



**PATRIOT**  
WELL SOLUTIONS


**SECTOR TOOL  
GAMMA RAY  
CCL**

Company		NOBLE ENERGY INC		Country		UNITED STATES		
Well		HOFFMAN C 2-21D						
Field		WATTENBERG						
County		WELD						
State		COLORADO						
Location:		AP1 # : 05-123-34678		Other Services		NONE		
Permanent Datum		SEC 2 TWP 4N RGE 64W		Elevation				
Log Measured From		GROUND LEVEL		K.B. 4633				
Drilling Measured From		KELLY BUSHING		D.F. 4633				
		KELLY BUSHING		G.L. 4620				
Date		25-JAN-20						
Run Number		ONE						
Depth Driller								
Depth Logger								
Bottom Logged Interval		2494.5						
Top Log Interval		SURFACE						
Open Hole Size								
Type Fluid		WATER						
Density / Viscosity								
Max. Recorded Temp.								
Estimated Cement Top								
Time Well Ready								
Time Logger on Bottom								
Equipment Number		1016						
Location		BRIGHTON						
Recorded By		D.MARTIN						
Witnessed By		S.RECORD						
Borehole Record				Tubing Record				
Run Number		Bit	From	To	Size	Weight	From	To
Casing Record		Size		Wgt/Ft		Top		Bottom
Surface String								
Prot. String								
Production String		4.5		11.6#				
Liner								

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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.

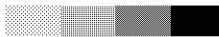
Comments

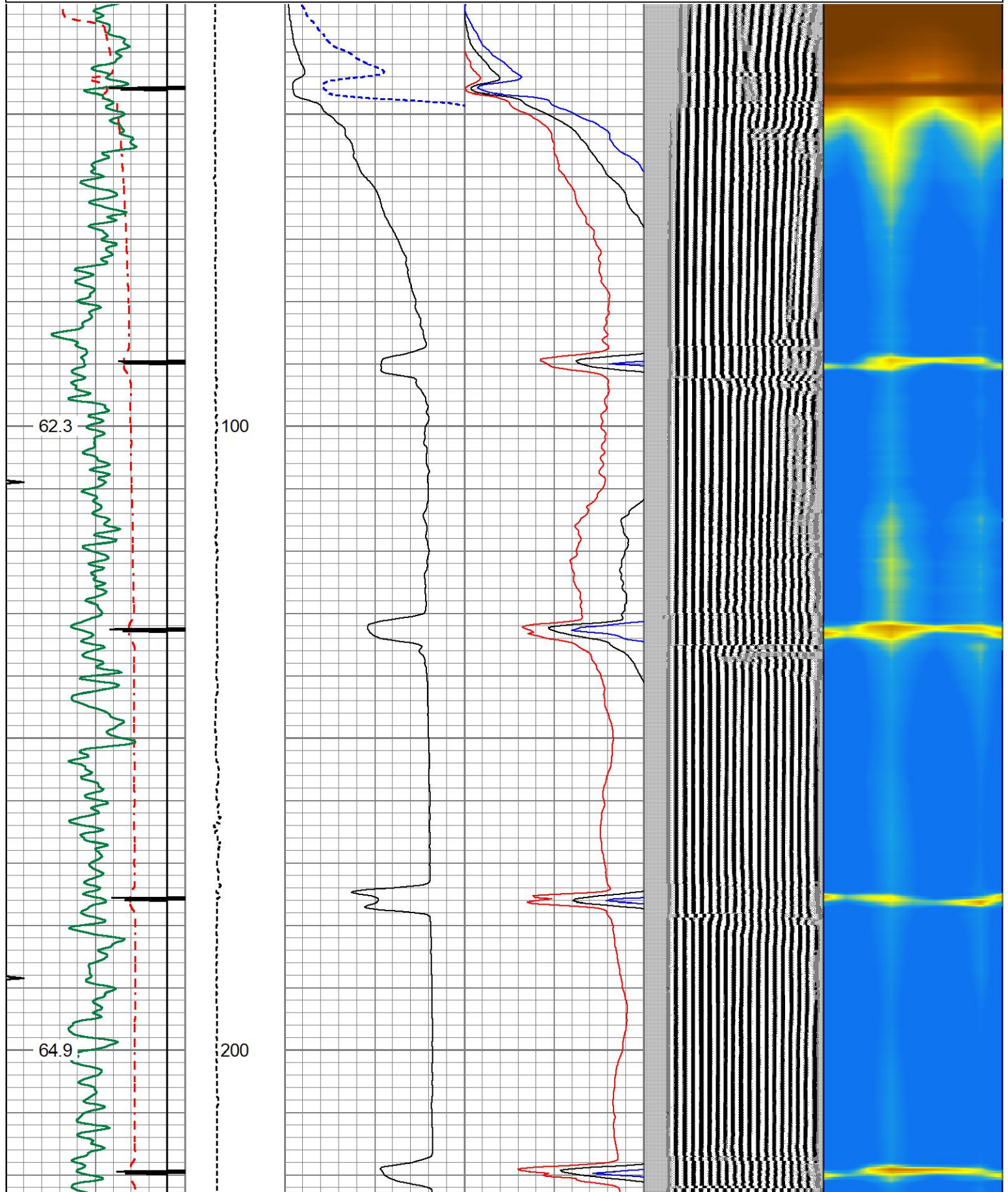
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan-1.4375 1 7/16 Titan Type II Cable Head	1.03	1.44	5.00

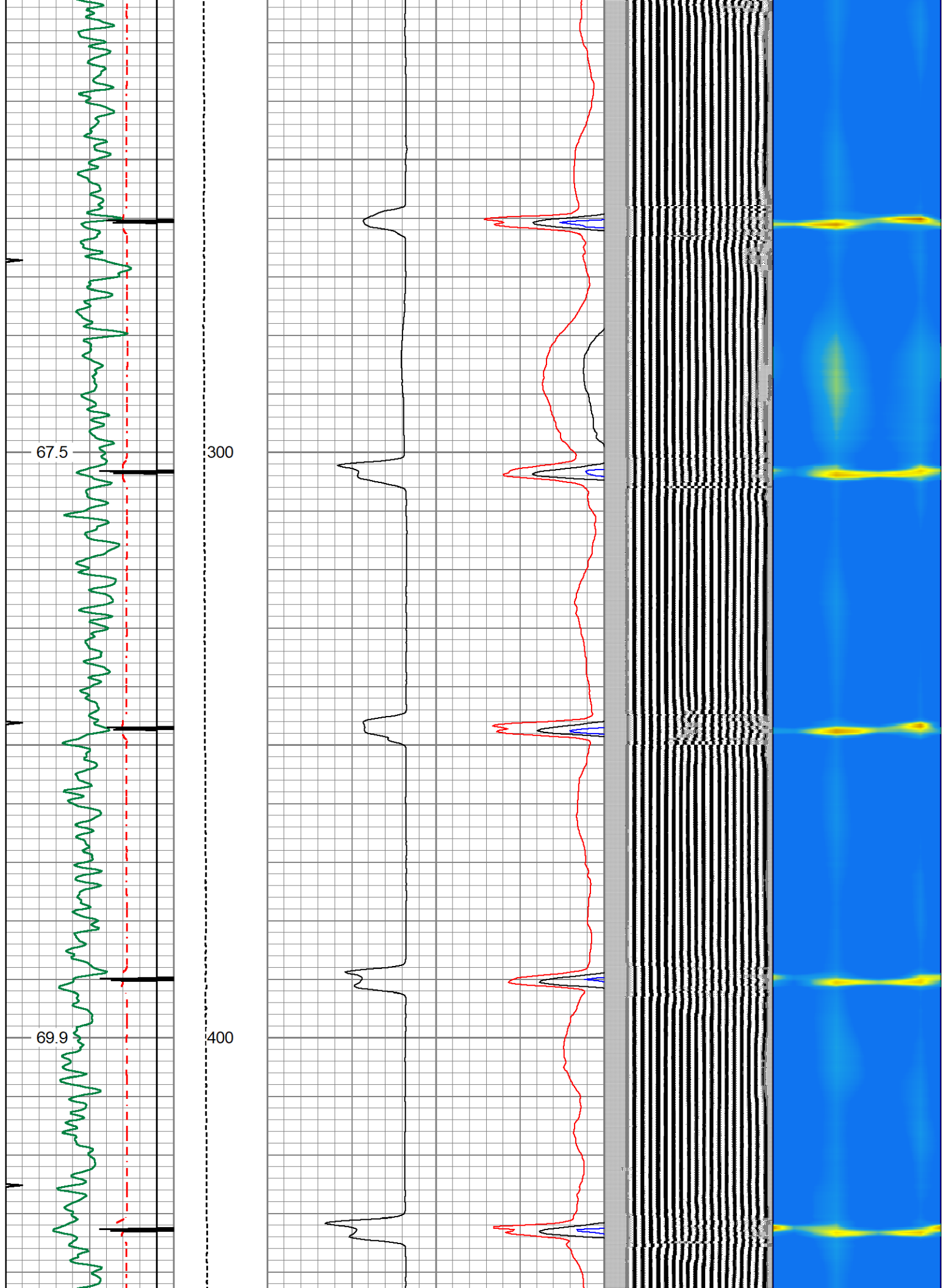
			Tek-2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00
WVFSYNC	16.00					
WVFCAL	16.00					
TEMP	14.87					
WVFS8	13.58					
WVFS7	13.58		SCBLTEKSECT-275 Temp JS (IBUCO03)	9.13	2.75	130.00
WVFS6	13.58		TekCo 2 3/4" 400 Deg. F Sector Tool with Temperature (JS)			
WVFS5	13.58					
WVFS4	13.58					
WVFS3	13.58					
WVFS2	13.58					
WVFS1	13.58					
WVF3FT	12.83					
WVF5FT	11.83					
WVFTEMP	8.50					
			Tek-2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00
CCL	4.62		CCL-275tekco (257) Tekco 2 3/4" 450 Deg. F Rare Earth Magnets	1.83	2.75	33.00
GR	1.31		GR-Tek-Co 2 3/4 (234GR4-267) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray	3.67	2.75	40.00
			Titan-1.375_Cap Titan 1 3/8" Cap	0.27	1.38	1.00
Dataset: hoffman c 2-21d-cbl.db: field/well/run1/pass1.3 Total length: 21.39 ft Total weight: 259.00 lb O.D.: 2.75 in						

Database File hoffman c 2-21d-cbl.db  
 Dataset Pathname pass1.3  
 Presentation Format 1patriotradii  
 Dataset Creation Sat Jan 25 10:42:44 2020  
 Charted by Depth in Feet scaled 1:240

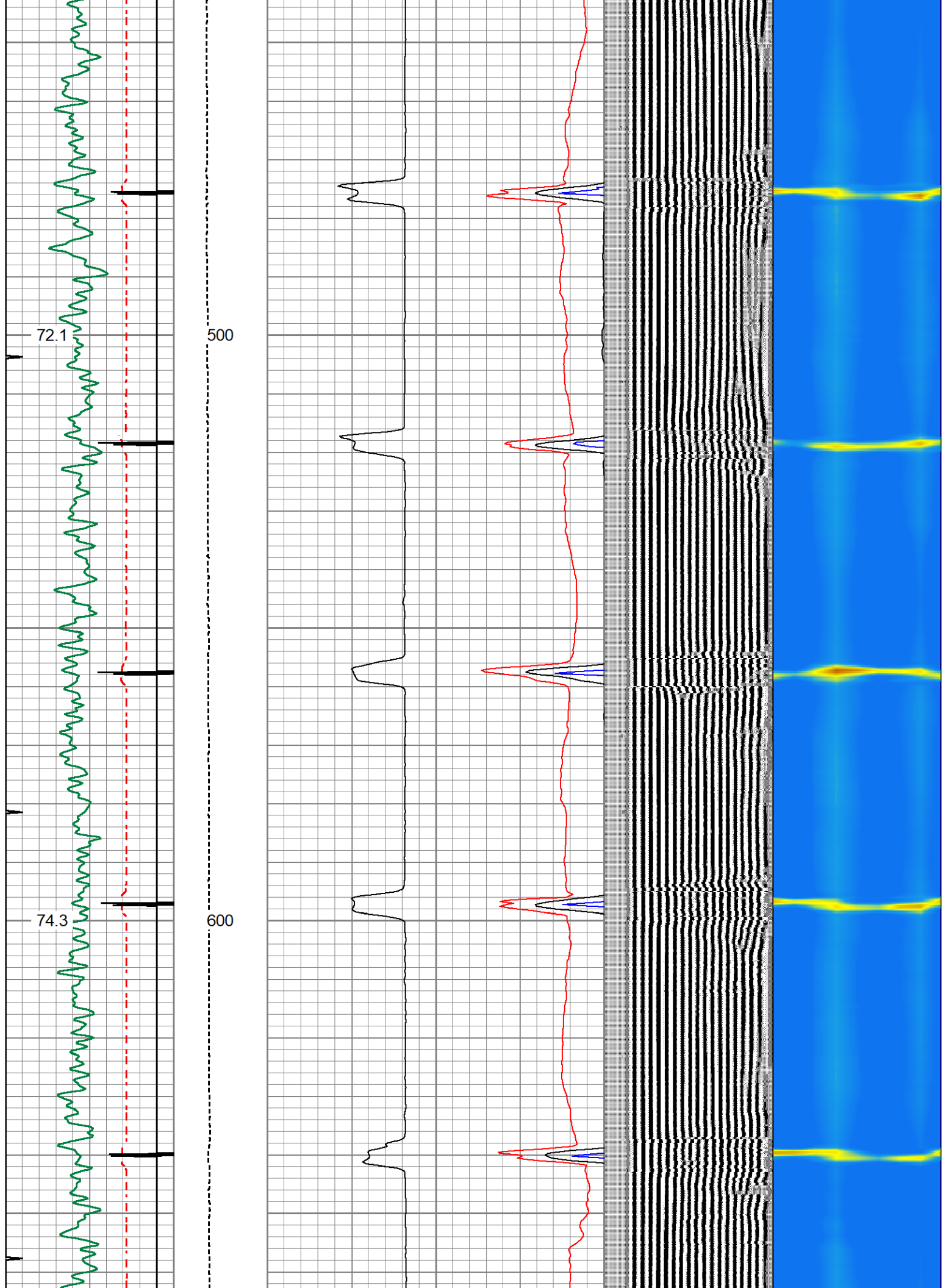


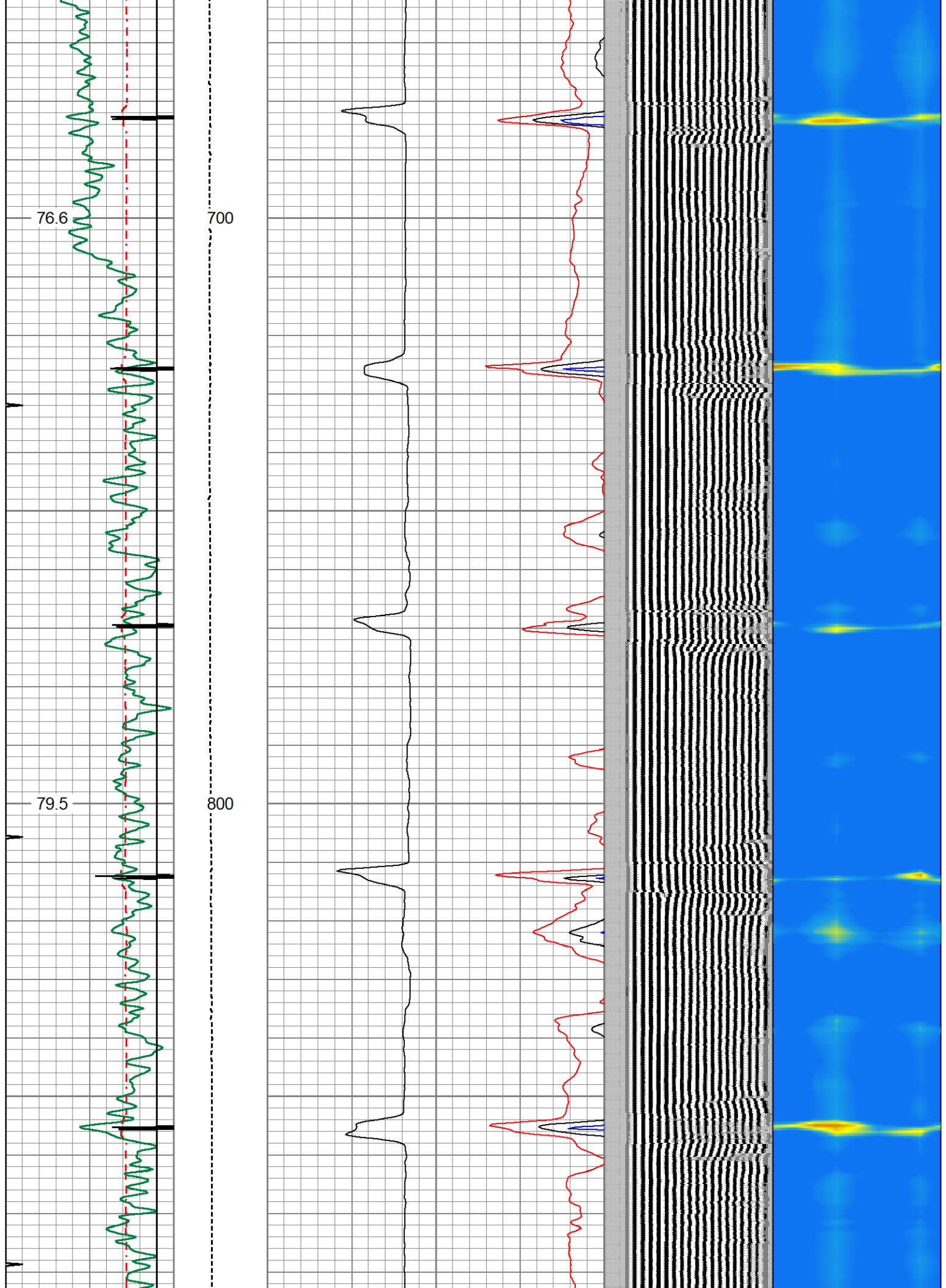
Charted by			Depth in Feet scaled 1:240												
400	TT (usec)	200	LTEN	0	AMP (mV)	100	0	AMPAVG	100	200	VDL (usec)	1200	1	RADIAL MAP	8
0	GR	150	0 (lb/1000)	0	3FT X 5 (mV)	20	0	AMPMAX	100						
9	CCL	-1					0	AMPMIN	100						
TEMP															
(degF)															



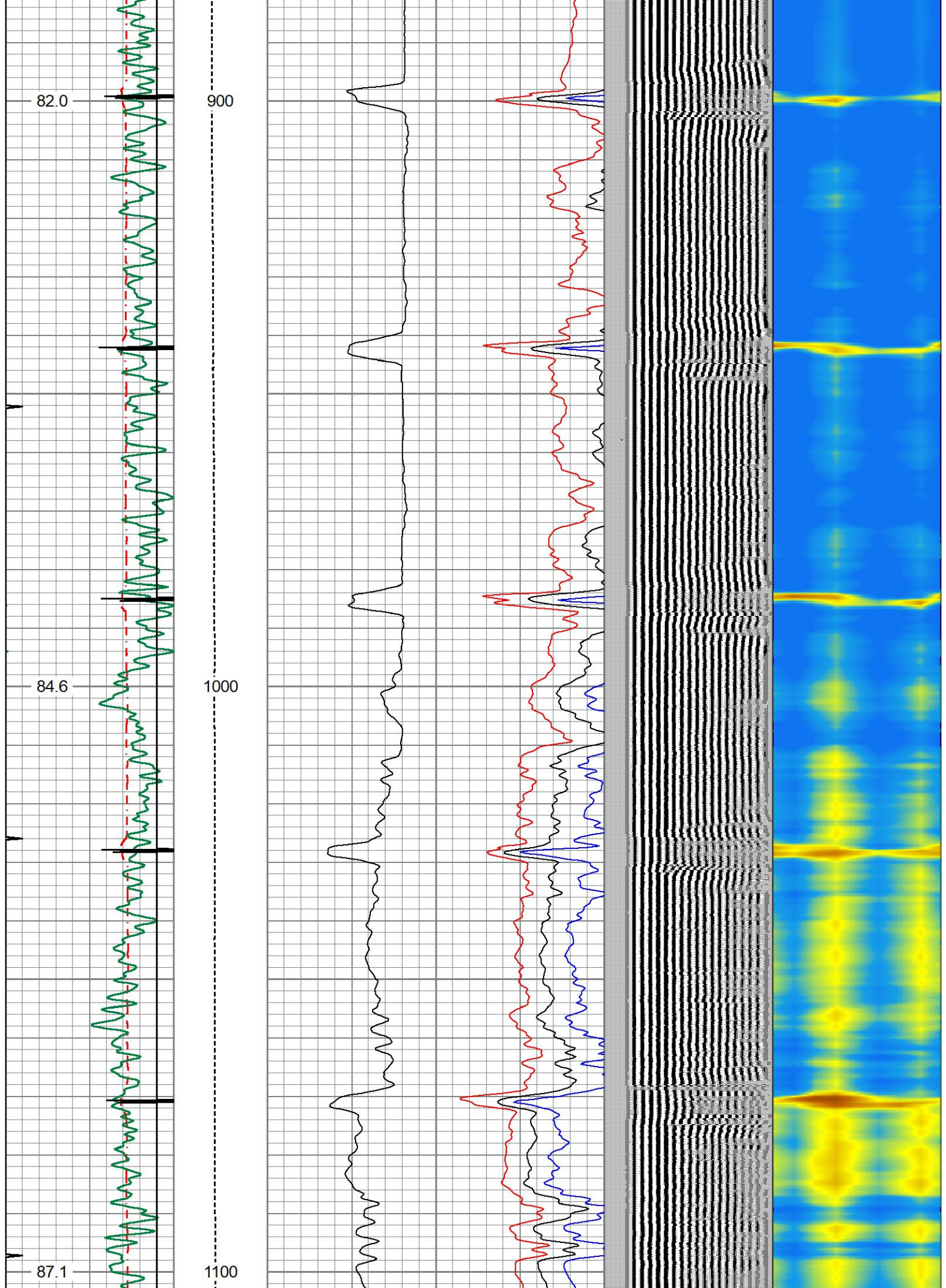




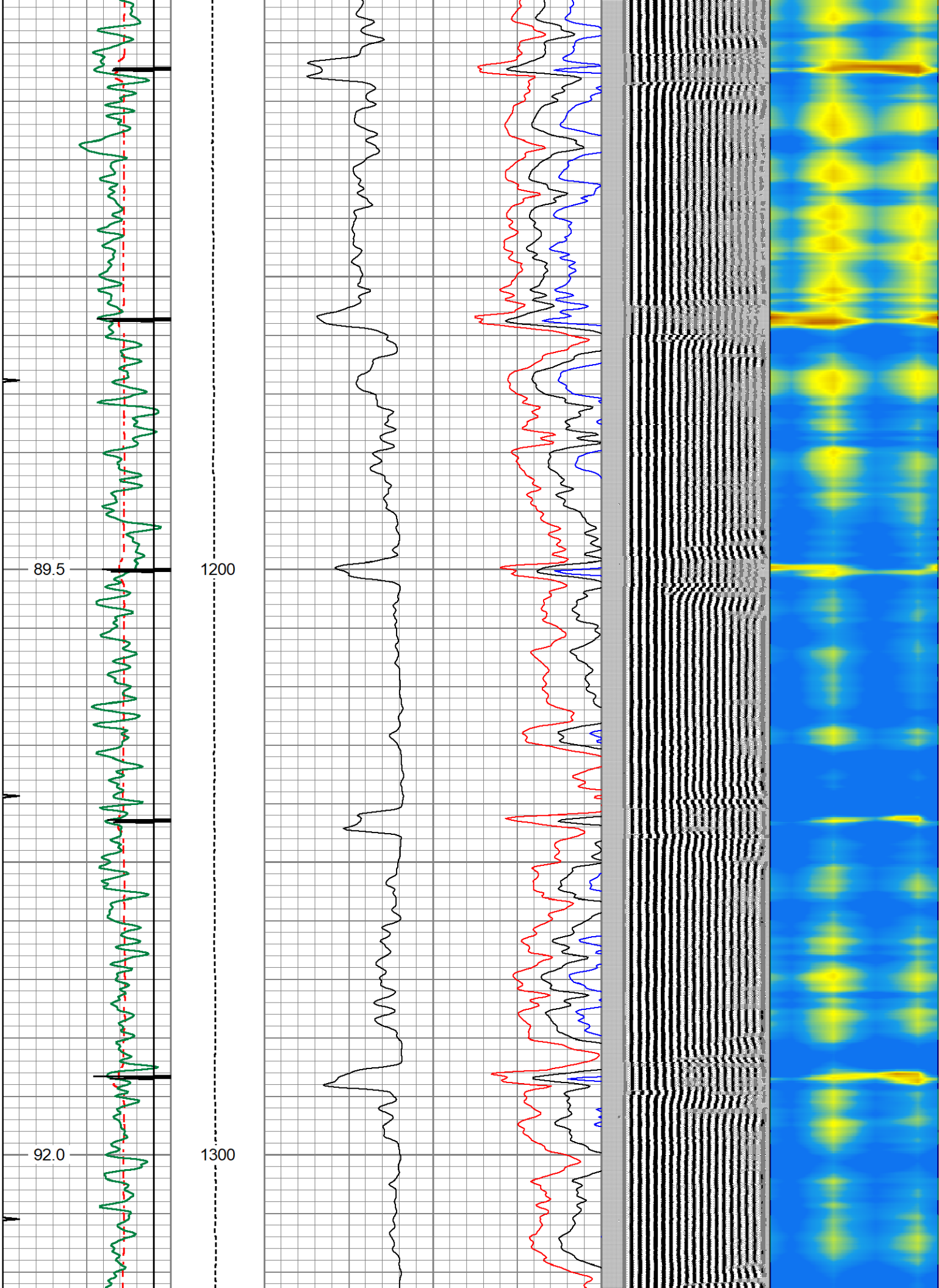




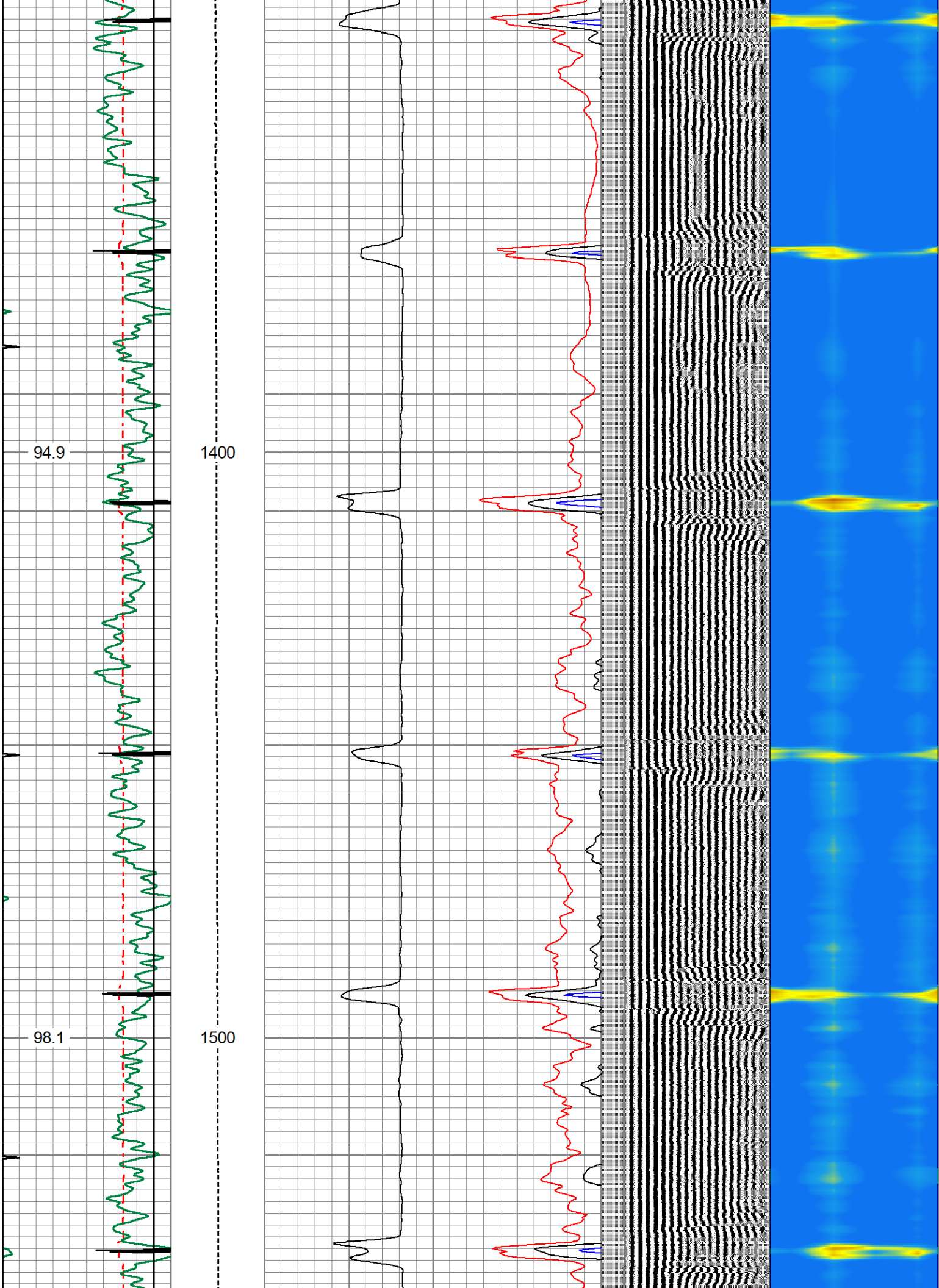


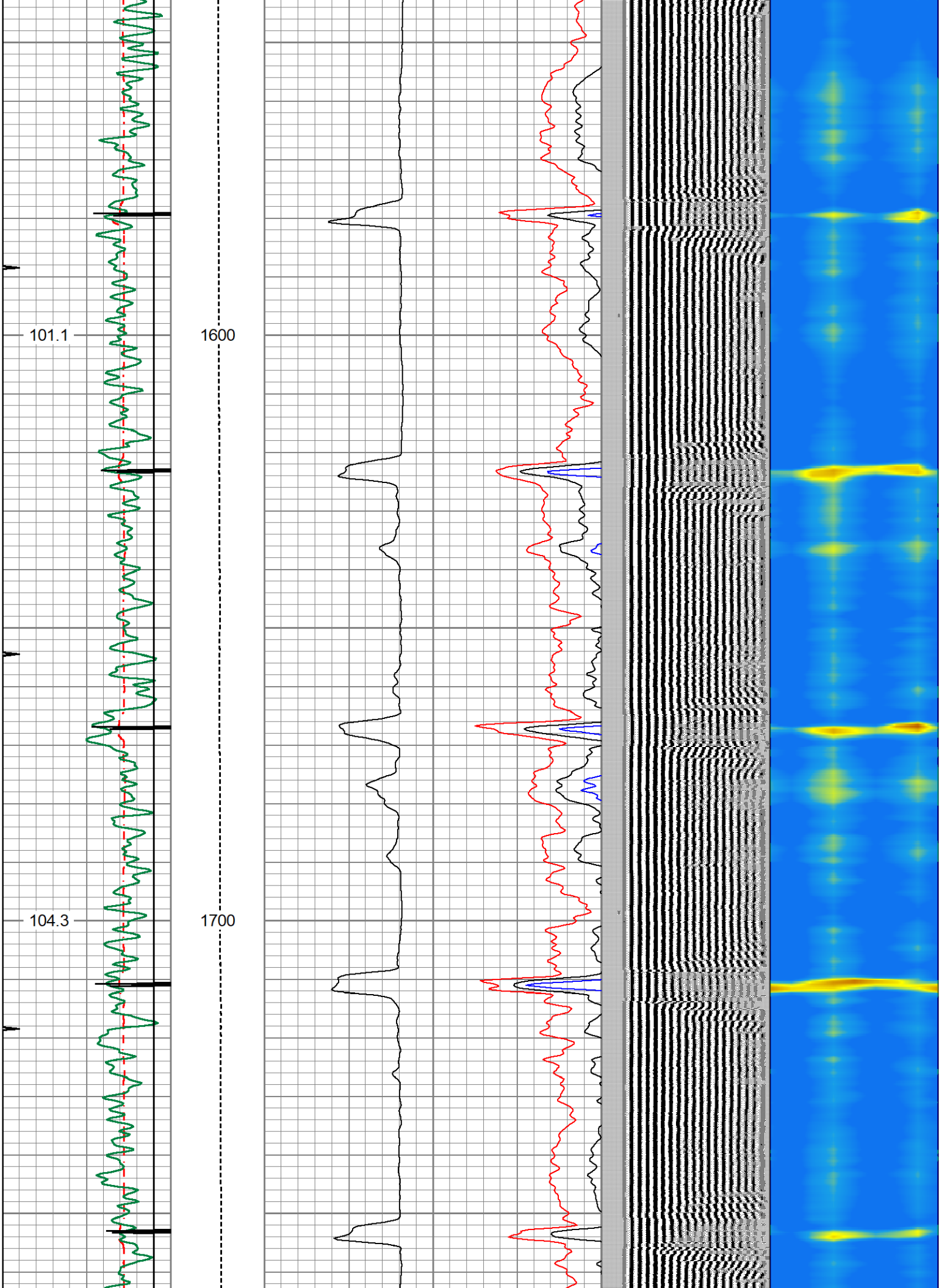




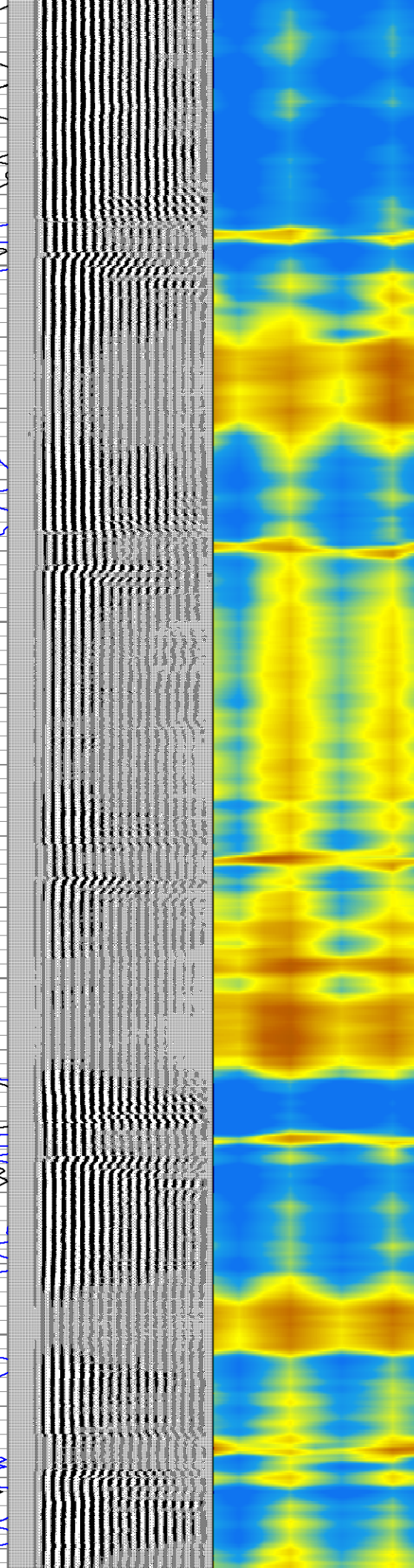
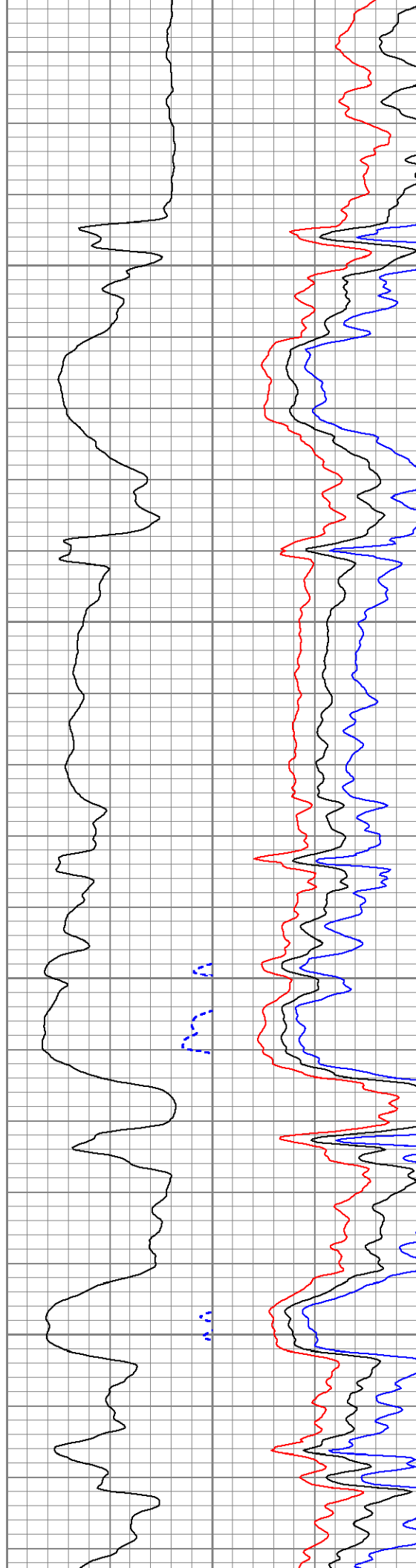
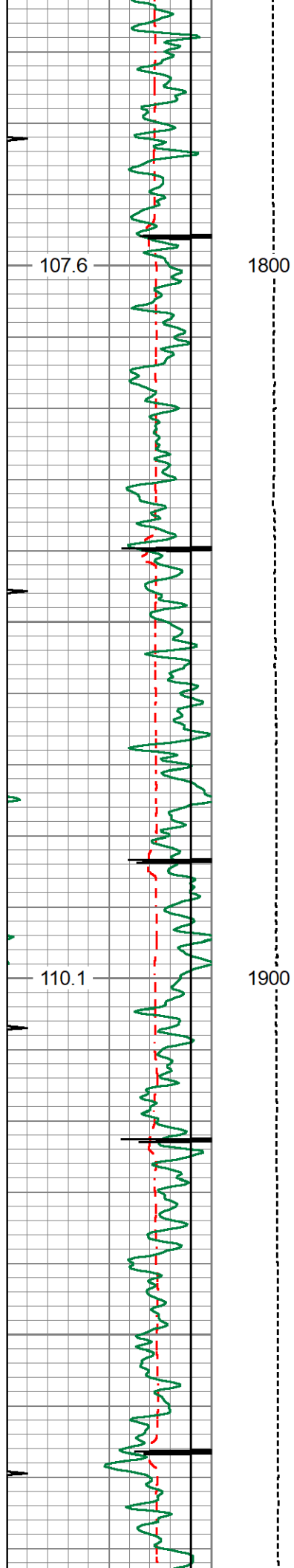




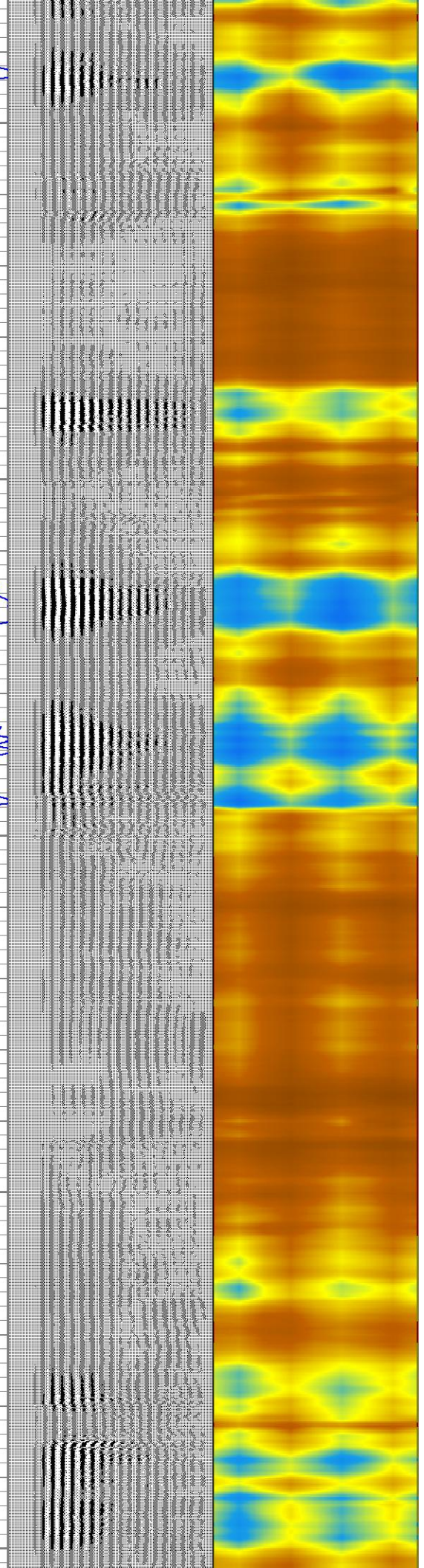
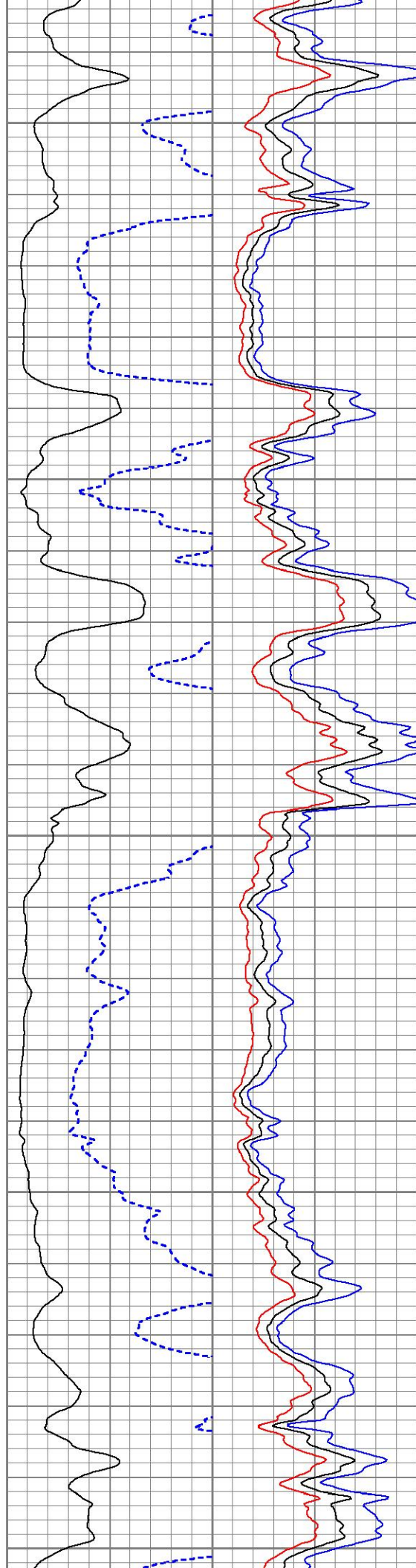
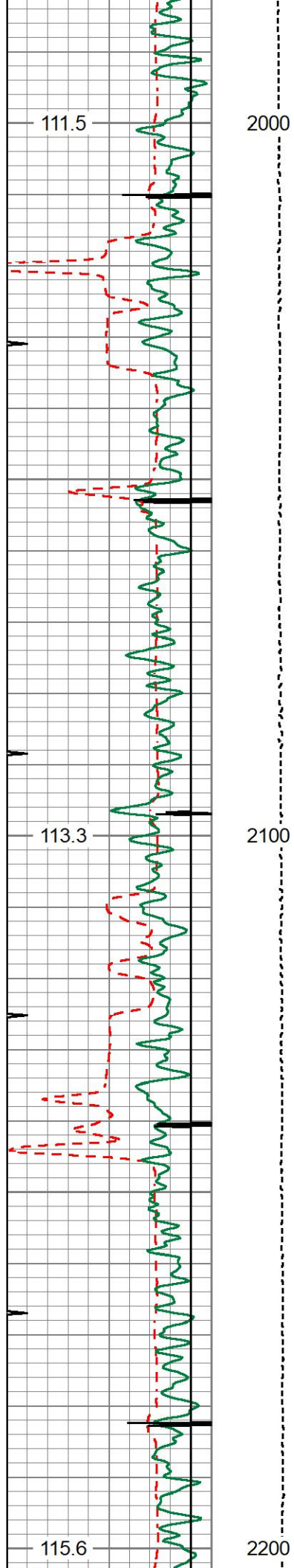




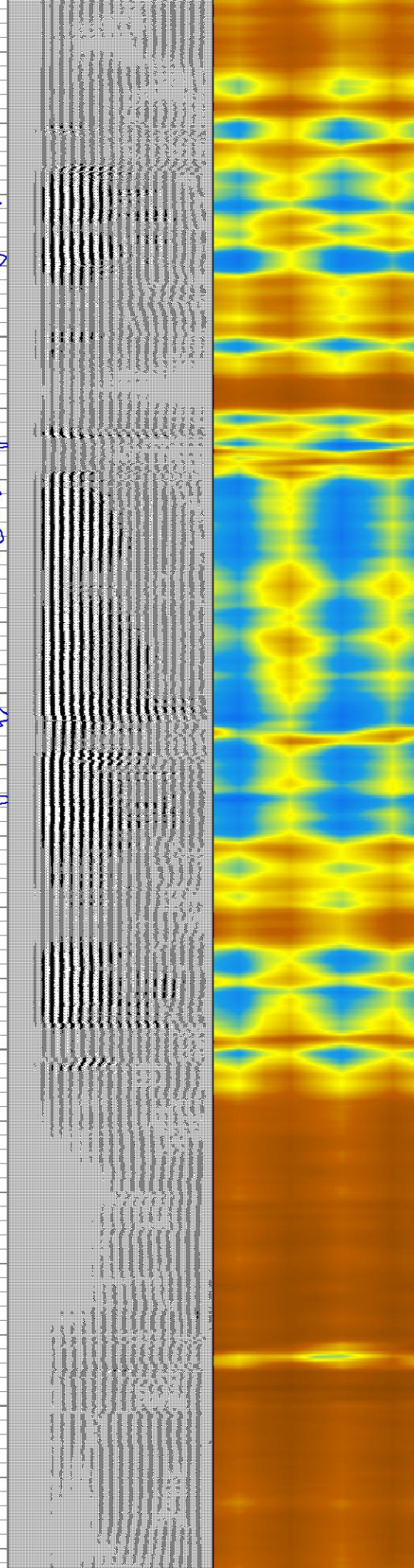
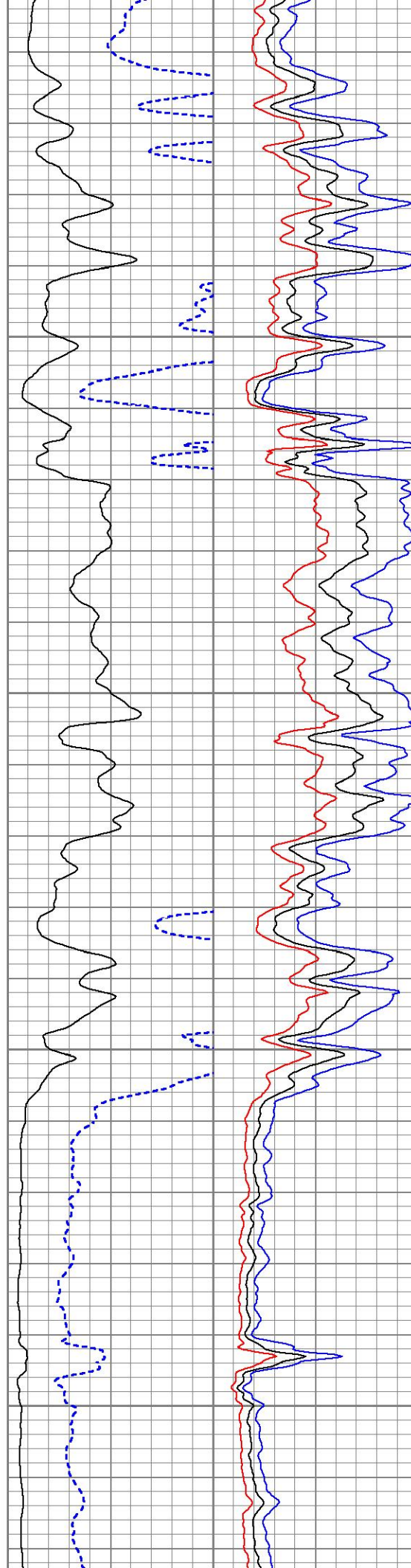
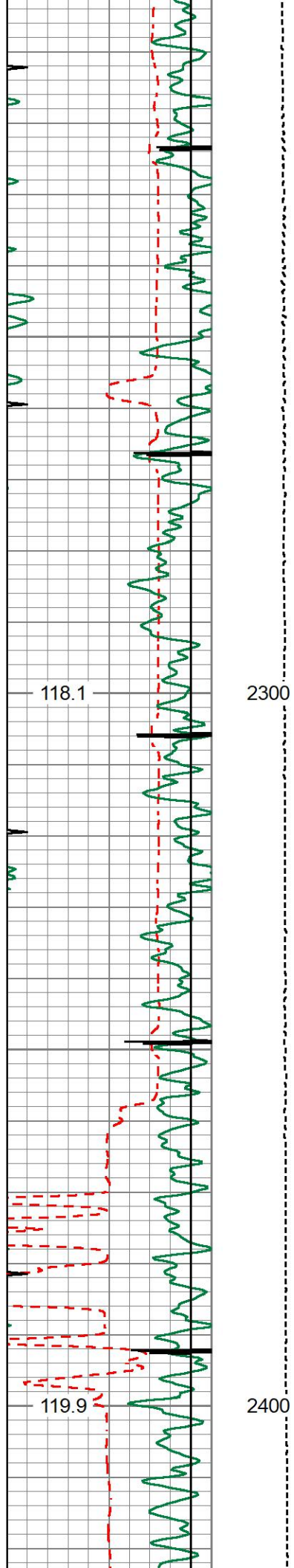




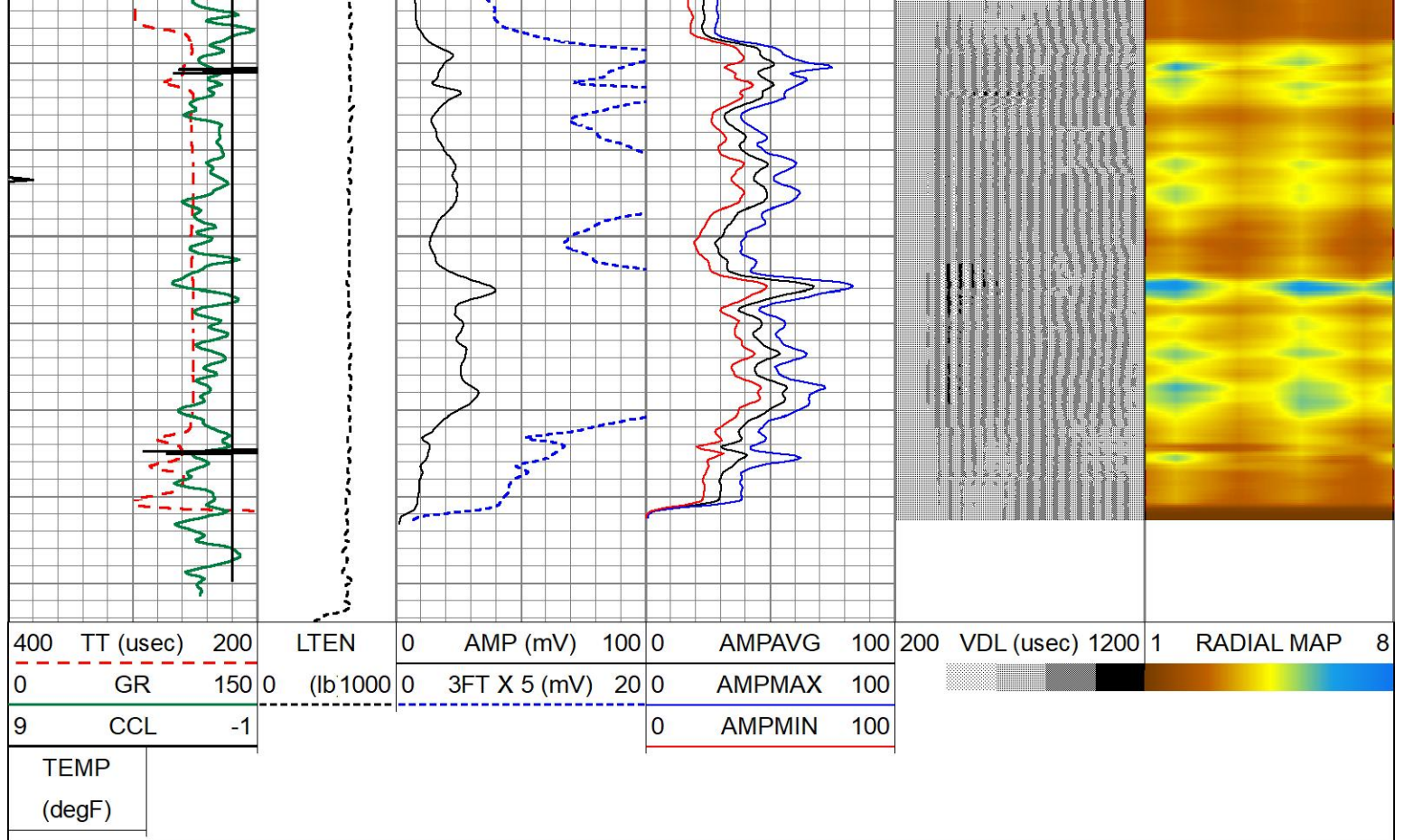












Calibration Report						
Database File	hoffman c 2-21d-cbl.db					
Dataset Pathname	pass1.3					
Dataset Creation	Sat Jan 25 10:42:44 2020					
Gamma Ray Calibration Report						
Serial Number:	234GR4-267					
Tool Model:	Tek-Co 2 3/4					
Performed:	(Not Performed)					
Calibrator Value:	1.0					
Background Reading:	0.0	cps				
Calibrator Reading:	1.0	cps				
Sensitivity:	1.0000	/cps				
Segmented Cement Bond Log Calibration Report						
Serial Number:	IBUCO03					
Tool Model:	275 Temp JS					
Calibration Casing Diameter:	7.000	in				
Calibration Depth:	139.733	ft				
Master Calibration, performed Mon Jan 06 11:30:13 2020:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	1.169	1.000	62.165	52.091	1.276
CAL	-0.006	0.289				
5'	-0.005	1.582	1.000	62.165	38.536	1.199



SUM						
S1	-0.006	0.682	0.000	100.000	145.488	0.812
S2	-0.006	0.586	0.000	100.000	169.036	0.937
S3	-0.005	0.767	0.000	100.000	129.520	0.700
S4	-0.005	0.870	0.000	100.000	114.212	0.611
S5	-0.005	0.666	0.000	100.000	148.905	0.814
S6	-0.005	0.528	0.000	100.000	187.284	1.022
S7	-0.005	0.646	0.000	100.000	153.494	0.843
S8	-0.005	0.817	0.000	100.000	121.613	0.646

Internal Reference Calibration, performed Fri Nov 08 08:47:11 2019:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.006	0.289	1.000	0.000

Air Zero Calibration, performed Sat Jan 25 10:29:30 2020:

	Raw (v)		Calibrated (v)		Results
	Zero		Zero		Offset
3'	-0.007		0.000		0.001
5'	-0.005		0.000		0.000
SUM					
S1	-0.007		0.000		0.001
S2	-0.005		0.000		-0.000
S3	-0.005		0.000		-0.001
S4	-0.004		0.000		-0.002
S5	-0.007		0.000		0.002
S6	-0.007		0.000		0.001
S7	-0.007		0.000		0.001
S8	-0.008		0.000		0.002

#### Temperature Calibration Report

Serial Number: IBUCO03  
 Tool Model: 275 Temp JS  
 Performed: Thu Jan 05 16:46:15 2017

	Reference		Reading	
Low Reference:	0.00	degF	0.00	usec
High Reference:	1.00	degF	1.00	usec

Gain: 0.33  
 Offset: 0.00  
 Delta Spacing: 1