Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Clough NR 14-3
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC		
Well	Clough NR 14-3		
Field	Rulison		
County	Garfield	State	Colorado
Location:	API #: 05-045-23901	Other Services	---
SEC 3	TWP 6S	RGE 94W	Elevation
Permanent Datum	Ground Level	Elevation 6719.1'	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	15-JAN-2019		
Run Number	One		
Depth Driller	10046 FT		
Depth Logger	9954 FT		
Bottom Logged Interval	9940 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	253°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	1:00		
Equipment Number	HD-0359		
Location	Grand Junction, CO		
Recorded By	Z. Fisher		
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	1110 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	10004 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

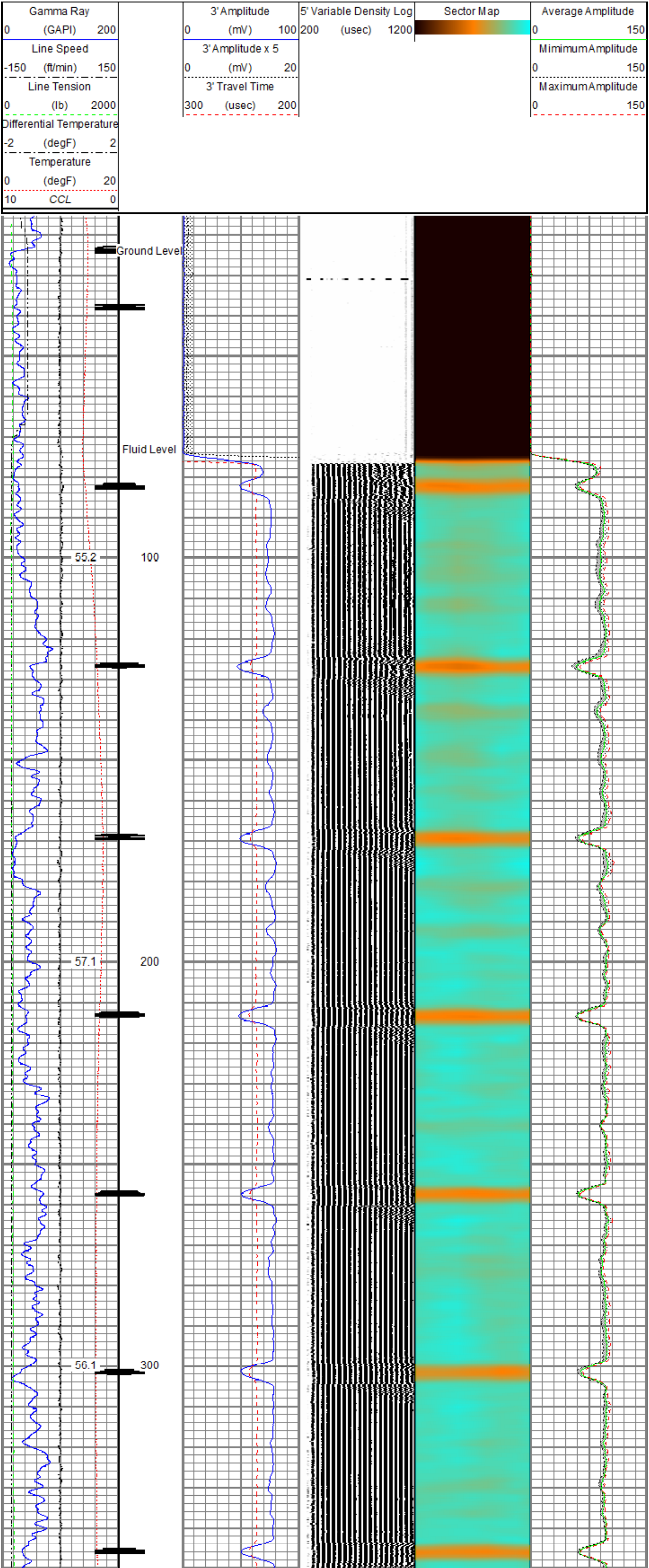
Log ran as per customer request
Depth referenced to Kelly Bushing at 24 FT
Marker Joint Logged from 5853-5875 FT
Log ran from 9940 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

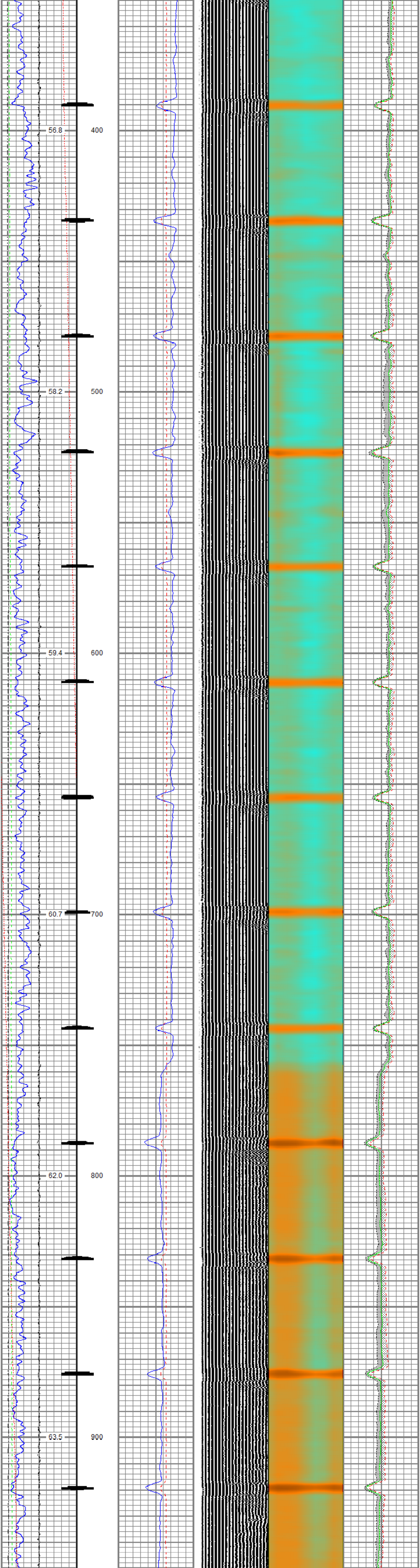
Thank you for choosing Reliance Oilfield Services, LLC!

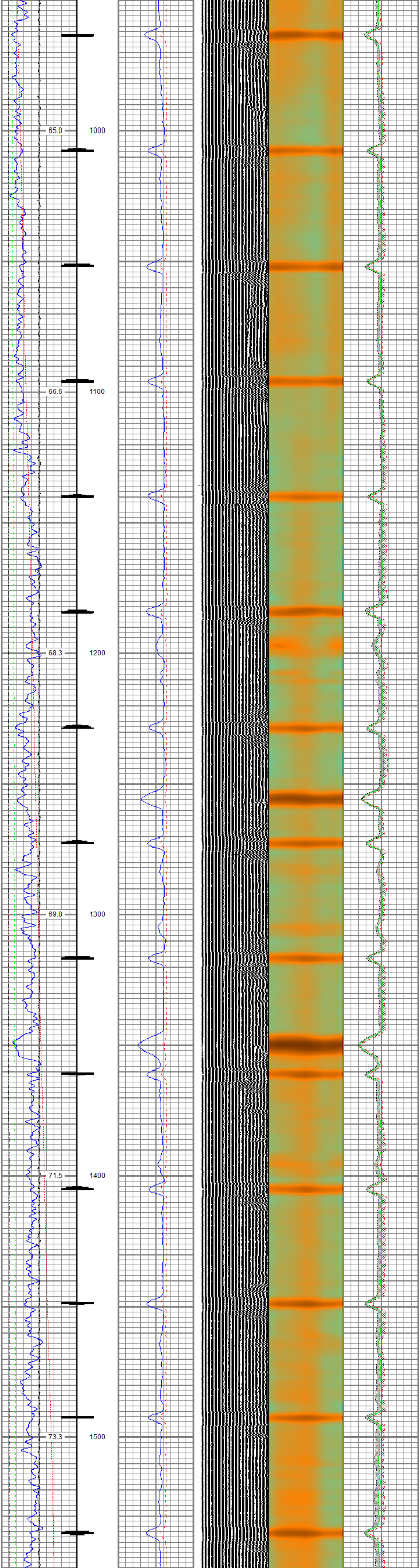
Main Pass

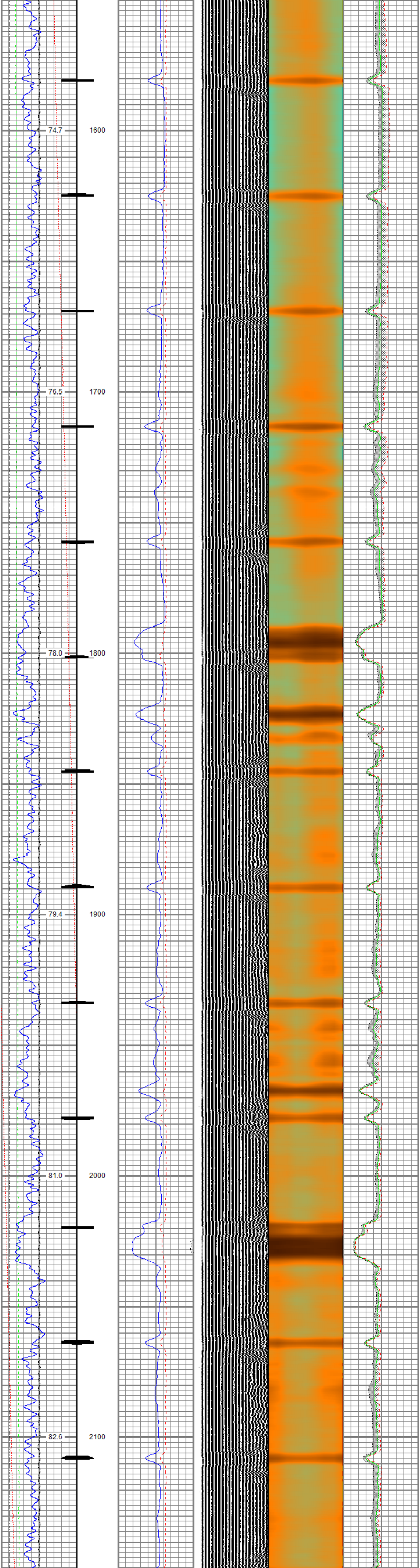
Recorded With 0 PSI Surface Induced Pressure

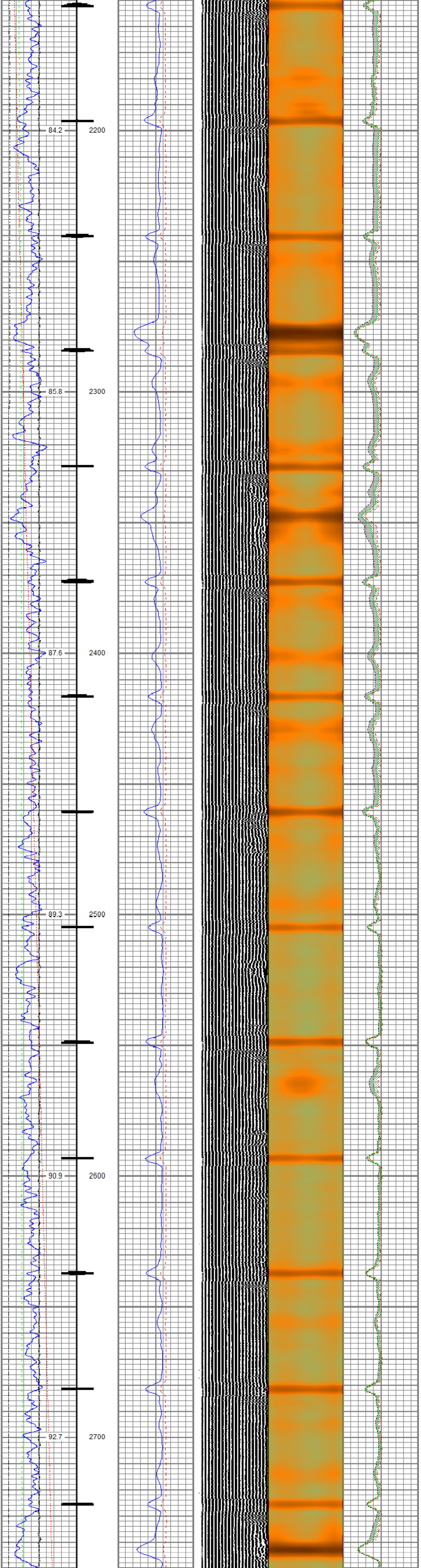
Database File	tep_clough nr 14-3_rbl_01-15-19\tep_clough nr 14-3_rbl_01-15-19.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Jan 15 10:23:53 2019
Charted by	Depth in Feet scaled 1:240

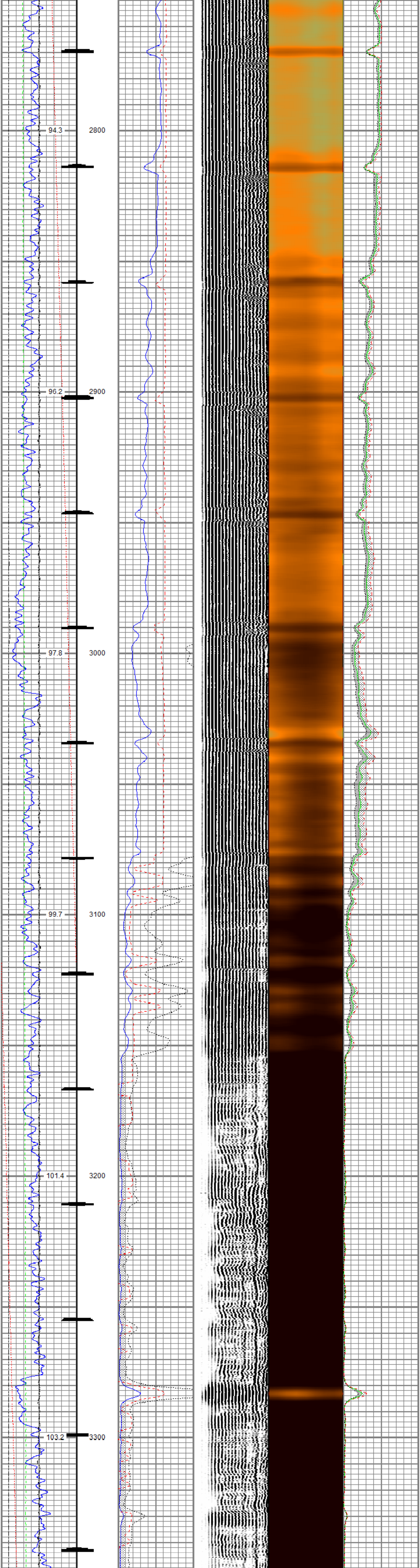


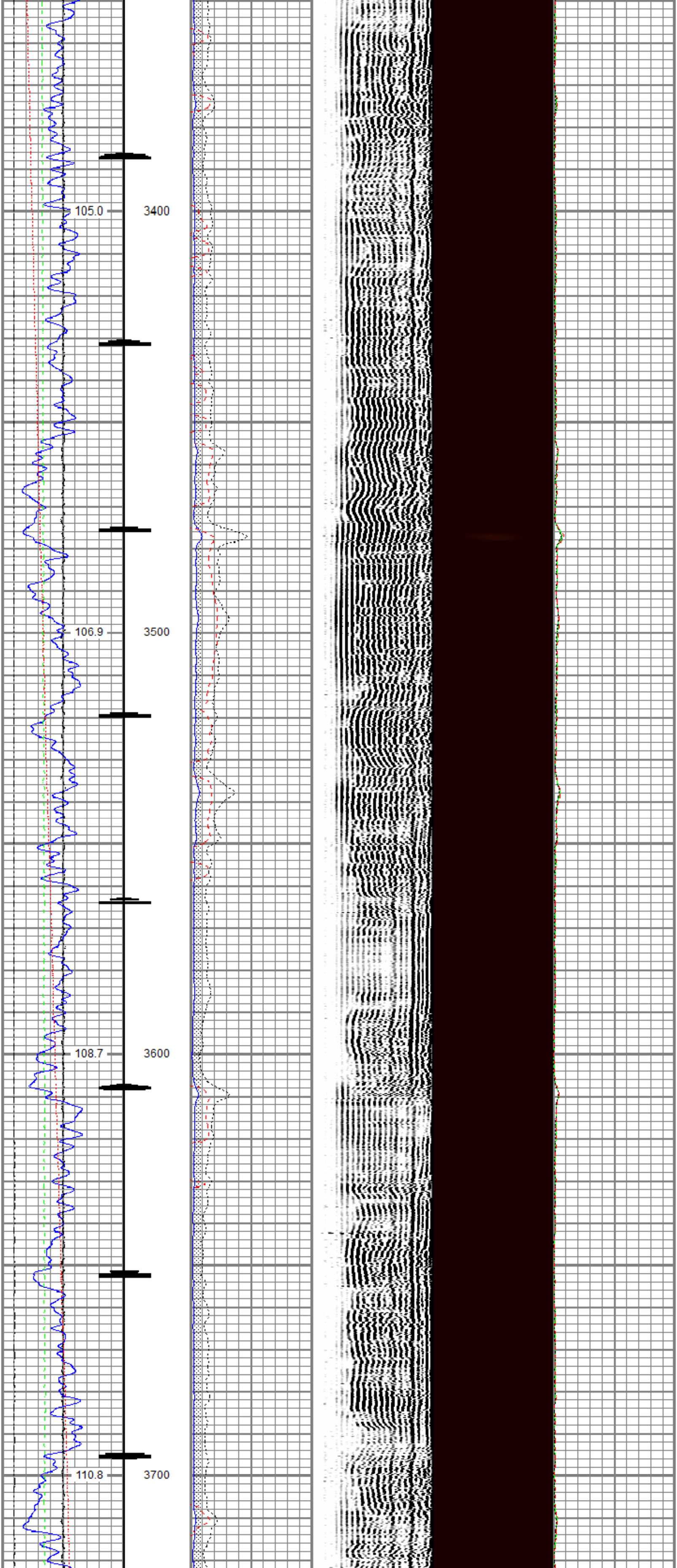


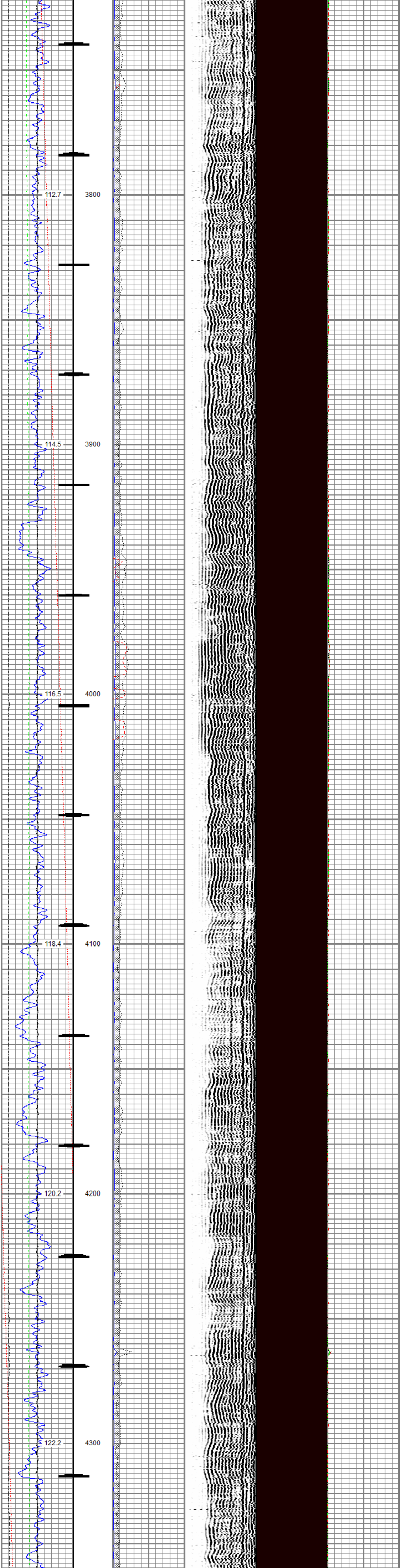








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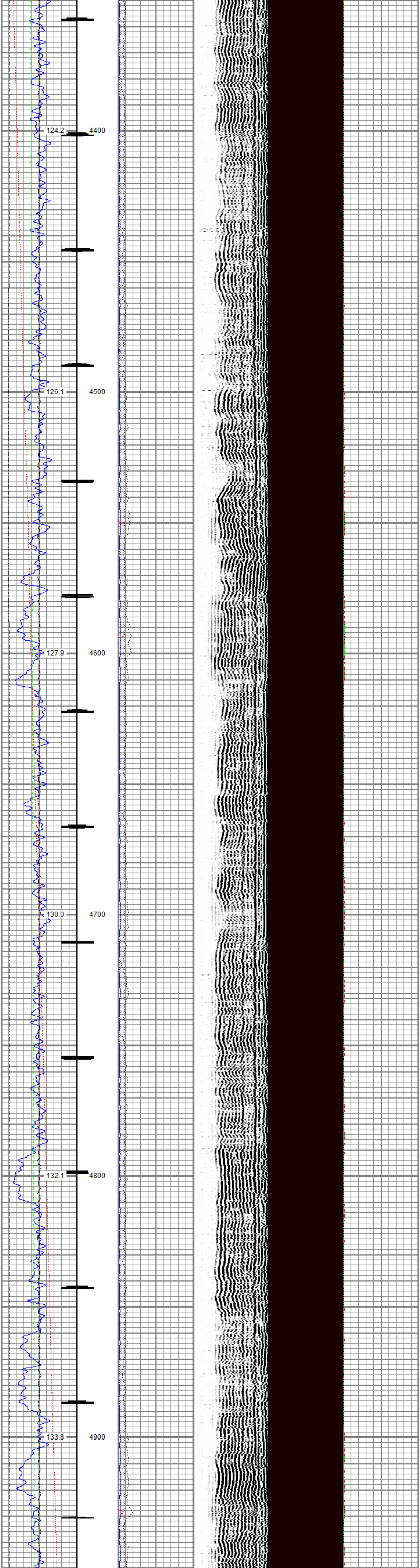
116.5
4000
118.4
4100
120.2
4200
122.2
4300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127.9
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132.1
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133.8
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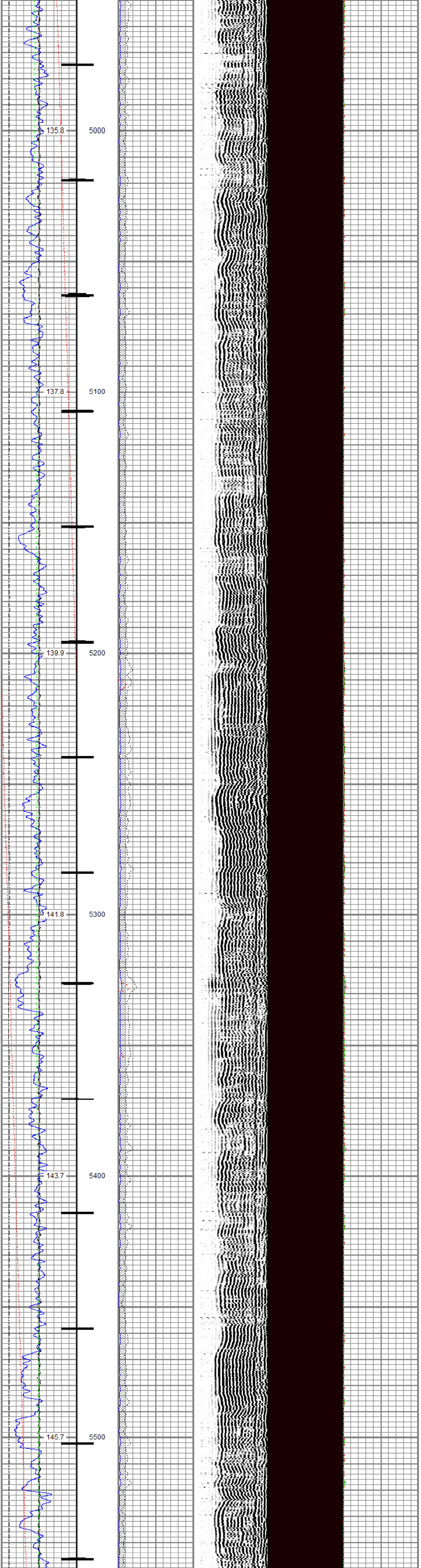
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137.8
5100
139.9
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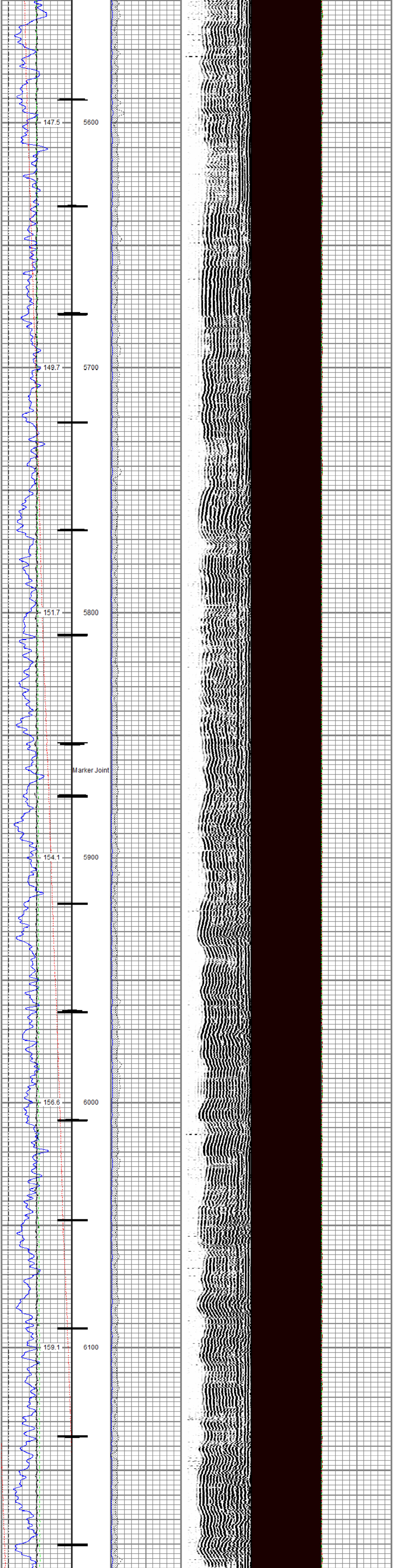
141.8
5300
143.7
5400
145.7
5500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149.7
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151.7
5800
Marker Joint
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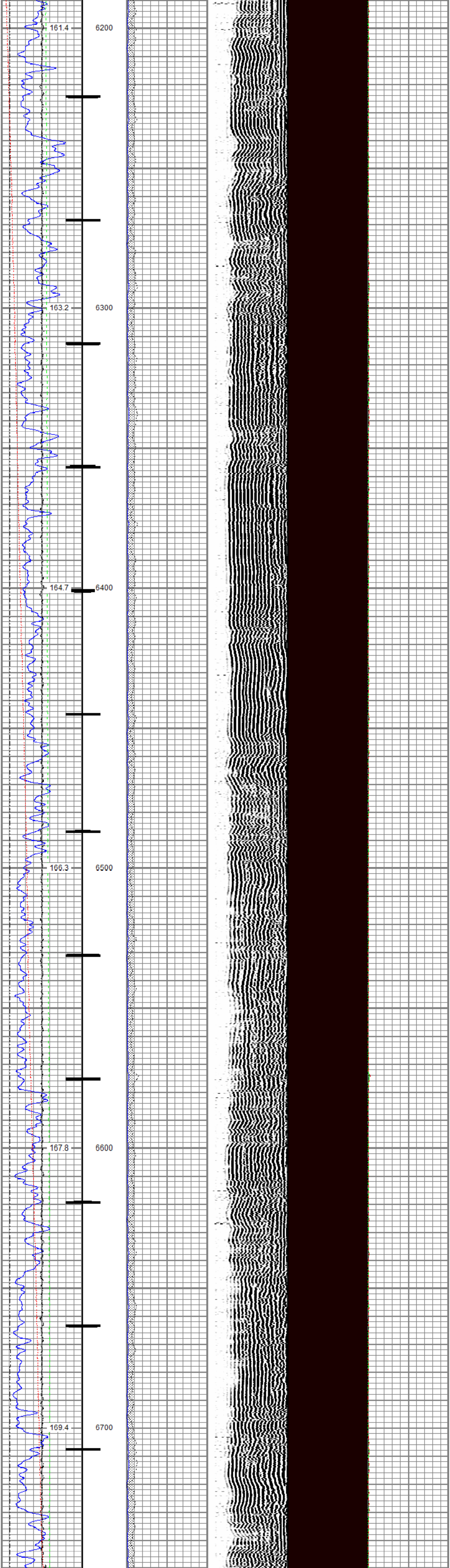
5900
156.6
6000
159.1
6100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167.8
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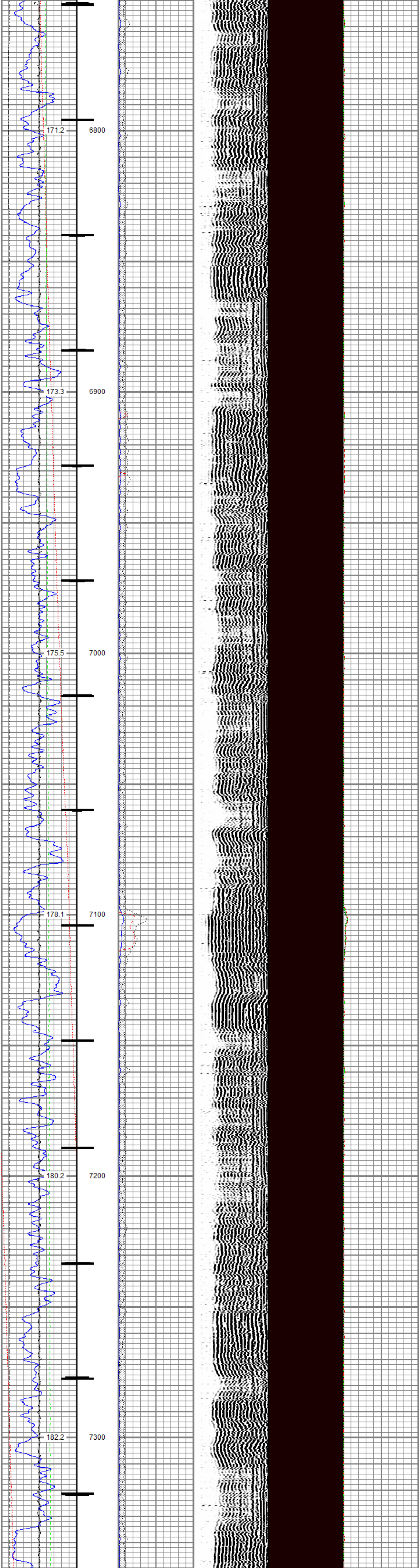
169.4
6700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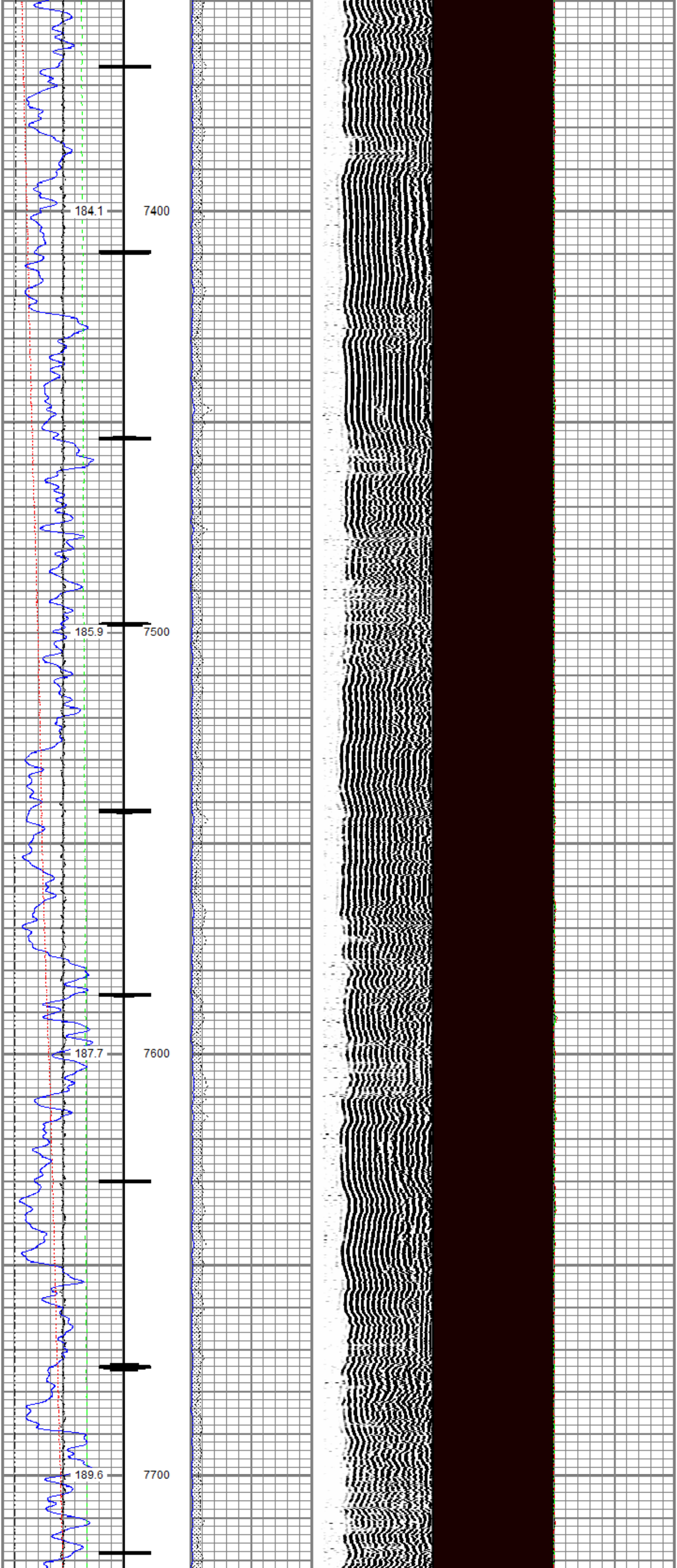
182.2
7300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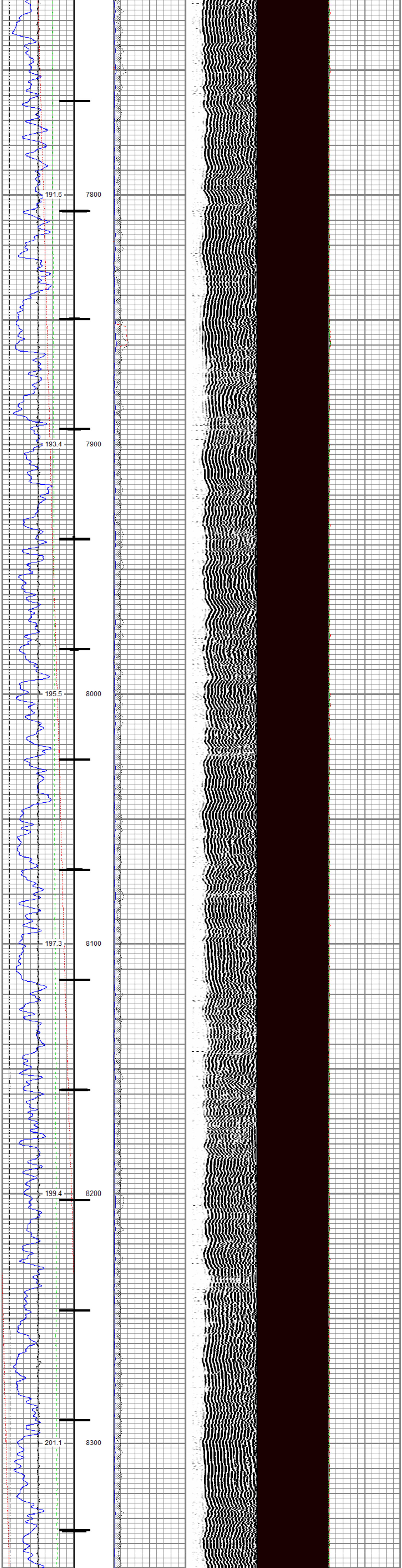
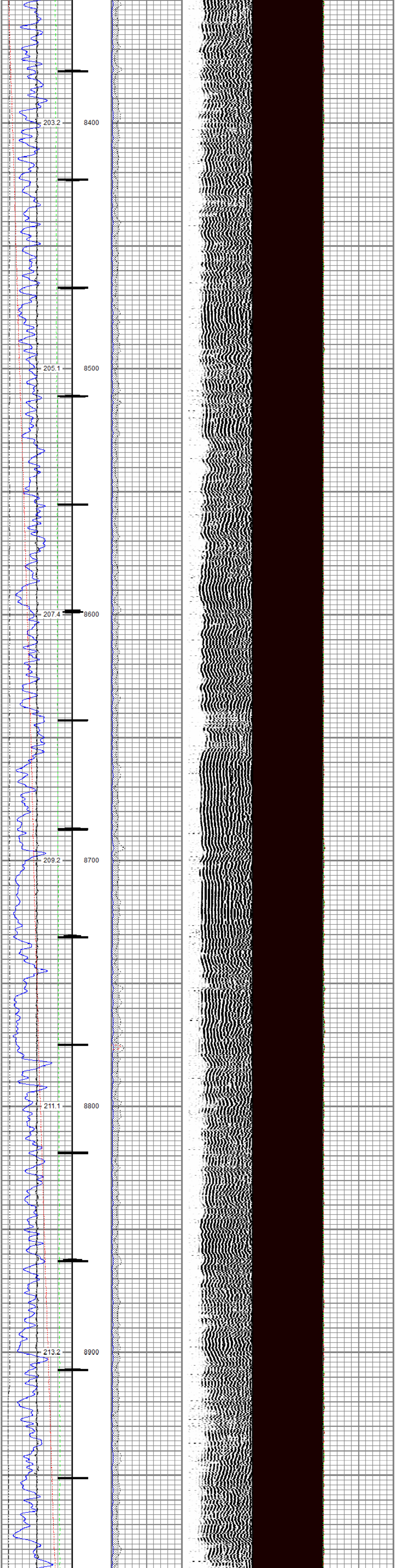
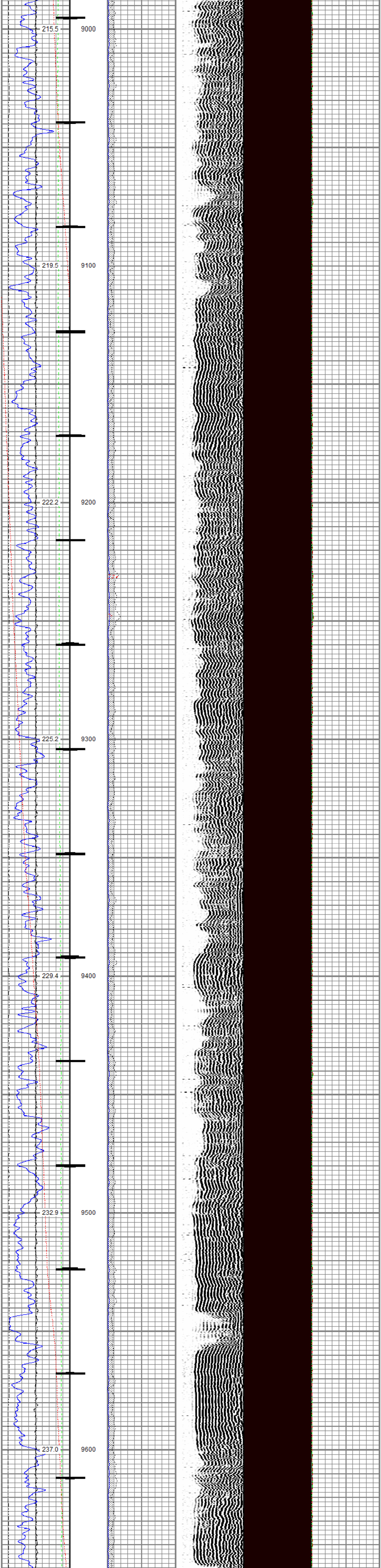
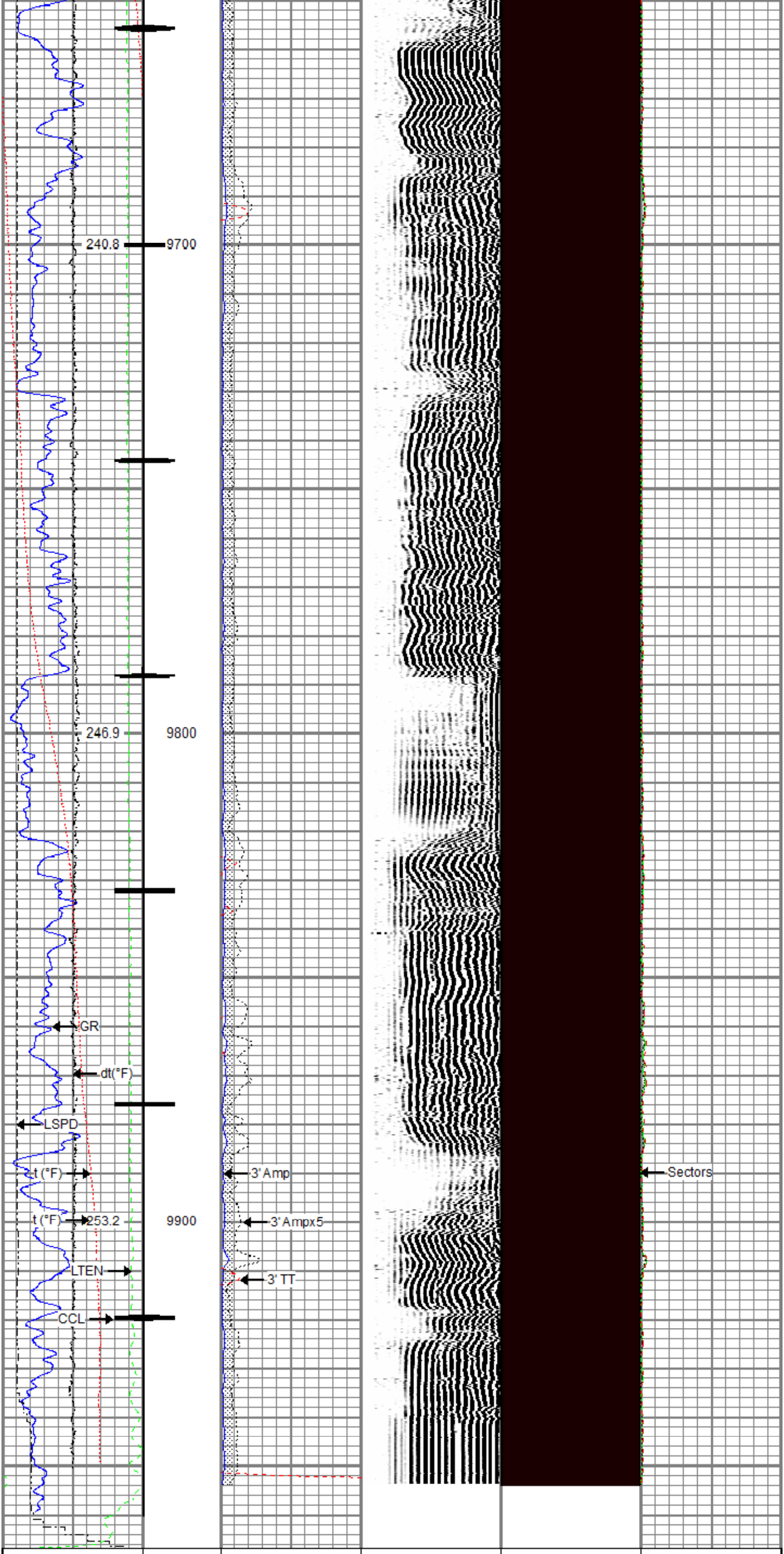








Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Line Speed -150 (ft/min) 150	3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000	3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential Temperature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

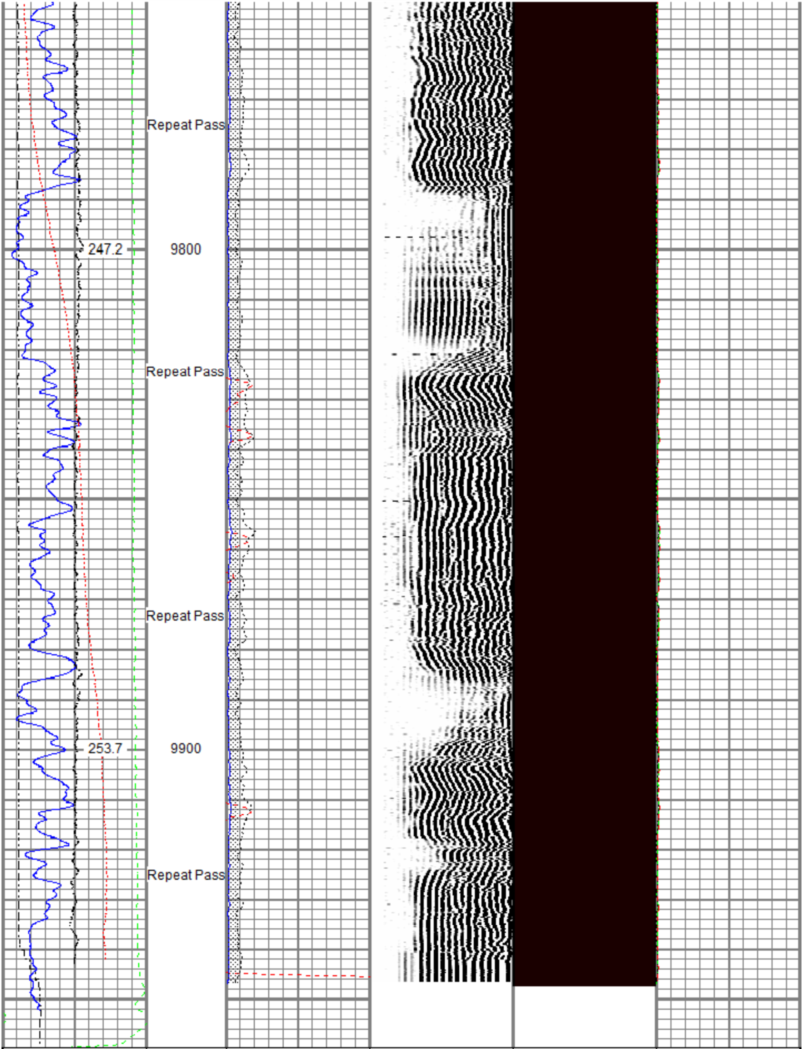
RELIANCE
OILFIELD SERVICES

Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep_clough nr 14-3_rbl_01-15-19\tep_clough nr 14-3_rbl_01-15-19.db
Dataset Pathname	repeat.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Jan 15 10:28:49 2019
Charted by	Depth in Feet scaled 1:240

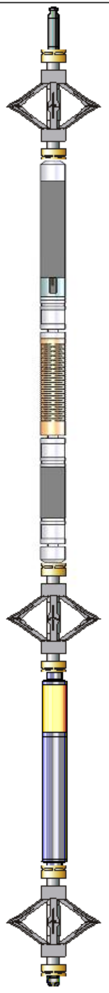
Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Line Speed -150 (ft/min) 150	3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000	3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential Temperature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



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

Sensor	Offset (ft)
TEMP	16.33
WVFS8	14.10
WVFS7	14.10
WVFS6	14.10
WVFS5	14.10
WVFS4	14.10
WVFS3	14.10
WVFS2	14.10
WVFS1	14.10
WVFCAL	14.10
WVF3FT	14.10
WVF5FT	13.10
CCL$2	6.42
CCL$1	6.42
GR	5.18

Schematic



Description	Length (ft)	O.D. (in)	Weight (lb)
Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
Probe Radii-2750 RBT (101013) 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 w/ GO Ends	2.55	2.75	32.00
Probe GR-CCL-2750 GOB (FW1211-081) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	4.51	2.75	55.00
DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
GO BN-14375 GO 1 7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset:	tep_clough nr 14-3_rbl_01-15-19.db: field/well/run1/main.1
Total length:	22.82 ft
Total weight:	260.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep_clough nr 14-3_rbl_01-15-19\tep_clough nr 14-3_rbl_01-15-19.db
Dataset Pathname	main.1
Dataset Creation	Tue Jan 15 10:23:53 2019

Gamma Ray Calibration Report

Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:22:44 2017	
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:	101013	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	28.761	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.004	0.708	0.800	81.196	112.862	1.245
CAL	0.775	0.777				
5'	-0.004	0.611	0.800	81.196	130.707	1.274
SUM						
S1	-0.005	0.652	0.000	100.000	152.233	0.769
S2	-0.003	0.692	0.000	100.000	143.801	0.443
S3	-0.004	0.672	0.000	100.000	147.870	0.657
S4	-0.003	0.685	0.000	100.000	145.280	0.502
S5	-0.002	0.714	0.000	100.000	139.702	0.321
S6	-0.004	0.721	0.000	100.000	138.107	0.484
S7	-0.005	0.703	0.000	100.000	141.142	0.710
S8	-0.005	0.714	0.000	100.000	139.151	0.696

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.775	0.777	1.000	0.000

Air Zero Calibration, performed Mon Jan 14 22:01:18 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.004	0.000	-0.000
5'	-0.002	0.000	-0.001
SUM			
S1	-0.004	0.000	0.000
S2	-0.004	0.000	0.000
S3	-0.004	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	-0.004	0.000	0.000
S8	-0.004	0.000	-0.000

Temperature Calibration Report

Serial Number:	101013	
Tool Model:	2750 RBT	
Performed:	Sun Nov 12 13:21:13 2017	
	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF
Gain:	0.89	
Offset:	0.60	
Delta Spacing	1	

RELIANCE
OILFIELD SERVICES

Company	TEP Rocky Mountain LLC
Well	Clough NR 14-3
Field	Rulison
County	Garfield
State	Colorado