



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well Jodster South 25-8HZ

Field Wattenberg

County Larimer State Colorado

Location: API #: 05-069-06518

SEC 25 TWP 5N RGE 68W

Permanent Datum Ground Level Elevation 4861'

Log Measured From Kelly Bushing

26 FT

Drilling Measured From

Kelly Bushing

Elevation

4861'

Date 24-JAN-2020

Run Number Three

Depth Driller 17942 FT

Depth Logger 6708 FT

Bottom Logged Interval 6693 FT

Top Log Interval Surface

Open Hole Size 7.875"

Type Fluid Water

Density / Viscosity 8.34 lb/gal

Max. Recorded Temp. 200°F

Estimated Cement Top See Log

Time Well Ready ROA

Time Logger on Bottom 09:18

Equipment Number HD-325

Location Plateville, CO

Recorded By Dennis Roberts

Witnessed By John McCarthy

Run Number

Bit From To

Size

Weight

From To

Size (in) Wgt (lbs/ft) Grade Top Bottom

| | | | | | |
|-----------------|-----------|--------------|---------|---------|----------|
| Casing Record | Size (in) | Wgt (lbs/ft) | Grade | Top | Bottom |
| Surface Casing | 9 5/8 | 36 | J-55 | Surface | 1889 FT |
| Intermediate #1 | 5 1/2 | 17 | HCP-110 | Surface | 17936 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 Casing Tally reported Marker Joint at 6648 FT
Adjusted -1 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 7555 FT
Retrievable Bridge Plug set at 6735 FT
Log ran with 0 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations
Thank you for choosing Reliance Oilfield Services, LLC!!

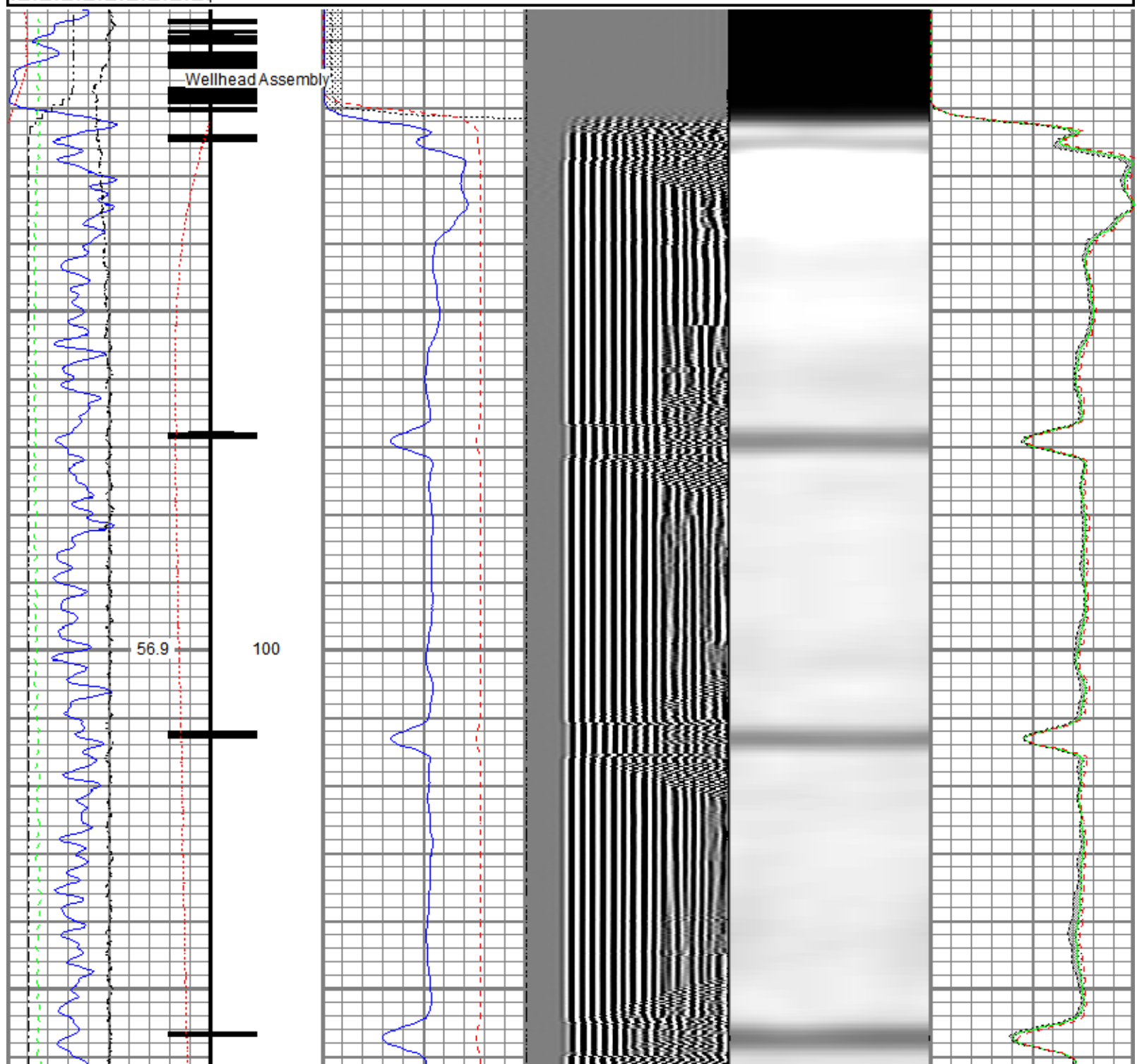
Main Pass

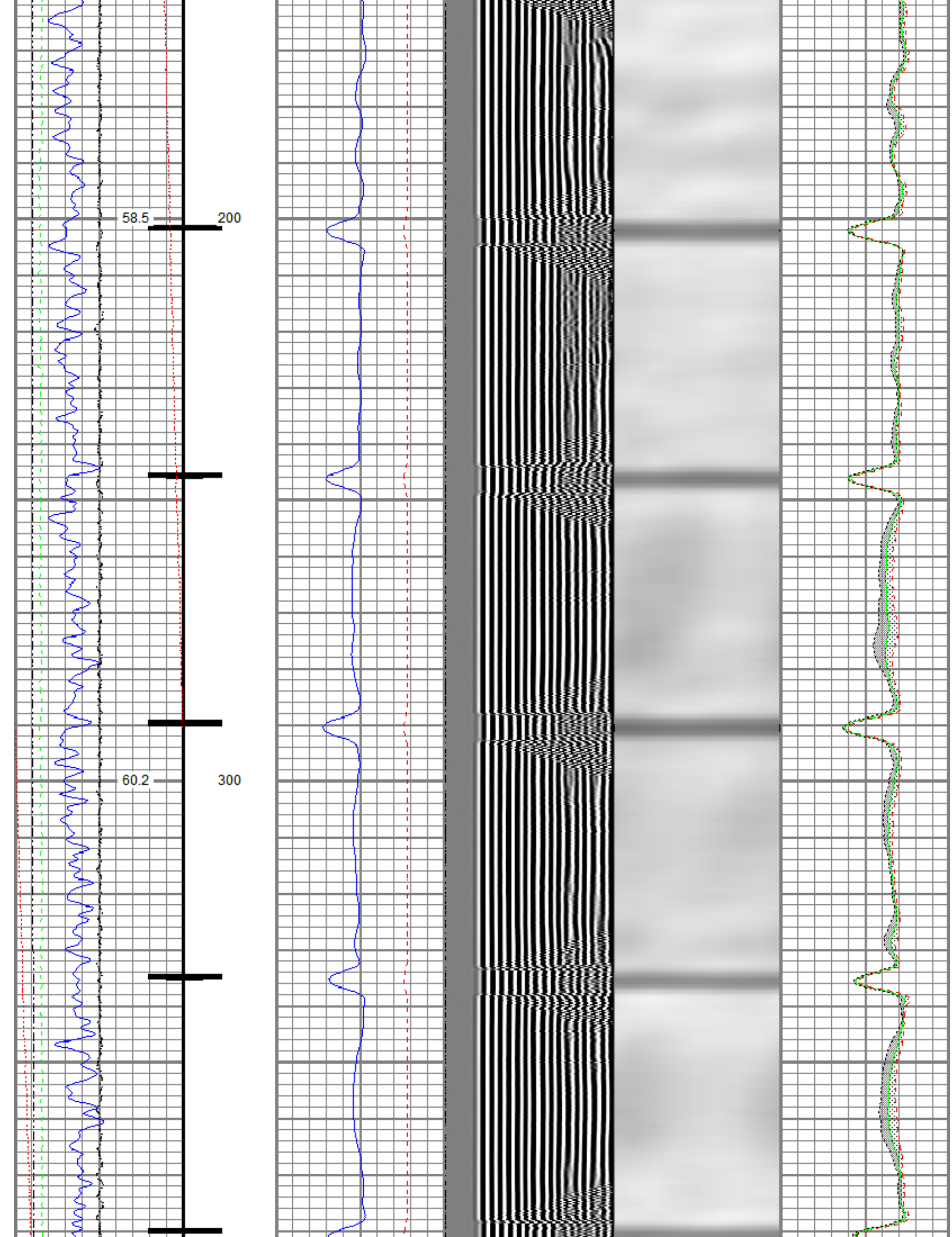


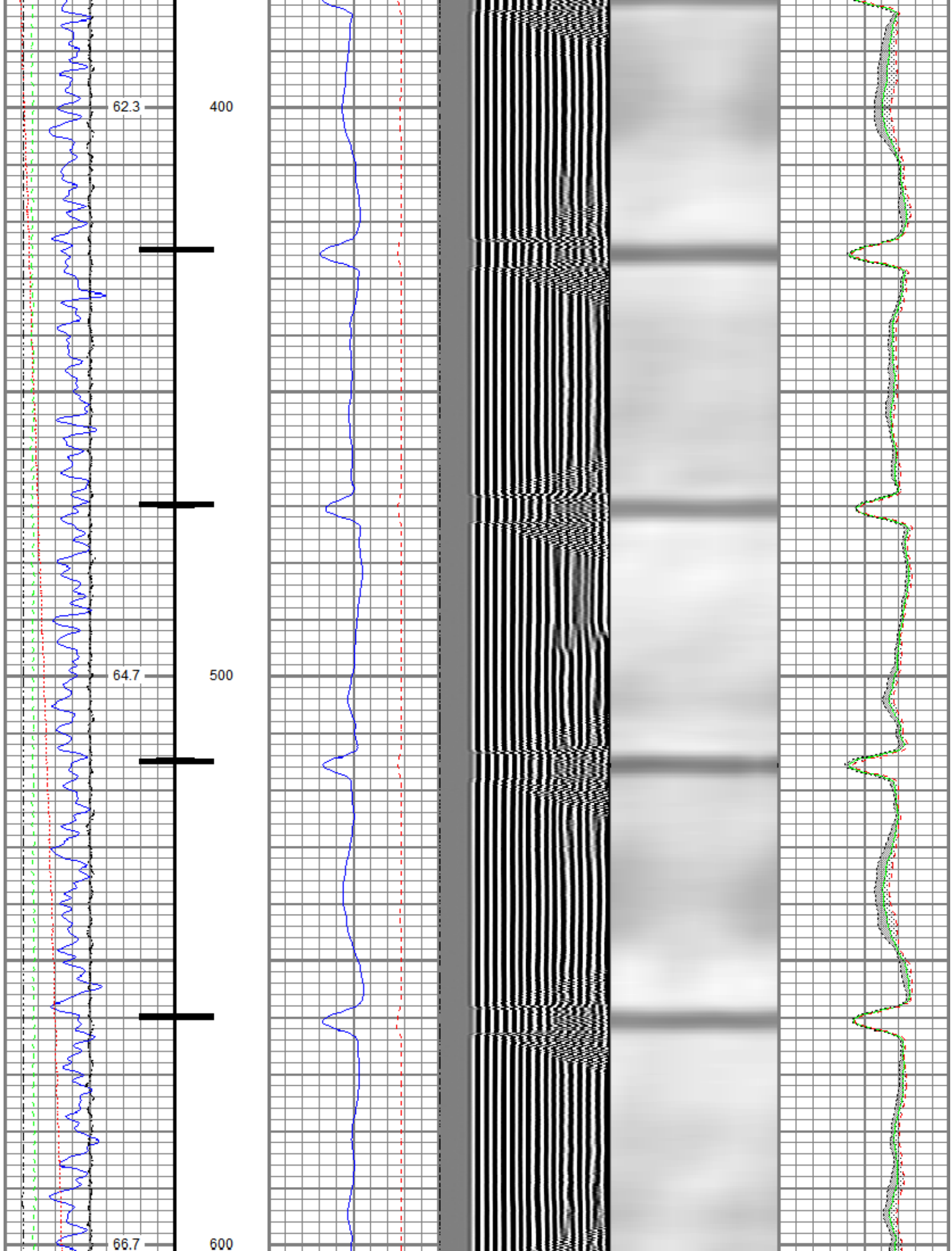
Recorded With 0 PSI Surface Induced Pressure

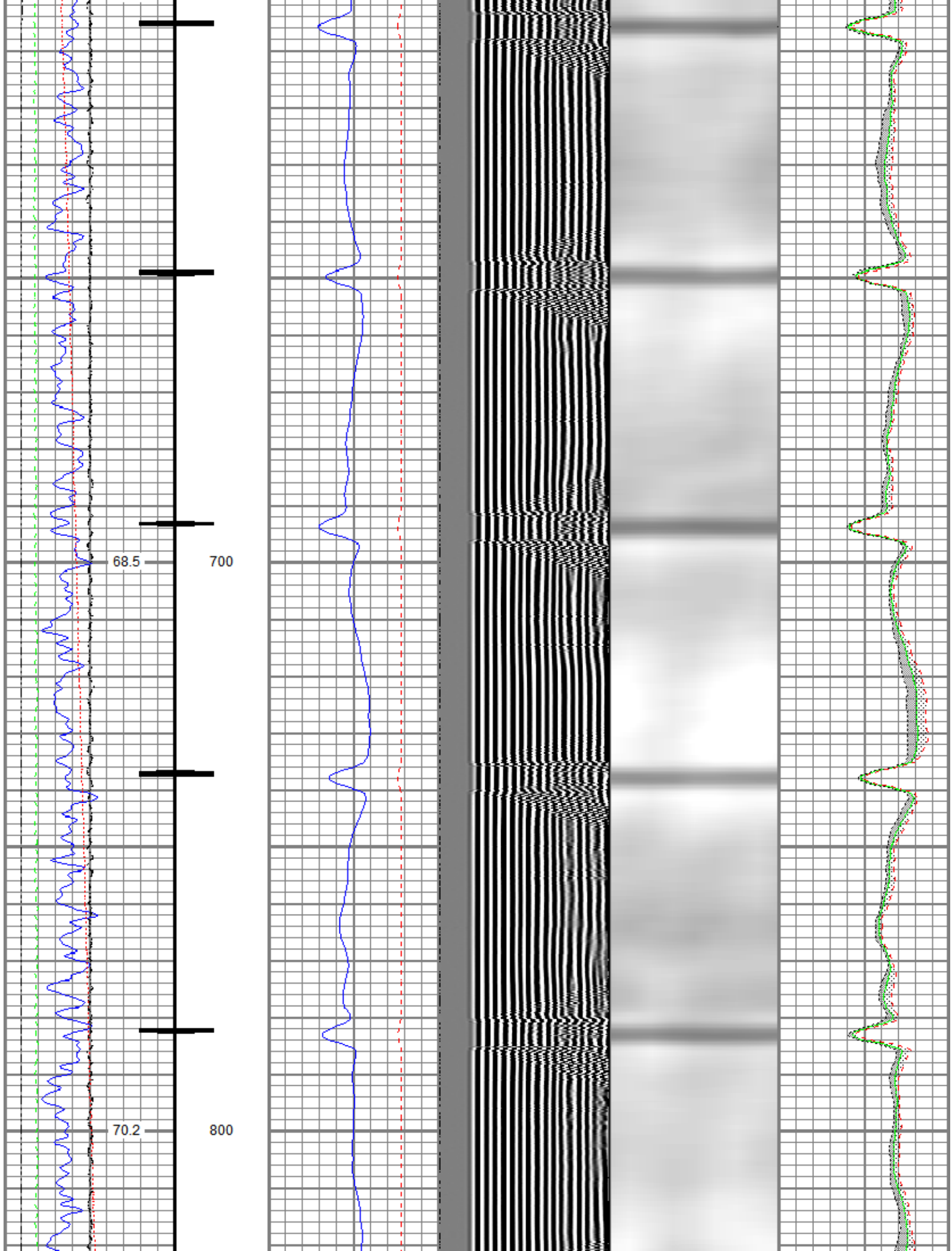
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|---------------------|--|
| Database File | oxy\0506906518_oxy_jodster south 25-8hz_rbl_01-24-20\processed_0506906518_oxy_jodster south 25-8hz_rbl_01-24-20.db |
| Dataset Pathname | RBL/pass7.5 |
| Presentation Format | ros_radrii |
| Dataset Creation | Fri Jan 24 20:09:04 2020 |
| Charted by | Depth in Feet scaled 1:240 |

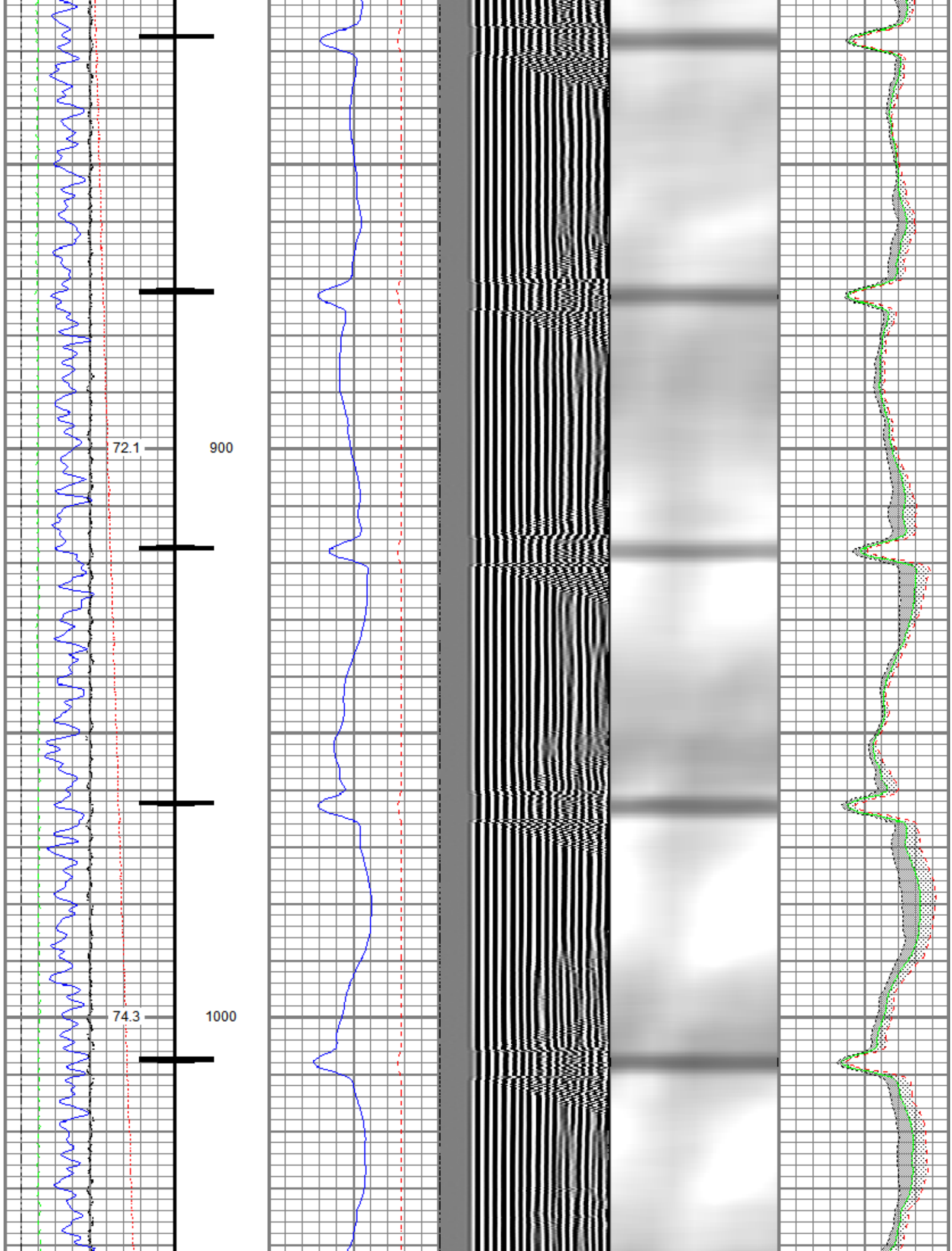
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|--------------------------|----------|-----|------------------|-------------------|-----|-------------------------|------------|------------------|-------------------|------|------------------|
| Gamma Ray | | | 0 | 3' Amplitude (mV) | 100 | 5' Variable Density Log | Sector Map | 0 | Average Amplitude | 100 | |
| 0 | (GAPI) | 120 | 3' Amplitude x 5 | | | | | 200 | (usec) | 1200 | MimimumAmplitude |
| Casing Collar Locator | | | 0 | (mV) | 20 | | | 0 | 100 | | |
| 0 Temperature (degF) | | | 3' Travel Time | | | | | MaximumAmplitude | | | |
| Line Speed | | | 650 | (usec) | 150 | | | 0 | 100 | | |
| -150 | (ft/min) | 150 | | | | | | | | | |
| 0 Line Tension (lb) | | | 2000 | | | | | | | | |
| Differential Temperature | | | | | | | | | | | |
| -2 | (degF) | 2 | | | | | | | | | |

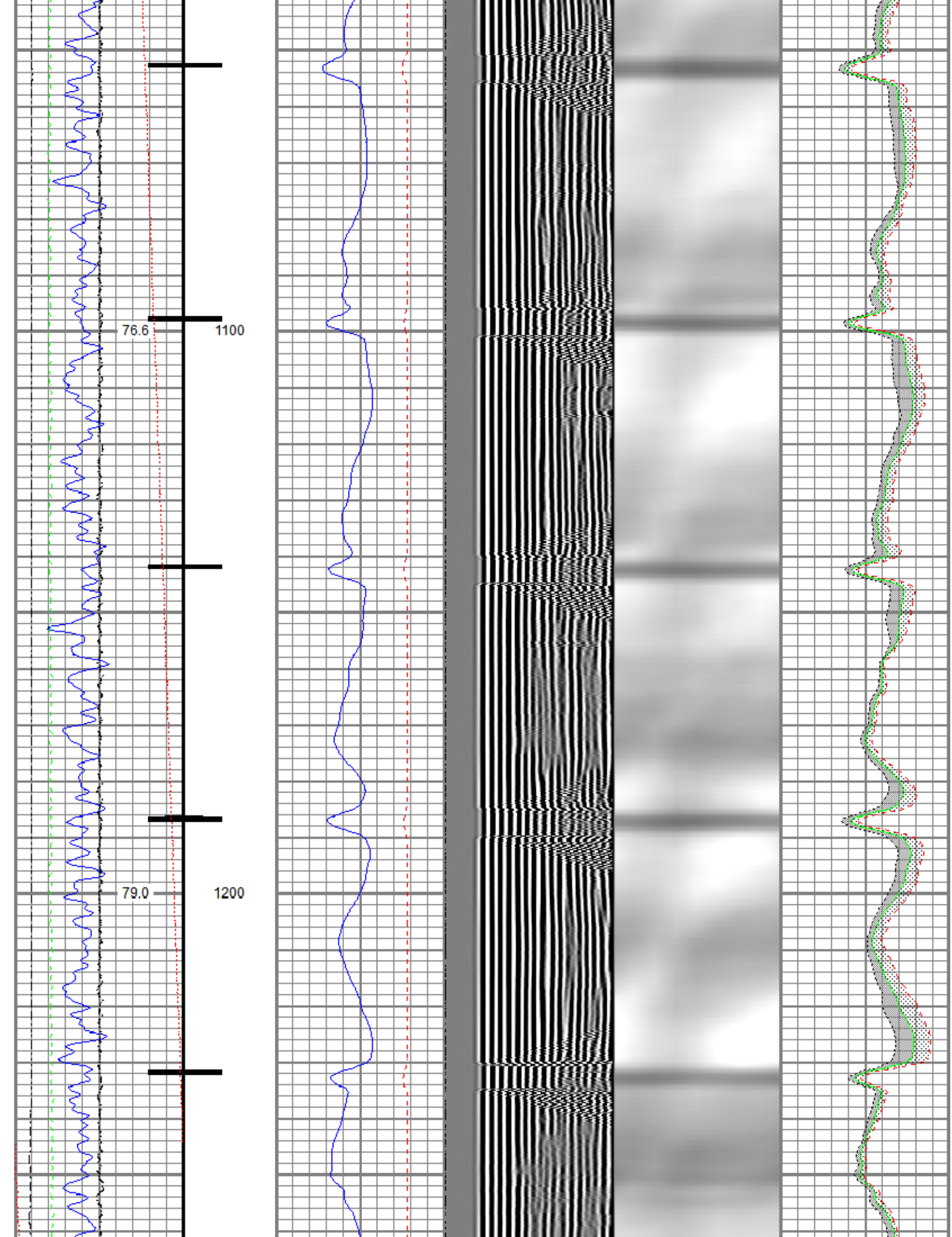


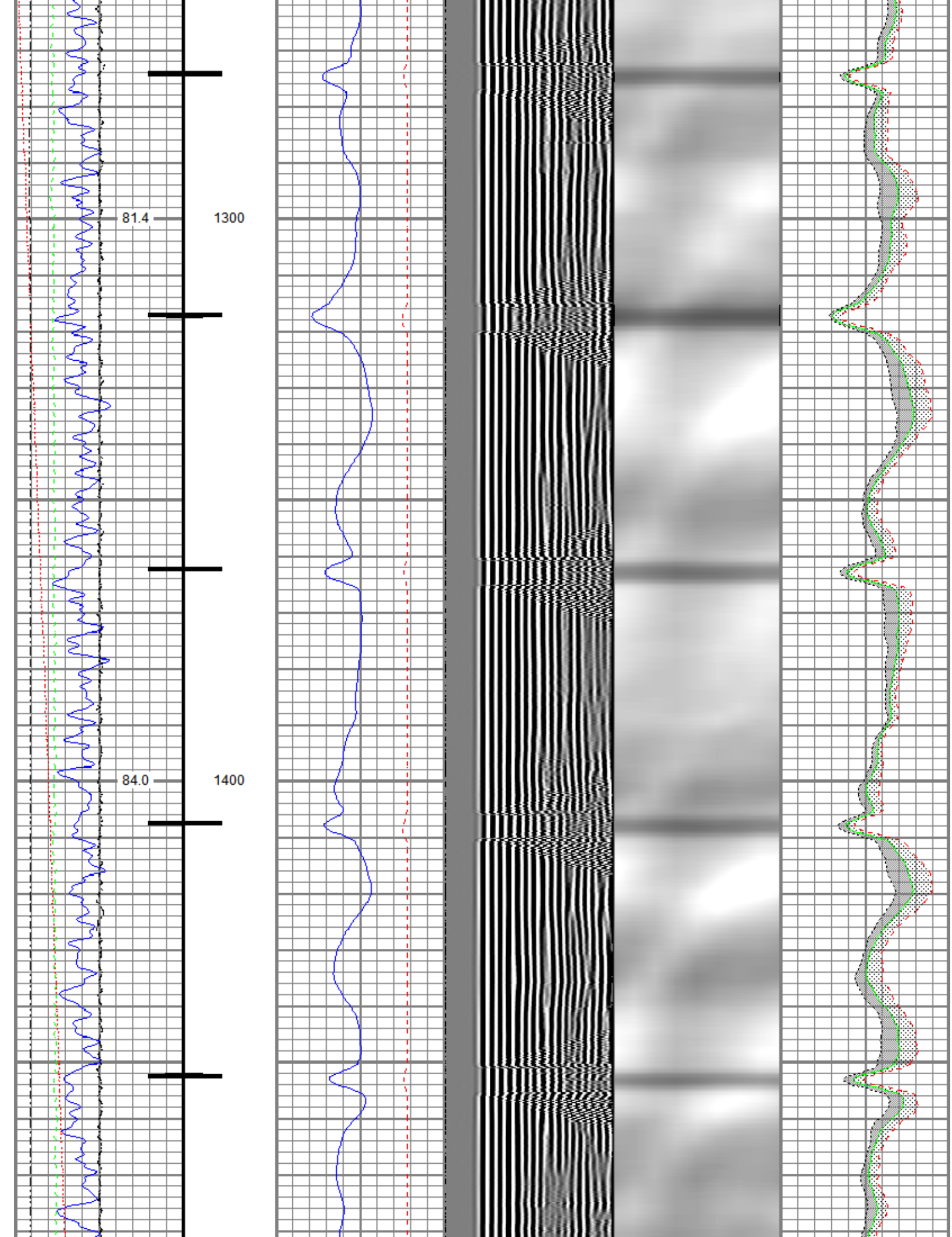


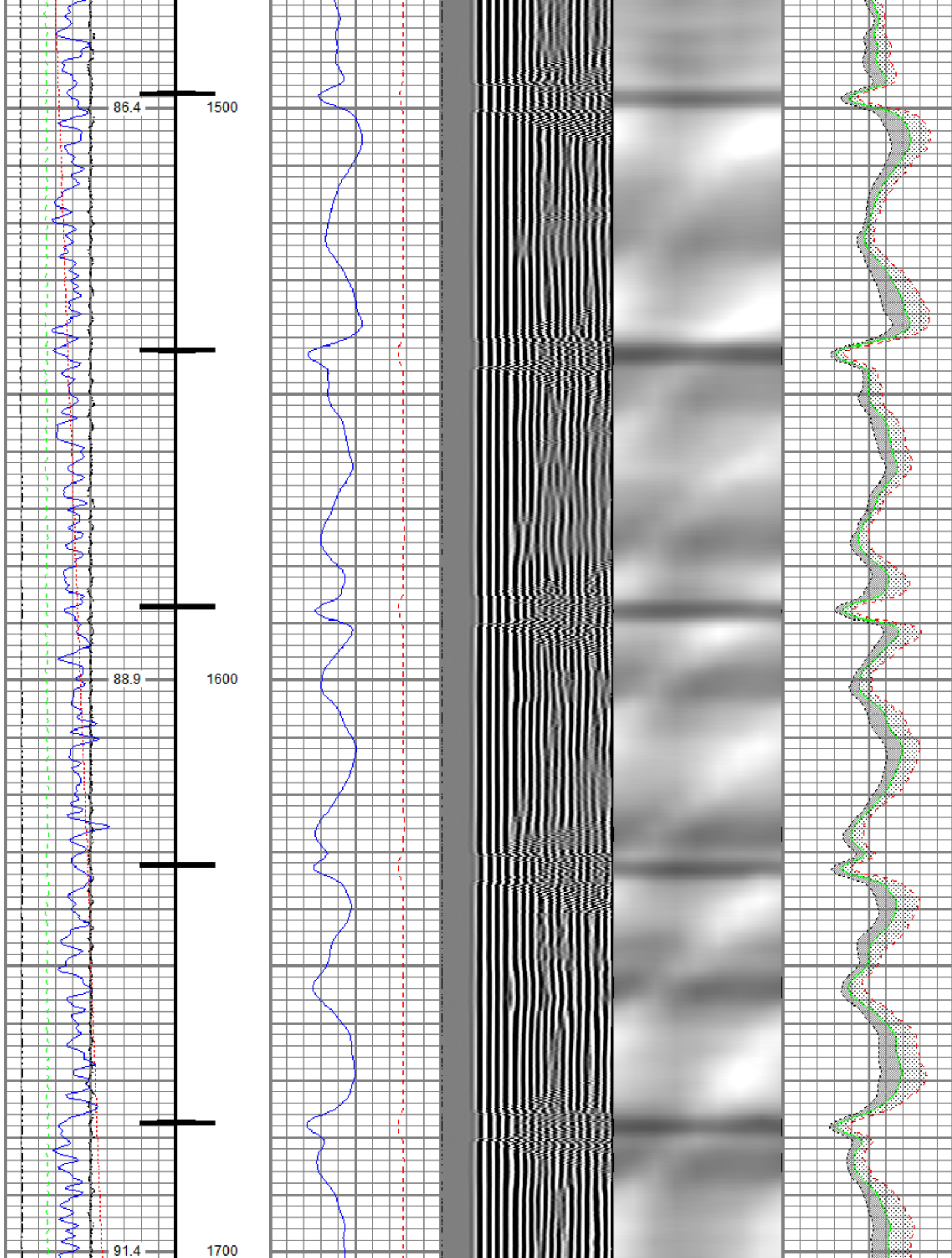


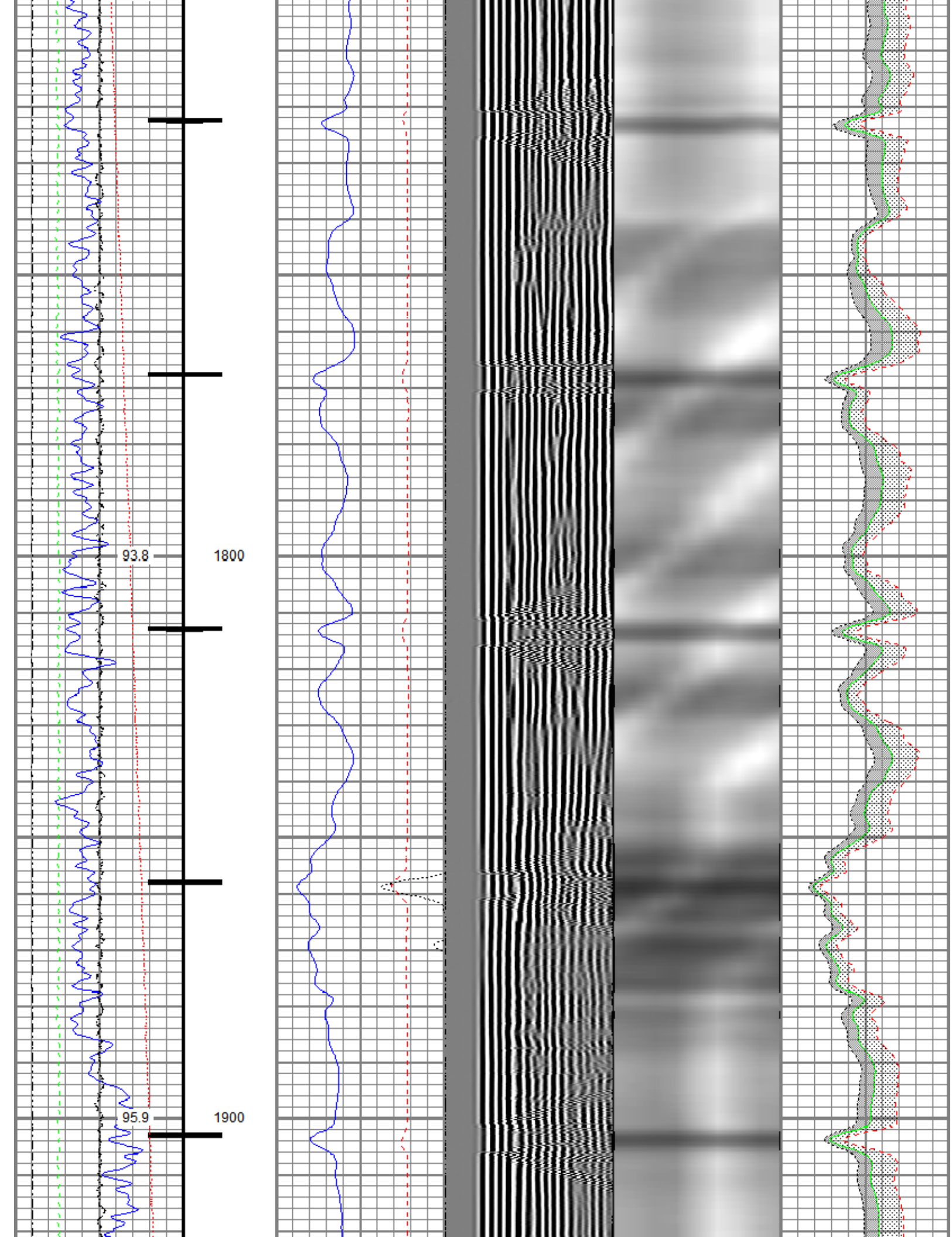


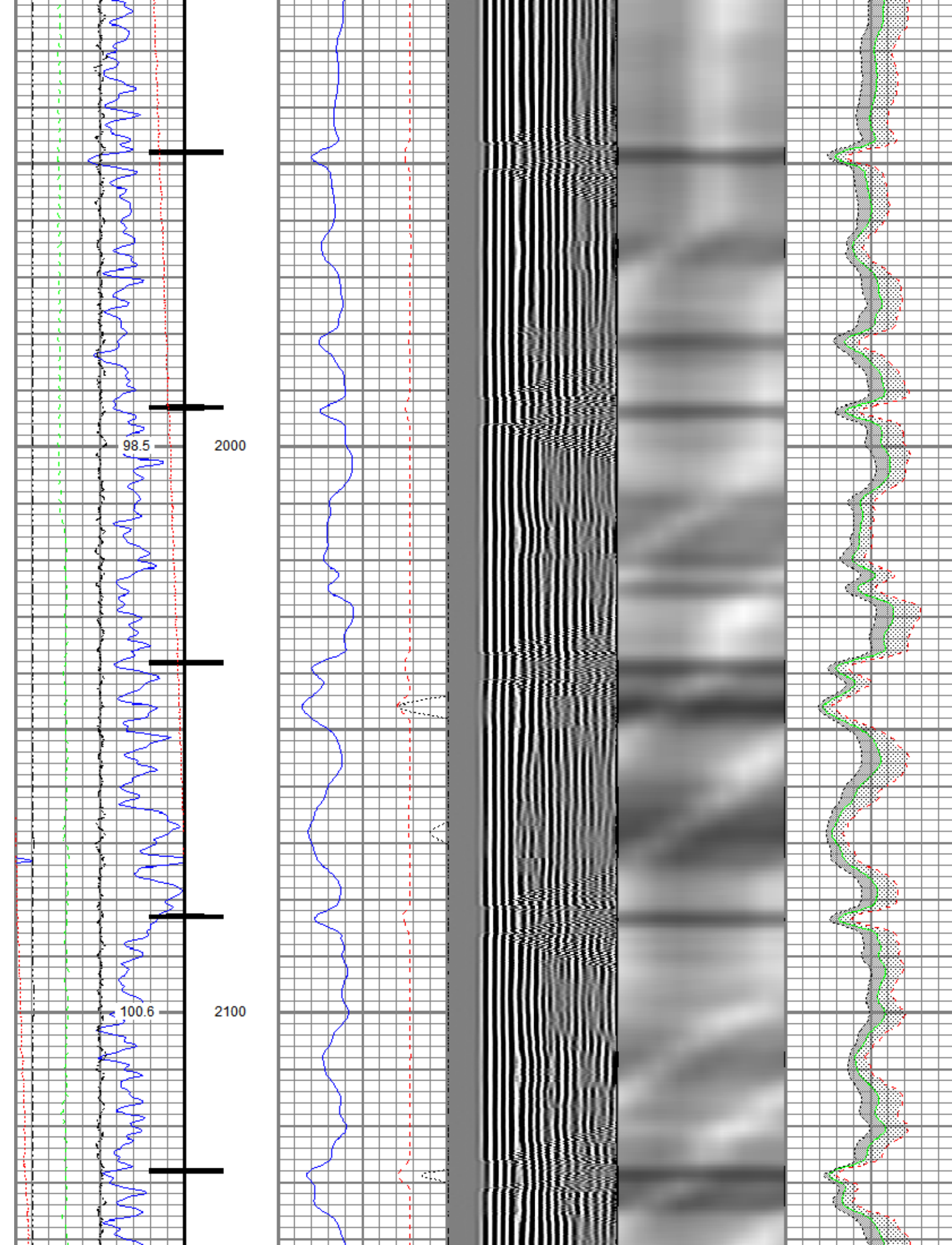


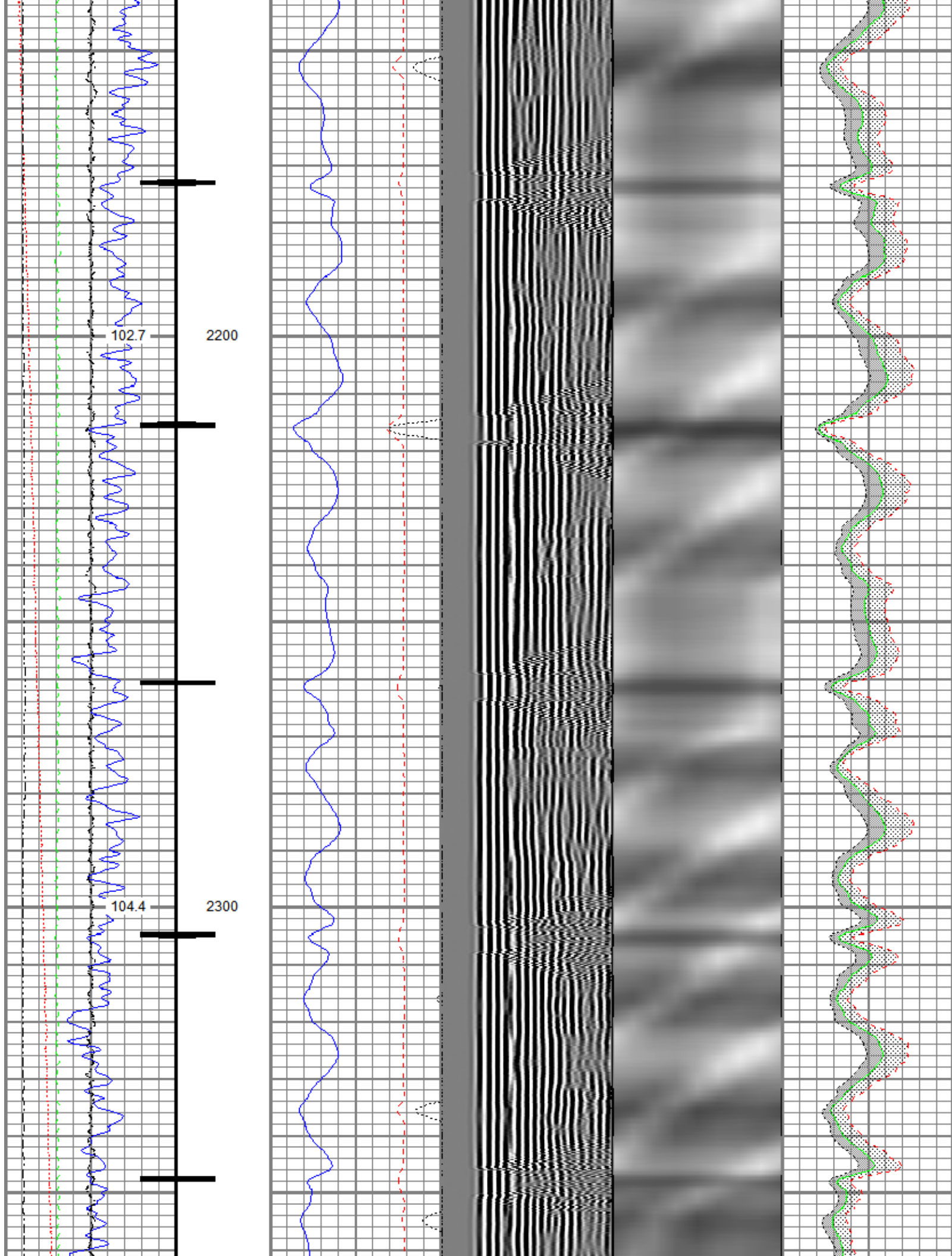


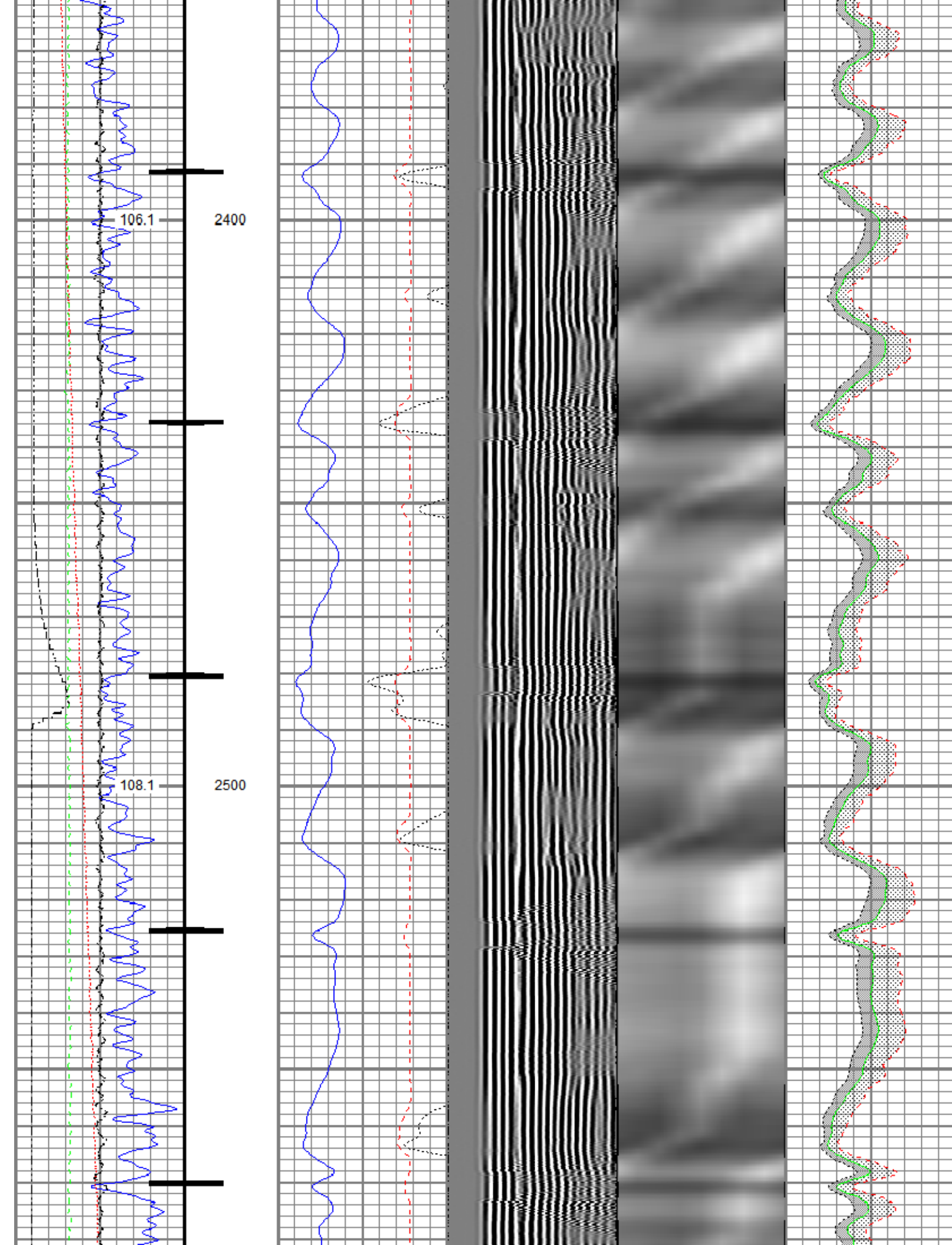


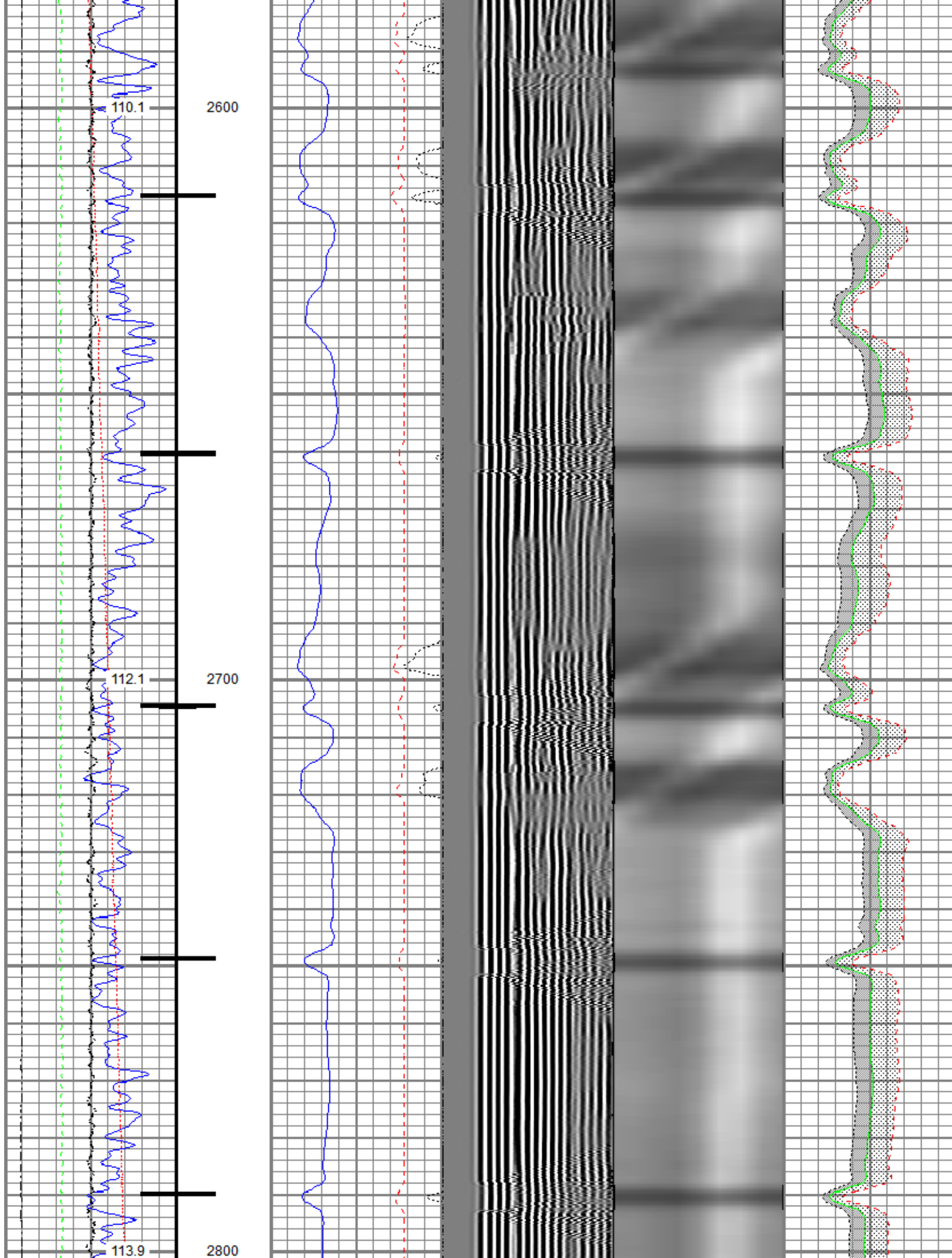


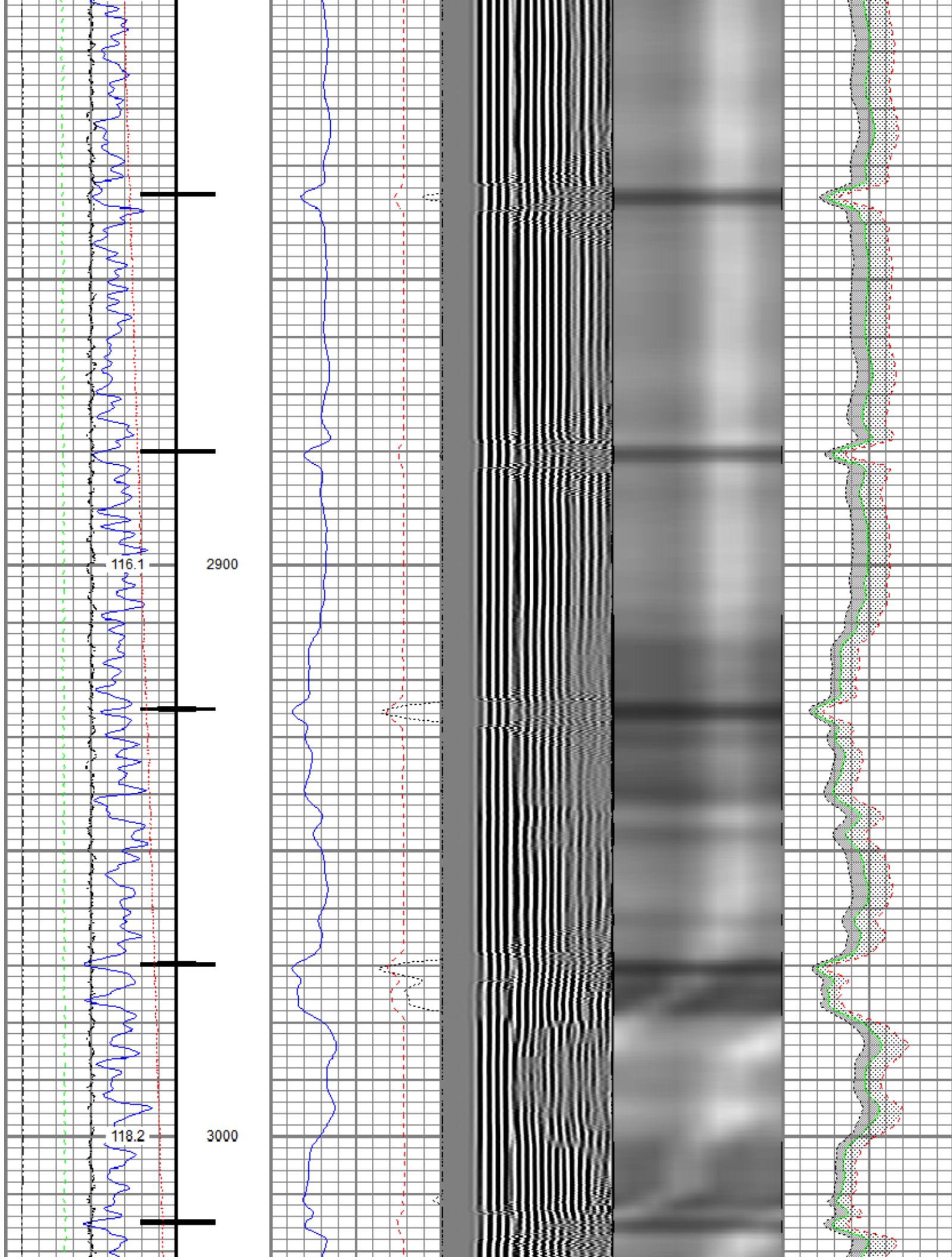


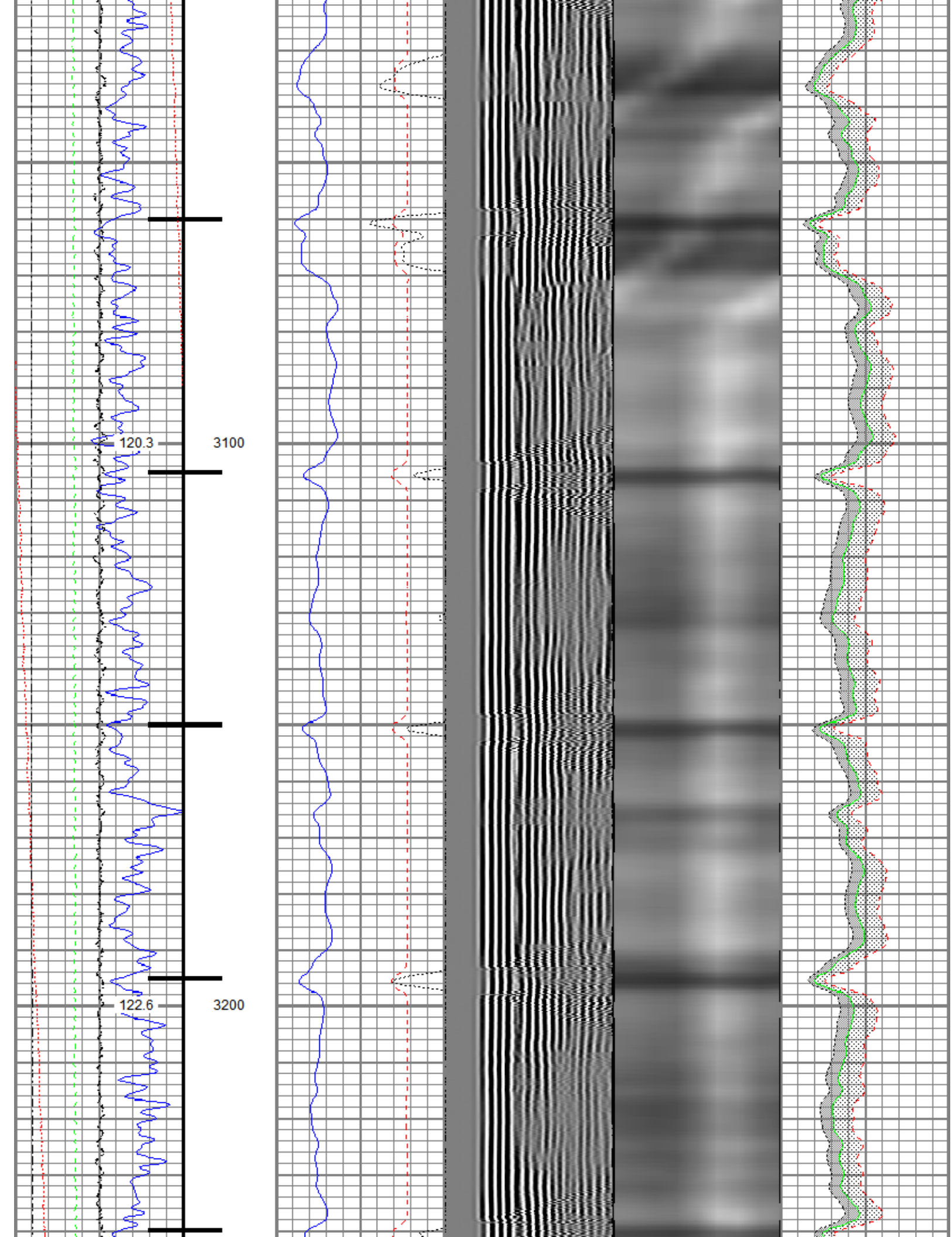


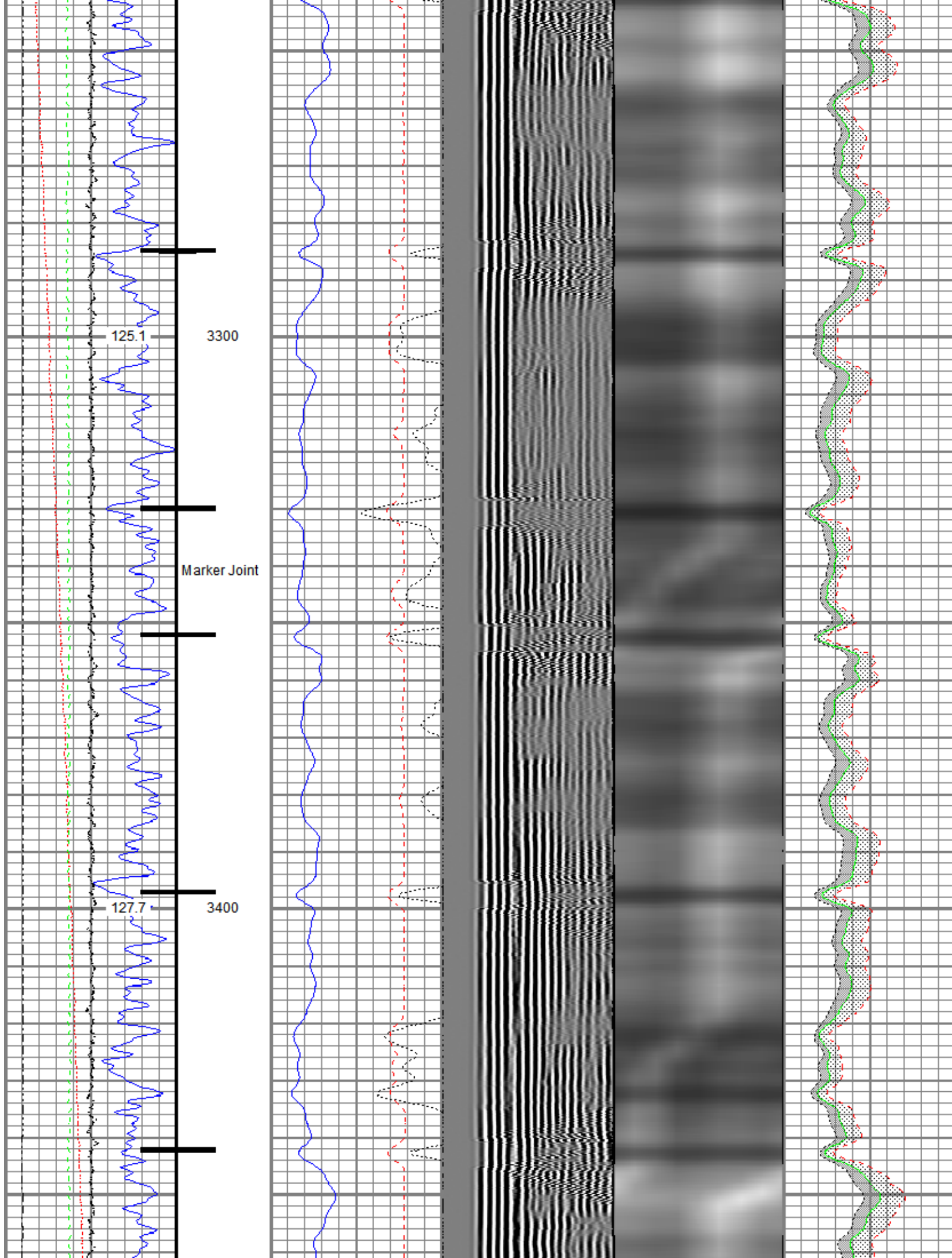


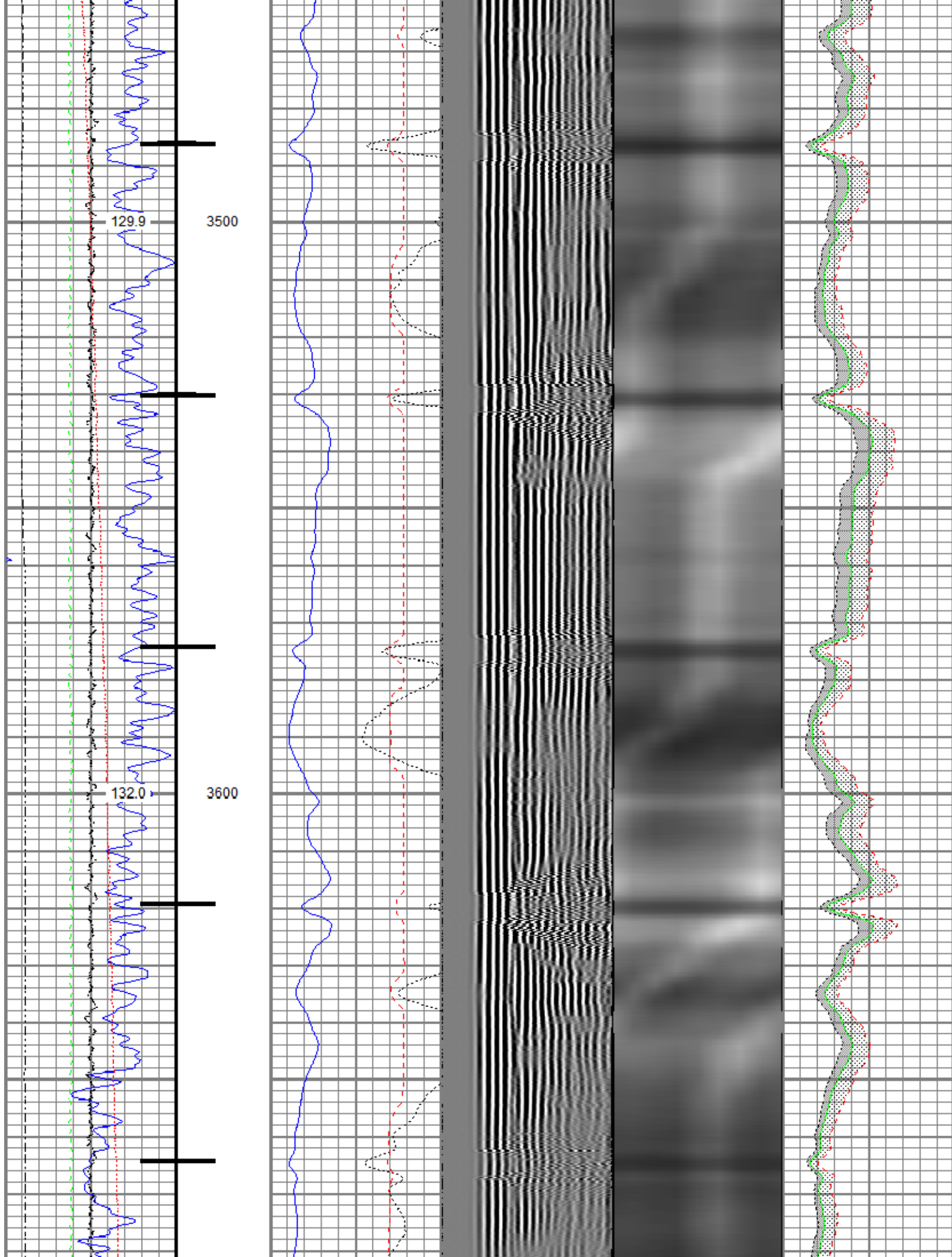


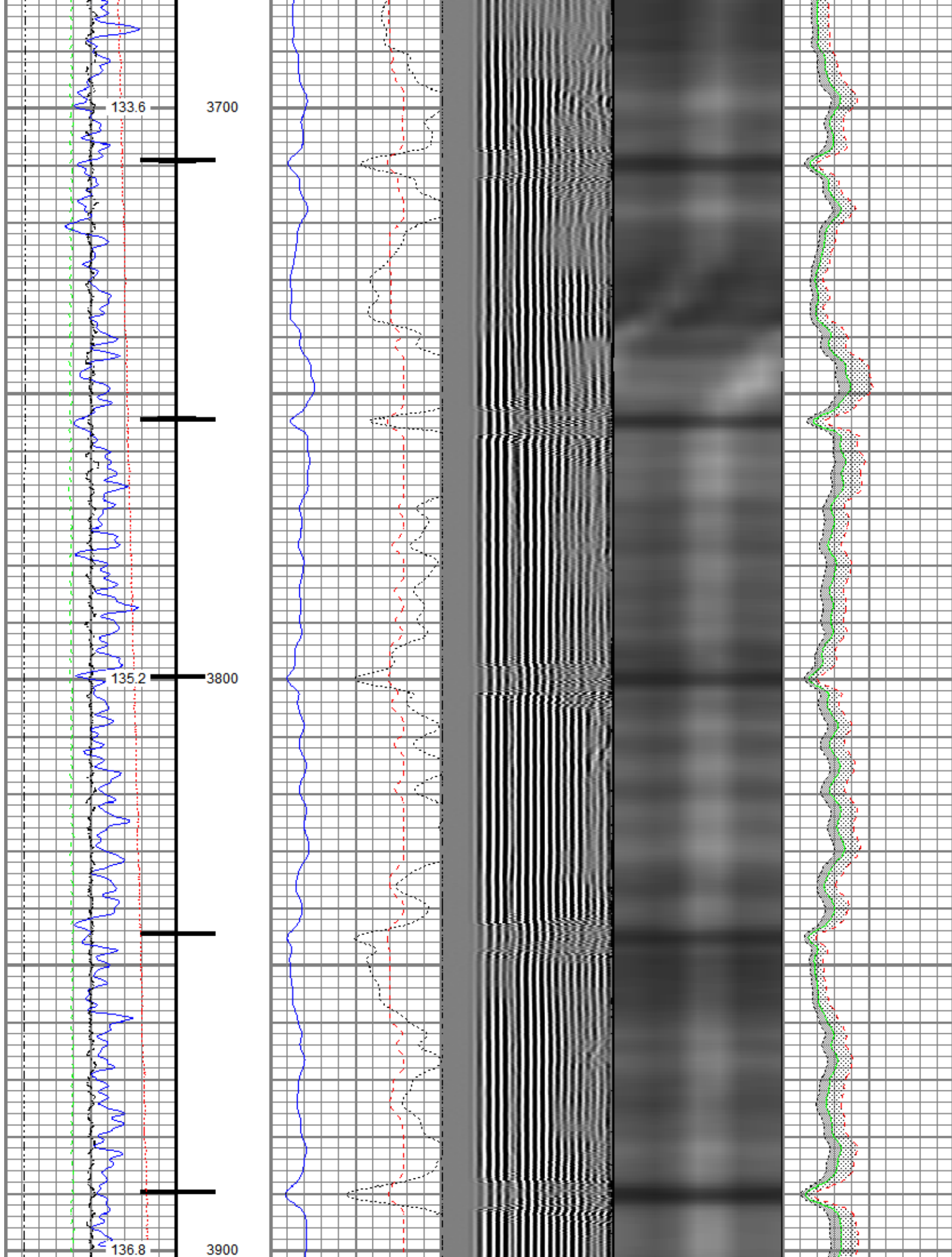


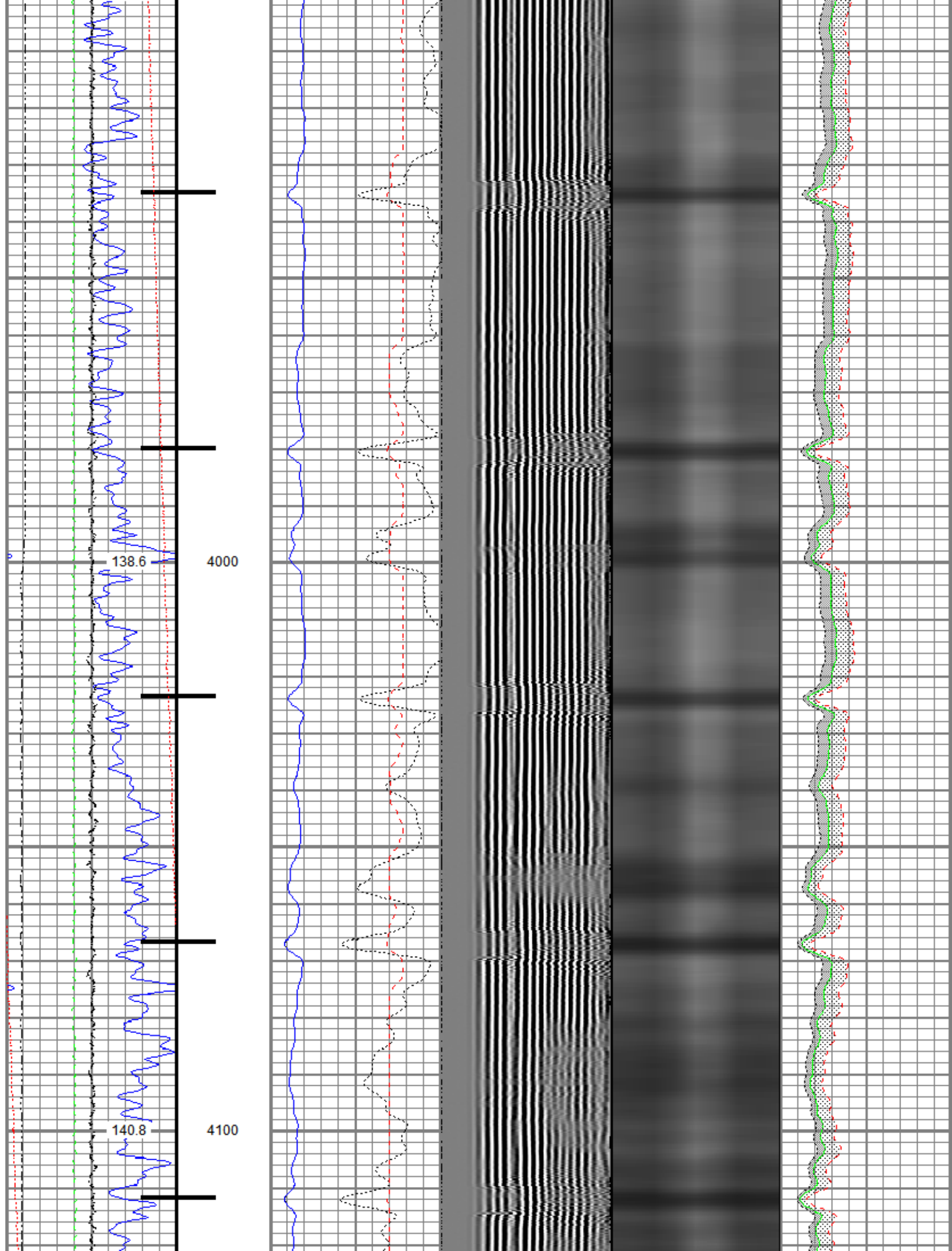


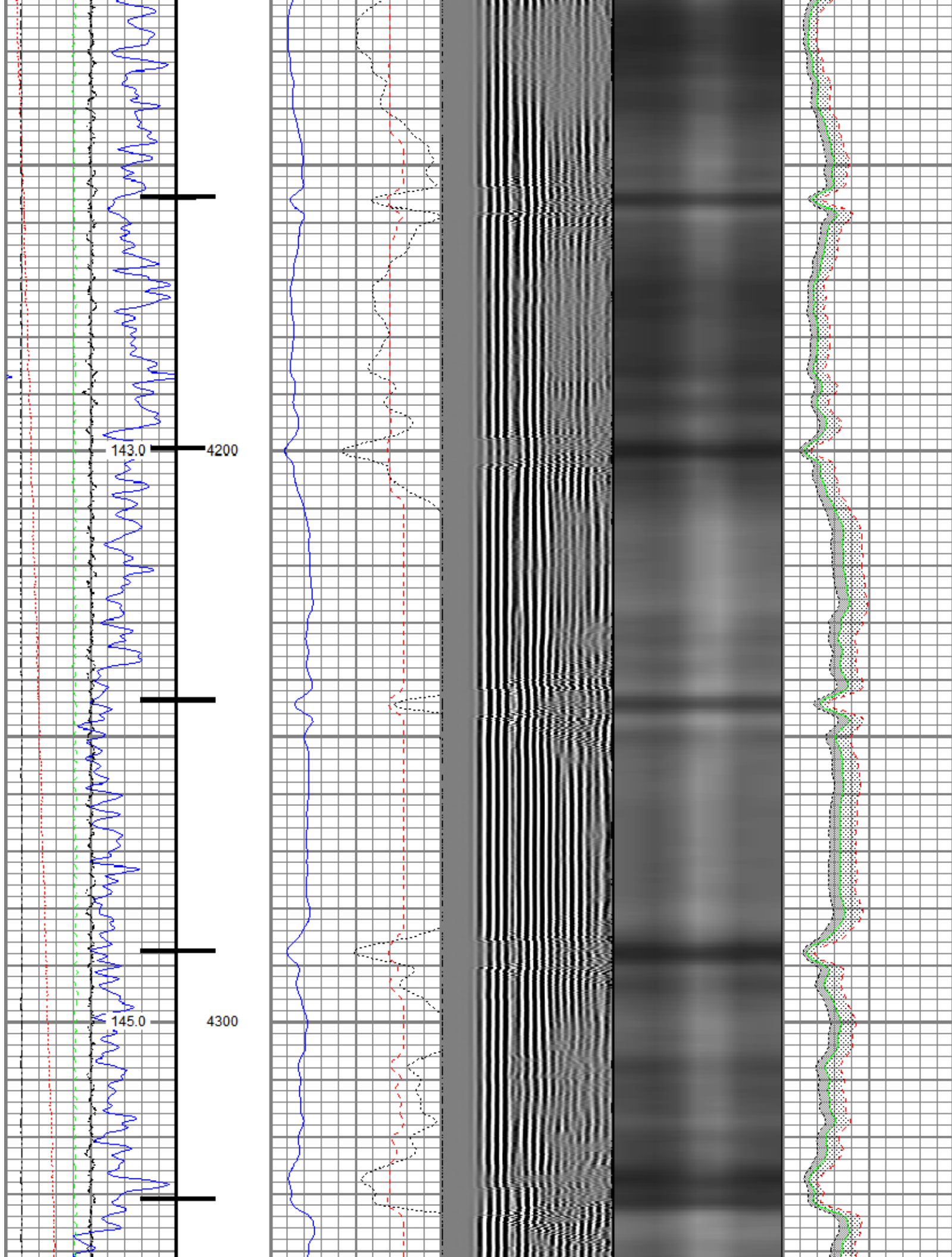


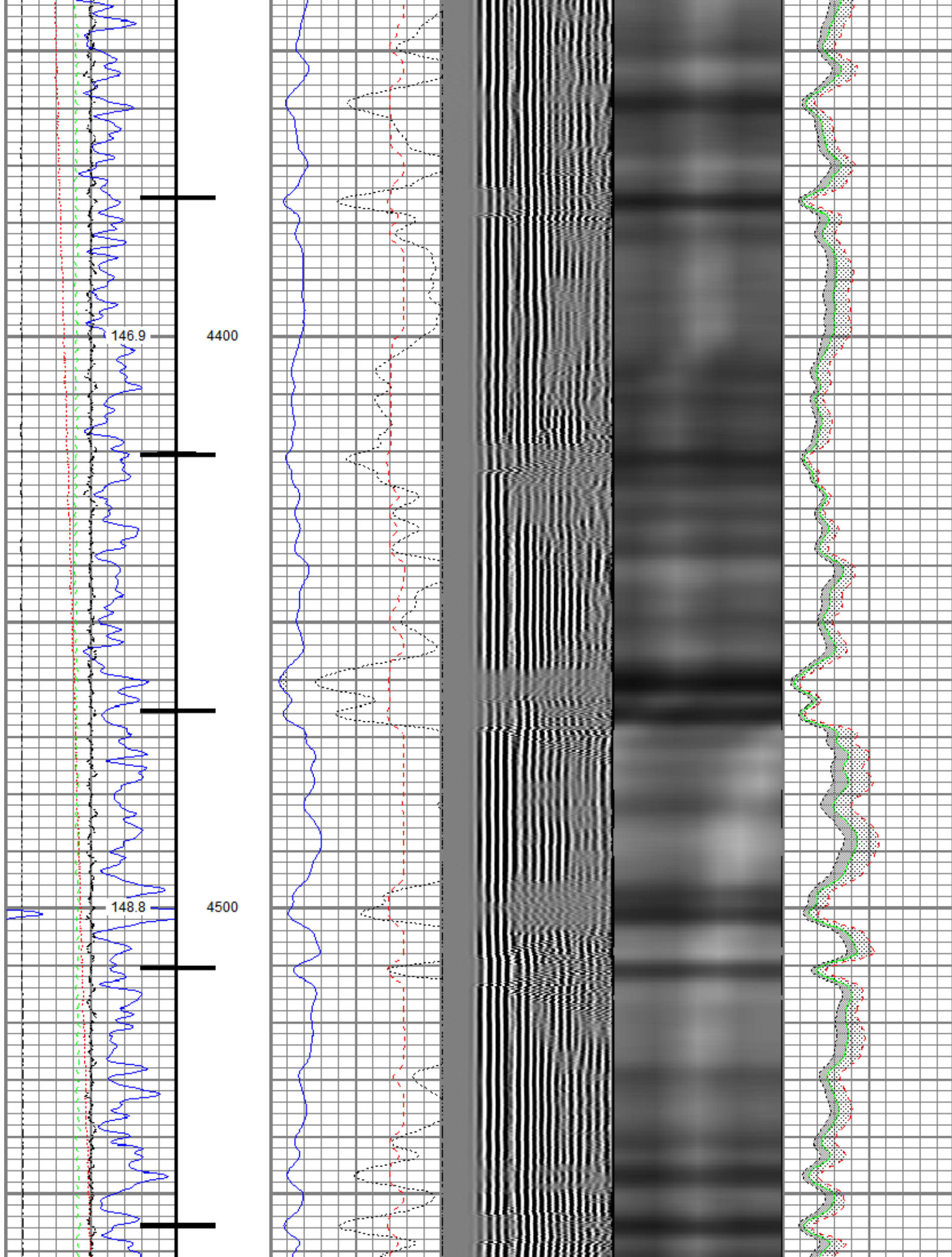


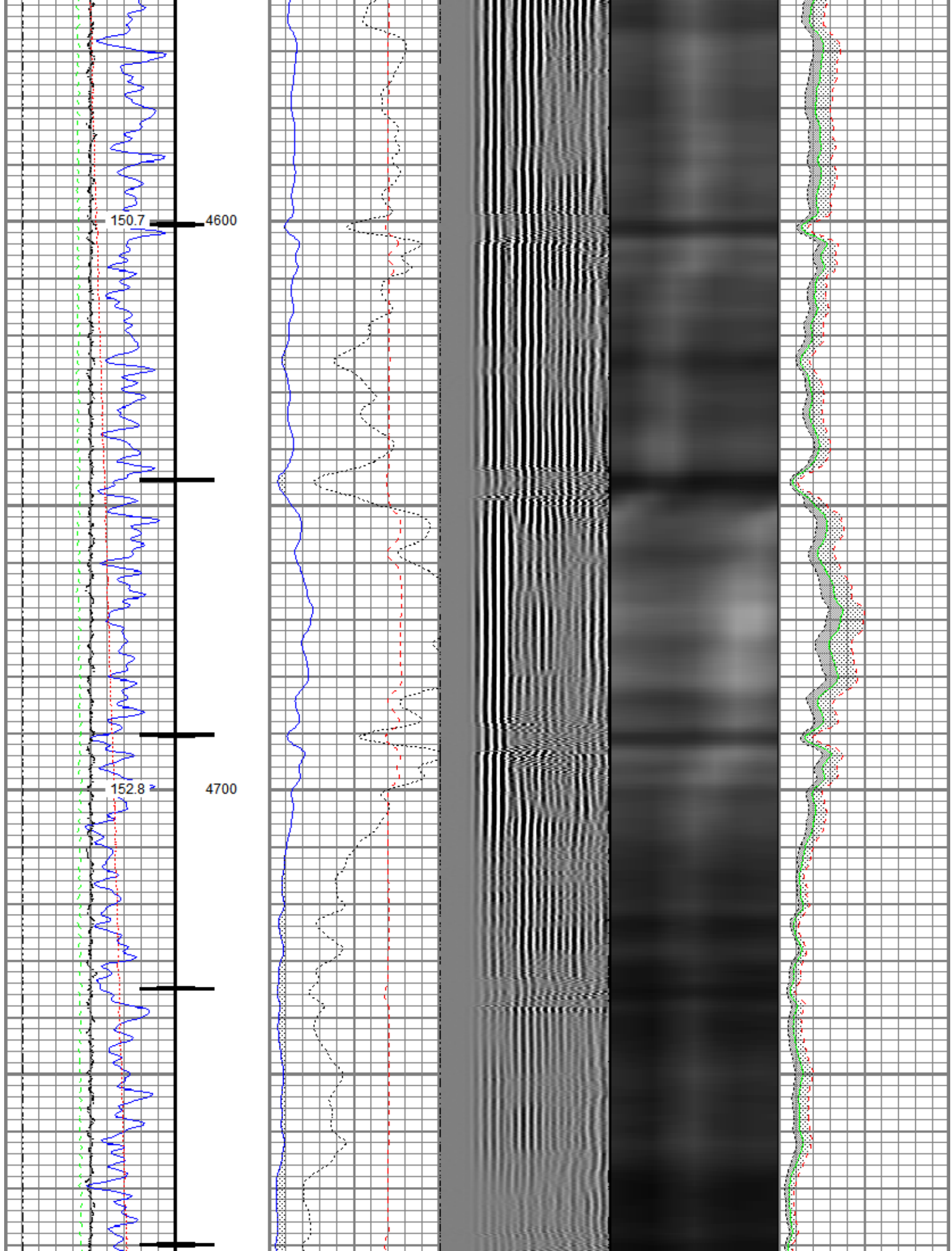


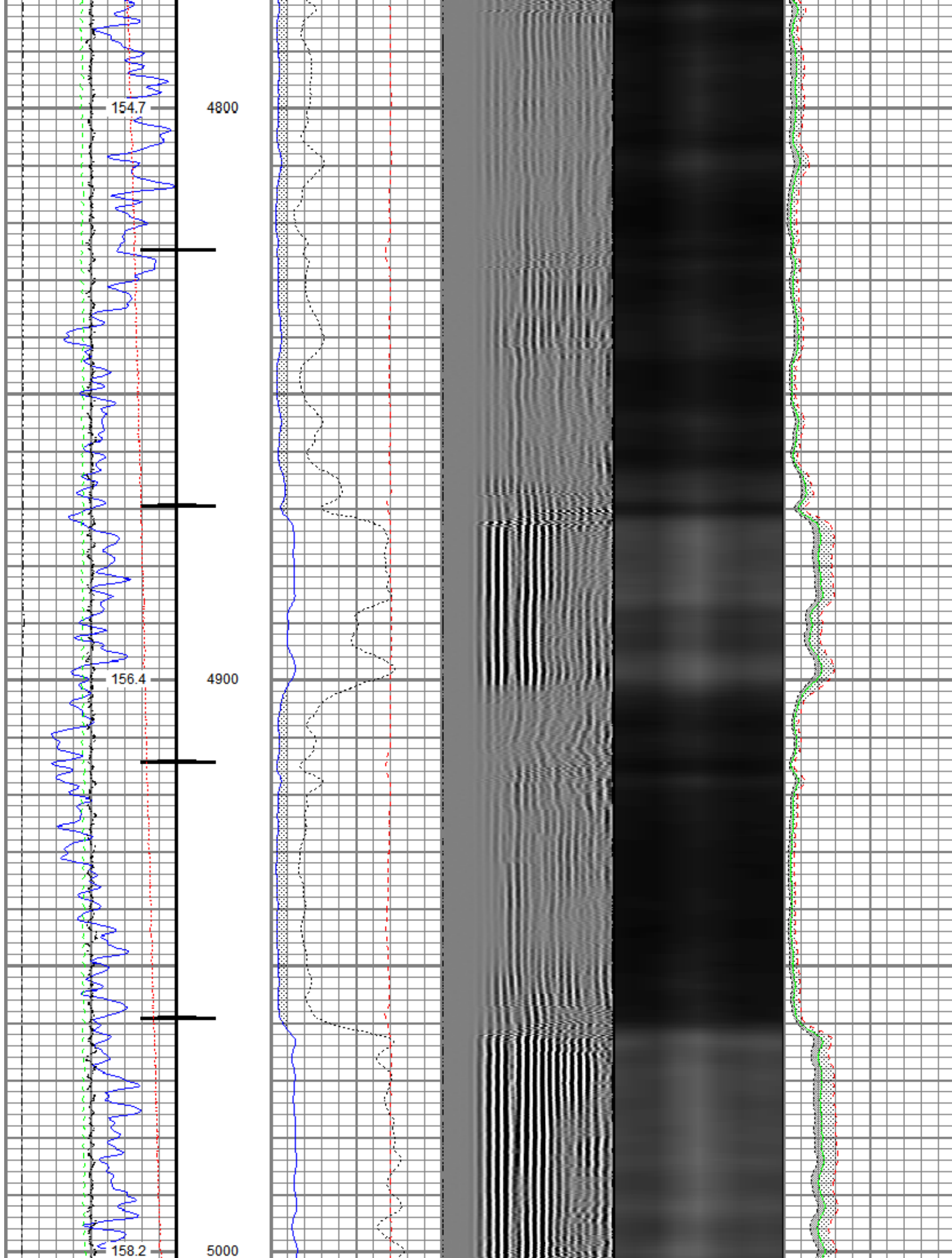


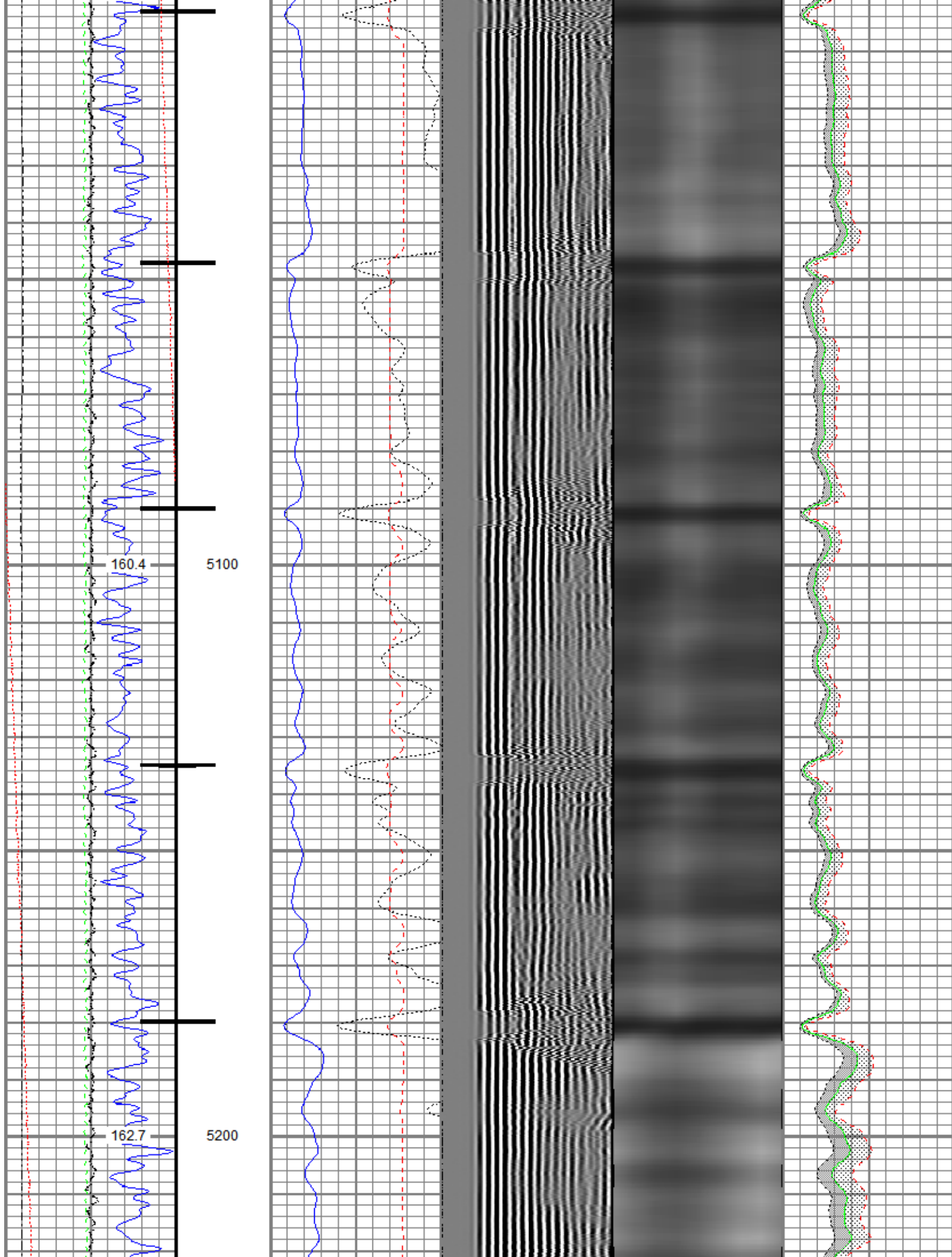


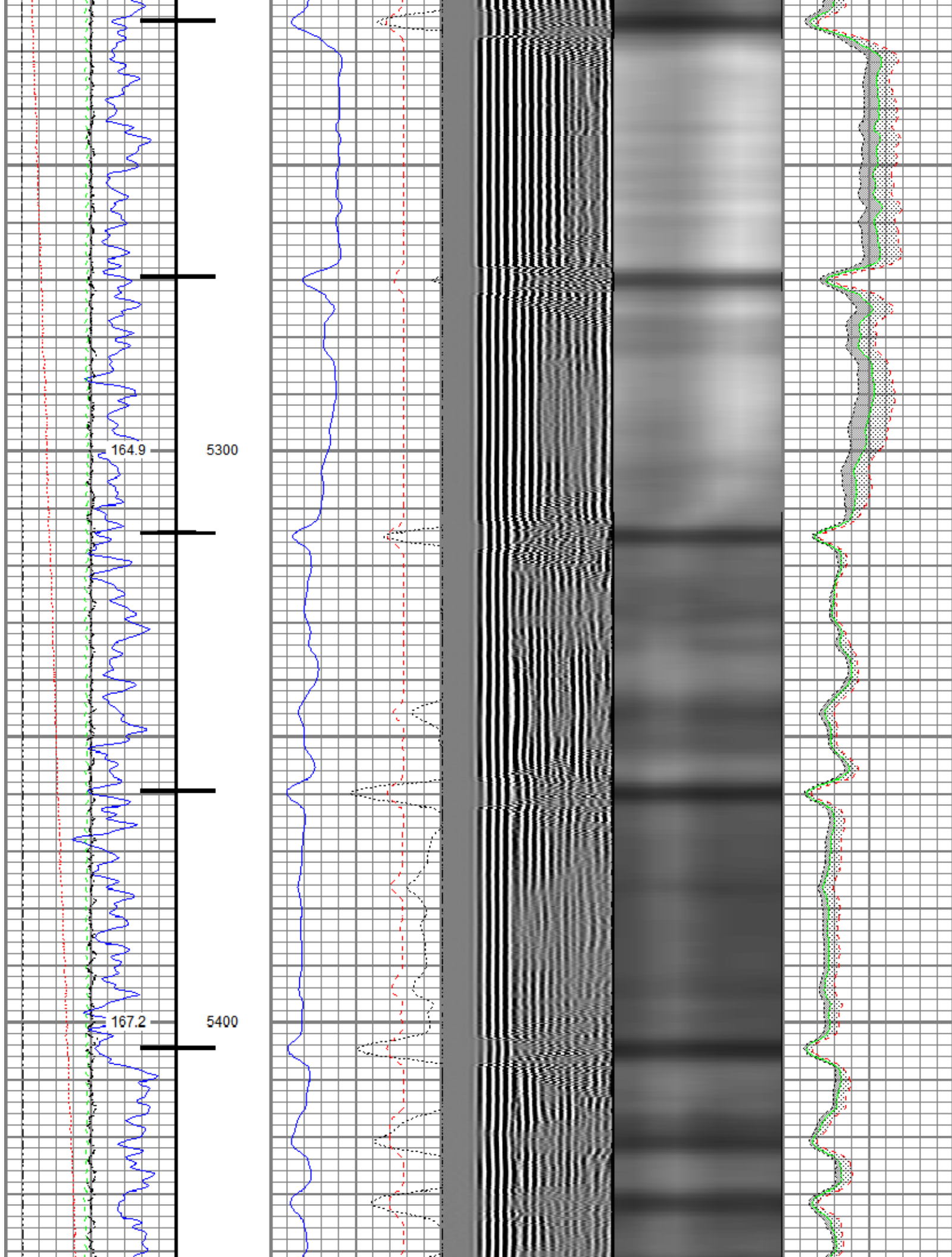


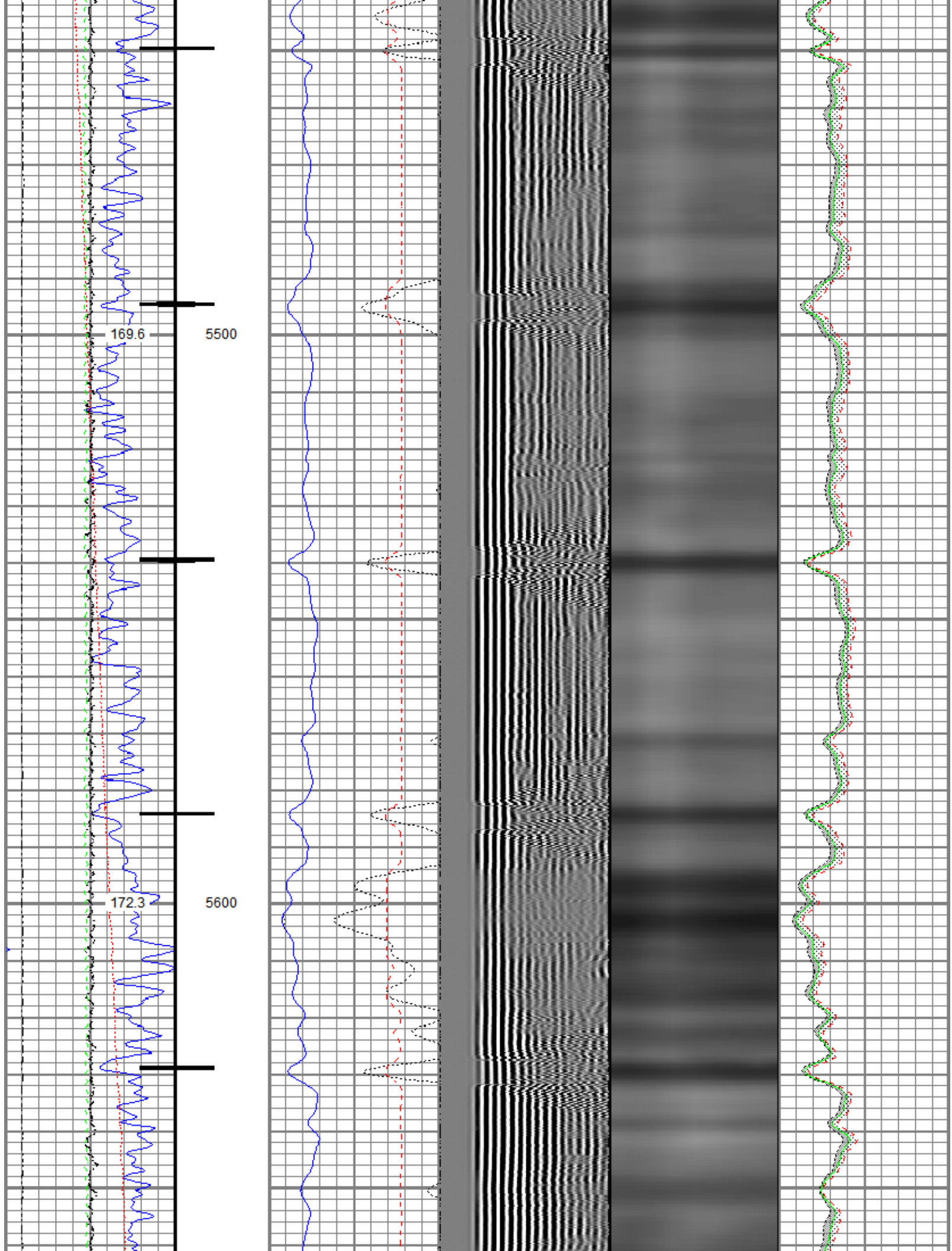


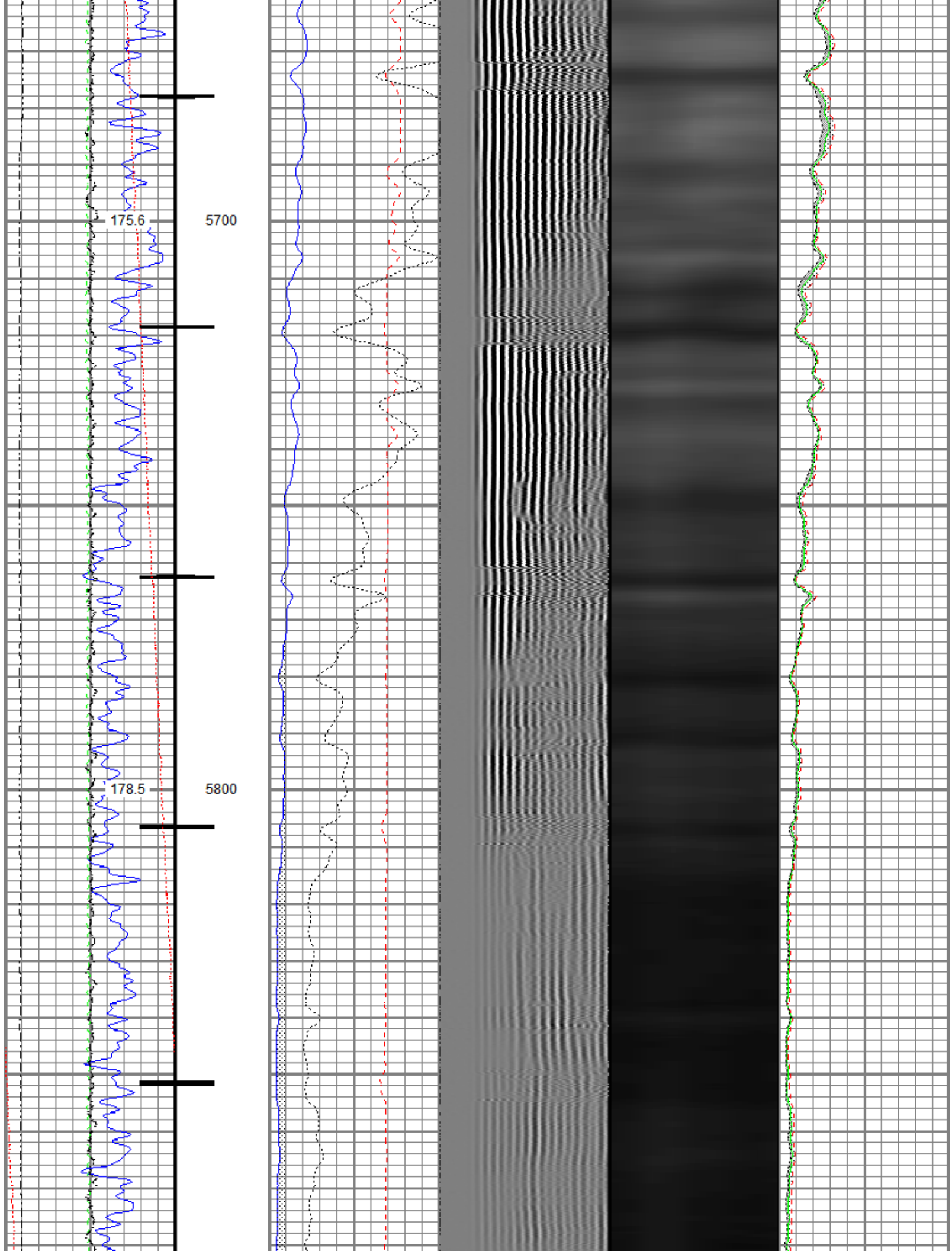


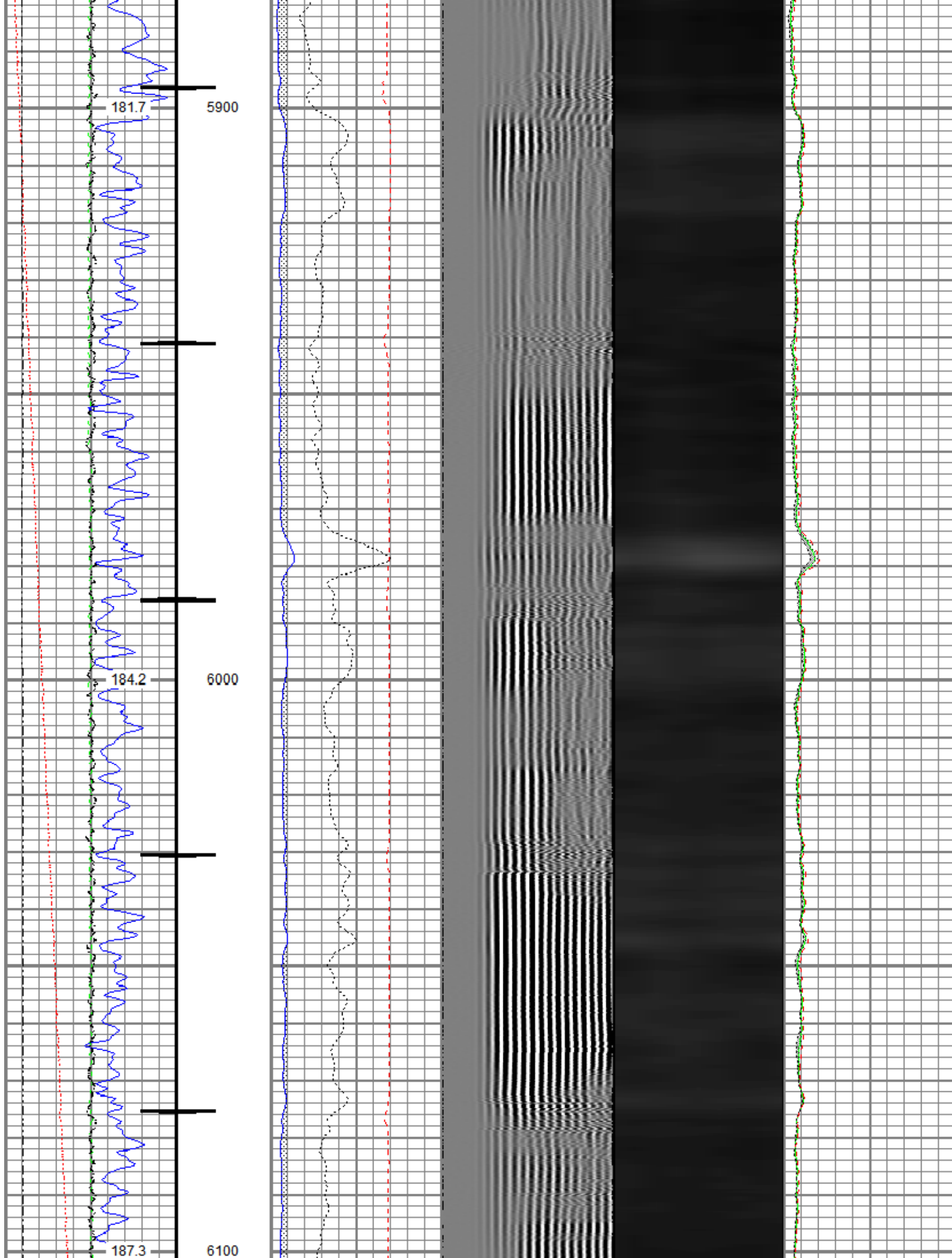


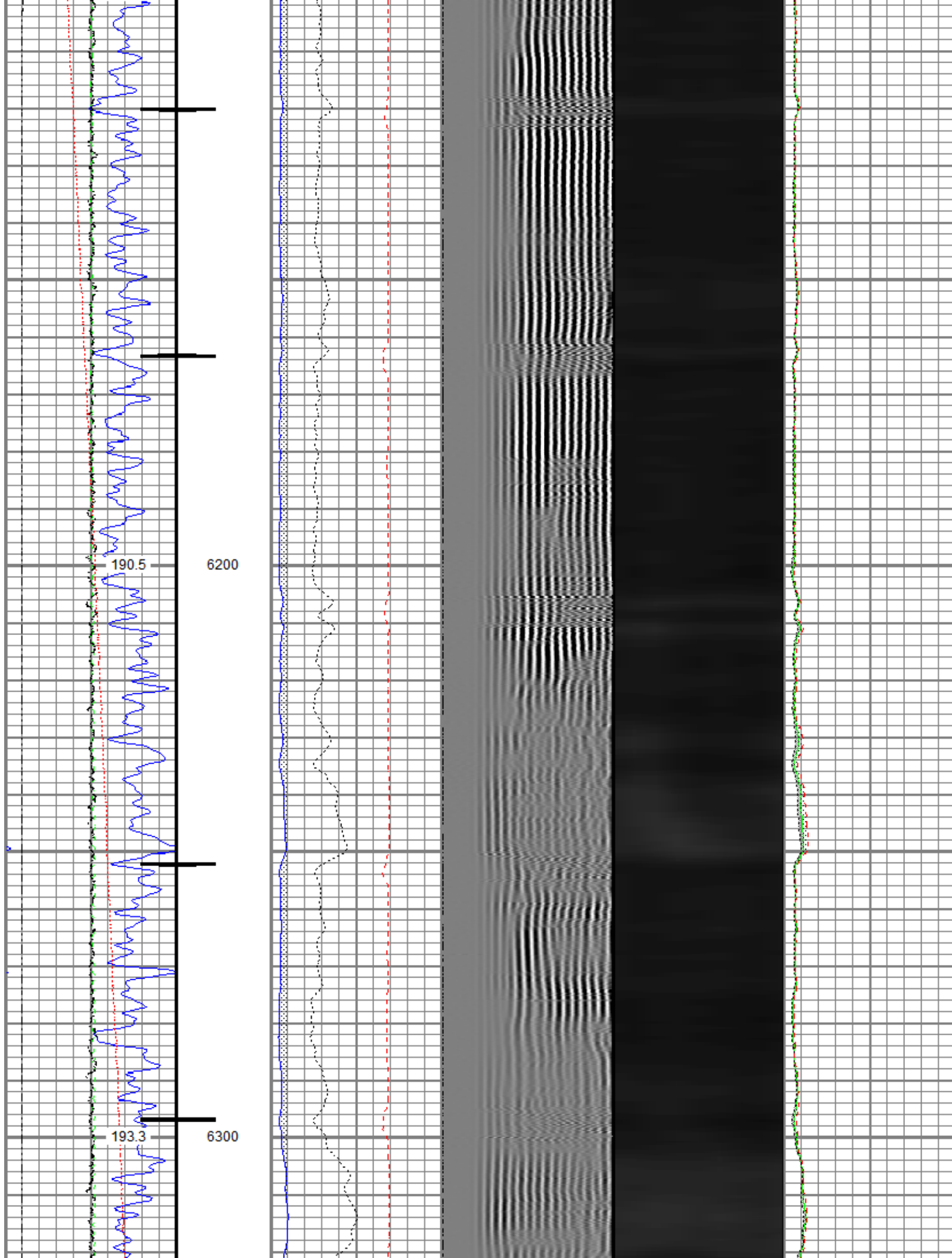


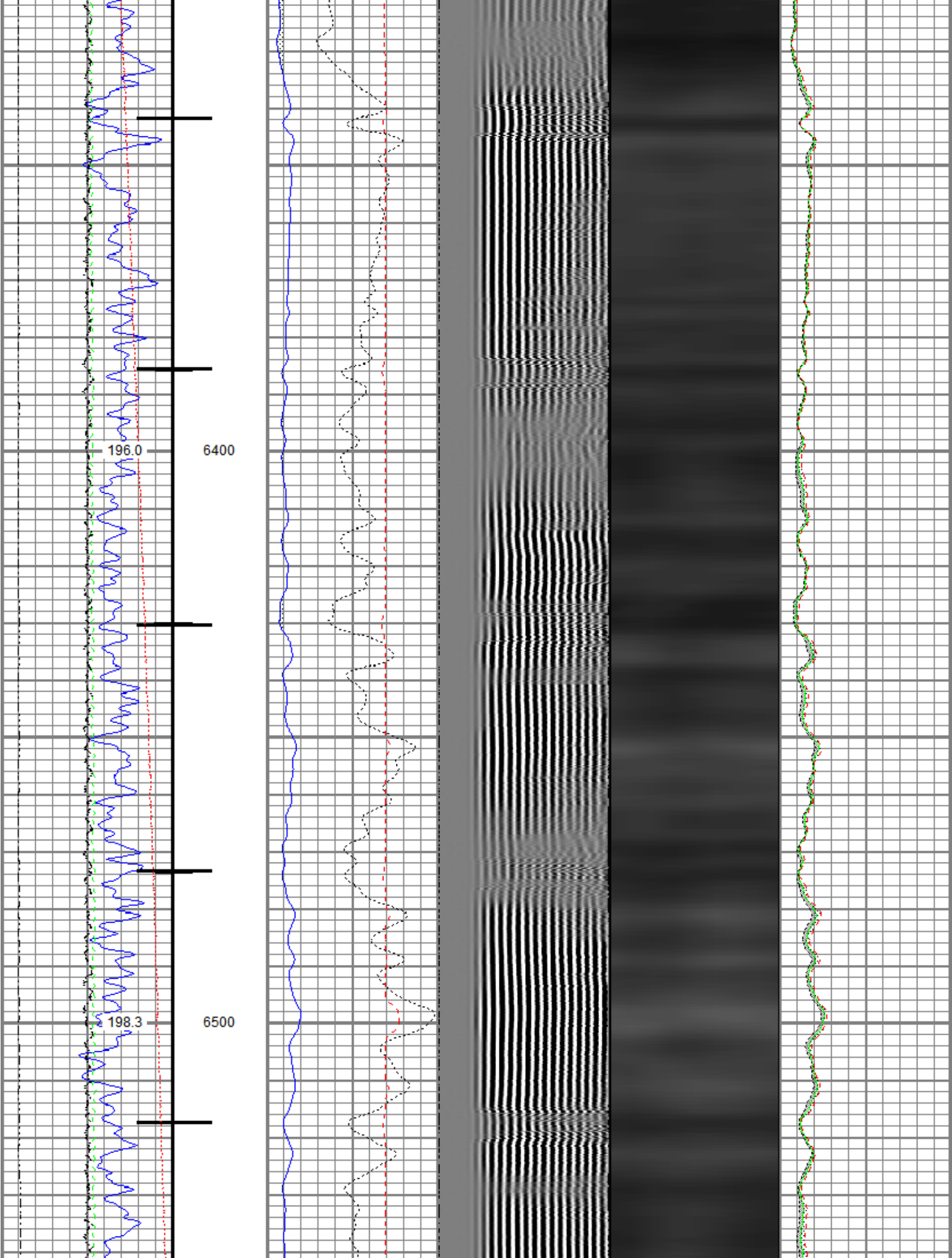


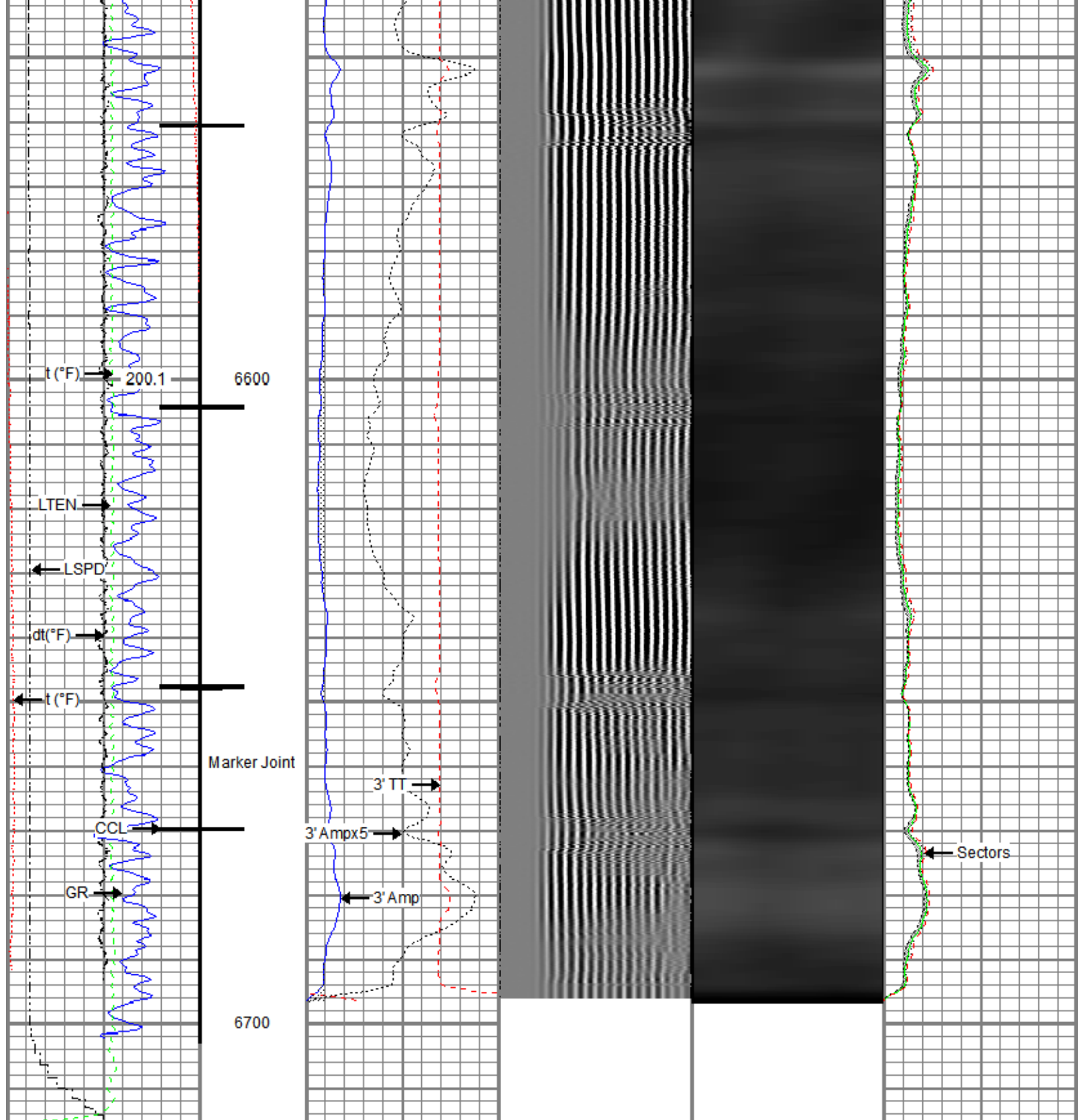








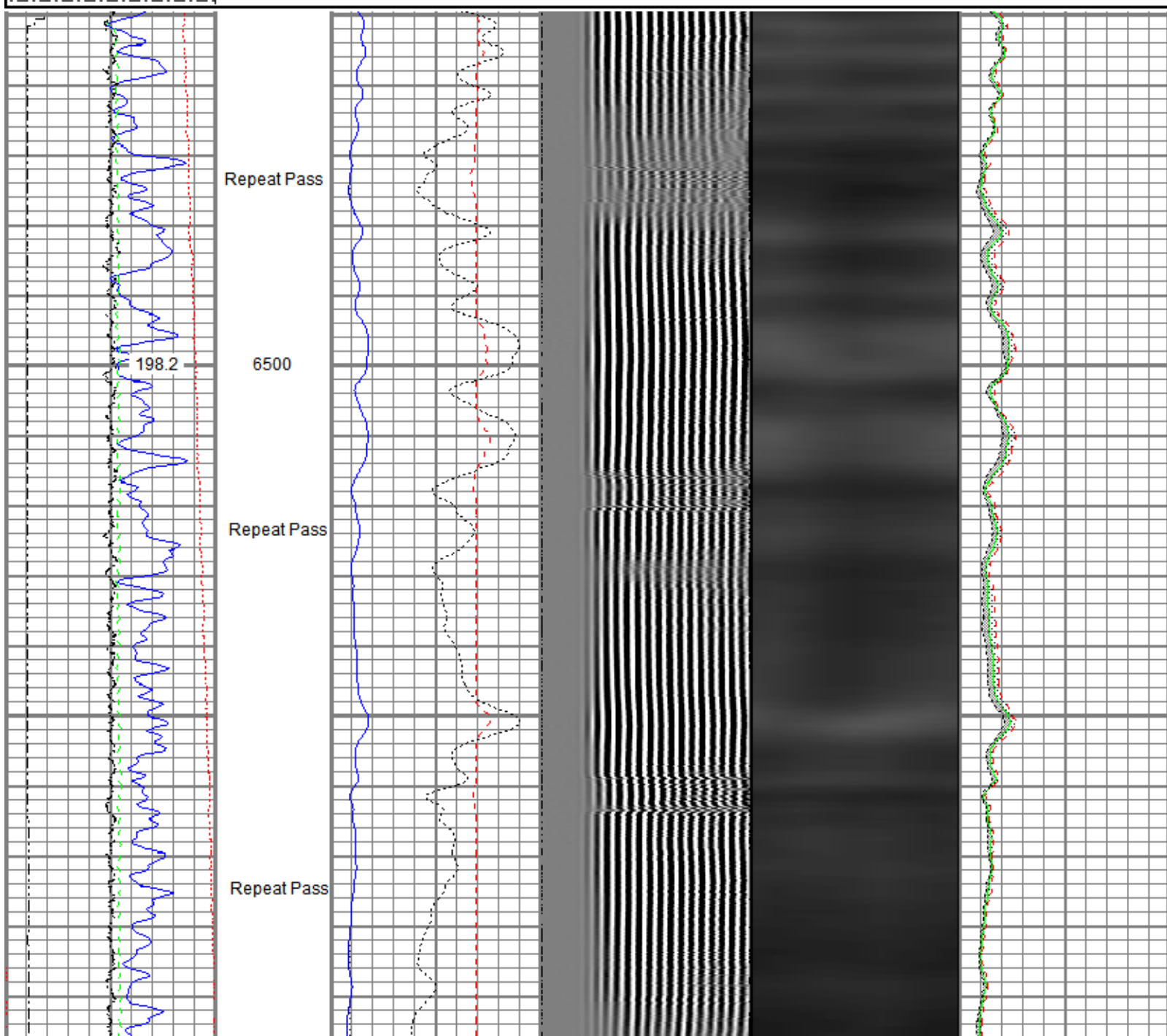


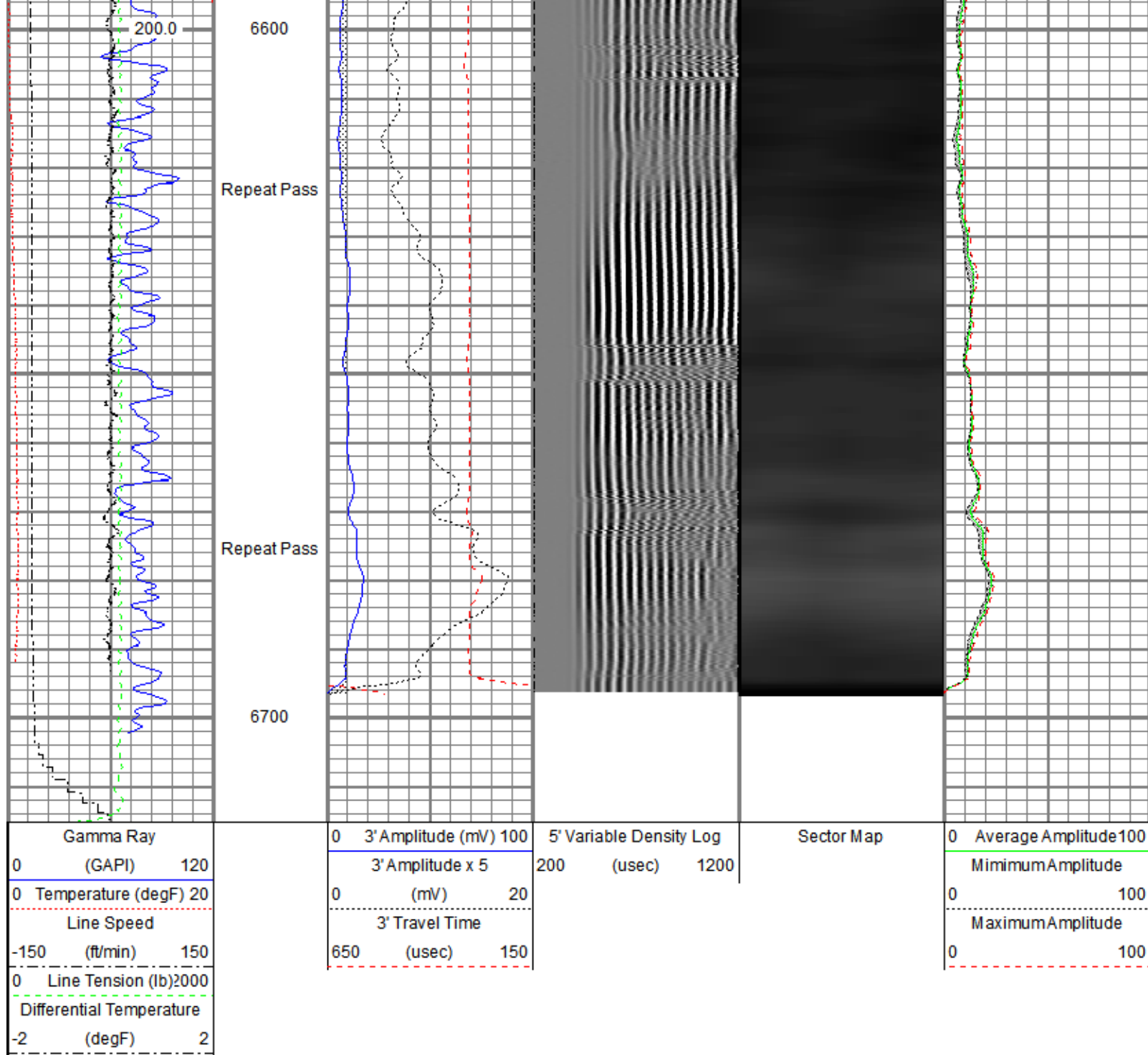


| | | | | | | | | |
|--------------------------|------|-------------------|-----|-------------------------|------------|---|-------------------|-----|
| Gamma Ray | 0 | 3' Amplitude (mV) | 100 | 5' Variable Density Log | Sector Map | 0 | Average Amplitude | 100 |
| (GAPI) | 120 | 3' Amplitude x 5 | 200 | (usec) | | | Minimum Amplitude | |
| Casing Collar Locator | | (mV) | 20 | | | 0 | | 100 |
| Temperature (degF) | 20 | 3' Travel Time | | | | | Maximum Amplitude | |
| Line Speed | | (usec) | 150 | | | 0 | | 100 |
| -150 (ft/min) | 150 | | | | | | | |
| Line Tension (lb) | 2000 | | | | | | | |
| Differential Temperature | | | | | | | | |
| -2 (degF) | 2 | | | | | | | |


| | |
|---------------------|--|
| Database File | oxy\0506906518_oxy_jodster south 25-8hz_rbl_01-24-20\processed_0506906518_oxy_jodster south 25-8hz_rbl_01-24-20.db |
| Dataset Pathname | RBL/pass5.2 |
| Presentation Format | ros_radri |
| Dataset Creation | Fri Jan 24 20:16:41 2020 |
| Charted by | Depth in Feet scaled 1:240 |

| Gamma Ray | 0 | 3' Amplitude (mV) 100 | 5' Variable Density Log | Sector Map | 0 | Average Amplitude 100 |
|--------------------------|------|-----------------------|-------------------------|------------|---|-----------------------|
| (GAPI) 120 | | 3' Amplitude x 5 | 200 (usec) 1200 | | | Minimum Amplitude |
| Temperature (degF) 20 | 0 | (mV) 20 | | | 0 | 100 |
| Line Speed | | 3' Travel Time | | | | Maximum Amplitude |
| (ft/min) 150 | -150 | (usec) 150 | | | 0 | 100 |
| Line Tension (lb) 2000 | 0 | | | | | |
| Differential Temperature | | | | | | |
| (degF) 2 | -2 | | | | | |





| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) |
|--------|-------------|-----------|---|-------------|-----------|-------------|
| ErrCt | 23.86 | | Titan CHD-16875 GO | 1.03 | 1.69 | 5.40 |
| | | | Titan 1-11/16" Assembled Electric Cable Head with 1" Fishing Neck | | | |
| | | | Probe CENT-2750 | 2.88 | 2.75 | 20.00 |
| | | | Probe 2-3/4" Electric Inline Bowspring Centralizer | | | |
| RBT_HV | 19.95 | | | | | |

| | | | | | | | |
|----------|-------|--|--|--|------|------|--------|
| TEMP | 17.04 | | | | | | |
| RBT_ACCZ | 14.81 | |  | Probe Radii ACC-2750 RBTa (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub and Accelerometer | 9.39 | 2.75 | 105.00 |
| RBT_ACCY | 14.81 | | | | | | |
| RBT_ACCX | 14.81 | | | | | | |
| WVFSYNC | 14.81 | | | | | | |
| WVFS8 | 14.81 | | | | | | |
| WVFS7 | 14.81 | | | | | | |
| WVFS6 | 14.81 | | | | | | |
| WVFS5 | 14.81 | | | | | | |
| WVFS4 | 14.81 | | | | | | |
| WVFS3 | 14.81 | | | | | | |
| WVFS2 | 14.81 | | | | | | |
| WVFS1 | 14.81 | | | | | | |
| WVFCAL | 14.81 | | | Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer | 2.88 | 2.75 | 20.00 |
| WVF3FT | 14.81 | | | | | | |
| WVF5FT | 13.81 | | | | | | |
| | | | | | | | |
| CCL\$2 | 6.80 | | | | | | |
| CCL\$1 | 6.80 | | | | | | |
| | | | | | | | |
| GR | 5.46 | | | Probe GR-CCL-2750 6PB (101001) Probe 2-3/4" rev.1 Digital Scintillation Gamma Ray/CCL Combined with 6 Pin Bottom for CNT | 4.80 | 2.75 | 55.00 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| LOCTIM | 0.00 | | | Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer | 2.88 | 2.75 | 20.00 |
| UTCTIM | 0.00 | | | | | | |

Dataset:
processed_0506906518_oxy_jodster south 25-8hz_rbl_01-24-20.db: field/well/RBL/ToolString

Total length:
23.86 ft

Total weight:
225.40 lb

O.D.:
2.75 in

| Calibration Report | | | | | |
|--|---|--------------------------|--------|-----|---------------|
| Database File | c:\programdata\warrior\data\oxy\0506906518_oxy_jodster south 25-8hz_rbl_01-24-20\processed_0506906518_oxy_jodster south 25-8hz_rbl_01-24-20 | | | | |
| Dataset Pathname | RBL/pass7.5 | | | | |
| Dataset Creation | Fri Jan 24 20:09:04 2020 | | | | |
| Compensated Neutron Calibration Report | | | | | |
| Serial Number: | | FW1308-020_A1483 | | | |
| Tool Model: | | 2750 BL | | | |
| CALIBRATION | | Tue Dec 03 09:24:53 2019 | | | |
| Detector | Readings | | Target | | Normalization |
| Short Space | 3241.60 | cps | 0.00 | cps | 1.0000 |
| Long Space | 452.04 | cps | 0.00 | cps | 1.0000 |
| Measured | | Reference | | | |

| | | |
|------------|--------|--------|
| Ratio | 7.1710 | 6.7797 |
| CNRAT Gain | 0.9454 | |

Gamma Ray Calibration Report

| | | |
|---------------------|--------------------------|----------|
| Serial Number: | 101001 | |
| Tool Model: | 2750 6PB | |
| Performed: | Tue Dec 03 09:24:53 2019 | |
| Calibrator Value: | 637.0 | GAPI |
| Background Reading: | 100.6 | cps |
| Calibrator Reading: | 981.1 | cps |
| Sensitivity: | 0.7235 | GAPI/cps |

Segmented Cement Bond Log Calibration Report

| | | |
|------------------------------|------------|----|
| Serial Number: | FW1302-001 | |
| Tool Model: | 2750 RBTa | |
| Calibration Casing Diameter: | 5.500 | in |
| Calibration Depth: | -2.294 | ft |

Master Calibration, performed (Derived):

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.006 | 0.547 | 0.800 | 71.921 | 131.615 | -0.042 |
| CAL | 0.592 | 0.591 | | | | |
| 5' | 0.009 | 0.457 | 0.800 | 71.921 | 158.806 | -0.612 |
| SUM | | | | | | |
| S1 | 0.005 | 0.532 | 0.000 | 100.000 | 189.898 | -1.026 |
| S2 | 0.007 | 0.536 | 0.000 | 100.000 | 188.916 | -1.271 |
| S3 | 0.007 | 0.548 | 0.000 | 100.000 | 184.692 | -1.203 |
| S4 | 0.007 | 0.569 | 0.000 | 100.000 | 177.992 | -1.248 |
| S5 | 0.007 | 0.569 | 0.000 | 100.000 | 177.755 | -1.161 |
| S6 | 0.006 | 0.567 | 0.000 | 100.000 | 178.126 | -1.076 |
| S7 | 0.007 | 0.552 | 0.000 | 100.000 | 183.795 | -1.369 |
| S8 | 0.007 | 0.541 | 0.000 | 100.000 | 187.276 | -1.365 |

Air Zero Calibration, performed Tue Jan 21 08:21:47 2020:

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|--|----------------|--|---------|--|
| | Zero | | Zero | | Offset | |
| 3' | 0.006 | | 0.000 | | 0.000 | |
| 5' | 0.008 | | 0.000 | | 0.000 | |
| SUM | | | | | | |
| S1 | 0.005 | | 0.000 | | 0.000 | |
| S2 | 0.007 | | 0.000 | | -0.000 | |
| S3 | 0.007 | | 0.000 | | -0.000 | |
| S4 | 0.007 | | 0.000 | | 0.000 | |
| S5 | 0.007 | | 0.000 | | -0.000 | |
| S6 | 0.006 | | 0.000 | | 0.000 | |
| S7 | 0.007 | | 0.000 | | -0.000 | |
| S8 | 0.007 | | 0.000 | | -0.000 | |

Inclinometer Calibration Report

| | | | | | |
|-----------------|--------------------------|------------|----------|-----------|-----|
| Performed: | Tue Dec 03 09:24:53 2019 | | | | |
| | Low Read. | High Read. | Low Ref. | High Ref. | |
| X Accelerometer | -900.00 | 892.00 | -1.00 | 1.00 | gee |

| | | | | | |
|-----------------|---------|--------|-------|------|-----|
| Y Accelerometer | -922.00 | 893.00 | -1.00 | 1.00 | gee |
| Z Accelerometer | 7.38 | 894.40 | 0.00 | 1.00 | gee |

Temperature Calibration Report

Serial Number: FW1302-001
Tool Model: 2750 RBTa
Performed: Tue Dec 03 09:24:53 2019

| | Reference | Reading |
|-----------------|-------------|-------------|
| Low Reference: | 100.00 degF | 107.47 degF |
| High Reference: | 350.00 degF | 404.08 degF |
| Gain: | 0.84 | |
| Offset: | 9.42 | |
| Delta Spacing | 1 | |



| | |
|----------------|------------------------------------|
| Company | Kerr-McGee Oil & Gas Onshore, L.P. |
| Well | Jodster South 25-8HZ |
| Field | Wattenberg |
| County | Larimer |
| State | Colorado |