



# RADIAL ANALYSIS BOND LOG

Baker Atlas

|   |   |  |
|---|---|--|
| File No:  | Company   | WPX ENERGY                                   |
| CH081736  | Well  | FEDERAL RG 313-14-298                        |
| API No:   | Field   | SULPHUR CREEK                                |
| 05103117970000  | County  | RIO BLANCO                                   |
|   | State   | CO   |
| 14 2S 98W<br>RG 12-14-298 PAD<br>CYCLONE 29                 | Location<br>SHL: 1575' FNL & 488' FWL<br>BHL: 2671' FSL & 637' FWL<br>SEC 14 TWP 25 RGE 98W | Other Services<br>RPM                        |
| Permanent Datum<br>Log Measured From<br>Drill Measured From | GL<br>KB<br>KB<br>KB  | Elevations<br>KB 6560 ft<br>DF<br>GL 6560 ft |

|                              |                |
|------------------------------|----------------|
| Date                         | 22/JAN/14      |
| Run                          | ONE            |
| Service Order                | US625092       |
| Depth Driller                | 10940 ft       |
| Depth Logger                 | 10915 ft       |
| Bottom Logged Interval       | 10905 ft       |
| Top Logged Interval          | 21 ft          |
| Time Started                 | 15:00          |
| Time Finished                | 19:30          |
| Operator Rig Time            | 4.5 HOURS      |
| Type of Fluid in Hole        | WATER          |
| Fluid Density                | NA             |
| Salinity                     | NA             |
| Fluid Level                  | 70 ft          |
| Logged Cement Top            | NA             |
| Wellhead Pressure            | 0 psi          |
| Maximum Hole Deviation       | NA             |
| Nominal Logging Speed        | 65 fpm         |
| Maximum Recorded Temperature | 272 degF       |
| Reference Log                | NA             |
| Reference Log Date           | NA             |
| Equipment No.                | 4271           |
| Location                     | GRAND JCT.     |
| Recorded By                  | NEWELL         |
| Witnessed By                 | WAYNE MARCOTTE |

- FOLD HERE

In making interpretations of logs, our employees will give the customer the benefit of their best judgement. But since all interpretations are opinions based on inferences from electrical or other measurements, we cannot, and we do not guarantee the accuracy or correctness of any interpretation. We shall not be liable or responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by the customer resulting from any interpretation made by any of our employees.

| Borehole Record |         |          |
|-----------------|---------|----------|
| Bit Size        | From    | To       |
| 30 in           | 0 ft    | 80 ft    |
| 14.75/13.5      | 80 ft   | 3054 ft  |
| 8.75/7.75       | 3054 ft | 10999 ft |

| Casing Record |             |       |      |          |
|---------------|-------------|-------|------|----------|
| Size          | Weight      | Grade | From | To       |
| 18 in         |             |       | 0 ft | 80 ft    |
| 9.625 in      |             |       | 0 ft | 3054 ft  |
| 4.5 in        | 11.5 lbm/ft | P-110 | 0 ft | 10999 ft |

|  |
|--|
| Remarks  |
| All data on this log is shifted using the CCL curve to put the wellhead (top CCL mark) on depth with ground level elevation at the client's request. |
| The amount of linear shift is 11 feet.   |
| Logged with zero PSI at wellhead.  |

BHT = 272 °F  
SJ = 5889' -5913'

| Equipment Data |      |        |               |               |             |
|----------------|------|--------|---------------|---------------|-------------|
| Run            | Trip | Tool   | Series Number | Serial Number | Position    |
| 1              | 1    | CBL    | 1426XA        | 10218496      | CENTRALIZED |
| 1              | 1    | GR/CCL | 2459XA        | 10124121      | CENTRALIZED |

***PRIMARY PRESENTATION***  
***0 PSI***

| MEASUREMENT TYPE | PARAMETER             | VALUE   | UNITS   | TOP    | BOTTOM    |
|------------------|-----------------------|---------|---------|--------|-----------|
| RAL              | Amp Gate Start Far    | 305.000 | usec    | 22.348 | 10937.500 |
| RAL              | Amp Gate Start Near   | 195.000 | usec    | 22.348 | 10937.500 |
| RAL              | Amp Gate Start Radial | 195.000 | usec    | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Far    | 25.000  | usec    | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Near   | 25.000  | usec    | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Radial | 25.000  | usec    | 22.348 | 10937.500 |
| RAL              | casing od             | 4.500   | inches  | 22.348 | 10937.500 |
| RAL              | casing wt             | 11.600  | lbm/ft  | 22.348 | 10937.500 |
| RAL              | FB Start Far          | 291.900 | usec    | 22.348 | 10937.500 |
| RAL              | FB Start Near         | 175.391 | usec    | 22.348 | 10937.500 |
| RAL              | FB Start Radial       | 175.391 | usec    | 22.348 | 10937.500 |
| RAL              | FB Thresh Far         | 10.000  | mv      | 22.348 | 10937.500 |
| RAL              | FB Thresh Near        | 4.000   | mv      | 22.348 | 10937.500 |
| RAL              | FB Thresh Radial      | 4.000   | mv      | 22.348 | 10937.500 |
| RAL              | Fluid Travel Time     | 200.000 | usec/ft | 22.348 | 10938.316 |

**DEPTH OFFSETS**  
(for Acquired Curves)

| SERIES | DEPTH OFFSET | ACQUIRED CURVES |     |     |     |     |      |
|--------|--------------|-----------------|-----|-----|-----|-----|------|
| 1426XA | -16.750      | ACAL            | ANR | AR1 | AR2 | AR3 | AR4  |
|        |              | AR5             | AR6 | AR7 | AR8 | AR9 | AR10 |

1426XA -15.750  
 2459XA -11.340  
 2459XA -9.490  
 2459XA -4.090

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| AR3  | AR6  | AR7  | AR8  | CHV  | FPR2 |
| FPR3 | FPR5 | TT3  | TTR1 | TTR2 | TTR3 |
| TTR4 | TTR5 | TTR6 | TTR7 | TTR8 | XAMP |
| AFAR | SIG  | TT5  |      |      |      |
| NEU  |      |      |      |      |      |

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

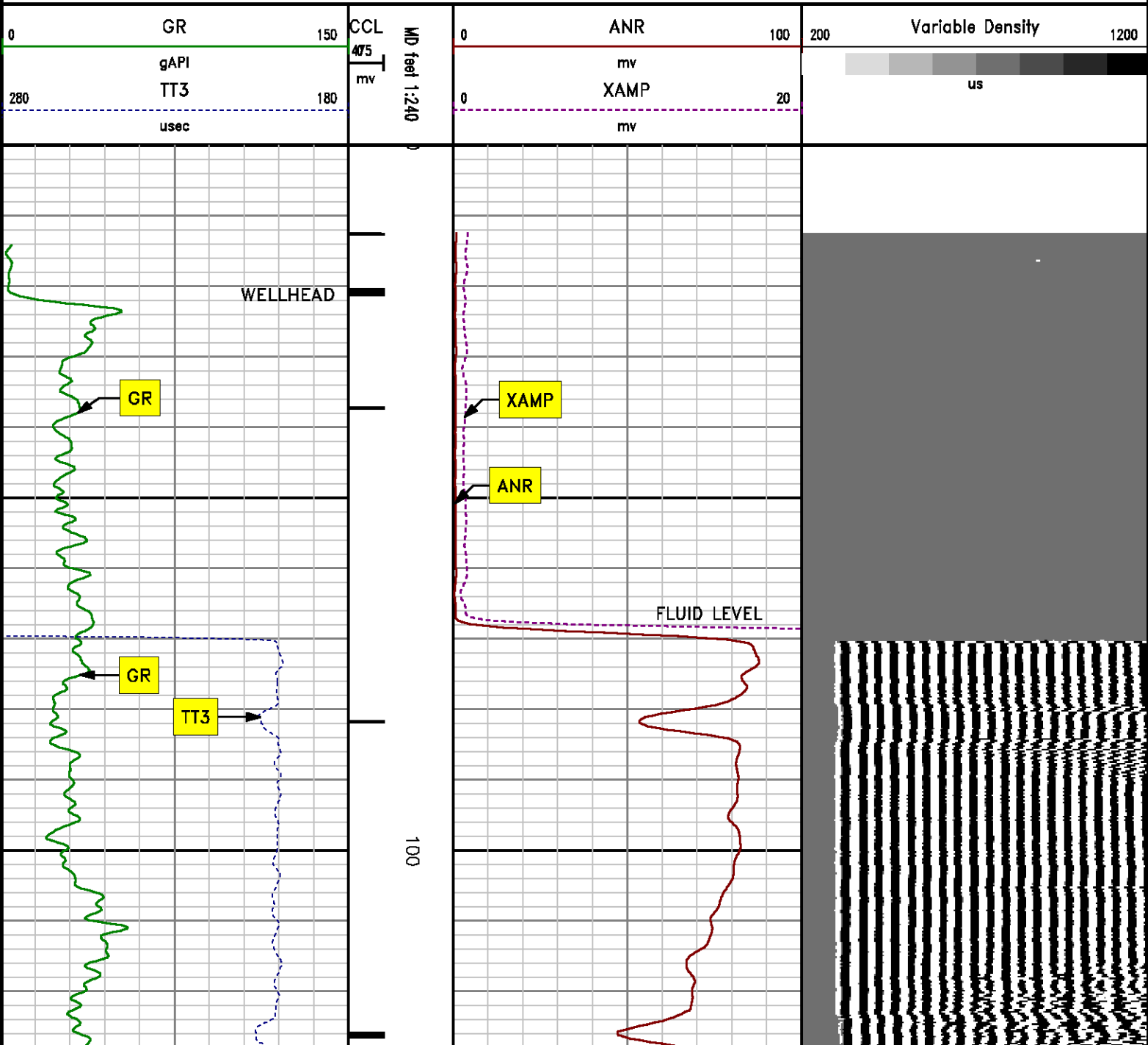
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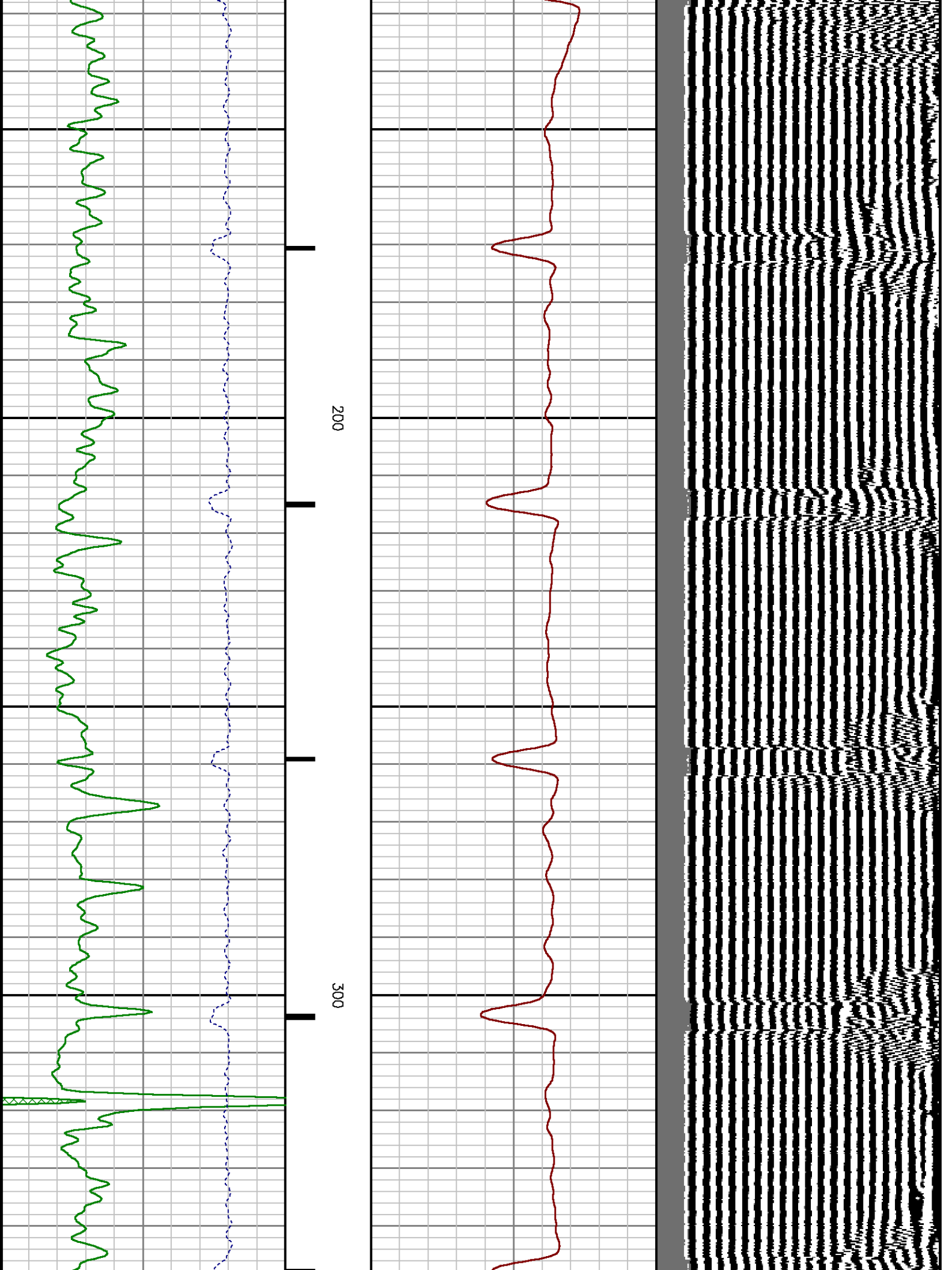
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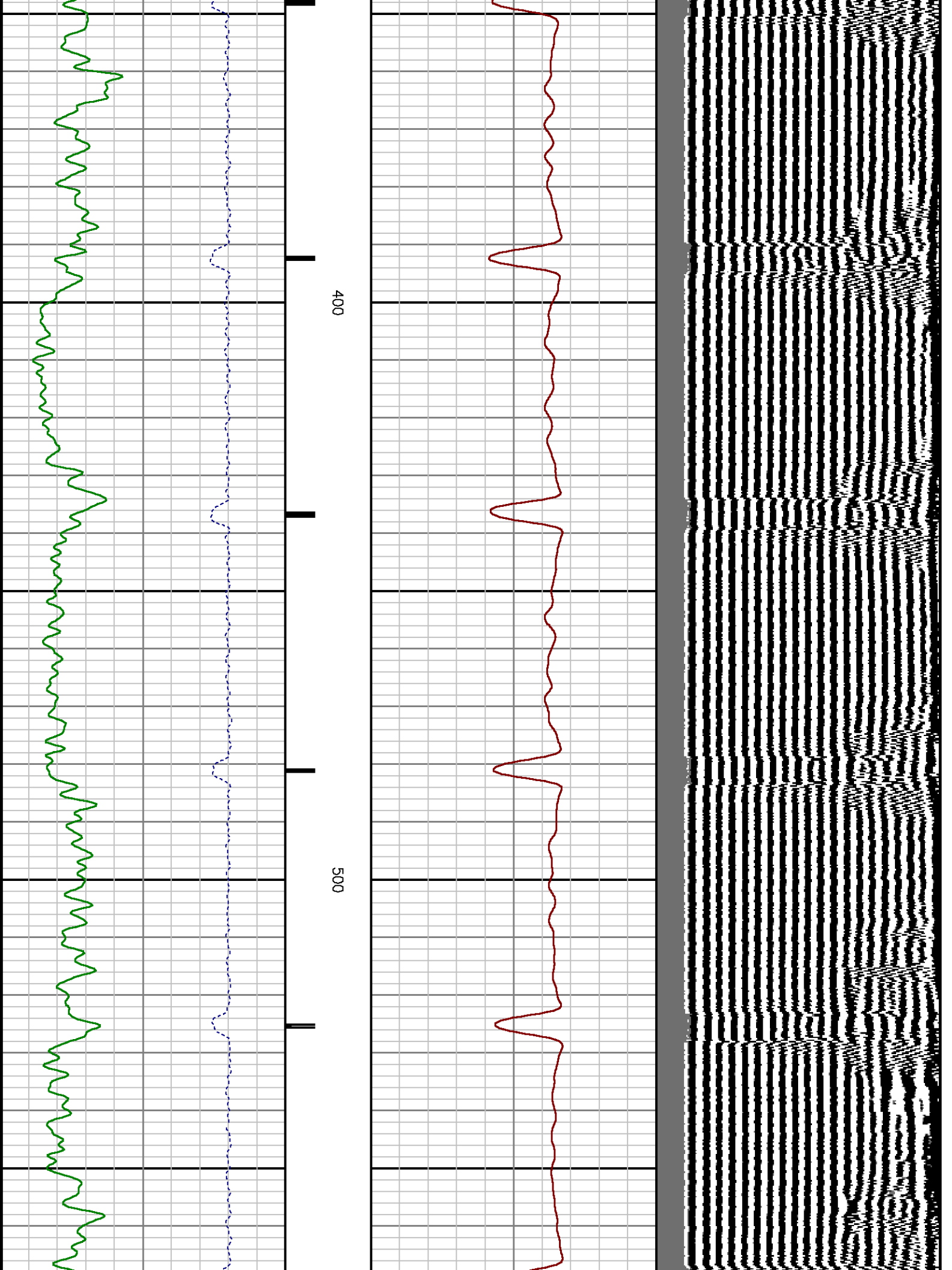
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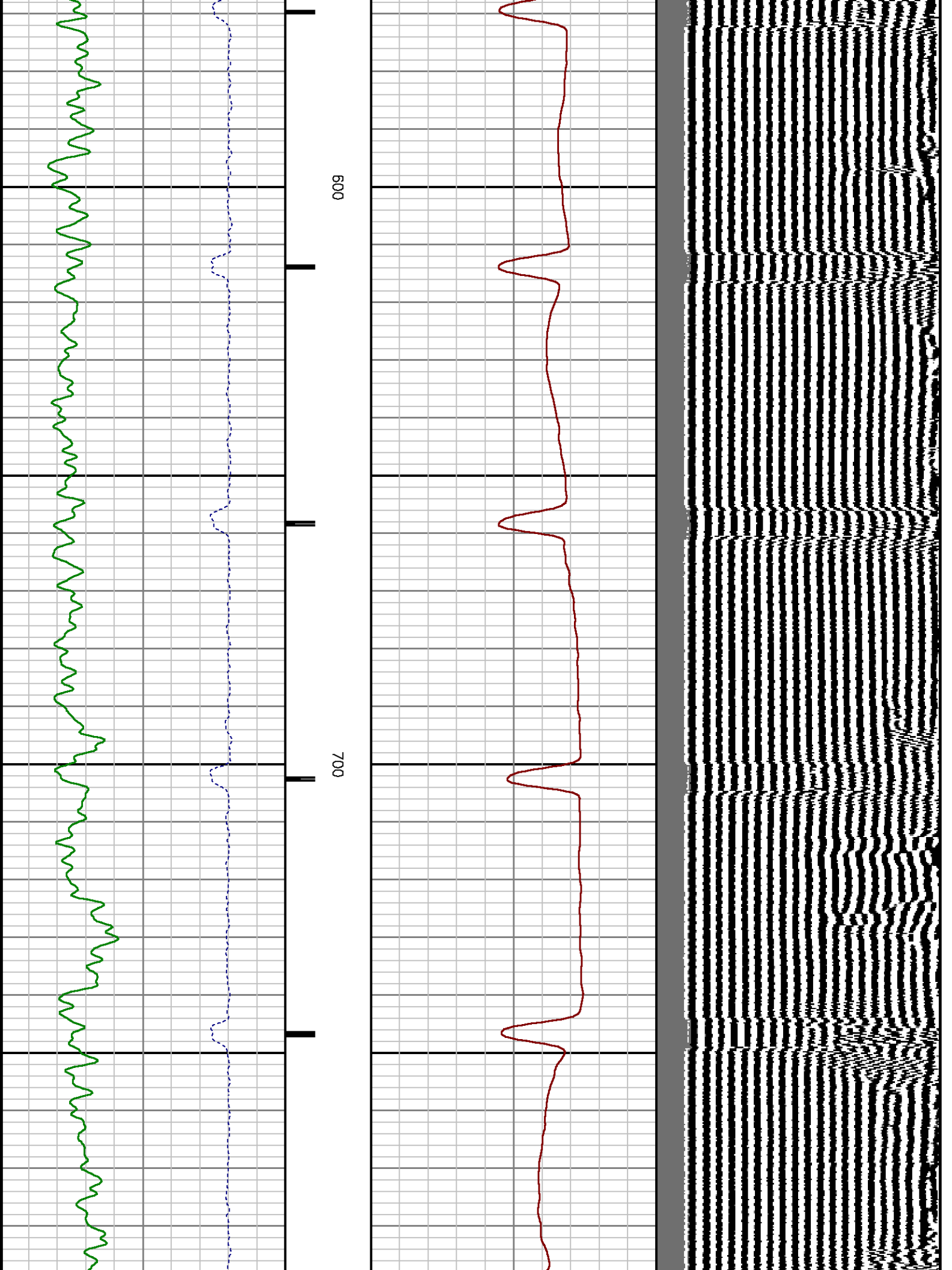
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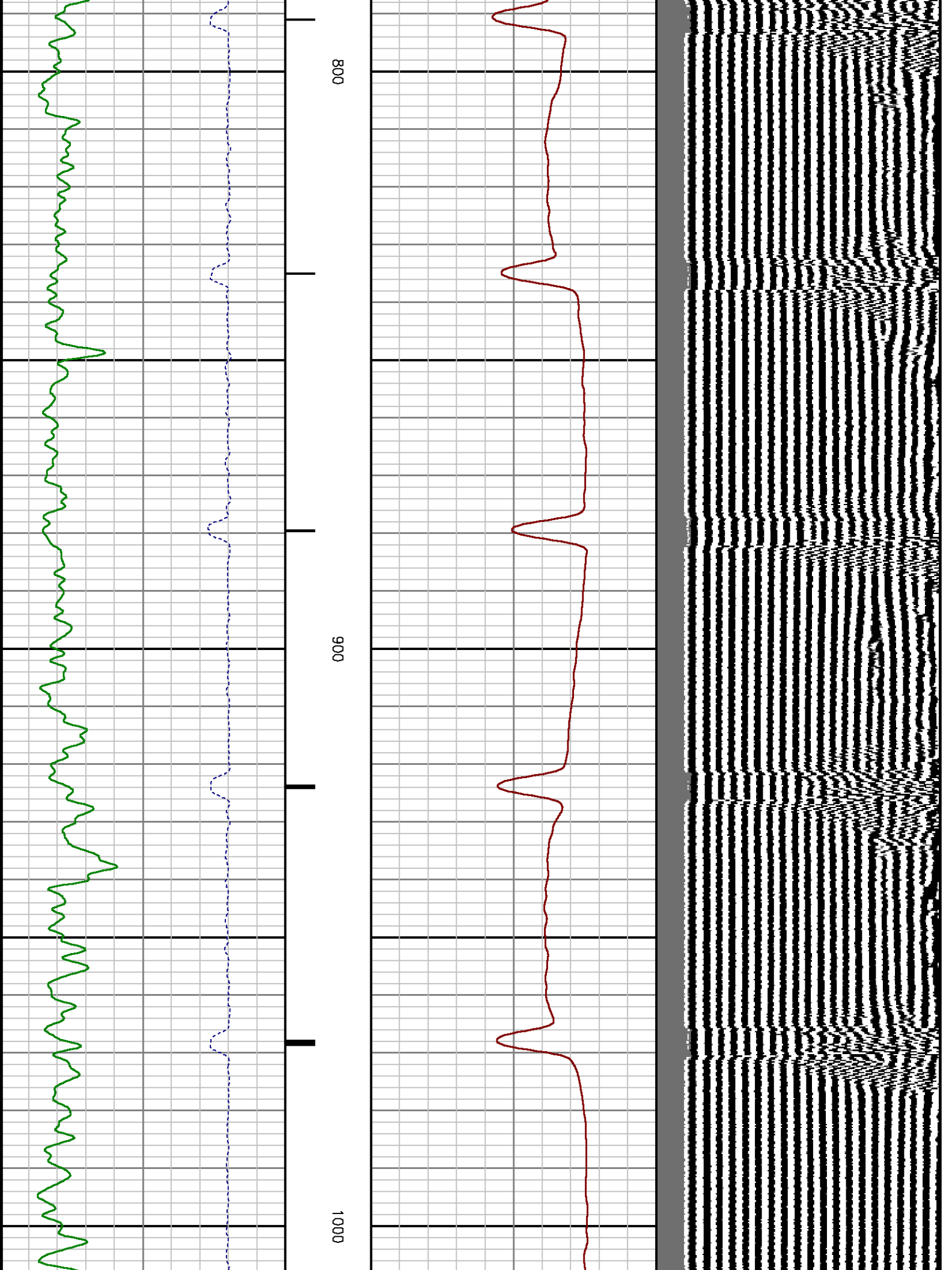


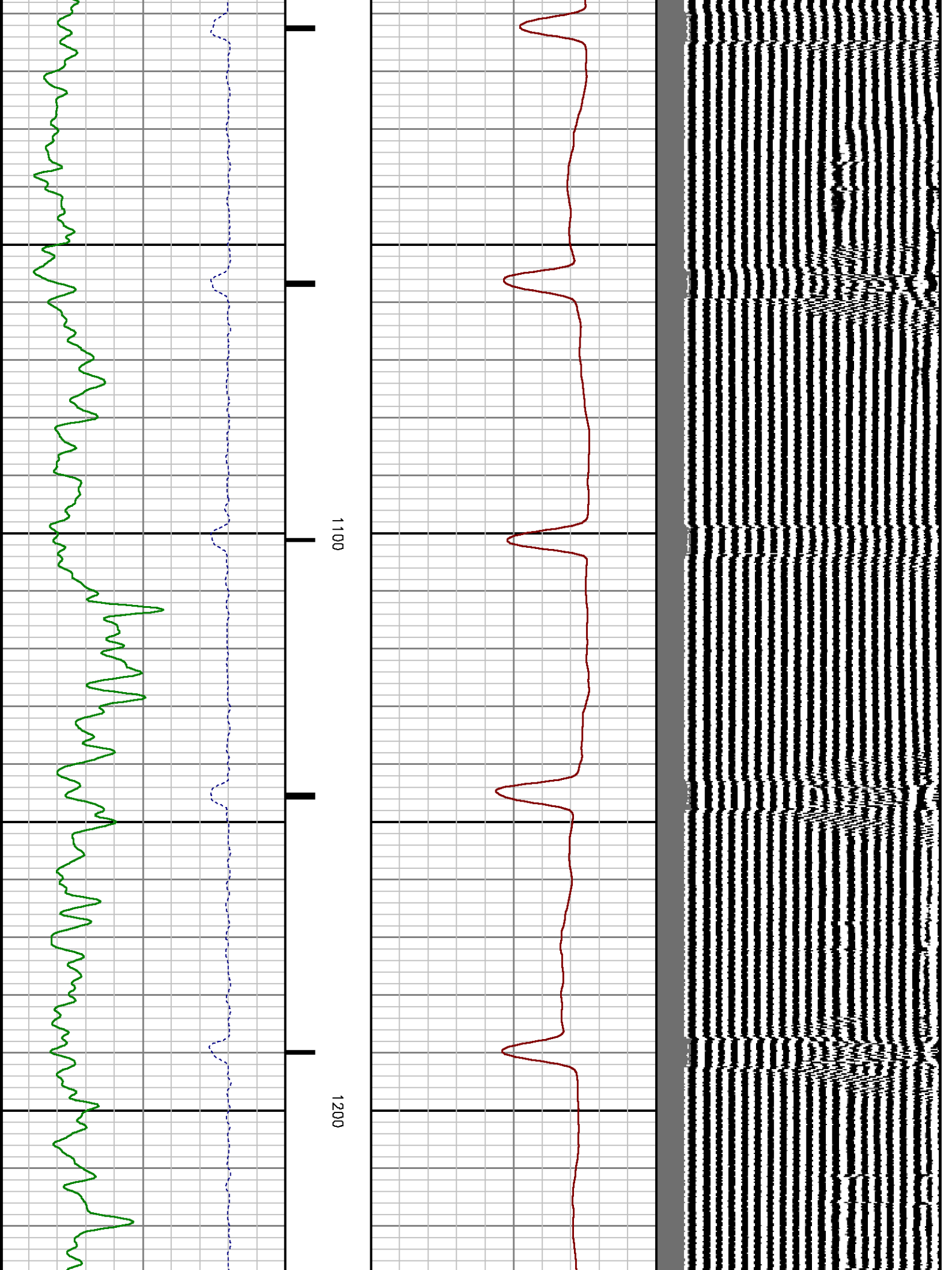


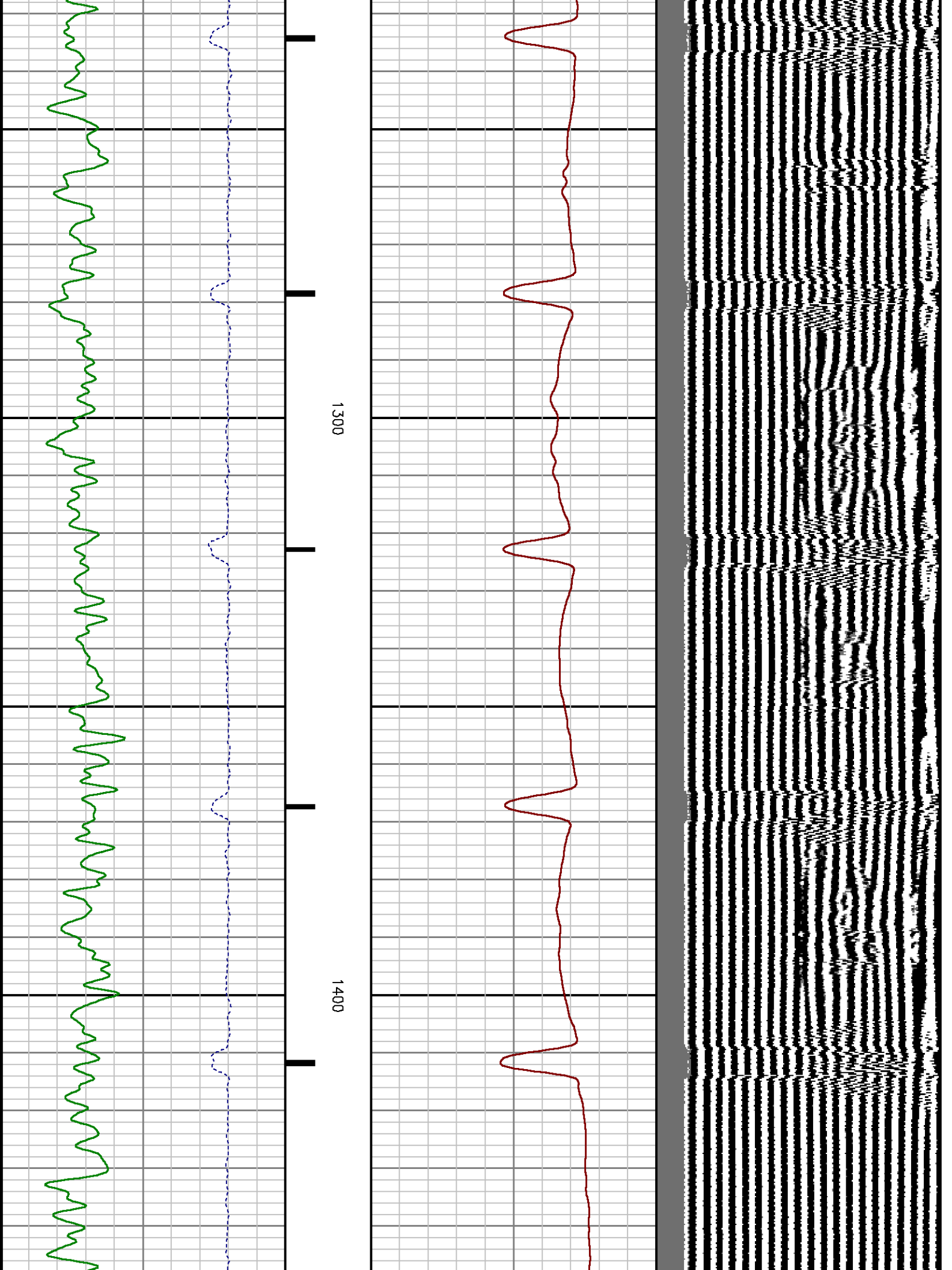


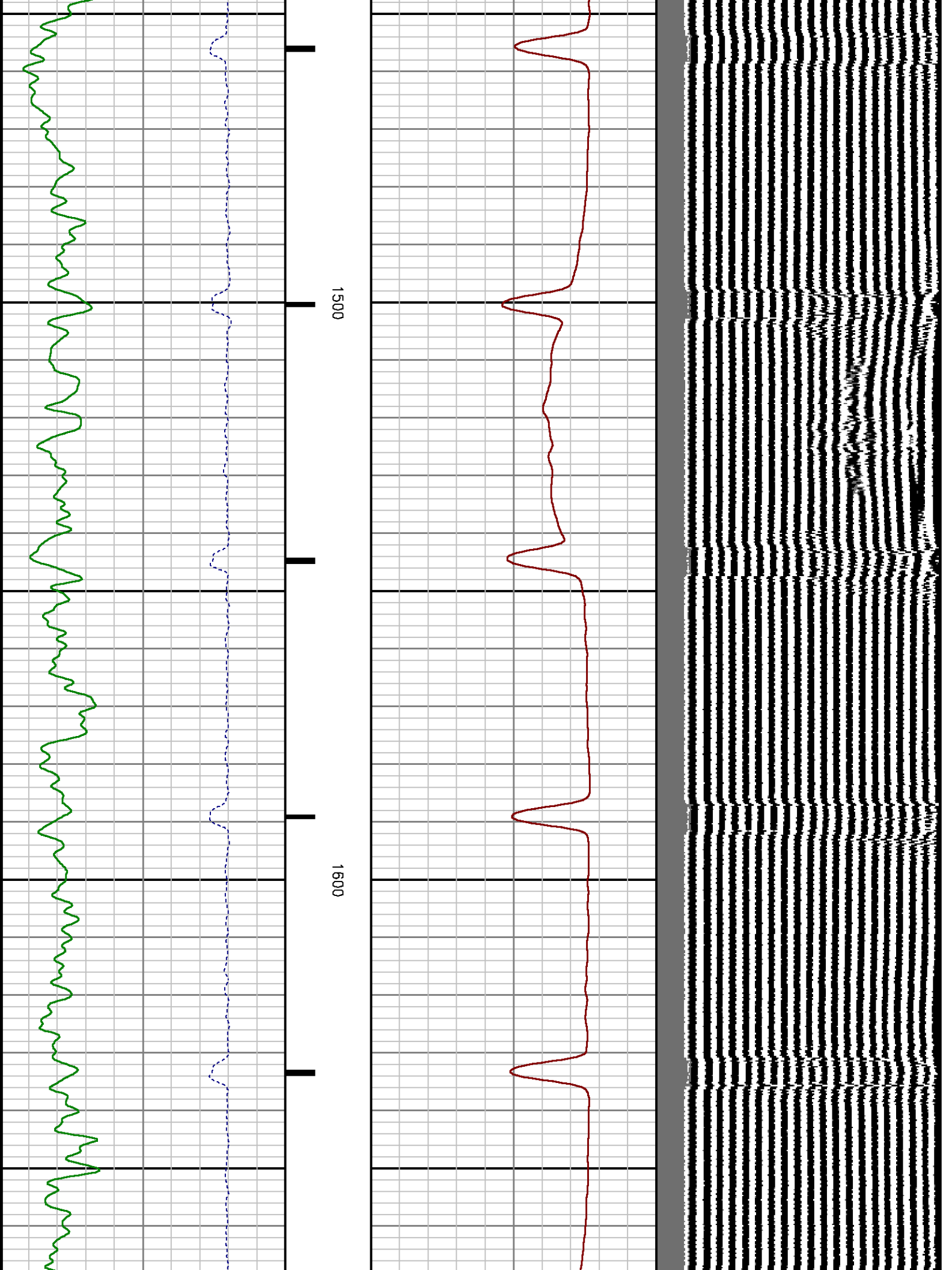




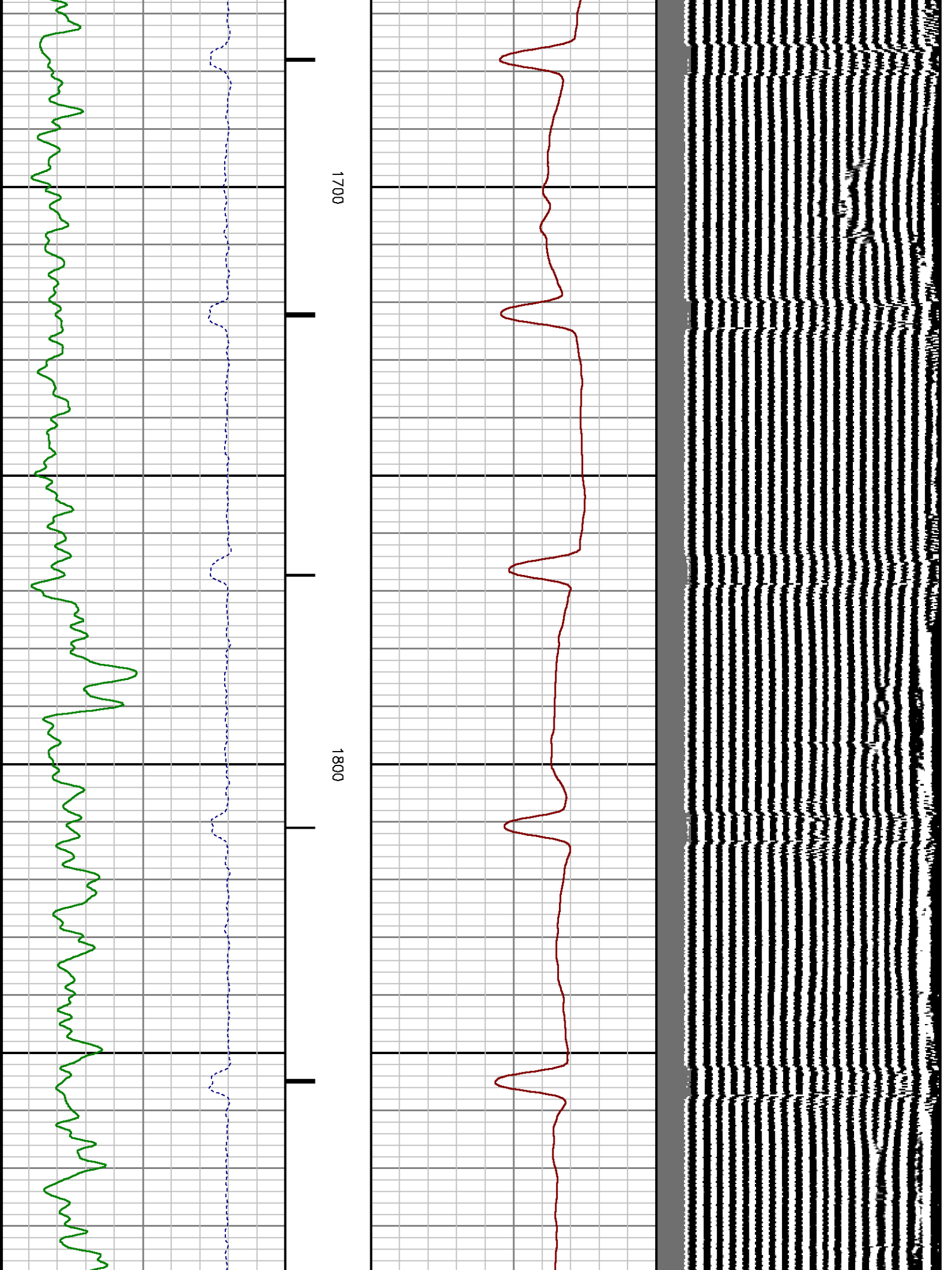


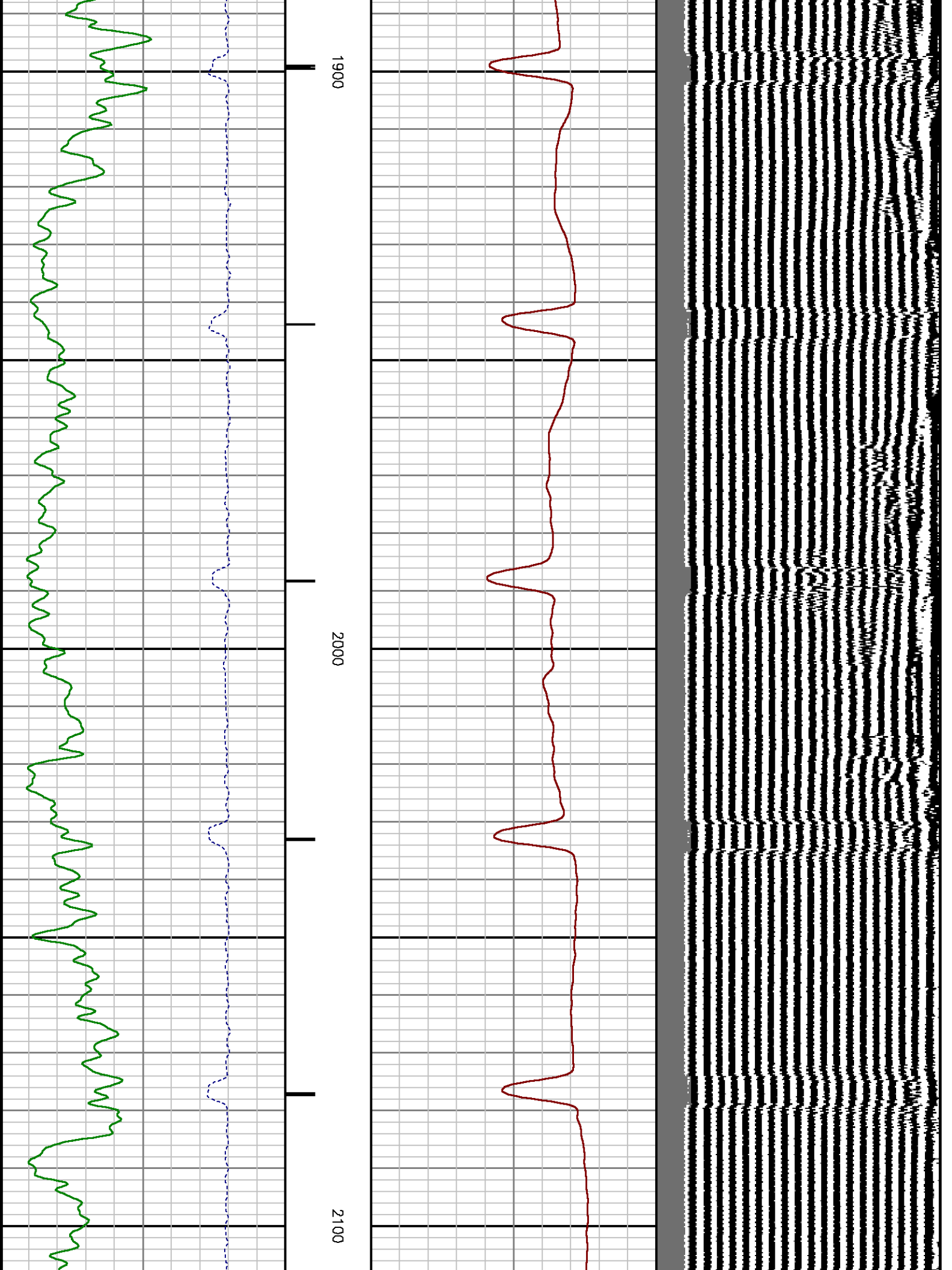




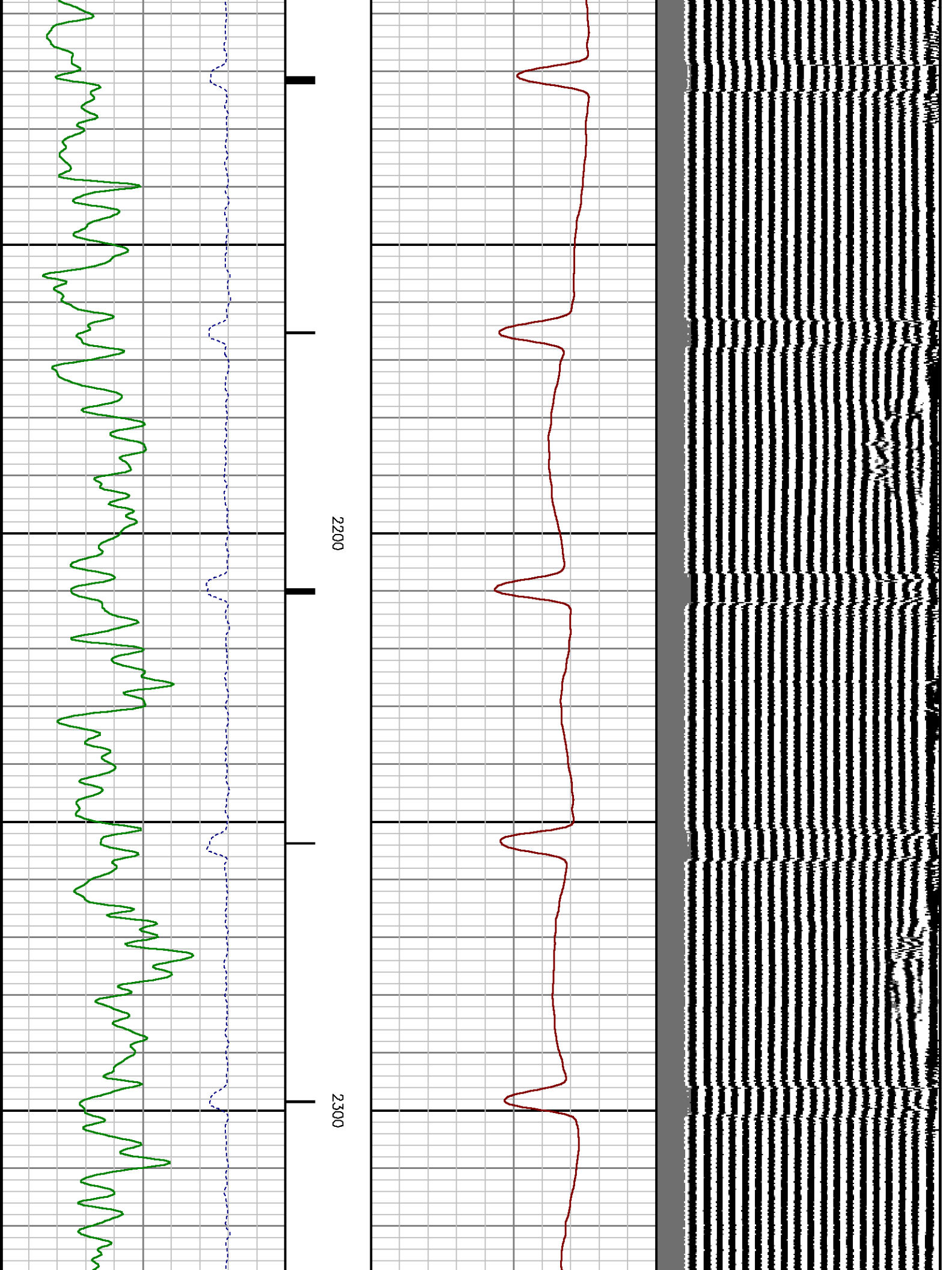


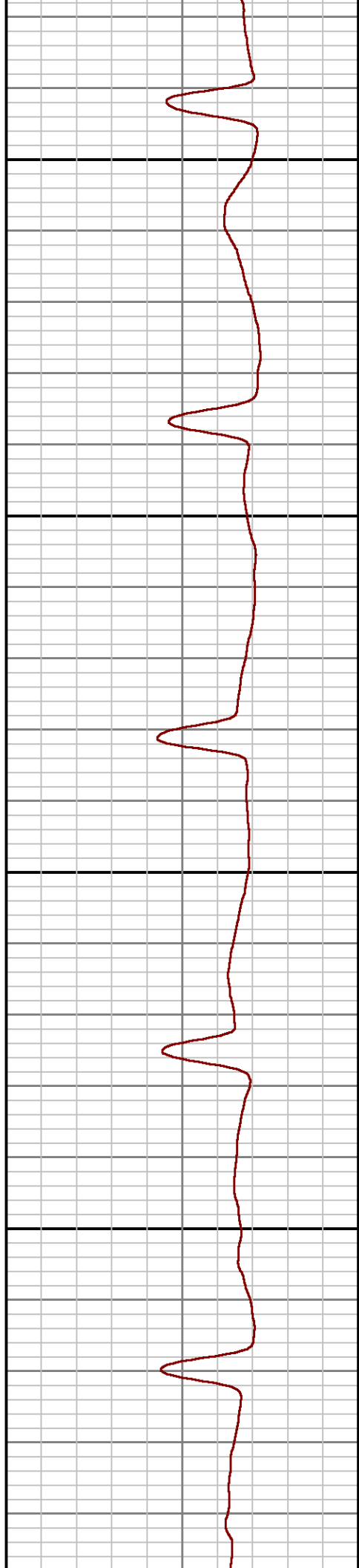
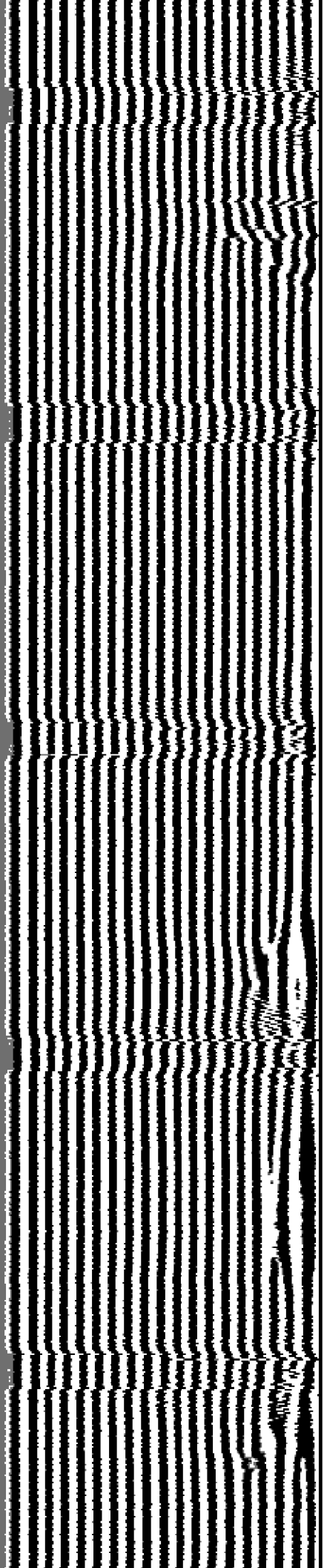






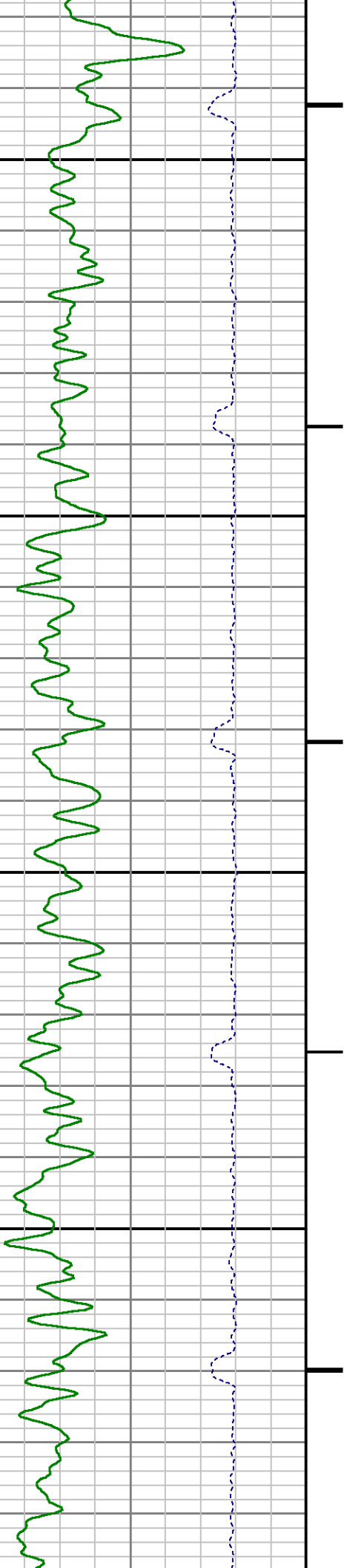


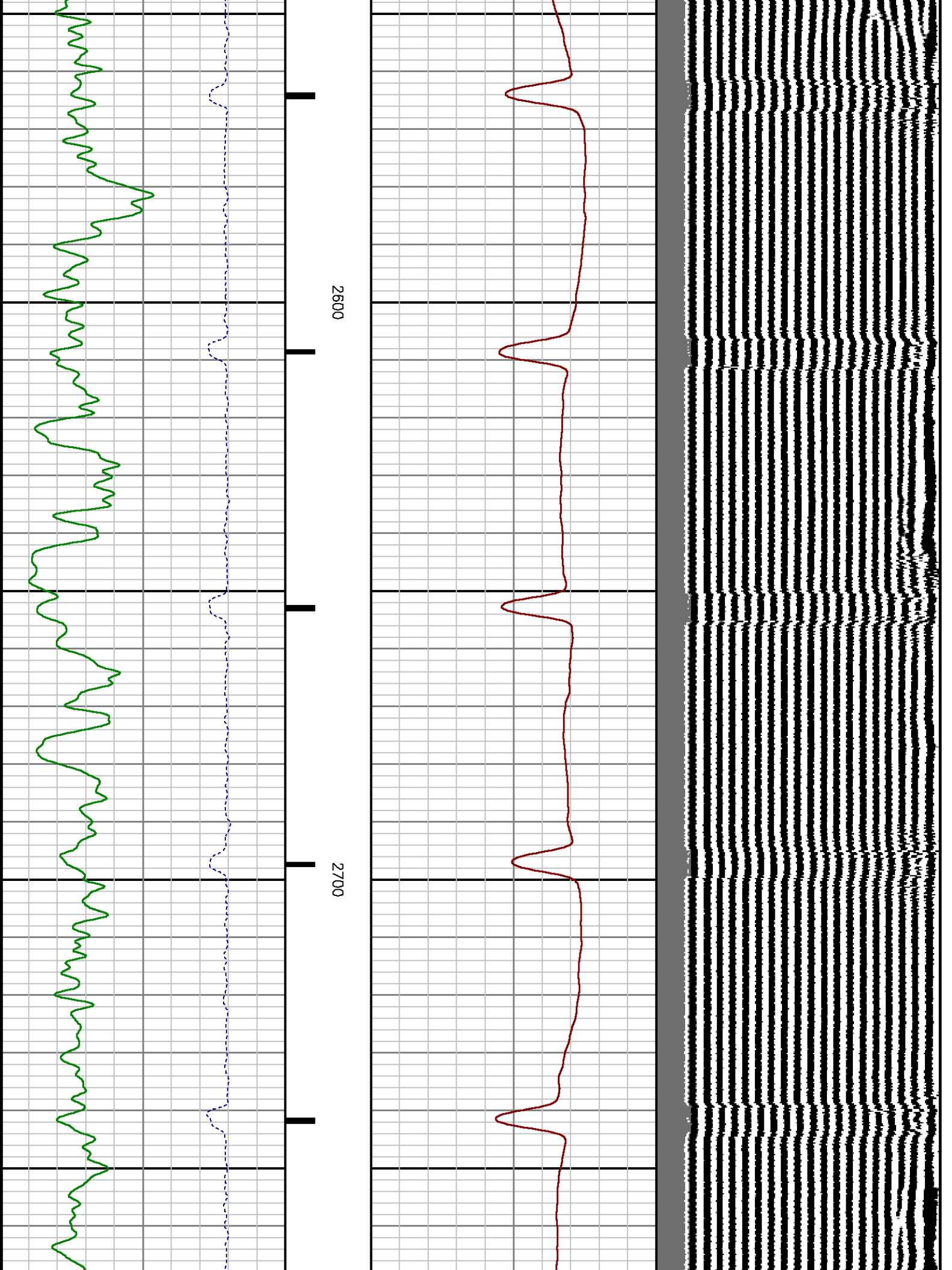


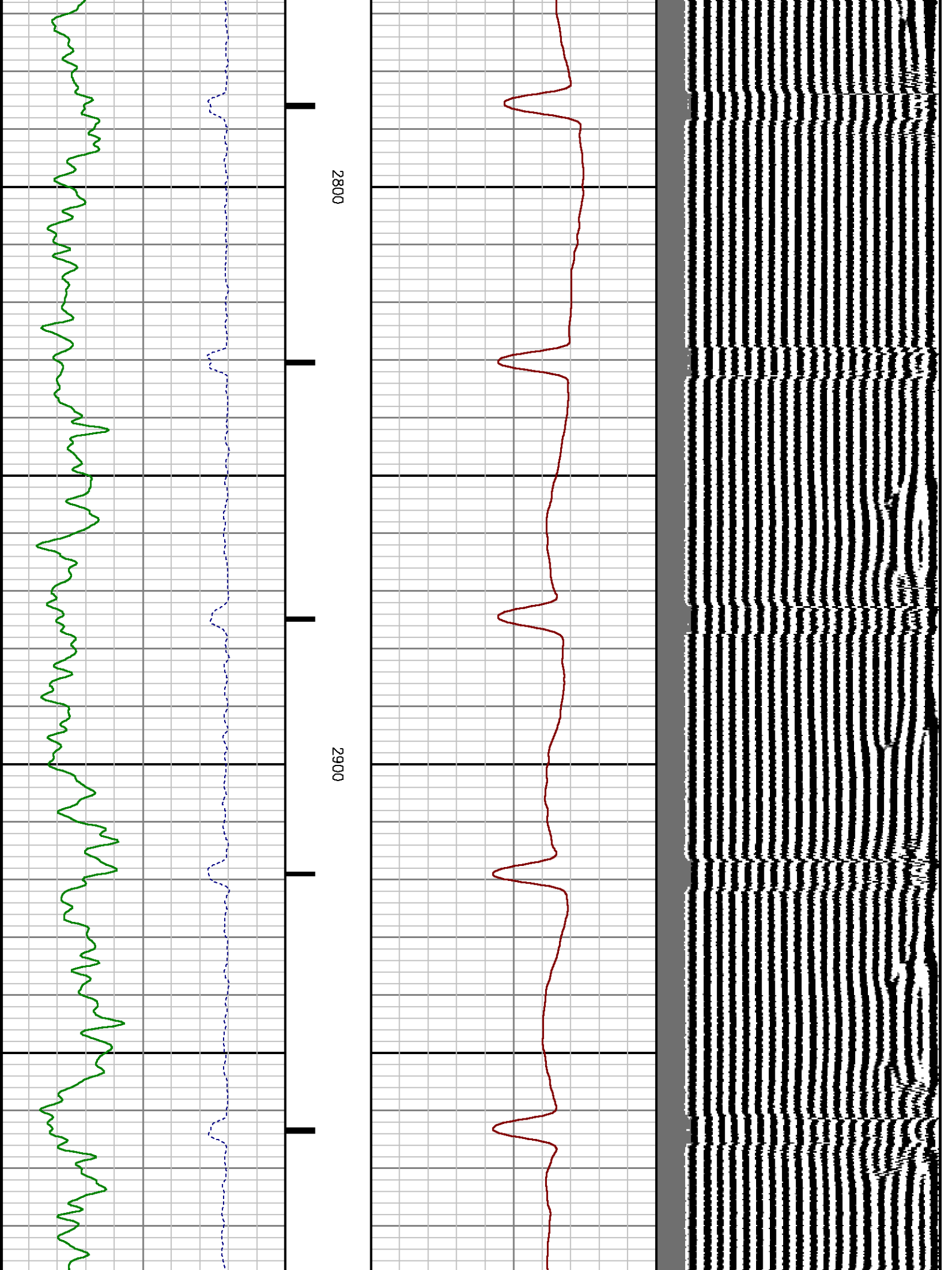


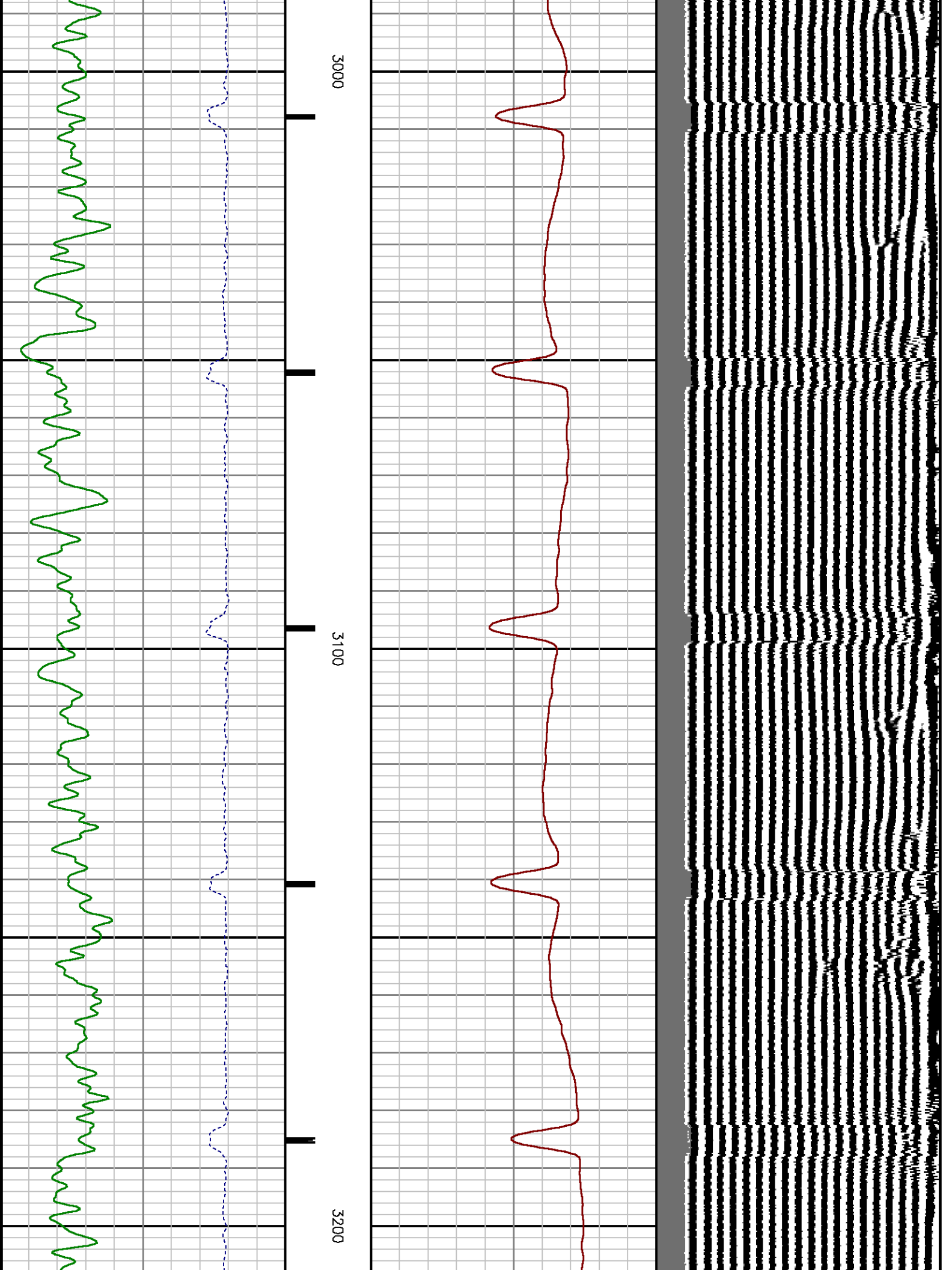
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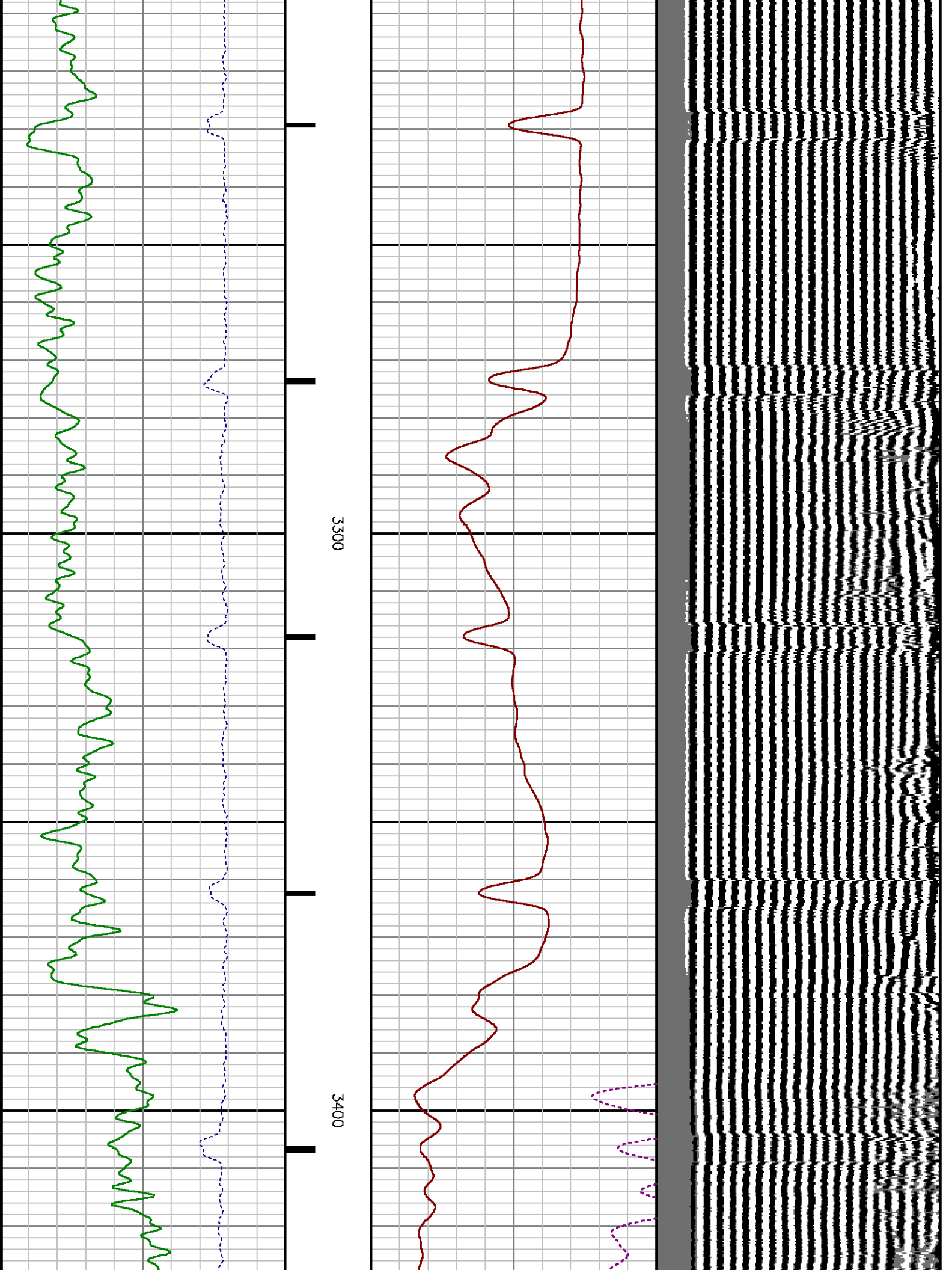
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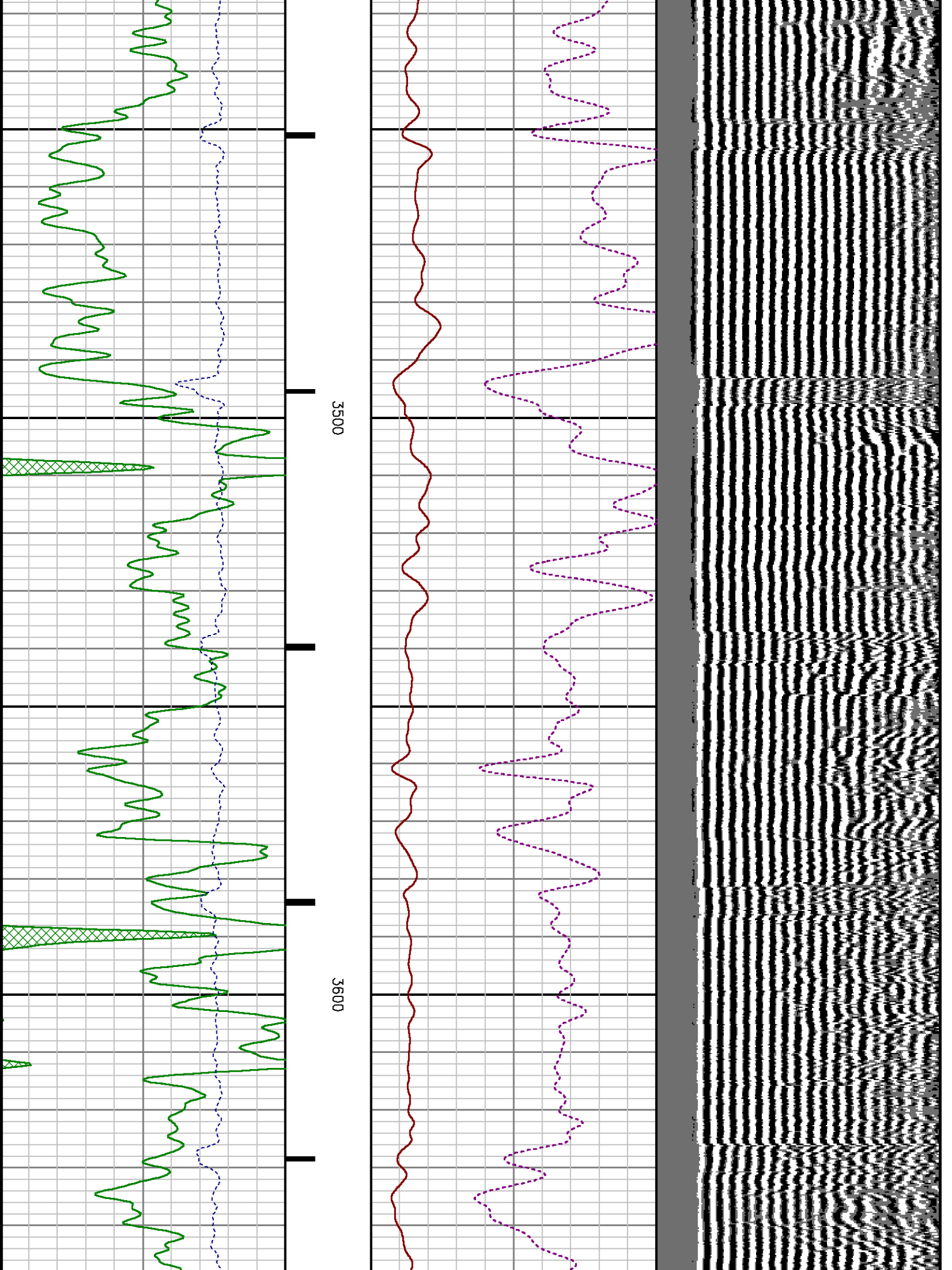


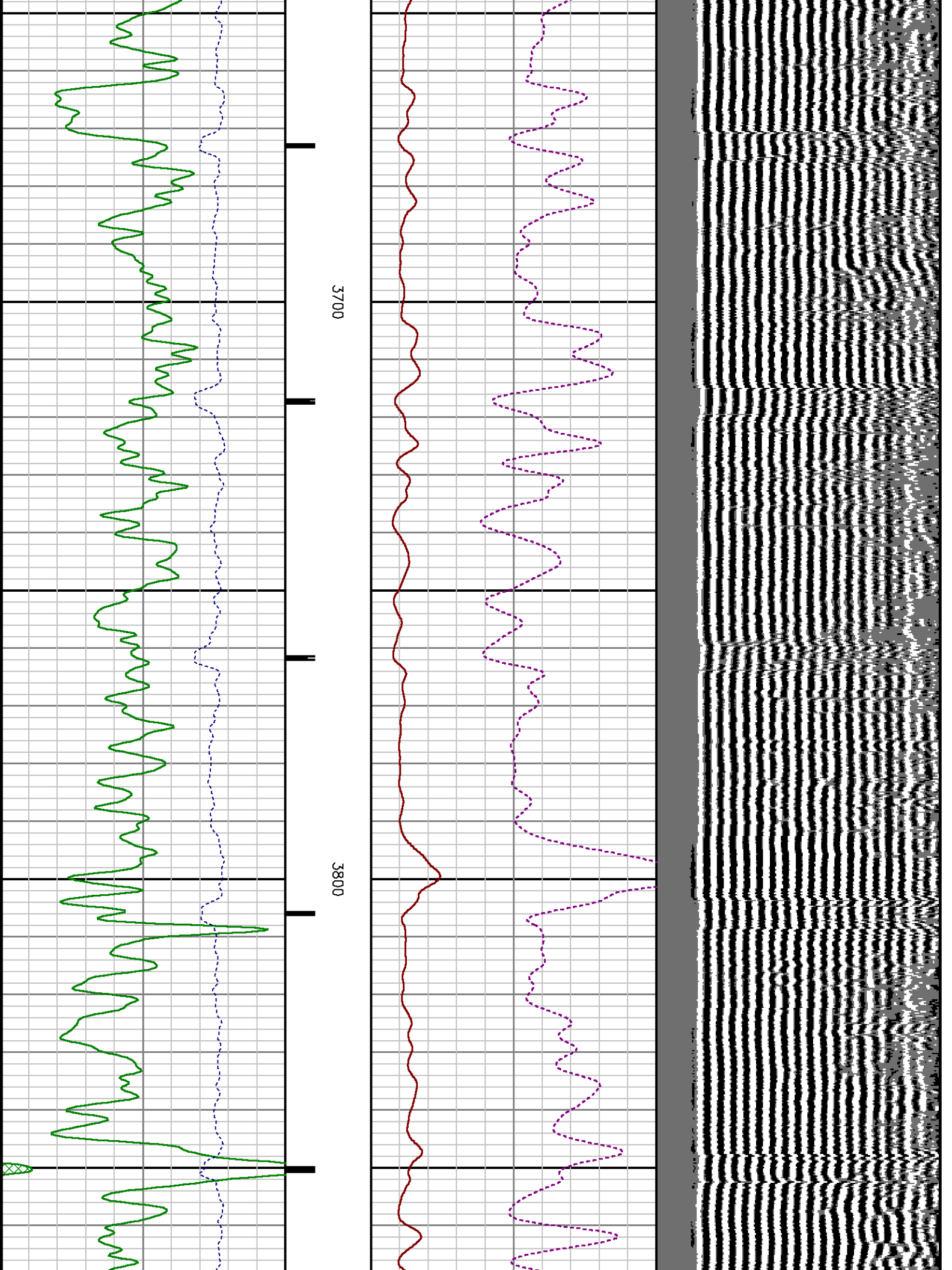




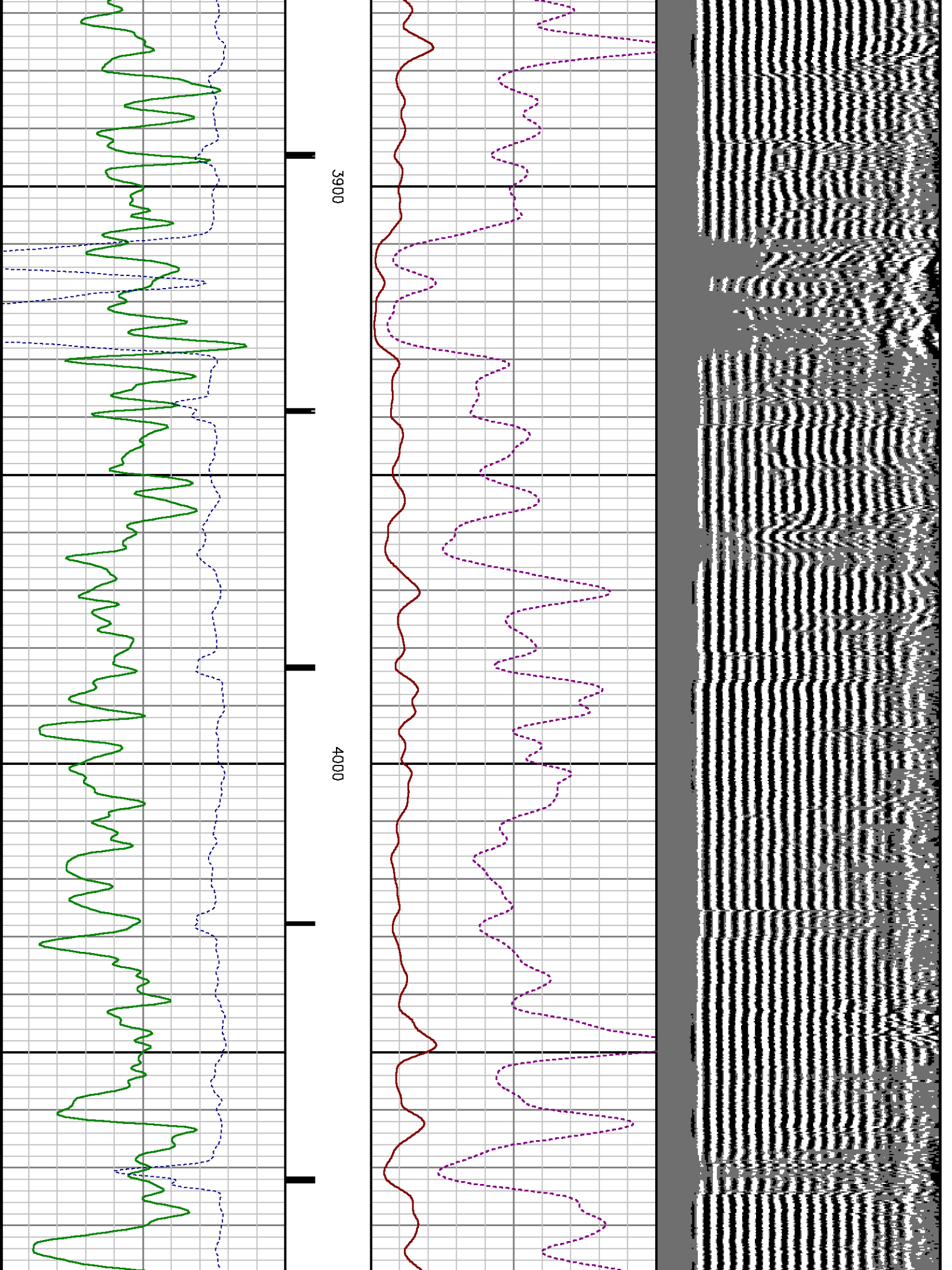


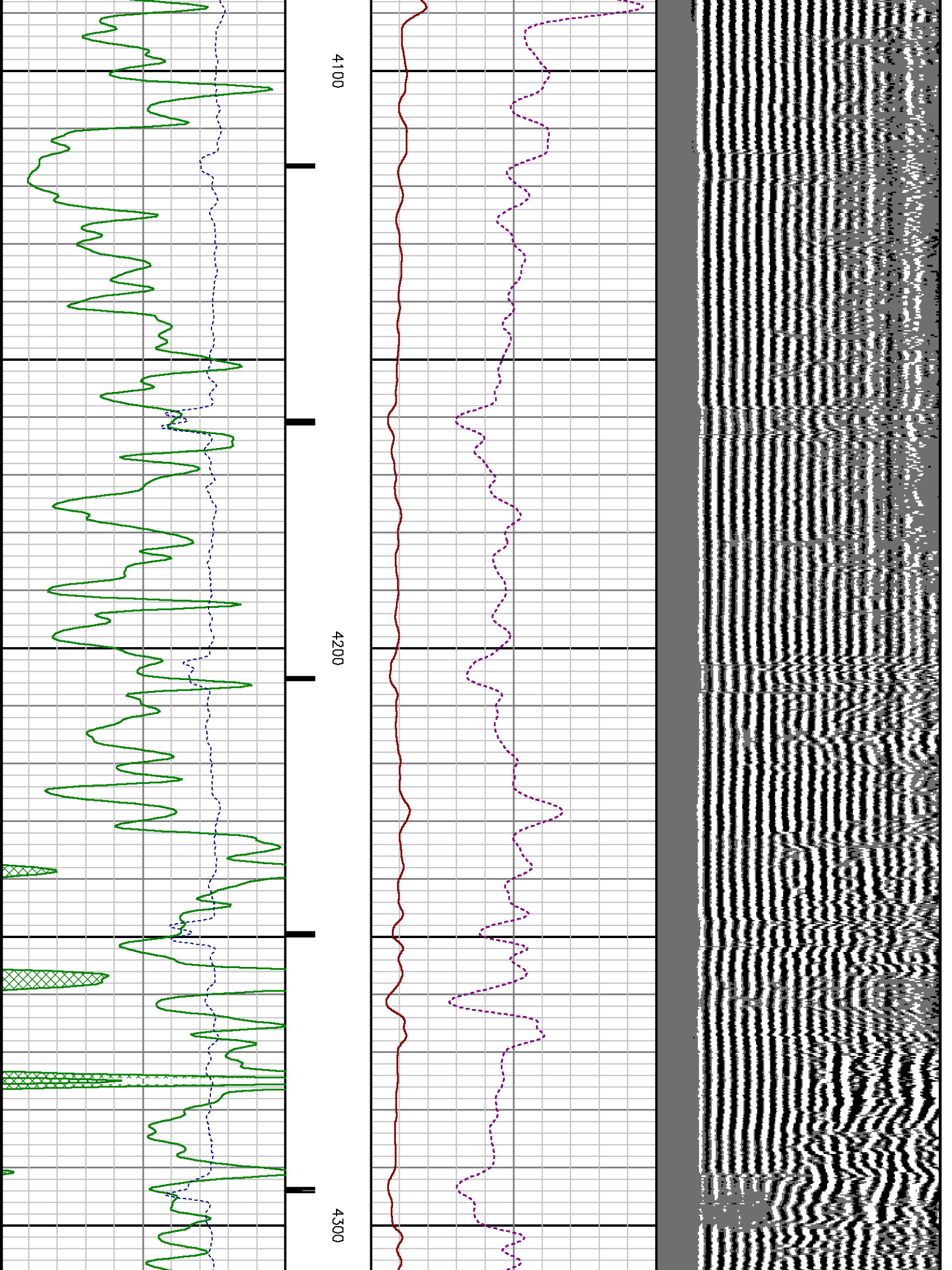


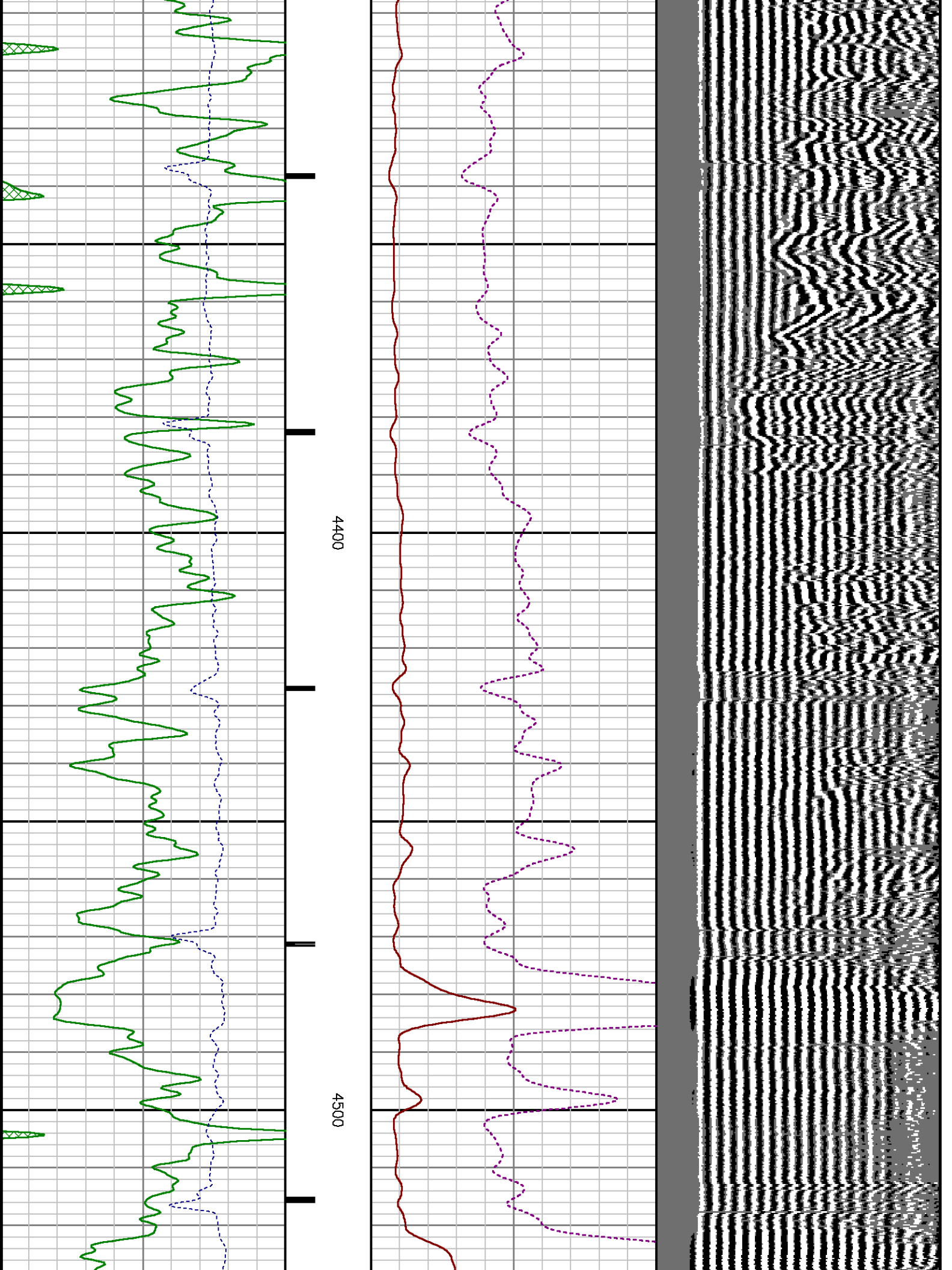


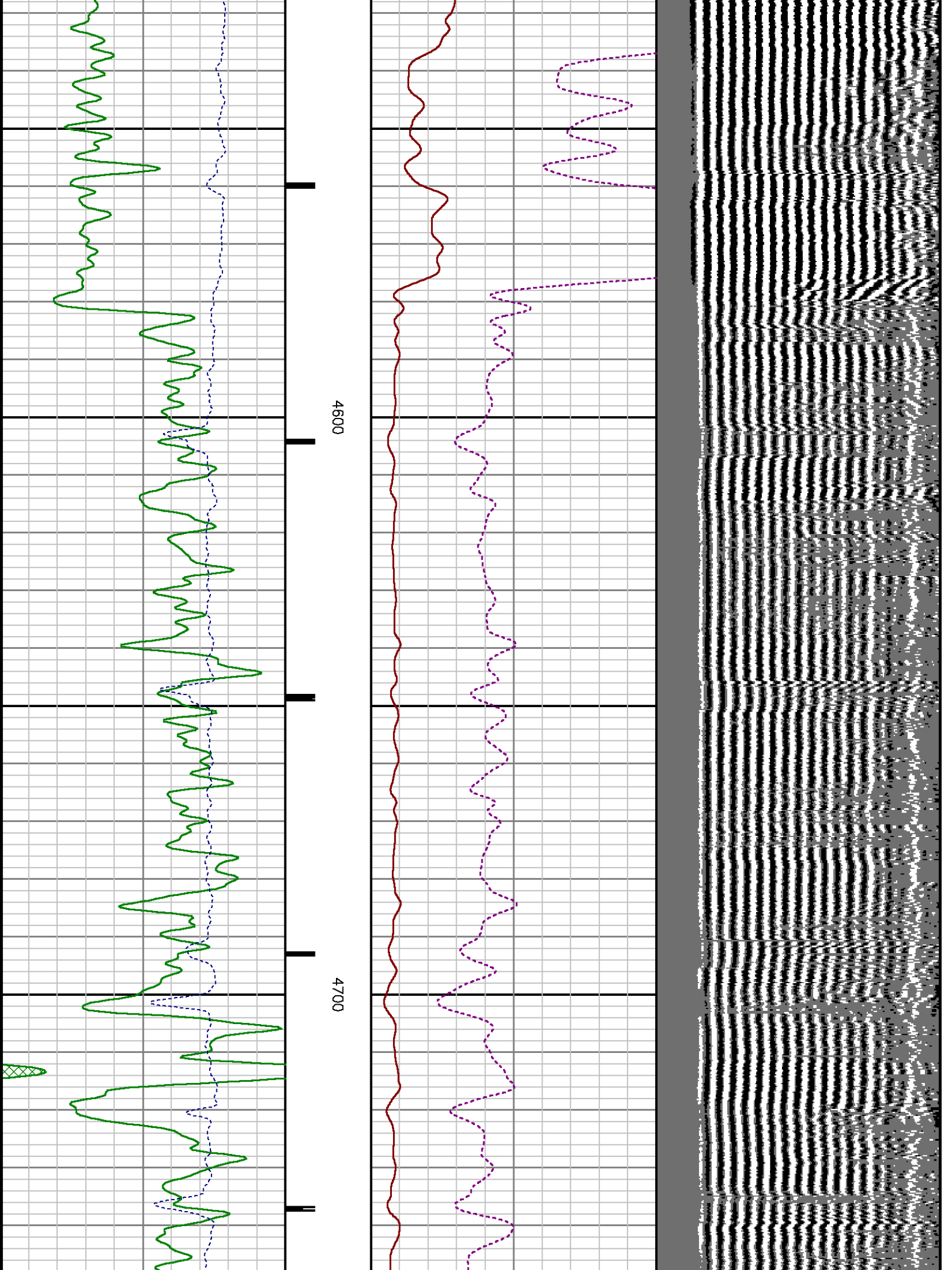




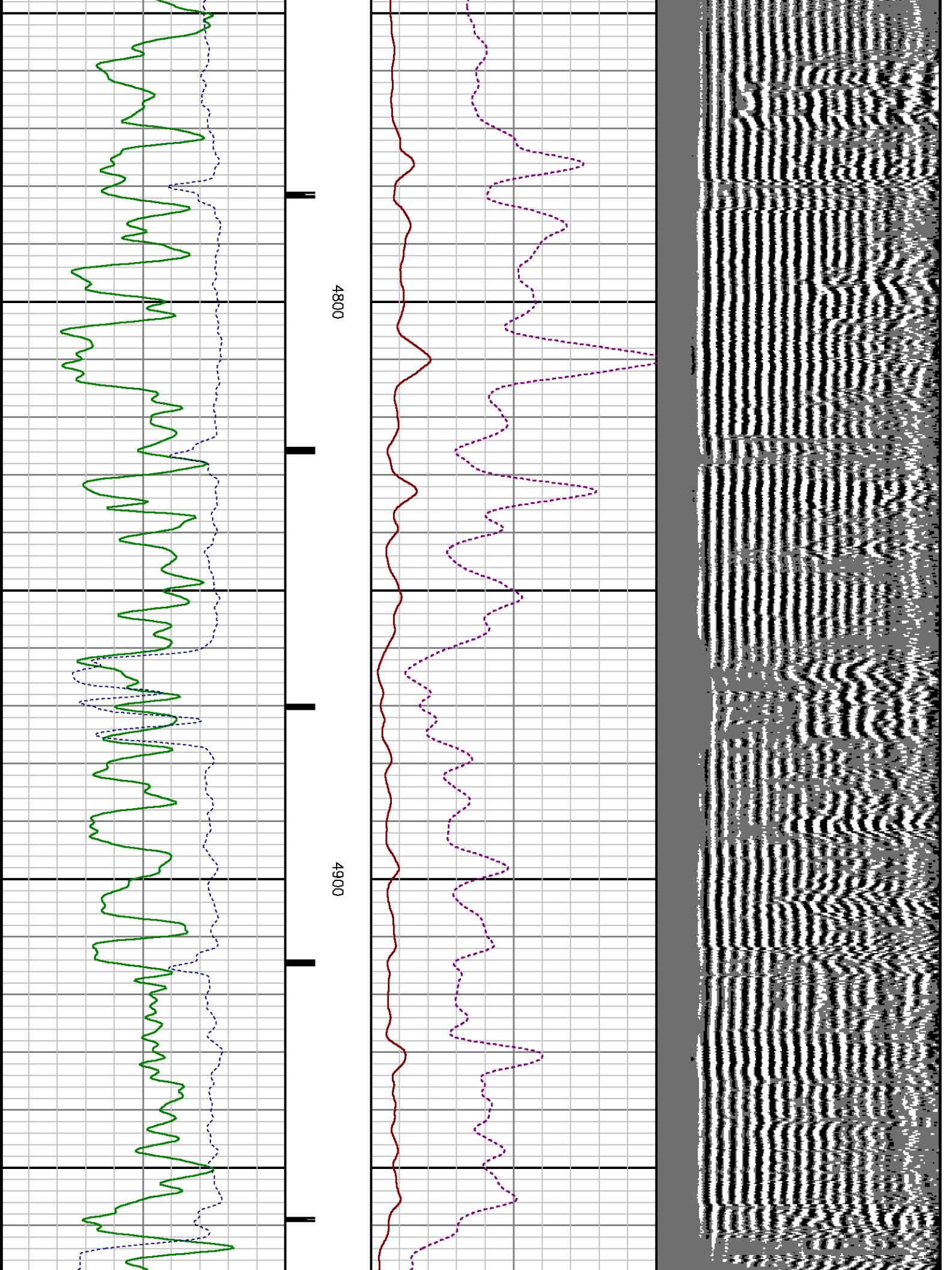


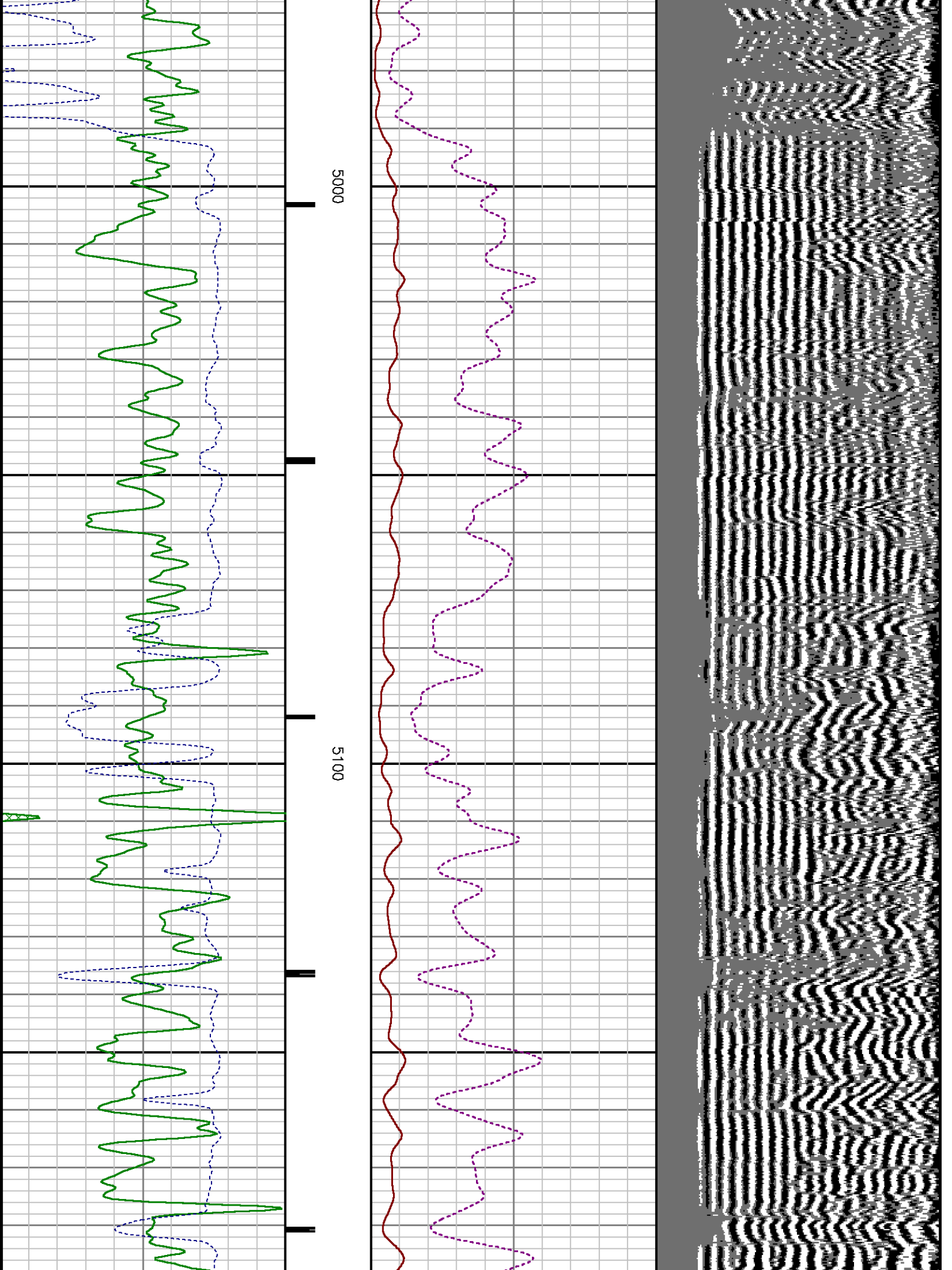


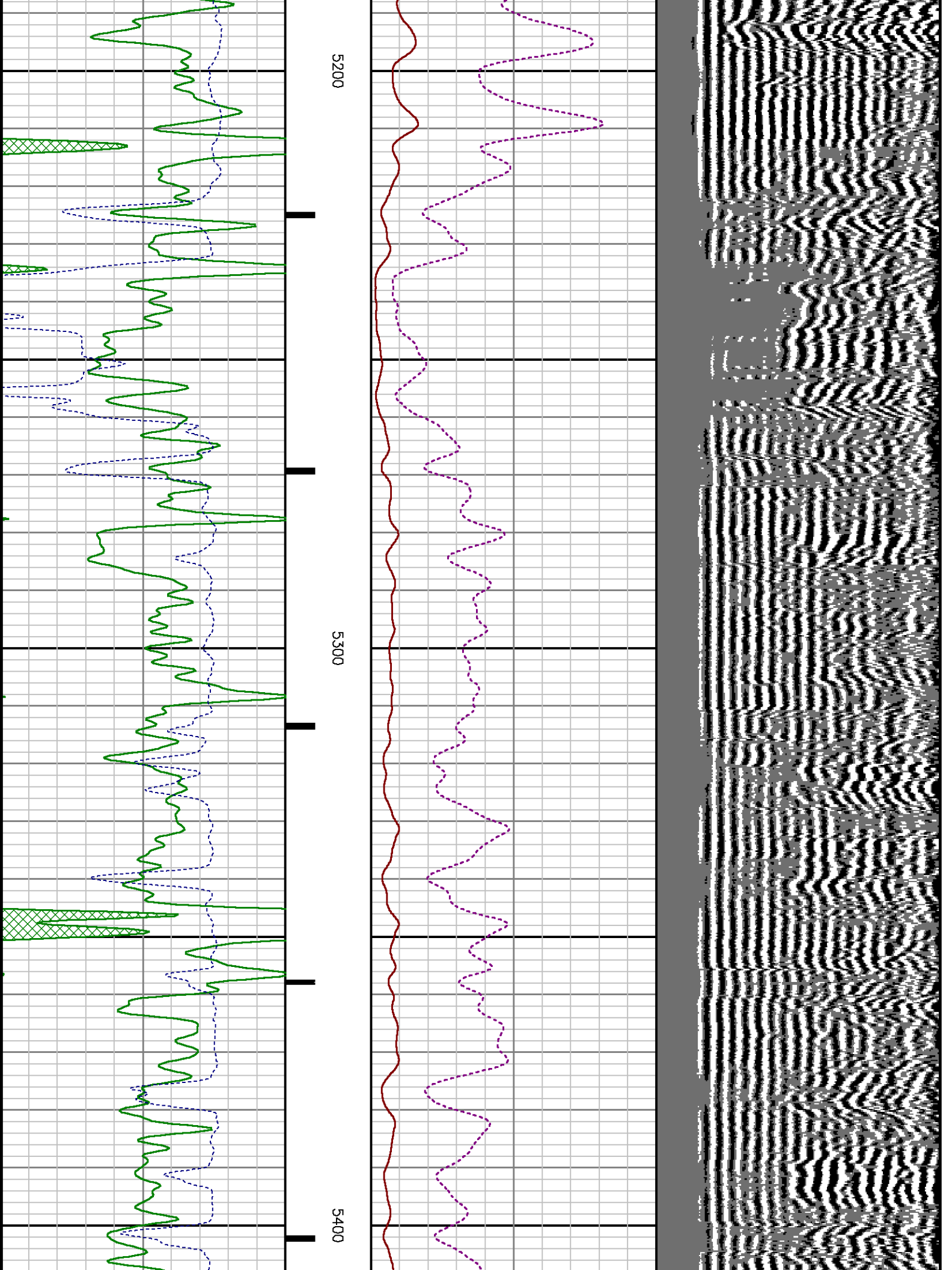


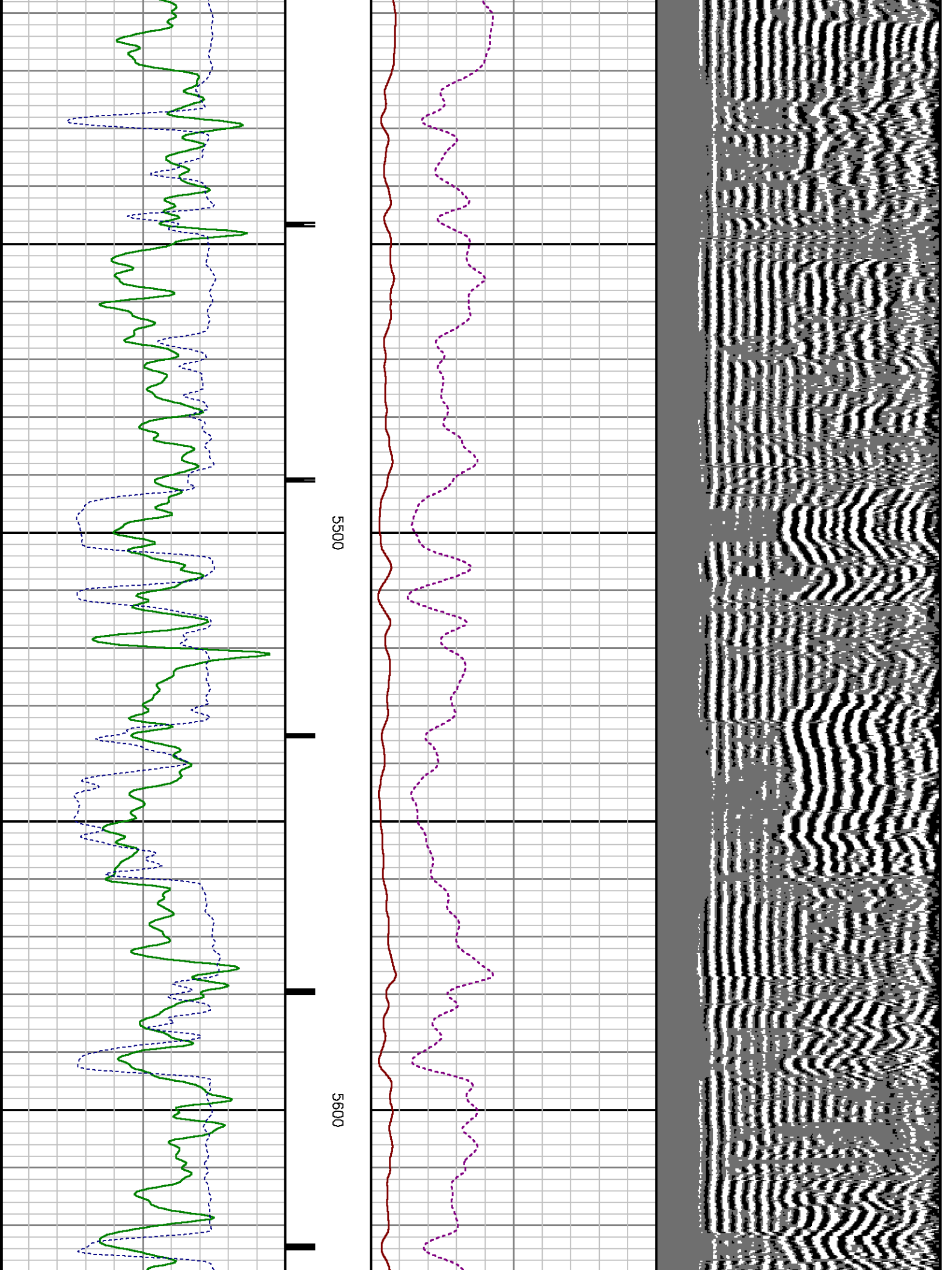




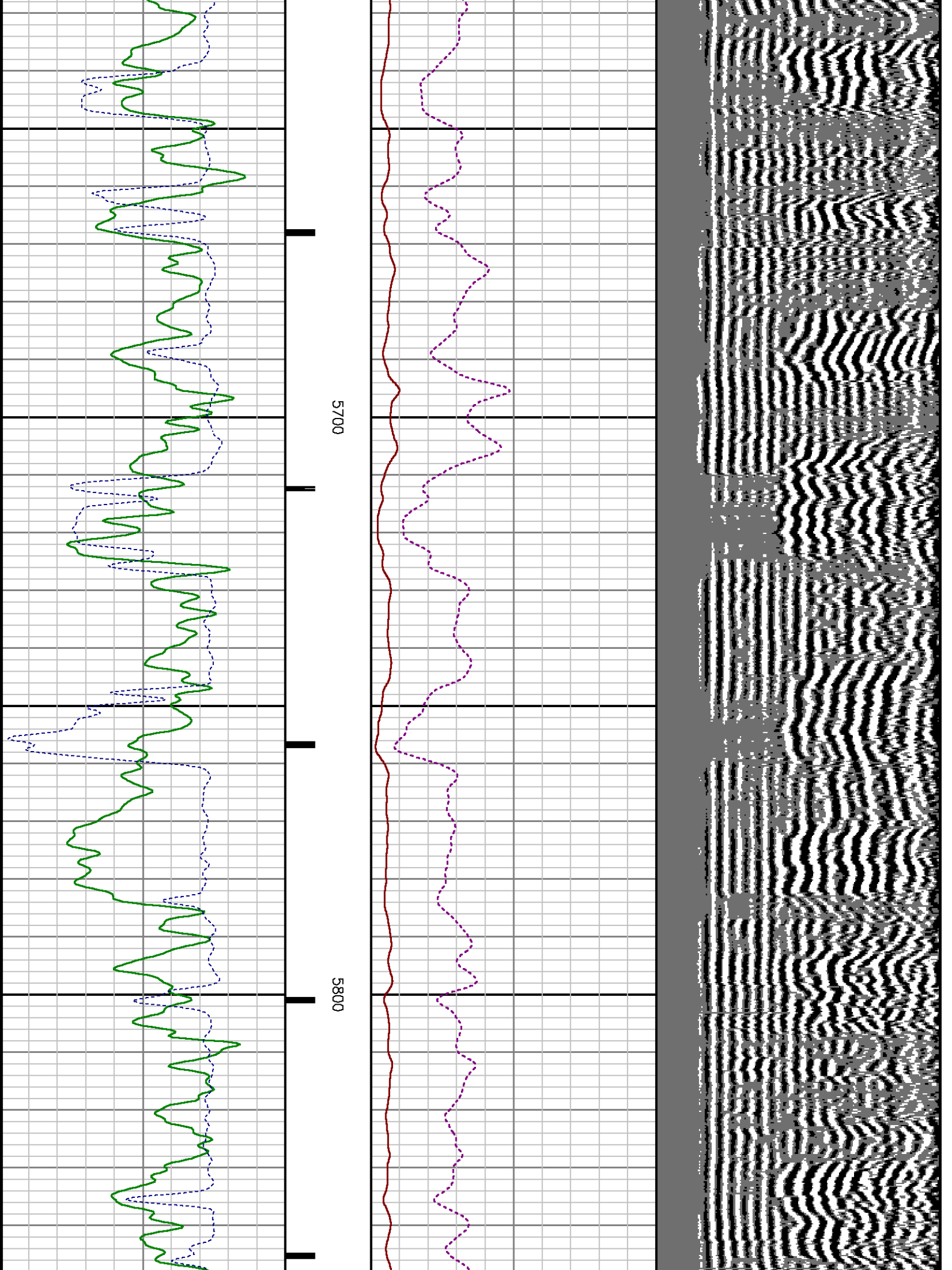


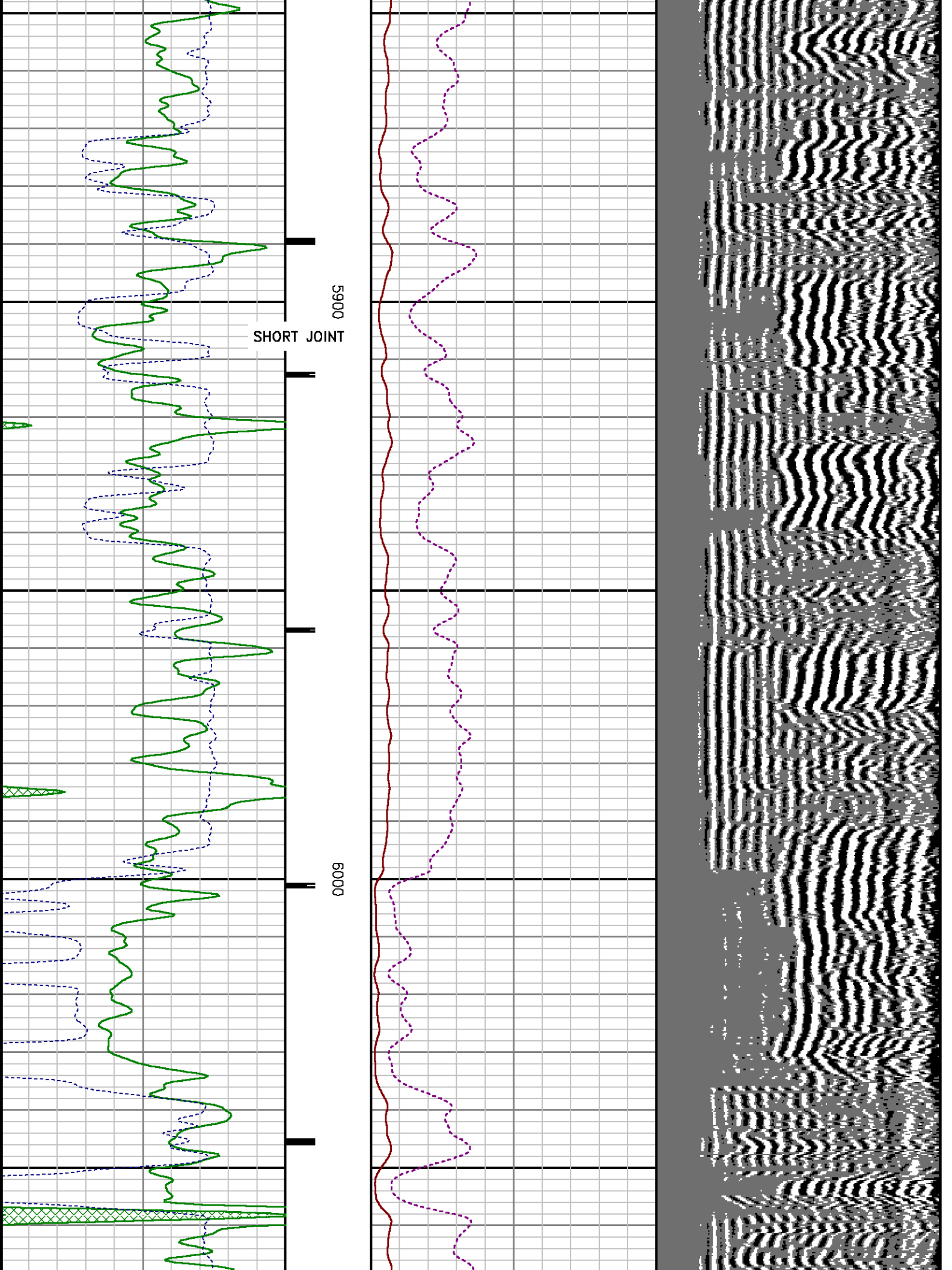


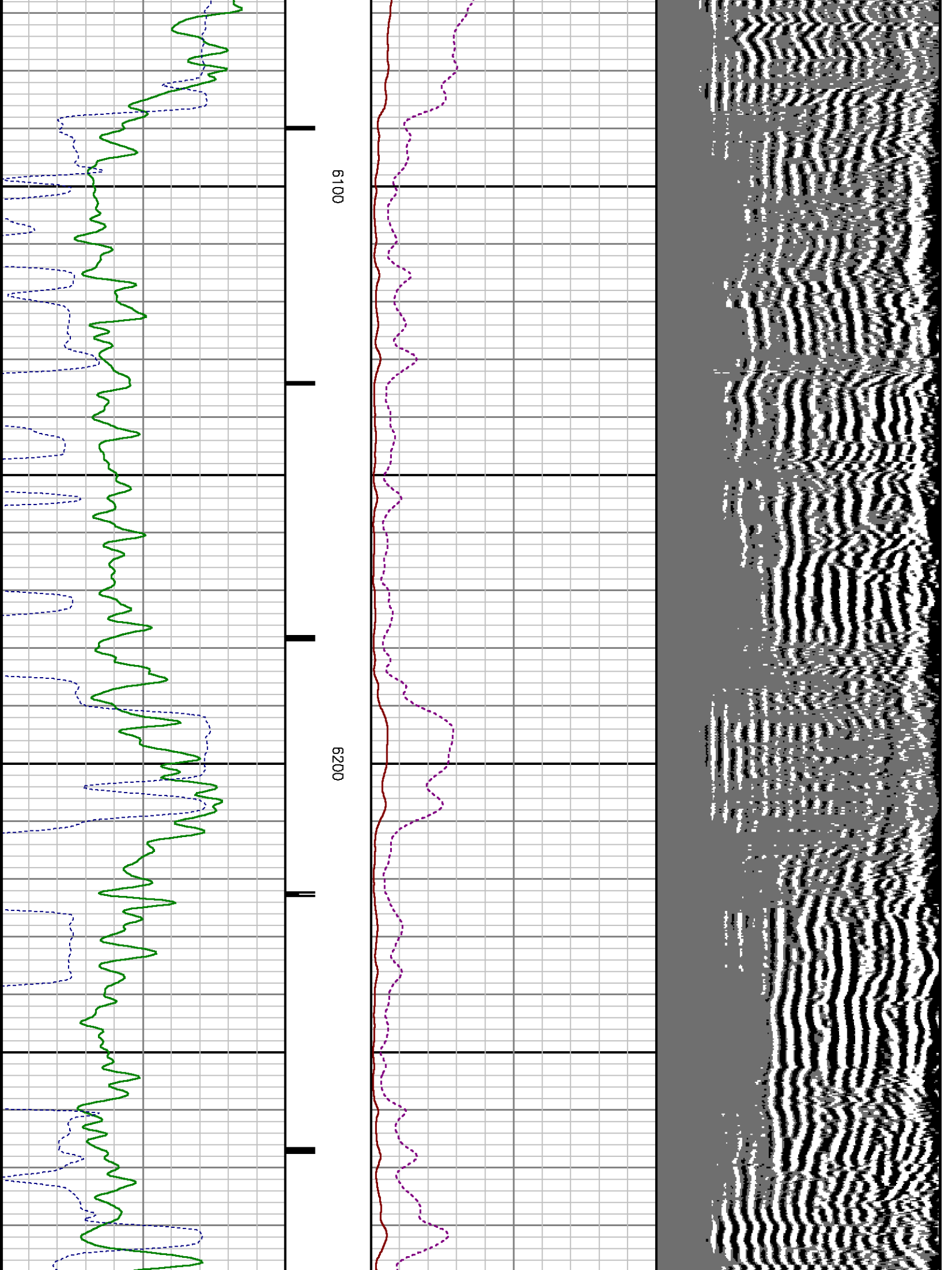


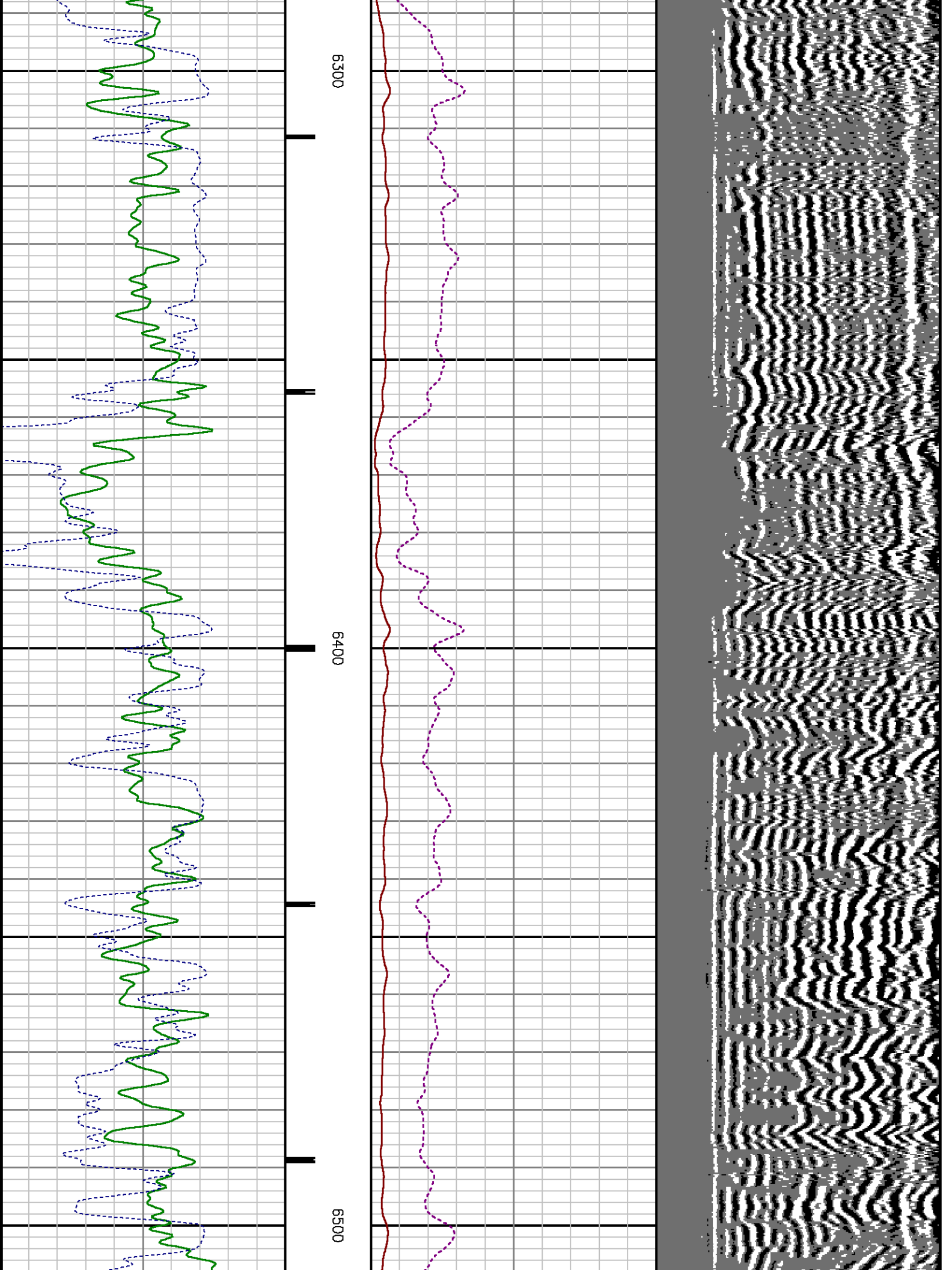


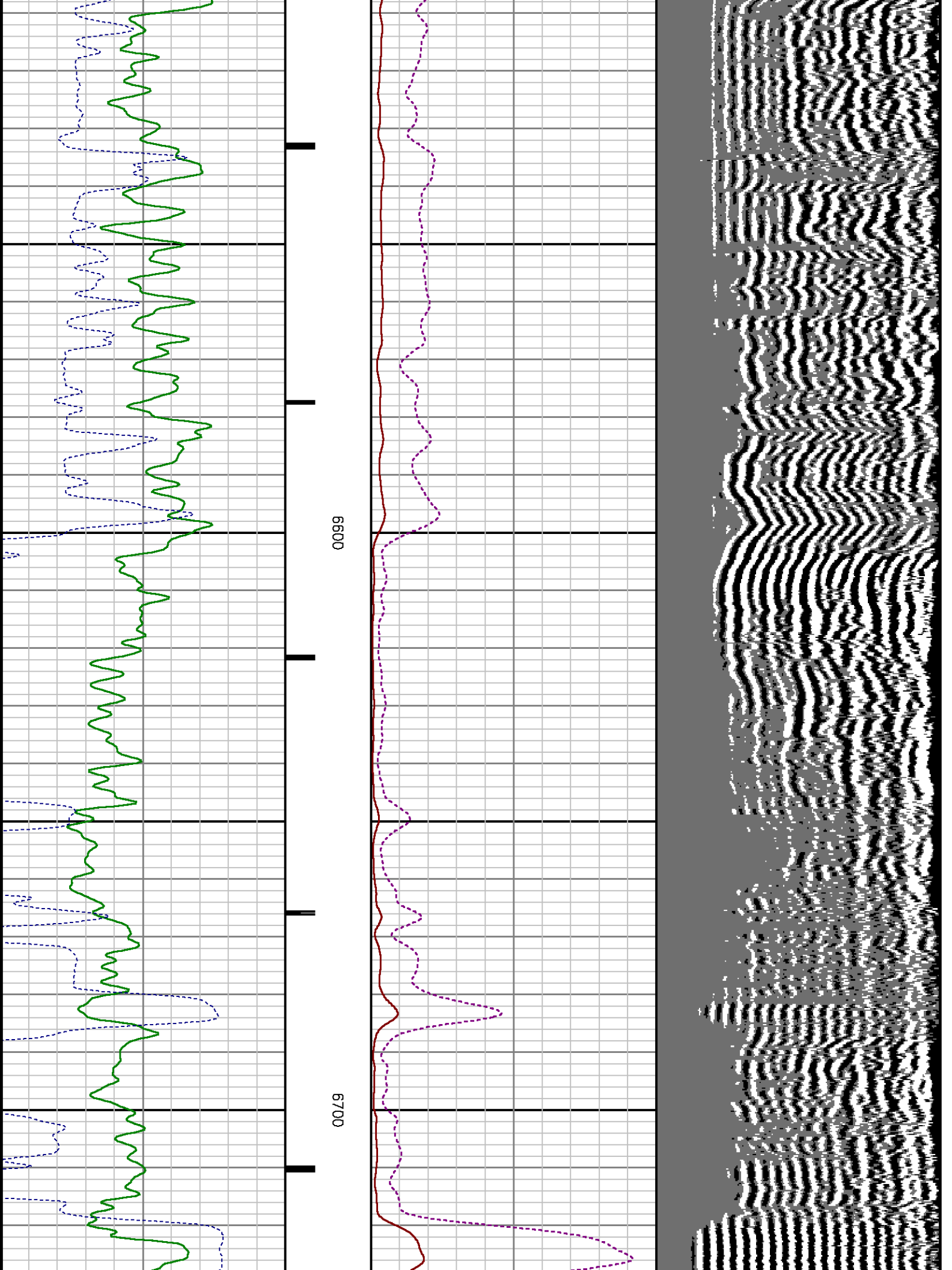




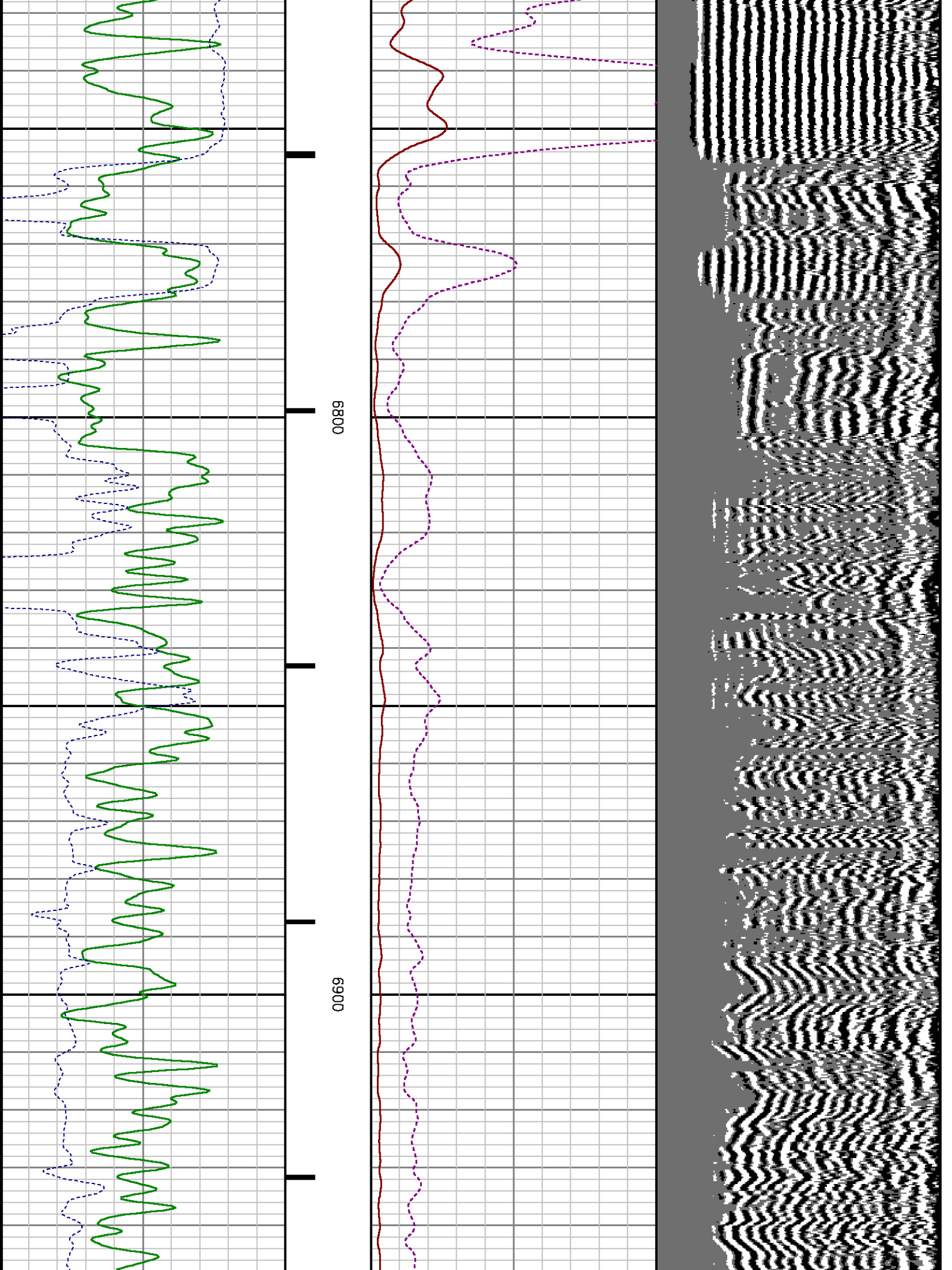


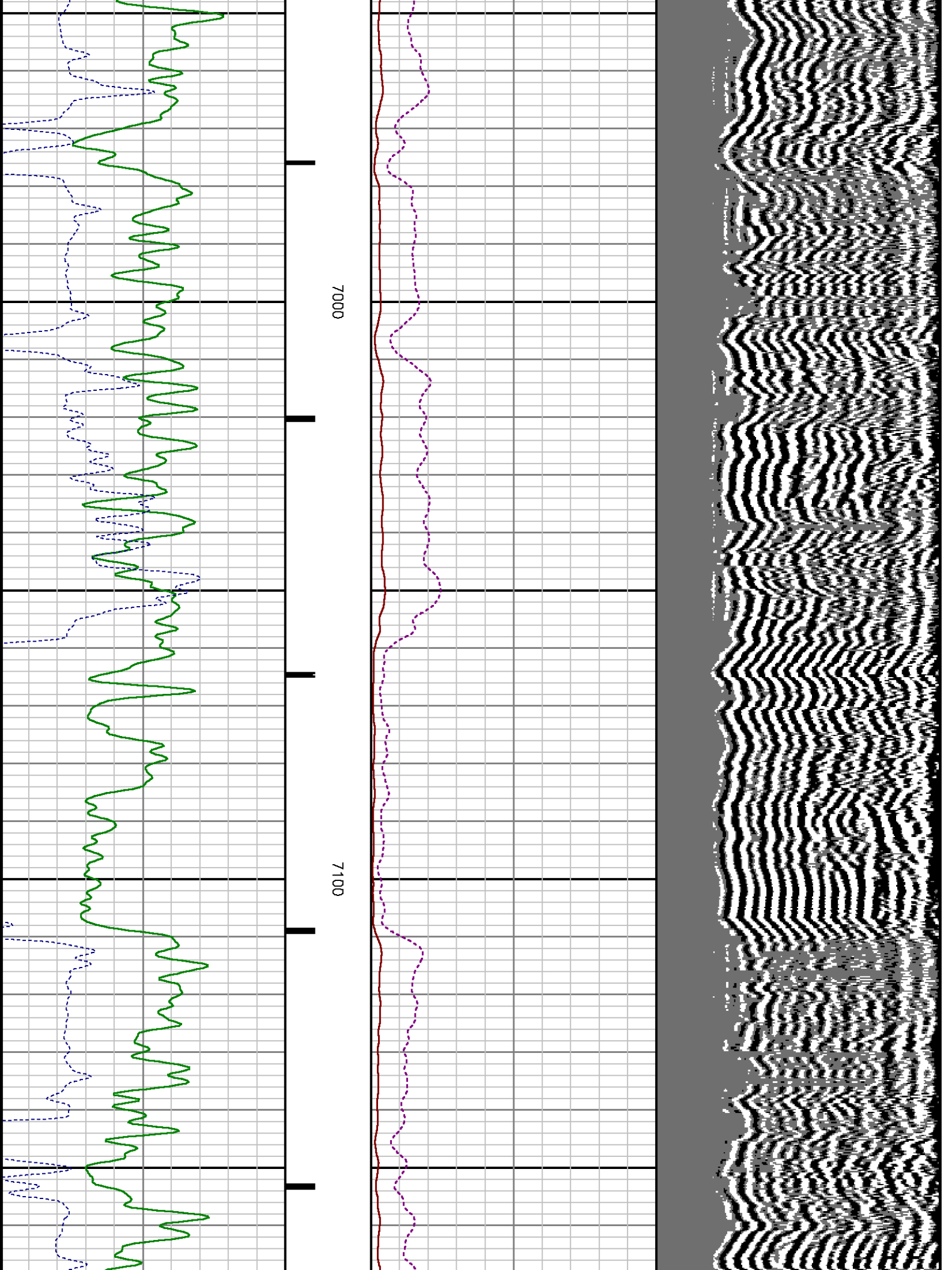


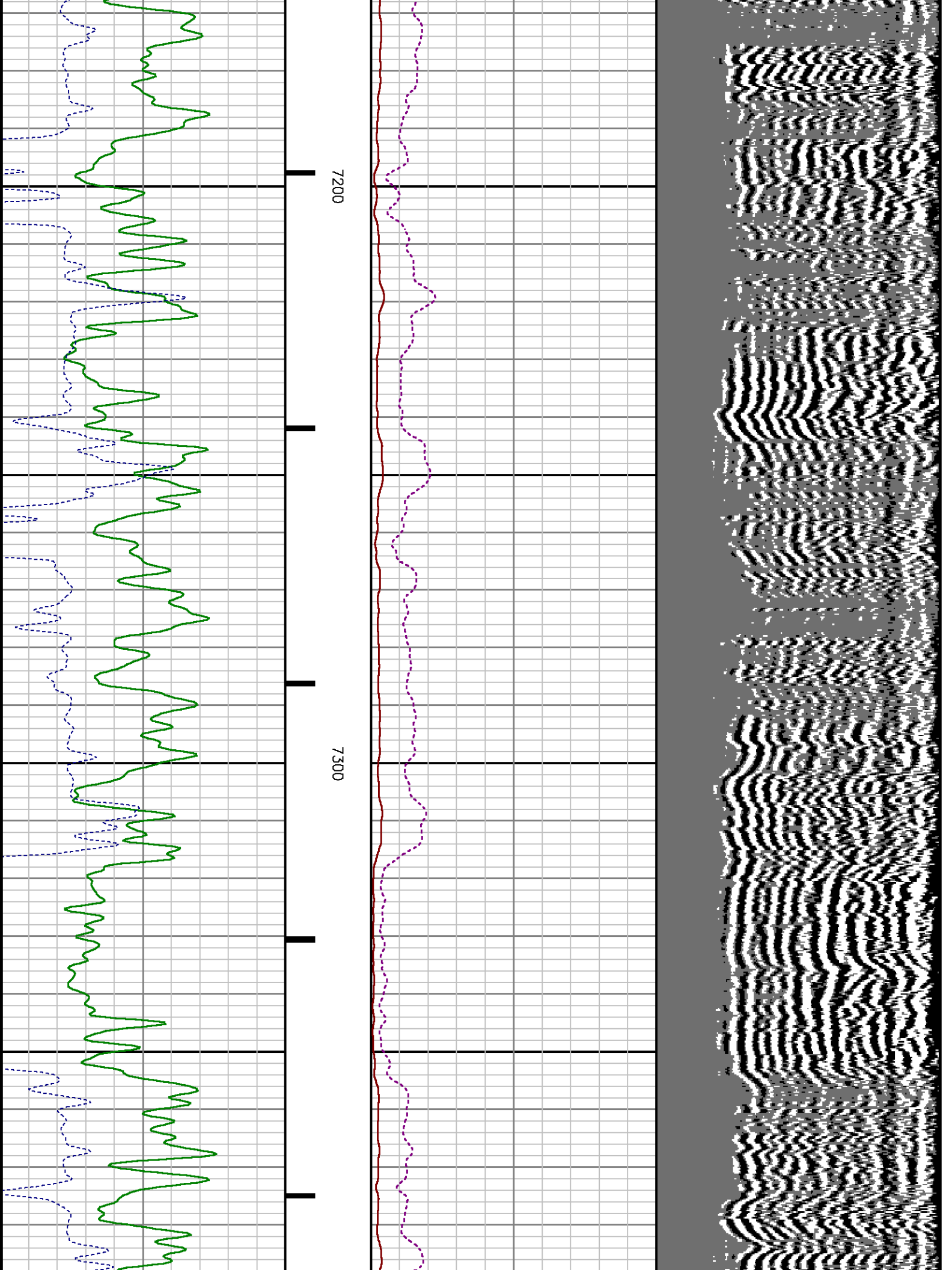




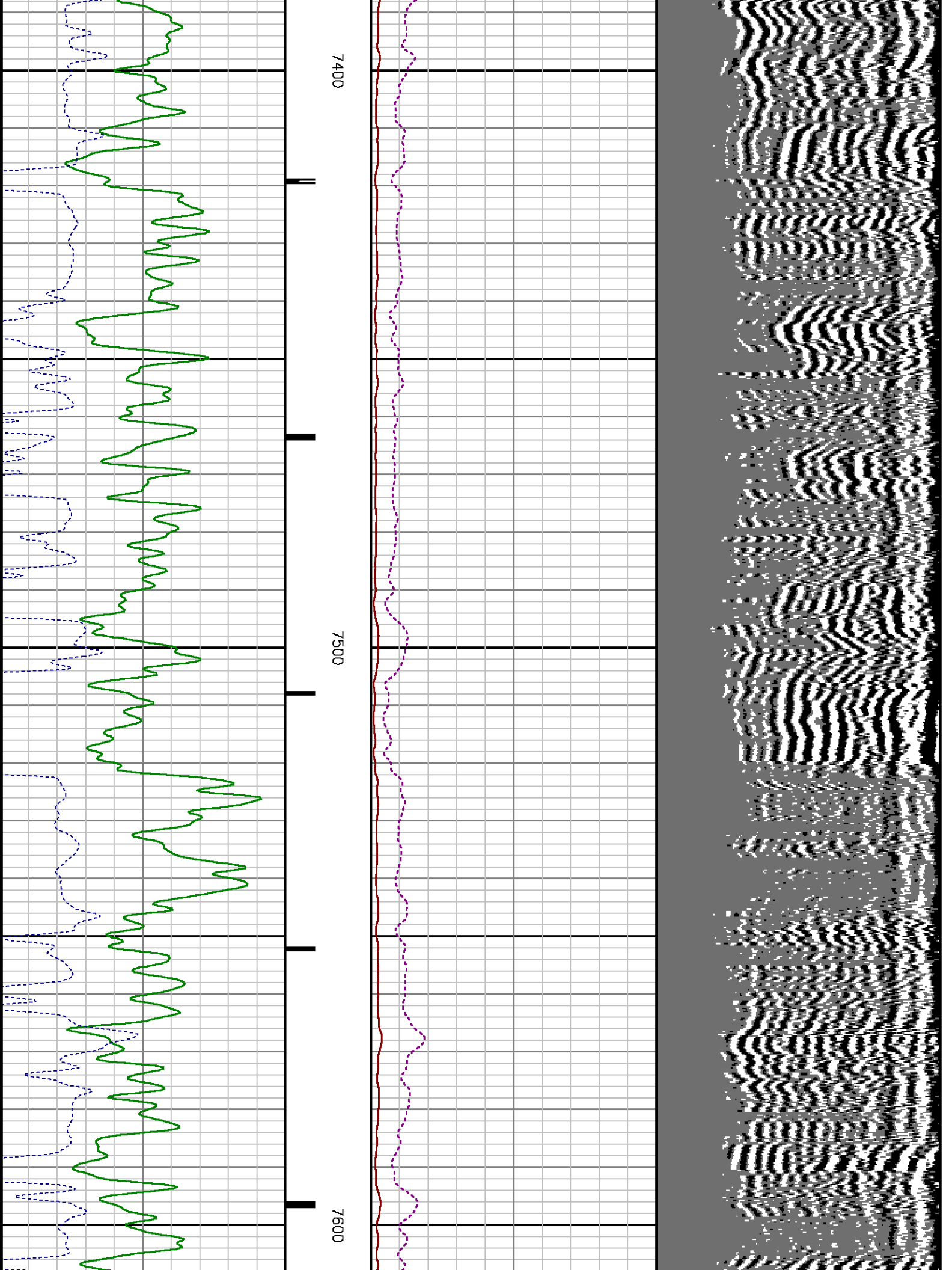


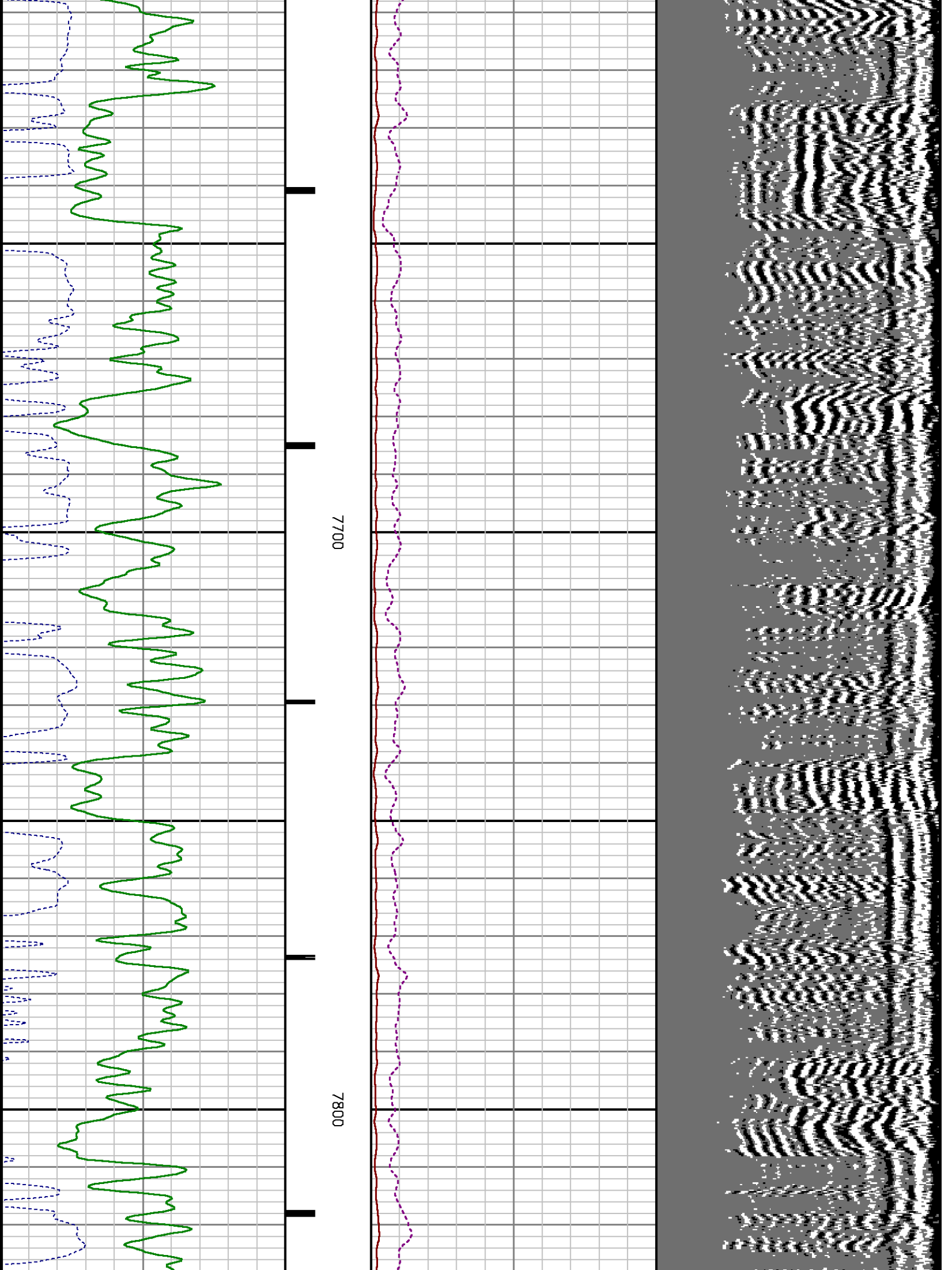


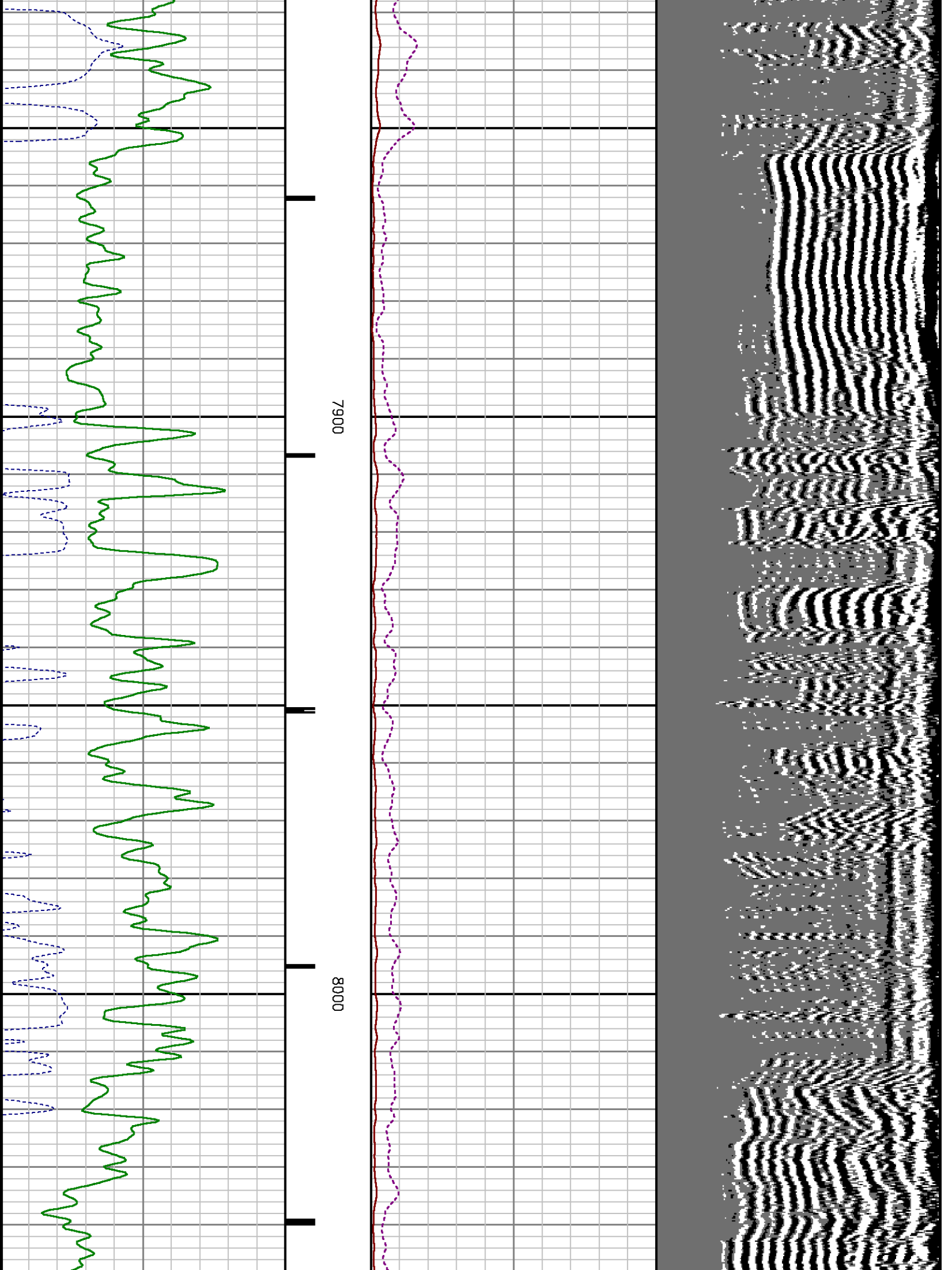


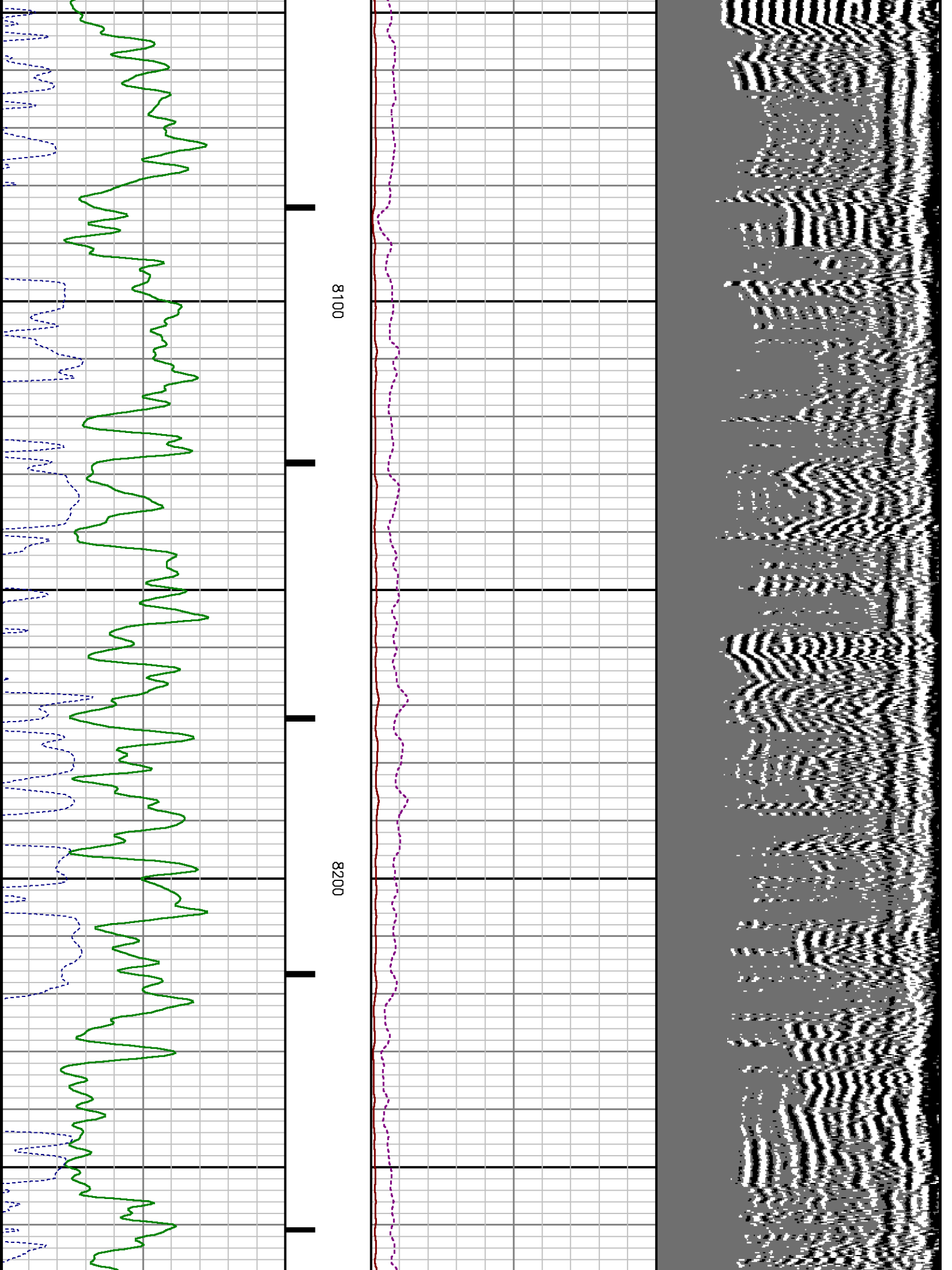


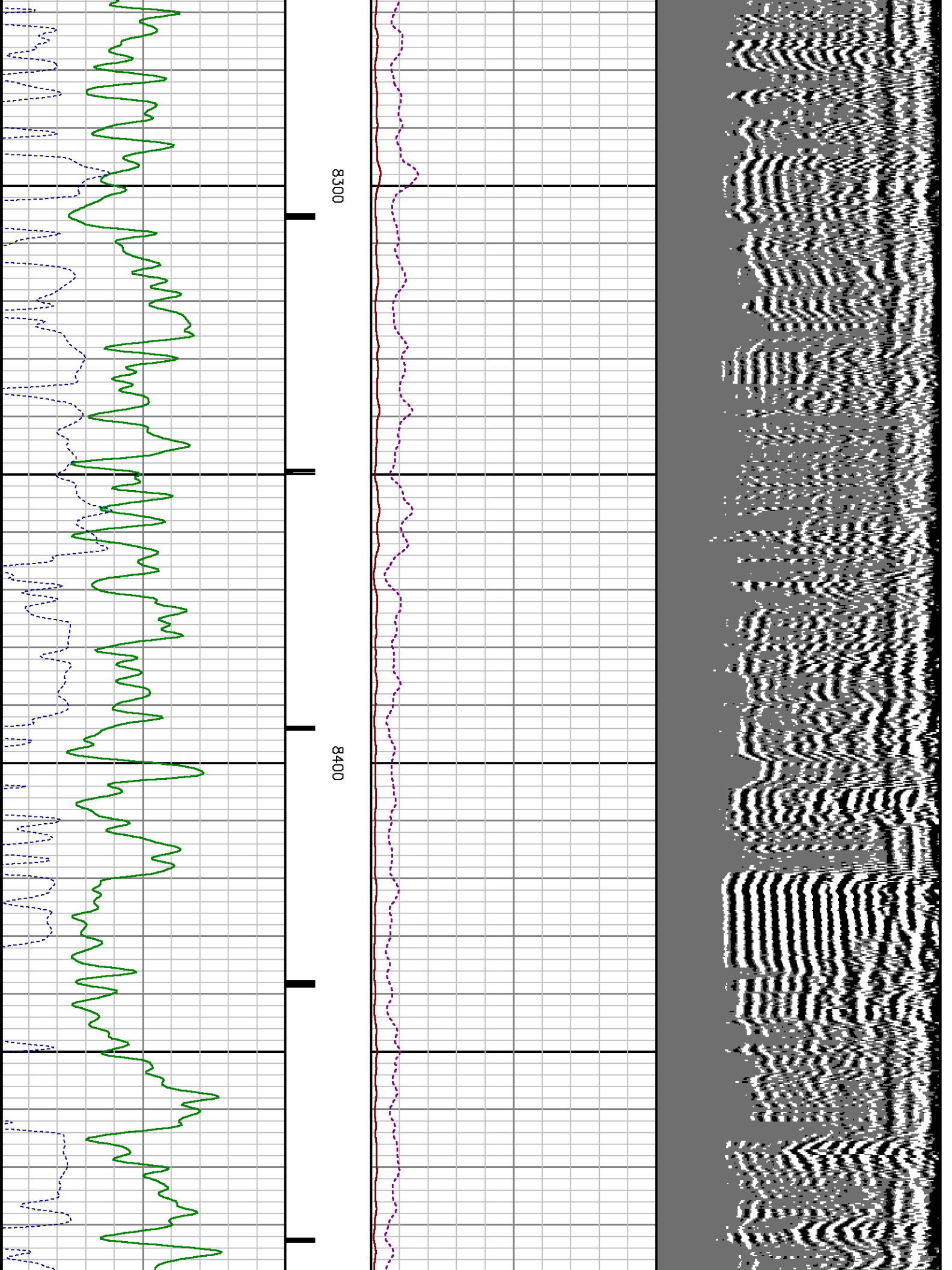




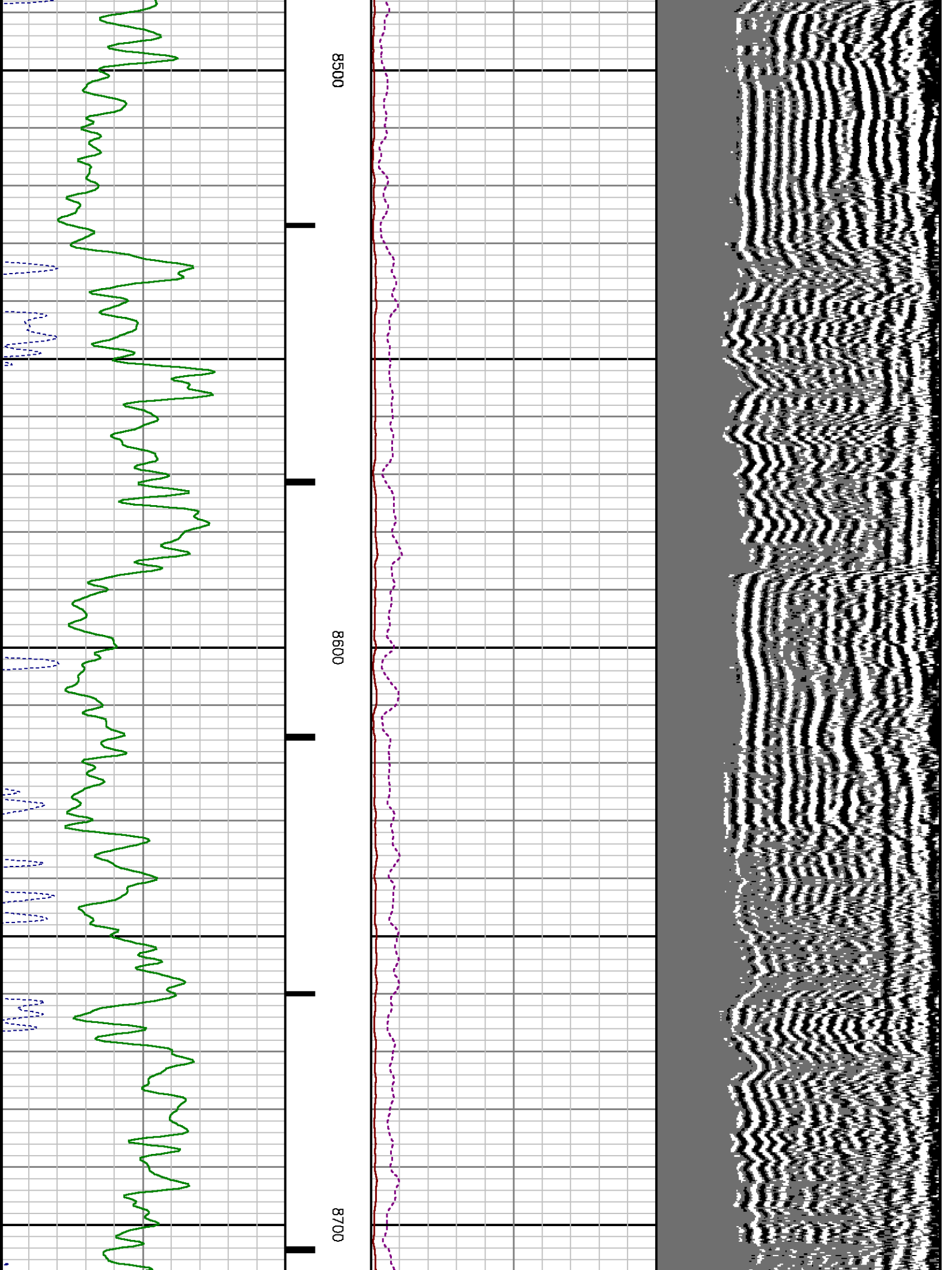




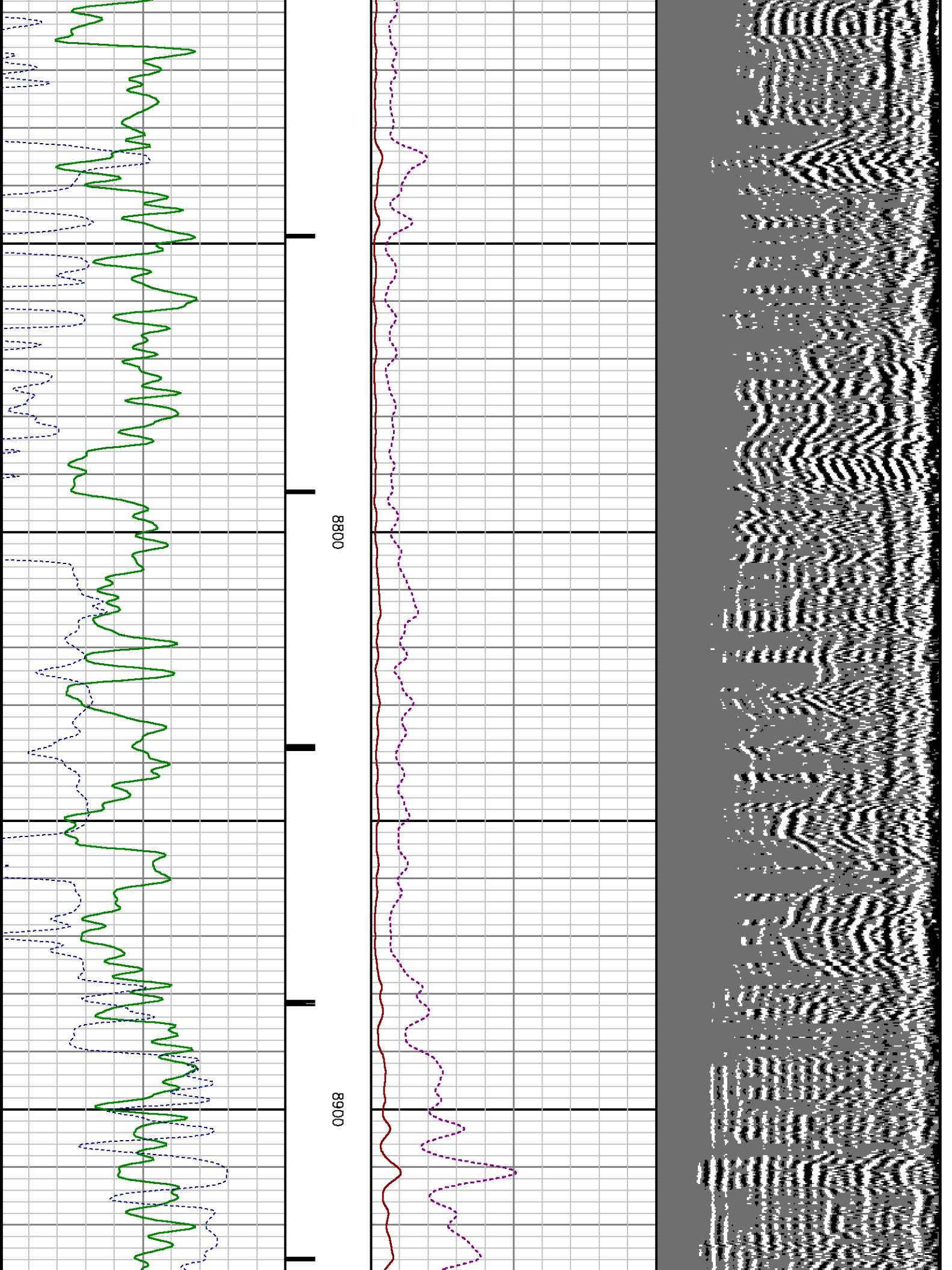


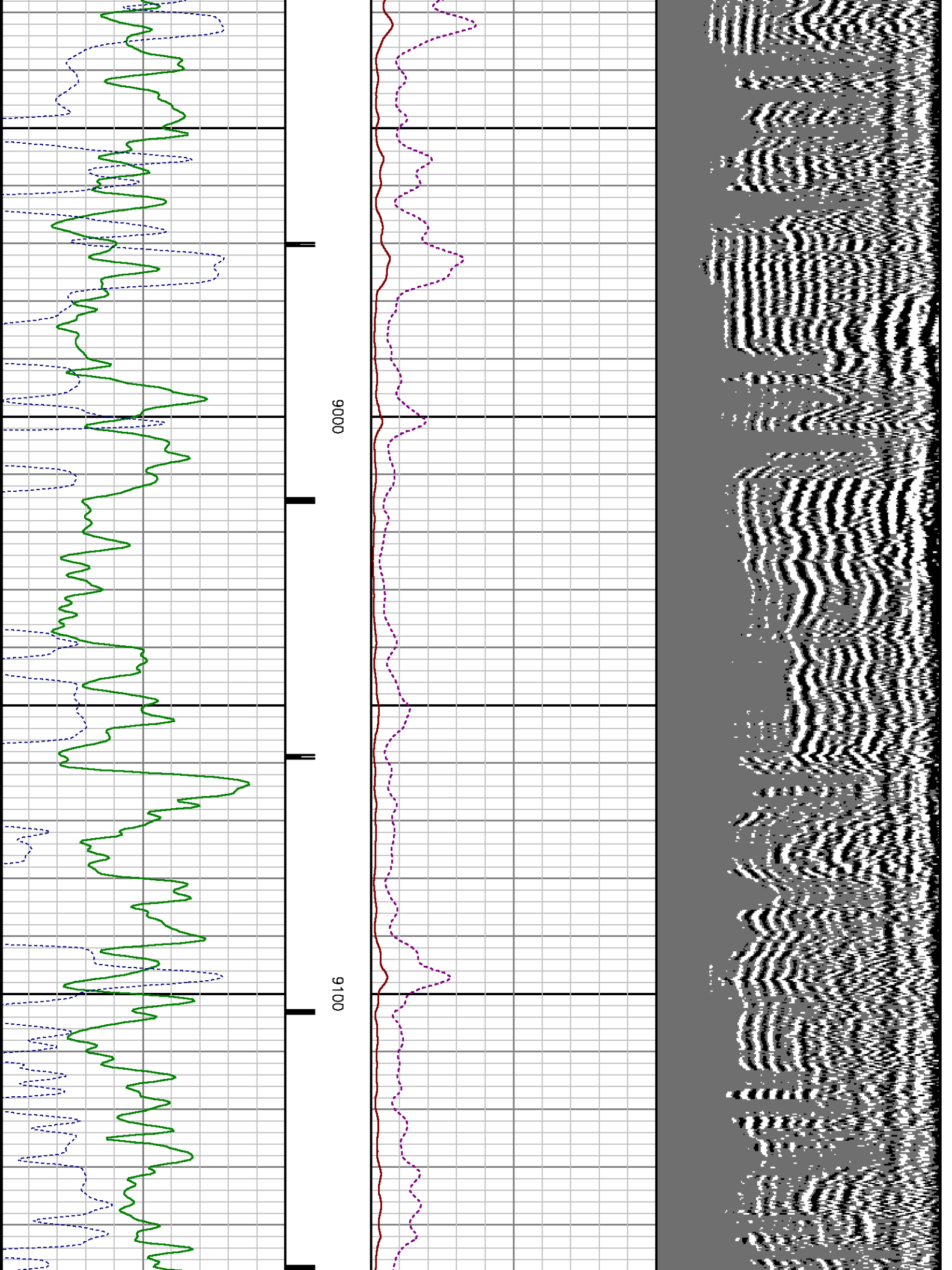


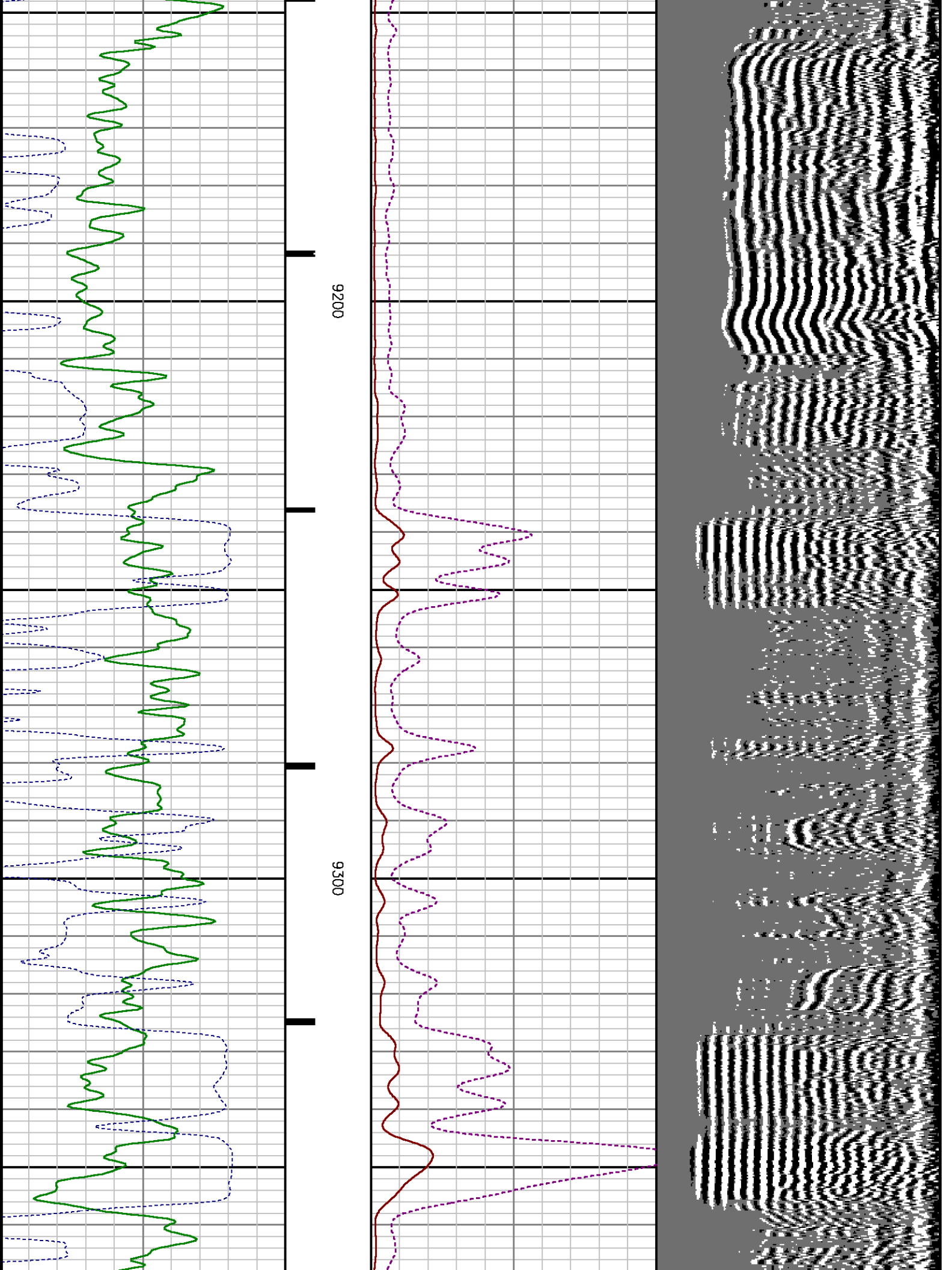


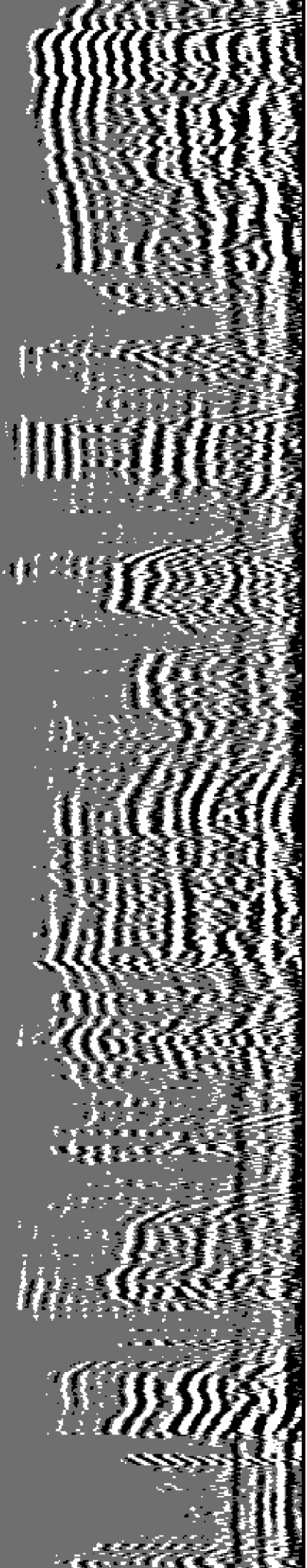






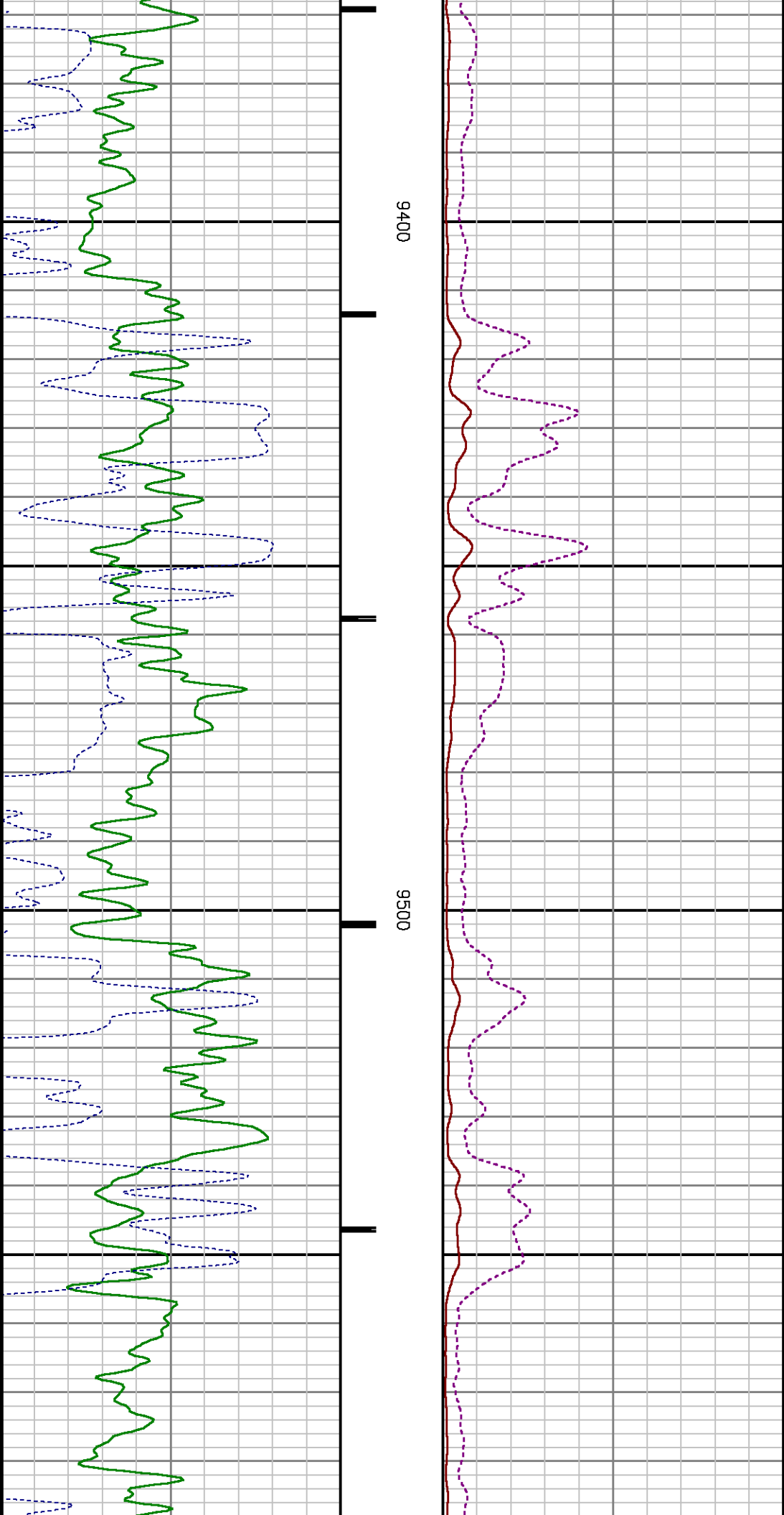


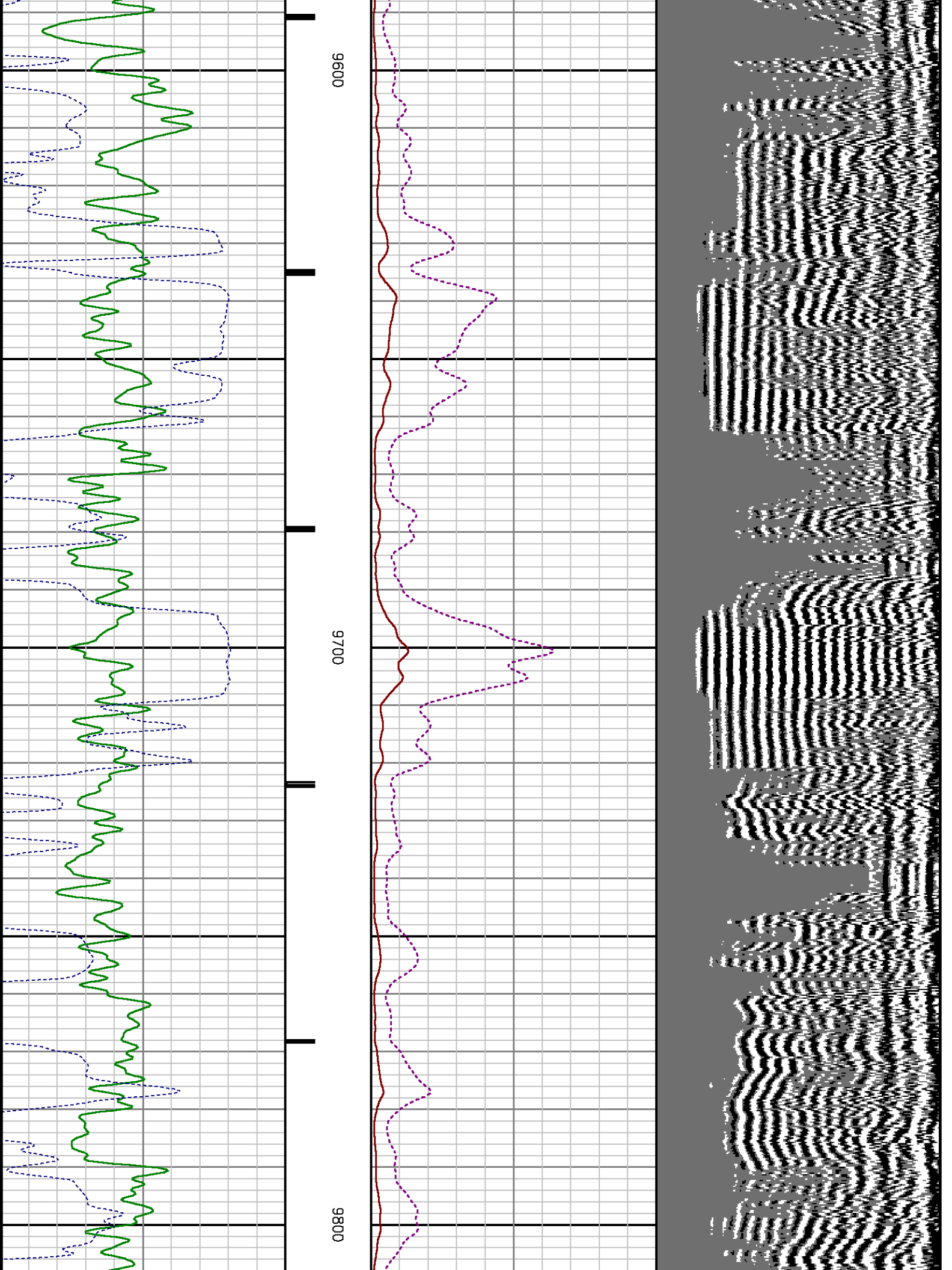




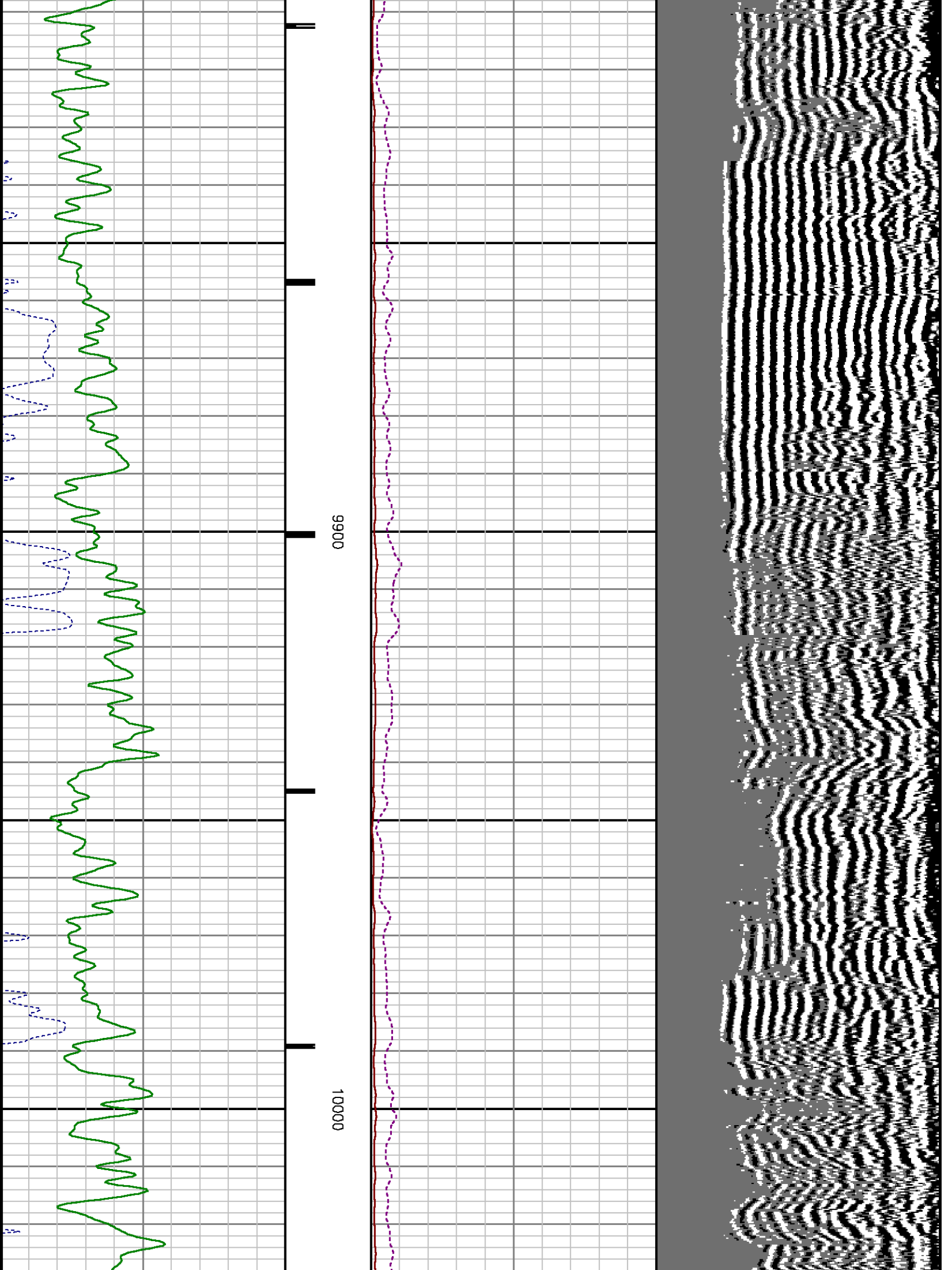
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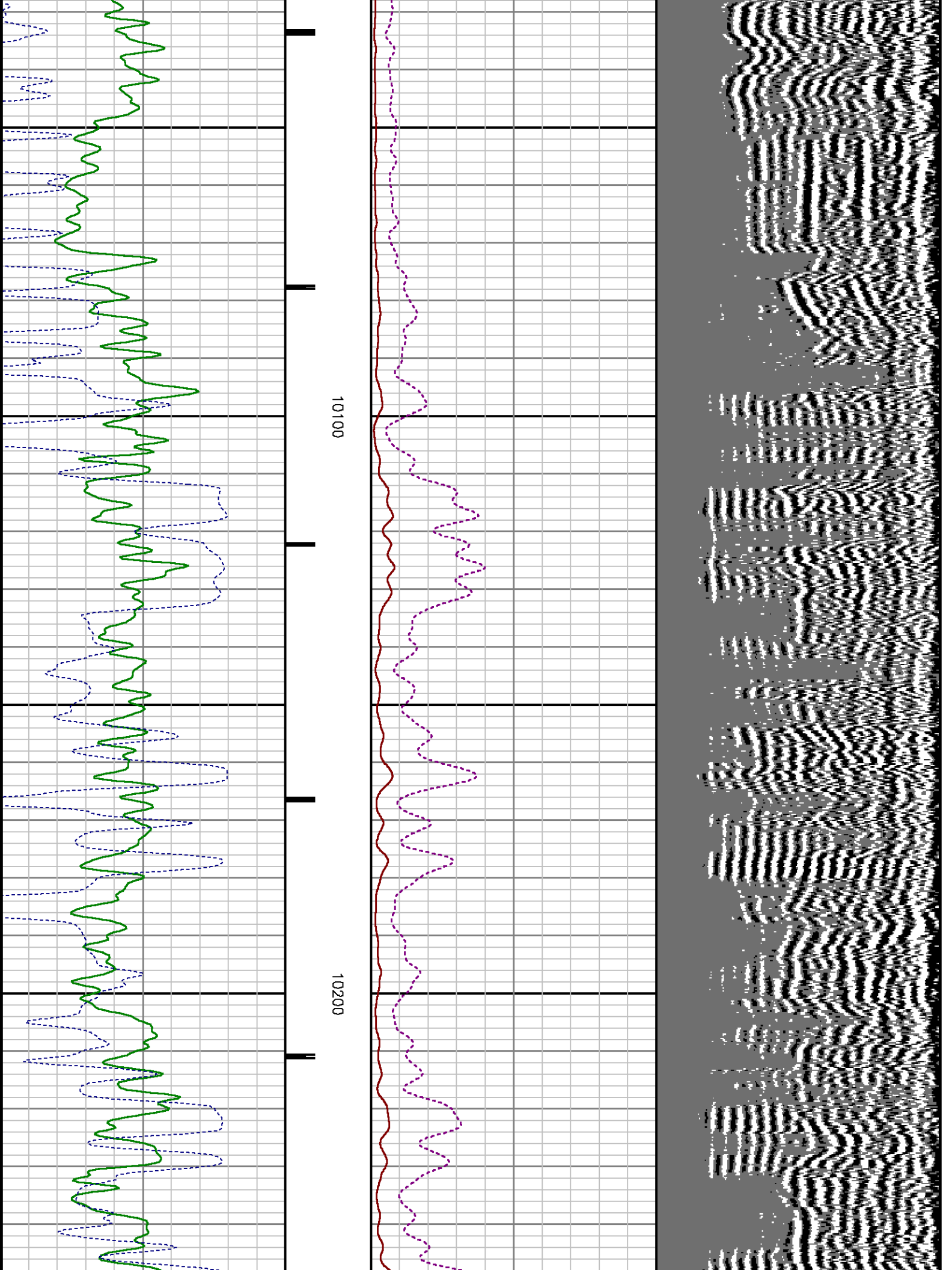


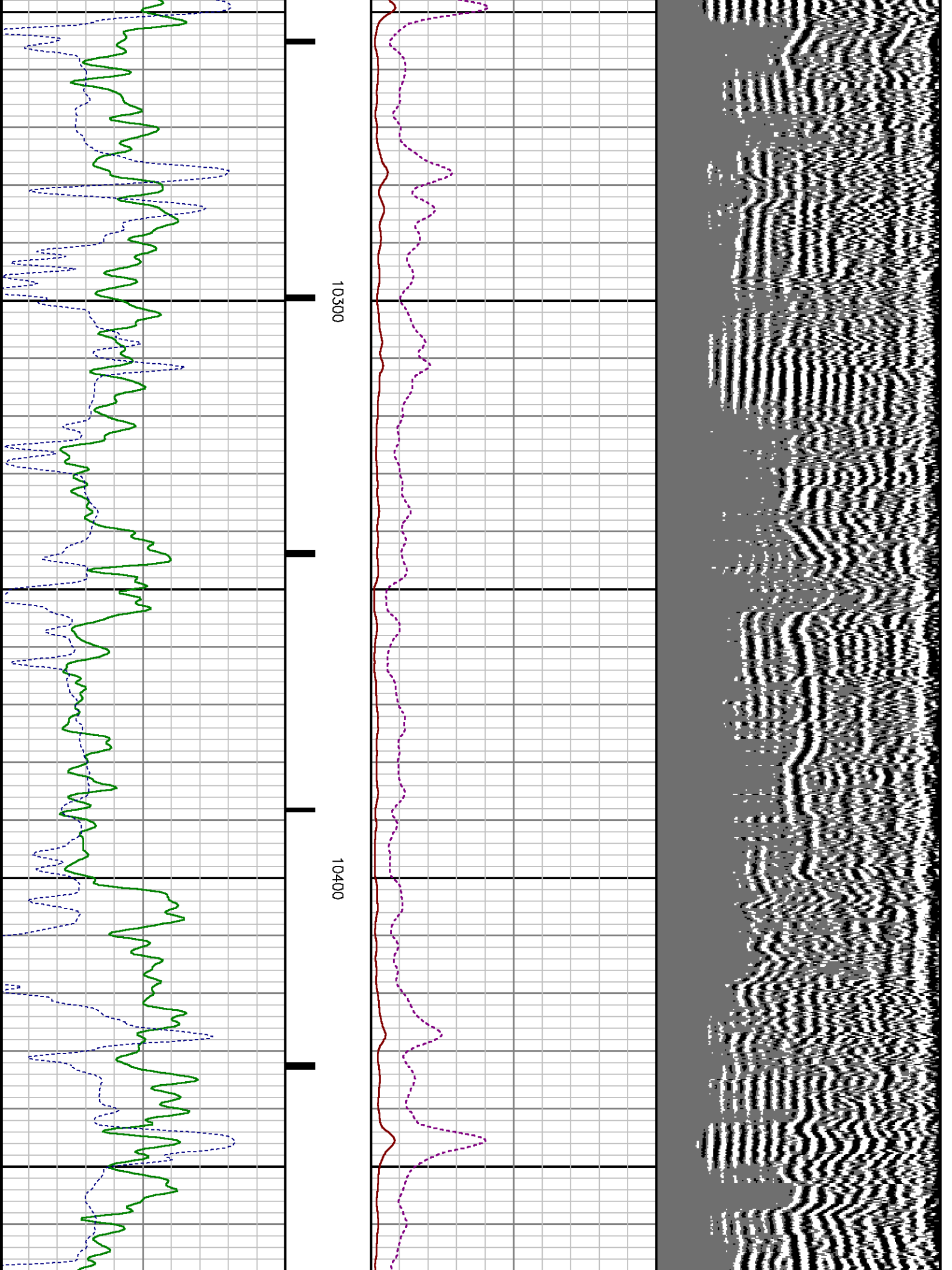


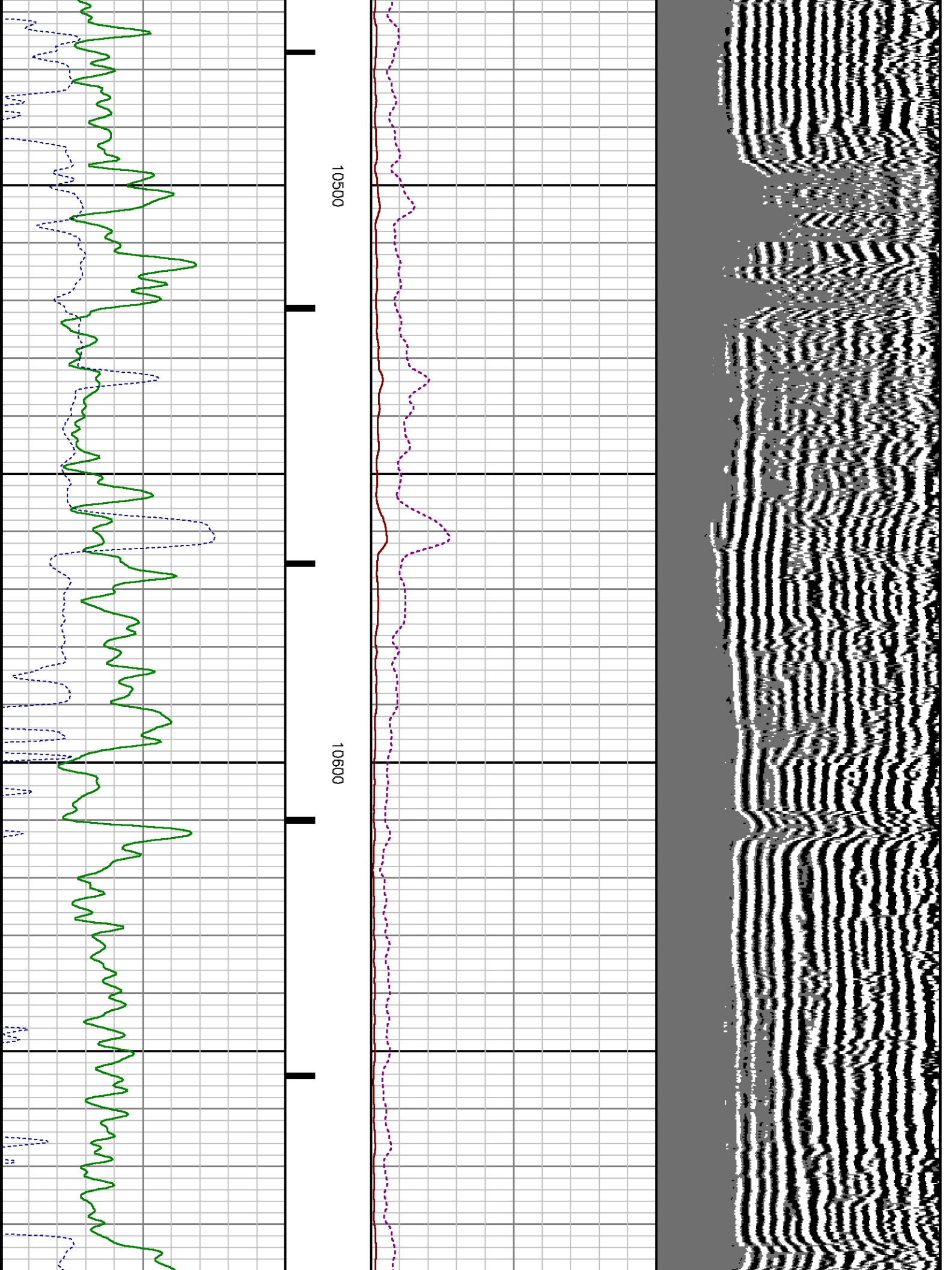


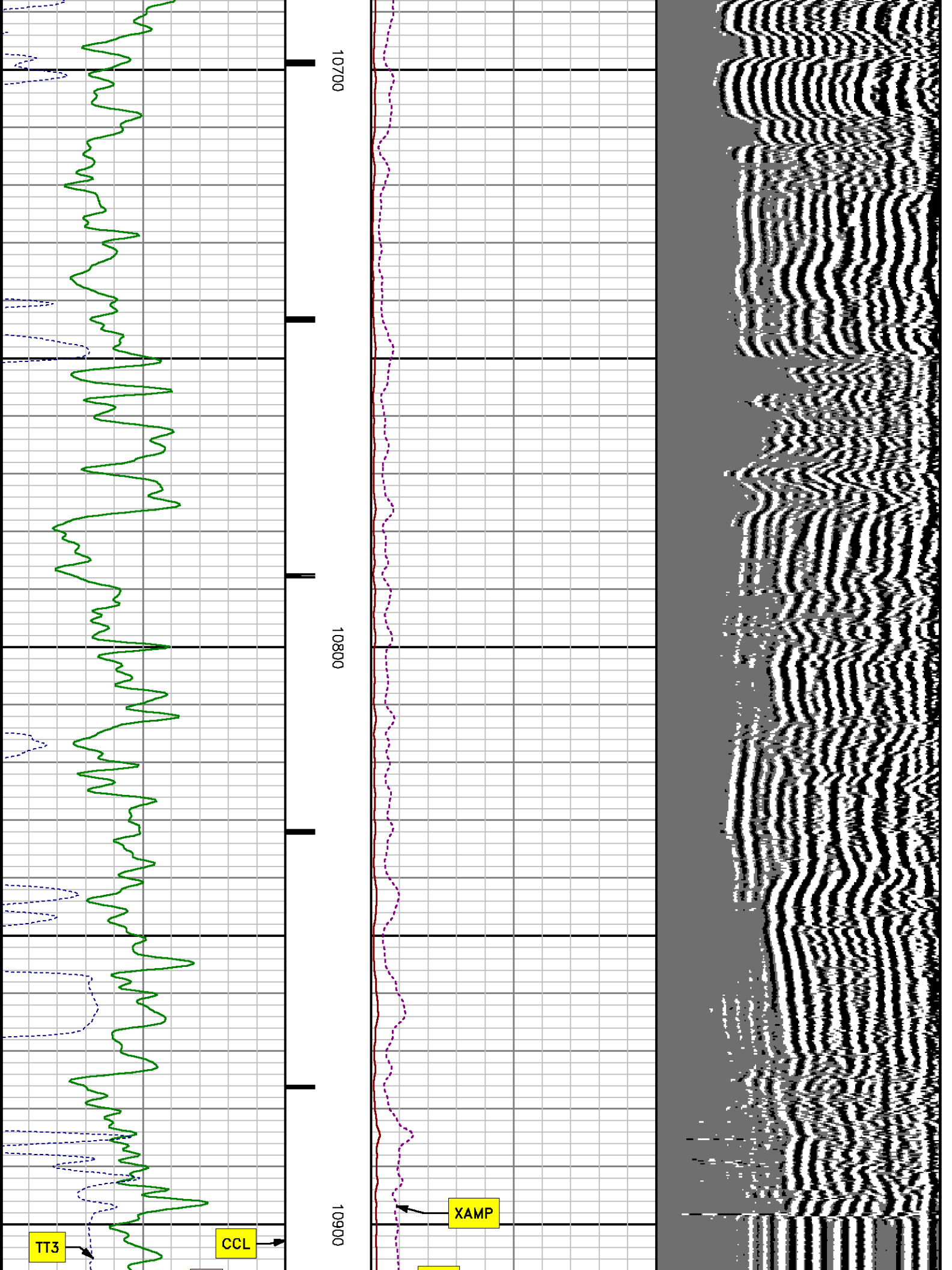


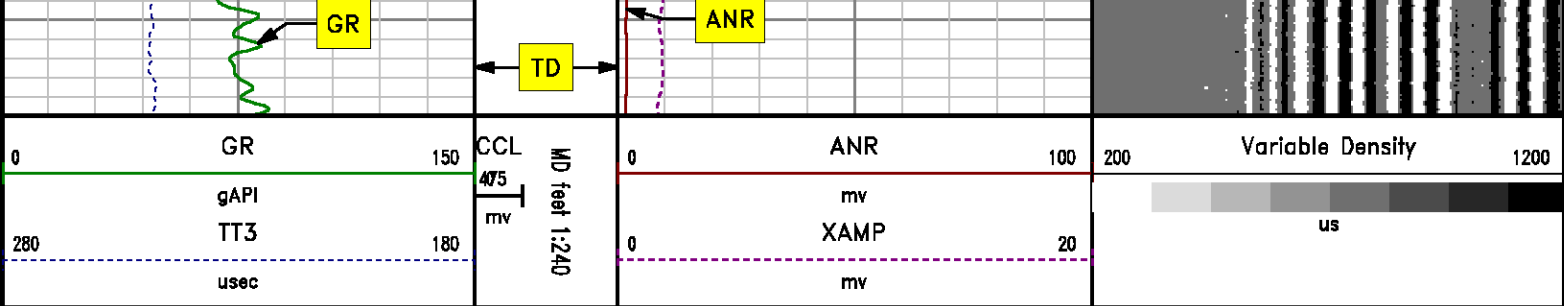












## SECONDARY PRESENTATION

### 0 PSI

| MEASUREMENT TYPE | PARAMETER             | VALUE   | UNITS  | TOP    | BOTTOM    |
|------------------|-----------------------|---------|--------|--------|-----------|
| RAL              | Amp Gate Start Far    | 305.000 | uS     | 22.348 | 10937.500 |
| RAL              | Amp Gate Start Near   | 195.000 | uS     | 22.348 | 10937.500 |
| RAL              | Amp Gate Start Radial | 195.000 | uS     | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Far    | 25.000  | uS     | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Near   | 25.000  | uS     | 22.348 | 10937.500 |
| RAL              | Amp Gate Width Radial | 25.000  | uS     | 22.348 | 10937.500 |
| RAL              | casing od             | 4.500   | inches | 22.348 | 10937.500 |
| RAL              | casing wt             | 11.600  | lbm/ft | 22.348 | 10937.500 |
| RAL              | FB Start Far          | 291.900 | uS     | 22.348 | 10937.500 |
| RAL              | FB Start Near         | 175.391 | uS     | 22.348 | 10937.500 |
| RAL              | FB Start Radial       | 175.391 | uS     | 22.348 | 10937.500 |
| RAL              | FB Thresh Far         | 10.000  | mv     | 22.348 | 10937.500 |
| RAL              | FB Thresh Near        | 4.000   | mv     | 22.348 | 10937.500 |
| RAL              | FB Thresh Radial      | 4.000   | mv     | 22.348 | 10937.500 |
| RAL              | Fluid Travel Time     | 200.000 | uS/ft  | 22.348 | 10938.316 |

## DEPTH OFFSETS

(for Acquired Curves)

| SERIES | DEPTH OFFSET | ACQUIRED CURVES |      |     |      |      |      |
|--------|--------------|-----------------|------|-----|------|------|------|
| 1426XA | -16.750      | ACAL            | ANR  | AR1 | AR2  | AR3  | AR4  |
|        |              | AR5             | AR6  | AR7 | AR8  | CHV  | FPR2 |
|        |              | FPR3            | FPR5 | TT3 | TTR1 | TTR2 | TTR3 |

|        |         |      |      |      |      |      |      |
|--------|---------|------|------|------|------|------|------|
| 1426XA | -15.750 | TTR4 | TTR5 | TTR6 | TTR7 | TTR8 | XAMP |
| 2459XA | -11.340 | AFAR | SIG  | TT5  |      |      |      |
| 2459XA | -9.490  | CCL  |      |      |      |      |      |
| 2459XA | -4.090  | GR   |      |      |      |      |      |
|        |         | NEU  |      |      |      |      |      |

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

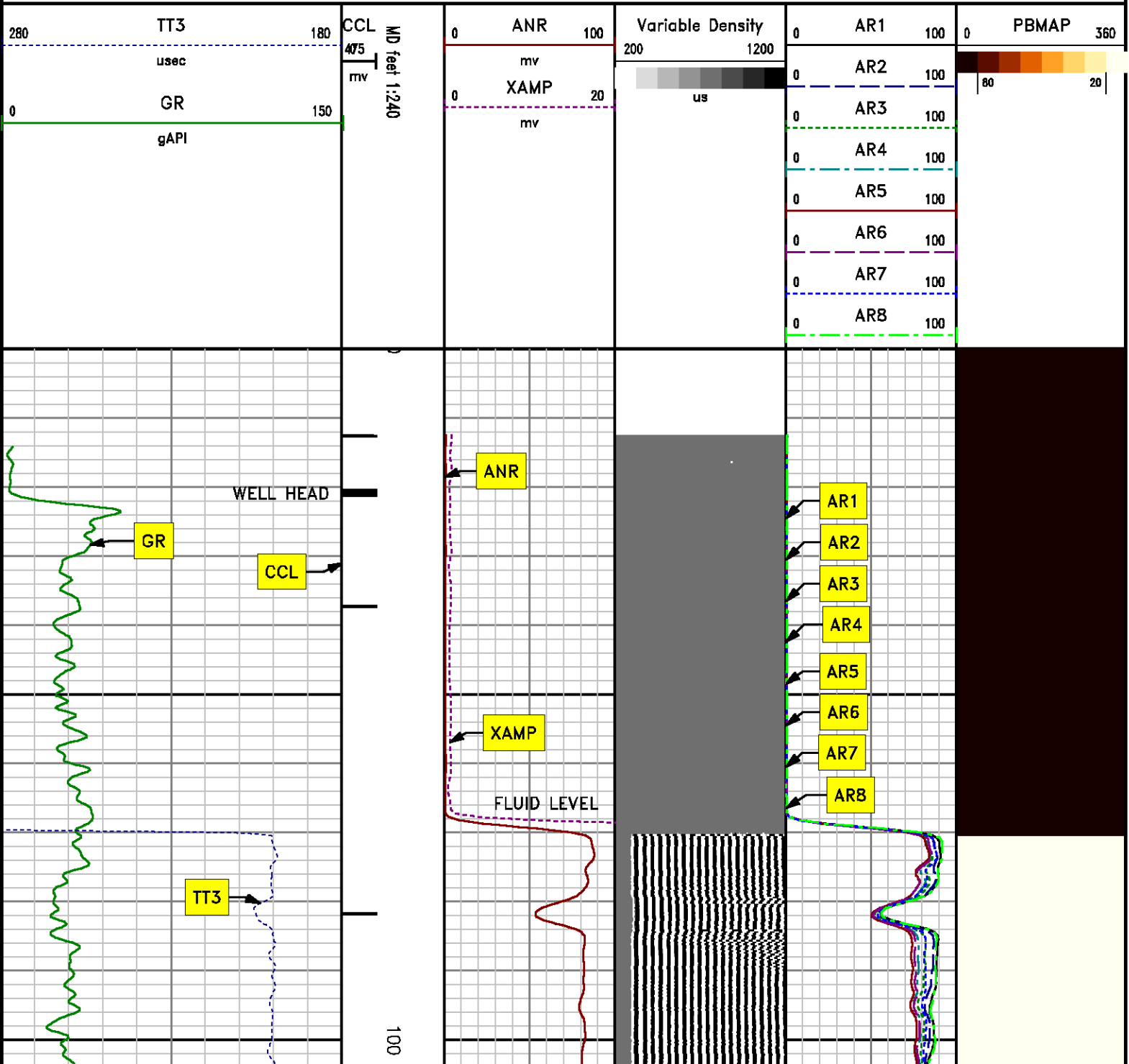
Well : FEDERAL RG 313-14-298

File Name : d:\welldata\wpx\federal rg 313-14-298\13cbl\main.xtf

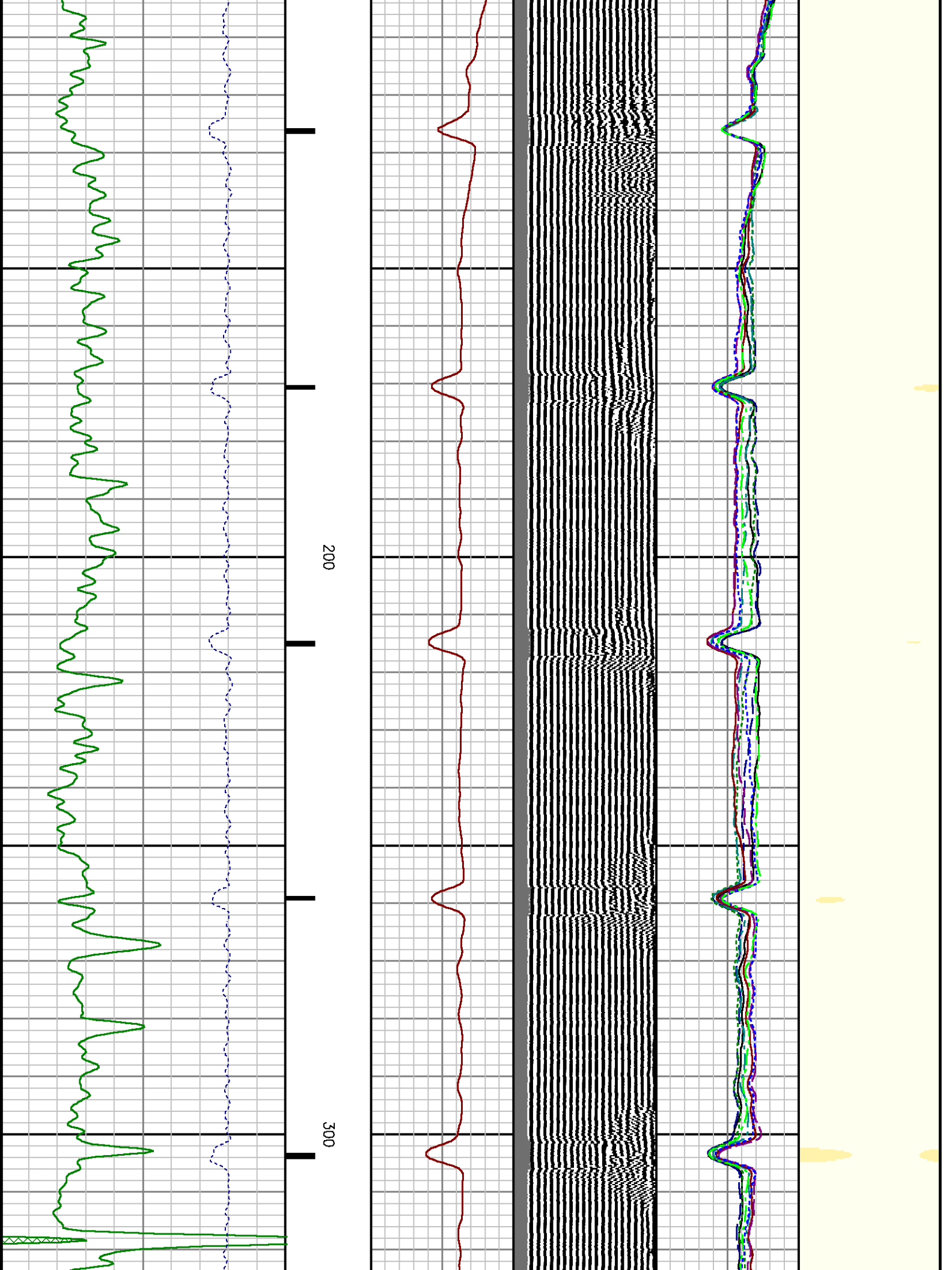
Made : PlotMgr 5.4.504

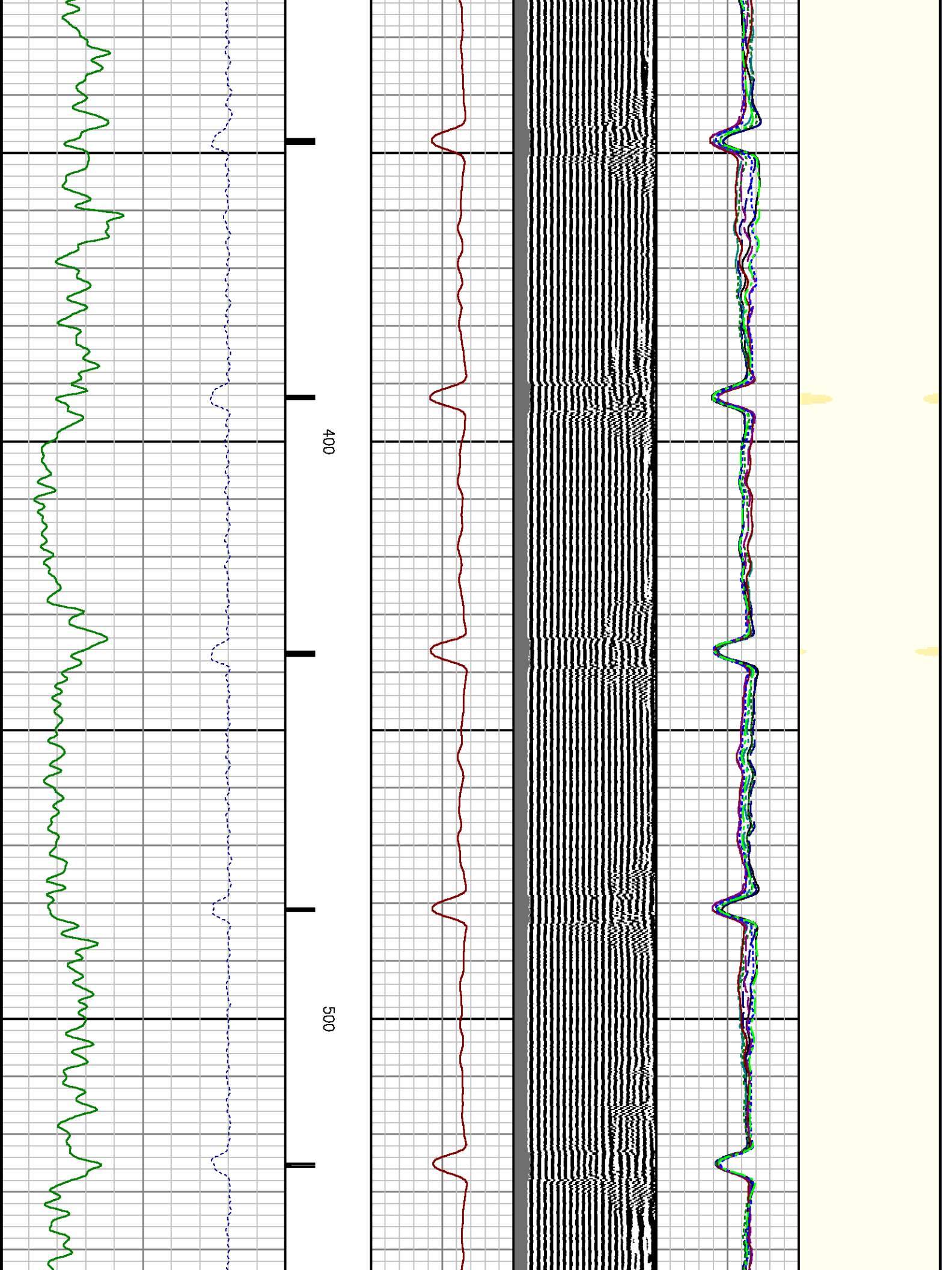
Interval : 0.00 - 10920.00 feet UP

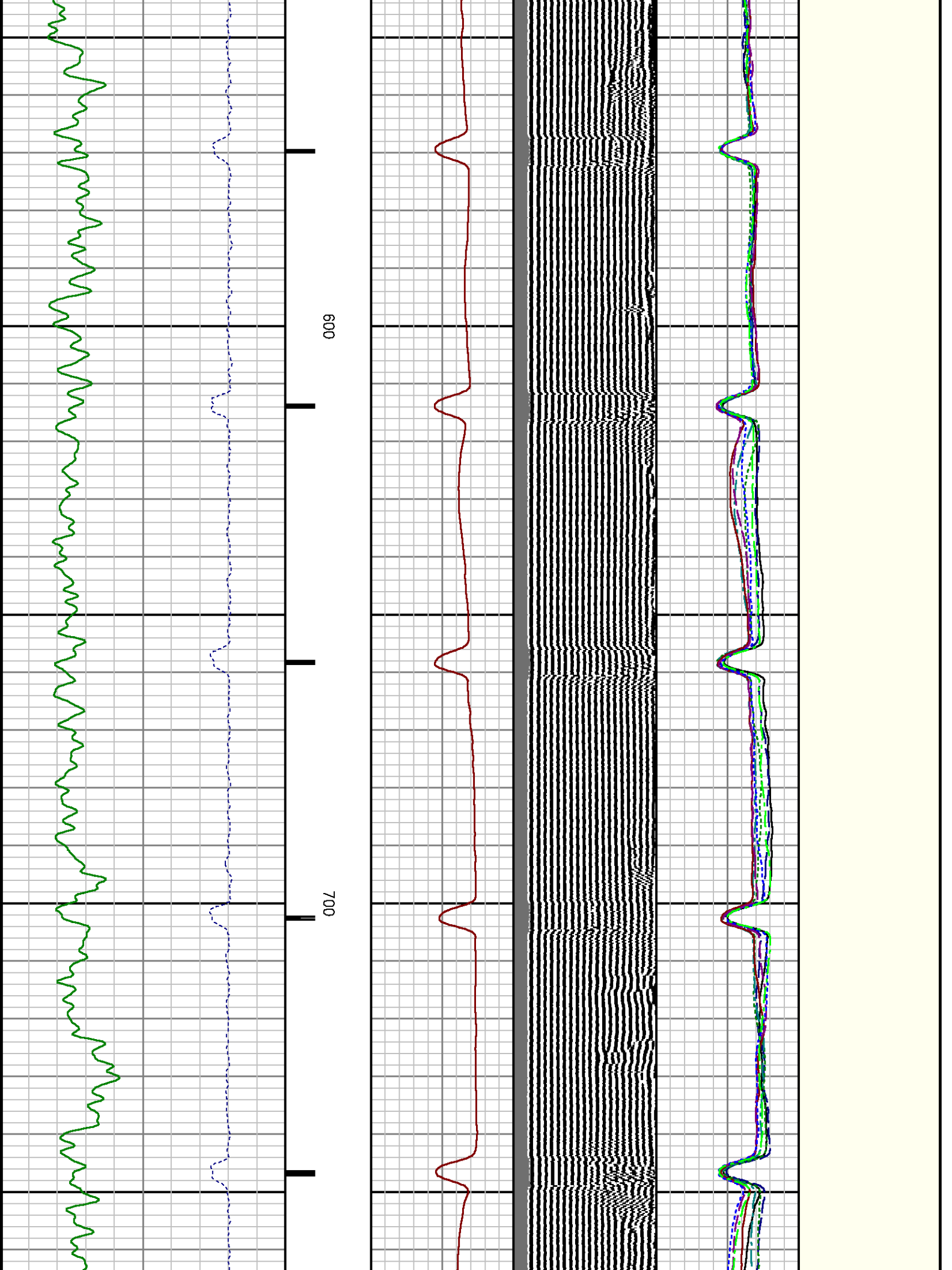
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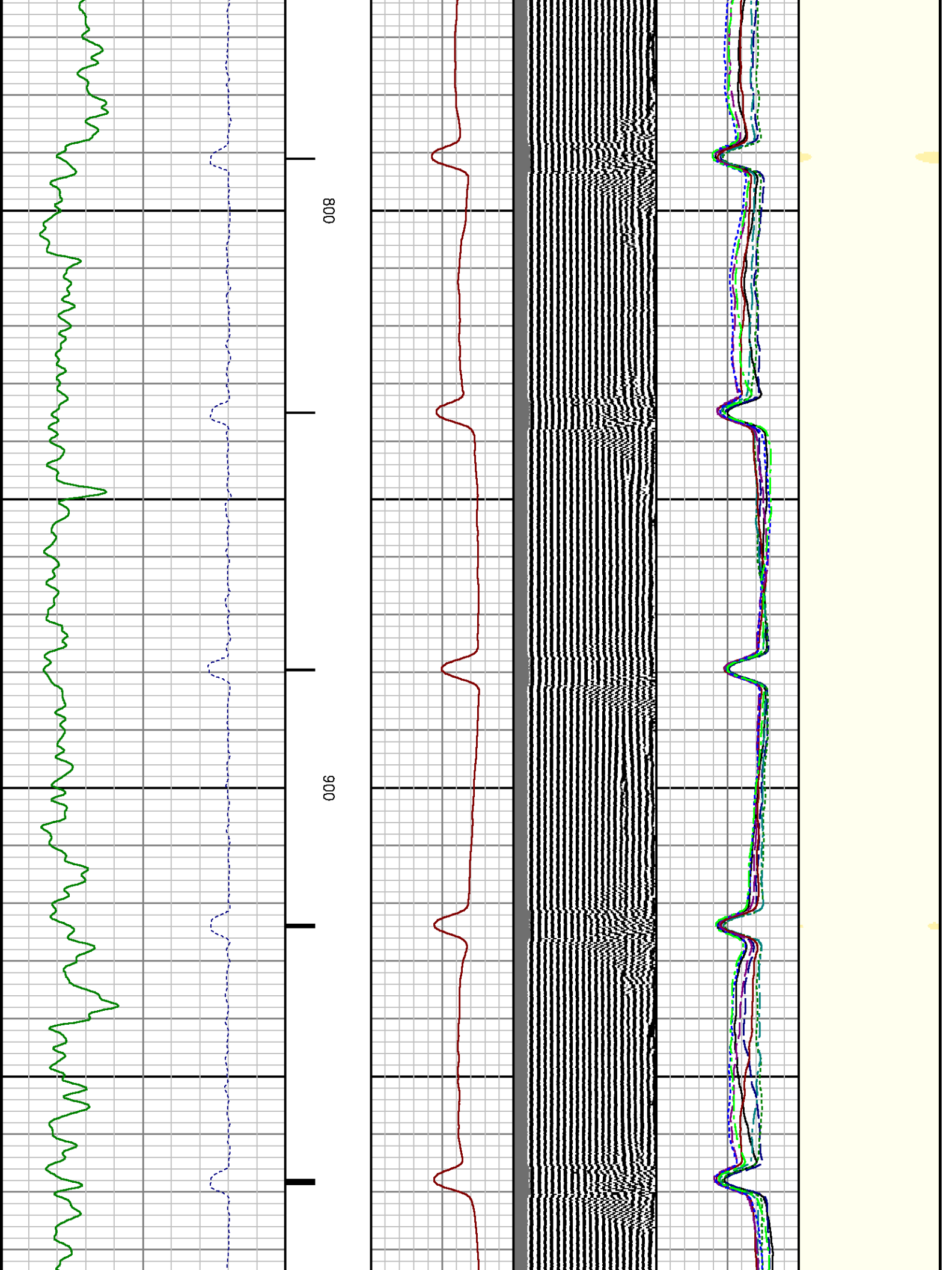


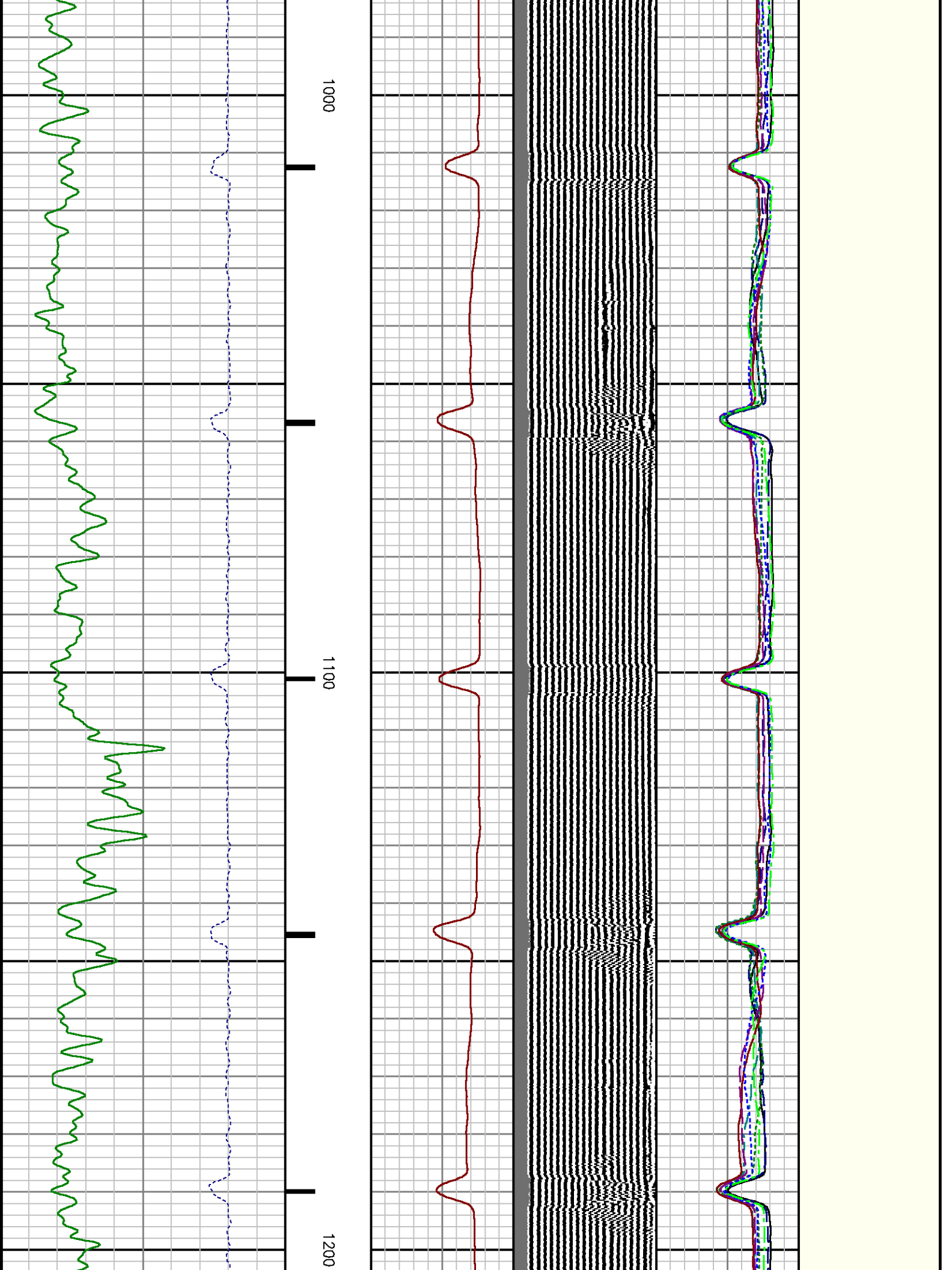


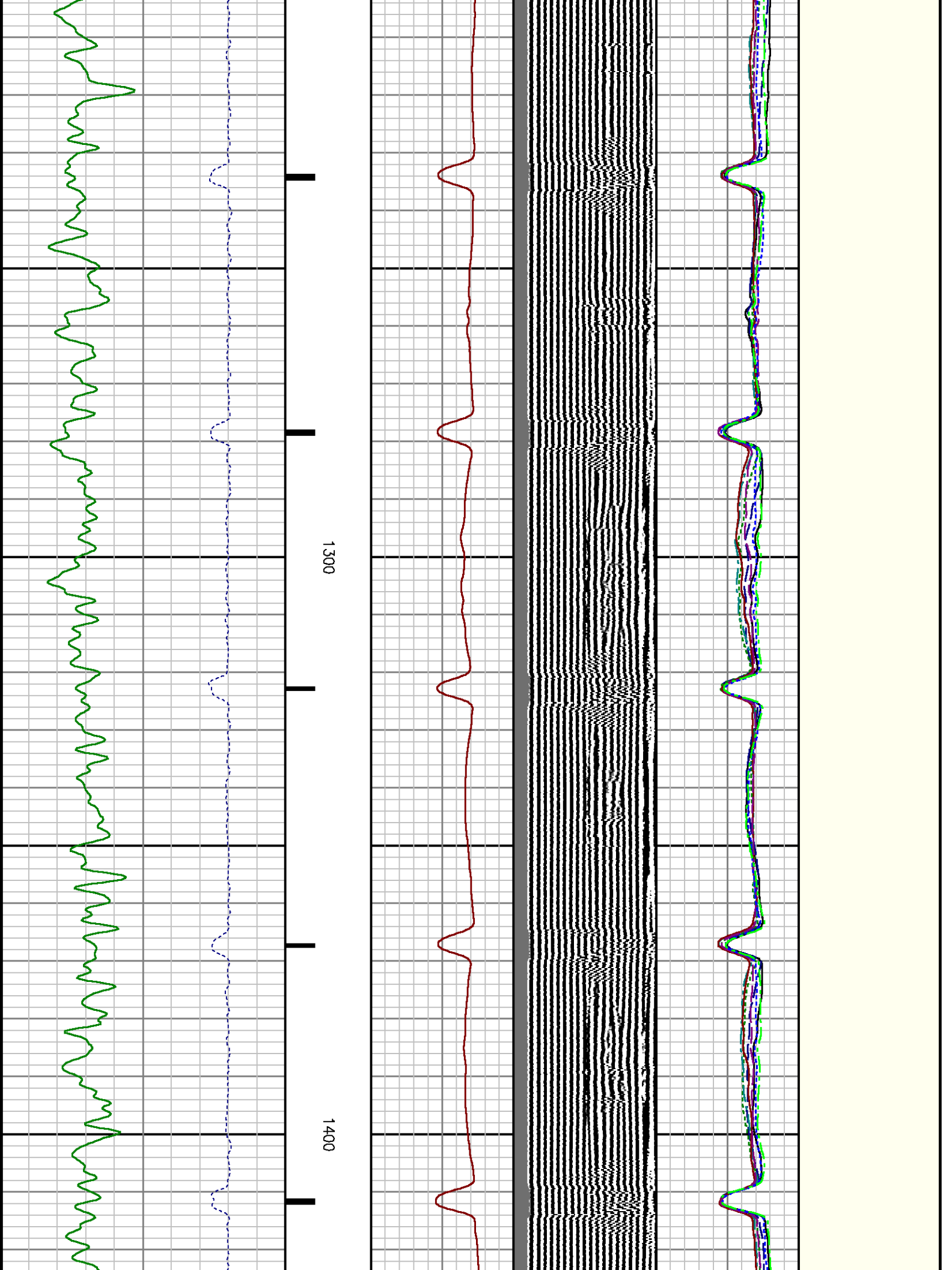




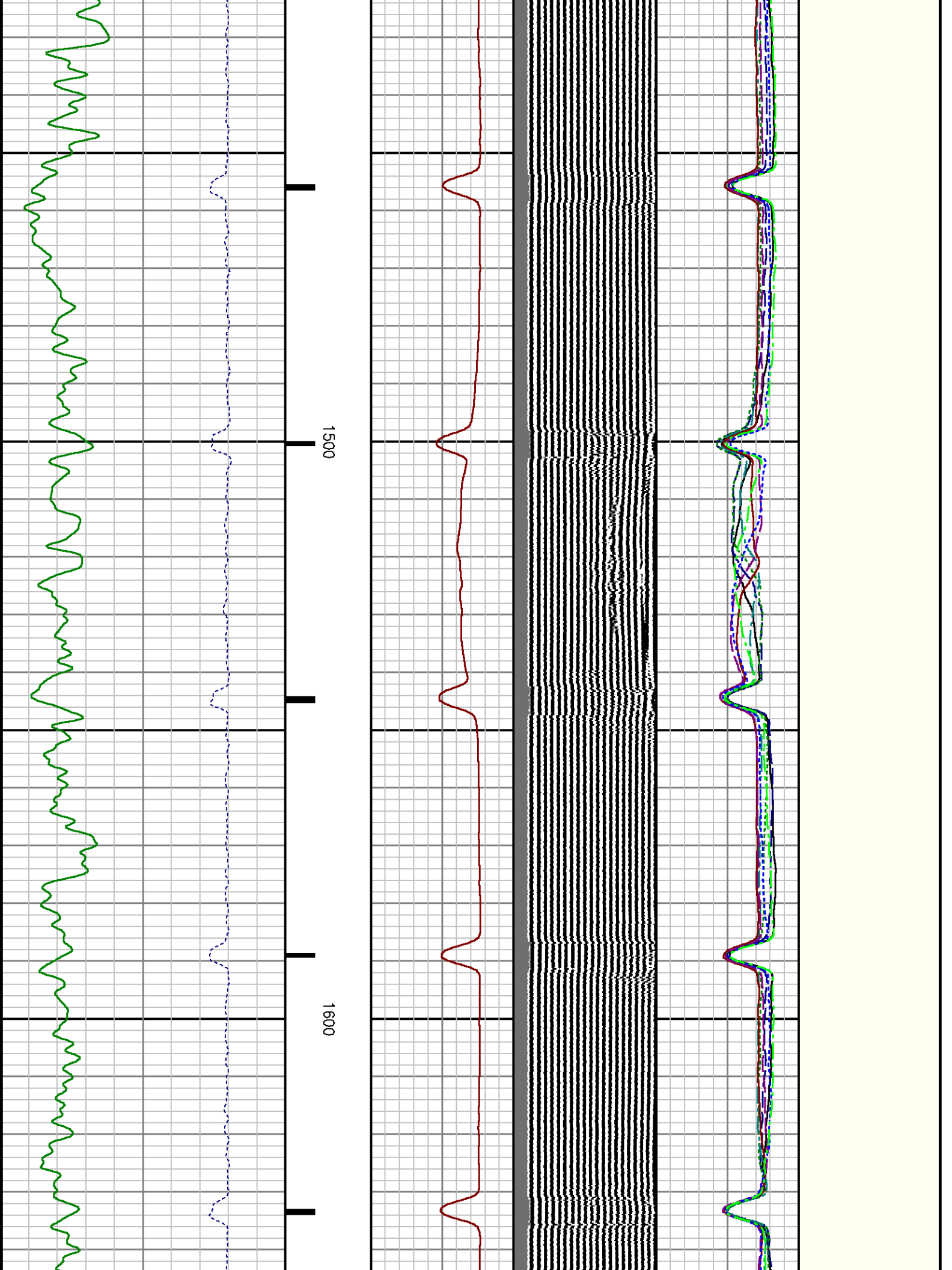


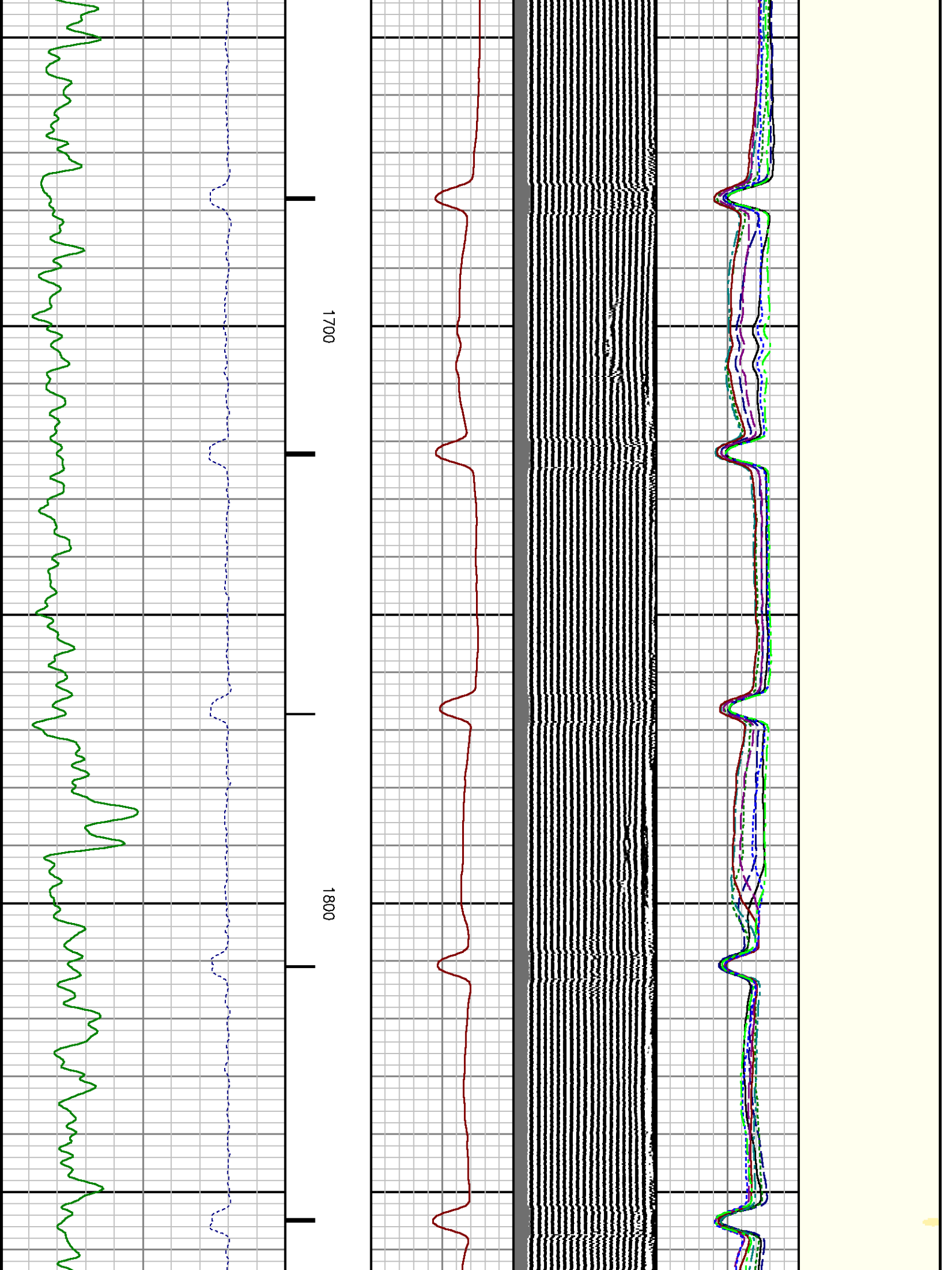


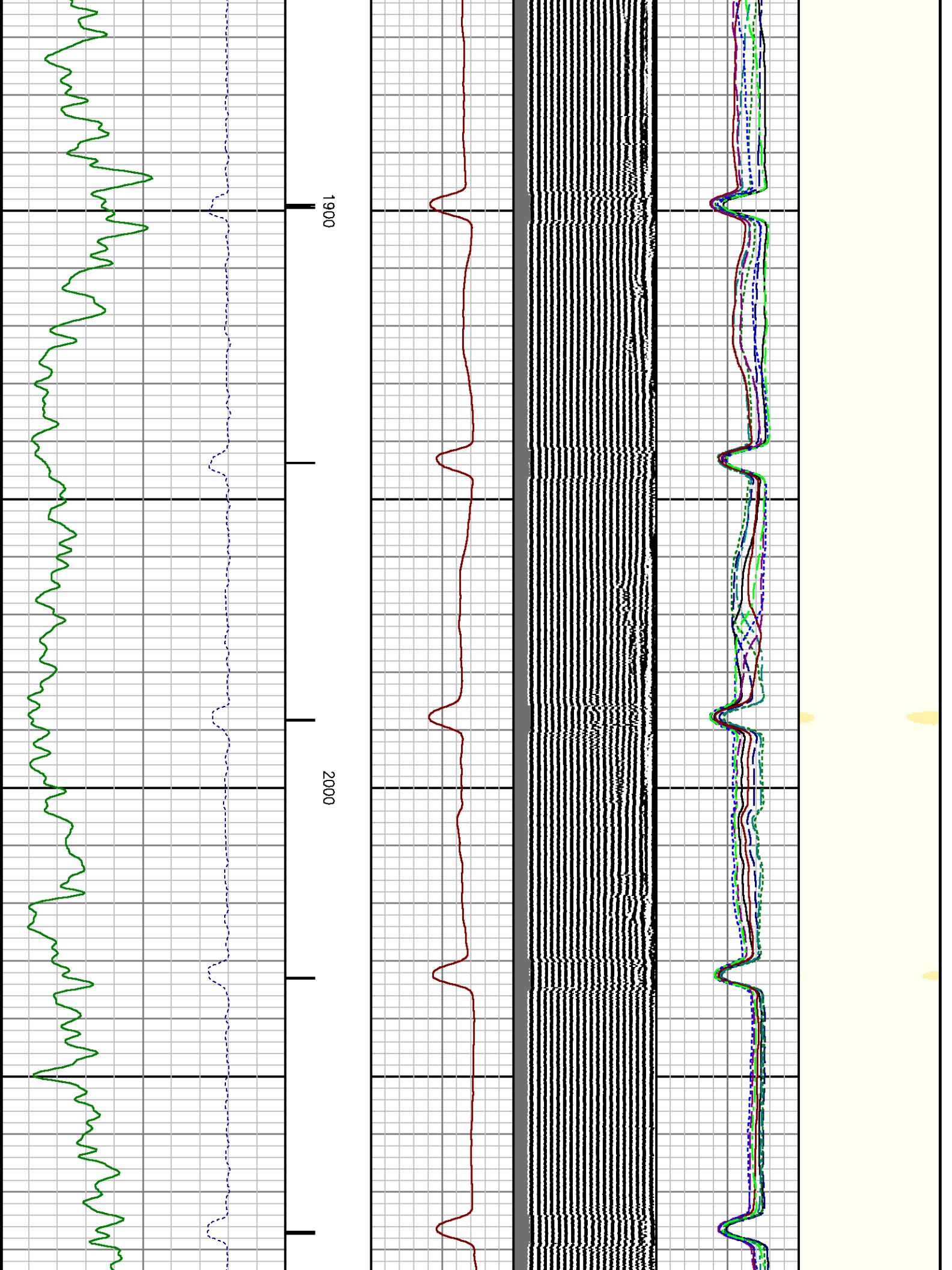


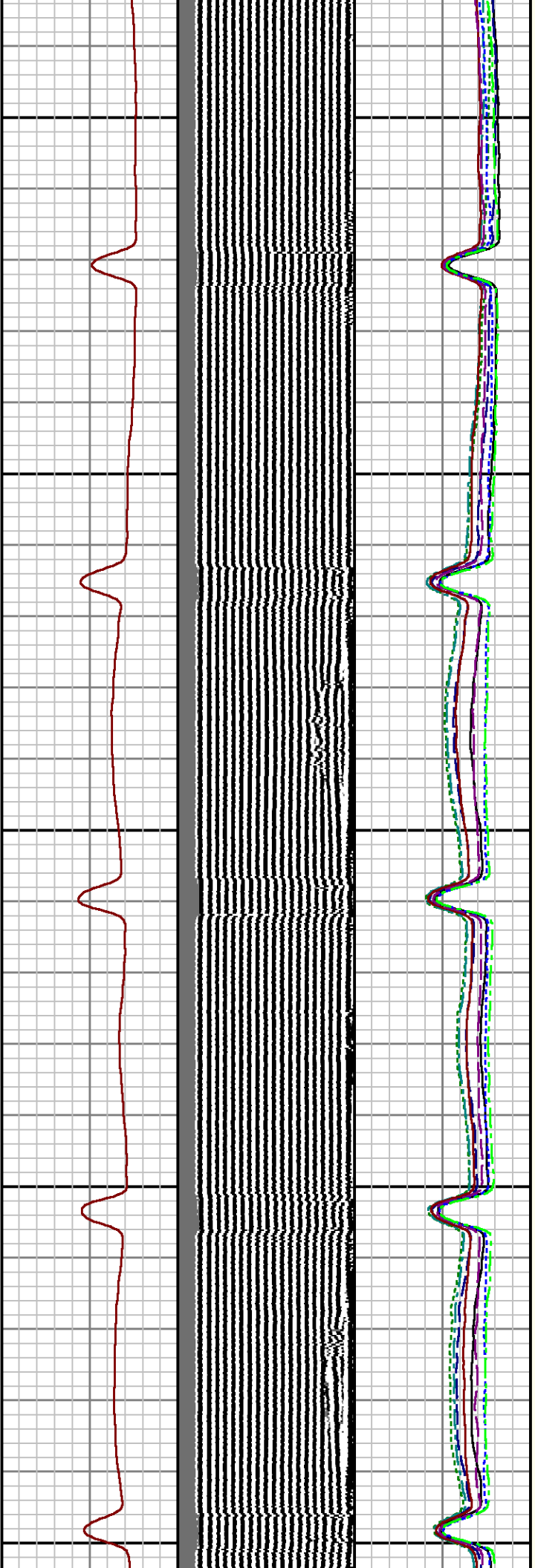








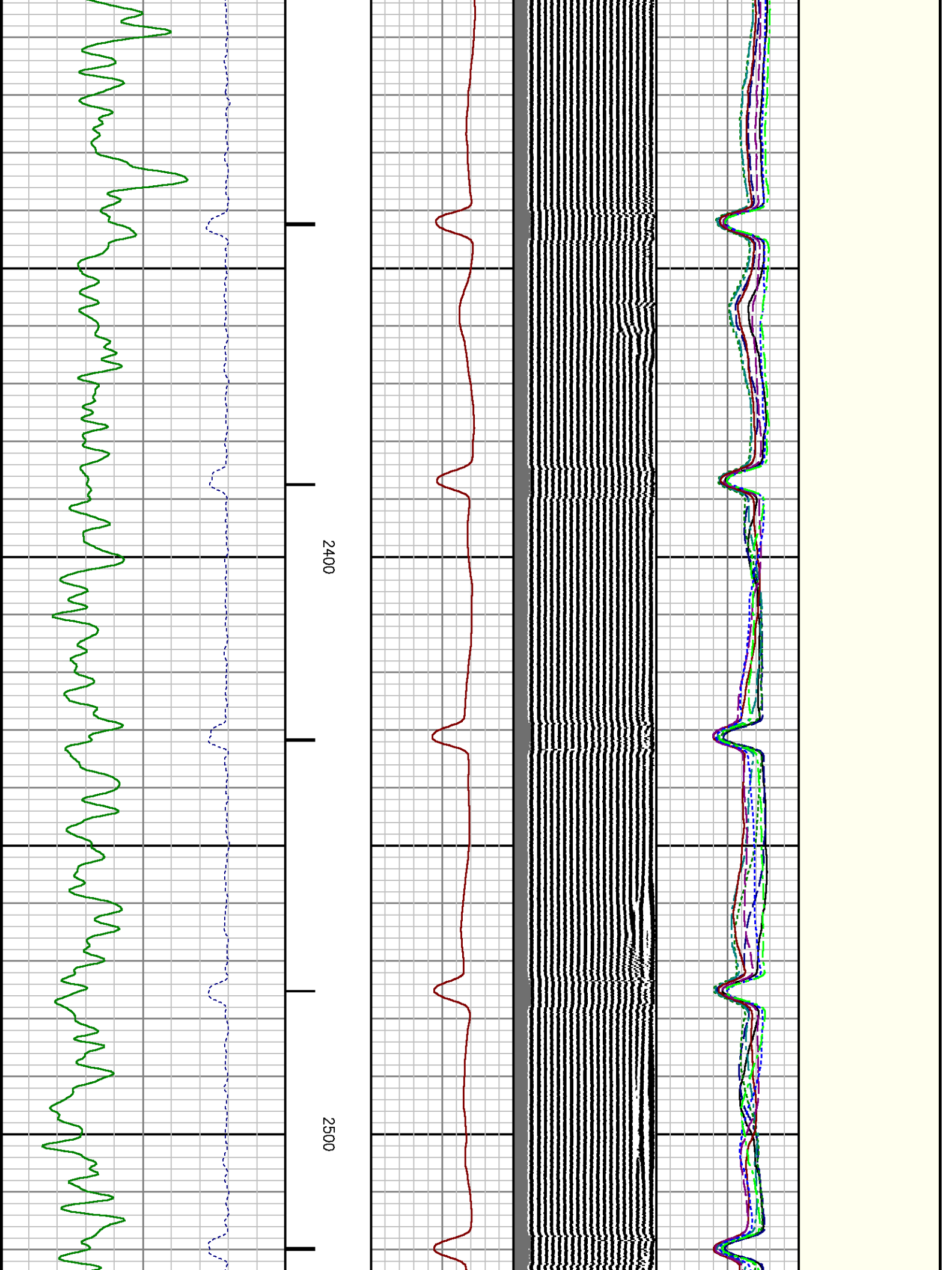


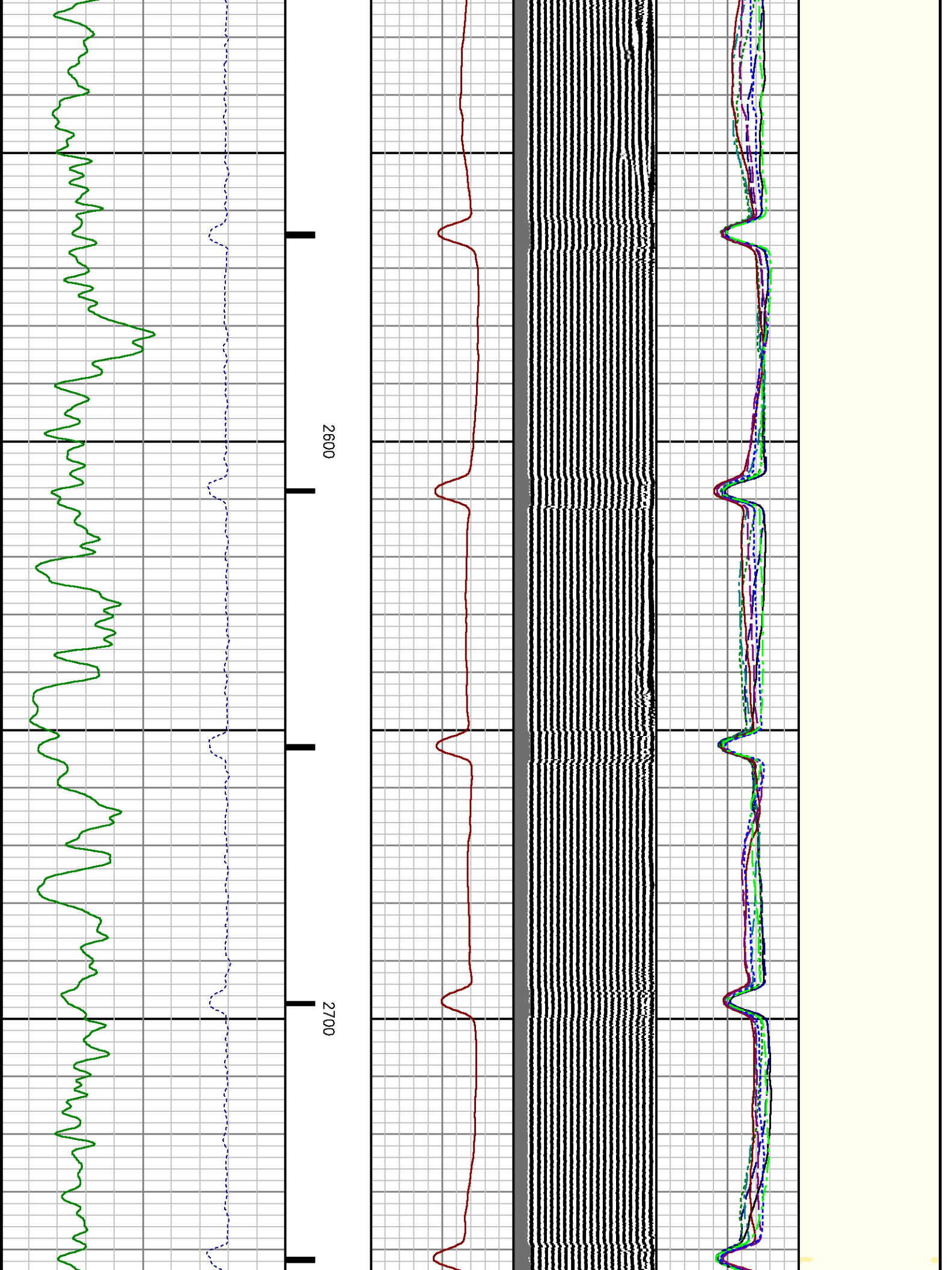


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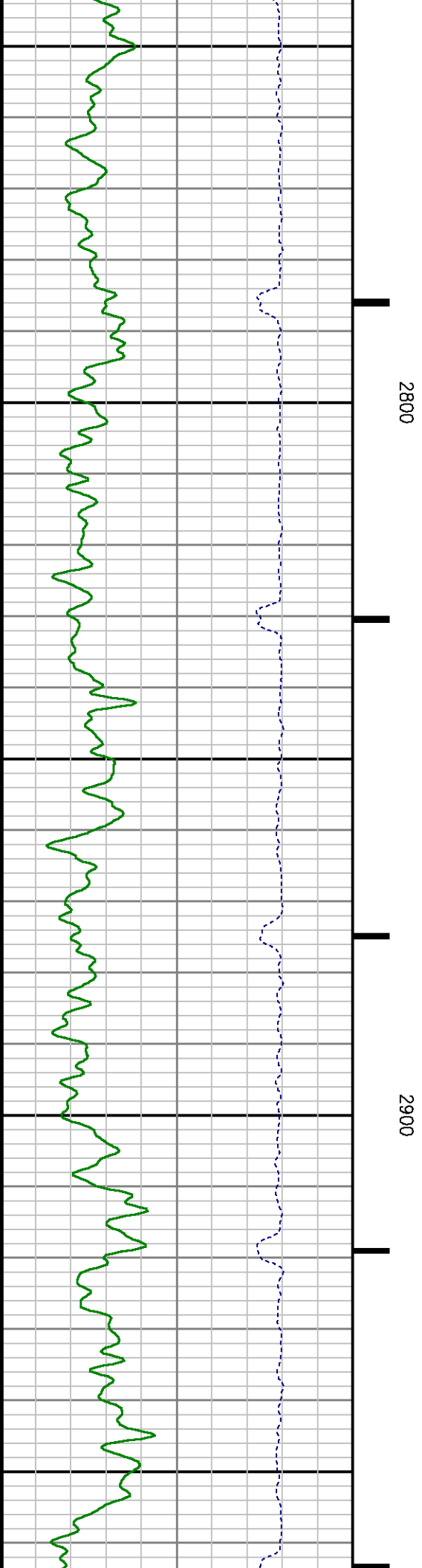
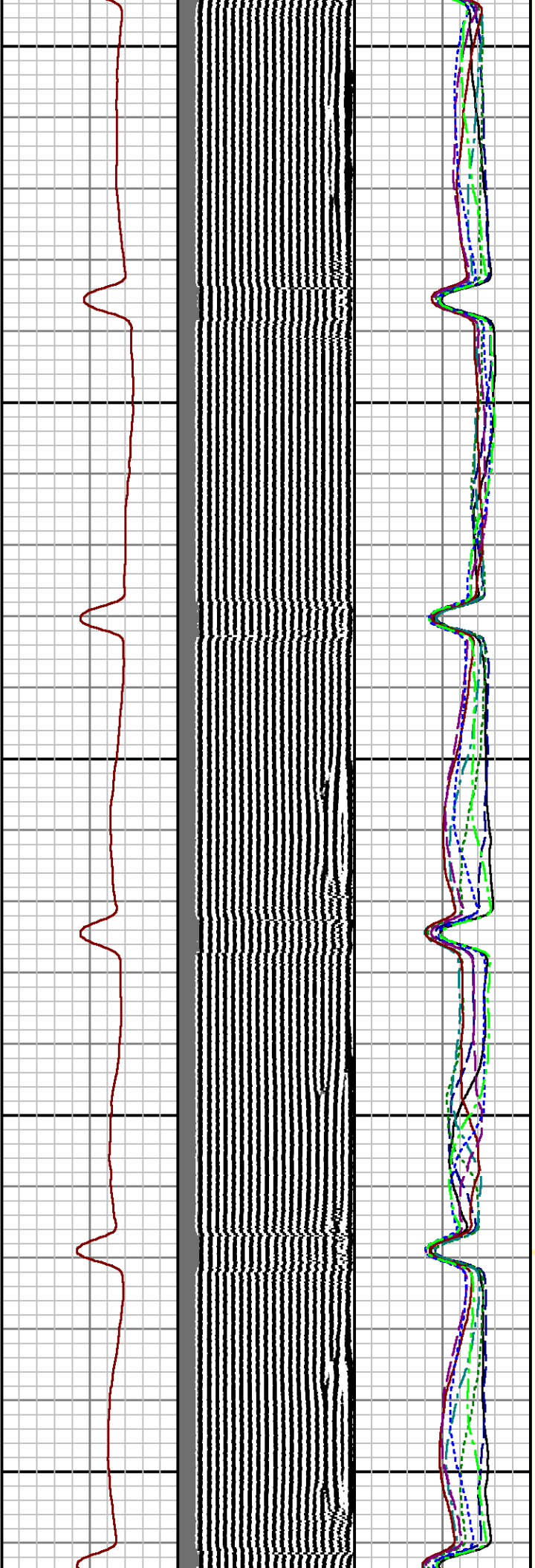
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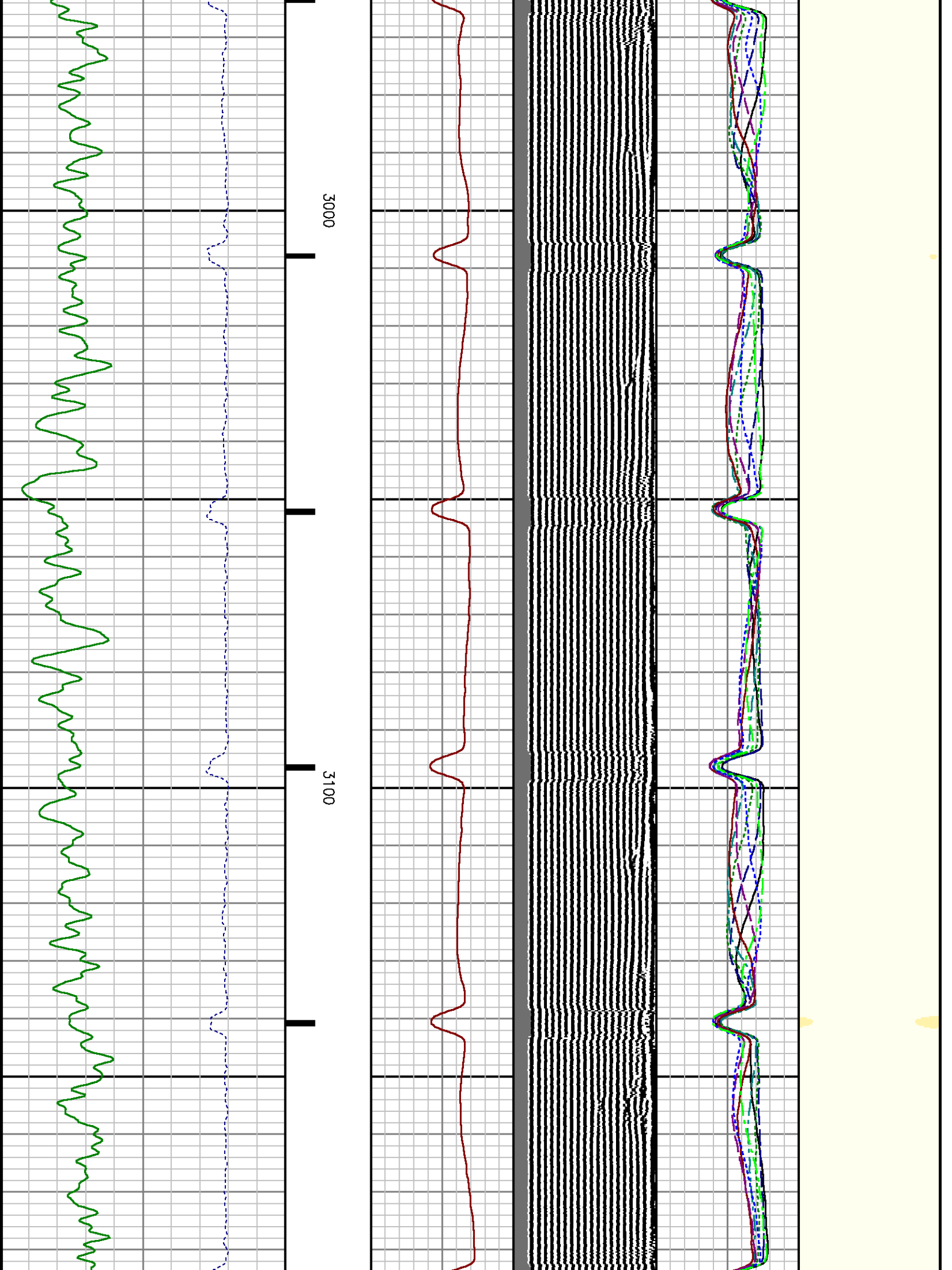
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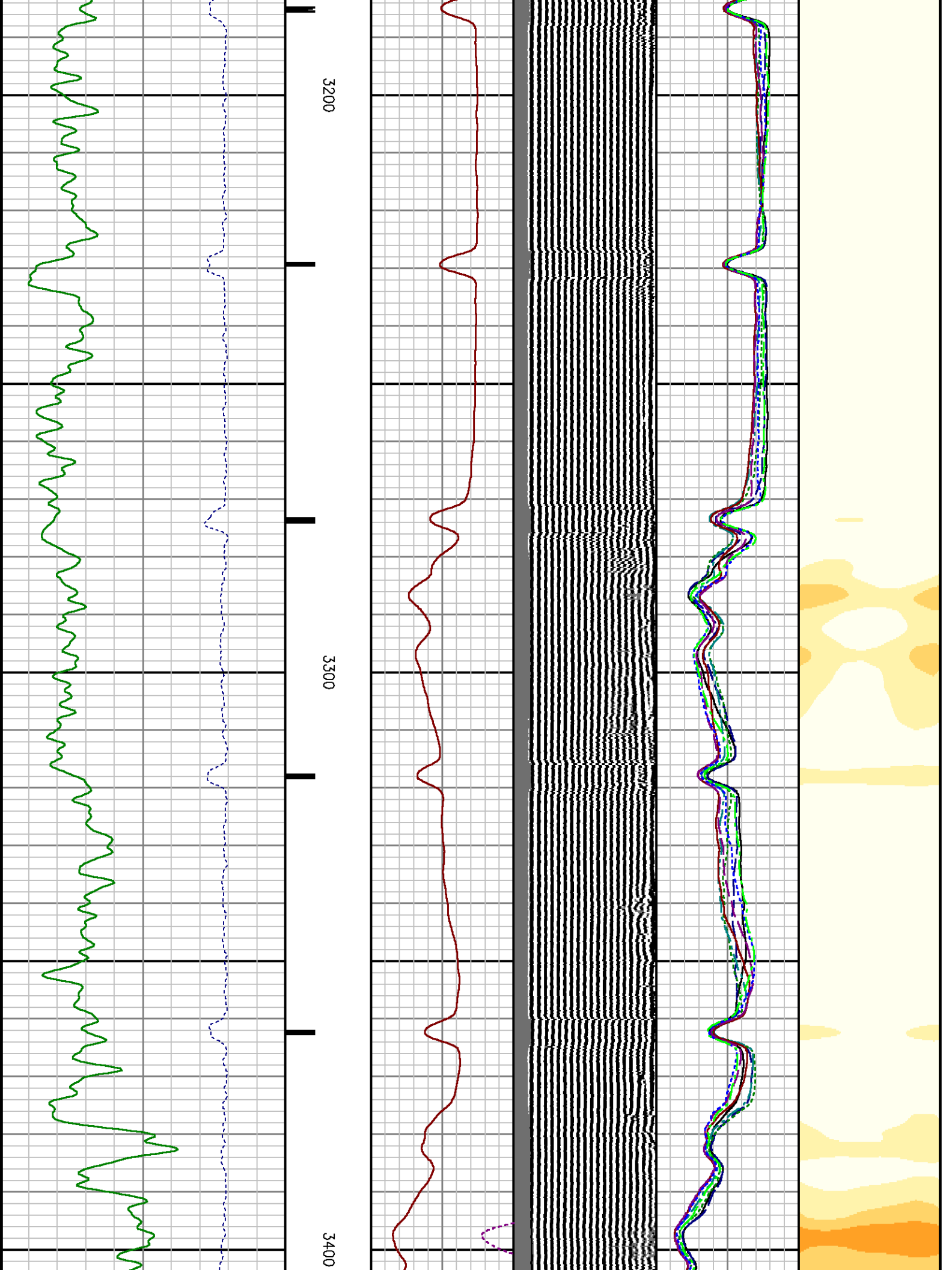


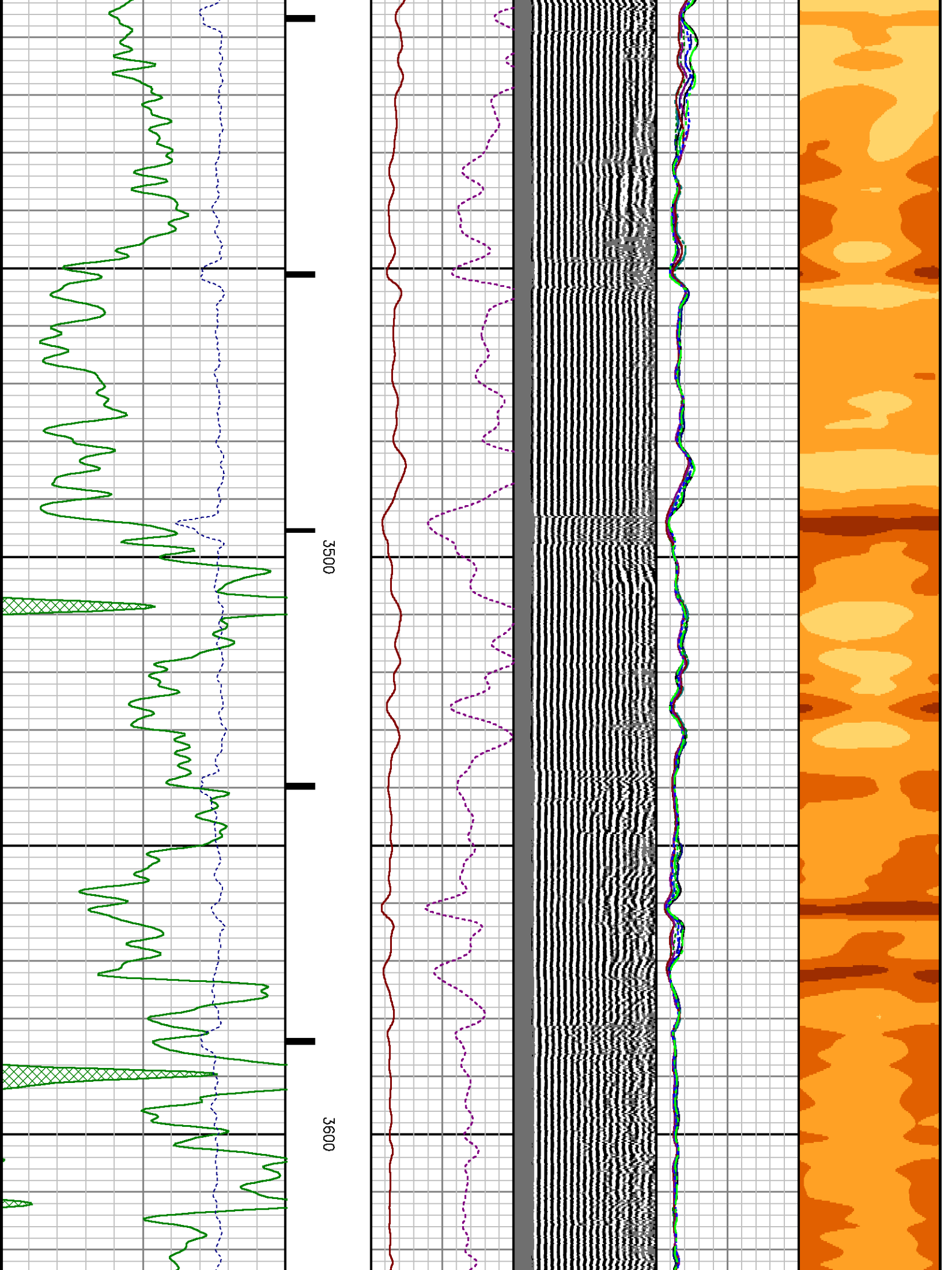


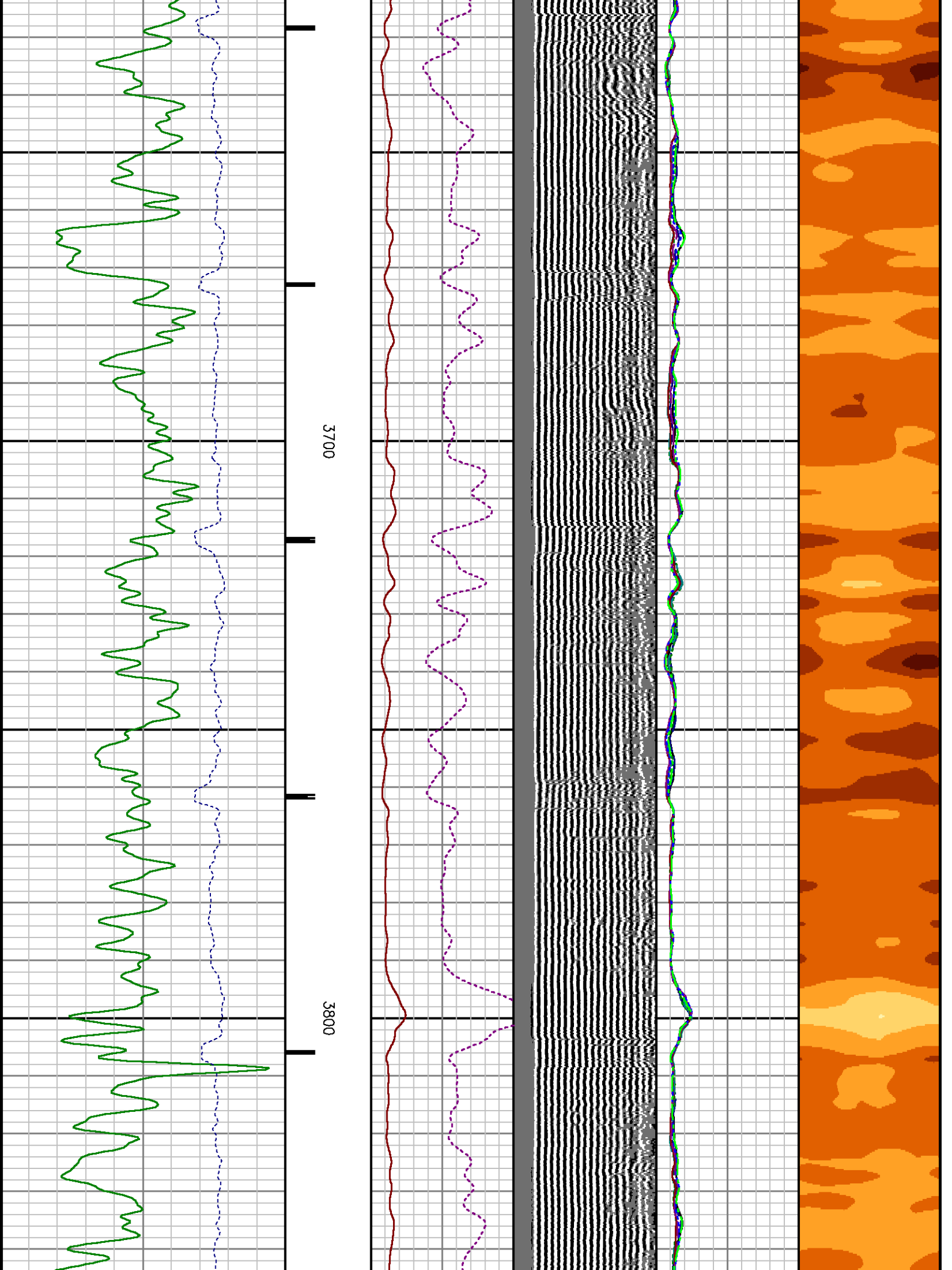




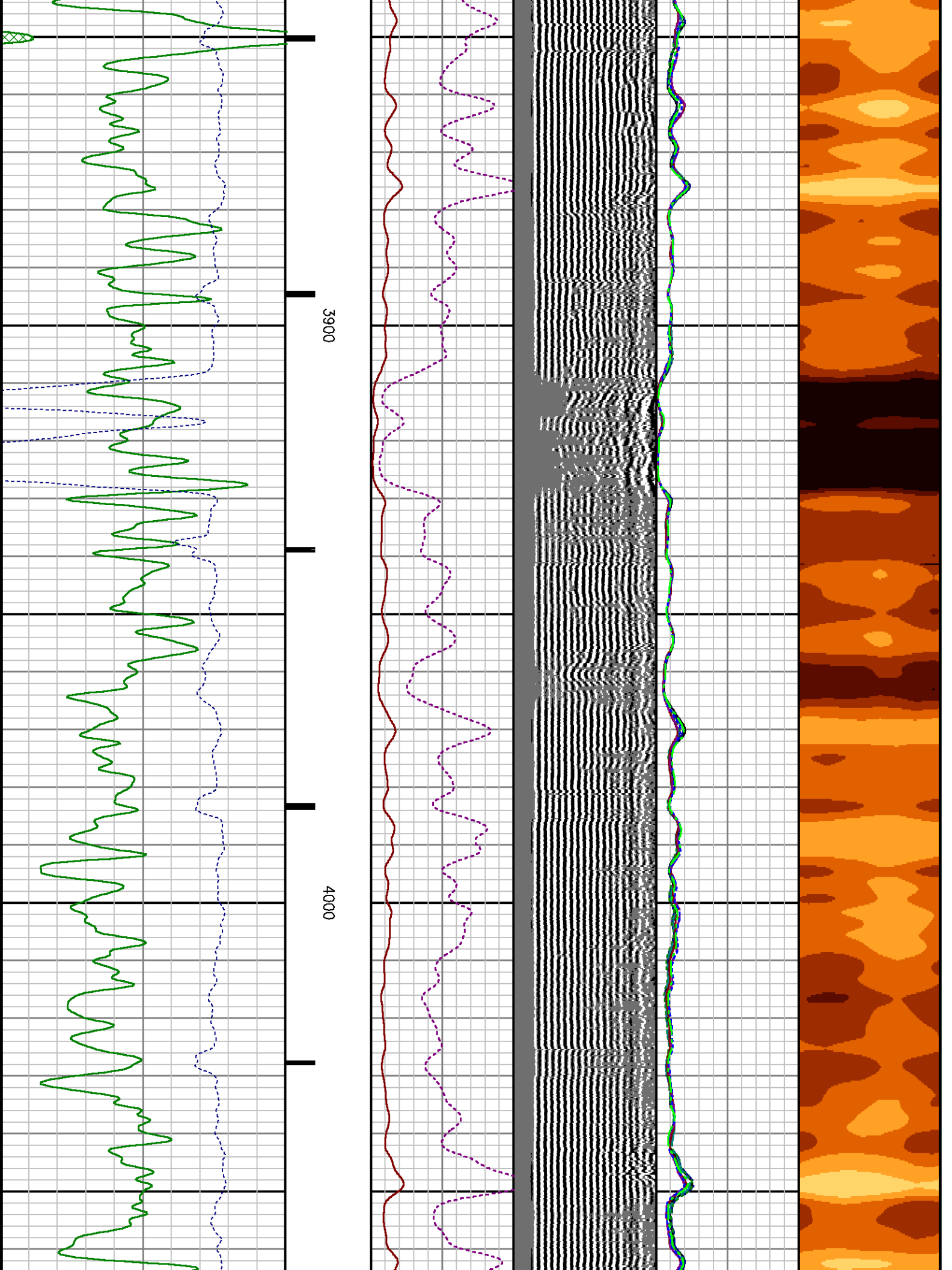




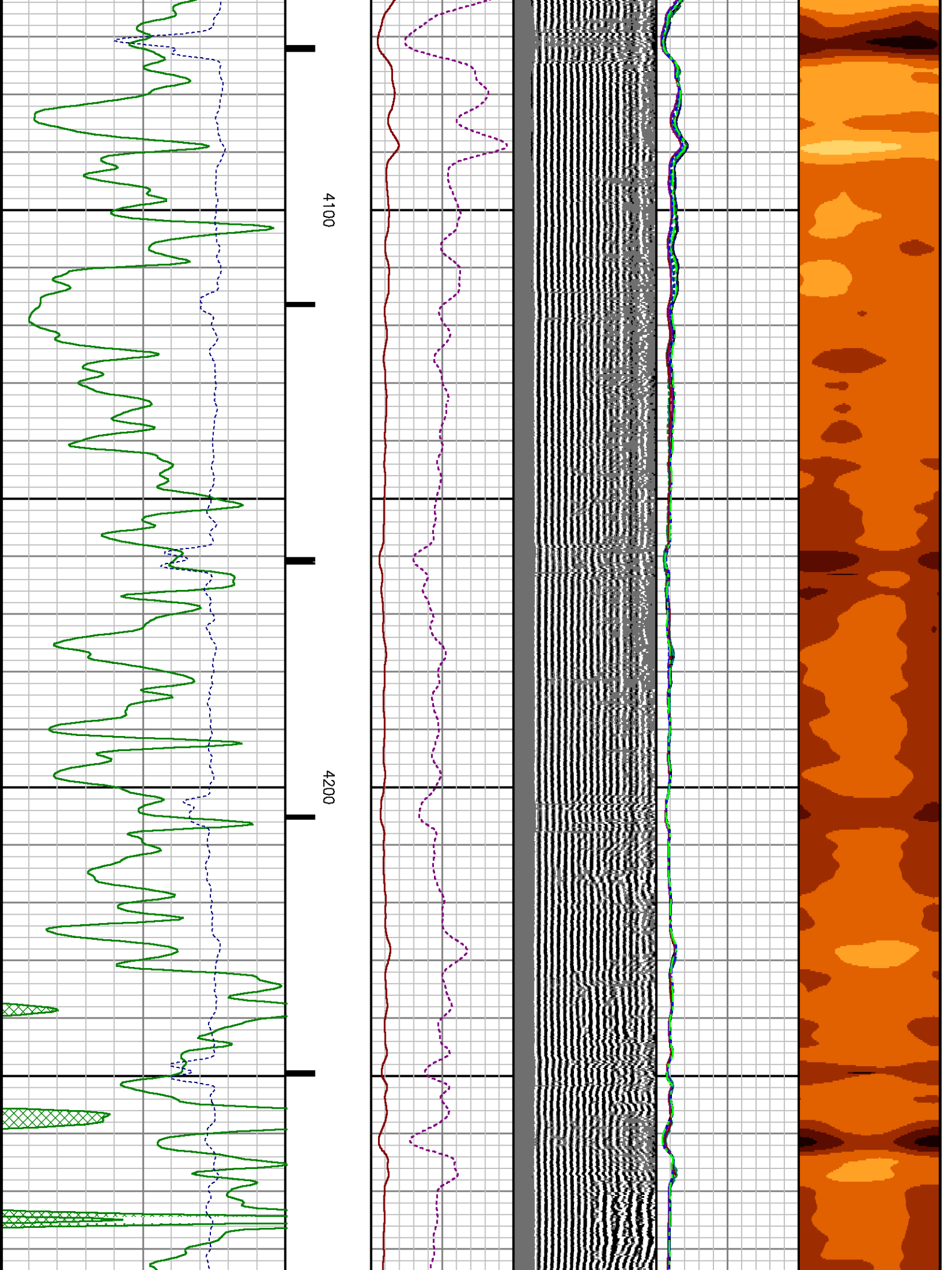


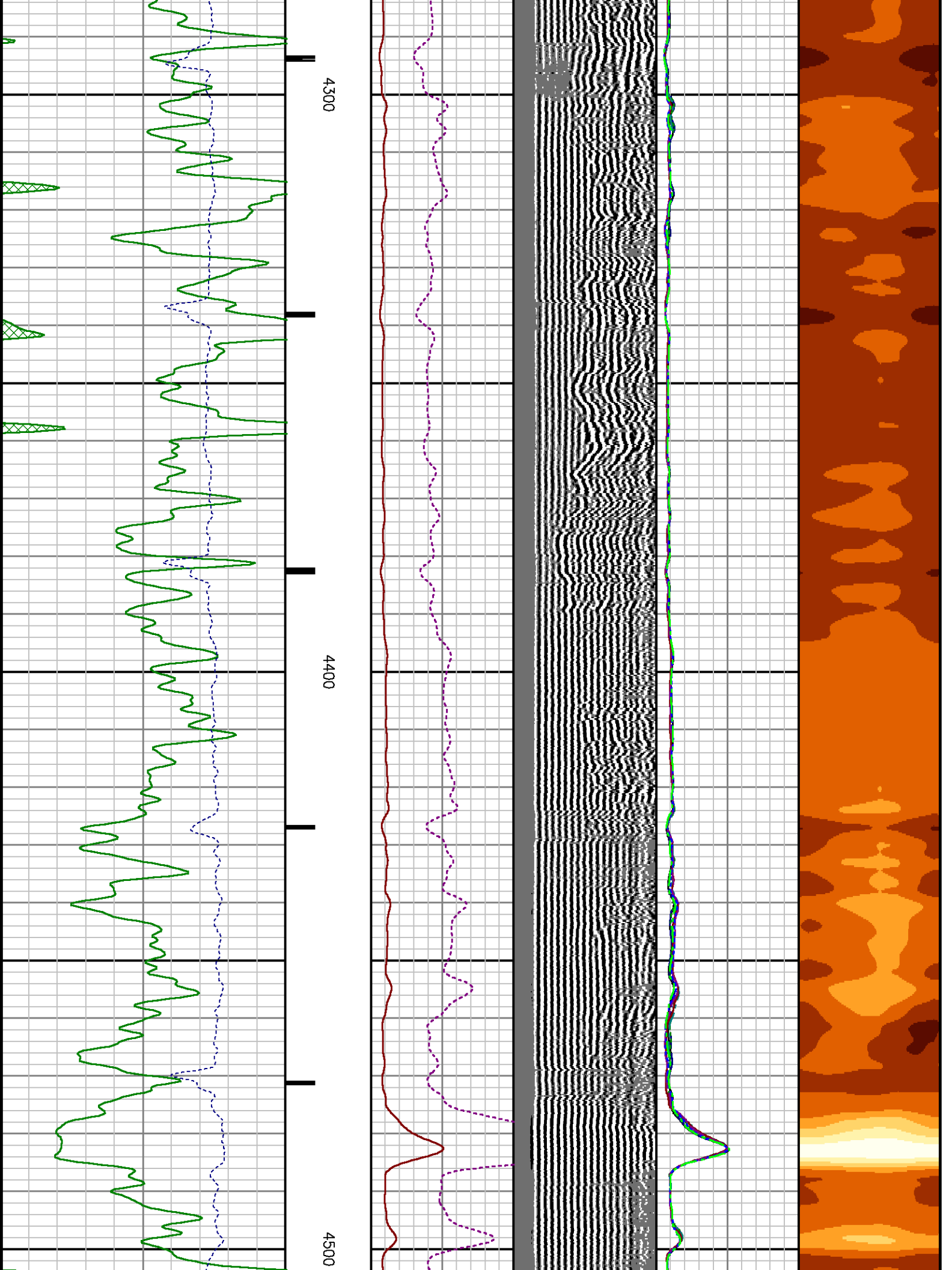


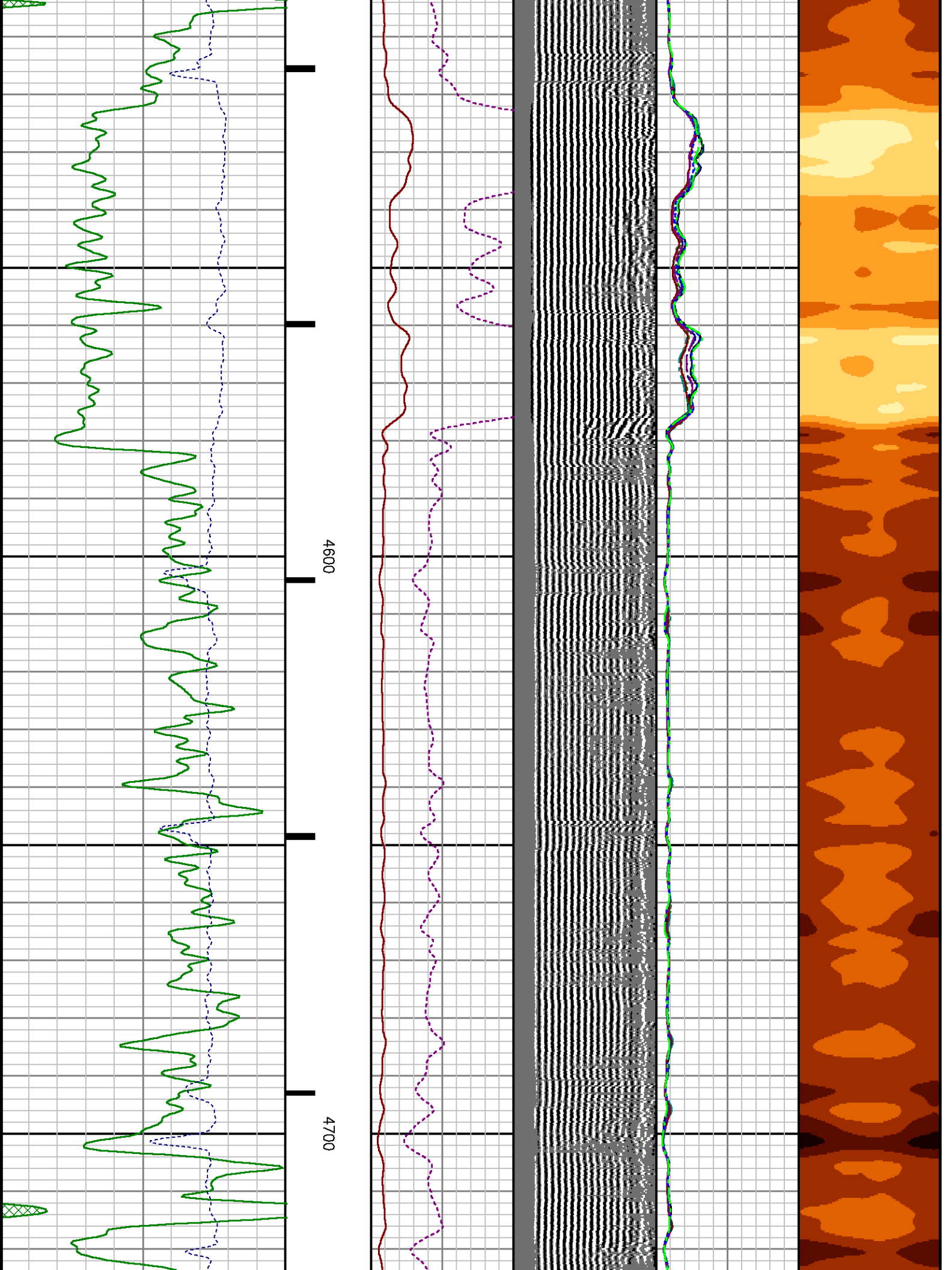


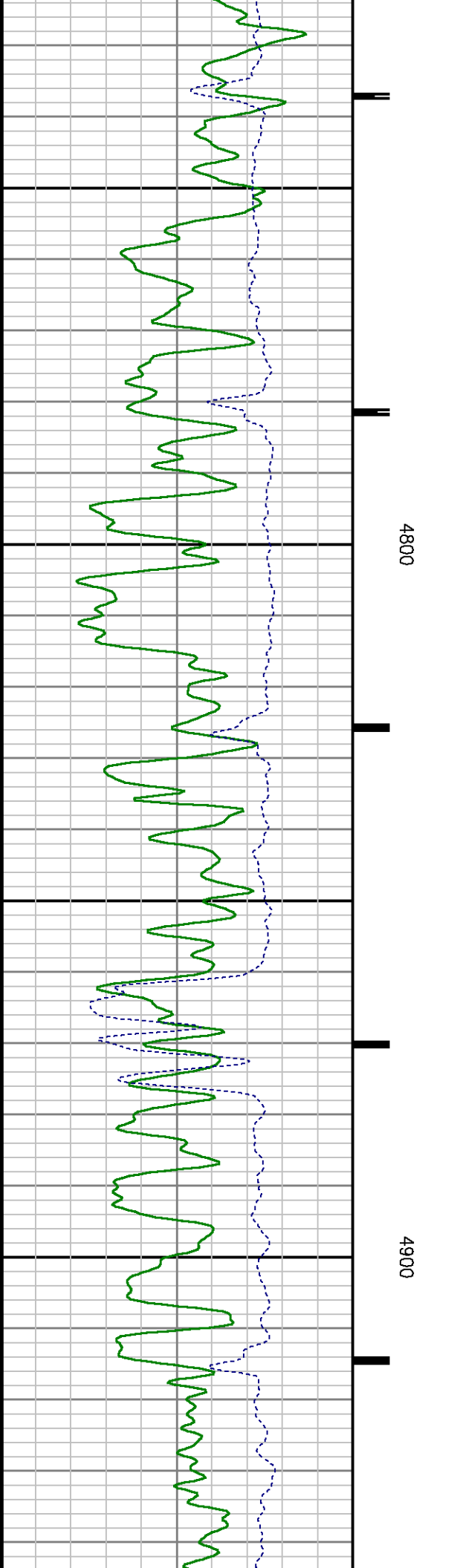
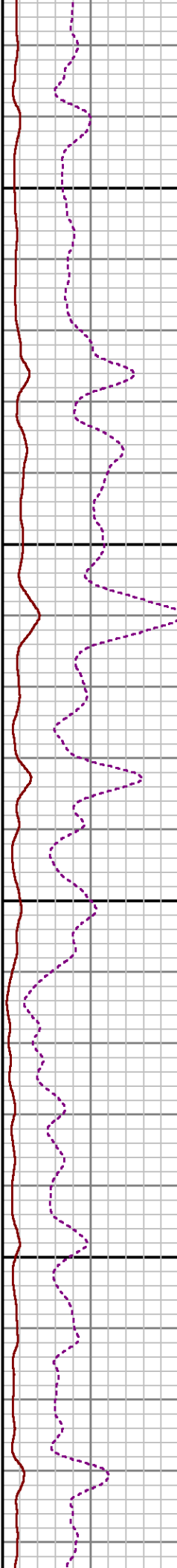
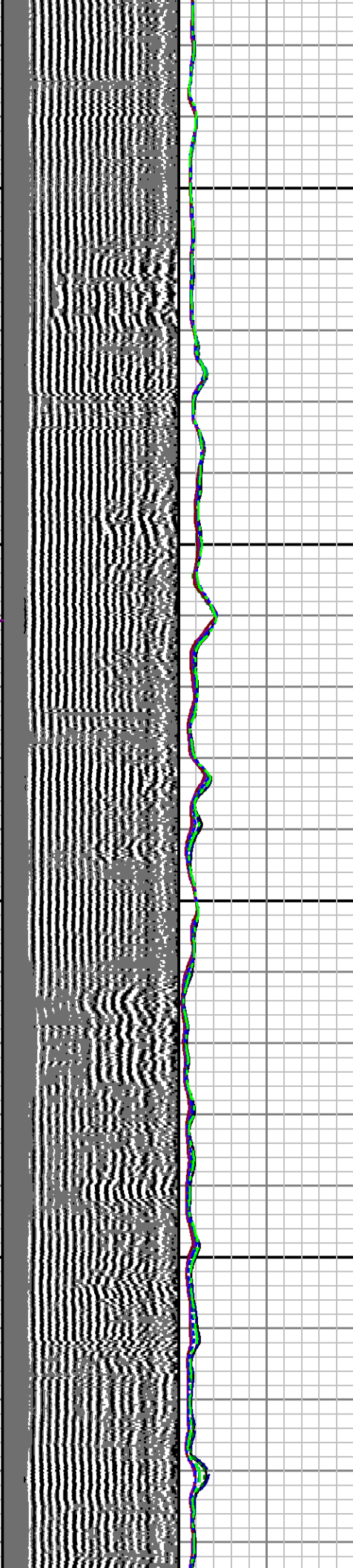
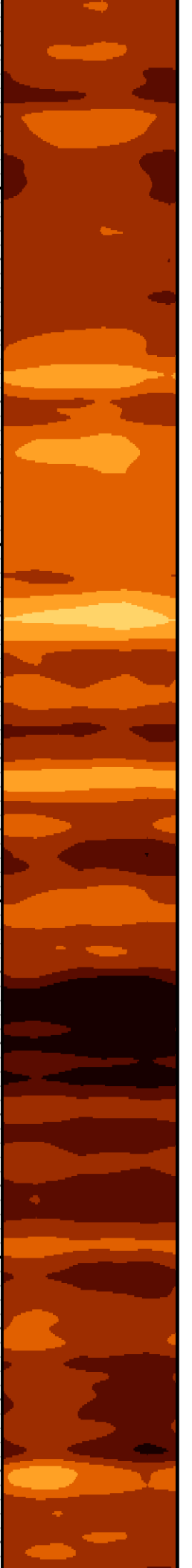


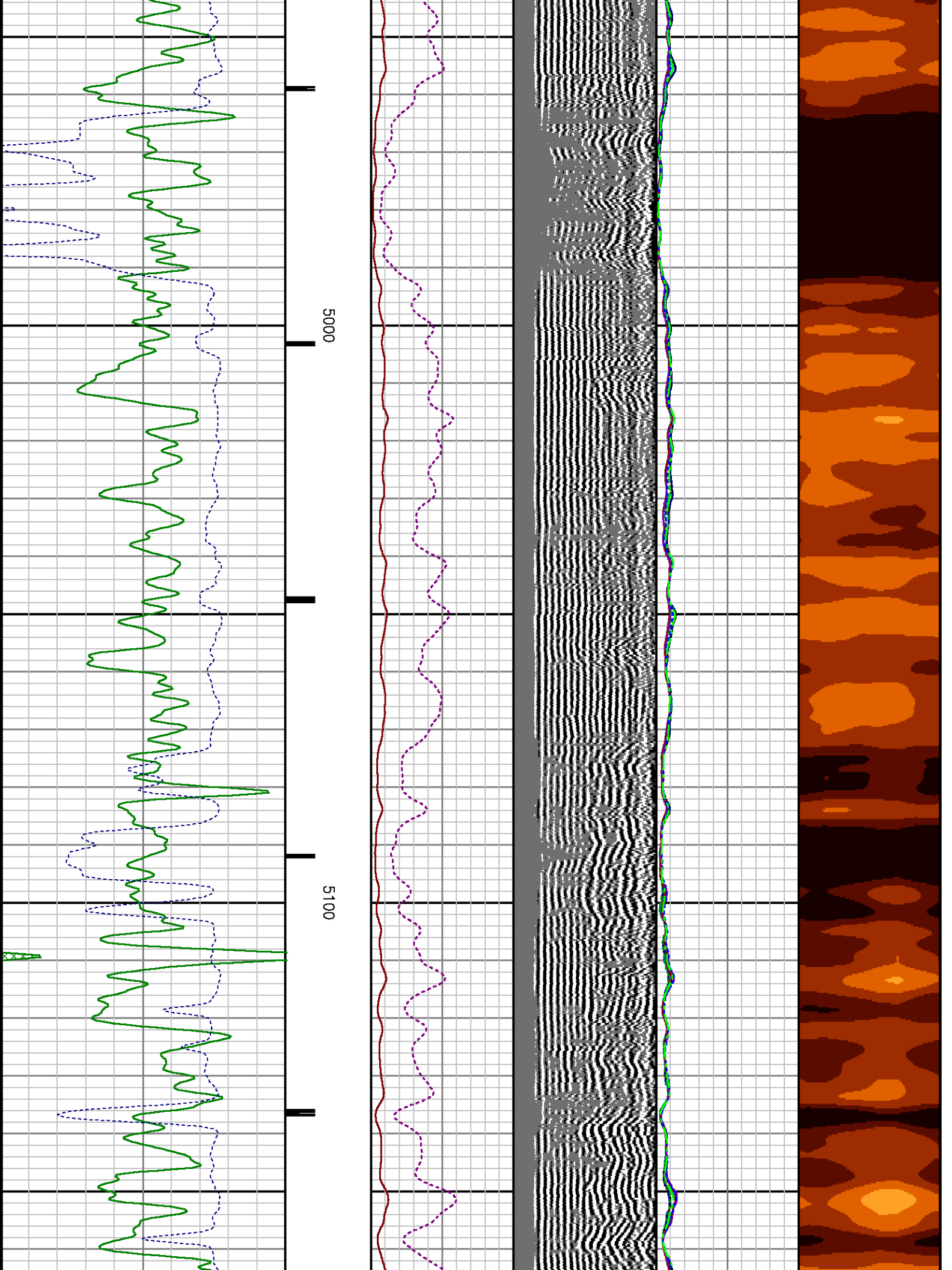




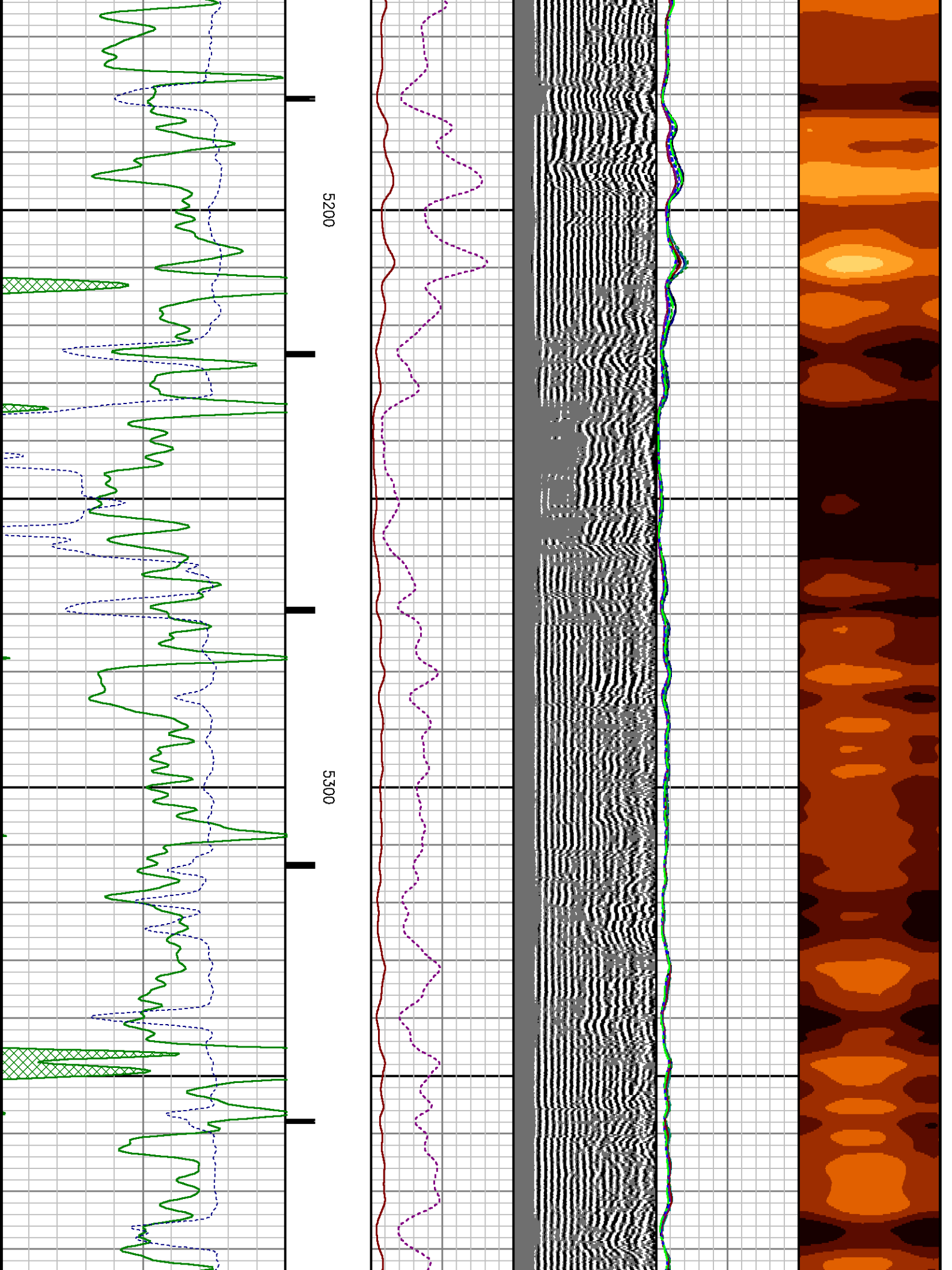




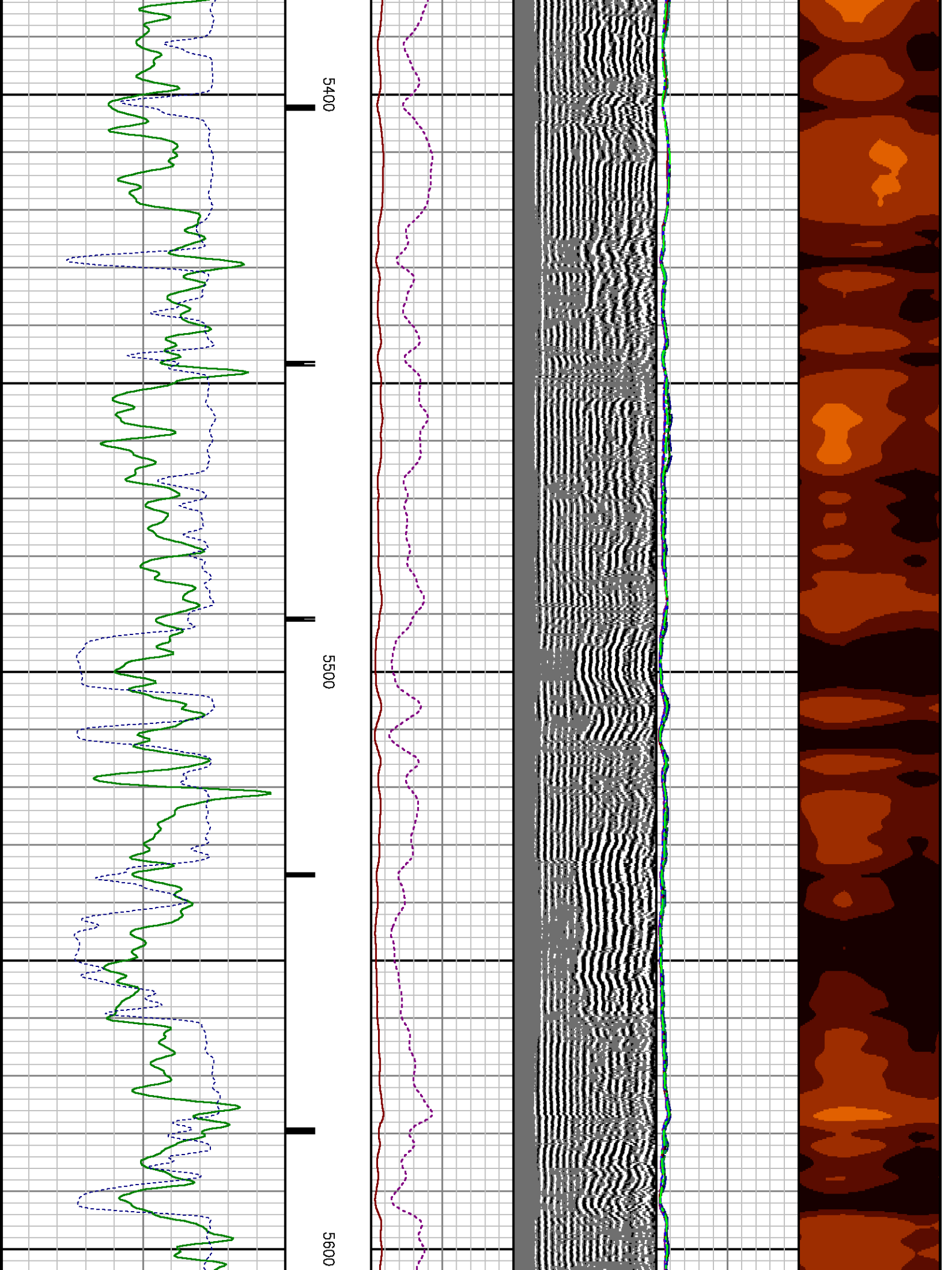


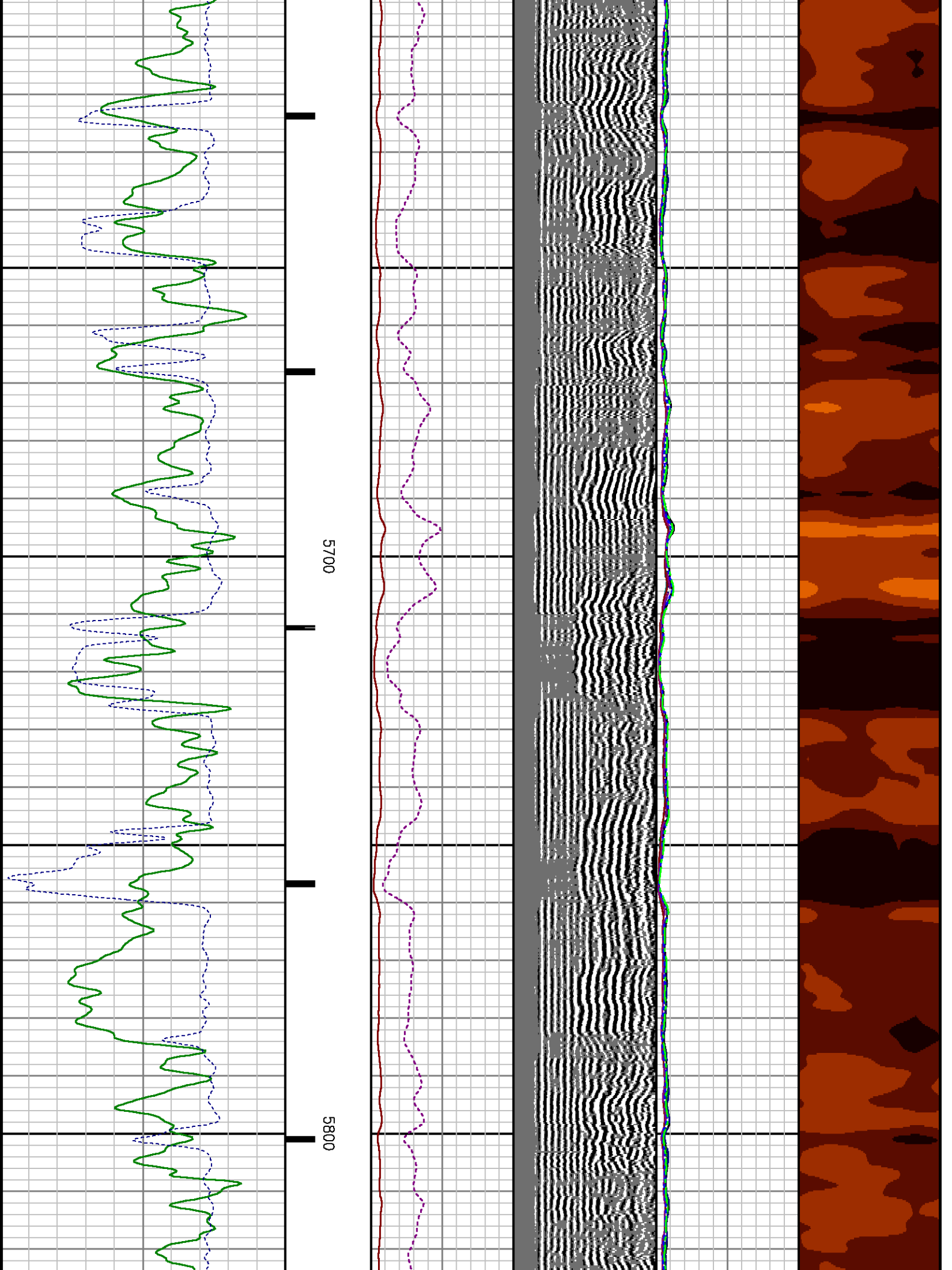


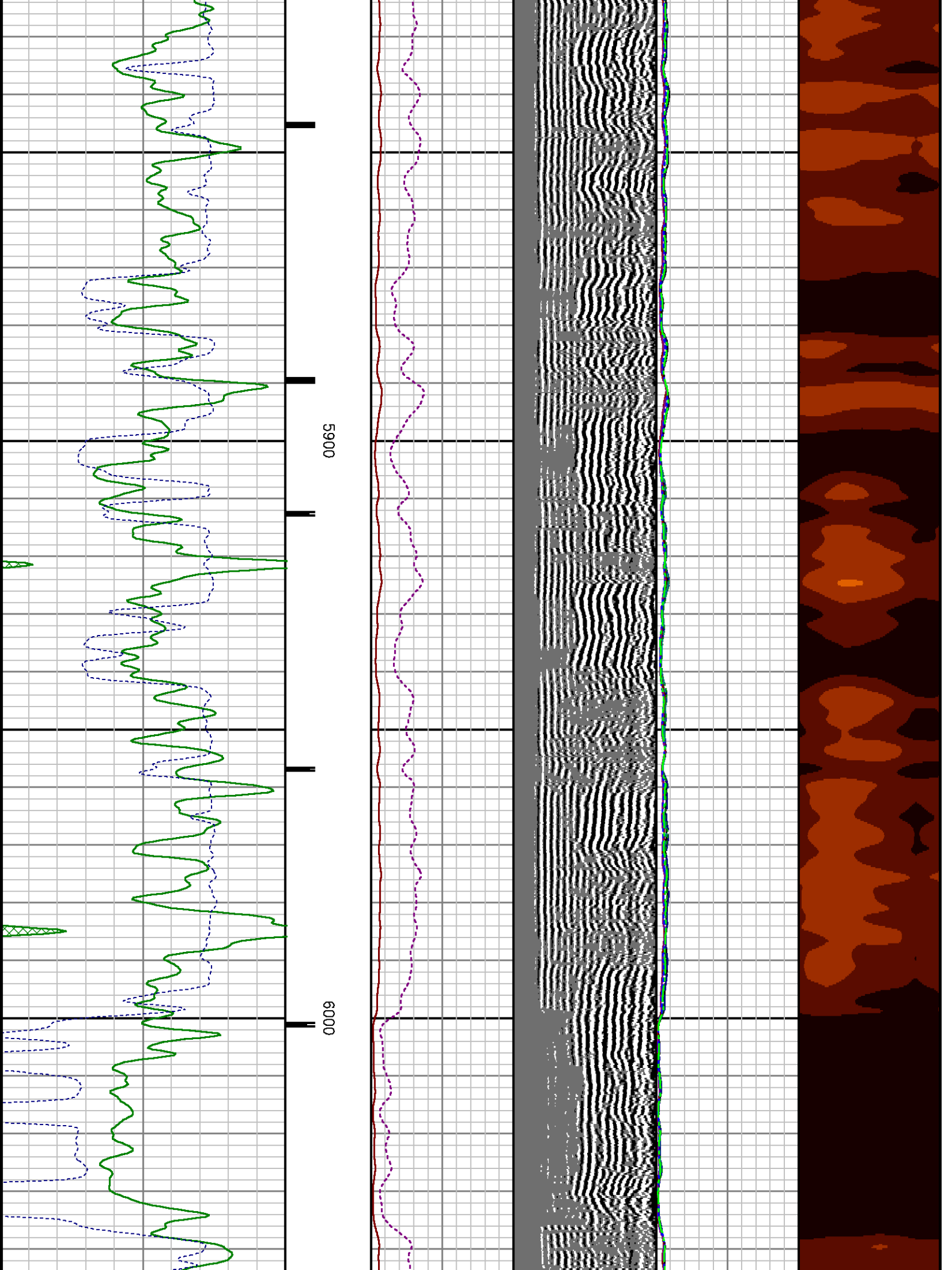


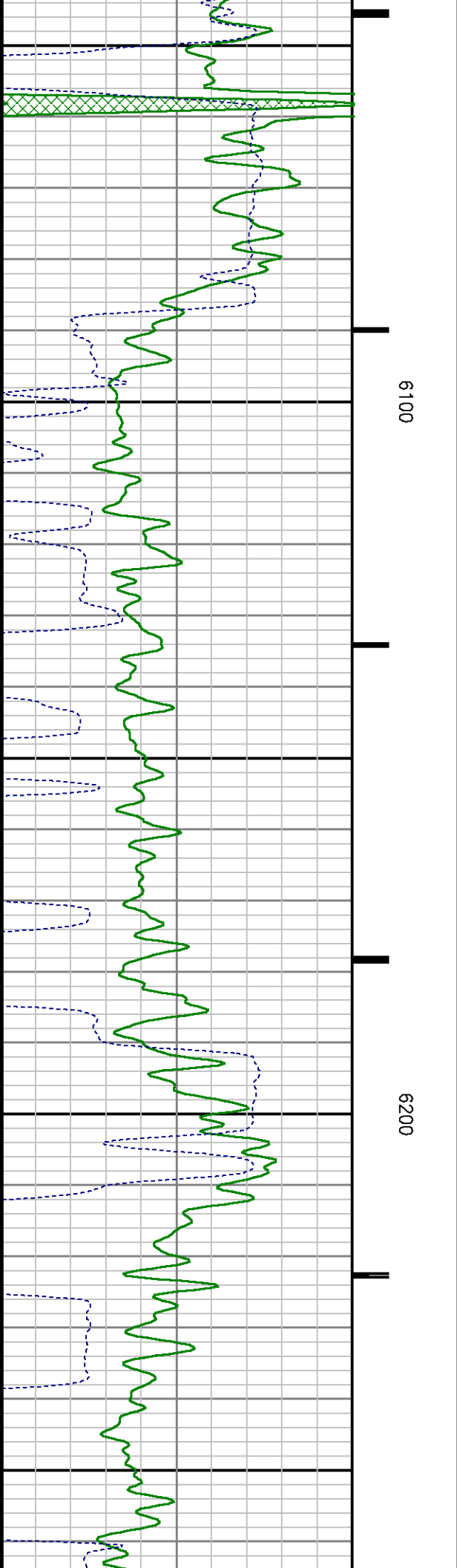
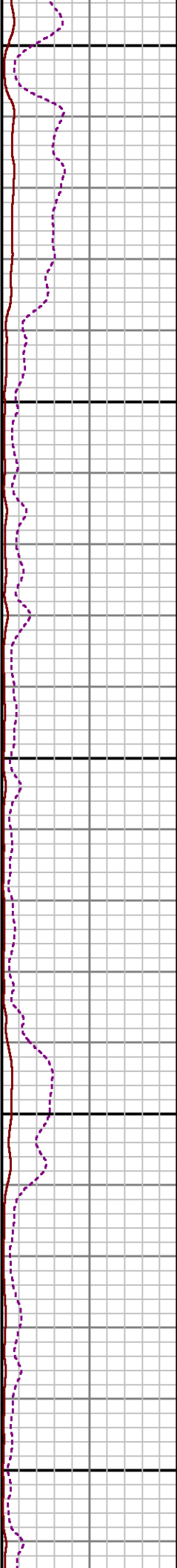
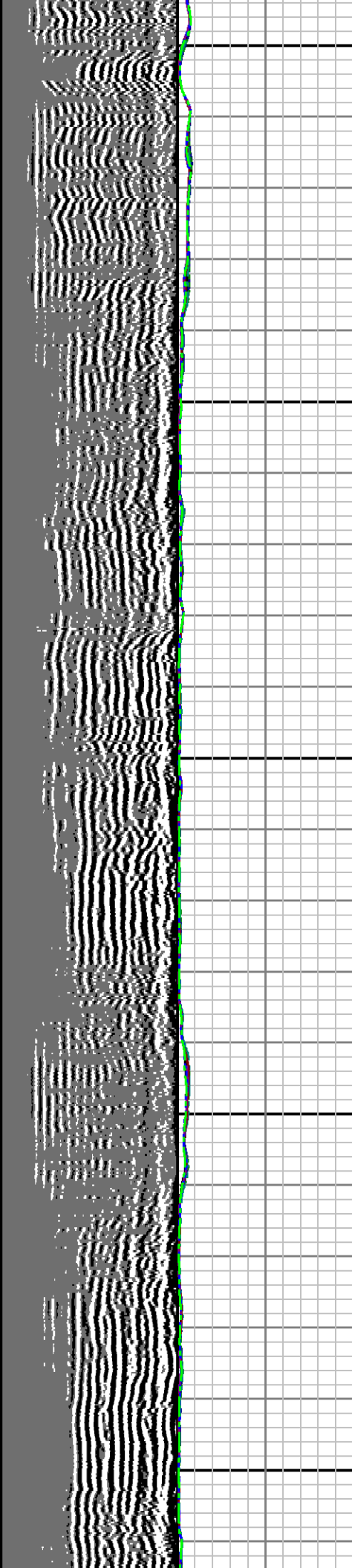
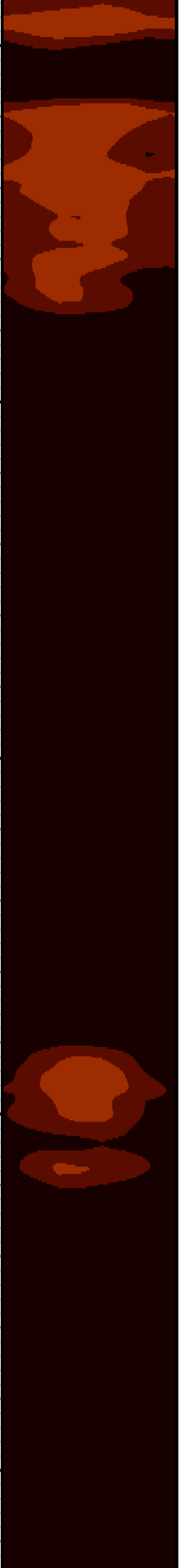


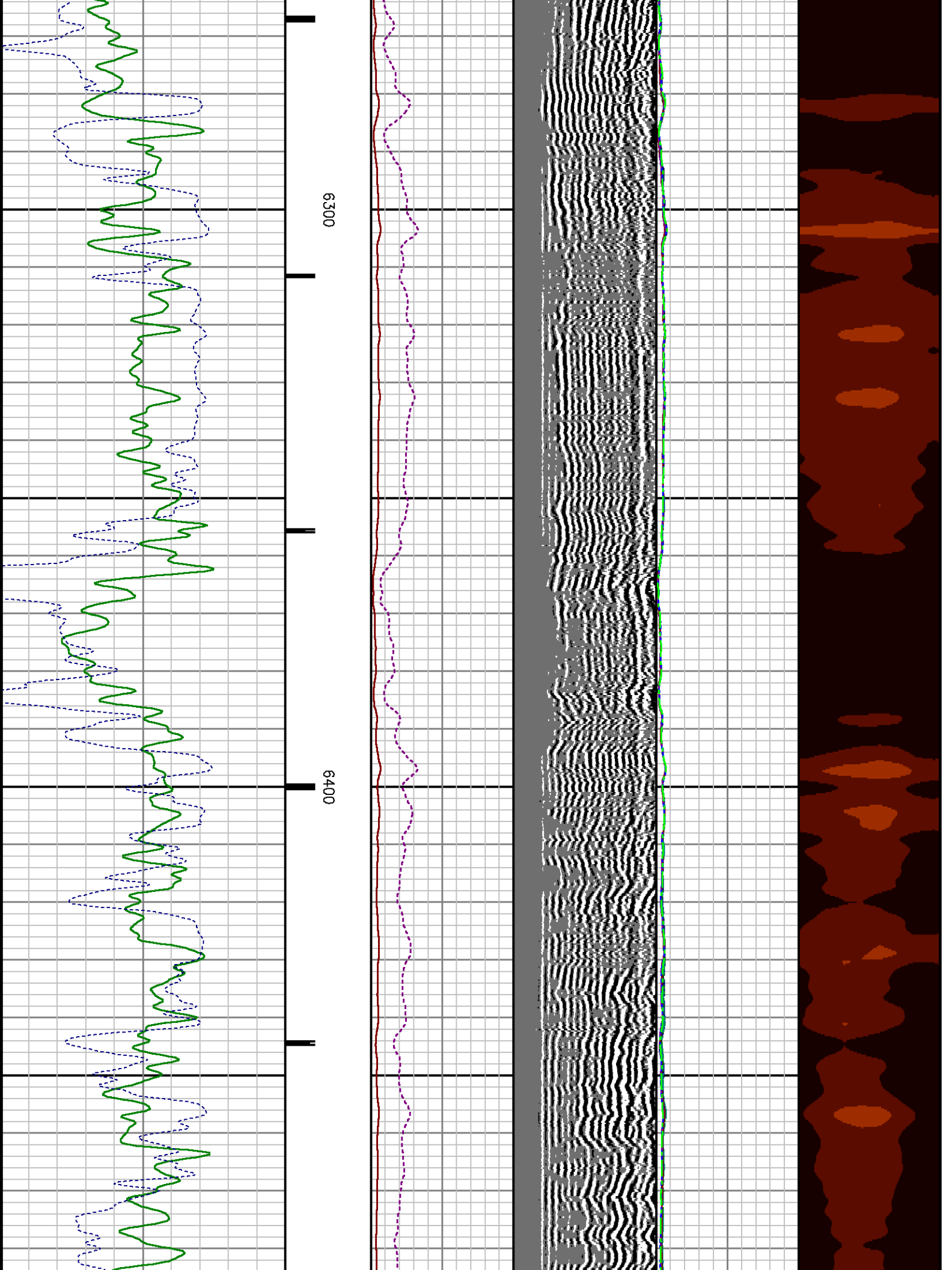




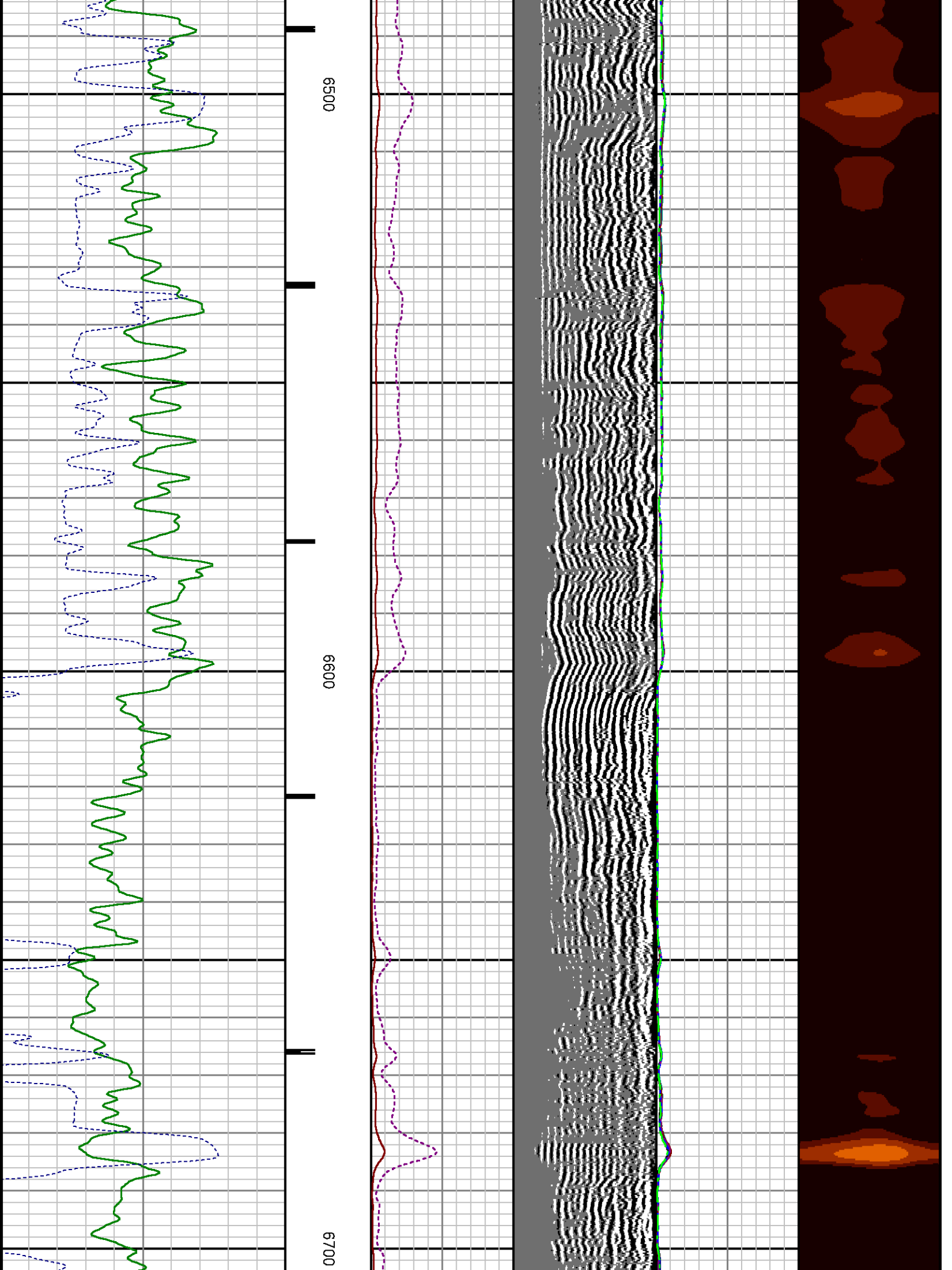




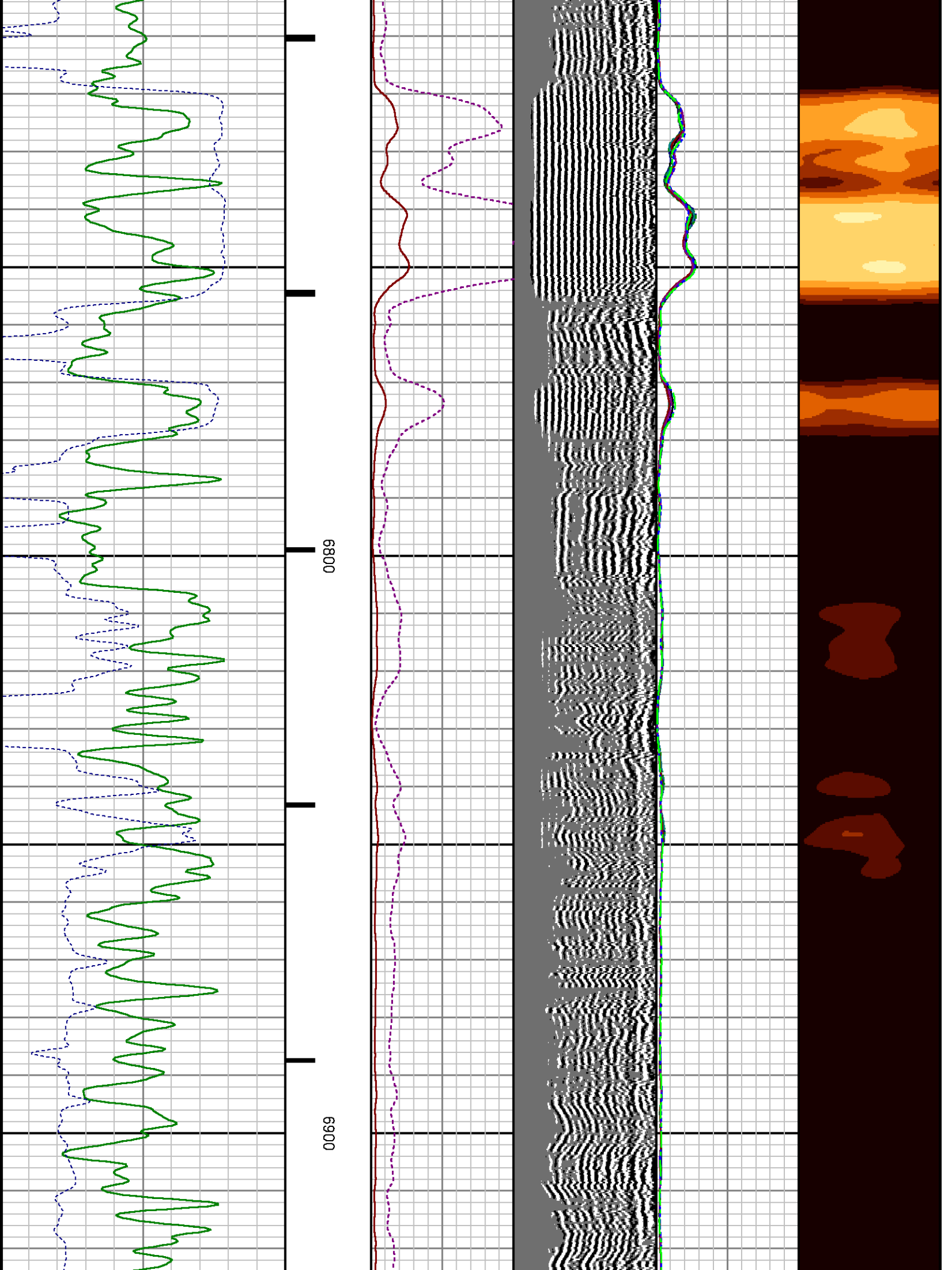


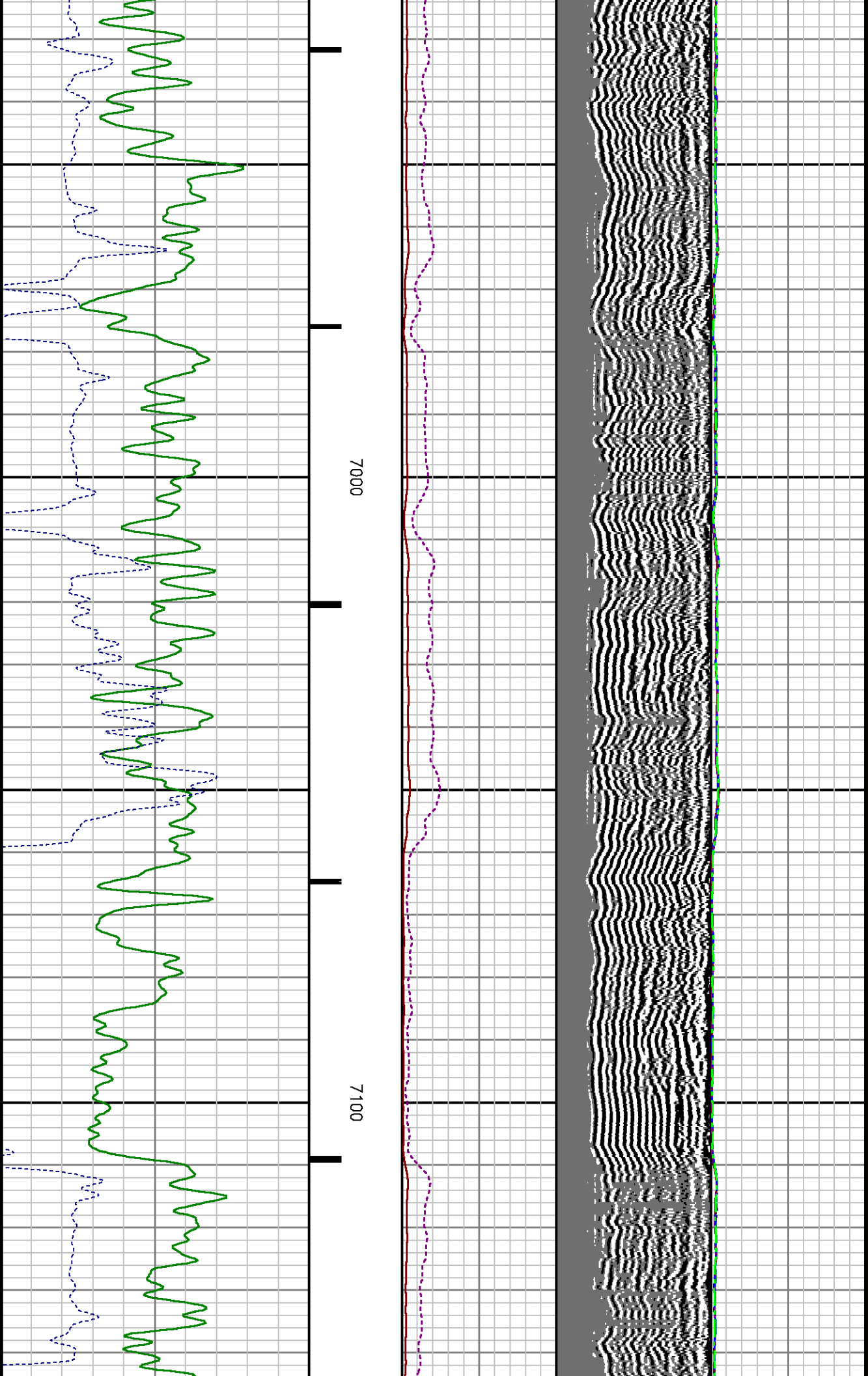


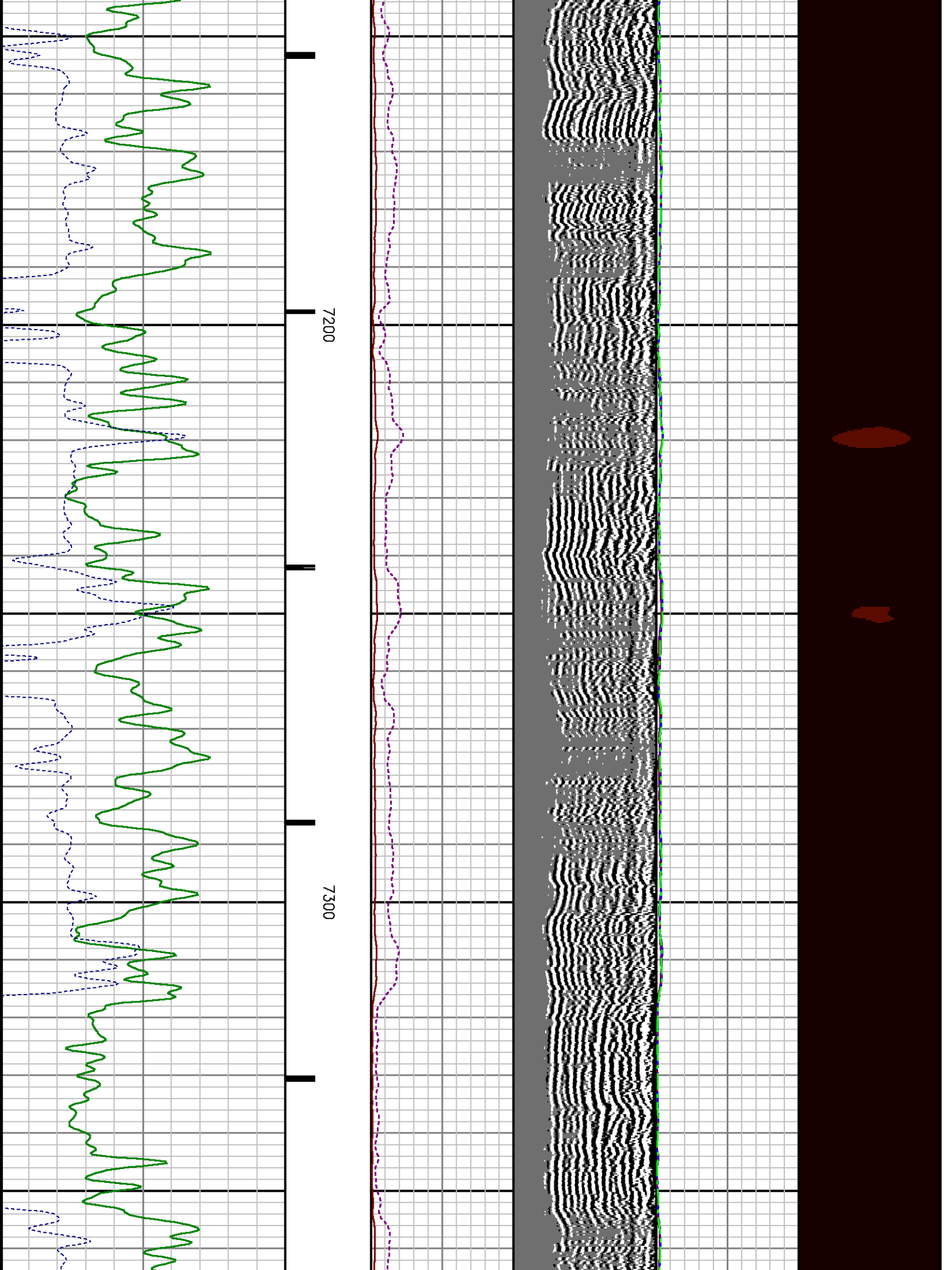


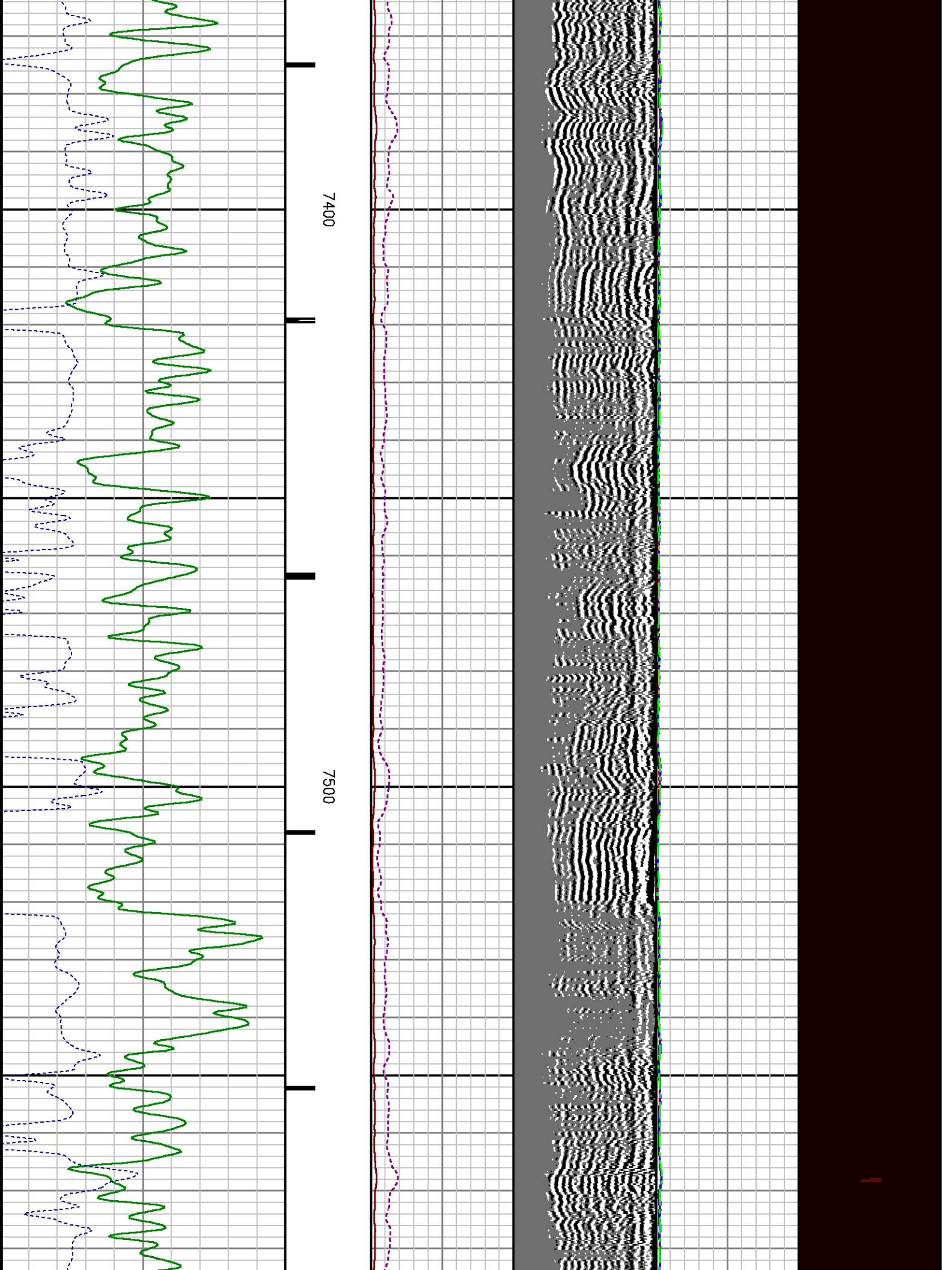


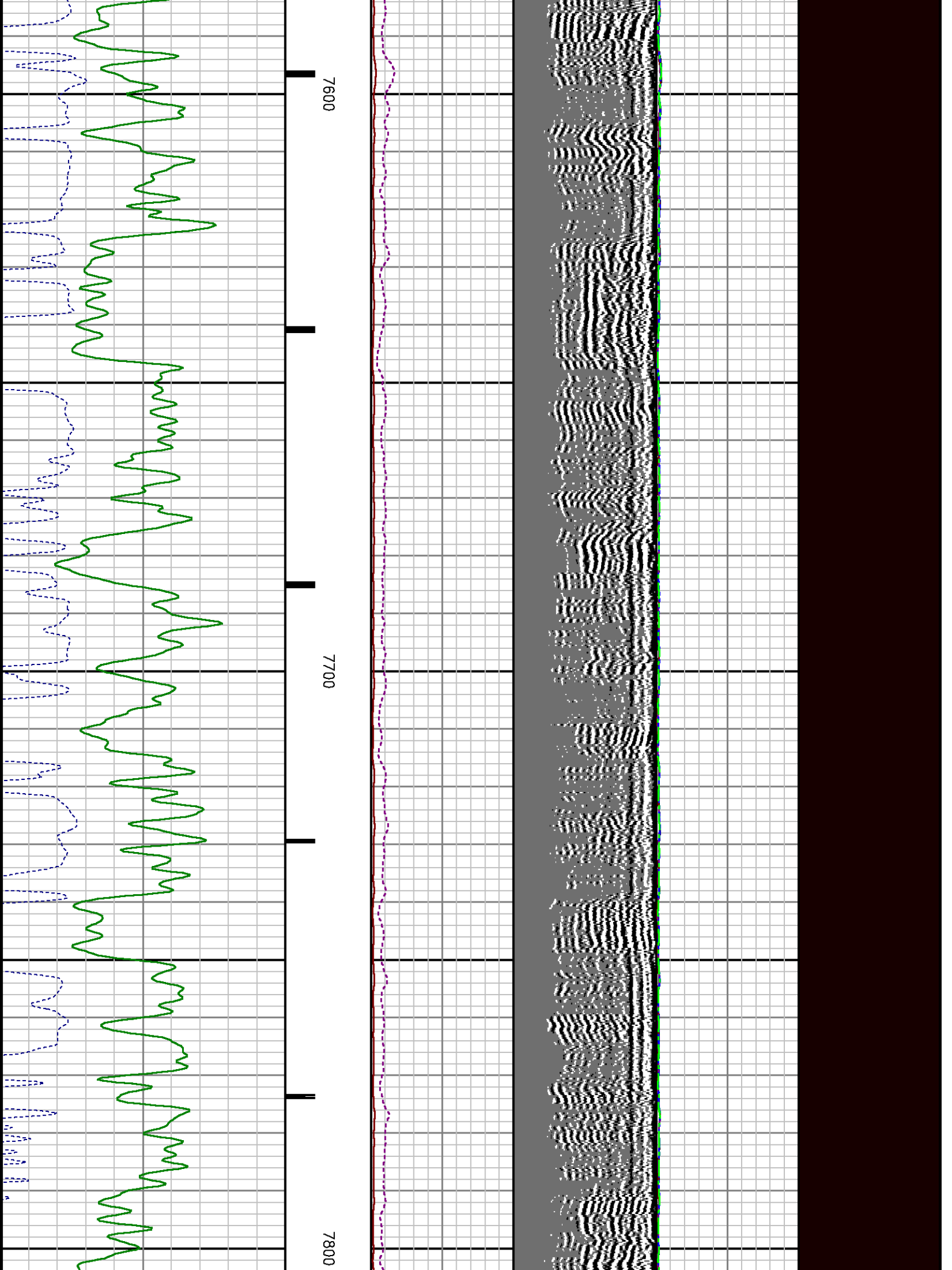




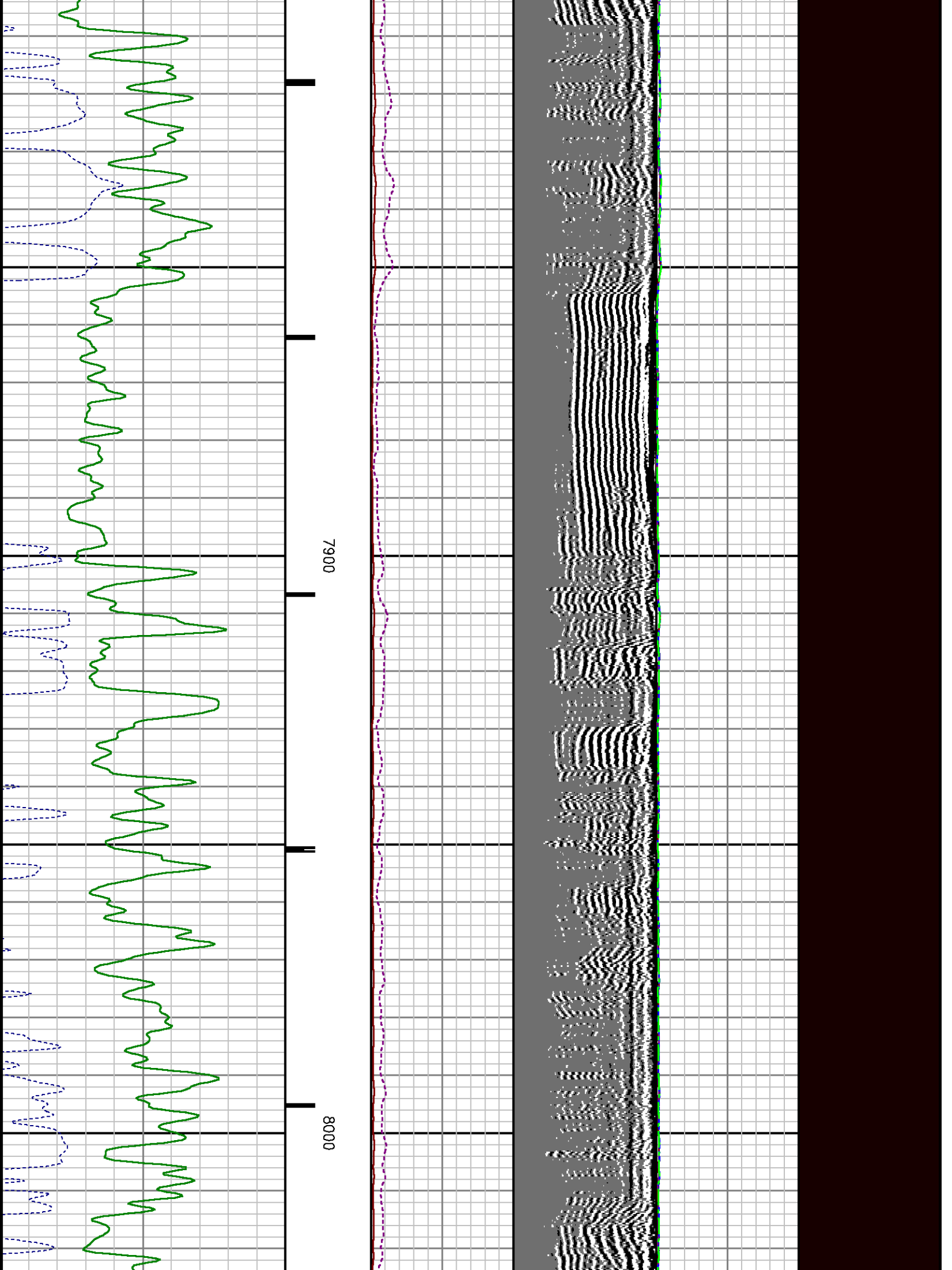




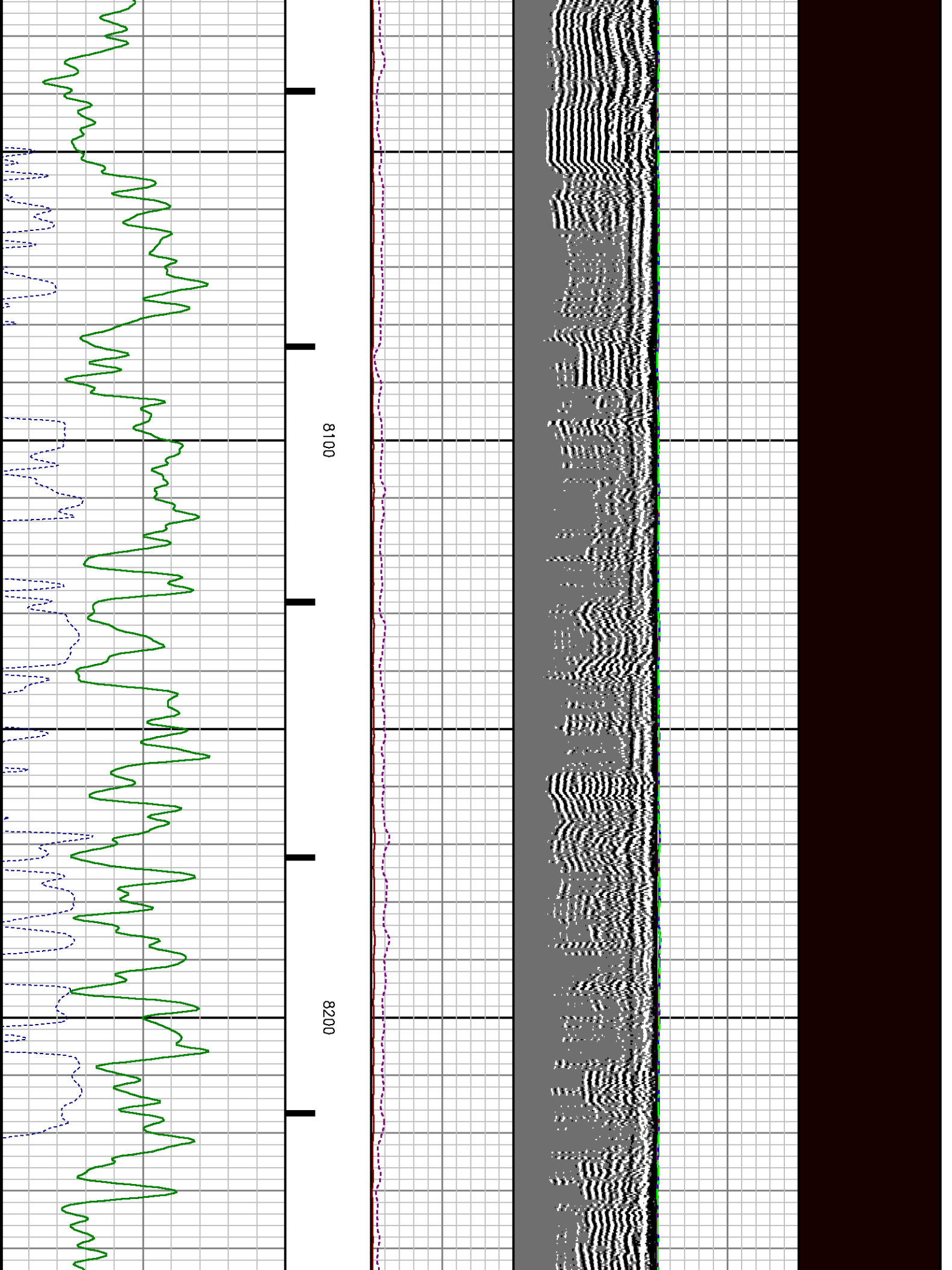


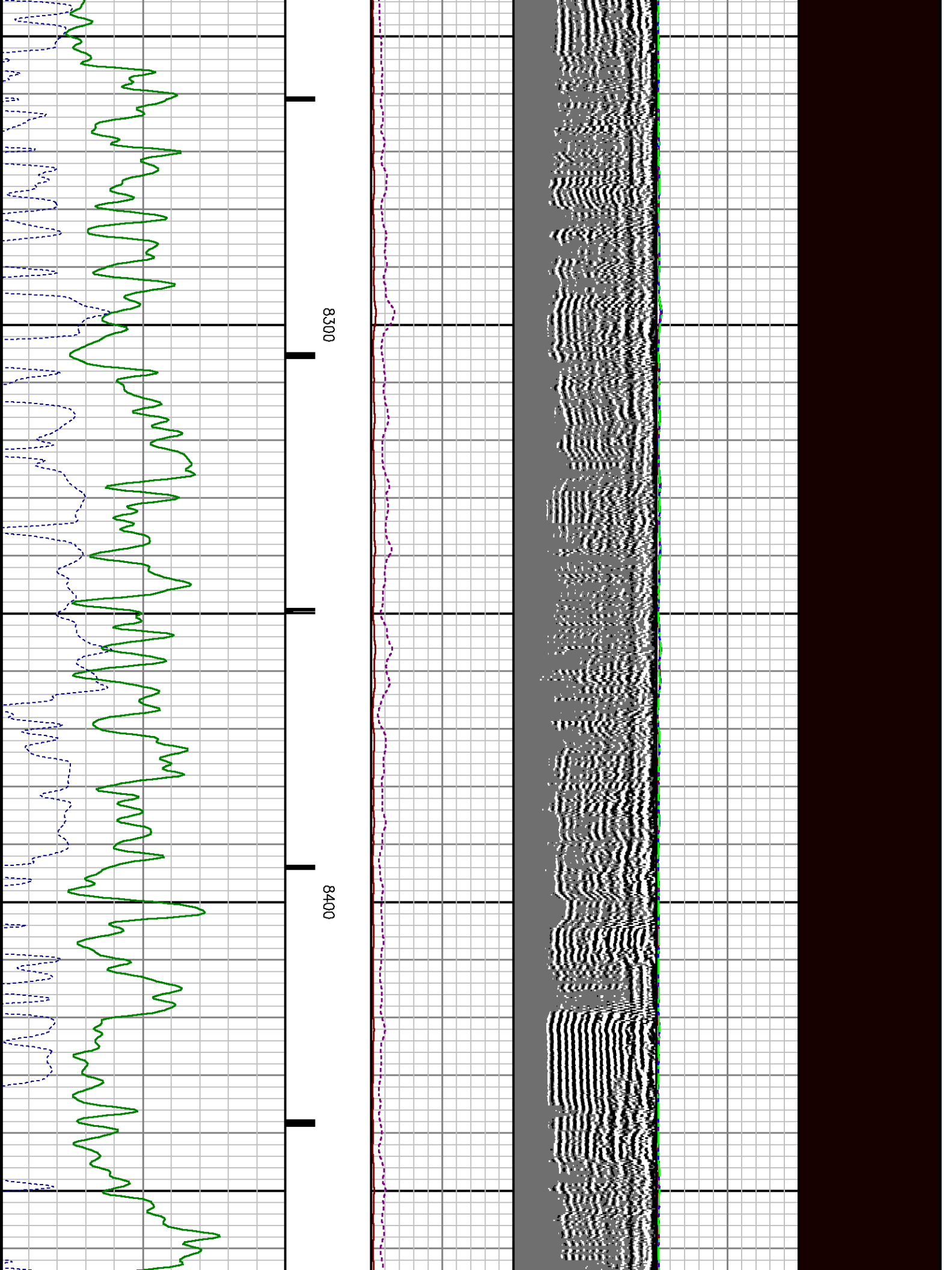


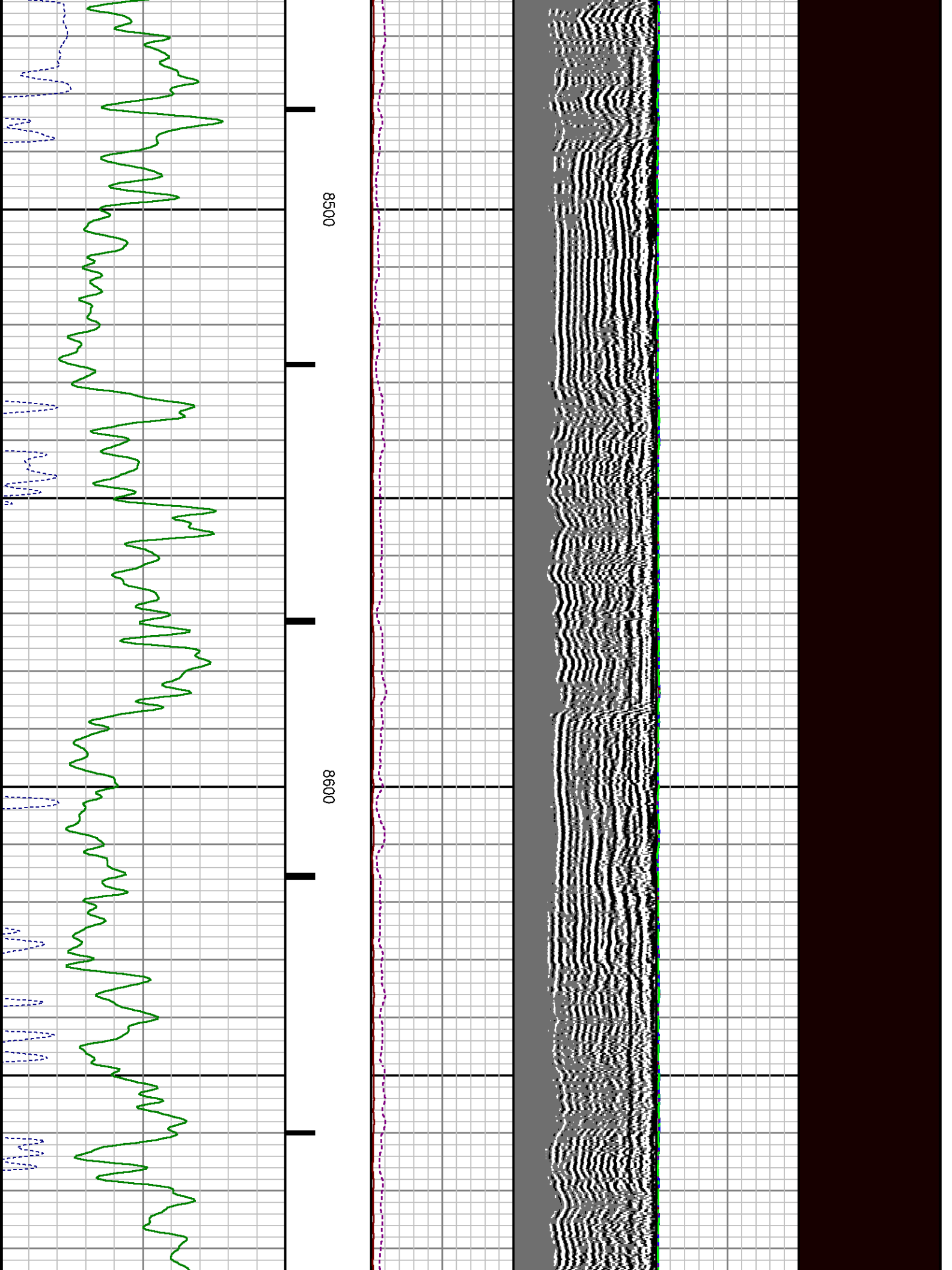


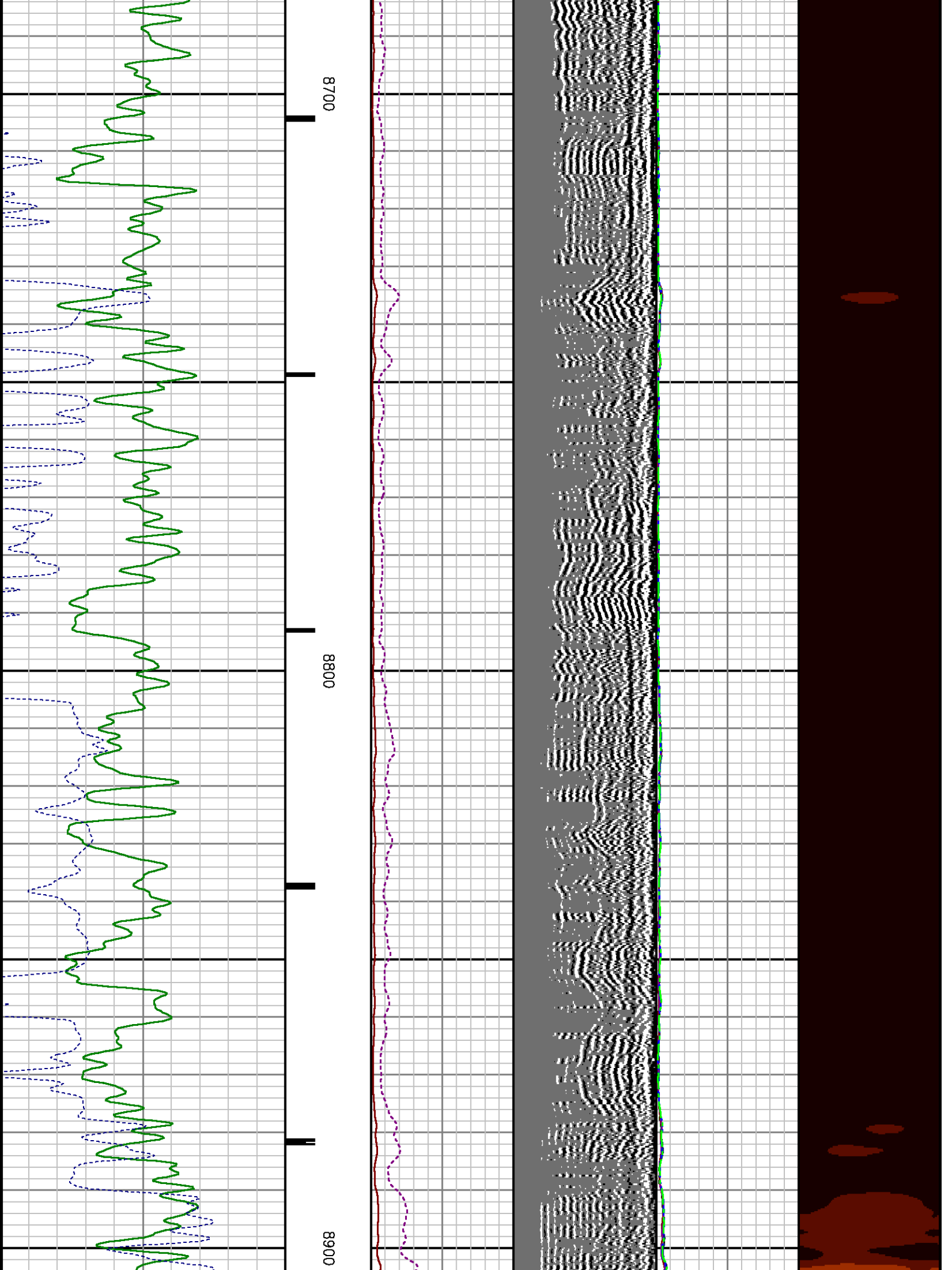


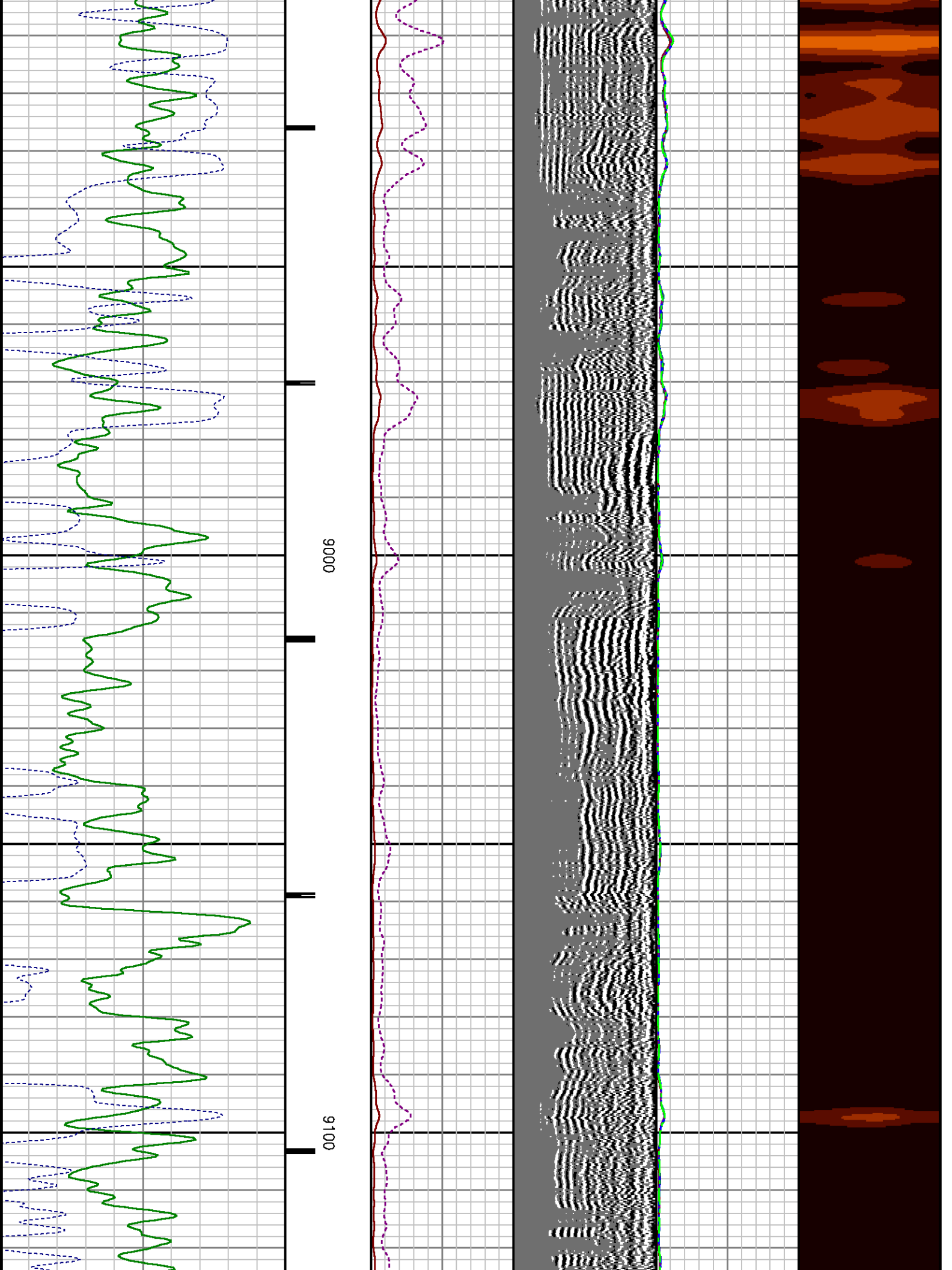


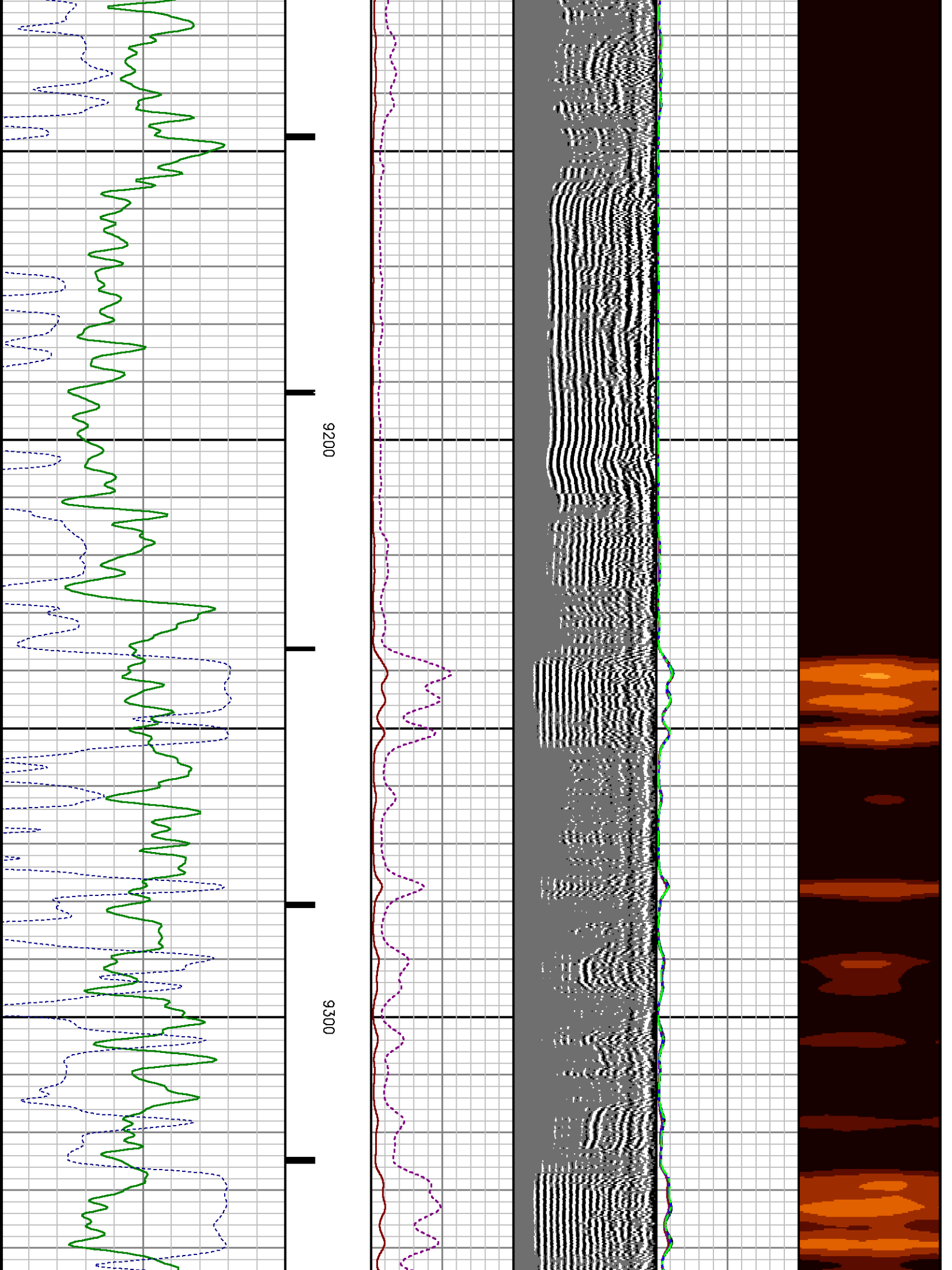




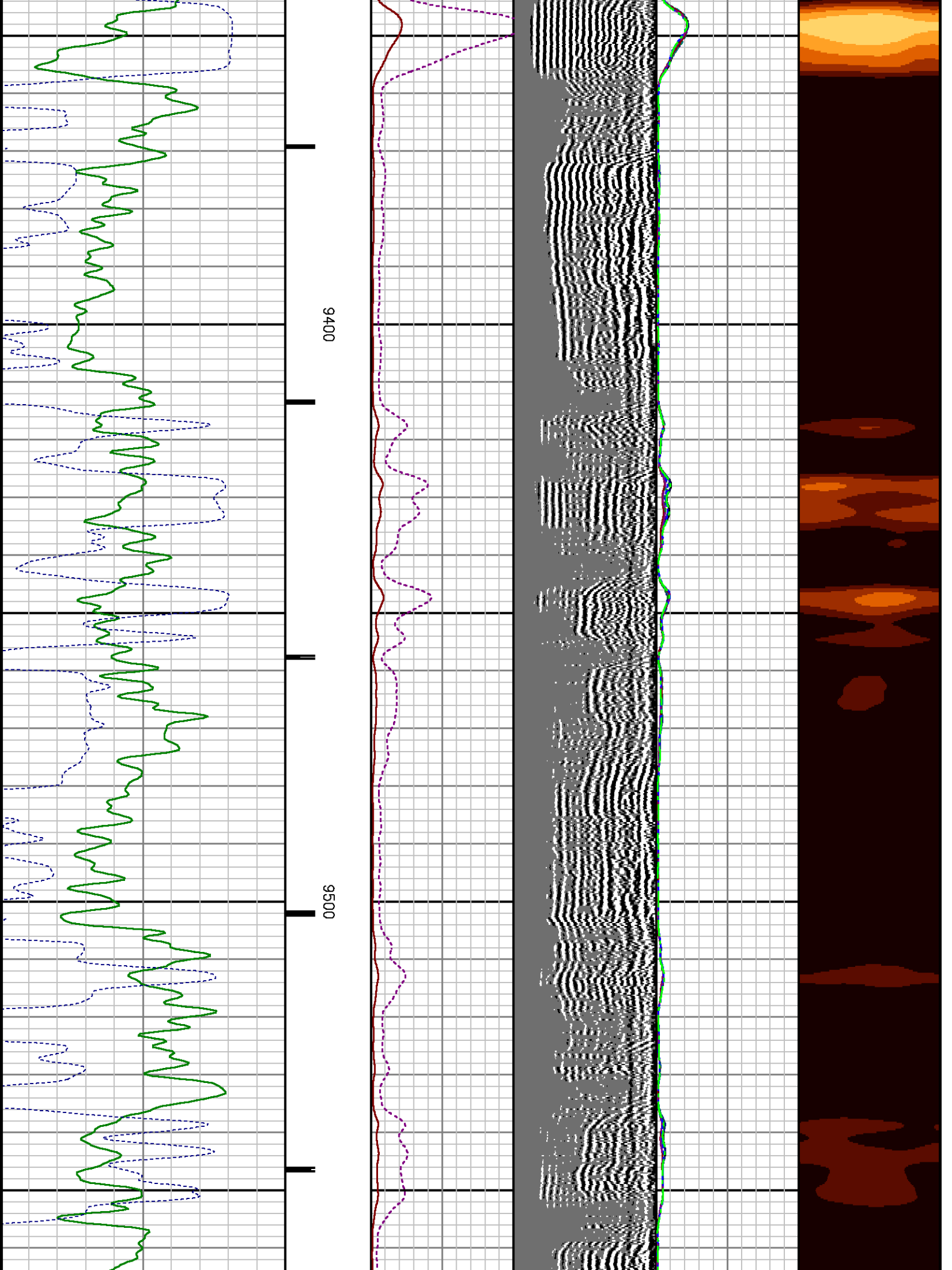


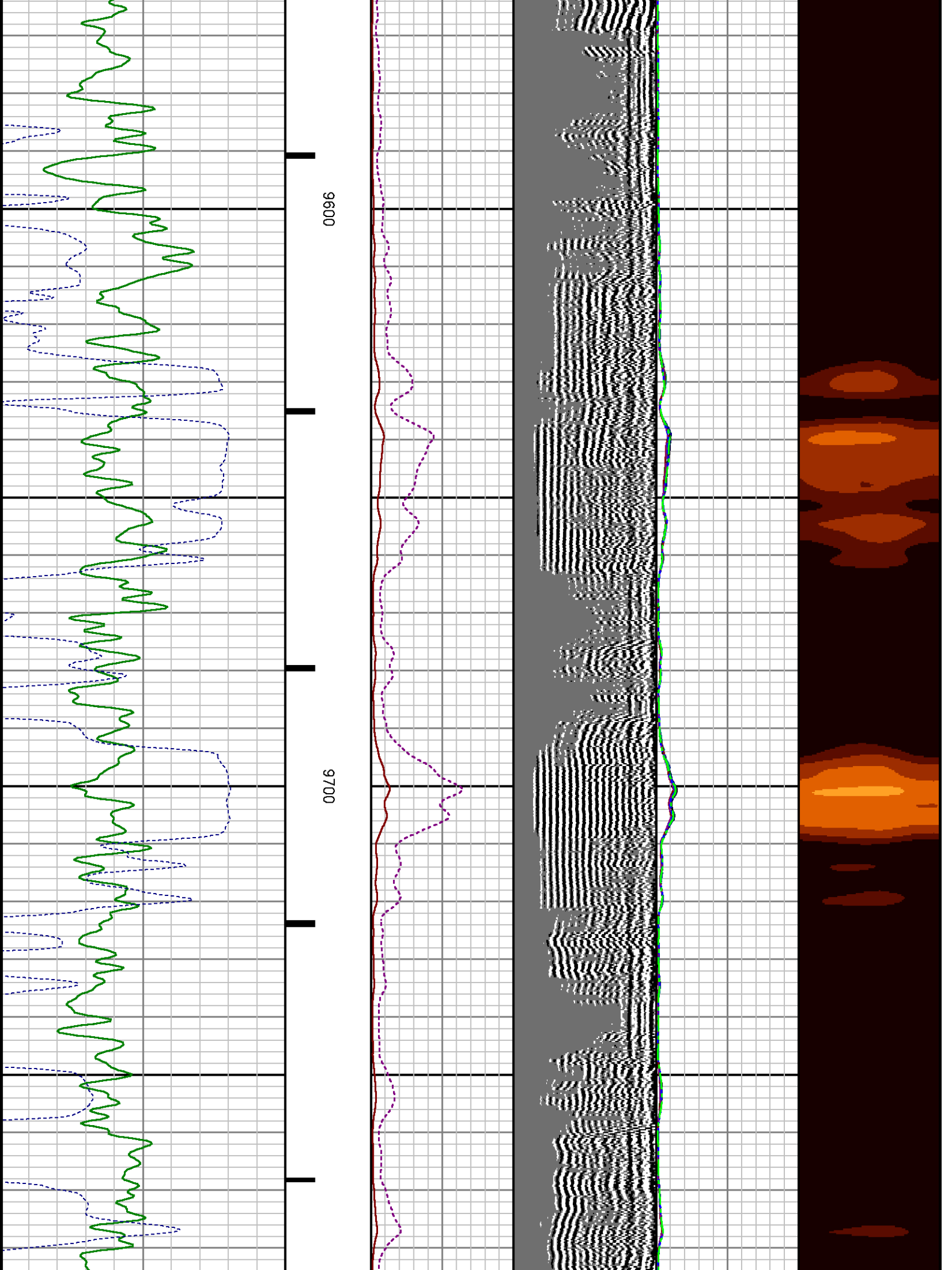


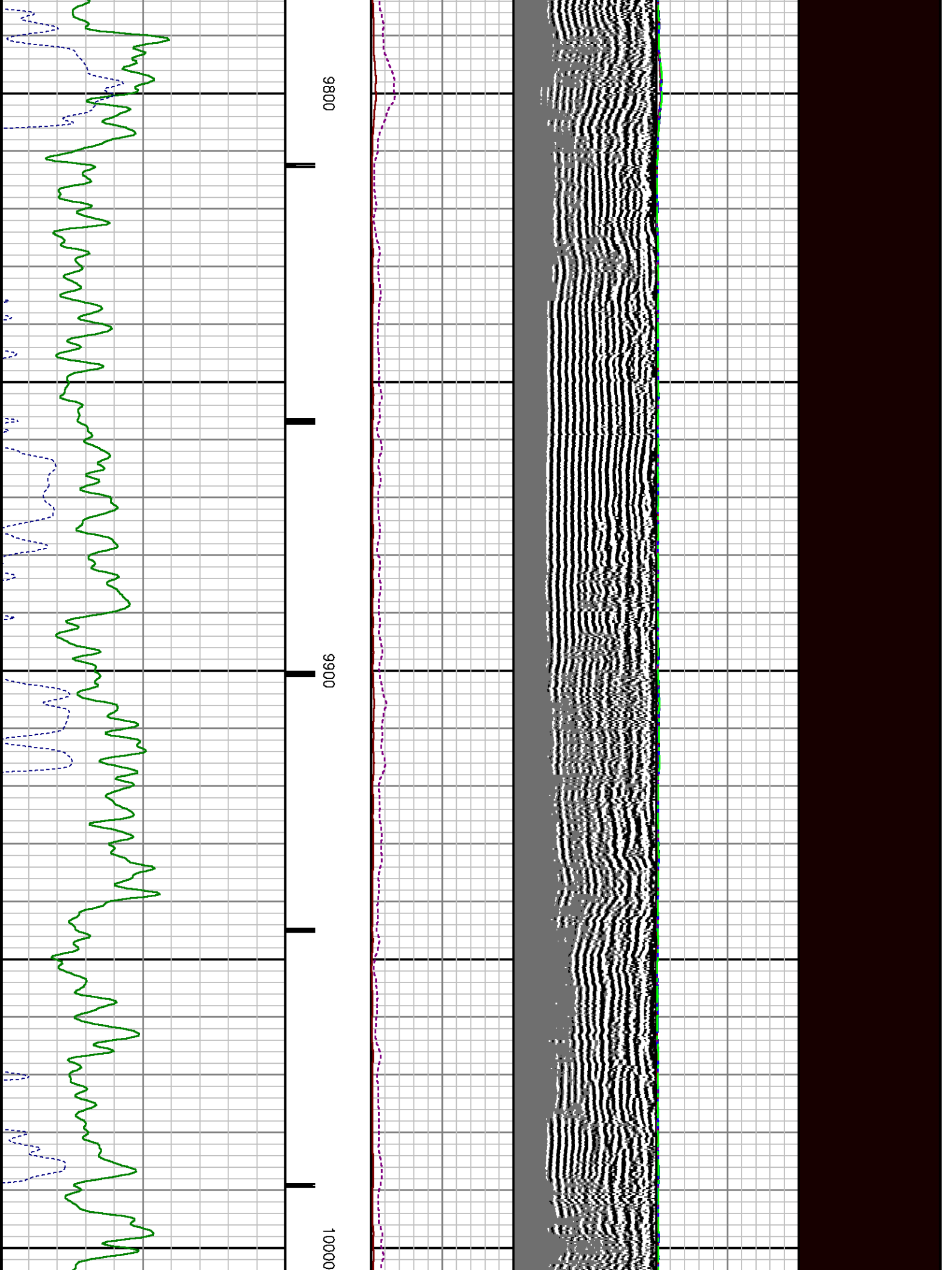


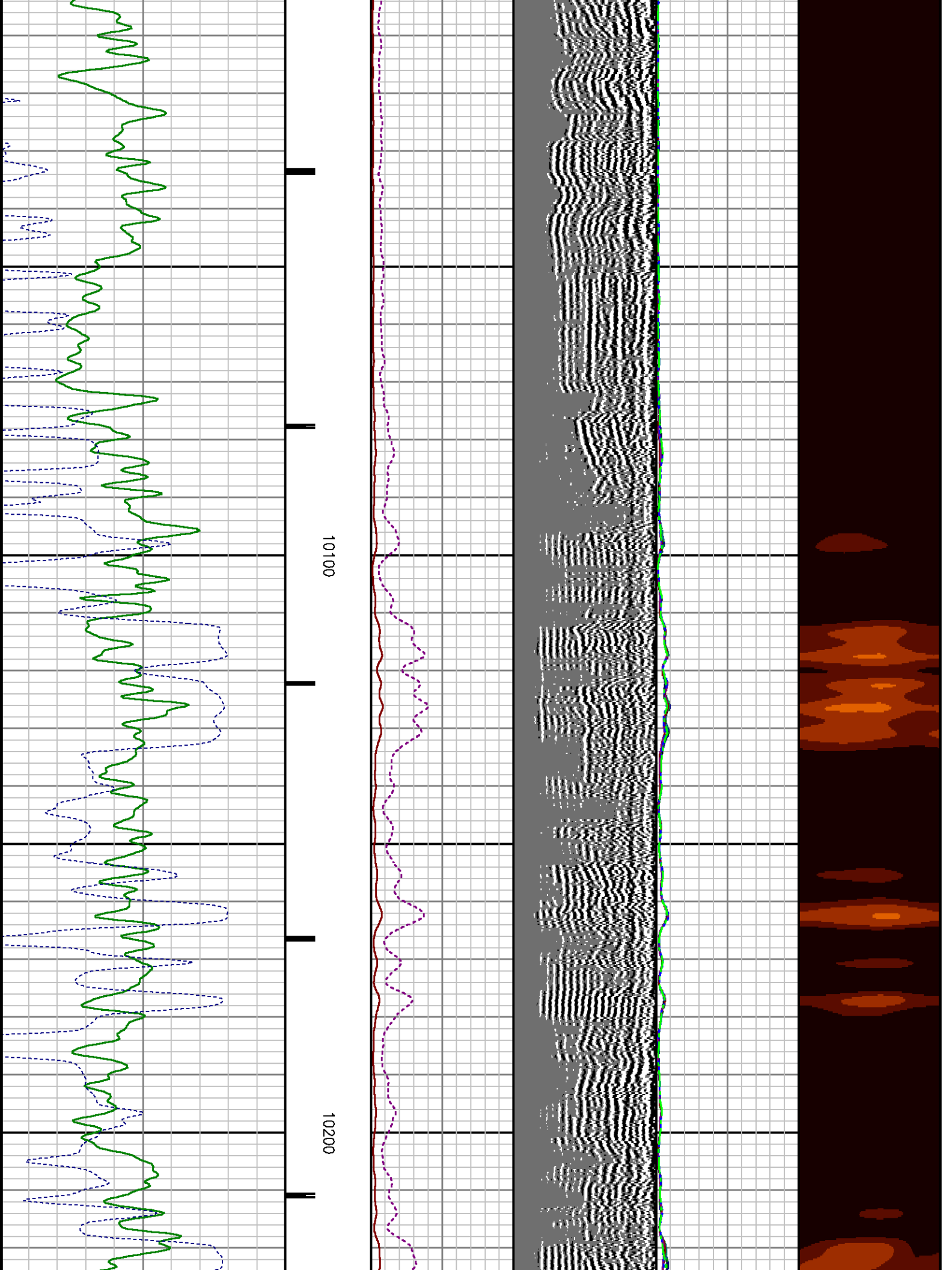


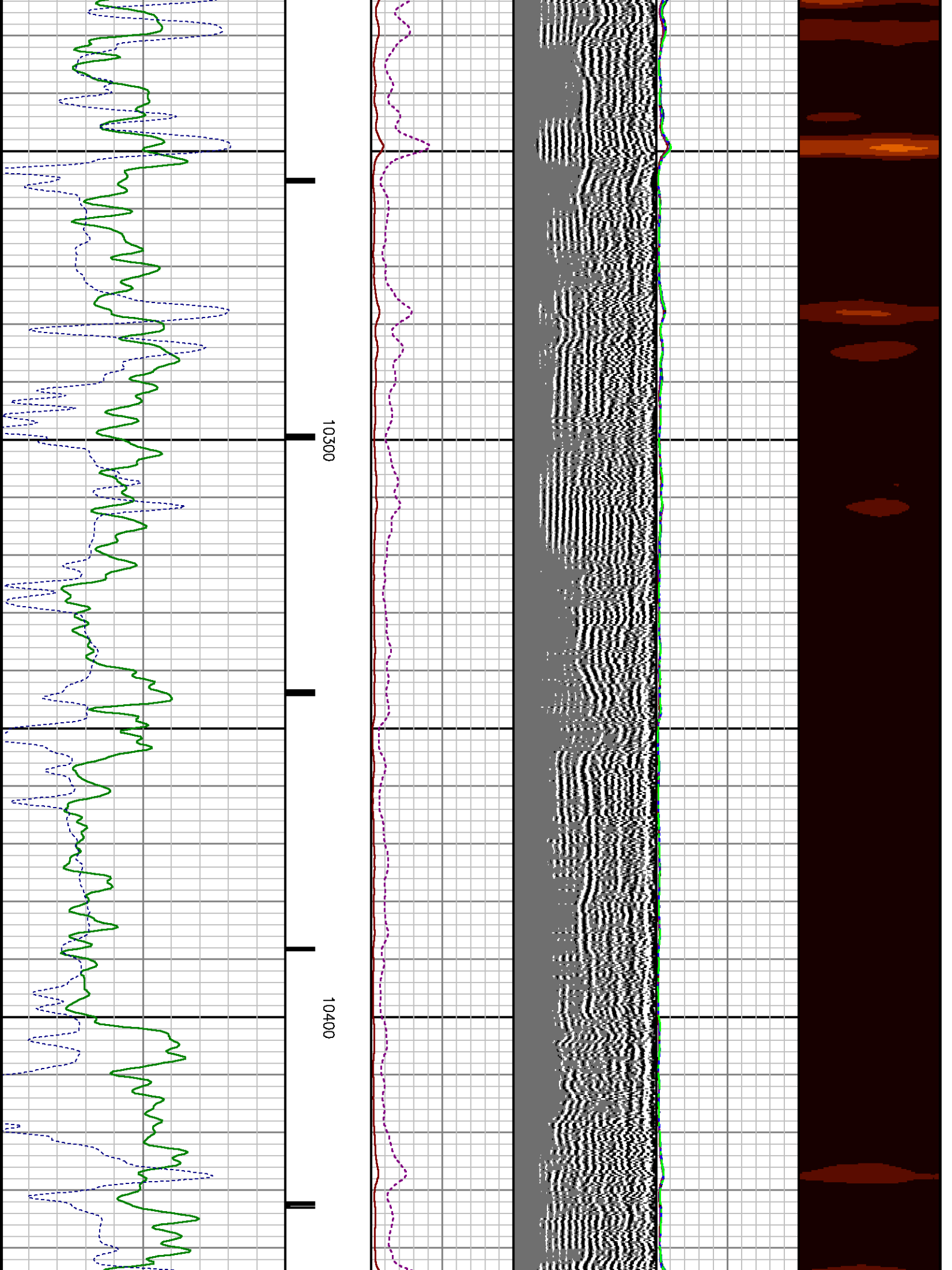




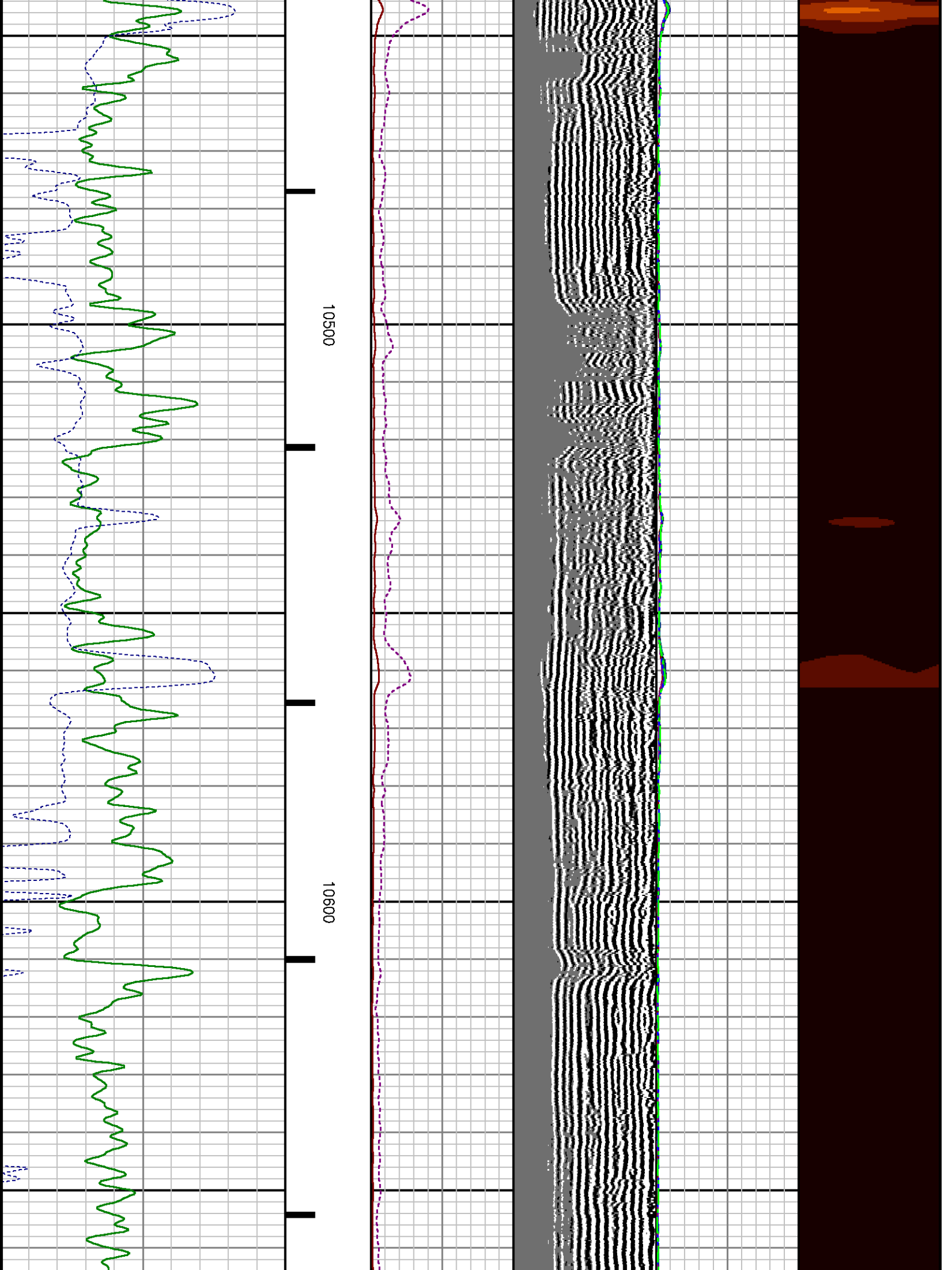




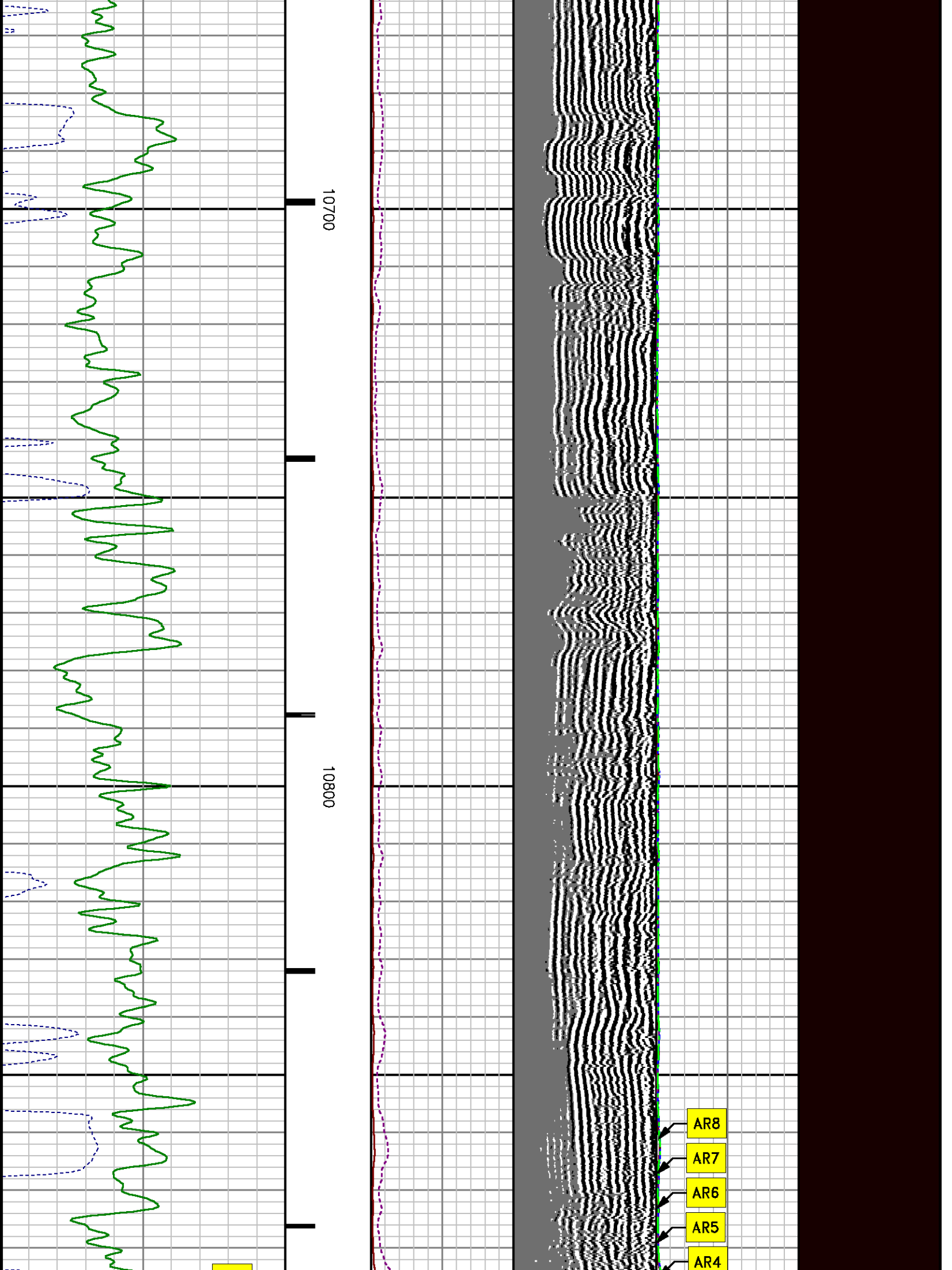


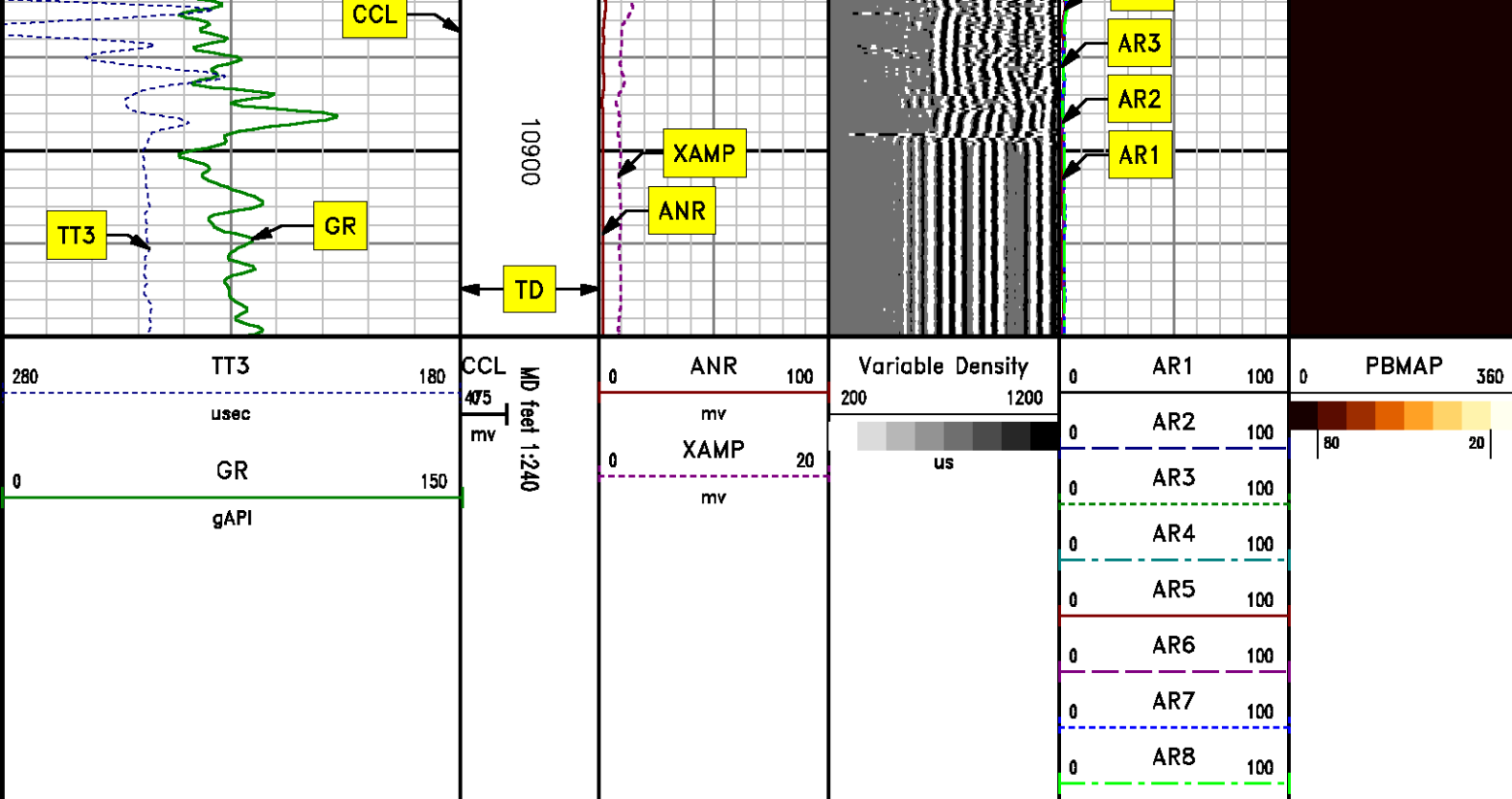












| MEASUREMENT TYPE | PARAMETER             | VALUE   | UNITS  | TOP       | BOTTOM    |
|------------------|-----------------------|---------|--------|-----------|-----------|
| RAL              | Amp Gate Start Far    | 305.000 | usec   | 10592.250 | 10937.250 |
| RAL              | Amp Gate Start Near   | 195.000 | usec   | 10592.250 | 10937.250 |
| RAL              | Amp Gate Start Radial | 195.000 | usec   | 10592.250 | 10937.250 |
| RAL              | Amp Gate Width Far    | 25.000  | usec   | 10592.250 | 10937.250 |
| RAL              | Amp Gate Width Near   | 25.000  | usec   | 10592.250 | 10937.250 |
| RAL              | Amp Gate Width Radial | 25.000  | usec   | 10592.250 | 10937.250 |
| RAL              | casing od             | 4.500   | inches | 10592.250 | 10937.250 |
| RAL              | casing wt             | 11.600  | lbm/ft | 10592.250 | 10937.250 |
| RAL              | FB Start Far          | 291.900 | usec   | 10592.250 | 10937.250 |
| RAL              | FB Start Near         | 175.391 | usec   | 10592.250 | 10937.250 |
| RAL              | FB Start Radial       | 175.391 | usec   | 10592.250 | 10937.250 |
| RAL              | FB Thresh Far         | 10.000  | mv     | 10592.250 | 10937.250 |
| RAL              | FB Thresh Near        | 4.000   | mv     | 10592.250 | 10937.250 |
| RAL              | FB Thresh Radial      | 4.000   | mv     | 10592.250 | 10937.250 |
| RAL              | Fluid Temp at Ti      | 200.000 | °C     | 10592.250 | 10937.250 |

RAL

Fluid Travel Time

200.000

usec/ft

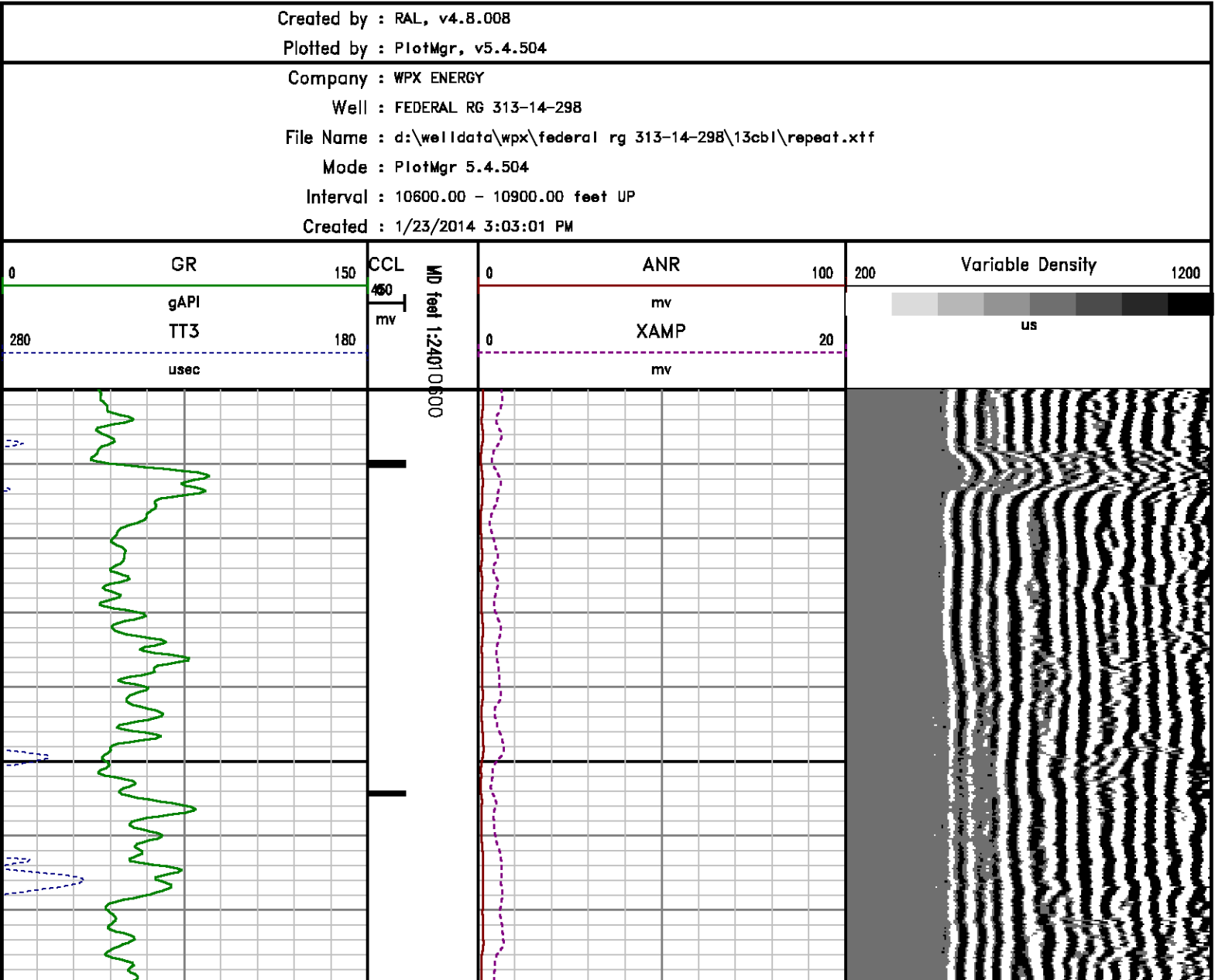
10592.250

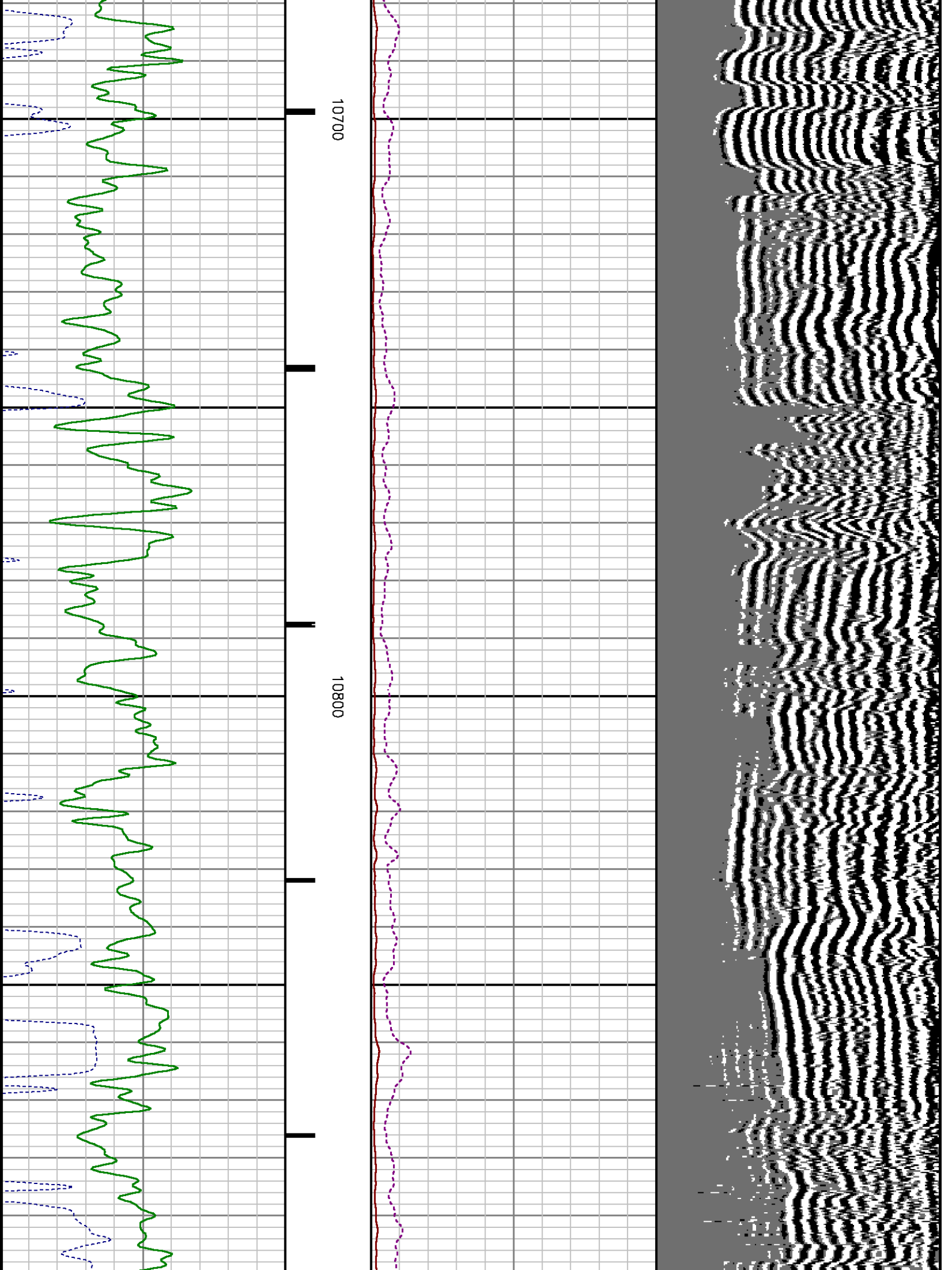
10937.750

DEPTH OFFSETS

(for Acquired Curves)

| SERIES | DEPTH OFFSET | ACQUIRED CURVES |      |      |      |      |      |  |  |
|--------|--------------|-----------------|------|------|------|------|------|--|--|
| 1426XA | -16.750      | ACAL            | ANR  | AR1  | AR2  | AR3  | AR4  |  |  |
|        |              | AR5             | AR6  | AR7  | AR8  | CHV  | FPR2 |  |  |
|        |              | FPR3            | FPR5 | TT3  | TTR1 | TTR2 | TTR3 |  |  |
|        |              | TTR4            | TTR5 | TTR6 | TTR7 | TTR8 | XAMP |  |  |
| 1426XA | -15.750      | AFAR            | SIG  | TT5  |      |      |      |  |  |
| 2459XA | -11.340      | CCL             |      |      |      |      |      |  |  |
| 2459XA | -9.490       | GR              |      |      |      |      |      |  |  |
| 2459XA | -4.090       | NEU             |      |      |      |      |      |  |  |





|     |      |     |     |               |   |      |     |     |                  |      |
|-----|------|-----|-----|---------------|---|------|-----|-----|------------------|------|
| 0   | GR   | 150 | CCL | MD feet 1:240 | 0 | ANR  | 100 | 200 | Variable Density | 1200 |
|     | gAPI |     | 450 |               |   | mv   |     |     |                  |      |
| 280 | TT3  | 180 | mv  |               | 0 | XAMP | 20  |     | us               |      |
|     | usec |     |     |               |   | mv   |     |     |                  |      |

## CALIBRATION SUMMARY

**RALSHP**

Shop Calibration: C:\case\calver\RALSHP\496J22\_sbp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Jan 22 19:02:05 2014 TOOL SERIES: 1426XA ASSET: 496 SEQ: J22

Tool Delay [usec] -55.00 Tank OD in 5.50 Tank Wt lbm/ft 15.50 Tank ID in 4.95

| RECEIVER       | Travel Time [usec] | Amp. Gate Start [usec] | Amp. Gate Width [usec] | Zero Gate Start [usec] | Zero Gate Width [usec] | Zero Amp. [mV] | Amp Ref. [mV] | Shop Factor |
|----------------|--------------------|------------------------|------------------------|------------------------|------------------------|----------------|---------------|-------------|
| CAL Pulse      | 218                | 216                    | 30                     | 166                    | 25                     | 0.131          | 100.00        | 0.16        |
| 3 Ft. Receiver | 218                | 216                    | 30                     | 166                    | 7                      | -0.008         | 100.00        | 0.16        |
| 5 Ft. Receiver | 327                | 325                    | 30                     | 244                    | 25                     | 0.366          | 150.00        | 0.18        |
| Radial #1      | 218                | 216                    | 30                     | 166                    | 9                      | -0.323         | 100.00        | 0.16        |
| Radial #2      | 218                | 216                    | 30                     | 166                    | 9                      | -0.281         | 100.00        | 0.16        |
| Radial #3      | 218                | 216                    | 30                     | 166                    | 9                      | 0.192          | 100.00        | 0.16        |
| Radial #4      | 218                | 216                    | 30                     | 166                    | 9                      | -0.367         | 100.00        | 0.16        |
| Radial #5      | 218                | 216                    | 30                     | 166                    | 9                      | -0.083         | 100.00        | 0.16        |
| Radial #6      | 217                | 216                    | 30                     | 166                    | 9                      | -0.323         | 100.00        | 0.16        |
| Radial #7      | 216                | 216                    | 30                     | 166                    | 9                      | -0.288         | 100.00        | 0.16        |
| Radial #8      | 218                | 216                    | 30                     | 166                    | 9                      | -0.033         | 100.00        | 0.16        |

**RALFLD**

Wellsite Calibration: C:\case\calver\RALFLD\496J22 fld.cal

### WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Jan 22 19:03:38 2014 TOOL SERIES: 1426XA ASSET: 496 SEQ: J22

Tool Delay [usec] -55.00 Casing OD in 4.50 Casing Wt lbm/ft 11.60 Casing ID in 4.00

| RECEIVER       | Zero Gate<br>Start<br>[usec] | Zero Gate<br>Width<br>[usec] | Zero Amp.<br>[mV] | Full Amp.<br>[mV] | Wellsite Factor | Amp. Ref<br>[mV] |
|----------------|------------------------------|------------------------------|-------------------|-------------------|-----------------|------------------|
| CAL Pulse      | 166                          | 25                           | 0.068             | 0.000             | 1.00            | 100.000          |
| 3 Ft. Receiver | 200                          | 30                           | 1.543             |                   |                 |                  |
| 5 Ft. Receiver | 317                          | 30                           | 1.242             |                   |                 |                  |
| Radial #1      | 200                          | 30                           | 1.193             |                   |                 |                  |
| Radial #2      | 200                          | 30                           | 1.170             |                   |                 |                  |
| Radial #3      | 200                          | 30                           | 1.384             |                   |                 |                  |
| Radial #4      | 200                          | 30                           | 1.312             |                   |                 |                  |
| Radial #5      | 200                          | 30                           | 1.509             |                   |                 |                  |
| Radial #6      | 200                          | 30                           | 1.585             |                   |                 |                  |
| Radial #7      | 200                          | 30                           | 1.287             |                   |                 |                  |
| Radial #8      | 200                          | 30                           | 1.298             |                   |                 |                  |

## GAMMA RAY

Calibration File: C:\case\calver\GR\121J2.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Tue Jan 21 14:45:39 2014 TOOL SERIES: 2459XA ASSET: 121 SEQ: J2

| Calibrator # | Background<br>[cps] | Calibrator On<br>[cps] | Multiplicative | Background<br>[api] | Calibrator On<br>[api] | Differential<br>[api] |
|--------------|---------------------|------------------------|----------------|---------------------|------------------------|-----------------------|
| SK2 WA612    | 71.78               | 314.67                 | 0.762          | 54.67               | 239.67                 | 185.00                |

Verification File: C:\case\calver\GR\121J2.VP

### PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Tue Jan 21 14:46:51 2014 TOOL SERIES: 2459XA ASSET: 121 SEQ: J2

| Calibrator # | Background<br>[cps] | Calibrator On<br>[cps] | Multiplicative | Background<br>[api] | Calibrator On<br>[api] | Differential<br>[api] |
|--------------|---------------------|------------------------|----------------|---------------------|------------------------|-----------------------|
| SK2 WA612    | 74.22               | 316.93                 | 0.762          | 56.53               | 241.40                 | 184.86                |

## TOOL DIAGRAM

OTA SHORT CABLE HEAD

PROBE 2 3/4 DUAL RECEIVER RADII



24.23'



|               |                 |
|---------------|-----------------|
| Series        | 1426XA          |
| Mnemonic      | PROB            |
| Diameter      | 2.75"           |
| Length        | 11.17'          |
| Measure Point | 0.75' FAR RCVR  |
| Measure Point | 2.67' NEAR RCVR |
| Measure Point | 5.75' XMIT      |
| Temp Rating   | 350.00 °F       |
| Press Rating  | 18000.00 PSI    |

#### Probe GR/CCL/NEU

|               |           |
|---------------|-----------|
| Series        | 2459XA    |
| Mnemonic      | PROB      |
| Diameter      | 2.75"     |
| Length        | 9.42'     |
| Measure Point | 1.21' NEU |
| Measure Point | 6.60' GR  |
| Measure Point | 8.46' CCL |

#### CENTRALIZER

|          |          |
|----------|----------|
| Series   | RALCENT  |
| Mnemonic | CENT     |
| Diameter | 3.12"    |
| Weight   | 20.00 lb |

|           |        |
|-----------|--------|
| XMIT      | 18.05' |
| NEAR RCVR | 14.97' |
| FAR RCVR  | 13.05' |
| CCL       | 11.34' |
| GR        | 9.49'  |
| NEU       | 4.09'  |
|           | 0.00'  |

Total Length: 24.23'  
Total Weight: Not Available  
Max Diameter: 0' 3.12"

**BAKER  
HUGHES**

**Baker Atlas**

*CASE*

Company

WPX ENERGY

Well

FEDERAL RG 313-14-298

Field

SULPHUR CREEK

County

RIO BLANCO

State

CO

Location

SHL: 1675' FNL & 488' FWL

BHL: 2671' FSL & 637' FWL

Elevations

KB 6581 ft

DF

GL 6560 ft

File No:

CH081738

API No:

05103117970000

14 2S 98W

RG 12-14-298 PAD

CYCLONE 29

SEC 14

TWP 2S

RGE 98W