



Radial Cement Bond
Gamma Ray
Casing Collar Log

| | | | | | | | | | | | | | | | |
|--------------------------------|--|------------------------|--|--------------------|--|-----------------|--|----------------|--|---------|--|------|--|----|--|
| Company TEP Rocky Mountain LLC | | Well Federal SG 311-22 | | Field Grand Valley | | County Garfield | | State Colorado | | | | | | | |
| Company TEP Rocky Mountain LLC | | Well Federal SG 311-22 | | Field Grand Valley | | County Garfield | | State Colorado | | | | | | | |
| Location: | | API #: 05-045-24142 | | Other Services | | | | | | | | | | | |
| SEC 22 TWP 7S RGE 96W | | | | | | | | | | | | | | | |
| Permanent Datum | | Ground Level | | Elevation | | 6090.8' | | | | | | | | | |
| Log Measured From | | Kelly Bushing | | 24 FT | | | | | | | | | | | |
| Drilling Measured From | | Kelly Bushing | | | | | | | | | | | | | |
| Date | | 14-MAR-2019 | | | | | | | | | | | | | |
| Run Number | | One | | | | | | | | | | | | | |
| Depth Driller | | 6115 FT | | | | | | | | | | | | | |
| Depth Logger | | 6034 FT | | | | | | | | | | | | | |
| Bottom Logged Interval | | 6020 FT | | | | | | | | | | | | | |
| Top Log Interval | | Surface | | | | | | | | | | | | | |
| Open Hole Size | | --- | | | | | | | | | | | | | |
| Type Fluid | | Water | | | | | | | | | | | | | |
| Density / Viscosity | | 8.34 lb/gal | | | | | | | | | | | | | |
| Max. Recorded Temp. | | 172°F | | | | | | | | | | | | | |
| Estimated Cement Top | | See Log | | | | | | | | | | | | | |
| Time Well Ready | | ROA | | | | | | | | | | | | | |
| Time Logger on Bottom | | 16:50 | | | | | | | | | | | | | |
| Equipment Number | | HD-0359 | | | | | | | | | | | | | |
| Location | | Grand Junction, CO | | | | | | | | | | | | | |
| Recorded By | | J. Donnelly | | | | | | | | | | | | | |
| Witnessed By | | Dustin Welsh | | | | | | | | | | | | | |
| Borehole Record | | 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 | | 1035 FT | | | | | |
| Intermediate #1 | | 4 1/2 | | 11.6 | | P-110 | | Surface | | 6073 FT | | | | | |
| Intermediate #2 | | | | | | | | | | | | | | | |
| Inner | | | | | | | | | | | | | | | |

<<< Fold Here >>>

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 Joints Logged from 1967 - 1987 FT and 3405-3426 FT
Log ran from 6020 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

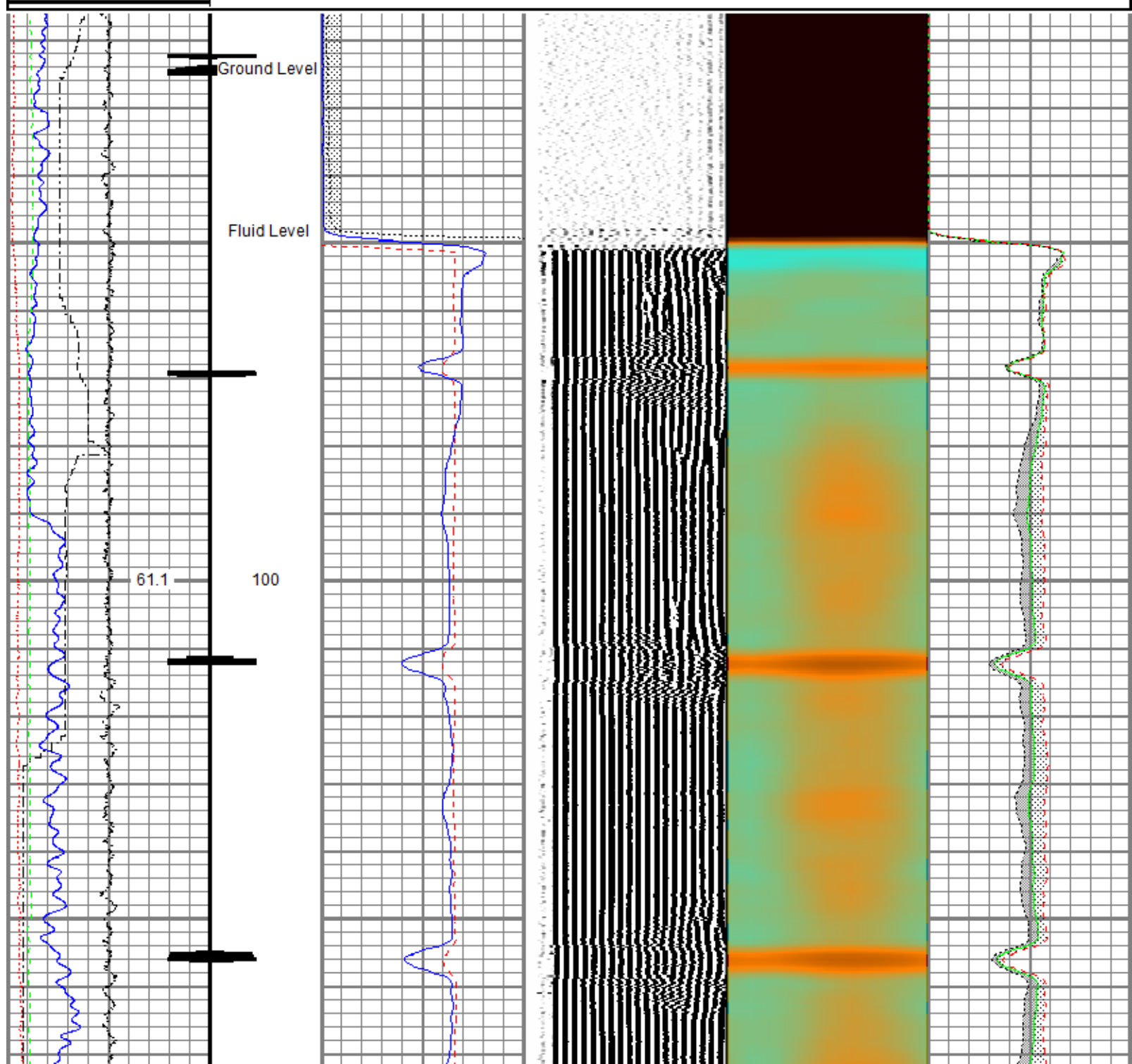


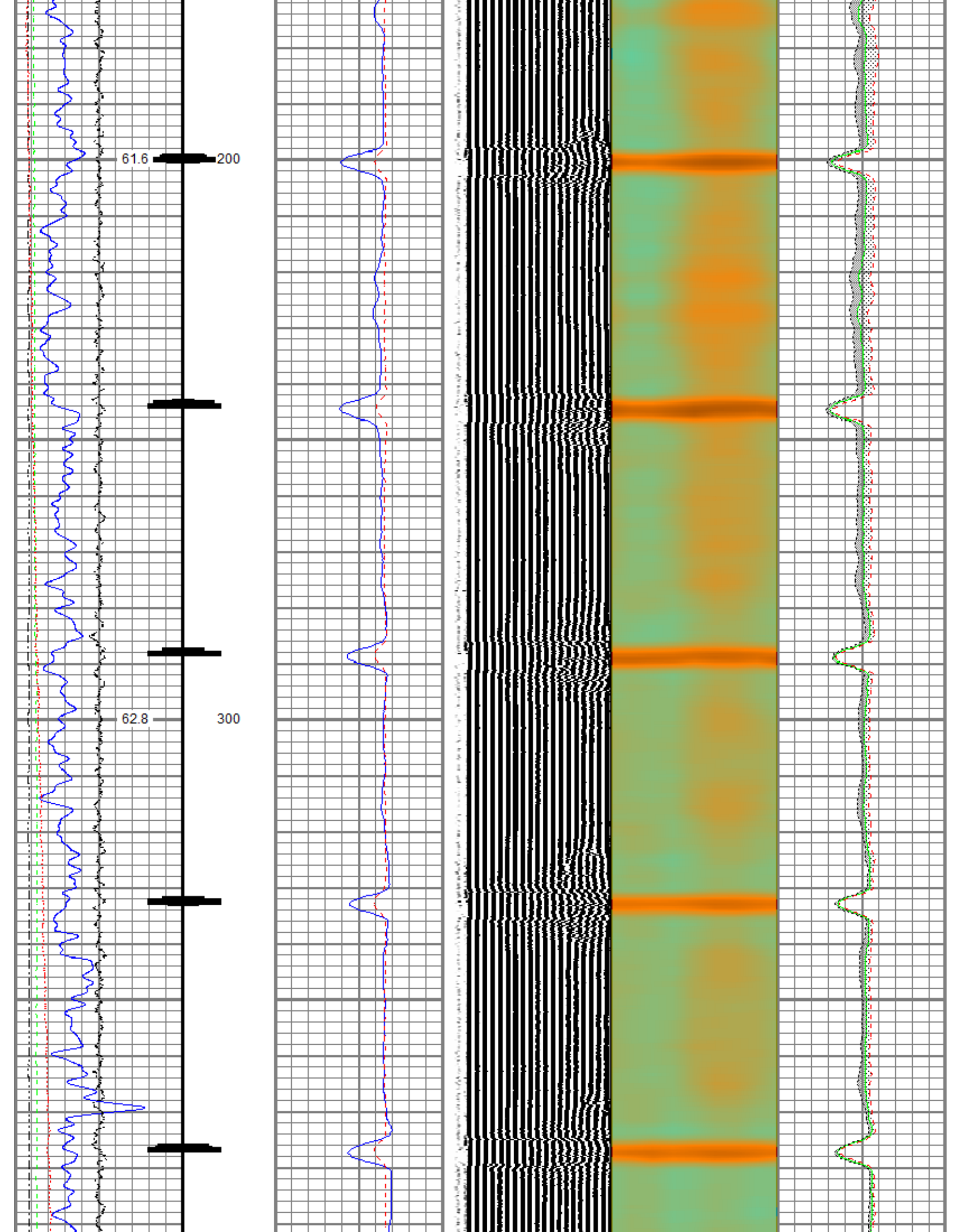
Main Pass

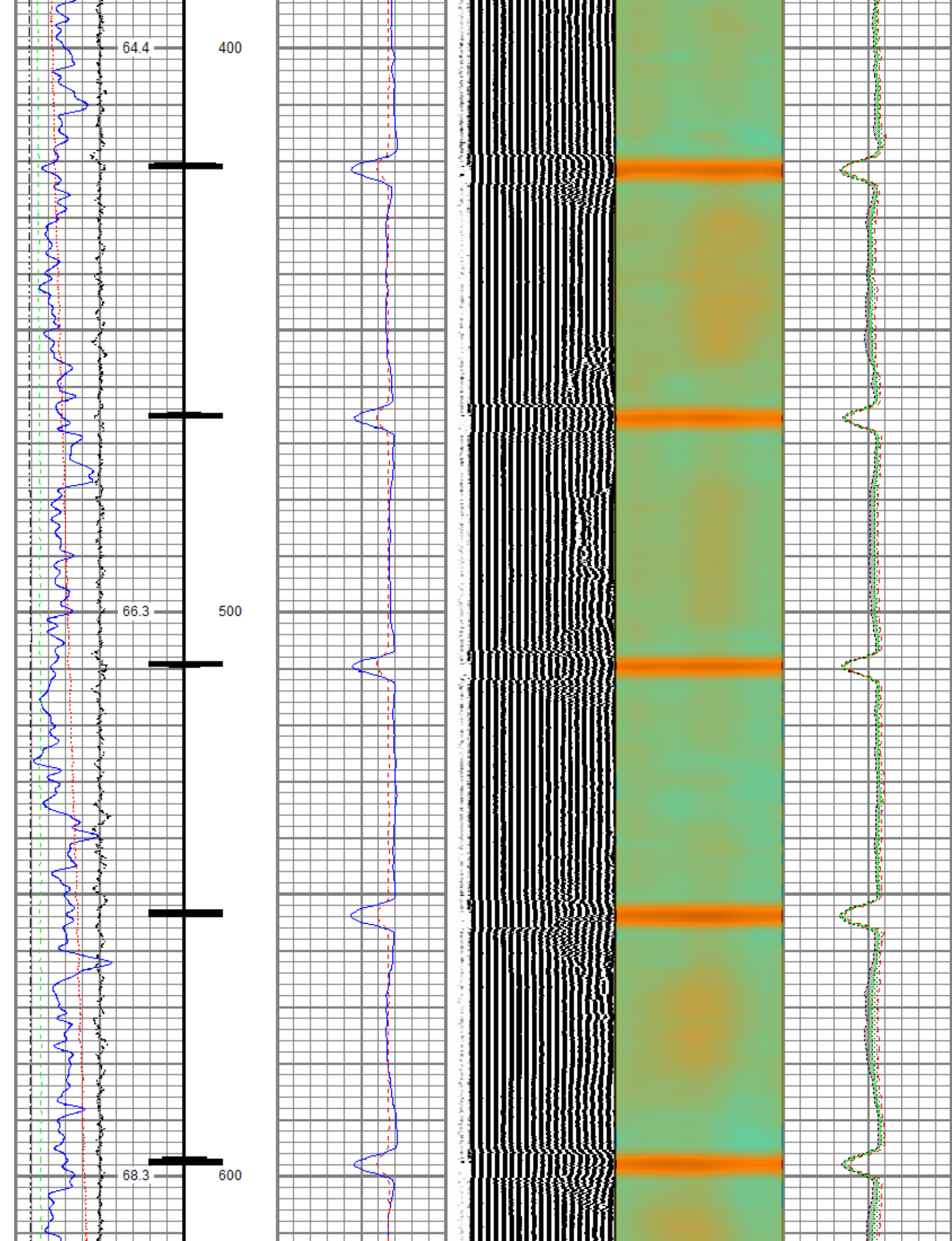
Recorded With 0 PSI Surface Induced Pressure

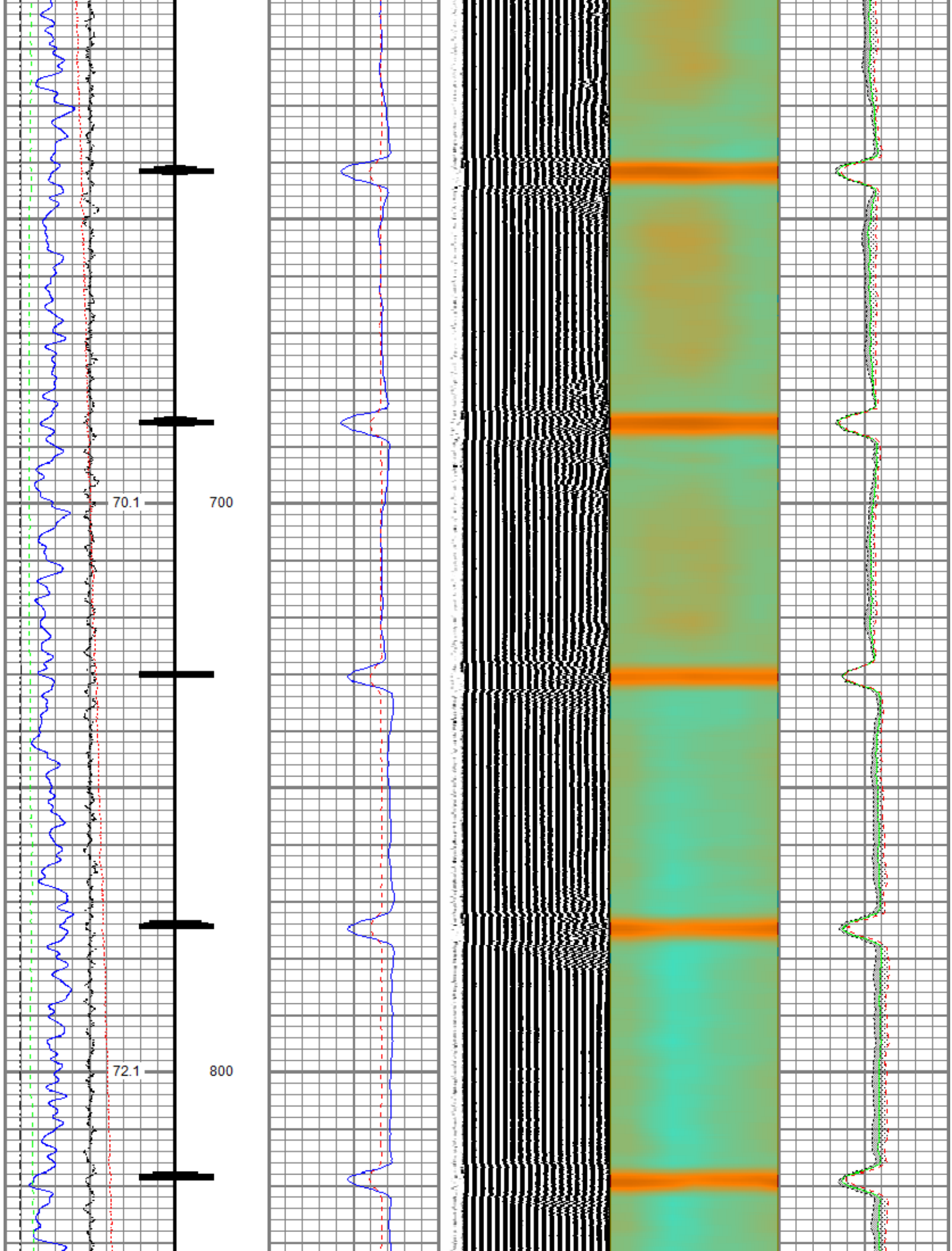
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 Presentation Format ros_rbt004_tep
 Dataset Creation Fri Mar 15 11:09:11 2019
 Charted by Depth in Feet scaled 1:240

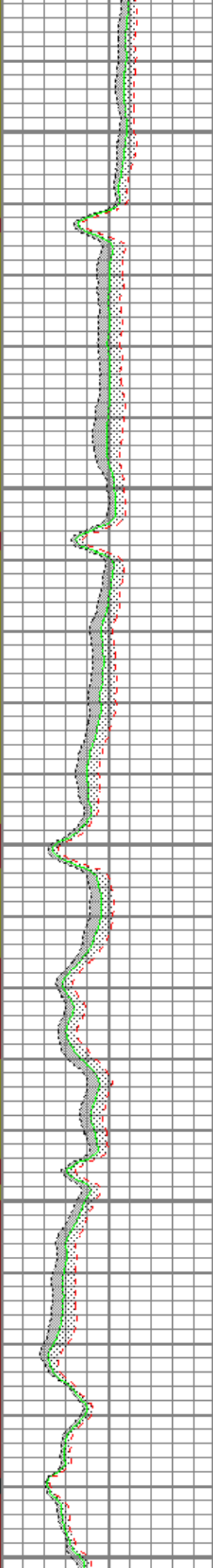
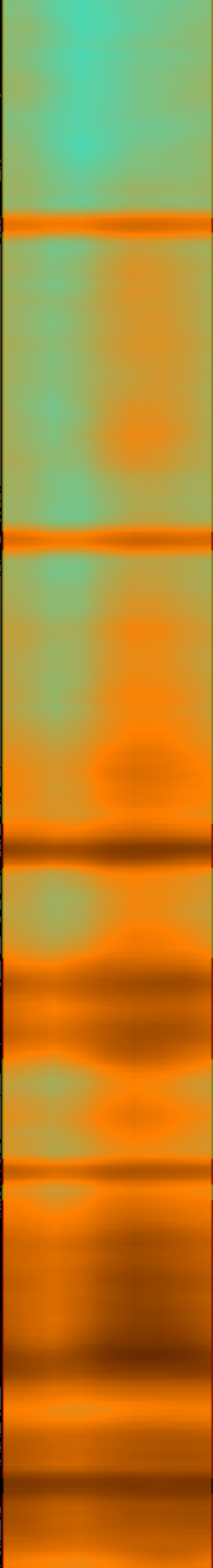
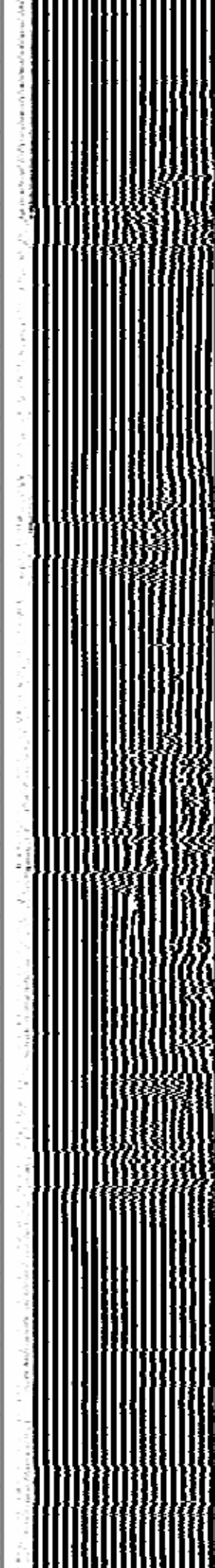
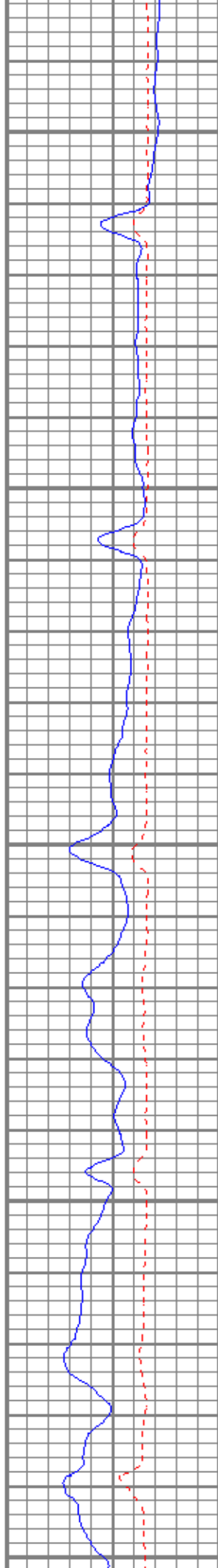
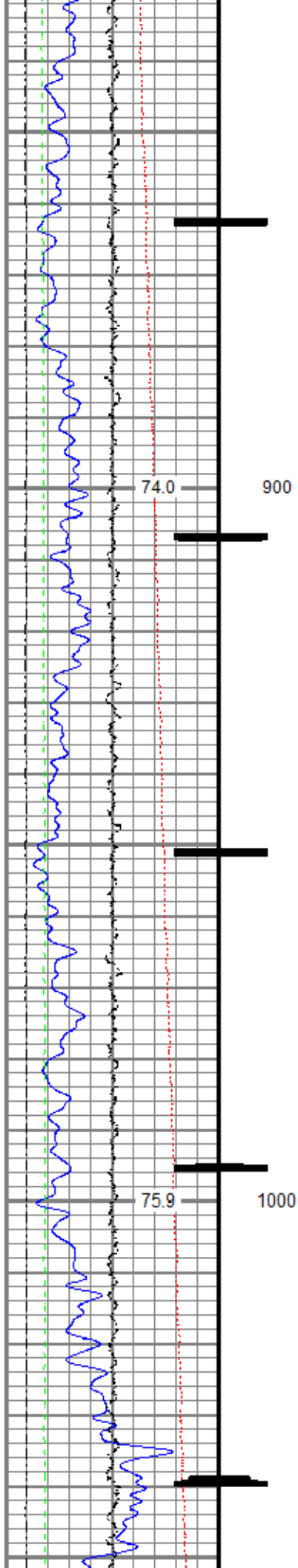
| | | | | | | |
|--------------------------|----|-----------------------|-------------------------|------------|---|-----------------------|
| Gamma Ray | 0 | 3' Amplitude (mV) 100 | 5' Variable Density Log | Sector Map | 0 | Average Amplitude 150 |
| (GAPI) 200 | | 3' Amplitude x 5 | 200 (usec) 1200 | | | 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 | | | | | |

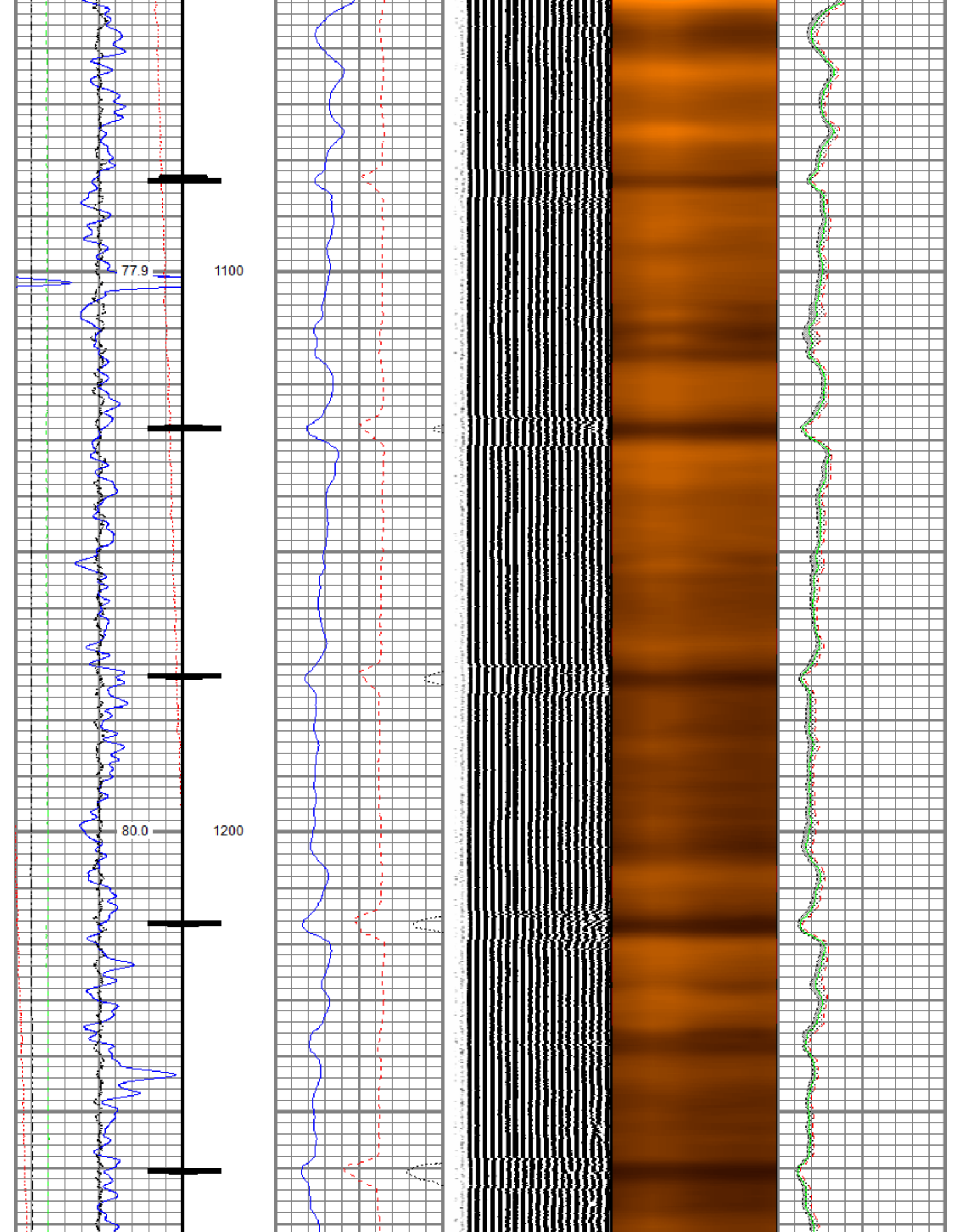


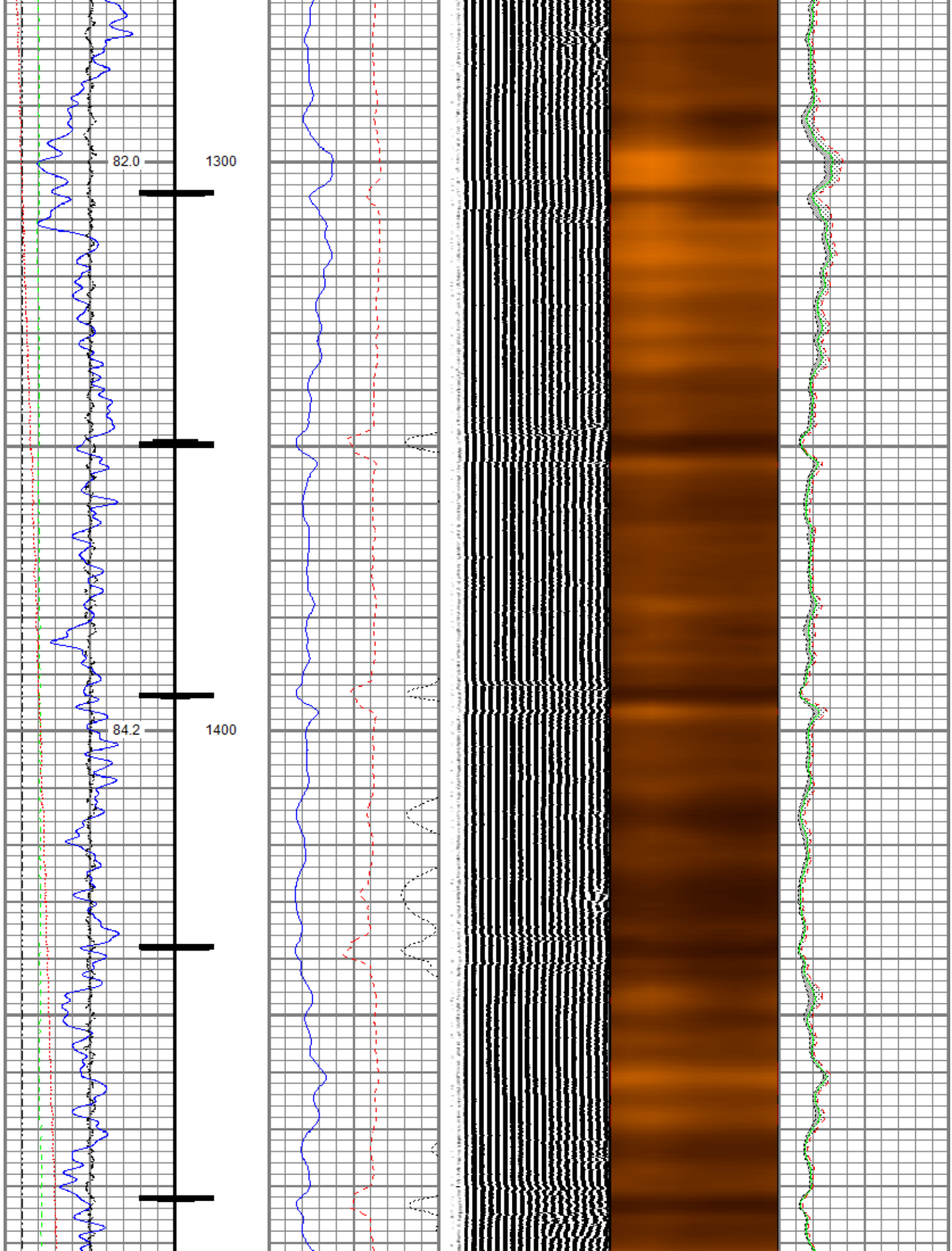


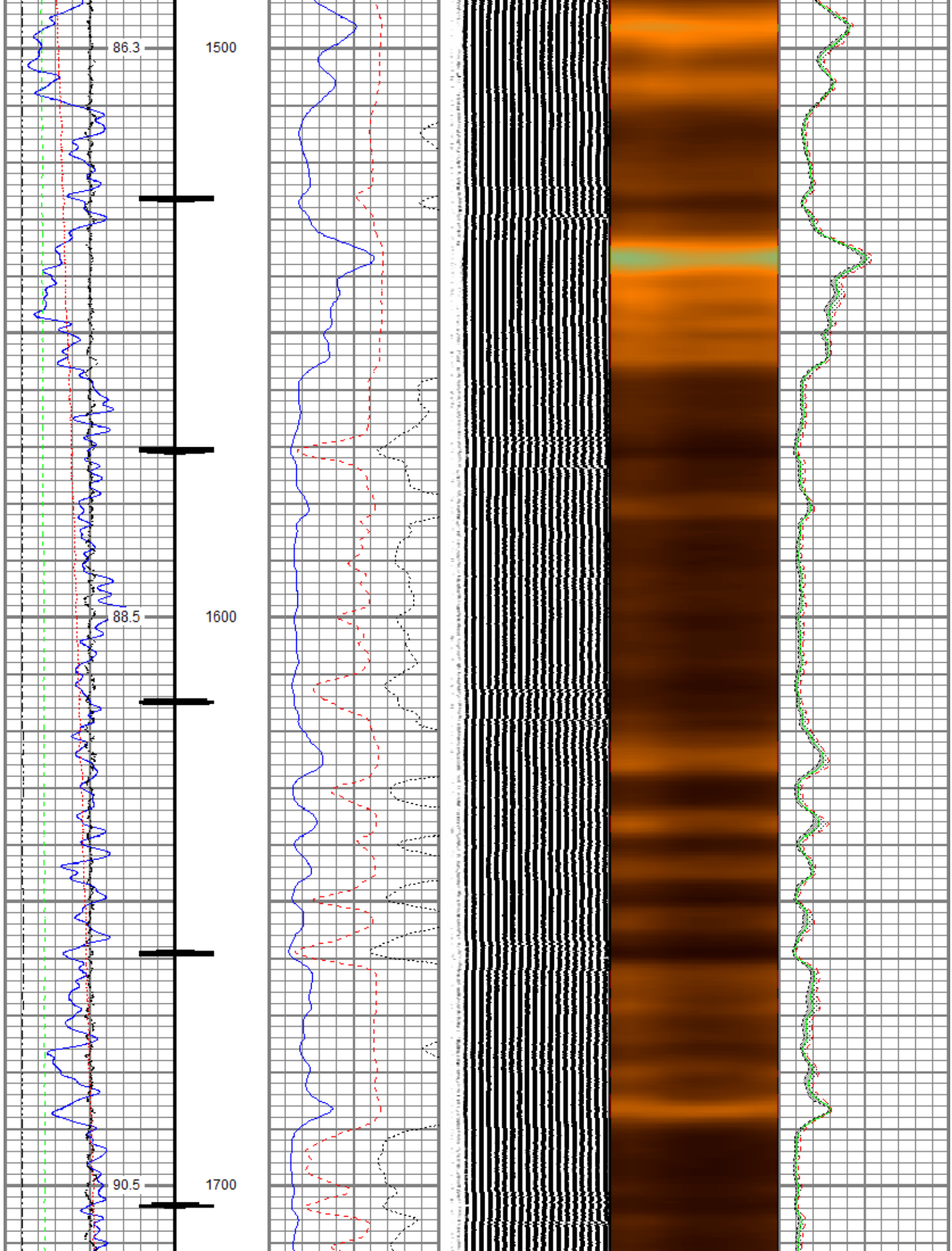


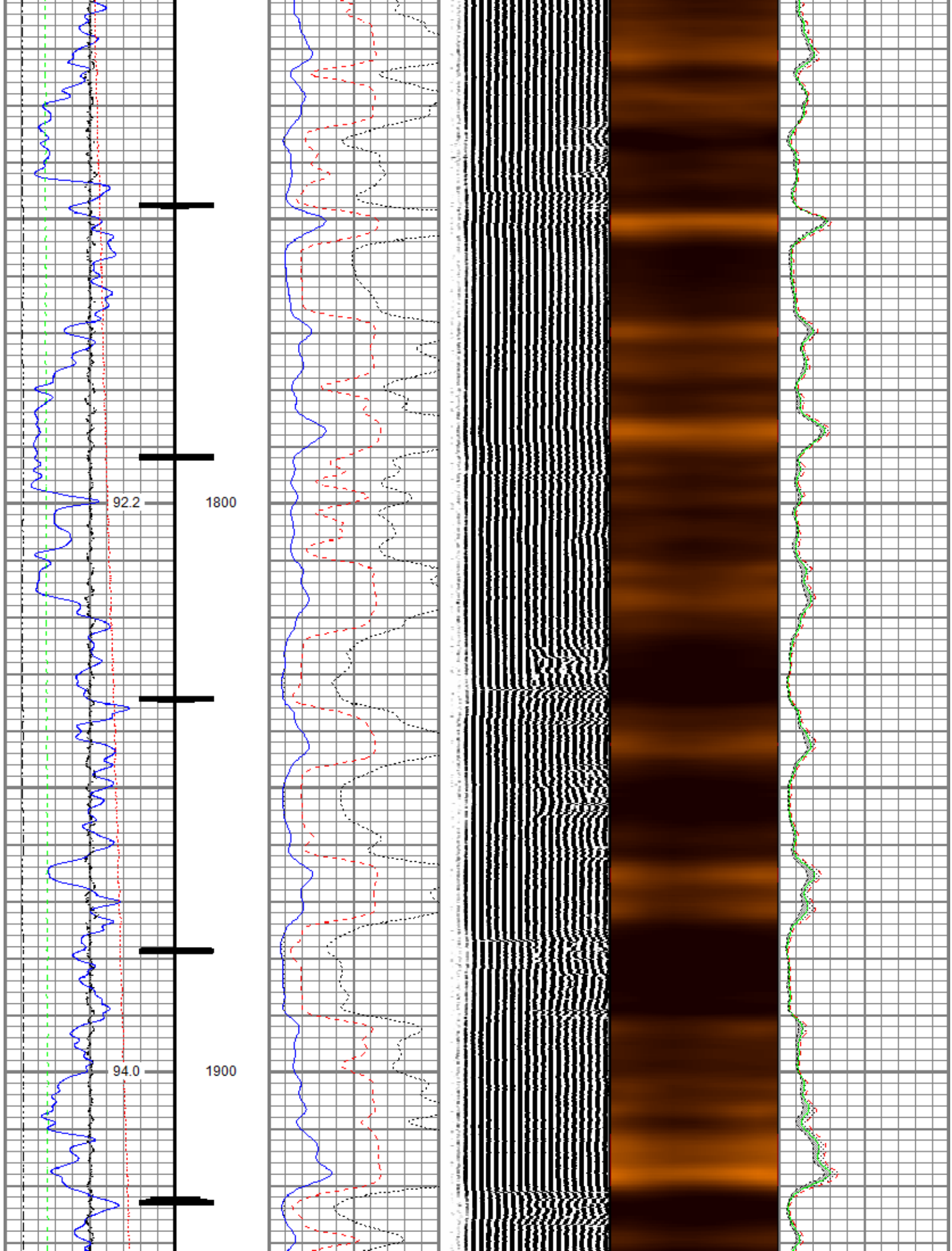


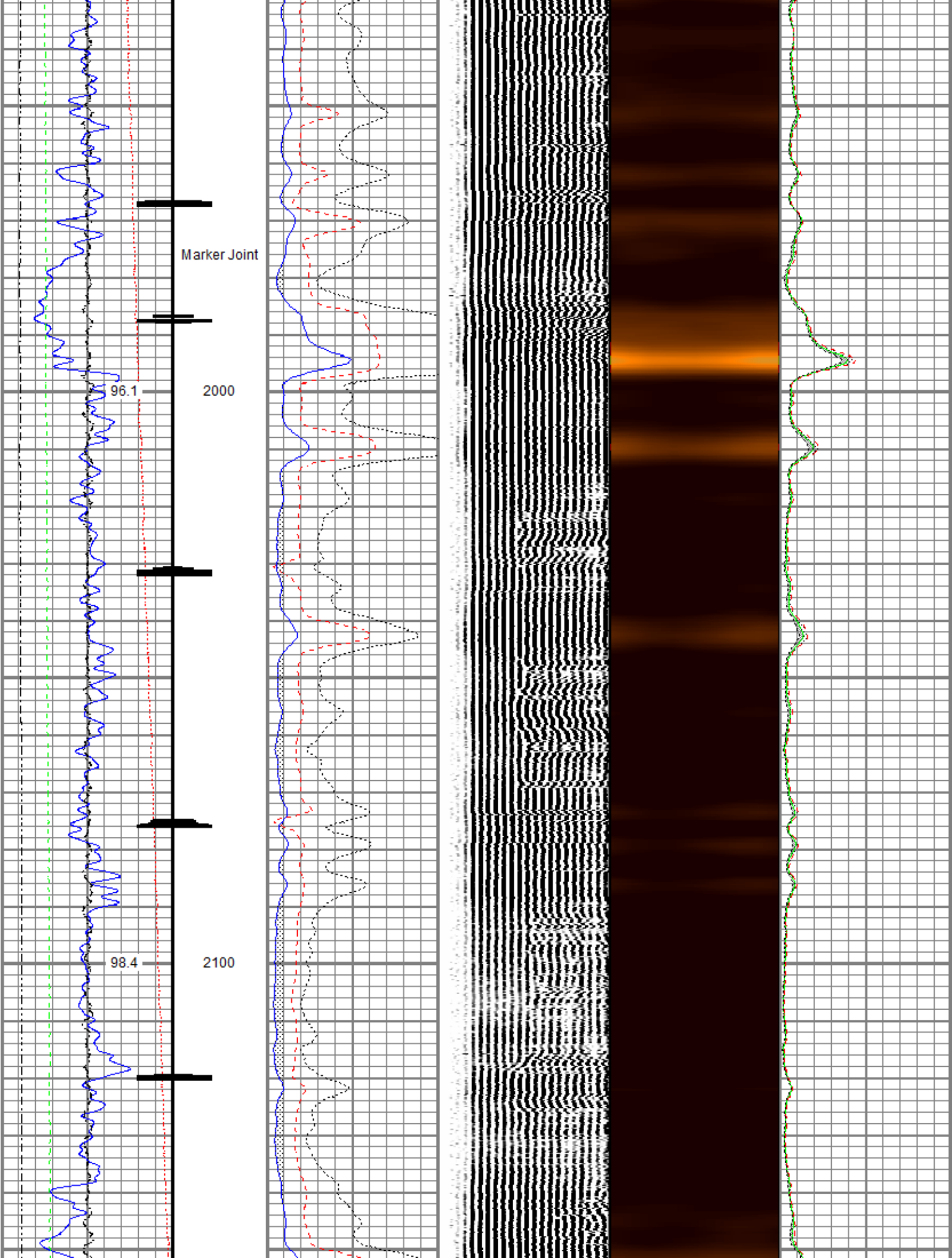


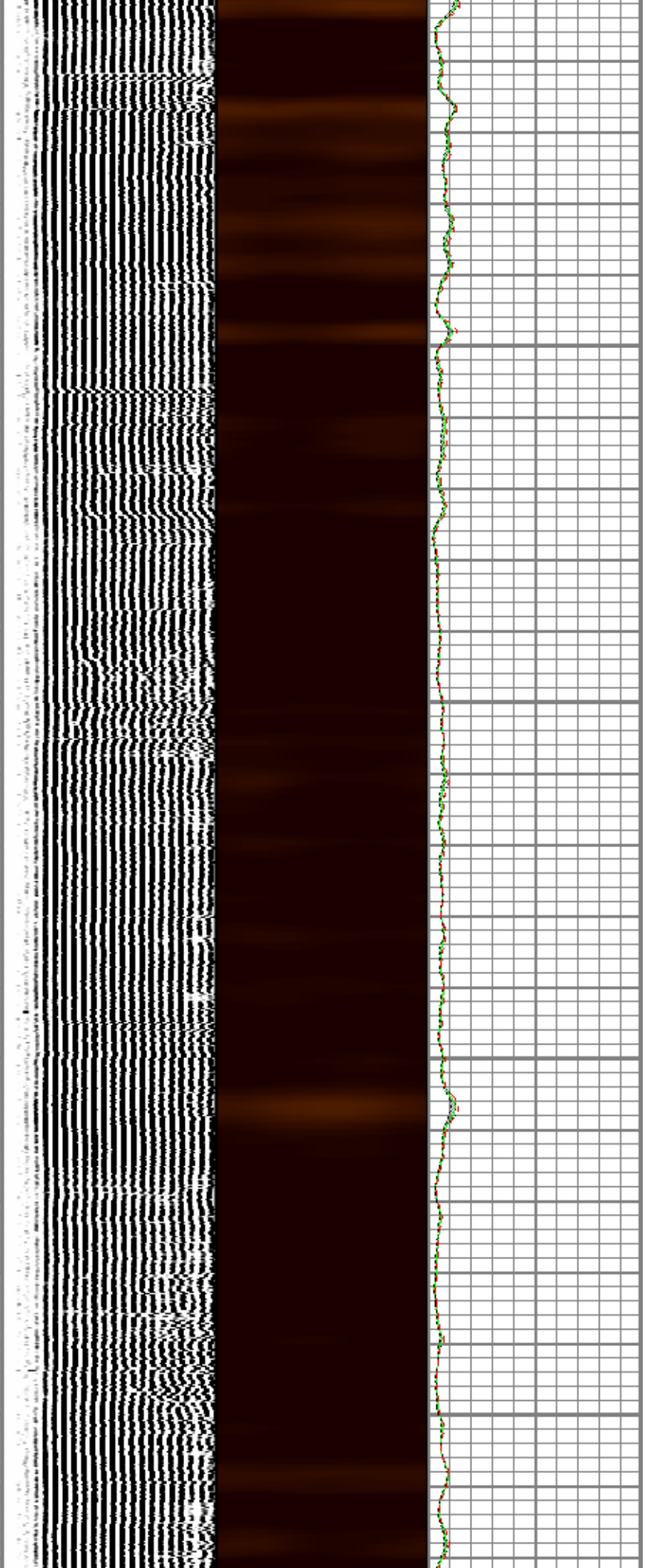
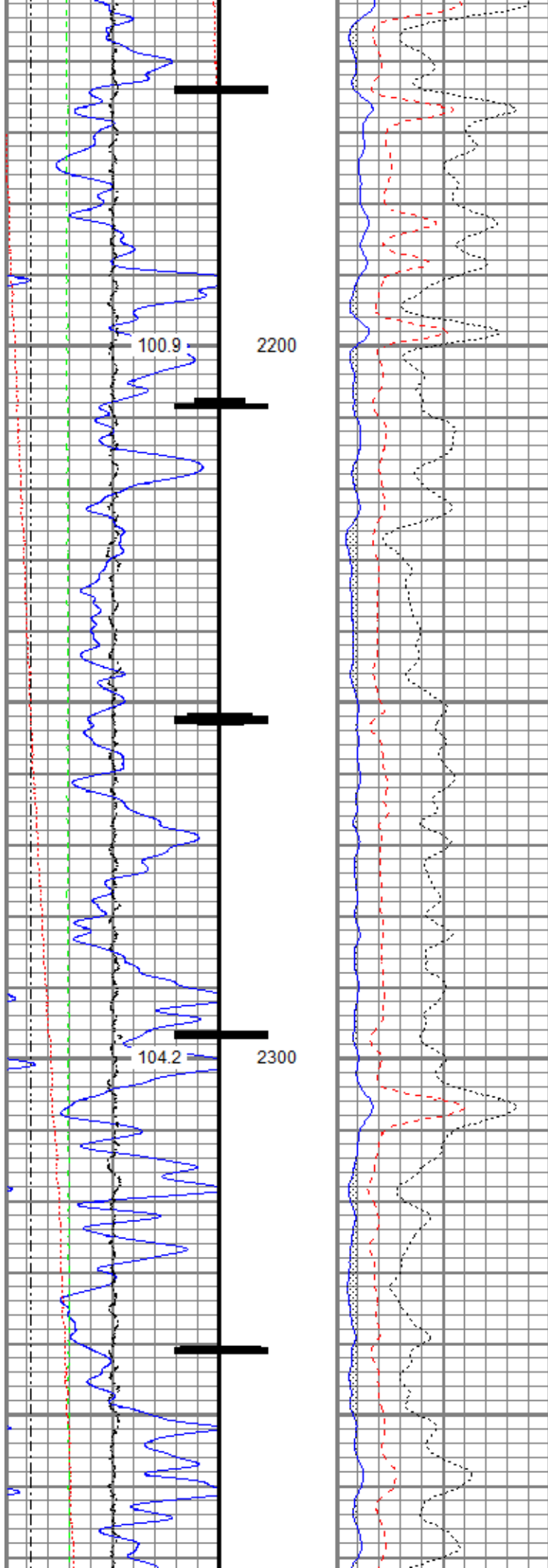


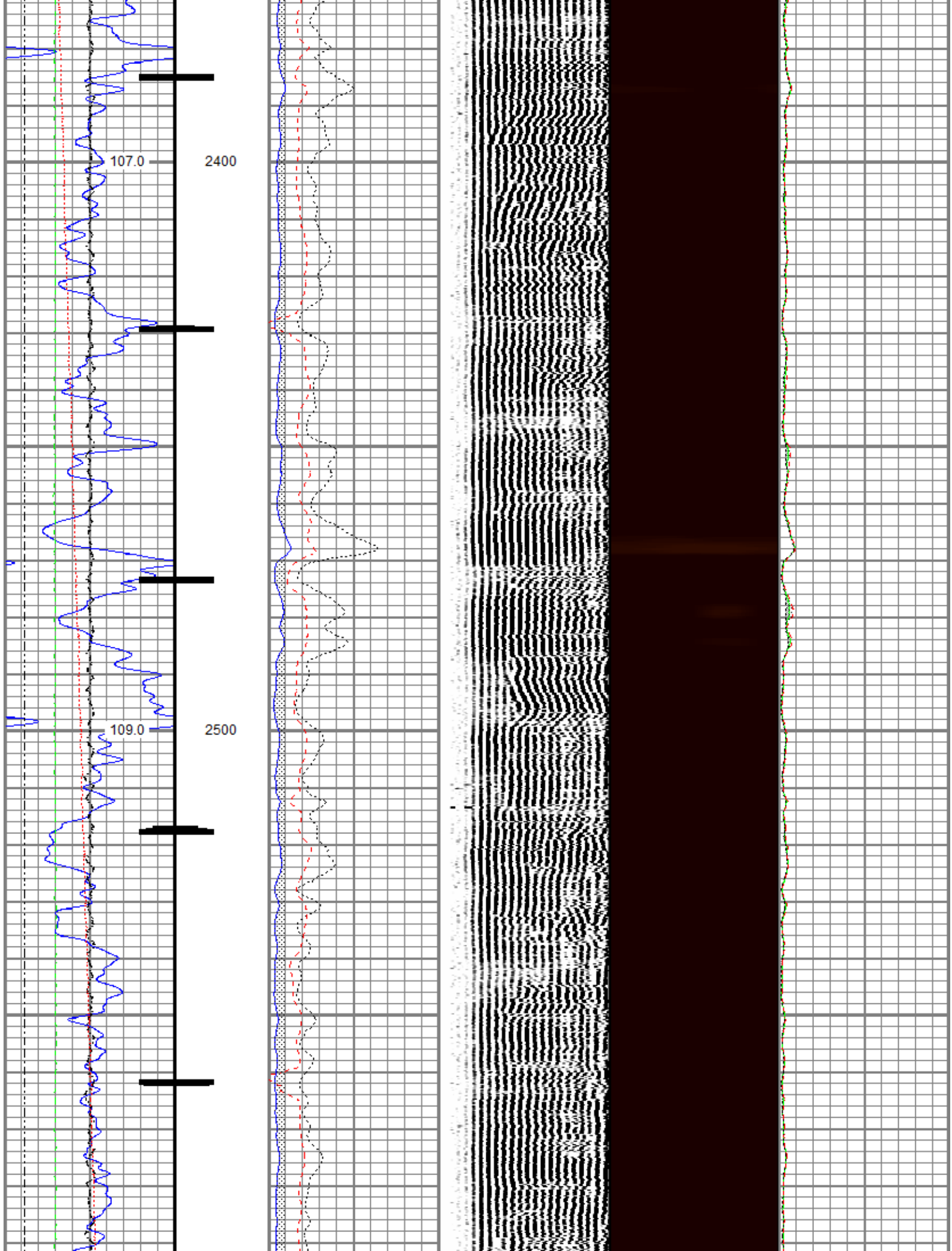


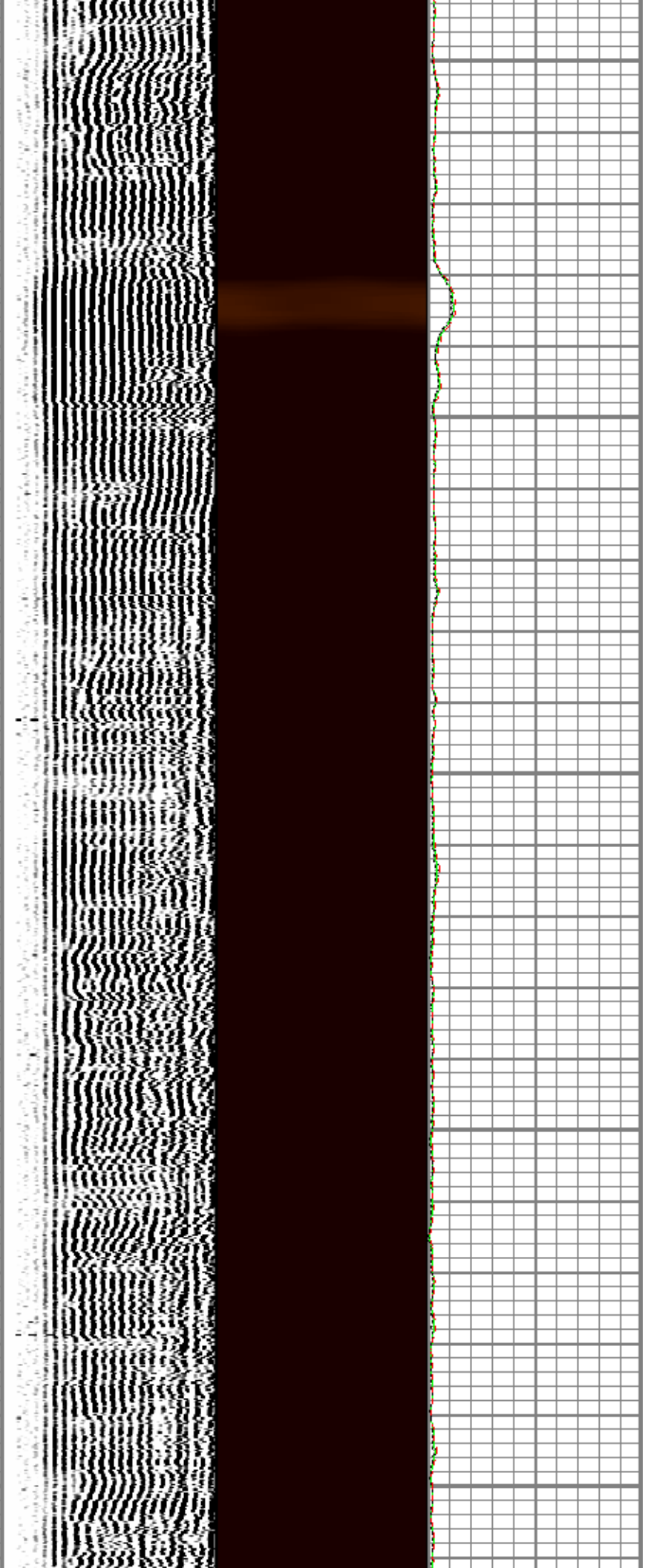
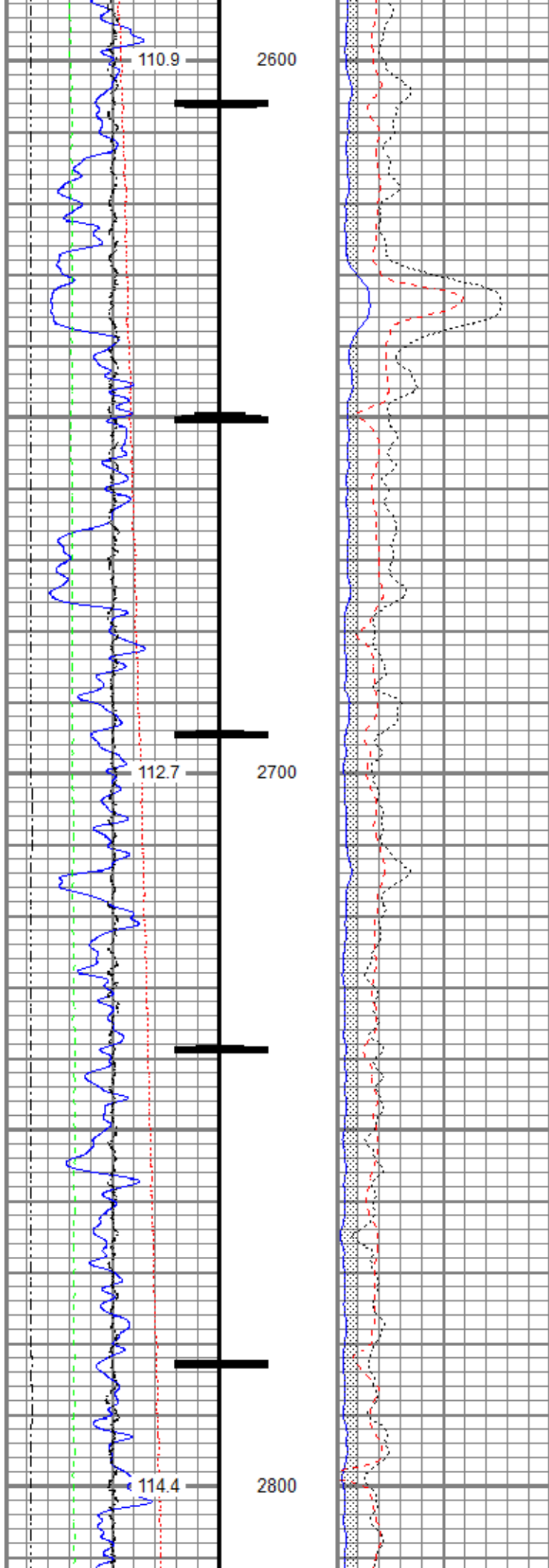


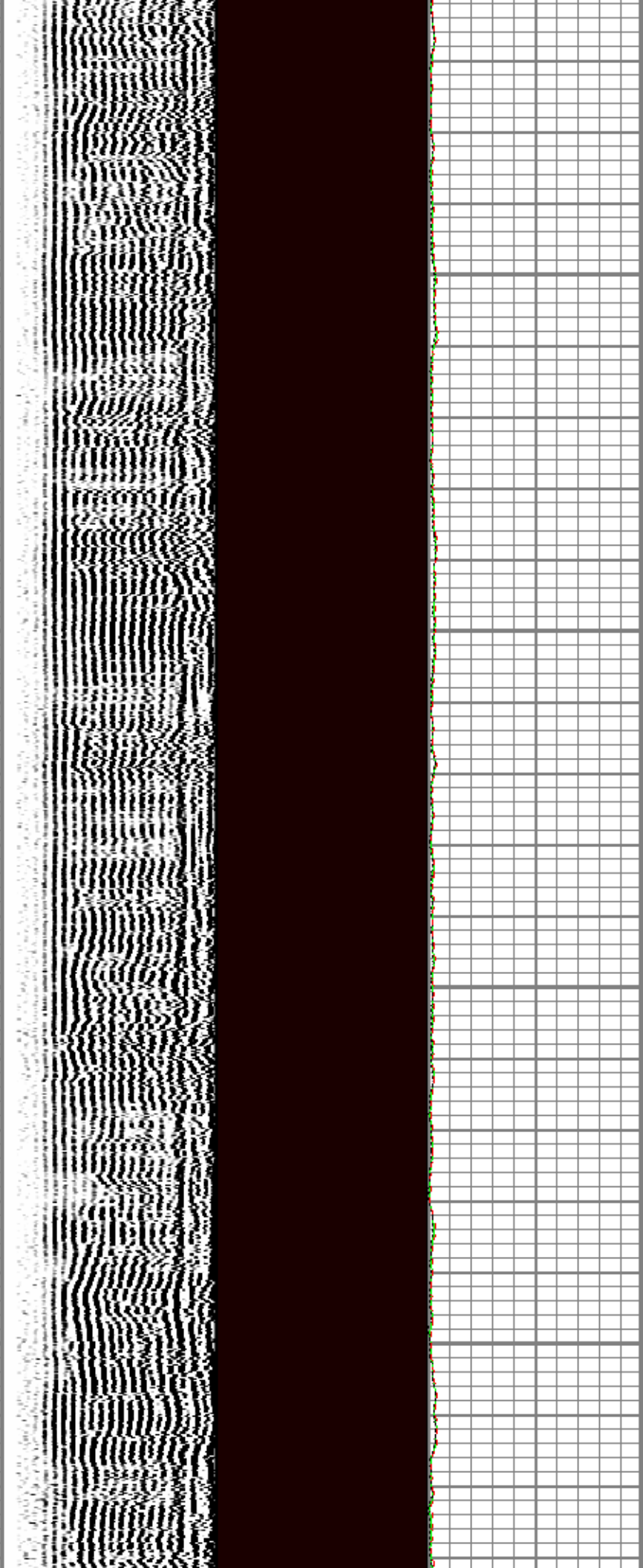
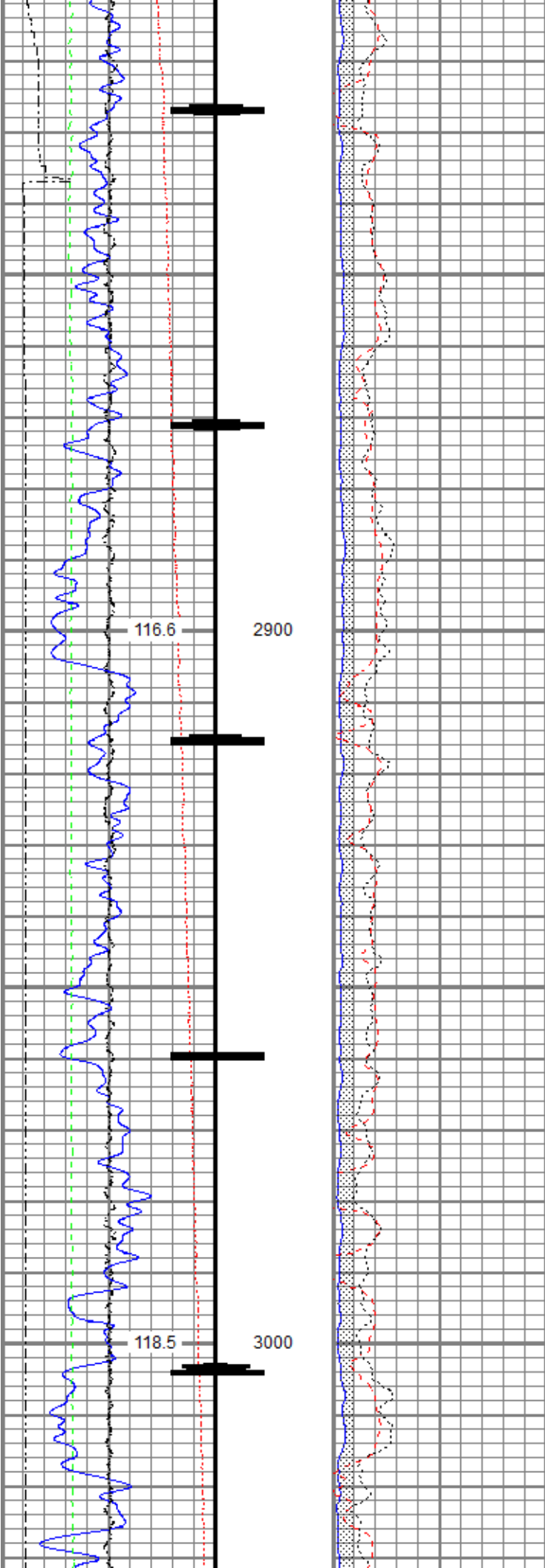


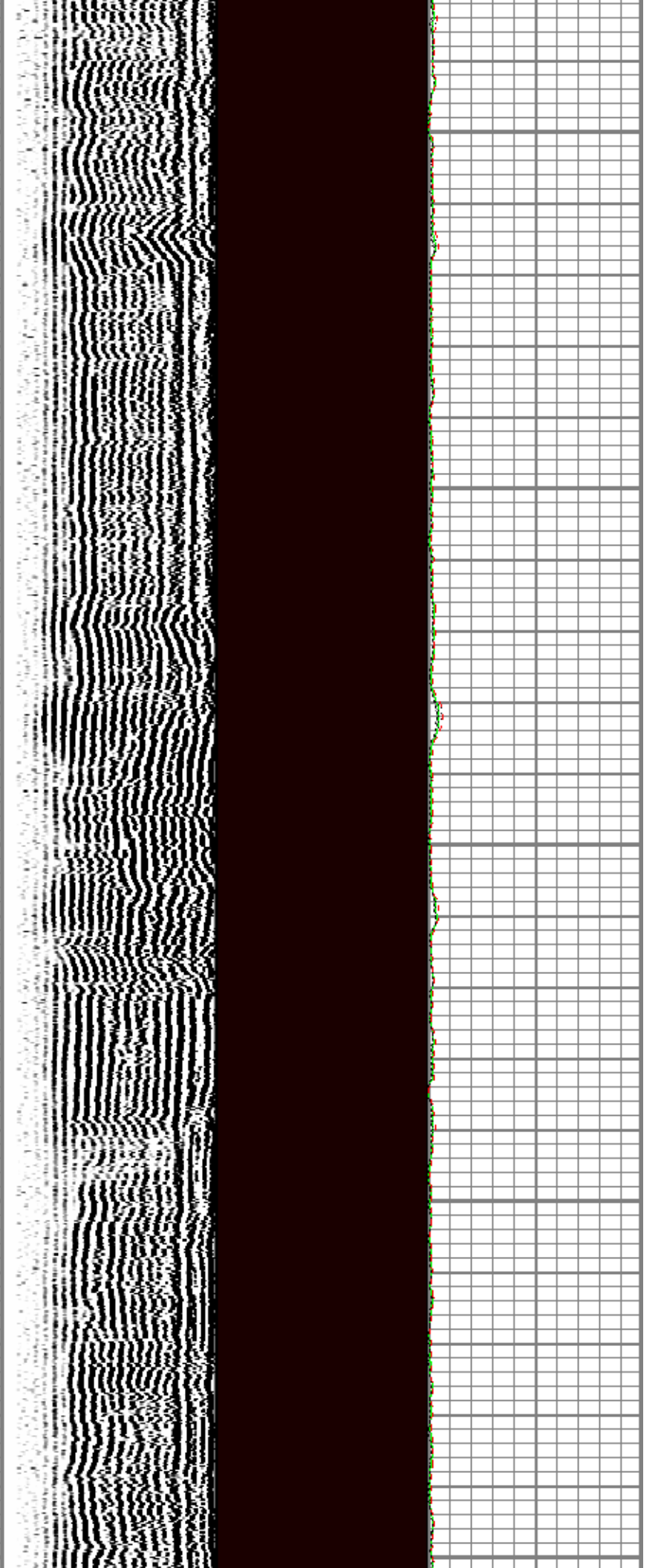
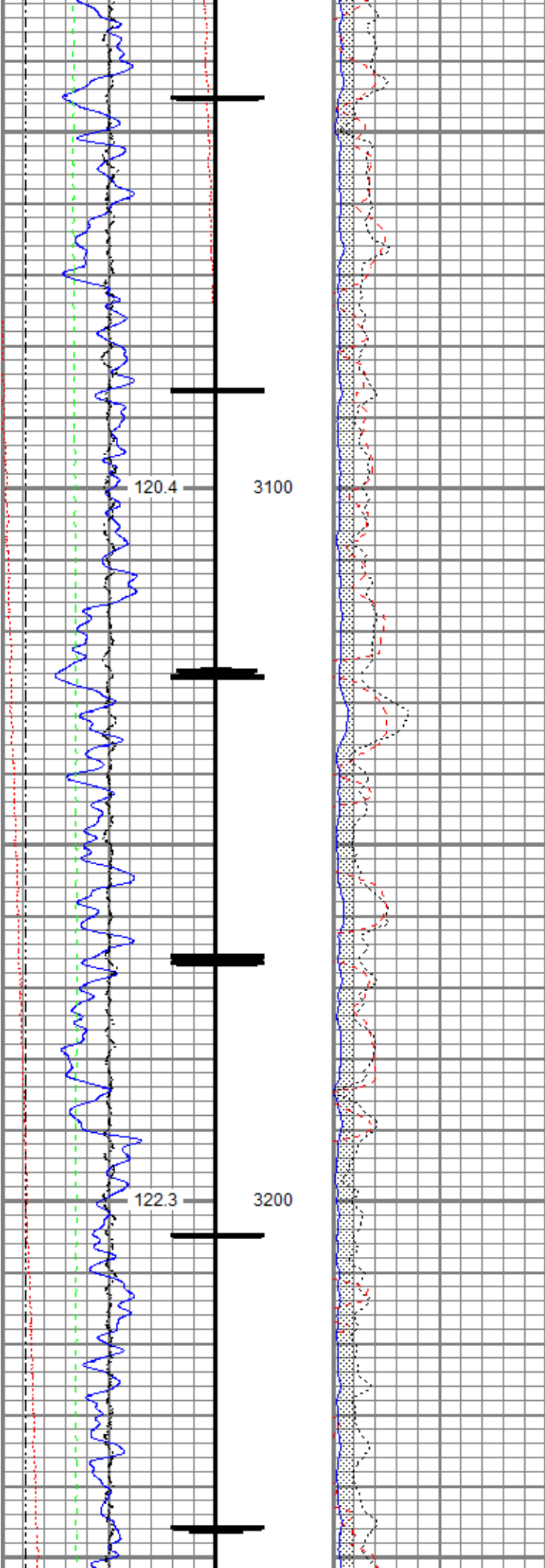


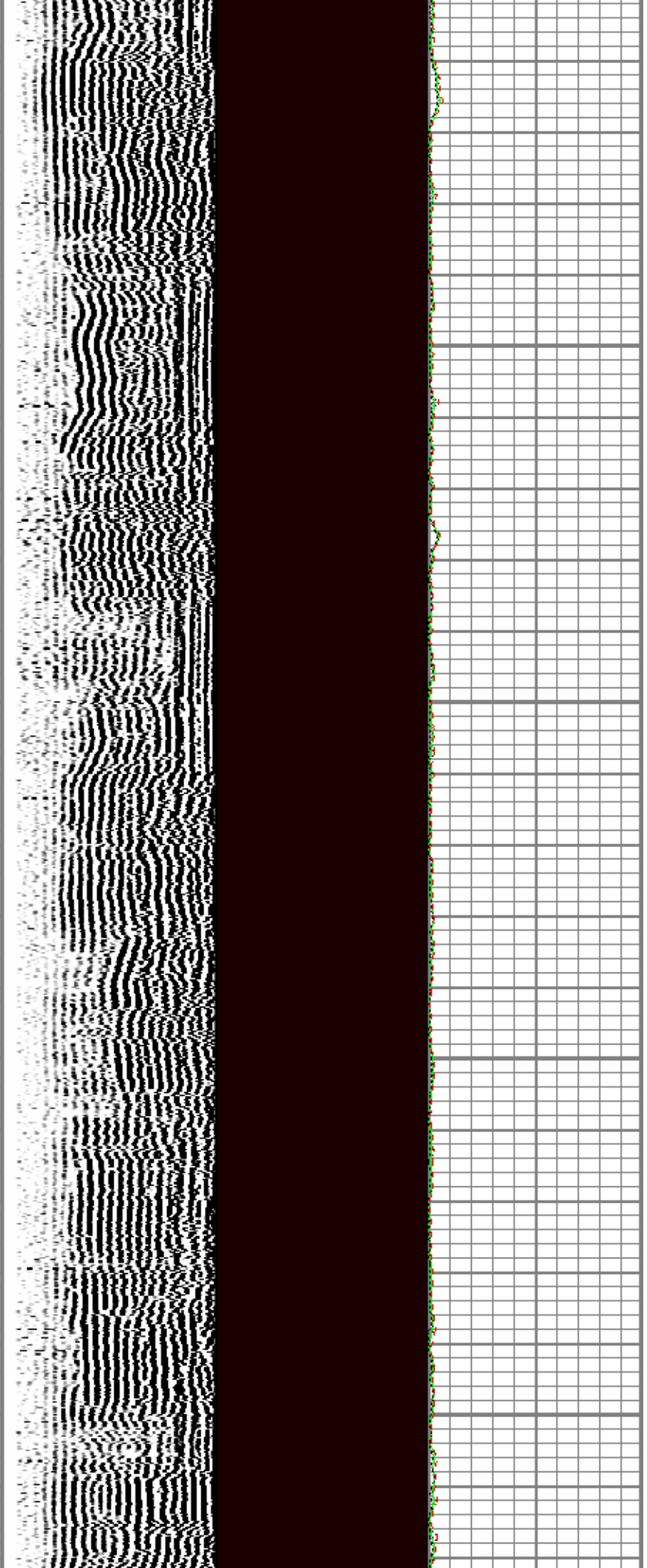
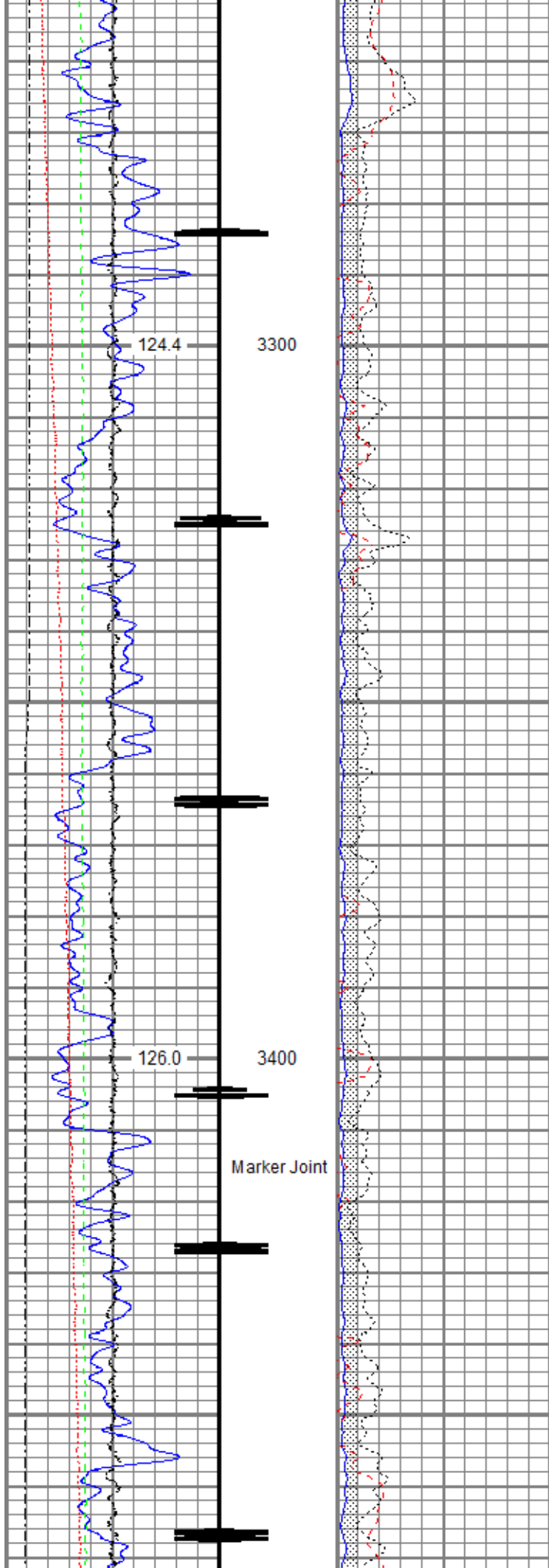


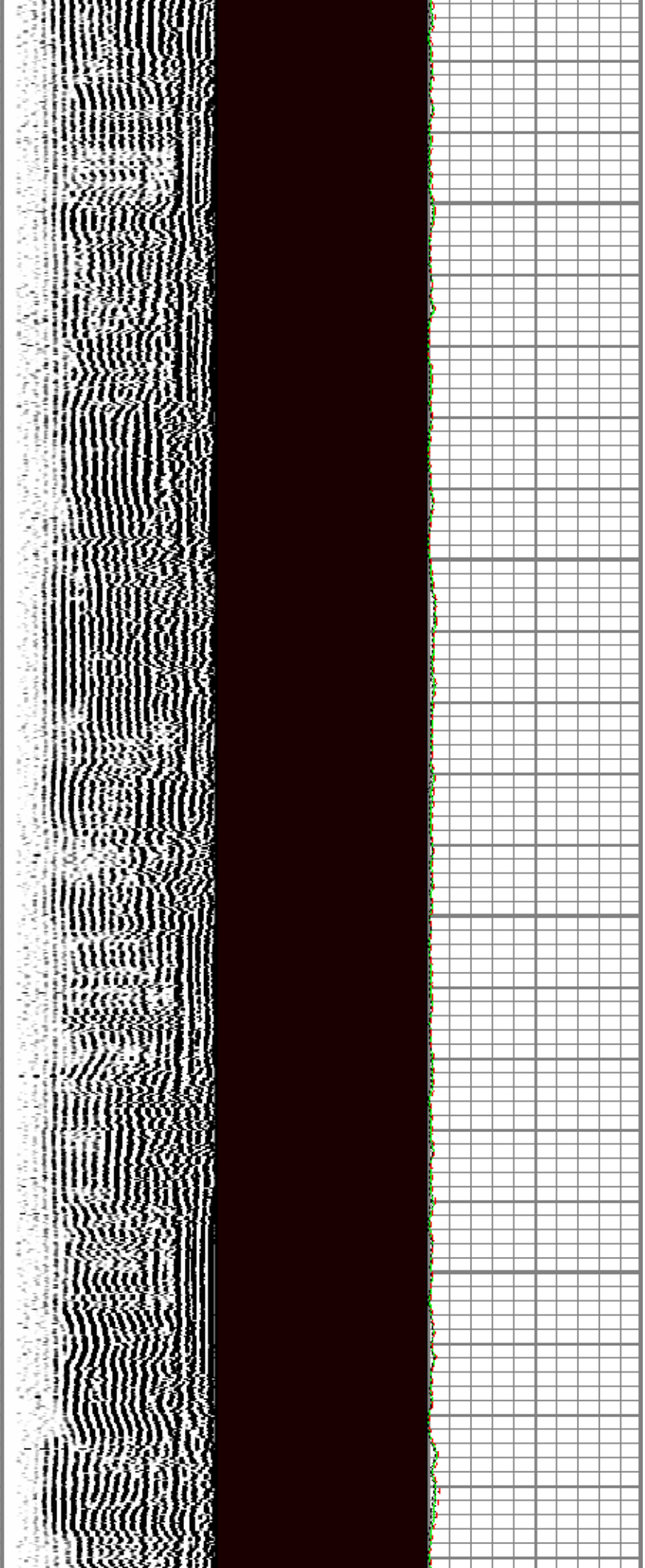
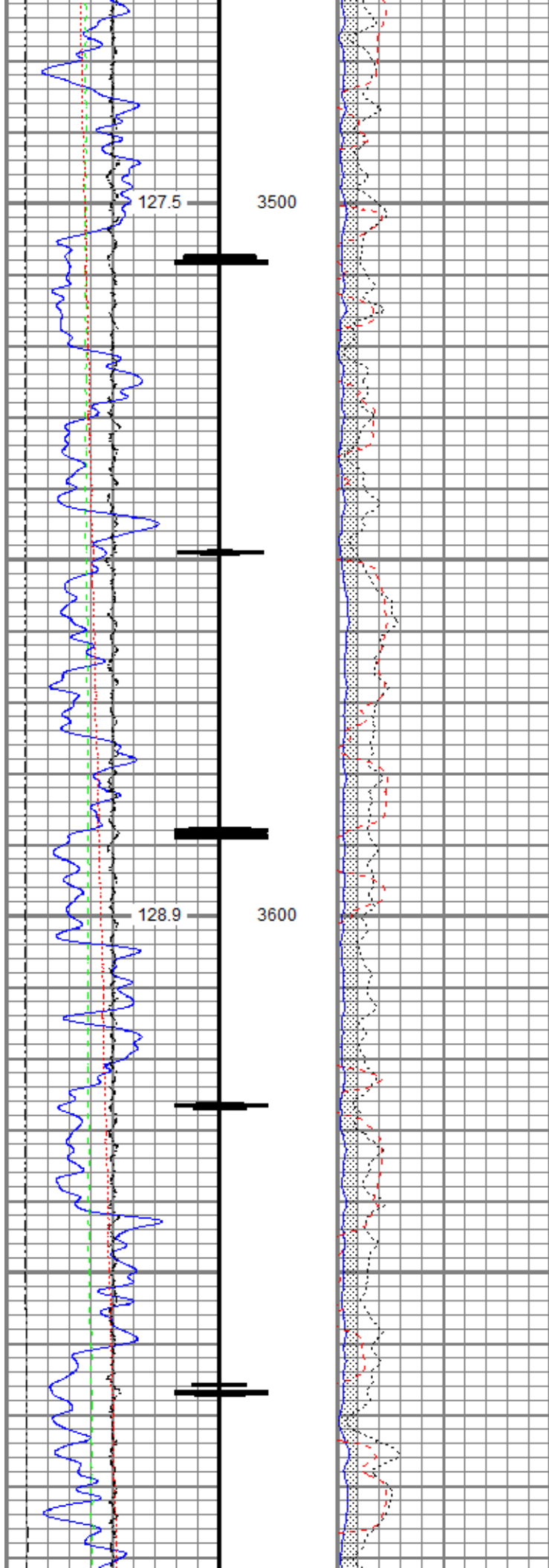


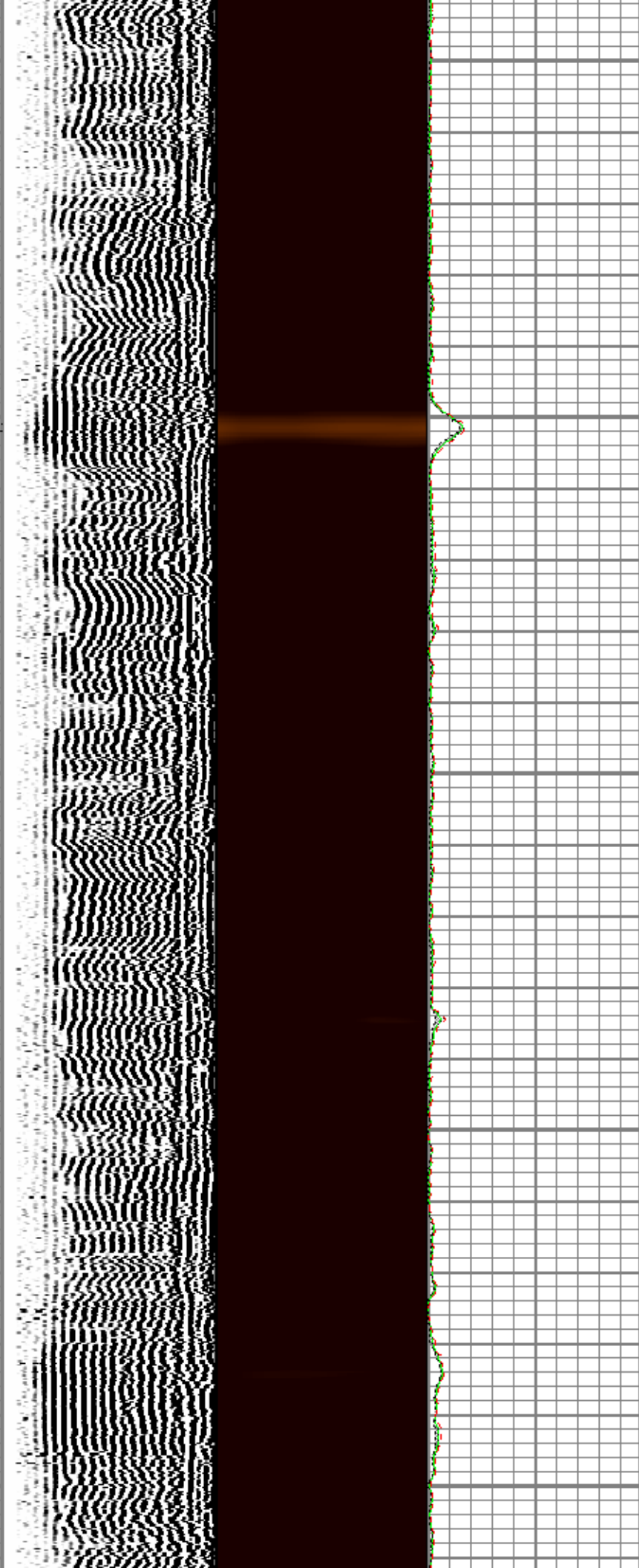
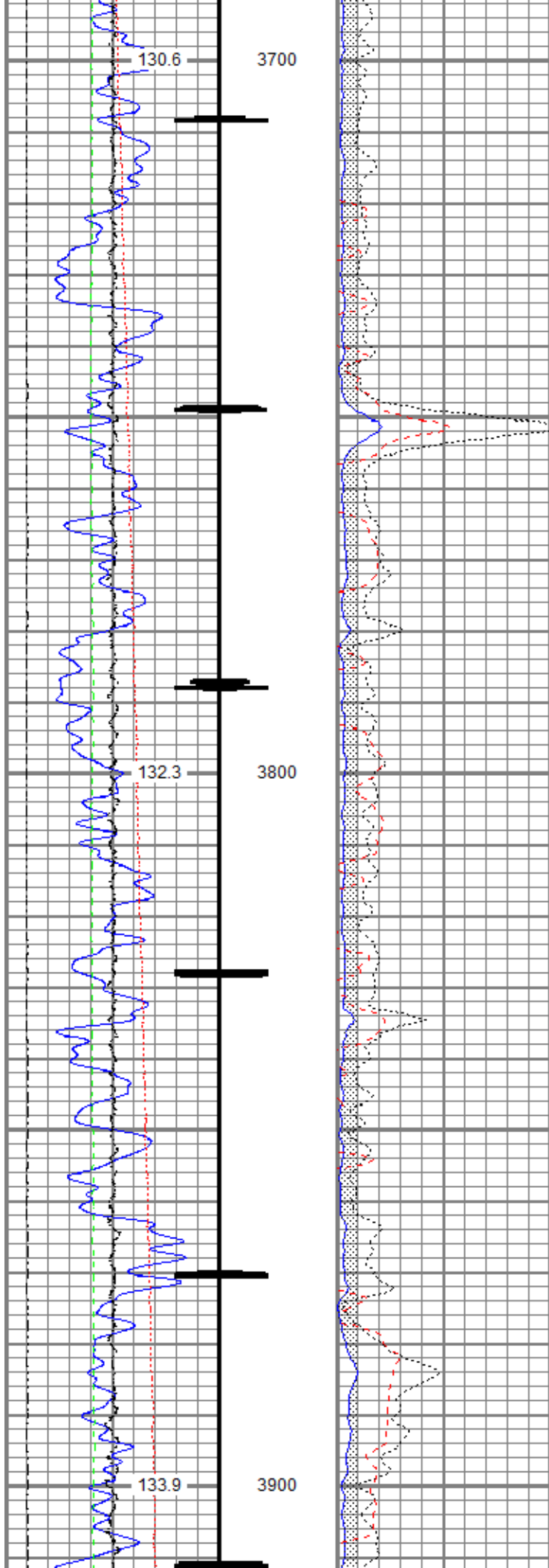


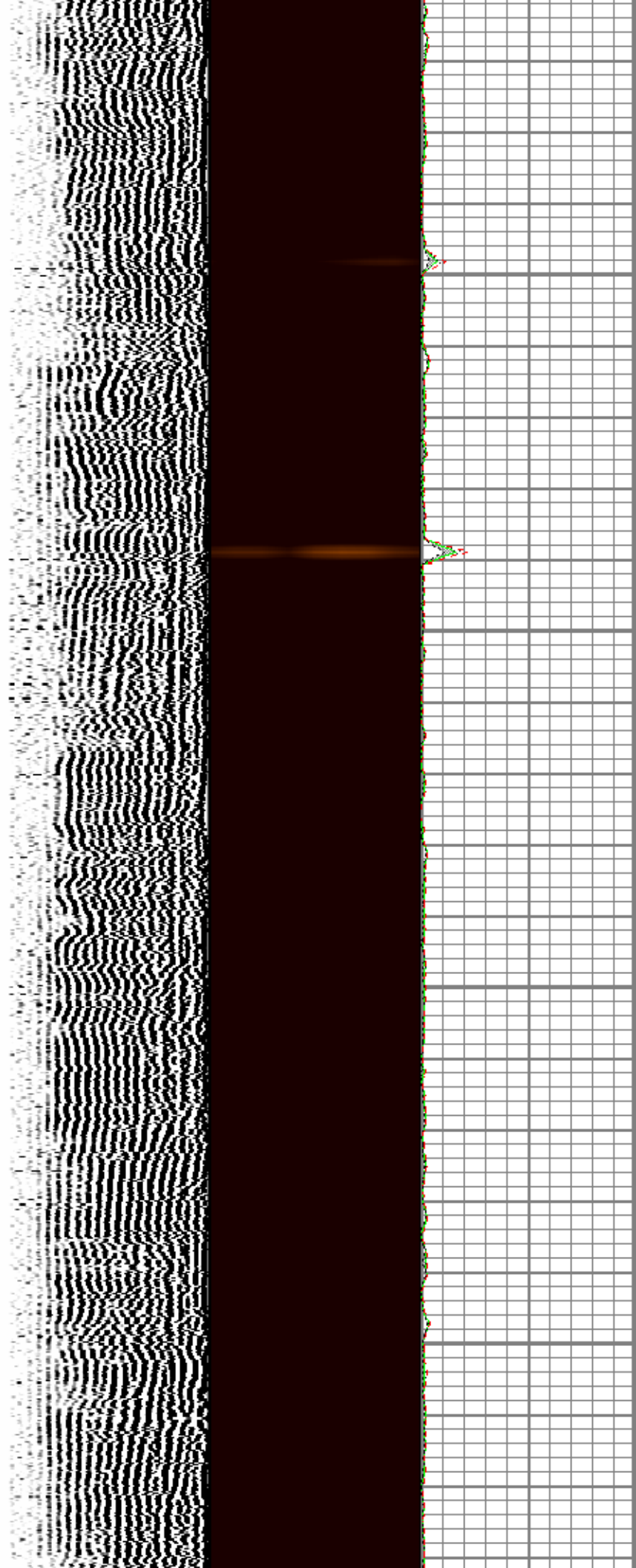
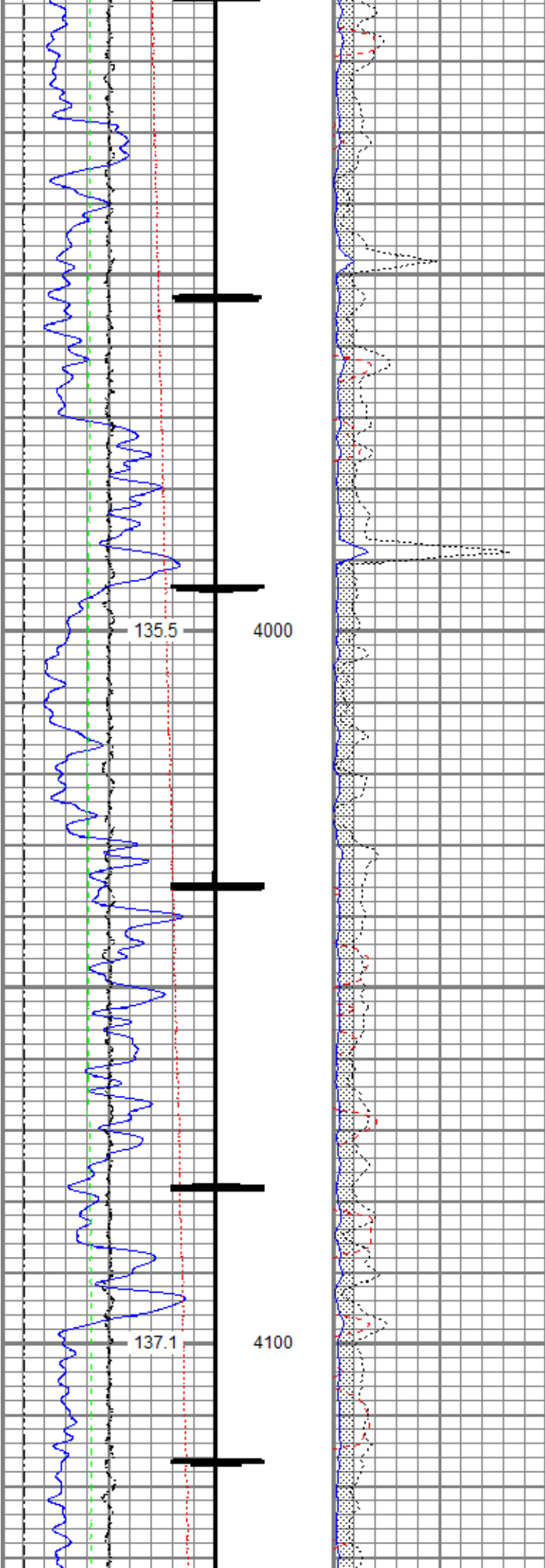


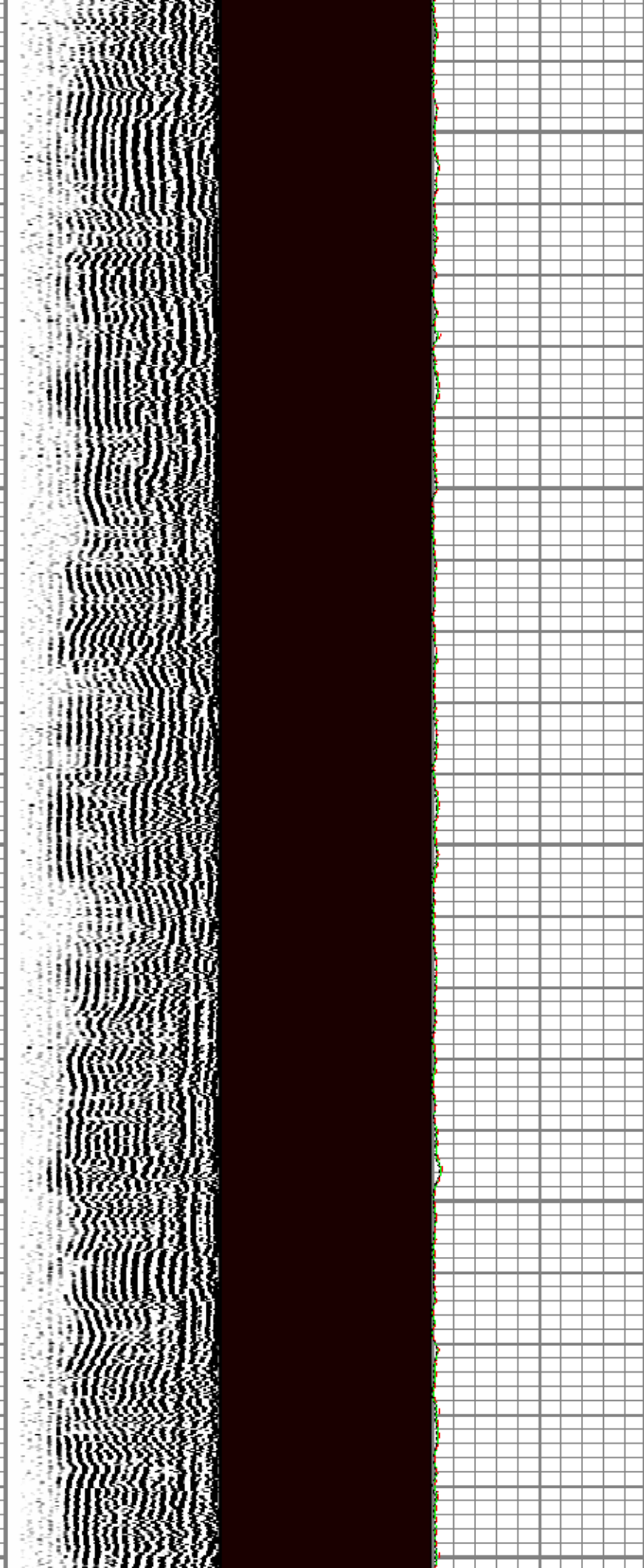
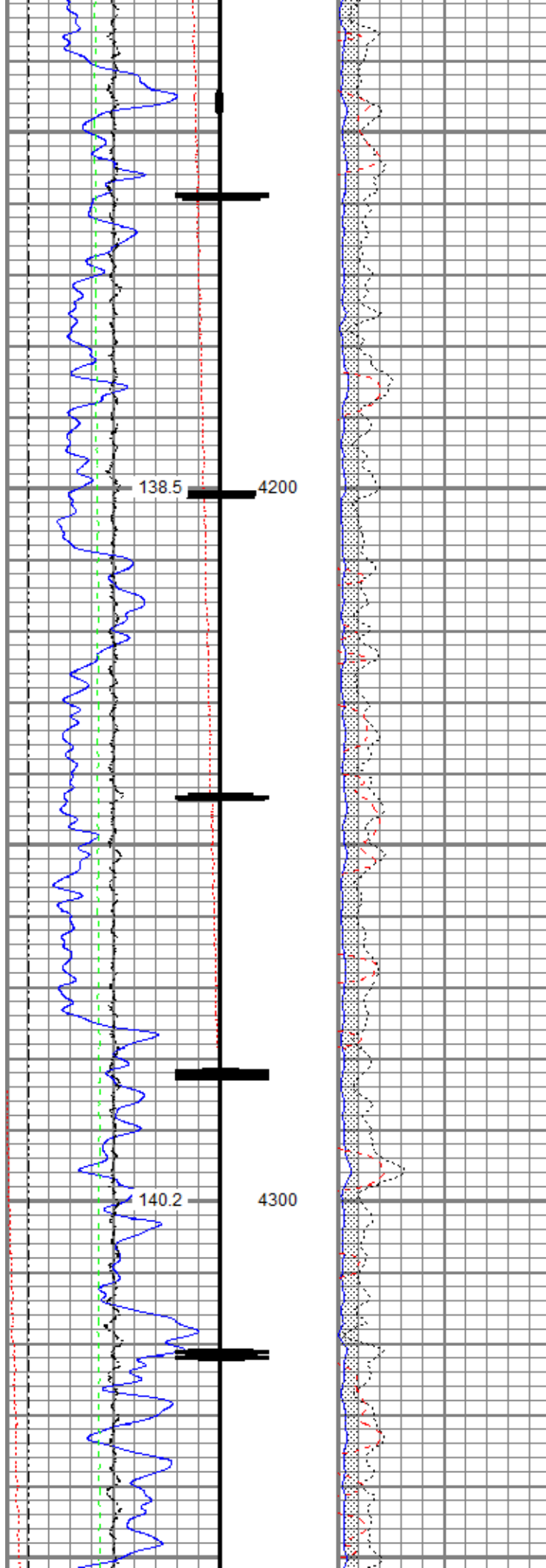


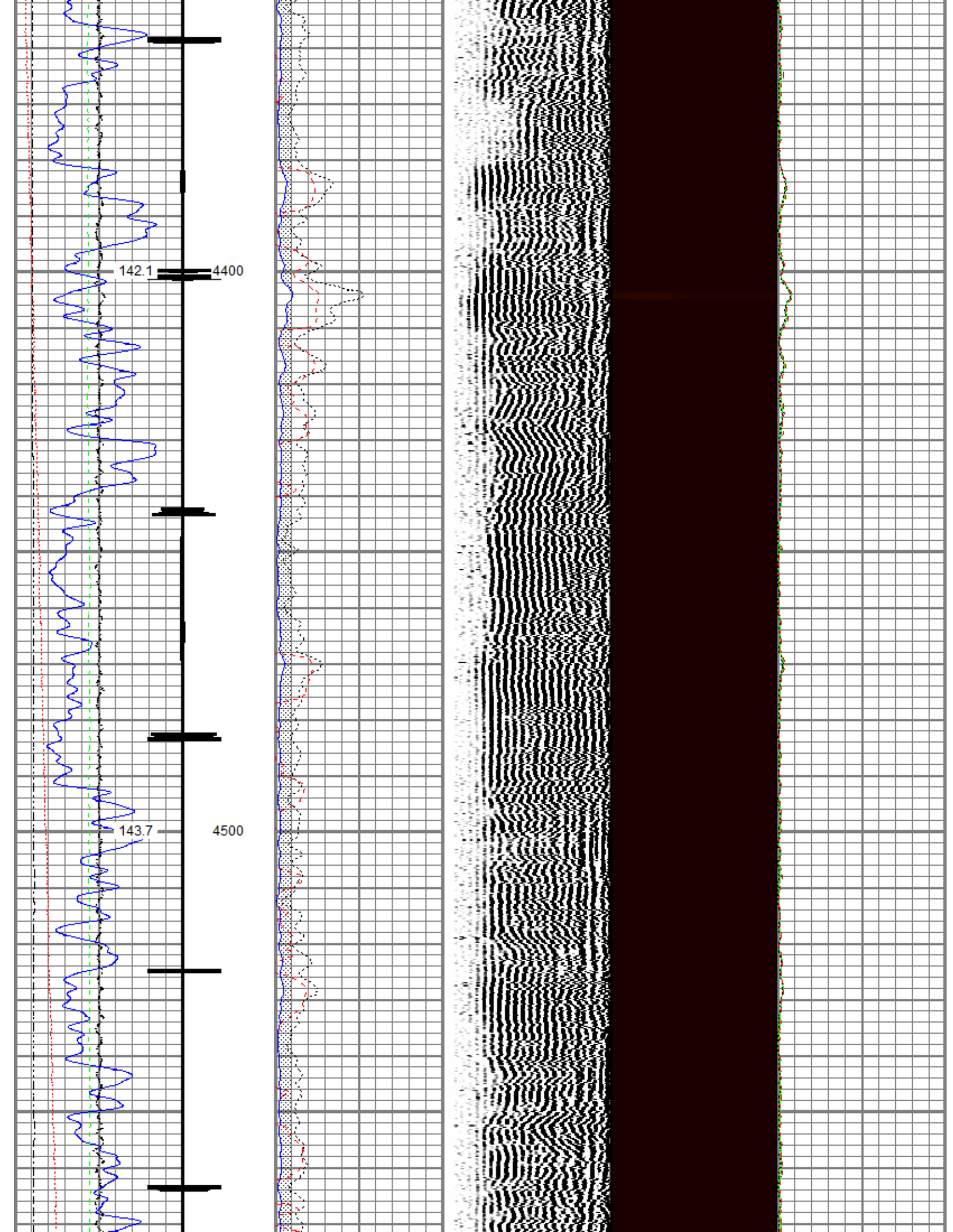


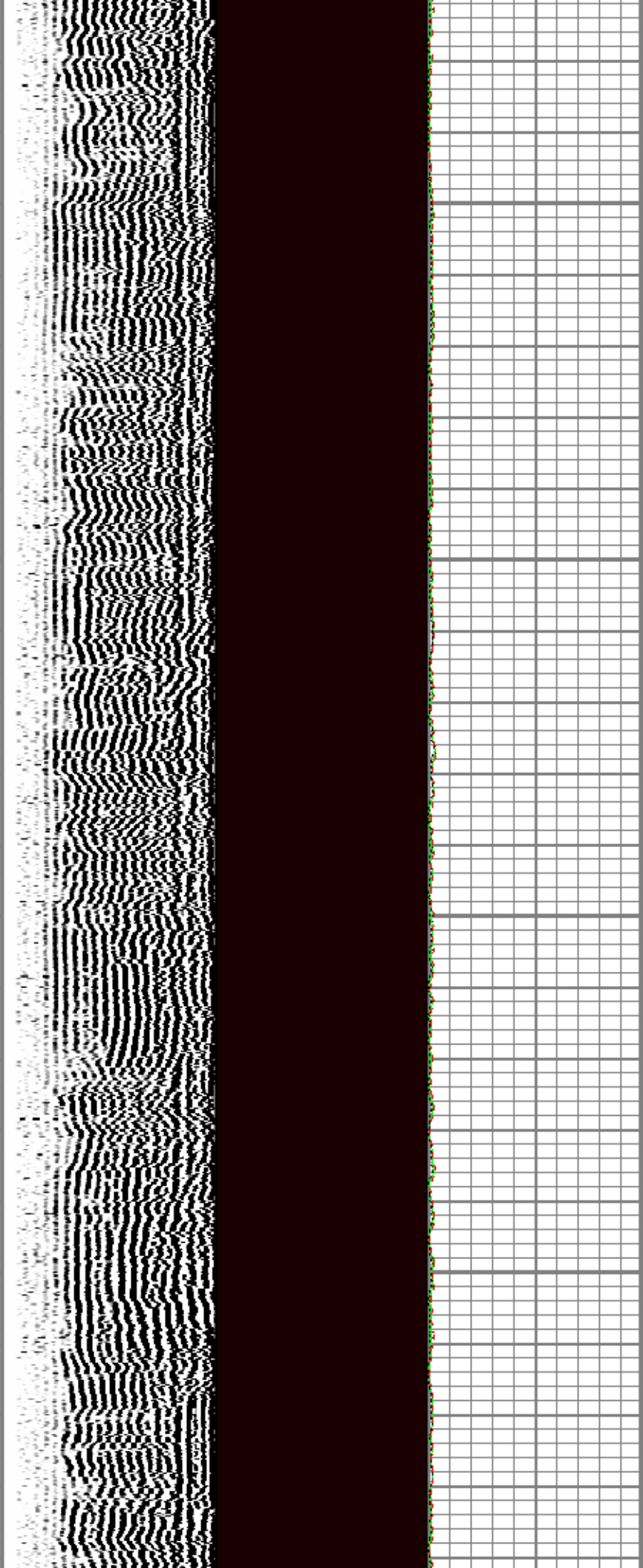
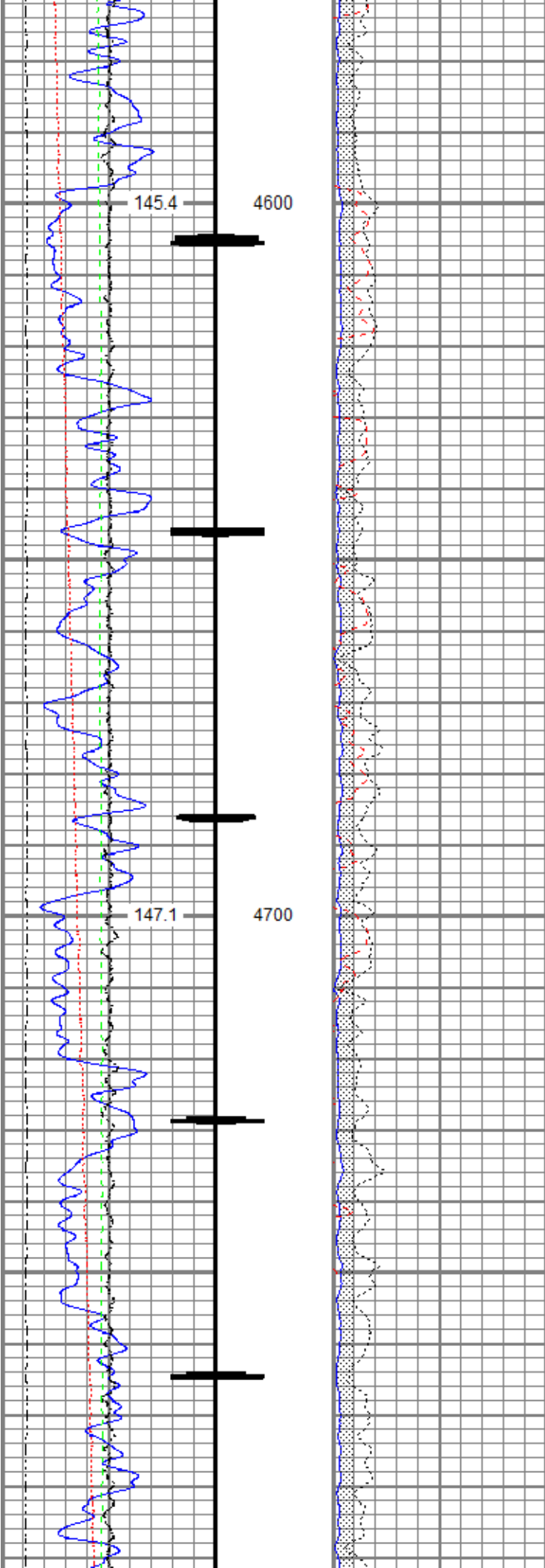


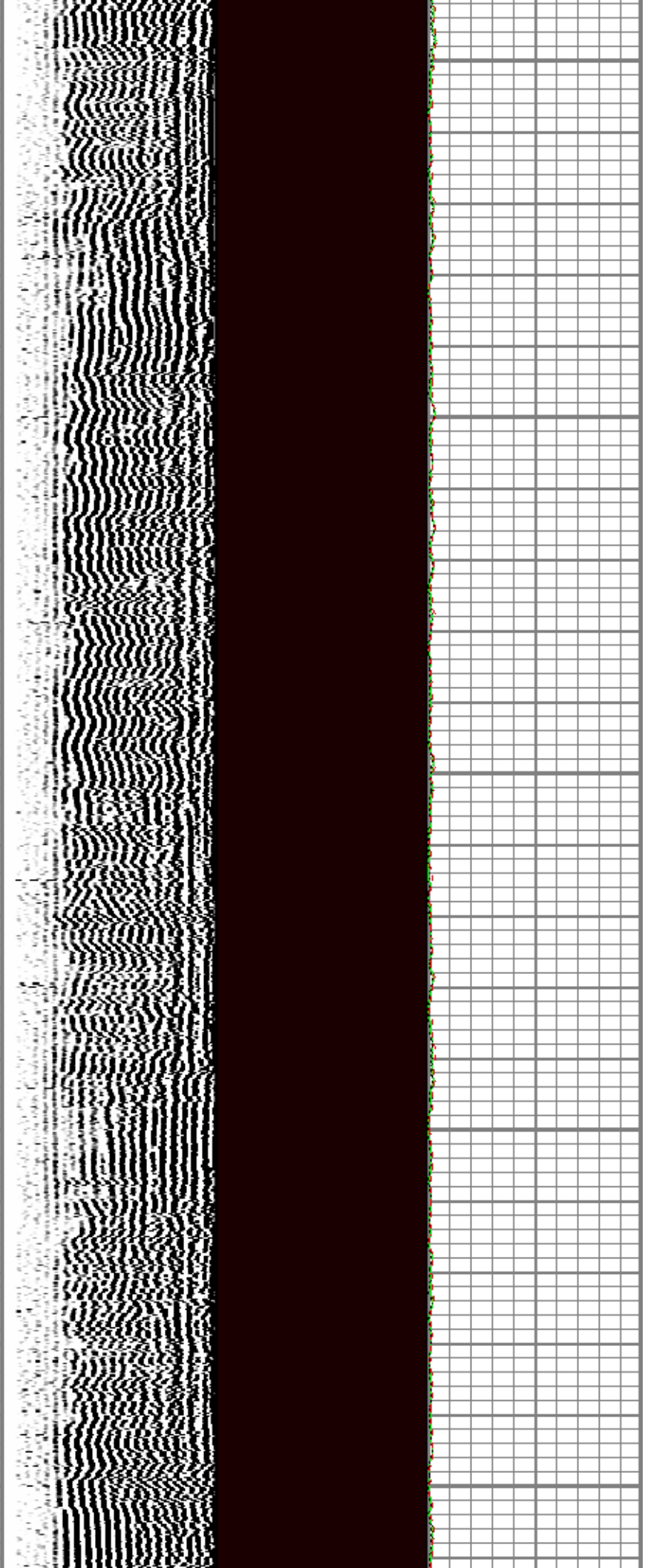
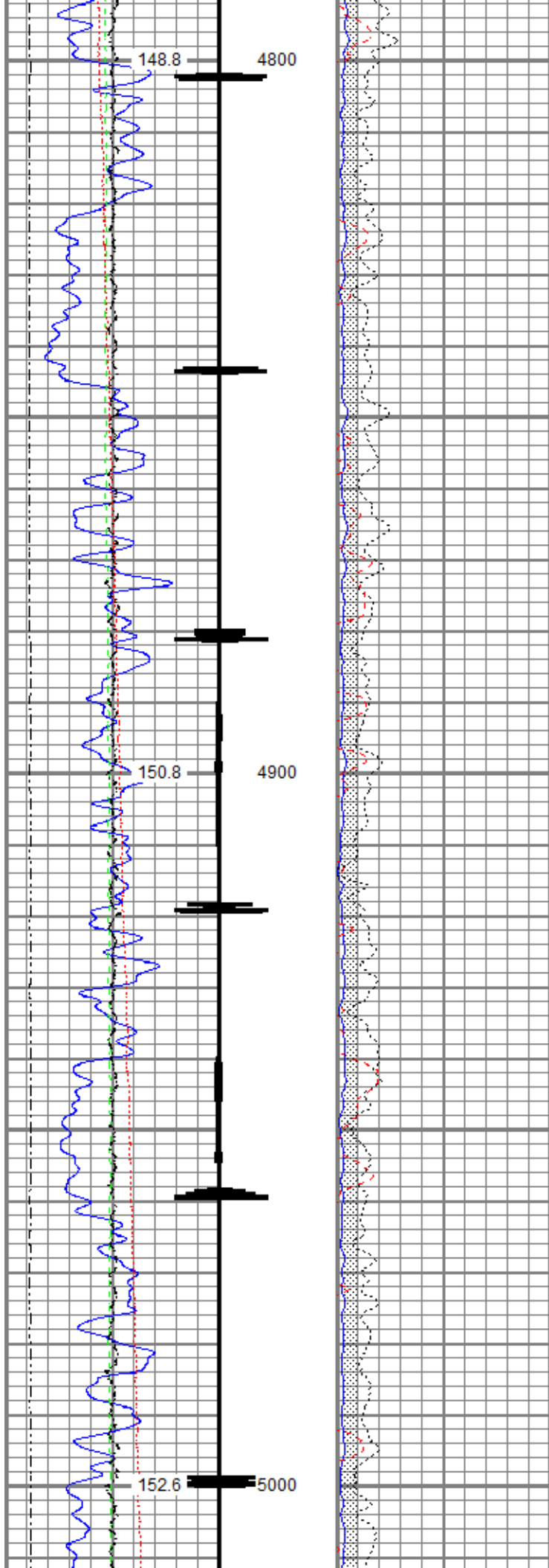


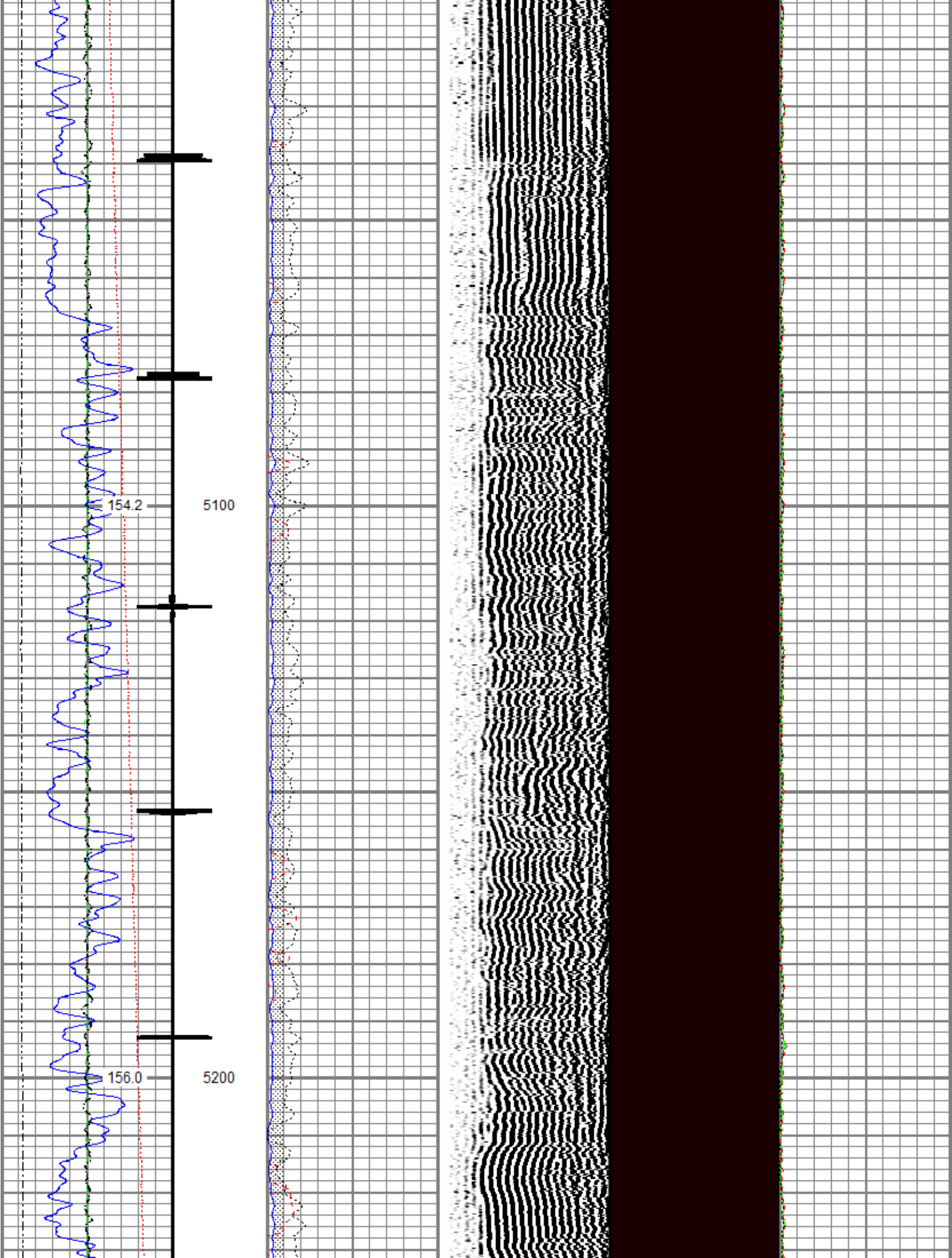


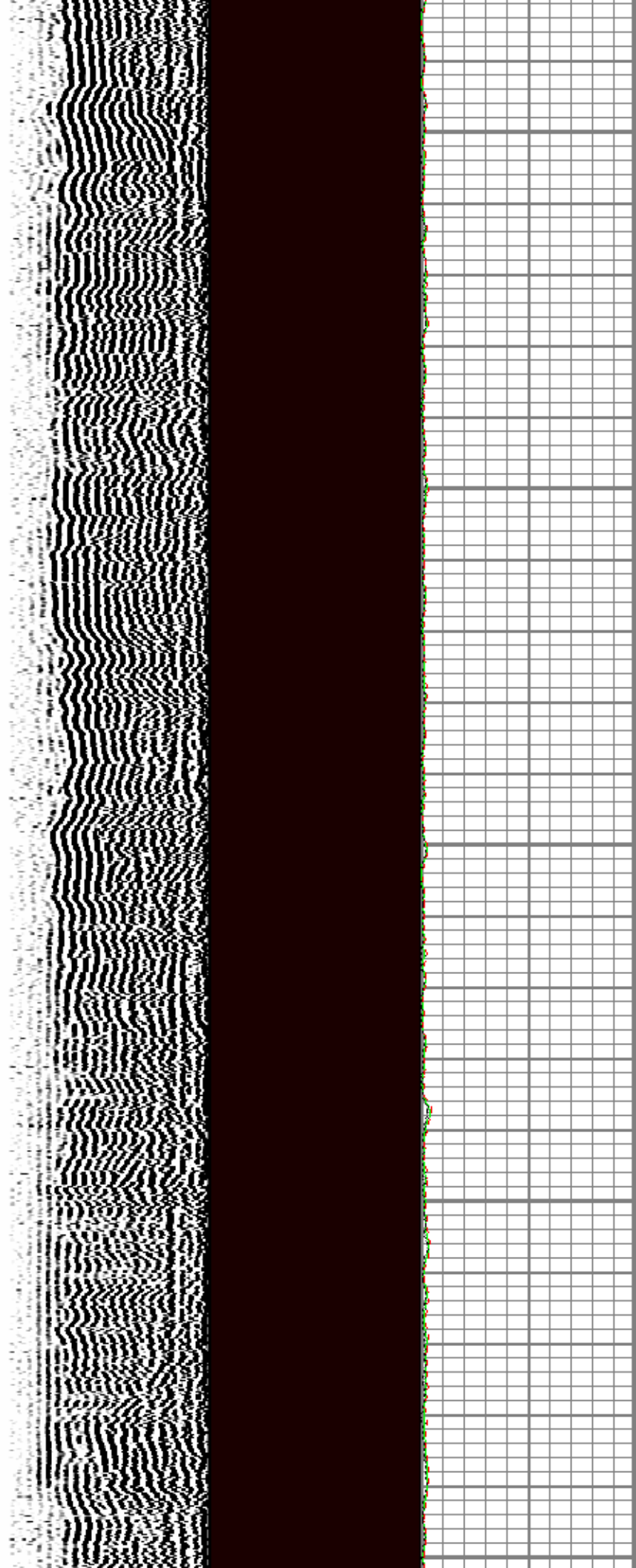
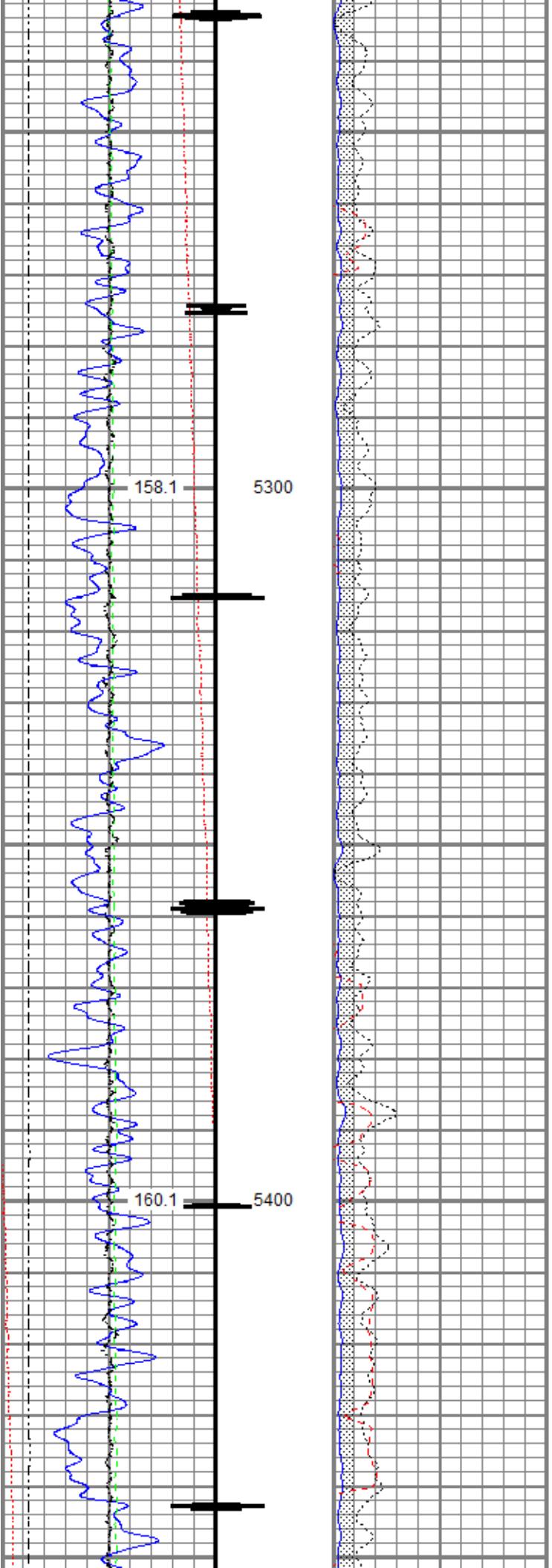


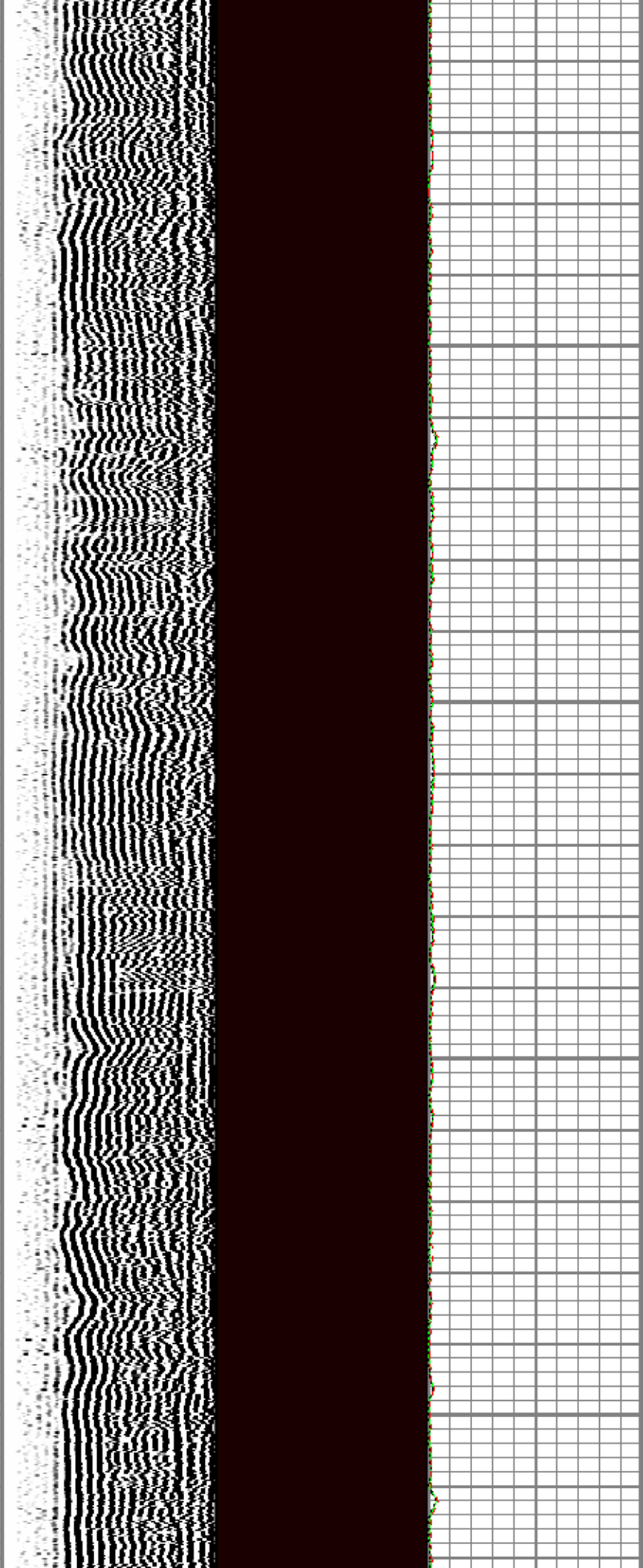
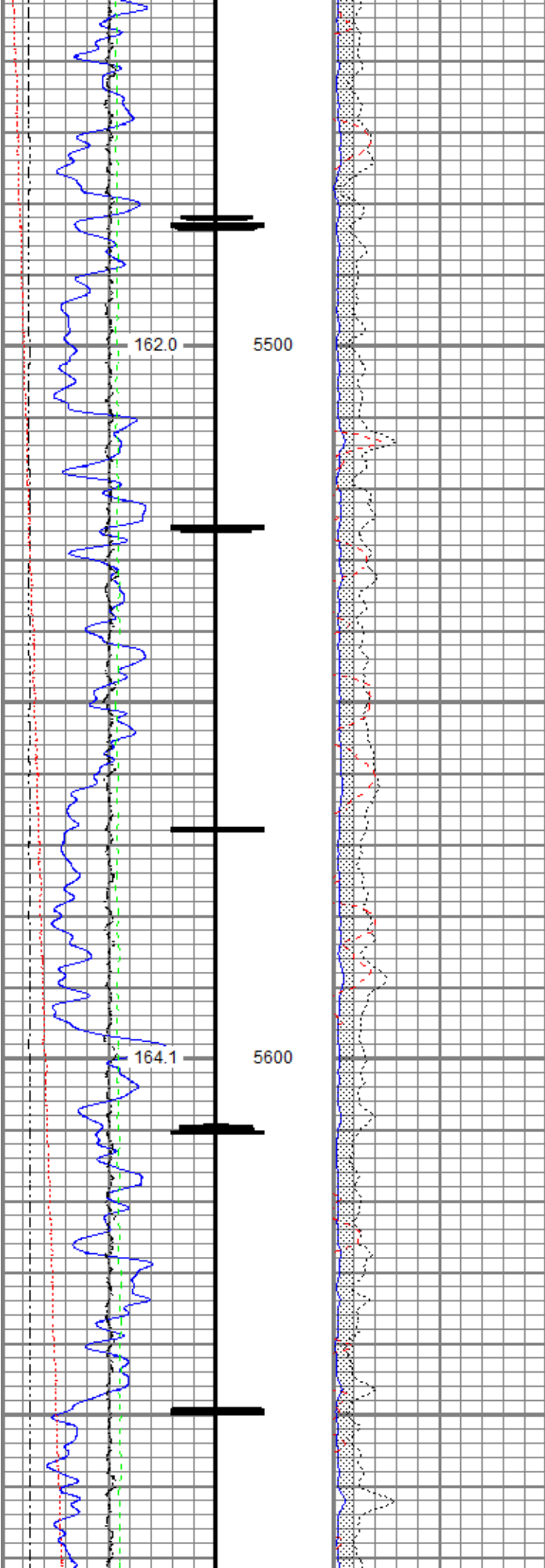


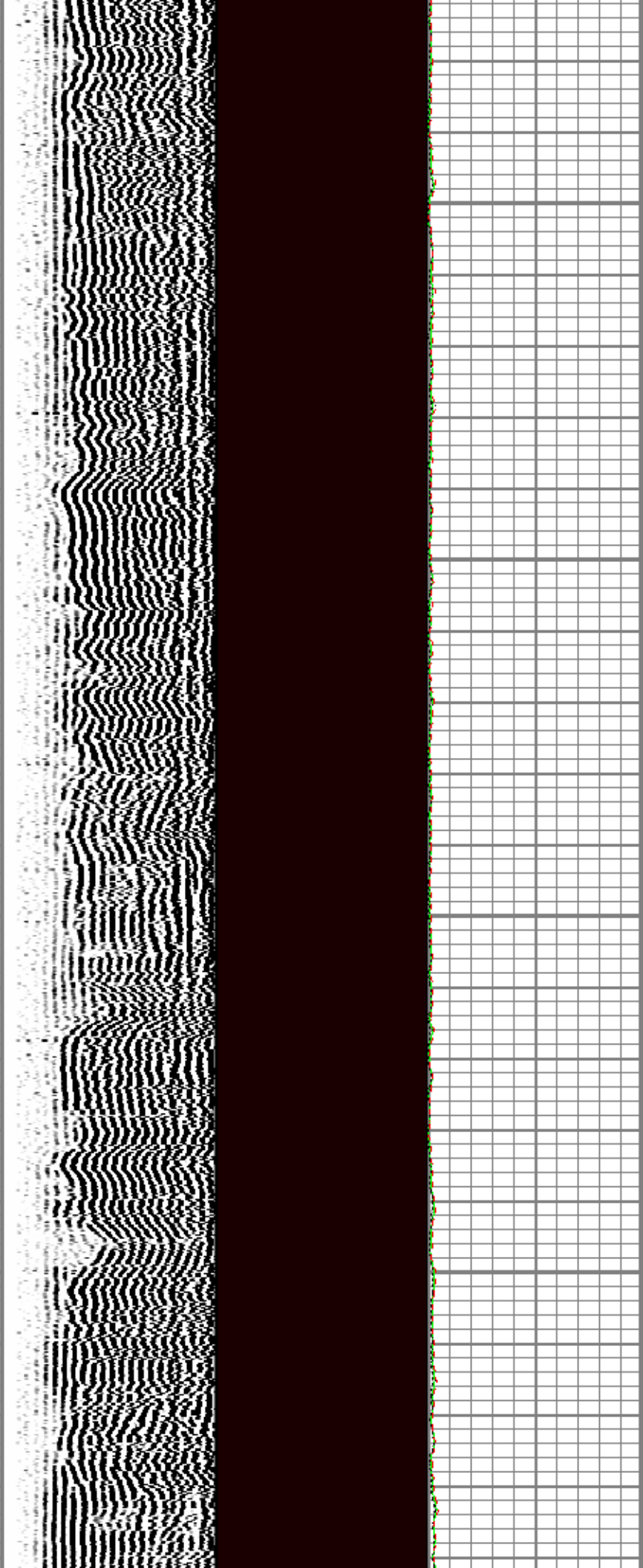
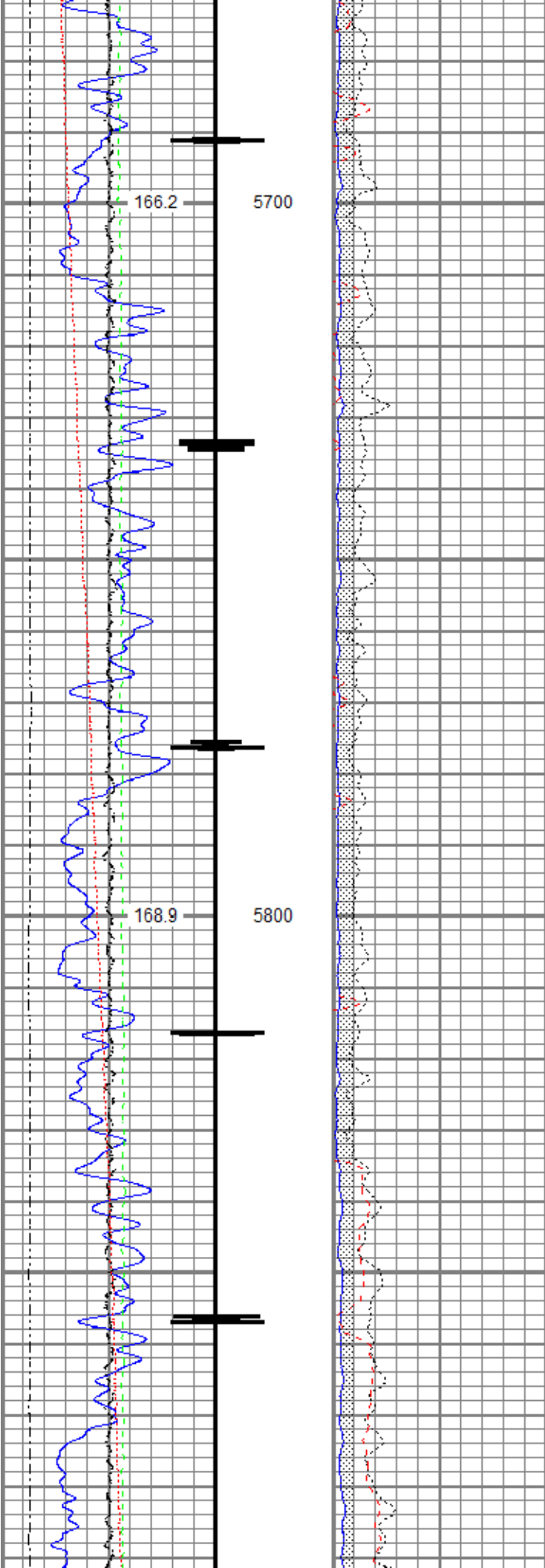


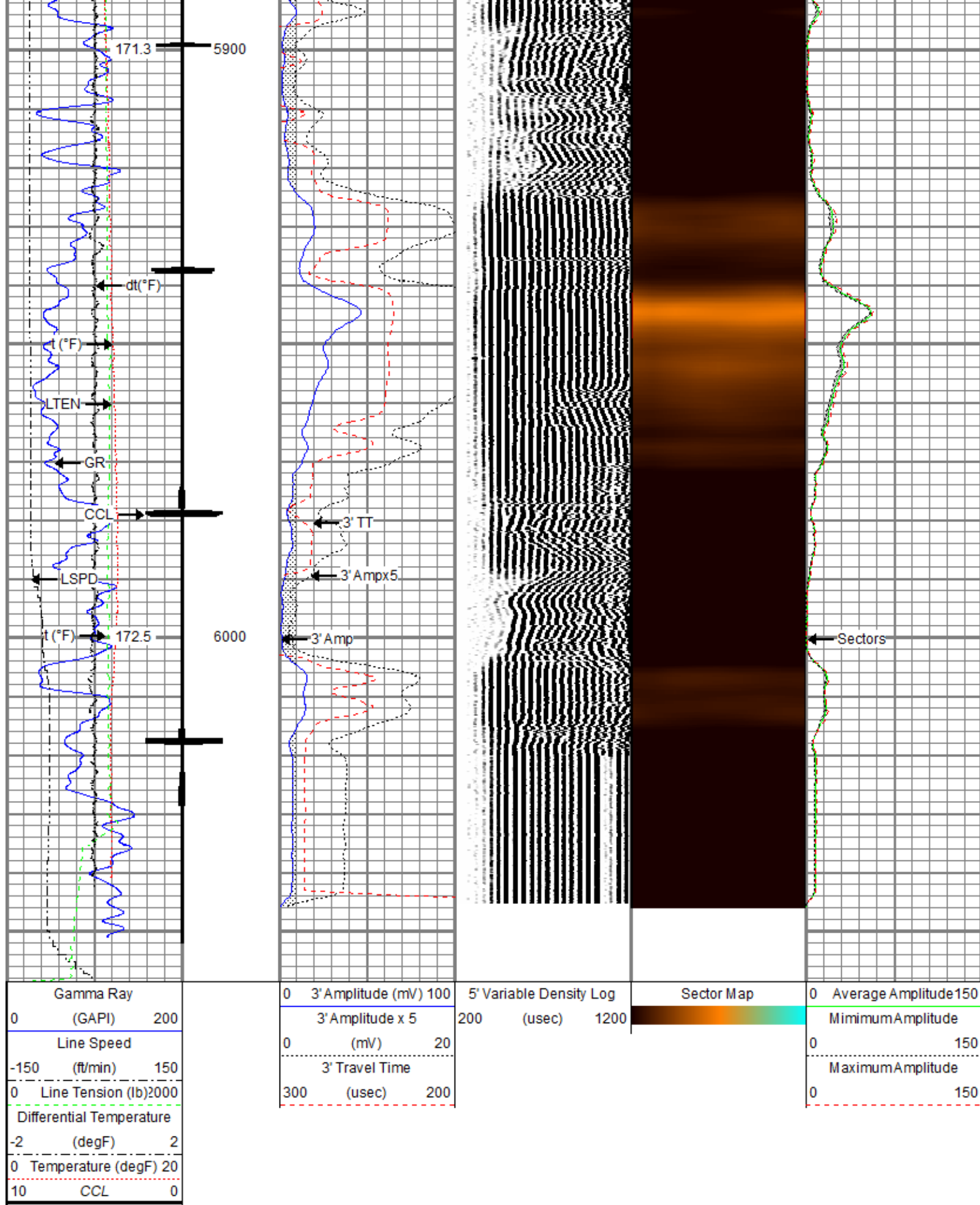








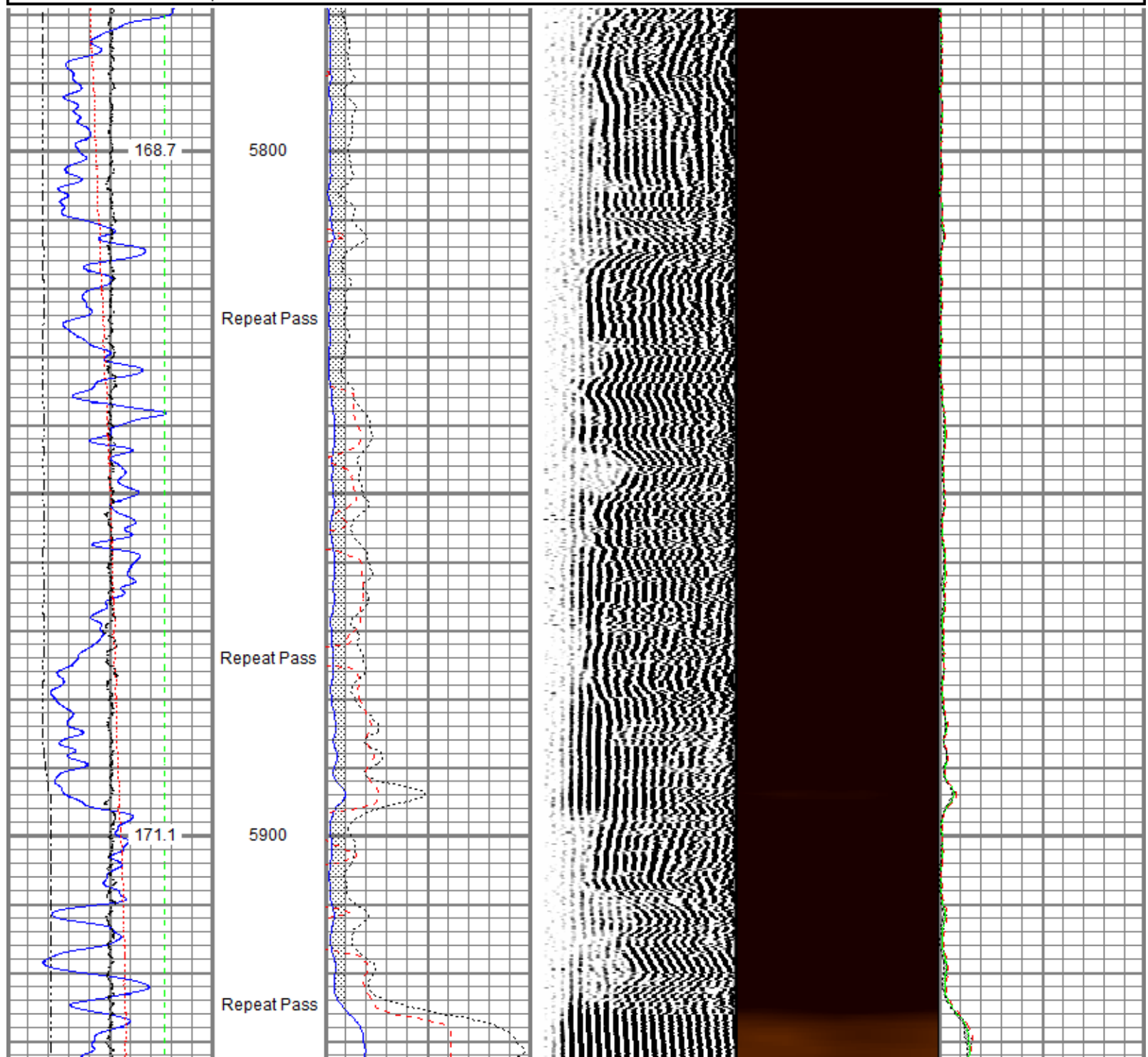


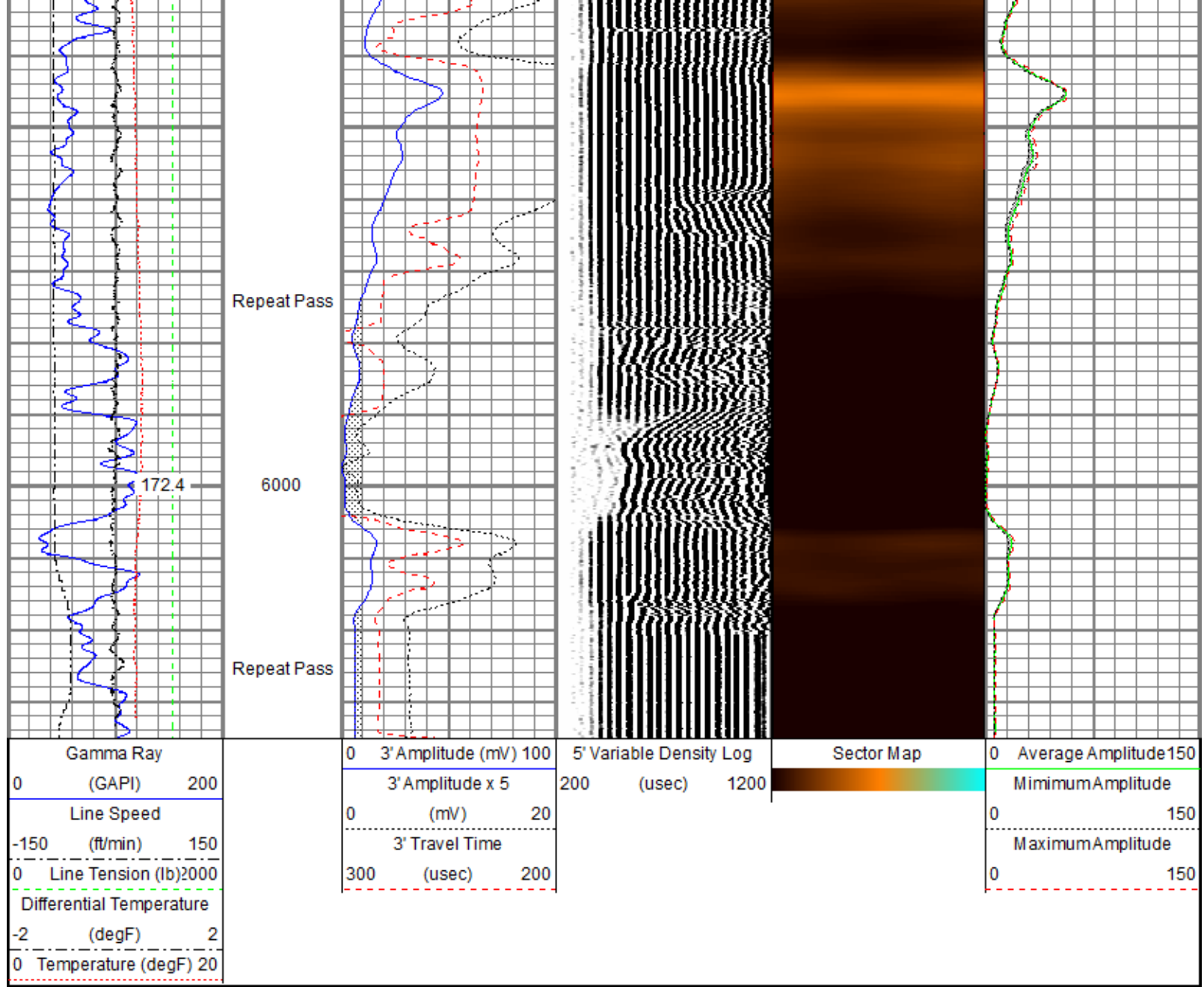


Repeat Pass

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Dataset Pathname repeat1.1
Presentation Format ros_rbt004_tep
Dataset Creation Fri Mar 15 11:15:57 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 |
| -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 | 1.03 | 1.44 | 3.60 |
| | | | Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck | | | |
| | | | DSS RAC-2750 5A GO | 2.55 | 2.75 | 32.00 |
| | | | DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends | | | |
| | | | Probe Radji-2750 RBT (FW1307-063) | 9.39 | 2.75 | 105.00 |

| | | | | | | |
|--|-------|--|---|------|------|--------|
| WVFS8 | 14.10 | | Probe Radial 2750 RBT (FW1307-003) | 3.55 | 2.75 | 105.00 |
| WVFS7 | 14.10 | | Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub | | | |
| 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 | | | | | |
| | | | DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends | 2.55 | 2.75 | 32.00 |
| CCL\$2 | 6.42 | | | | | |
| CCL\$1 | 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_federal sg 311-22_rbl_03-14-19.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_federal sg 311-22\tep_federal sg 311-22_rbl_03-14-19.db | |
| Dataset Pathname | Main.1 | |
| Dataset Creation | Fri Mar 15 11:09:11 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: 31.352 ft

Master Calibration, performed (Derived):

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.001 | 0.727 | 0.800 | 81.196 | 110.735 | 0.688 |
| CAL | -0.006 | 0.761 | | | | |
| 5' | 0.004 | 0.496 | 0.800 | 81.196 | 163.425 | 0.125 |
| SUM | | | | | | |
| S1 | -0.002 | 0.819 | 0.000 | 100.000 | 121.842 | 0.189 |
| S2 | -0.002 | 0.802 | 0.000 | 100.000 | 124.340 | 0.225 |
| S3 | -0.001 | 0.730 | 0.000 | 100.000 | 136.902 | 0.093 |
| S4 | 0.002 | 0.680 | 0.000 | 100.000 | 147.582 | -0.339 |
| S5 | 0.004 | 0.677 | 0.000 | 100.000 | 148.543 | -0.635 |
| S6 | 0.001 | 0.689 | 0.000 | 100.000 | 145.379 | -0.215 |
| S7 | 0.000 | 0.718 | 0.000 | 100.000 | 139.373 | -0.034 |
| S8 | 0.001 | 0.777 | 0.000 | 100.000 | 128.785 | -0.099 |

Internal Reference Calibration, performed (Not Performed):

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|-------|----------------|-------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | -0.006 | 0.761 | 1.000 | 0.000 |

Air Zero Calibration, performed Thu Mar 14 15:16:37 2019:

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|--|----------------|--|---------|--|
| | Zero | | Zero | | Offset | |
| 3' | -0.002 | | 0.000 | | 0.001 | |
| 5' | 0.009 | | 0.000 | | -0.002 | |
| SUM | | | | | | |
| S1 | -0.003 | | 0.000 | | -0.000 | |
| S2 | -0.002 | | 0.000 | | 0.001 | |
| S3 | -0.001 | | 0.000 | | -0.000 | |
| S4 | -0.002 | | 0.000 | | -0.000 | |
| S5 | -0.002 | | 0.000 | | 0.001 | |
| S6 | -0.002 | | 0.000 | | 0.000 | |
| S7 | -0.002 | | 0.000 | | 0.000 | |
| S8 | -0.003 | | 0.000 | | 0.001 | |

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 Federal SG 311-22
Field Grand Valley

County
State

Garfield
Colorado