Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal RWF 22-12
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal RWF 22-12
Field Rulison
County Garfield State Colorado

Location: API # : 05-045-24279

SEC 12 TWP 6S RGE 94W

Other Services
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Permanent Datum	Ground Level	Elevation	5466.8'
Log Measured From	Kelly Bushing		24 FT
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 5490.8'
D.F. 5489.8'
G.L. 5466.8'

Date	30-JAN-2020
Run Number	One
Depth Driller	8879 FT
Depth Logger	8832 FT
Bottom Logged Interval	8820 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	241°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	20:15
Equipment Number	HD-359
Location	Grand Junction, CO
Recorded By	James Donnelly
Witnessed By	D. 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	1042 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8838 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 at 4801 - 4822 FT
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass

Recorded With 0 PSI Surface Induced Pressure

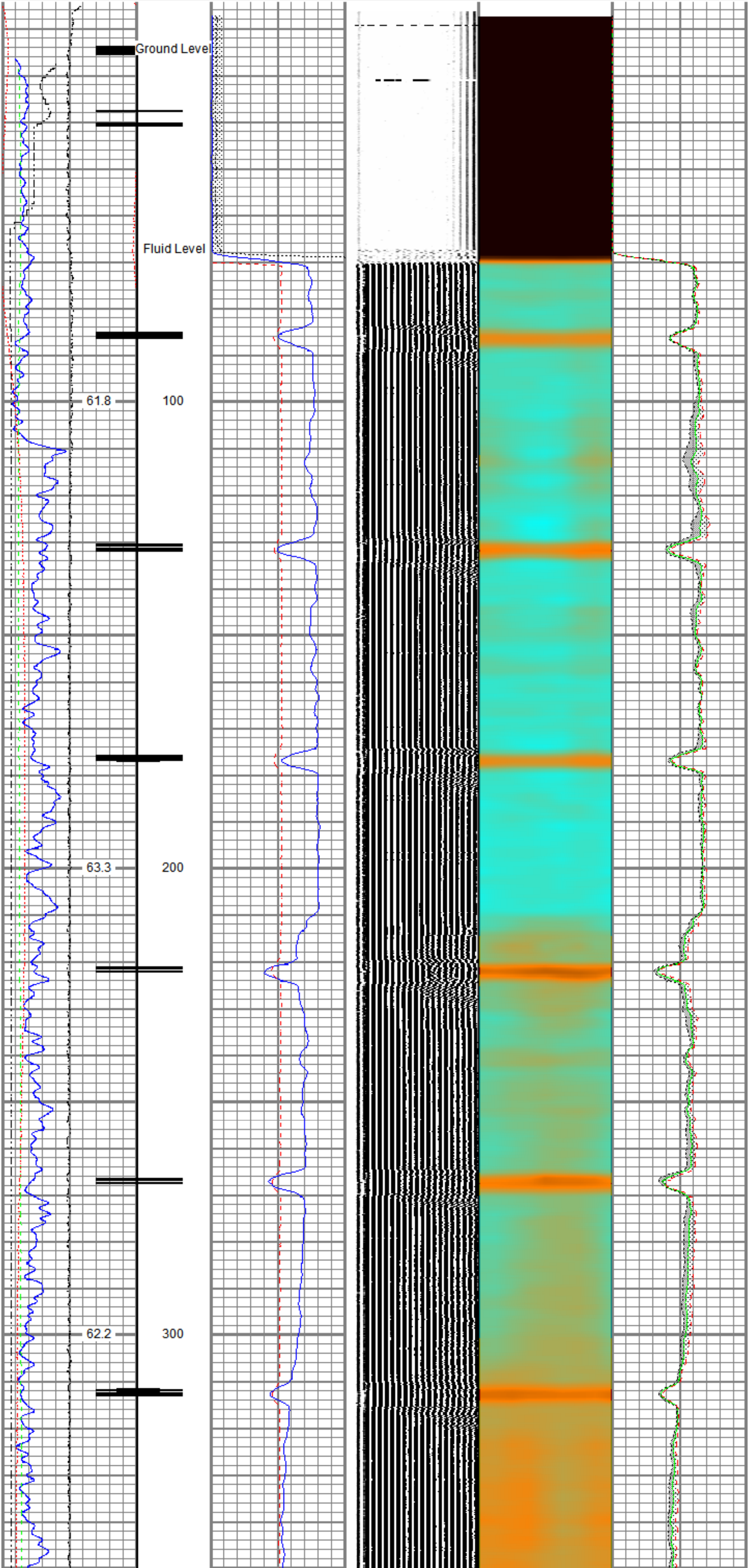
Database File	tep\tep_federal rwf 22-12_rbl_01-30-20\processed_tep_federal rwf 22-12_rbl_01-30-20.db
Dataset Pathname	Main.2
Presentation Format	ros_radii_tep
Dataset Creation	Fri Jan 31 13:51:33 2020
Charted by	Depth in Feet scaled 1:240

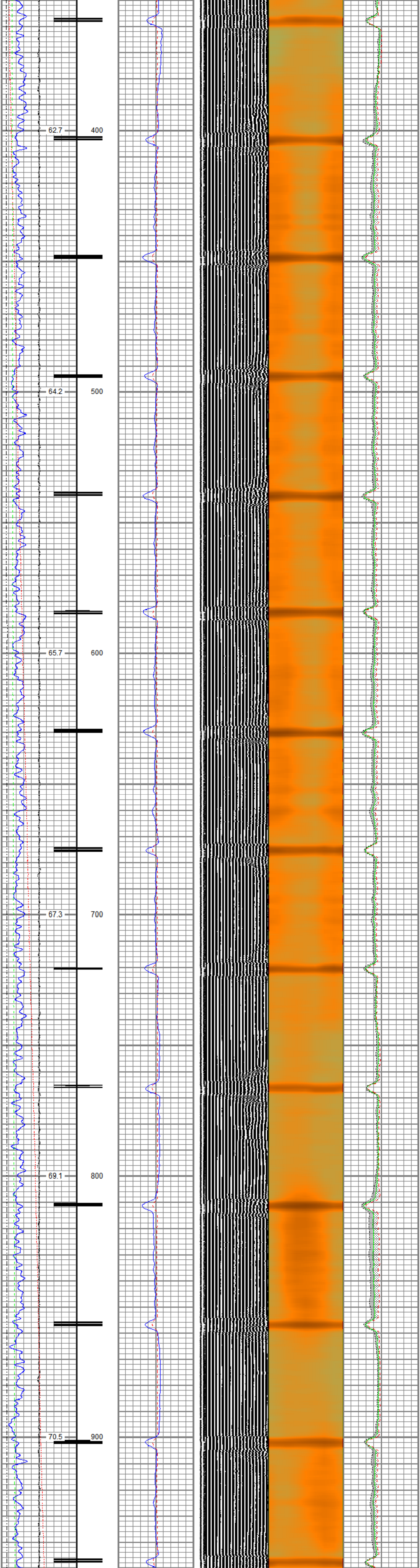
Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map
Line Speed -150 (ft/min) 150	3' Amplitude x 5 0 (mV) 20		
Line Tension 0 (lb) 2000	3' Travel Time 300 (usec) 200		
Differential Temperature -2 (degF) 2			
Temperature 0 (degF) 20			
Casing Collar Locator			

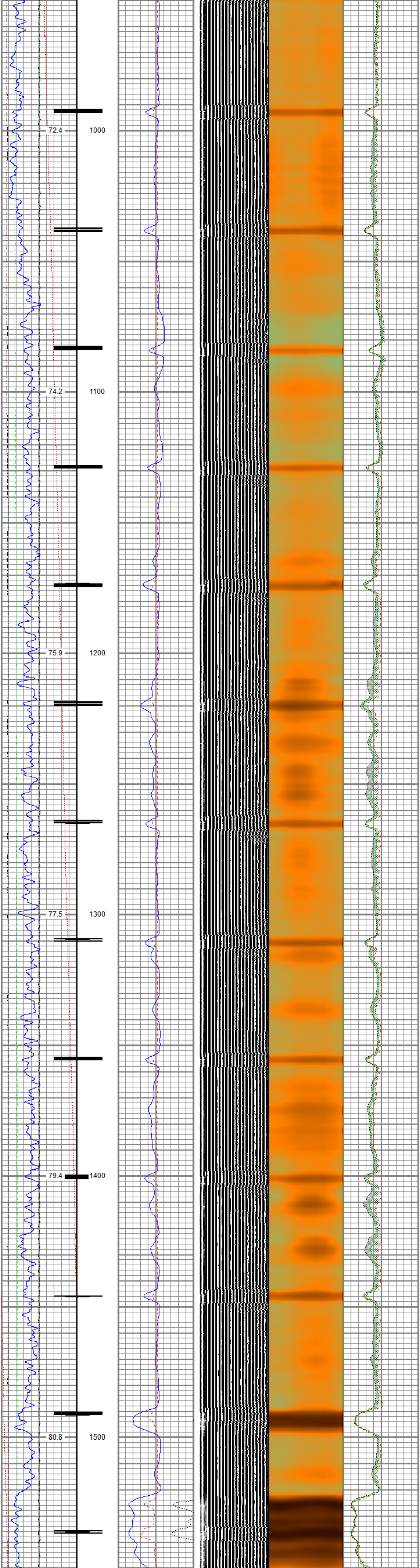
Average Amplitude
0 150

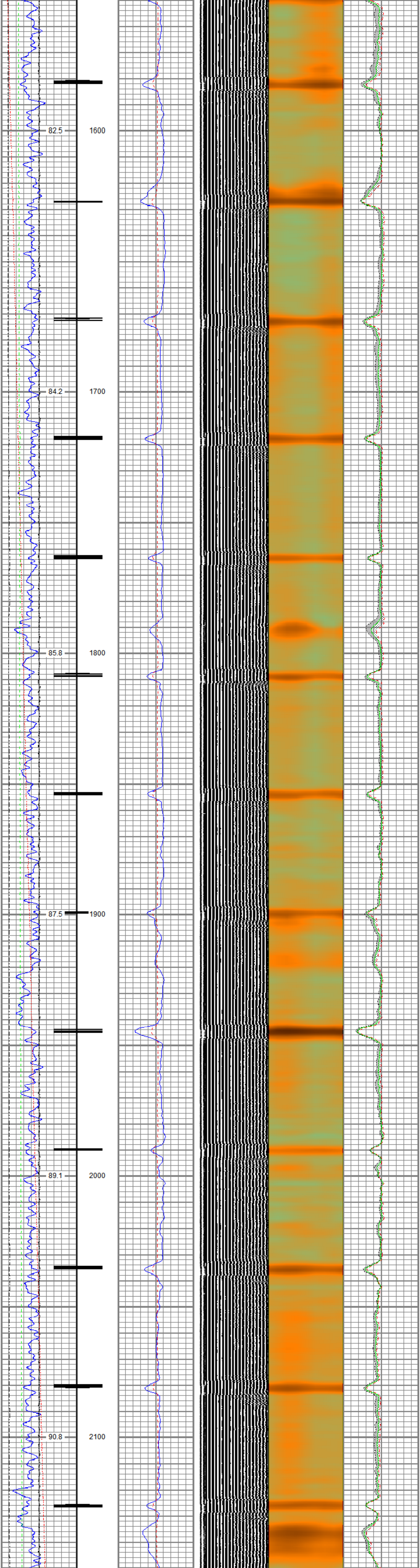
Mimimum Amplitude
0 150

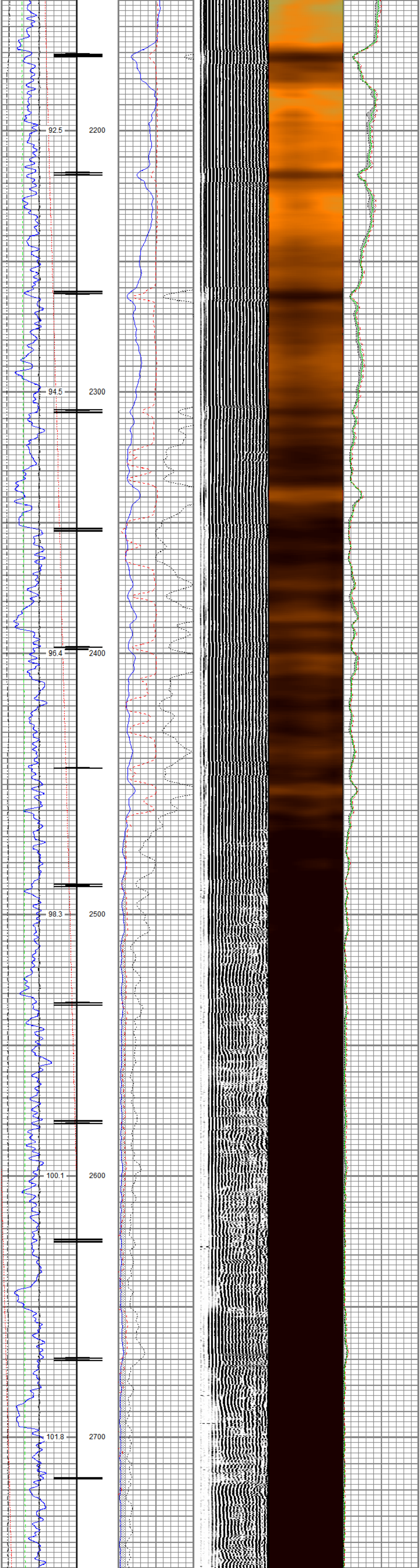
Maximum Amplitude
0 150

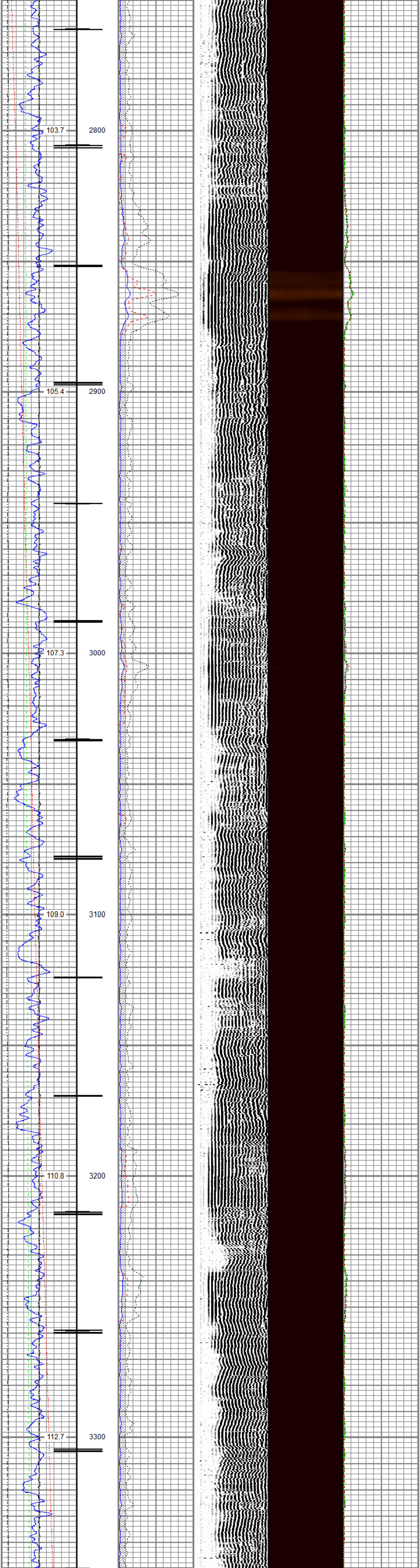


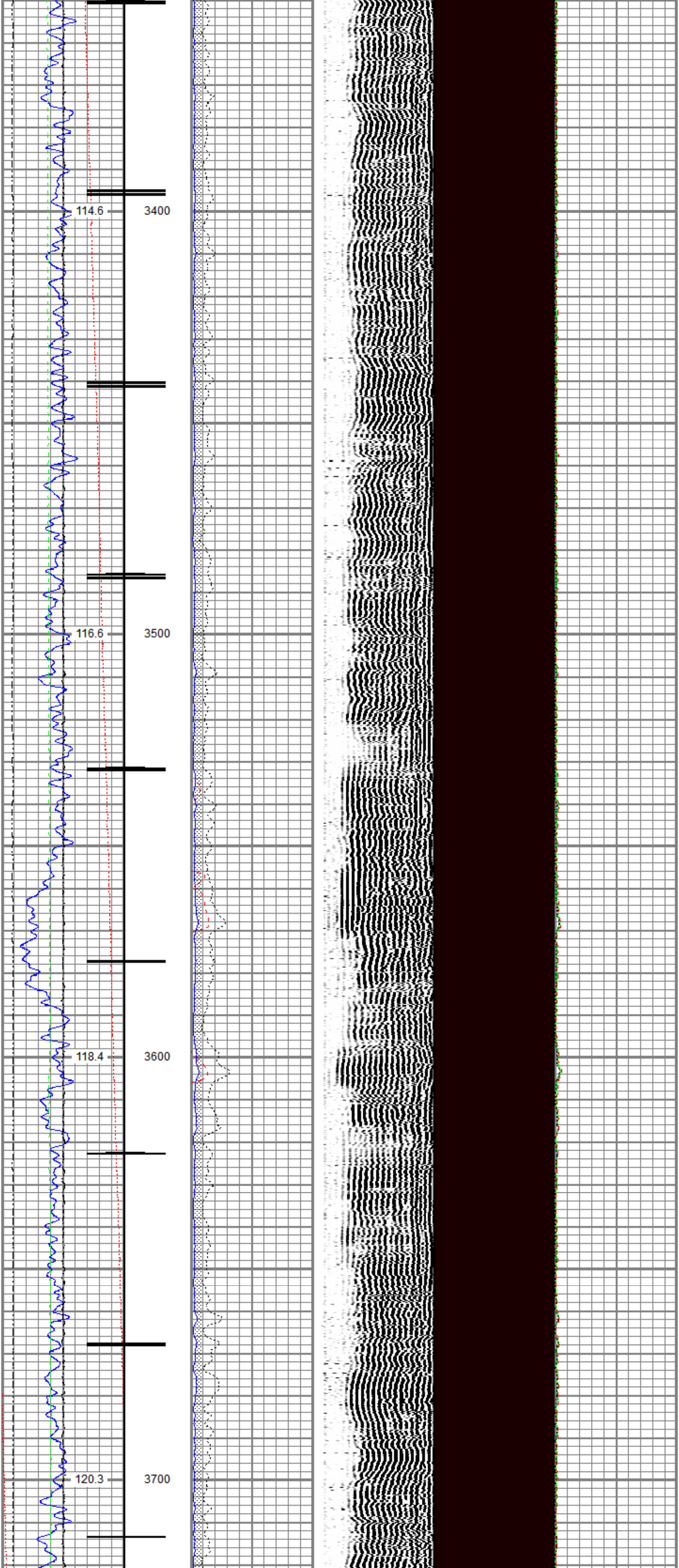


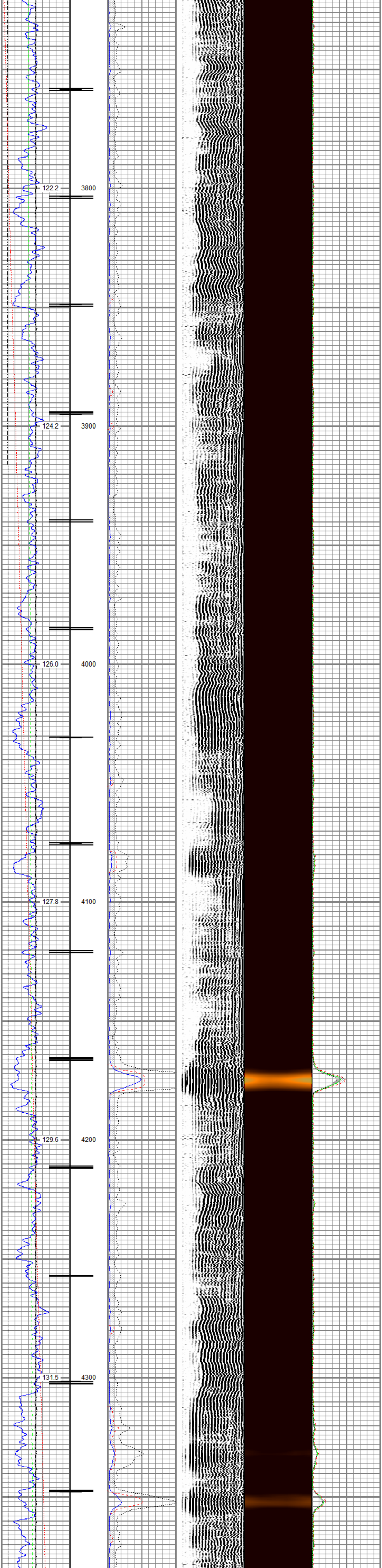








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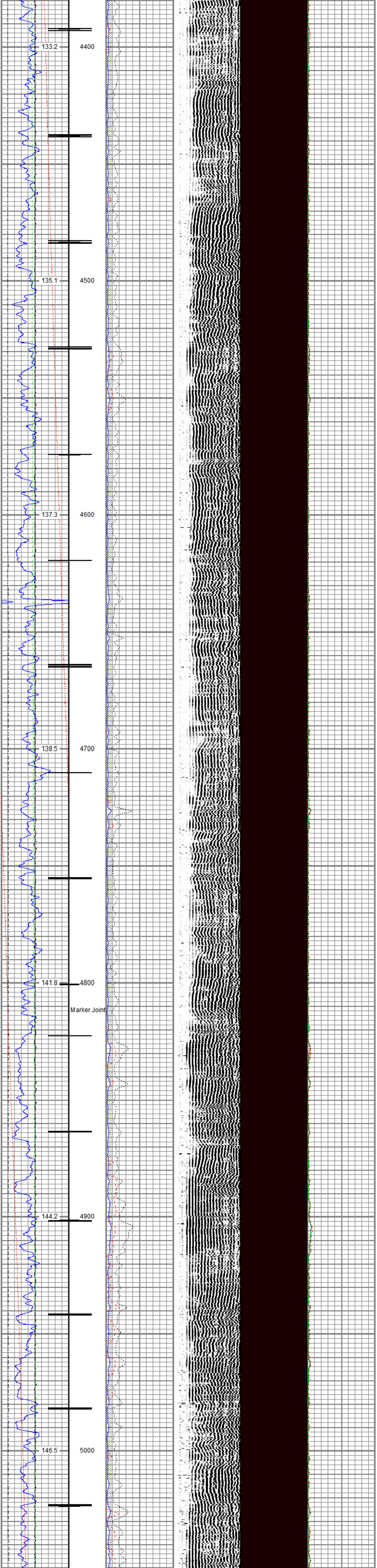
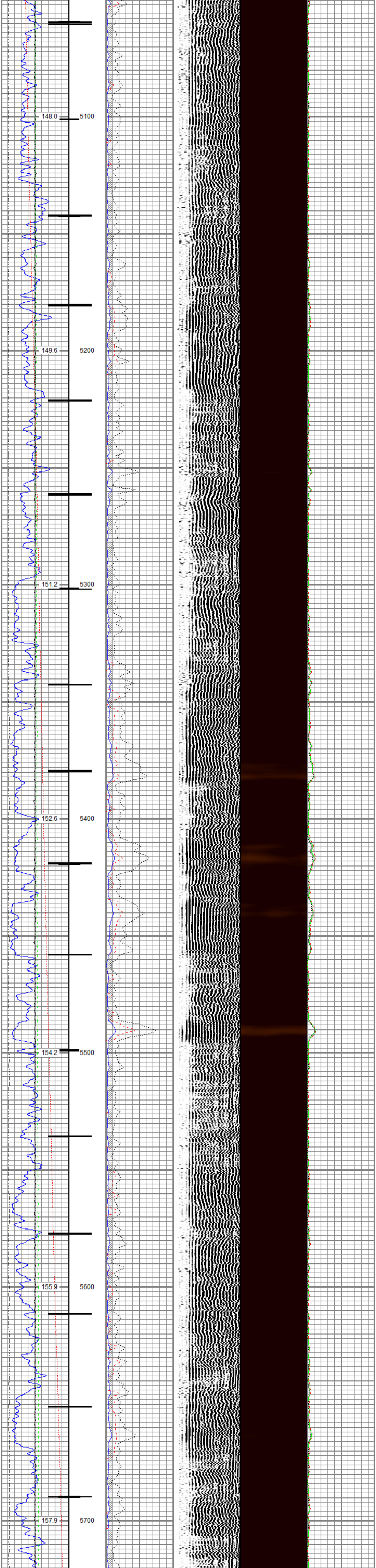
3800
124.2
3900
126.0
4000
127.8
4100
129.6
4200
131.5
4300


133.2
4400
135.1
4500
137.3
4600
139.5
4700
141.8
4800
Marker Joint
144.2
4900
146.5
5000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5100
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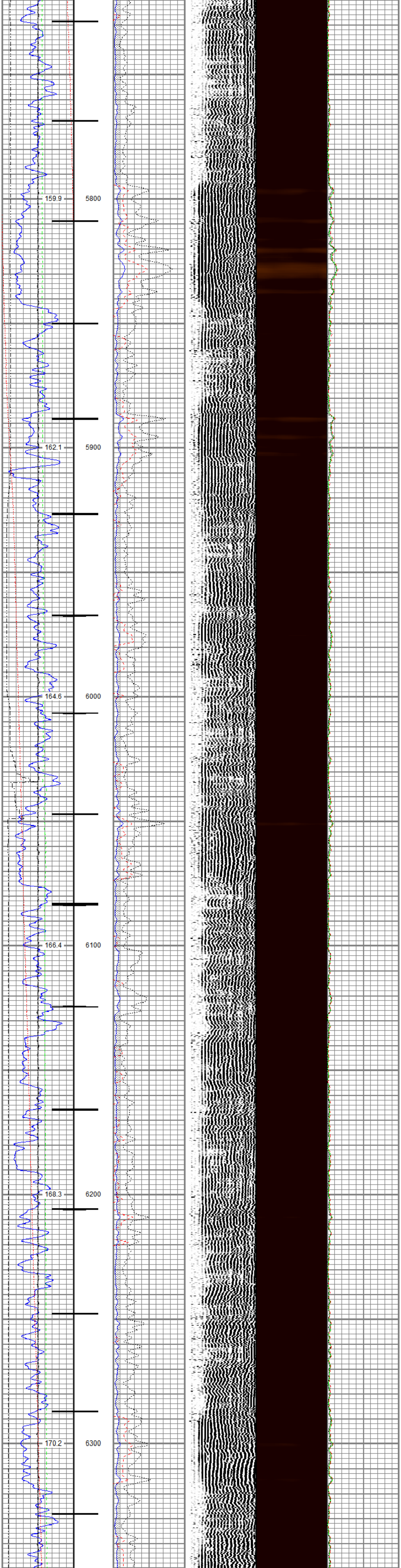
5200
151.2
5300
152.6
5400
154.2
5500
155.9
5600
157.9
5700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162.1
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6000
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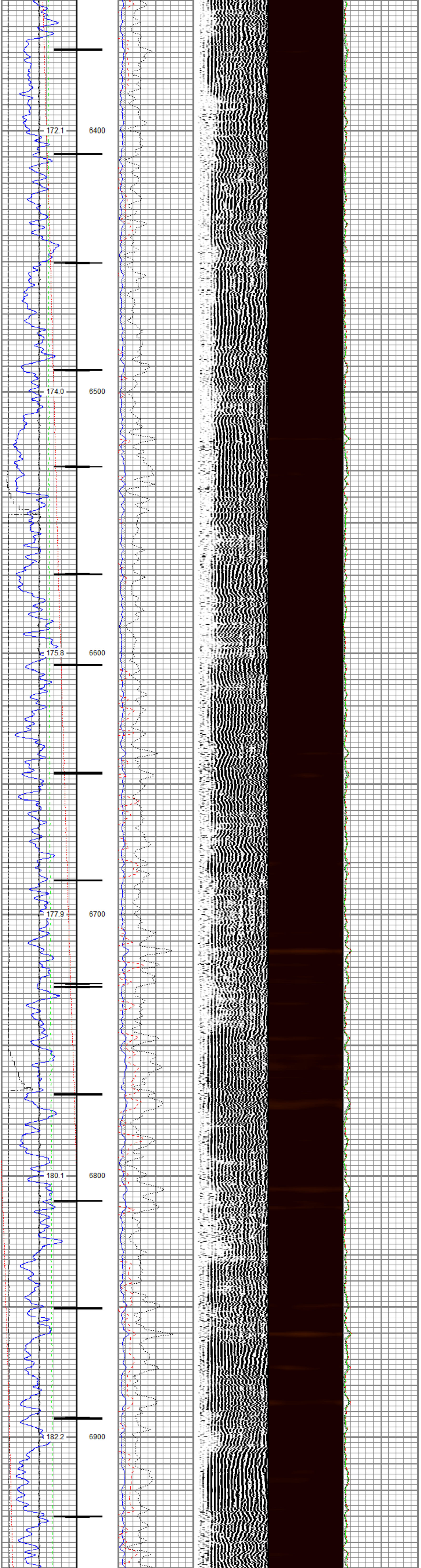
6100
168.3
6200
170.2
6300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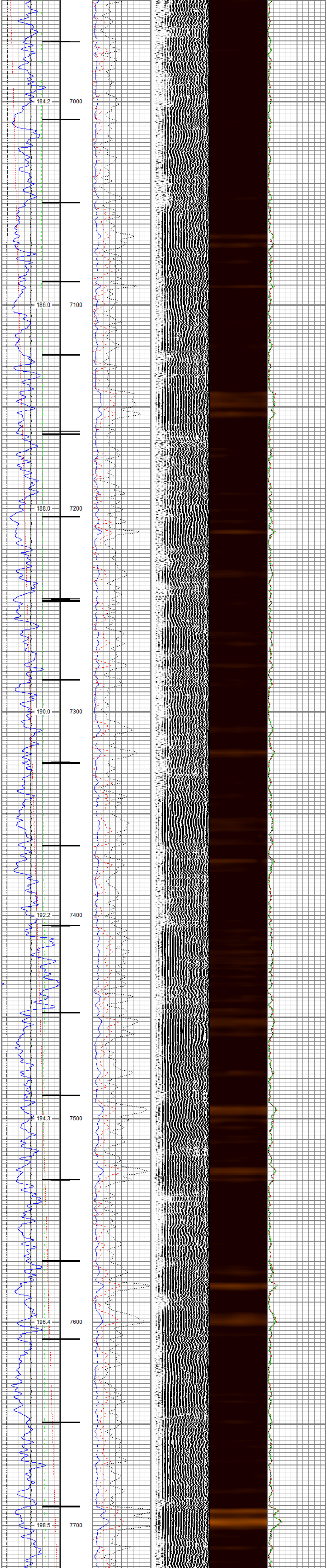
6400
174.0
6500
175.8
6600
177.9
6700
180.1
6800
182.2
6900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7200
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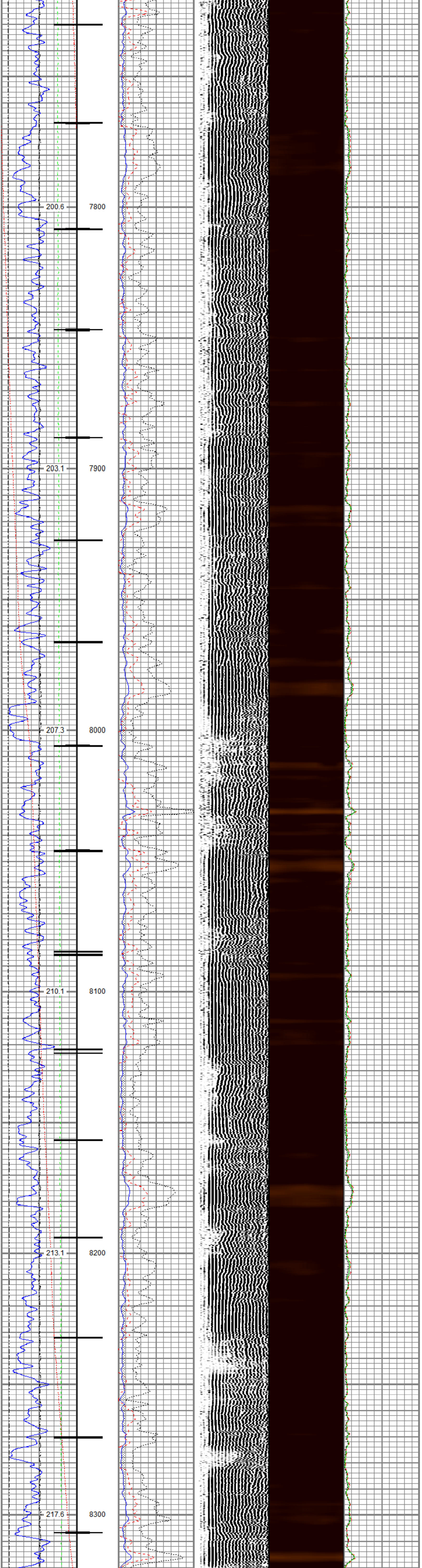
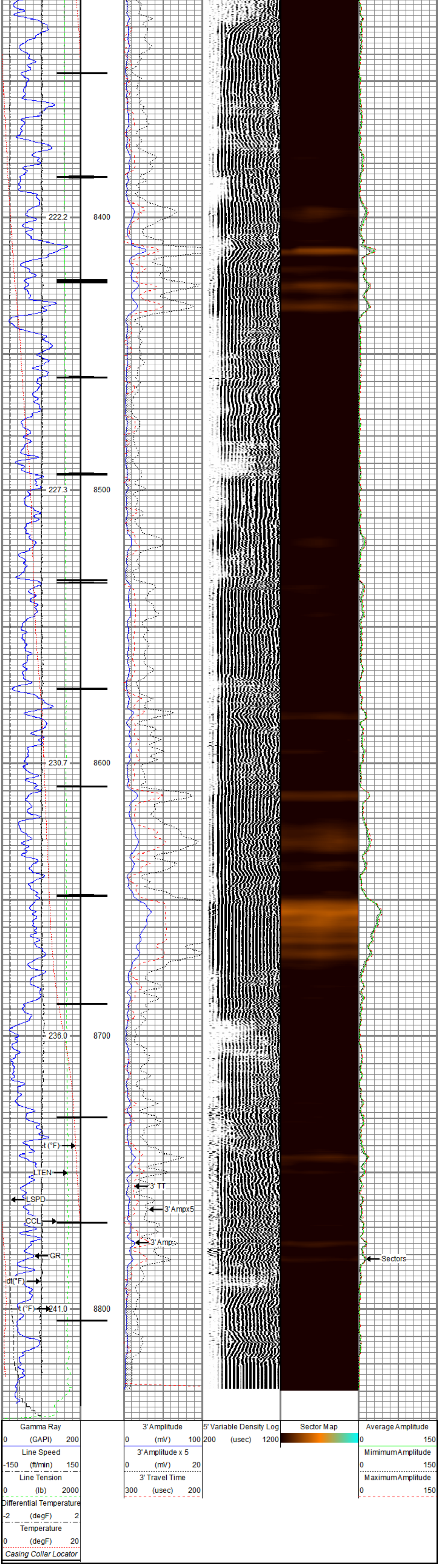
7300
192.2
7400
194.3
7500
196.4
7600
198.5
7700





RELIANCE
OILFIELD SERVICES

Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal rwf 22-12_rbl_01-30-20\processed_tep_federal rwf 22-12_rbl_01-30-20.db
Dataset Pathname	Repeat.2
Presentation Format	ros_radii_tep
Dataset Creation	Fri Jan 31 14:18:42 2020
Charted by	Depth in Feet scaled 1:240

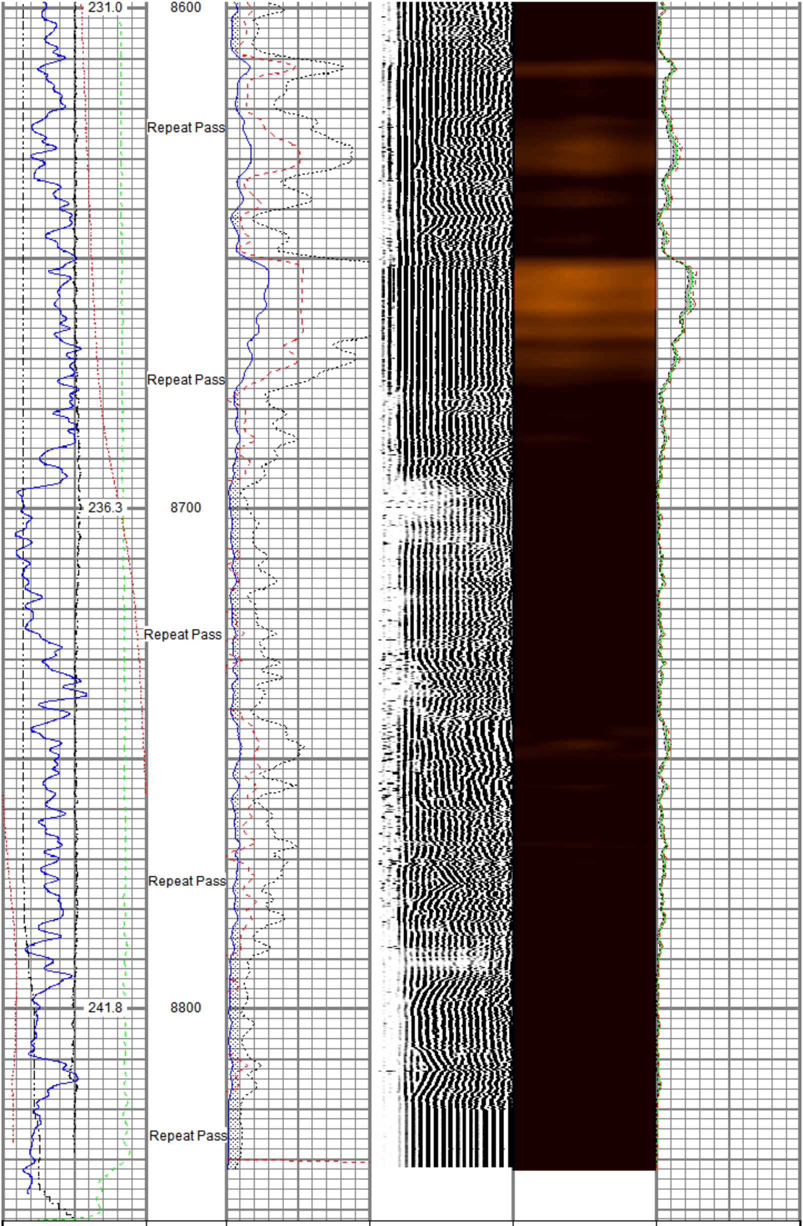
Gamma Ray
0 (GAPI) 200
Line Speed
-150 (ft/min) 150
Line Tension
0 (lb) 2000
Differential Temperature
-2 (degF) 2
Temperature
0 (degF) 20

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

5' Variable Density Log
200 (usec) 1200

Sector Map

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



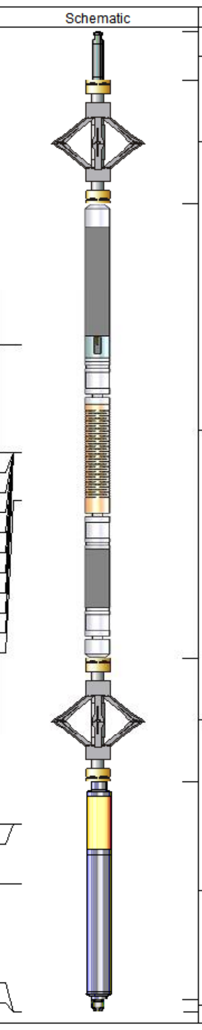
Gamma Ray
0 (GAPI) 200
Line Speed
-150 (ft/min) 150
Line Tension
0 (lb) 2000
Differential Temperature
-2 (degF) 2
Temperature
0 (degF) 20

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

5' Variable Density Log
200 (usec) 1200

Sector Map

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

Sensor	Offset (ft)	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
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer with GO Ends	2.55	2.75	32.00
TEMP	13.79					
			Probe Radii-2750 RBT (FW0712-020) 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 with 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 with GO Bottom	4.51	2.75	55.00
LOCTIM	0.00					
UTCTIM	0.00		GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset:	processed_tep_federal rwf 22-12_rbl_01-30-20.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\tep_federal rwf 22-12_rbl_01-30-20\processed_tep_federal rwf 22-12_rbl_0
Dataset Pathname	Main.2
Dataset Creation	Fri Jan 31 13:51:33 2020

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	2750 GOB	
Performed:	Mon Oct 01 11:32:32 2018	
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:	FW0712-020	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	30.236	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.824	0.800	81.196	96.961	1.286
CAL	-0.005	0.751				
5'	-0.002	0.679	0.800	81.196	118.004	1.023
SUM						
S1	-0.006	0.872	0.000	100.000	114.004	0.642
S2	-0.002	0.843	0.000	100.000	118.291	0.289
S3	-0.002	0.838	0.000	100.000	119.006	0.252
S4	-0.004	0.842	0.000	100.000	118.193	0.445
S5	-0.004	0.834	0.000	100.000	119.325	0.496
S6	0.002	0.815	0.000	100.000	122.901	-0.193
S7	0.001	0.815	0.000	100.000	122.807	-0.104
S8	0.009	0.818	0.000	100.000	123.582	-1.151

Air Zero Calibration, performed Thu Jan 30 17:10:55 2020:

	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:	FW0712-020	
Tool Model:	2750 RBT	
Performed:	Mon Oct 01 11:32:14 2018	
	Reference	Reading
Low Reference:	100.00 degF	109.43 degF
High Reference:	350.00 degF	405.87 degF
Gain:	0.84	
Offset:	7.72	
Delta Spacing	1	

RELIANCE
OILFIELD SERVICES

Company	TEP Rocky Mountain LLC
Well	Federal RWF 22-12
Field	Rulison
County	Garfield
State	Colorado