Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal RWF 412-17
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC		
Well	Federal RWF 412-17		
Field	Rulison		
County	Garfield	State	Colorado
Location:	API # : 05-045-24028		Other Services ---
	SEC 17 TWP 6S RGE 94W		Elevation
Permanent Datum	Ground Level	Elevation 6175'	K.B. 6199' D.F. --- G.L. 6175'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Date	11-JUN-2019		
Run Number	One		
Depth Driller	9051 FT		
Depth Logger	8989 FT		
Bottom Logged Interval	8978 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	00:30		
Equipment Number	HD-0331		
Location	Grand Junction, CO		
Recorded By	J. Donnelly		
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	1127 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9010 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

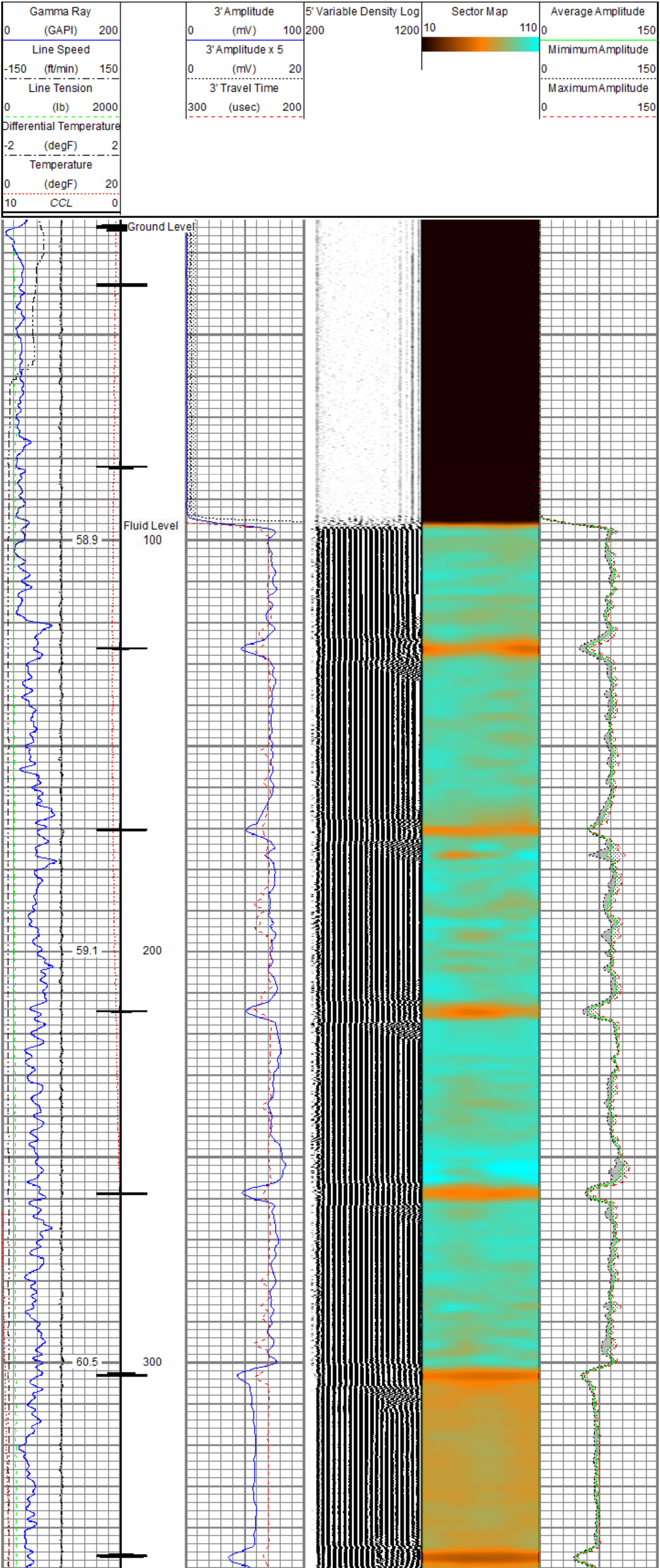
Log ran as per customer request
Depth referenced to Kelly Bushing at 24 FT
Marker Joint logged from 5559-5581 FT
Log ran with 0 PSI Surface Induced Pressure

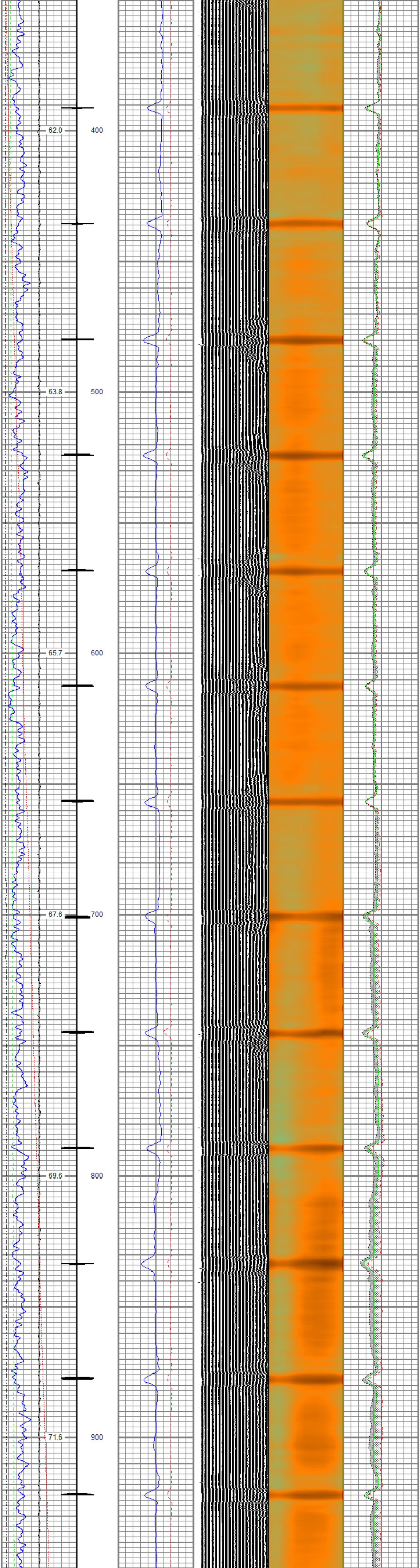
Thank you for choosing Reliance Oilfield Services, LLC!!

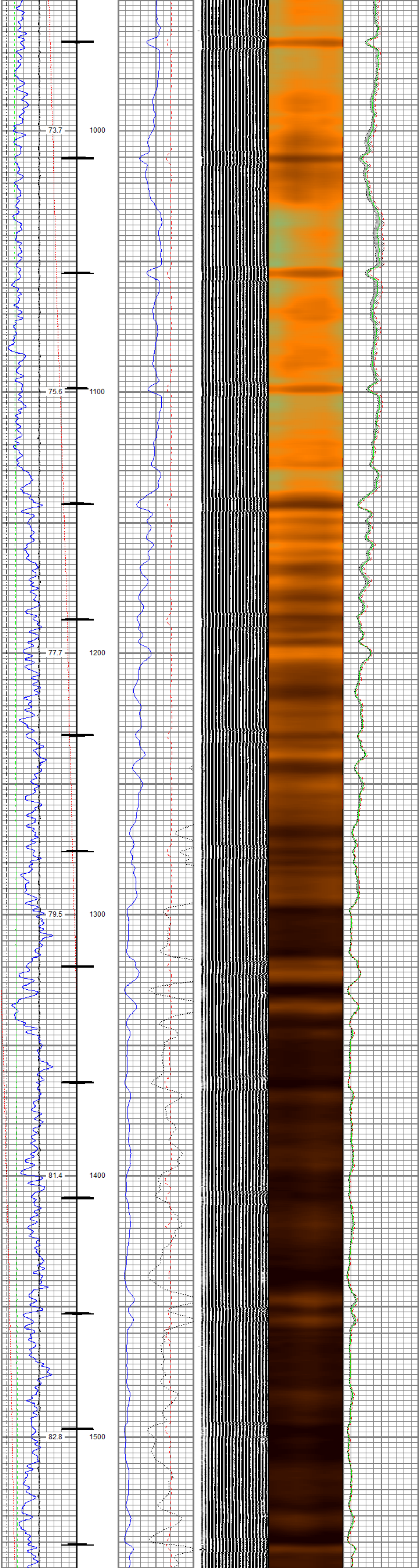
Main Pass

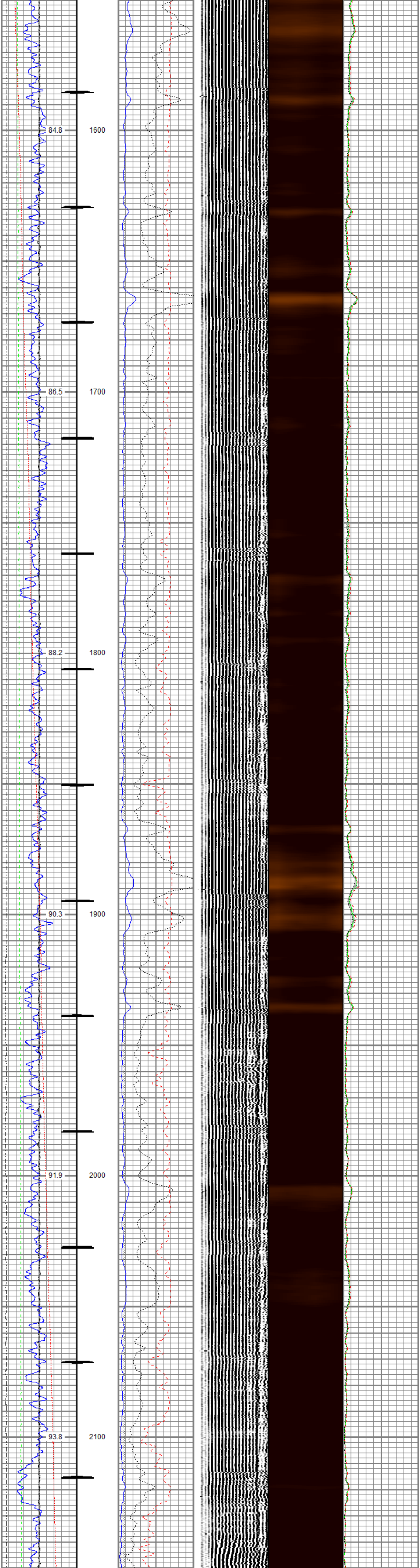
Recorded With 0 PSI Surface Induced Pressure

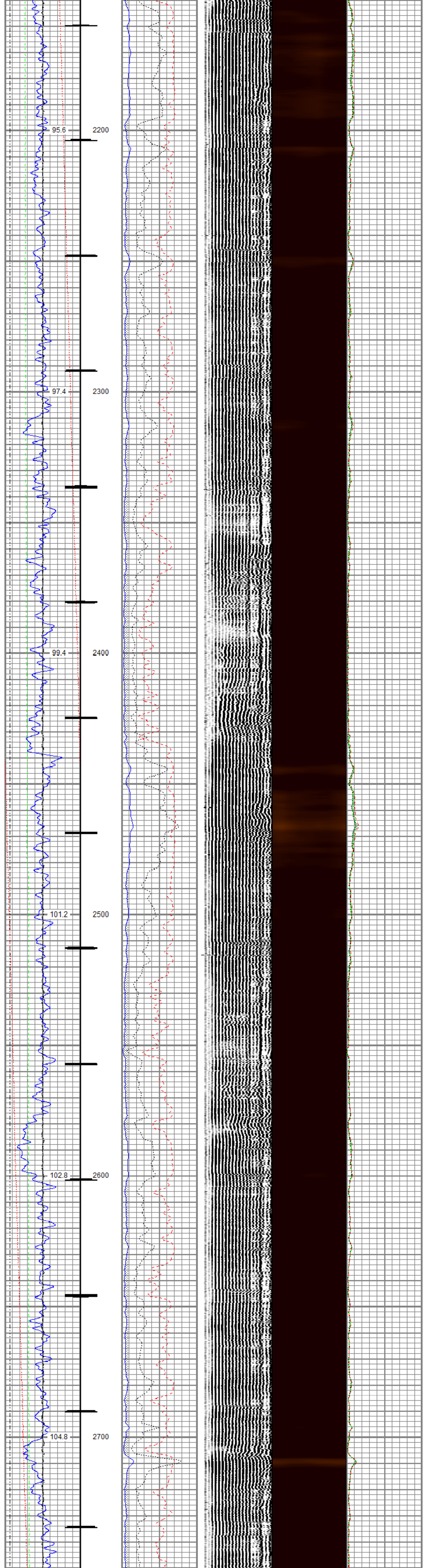
Database File	tep\tep_federal rwf 412-17_rbl_06-11-19\processed_tep_federal rwf 412-17_rbl_06-11-19.db
Dataset Pathname	Main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Jun 12 14:25:15 2019
Charted by	Depth in Feet scaled 1:240

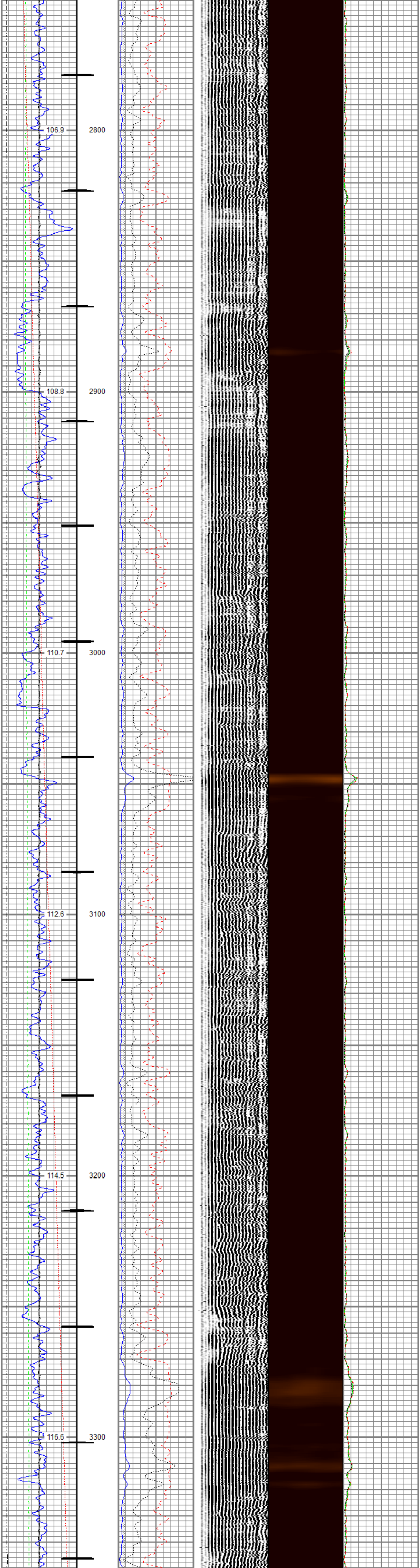


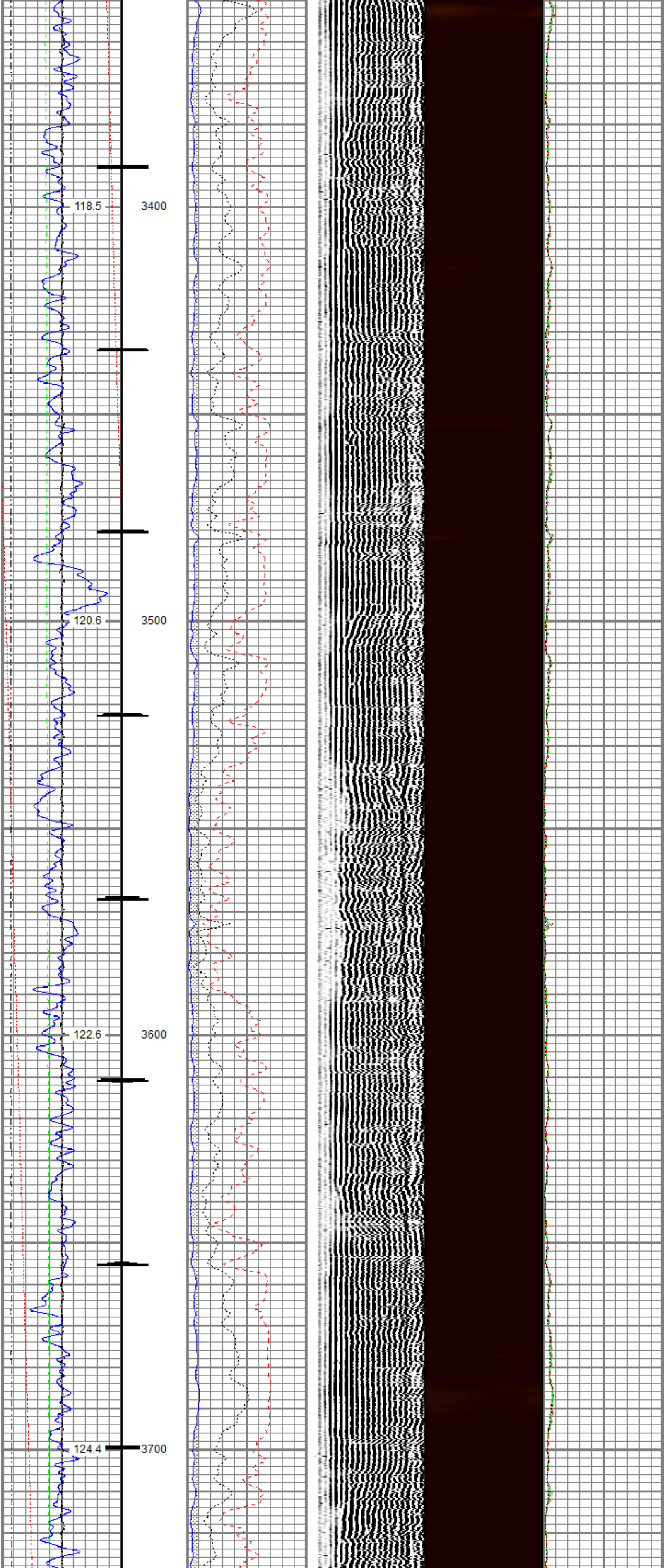


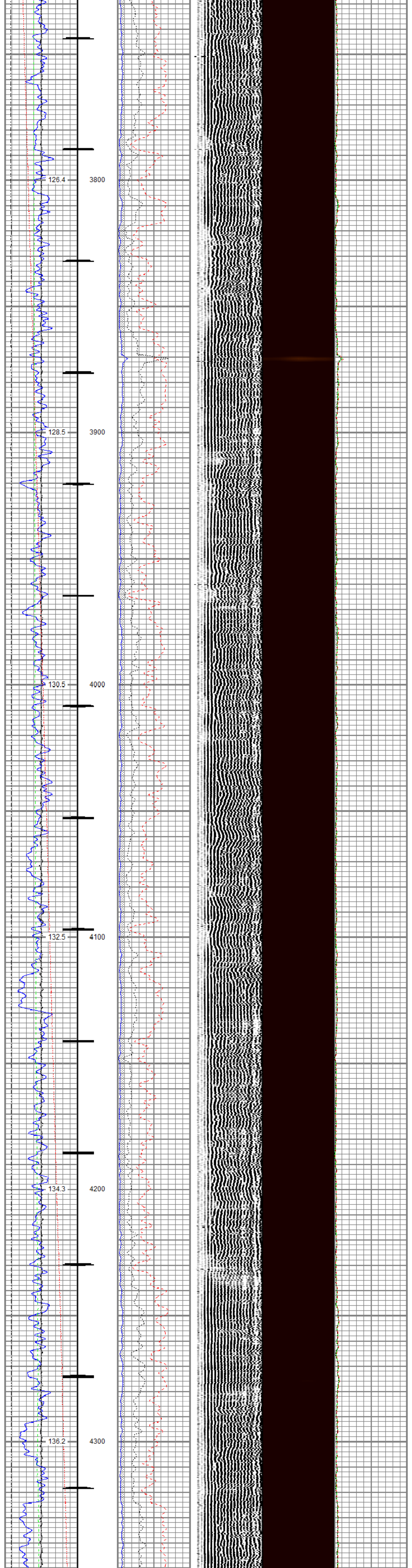








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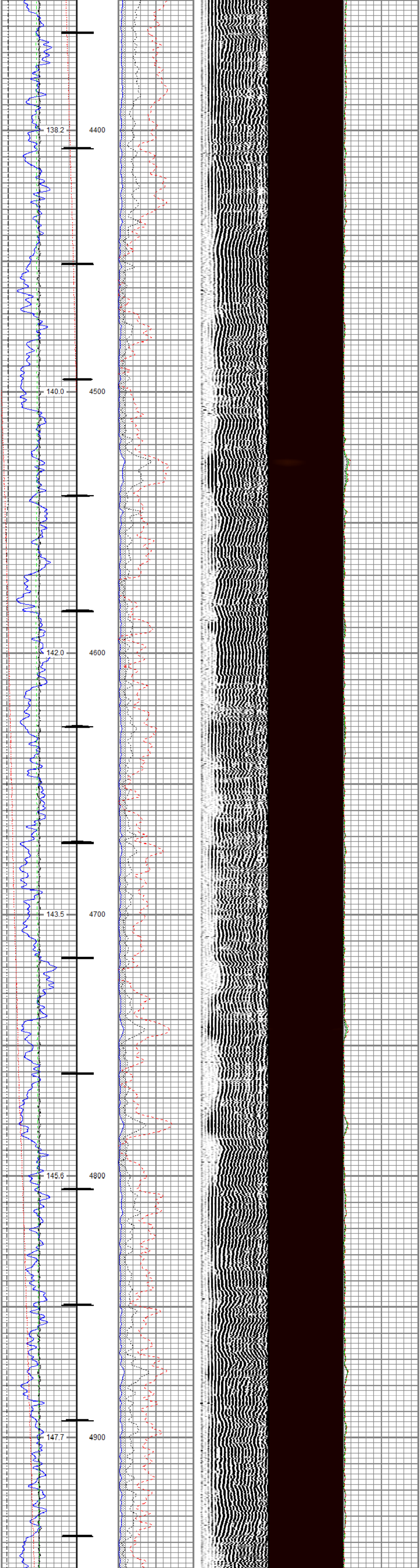
3800
128.5
3900
130.5
4000
132.5
4100
134.3
4200
136.2
4300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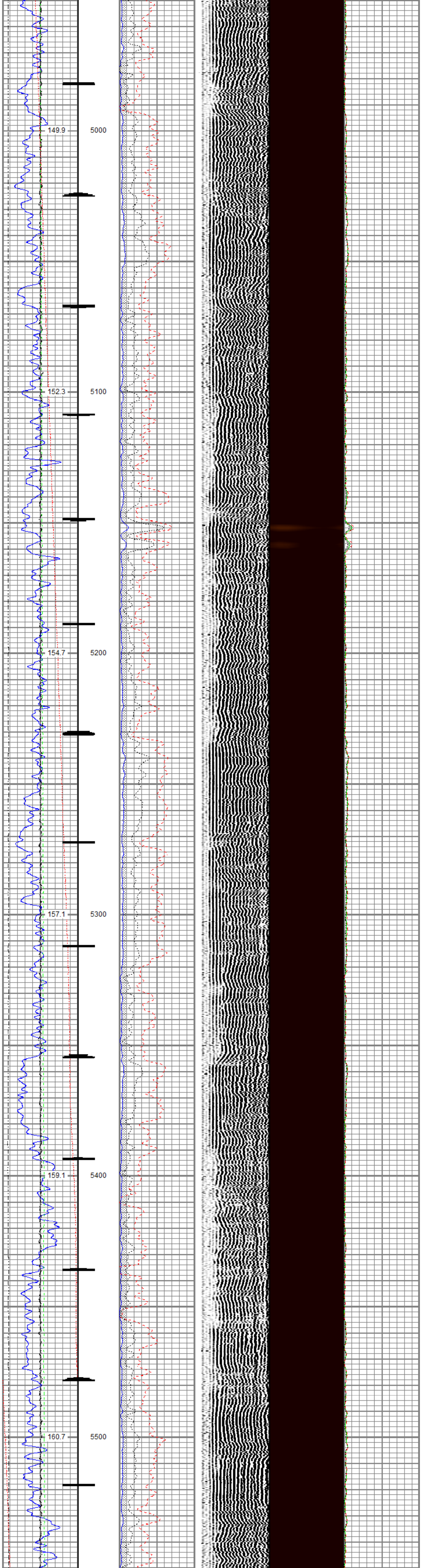
4400
140.0
4500
142.0
4600
143.5
4700
145.6
4800
147.7
4900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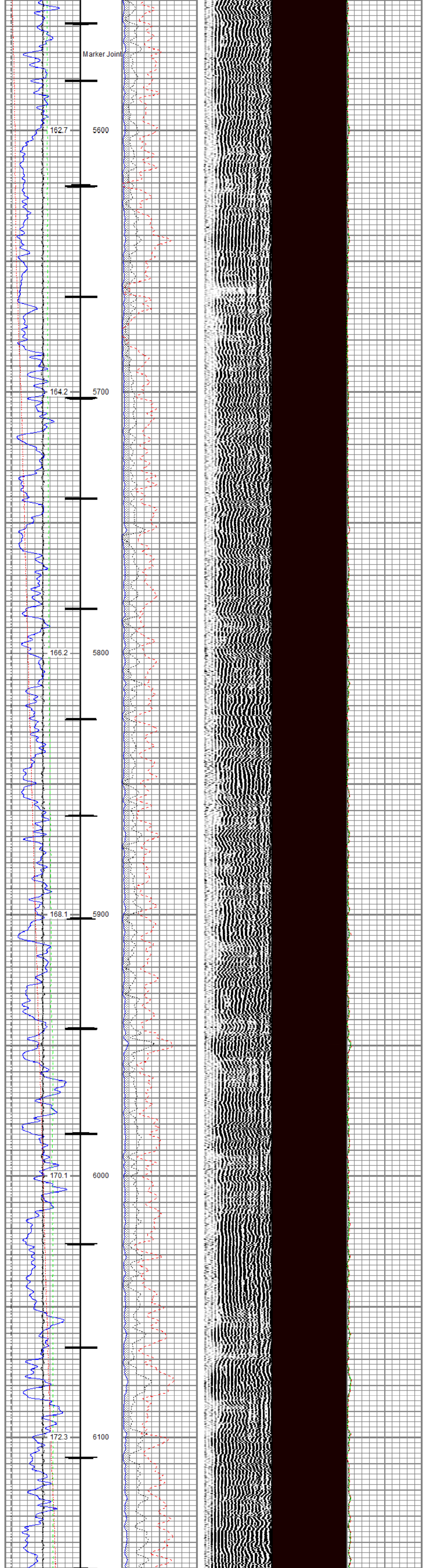
5000
152.3
5100
154.7
5200
157.1
5300
159.1
5400
160.7
5500


Marker Joint
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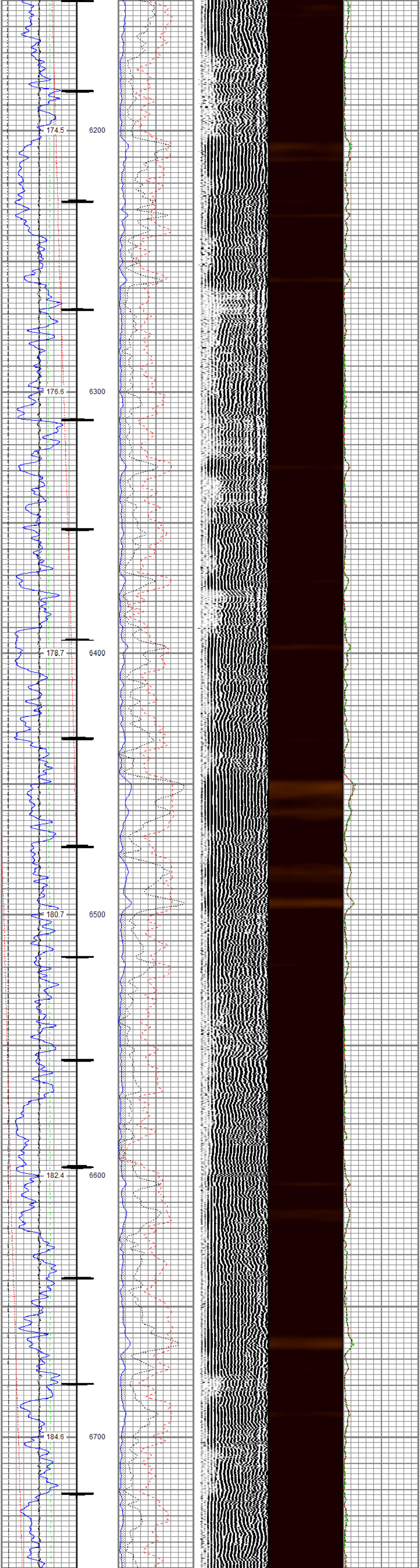
5600
164.2
5700
166.2
5800
168.1
5900
170.1
6000
172.3
6100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6200
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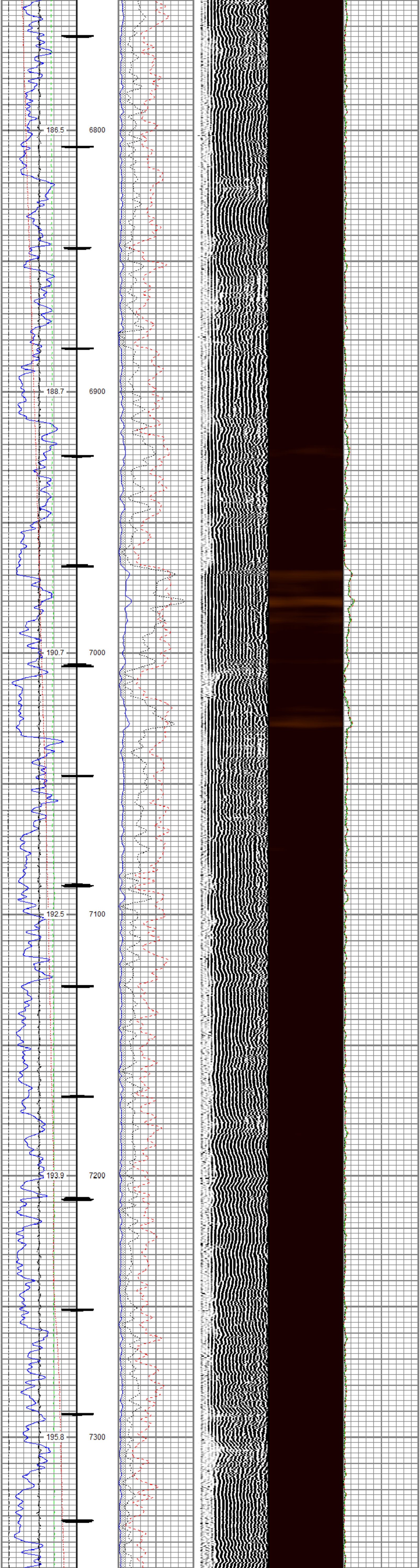
6300
178.7
6400
180.7
6500
182.4
6600
184.6
6700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188.7
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190.7
7000
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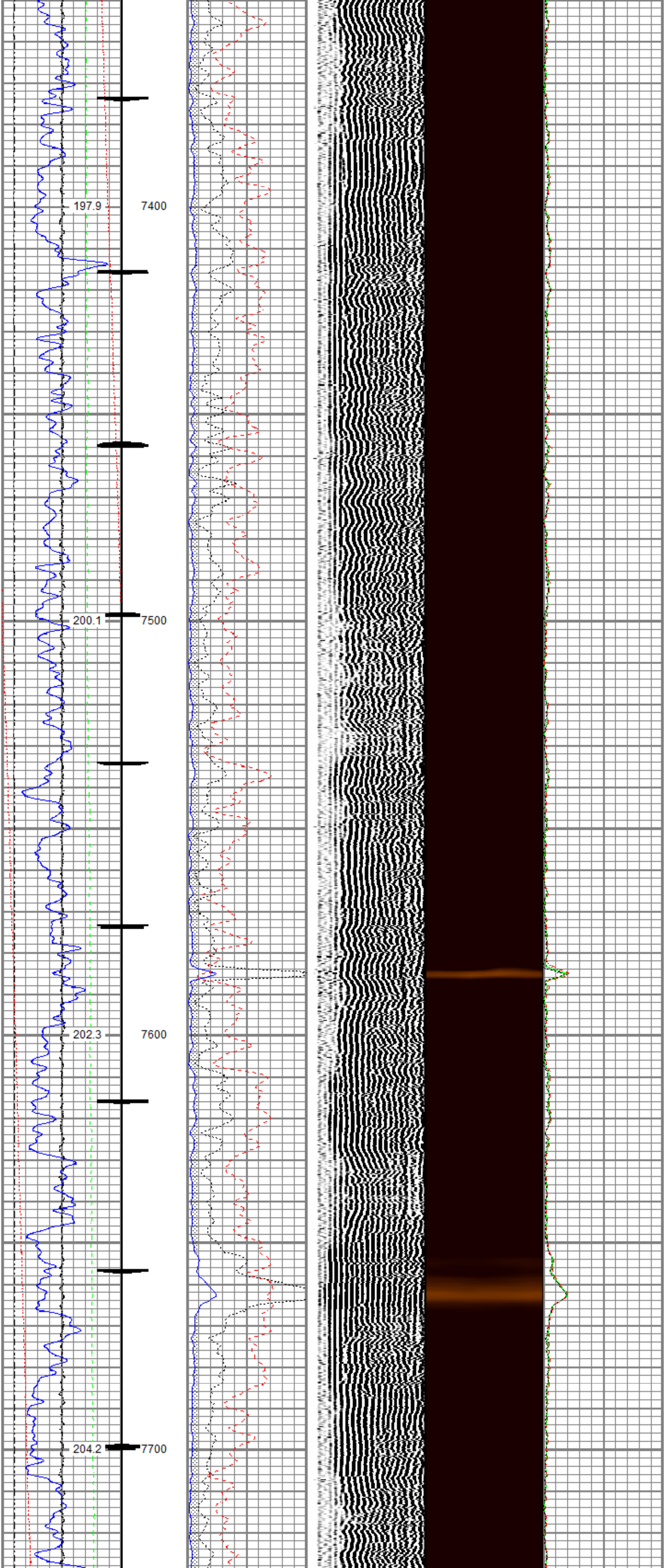
193.9
7200
195.8
7300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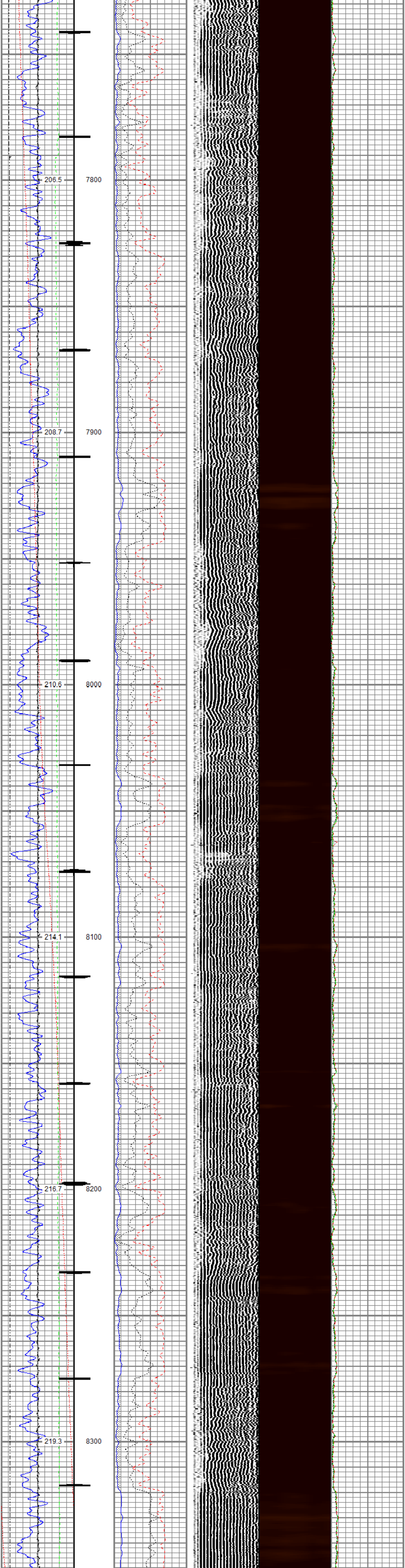
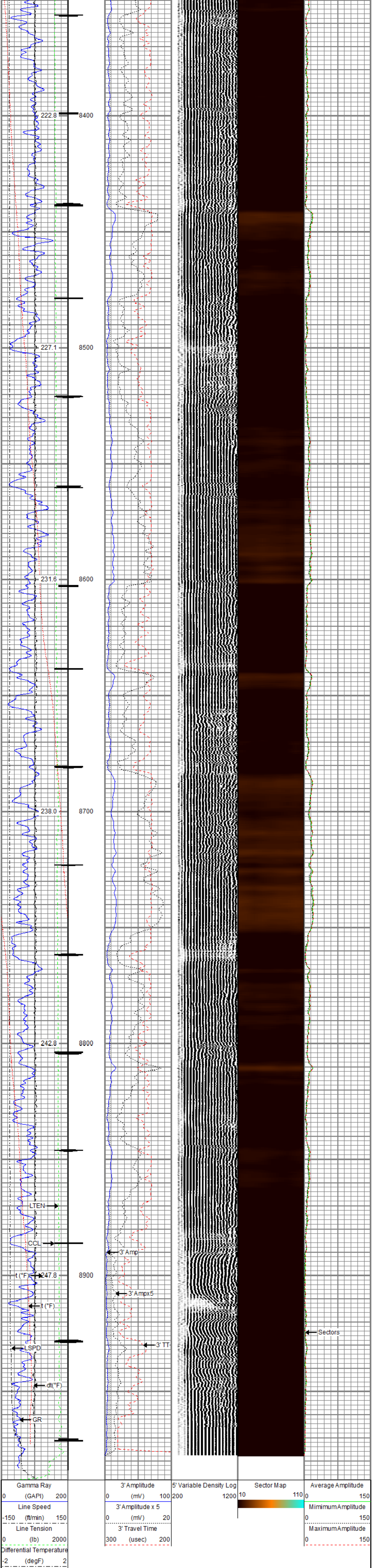
202.3
7600
204.2
7700





Temperature
0 (degF) 20
10 *CCL* 0

RELIANCE
OILFIELD SERVICES

Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 412-17_rbl_06-11-19\processed_tep_federal rwf 412-17_rbl_06-11-19.db
Dataset Pathname	Repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Jun 12 14:28:02 2019
Charted by	Depth in Feet scaled 1:240

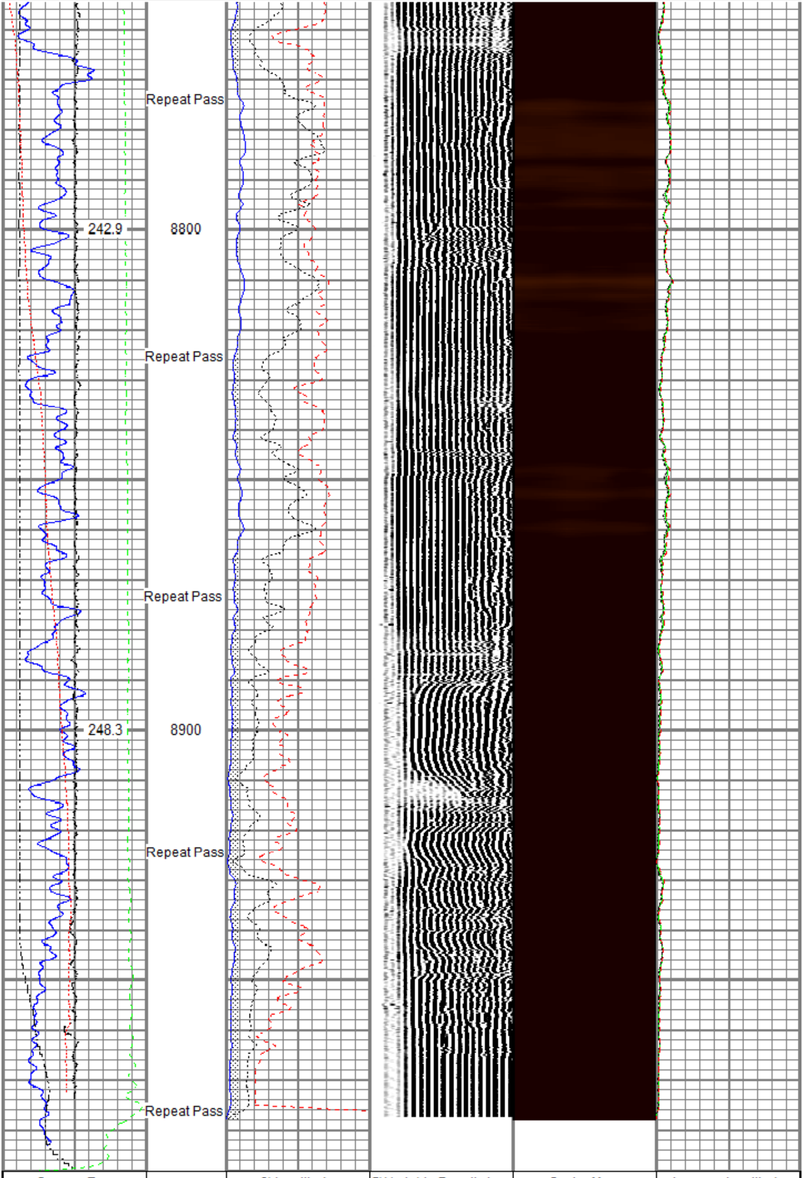
Gamma Ray
0 (GAPI) 200
Line Speed
-150 (ft/min) 150
Line Tension
0 (lb) 2000
Differential Temperature
-2 (degF) 2
Temperature
0 (degF) 20

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



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

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

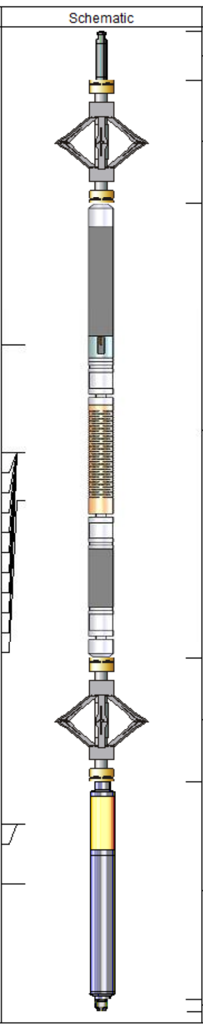
5' Variable Density Log
200 1200

Sector Map
10 110

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

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

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 (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_tep_federal rwf 412-17_rbl_06-11-19.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 412-17_rbl_06-11-19\processed_tep_federal rwf 412-17_rbl_
Dataset Pathname	Main.1
Dataset Creation	Wed Jun 12 14:25:15 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'	0.005	0.721	0.800	81.196	112.226	0.286
CAL	0.003	0.755				
5'	0.008	0.548	0.800	81.196	148.841	-0.349
SUM						
S1	0.007	0.750	0.000	100.000	134.552	-0.925
S2	0.006	0.737	0.000	100.000	136.785	-0.845
S3	0.004	0.705	0.000	100.000	142.646	-0.576
S4	0.005	0.688	0.000	100.000	146.312	-0.660
S5	0.006	0.650	0.000	100.000	155.368	-0.917
S6	0.005	0.672	0.000	100.000	150.054	-0.792
S7	0.004	0.712	0.000	100.000	141.251	-0.584
S8	0.005	0.776	0.000	100.000	129.632	-0.614

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

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Well	Federal RWF 412-17
Field	Rulison
County	Garfield
State	Colorado