



Radial Cement Bond
Variable Density Log
W/ Gamma Ray/CCL

| | | | |
|------------------------|------------------|----------------------|------------------|
| Company | Noble Energy | Company | Noble Energy |
| Well | Shabl LF-07-68HN | Well | Shabl LF-07-68HN |
| Field | Wattenburg | Field | Wattenburg |
| County | Weld | County | Weld |
| State | Colorado | State | Colorado |
| Location: | | API # : 05-123-36272 | Other Services |
| 660' FNL & 660' FWL | | TEMP | |
| Permanent Datum | SEC 5 | TWP 8N | RGE 60W |
| Log Measured From | Ground Level | Elevation | 4921' |
| Drilling Measured From | Kelly Bushing | 16' APD | K.B. 4937' |
| | Kelly Bushing | | D.F. 4936' |
| | | | G.L. 4921' |
| Date | 19-April-2013 | | |
| Run Number | One | | |
| Depth Driller | 10854' | | |
| Depth Logger | 6828' | | |
| Bottom Logged Interval | 6826' | | |
| Top Log Interval | Surface | | |
| Open Hole Size | 8 3/4" | | |
| Type Fluid | Water | | |
| Density / Viscosity | - | | |
| Max. Recorded Temp. | 211 Deg | | |
| Estimated Cement Top | 820' | | |
| Time Well Ready | 1345 | | |
| Time Logger on Bottom | 1430 | | |
| Equipment Number | 12029 | | |
| Location | Brighton, CO | | |
| Recorded By | R.Grisson | | G. Lueck |
| Witnessed By | Bill Mansfield | | |
| Borehole Record | | Tubing Record | |
| Run Number | Bit | From | To |
| 1 | 9 625 | 16' | 629.1' |
| 2 | 7 | 16' | 6892.9' |
| 3 | 4.5 | 16' | 10843' |
| Casing Record | Size | Wgt/Ft | Top |
| Surface String | 9 5/8" | 36# | Surface |
| Prot. String | | | |
| Production String | 7" | 26# | Surface |
| Liner | 4.5" | 11 6# | Surface |
| Short Joint | | | 5274' |

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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

Well logged using 16' KB

Main Pass and Repeat Pass logged with zero pressure on surface


Thank You for using Allied Wireline

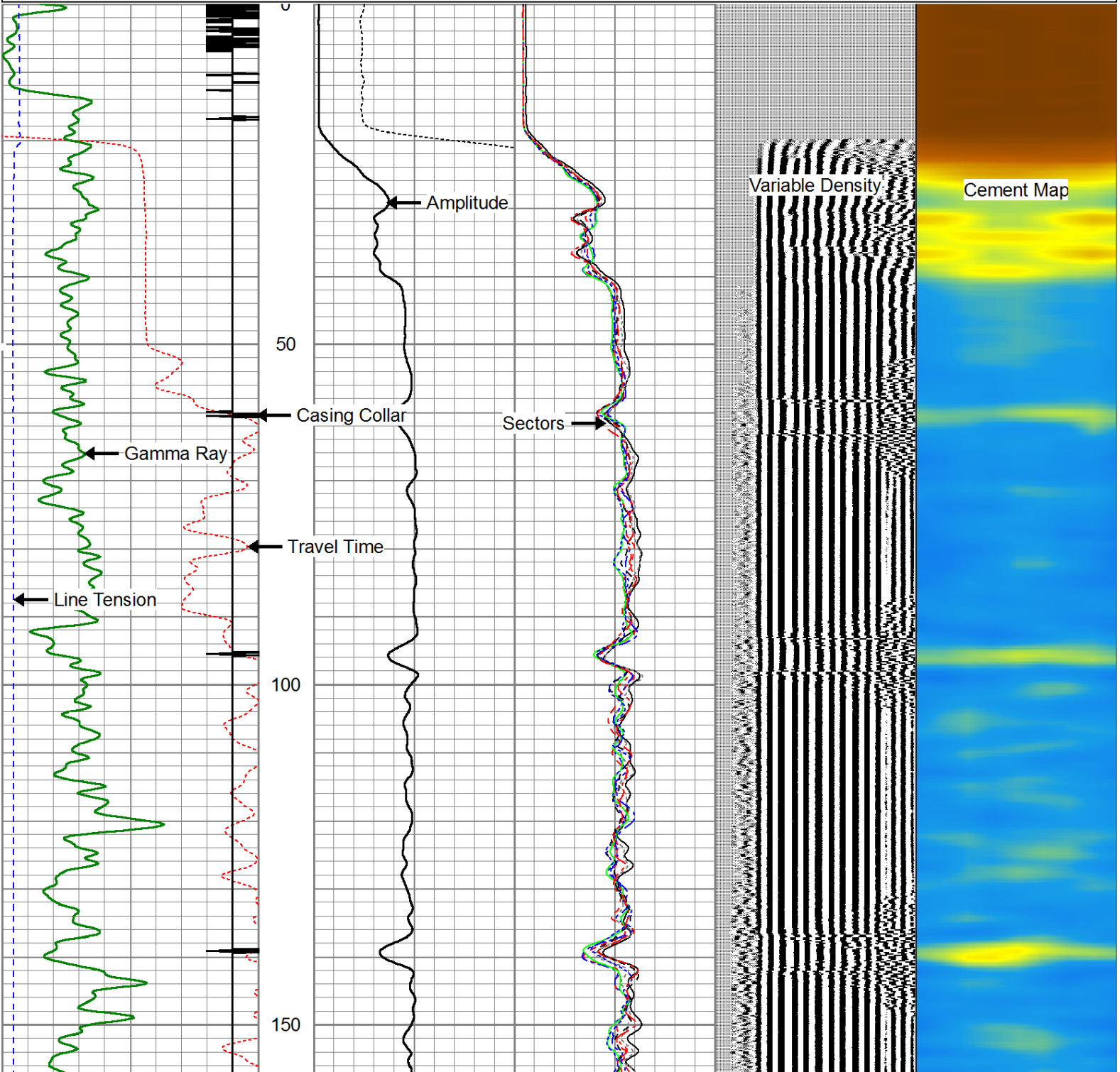
(303) 659-4609

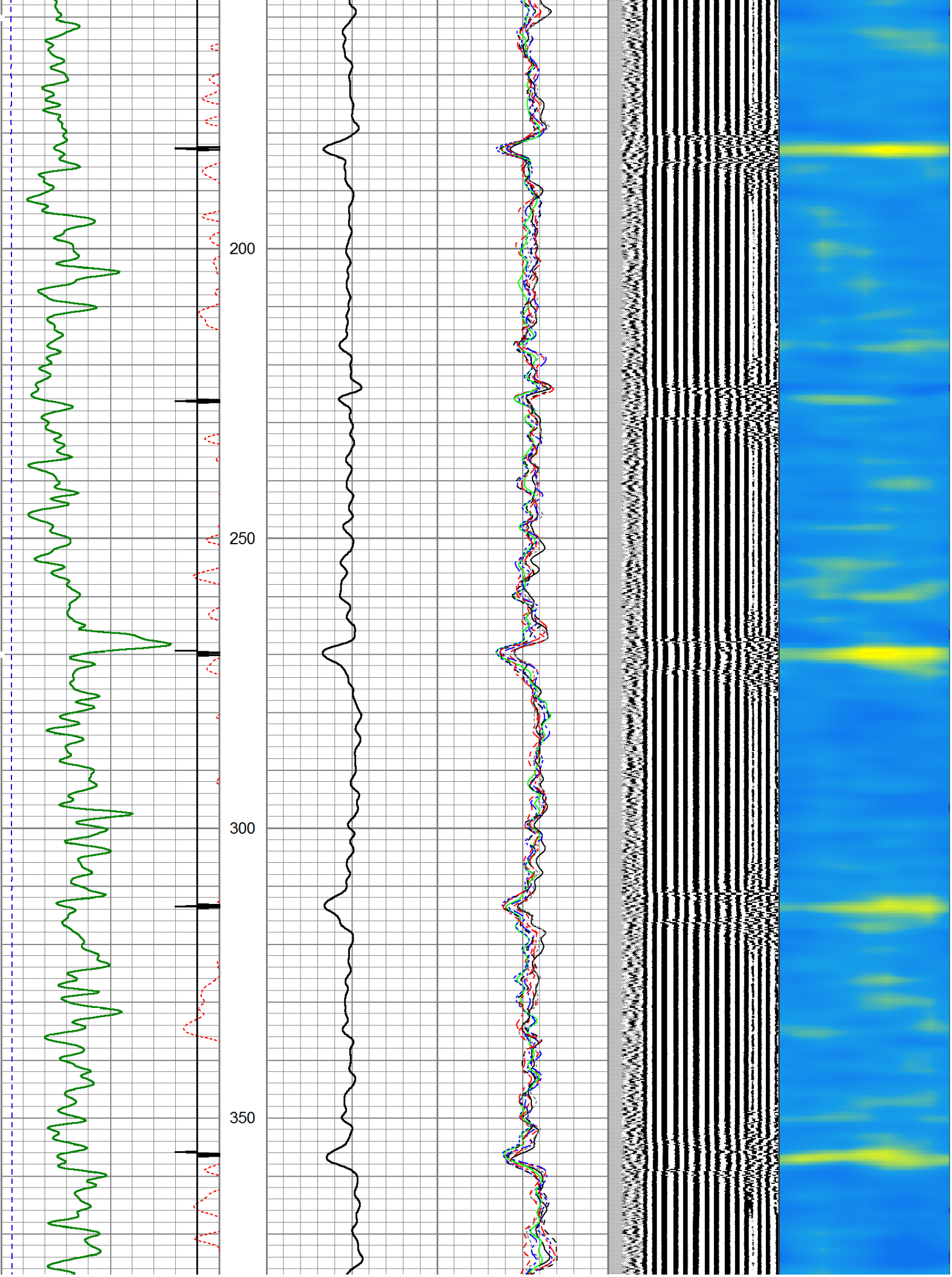


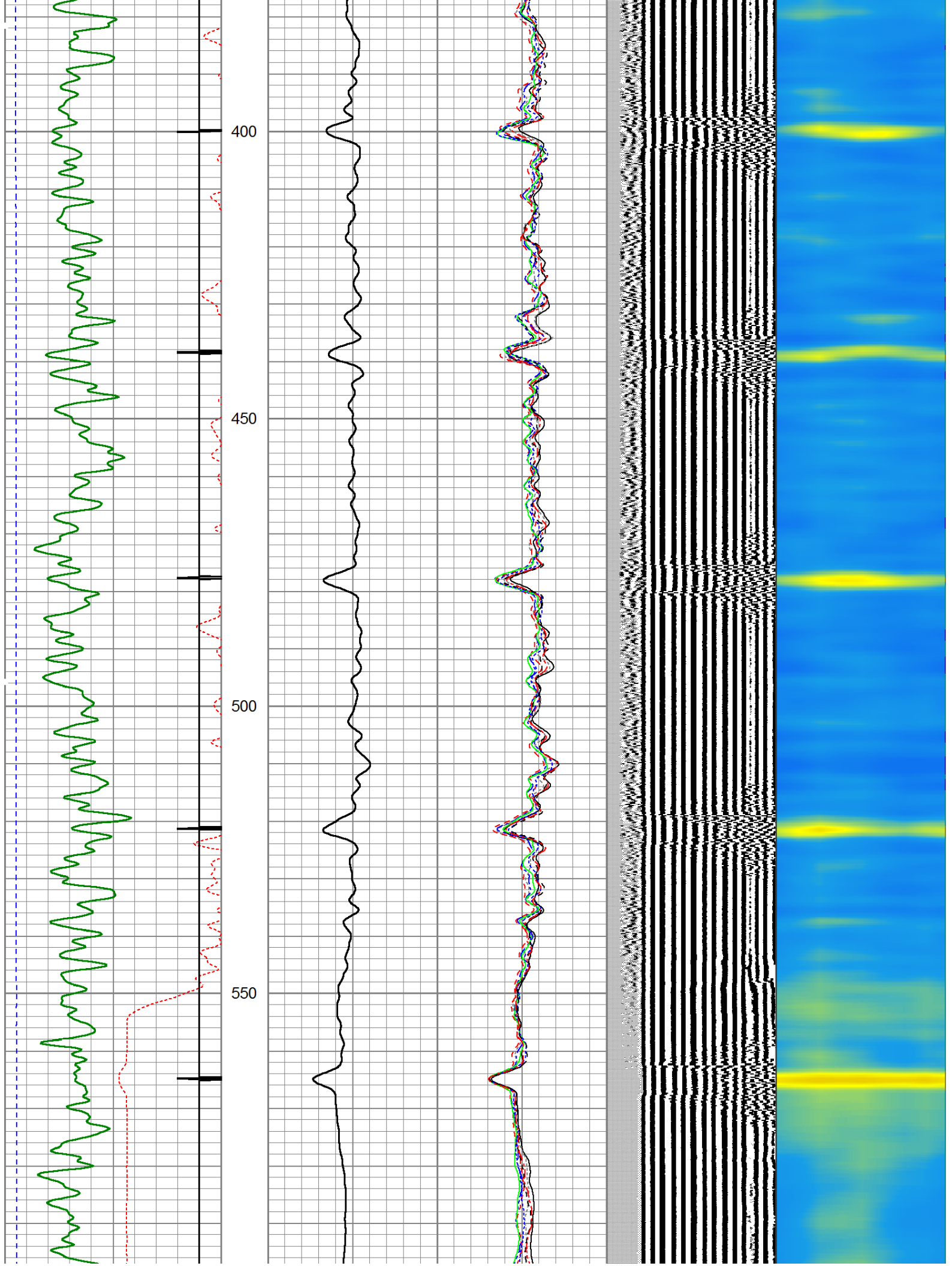
Main Pass (0 PSI)

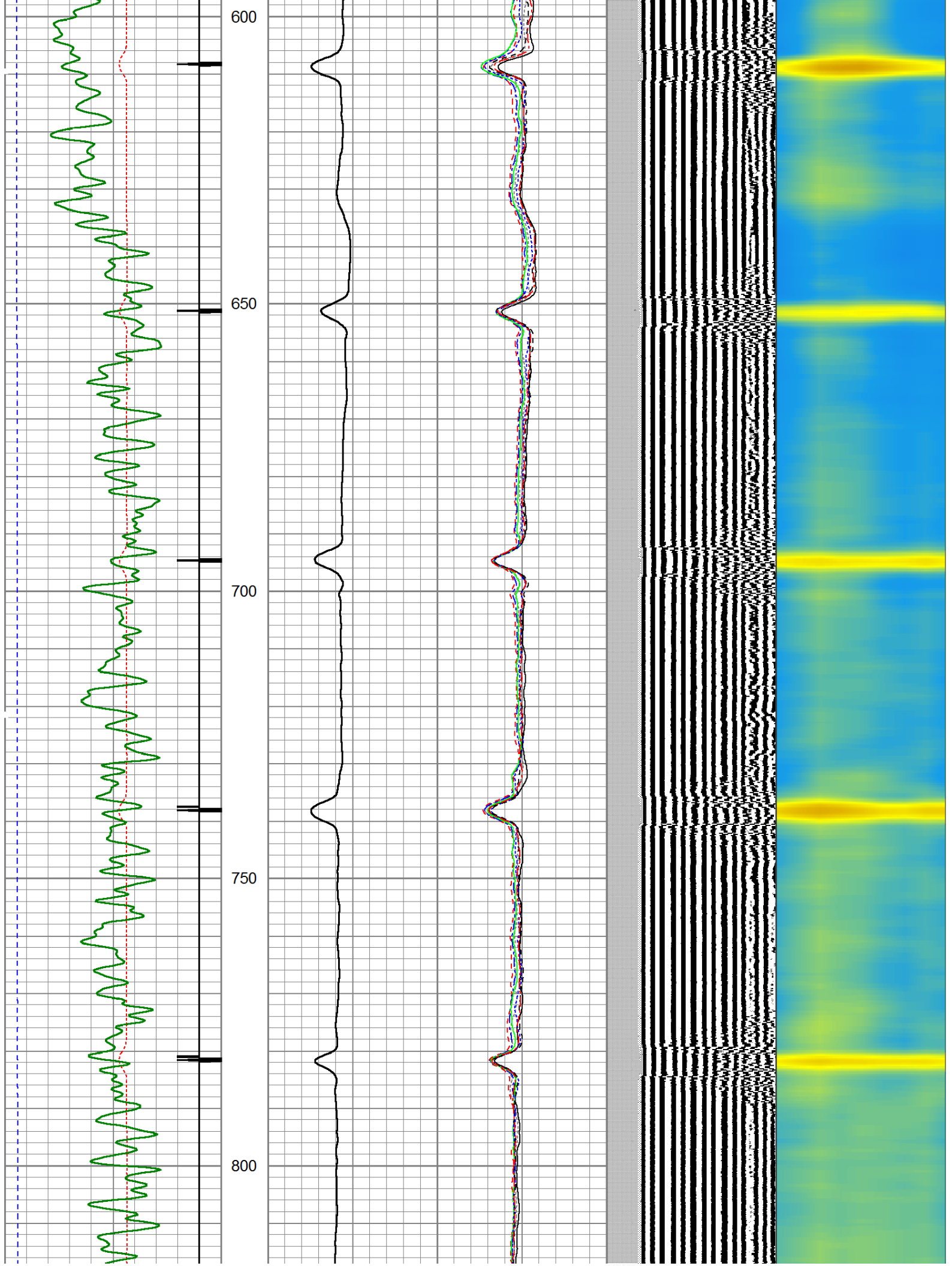
Database File: noble_shable_lf07_68hn_rcbl.db
Dataset Pathname: pass9
Presentation Format: scbl03
Dataset Creation: Fri Apr 19 15:44:01 2013 by Calc SCH 120126
Charted by: Depth in Feet scaled 1:240

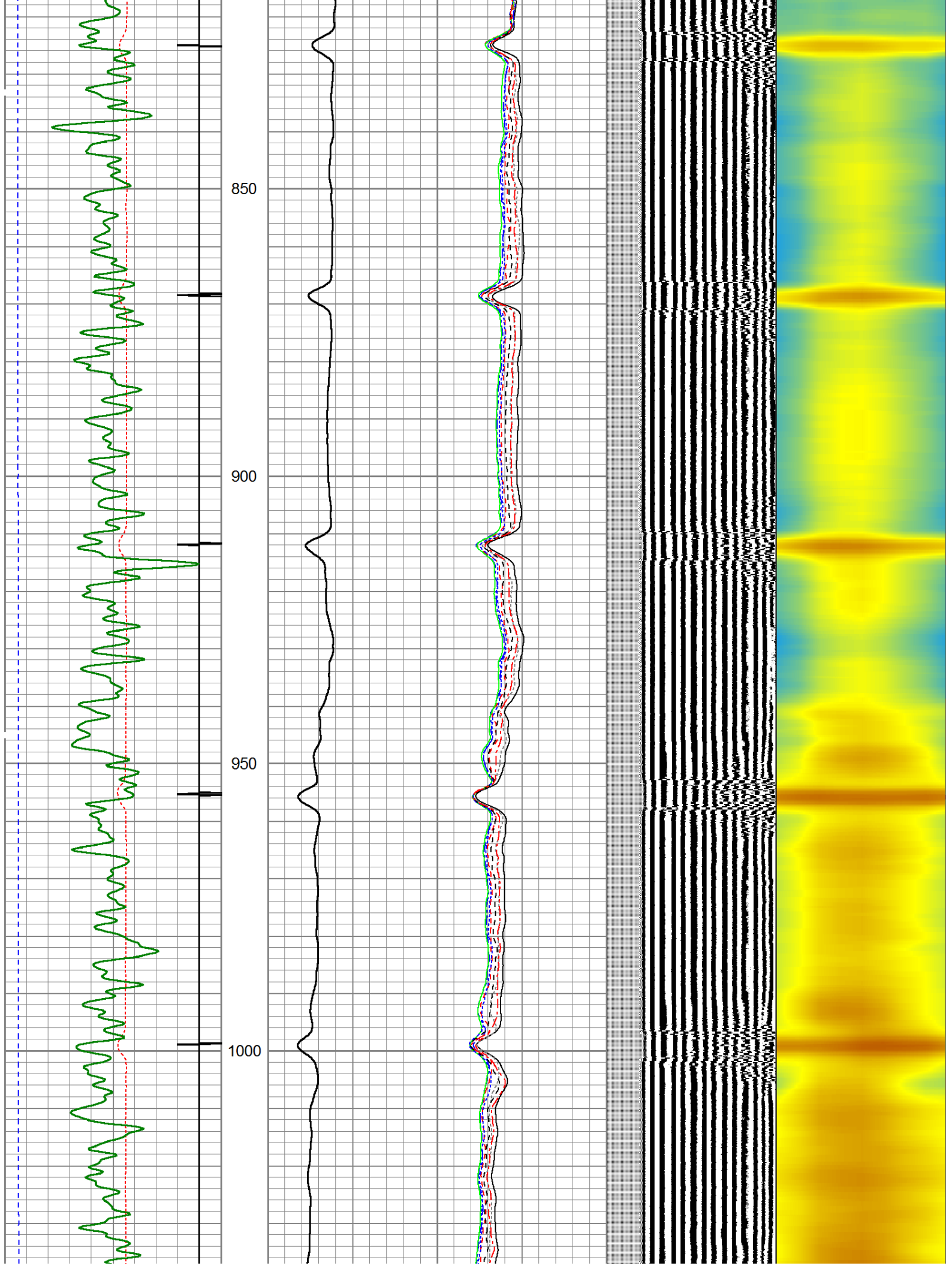
| | | | | | | | | | | | | | |
|-----|--------------------|------|---------------------|----------------|-----|----|-------|-----|---|------|---|------------|---|
| 400 | Travel Time (usec) | 200 | 0 | Amplitude (mV) | 100 | -5 | AMPS1 | 150 | Variable Density | | 1 | Cement Map | 8 |
| 9 | Casing Collar | -1 | Amplified Amplitude | | | -5 | AMPS2 | 150 | 200 | 1200 | 0 | 100 | |
| 0 | Gamma Ray (GAPI) | 150 | 0 | (mV) | 10 | -5 | AMPS3 | 150 |  | | | | |
| 0 | Line Tension (lb) | 5000 | | | | -5 | AMPS4 | 150 | | | | | |
| | | | | | | -5 | AMPS5 | 150 | | | | | |
| | | | | | | -5 | AMPS6 | 150 | | | | | |
| | | | | | | -5 | AMPS7 | 150 | | | | | |
| | | | | | | -5 | AMPS8 | 150 | | | | | |

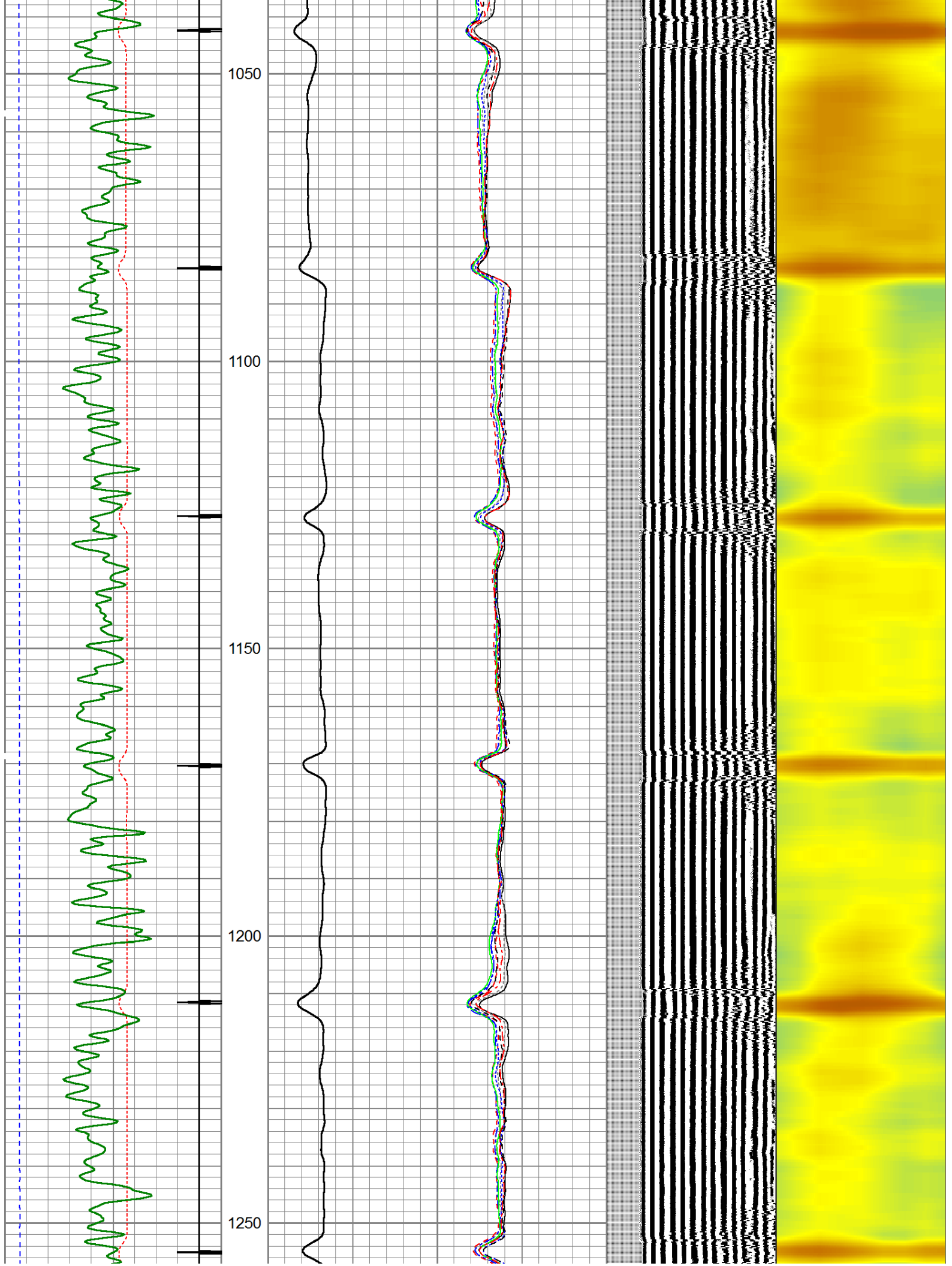


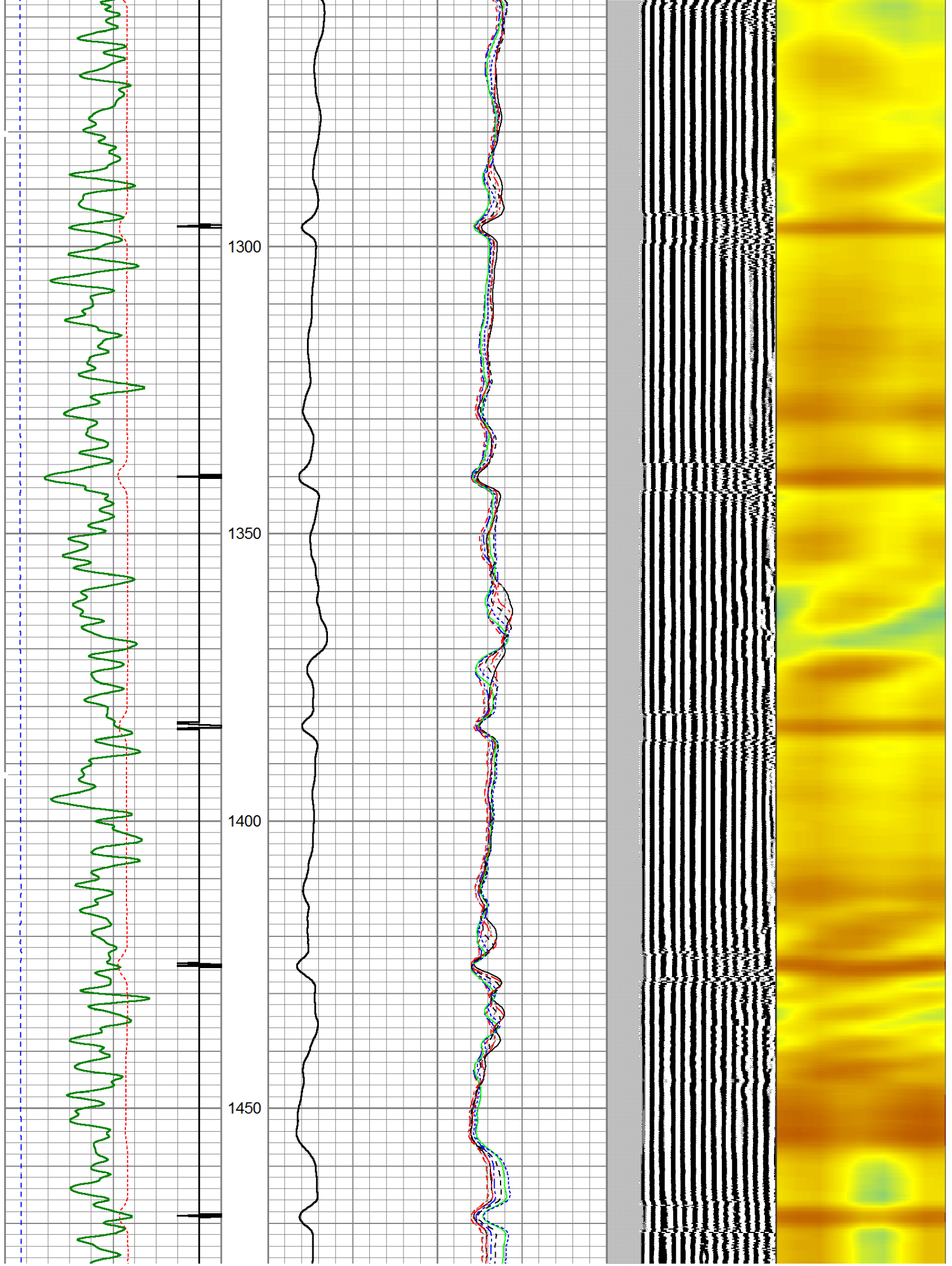


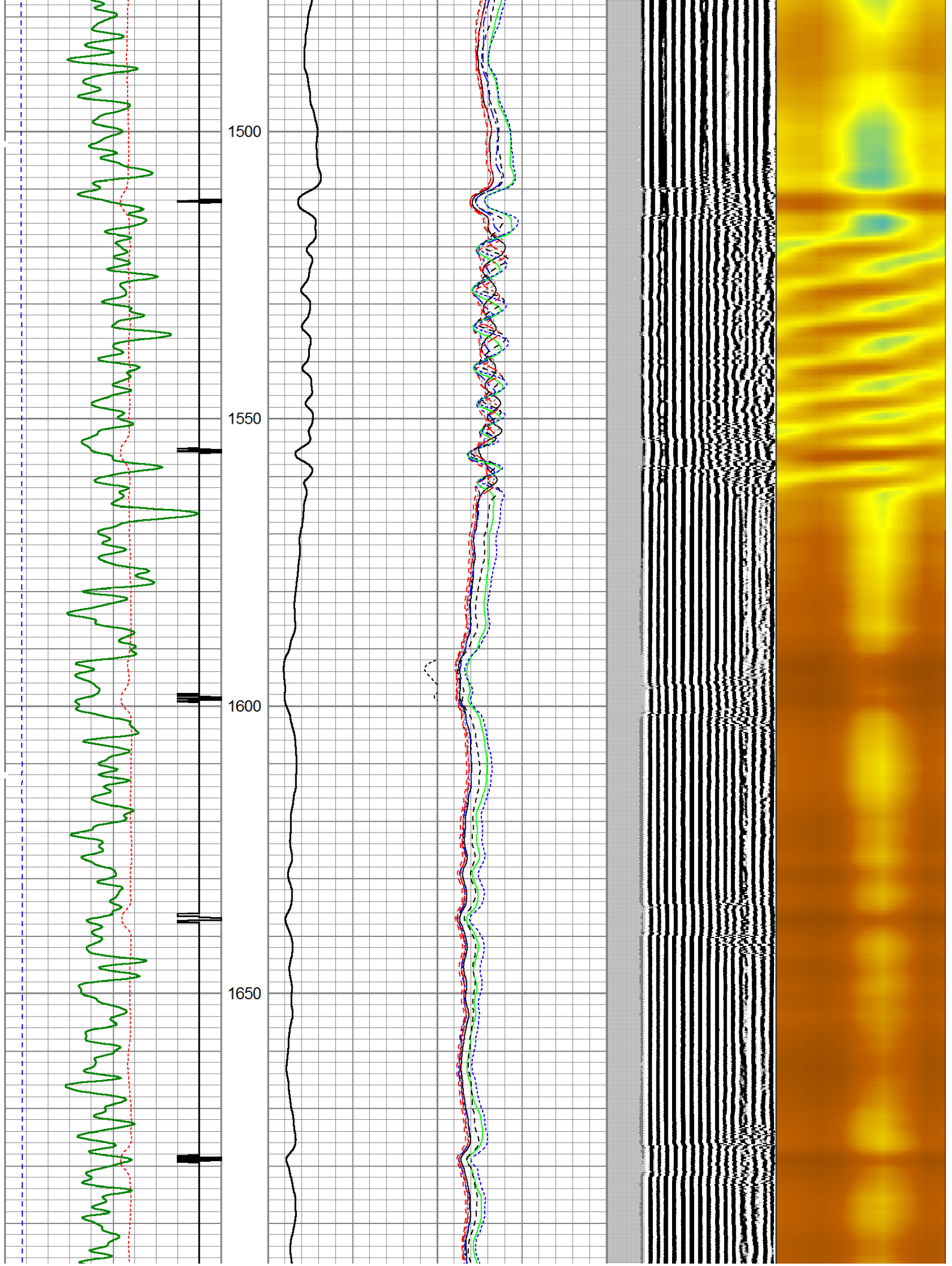


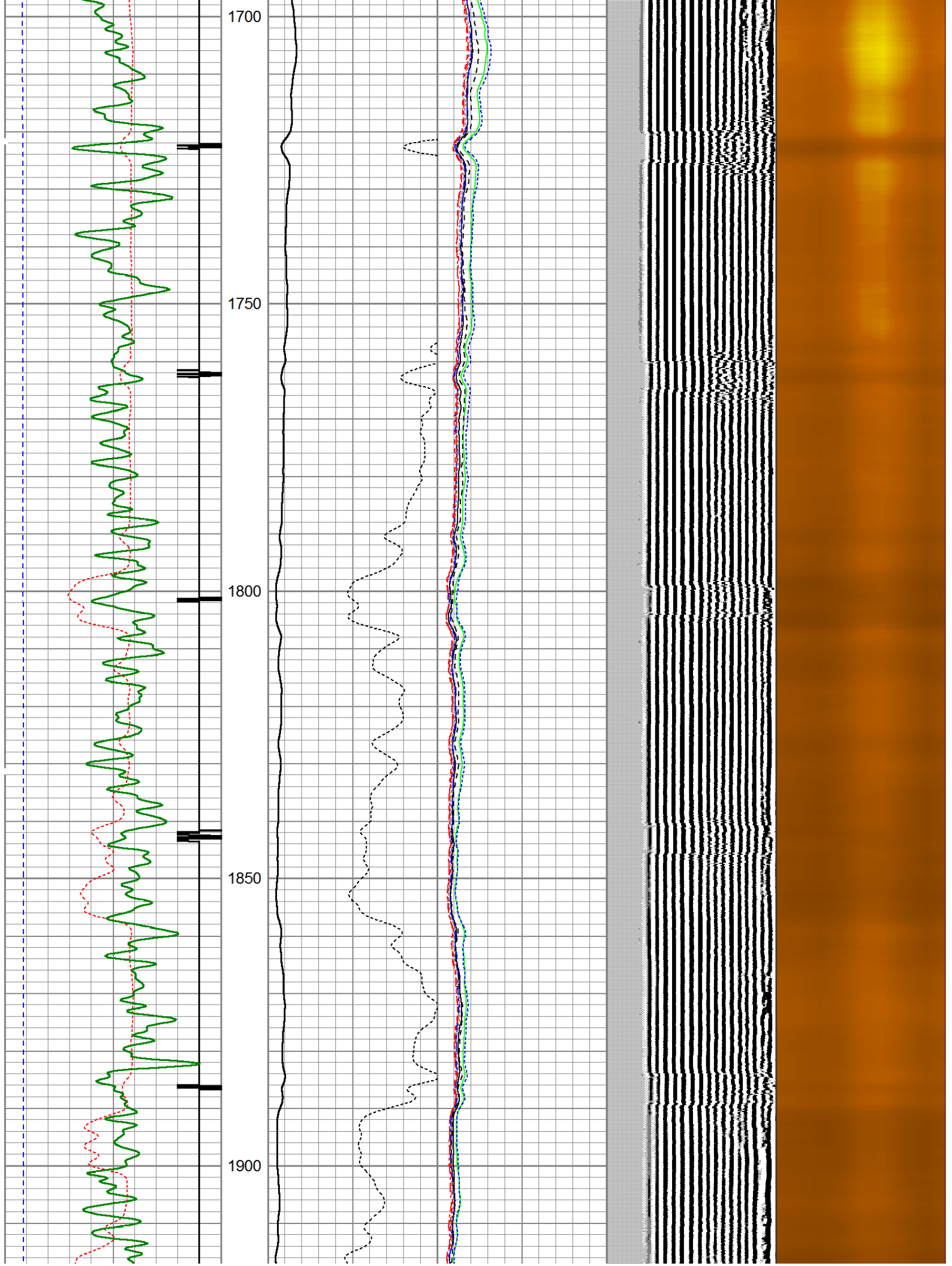


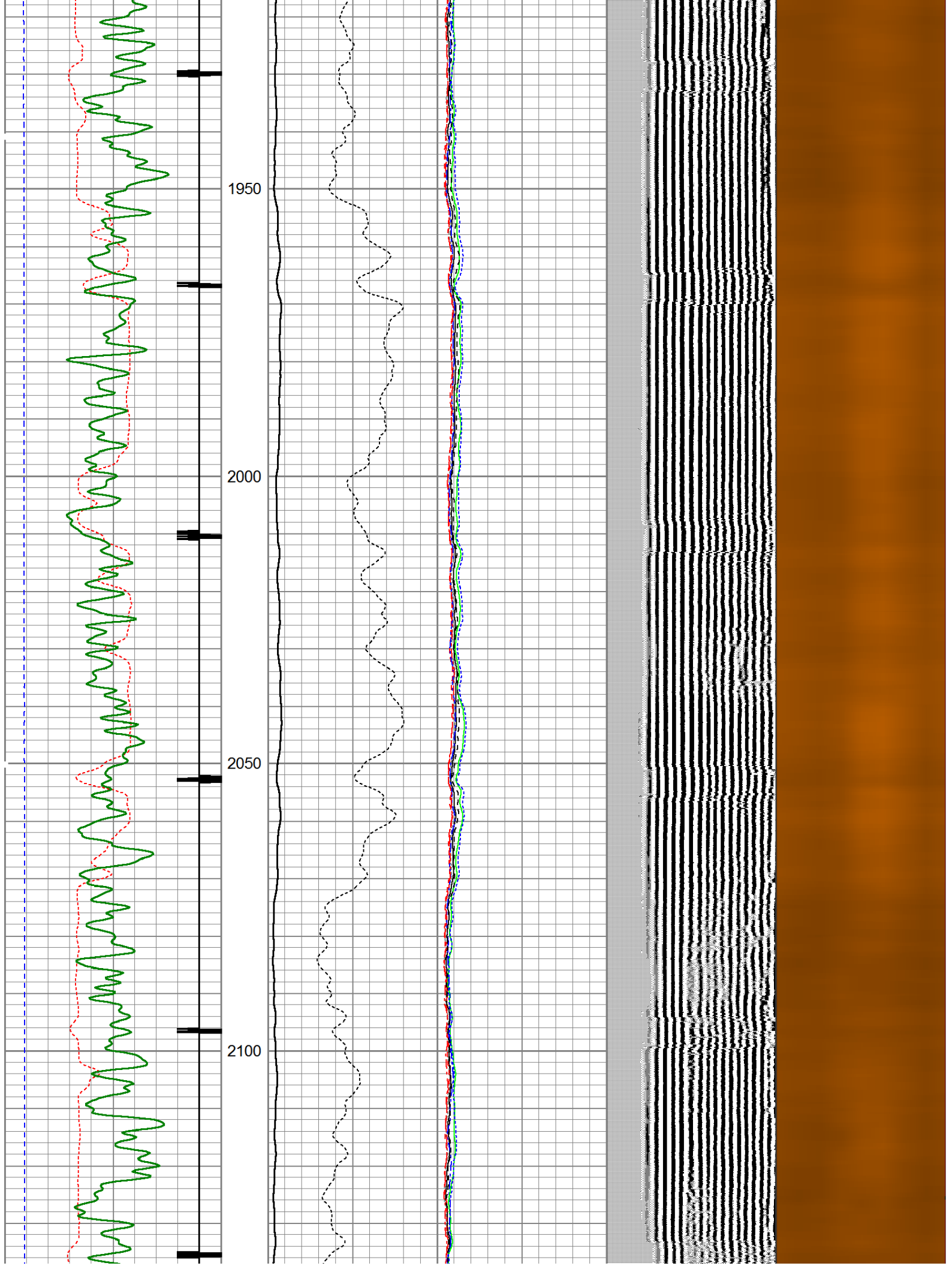


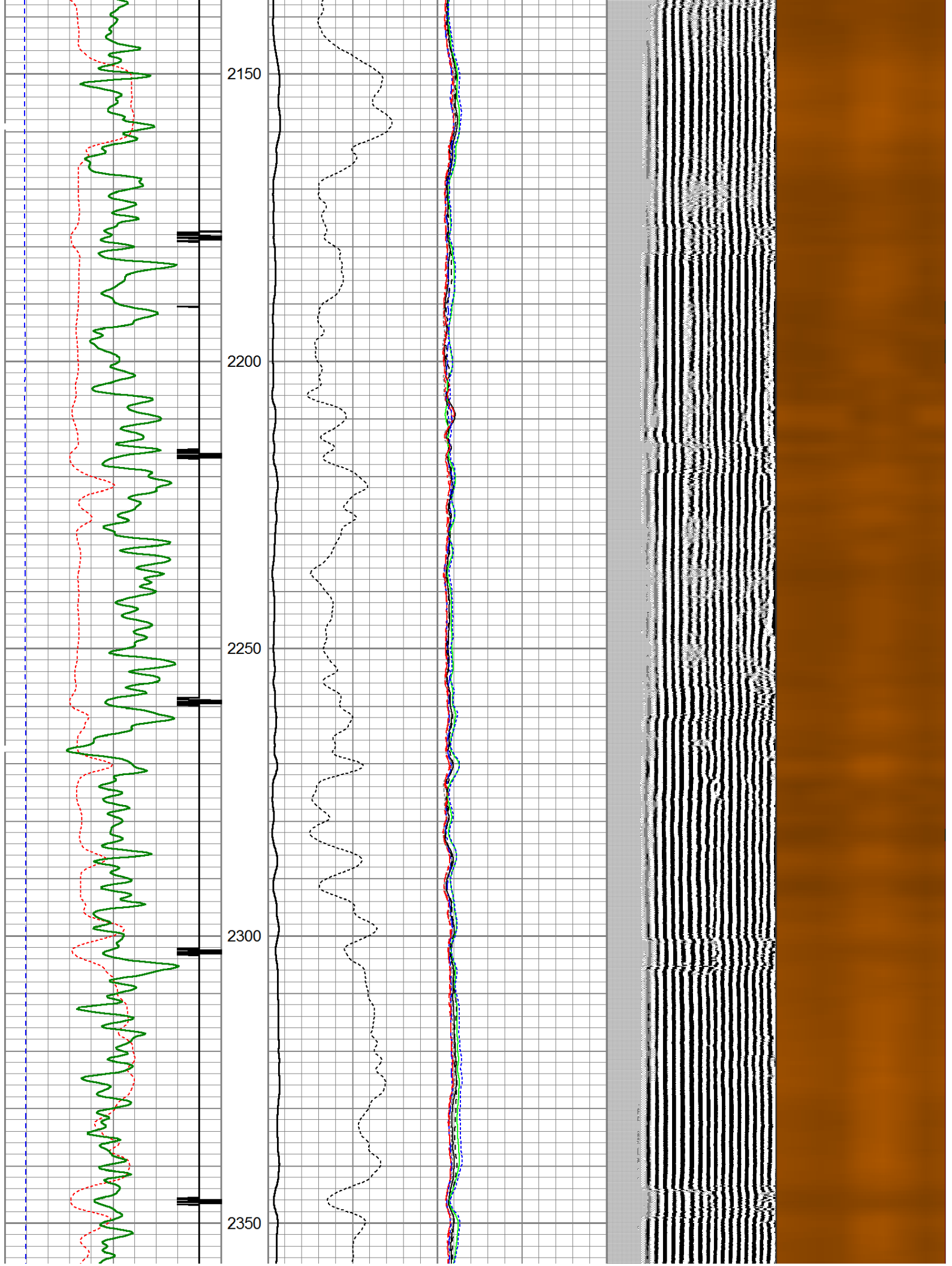


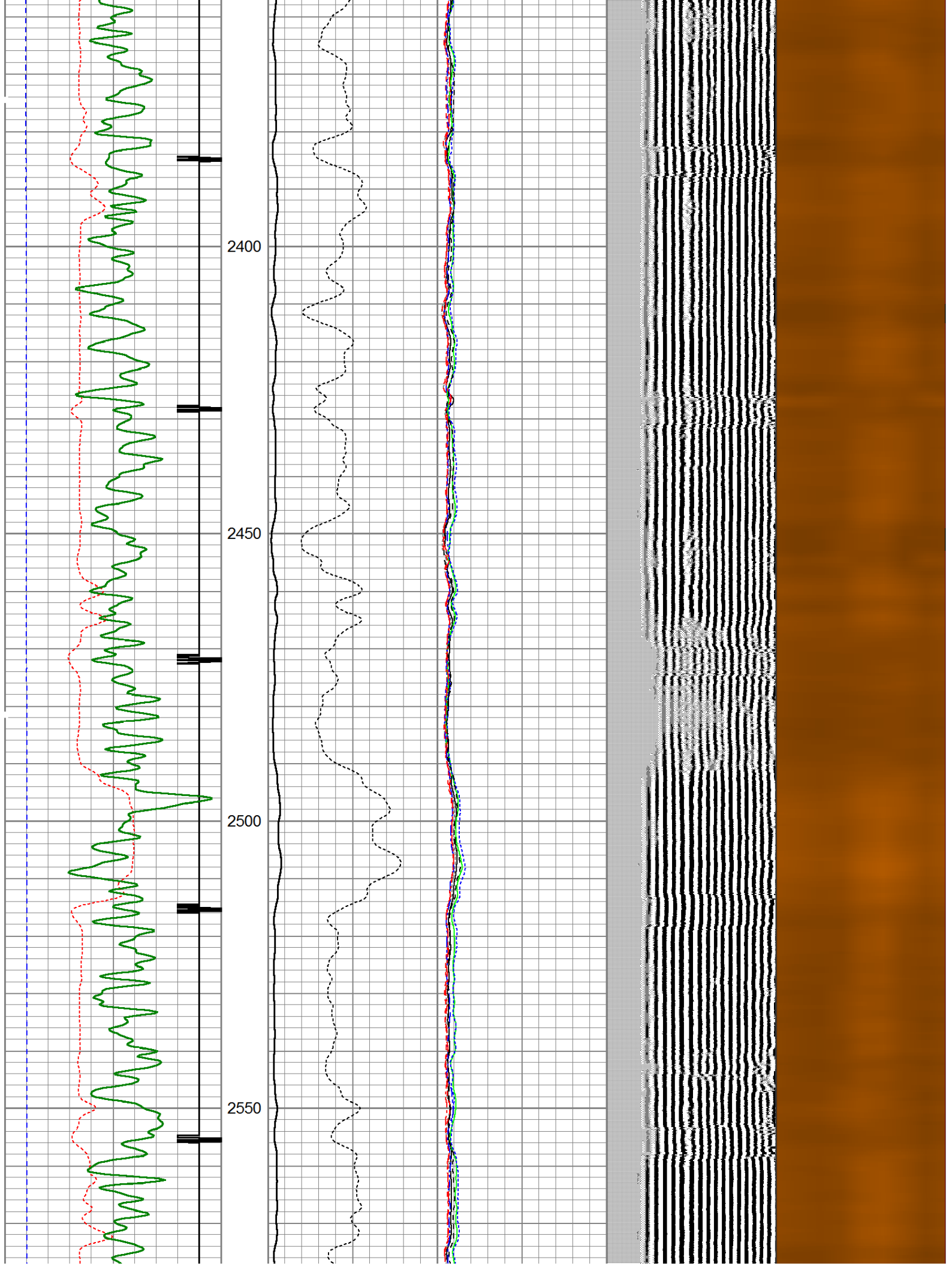


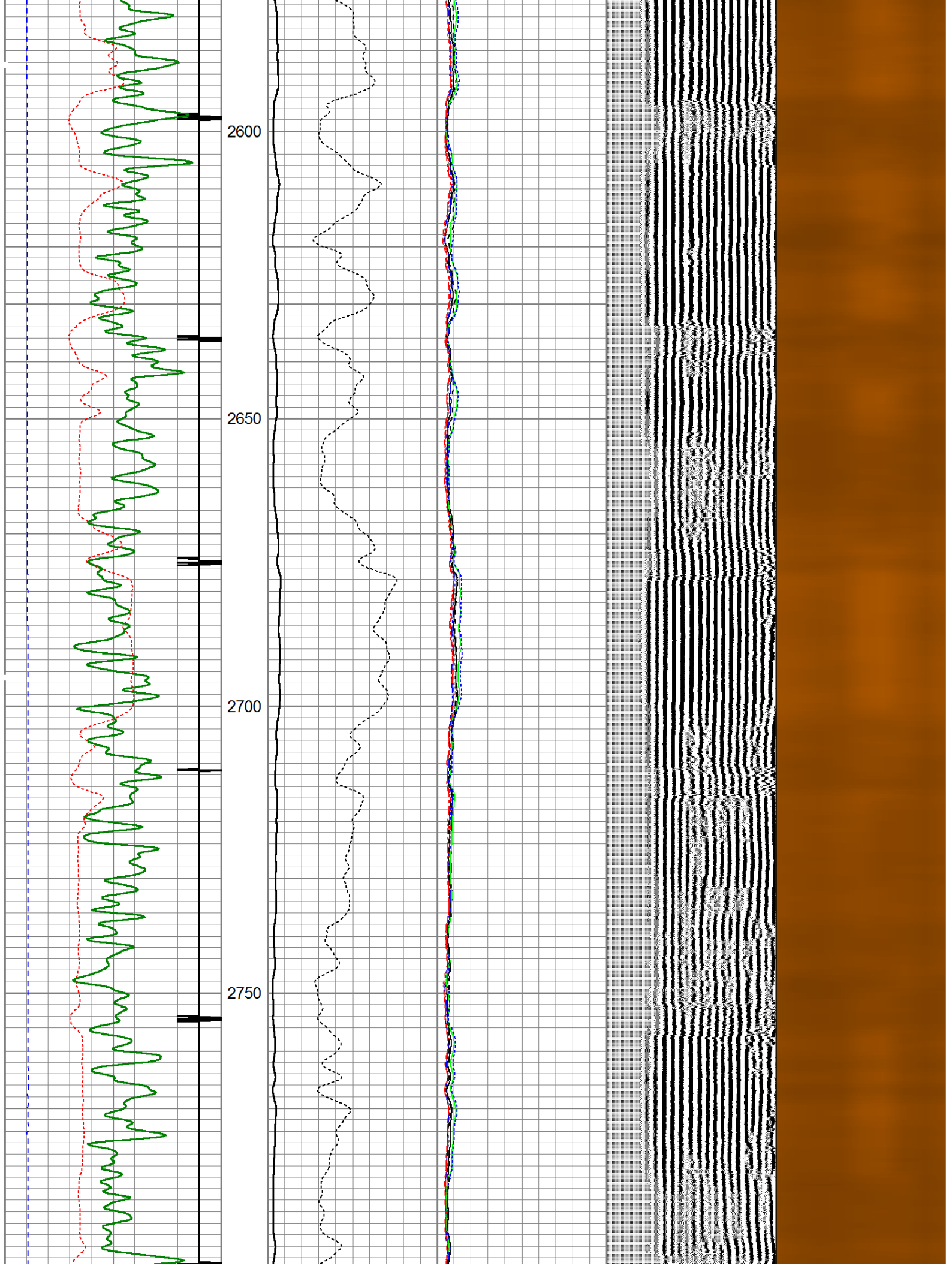


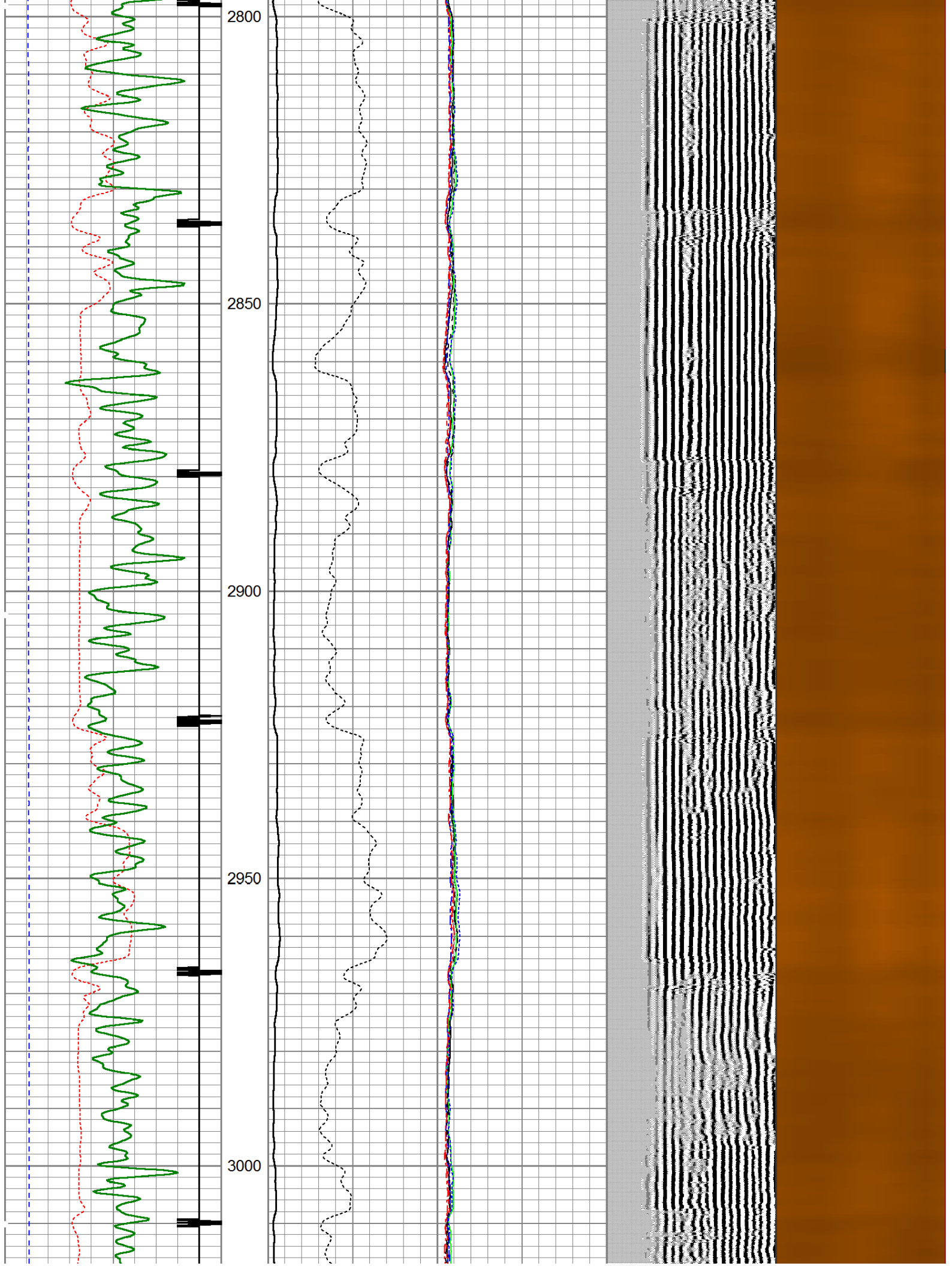


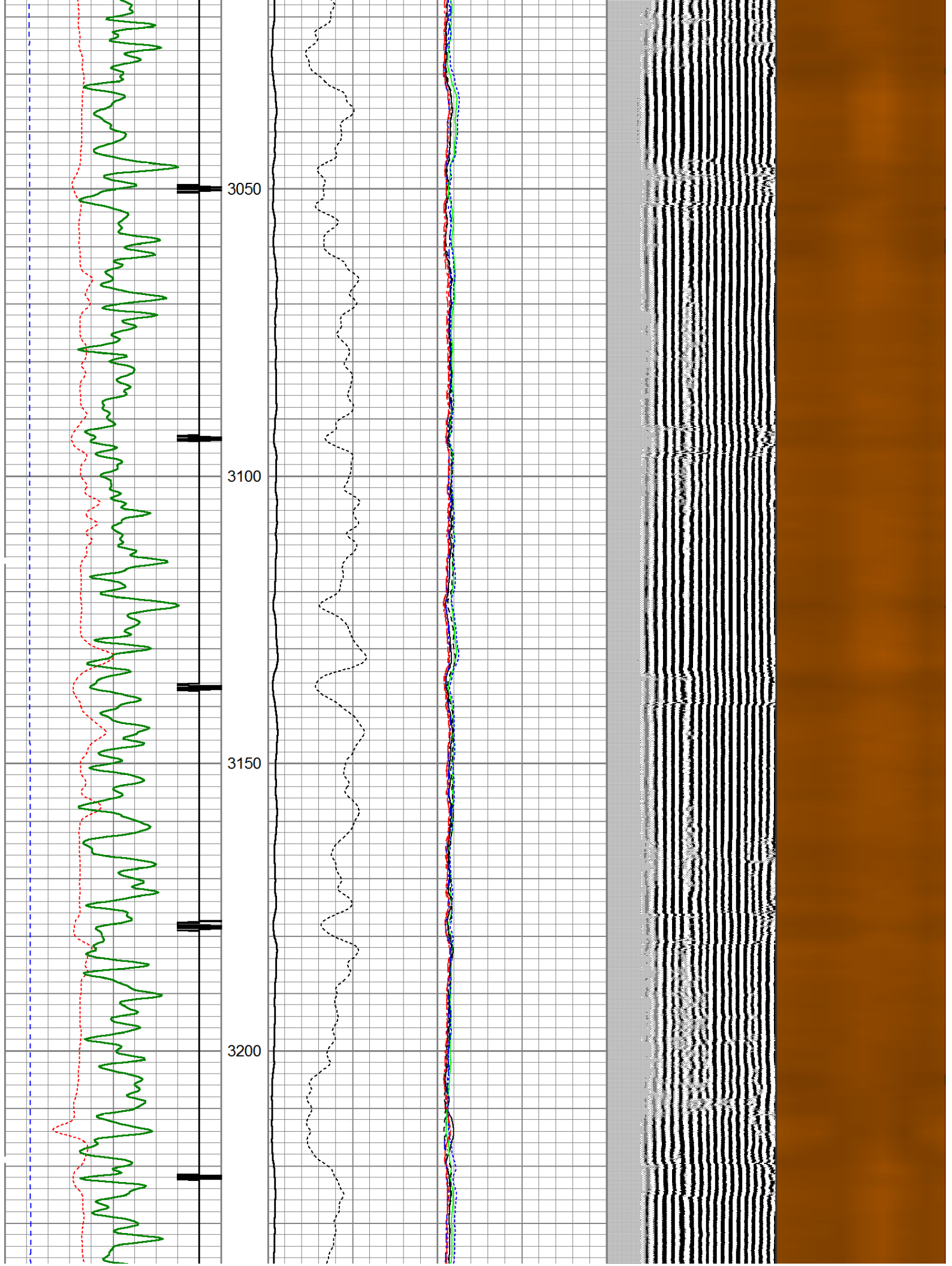


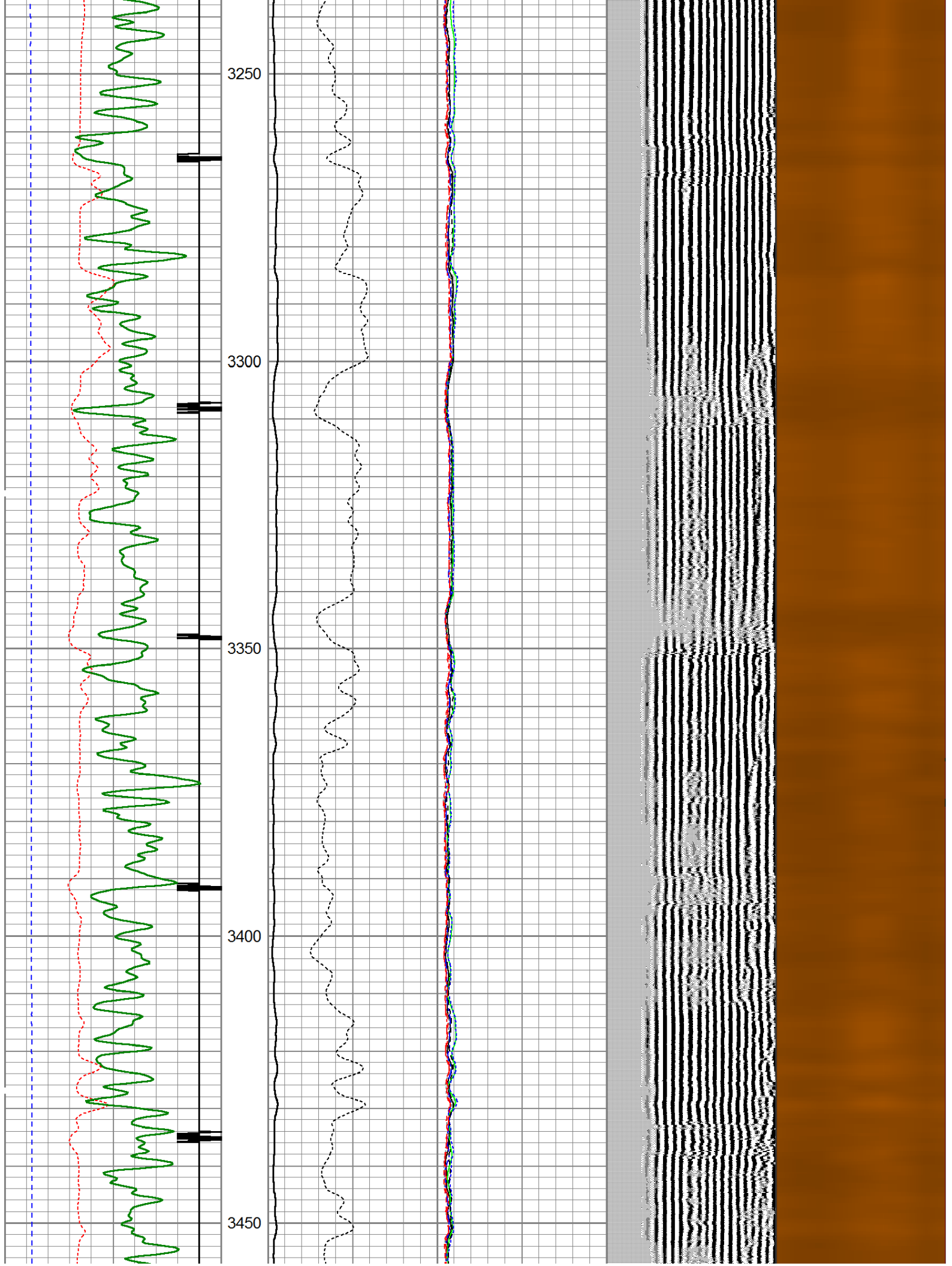


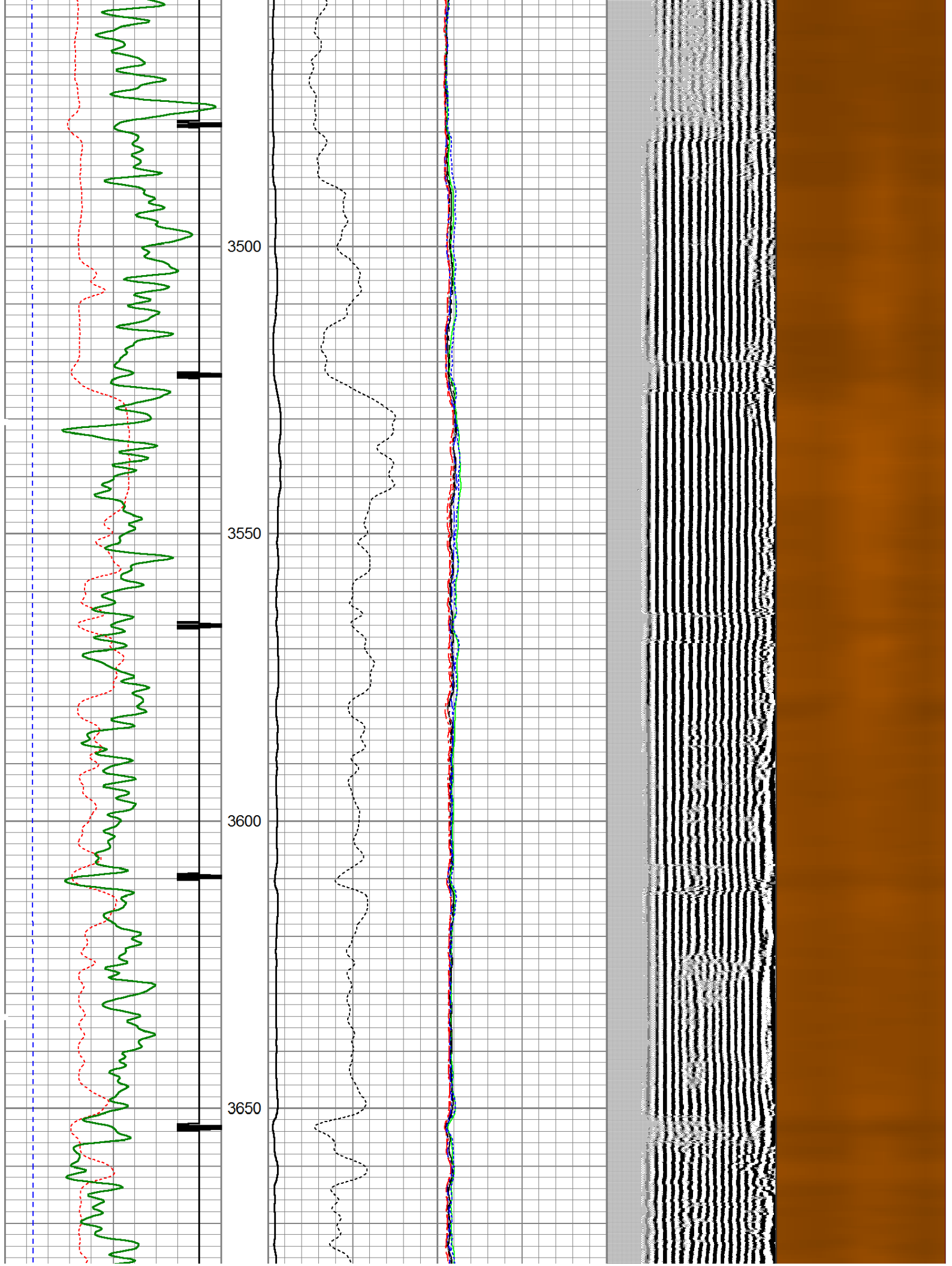


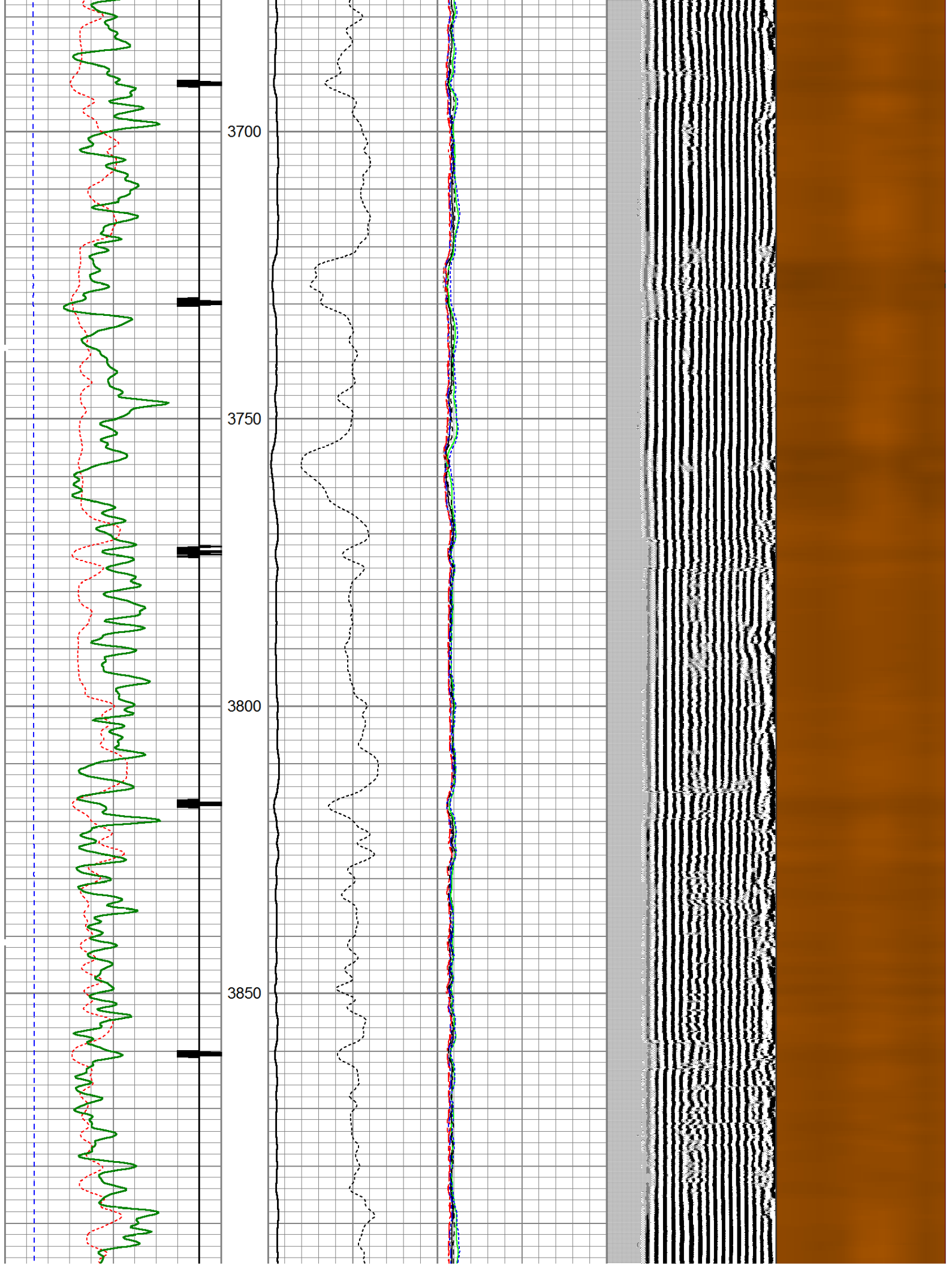


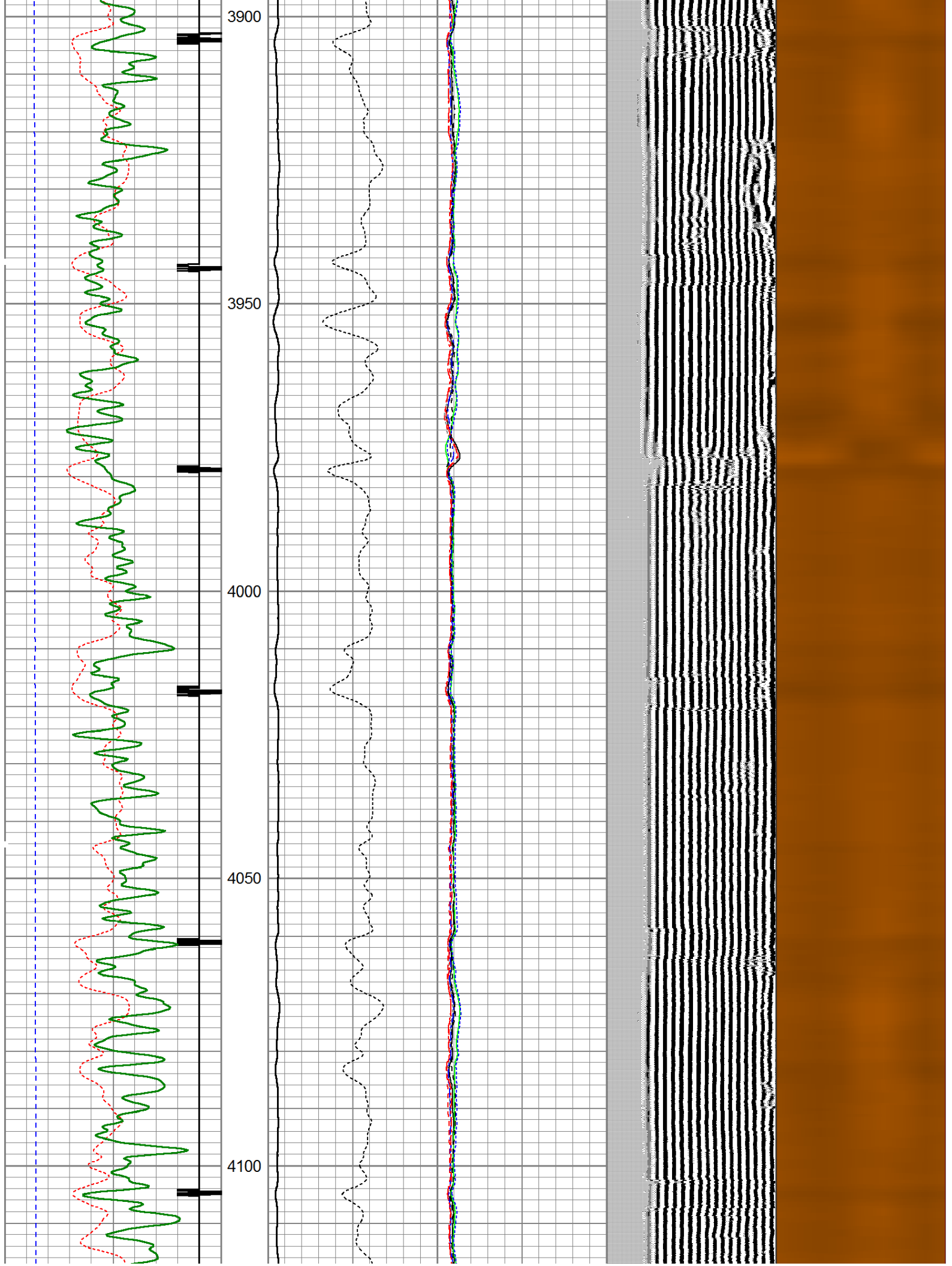


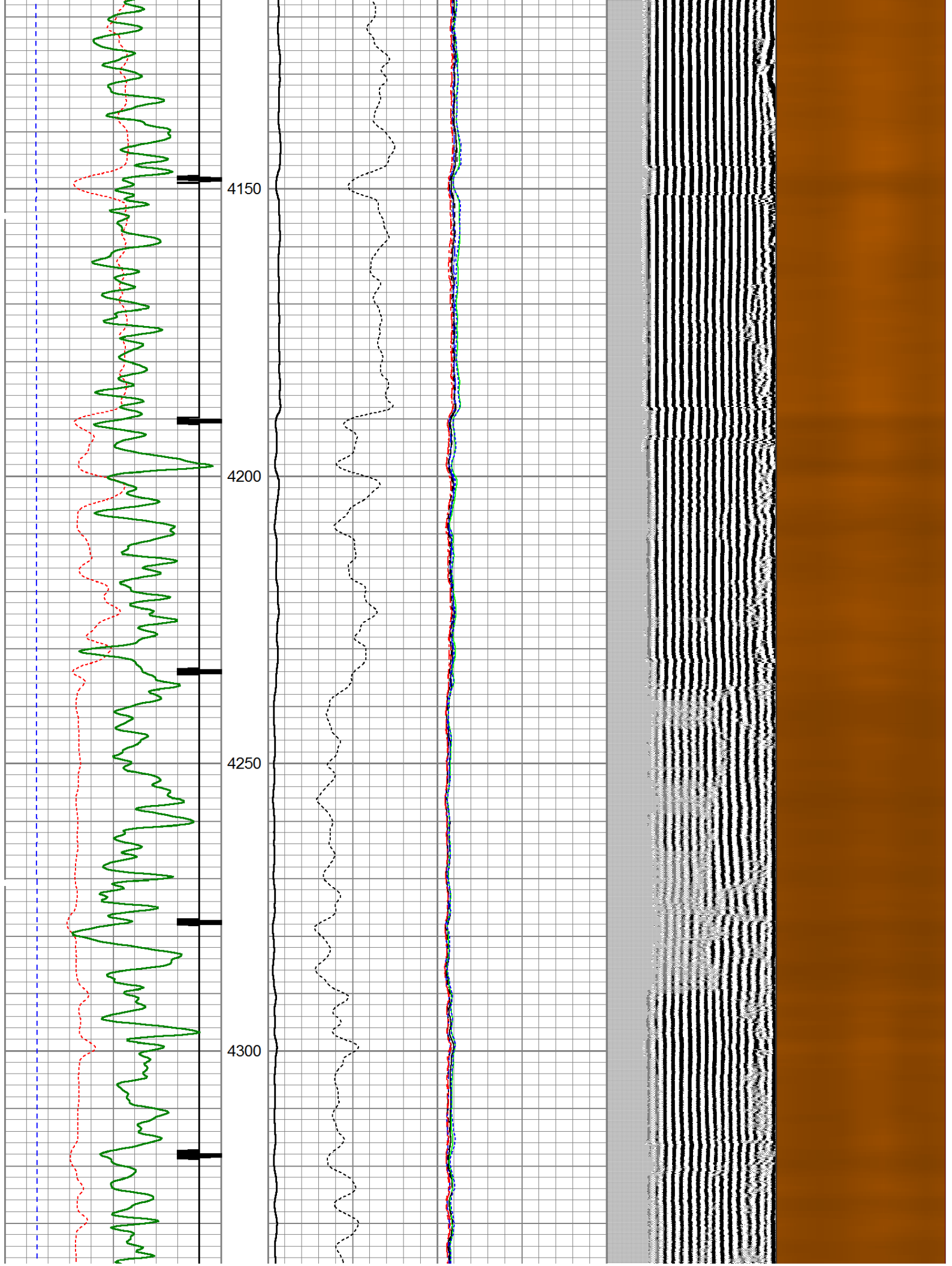


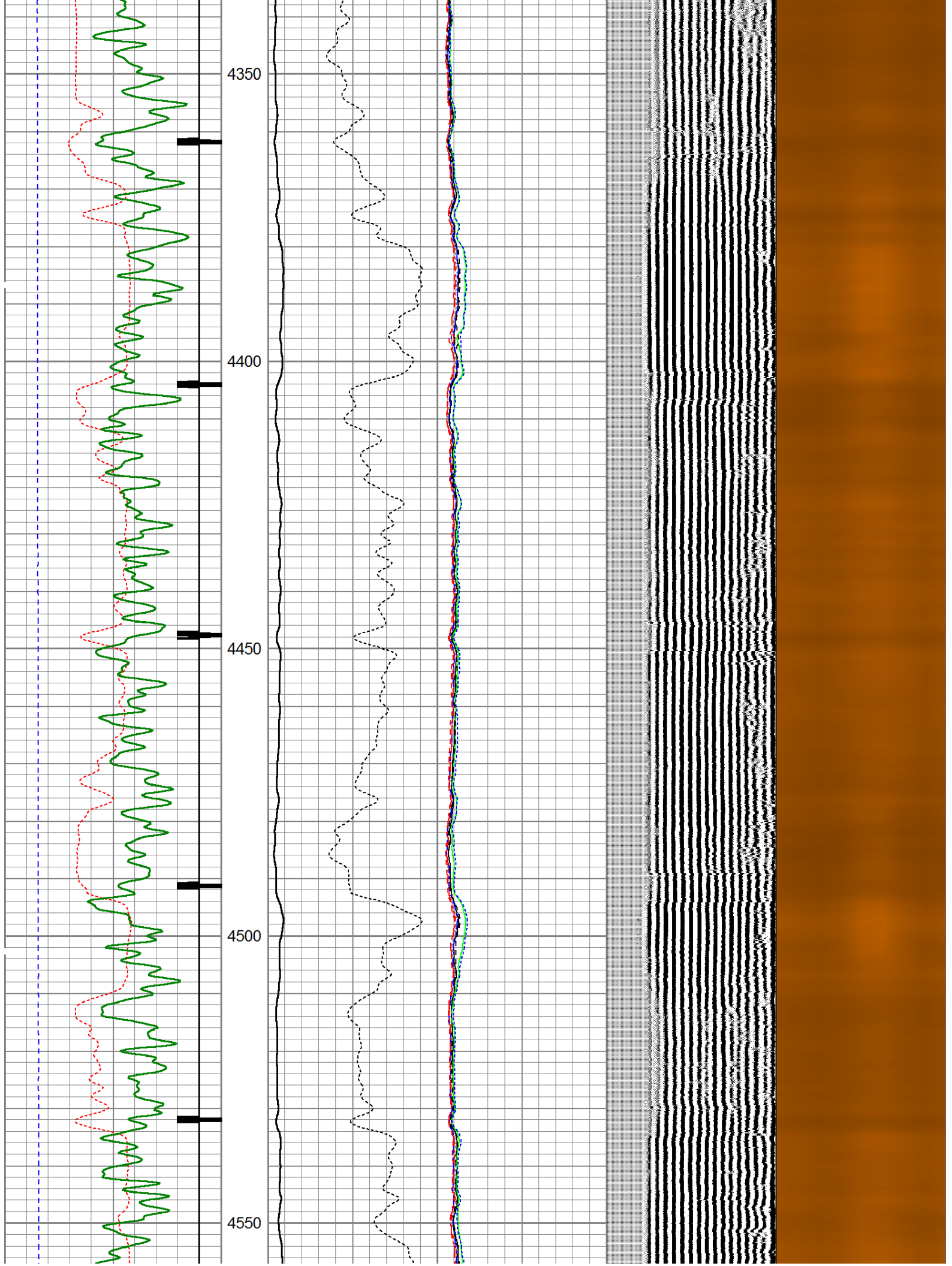


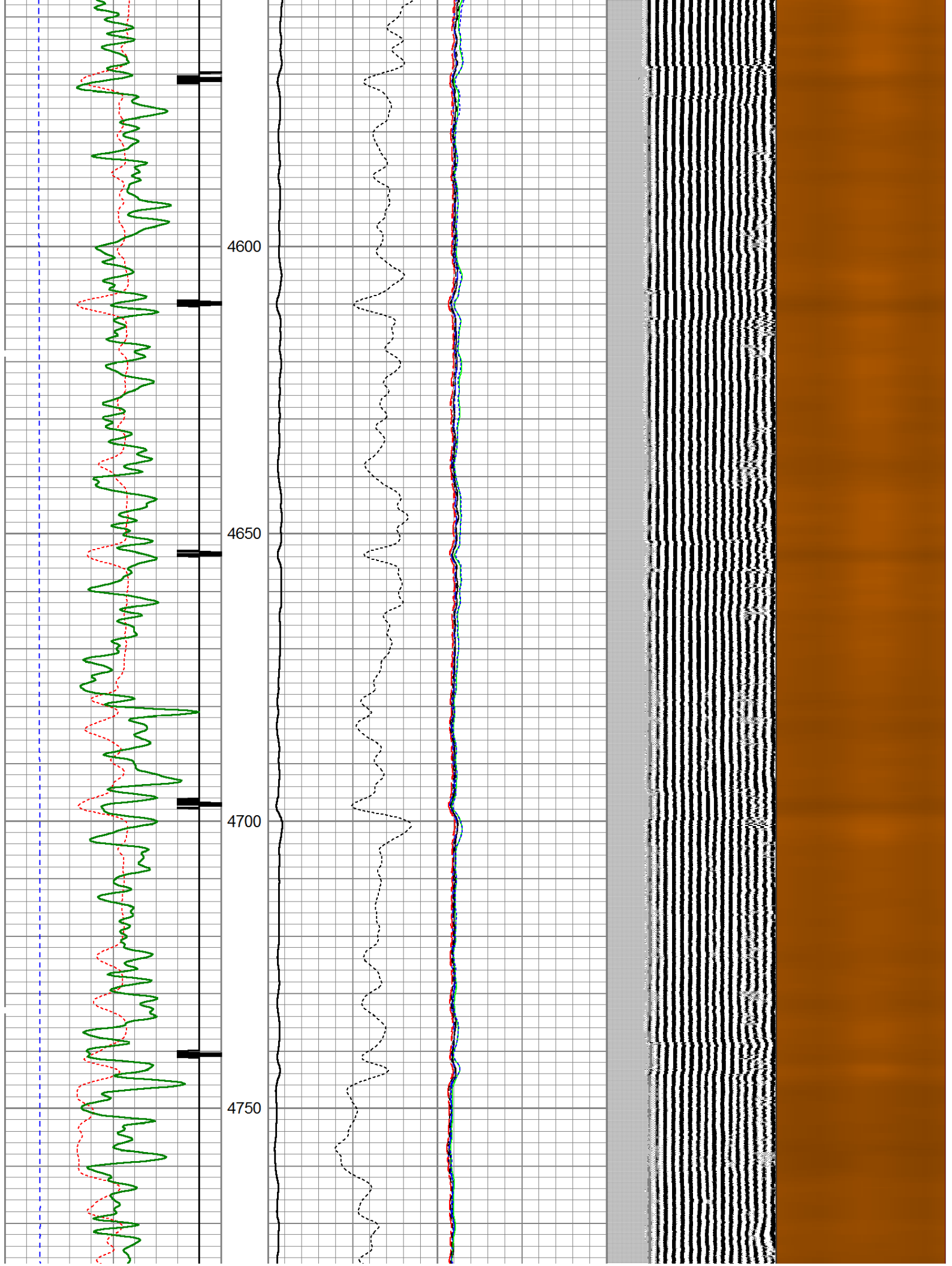


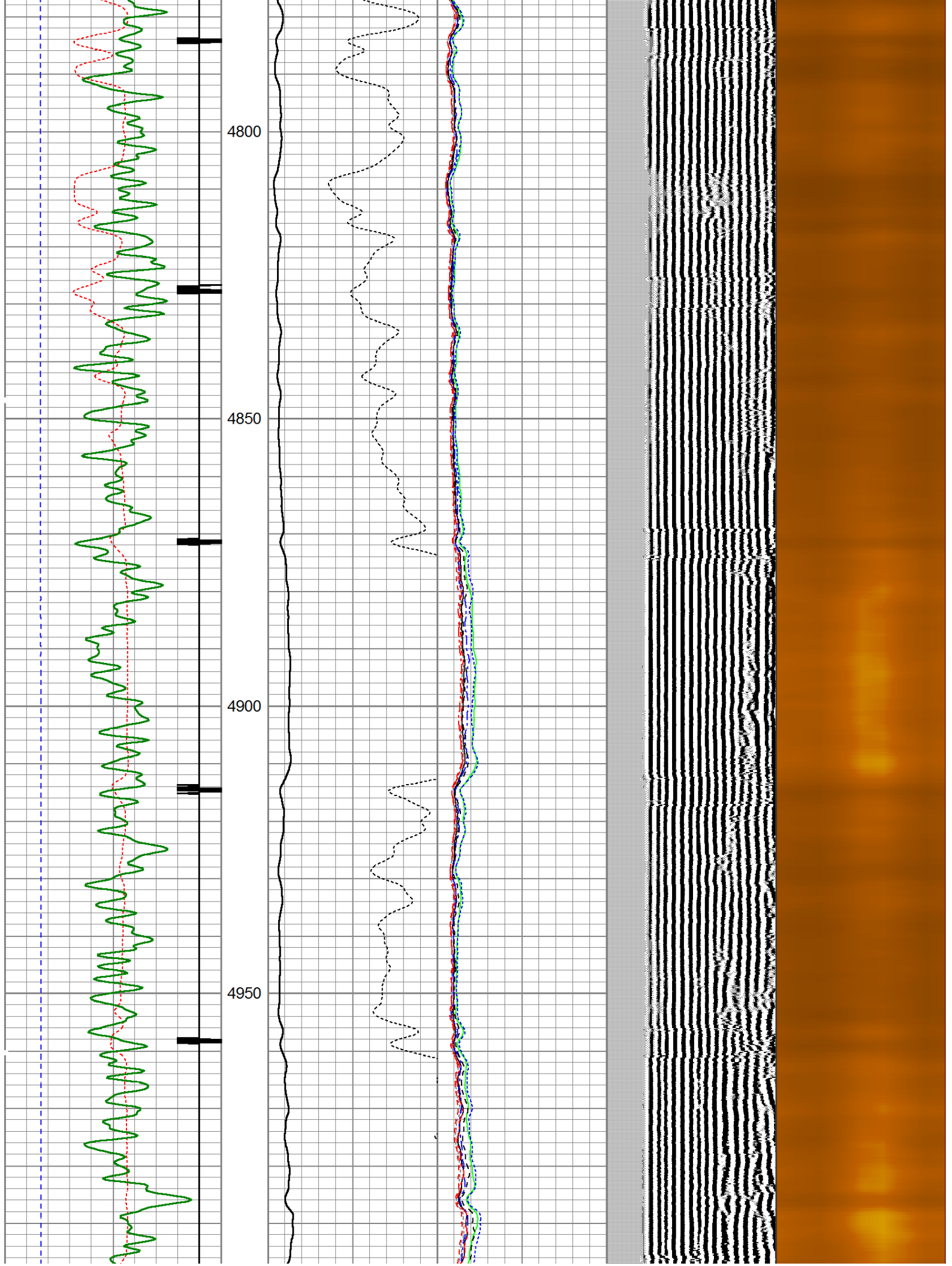


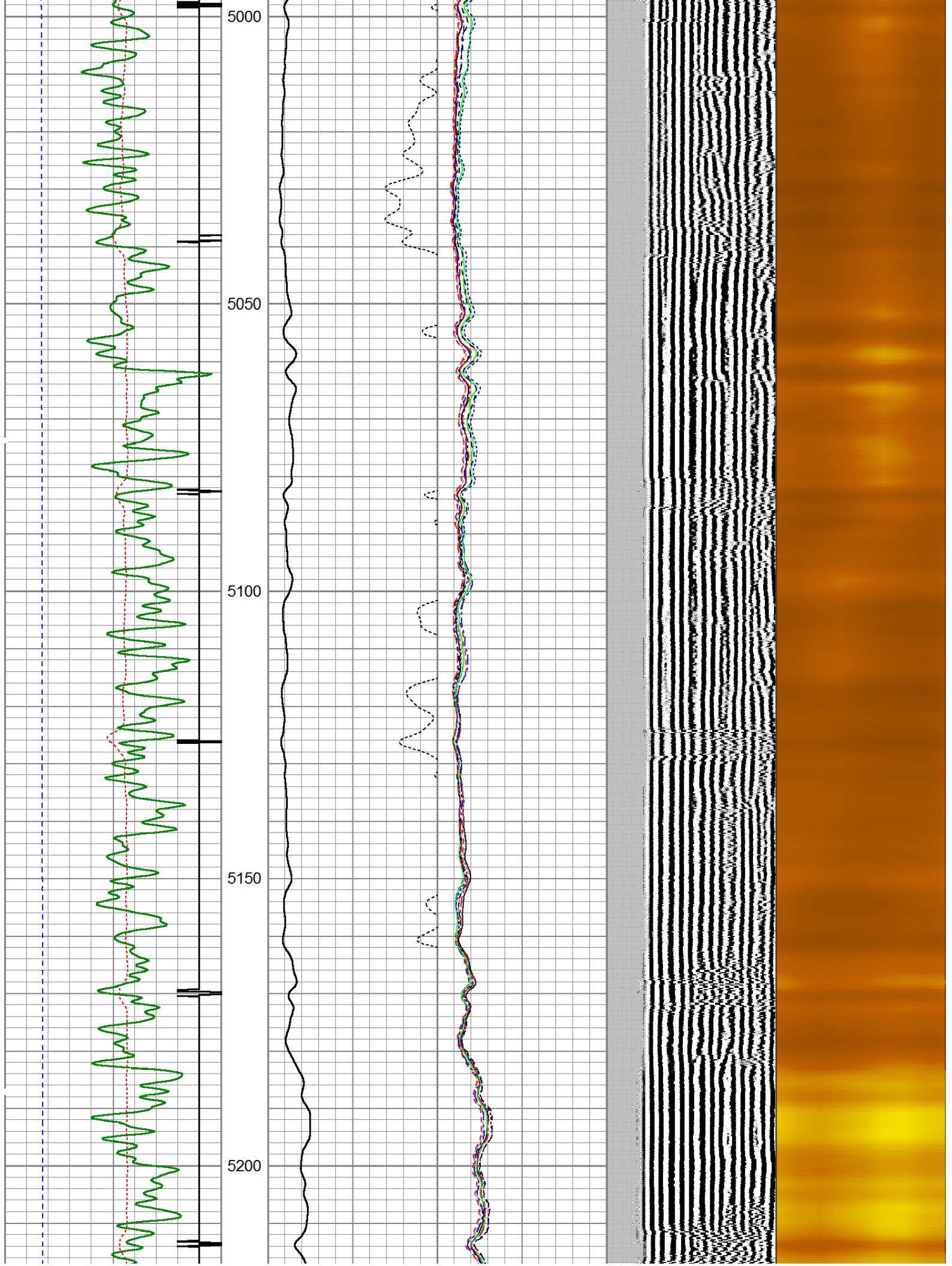


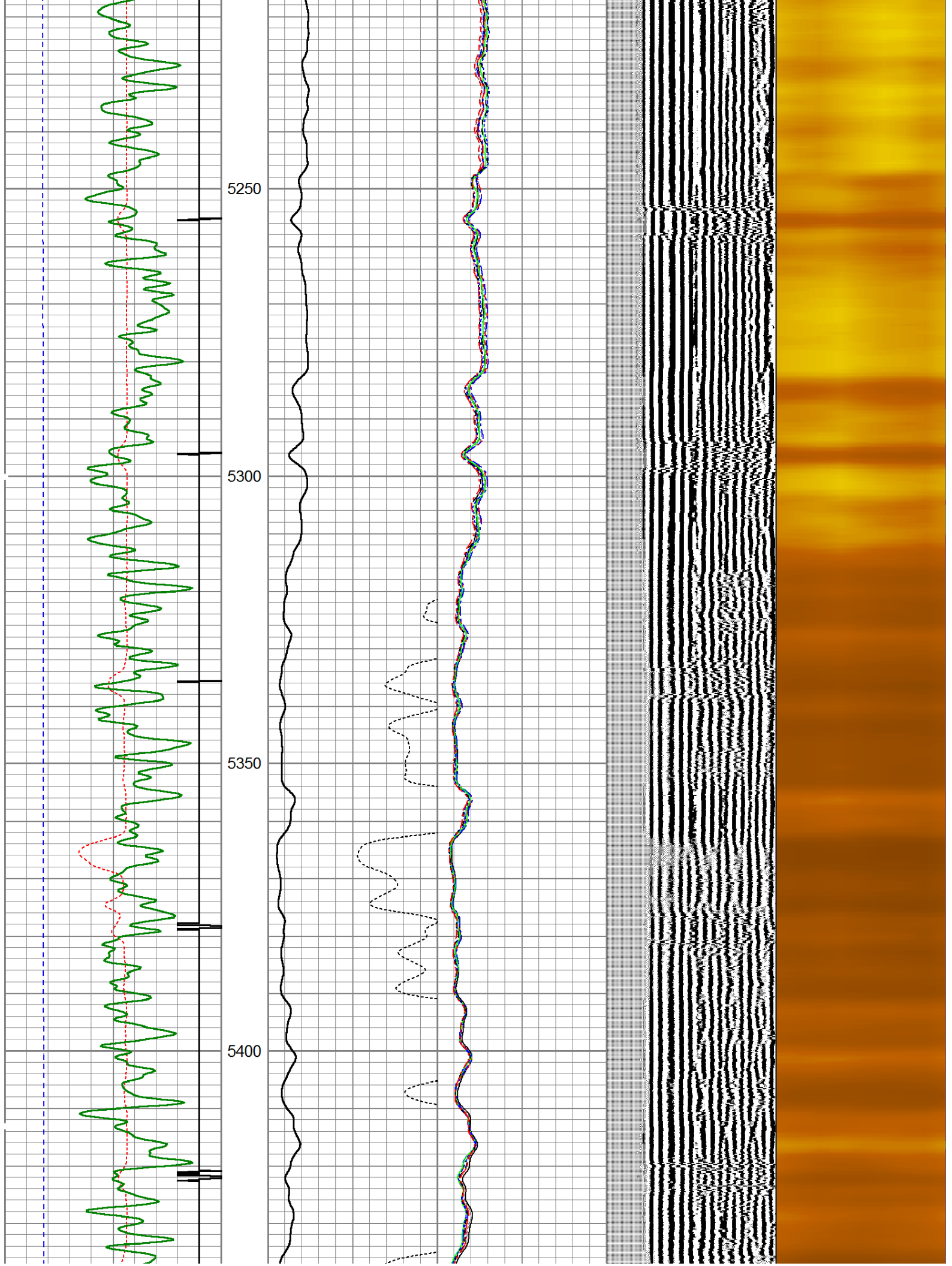


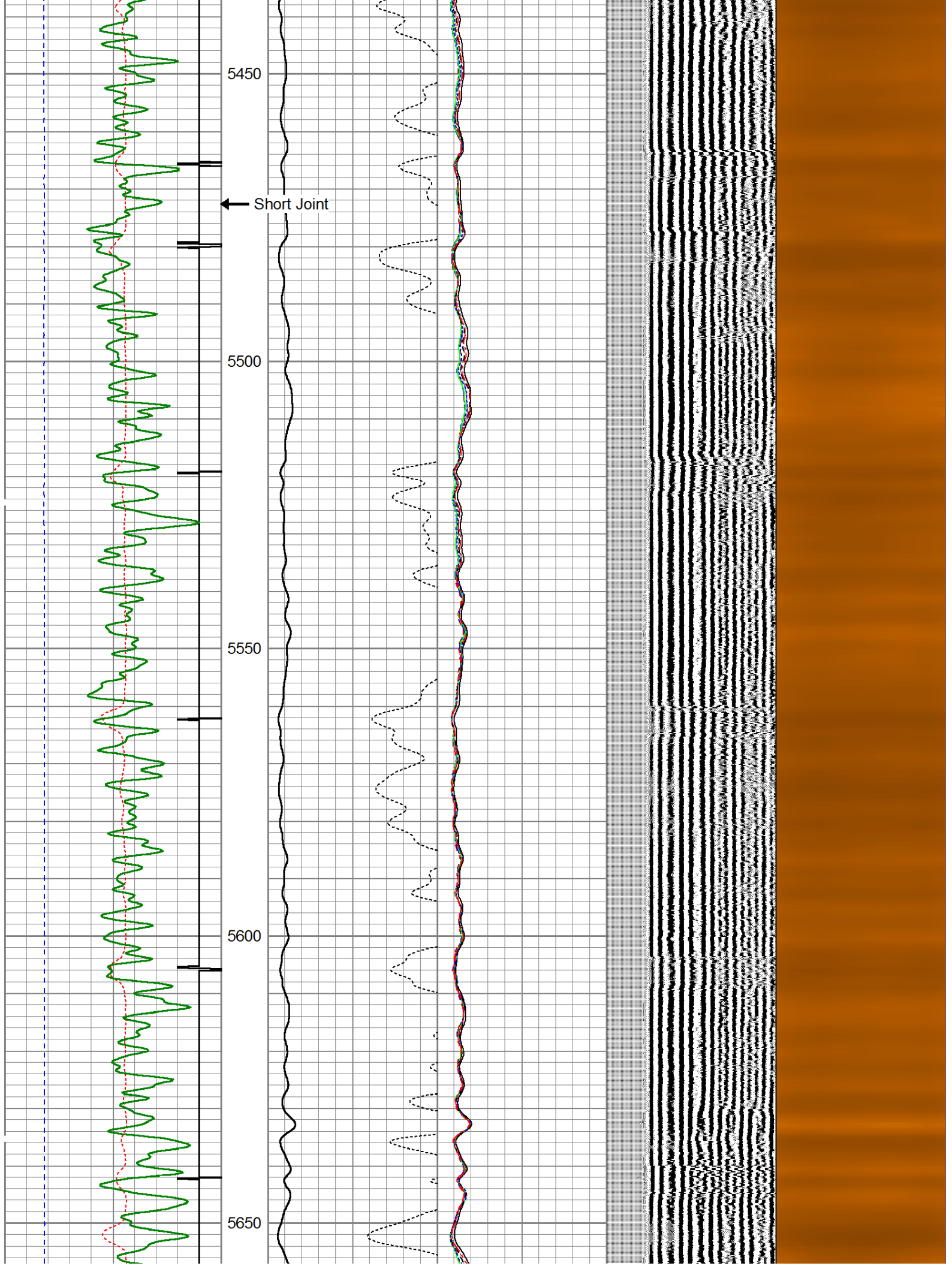


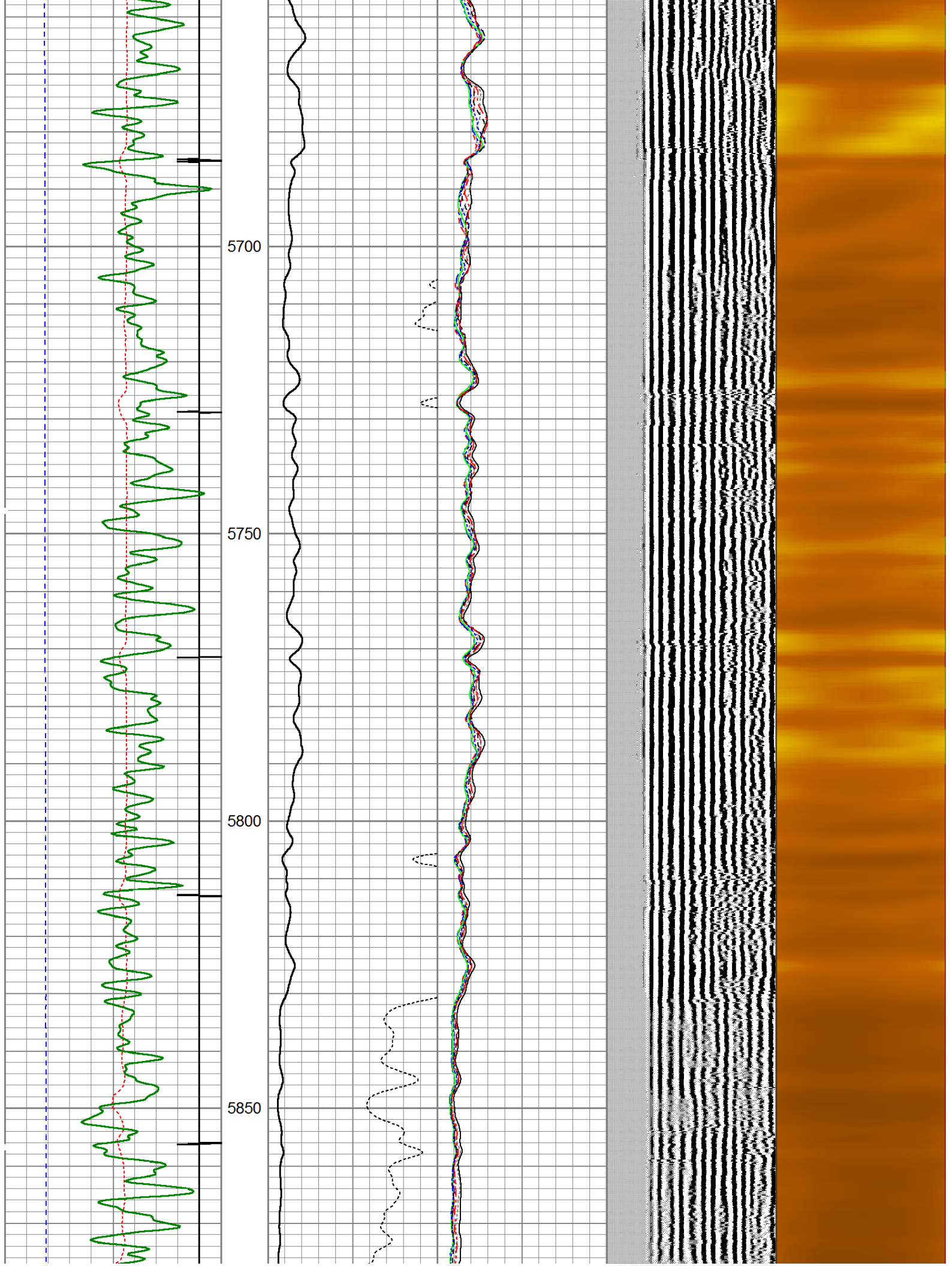


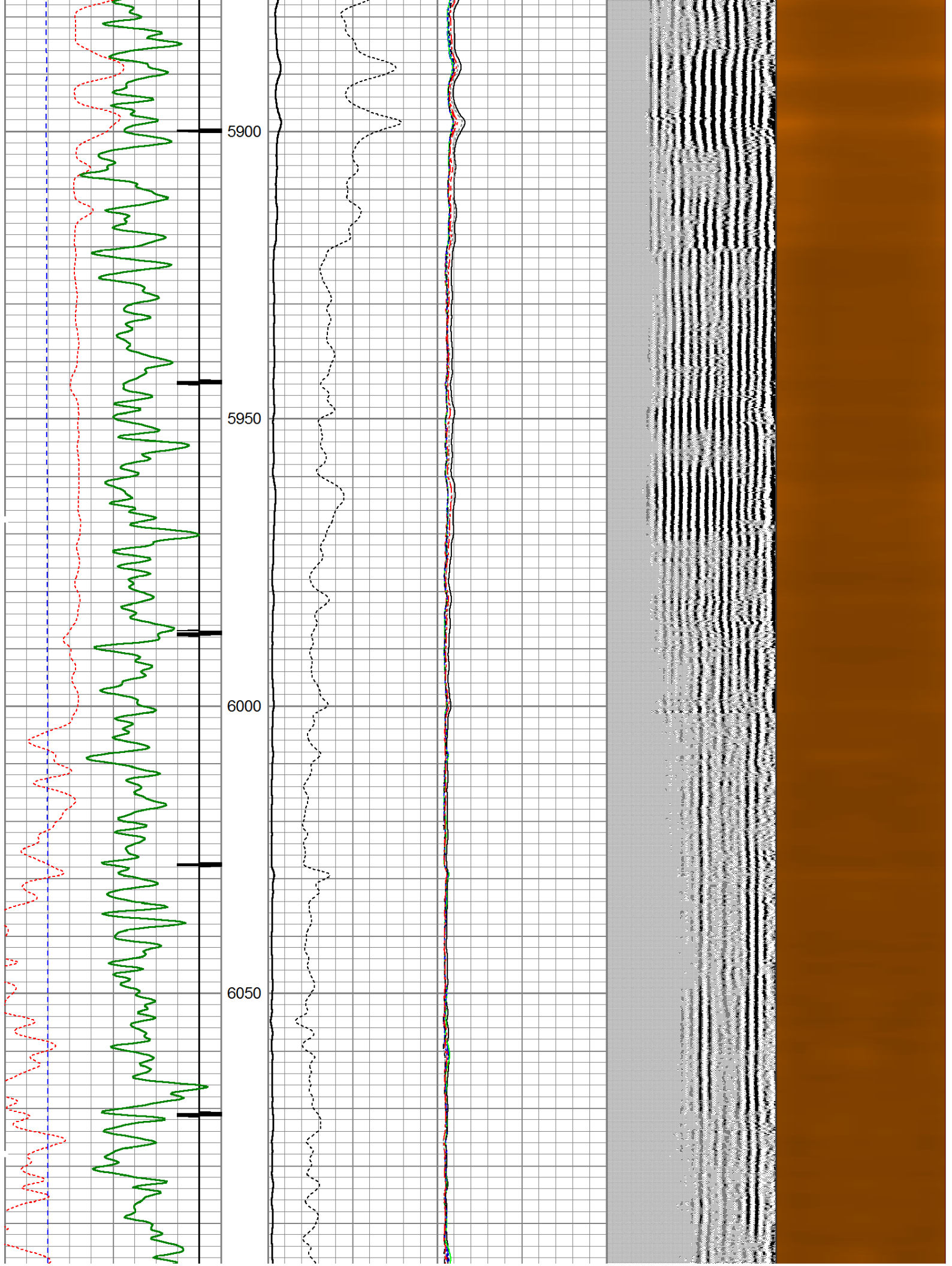


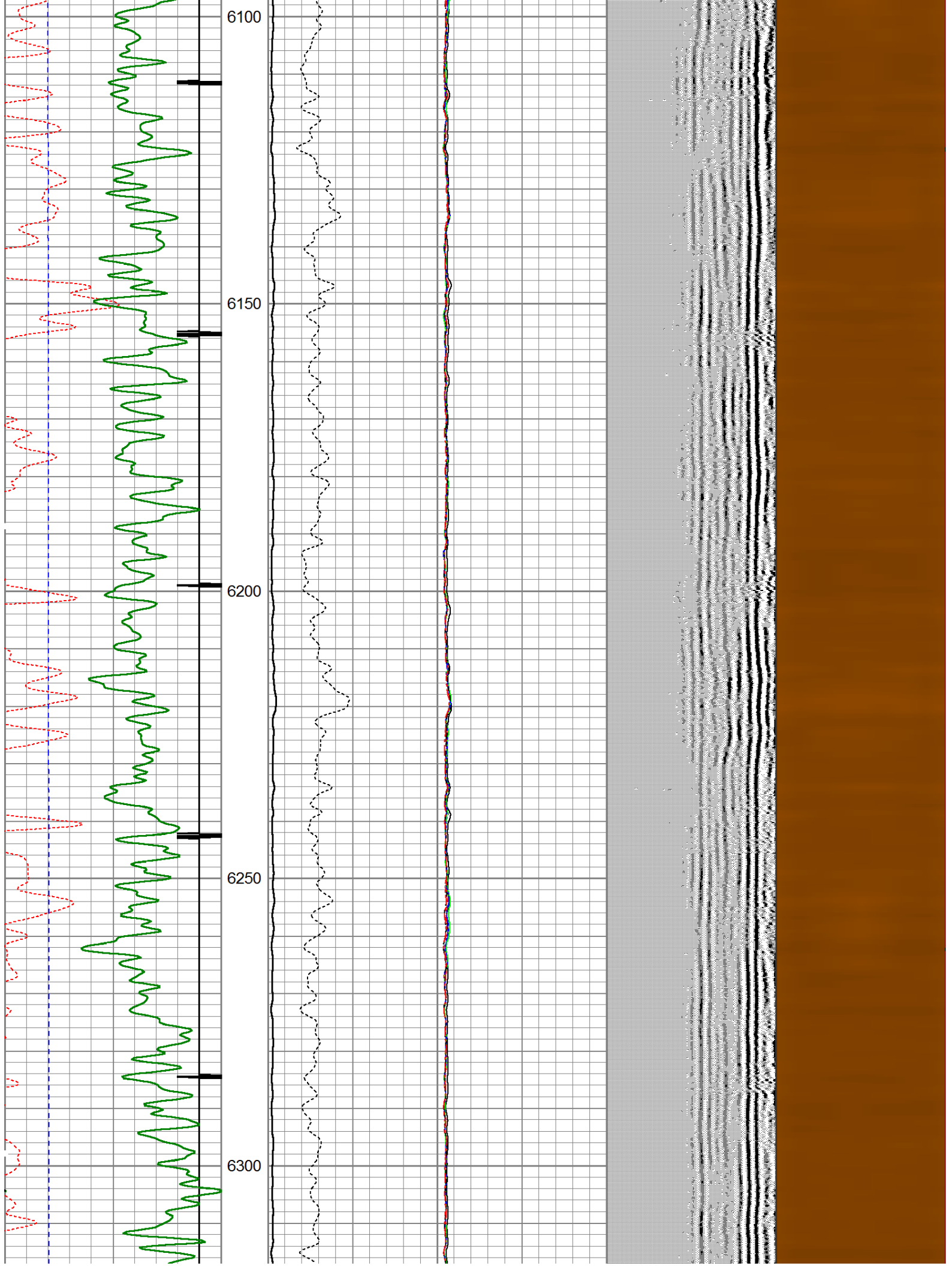


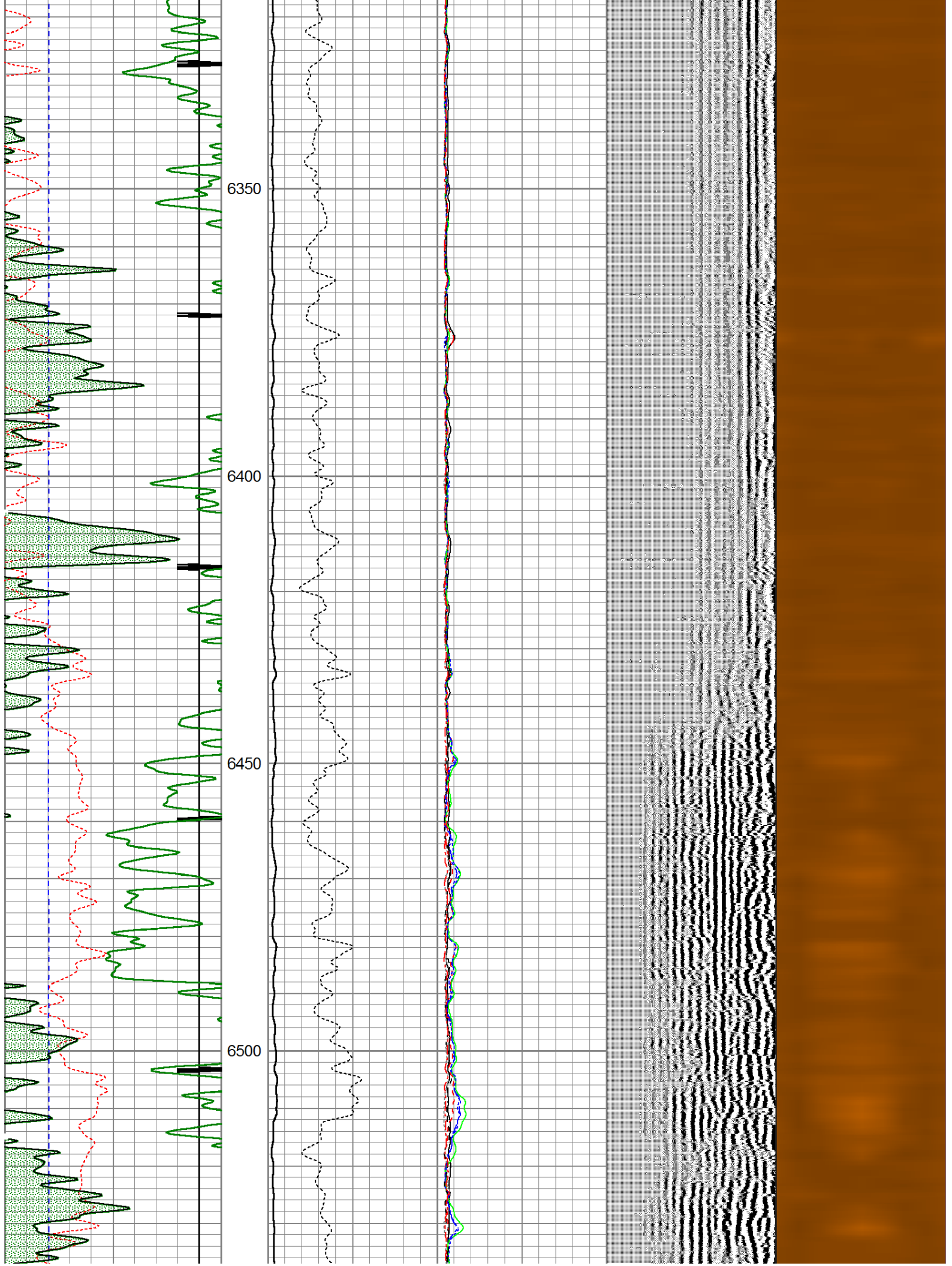


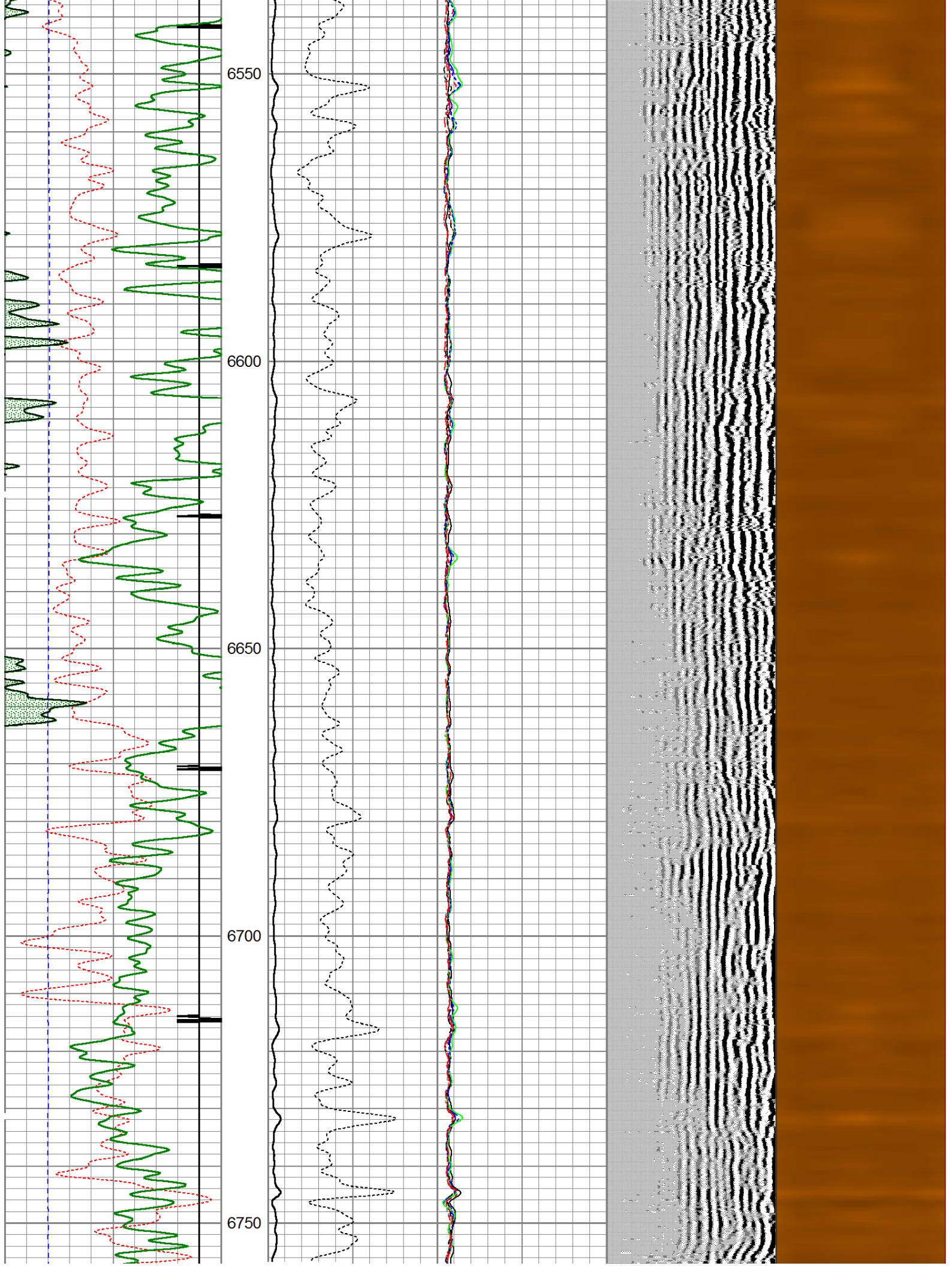


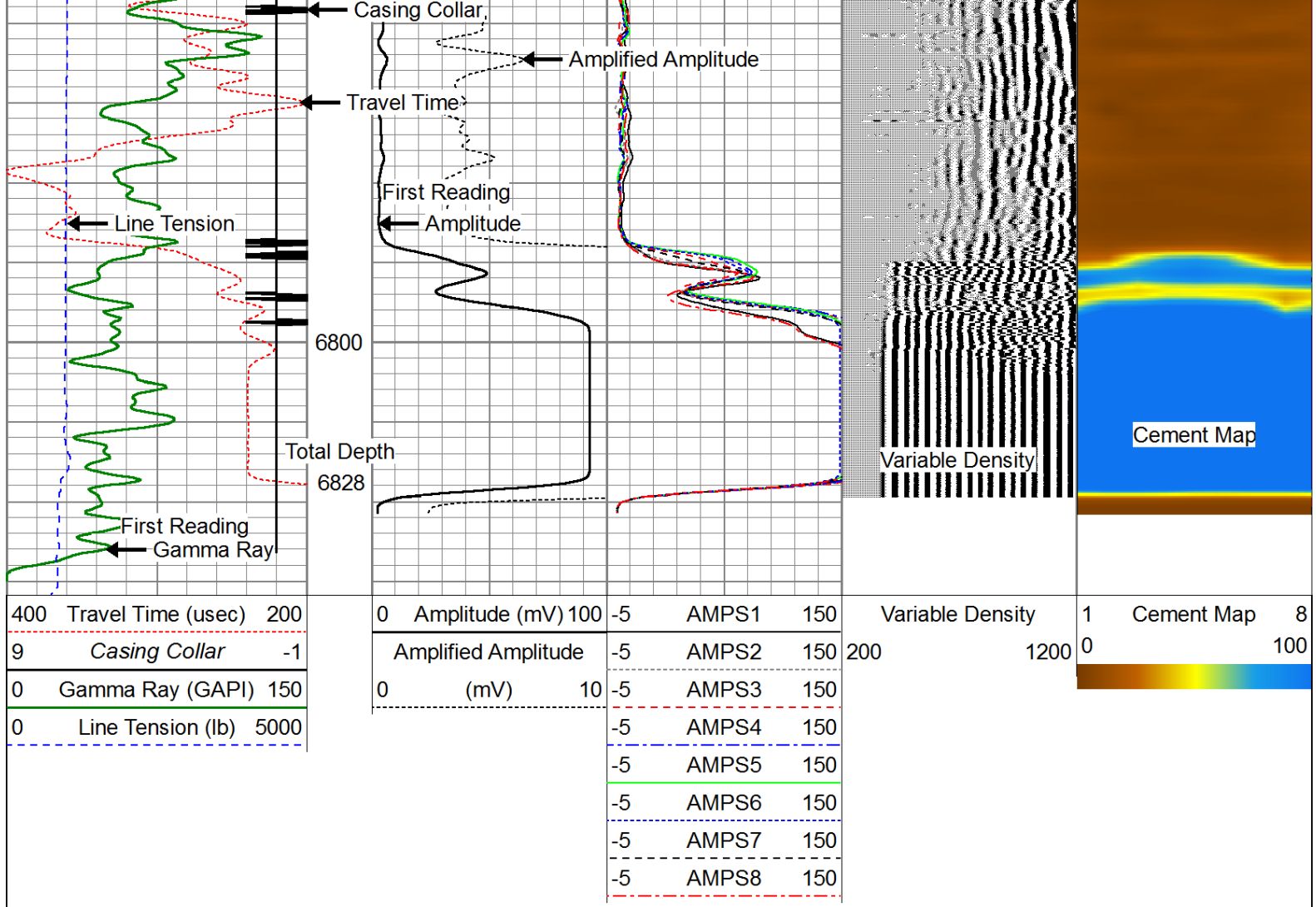






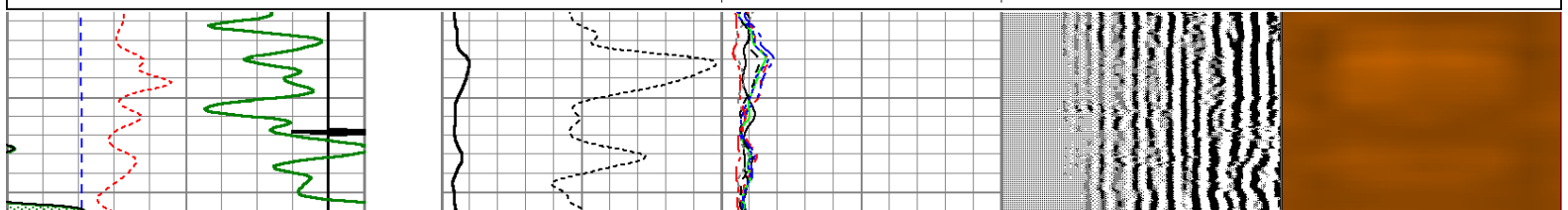
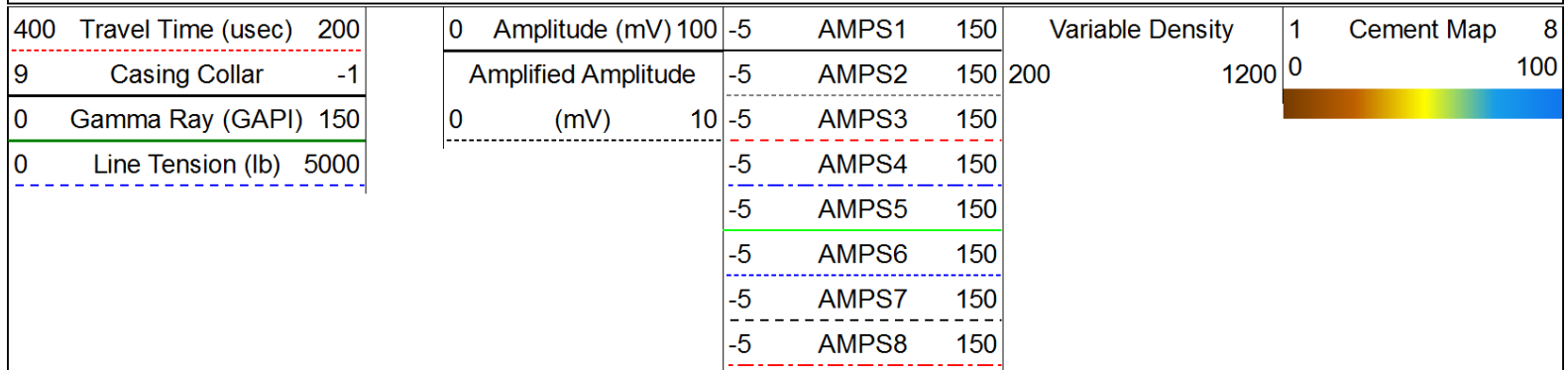


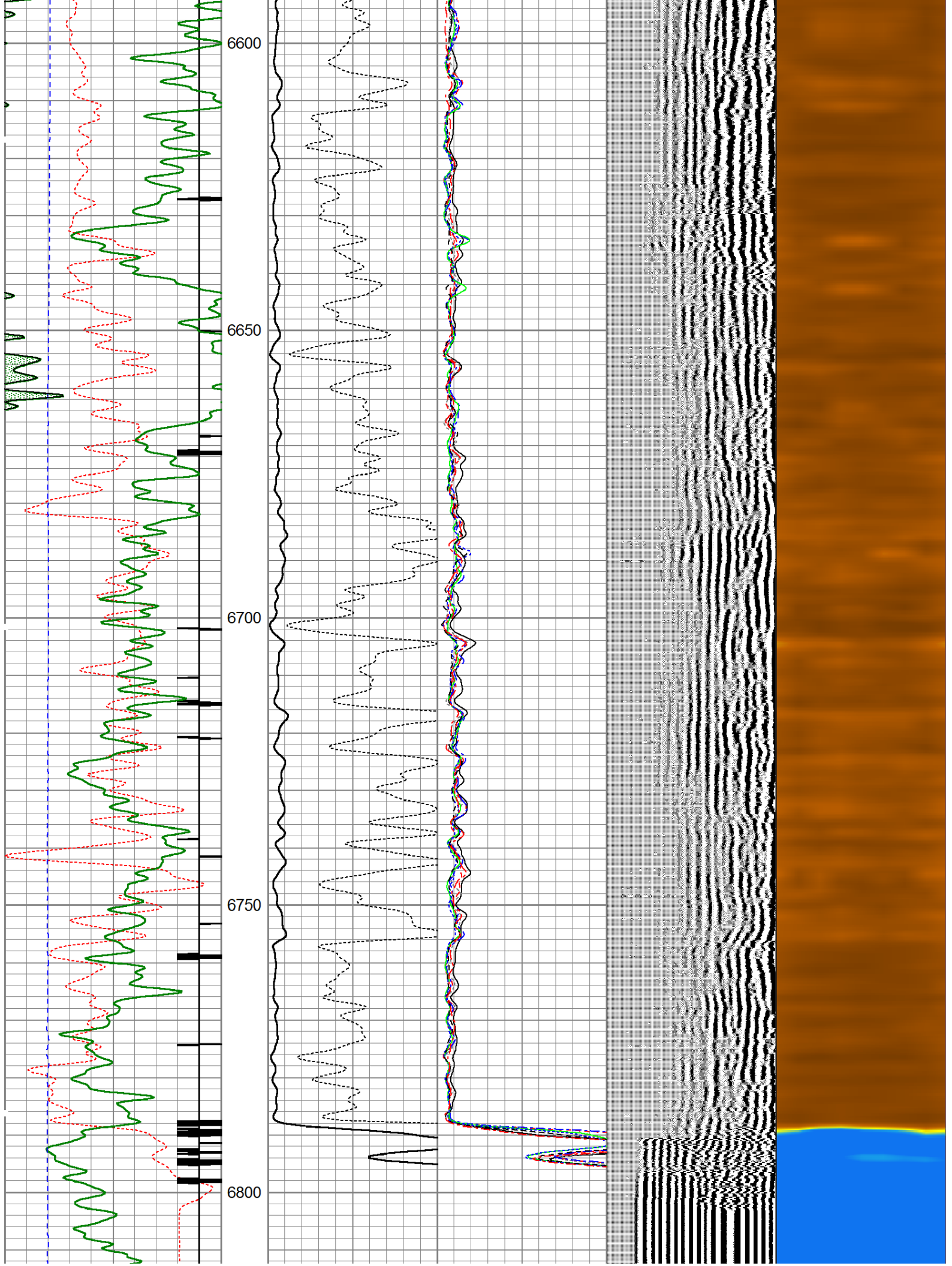


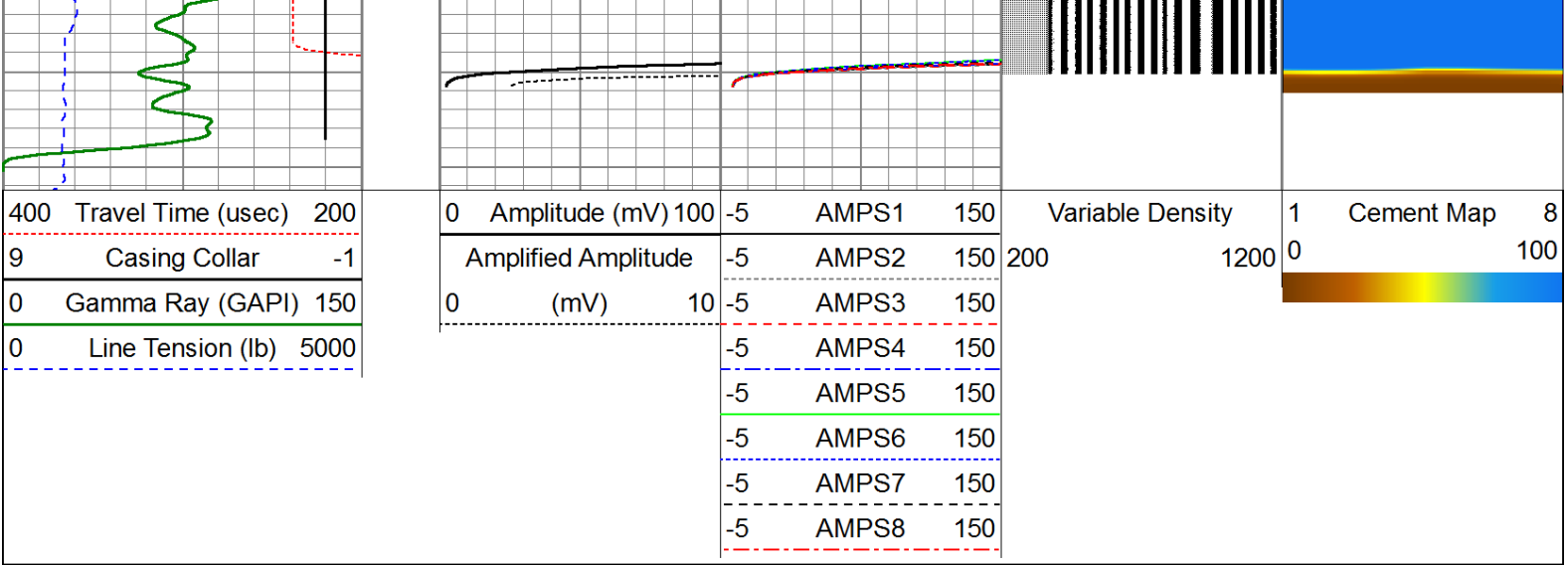


Repeat Pass (0 PSI)

Database File: noble_shable_lf07_68hn_rcbl.db
 Dataset Pathname: pass6
 Presentation Format: scbl03
 Dataset Creation: Fri Apr 19 14:22:03 2013 by Log SCH 120126
 Charted by: Depth in Feet scaled 1:240







| Calibration Report | |
|--------------------|---|
| Database File: | noble_shable_lf07_68hn_rcbl.db |
| Dataset Pathname: | pass9 |
| Dataset Creation: | Fri Apr 19 15:44:01 2013 by Calc SCH 120126 |

| Temperature Calibration Report | |
|--------------------------------|--|
| Serial Number: | 110353 |
| Tool Model: | 1.375TEMP |
| Performed: | Fri Apr 19 13:57:26 2013 |
| | Reference Reading |
| Low Reference: | 0.00 degF 0.00 cps |
| High Reference: | 1.00 degF 1.00 cps |
| Gain: | 1.00 |
| Offset: | 0.00 |
| Delta Spacing | 2 |

| Gamma Ray Calibration Report | |
|------------------------------|--------------------------------------|
| Serial Number: | 120367-Dig |
| Tool Model: | Probe275 |
| Performed: | Mon Apr 08 15:11:42 2013 |
| Calibrator Value: | 138.0 GAPI |
| Background Reading: | 37.7 cps |
| Calibrator Reading: | 241.8 cps |
| Sensitivity: | 0.8500 GAPI/cps |

| Segmented Cement Bond Log Calibration Report | |
|--|--------------------------------|
| Serial Number: | 101224 |
| Tool Model: | Probe |
| Calibration Casing Diameter: | 7.000 in |
| Calibration Depth: | 1447.841 ft |

| | | | | | | | |
|---|-------|-----------------|--------|---------|--------|--|--|
| Master Calibration, performed Fri Apr 19 15:19:05 2013: | | | | | | | |
| Raw (v) | | Calibrated (mv) | | Results | | | |
| Zero | Cal | Zero | Cal | Gain | Offset | | |
| 0.007 | 0.732 | 1.000 | 62.165 | 36.162 | 2.125 | | |

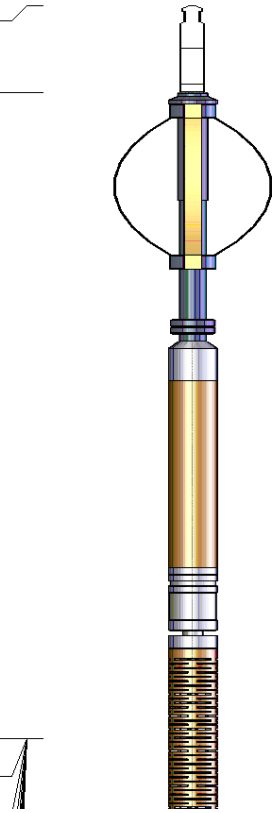
| | | | | | | |
|-----|--------|-------|-------|---------|---------|-------|
| S | 0.007 | 0.732 | 1.000 | 62.165 | 50.165 | 2.425 |
| CAL | -0.018 | 1.069 | | | | |
| 5' | -0.006 | 0.599 | 1.000 | 62.165 | 101.039 | 1.627 |
| SUM | | | | | | |
| S1 | -0.018 | 0.687 | 0.000 | 100.000 | 62.476 | 2.518 |
| S2 | 0.007 | 0.630 | 0.000 | 100.000 | 65.947 | 2.079 |
| S3 | -0.000 | 0.637 | 0.000 | 100.000 | 65.862 | 2.036 |
| S4 | -0.001 | 0.746 | 0.000 | 100.000 | 63.665 | 2.074 |
| S5 | -0.000 | 0.852 | 0.000 | 100.000 | 59.901 | 2.020 |
| S6 | -0.001 | 0.856 | 0.000 | 100.000 | 58.980 | 2.088 |
| S7 | 0.000 | 0.767 | 0.000 | 100.000 | 60.181 | 2.051 |
| S8 | 0.000 | 0.702 | 0.000 | 100.000 | 60.207 | 2.037 |

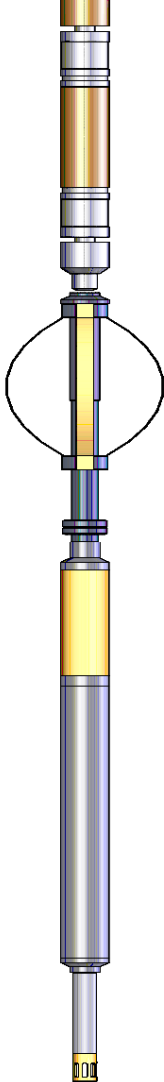
Internal Reference Calibration, performed Mon Oct 10 09:42:03 2005:

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|-------|----------------|-------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | -0.018 | 1.069 | 1.000 | 0.000 |

Air Zero Calibration, performed Fri Apr 19 07:44:04 2013:

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

| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) |
|---------------------------|-------------------------|---|--|----------|---------|---------|
| CHD | 21.71 |  | Titan Cable_head | 1.00 | 1.44 | 10.00 |
| CENT | 20.71 | | Probe275 2.75" Centralizer | 2.88 | 2.75 | 20.00 |
| WVF3FT WVFCAL WVFC1 | 13.27 13.27 13.27 | | RBT-Probe (101224) Probe Radii Bond Tool with Digital Telemetry | 8.75 | 2.75 | 90.00 |

| | | | | | | |
|---|-------|--|--|------|------|-------|
| WVFS1 | 13.27 |  | | | | |
| WVFS2 | 13.27 | | | | | |
| WVFS3 | 13.27 | | | | | |
| WVFS4 | 13.27 | | | | | |
| WVFS5 | 13.27 | | | | | |
| WVFS6 | 13.27 | | | | | |
| WVFS7 | 13.27 | | | | | |
| WVFS8 | 13.27 | | | | | |
| WVF5FT | 12.27 | | | | | |
| CENT | 9.08 | | | | | |
| | | | Probe275 2.75" Centralizer | 2.88 | 2.75 | 20.00 |
| GR | 6.21 | | | | | |
| CCL | 5.25 | | | | | |
| GR | 3.79 | | GR-Probe275 (120367-Dig) Probe 2 3/4" Digital Gamma Ray/CCL | 4.96 | 2.75 | 57.00 |
| | | | | | | |
| TEMP | 0.08 | | Temp-1.375TEMP (110353) Temperature Tool | 1.25 | 1.38 | 30.00 |
| Dataset: noble_shable_lf07_68hn_rcbl.db: field/well/run1/pass9 Total Length: 21.71 ft Total Weight: 227.00 lb O.D. 2.75 in | | | | | | |