



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

|                                |  |                       |  |                 |  |  |  |                |  |         |  |      |  |    |  |
|--------------------------------|--|-----------------------|--|-----------------|--|--|--|----------------|--|---------|--|------|--|----|--|
| Company TEP Rocky Mountain LLC |  | Well Federal PA 32-24 |  | Field Parachute |  | County Garfield                              |  | State Colorado |  |         |  |      |  |    |  |
| Company TEP Rocky Mountain LLC |  | Well Federal PA 32-24 |  | Field Parachute |  | County Garfield                              |  | State Colorado |  |         |  |      |  |    |  |
| Location:                      |  | API # : 05-045-23786  |  | Other Services  |  |  |  |                |  |         |  |      |  |    |  |
| SEC 19 TWP 6S RGE 94W          |  | Ground Level          |  | Elevation       |  | 5732.2'                                      |  |                |  |         |  |      |  |    |  |
| Permanent Datum                |  | Log Measured From     |  | Kelly Bushing   |  | 24 FT  |  |                |  |         |  |      |  |    |  |
| Drilling Measured From         |  | Kelly Bushing         |  | Kelly Bushing   |  |  |  |                |  |         |  |      |  |    |  |
| Date                           |  | 01-NOV-2018           |  | Elevation       |  | K.B. 5756.2'<br>D.F. 5755.2'<br>G.L. 5732.2' |  |                |  |         |  |      |  |    |  |
| Run Number                     |  | One                   |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Depth Driller                  |  | 9278 FT               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Depth Logger                   |  | 9224 FT               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Bottom Logged Interval         |  | 9210 FT               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Top Log Interval               |  | Surface               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Open Hole Size                 |  | 8.750"                |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Type Fluid                     |  | Water                 |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Density / Viscosity            |  | 8.34 lb/gal           |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Max. Recorded Temp.            |  | 243°F                 |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Estimated Cement Top           |  | See Log               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Time Well Ready                |  | ROA                   |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Time Logger on Bottom          |  | 15:40                 |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| Equipment Number               |  | HD-0331               |  |                 |  |  |  |                |  |         |  |      |  |    |  |
| 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                 |  | 36              |  | J-55   |  | Surface        |  | 1138 FT |  |      |  |    |  |
| Intermediate #1                |  | 4 1/2                 |  | 11.6            |  | P-110  |  | Surface        |  | 9241 FT |  |      |  |    |  |
| 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 5267 - 5283 FT  
Log ran from 9210 FT to Surface  
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

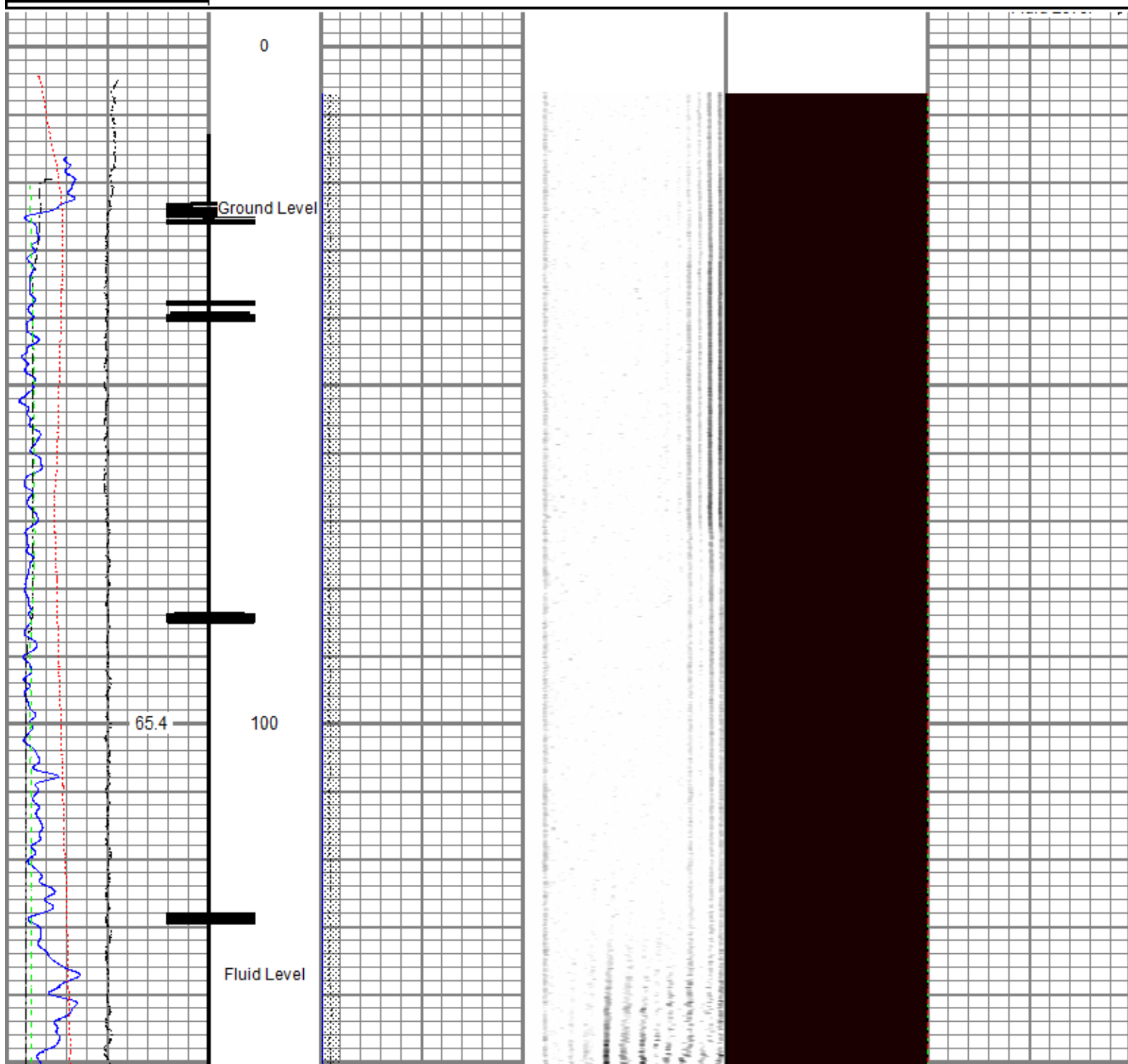


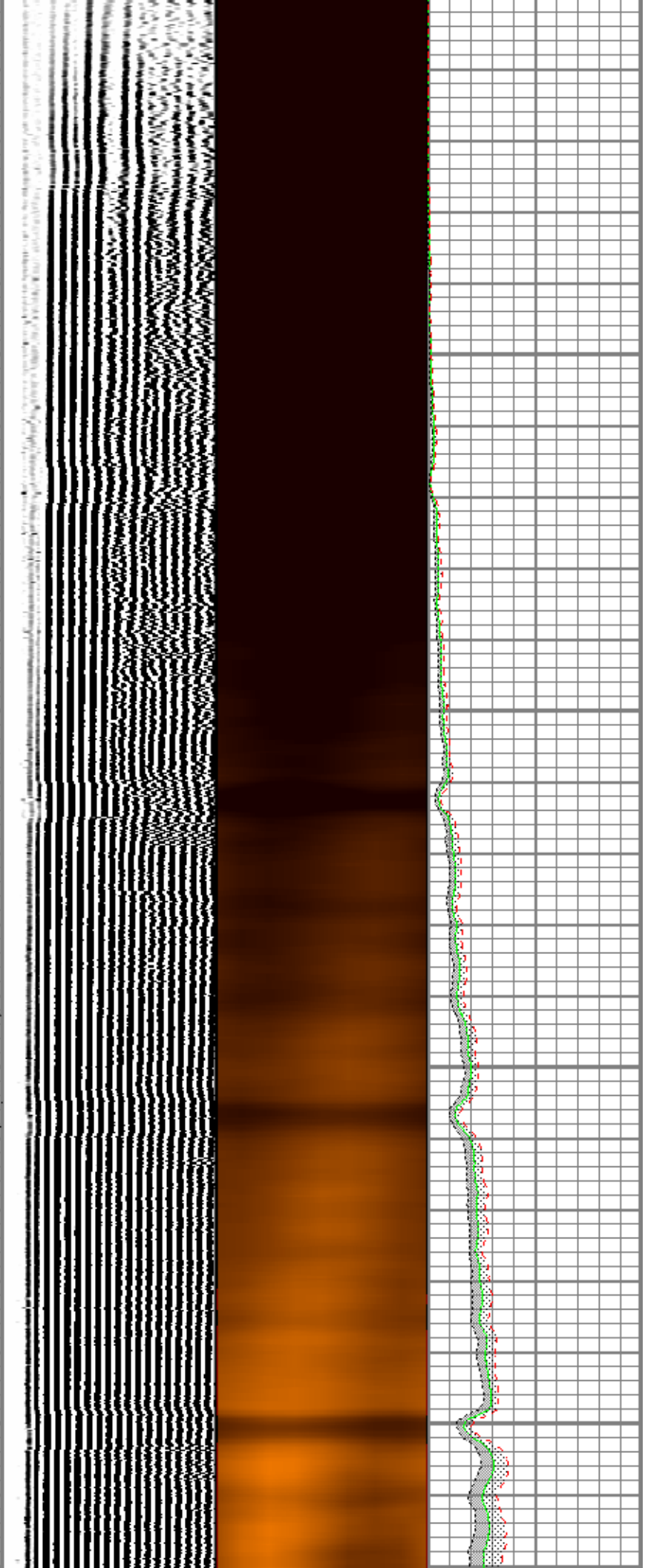
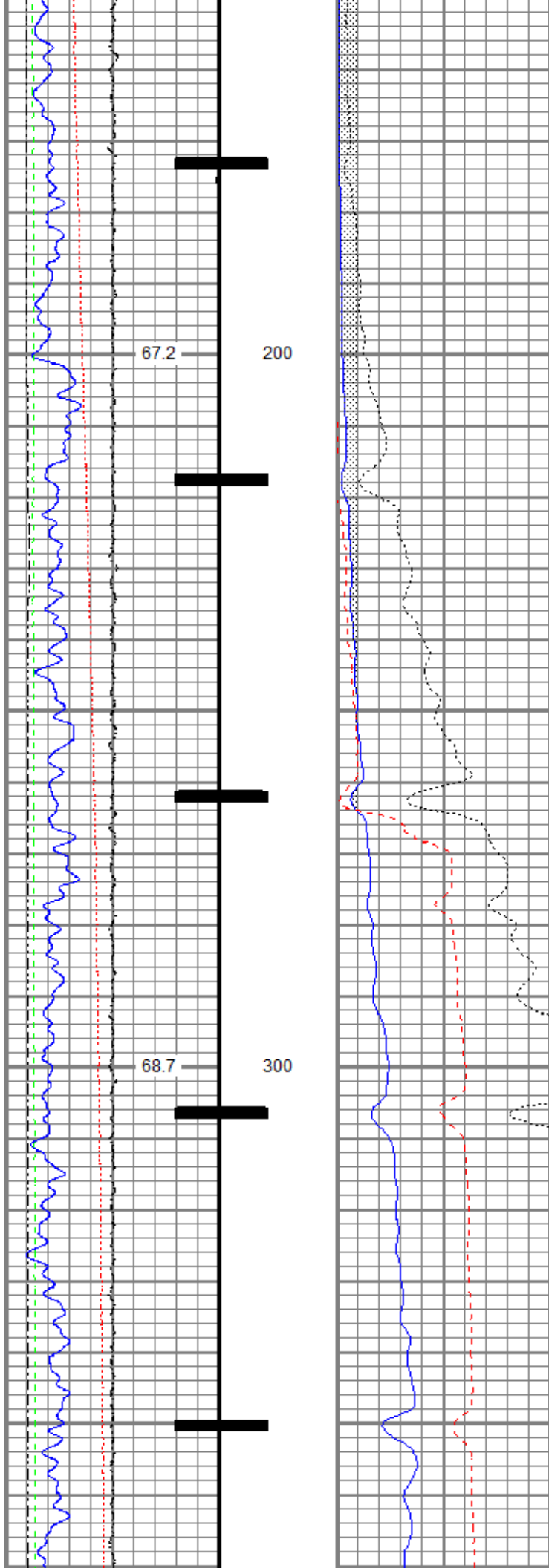
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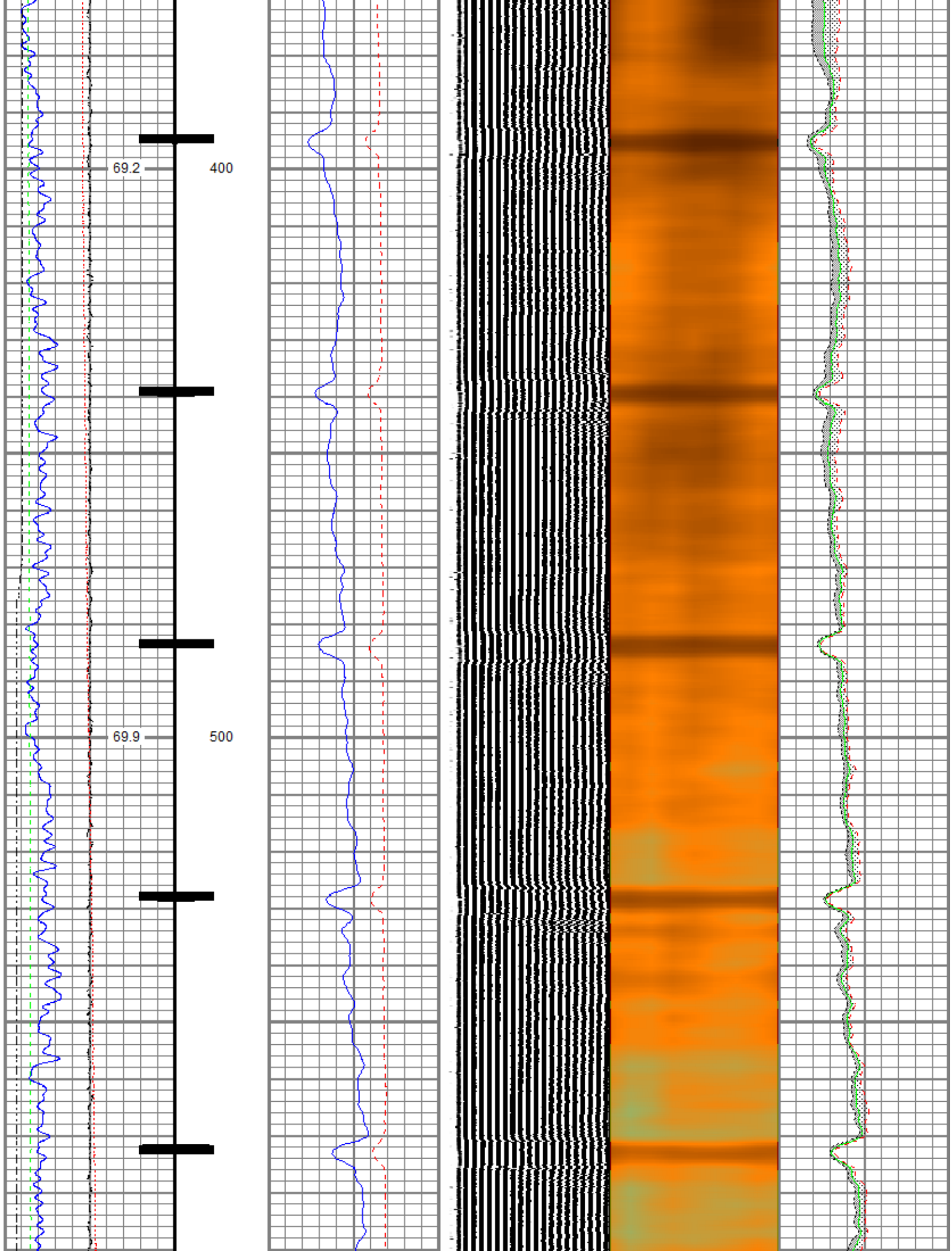
Recorded With 0 PSI Surface Induced Pressure

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 Dataset Pathname Main  
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 Dataset Creation Thu Nov 01 15:38:09 2018  
 Charted by Depth in Feet scaled 1:240

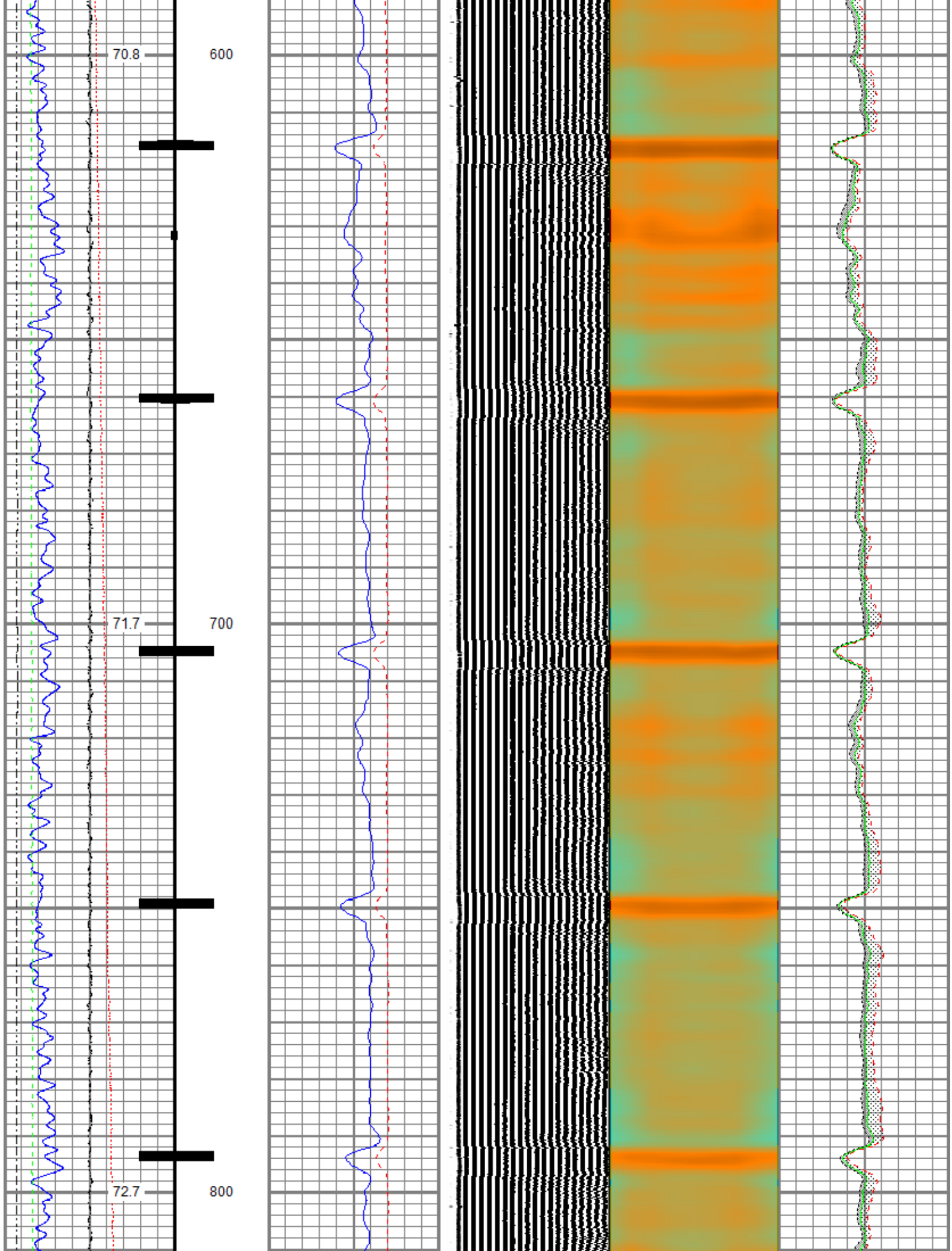
|                          |   |                       |                         |            |   |                       |
|--------------------------|---|-----------------------|-------------------------|------------|---|-----------------------|
| Gamma Ray                | 0 | 3' Amplitude (mV) 100 | 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     |
| Line Tension (lb) 2000   | 0 | 300 (usec) 200        |                         |            | 0 | 150                   |
| Differential Temperature |   |                       |                         |            |   |                       |
| -2 (degF) 2              |   |                       |                         |            |   |                       |
| Temperature (degF) 20    |   |                       |                         |            |   |                       |
| 10 CCL 0                 |   |                       |                         |            |   |                       |

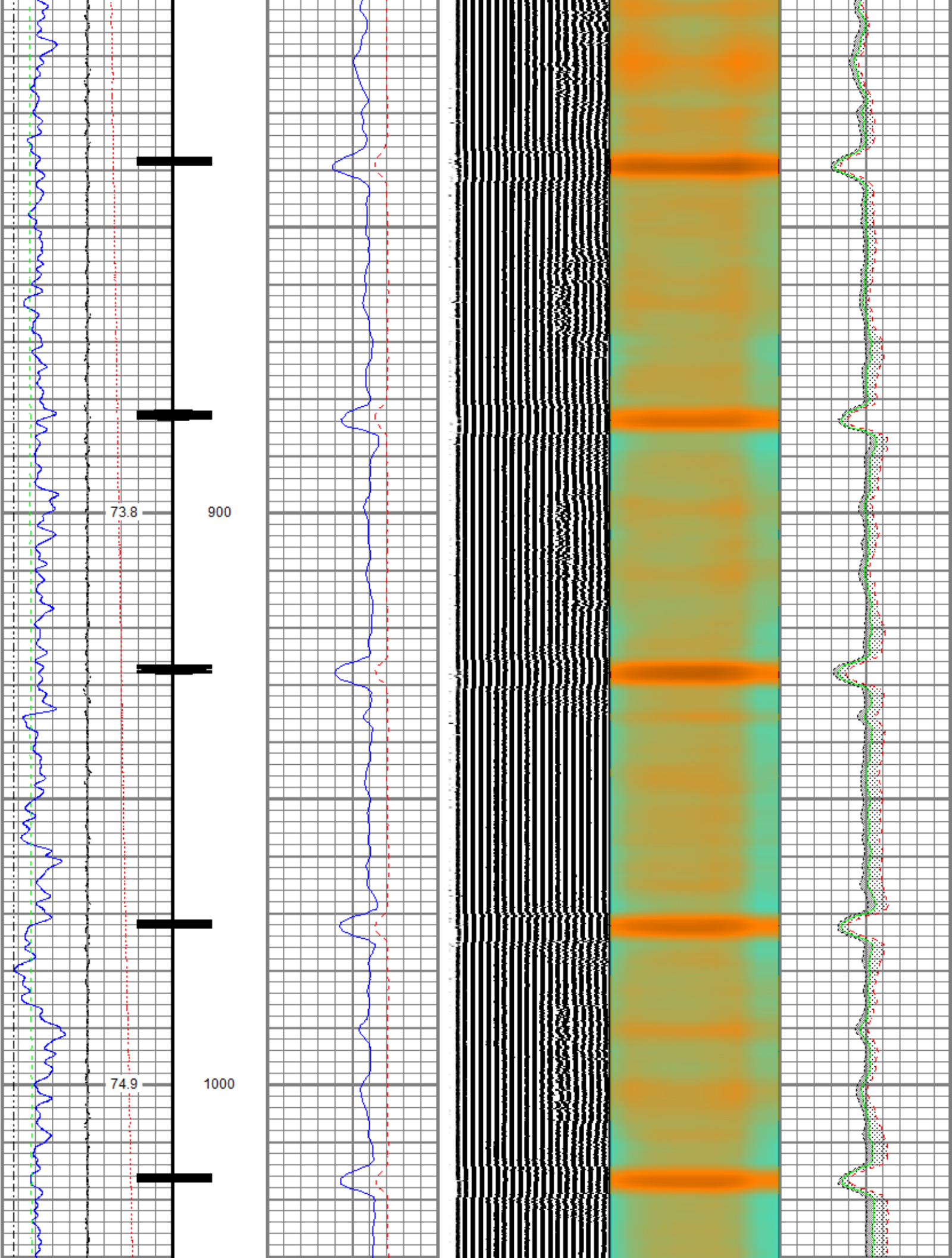


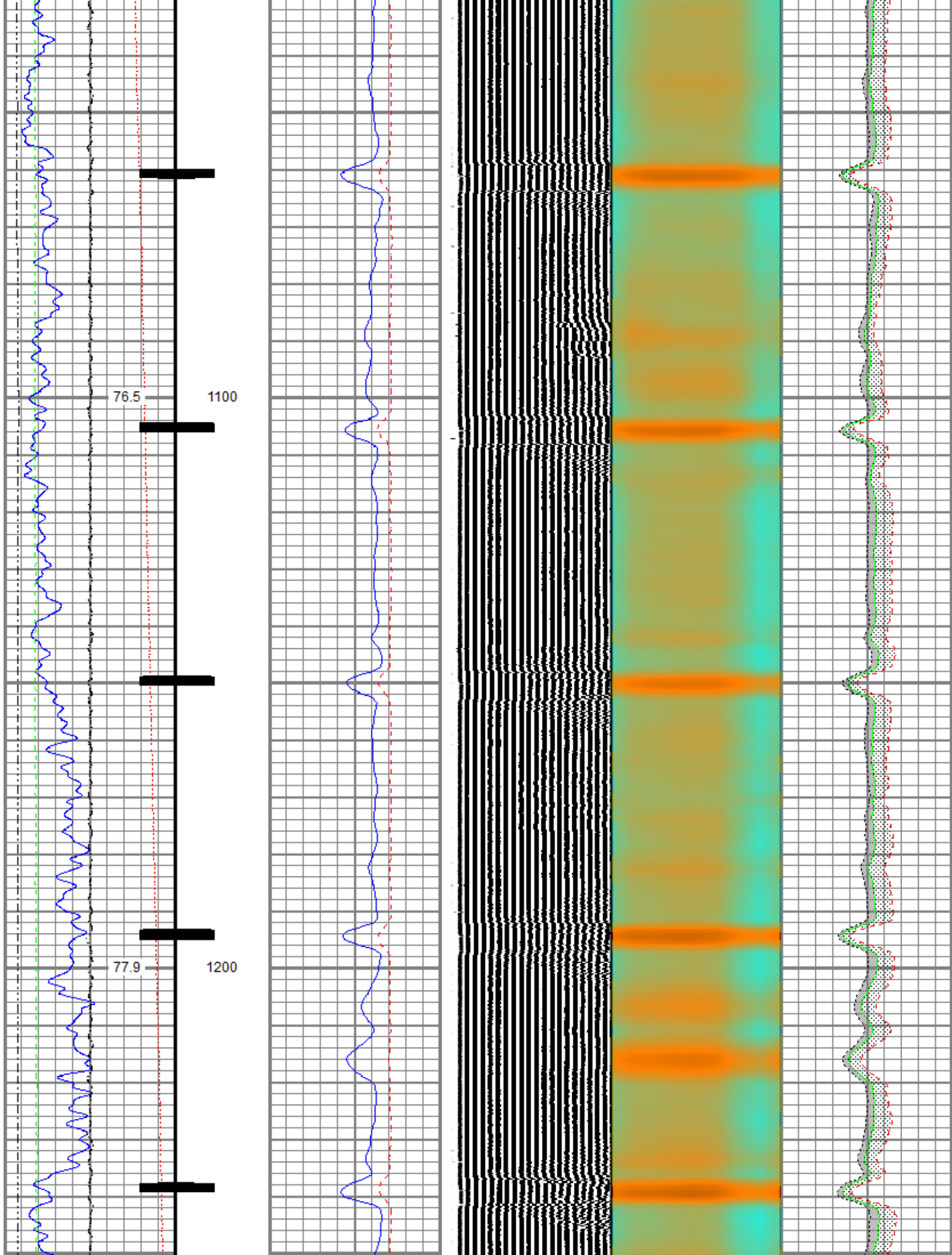


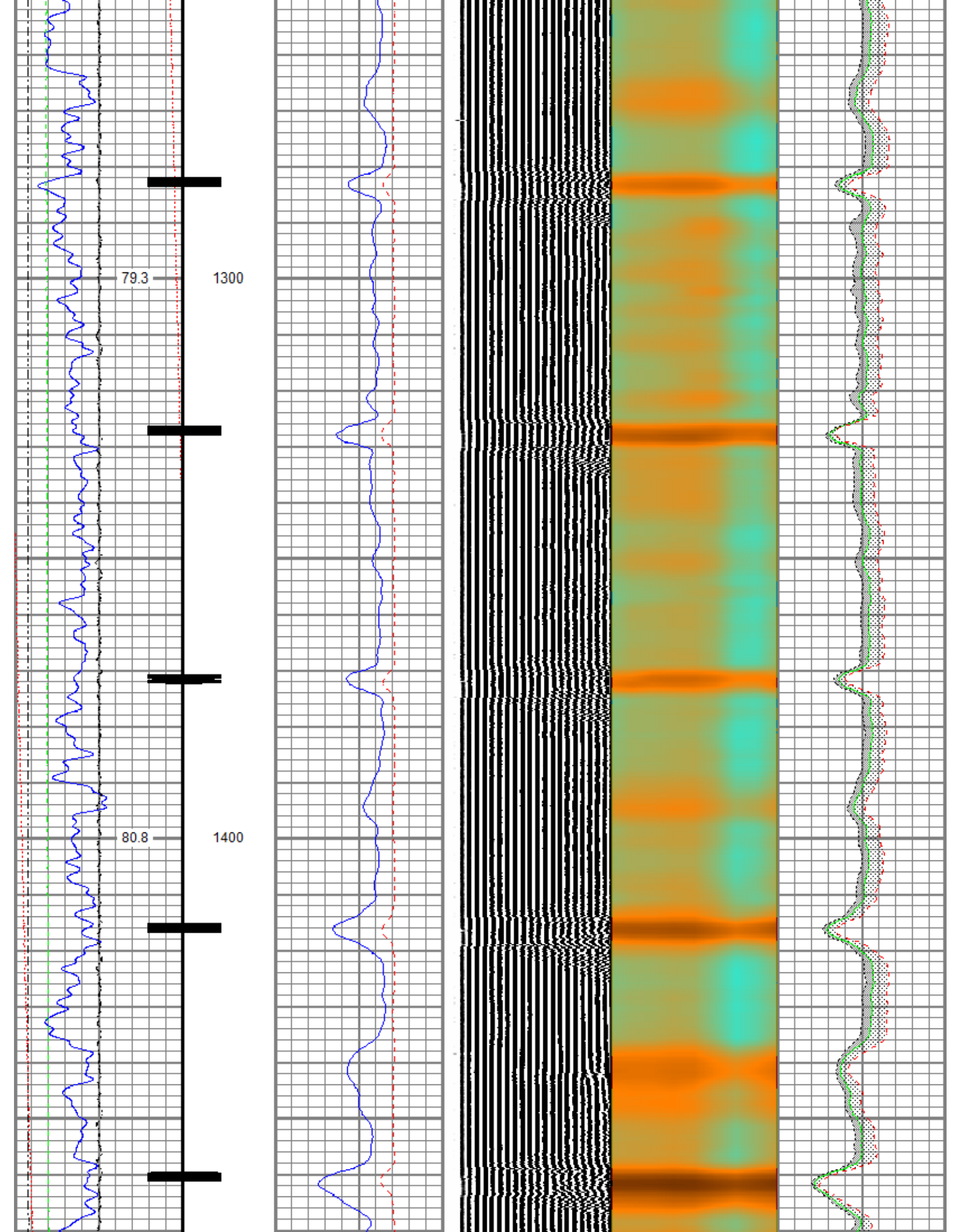




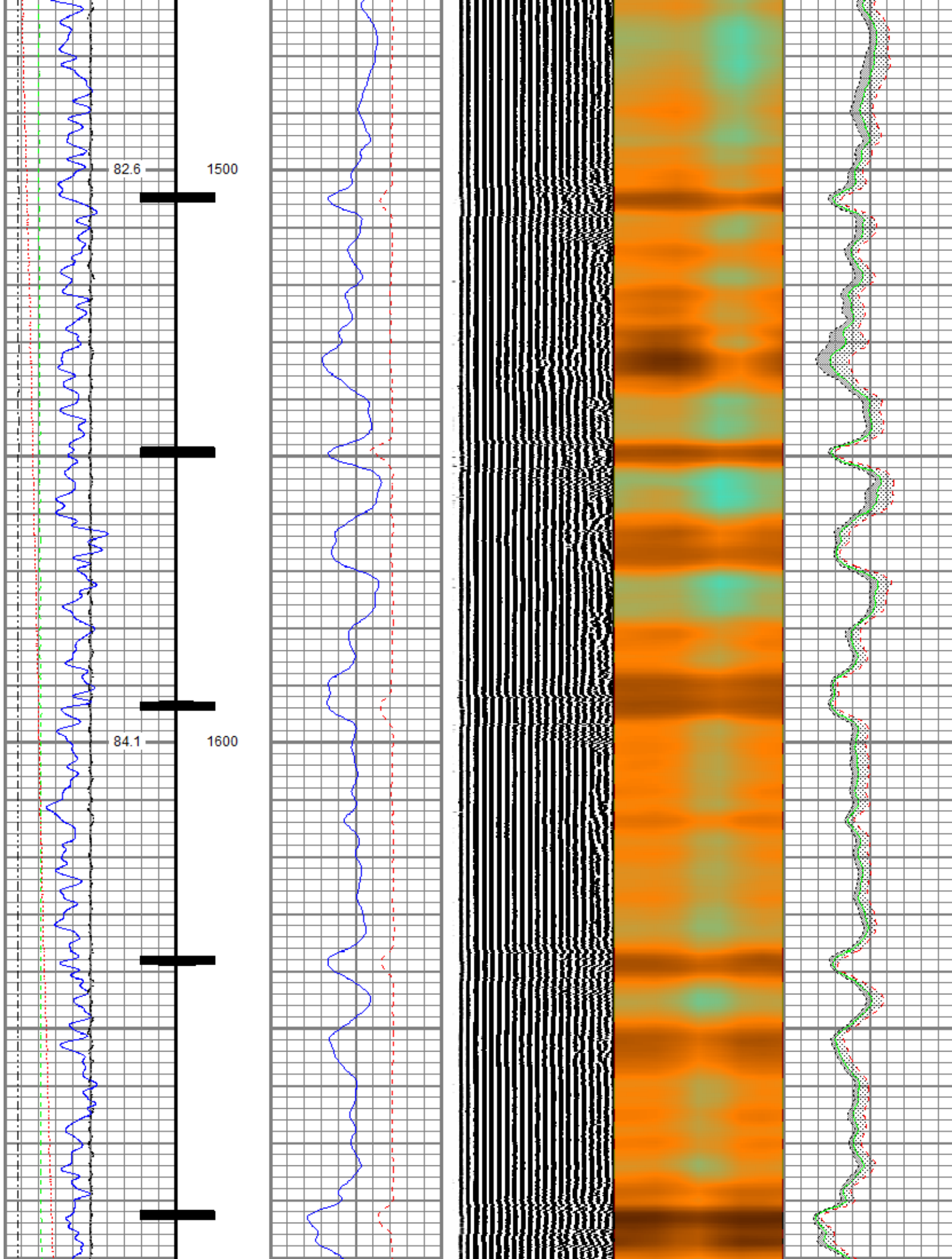


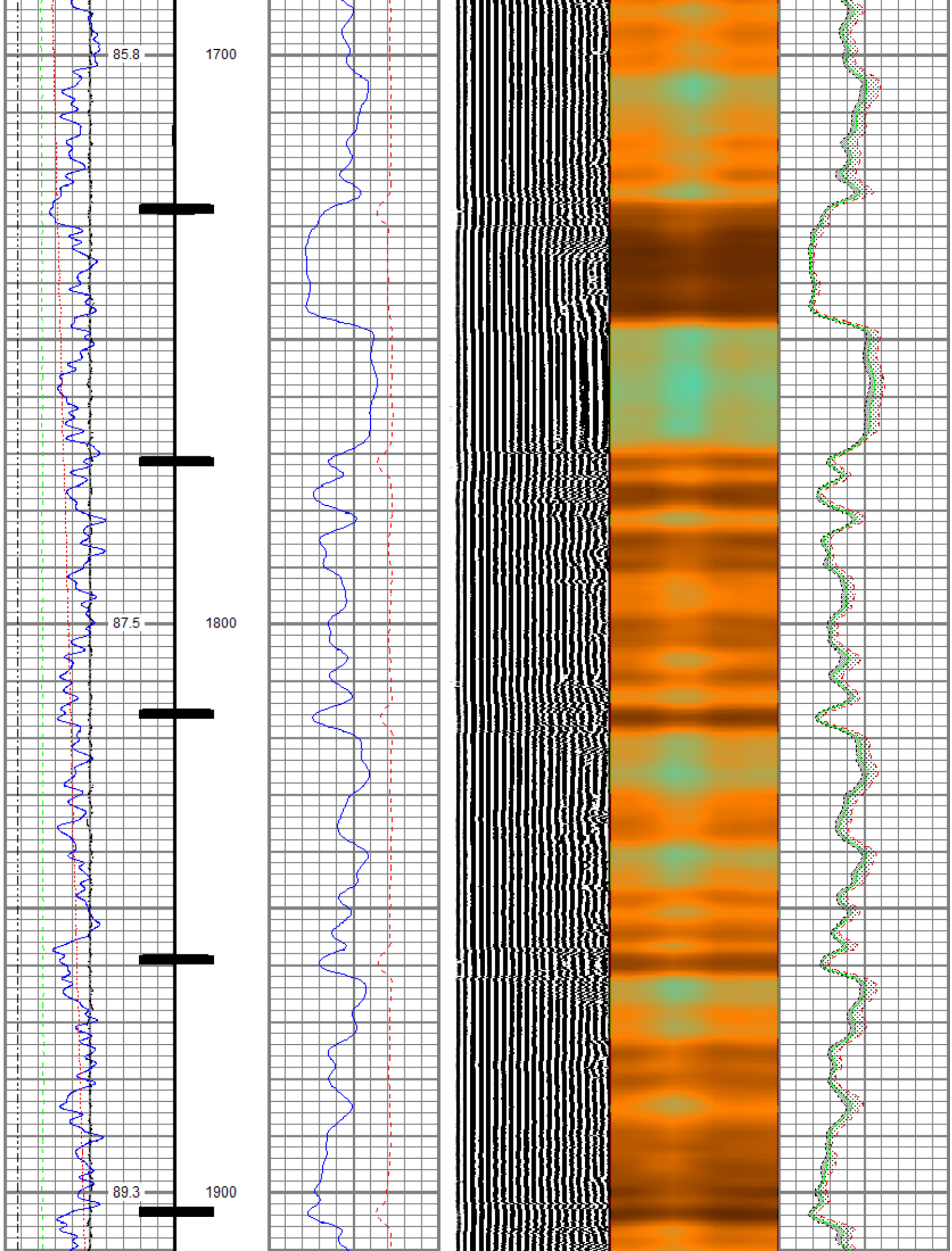


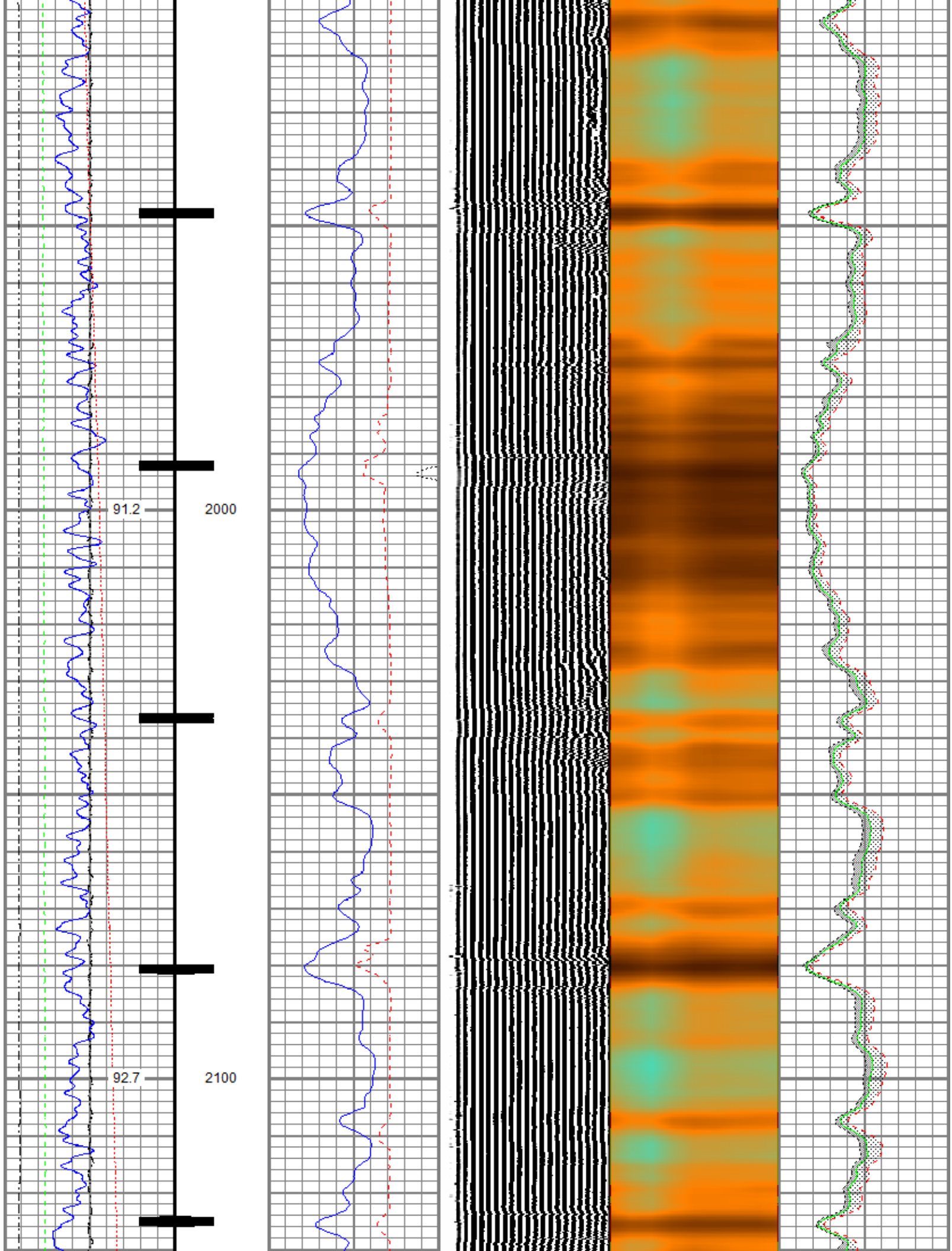


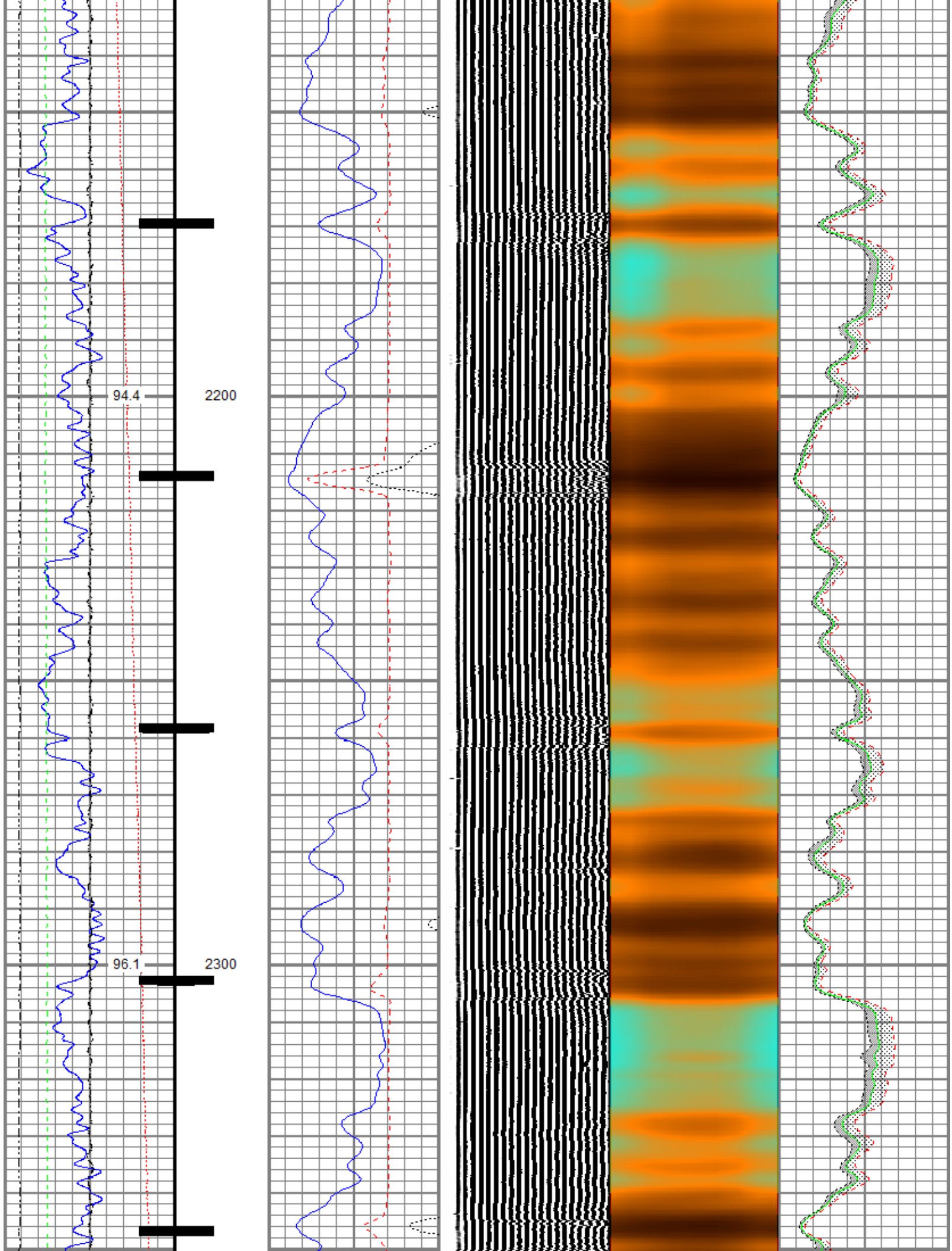




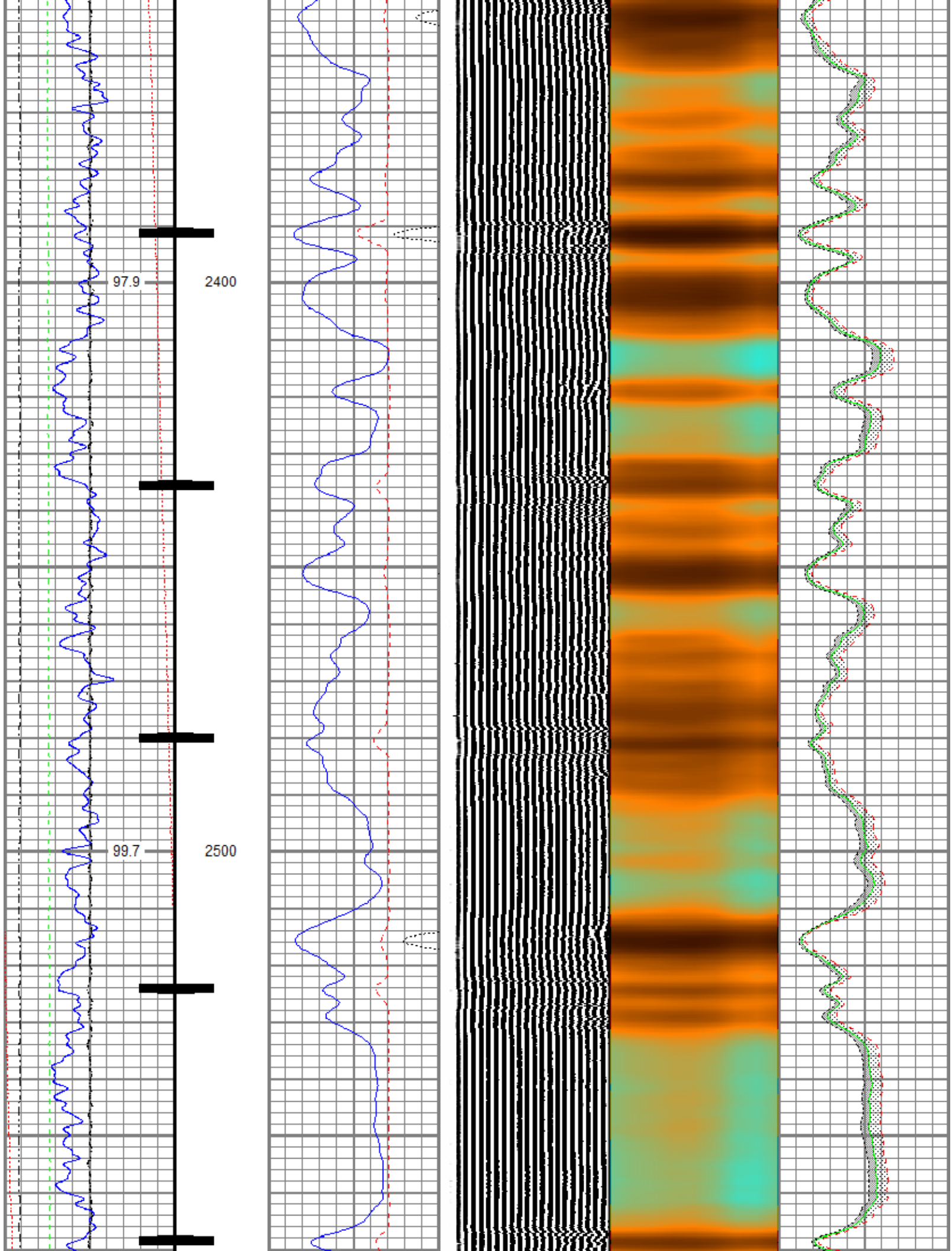


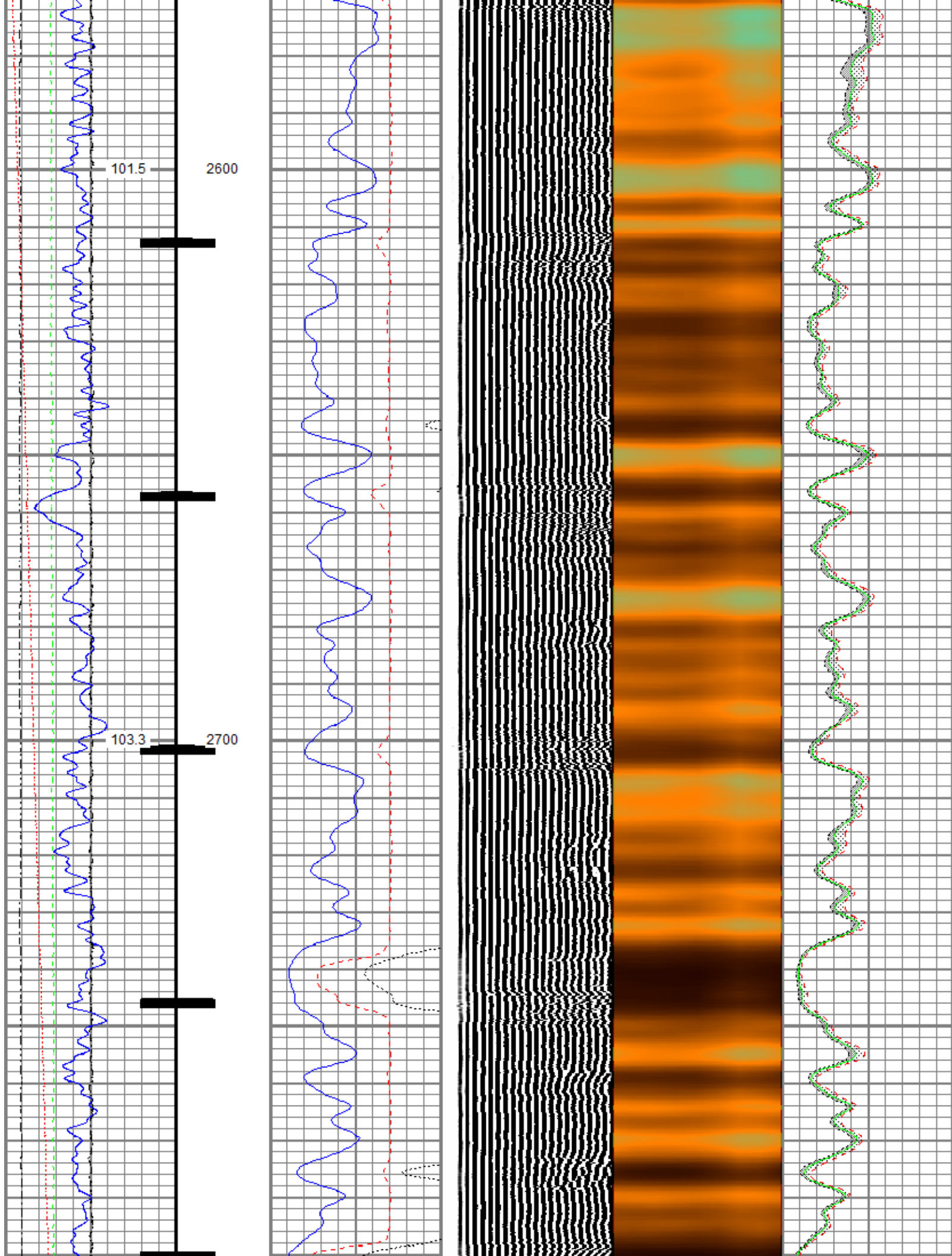


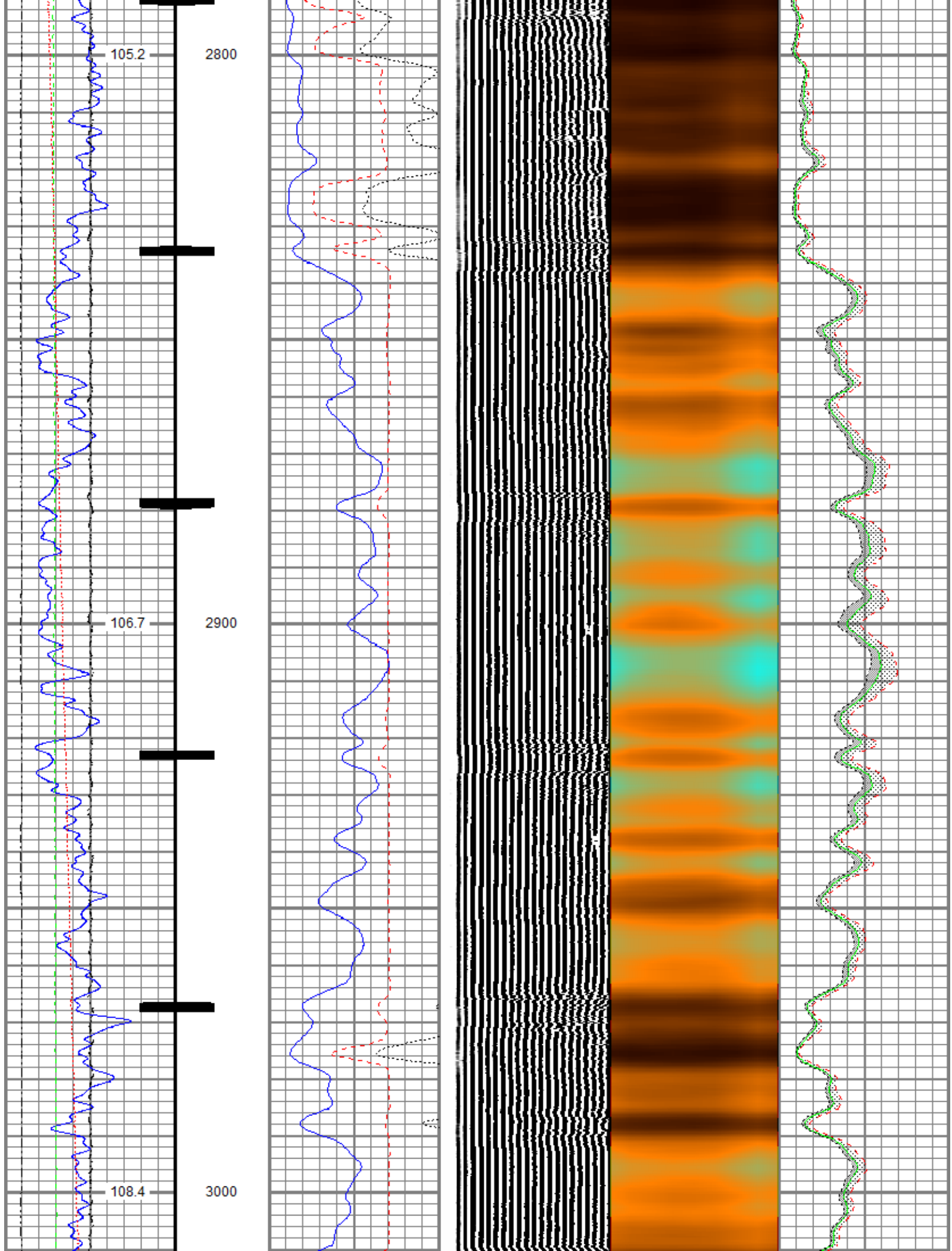


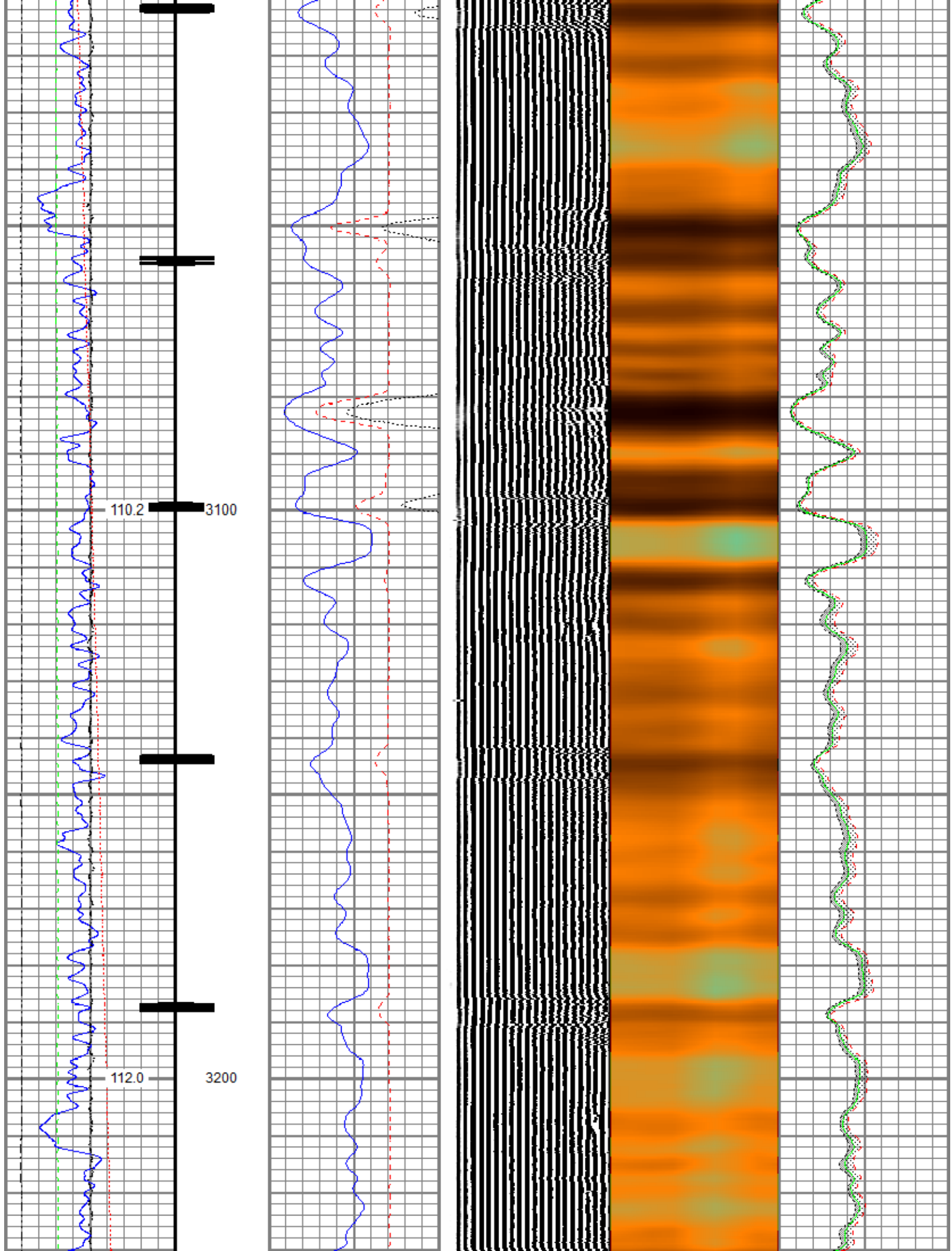




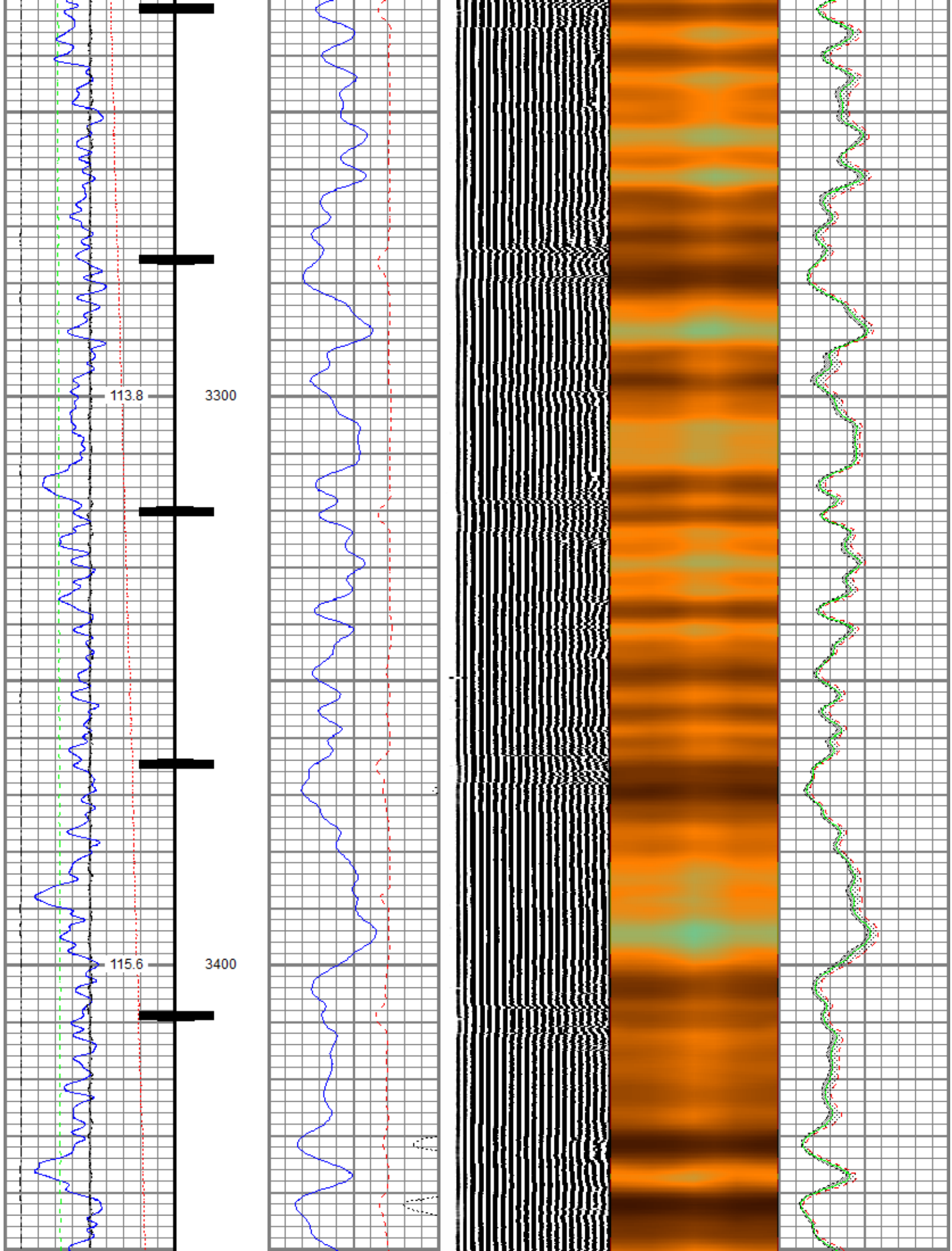


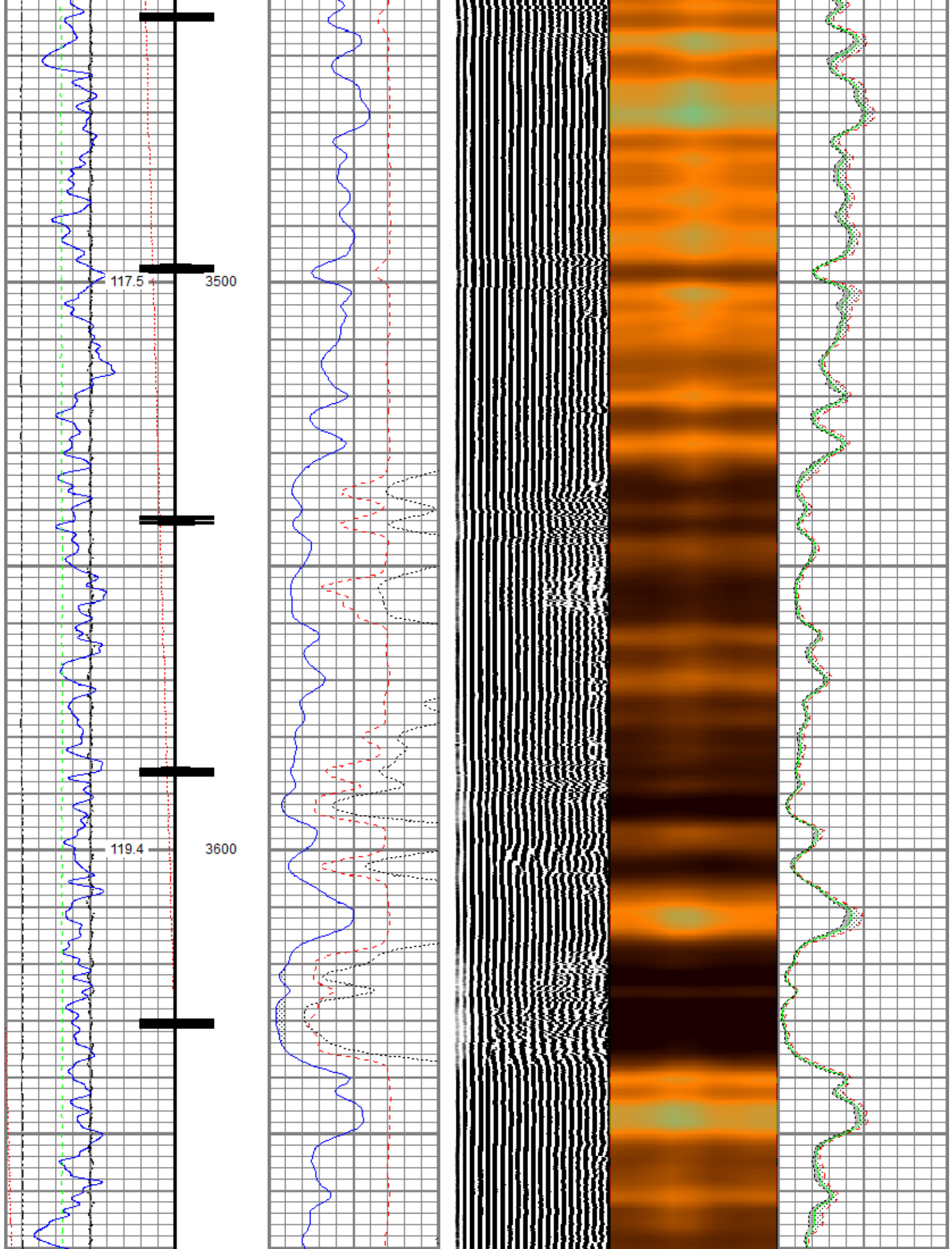


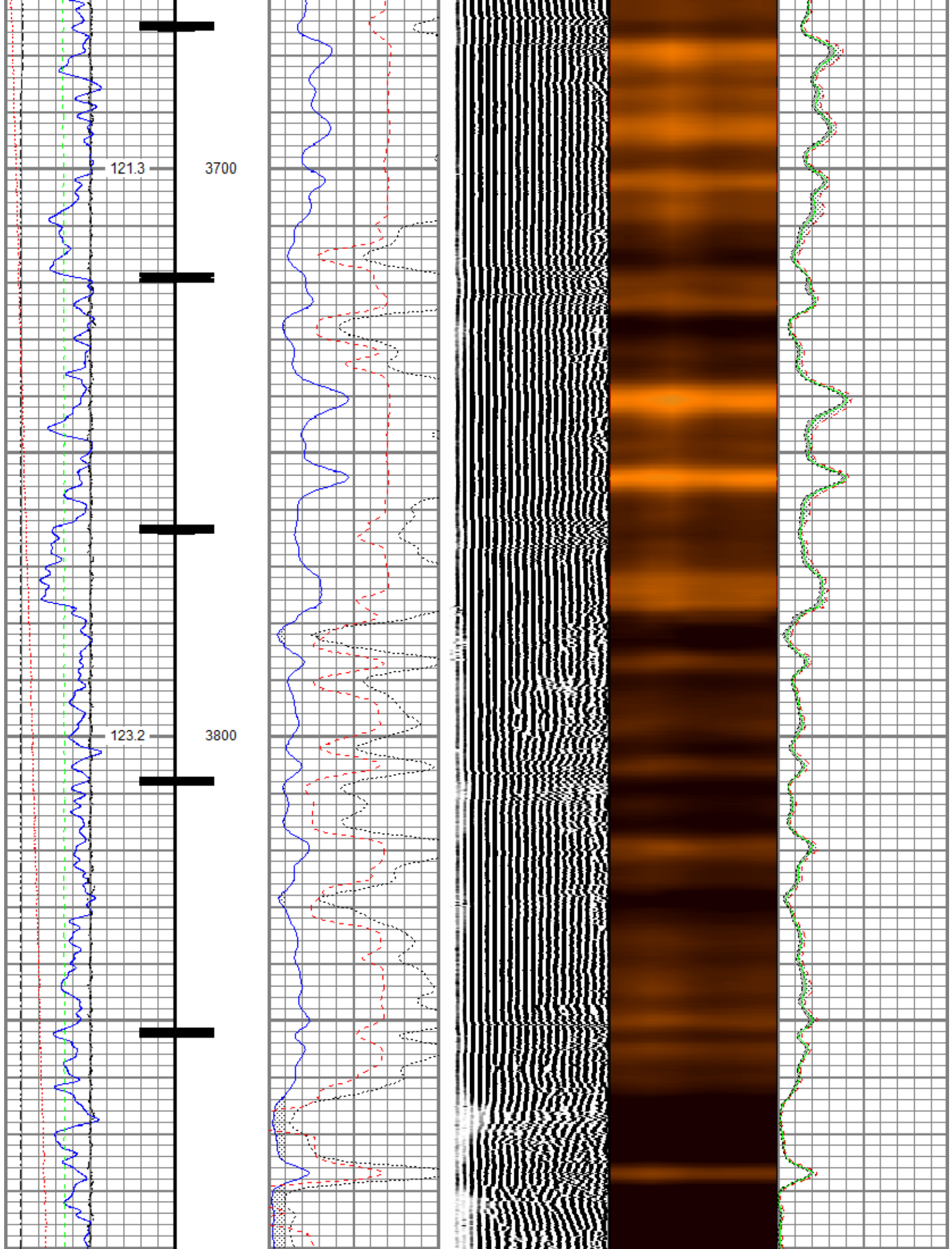


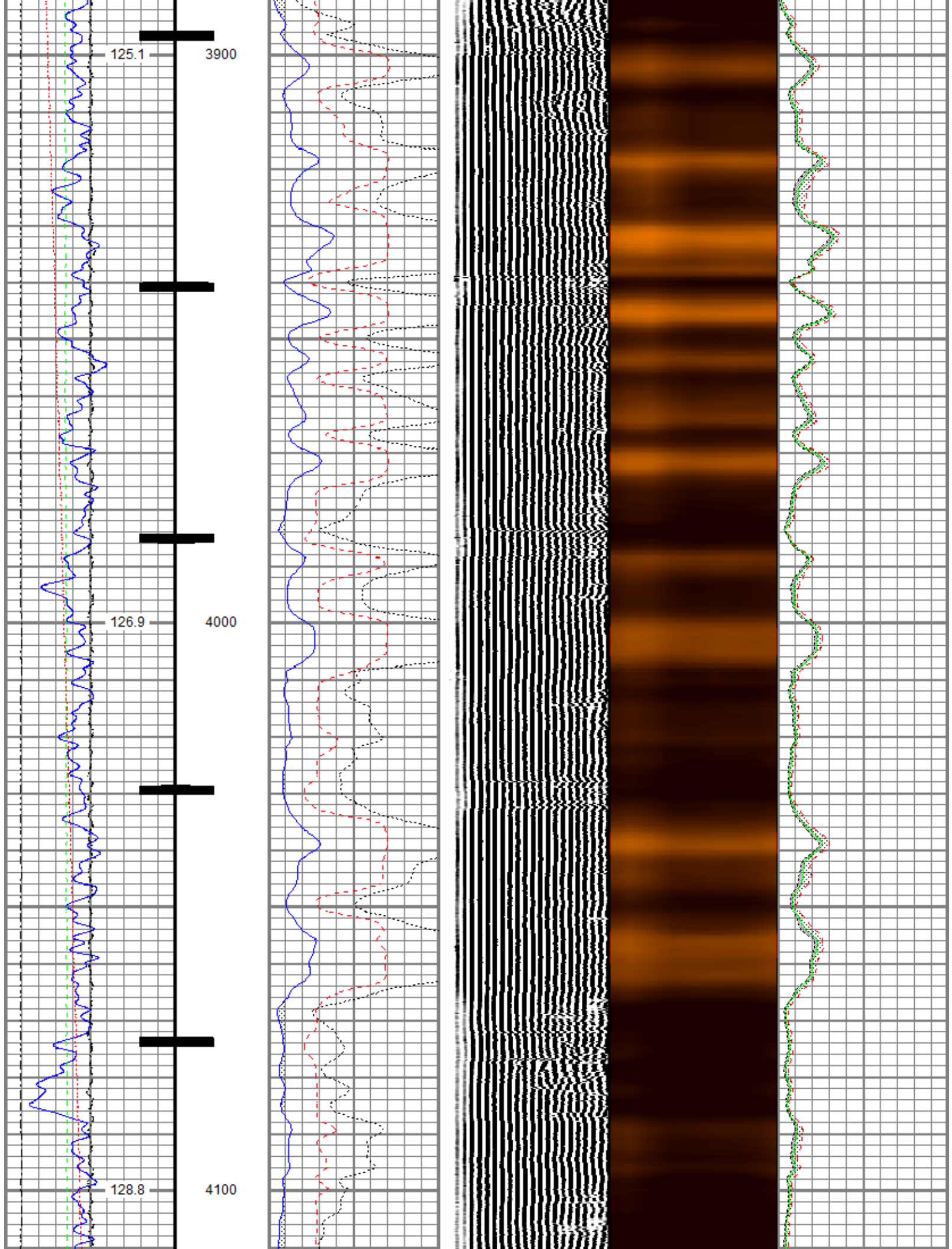




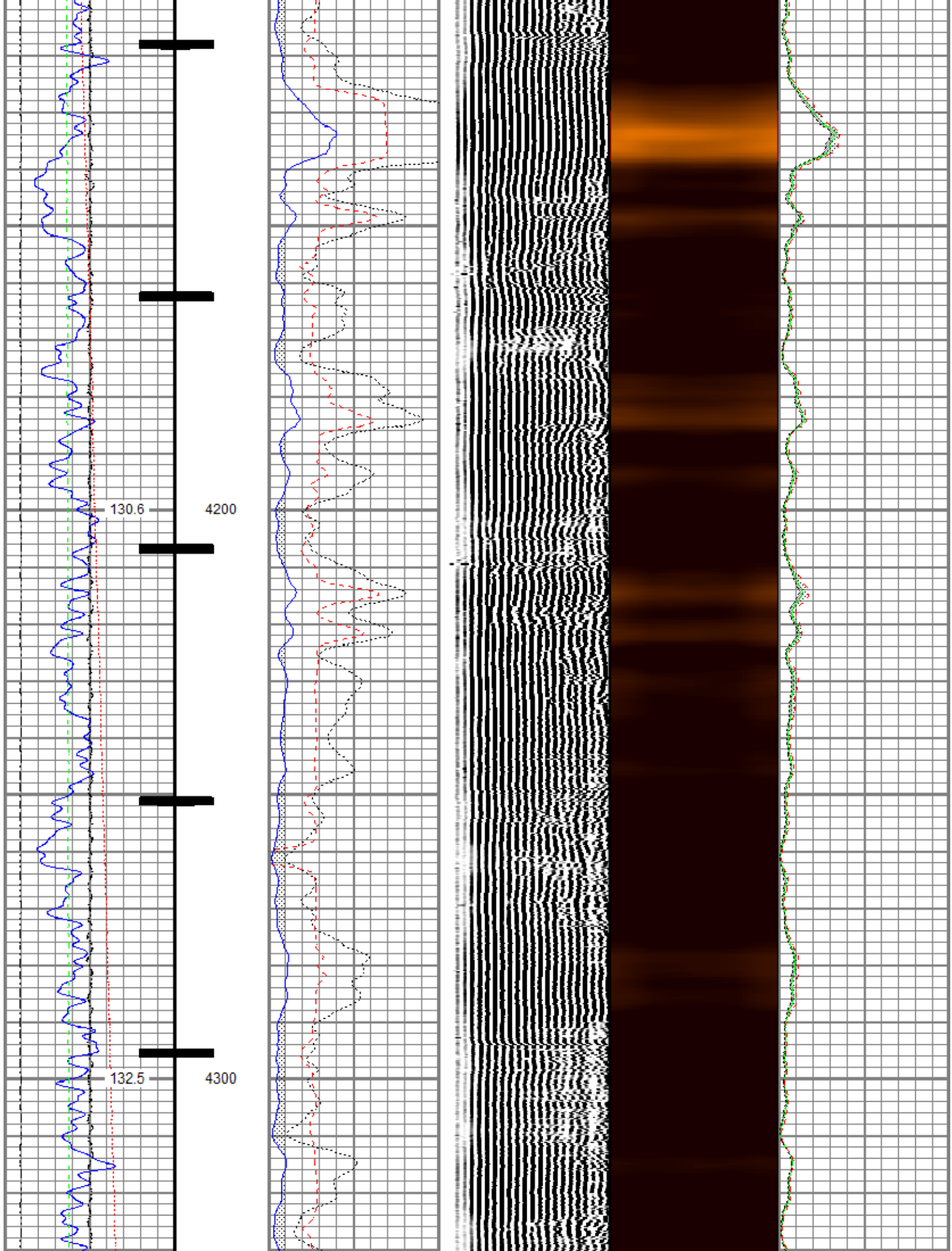


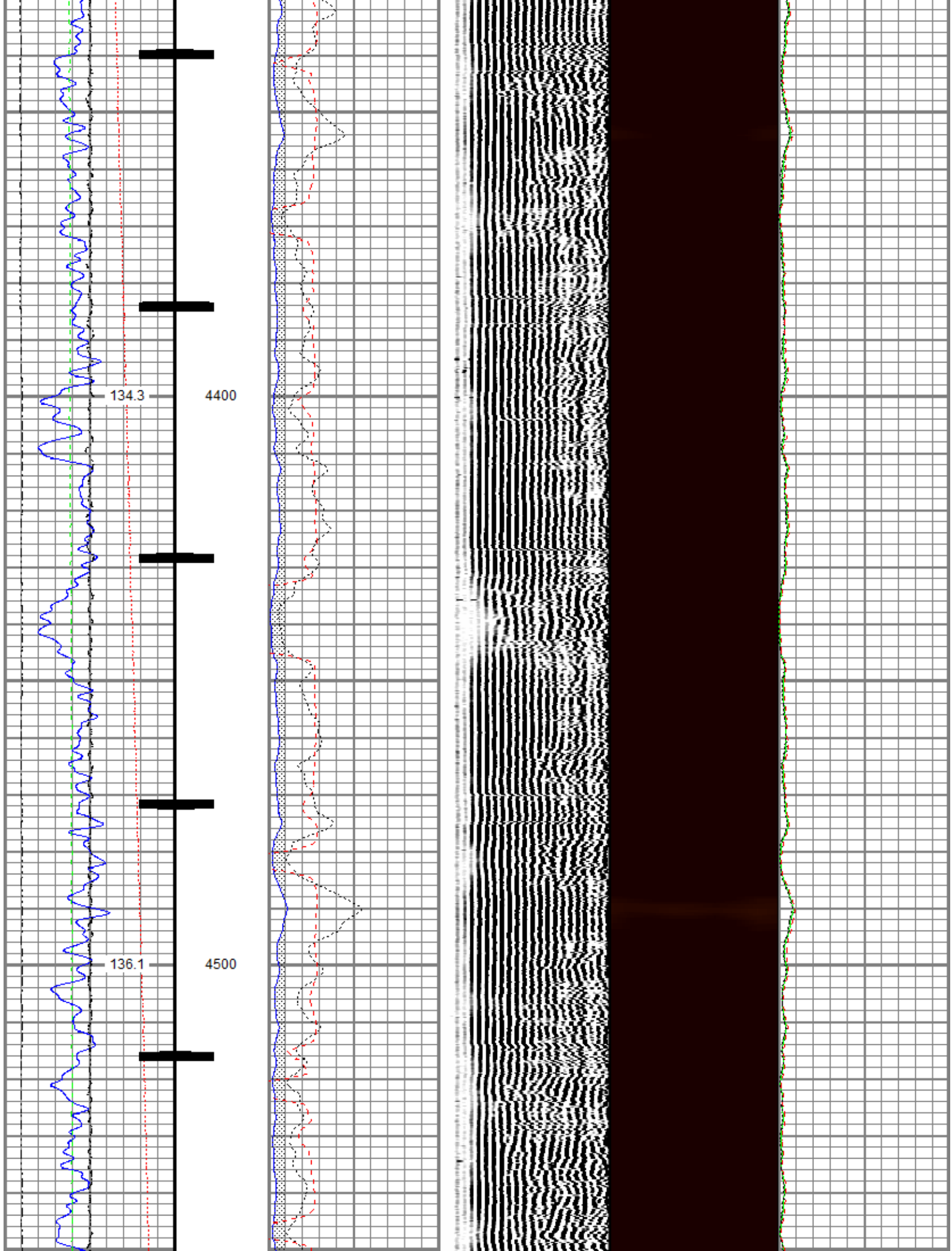


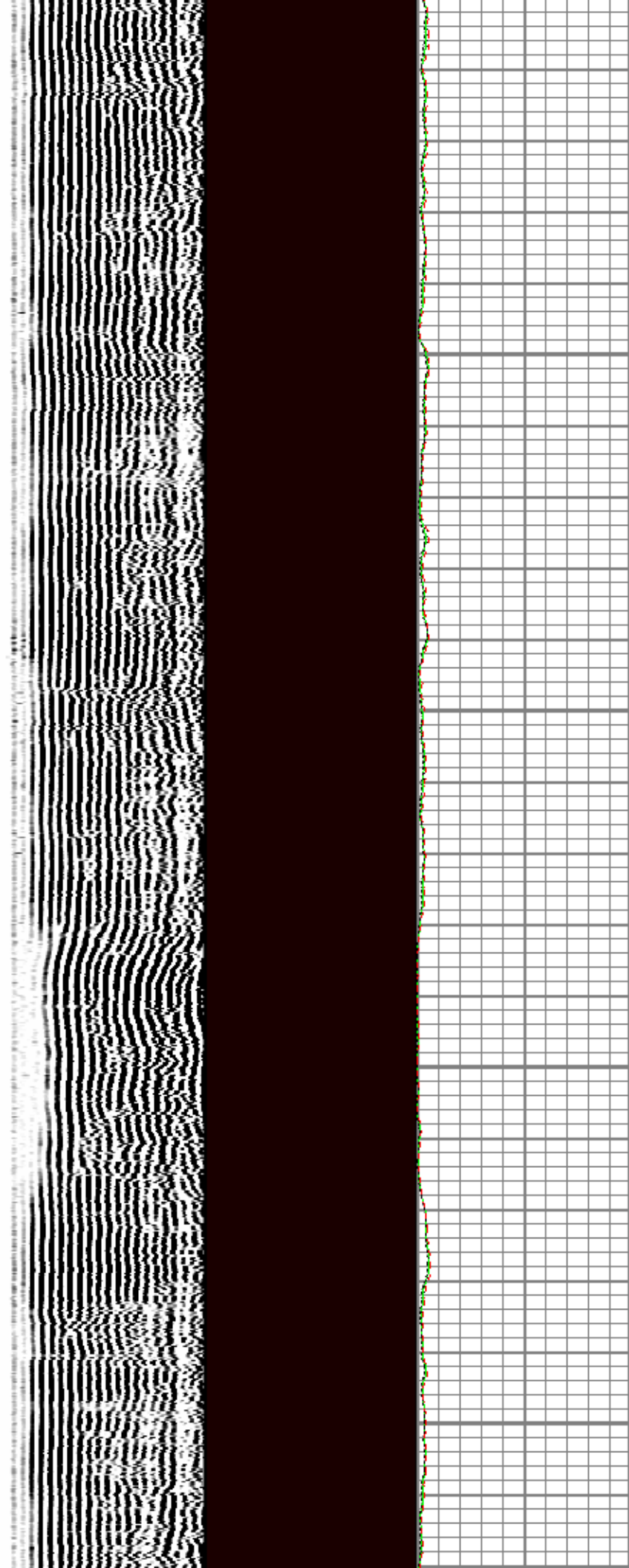
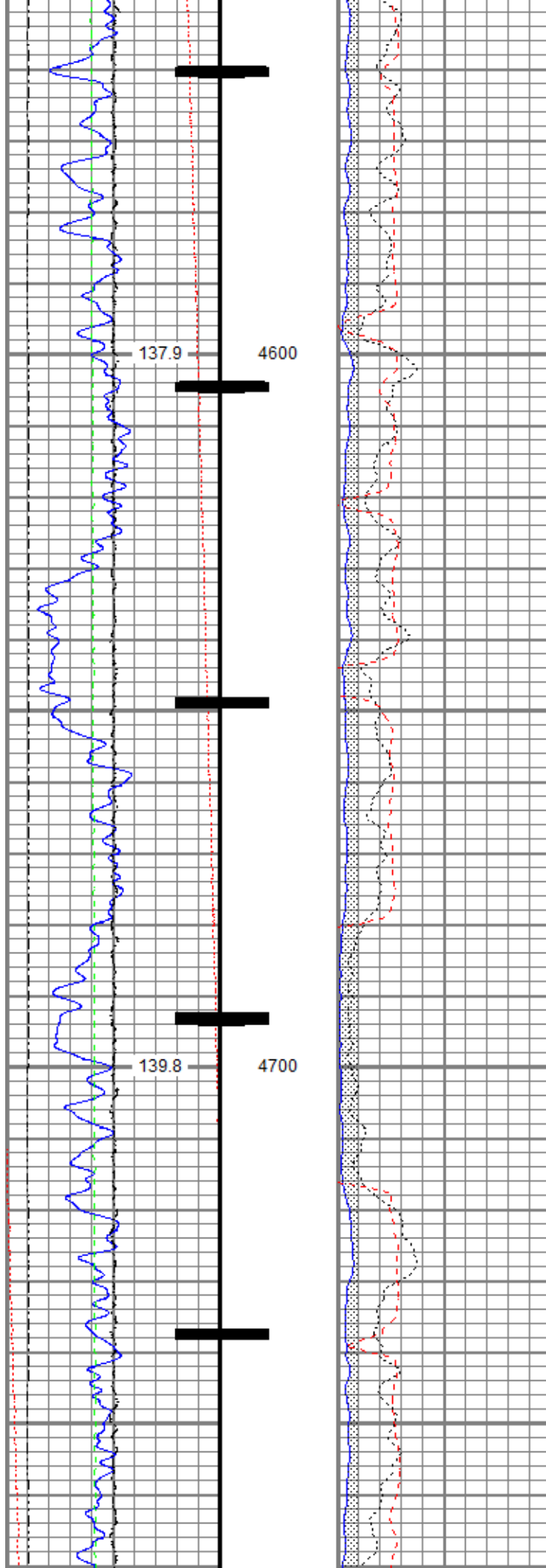




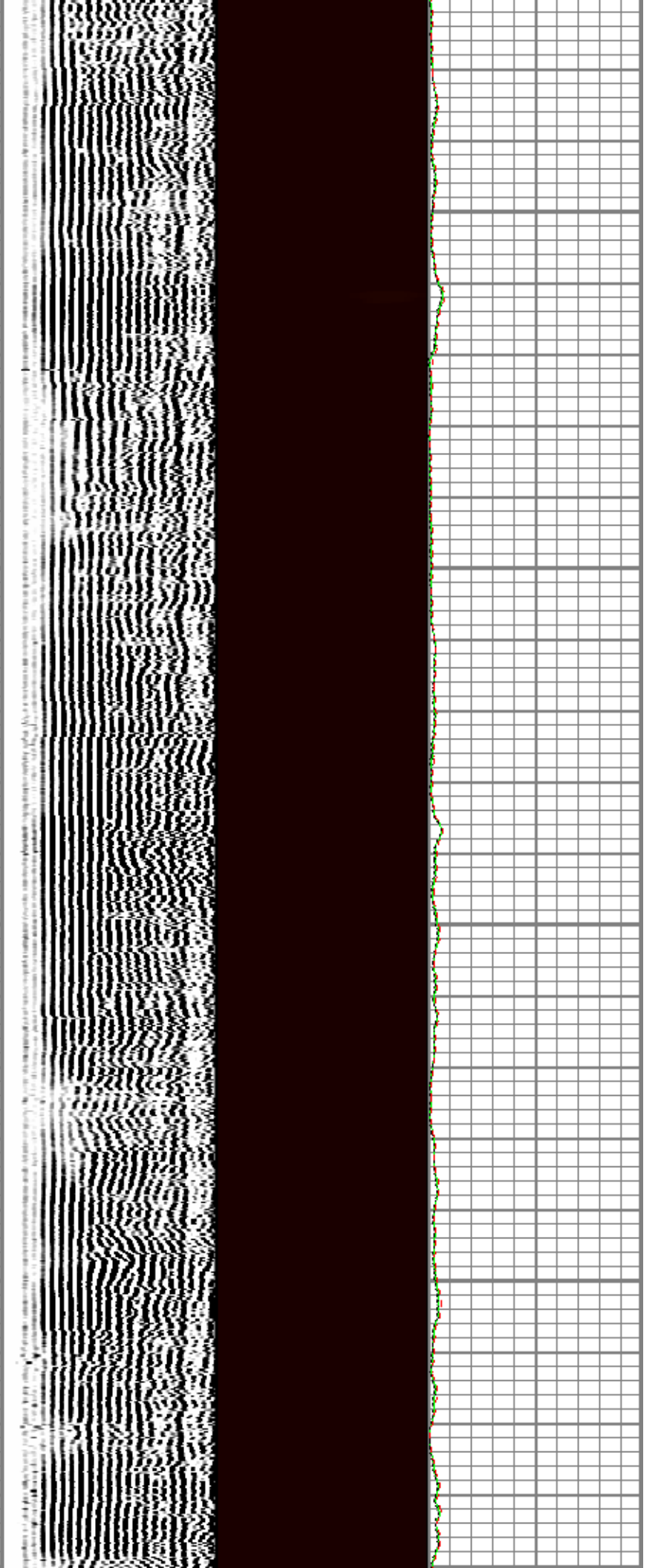
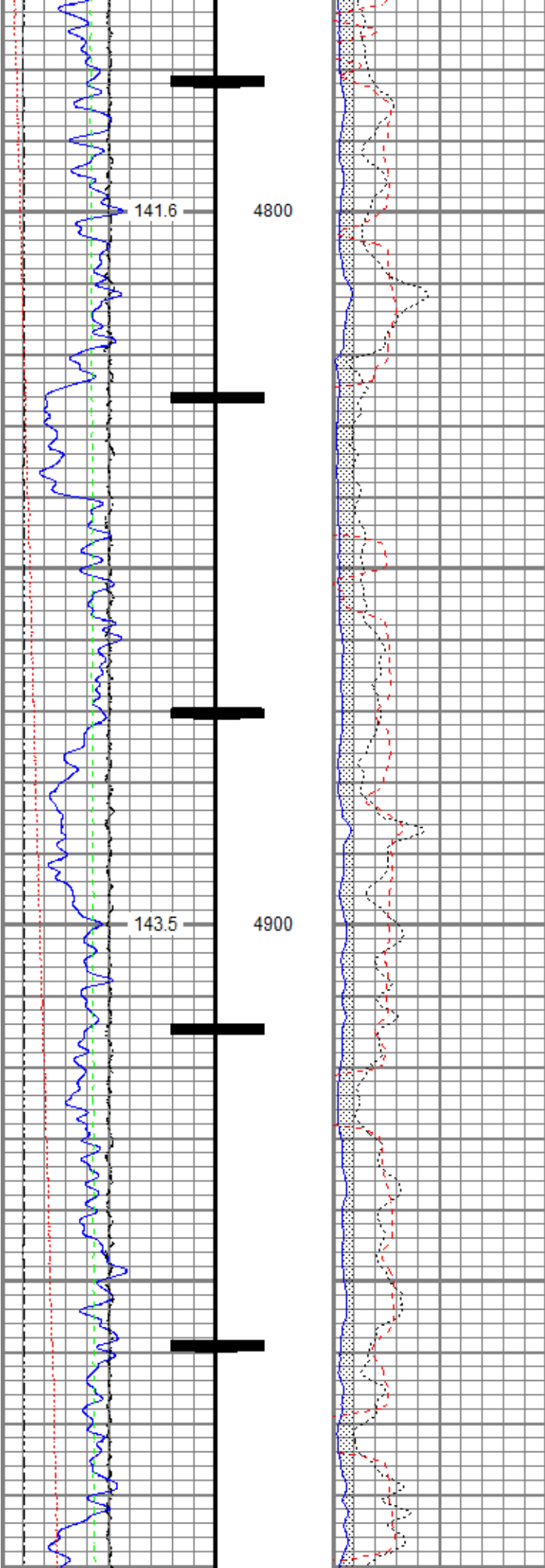




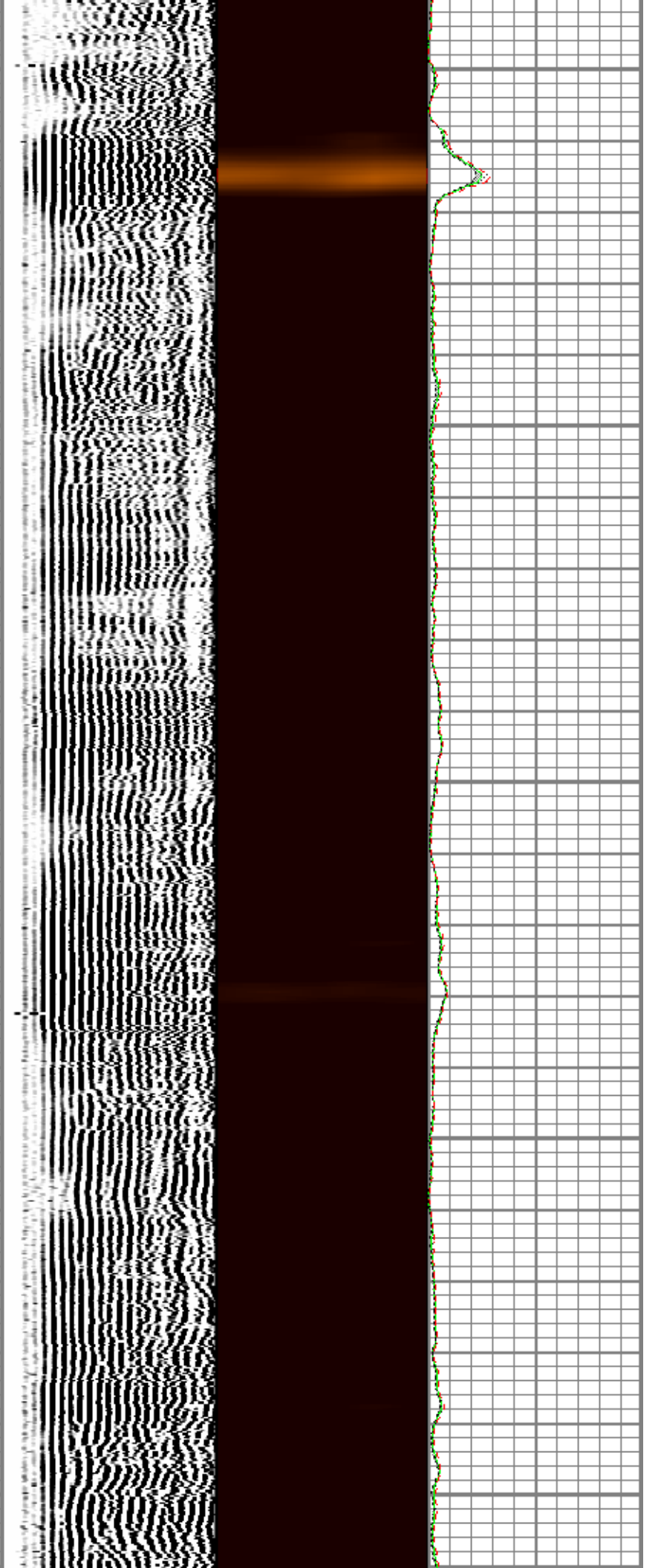
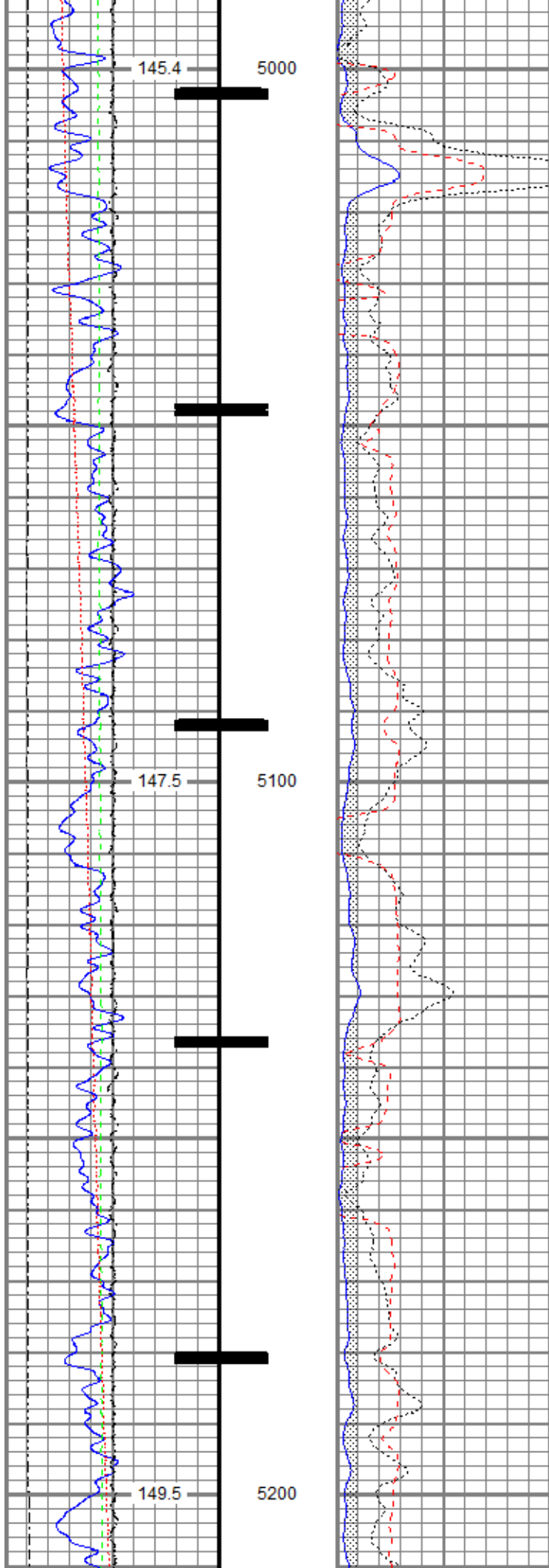


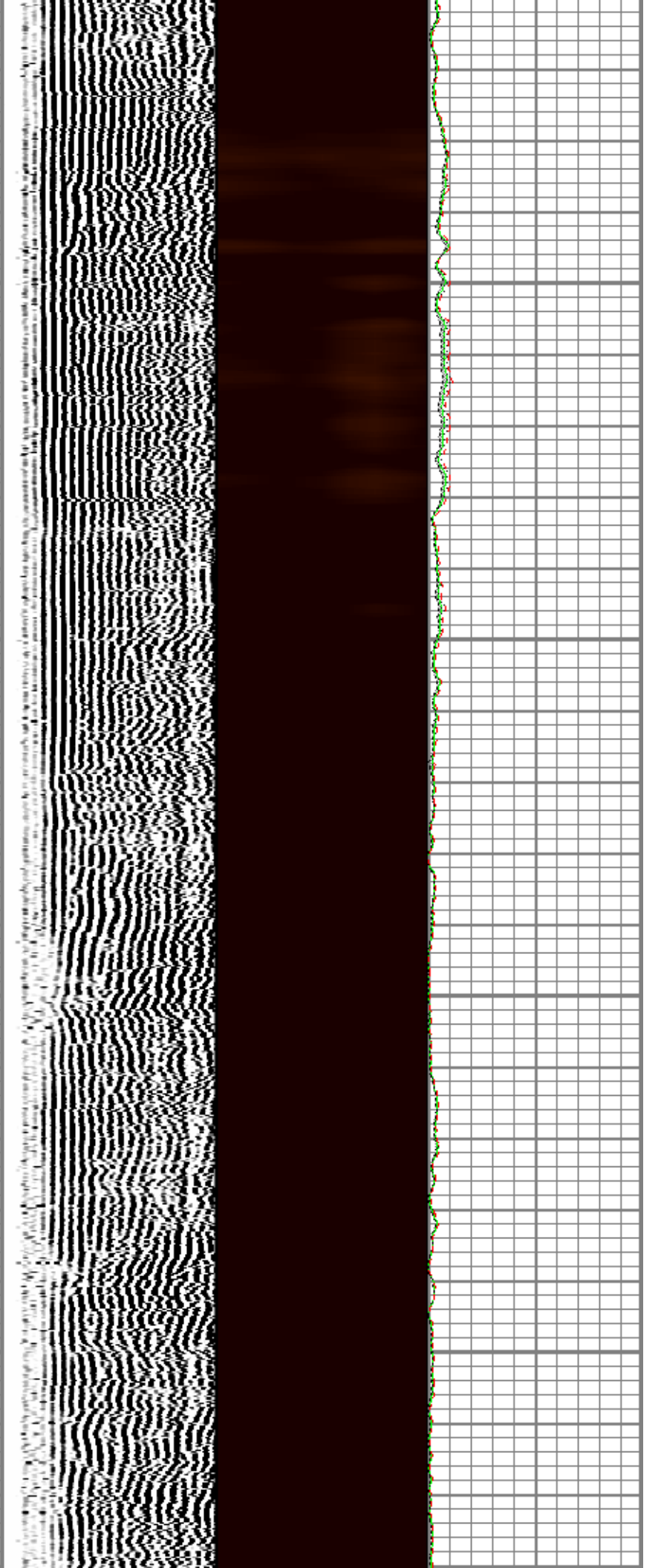
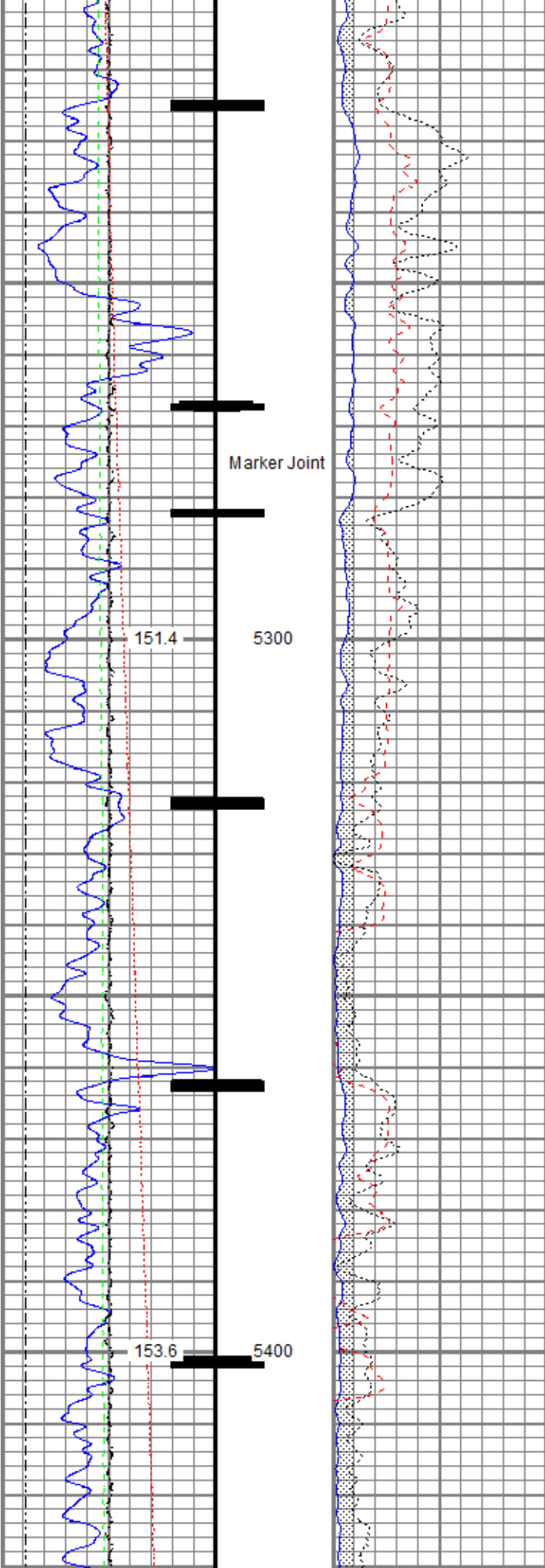


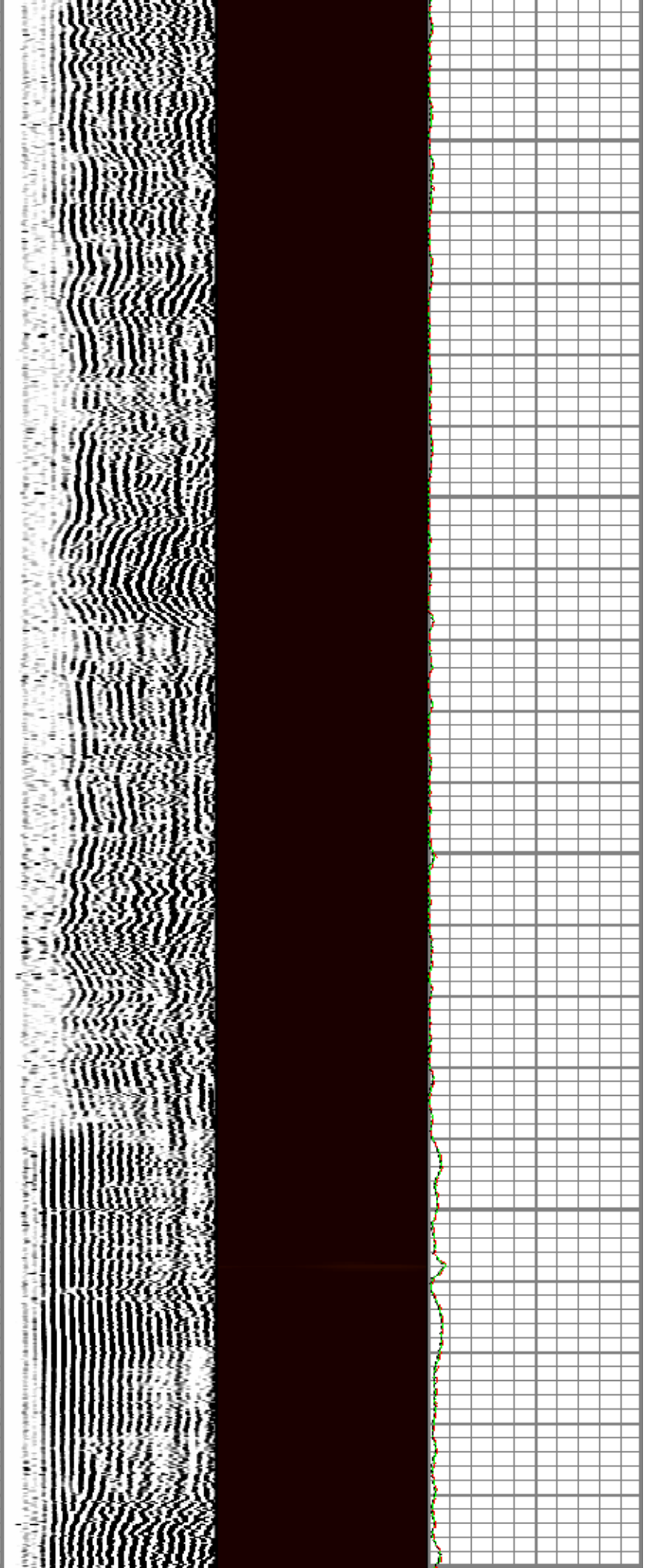
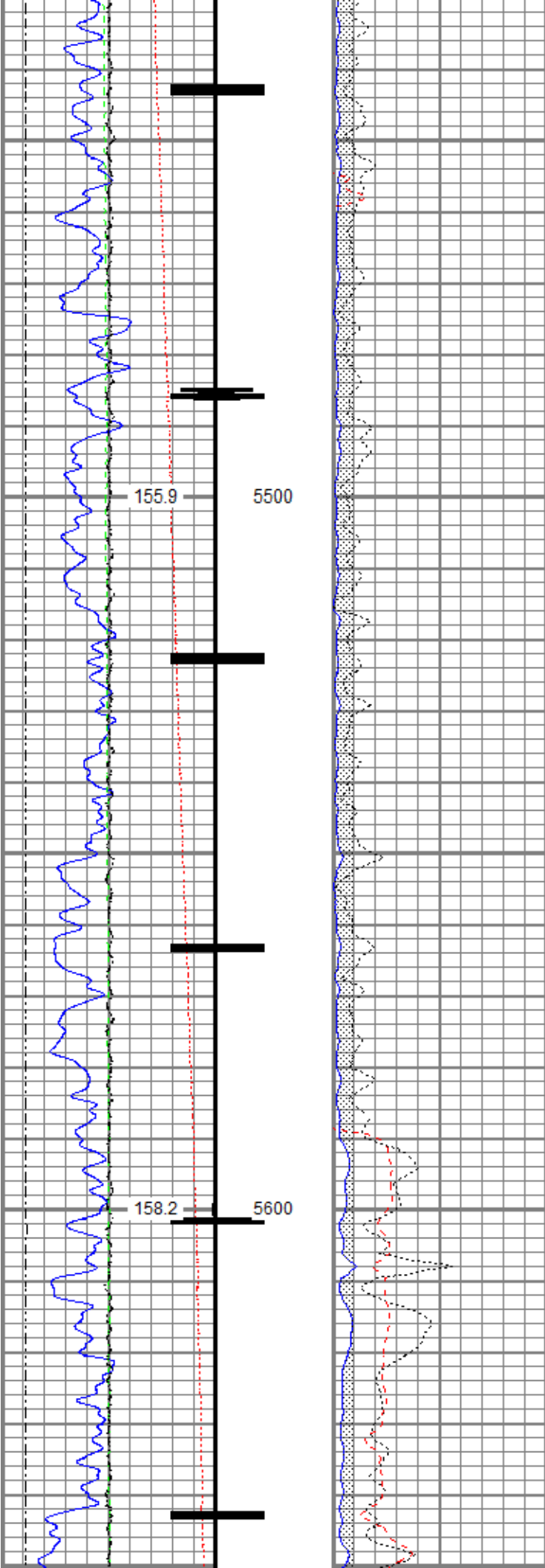




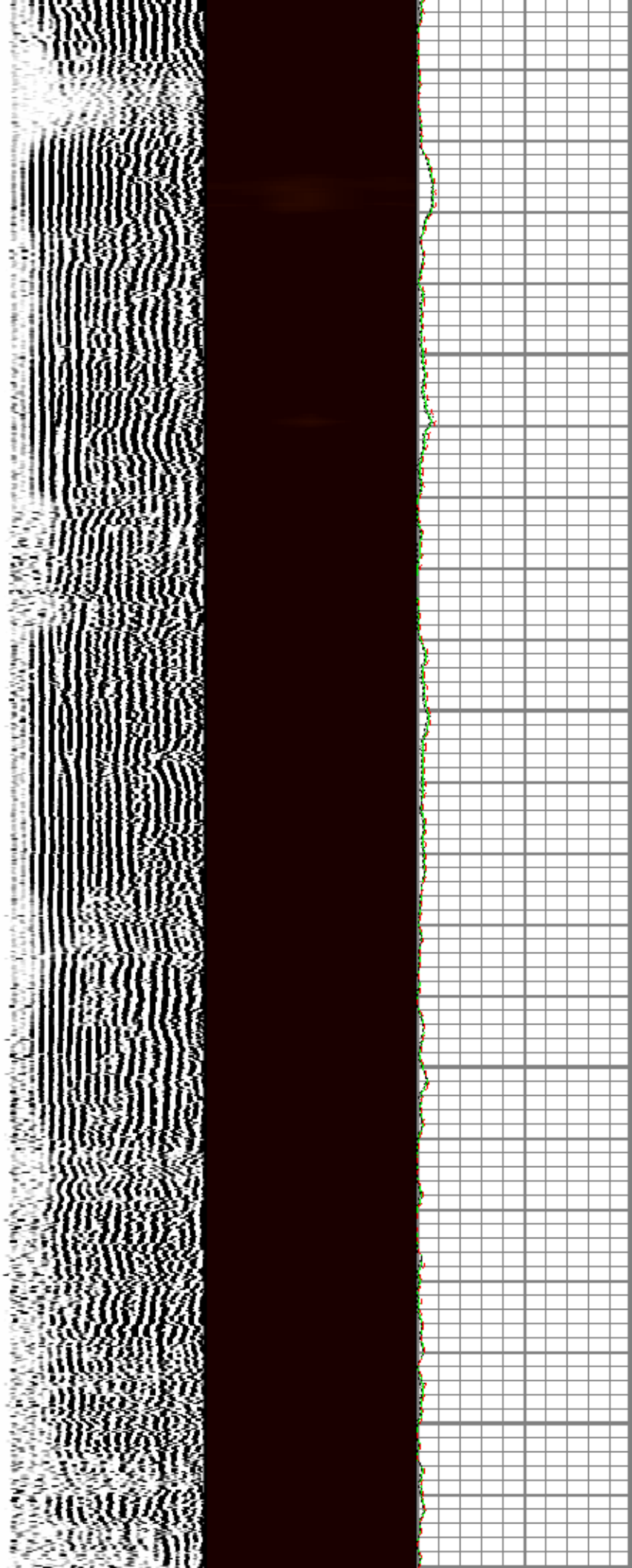
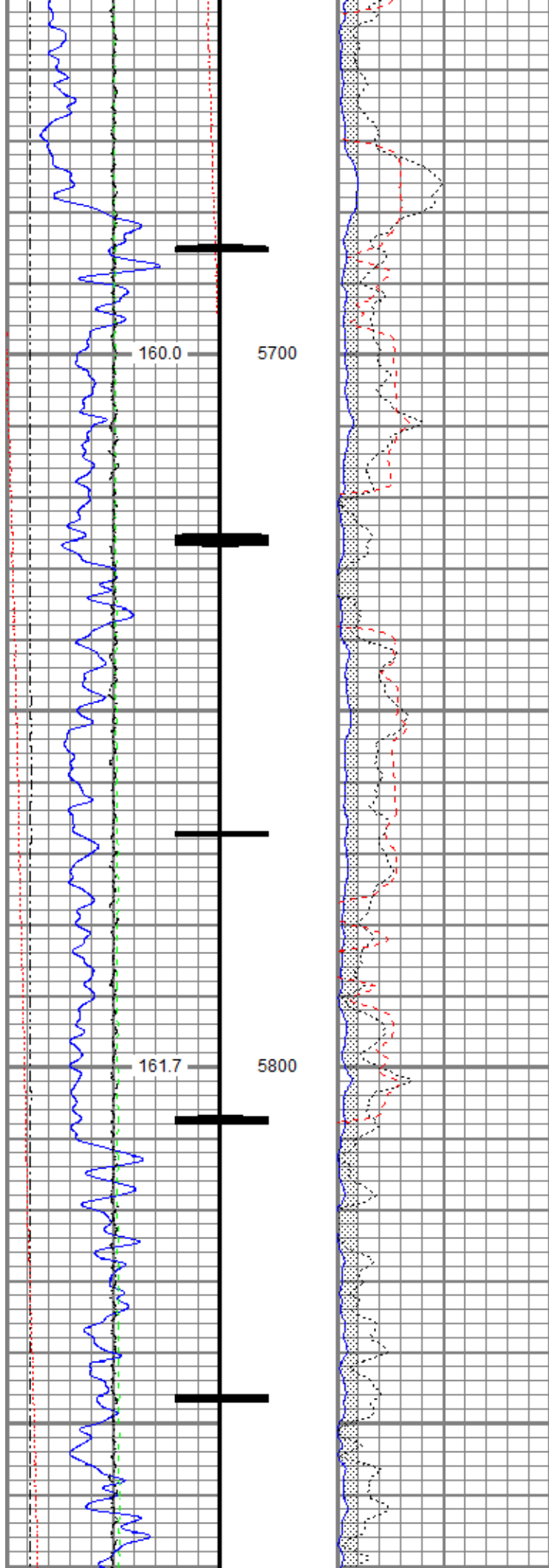




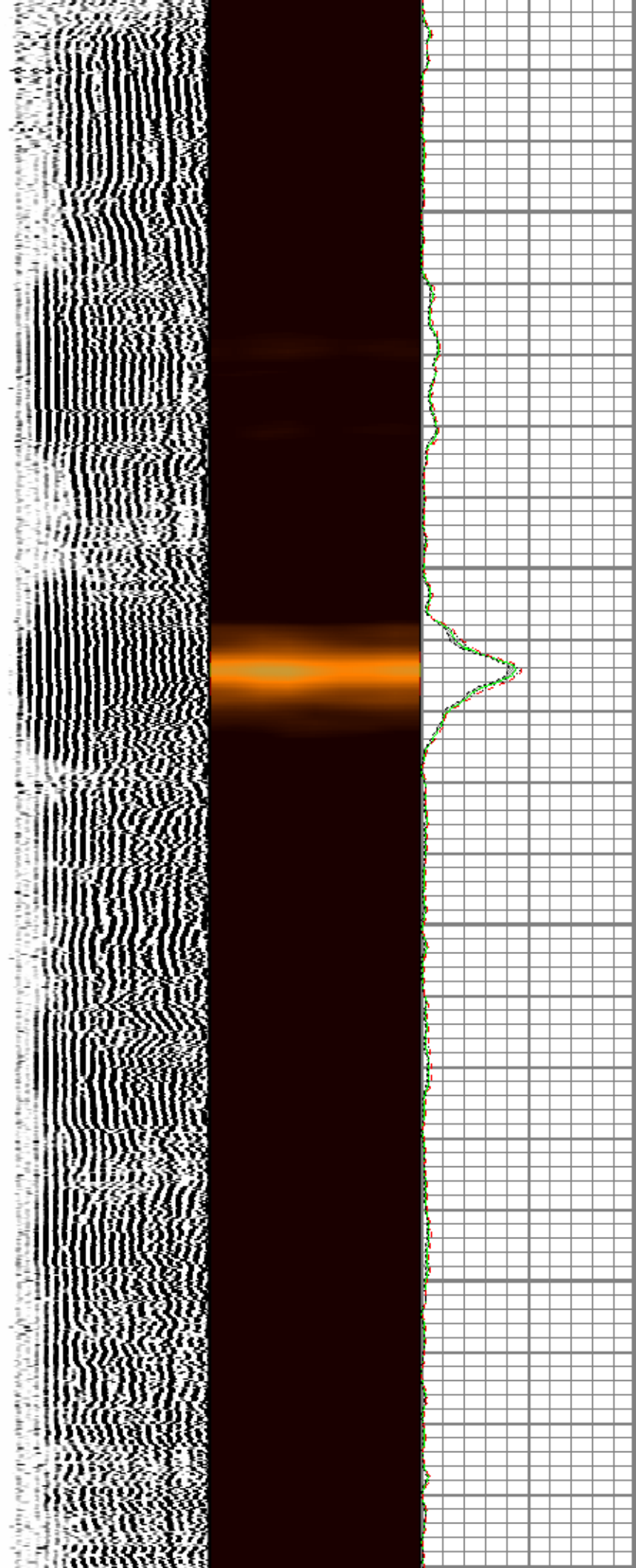
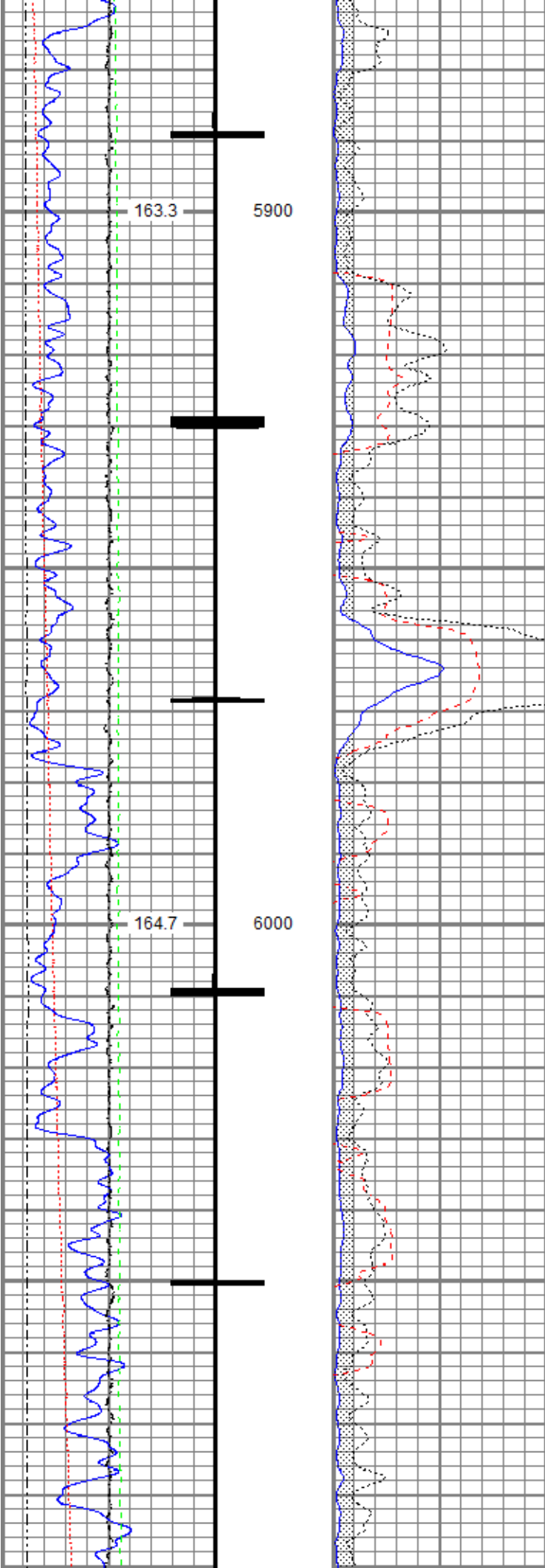


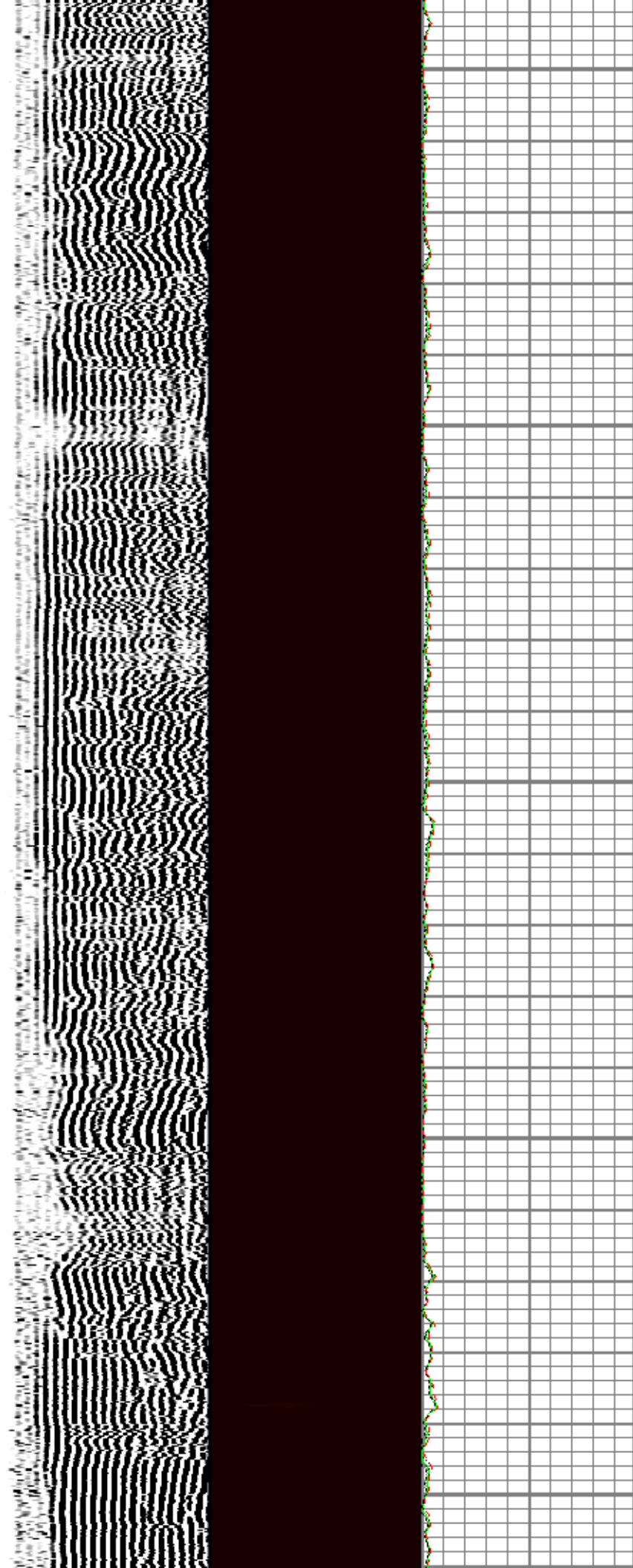
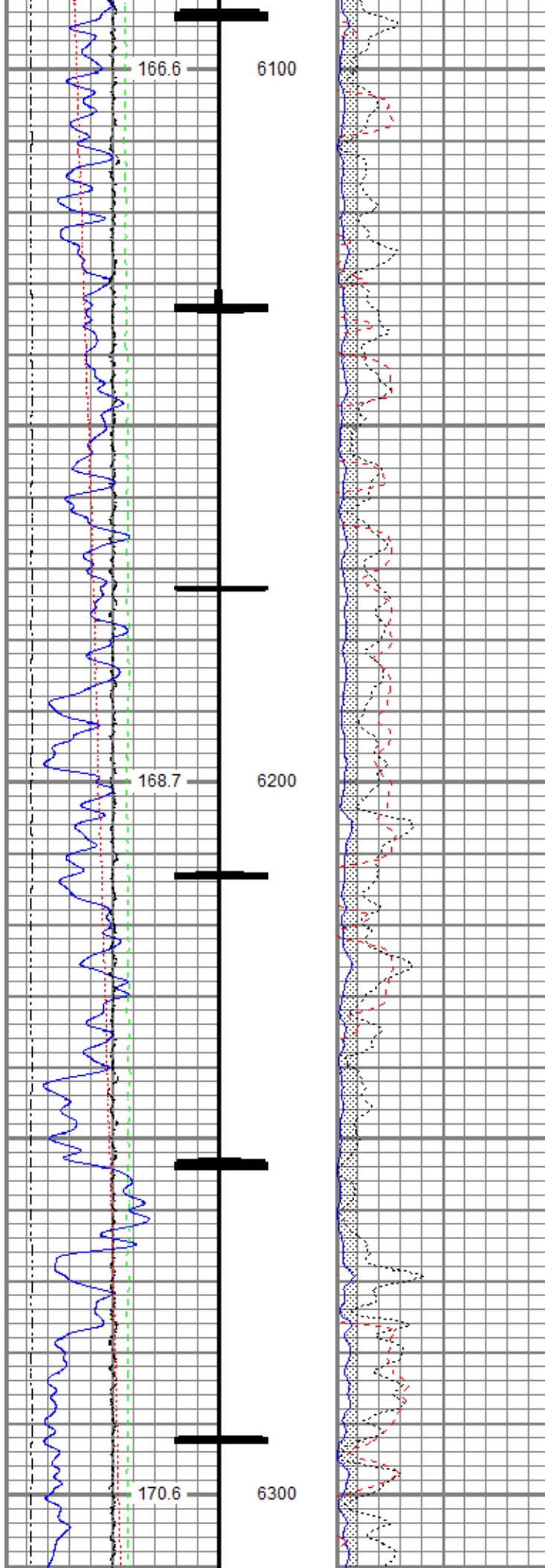


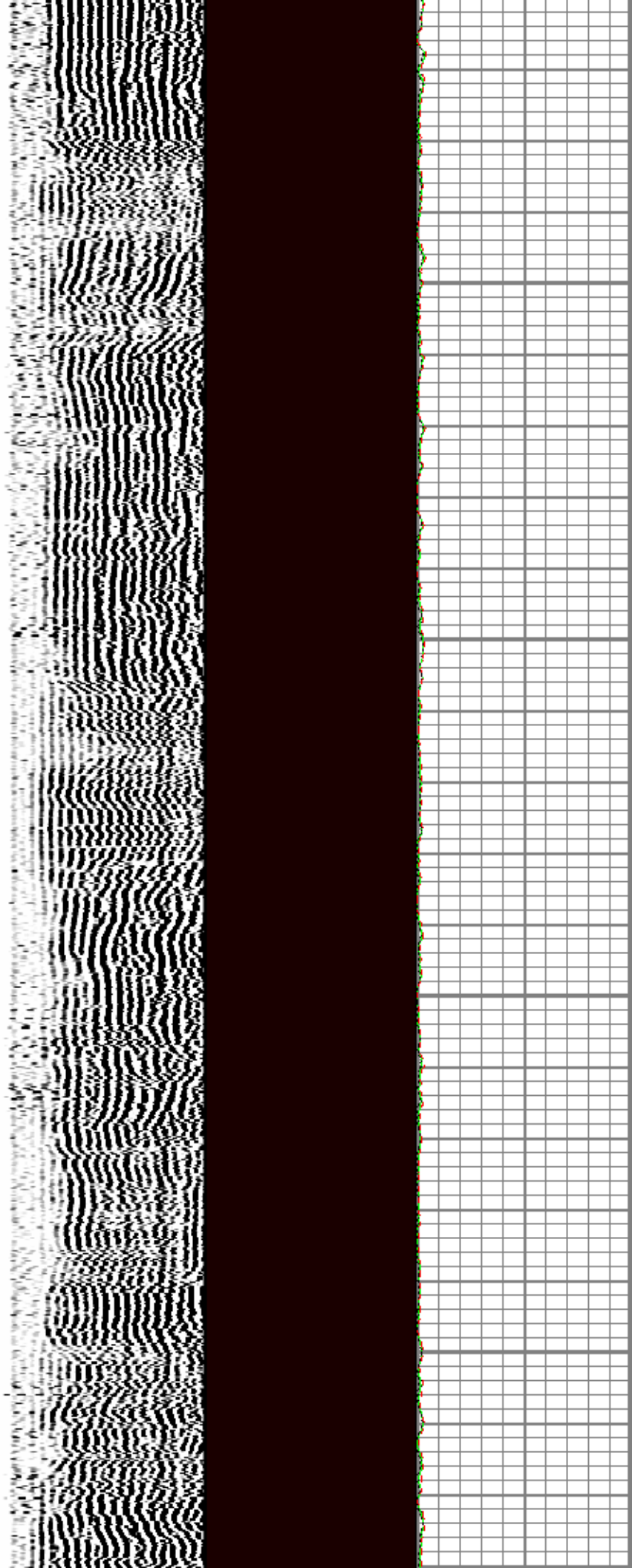
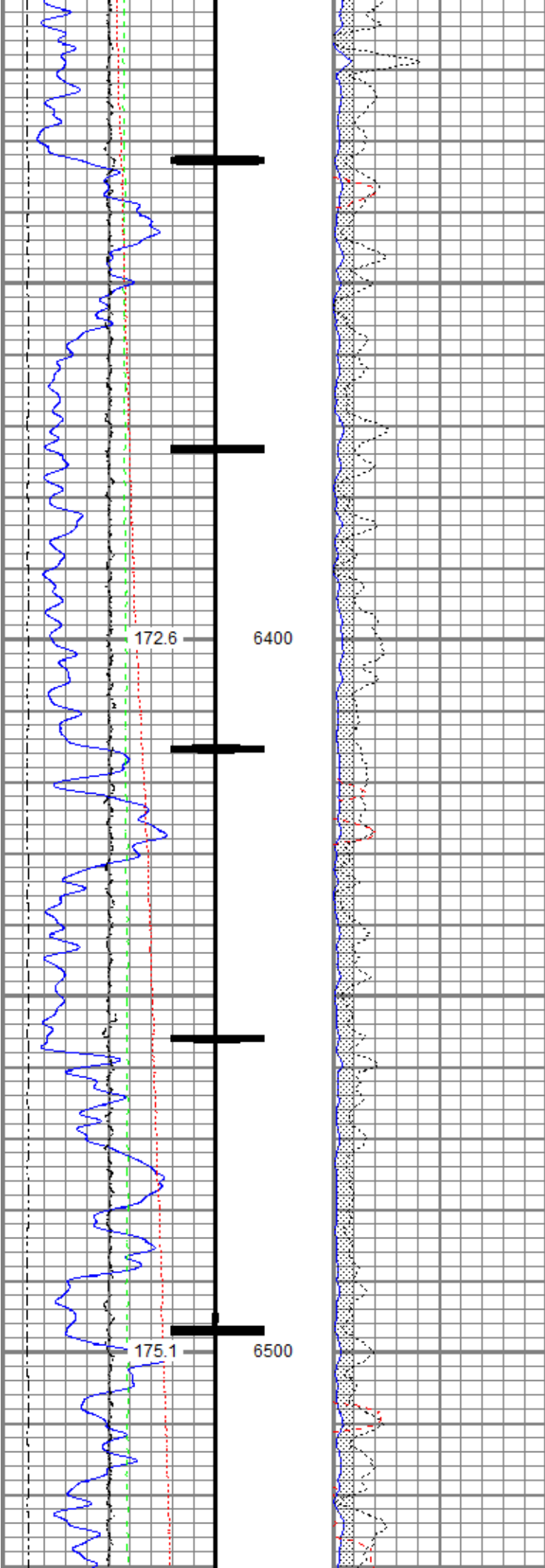




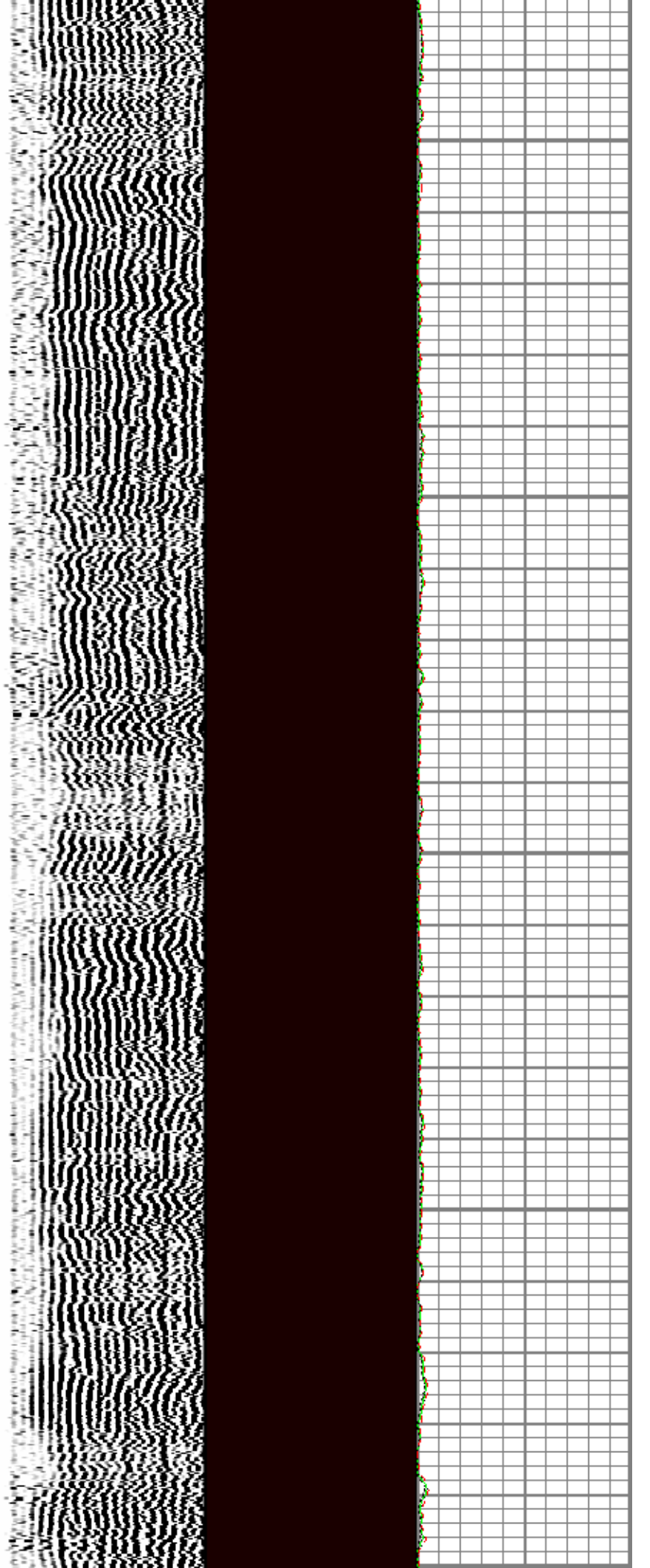
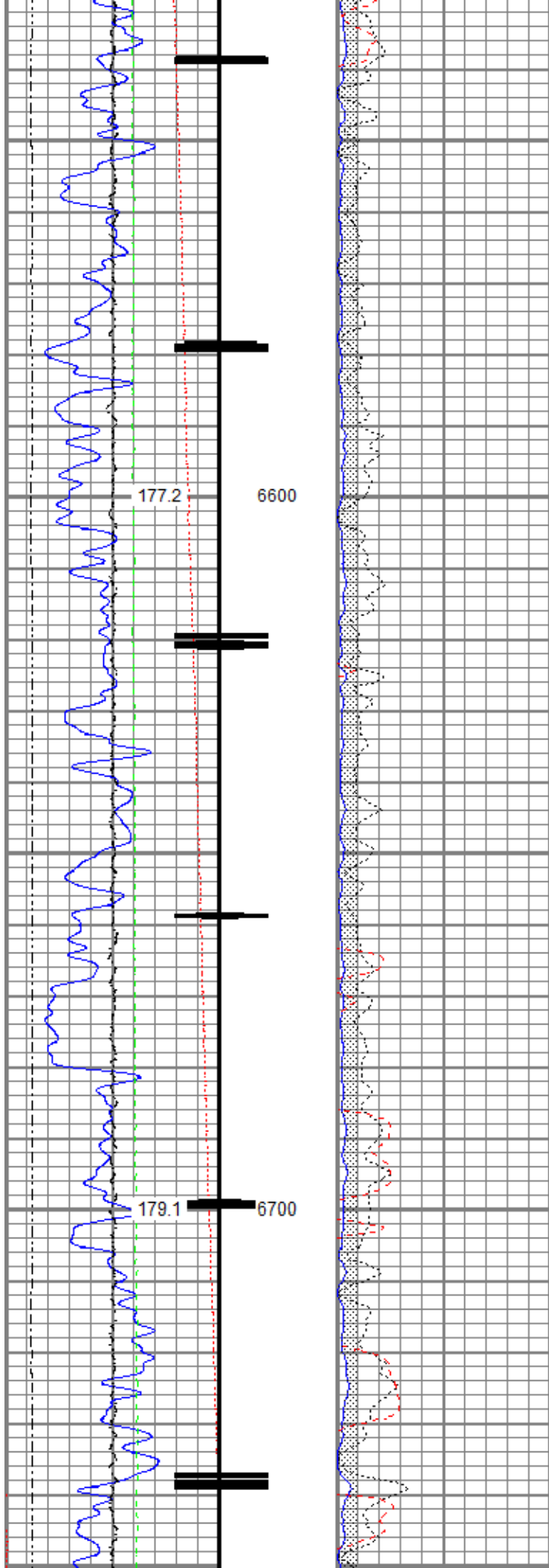




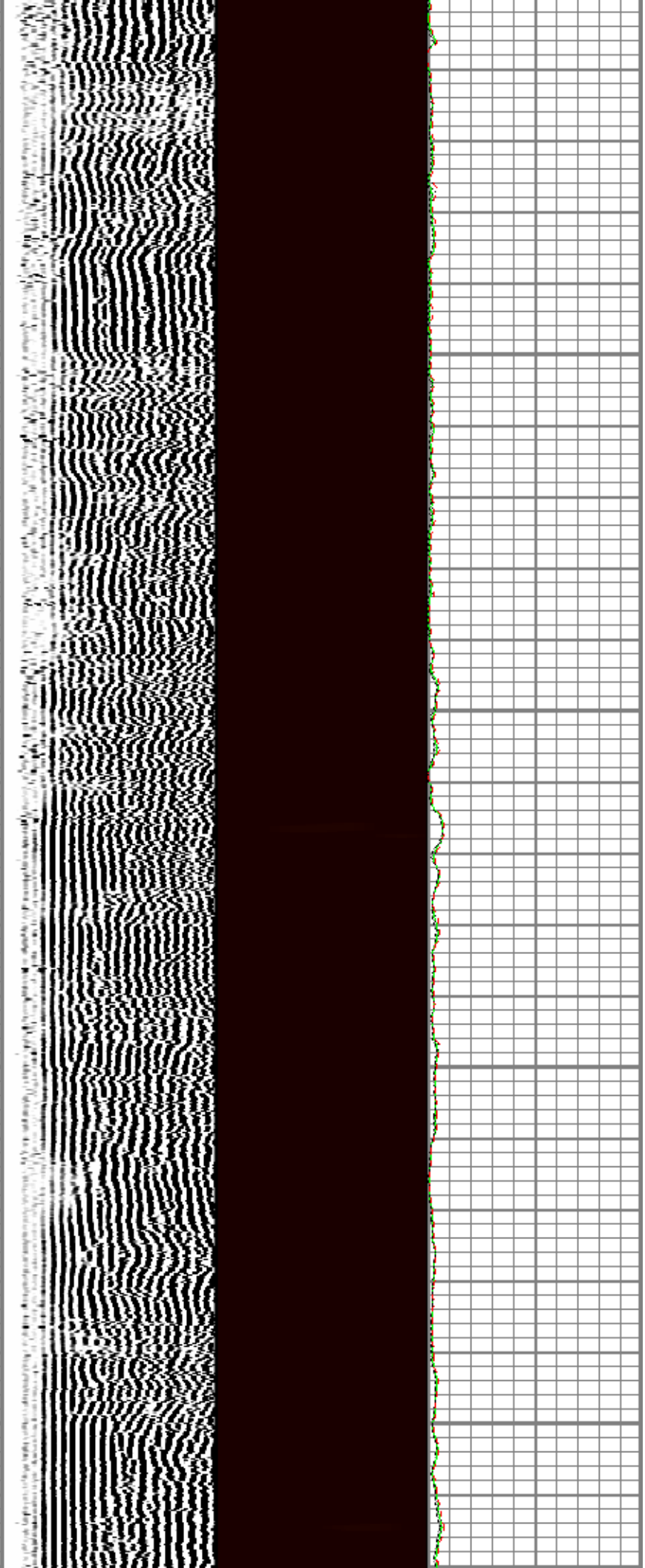
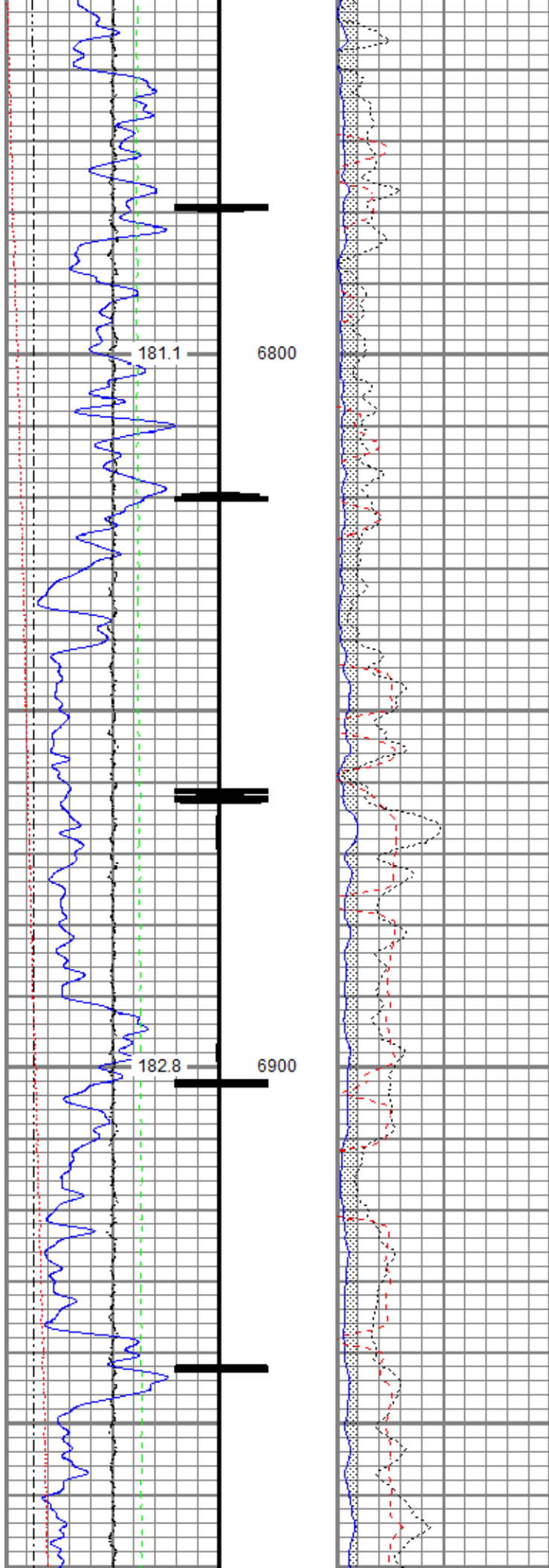


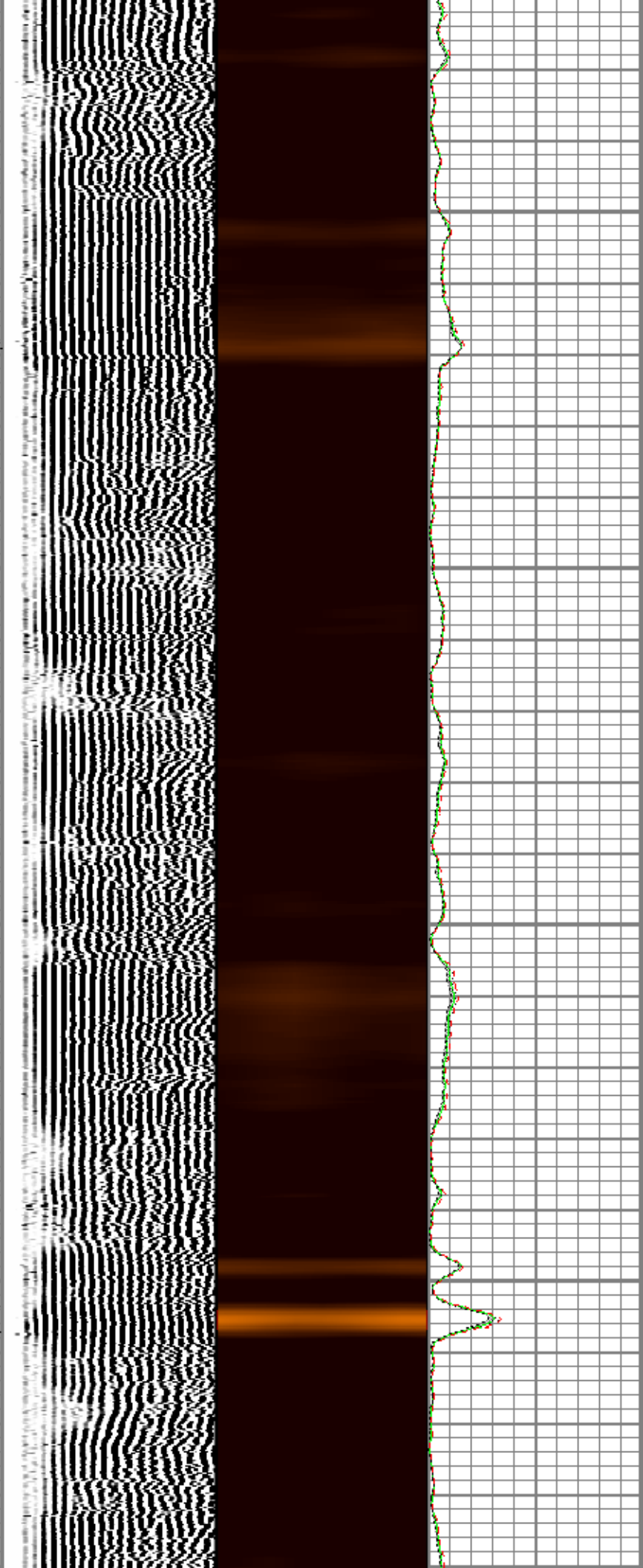
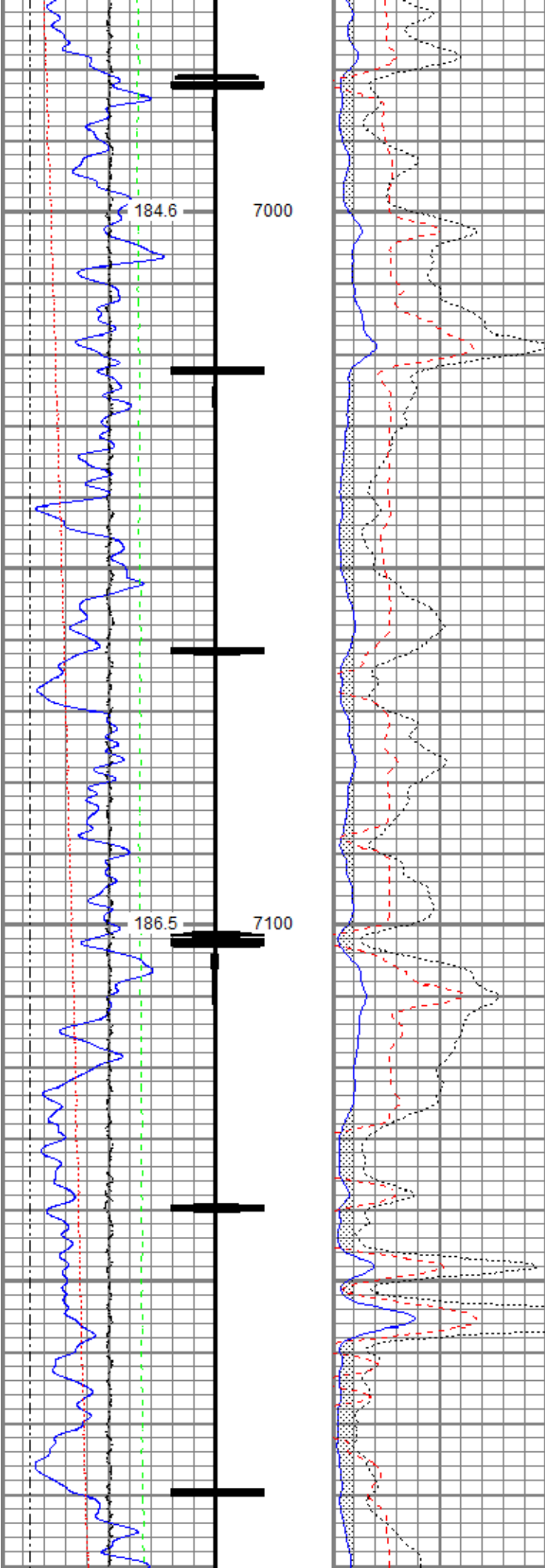


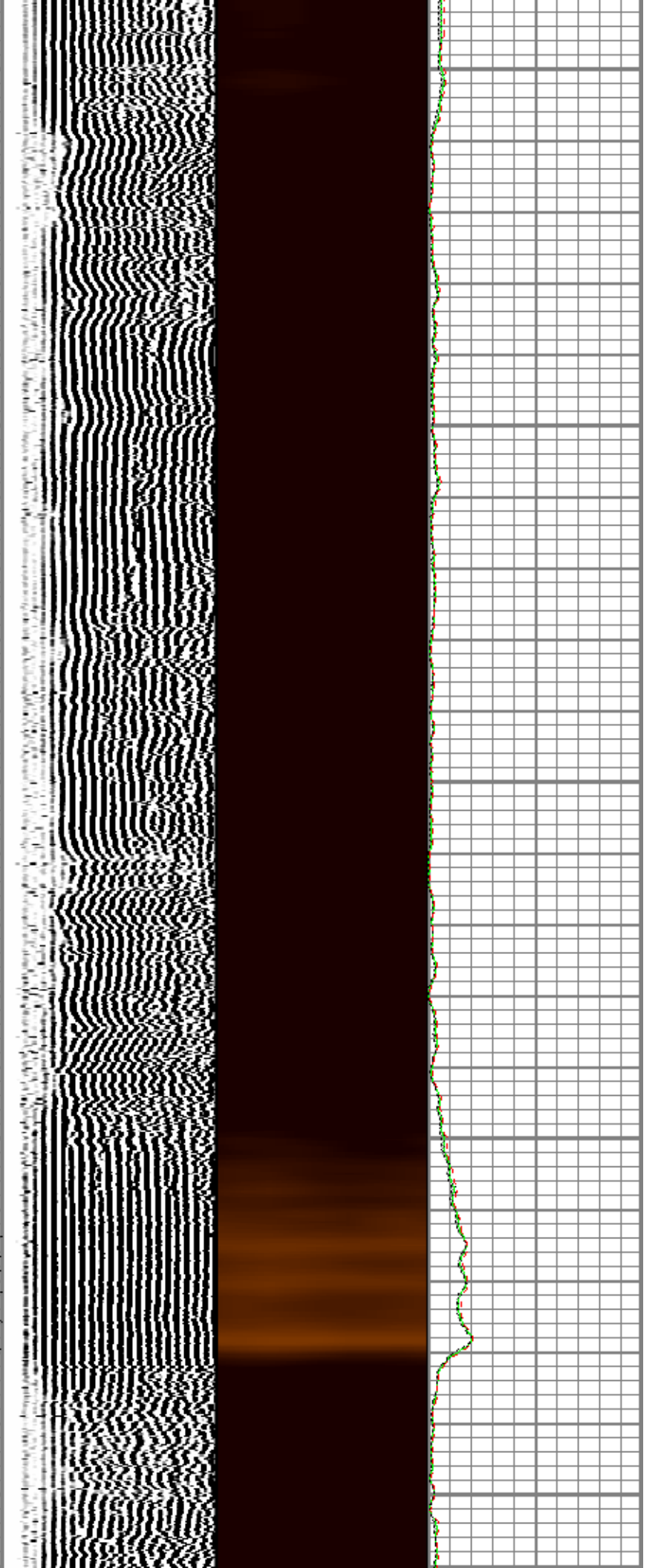
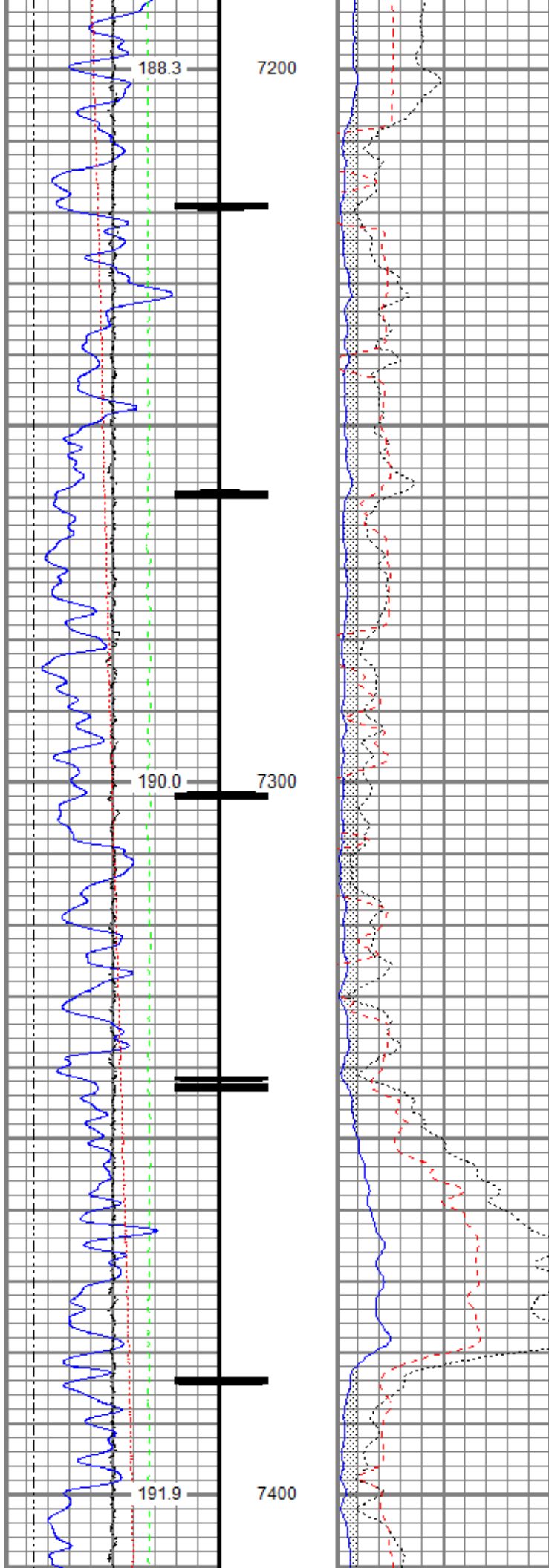




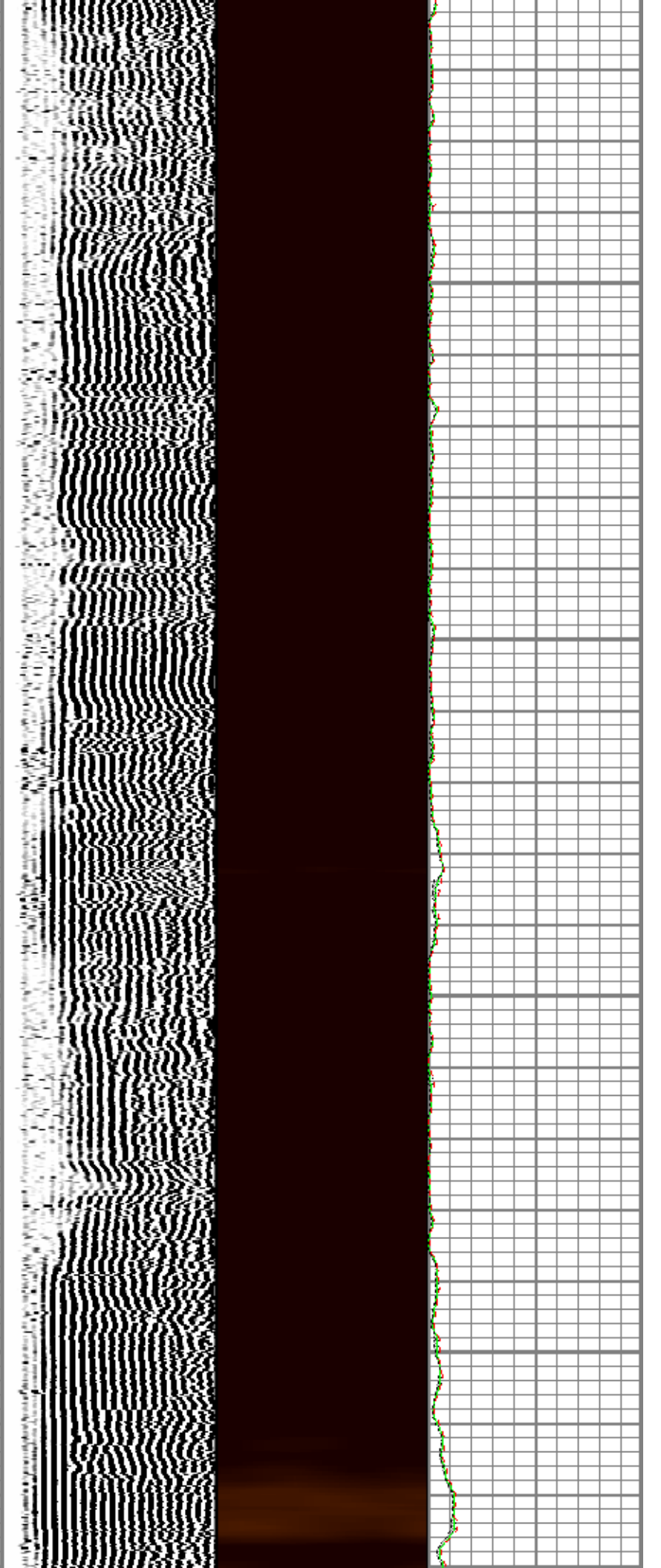
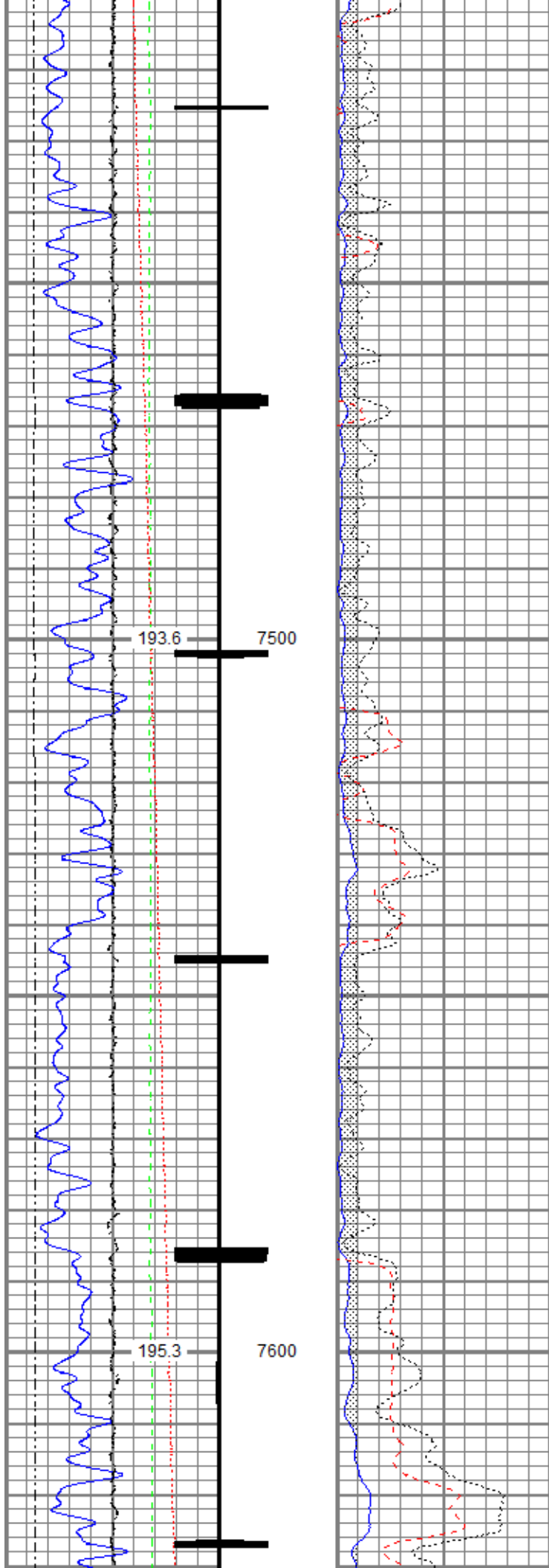




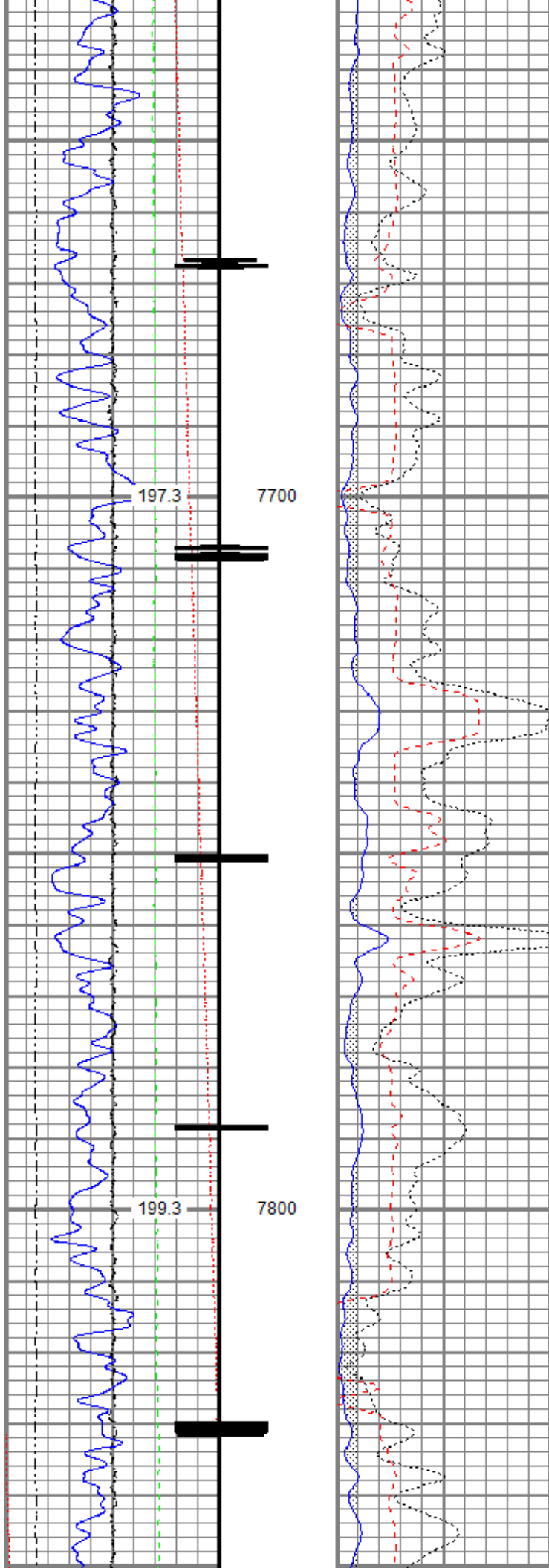




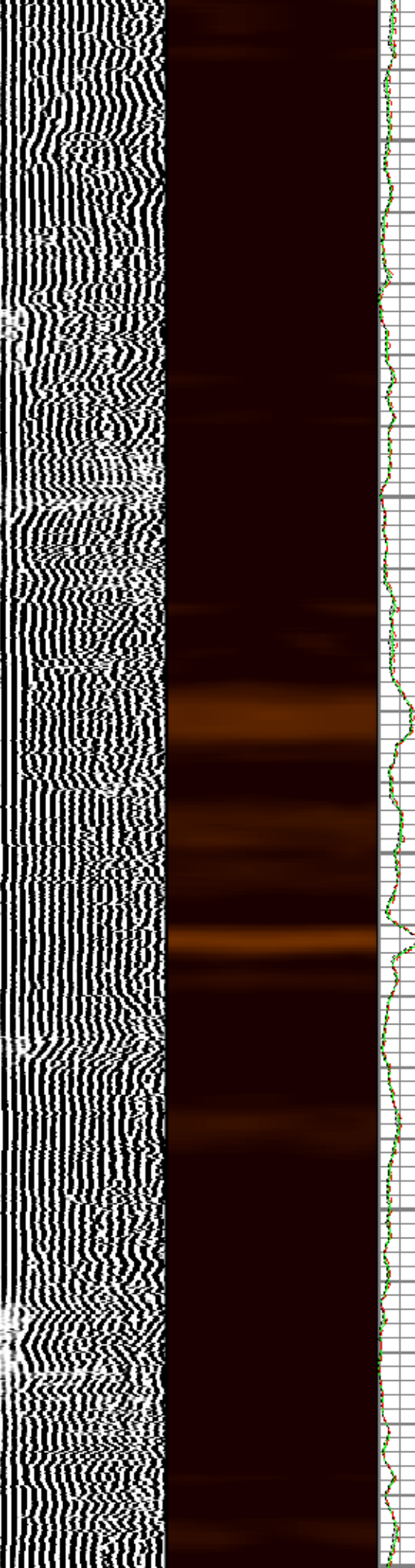


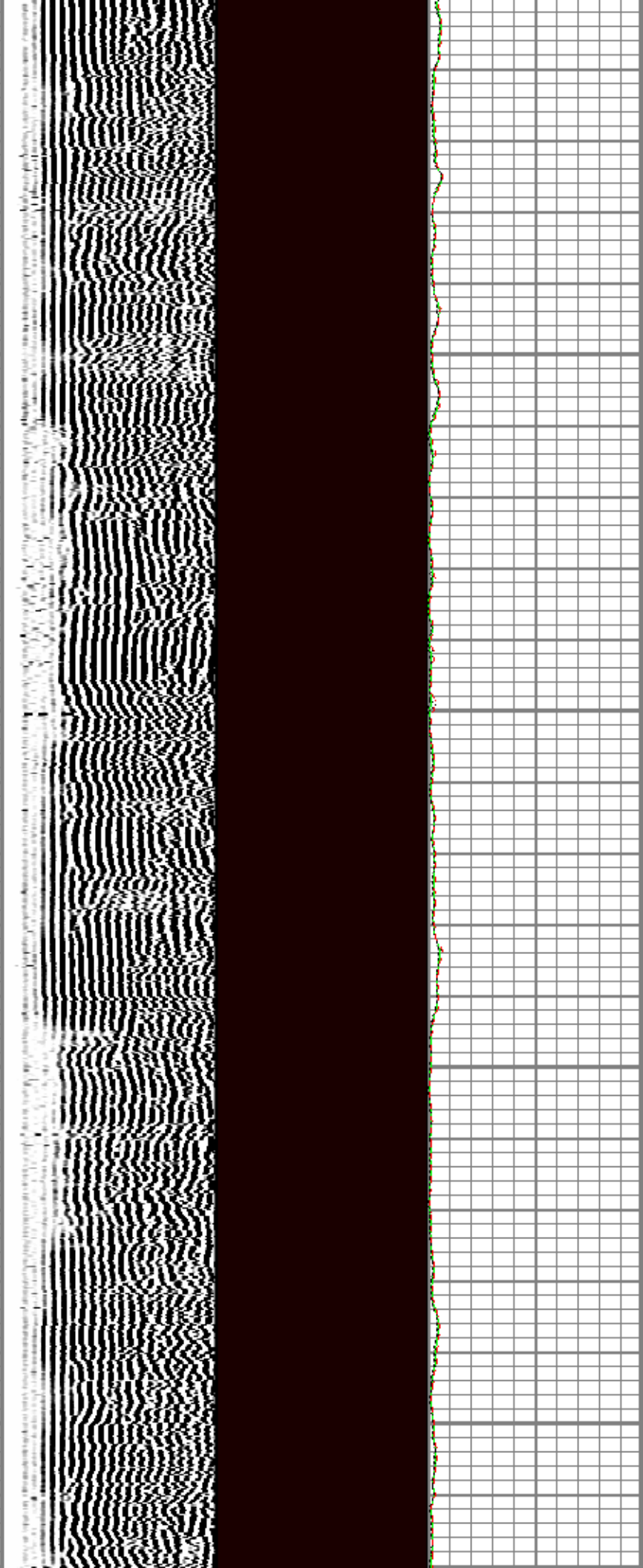
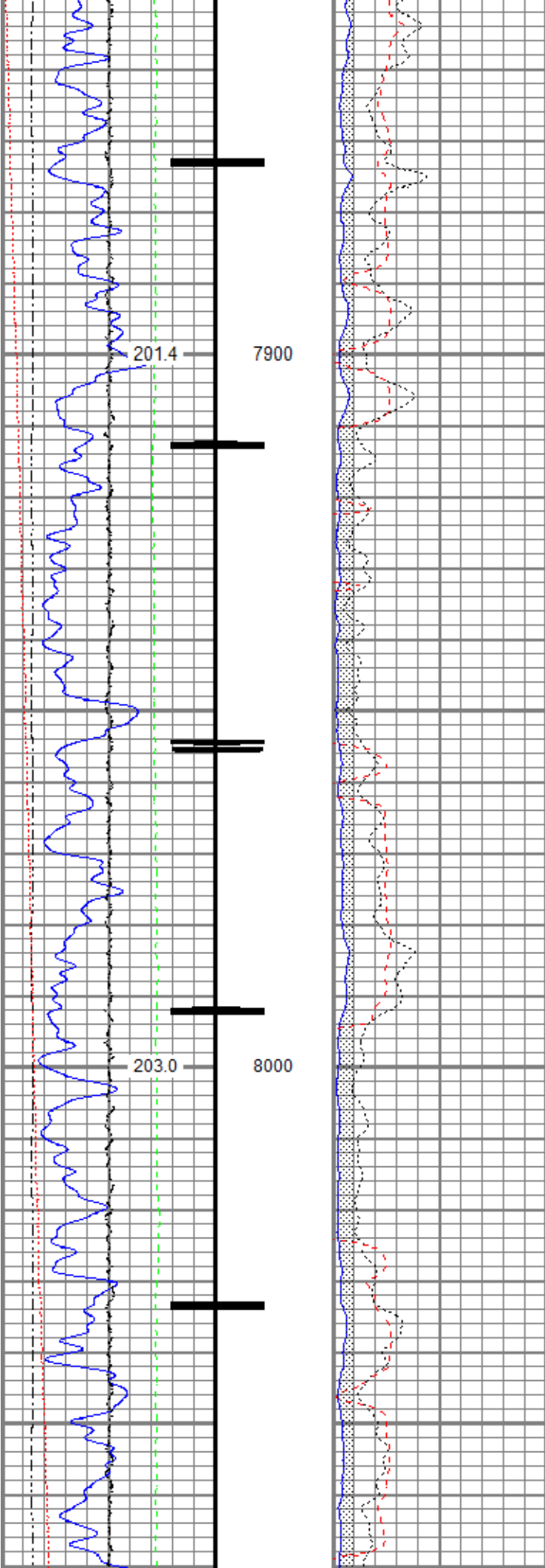


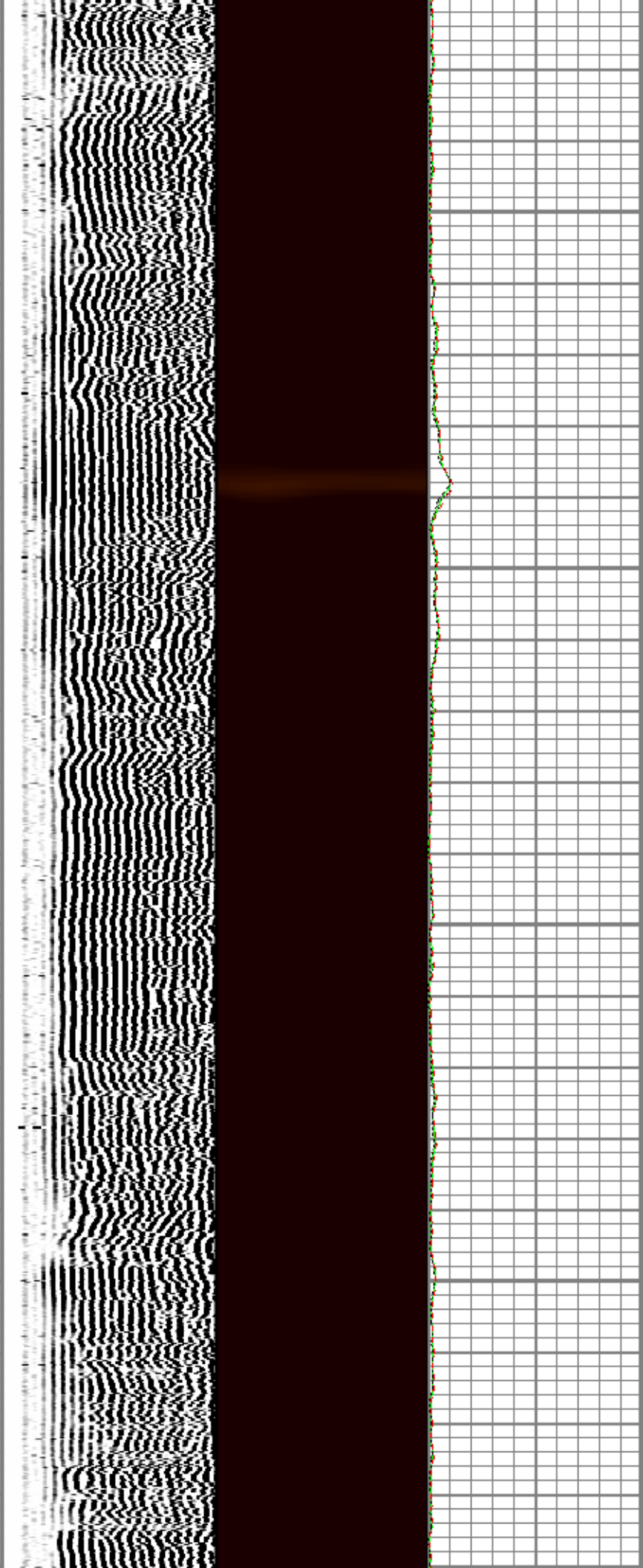
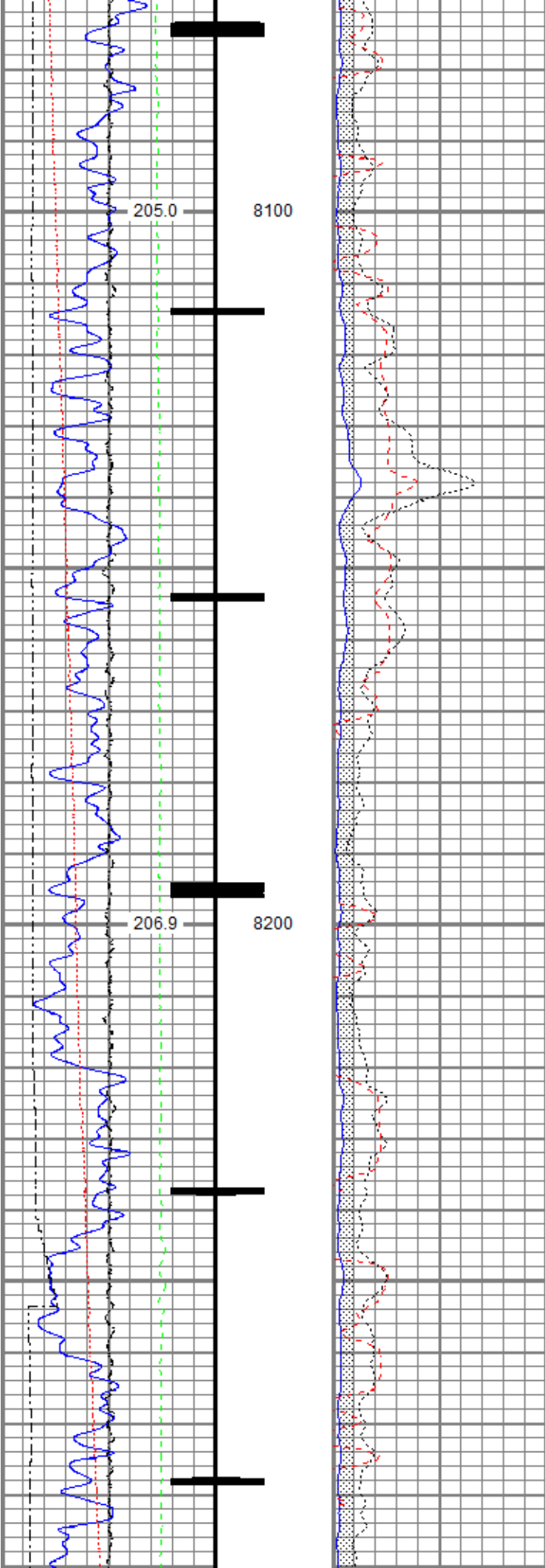




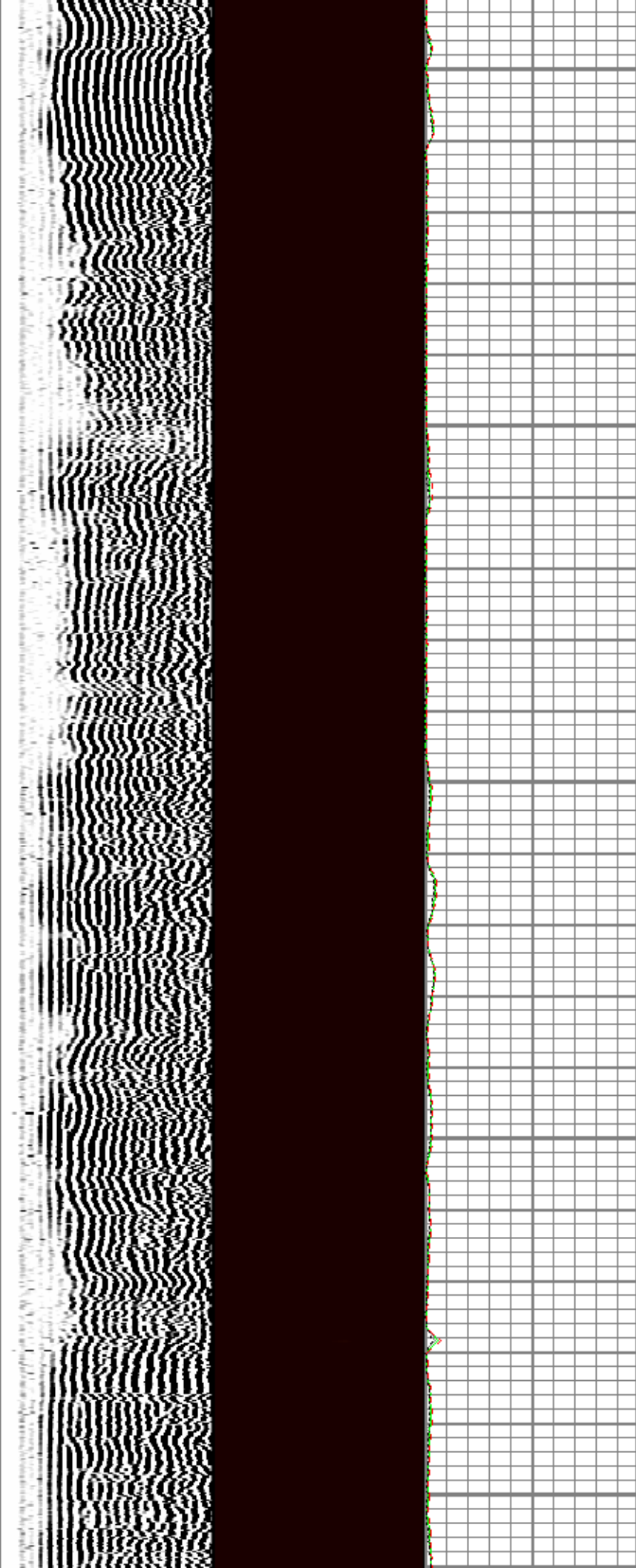
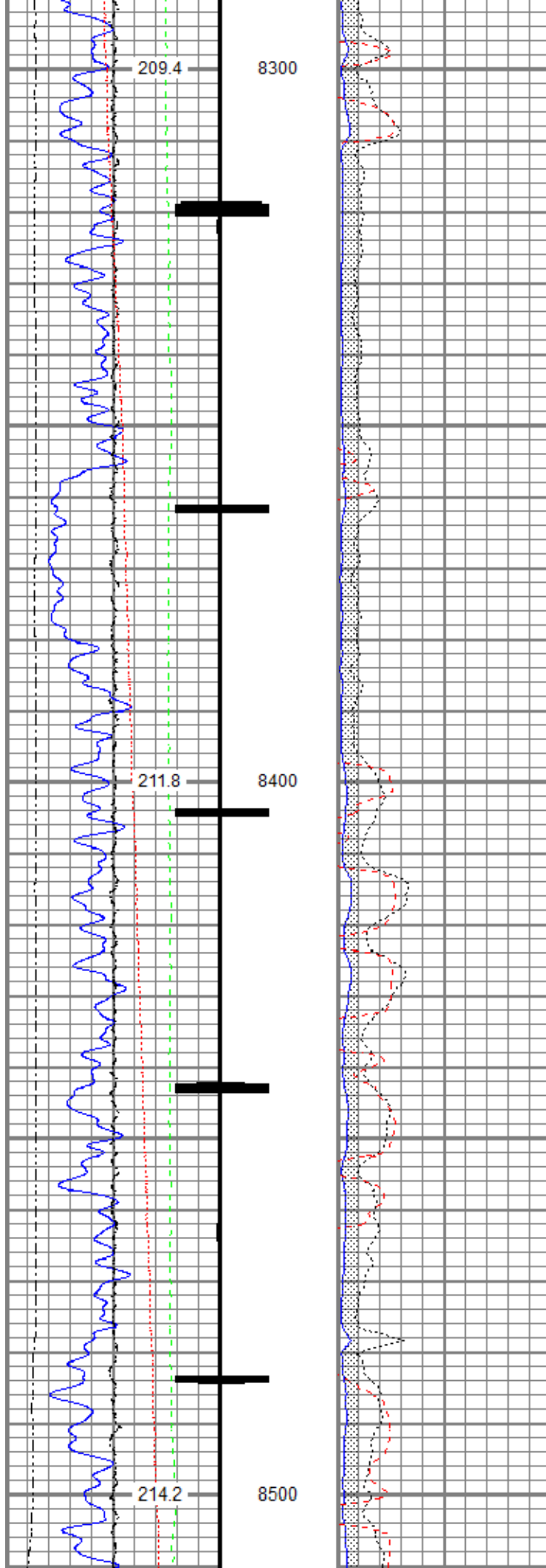
Vertical axis: Depth (m) / Time (s) / Velocity (m/s) / Density (g/cm³) / Acoustic Impedance (kg/m²/s²) / Reflection Coefficient (%) / Seismic Amplitude (mV) / Attenuation (dB) / Anisotropy (%) / Pore Pressure (kPa) / Fluid Saturation (%) / Rock Type / Lithology / Stratigraphic Unit / Geological Formation / Tectonic Zone / Structural Feature / Fault Type / Fracture Density / Permeability (Darcy) / Porosity (%) / Bulk Modulus (GPa) / Shear Modulus (GPa) / Poisson's Ratio / Compressibility (1/GPa) / Thermal Expansion Coefficient (1/°C) / Thermal Conductivity (W/m·K) / Thermal Capacity (J/kg·K) / Electrical Resistivity (Ω·m) / Magnetic Susceptibility (SI) / Radioactivity (Bq/kg) / Gamma Ray Attenuation Coefficient (cm²/g) / Neutron Cross Section (barn) / Proton Density (g/cc) / Formation Volume Factor (bbl/STB) / Gas Solubility (scf/STB) / Gas Deviation Factor (Z) / Gas Viscosity (cP) / Gas Permeability (Darcy) / Gas Saturation (%) / Gas Production Index (Darcy-ft) / Gas Flow Capacity (Darcy-ft) / Gas Storage Capacity (Darcy-ft) / Gas Recovery Index (%) / Gas Recovery Factor (%) / Gas Production Index (Darcy-ft) / Gas Flow Capacity (Darcy-ft) / Gas Storage Capacity (Darcy-ft) / Gas Recovery Index (%) / Gas Recovery Factor (%)



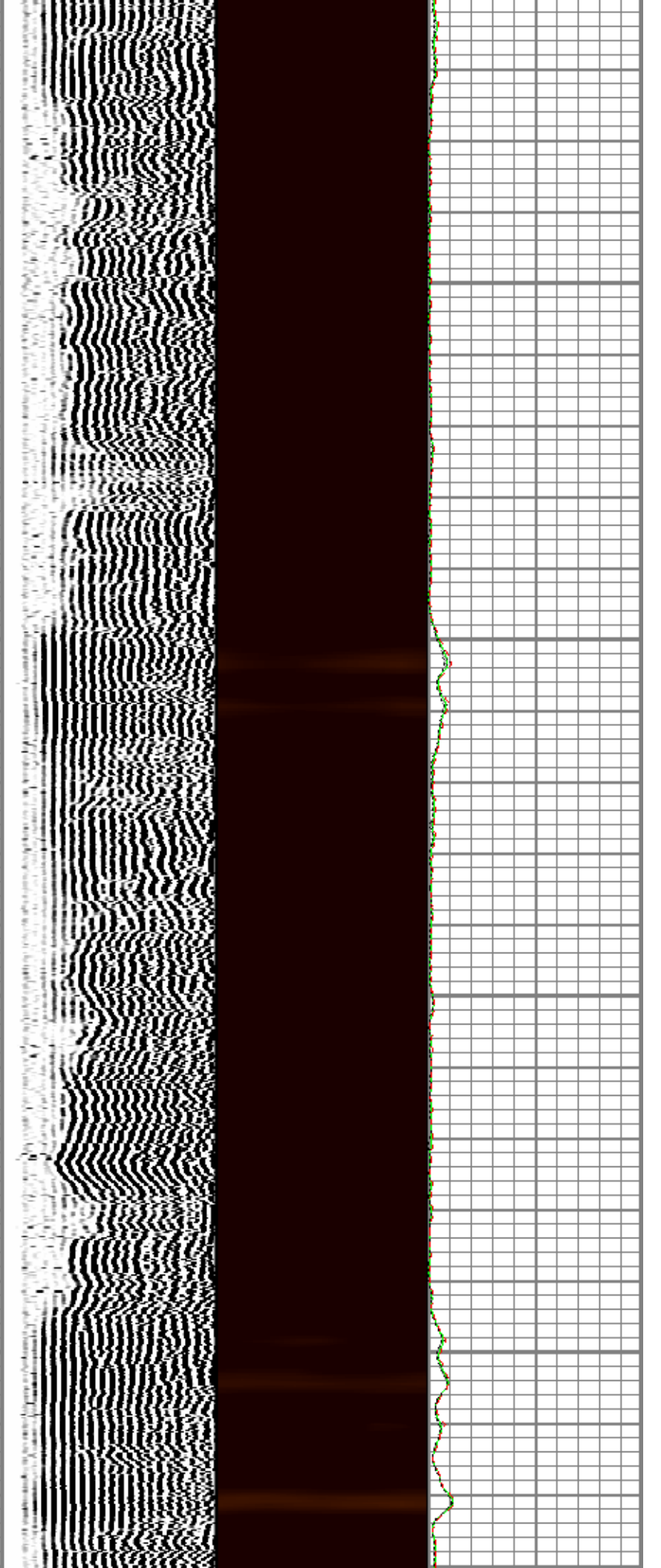
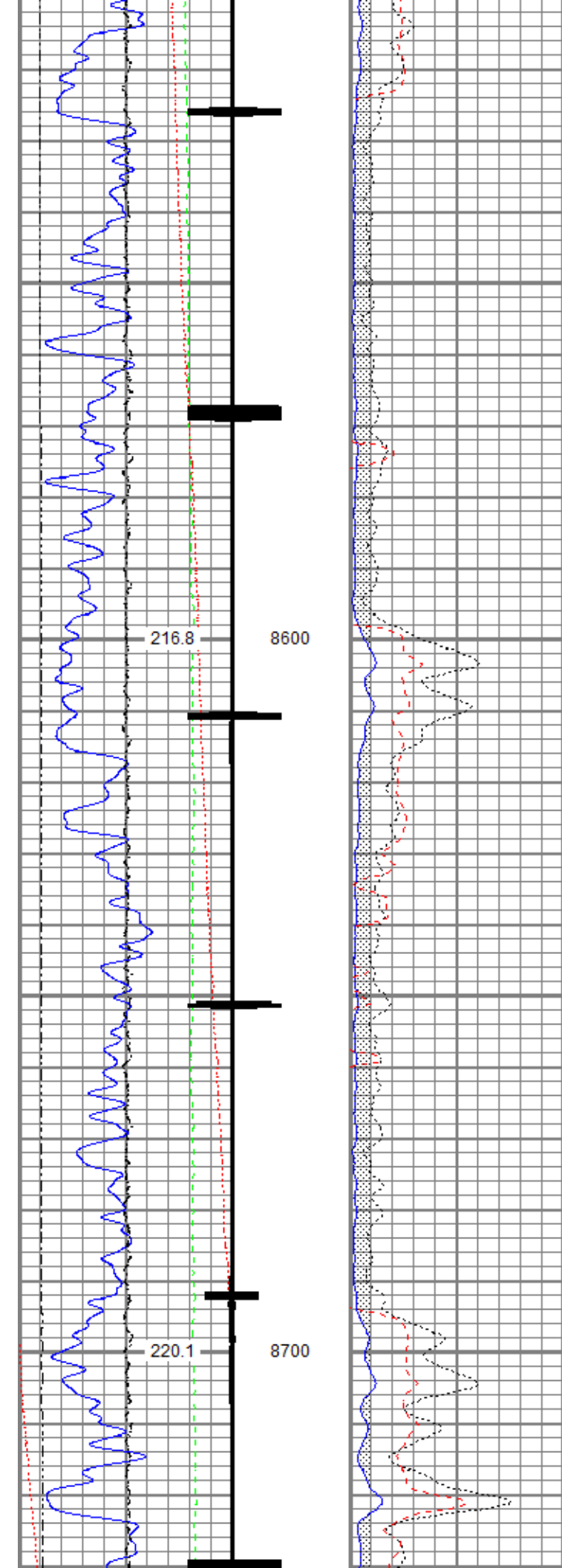


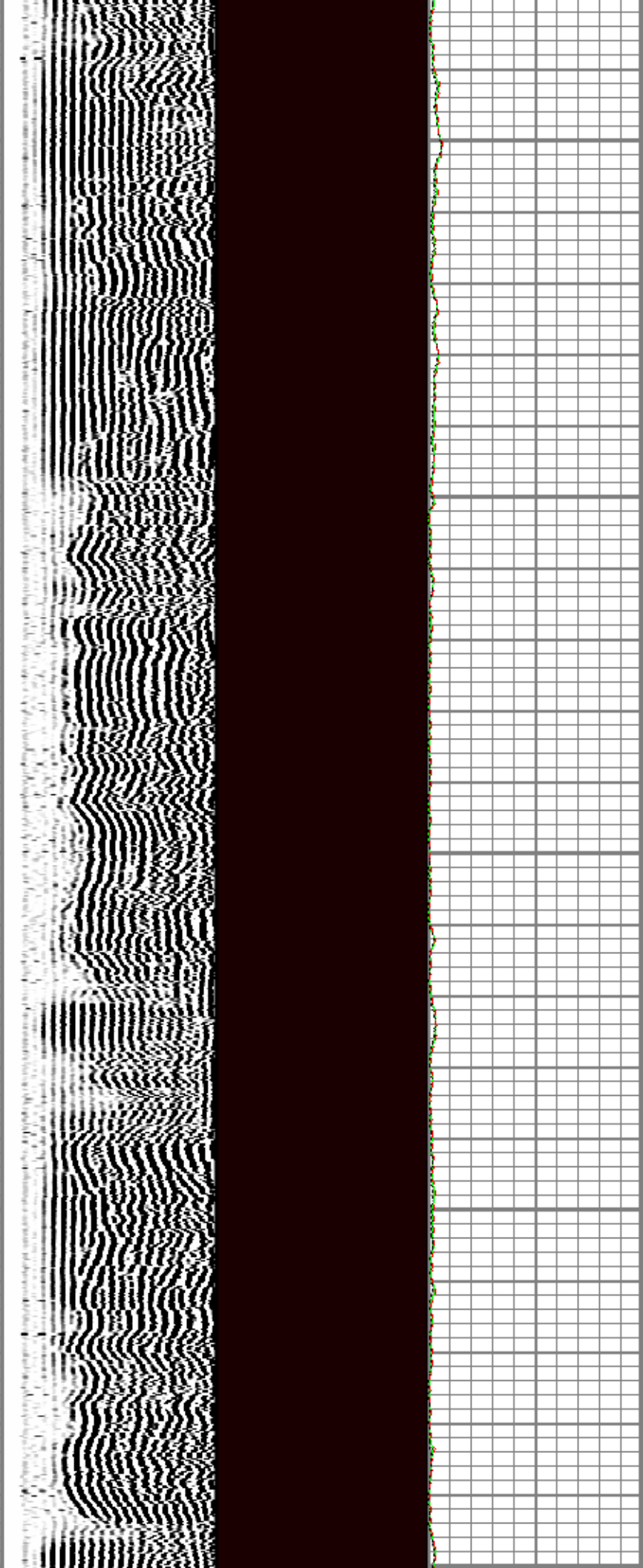
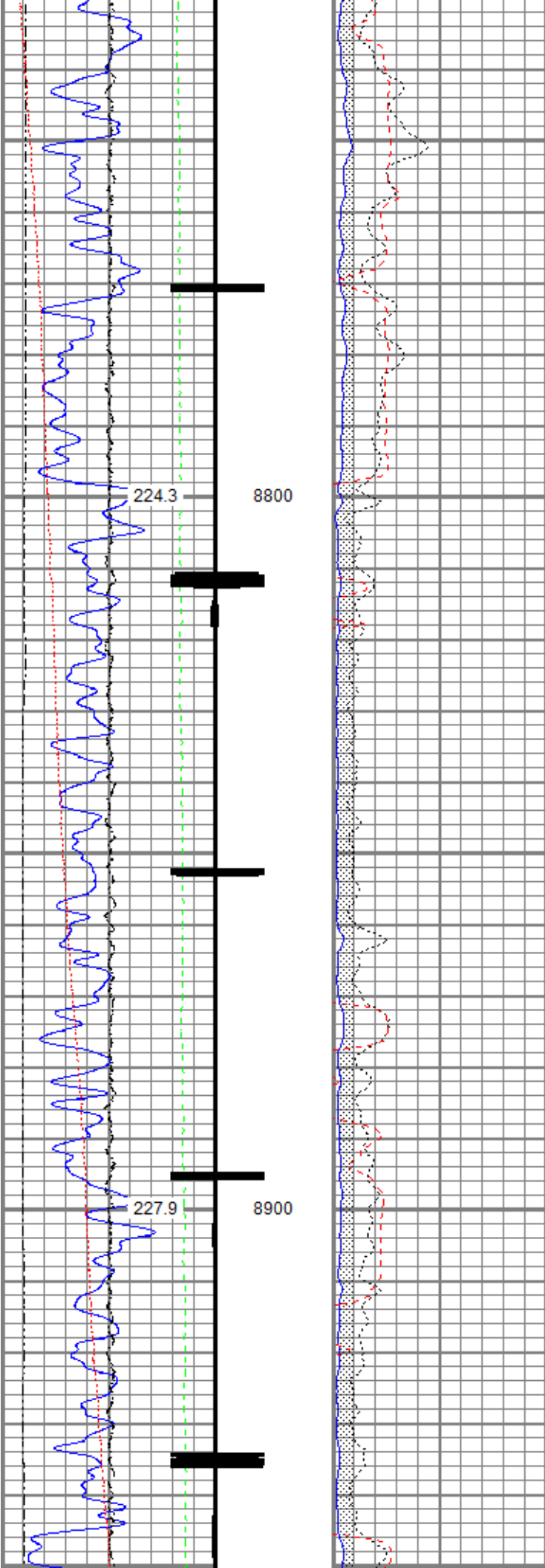


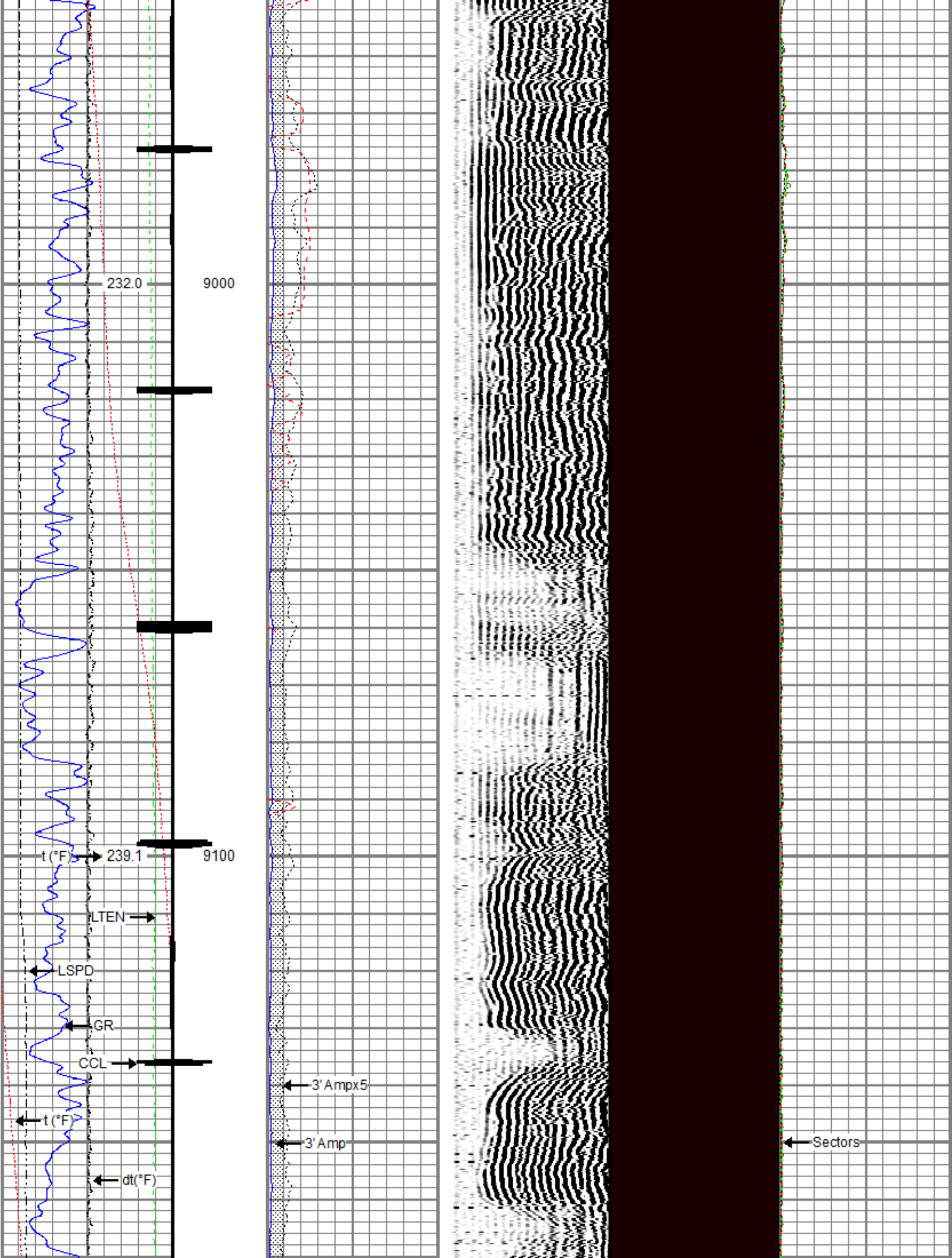




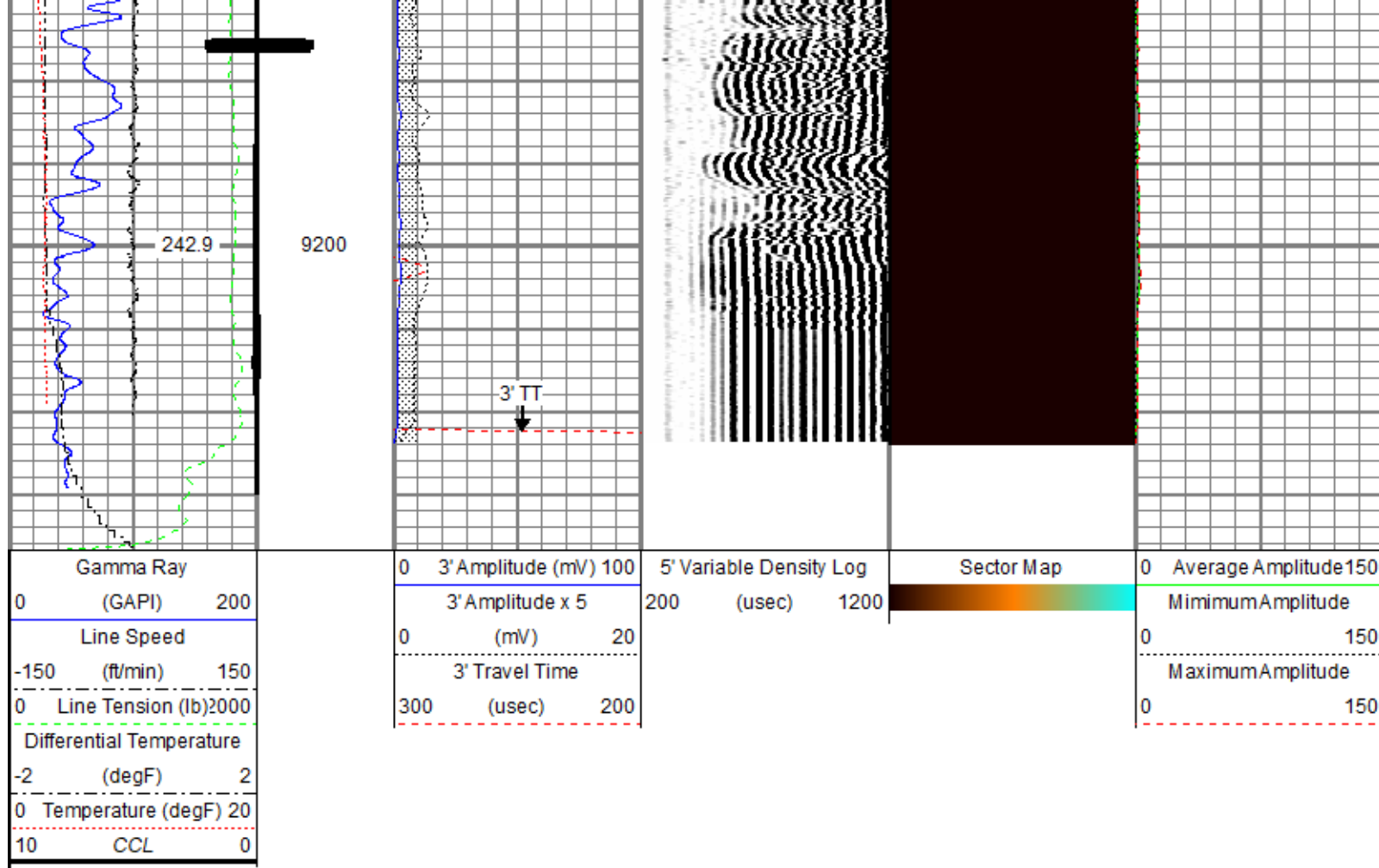








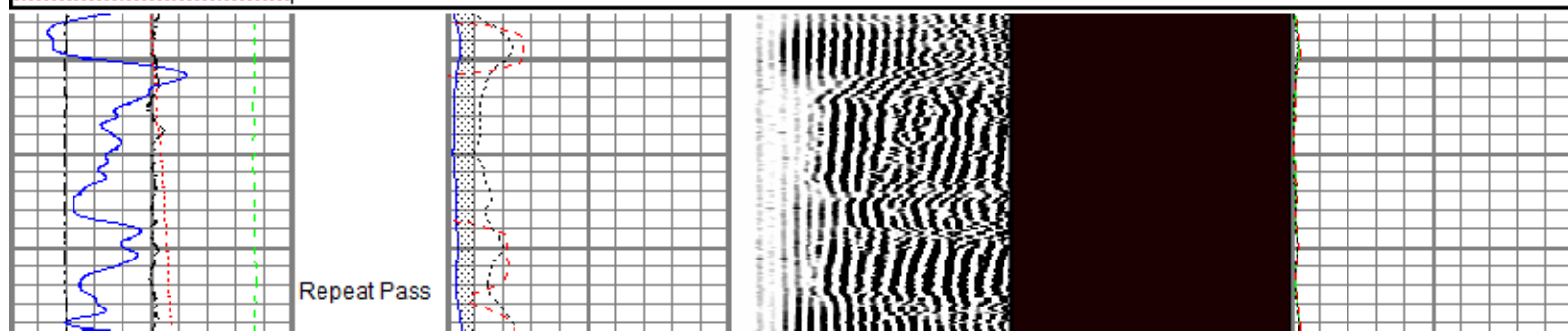
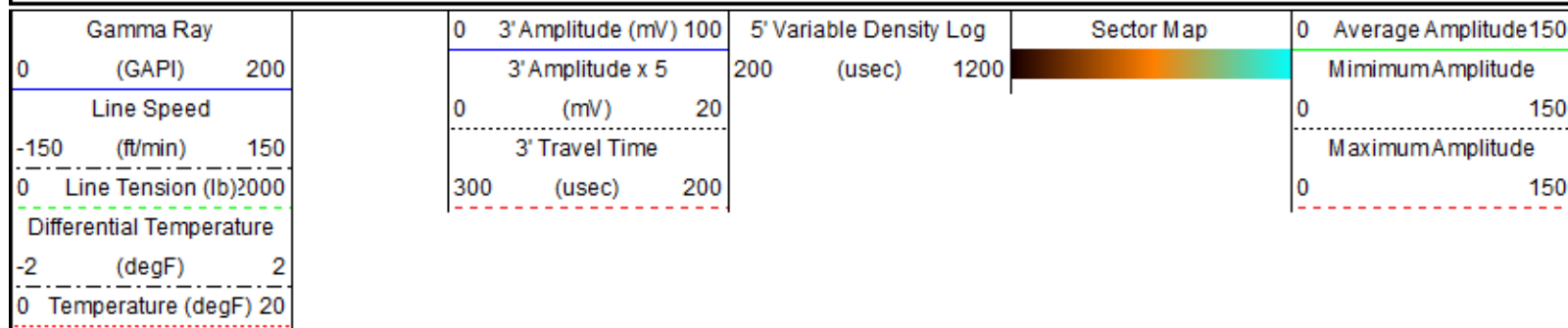




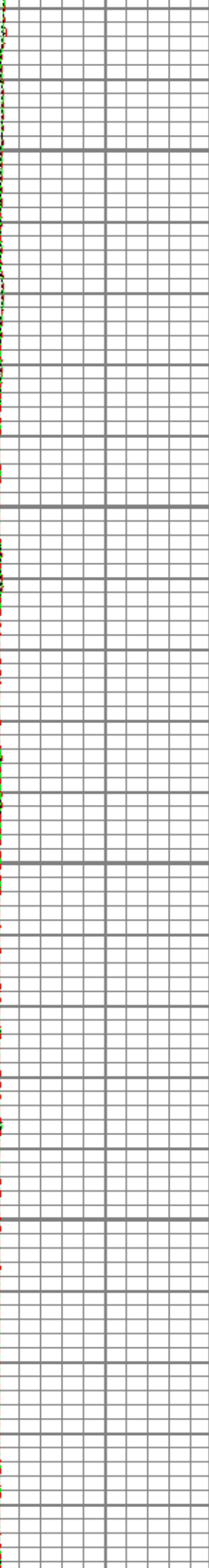
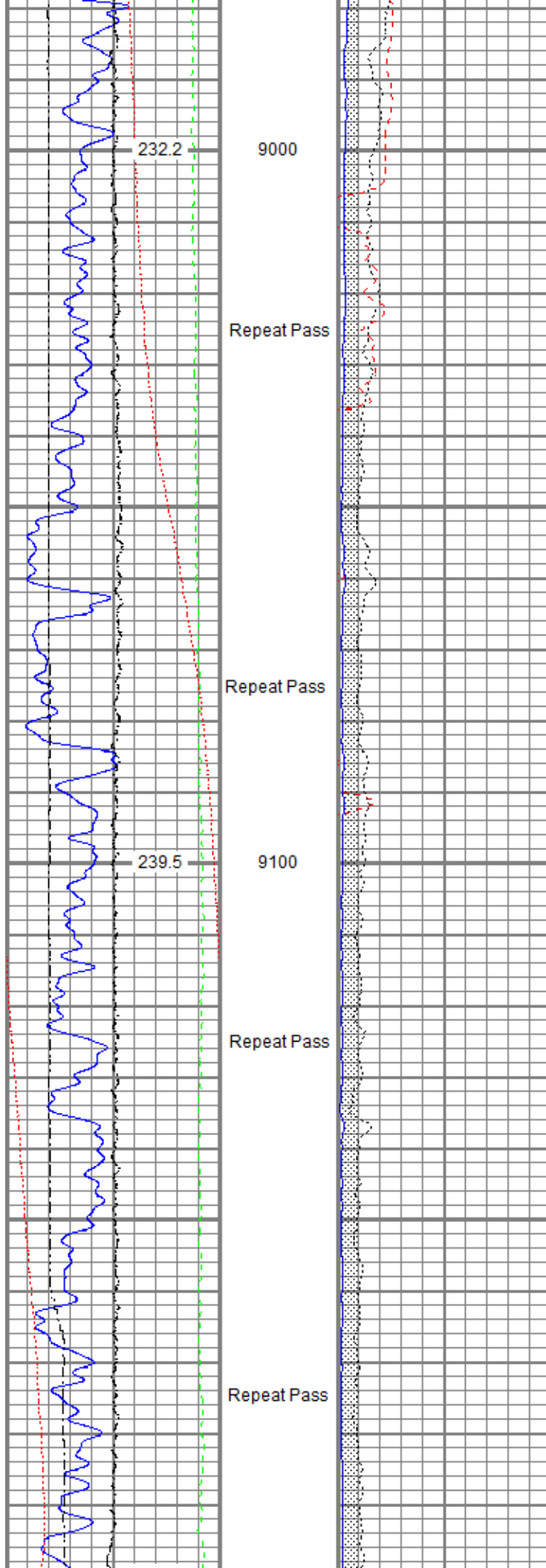
## Repeat Pass

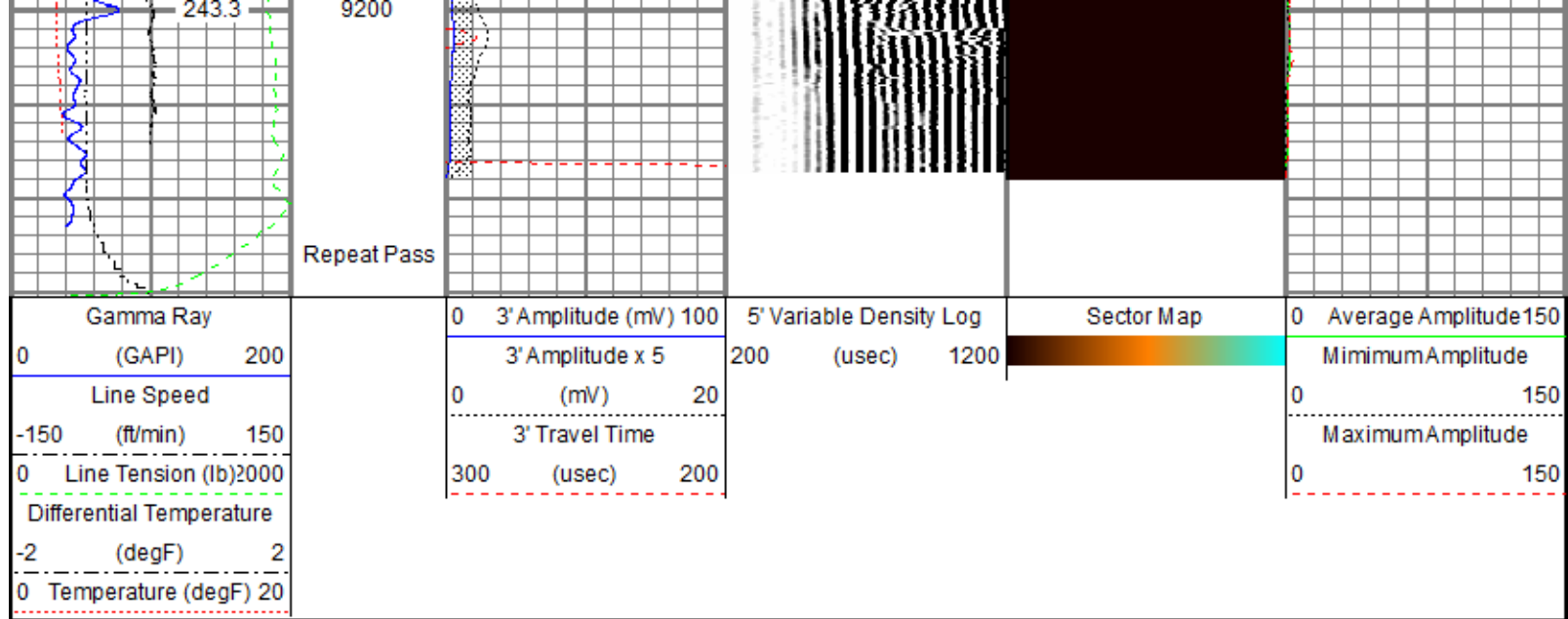
Recorded With 0 PSI Surface Induced Pressure

Database File 02\_tep/federal pa 32-24\tep\_federal pa 32-24\_rbl\_11-01-18.db  
 Dataset Pathname repeat  
 Presentation Format ros\_rbt004\_tep  
 Dataset Creation Thu Nov 01 15:32:09 2018  
 Charted by Depth in Feet scaled 1:240

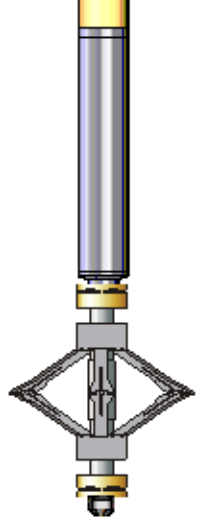








| Sensor   | Offset (ft) | Schematic | Description   | Length (ft) | O.D. (in) | Weight (lb) |
|----------|-------------|-----------|---|-------------|-----------|-------------|
|          |             |           | Titan CHD-14375 GO<br>Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck                    | 1.03        | 1.44      | 3.60        |
|          |             |           | DSS RAC-2750 5A GO<br>DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends                                    | 2.55        | 2.75      | 32.00       |
| TEMP     | 16.33       |           |   |             |           |             |
| WVFS8    | 14.10       |           | Probe Radii-2750 RBT (FW0712-020)<br>Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub | 9.39        | 2.75      | 105.00      |
| 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       |           |   |             |           |             |
| HEADVOLT | 9.85        |           |   |             |           |             |
|          |             |           | DSS RAC-2750 5A GO<br>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 |  | Probe GR-CCL-2750 GOB (FW1302-119)<br>Probe 2-3/4" rev.2 Digital Scintillation Gamma<br>Ray/CCL Combined | 4.51 | 2.75 | 55.00 |
| GR  | 5.18 |   | DSS RAC-2750 5A GO<br>DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends                                     | 2.55 | 2.75 | 32.00 |
|   |      |   | GO BN-14375<br>GO 1-7/16" Bull Nose with Go Box Top  | 0.25 | 1.44 | 1.00  |
| Dataset: TEP_Federal PA 32-24_RBL_11-01-18.db: field/well/run1/Main<br>Total length: 22.82 ft<br>Total weight: 260.60 lb<br>O.D.: 2.75 in |      |   |  |      |      |       |

| Calibration Report |  |
|--------------------|--|
| Database File      | C:\ProgramData\Warrior\Data\02_TEP\Federal PA 32-24\TEP_Federal PA 32-24_RBL_11-01-18.db |
| Dataset Pathname   | Main   |
| Dataset Creation   | Thu Nov 01 15:38:09 2018   |

| Gamma Ray Calibration Report |                          |          |
|------------------------------|--------------------------|----------|
| Serial Number:               | FW1302-119               |          |
| Tool Model:                  | 2750 GOB                 |          |
| Performed:                   | Sun Nov 12 12:33:00 2017 |          |
| Calibrator Value:            | 637.0                    | GAPI     |
| Background Reading:          | 112.3                    | cps      |
| Calibrator Reading:          | 1039.1                   | cps      |
| Sensitivity:                 | 0.6873                   | GAPI/cps |

| Segmented Cement Bond Log Calibration Report |            |    |
|--|------------|----|
| Serial Number:                               | FW0712-020 |    |
| Tool Model:                                  | 2750 RBT   |    |
| Calibration Casing Diameter:                 | 4.500      | in |
| Calibration Depth:                           | 45.512     | ft |

| Master Calibration, performed Thu Nov 01 02:03:33 2018: |         |       |                 |         |         |        |
|---|---------|-------|-----------------|---------|---------|--------|
|   | Raw (v) |       | Calibrated (mv) |         | Results |        |
|   | Zero    | Cal   | Zero            | Cal     | Gain    | Offset |
| 3'  | 0.003   | 0.753 | 0.800           | 81.196  | 107.062 | 0.532  |
| CAL   | 0.002   | 0.746 |                 |         |         |        |
| 5'  | 0.004   | 0.677 | 0.800           | 81.196  | 119.447 | 0.323  |
| SUM   |         |       |                 |         |         |        |
| S1  | 0.002   | 0.748 | 0.000           | 100.000 | 134.106 | -0.264 |
| S2  | 0.003   | 0.748 | 0.000           | 100.000 | 134.255 | -0.433 |
| S3  | 0.003   | 0.733 | 0.000           | 100.000 | 136.905 | -0.386 |
| S4  | 0.004   | 0.752 | 0.000           | 100.000 | 133.531 | -0.481 |
| S5  | 0.004   | 0.750 | 0.000           | 100.000 | 133.946 | -0.523 |
| S6  | 0.004   | 0.756 | 0.000           | 100.000 | 132.888 | -0.498 |
| S7  | 0.002   | 0.743 | 0.000           | 100.000 | 135.008 | -0.288 |
| S8  | 0.003   | 0.754 | 0.000           | 100.000 | 133.184 | -0.403 |



Internal Reference Calibration, performed (Not Performed):

|     | Raw (v) |       | Calibrated (v) |       | Results |        |
|-----|---------|-------|----------------|-------|---------|--------|
|     | Zero    | Cal   | Zero           | Cal   | Gain    | Offset |
| CAL | 0.000   | 0.000 | 0.002          | 0.746 | 1.000   | 0.000  |

Air Zero Calibration, performed Thu Nov 01 02:03:53 2018:

|     | Raw (v) |  | Calibrated (v) |  | Results |  |
|-----|---------|--|----------------|--|---------|--|
|     | Zero    |  | Zero           |  | Offset  |  |
| 3'  | 0.003   |  | 0.000          |  | -0.000  |  |
| 5'  | 0.004   |  | 0.000          |  | -0.000  |  |
| SUM |         |  |                |  |         |  |
| S1  | 0.002   |  | 0.000          |  | 0.000   |  |
| S2  | 0.003   |  | 0.000          |  | 0.000   |  |
| S3  | 0.003   |  | 0.000          |  | 0.000   |  |
| S4  | 0.004   |  | 0.000          |  | 0.000   |  |
| S5  | 0.004   |  | 0.000          |  | -0.000  |  |
| S6  | 0.004   |  | 0.000          |  | -0.000  |  |
| S7  | 0.003   |  | 0.000          |  | -0.001  |  |
| S8  | 0.003   |  | 0.000          |  | -0.000  |  |

#### Temperature Calibration Report

Serial Number: FW0712-020  
Tool Model: 2750 RBT  
Performed: Thu Dec 21 07:48:40 2017

|                 |             |             |
|-----------------|-------------|-------------|
|                 | 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



|         |                        |
|---------|------------------------|
| Company | TEP Rocky Mountain LLC |
| Well    | Federal PA 32-24       |
| Field   | Parachute              |
| County  | Garfield               |
| State   | Colorado               |