



PIONEER

Pioneer Energy Services

RADIAL BOND LOG WITH GAMMA RAY

Comp. PDC ENERGY INC. Well RED CLOUD 0N Field WATTENBERG Co. WELD State COLORADO	Company PDC ENERGY INC. Well RED CLOUD 0N Field WATTENBERG County WELD State COLORADO	Location: API # : 05-123-49445 1530' FNL & 629' FEL SE NE SEC 1 TWP 4N RGE 64W Permanent Datum GL Log Measured From KB 23' Above Perm. Datum Drilling Measured From KB Other Services CNL Elevation K.B. 4625' D.F. N/A G.L. 4602'
Date of Service	28 AUGUST 2019	
Run Number	ONE	
Depth Driller or PBTD	N/A	
Depth Logger	7150'	
Bottom Log Interval	7150'	
Top Log Interval	SURFACE	
Open Hole Size	8.5"	
Type Fluid	WATER	
Fluid Level	FULL	
Fluid Density	N/A	
Max. Recorded Temperature	N/A	
Max. Wellhead Pressure	ZERO	
Wellhead Connection	OPEN	
Estimated Cement Top	N/A	
Unit Number	P-57	
Wireline Size	9/32"	
Location	FORT MORGAN CO	
Recorded By	SCHOENROGGE	
Witnessed By	MR. MYERS	
Tubing Record	Size	Wt/Ft
Surface Casing	9.625"	36#
Production Casing	5.5"	20#
Liner Record		

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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.
CORRELATED TO CUSTOMER MARKER JOINT

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: SCHOENROGGE Operator: TANNER Operator: BRANDON Operator:	SEE DIAGRAM PLUS OVERBODIES	

Top - Bottom

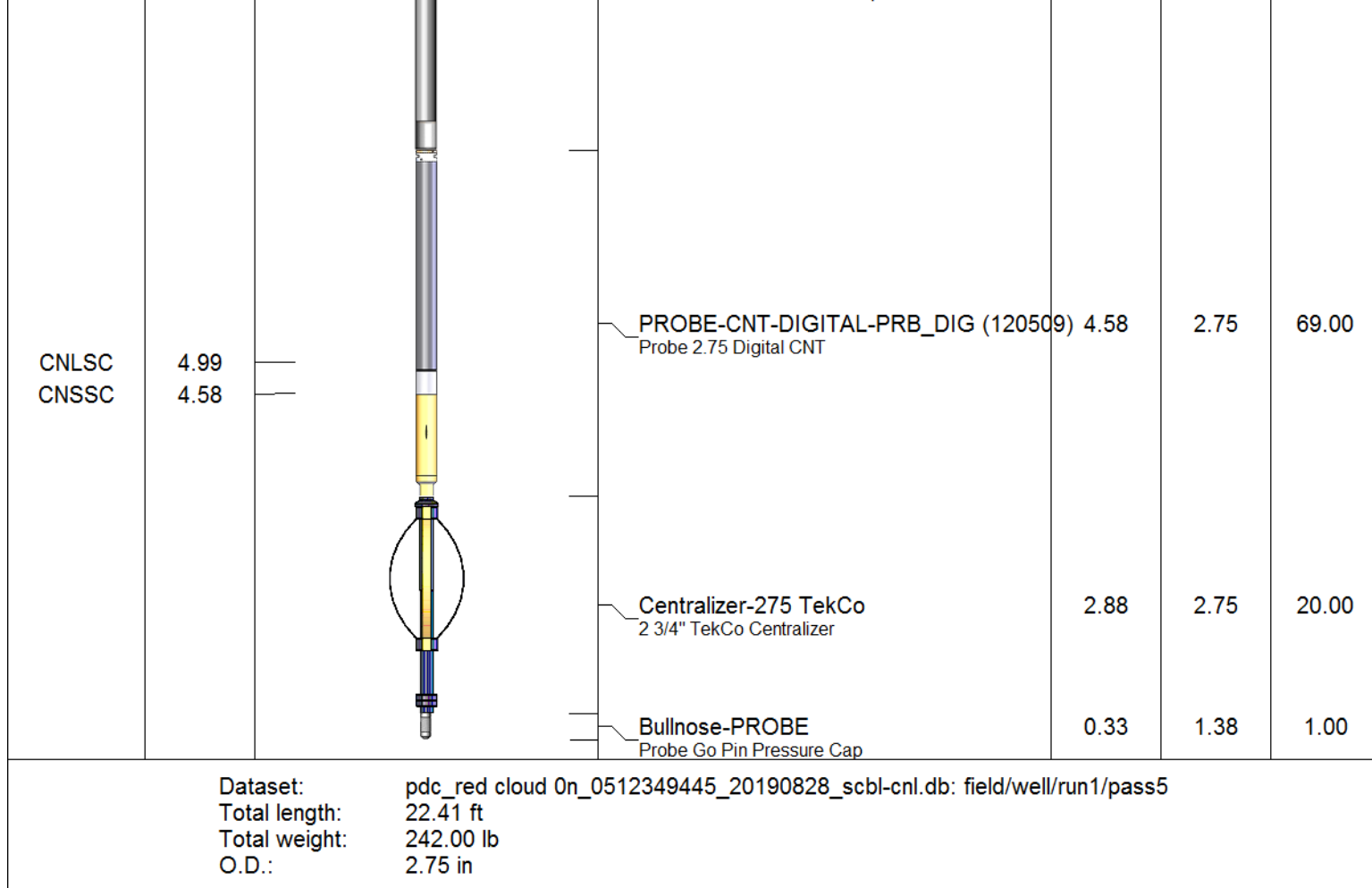
BOREID in 7.875	BOTTEMP degF 220	CASED? Yes	CASEOD in 5.5	CASETHCK in 0.361	CASEWGHT lb/ft 20	CMNTTHCK in 1.5
CMTTKCOR Off	CSTKCOR Off	MAXAMPL mV 71.9	MINAMPL mV 2.2	MINATTN db/ft 0.8	NPORSEL Limestone	PERFS 0
PPT usec 261	SRFTEMP degF 50	SZCOR Off	TDEPTH ft 7300			


Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASED? : Cased hole ?
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
CMNTTHCK : Cement Thickness
CMTTKCOR : CN CemThk. Cor. ?
CSTKCOR : CN CasThk. Cor. ?

MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MINATTN : Minimum Attenuation
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
PPT : Predicted Pipe Time
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00
WVFS8	16.82		PROBE-RBT-DIGITAL-RBL-DC (FW1304-38.75 Probe 2 3/4" Radii Bond-Corrosion Package	4.38.75	2.75	100.00
WVFS7	16.82					
WVFS6	16.82					
WVFS5	16.82					
WVFS4	16.82					
WVFS3	16.82					
WVFS2	16.82					
WVFS1	16.82					
WVFCAL	16.82					
WVF3FT	16.82					
WVF5FT	15.82					
HEADVOLT	12.63					
CCL	11.71					
GR	10.38		PROBE-GR/CCL-DIGITAL-275_6-PIN (1114.83 Probe 2 3/4" Gamma CCL 6-pin Bottom for CNT	1114.83	2.75	50.00





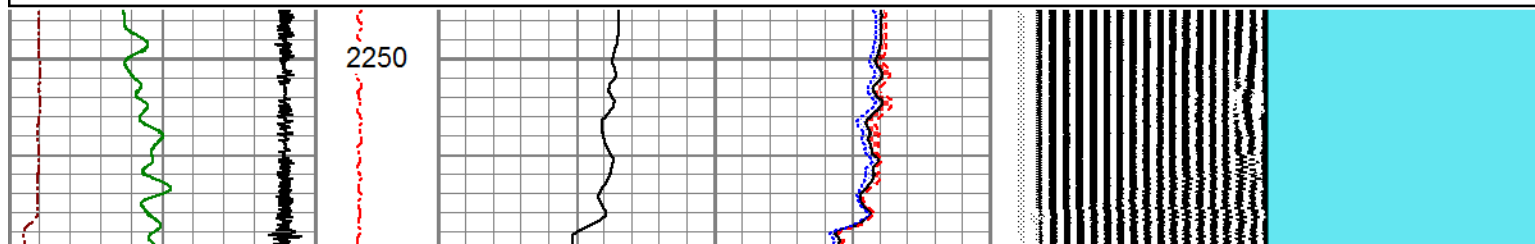
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Pioneer Energy Services

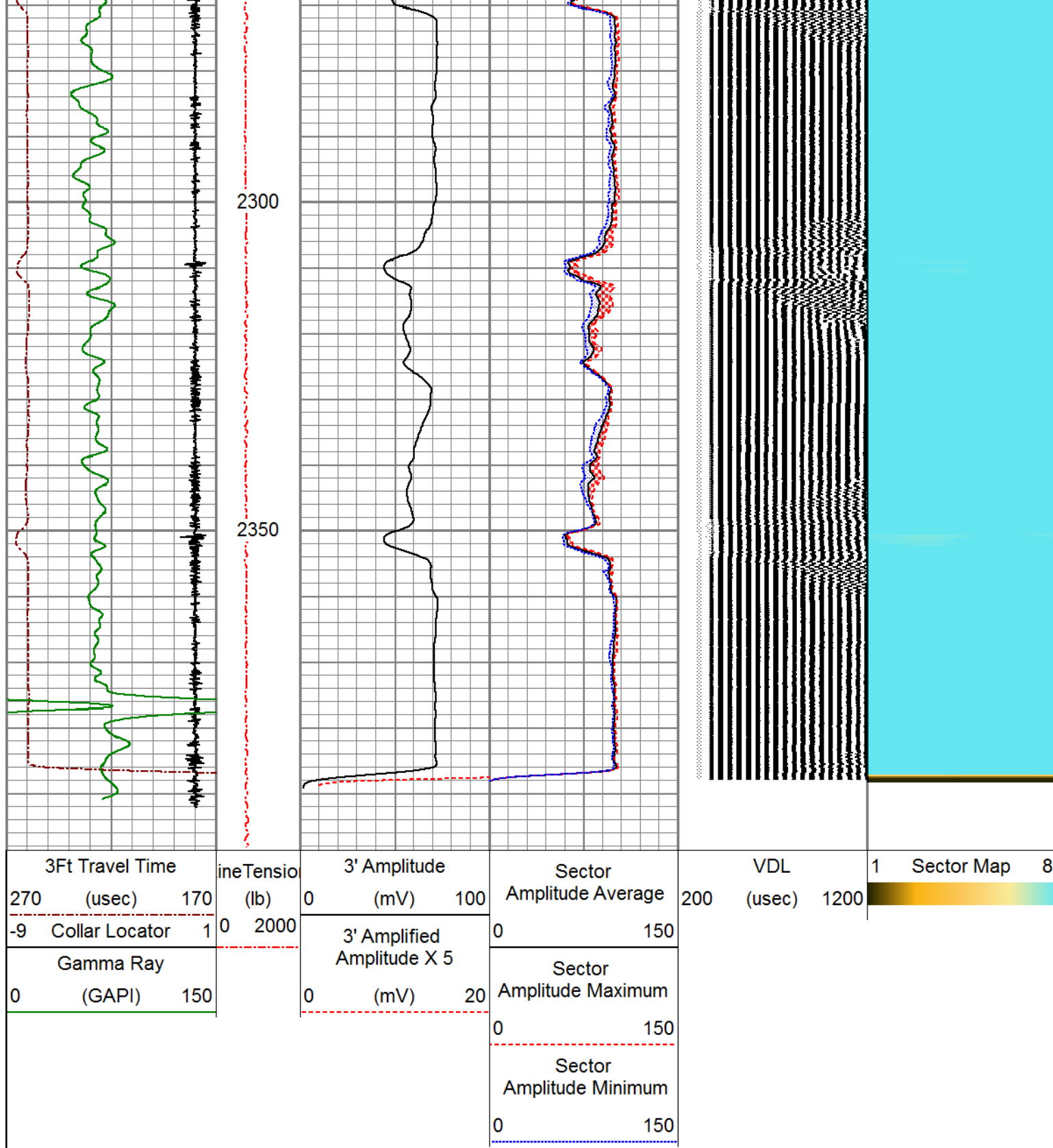
FREE PIPE SECTION


ZERO PSI APPLIED AT SURFACE

Database File	pdc_red cloud On_0512349445_20190828_scbl-cn1.db
Dataset Pathname	pass2
Presentation Format	pinr_scbl_co
Dataset Creation	Wed Aug 28 10:12:09 2019
Charted by	Depth in Feet scaled 1:240

3Ft Travel Time			ineTension (lb)	3' Amplitude		Sector Amplitude Average	VDL		1	Sector Map	8	
270	(usec)	170		0	(mV)		100	200				(usec)
-9	Collar Locator	1	0	2000	3' Amplified Amplitude X 5		0	150				
Gamma Ray					0	(mV)	20	Sector Amplitude Maximum				
0	(GAPI)	150						0		150		
								Sector Amplitude Minimum				
								0		150		








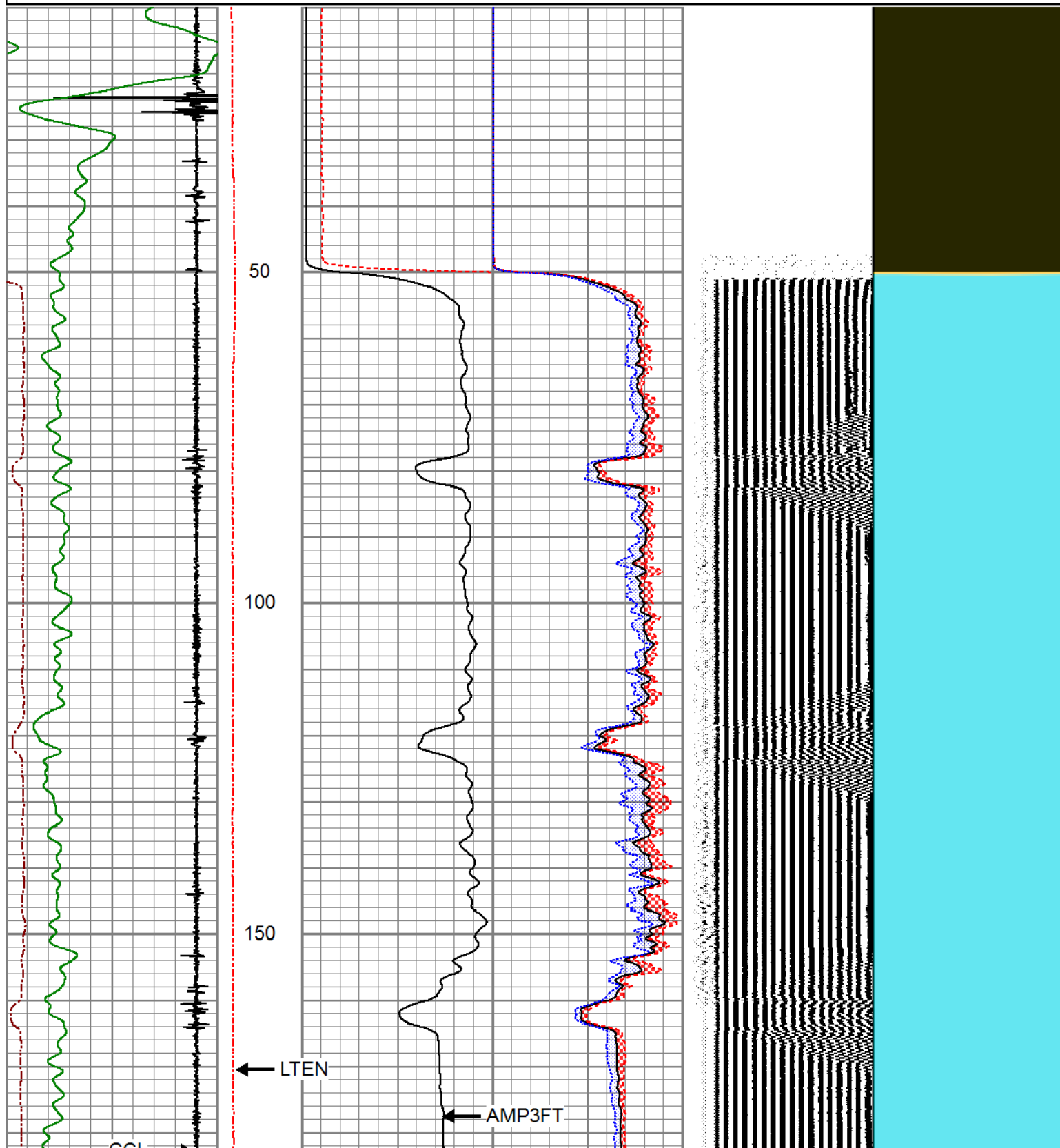
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Pioneer Energy Services

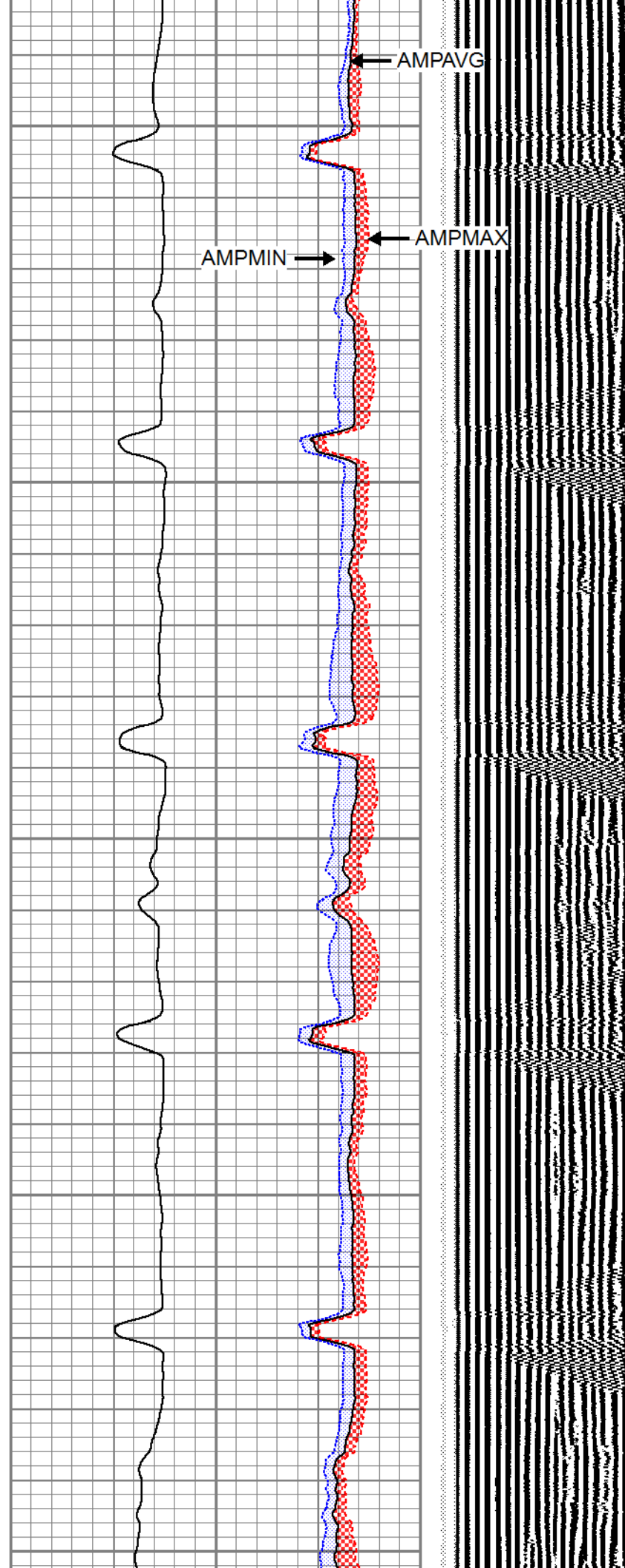
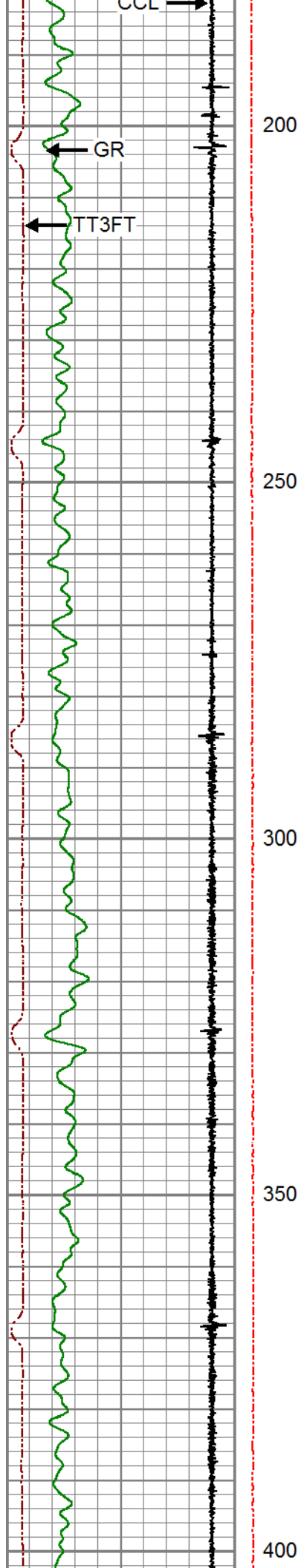
MAIN LOG

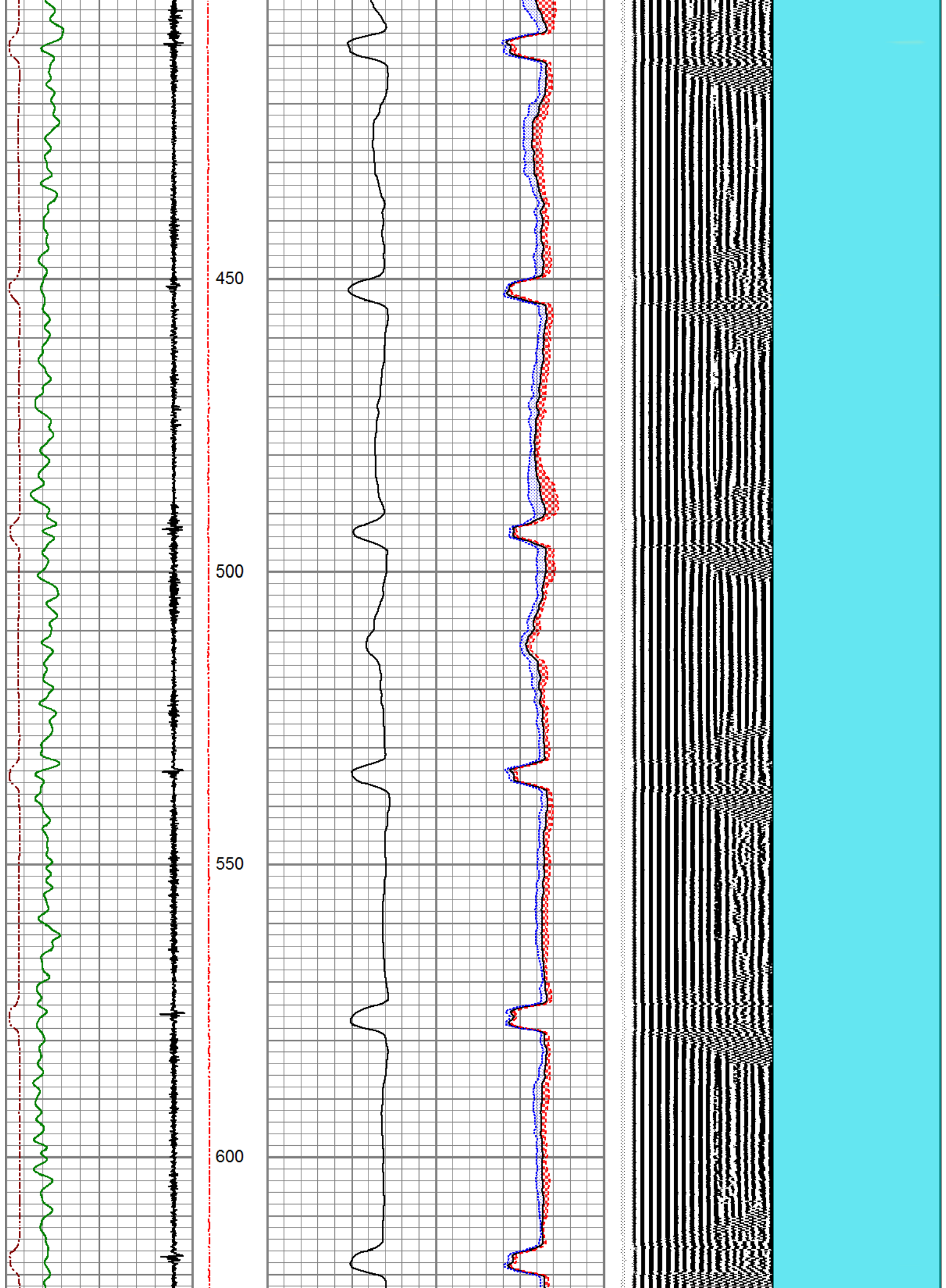
ZERO PSI APPLIED AT SURFACE

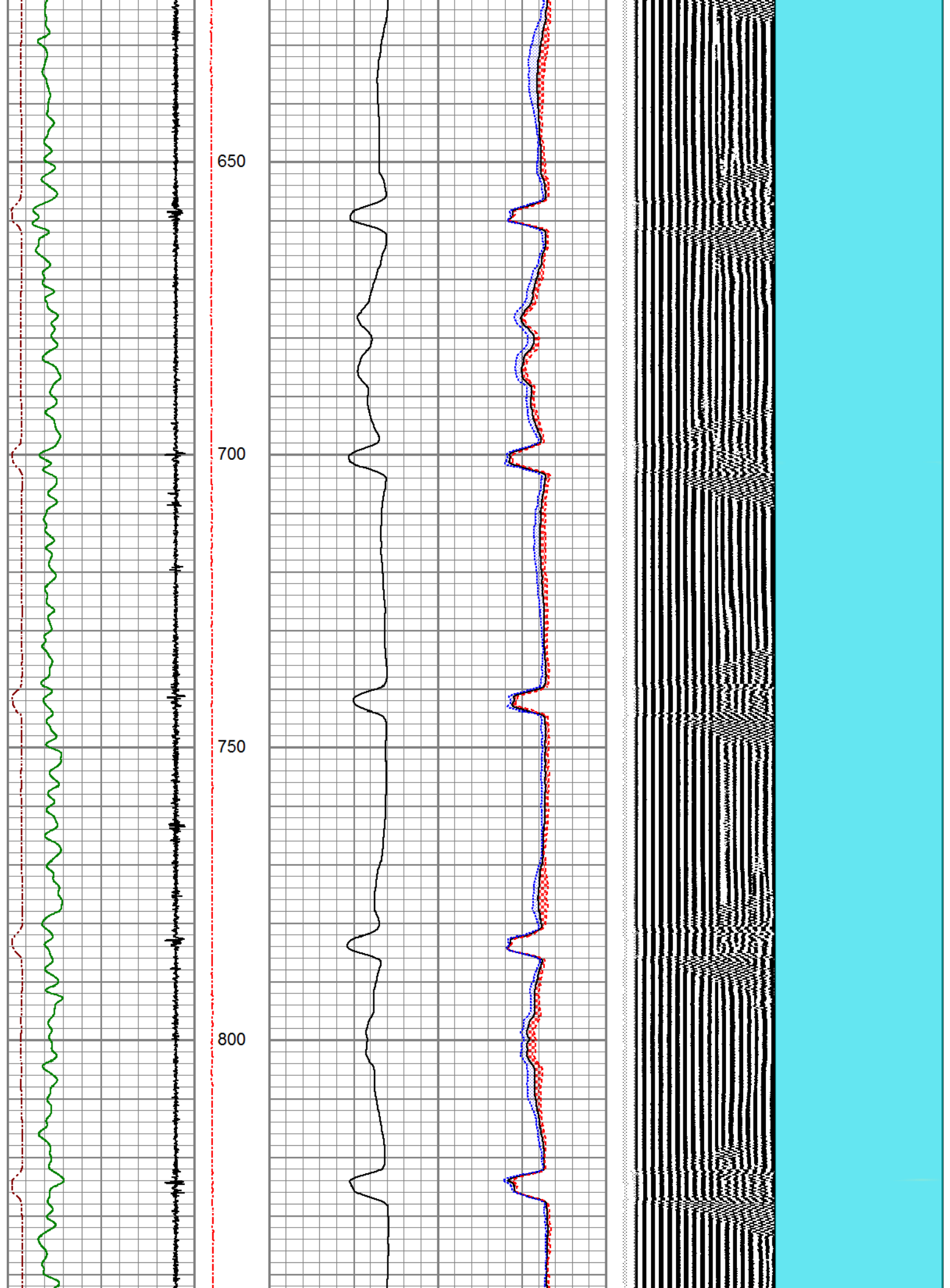
Database File	pd_c_red cloud 0n_0512349445_20190828_scbl-cn1.db
Dataset Pathname	pass5
Presentation Format	pinr_scbl_co
Dataset Creation	Wed Aug 28 10:40:22 2019
Charted by	Depth in Feet scaled 1:240

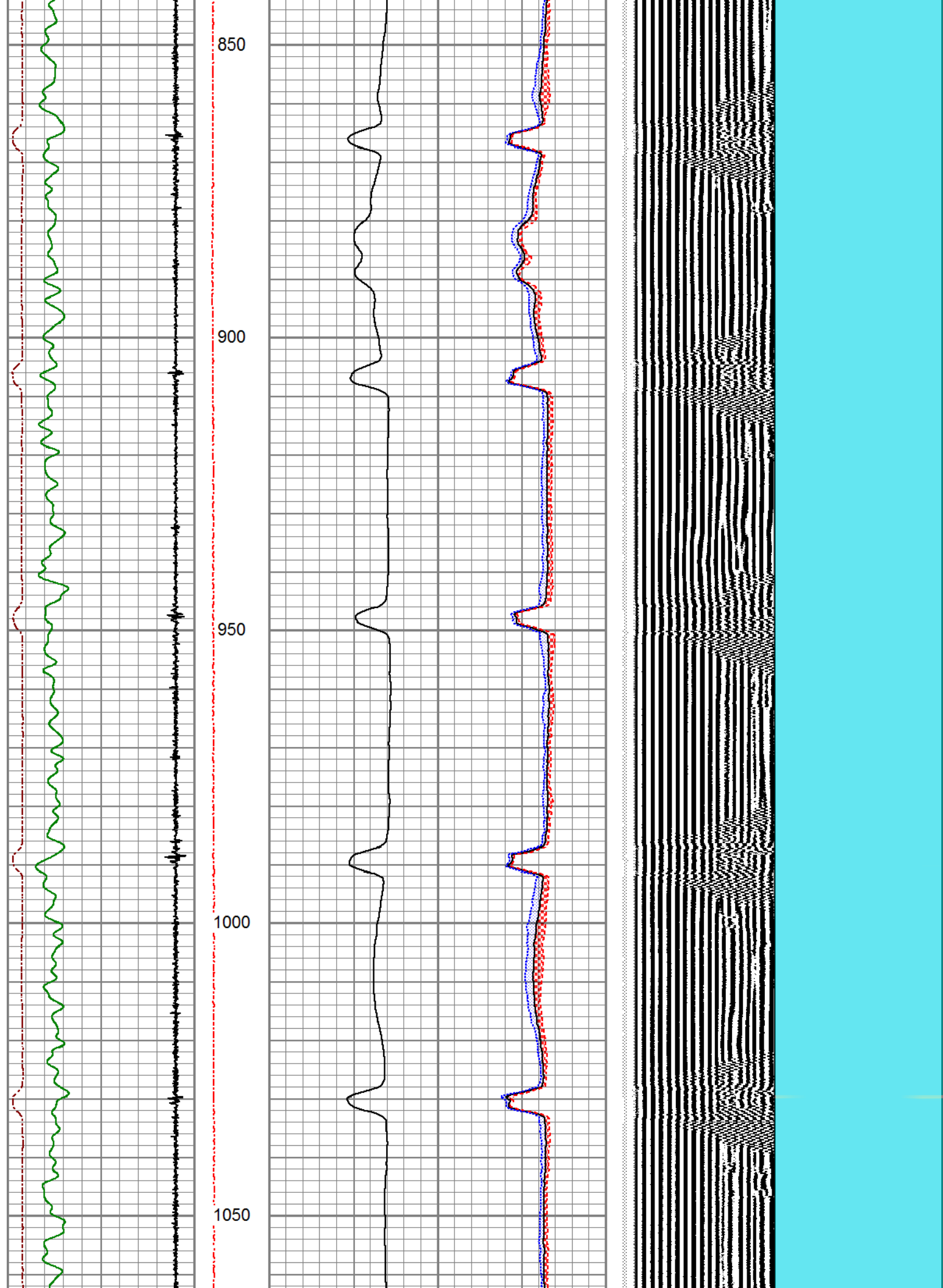
3Ft Travel Time			Line Tension		3' Amplitude		Sector		VDL		1		Sector Map		8	
270	(usec)	170	(lb)	0	(mV)	100	Amplitude Average		200	(usec)	1200					
-9	Collar Locator	1	0	2000	3' Amplified Amplitude X 5		0		150							
Gamma Ray							Sector									
0	(GAPI)	150			0		(mV)		20		Amplitude Maximum					
							0		150							
							Sector									
							Amplitude Minimum									
							0		150							

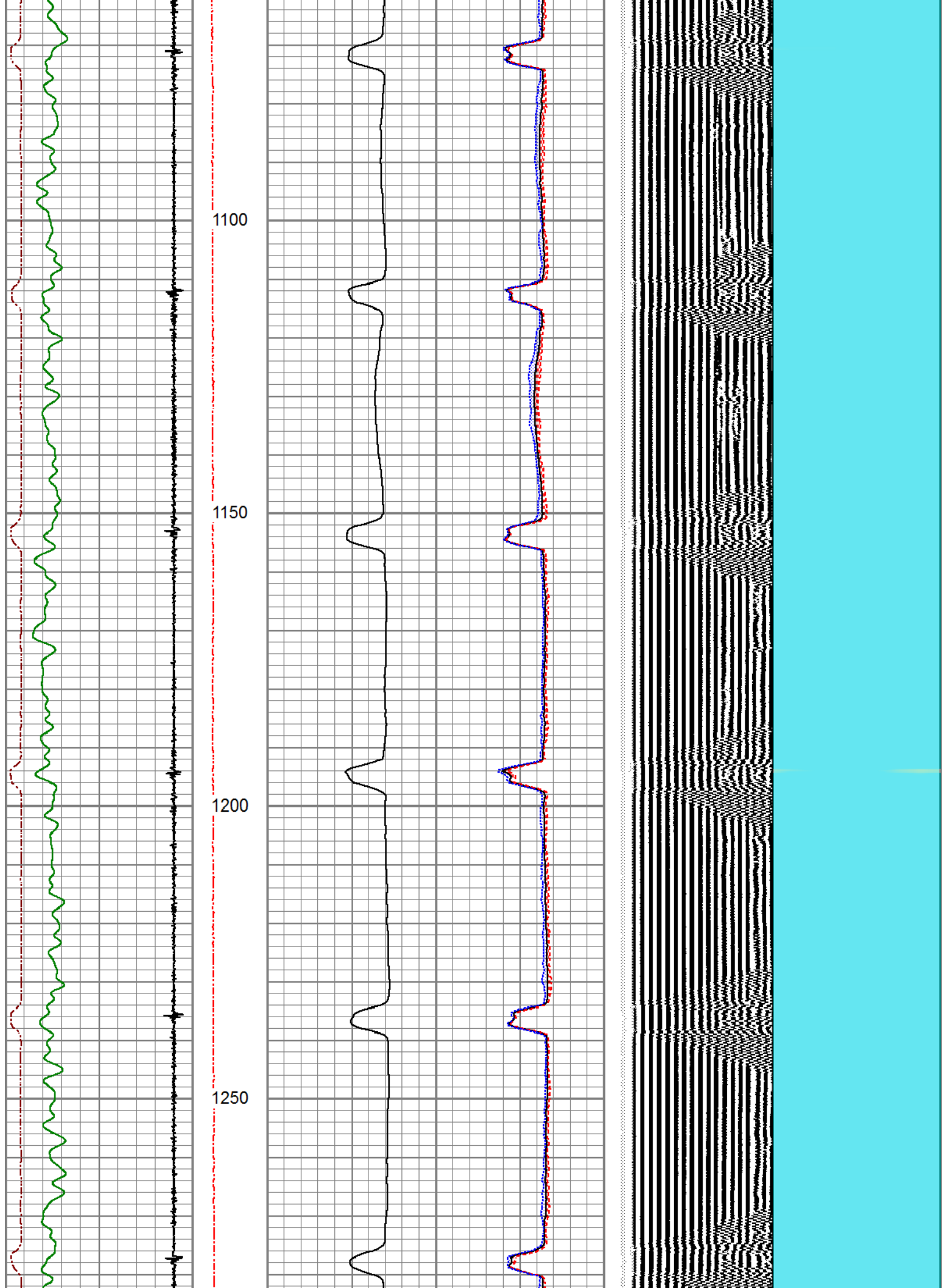


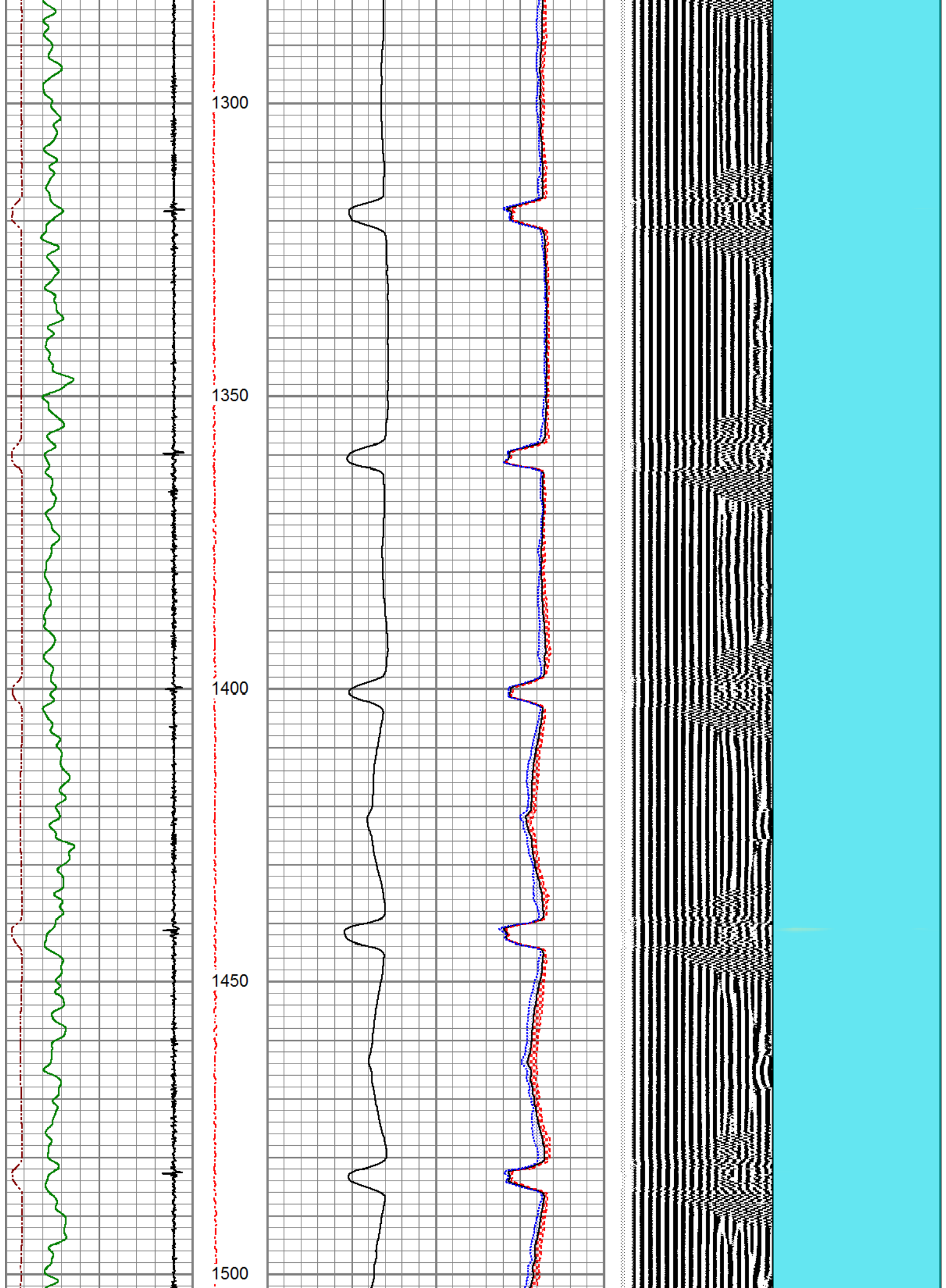


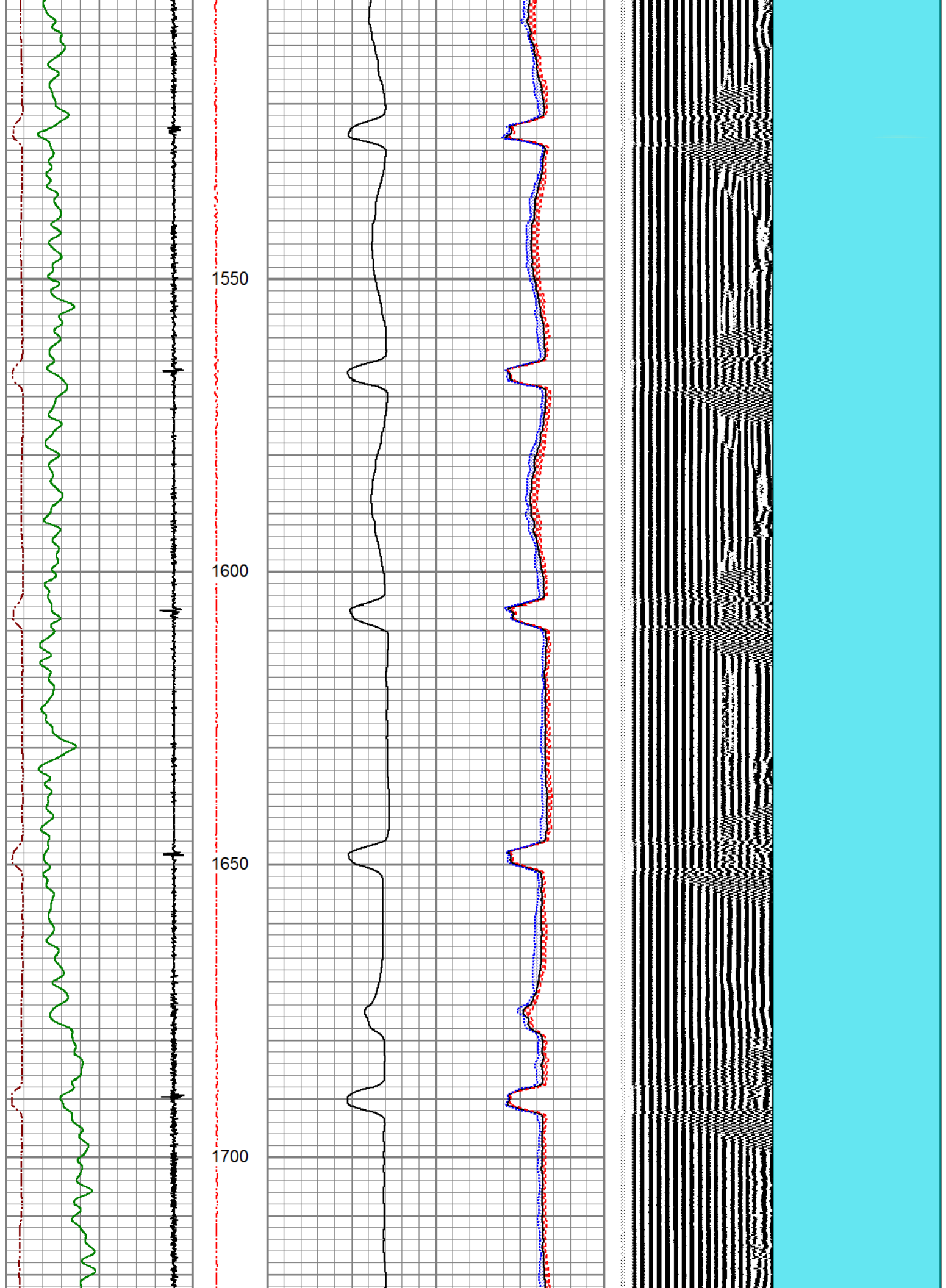


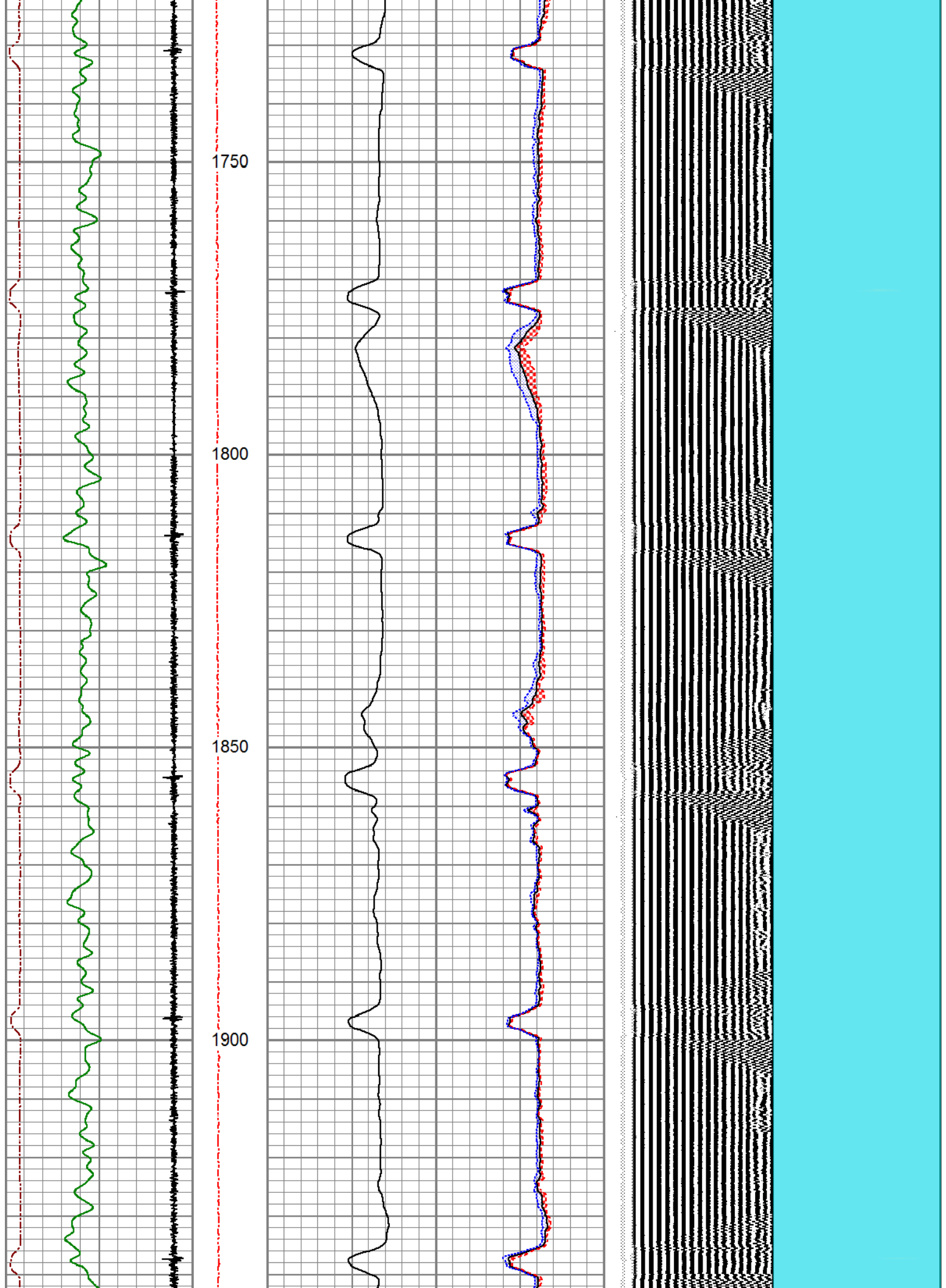


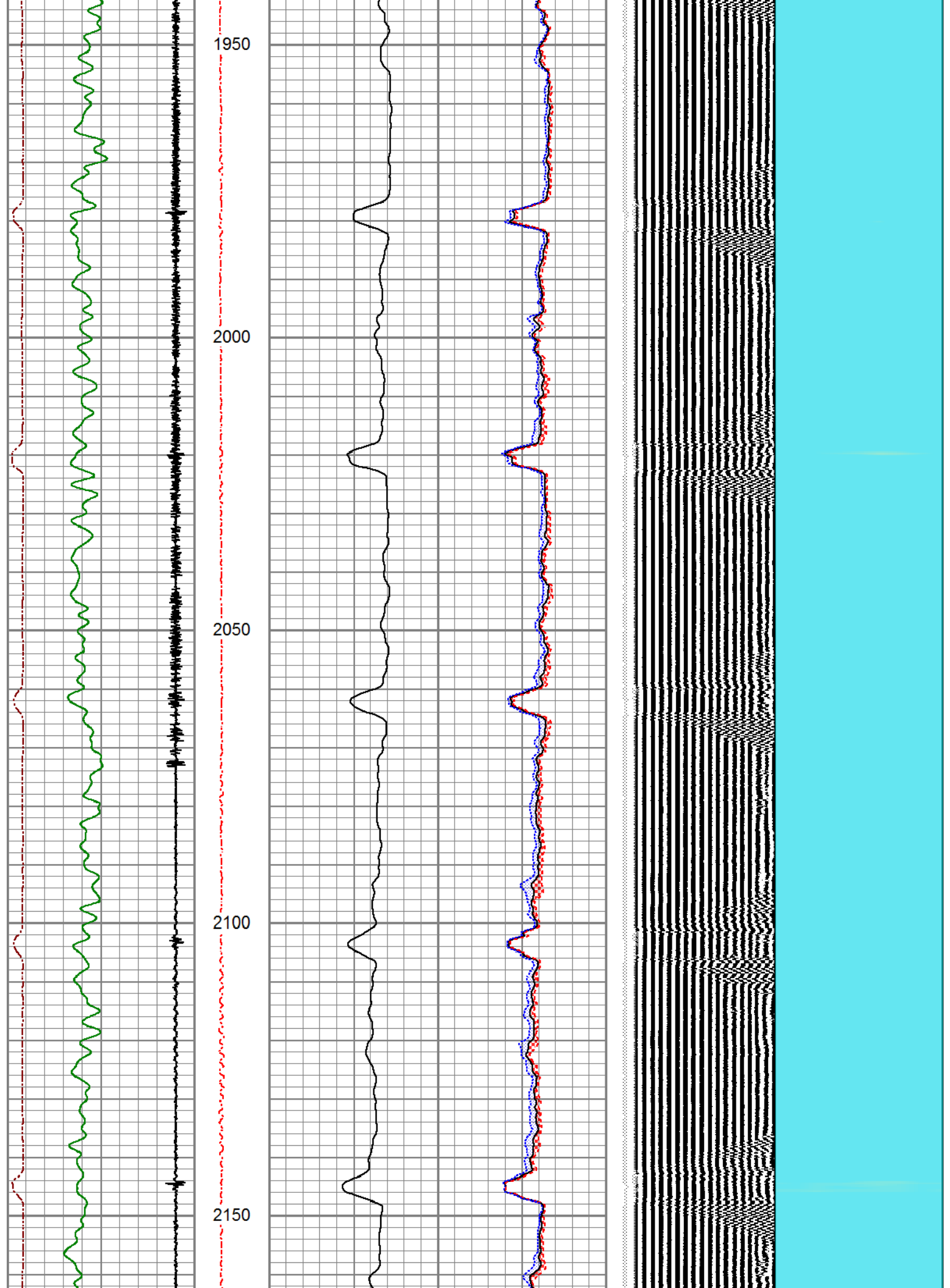


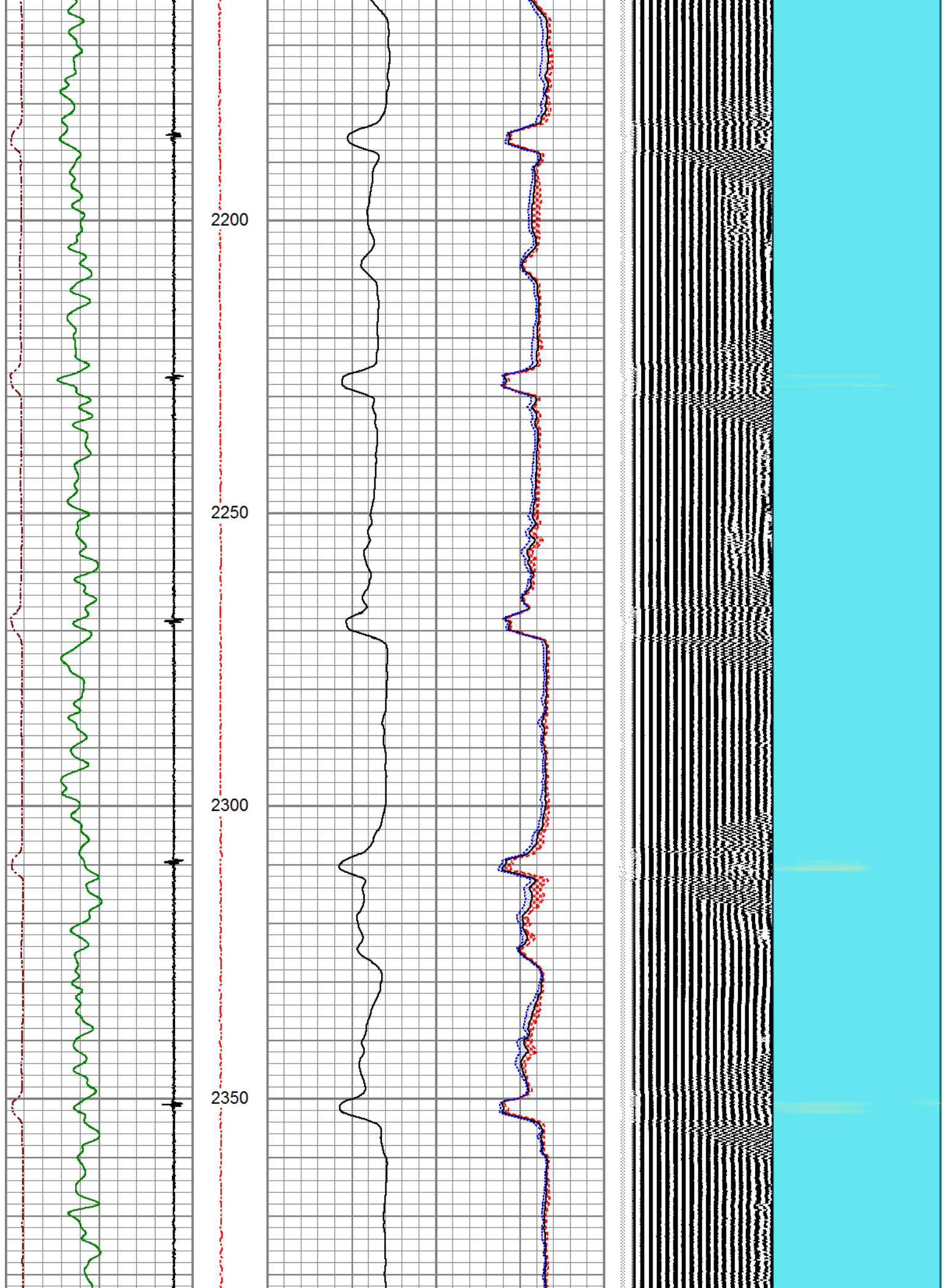


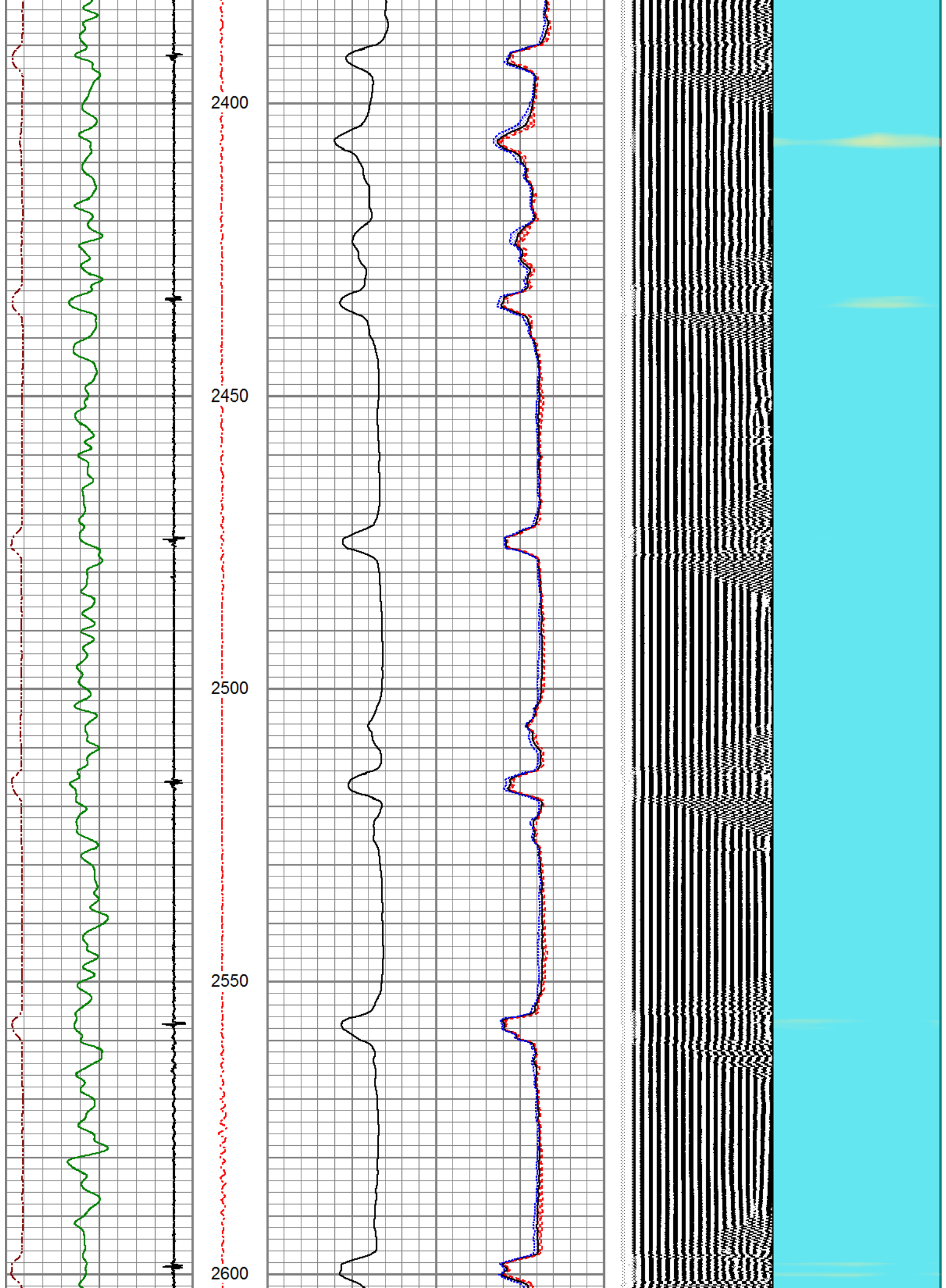


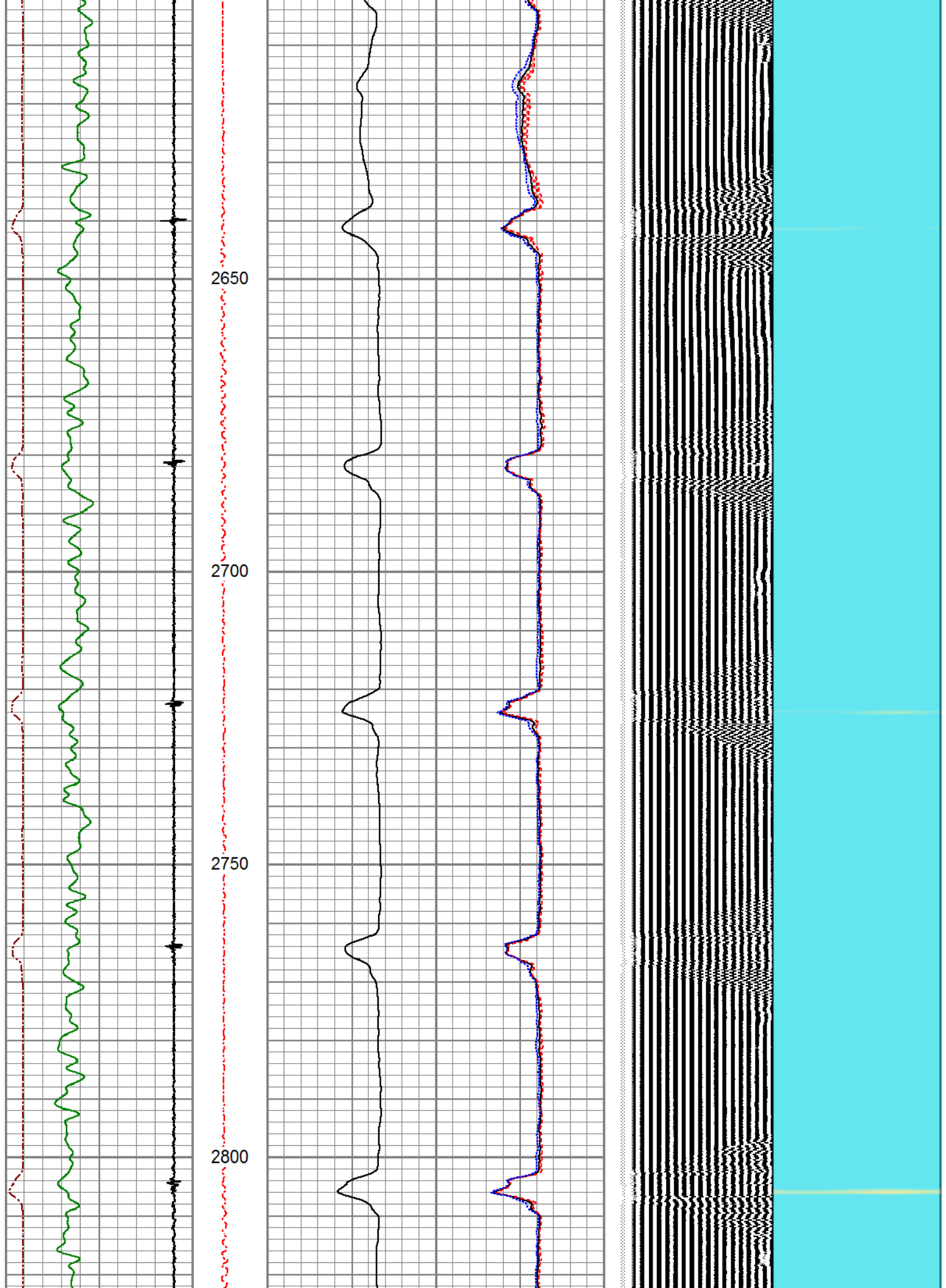


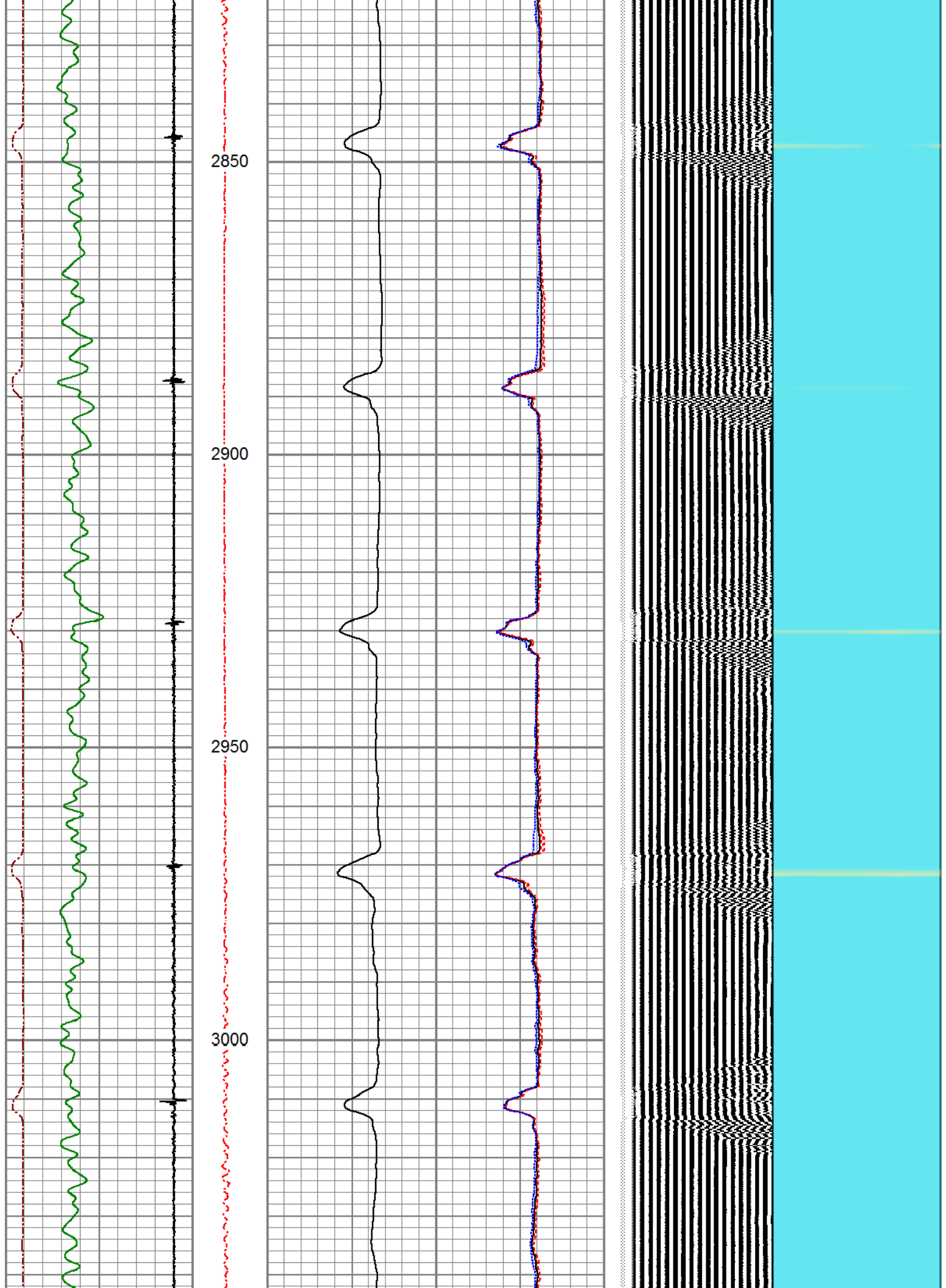


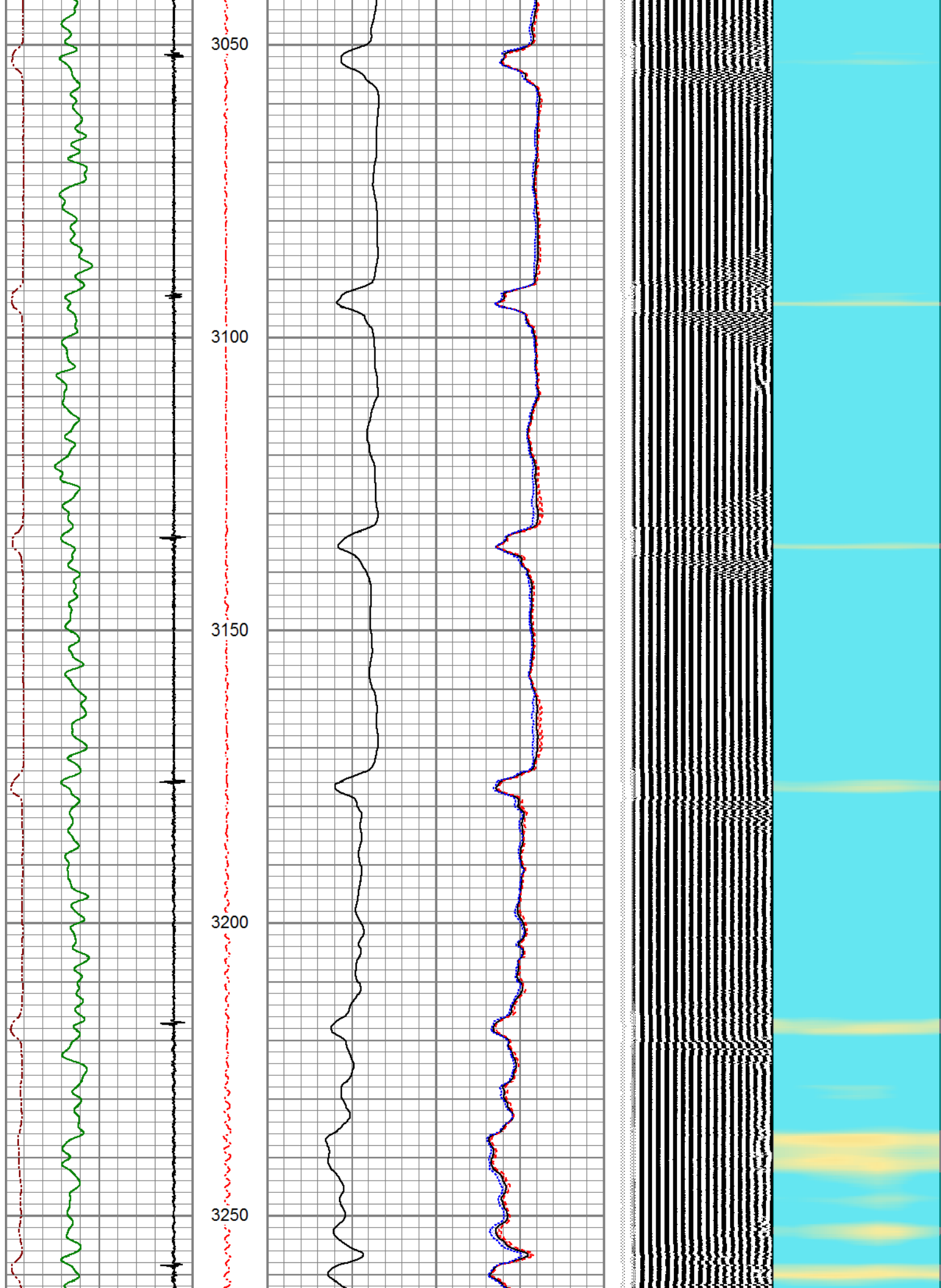


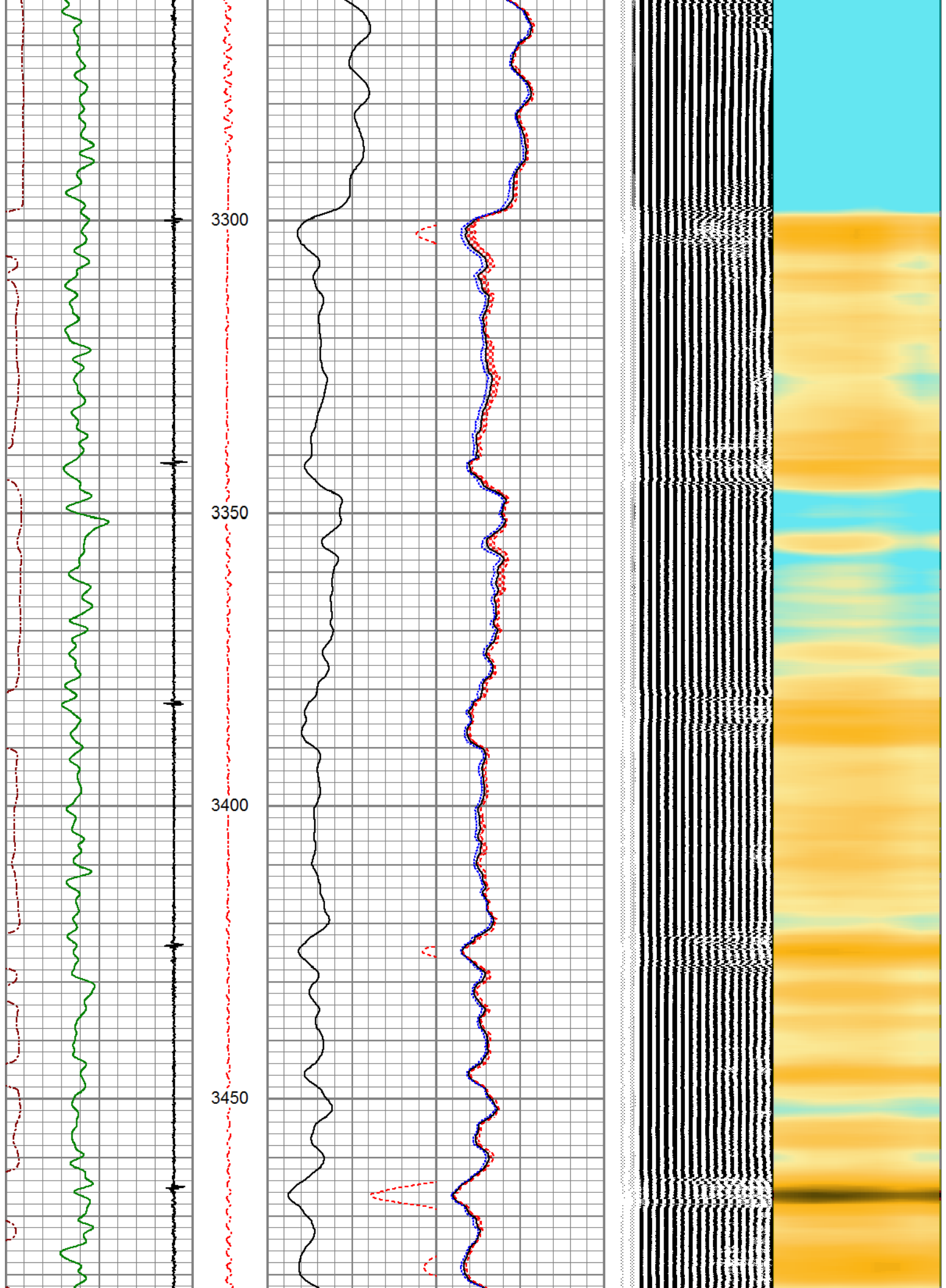


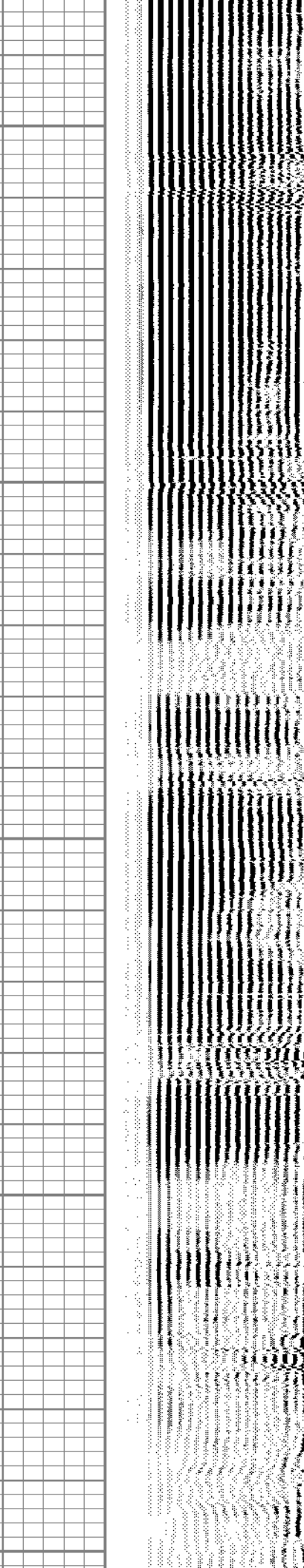
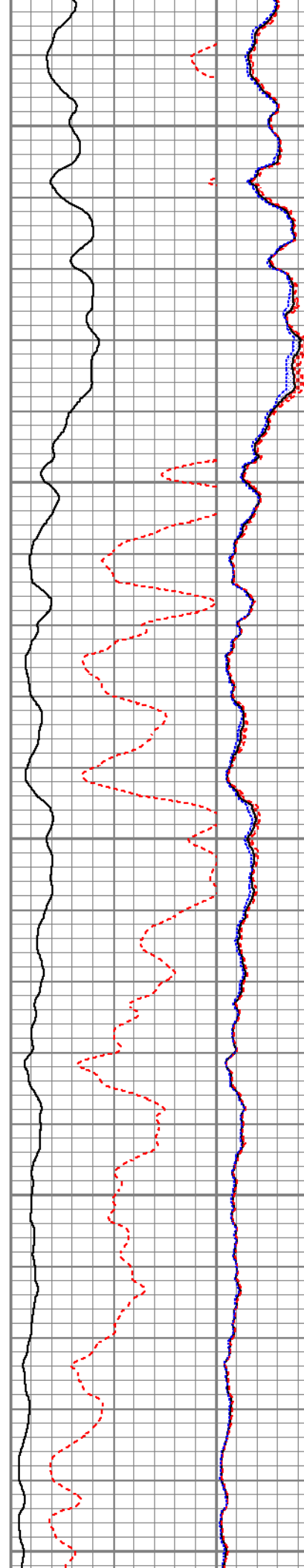
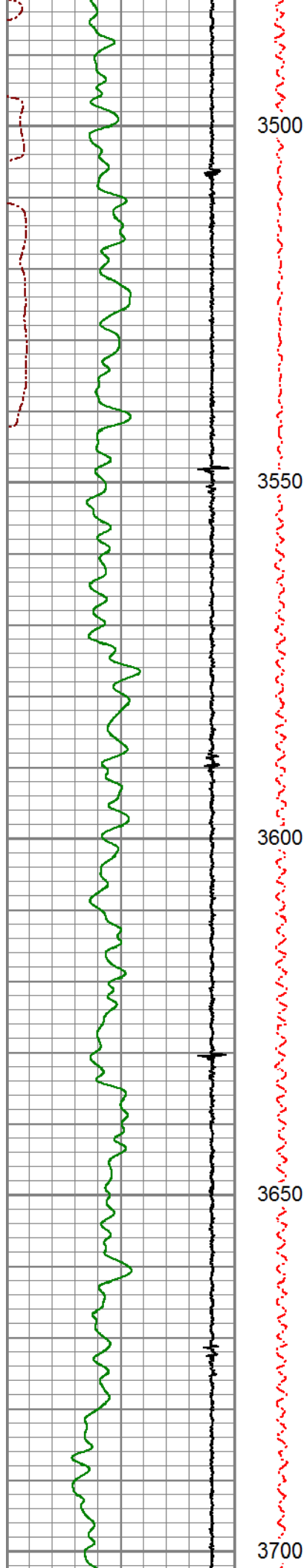


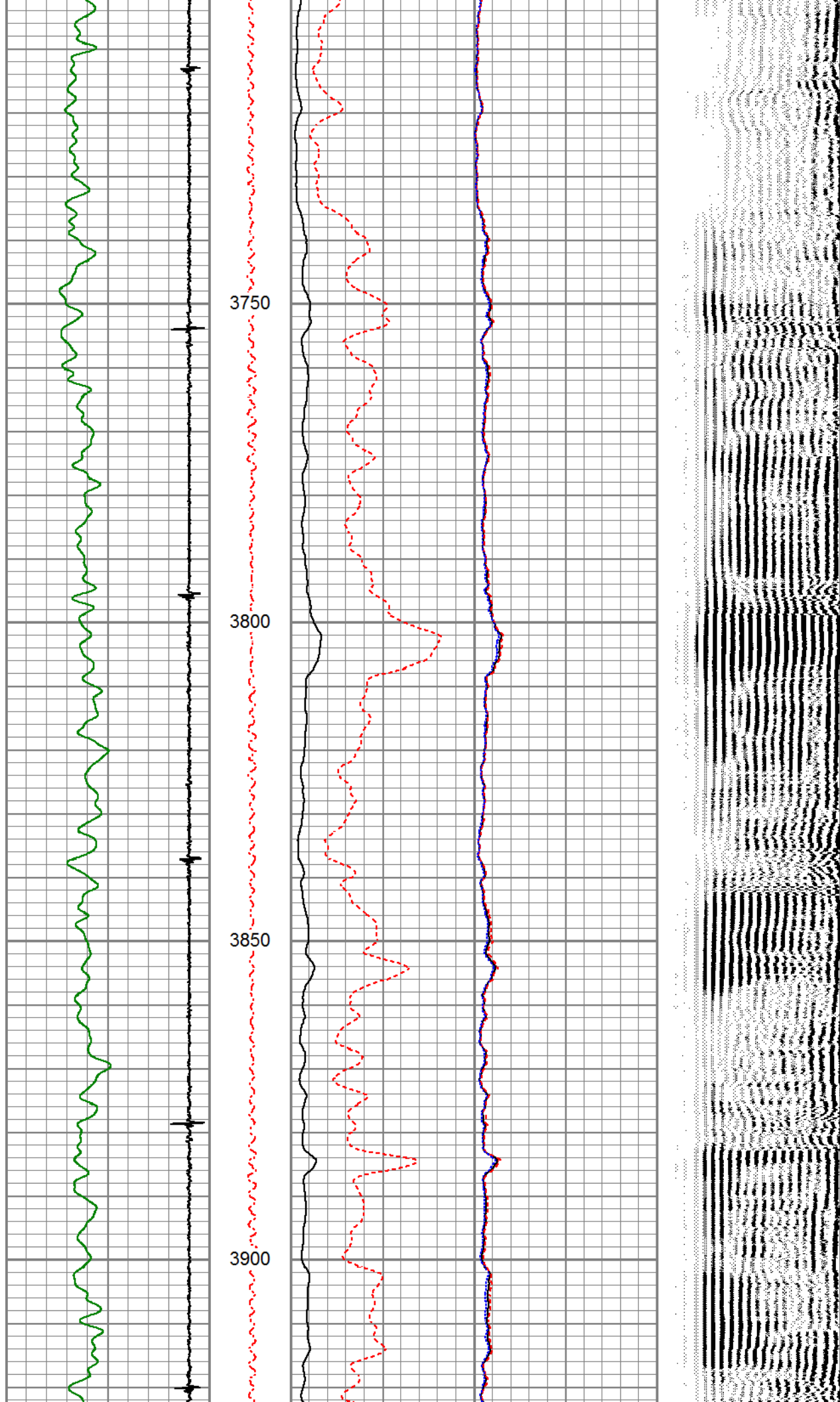


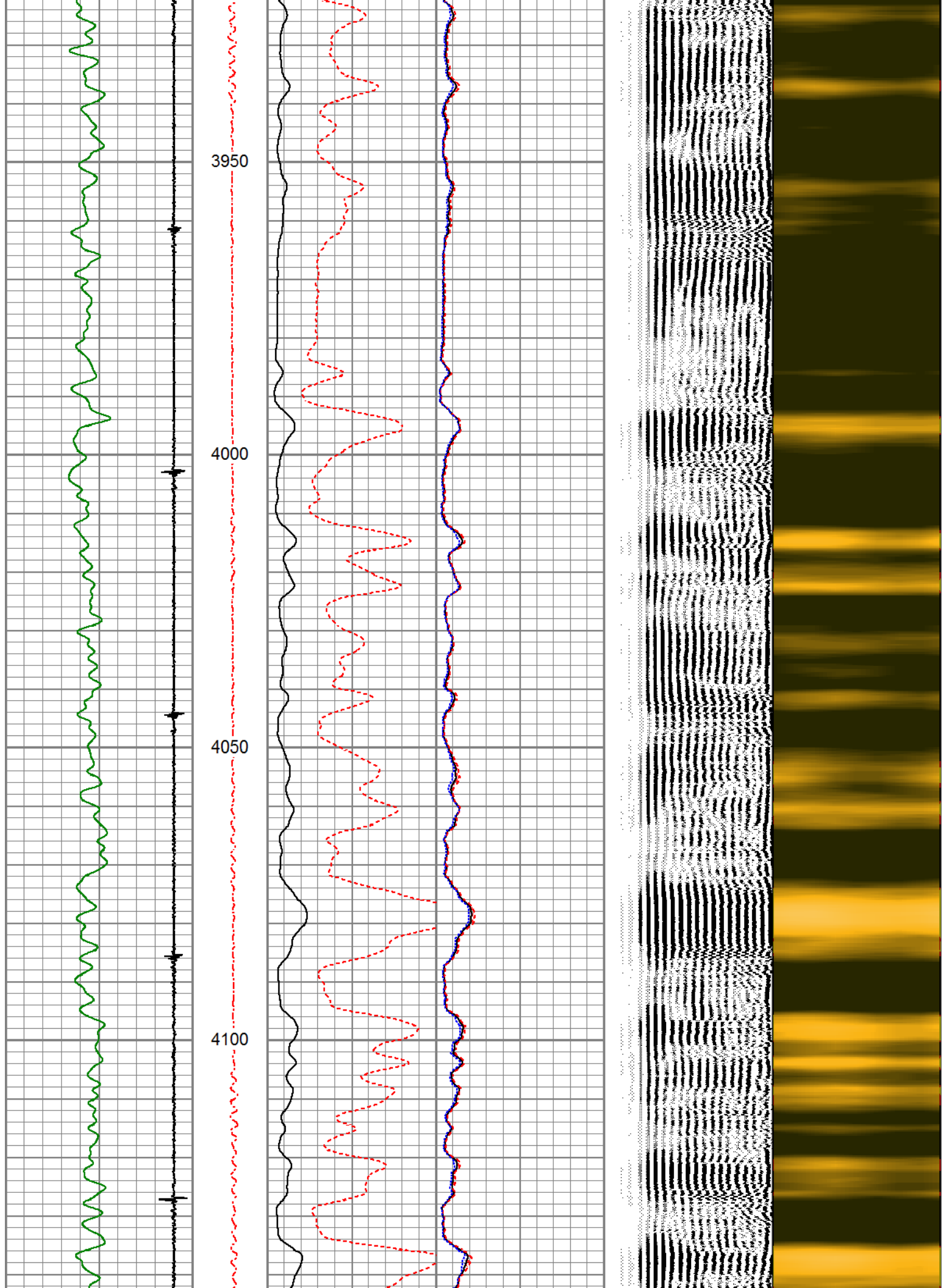


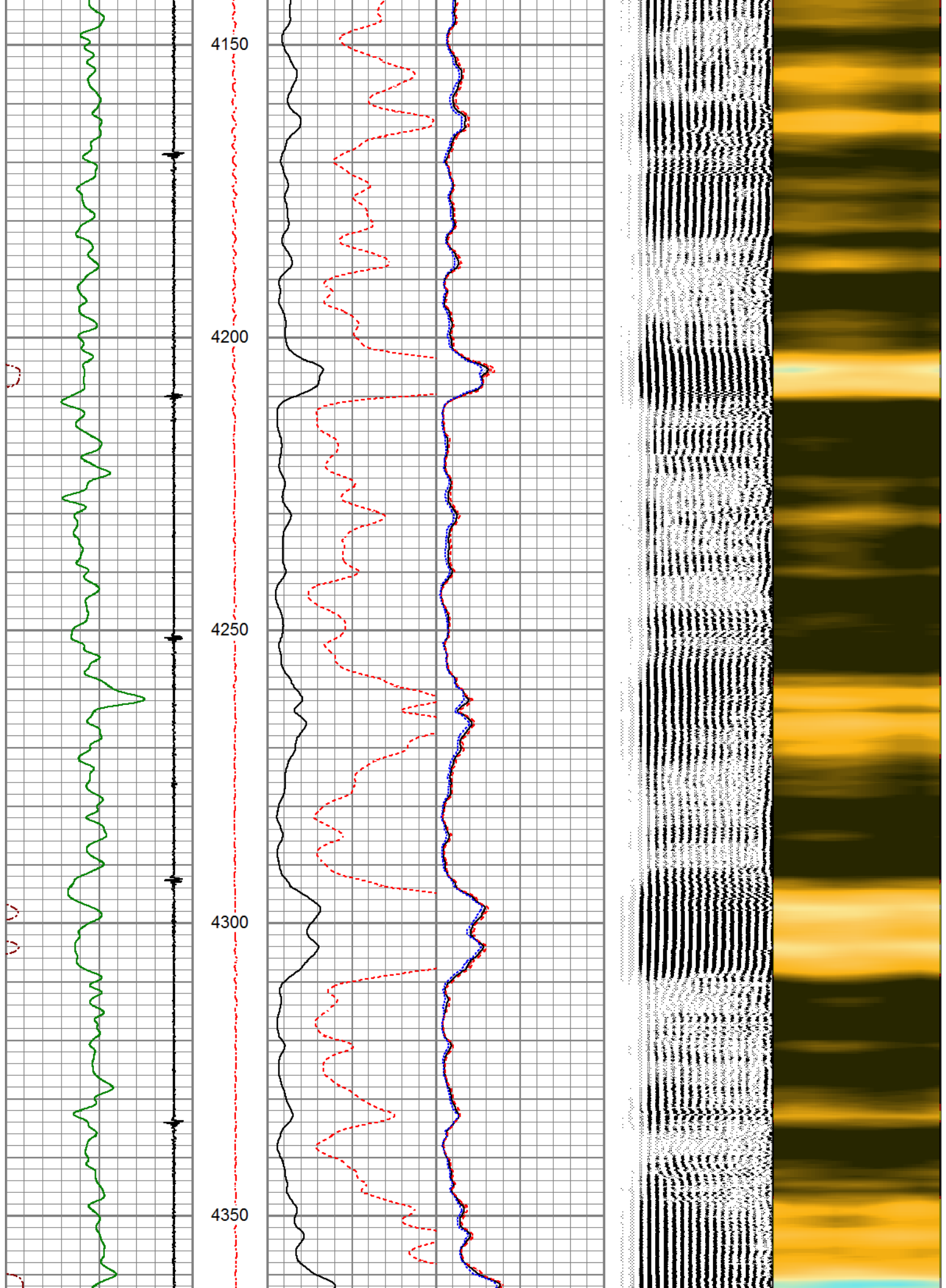


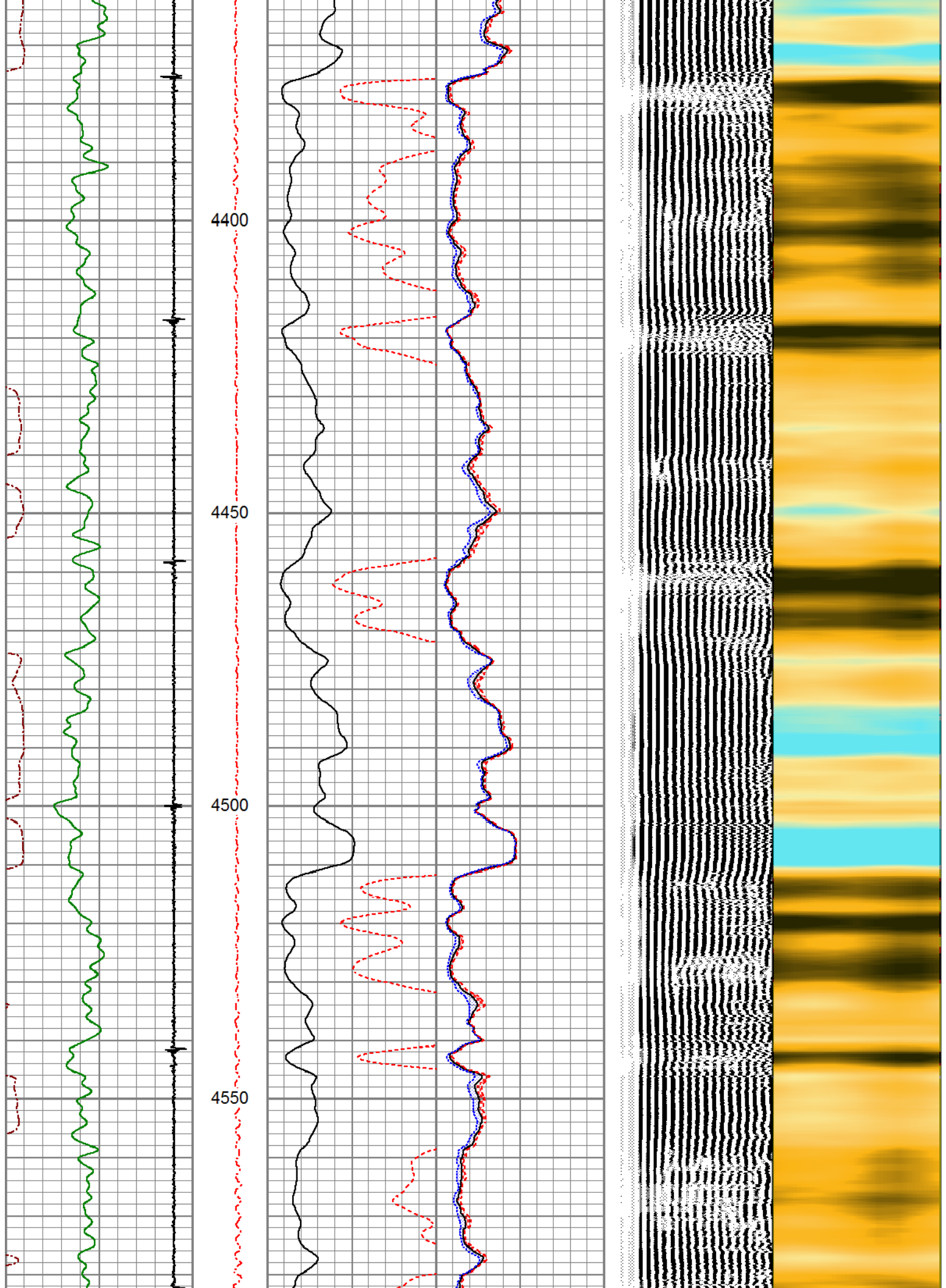


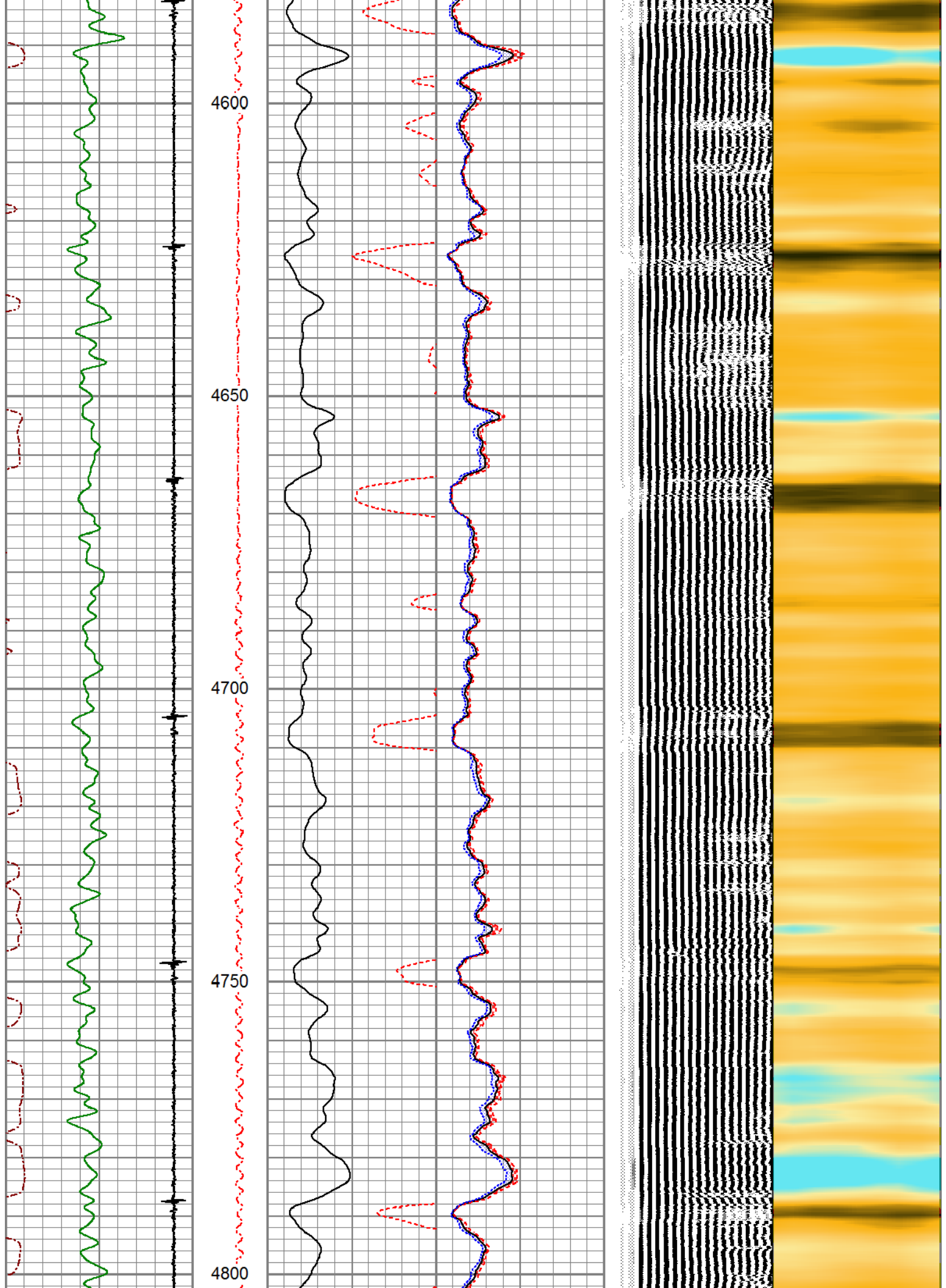


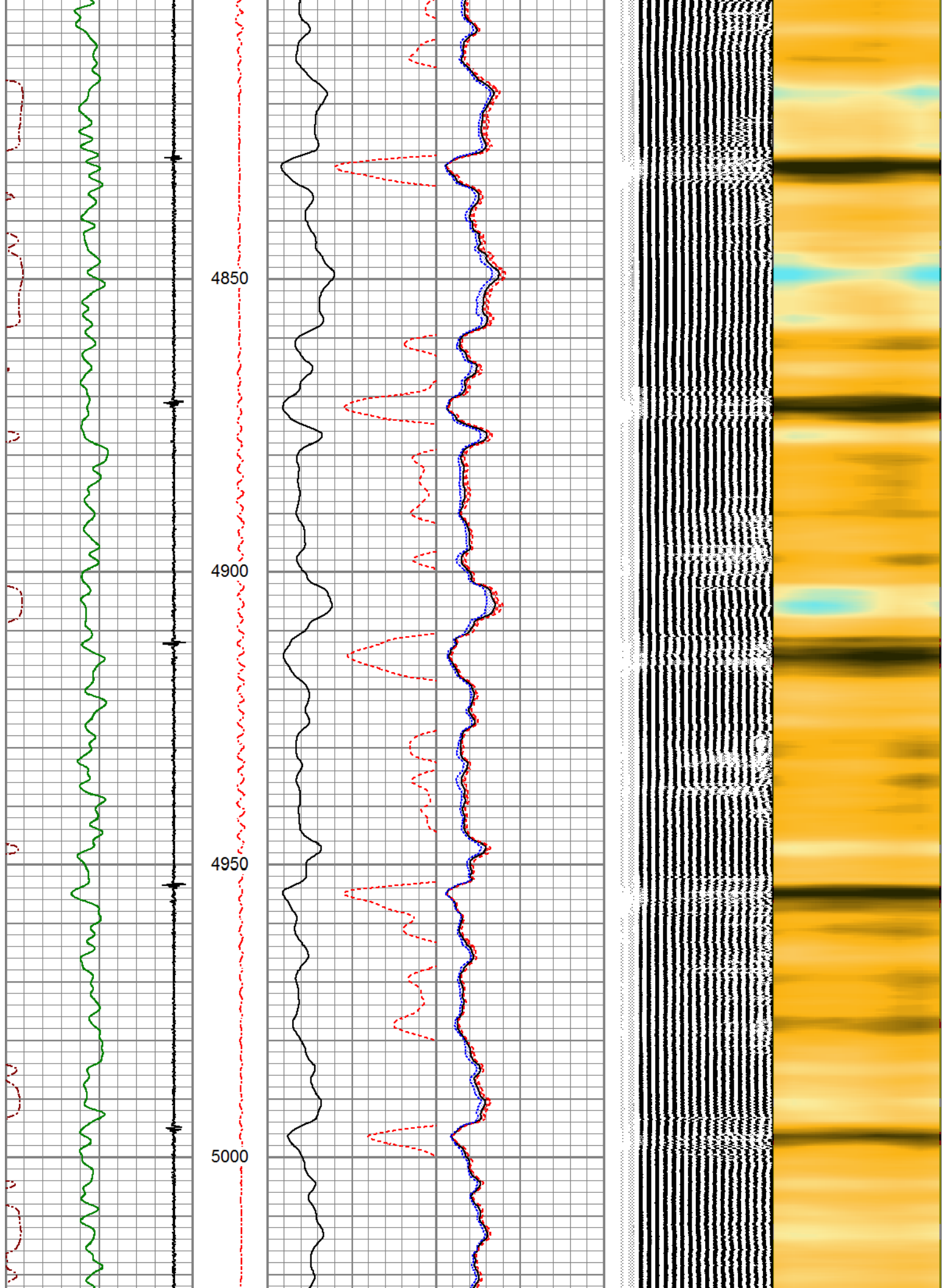


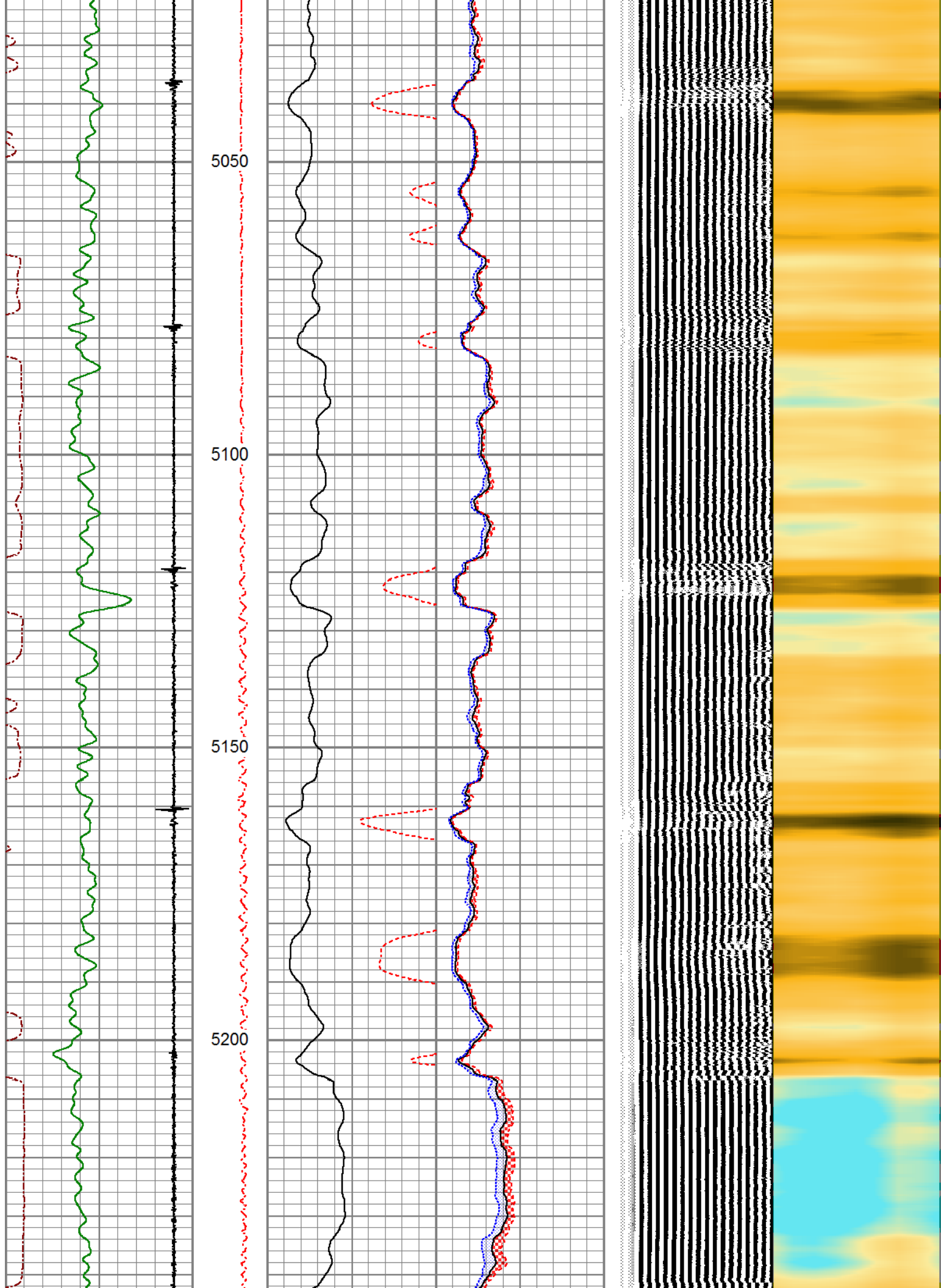


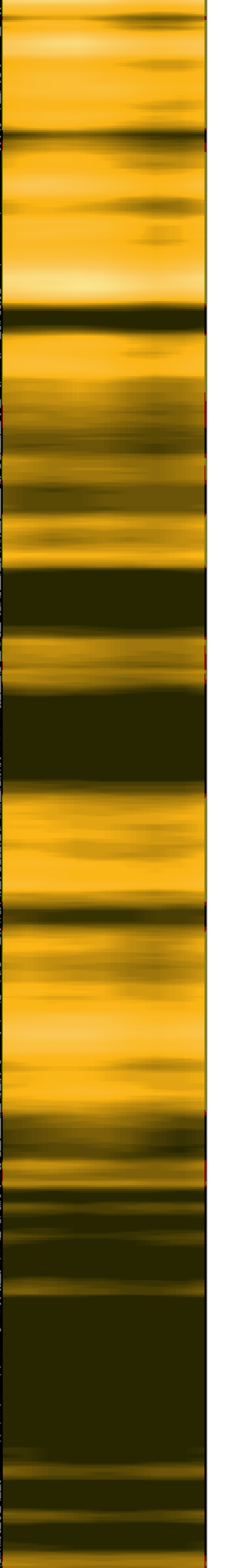
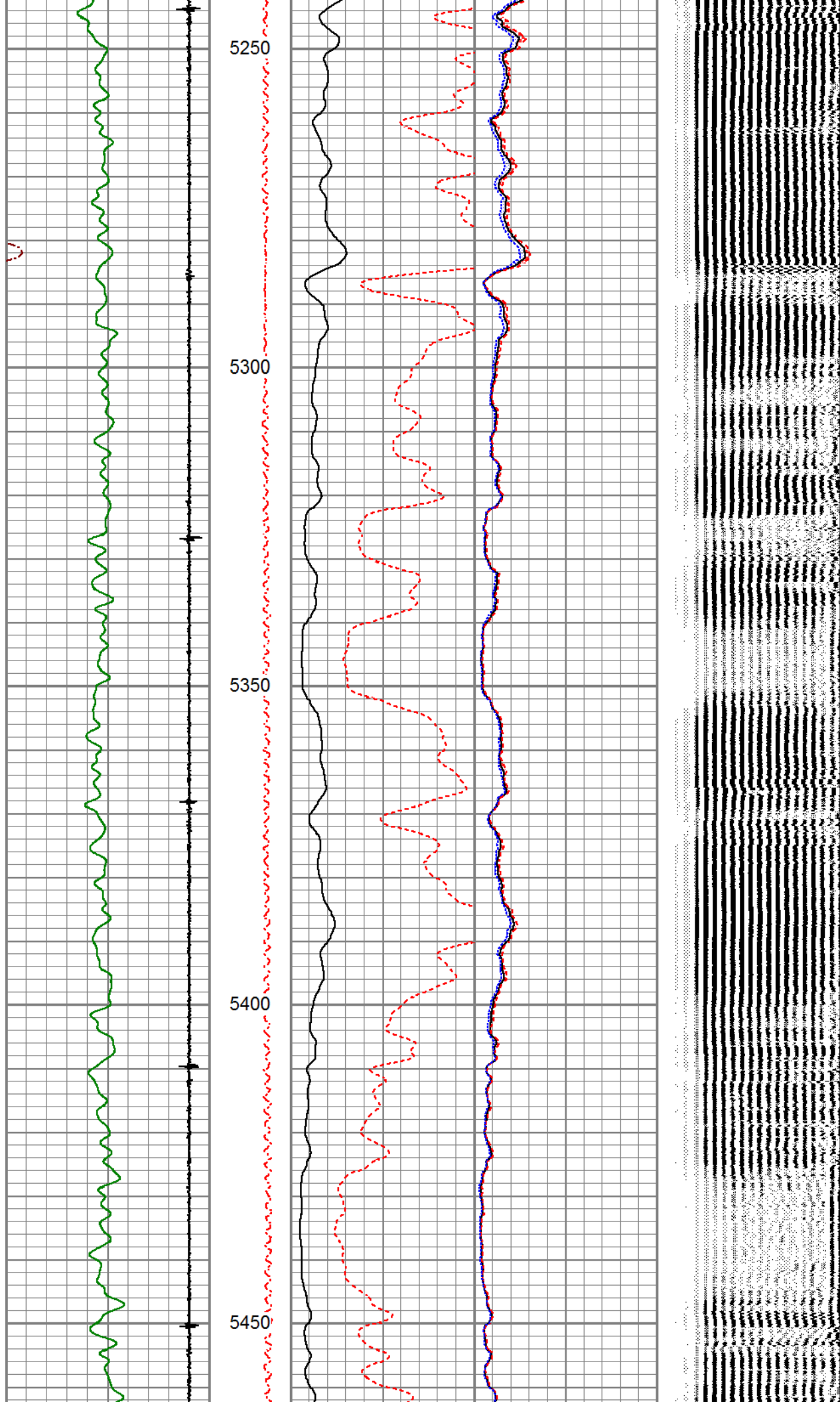


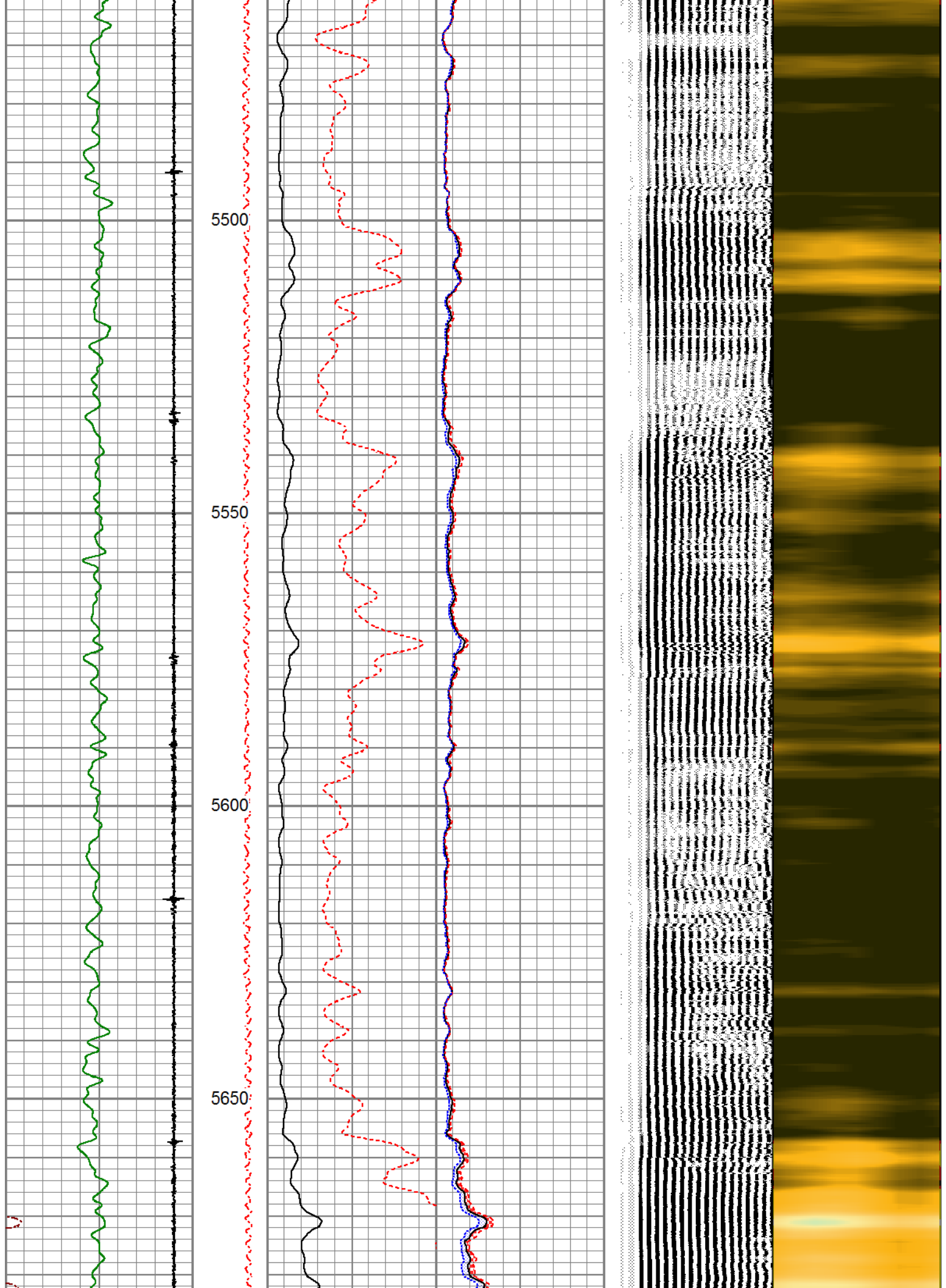


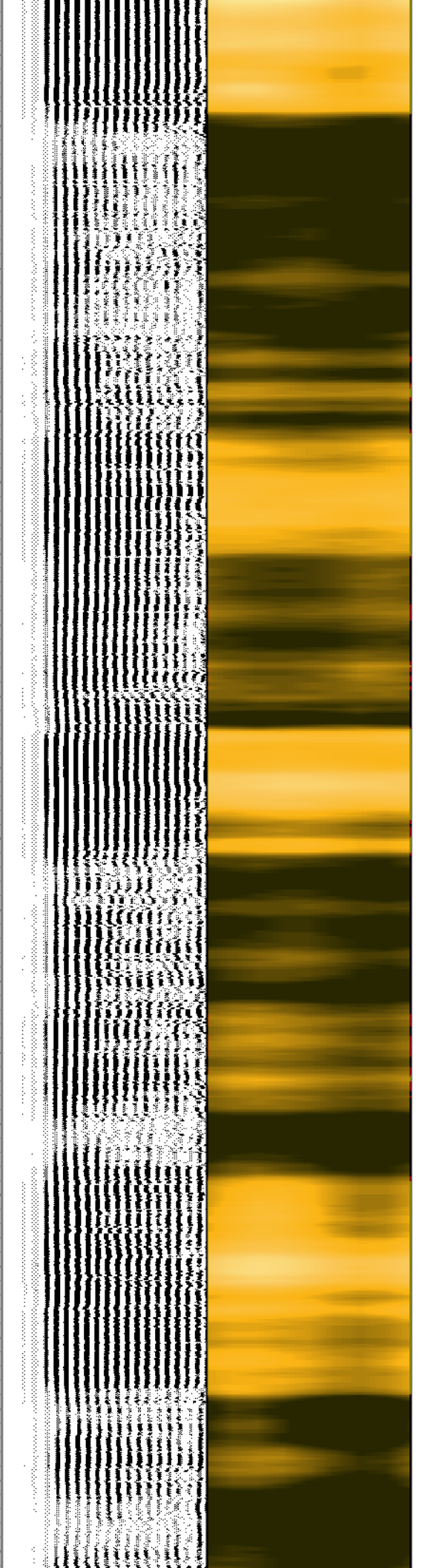
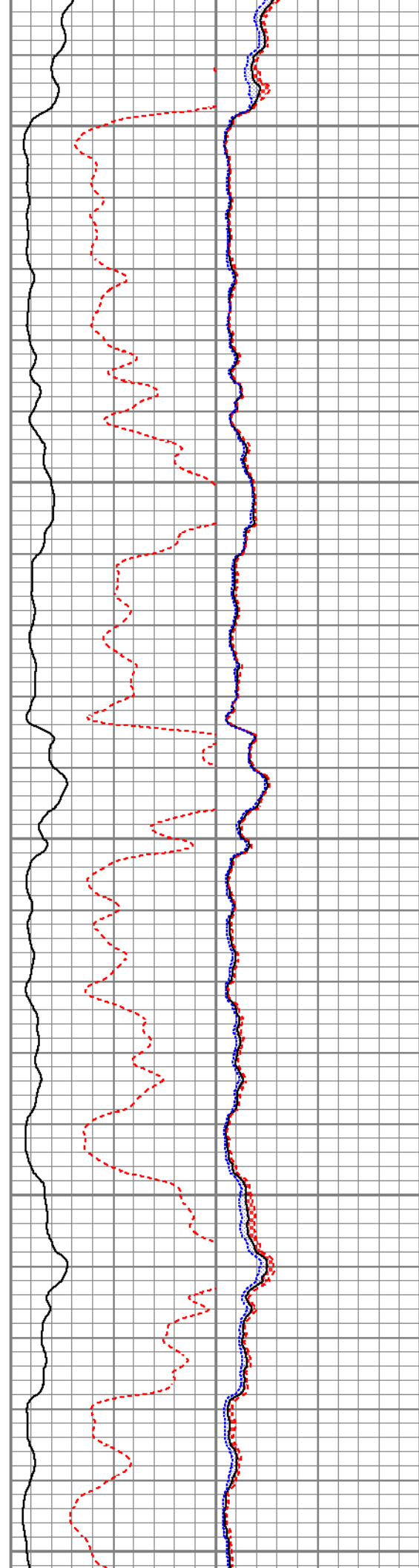
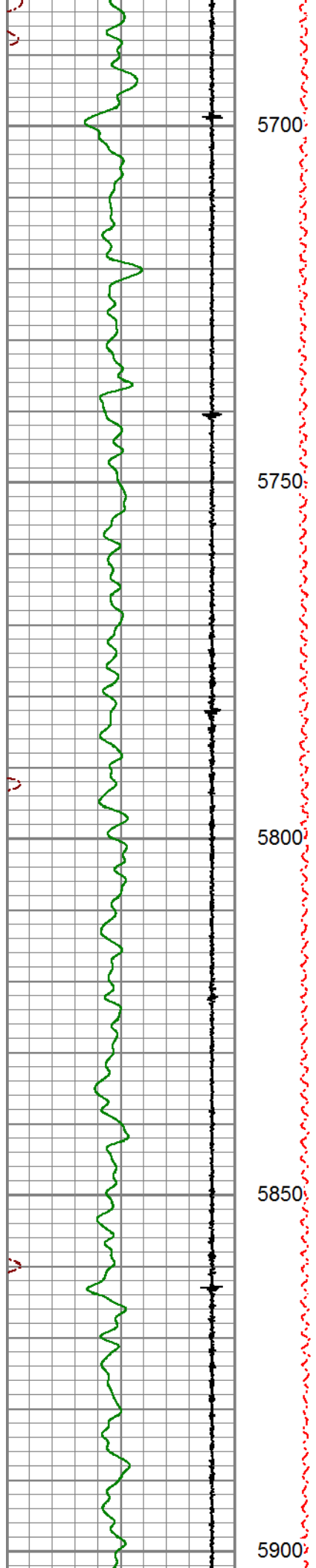


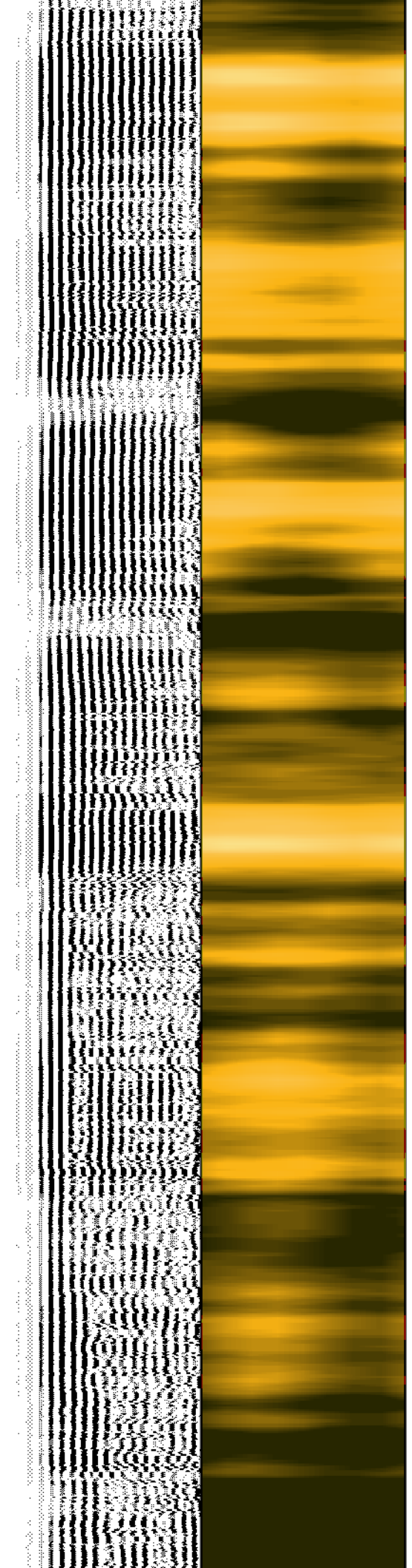
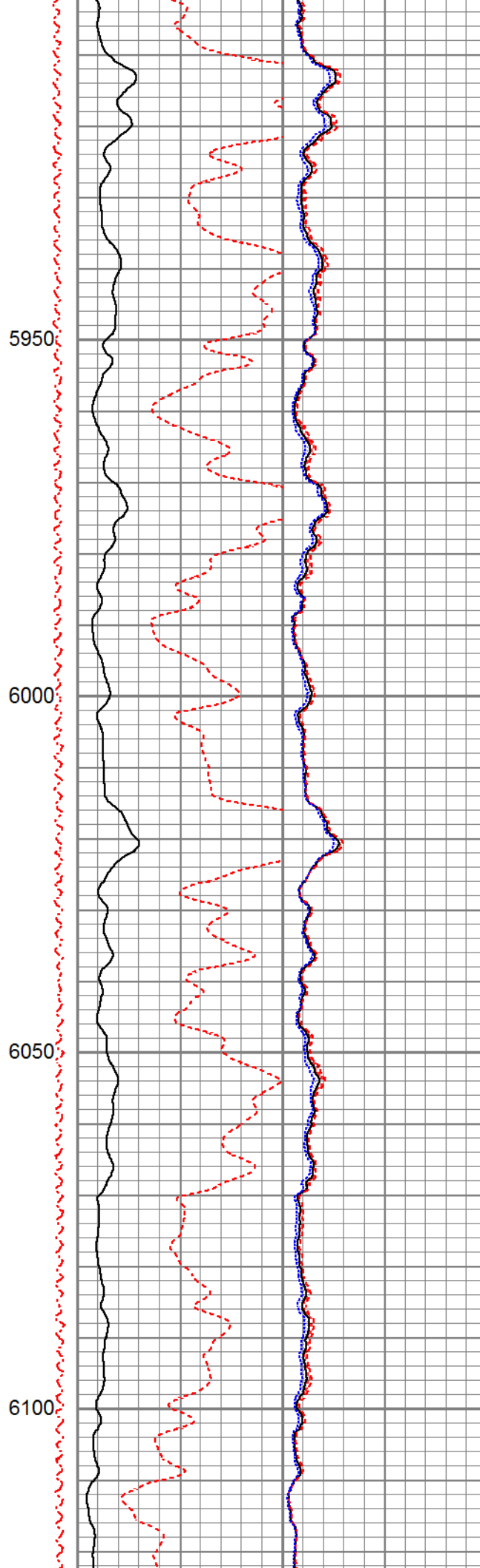
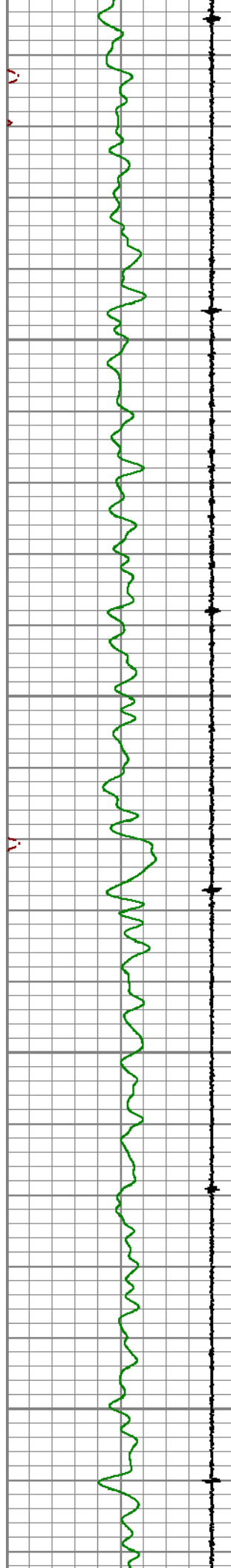


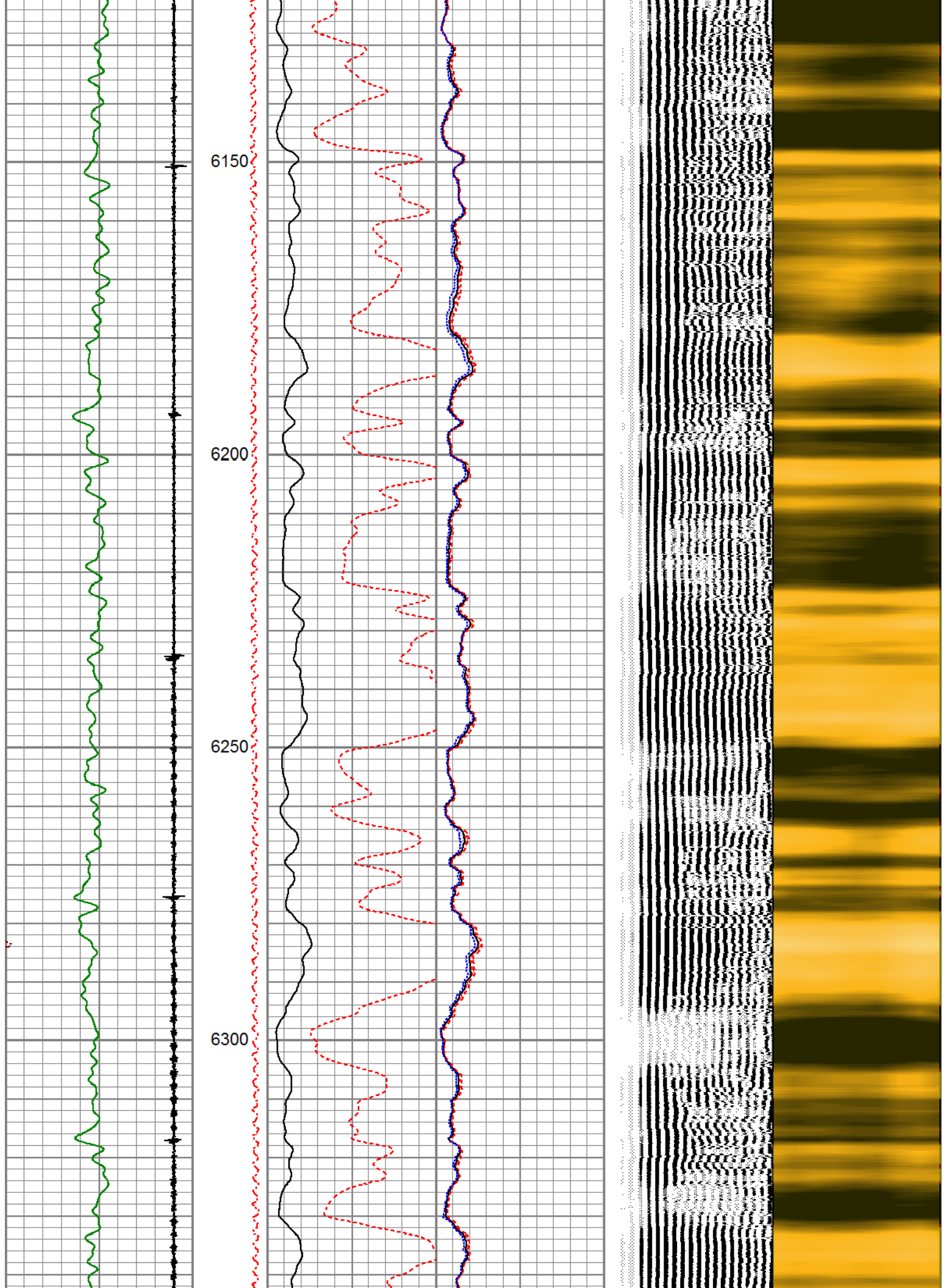


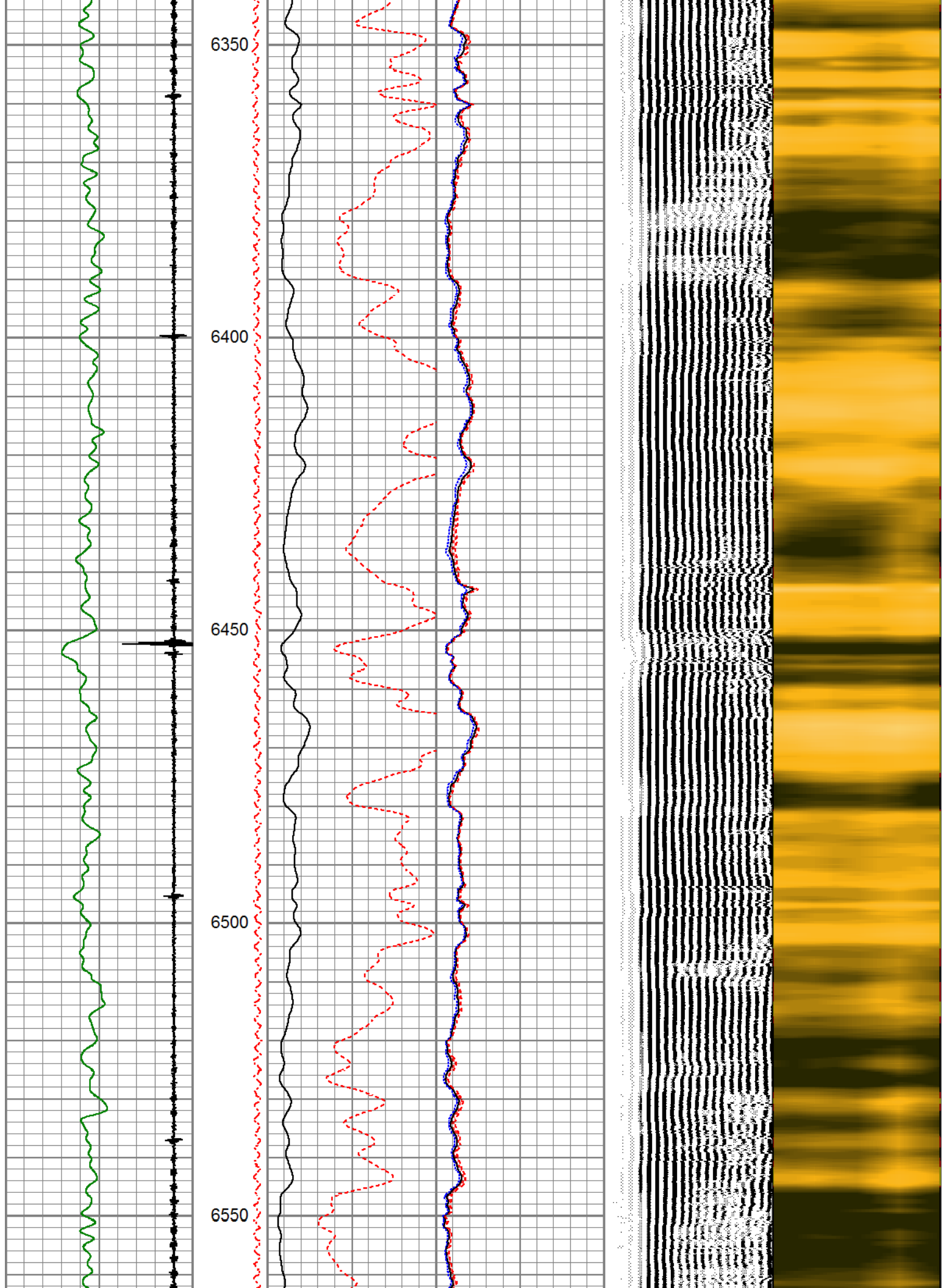










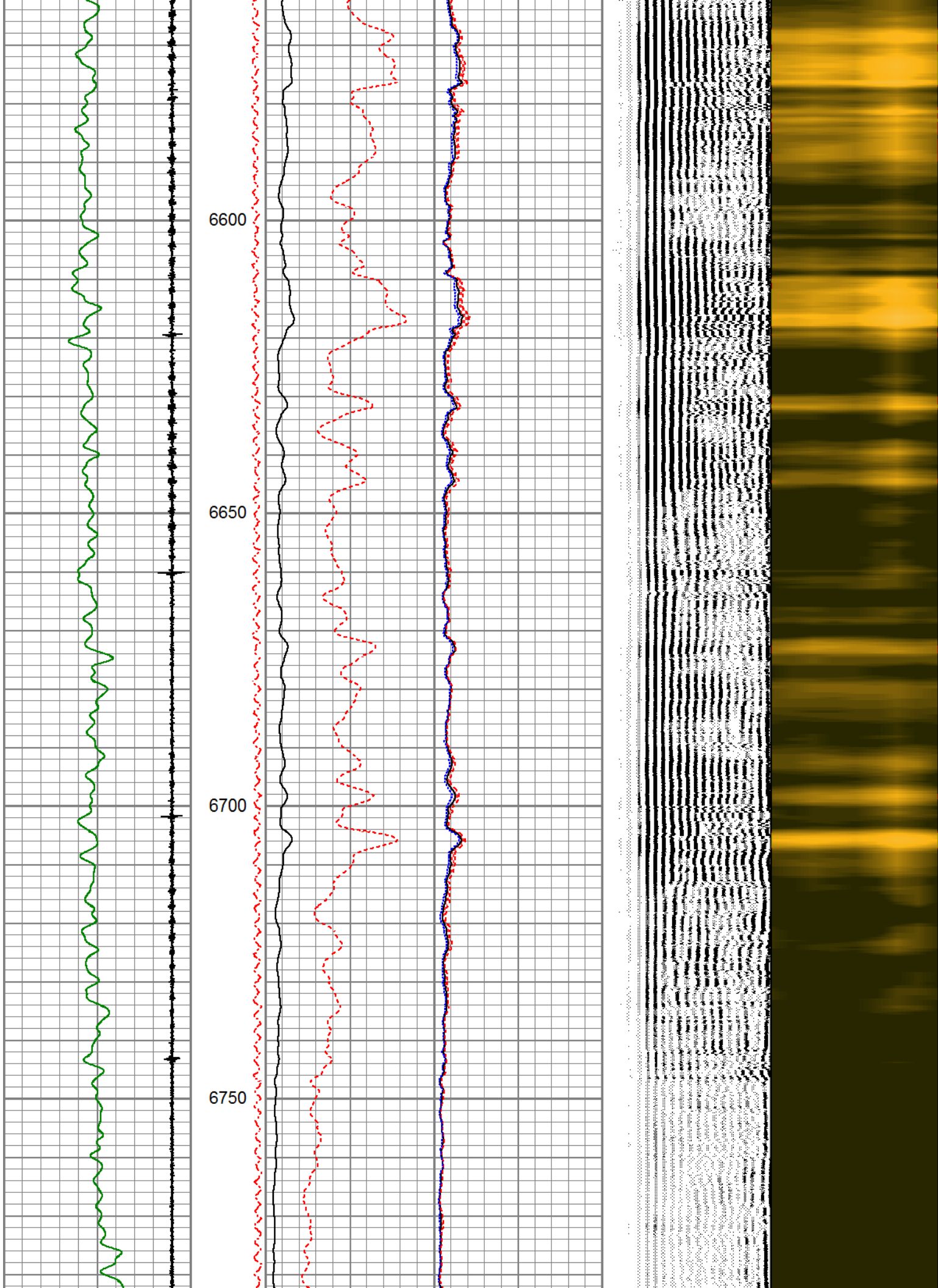


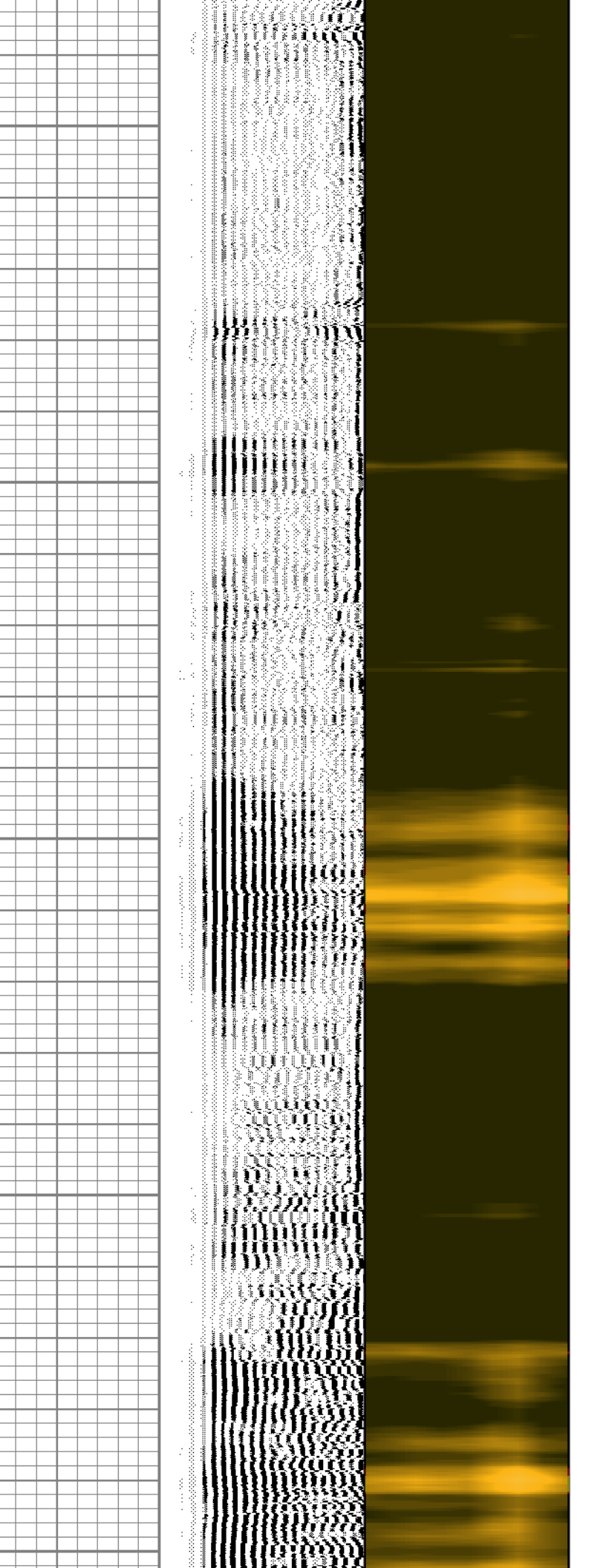
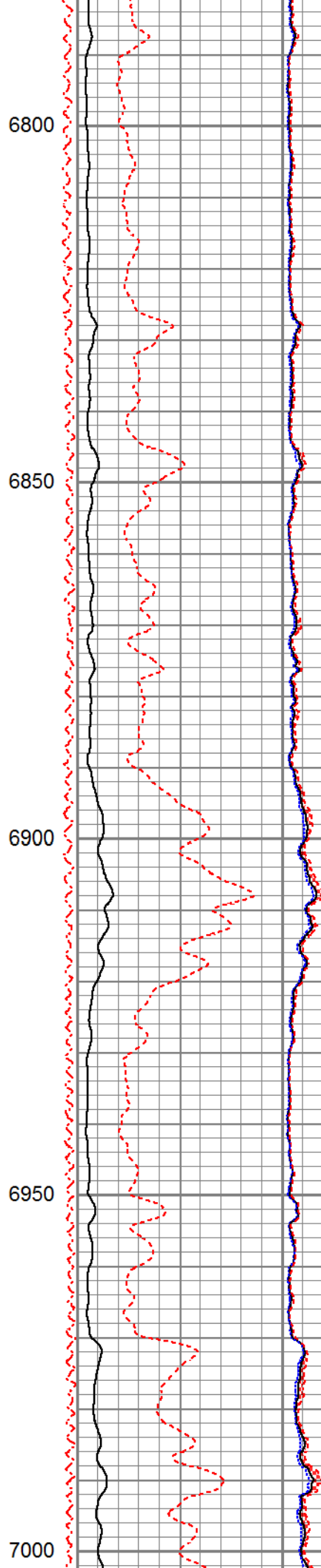
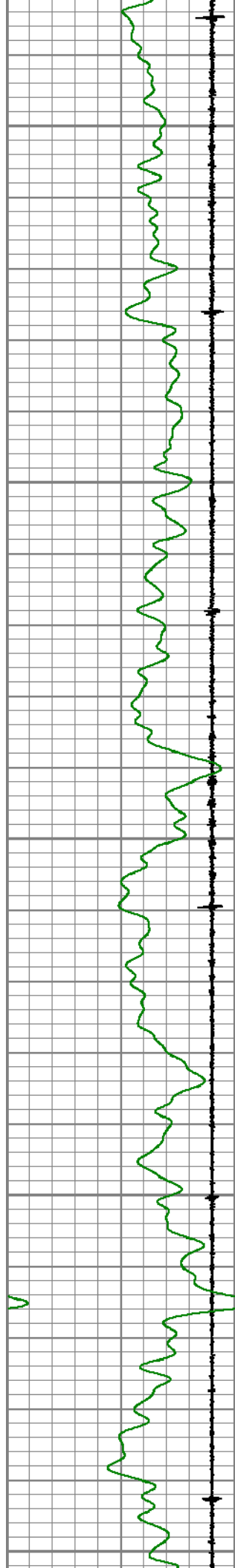
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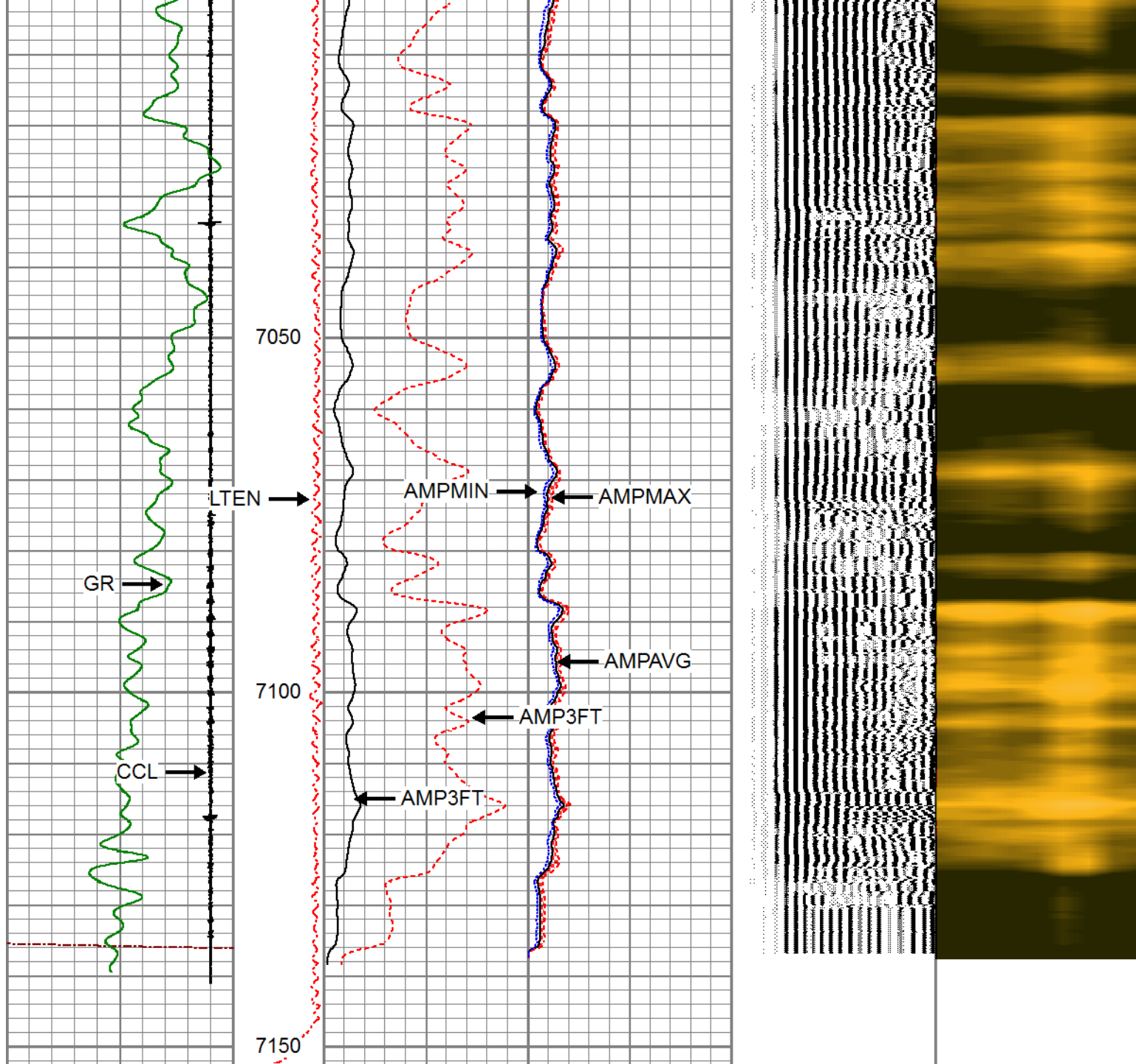
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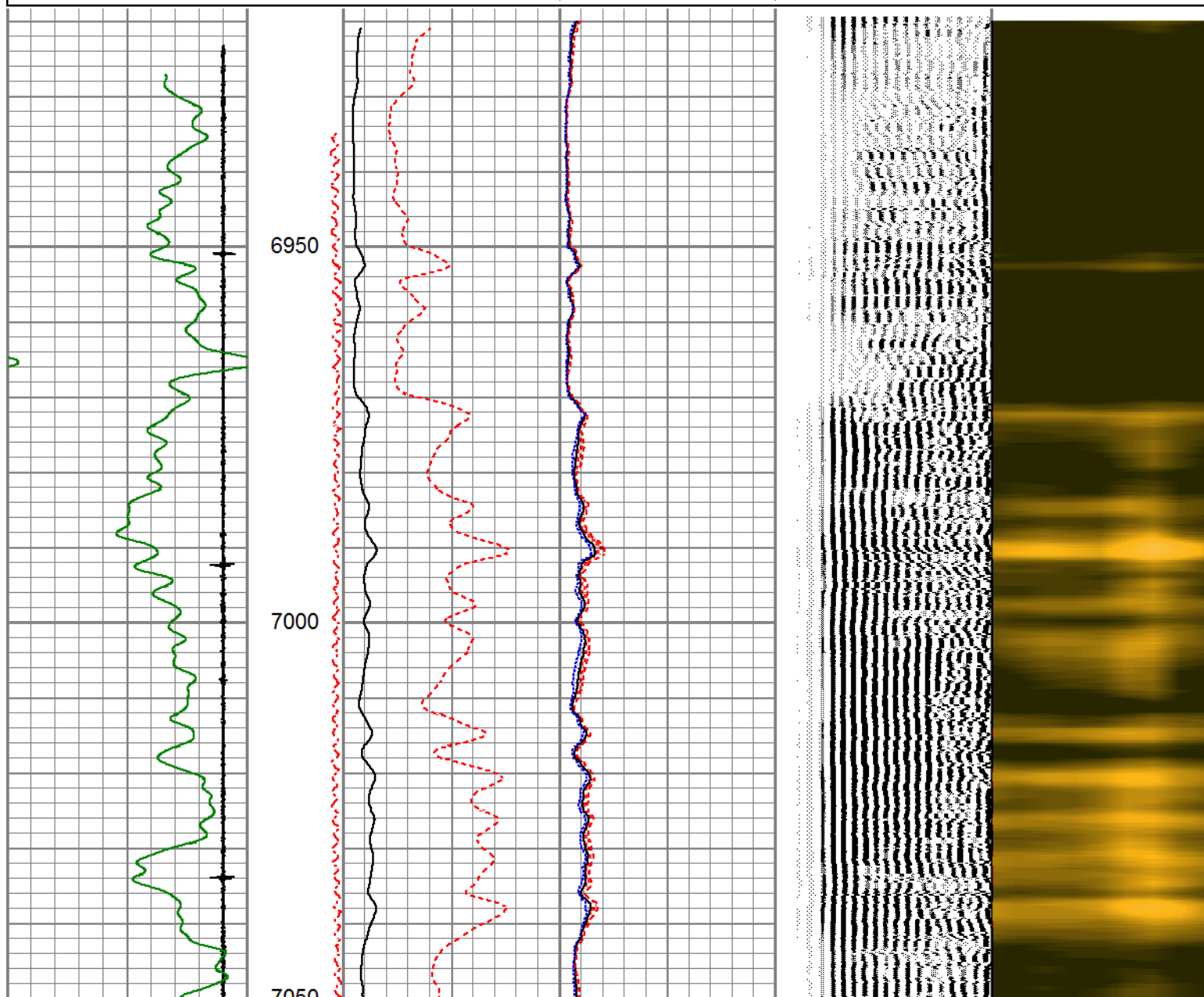


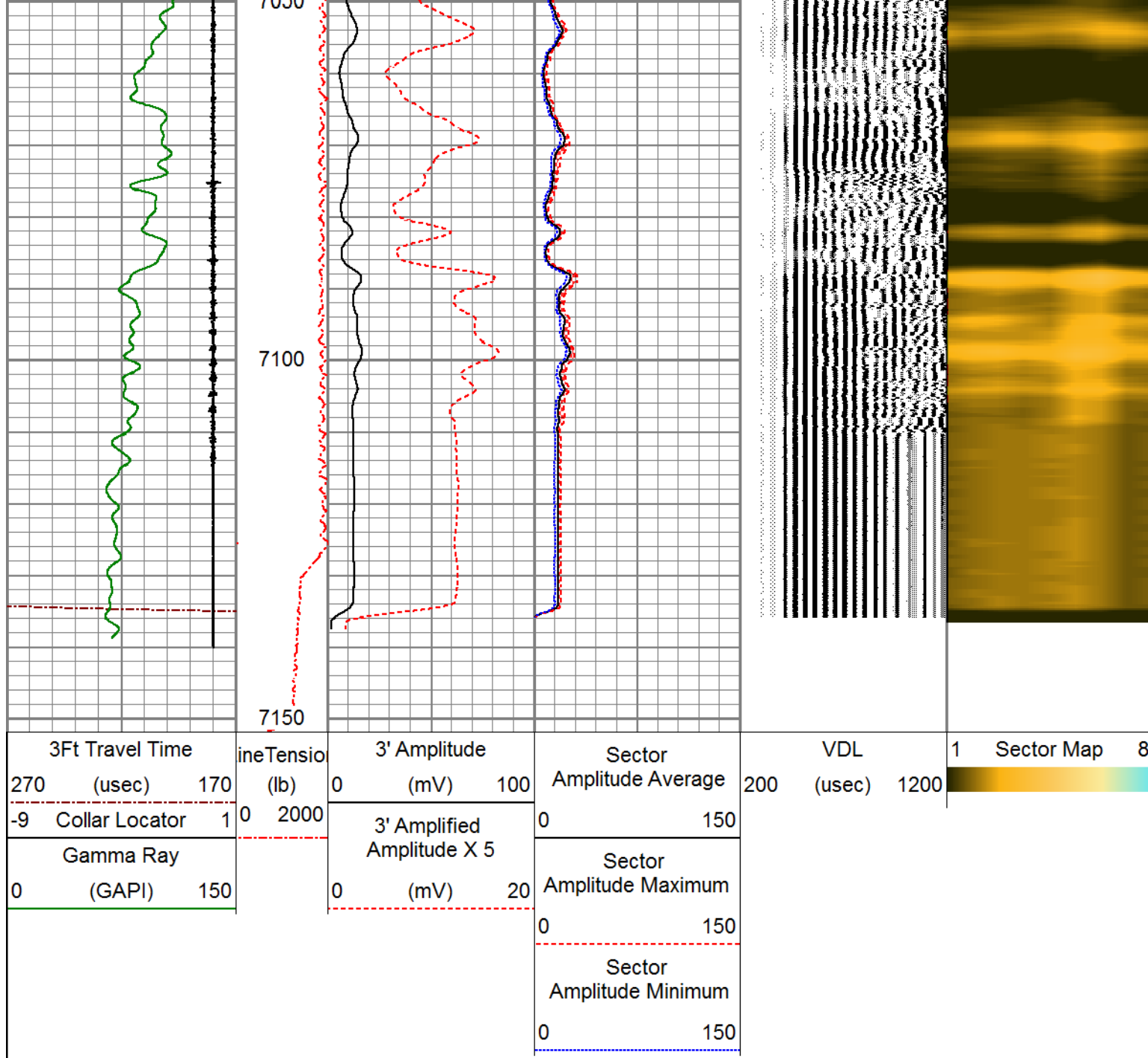


3Ft Travel Time	Line Tension	3' Amplitude	Sector Amplitude Average	VDL	1	Sector Map	8
270 (usec)	(lb)	0 (mV)	0 150	200 (usec)	1200		
-9 Collar Locator	1 0 2000	3' Amplified Amplitude X 5	Sector Amplitude Maximum				
Gamma Ray		0 (mV)	0 150				
0 (GAPI)	150		Sector Amplitude Minimum				
			0 150				

Database File pdc_red cloud 0n_0512349445_20190828_scbl-cn1.db
Dataset Pathname pass4
Presentation Format pinr_scbl_co
Dataset Creation Wed Aug 28 10:30:58 2019
Charted by Depth in Feet scaled 1:240

3Ft Travel Time	ineTensio	3' Amplitude	Sector	VDL	Sector Map
270 (usec) 170	(lb)	0 (mV) 100	Amplitude Average	200 (usec) 1200	1 8
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	0 150		
Gamma Ray		0 (mV) 20	Sector Amplitude Maximum		
0 (GAPI) 150			0 150		
			Sector Amplitude Minimum		
			0 150		





Database File		cdc_red cloud 0n_0512349445_20190828_scbl-cn1.db	
Dataset Pathname		pass4	
Dataset Creation		Wed Aug 28 10:30:58 2019	
Compensated Neutron Calibration Report			
Type / Serial:		PRB_DIG / 120509	
Source / Verifier:		/	
Temperature:			
SHOP CALIBRATION		Tue Nov 20 10:02:13 2012	
		Cal Tube	Units
Tank Ratio			SS/LS
Tank Porosity			pu
LS Detector			cps
SS Detector			cps
Tool Ratio			SS/LS
Tool Porosity			pu

Tool Porosity
Tool Constant =

Field Verifier SS Detector LS Detector Ratio Porosity

PRE-SURVEY VERIFICATION

SS Detector LS Detector Ratio Porosity

POST-SURVEY VERIFICATION

SS Detector LS Detector Ratio Porosity

Gamma Ray Calibration Report

Serial Number: 111212
Tool Model: 275_6-PIN
Performed: Wed Aug 28 09:38:06 2019

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6800 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1304-33-T
Tool Model: RBL-DC

Calibration Casing Diameter: 5.500 in
Calibration Depth: 2374.870 ft

Master Calibration, performed Wed Aug 28 10:11:54 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.010	1.375	2.200	71.921	51.068	1.699
CAL	0.002	1.510				
5'	0.006	1.309	2.200	71.921	53.478	1.894
SUM						
S1	-0.005	1.295	0.000	100.000	76.879	0.421
S2	0.003	1.332	0.000	100.000	75.222	-0.203
S3	0.002	1.303	0.000	100.000	76.916	-0.191
S4	0.002	1.342	0.000	100.000	74.600	-0.149
S5	0.002	1.377	0.000	100.000	72.743	-0.154
S6	0.003	1.453	0.000	100.000	68.938	-0.173
S7	0.002	1.389	0.000	100.000	72.134	-0.159
S8	0.002	1.402	0.000	100.000	71.469	-0.177

Air Zero Calibration, performed Wed Aug 28 09:36:39 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000

S	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



Company	PDC ENERGY INC.
Well	RED CLOUD 0N
Field	WATTENBERG
County	WELD
State	COLORADO