



# Radial Cement Bond Variable Density Log w/ Gamma Ray/CCL

Company		Noble Energy	
Well		Wells Ranch AA-11-637	
Field		Wattenberg	
County		Weld	
State		CO	
Location:		API # : 05-123-41253	
Other Services		None	
Permanent Datum		SEC 11 TWP 6N RGE 63W	
Log Measured From		GROUND LEVEL Elevation 4855'	
Drilling Measured From		KELLY BUSHING 30' APD	
Elevation		K.B. 4885' D.F. 4884' G.L. 4855'	
Date	JUNE 25TH 2015		
Run Number	1		
Depth Driller	13823'		
Depth Logger	6773'		
Bottom Logged Interval	6768'		
Top Log Interval	Surface		
Open Hole Size	8.75"		
Type Fluid	Water		
Density / Viscosity	8.4 ppG		
Max. Recorded Temp.	N/A		
Estimated Cement Top	1840'		
Time Well Ready	16:00		
Time Logger on Bottom	16:55		
Equipment Number	2633		
Location	Brighton CO		
Recorded By	R.Grisson/O.Rushing		
Witnessed By	Matt Thome		
Borehole Record		Tubing Record	
Run Number	Bit	From	To
Conductor			
Surface			
Intermediate			
Production			
Casing Record	Size	Wgt/Ft	Top
Surface String	9 5/8"	36#	Surface
Prod. String			
Production String	5 1/2"	20#	Surface
Liner			
Short Joint	5 1/2"	20#	5808'

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

## Comments

Primary Log on Well  
Log measured using 30' KB  
Correlated to Marker Joint @ 5808'-5823' Depth Shifting 3.2' Downhole  
Repeat Pass logged w/ 0 PSI  
Main Pass logged w/ 0 PSI  
Estimated Top of Cement @ 1840'

Crew on Location Ossie Rushing, David Mortensen  
Thank You for using Allied-Horizontal Wireline Service!!!  
(303) 659-4609



# Free Pipe Pass (0 PSI)

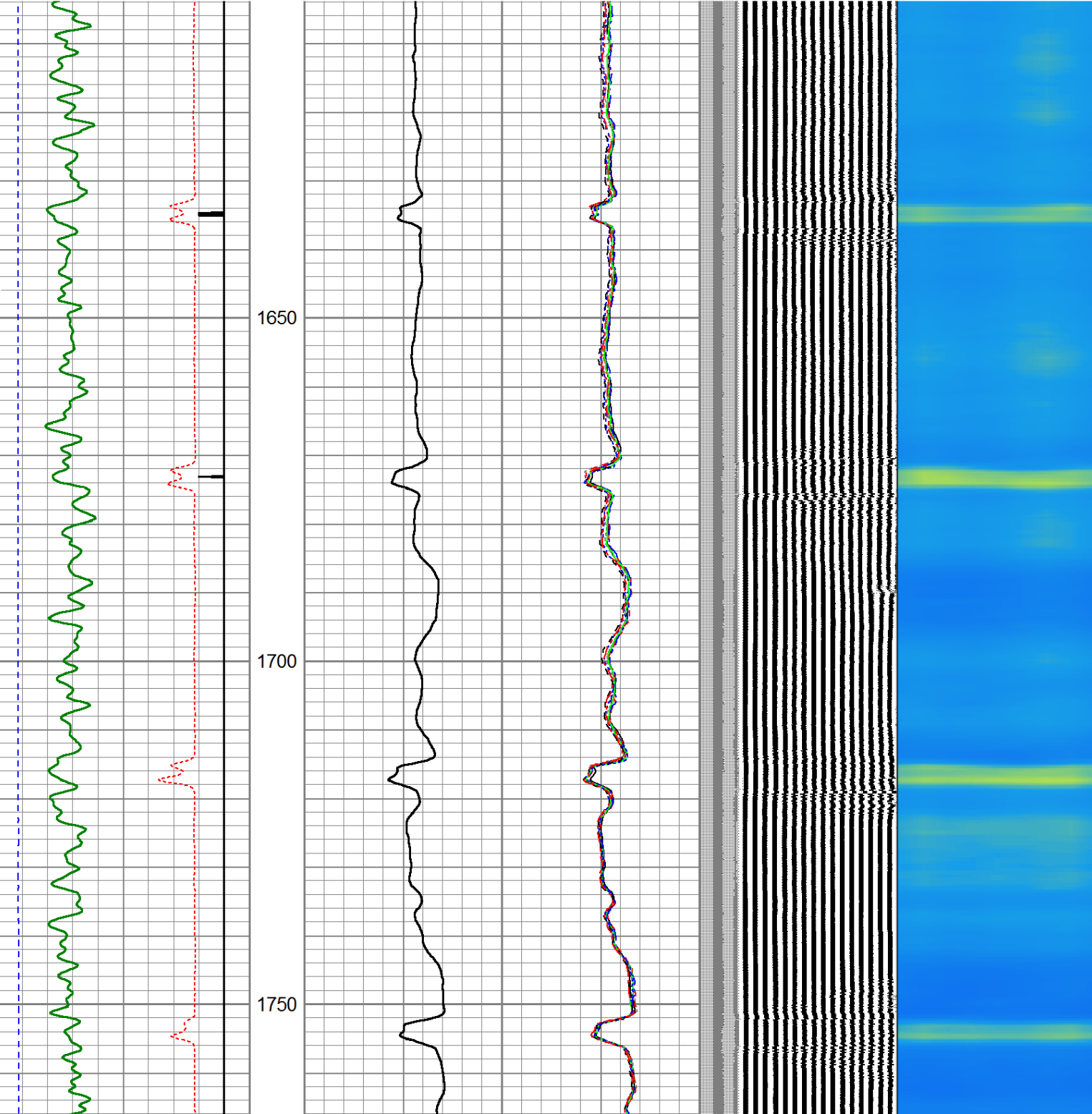


Database File: noble\_wells\_ranch\_aa\_11\_637\_rcbl.db  
Dataset Pathname: pass4  
Presentation Format: scbl03  
Dataset Creation: Thu Jun 25 16:59:20 2015 by Log 7.0 B1  
Charted by: Depth in Feet scaled 1:240

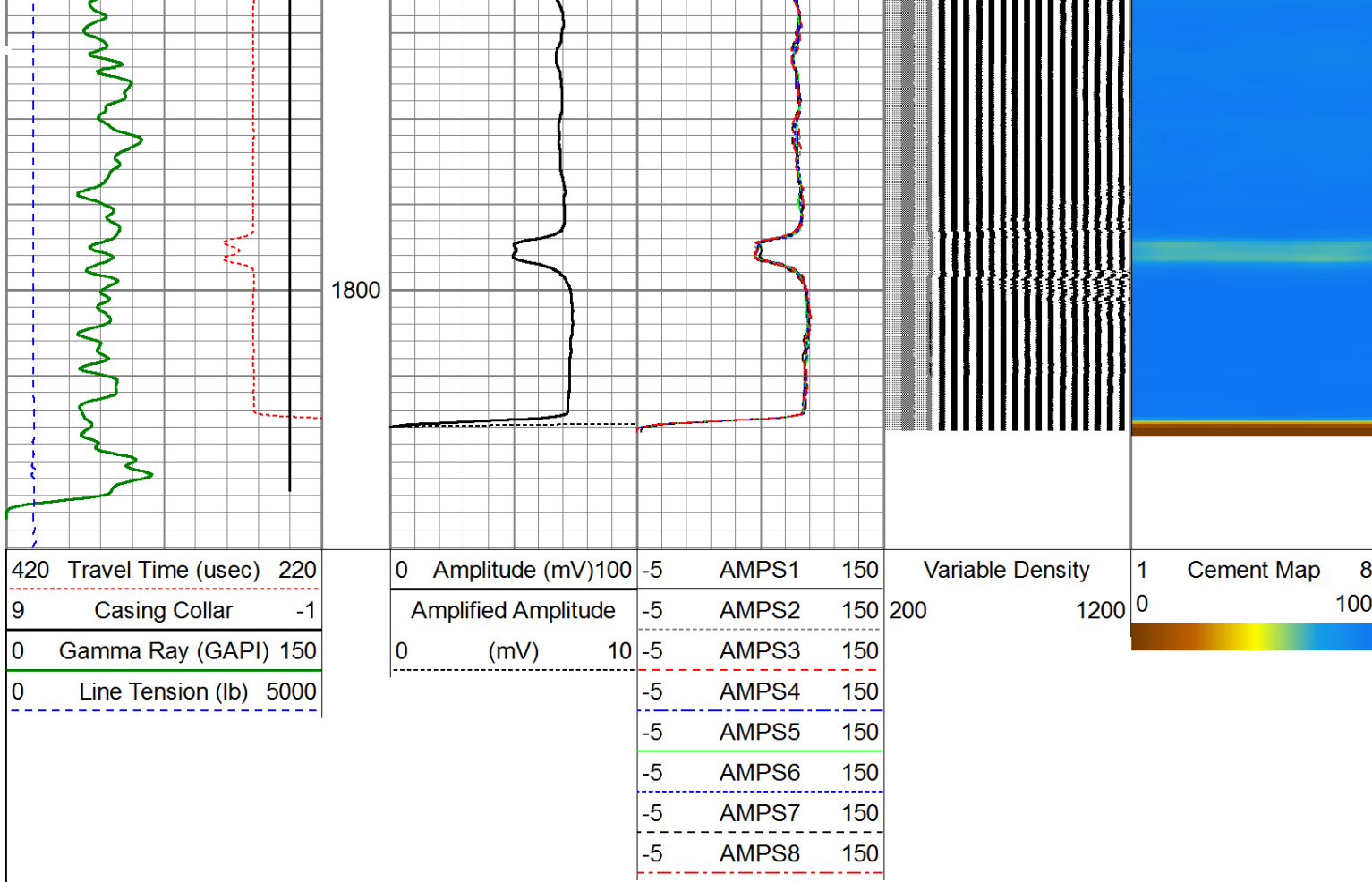
420	Travel Time (usec)	220
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000

0	Amplitude (mV)	100	-5	AMPS1	150
	Amplified Amplitude		-5	AMPS2	150
0	(mV)	10	-5	AMPS3	150
			-5	AMPS4	150
			-5	AMPS5	150
			-5	AMPS6	150
			-5	AMPS7	150
			-5	AMPS8	150

Variable Density		1	Cement Map	8
200	1200	0		100





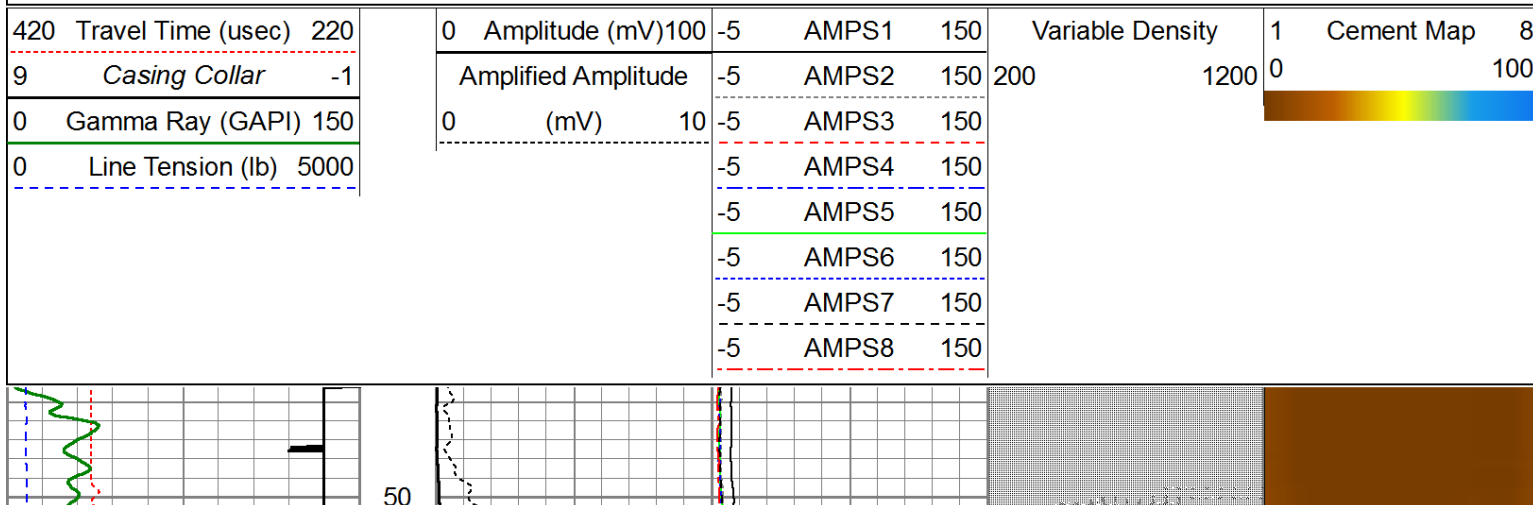


## Free Pipe Pass (0 PSI)

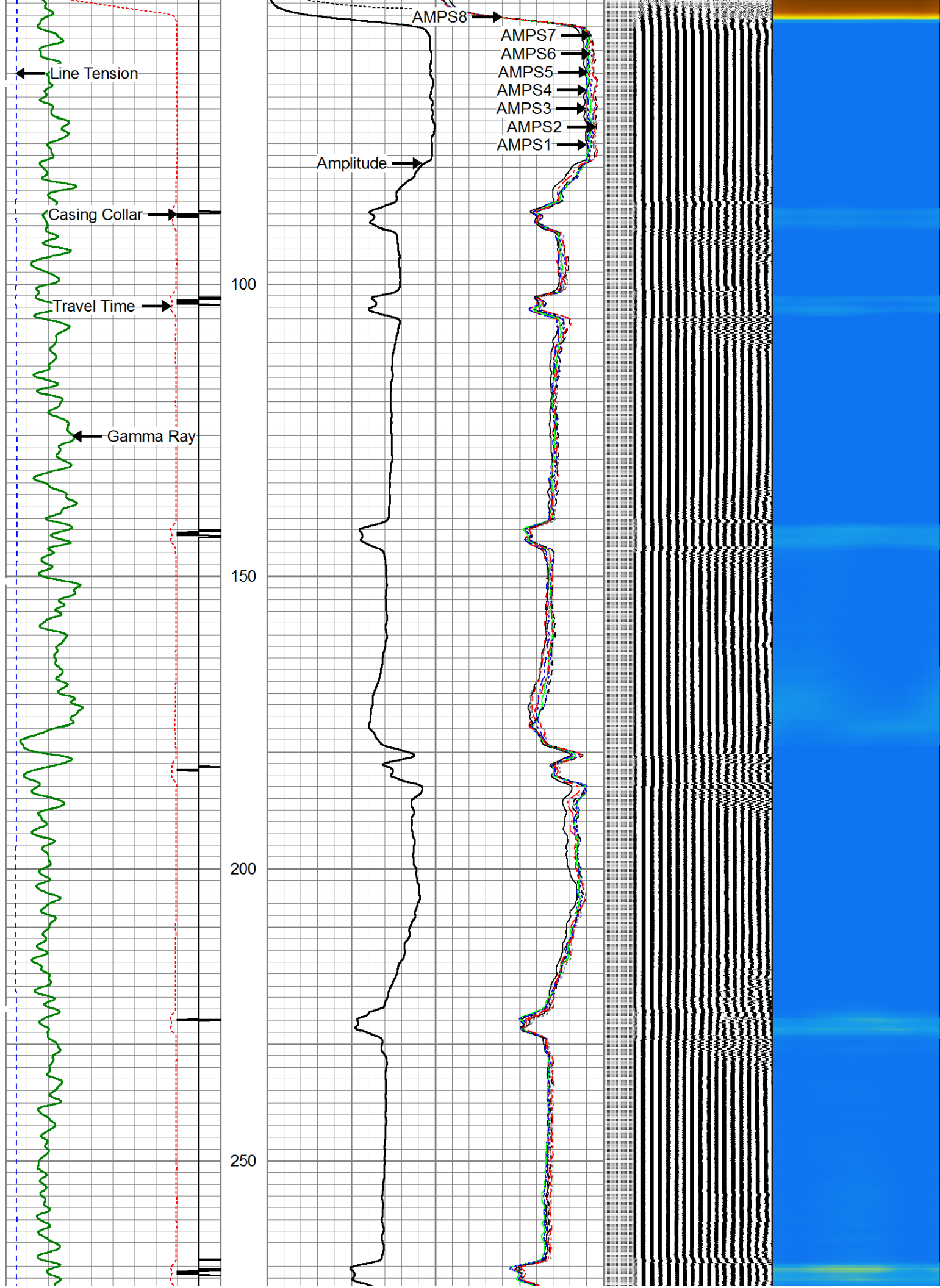


## Main Pass (0 PSI)

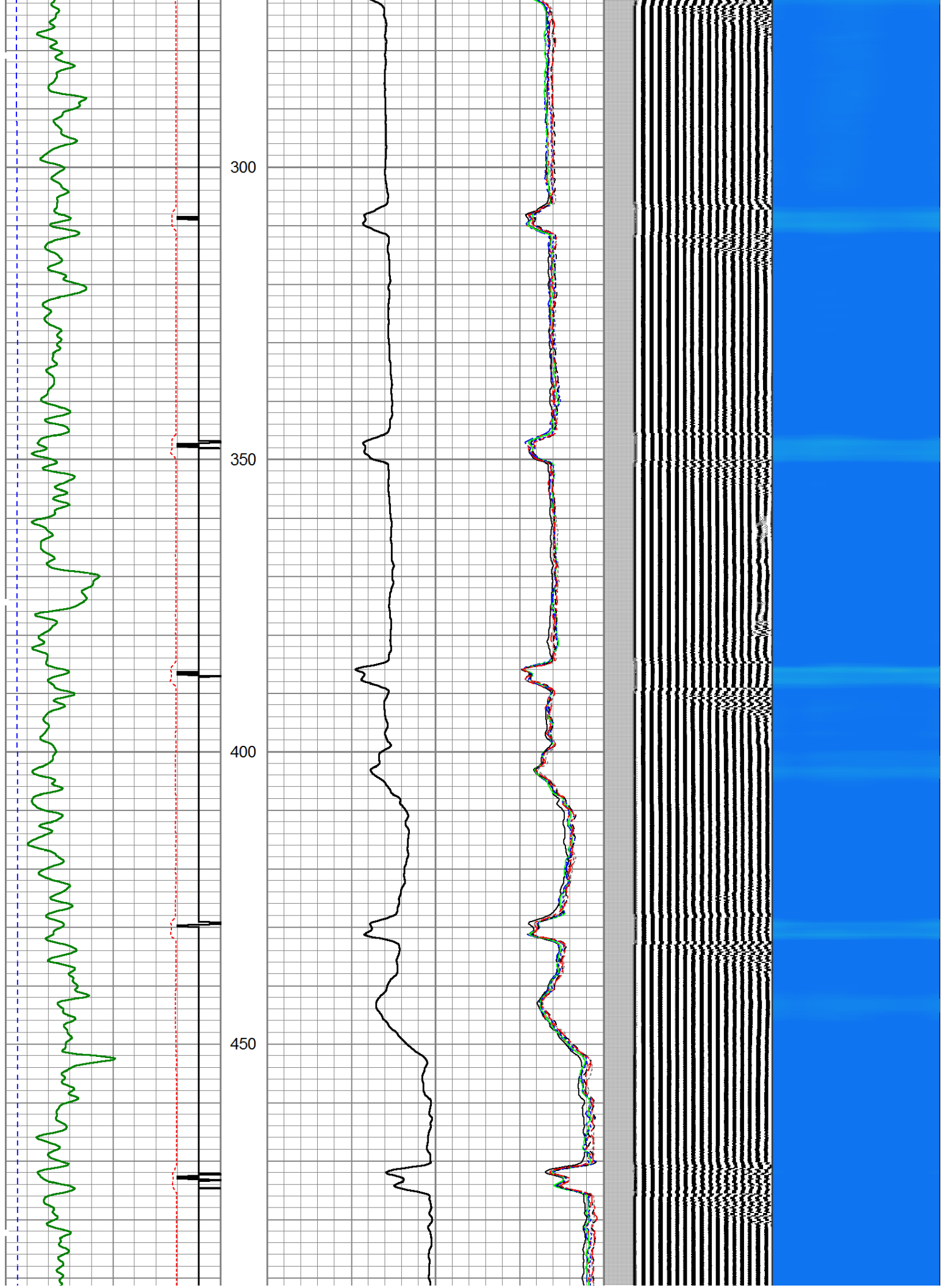
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 Dataset Pathname: pass8  
 Presentation Format: scbl03  
 Dataset Creation: Thu Jun 25 17:31:23 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240



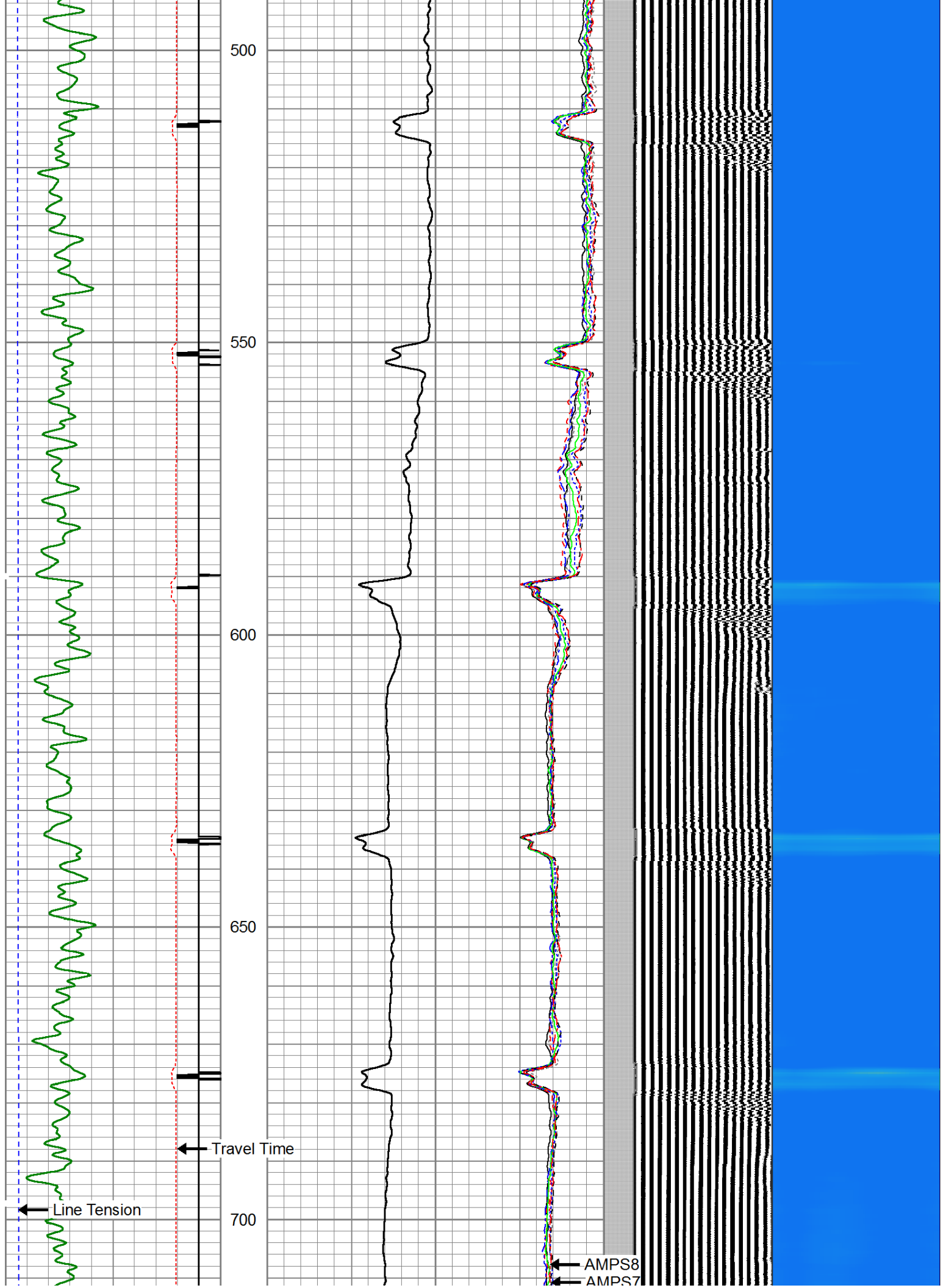




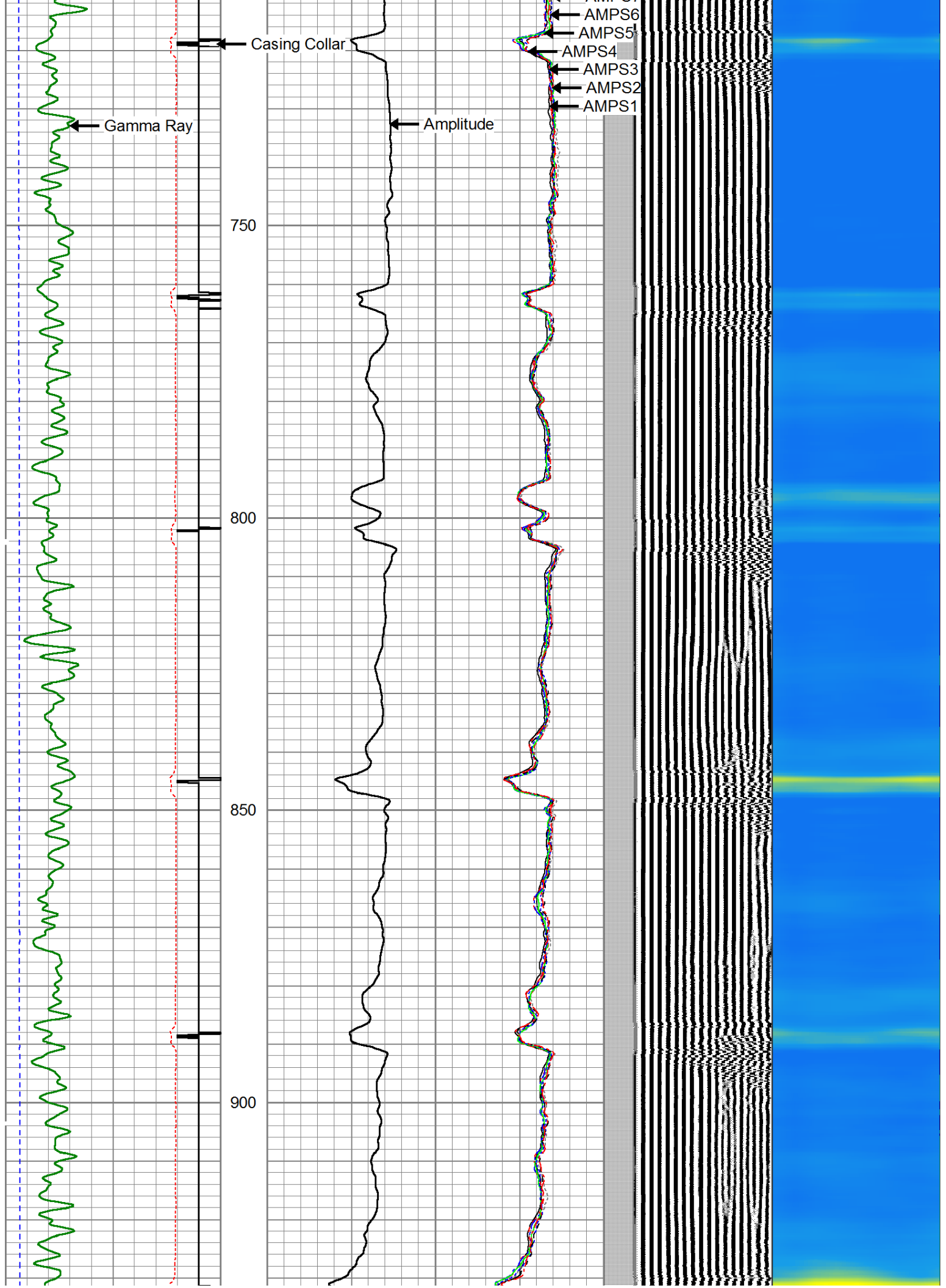




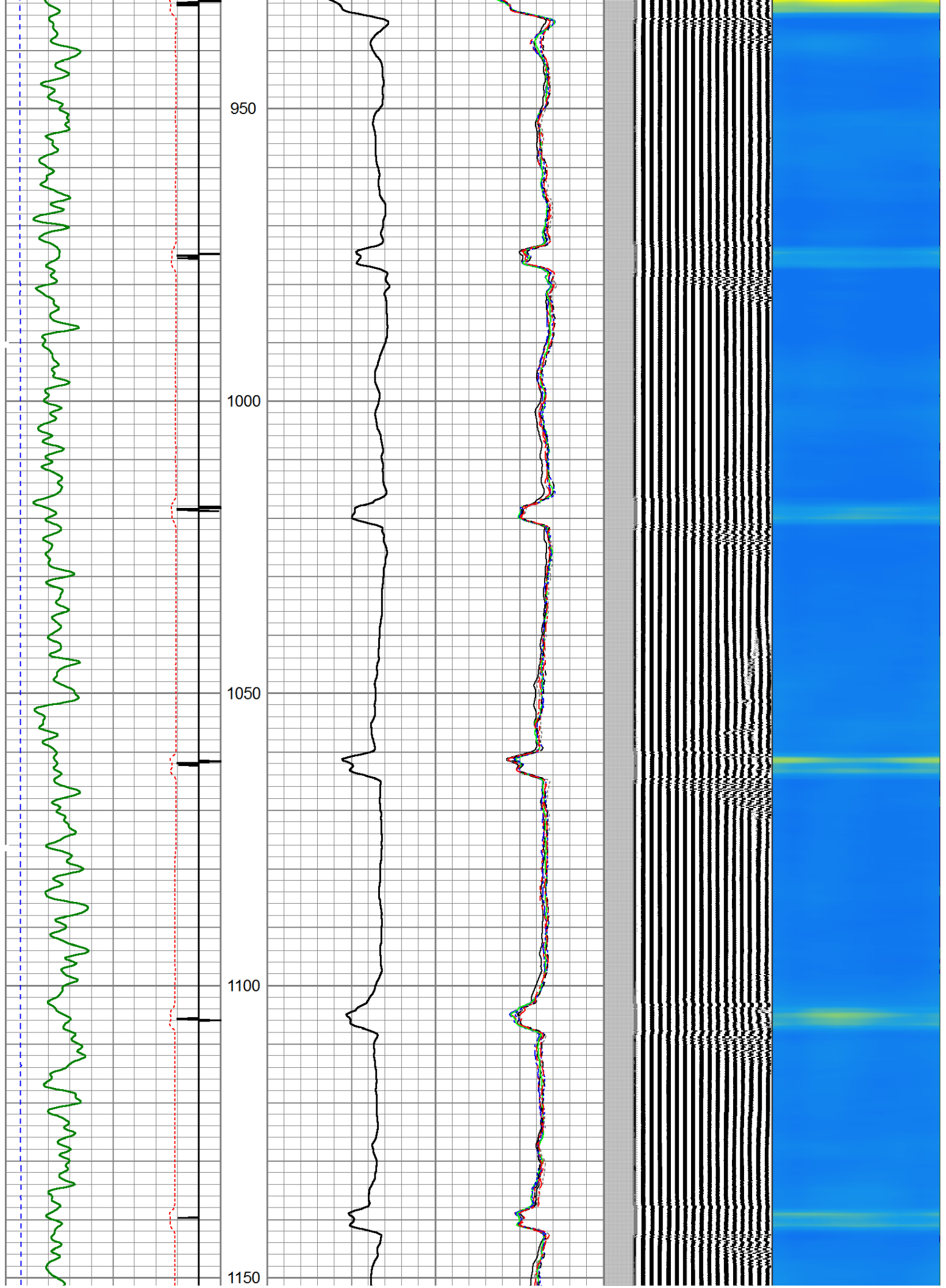




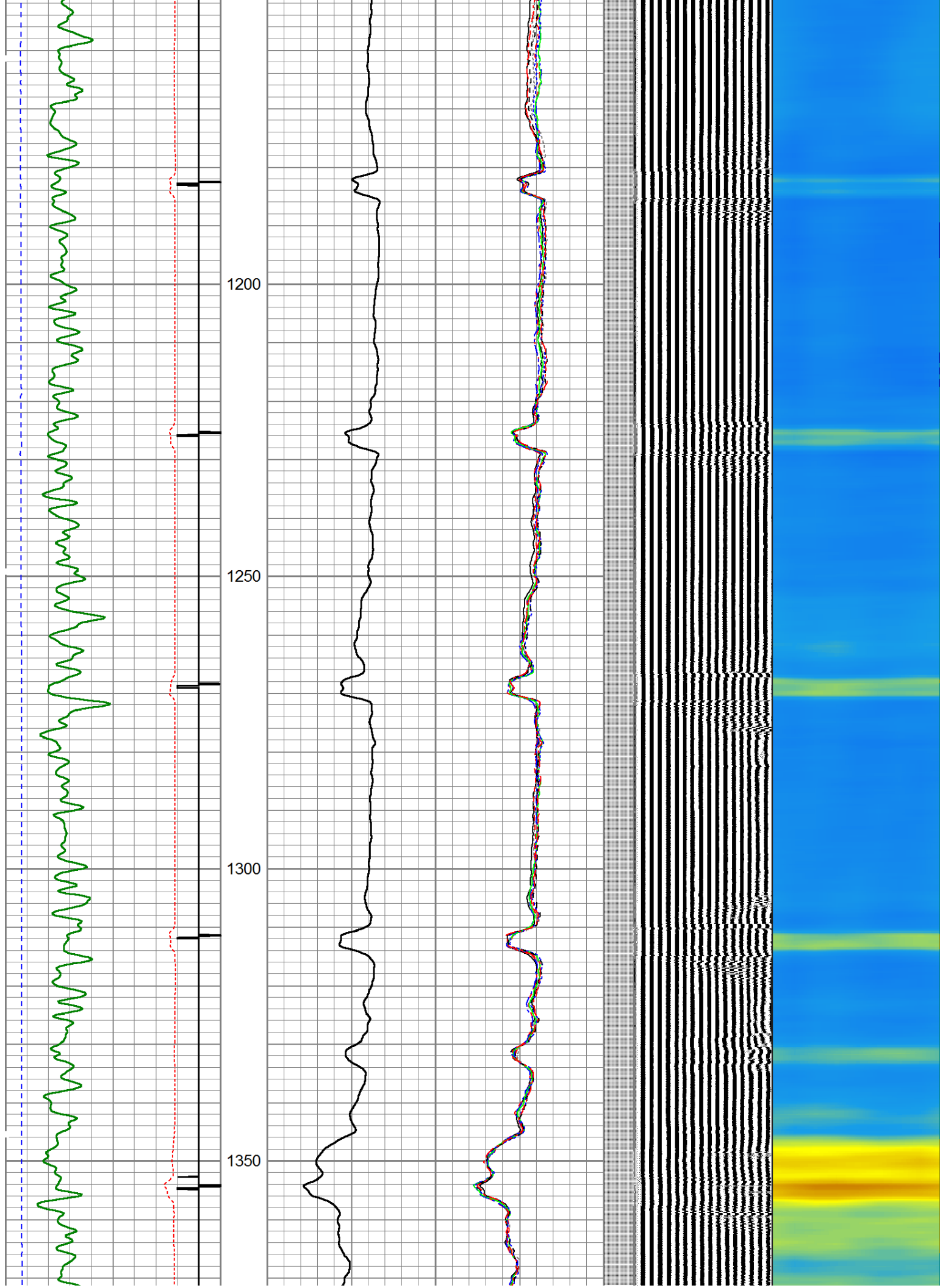




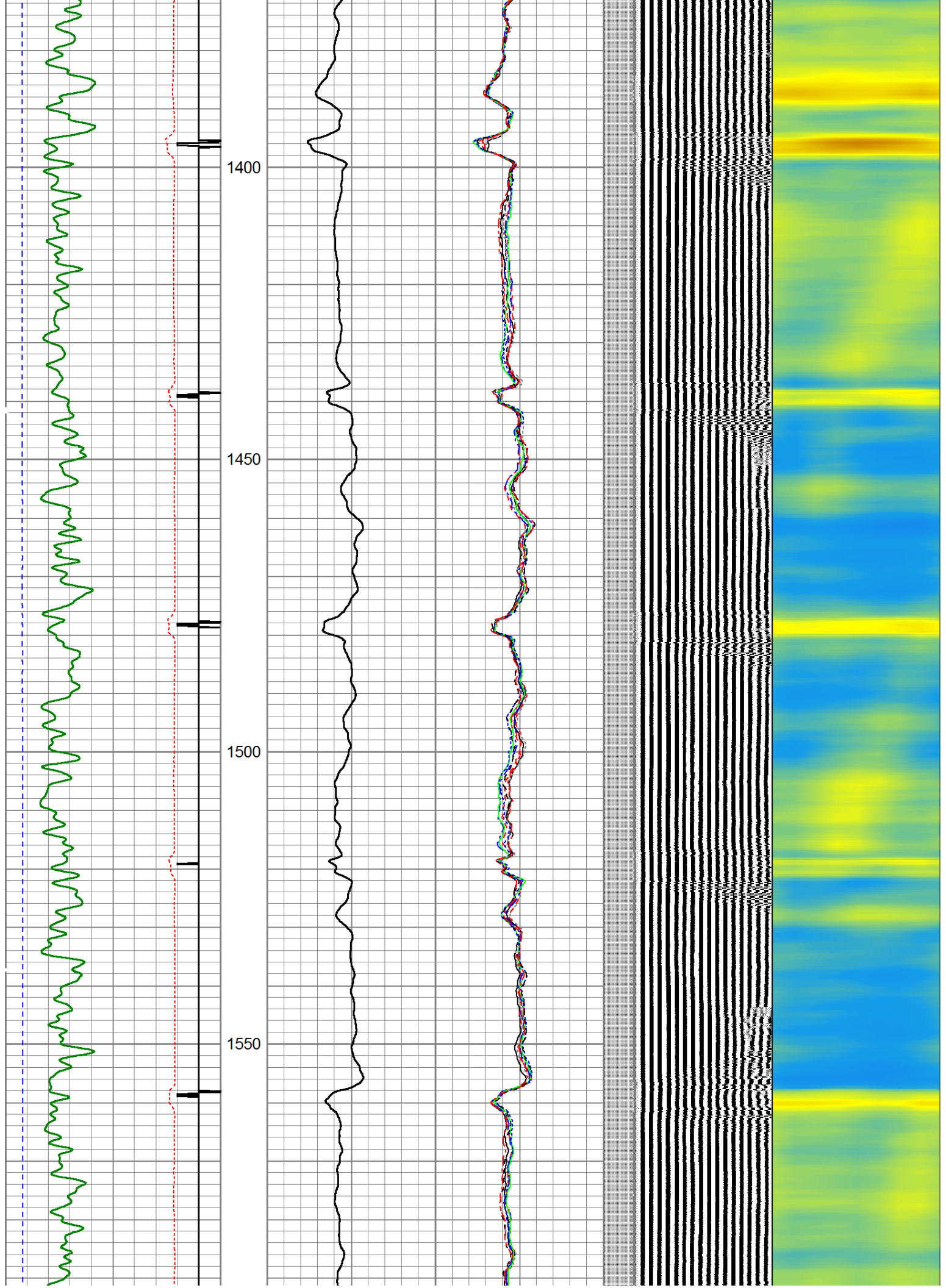




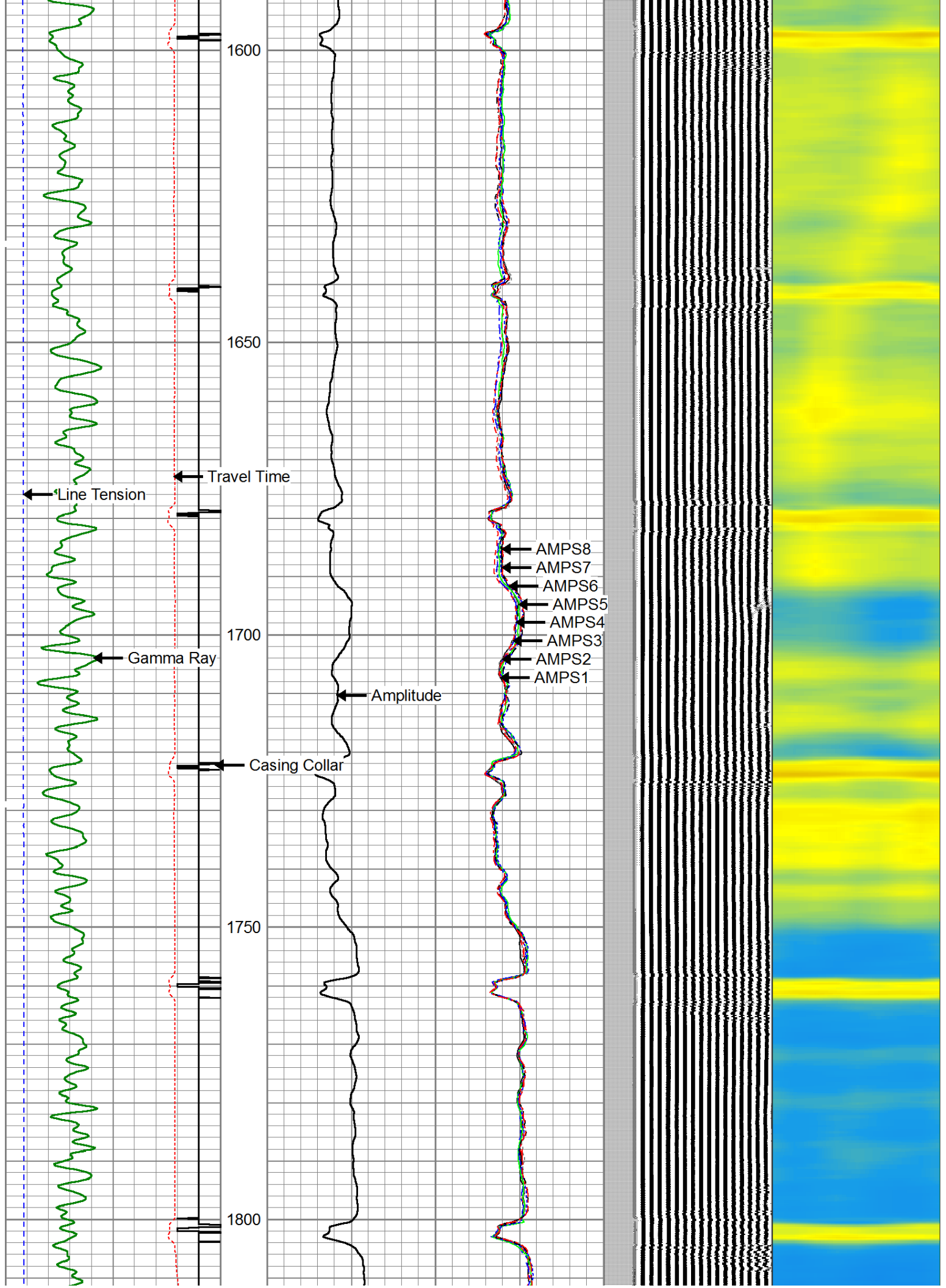




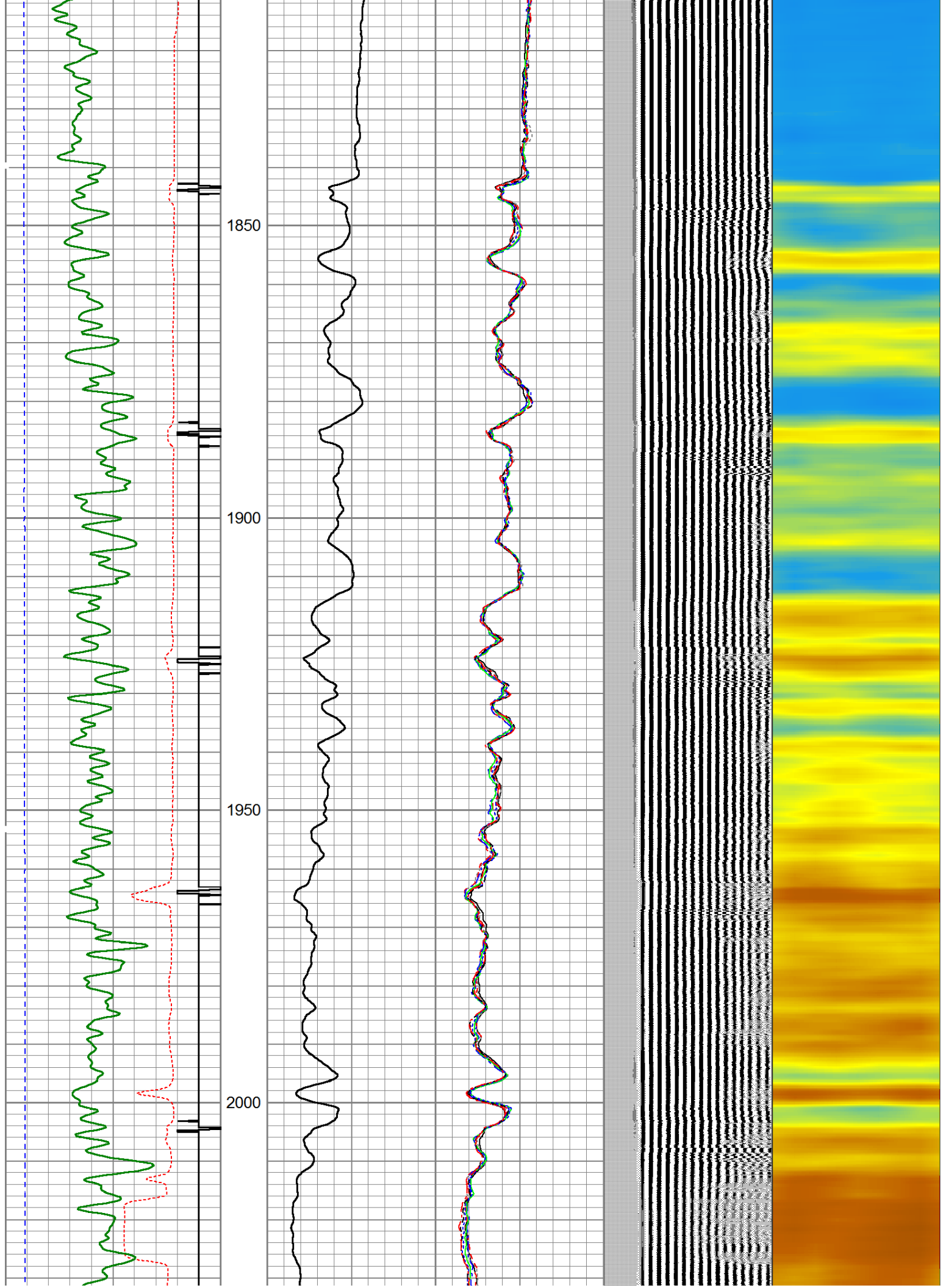




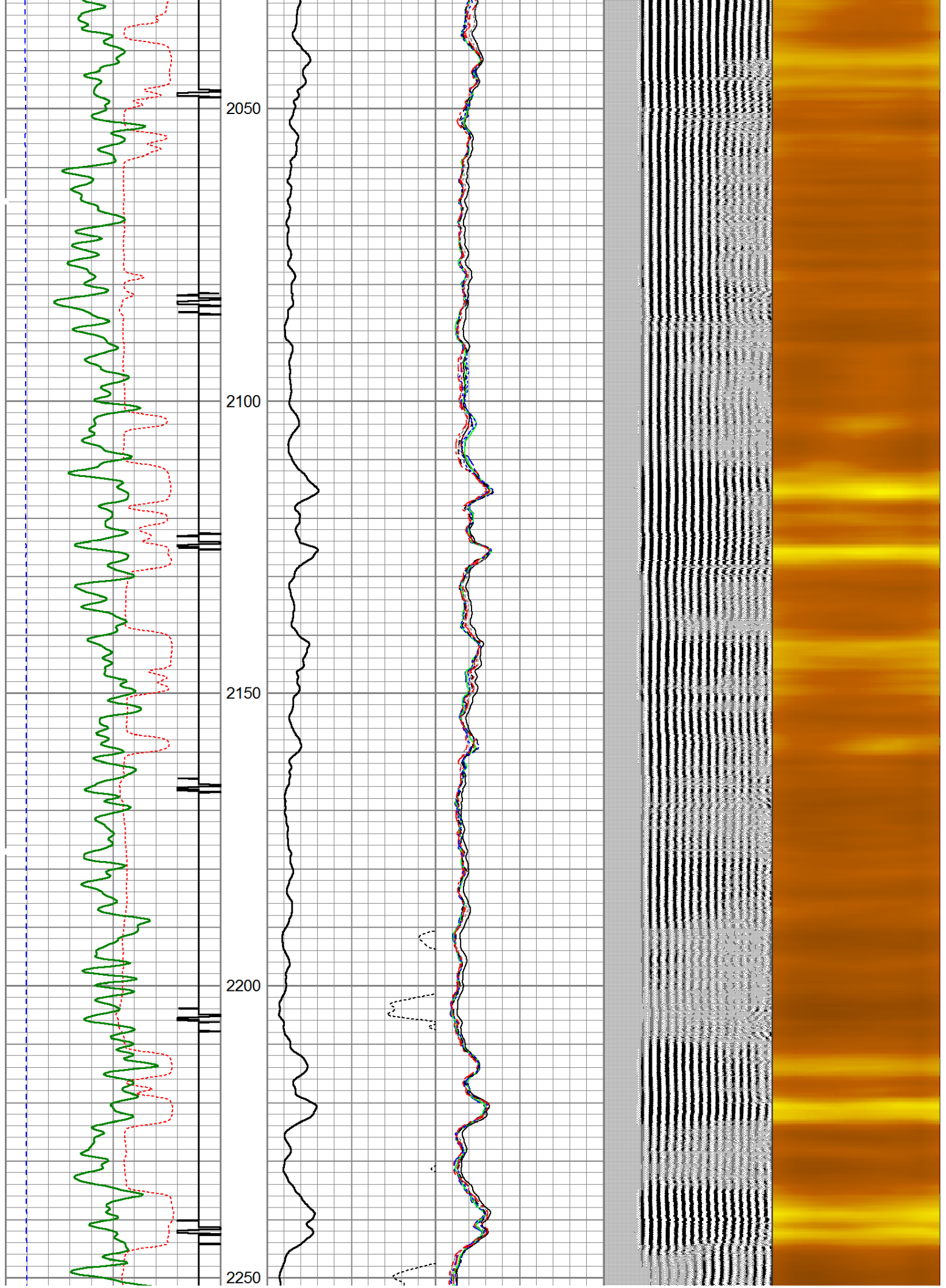




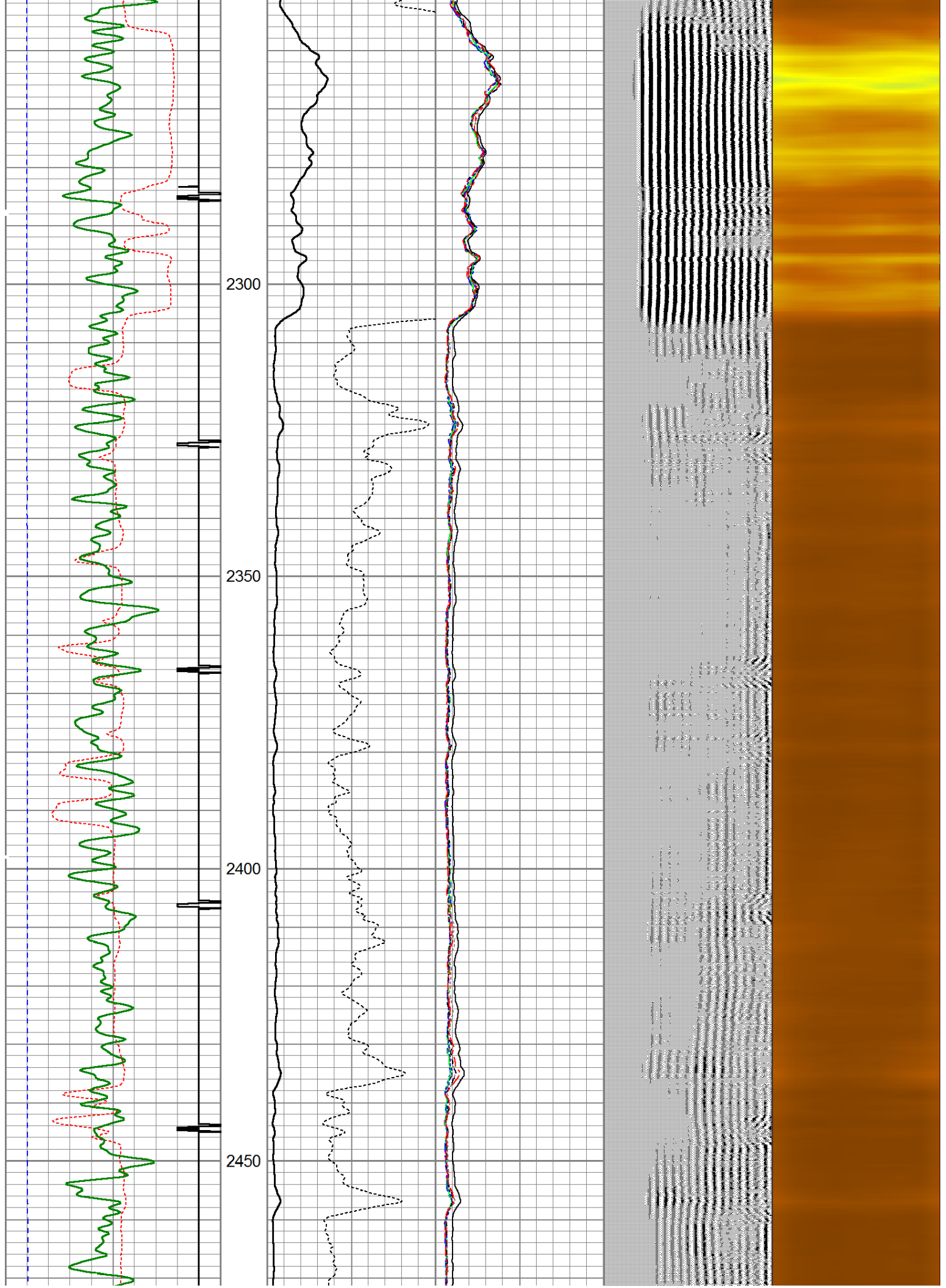




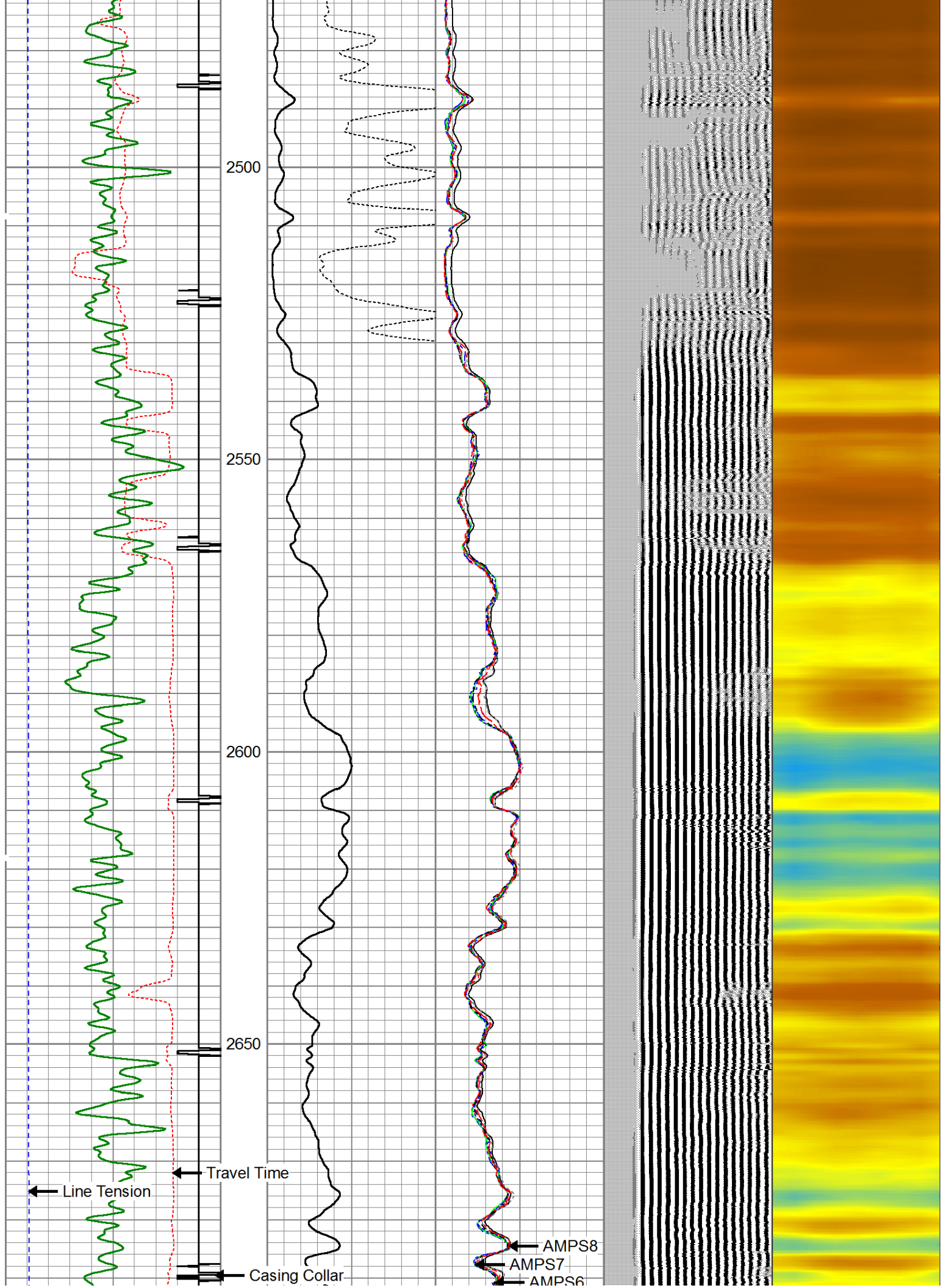




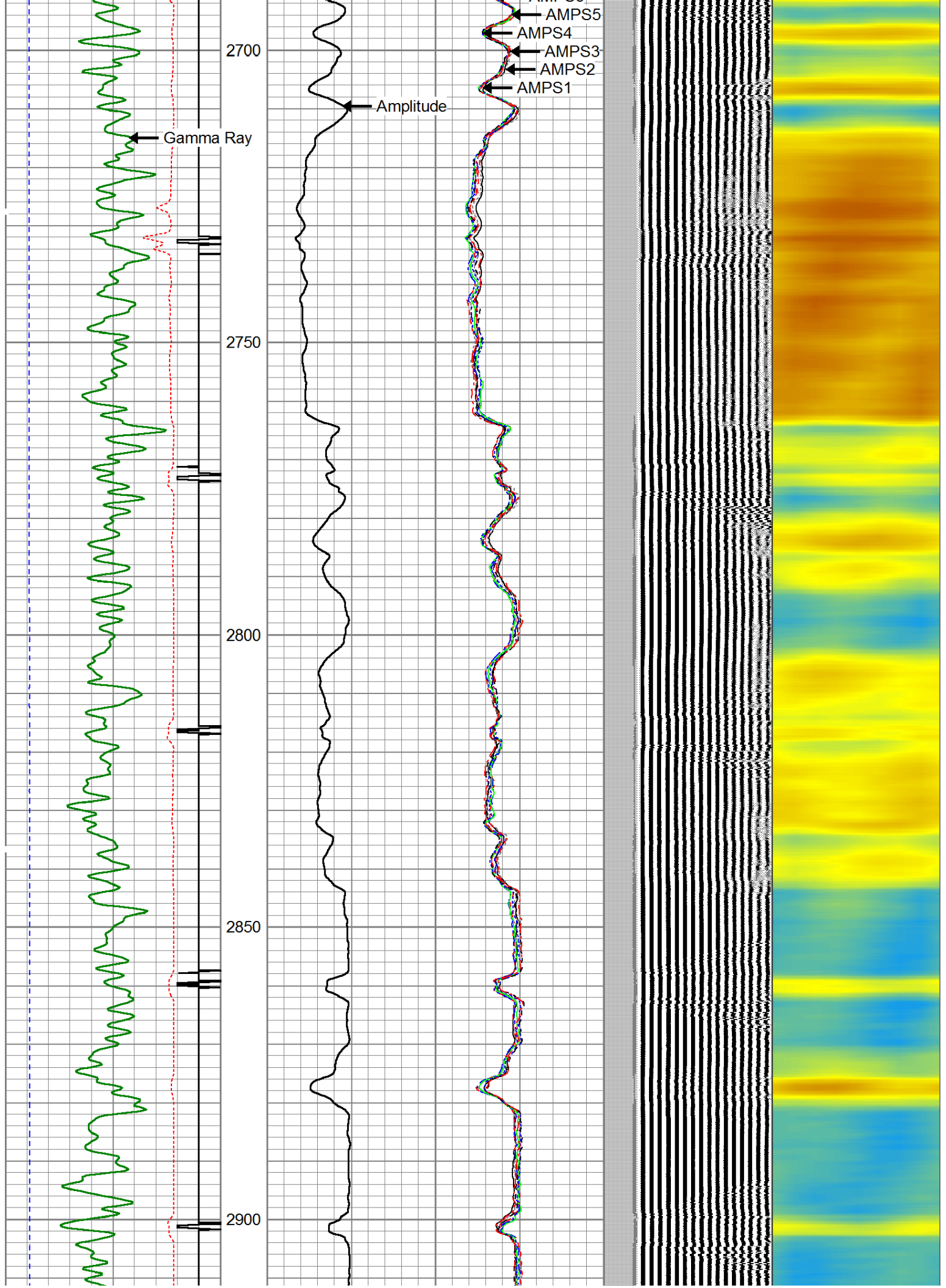




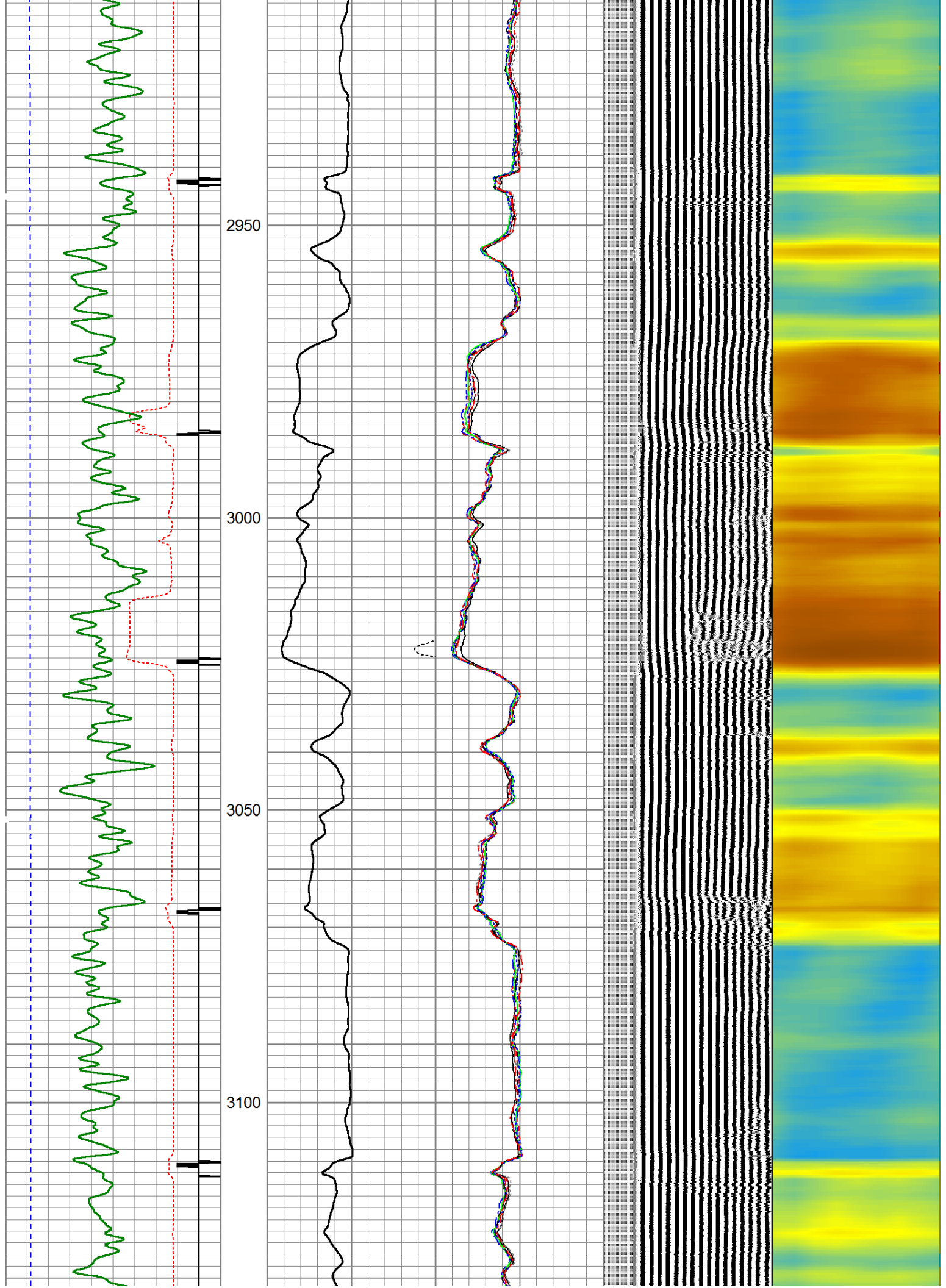




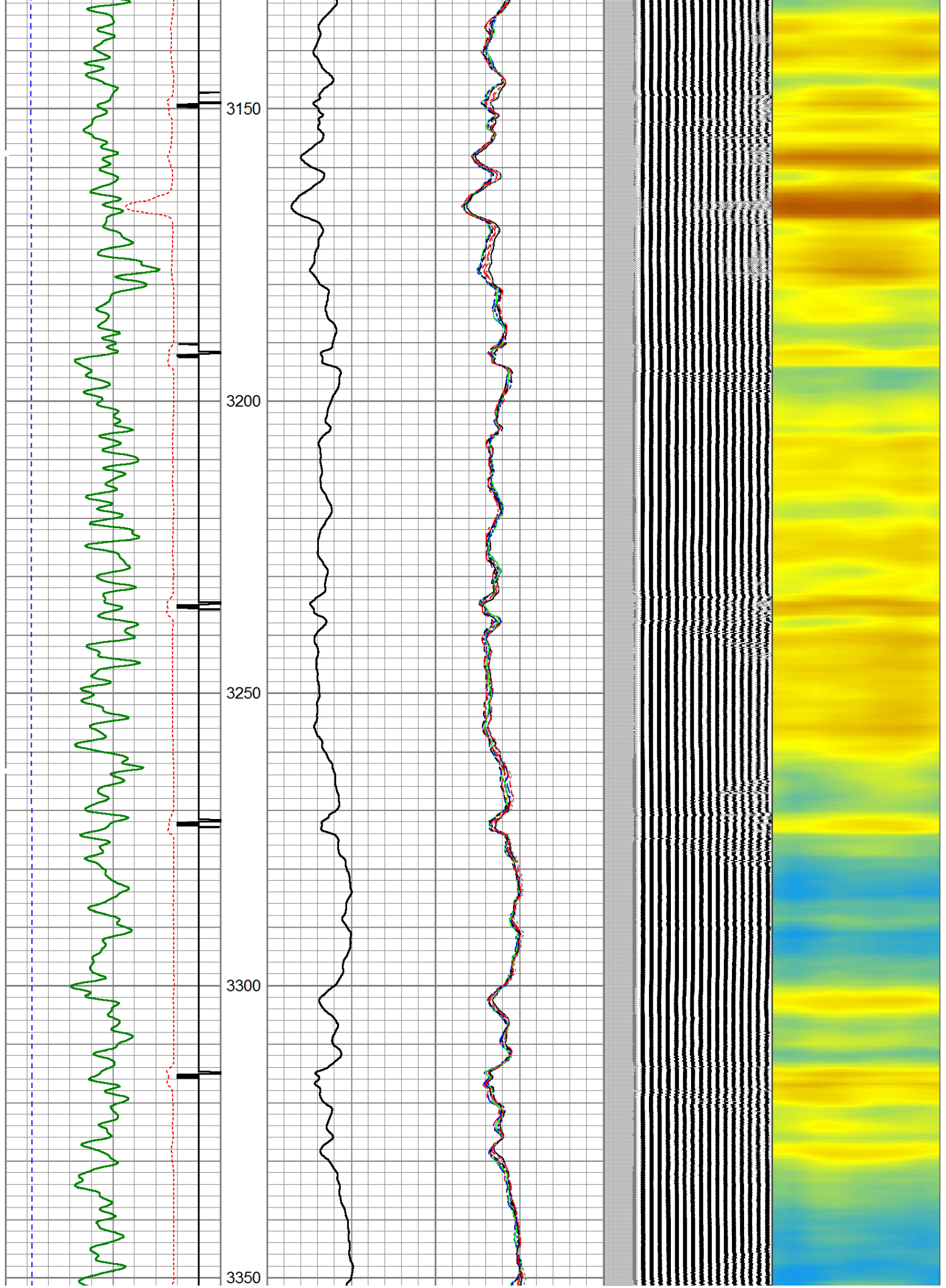




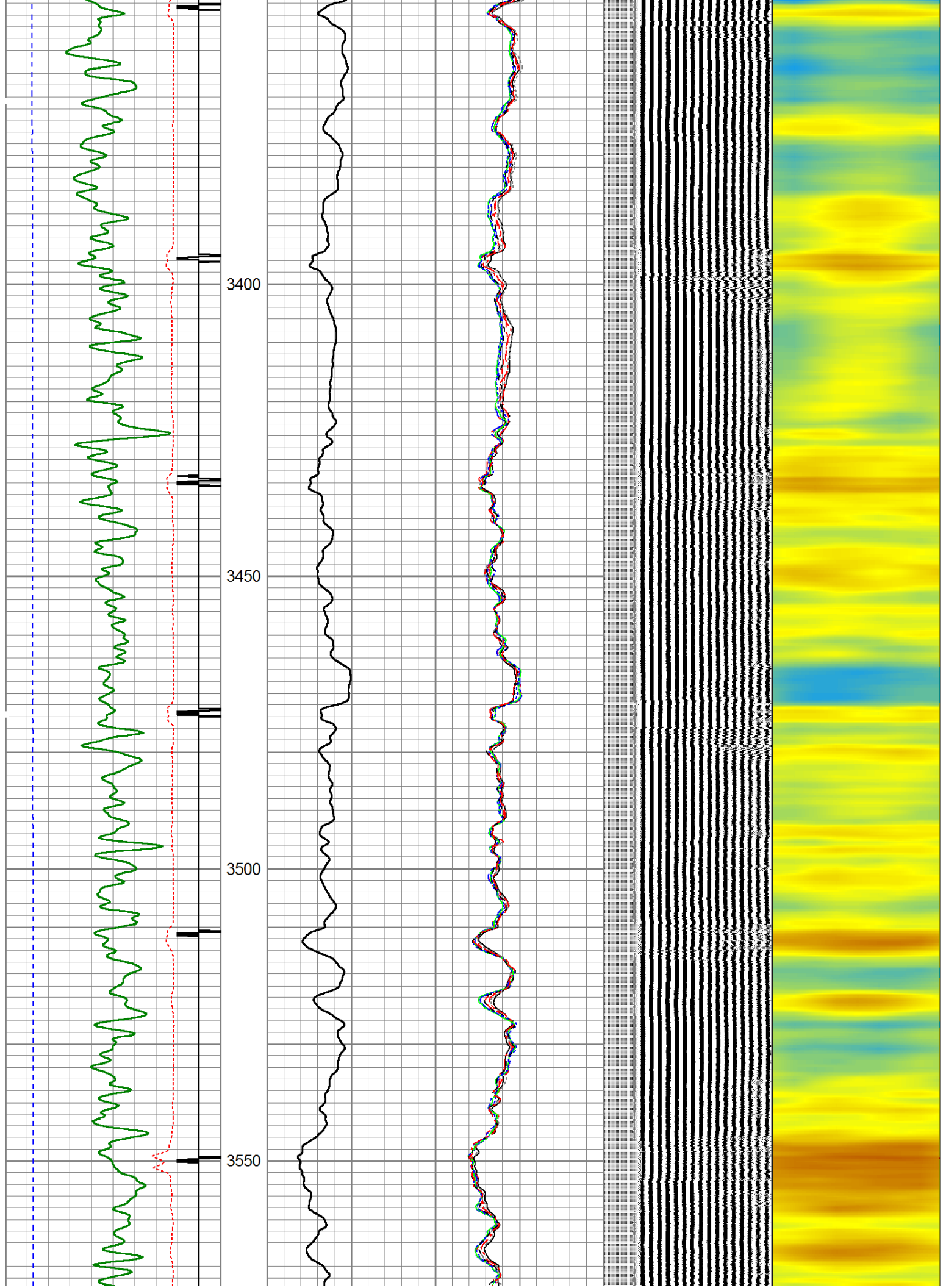




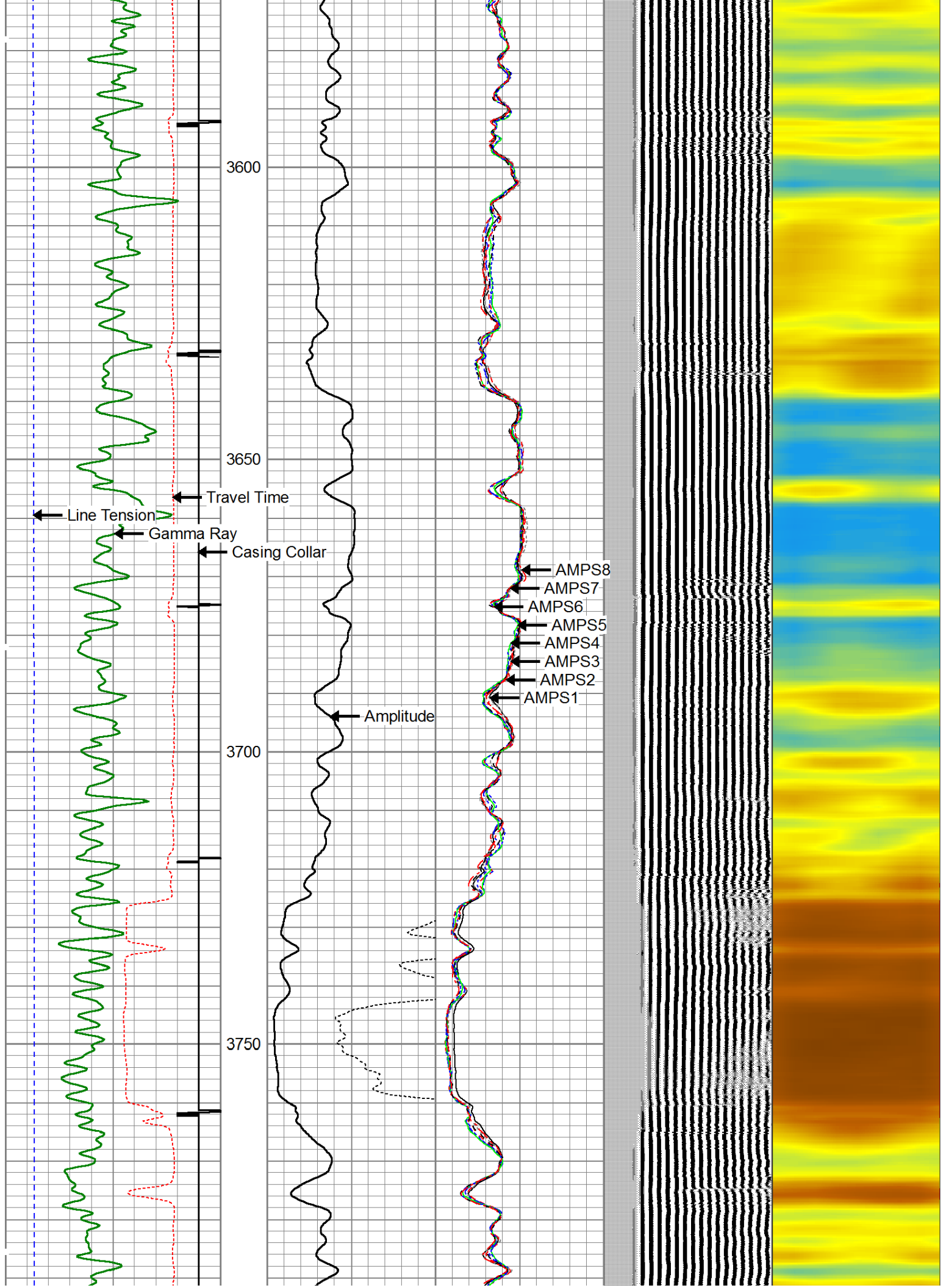




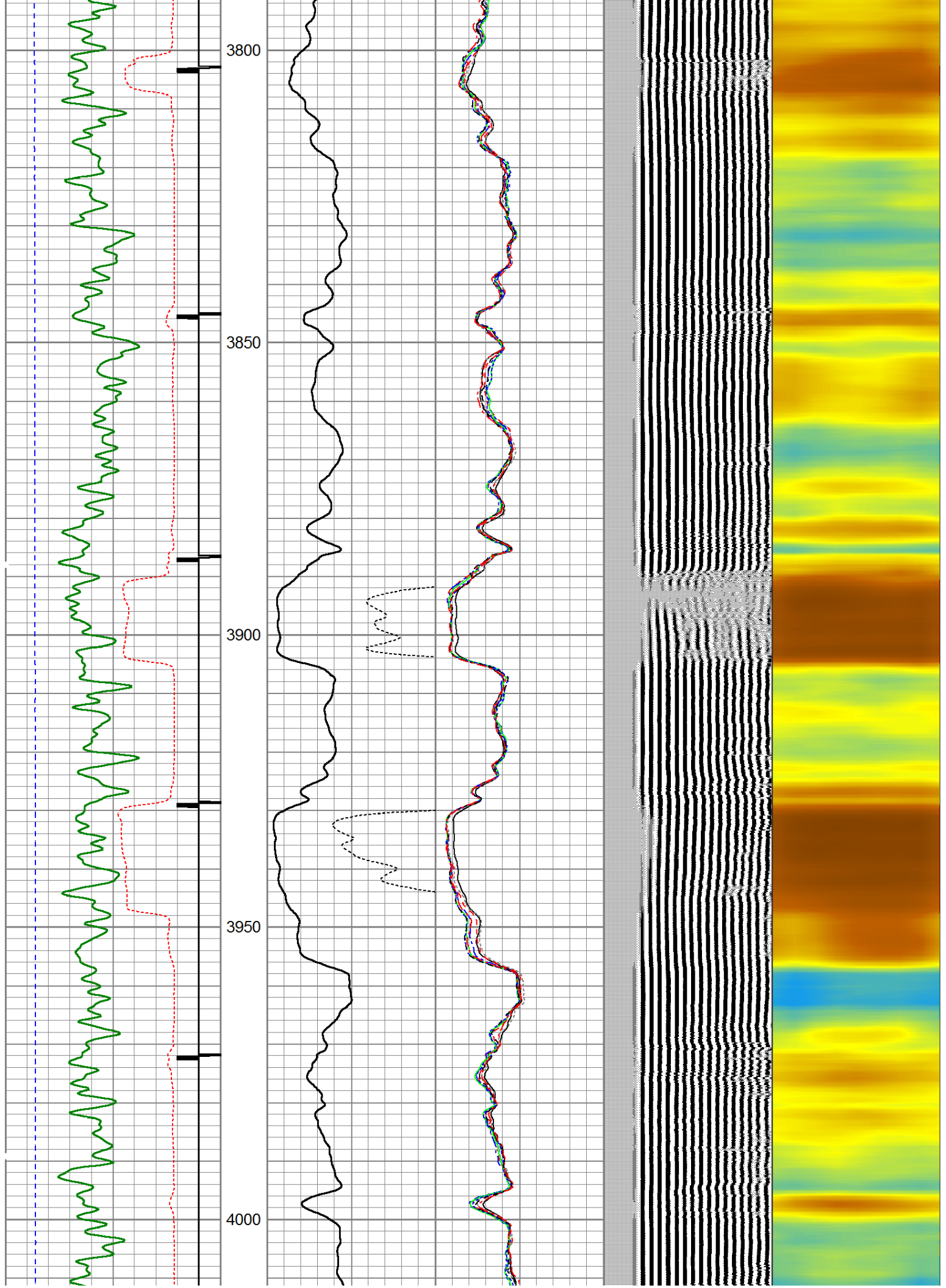




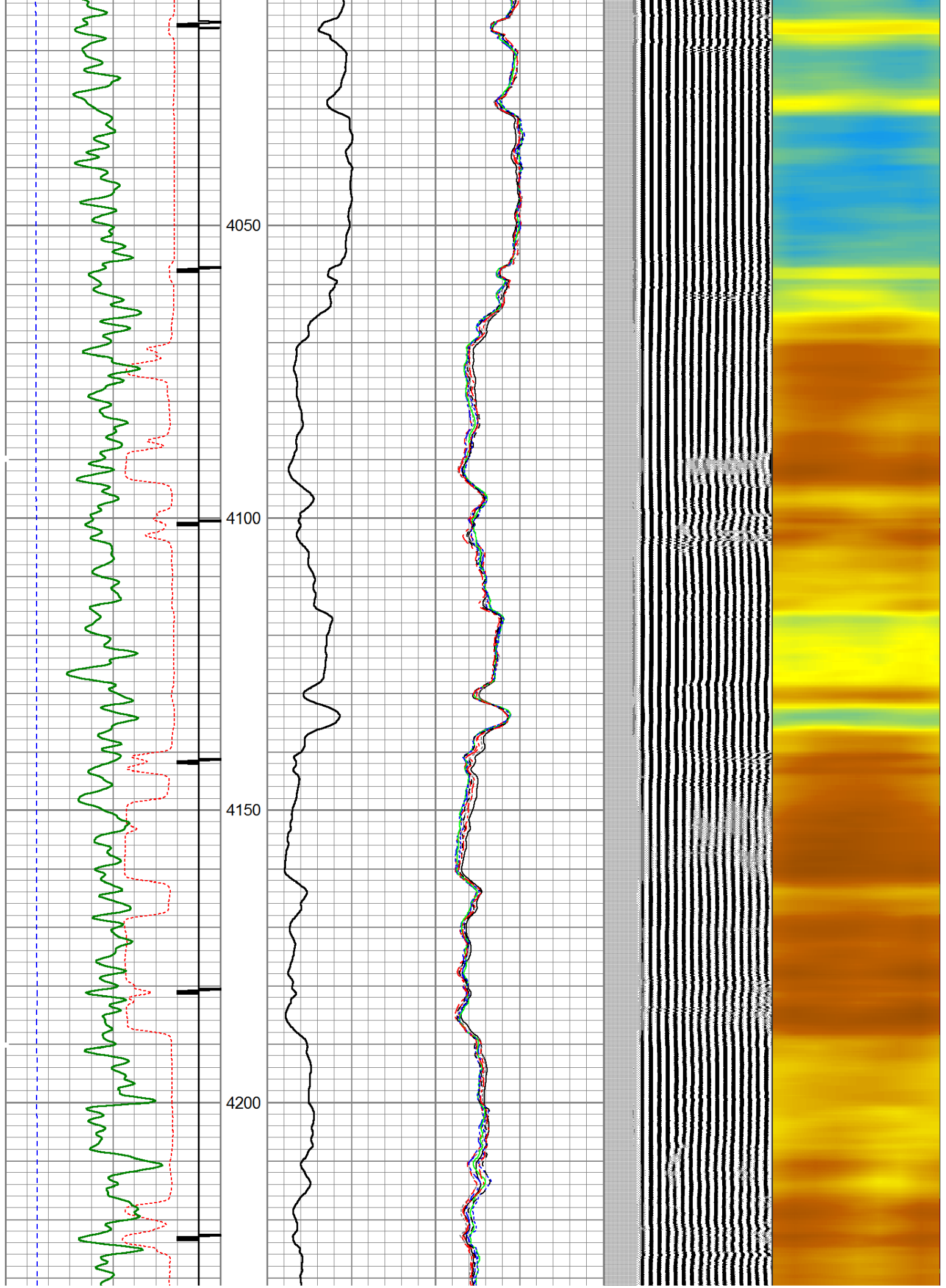




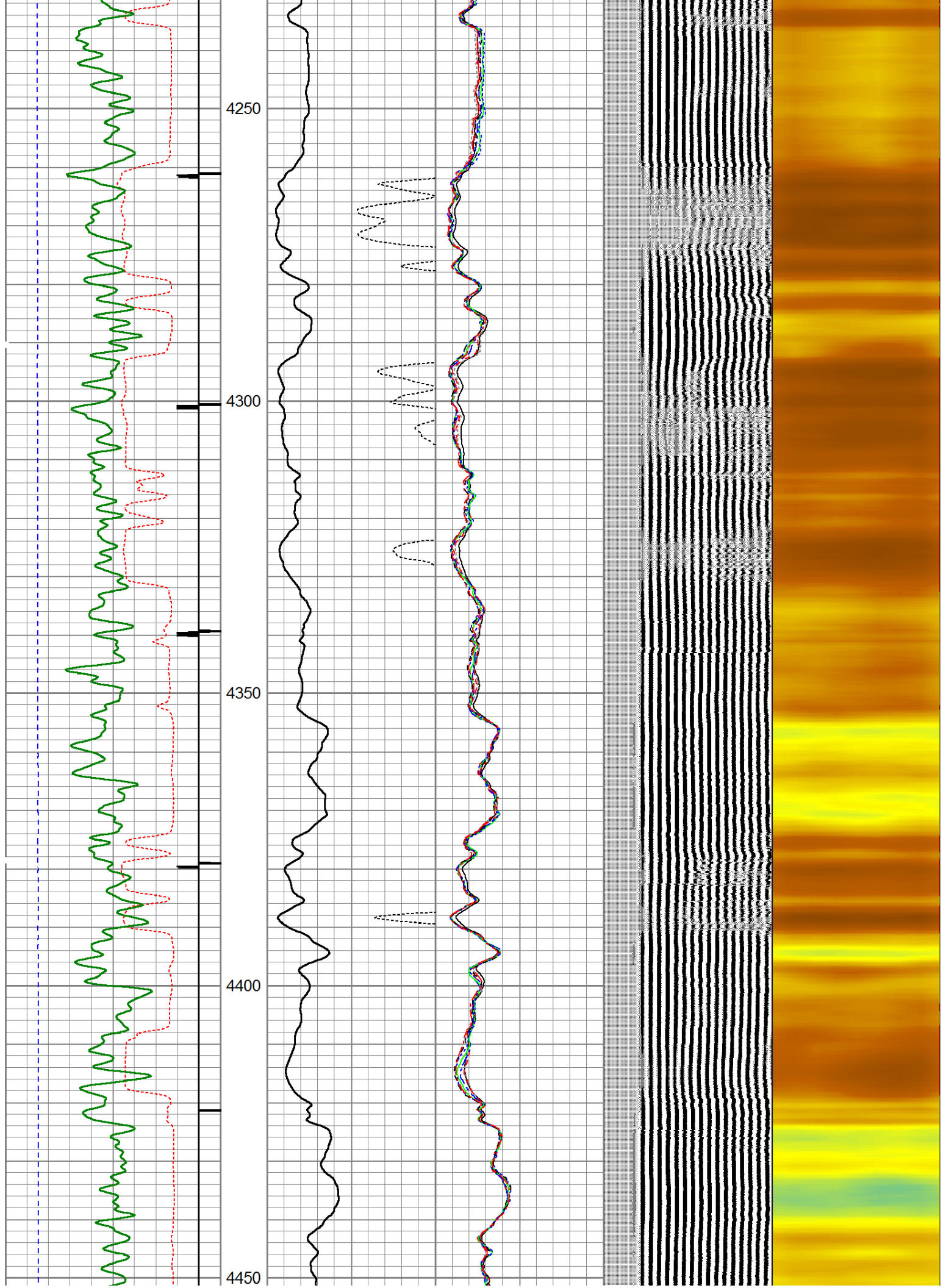




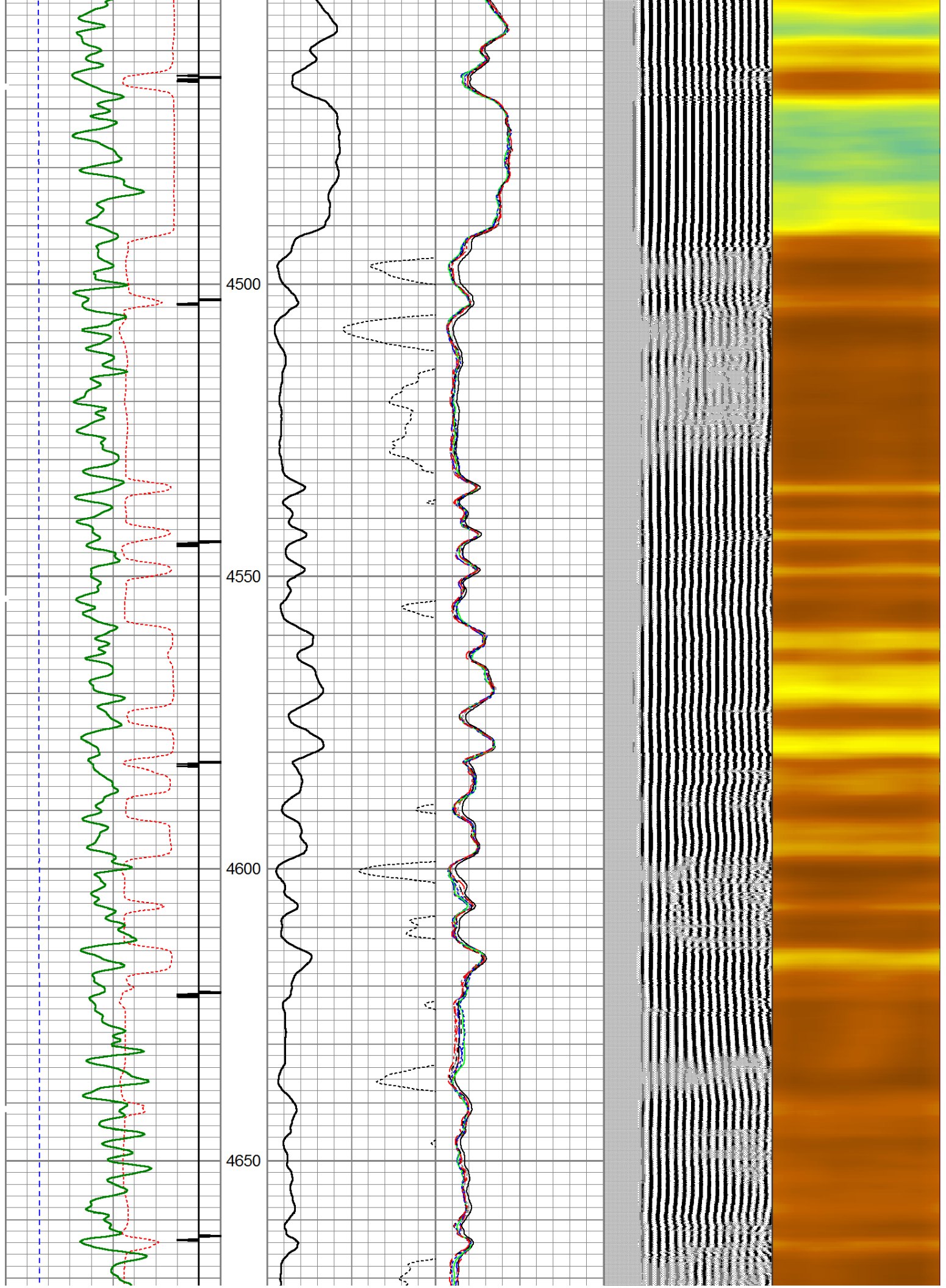




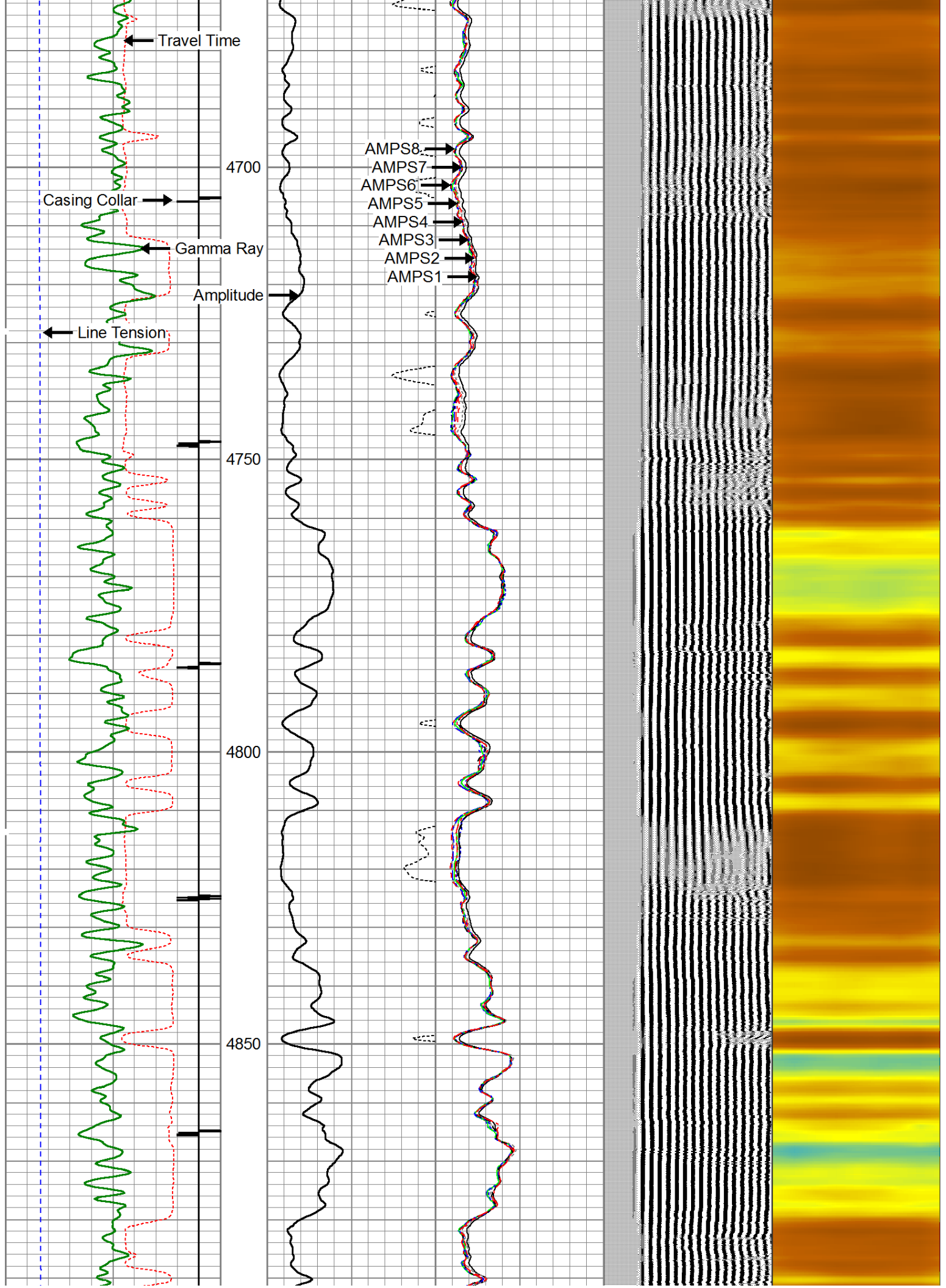




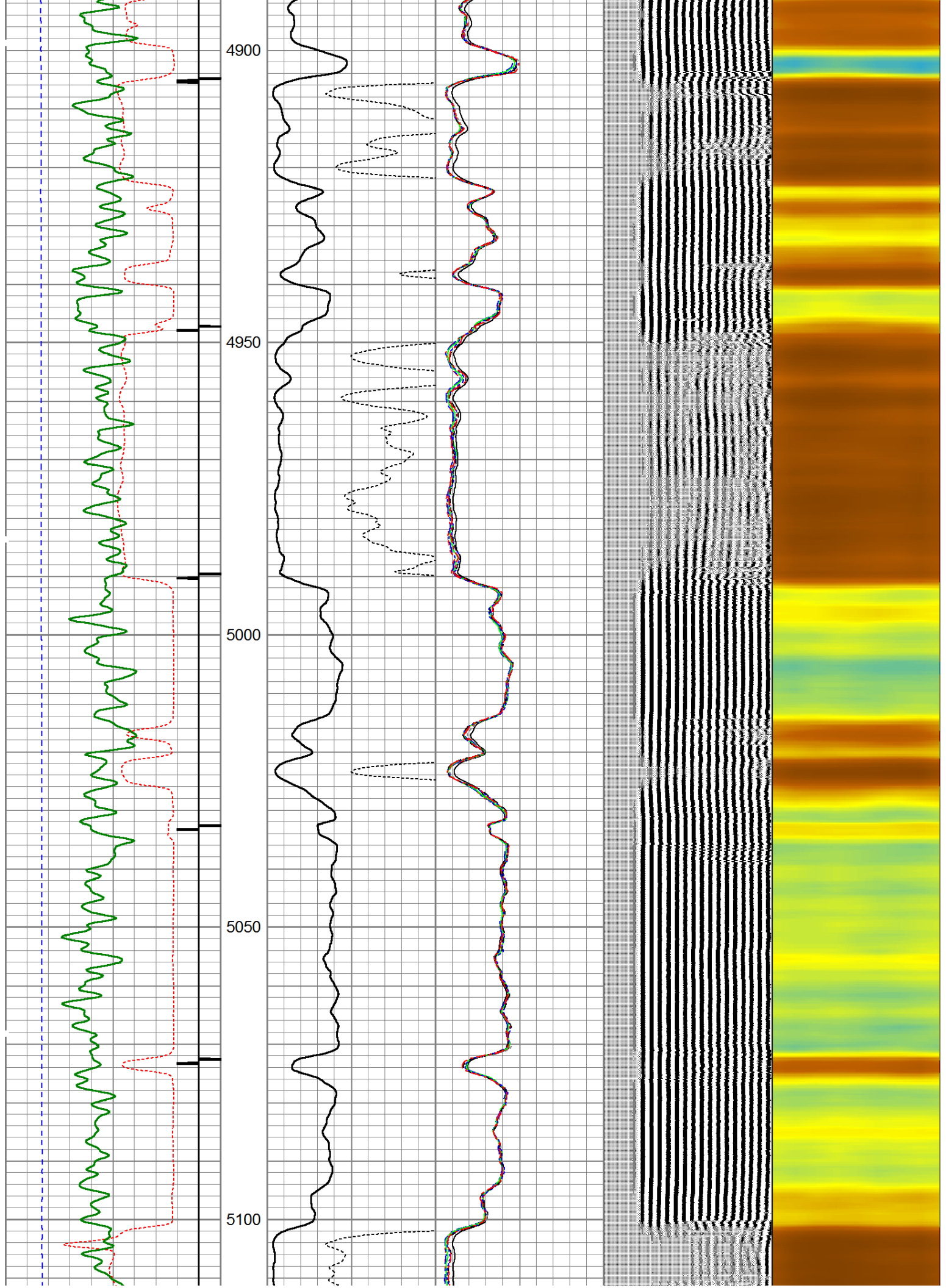




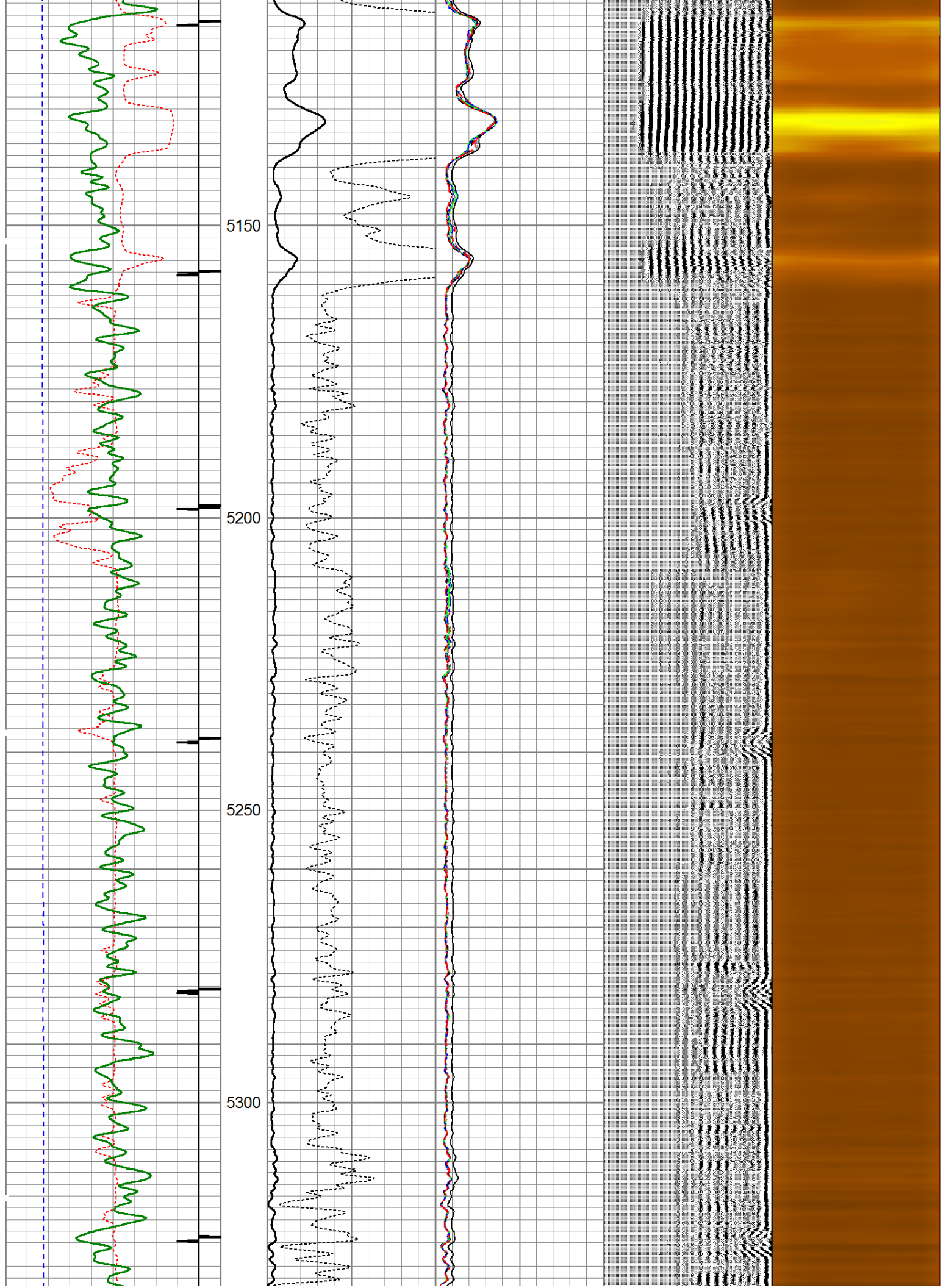




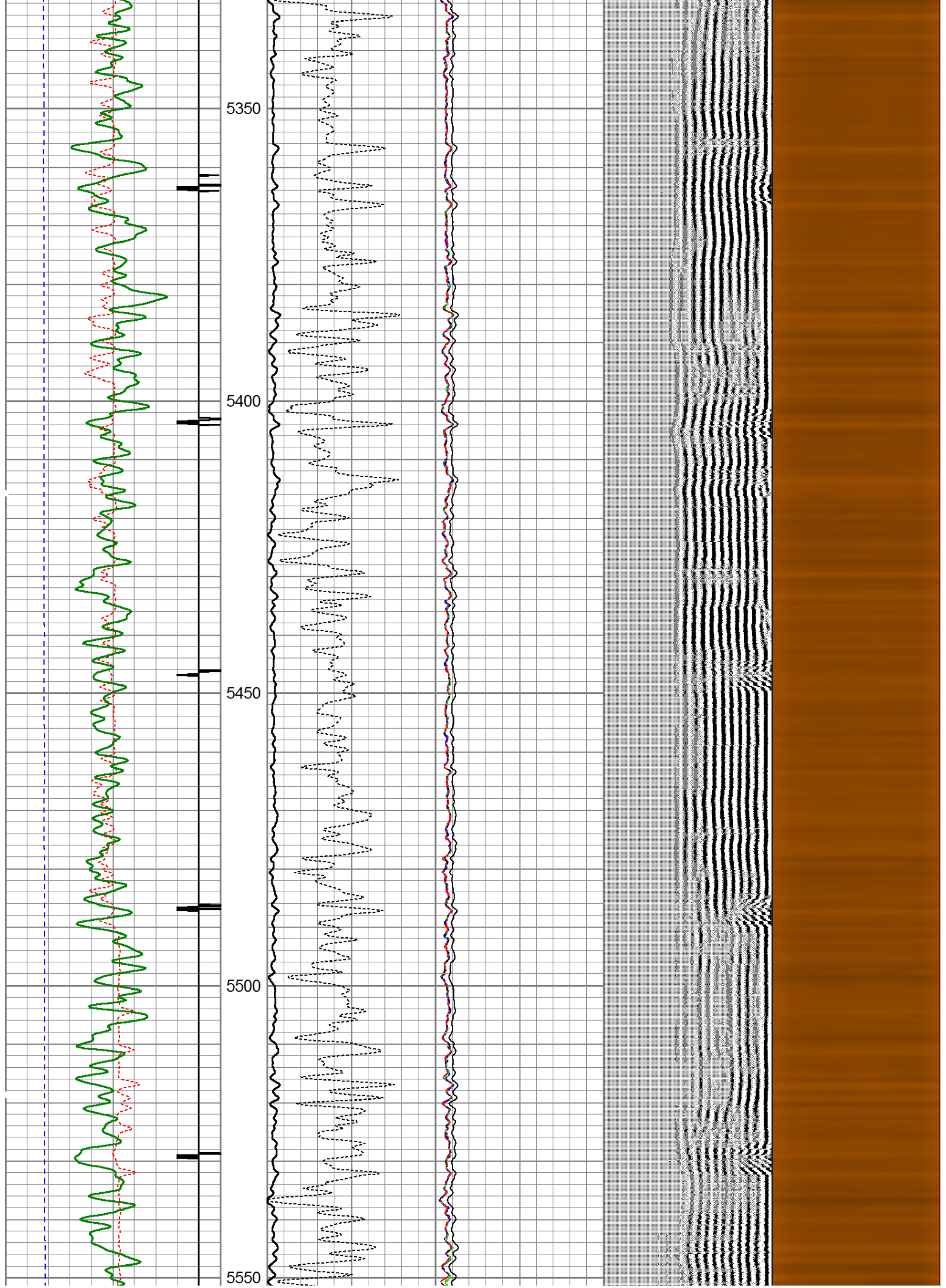




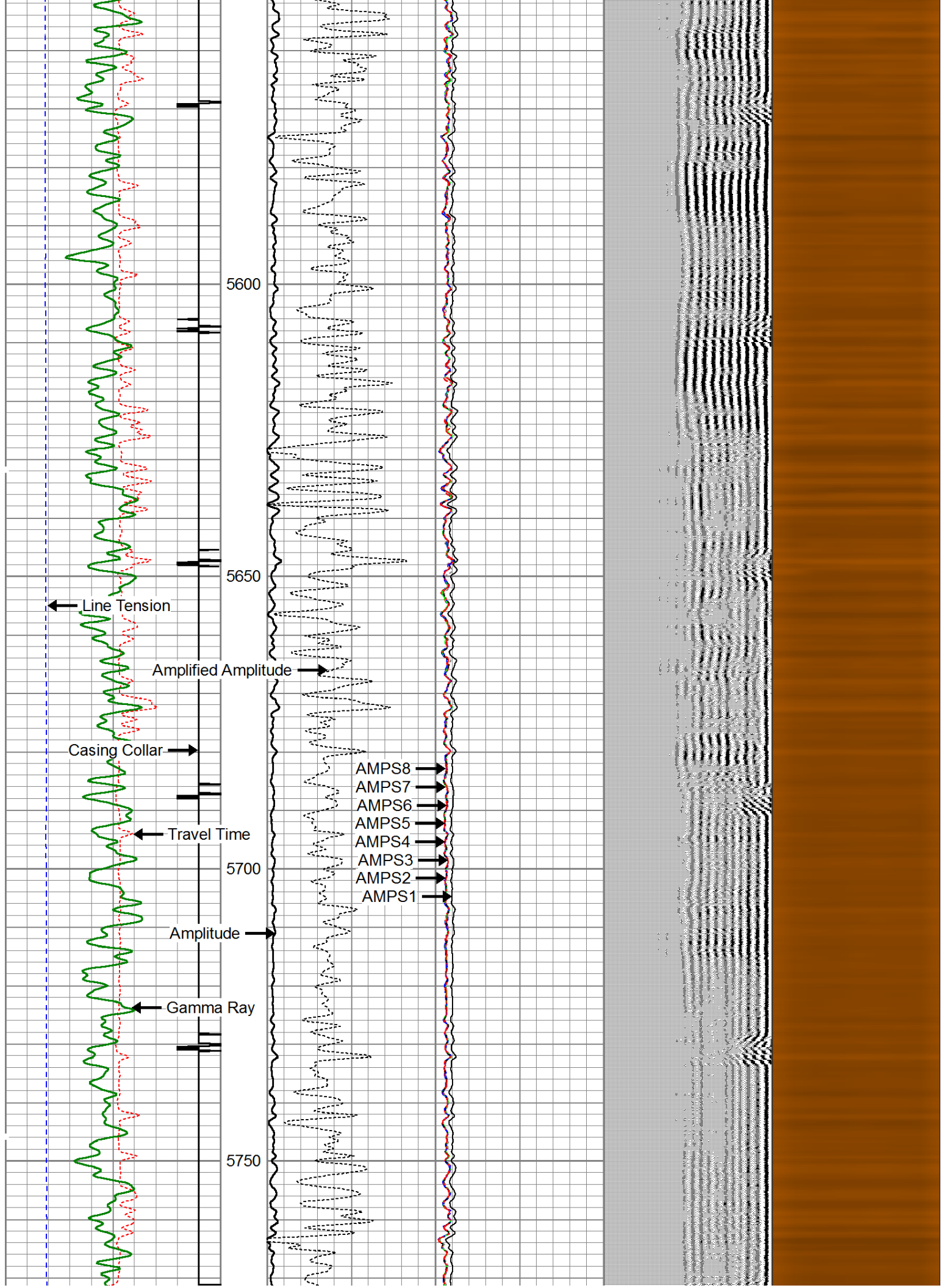




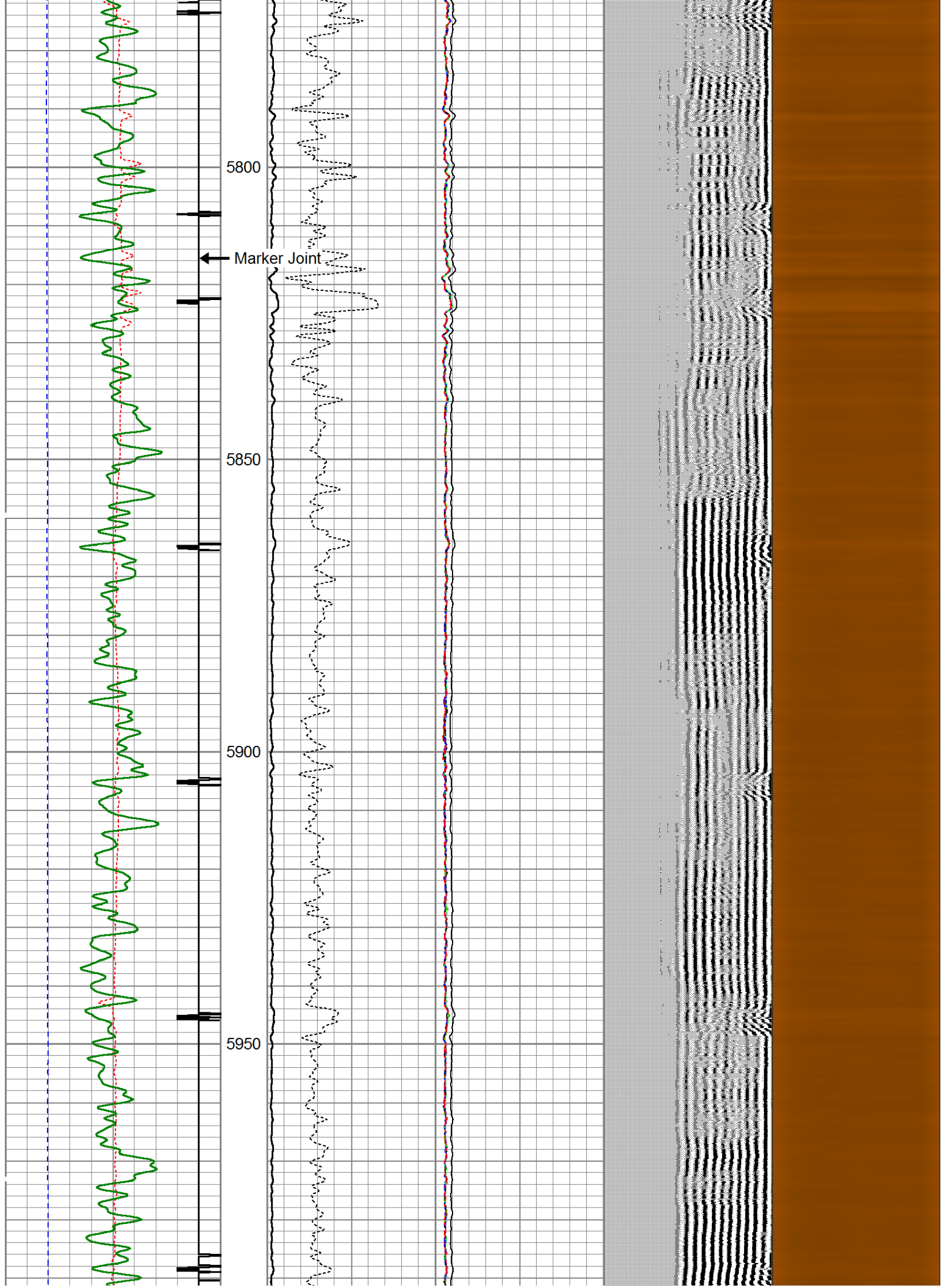




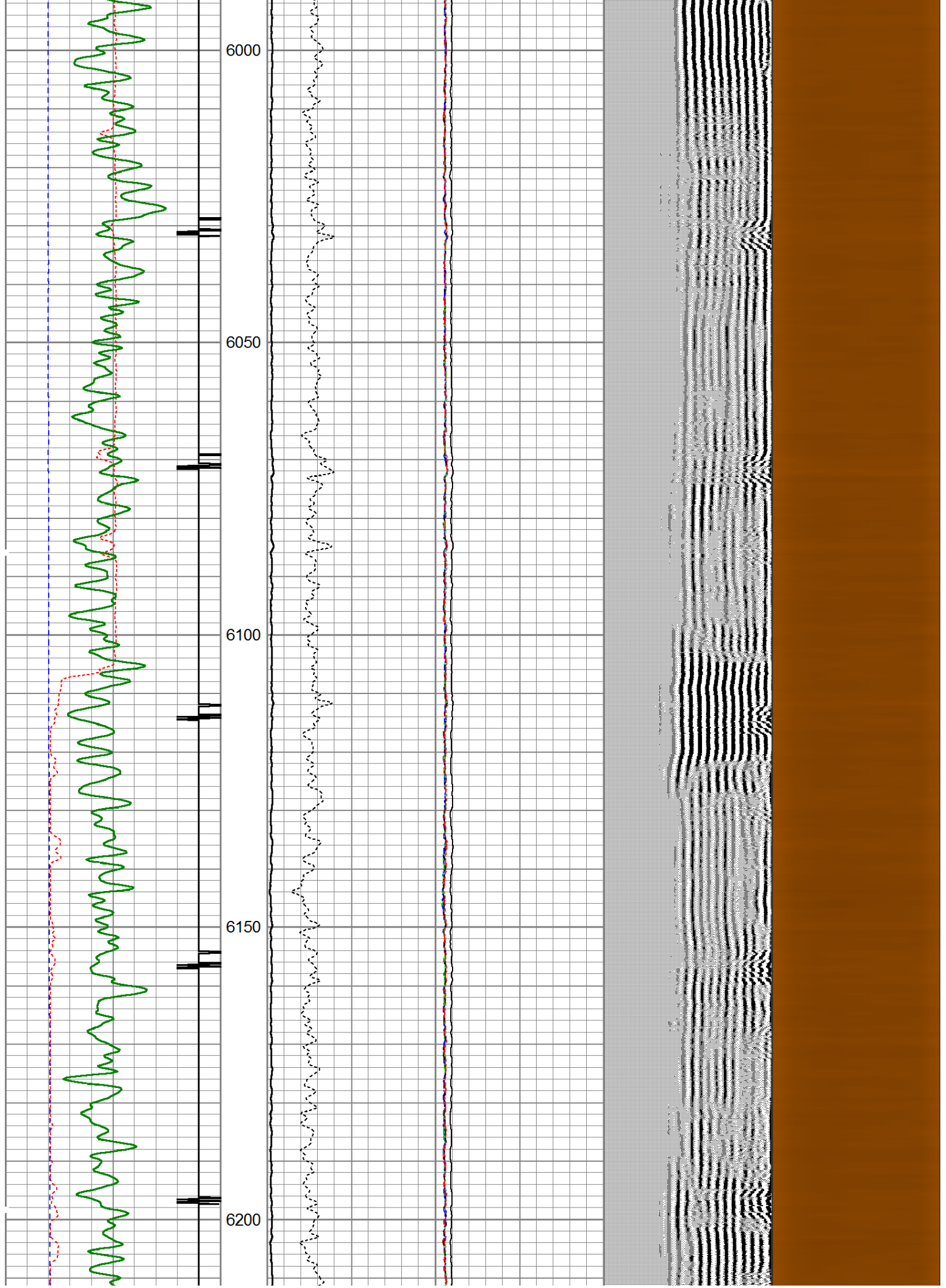




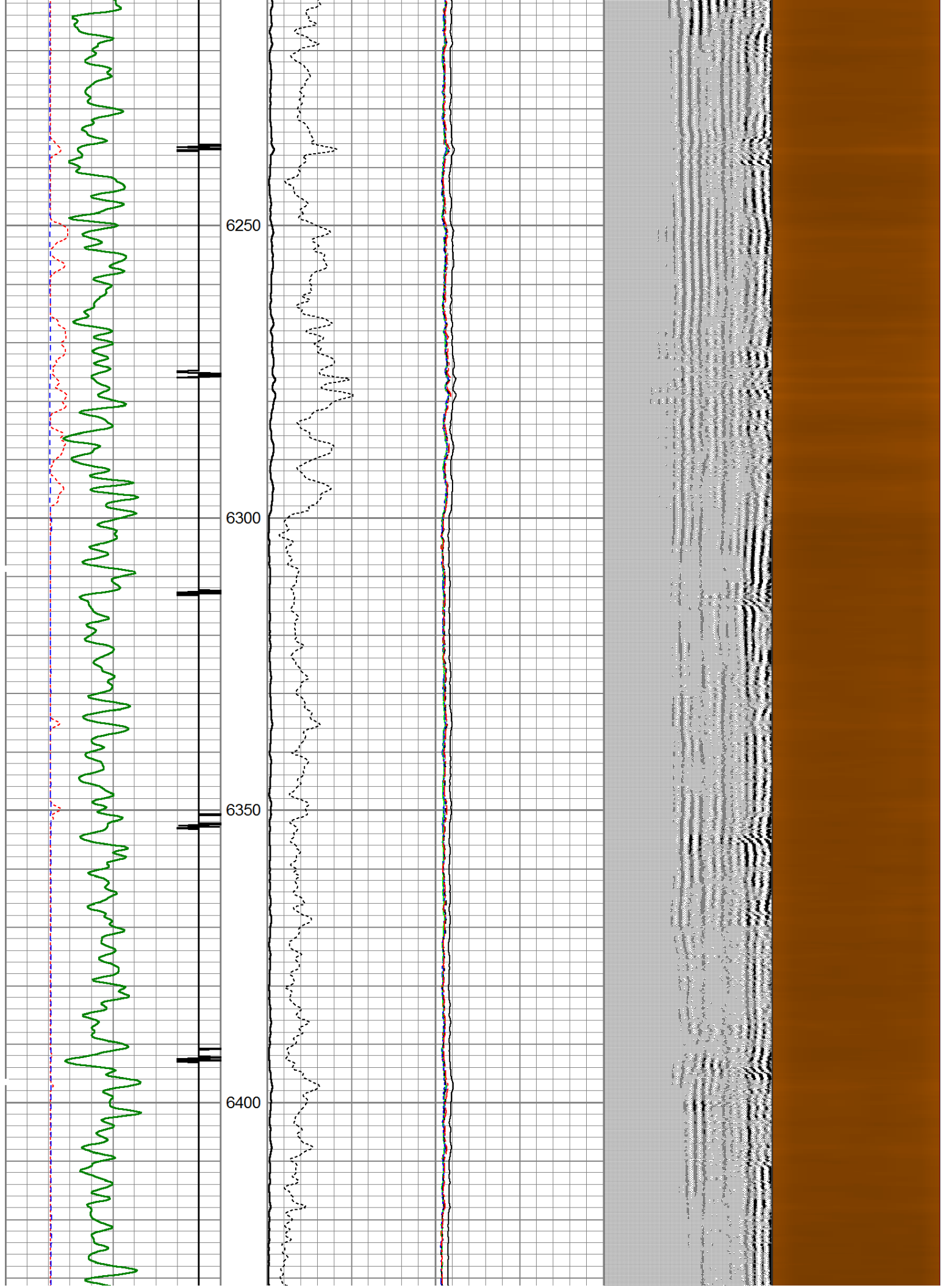




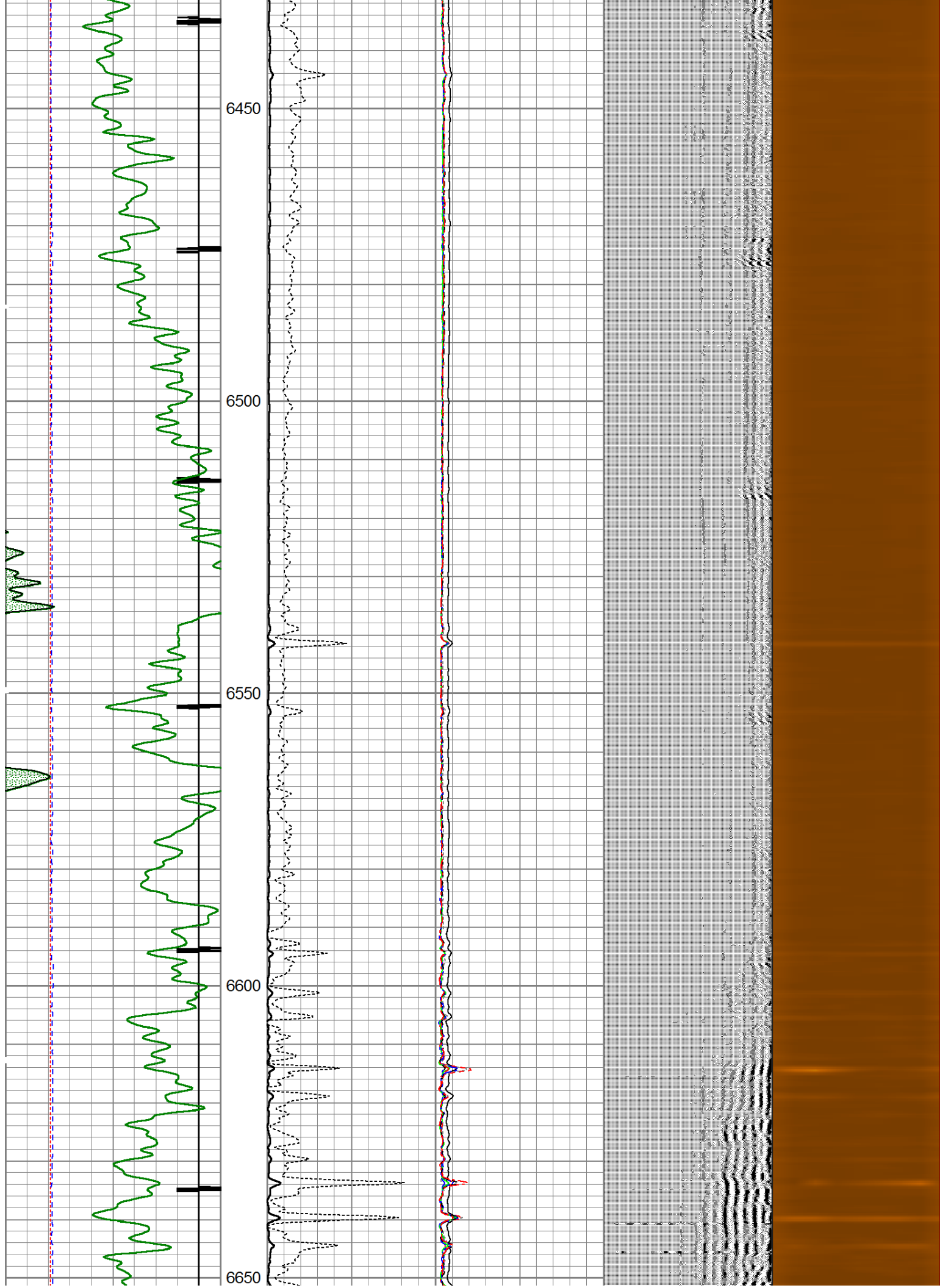




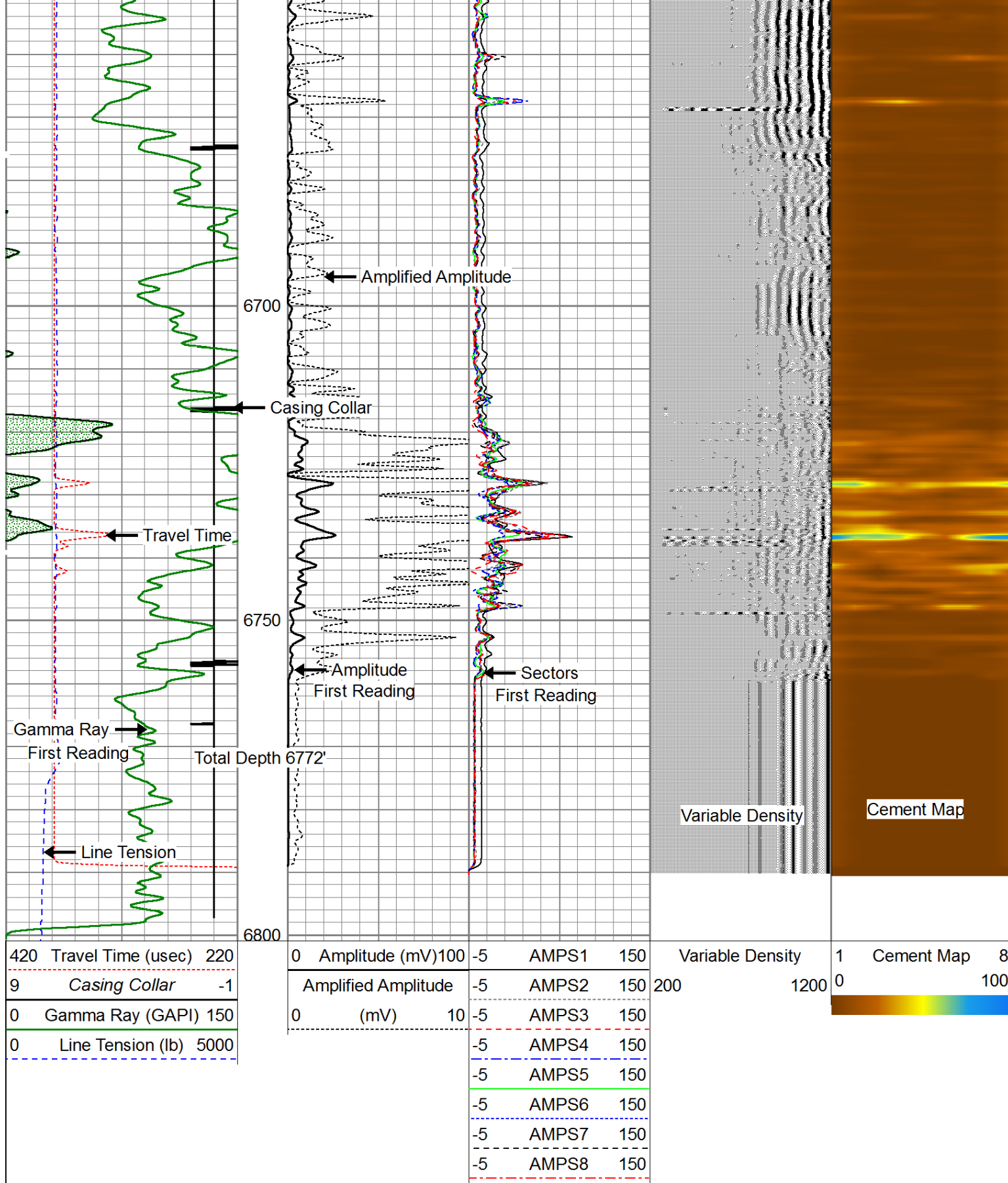













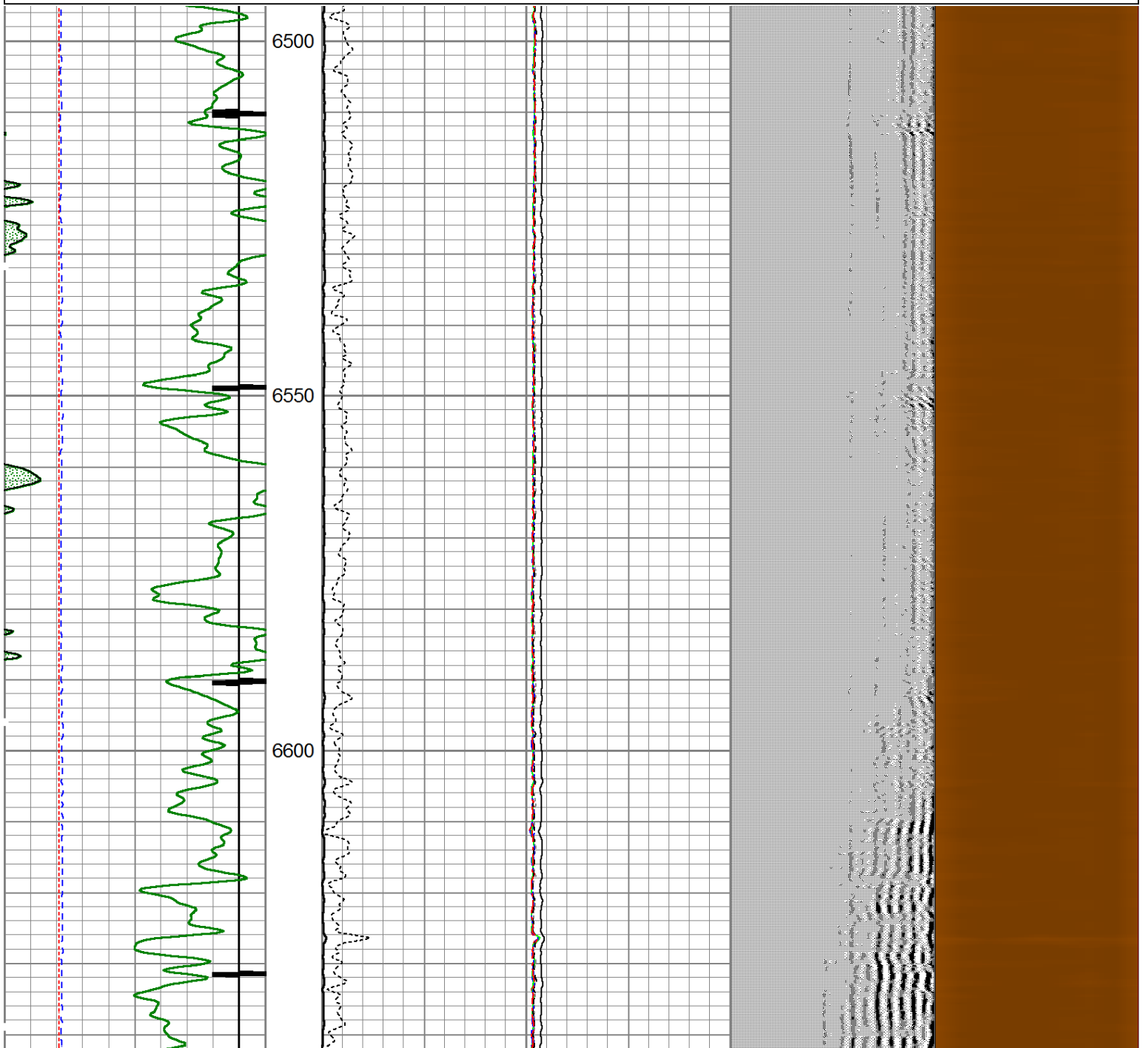
Main Pass (0 PSI)

ALLIED

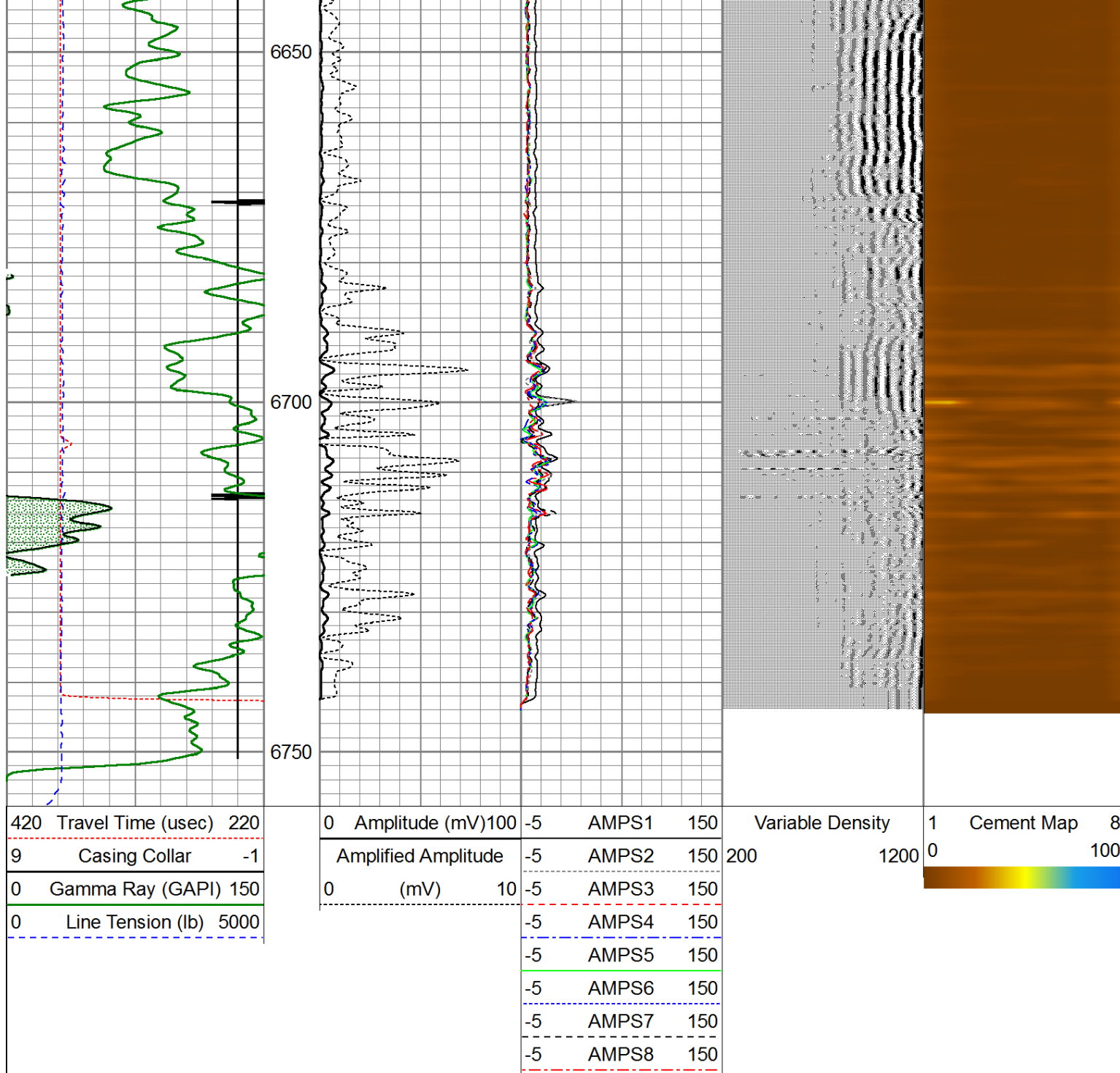


Database File: noble\_wells\_ranch\_aa\_11\_637\_rcbl.db  
 Dataset Pathname: pass6  
 Presentation Format: scbl03  
 Dataset Creation: Thu Jun 25 17:24:11 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

420	Travel Time (usec)	220	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150				
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150	200	1200	0	100
0	Line Tension (lb)	5000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150				
						-5	AMPS7	150				
						-5	AMPS8	150				







## Repeat Pass (0 PSI)

Service Ticket No.		40407		API No.		05-123-41253		PGM Ver	
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client									
EQUIPMENT DATA									
Run No.	1	Run No.	1	Run No.		Run No.			
Serial No.	RCBL 101224	Serial No.	GR FW1305-89	Serial No.		Serial No.			
Model No.		Model No.		Model No.		Model No.			
Diameter	2 3/4"	Diameter	2 3/4"	Diameter		Diameter			
LOGGING DATA									



General Data								
Pass	Depths		Well Head	Speed	Logging Run Comments			
No.	From	To	Pressure	Ft/Min				
1	7773'	SURFACE	0	110				
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
DIRECTIONAL INFORMATION								
Maximum Deviation		65	deg. @	7773'	KOP	6050'		

Log Variables

Database:C:\Warrior\Data\noble\_wells\_ranch\_aa\_11\_637\_rcbl.db

Dataset: field/well/run1/pass8

Top - Bottom

PPT usec 0	CASEWGHT lb/ft 20	MAXAMPL mV 71.8	MINAMPL mV 1	MINATTN db/ft 0.8	SRFTEMP degF 0	CASEOD in 5.5	PERFS 0
TDEPTH ft 0	BOTTEMP degF 100	BOREID in 7.875					

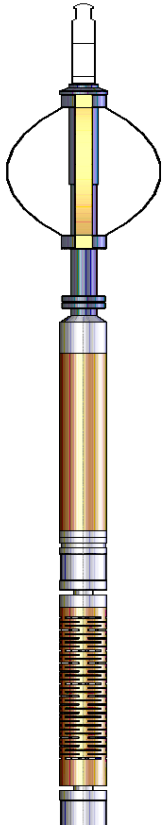
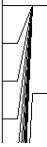
Calibration Report						
Database File:	noble_wells_ranch_aa_11_637_rcbl.db					
Dataset Pathname:	pass8					
Dataset Creation:	Thu Jun 25 17:31:23 2015 by Log 7.0 B1					
Gamma Ray Calibration Report						
Serial Number:	FW1305-89-Corrision					
Tool Model:	Probe275					
Performed:	Thu Jun 25 16:30:02 2015					
Calibrator Value:	1022.0	GAPI				
Background Reading:	103.6	cps				
Calibrator Reading:	1616.6	cps				
Sensitivity:	0.6755	GAPI/cps				
Segmented Cement Bond Log Calibration Report						
Serial Number:	101224					
Tool Model:	Probe					
Calibration Casing Diameter:	5.500	in				
Calibration Depth:	1830.192	ft				
Master Calibration, performed Thu Jun 25 16:58:24 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.016	0.354	0.000	71.921	212.692	-4.401



CAL	0.012	0.593				
5'	0.017	0.249	0.000	71.921	309.930	-5.130
SUM						
S1	0.009	0.395	0.000	100.000	258.839	-6.215
S2	0.017	0.353	0.000	100.000	297.437	-5.127
S3	0.020	0.353	0.000	100.000	300.337	-6.038
S4	0.019	0.345	0.000	100.000	306.908	-5.964
S5	0.017	0.343	0.000	100.000	306.656	-5.222
S6	0.018	0.350	0.000	100.000	300.756	-5.305
S7	0.017	0.354	0.000	100.000	296.973	-5.151
S8	0.018	0.371	0.000	100.000	283.108	-5.132

Internal Reference Calibration, performed Mon Oct 10 09:42:03 2005:						
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.012	0.593	1.000	0.000

Air Zero Calibration, performed Mon Oct 10 09:41:05 2005:						
	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	Len (ft)	OD (in)	Wt (lb)
			Titan Cable_head	1.00	1.44	10.00
			Probe275 2.75" Centralizer	2.88	2.75	20.00
			RBT-Probe (101224) Probe Radii Bond Tool with Digital Telemetry	8.92	2.75	90.00
WVF3FT	14.87					
WVFCAL	14.87					
WVFS1	14.87					
WVFS2	14.87					



WVFS3	14.87					
WVFS4	14.87					
WVFS5	14.87					
WVFS6	14.87					
WVFS7	14.87					
WVFS8	14.87					
WVFS5FT	13.78					
			Probe275 2.75" Centralizer	2.88	2.75	20.00
CCL	6.75					
GR	5.42		GR-Probe275 (FW1305-89-Corrosion) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
		Probe275 2.75" Centralizer	2.88	2.75	20.00	
Dataset: noble_wells_ranch_aa_11_637_rcbl.db: field/well/run1/pass8 Total Length: 23.32 ft Total Weight: 217.00 lb O.D. 2.75 in						