

HALLIBURTON

RADIAL CEMENT
BOND LOG

Company		EXTRACTION OIL & GAS INC	
Well		LIVINGSTON S19-25-6N	
Field		WATTENBERG	
County		BROOMFIELD CO	
Company		EXTRACTION OIL & GAS INC	
Well		LIVINGSTON S19-25-6N	
Field		WATTENBERG	
County		BROOMFIELD State CO	
API No.: 050142074700		Serv #: 906093922	
Location: SURFACE HOLE LOCATION: 2332' FSL & 1456' FEL NWSE		Other Services	
LATITUDE: 39.978563 LONGITUDE: -105.039801		NONE	
Sec: 7 Twp: 1S Rge: 68W			
Permanent Datum		GROUND LEVEL Elevation 5320	
Log Measured From		KB , 29 Ft. above perm. datum	
Drilling Measured From		KB	
Date @ Time Logged		11/5/19 @ 16:00	
Run No.		ONE	
Depth - Driller		21171	
Depth - Logger		7651	
Bottom - Logged Interval		7641	
Top - Log Interval		SURFACE	
Max. Recorded Temp.		223 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 21171 5.5 17 0 21171	

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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 7490.

BOND INDEX CALCULATED FOR 3000 PSI COMPRESSIVE STRENGTH CEMENT.

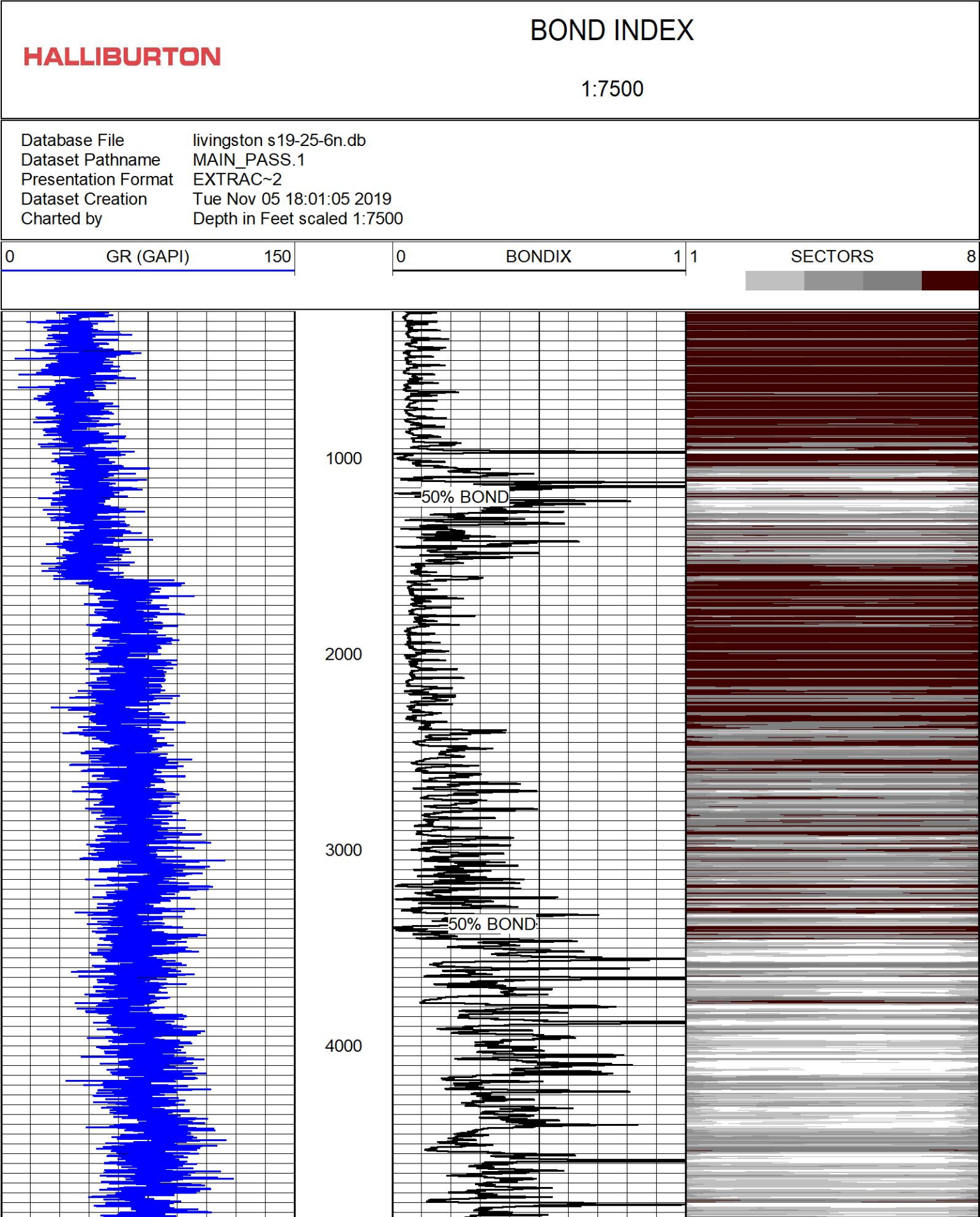
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.

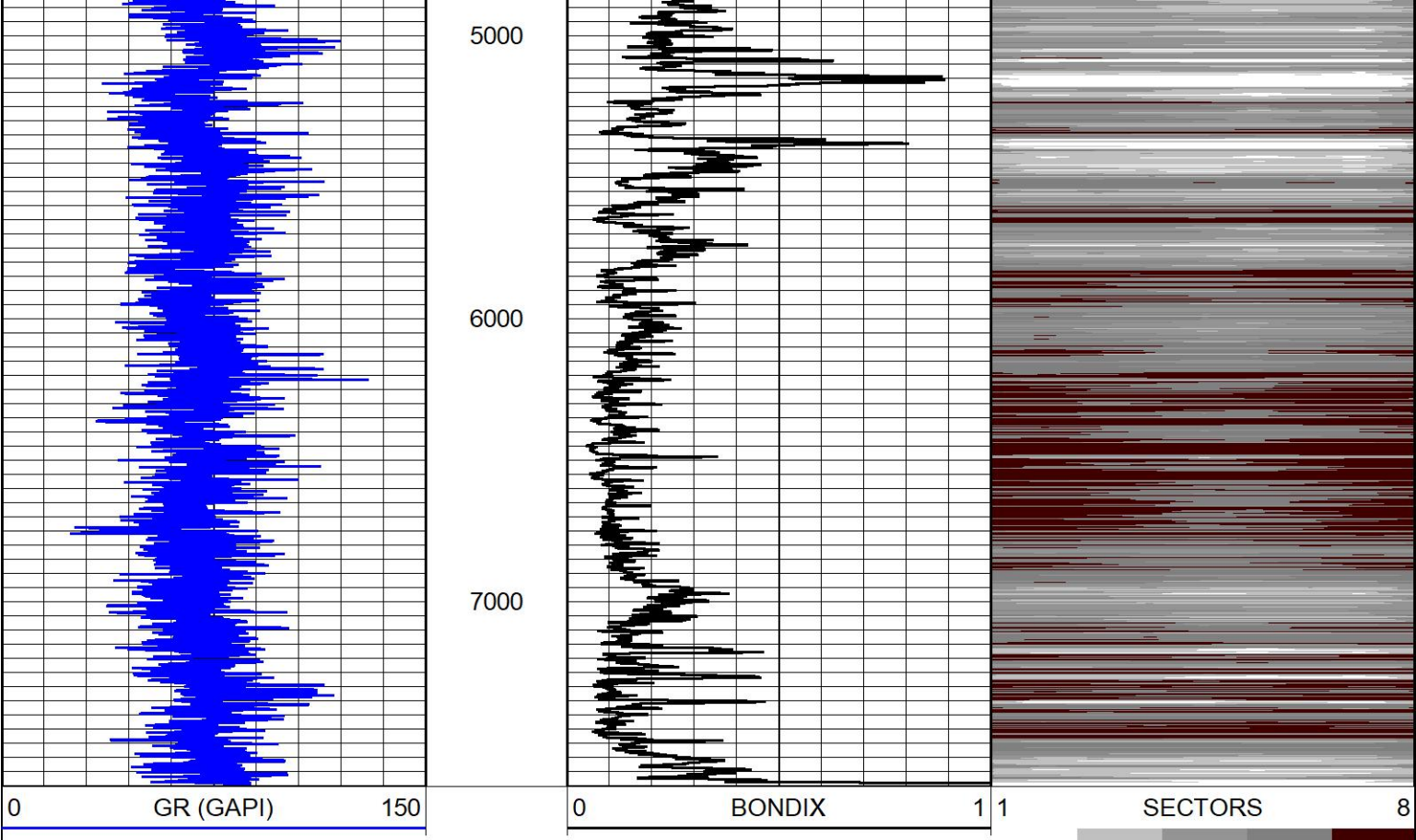
YOUR CREW TODAY WAS:

C. KLEINSASSER & E. GOOD

Service Ticket No.	906093922	API No.	050142074700	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.	50806	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	Gamma	
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	





BOND INDEX

HALLIBURTON

1:7500

MAIN PASS

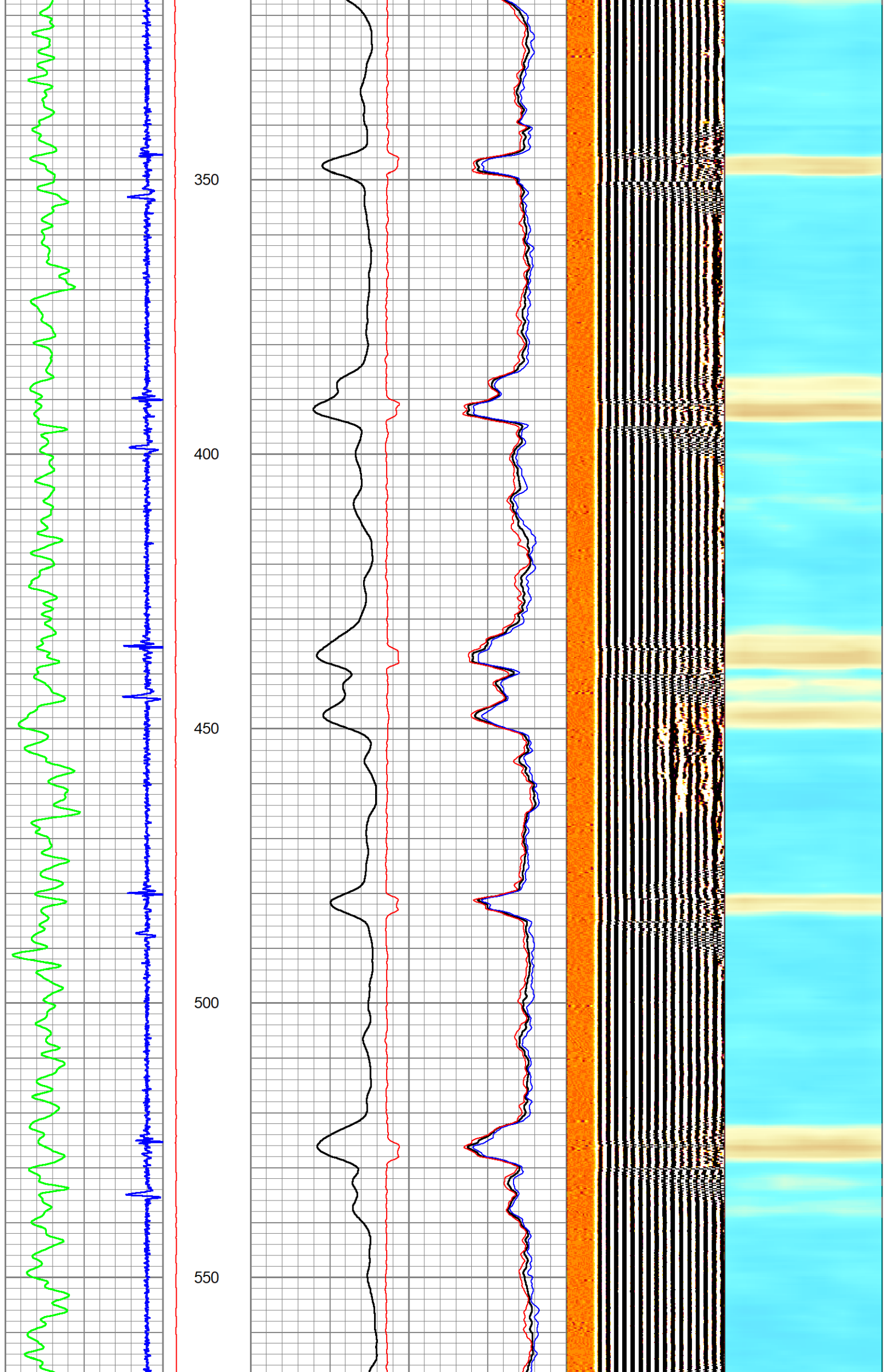
HALLIBURTON

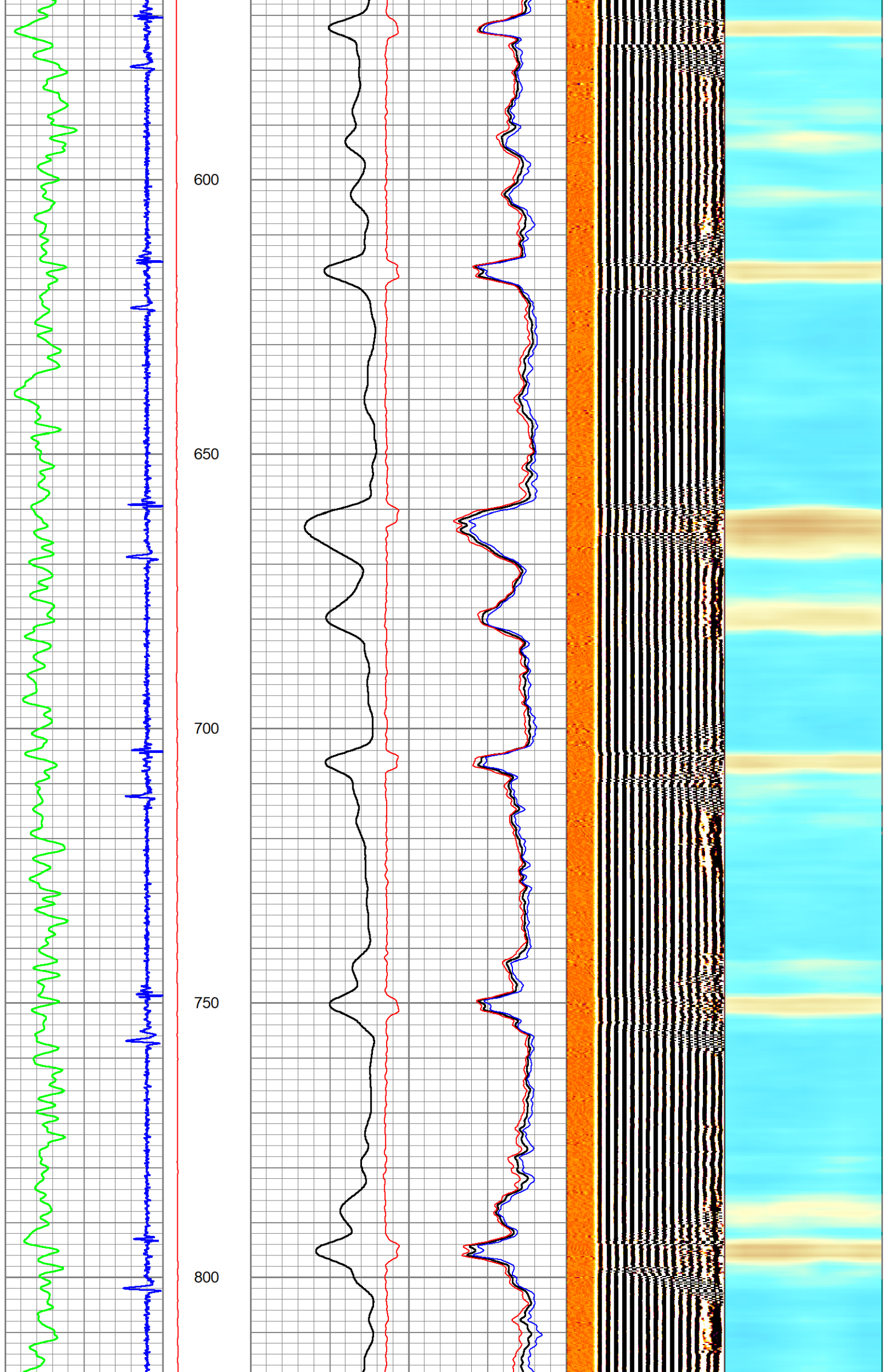
5" = 100'

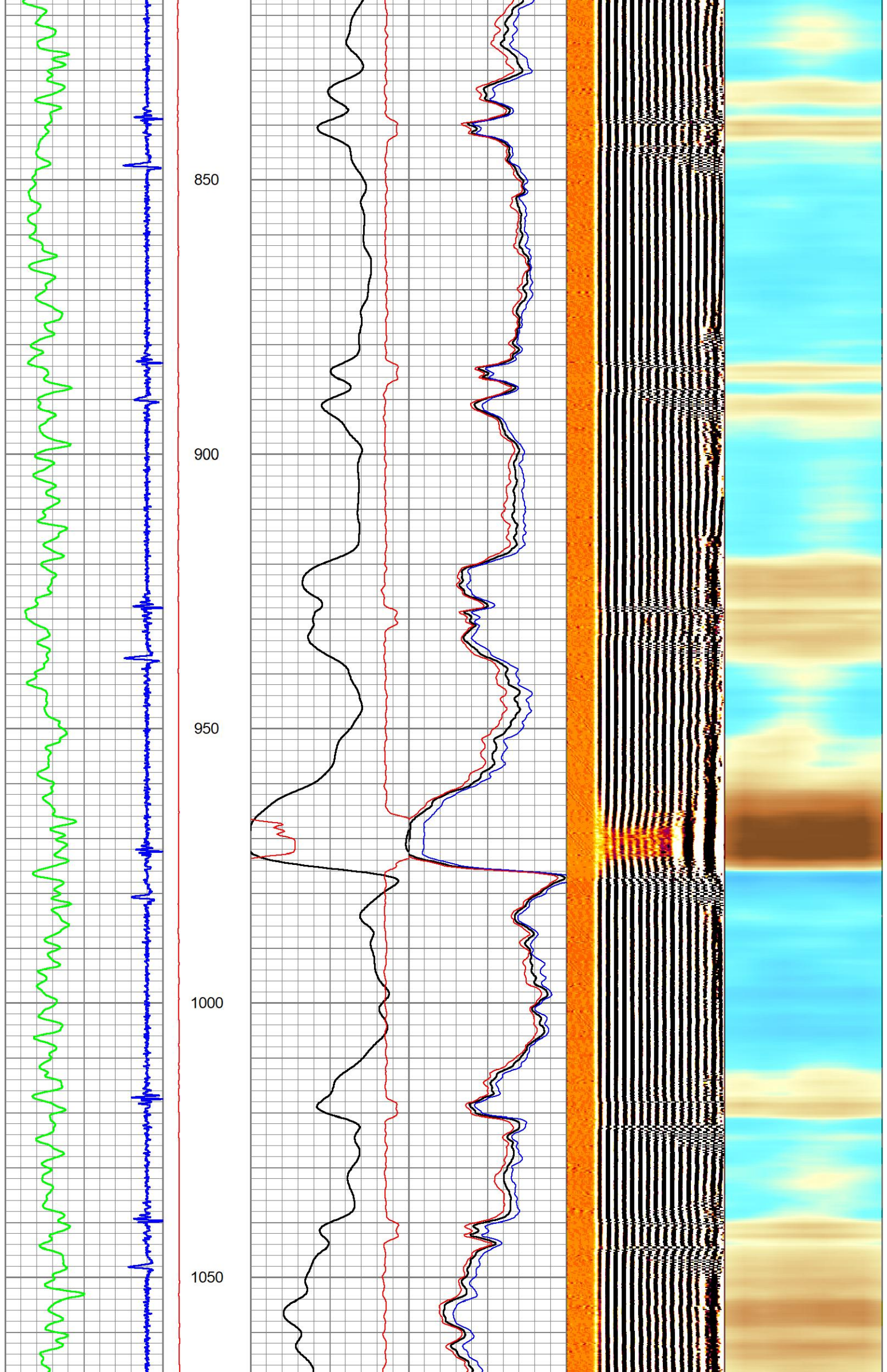
Database File livingston s19-25-6n.db
Dataset Pathname MAIN_PASS
Presentation Format EXTRAC~1
Dataset Creation Tue Nov 05 16:11:08 2019
Charted by Depth in Feet scaled 1:240

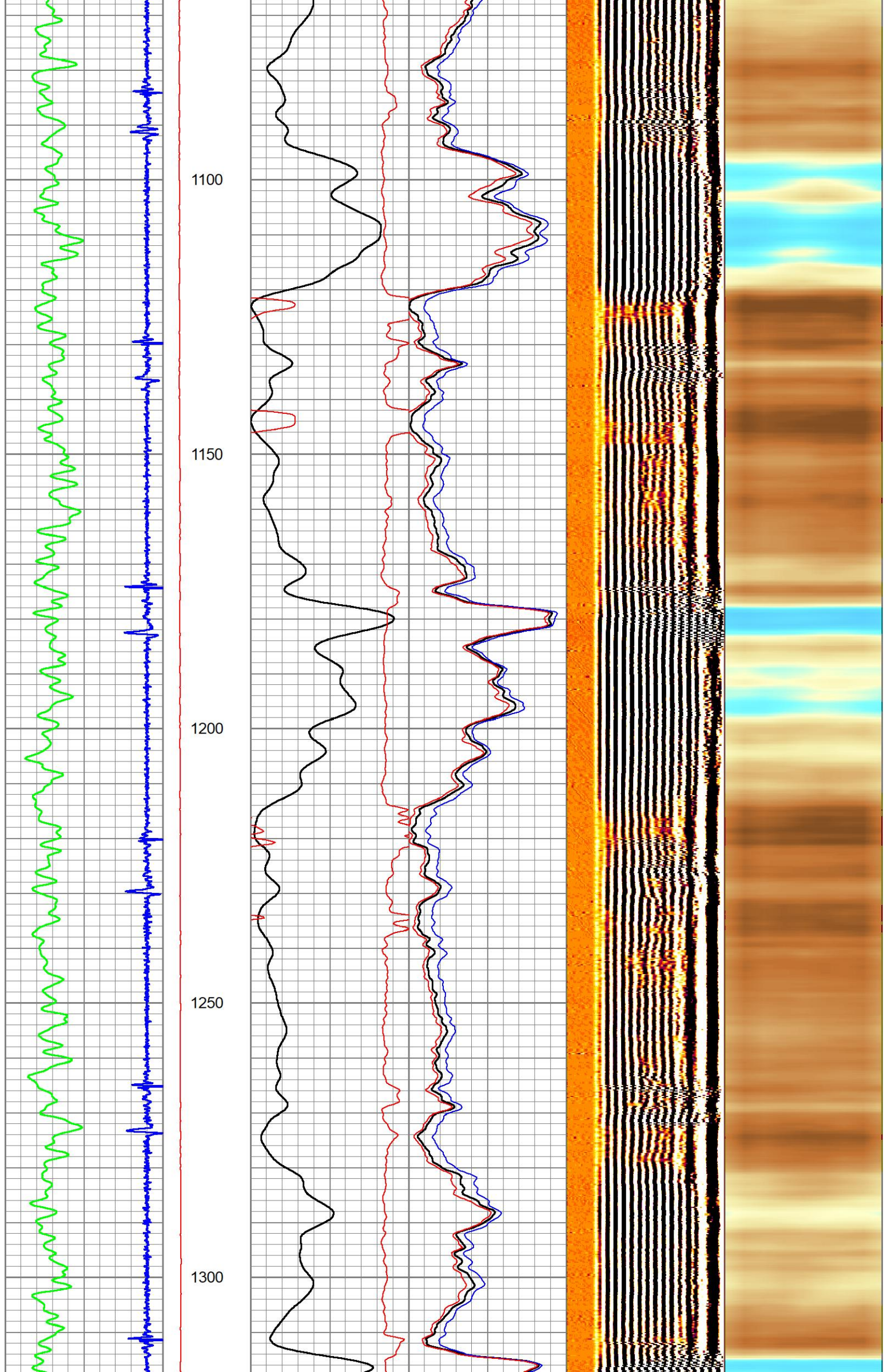
-18	CCL	2	LTEN	0	AMP3FT (mV) 100	0	AMPAVG	100	200	VDL (usec) 1200	1	RADIAL MAP	8
0	GR (GAPI)	150	0 (lb/2000)	3ft Travel Time	0	AMPMAX	100						
				200 (usec) 300	0	AMPMIN	100						

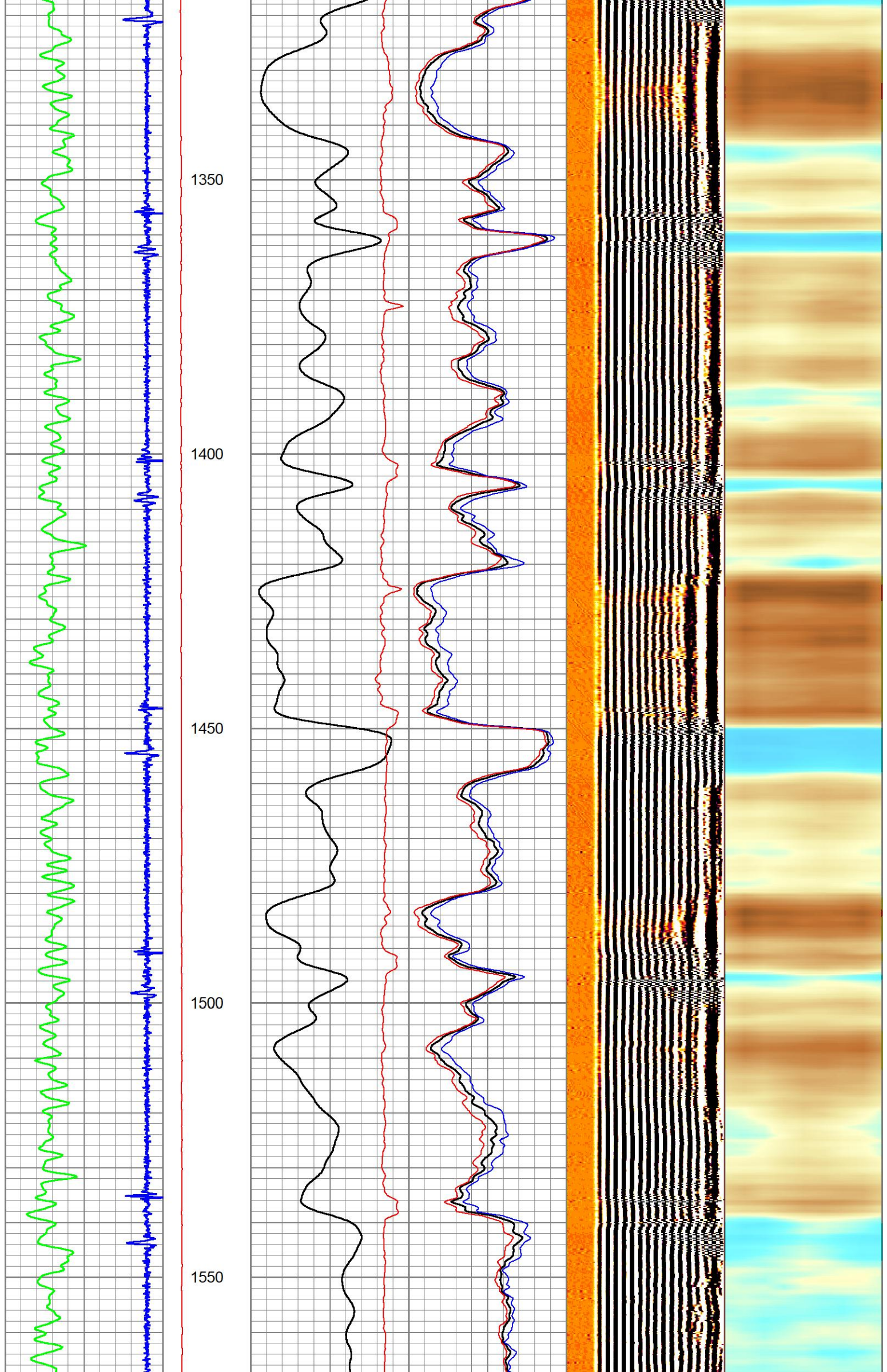


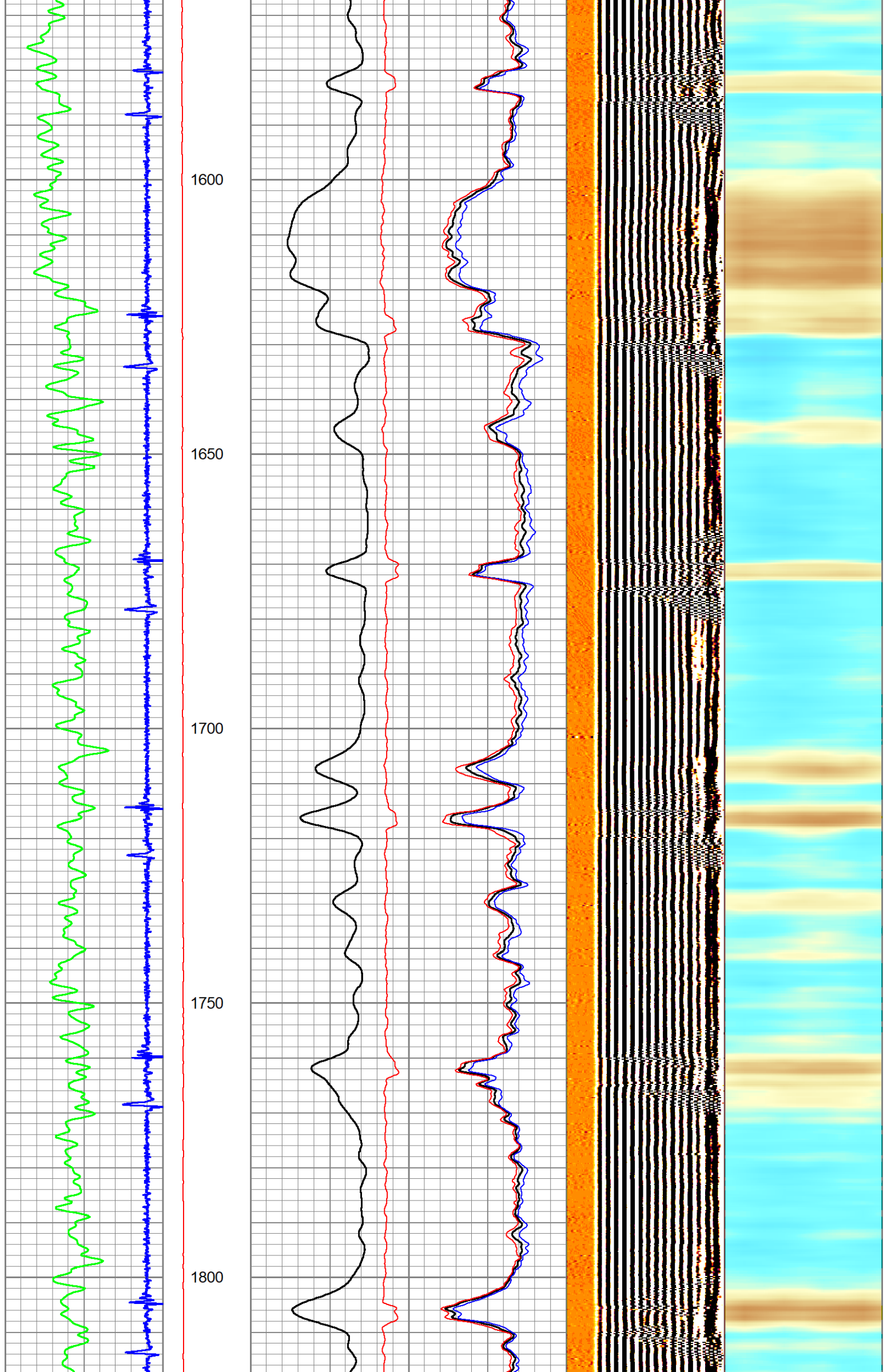


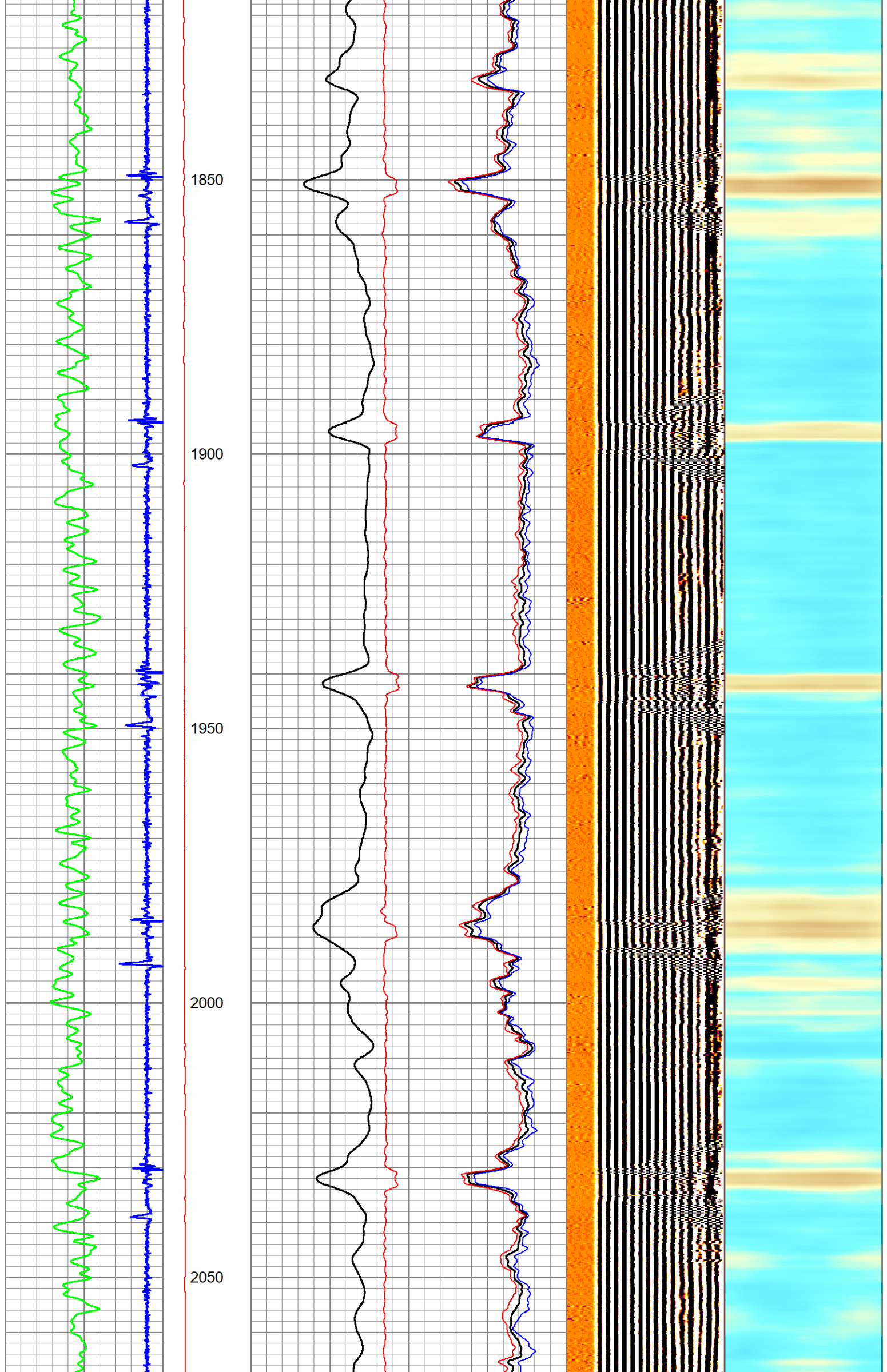


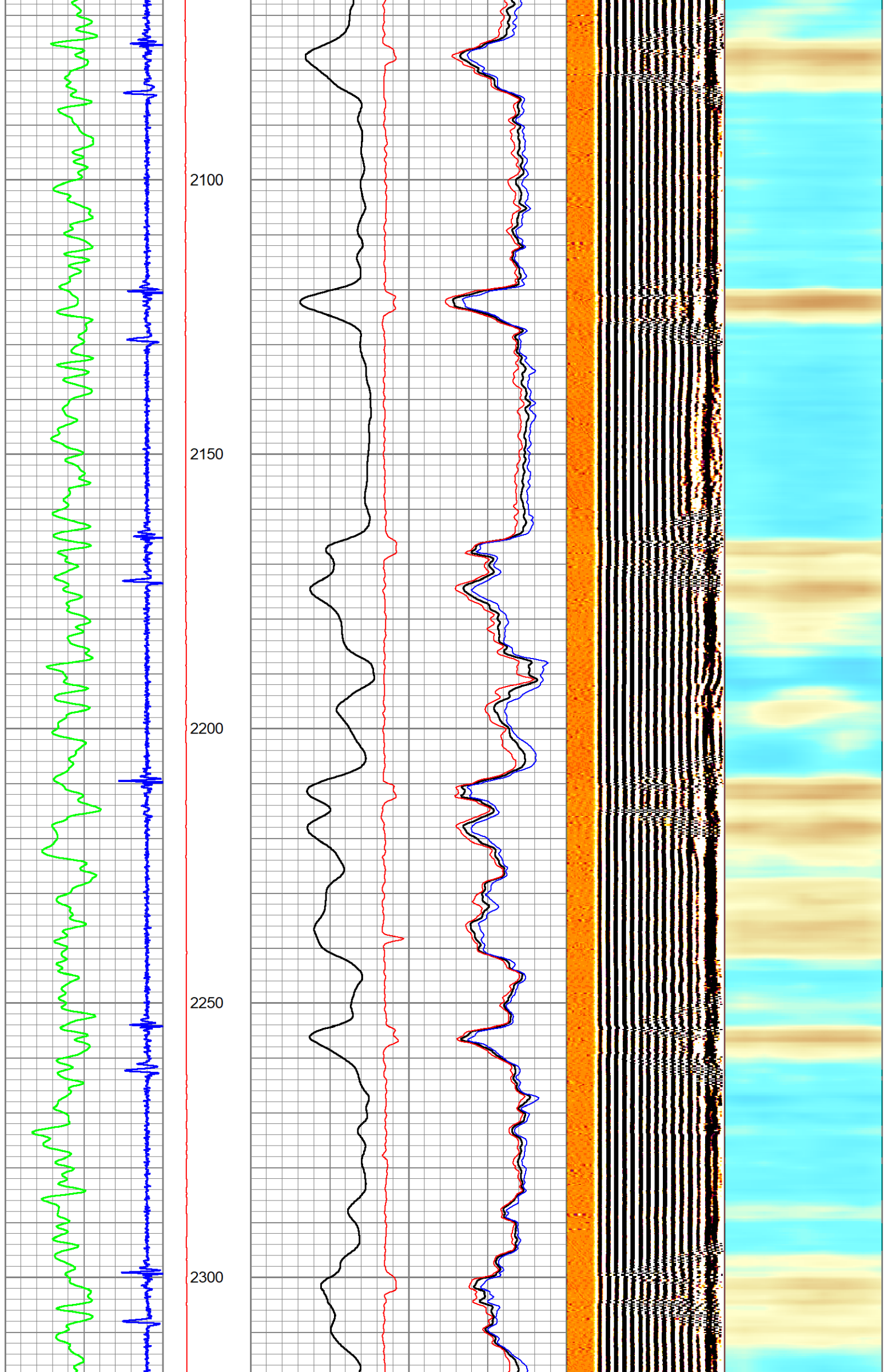


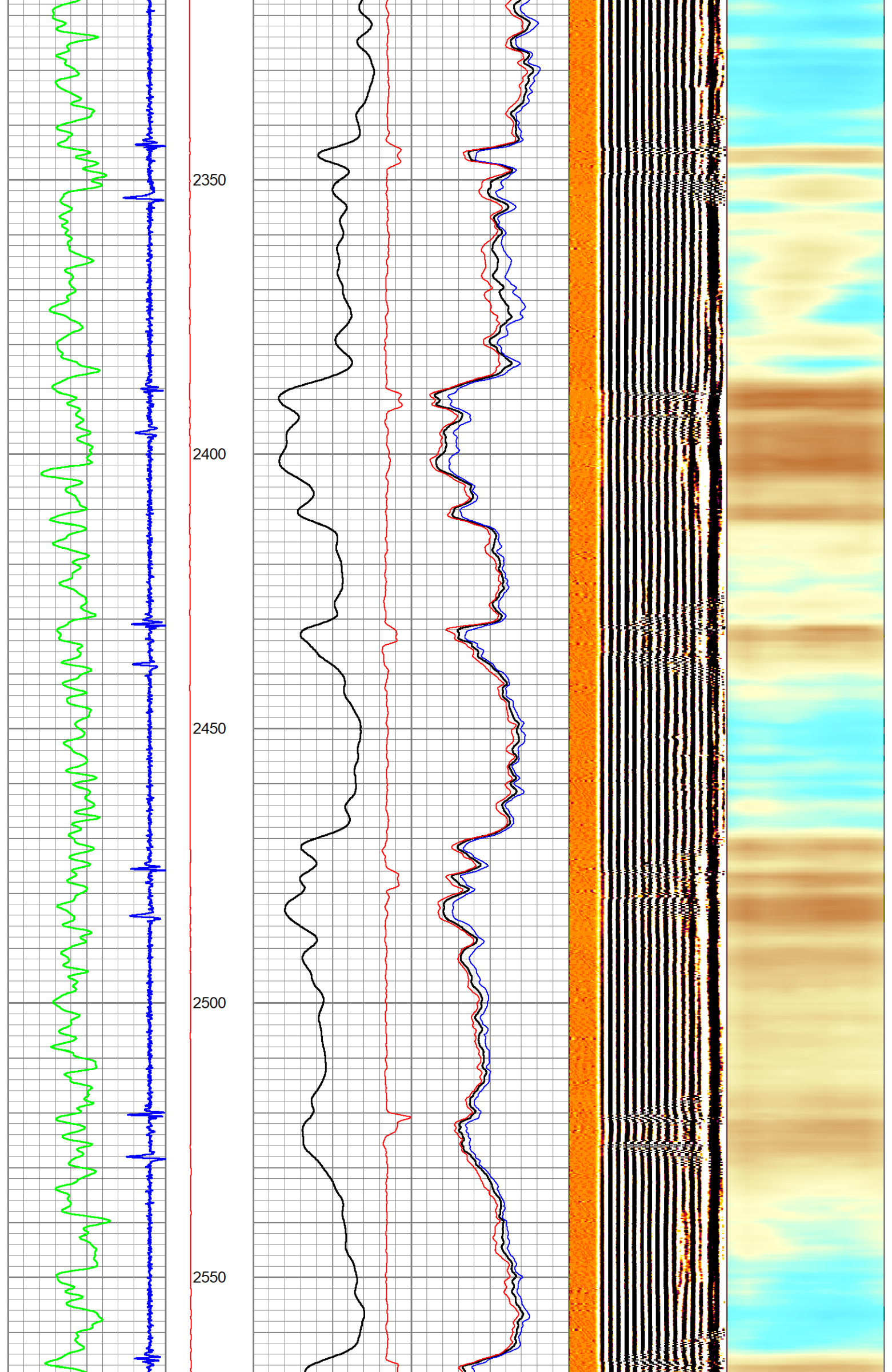


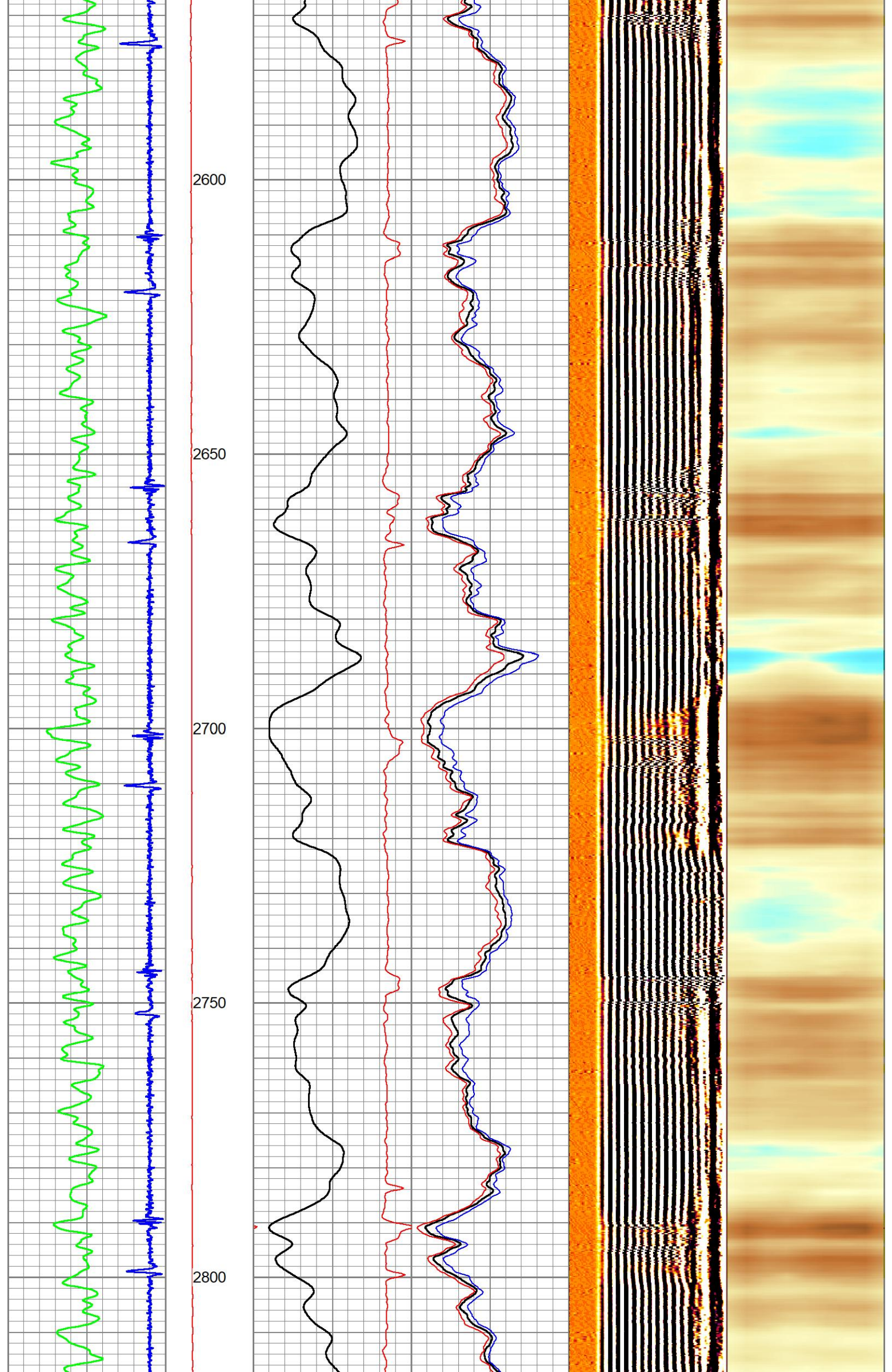


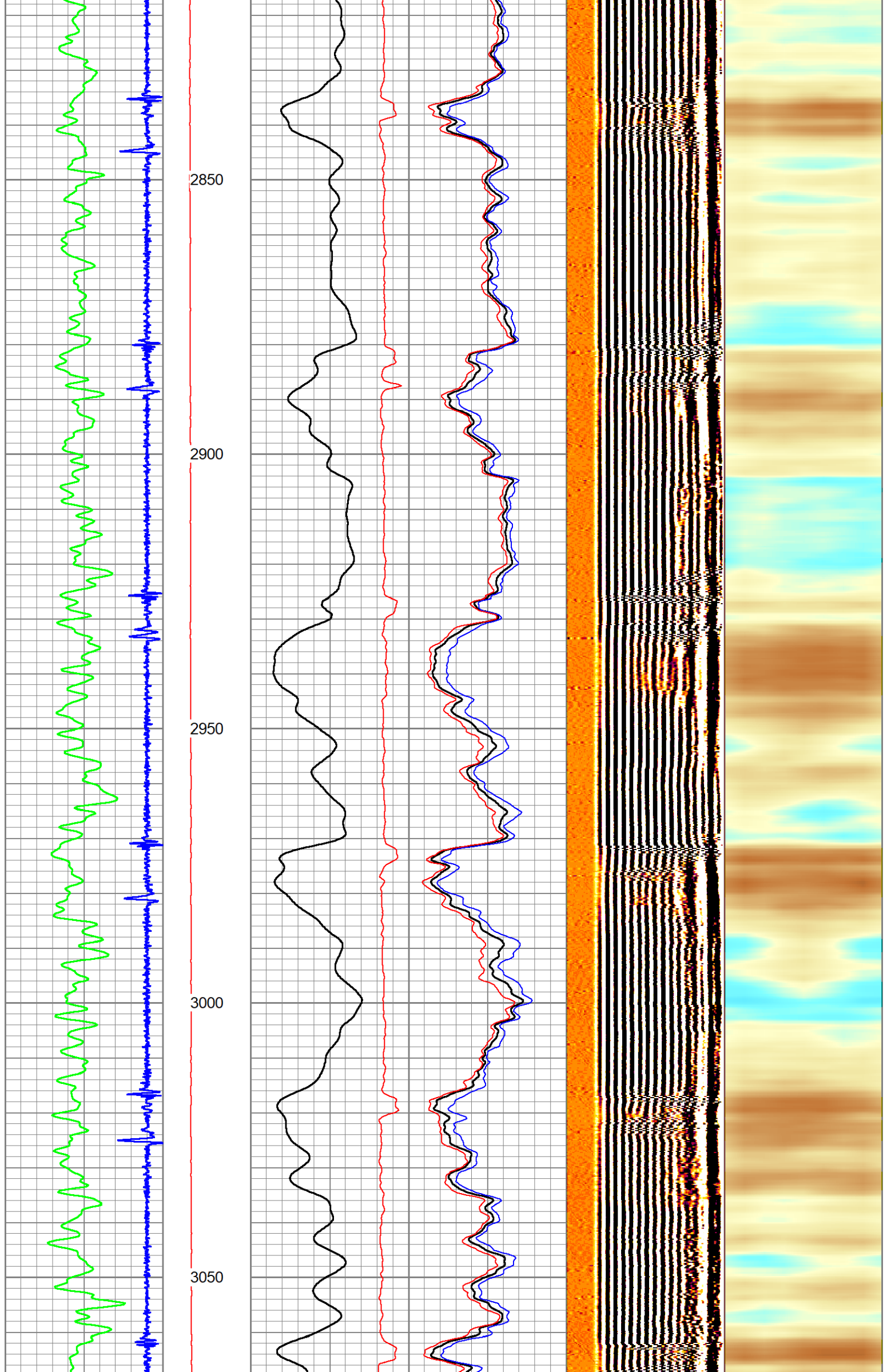


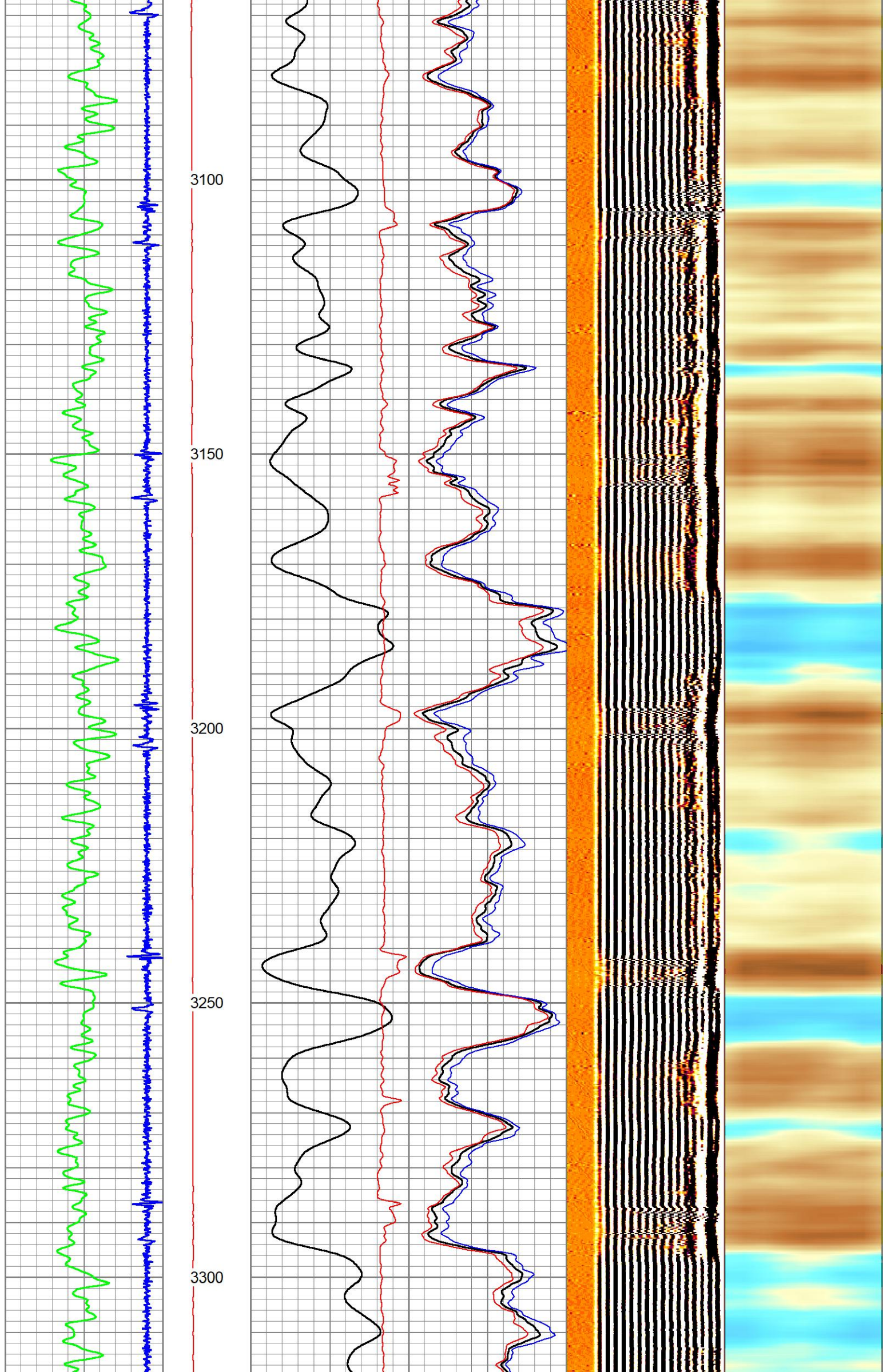


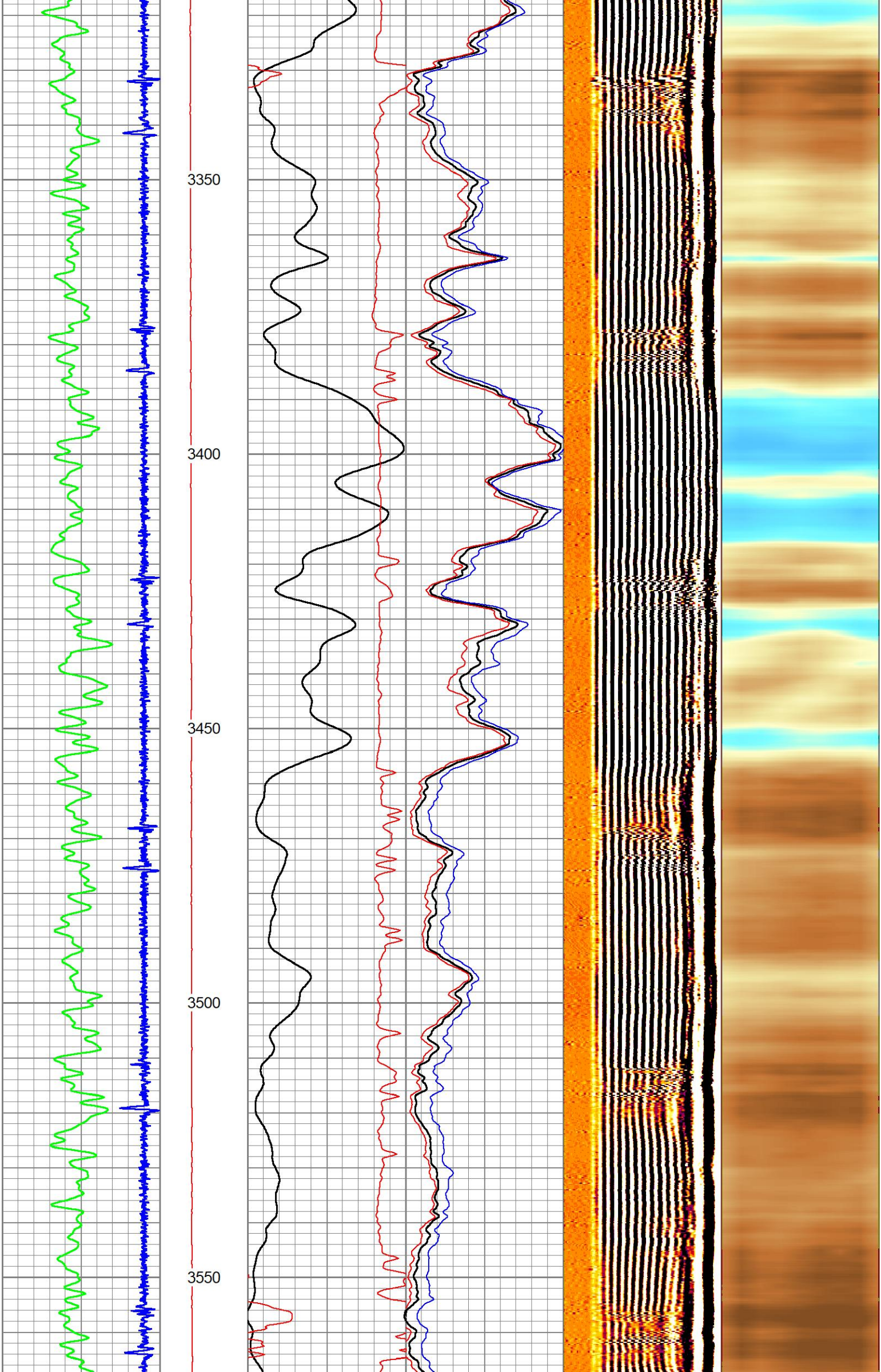


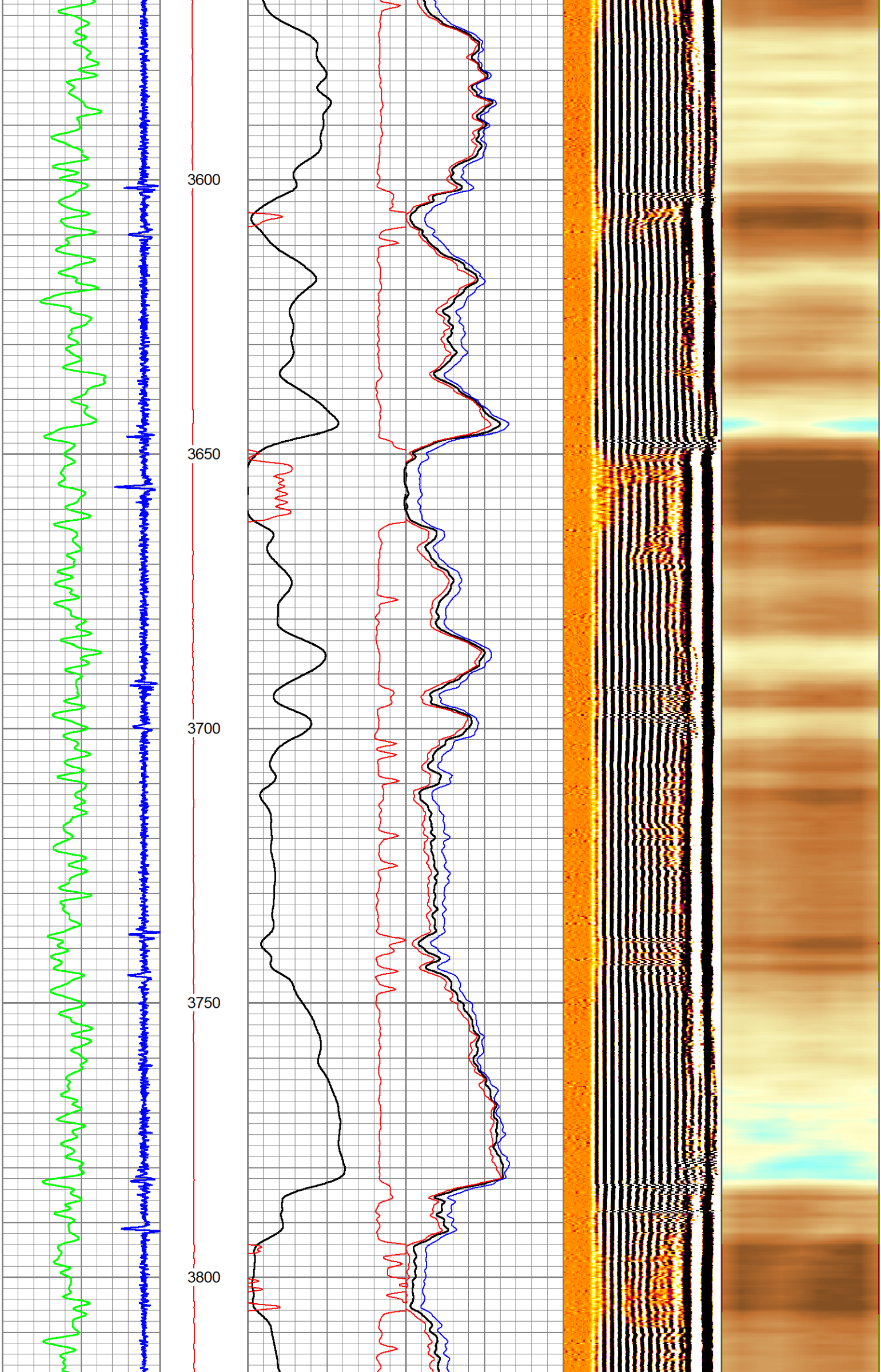


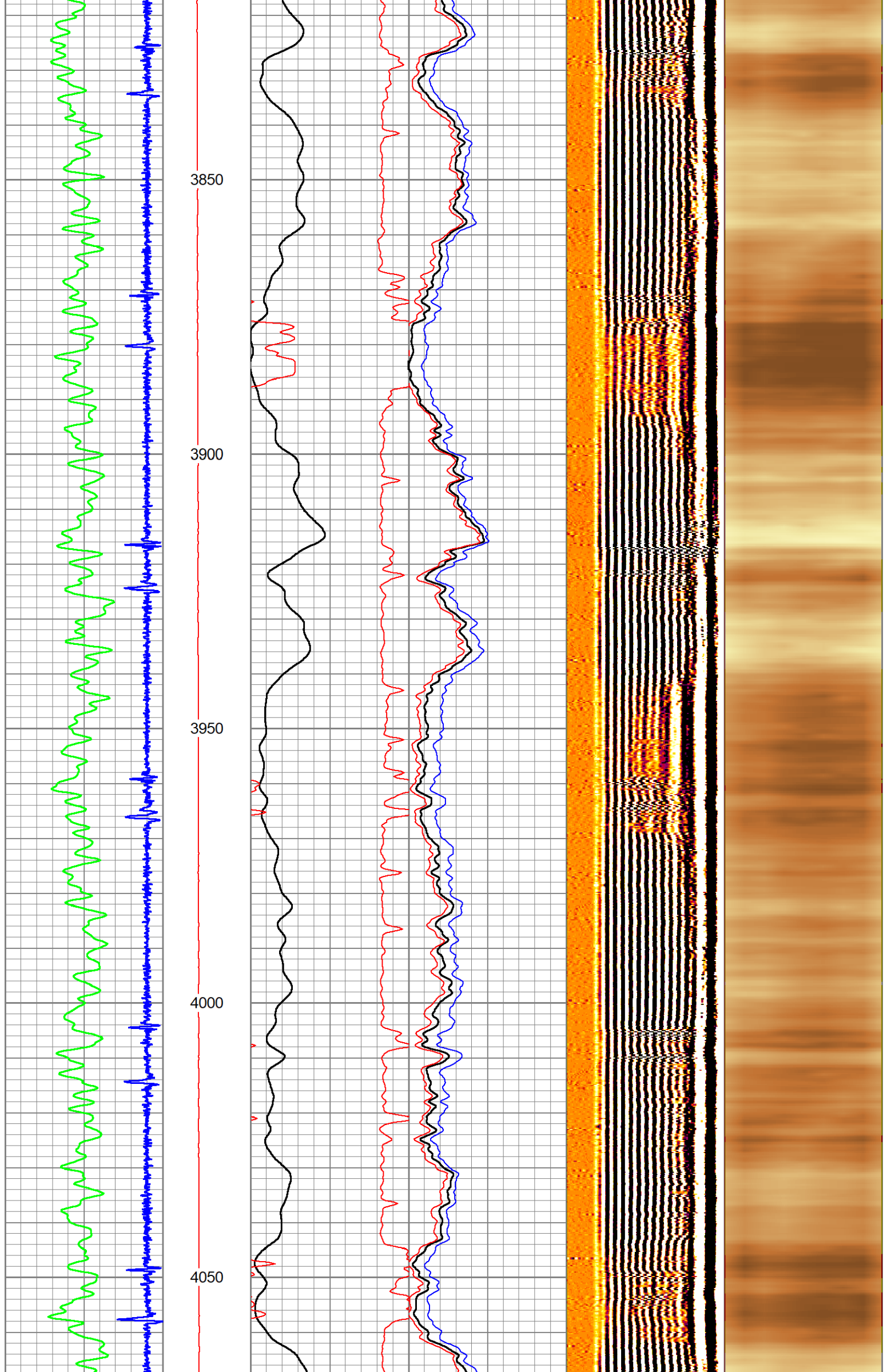


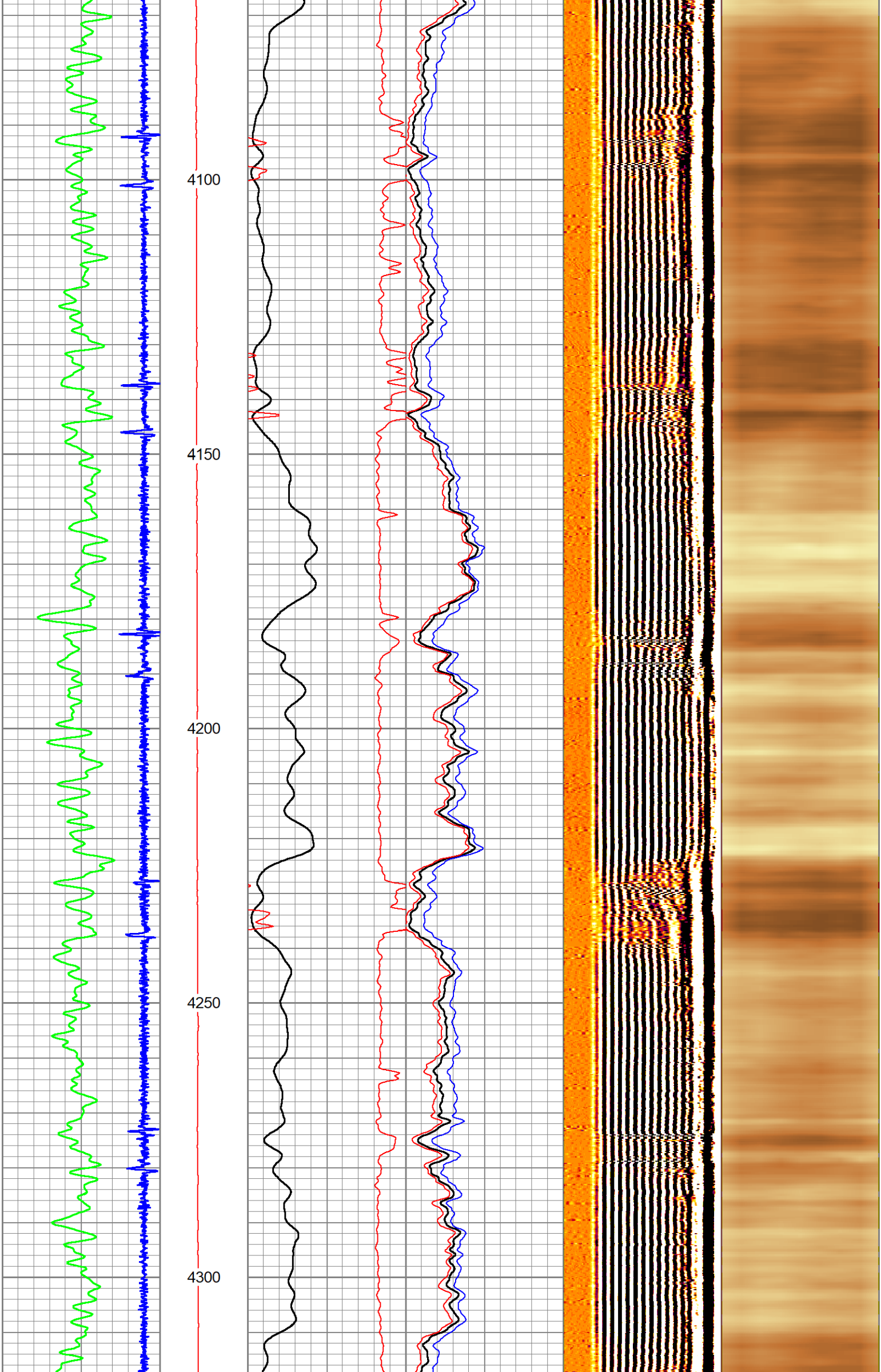


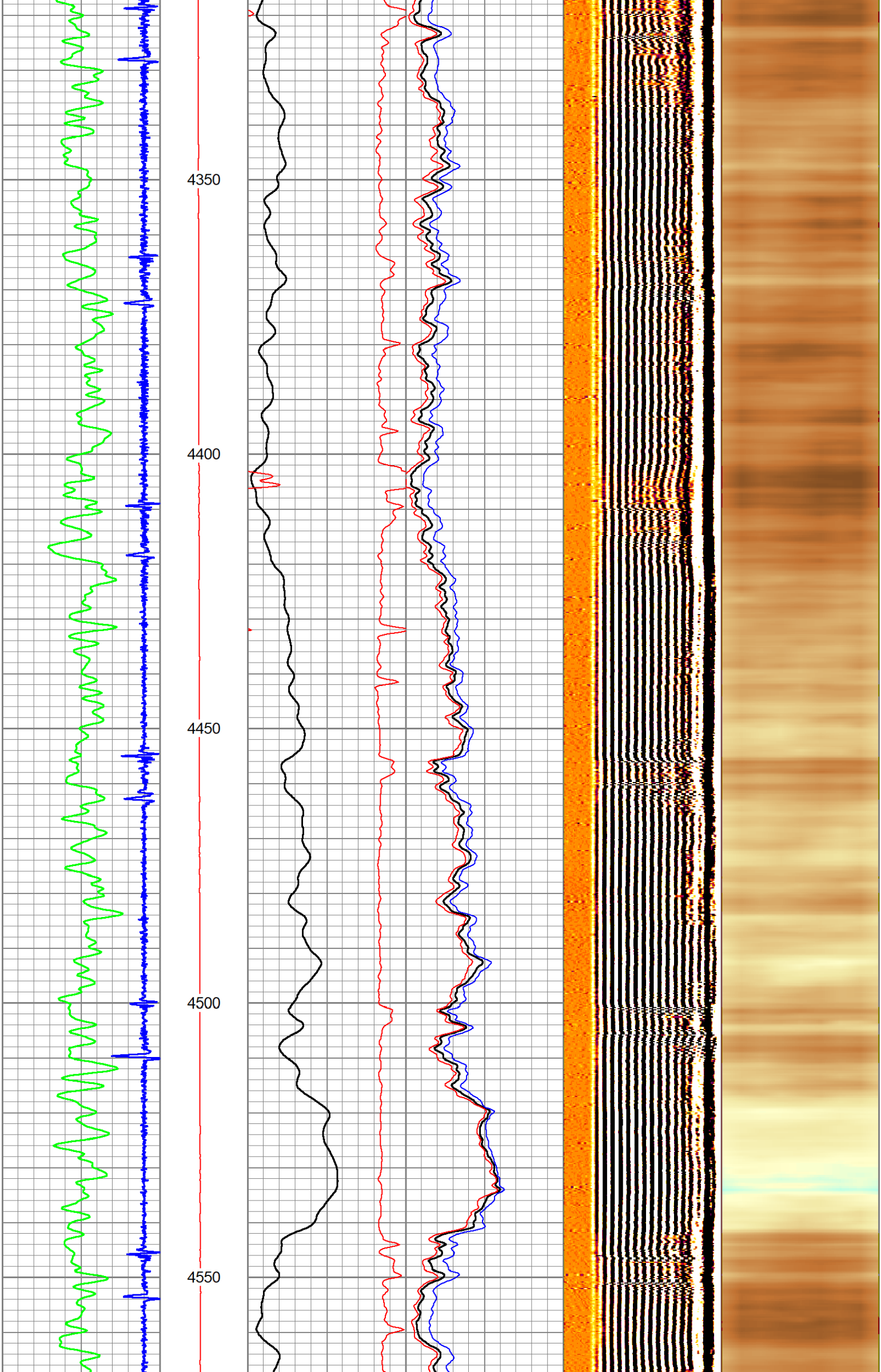


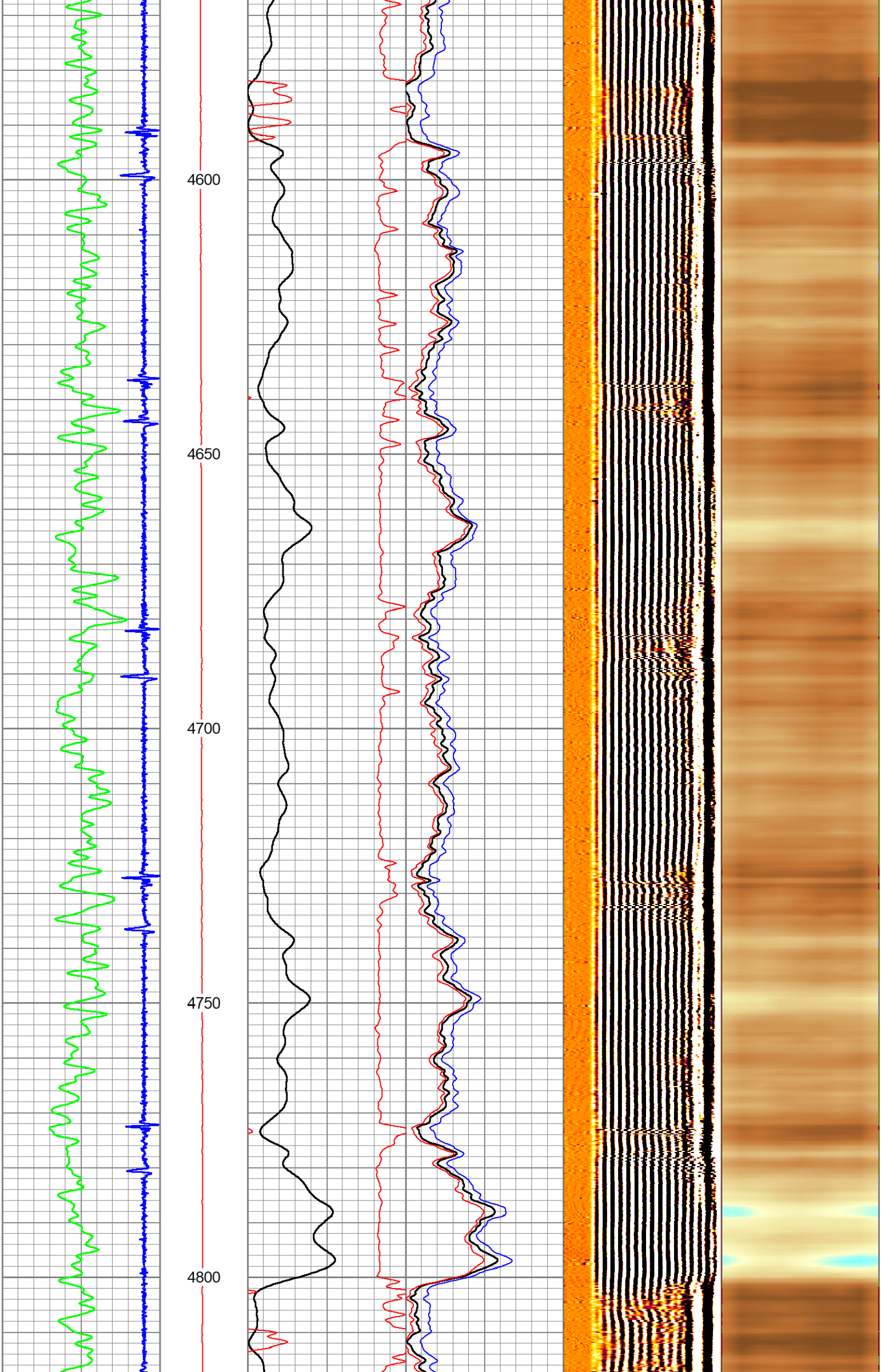


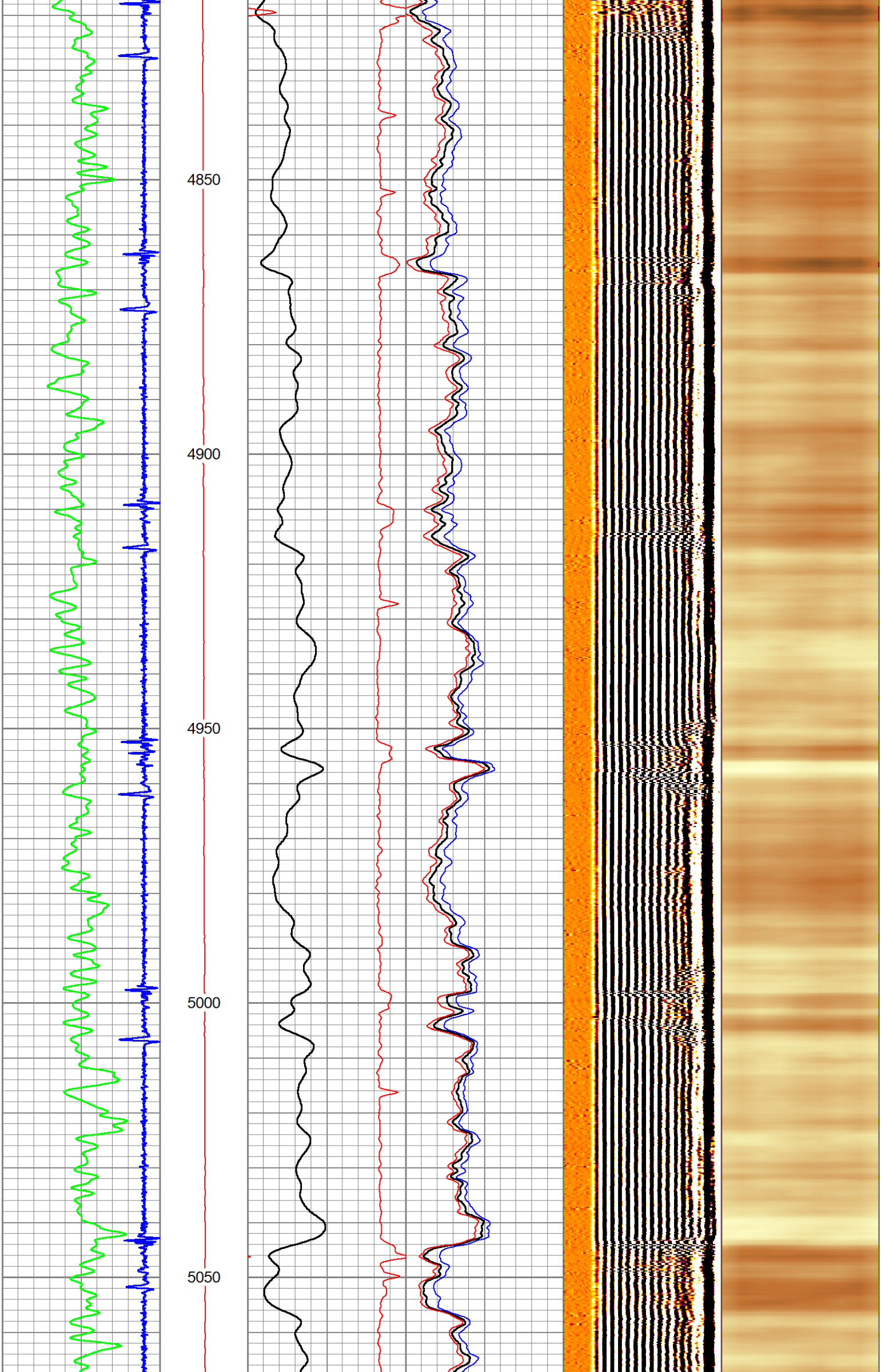


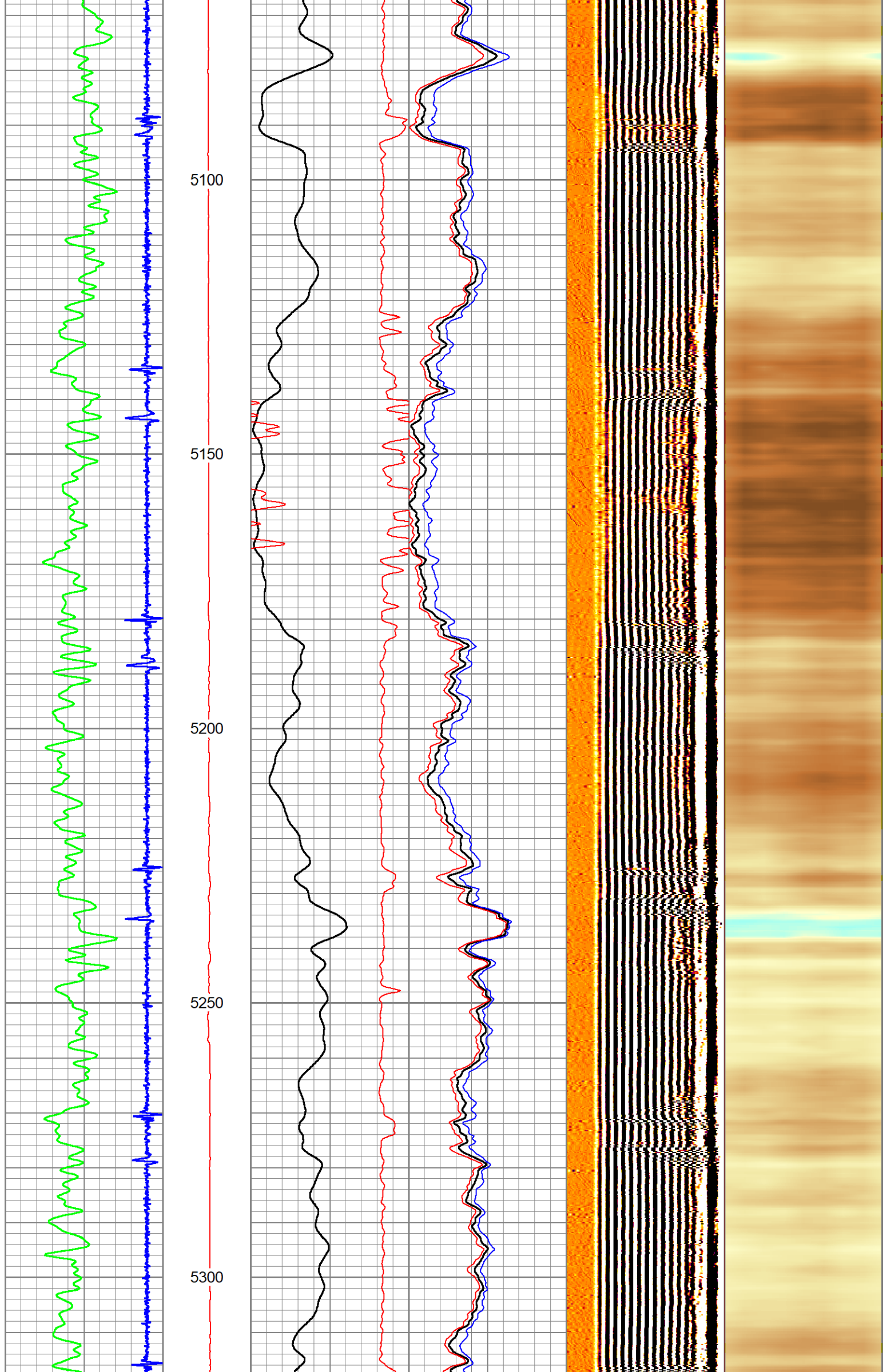


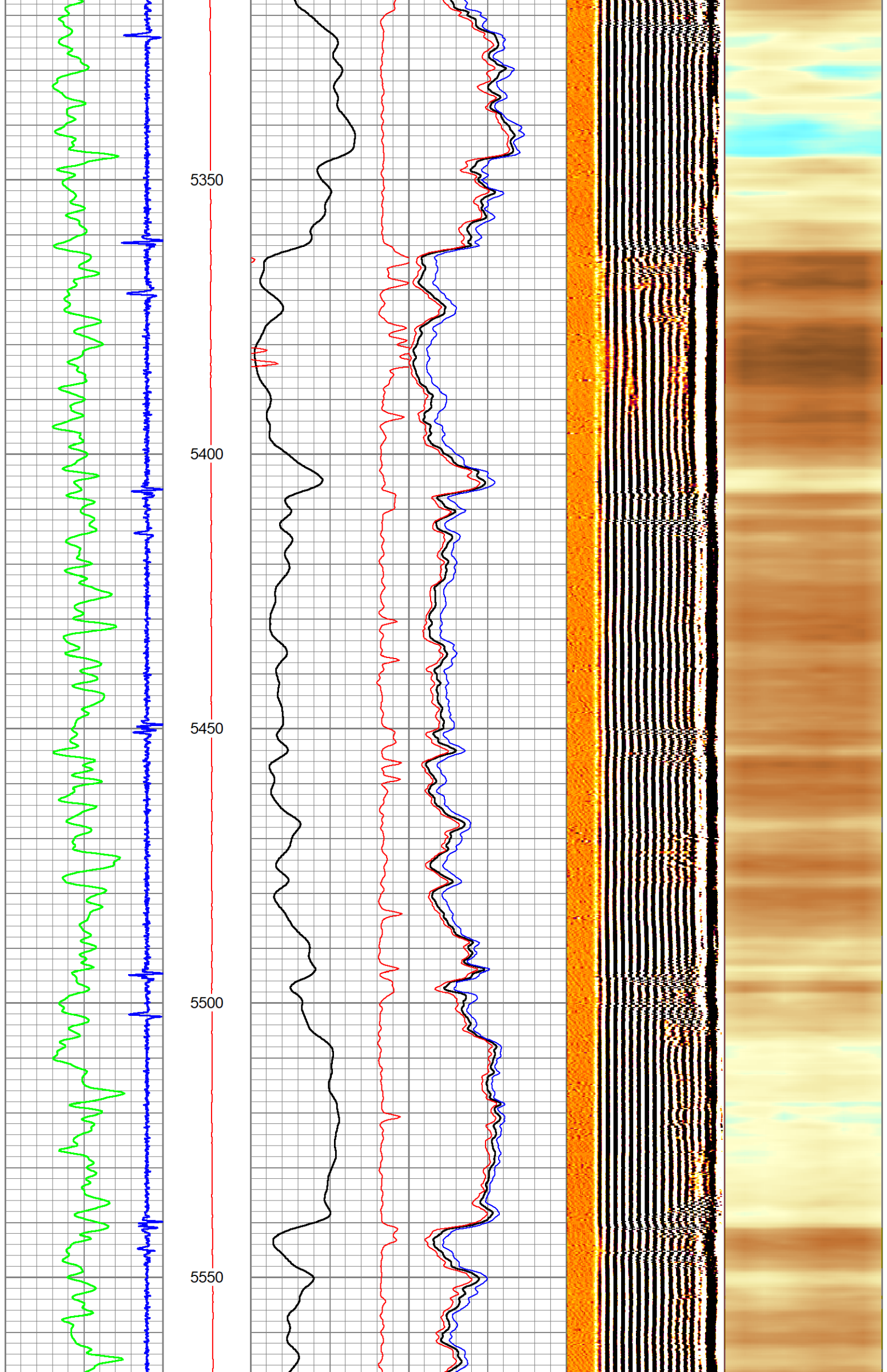


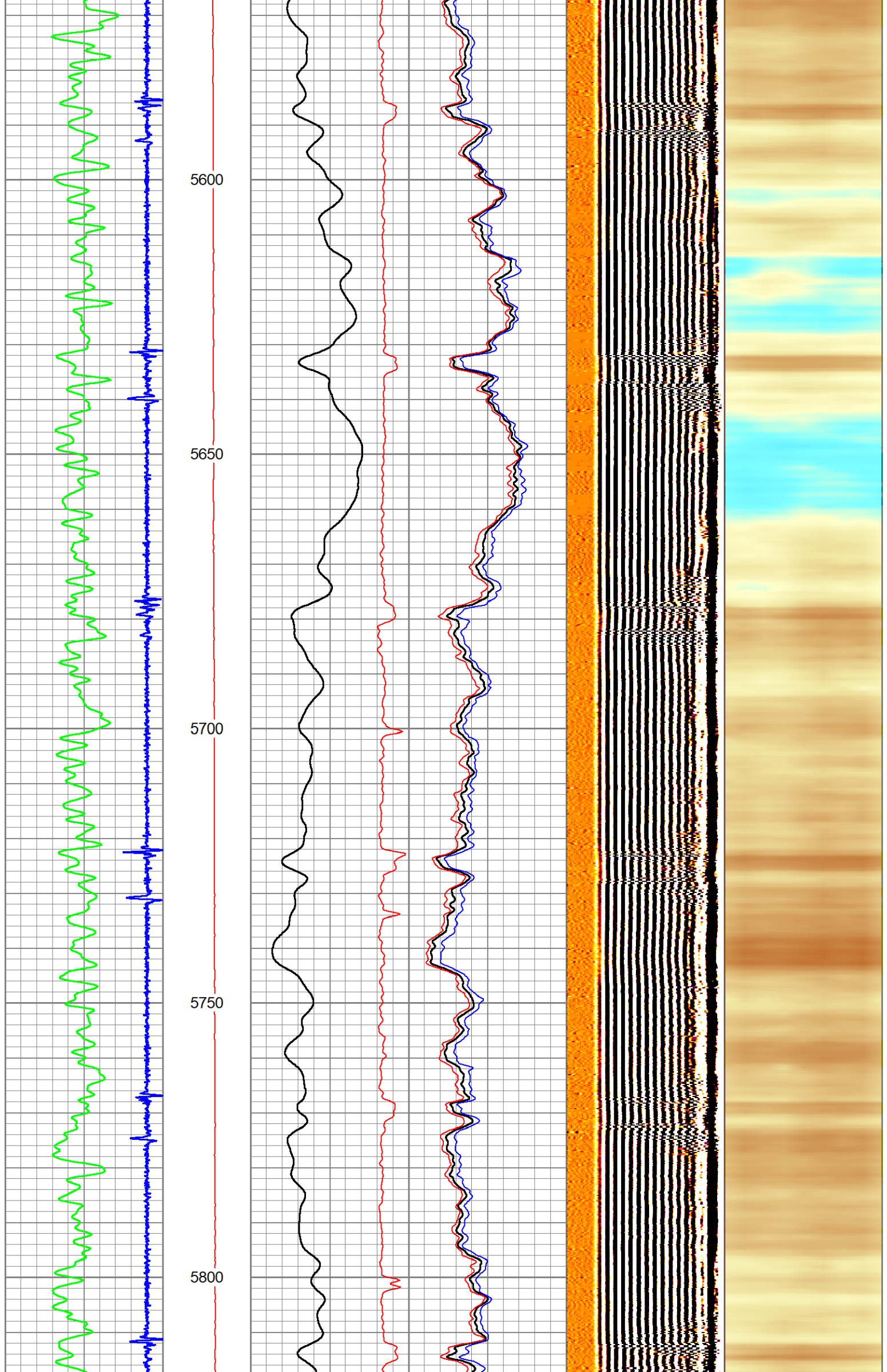


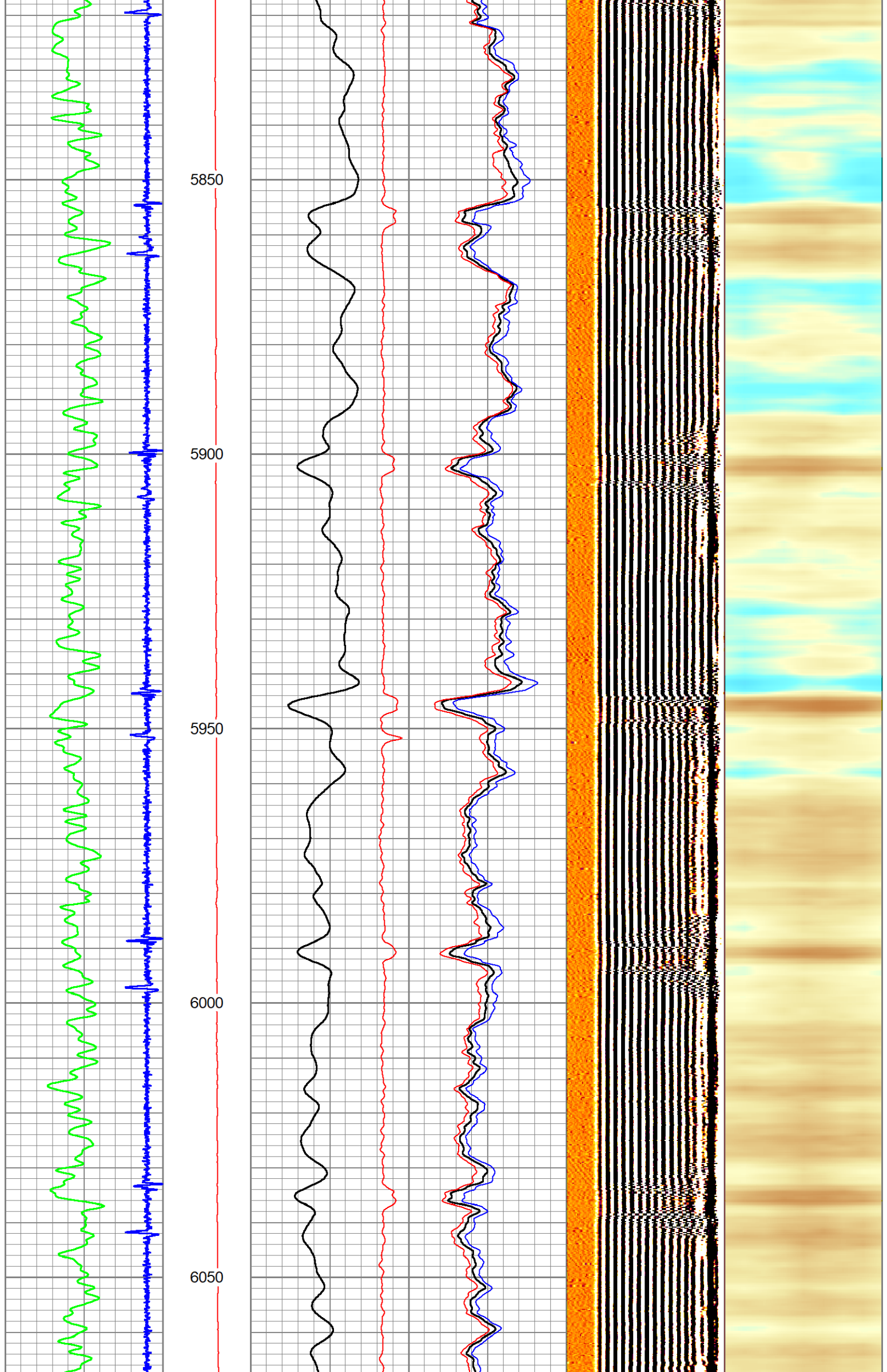


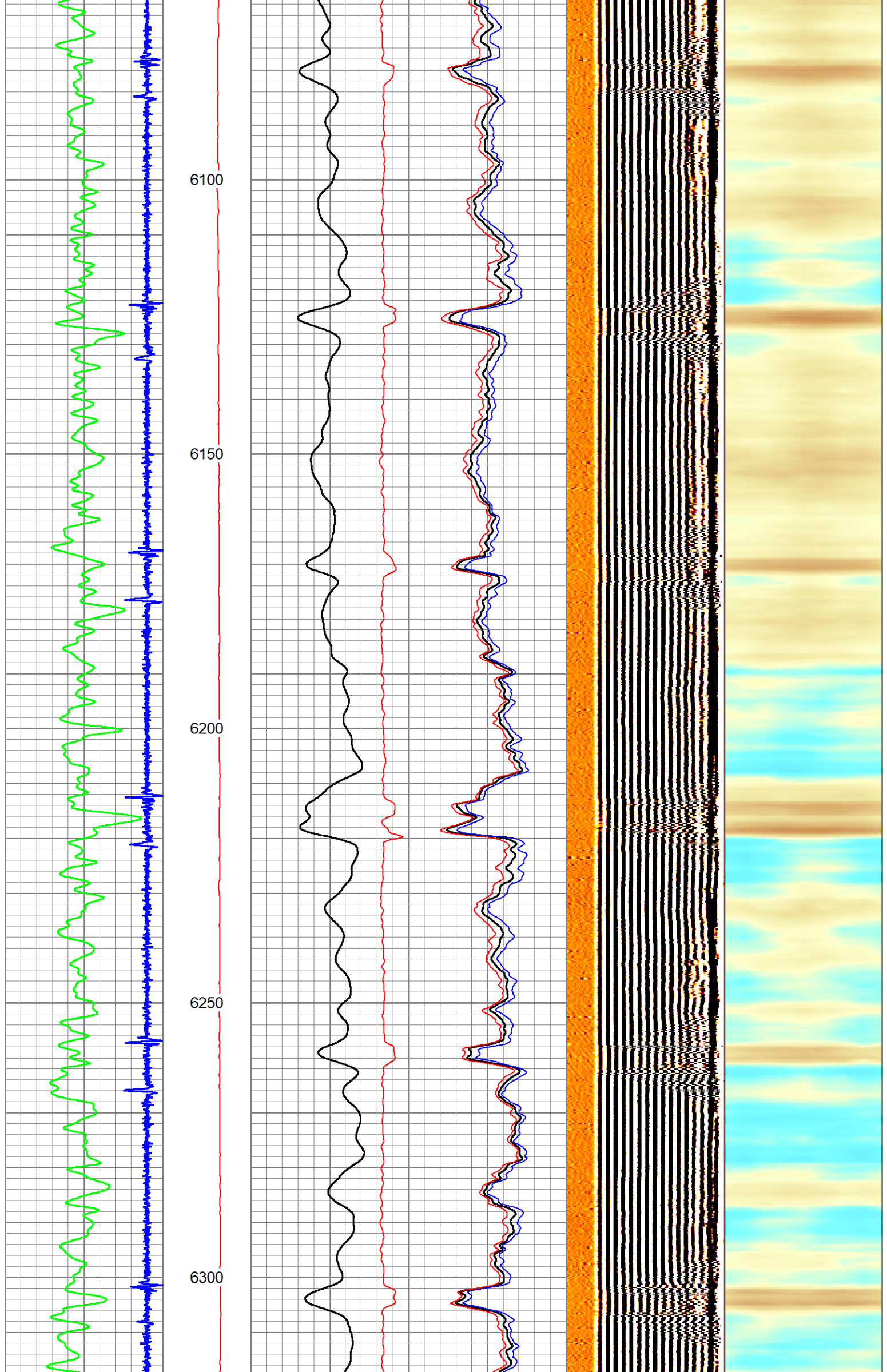


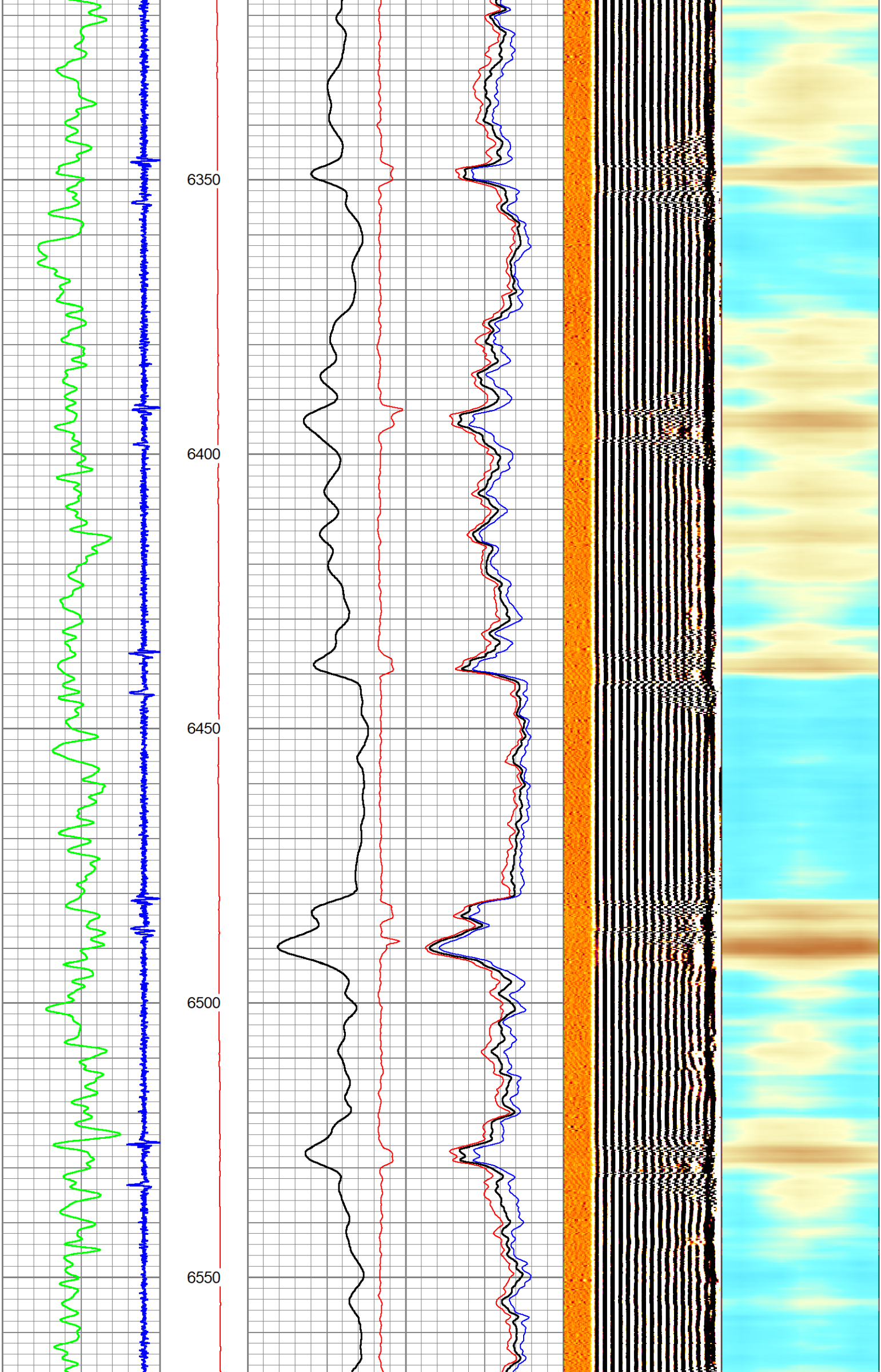


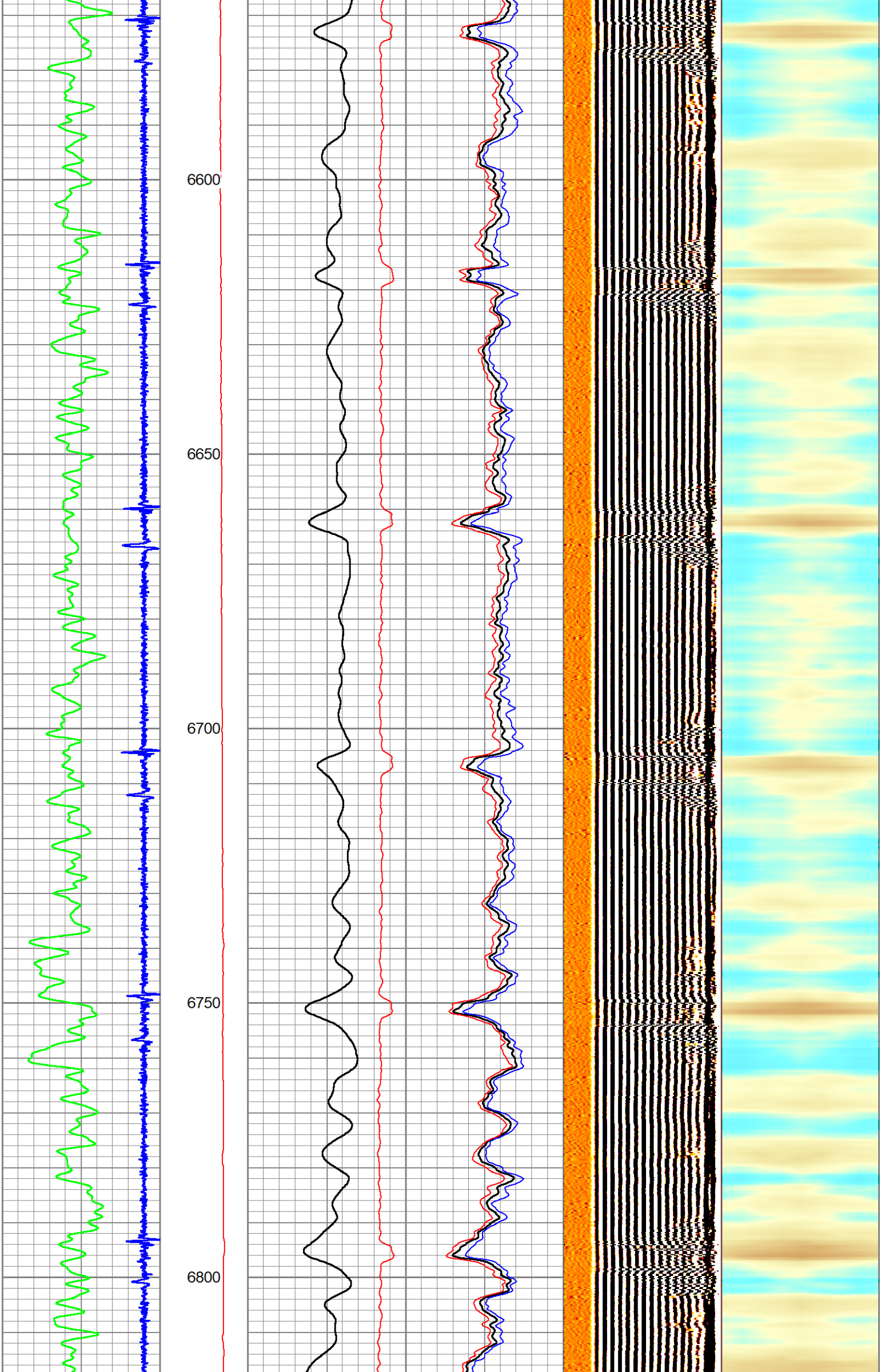


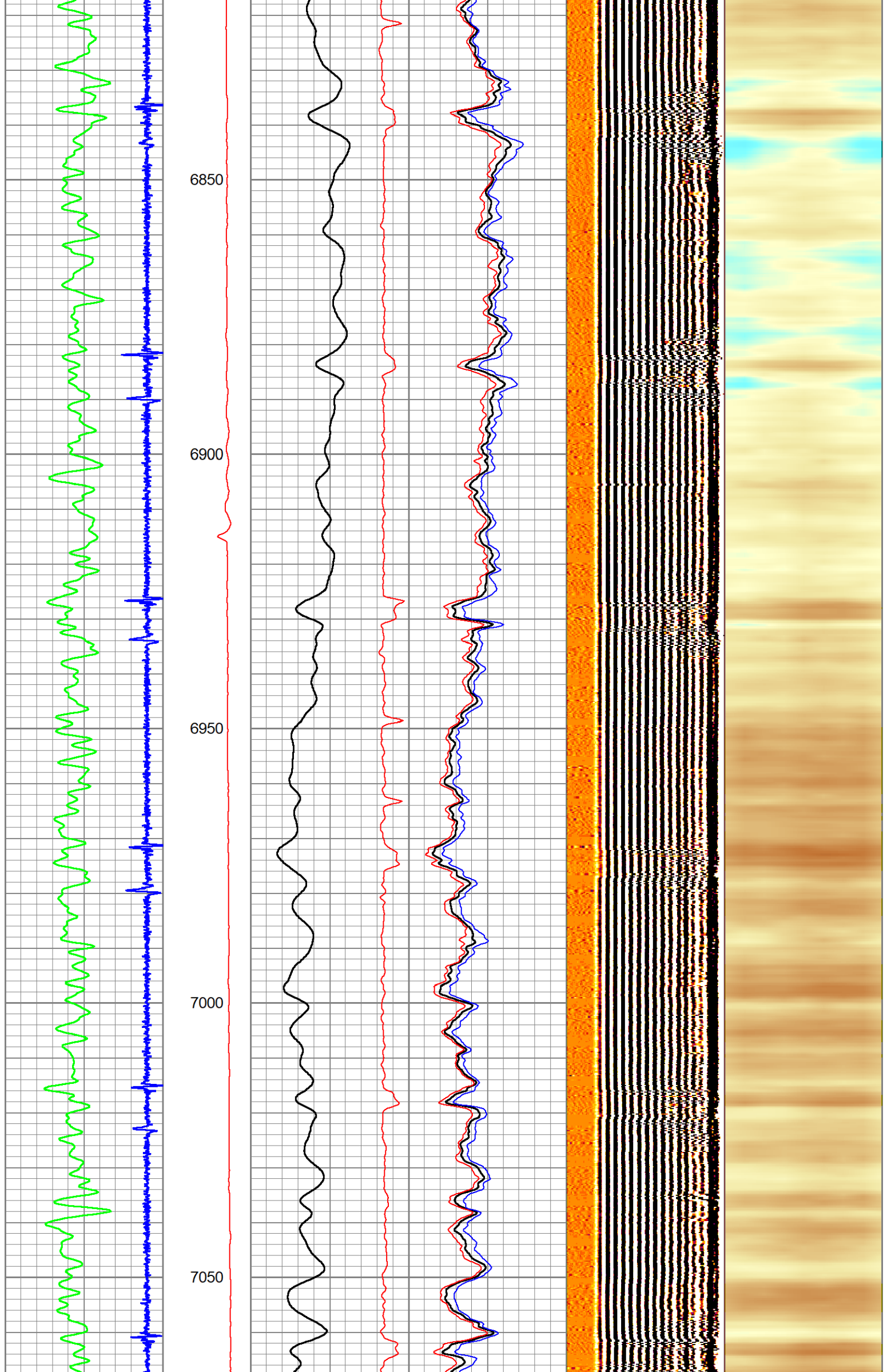


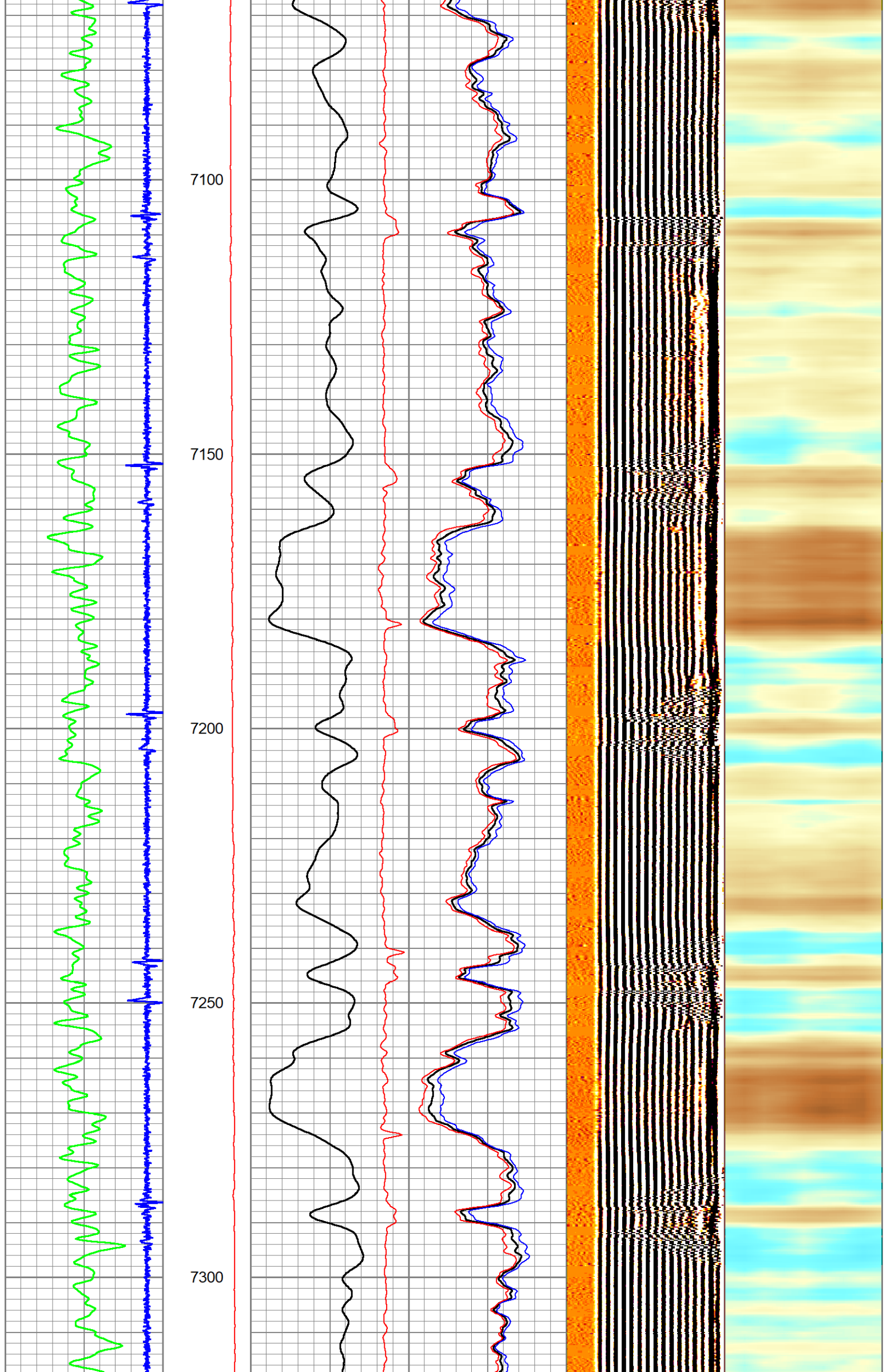


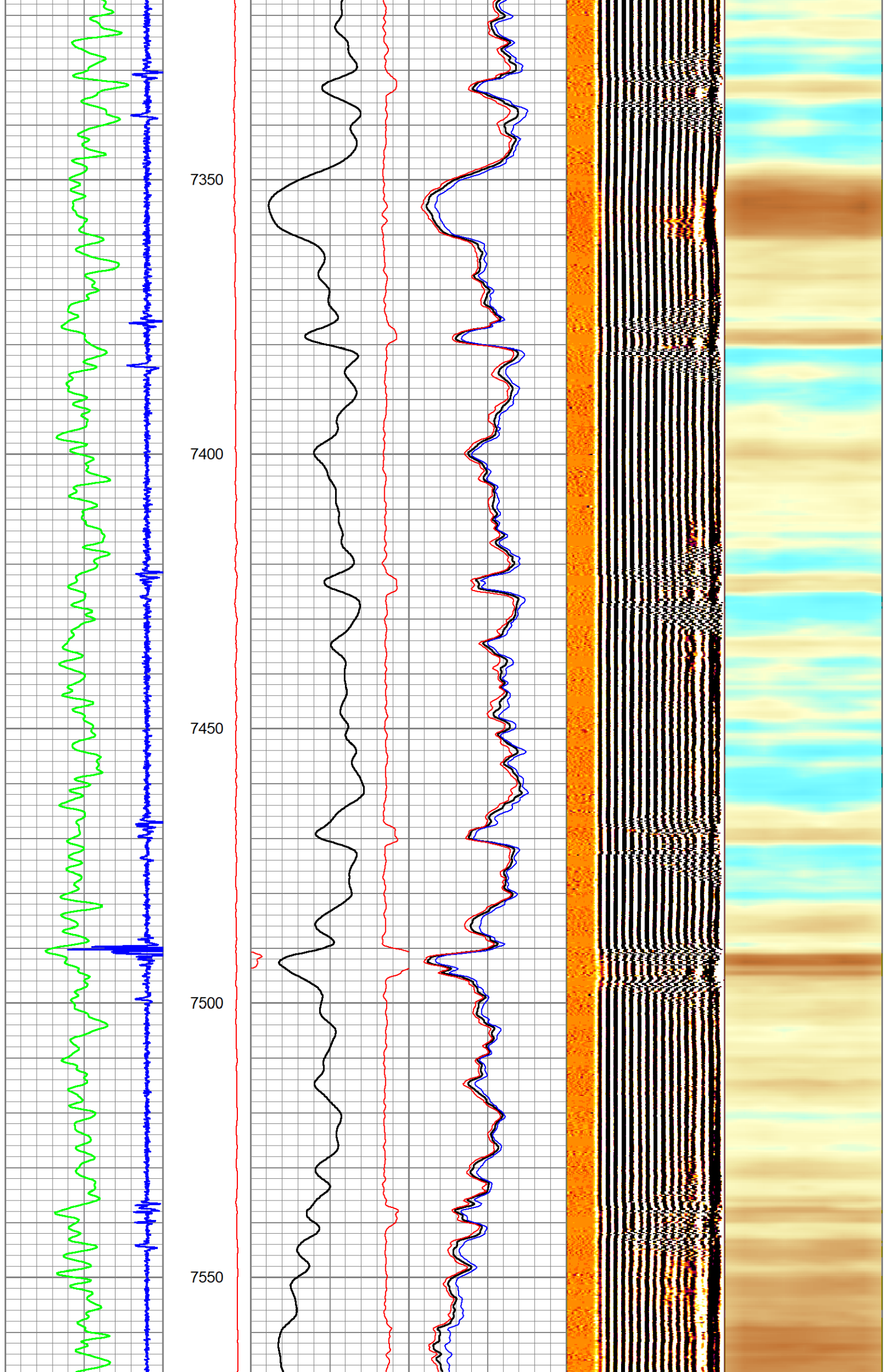


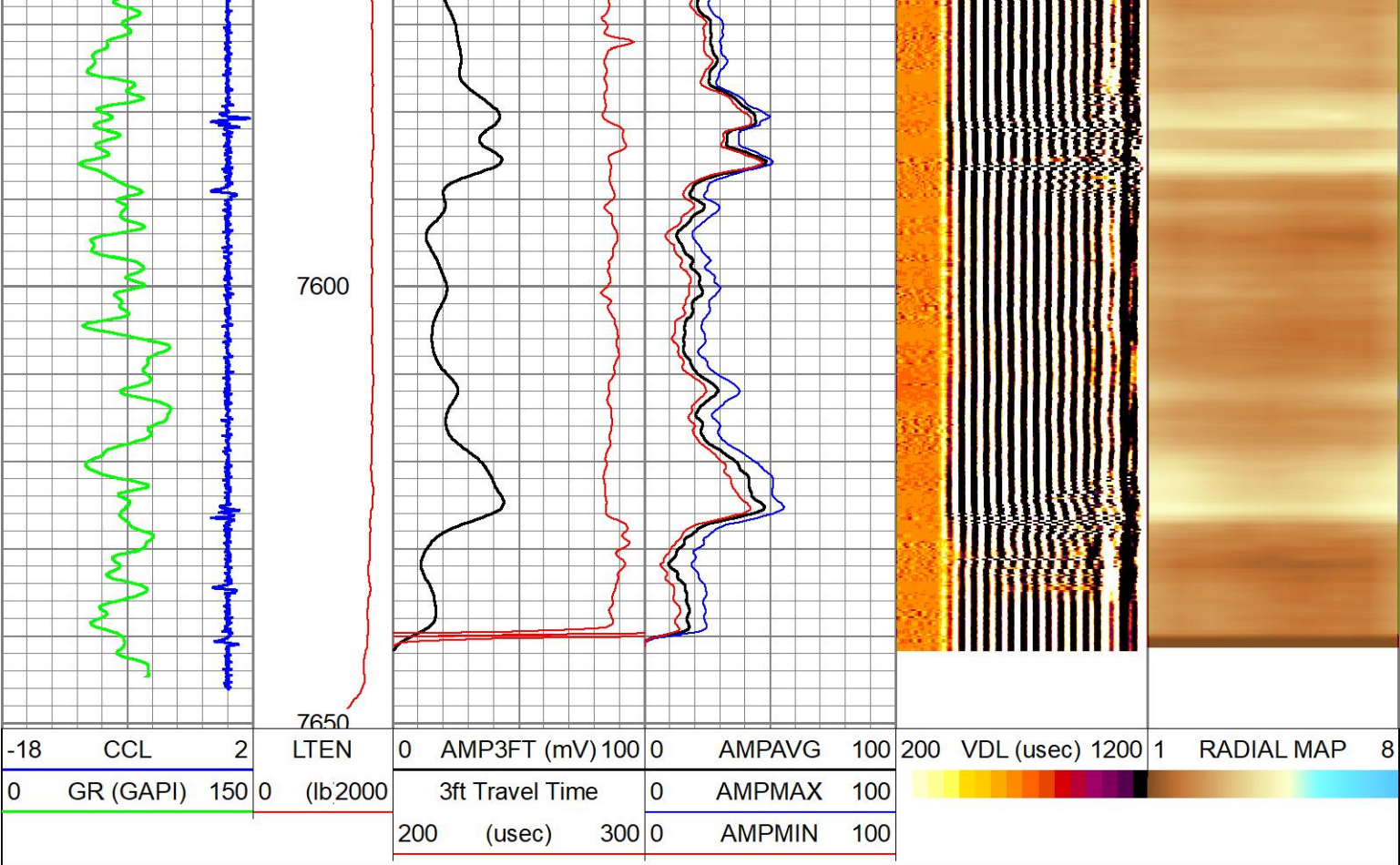












MAIN PASS

HALLIBURTON

5" = 100'

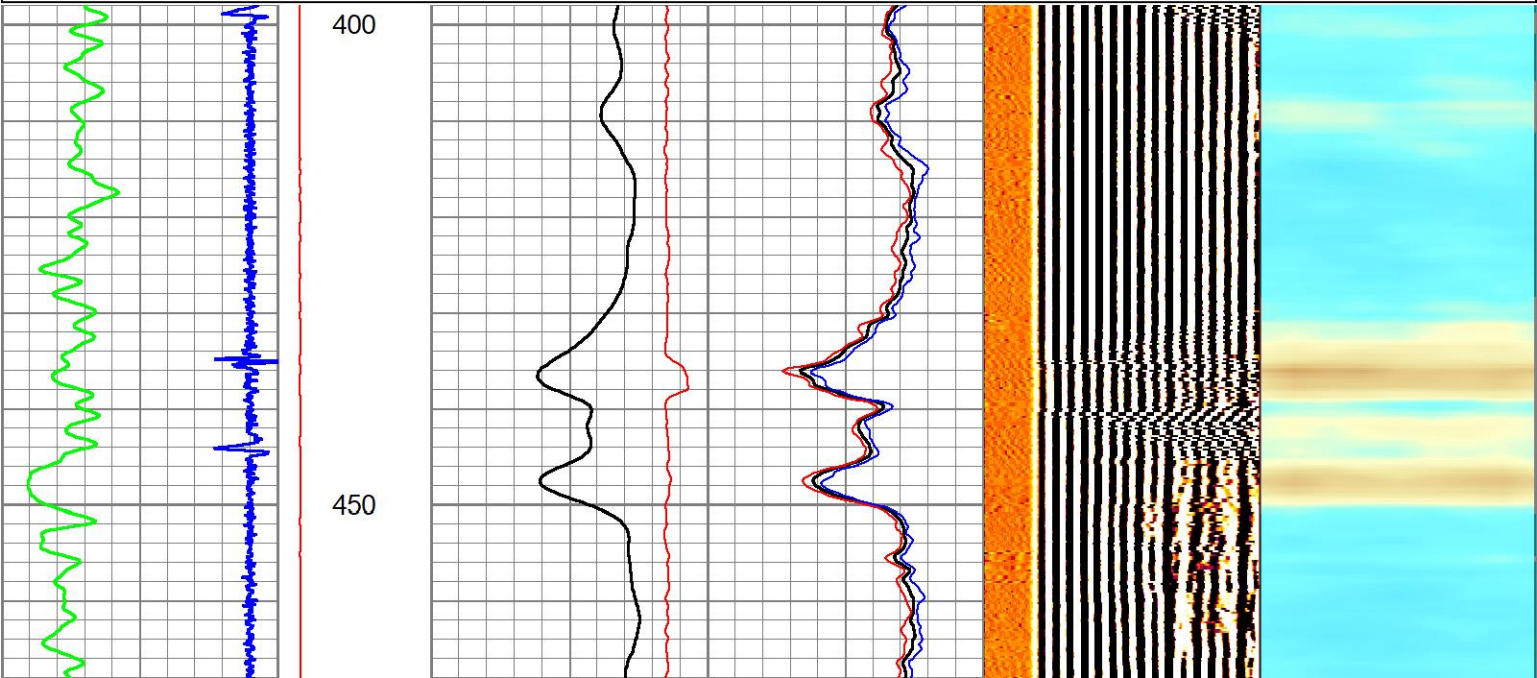
FREE PIPE PASS

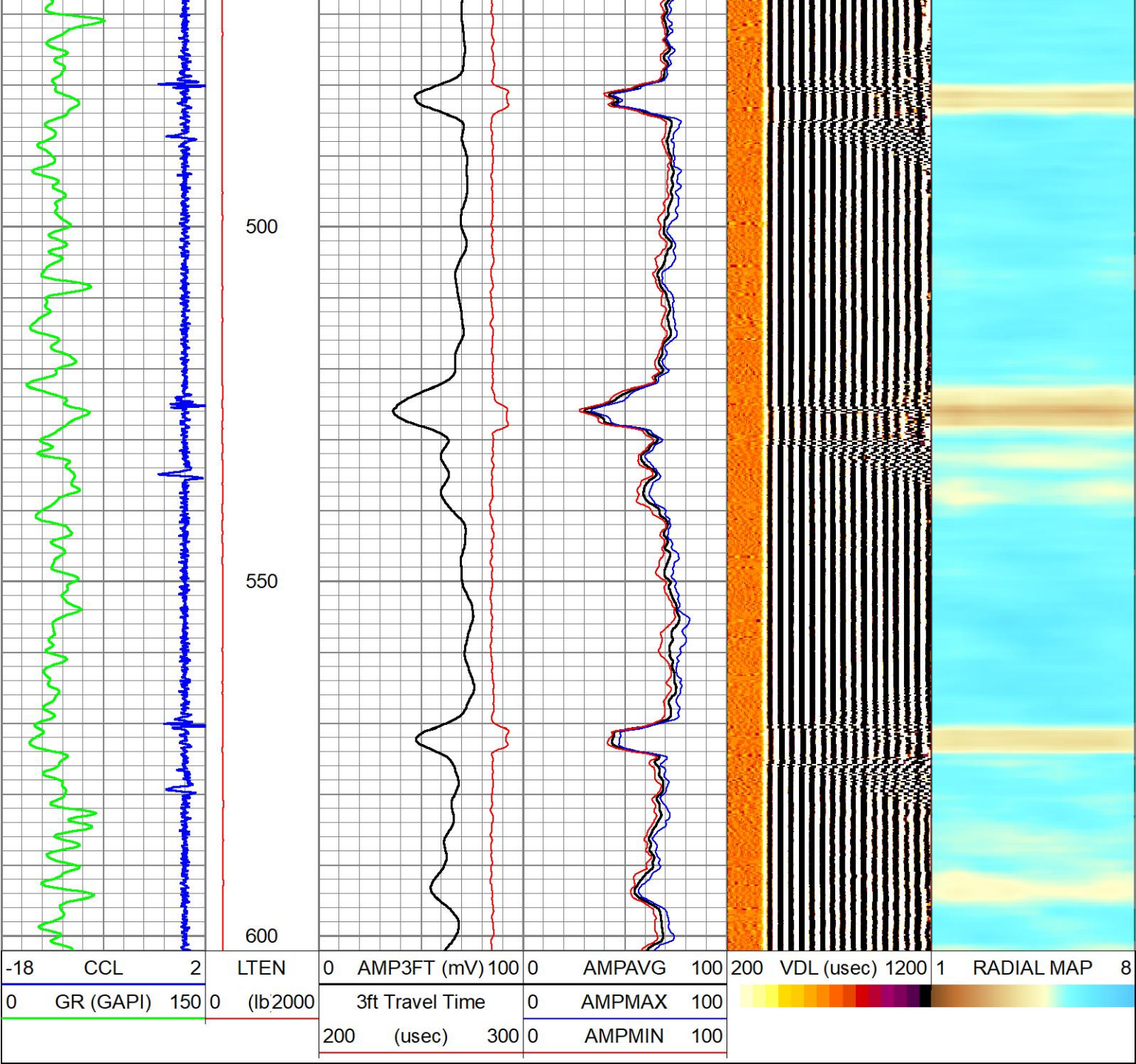
HALLIBURTON

5" = 100'

Database File	livingston s19-25-6n.db
Dataset Pathname	FREE_PIPE_PASS
Presentation Format	EXTRAC~1
Dataset Creation	Tue Nov 05 15:42:06 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	0	AMPMAX	100						
					200 (usec)	300	0	AMPMIN	100						





FREE PIPE PASS

HALLIBURTON

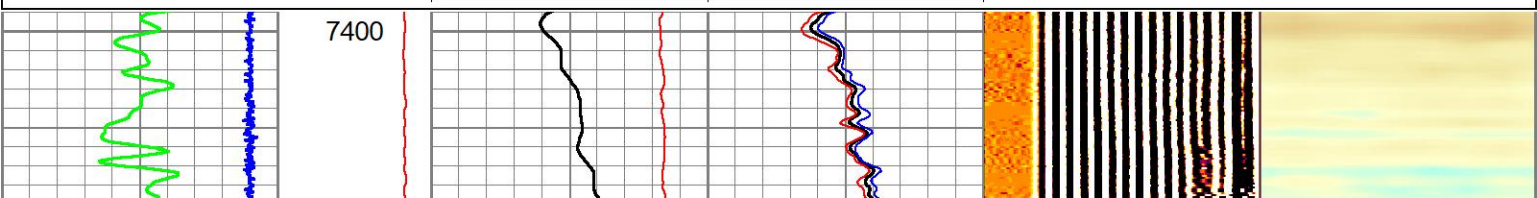
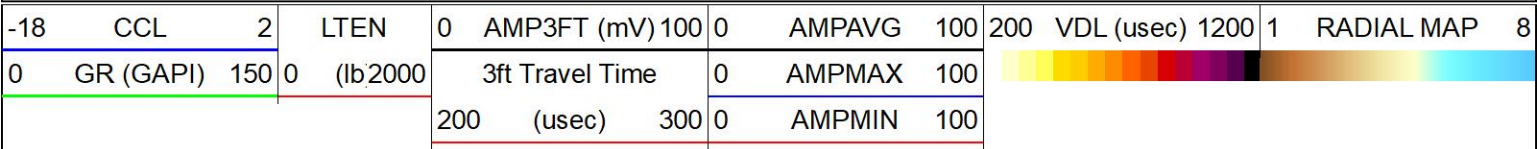
5" = 100'

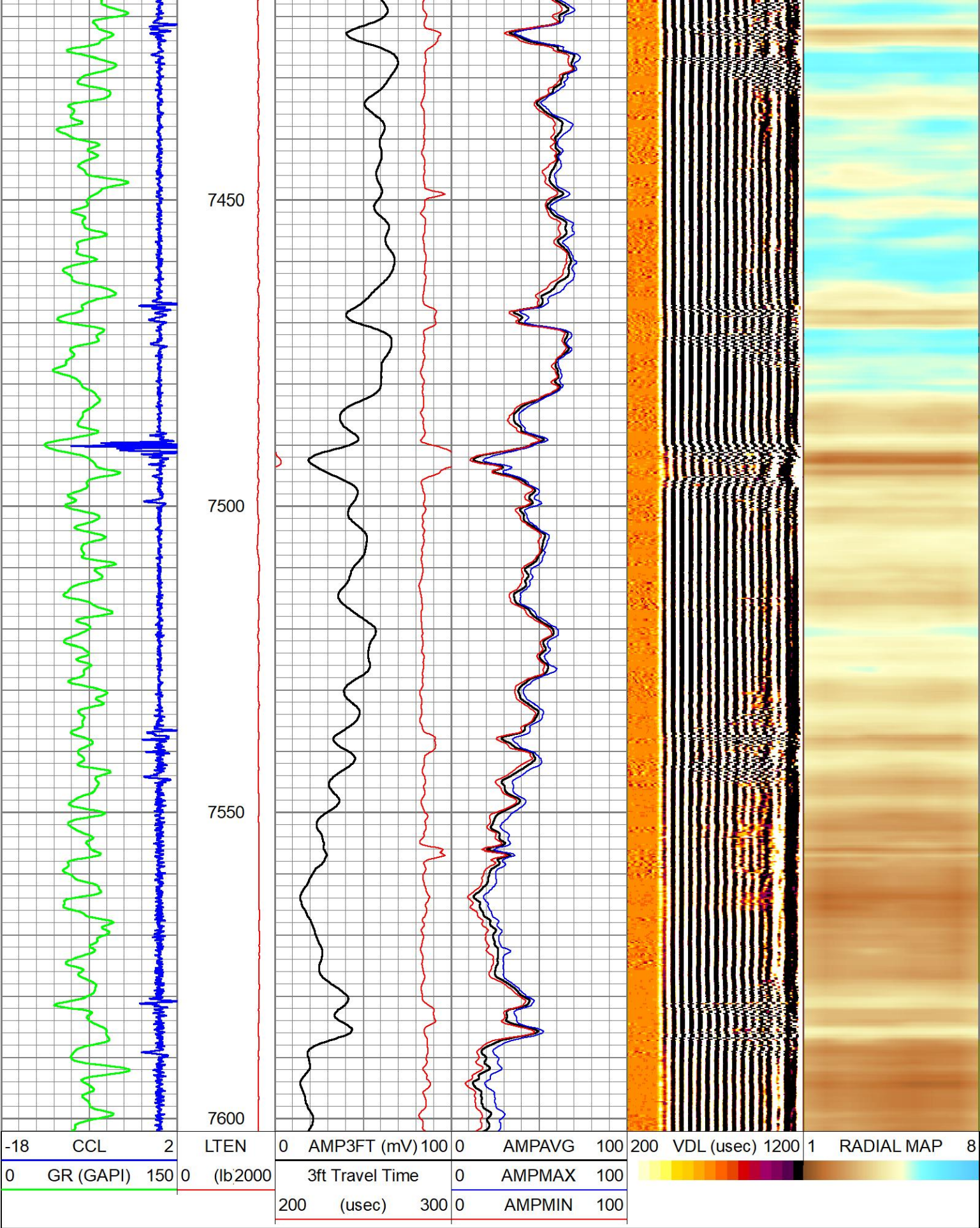
REPEAT PASS

HALLIBURTON

5" = 100'

Database File	livingston s19-25-6n.db
Dataset Pathname	REPEAT_PASS1
Presentation Format	EXTRAC~1
Dataset Creation	Tue Nov 05 16:05:44 2019
Charted by	Depth in Feet scaled 1:240





REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\livingston s19-25-6n.db
Dataset field/well/run1/MAIN_PASS/_vars_

Top - Bottom

BHTEMP_Src	BITSIZE	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in	degF	in	in	lb/ft	mV	mV
	8.5	220	5.5	0.304	17	72	1


TEMP	0.9	220	0.9	0.004	17	72	1
MINATTN db/ft 0.8	MudWgt lb/gal 8.4	PERFS No	PPT usec 214	SRFTEMP degF 40	TDEPTH ft 7500		

Calibration Report							
Database File	livingston s19-25-6n.db						
Dataset Pathname	MAIN_PASS						
Dataset Creation	Tue Nov 05 16:11:08 2019						
Temperature Calibration Report							
Serial Number:		0001					
Tool Model:		1.375TEMP					
Performed:		Wed Mar 15 15:39:51 2006					
		Reference		Reading			
Low Reference:		0.00 degF		0.00 cps			
High Reference:		100.00 degF		1000.00cps			
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:			642.102	ft			

Master Calibration, performed Tue Nov 05 15:36:02 2019:							
		Raw (v)		Calibrated (mv)		Results	
		Zero	Cal	Zero	Cal	Gain	Offset
3'		0.000	0.786	0.000	72.000	91.627	0.000
CAL		0.000	2.251				
5'		0.000	0.661	0.000	72.000	108.858	0.000
SUM							
S1		0.000	0.995	0.000	72.000	72.386	0.000
S2		0.000	0.816	0.000	72.000	88.248	0.000

S2	0.000	0.816	0.000	72.000	88.248	0.000
S3	0.000	0.816	0.000	72.000	88.207	0.000
S4	0.000	0.734	0.000	72.000	98.121	0.000
S5	0.000	0.689	0.000	72.000	104.466	0.000
S6	0.000	0.688	0.000	72.000	104.623	0.000
S7	0.000	0.733	0.000	72.000	98.281	0.000
S8	0.000	0.789	0.000	72.000	91.200	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	2.251	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	11.63		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
WVF5FT	9.63					

Tool	Length (ft)	Weight (lb)	Tool Joint (in)	Tool Joint (in)	Tool Joint (in)
CCL	5.17				
GR	3.79				
TEMP	0.08				
LLMTEN	0.00				
Dataset: livingston s19-25-6n.db: field/well/run1/MAIN_PASS Total length: 21.58 ft Total weight: 218.00 lb O.D.: 2.75 in					