



PIONEER

Pioneer Energy Services

RADIAL BOND LOG WITH GAMMA RAY

Comp. PDC ENERGY INC. Well HAROLD 6X-202 Field WATTENBERG Co. WELD State COLORADO		Company PDC ENERGY INC. Well HAROLD 6X-202 Field WATTENBERG County WELD State COLORADO	
Location: 637' FSL & 441' FEL SE SE SEC 6 TWP 4N RGE 64W		Other Services CNL	
Permanent Datum GL Log Measured From KB 23' Above Perm. Datum Drilling Measured From KB		Elevation 4788' K.B. 4811' D.F. N/A G.L. 4788'	
Date of Service	25 FEBRUARY 2019		
Run Number	ONE		
Depth Driller or PBTD	N/A		
Depth Logger	7070'		
Bottom Log Interval	7070'		
Top Log Interval	SURFACE		
Open Hole Size	8.5"		
Type Fluid	WATER		
Fluid Level	FULL		
Fluid Density	N/A		
Max. Recorded Temperature	275 F		
Max. Wellhead Pressure	ZERO		
Wellhead Connection	OPEN		
Estimated Cement Top	N/A		
Unit Number	P-57		
Wireline Size	9/32"		
Location	FORT MORGAN		
Recorded By	SCHOENROGGE		
Witnessed By	MR. MYERS		
Size		Wt/Ft	Top
Tubing Record			Bottom
Surface Casing	9.625"	36#	SURFACE
Production Casing	5.5"	20#	SURFACE
Liner Record			N/A

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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: WAYNE Operator: LEE Operator:	SEE DIAGRAM PLUS OVERBODIES	

Log Variables

DatabaseC:\ProgramData\Warrior\Data\pdc_harold_05123_20190225_scbl-cn1.db
Dataset field/well/run1/pass7/_vars_

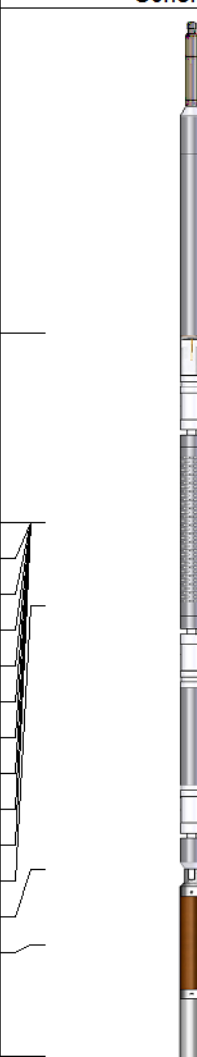
Top - Bottom

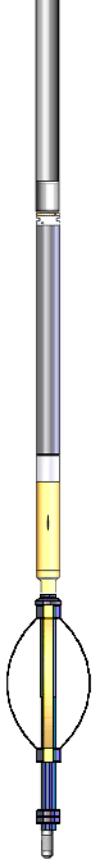
BHTEMP_Src TEMP	BOREID in 8.5	BOTTEMP degF 220	CASED? Yes	CASEOD in 5.5	CASETHCK in 0.361	CASEWGHT lb/ft 20
CMNTTHCK in 1.5	CMTTKCOR Off	CSTKCOR Off	MAXAMPL mV 71.2	MINAMPL mV 2.2	MINATTN db/ft 0.8	NPORSEL Limestone
PERFS 0	PPT usec 261	SRFTEMP degF 50	SZCOR Off	TDEPTH ft 7000		


Variable Description

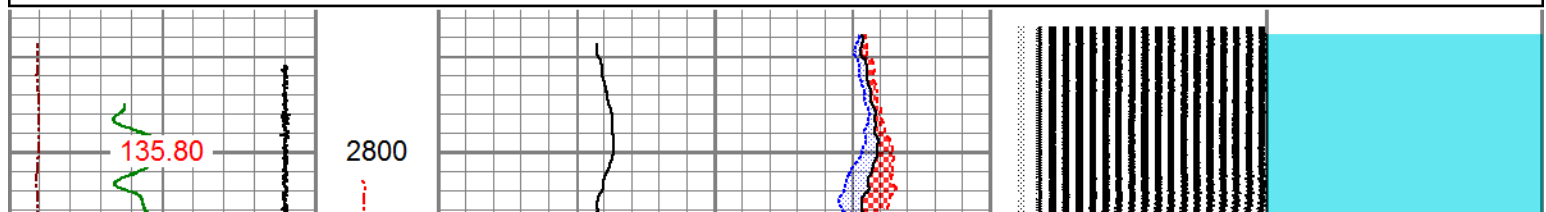
BHTEMP_Src : BHTEMP Input Source Selector
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASED? : Cased hole ?
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
CMNTTHCK : Cement Thickness
CMTTKCOR : CN CemThk. Cor. ?
CSTKCOR : CN CasThk. Cor. ?

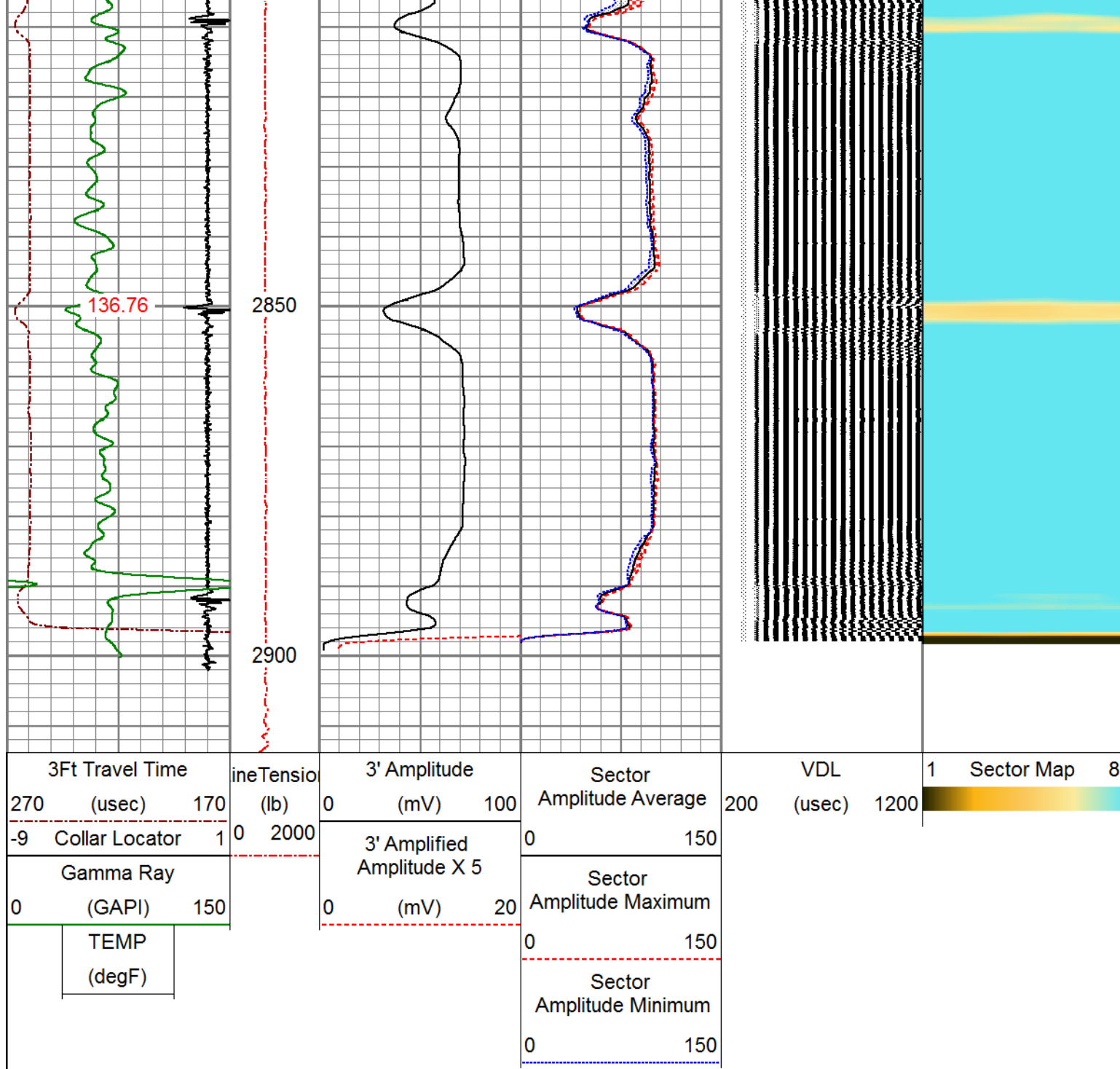
MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MINATTN : Minimum Attenuation
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
PPT : Predicted Pipe Time
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth


Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	19.11		Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00
WVFS8	16.82		PROBE-RBT-DIGITAL-RBL-DCT (FW1411-9.21) Probe 2 3/4" Radii Bond with Temp-Corrosion Package	11-9.21	2.75	105.00
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					
GP	10.38					

GR	10.38		PROBE-GR/CCL-DIGITAL-275_6-PIN (1114.83) Probe 2 3/4" Gamma CCL 6-pin Bottom for CNT	2.75	50.00
CNLSC	4.99				
CNSSC	4.58		PROBE-CNT-DIGITAL-PRB_DIG (120508) Probe 2.75 Digital CNT	2.75	69.00
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	15.00
			Bullnose-PROBE Probe Go Pin Pressure Cap	0.33	1.00
					
Dataset: pdc_harold_05123_20190225_scbl-cnl.db: field/well/run1/pass7 Total length: 22.87 ft Total weight: 242.00 lb O.D.: 2.75 in					

		FREE PIPE SECTION ZERO PSI APPLIED AT SURFACE			
Database File pdc_harold_05123_20190225_scbl-cnl.db Dataset Pathname pass4 Presentation Format pinr_scbl_co Dataset Creation Mon Feb 25 13:05:15 2019 Charted by Depth in Feet scaled 1:240					
3Ft Travel Time	ineTensio	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		0 (mV) 20	Sector Amplitude Maximum		
0 (GAPI) 150			0 150		
TEMP (degF)			Sector Amplitude Minimum		
			0 150		







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MAIN LOG

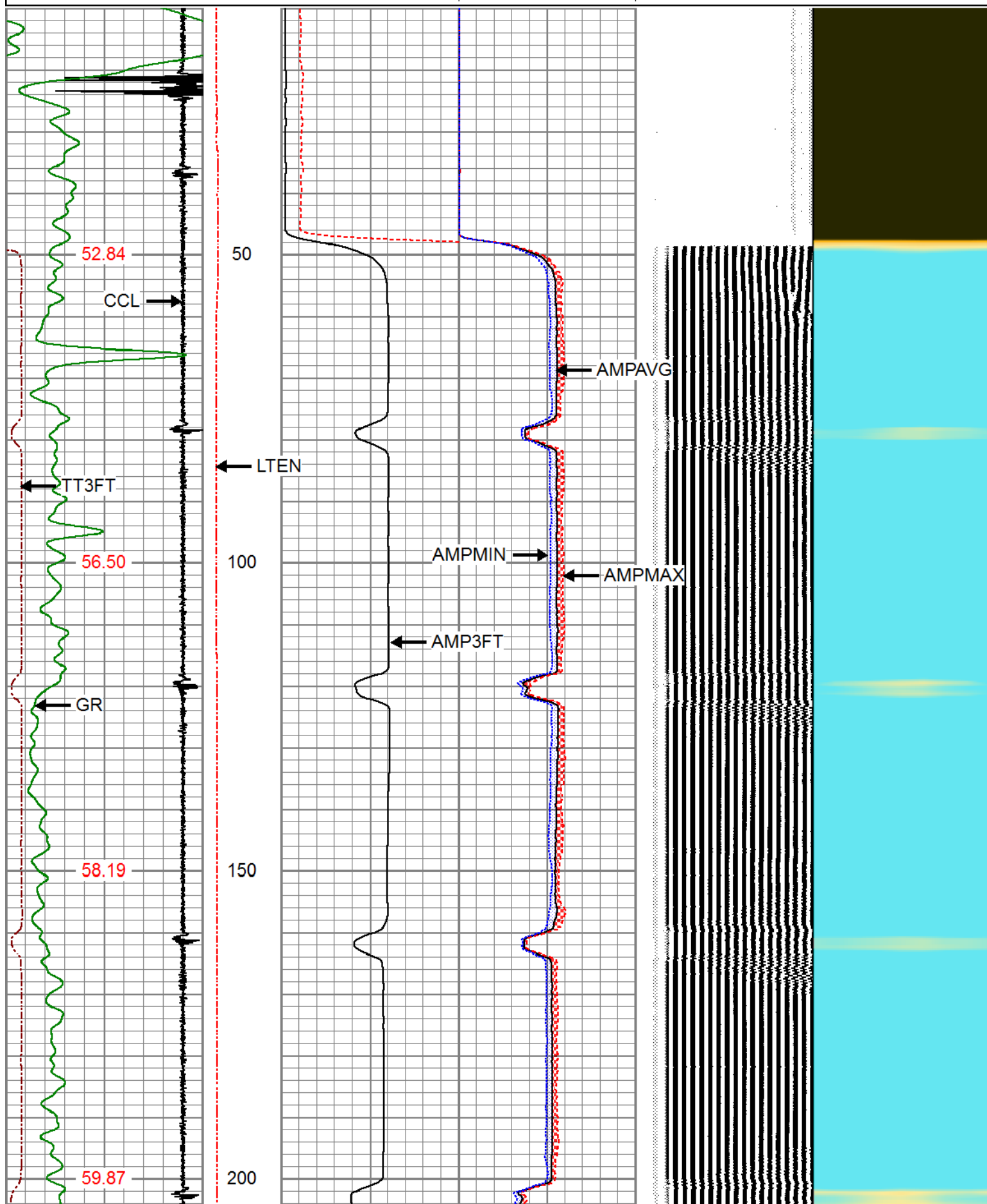
ZERO PSI APPLIED AT SURFACE

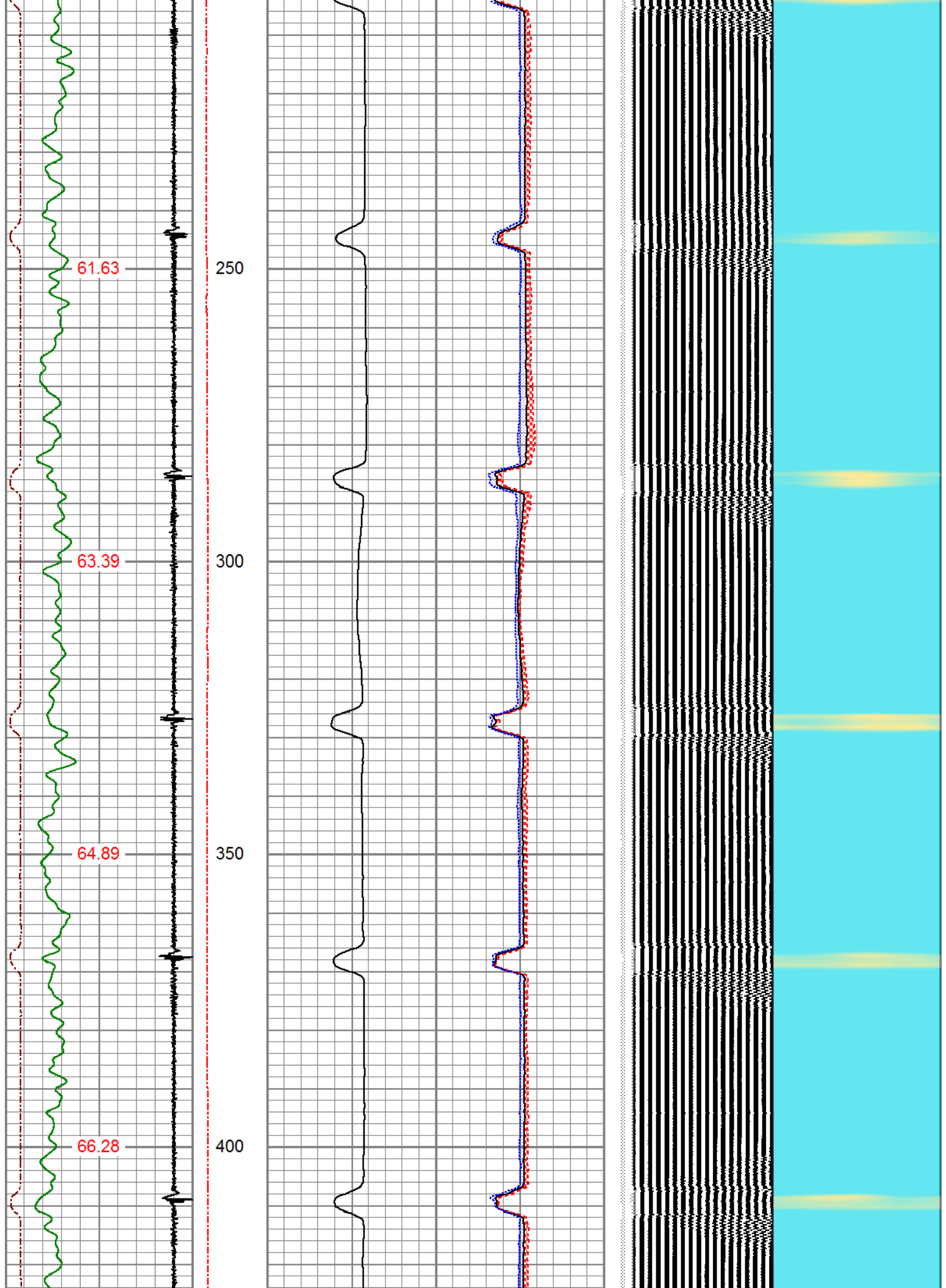
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Dataset Creation	Mon Feb 25 13:31:28 2019
Charted by	Depth in Feet scaled 1:240

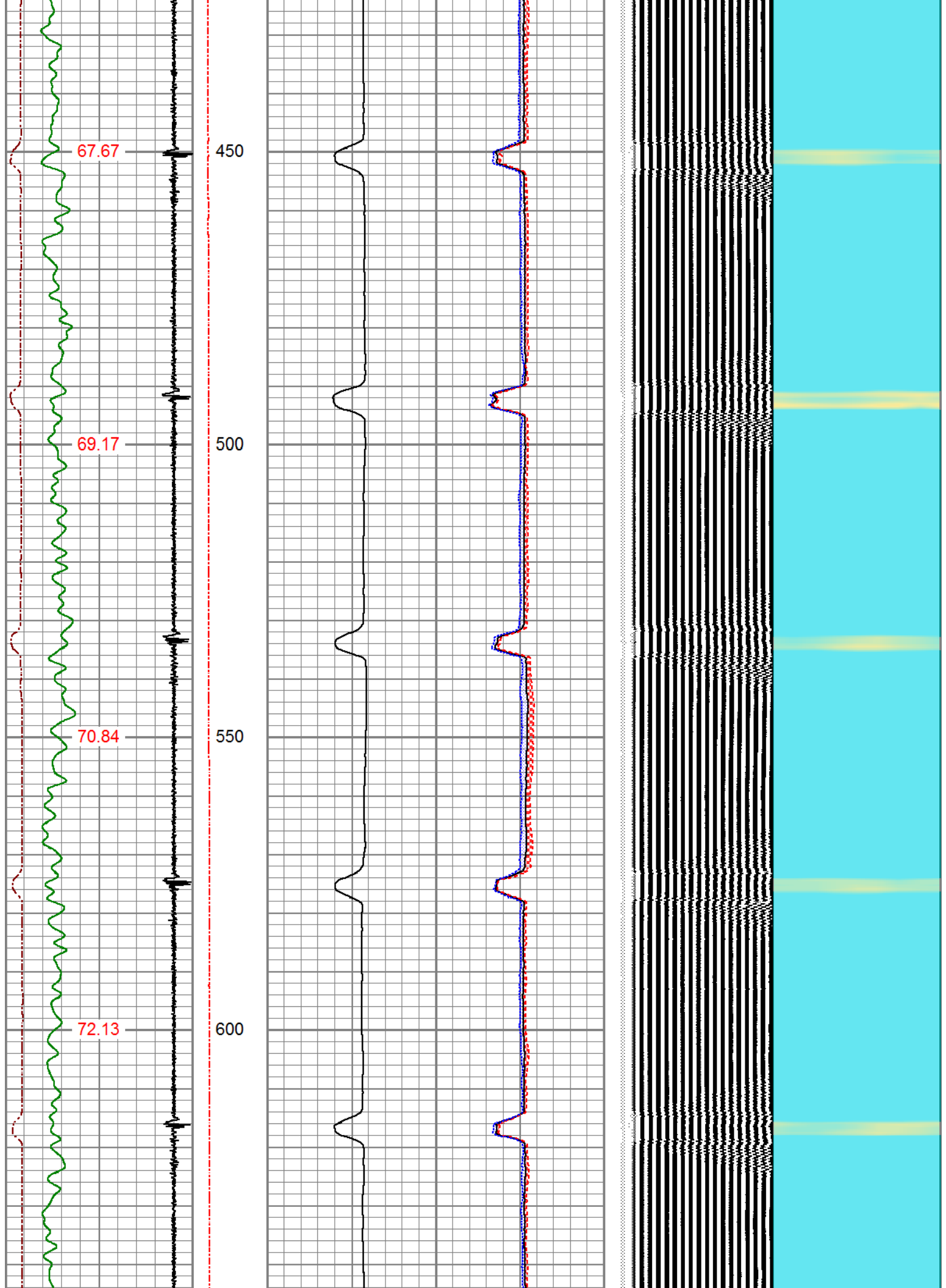
3Ft Travel Time	ineTensio	3' Amplitude	Sector	VDL	1	Sector Map	8
270 (usec) 170	(lb)	0 (mV) 100	Amplitude Average	200 (usec) 1200			
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	0 150				
Gamma Ray			Sector				
			Amplitude Minimum				
			0 150				

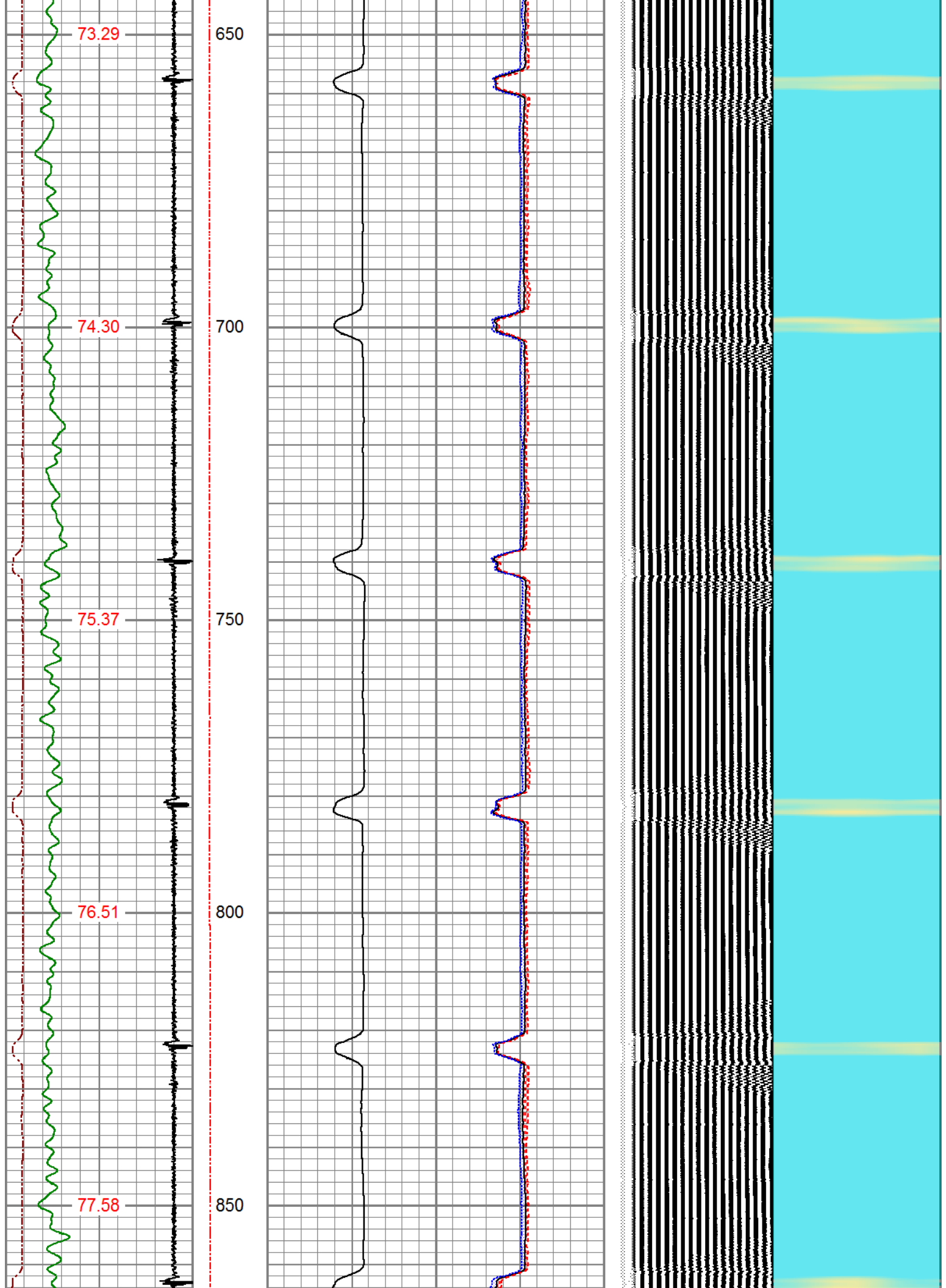
0	(GAPI)	150
TEMP		
(degF)		

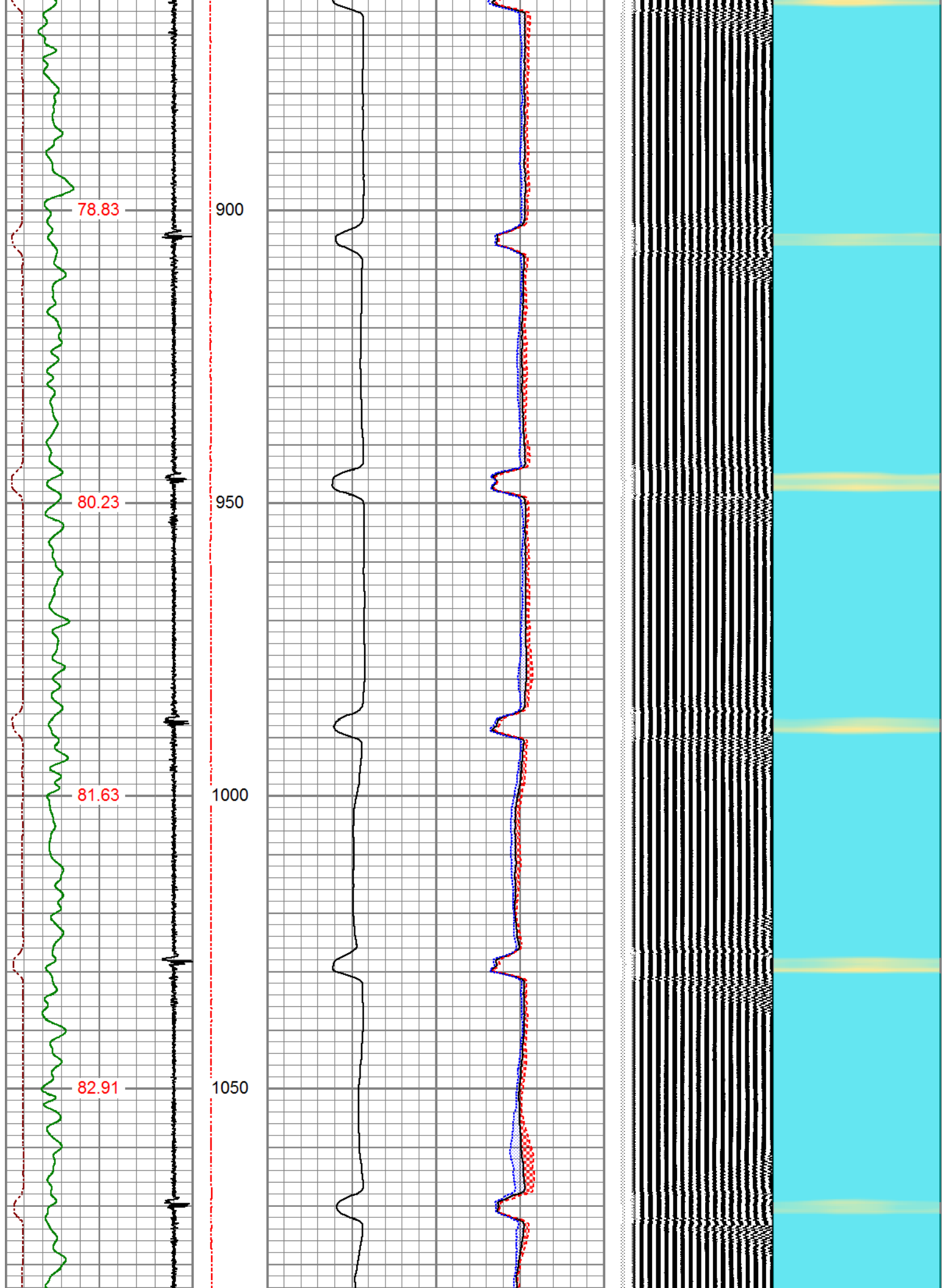
0	(mV)	20
Amplitude Maximum		
0		150
Sector		
Amplitude Minimum		
0		150

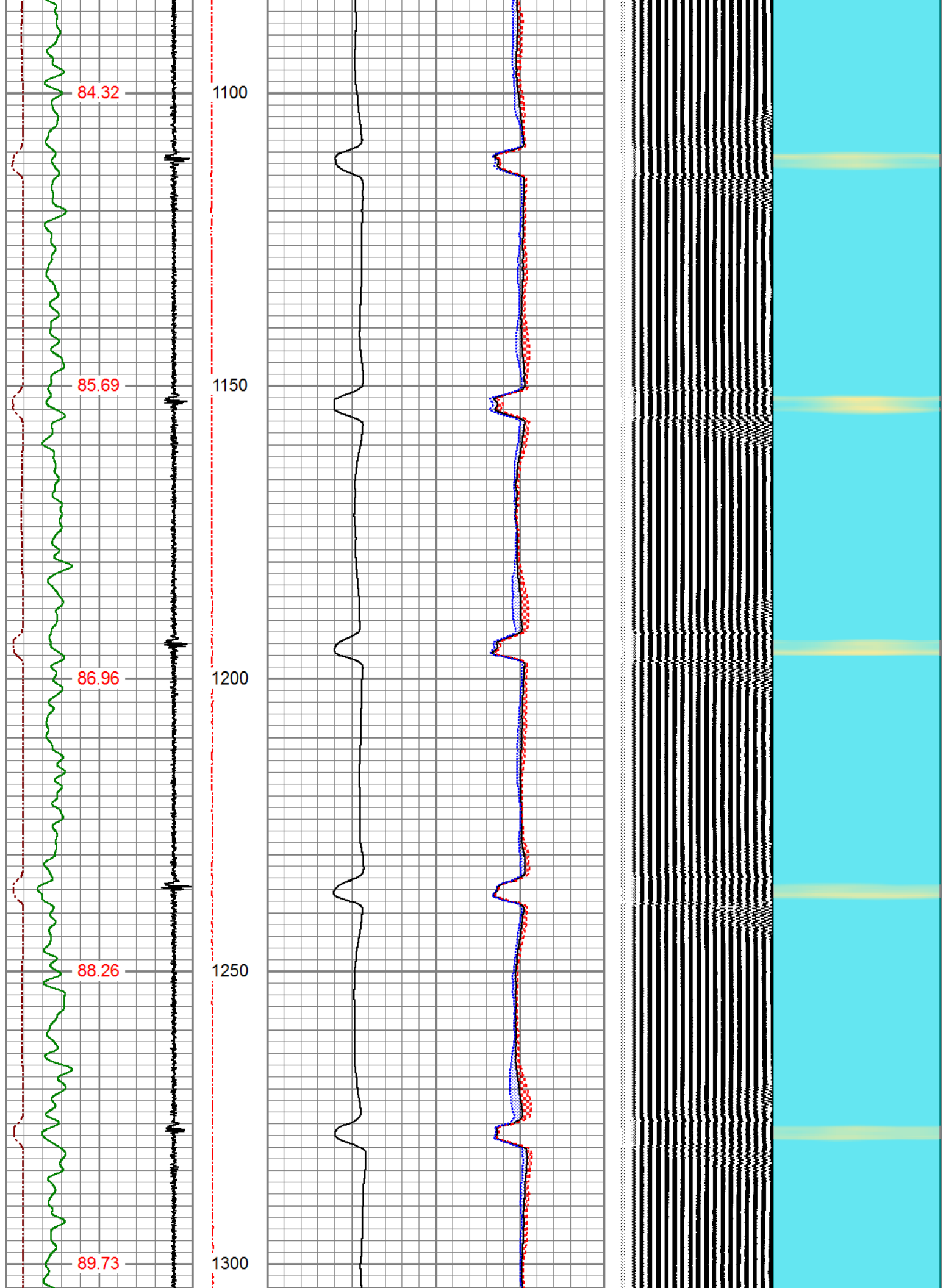


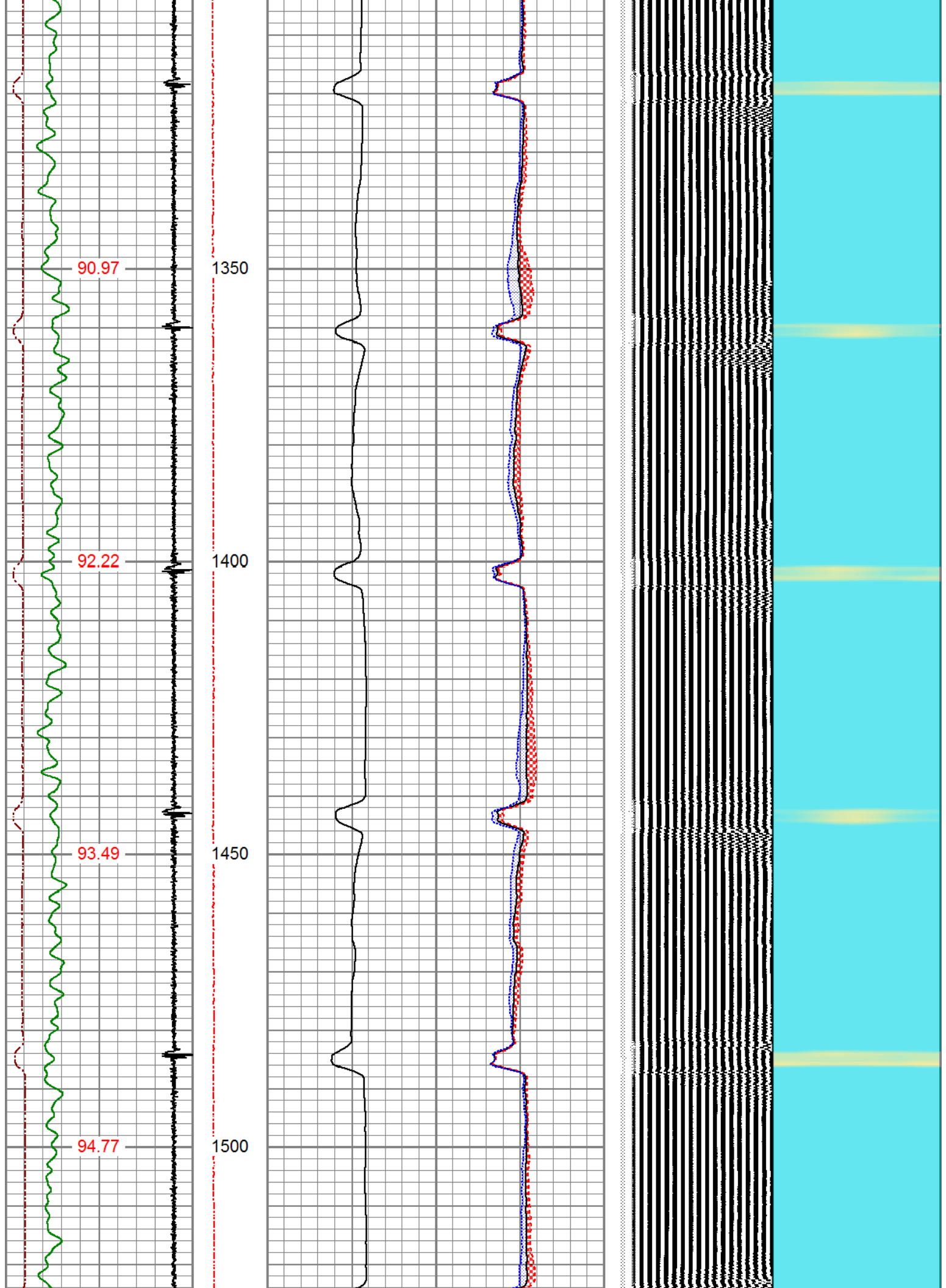


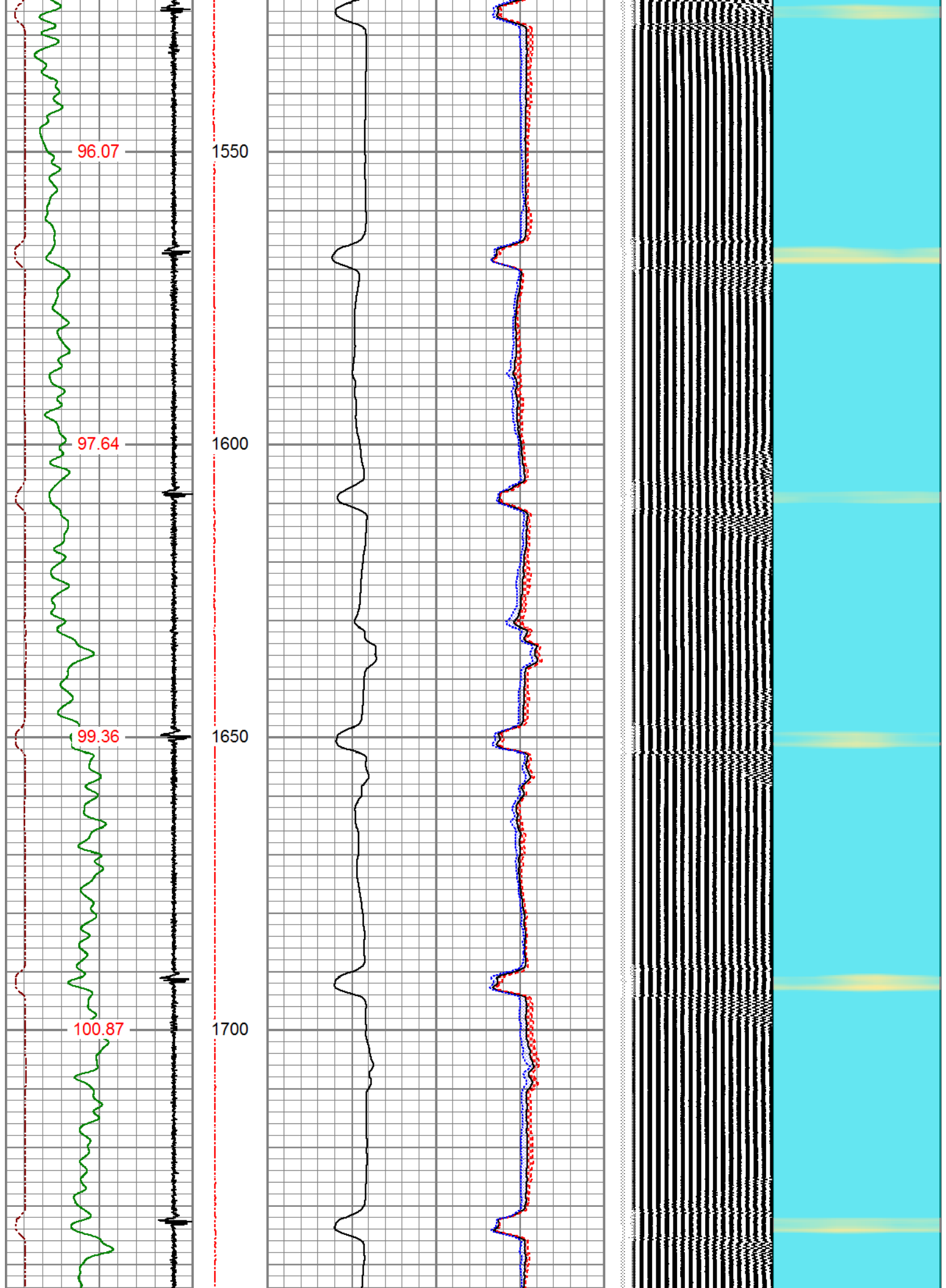


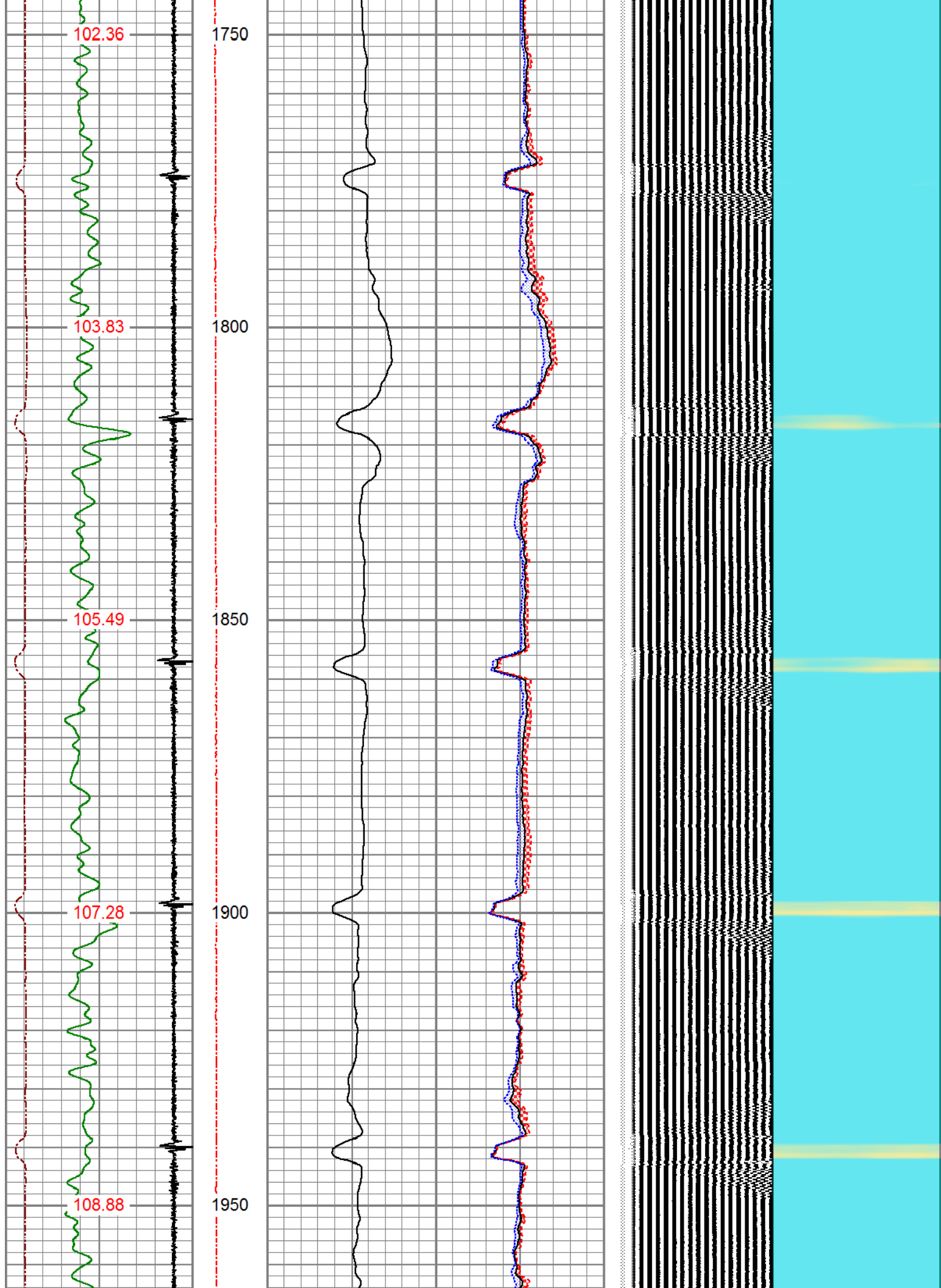


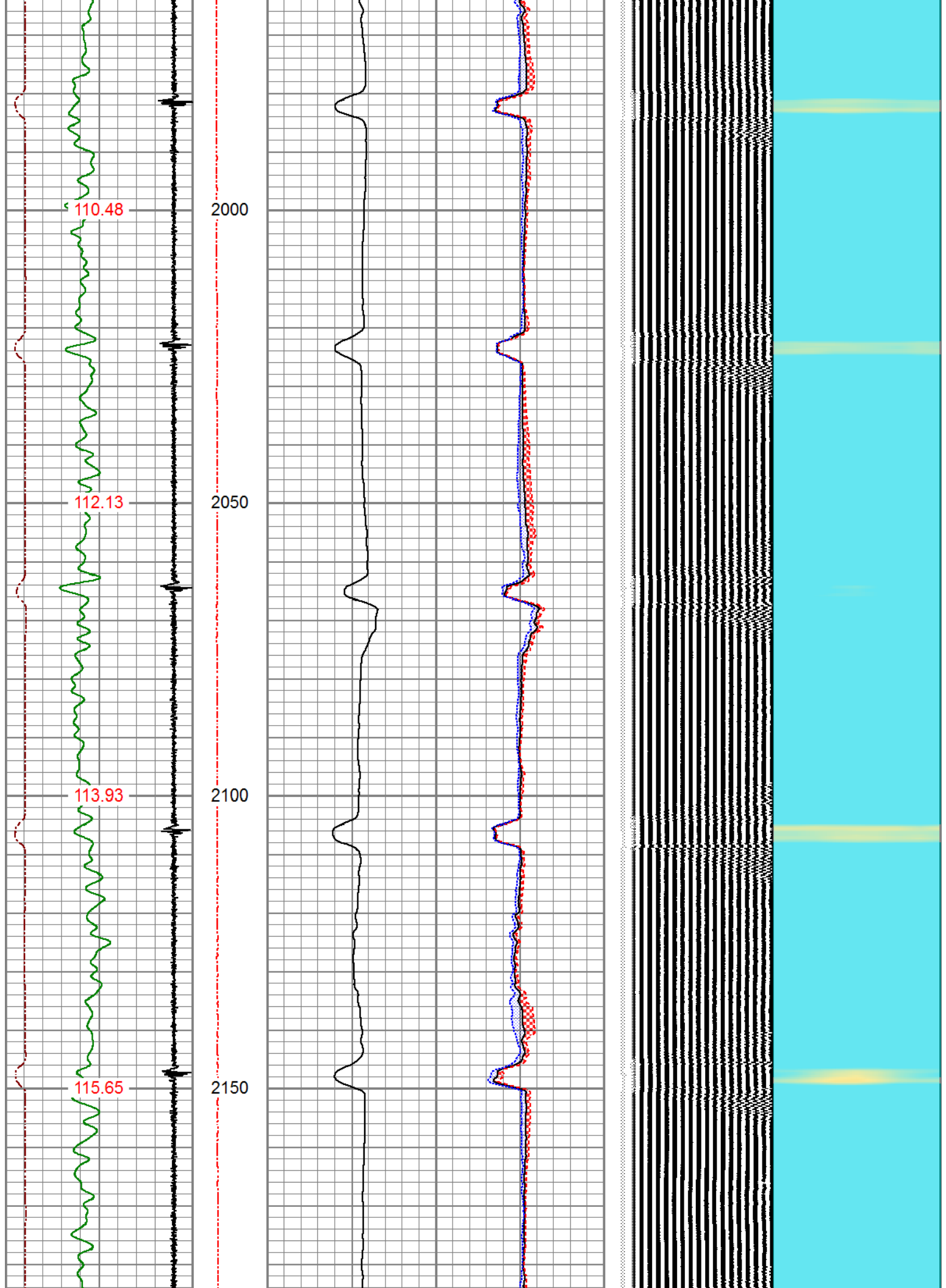


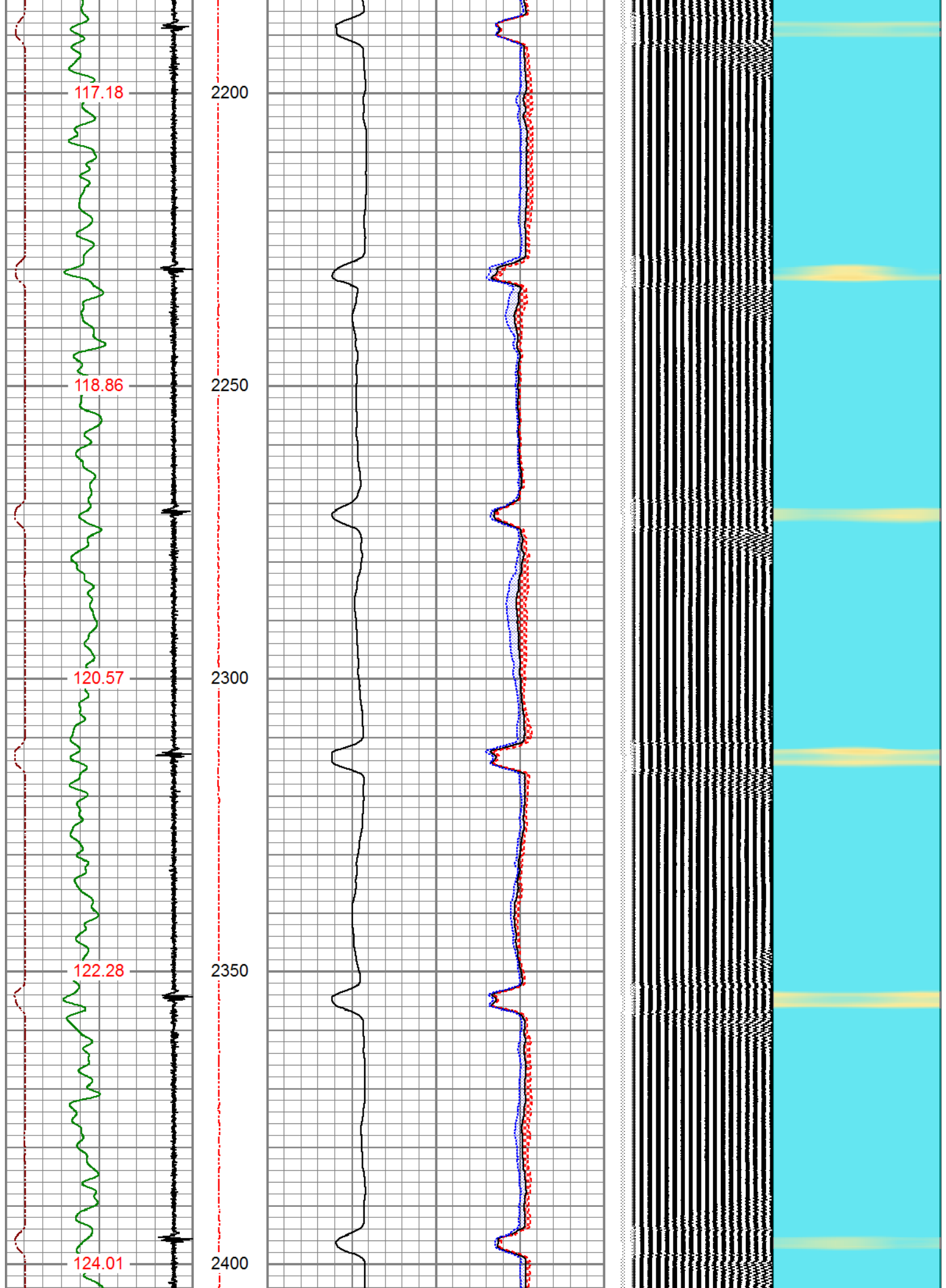


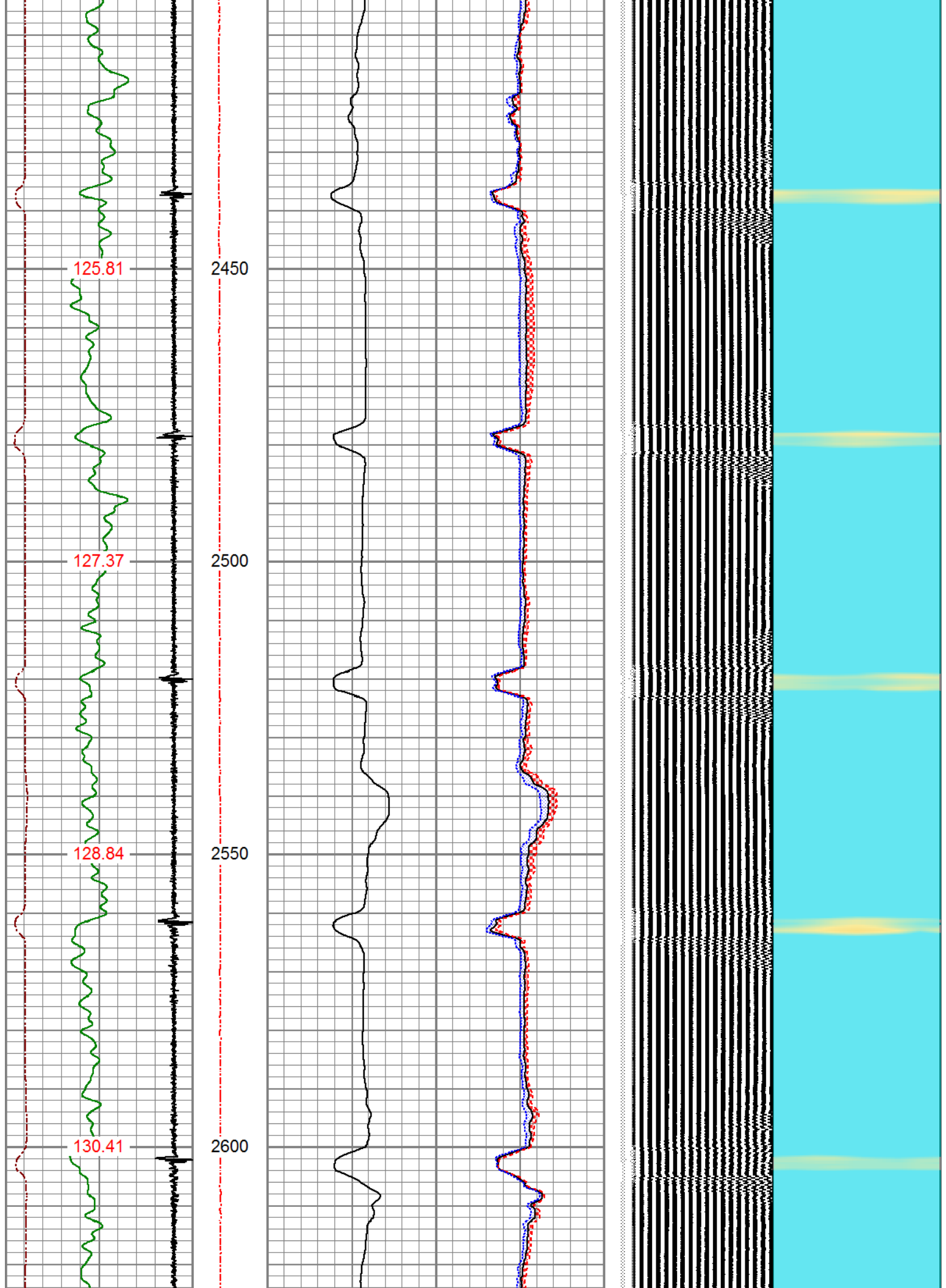


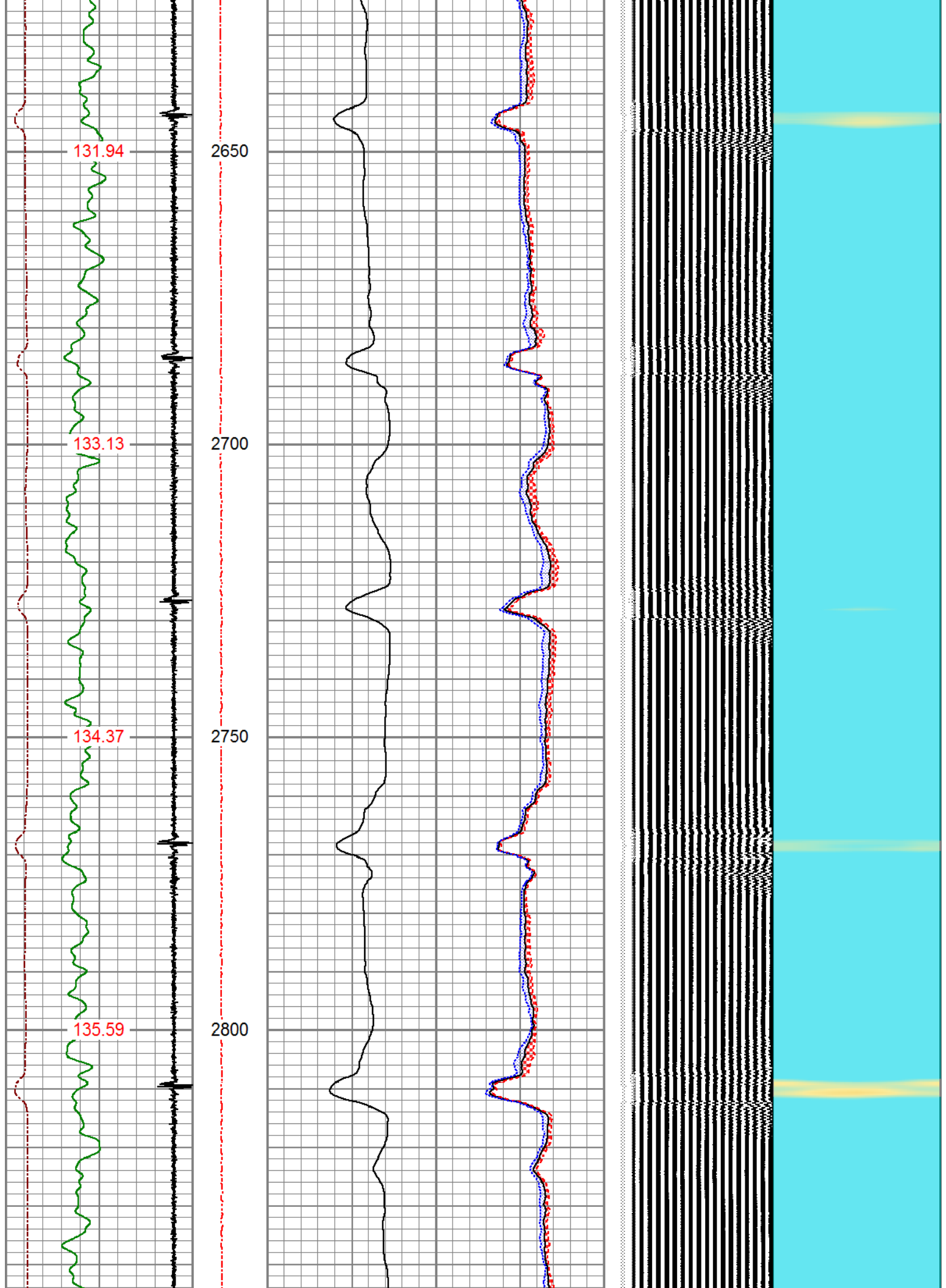


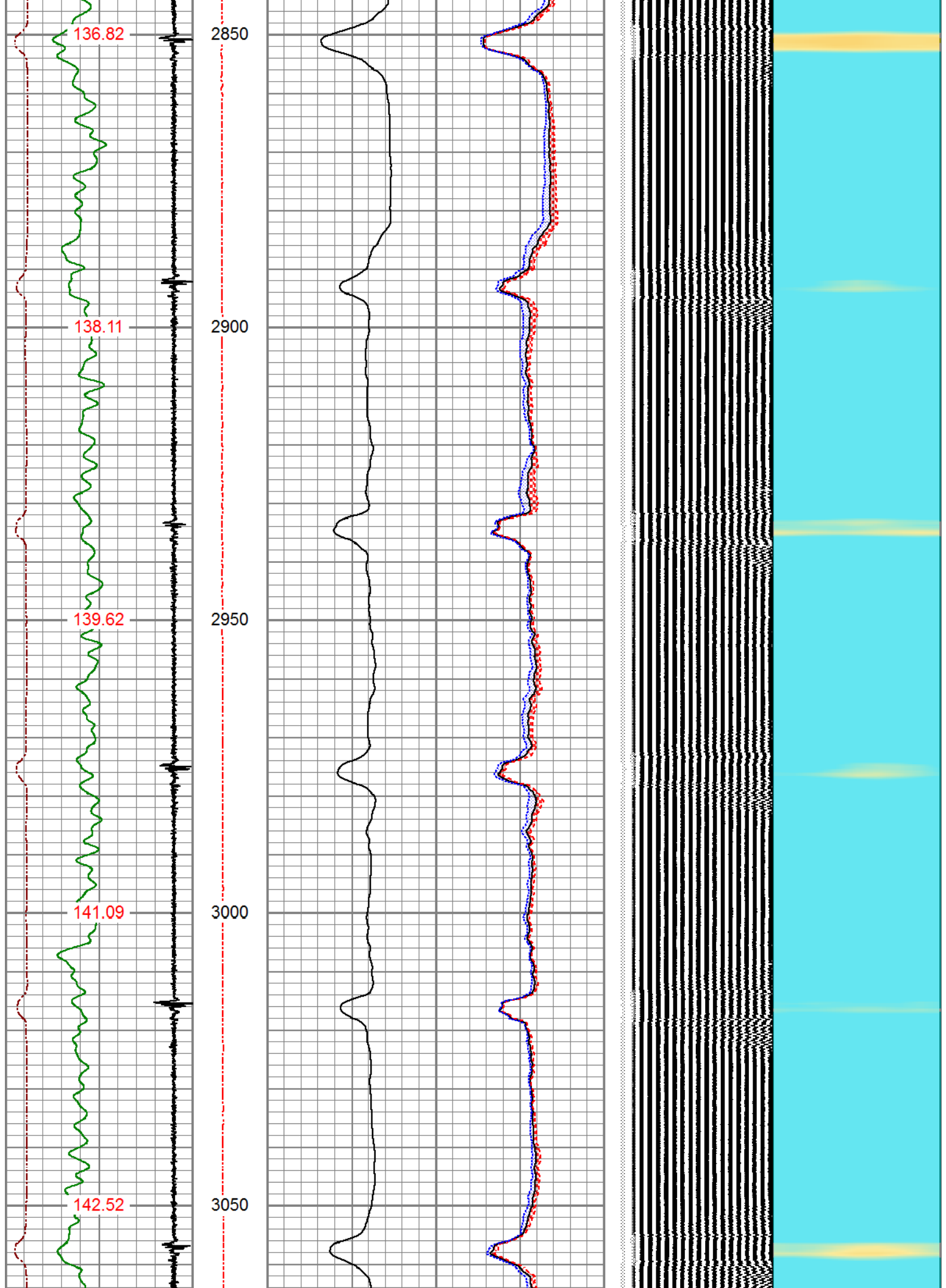


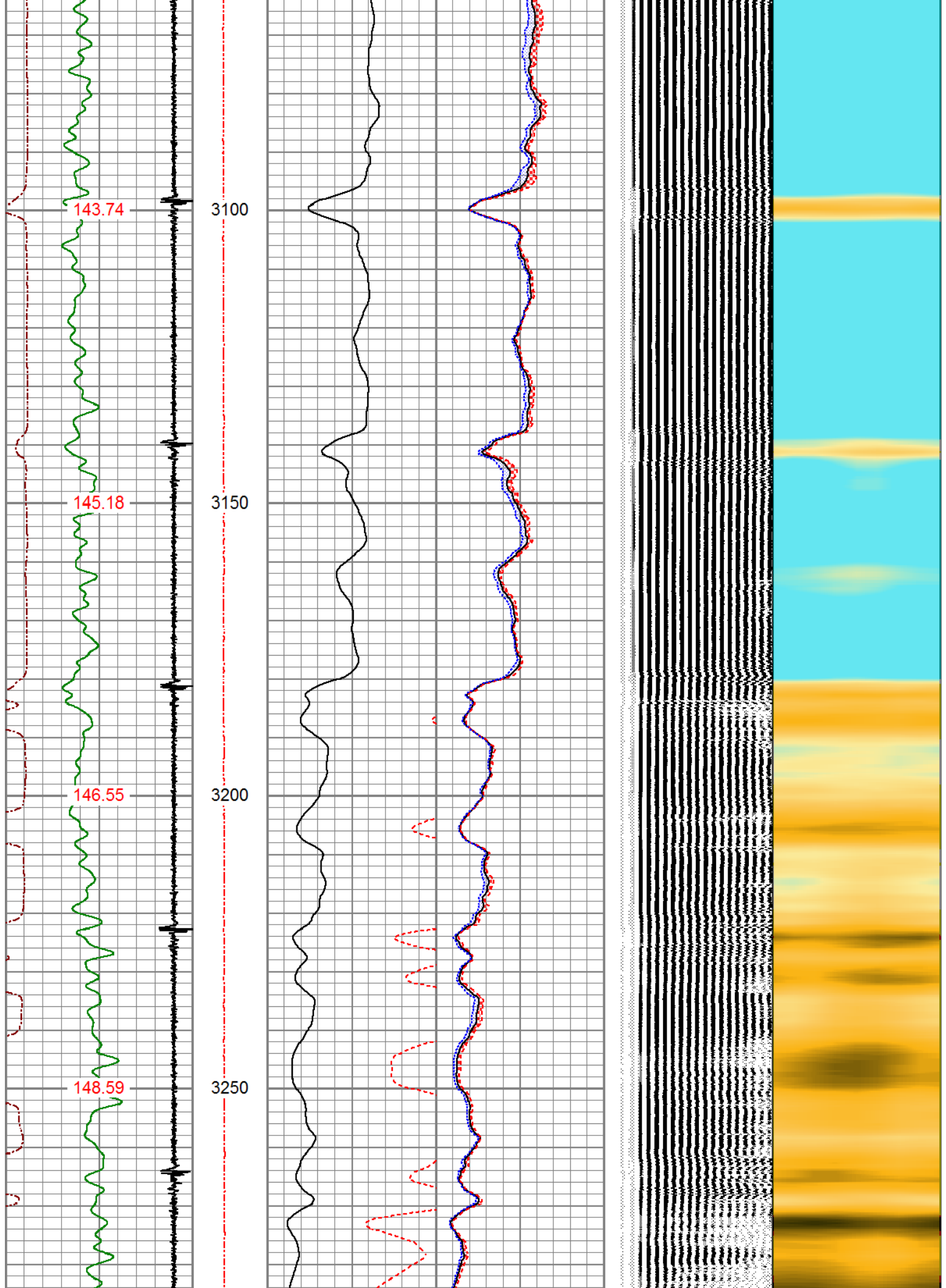


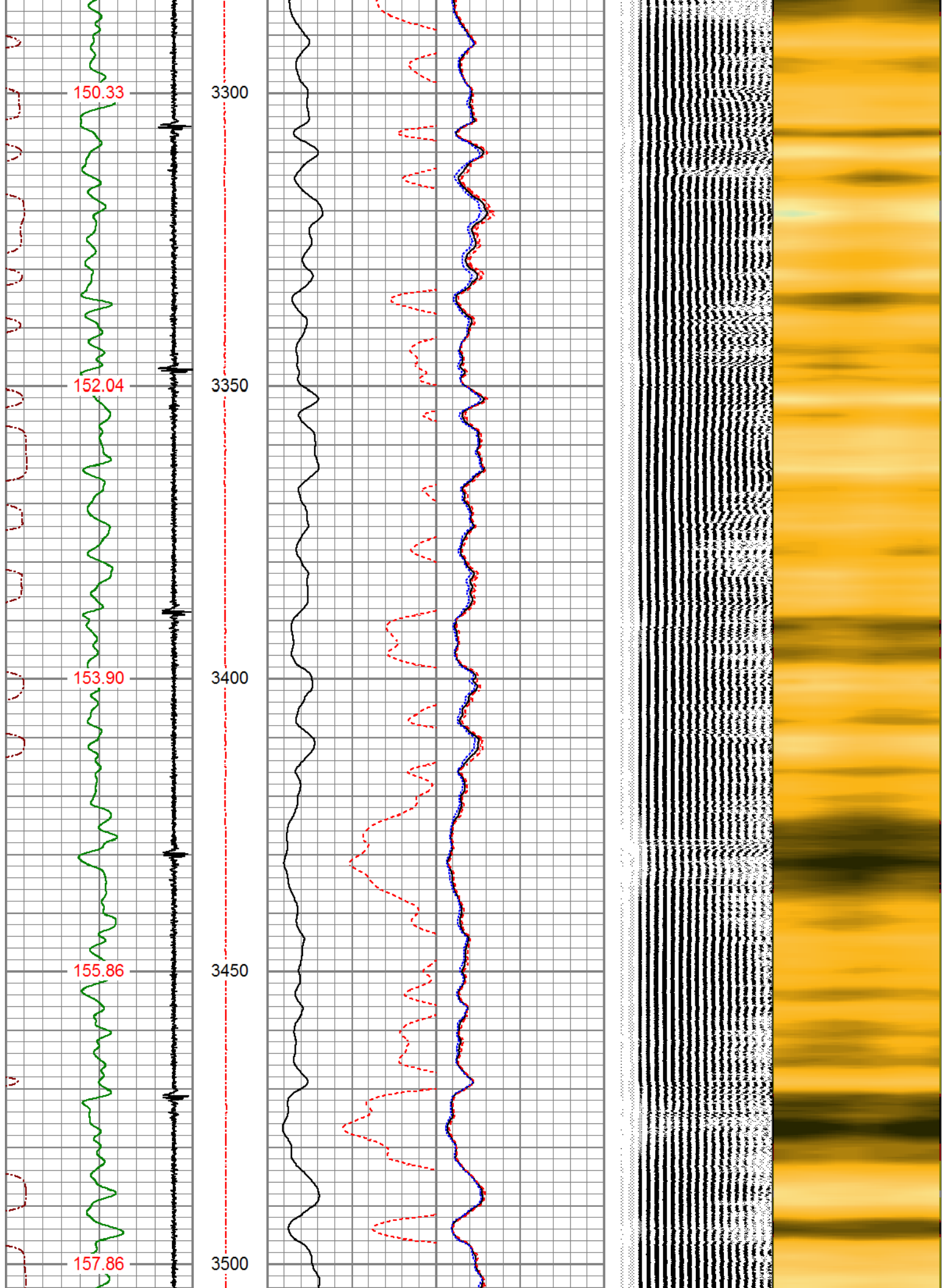


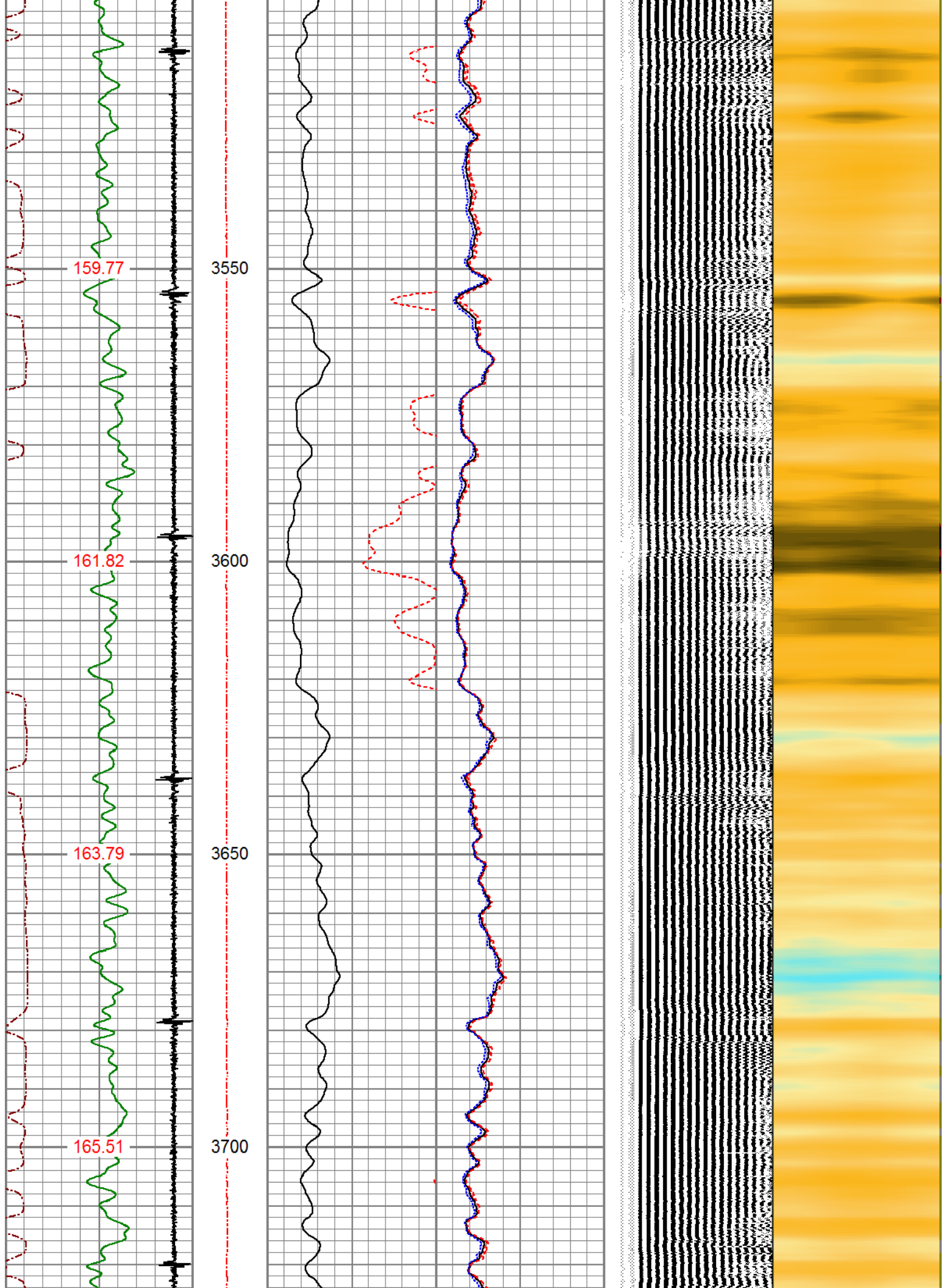


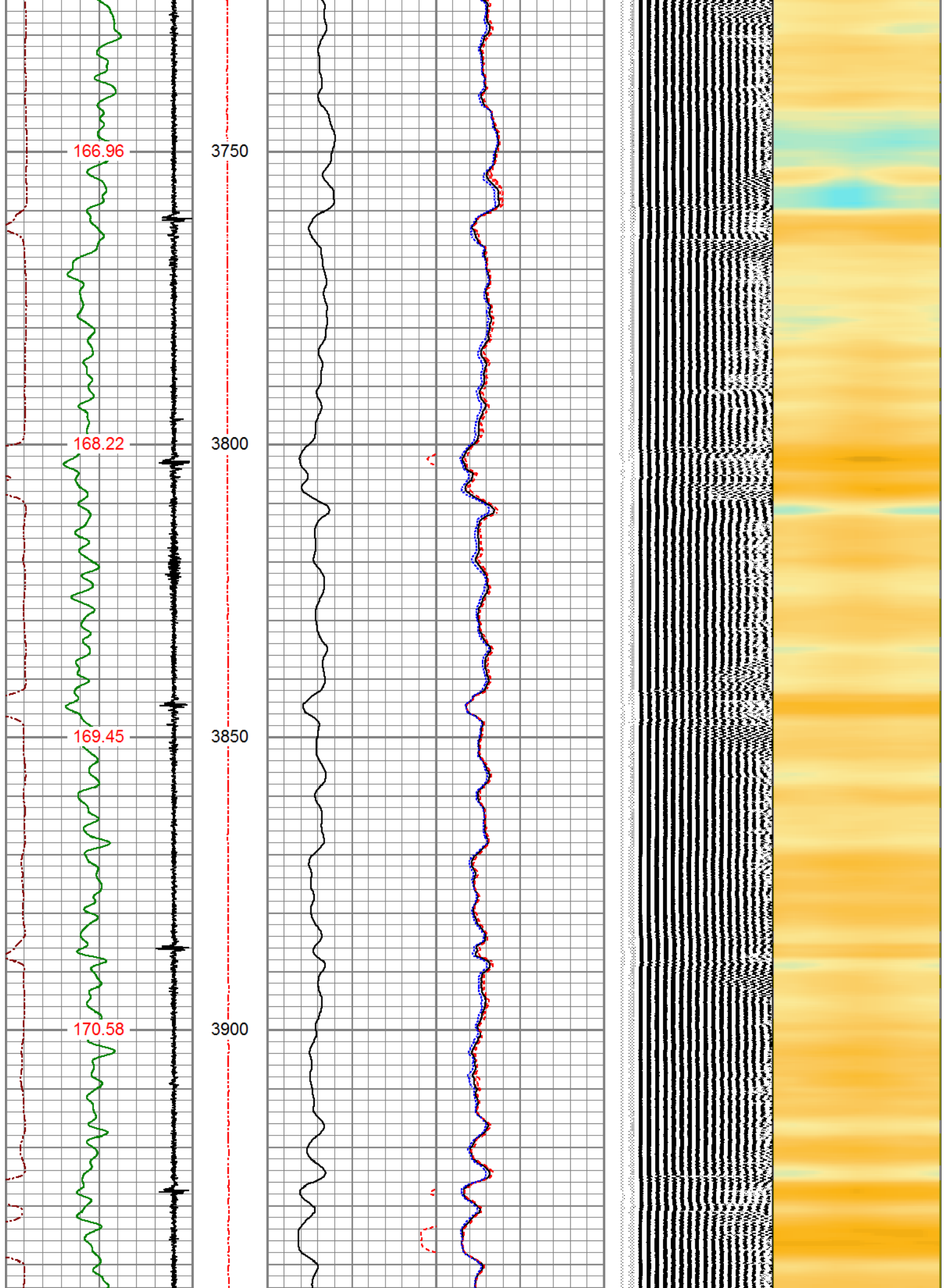


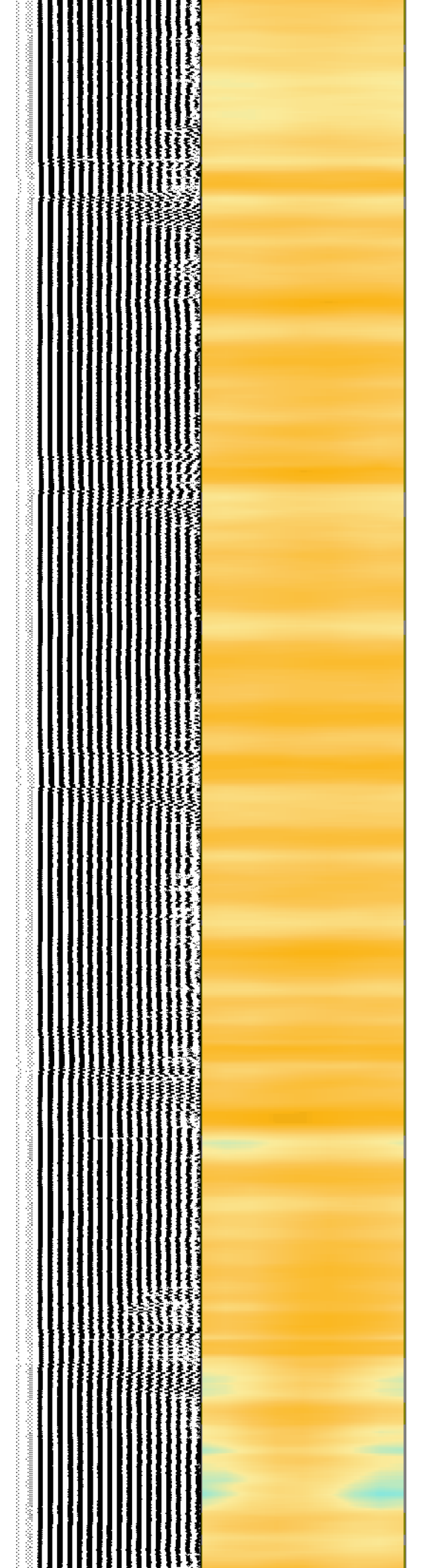
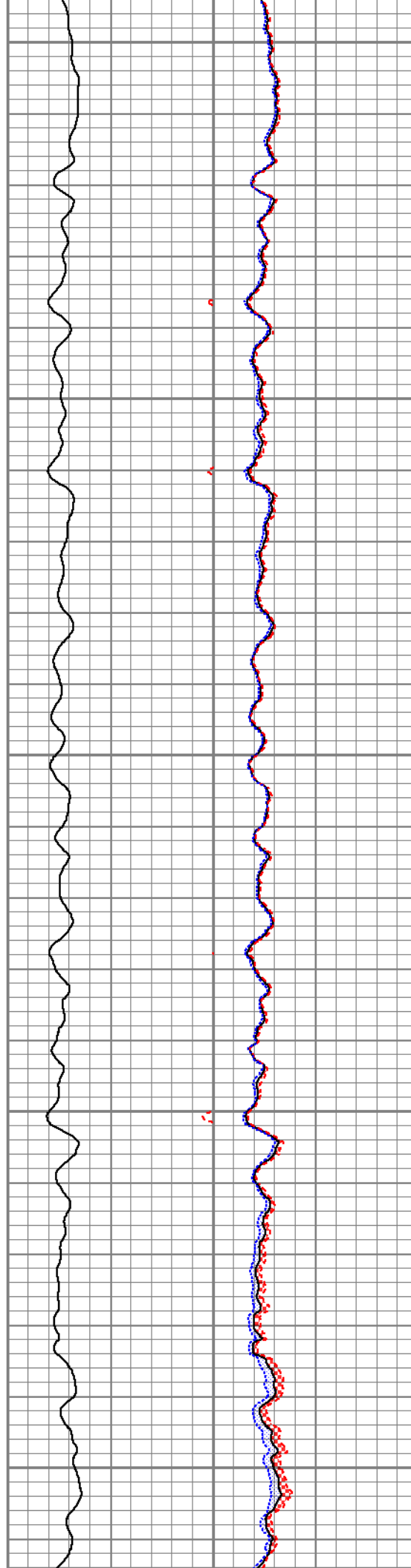
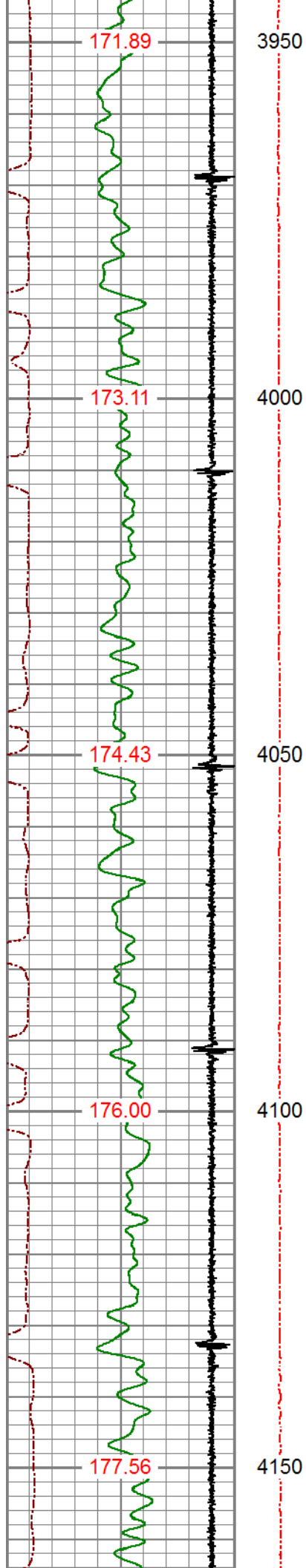


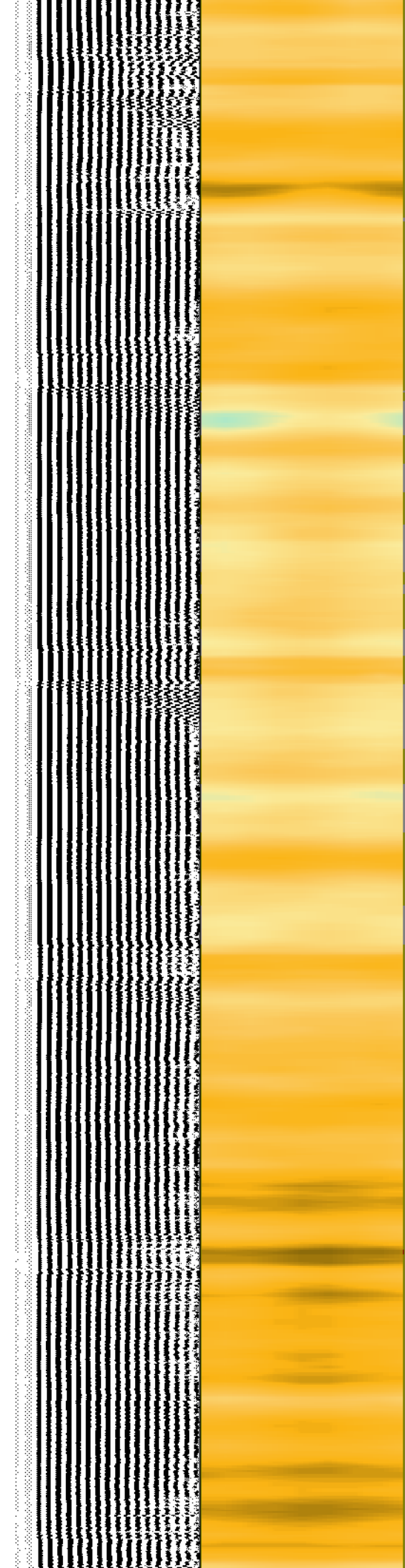
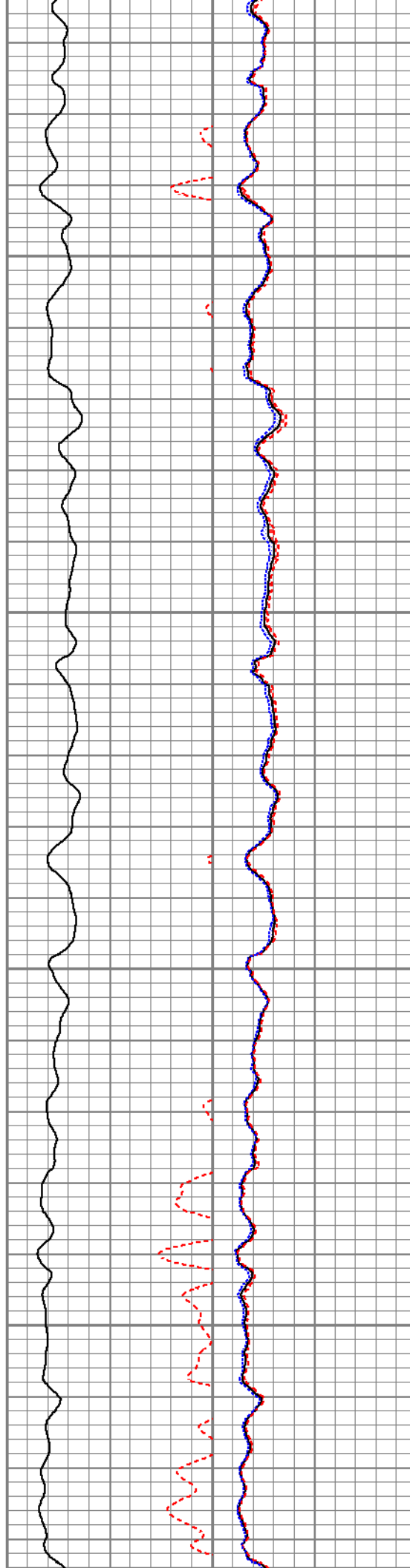
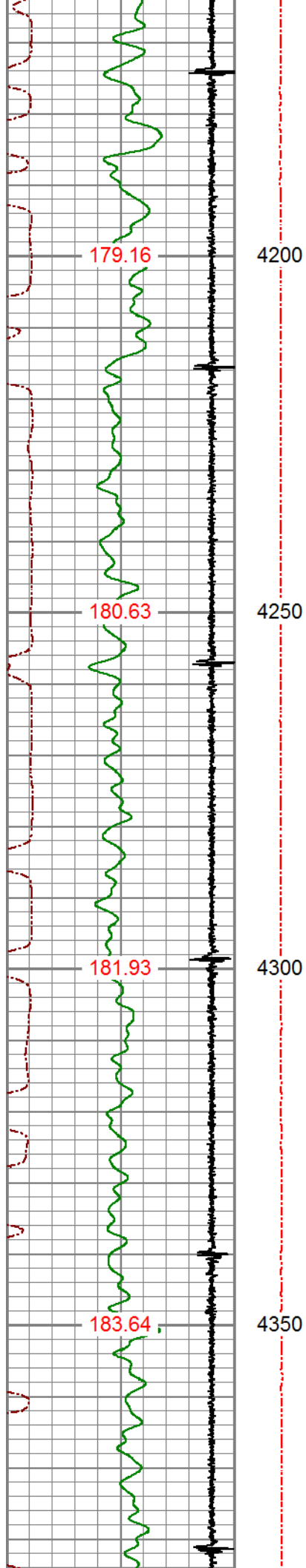


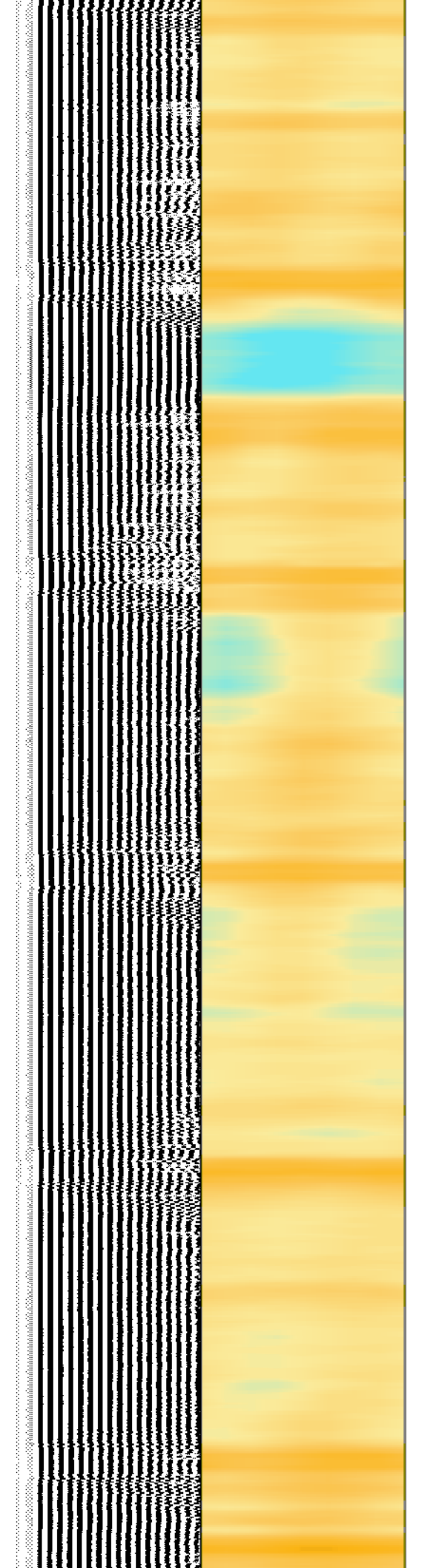
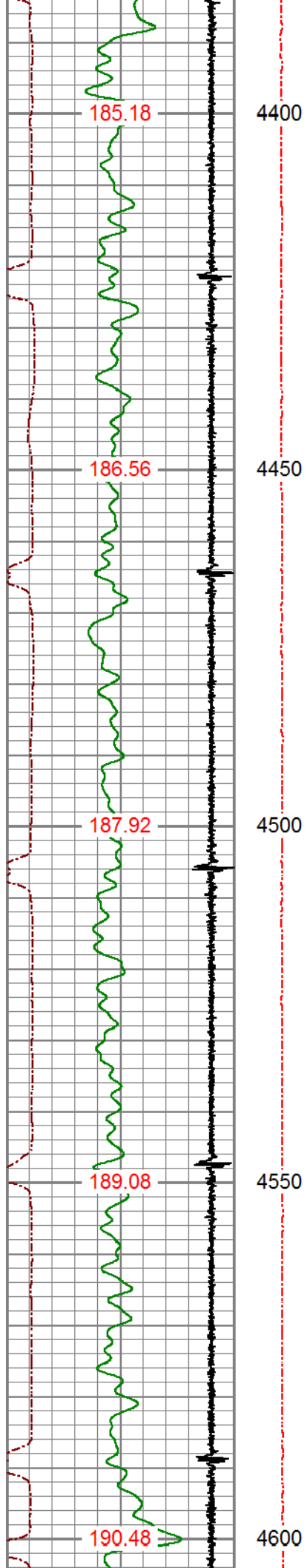


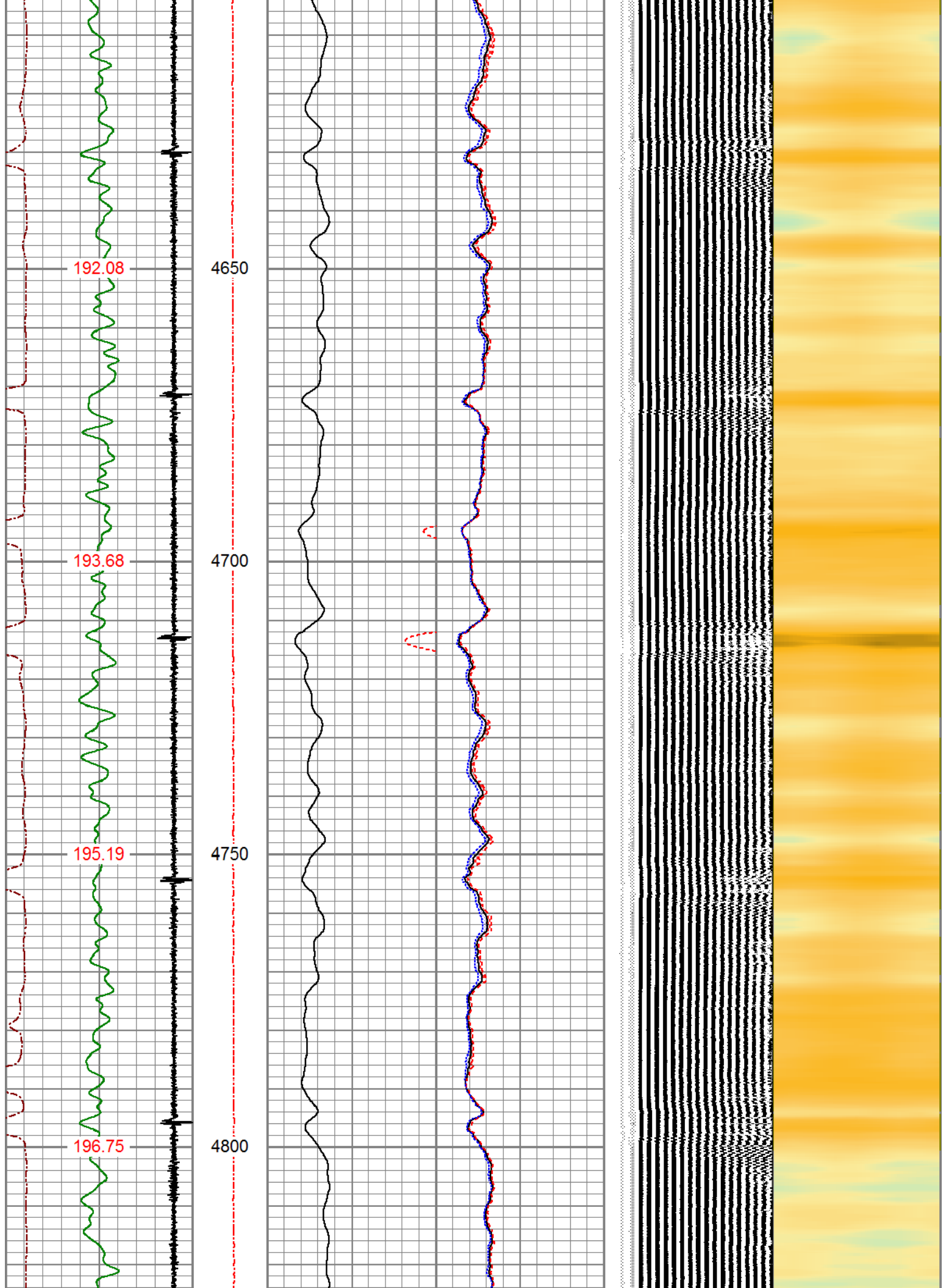


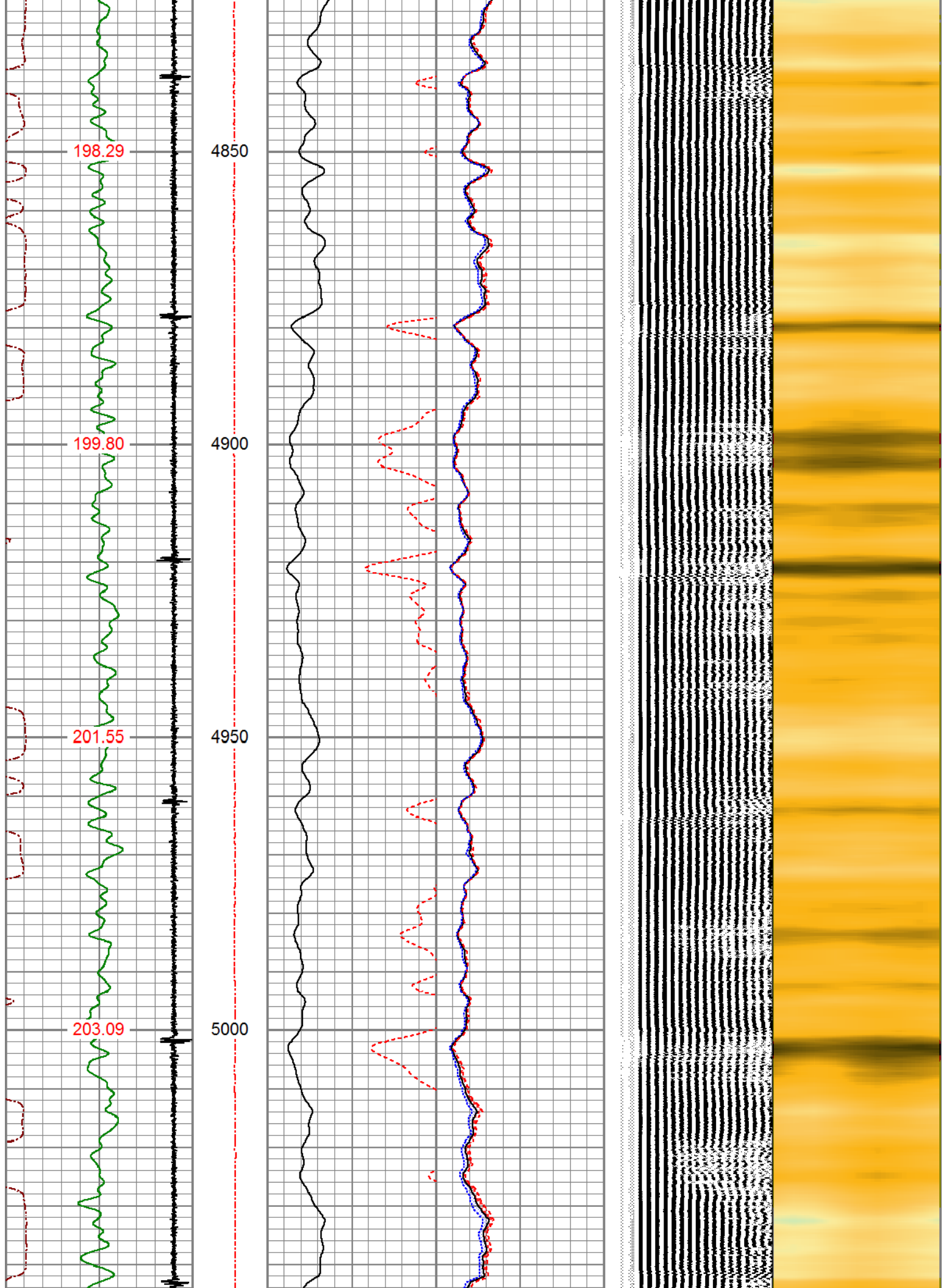


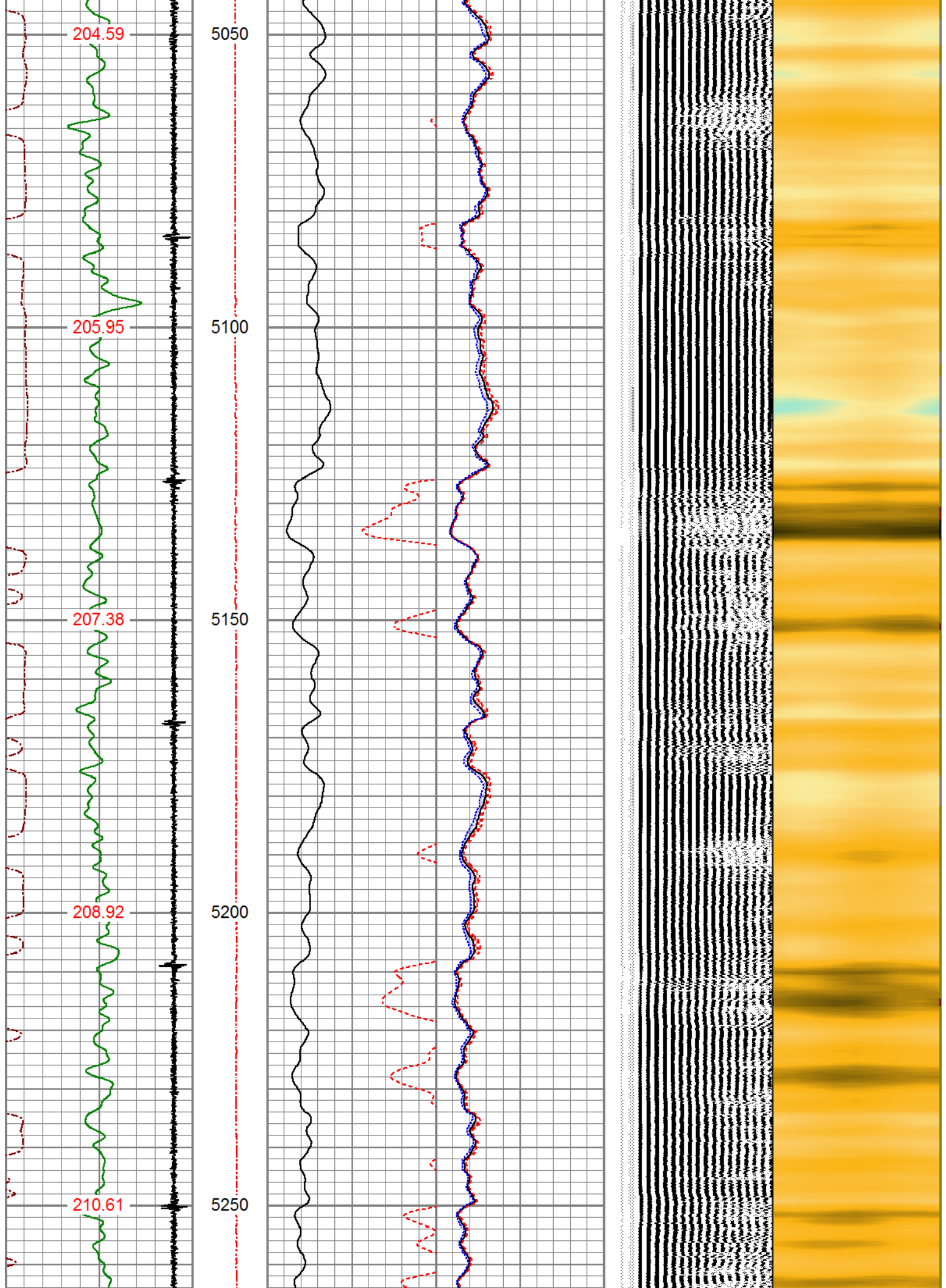


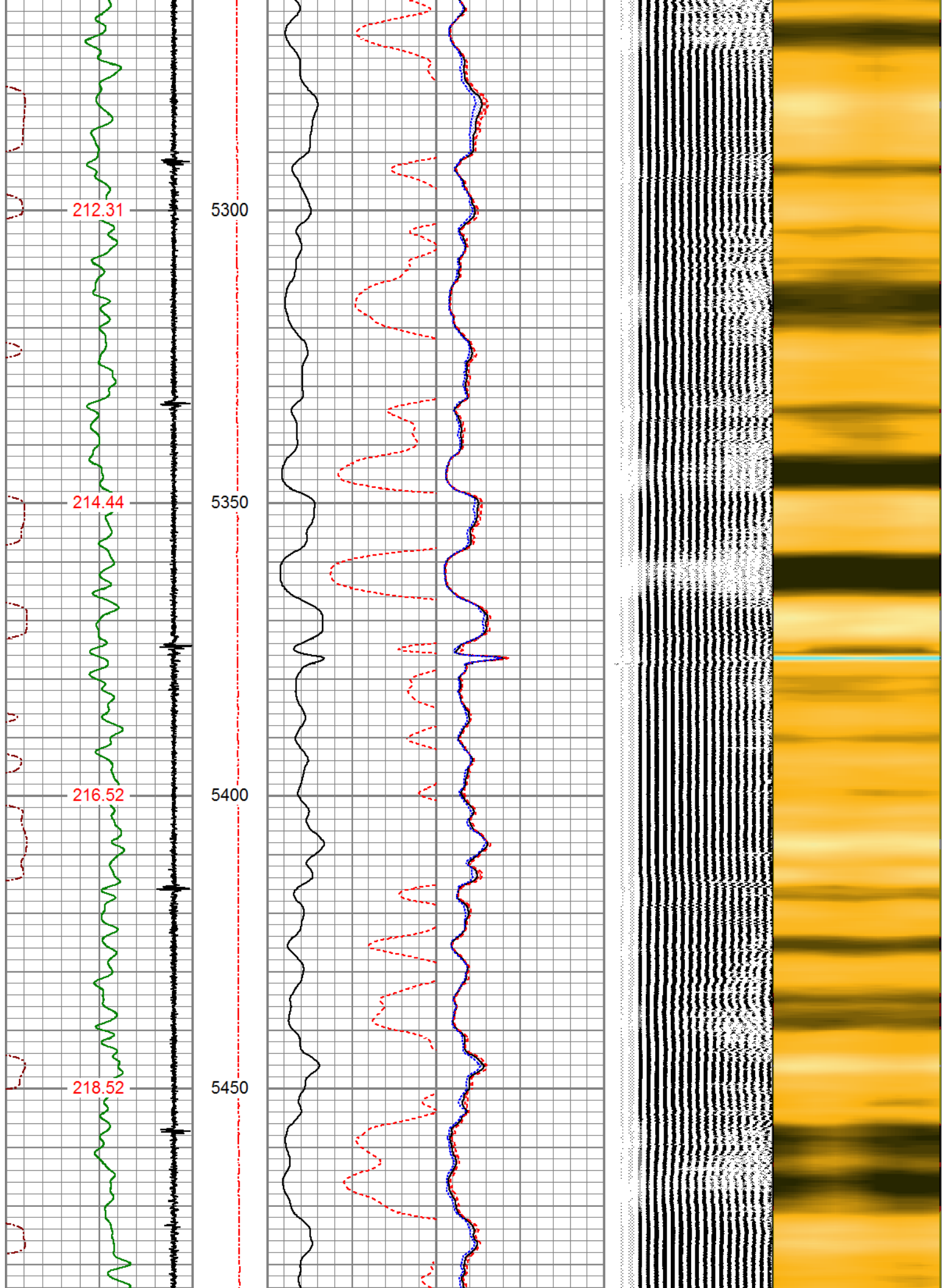


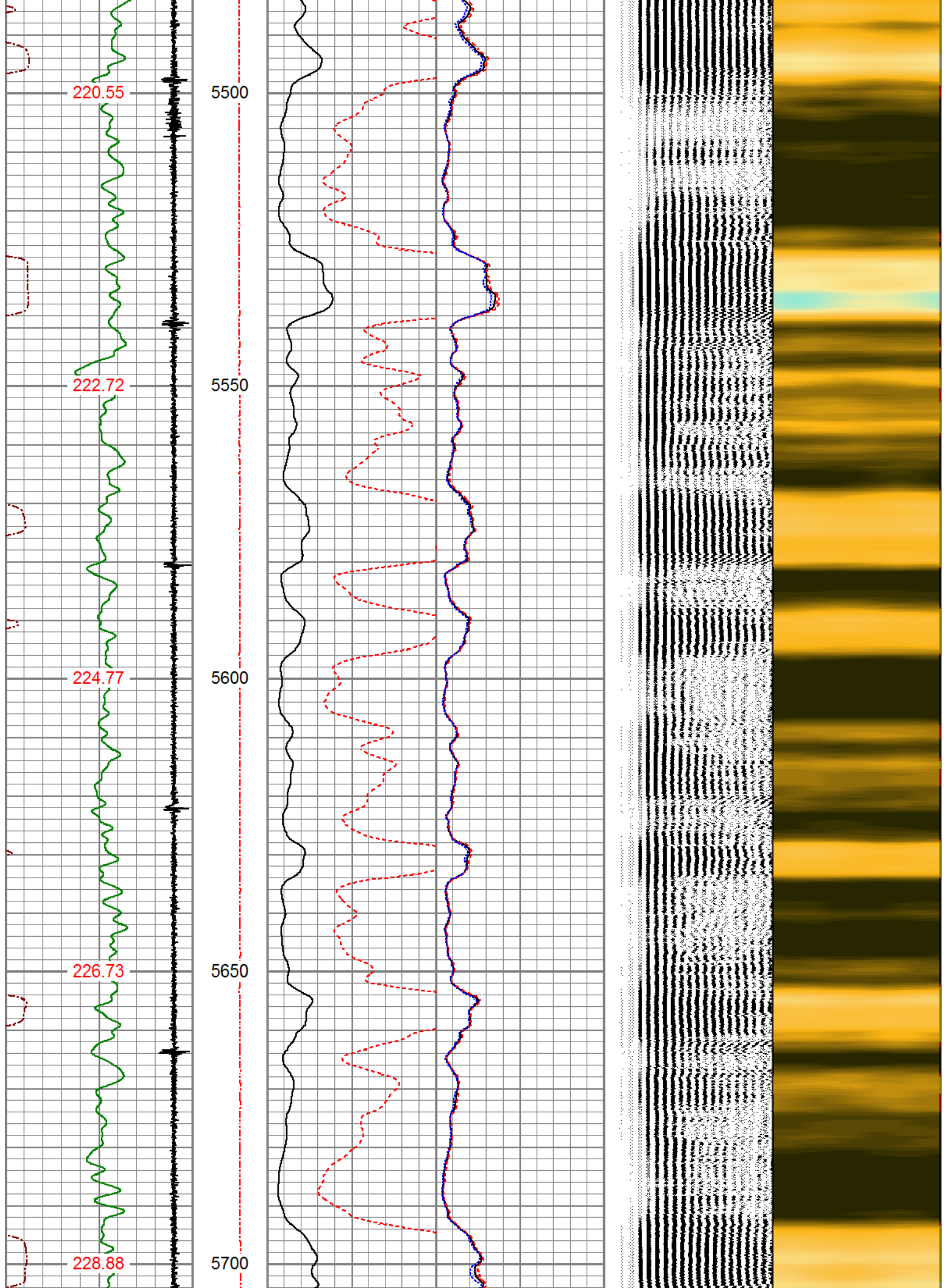


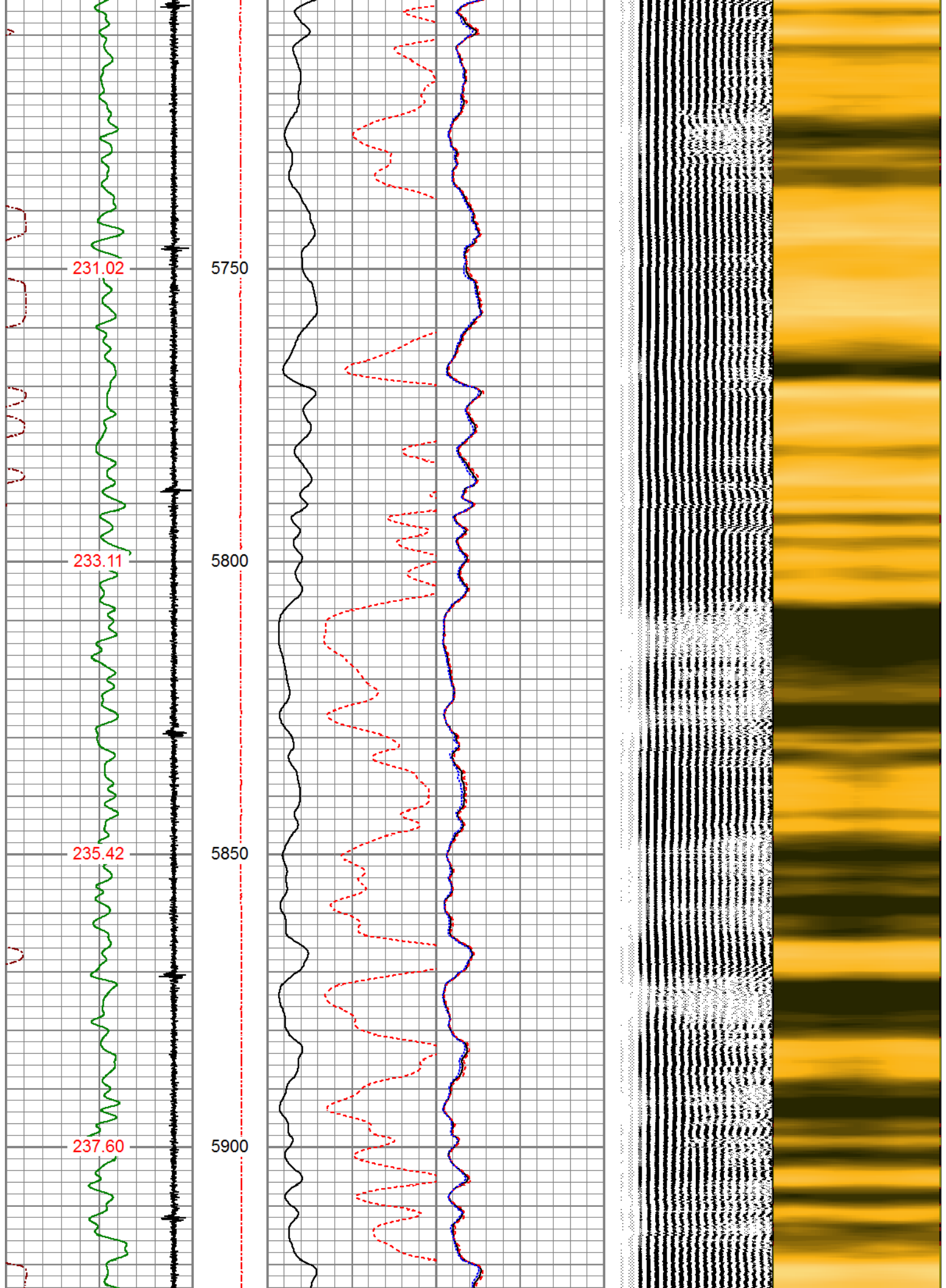


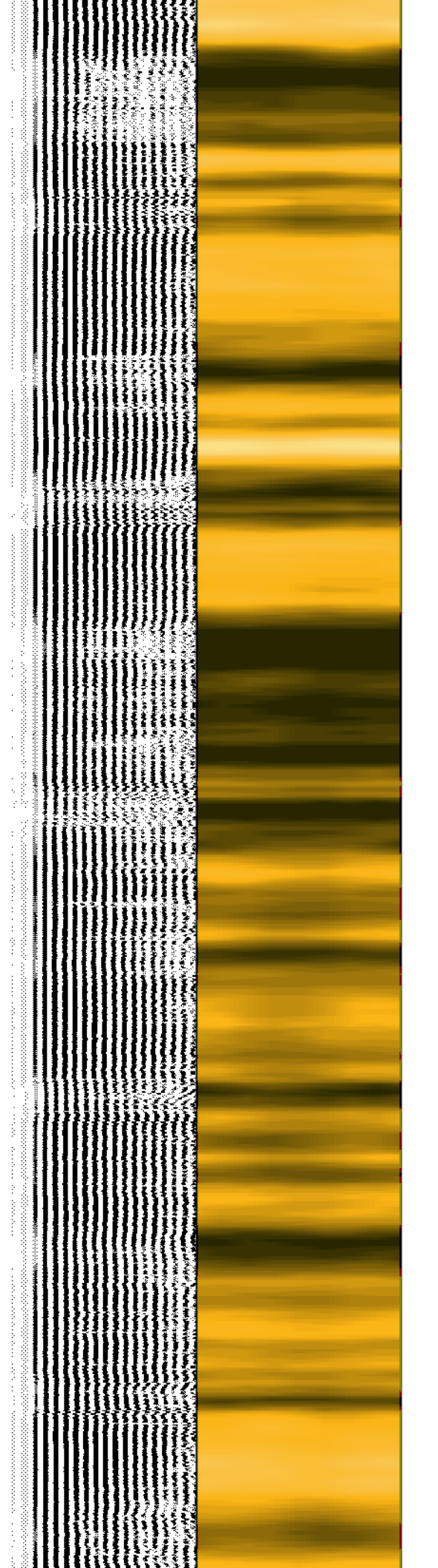
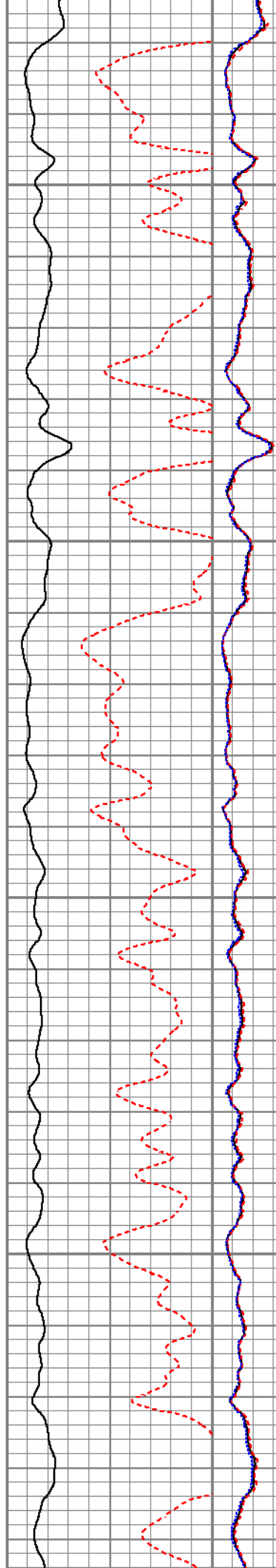
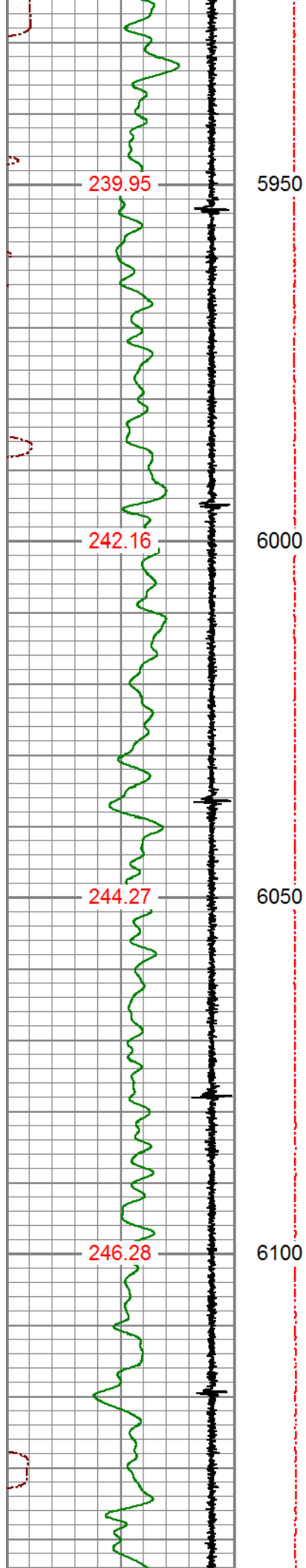


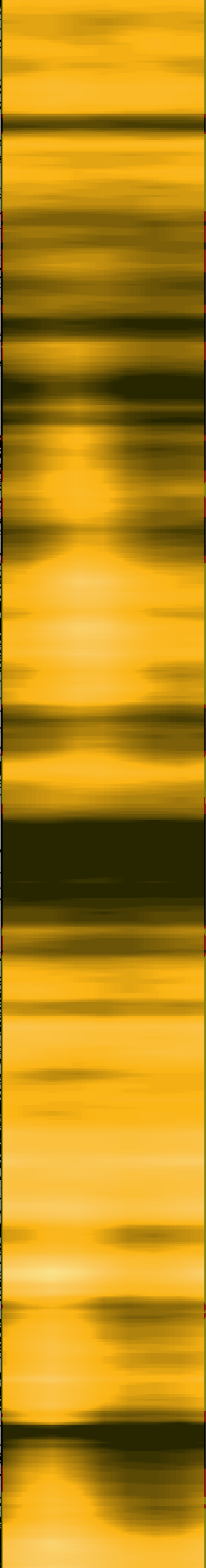
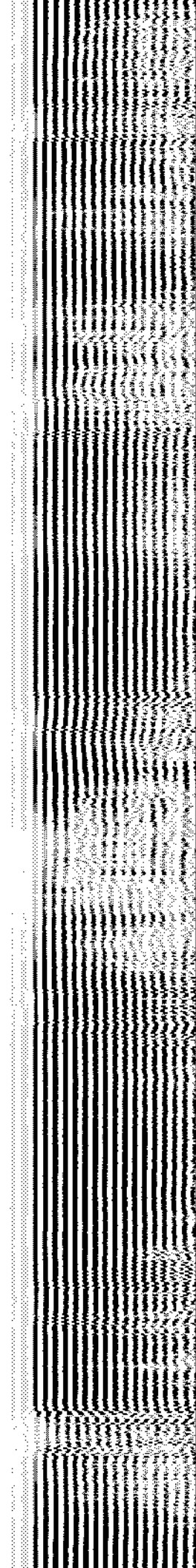
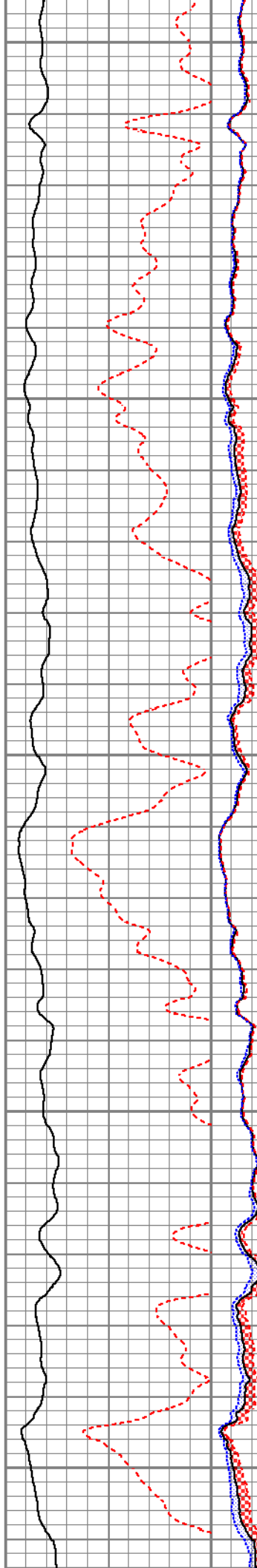
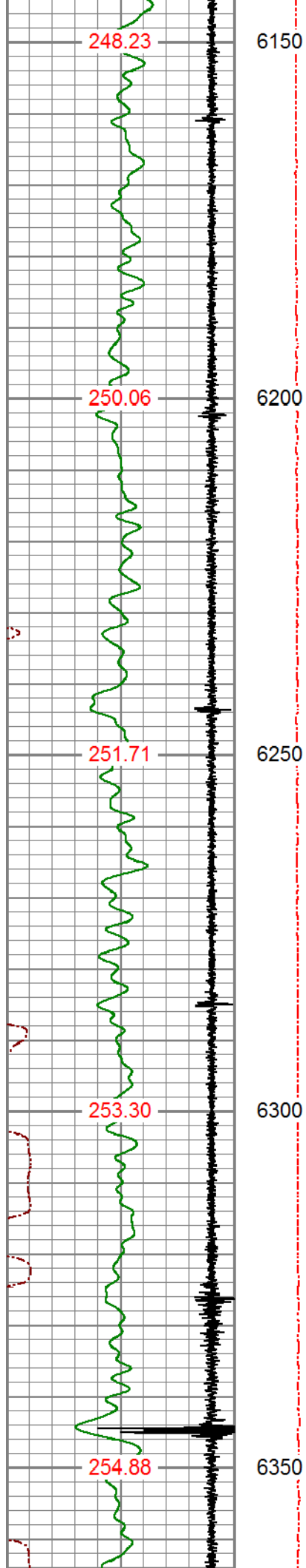


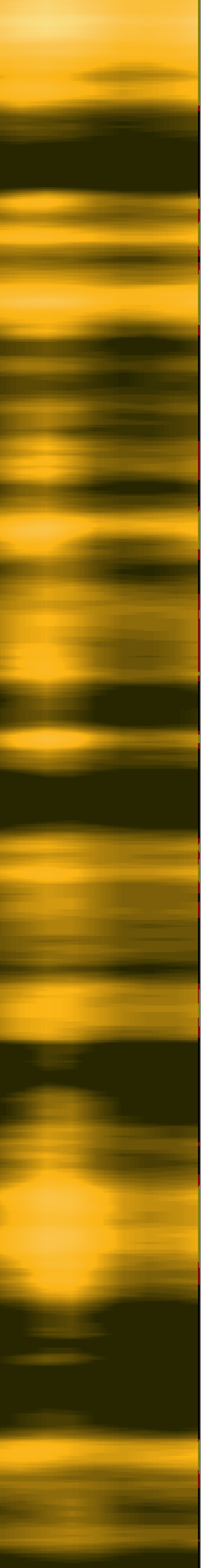
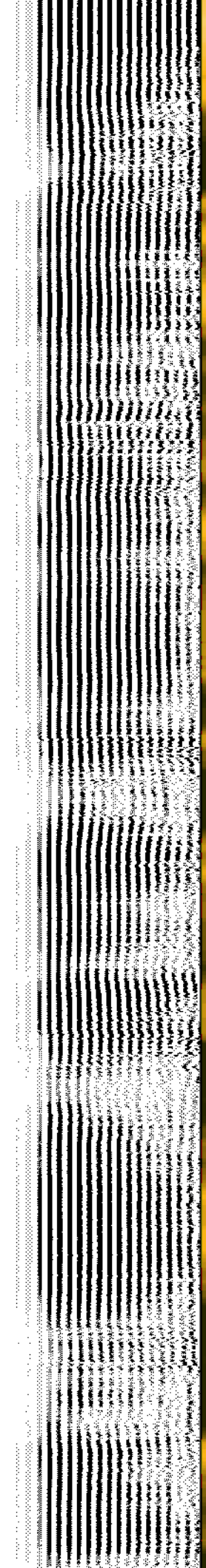
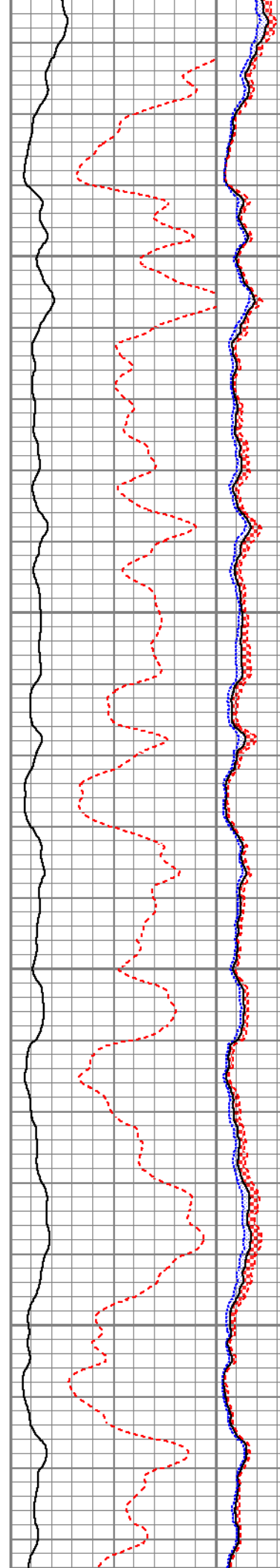
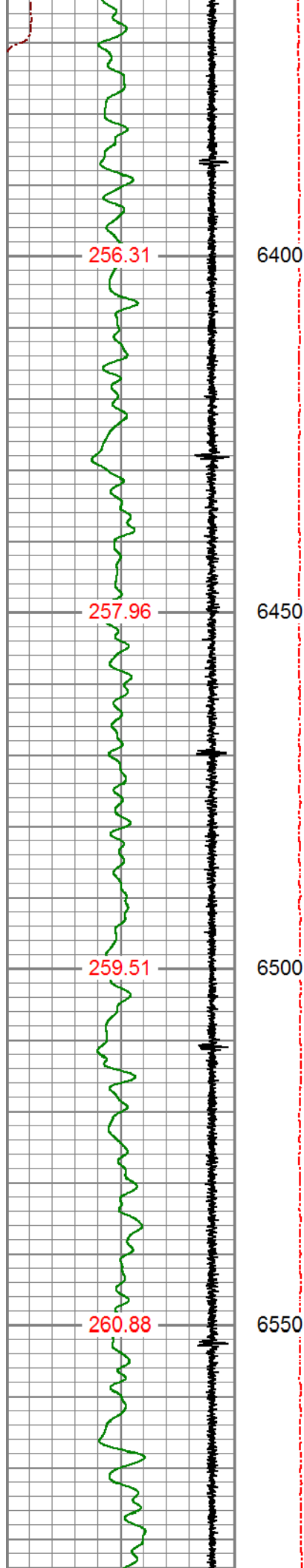


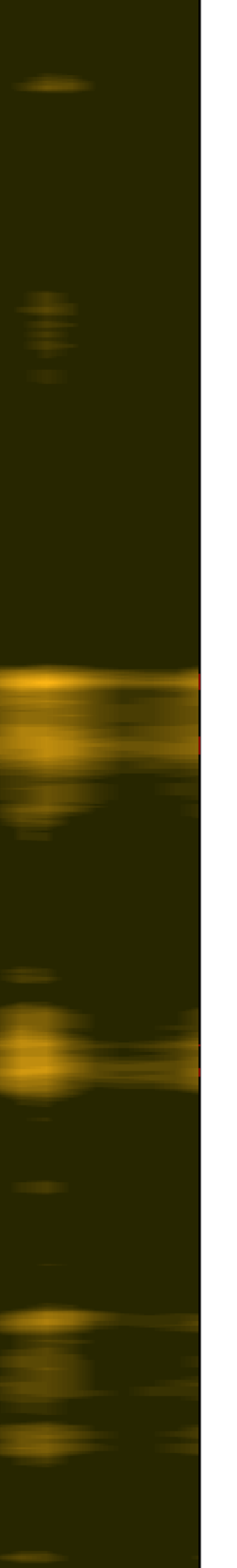
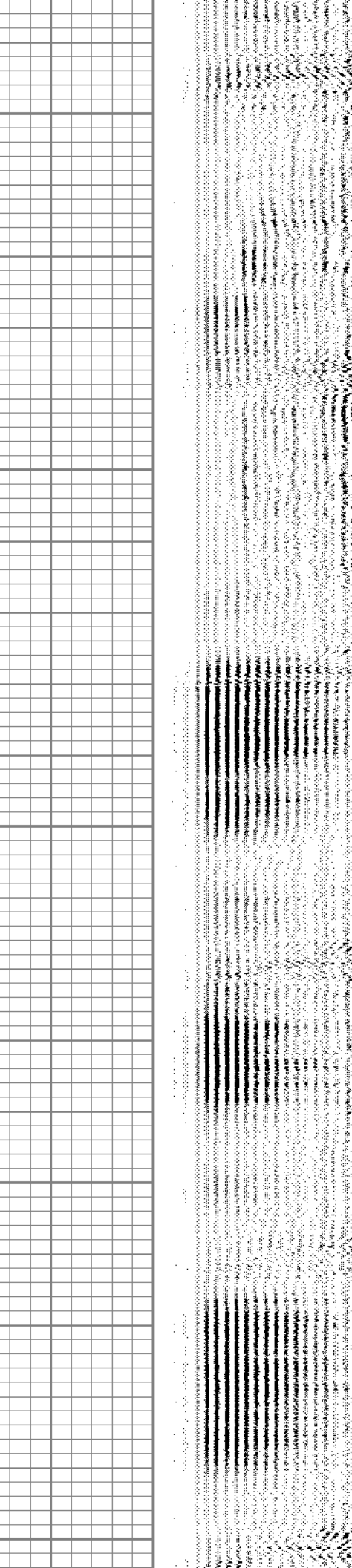
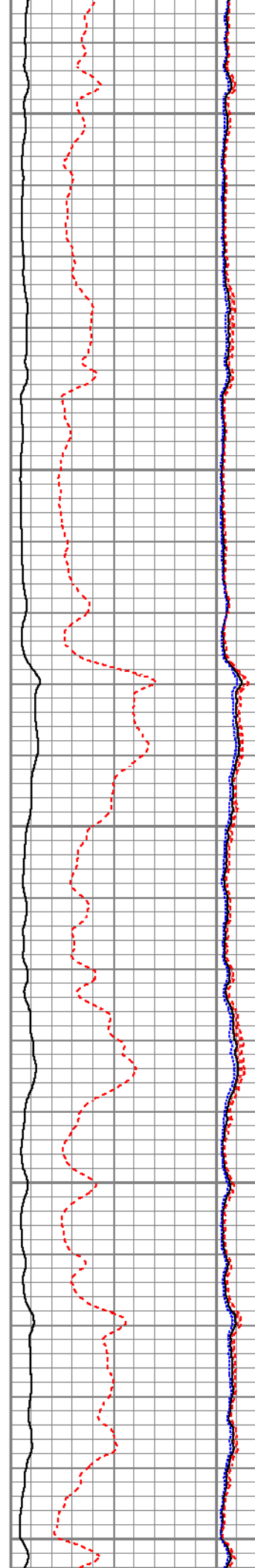
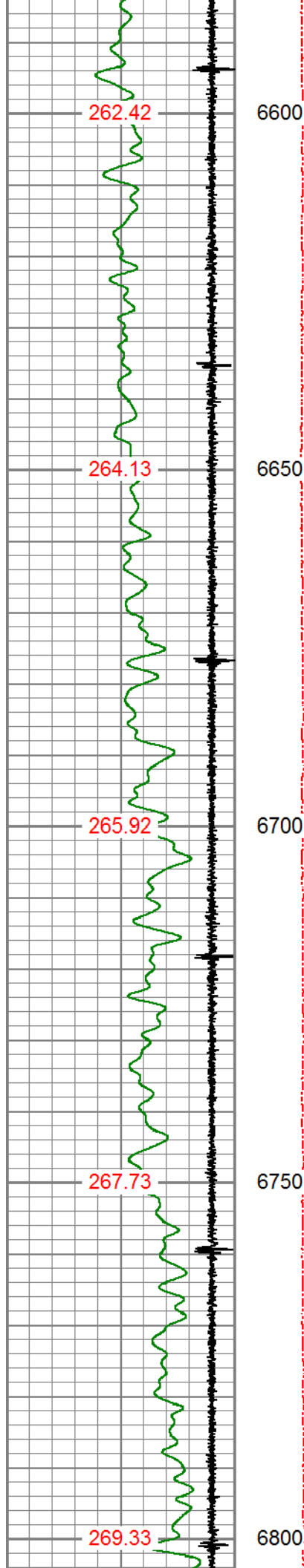


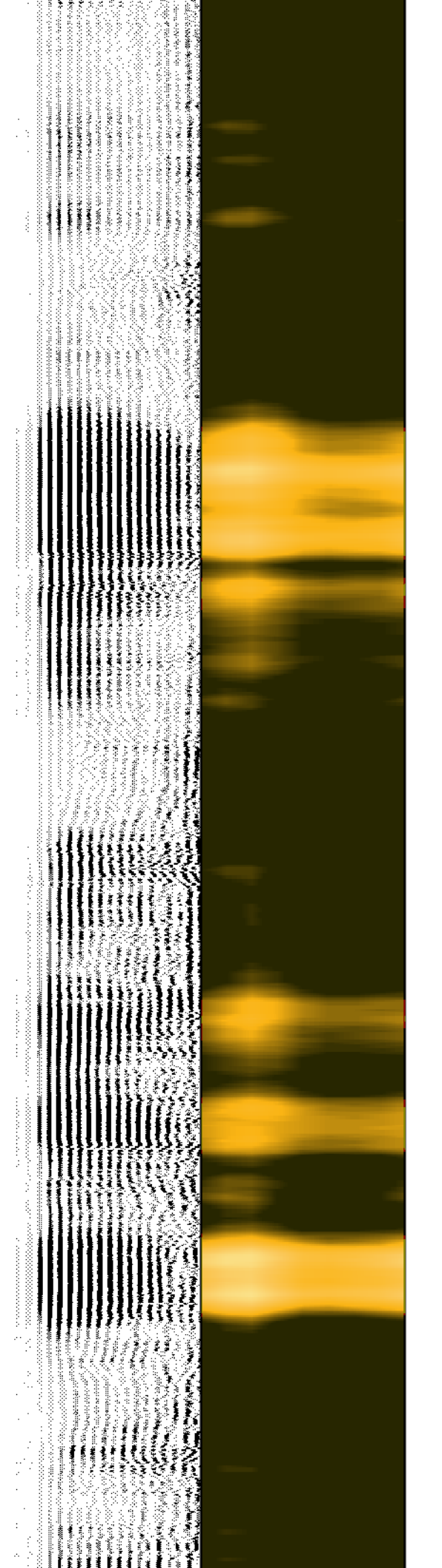
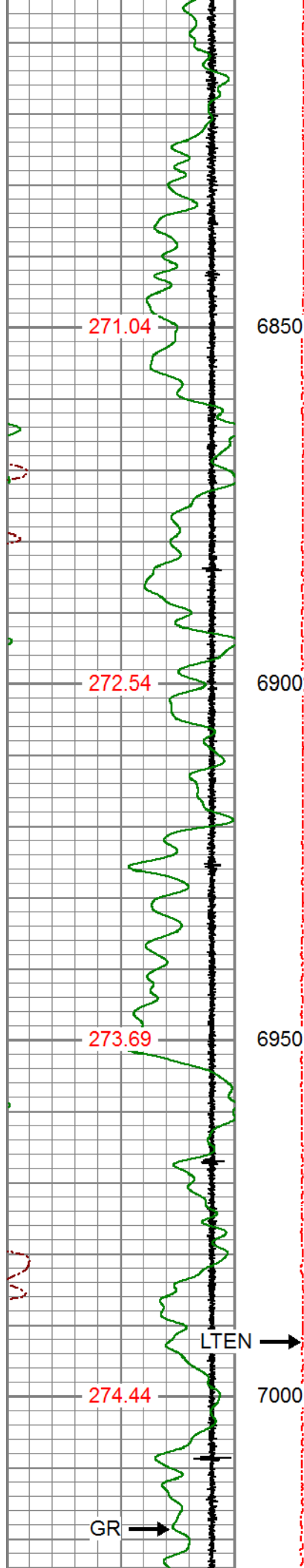


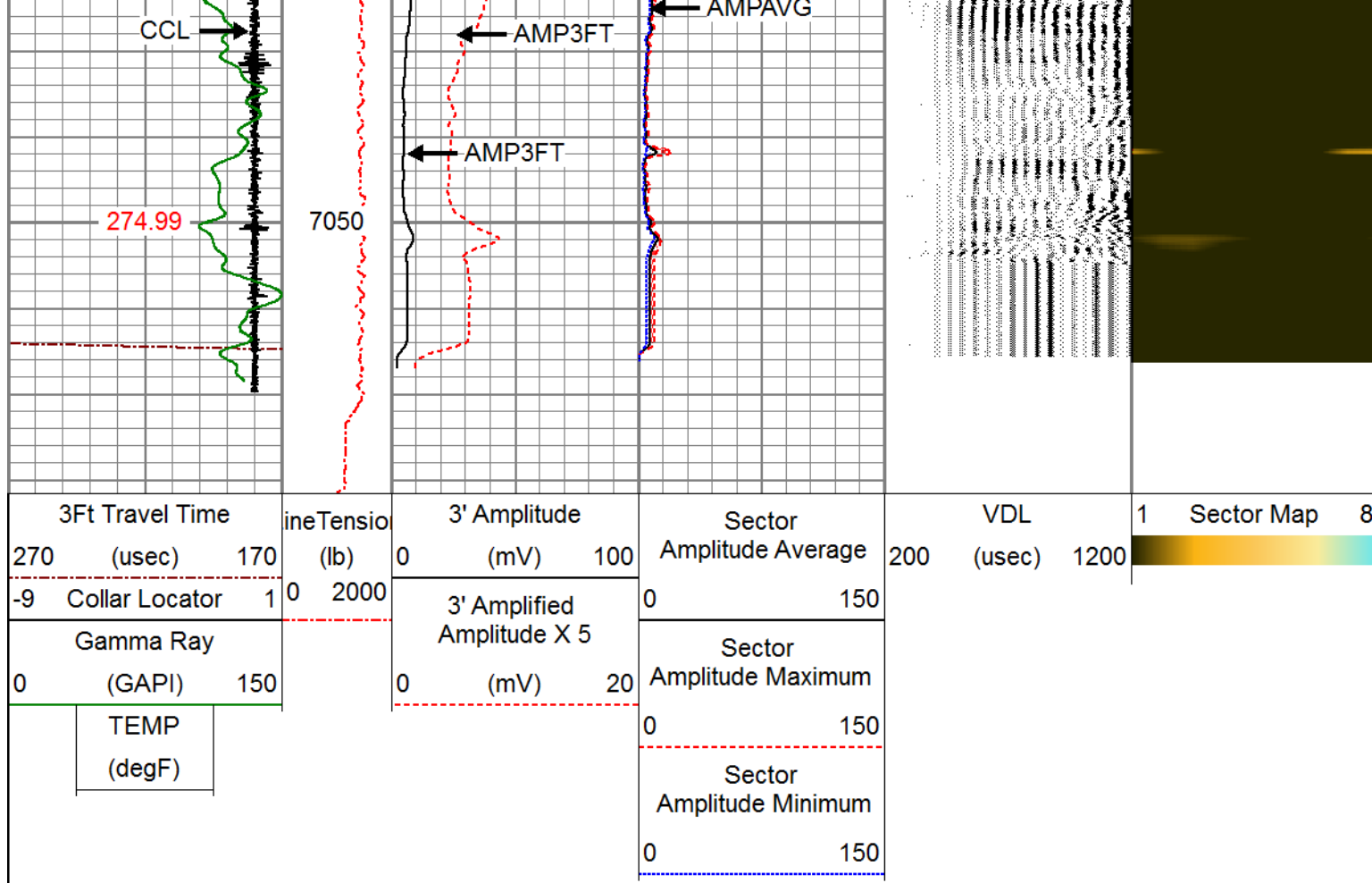
















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MAIN LOG

ZERO PSI APPLIED AT SURFACE

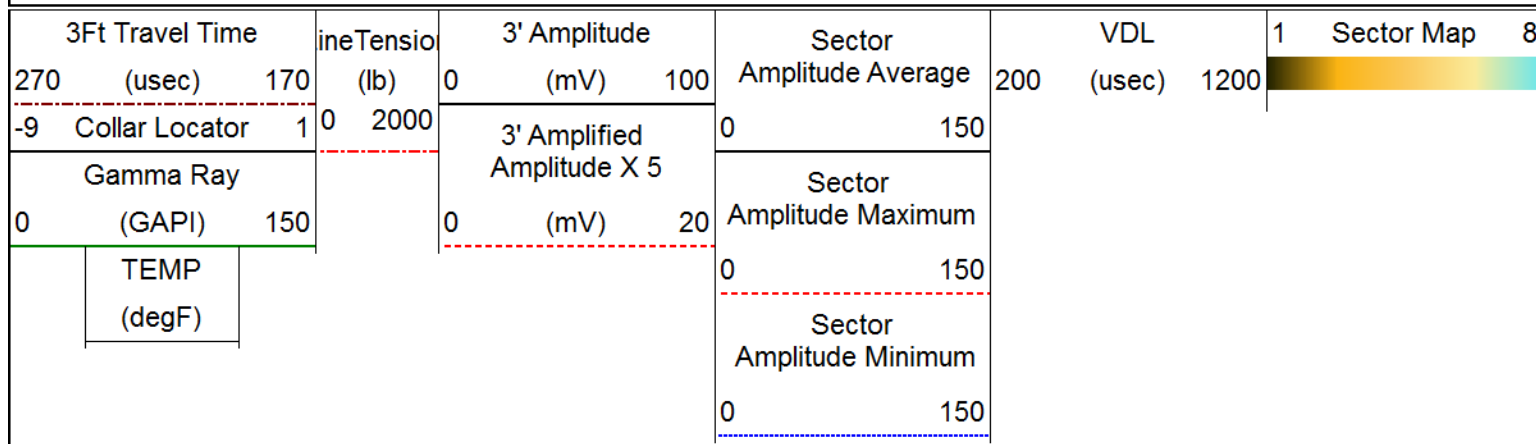


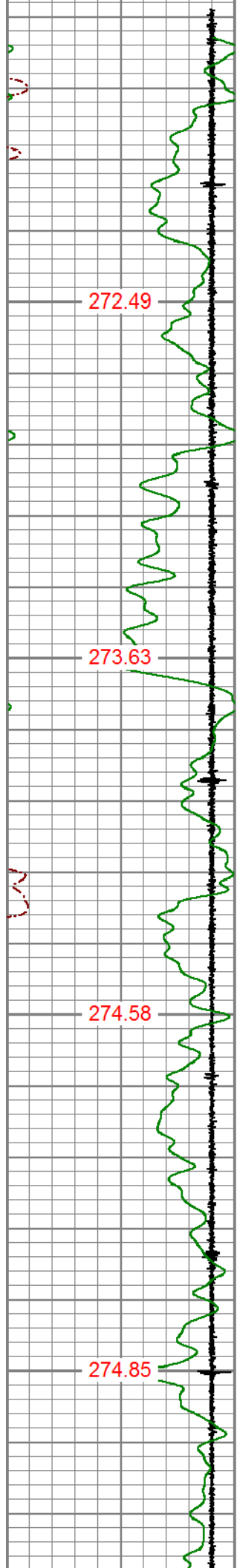
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REPEAT SECTION

ZERO PSI APPLIED AT SURFACE

Database File	pdh_harold_05123_20190225_scbl-cn1.db
Dataset Pathname	pass6
Presentation Format	pinr_scbl_co
Dataset Creation	Mon Feb 25 13:23:55 2019
Charted by	Depth in Feet scaled 1:240





272.49

273.63

274.58

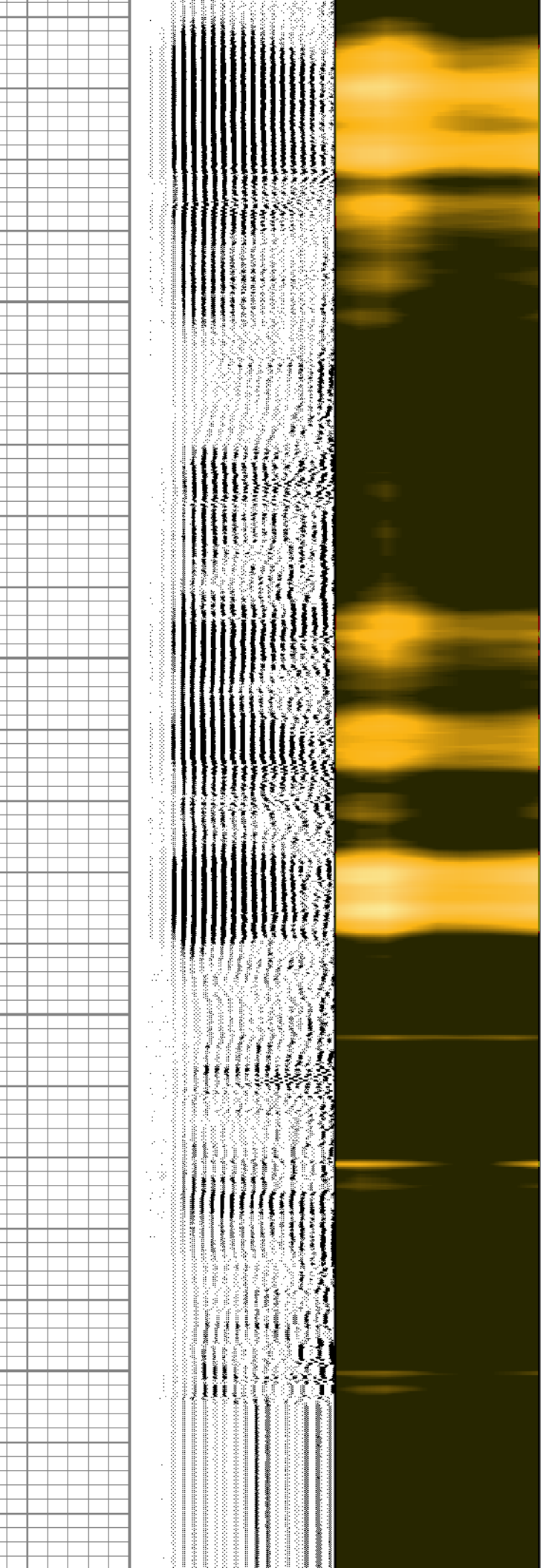
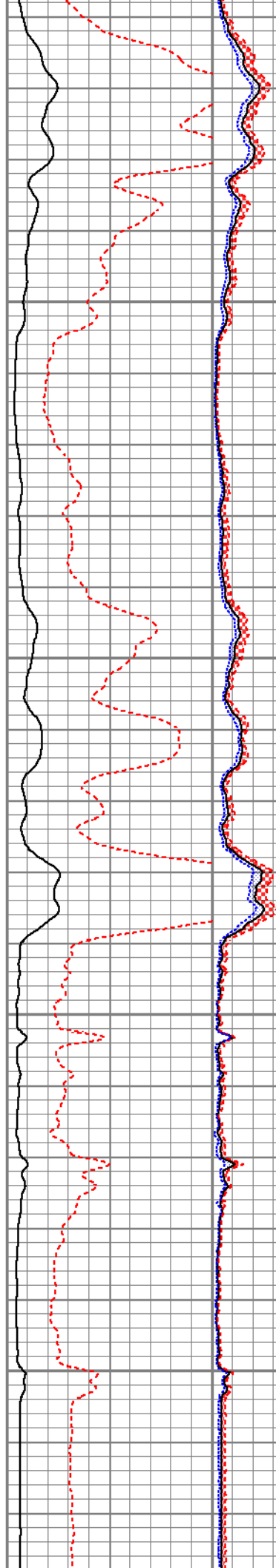
274.85

6900

6950

7000

7050



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

Calibration Report				
Database File	pdc_harold_05123_20190225_scbl-cn1.db			
Dataset Pathname	pass6			
Dataset Creation	Mon Feb 25 13:23:55 2019			
Compensated Neutron Calibration Report				
Type / Serial:		PRB_DIG / 120508		
Source / Verifier:		/		
Temperature:				
SHOP CALIBRATION		Tue Nov 20 10:33:19 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 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:	Mon Feb 25 13:01:04 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: FW1411-67-T
 Tool Model: RBL-DCT

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 2891.410 ft

Master Calibration, performed Mon Feb 25 13:05:01 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	1.358	2.200	71.921	51.551	1.905
CAL	0.018	1.493				
5'	0.001	1.269	2.200	71.921	55.006	2.144
SUM						
S1	0.003	1.244	0.000	100.000	80.581	-0.229
S2	0.005	1.285	0.000	100.000	78.115	-0.392
S3	0.005	1.319	0.000	100.000	76.081	-0.370
S4	0.003	1.452	0.000	100.000	68.992	-0.179
S5	0.001	1.561	0.000	100.000	64.095	-0.052
S6	0.001	1.530	0.000	100.000	65.396	-0.060
S7	0.001	1.421	0.000	100.000	70.423	-0.077
S8	0.001	1.320	0.000	100.000	75.781	-0.068

Air Zero Calibration, performed Mon Feb 25 12:18:55 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

Temperature Calibration Report

Serial Number: FW1411-67-T
 Tool Model: RBL-DCT
 Performed: (Not Performed)

	Reference		Reading	
Low Reference:	0.00	degF	0.00	degF
High Reference:	1.00	degF	1.00	degF
Gain:	1.00			
Offset:	0.00			
Delta Spacing	1			



Company PDC ENERGY INC.
 Well HAROLD 6X 202

PIONEER

Pioneer Energy Services

Well

Field

County

State

HAROLD 0X-202

WATTENBERG

WELD

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