Radial Cement Bond
Gamma Ray
Casing Collar Log

RELIANCE OILFIELD SERVICES

Company	TEP Rocky Mountain LLC
Well	Federal SG 42-21
Field	Grand Valley
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal SG 42-21
Field Grand Valley
County Garfield State Colorado

Location: API # : 05-045-24124
SEC 22 TWP 7S RGE 96W

Other Services
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Permanent Datum	Ground Level	Elevation 6090.8'	Elevation K.B. 6114.8' D.F. --- G.L. 6090.8'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Date	29-MAR-2019		
Run Number	One		
Depth Driller	6960 FT		
Depth Logger	6894 FT		
Bottom Logged Interval	6879 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	174°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	11:00		
Equipment Number	HD-0359		
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	32.3	H-40	Surface	1017 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	6922 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 3619 - 3641 FT
Log ran from 6879 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

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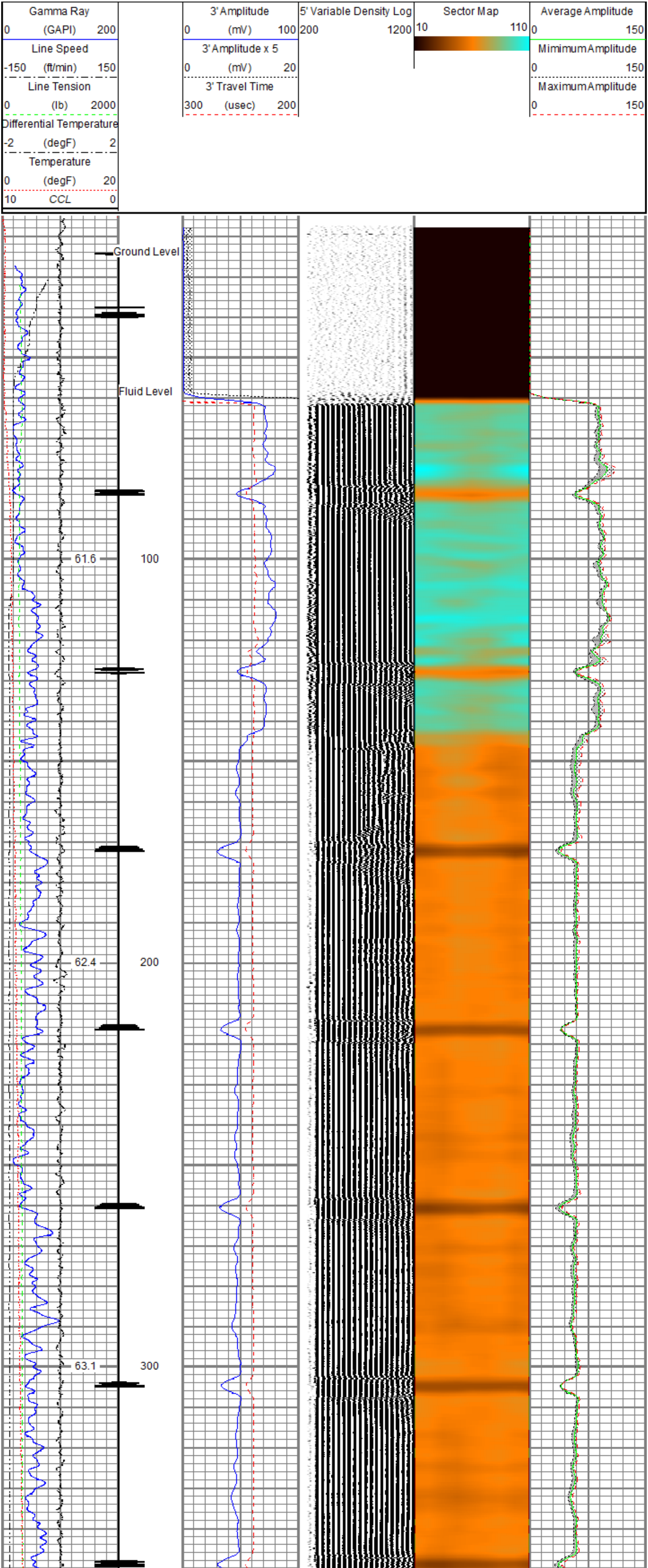
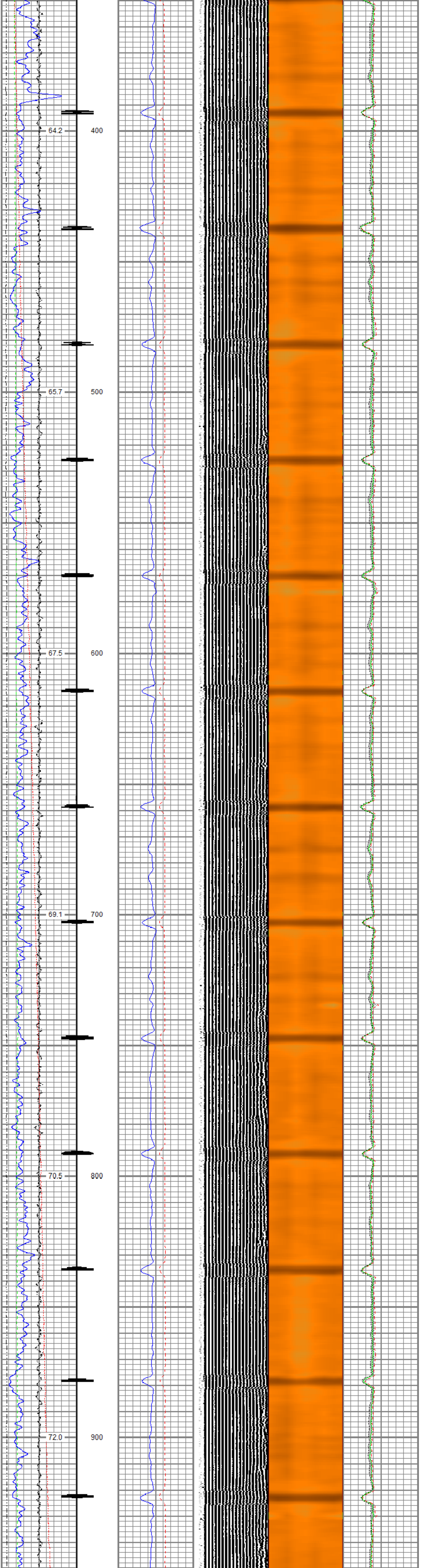
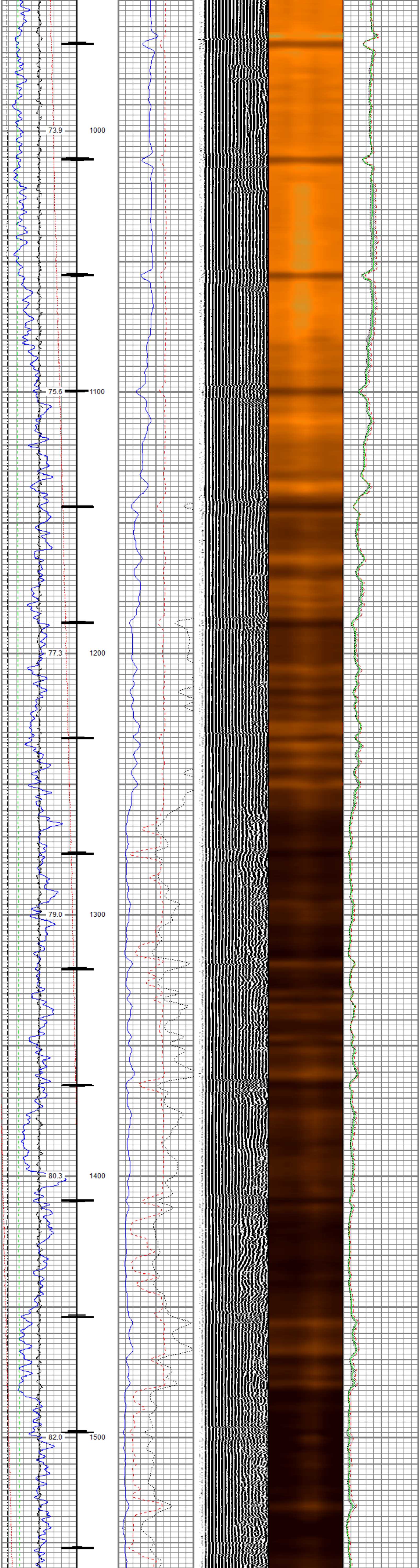
Main Pass

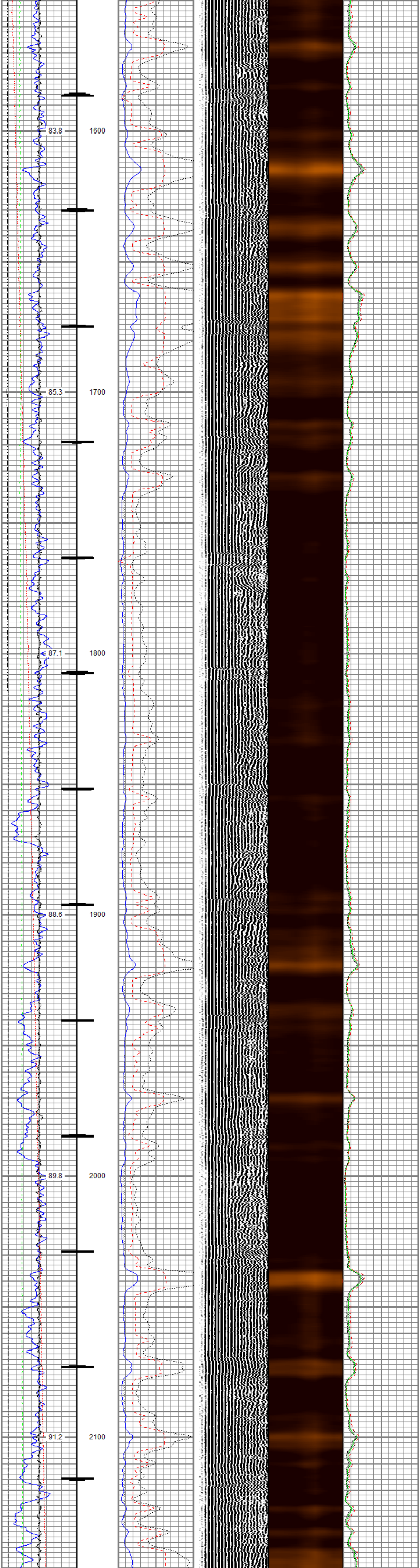
Recorded With 0 PSI Surface Induced Pressure

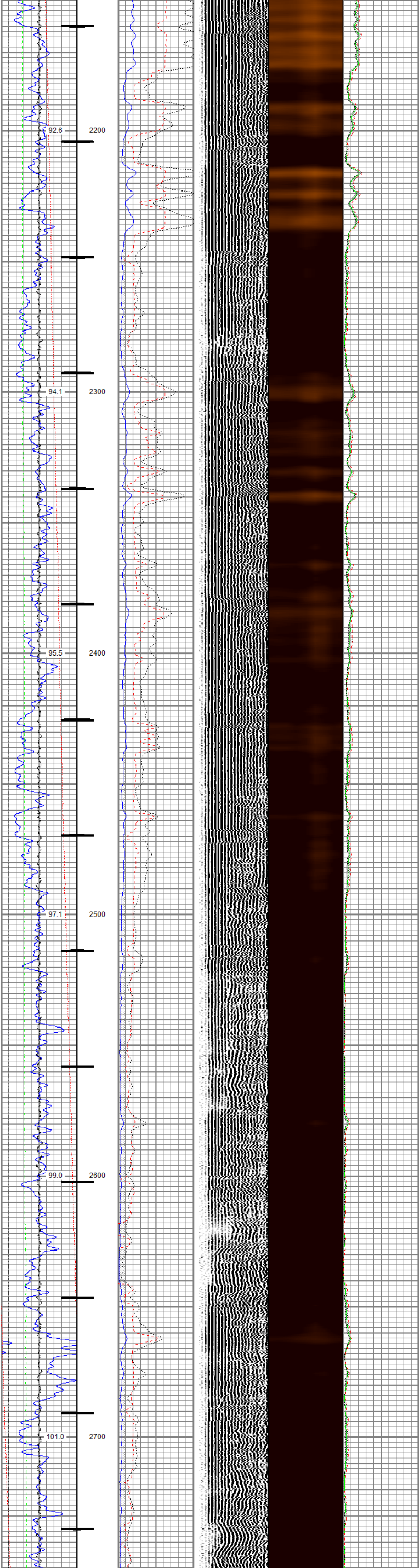
Database File	tep\tep_federal sg 42-21_rbl_03-29-19\tep_federal sg 42-21_rbl_03-29-19.db
Dataset Pathname	Main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Mar 30 17:53:16 2019
Charted by	Depth in Feet scaled 1:240

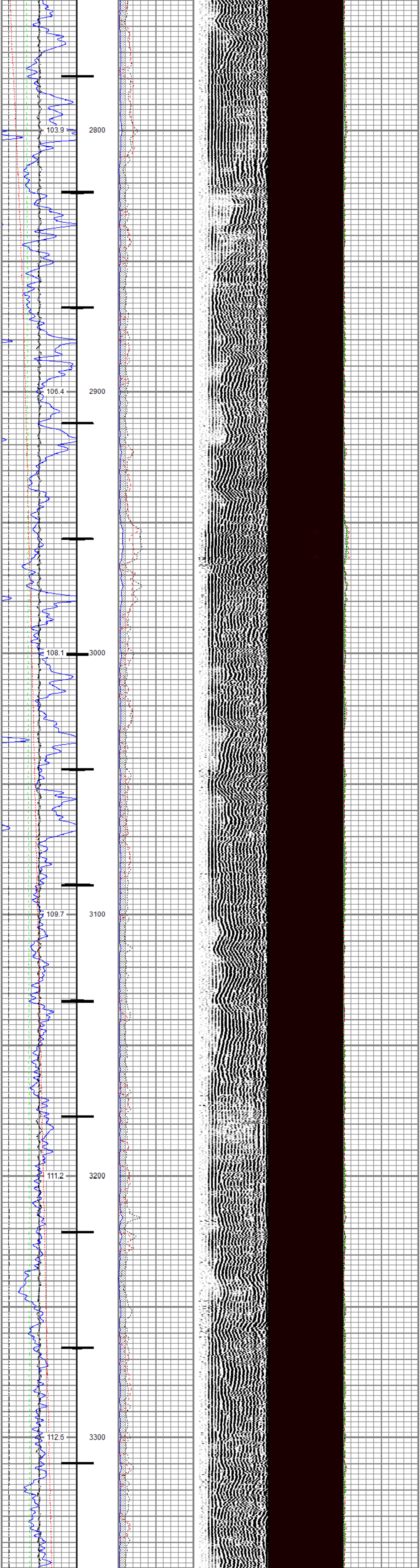


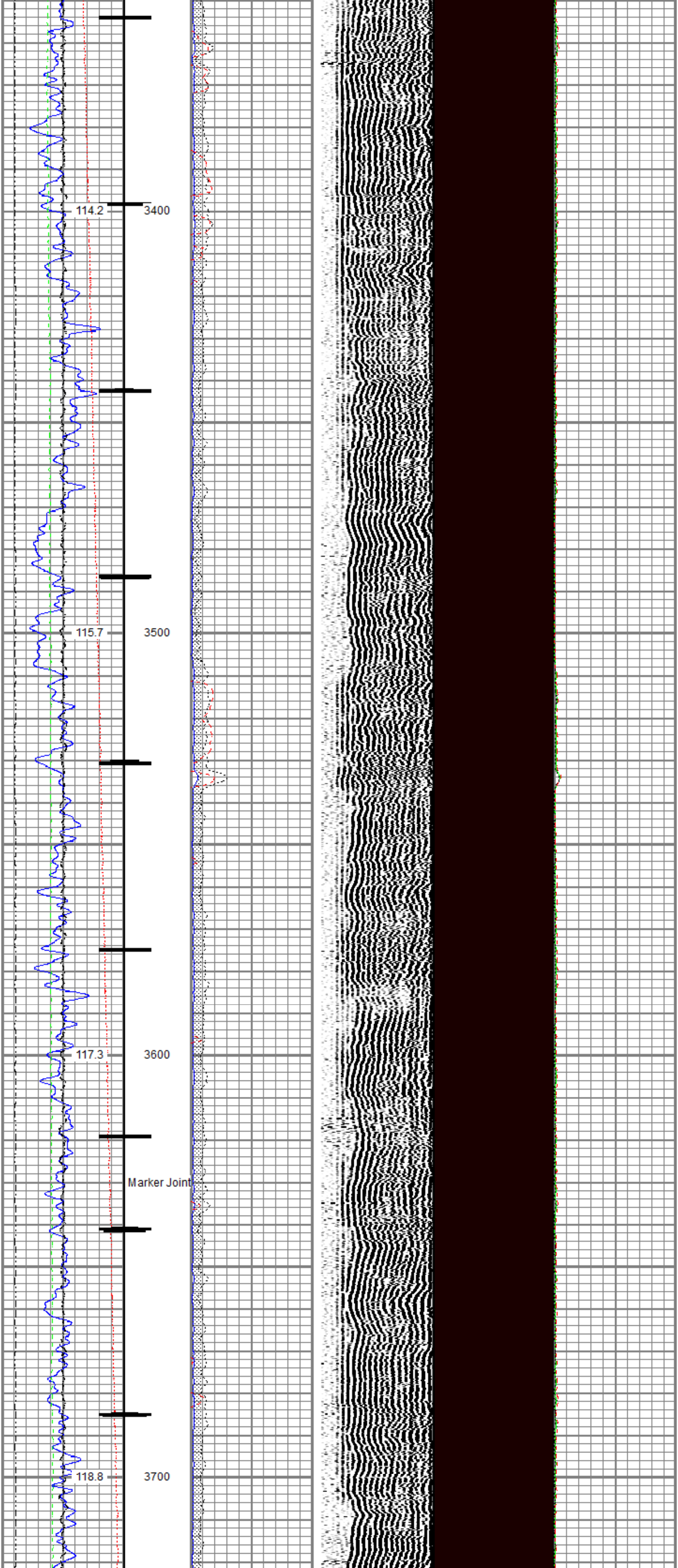


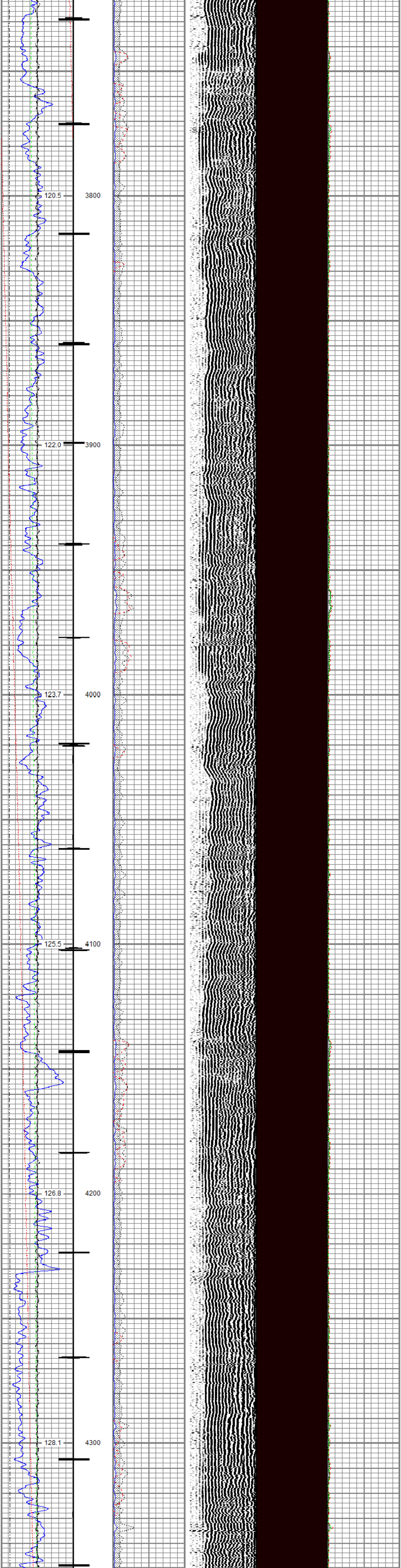


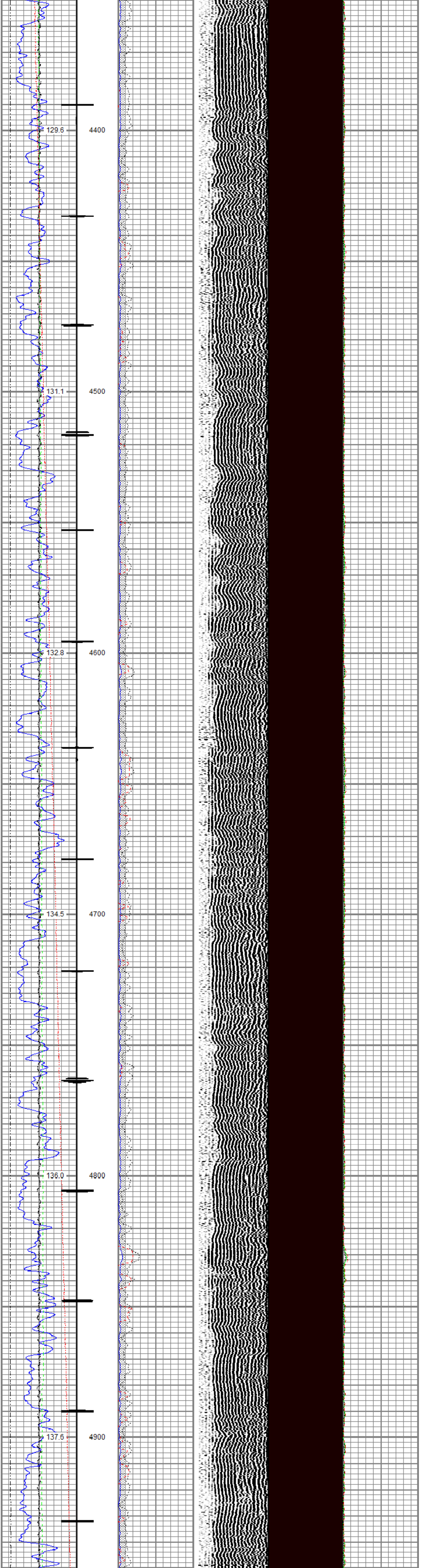


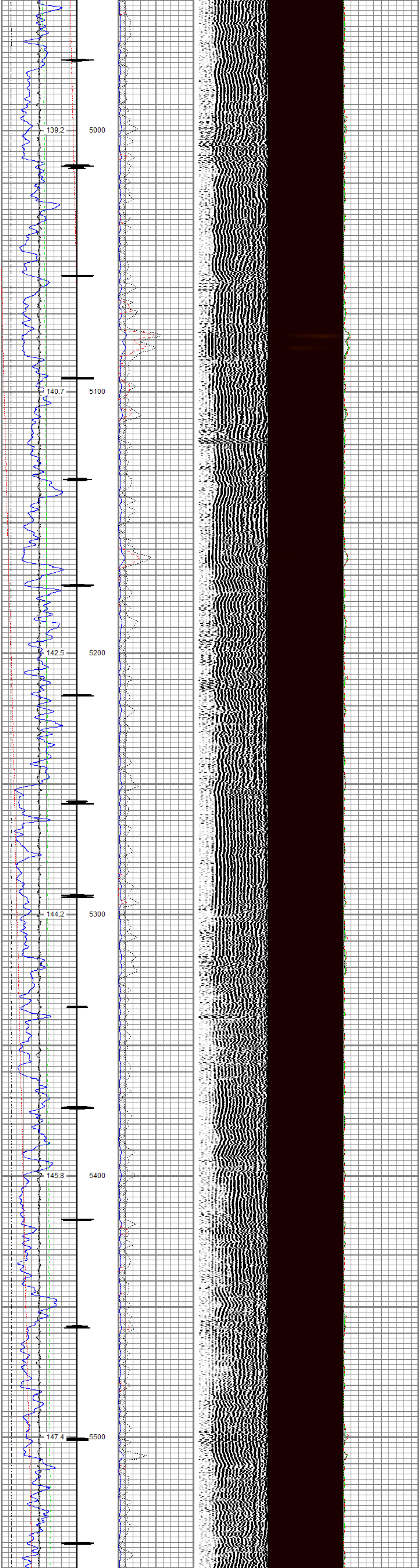


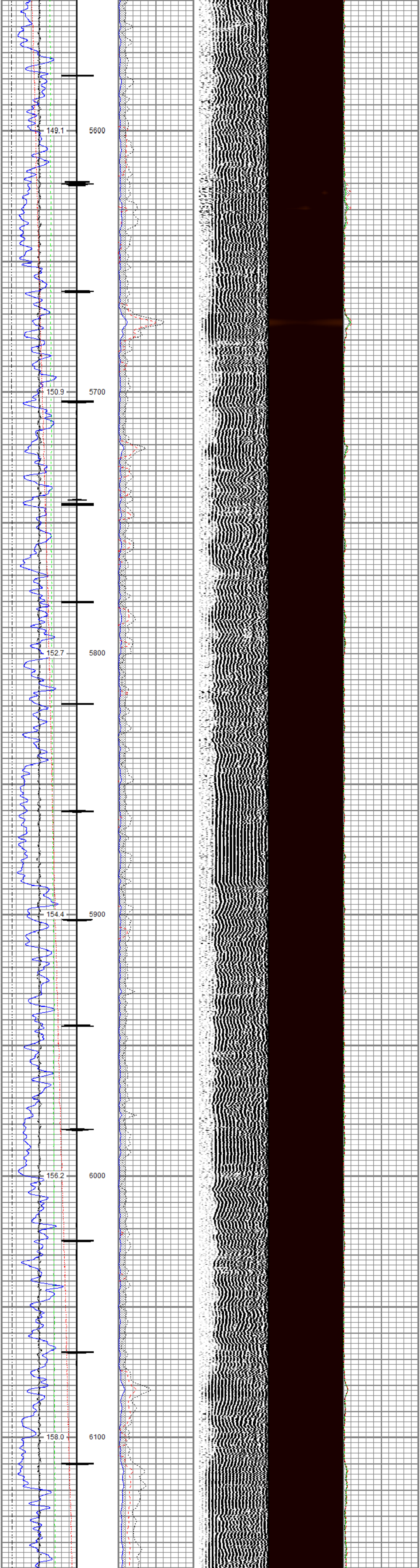


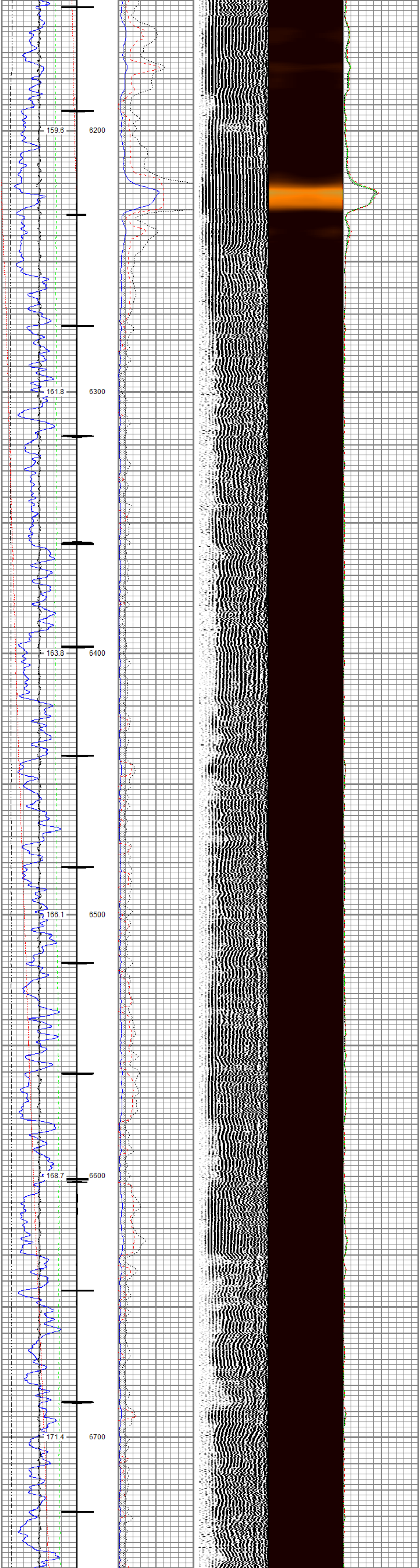


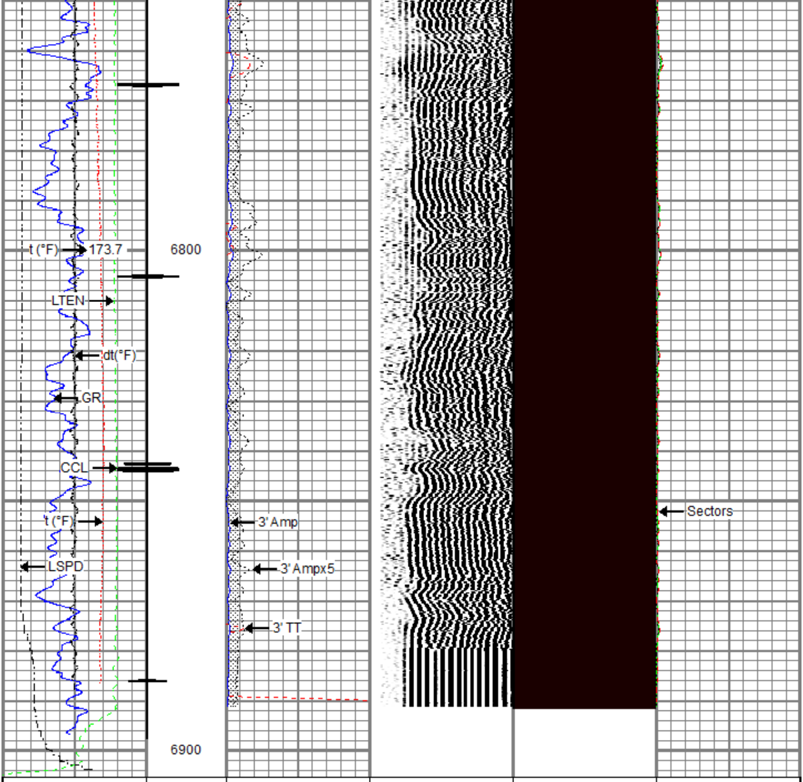












Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential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

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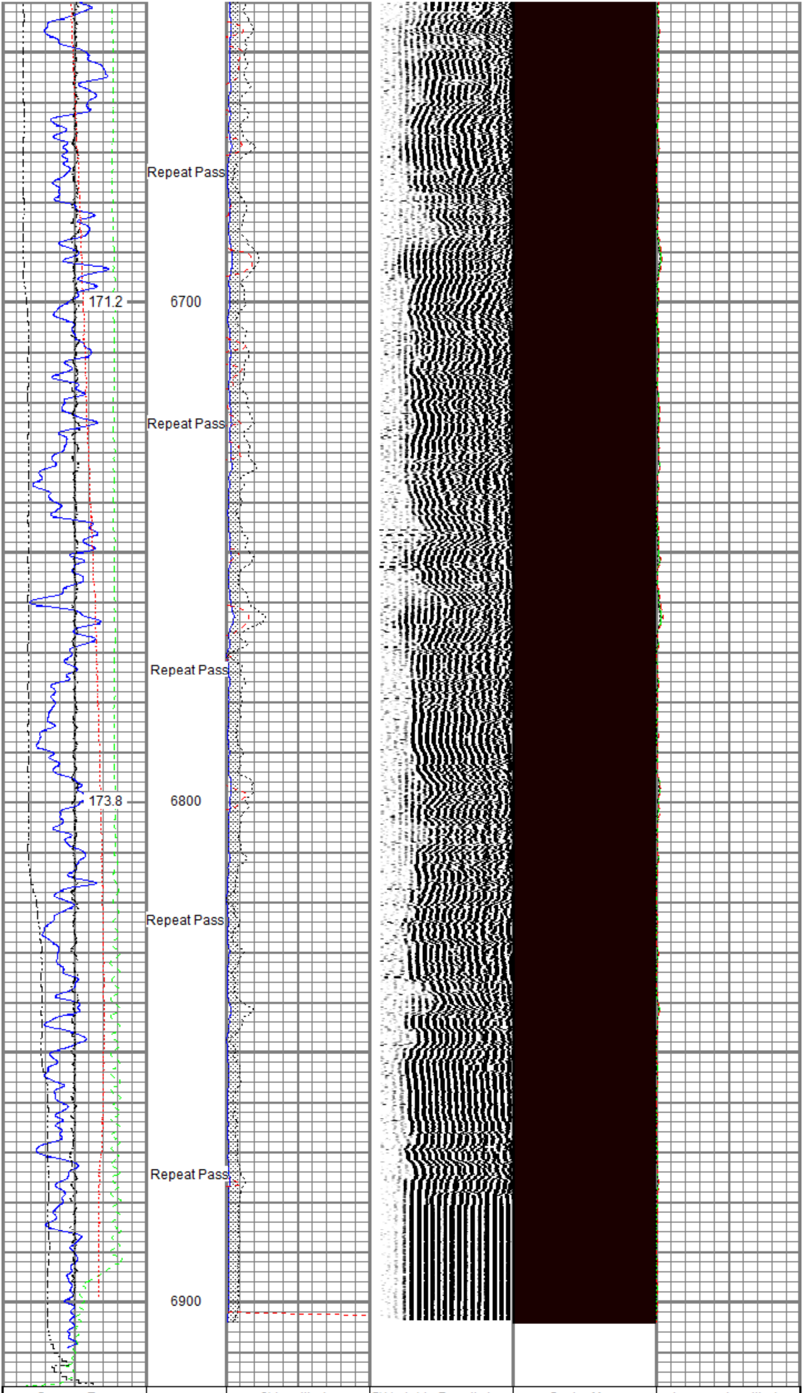
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal sg 42-21_rbl_03-29-19\tep_federal sg 42-21_rbl_03-29-19.db
Dataset Pathname	Repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Mar 30 18:35:33 2019
Charted by	Depth in Feet scaled 1:240

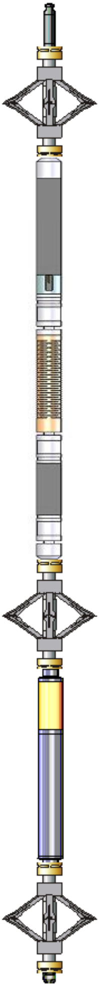
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential 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)
TEMP	16.33
WVFS8	14.10
WVFS7	14.10
WVFS6	14.10
WVFS5	14.10
WVFS4	14.10
WVFS3	14.10
WVFS2	14.10
WVFS1	14.10
WVFCAL	14.10
WVF3FT	14.10
WVF5FT	13.10
CCL$2	6.42
CCL$1	6.42
GR	5.18

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 (FW1307-063) 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
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 sg 42-21_rbl_03-29-19.db: field/well/run1/Main.1
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 sg 42-21_rbl_03-29-19\tep_federal sg 42-21_rbl_03-29-19.db
Dataset Pathname	Main.1
Dataset Creation	Sat Mar 30 17:53:16 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:	FW1307-063	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	55.000	ft

Master Calibration, performed (Derived):

Raw (v)		Calibrated (mv)		Results	
Zero	Cal	Zero	Cal	Gain	Offset

3'	-0.003	1.053	0.800	81.196	76.159	1.022
CAL	-0.006	0.824				
5'	0.007	0.932	0.800	81.196	86.915	0.163
SUM						
S1	-0.001	1.149	0.000	100.000	86.971	0.058
S2	-0.002	1.094	0.000	100.000	91.221	0.186
S3	-0.003	1.006	0.000	100.000	99.059	0.337
S4	-0.003	0.971	0.000	100.000	102.677	0.315
S5	-0.000	0.992	0.000	100.000	100.729	0.038
S6	-0.002	1.012	0.000	100.000	98.665	0.176
S7	-0.001	1.042	0.000	100.000	95.913	0.098
S8	-0.003	1.126	0.000	100.000	88.580	0.294

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.006	0.824	1.000	0.000

Air Zero Calibration, performed Fri Mar 29 10:26:24 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.003	0.000	0.000
5'	0.008	0.000	0.002
SUM			
S1	-0.003	0.000	0.001
S2	-0.003	0.000	0.000
S3	-0.002	0.000	-0.000
S4	-0.003	0.000	0.000
S5	-0.003	0.000	0.001
S6	-0.002	0.000	0.001
S7	-0.003	0.000	0.001
S8	-0.003	0.000	-0.000

Temperature Calibration Report

Serial Number: FW1307-063
Tool Model: 2750 RBT
Performed: Sun Nov 12 13:45:43 2017

	Reference	Reading
Low Reference:	100.00 degF	113.84 degF
High Reference:	350.00 degF	420.89 degF

Gain: 0.81
Offset: 7.31
Delta Spacing 1

RELIANCE OILFIELD SERVICES

Company	TEP Rocky Mountain LLC
Well	Federal SG 42-21
Field	Grand Valley
County	Garfield
State	Colorado