

HALLIBURTON

RADIAL CEMENT  
BOND LOG

Company		EXTRACTION OIL & GAS INC	
Well		LIVINGSTON S19-25-2C	
Field		WATTENBERG	
County		BROOMFIELD CO	
Company		EXTRACTION OIL & GAS INC	
Well		LIVINGSTON S19-25-2C	
Field		WATTENBERG	
County		BROOMFIELD State CO	
API No.: 050142075300		Serv #: 906111951	
Location: SURFACE HOLE LOCATION: 2332' FSL & 1510' FEL NESE		Other Services	
LATITUDE: 39.978564 LONGITUDE: -105.040058		NONE	
Sec: 7 Twp: 1S Rge: 68W			
Permanent Datum		GROUND LEVEL Elevation 5328	
Log Measured From		KB , 29 Ft. above perm. datum	
Drilling Measured From		KB	
Date @ Time Logged		11/20/19 @ 01:30	
Run No.		ONE	
Depth - Driller		21830	
Depth - Logger		8452	
Bottom - Logged Interval		8440	
Top - Log Interval		SURFACE	
Max. Recorded Temp.		236 F	
CEMENTING DATA		Surface String	
Date / Time Cemented		Protection String	
Primary / Squeeze		Production String	
Expected Compressive Strength		Liner	
Cement Volume			
Cement Type / Weight			
Formulation			
Mud Type / Mud Wgt.			
Borehole Record		Casing & Tubing Record	
Run Number		Bit From To Size Weight From To	
ONE		12.25 0 1500 9.625 36 0 1500	
TWO		8.5 1500 21830 5.5 17 0 21830	

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

RCBL - GR - CCL RAN IN COMBINATION.

LOG RECORDED WITH 0 PSI WELLHEAD PRESSURE.

LOG CORRELATED TO MARKER JOINT AT 8264.

BOND INDEX CALCULATED FOR 3000 PSI COMPRESSIVE STRENGTH CEMENT.

\*\*\*THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.\*\*\*

YOUR CREW TODAY WAS:

R. MINATO & L. BABER

Service Ticket No.	906111951	API No.	050142075300	PGM Ver	WARRIOR 8
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
RCBL		GAMMA CCL			
Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	11568129	Serial No.	100701	Serial No.	
Model No.	PROBE	Model No.	PROBE	Model No.	
Diameter	2.75	Diameter	2.75	Diameter	
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

No.	FROM	TO	Pressure	Temp	
ONE	KOP	SURFACE	0 PSI	100	
	GAMMA RAY		AMPLITUDE		VDL
Pass	Scale		Scale		Scale
No.	L	R	L	R	L
ONE	0	150	0	100	200
					1200
DIRECTIONAL INFORMATION					
Maximum Deviation		90	deg. @	KOP	

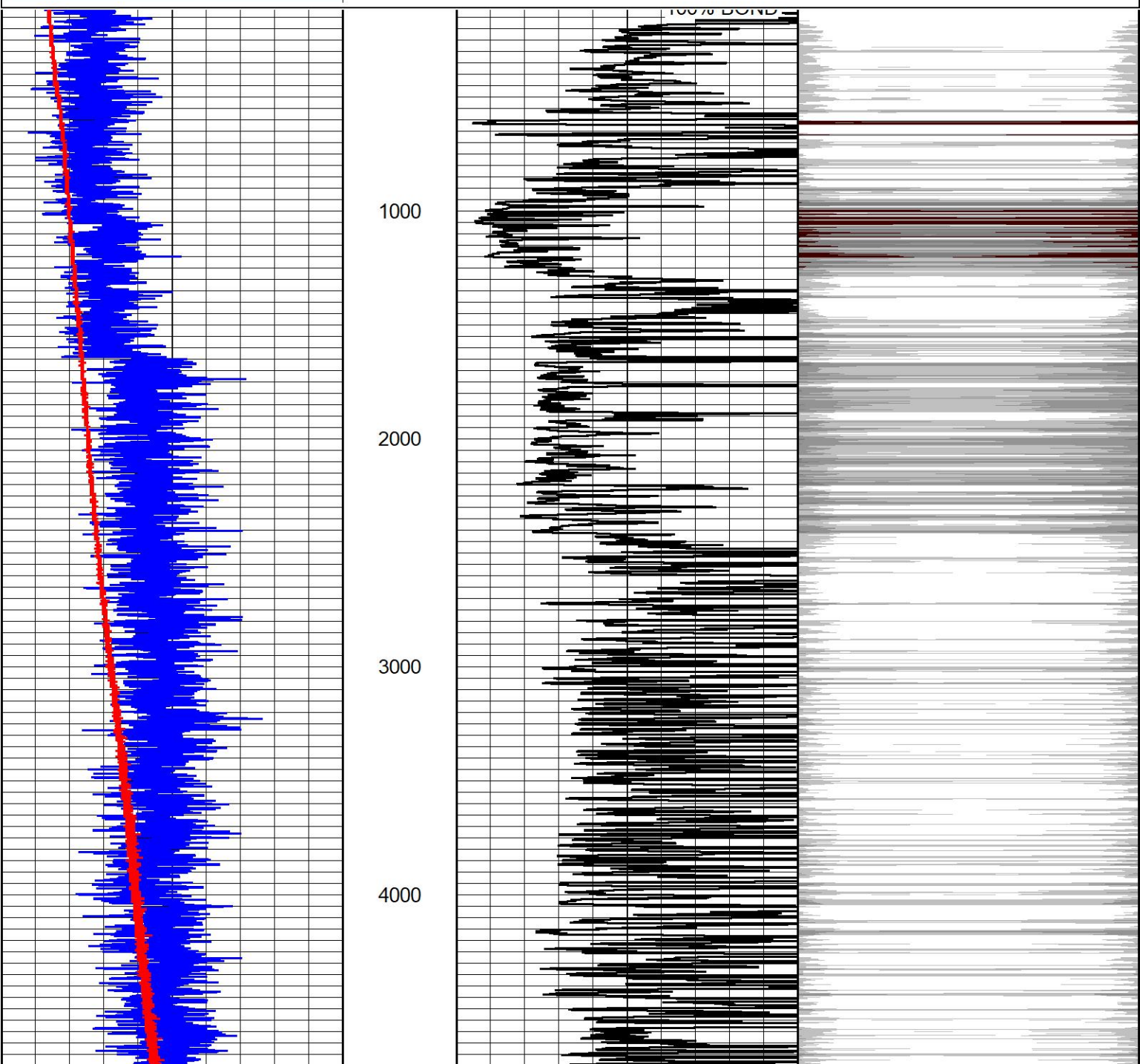
HALLIBURTON

BOND INDEX

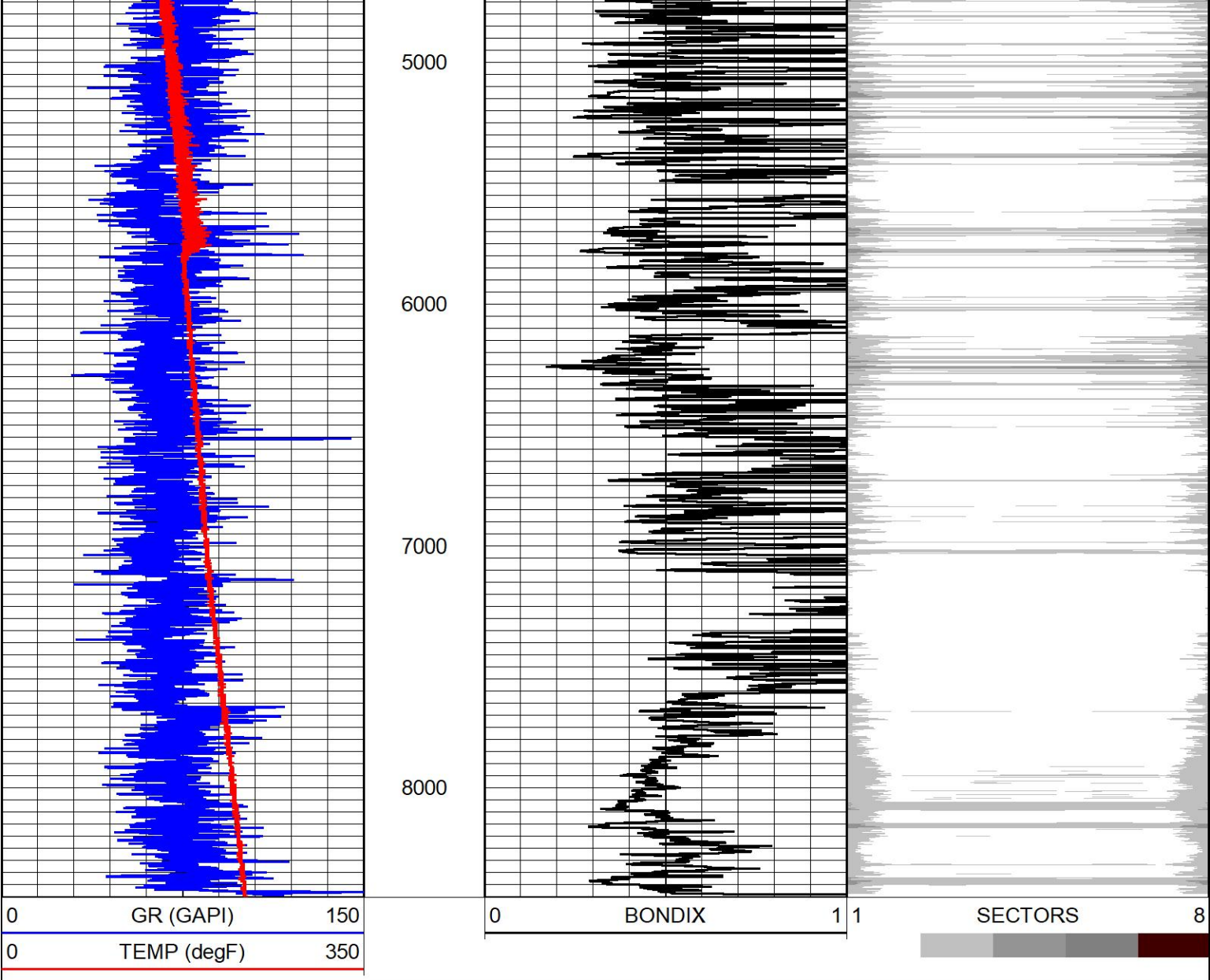
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Database File	livingston s19-25-2c.db
Dataset Pathname	MAIN.1
Presentation Format	EXTRAC~2
Dataset Creation	Wed Nov 20 02:37:47 2019
Charted by	Depth in Feet scaled 1:7500

0	GR (GAPI)	150	0	BONDIX	1	1	SECTORS	8
0	TEMP (degF)	350						







BOND INDEX

HALLIBURTON

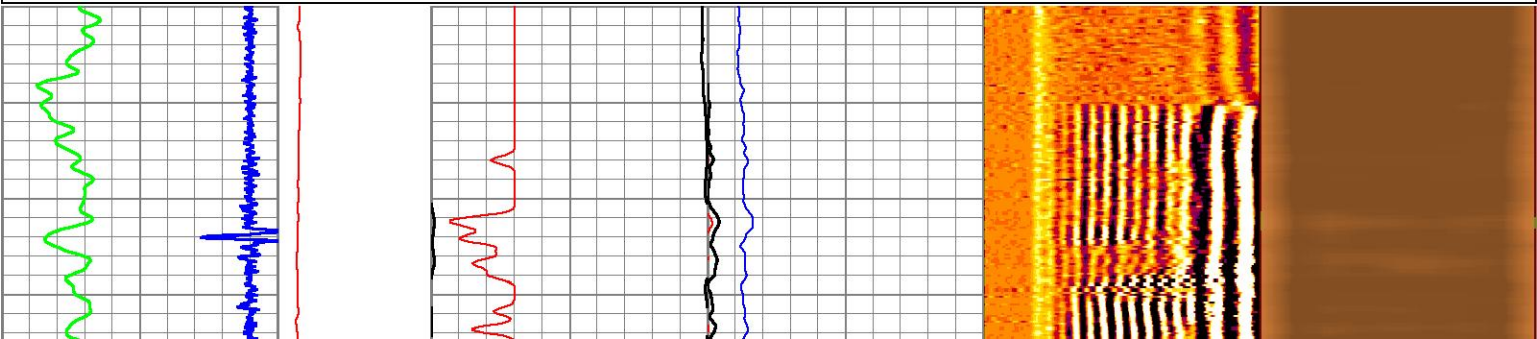
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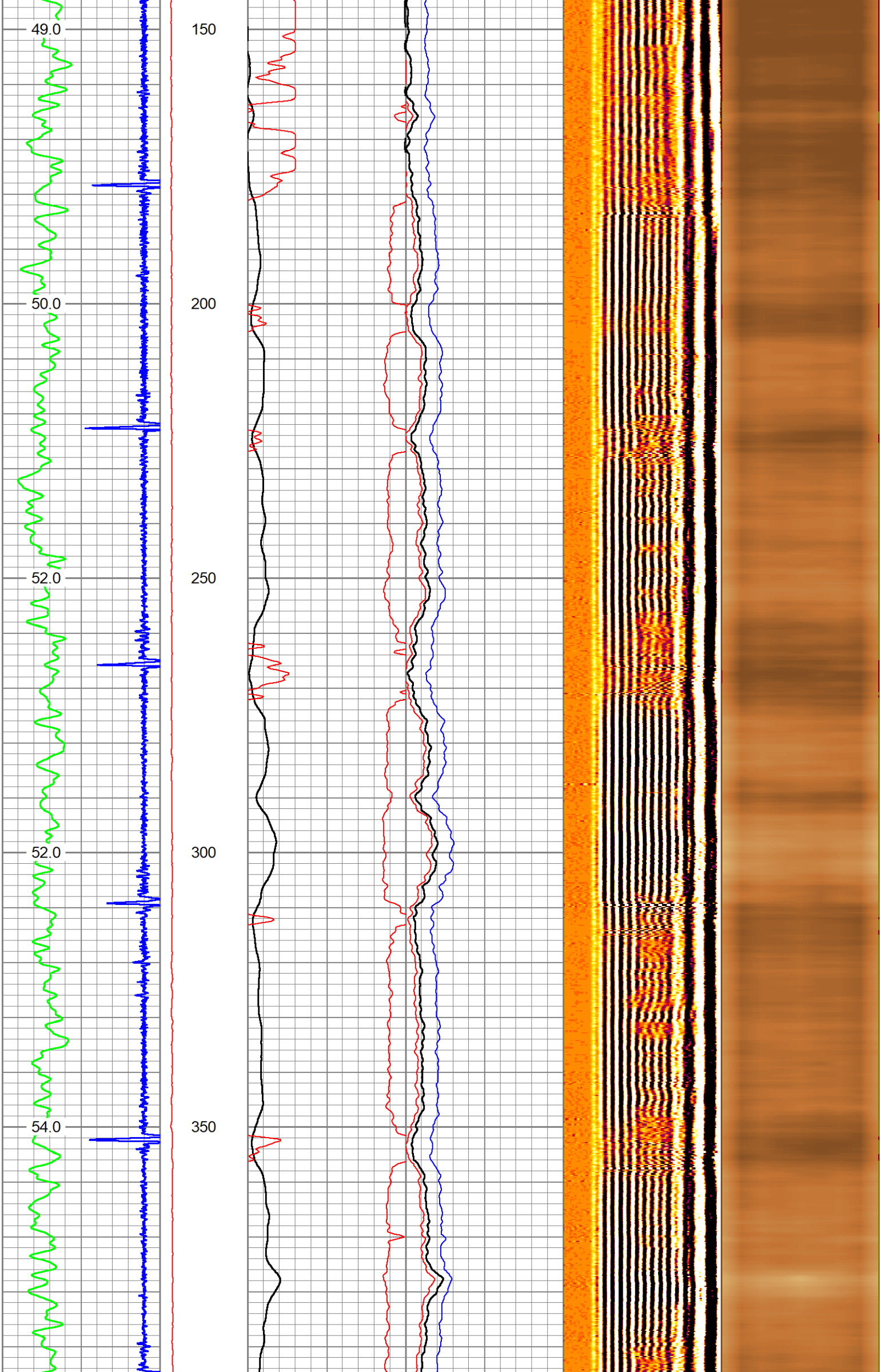
MAIN PASS

HALLIBURTON

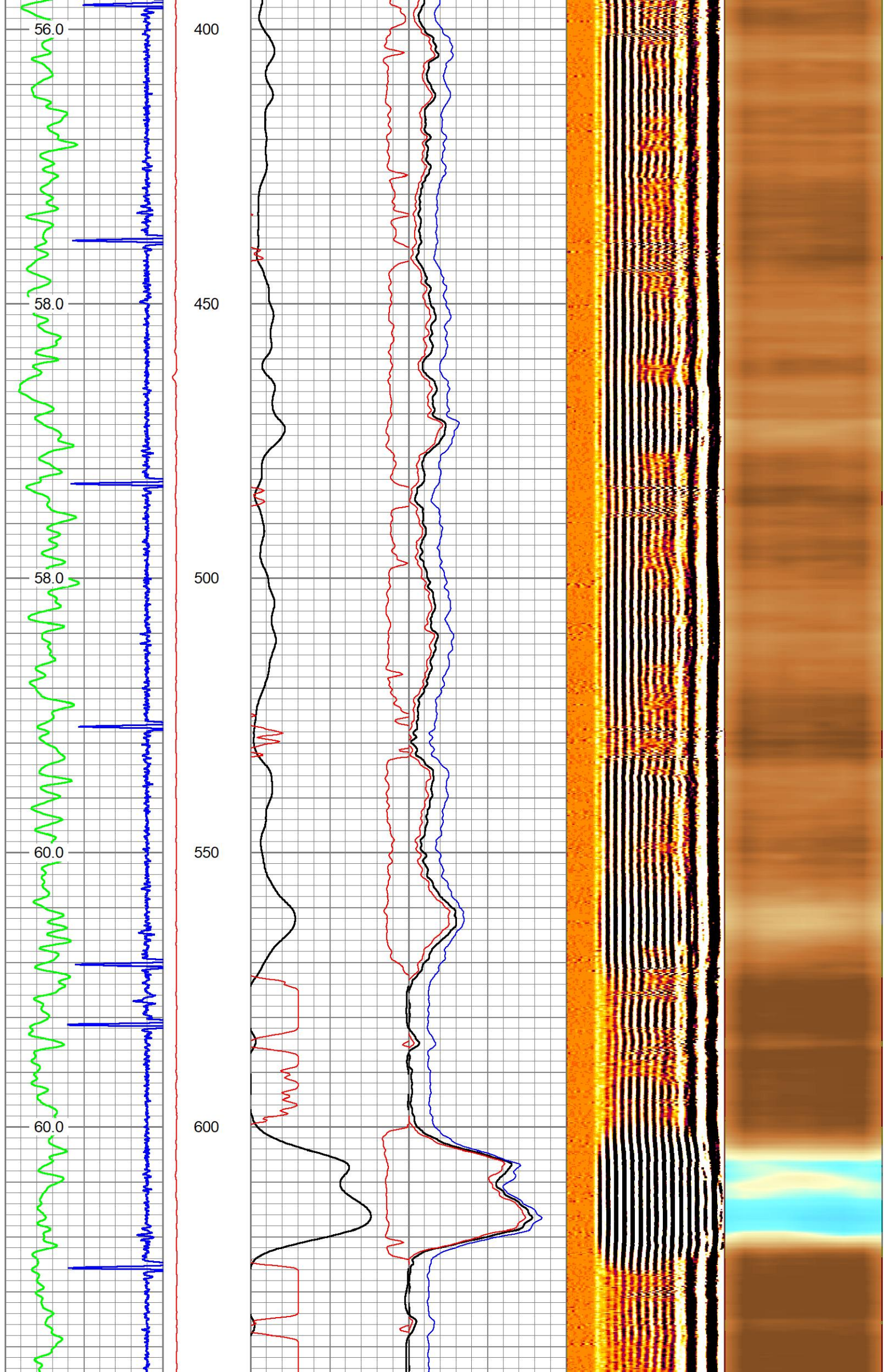
5" = 100'

Database File		livingston s19-25-2c.db													
Dataset Pathname		MAIN													
Presentation Format		EXTRAC~1													
Dataset Creation		Wed Nov 20 01:27:23 2019													
Charted by		Depth in Feet scaled 1:240													
-18	CCL	2	LTEN	0	AMP3FT (mV)	100	0	AMPAVG	100	200	VDL (usec)	1200	1	RADIAL MAP	8
0	GR (GAPI)	150	0 (lb/2000)	3ft Travel Time			0	AMPMAX	100						
TEMP				200	(usec)	300	0	AMPMIN	100						
(degF)															

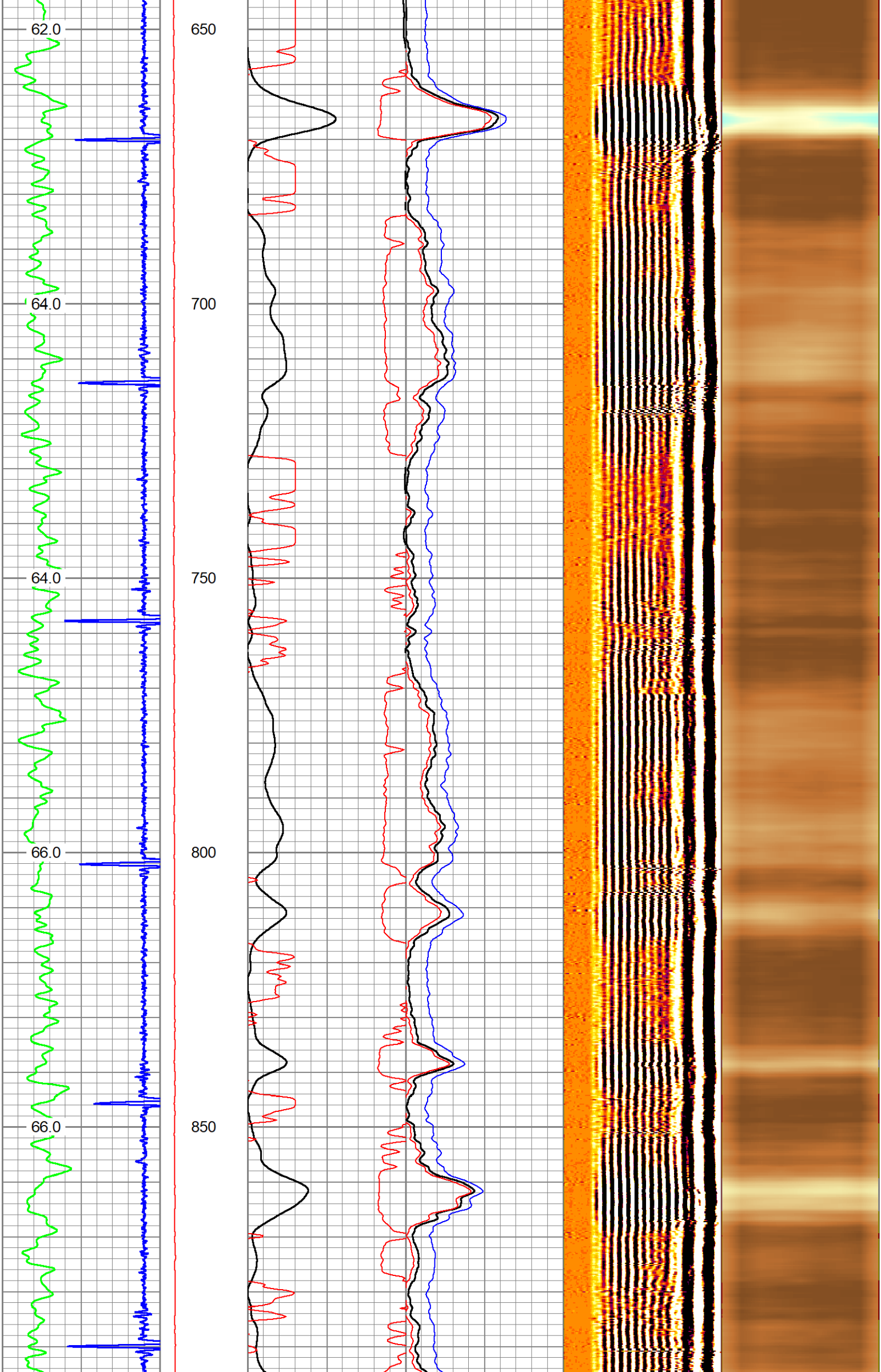




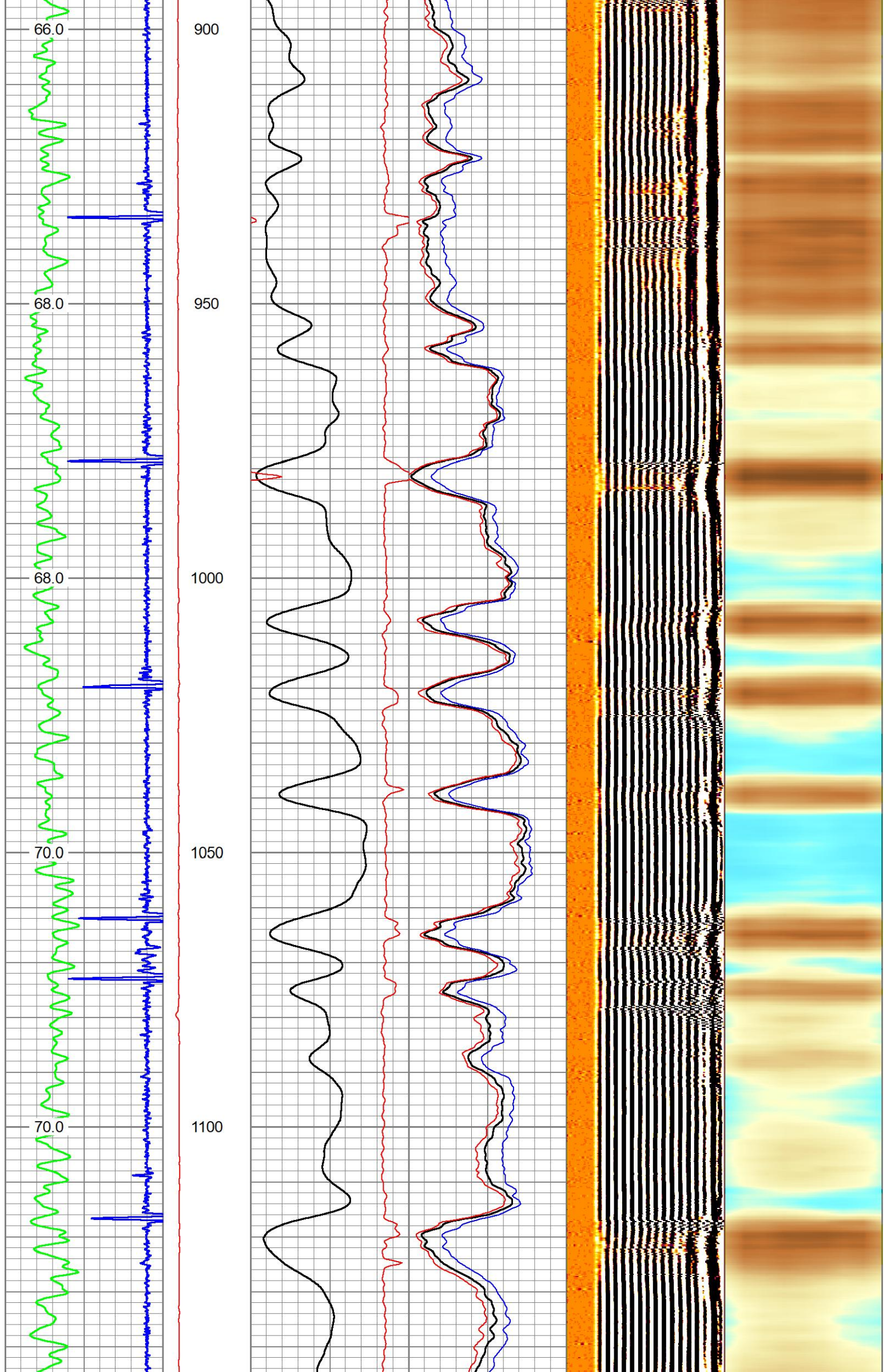




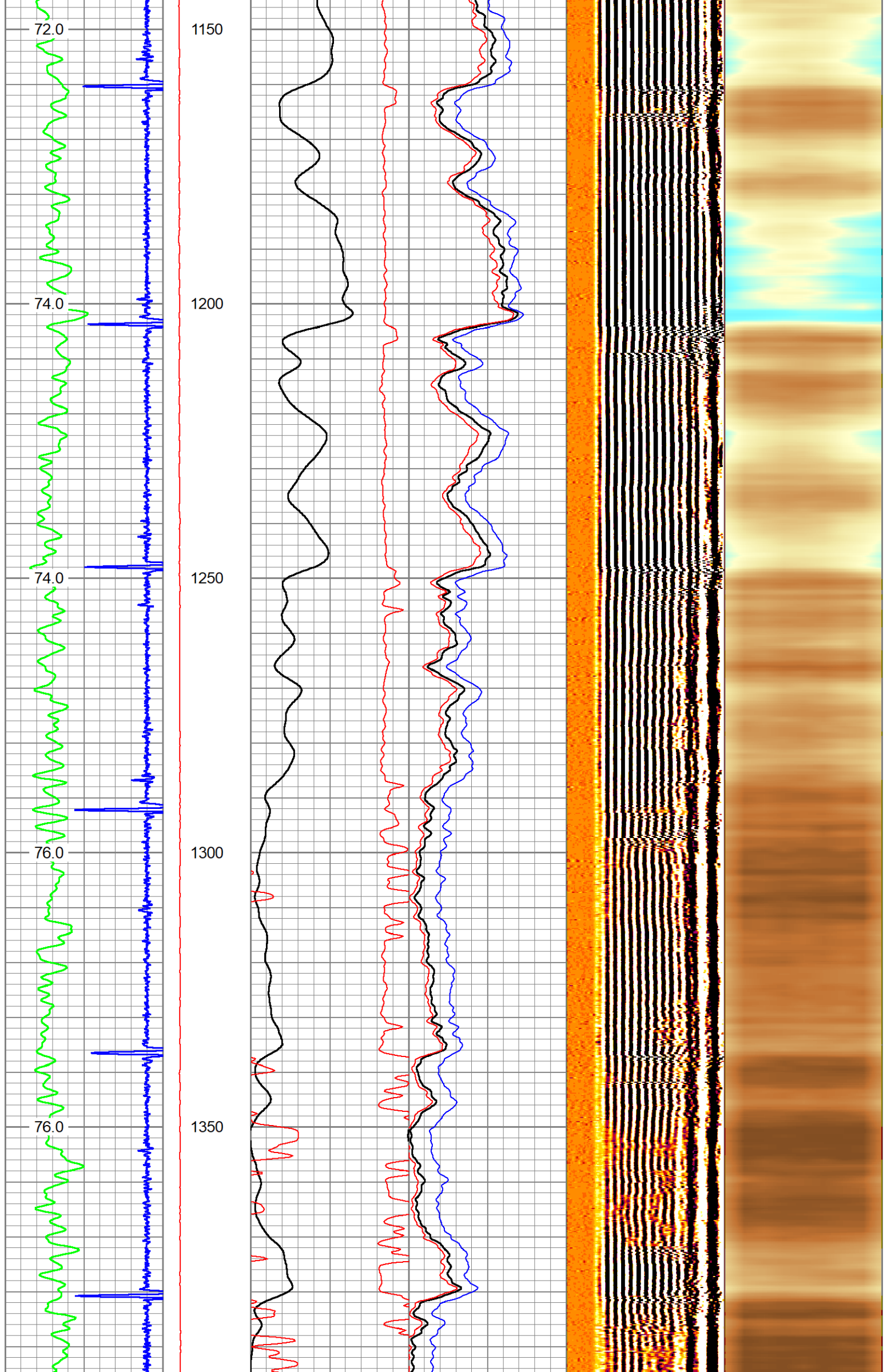




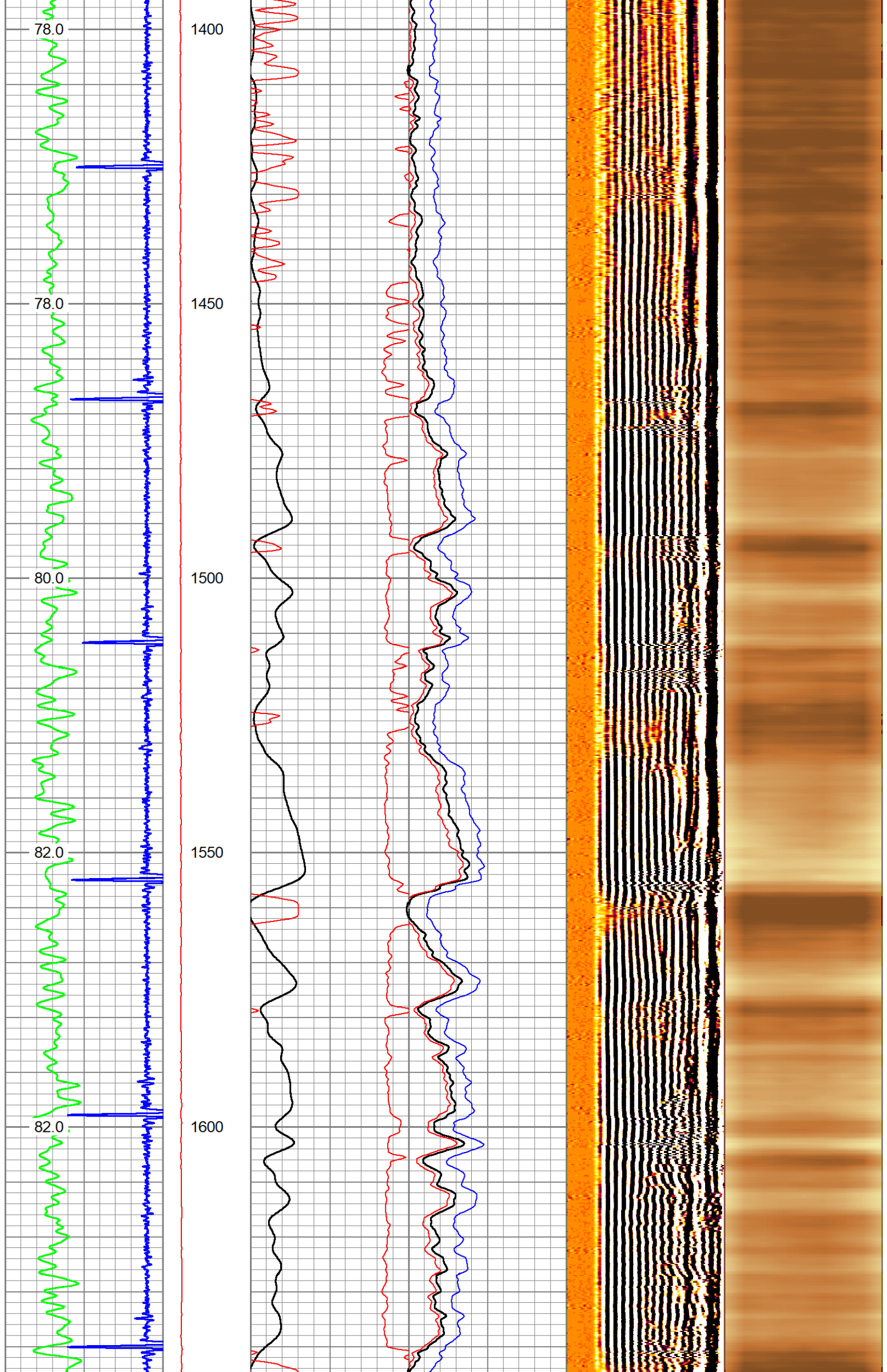


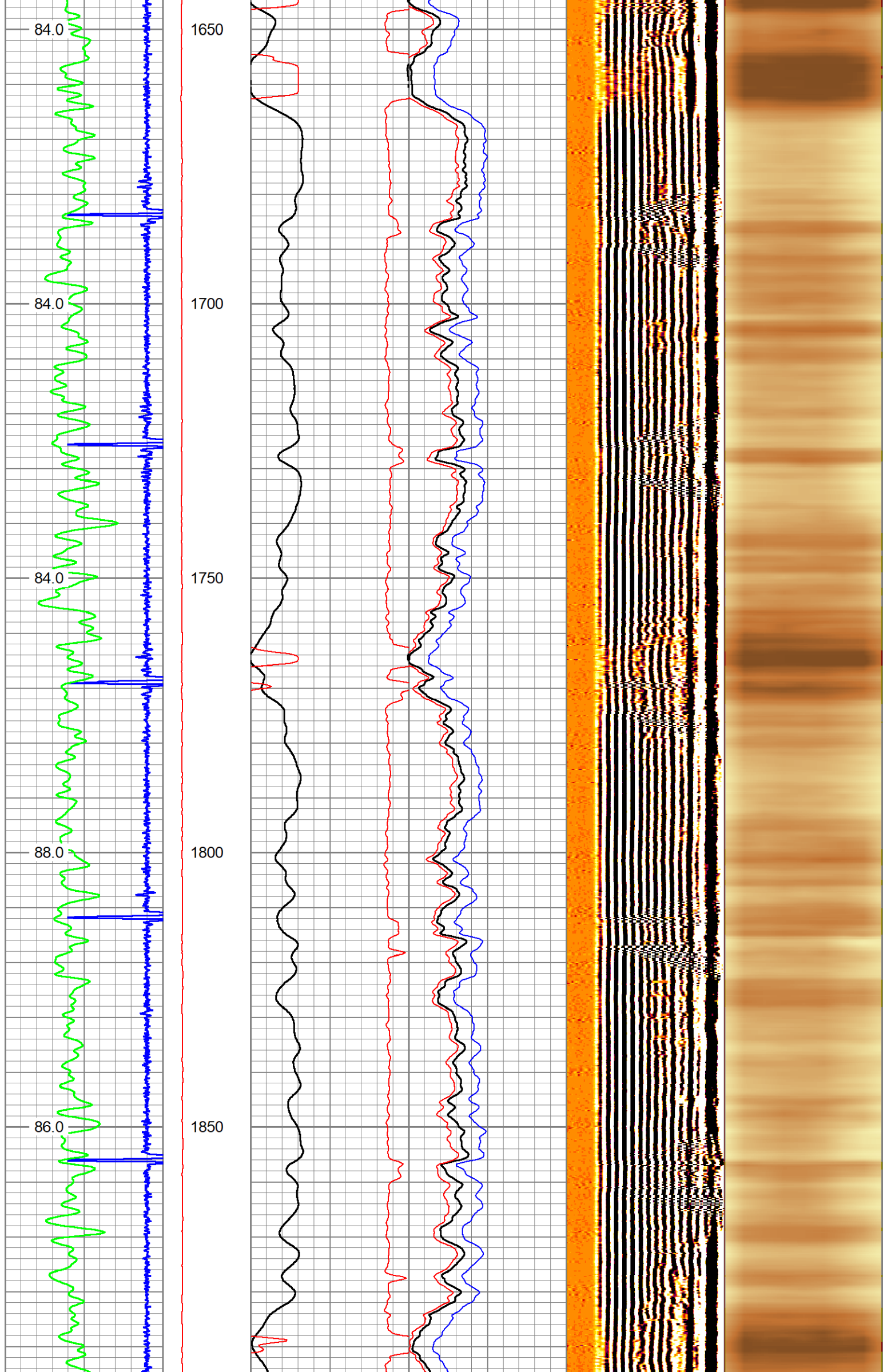




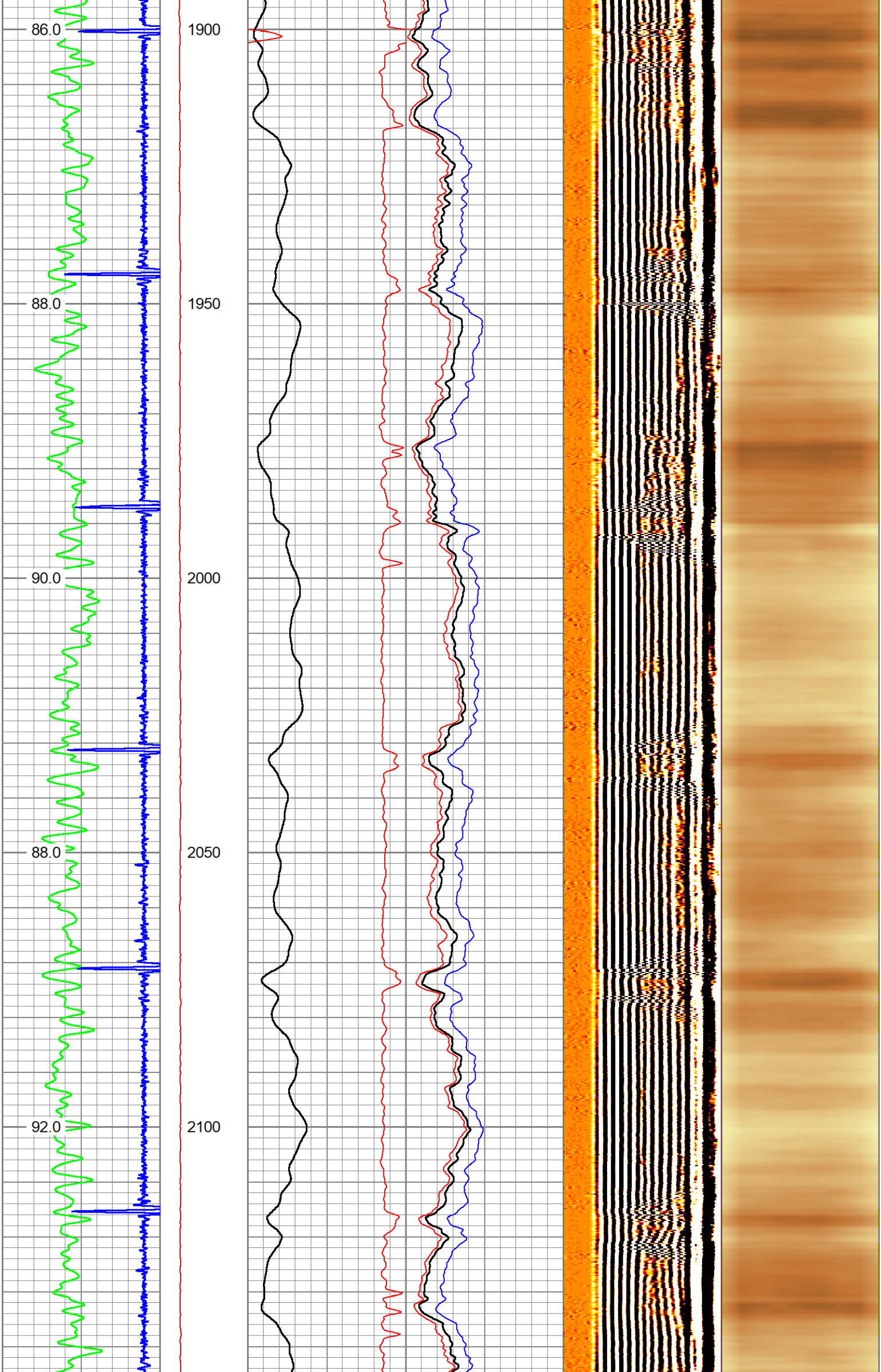


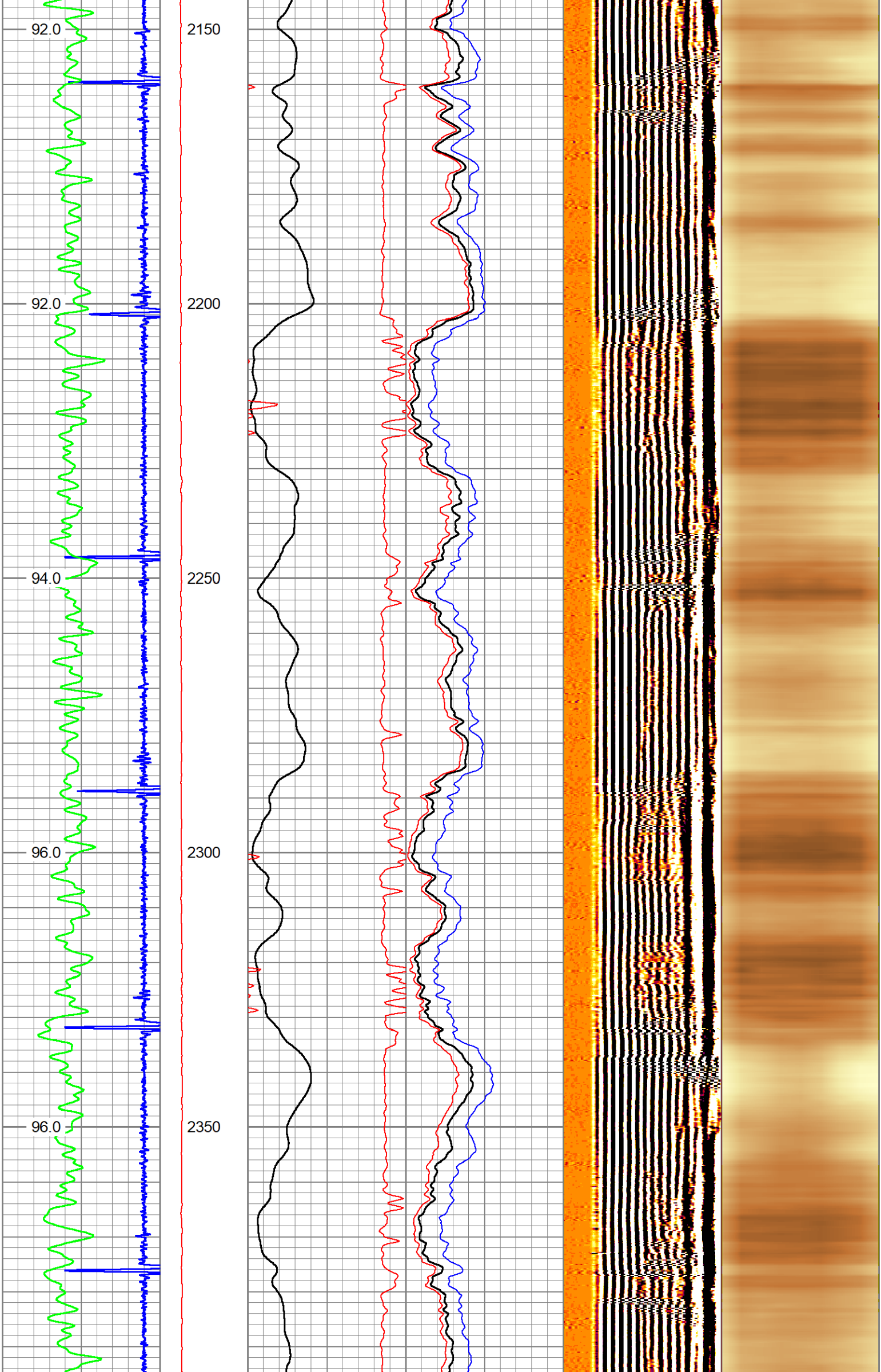




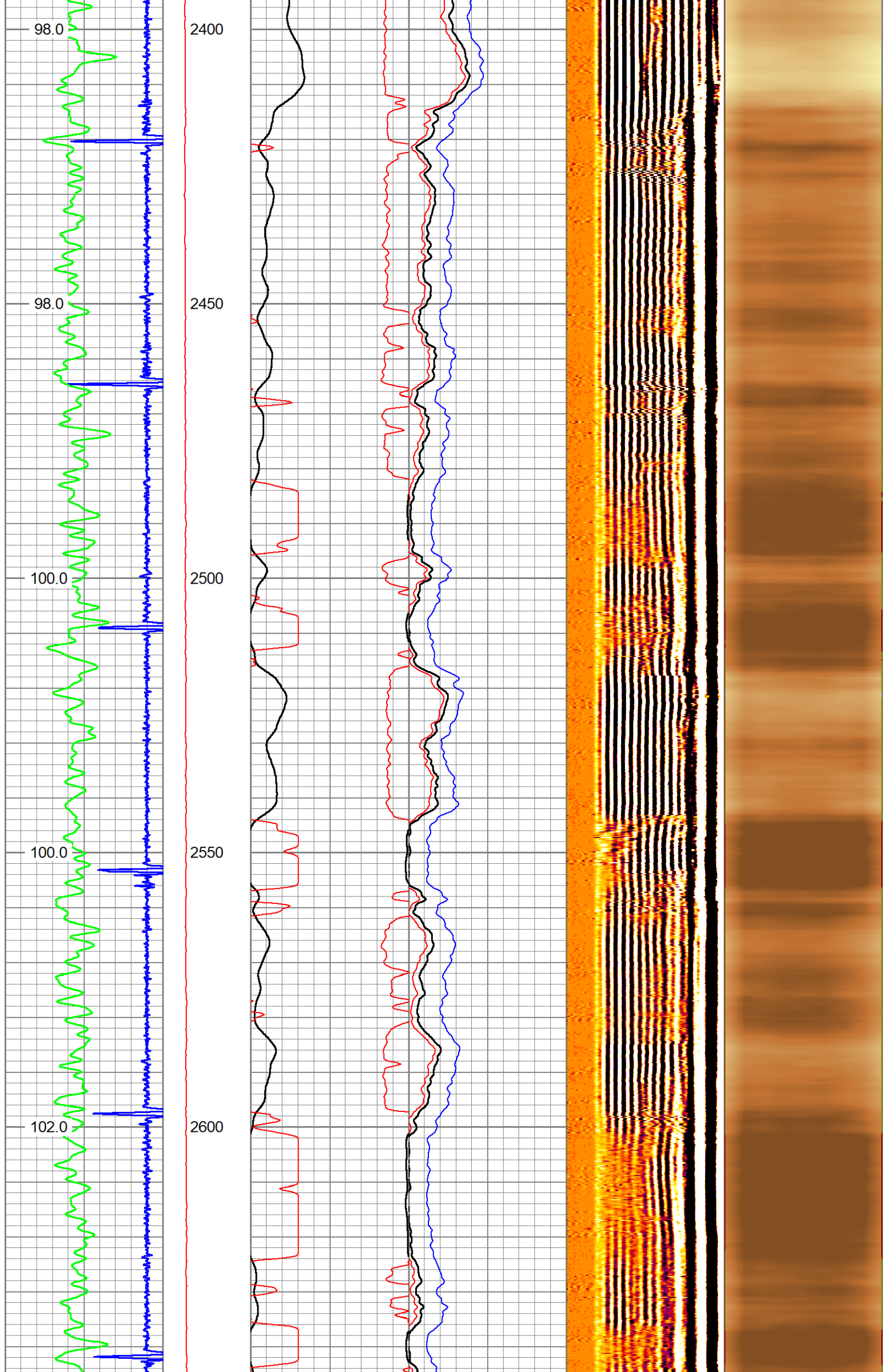


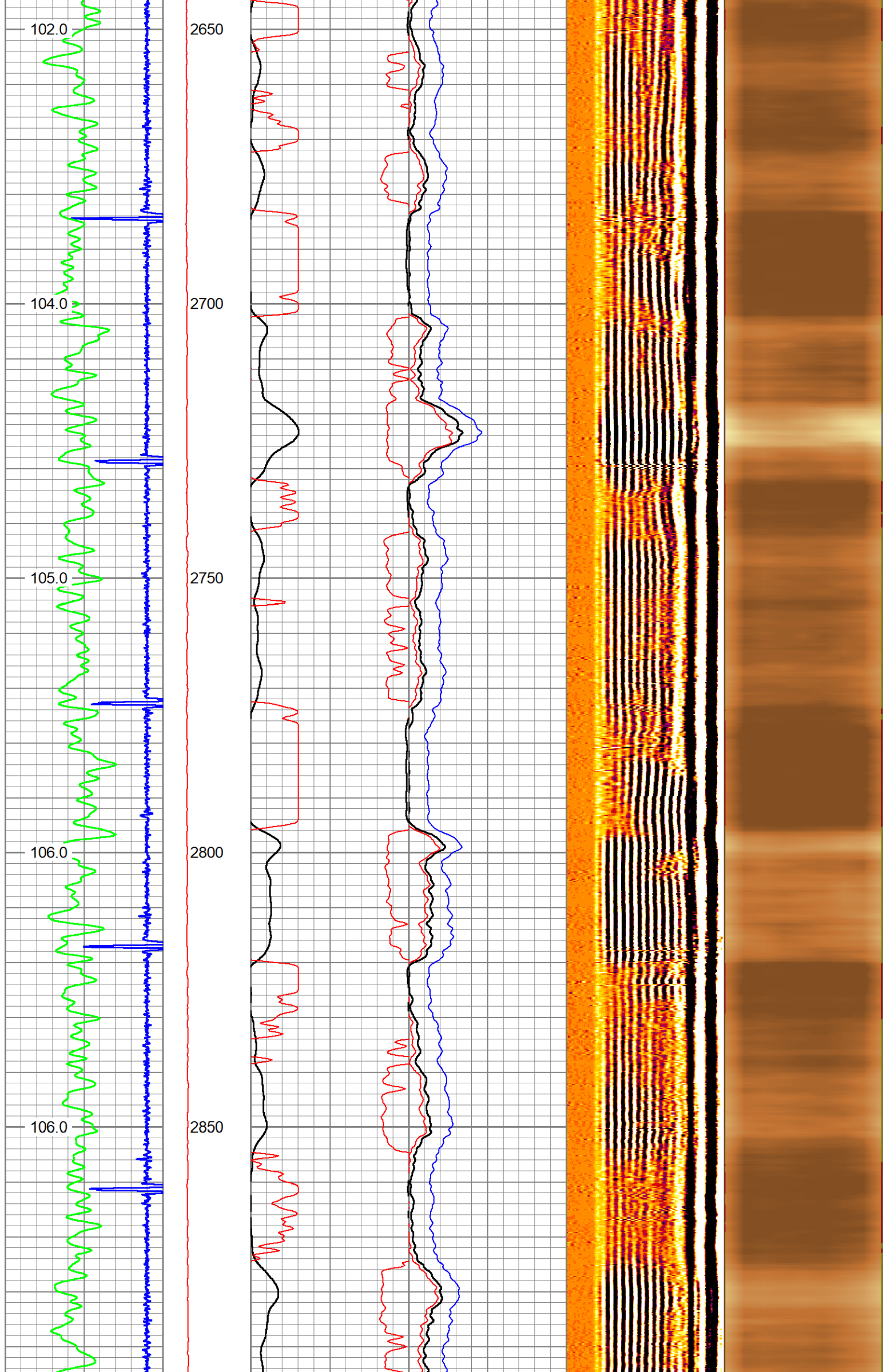




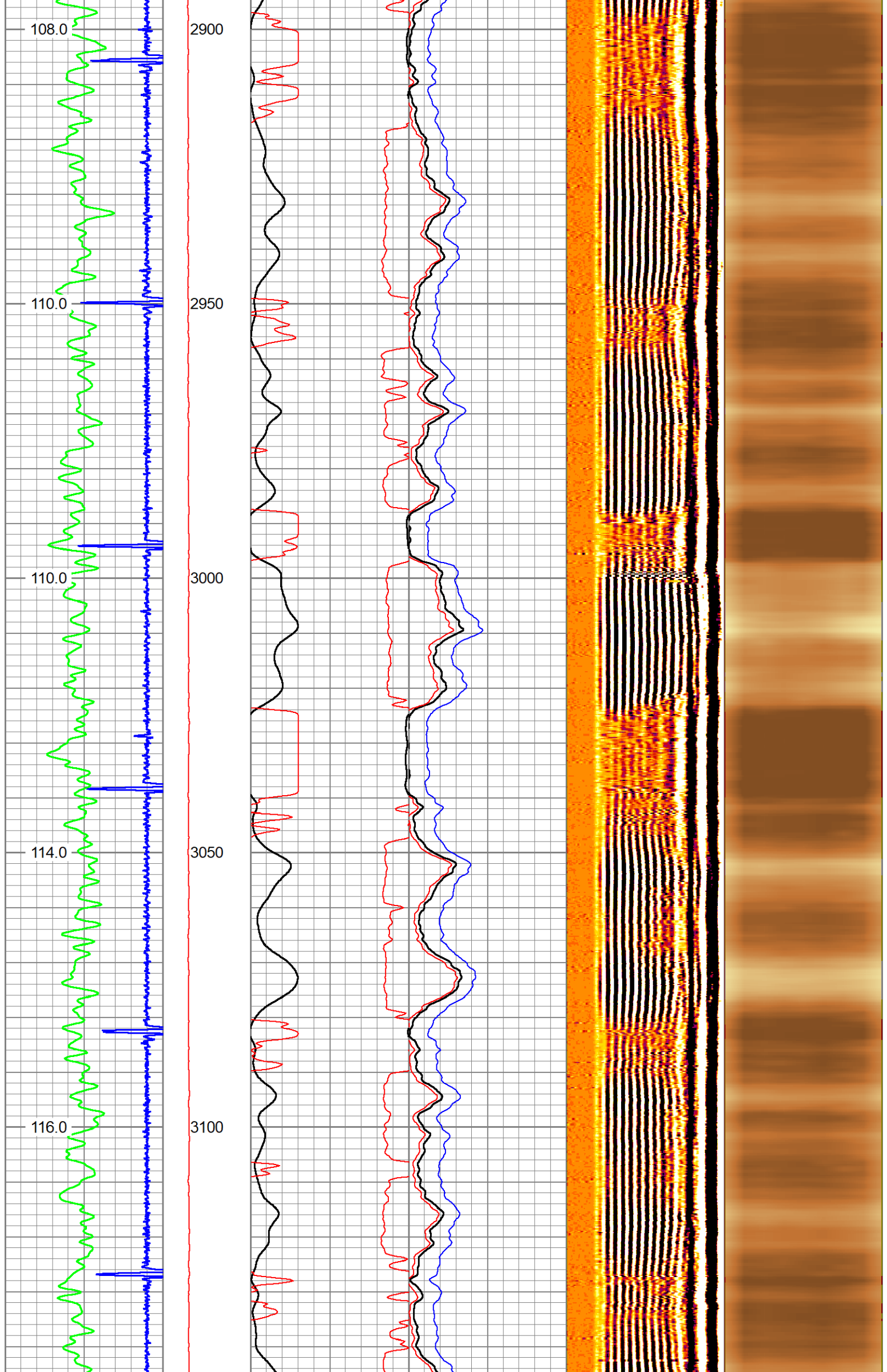


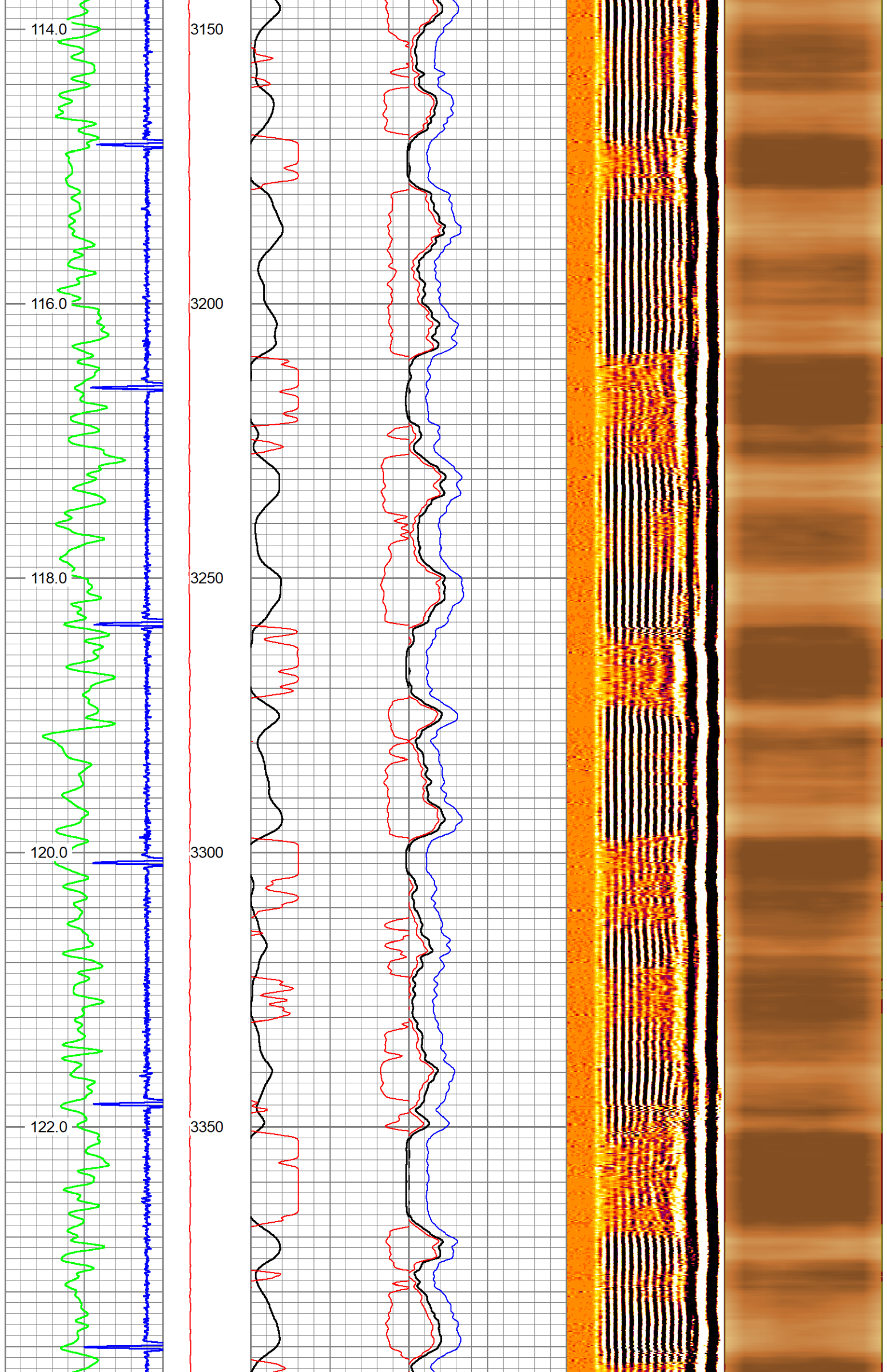




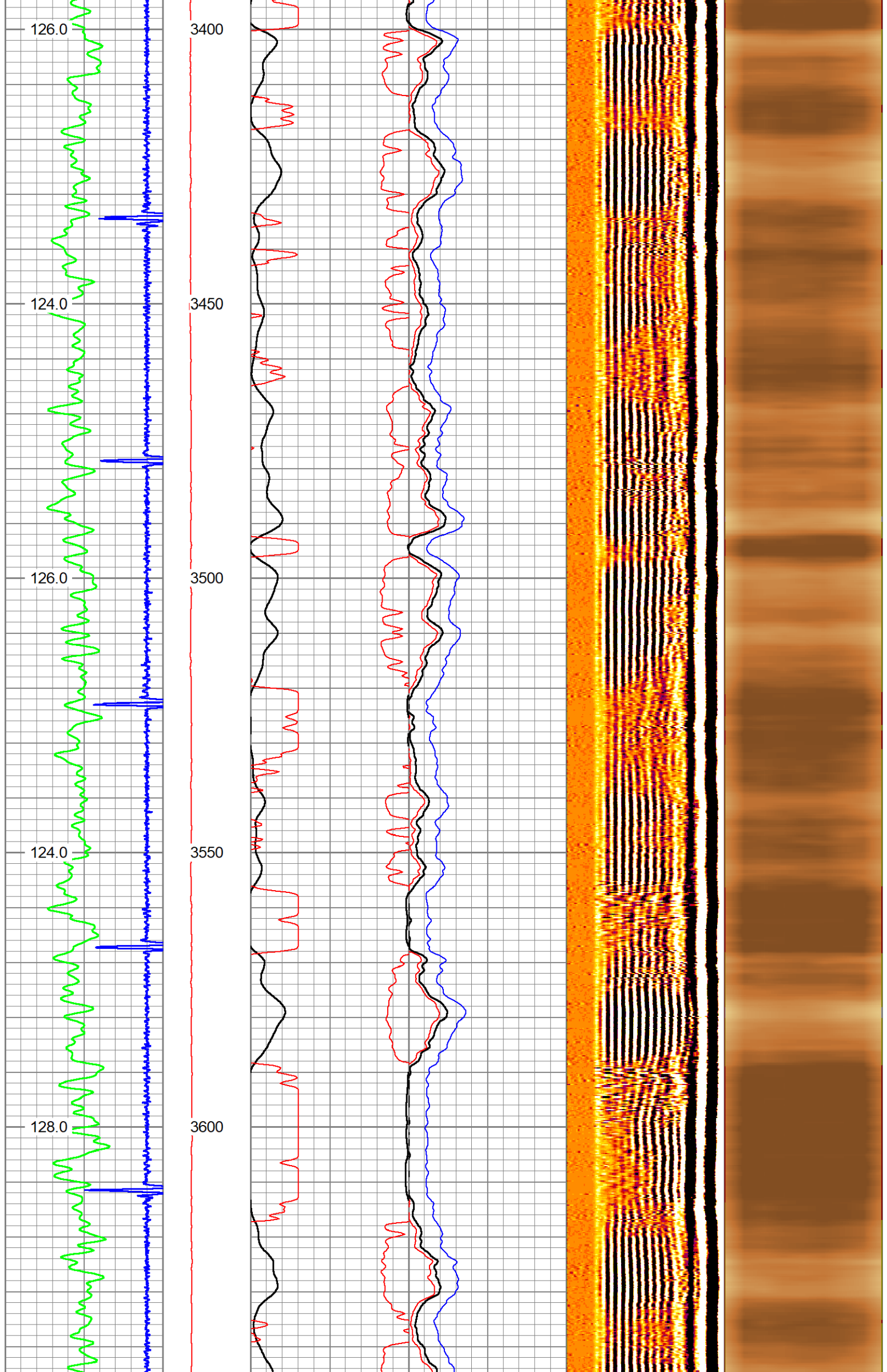


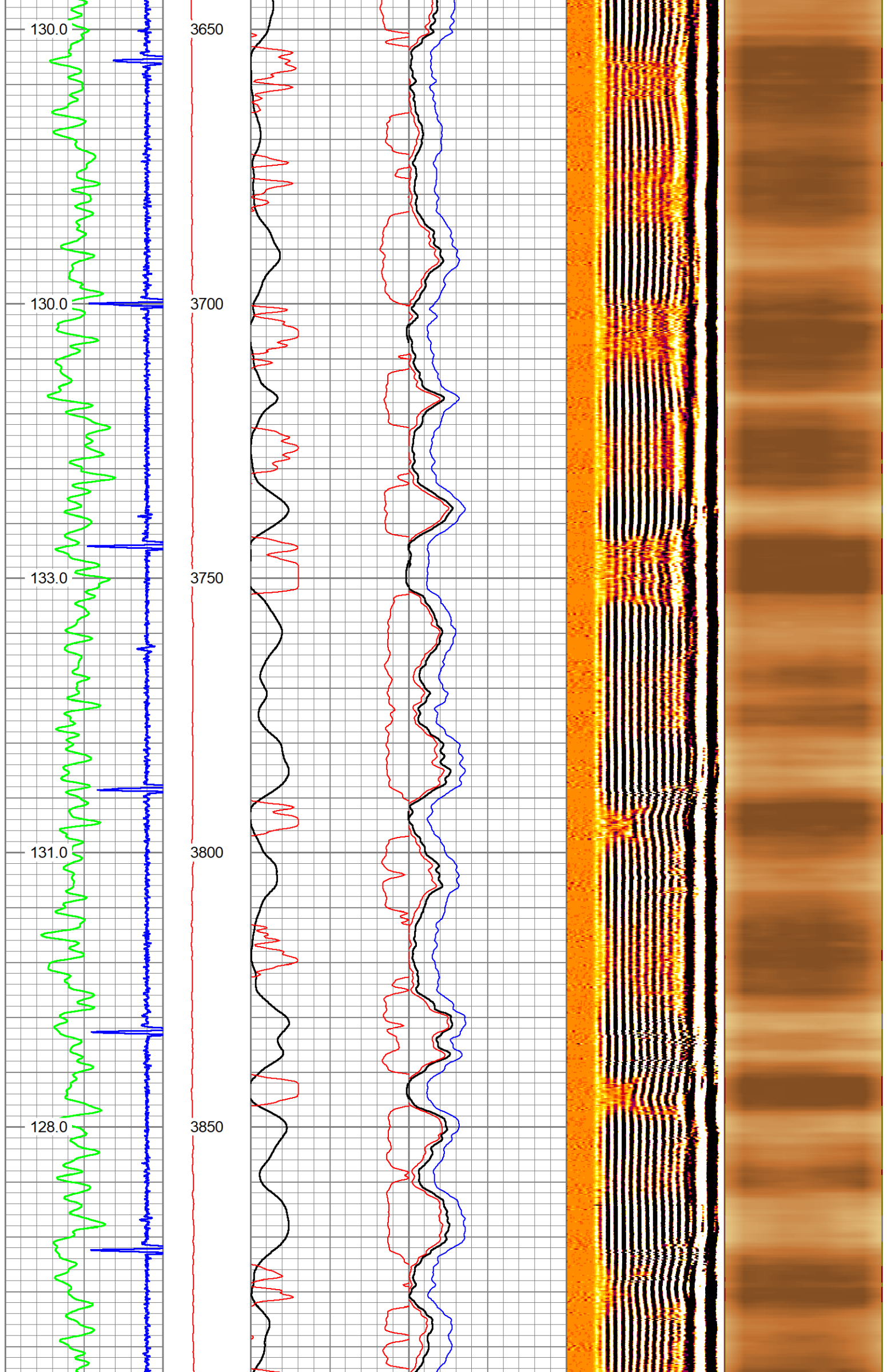




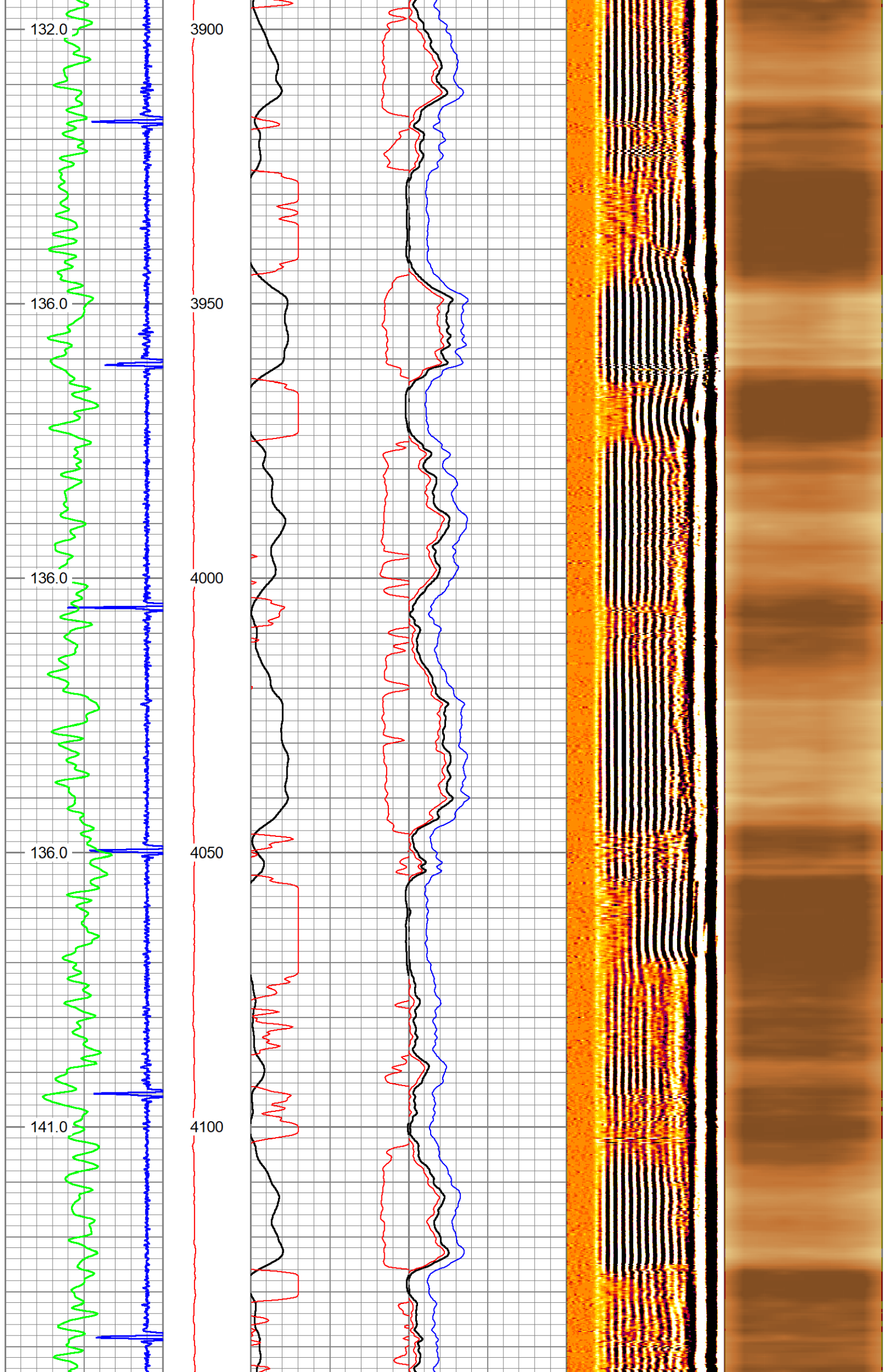


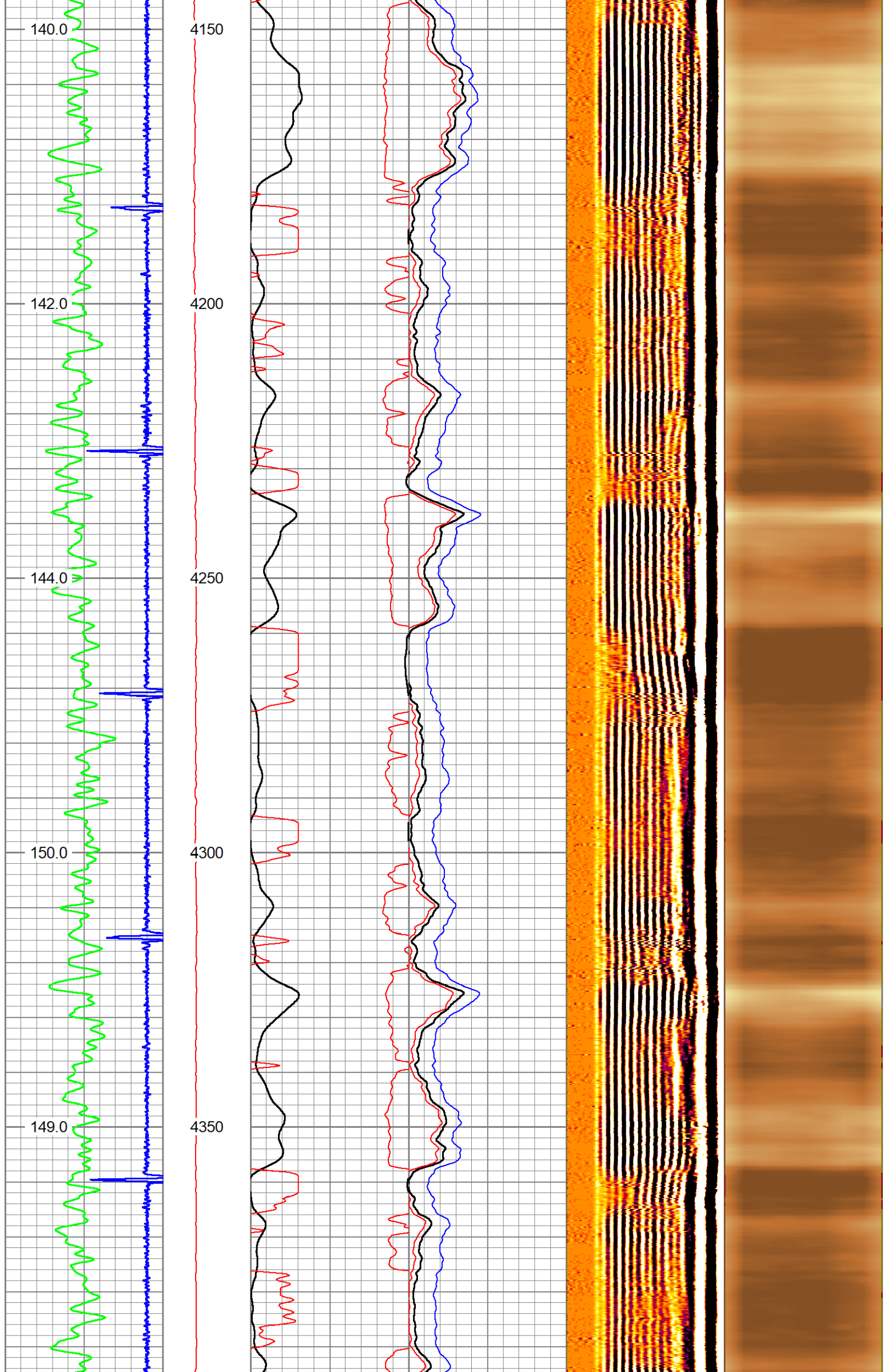




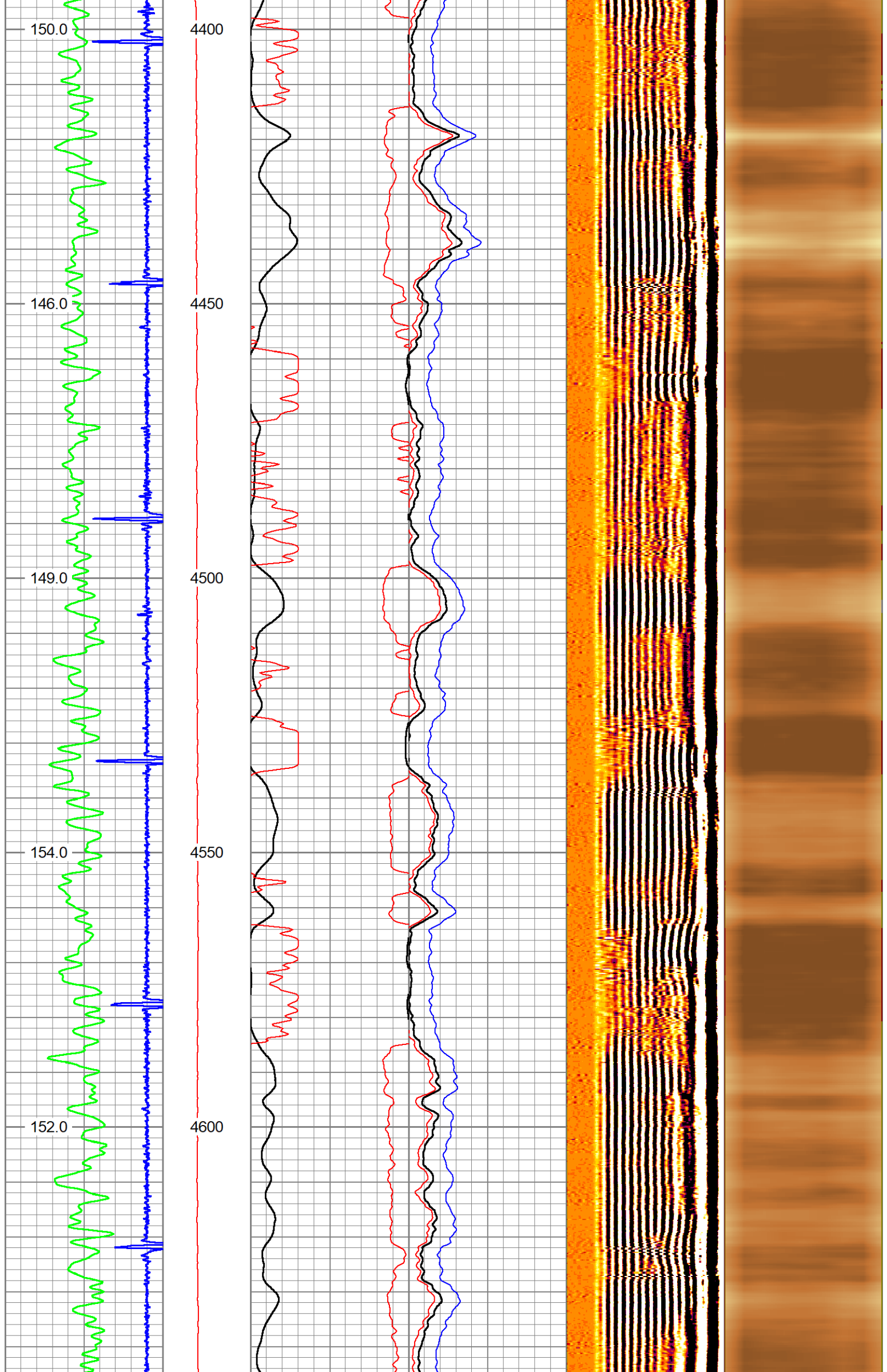


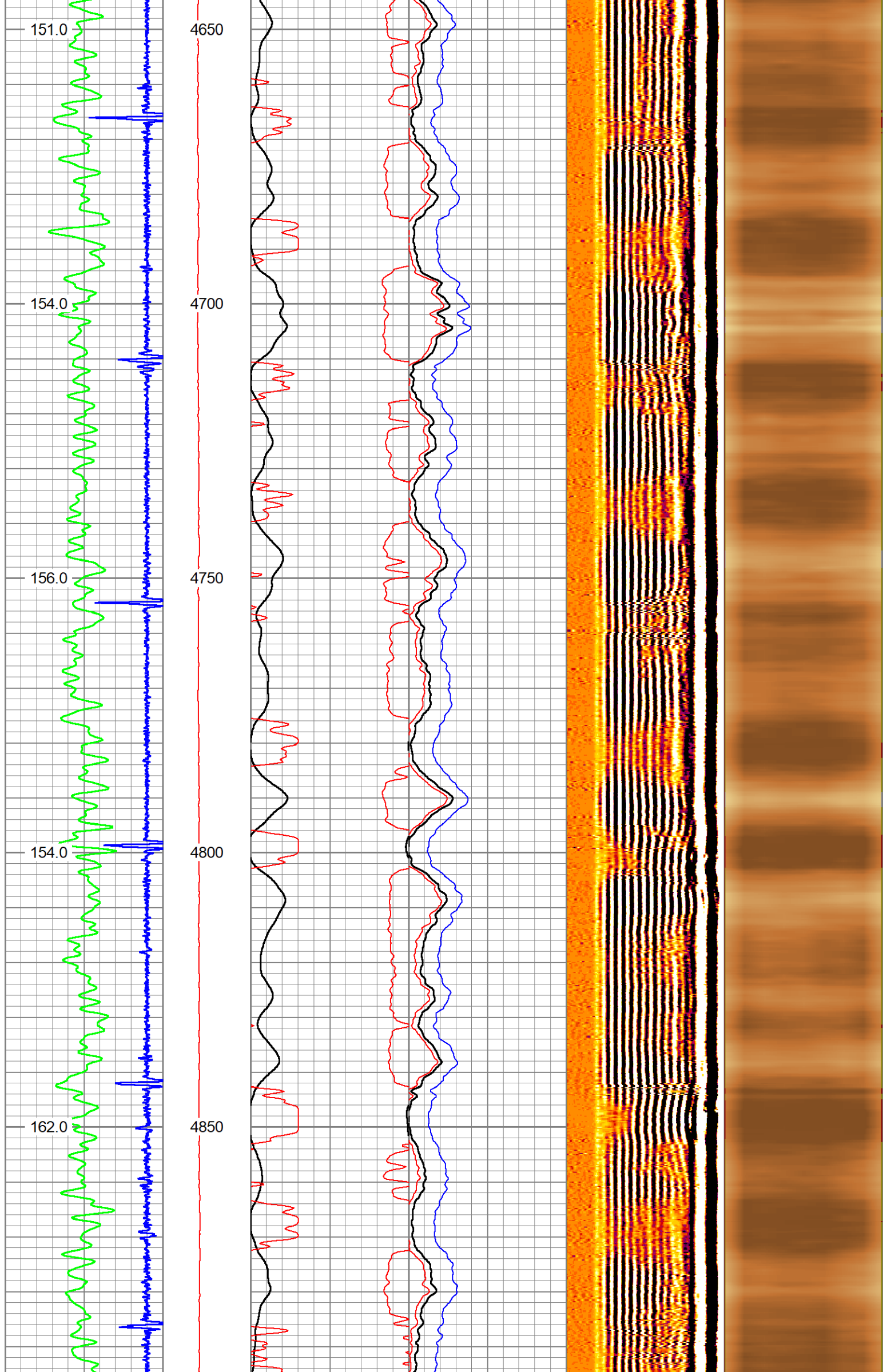




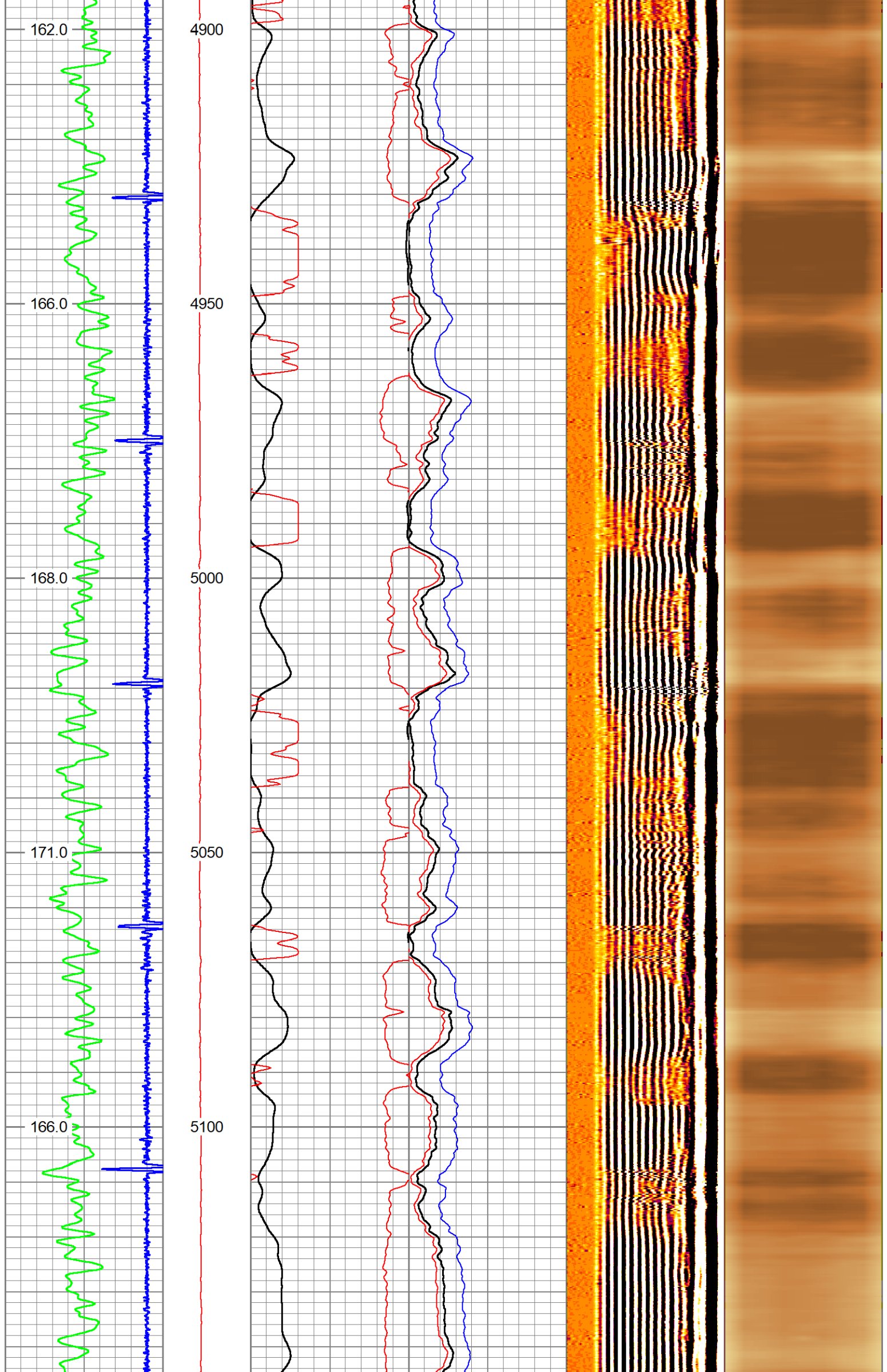


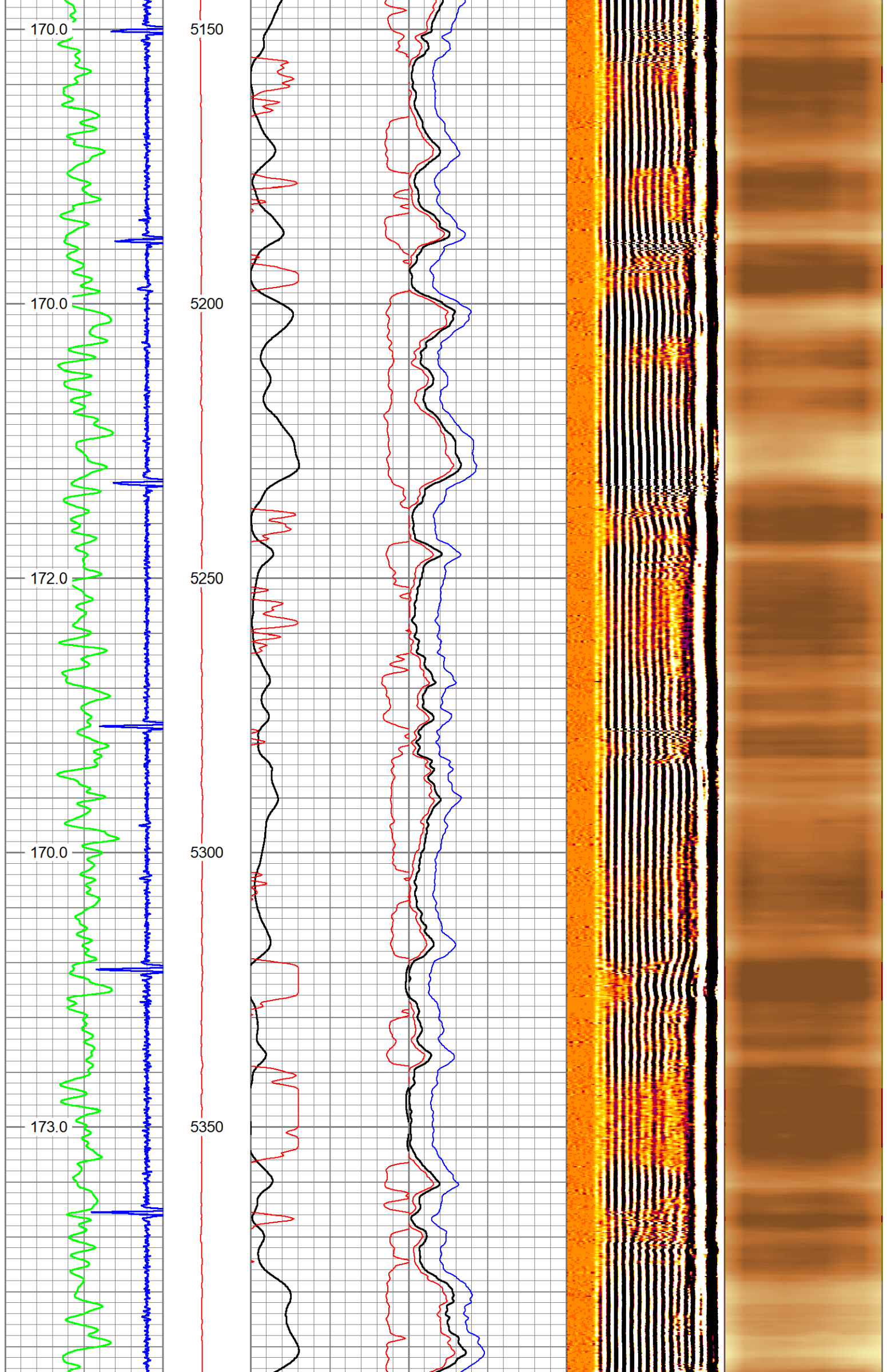




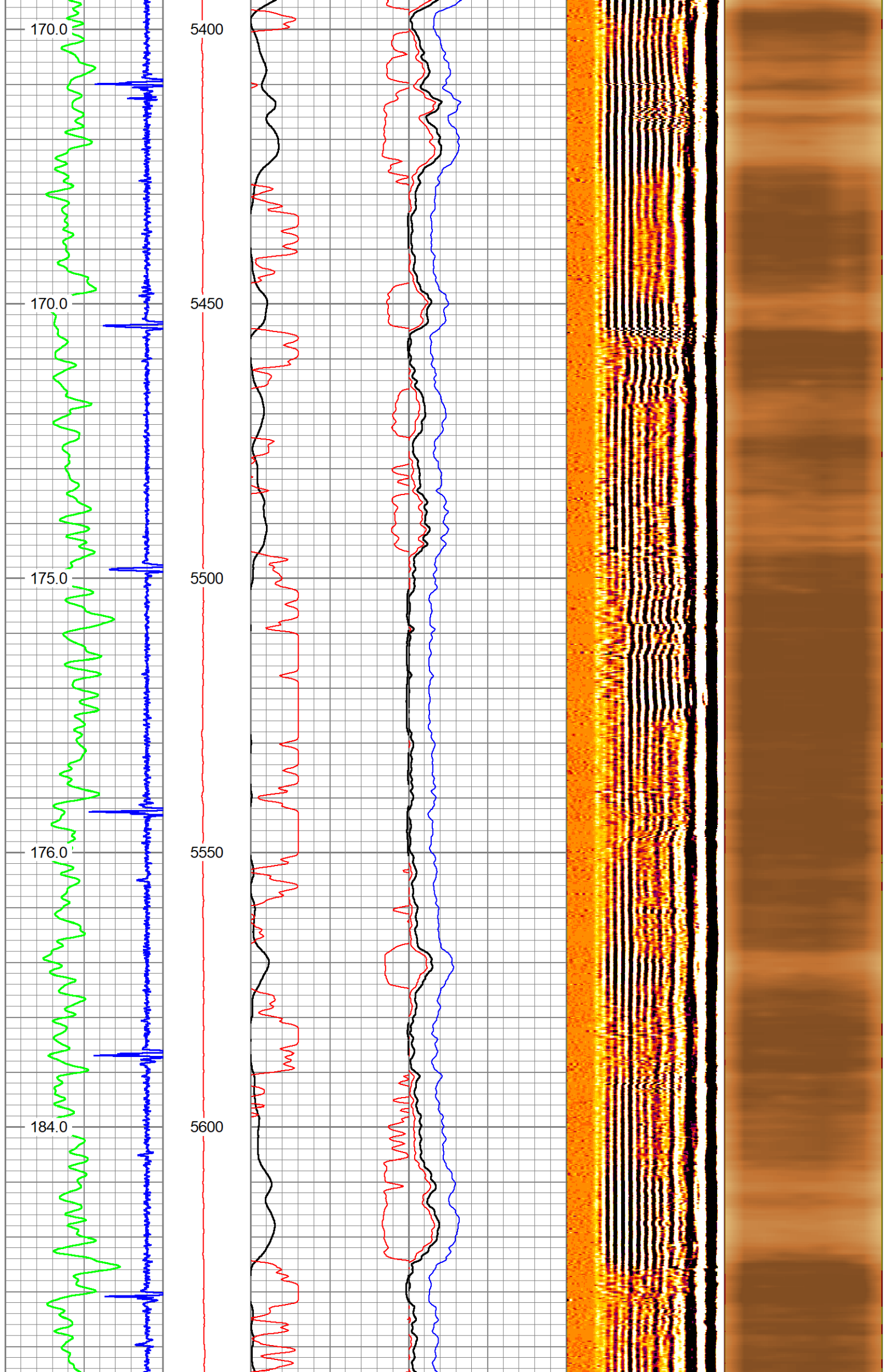


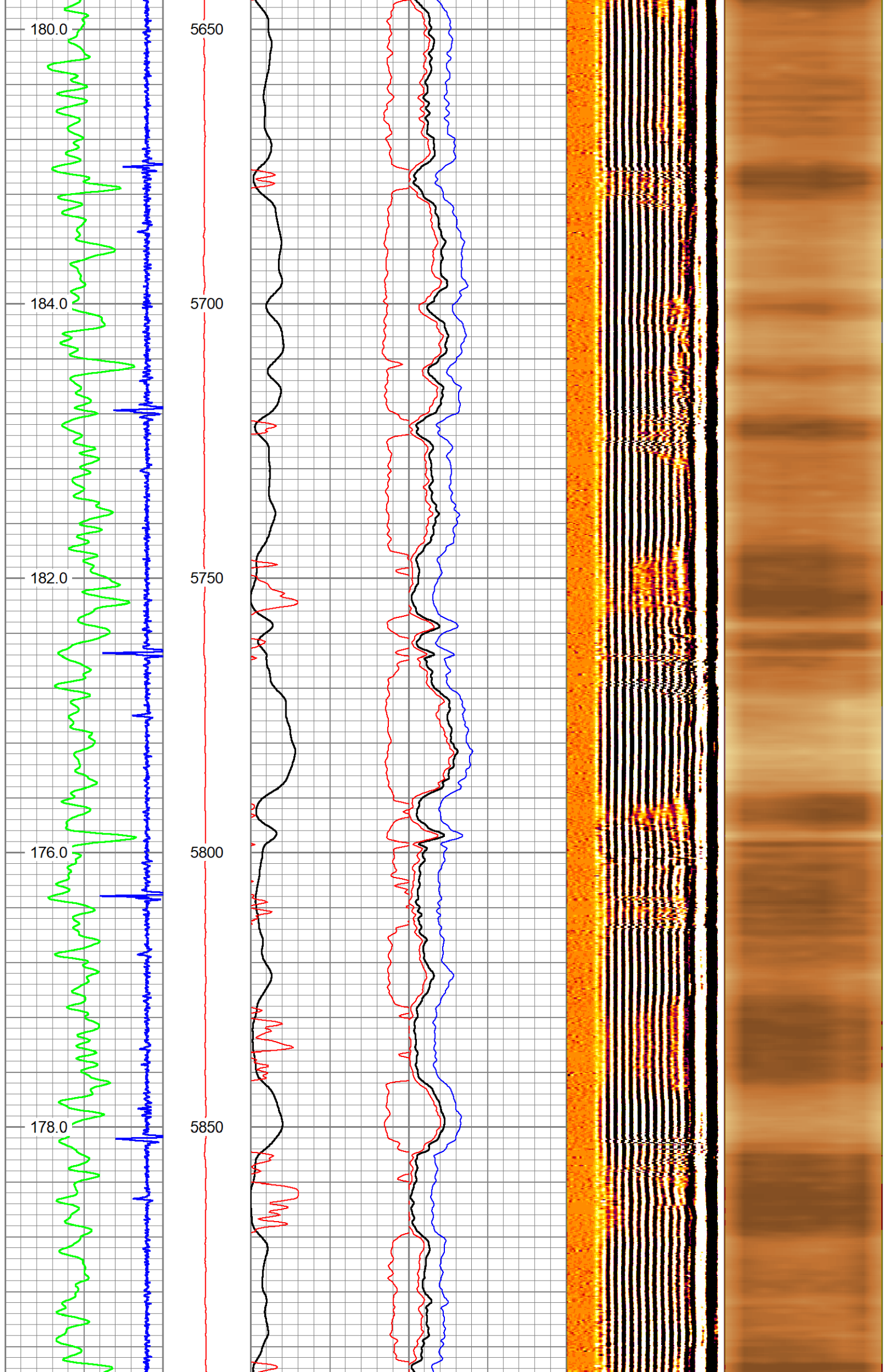




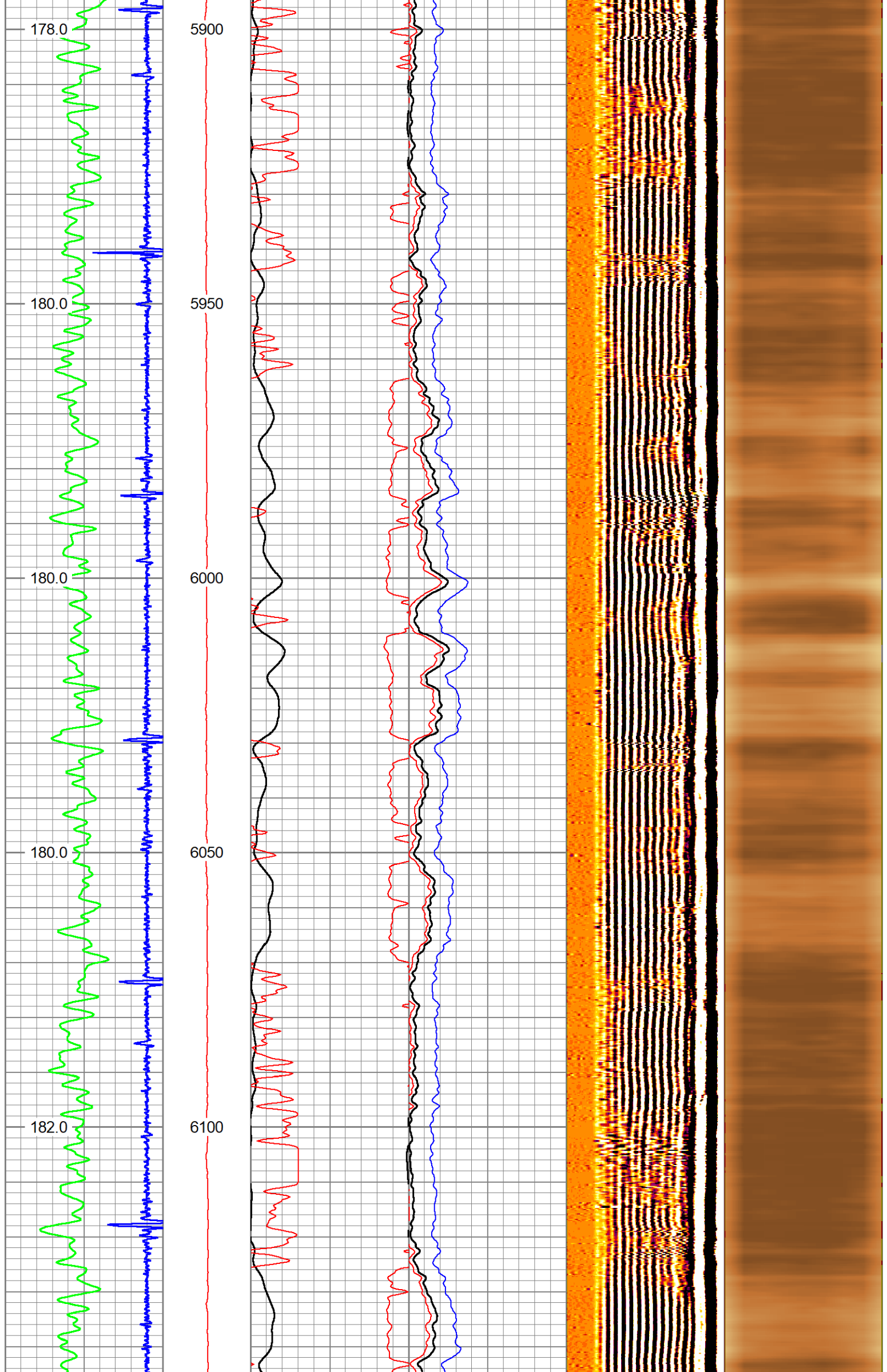


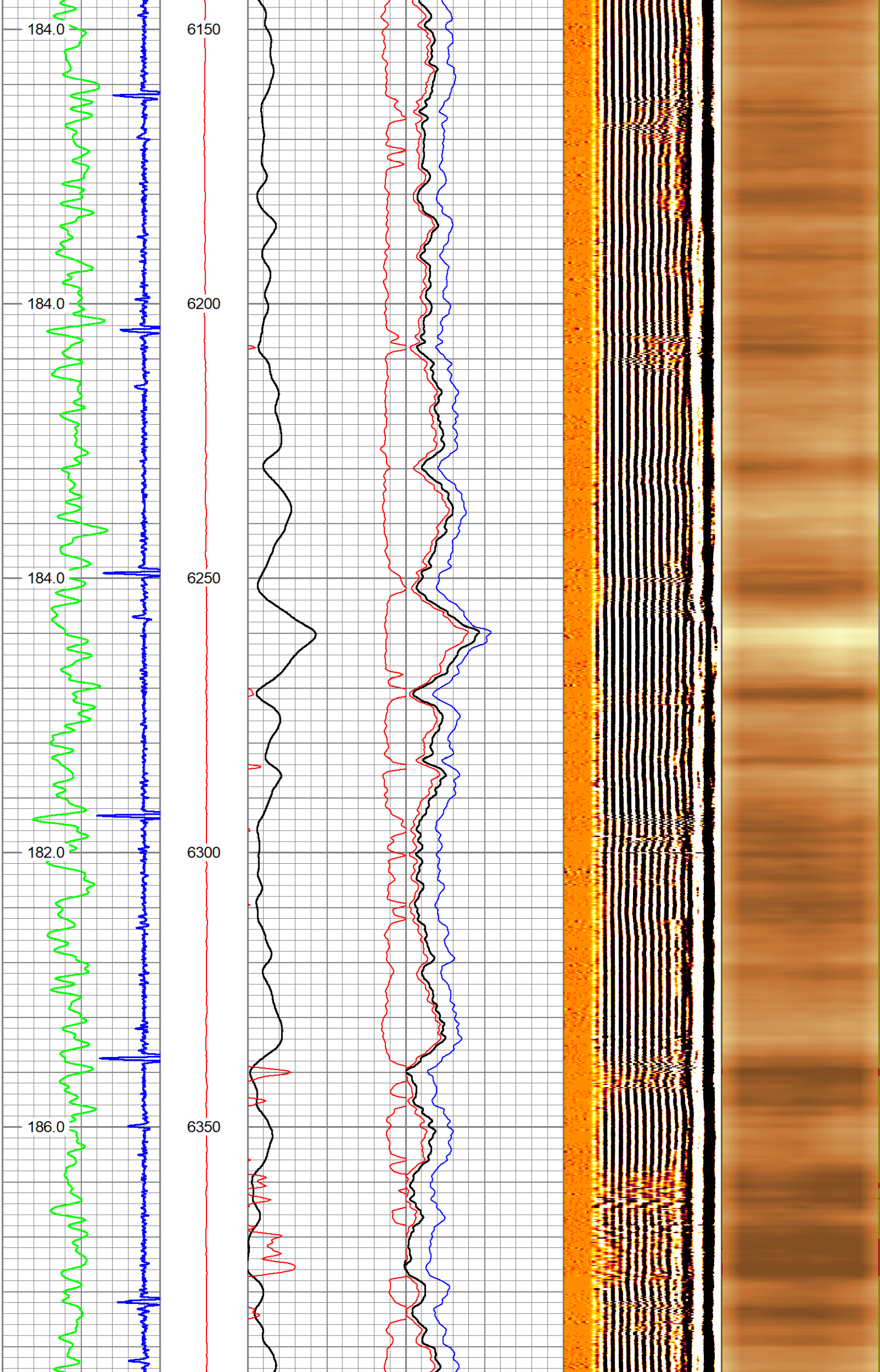




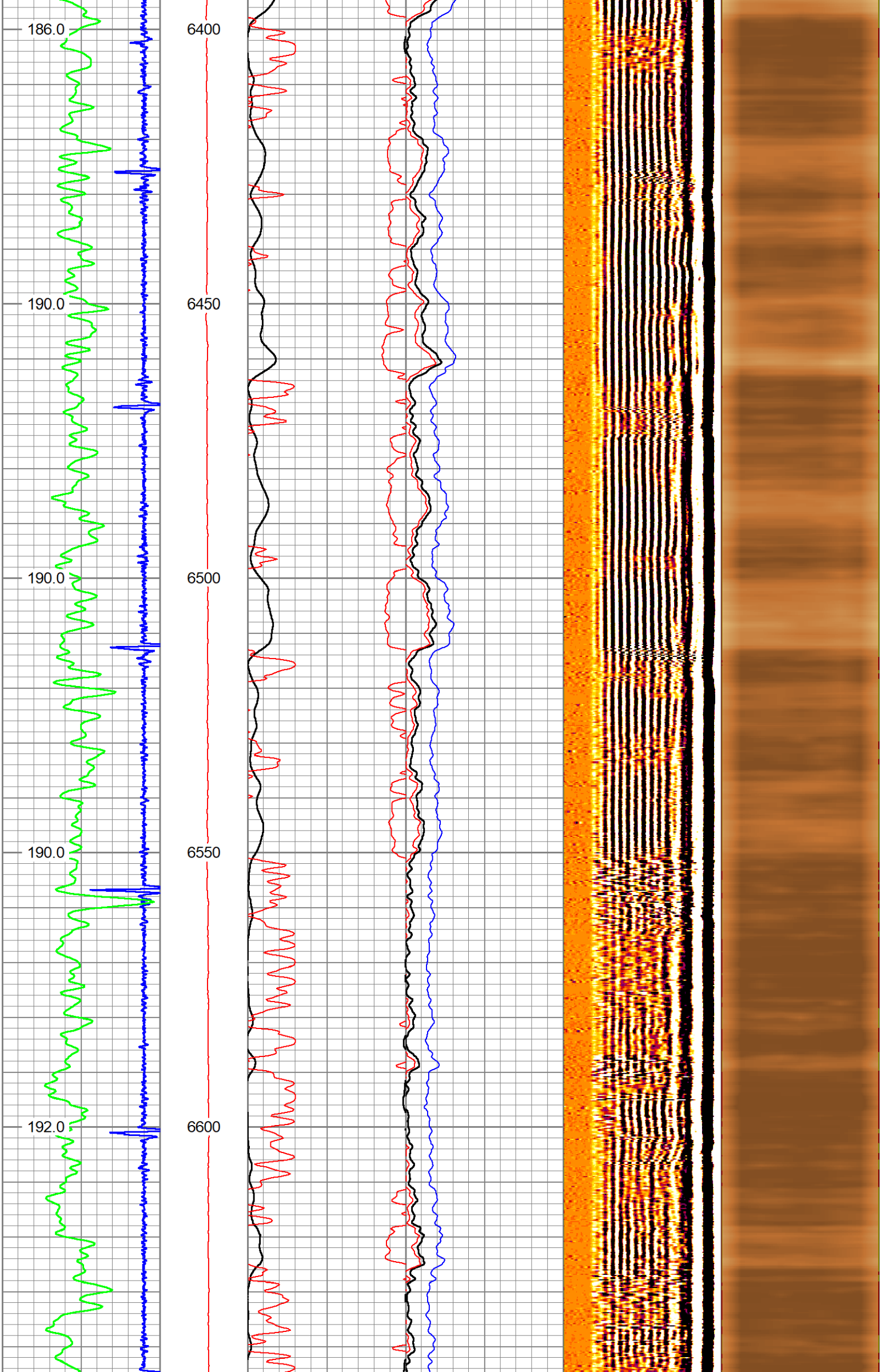


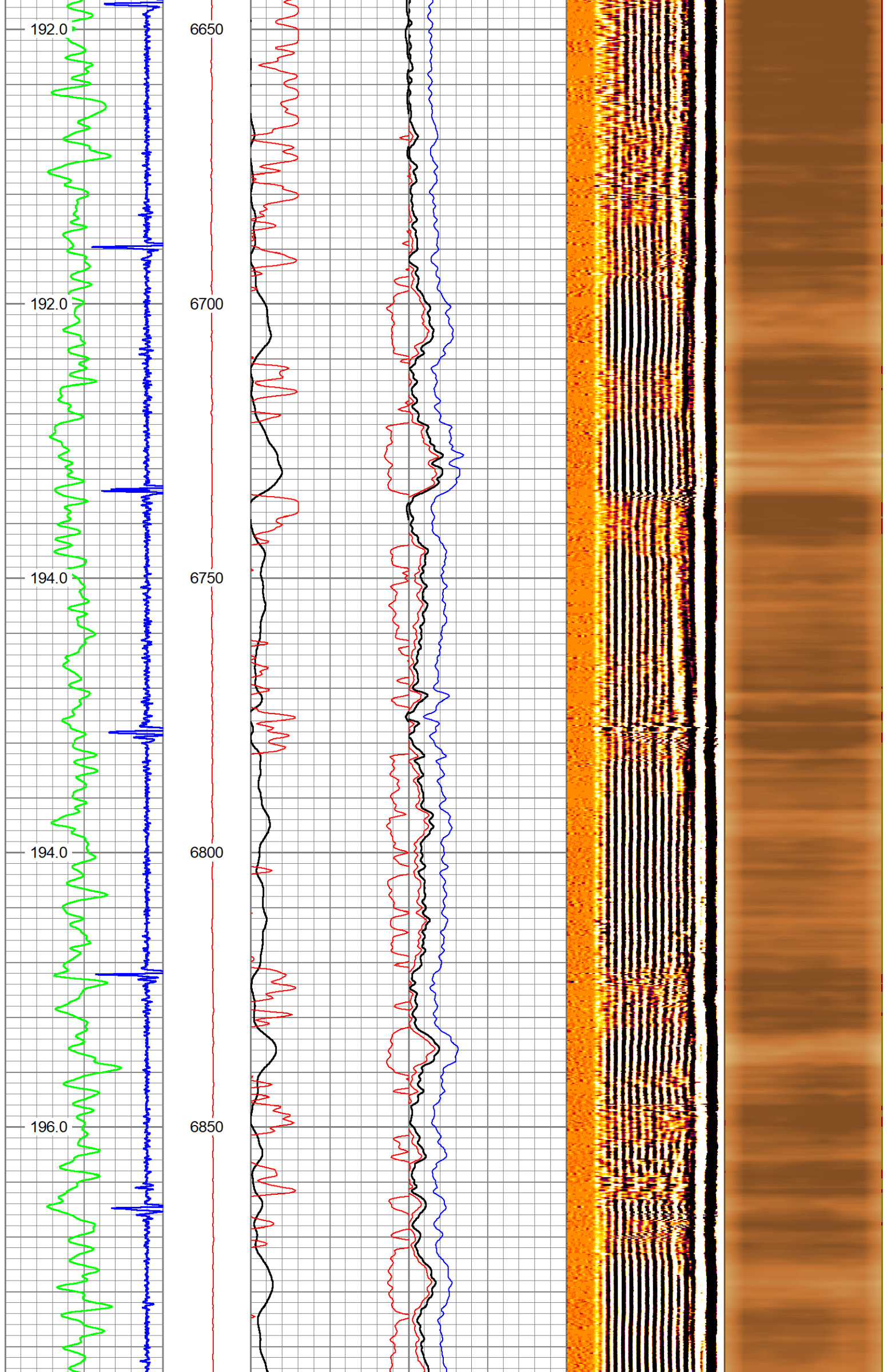




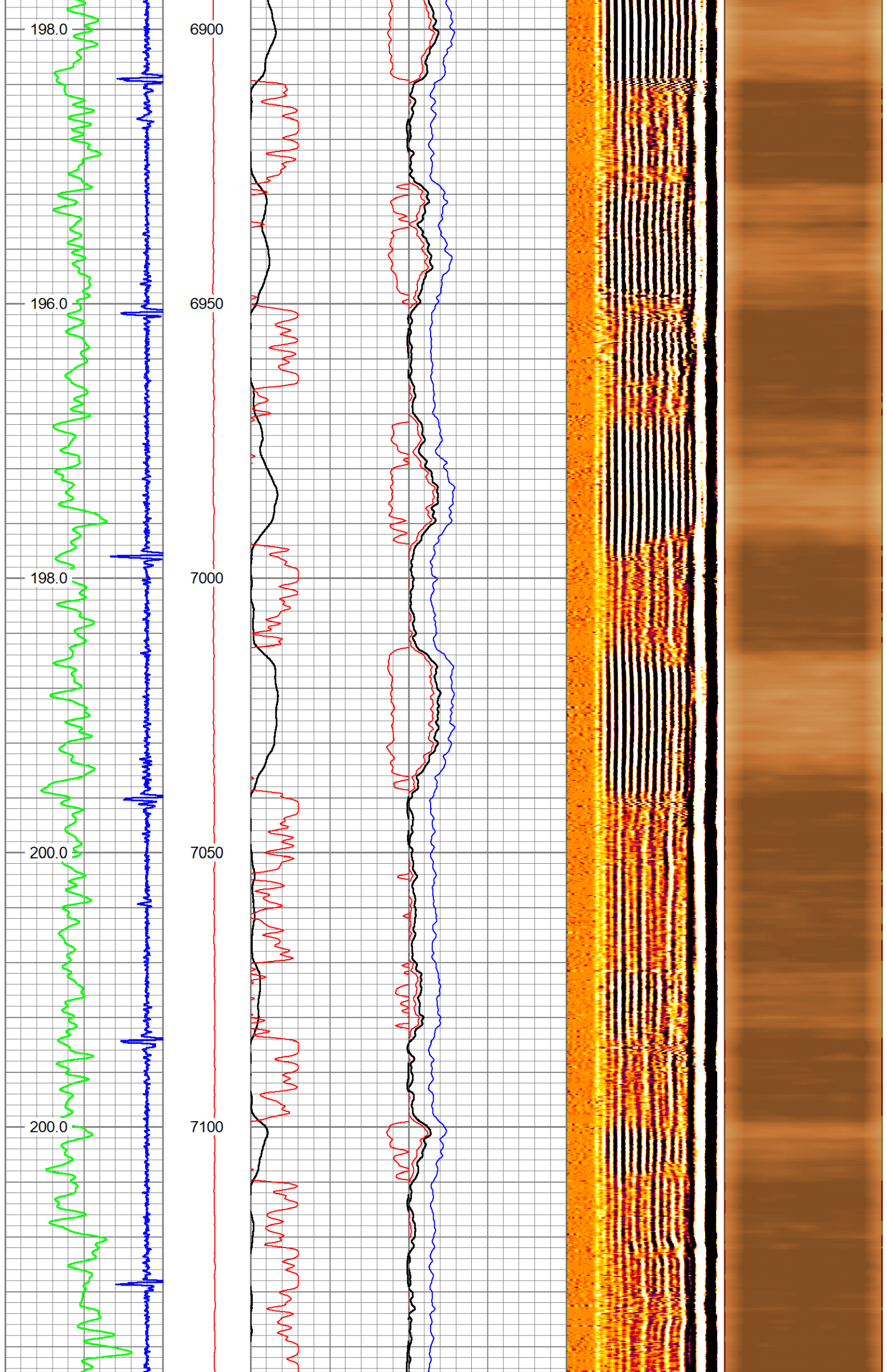


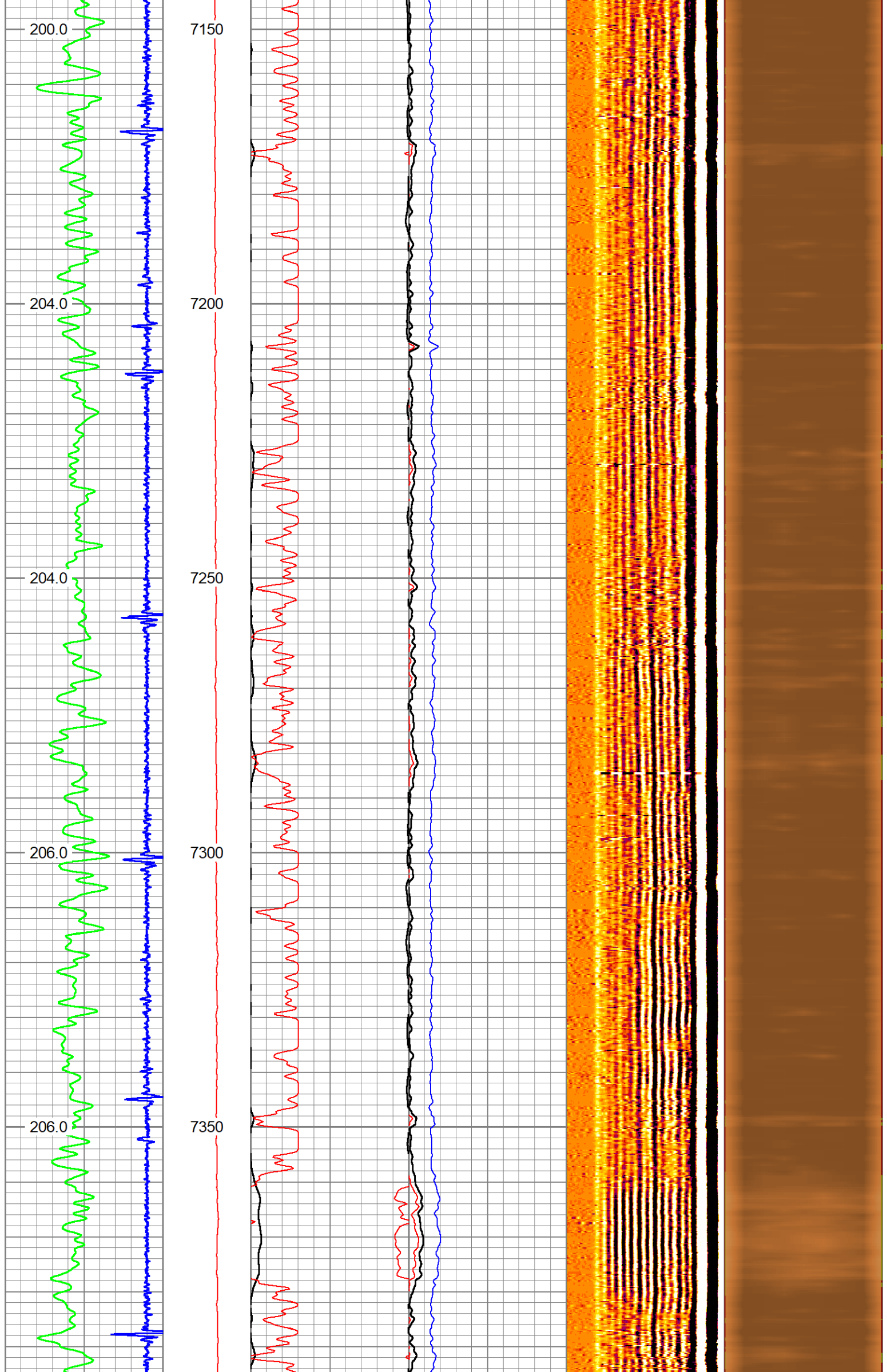




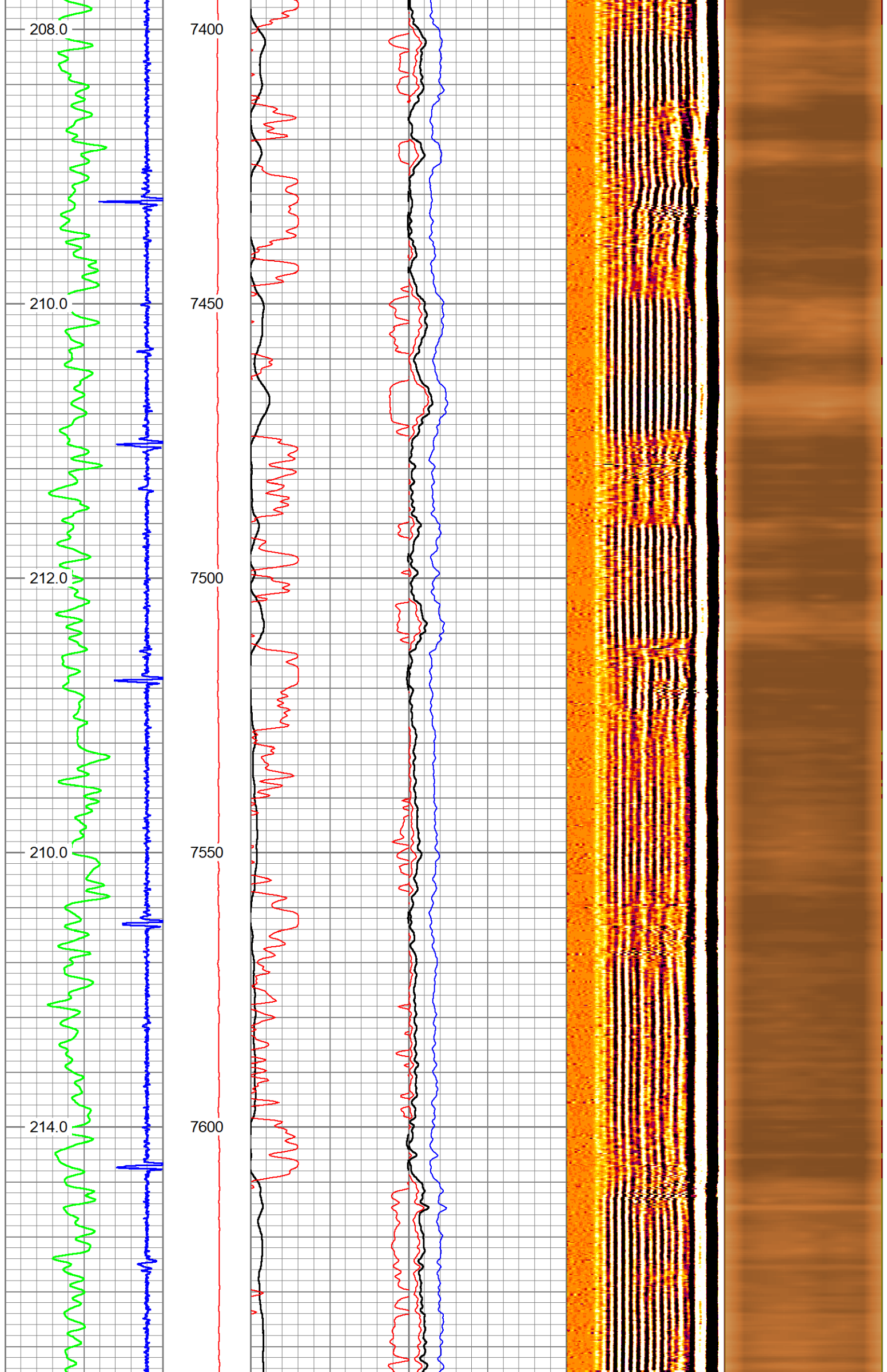


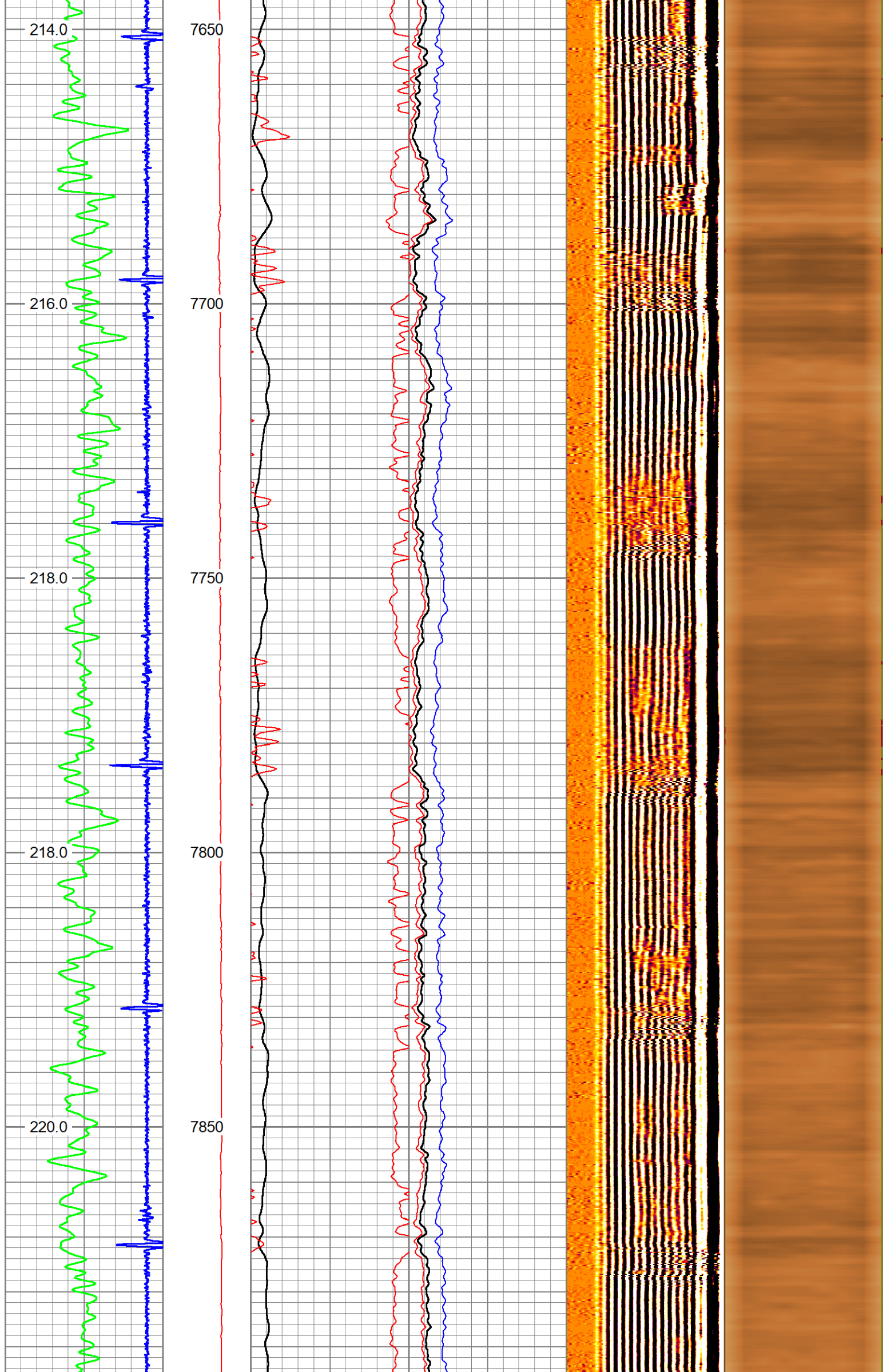




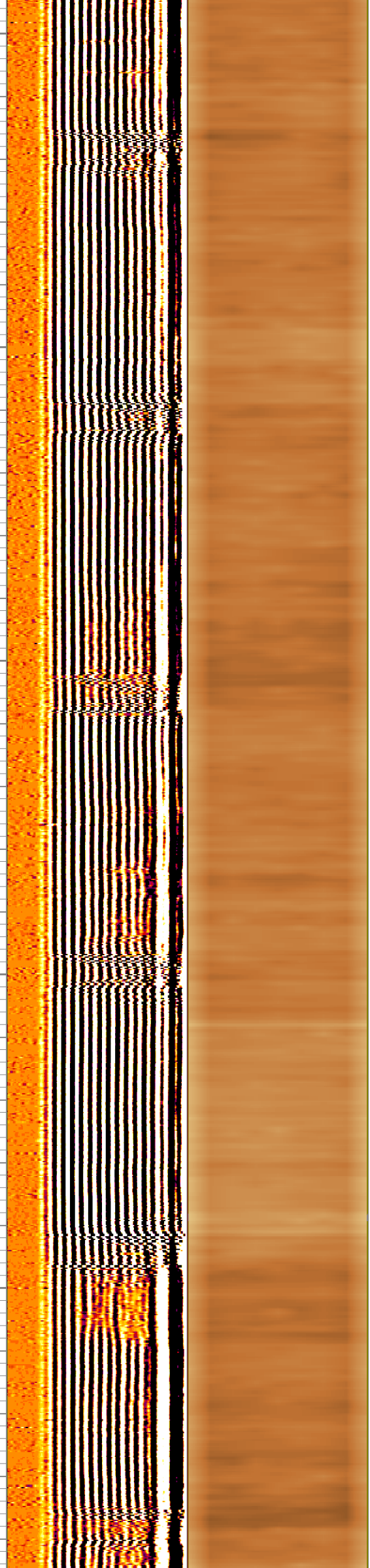
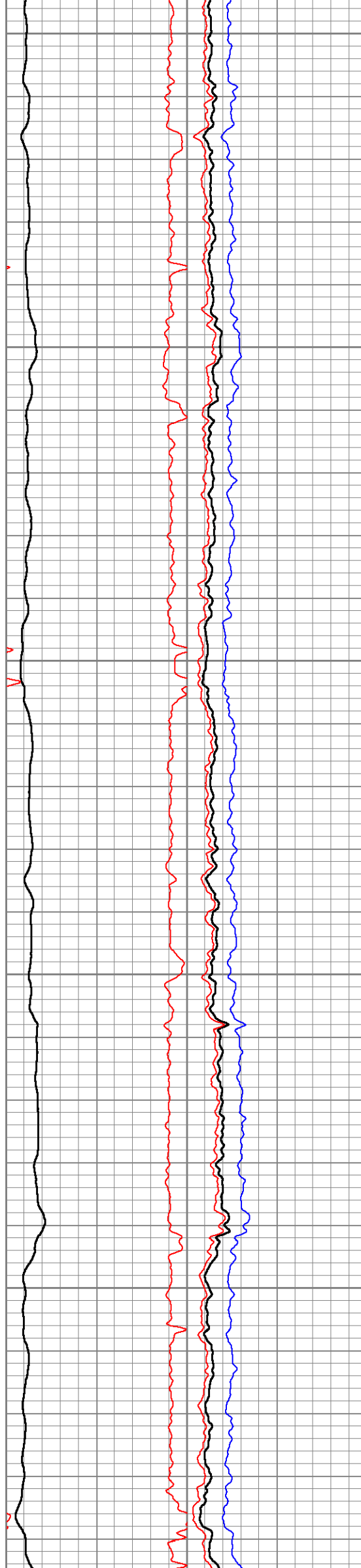
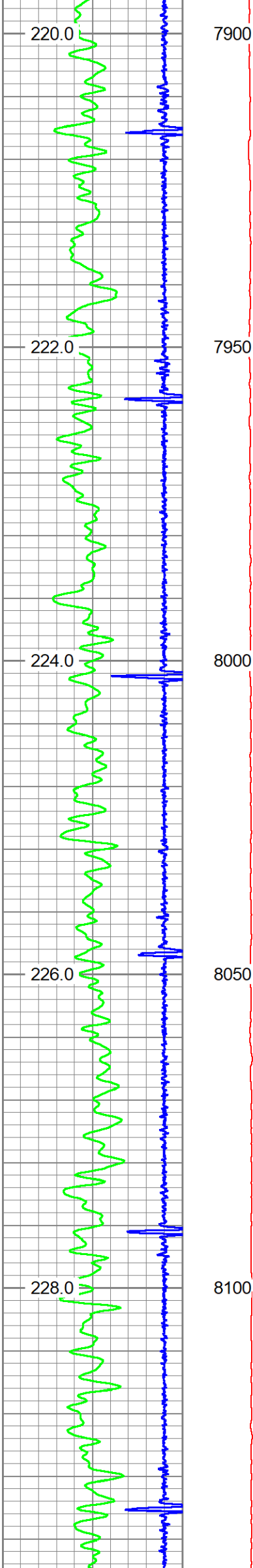


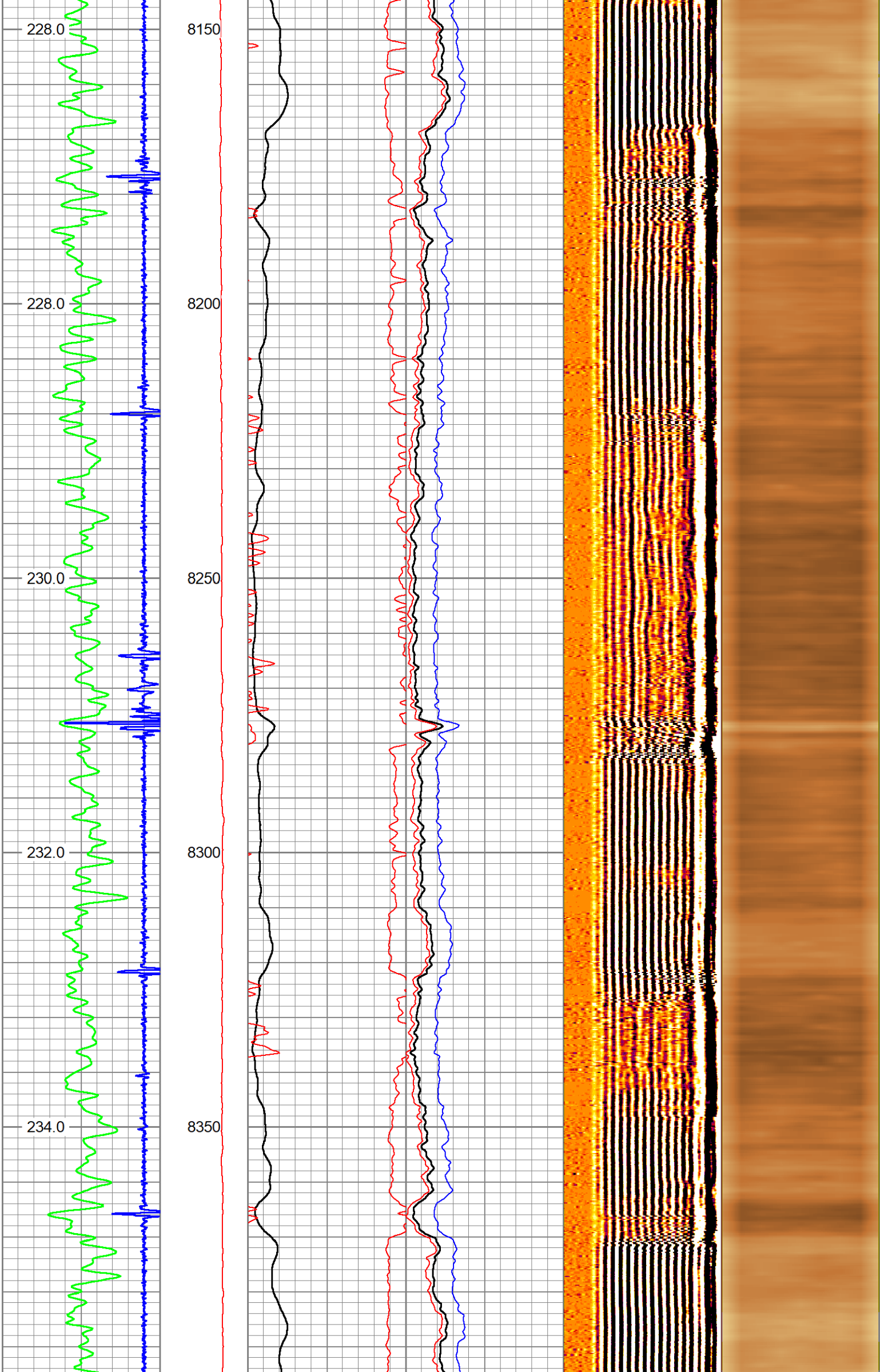








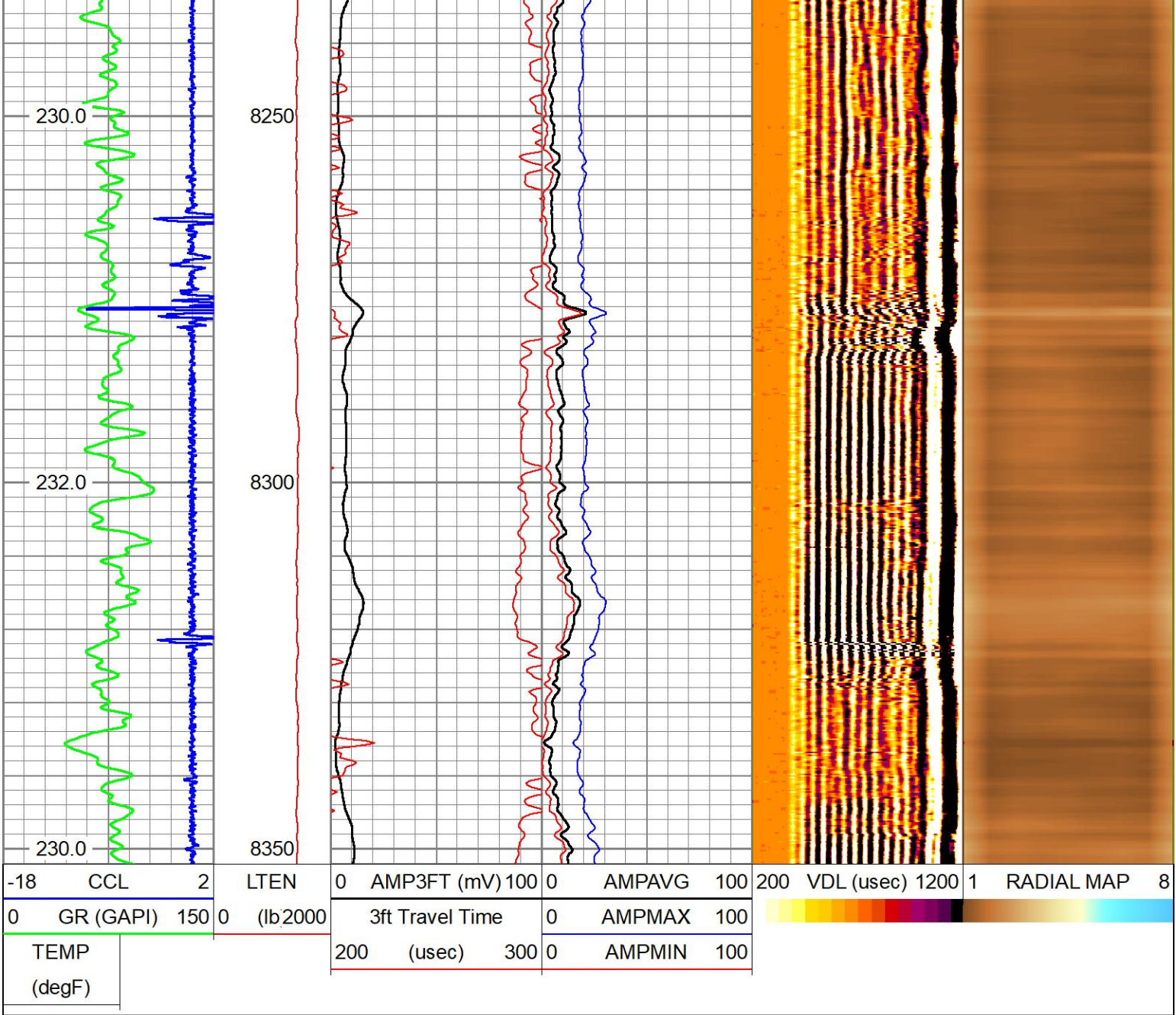












REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\livingston s19-25-2c.db  
Dataset field/well/run1/MAIN/\_vars\_

Top - Bottom

BHTEMP_Src	BITSIZE	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in	degF	in	in	lb/ft	mV	mV
	7.875	100	5.5	0	17	0	1
MINATTN	MudWgt	PERFS	PPT	SRFTEMP	TDEPTH		
db/ft	lb/gal		uSec	degF	ft		
0.8	9.5	No	0	0	0		

Calibration Report

Database File livingston s19-25-2c.db  
Dataset Pathname REPEAT  
Dataset Creation Wed Nov 20 01:23:20 2019

Temperature Calibration Report

Serial Number: Tit1.3\_02  
Tool Model: Titan  
Performed: Fri Jan 04 06:55:24 2002



	Reference	Reading
Low Reference:	0.00 degF	0.00 cps
High Reference:	1.00 degF	1.00 cps
Gain:	0.10	
Offset:	0.00	
Delta Spacing	2	

Gamma Ray Calibration Report

Type / Serial:Probe275dig / pr050806

SHOP CALIBRATION		Tue Nov 01 09:40:24 2005			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	79.3				cps
Calibrator	459.5				cps
		0.6312			GAPI/cps
PRIMARY VERIFICATION		00:00:00			
Background	48.3				cps
Calibrator	288.5				cps
Difference				240.2	GAPI
BEFORE SURVEY VERIFICATION		00:00:00			
Background	47.8				cps
Calibrator	290.6				cps
Difference				242.8	GAPI
AFTER SURVEY VERIFICATION		00:00:00			
Background	35.8				cps
Calibrator	286.1				cps
Difference				250.2	GAPI

Segmented Cement Bond Log Calibration Report

Serial Number:	11568129
Tool Model:	Probe
Calibration Casing Diameter:	5.500 in
Calibration Depth:	1243.945 ft

Master Calibration, performed Tue Nov 19 18:52:02 2019:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.914	0.000	72.000	78.762	0.000
CAL	0.000	1.846				
5'	0.000	0.626	0.000	72.000	114.973	0.000
SUM						
S1	0.000	1.194	0.000	72.000	60.299	0.000
S2	0.000	0.970	0.000	72.000	74.242	0.000
S3	0.000	0.954	0.000	72.000	75.477	0.000
S4	0.000	0.845	0.000	72.000	85.173	0.000
S5	0.000	0.785	0.000	72.000	91.700	0.000
S6	0.000	0.783	0.000	72.000	92.003	0.000
S7	0.000	0.826	0.000	72.000	87.158	0.000
S8	0.000	0.915	0.000	72.000	78.678	0.000

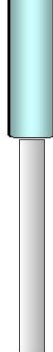
Internal Reference Calibration, performed (Not Performed):						
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	1.846	1.000	0.000

Air Zero Calibration, performed Tue Nov 05 15:10:51 2019:

		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

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
WVFCAL WVF3FT			STNDCH-1_11_16_CH 1.6875 IN CABLE HEAD	1.50	1.44	1.00
			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00
			RBT_PRB275-Probe (11568129) Probe Radii Bond Tool with Digital Telemetry	8.33	2.75	90.00
	12.58					
	12.58					
WVF5FT	10.58					
			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00
CCL	6.13					
GR	4.75		GR_PRB275-probe275dig (pr050806) Probe Digital Gamma CCL	4.75	2.75	57.00



TEMP LLMTEN	0.17		TEMP-Titan (Tit1.3_02) Titan Temp 1.3875	2.21	1.39	10.00
	0.00					
Dataset: livingston s19-25-2c.db: field/well/run1/MAIN Total length: 22.54 ft Total weight: 198.00 lb O.D.: 2.75 in						

Company	EXTRACTION OIL & GAS INC				
Well	LIVINGSTON S19-25-2C				
Field	WATTENBERG				
County	BROOMFIELD			State	CO
HALLIBURTON		RADIAL CEMENT BOND LOG			