



Weatherford

SECTOR BOND LOG

| | | | | | |
|--|----------------------|-------------------------------|------------------------|-----------|------------|
| COMPANY | | EAST CHEYENNE GAS STORAGE LLC | | | |
| WELL | | ECGS No 6-21 WPPD004-2 | | | |
| FIELD | | WEST PEETZ | | | |
| PROVINCE/COUNTY | | LOGAN | | | |
| COUNTRY/STATE | | U.S.A./COLORADO | | | |
| LOCATION | | SHL:1440' FSL & 2297' FWL | | | |
| SEC 6 | TWP 11N | RGE 52W | Other Services | | |
| Latitude | 40.953098 | | PLUG | | |
| Longitude | -103.220703 | | FLUXVIEW | | |
| API Number | 0507509426-0000 | | | | |
| Permanent Datum GL, Elevation 4557 feet | | | Elevations: feet | | |
| Log Measured From KB, 12.00 feet above Permanent Datum | | | KB 4569.00 | | |
| Drilling Measured From KB | | | DF 4566.00 | | |
| | | | GL 4557.00 | | |
| Date | 13-OCT-2017 | | PERFORATION RECORD | | |
| Run Number | ONE | | Shot | Number | Depth From |
| Service Order | 195126223 | | Density | of Shots | Depth To |
| Type Log | SBT | | | | |
| Depth Driller | 5440.00 | | | | |
| Depth Logger | 5270.00 | | | | |
| Top Log Interval | 0.00 | | | | |
| Bottom Log Interval | 5270.00 | | | | |
| Hole Fluid Type | WATER | | | | |
| Hole Fluid Level | 763.00 | | | | |
| Restriction ID | 6.151 | | Gun Type | | |
| Max Recorded Temp | | | Gun Size | | |
| Well Head Pressure | 0.00 | | CASING / TUBING RECORD | | |
| Well Head Equipment | PCE 5K | | Size | Weight | Depth From |
| Time Well Ready | 17:00 | | inches | pounds/ft | Depth To |
| Time Logger Bottom | 18:15 | | 7.000 | 26.00 | 0.00 |
| Unit | 14115 | | | | 5293.00 |
| Equipment Name | WSSE | | | | |
| Base | CASPER | | | | |
| Recorded By | G. ZAPATA / P. MAZUR | | | | |
| Witnessed By | GARY OHLMAN | | | | |

CASING / TUBING RECORD

| Type | Grade | TypeJoint | Size inches | Depth From feet | Shoe Depth feet | Weight pounds/ft |
|------------|-------|-----------|-------------|-----------------|-----------------|------------------|
| PRODUCTION | J 55 | | 7.000 | 0.00 | 5293.00 | 26.00 |

REMARKS

SOFTWARE VERSION 17.01.7206 - DEVELOPMENT BUILD VERSION

ALL DEPTH CONTROL PROCEDURES FOR SUBSEQUENT RUN IN HOLE WERE FOLLOWED. LOG RUN FROM 12' K.B.'

SURFACE SYSTEM USED: WCM-D 307

TOOLS RUN: CENA, CTBA, GRBA, CENB, SBTA, CENC WERE RAN IN COMBINATION

PREDICTED 3' AMPLITUDE FOR 7" WITH 26.0 LB/FT CASING: 62 mv

FREE PIPE CALIBRATION DONE AT 1320 FT

UNKNOWN CEMENT CLASS DUE MISSING DATA FROM CLIENT

UNKNOWN CEMENT JOB ENDED TIME DUE TO MISSING DATA FROM CLIENT

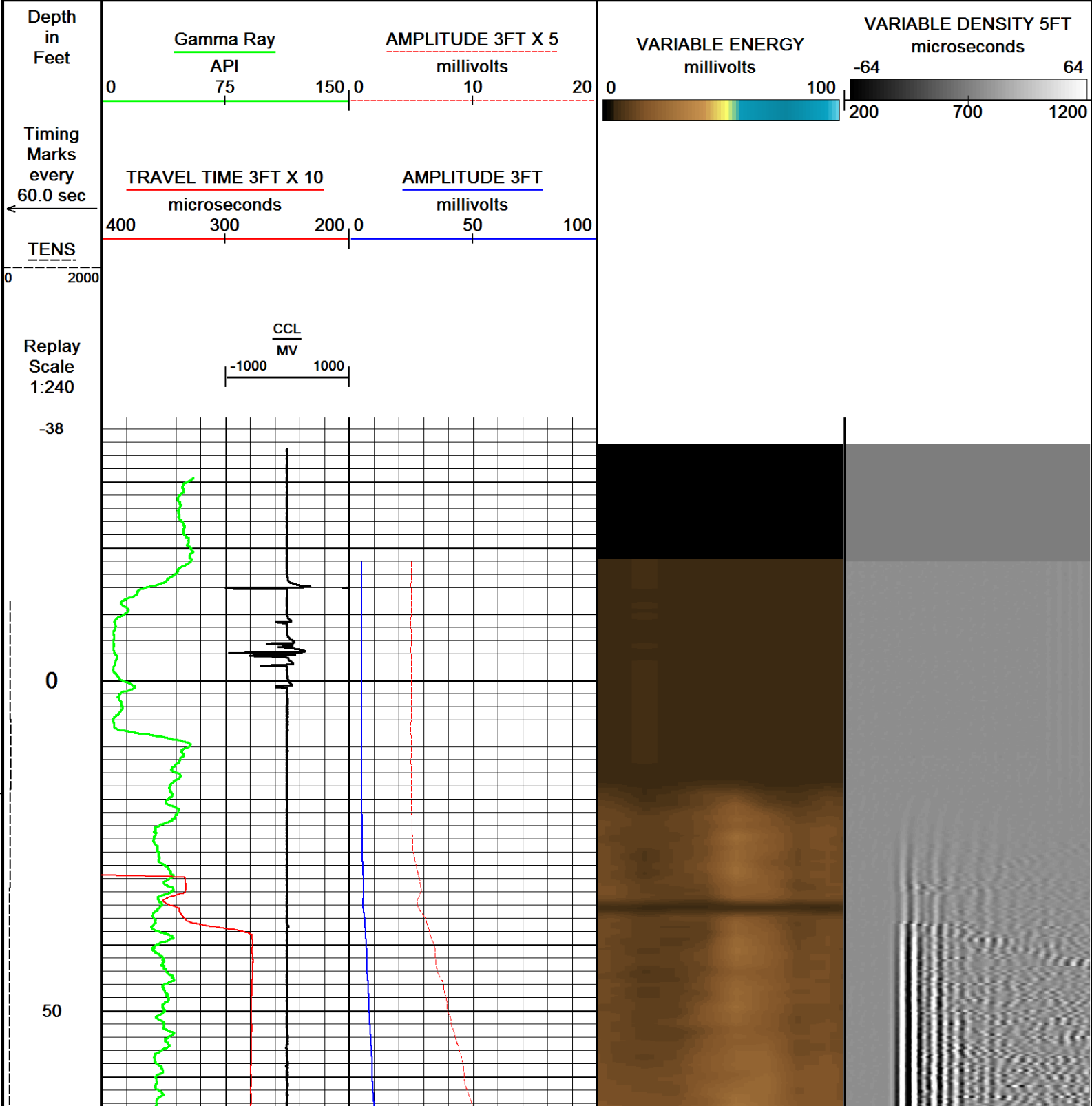
CREW: L. JOHNSON, M. MANDEZ

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such

and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservation description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

MAIN PASS

Depth Based Data - Maximum Sampling Increment 2.5cm Plotted on 16-OCT-2017 10:40
 Filename: C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE MAIN SBT_FINAL.dta Recorded on 13-OCT-2017 18:26
 System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

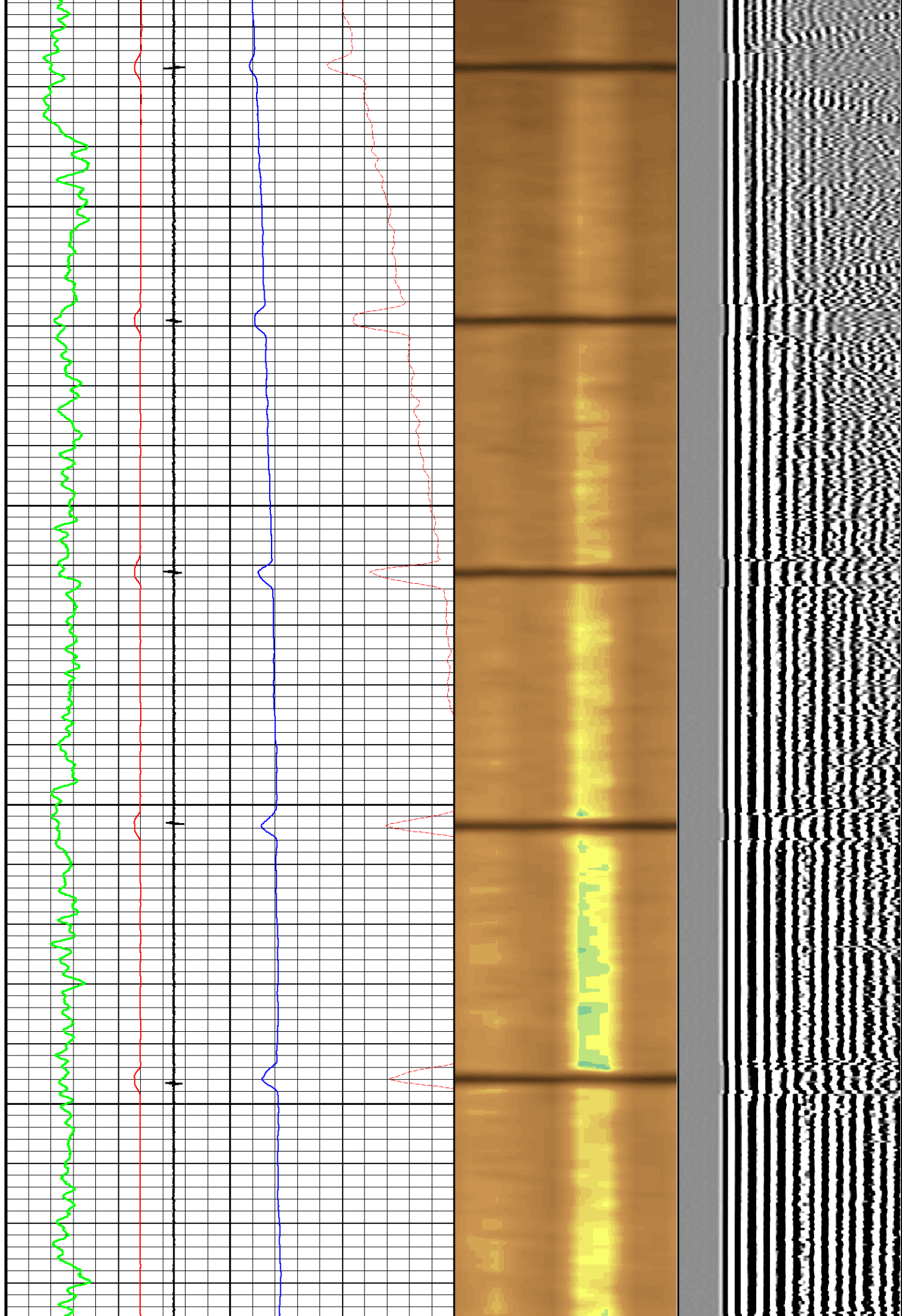


100

150

200

250



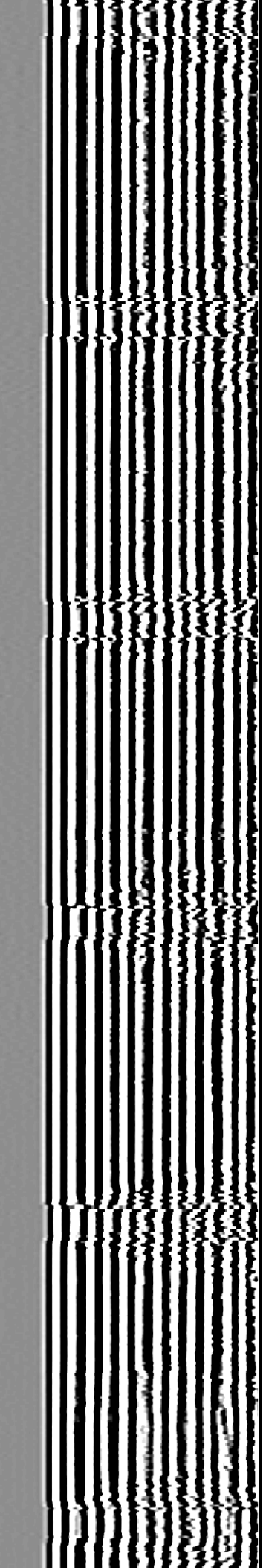
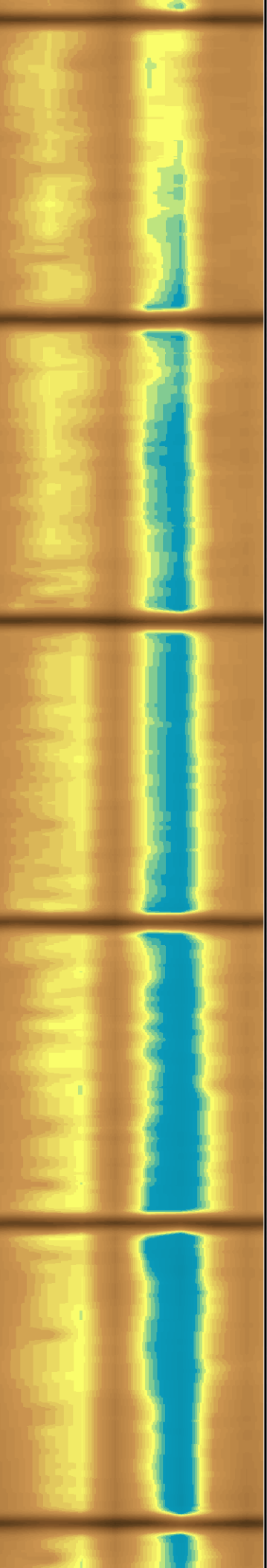
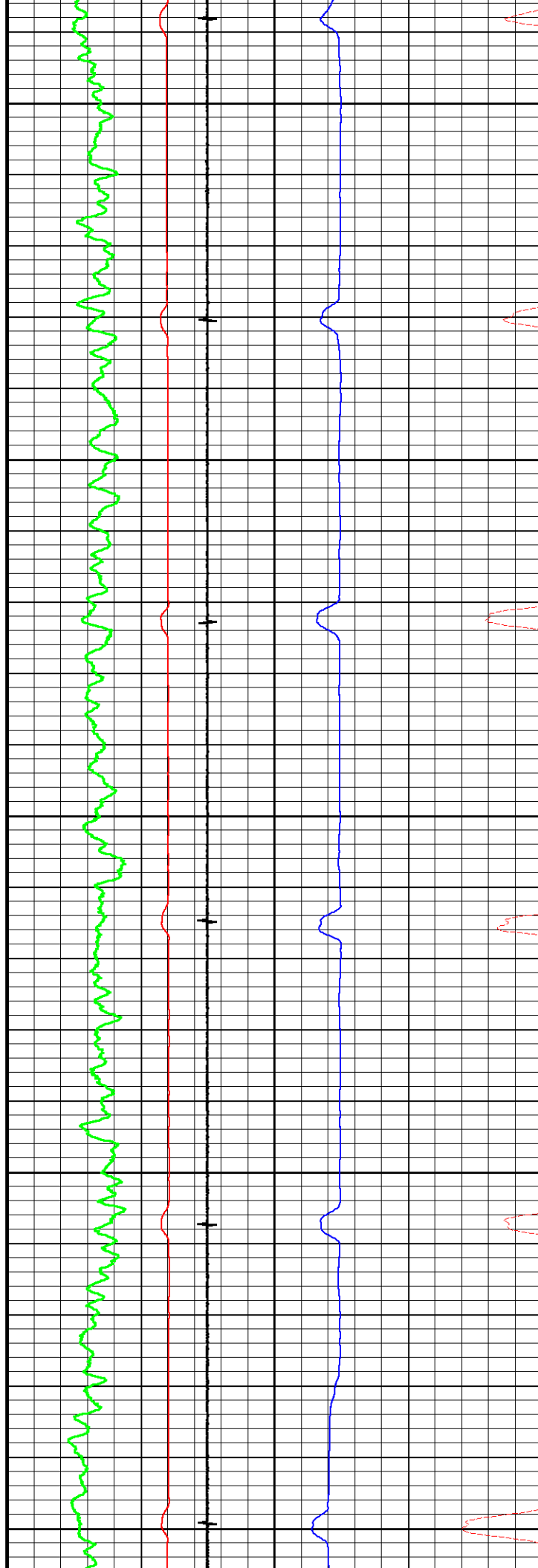
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350

400

450

500

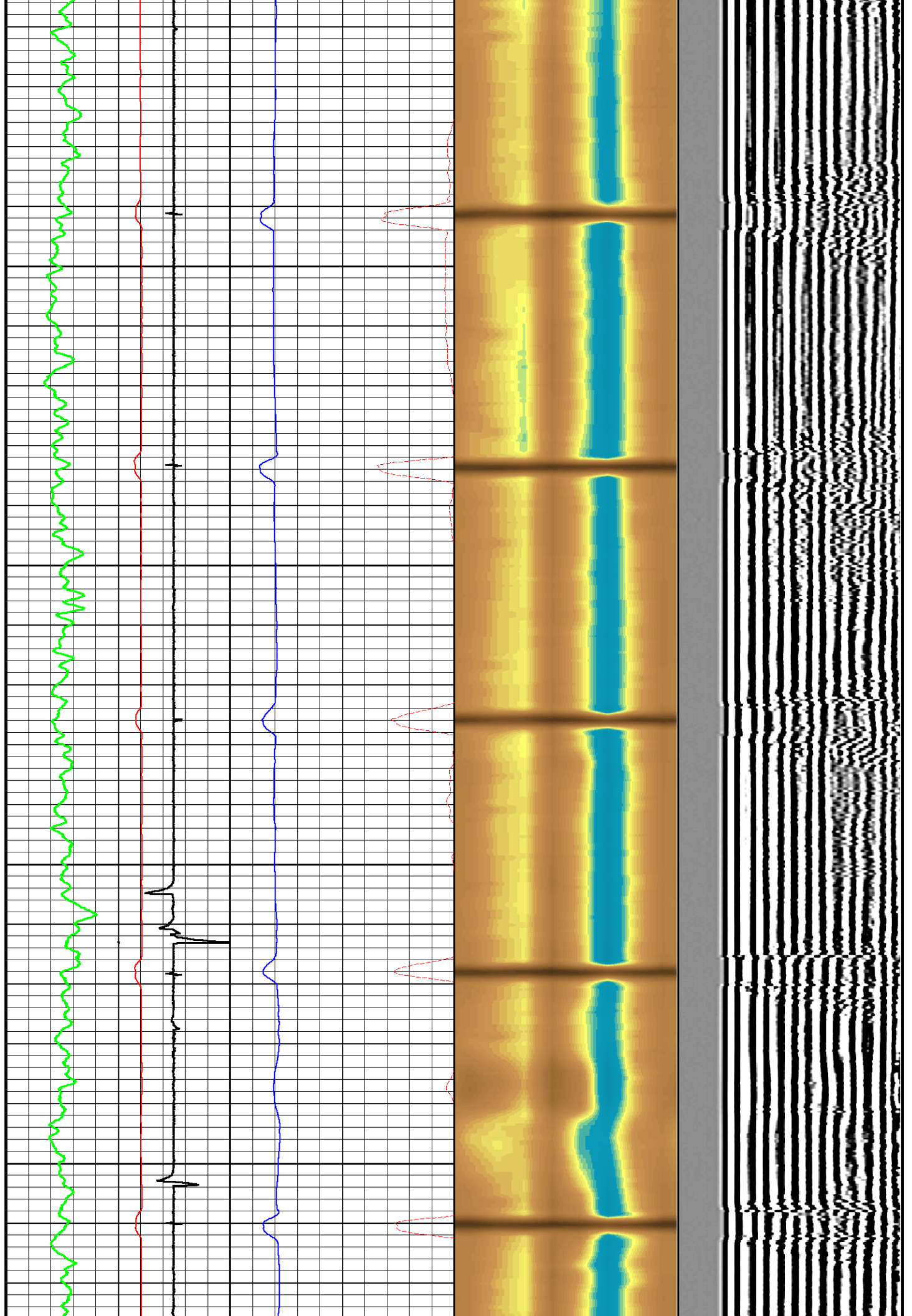


550

600

650

700

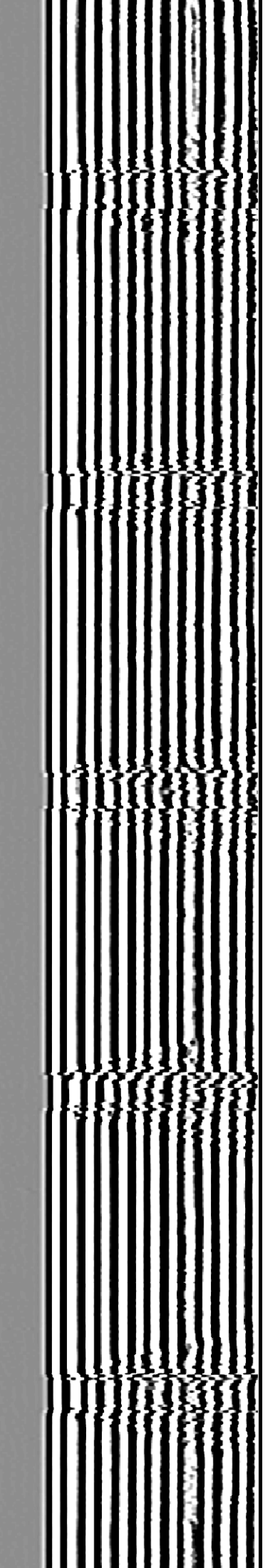
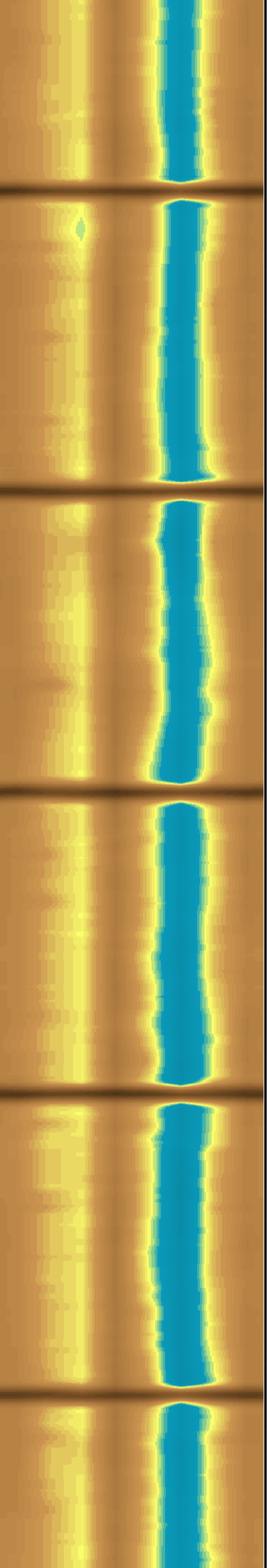
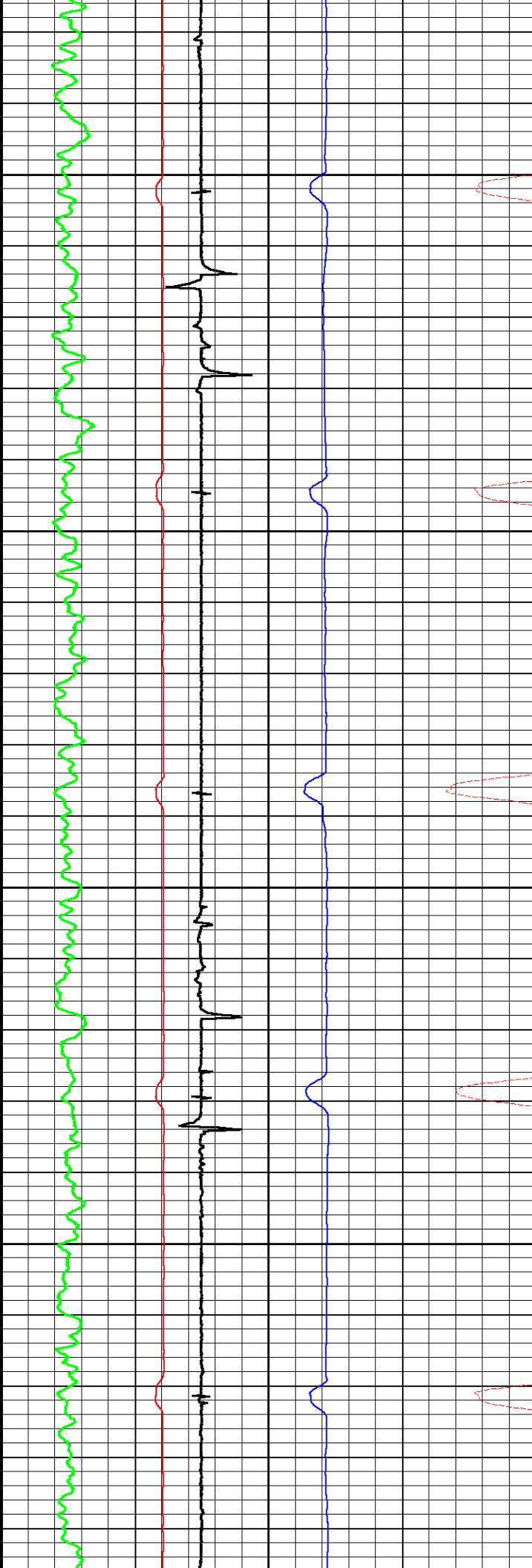


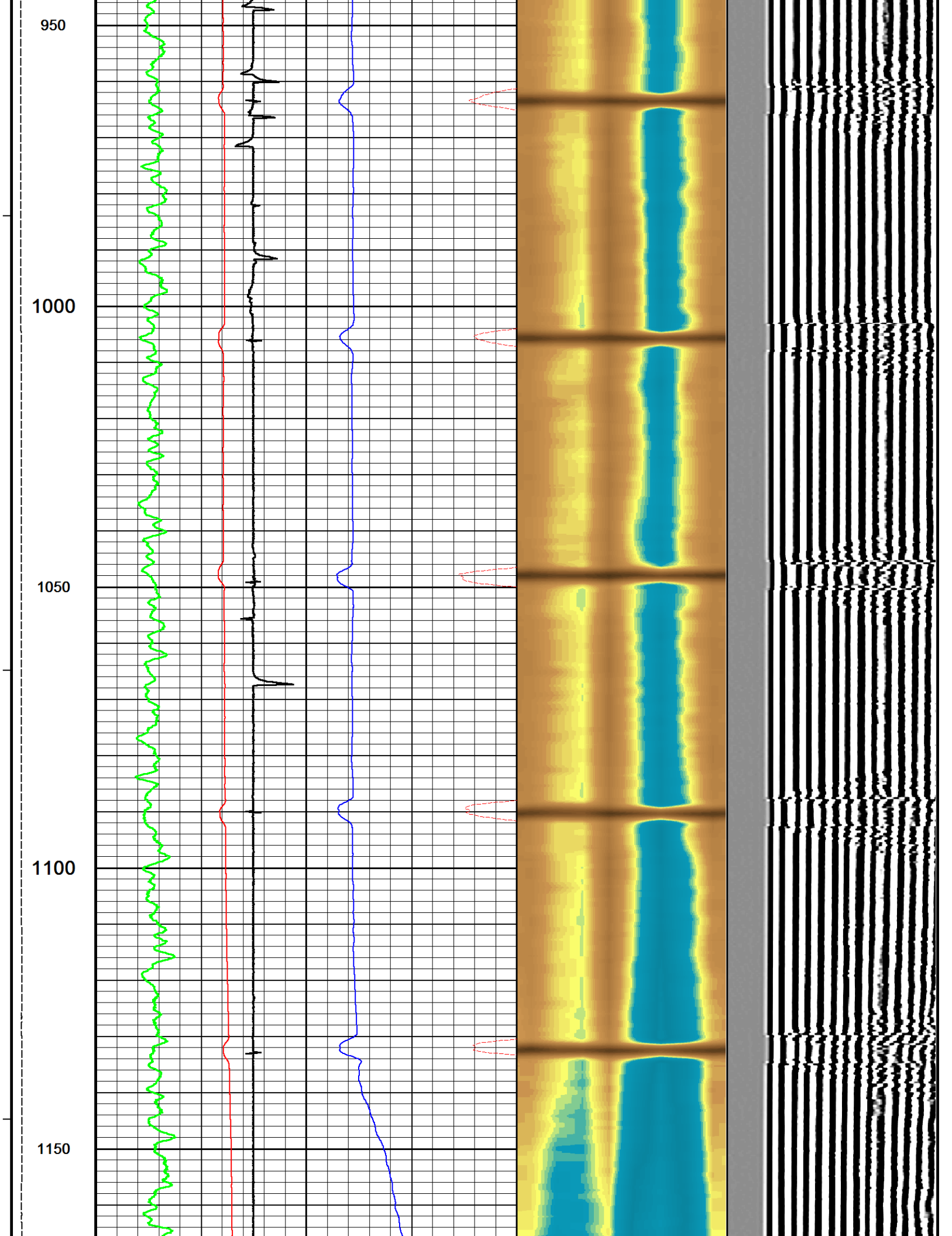
750

800

850

900



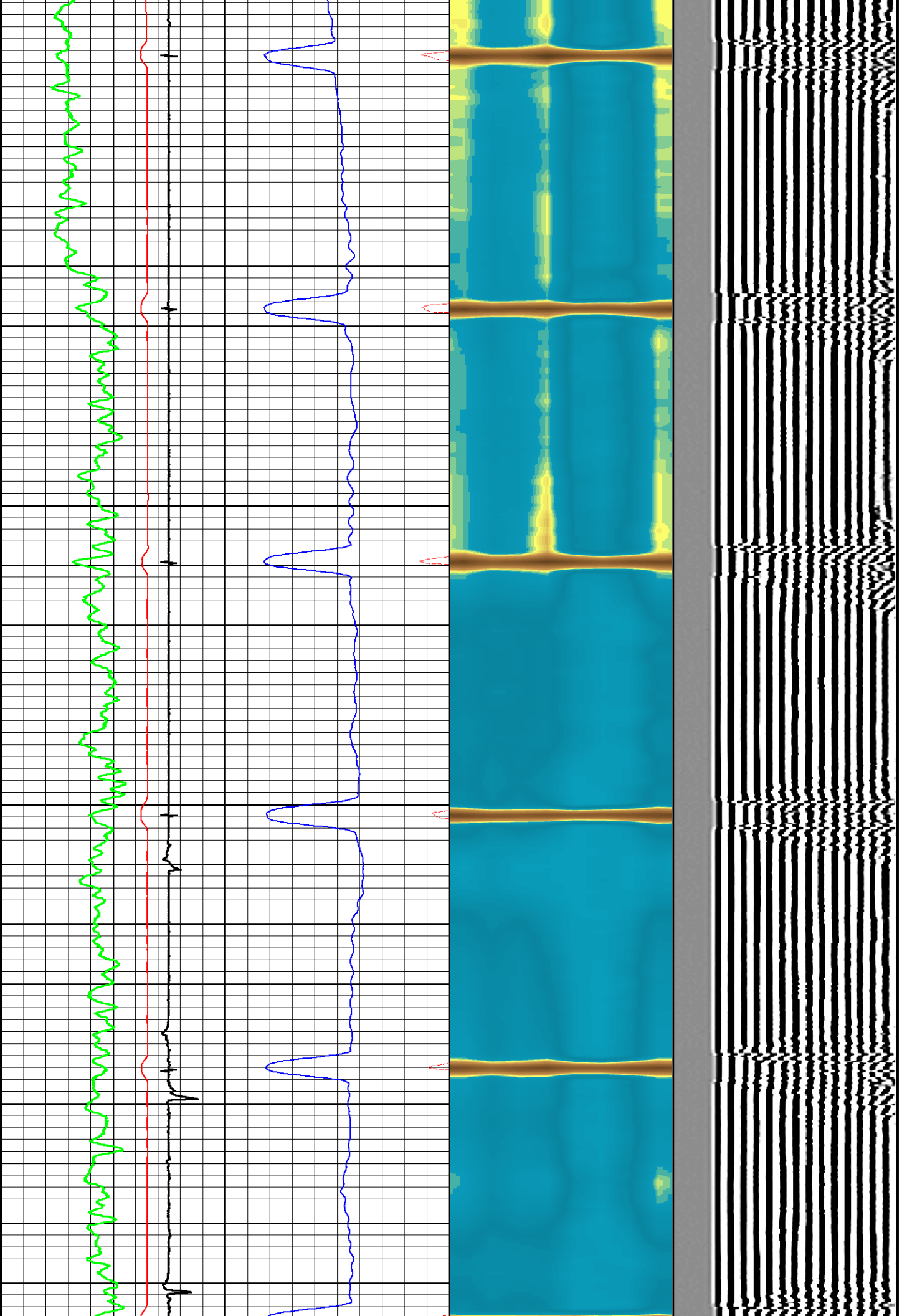


1200

1250

1300

1350



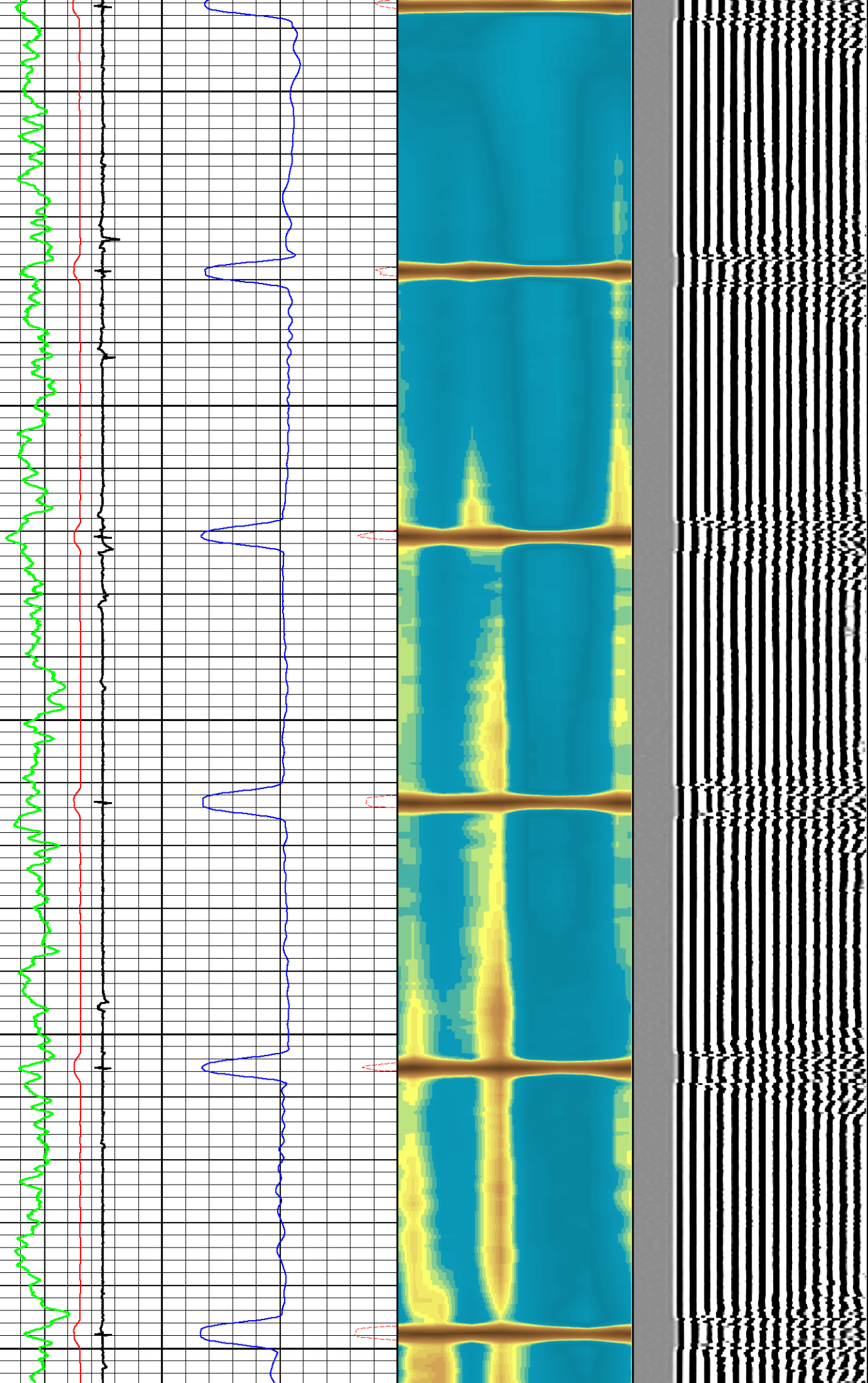
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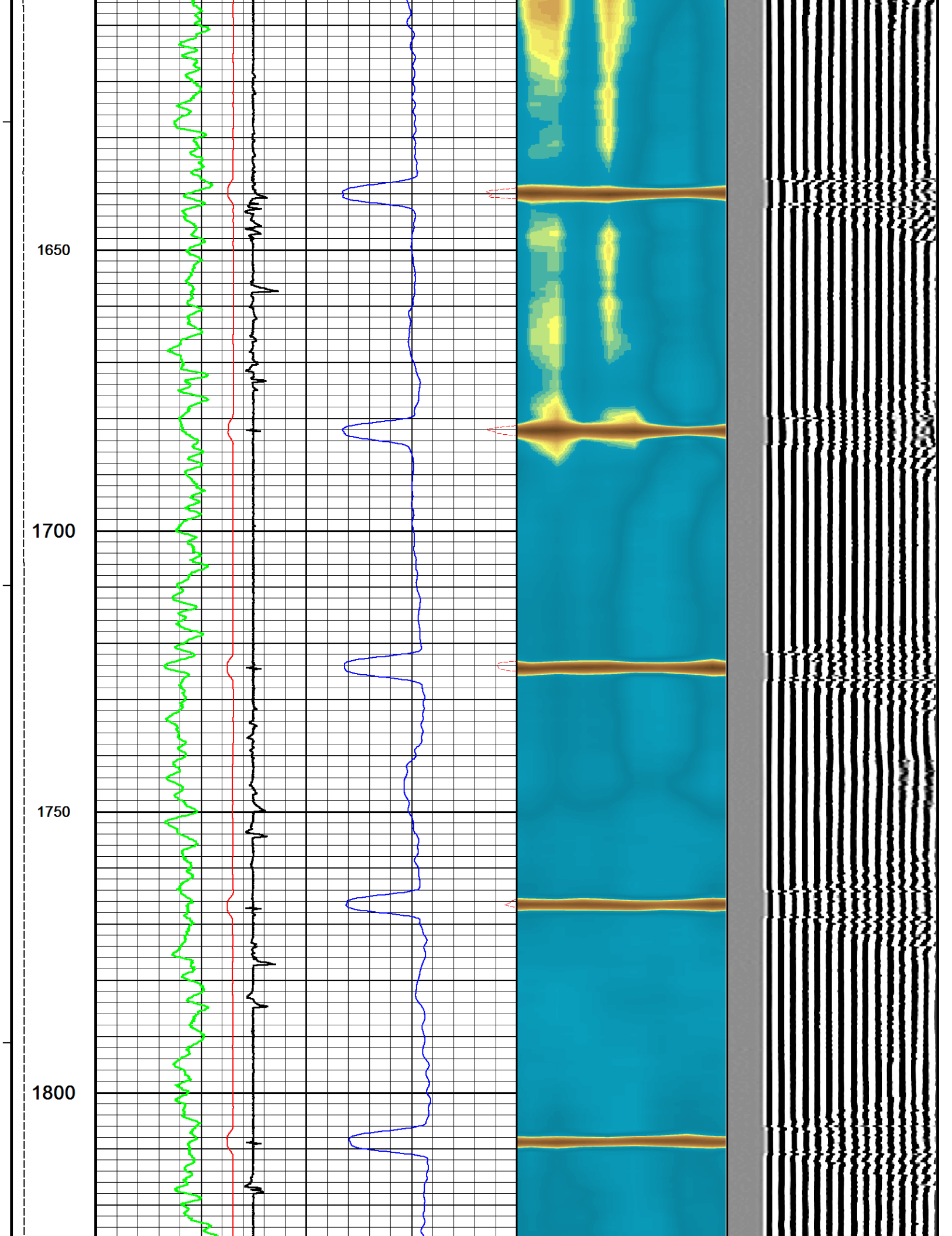
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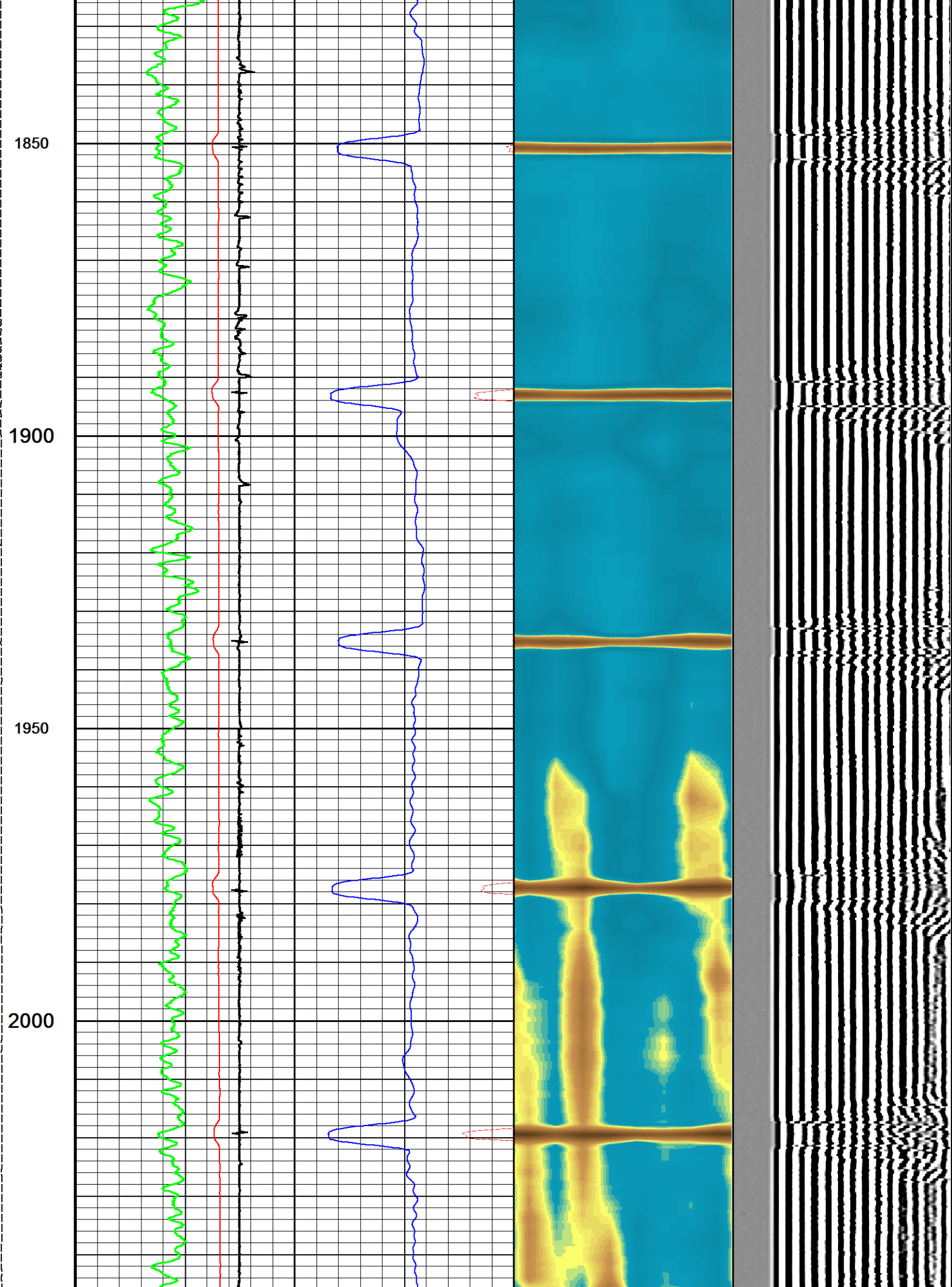
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1550

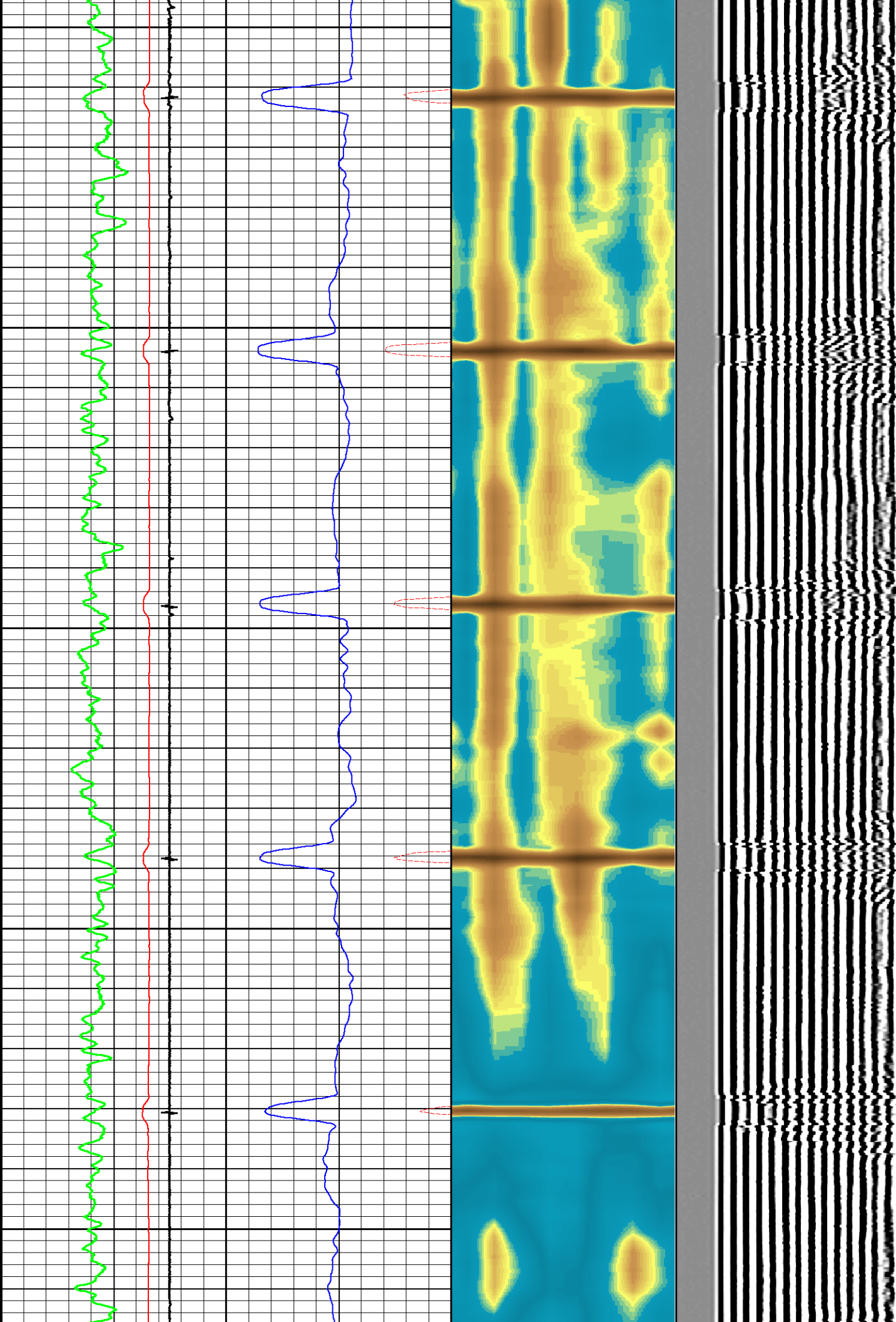
1600







2050
2100
2150
2200
2250

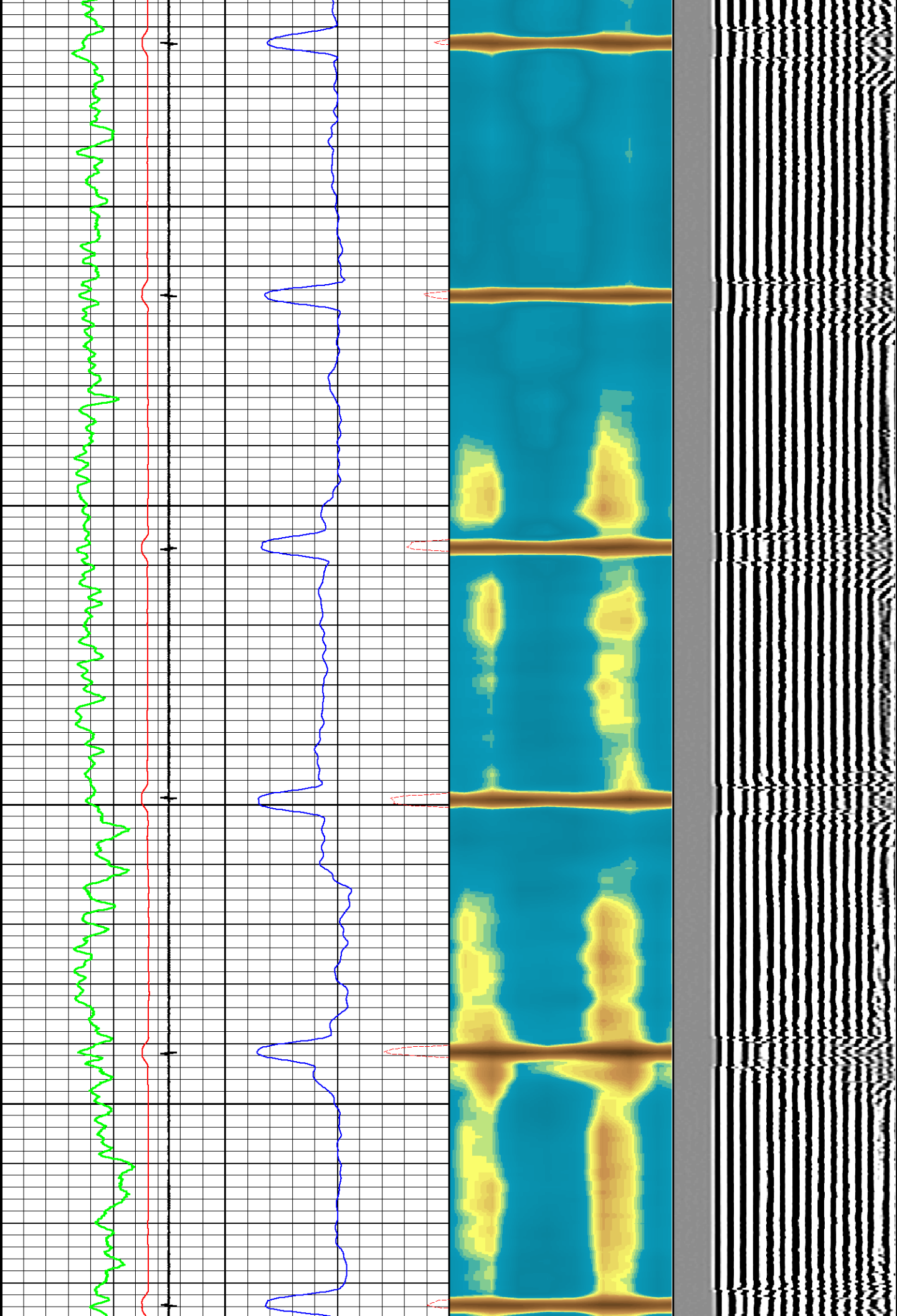


2300

2350

2400

2450



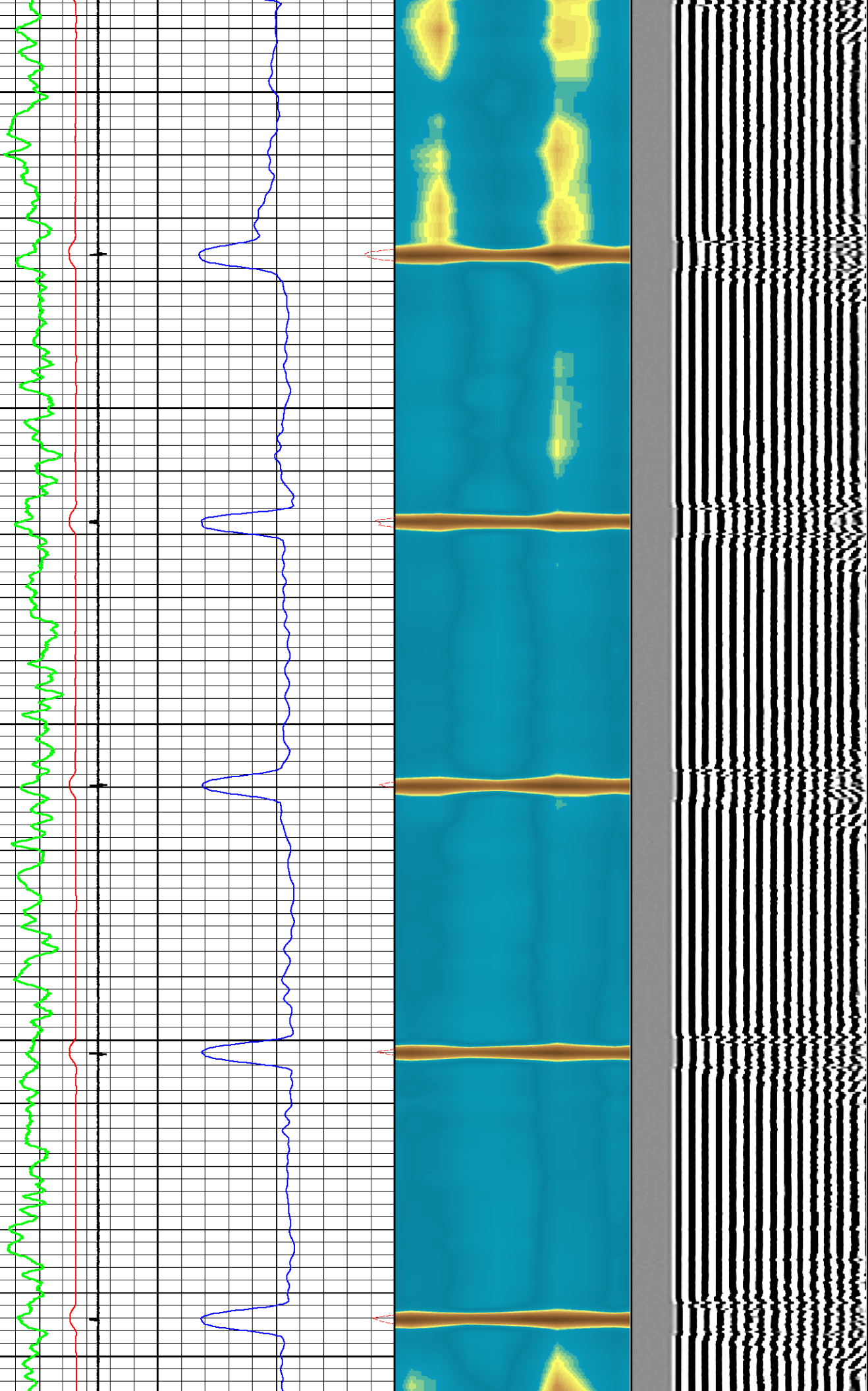
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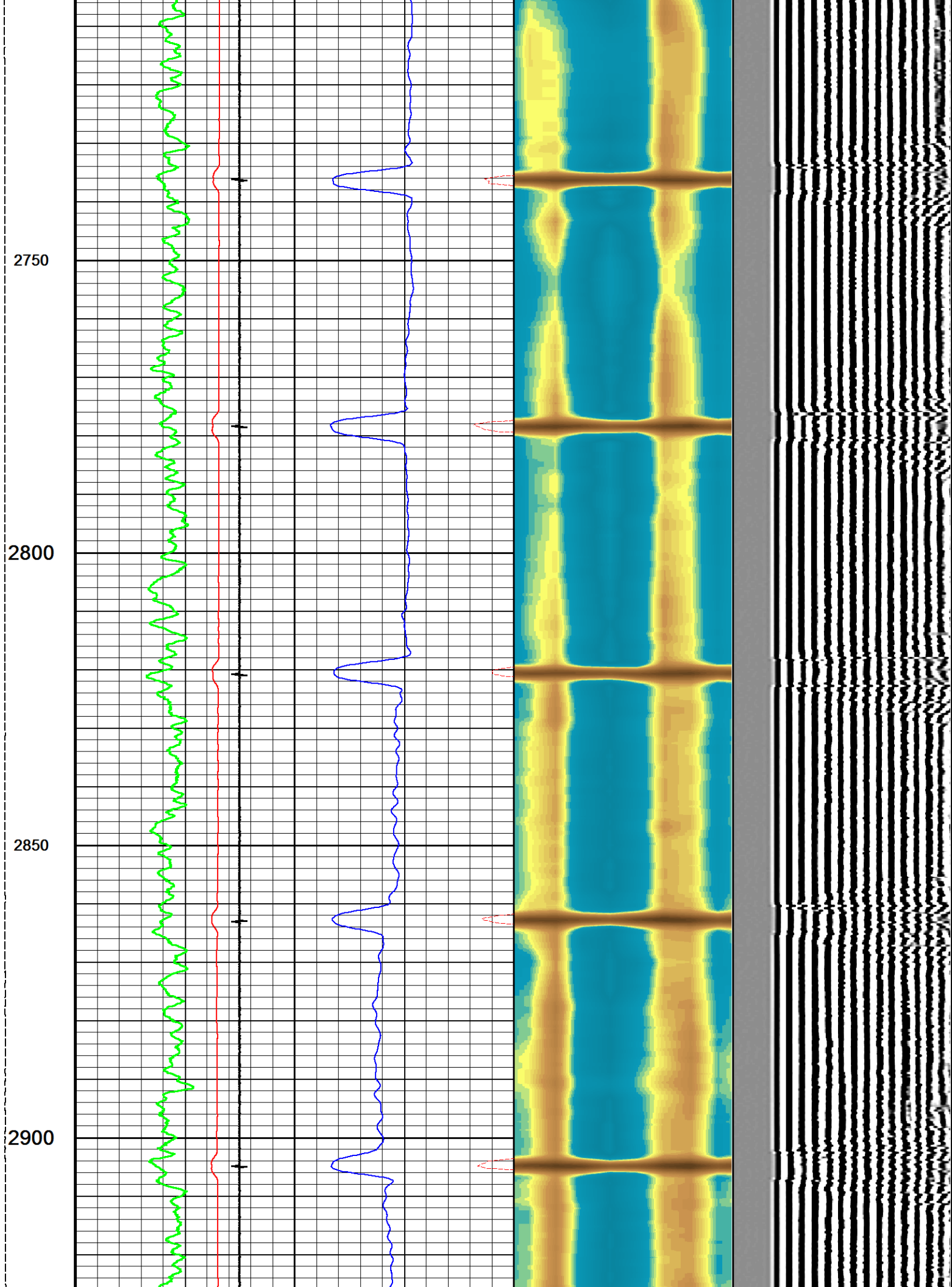
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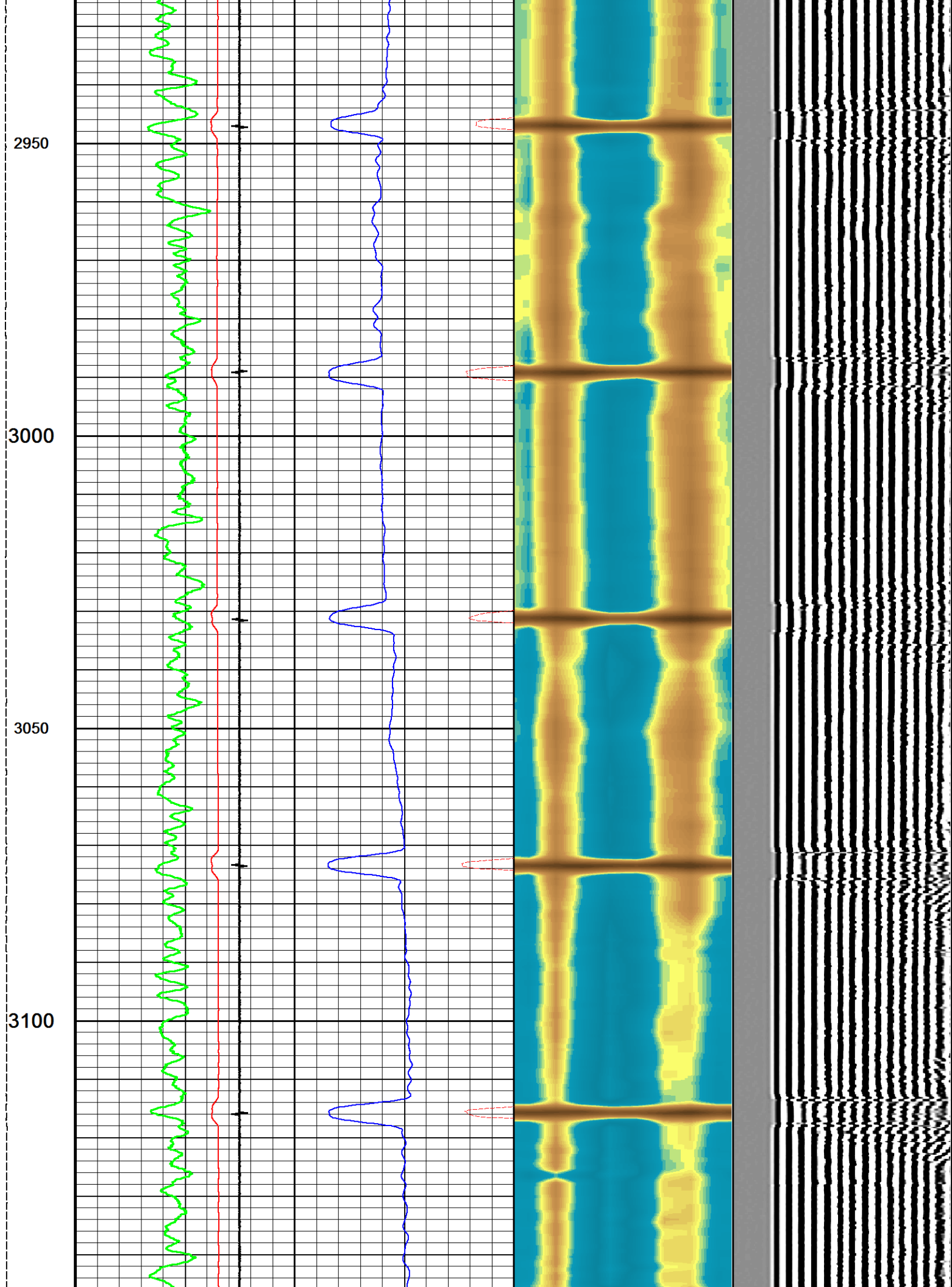
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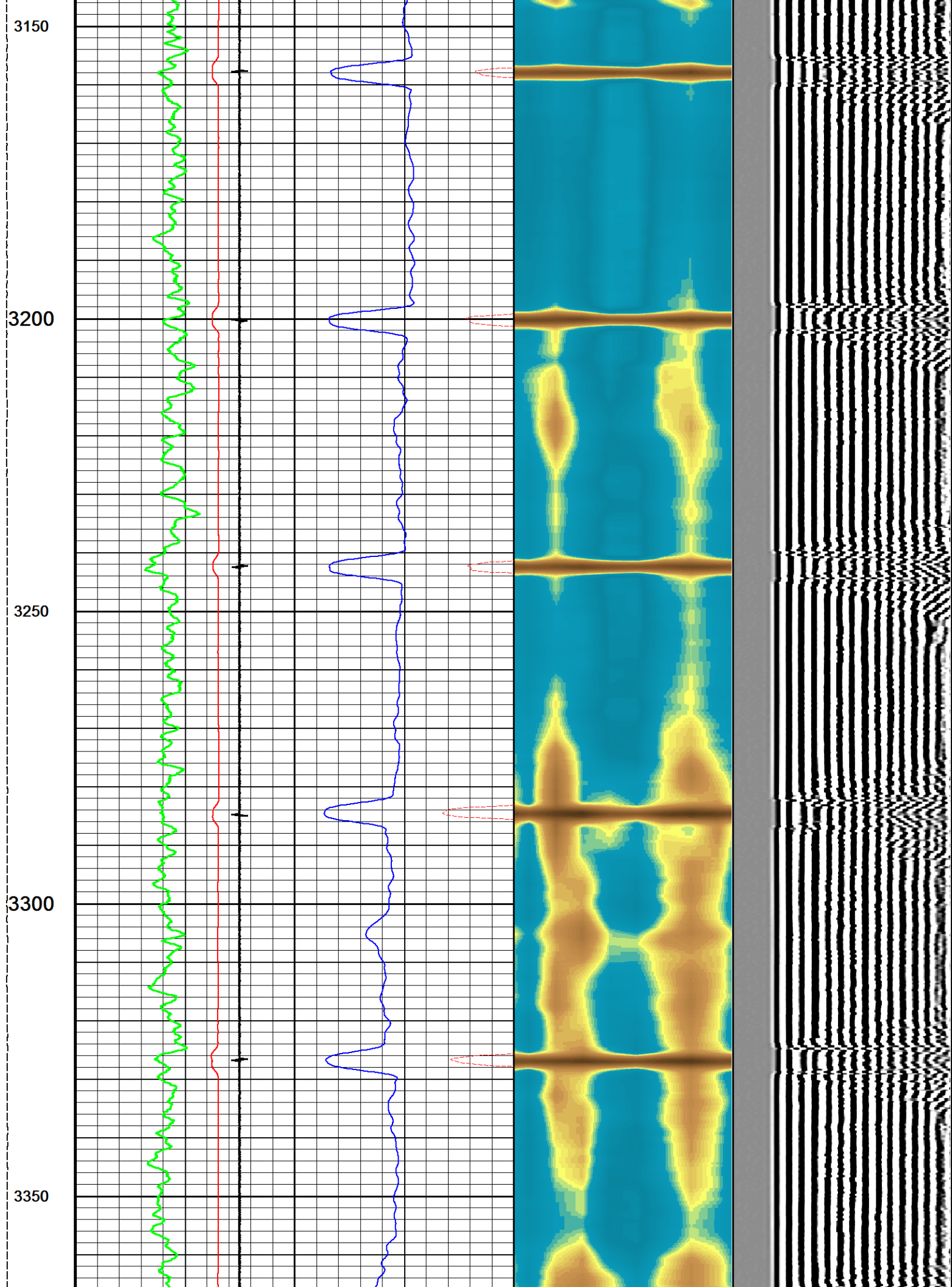
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2700







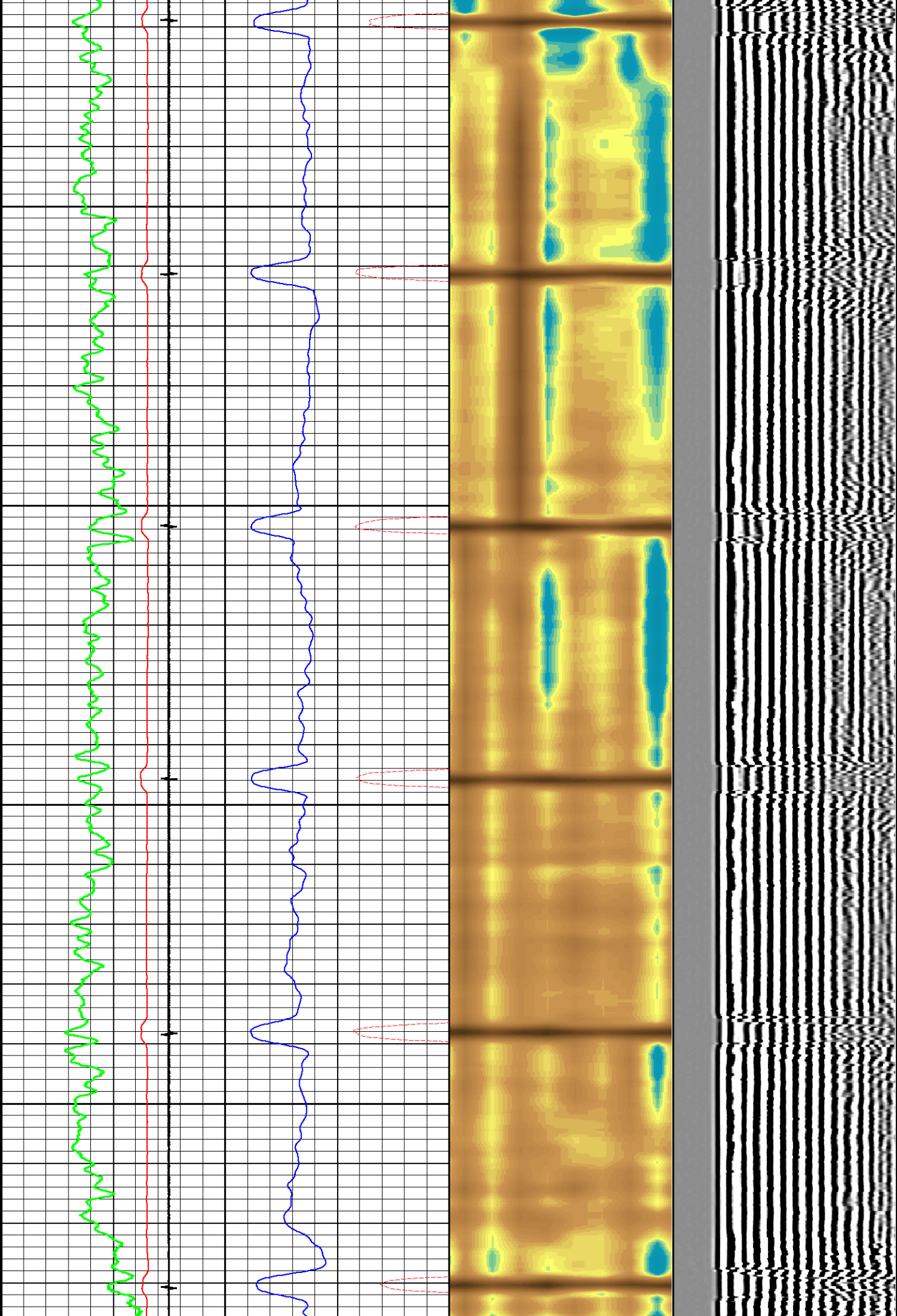


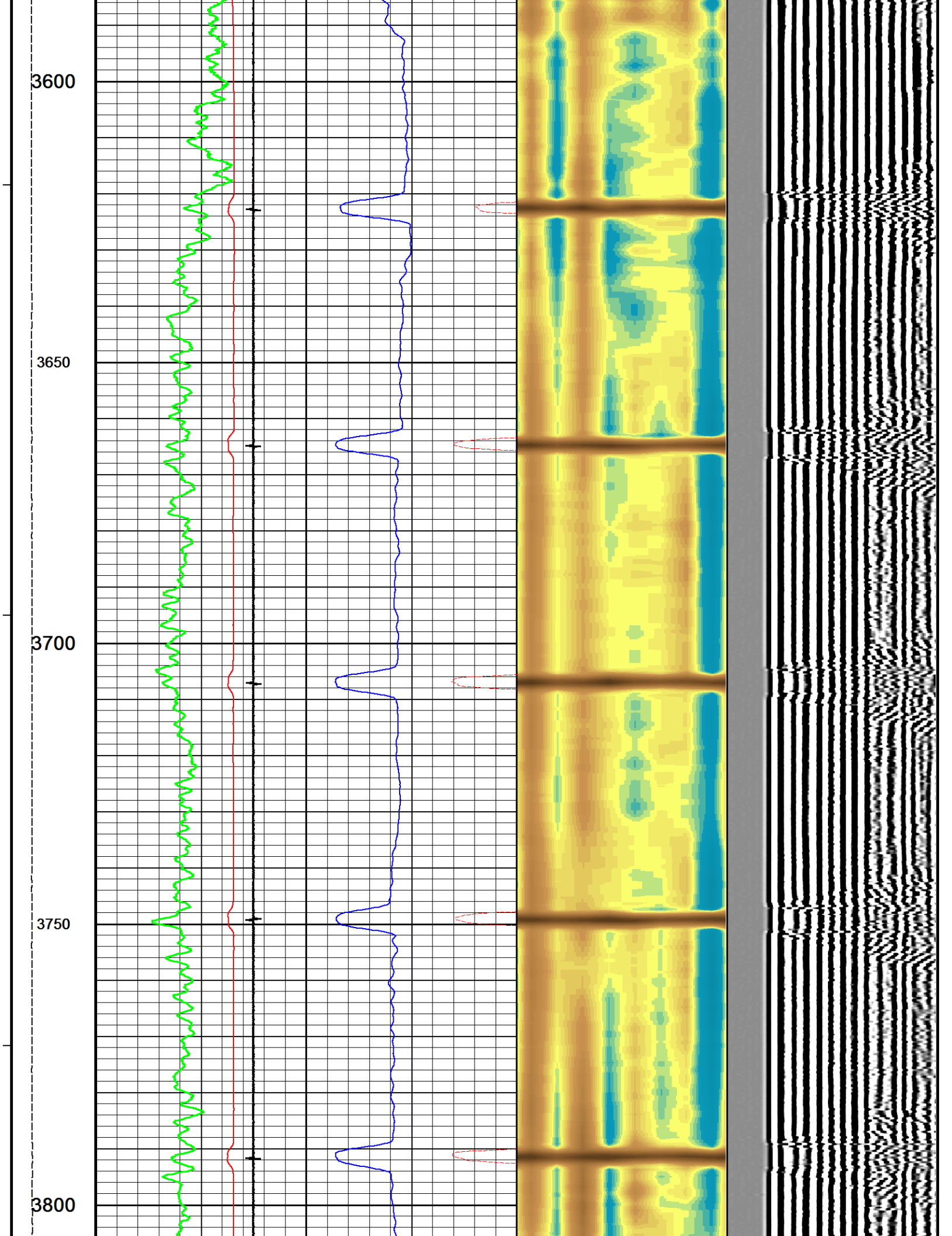
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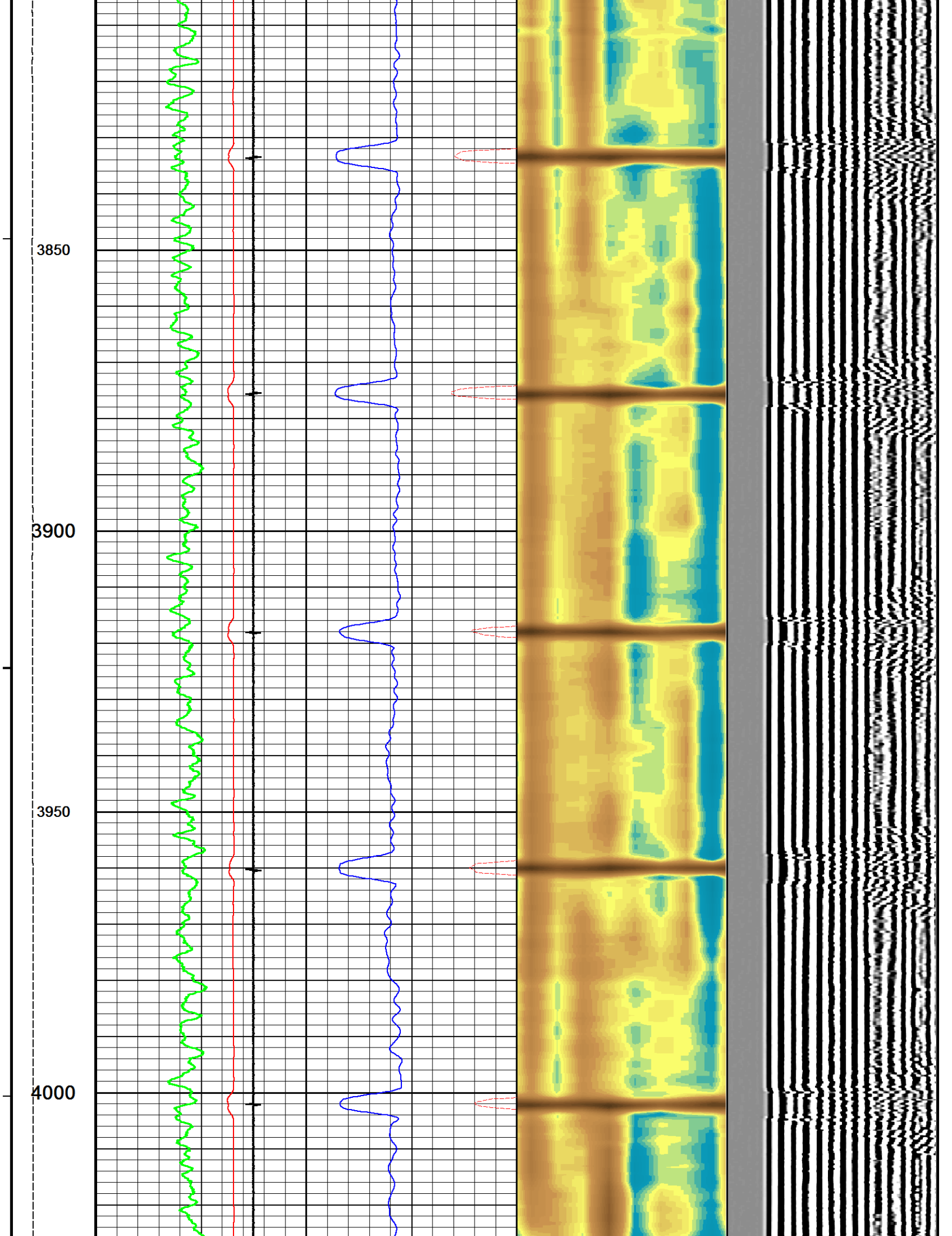
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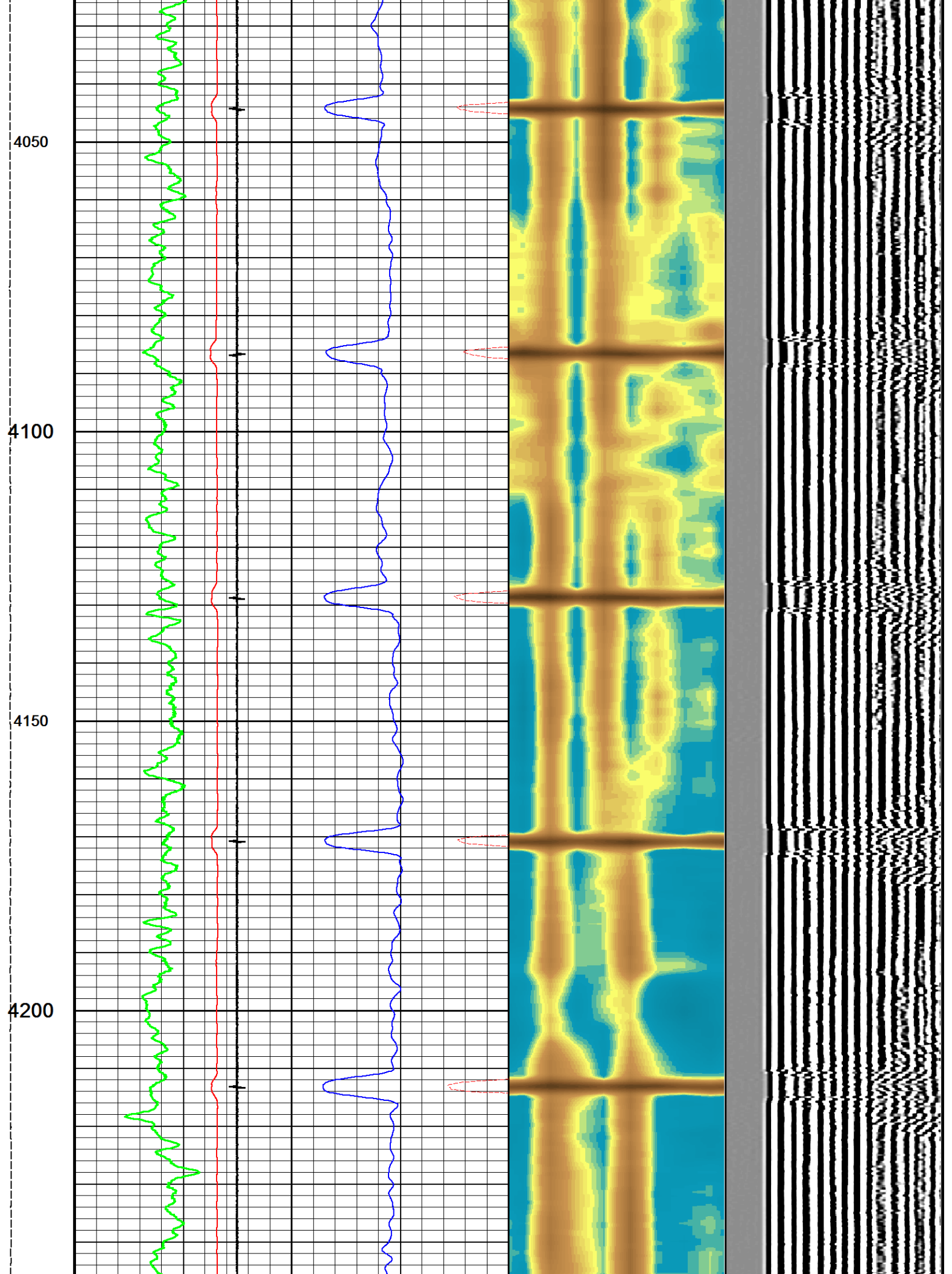
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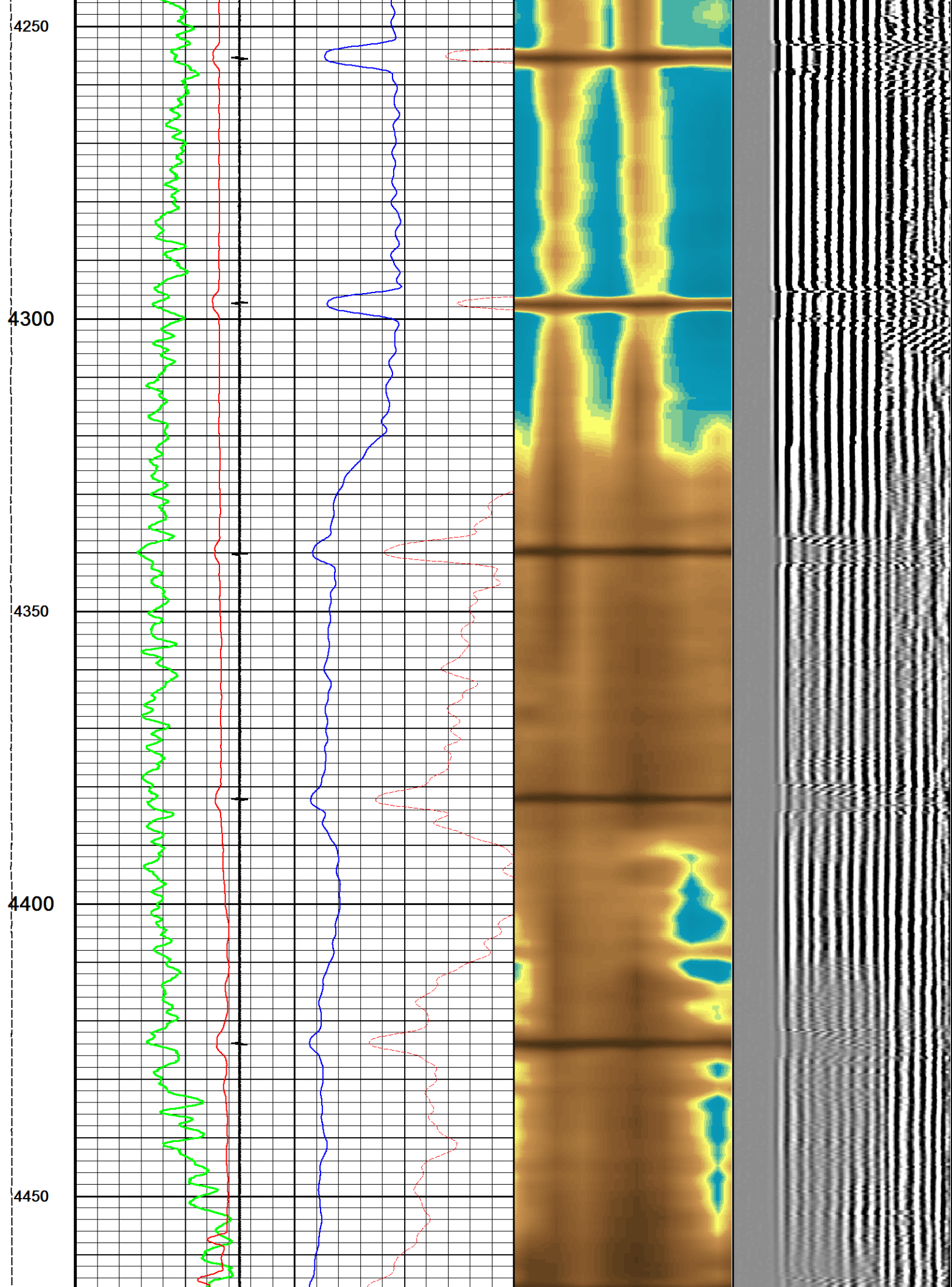
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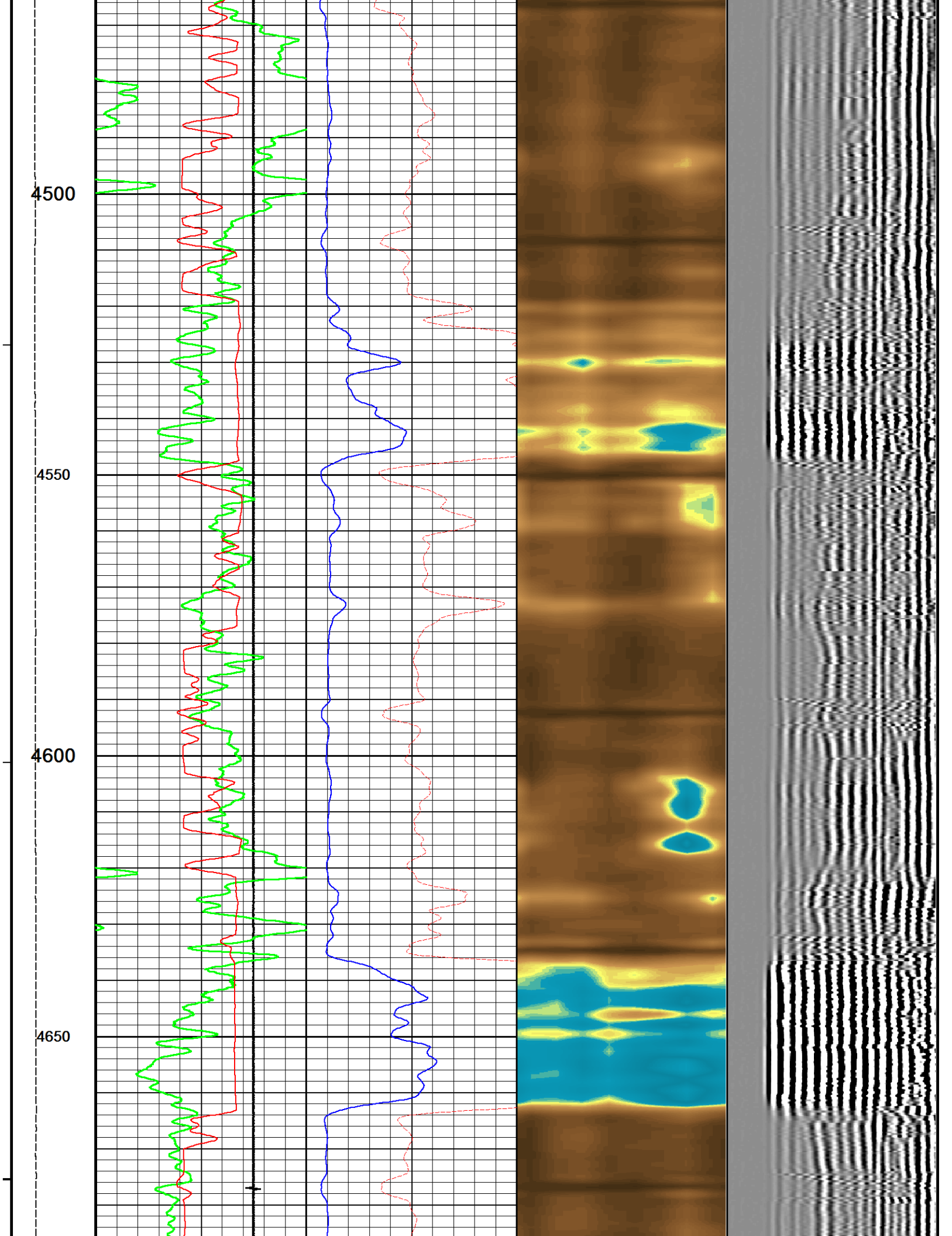


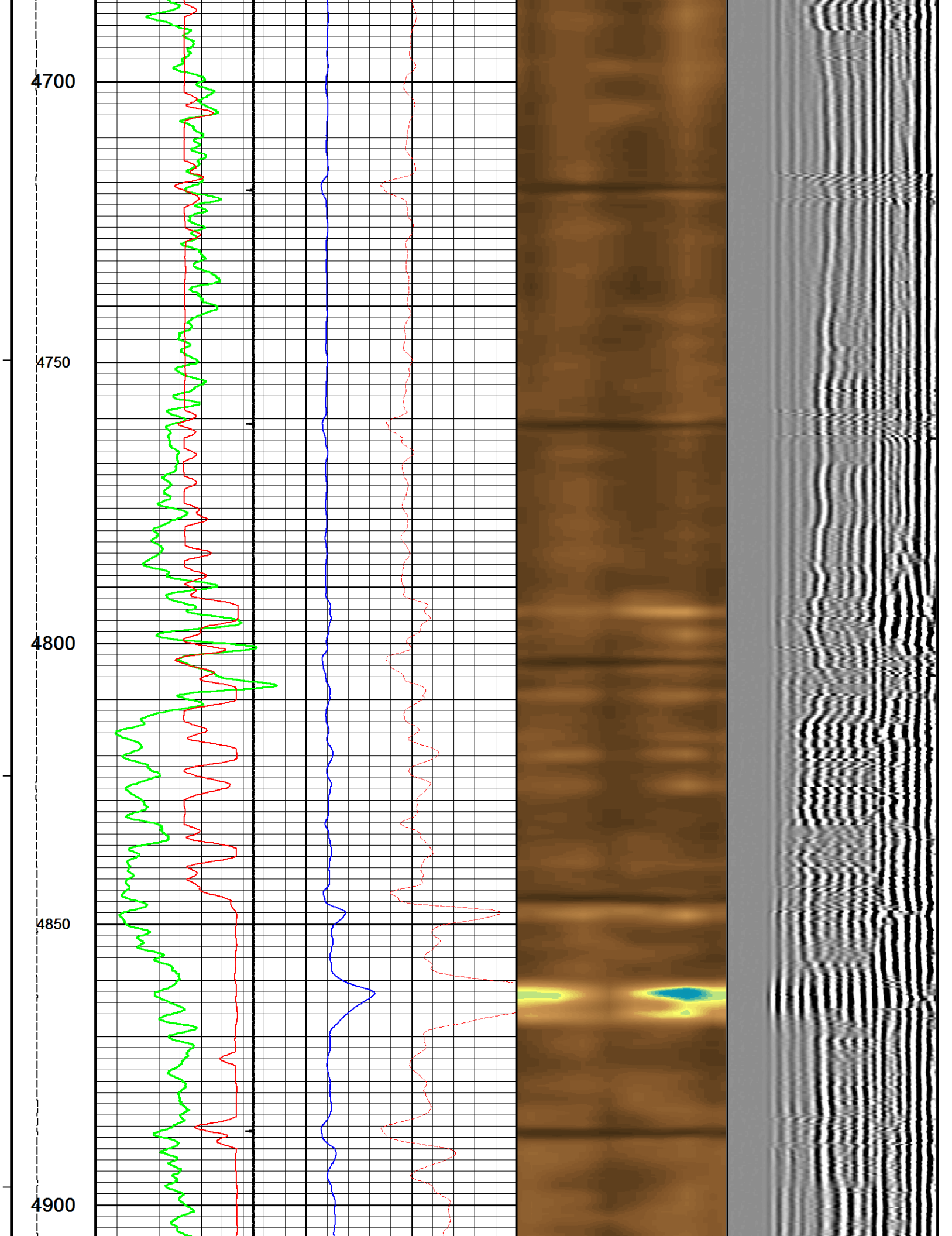


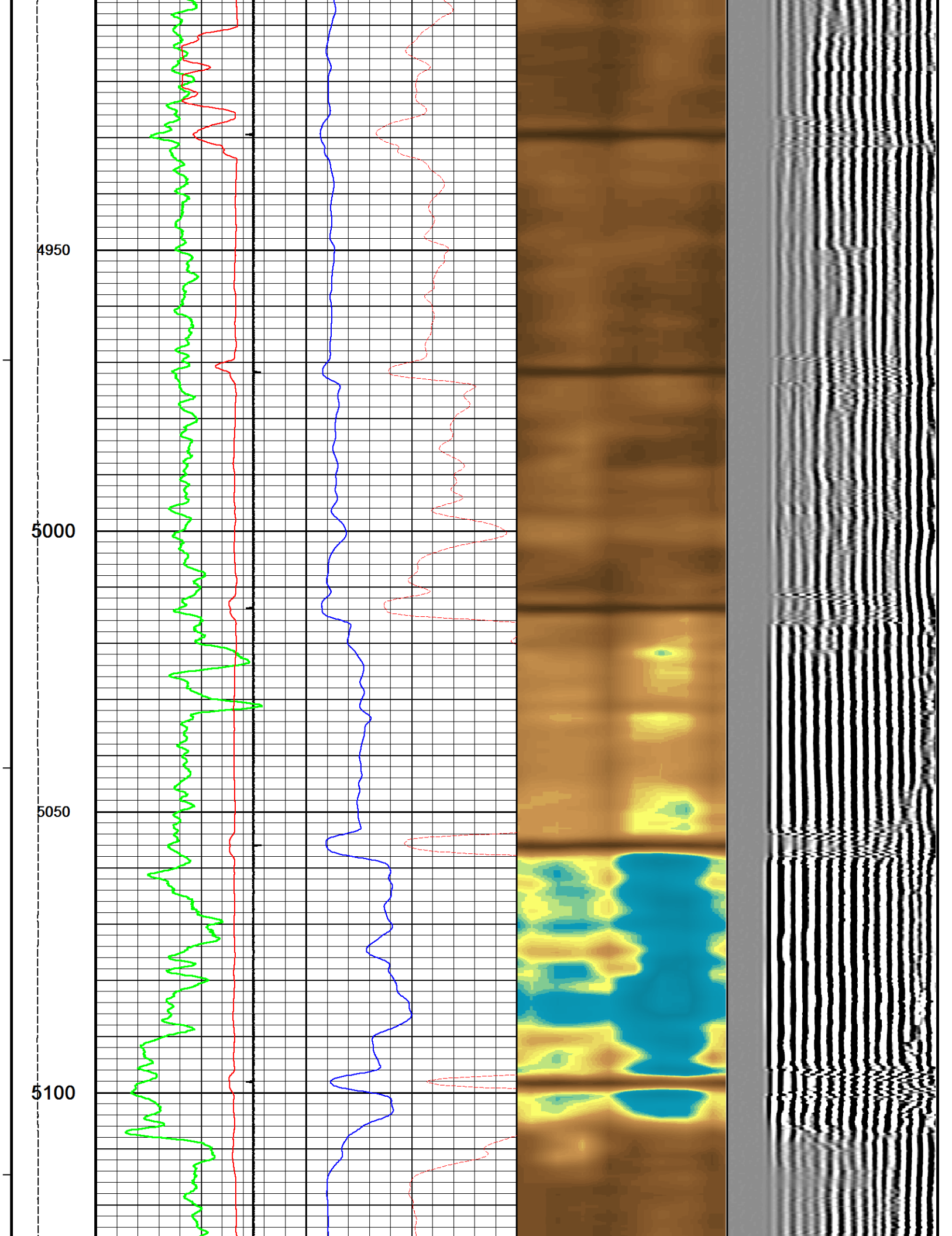












5150

5200

5250

5286

Depth
in
Feet

Gamma Ray

API
75

AMPLITUDE 3FT X 5

millivolts
10

VARIABLE ENERGY

millivolts

VARIABLE DENSITY 5FT

microseconds

0 150 0

0 20

0 100

-64 64
200 700 1200

Timing
Marks
every
60.0 sec

TRAVEL TIME 3FT X 10

microseconds

AMPLITUDE 3FT

millivolts

400 300 200 0

0 50 100

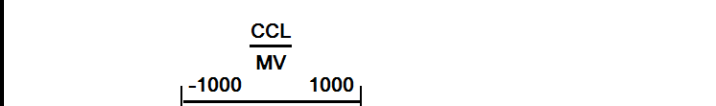
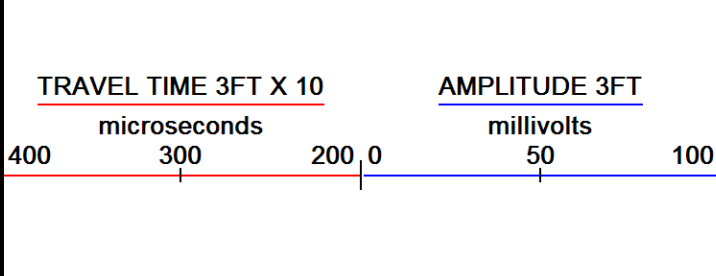
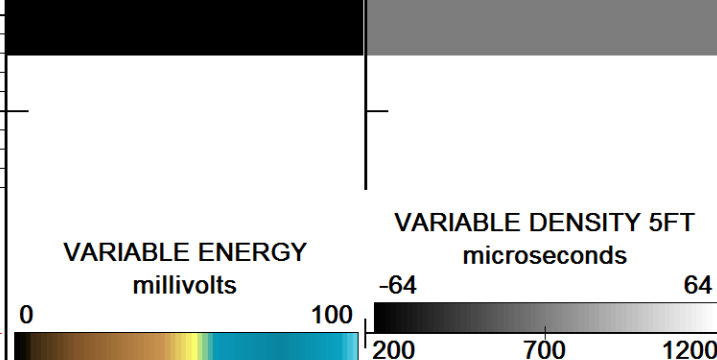
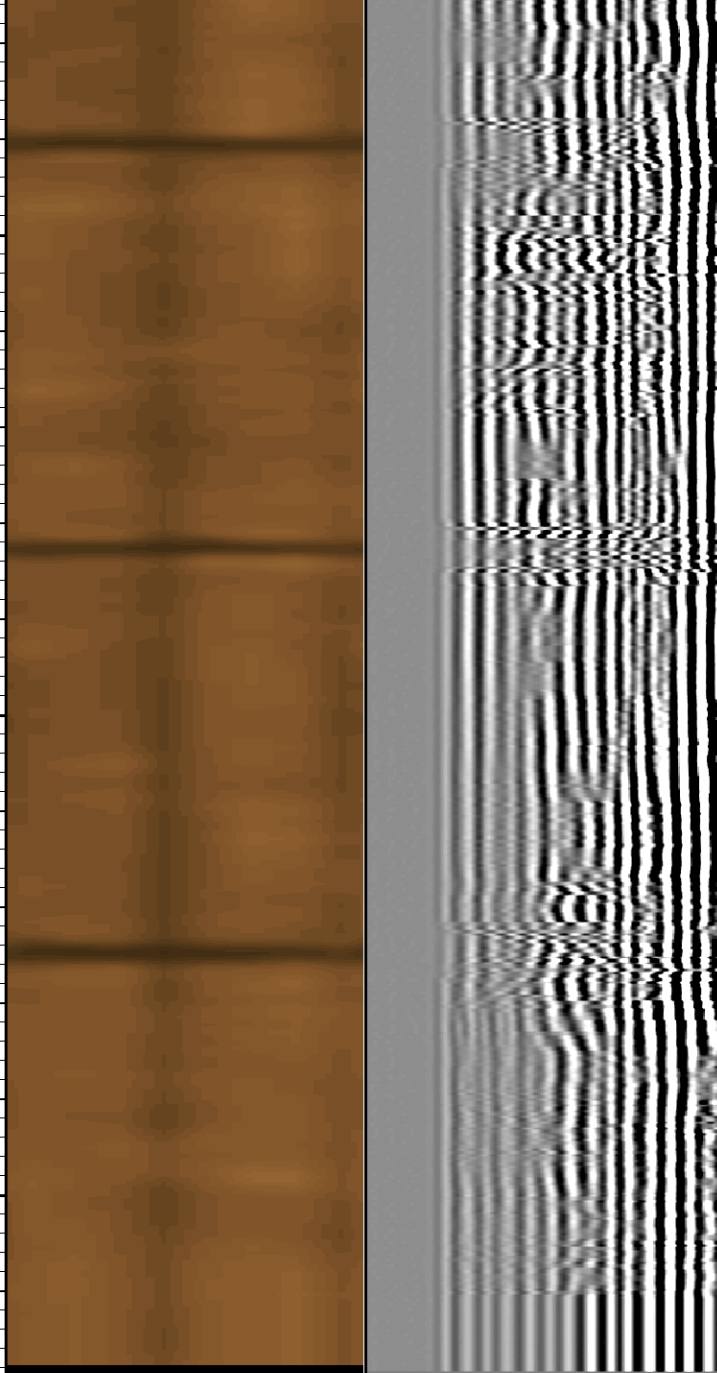
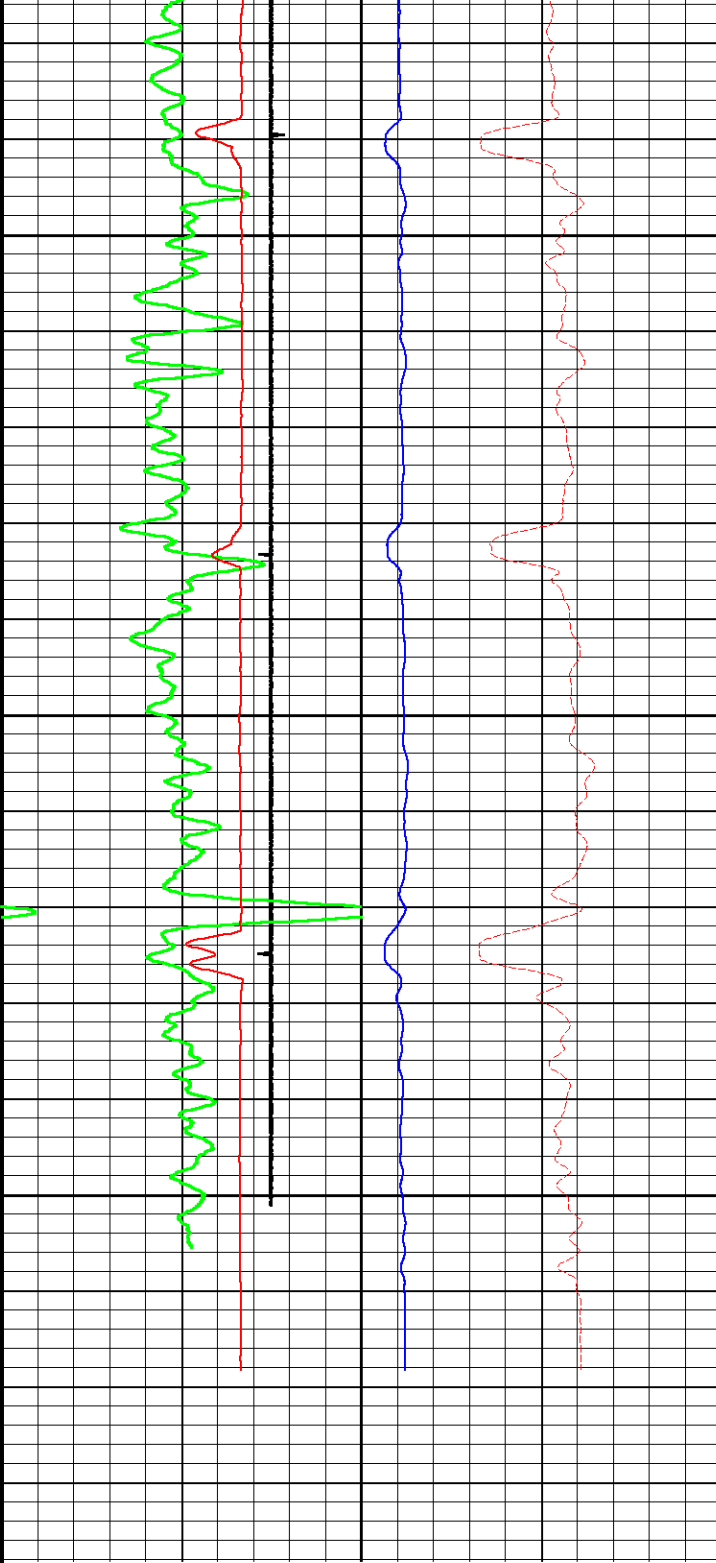
TENS

0 2000

Replay
Scale

CCL
MV

-1000 1000



1:240

Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 16-OCT-2017 10:40

Filename: C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE MAIN SBT_FINAL.dta

Recorded on 13-OCT-2017 18:26

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

MAIN PASS

REPEAT PASS

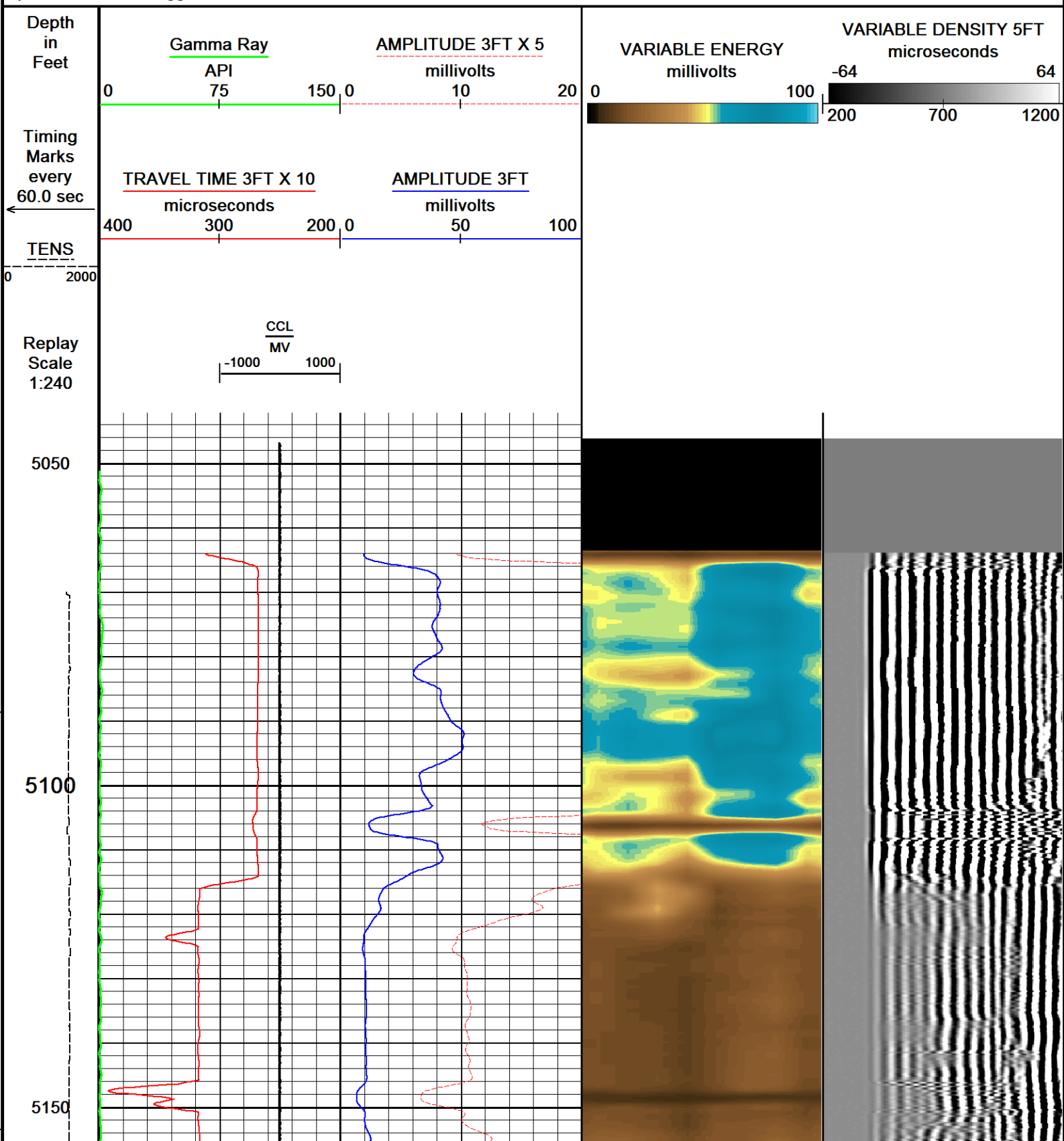
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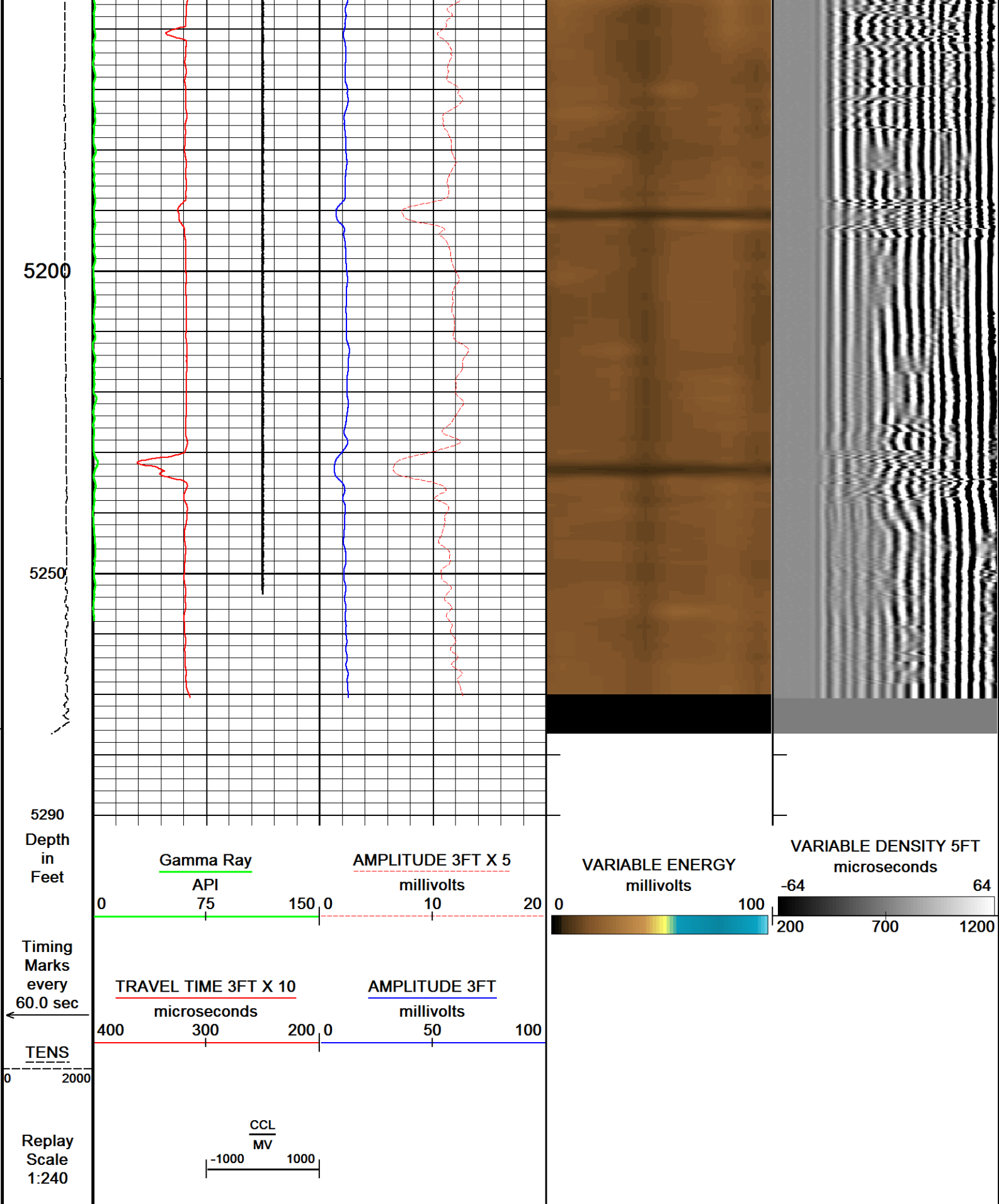
Plotted on 16-OCT-2017 10:40

Filename: C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE REPEAT SBT_FINAL.dta

Recorded on 13-OCT-2017 18:28

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206





Depth Based Data - Maximum Sampling Increment 2.5cm
 Plotted on 16-OCT-2017 10:40
 Filename: C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE REPEAT SBT_FINAL.dta
 Recorded on 13-OCT-2017 18:28
 System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

DOWNHOLE EQUIPMENT

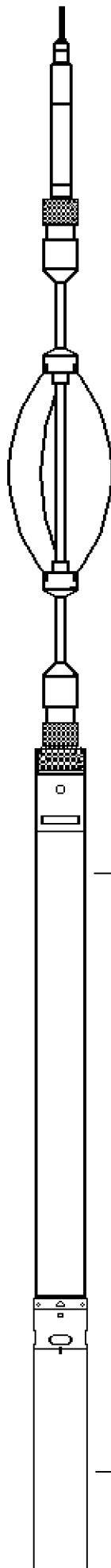
C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE MAIN SBT_FINAL.dta

Mono-Cablehead
MCH-AA 0 LG: 1.03 ft WT: 2.2 lb OD: 1.457 in

2.75in Bond Cent
CEN-AA 113 LG: 2.49 ft WT: 11.0 lb OD: 2.717 in

2.75" CCL/Telemetry Sub
CTB-AB 208 LG: 3.40 ft WT: 39.7 lb OD: 2.756 in

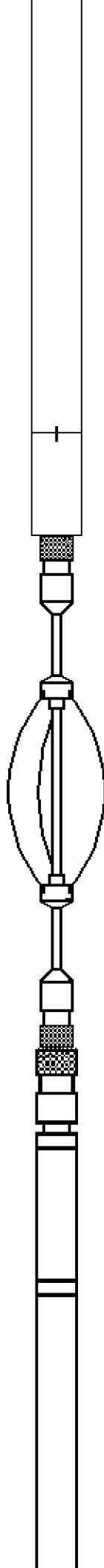
2.75" Gamma Ray Tool
GRB-AB 229 LG: 4.71 ft WT: 59.5 lb OD: 2.756 in



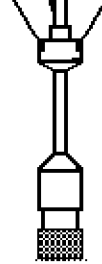
23.23 ft CCL - Collar Locator

19.64 ft GR - Gamma Ray

2.75in SBT Middle
CEN-BA 210 LG: 3.08 ft WT: 22.0 lb OD: 2.717 in



Sector Bond Tool
SBT-AA 238 LG: 10.32 ft WT: 90.4 lb OD: 2.717 in



0.00 ft TENS - Tension
 Tool Zero (0.00ft from bottom)

Total Length: 27.53 ft Weight: 235.9 lb

All measurements relative to tool zero.

SHOP AND FIELD CALIBRATIONS

C:\Logs\ECGS 6-21 WP-D004-2\EAST CHEYENNE MAIN SBT_FINAL.dta

UGR Field Survey Cal GRB-AB 229

Field calibration on 00-JAN-1988 00:00

Gamma Ray Field Survey calibration

Tool Type: GRB-AB Serial No: 229
 Calibrator No:

| Background | Calibrator | Standard | Units |
|------------|------------|----------|-------|
| 102.2 | 492.8 | 140.0 | CPS |

Delta Counts Per Sec: 390.6 CPS/API = 2.790

SBT Field Calibration SBT-AA 238

Field calibration on 11-OCT-2017 13:48

Sector Bond Field Calibration

Tool Type SBT-AA Serial No 238
 T0 Gain 3dB Free Pipe Depth

| Sensor | Description | Standard(mV) | Measured(mV) |
|--------------|-------------|--------------|--------------|
| AMP 3FT | 100% Bond | 5.00 | 0.90 |
| | Free Pipe | 62.00 | 1318.40 |
| AMP 5FT | 100% Bond | 0.90 | 1.30 |
| | Free Pipe | 41.00 | 1926.90 |
| 1 SECTOR AMP | 100% Bond | 5.00 | 0.30 |
| | Free Pipe | 95.00 | 489.90 |
| 2 SECTOR AMP | 100% Bond | 5.00 | 6.50 |
| | Free Pipe | 95.00 | 565.30 |
| 3 SECTOR AMP | 100% Bond | 5.00 | 0.30 |
| | Free Pipe | 95.00 | 561.40 |
| 4 SECTOR AMP | 100% Bond | 5.00 | 1.50 |
| | Free Pipe | 95.00 | 569.70 |
| 5 SECTOR AMP | 100% Bond | 5.00 | 0.60 |
| | Free Pipe | 95.00 | 541.50 |
| 6 SECTOR AMP | 100% Bond | 5.00 | 7.60 |
| | Free Pipe | 95.00 | 604.00 |

| | | | | |
|---|------------|------------------------|---------------|----------------|
| 7 | SECTOR AMP | 100% Bond Free Pipe | 5.00 95.00 | 1.30 569.20 |
| 8 | SECTOR AMP | 100% Bond Free Pipe | 5.00 95.00 | 2.90 535.20 |

SBT Constants SBT-AA 238

Last Edited on 04-OCT-2017 11:22

| | | | |
|----------------------|-----------|-------|------|
| Min Amp | 100% Bond | 5.00 | MV |
| Max Amp | 0% Bond | 62.00 | MV |
| Casing Size | | 7.00 | IN |
| Casing Weight | | 26.0 | LB/F |
| 3' TT Correction | | 0.0 | US |
| DT Fluid | | 200.0 | US/F |
| Fast Formation TT | | 38.5 | US/F |
| Cement Cmpr Strength | | 2000 | PSI |
| Casing Velocity | | 57.00 | US/F |
| Maximum Attenuation | | 12.00 | DB/F |
| Cement Weight | | 0.00 | LB/G |

| | |
|-----------------|-------------------------------|
| COMPANY | EAST CHEYENNE GAS STORAGE LLC |
| WELL | ECGS No 6-21 WPD004-2 |
| FIELD | WEST PEETZ |
| PROVINCE/COUNTY | LOGAN |
| COUNTRY/STATE | U.S.A./COLORADO |

| | | | | | |
|-------------------------|------|------|---------------------|---------|------|
| Elevation Kelly Bushing | 4569 | feet | Bottom Log Interval | 5270.00 | feet |
| Elevation Drill Floor | 4566 | feet | Depth Driller | 5440.00 | feet |
| Elevation Ground Level | 4557 | feet | Depth Logger | 5270.00 | feet |



Weatherford[®]

SECTOR BOND LOG