RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal RWF 524-1
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal RWF 524-1
Field Rulison
County Garfield State Colorado

Location: API # : 05-045-24278
SEC 12 TWP 6S RGE 94W

Other Services
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Permanent Datum	Ground Level	Elevation 5466.8'	Elevation
Log Measured From	Kelly Bushing	24 FT	K.B. 5490.8' D.F. -- G.L. 5466.8'
Drilling Measured From	Kelly Bushing		

Date	06-MAR-2020		
Run Number	One		
Depth Driller	9391 FT		
Depth Logger	9334 FT		
Bottom Logged Interval	9322 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	241°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	15:40		
Equipment Number	HD-0331		
Location	Grand Junction, CO		
Recorded By	Z.Fisher		
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	1042 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9345 FT
Intermediate #2					
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

Log ran as per customer request
Depth referenced to Kelly Bushing at 24 FT
Marker Joint Logged from 5300 - 5322 FT
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

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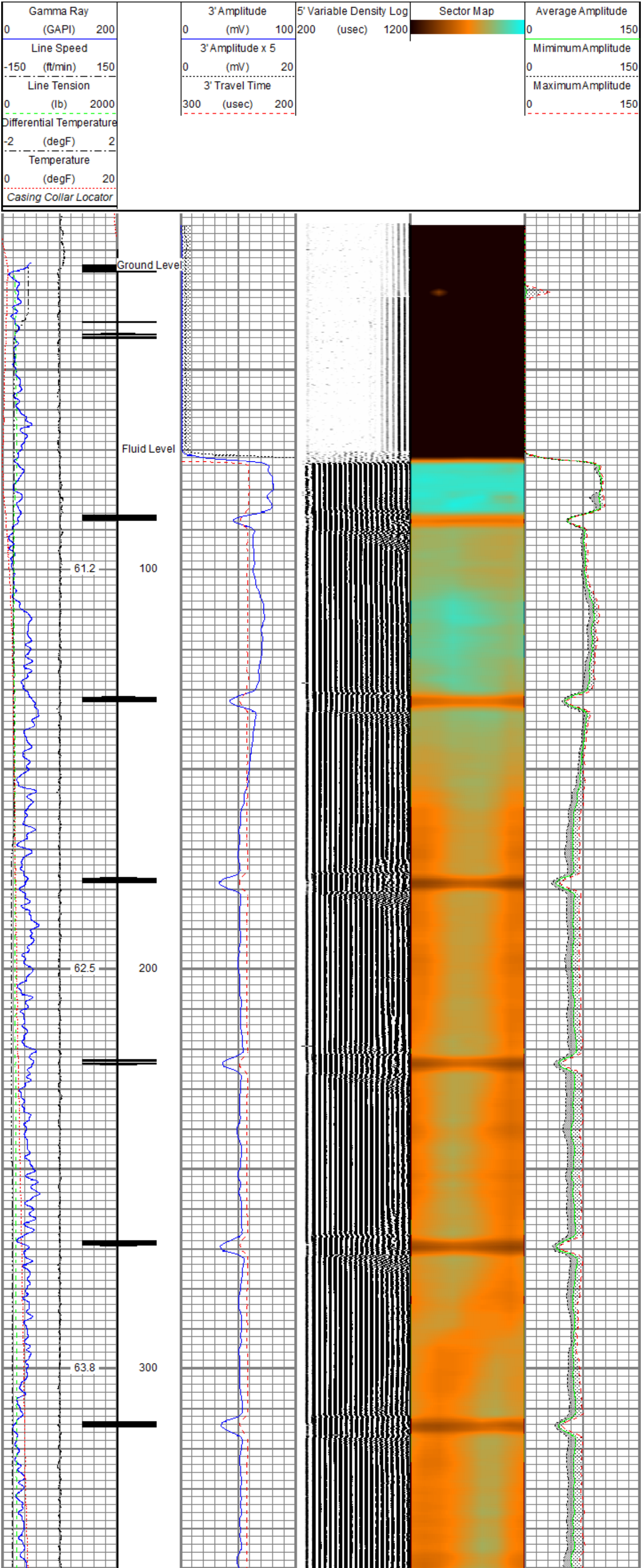
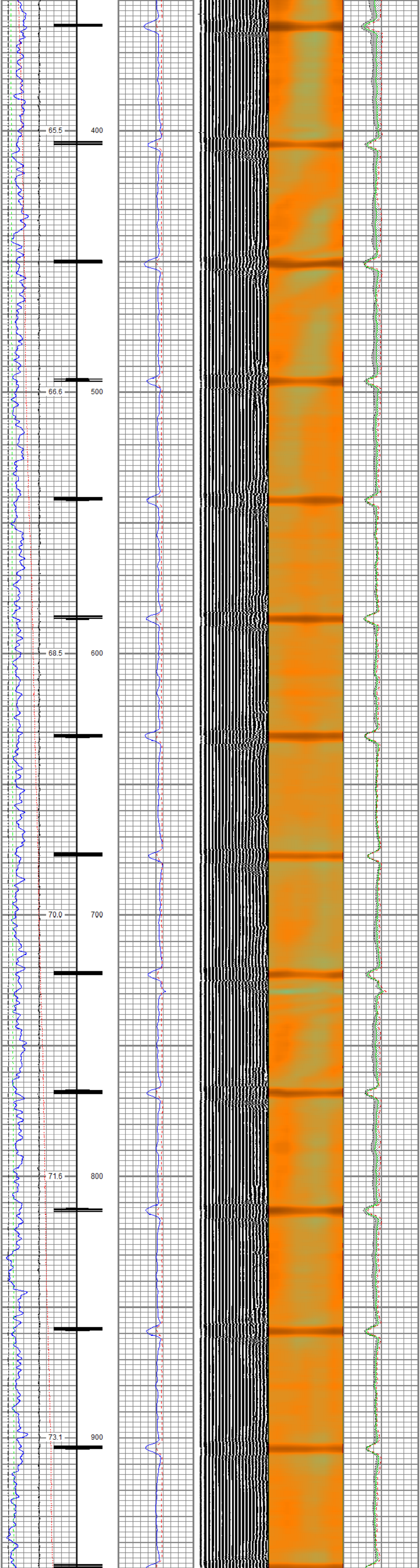
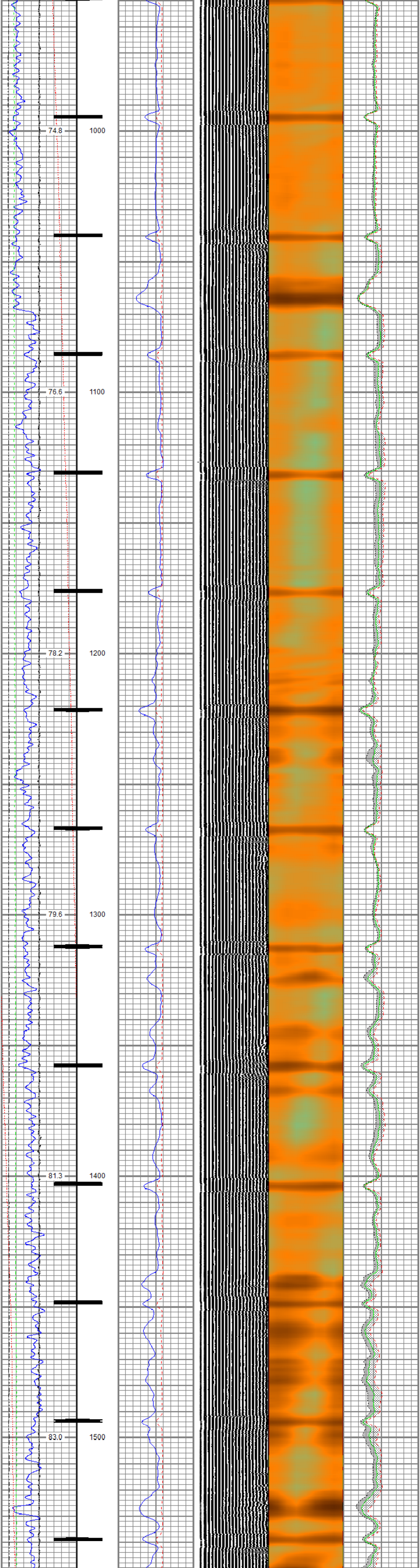
Main Pass

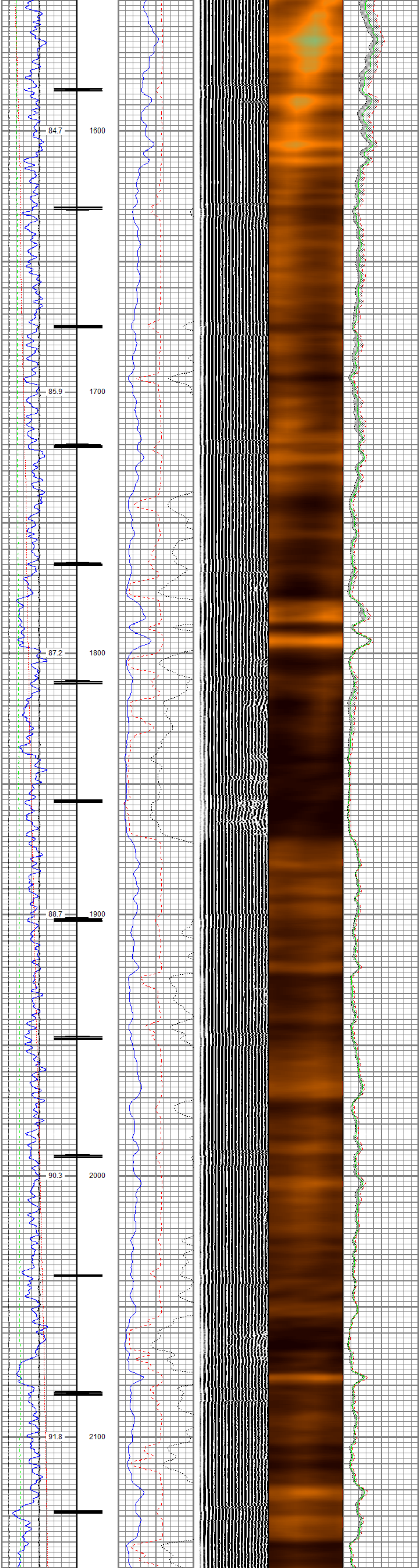
Recorded With 0 PSI Surface Induced Pressure

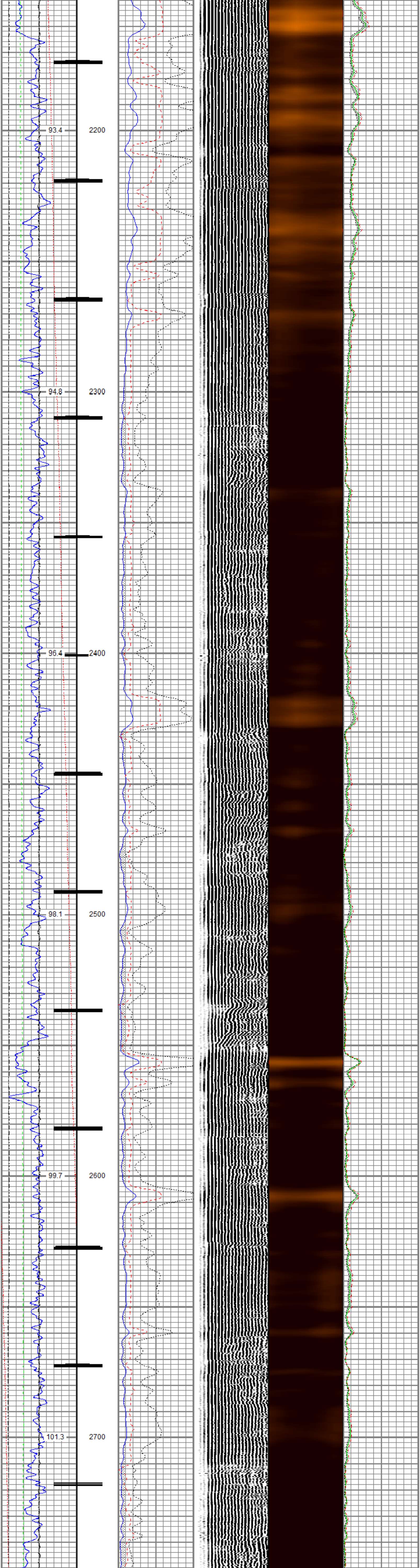
Database File	tep\tep_federal rwf 524-1_rbl_03-06-20\processed_tep_federal rwf 524-1_rbl_03-06-20.db
Dataset Pathname	main.1
Presentation Format	ros_radii_tep
Dataset Creation	Mon Mar 09 10:30:51 2020
Charted by	Depth in Feet scaled 1:240

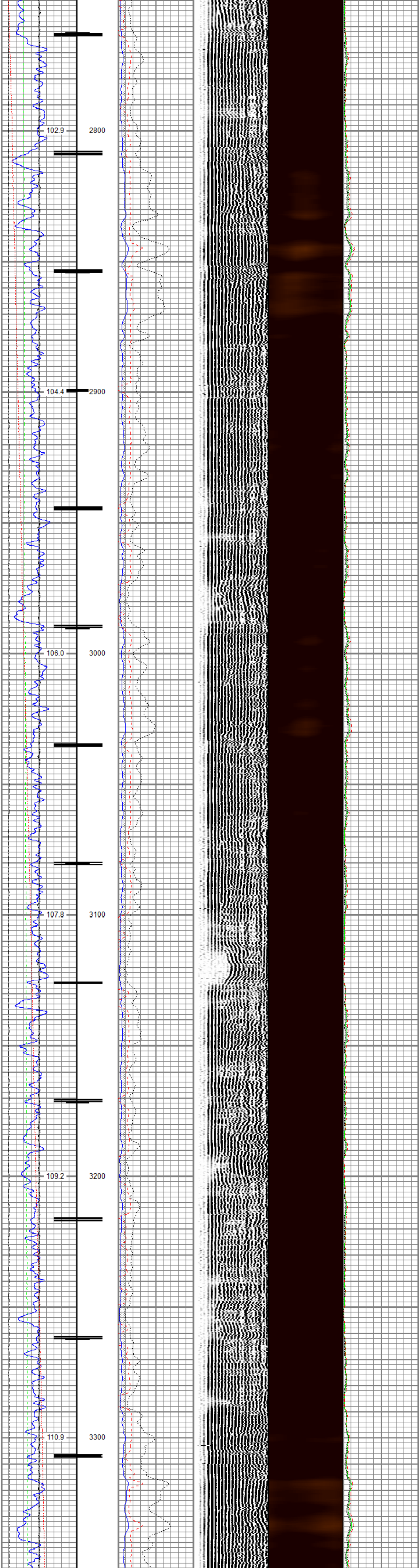


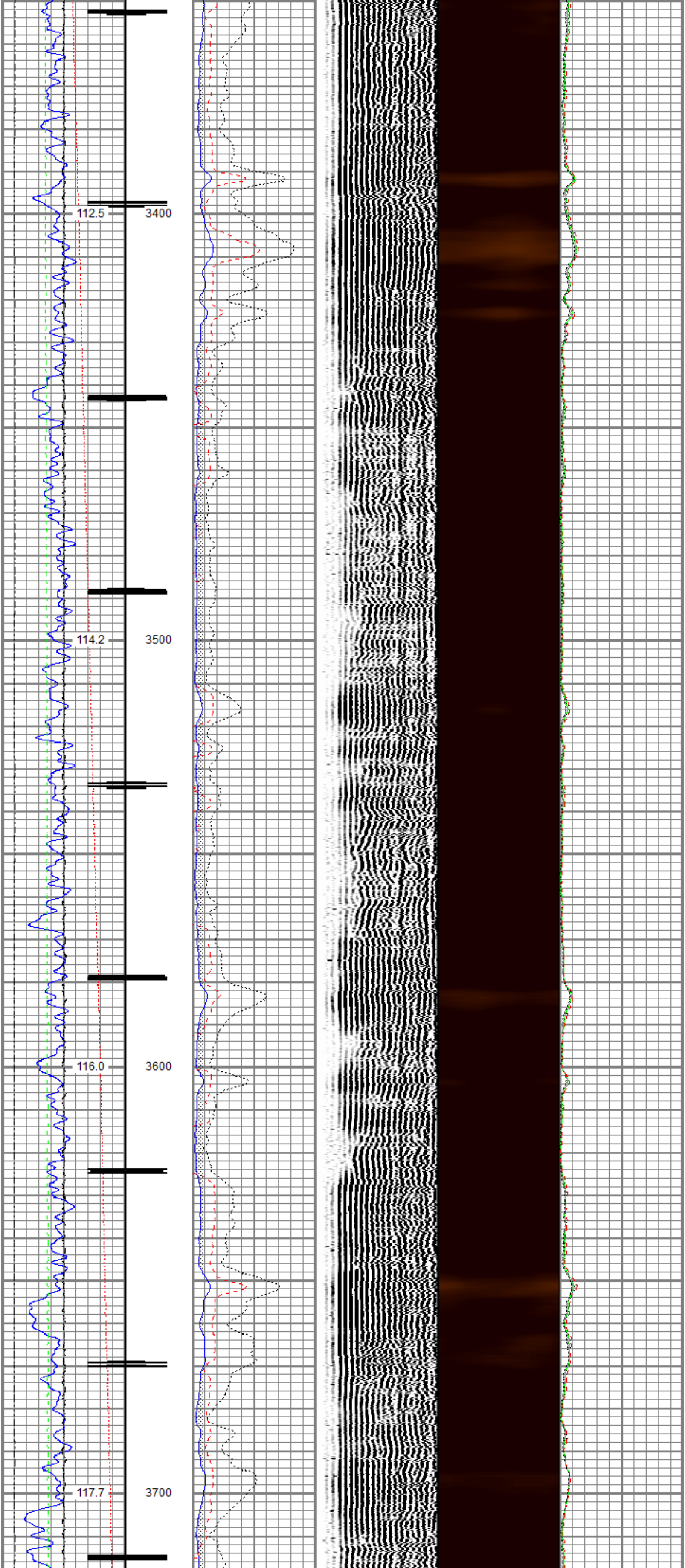


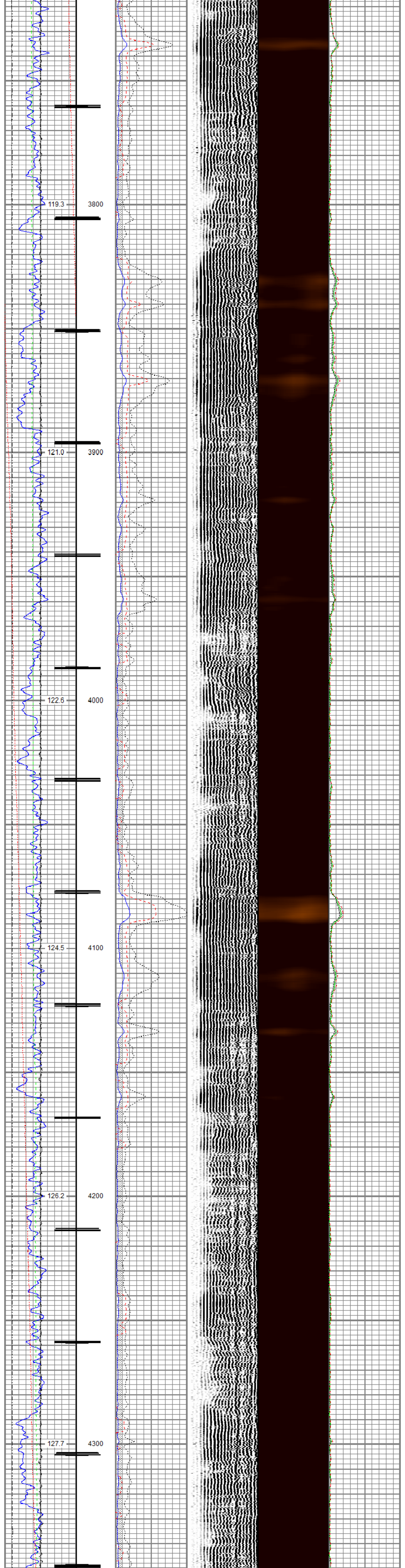








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3900
122.6
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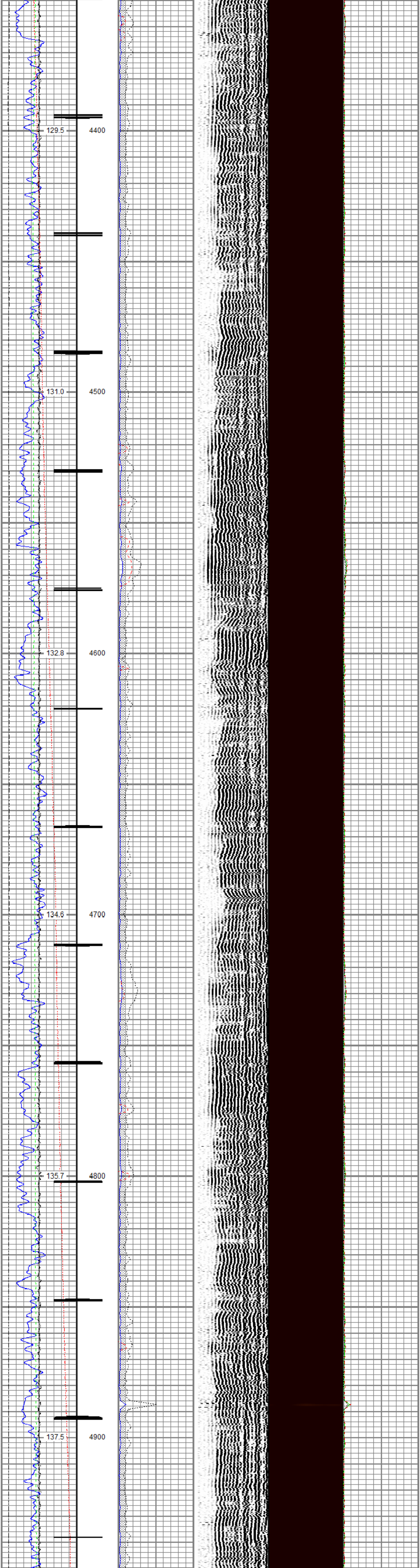
4100
126.2
4200
127.7
4300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137.5
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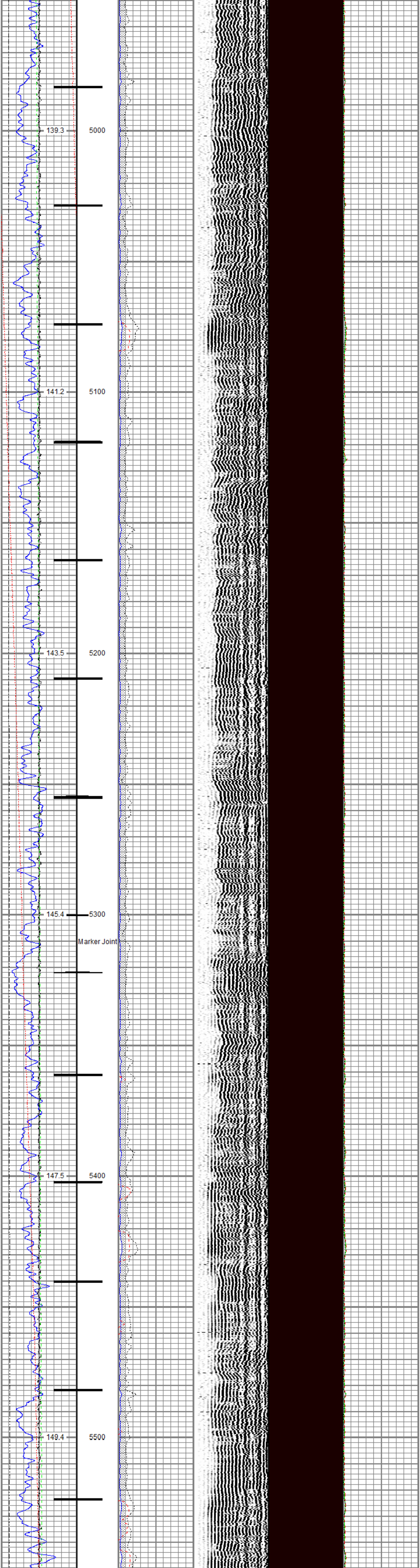
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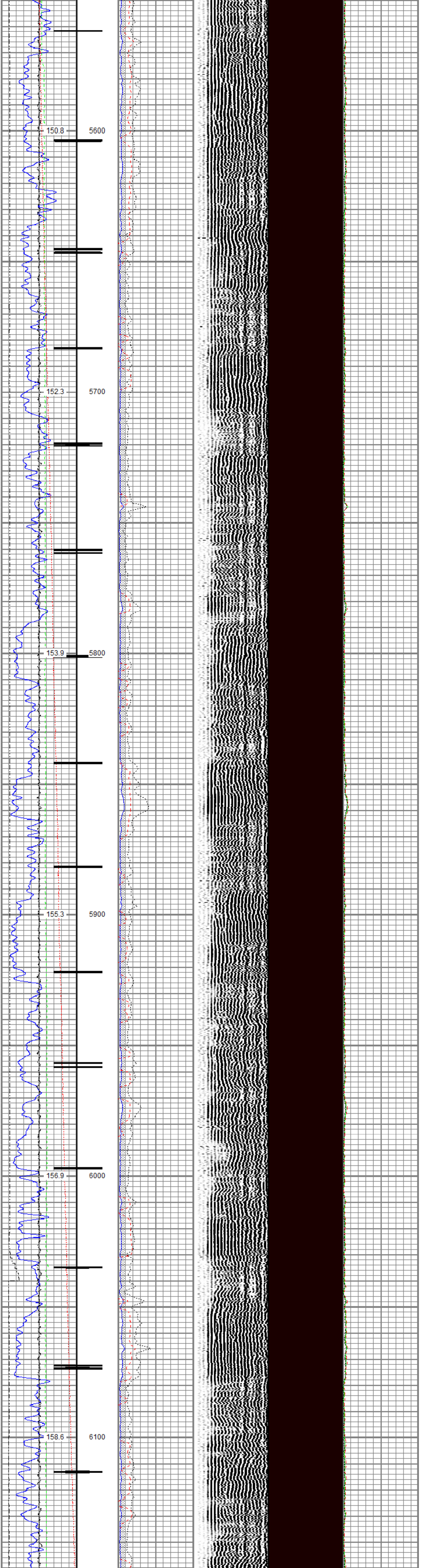
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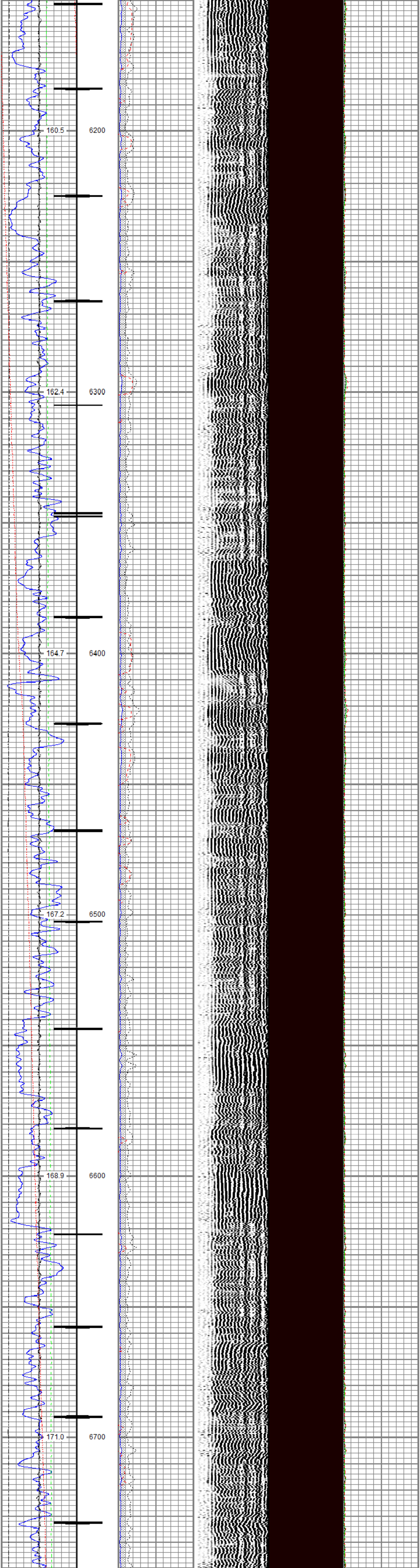
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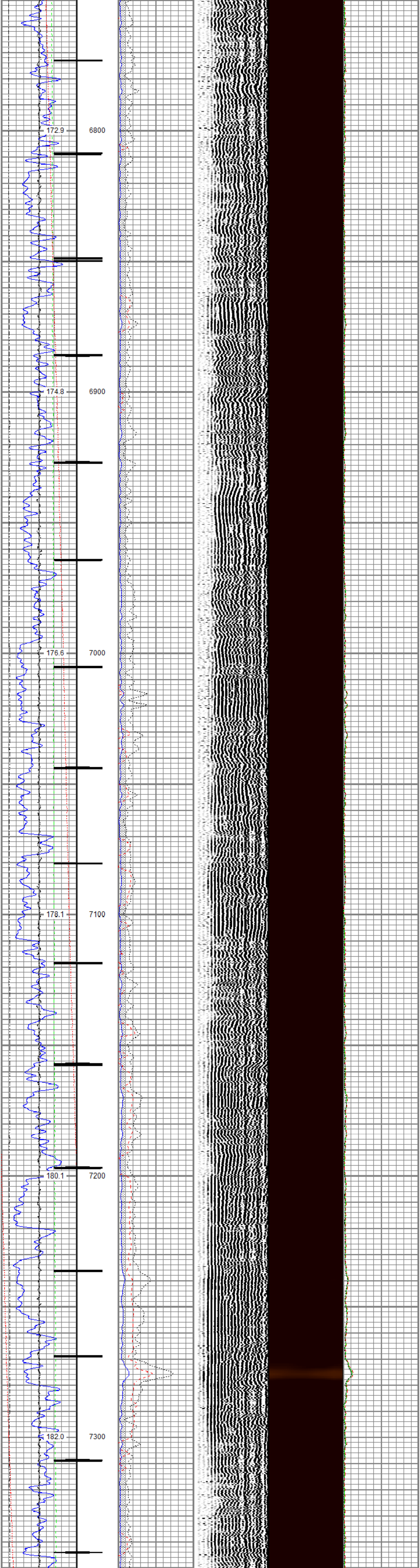
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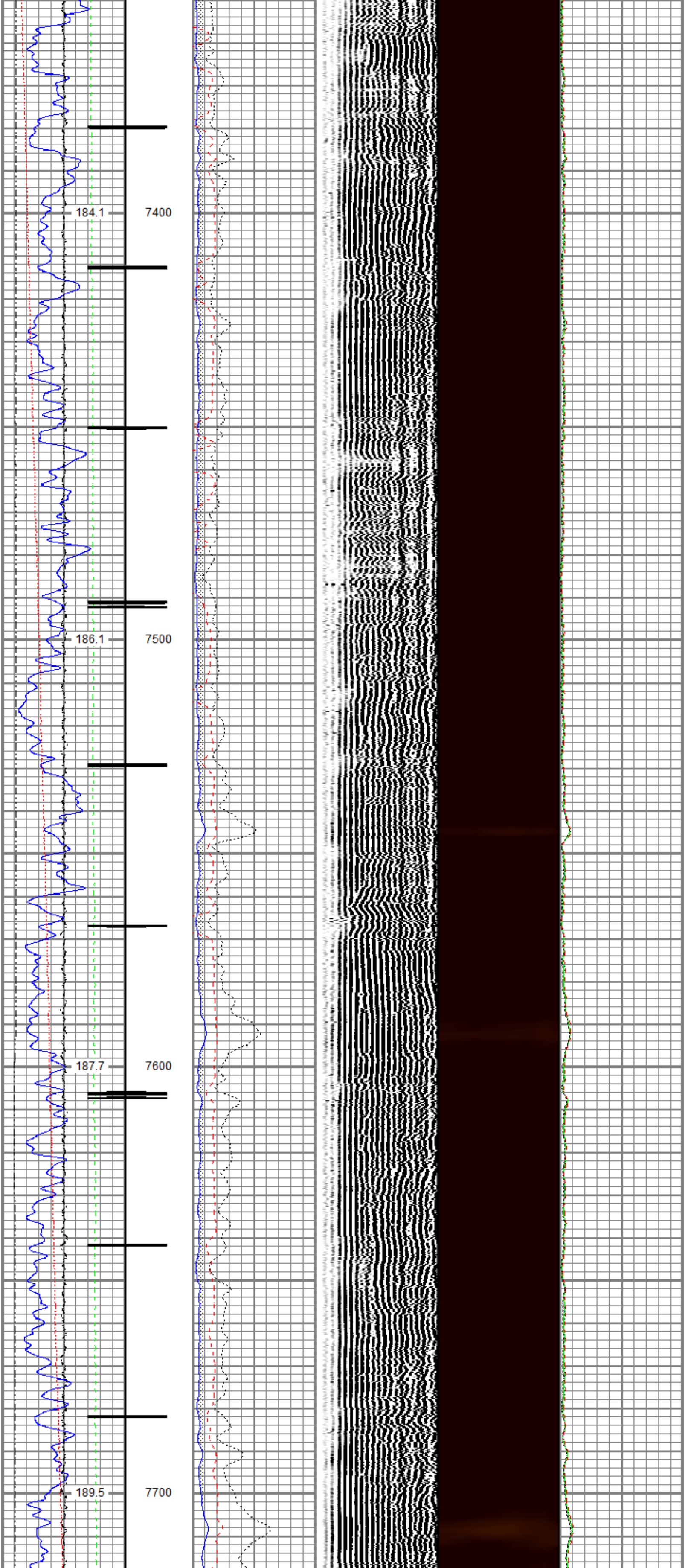
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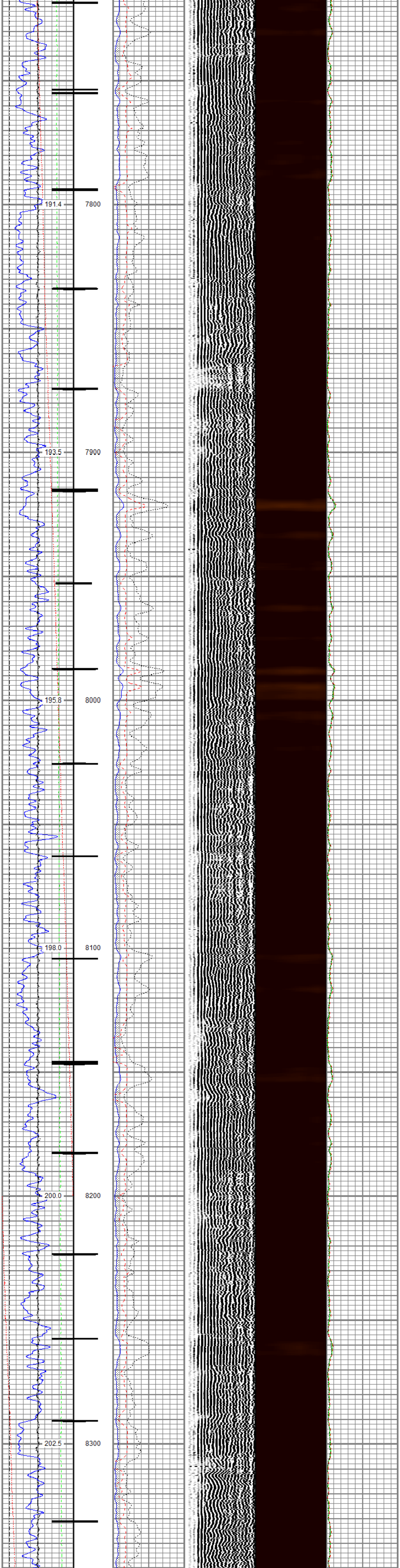

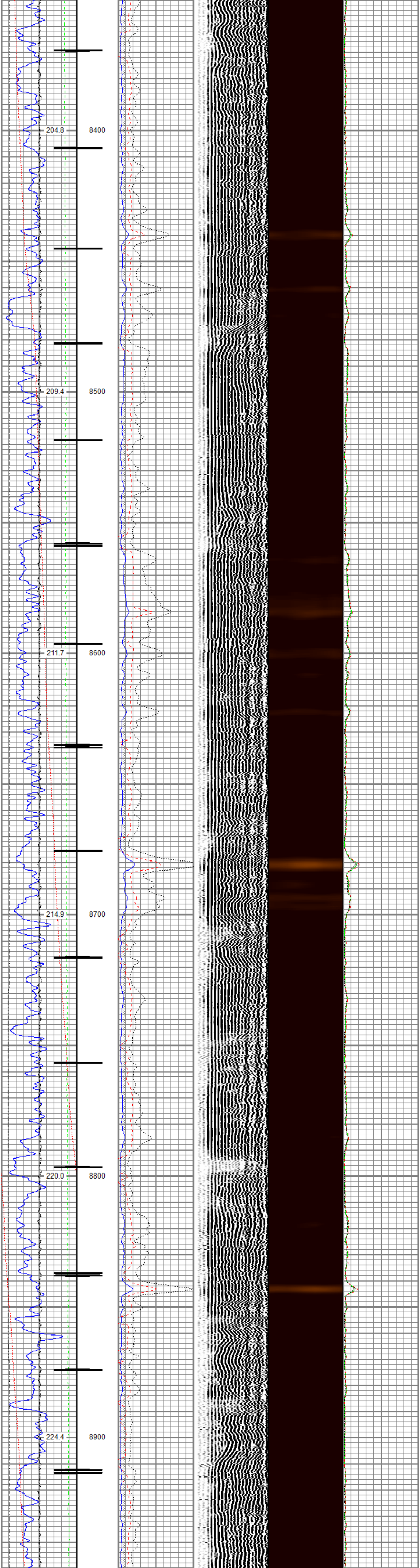

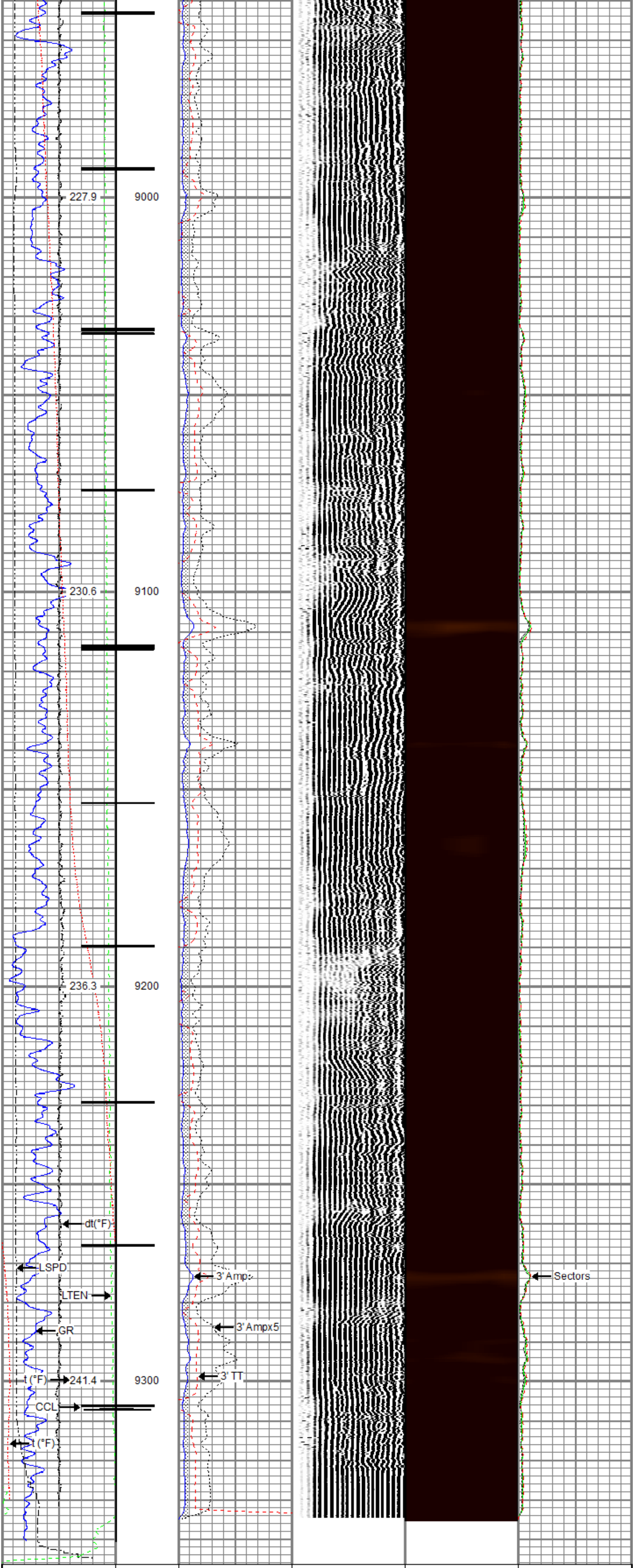

Gamma Ray 0 (GAPI) 200		3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Line Speed -150 (ft/min) 150		3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000		3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential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

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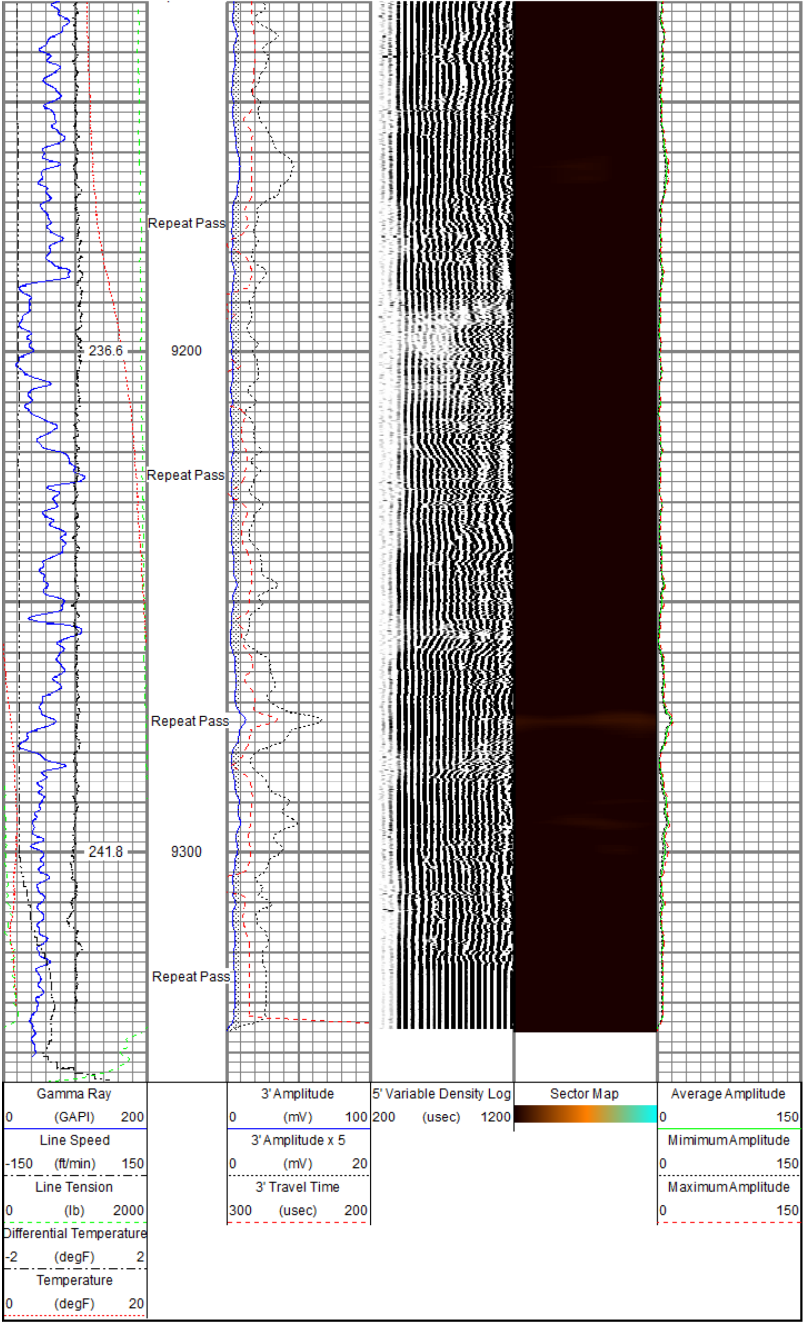
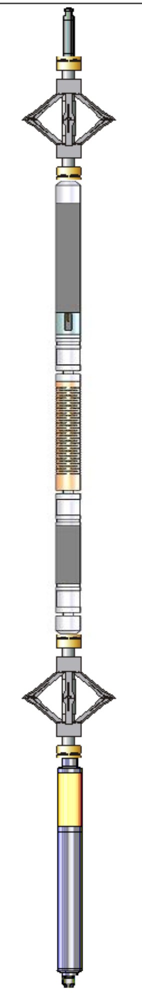
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 524-1_rbl_03-06-20\processed_tep_federal rwf 524-1_rbl_03-06-20.db
Dataset Pathname	repeat.2
Presentation Format	ros_radii_tep
Dataset Creation	Mon Mar 09 10:41:31 2020
Charted by	Depth in Feet scaled 1:240

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



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
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer with GO Ends	2.55	2.75	32.00
TEMP WVFS8 WVFS7 WVFS6 WVFS5 WVFS4 WVFS3 WVFS2 WVFS1 WVFCAL WVF3FT WVF5FT	13.79 11.55 11.55 11.55 11.55 11.55 11.55 11.55 11.55 11.55 11.55 10.55		Probe Radii-2750 RBT (FW1311-021) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer with GO Ends	2.55	2.75	32.00
CCL$2 CCL$1 GR	3.88 3.88 2.63		Probe GR-CCL-2750 GOB (FW1211-081) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined with GO Bottom	4.51	2.75	55.00
			GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset:	processed_tep_federal rwf 524-1_rbl_03-06-20.db: field/well/run1/main.1
Total length:	20.27 ft
Total weight:	228.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\tep_federal rwf 524-1_rbl_03-06-20\processed_tep_federal rwf 524-1_rbl_0
Dataset Pathname	main.1
Dataset Creation	Mon Mar 09 10:30:51 2020

Gamma Ray Calibration Report

Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Mon Oct 01 11:32:39 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	112.4	cps
Calibrator Reading:	1008.7	cps
Sensitivity:	0.7107	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1311-021	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	30.905	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.739	0.800	81.196	109.433	0.377
CAL	0.014	0.764				
5'	0.005	0.707	0.800	81.196	114.471	0.255
SUM						
S1	0.001	0.721	0.000	100.000	139.035	-0.191
S2	0.004	0.723	0.000	100.000	139.190	-0.583
S3	0.005	0.760	0.000	100.000	132.321	-0.613
S4	0.005	0.798	0.000	100.000	126.082	-0.612
S5	0.005	0.789	0.000	100.000	127.447	-0.603
S6	0.005	0.748	0.000	100.000	134.674	-0.674
S7	0.005	0.723	0.000	100.000	139.247	-0.635
S8	0.005	0.746	0.000	100.000	135.009	-0.710

Air Zero Calibration, performed Fri Mar 06 13:27:29 2020:

	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:	FW1311-021	
Tool Model:	2750 RBT	
Performed:	Mon Oct 01 11:32:11 2018	
	Reference	Reading
Low Reference:	100.00 degF	112.12 degF
High Reference:	350.00 degF	415.62 degF
Gain:	0.82	
Offset:	7.65	
Delta Spacing	1	

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