Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal RWF 442-18
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC
Well	Federal RWF 442-18
Field	Rulison
County	Garfield
State	Colorado

Location: API # : 05-045-24035

SEC 17 TWP 6S RGE 94W

Other Services: --

				Elevation
Permanent Datum	Ground Level	Elevation	6175'	K.B. 6199'
Log Measured From	Kelly Bushing	24 FT		D.F. ---
Drilling Measured From	Kelly Bushing			G.L. 6175'

Date	11-JUN-2019
Run Number	One
Depth Driller	9112 FT
Depth Logger	9037 FT
Bottom Logged Interval	9026 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	2:30
Equipment Number	HD-0331
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	1108 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9070 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 5545-5567 FT
Log ran 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\processed_tep_federal rwf 442-18_rbl_06-11-19\processed_processed_tep_federal rwf 442-18_rbl_06
Dataset Pathname	main.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Jun 12 16:52:51 2019
Charted by	Depth in Feet scaled 1:240

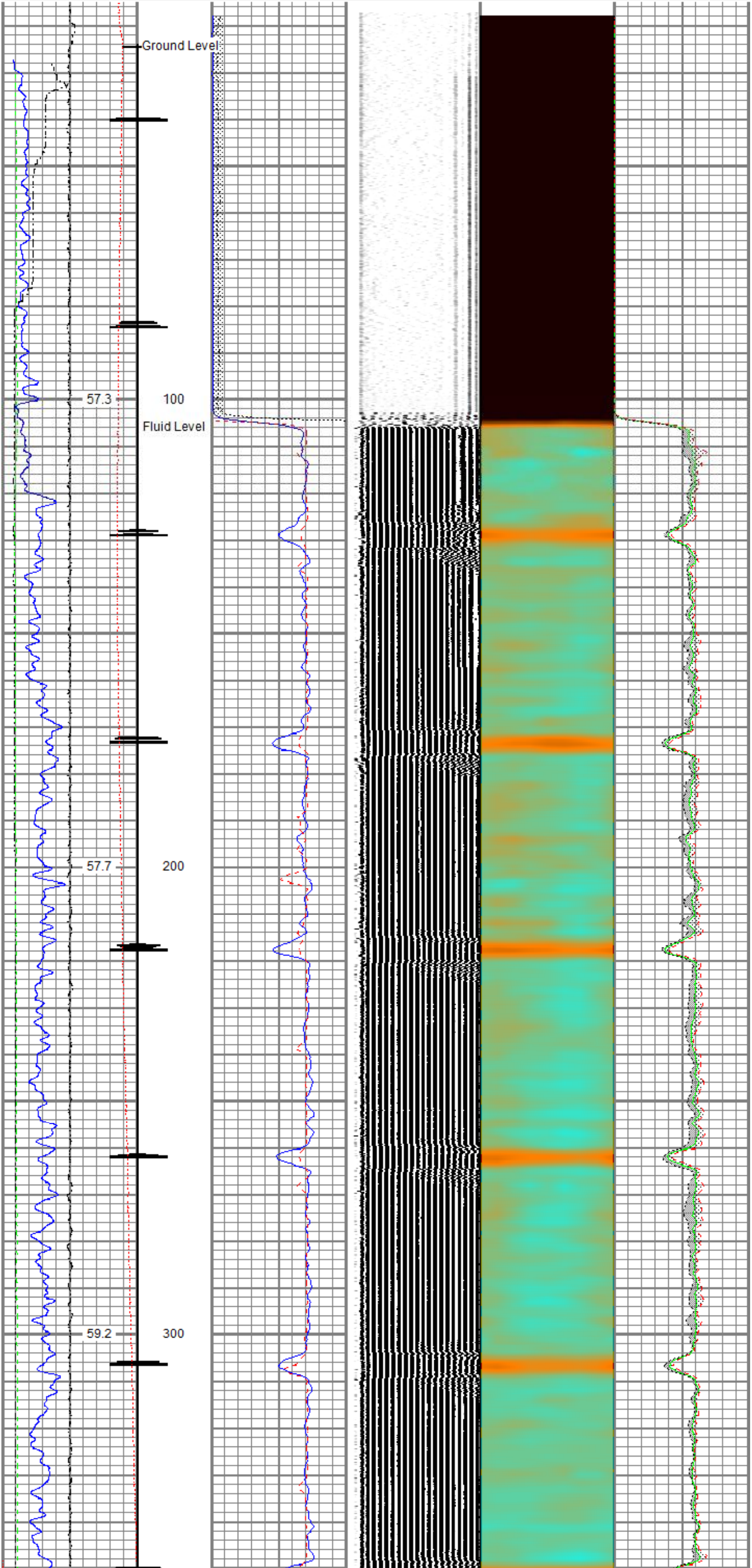
Gamma Ray
0 (GAPI) 200
Casing Collar Locator
Line Speed
-150 (ft/min) 150
Line Tension
0 (lb) 2000
Differential Temperature
-2 (degF) 2
Temperature
0 (degF) 20

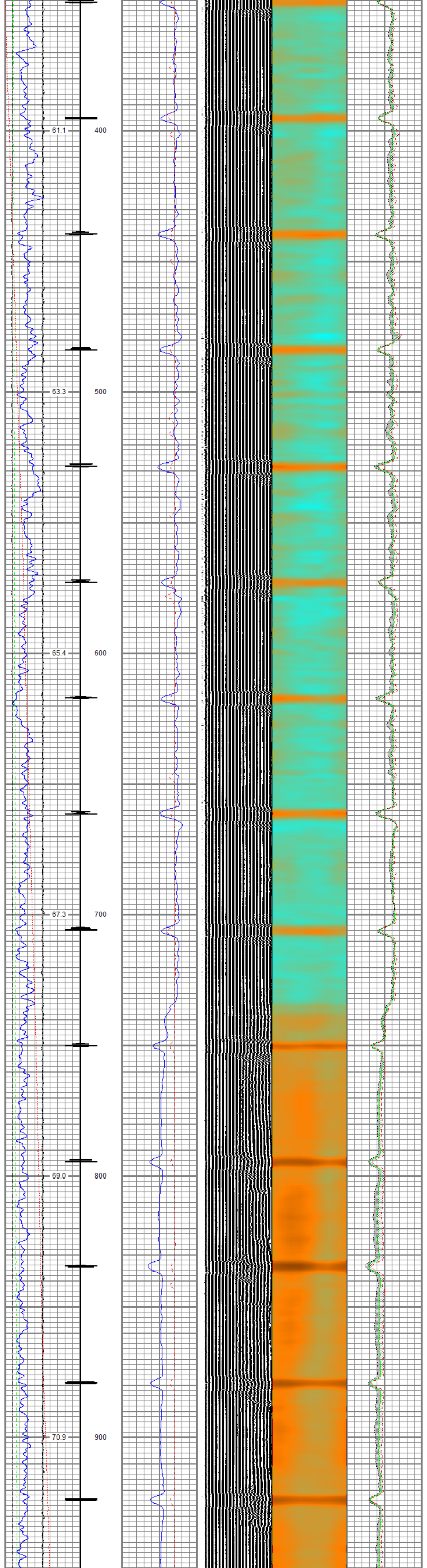
3' Amplitude
0 (mV) 100
3' Amplitude x 5
0 (mV) 20
3' Travel Time
300 (usec) 200

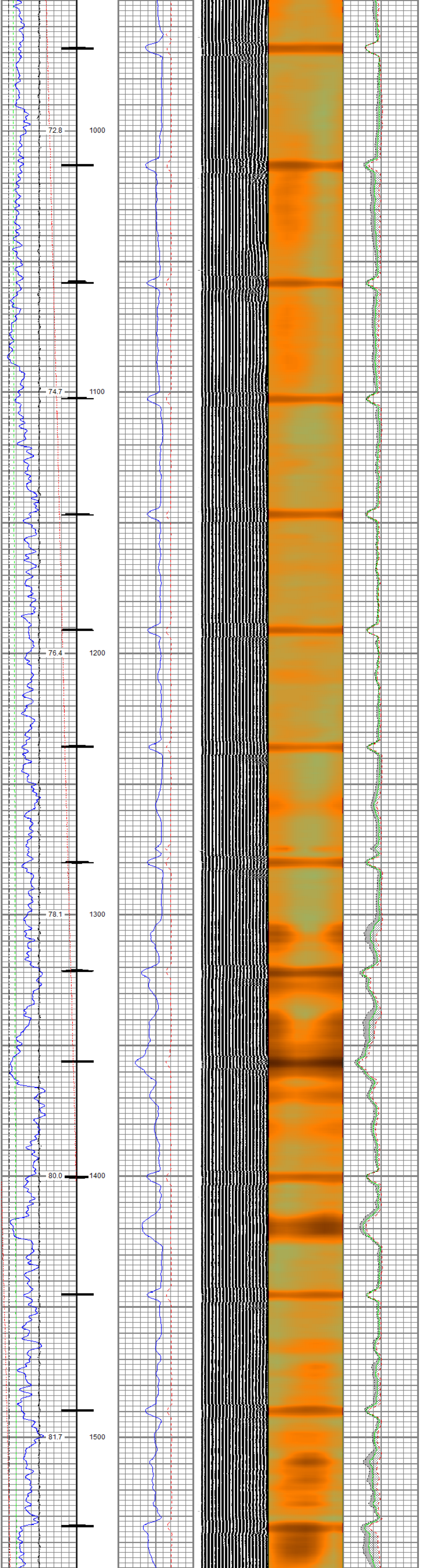
5' Variable Density Log
200 1200

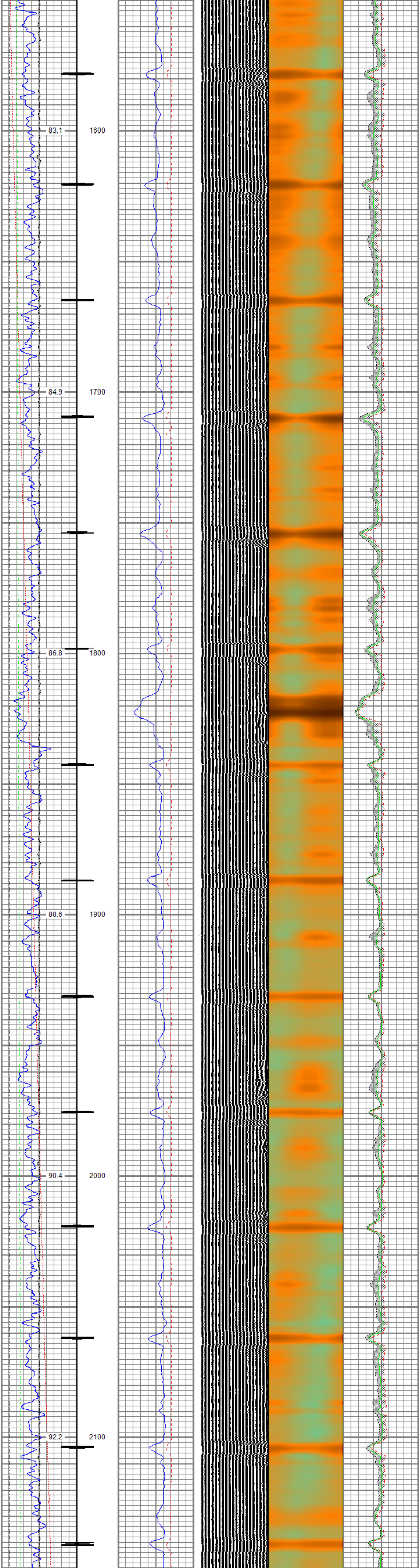
Sector Map
10 110

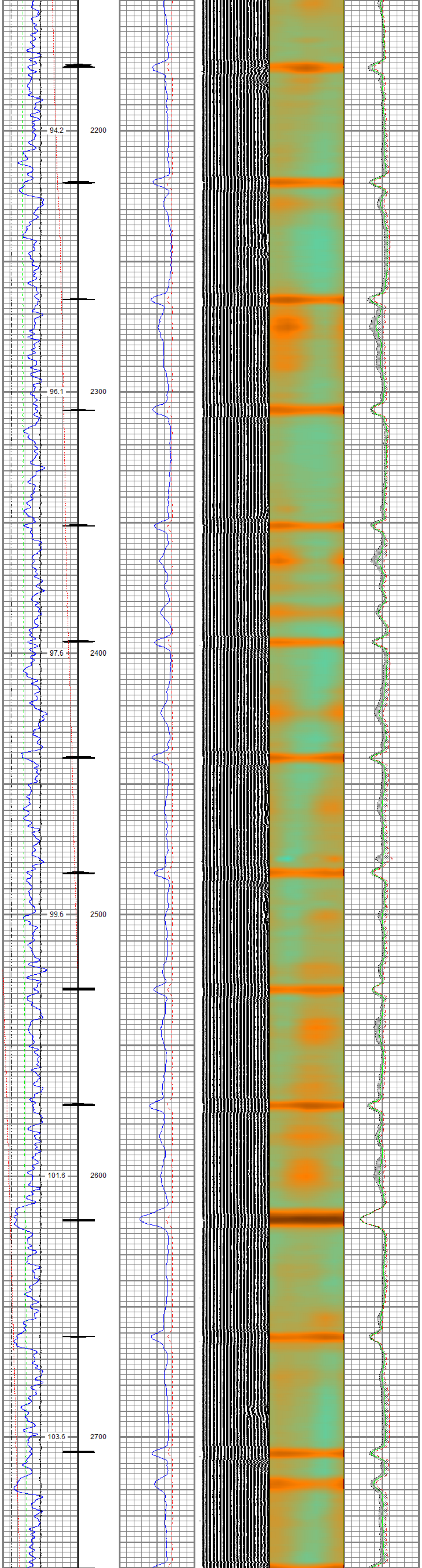
Average Amplitude
0 150
Mimimum Amplitude
0 150
Maximum Amplitude
0 150

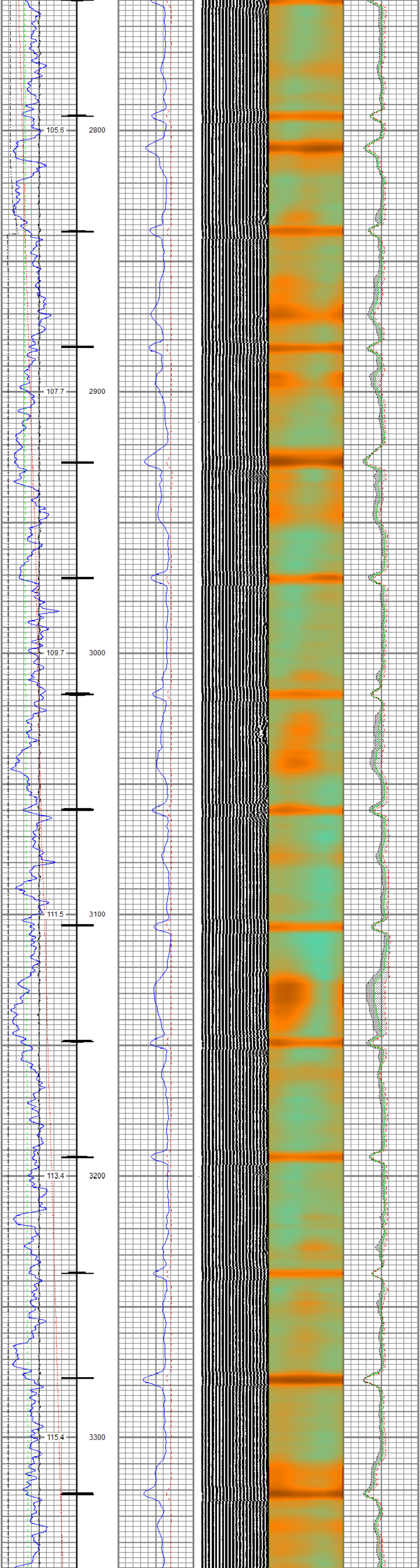


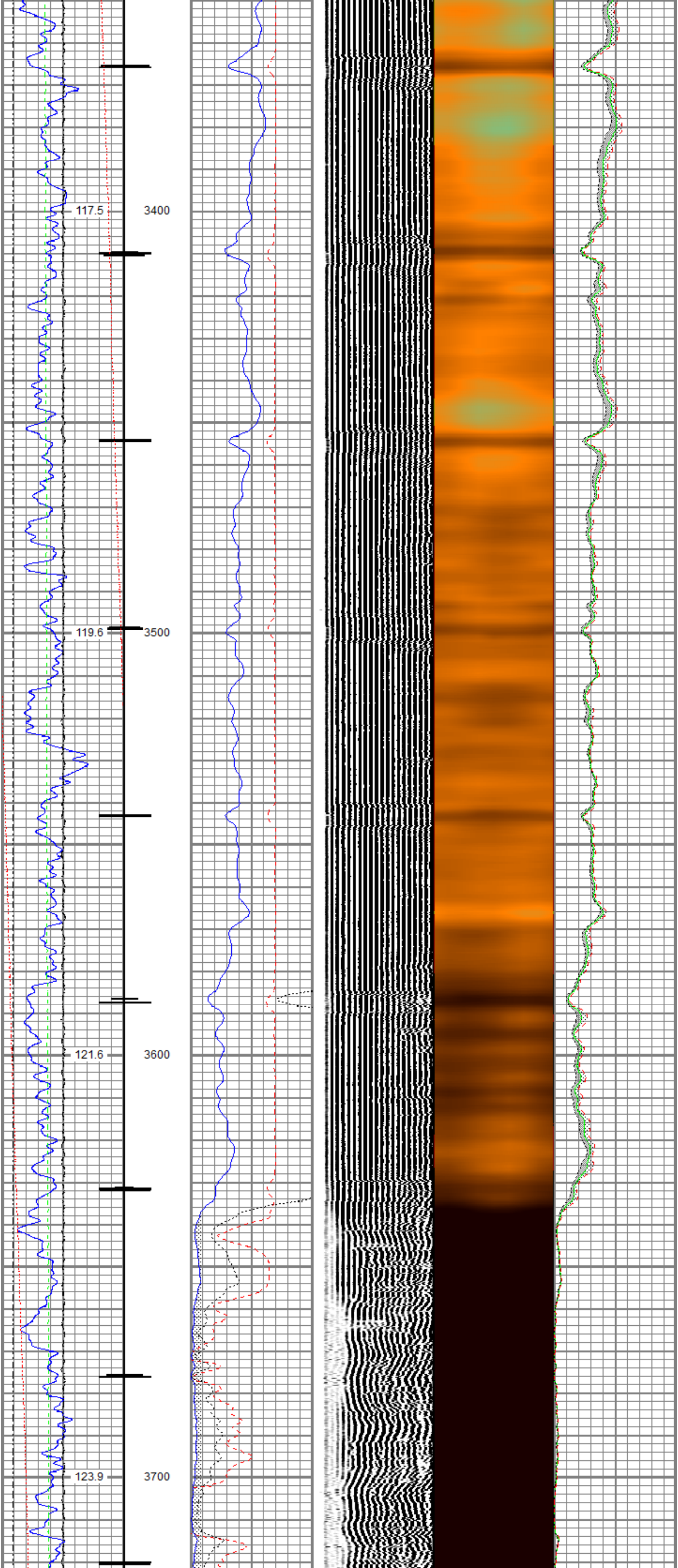


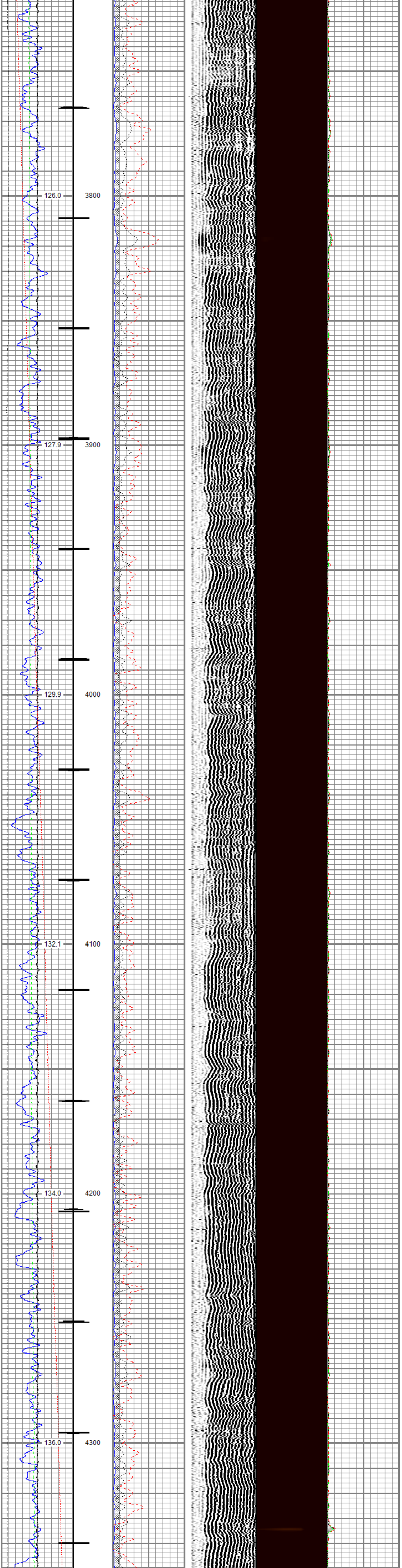








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136.0
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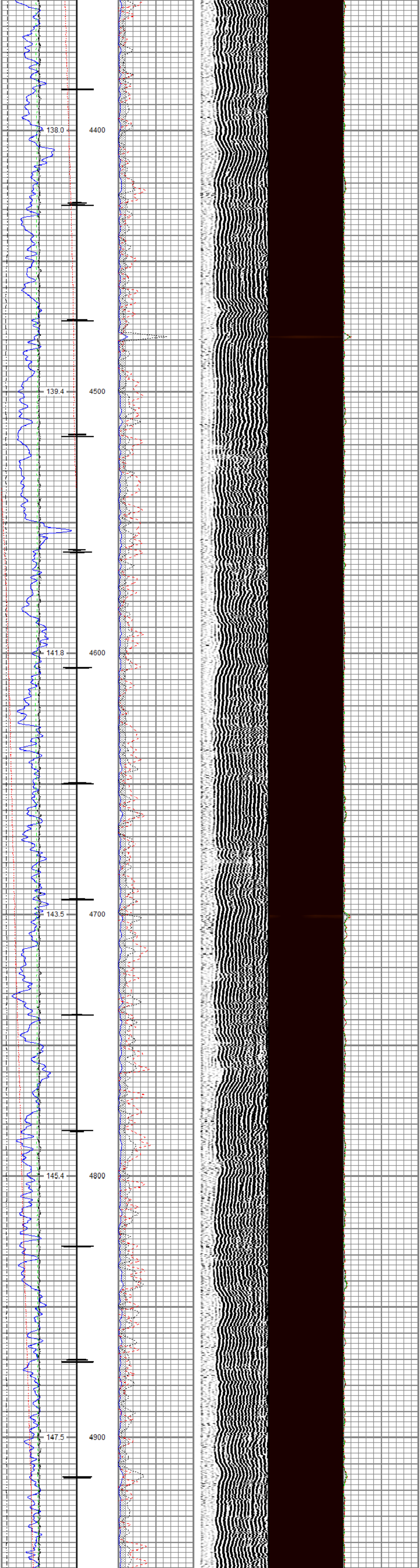
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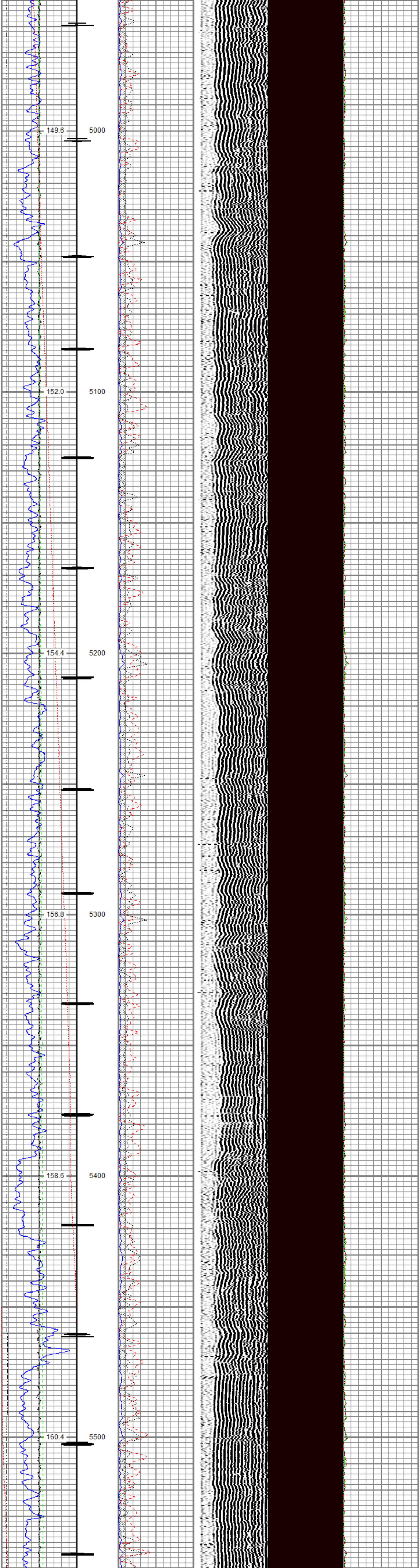
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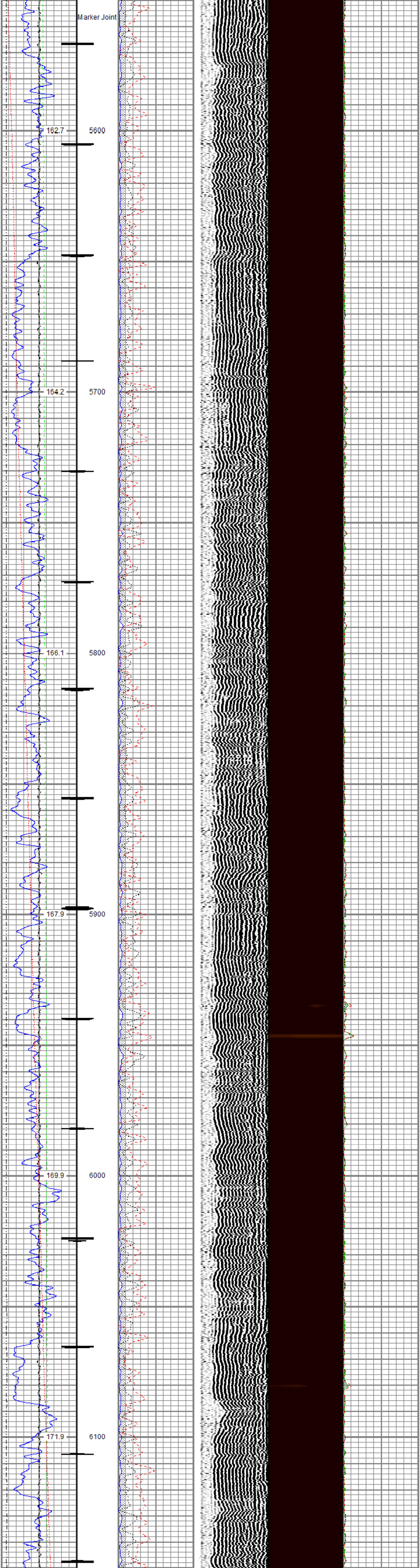
160.4
5500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6000
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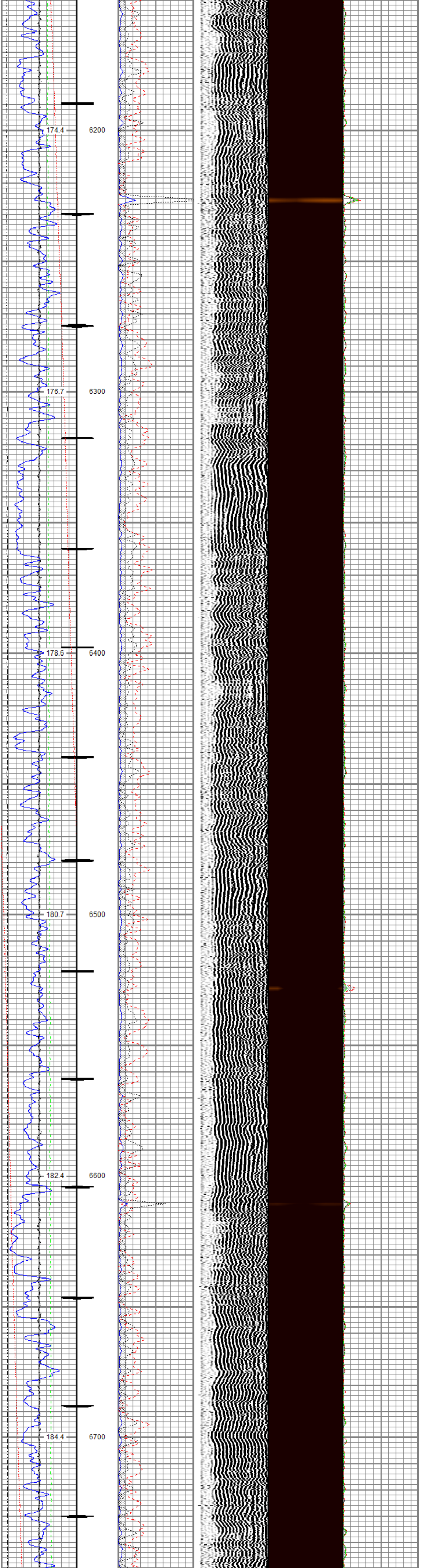
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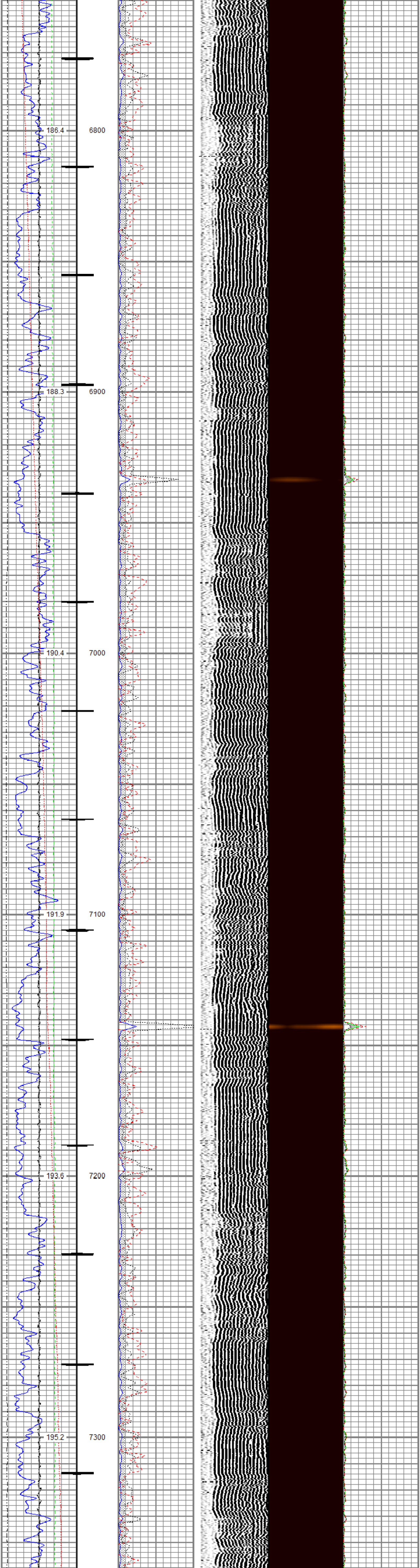
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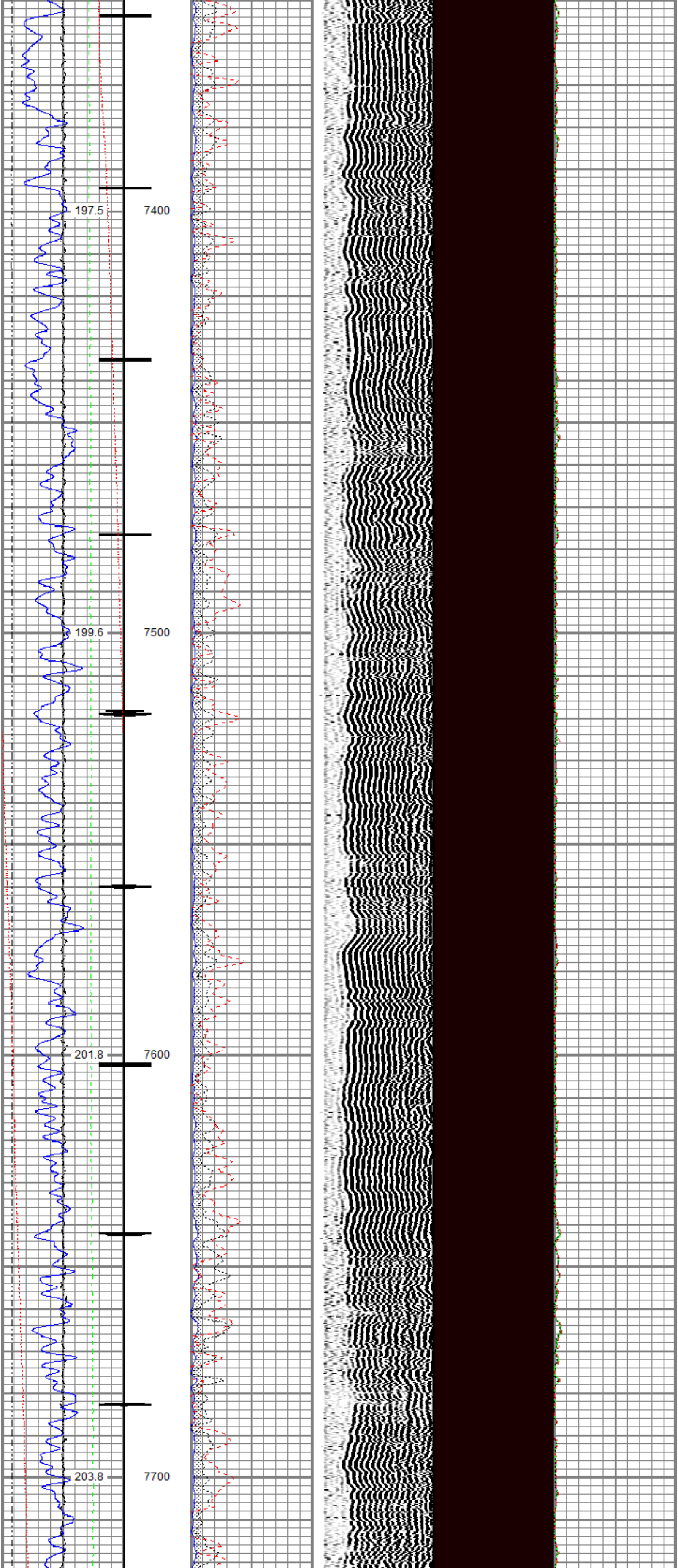
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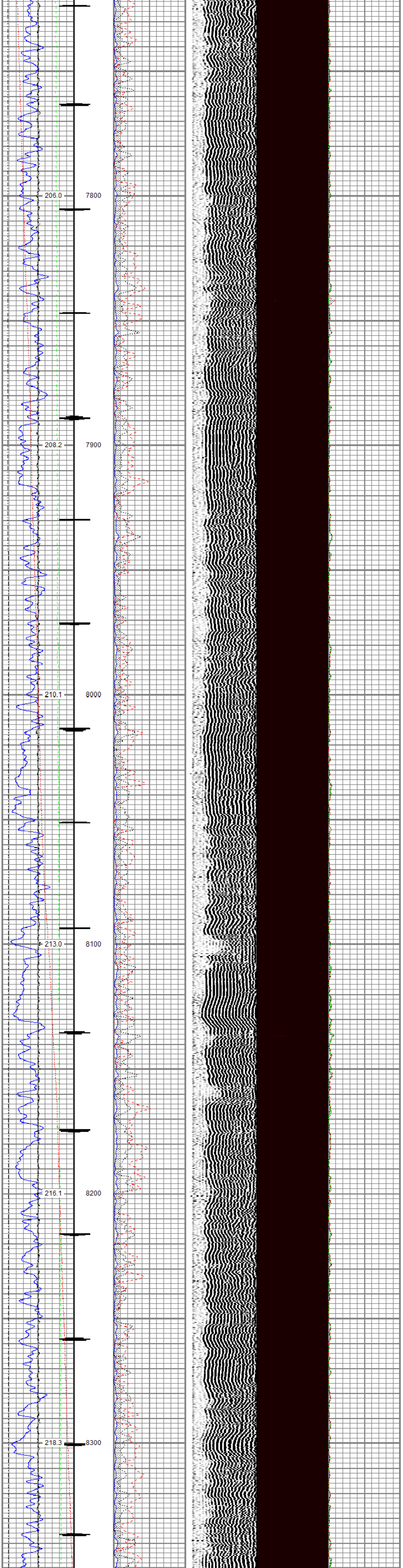
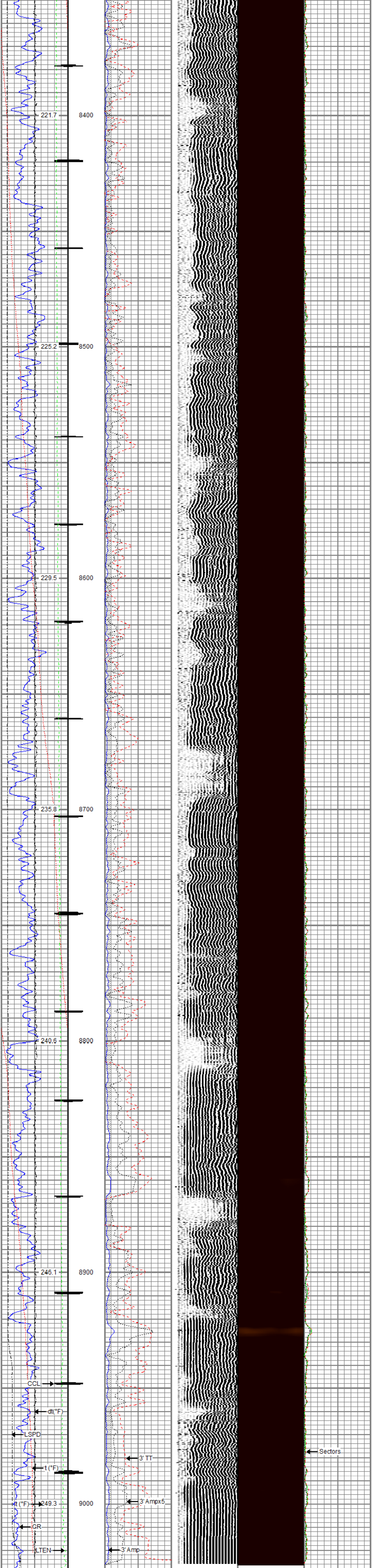
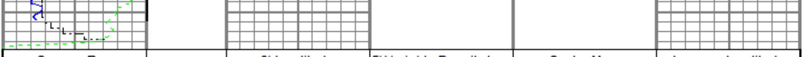






Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200	10 110	0 150
Casing Collar Locator		3' Amplitude x 5			Mimimum Amplitude
Line Speed		0 (mV) 20			0 150
-150 (ft/min) 150		3' Travel Time			Maximum Amplitude
Line Tension		300 (usec) 200			0 150
0 (lb) 2000					
Differential Temperature					
-2 (degF) 2					
Temperature					
0 (degF) 20					

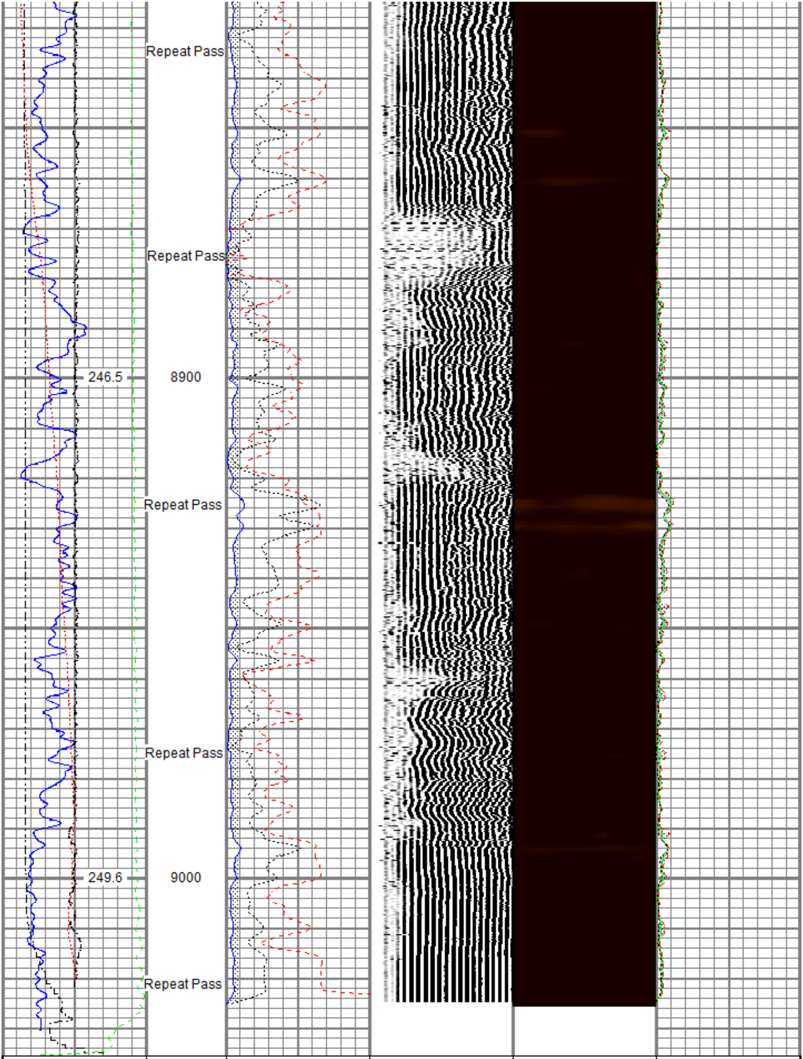
RELIANCE
OILFIELD SERVICES

Repeat Pass

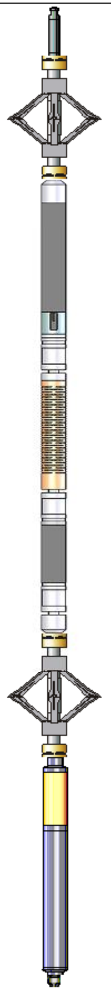
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\processed_tep_federal rwf 442-18_rbl_06-11-19\processed_processed_tep_federal rwf 442-18_rbl_06
Dataset Pathname	repeat.4
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Jun 12 17:02:32 2019
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
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 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
Differential Temperature					
-2 (degF) 2					
Temperature					
0 (degF) 20					

Sensor	Offset (ft)	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
TEMP	13.79					
			Probe Radii-2750 RBT (101013) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
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					
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL$2	3.88					
CCL$1	3.88					
GR	2.63		Probe GR-CCL-2750 GOB (FW1307-038) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	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_processed_tep_federal rwf 442-18_rbl_06-11-19.db: field/well/run1/main.2
Total length: 20.27 ft
Total weight: 228.60 lb
O.D.: 2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\processed_tep_federal rwf 442-18_rbl_06-11-19\processed_processed_tep_
Dataset Pathname	main.2
Dataset Creation	Wed Jun 12 16:52:51 2019

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:44:12 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	113.2	cps
Calibrator Reading:	1022.4	cps
Sensitivity:	0.7007	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	101013	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	25.652	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.624	0.800	81.196	129.719	0.280
CAL	0.003	0.755				
5'	0.010	0.493	0.800	81.196	166.400	-0.792
SUM						
S1	0.007	0.680	0.000	100.000	148.515	-1.040
S2	0.006	0.685	0.000	100.000	147.381	-0.885
S3	0.004	0.627	0.000	100.000	160.338	-0.599
S4	0.006	0.587	0.000	100.000	172.167	-1.115
S5	0.005	0.555	0.000	100.000	181.814	-0.992
S6	0.006	0.562	0.000	100.000	179.681	-1.012
S7	0.004	0.583	0.000	100.000	172.760	-0.637
S8	0.007	0.655	0.000	100.000	154.424	-1.100

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.003	0.755	1.000	0.000

Air Zero Calibration, performed Tue Jun 11 00:11:24 2019:

	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:	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	Federal RWF 442-18
Field	Rulison
County	Garfield
State	Colorado