



# Radial Cement Bond Gamma Ray CCL Log

|                        |   |               |                |
|------------------------|---|---------------|----------------|
| Company                | Petroshare Corp                               | Country       |                |
| Well                   | SHOOK 3-10-2NCH                               |               |                |
| Field                  | WATTENBERG                                    |               |                |
| County                 | ADAMS   |               |                |
| State                  | COLORADO                                      |               |                |
| Company                | Petroshare Corp                               |               |                |
| Well                   | SHOOK 3-10-2NCH                               |               |                |
| Field                  | WATTENBERG                                    |               |                |
| County                 | ADAMS   |               |                |
| State                  | COLORADO                                      | Country       |                |
| Location:              | API # : 05-001-09980                          |               | Other Services |
|                        | NWSE SEC.03-T1S-R67W<br>2058' FSL & 2169' FEL |               | N/A            |
| Permanent Datum        | SEC   | TWP           | RGE            |
| Log Measured From      | G.L.  | Elevation     | 5098'          |
| Drilling Measured From | K.B.  | Elevation     | 5111'          |
|                        | K.B.  | D.F.          | N/A            |
|                        | K.B.  | G.L.          | 5098'          |
| Date                   | MARCH 4, 2018                                 |               |                |
| Run Number             | ONE   |               |                |
| Depth Driller          | 13821'  |               |                |
| Depth Logger           | 7941'   |               |                |
| Bottom Logged Interval | 7929'   |               |                |
| Top Log Interval       | 50'   |               |                |
| Open Hole Size         | N/A   |               |                |
| Type Fluid             | H2O   |               |                |
| Density / Viscosity    | 8.4   |               |                |
| Max. Recorded Temp.    | N/A   |               |                |
| Estimated Cement Top   | 2405'   |               |                |
| Time Well Ready        | 15:10   |               |                |
| Time Logger on Bottom  | 16:25   |               |                |
| Equipment Number       | 200121  |               |                |
| Location               | GREENEY CO                                    |               |                |
| Recorded By            | MIKE NOWICKI                                  |               |                |
| Witnessed By           | HAROLD POWELL                                 |               |                |
| Borehole Record        |   | Tubing Record |                |
| Run Number             | Bit   | From          | To             |
|                        |   | Size          | Weight         |
|                        |   | From          | To             |
|                        |   |               |                |
|                        |   |               |                |
| Casing Record          | Size  | Wgt/Ft        | Top            |
| Surface String         | 9-5/8"  | 36 PPF        | SURFACE        |
| Prot. String           | 5-1/2   | 20 PPF        | SURFACE        |
| Production String      |   |               |                |
| Liner                  |   |               |                |

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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

Depth correlated to marker joint  
Marker joint at 6913' - 6935'

THANK YOU FOR USING C&J CASEDHOLE SOLUTIONS

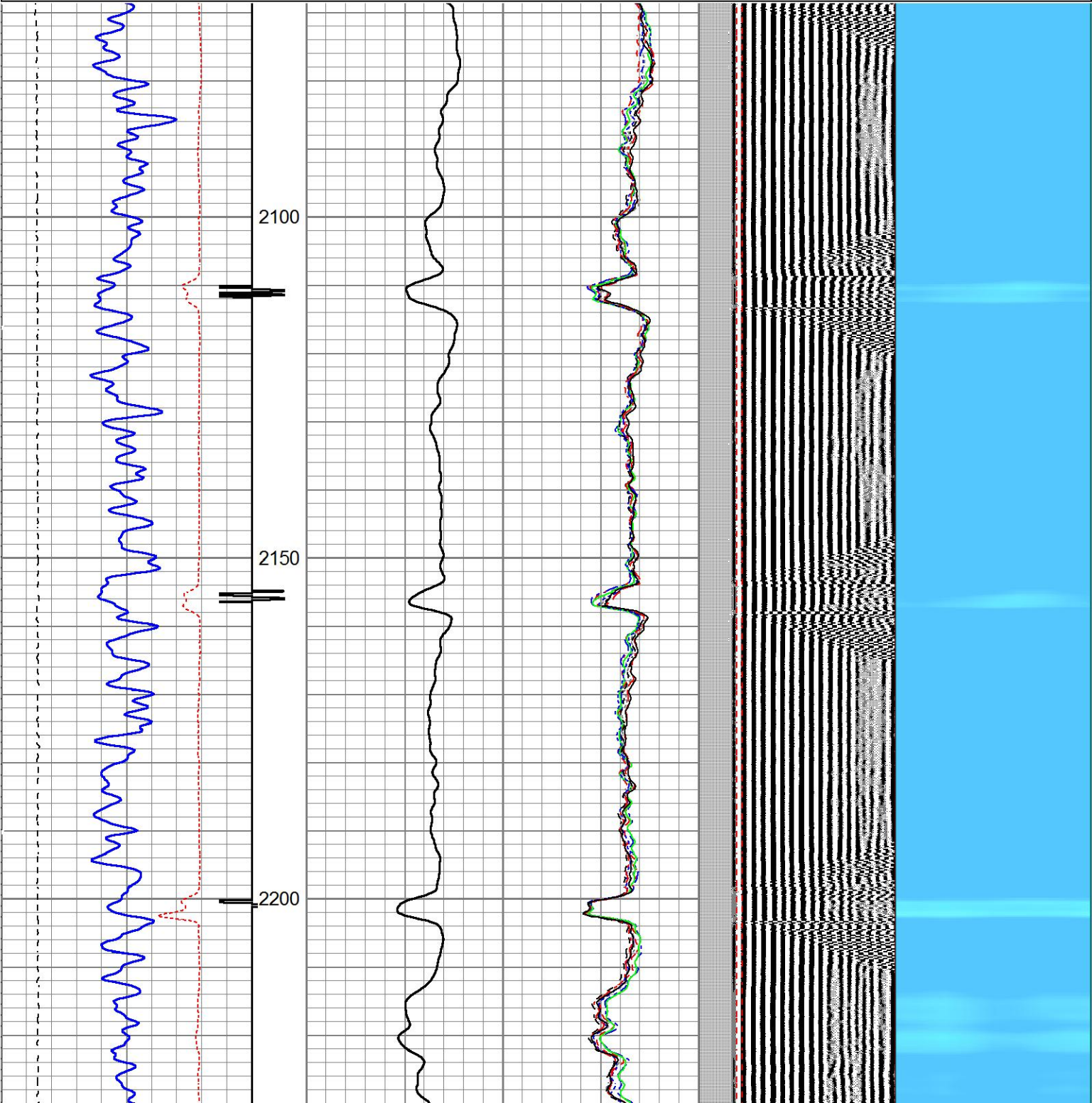
M. NOWICKI, B. SISSON, S. BARNETT



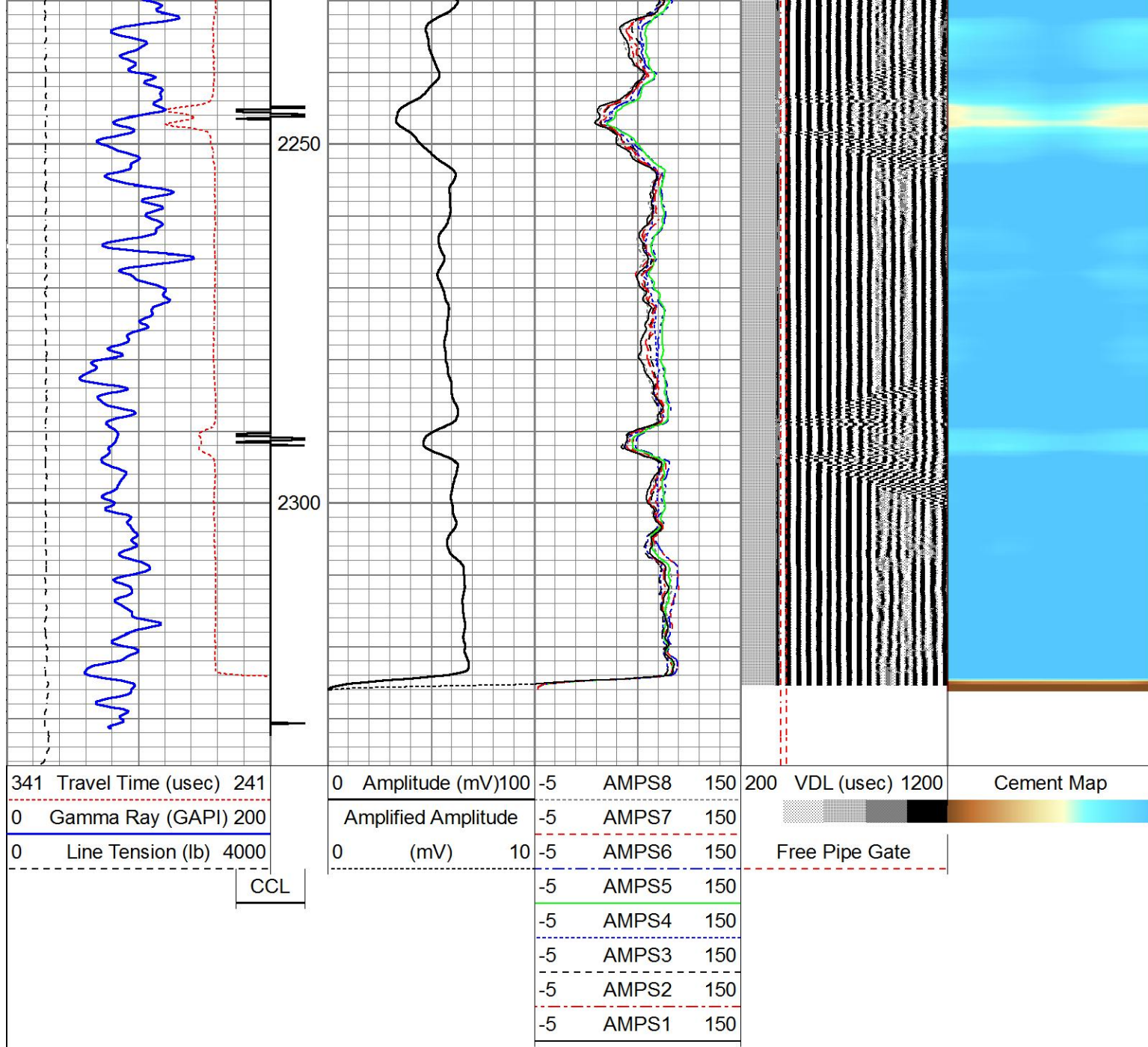
# Free Pipe Pass (0) PSI

|                     |  |
|---------------------|--|
| Database File       | g:\petroshare corp shook pad\db\fs0213 ps shook 3-10-2nch cbl.db |
| Dataset Pathname    | Shook3-10-2NCH/run1/free4  |
| Presentation Format | scbl5_5  |
| Dataset Creation    | Sun Mar 04 15:45:33 2018   |
| Charted by          | Depth in Feet scaled 1:240                                       |

|     |                    |      |   |                     |     |    |       |     |     |                |      |            |
|-----|--------------------|------|---|---------------------|-----|----|-------|-----|-----|----------------|------|------------|
| 341 | Travel Time (usec) | 241  | 0 | Amplitude (mV)      | 100 | -5 | AMPS8 | 150 | 200 | VDL (usec)     | 1200 | Cement Map |
| 0   | Gamma Ray (GAPI)   | 200  |   | Amplified Amplitude |     | -5 | AMPS7 | 150 |     |                |      |            |
| 0   | Line Tension (lb)  | 4000 | 0 | (mV)                | 10  | -5 | AMPS6 | 150 |     | Free Pipe Gate |      |            |
|     |                    |      |   |                     |     | -5 | AMPS5 | 150 |     |                |      |            |
|     |                    |      |   |                     |     | -5 | AMPS4 | 150 |     |                |      |            |
|     |                    |      |   |                     |     | -5 | AMPS3 | 150 |     |                |      |            |
|     |                    |      |   |                     |     | -5 | AMPS2 | 150 |     |                |      |            |
|     |                    |      |   |                     |     | -5 | AMPS1 | 150 |     |                |      |            |







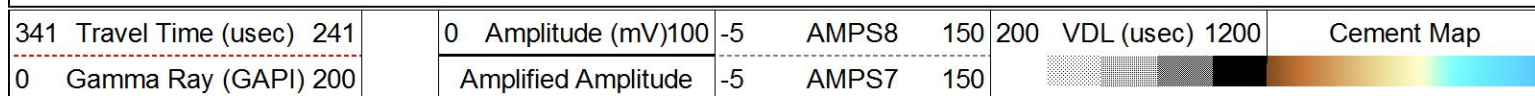
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Free Pipe Pass (0) PSI

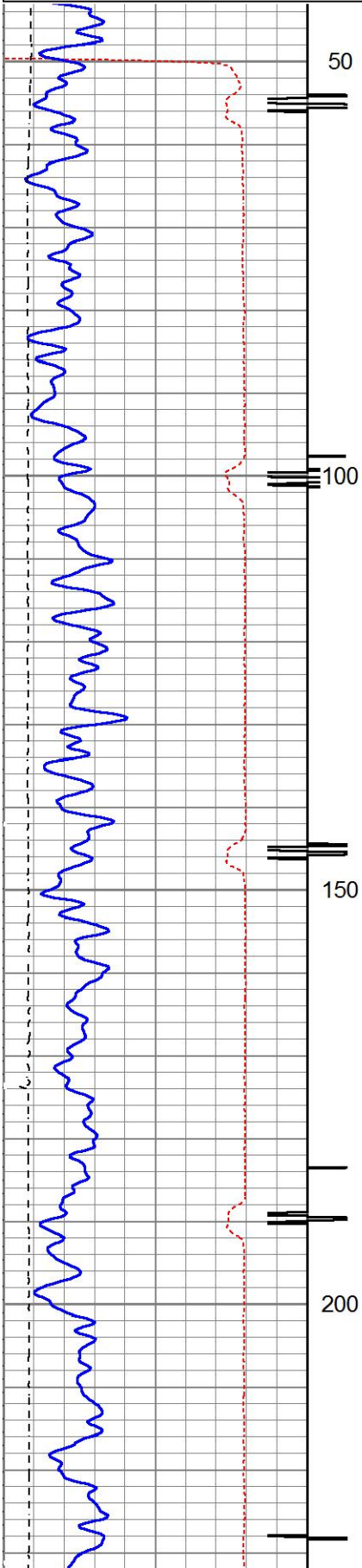
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Main Pass (0) PSI

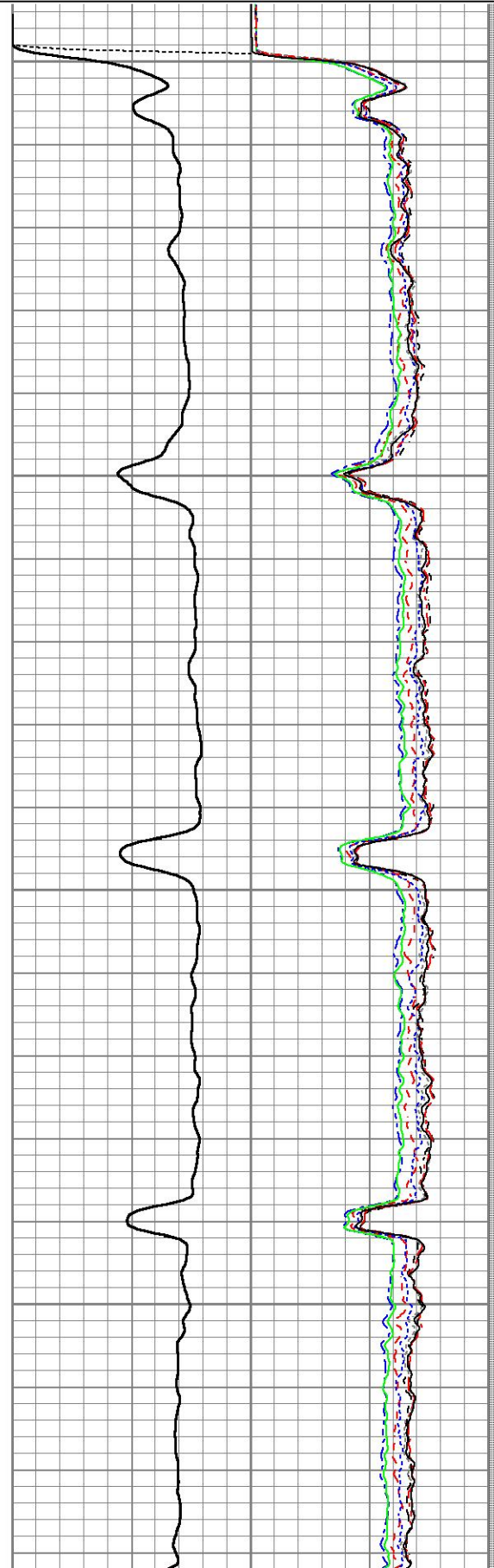
Database File g:\petroshare corp shook pad\db\s\fs0213 ps shook 3-10-2nch cbl.db  
 Dataset Pathname Shook3-10-2NCH/run1/main1  
 Presentation Format scbl5\_5  
 Dataset Creation Sun Mar 04 16:35:46 2018  
 Charted by Depth in Feet scaled 1:240



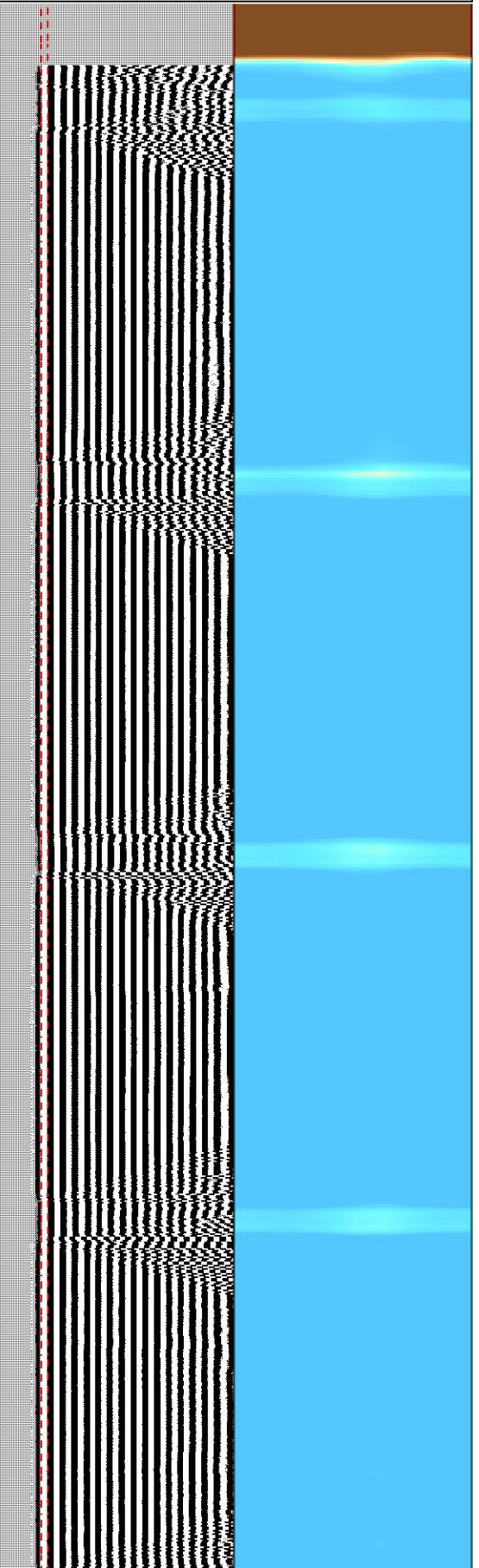
0 Line Tension (lb) 4000  
CCL



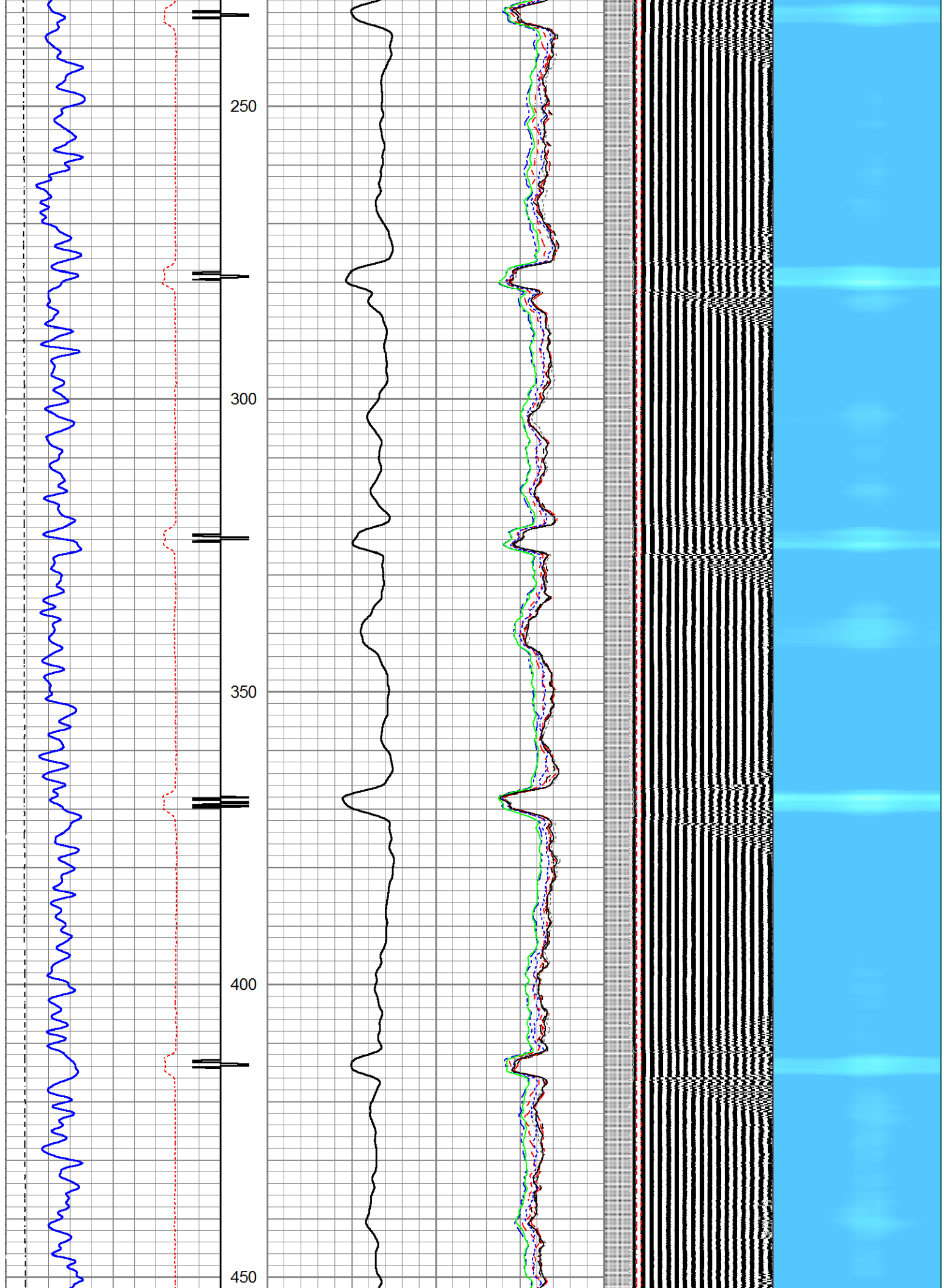
0 (mV) 10 -5 AMPS6 150  
-5 AMPS5 150  
-5 AMPS4 150  
-5 AMPS3 150  
-5 AMPS2 150  
-5 AMPS1 150

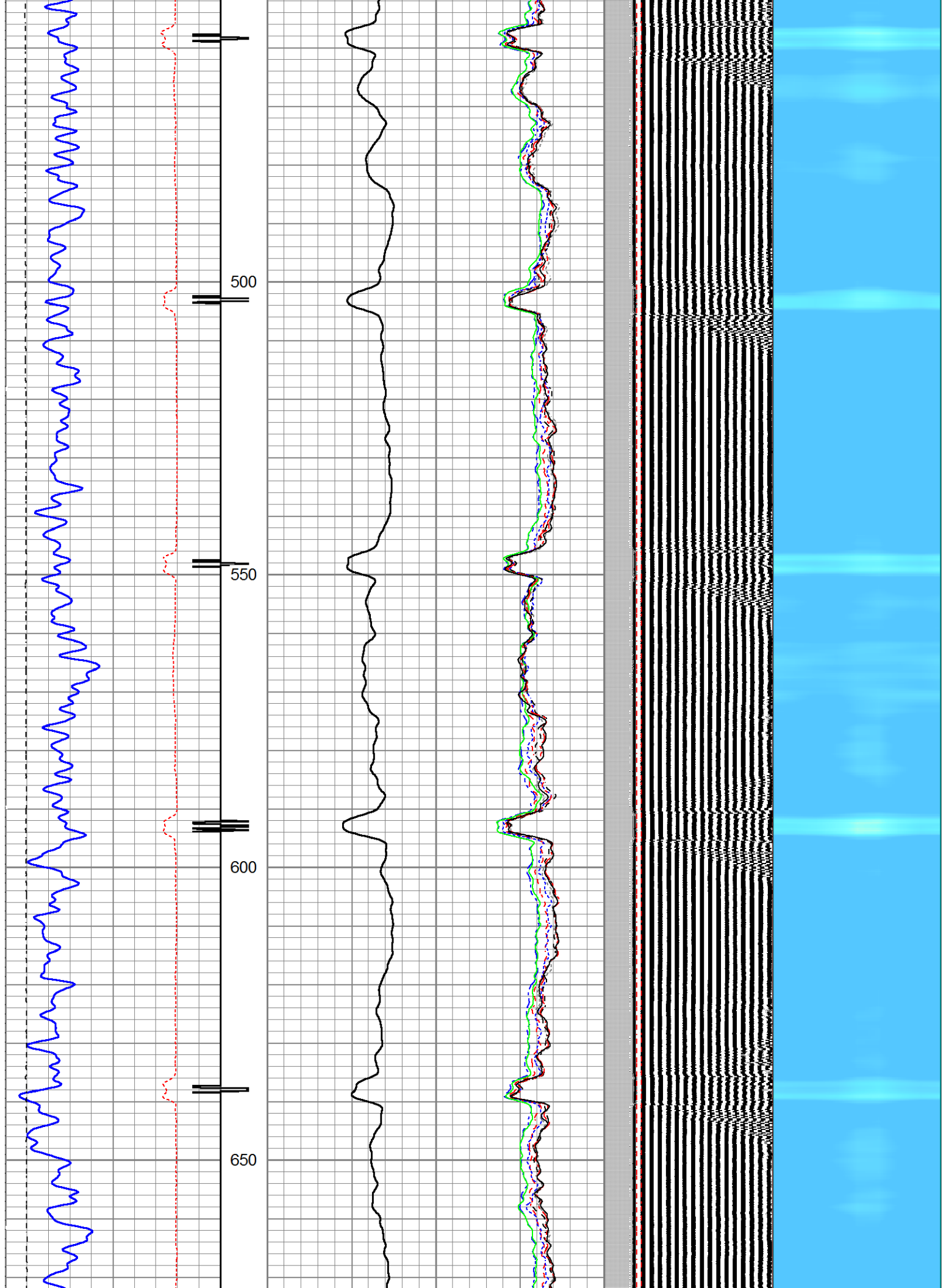


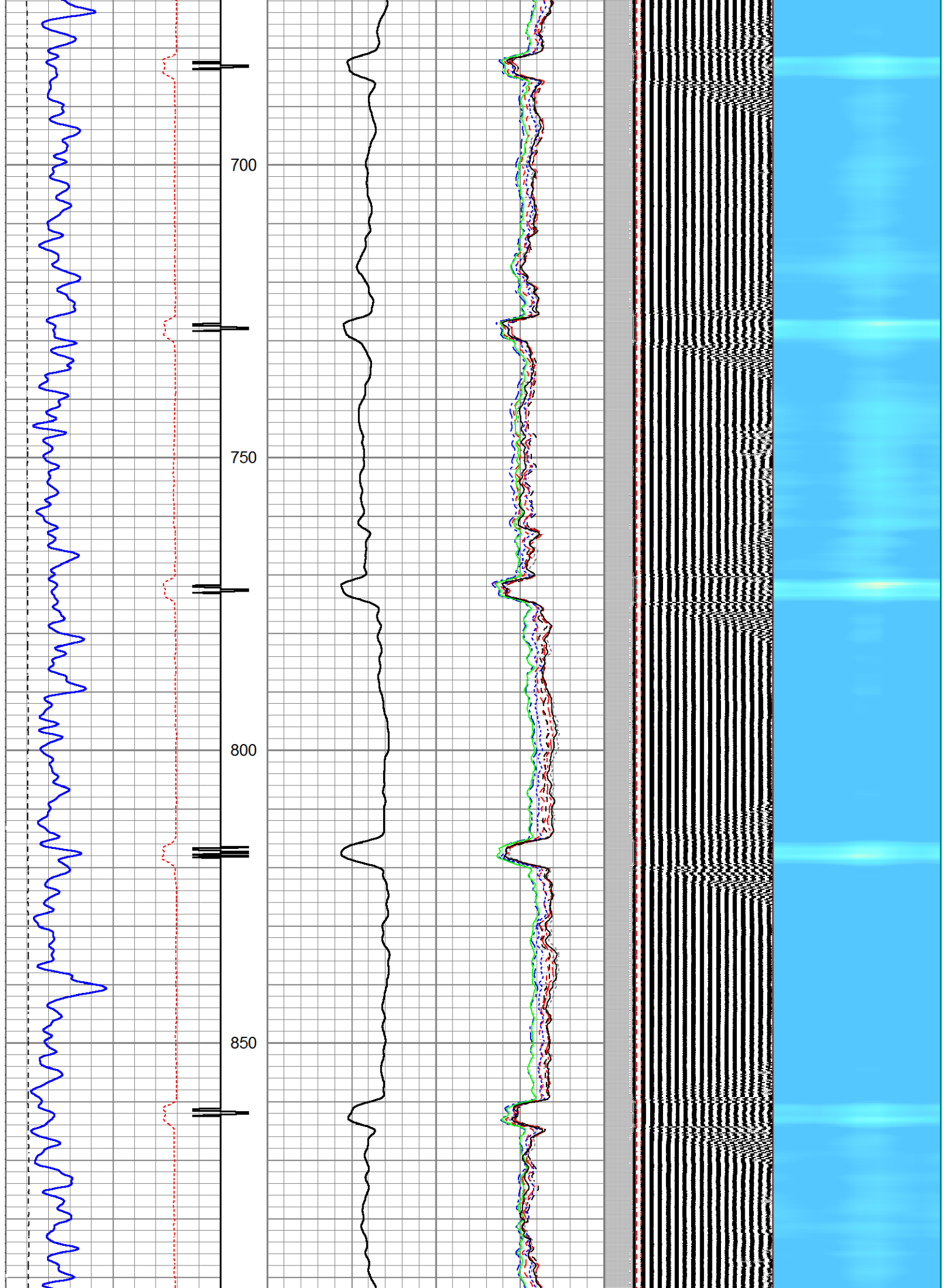
Free Pipe Gate

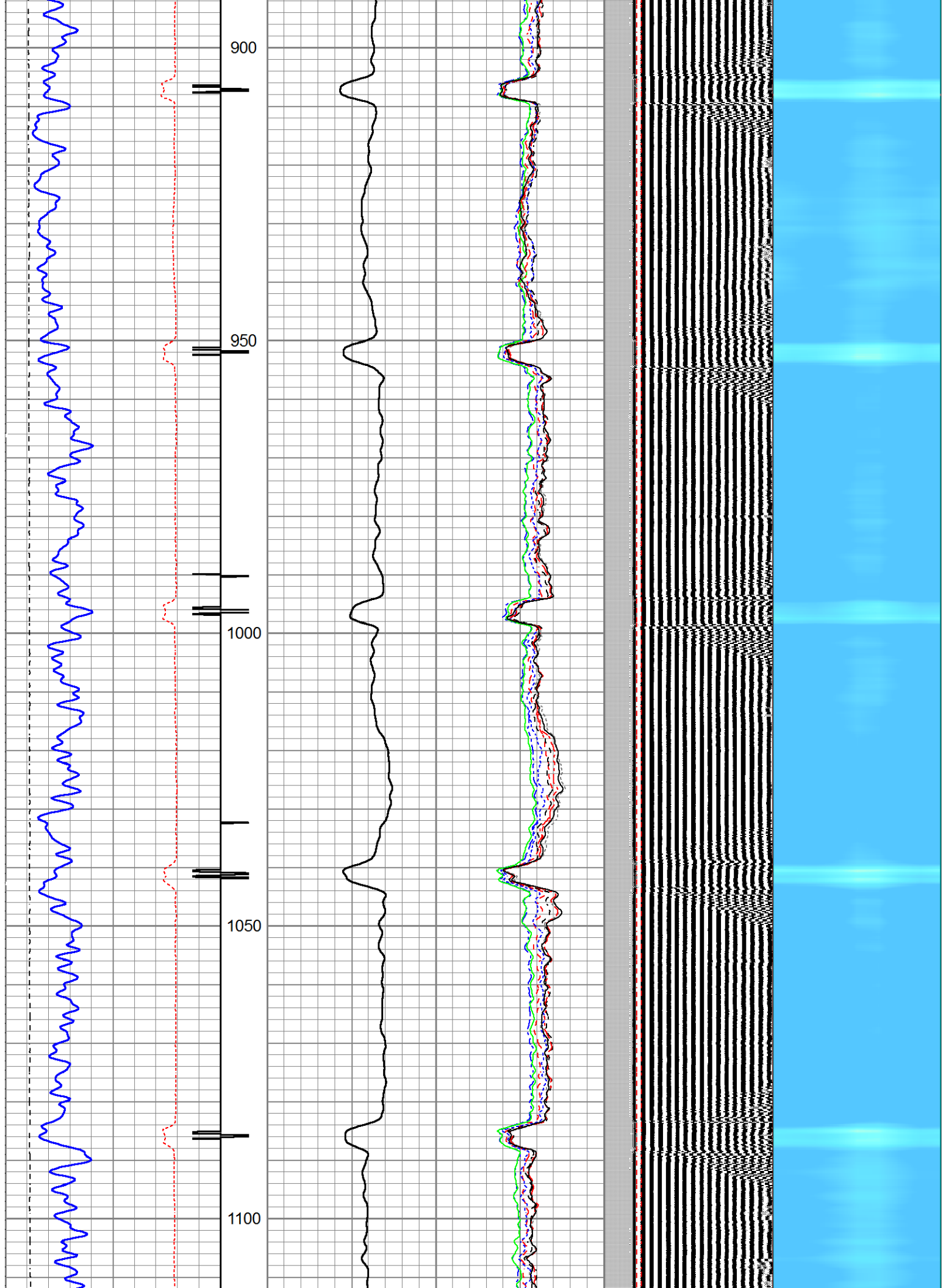




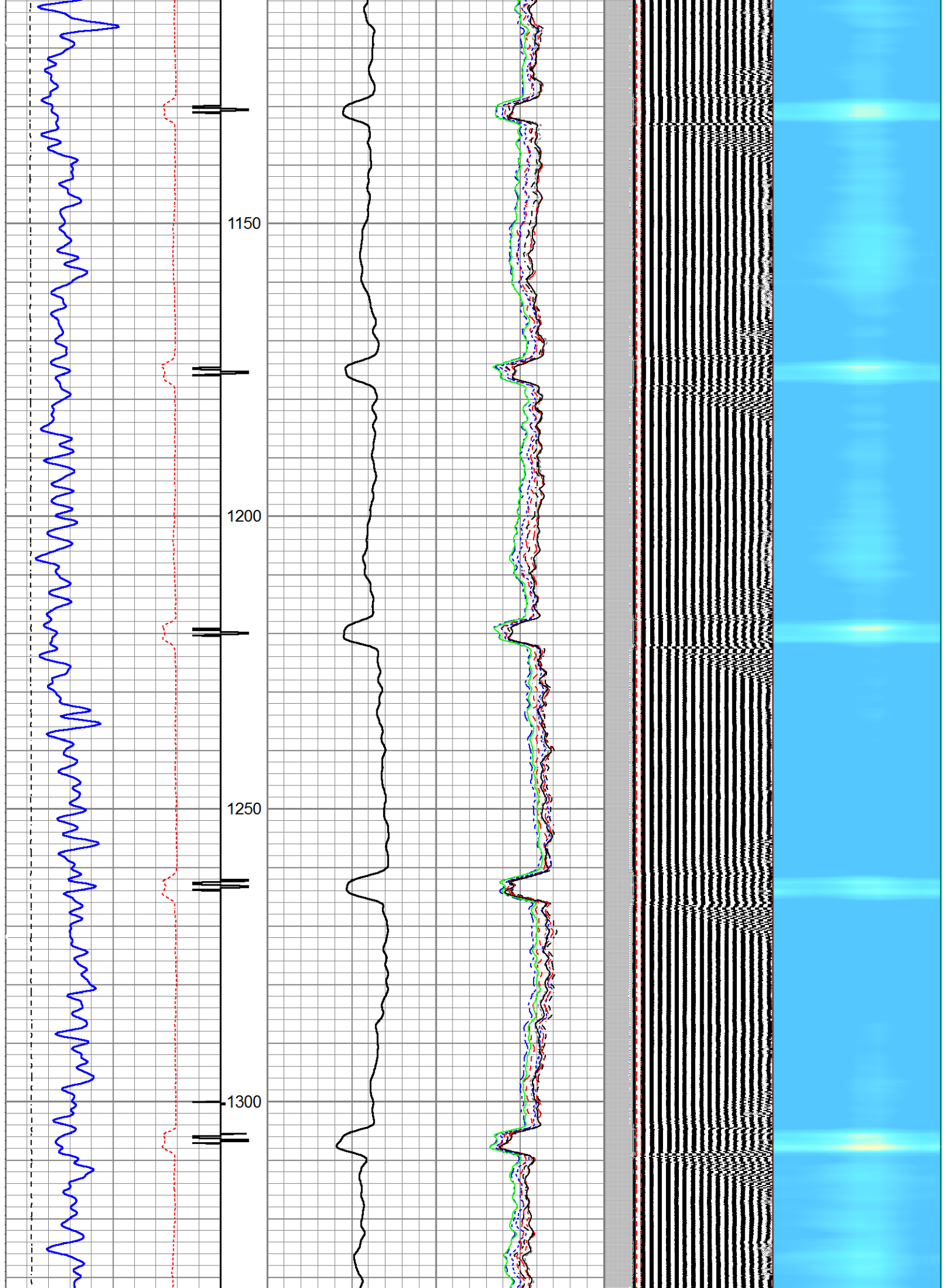


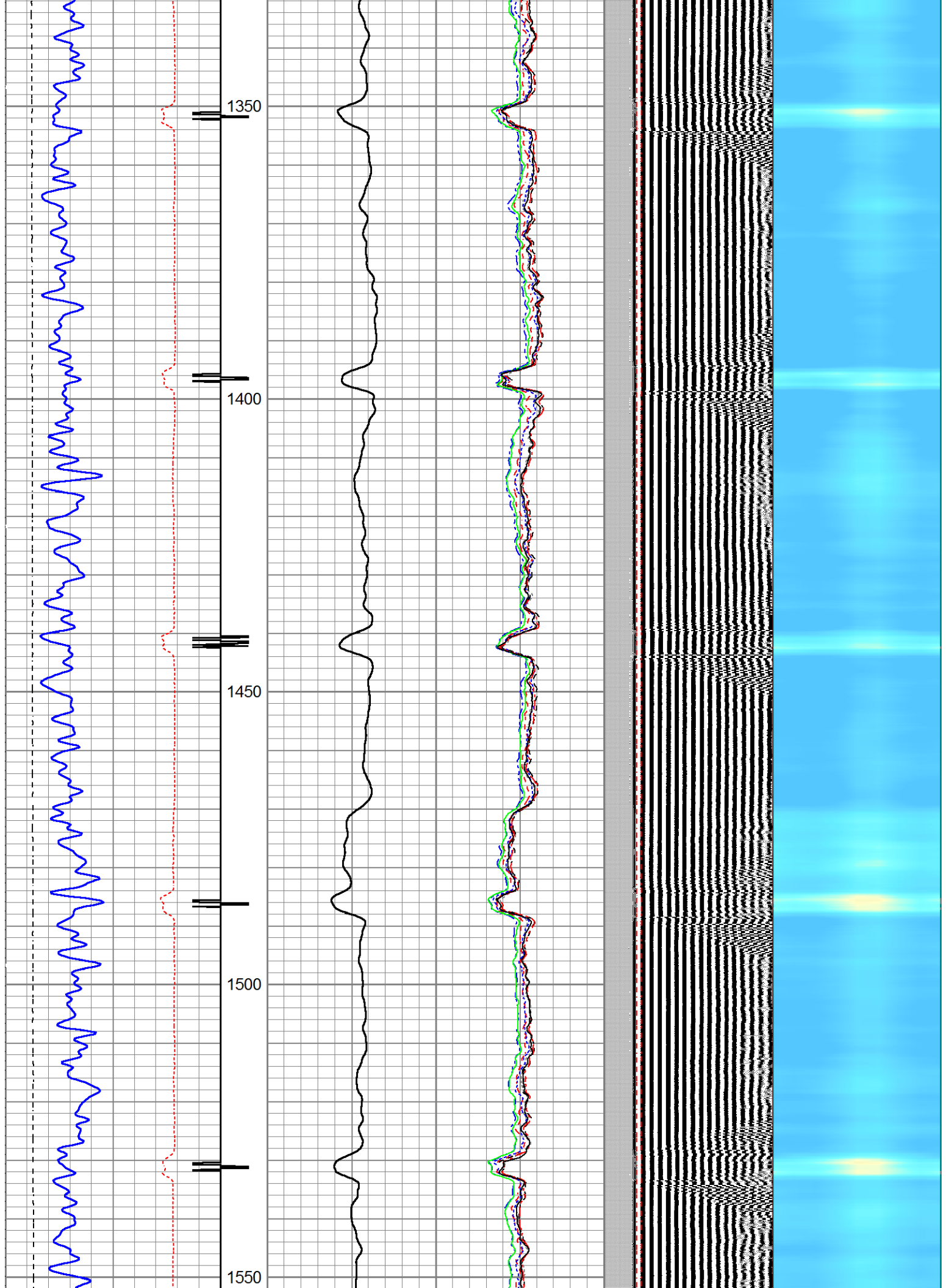




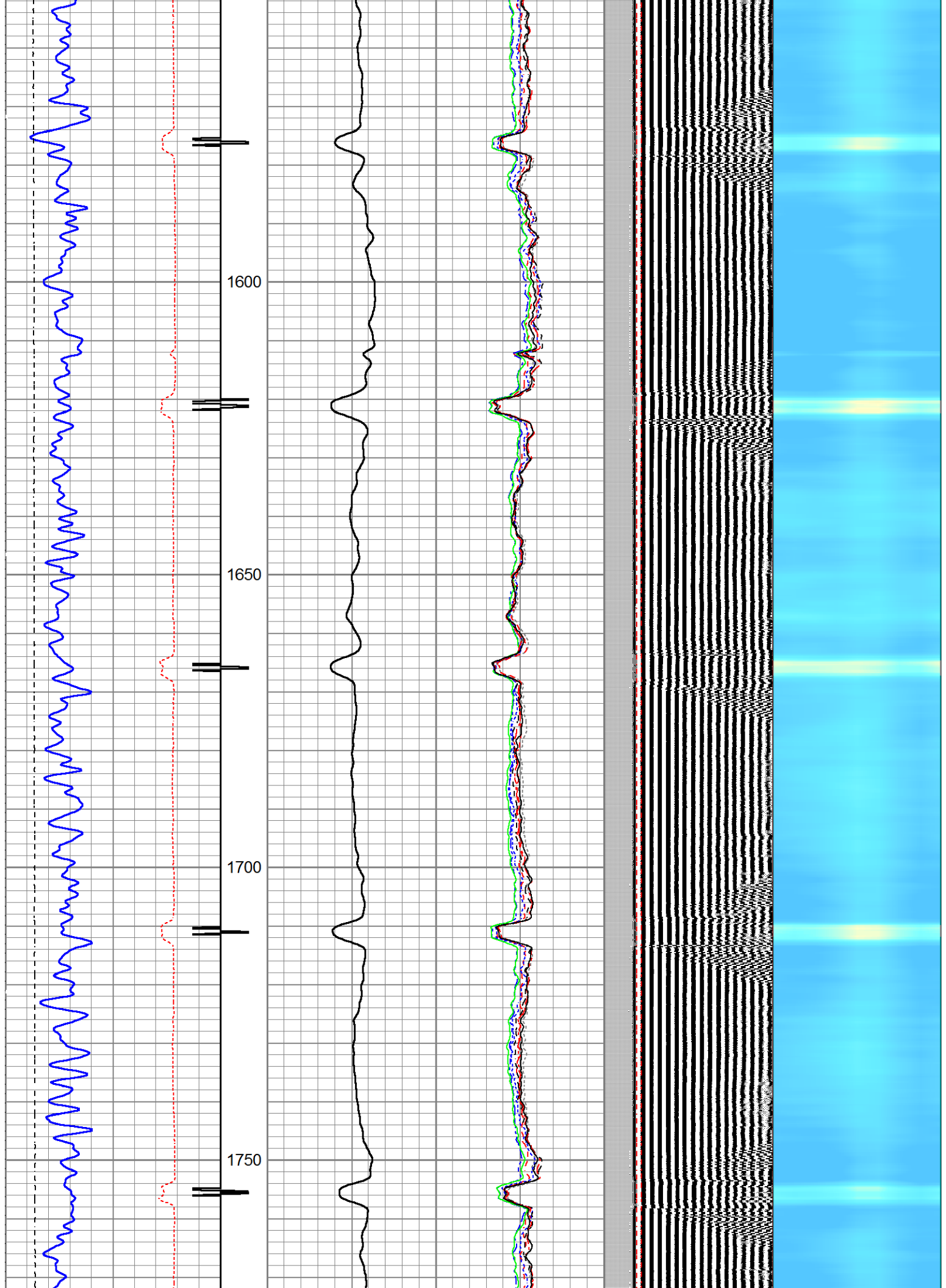


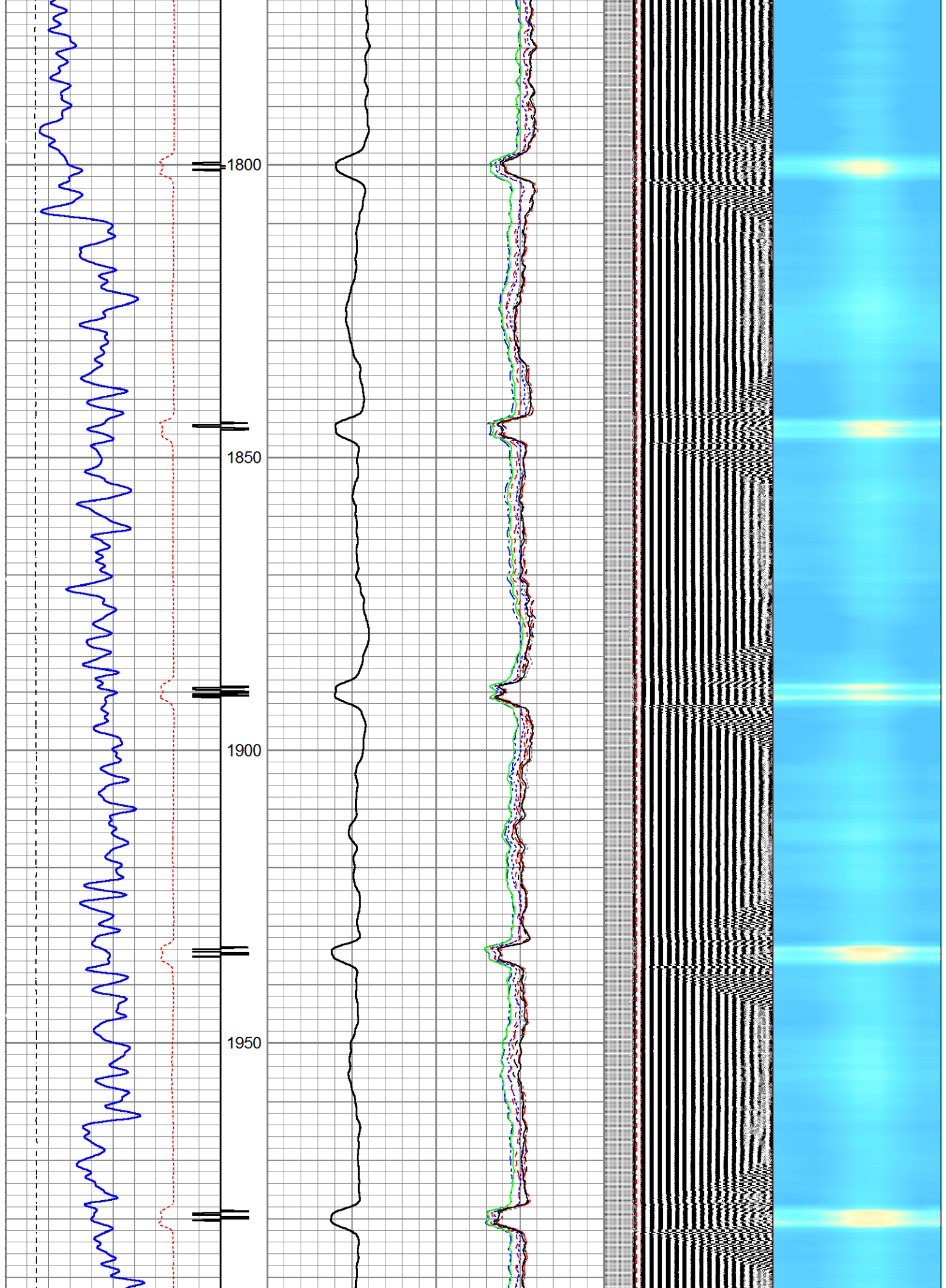




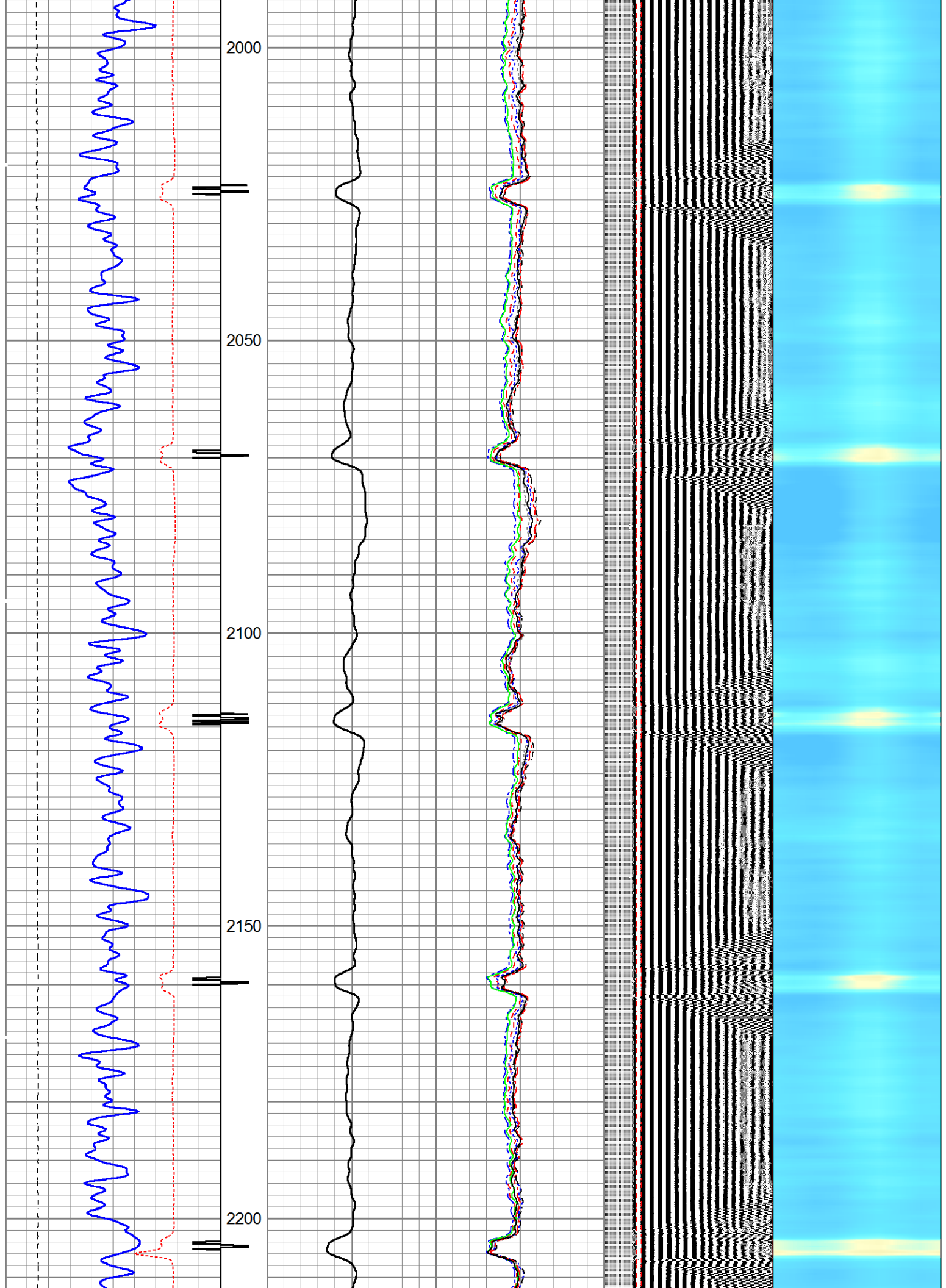


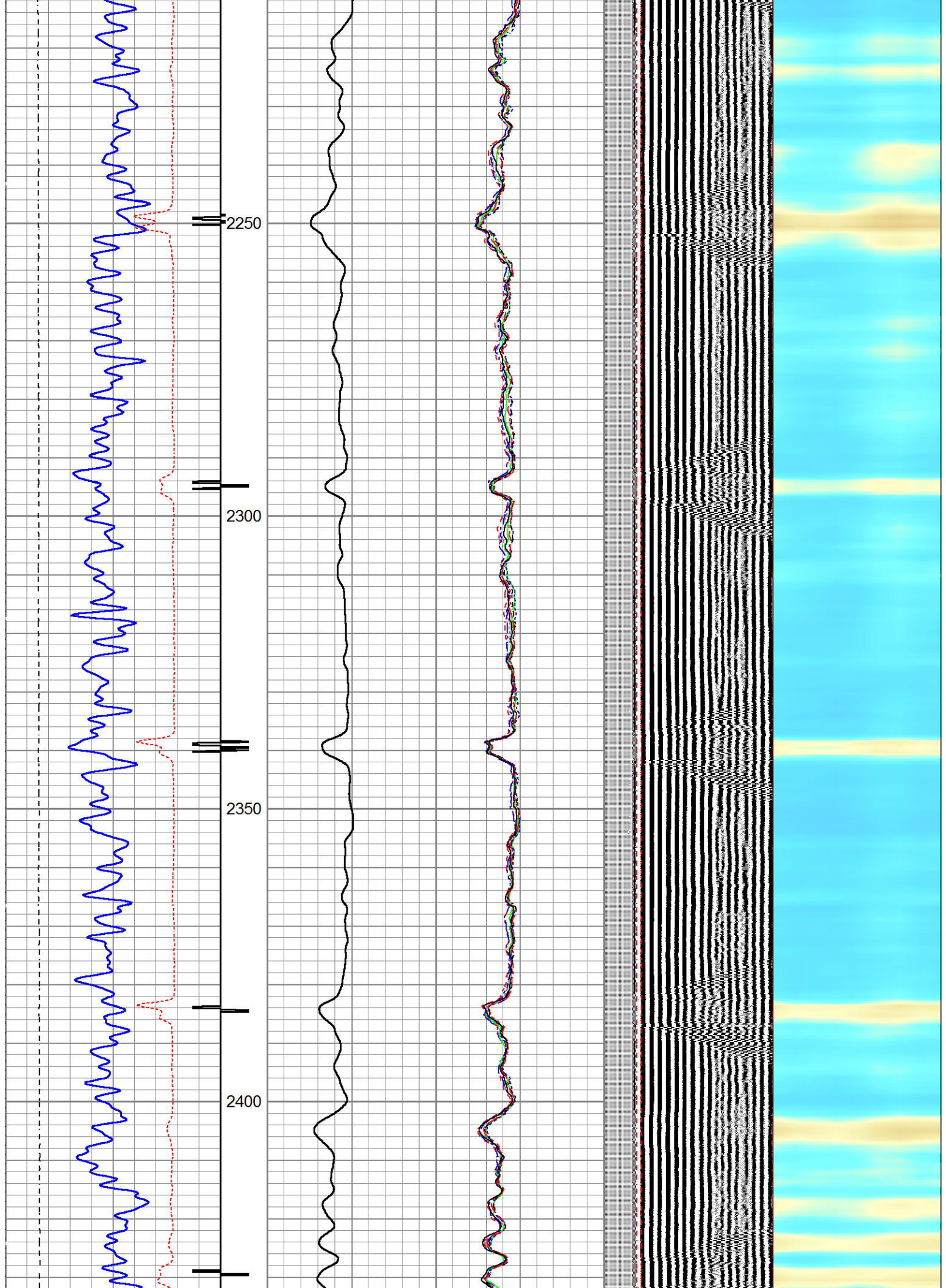




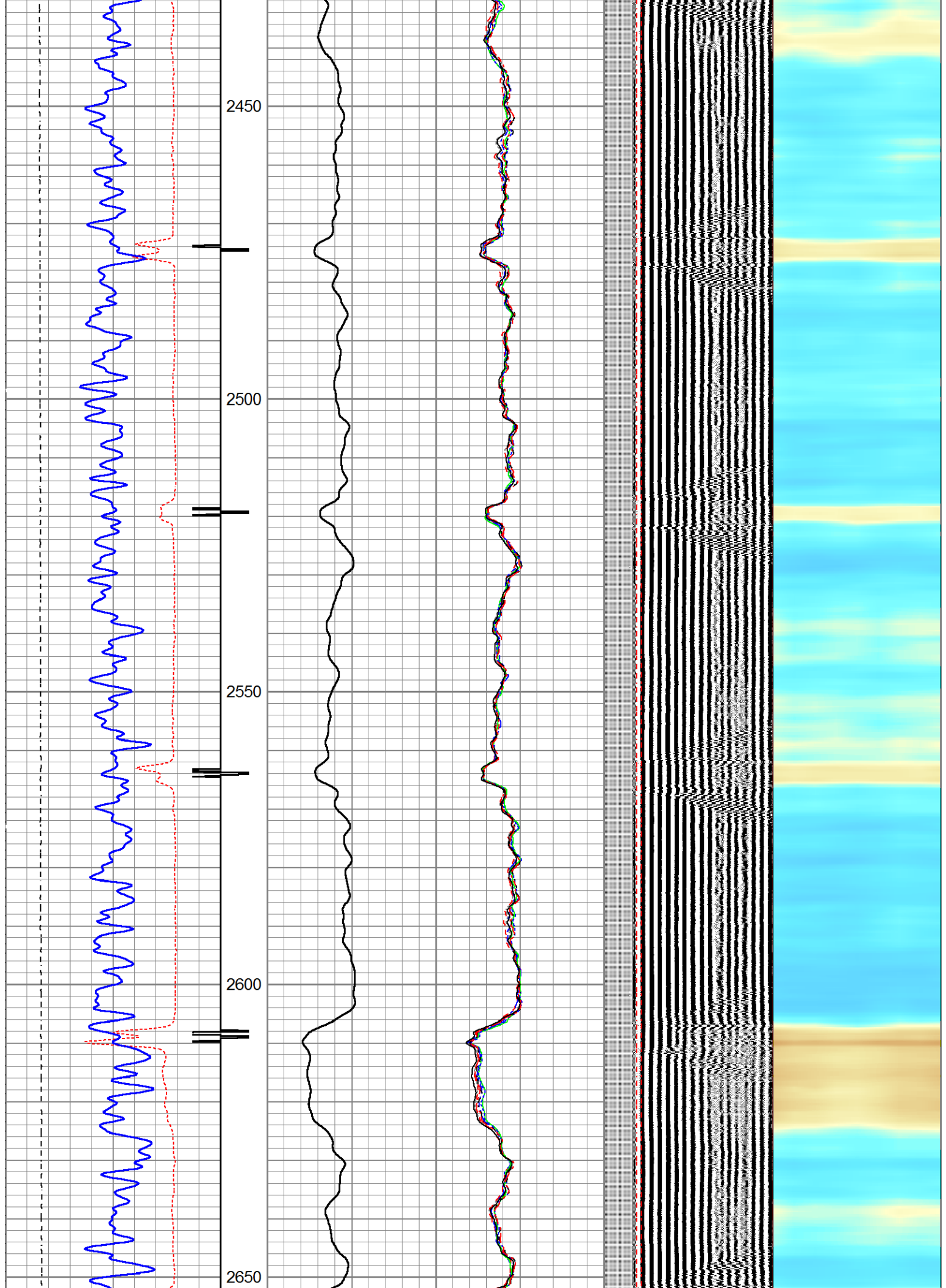


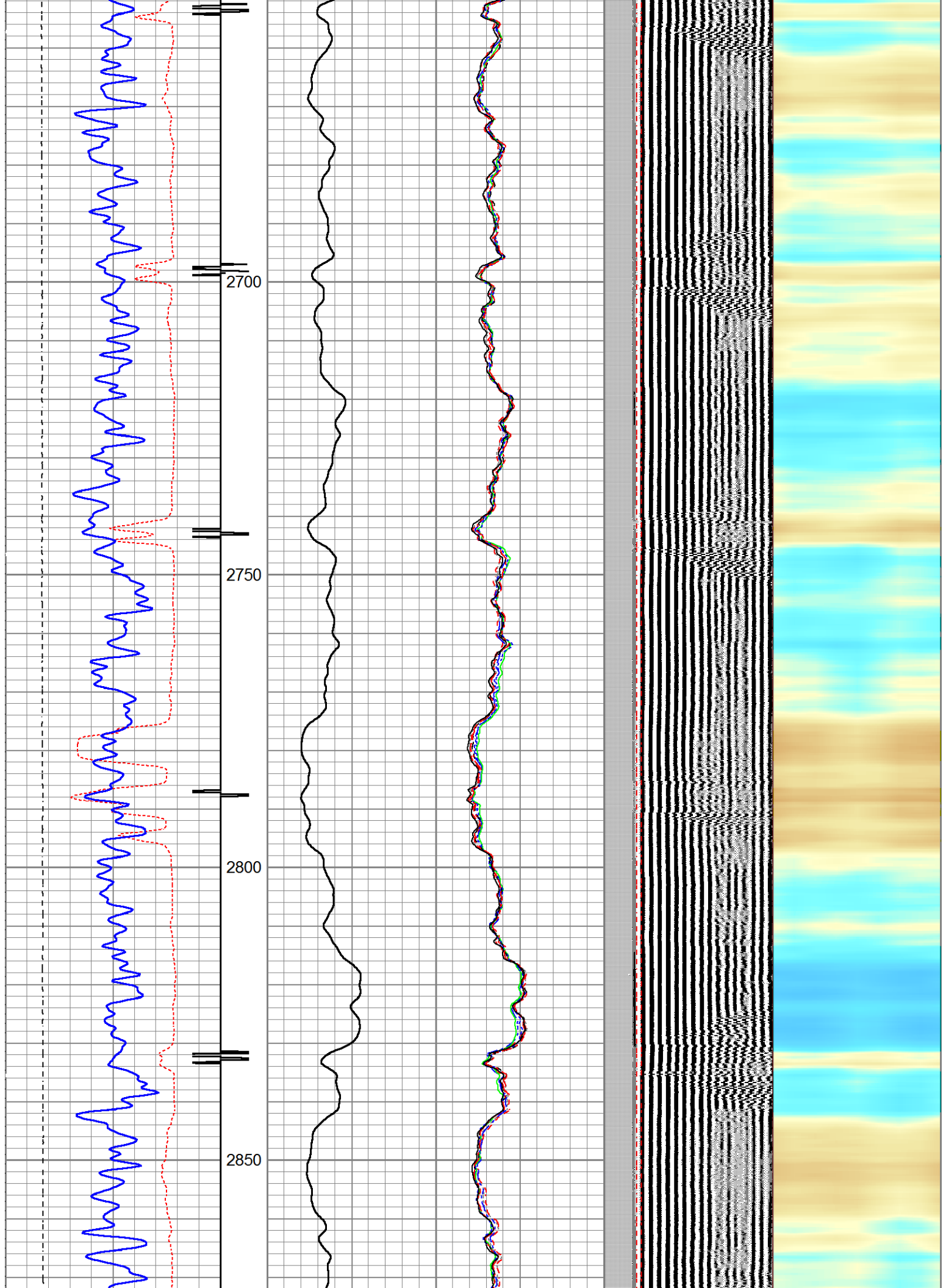


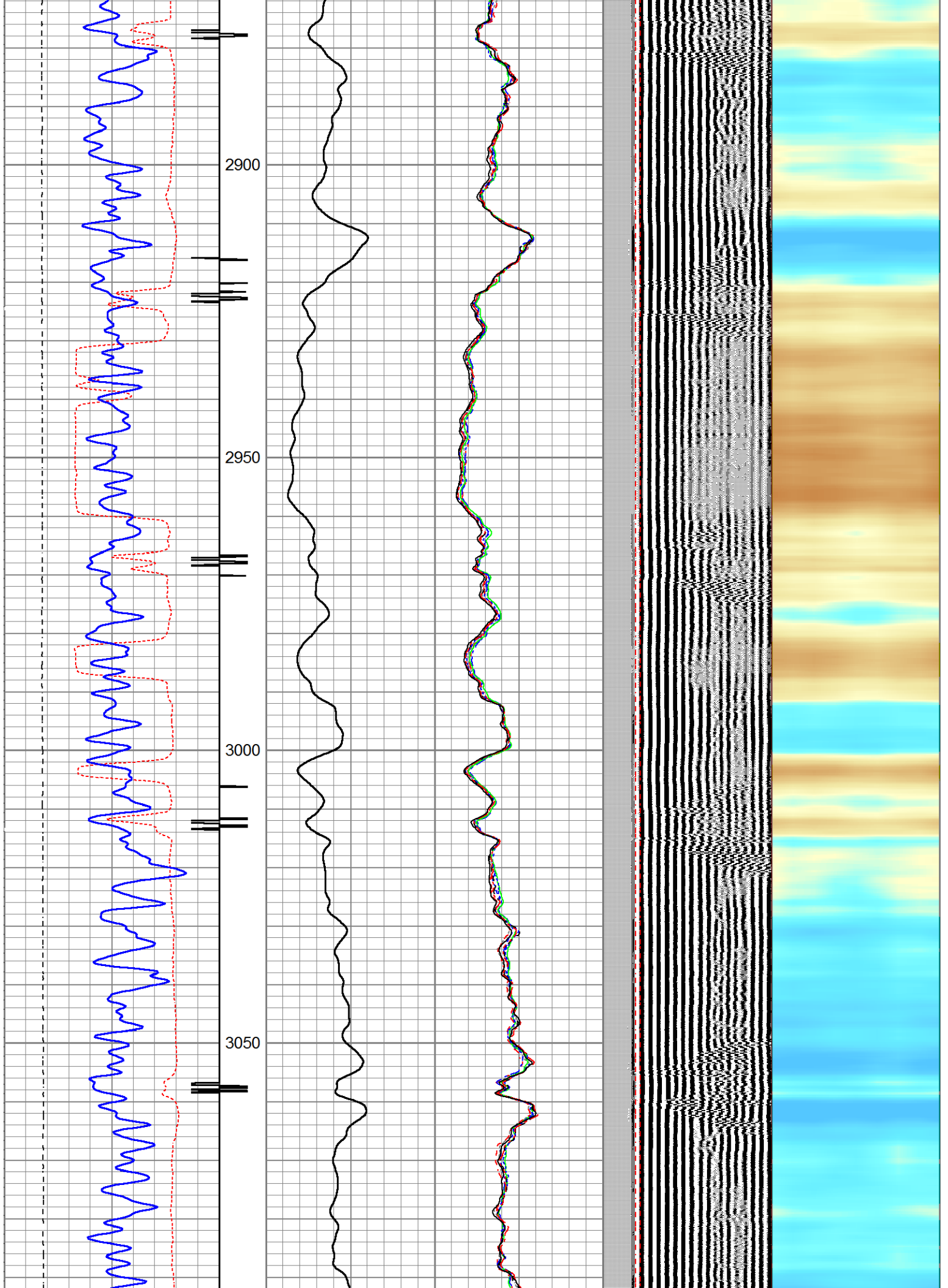




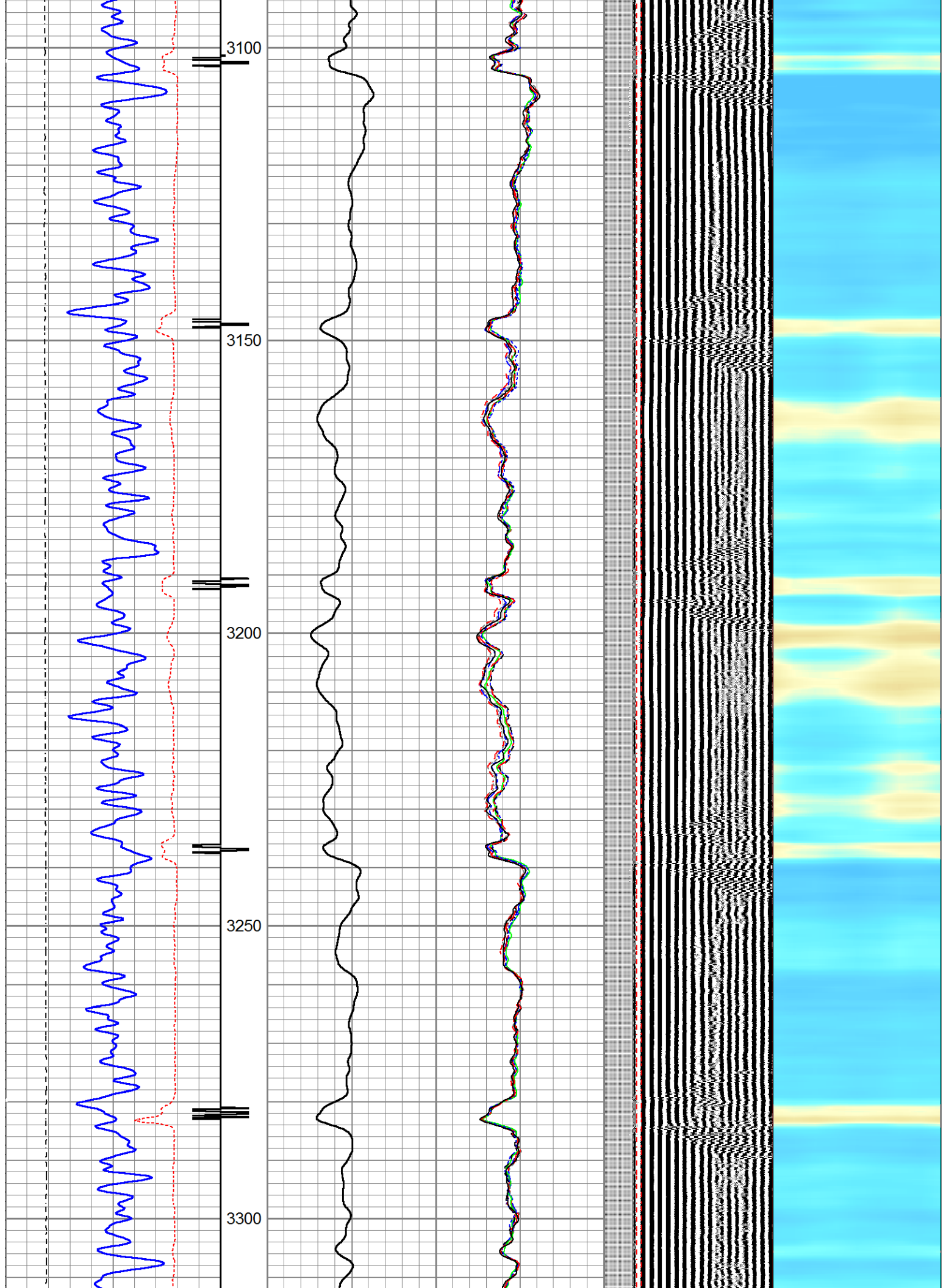


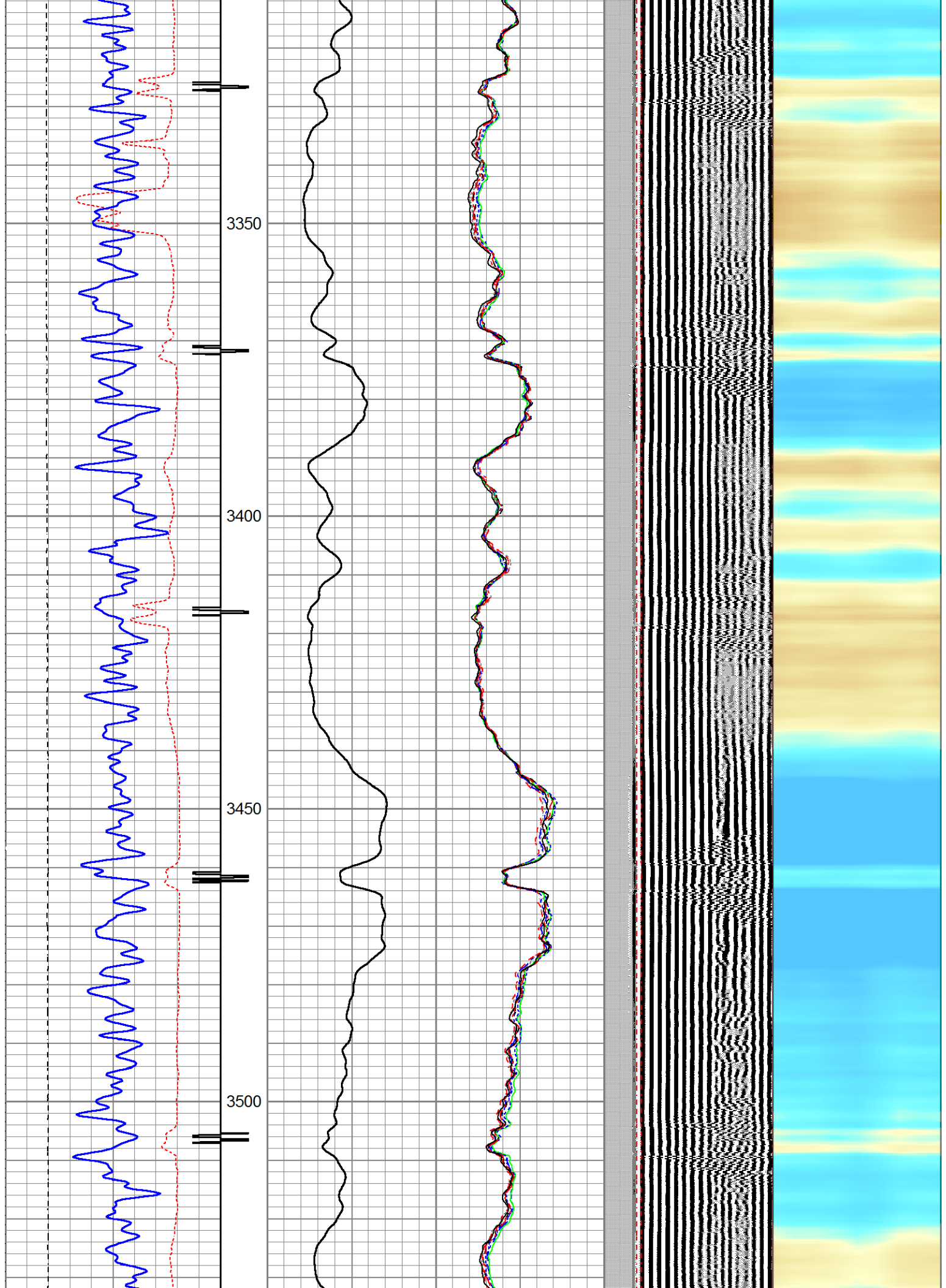


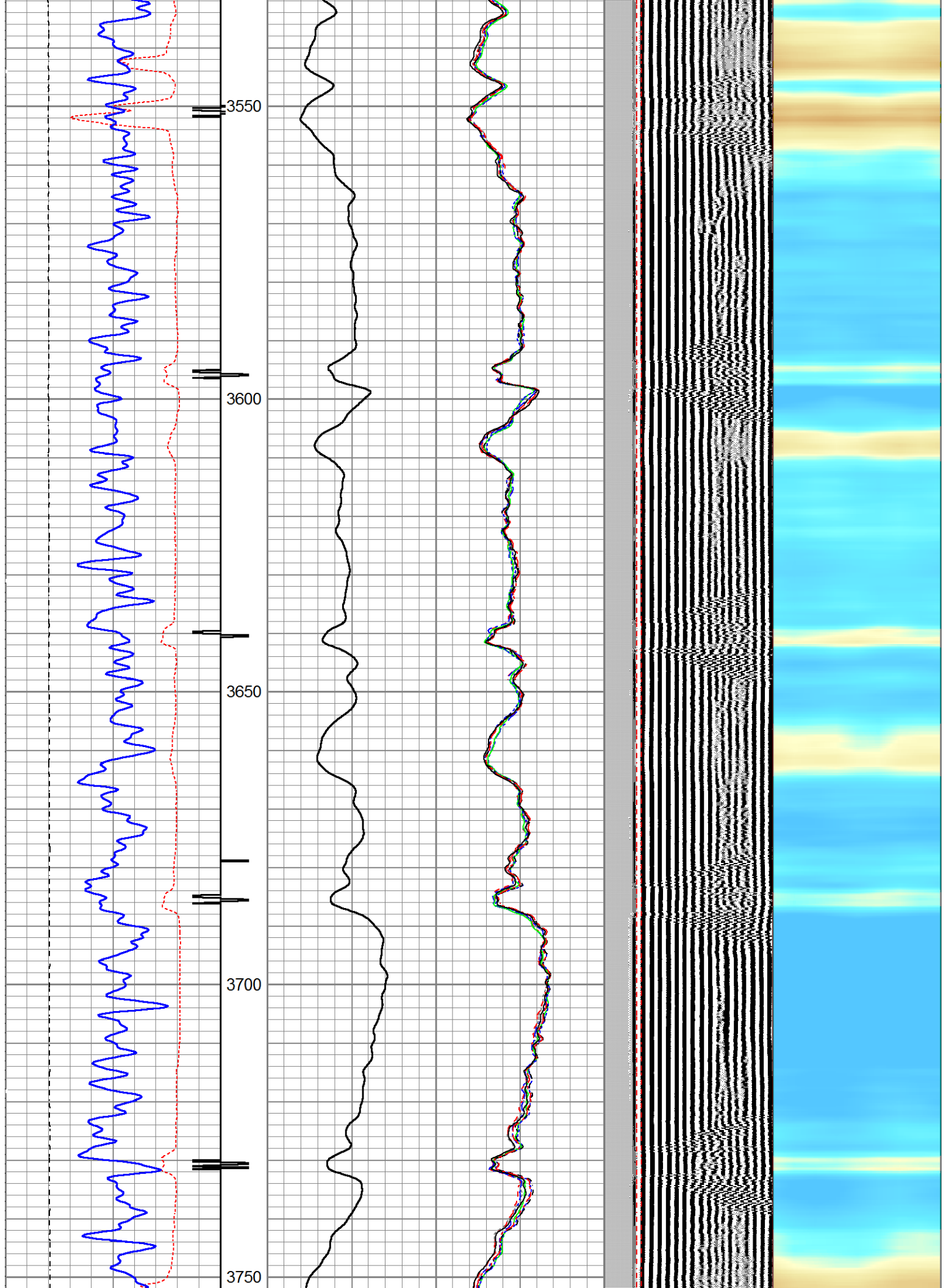




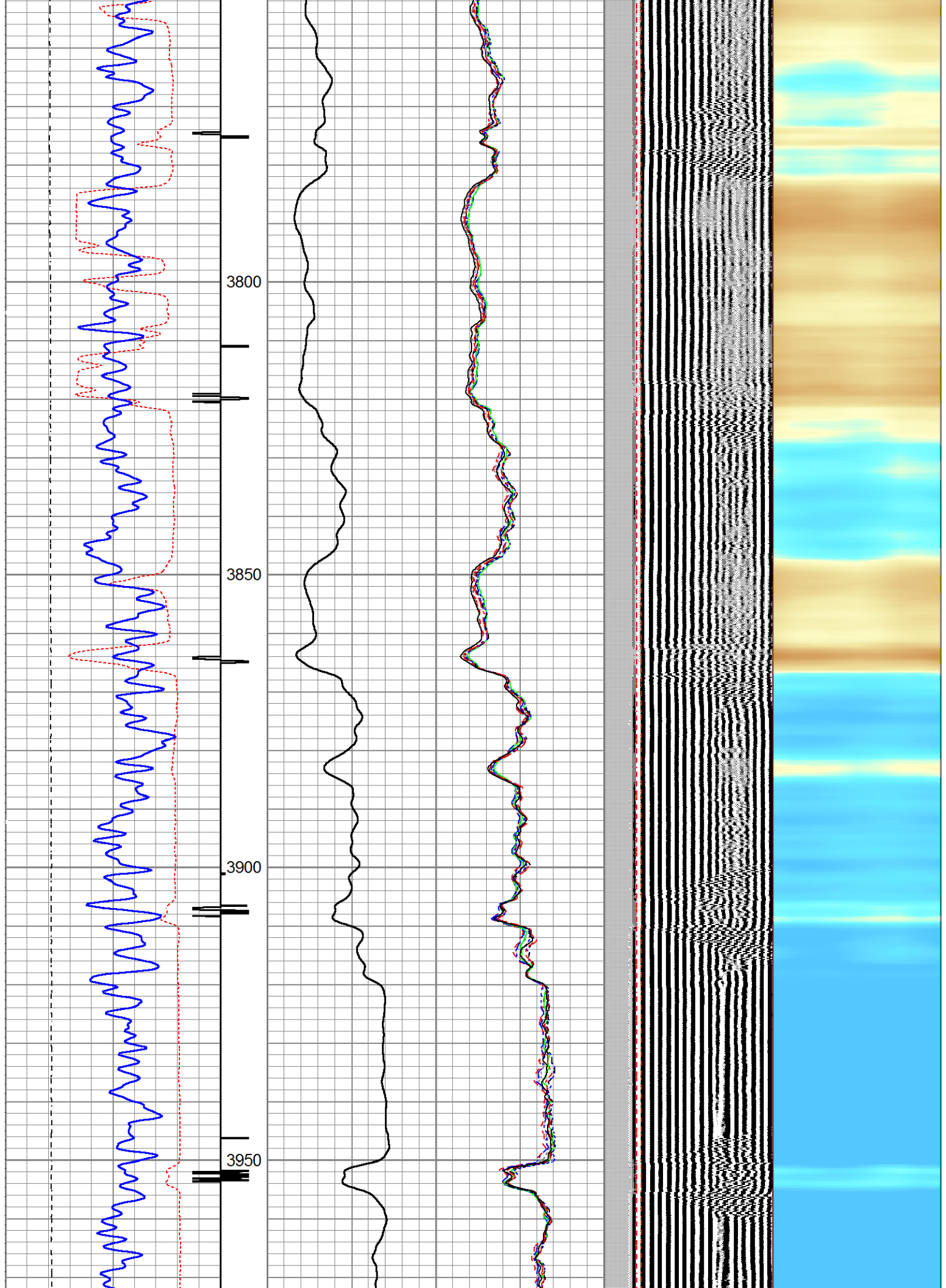


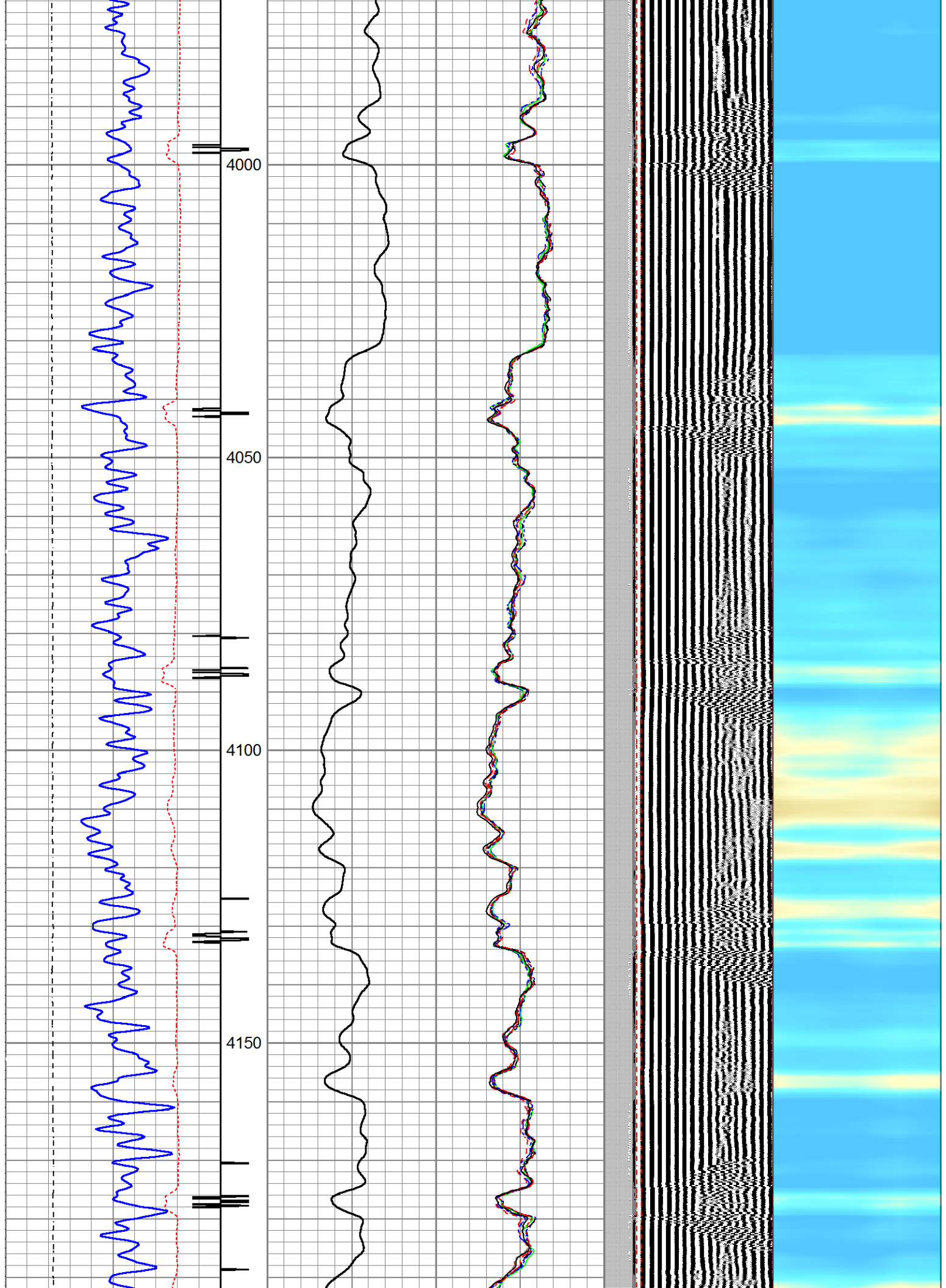


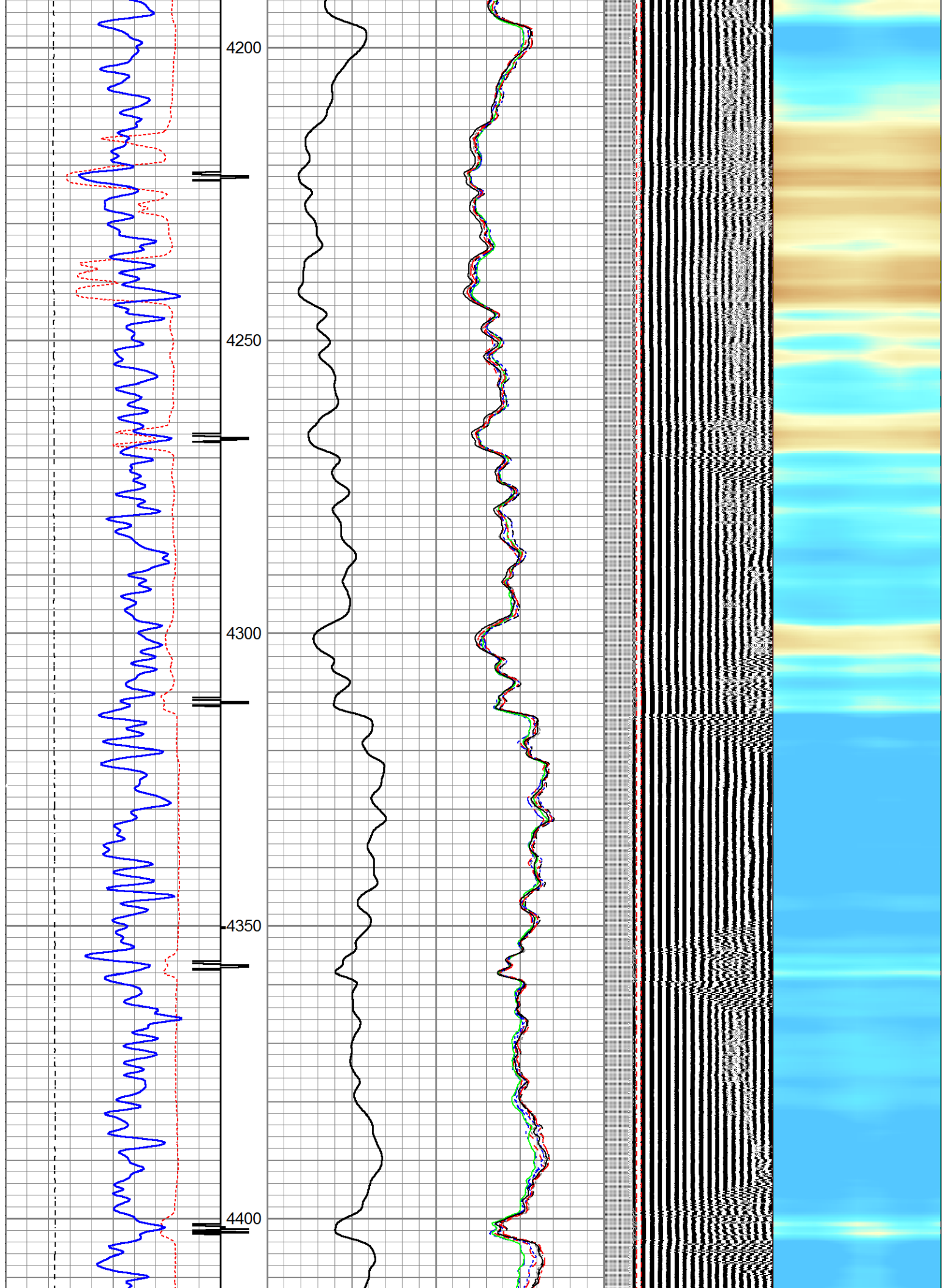




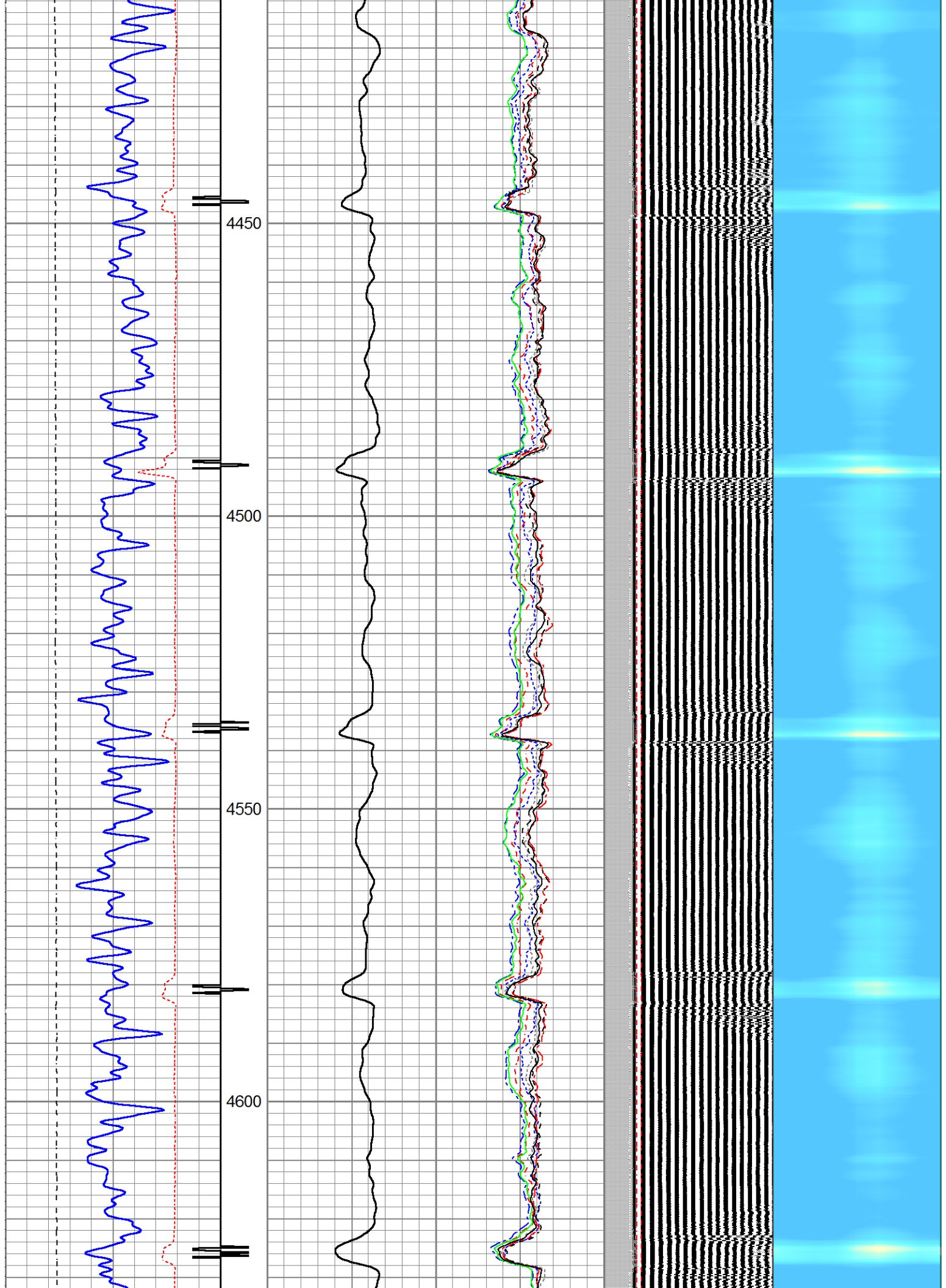


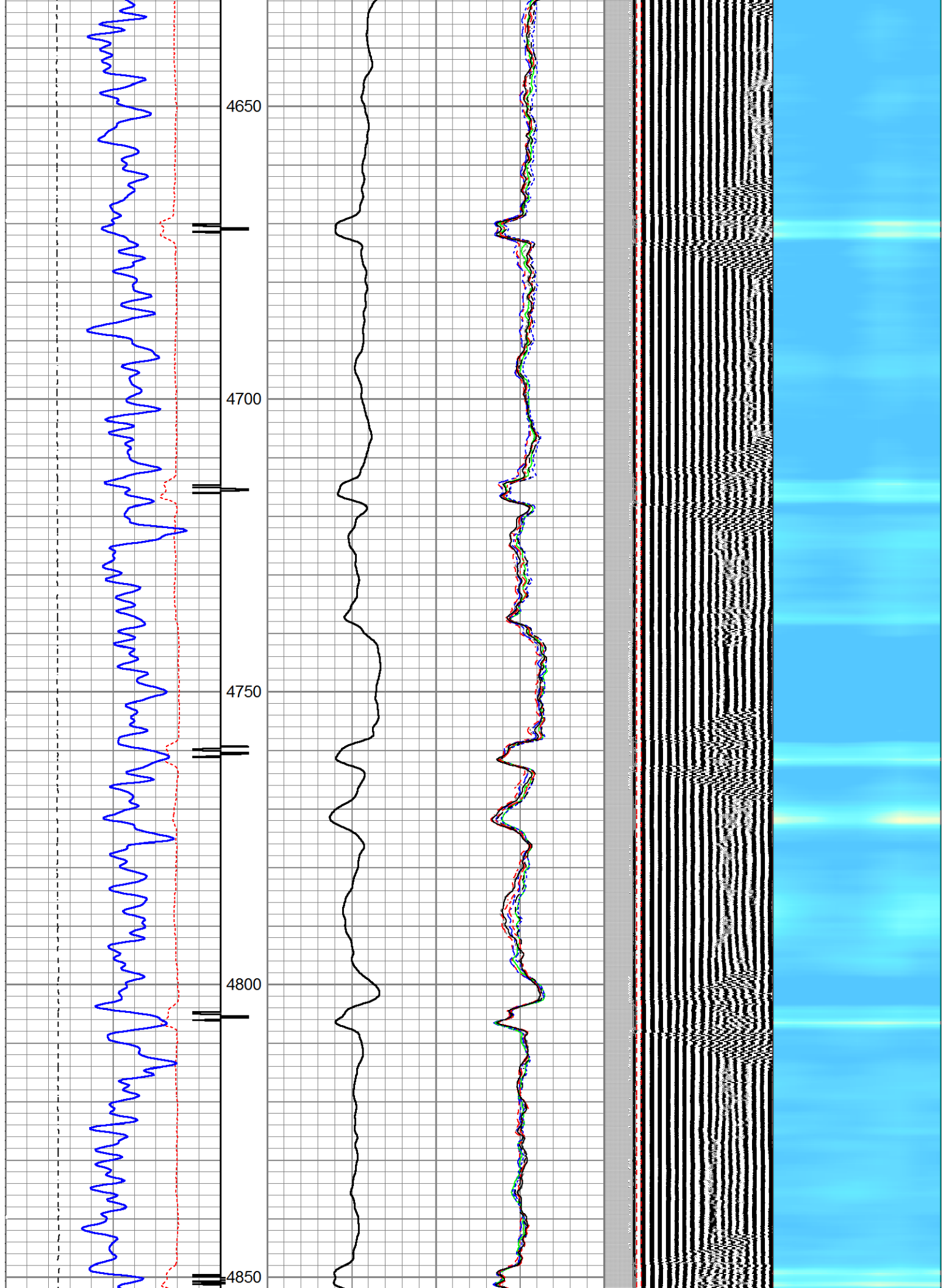


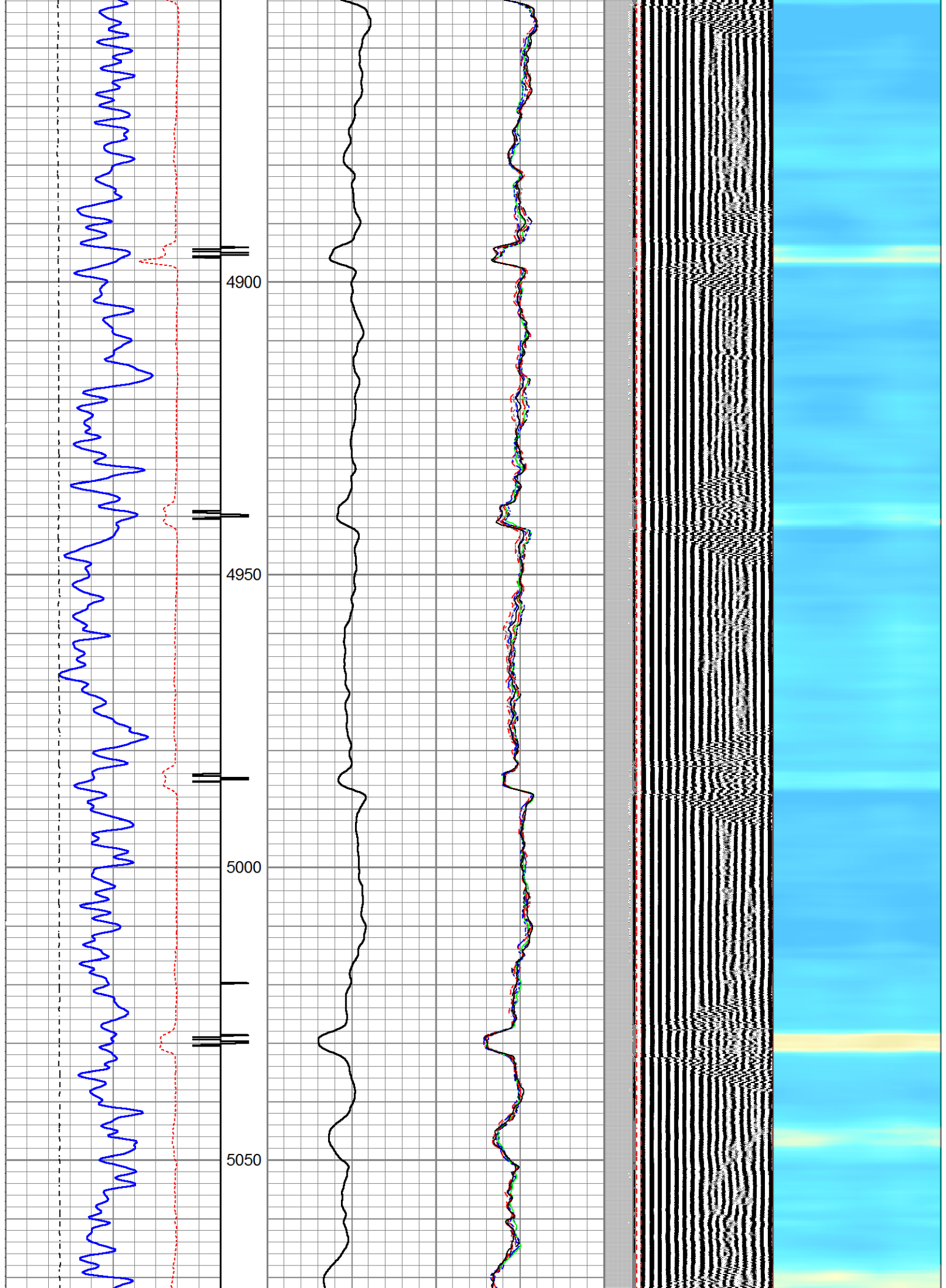




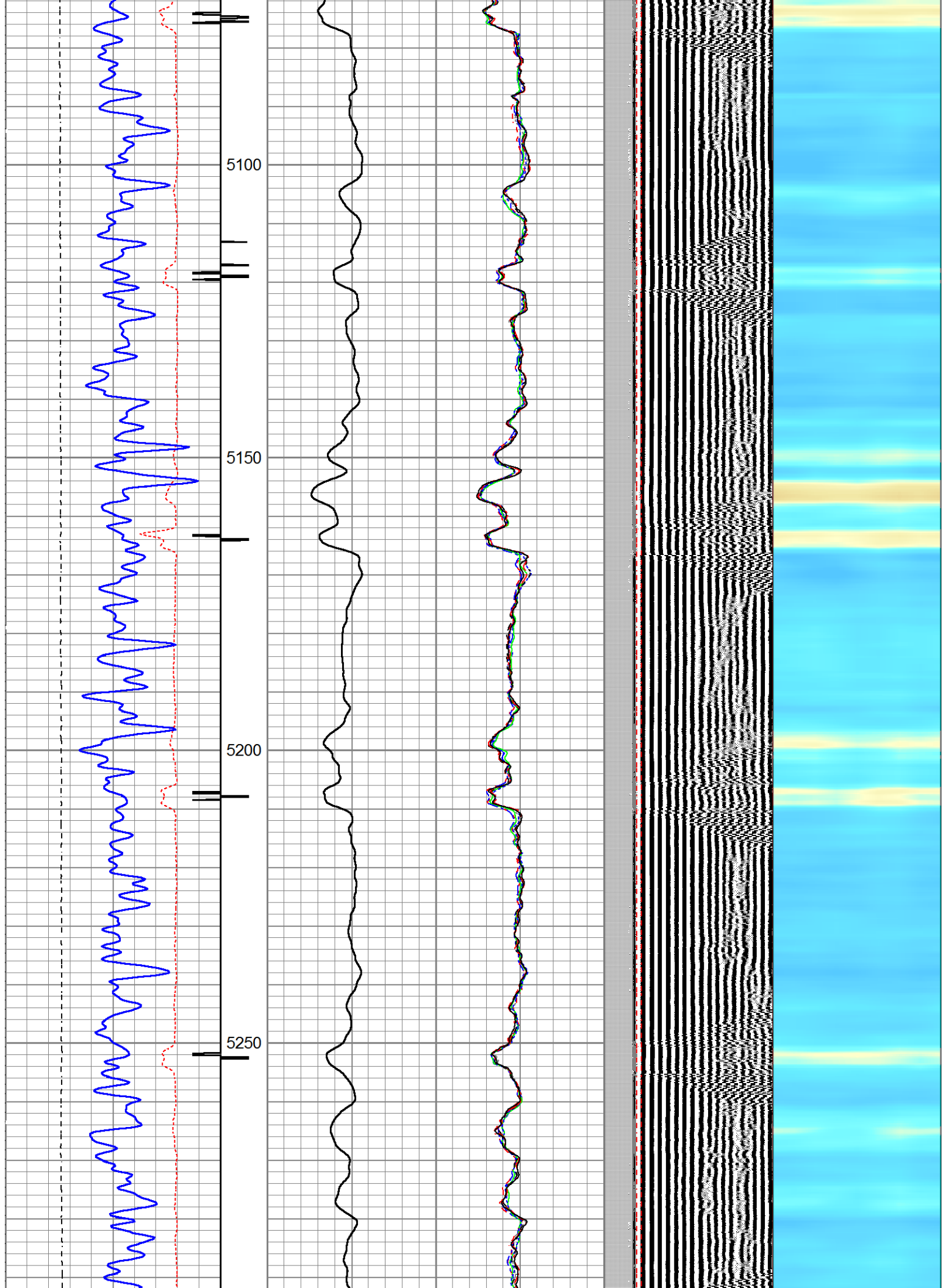


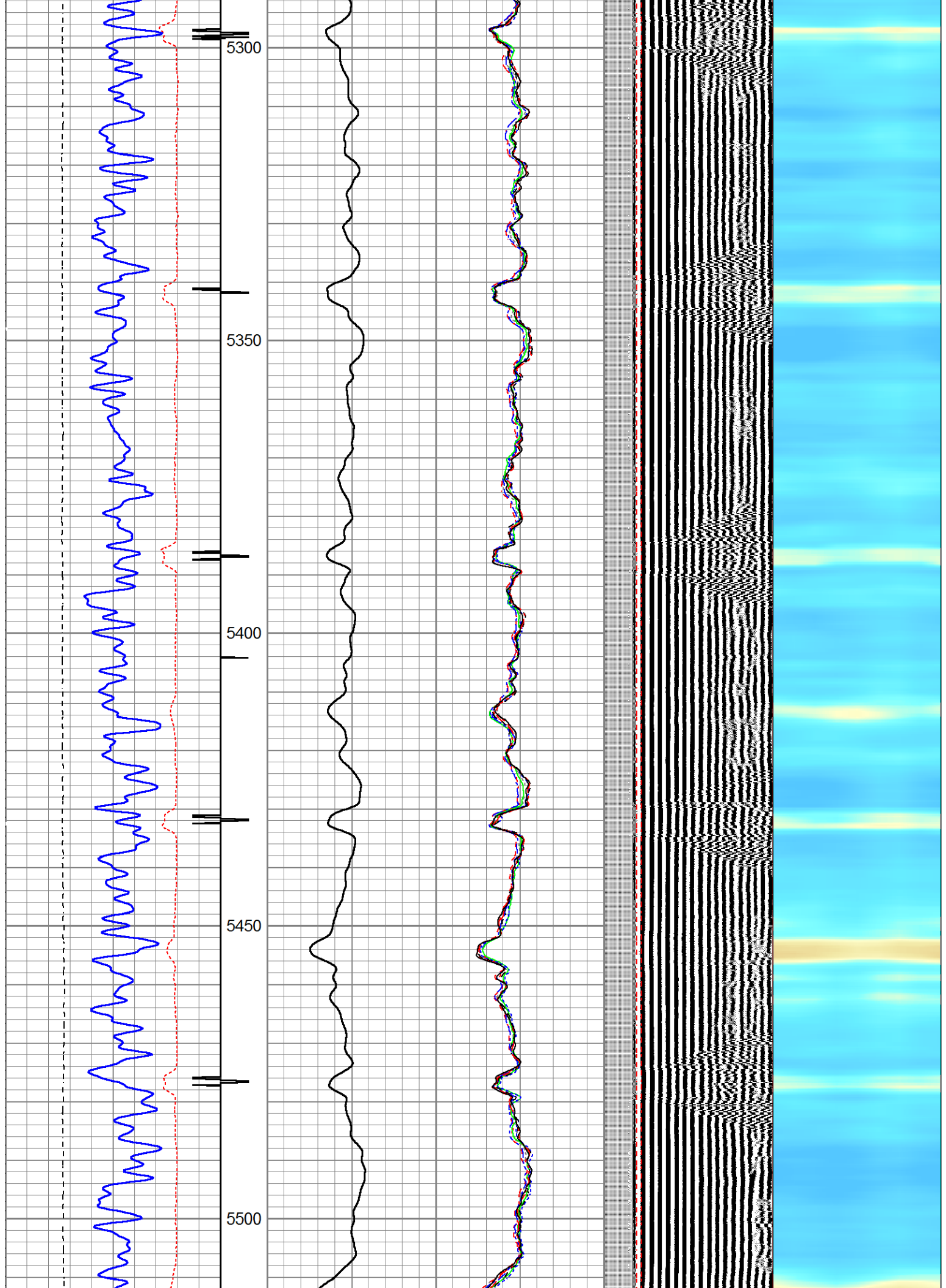


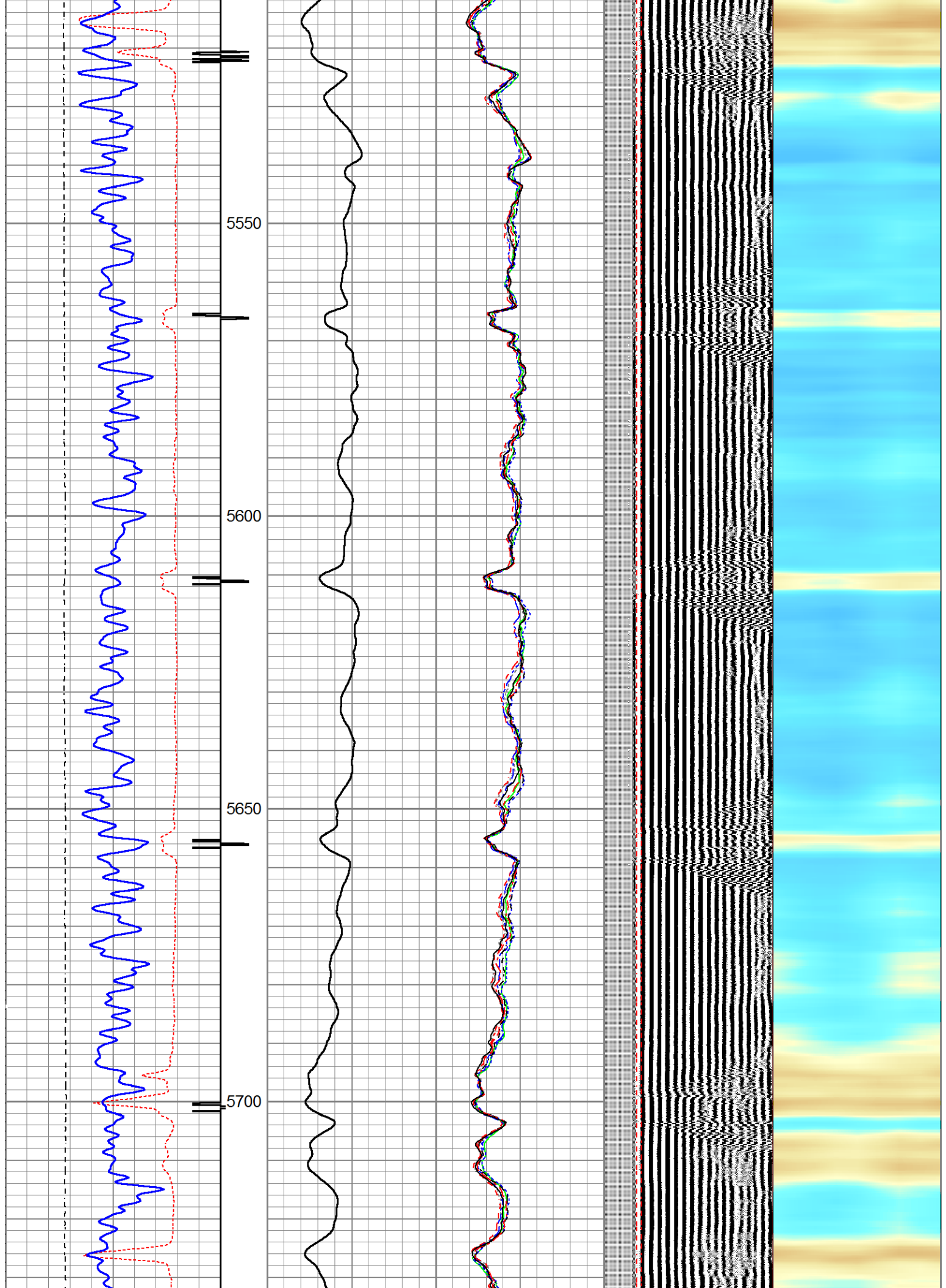




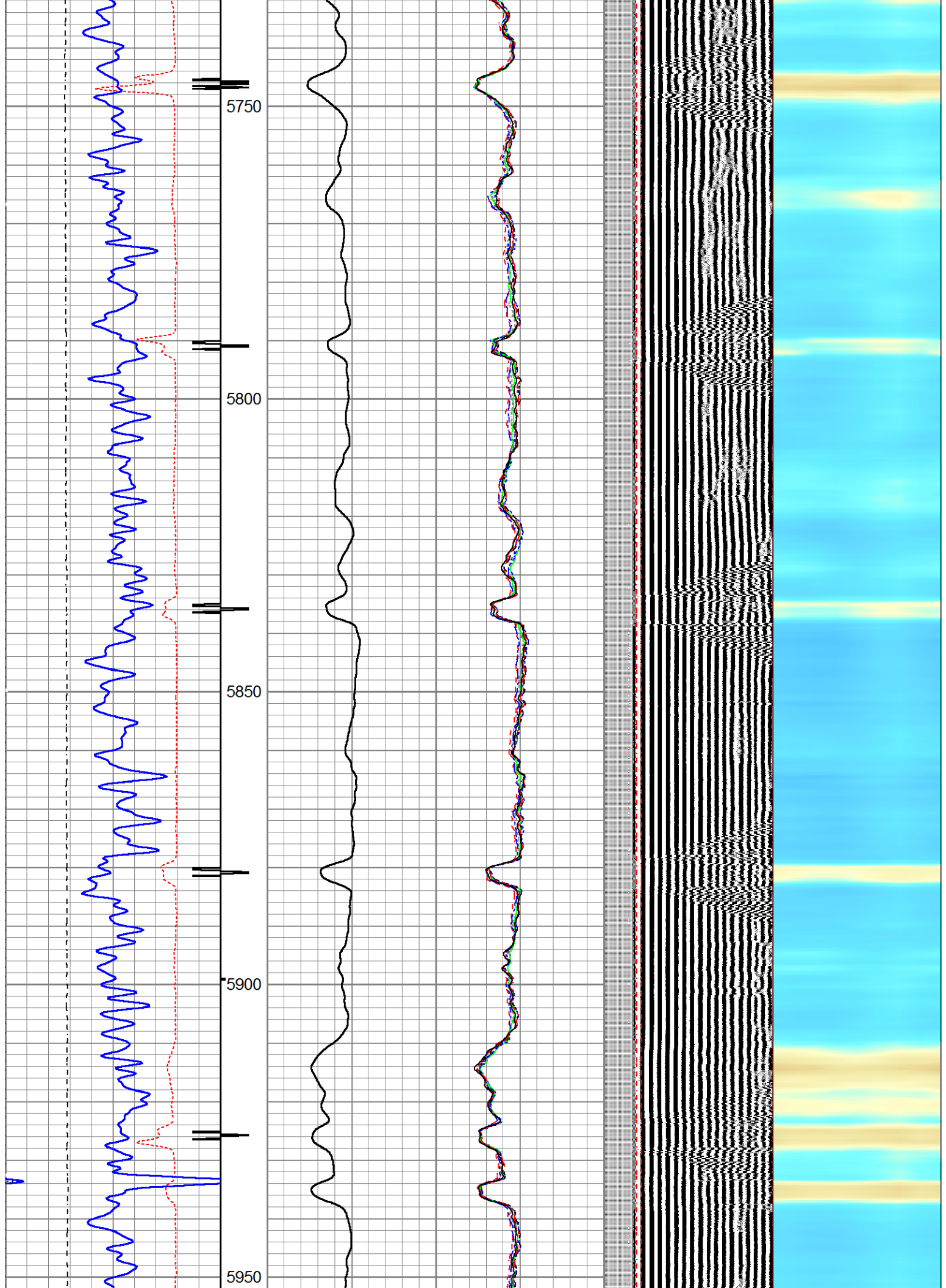


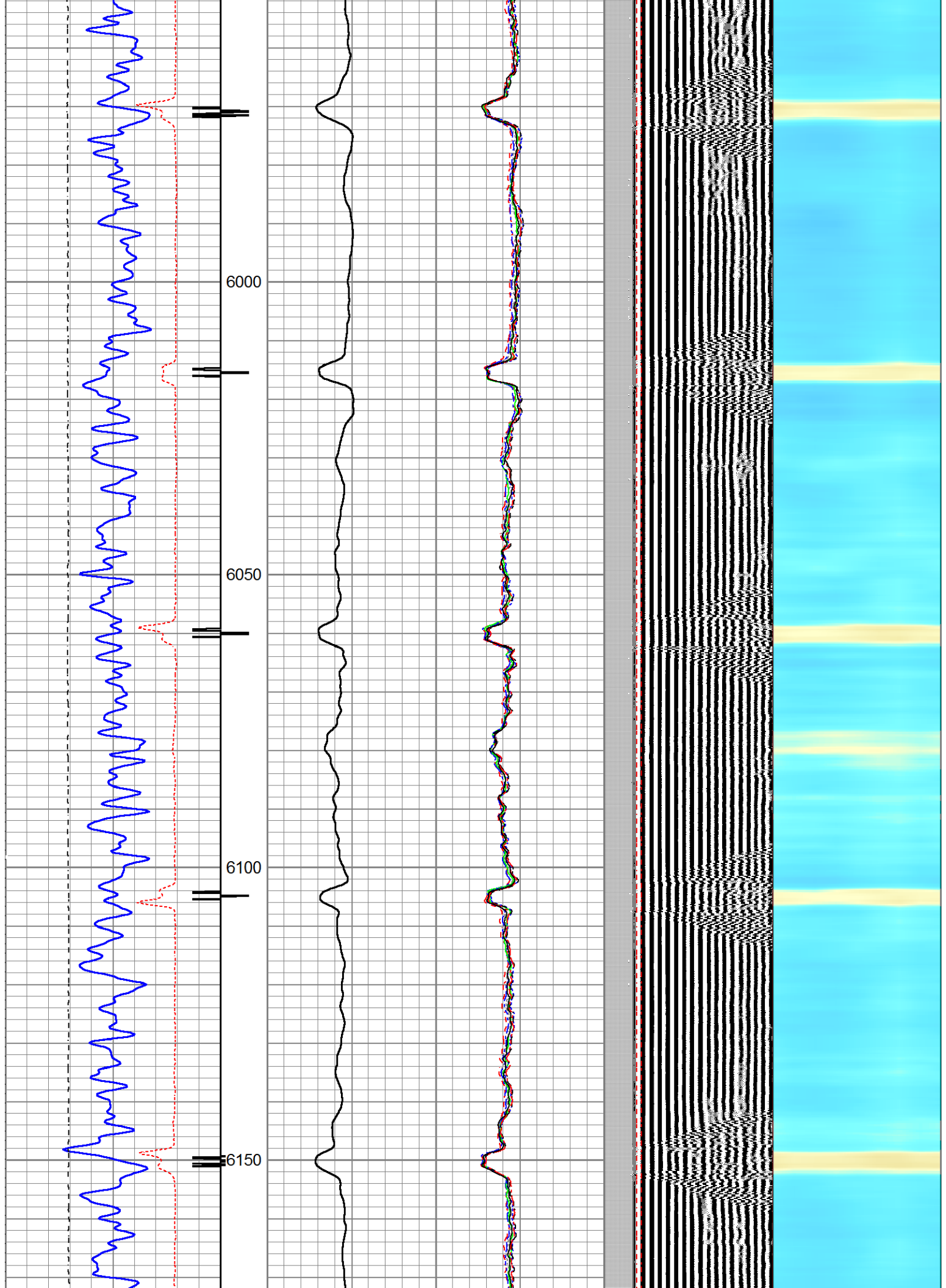


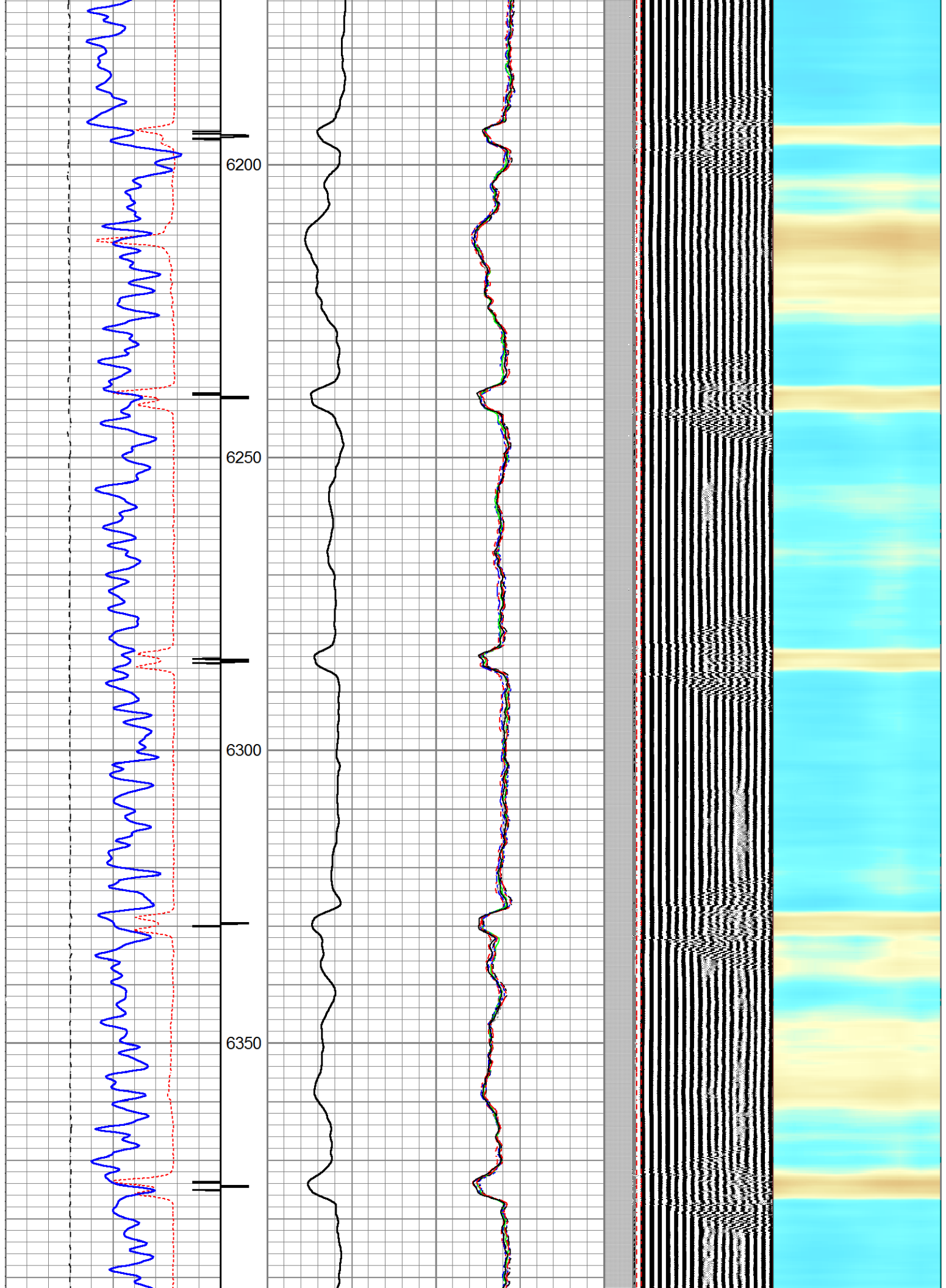




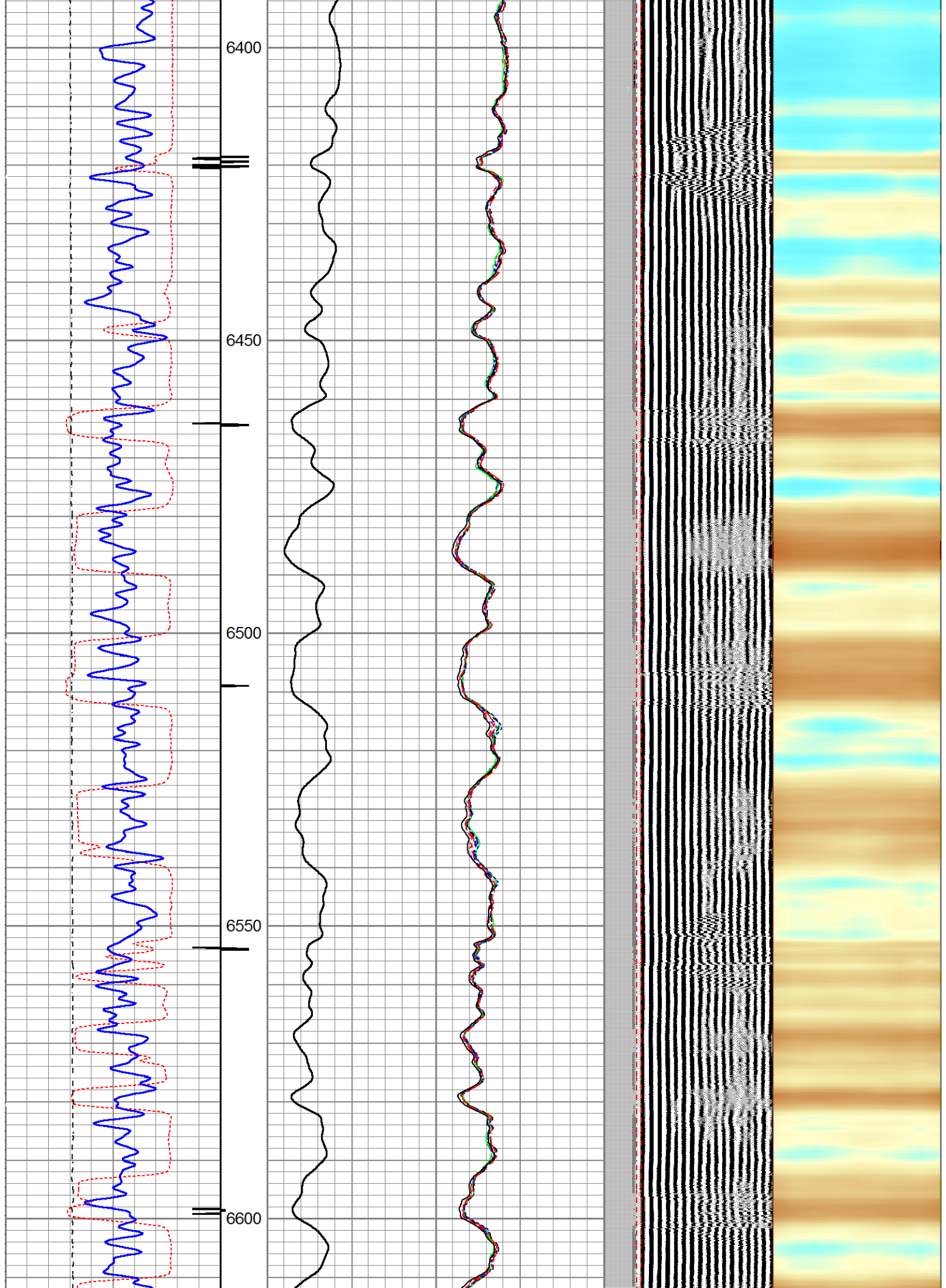


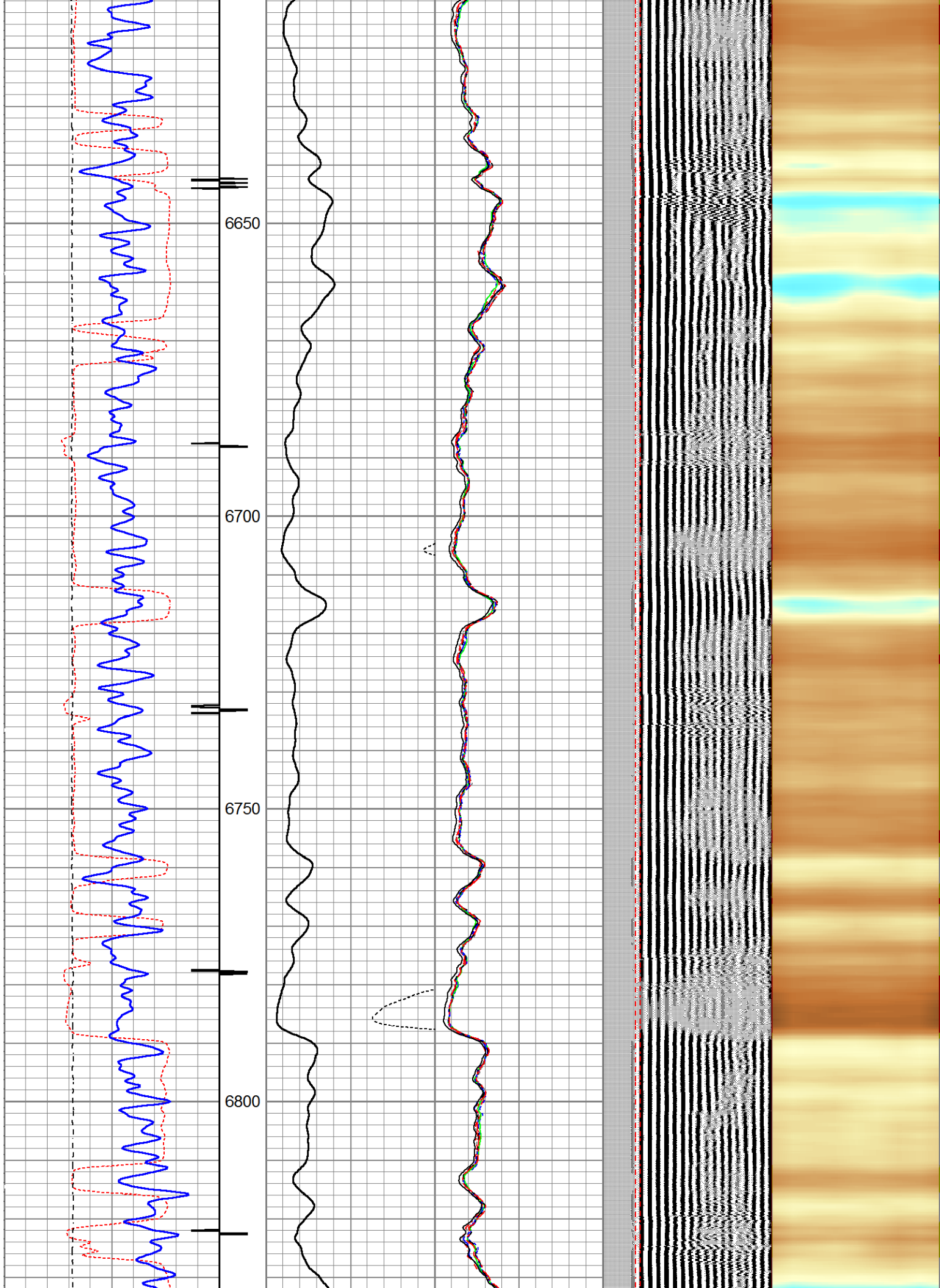


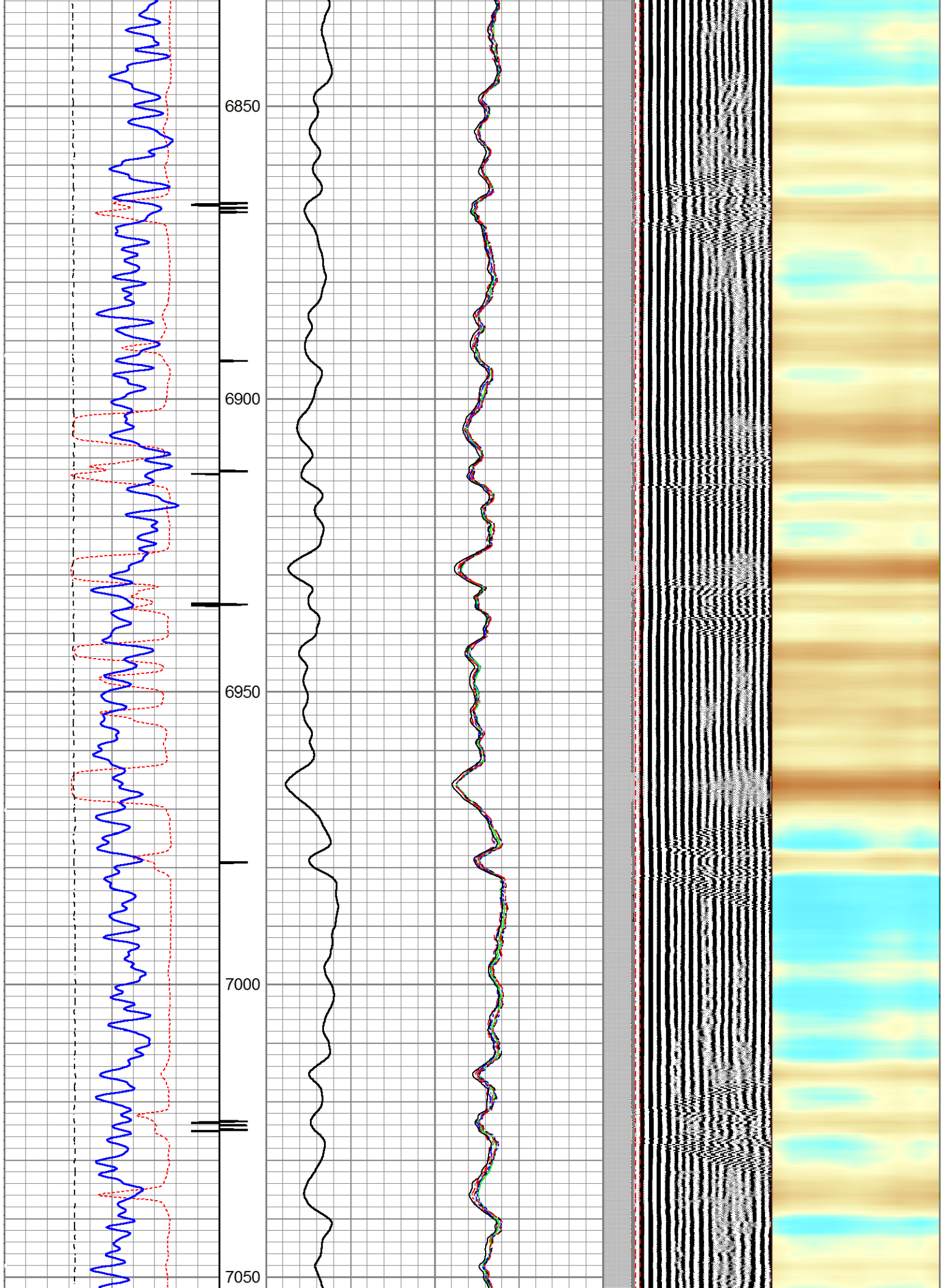




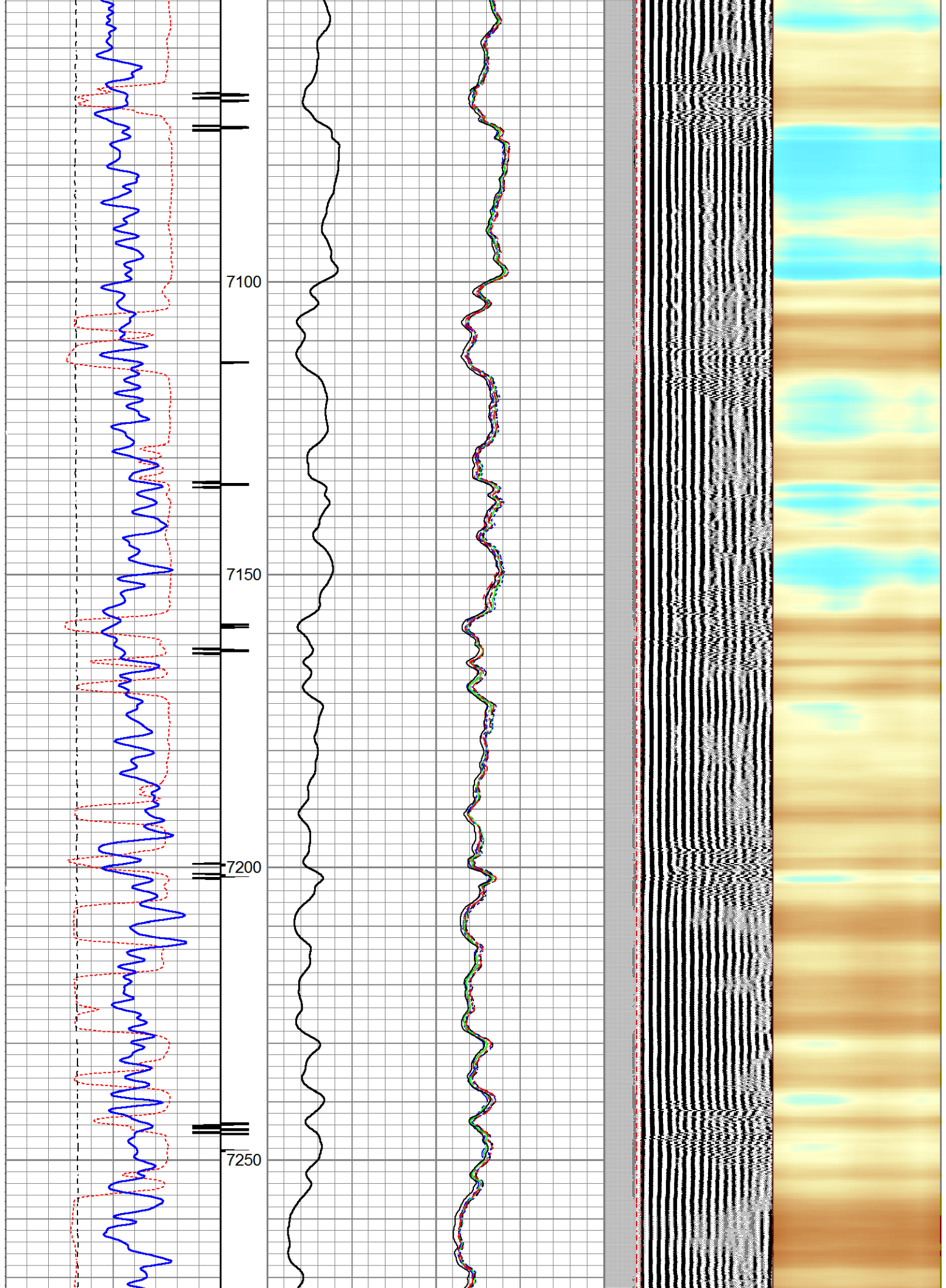


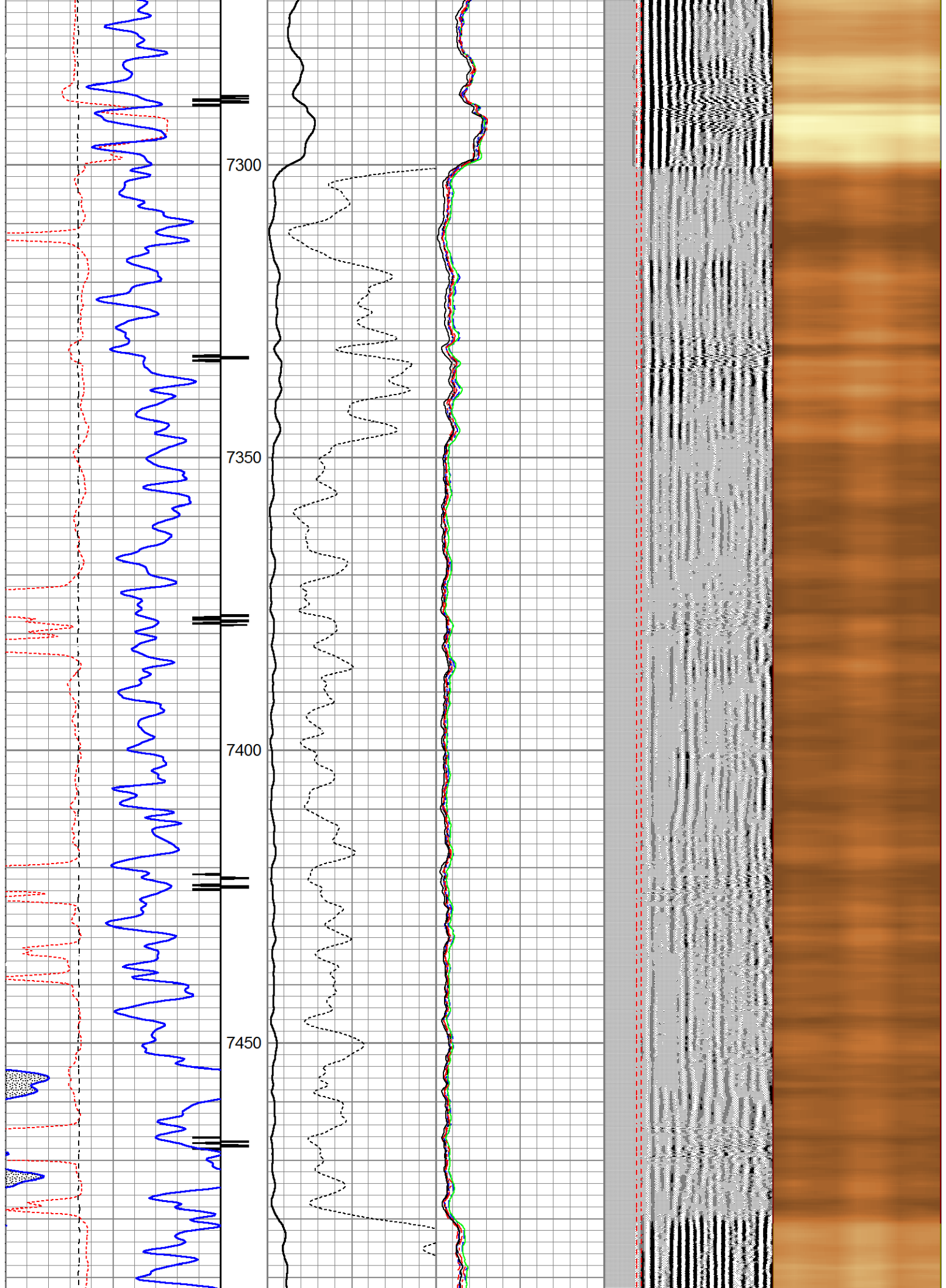




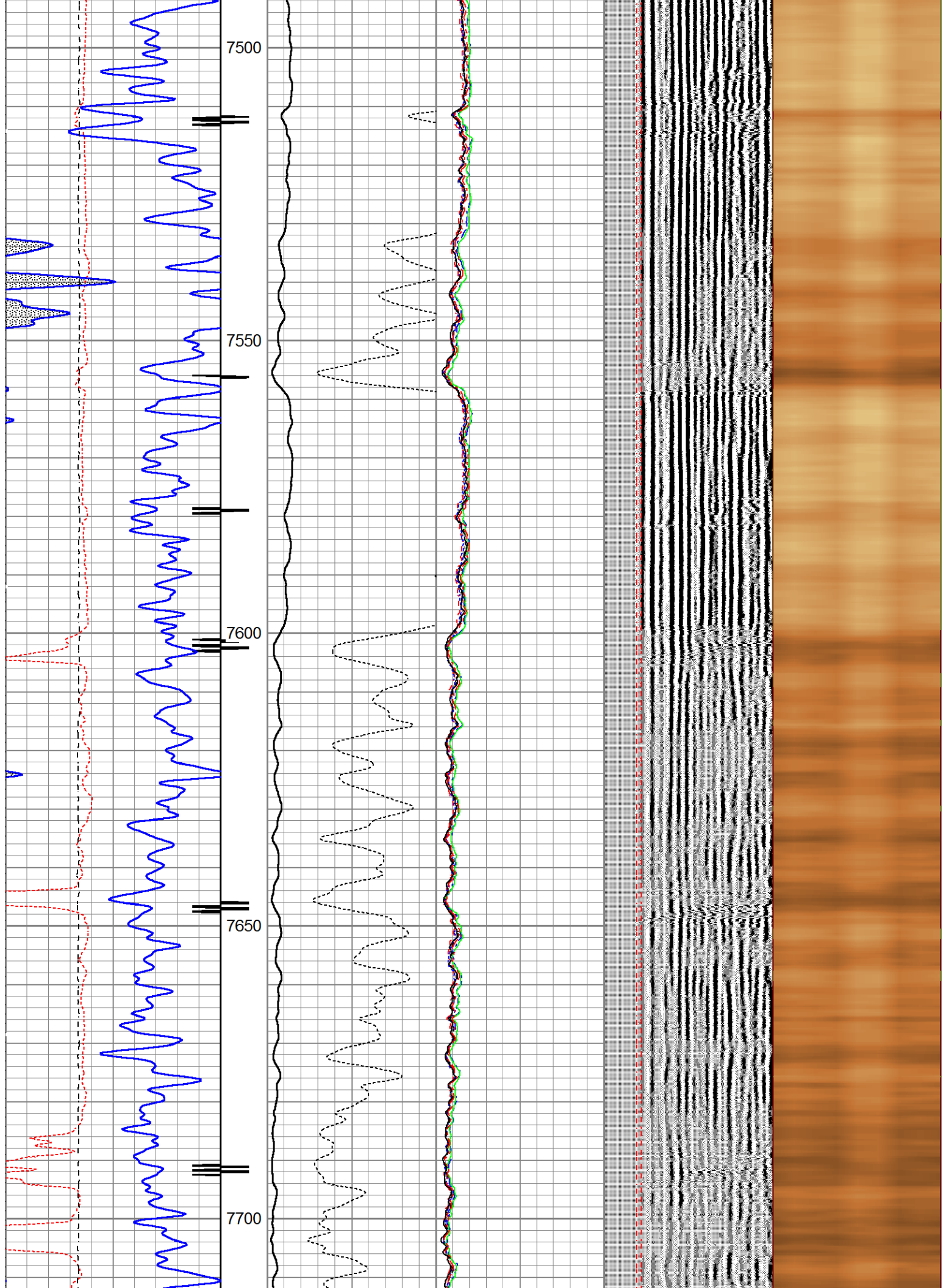




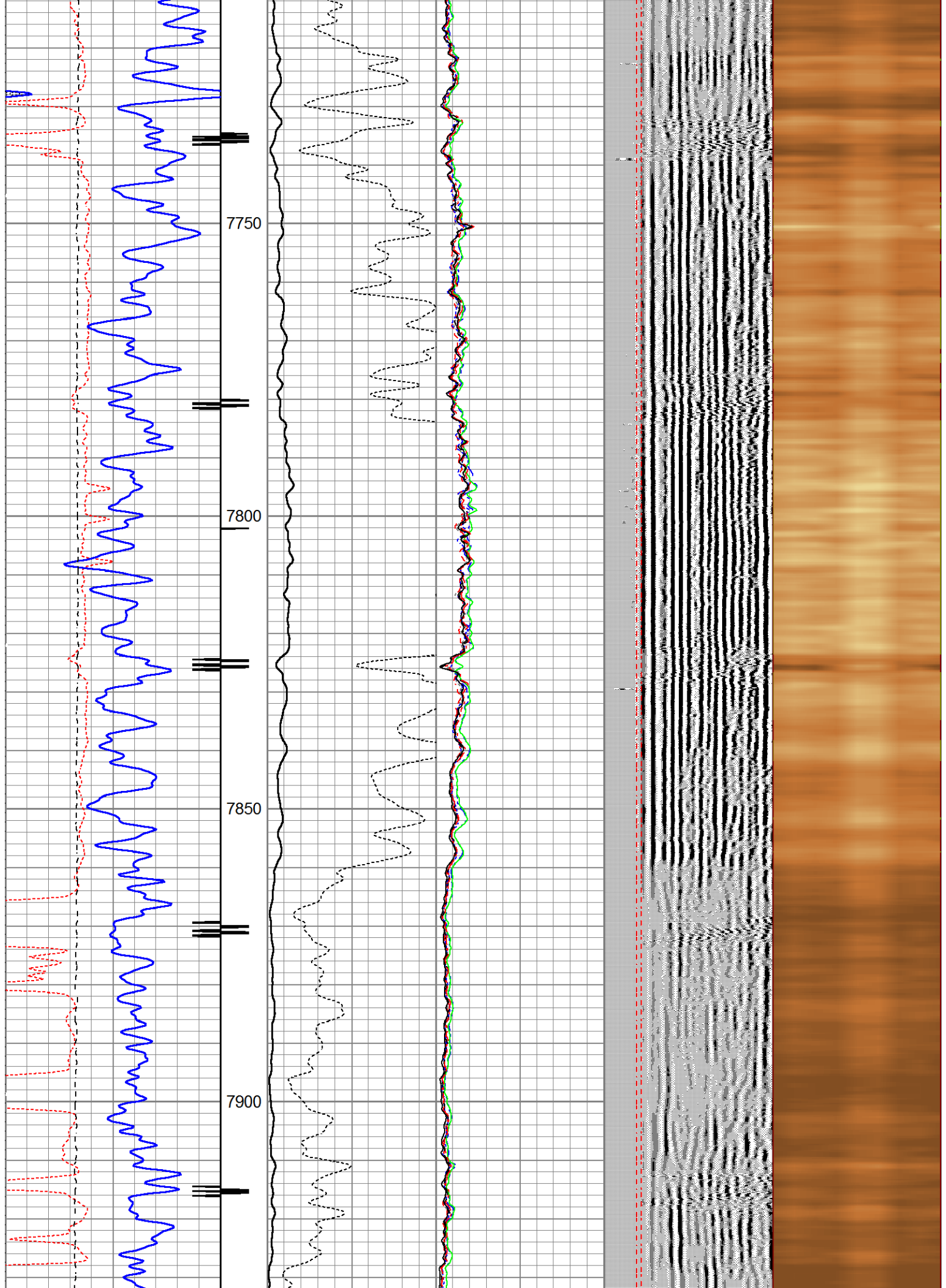


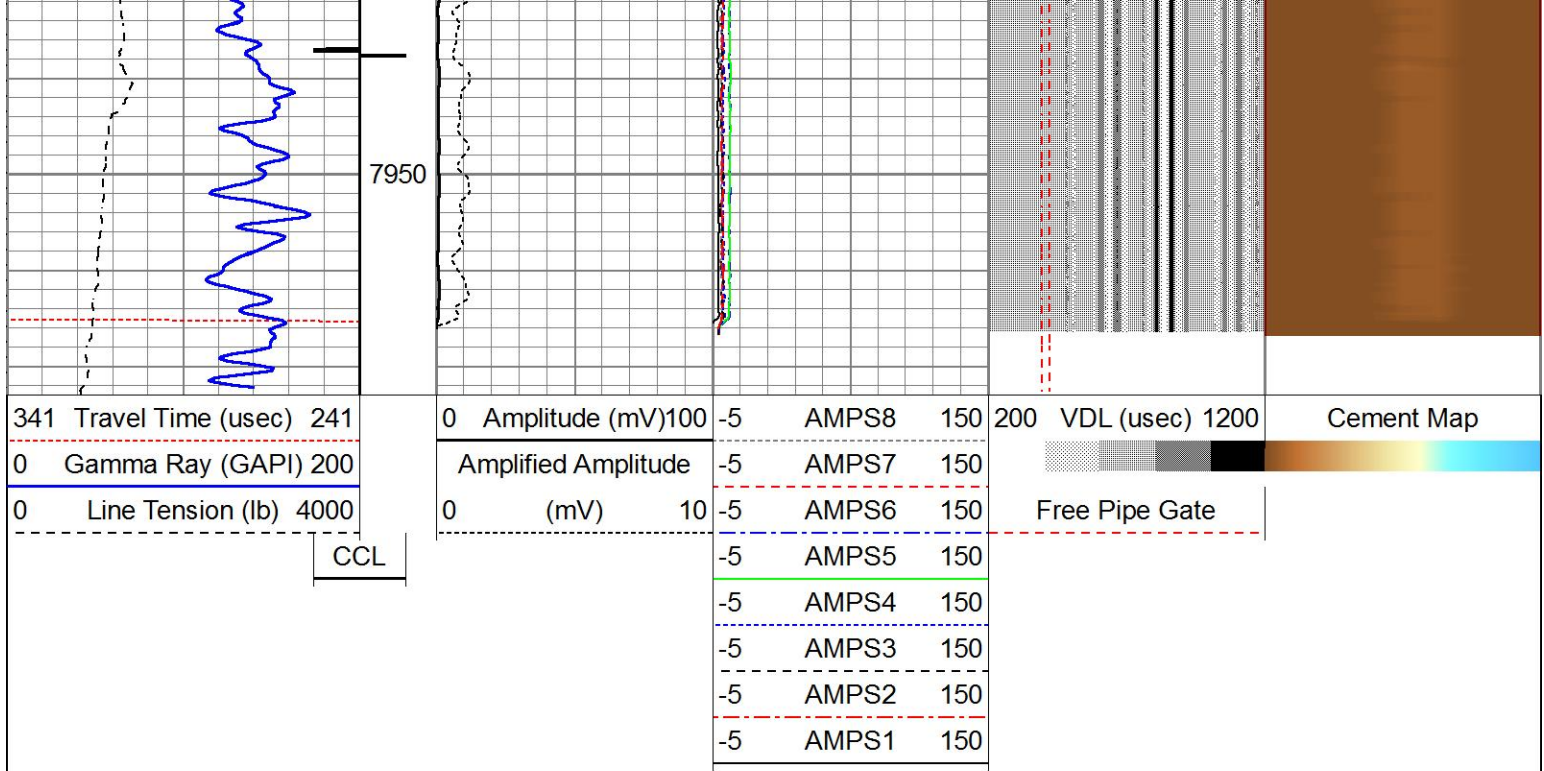












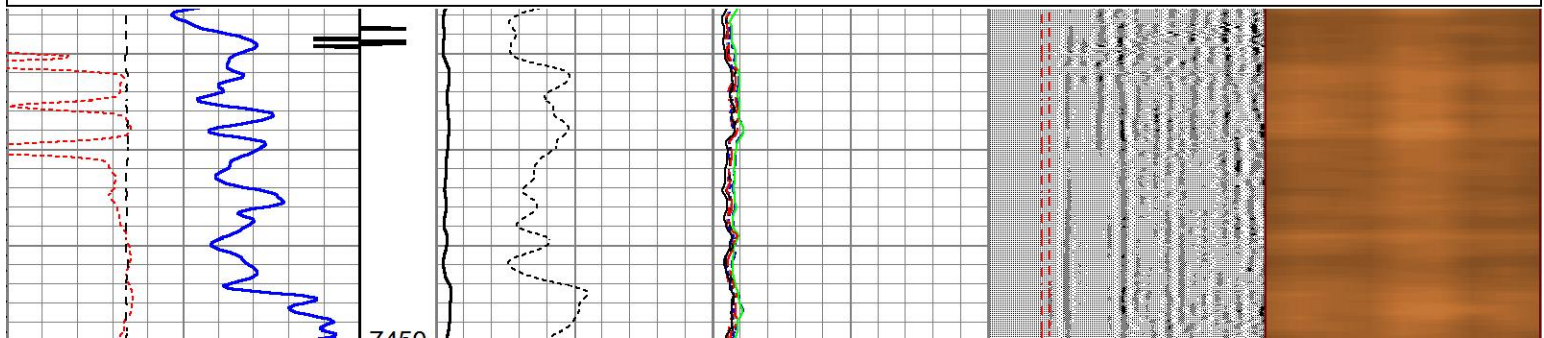
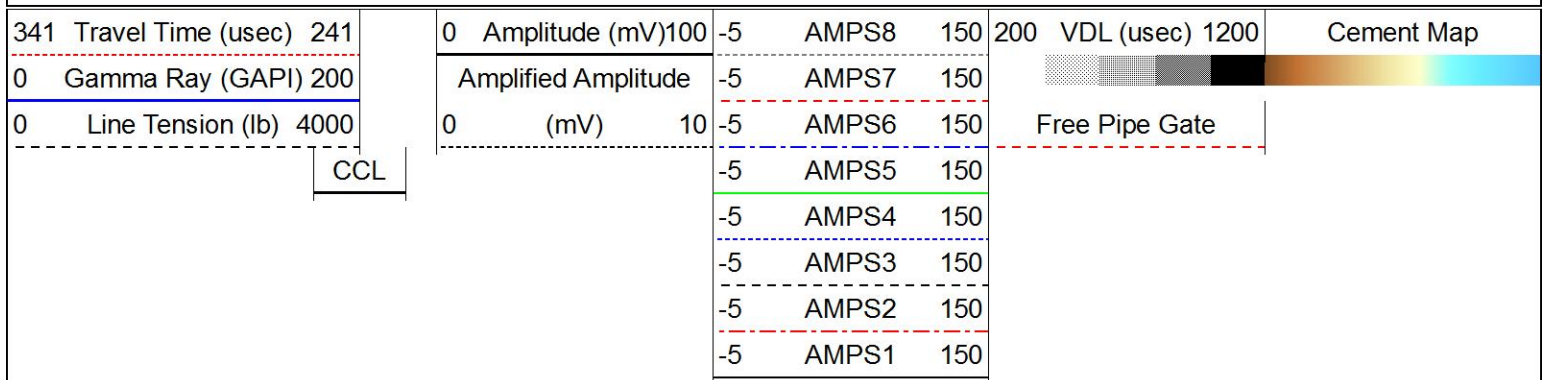
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## Main Pass (0) PSI

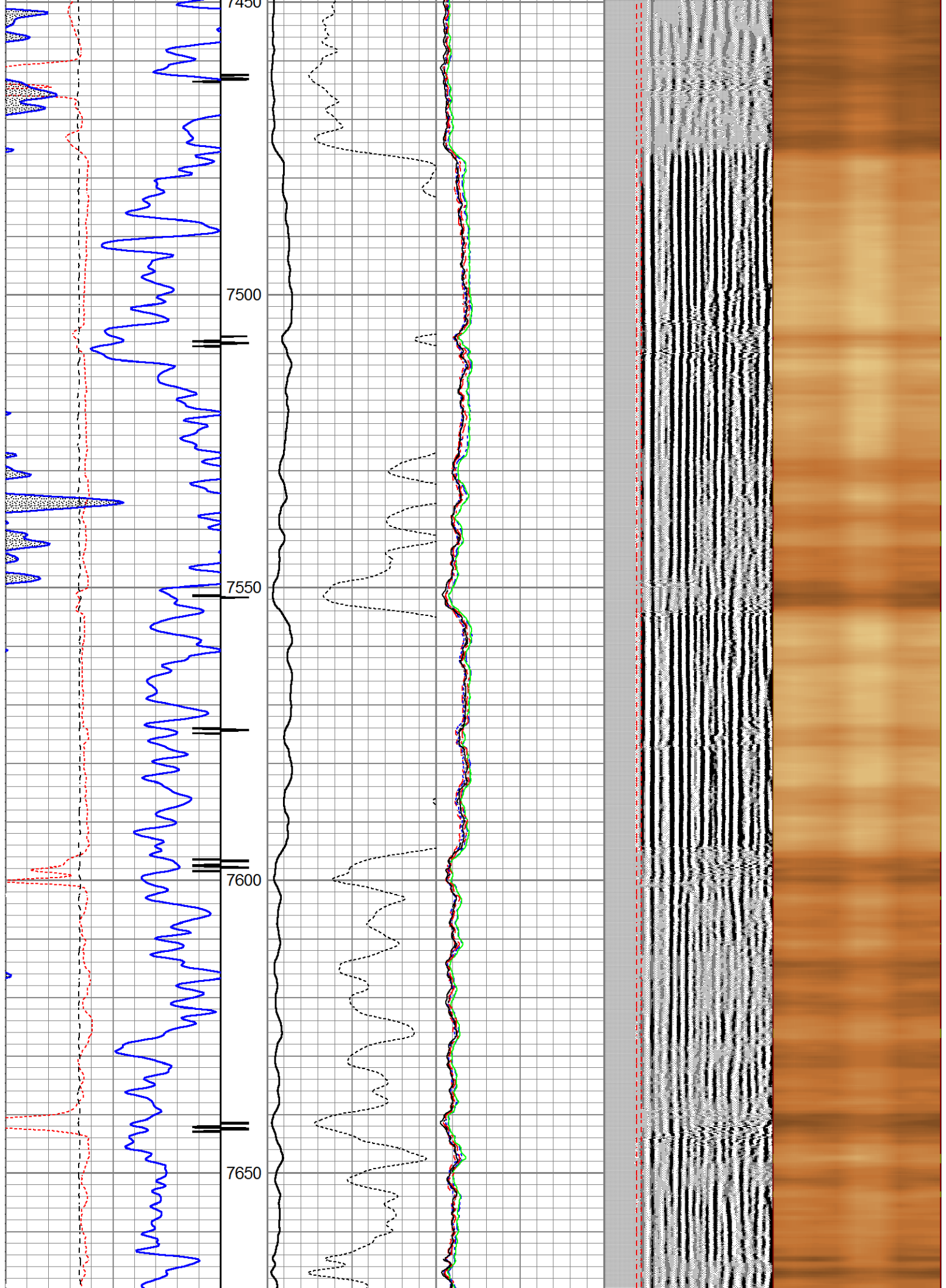
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## Repeat Pass (0) PSI

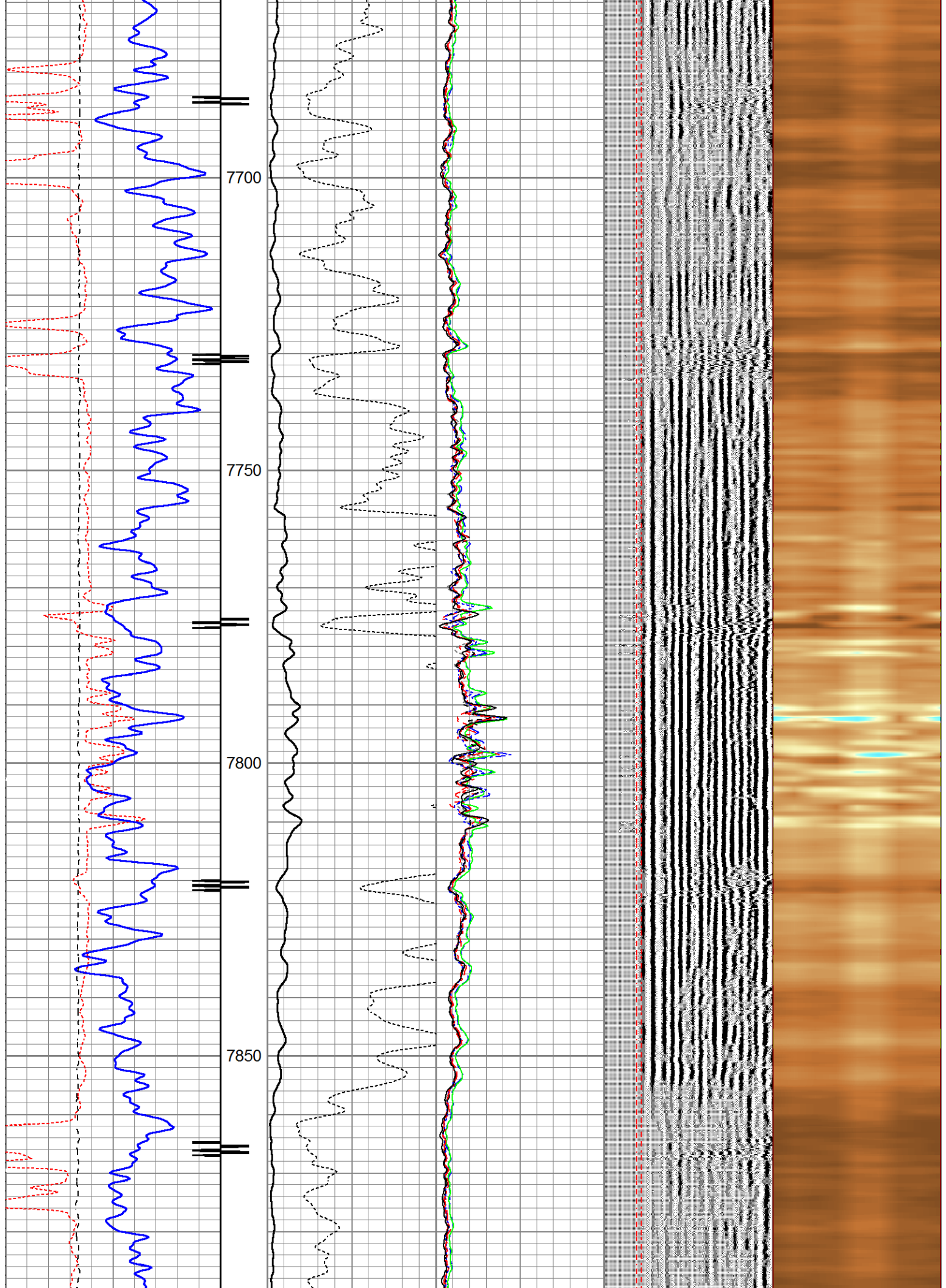
Database File g:\petroshare corp shook pad\db\s\fs0213 ps shook 3-10-2nch cbl.db  
 Dataset Pathname Shook3-10-2NCH/run1/repeat1  
 Presentation Format scbl5\_5  
 Dataset Creation Sun Mar 04 16:23:27 2018  
 Charted by Depth in Feet scaled 1:240

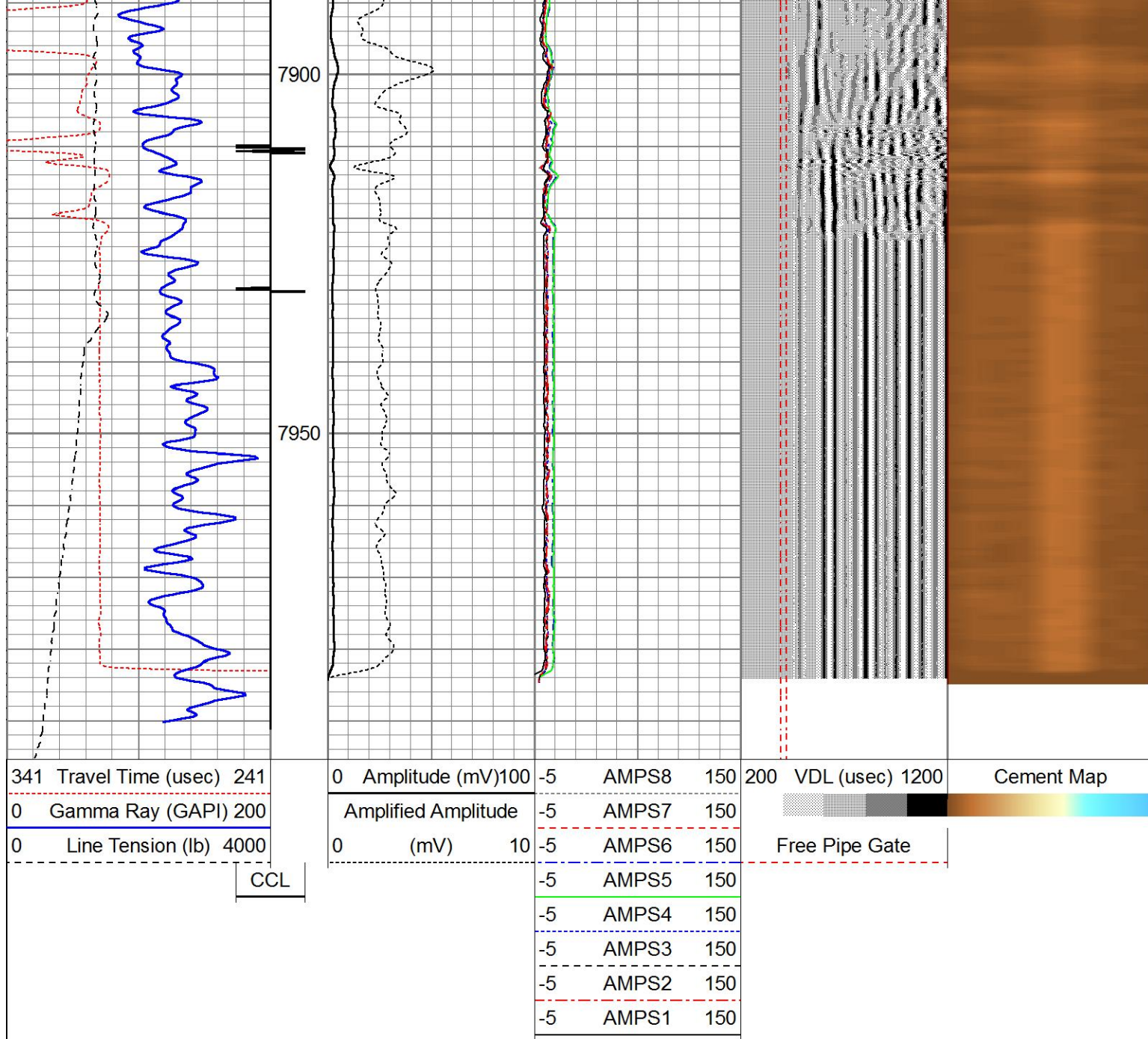












## Repeat Pass (0) PSI

### Log Variables

DatabaseG:\Petroshare Corp Shook Pad\DB's\fs0213 ps shook 3-10-2nch cbl.db  
Dataset field/Shook3-10-2NCH/run1/main1/\_vars\_

#### Top - Bottom

|                       |                        |                      |                     |                         |                     |                    |                         |
|-----------------------|------------------------|----------------------|---------------------|-------------------------|---------------------|--------------------|-------------------------|
| BOREID<br>in<br>7.875 | BOTTEMP<br>degF<br>100 | CASEOD<br>in<br>5.5  | CASETHCK<br>in<br>0 | CASEWGHT<br>lb/ft<br>20 | MAXAMPL<br>mV<br>72 | MINAMPL<br>mV<br>1 | MINATTN<br>db/ft<br>0.8 |
| PERFS<br>0            | PPT<br>usec<br>0       | SRFTEMP<br>degF<br>0 | TDEPTH<br>ft<br>0   |                         |                     |                    |                         |

#### Variable Description



BOREID : Borehole I.D.  
BOTTEMP : Bottom Hole Temperature  
CASEOD : Casing O.D.  
CASETHCK : Casing Thickness

CASEWGHT : Casing Weight  
MAXAMPL : Maximum Amplitude  
MINAMPL : Minimum Amplitude  
MINATTN : Minimum Attenuation

PERFS : Perforation Flag  
PPT : Predicted Pipe Time  
SRFTEMP : Surface Temperature  
TDEPTH : Total Depth

### Calibration Report

Database File G:\Petroshare Corp Shook Pad\DB's\fs0213 ps shook 3-10-2nch cbl.db  
Dataset Pathname Shook3-10-2NCH/run1/main1  
Dataset Creation Sun Mar 04 16:35:46 2018

### Gamma Ray Calibration Report

Serial Number: pr120363  
Tool Model: Probe275dig  
Performed: (Not Performed)

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 1.0000 GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number: 120768C  
Tool Model: Probe

Calibration Casing Diameter: 5.500 in  
Calibration Depth: 3780.643 ft

Master Calibration, performed Sun Mar 04 16:01:37 2018:

|     | Raw (v) |       | Calibrated (mv) |         | Results |        |
|-----|---------|-------|-----------------|---------|---------|--------|
|     | Zero    | Cal   | Zero            | Cal     | Gain    | Offset |
| 3'  | 0.011   | 0.525 | 1.000           | 71.921  | 137.936 | -0.519 |
| CAL | 0.004   | 0.890 |                 |         |         |        |
| 5'  | 0.000   | 0.382 | 1.000           | 71.921  | 186.010 | 0.955  |
| SUM |         |       |                 |         |         |        |
| S1  | 0.042   | 0.524 | 0.000           | 100.000 | 207.634 | -8.699 |
| S2  | 0.010   | 0.511 | 0.000           | 100.000 | 199.644 | -1.974 |
| S3  | 0.009   | 0.514 | 0.000           | 100.000 | 197.917 | -1.788 |
| S4  | 0.009   | 0.551 | 0.000           | 100.000 | 184.642 | -1.708 |
| S5  | 0.011   | 0.617 | 0.000           | 100.000 | 164.909 | -1.798 |
| S6  | 0.011   | 0.632 | 0.000           | 100.000 | 161.070 | -1.811 |
| S7  | 0.009   | 0.572 | 0.000           | 100.000 | 177.462 | -1.584 |
| S8  | 0.009   | 0.523 | 0.000           | 100.000 | 194.788 | -1.779 |

Internal Reference Calibration, performed Sat Mar 03 18:58:32 2018:



|     | Raw (v) |       | Calibrated (v) |       | Results |        |
|-----|---------|-------|----------------|-------|---------|--------|
|     | Zero    | Cal   | Zero           | Cal   | Gain    | Offset |
| CAL | 0.000   | 0.000 | 0.004          | 0.890 | 1.000   | 0.000  |

Air Zero Calibration, performed Sat Mar 03 18:55:30 2018:

| 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   | Length (ft) | O.D. (in) | Weight (lb) |
|--------|-------------|--|---|-------------|-----------|-------------|
| ExTemp | 14.41       |  | CHD-1.4375CHD<br>Titan Cable Head 1 7/16                              | 1.00        | 1.44      | 10.00       |
|        |             |  | CENT-Probe<br>Probe 2 3/4 Centralizer                                 | 2.88        | 2.75      | 20.00       |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
|        |             |  |   |             |           |             |
| WVFS8  | 12.11       |  | CLT-RBT-Probe (120768C)<br>Probe 2.75" Radial Bond Tool w/Temperature | 9.21        | 2.75      | 93.00       |
| WVFS7  | 12.11       |  |   |             |           |             |
| WVFS6  | 12.11       |  |   |             |           |             |
| WVFS5  | 12.11       |  |   |             |           |             |
| WVFS4  | 12.11       |  |   |             |           |             |
| WVFS3  | 12.11       |  |   |             |           |             |
| WVFS2  | 12.11       |  |   |             |           |             |
| WVFS1  | 12.11       |  |   |             |           |             |
| WVFCAL | 12.11       |  |   |             |           |             |
| WVF3FT | 12.11       |  |   |             |           |             |
| WVF5FT | 11.11       |  |   |             |           |             |
| CCL    | 4.14        |  | CENT-Probe<br>Probe 2 3/4 Centralizer                                 | 2.88        | 2.75      | 20.00       |
|        |             |  |   |             |           |             |



