RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal PA 534-26
Field Parachute
County Garfield
State Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 534-26
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23714
SEC 26 TWP 6S RGE 95W

Other Services
PN

Permanent Datum	Ground Level	Elevation	5636.9'	Elevation K.B. 5660.9' D.F. 5659.9' G.L. 5636.9'
Log Measured From	Kelly Bushing	24 FT		
Drilling Measured From	Kelly Bushing			

Date	02-SEP-2018		
Run Number	One		
Depth Driller	8768 FT		
Depth Logger	8714 FT		
Bottom Logged Interval	8700 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Fresh Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	237°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	10:00		
Equipment Number	HD 331		
Location	Grand Junction, CO		
Recorded By	M. Kochevar		
Witnessed By	J. Skalla		

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	1130 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8728 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 any one 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 at 4863 FT - 4878 FT
Log ran from 8700 FT to Surface
Recorded with 0 PSI Surface Induced Pressure
Sensors 4 and 5 were interpolated with offset sensor data

Thank you for choosing Reliance Oilfield Services, LLC!!

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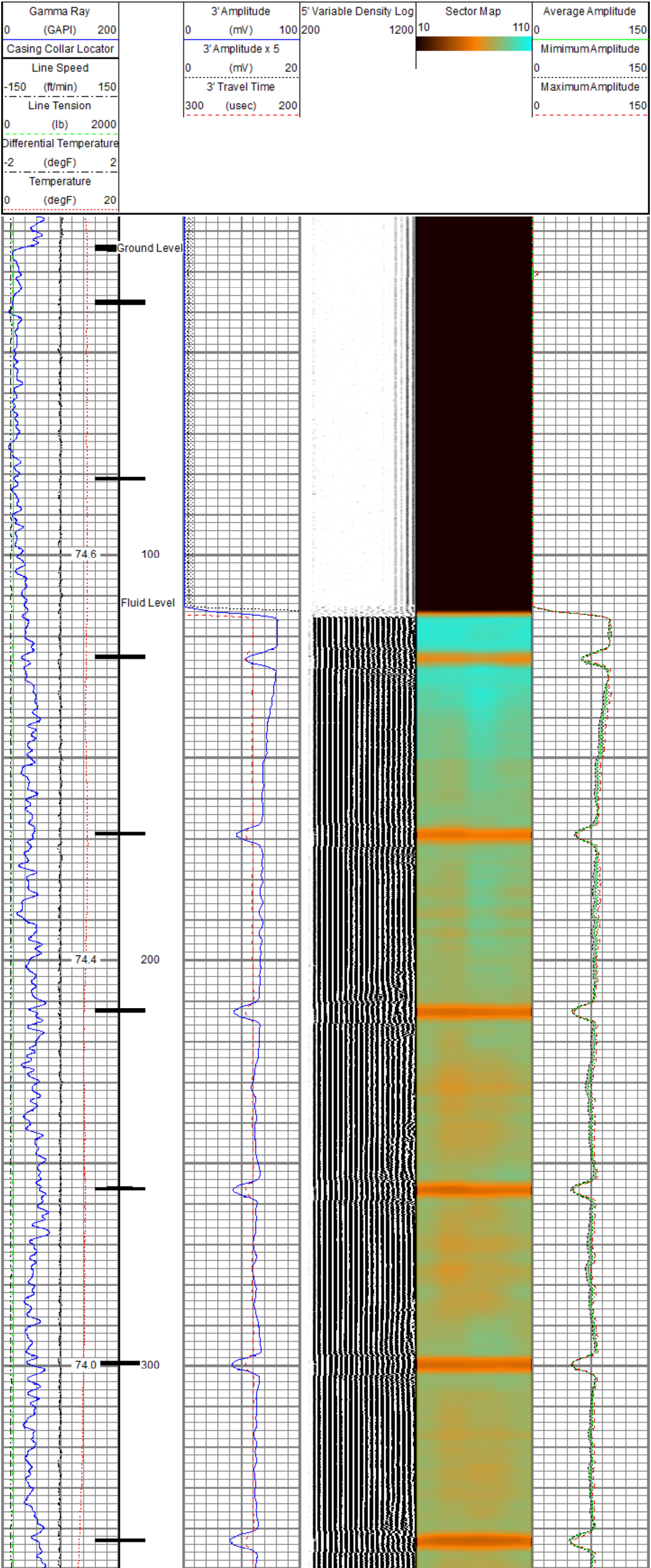
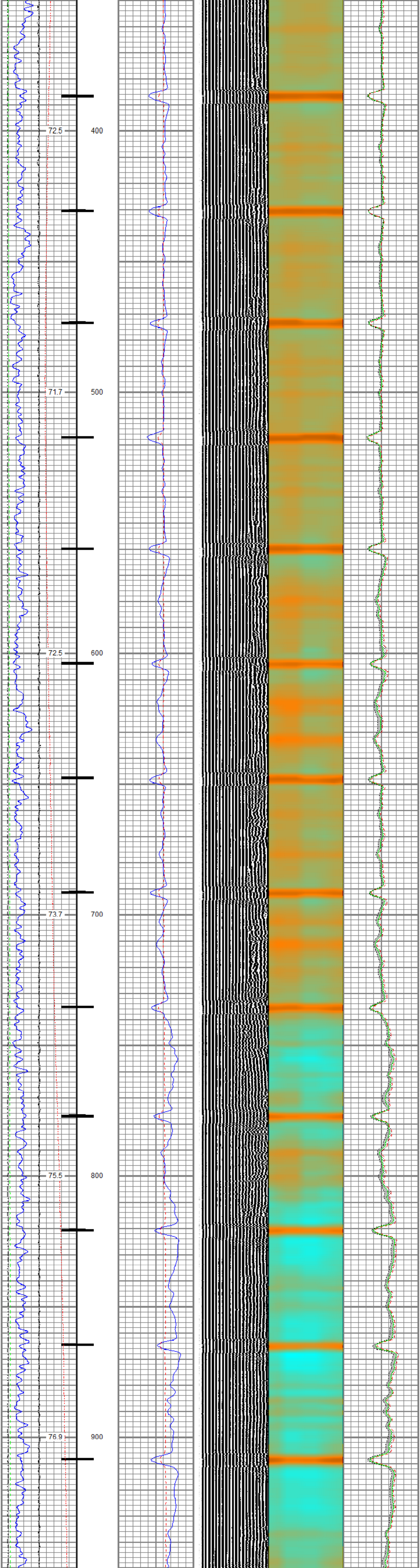
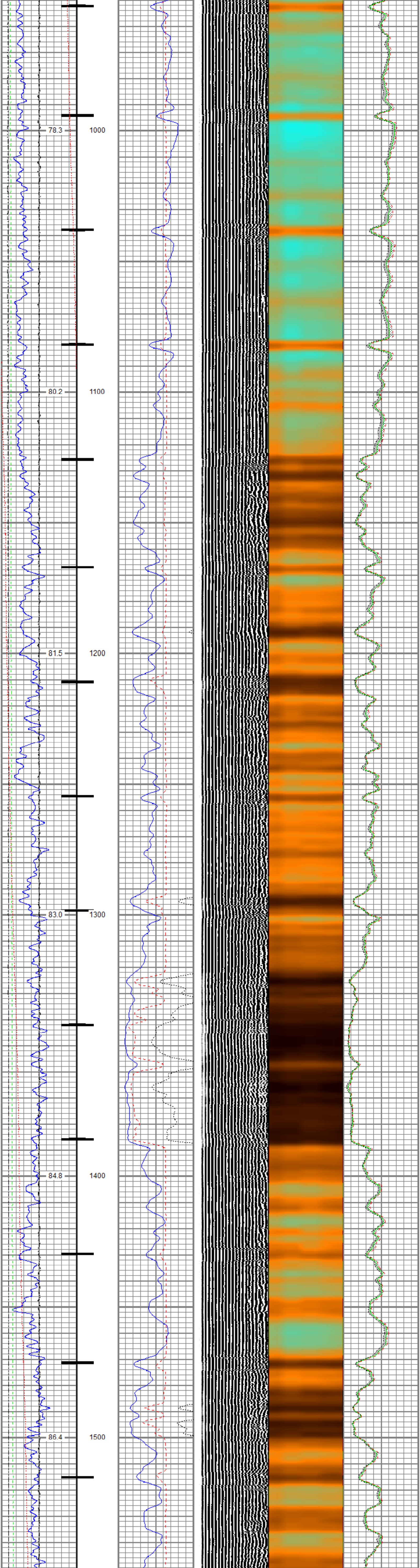
Main Pass

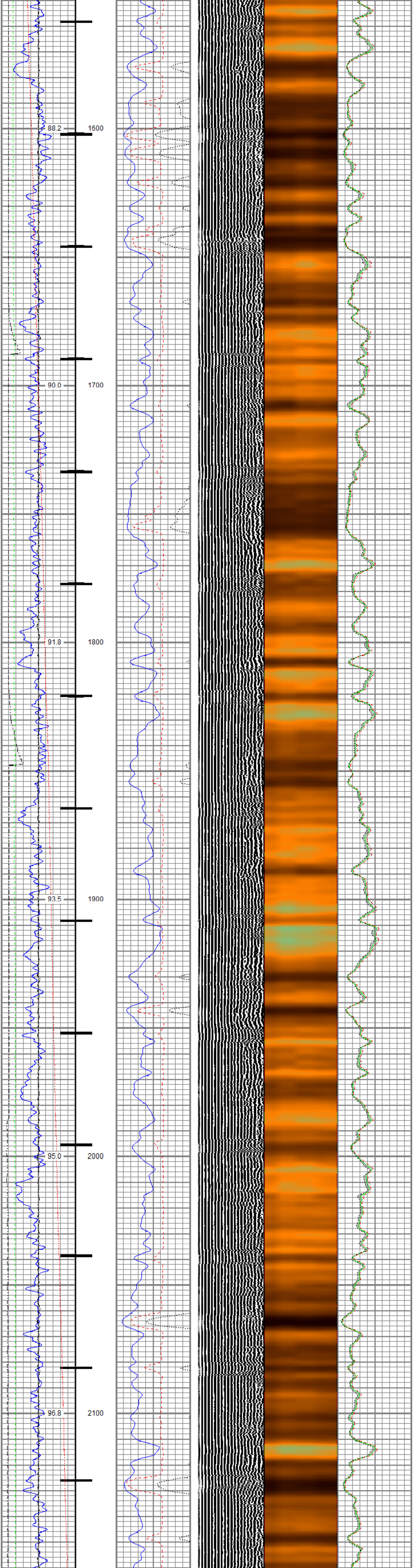
Recorded With 0 PSI Surface Induced Pressure

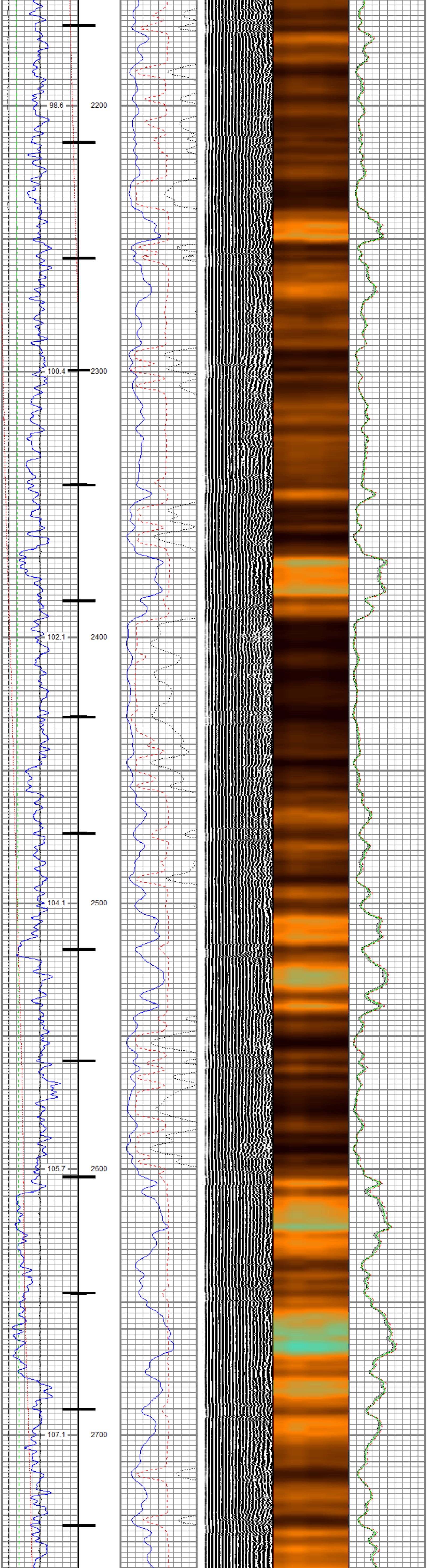
Database File	tep\tep_federal pa 534-26_rbl_09-02-18\tep_federal pa 534-26_rbl_09-02-18.db
Dataset Pathname	merge1.4
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Sep 04 14:18:23 2018
Charted by	Depth in Feet scaled 1:240

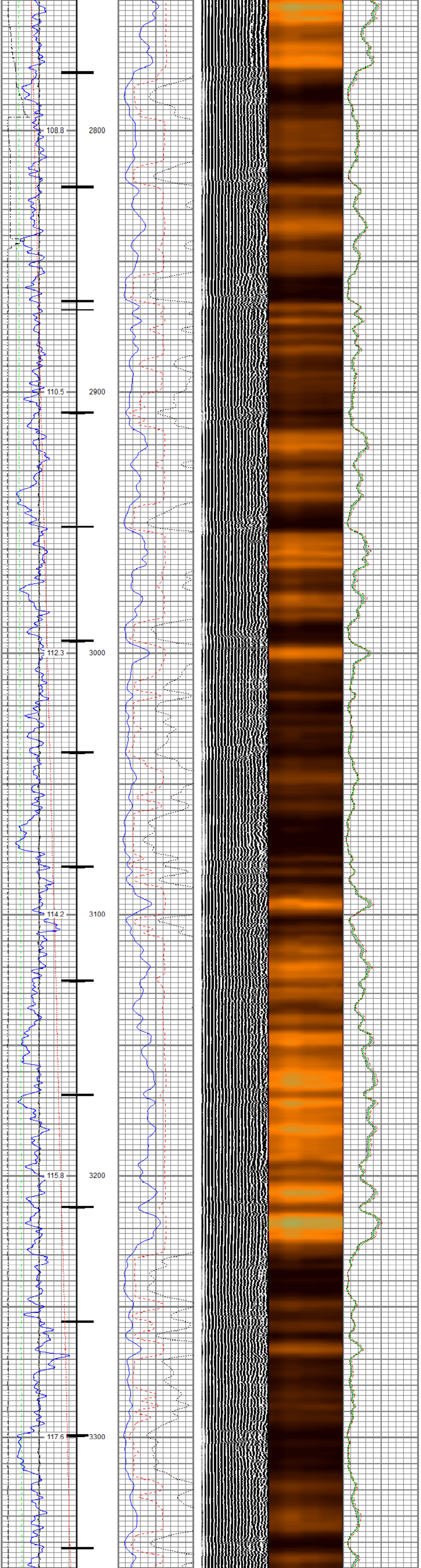


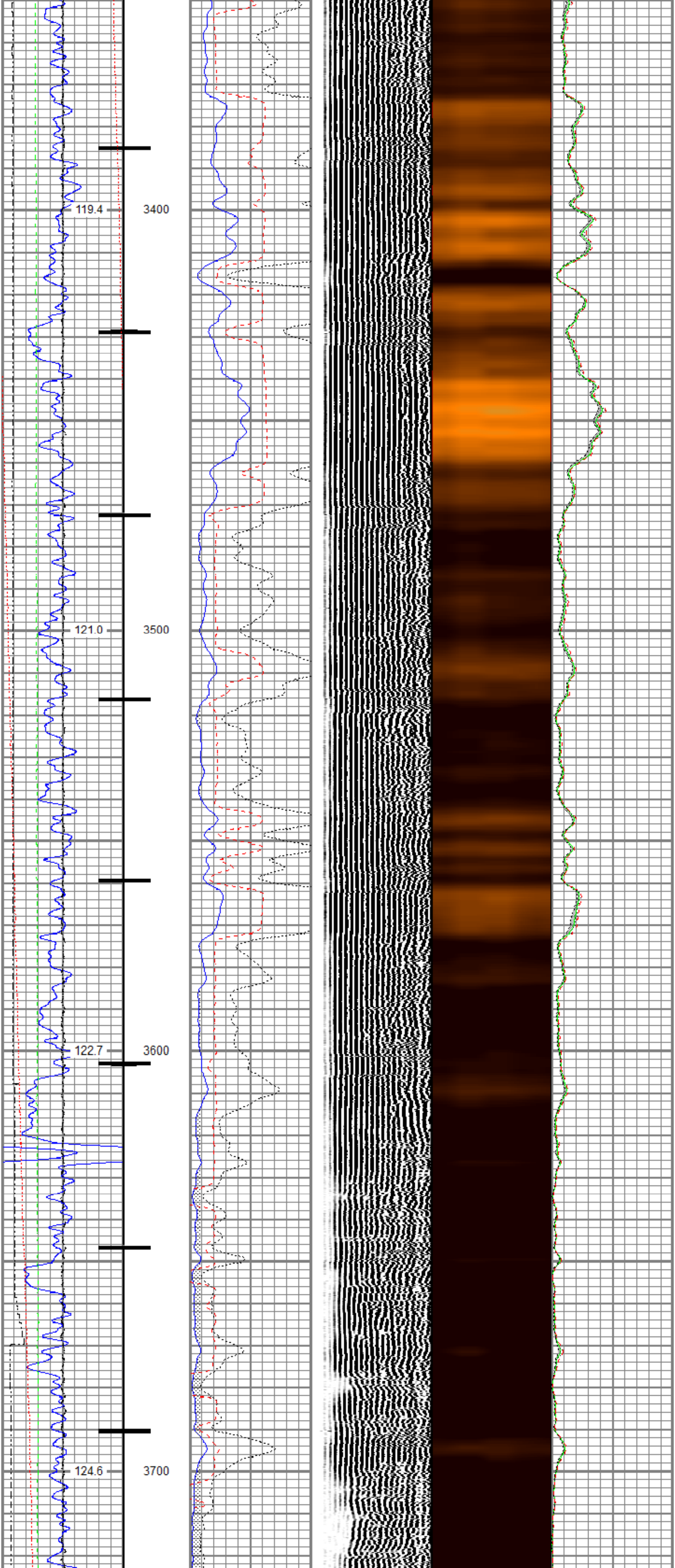


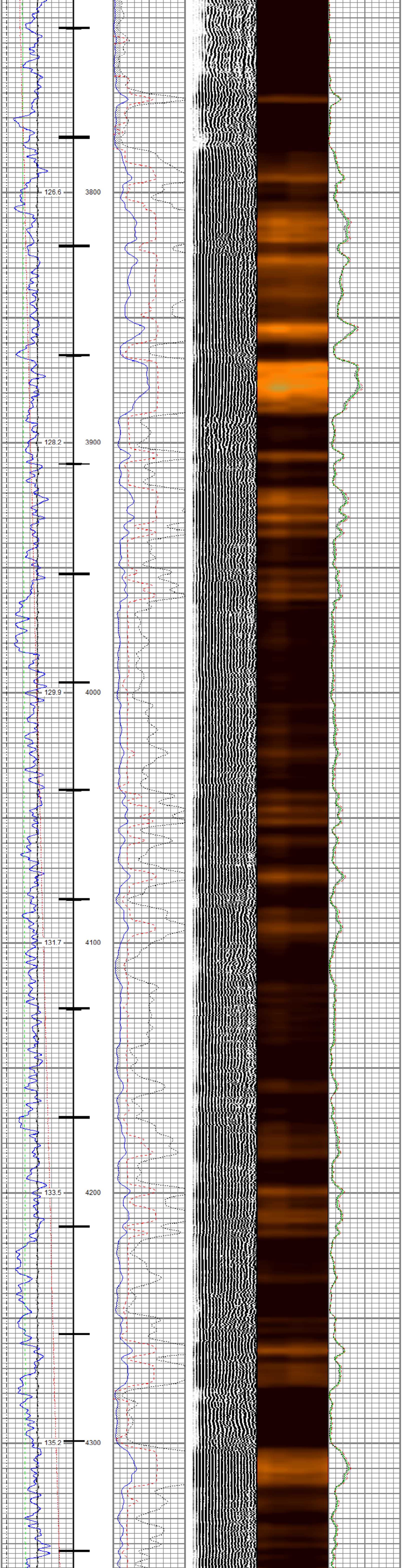








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129.9
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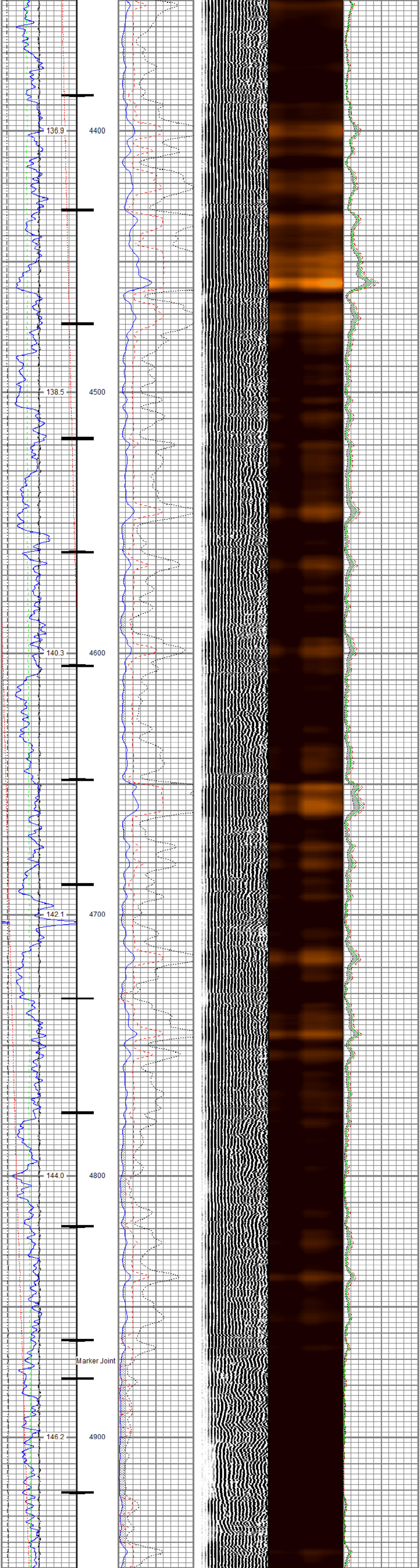
131.7
4100
133.5
4200
135.2
4300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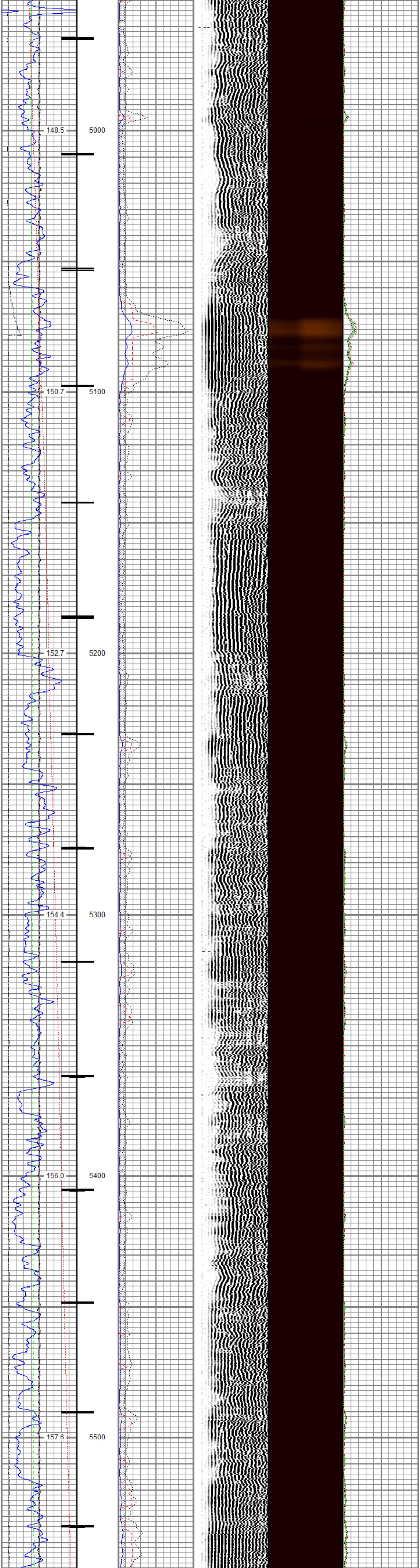
144.0
4800
Marker Joint
146.2
4900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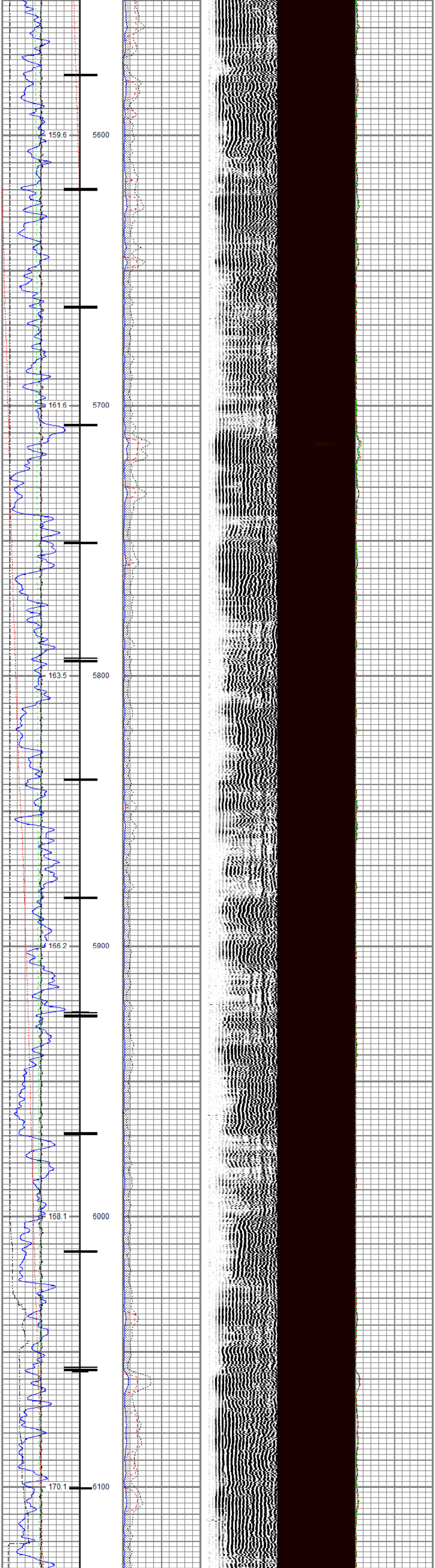
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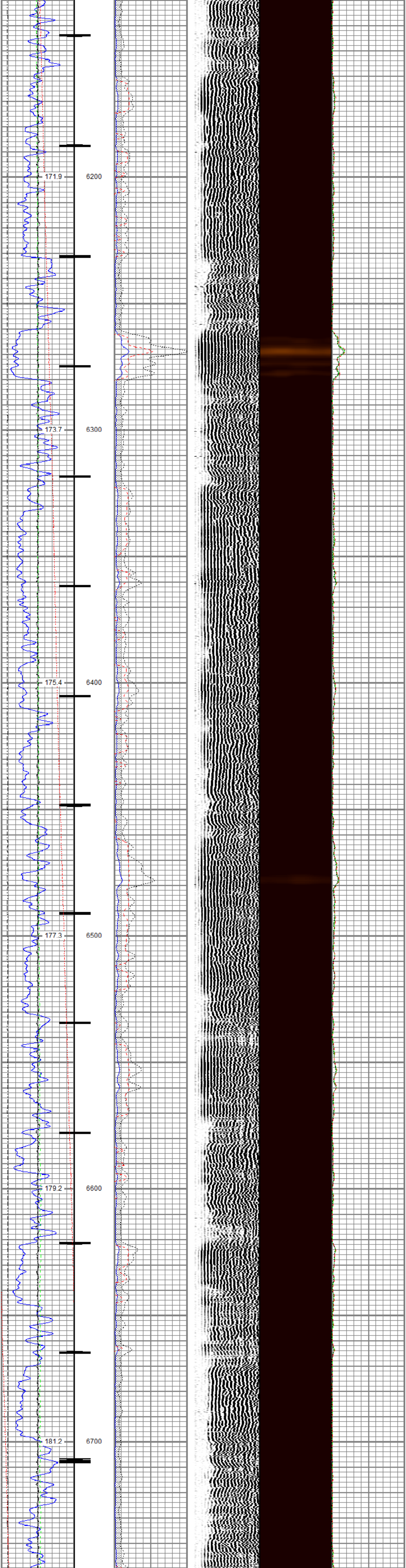
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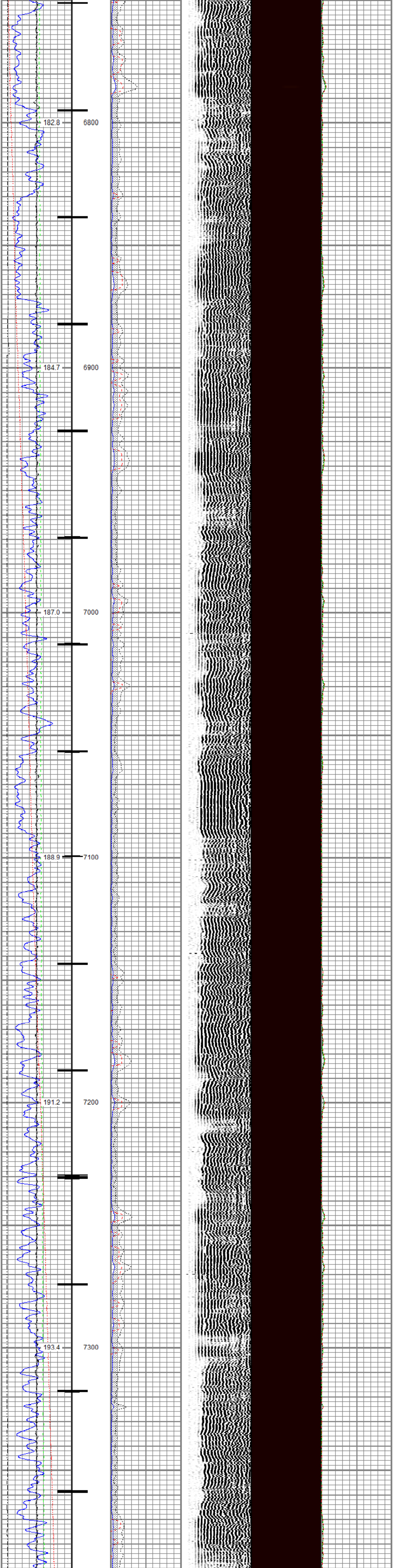
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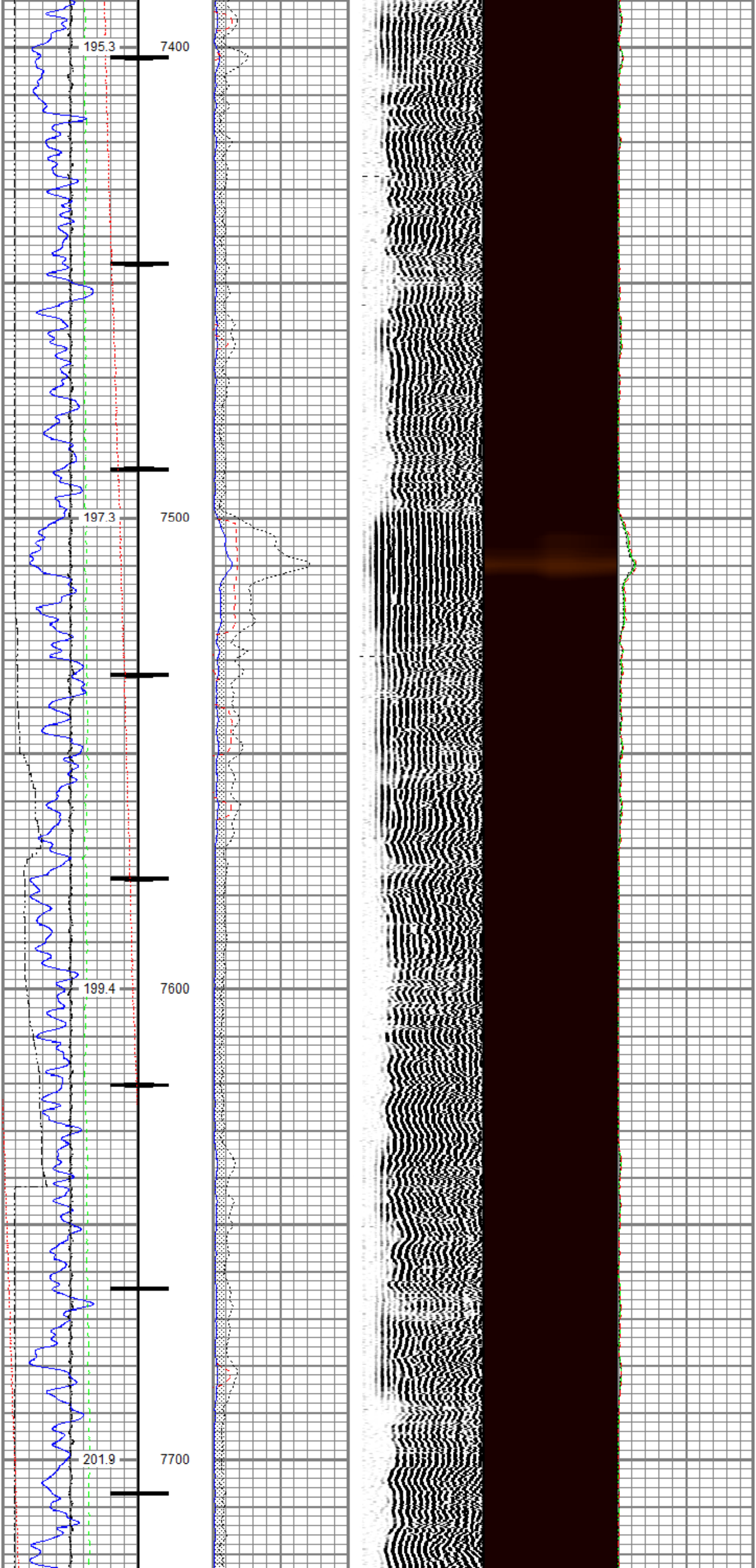
193.4
7300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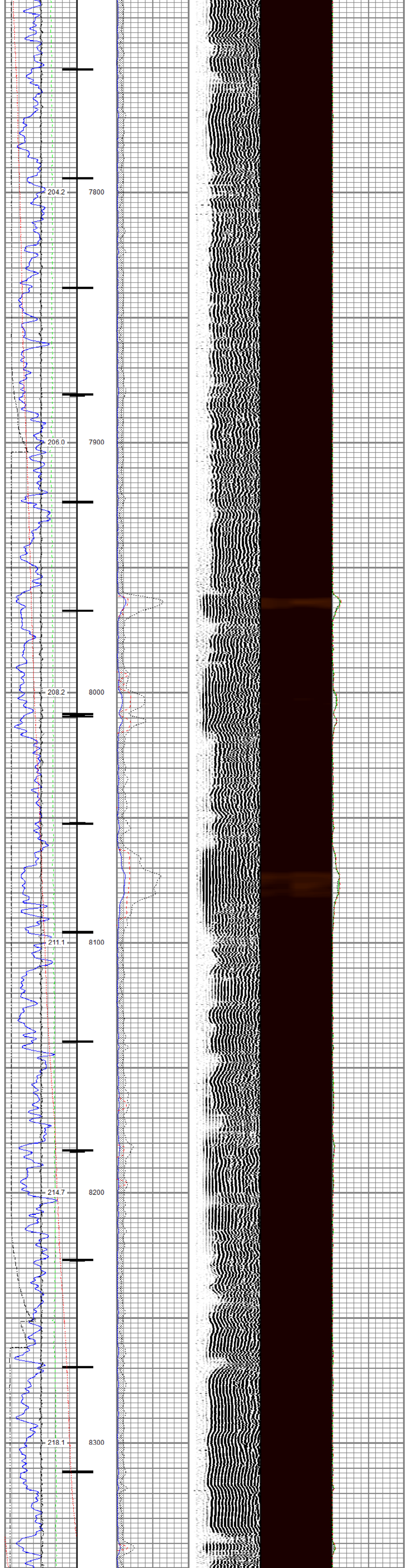

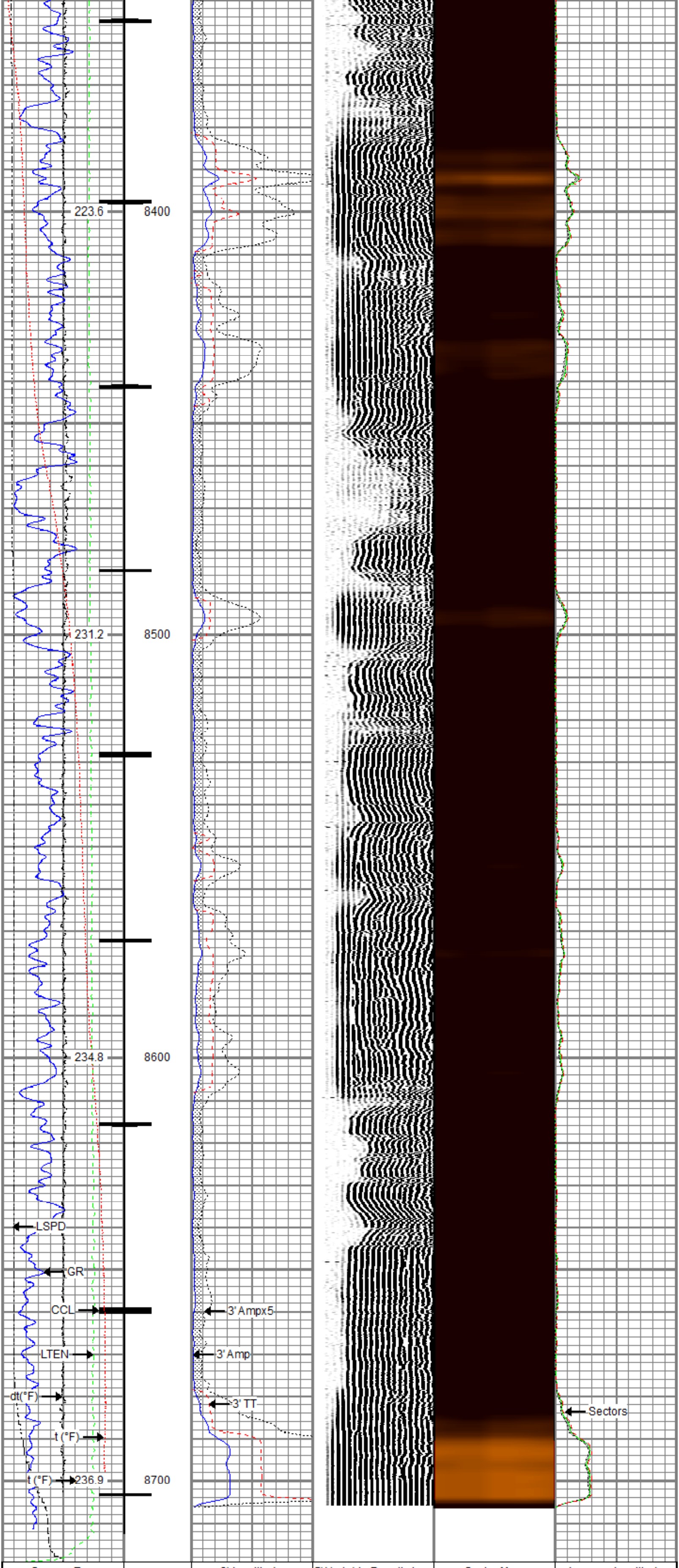

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 150
-150 (ft/min) 150	3' Travel Time			Maximum Amplitude
Line Tension	300 (usec) 200			0 150
0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

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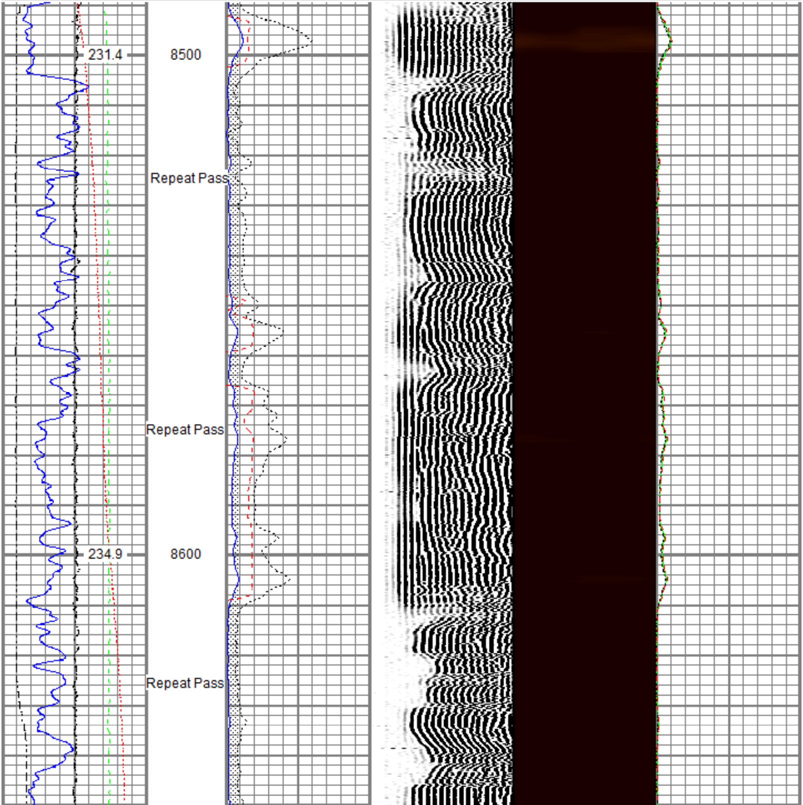
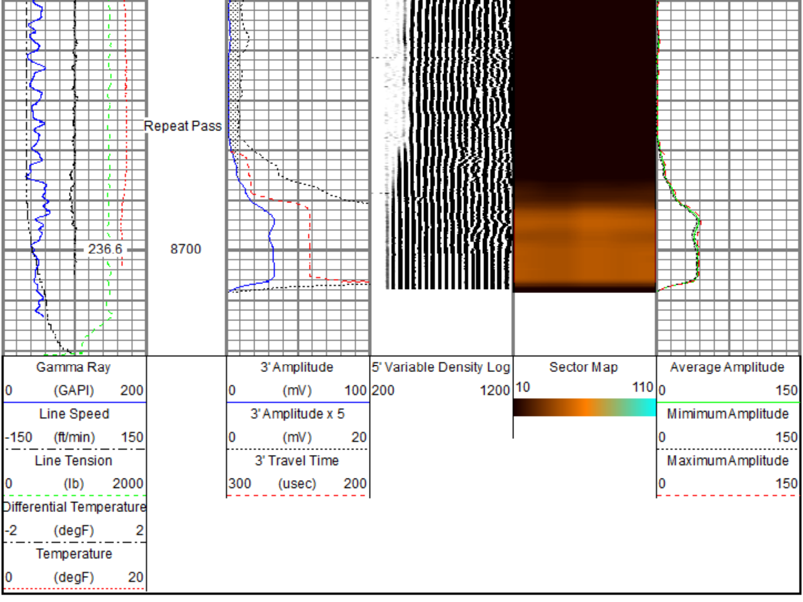
Repeat Pass

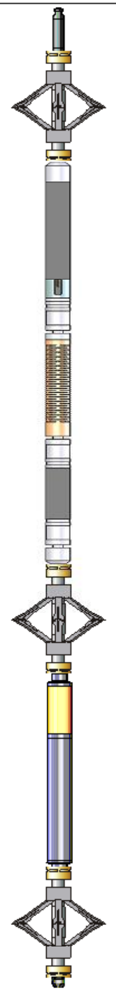
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal pa 534-26_rbl_09-02-18\tep_federal pa 534-26_rbl_09-02-18.db
Dataset Pathname	repeat.3
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Sep 04 14:52:36 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
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	16.33					
			Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS5	14.10					
WVFS4	14.10					
WVFS8	14.10					
WVFS7	14.10					
WVFS6	14.10					
WVFS3	14.10					
WVFS2	14.10					
WVFS1	14.10					
WVFCAL	14.10					
WVF3FT	14.10					
WVF5FT	13.10					
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL$2	6.42					
CCL$1	6.42					
GR	5.18		Probe GR-CCL-2750 GOB (FW1211-026) 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_federal pa 534-26_rbl_09-02-18.db: field/well/run1/merge1.4
Total length:	22.82 ft
Total weight:	260.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\tep_federal pa 534-26_rbl_09-02-18\tep_federal pa 534-26_rbl_09-02-18.db
Dataset Pathname	merge1.4
Dataset Creation	Tue Sep 04 14:18:23 2018

Gamma Ray Calibration Report

Serial Number:	FW1211-026	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:17:31 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	113.6	cps
Calibrator Reading:	1015.2	cps
Sensitivity:	0.7065	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	474.429	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.003	0.635	0.800	81.196	127.134	0.461
CAL	0.002	0.744				
5'	0.005	0.514	0.800	81.196	158.086	0.012
SUM						
S1	0.003	0.659	0.000	100.000	152.389	-0.421
S2	0.004	0.659	0.000	100.000	152.563	-0.559
S3	0.003	0.639	0.000	100.000	157.205	-0.431
S4	0.003	0.639	0.000	100.000	157.205	-0.431
S5	0.003	0.593	0.000	100.000	169.542	-0.515
S6	0.003	0.593	0.000	100.000	169.542	-0.515
S7	0.002	0.606	0.000	100.000	165.447	-0.342
S8	0.004	0.651	0.000	100.000	154.679	-0.647

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.002	0.744	1.000	0.000

Air Zero Calibration, performed Sun Sep 02 09:02:51 2018:

	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:	FW1302-001	
Tool Model:	2750 RBT	
Performed:	Sun Nov 12 13:24:58 2017	
	Reference	Reading
Low Reference:	100.00 degF	107.47 degF
High Reference:	350.00 degF	404.08 degF
Gain:	0.84	
Offset:	9.42	
Delta Spacing	1	

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Company	TEP Rocky Mountain LLC
Well	Federal PA 534-26
Field	Parachute
County	Garfield
State	Colorado