RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Ware SR 323-12
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC

Well Ware SR 323-12

Field Rulison

County Garfield State Colorado

Location: API # : 05-045-23452

1818' FSL & 2284' FWL NESW

SEC 12 TWP 7S RGE 94W

Other Services

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Permanent Datum	Ground Level	Elevation	7479'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 7503'
D.F. 7502'
G.L. 7479'

Date	08-DEC-2017		
Run Number	One		
Depth Driller	9512 FT		
Depth Logger	9452 FT		
Bottom Logged Interval	9452 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Fresh Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	249°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	10:00		
Equipment Number	HD-359		
Location	Grand Junction, CO		
Recorded By	J.Donnelly		
Witnessed By	D. Welsh		

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	1128 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9471 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 5970 FT - 5991 FT
Log ran from 9452 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

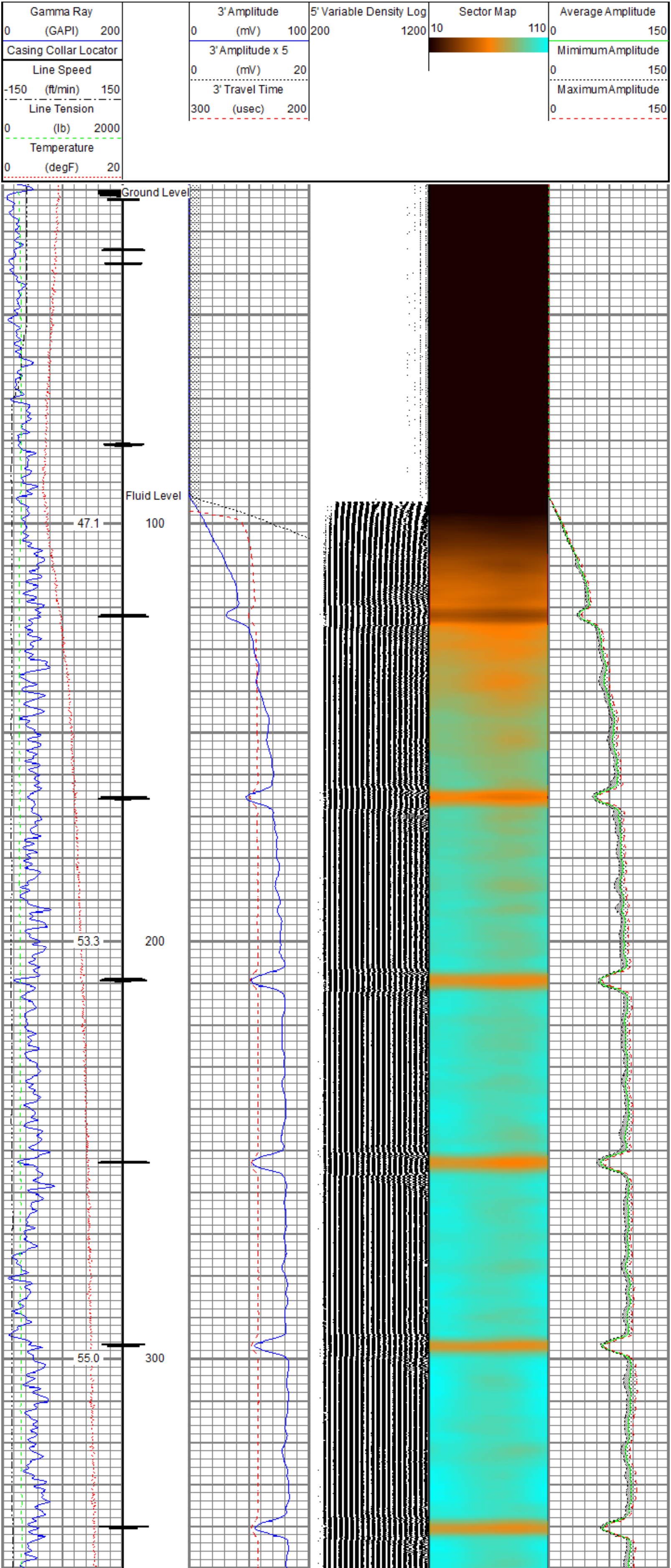
Thank you for choosing Reliance Oilfield Services, LLC!!

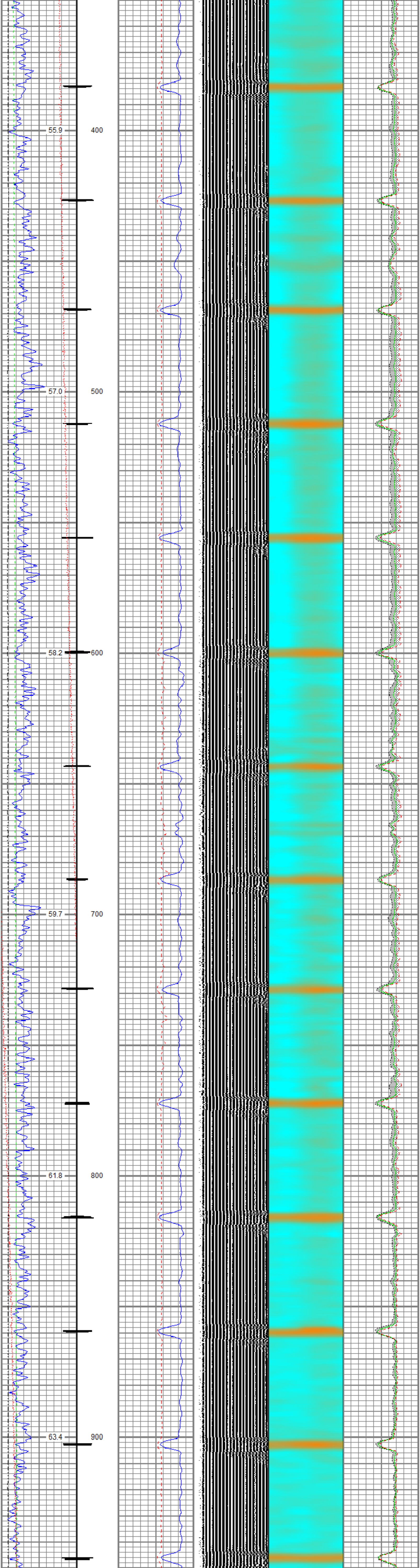
RELIANCE OILFIELD SERVICES

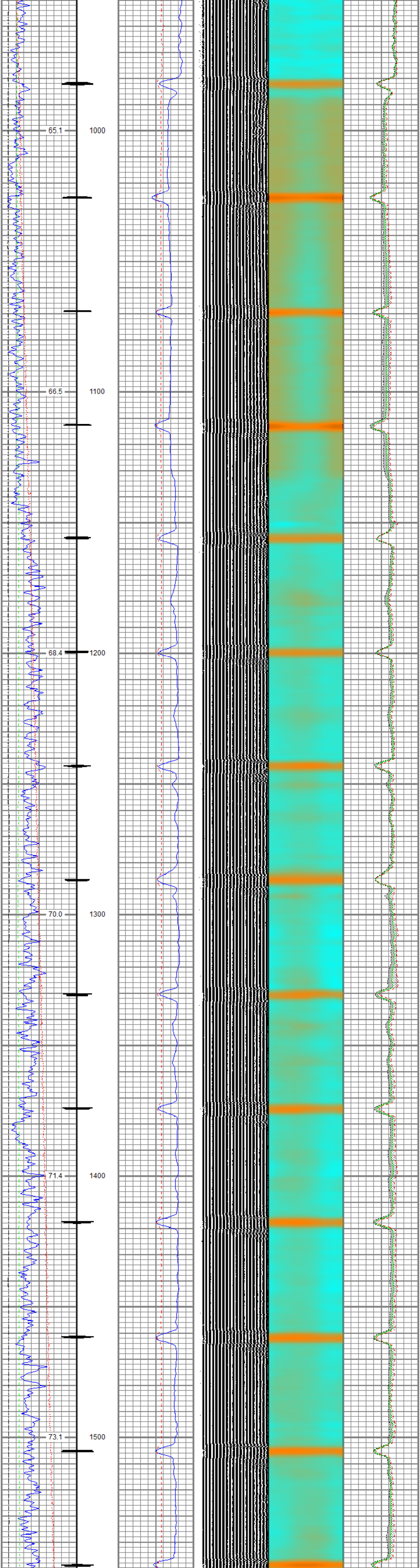
Main Pass

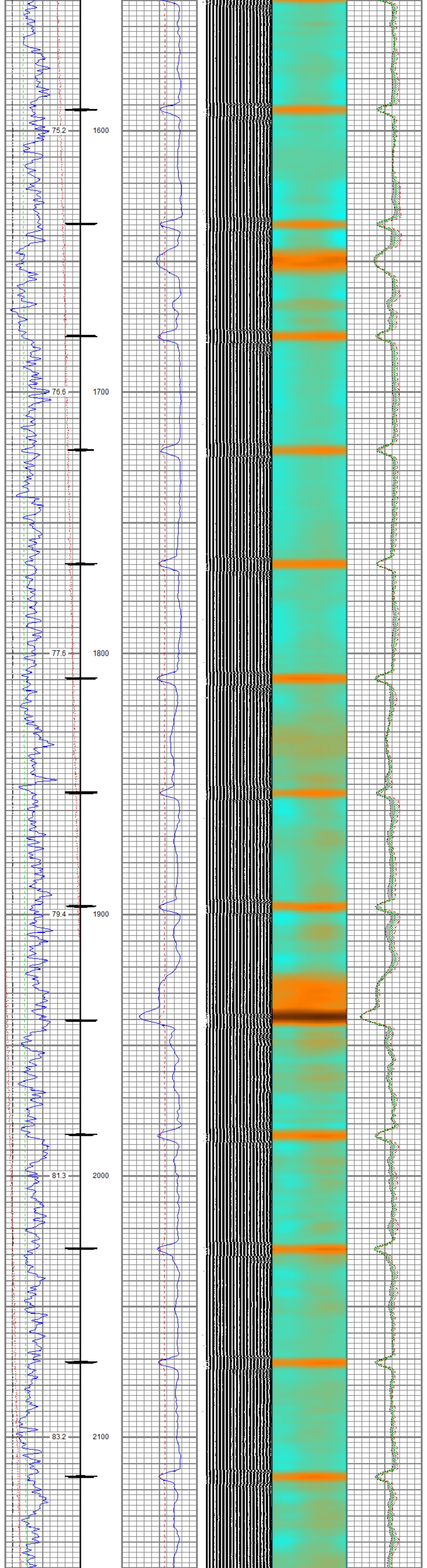
Recorded with 0 PSI Surface Induced Pressure

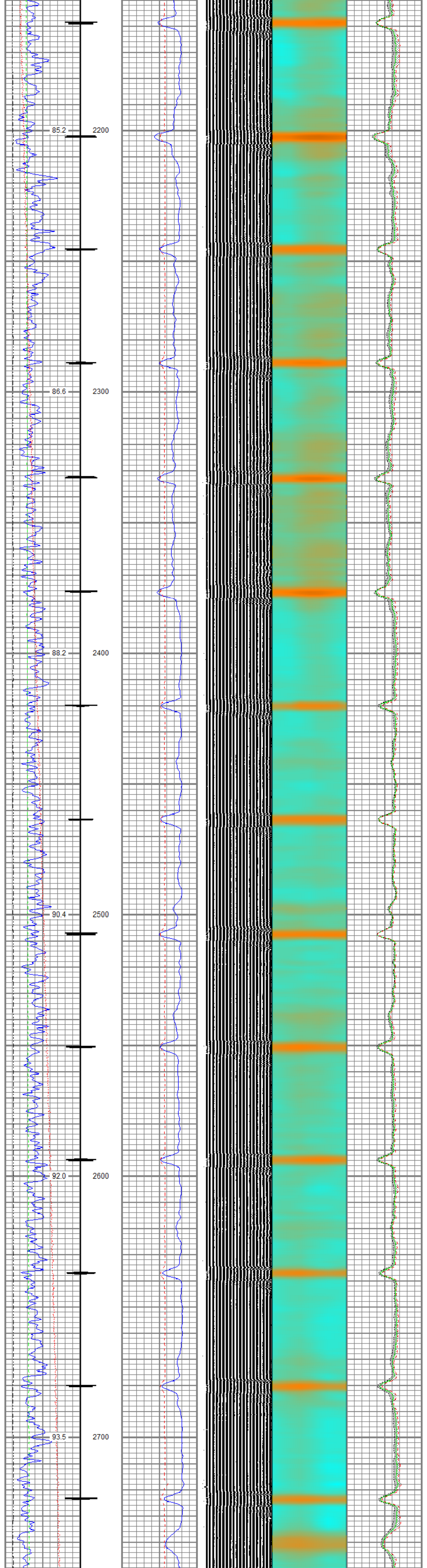
Database File	tep_ware sr 323-12_rbl_12-08-17\processed_tep_ware sr 323-12_rbl_12-08-17.db
Dataset Pathname	main
Presentation Format	ros_rbt004_tep
Dataset Creation	Fri Dec 08 10:00:47 2017
Charted by	Depth in Feet scaled 1:240

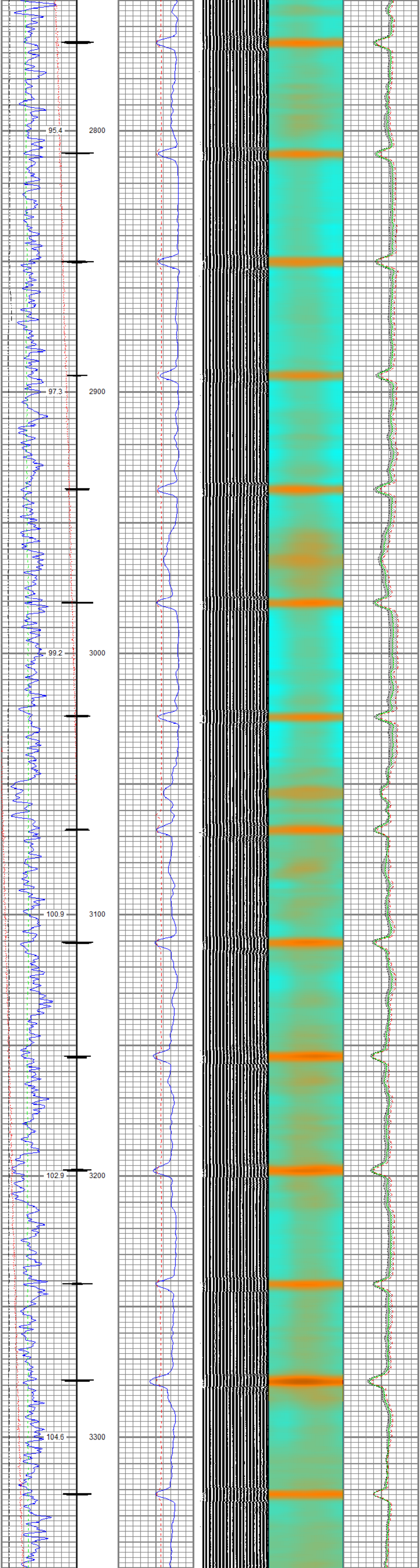


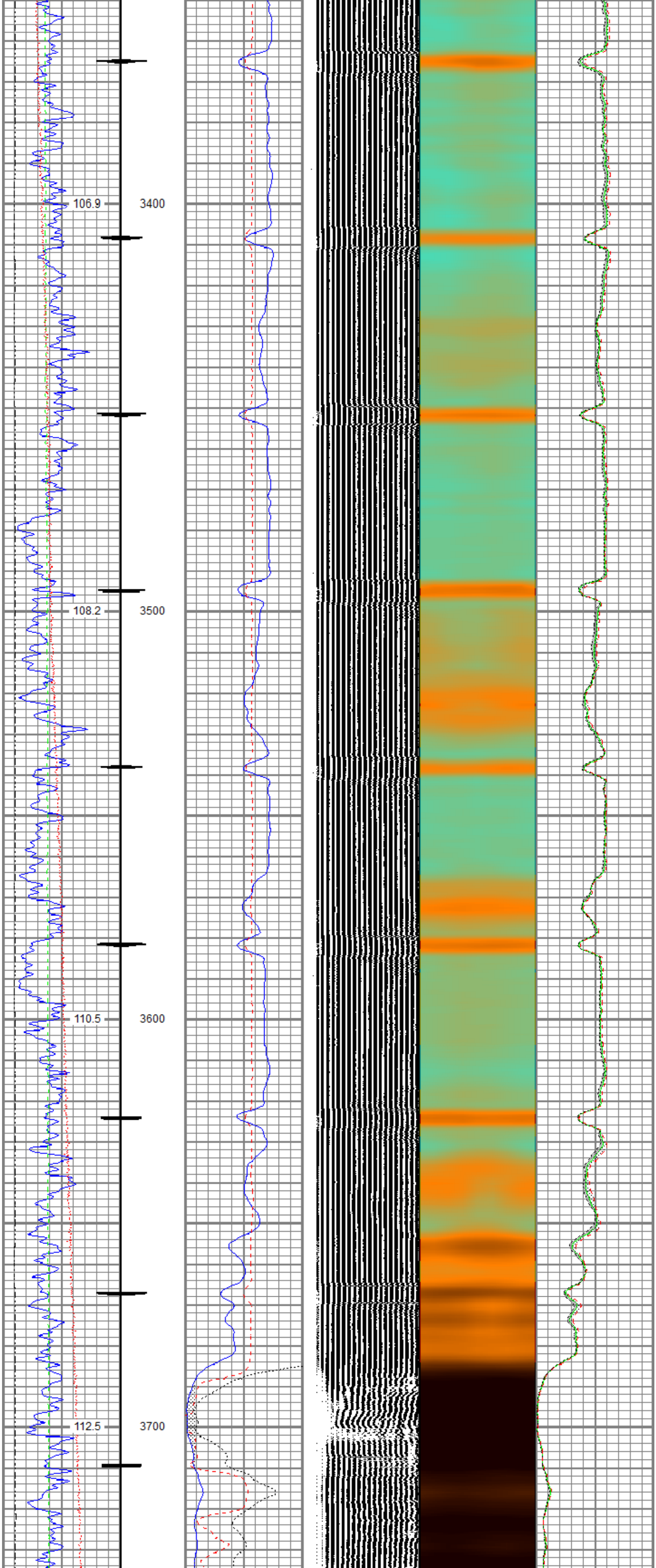


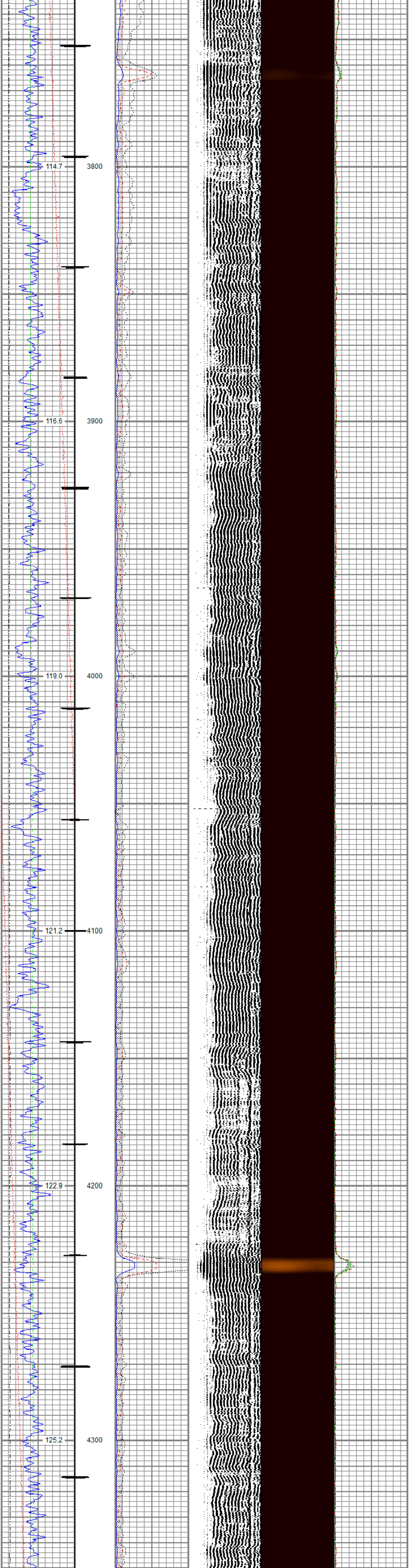








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116.6
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119.0
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4100
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125.2
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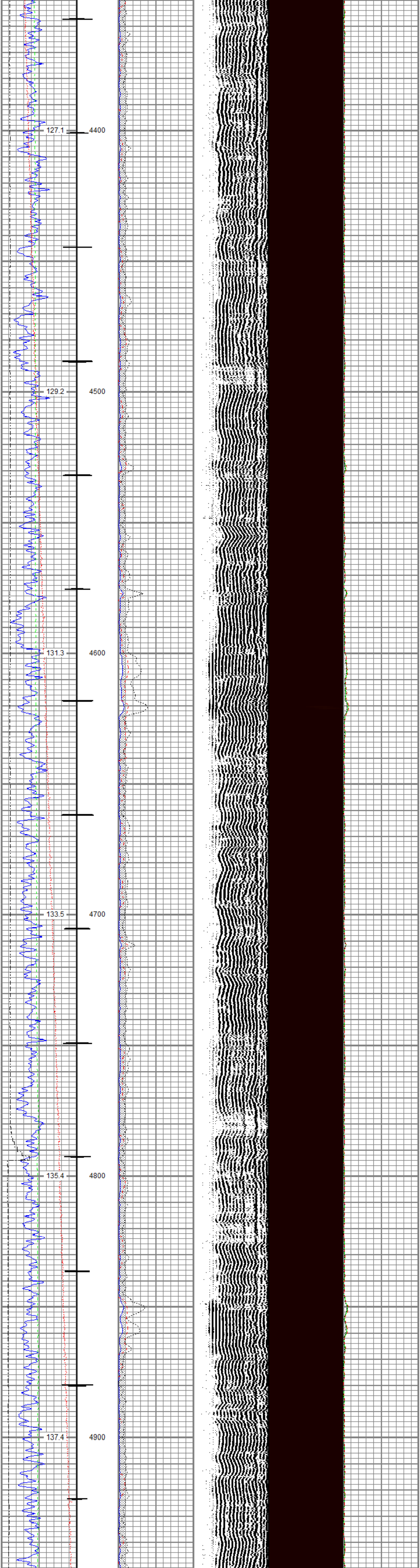
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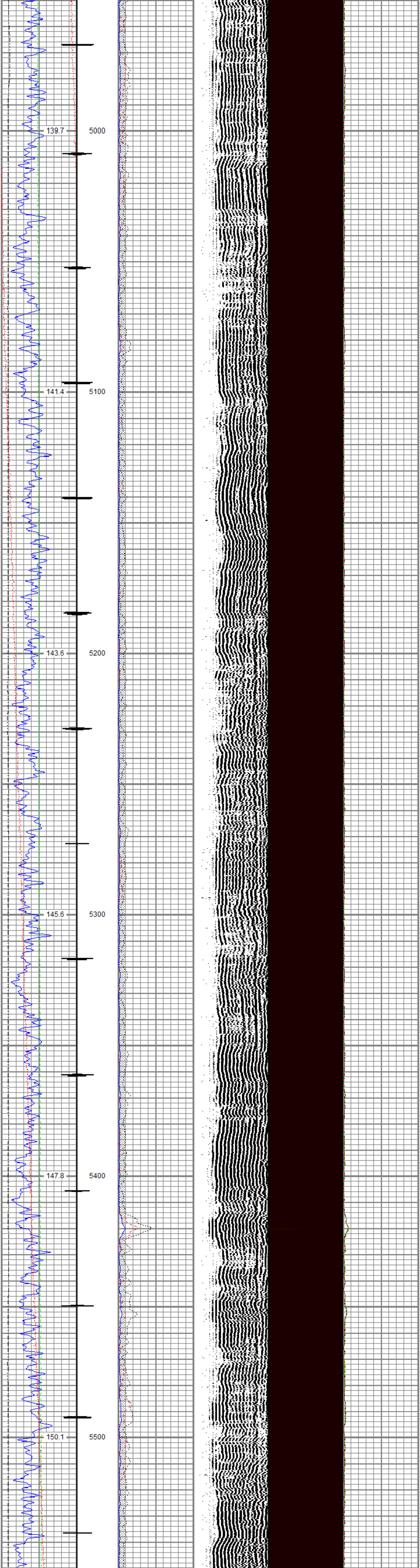
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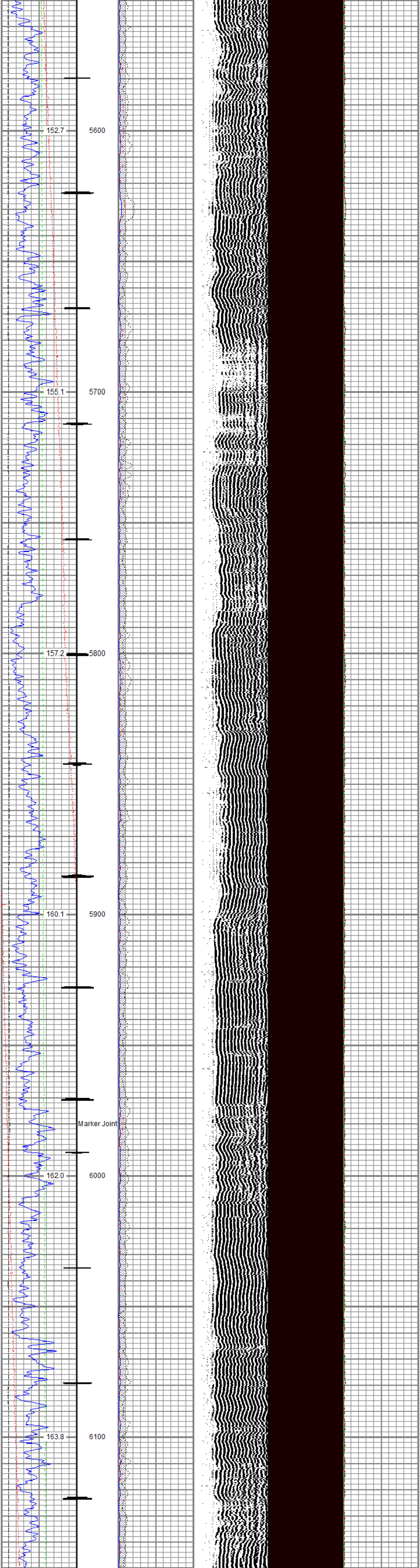
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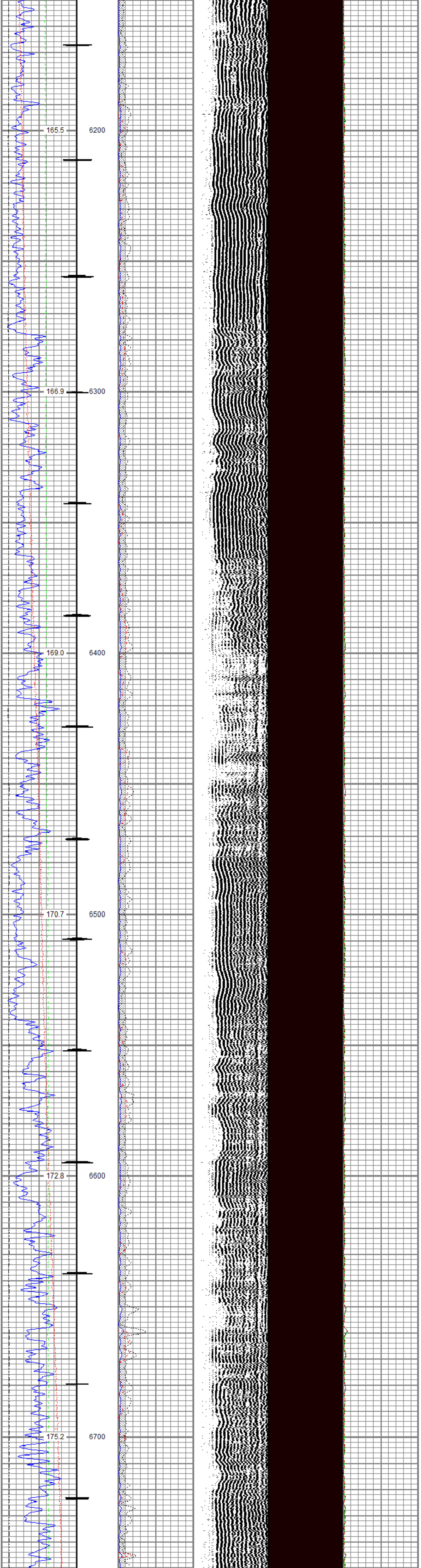
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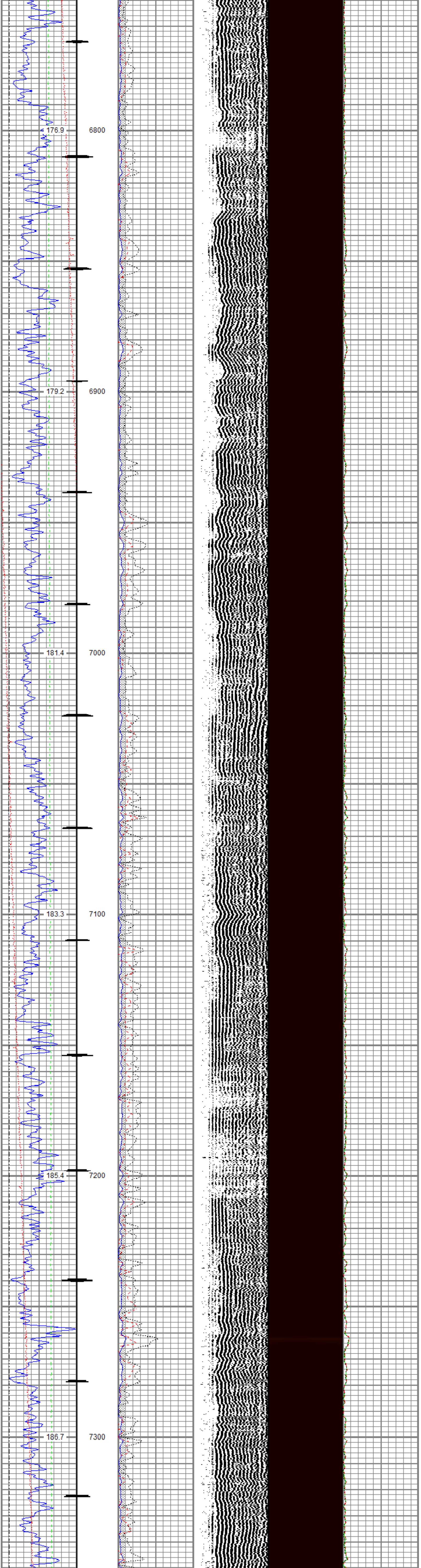
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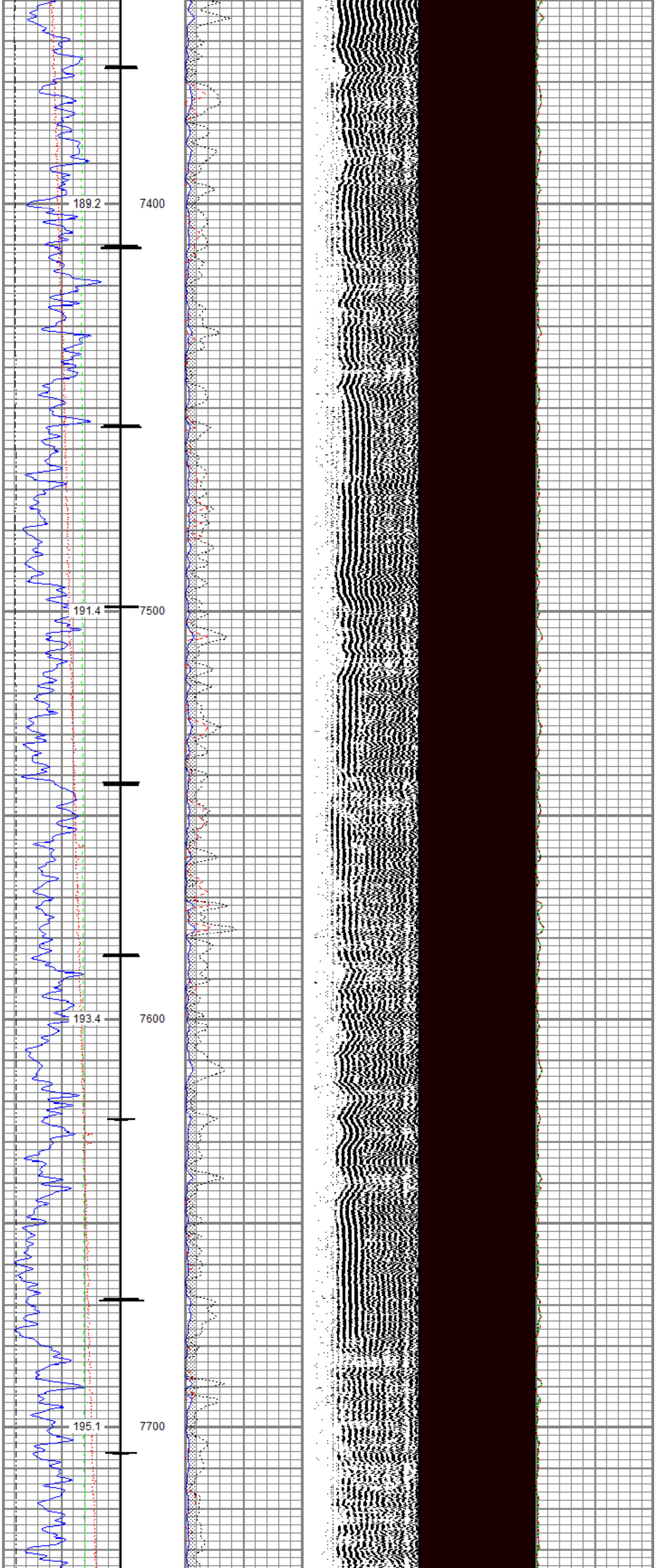
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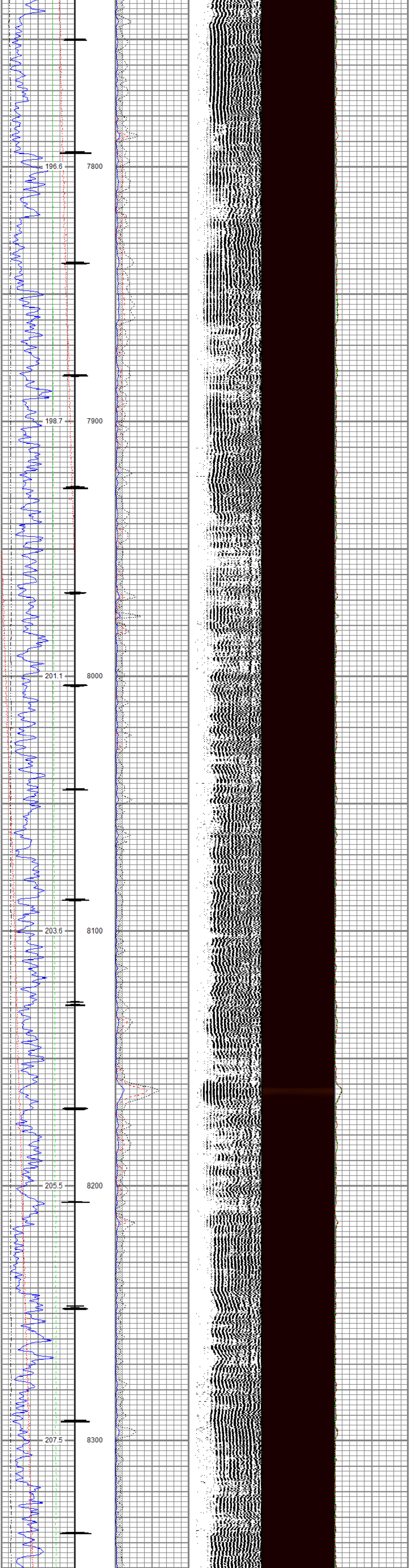

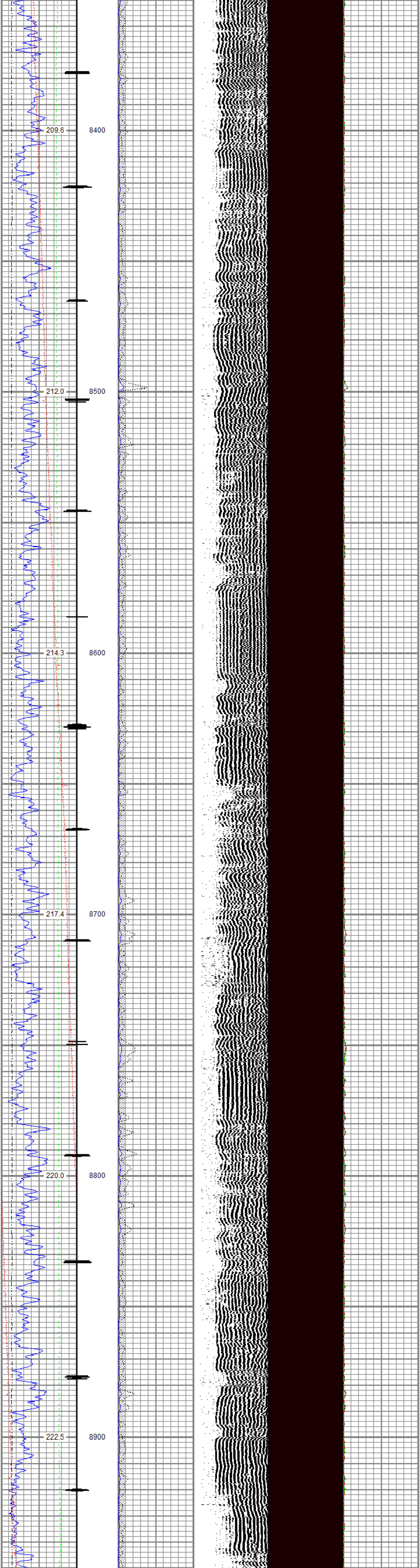

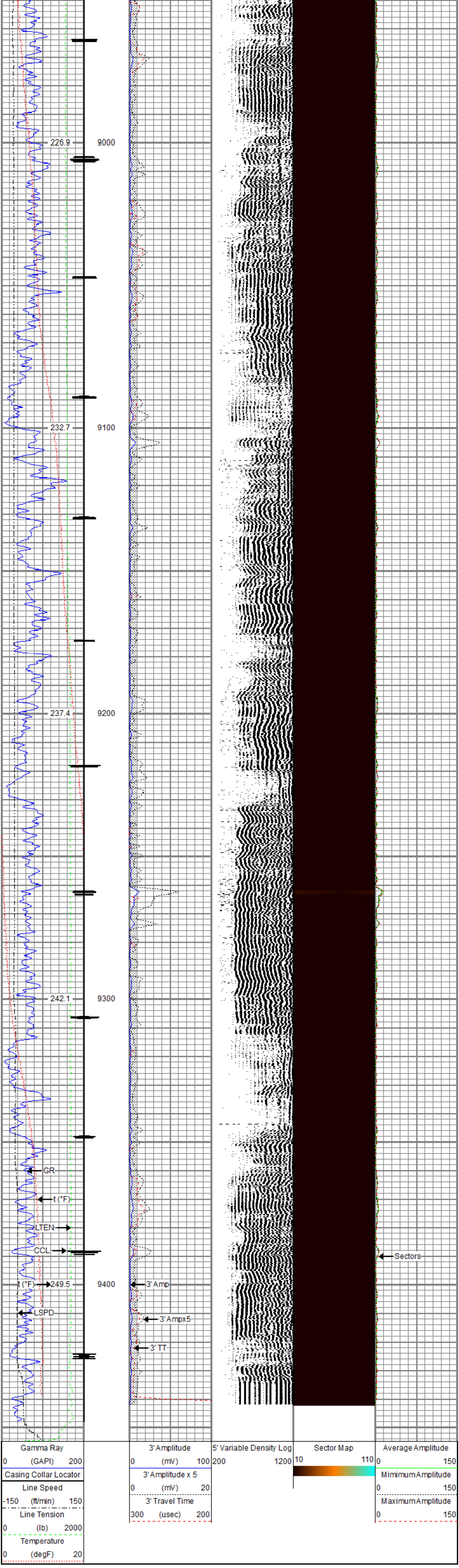

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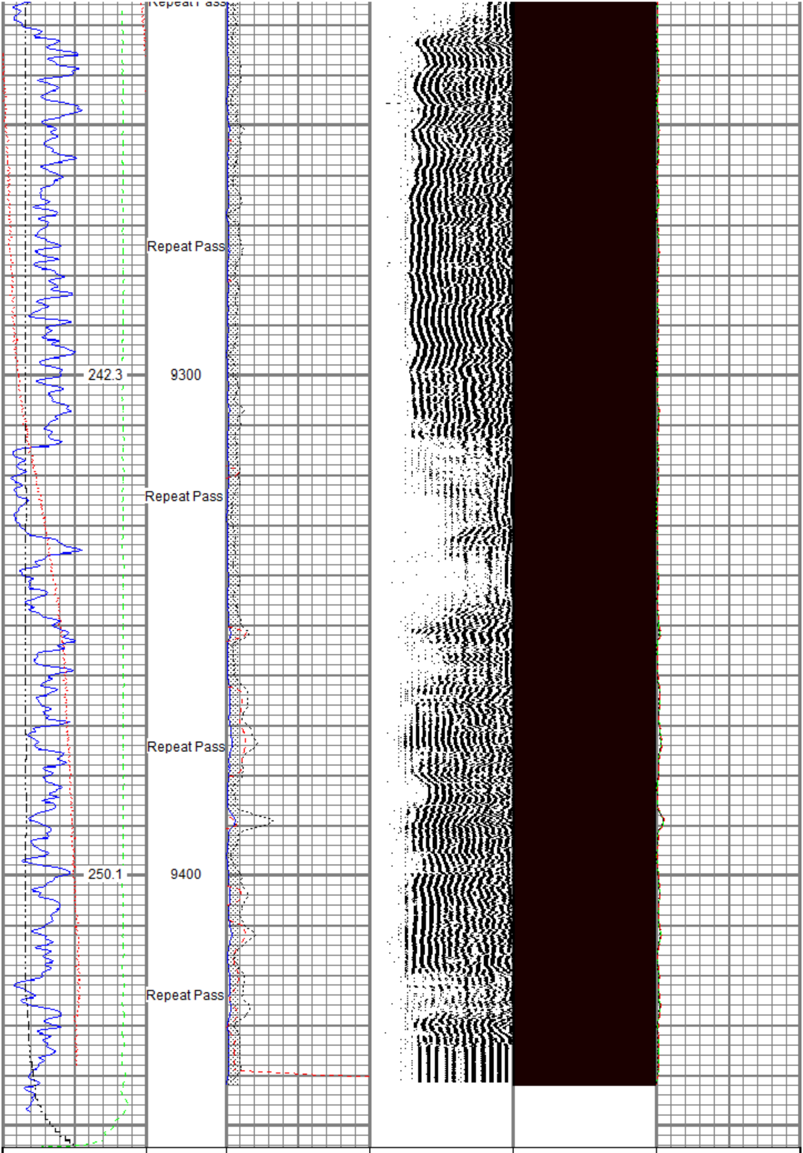
OILFIELD SERVICES

Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 323-12_rbl_12-08-17\processed_tep_ware sr 323-12_rbl_12-08-17.db
Dataset Pathname	repeat
Presentation Format	ros_rbt004_tep
Dataset Creation	Fri Dec 08 09:56:33 2017
Charted by	Depth in Feet scaled 1:240

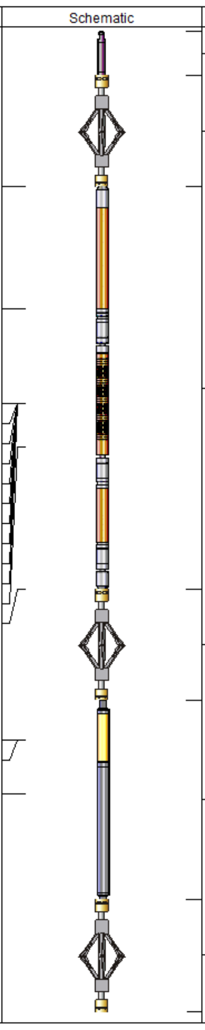
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200	10 110	0 150
Line Speed		3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150		0 (mV) 20			0 150
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		300 (usec) 200			0 150
Temperature					
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)
HeadVolt	18.84
Temp	16.05
WVFS8	13.88
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
DCCL	6.18
CCL	6.18
GR	4.96

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
Probe_RADII-C-P_RBT_2750 (101013) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
Probe_GR_CCL-P_CGR_2750_S (FW1304.548) Probe 2-3/4" Digital CCL / Gamma Ray Combined		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 323-12_rbl_12-08-17.db: field/well/run1/main
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 323-12_rbl_12-08-17\processed_tep_ware sr 323-12_rbl_12-08-17
Dataset Pathname	main
Dataset Creation	Fri Dec 08 10:00:47 2017

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:	101013	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	31.410	ft

Master Calibration, performed Fri Dec 08 09:23:28 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.763	0.000	81.196	105.707	0.515
CAL	0.759	0.748				
5'	-0.003	0.687	0.000	81.196	117.625	0.382
SUM						
S1	-0.005	0.752	0.000	100.000	132.180	0.629
S2	-0.005	0.755	0.000	100.000	131.641	0.654
S3	-0.006	0.742	0.000	100.000	133.699	0.774
S4	-0.004	0.759	0.000	100.000	131.020	0.549
S5	-0.005	0.752	0.000	100.000	132.148	0.600
S6	-0.004	0.758	0.000	100.000	131.110	0.578
S7	-0.006	0.750	0.000	100.000	132.340	0.785
S8	-0.004	0.767	0.000	100.000	129.647	0.516

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.759	0.748	1.000	0.000

Air Zero Calibration, performed Fri Dec 08 09:23:52 2017:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.005	0.000	-0.000
5'	-0.003	0.000	-0.001
SUM			
S1	-0.005	0.000	-0.000
S2	-0.005	0.000	-0.000
S3	-0.006	0.000	0.000
S4	-0.004	0.000	-0.000
S5	-0.004	0.000	-0.001
S6	-0.004	0.000	-0.000
S7	-0.005	0.000	-0.001
S8	-0.004	0.000	-0.000

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Well	Ware SR 323-12
Field	Rulison
County	Garfield
State	Colorado