RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Clough NR 12-3
Field Rulison
County Garfield
State Colorado

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Well Clough NR 12-3
Field Rulison
County Garfield State Colorado

Location: API # : 05-045-23921

SEC 3 TWP 6S RGE 94W

Other Services

Permanent Datum	Ground Level	Elevation 6719.1'	Elevation K.B. 6743.1' D.F. 6742.1' G.L. 6719.1'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Date	03-OCT-2018		
Run Number	One		
Depth Driller	10299 FT		
Depth Logger	10244 FT		
Bottom Logged Interval	10230 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	243°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	07:05		
Equipment Number	HD-0359		
Location	Grand Junction, CO		
Recorded By	J.Donnelly		
Witnessed By	Dustin 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	36	J-55	Surface	1128 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	10257 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 6183 FT - 6198 FT
Log ran from 10230 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

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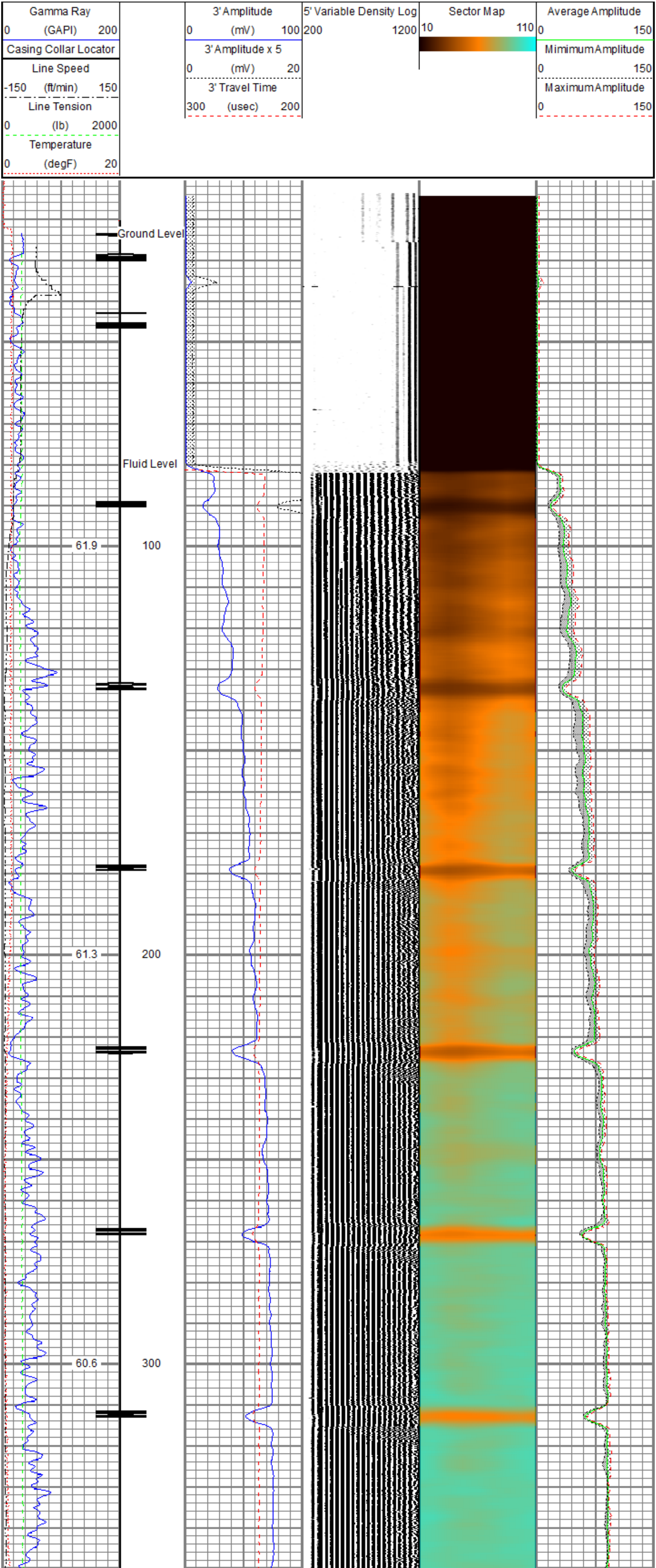
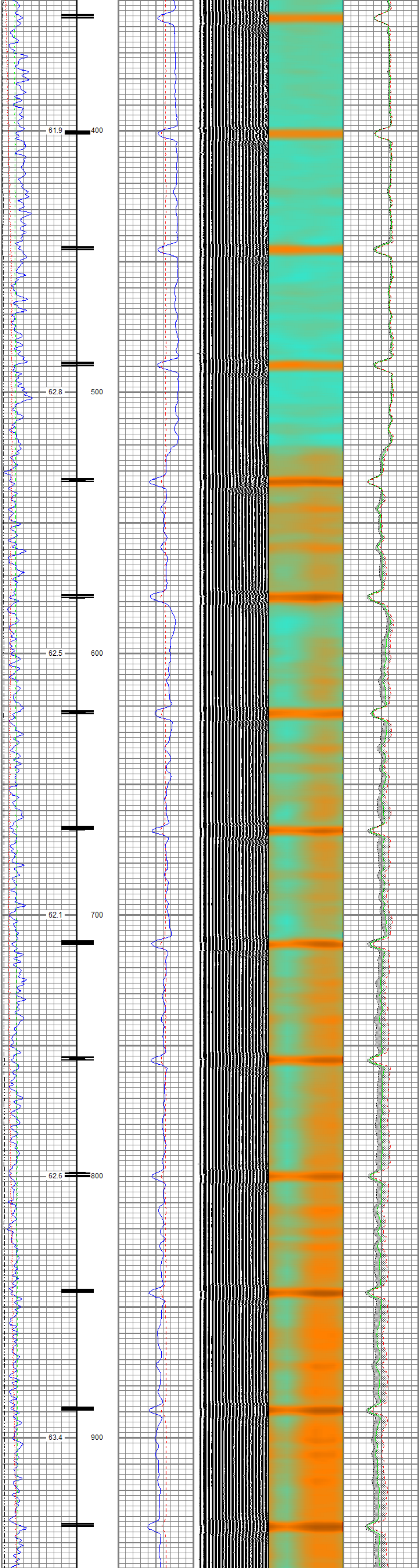
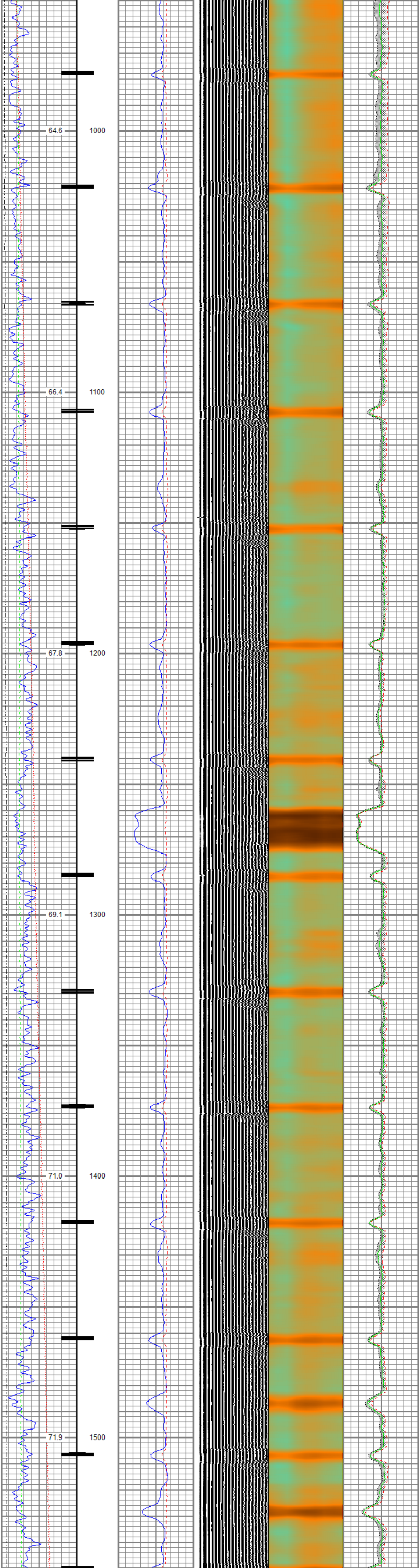
Main Pass

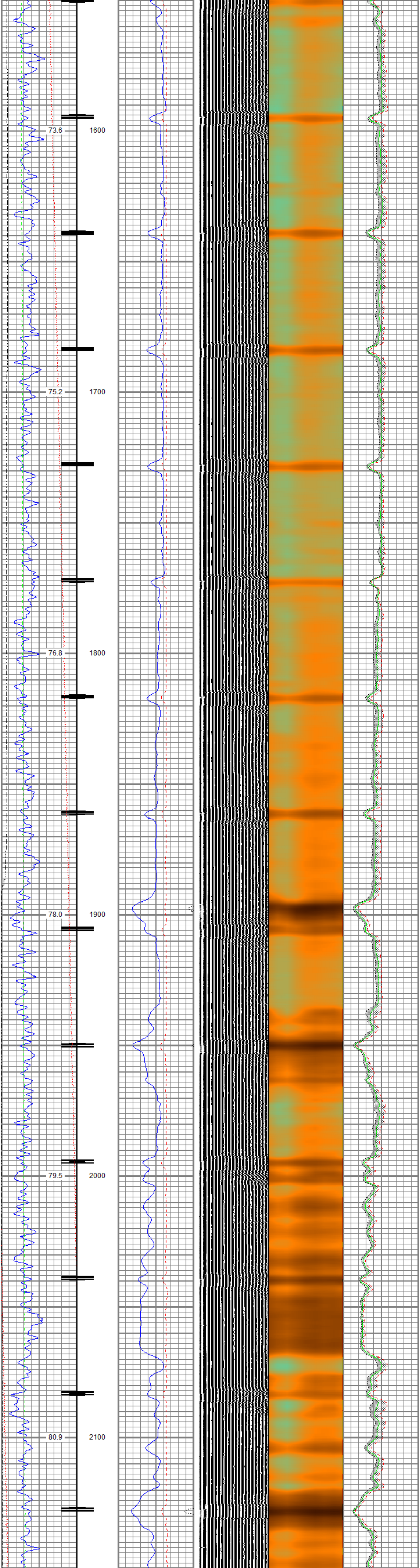
Recorded With 0 PSI Surface Induced Pressure

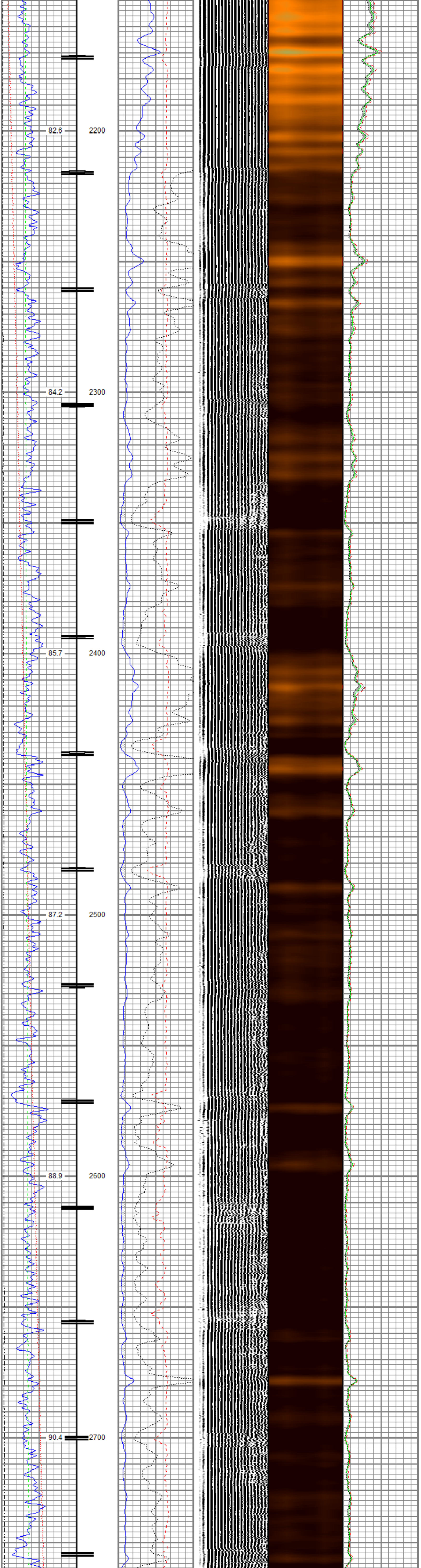
Database File	tep_clough nr 12-3_rbl_10-03-18\processed_tep_clough nr 12-3_rbl_10-03-18.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Thu Oct 04 08:39:27 2018
Charted by	Depth in Feet scaled 1:240

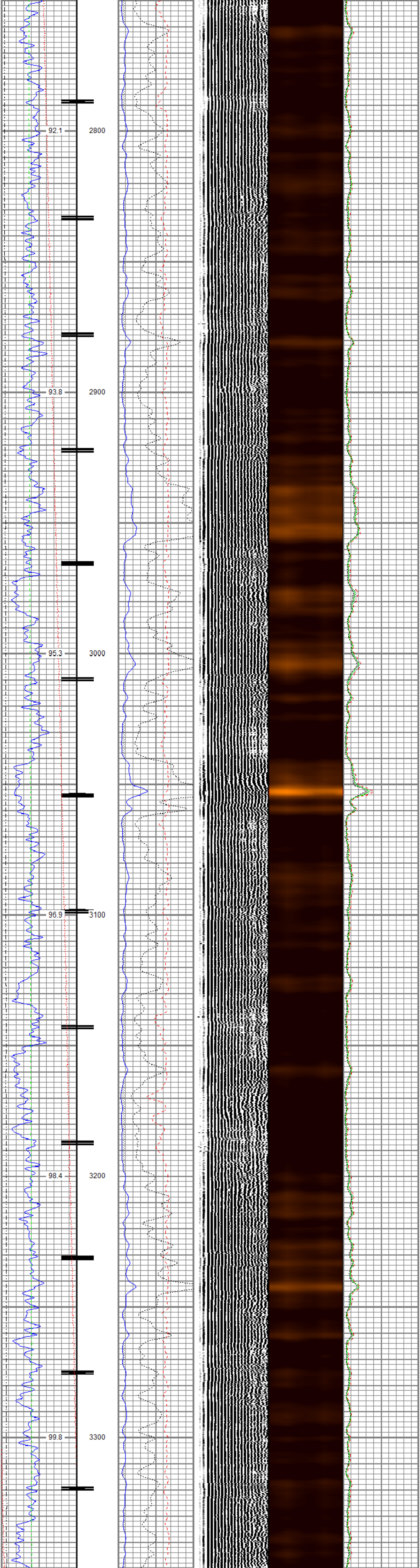


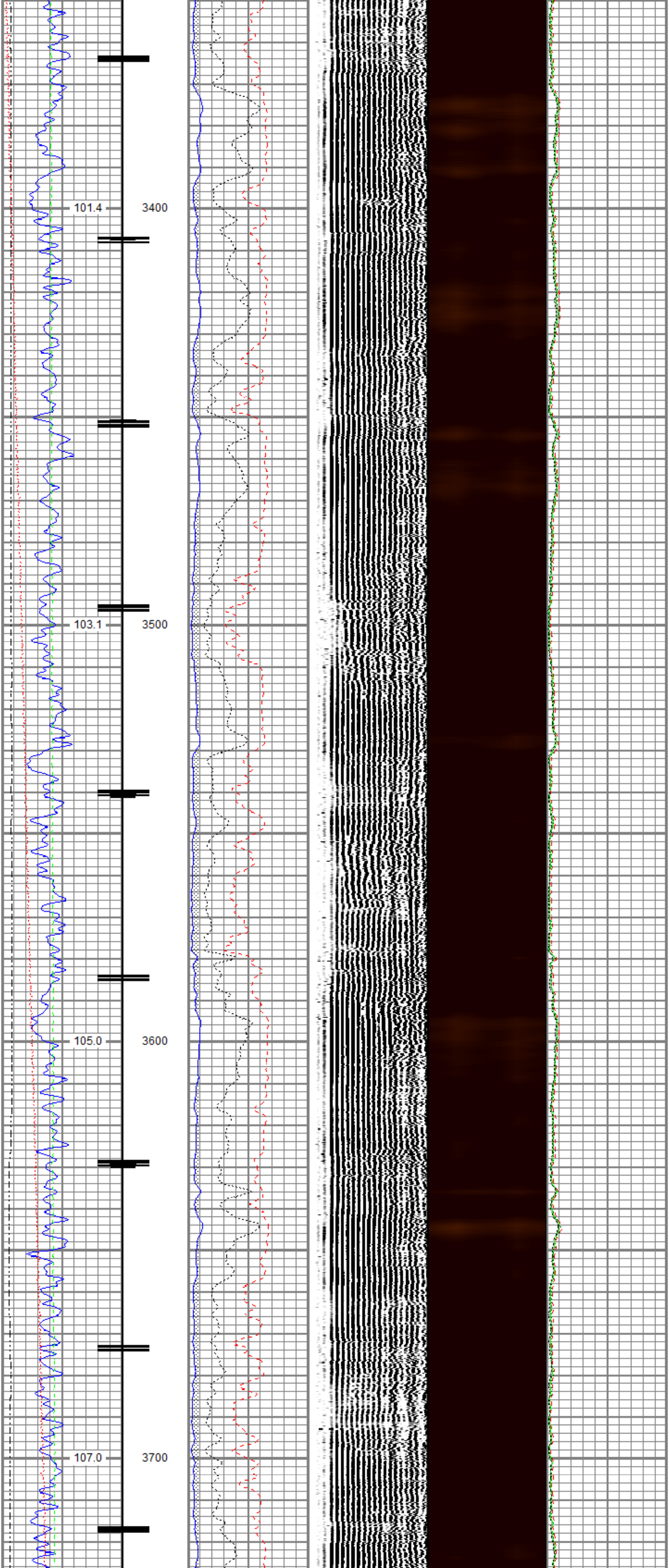


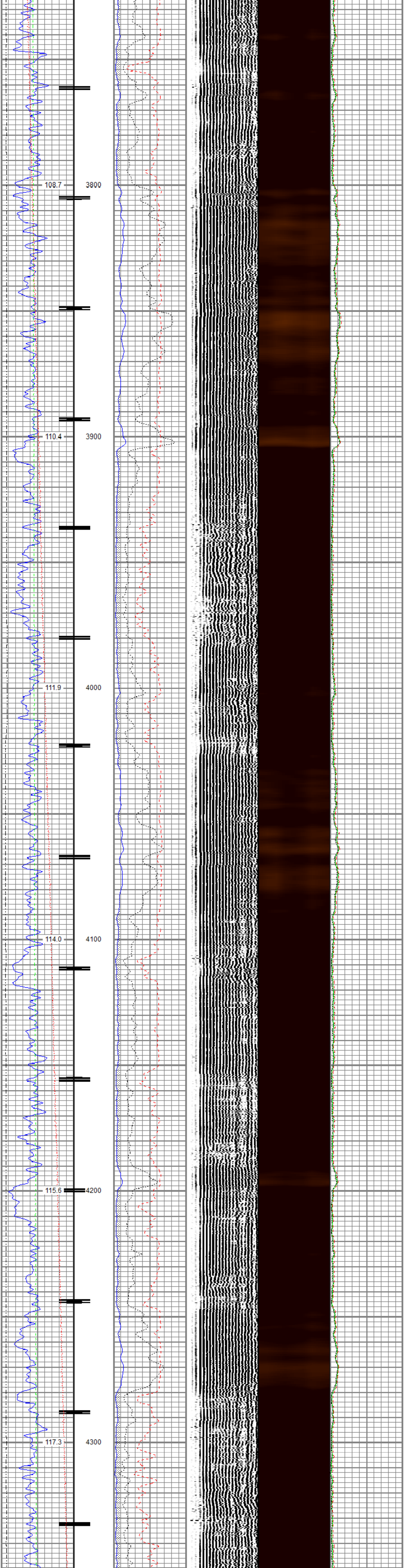








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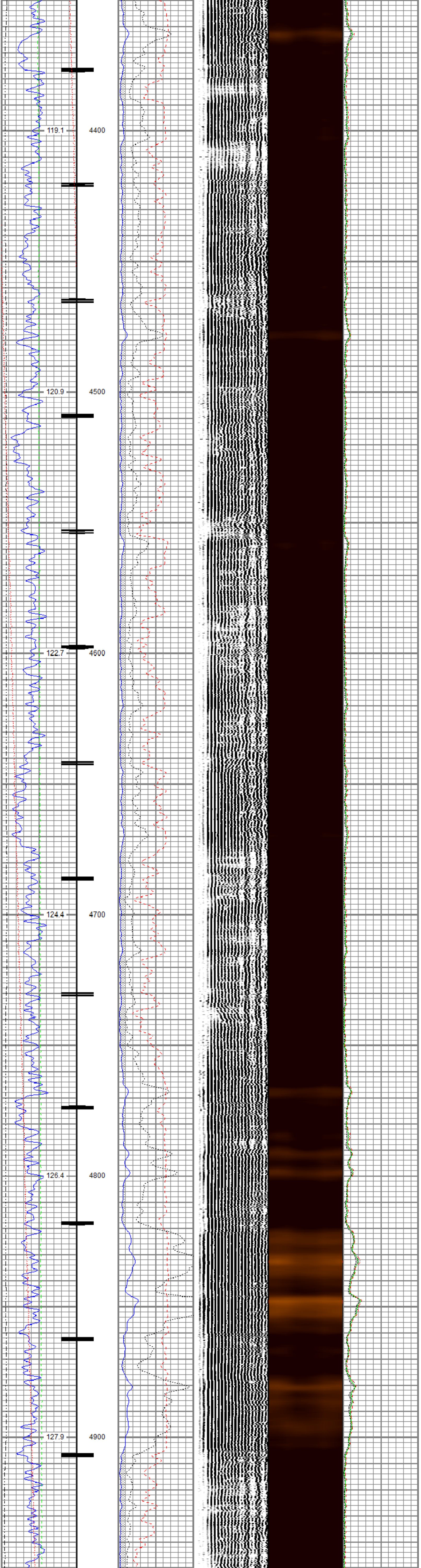

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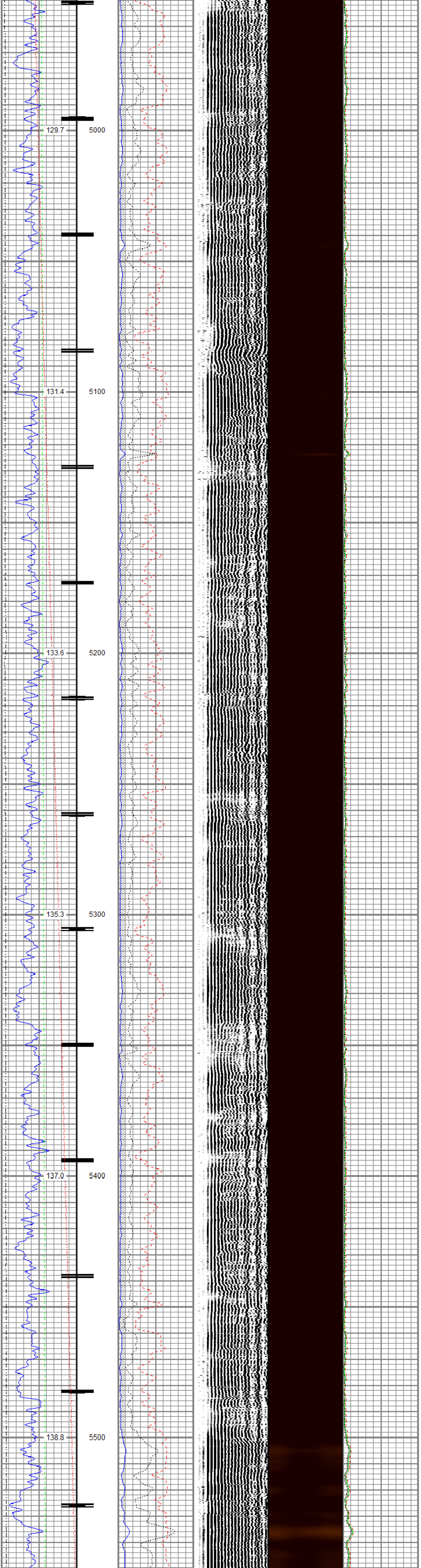

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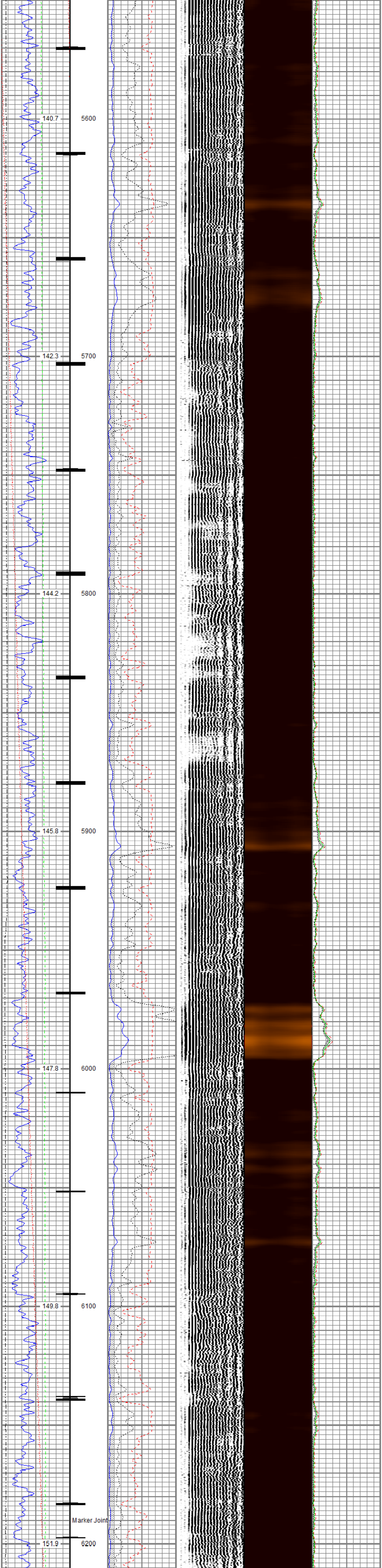
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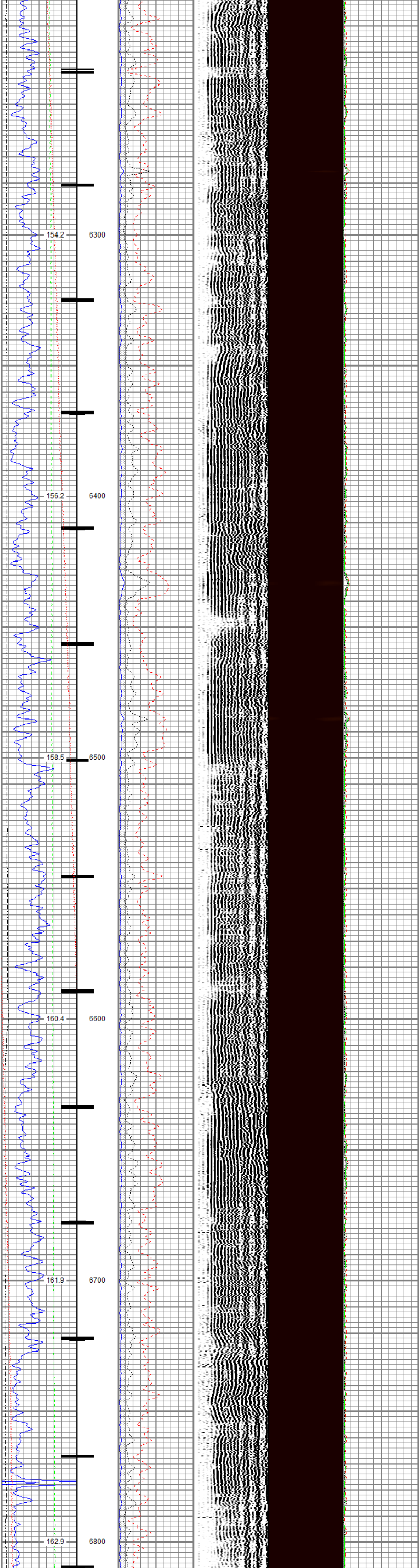
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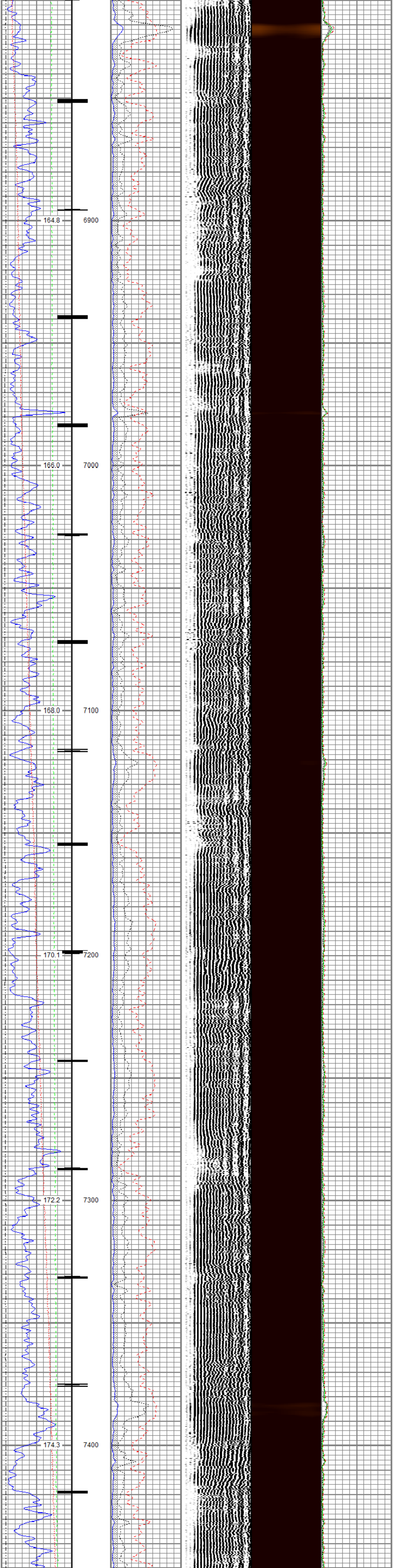
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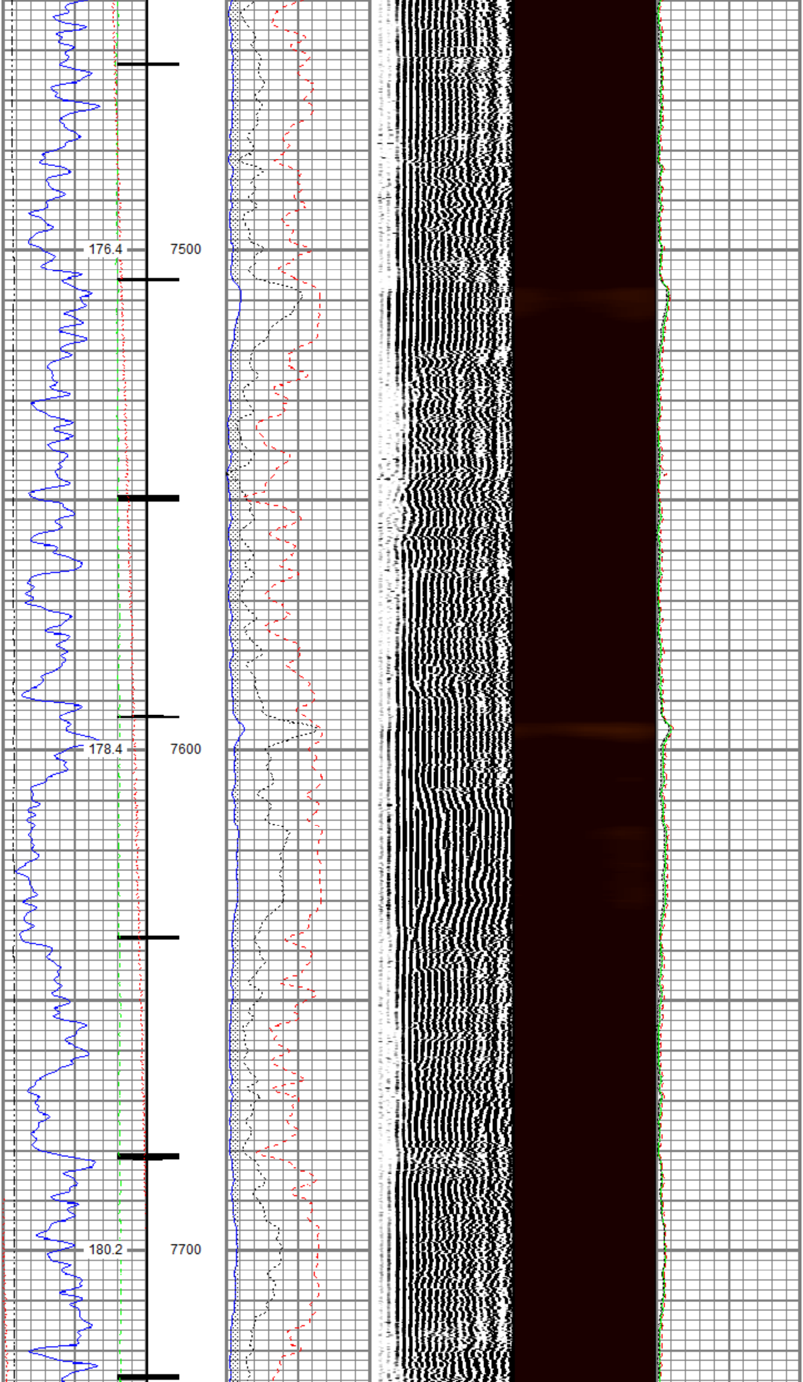
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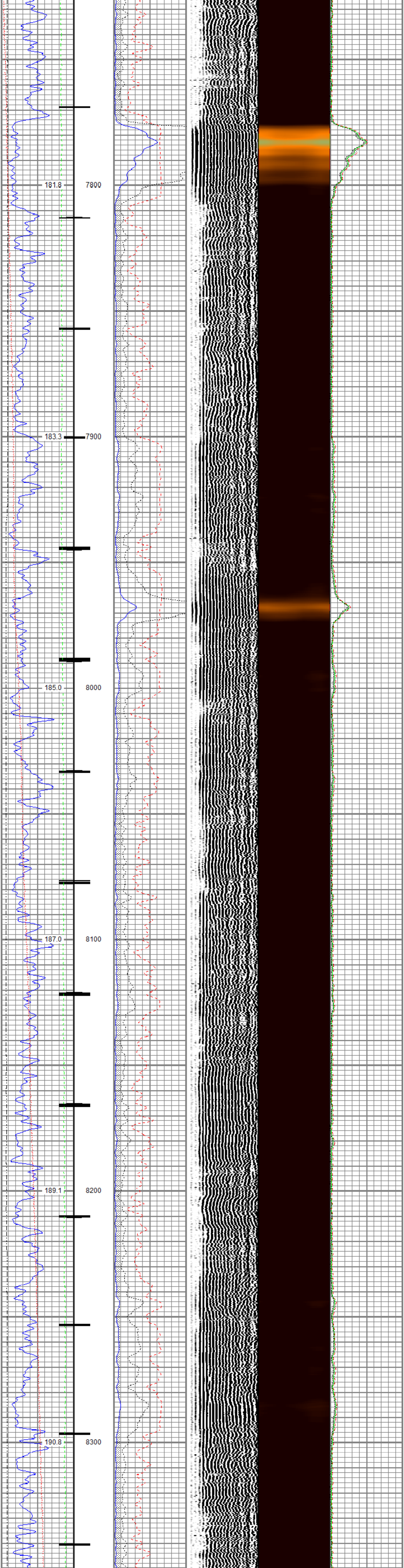

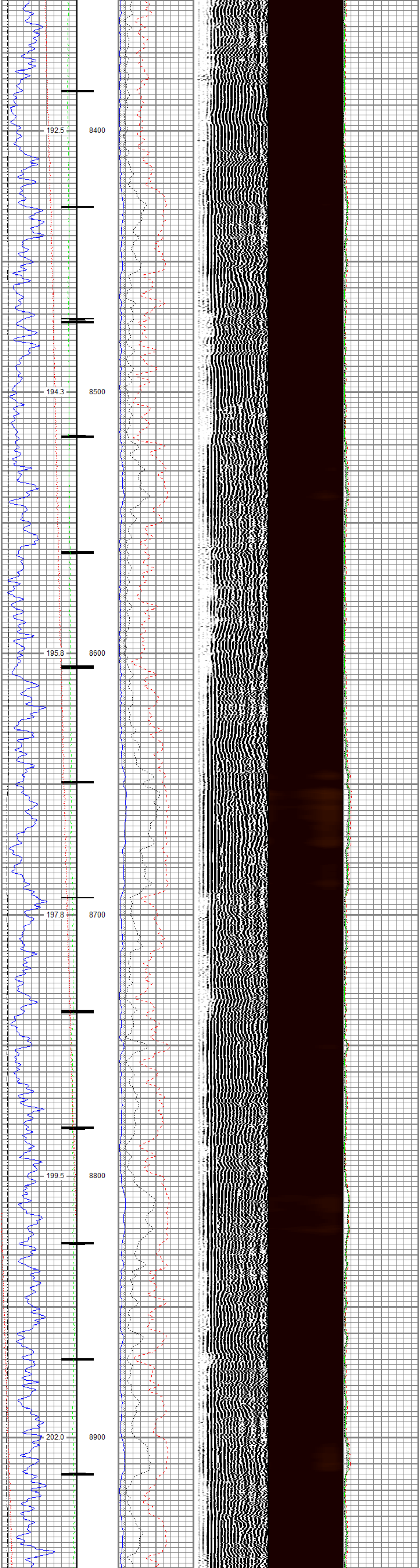

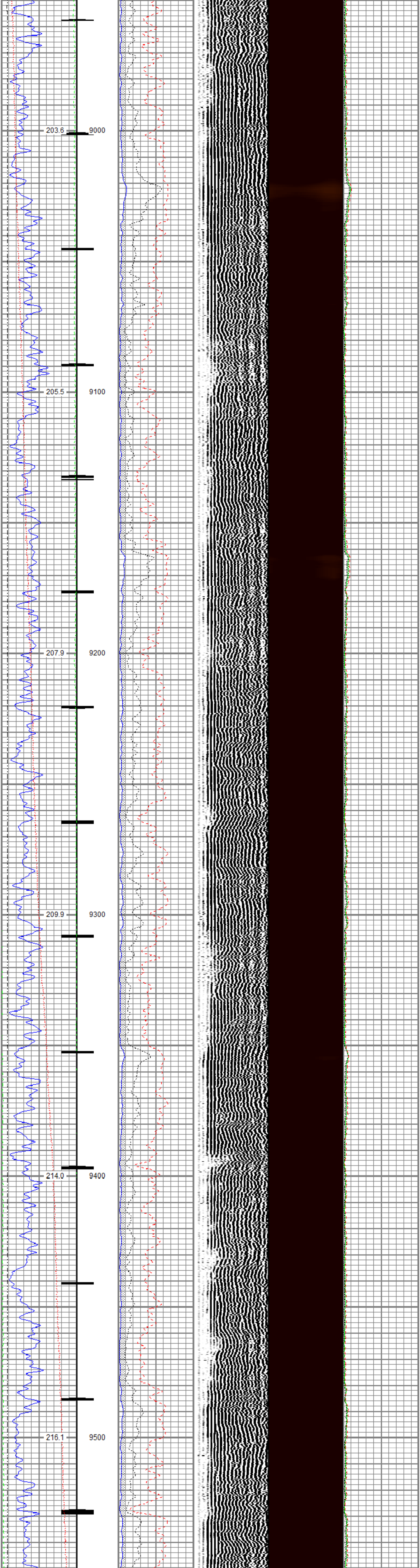

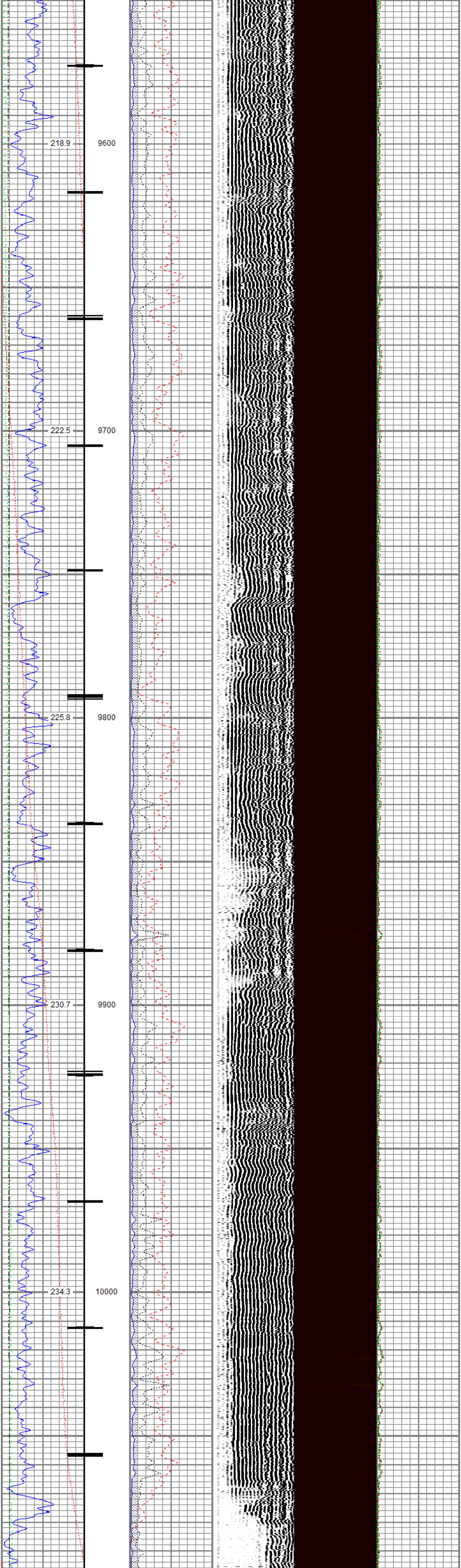

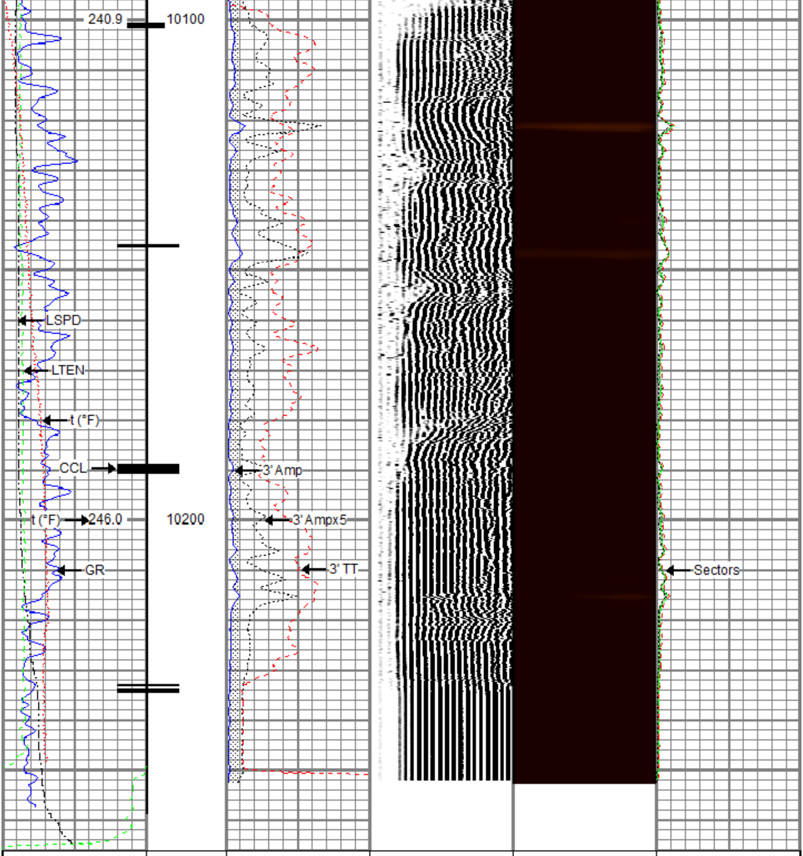

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 150
Line Speed	3' Travel Time			Maximum Amplitude
-150 (ft/min) 150	300 (usec) 200			0 150
Line Tension	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

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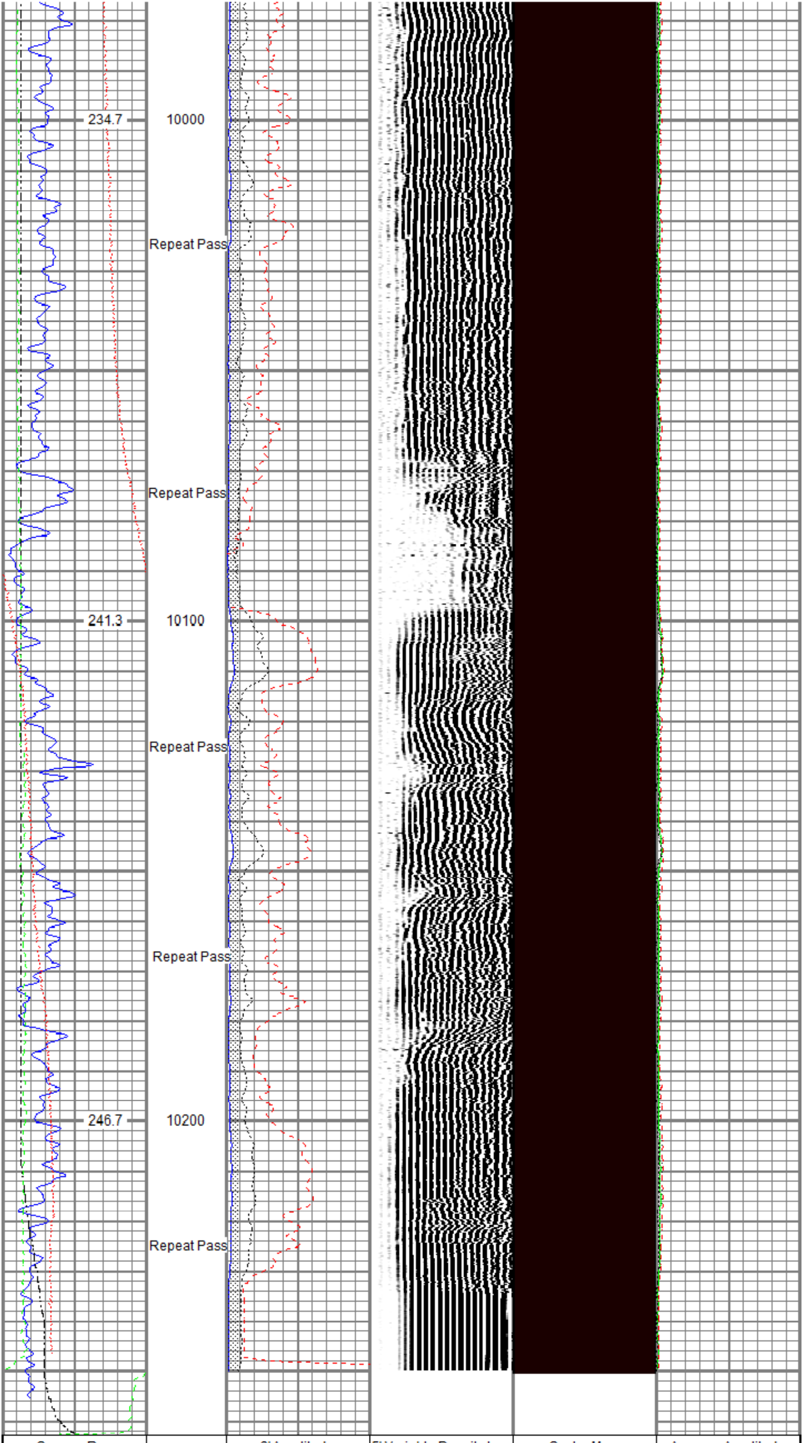
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep_clough nr 12-3_rbl_10-03-18\processed_tep_clough nr 12-3_rbl_10-03-18.db
Dataset Pathname	repeat1.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Thu Oct 04 08:50:15 2018
Charted by	Depth in Feet scaled 1:240

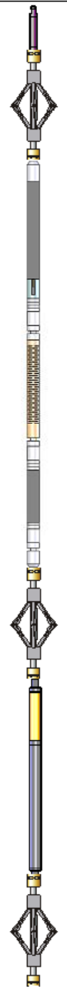
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Temperature				
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)
HeadVolt	18.99
Temp	16.08
WVFS8	13.85
WVFS7	13.85
WVFS6	13.85
WVFS5	13.85
WVFS4	13.85
WVFS3	13.85
WVFS2	13.85
WVFS1	13.85
WVFCAL	13.85
WVF3FT	13.85
WVF5FT	12.85
HEADVOLT	9.60
DCCL	6.17
CCL	6.17
GR	4.93

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 (101012) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.39	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 (FW1214.516) 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_Clough NR 12-3_RBL_10-03-18.db: field/well/run1/main
Total length:	22.57 ft
Total weight:	261.40 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep_clough nr 12-3_rbl_10-03-18\processed_tep_clough nr 12-3_rbl_10-03-18.
Dataset Pathname	main.1
Dataset Creation	Thu Oct 04 08:39:27 2018

Gamma Ray Calibration Report

Serial Number:	FW1211-026	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:14:28 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:	101012	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	32.580	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.024	1.126	0.000	81.196	70.607	1.722
CAL	-0.006	0.993				
5'	-0.053	0.906	0.000	81.196	84.683	4.488
SUM						
S1	-0.005	1.043	0.000	100.000	95.398	0.472
S2	-0.012	1.122	0.000	100.000	88.187	1.074
S3	-0.028	1.239	0.000	100.000	78.938	2.199
S4	-0.031	1.346	0.000	100.000	72.650	2.243
S5	-0.019	1.327	0.000	100.000	74.250	1.442
S6	0.000	1.230	0.000	100.000	81.326	-0.024
S7	-0.004	1.121	0.000	100.000	88.864	0.398
S8	0.001	1.050	0.000	100.000	95.287	-0.056

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.006	0.993	1.000	0.000

Air Zero Calibration, performed Wed Oct 03 01:39:24 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.002	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	-0.010	0.000	-0.001
S2	-0.004	0.000	-0.000
S3	-0.005	0.000	-0.000
S4	-0.004	0.000	-0.000
S5	-0.004	0.000	0.000
S6	-0.004	0.000	-0.000
S7	-0.005	0.000	0.000
S8	-0.005	0.000	-0.000

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Company	TEP Rocky Mountain LLC
Well	Clough NR 12-3
Field	Rulison
County	Garfield
State	Colorado