



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

| | | | |
|------------------------|----------------------------|-----------|----------------------------|
| Company | Noble Energy | Company | Noble Energy |
| Well | Crow Creek State AD31-79HN | Well | Crow Creek State AD31-79HN |
| Field | Wallsenburg | Field | Wallsenburg |
| County | Weld | County | Weld |
| State | Colorado | State | Colorado |
| Location: | API # : 05-123-37426 | | Other Services |
| | 535' FNL & 1' FEL | | None |
| Permanent Datum | SEC 36 | TWP 7N | RGE 63W |
| Log Measured From | Ground Level | Elevation | 4851' |
| Drilling Measured From | Kelly Bushing 24' | Elevation | K.B. 4875' |
| | Kelly Bushing | Elevation | D.F. 4874' |
| | | Elevation | G.L. 4851' |
| Date | 14-Dec-2013 | | |
| Run Number | One | | |
| Depth Driller | 11,327.5' | | |
| Depth Logger | 6830' | | |
| Bottom Logged Interval | 6830' | | |
| Top Log Interval | Surface | | |
| Open Hole Size | 8 3/4" | | |
| Type Fluid | Water | | |
| Density / Viscosity | - | | |
| Max. Recorded Temp. | 230 degF | | |
| Estimated Cement Top | 1824' | | |
| Time Well Ready | 7:00 | | |
| Time Logger on Bottom | 9:00 | | |
| Equipment Number | 13034 | | |
| Location | Brighton, CO | | |
| Recorded By | Jacob Staley | | R.Grisson |
| Witnessed By | Bill Mansfield | | |
| Borehole Record | | | |
| Run Number | Bit | From | To |
| | | Size | Weight |
| | | | From |
| | | | To |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Casing Record | Size | Wgt/Ft | Top |
| Surface String | 9 5/8" | 36# | Surface |
| Prot. String | | | Bottom |
| Production String | 7" | 26# | Surface |
| Liner | 4.5" | 11 6# | 7090' |
| Short Joint | | | 5942' |

<<< 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

Well Logged using 24' KB

Main Pass and Repeat Pass logged with zero Pressure on surface

Short Joint 5942' to 5958'

Thank You for using Allied Wireline

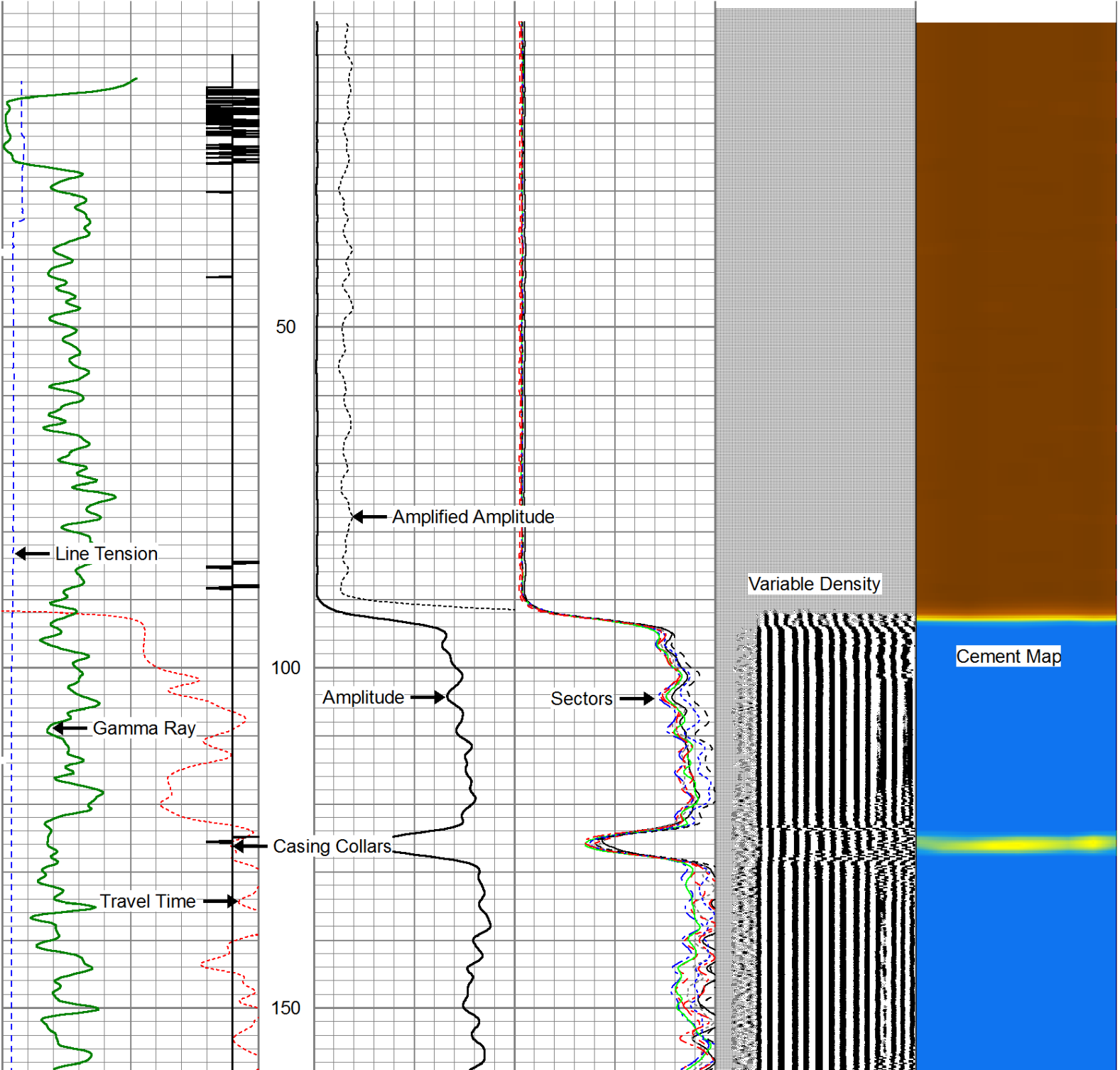
(303)659-4609

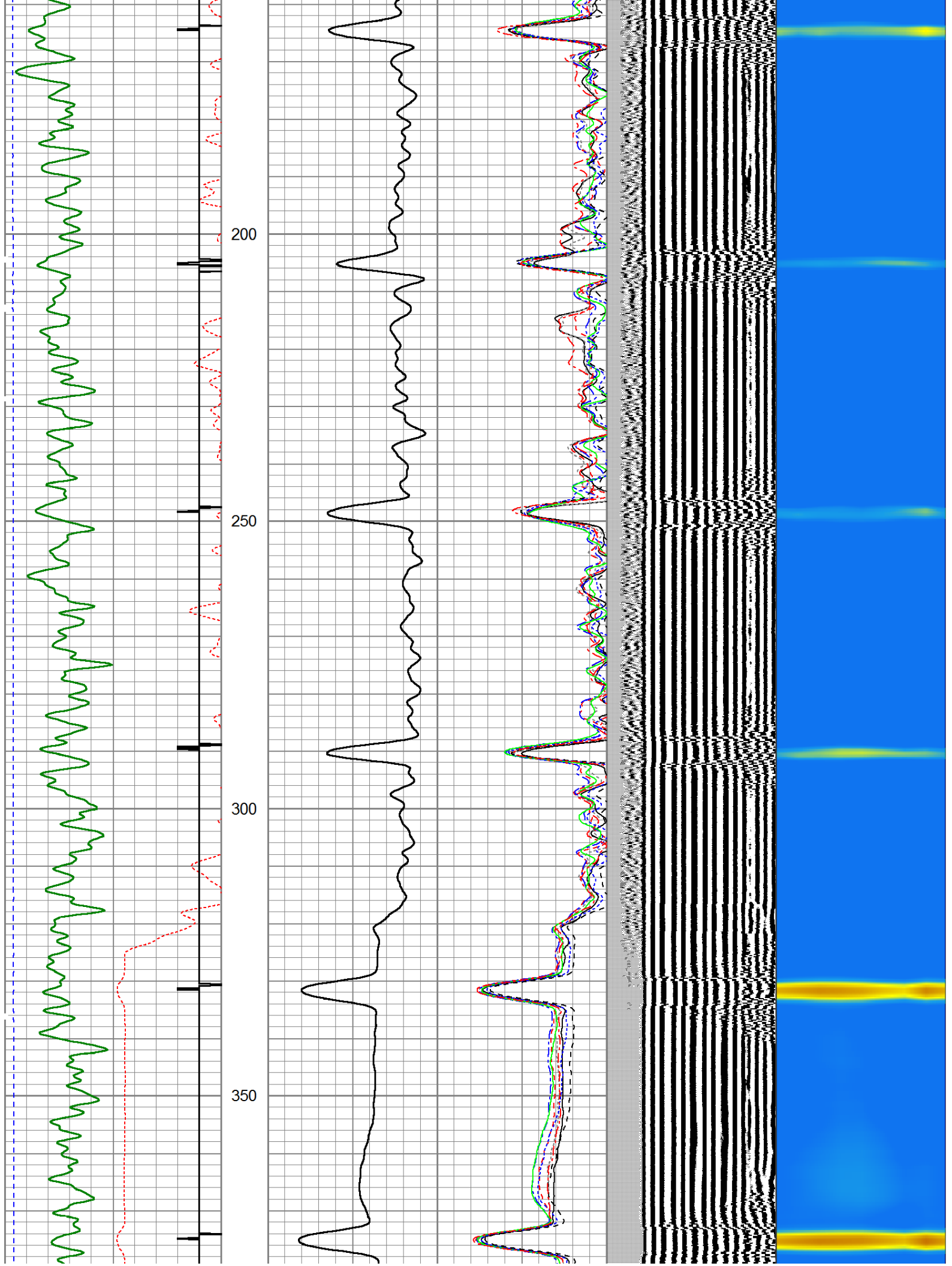


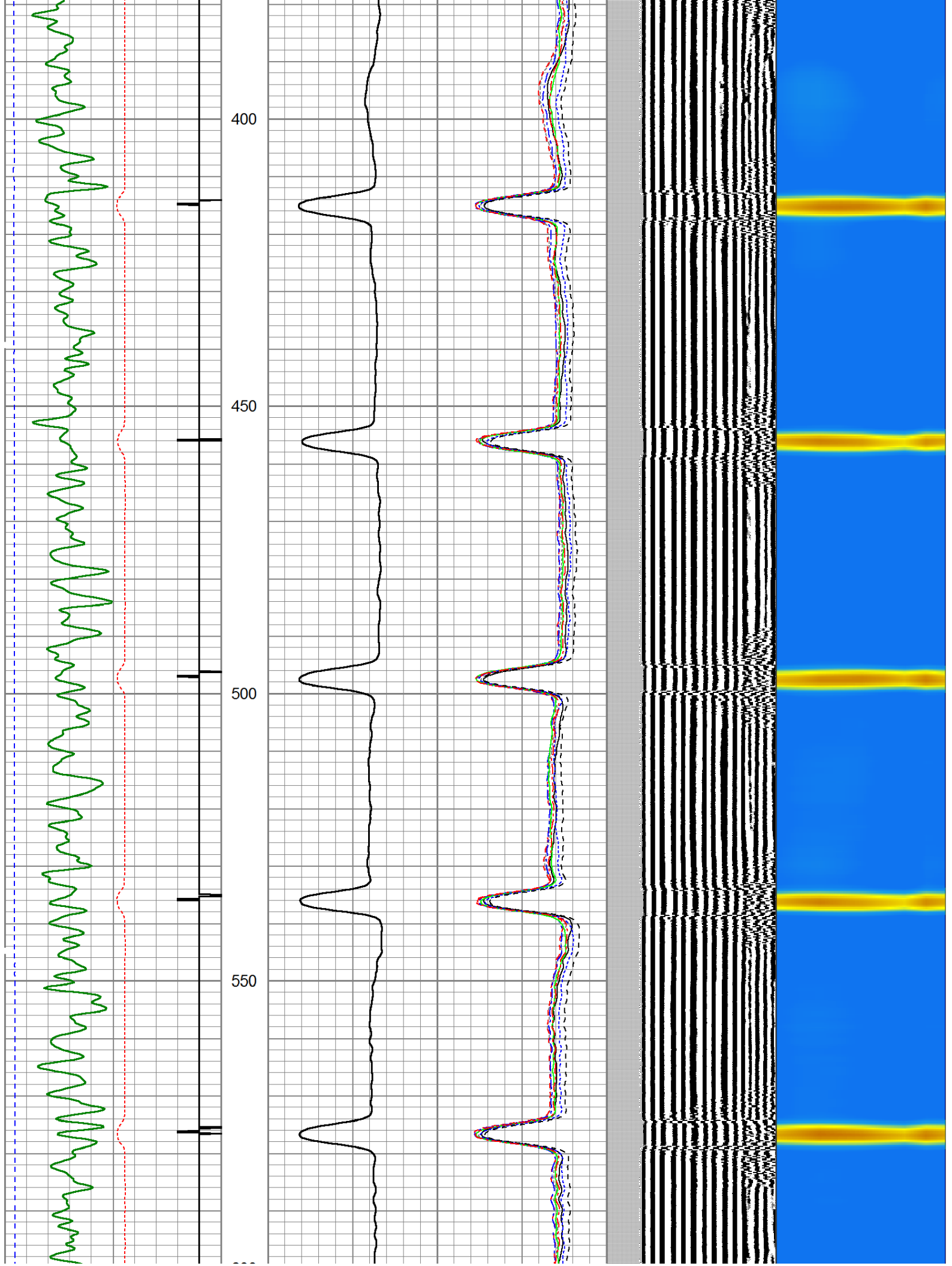
Main Pass(0 PSI)

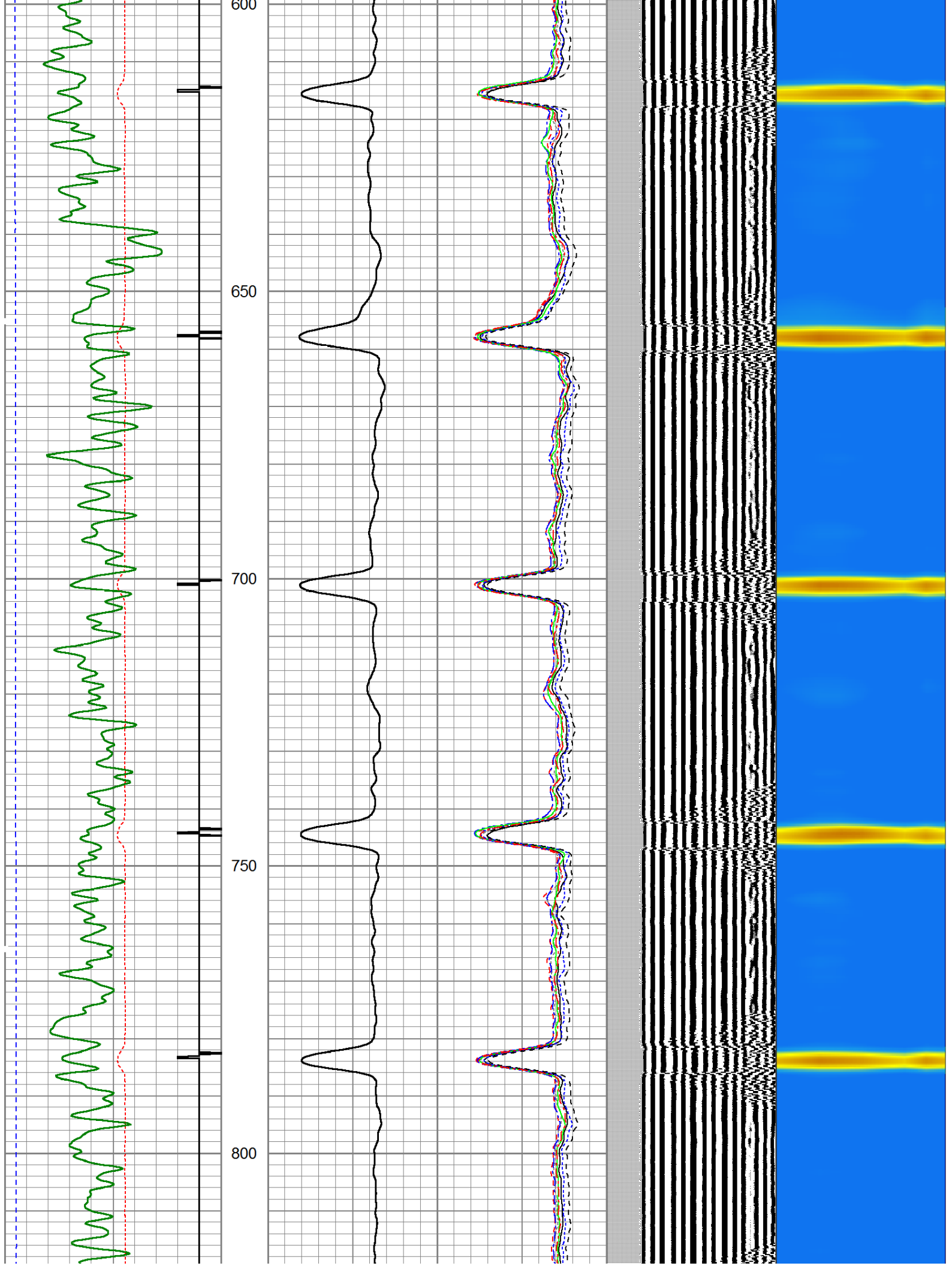
Database File: noble crow creek state ad31-79hn_rcbl.db
Dataset Pathname: pass9
Presentation Format: scbl03
Dataset Creation: Sat Dec 14 09:33:16 2013 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

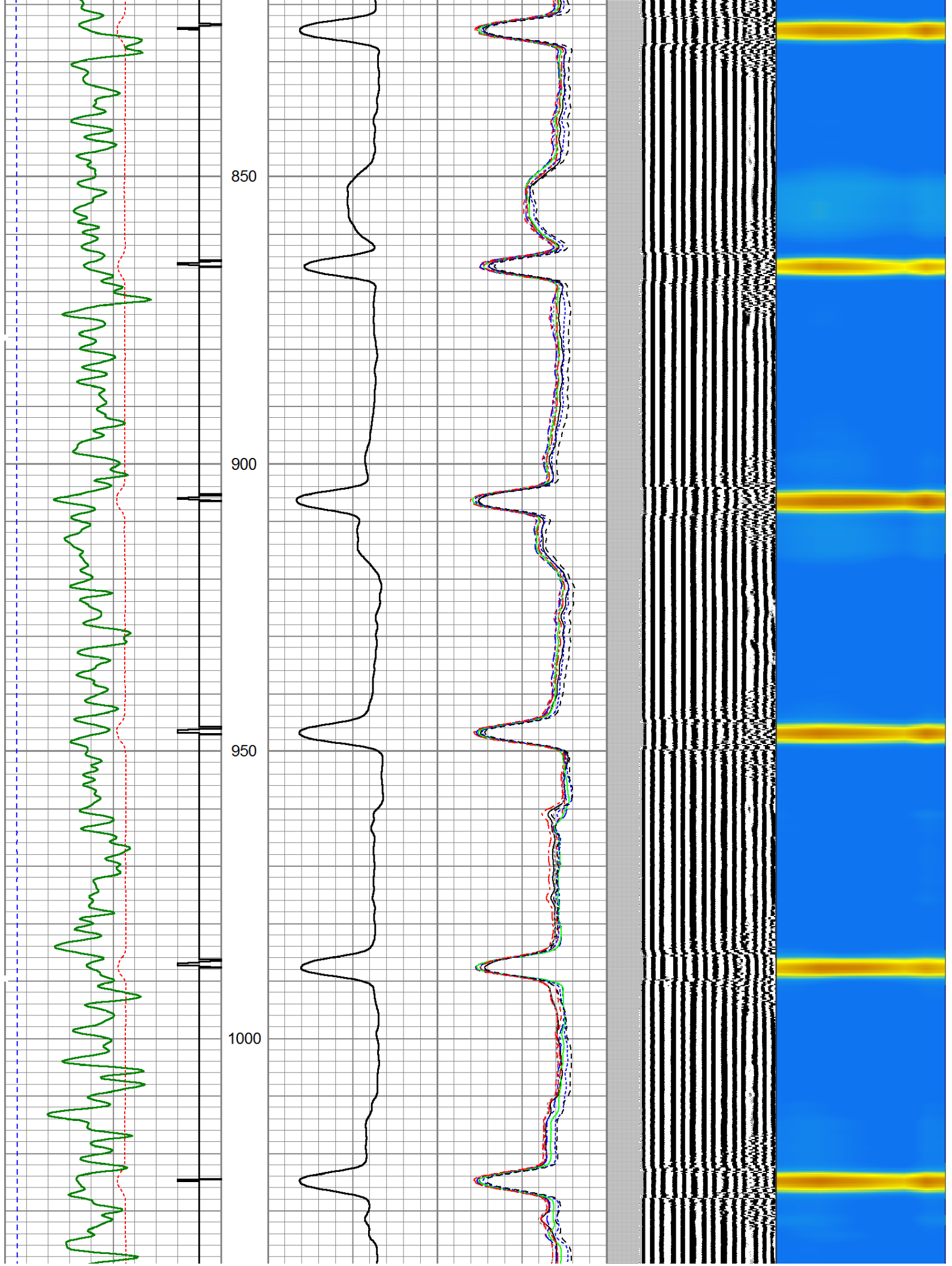
| | | | | | | | | | | | | | |
|-----|--------------------|------|---------------------|----------------|-----|----|-------|-----|------------------|------|---|------------|-----|
| 400 | Travel Time (usec) | 200 | 0 | Amplitude (mV) | 100 | -5 | AMPS1 | 150 | Variable Density | | 1 | Cement Map | 8 |
| 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 | | | | | |

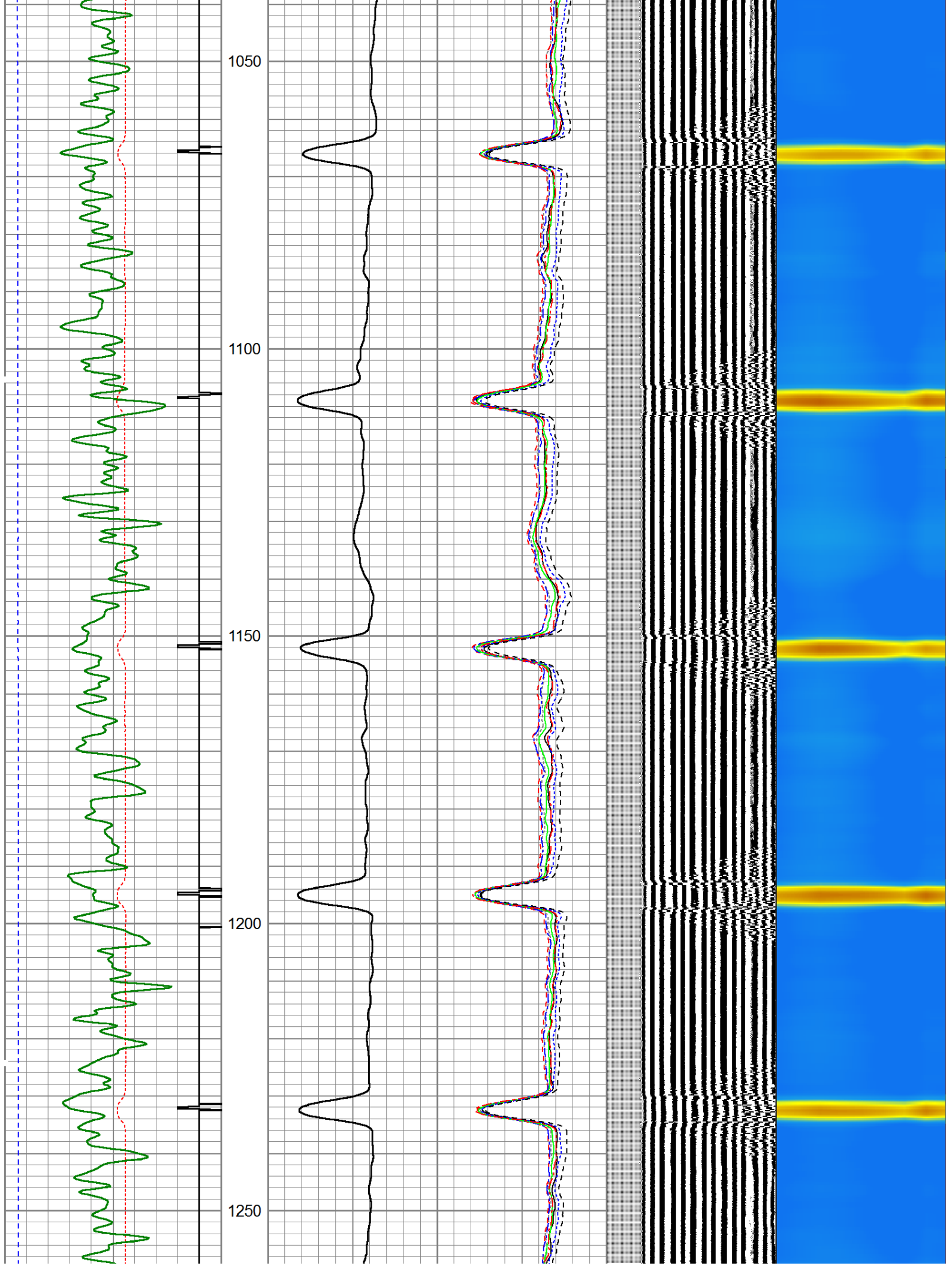


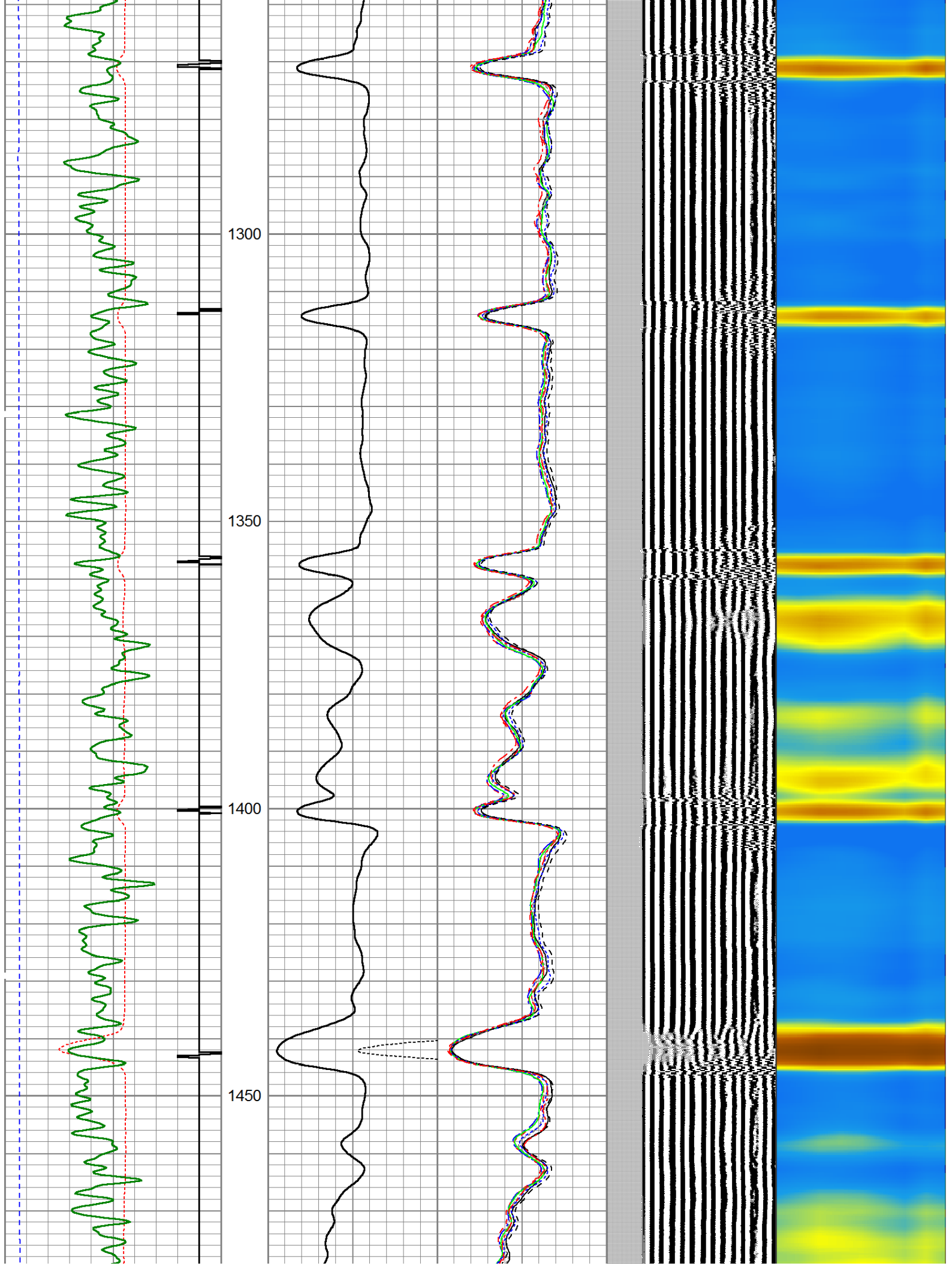


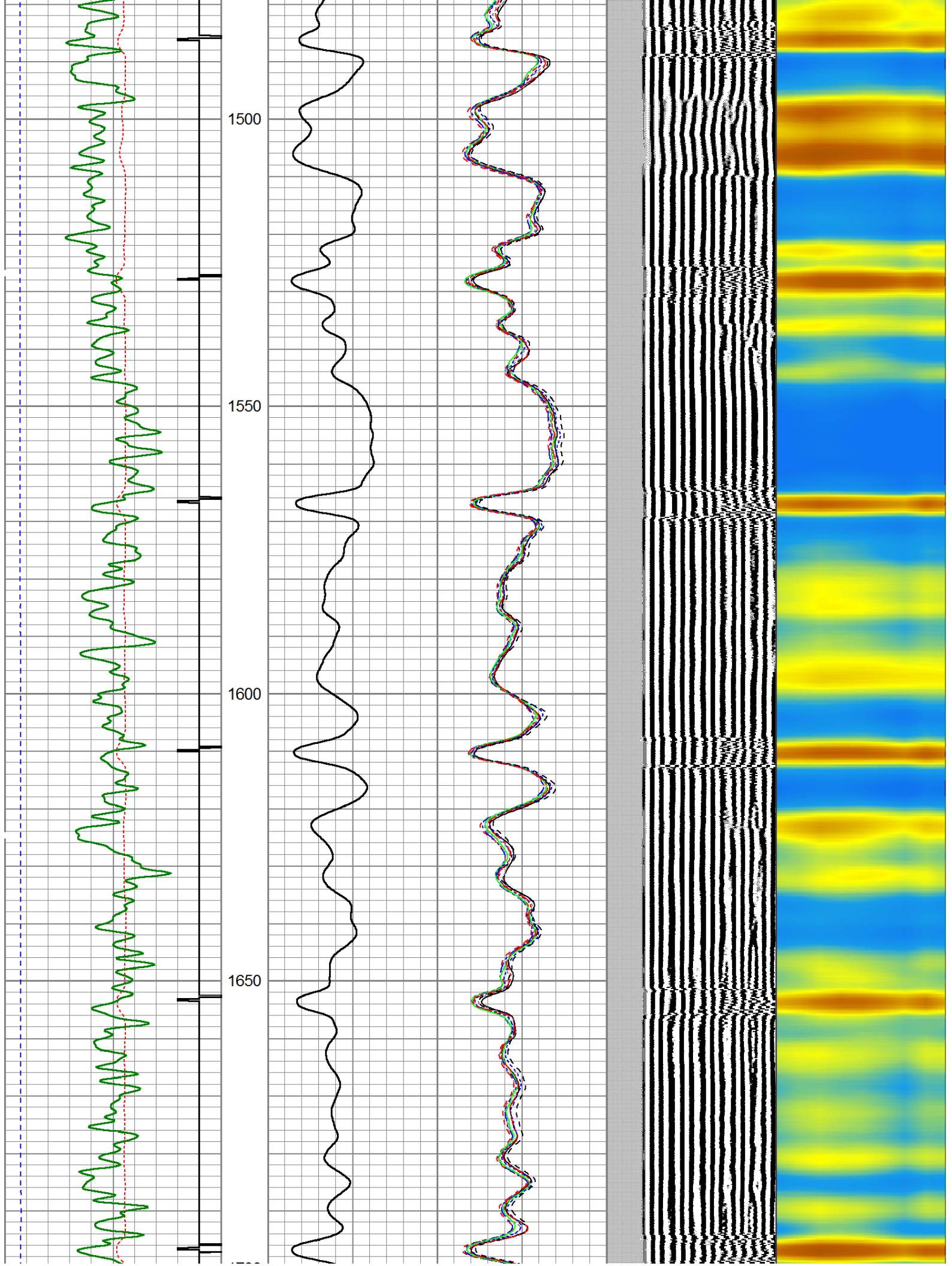


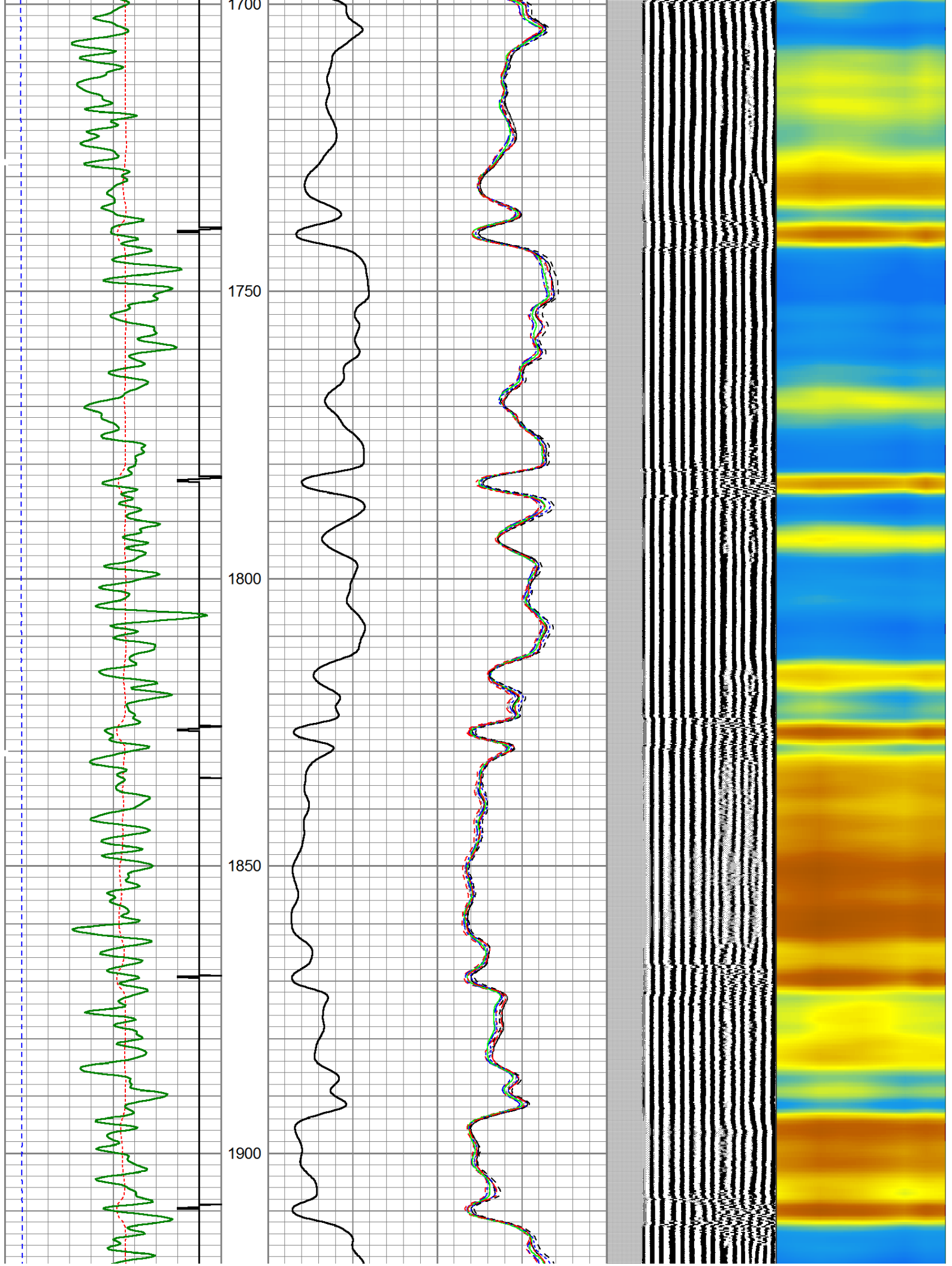


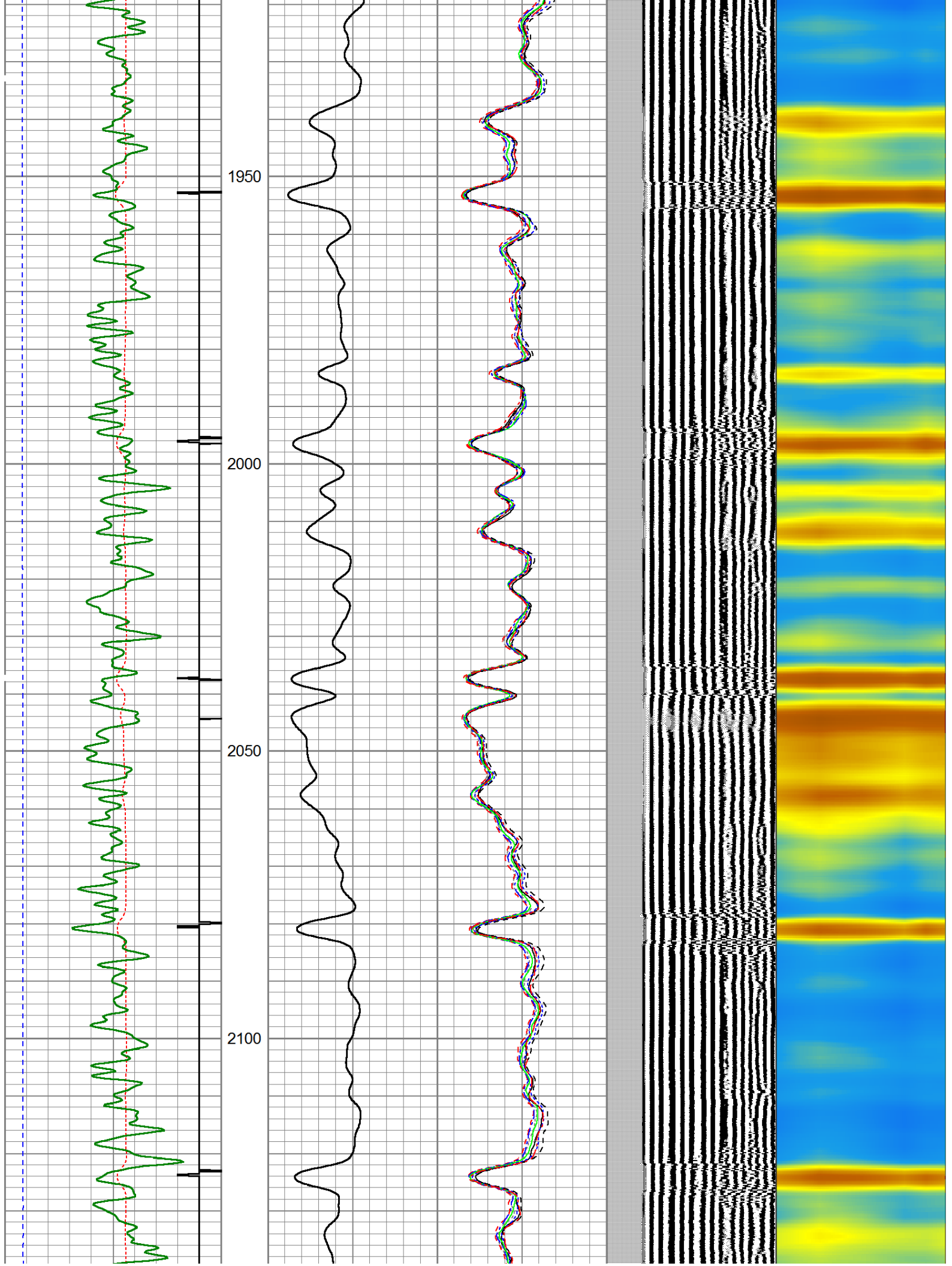


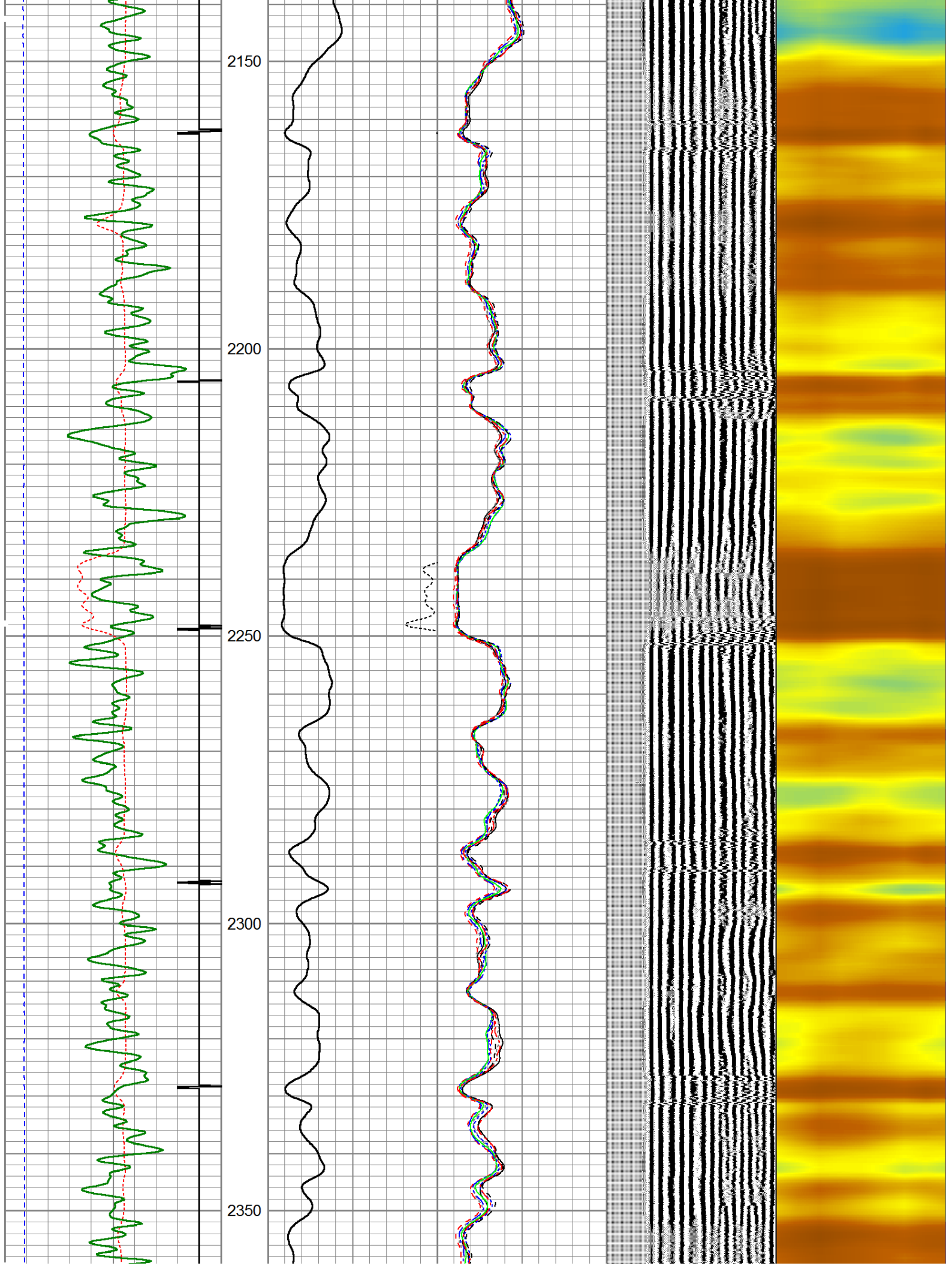


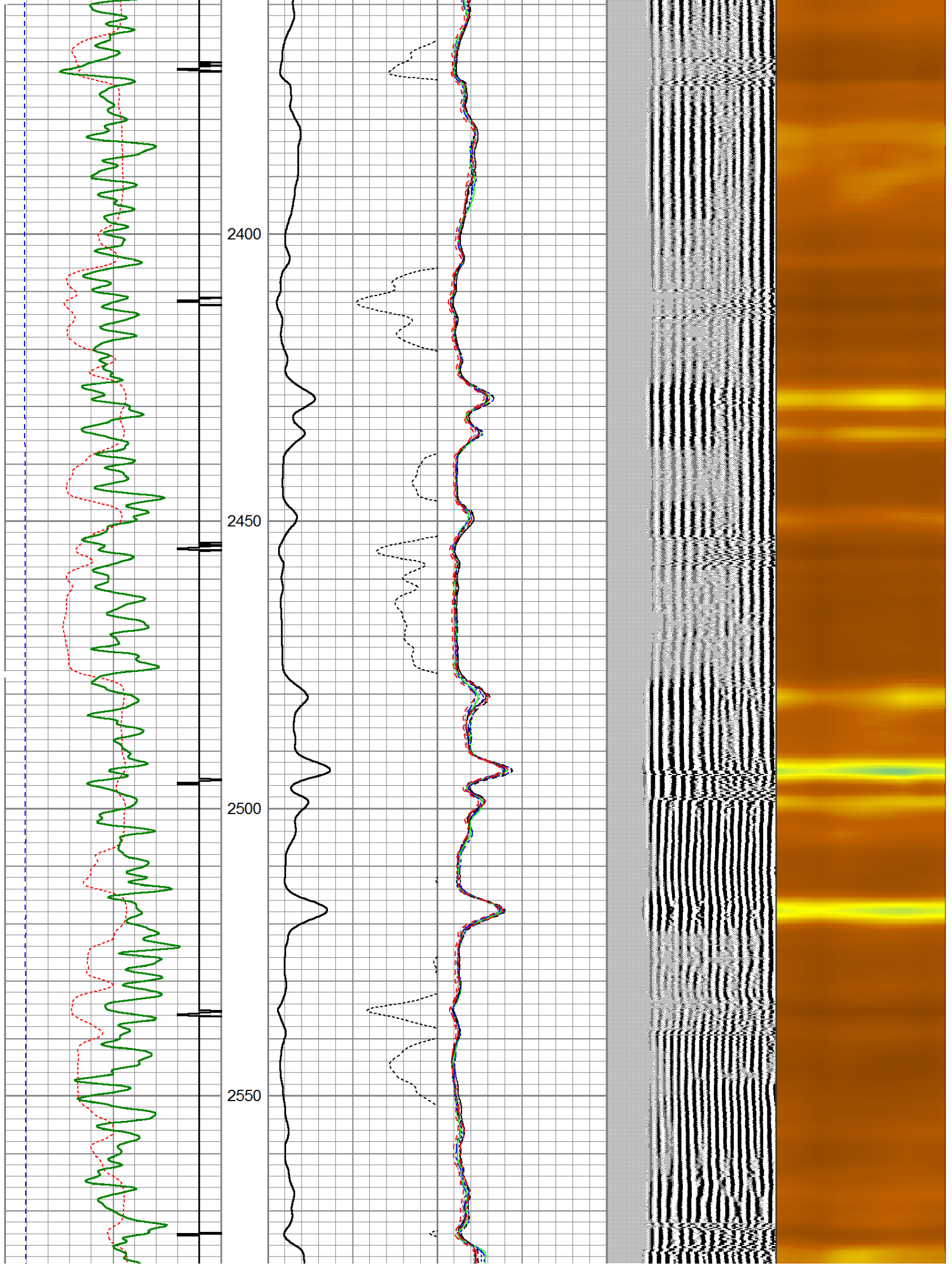


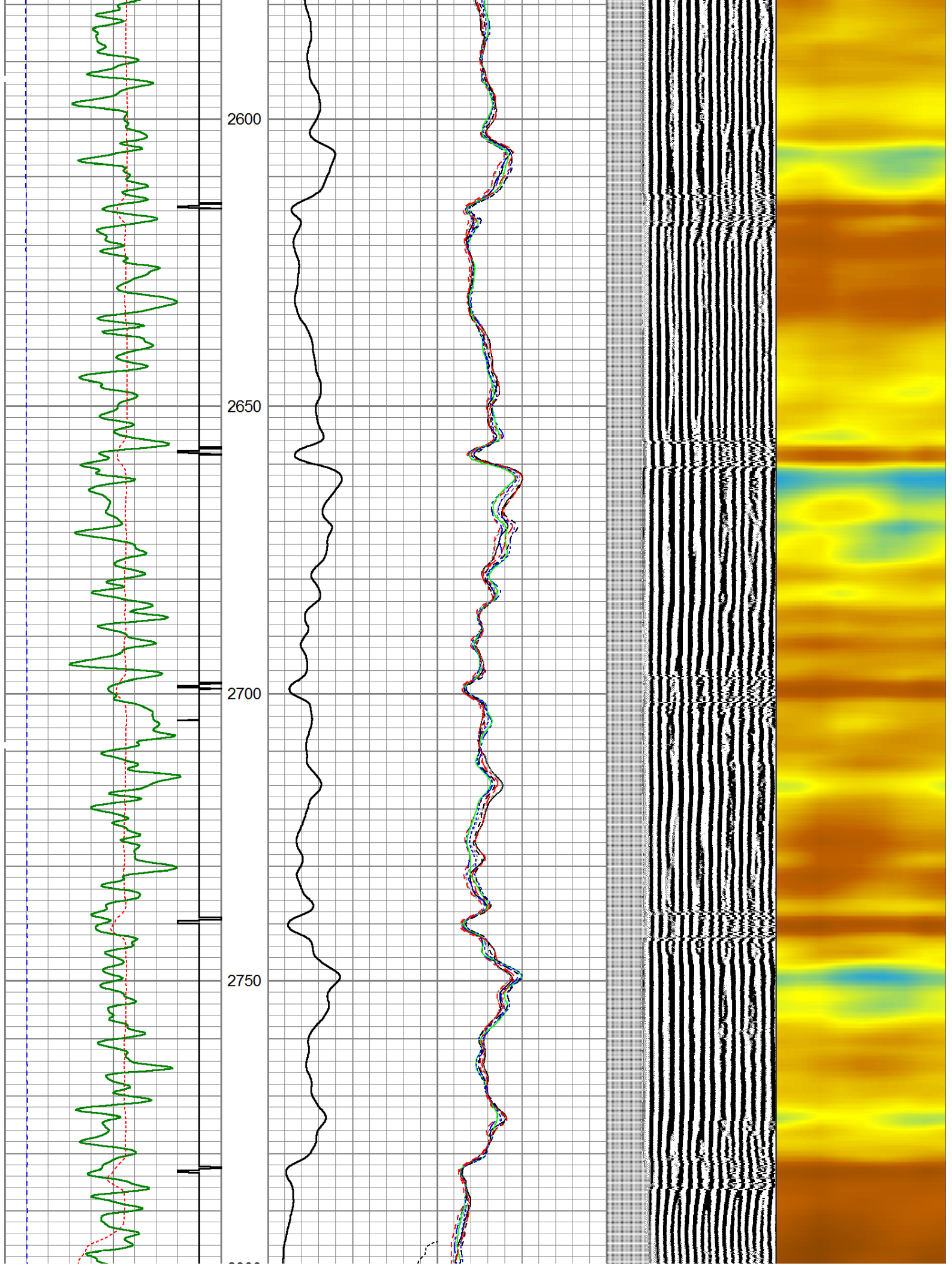


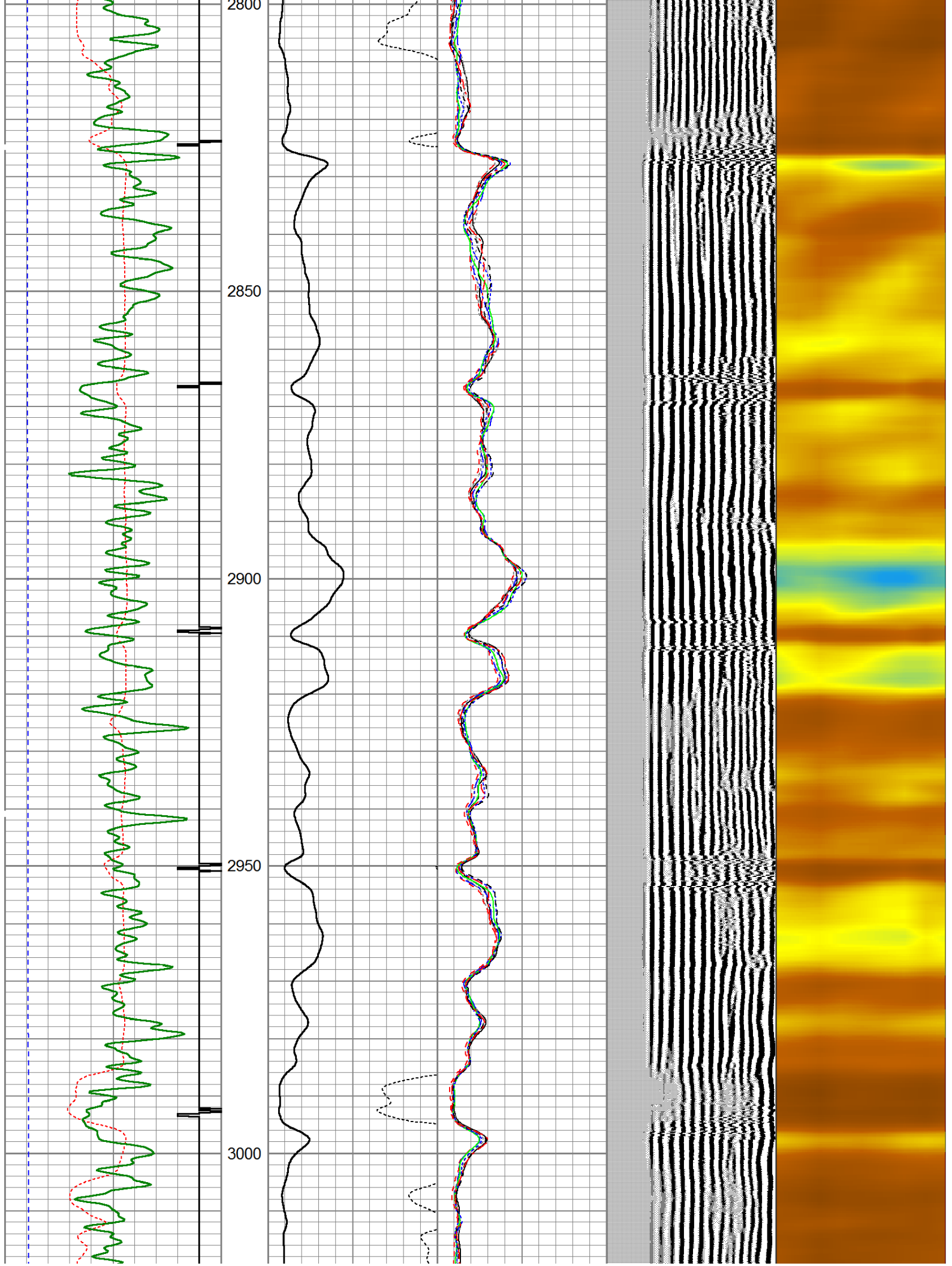


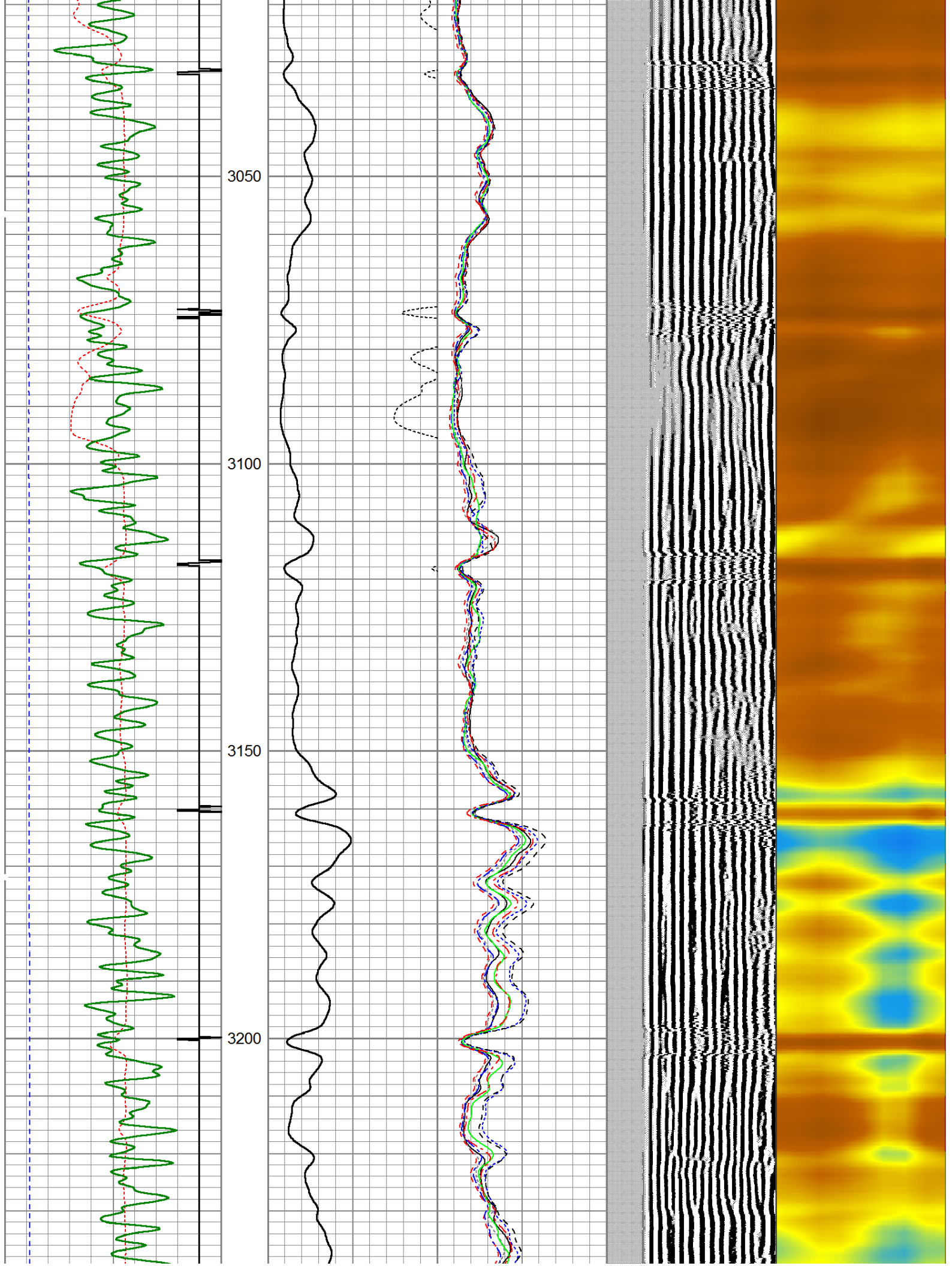


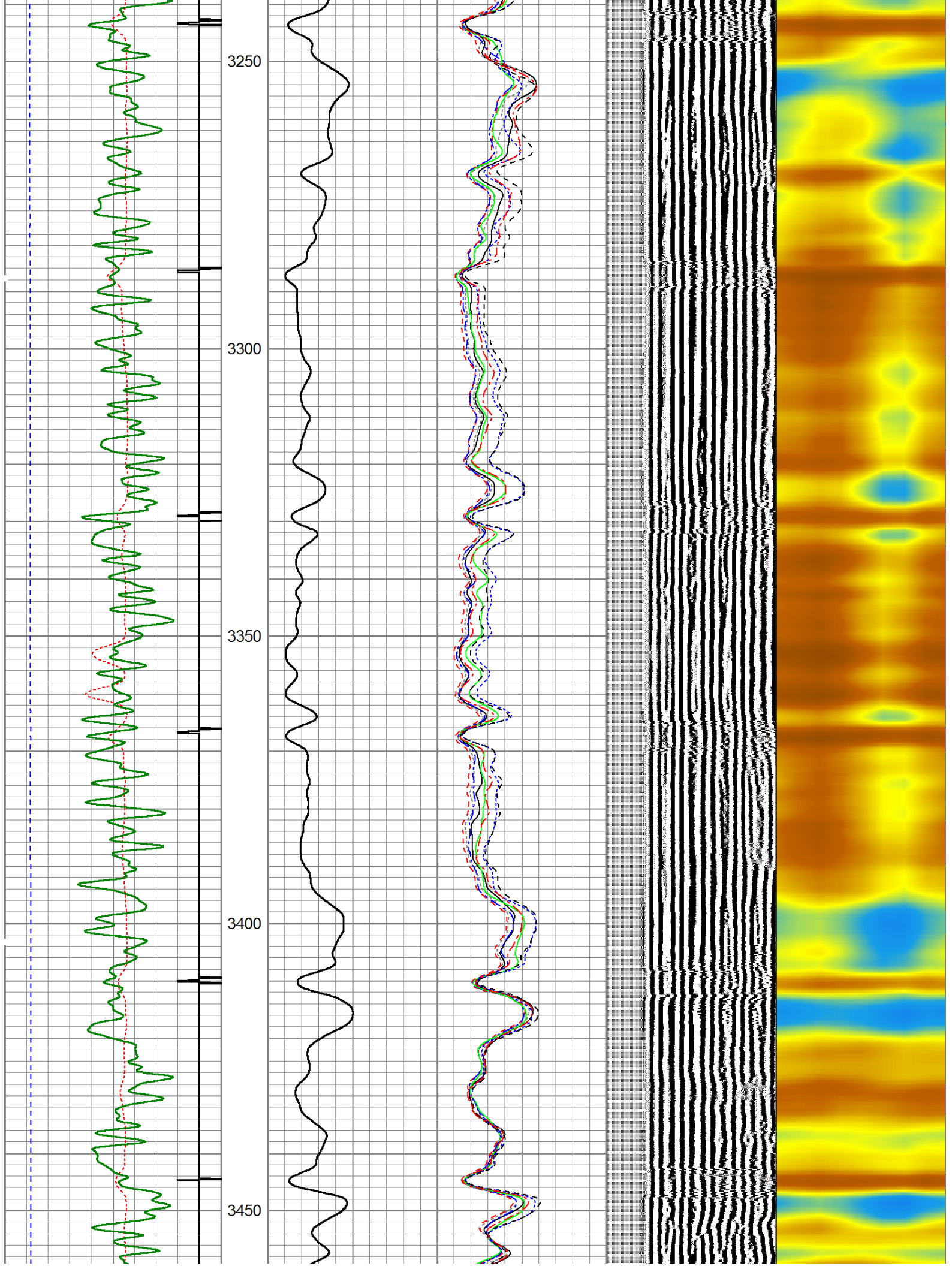


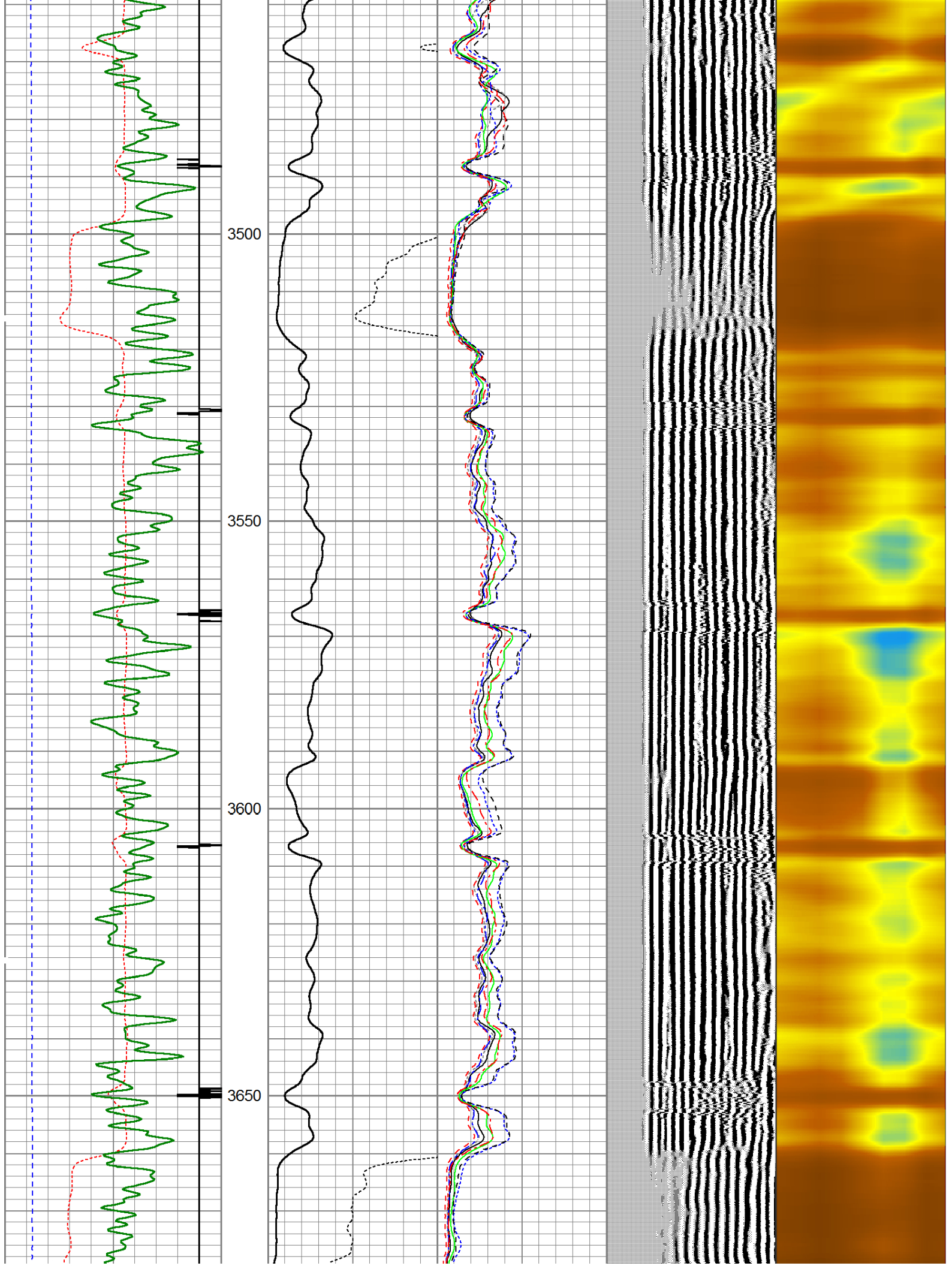


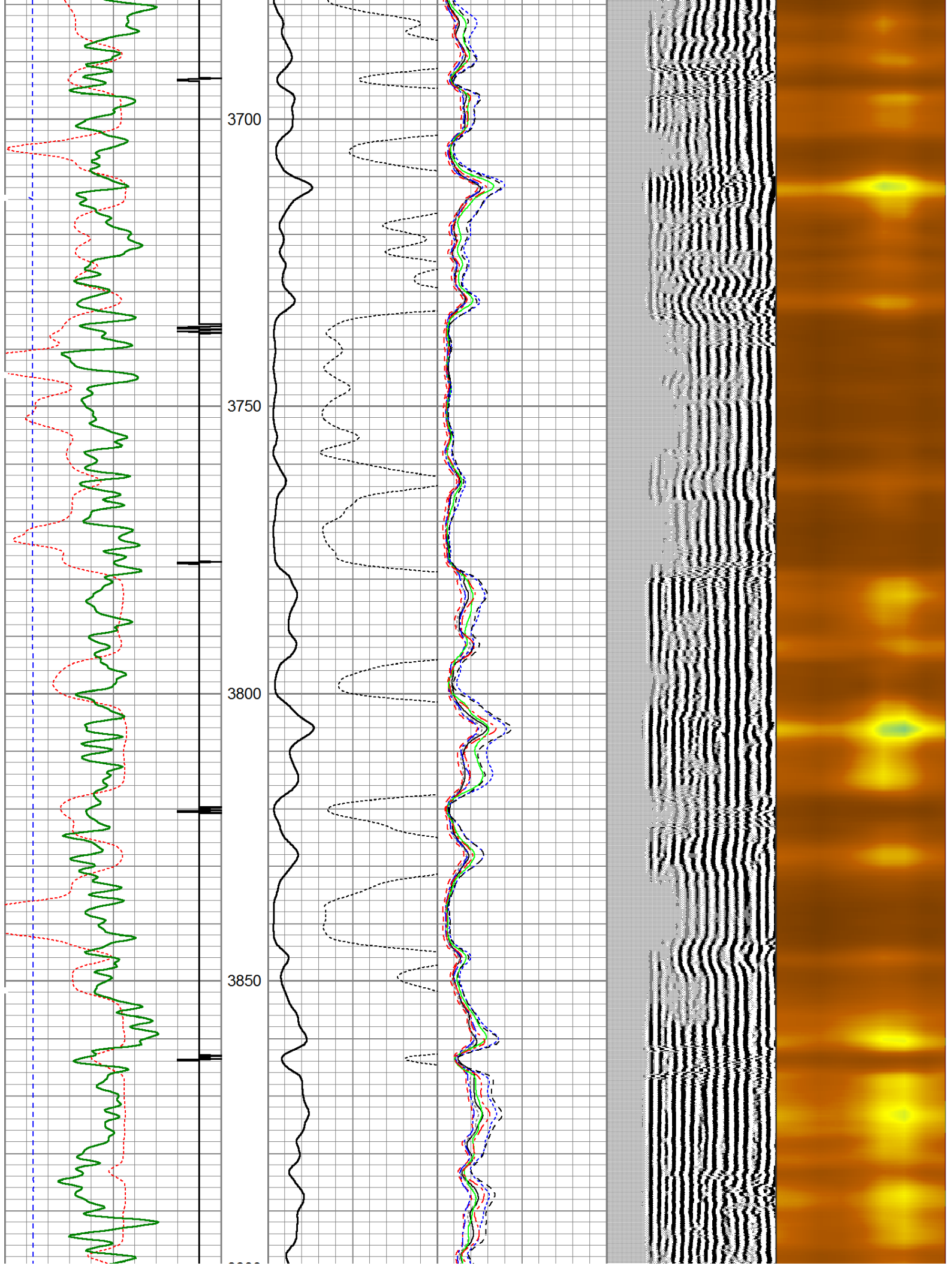


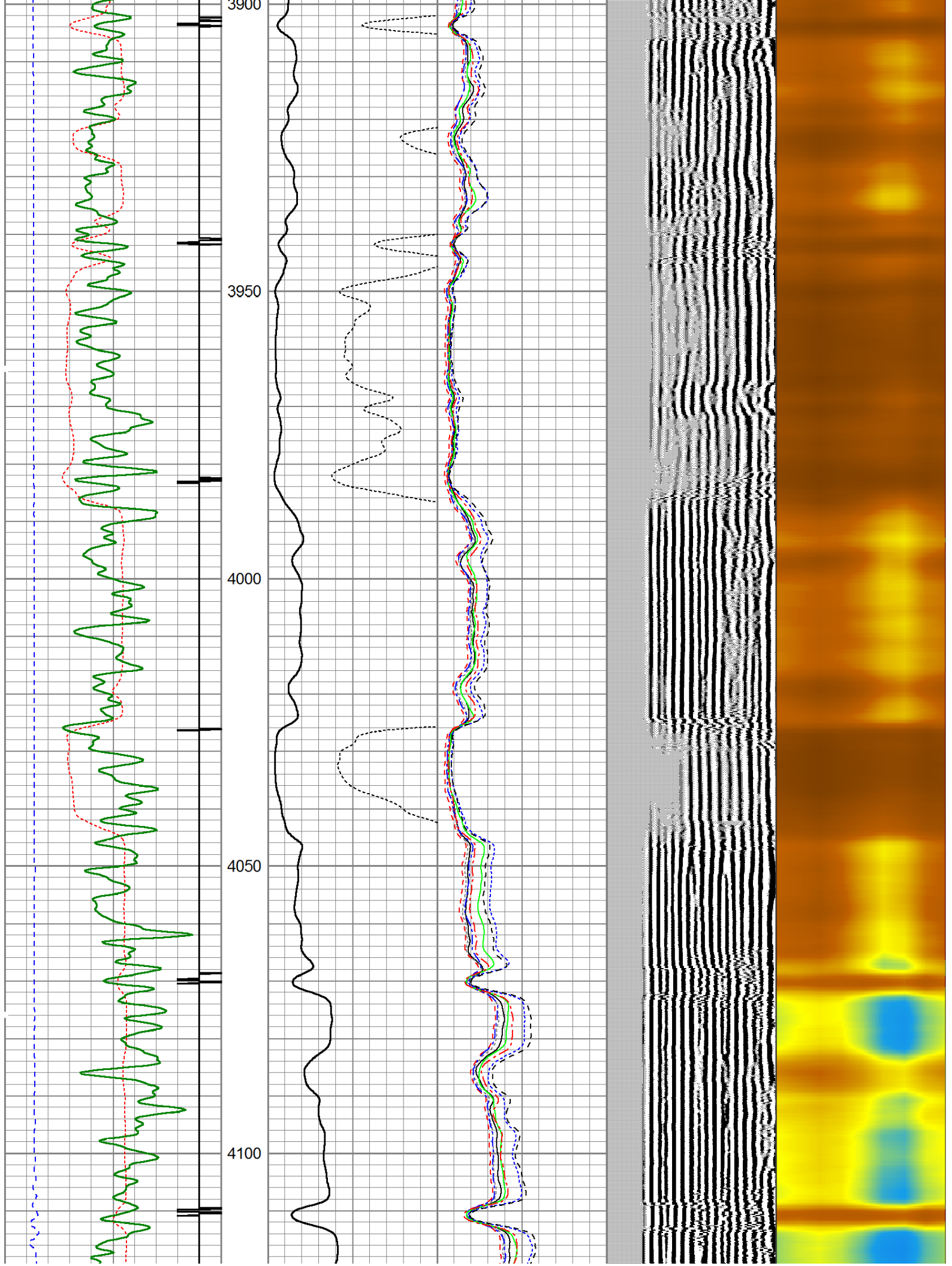


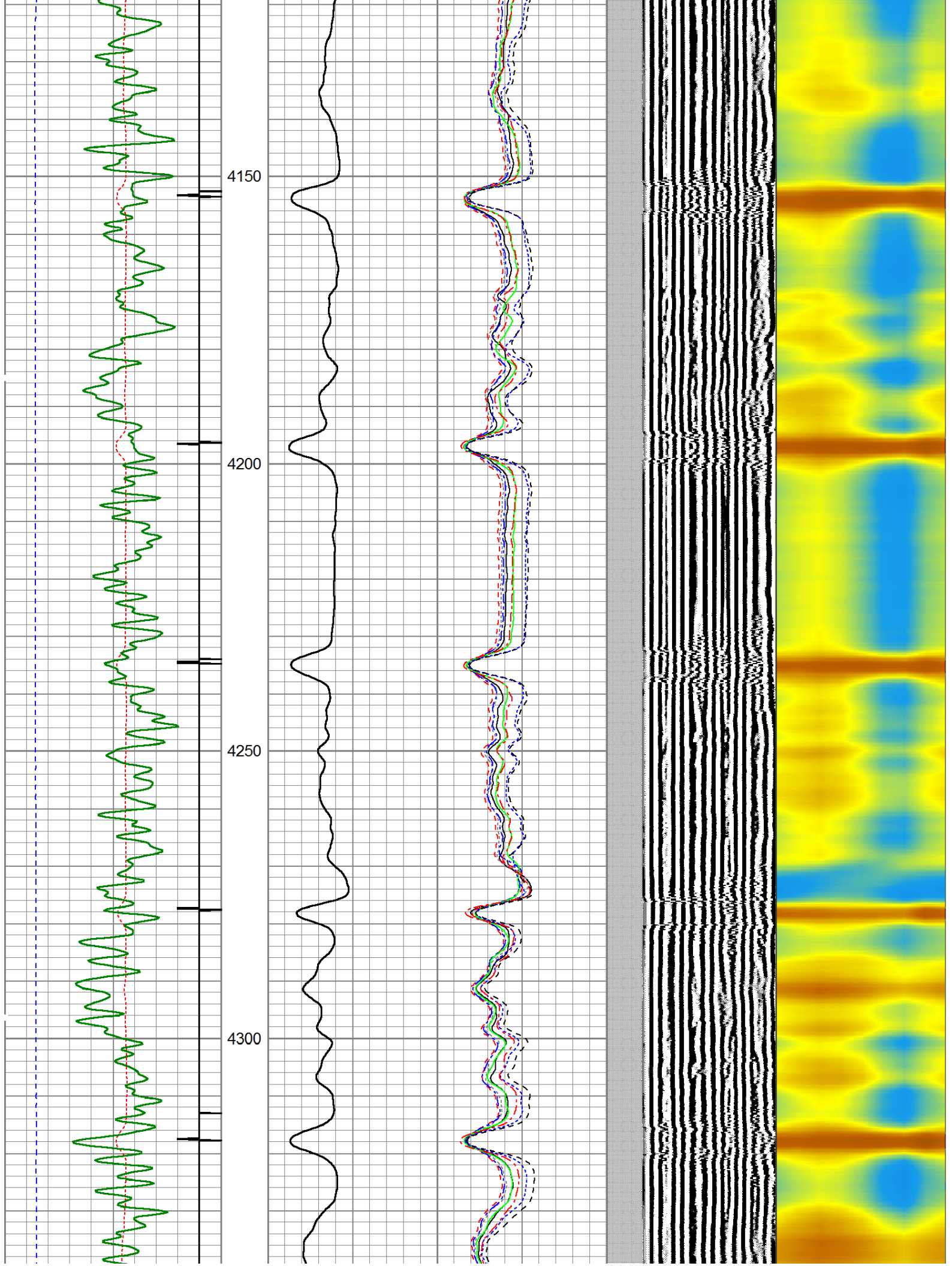


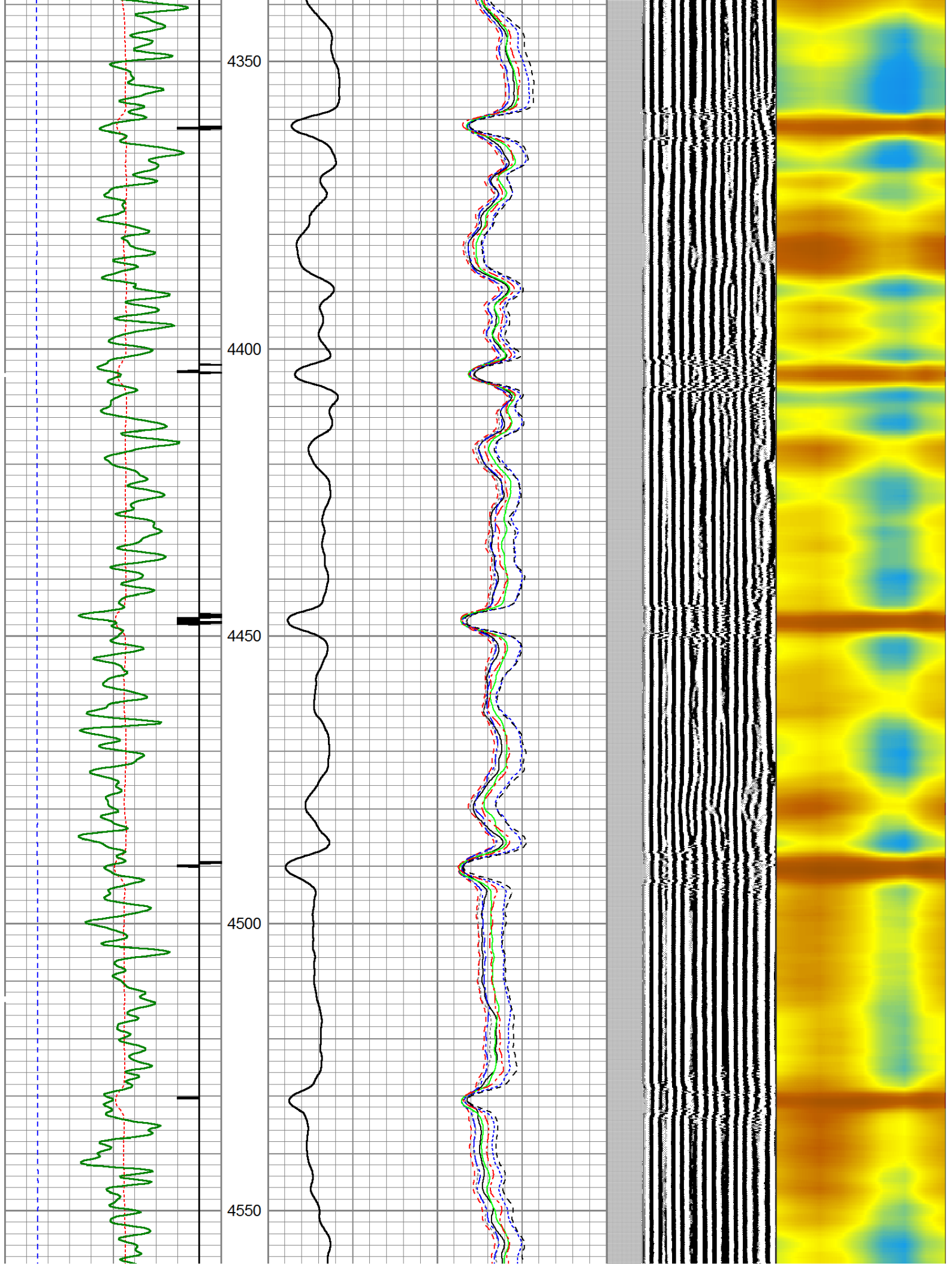


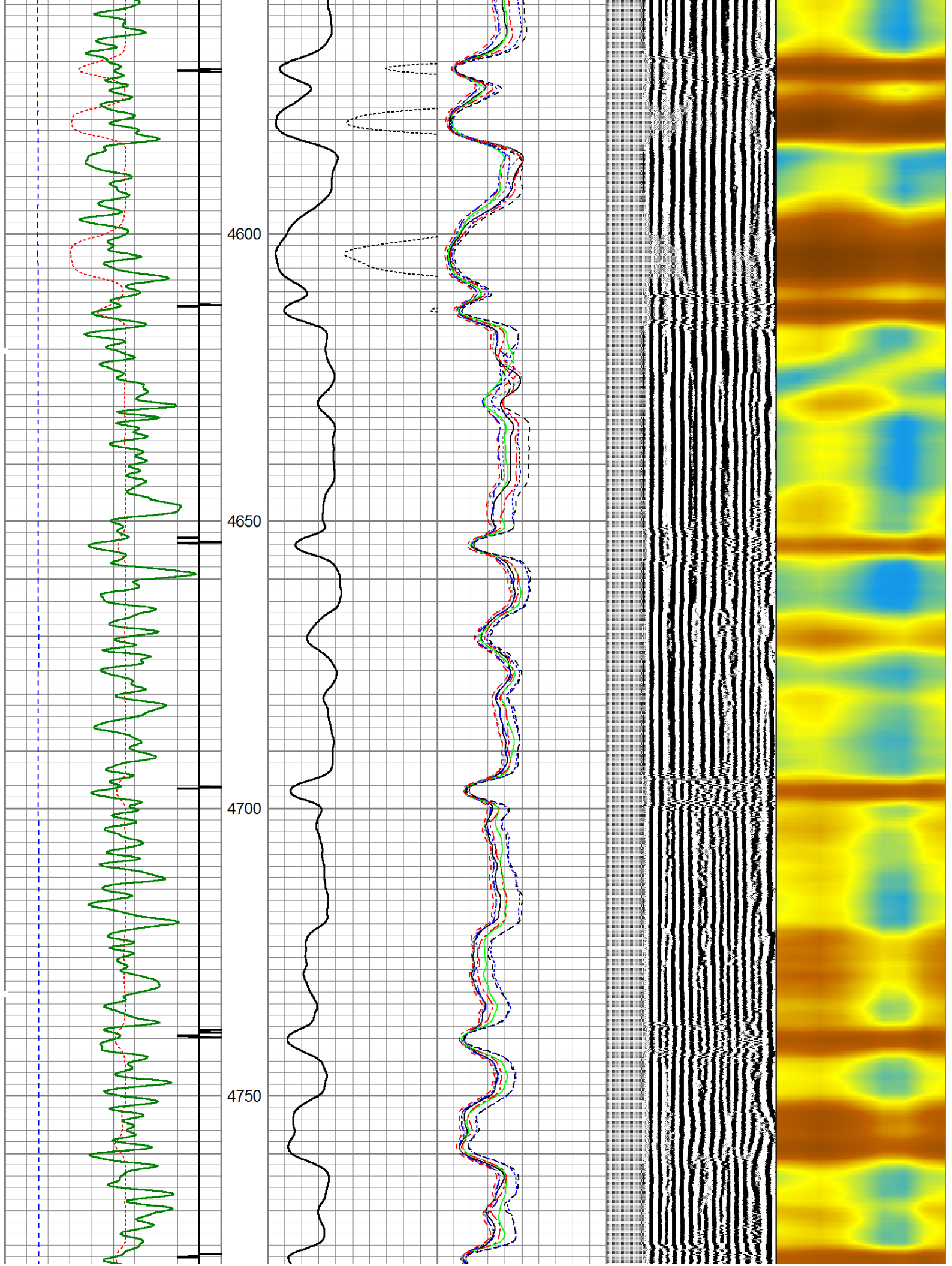


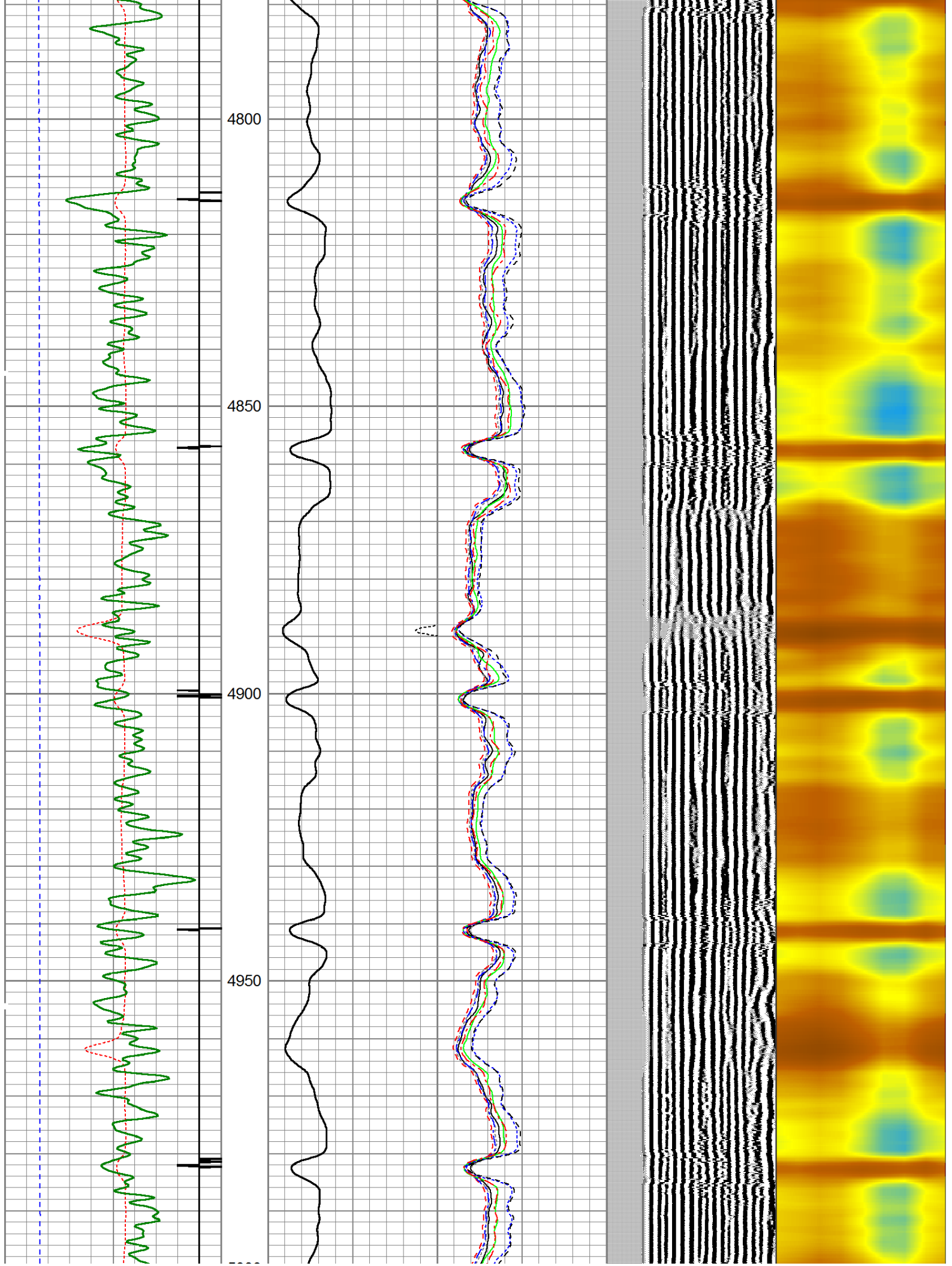


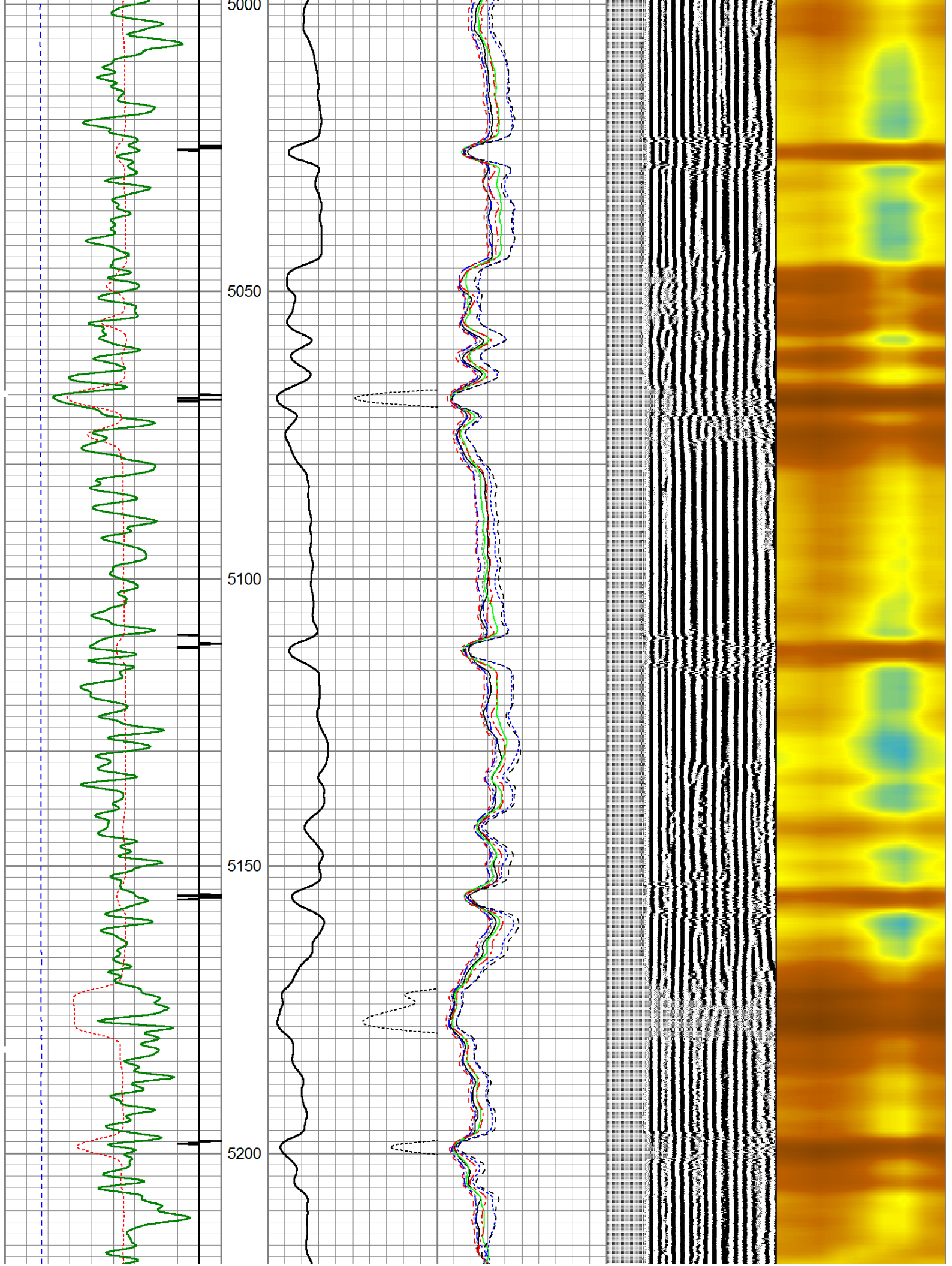


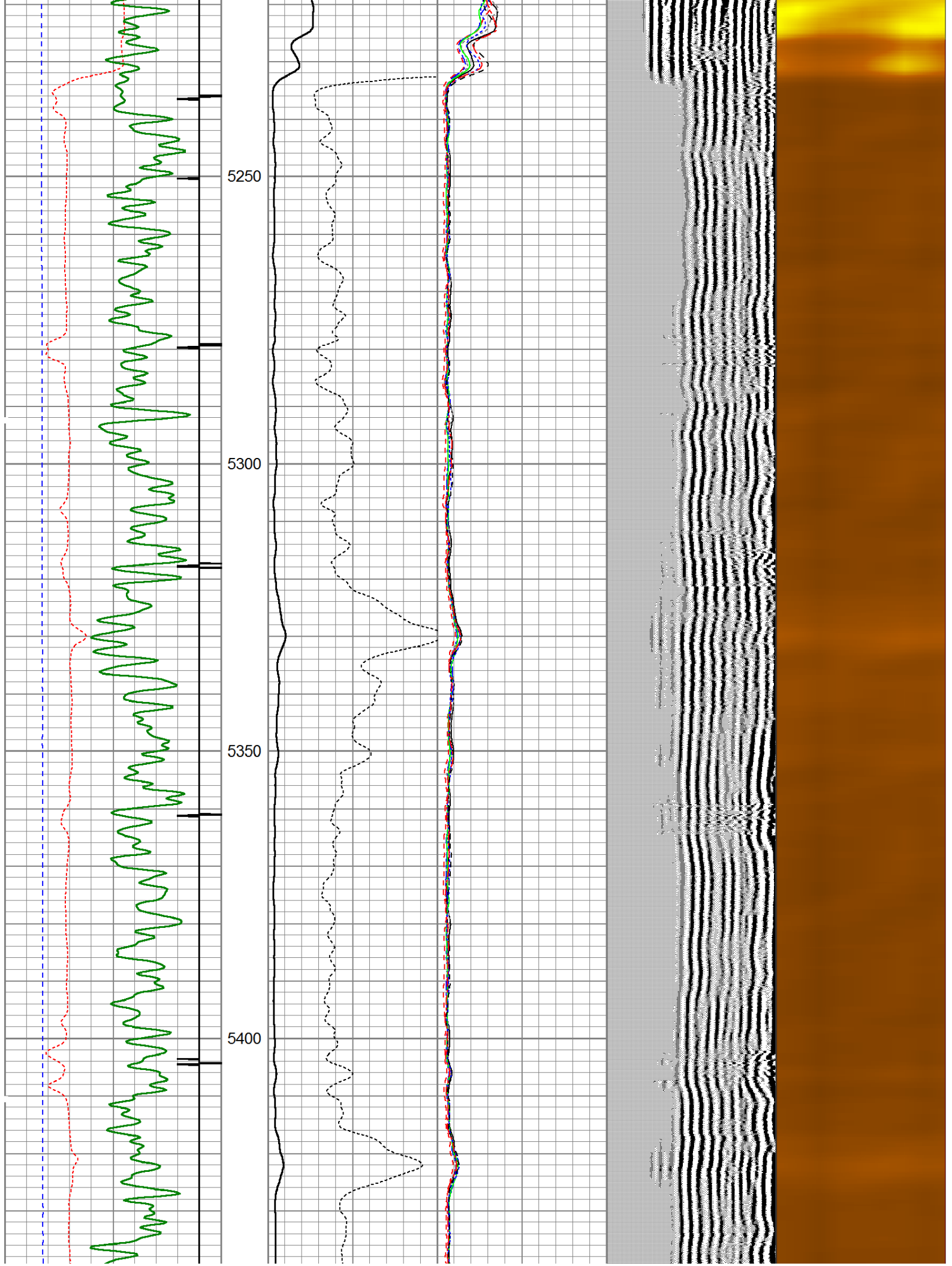


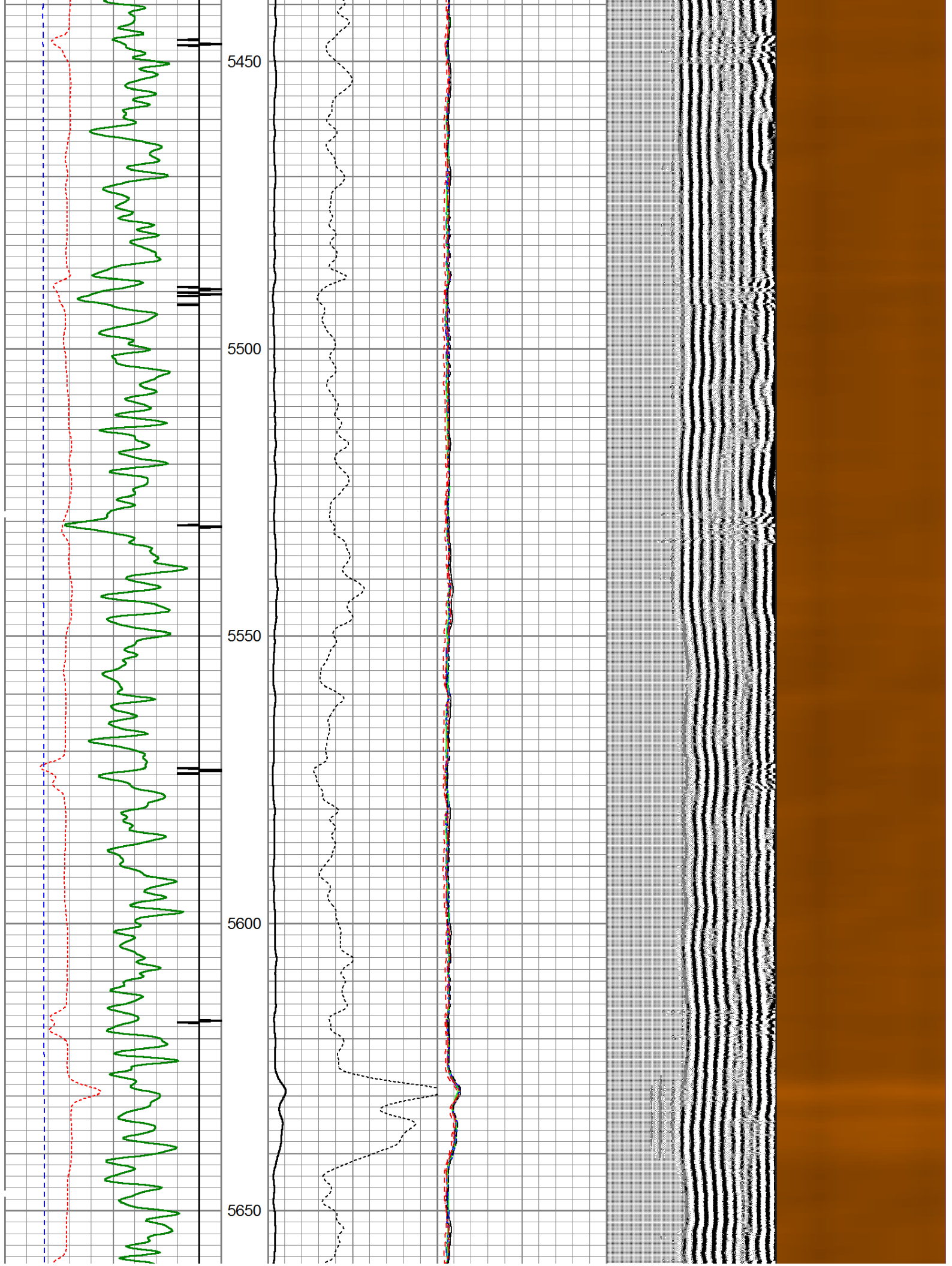


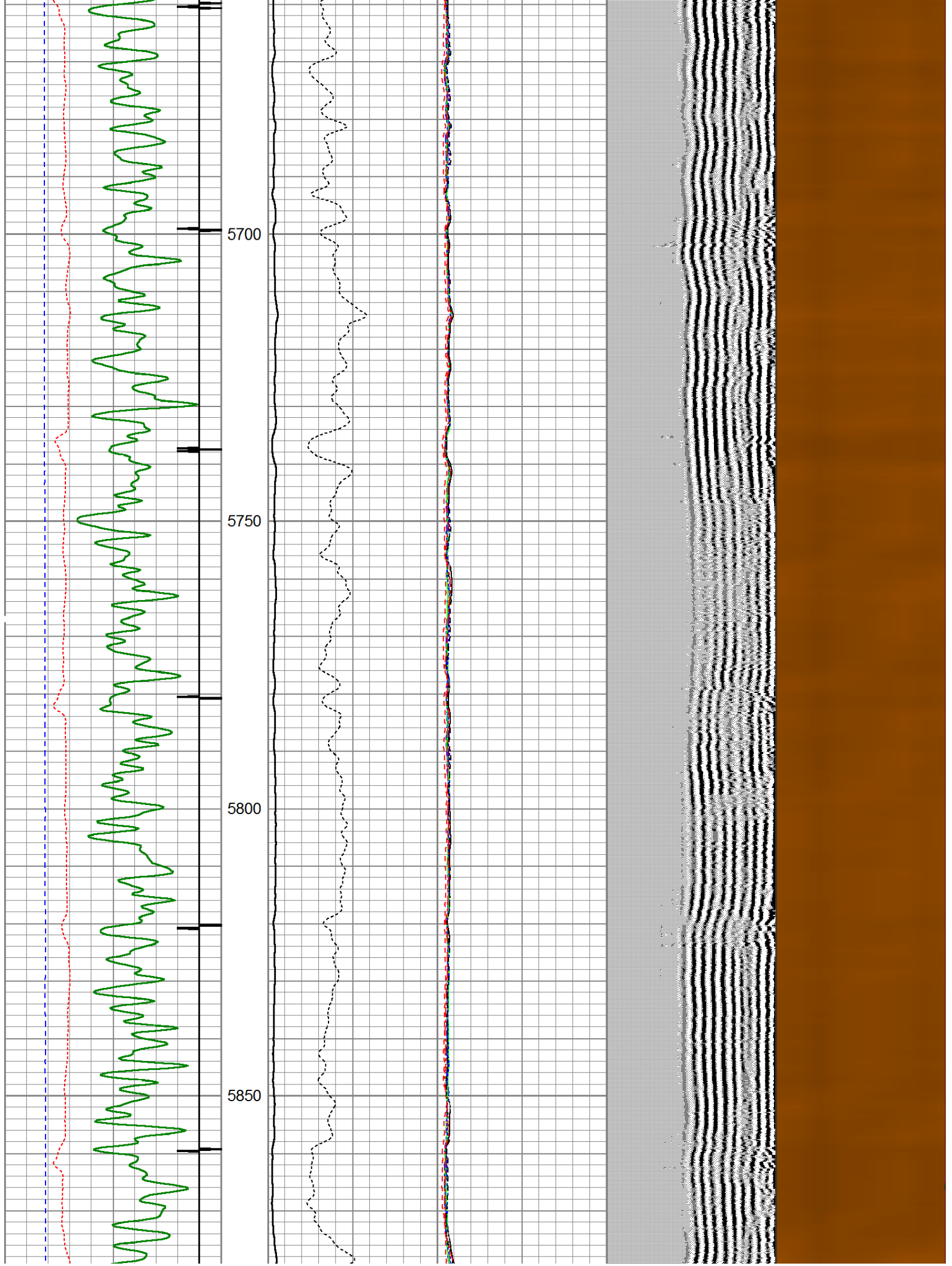


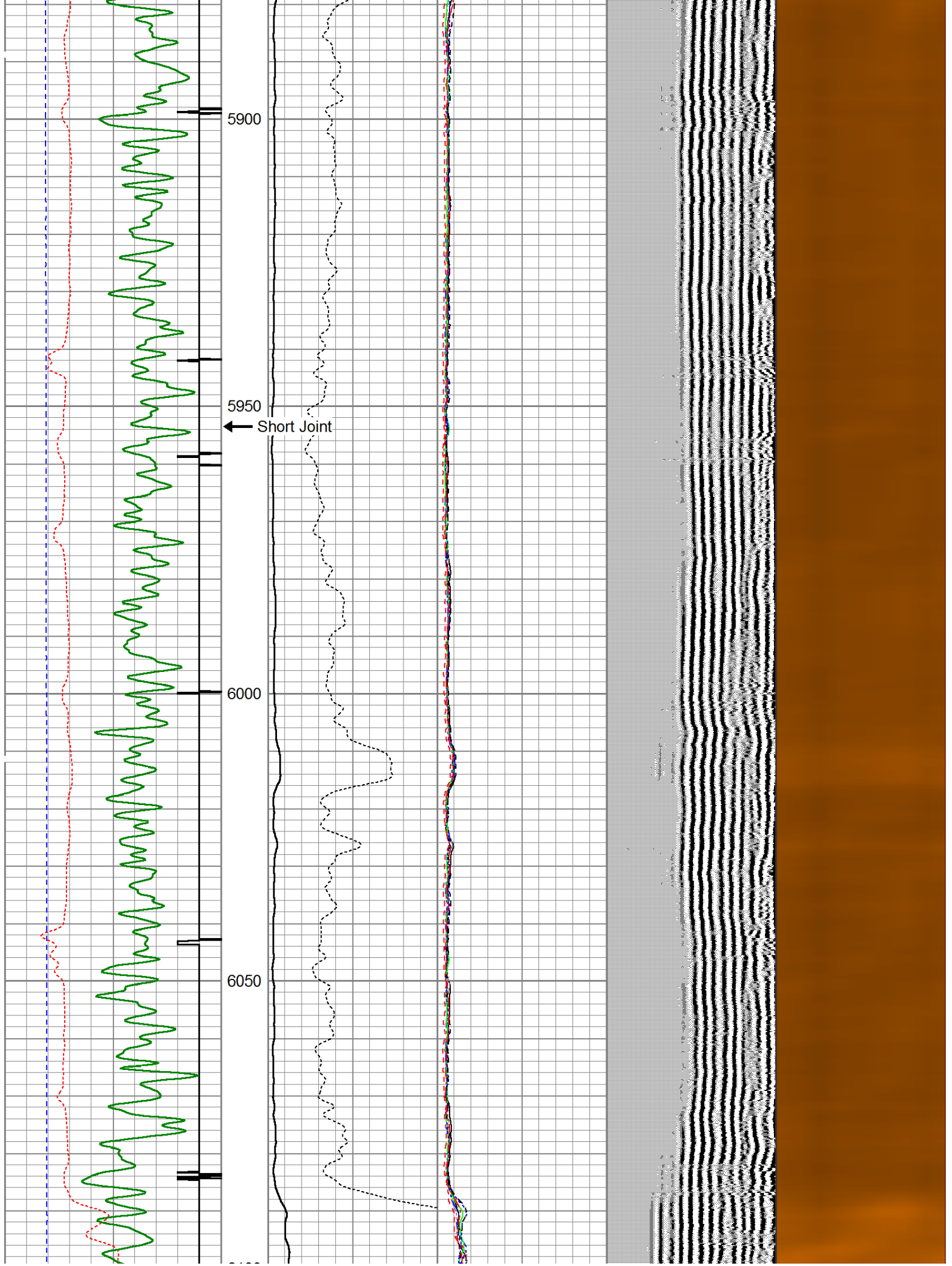


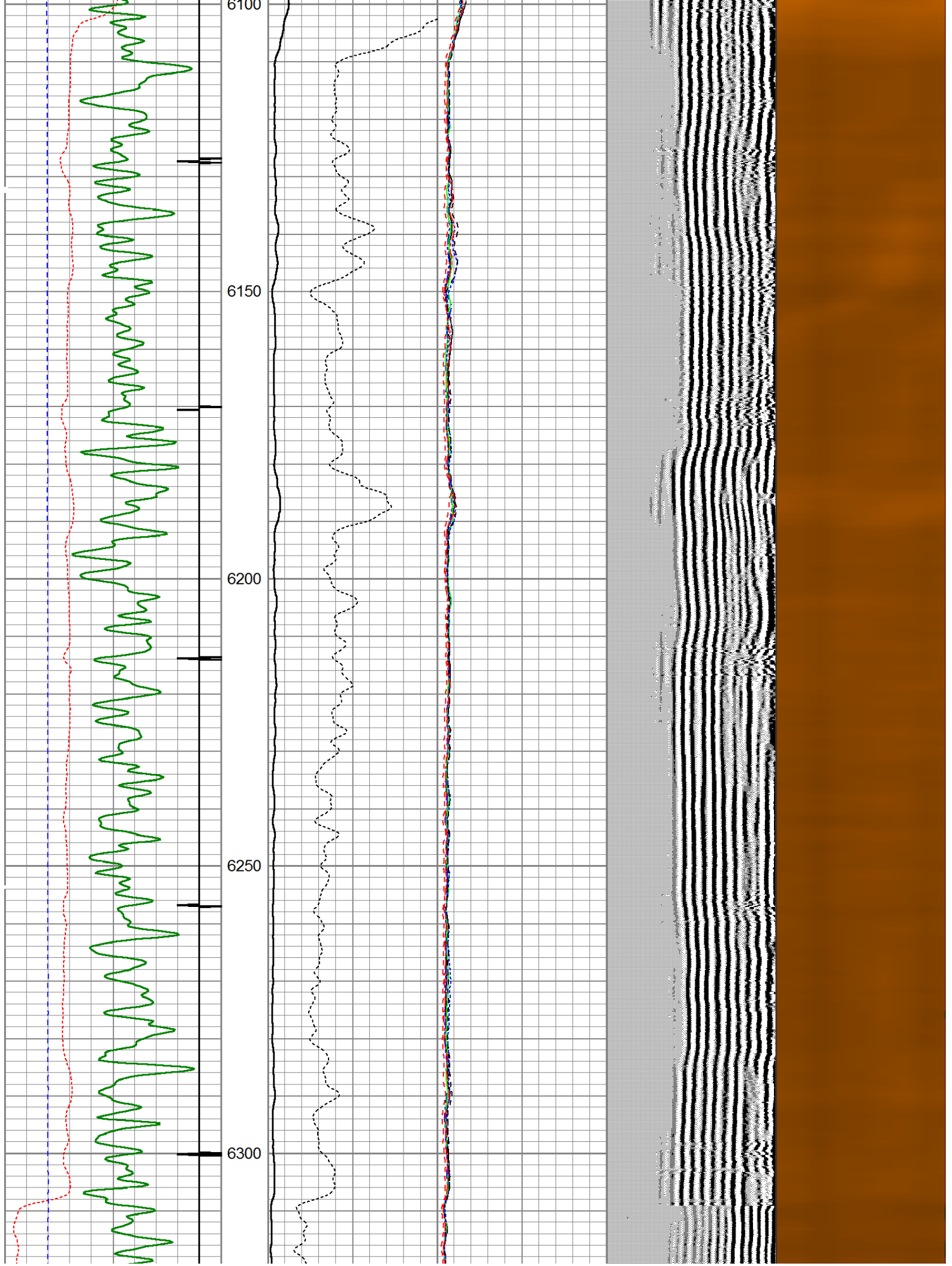


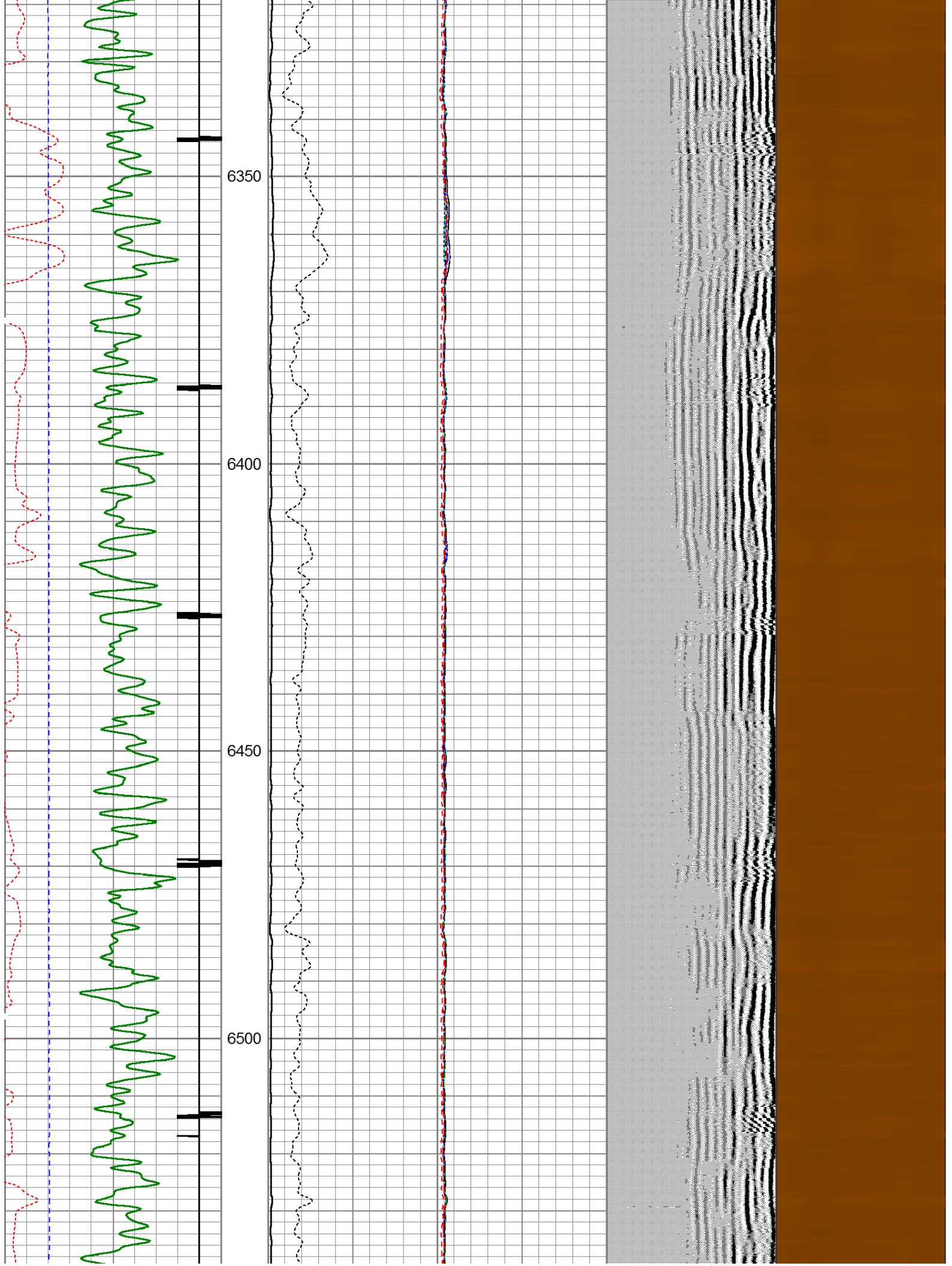


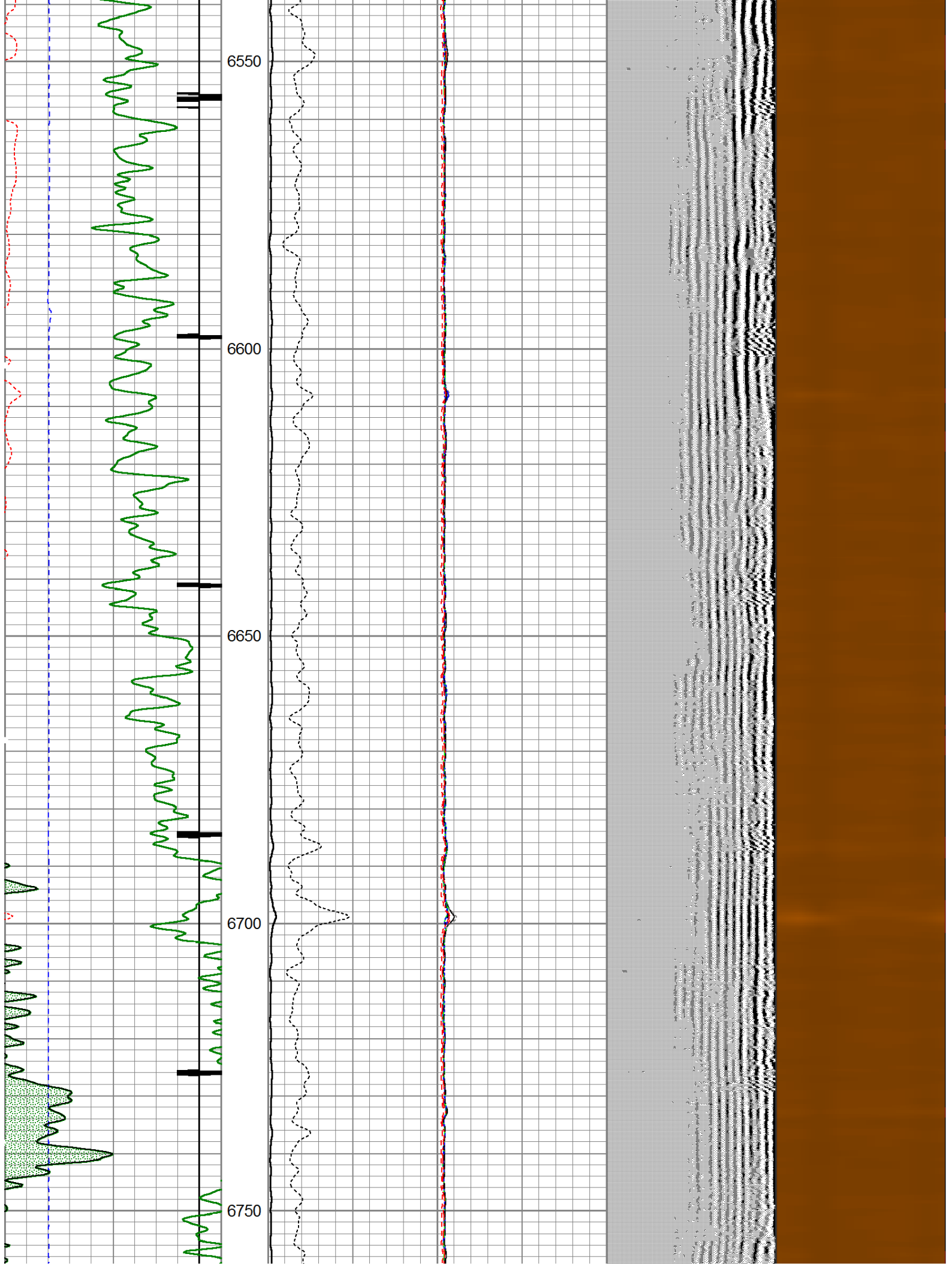


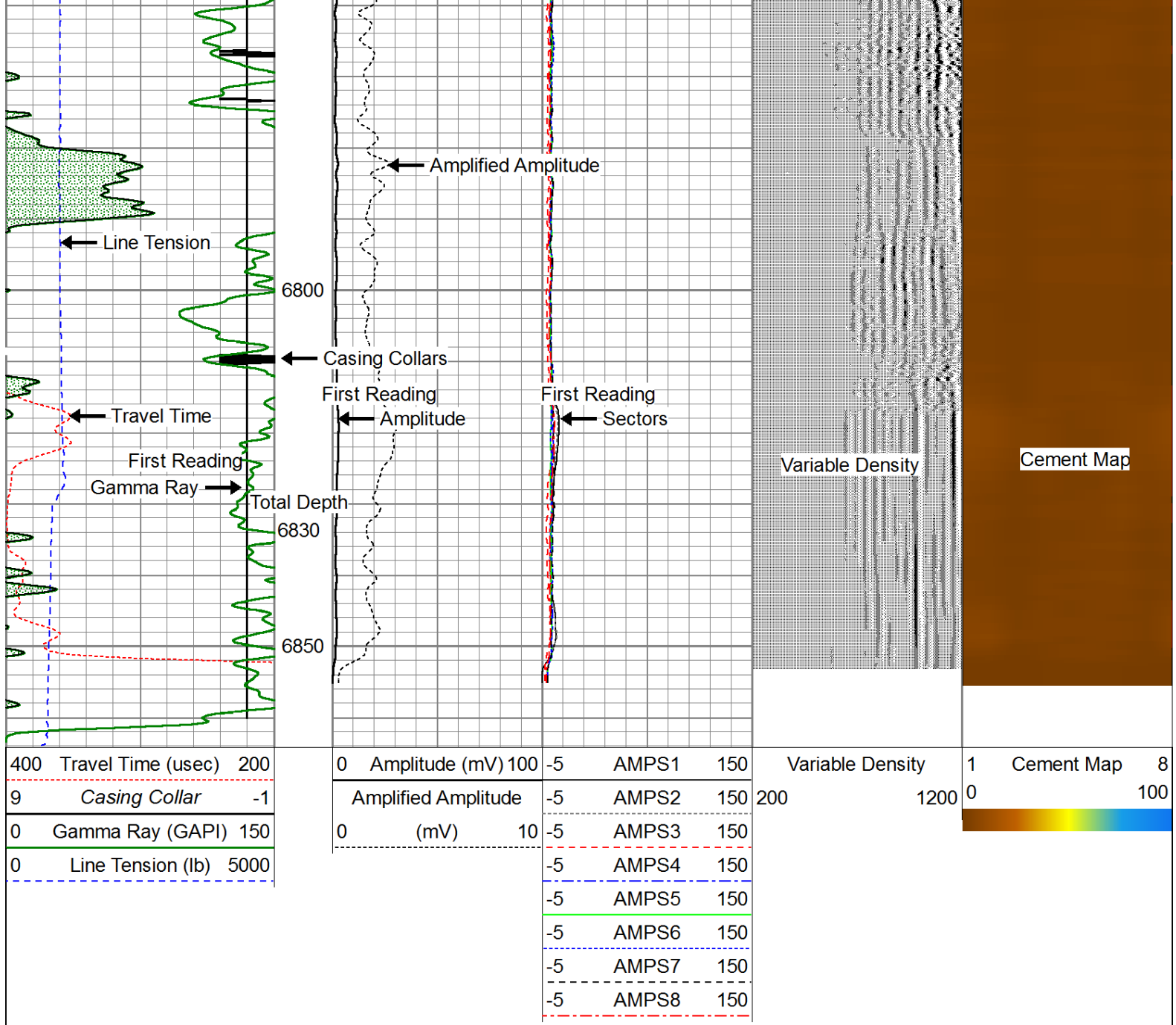






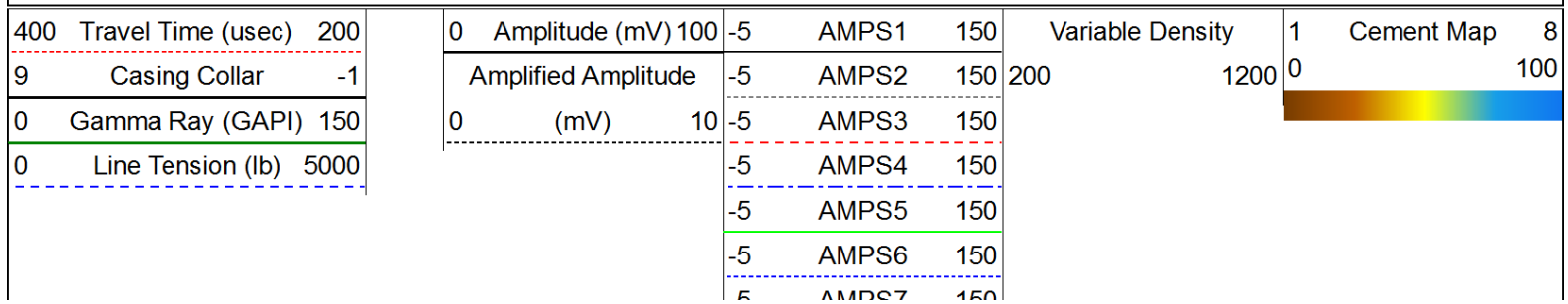




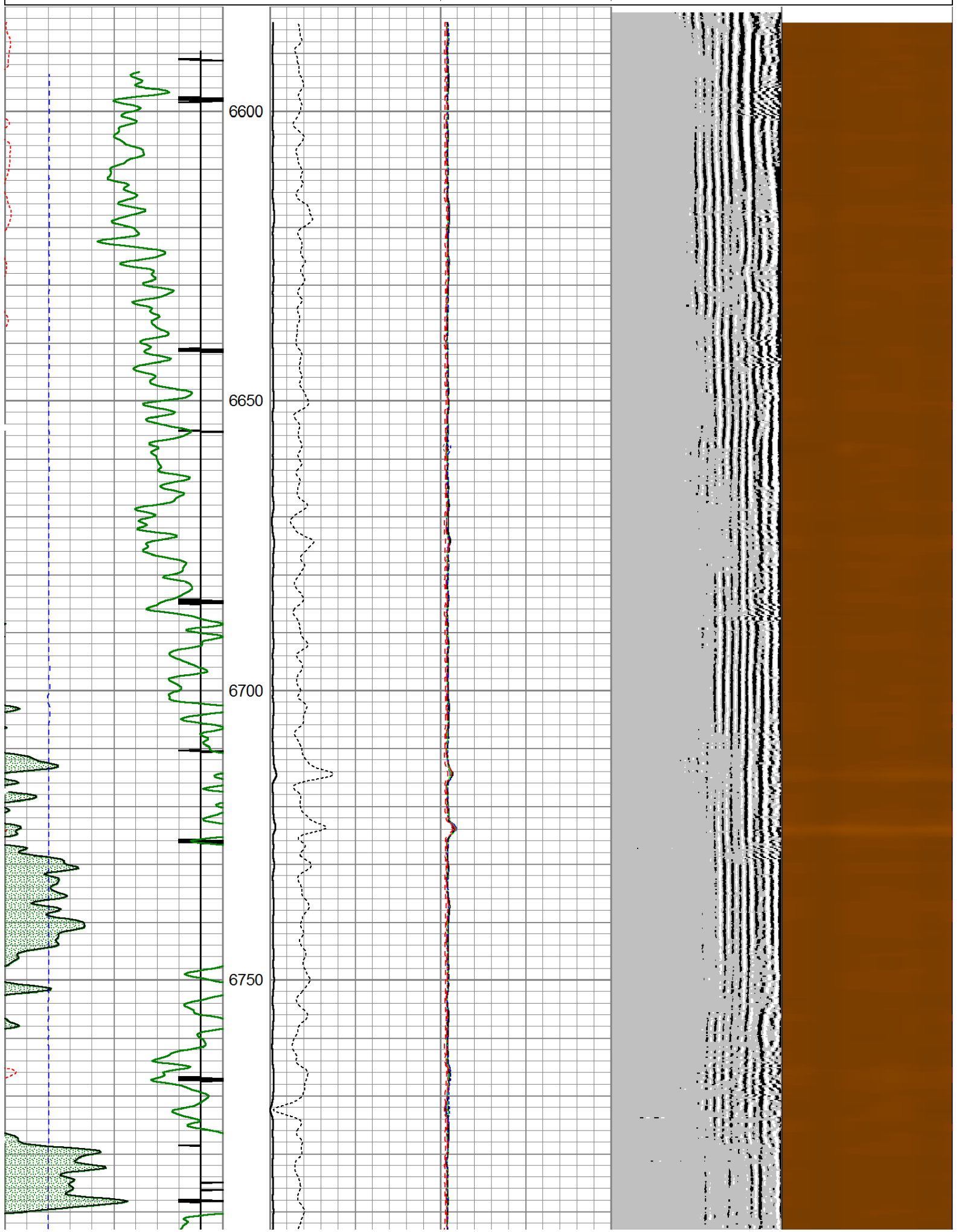


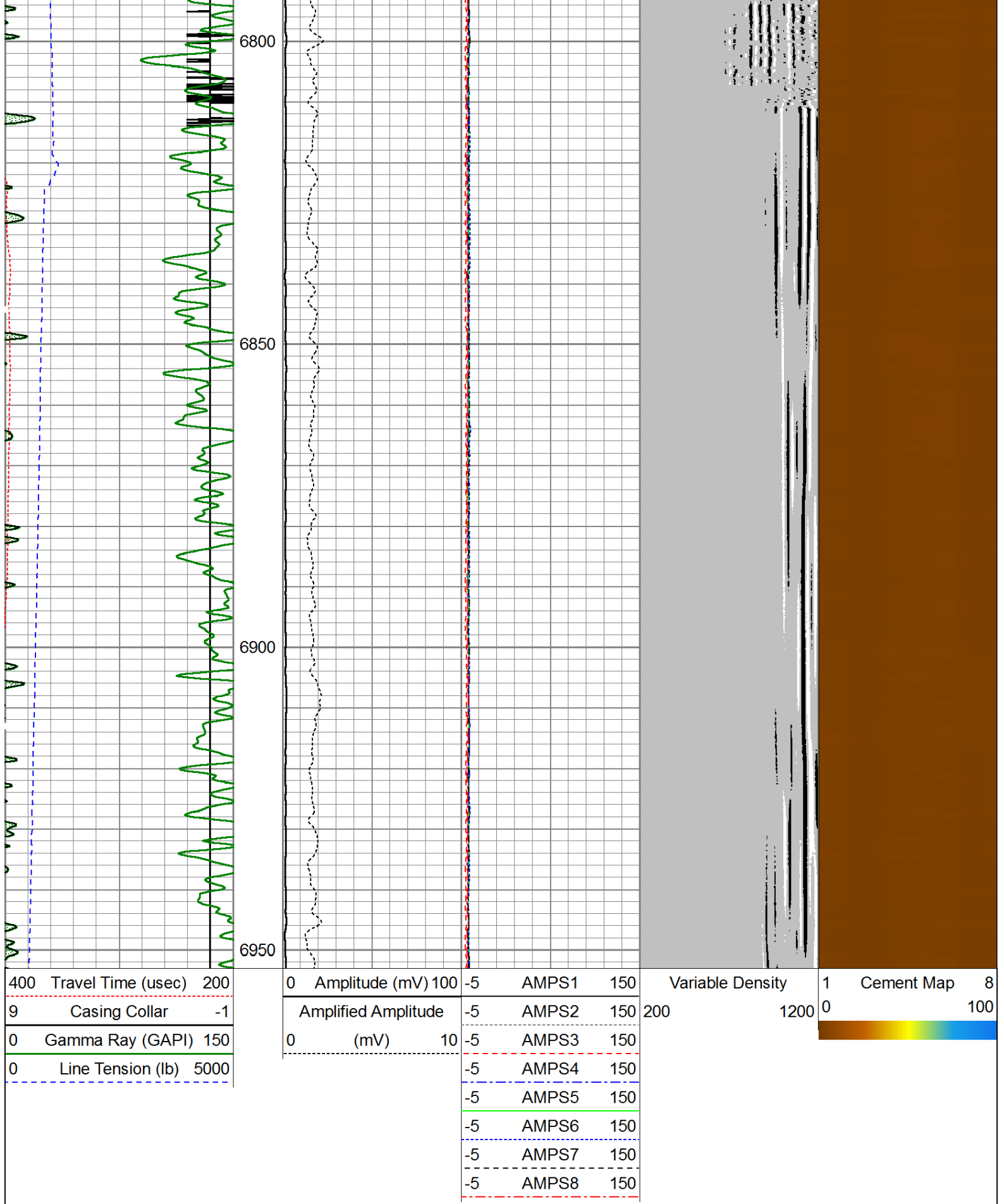
Repeat Pass(0 PSI)

Database File: noble crow creek state ad31-79hn_rcbl.db
 Dataset Pathname: pass7
 Presentation Format: scbl03
 Dataset Creation: Sat Dec 14 09:24:57 2013 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240



-5 AMPS7 150
-5 AMPS8 150





Calibration Report

Database File: noble crow creek state ad31-79hn_rcbl.db
Dataset Pathname: pass9
Dataset Creation: Sat Dec 14 09:33:16 2013 by Log 7.0 B1

Gamma Ray Calibration Report

Type / Serial:

Probe275 / 110108-Dig

SHOP CALIBRATION

Tue Nov 05 09:42:00 2013

| | | | | | |
|------------|-------------|--------|--------|-----|----------|
| | Counts/Sec. | Gain | Offset | Jig | Units |
| Background | 0.0 | | | | cps |
| Calibrator | 1.0 | | | | cps |
| | | 0.8500 | | | GAPI/cps |

PRIMARY VERIFICATION

| | | | | | |
|------------|-----|--|--|-----|------|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

BEFORE SURVEY VERIFICATION

| | | | | | |
|------------|-----|--|--|-----|------|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

AFTER SURVEY VERIFICATION

| | | | | | |
|------------|-----|--|--|-----|------|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

Segmented Cement Bond Log Calibration Report

Serial Number: 101224
Tool Model: Probe

Calibration Casing Diameter: 7.000 in
Calibration Depth: 1222.292 ft


Master Calibration, performed Sat Dec 14 09:04:00 2013:

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.007 | 0.602 | 1.000 | 62.165 | 102.658 | 0.322 |
| CAL | 0.003 | 1.097 | | | | |
| 5' | 0.007 | 0.551 | 1.000 | 62.165 | 112.414 | 0.258 |
| SUM | | | | | | |
| S1 | 0.028 | 0.616 | 0.000 | 100.000 | 170.181 | -4.824 |
| S2 | 0.006 | 0.620 | 0.000 | 100.000 | 162.701 | -0.951 |
| S3 | 0.018 | 0.652 | 0.000 | 100.000 | 157.766 | -2.914 |
| S4 | 0.005 | 0.664 | 0.000 | 100.000 | 151.580 | -0.722 |
| S5 | 0.006 | 0.652 | 0.000 | 100.000 | 154.636 | -0.887 |
| S6 | 0.005 | 0.618 | 0.000 | 100.000 | 163.080 | -0.814 |
| S7 | 0.005 | 0.578 | 0.000 | 100.000 | 174.513 | -0.810 |
| S8 | 0.009 | 0.559 | 0.000 | 100.000 | 182.024 | -1.704 |

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 | 0.003 | 1.097 | 1.000 | 0.000 |

Air Zero Calibration, performed Sat Dec 14 08:03:41 2013:

| | | | | | | |
|--|------|---|--|------|------|-------|
| GR | 2.54 |  | GR-Probe275 (110108-Dig) Probe 2 3/4" Logging Gamma Ray | 4.78 | 2.75 | 57.00 |
| <p>Dataset: noble crow creek state ad31-79hn_rcbl.db: field/well/run1/pass9</p> <p>Total Length: 20.28 ft</p> <p>Total Weight: 197.00 lb</p> <p>O.D. 2.75 in</p> | | | | | | |