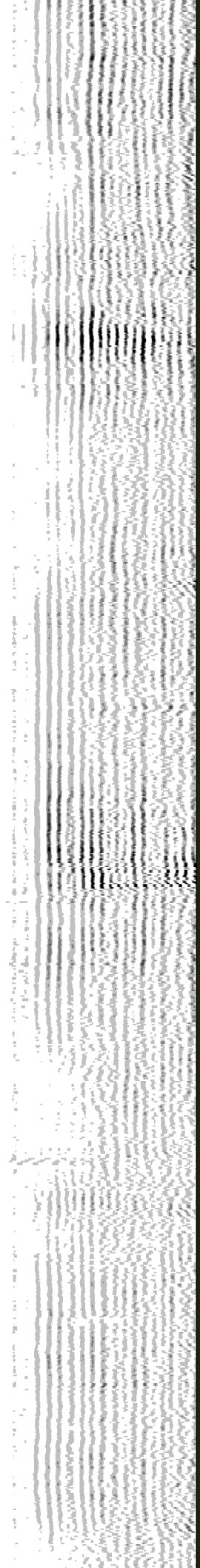
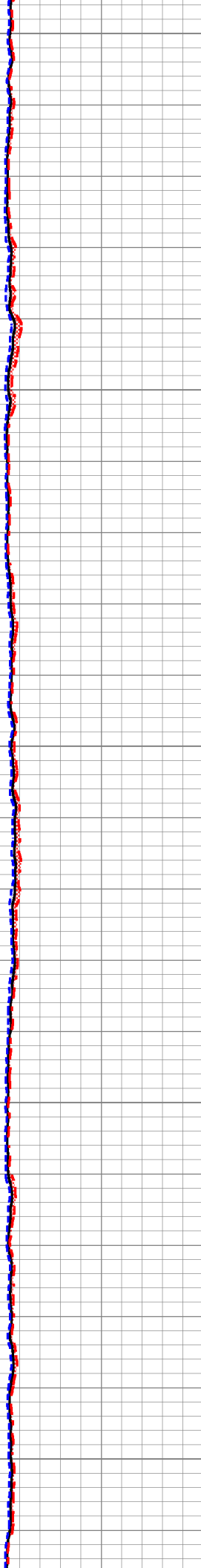
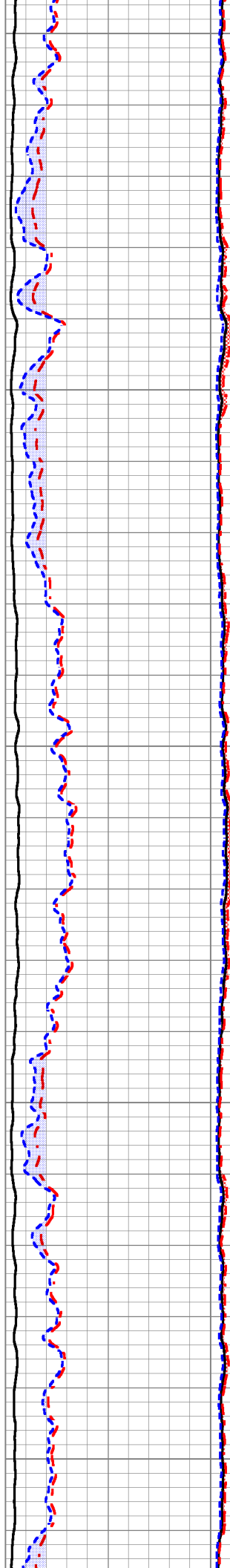
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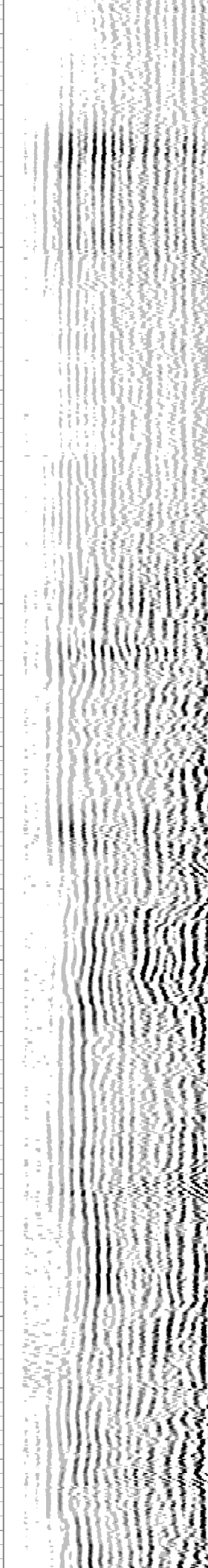
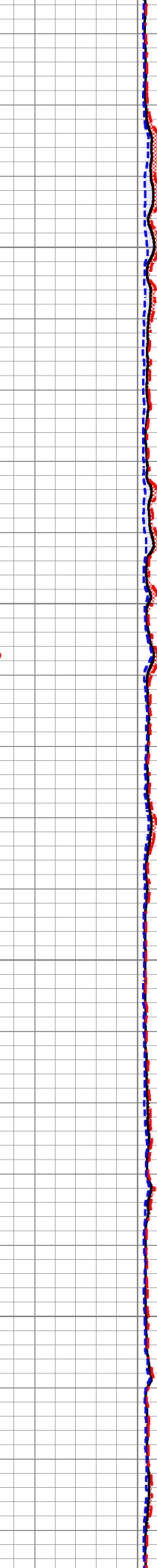
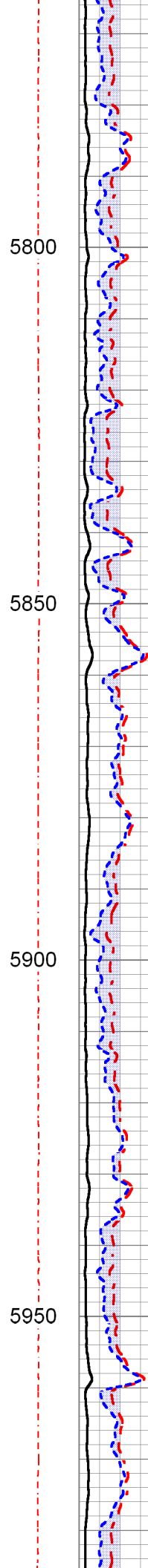
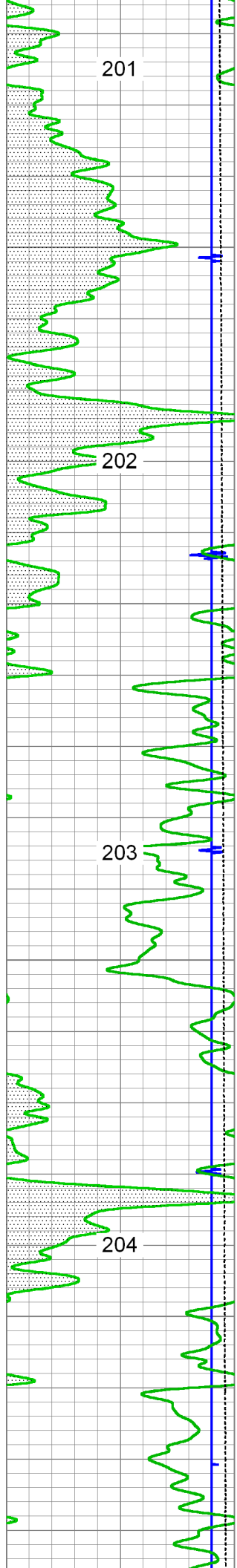


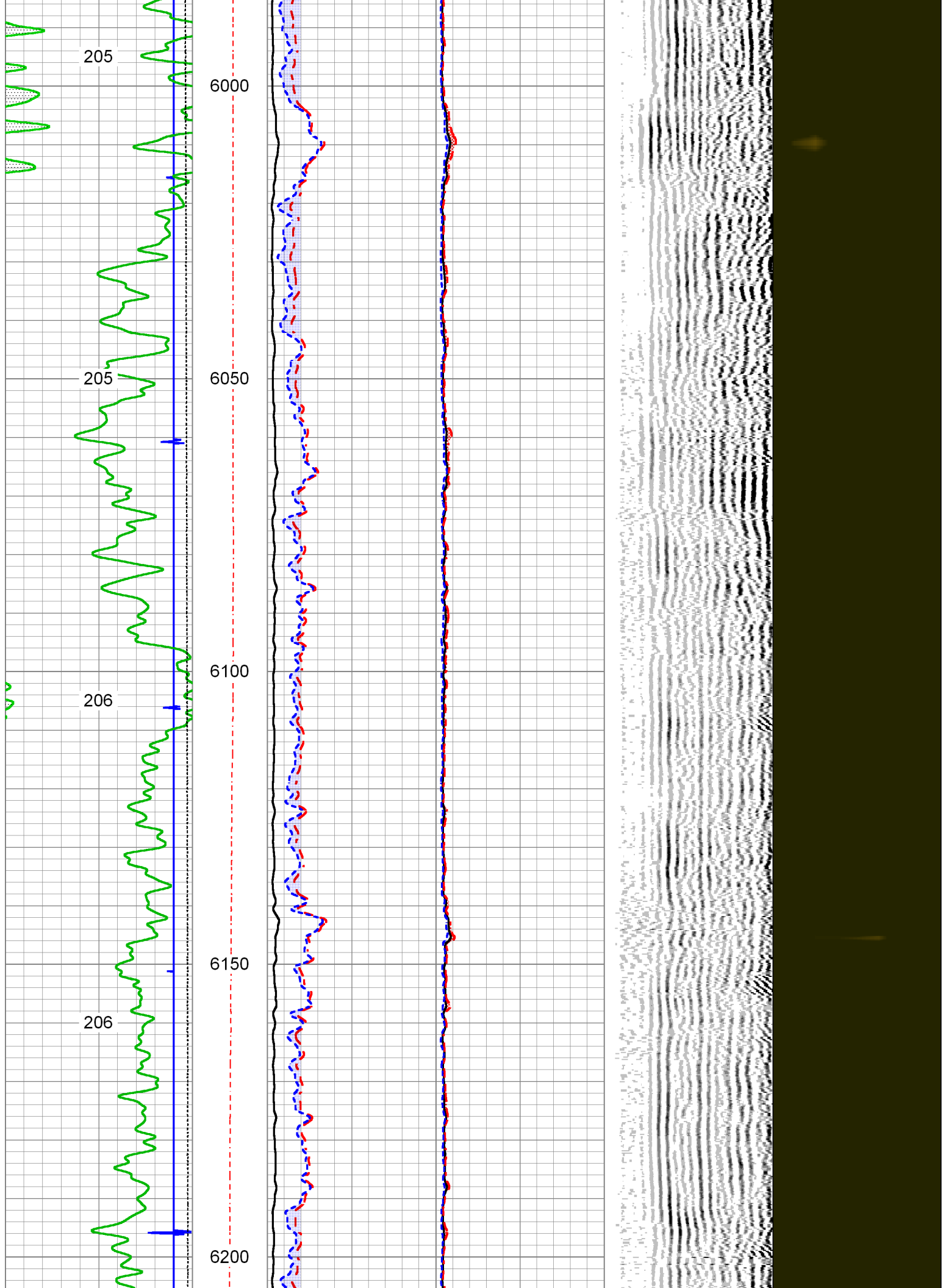




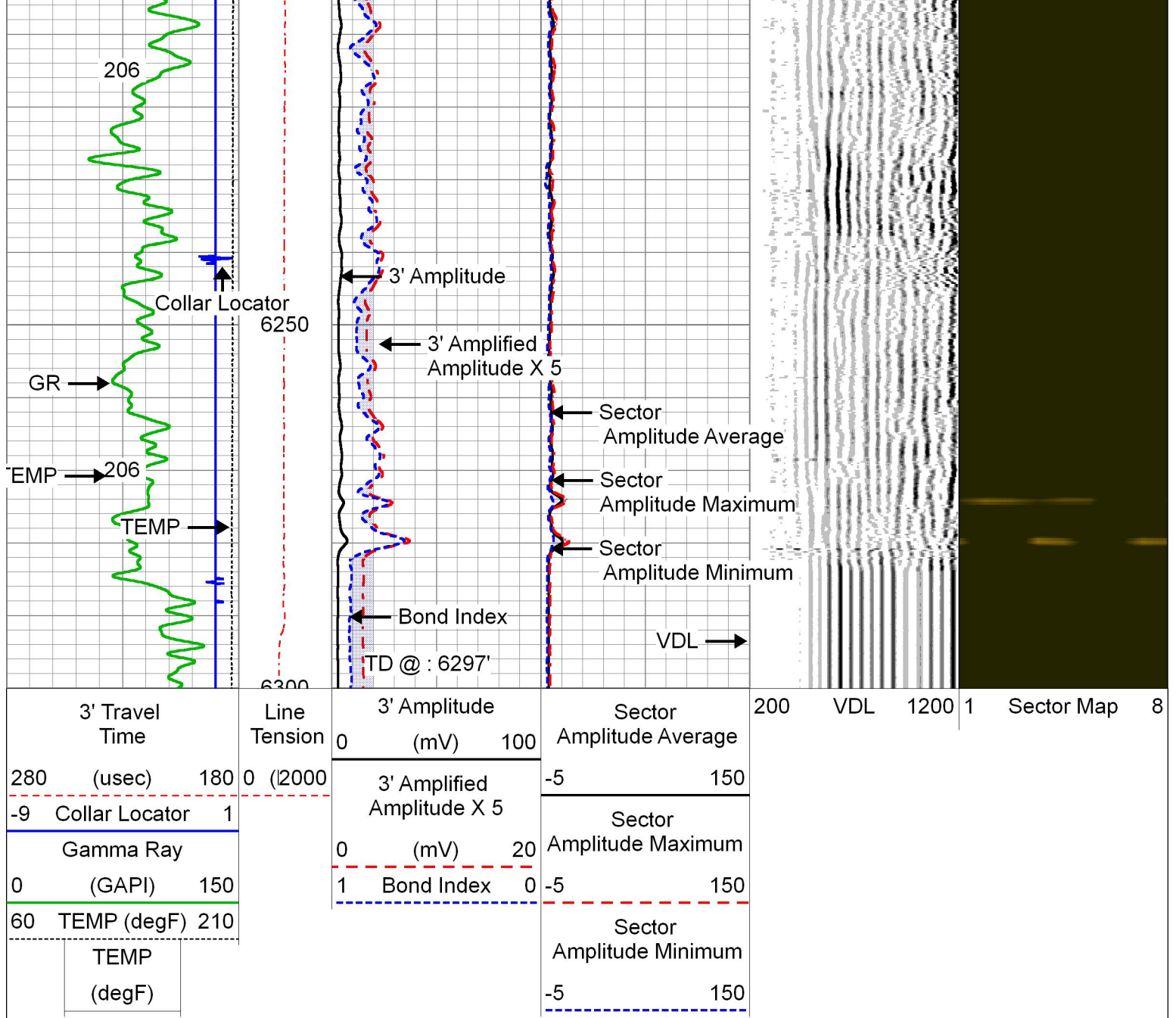
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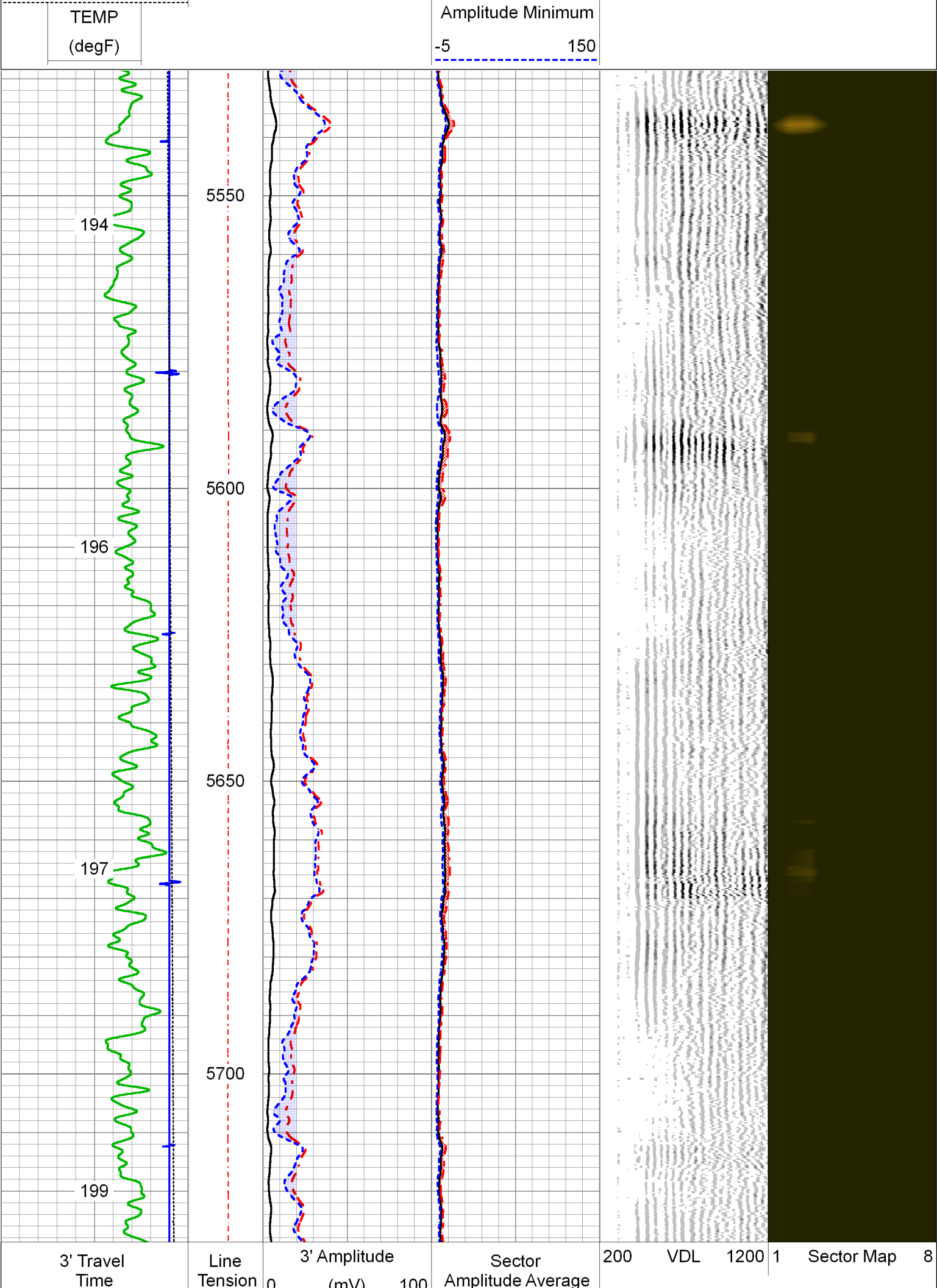








<div> <b>PIONEER</b> Pioneer Energy Services</div>			<div>REPEAT SECTION</div> <div>1500 PSI APPLIED AT SURFACE</div>										
Database File		horsetail federal 07f-0640_rbl.db											
Dataset Pathname		RBL/pass1											
Presentation Format		pinr_scbl											
Dataset Creation		Tue May 10 14:09:25 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
280	(usec)	180	0 (I2000										
-9 Collar Locator 1			3' Amplified Amplitude X 5		-5 150								
Gamma Ray			0	(mV)	20	Sector Amplitude Maximum							
0 (GAPI) 150			1 Bond Index 0		-5 150								
60 TEMP (degF) 210					Sector								



280	(usec)	180	0	(2000	3' Amplified Amplitude X 5	-5	150
-9	Collar Locator	1					
	Gamma Ray		0	(mV)	20	Sector Amplitude Maximum	
0	(GAPI)	150	1	Bond Index	0	-5	150
60	TEMP (degF)	210				Sector Amplitude Minimum	
	TEMP					-5	150
	(degF)						

Calibration Report		
Database File	horsetail federal 07f-0605_rbl.db	
Dataset Pathname	RBL/pass2	
Dataset Creation	Mon May 09 10:34:30 2016	

Gamma Ray Calibration Report
------------------------------

Serial Number:	FW1408-106	
Tool Model:	275 Probe GR-CCL Corrosion	
Performed:	Thu May 05 13:01:14 2016	
Calibrator Value:	320.0	GAPI
Background Reading:	0.2	cps
Calibrator Reading:	1.3	cps
Sensitivity:	0.9000	GAPI/cps

Segmented Cement Bond Log Calibration Report
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Serial Number:	141166	
Tool Model:	275 Probe w Temp New Mod	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	2053.475	ft

Master Calibration, performed Sun Apr 24 11:40:15 2016:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3'	0.007	1.712	2.200	71.921	40.887	2.500	
CAL	0.003	1.764					
5'	0.009	1.667	2.200	71.921	42.052	1.802	
SUM							
S1	0.005	1.722	0.000	100.000	58.238	-0.264	
S2	0.003	1.730	0.000	100.000	57.886	-0.147	
S3	0.003	1.720	0.000	100.000	58.262	-0.197	
S4	-0.001	1.741	0.000	100.000	57.396	0.067	
S5	-0.000	1.740	0.000	100.000	57.460	0.004	
S6	0.001	1.722	0.000	100.000	58.088	-0.043	
S7	0.002	1.704	0.000	100.000	58.744	-0.125	
S8	0.001	1.708	0.000	100.000	58.597	-0.056	

Temperature Calibration Report
--------------------------------

Serial Number:	141166	
Tool Model:	275 Probe w Temp New Mod	
Performed:	Mon May 09 10:34:30 2016	



Performed: Mon May 02 10:03:36 2016

	Reference	Reading
Low Reference:	35.00 degF	0.27 degF
High Reference:	212.00 degF	1.59 degF
Gain:	0.78	
Offset:	9.00	
Delta Spacing	1	



**PIONEER**

Pioneer Energy Services

Company	WHITING OIL & GAS CORP
Well	HORSETAIL FEDERAL 07F-0640
Field	WILDCAT
County	WELD
State	CO