RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Ware SR 34-12
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC
Well	Ware SR 34-12
Field	Rulison
County	Garfield
State	Colorado

Location: API # : 05-045-23438

Other Services

SEC 12 TWP 7S RGE 94W

Permanent Datum	Ground Level	Elevation	7479'	Elevation K.B. 7503' D.F. 7502' G.L. 7479'
Log Measured From	Kelly Bushing	24 FT		
Drilling Measured From	Kelly Bushing			

Date	10-JAN-2018		
Run Number	One		
Depth Driller	9607 FT		
Depth Logger	9561 FT		
Bottom Logged Interval	9556 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	247°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	23:30		
Equipment Number	HD-0359		
Location	Grand Junction		
Recorded By	Z. Fisher		
Witnessed By	C. Applegate		

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	32.3	H-40	Surface	1134 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9566 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 5617-5638 FT
Log ran from 9561 FT to Surface
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_ware sr 34-12_rbl_01-10-18\processed_tep_ware sr 34-12_rbl_01-10-18.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Thu Jan 11 10:03:18 2018
Charted by	Depth in Feet scaled 1:240

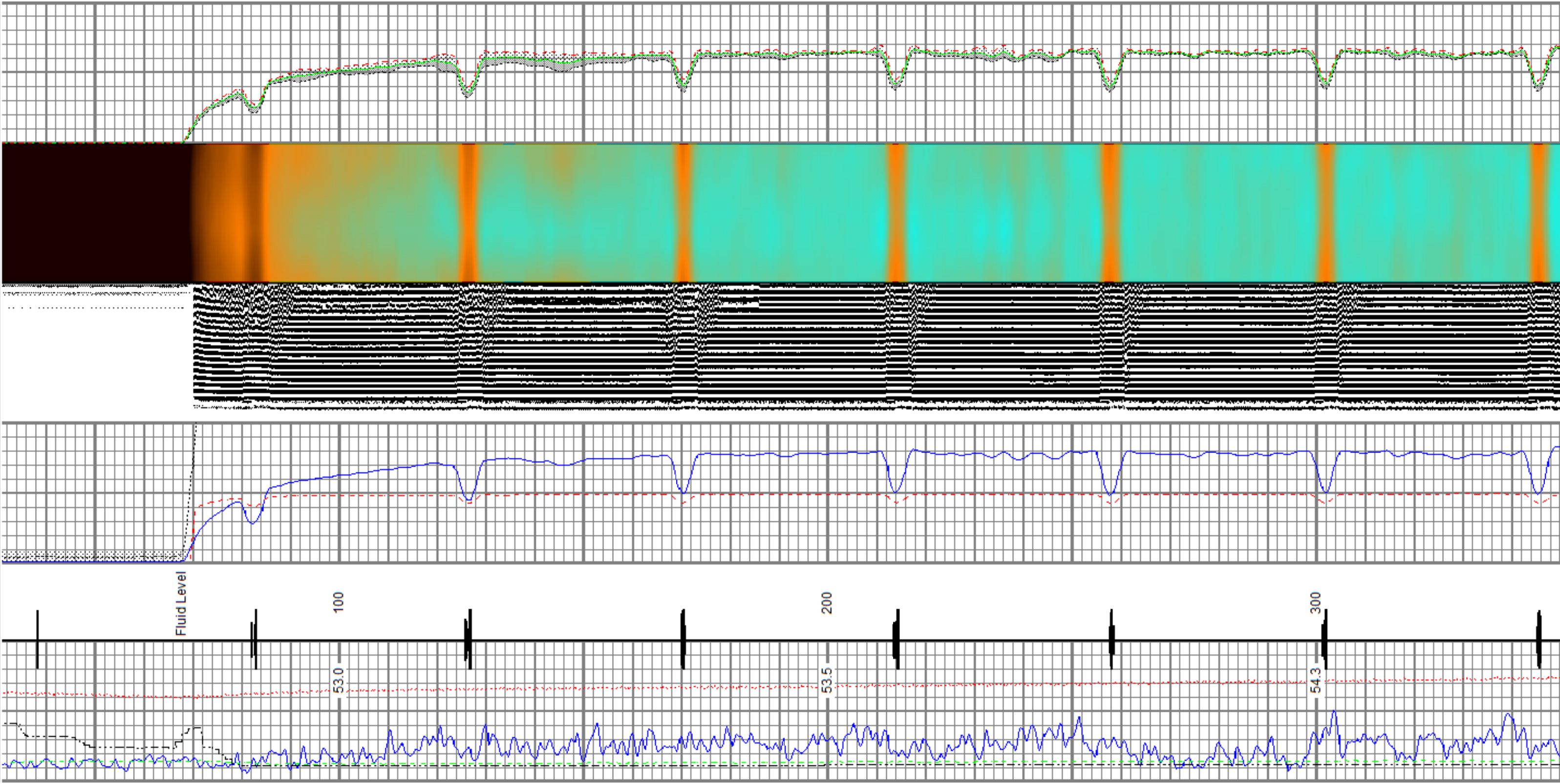
Gamma Ray
0 (GAPI) 200
Casing Collar Locator
Line Speed
-150 (ft/min) 150
Line Tension
0 (lb) 2000
Temperature
0 (degF) 20

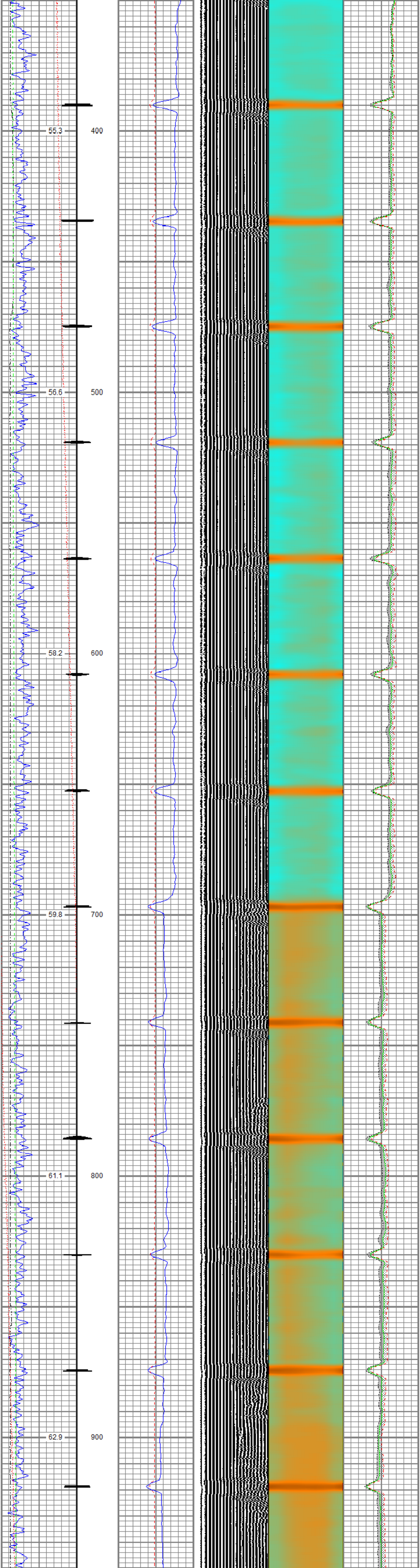
3' Amplitude
0 (mV) 100
3' Amplitude x 5
0 (mV) 20
3' Travel Time
300 (usec) 200

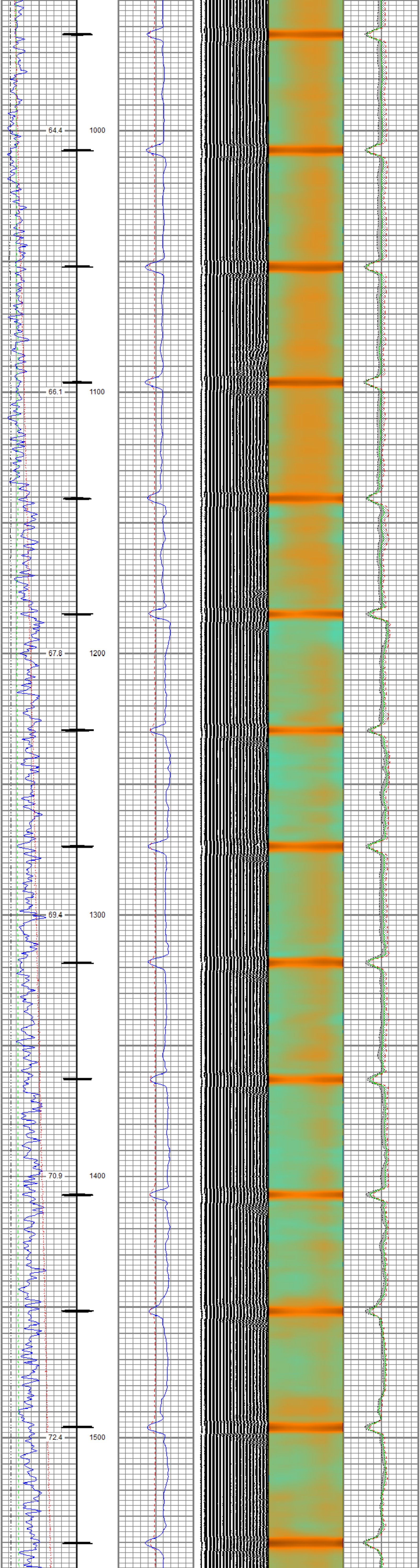
5' Variable Density Log
200 1200

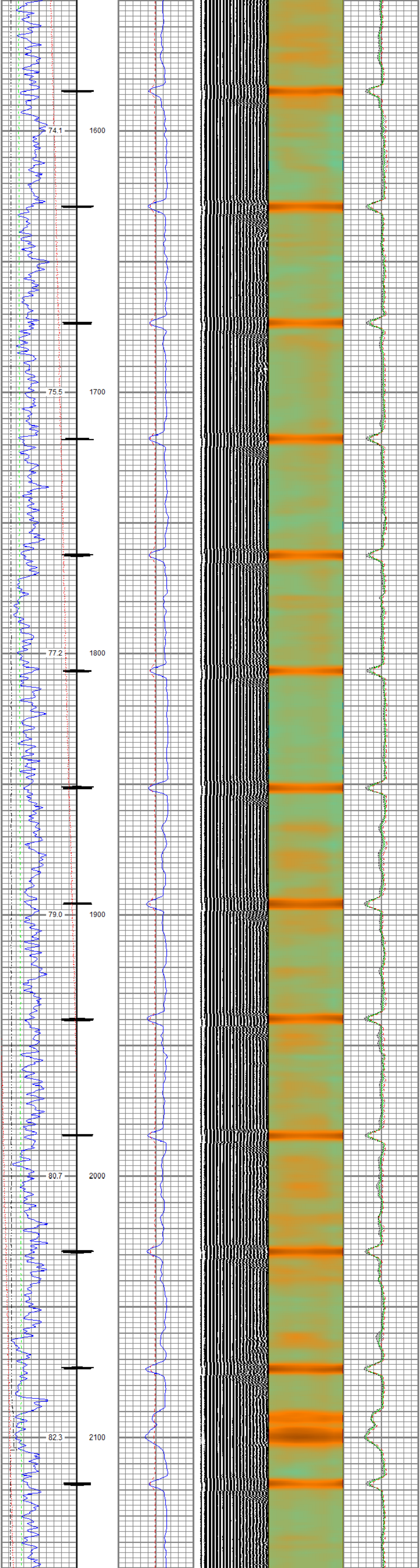
Sector Map
10 110

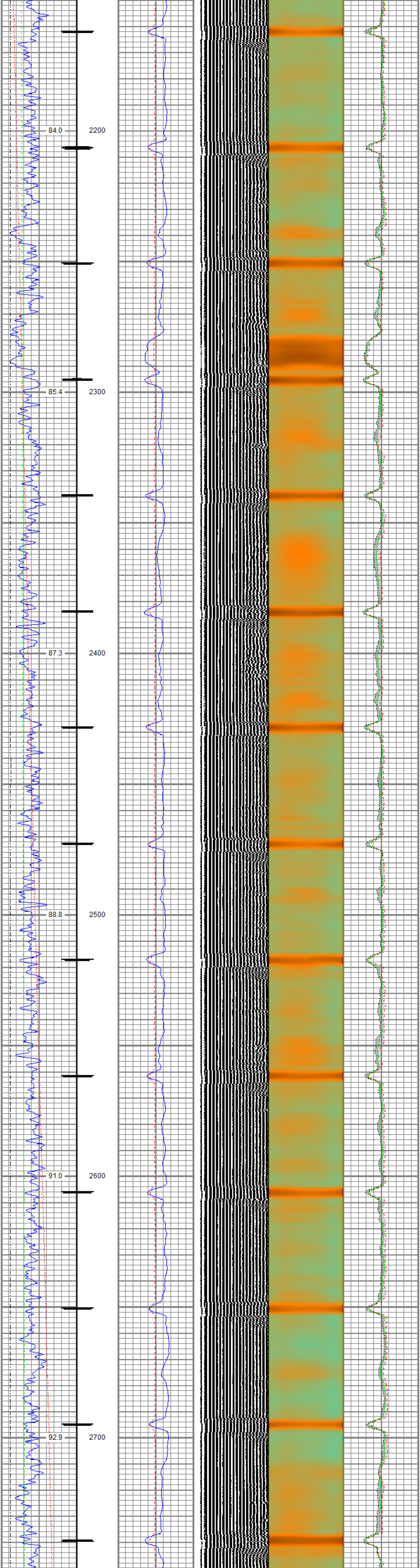
Average Amplitude
0 150
Mimimum Amplitude
0 150
Maximum Amplitude
0 150

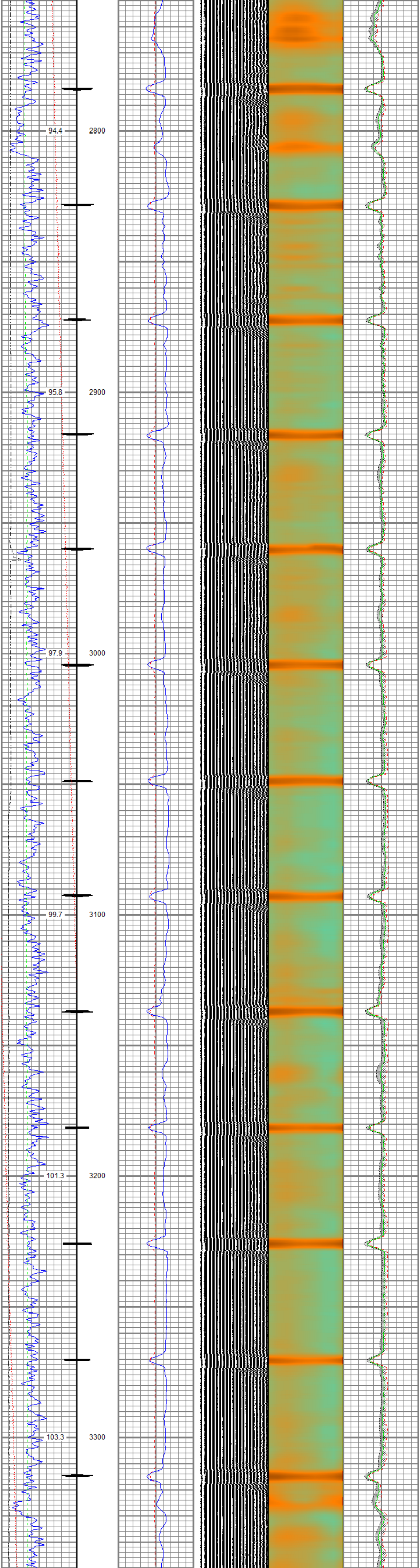


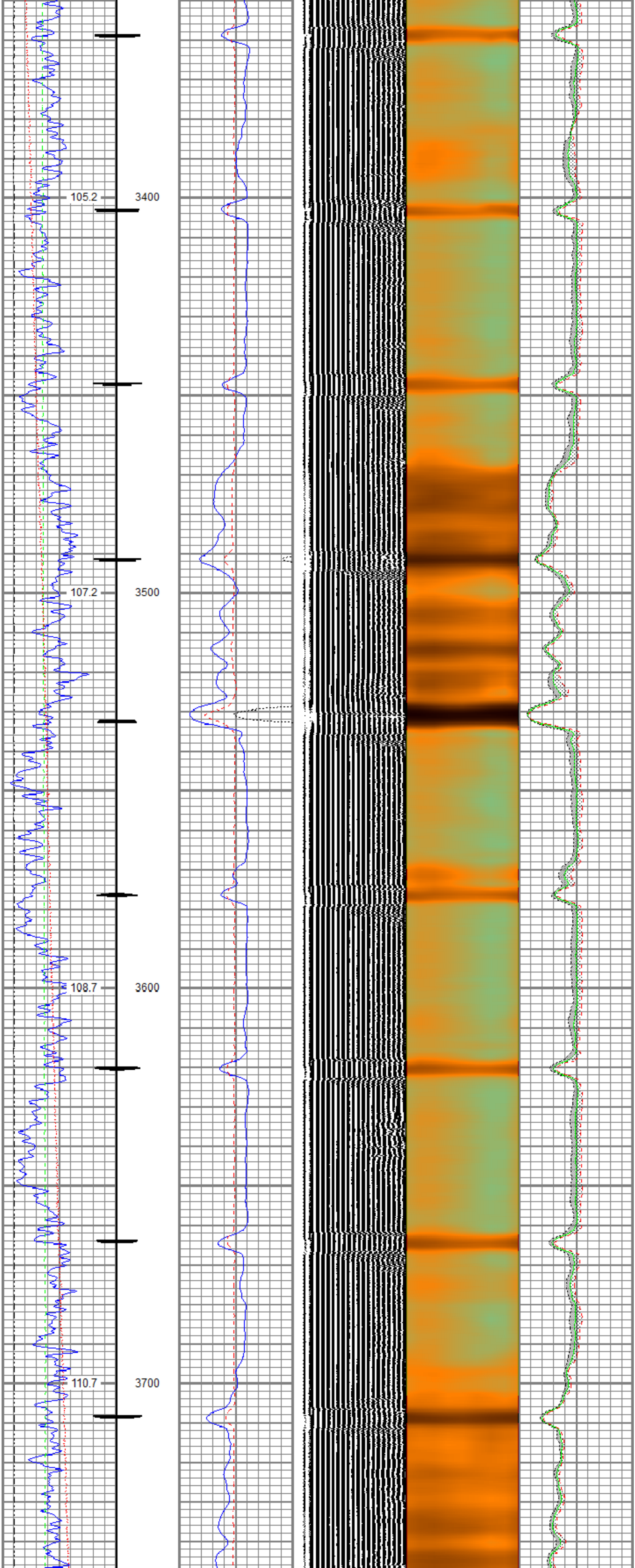


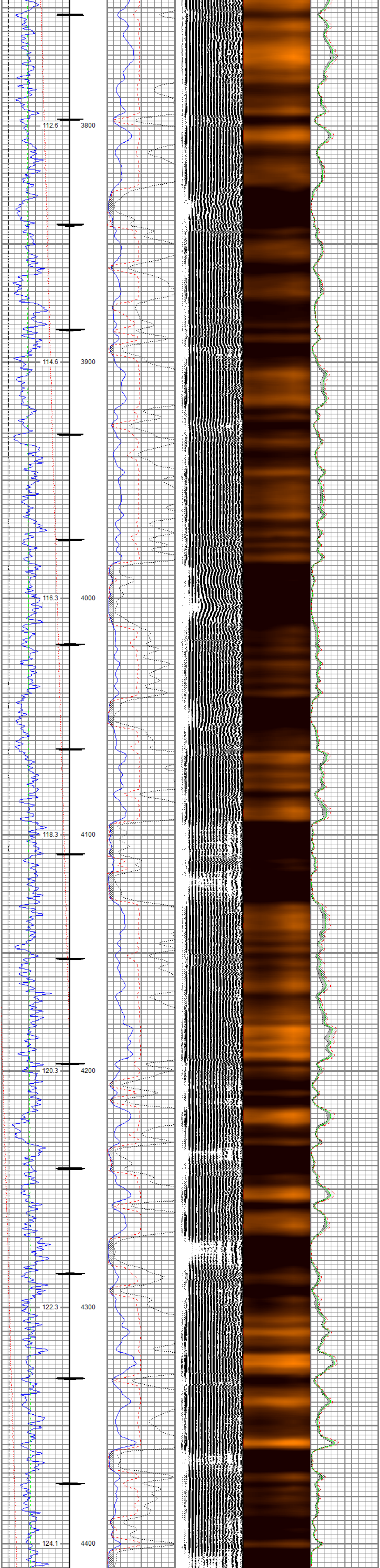








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114.6
3900
116.3
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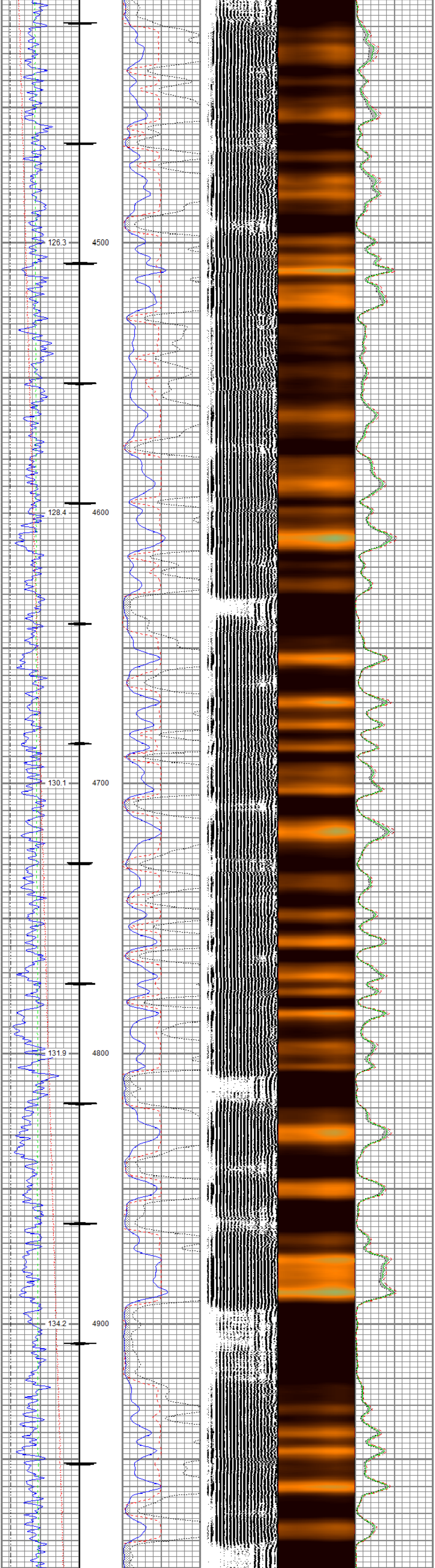
4100
120.3
4200
122.3
4300
124.1
4400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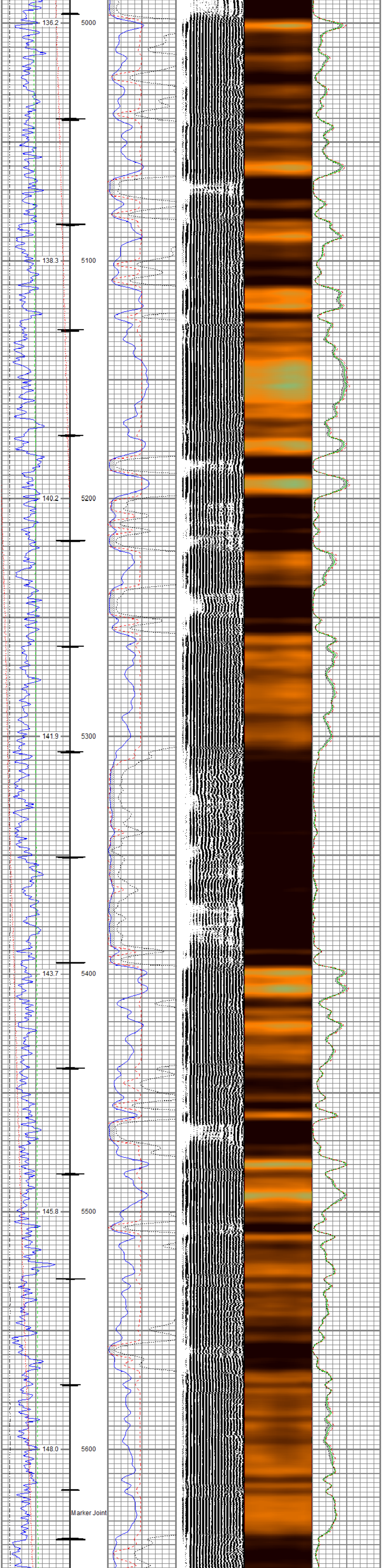
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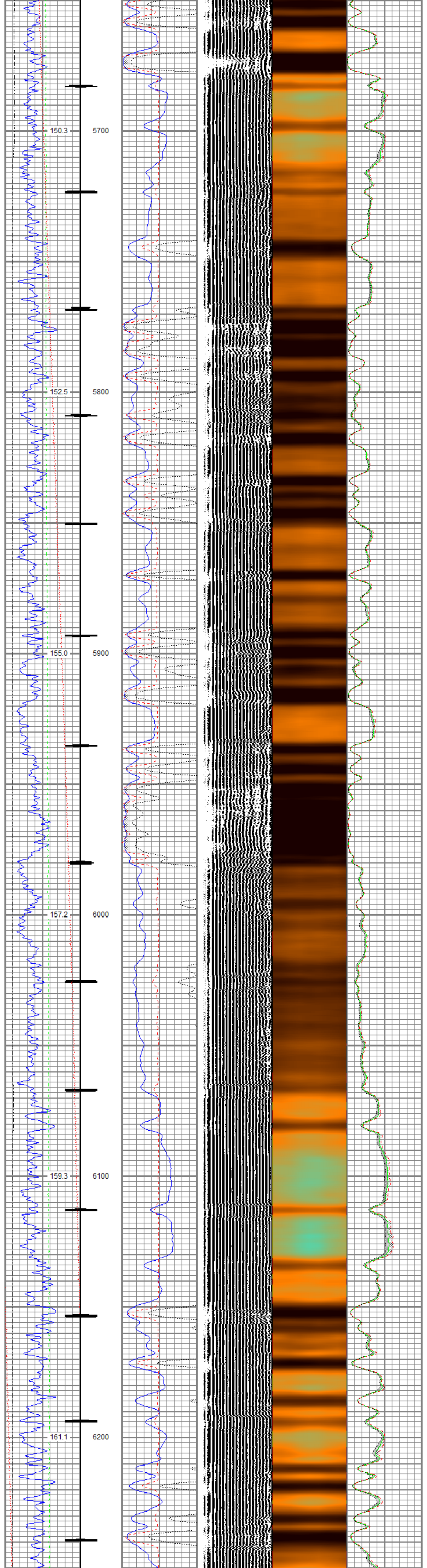
Marker Joint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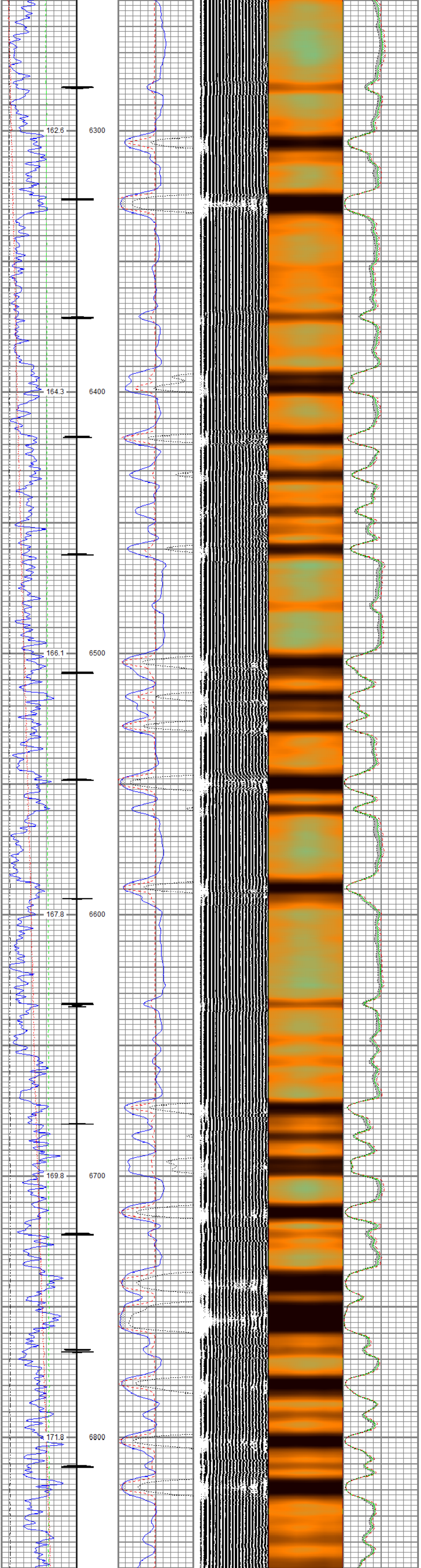
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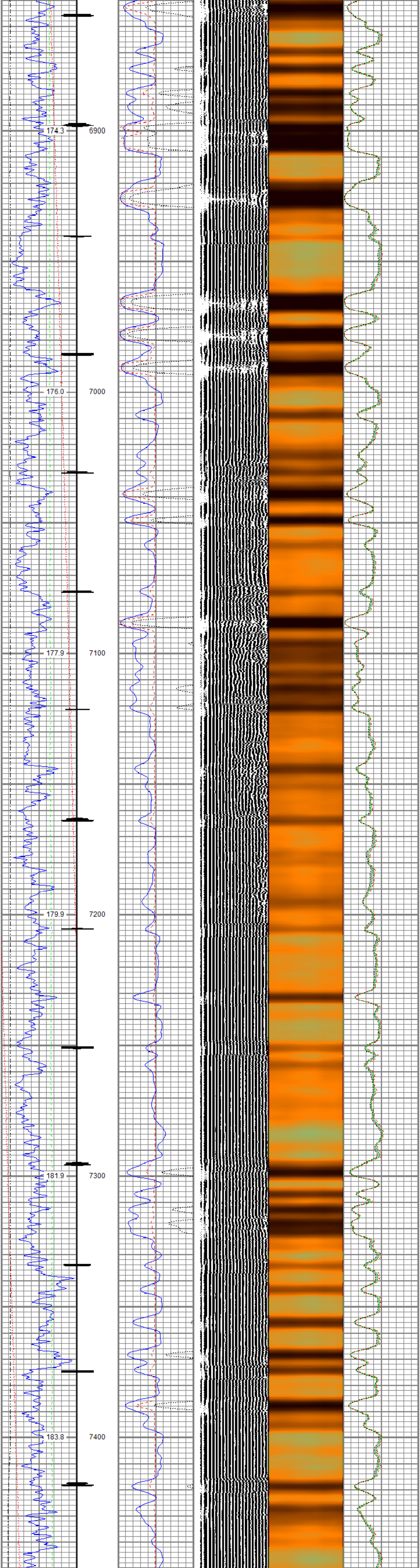
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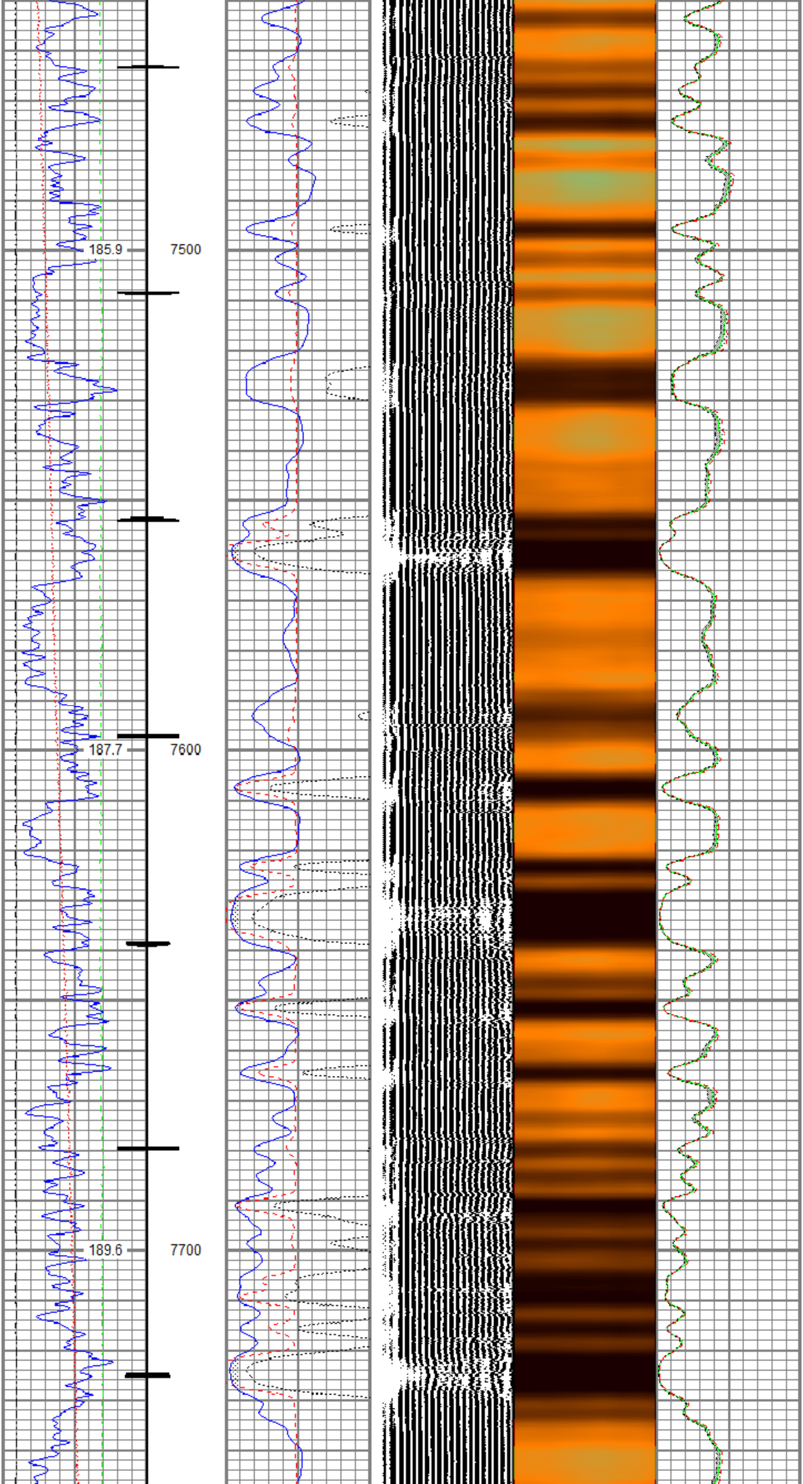
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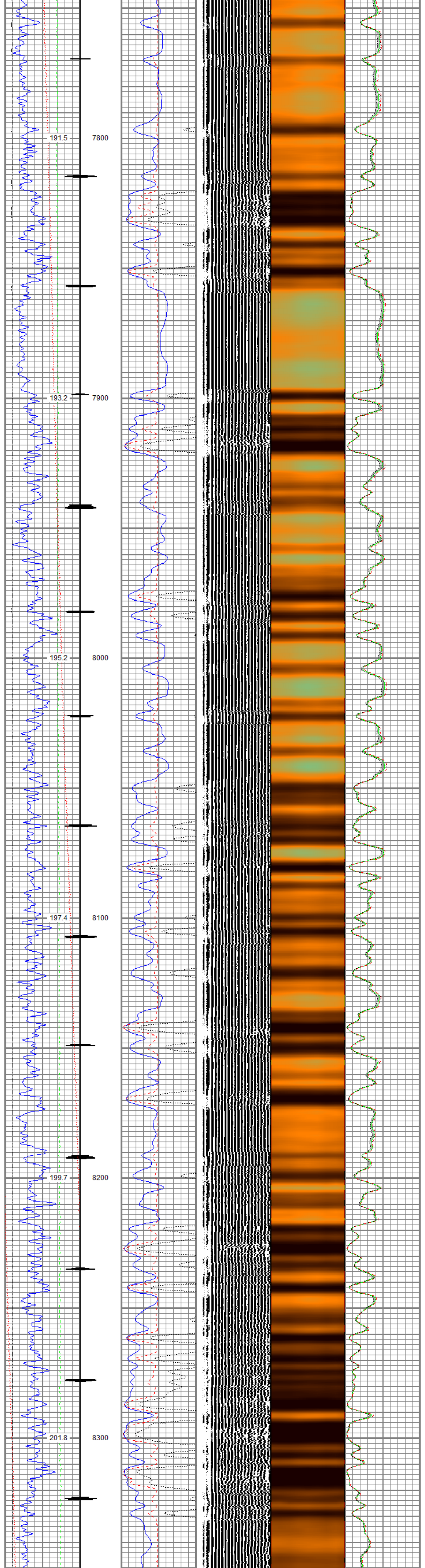

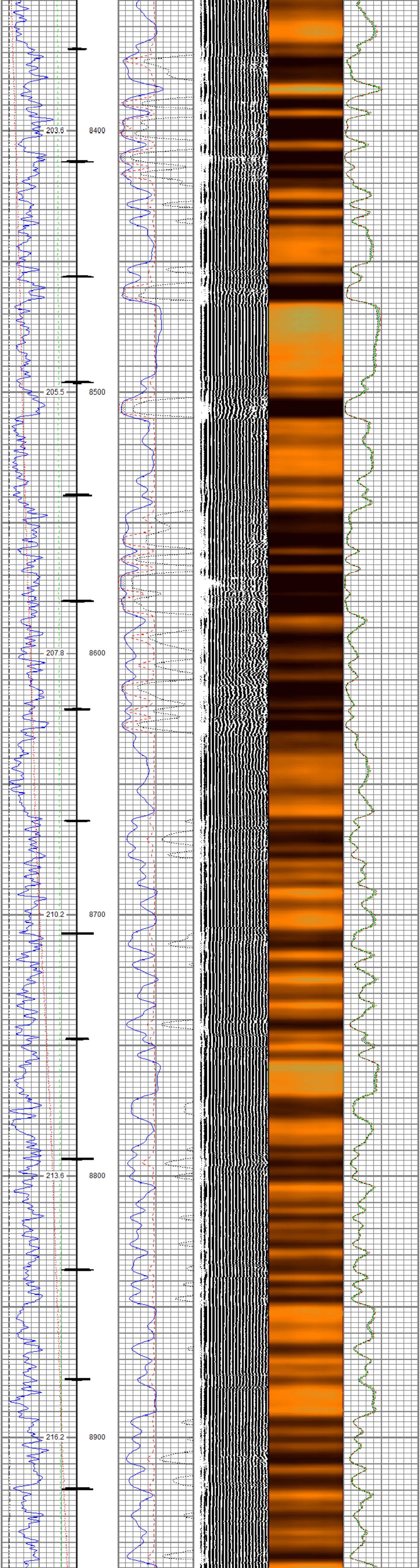

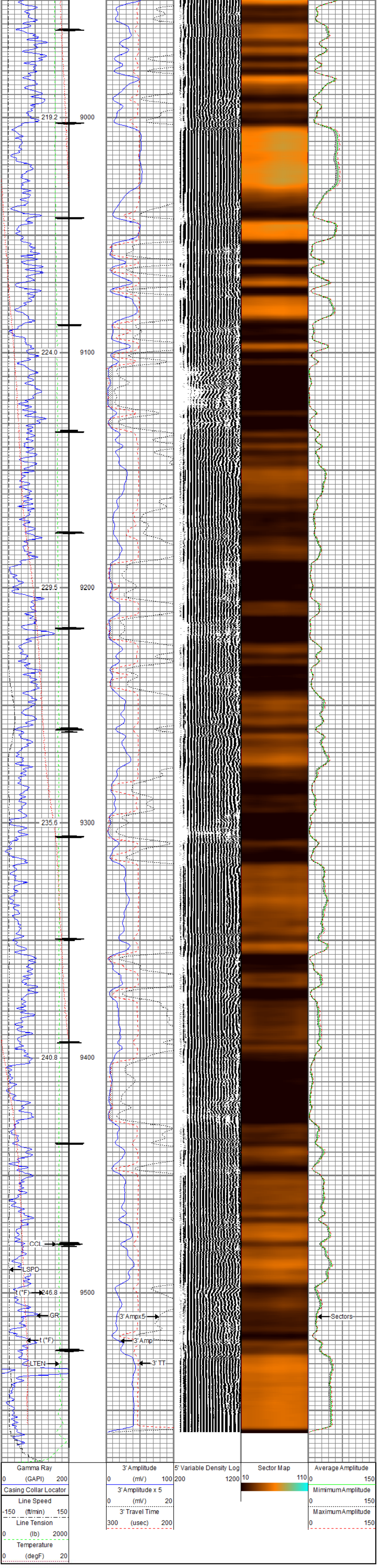

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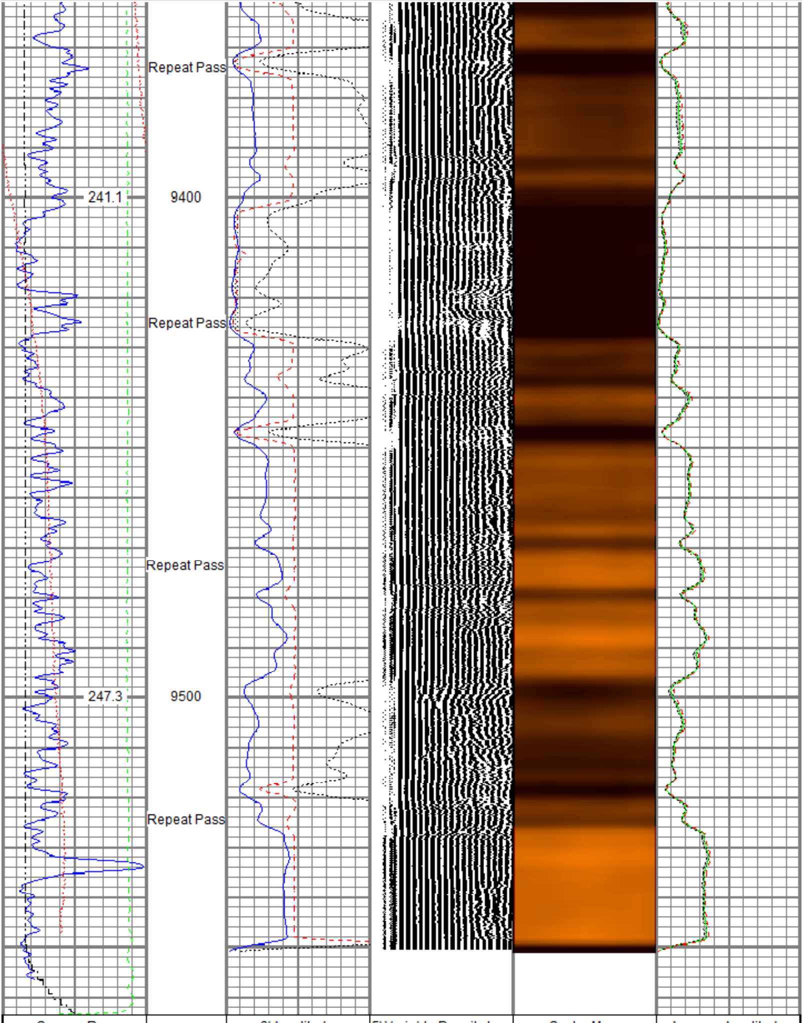
Repeat Pass

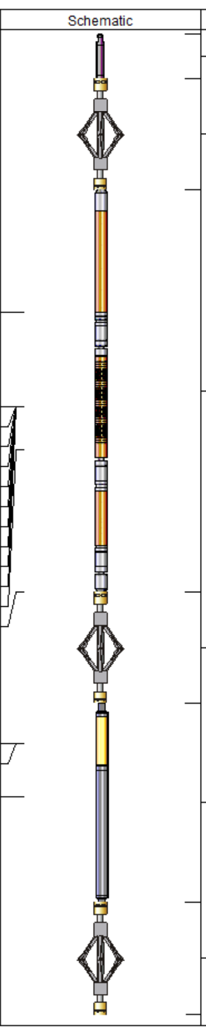
Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 34-12_rbl_01-10-18\processed_tep_ware sr 34-12_rbl_01-10-18.db
Dataset Pathname	repeat.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Thu Jan 11 10:32:33 2018
Charted by	Depth in Feet scaled 1:240

Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200	10 110	0 150
Line Speed		3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150		0 (mV) 20			0 150
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		300 (usec) 200			0 150
Temperature					
0 (degF) 20					



Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200	10 110	0 150
Line Speed		3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150		0 (mV) 20			0 150
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		300 (usec) 200			0 150
Temperature					
0 (degF) 20					



Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/1 Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
Temp	16.05					
WVFS8	13.88		Probe_RADII-C-P_RBT_2750 (FW1305-0 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVFS7	13.88					
WVFS6	13.88					
WVFS5	13.88					
WVFS4	13.88					
WVFS3	13.88					
WVFS2	13.88					
WVFS1	13.88					
WVFCAL	13.88					
WVF3FT	13.88					
WVF5FT	12.88					
HeadVolt	9.63					
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
DCCL	6.18					
CCL	6.18					
GR	4.96		Probe_GR_CCL-P_CGR_2750_S (FW1304.5 Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.548)	2.75	55.00
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00

Dataset:	processed_tep_ware sr 34-12_rbl_01-10-18.db: field/well/run1/main.1
Total length:	22.40 ft
Total weight:	261.40 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep_ware sr 34-12_rbl_01-10-18\processed_tep_ware sr 34-12_rbl_01-10-18.db
Dataset Pathname	main.1
Dataset Creation	Thu Jan 11 10:03:18 2018

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:43:09 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.6	cps
Sensitivity:	0.6061	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1305-098	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	442.974	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.003	0.849	0.800	81.196	94.442	1.045
CAL	0.722	0.722				
5'	-0.002	0.635	0.800	81.196	126.179	1.045
SUM						
S1	-0.010	0.851	0.000	100.000	116.128	1.160
S2	-0.005	0.858	0.000	100.000	115.856	0.606
S3	-0.005	0.881	0.000	100.000	112.920	0.529
S4	-0.006	0.929	0.000	100.000	106.999	0.589
S5	-0.007	0.931	0.000	100.000	106.576	0.749
S6	-0.005	0.886	0.000	100.000	112.128	0.612
S7	-0.007	0.846	0.000	100.000	117.285	0.798
S8	-0.005	0.834	0.000	100.000	119.208	0.570

Internal Reference Calibration, performed Tue Nov 07 10:59:54 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.722	0.722	1.000	0.000

Air Zero Calibration, performed Sun Jan 07 16:27:52 2018:

	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

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Company	TEP Rocky Mountain LLC	
Well	Ware SR 34-12	
Field	Rulison	
County	Garfield	
State	Colorado	Country