



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Strait Bottom Ranch GM 413-14
Field Grand Valley
County Garfield
State Colorado

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Well Strait Bottom Ranch GM 413-14
Field Grand Valley
County Garfield State Colorado

Location: API #: 05-045-24252
SEC 14 TWP 7S RGE 96W
Permanent Datum Ground Level Elevation 5172.5'
Log Measured From Kelly Bushing 24 FT
Drilling Measured From Kelly Bushing
Other Services
Elevation
K.B. 5196.5'
D.F. 5195.5'
G.L. 5172.5'

| | | | | |
|------------------------|--------------------|--------------|-------|---------|
| Date | 07-MAY-2019 | | | |
| Run Number | Two | | | |
| Depth Driller | 6690 FT | | | |
| Depth Logger | 6647 FT | | | |
| Bottom Logged Interval | 6633 FT | | | |
| Top Log Interval | Surface | | | |
| Open Hole Size | 8.750" | | | |
| Type Fluid | Water | | | |
| Density / Viscosity | 8.34 lb/gal | | | |
| Max. Recorded Temp. | 183°F | | | |
| Estimated Cement Top | See Log | | | |
| Time Well Ready | ROA | | | |
| Time Logger on Bottom | 7:05 | | | |
| Equipment Number | HD-0359 | | | |
| Location | Grand Junction, CO | | | |
| Recorded By | Z. Fisher | | | |
| Witnessed By | D. Welsh | | | |
| Borehole Record | | | | |
| Run Number | Bit | From | To | Size |
| | | | | Weight |
| | | | | From |
| | | | | To |
| Tubing Record | | | | |
| Casing Record | Size (in) | Wgt (lbs/ft) | Grade | Top |
| Surface Casing | 9 5/8 | 32.3 | H-40 | Surface |
| Intermediate #1 | 4 1/2 | 11.6 | P-110 | Surface |
| Intermediate #2 | | | | |
| Inner | | | | |

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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 3482-3504 FT
Recorded with 0 PSI Surface Induced Pressure

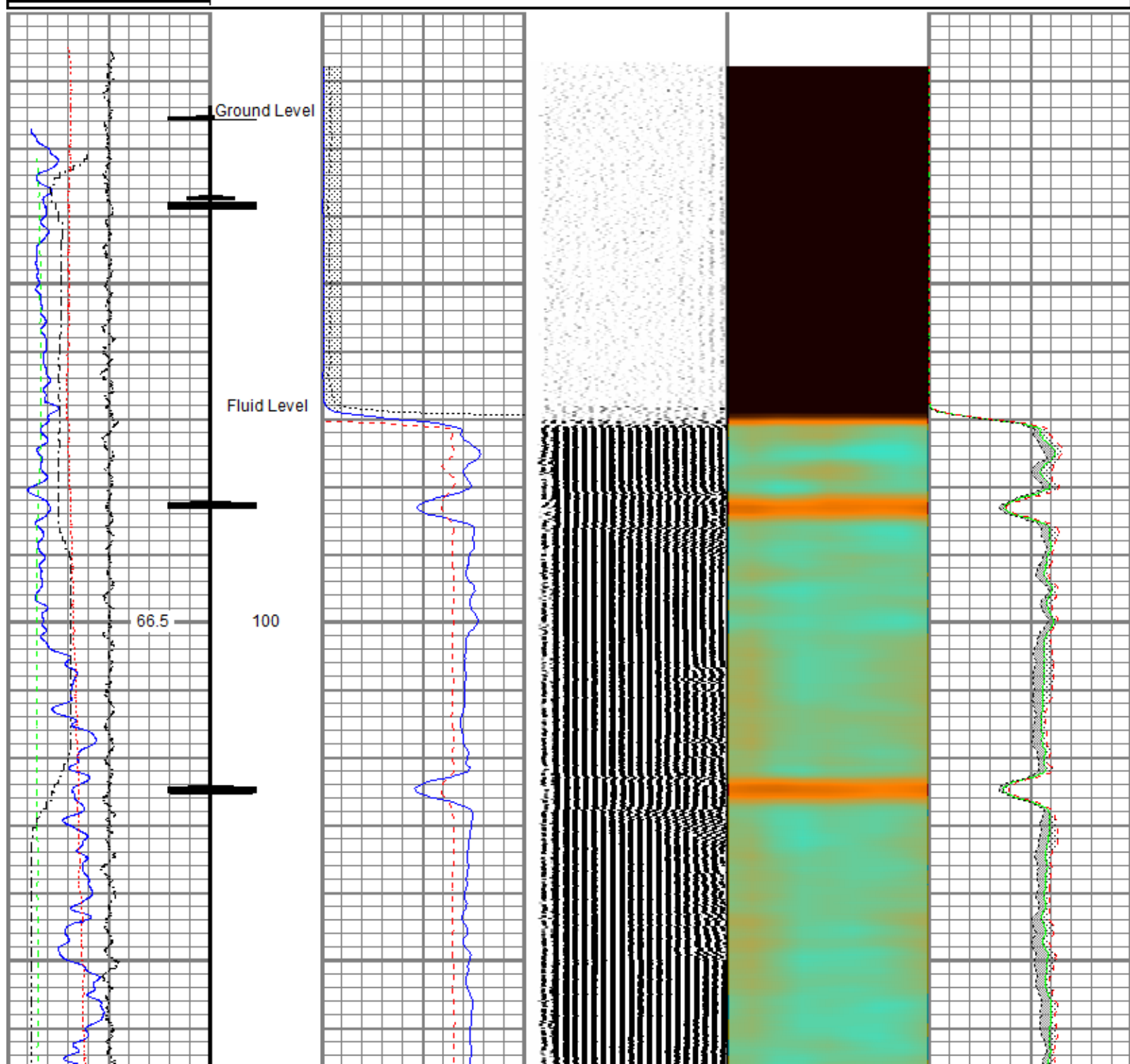
Thank you for choosing Reliance Oilfield Services, LLC!

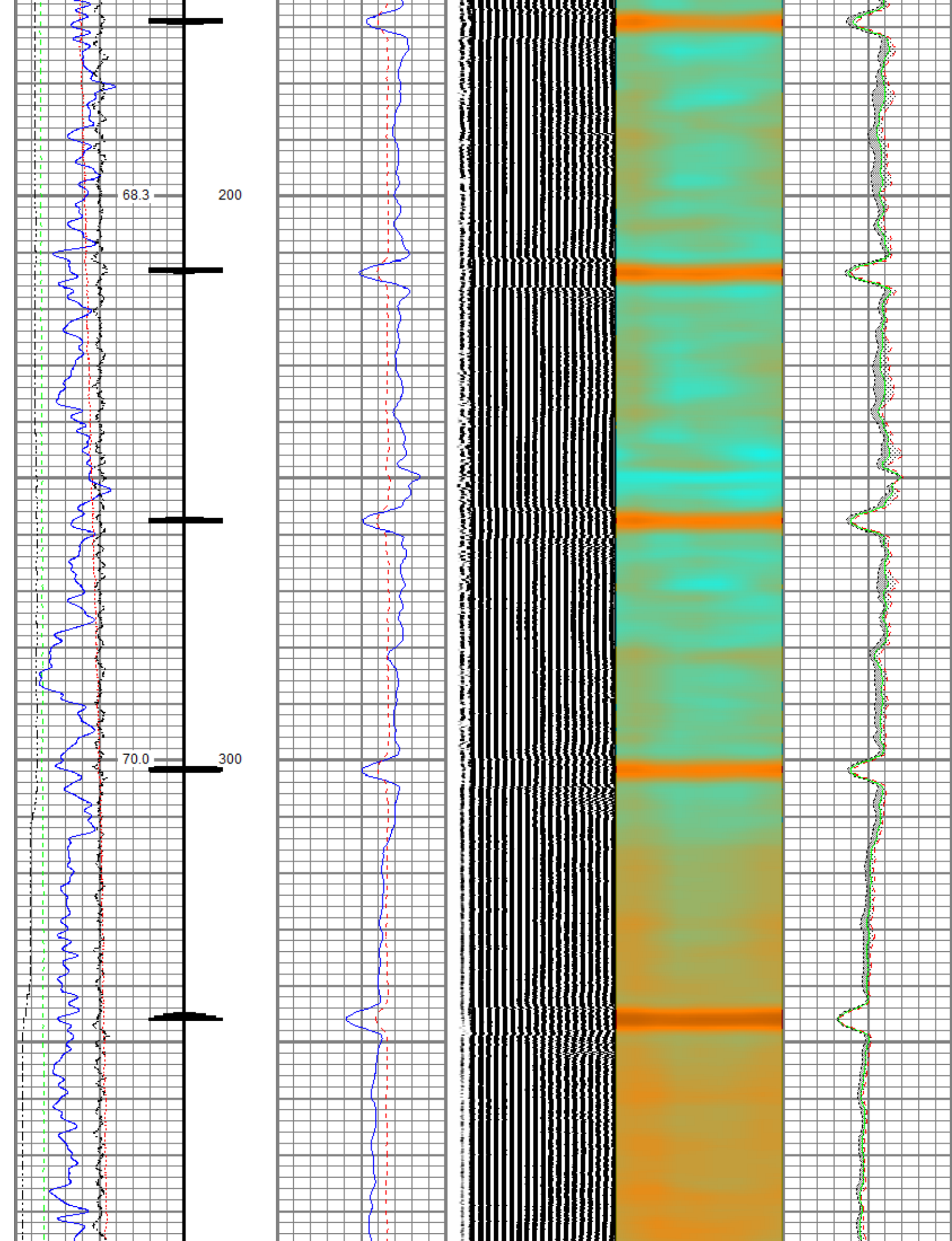
Main Pass

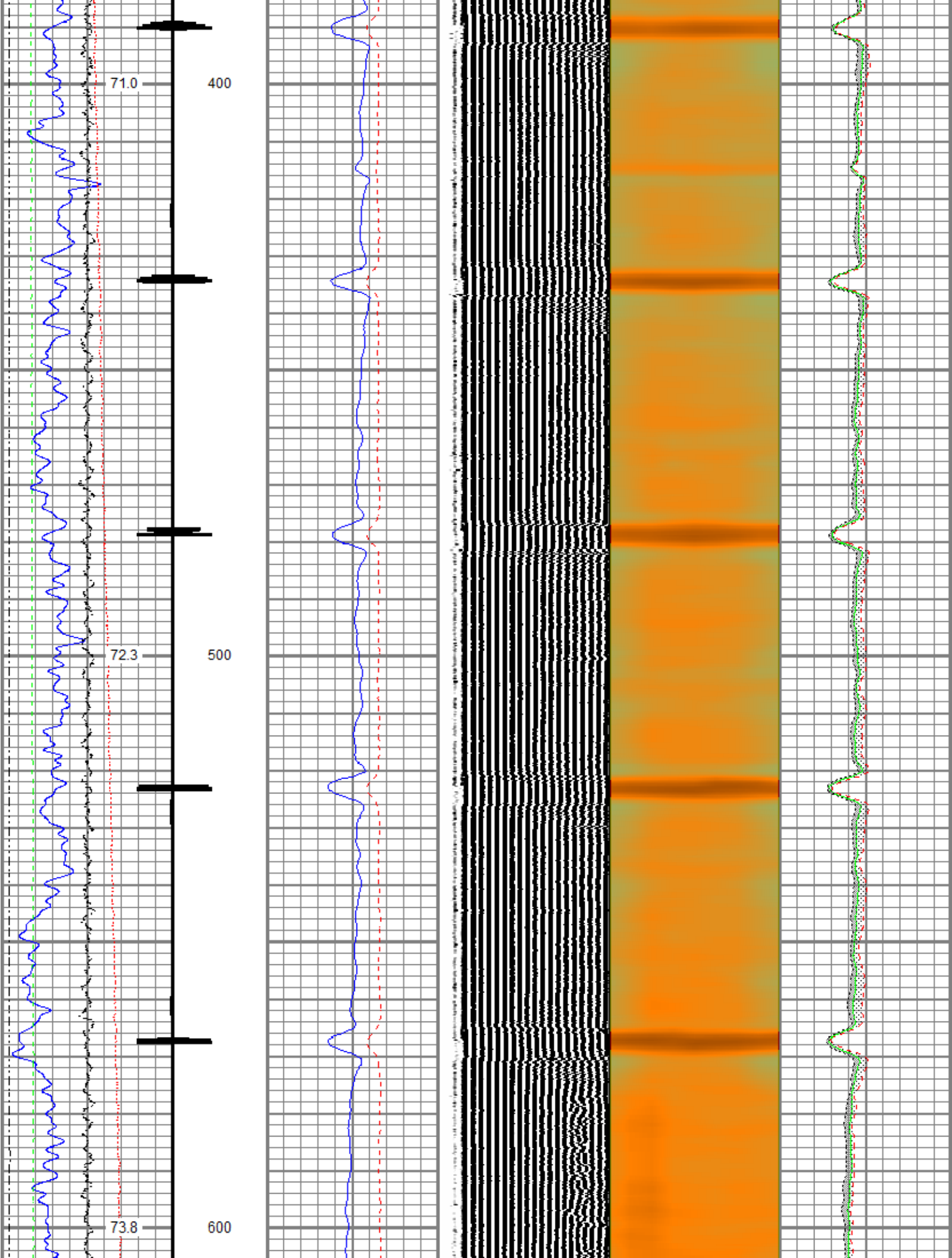


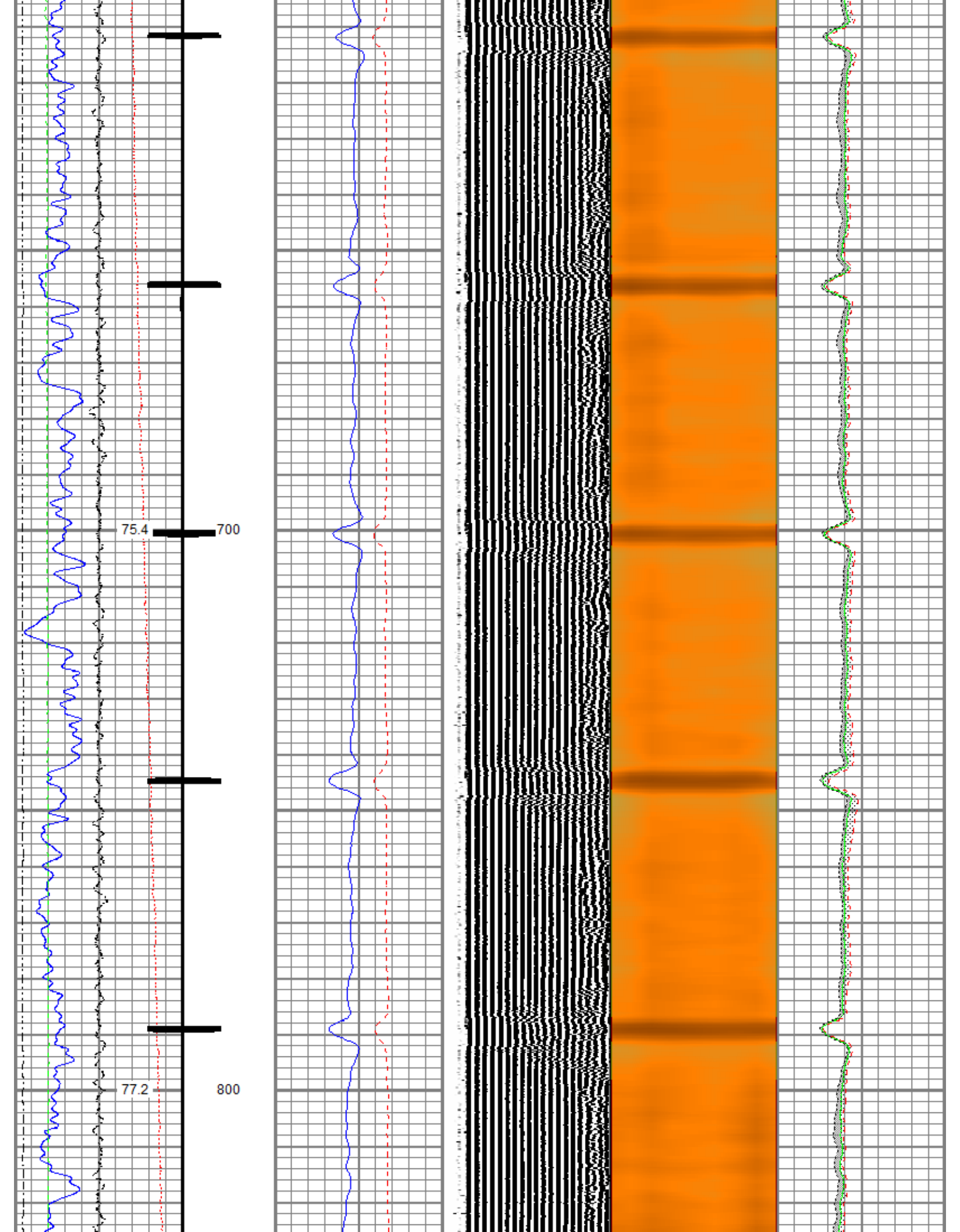
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 Dataset Pathname main.2
 Presentation Format ros_rbt004_tep
 Dataset Creation Wed May 08 11:38:30 2019
 Charted by Depth in Feet scaled 1:240

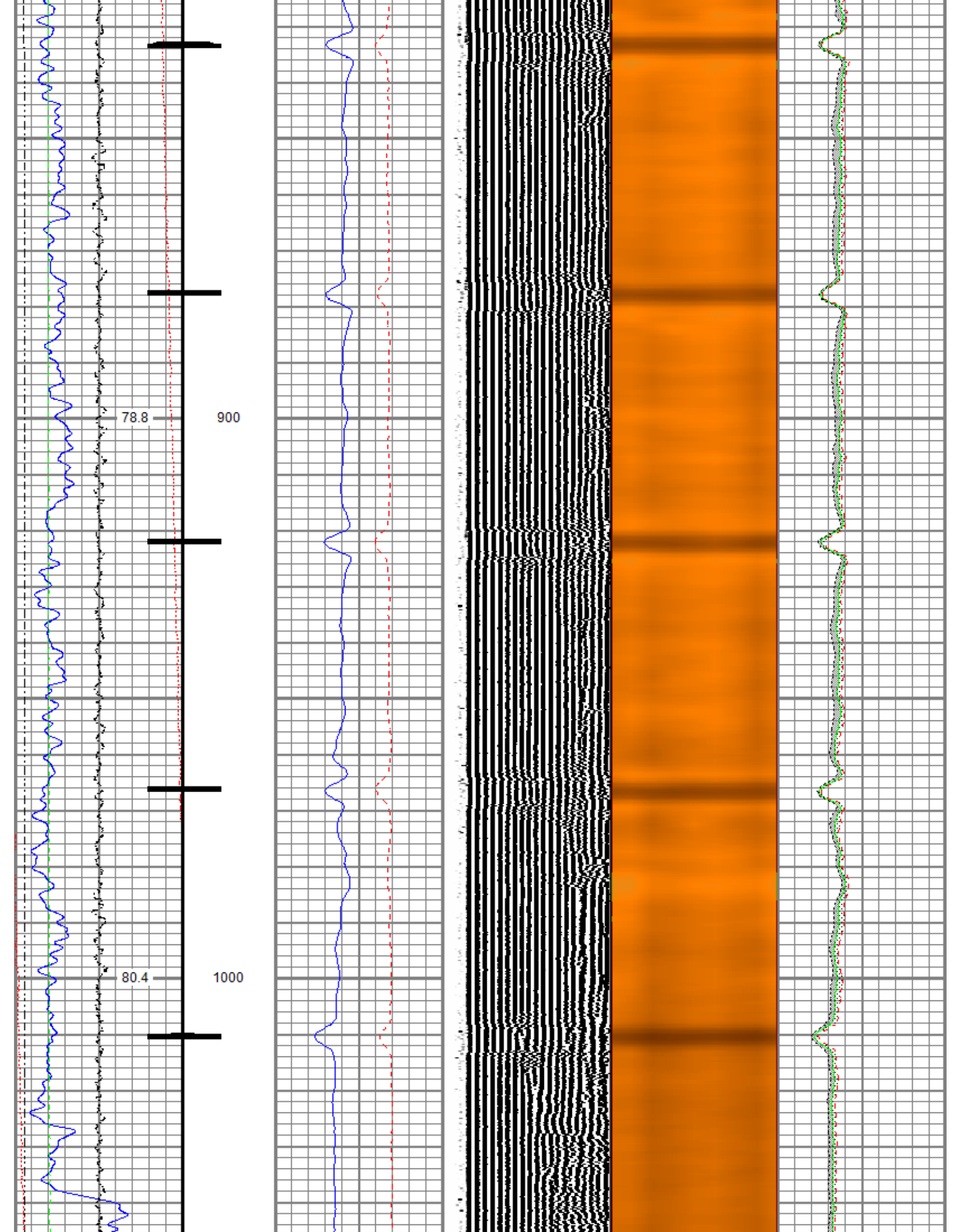
| | | | | | | |
|--------------------------|----|-----------------------|-------------------------|------------|---|-----------------------|
| Gamma Ray | 0 | 3' Amplitude (mV) 100 | 5' Variable Density Log | Sector Map | 0 | Average Amplitude 150 |
| (GAPI) 200 | | 3' Amplitude x 5 | 200 (usec) 1200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

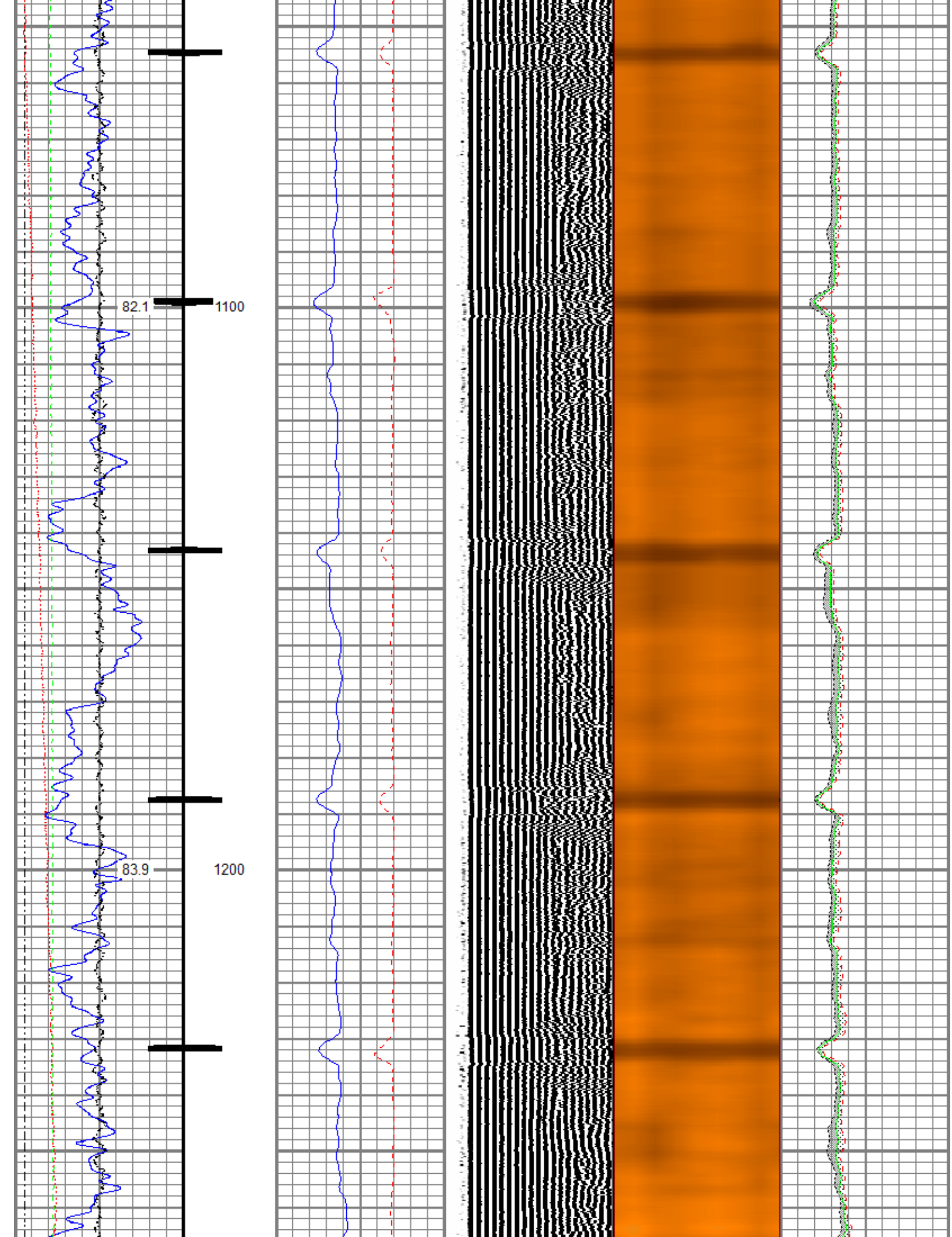


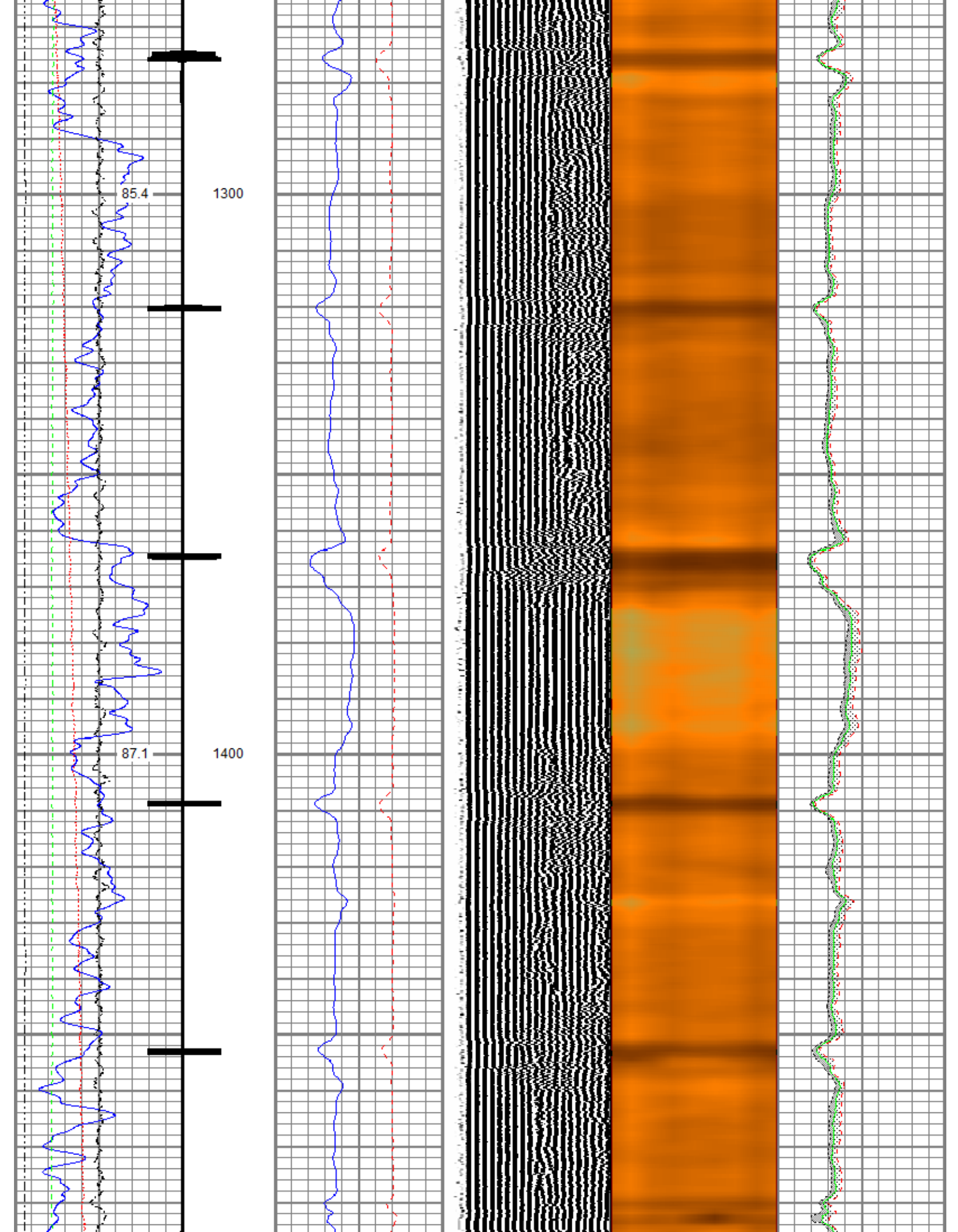


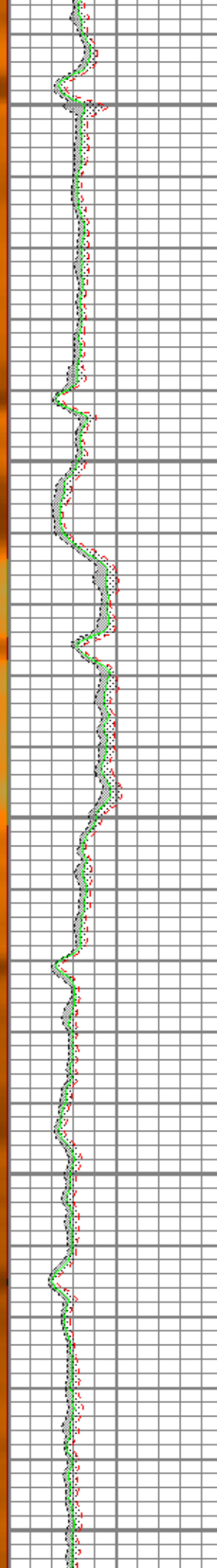
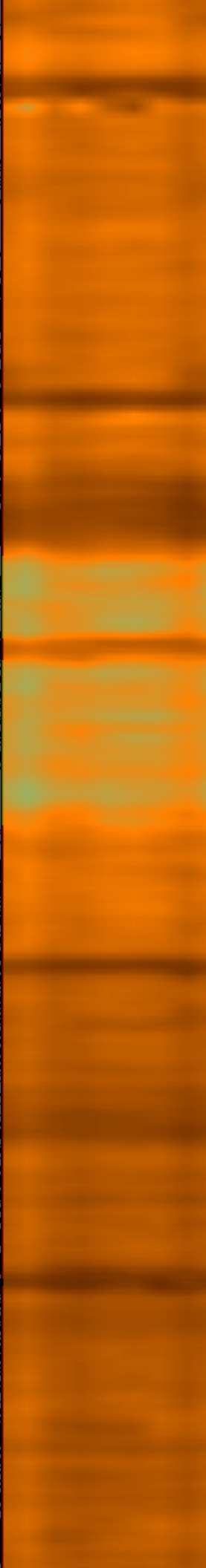
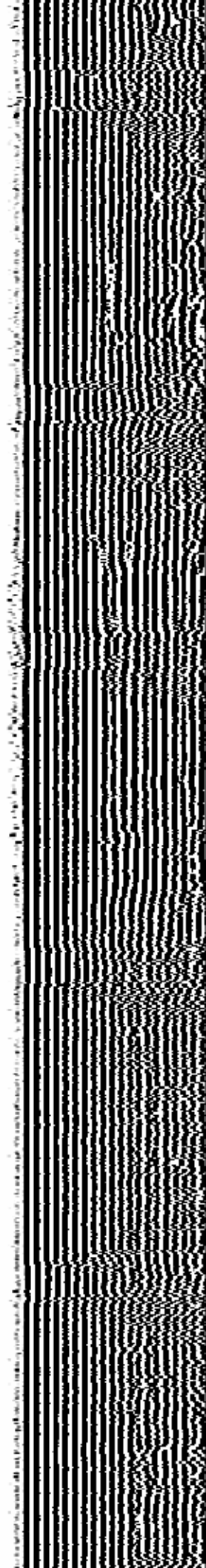
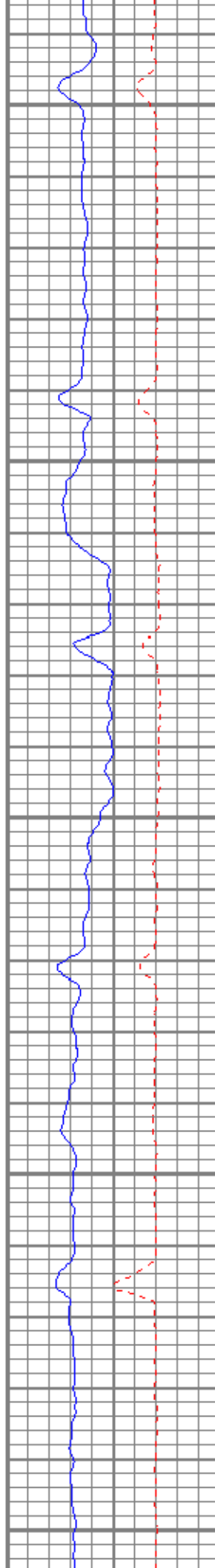
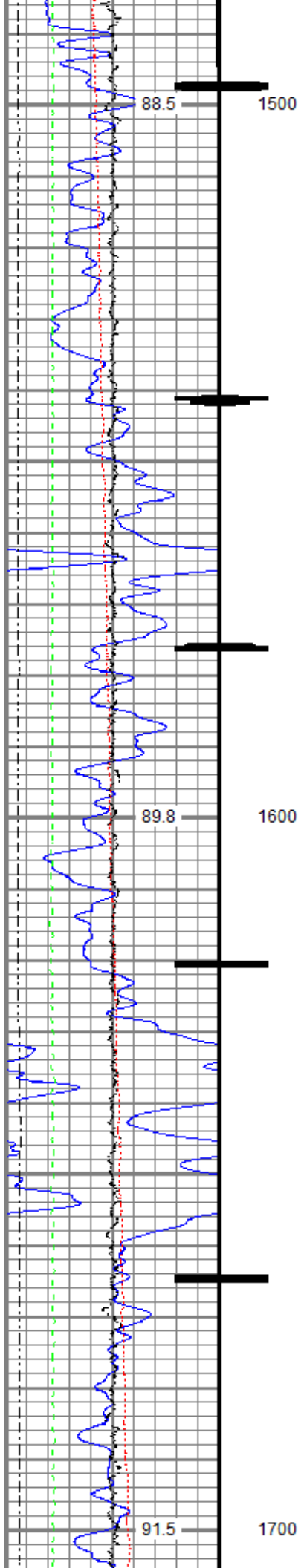


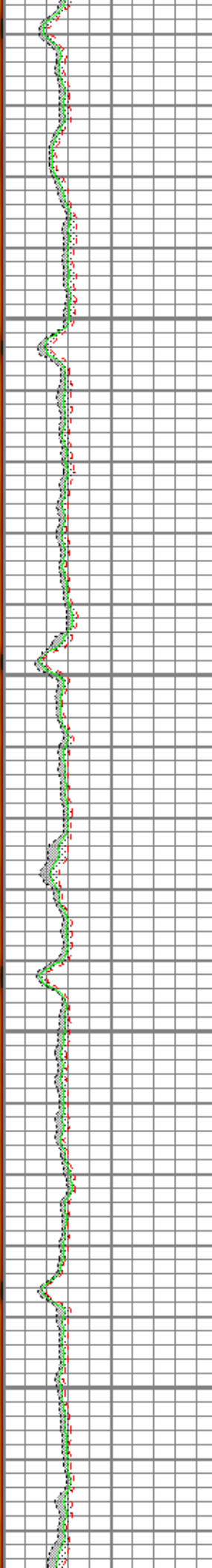
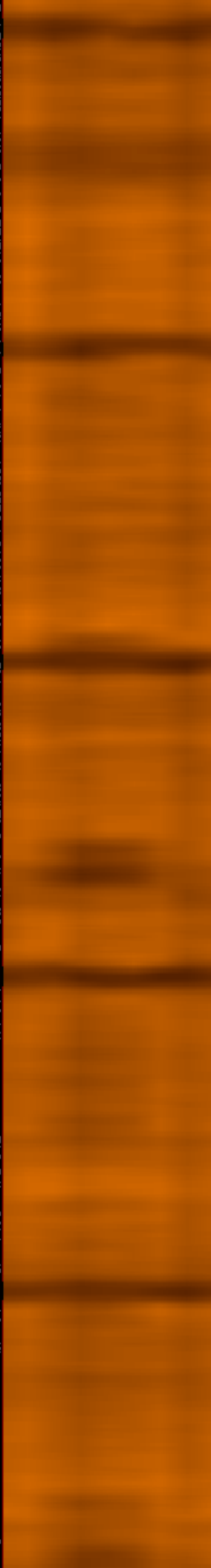
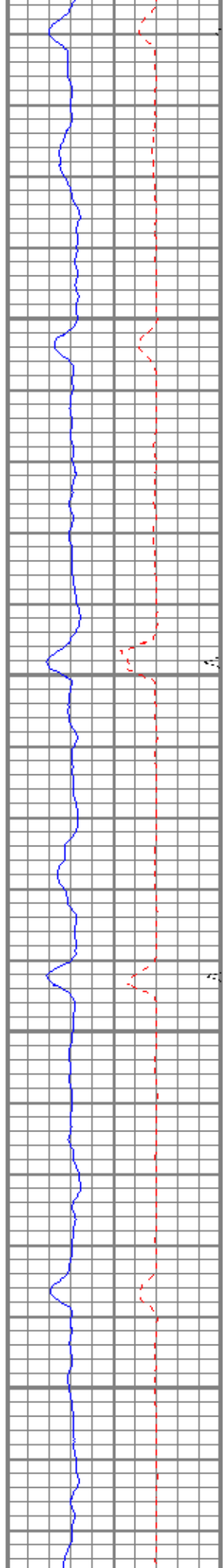
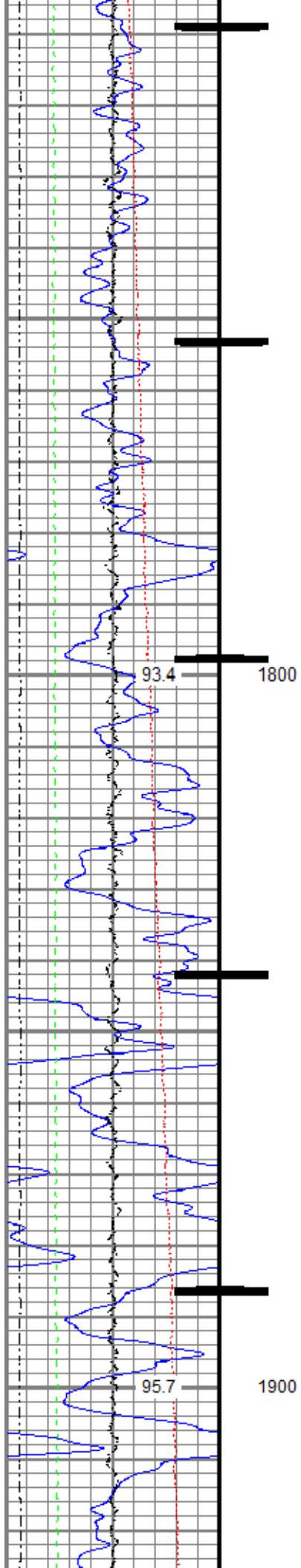


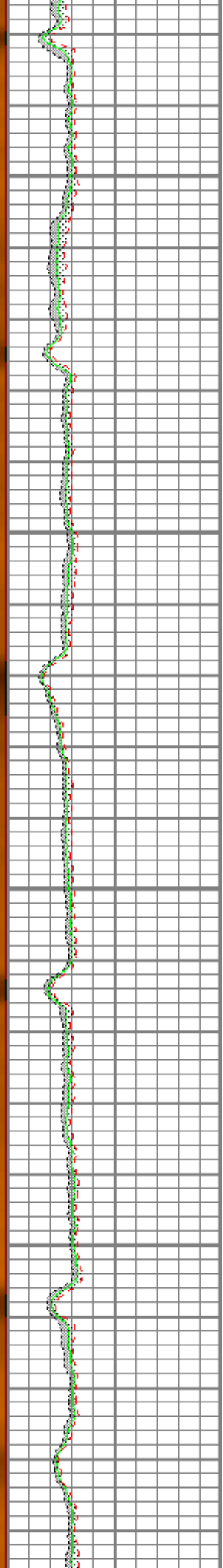
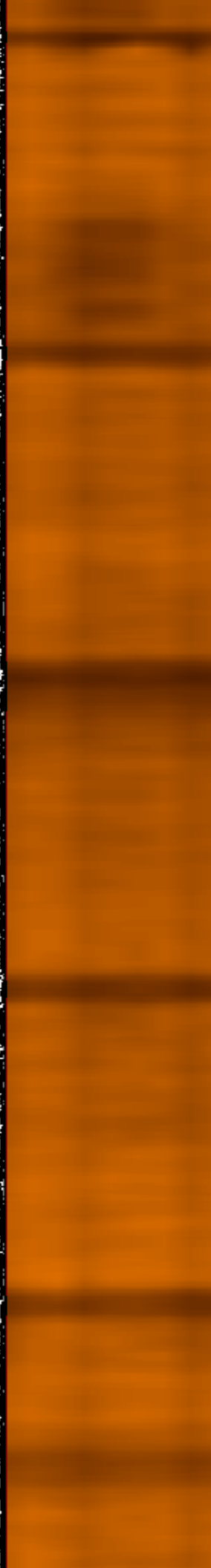
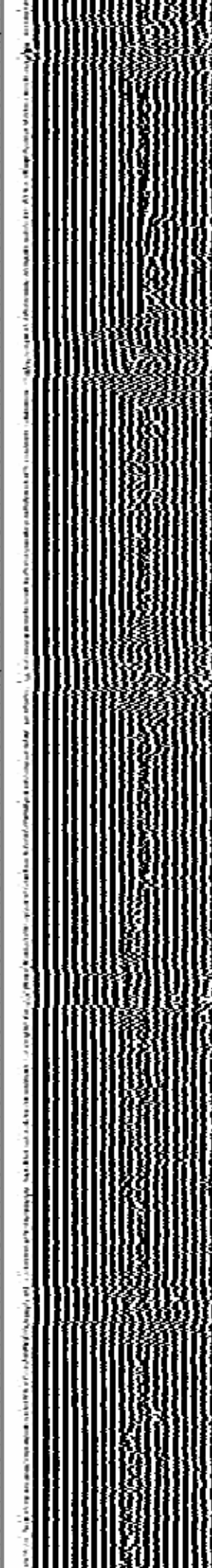
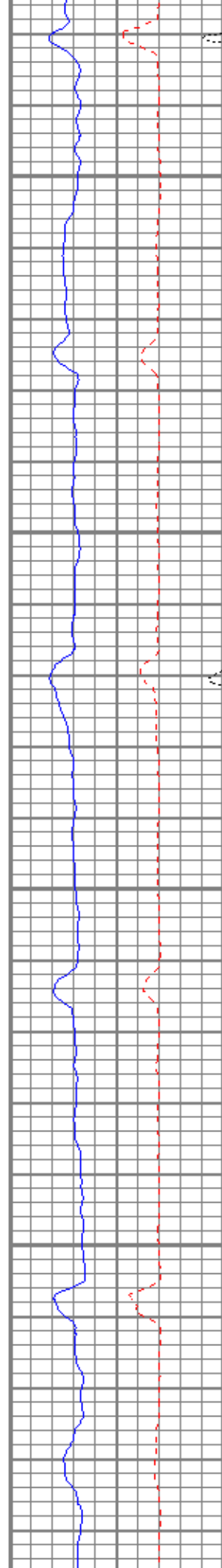
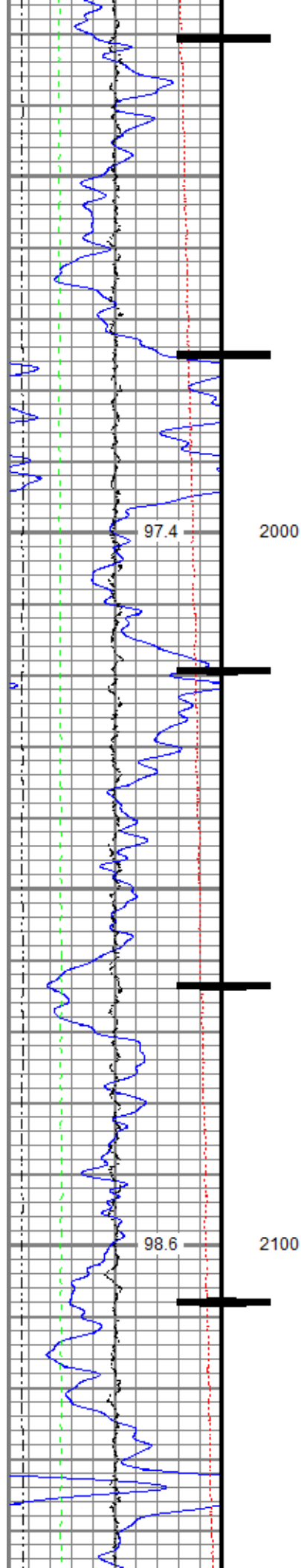


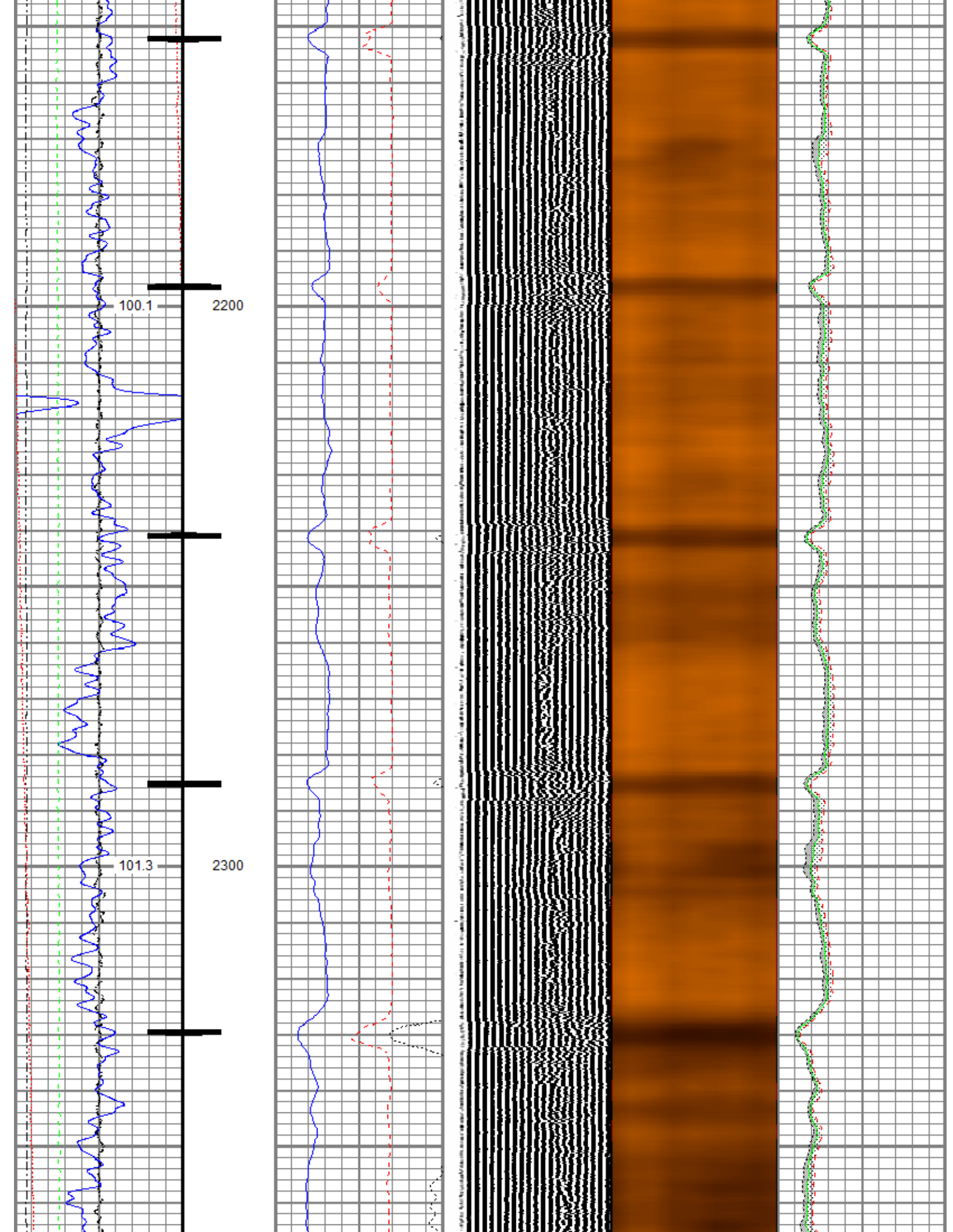


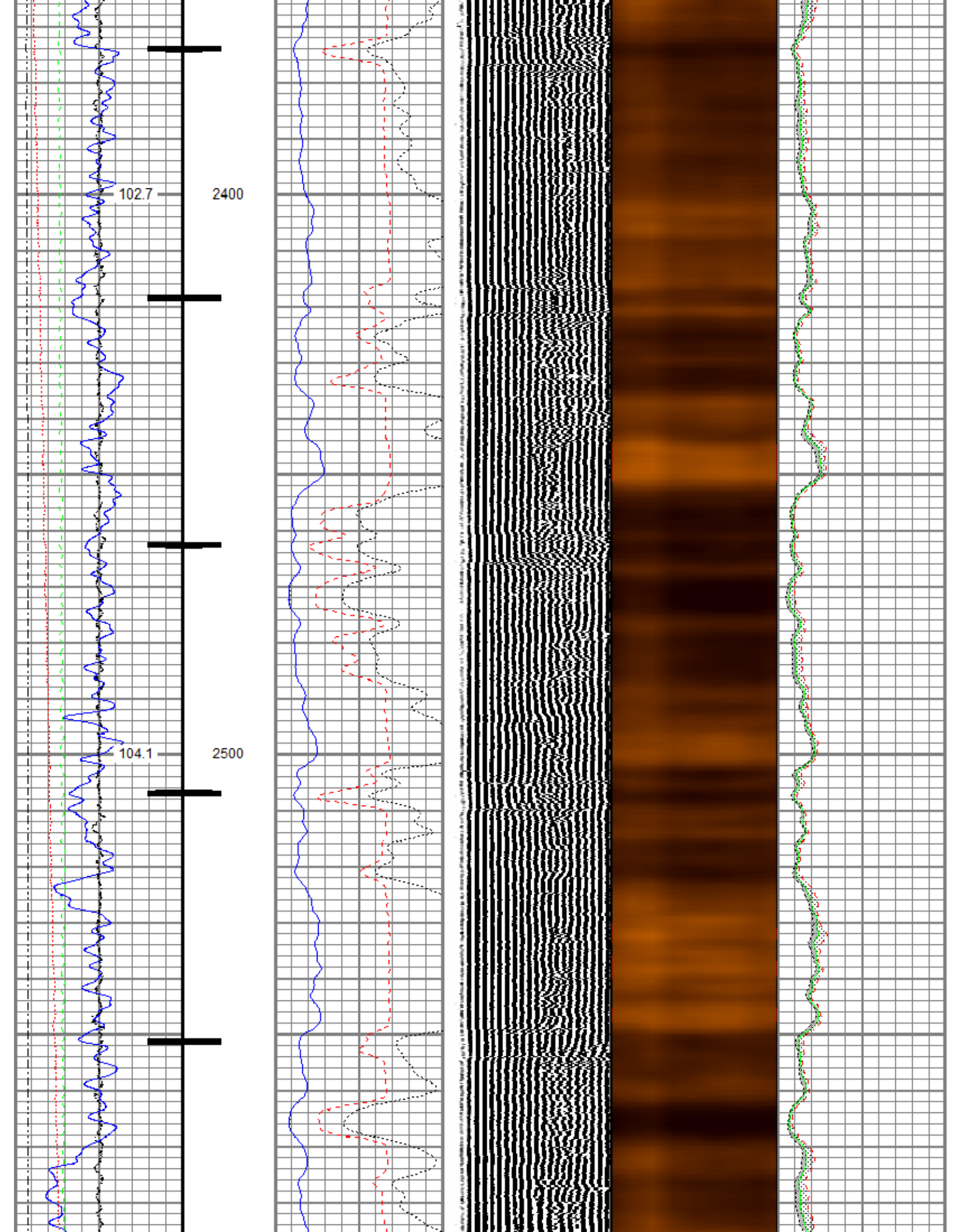


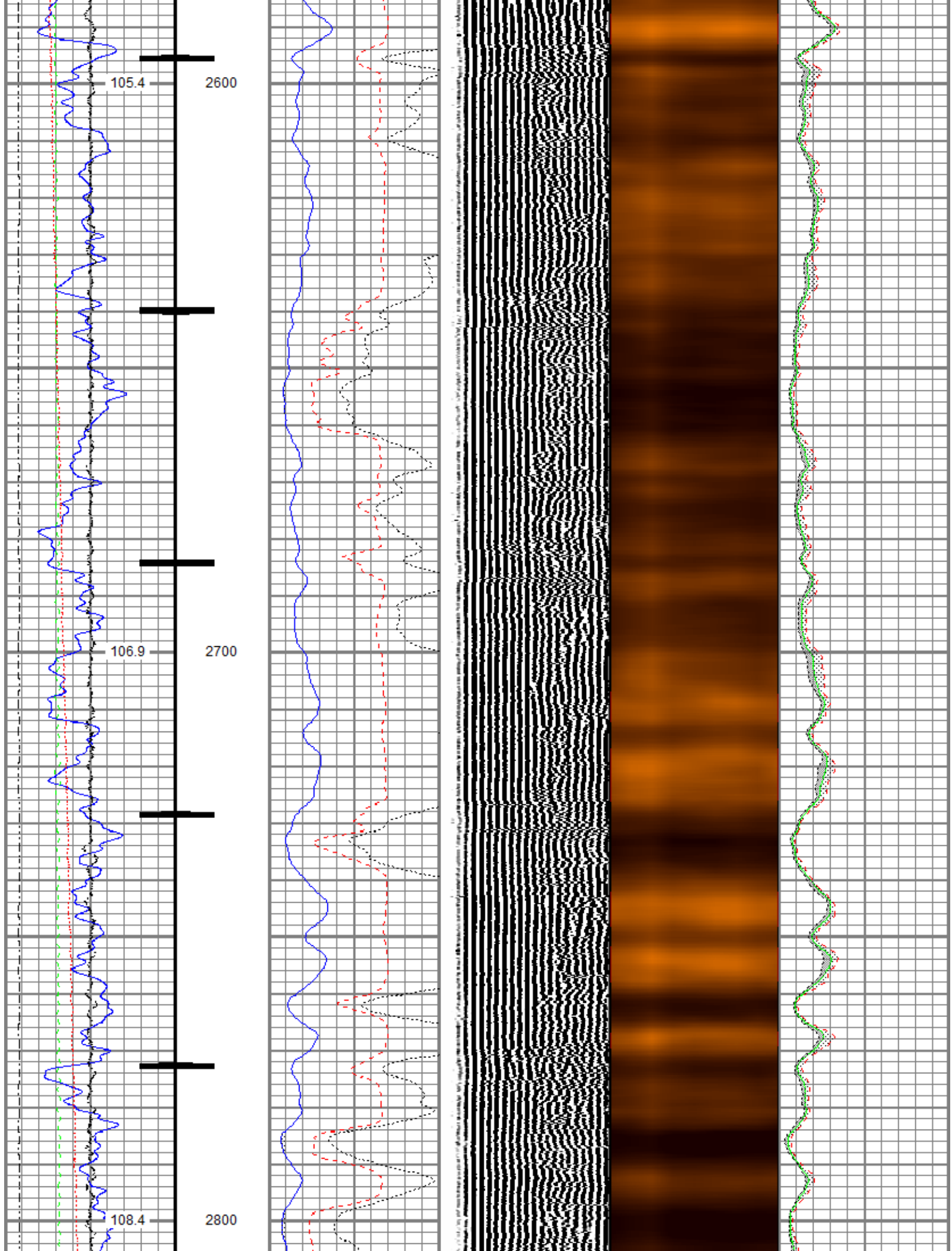


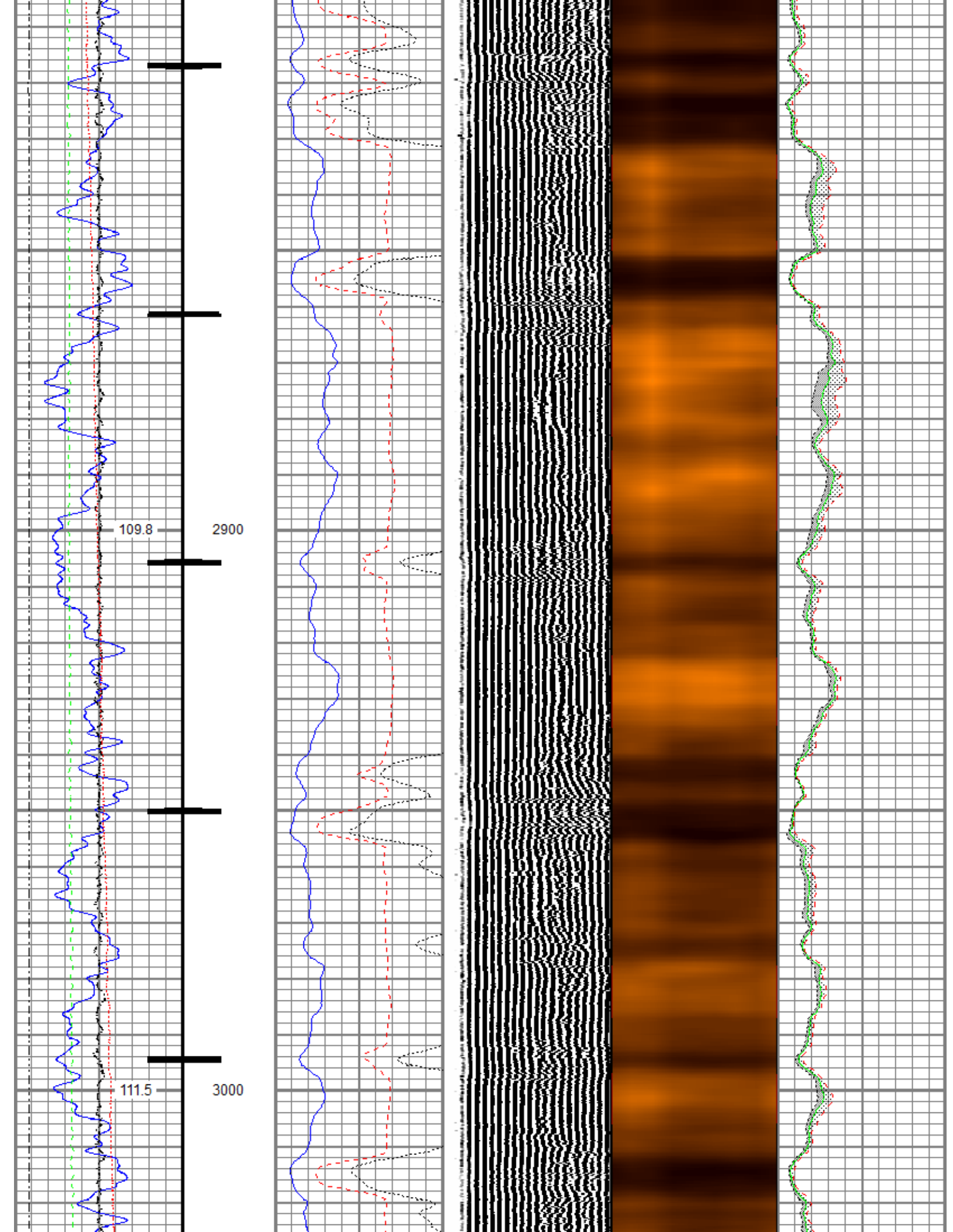


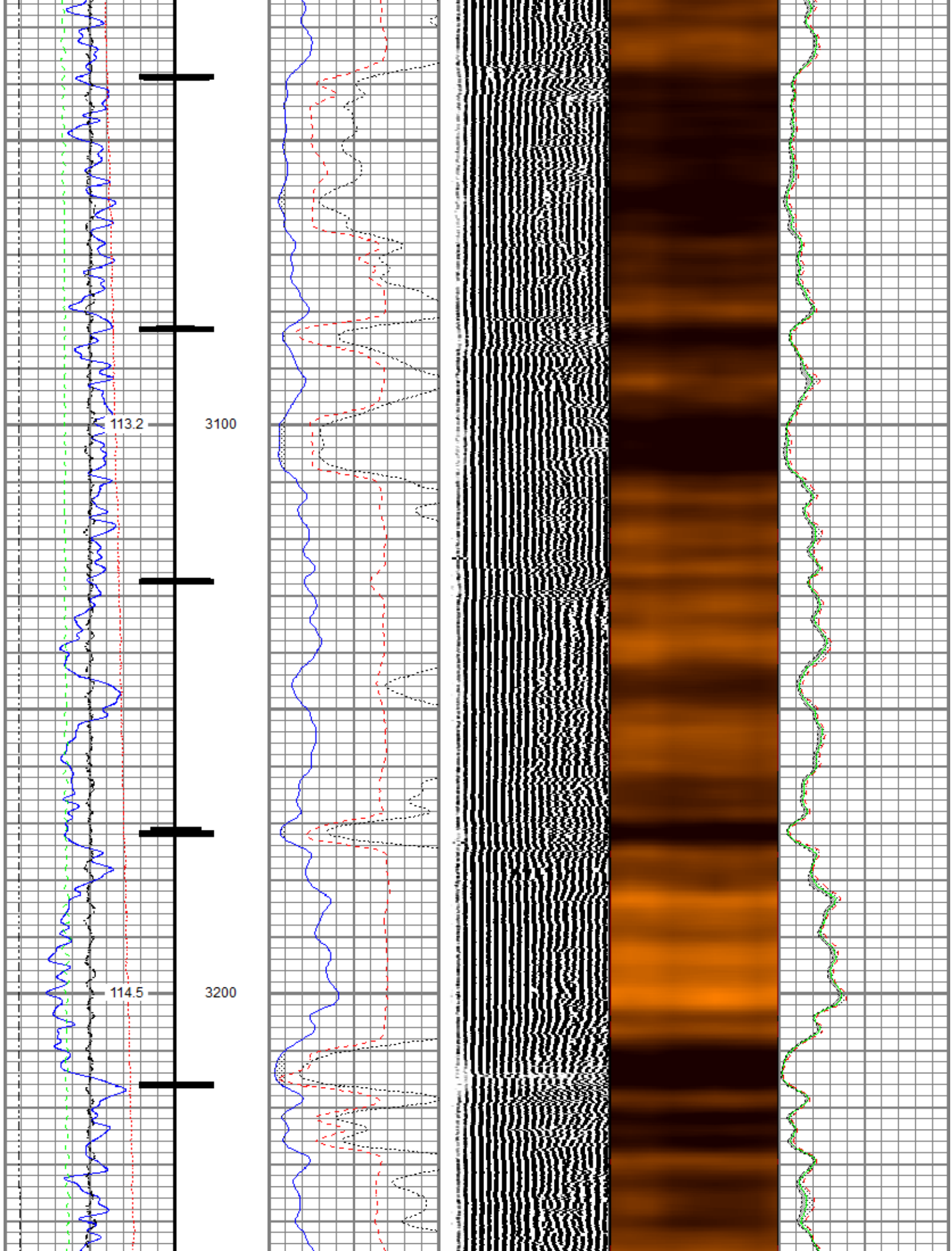


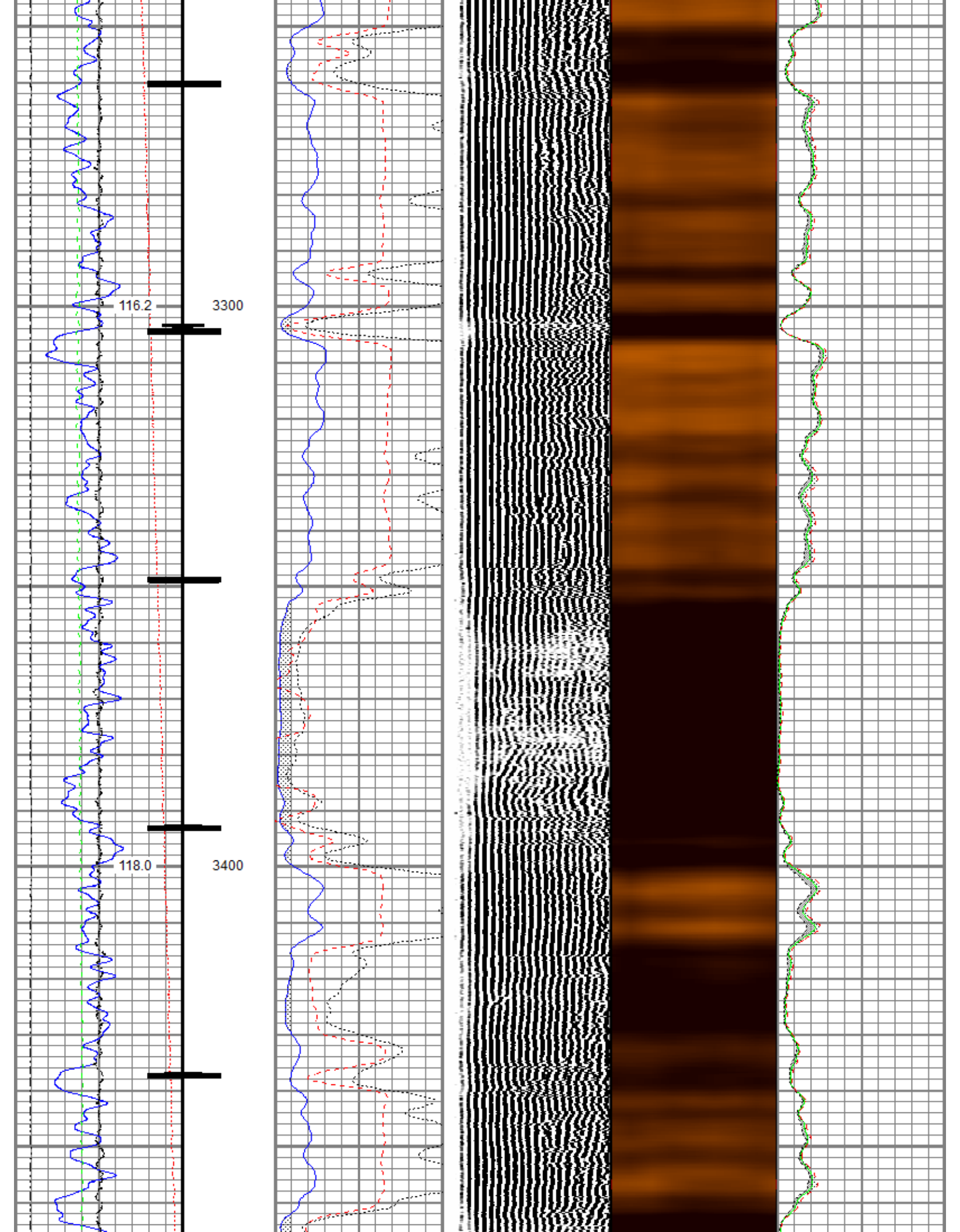


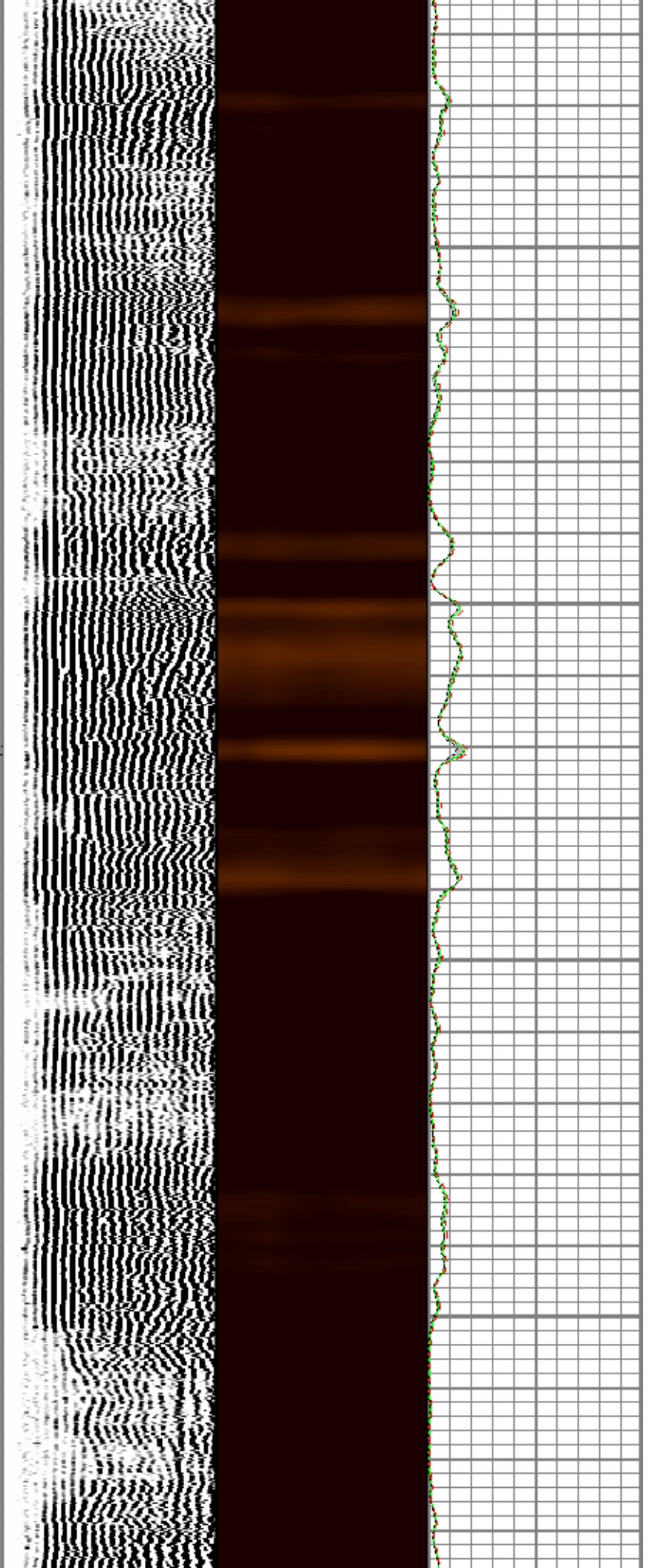
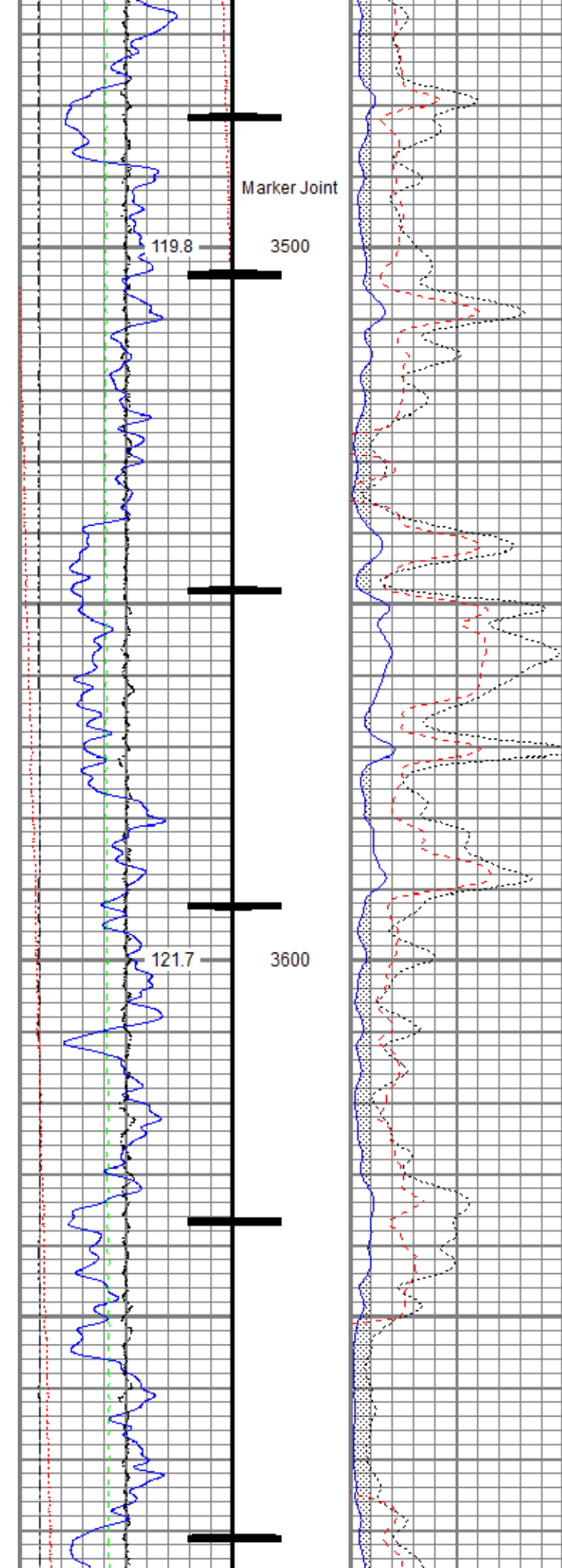


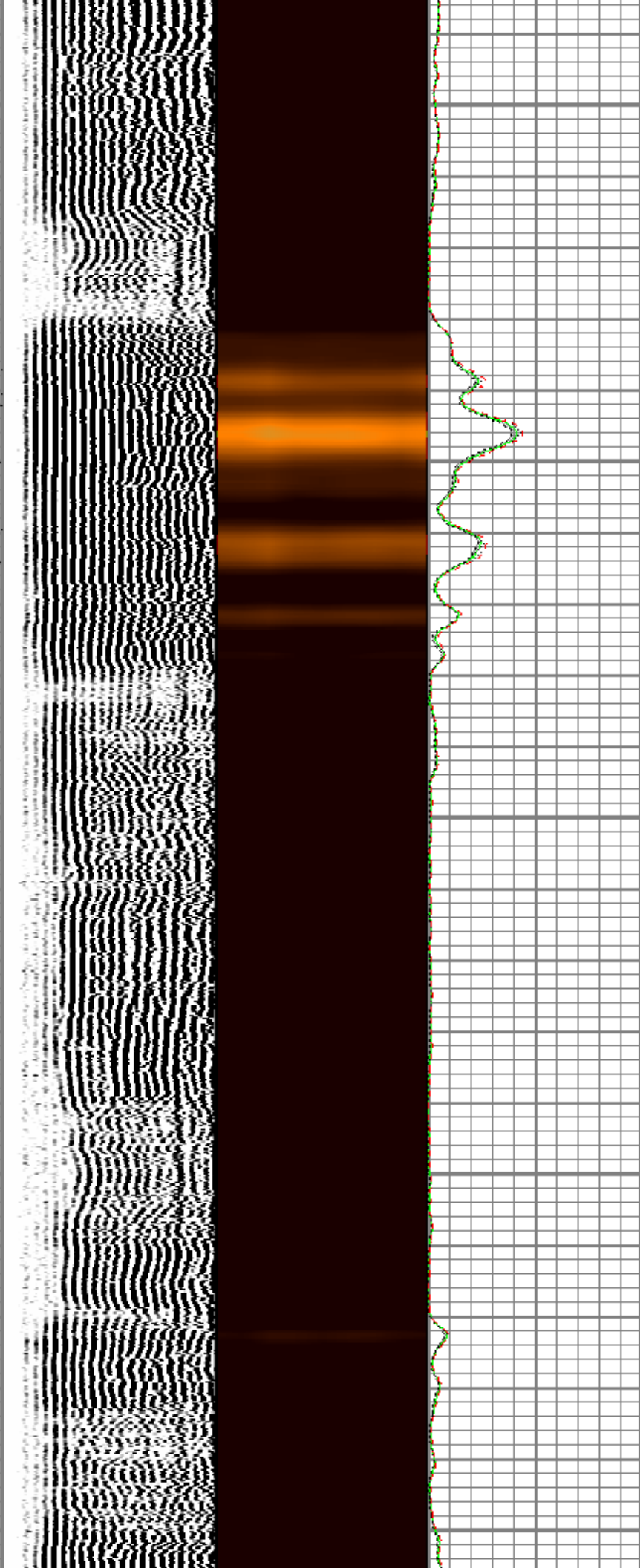
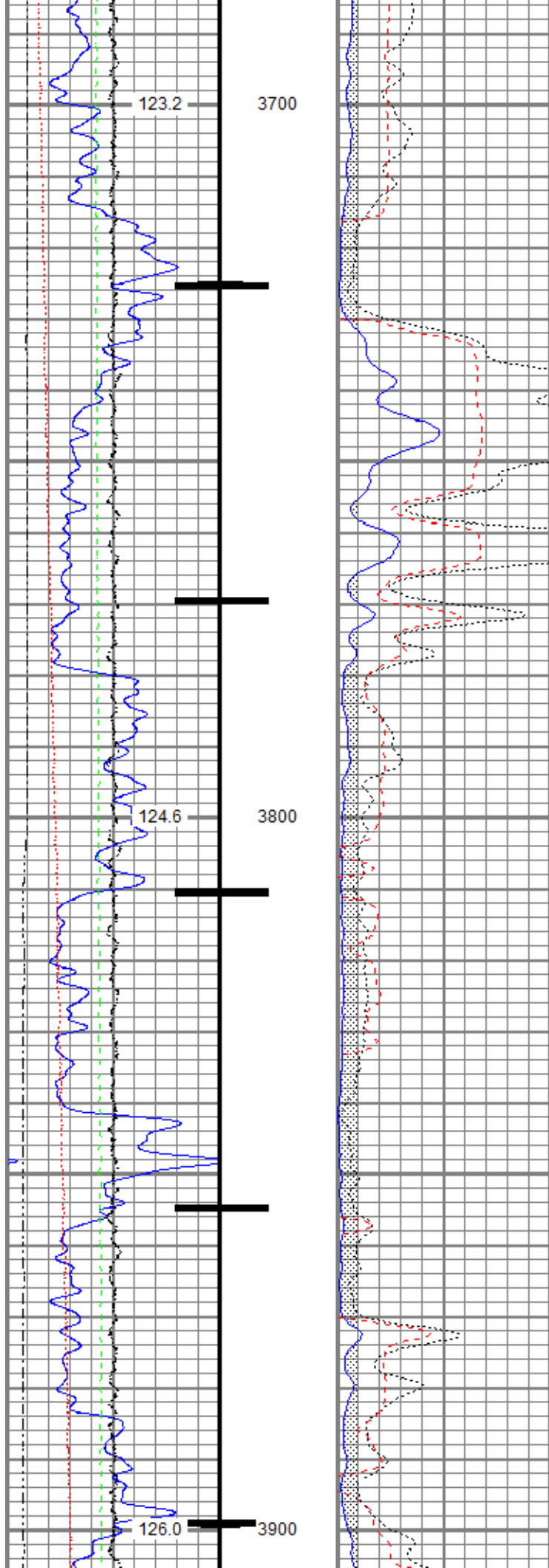


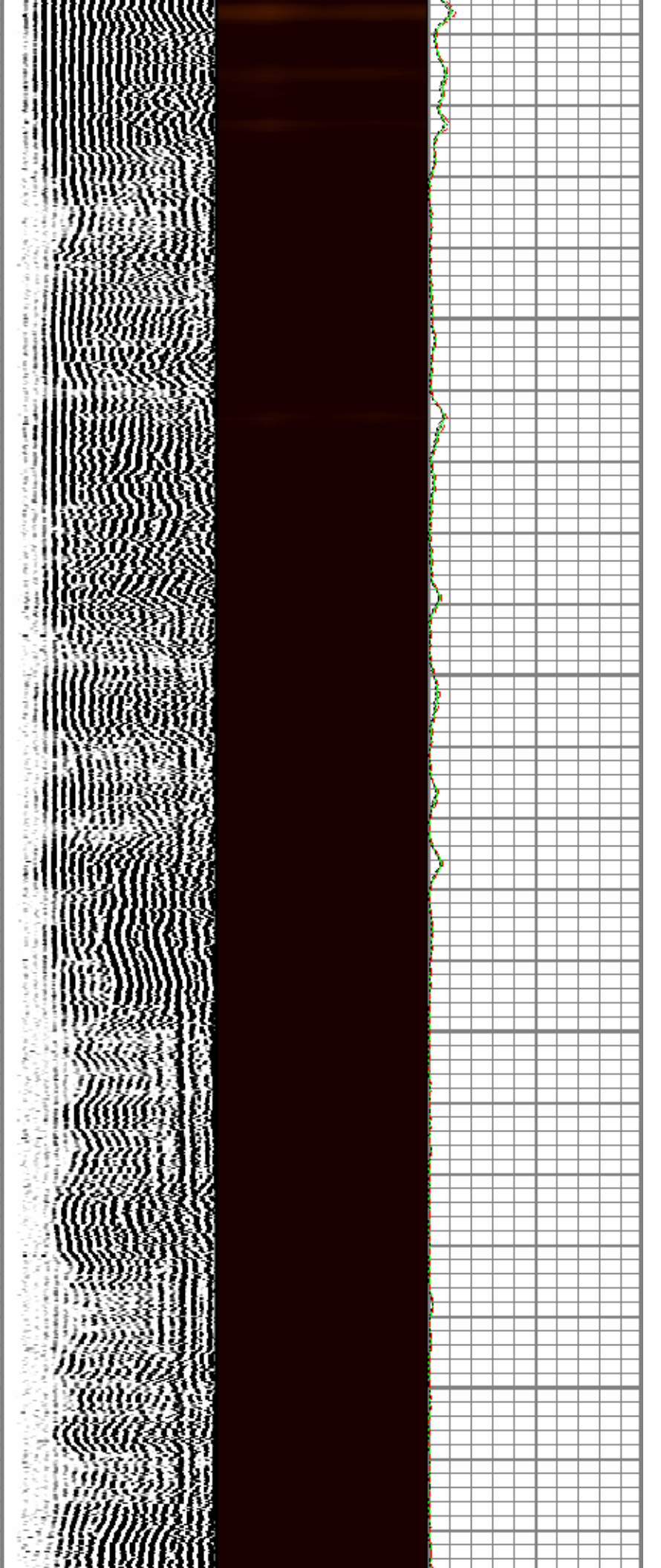
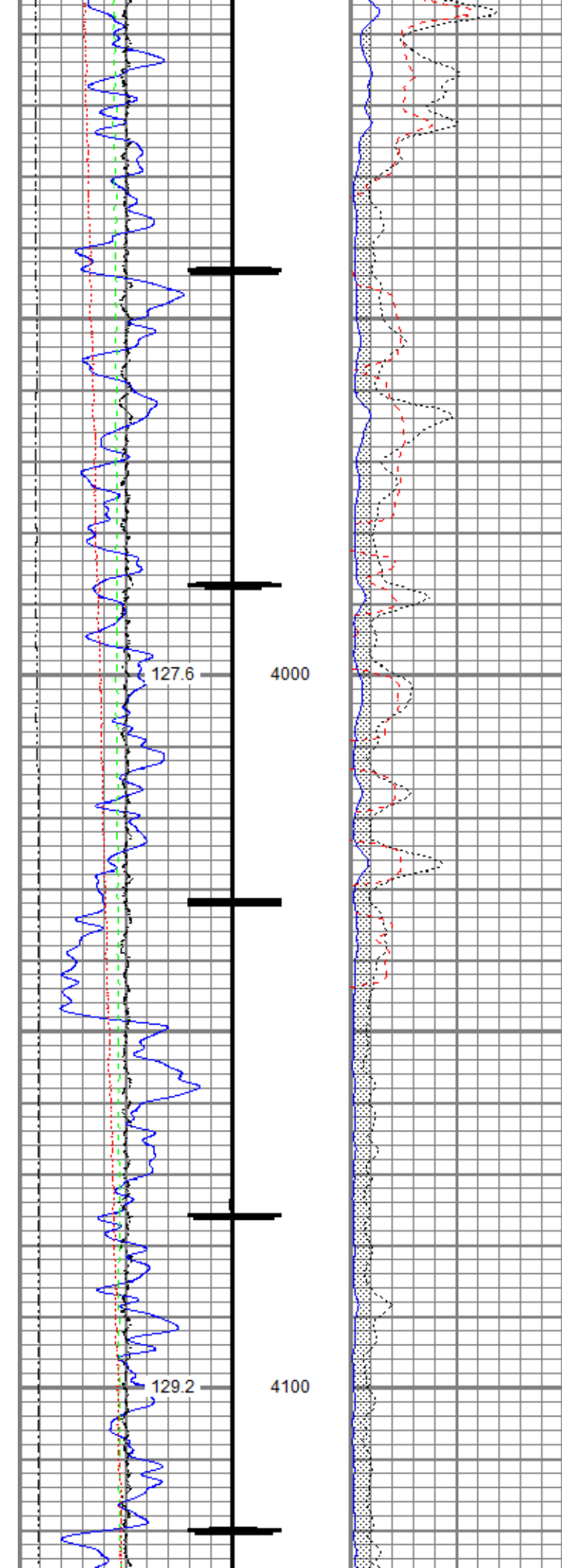


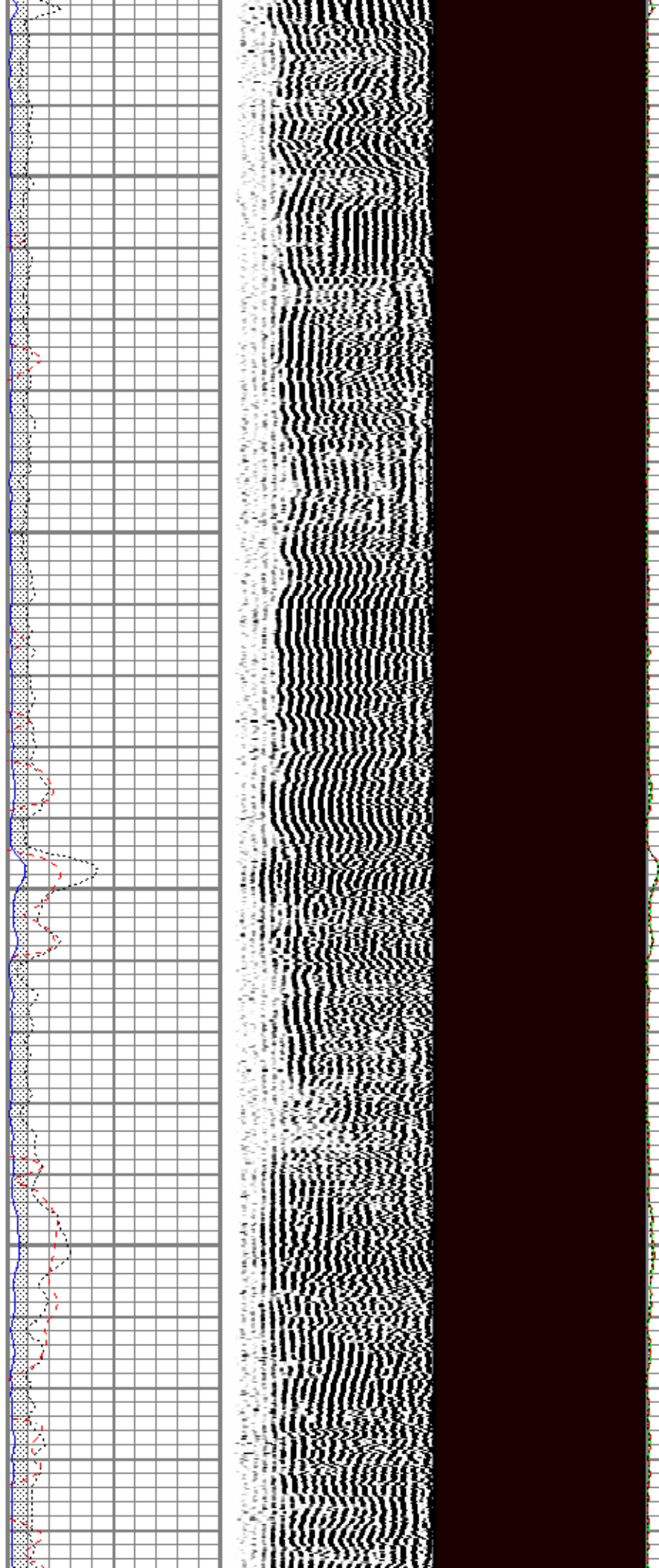
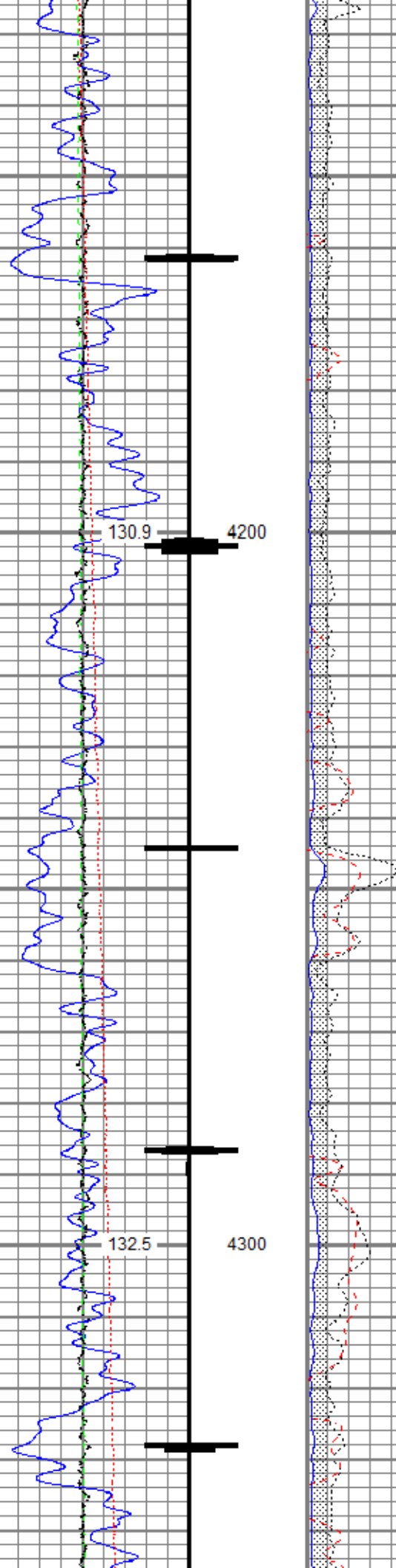


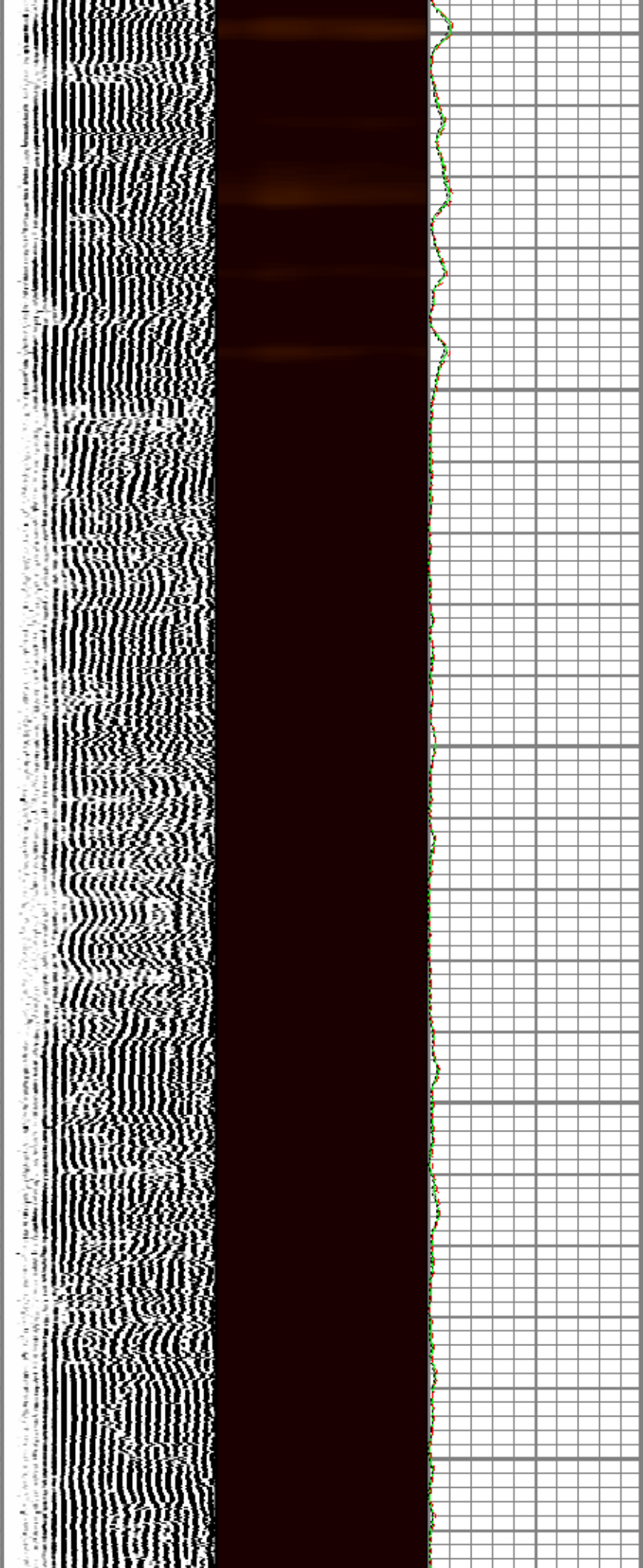
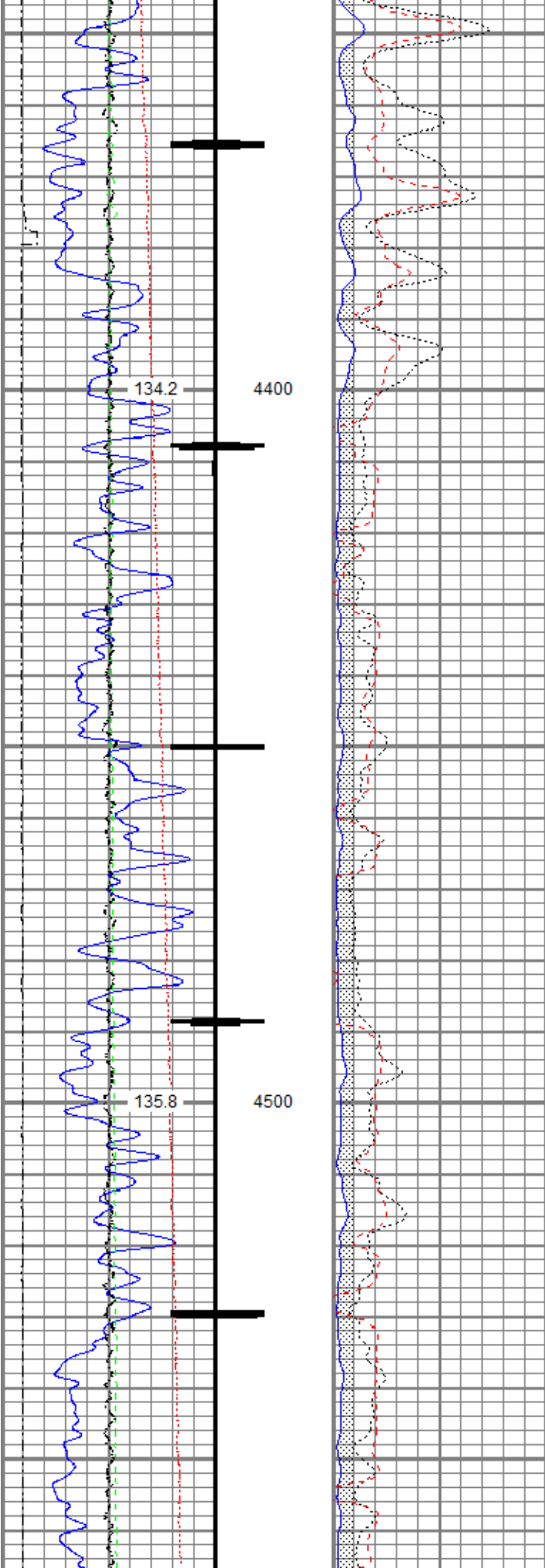


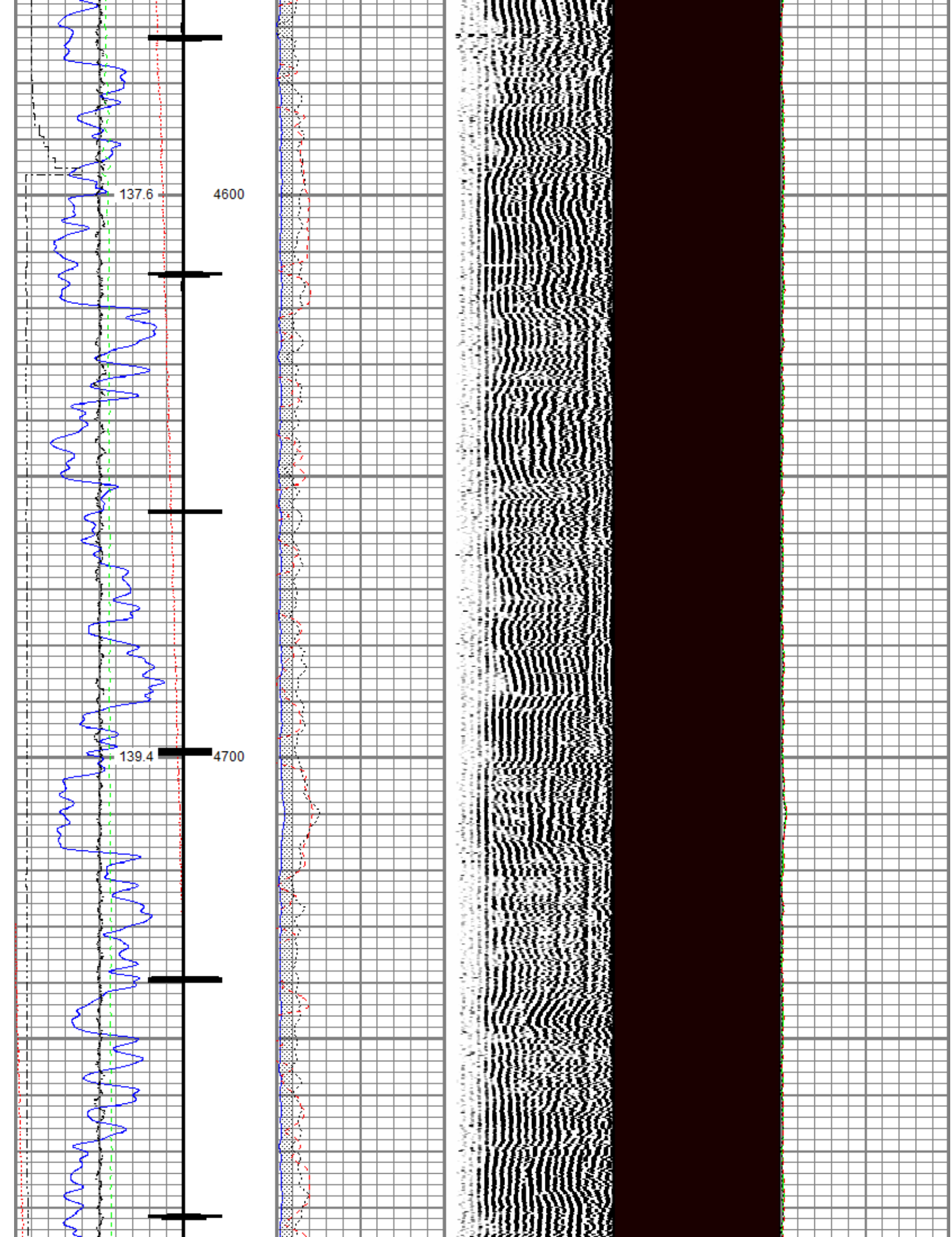


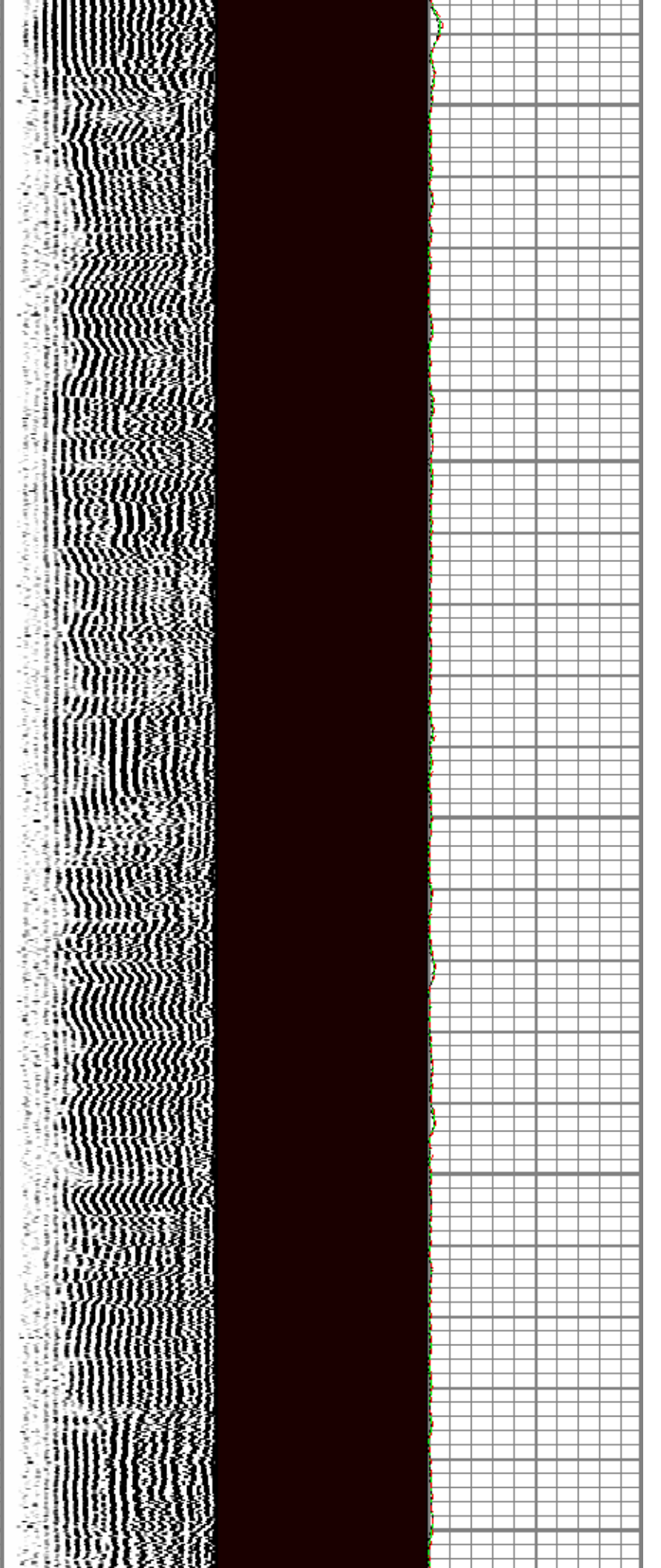
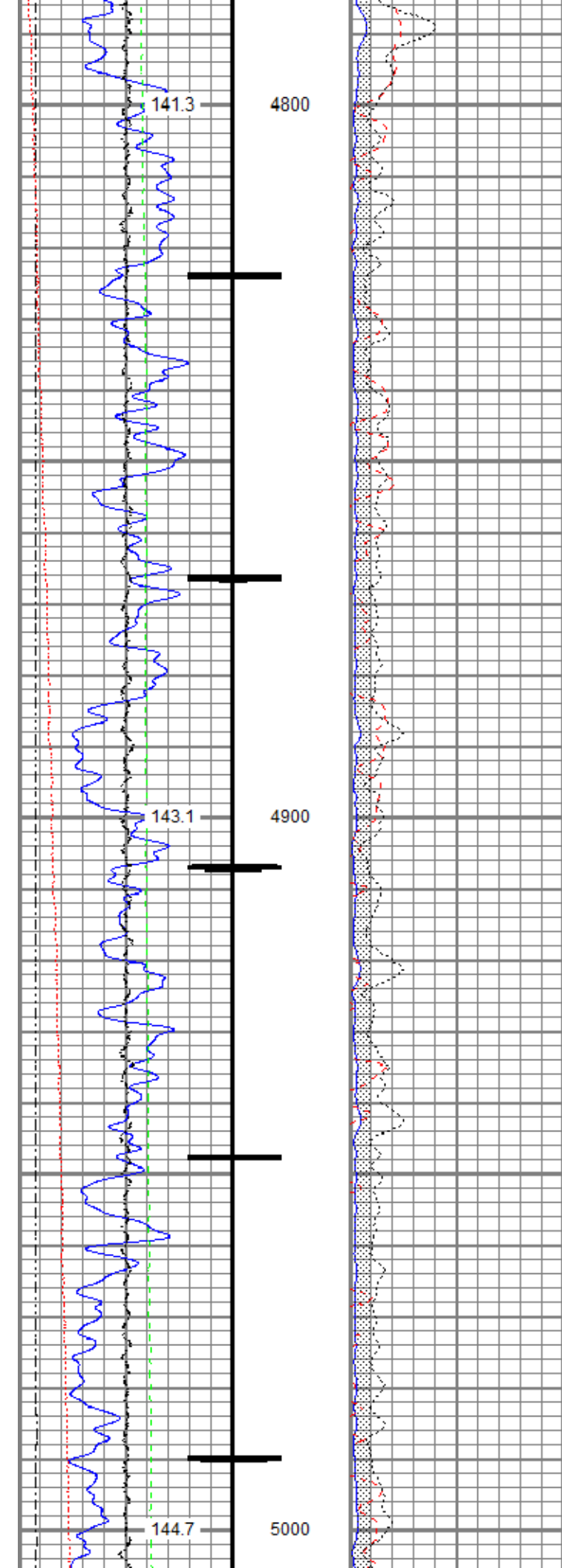


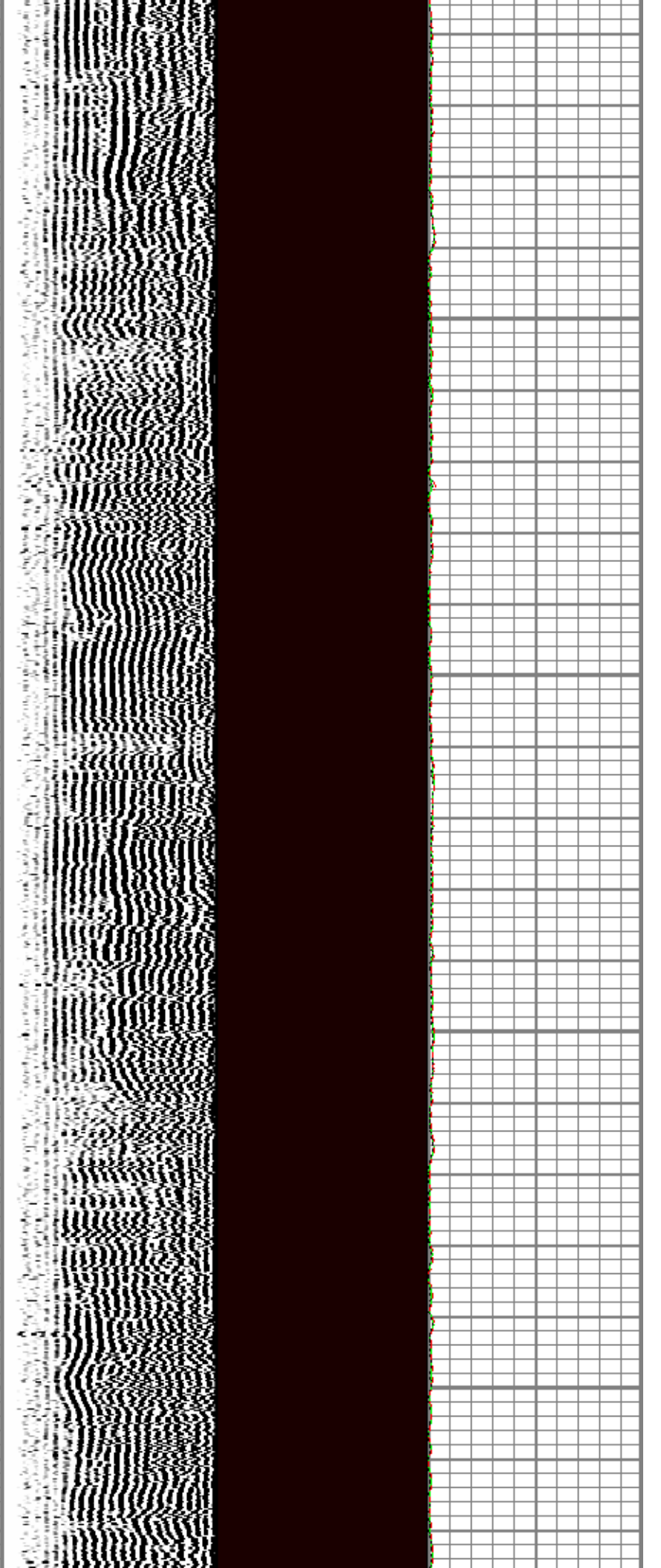
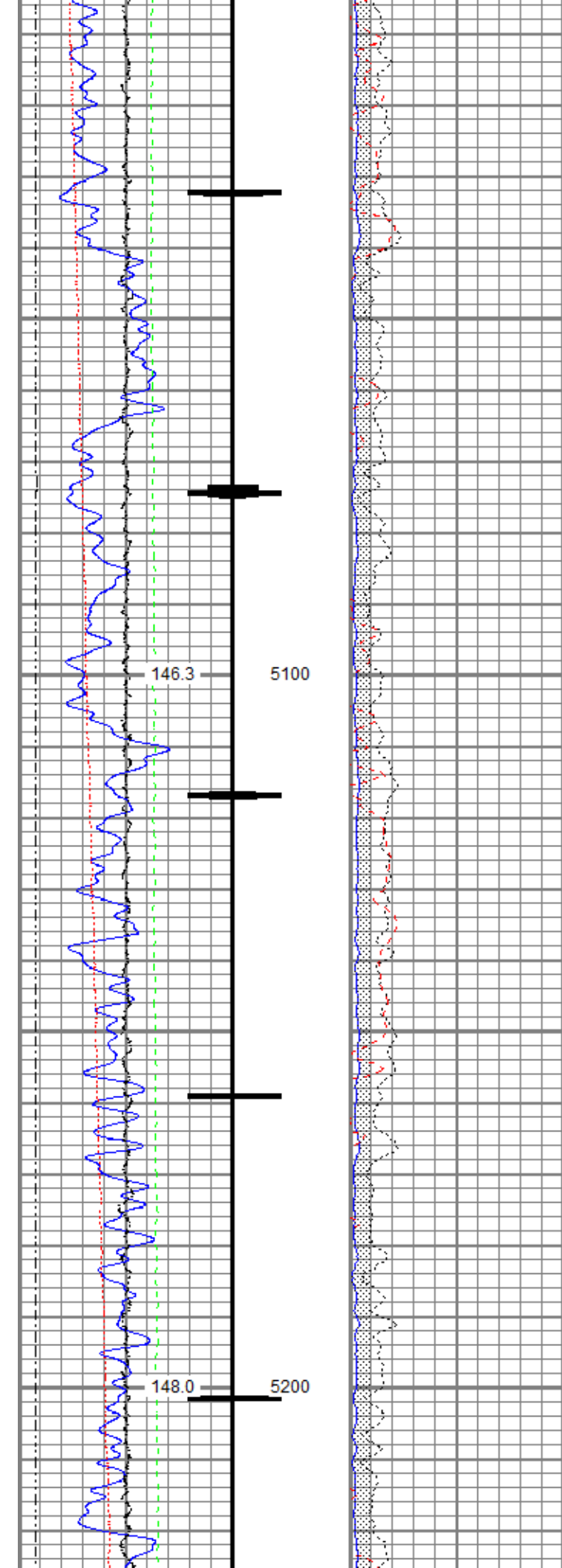


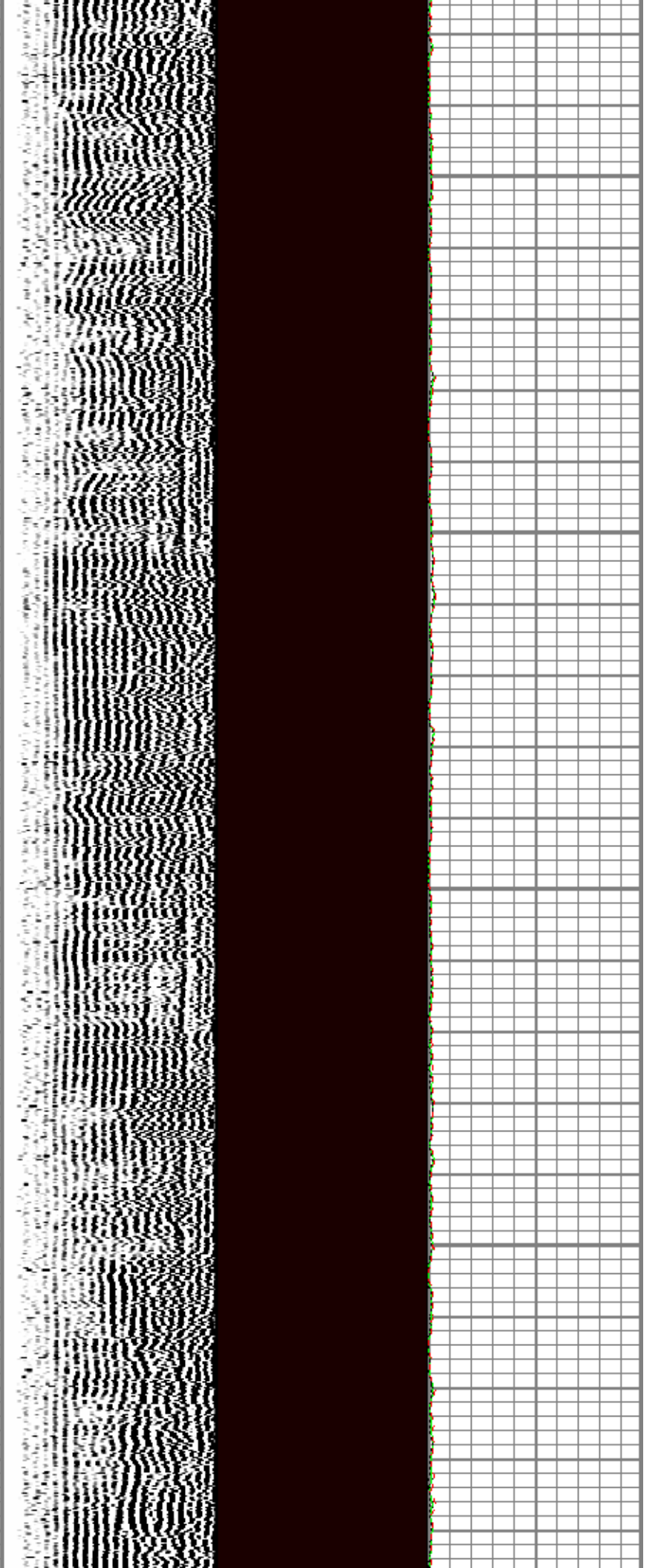
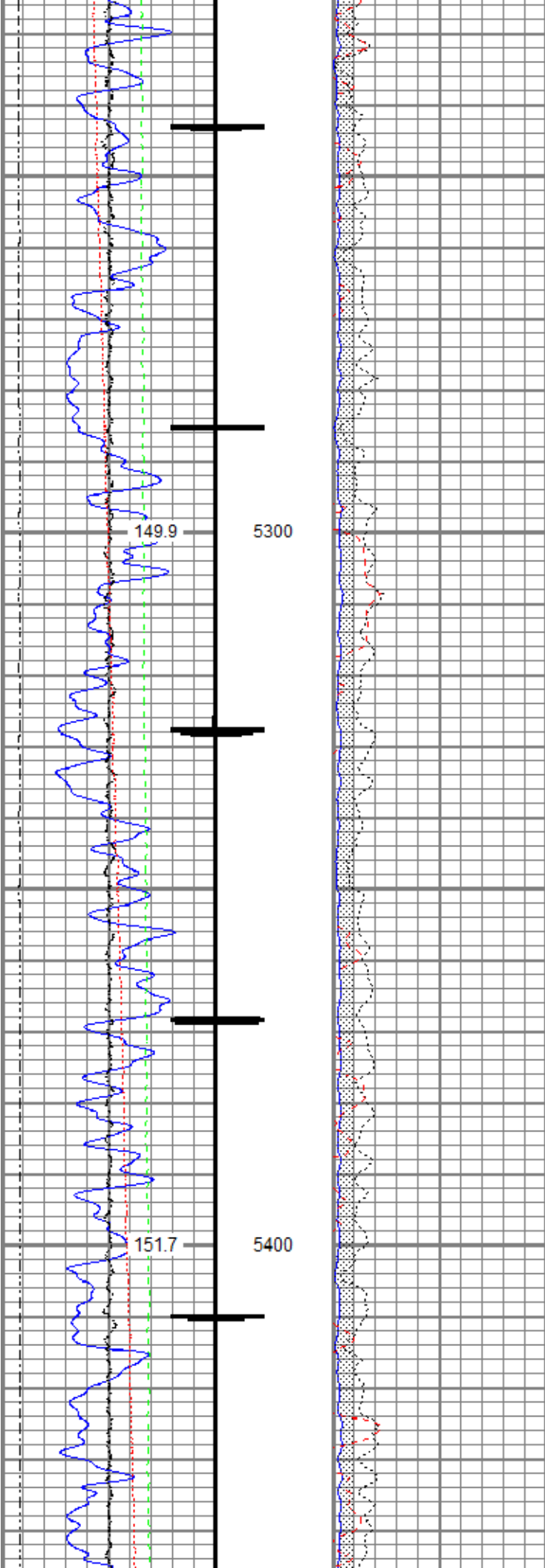


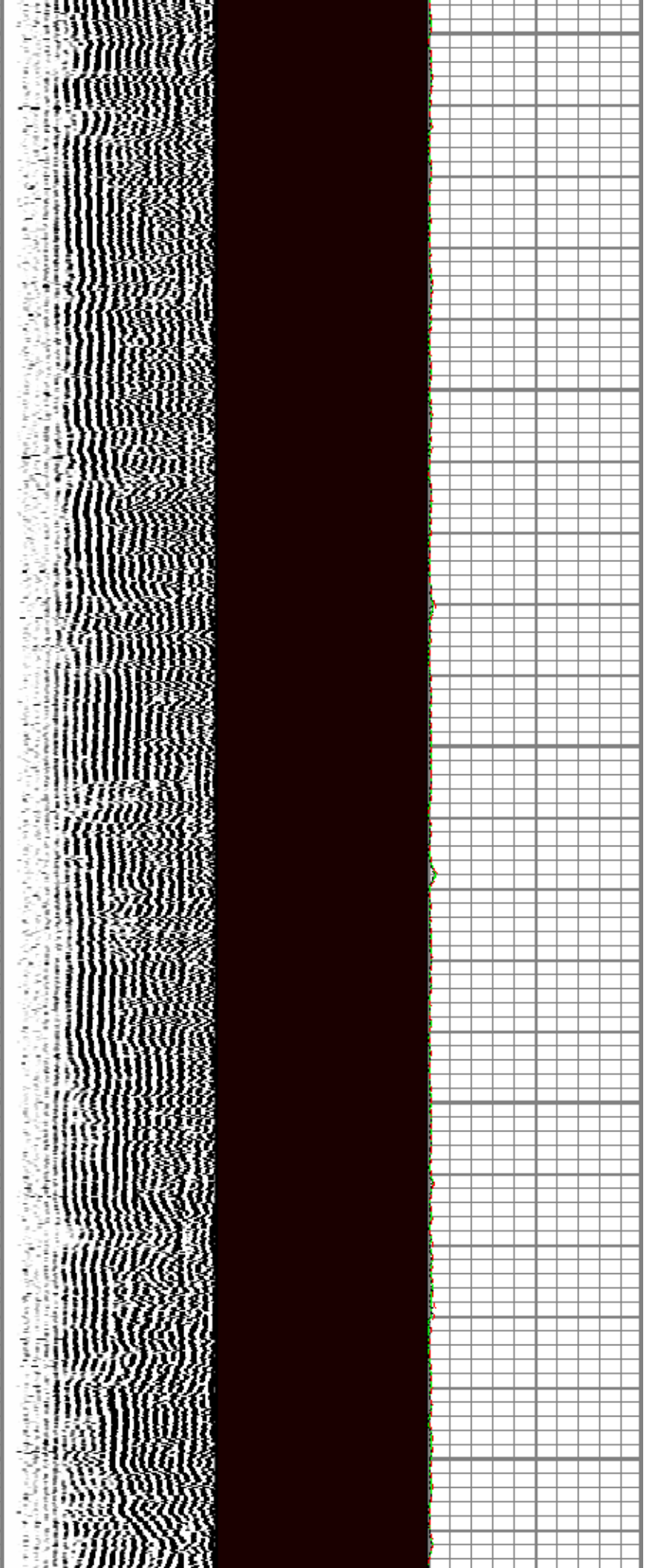
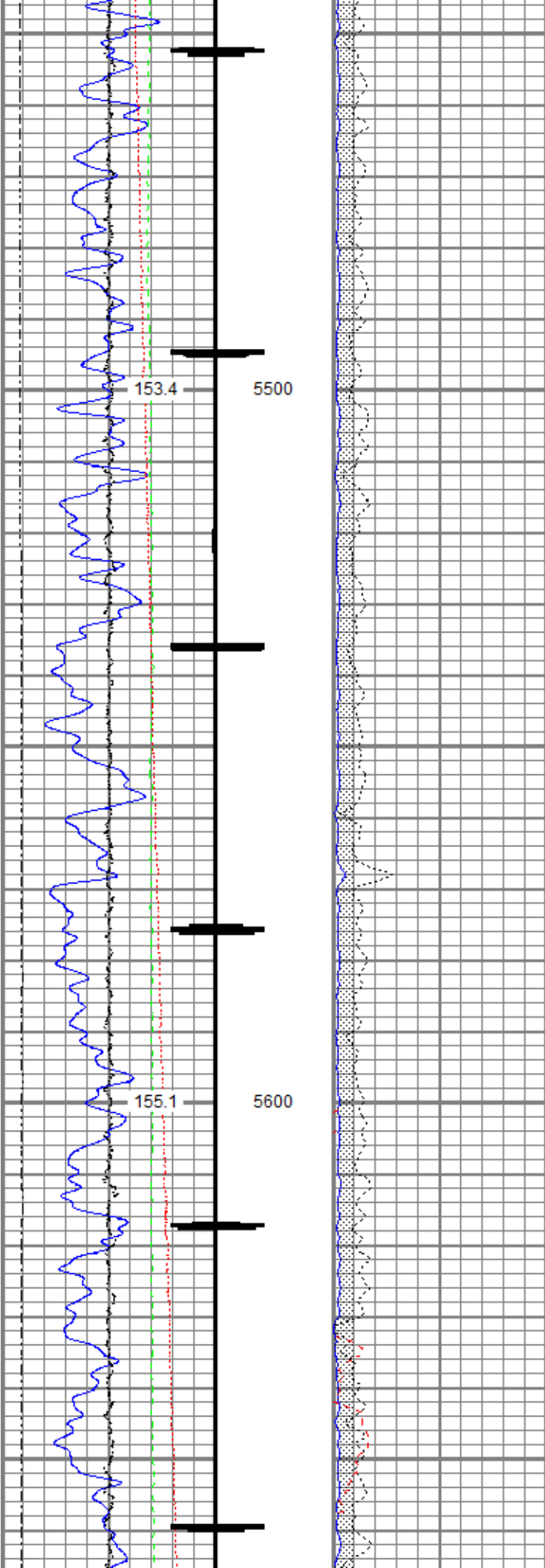


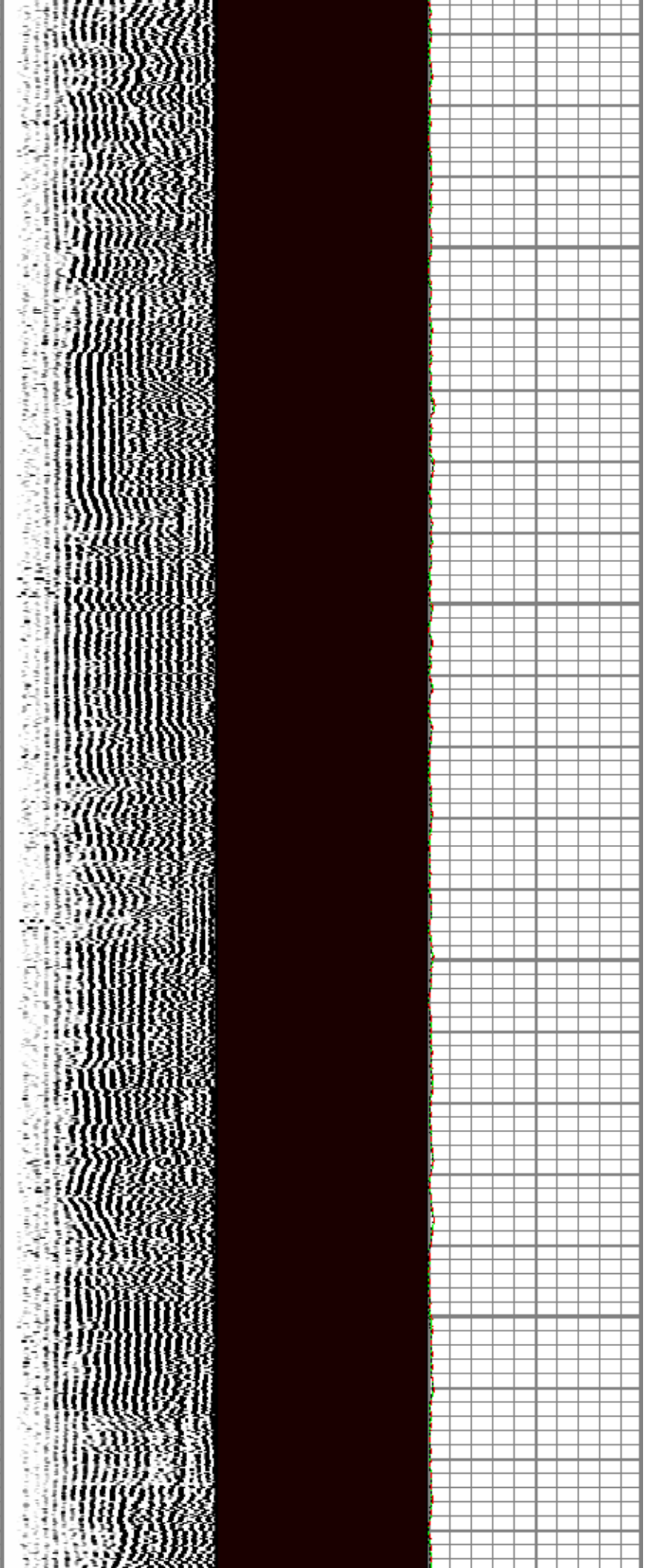
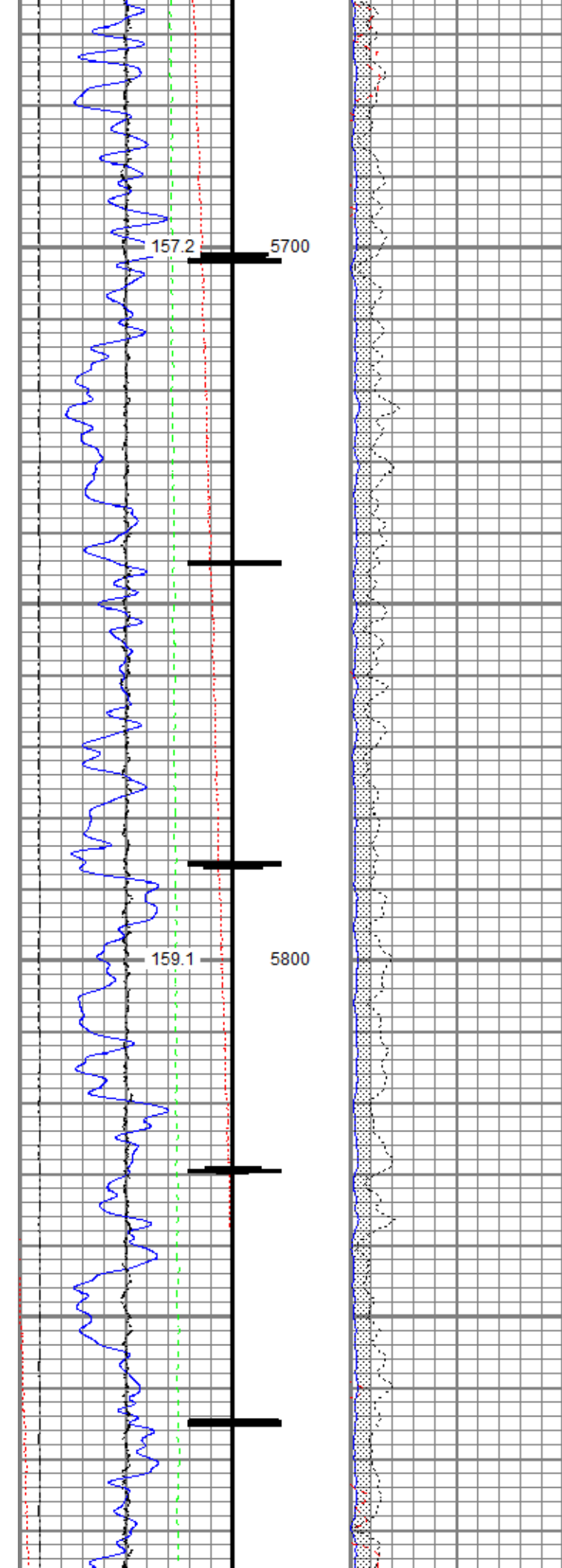


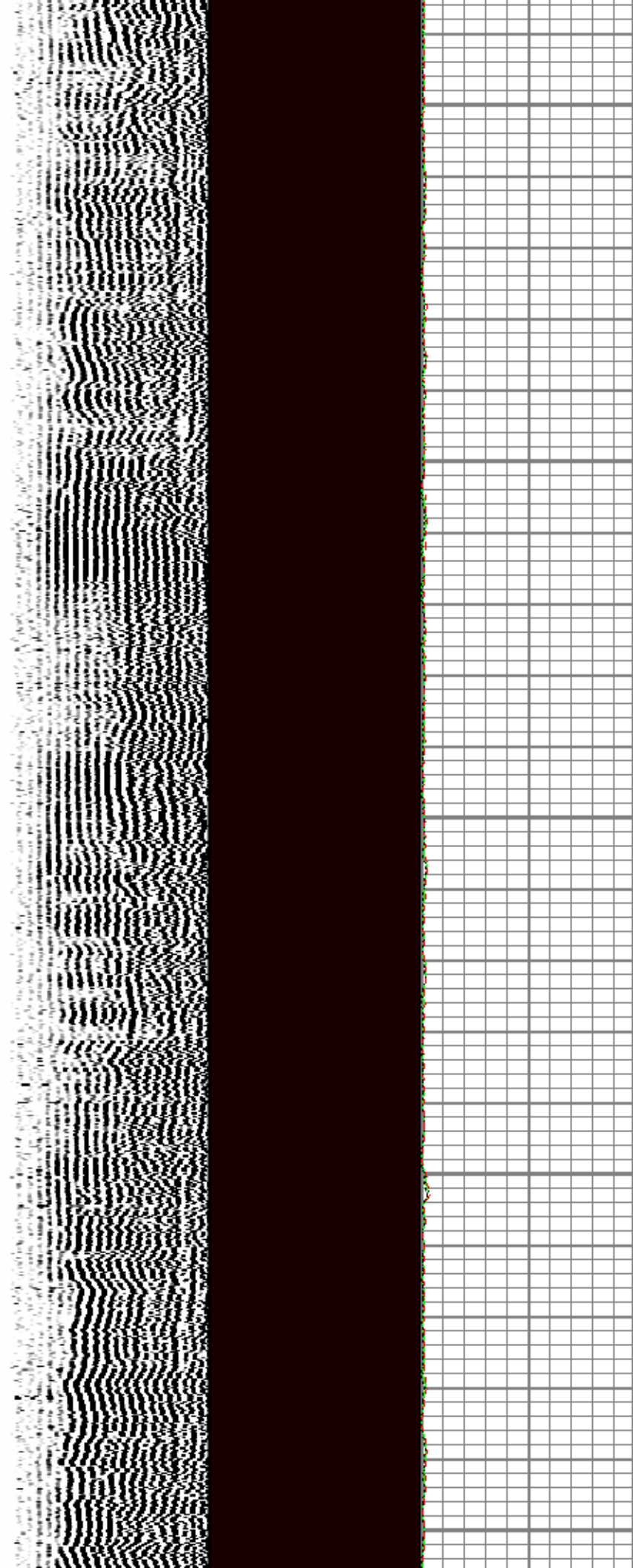
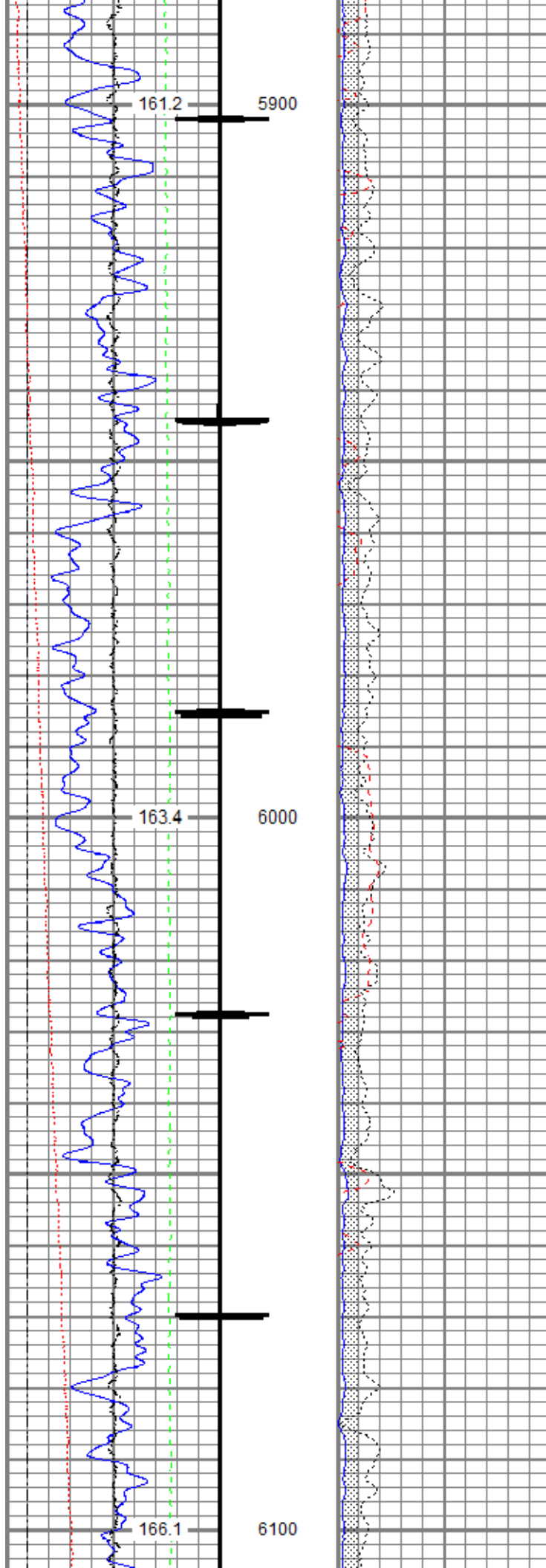


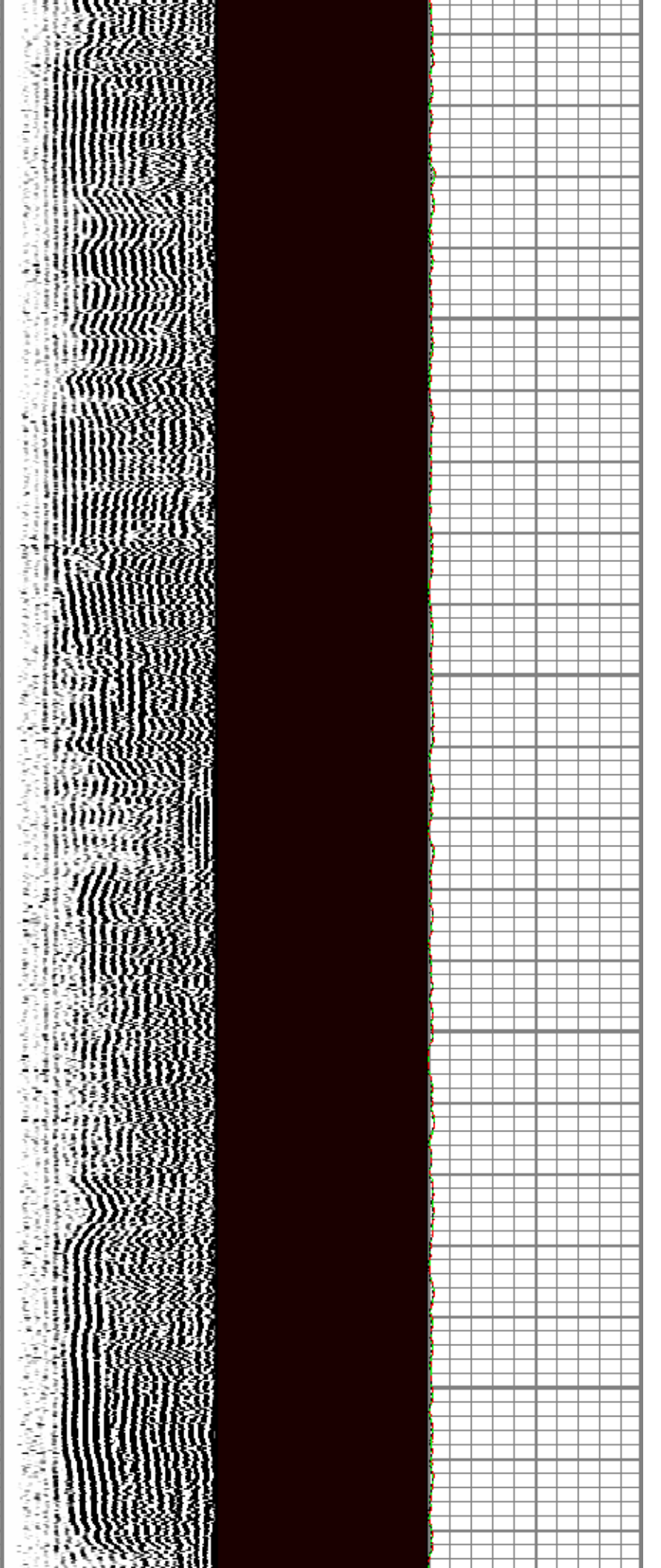
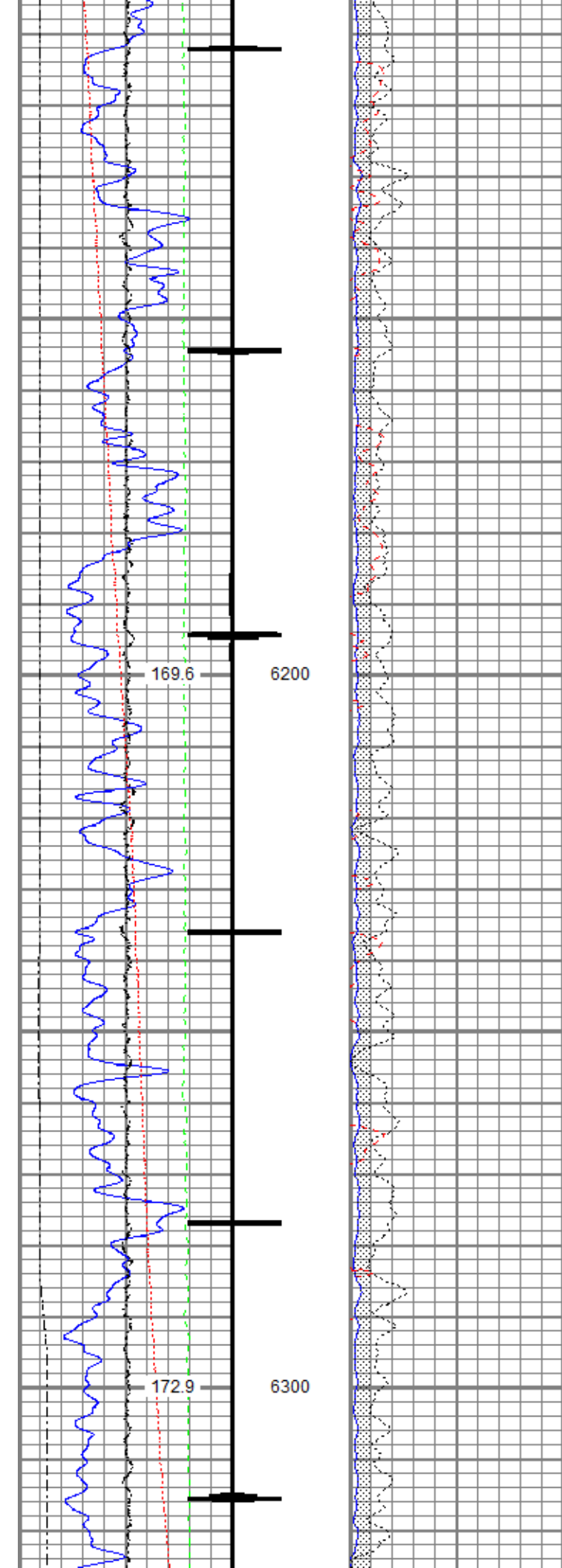


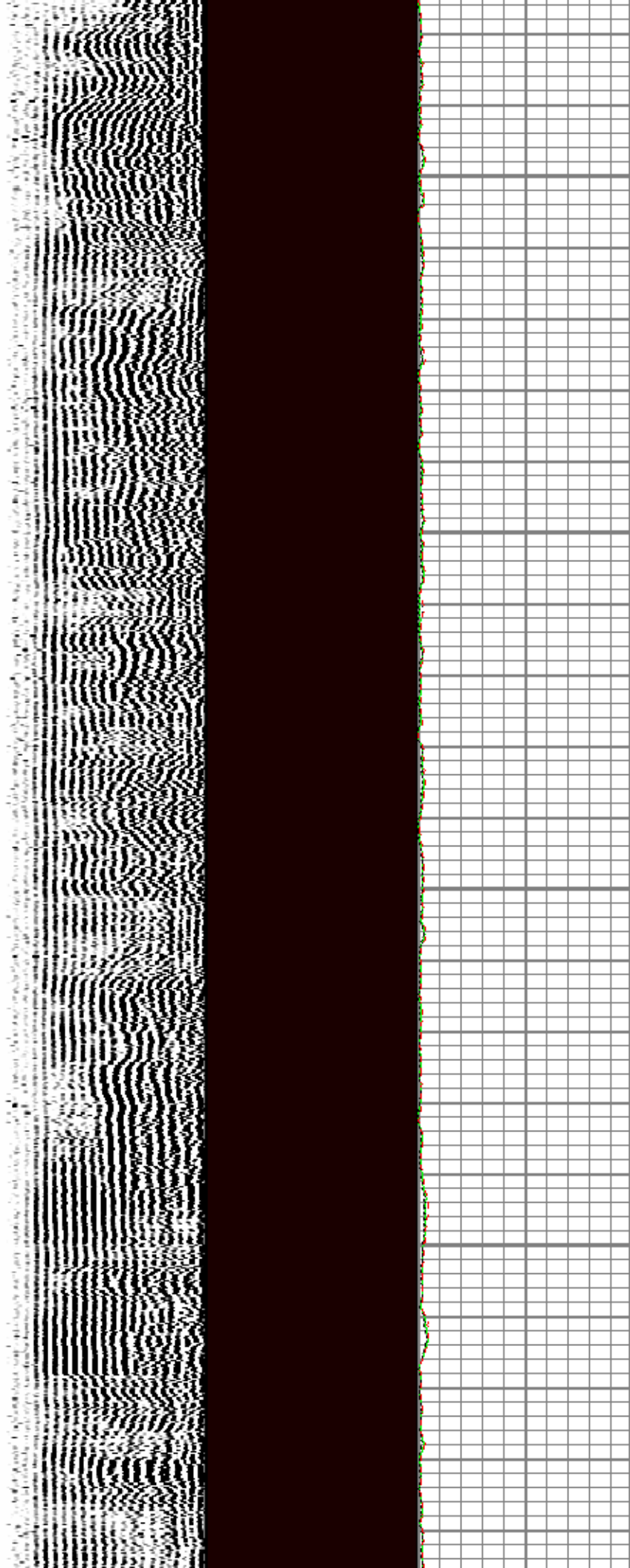
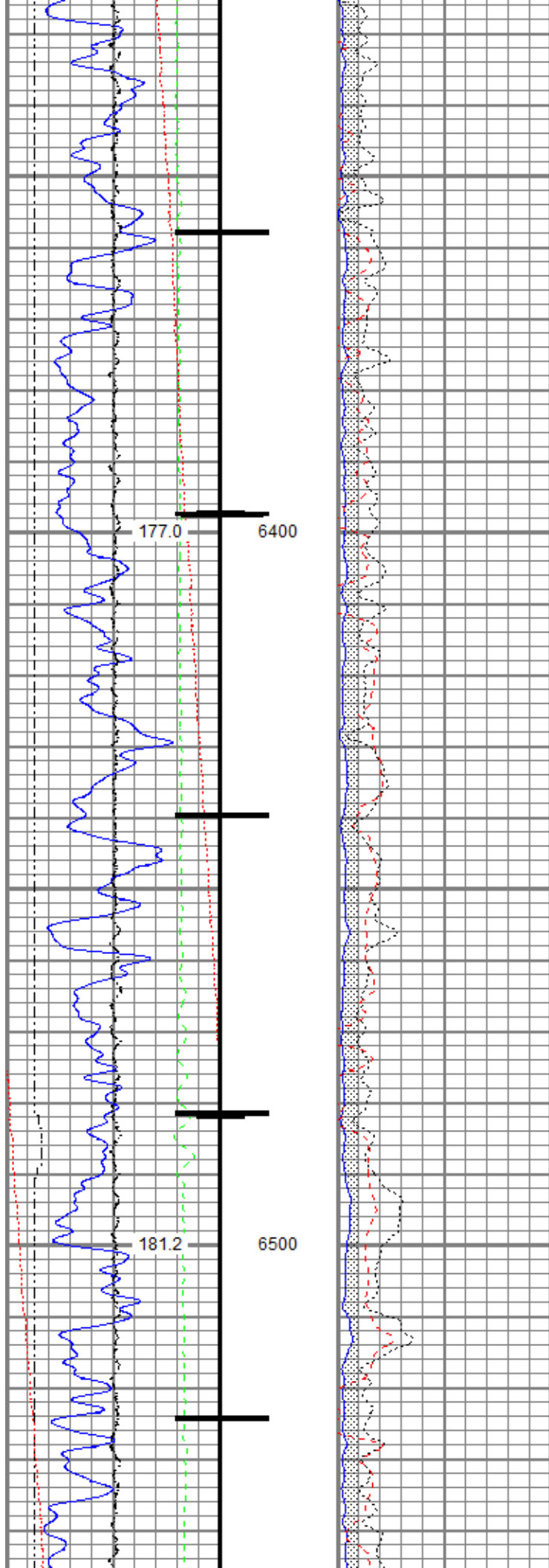


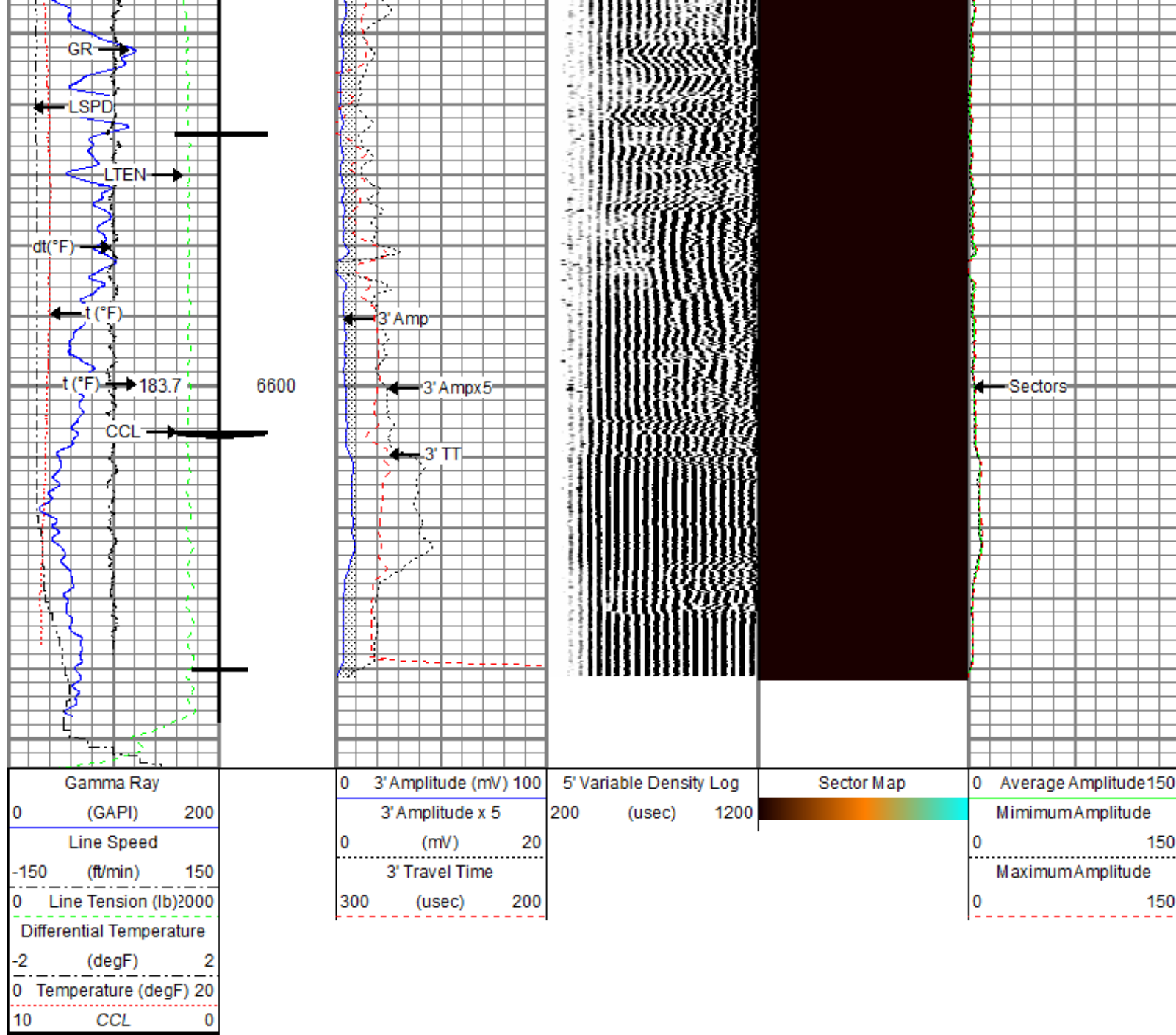








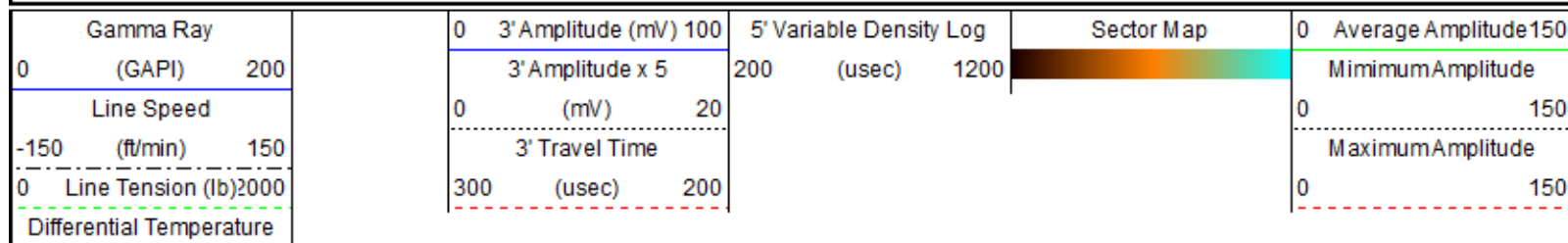




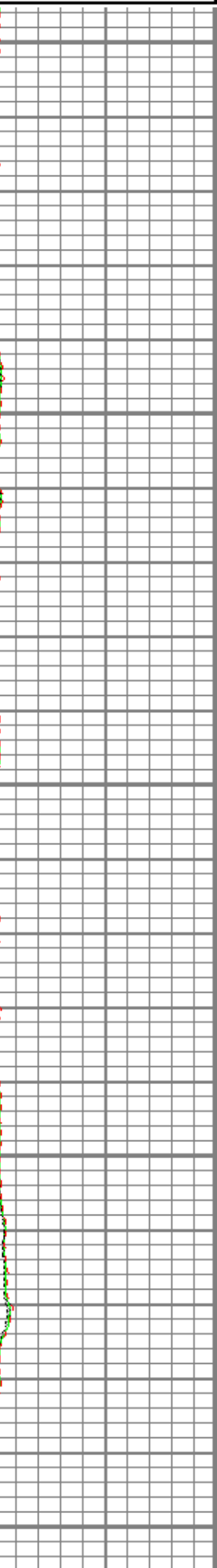
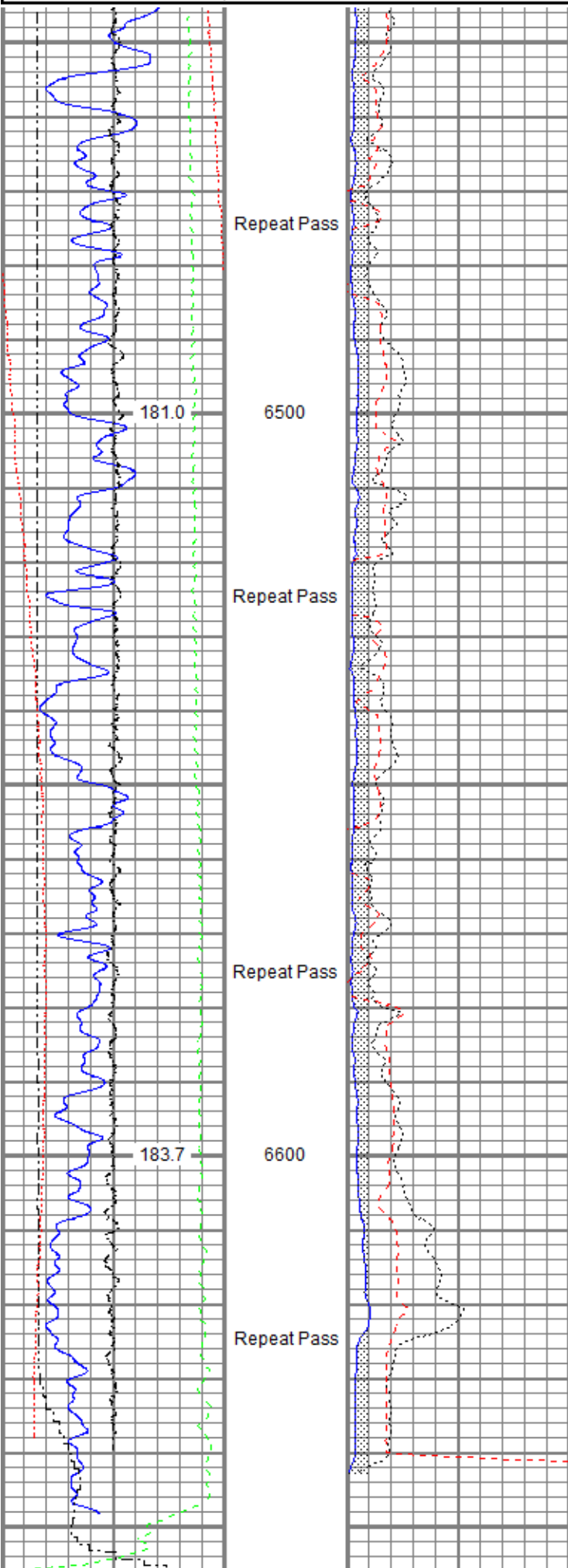
Repeat Pass


Recorded With 0 PSI Surface Induced Pressure

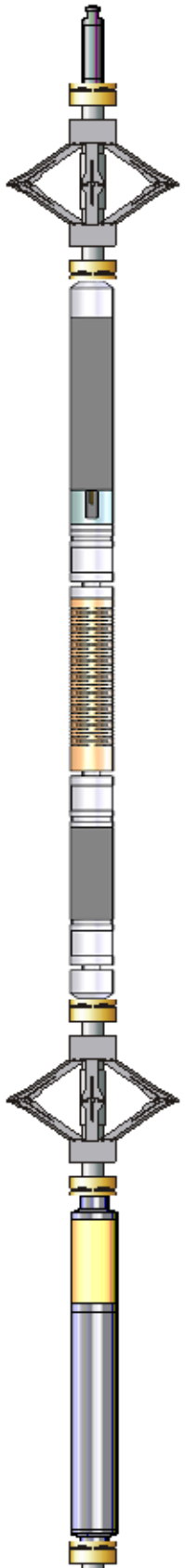
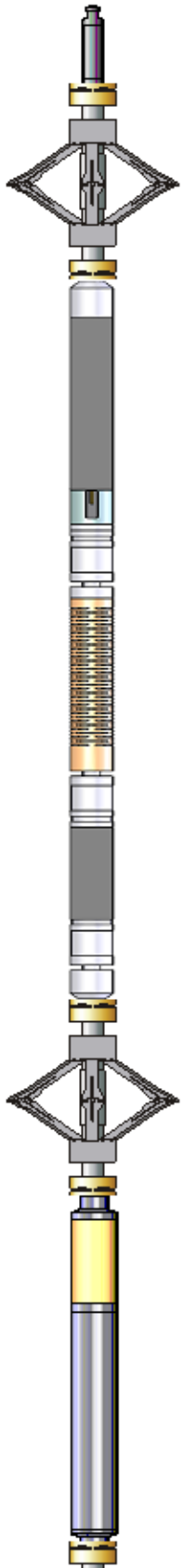
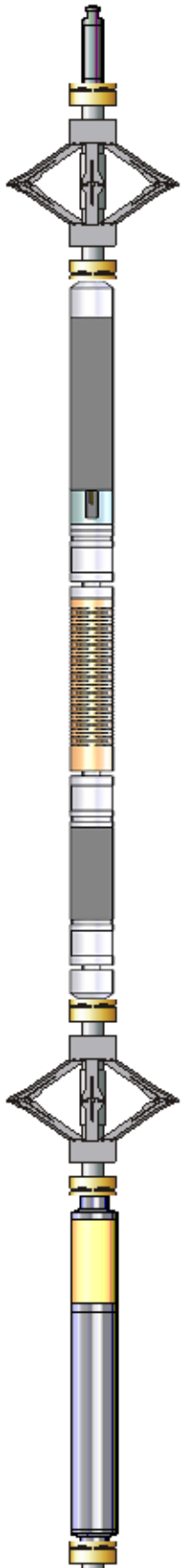
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 Dataset Creation: Wed May 08 11:44:16 2019
 Charted by: Depth in Feet scaled 1:240

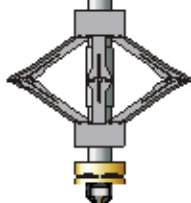


-2 (degF) 2
0 Temperature (degF) 20



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

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) |
|------------------|-------------|--|---|-------------|-----------|-------------|
| TEMP | 16.33 |  | 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 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 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 CCL\$1 | 6.42 |  | DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends | 2.55 | 2.75 | 32.00 |
| | 6.42 | | | | | |
| GR | 5.18 |  | 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_strait bottom ranch gm 413-14_rbl_05-07-19.db: field/well/run1/main.2
Total length: 22.82 ft
Total weight: 260.60 lb
O.D.: 2.75 in

Calibration Report

Database File c:\programdata\warrior\data\tep_strait bottom ranch gm 413-14_rbl_05-07-19\tep_strait bottom ranch gm 413-14_rbl_05-07-19.db
Dataset Pathname main.2
Dataset Creation Wed May 08 11:38:30 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: 33.878 ft

Master Calibration, performed (Derived):

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.000 | 0.903 | 0.800 | 81.196 | 89.062 | 0.795 |
| CAL | -0.005 | 0.755 | | | | |
| 5' | -0.001 | 0.642 | 0.800 | 81.196 | 125.006 | 0.922 |
| SUM | | | | | | |
| S1 | -0.003 | 1.120 | 0.000 | 100.000 | 89.039 | 0.234 |
| S2 | -0.001 | 1.085 | 0.000 | 100.000 | 92.075 | 0.096 |
| S3 | 0.001 | 0.908 | 0.000 | 100.000 | 110.223 | -0.121 |
| S4 | 0.003 | 0.834 | 0.000 | 100.000 | 120.376 | -0.411 |
| S5 | 0.003 | 0.853 | 0.000 | 100.000 | 117.670 | -0.344 |
| S6 | -0.001 | 0.861 | 0.000 | 100.000 | 115.981 | 0.152 |
| S7 | -0.002 | 0.893 | 0.000 | 100.000 | 111.682 | 0.224 |
| S8 | -0.002 | 0.998 | 0.000 | 100.000 | 99.987 | 0.178 |

Internal Reference Calibration, performed (Not Performed):

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|-------|----------------|-------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | -0.005 | 0.755 | 1.000 | 0.000 |

Air Zero Calibration, performed Tue May 07 07:02:03 2019:

| | Raw (v) | Calibrated (v) | Results |
|-----|---------|----------------|---------|
| | Zero | Zero | Offset |
| 3' | -0.004 | 0.000 | 0.001 |
| 5' | 0.008 | 0.000 | -0.002 |
| SUM | | | |
| S1 | -0.002 | 0.000 | 0.000 |
| S2 | -0.003 | 0.000 | 0.000 |
| S3 | -0.002 | 0.000 | 0.000 |
| S4 | -0.004 | 0.000 | 0.001 |
| S5 | -0.003 | 0.000 | -0.000 |
| S6 | -0.003 | 0.000 | -0.000 |
| S7 | -0.003 | 0.000 | 0.000 |
| 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 | | |

| | | |
|--|---------|-------------------------------|
|  | Company | TEP Rocky Mountain LLC |
| | Well | Strait Bottom Ranch GM 413-14 |
| | Field | Grand Valley |
| | County | Garfield |
| | State | Colorado |