

HALLIBURTON

RADIAL CEMENT
BOND LOG

Company EXTRACTION OIL & GAS INC									
Well LIVINGSTON S19-25-4N									
Field WATTENBERG									
County BROOMFIELD State CO									
Company EXTRACTION OIL & GAS INC									
Well LIVINGSTON S19-25-4N									
Field WATTENBERG									
County BROOMFIELD State CO									
AP# No.: 050142075600 Serv #: 90589569 Other Services									
Location: SURFACE HOLE LOCATION: 2332' FSL & 1474' FEL NWSE									
LATITUDE: 39.978563 LONGITUDE: -105.039929									
NONE									
Sec: 7 Twp: 1S Rge: 68W									
GROUND LEVEL Elevation 5318									
KB , 29 Ft. above perm. datum									
KB K.B. 5347 D.F. 5347 G.L. 5318									
Permanent Datum									
Log Measured From									
Drilling Measured From									
Date @ Time Logged 08/11/19 @ 18:45 Type Fluid in Hole FRESH WATER									
Run No. ONE Density of Fluid 8.4#									
Depth - Driller 21250 Fluid Level SURFACE									
Depth - Logger 7916 Cement Top Est. Logged 290									
Bottom - Logged Interval 7904 Equipment / Location 11874896 / BRIGHTON									
Top - Log Interval SURFACE Recorded by J. SCHMIDT									
Max. Recorded Temp. 221 F Witnessed by M. PARRAS									
CEMENTING DATA									
Surface Protection Production Liner									
String String String									
Date / Time Cemented									
Primary / Squeeze									
Expected									
Compressive Strength psi@ hrs psi@ hrs psi@ hrs									
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 21250 5.5 17 0 21250									

ONE	KOP	SURFACE	0 PSI	100				
	GAMMA RAY		AMPLITUDE		VDL		RADIAL MAP	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	100	0	100	200	1200	1	8
DIRECTIONAL INFORMATION								
Maximum Deviation		90	deg. @		KOP	7867		

BOND INDEX

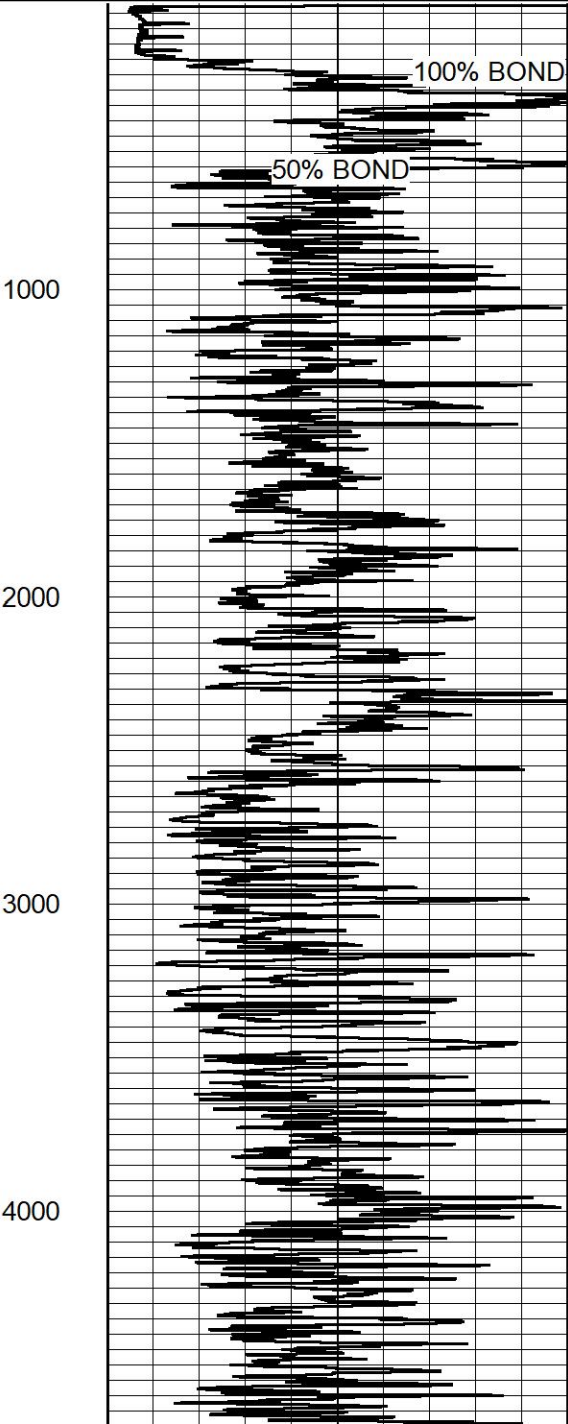
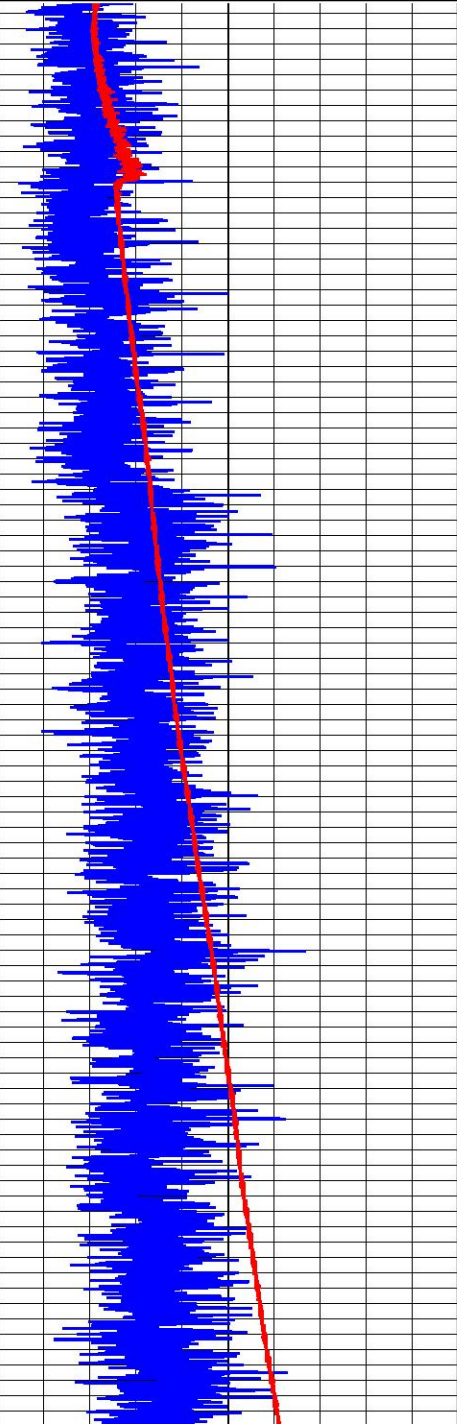
HALLIBURTON

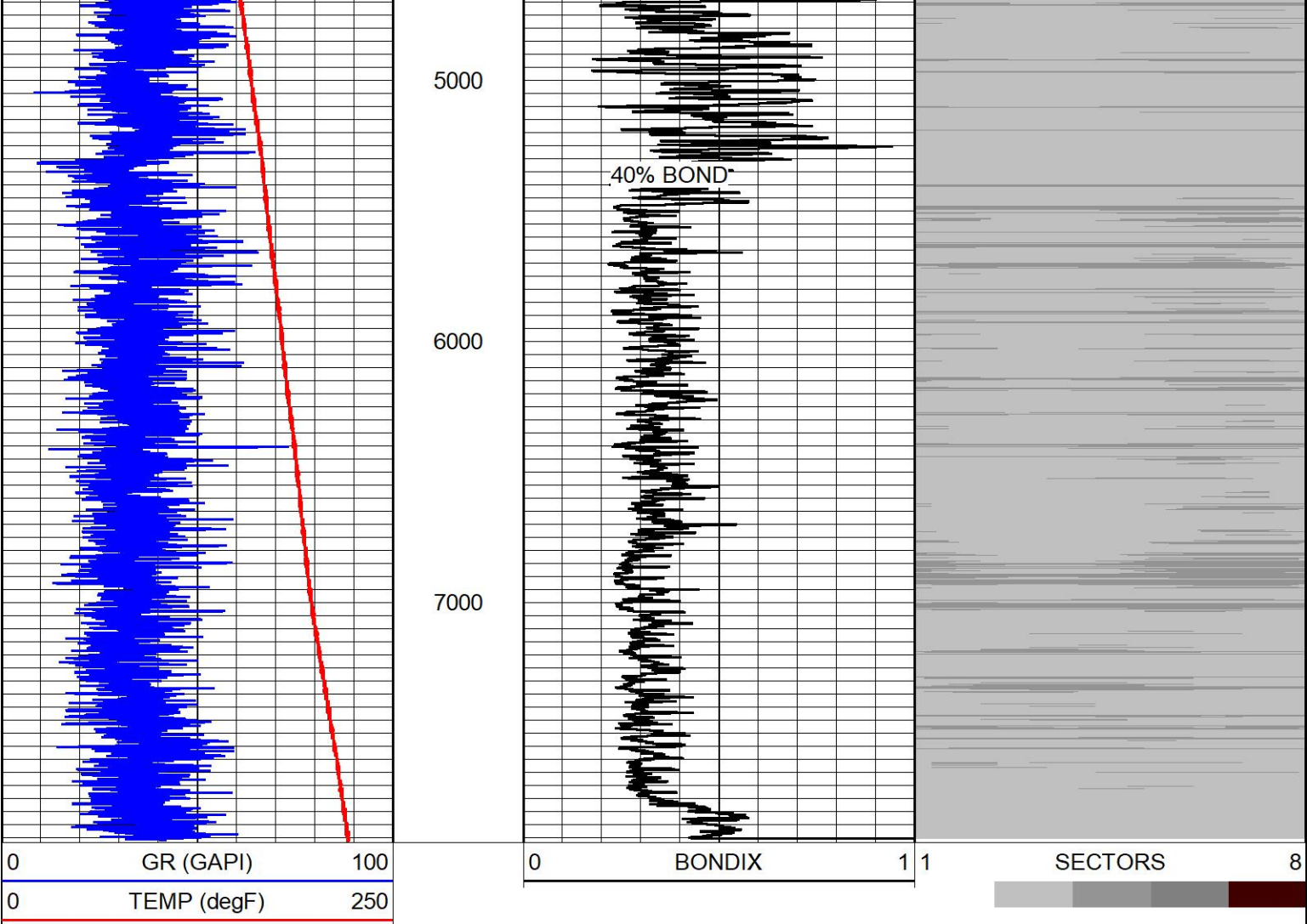
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Database File livingston_s19-25-4n.db
Dataset Pathname MAIN_PASS.1
Presentation Format EXTRAC~2
Dataset Creation Sun Aug 11 20:06:12 2019
Charted by Depth in Feet scaled 1:7500

0	GR (GAPI)	100
0	TEMP (degF)	250

0	BONDIX	1	1	SECTORS	8
<div></div>					





BOND INDEX

HALLIBURTON


1:7500

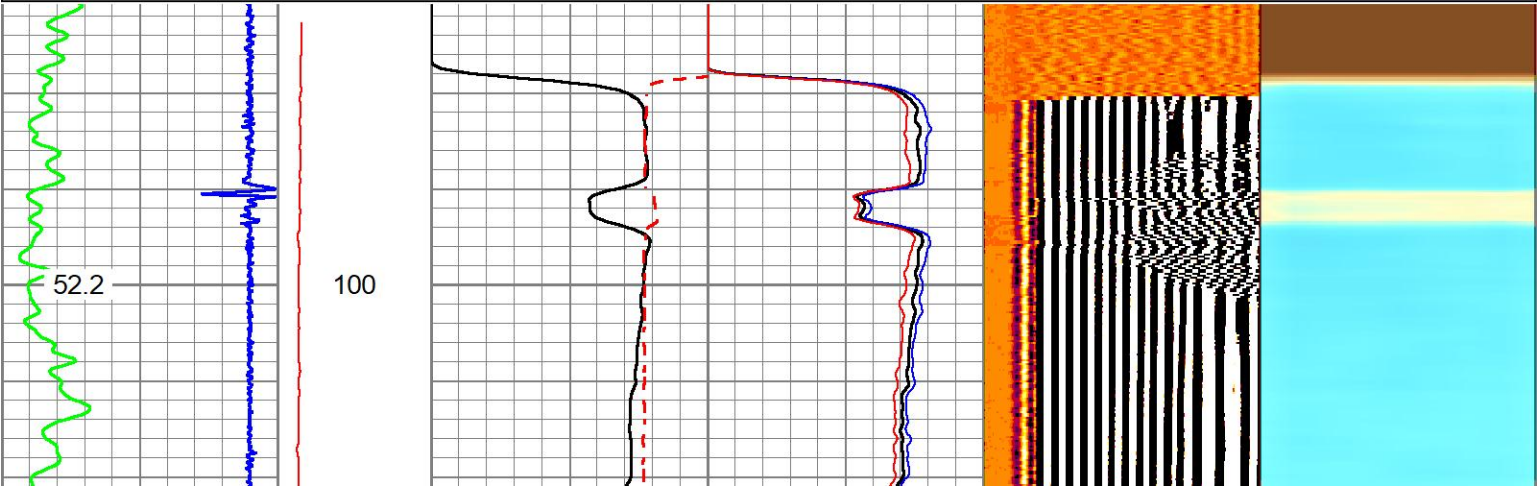
MAIN PASS

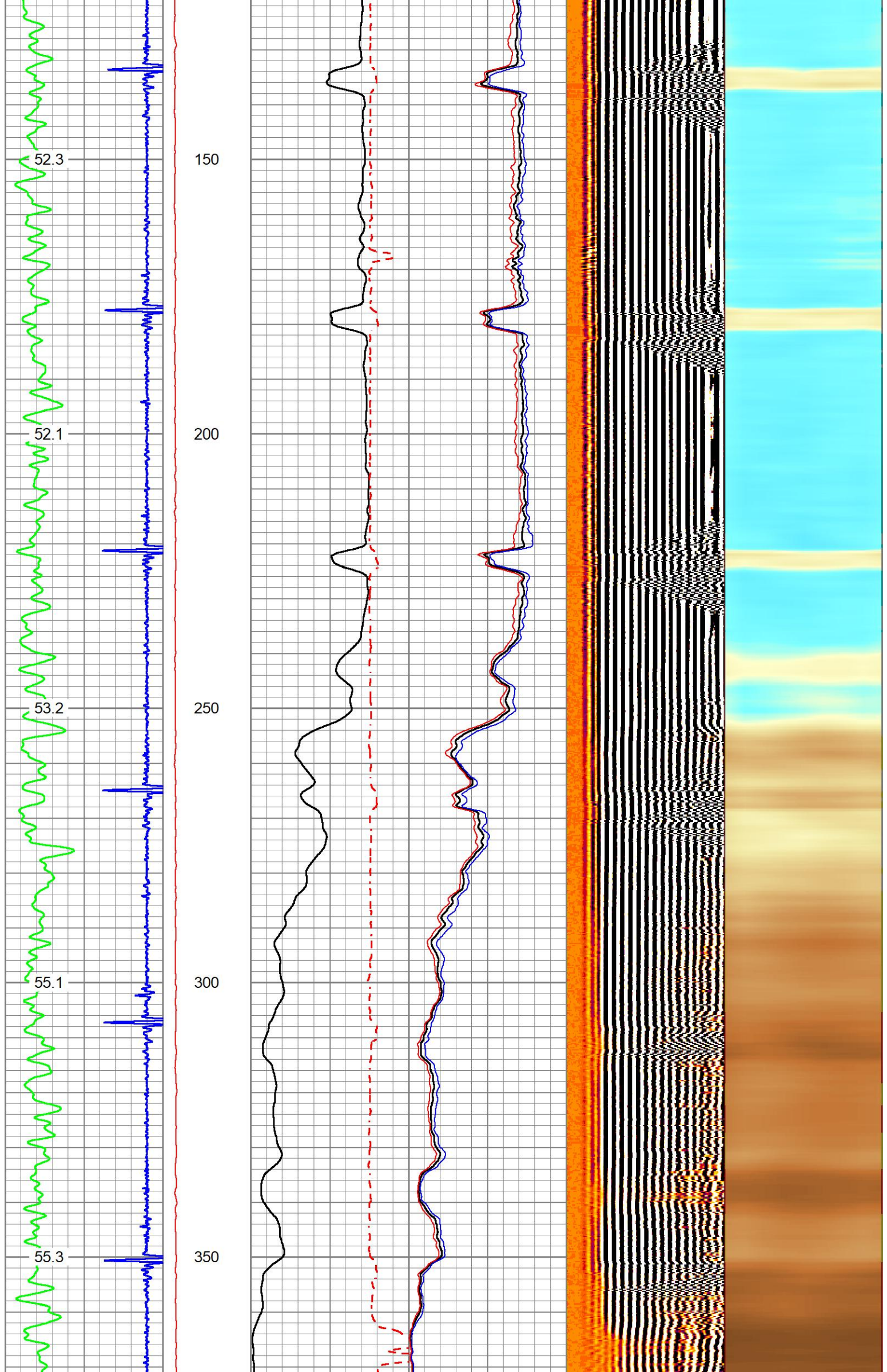
HALLIBURTON

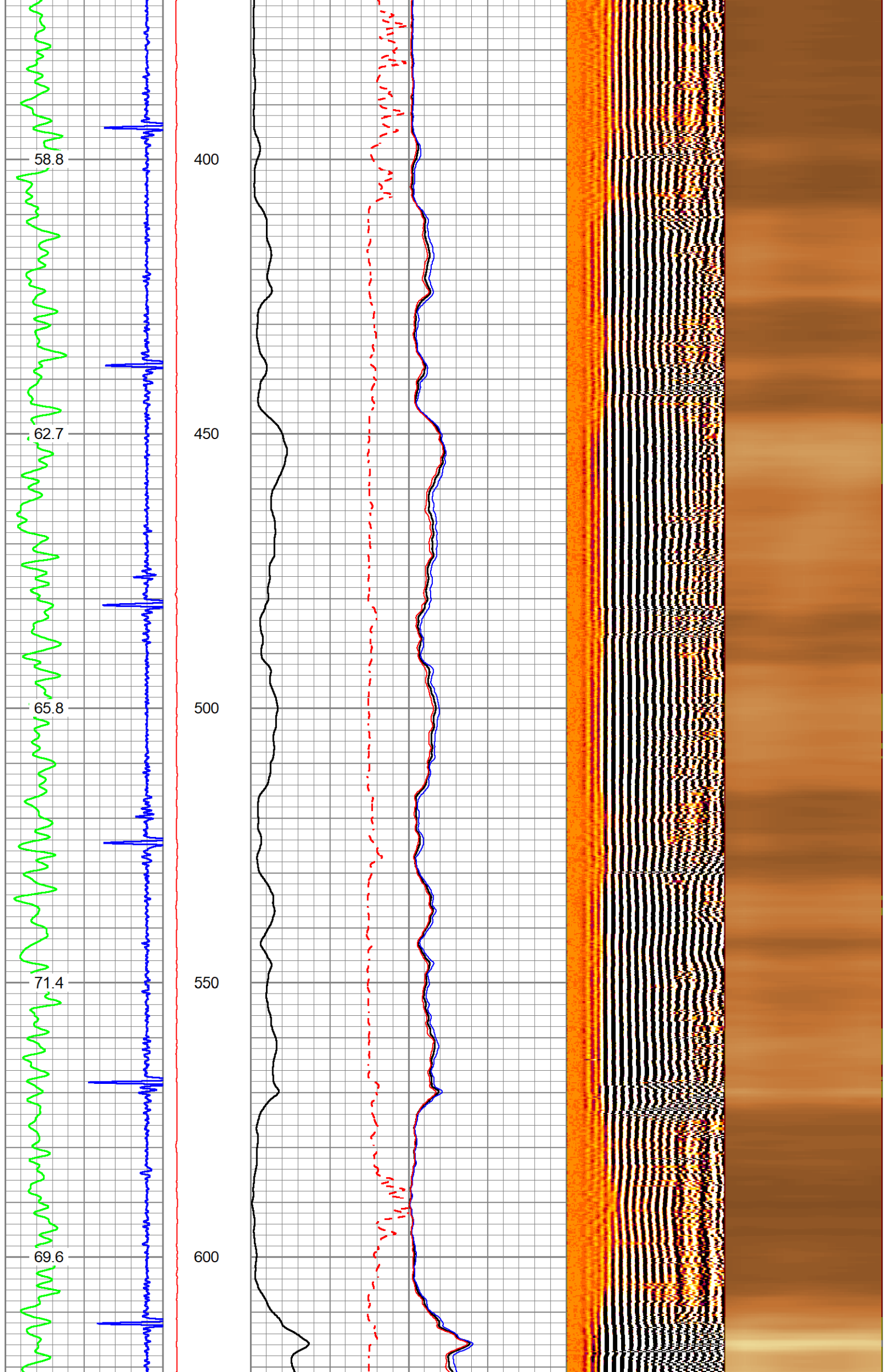
5" = 100'

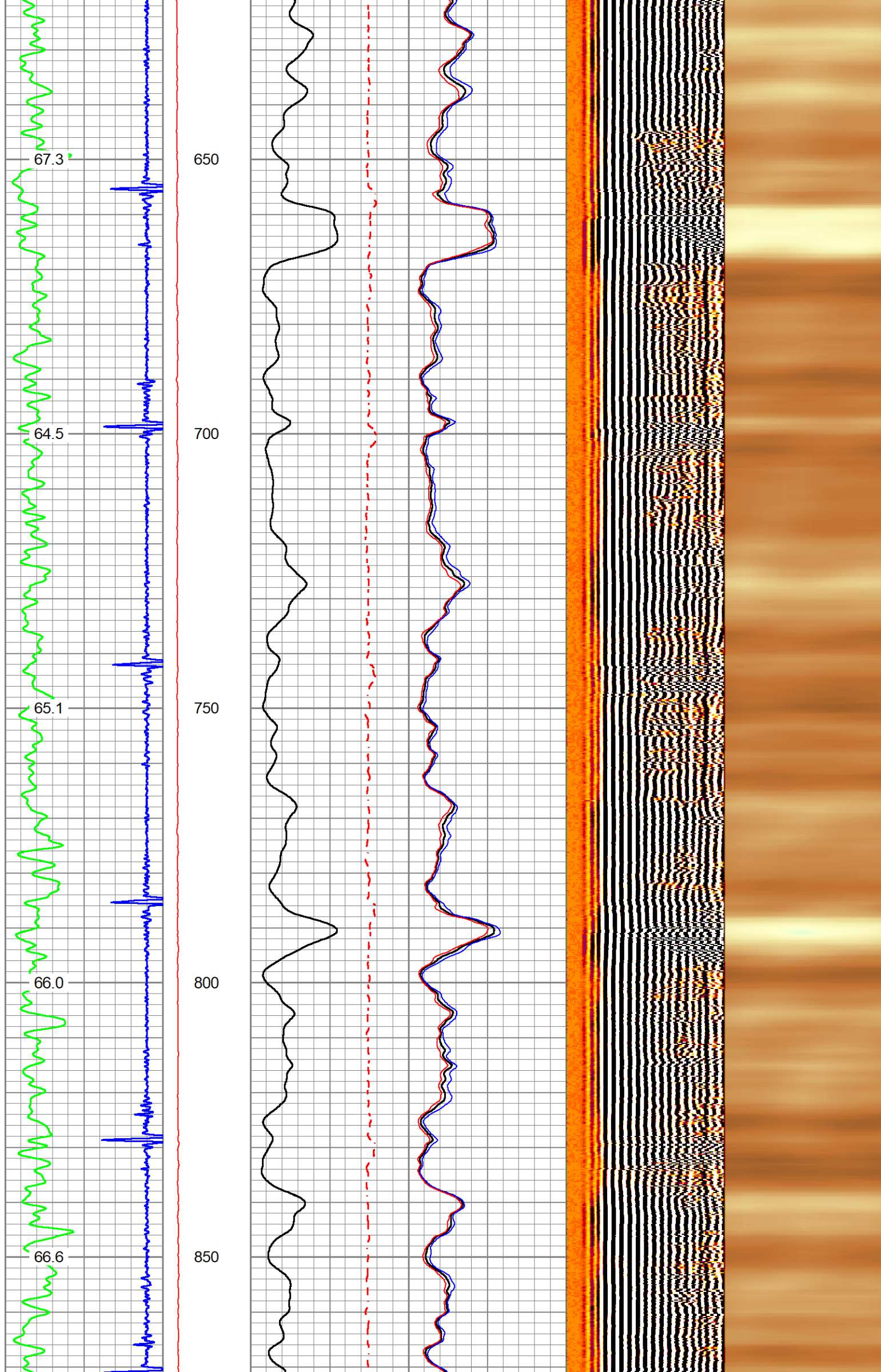
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Dataset Pathname MAIN_PASS
Presentation Format EXTRAC~1
Dataset Creation Sun Aug 11 18:46:48 2019
Charted by Depth in Feet scaled 1:240

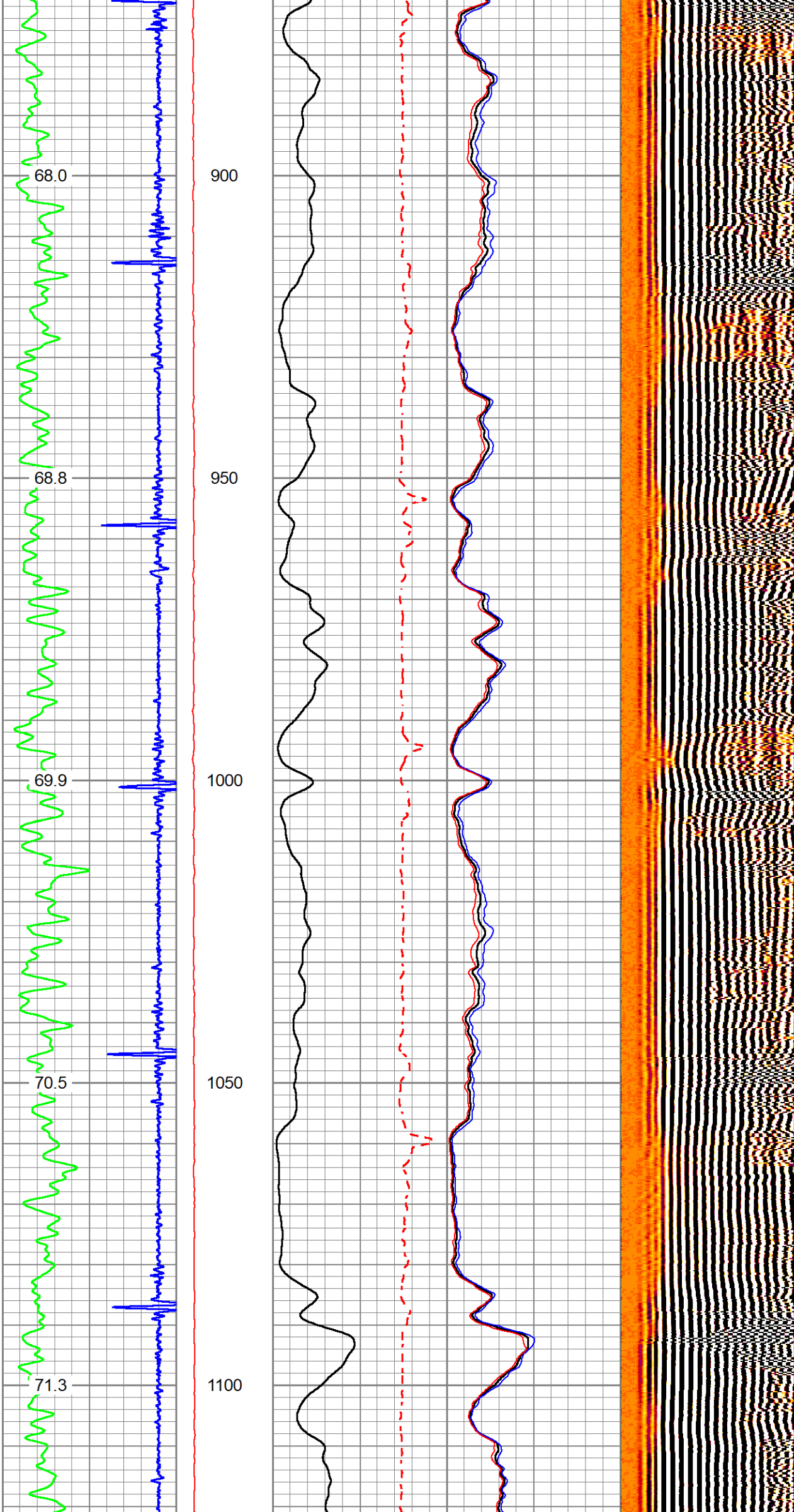
9	CCL	-1	LTEN	0	AMP (mV)	100	0	AMPAVG	100	200	VDL (usec)	1200	1	RADIAL MAP	8
0	GR (GAPI)	100	0	(lb2000	Travel Time		0	AMPMAX	100						
TEMP					200	(usec)	300	0	AMPMIN						
(degF)															

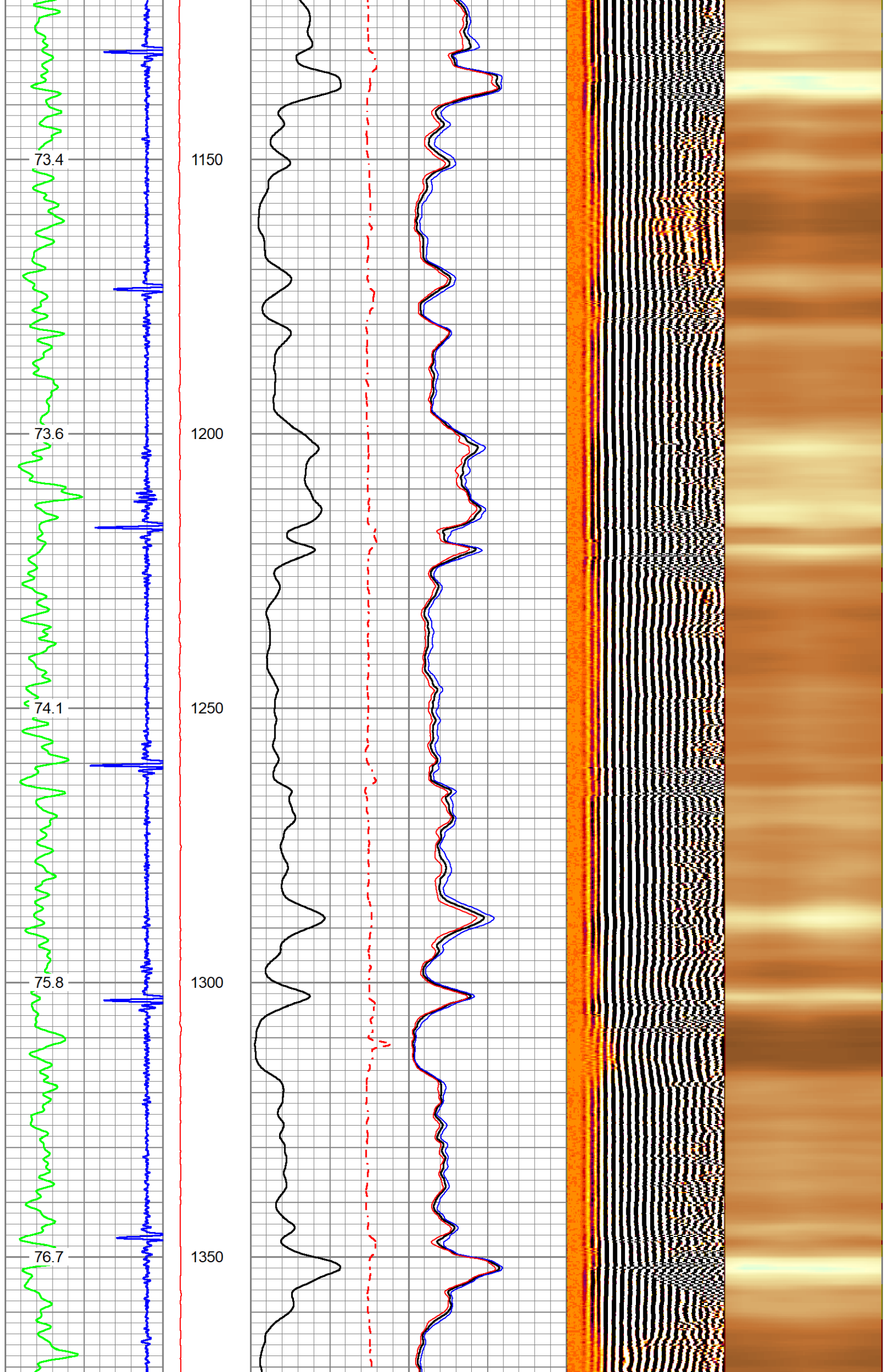


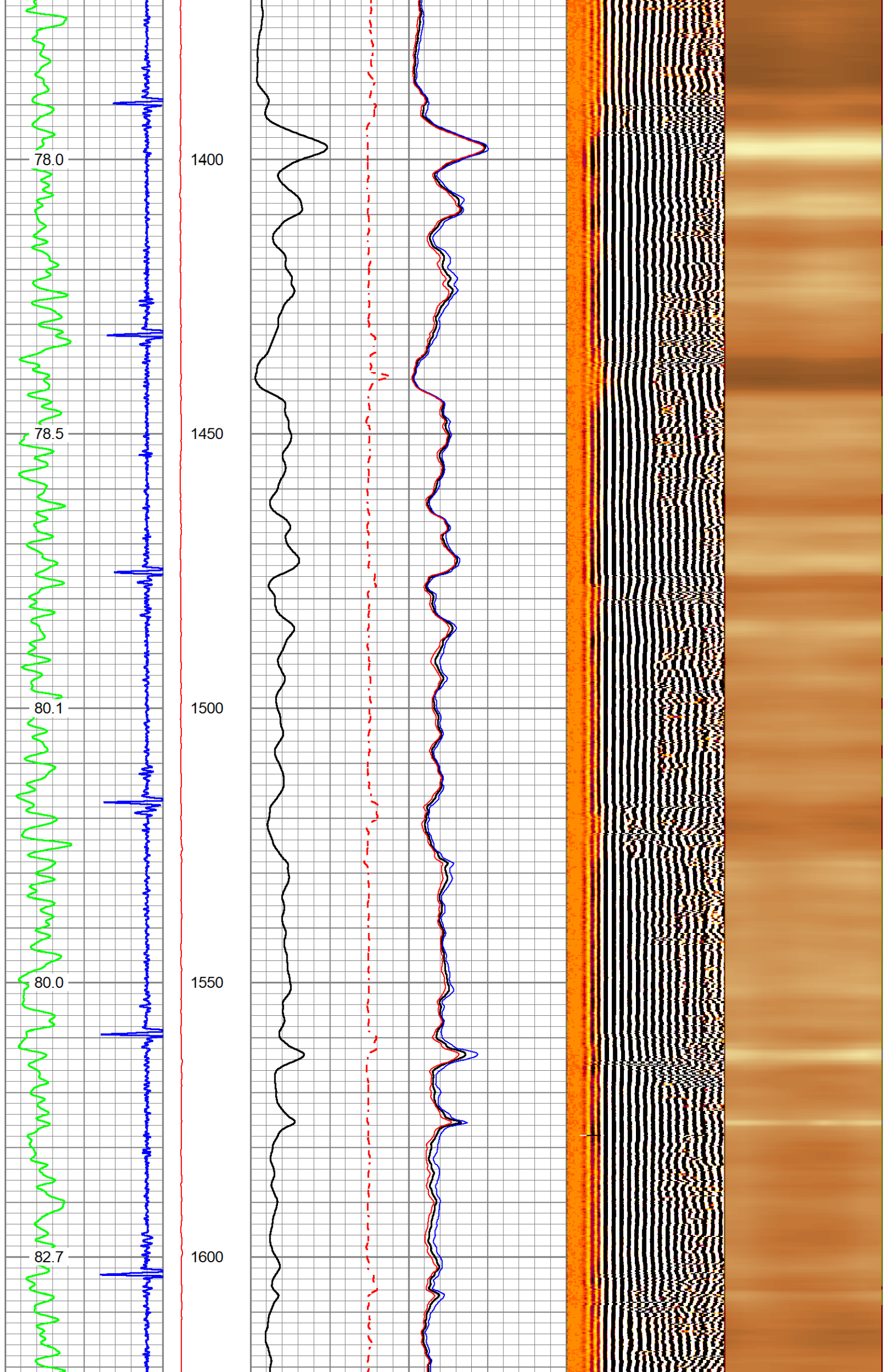


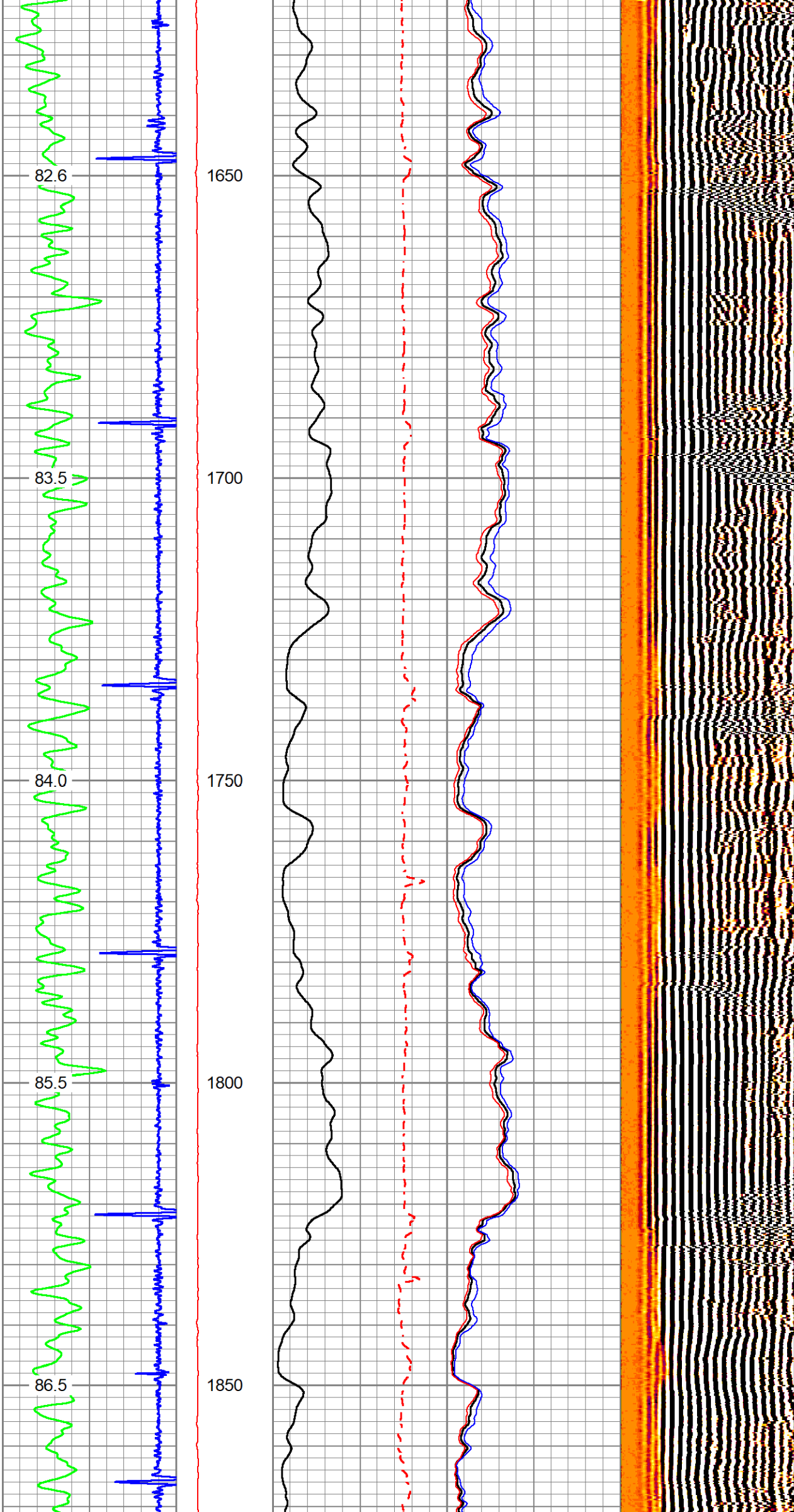


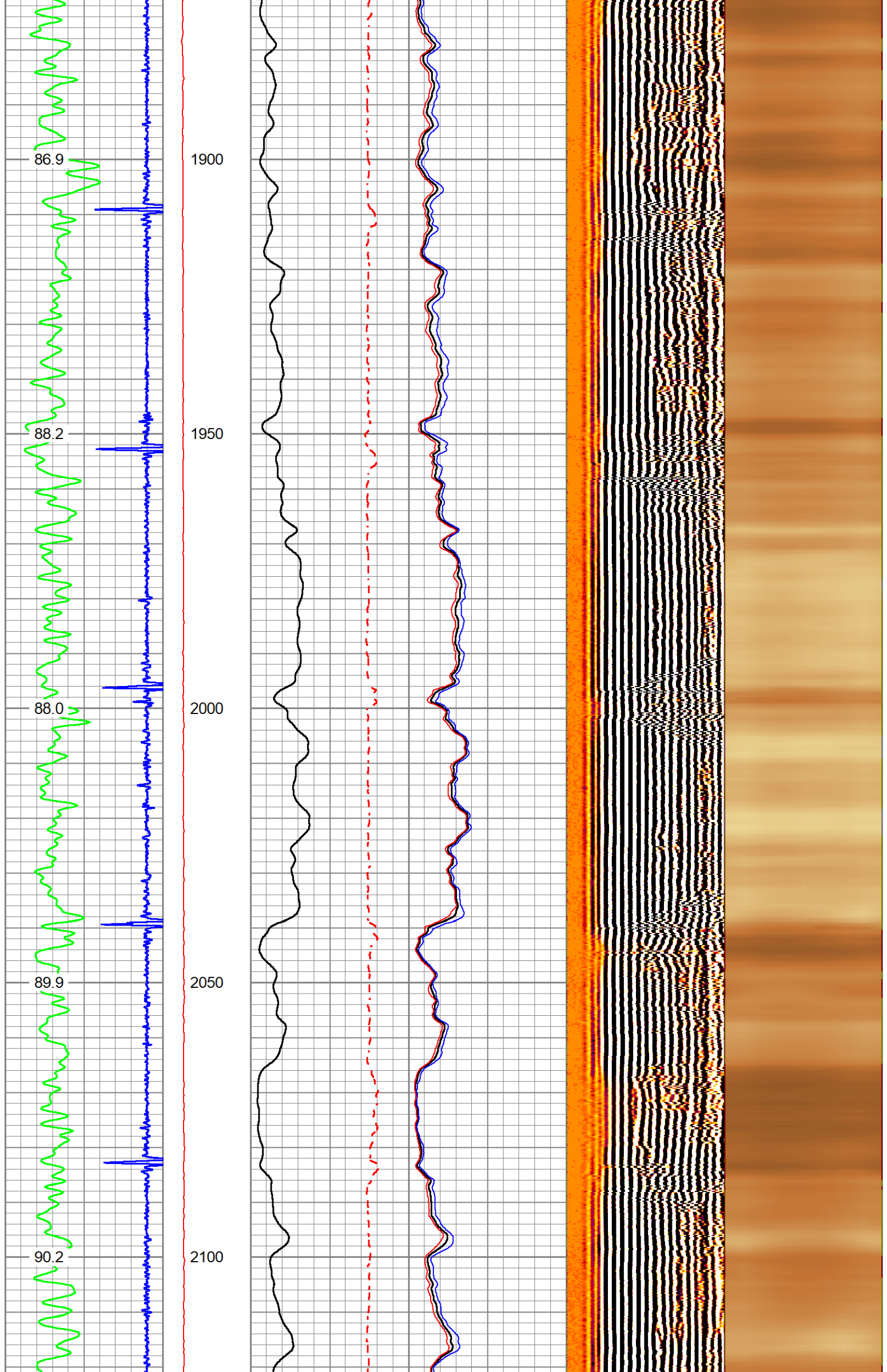


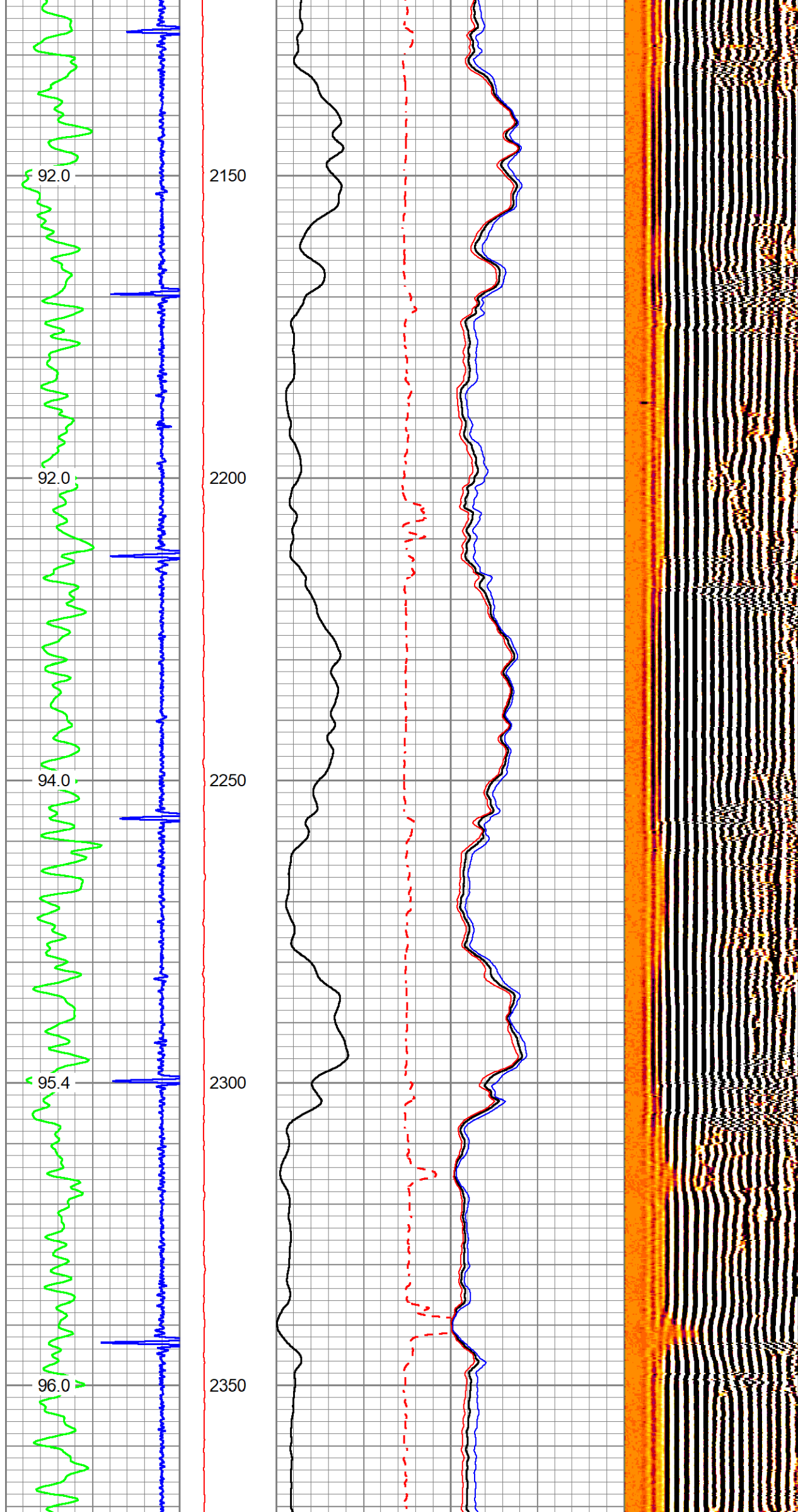


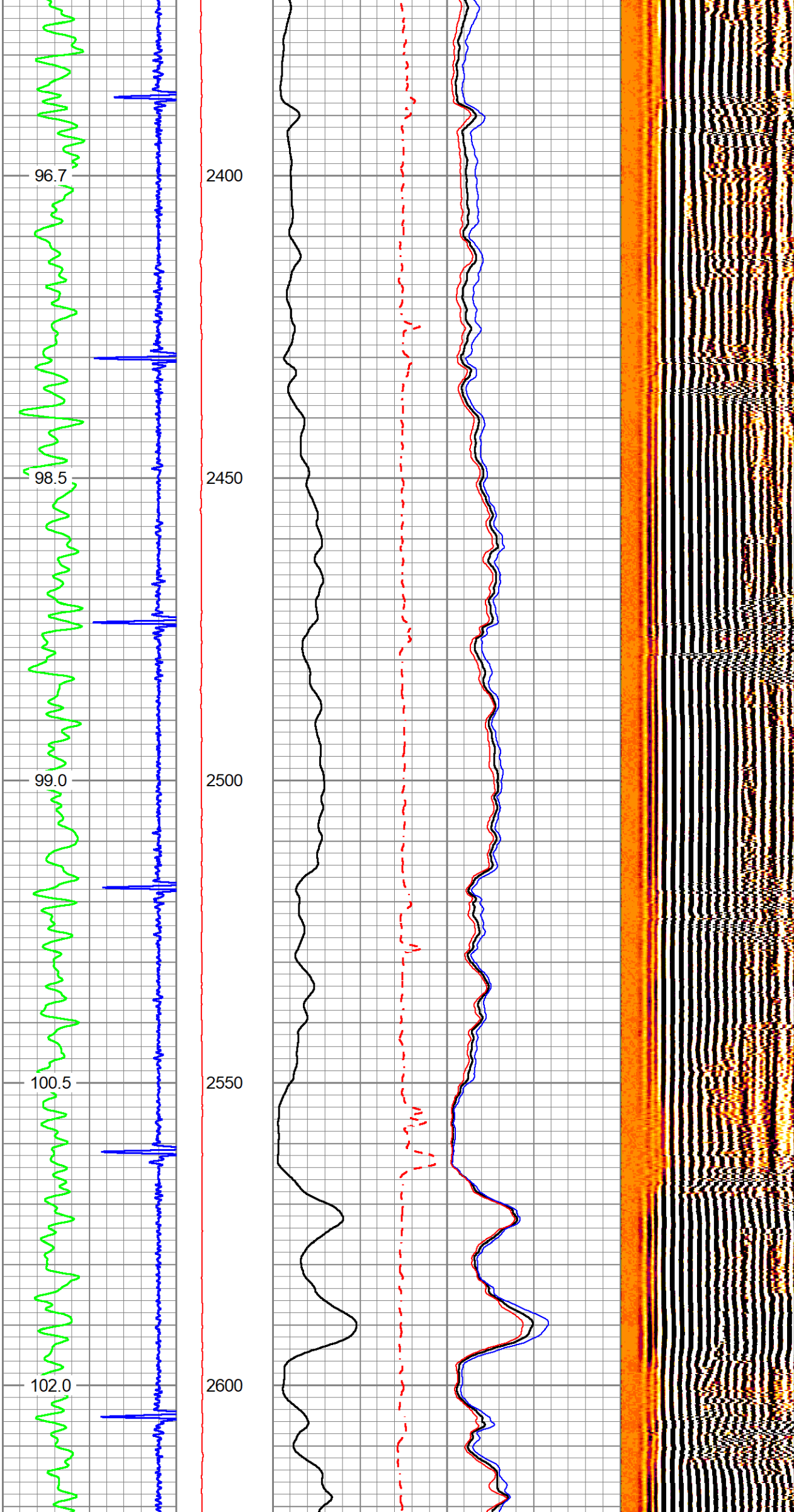


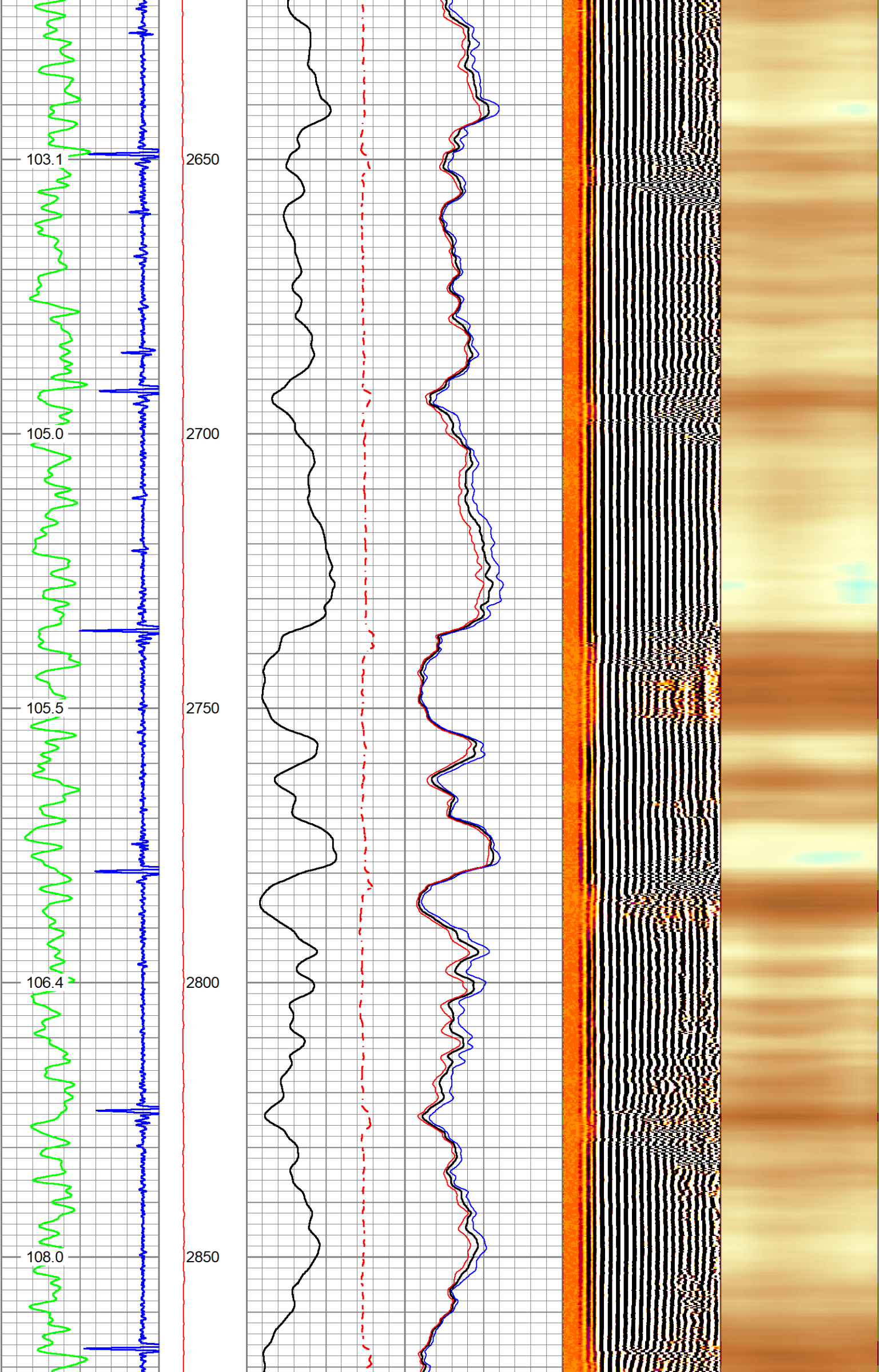


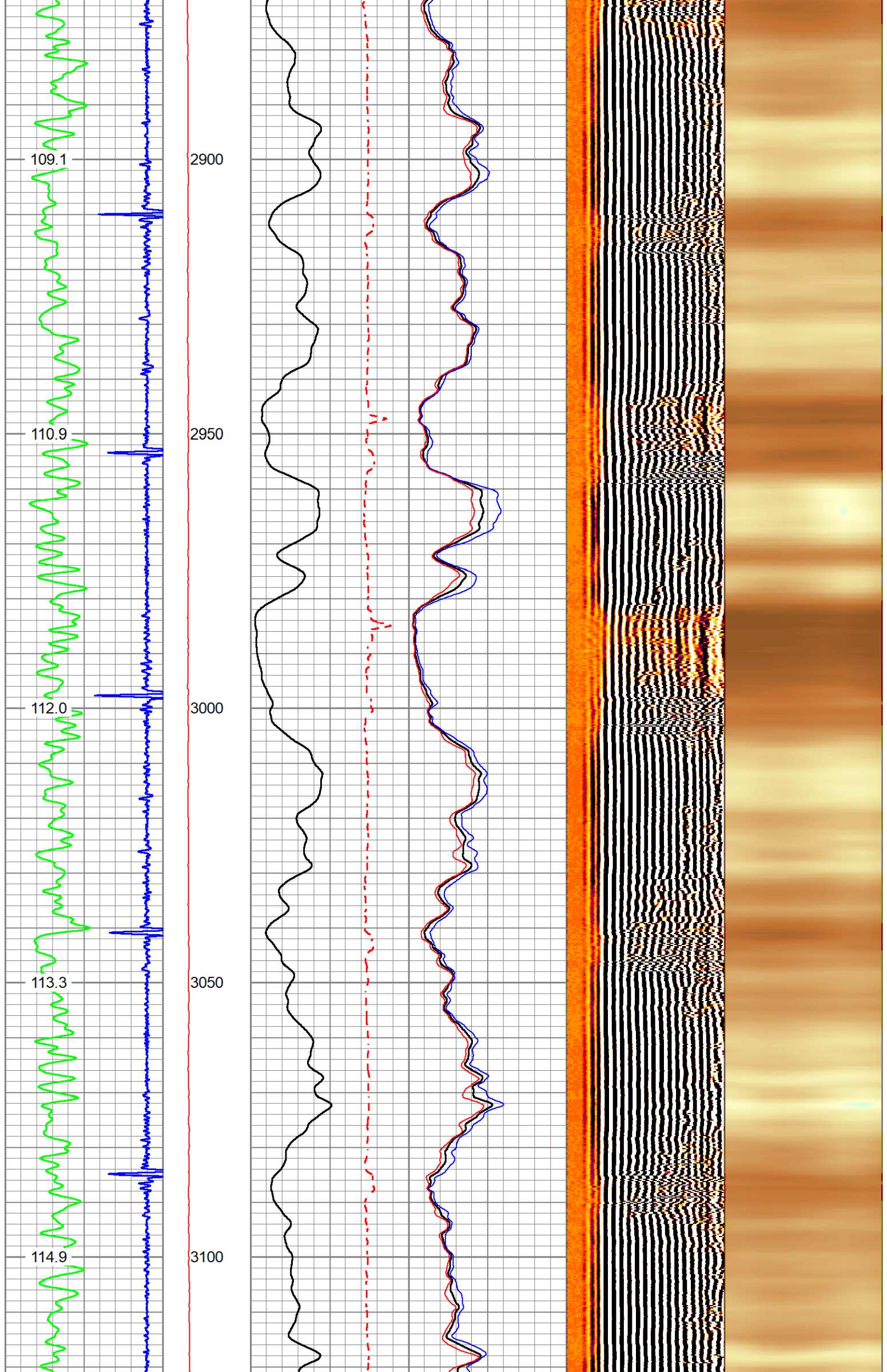


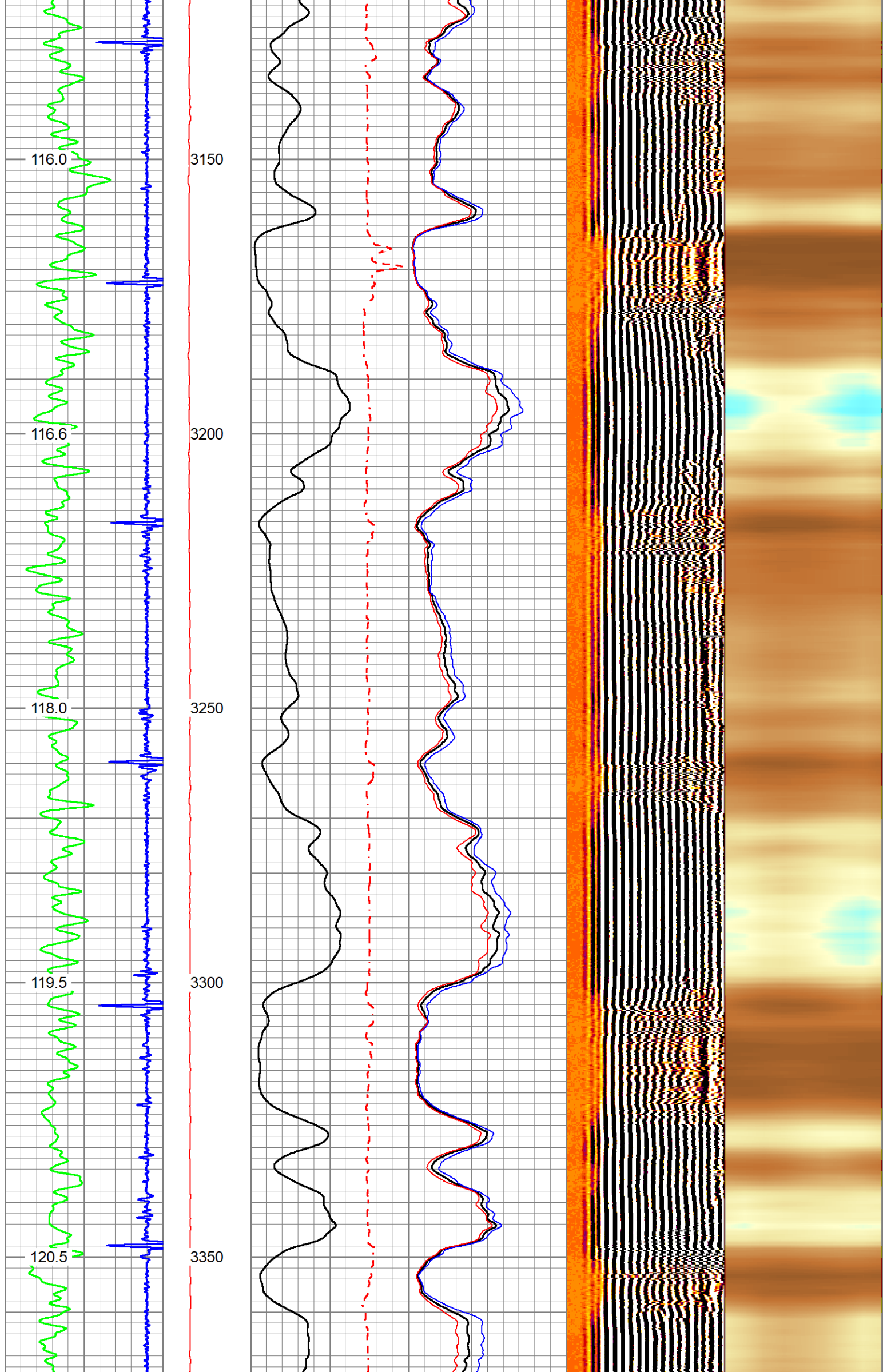


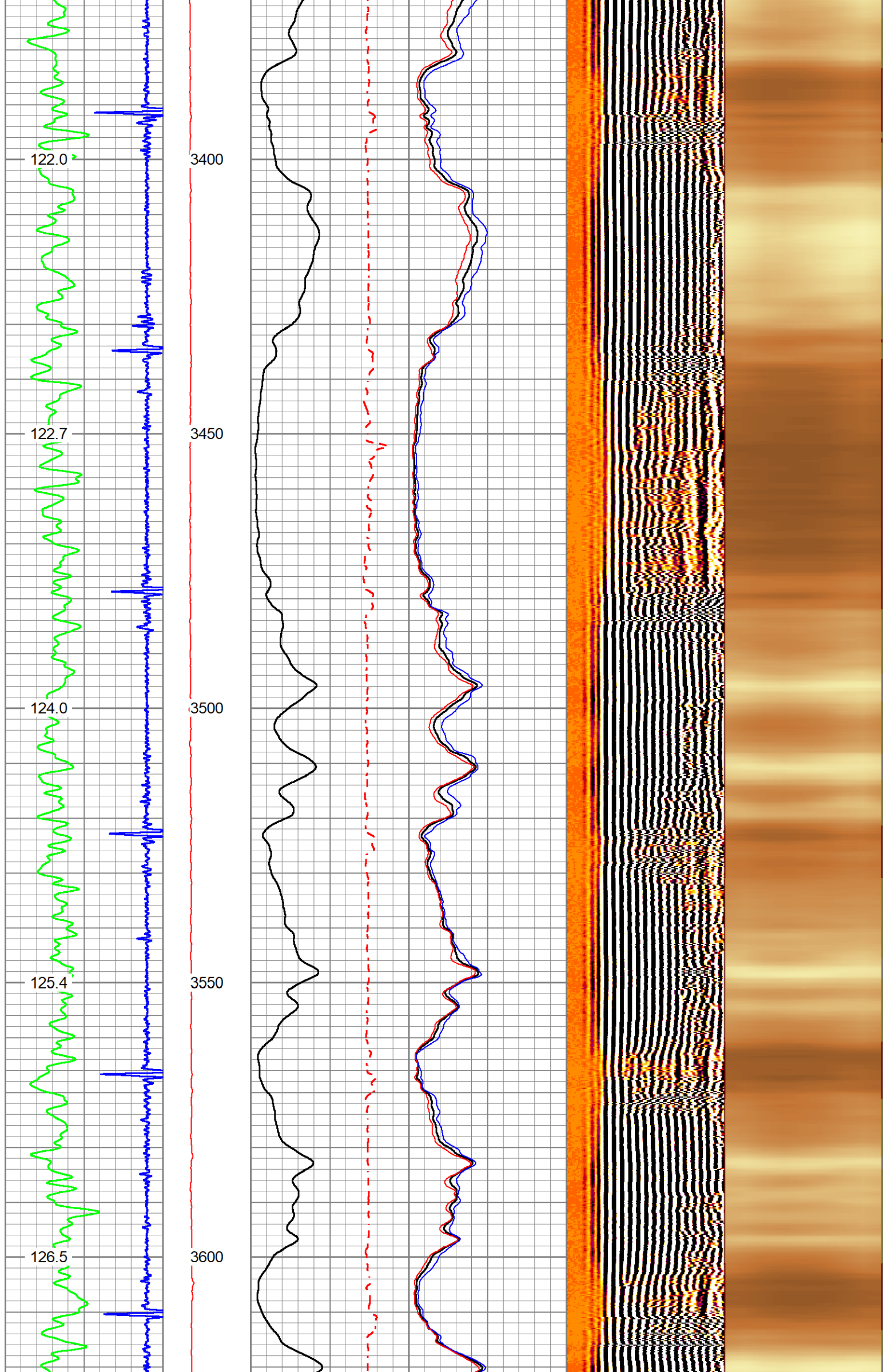


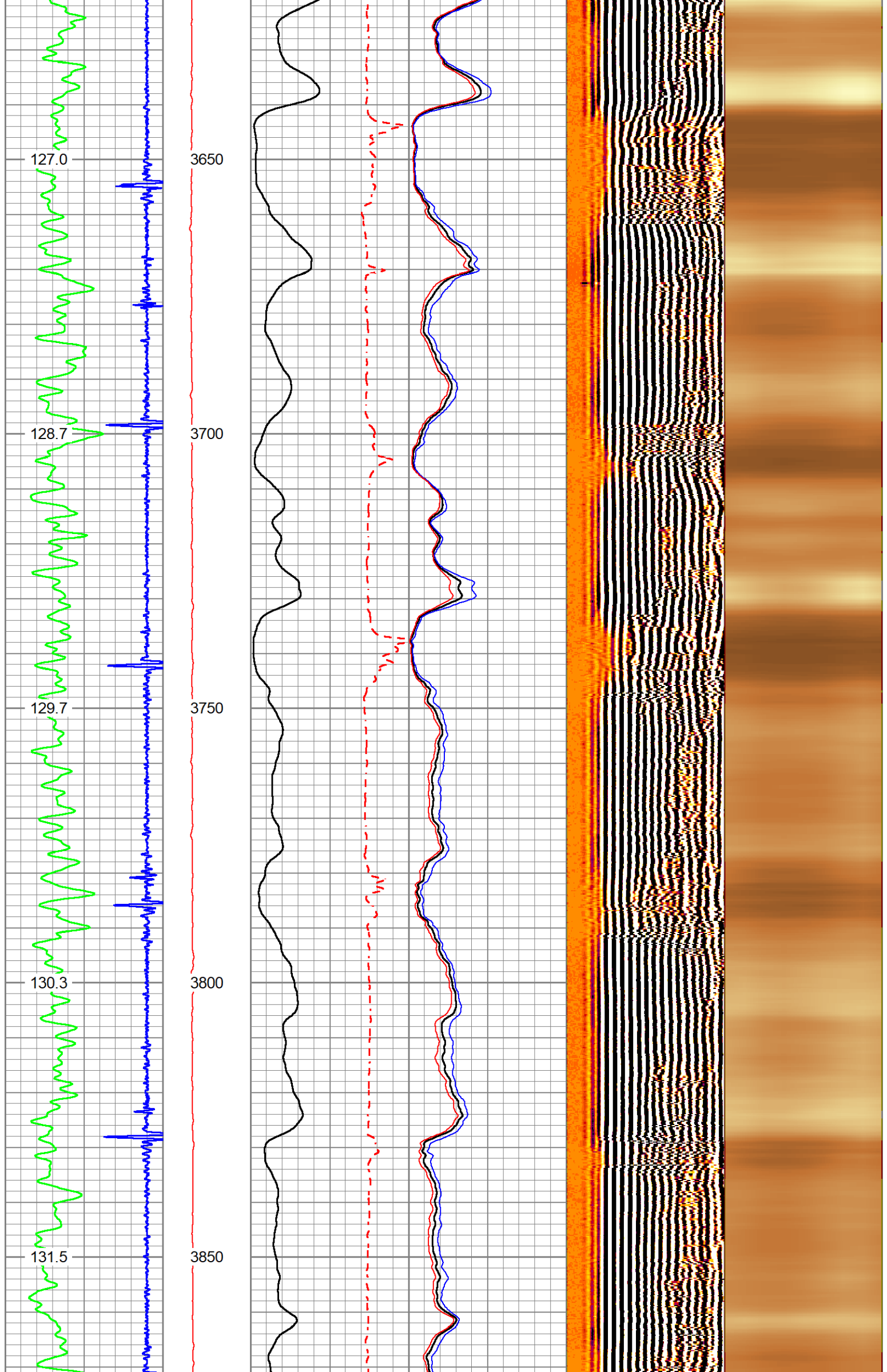


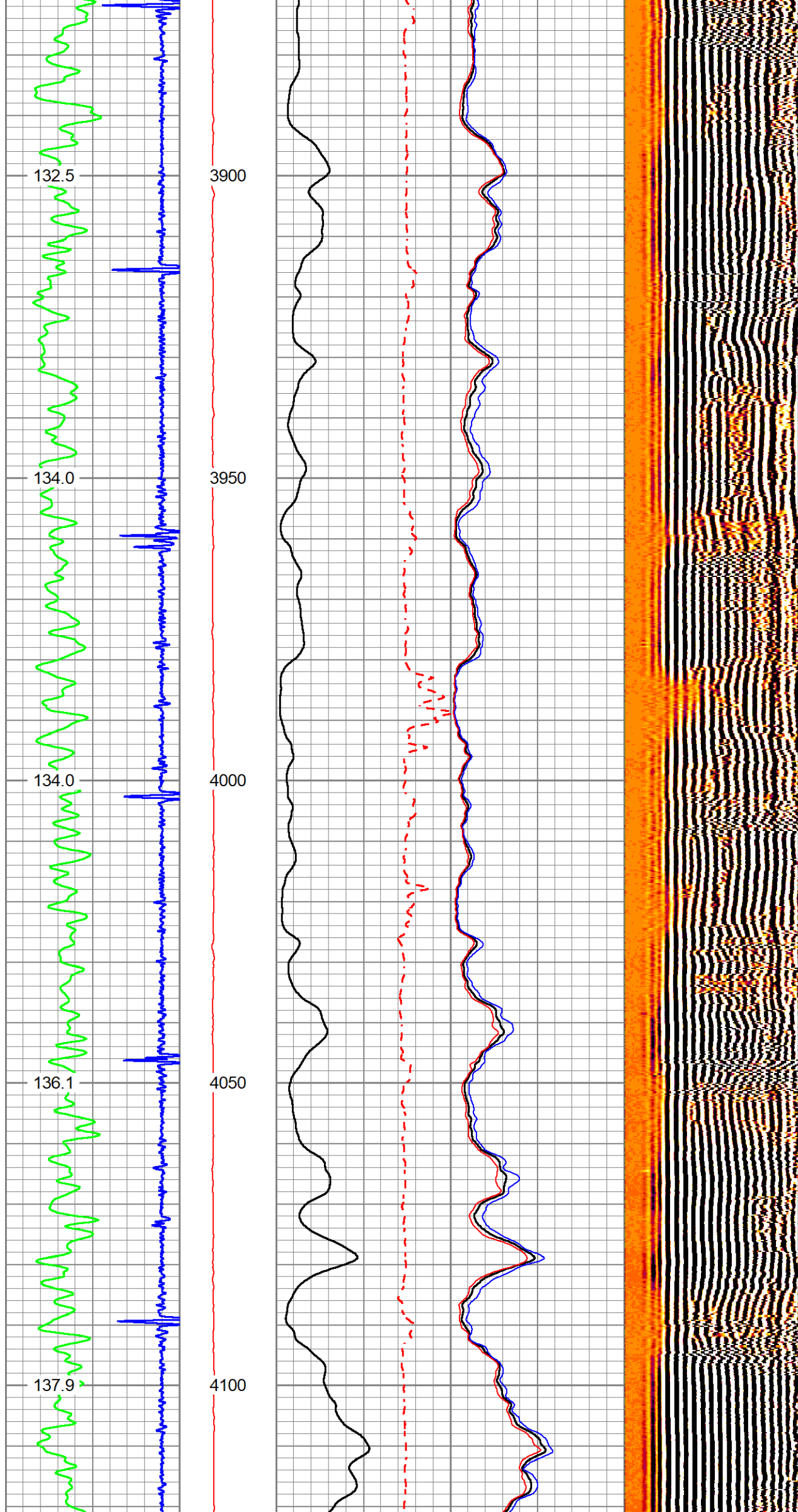


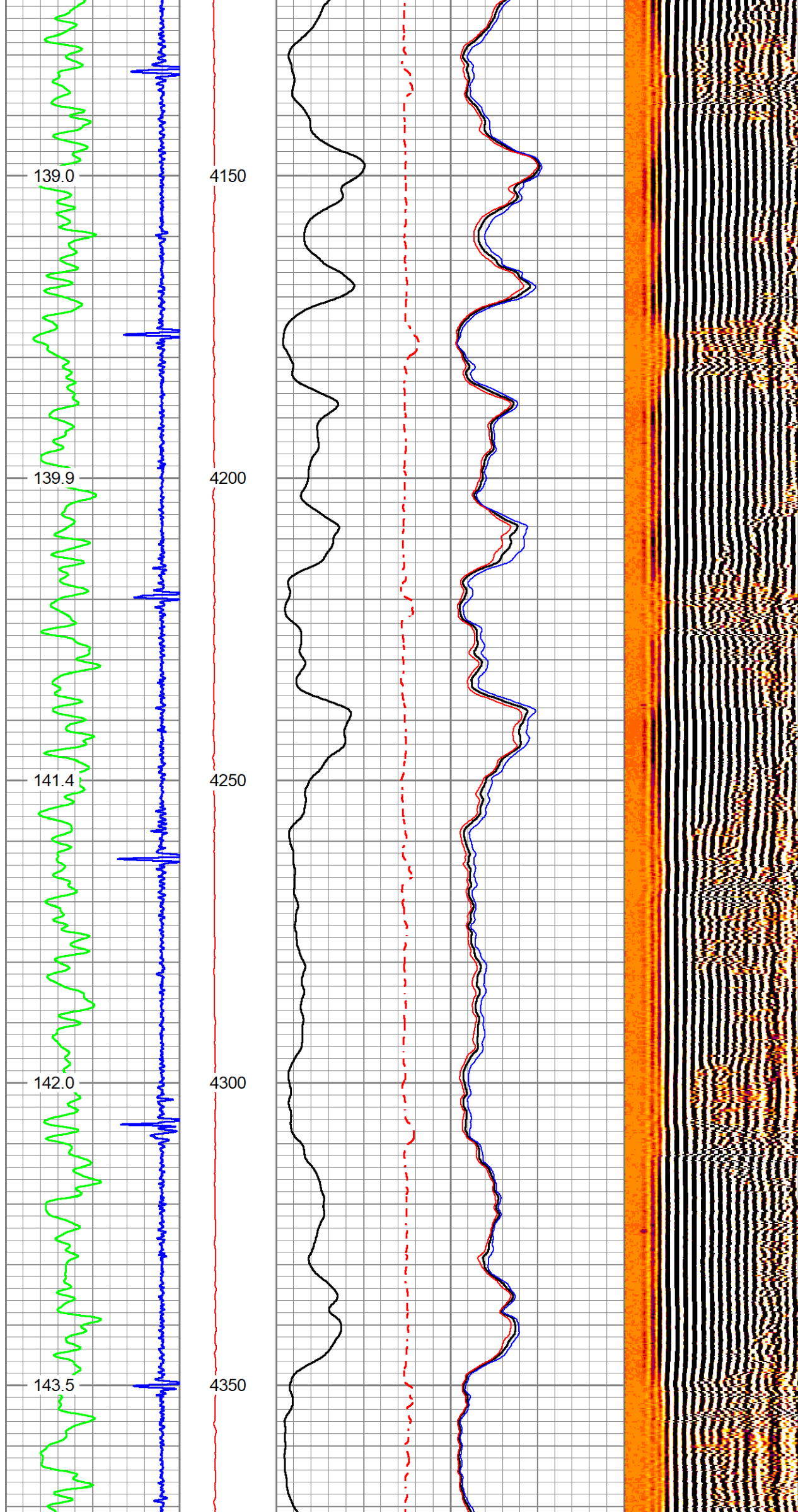


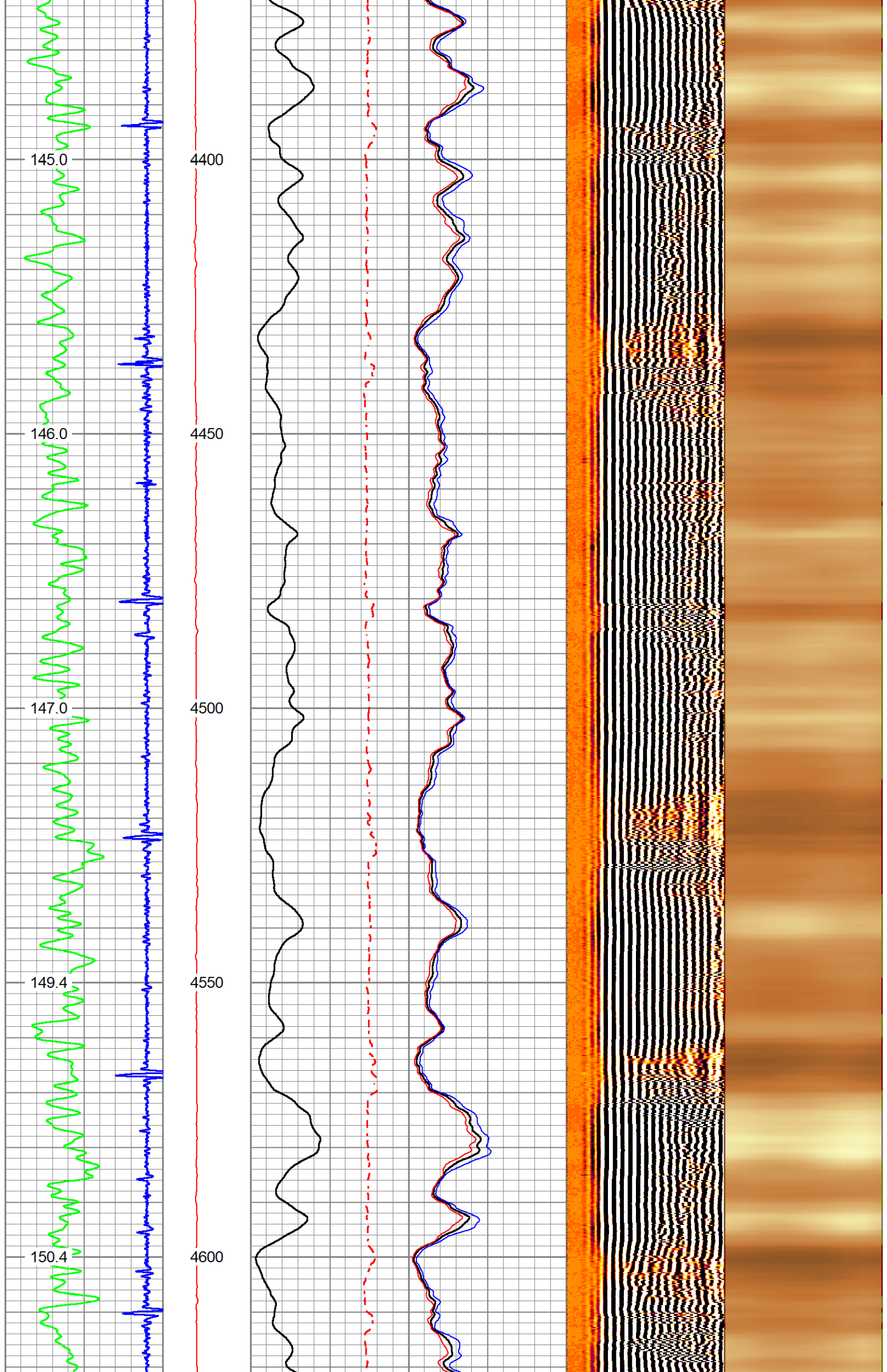


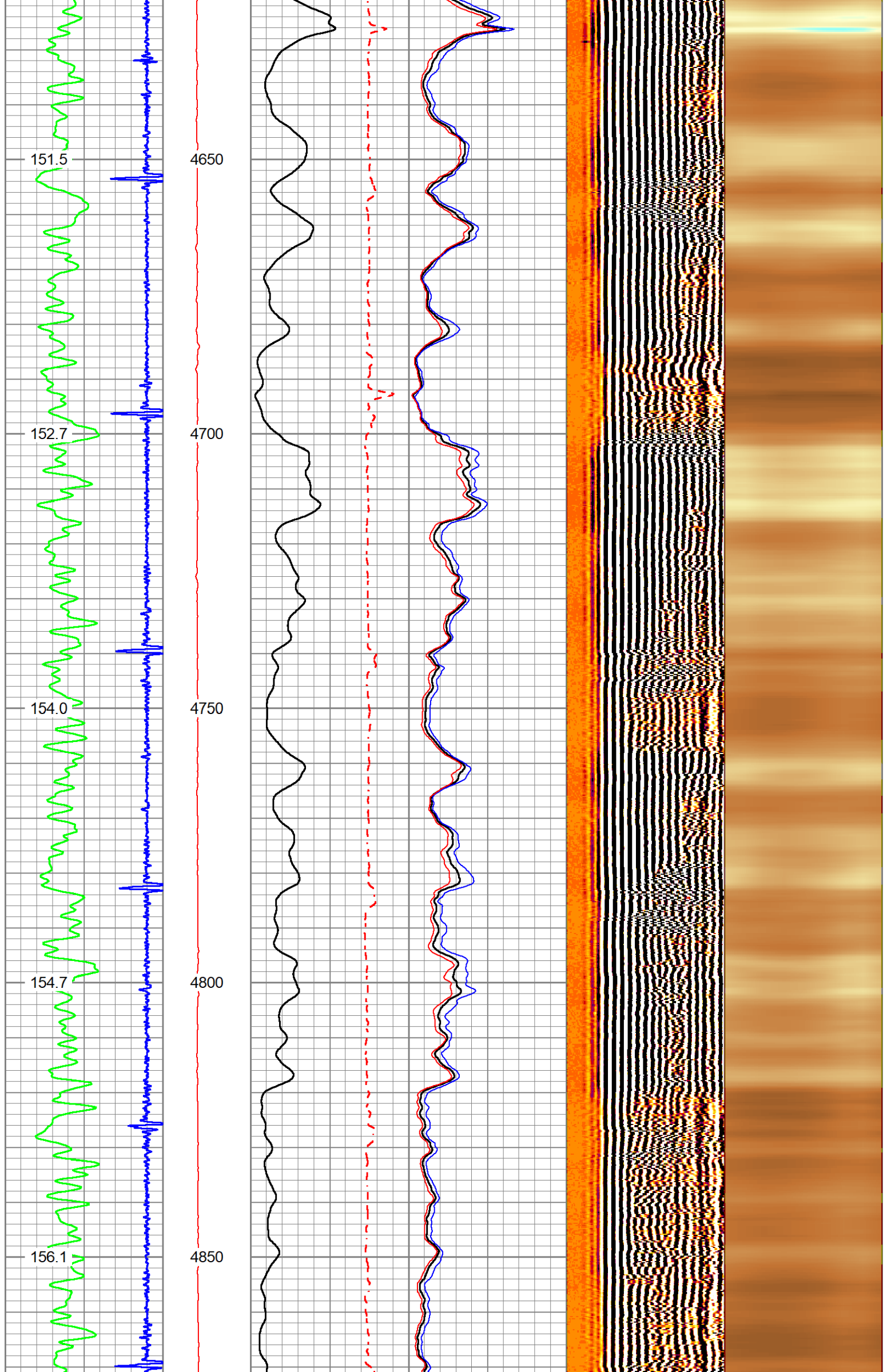


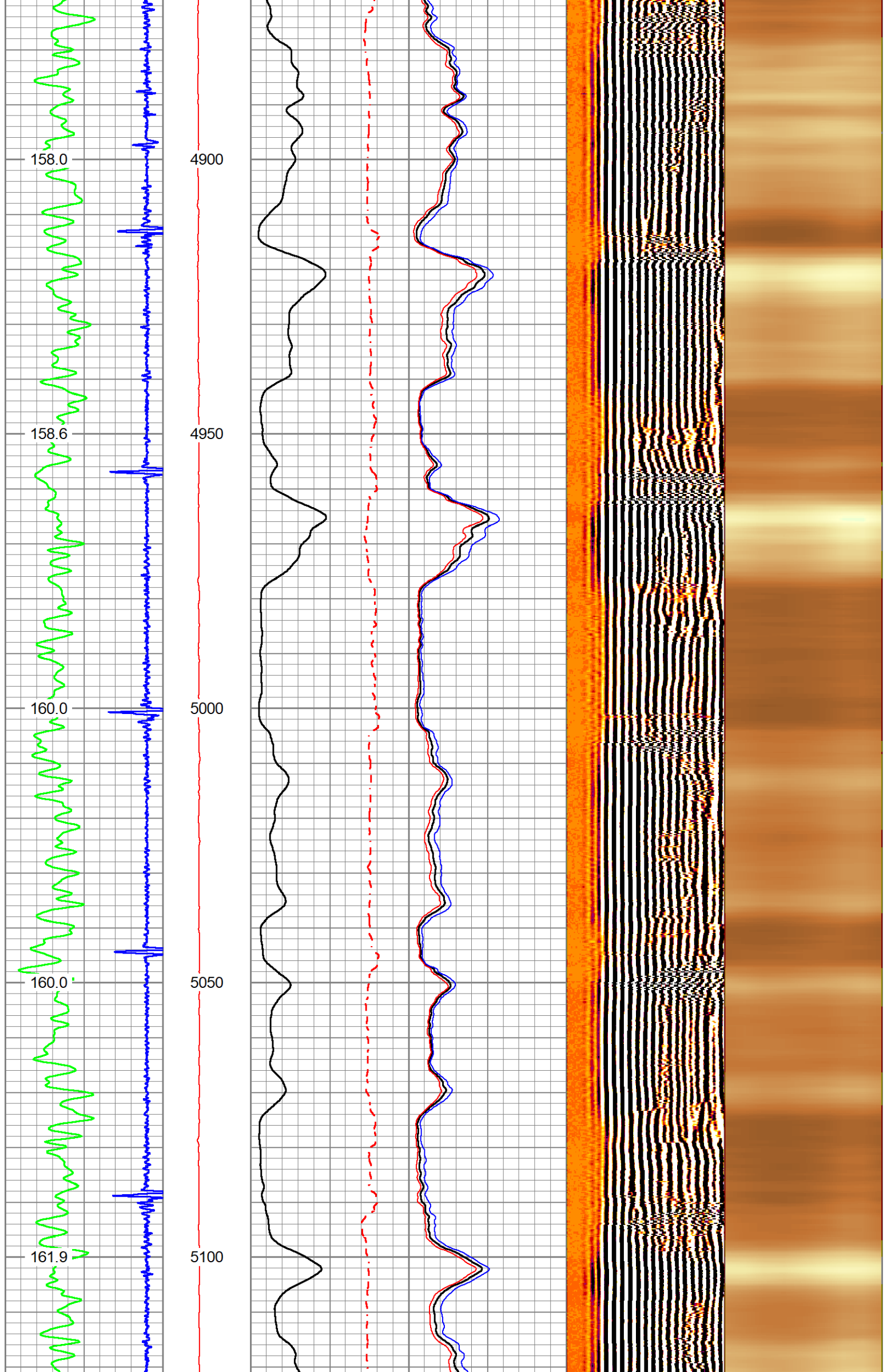


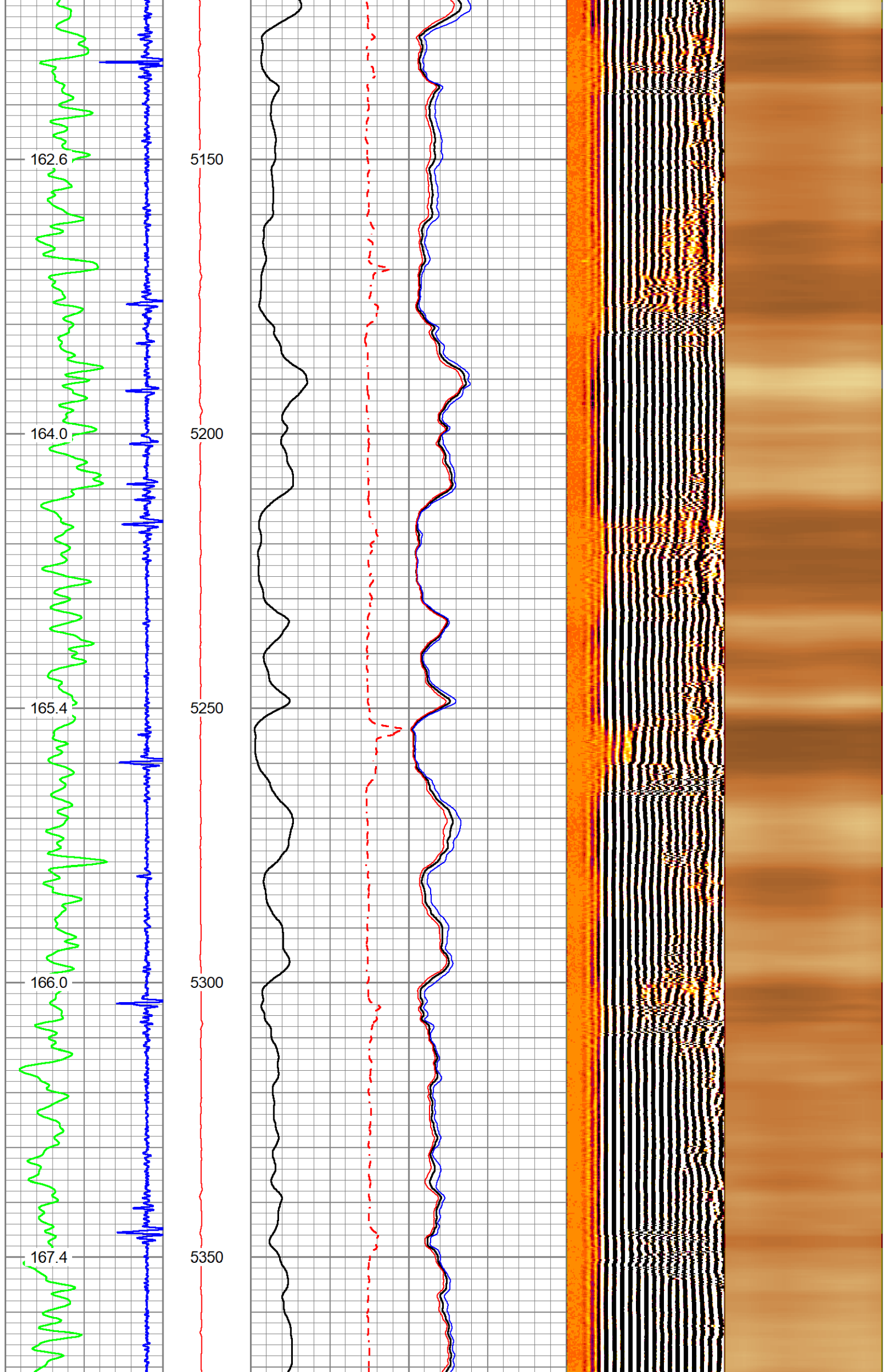


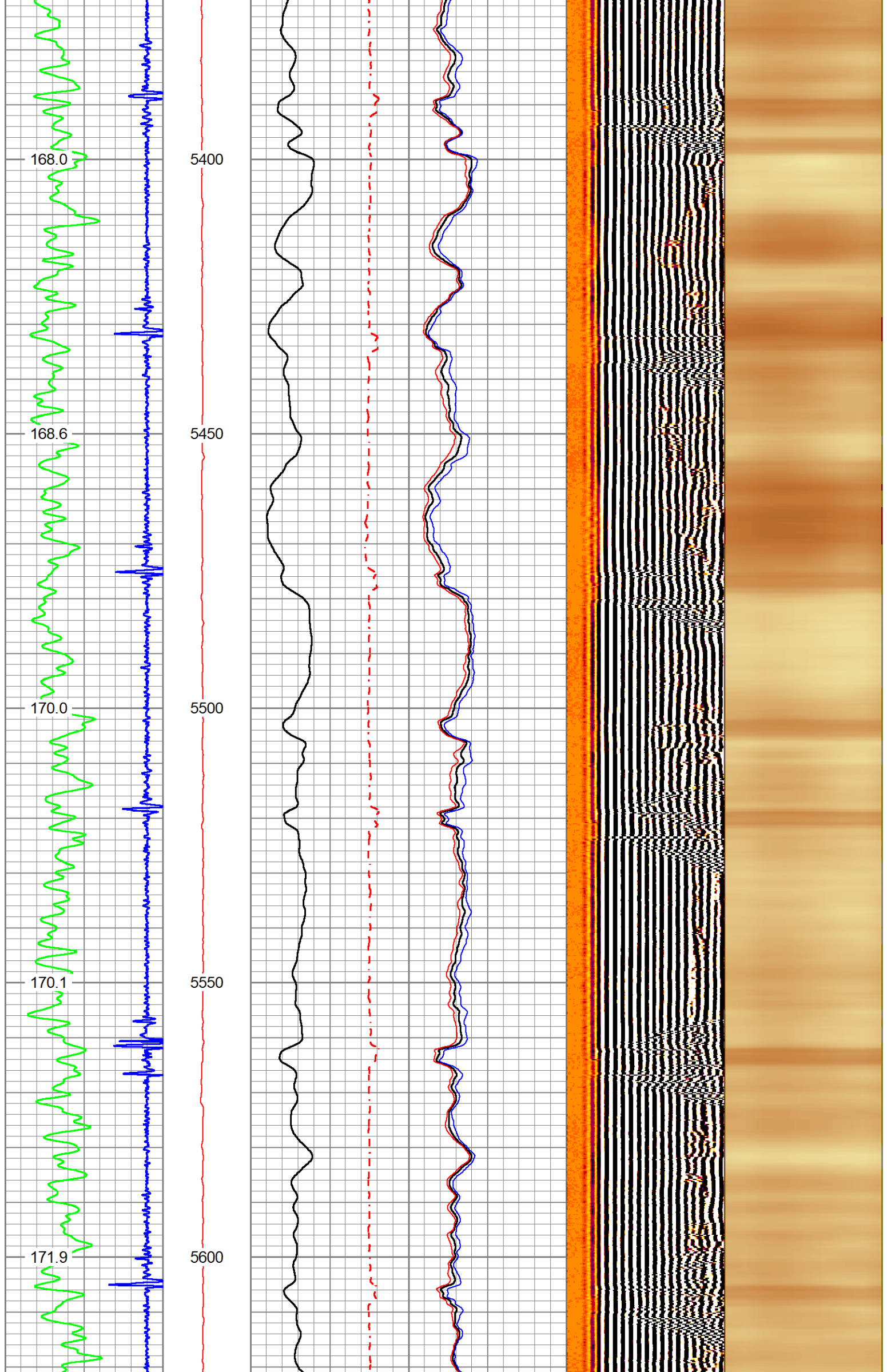


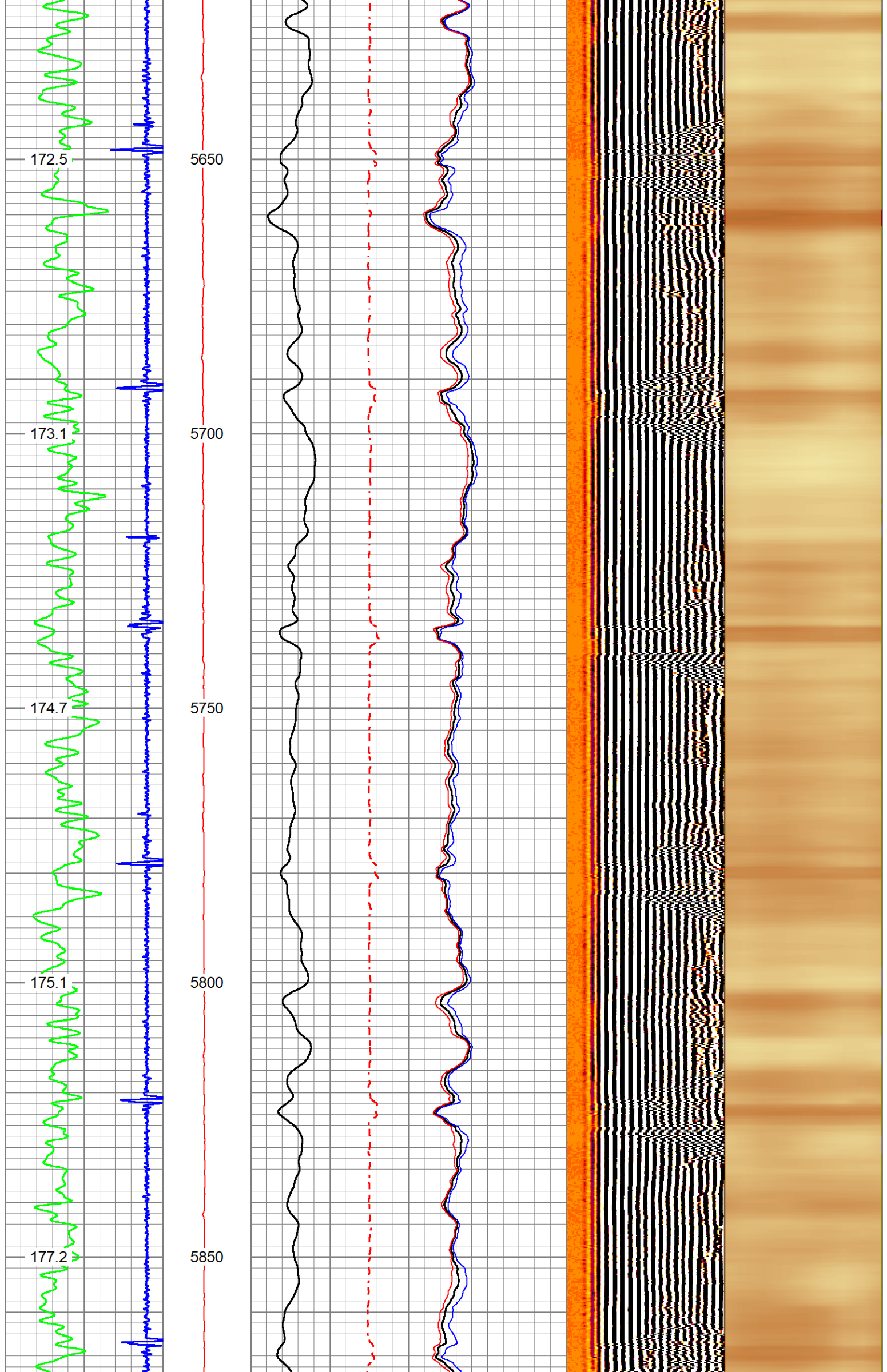


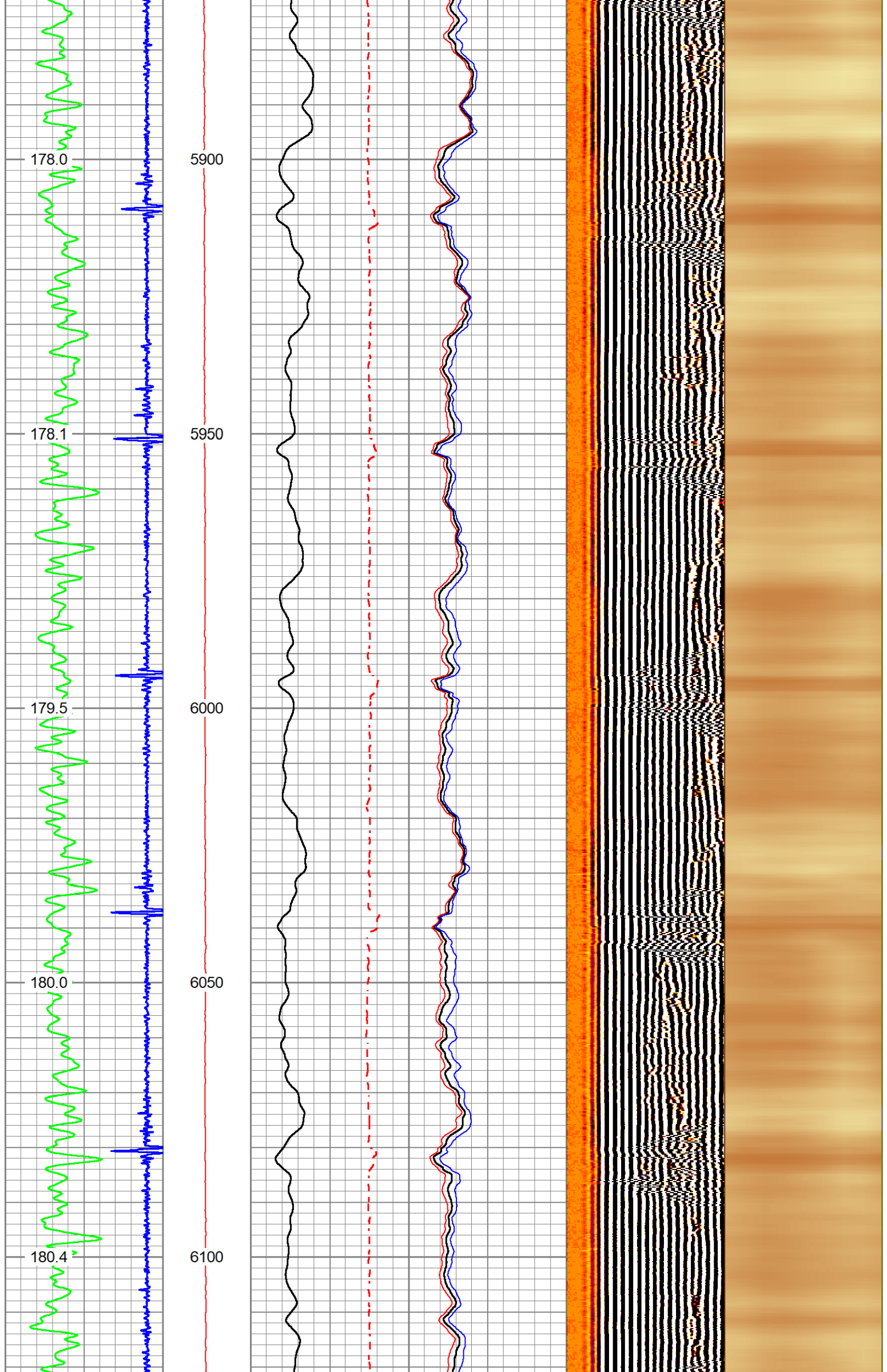


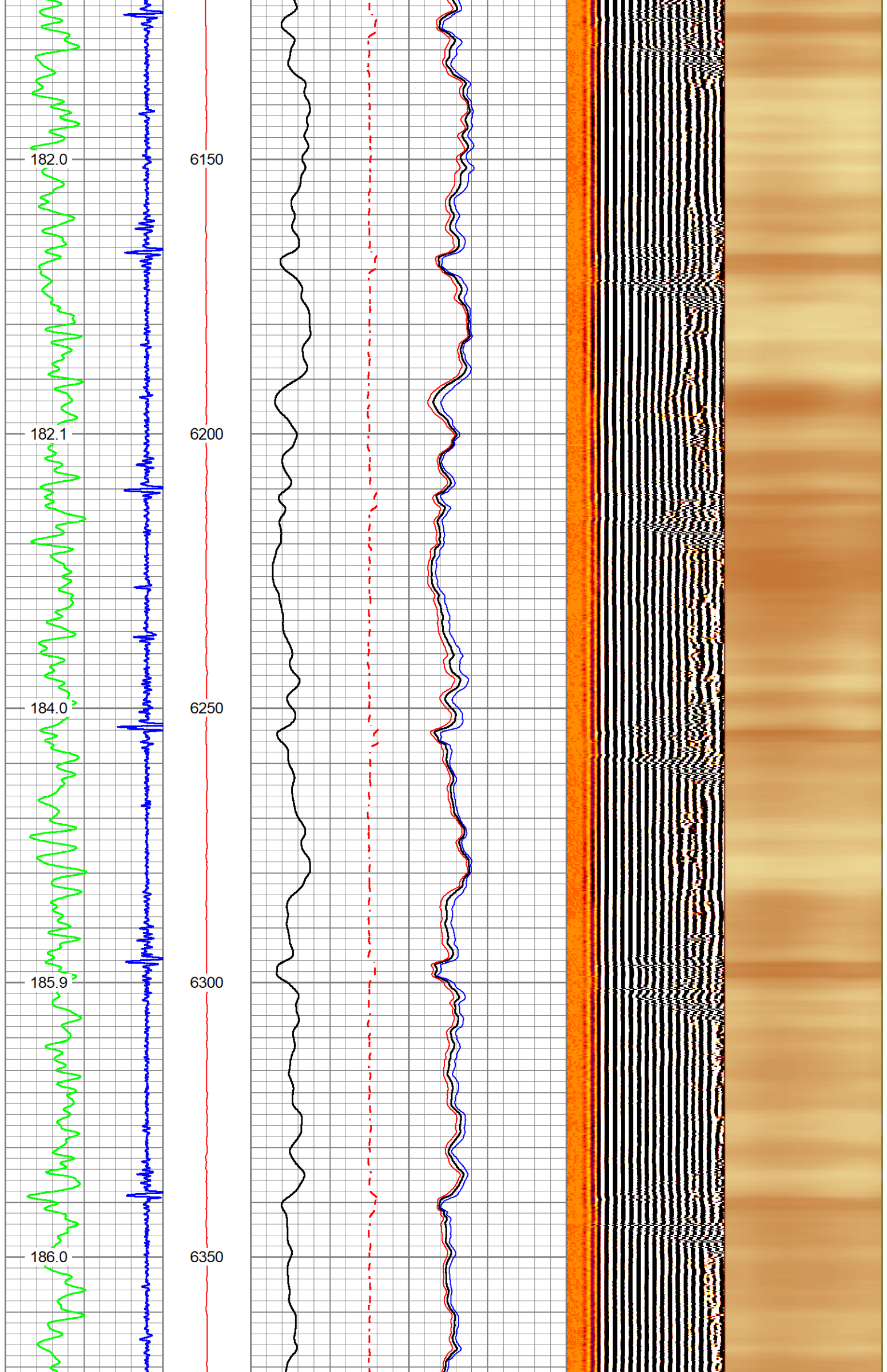


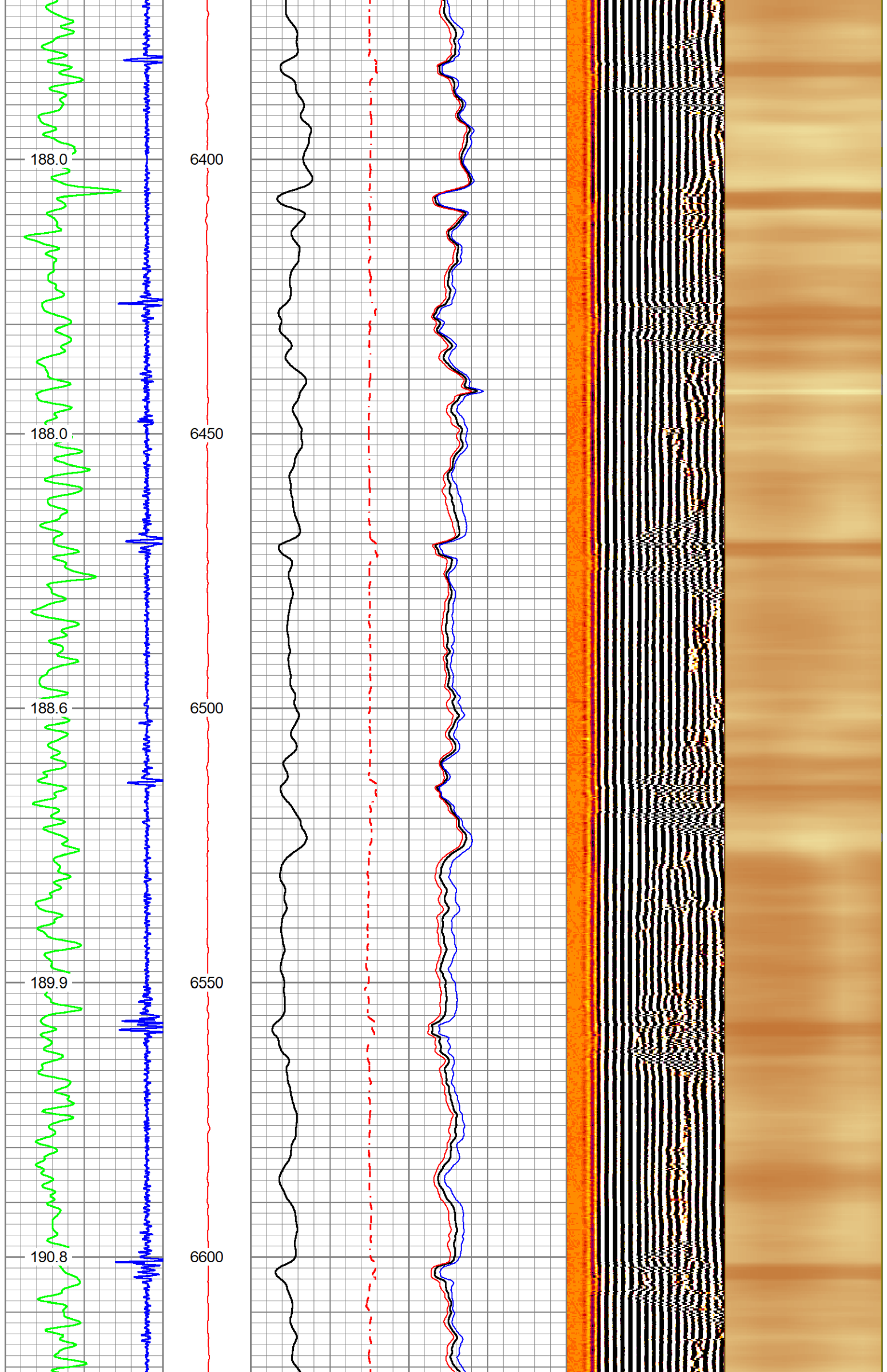


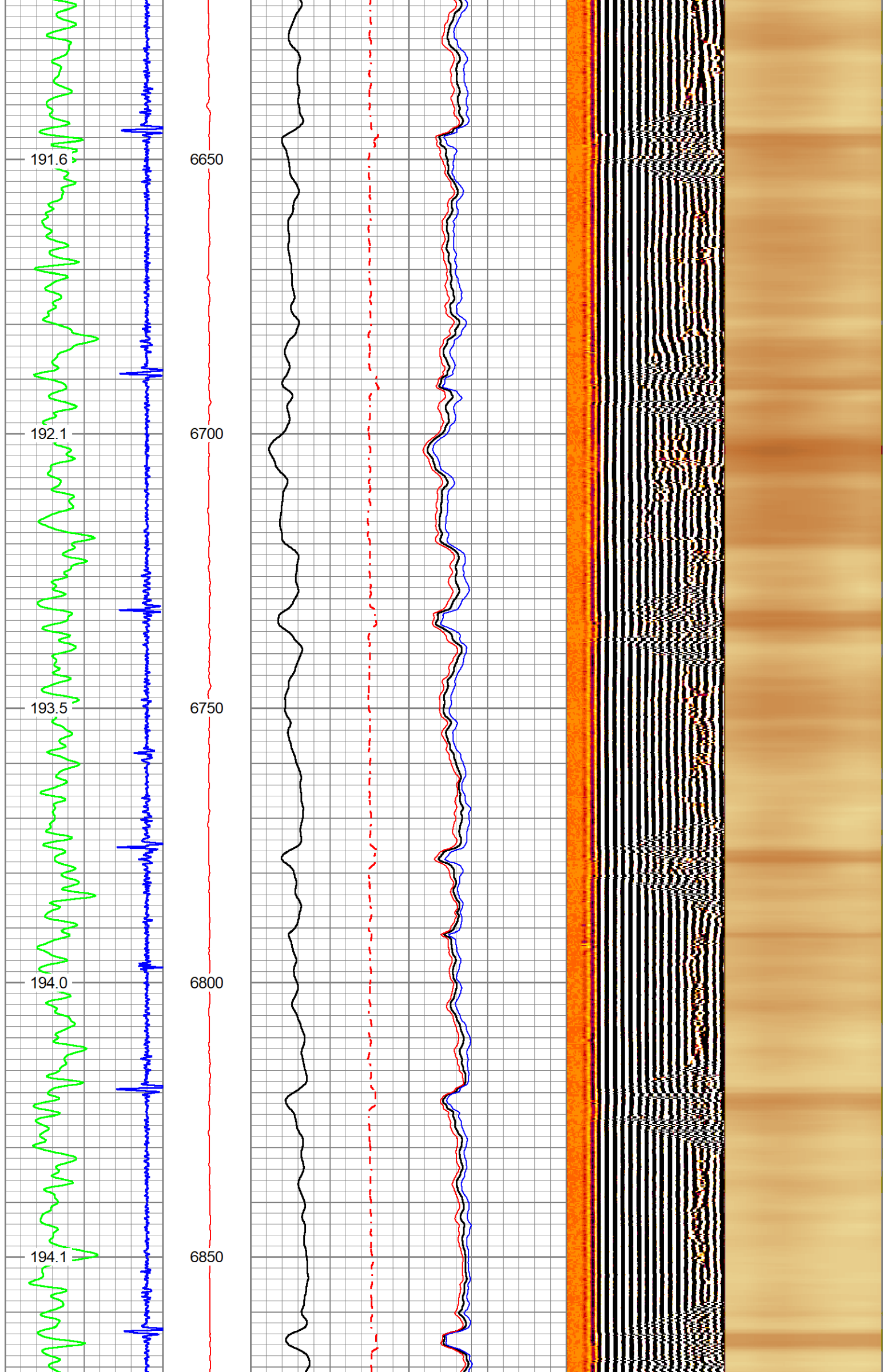


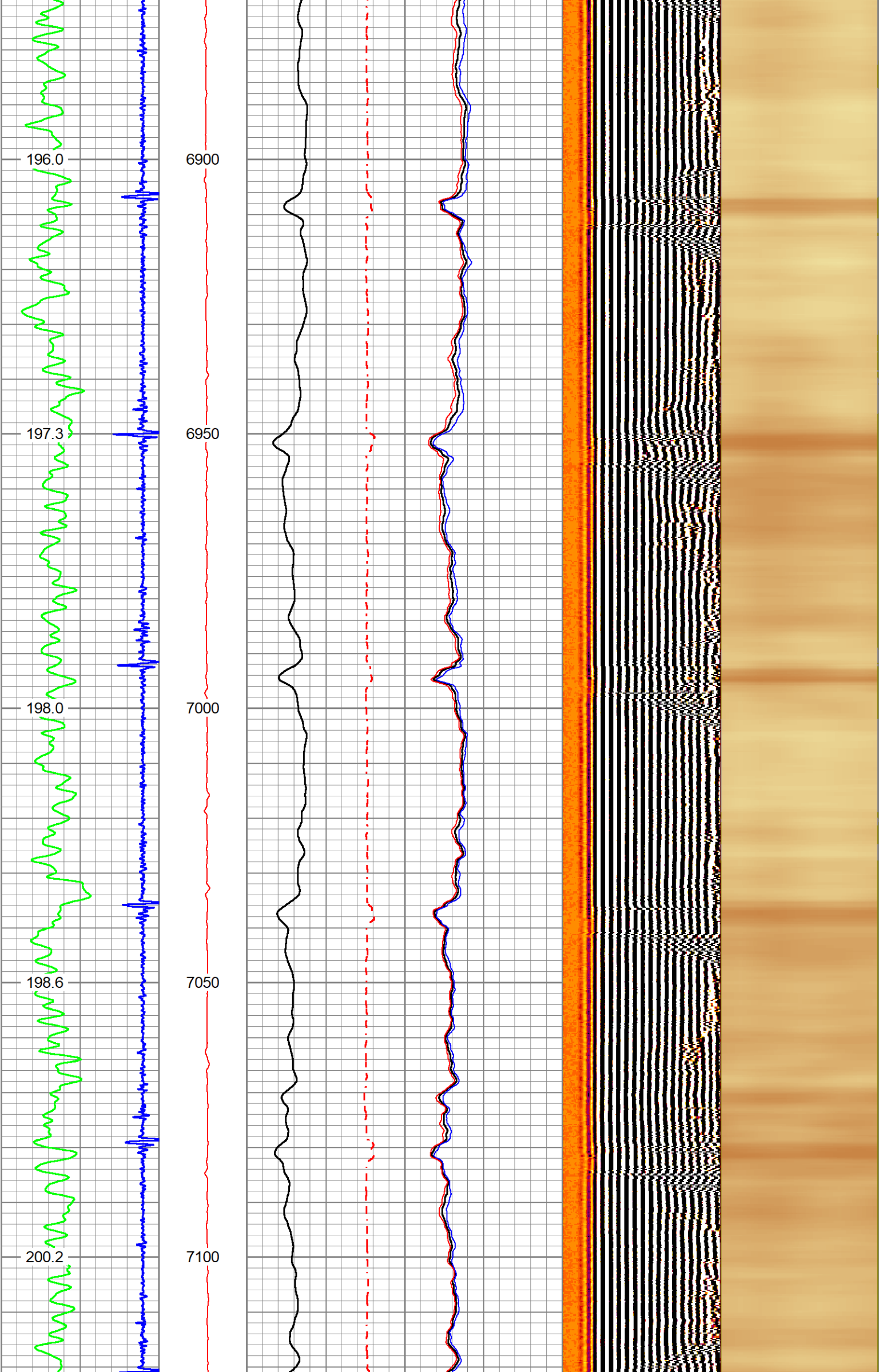


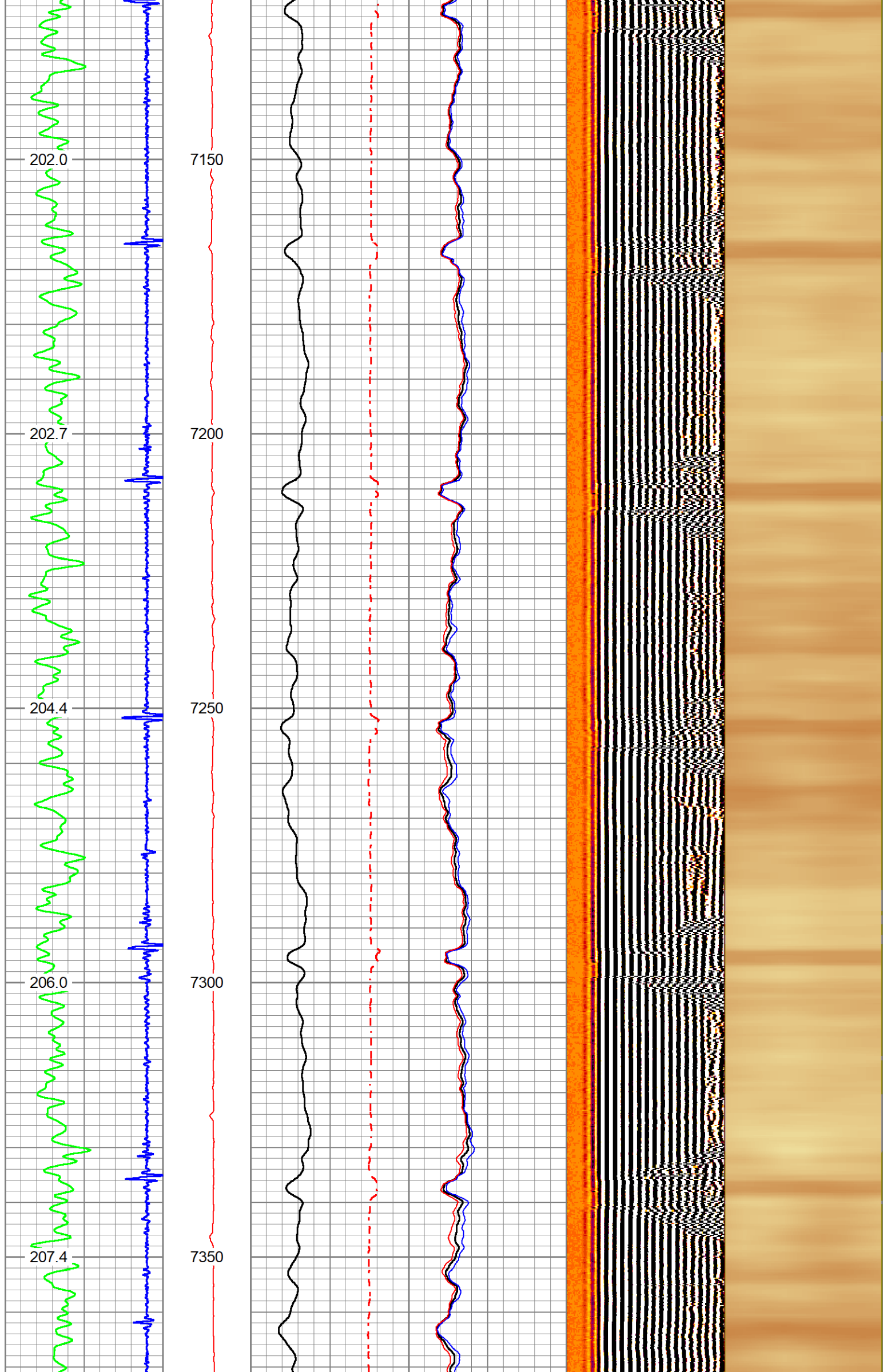


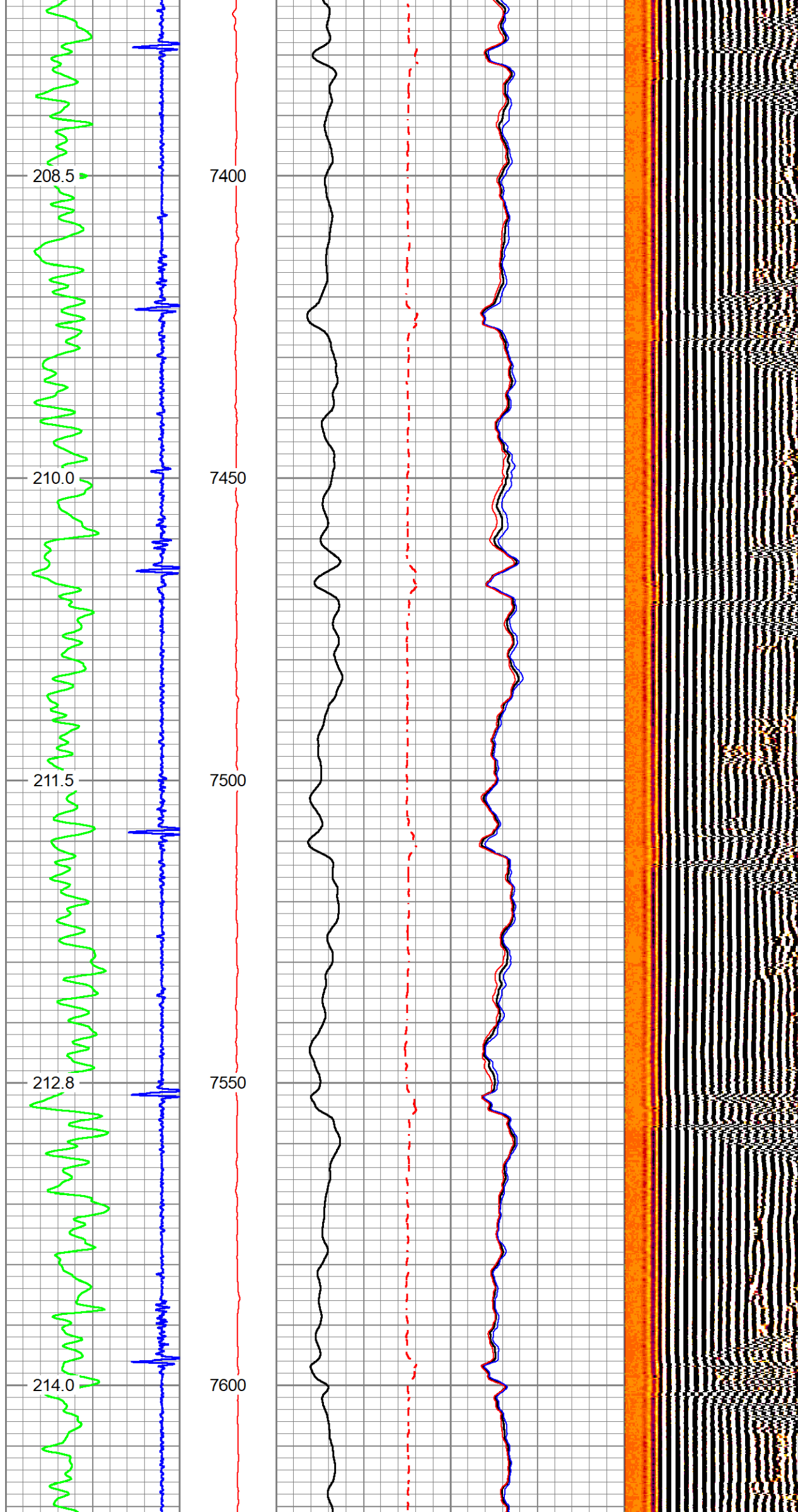


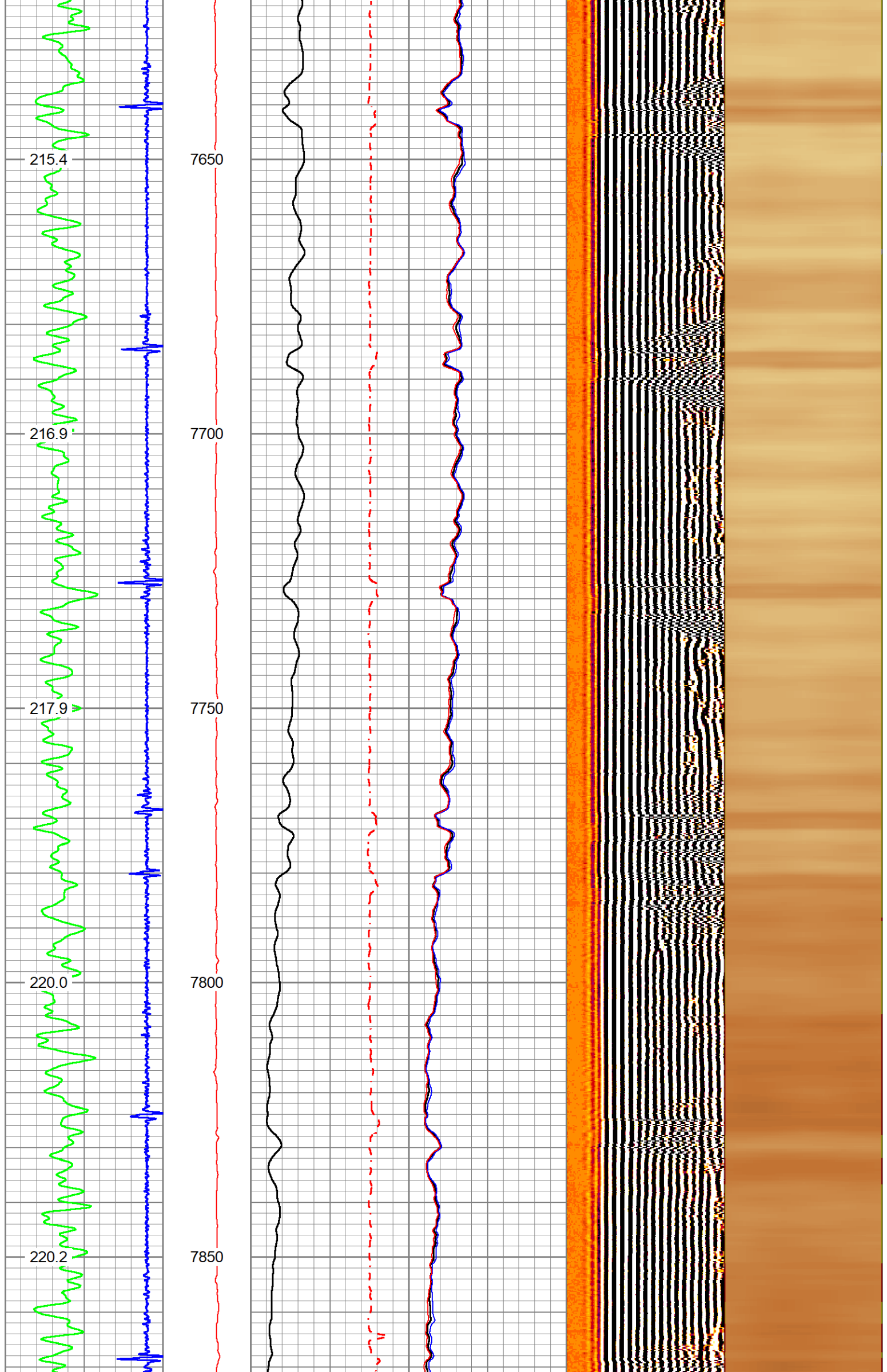


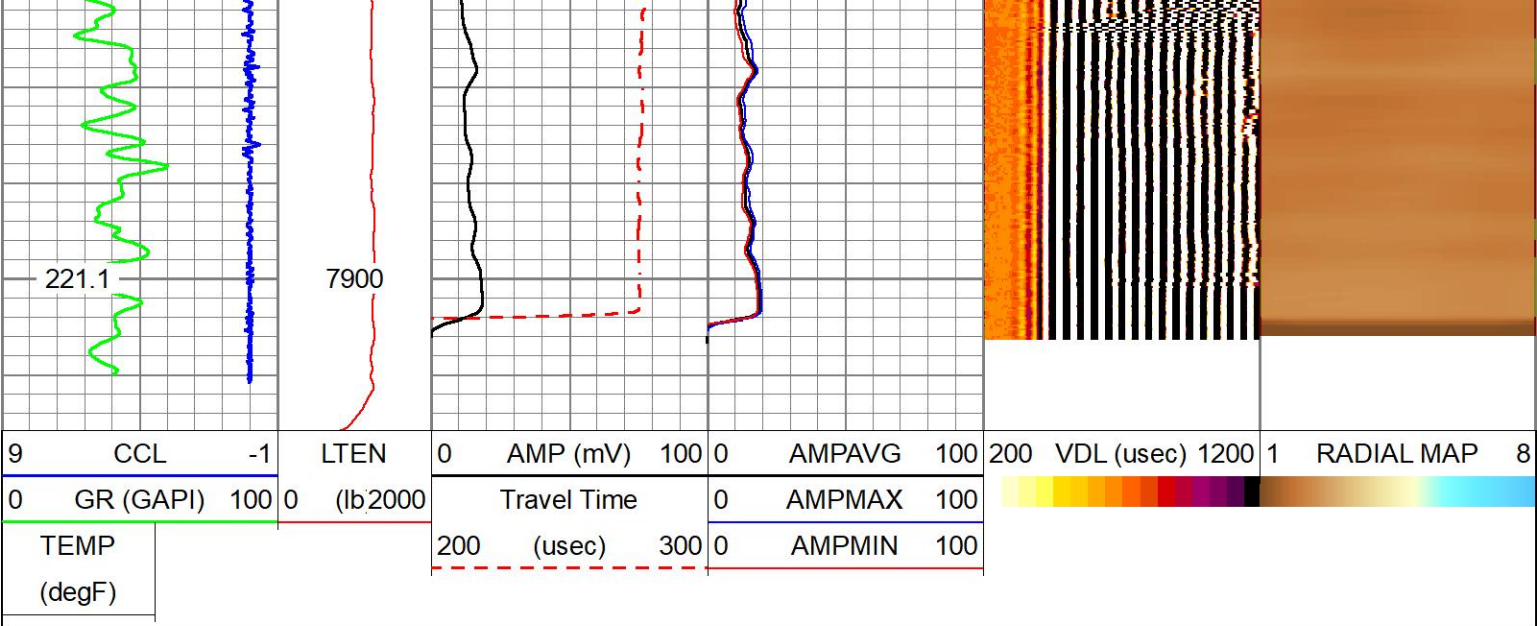












MAIN PASS

HALLIBURTON

5" = 100'

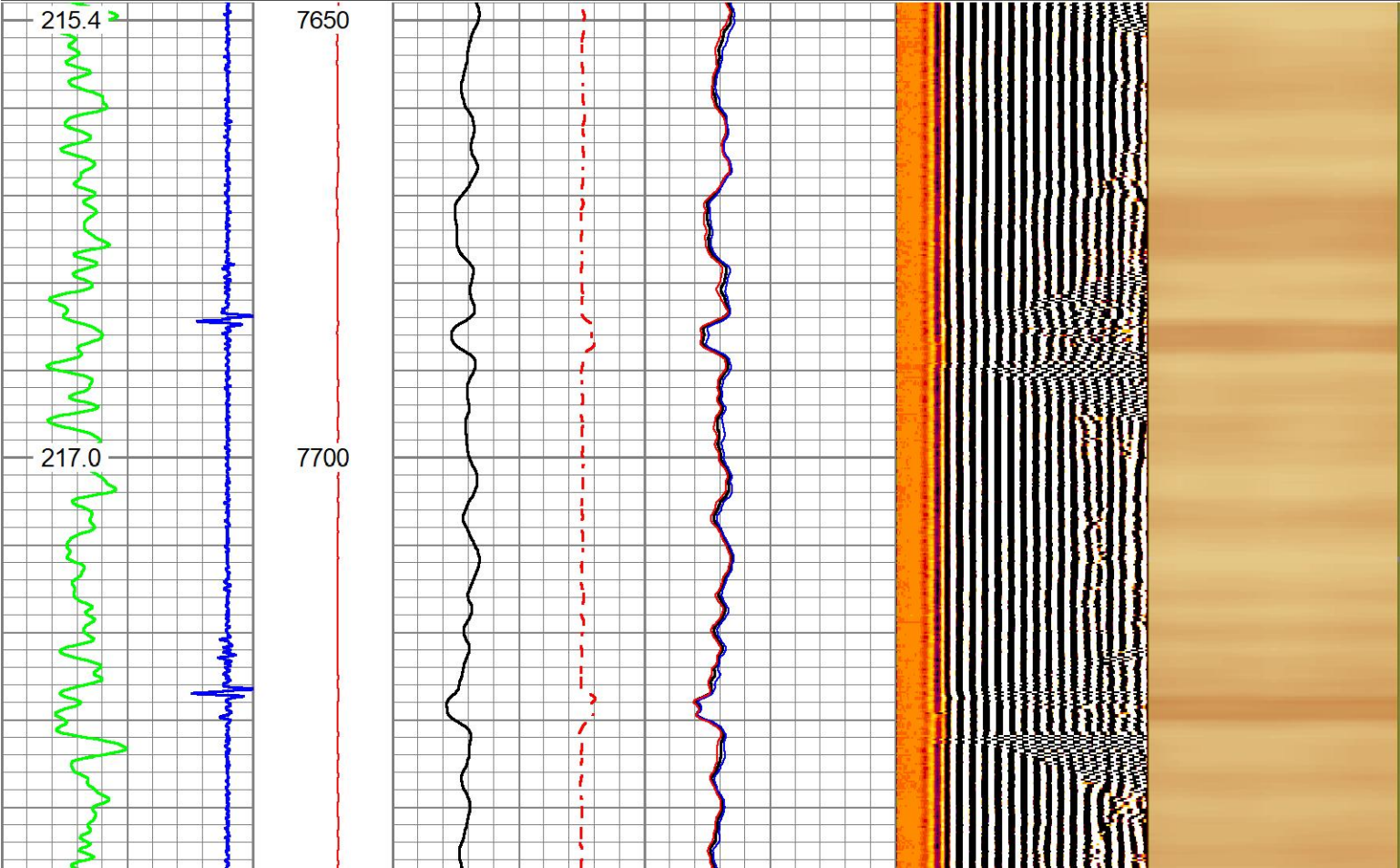
RPEAT PASS

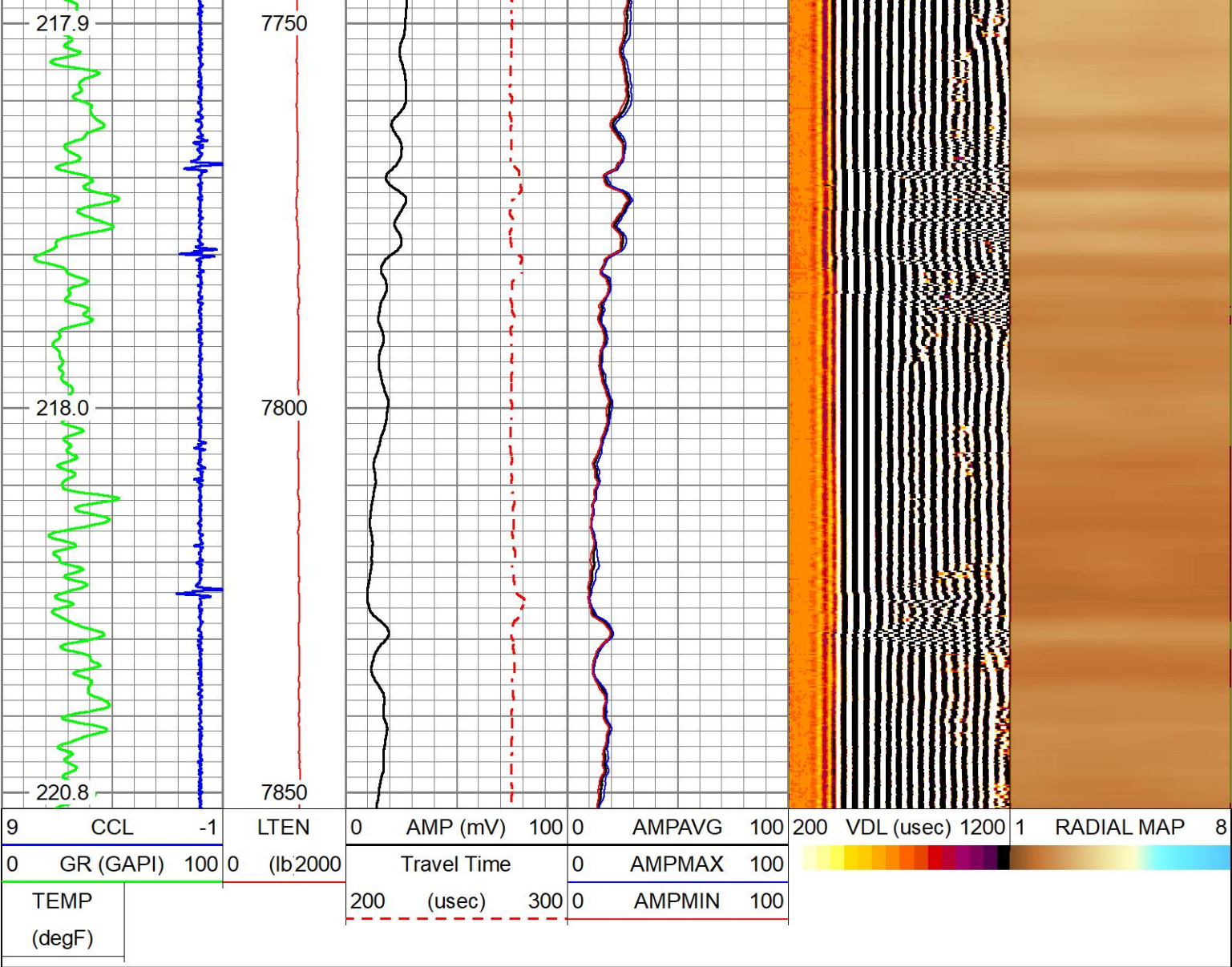
HALLIBURTON

5" = 100'

Database File	livingston_s19-25-4n.db
Dataset Pathname	REPEAT1
Presentation Format	EXTRAC~1
Dataset Creation	Sun Aug 11 18:42:30 2019
Charted by	Depth in Feet scaled 1:240

9	CCL	-1	LTEN	0	AMP (mV)	100	0	AMPAVG	100	200	VDL (usec)	1200	1	RADIAL MAP	8
0	GR (GAPI)	100	0	(lb/2000)	Travel Time		0	AMPMAX	100						
TEMP				200	(usec)	300	0	AMPMIN	100						
(degF)															





HALLIBURTON

RPEAT PASS

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\livingston_s19-25-4n.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	2
MINATTN	MudWgt	PERFS	PPT	SRFTEMP	TDEPTH		
db/ft	lb/gal		uSec	degF	ft		
0.8	8.4	No	214	75	0		

Calibration Report					
Database File	livingston_s19-25-4n.db				
Dataset Pathname	REPEAT1				
Dataset Creation	Sun Aug 11 18:42:30 2019				
Temperature Calibration Report					
Serial Number:	001				
Tool Model:	T_Temp				
Performed:	Mon Apr 04 13:27:25 2011				
	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	1

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:	051010B		
Tool Model:	Probe		
Calibration Casing Diameter:	5.500	in	
Calibration Depth:	209.883	ft	

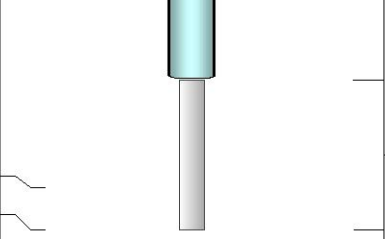
Master Calibration, performed Sun Aug 11 18:18:12 2019:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.545	0.000	72.000	46.605	0.000
CAL	0.000	1.507				
5'	0.000	1.231	0.000	72.000	58.496	0.000
SUM						
S1	0.000	1.774	0.000	72.000	40.592	0.000
S2	0.000	1.775	0.000	72.000	40.566	0.000
S3	0.000	1.757	0.000	72.000	40.978	0.000
S4	0.000	1.660	0.000	72.000	43.361	0.000
S5	0.000	1.513	0.000	72.000	47.585	0.000
S6	0.000	1.378	0.000	72.000	52.252	0.000
S7	0.000	1.386	0.000	72.000	51.957	0.000
S8	0.000	1.507	0.000	72.000	47.766	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	1.507	1.000	0.000

Air Zero Calibration, performed Sun Aug 11 18:21:28 2019:						
	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	

3'	0.009	0.000	-0.009
5'	0.010	0.000	-0.010
SUM			
S1	0.108	0.000	-0.108
S2	0.013	0.000	-0.013
S3	0.011	0.000	-0.011
S4	0.011	0.000	-0.011
S5	0.010	0.000	-0.010
S6	0.010	0.000	-0.010
S7	0.009	0.000	-0.009
S8	0.011	0.000	-0.011

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
WVFCAL WVF3FT	11.94		CHD-1-7/16 (12345678) Monocable Head Assembly	1.28	1.44	1.50	
	11.94		CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00	
			RBT_PRB275-Probe (051010B) Probe Radii Bond Tool with Digital Telemetry	8.33	2.75	90.00	
WVF5FT	9.94						
CCL	5.40			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00
GR	4.02			GR_PRB275-probe275dig (pr050806) Probe Digital Gamma CCL	4.75	2.75	57.00

TEMP LLMTEN	0.42 0.00		TEMP-T_Temp (001) Titan 1.375 Temp Tool	1.48	1.38	5.00
Dataset: livingston_s19-25-4n.db: field/well/run1/MAIN_PASS Total length: 21.59 ft Total weight: 193.50 lb O.D.: 2.75 in						

Company	EXTRACTION OIL & GAS INC				
Well	LIVINGSTON S19-25-4N				
Field	WATTENBERG				
County	BROOMFIELD			State	CO
HALLIBURTON	RADIAL CEMENT BOND LOG				