Radial Cement Bond
Gamma Ray
Casing Collar Log

RELIANCE OILFIELD SERVICES

Company TEP Rocky Mountain LLC
Well Federal PA 322-24
Field Parachute
County Garfield
State Colorado

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Well Federal PA 322-24
Field Parachute
County Garfield State Colorado

Location: API # : 05-045-23895
SEC 24 TWP 6S RGE 95W

Other Services
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Permanent Datum	Ground Level	Elevation 5371'	Elevation K.B. 5395' D.F. --- G.L. 5371'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Date	03-OCT-2019		
Run Number	One		
Depth Driller	9200 FT		
Depth Logger	9140 FT		
Bottom Logged Interval	9128 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	242° F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	19:00		
Equipment Number	HD-0331		
Location	Grand Junction, CO		
Recorded By	J. Donnelly		
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	1134 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9161 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 5614 FT - 5636 FT
Log ran with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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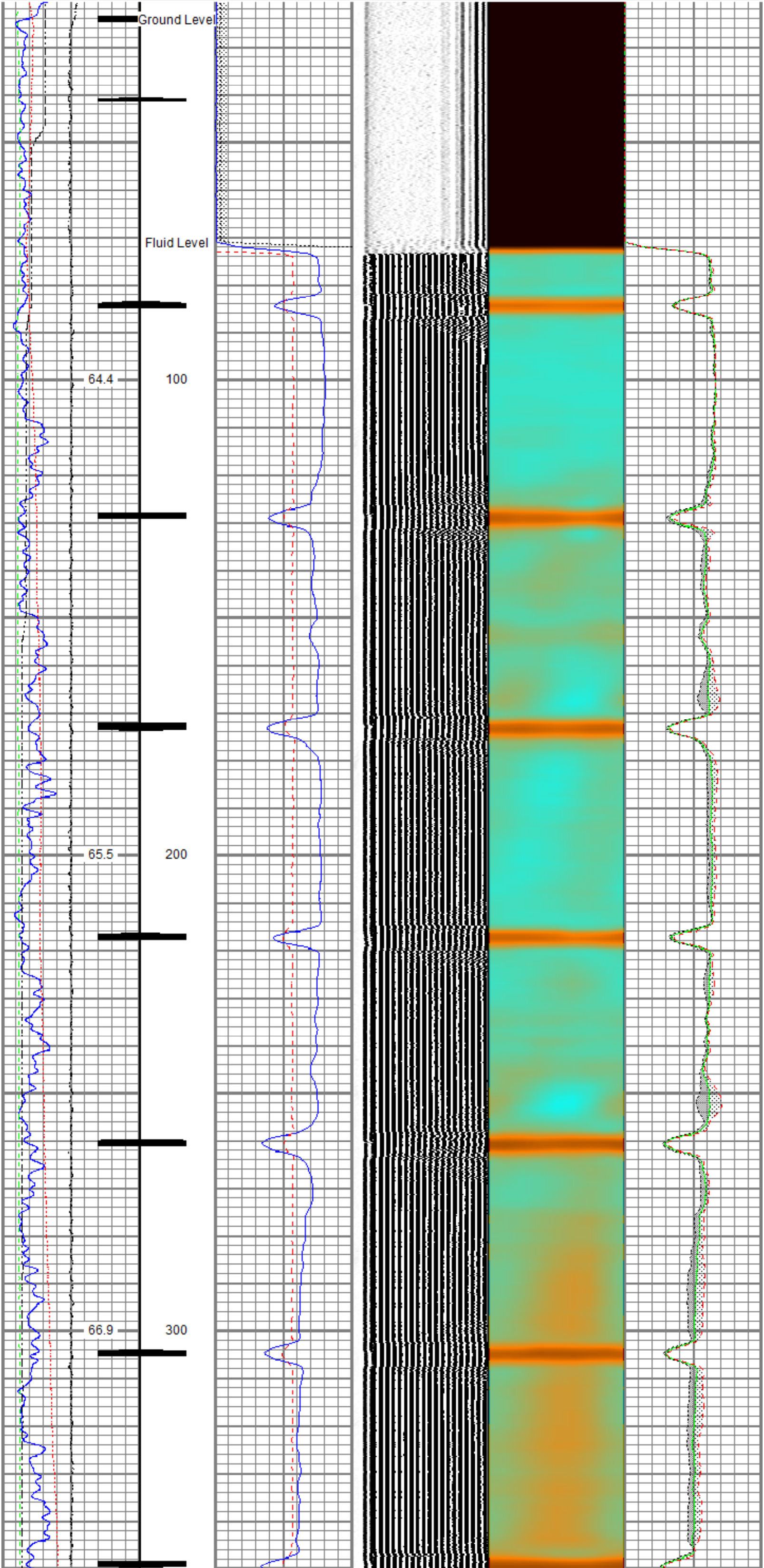
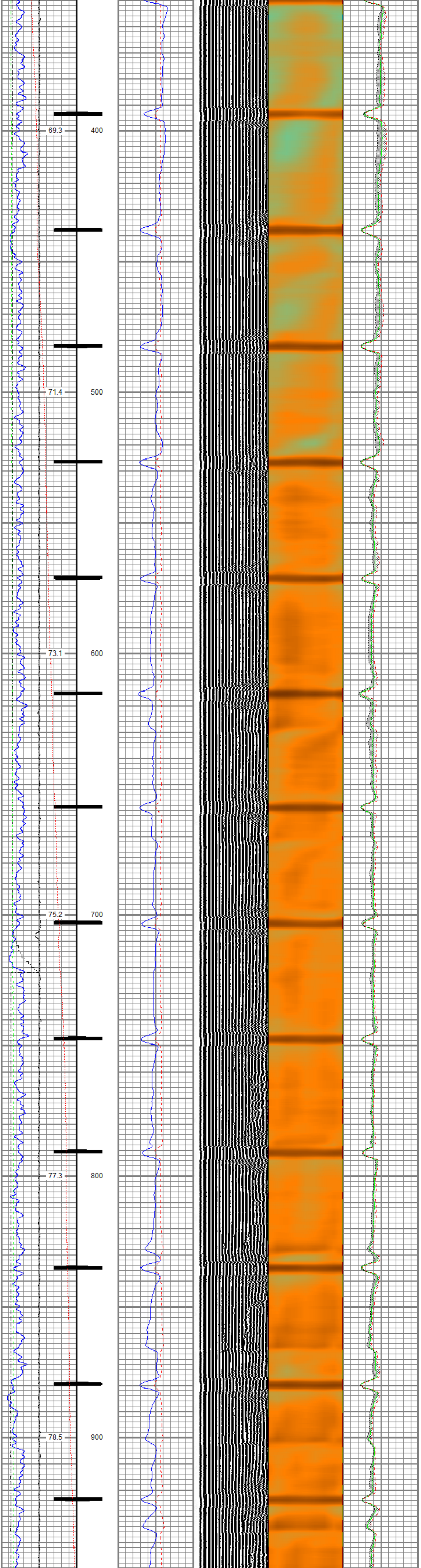
Main Pass

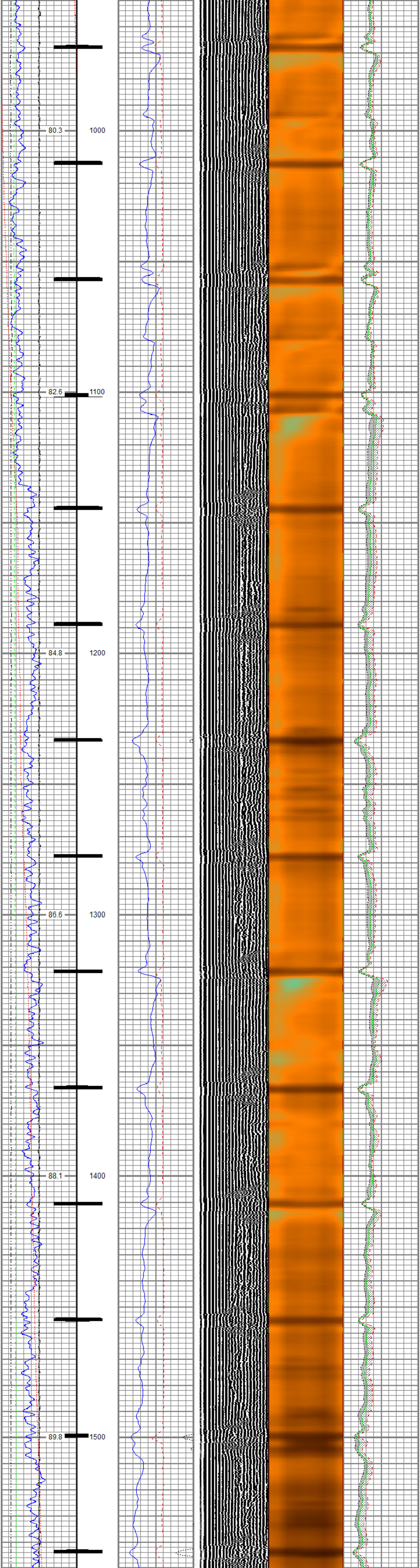
Recorded With 0 PSI Surface Induced Pressure

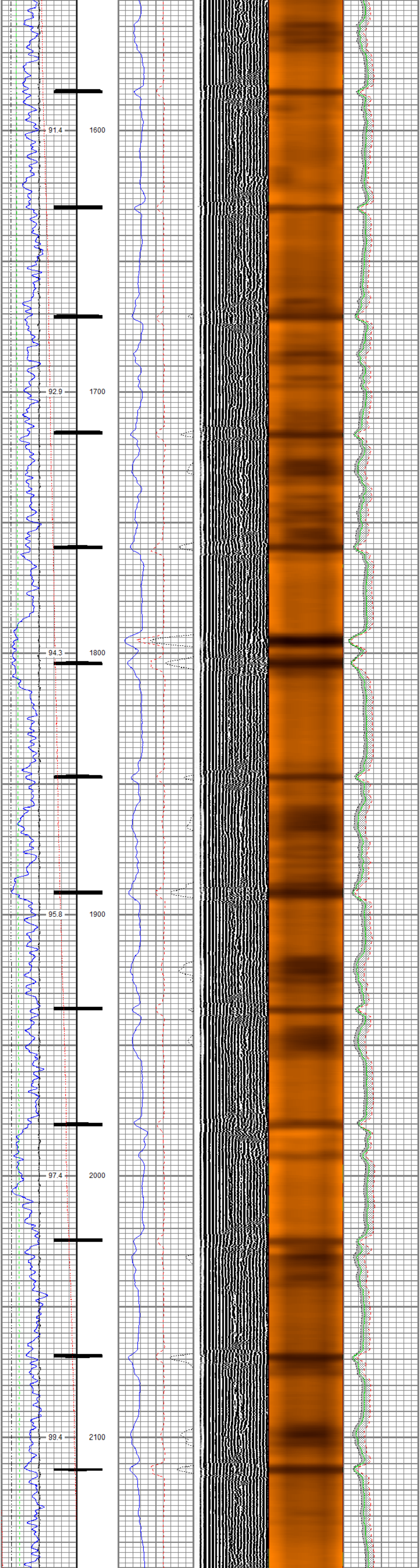
Database File	tep\federal pa 322-24\tep_federal pa 322-24_rbl_10-03-19.db
Dataset Pathname	Main.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Oct 05 20:43:39 2019
Charted by	Depth in Feet scaled 1:240

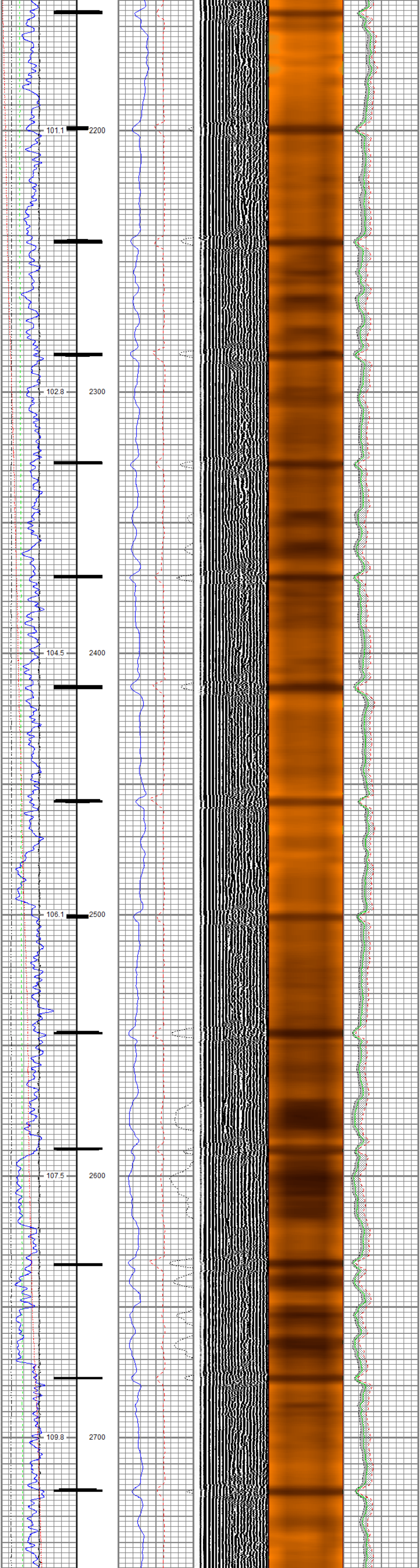
Curve	Left	Unit	Right
Gamma Ray	0	(GAPI)	200
Casing Collar Locator			
Line Speed	-150	(ft/min)	150
Line Tension	0	(lb)	2000
Differential Temperature	-2	(degF)	2
Temperature	0	(degF)	20
3' Amplitude	0	(mV)	100
3' Amplitude x 5	0	(mV)	20
3' Travel Time	300	(usec)	200
5' Variable Density Log	200	(usec)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

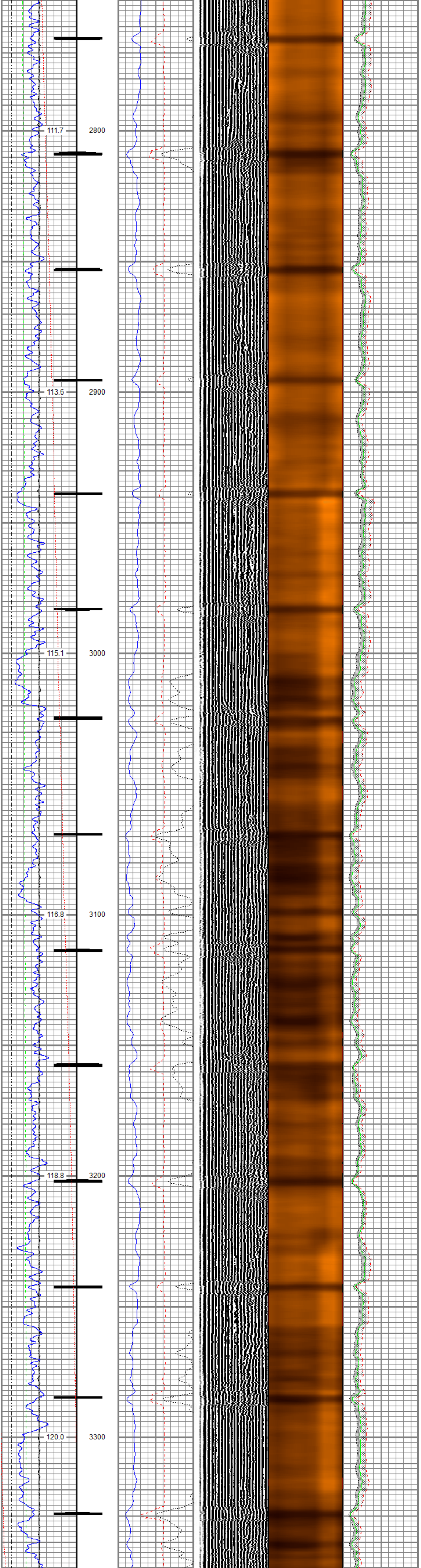


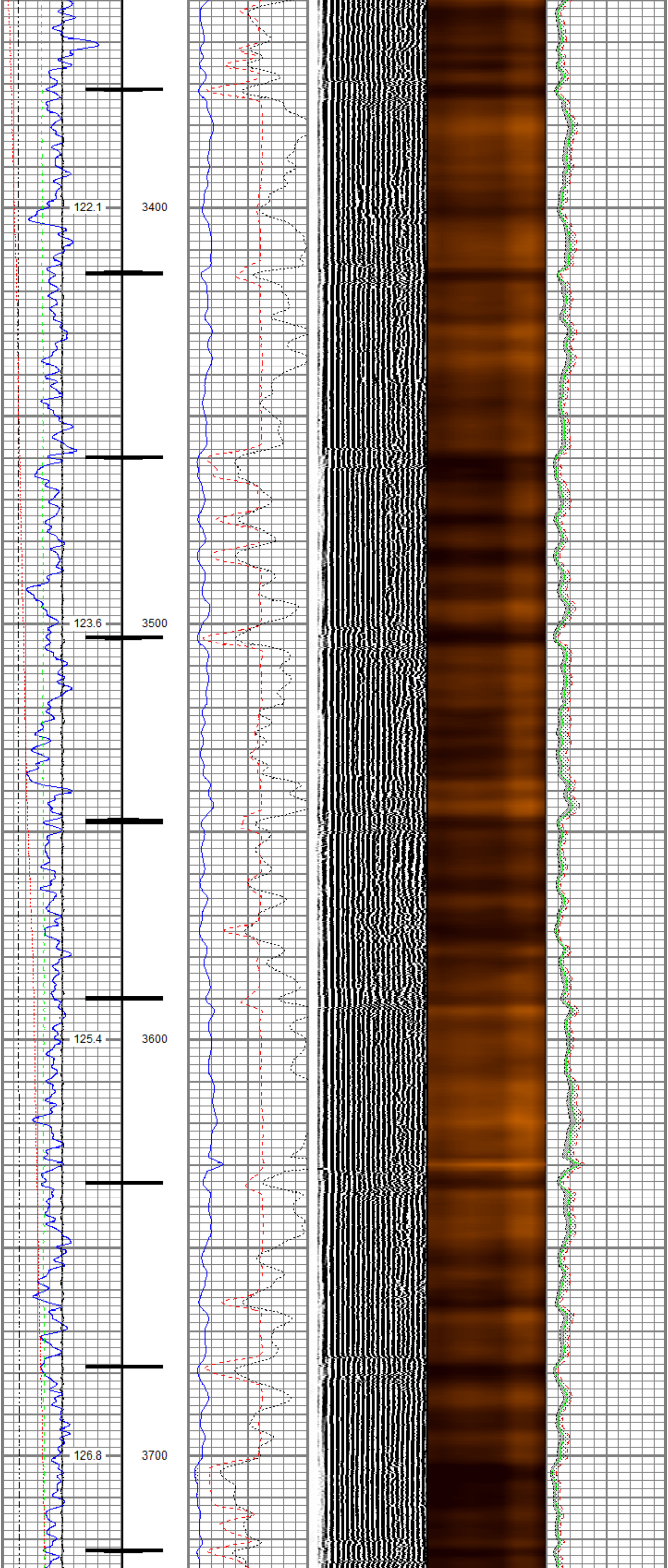


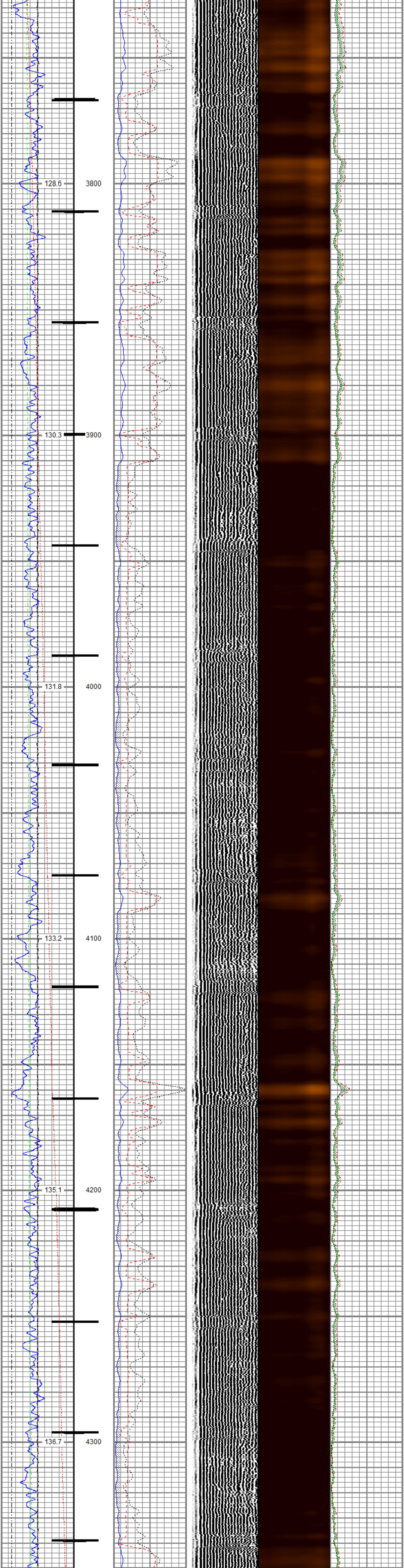








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136.7
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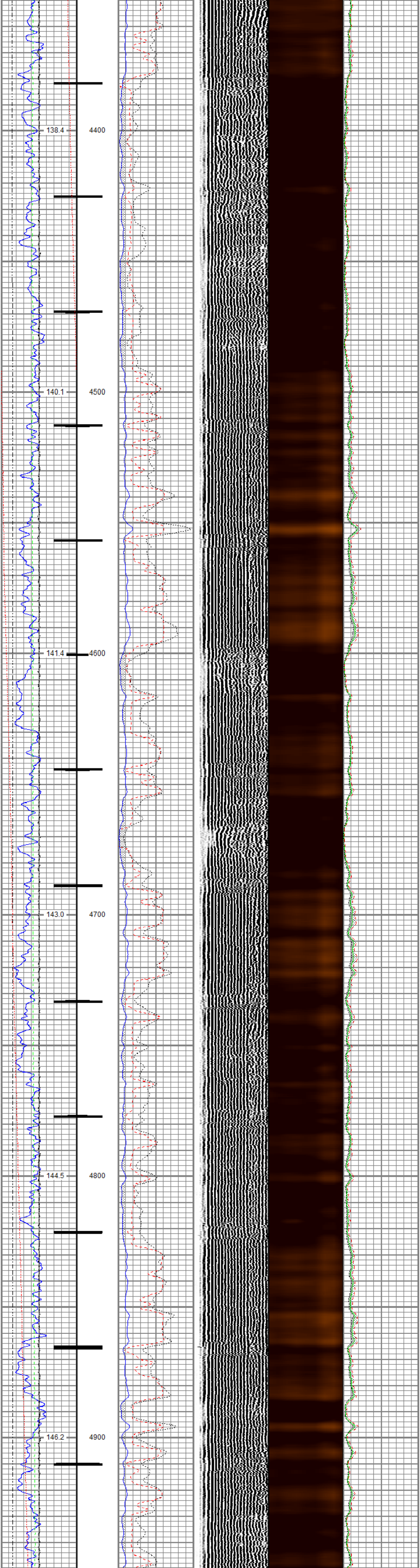
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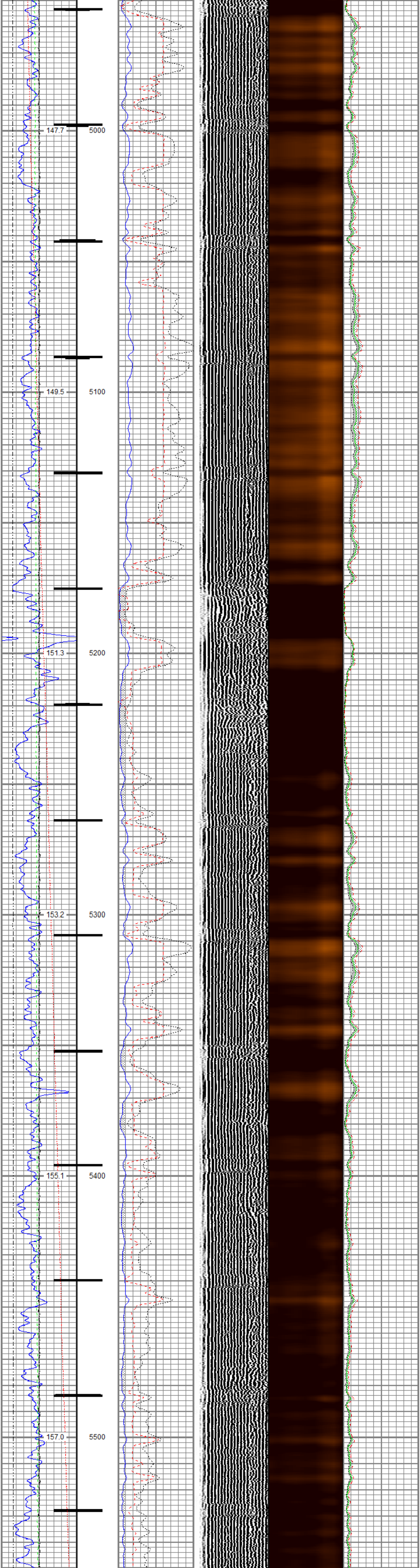
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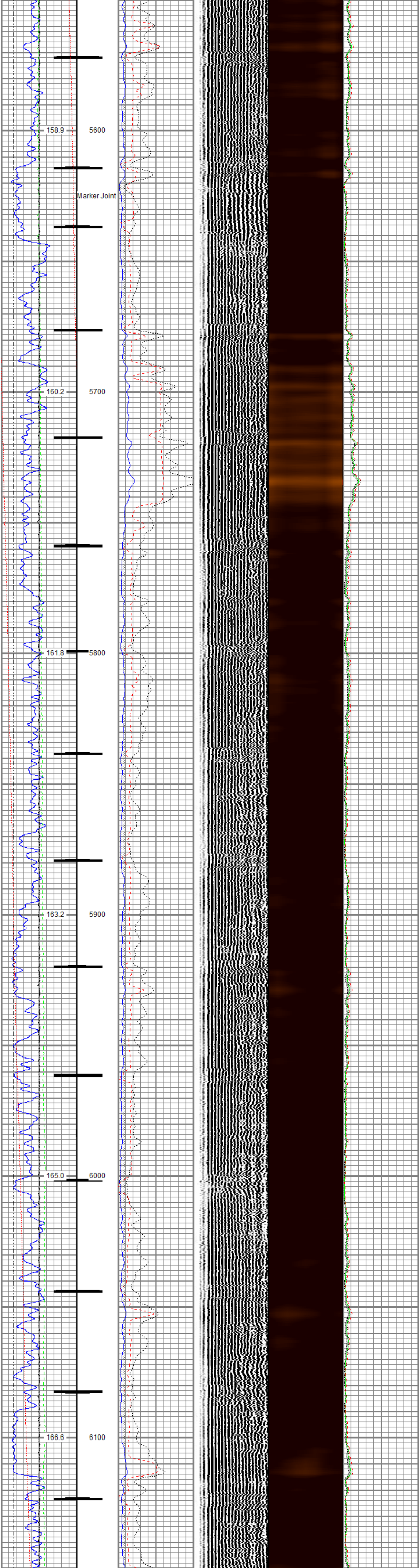
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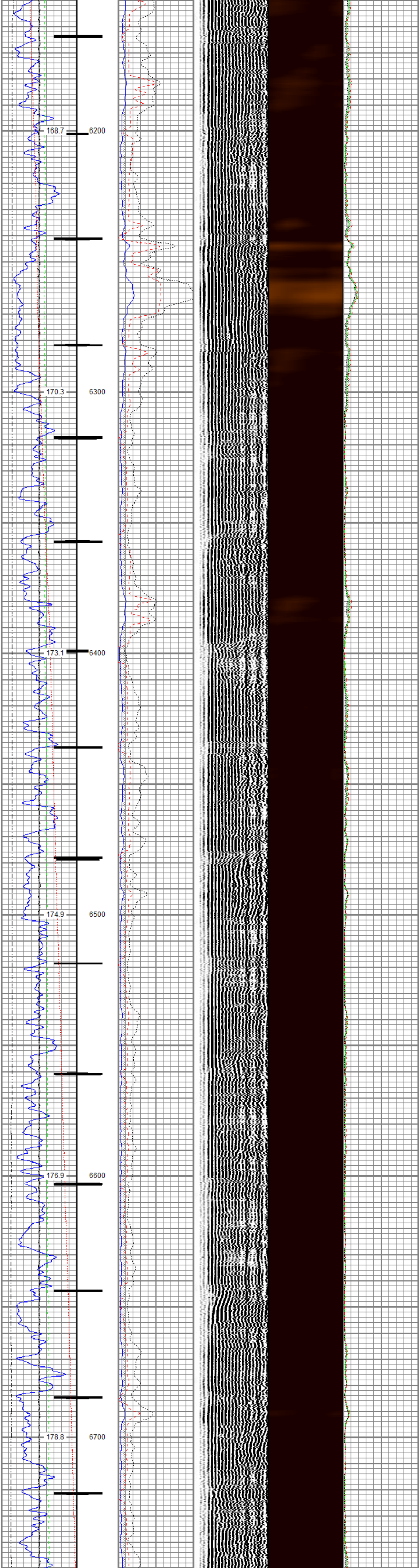
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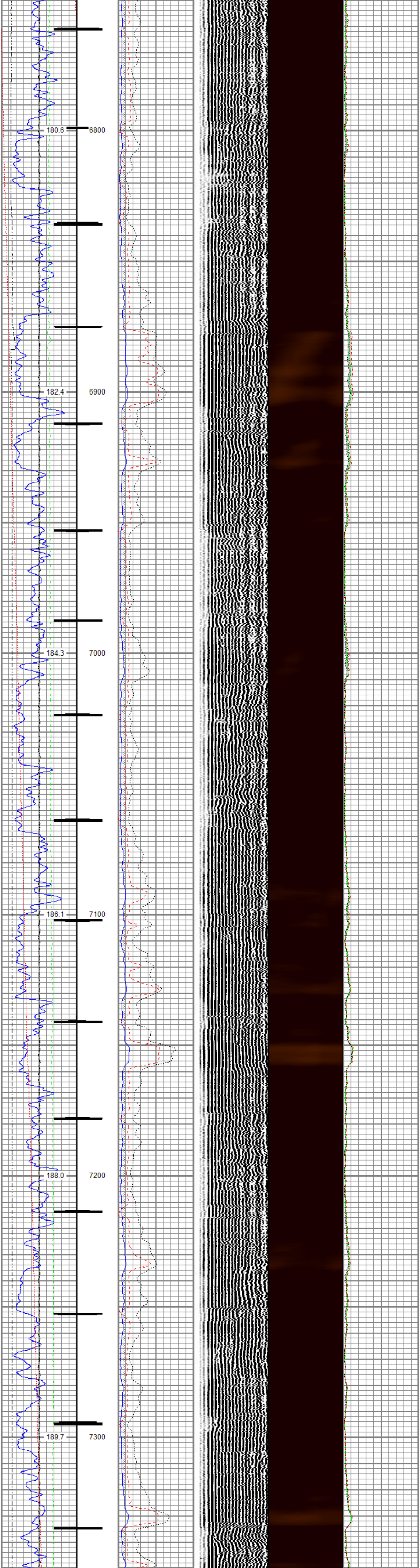
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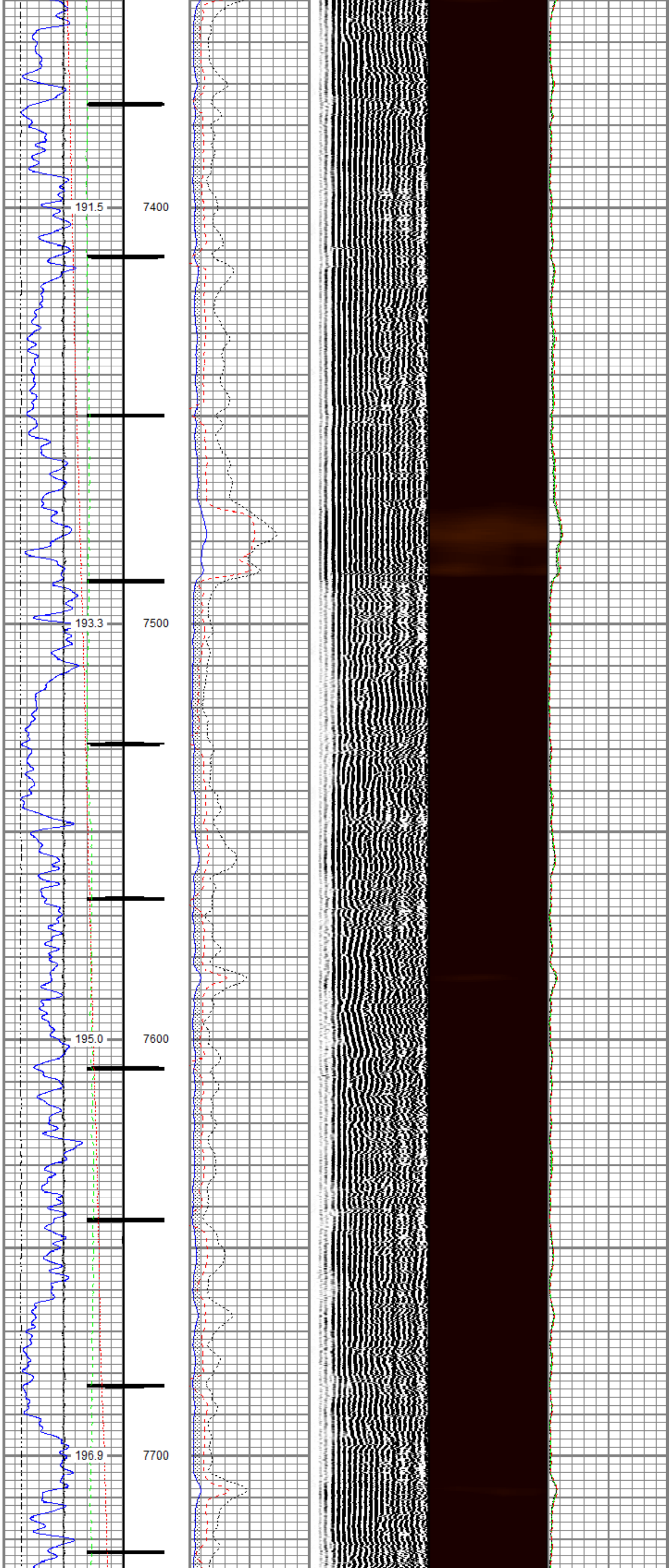
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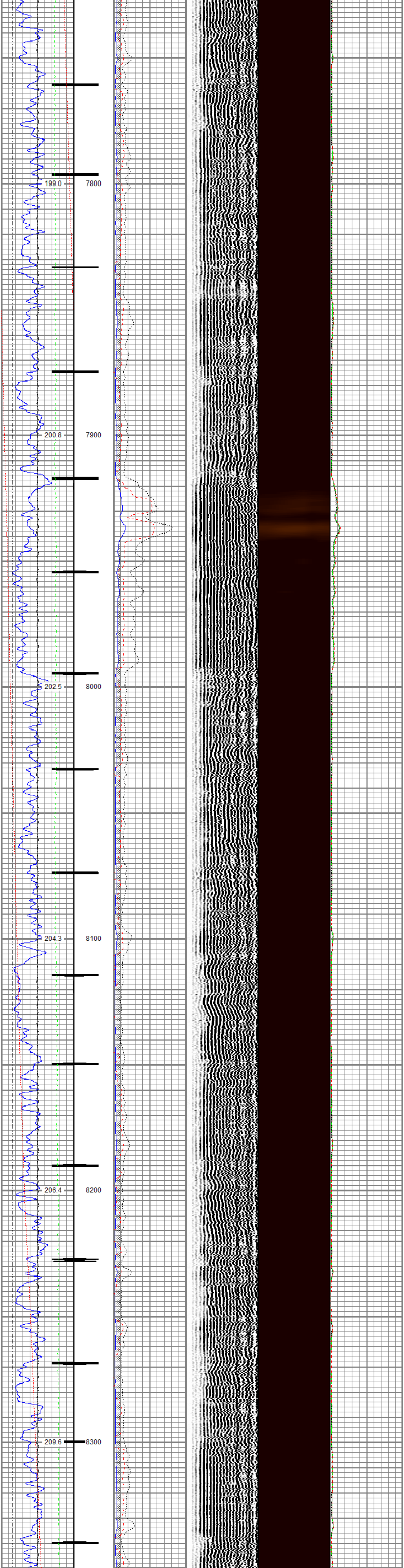

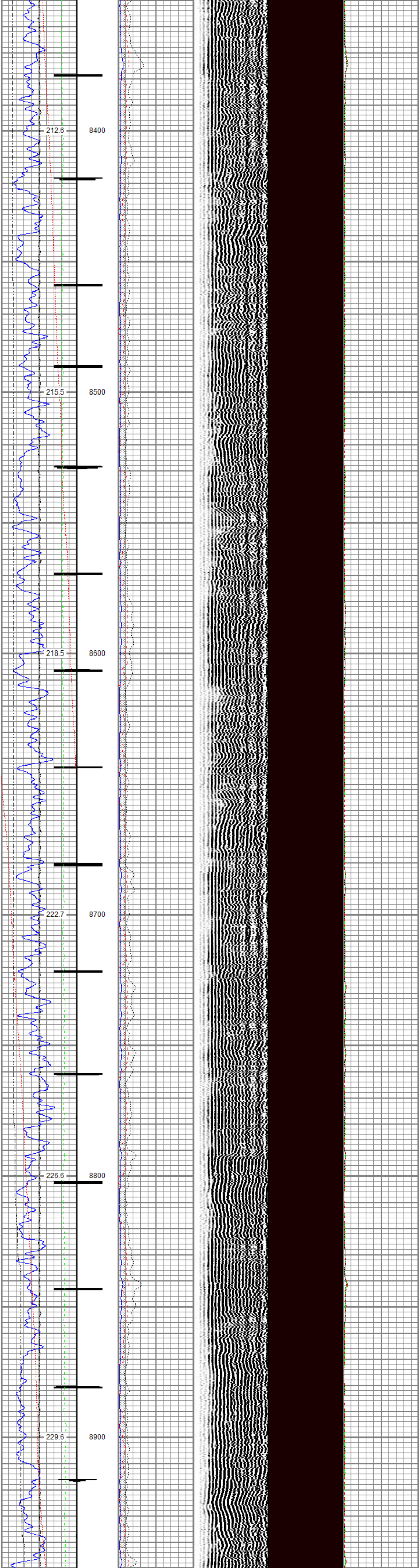

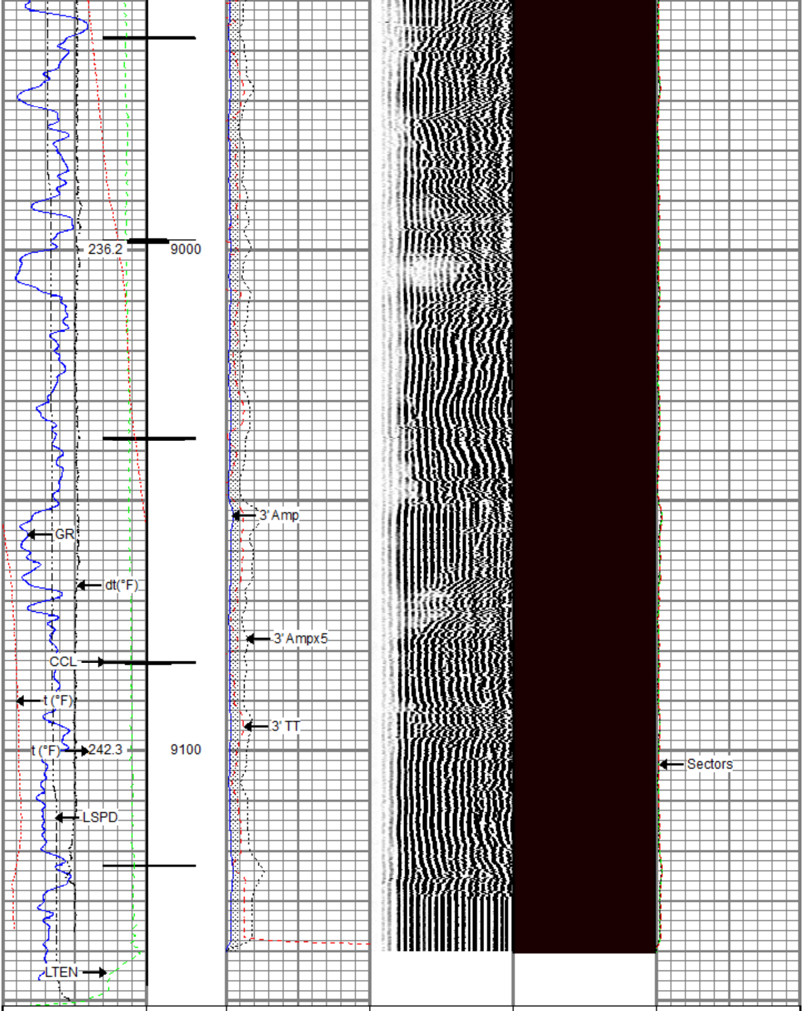

Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Casing Collar Locator	3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Speed -150 (ft/min) 150	3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Line Tension 0 (lb)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

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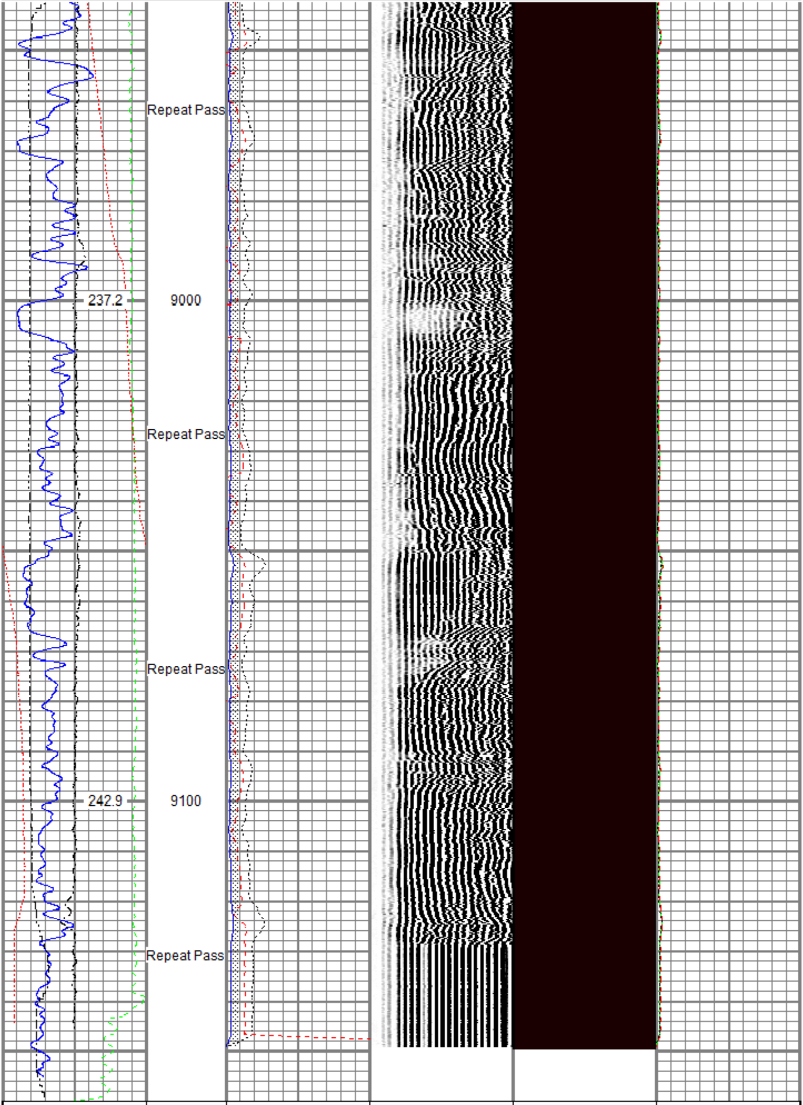
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 322-24\tep_federal pa 322-24_rbl_10-03-19.db
Dataset Pathname	Repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Oct 05 21:09:12 2019
Charted by	Depth in Feet scaled 1:240

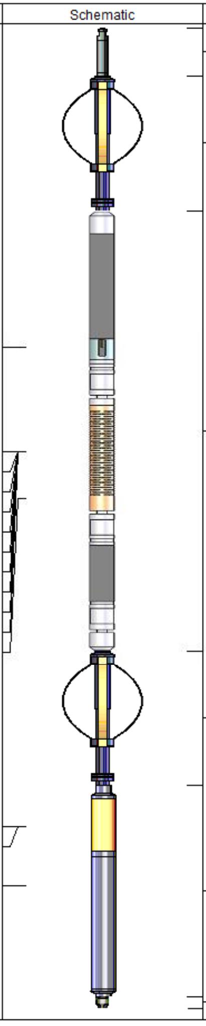
Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Line Speed -150 (ft/min) 150	3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000	3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential Temperature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



Gamma Ray 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				

Sensor	Offset (ft)
TEMP	14.12
WVFS8	11.89
WVFS7	11.89
WVFS6	11.89
WVFS5	11.89
WVFS4	11.89
WVFS3	11.89
WVFS2	11.89
WVFS1	11.89
WVFCAL	11.89
WVF3FT	11.89
WVF5FT	10.89
CCL$2	3.88
CCL$1	3.88
GR	2.63

Schematic



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
Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
Probe Radii-2750 RBT (120855) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
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:	tep_federal pa 322-24_rbl_10-03-19.db: field/well/run1/Main.2
Total length:	20.94 ft
Total weight:	204.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\federal pa 322-24\tep_federal pa 322-24_rbl_10-03-19.db
Dataset Pathname	Main.2
Dataset Creation	Sat Oct 05 20:43:39 2019

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:	120855	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	1365.485	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.012	1.029	0.800	81.196	79.075	-0.153
CAL	0.008	1.008				
5'	0.013	0.866	0.800	81.196	94.188	-0.397
SUM						
S1	0.005	1.203	0.000	100.000	83.462	-0.386
S2	0.008	1.100	0.000	100.000	91.575	-0.774
S3	0.009	1.026	0.000	100.000	98.277	-0.844
S4	0.008	1.005	0.000	100.000	100.306	-0.841
S5	0.007	1.003	0.000	100.000	100.397	-0.680
S6	0.008	1.015	0.000	100.000	99.262	-0.746
S7	0.007	1.058	0.000	100.000	95.123	-0.678
S8	0.009	1.109	0.000	100.000	90.931	-0.799

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.008	1.008	1.000	0.000

Air Zero Calibration, performed Wed Sep 25 04:23:19 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:	120855	
Tool Model:	2750 RBT	
Performed:	Mon Oct 01 11:32:15 2018	
	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	

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Company	TEP Rocky Mountain LLC
Well	Federal PA 322-24
Field	Parachute
County	Garfield
State	Colorado