RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal RWF 431-12
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC
Well	Federal RWF 431-12
Field	Rulison
County	Garfield
State	Colorado

Location: API # : 05-045-24274

SEC 12 TWP 6S RGE 94W

Other Services

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

Date	06-MAR-2020		
Run Number	One		
Depth Driller	9172 FT		
Depth Logger	9122 FT		
Bottom Logged Interval	9110 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	235°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	17:30		
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	9131 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 5120 - 5142 FT
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

RELIANCE
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Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 431-12_rbl_03-06-20\processed_tep_federal rwf 431-12_rbl_03-06-20.db
Dataset Pathname	main.1
Presentation Format	ros_radii_tep
Dataset Creation	Mon Mar 09 11:12:46 2020
Charted by	Depth in Feet scaled 1:240

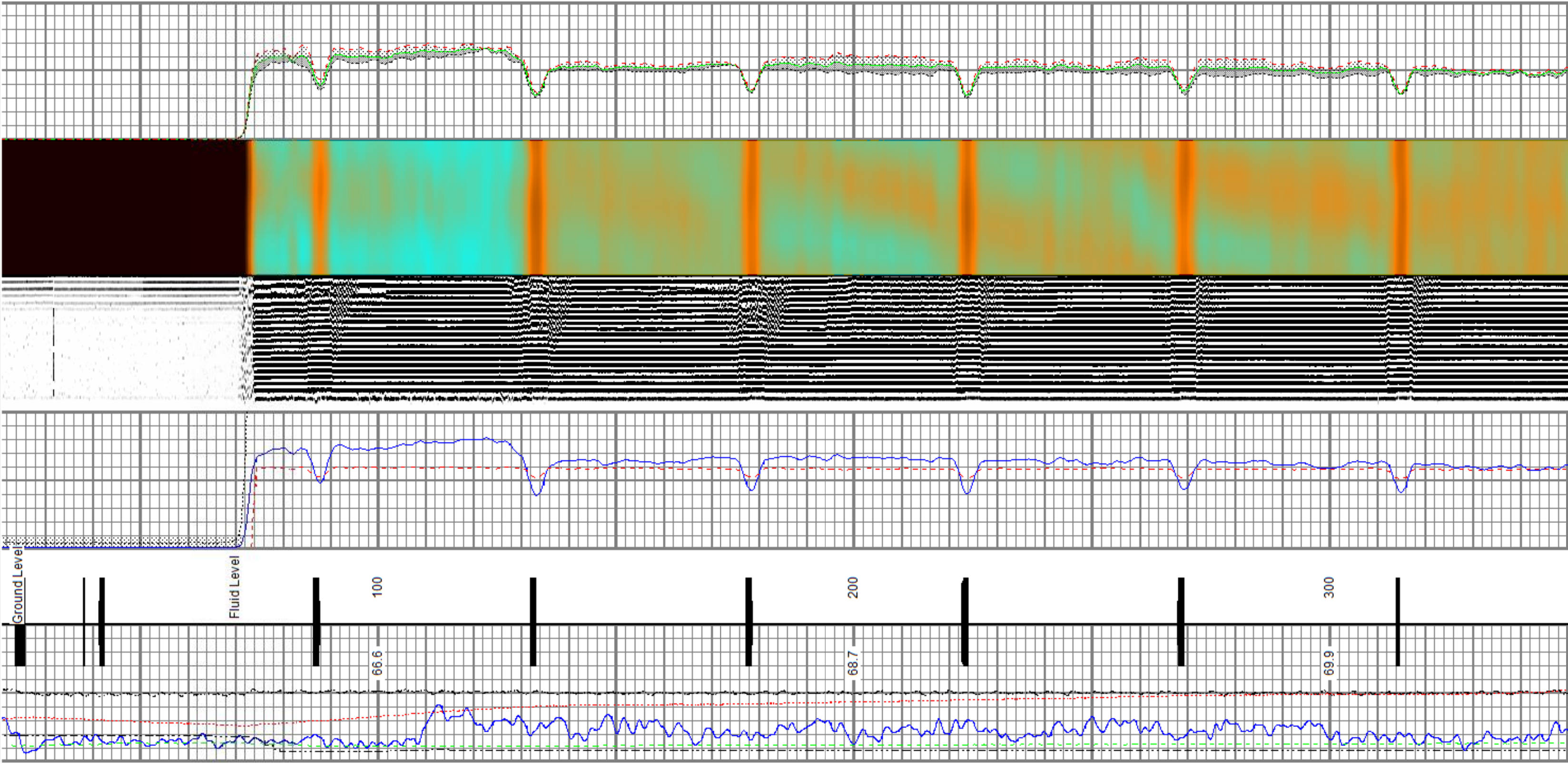
Gamma Ray: 0 (GAPI) 200
Line Speed: -150 (ft/min) 150
Line Tension: 0 (lb) 2000
Differential Temperature: -2 (degF) 2
Temperature: 0 (degF) 20
Casing Collar Locator

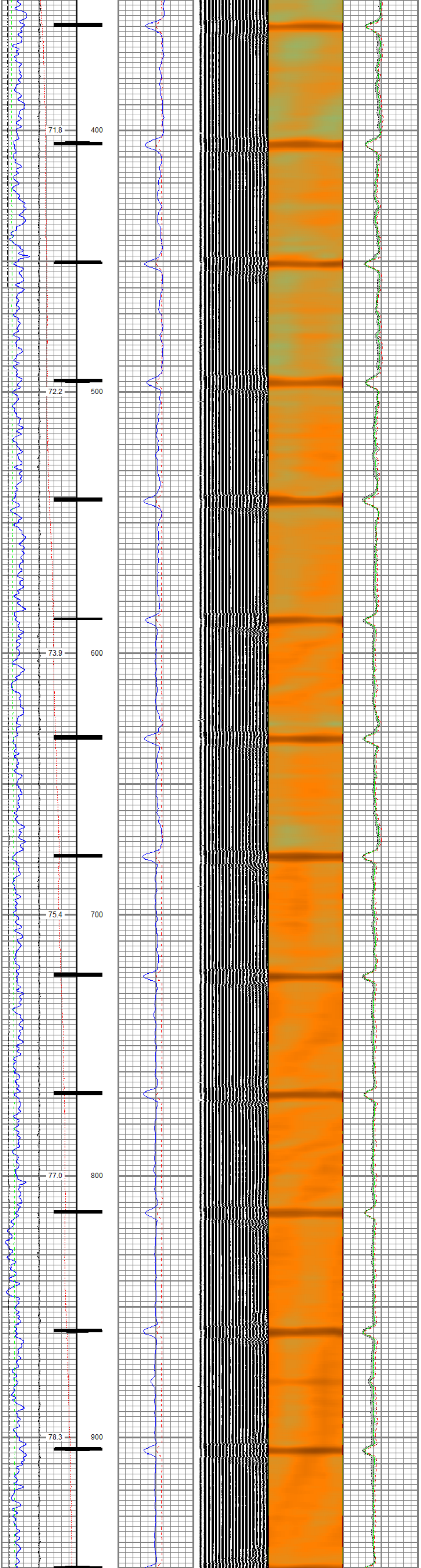
3' Amplitude: 0 (mV) 100
3' Amplitude x 5: 0 (mV) 20
3' Travel Time: 300 (usec) 200

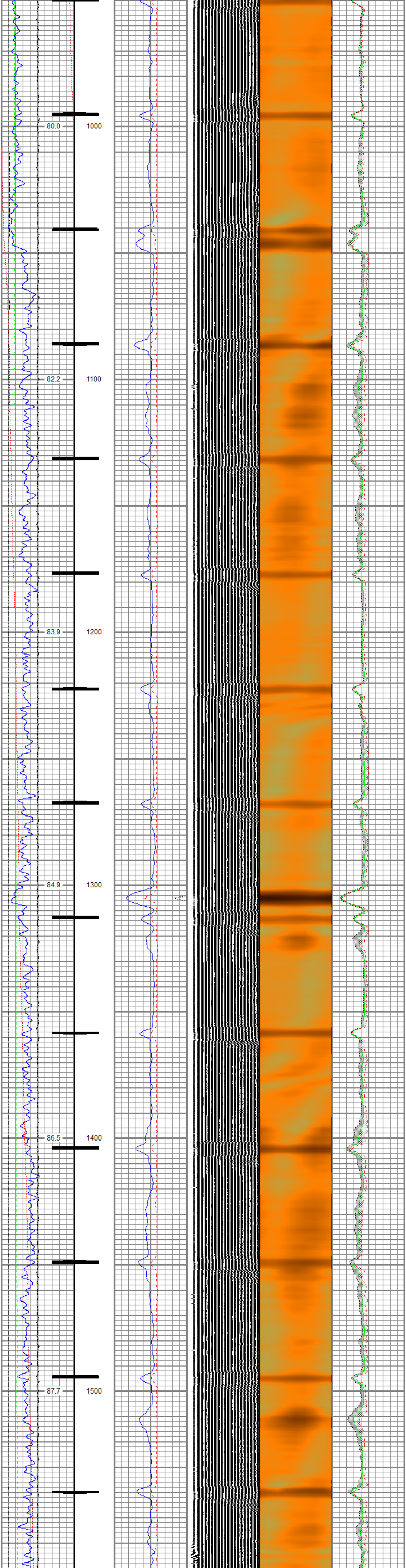
5' Variable Density Log: 200 (usec) 1200

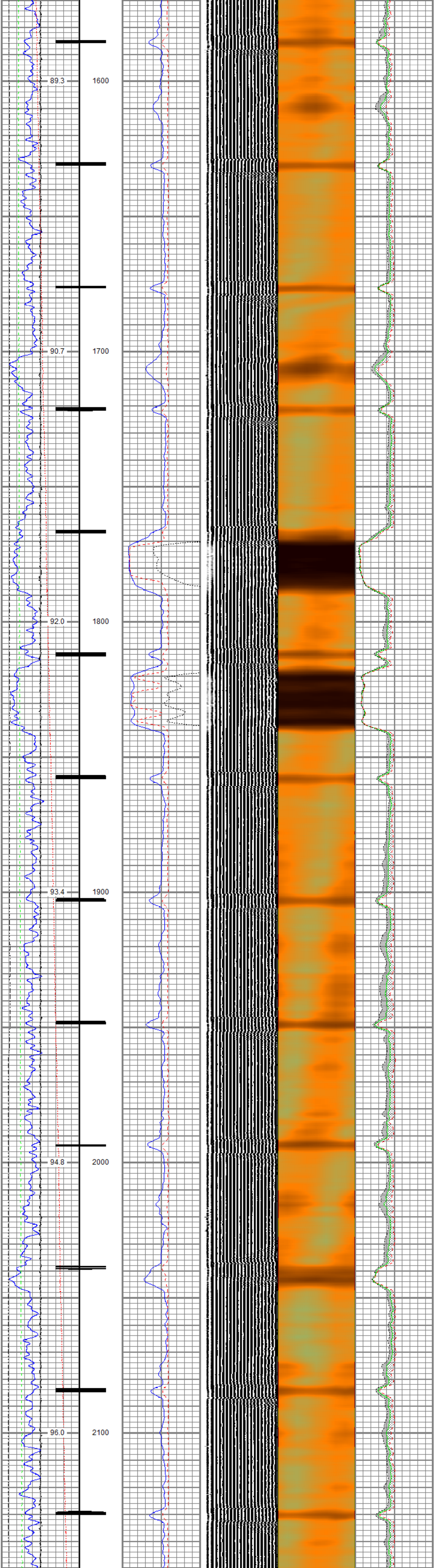
Sector Map

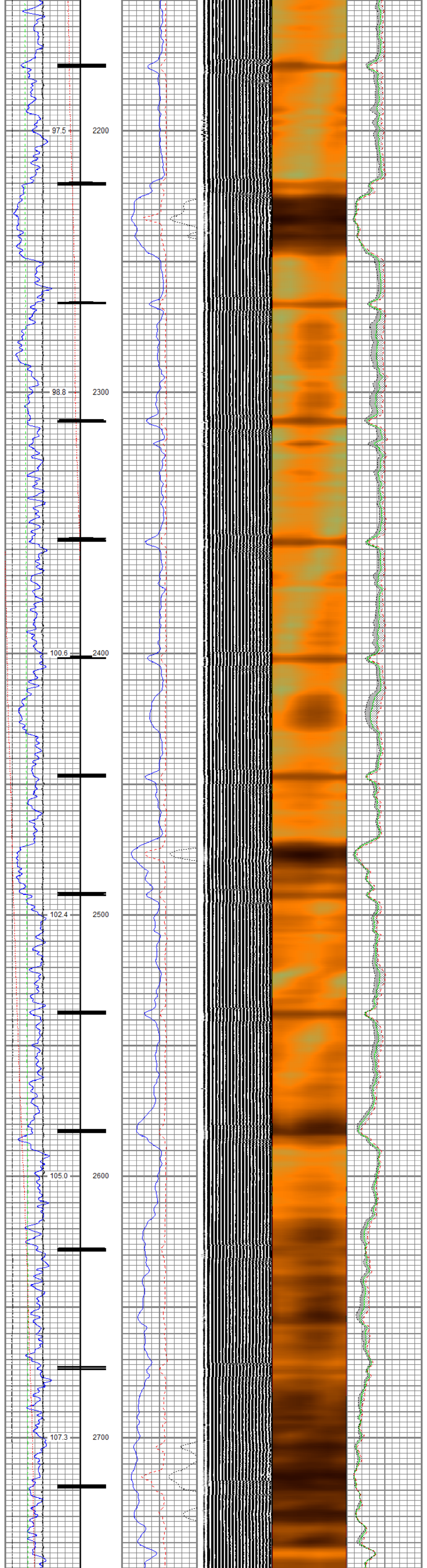
Average Amplitude: 0 150
Mimimum Amplitude: 0 150
Maximum Amplitude: 0 150

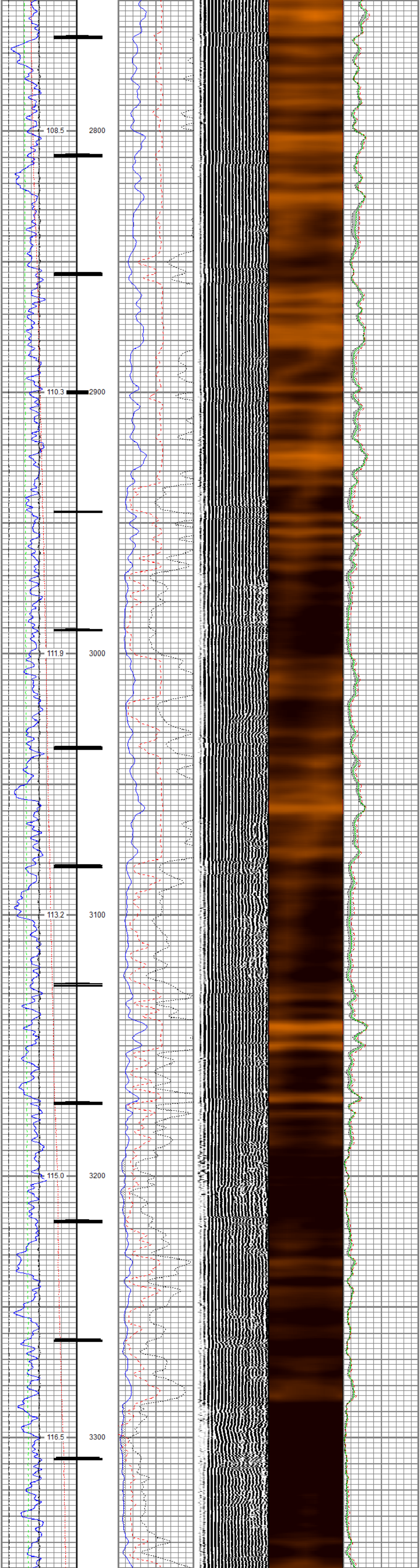


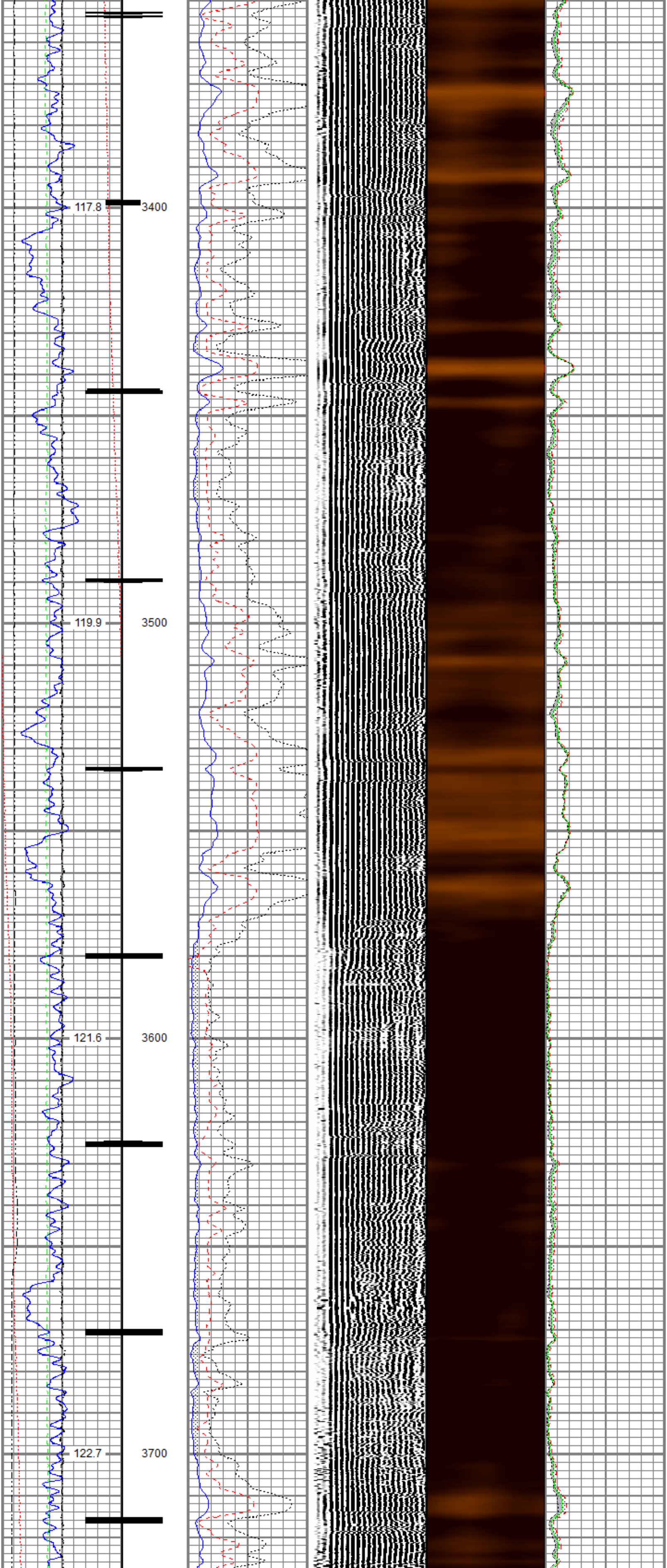


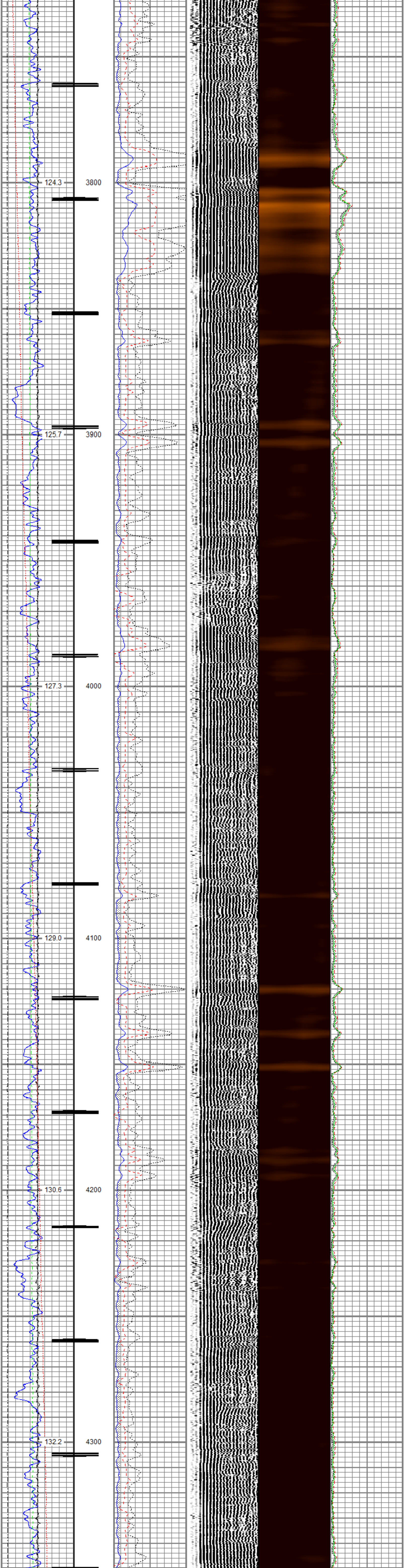








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127.3
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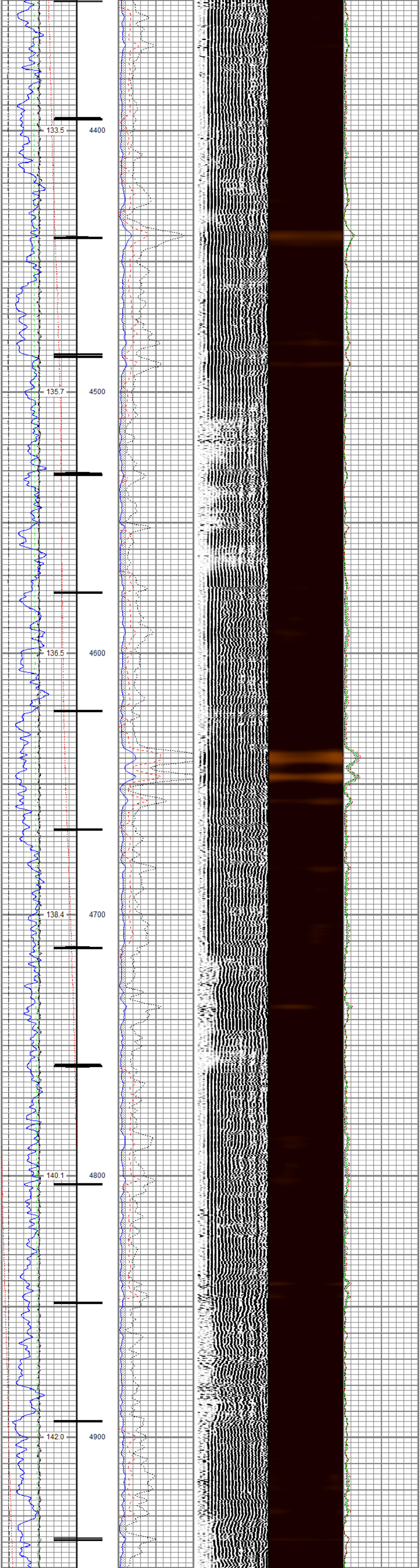
4100
130.6
4200
132.2
4300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136.5
4600
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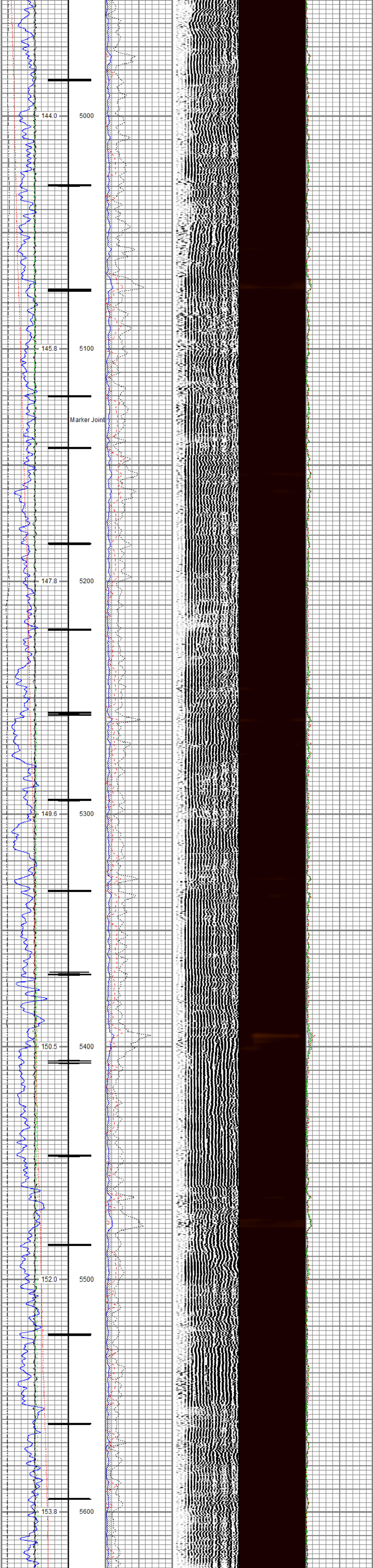
142.0
4900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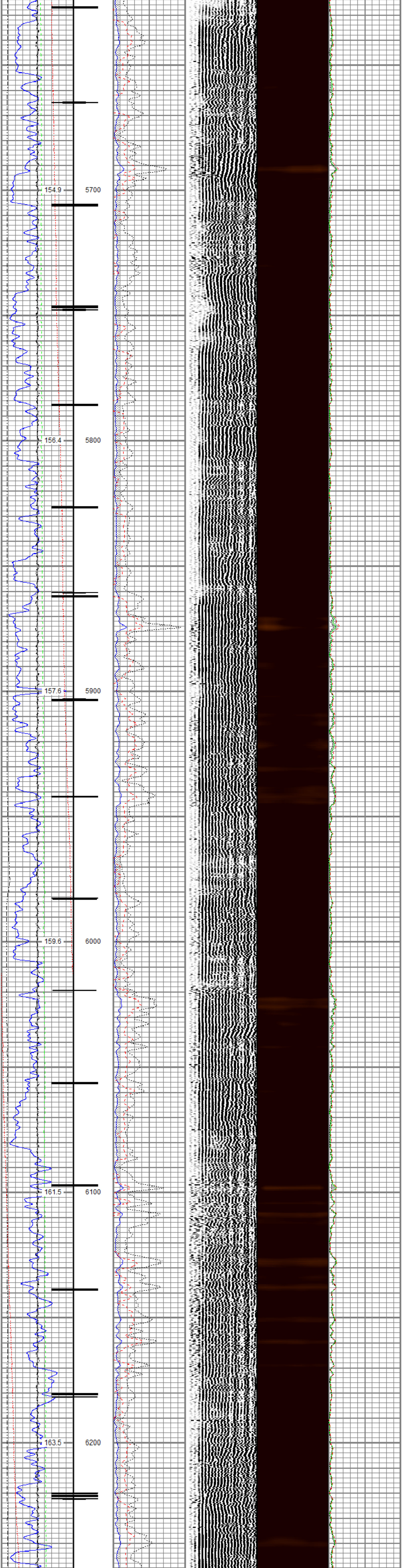
5600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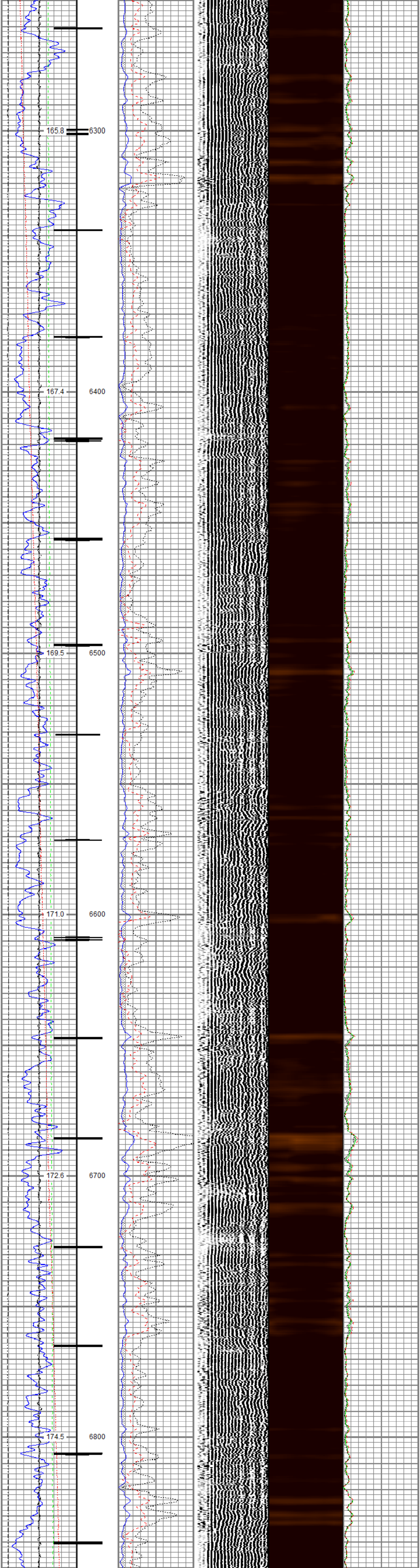
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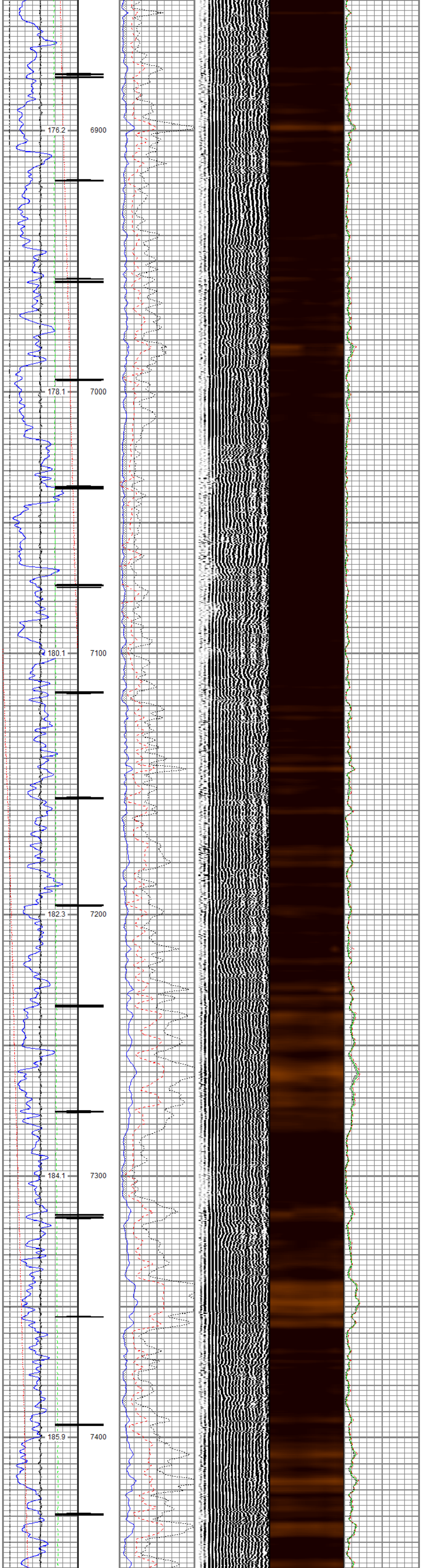
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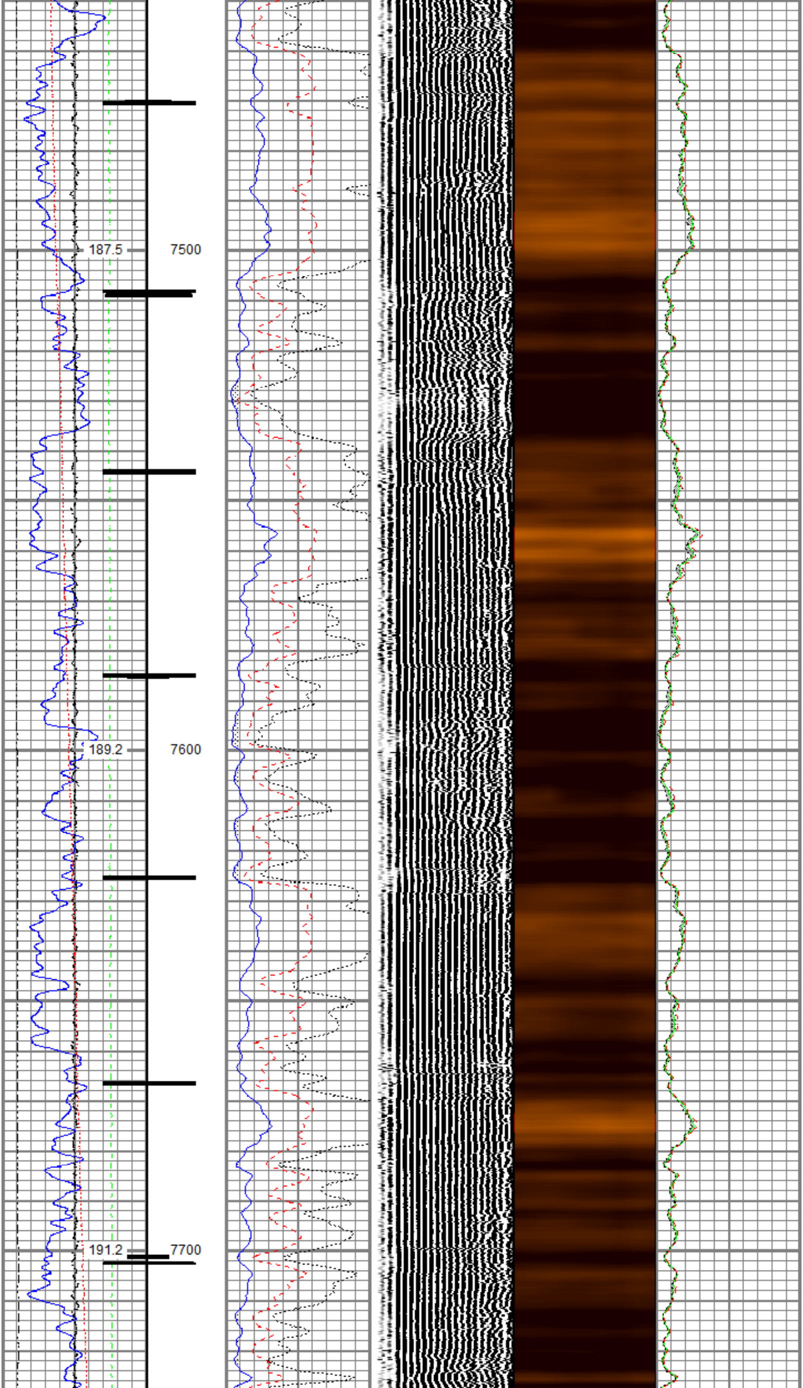
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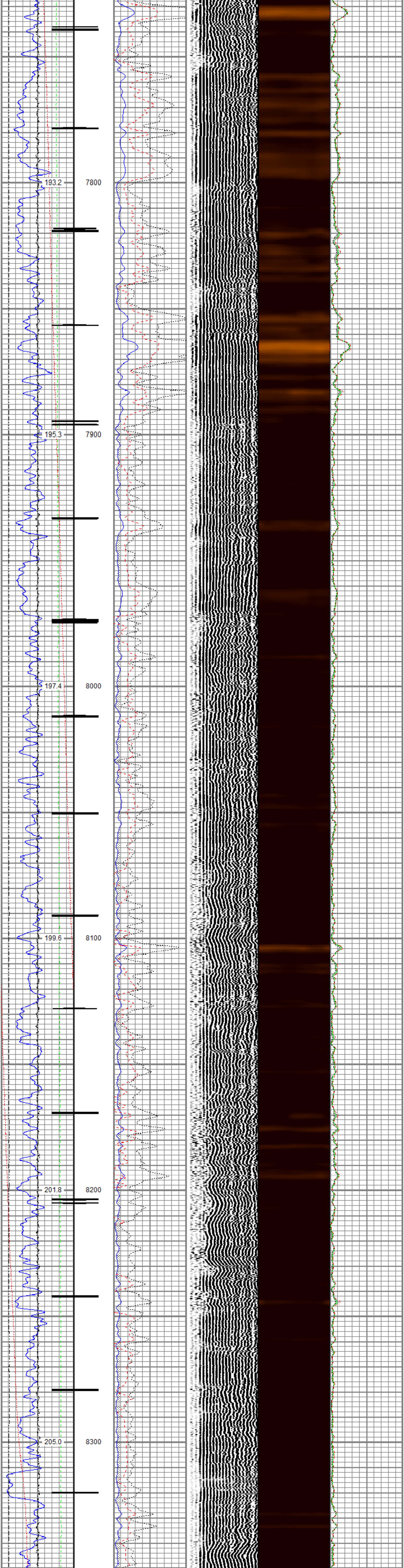

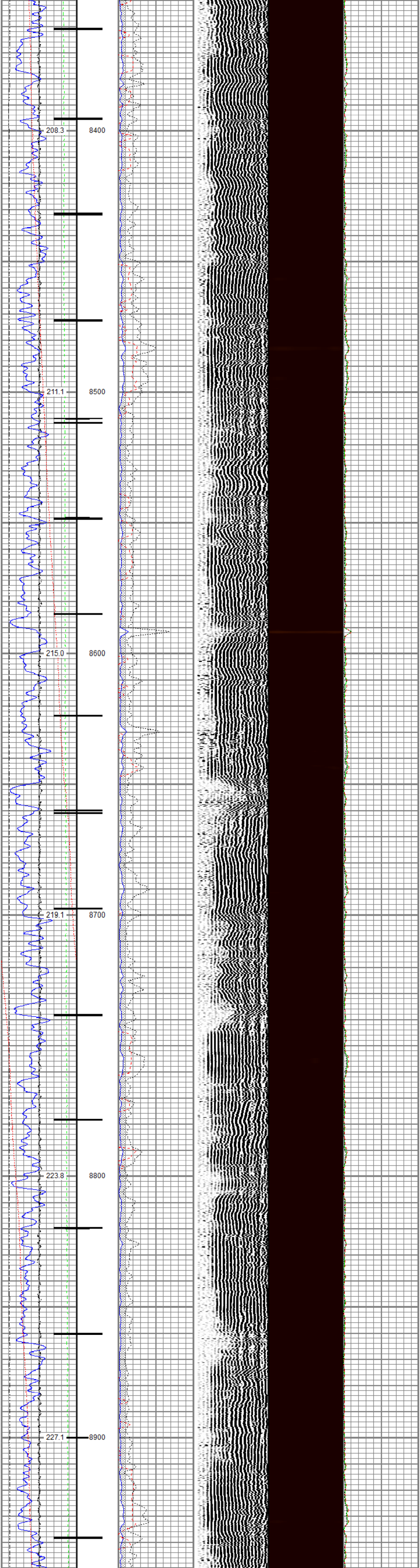

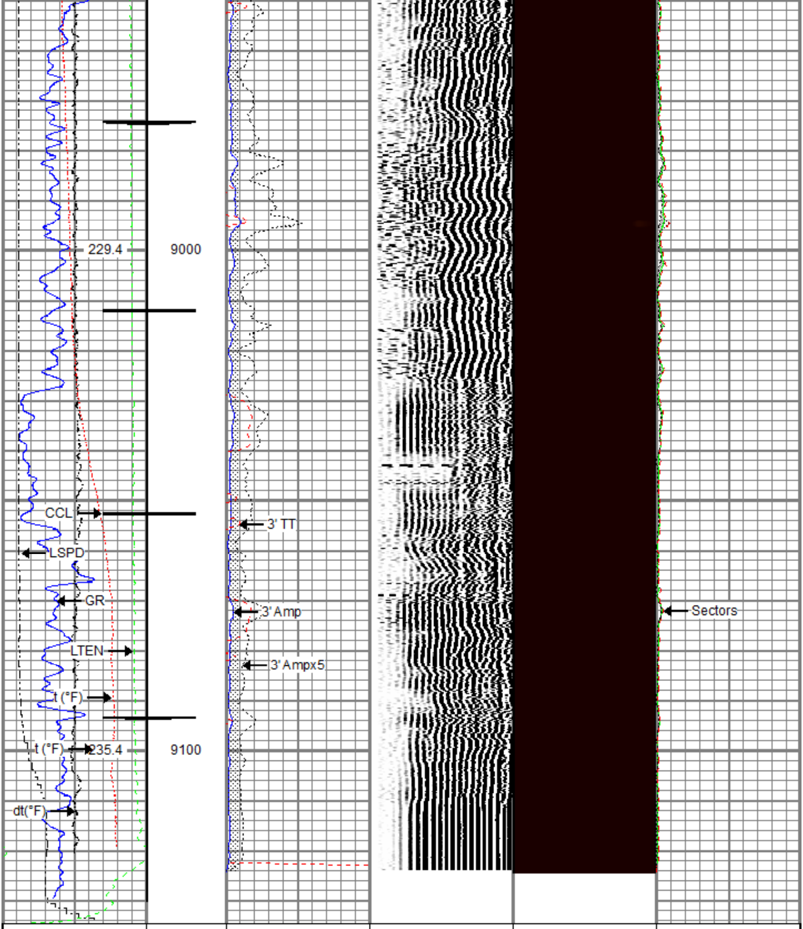

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
ifferential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

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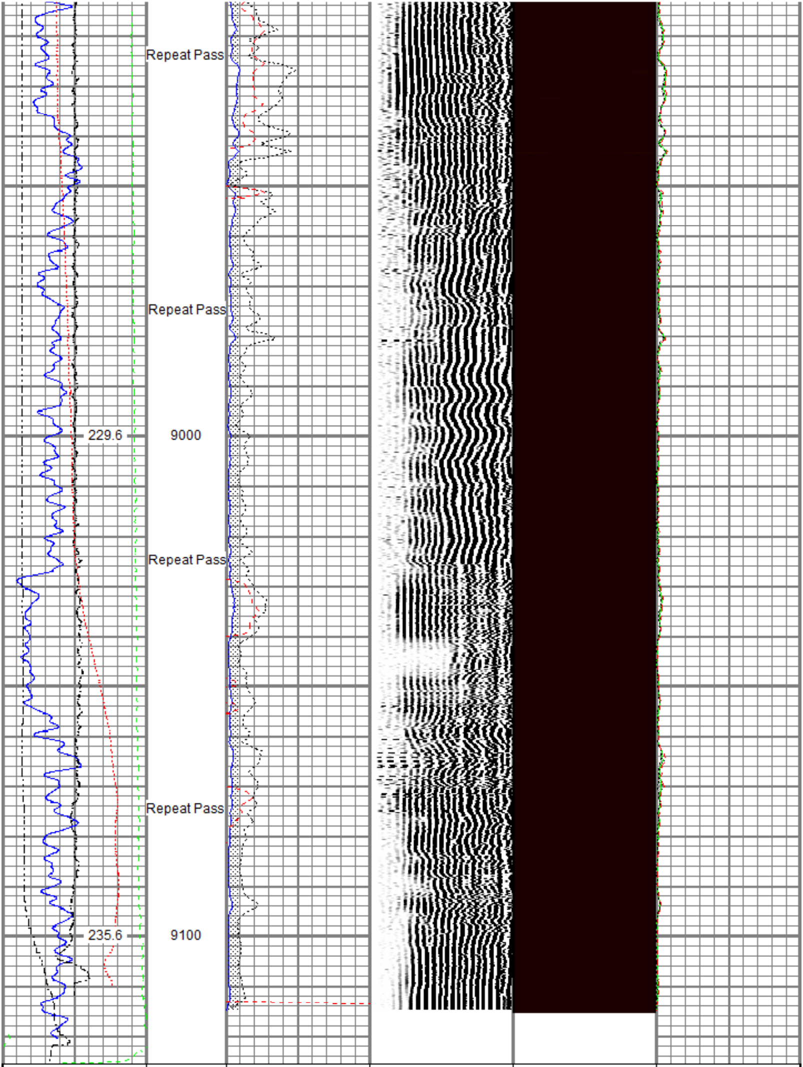
Repeat Pass

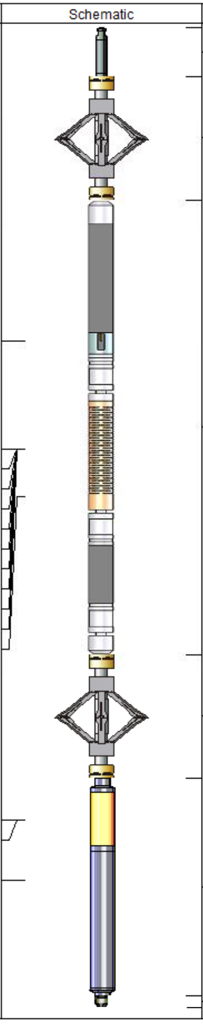
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 431-12_rbl_03-06-20\processed_tep_federal rwf 431-12_rbl_03-06-20.db
Dataset Pathname	repeat.2
Presentation Format	ros_radii_tep
Dataset Creation	Mon Mar 09 11:27:50 2020
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 (usec) 1200		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
ifferential 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			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
ifferential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				



Sensor	Offset (ft)
TEMP	13.79
WVFS8	11.55
WVFS7	11.55
WVFS6	11.55
WVFS5	11.55
WVFS4	11.55
WVFS3	11.55
WVFS2	11.55
WVFS1	11.55
WVFCAL	11.55
WVF3FT	11.55
WVF5FT	10.55
CCL$2	3.88
CCL$1	3.88
GR	2.63

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
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
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 431-12_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 431-12_rbl_03-06-20\processed_tep_federal rwf 431-12_rbl_
Dataset Pathname main.1
Dataset Creation Mon Mar 09 11:12:46 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	0.781	0.800	81.196	103.458	0.413
CAL	0.014	0.764				
5'	0.180	0.709	0.800	81.196	151.888	-26.497
SUM						
S1	0.001	0.741	0.000	100.000	135.145	-0.118
S2	0.004	0.718	0.000	100.000	140.088	-0.590
S3	0.005	0.764	0.000	100.000	131.605	-0.593
S4	0.006	0.856	0.000	100.000	117.722	-0.733
S5	0.004	0.868	0.000	100.000	115.750	-0.519
S6	0.003	0.836	0.000	100.000	120.100	-0.359
S7	0.004	0.799	0.000	100.000	125.782	-0.486
S8	0.005	0.771	0.000	100.000	130.569	-0.709

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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Company	TEP Rocky Mountain LLC
Well	Federal RWF 431-12
Field	Rulison
County	Garfield
State	Colorado