RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal RWF 322-8
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal RWF 322-8
Field Rulison
County Garfield State Colorado

Location: API #: 05-045-24319
SEC 8 TWP 6S RGE 94W

Other Services
--

Permanent Datum Ground Level Elevation 5979.6'
Log Measured From Kelly Bushing 24 FT
Drilling Measured From Kelly Bushing

Elevation
K.B. 6003.6'
D.F. 6002.6'
G.L. 5979.6'

Date	09-DEC-2020		
Run Number	One		
Depth Driller	9575 FT		
Depth Logger	9492 FT		
Bottom Logged Interval	9480 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	251°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	12:10		
Equipment Number	HD-0331		
Location	Grand Junction, CO		
Recorded By	A. Ellsworth		
Witnessed By	--		

Borehole Record			Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size (in)	Wgt (lbs/Ft)	Grade	Top	Bottom
Surface Casing	9 5/8	36	J-55	Surface	1041 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9534 FT
Intermediate #2					
Liner					

<<< Fold Here >>>

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 S

Comments

Log ran as per customer request
Depth referenced to Kelly Bushing at 24 FT
Marker Joint logged from 5926 - 5948 FT
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

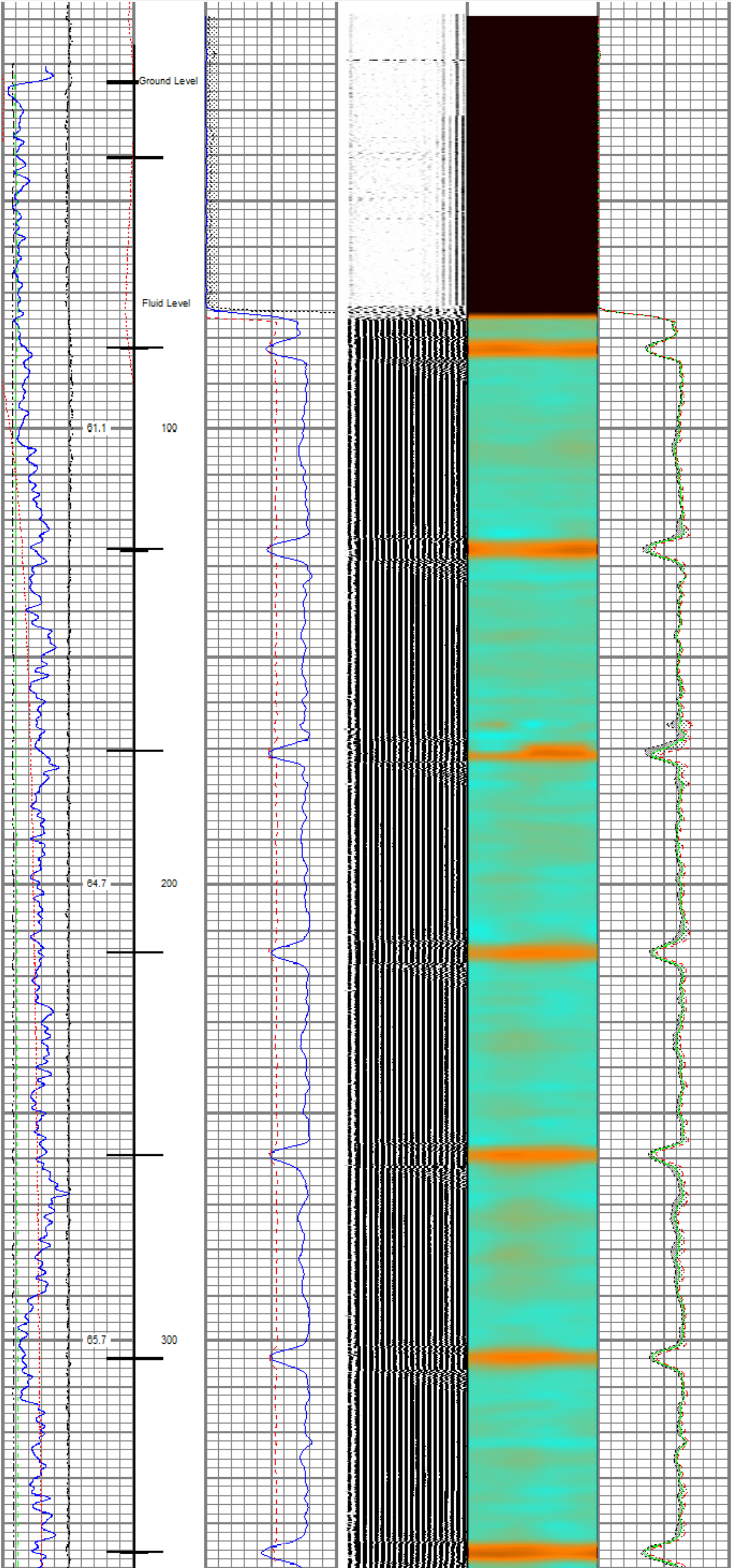
RELIANCE
OILFIELD SERVICES

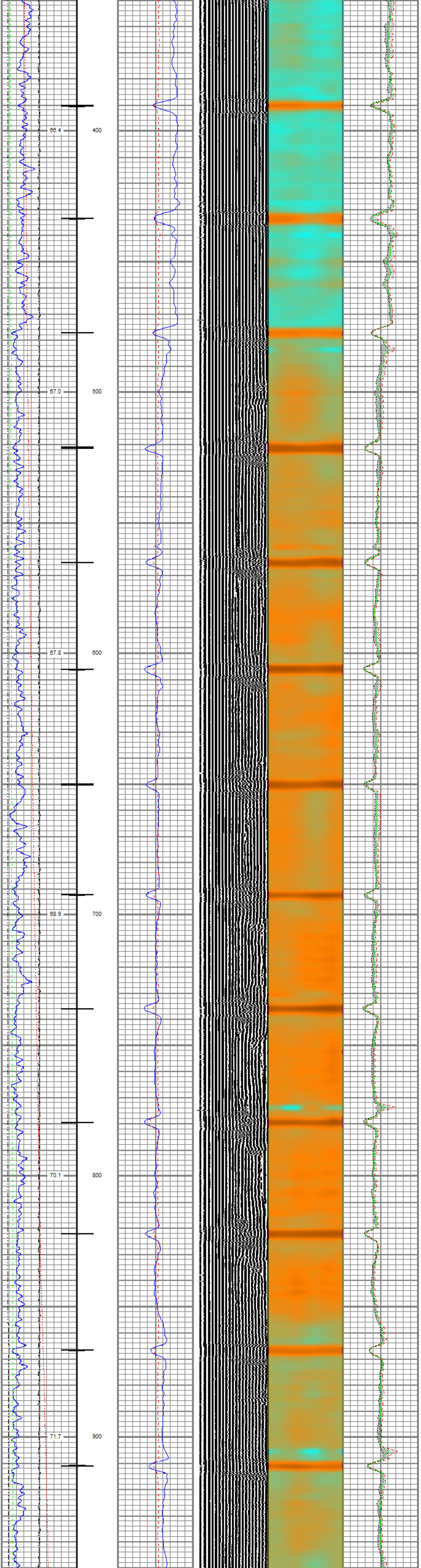
Main Pass

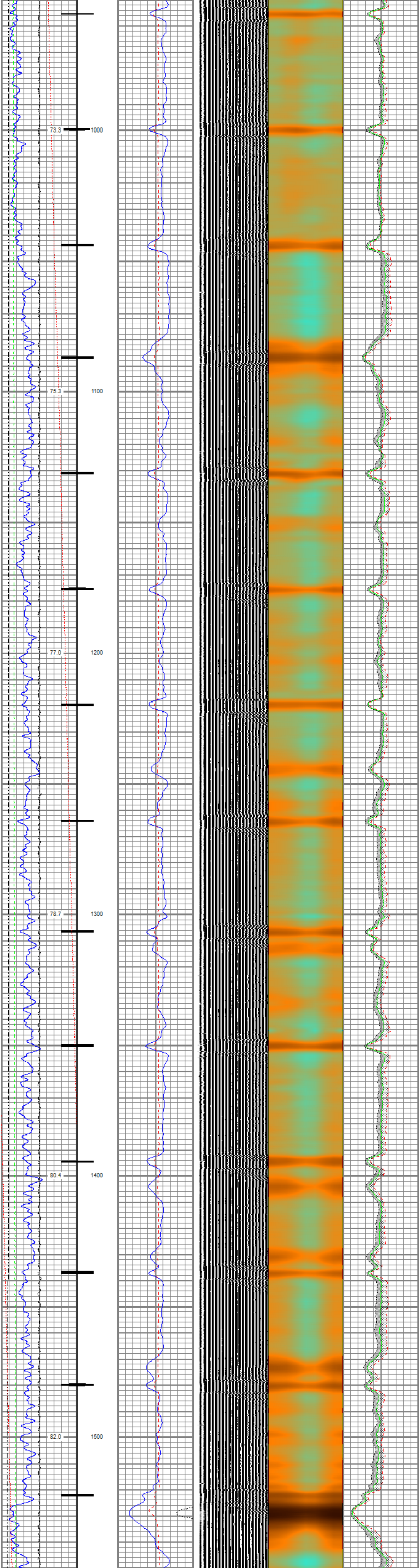
Recorded With 0 PSI Surface Induced Pressure

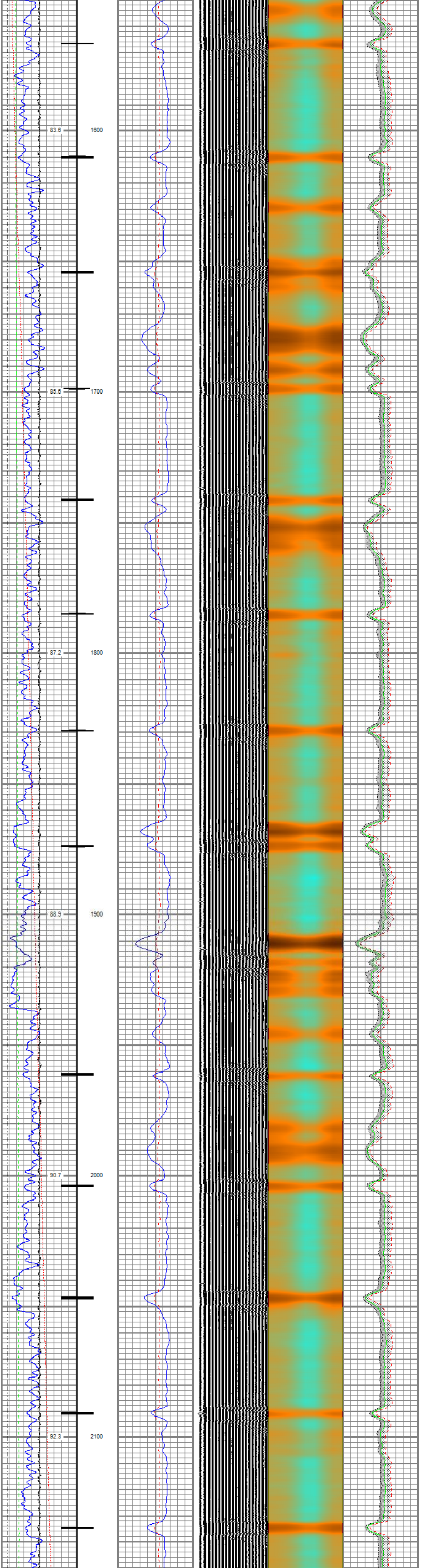
Database File	tep\tep_federal rwf 322-8_rbl_12-09-20\tep_federal rwf 322-8_rbl_12-09-20.db
Dataset Pathname	main.1
Presentation Format	ros_radii_tep
Dataset Creation	Thu Dec 10 15:34:48 2020
Charted by	Depth in Feet scaled 1:240

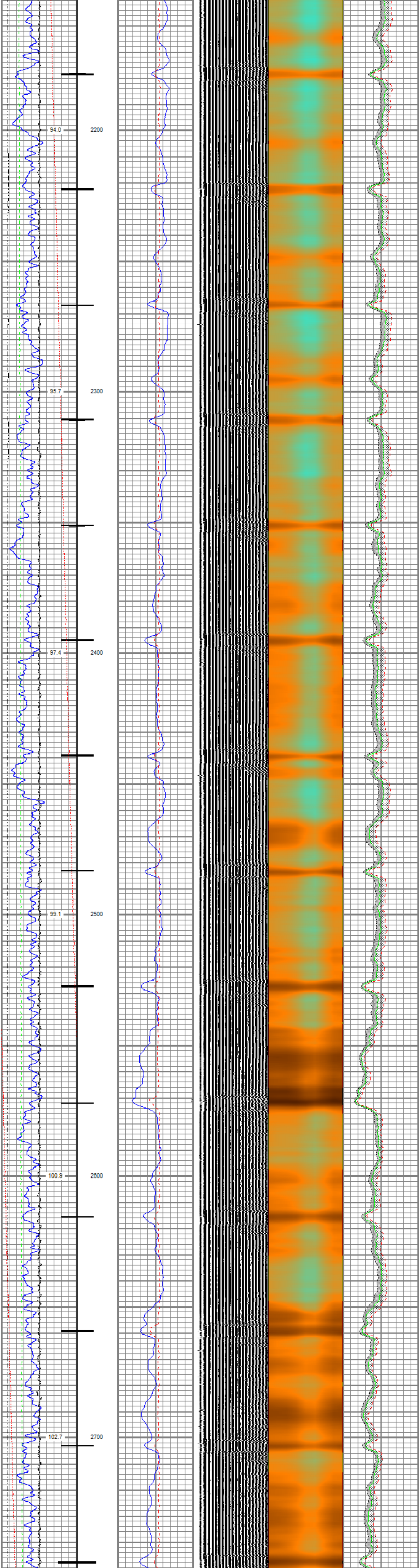
0 Gamma Ray (GAPI) 200 Casing Collar Locator Line Speed -150 (ft/min) 150 0 Line Tension (lb) 2000 Differential Temperature -2 (degF) 2 0 Temperature (degF) 20	0 3' Amplitude (mV) 100 0 3' Amplitude x 5 (mV) 20 3' Travel Time 300 (usec) 200	5' Variable Density Log 200 (usec) 1200	Sector Map	0 Average Amplitude 150 0 Mimimum Amplitude 150 0 Maximum Amplitude 150

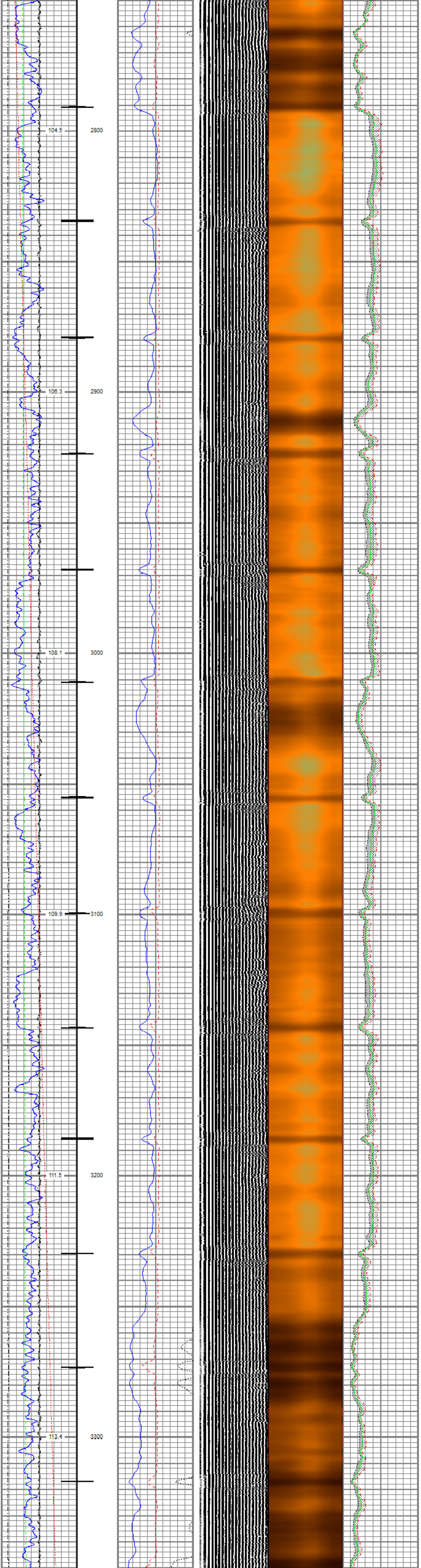


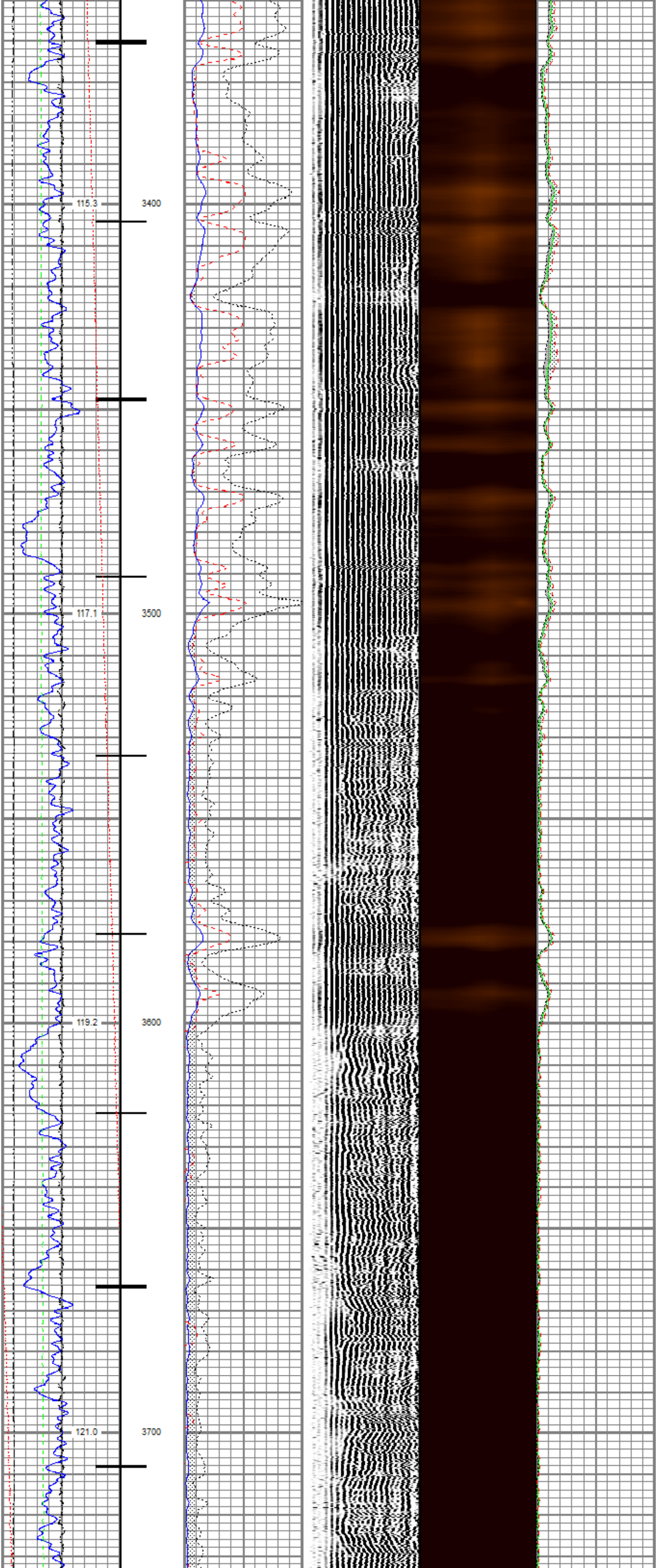


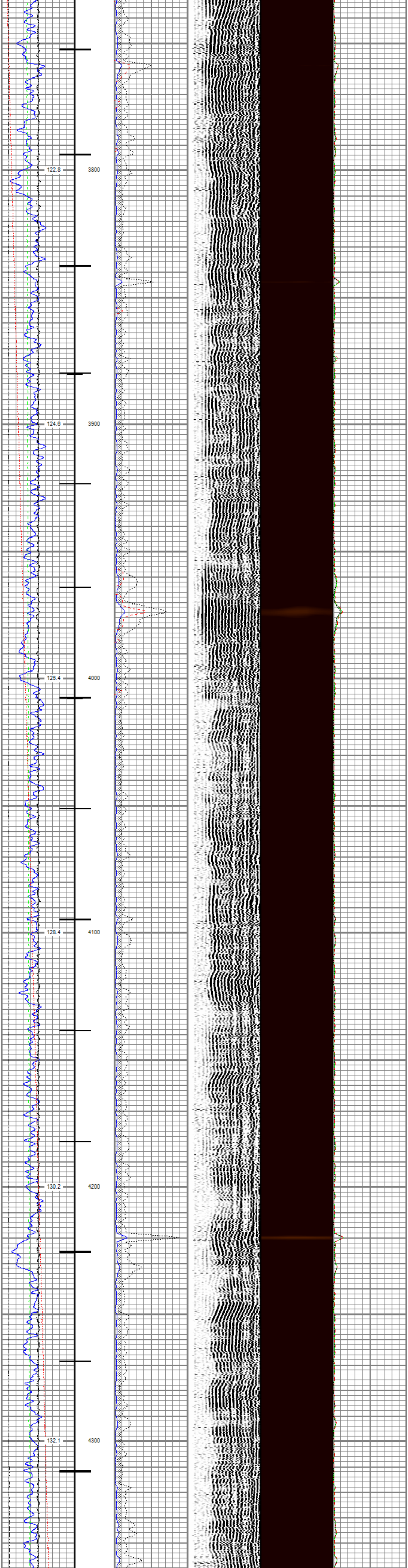


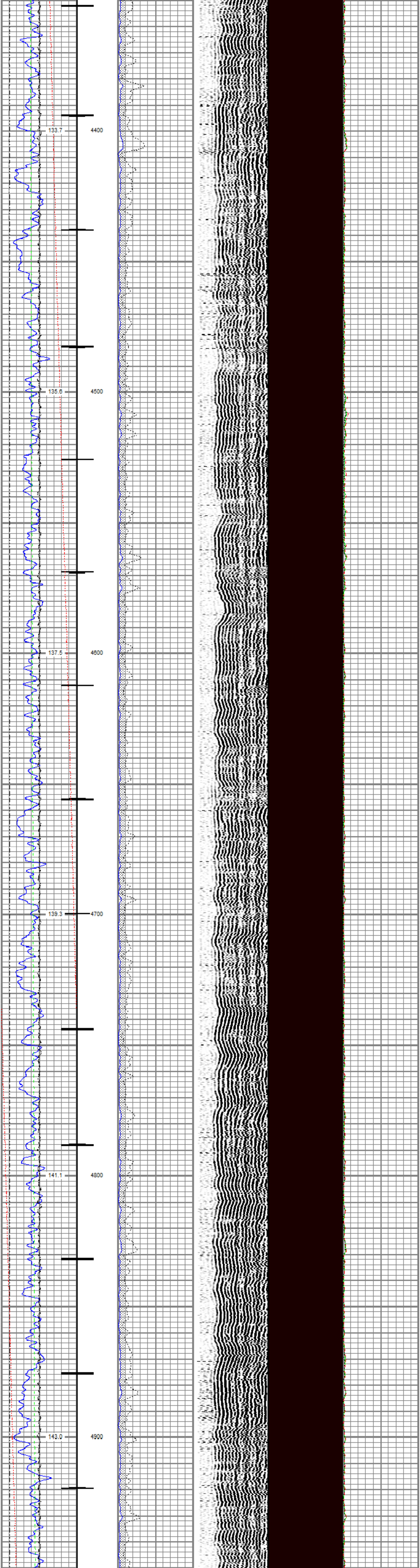


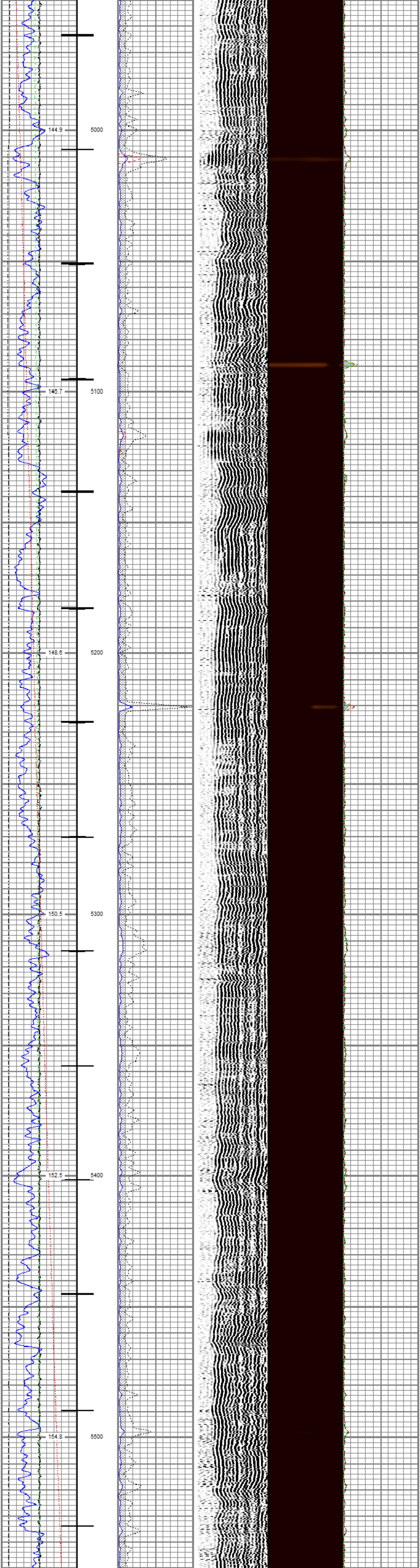


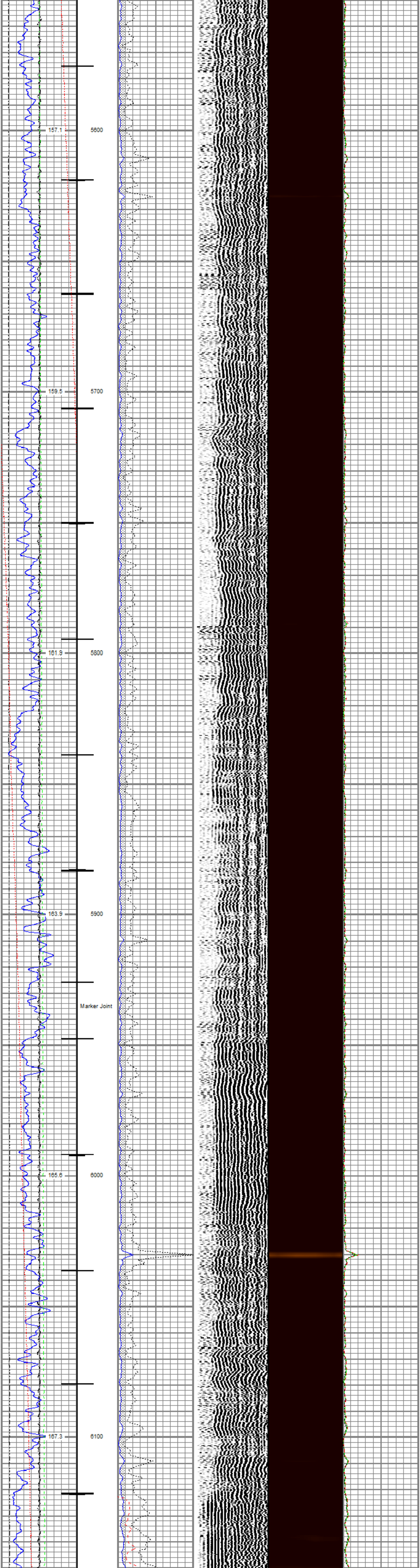


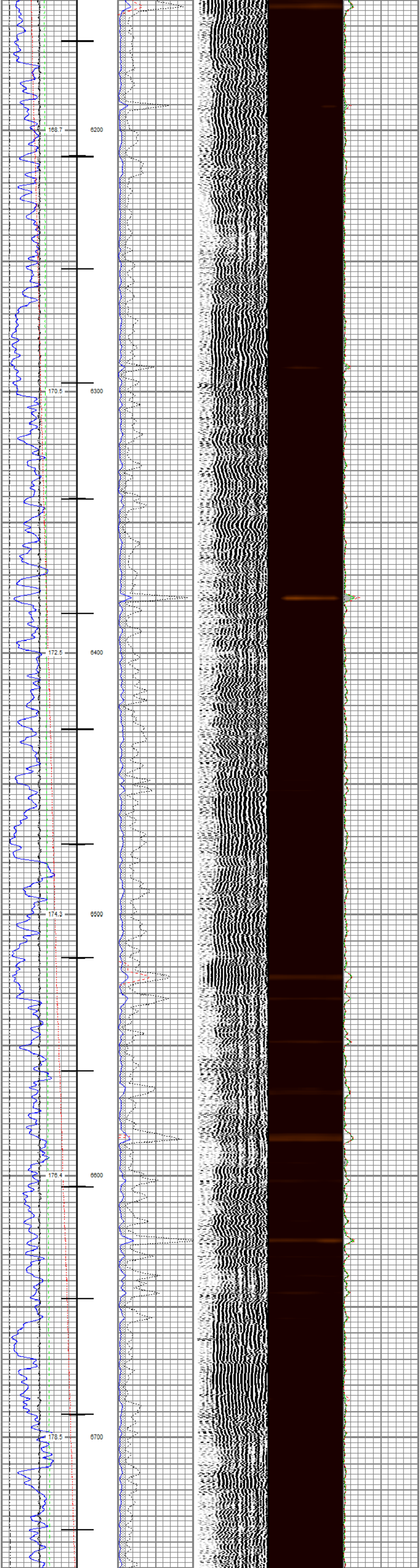


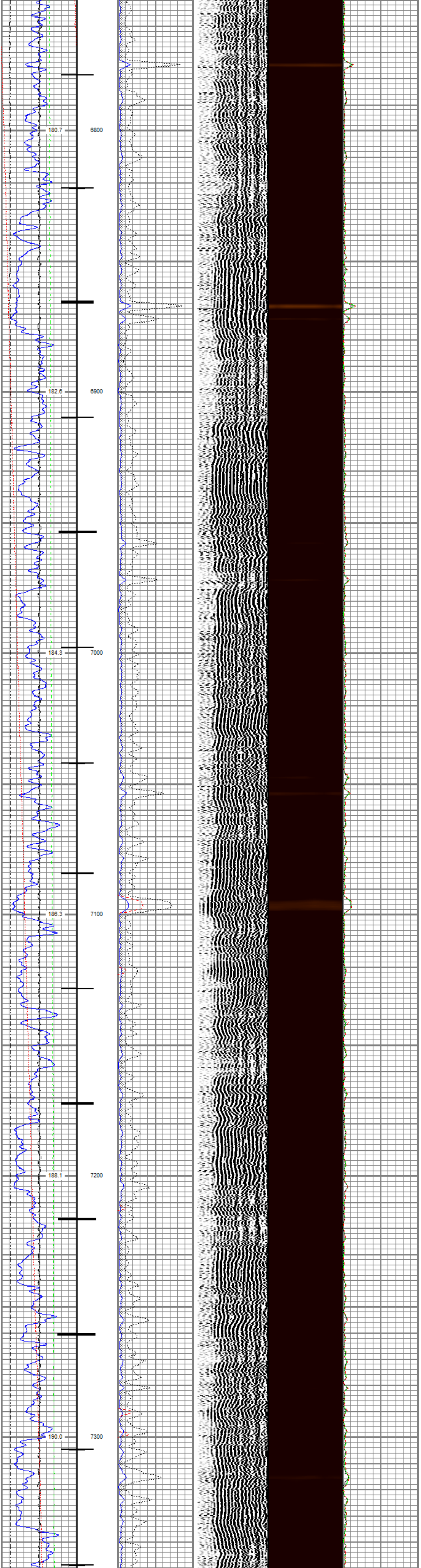

122.8
3800
124.6
3900
126.4
4000
128.4
4100
130.2
4200
132.1
4300

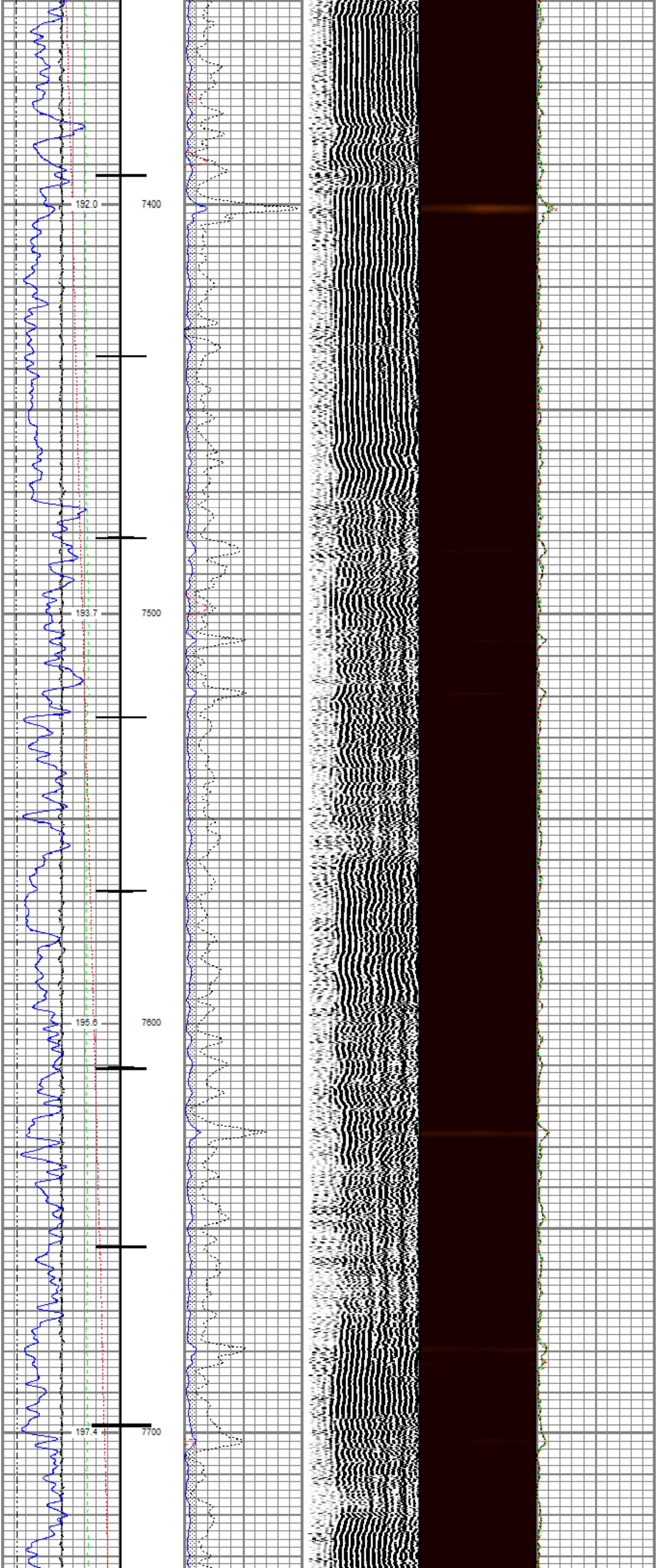

133.7
4400
135.6
4500
137.5
4600
139.3
4700
141.1
4800
143.0
4900

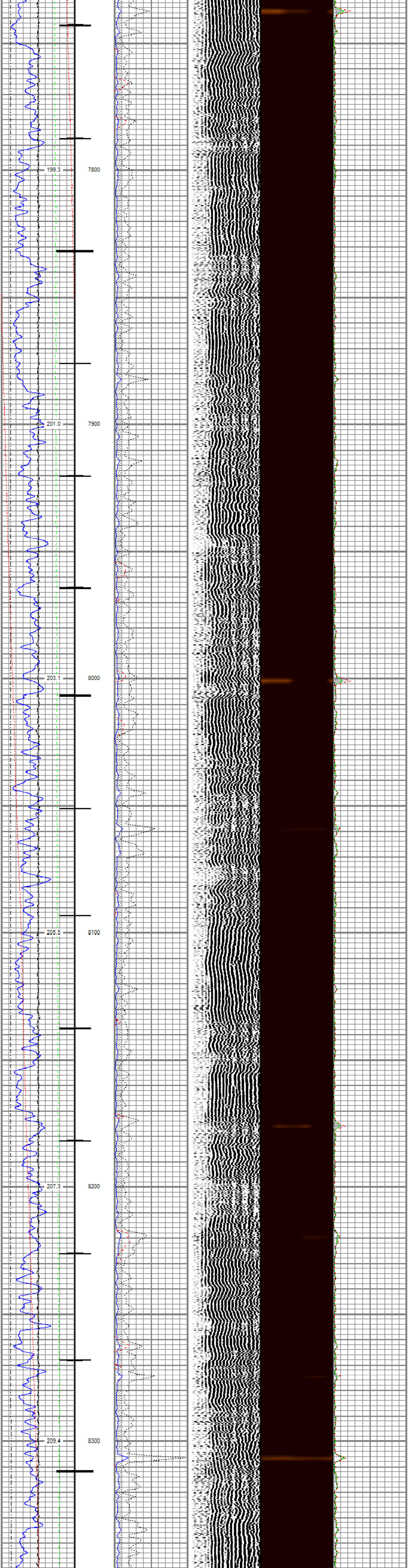

144.9
5000
146.7
5100
148.6
5200
150.5
5300
152.5
5400
154.8
5500

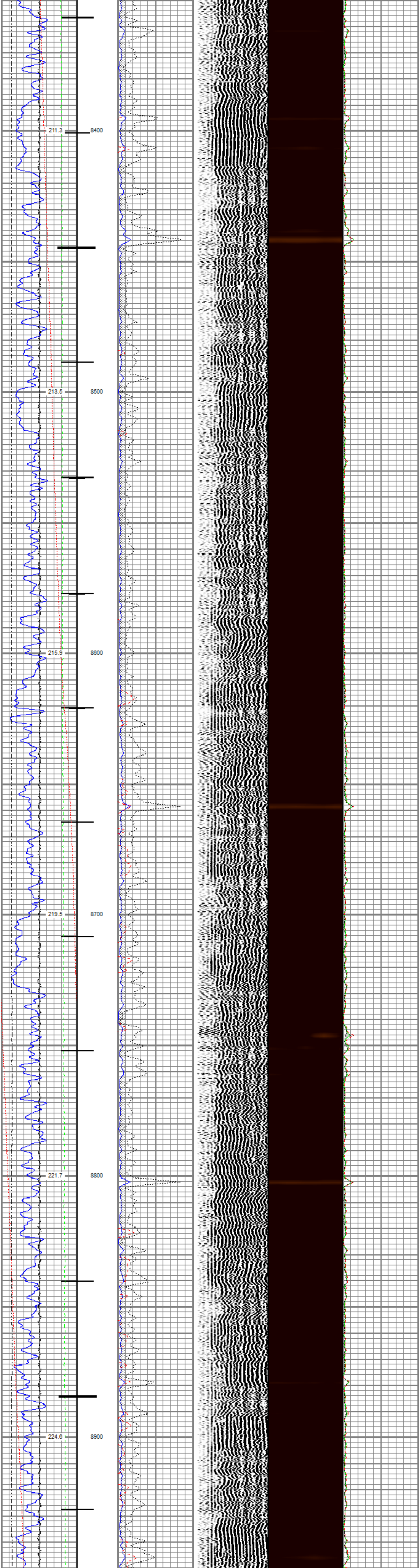

157.1
5600
159.5
5700
161.9
5800
163.9
5900
Marker Joint
165.6
6000
167.3
6100

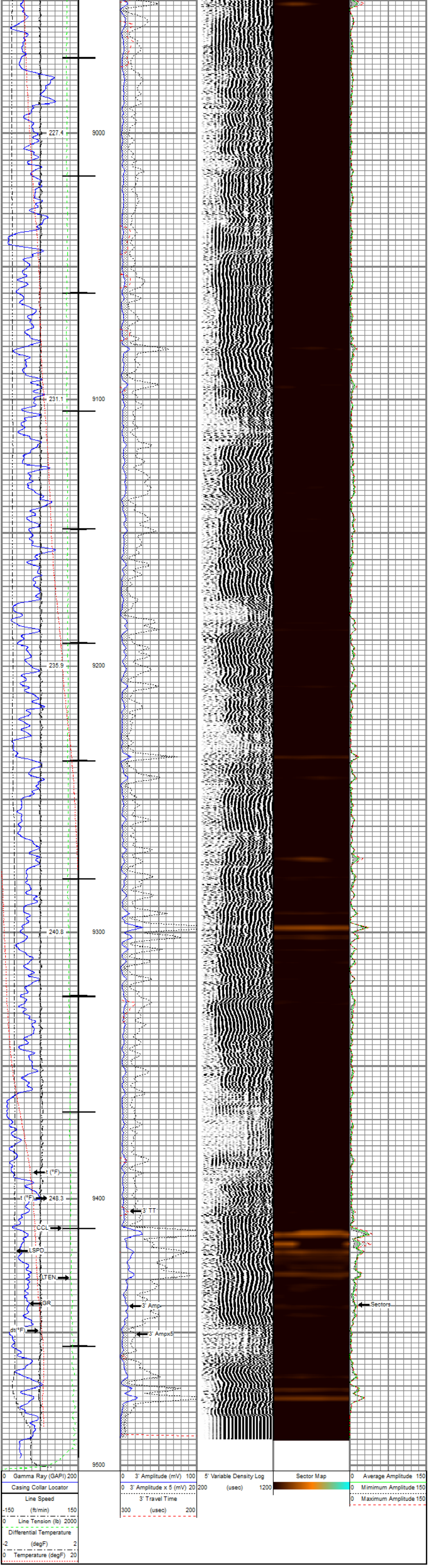

168.7
6200
170.5
6300
172.5
6400
174.3
6500
176.4
6600
178.5
6700


180.7
6800
182.6
6900
184.3
7000
186.3
7100
188.1
7200
190.0
7300


192.0
7400
193.7
7500
195.6
7600
197.4
7700





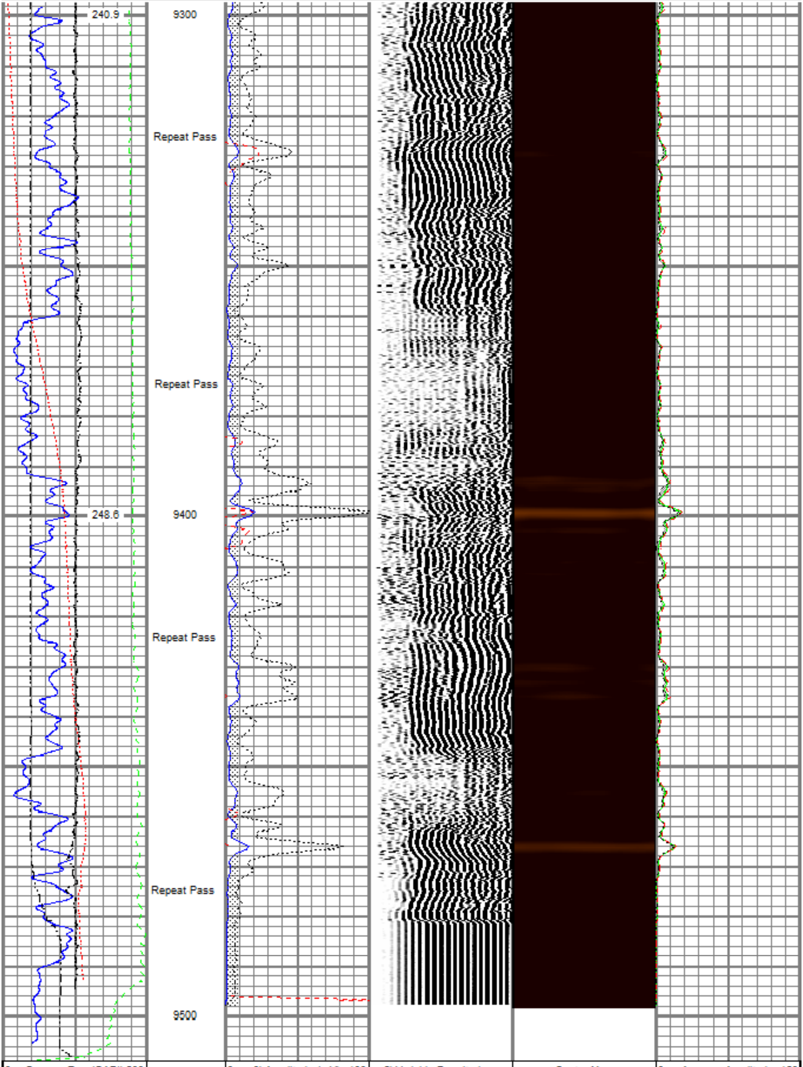


Repeat Pass

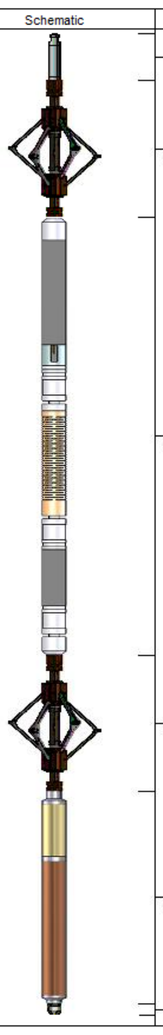
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 322-8_rbl_12-09-20\tep_federal rwf 322-8_rbl_12-09-20.db
Dataset Pathname	repeat.2
Presentation Format	ros_radii_tep
Dataset Creation	Thu Dec 10 15:51:00 2020
Charted by	Depth in Feet scaled 1:240

0 Gamma Ray (GAPI) 200 Line Speed -150 (ft/min) 150 0 Line Tension (lb) 2000 Differential Temperature -2 (degF) 2 0 Temperature (degF) 20	0 3' Amplitude (mV) 100 0 3' Amplitude x 5 (mV) 20 3' Travel Time 300 (usec) 200	5' Variable Density Log 200 (usec) 1200	Sector Map	0 Average Amplitude 150 0 Mimimum Amplitude 150 0 Maximum Amplitude 150



0 Gamma Ray (GAPI) 200 Line Speed -150 (ft/min) 150 0 Line Tension (lb) 2000 Differential Temperature -2 (degF) 2 0 Temperature (degF) 20	0 3' Amplitude (mV) 100 0 3' Amplitude x 5 (mV) 20 3' Travel Time 300 (usec) 200	5' Variable Density Log 200 (usec) 1200	Sector Map	0 Average Amplitude 150 0 Mimimum Amplitude 150 0 Maximum Amplitude 150

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	3.60
			BTA-MUD BTA 2-3/4" Roller 6 Arm Centralizer with Reversible Ends	2.92	2.72	25.00
TEMP	14.19					
			Probe Radii-2750 RBT (ROFS-RBT-0002) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS8	11.96					
WVFS7	11.96					
WVFS6	11.96					
WVFS5	11.96					
WVFS4	11.96					
WVFS3	11.96					
WVFS2	11.96					
WVFS1	11.96					
WVFCAL	11.96					
WVF3FT	11.96					
WVF5FT	10.96					
			BTA-MUD BTA 2-3/4" Roller 6 Arm Centralizer with Reversible Ends	2.92	2.72	25.00
CCL	3.88					
			Probe GR-CCL ANL-2750 A (051217) Probe 2.75" Analog 4 Channel Pulse Gamma Ray/CCL Combined	4.54	2.75	55.00
GR	1.14					
			GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset:	tep_federal rwf 322-8_rbl_12-09-20.db: field/well/run1/main.1
Total length:	21.05 ft
Total weight:	214.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\tep_federal rwf 322-8_rbl_12-09-20\tep_federal rwf 322-8_rbl_12-09-20.db
Dataset Pathname	main.1
Dataset Creation	Thu Dec 10 15:34:48 2020

Gamma Ray Calibration Report

Serial Number:	051217	
Tool Model:	2750 A	
Performed:	Mon Oct 01 11:32:35 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	115.3	cps
Calibrator Reading:	1027.7	cps
Sensitivity:	0.6982	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	ROFS-RBT-0002	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	68.342	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.005	0.758	0.800	81.196	106.789	0.214
CAL	0.003	0.800				
5'	0.009	0.546	0.800	81.196	149.815	-0.576
SUM						
S1	0.006	0.789	0.000	100.000	127.710	-0.741
S2	0.009	0.773	0.000	100.000	130.834	-1.174
S3	0.009	0.757	0.000	100.000	133.674	-1.224
S4	0.008	0.748	0.000	100.000	135.224	-1.089
S5	0.009	0.747	0.000	100.000	135.492	-1.202
S6	0.005	0.742	0.000	100.000	135.709	-0.683
S7	0.008	0.767	0.000	100.000	131.854	-1.070
S8	0.008	0.793	0.000	100.000	127.508	-1.063

Air Zero Calibration, performed Wed Dec 09 09:18:04 2020:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.004	0.000	-0.000
5'	0.004	0.000	0.001
SUM			
S1	-0.001	0.000	-0.000
S2	0.004	0.000	0.000
S3	0.002	0.000	0.001
S4	0.004	0.000	-0.001
S5	0.002	0.000	0.002
S6	0.005	0.000	-0.002
S7	0.003	0.000	0.000
S8	0.004	0.000	-0.001

Temperature Calibration Report

Serial Number:	ROFS-RBT-0002			
Tool Model:	2750 RBT			
Performed:	Wed Oct 14 10:20:48 2020			
	Reference		Reading	
Low Reference:	100.00	degF	109.31	degF
High Reference:	235.00	degF	267.00	degF
Gain:	0.86			
Offset:	6.43			
Delta Spacing	1			

Company	TEP Rocky Mountain LLC
Well	Federal RWF 322-8
Field	Rulison
County	Garfield
State	Colorado