



Radial Cement Bond
Gamma Ray
Casing Collar Log

| | | | |
|--------------------------------|--|---------------------------------|--|
| Company | | Kerr McGee Oil & Gas Onshore LP | |
| Well | | Burkhardt 37N-3HZ | |
| Field | | Wattenberg | |
| County | | Weld | |
| State | | Colorado | |
| Company | | Kerr McGee Oil & Gas Onshore LP | |
| Well | | Burkhardt 37N-3HZ | |
| Field | | Wattenberg | |
| County | | Weld | |
| State | | Colorado | |
| Location: | | API # : 05-123-39182 | |
| SHL: 420' FNL 1920' FEL | | Other Services | |
| Lat/Long: 40.086145/-104.76058 | | Gauge ring | |
| SEC 3 TWP 1N RGE 66W | | MIT | |
| Permanent Datum | | Ground Level | |
| Log Measured From | | Kelly Bushing | |
| Drilling Measured From | | Kelly Bushing | |
| Elevation | | 5061' | |
| K.B. 5077' | | D.F. 5076' | |
| G.L. 5061' | | | |
| Date | | 10-Oct-2014 | |
| Run Number | | Two | |
| Depth Driller | | 11788 FT | |
| Depth Logger | | 7406 FT | |
| Bottom Logged Interval | | 7406 FT | |
| Top Log Interval | | Surface | |
| Open Hole Size | | 9.625" | |
| Type Fluid | | Water | |
| Density / Viscosity | | 8.34 lbm/gl | |
| Max. Recorded Temp. | | 242°F | |
| Estimated Cement Top | | Surface | |
| Time Well Ready | | --- | |
| Time Logger on Bottom | | 5:15 PM | |
| Equipment Number | | HD-0255 | |
| Location | | Ft. Lupton, CO | |
| Recorded By | | Wayne Wacker | |
| Witnessed By | | D. Frederick | |
| Borehole Record | | Tubing Record | |
| Run Number | | Bit | |
| From | | To | |
| Size | | Weight | |
| From | | To | |
| Casing Record | | Size (in) | |
| Surface Casing | | 9.625 | |
| Intermediate #1 | | 7 | |
| Intermediate #2 | | 4.5 | |
| Liner | | 11.6 | |
| Grade | | Top | |
| Surface | | Surface | |
| Bottom | | 1669 FT | |
| 7790 FT | | | |
| 6747 FT | | | |
| 11778 FT | | | |

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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

Log ran as per customer request.
Depth reference to Casing Tally reported Liner Top at 6747 FT.
Adjusted -5 FT to correlate to liner top.
Gauge Ring/Junk Basket ran to 7392 FT.
Log ran from as deep as possible to surface.
Log ran with 2800 PSI surface induced pressure.
Logging tools were clean and free of any debris upon completion of operations.

Thank you for choosing FMC Technologies Completion Services, Inc.!!



7' Main Pass

Logged With 2800 PSI Surface Induced Pressure

Database File:processed_bond_0512339182_anadarko_burkhardt 37n-3hz_10-10-14_mit_rbl.db

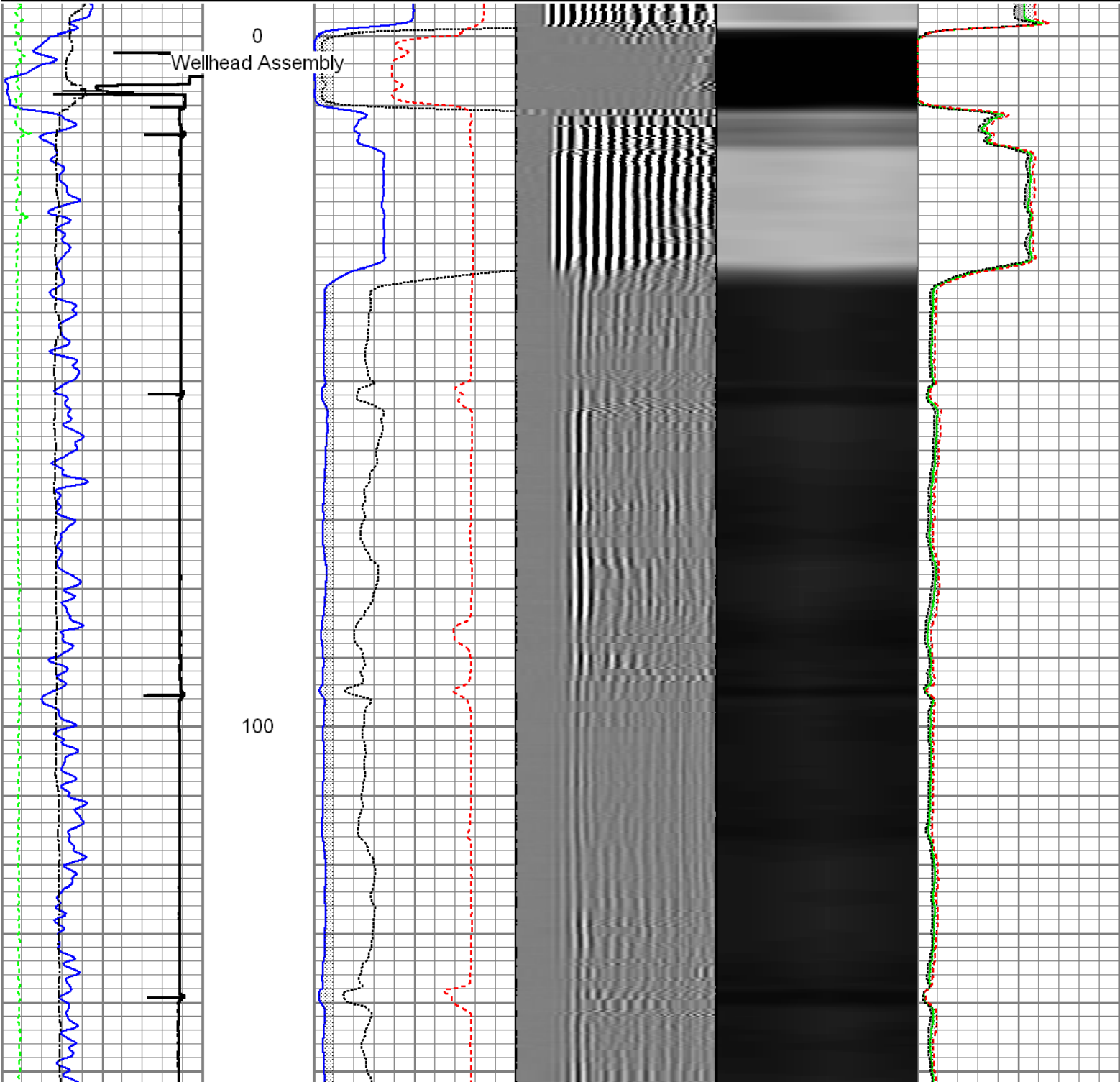
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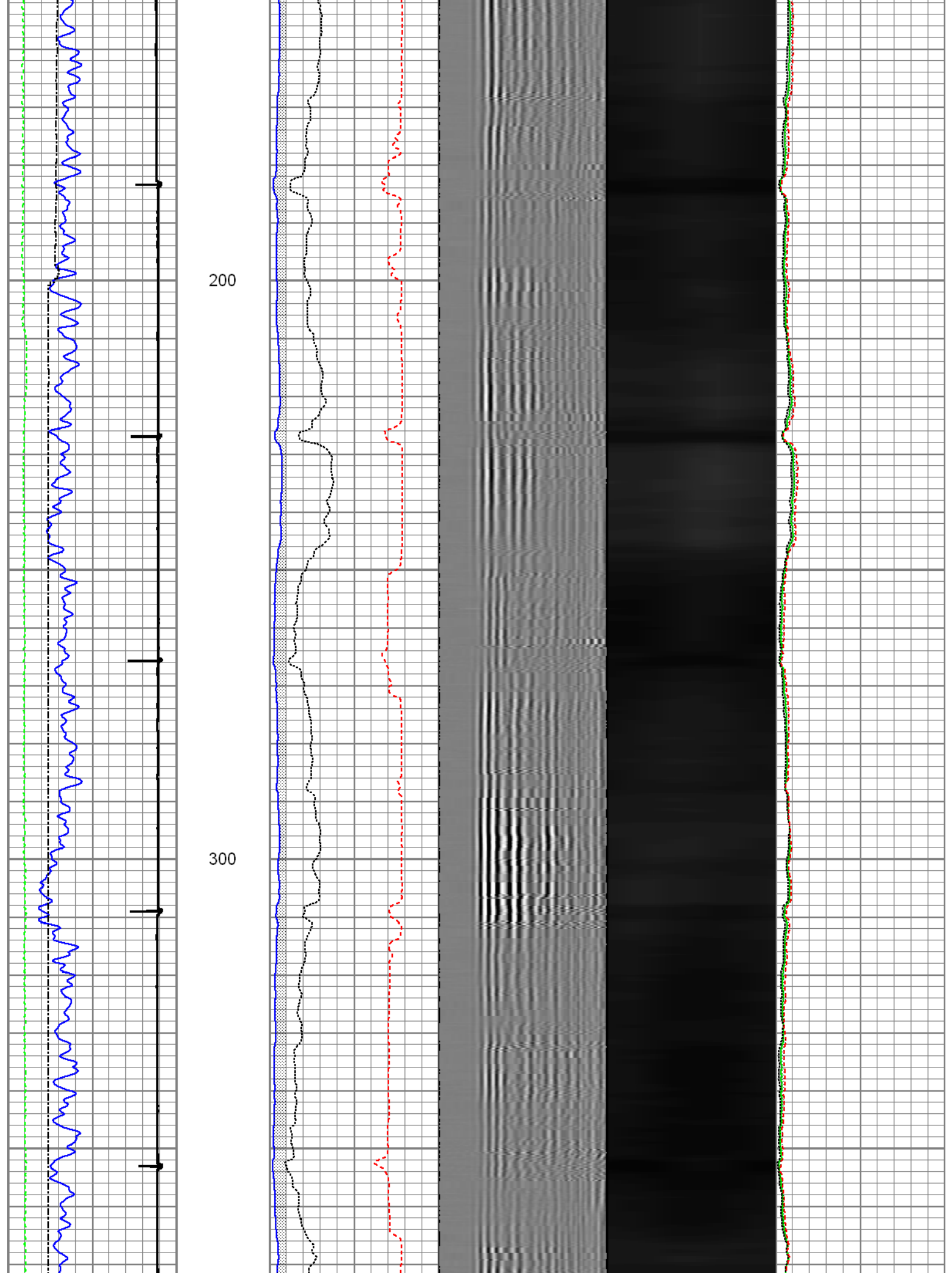
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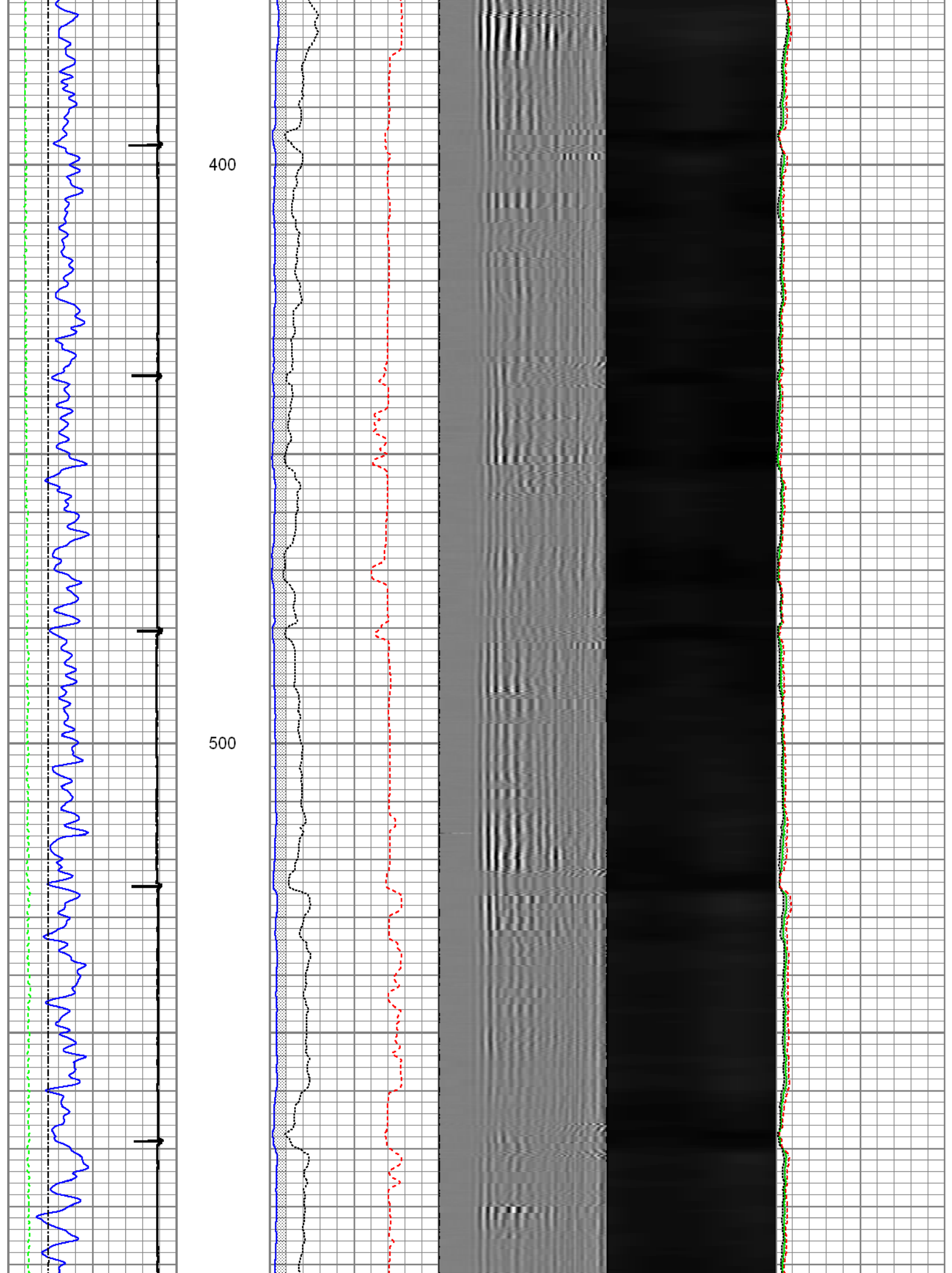
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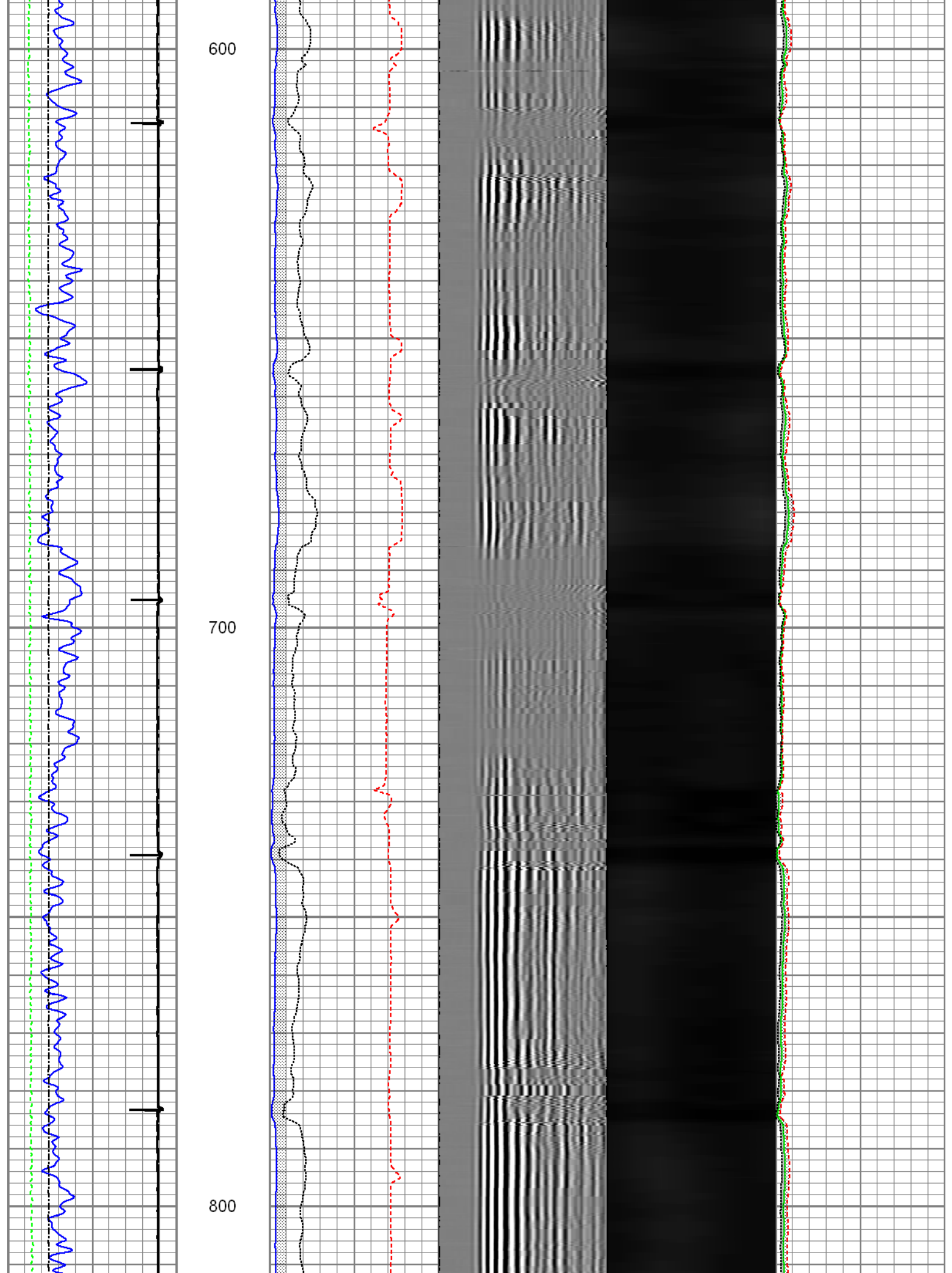
Charted by:Depth in Feet scaled 1:240

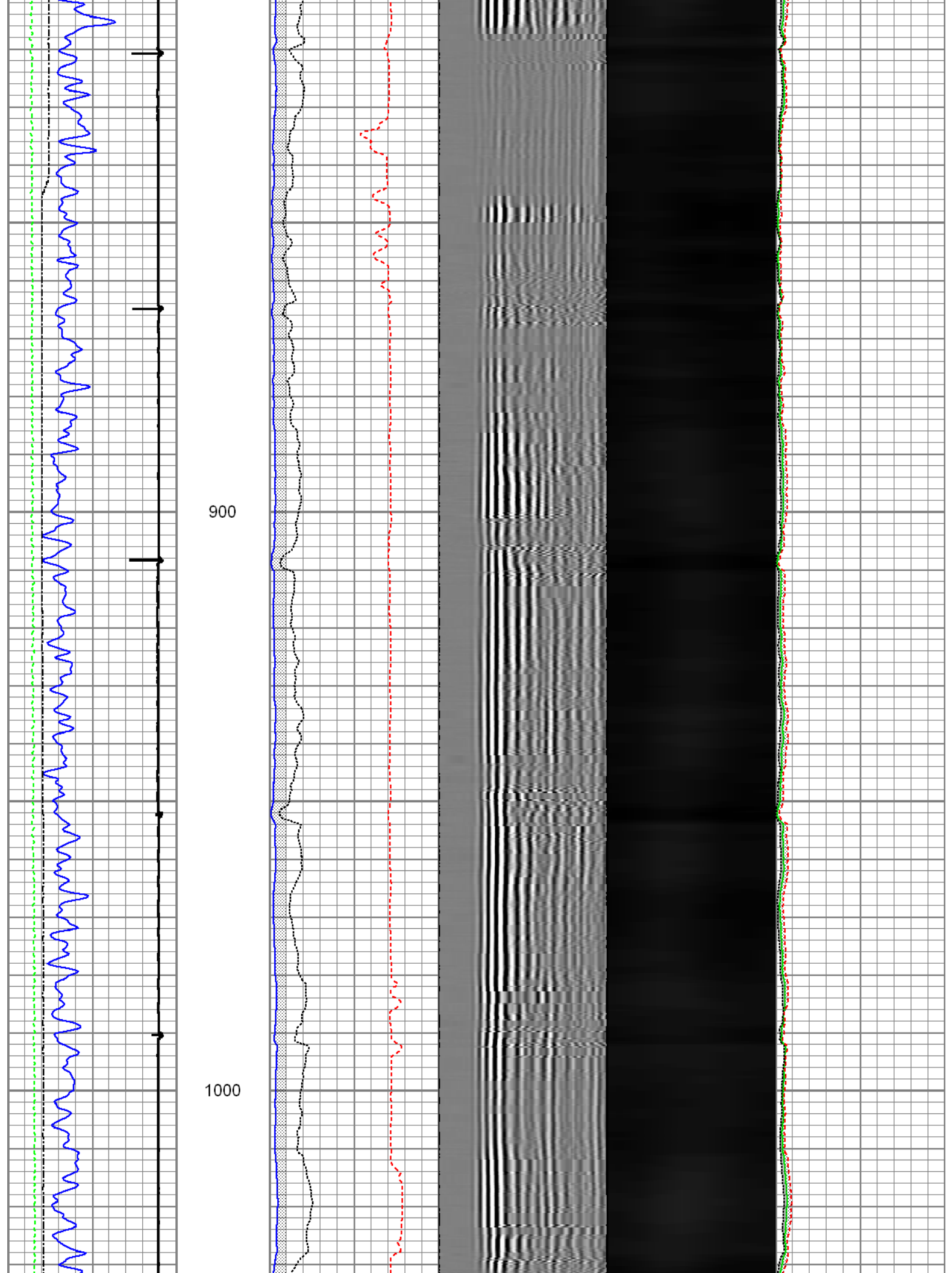
| | | | | |
|-----------------------|------------------|-------------------------|------------|-------------------|
| Gamma Ray | 3' Amplitude | 5' Variable Density Log | Sector Map | Average Amplitude |
| 0 (GAPI) 120 | 0 (mV) 100 | 200 1200 | | 0 100 |
| Casing Collar Locator | 3' Amplitude x 5 | | | Minimum Amplitude |
| Line Speed | 0 (mV) 20 | | | 0 100 |
| -100 (ft/min) 100 | 3' Travel Time | | | Maximum Amplitude |
| Line Tension | 650 (usec) 150 | | | 0 100 |
| 0 (lb) 2000 | | | | |

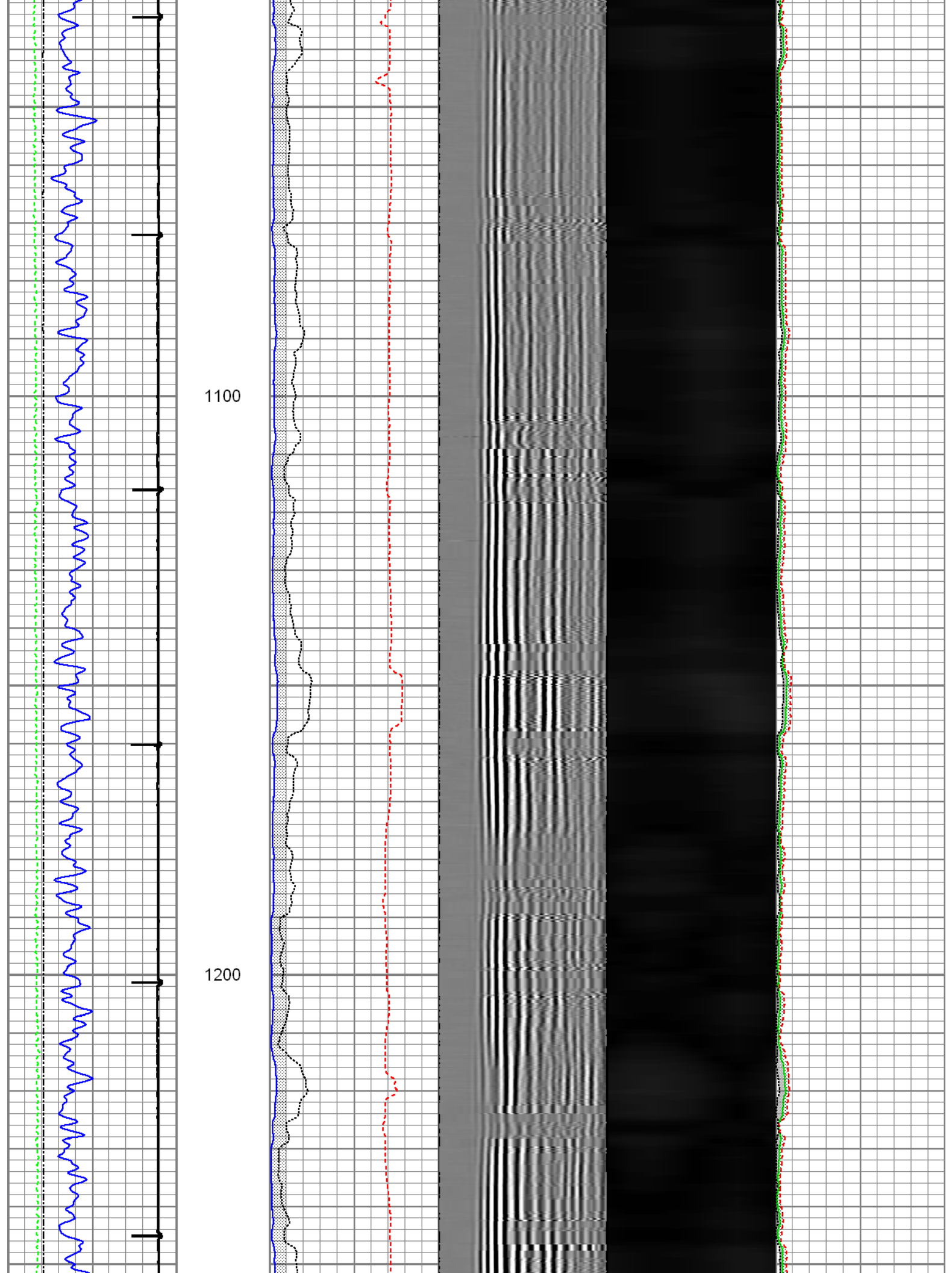


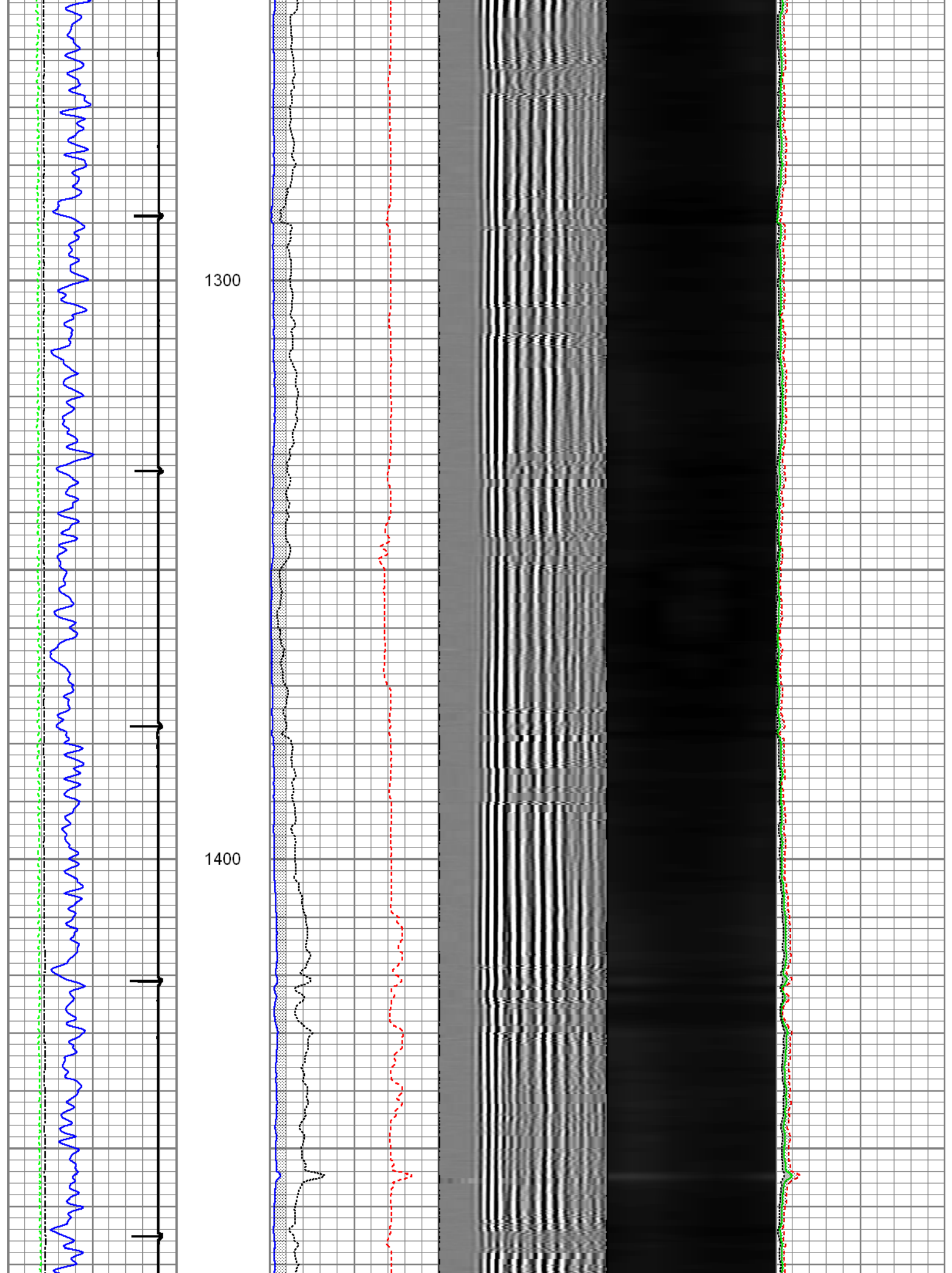


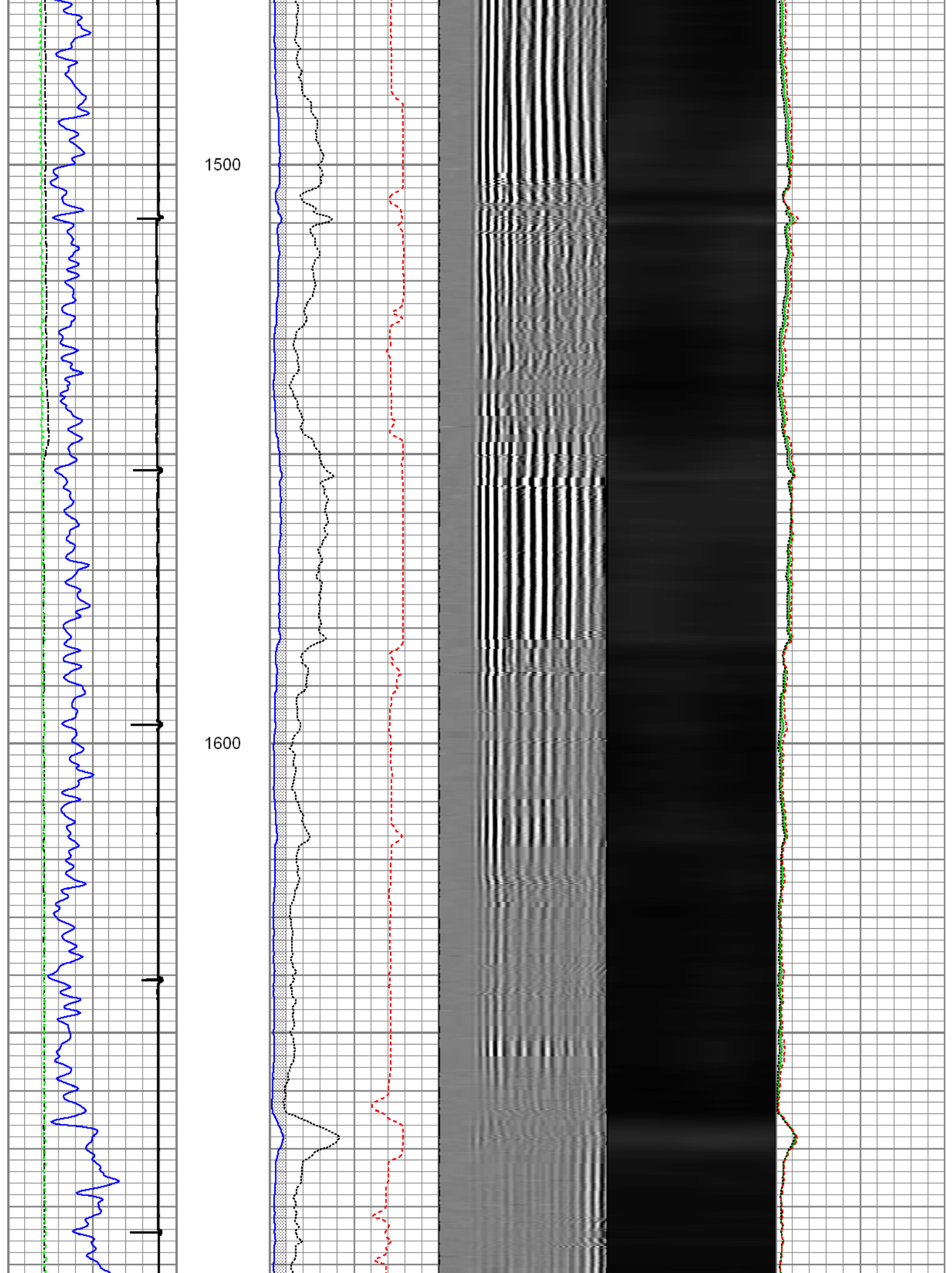


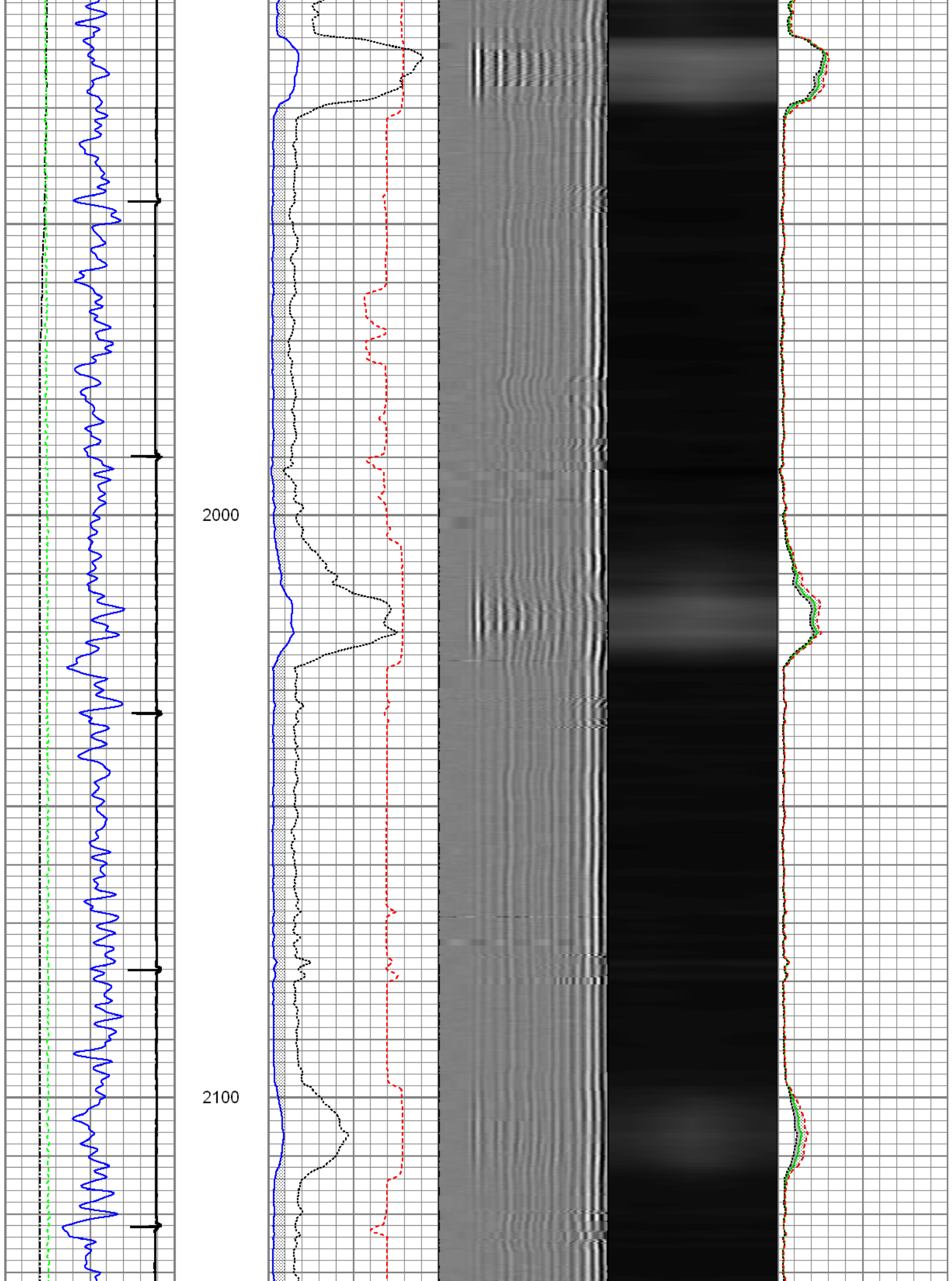


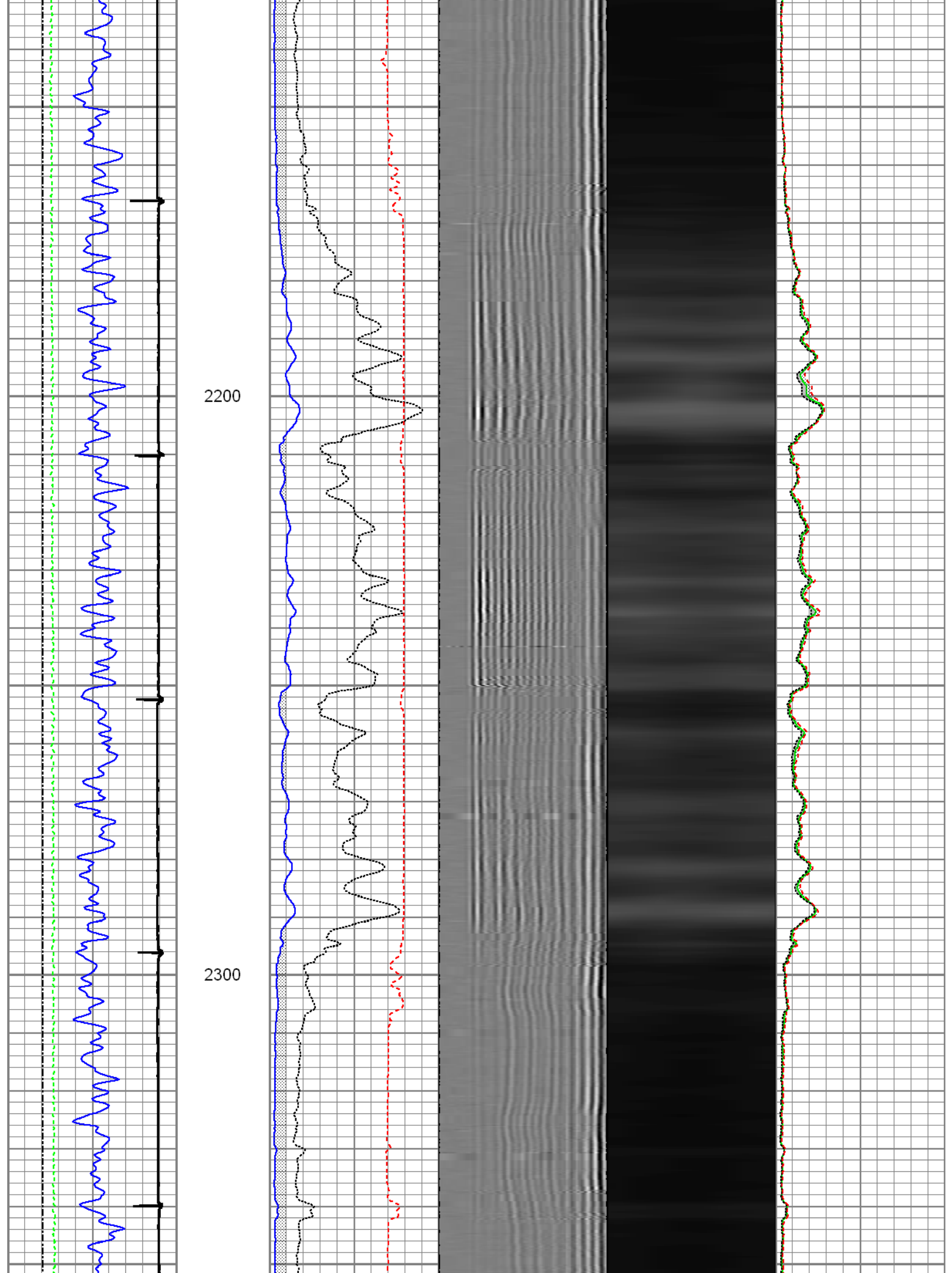






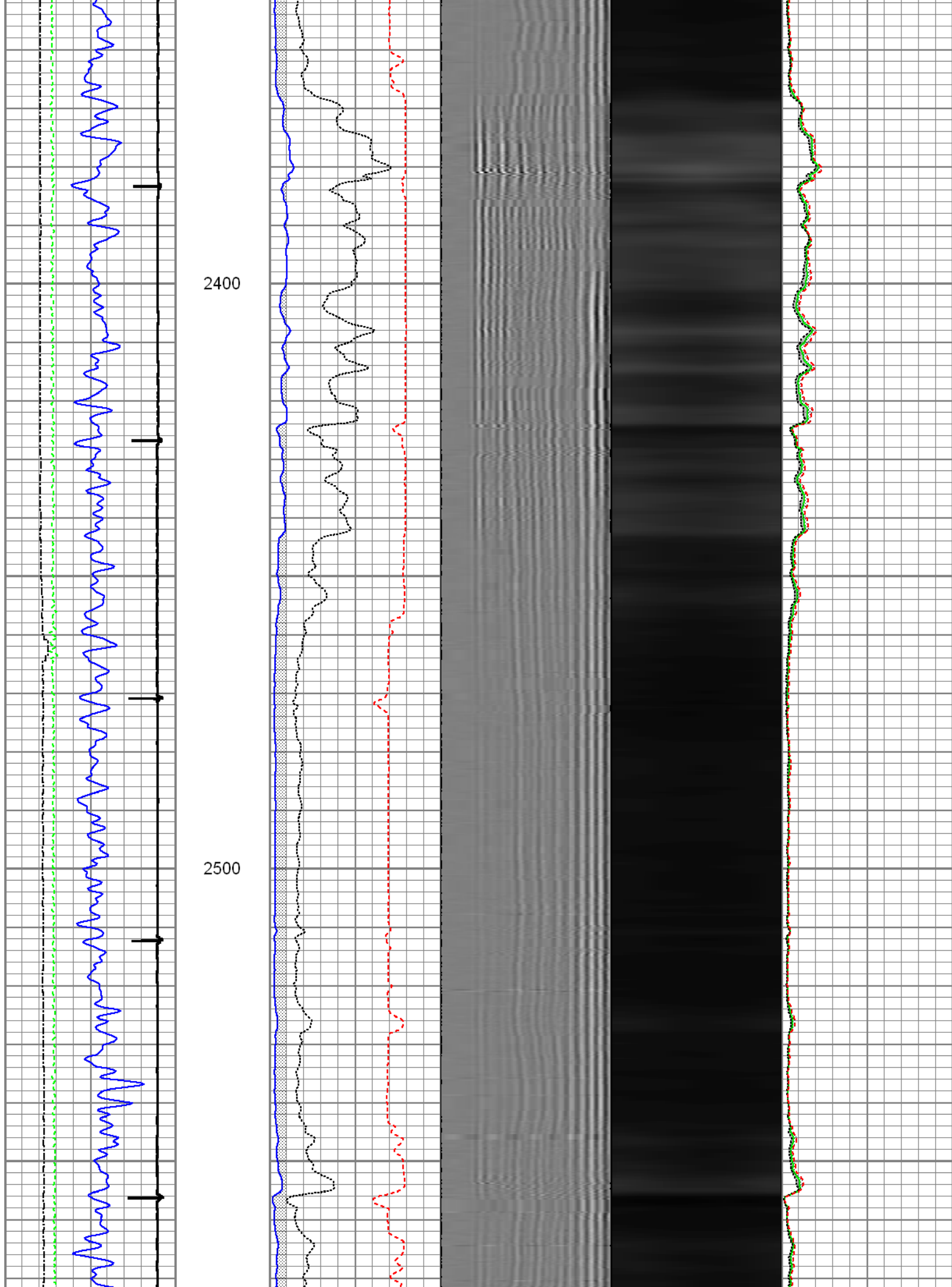


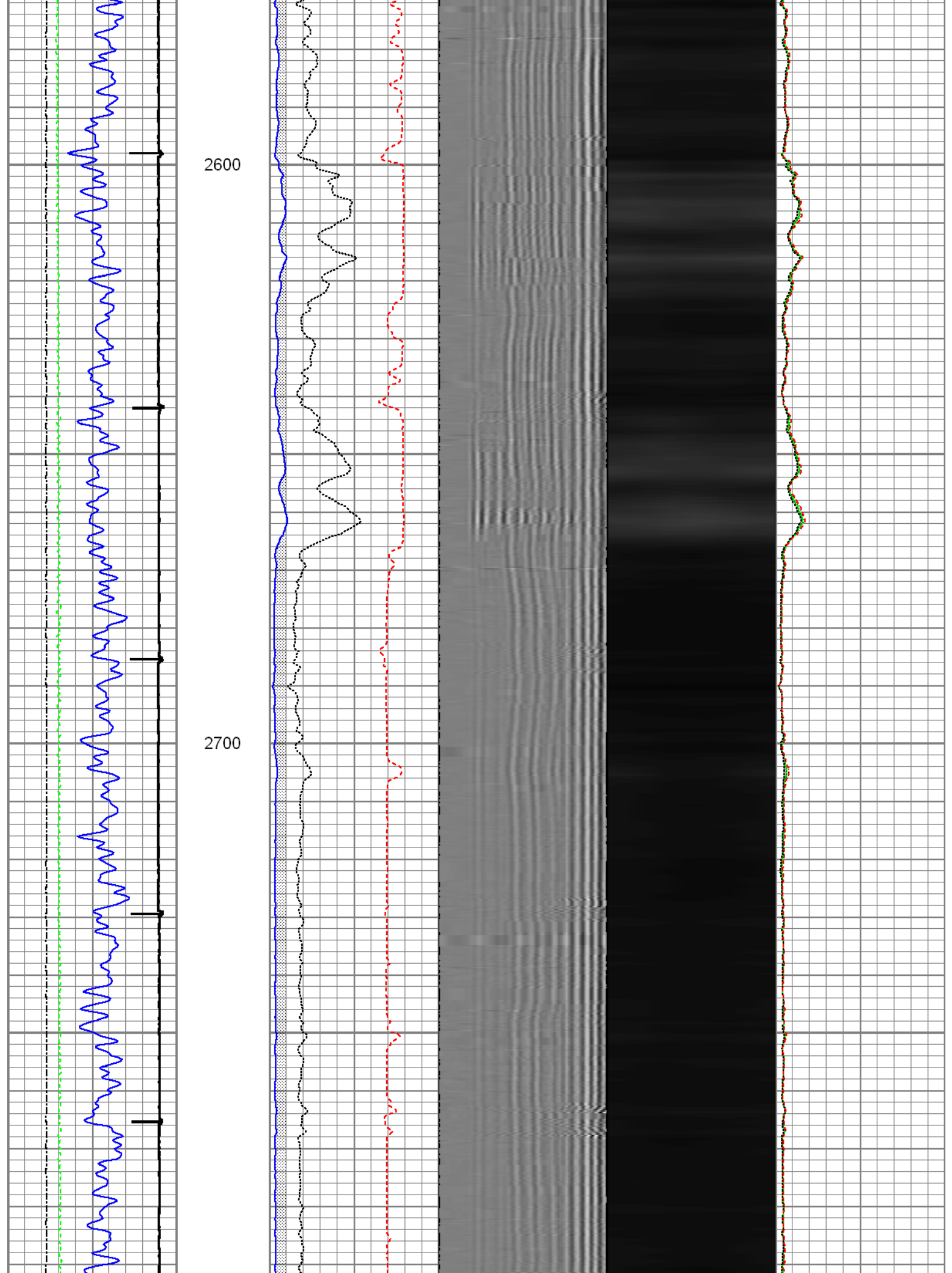




2400

2500

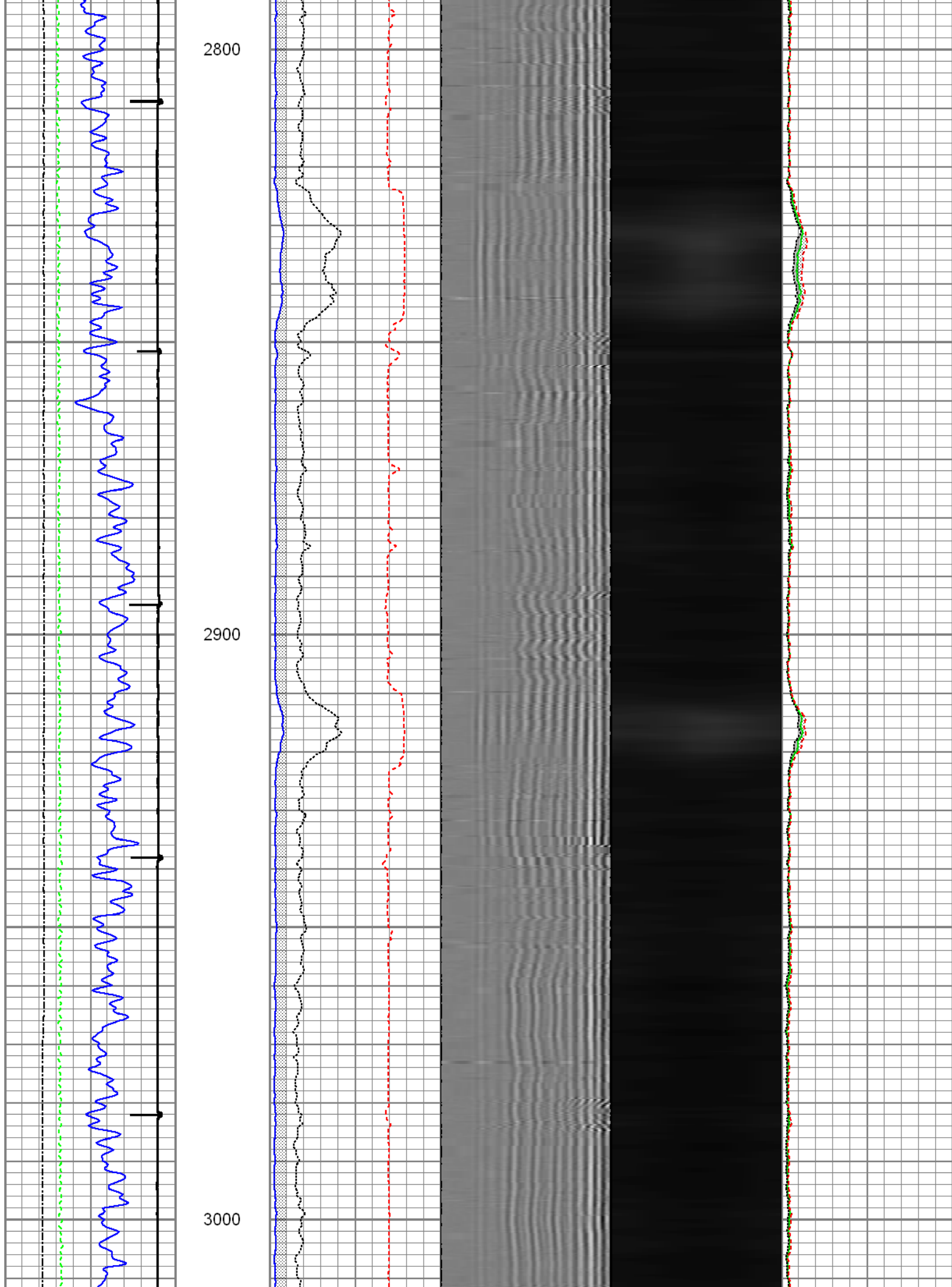


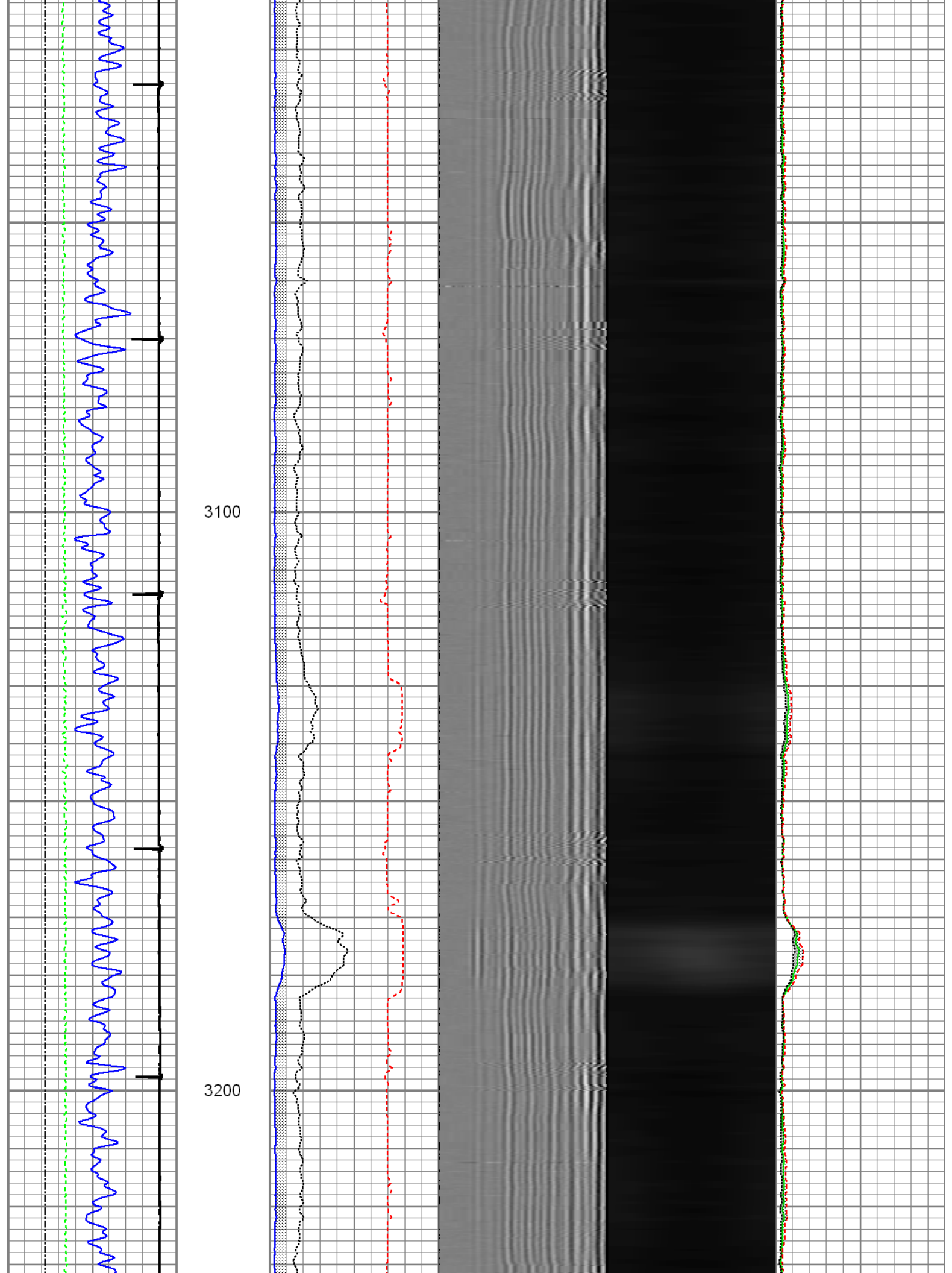


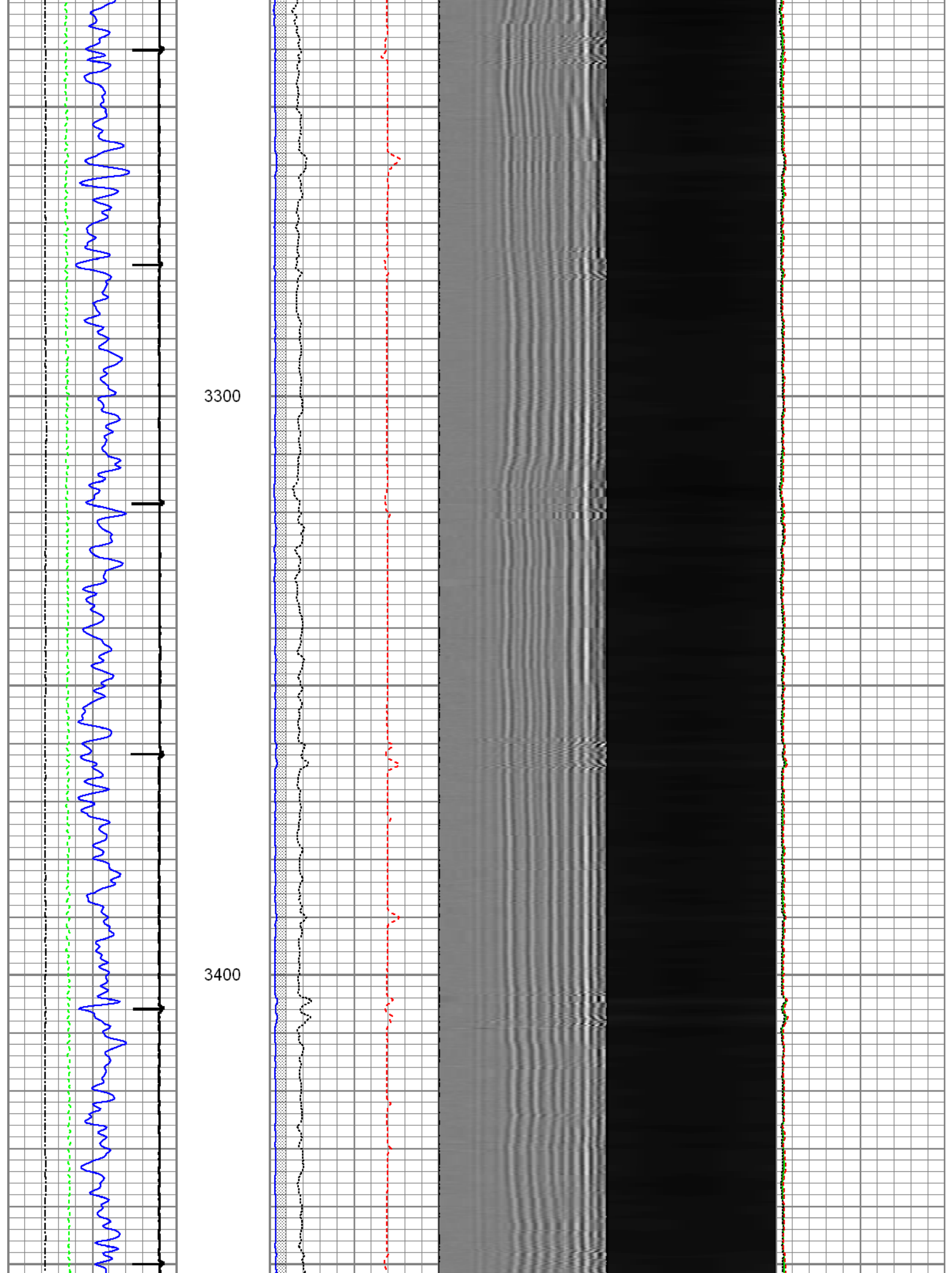
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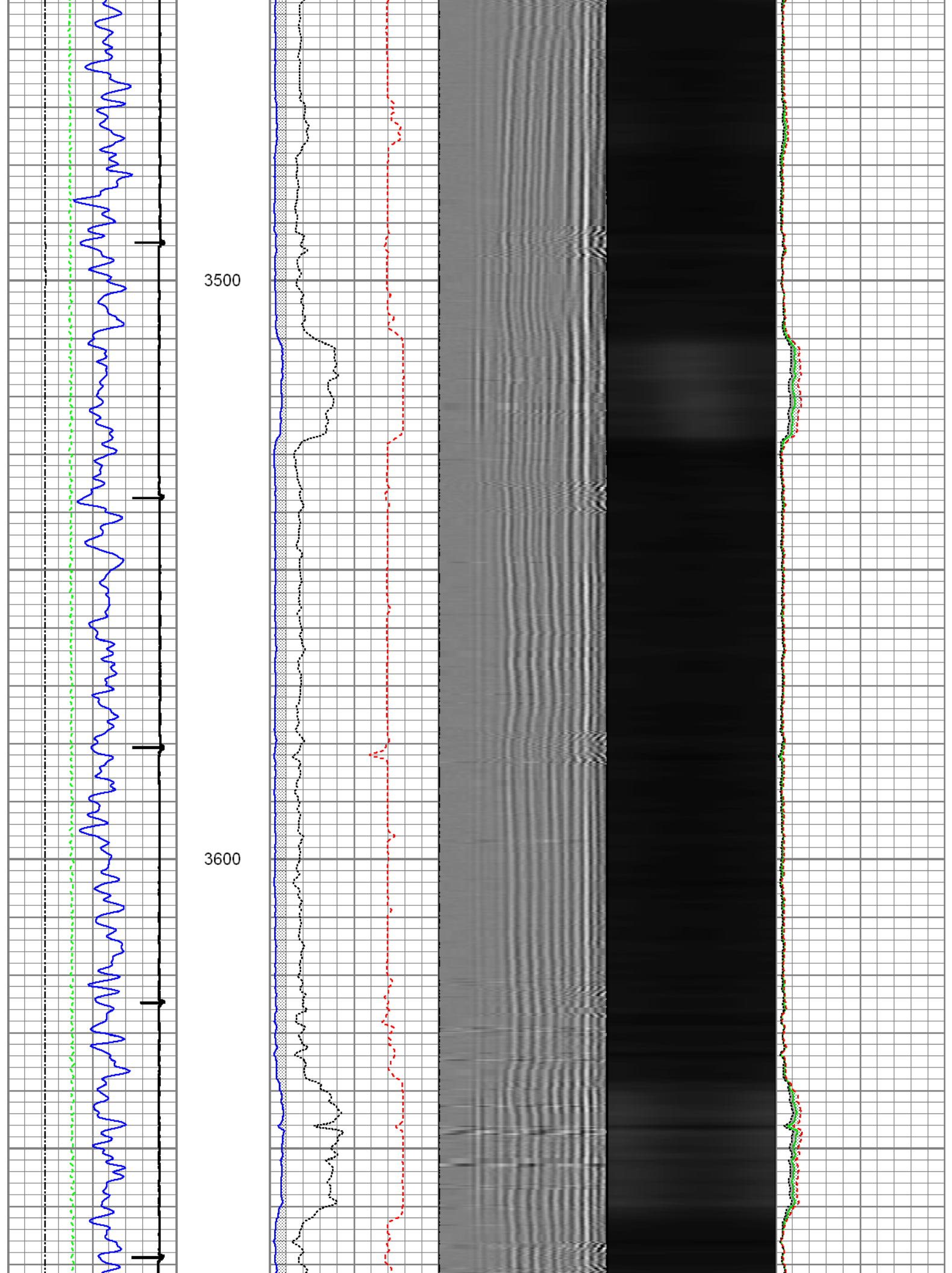
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3000



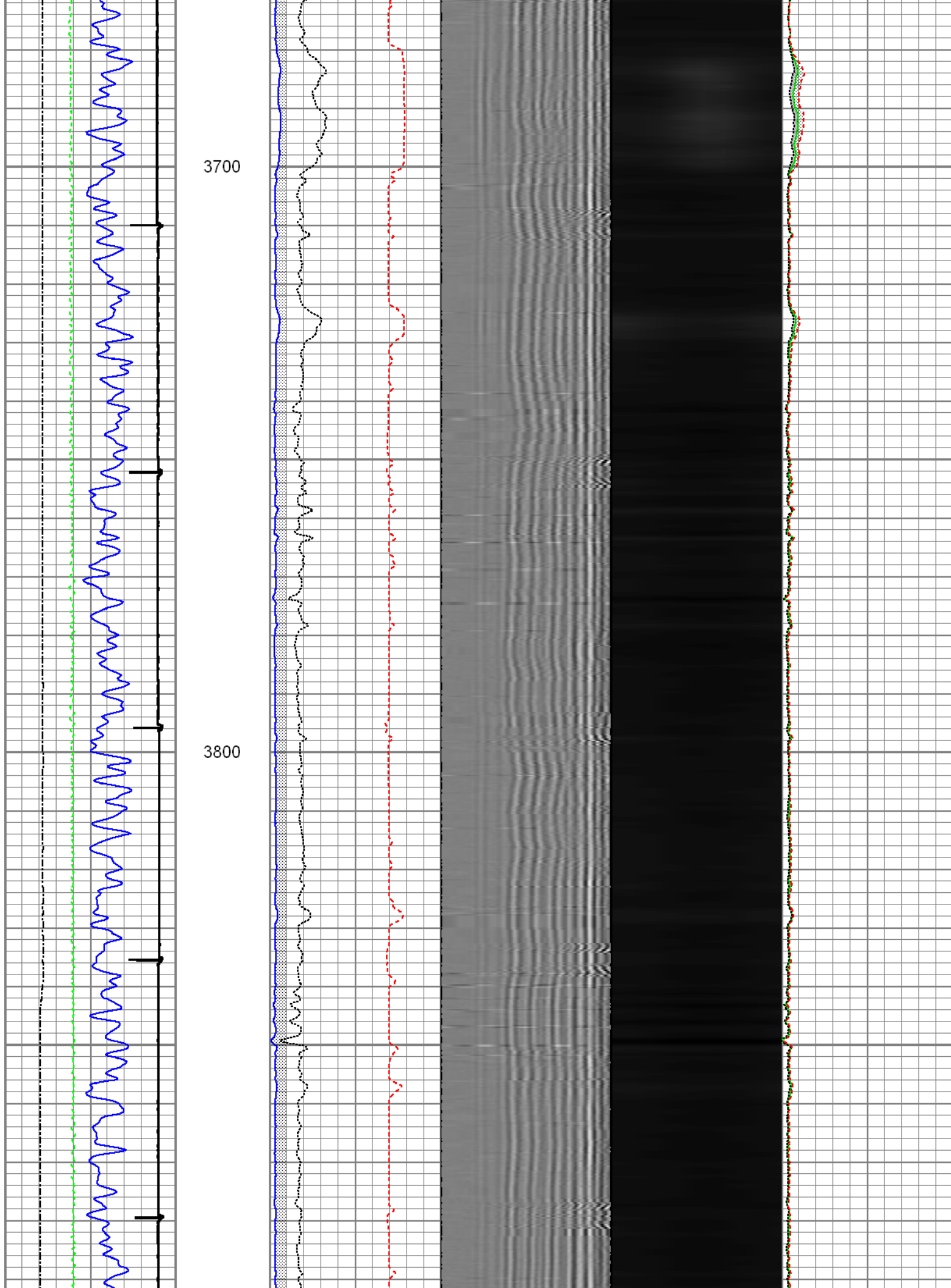






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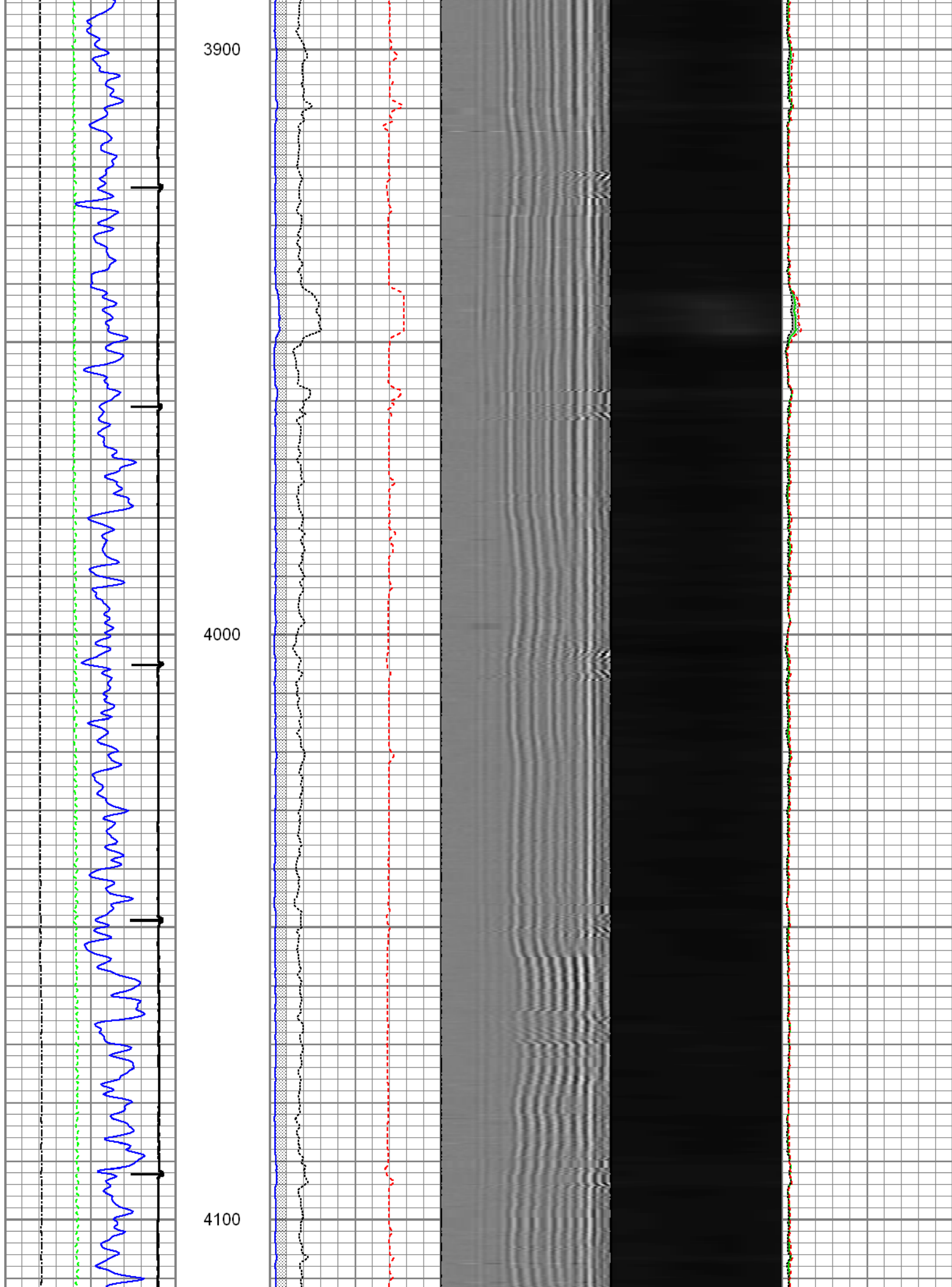
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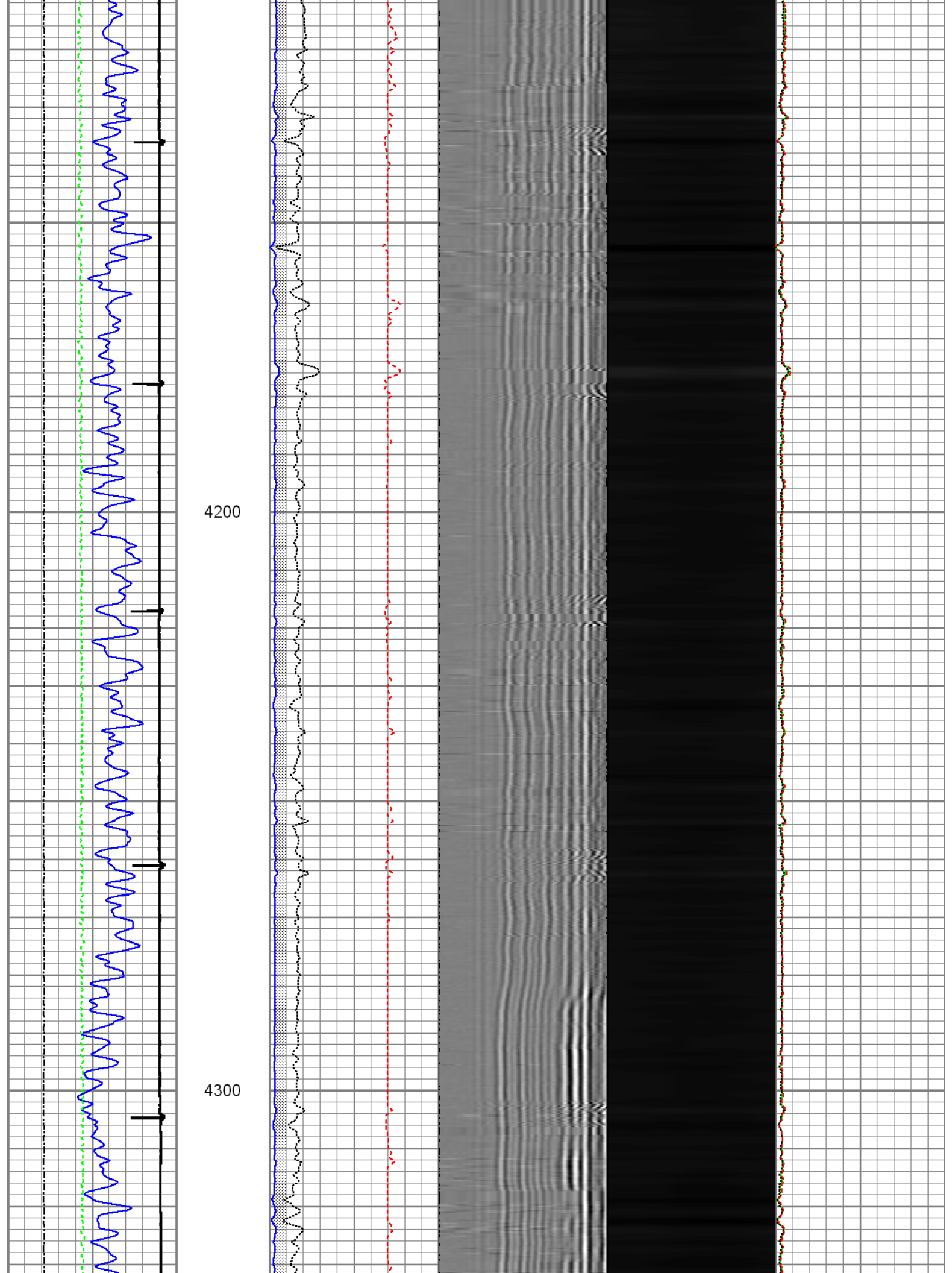


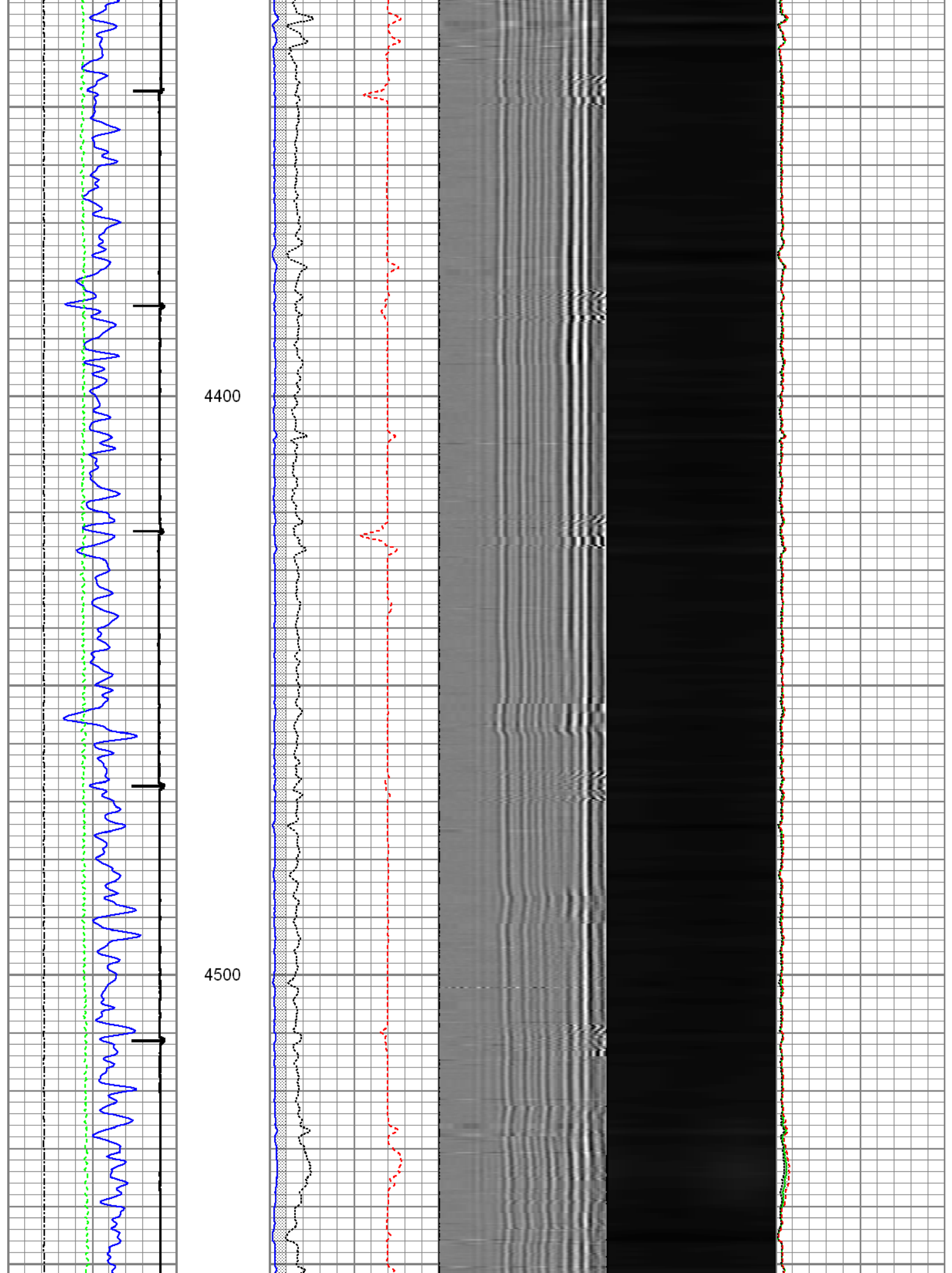
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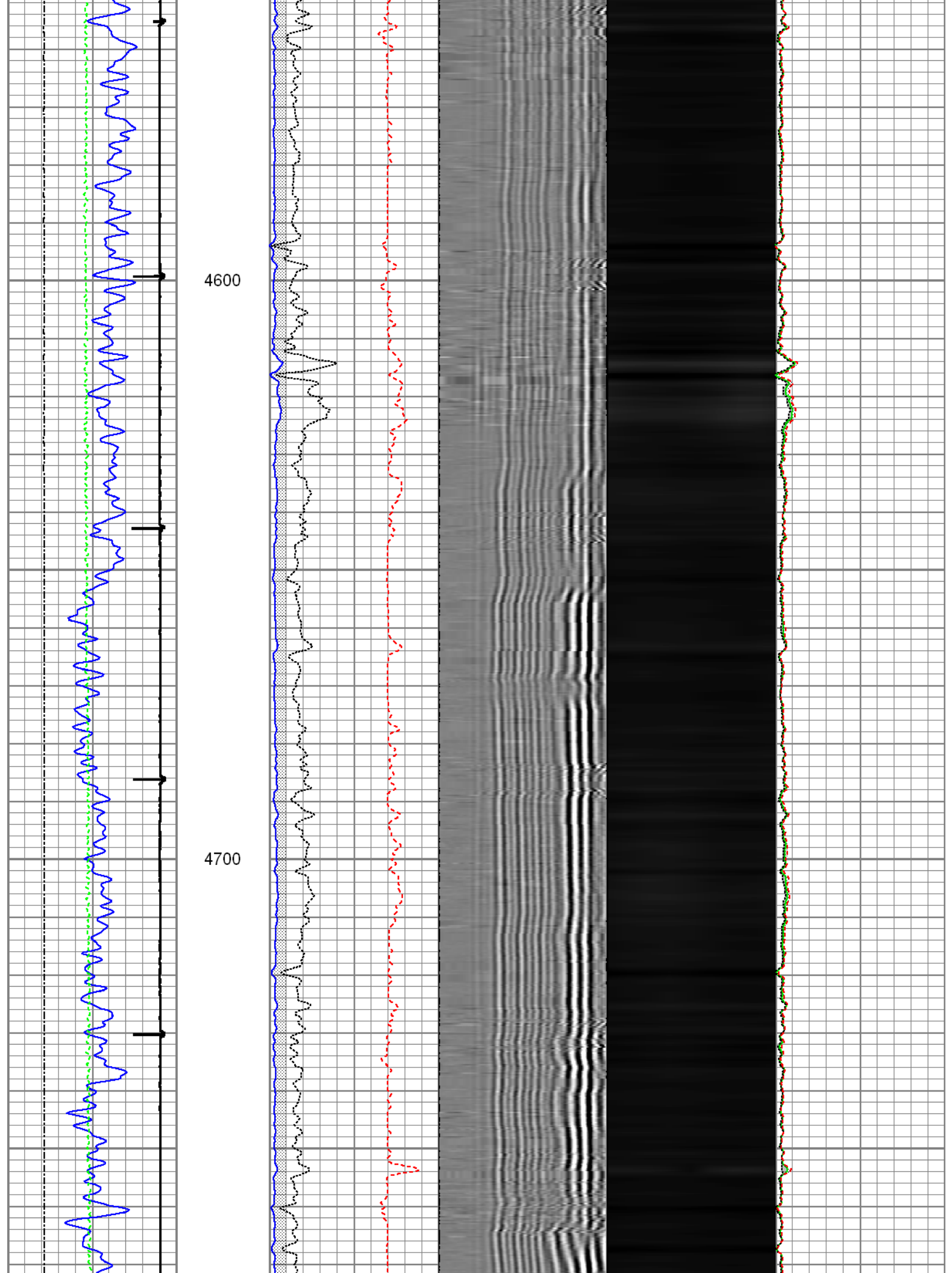
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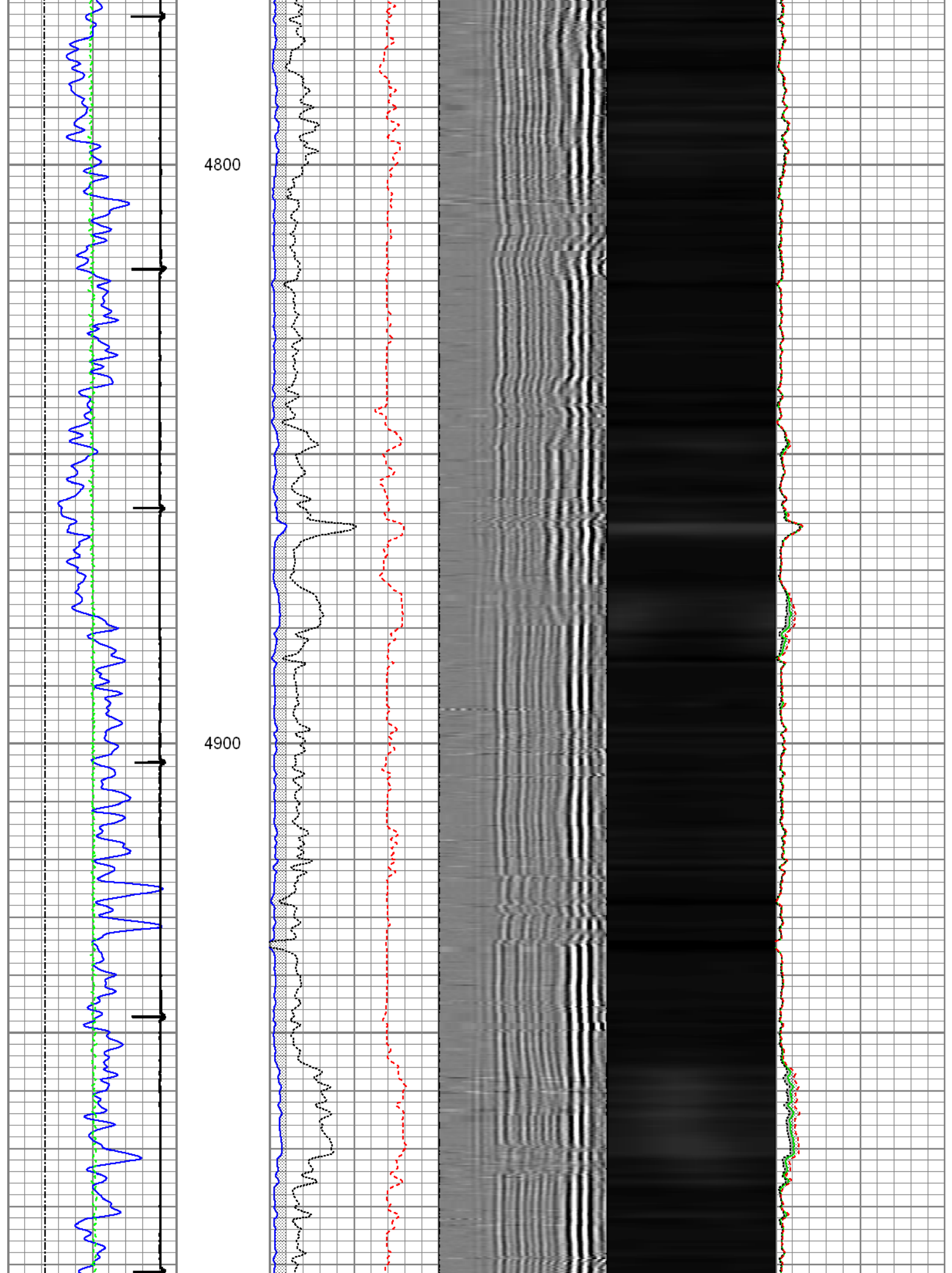
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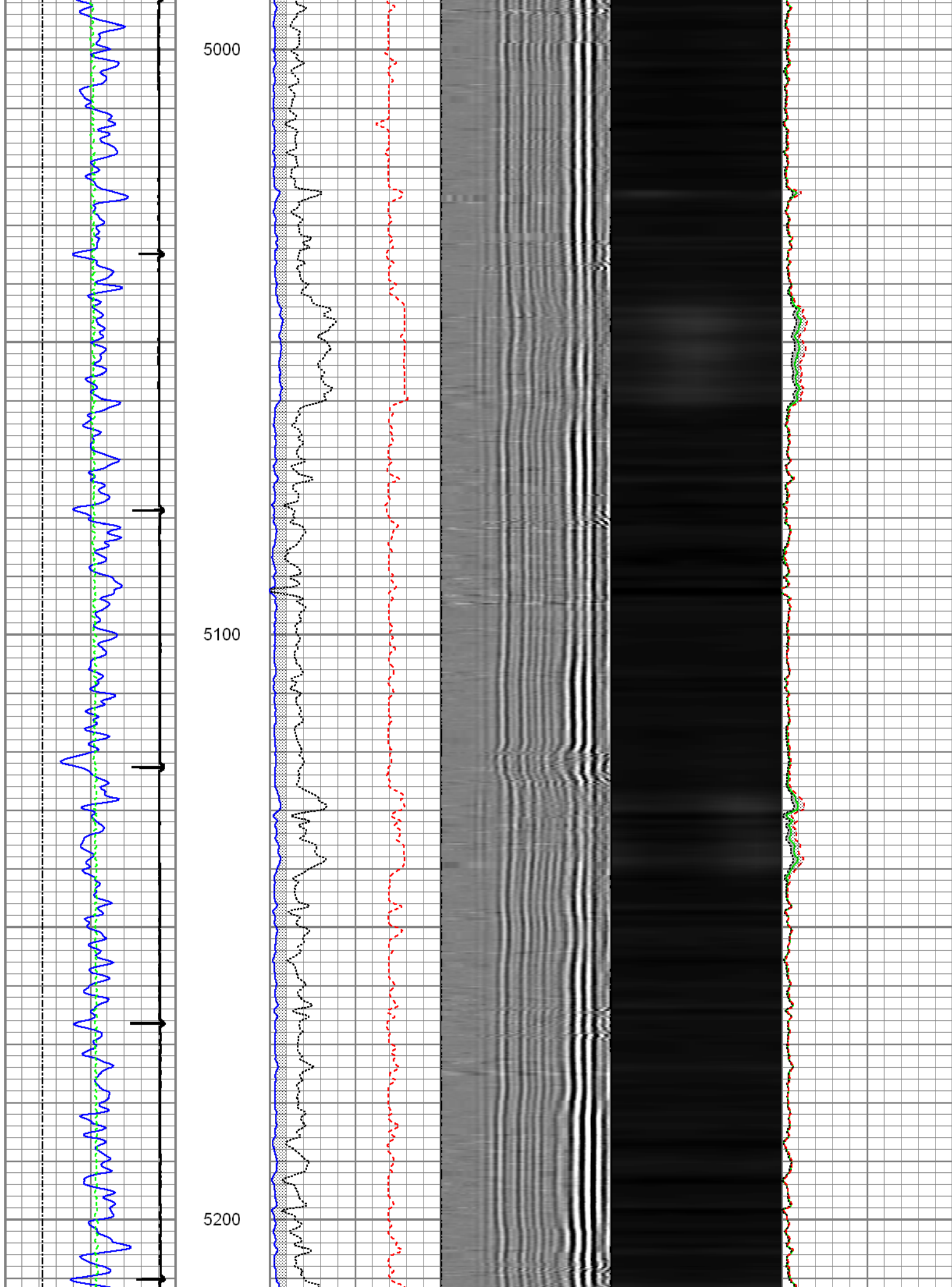


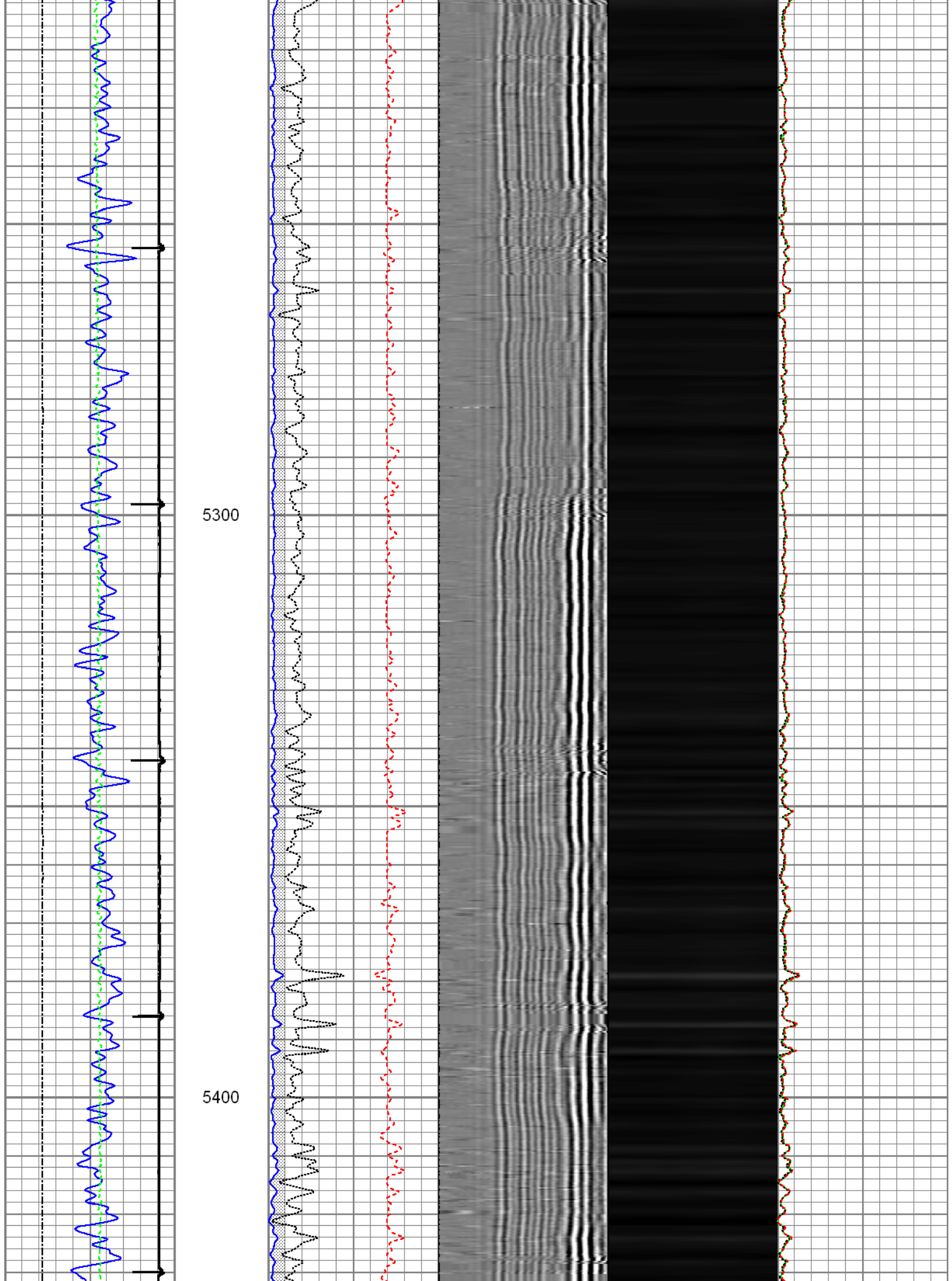


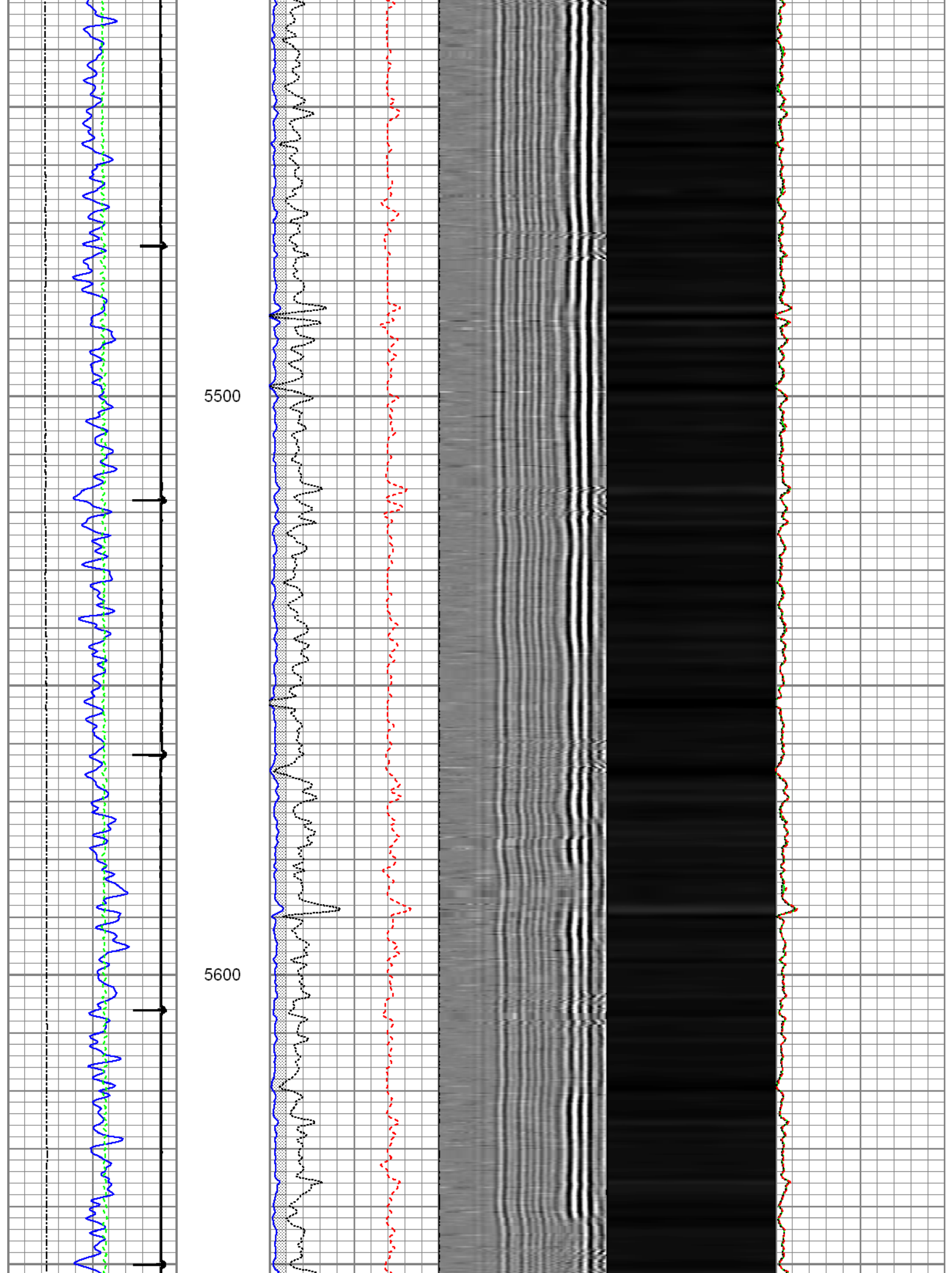
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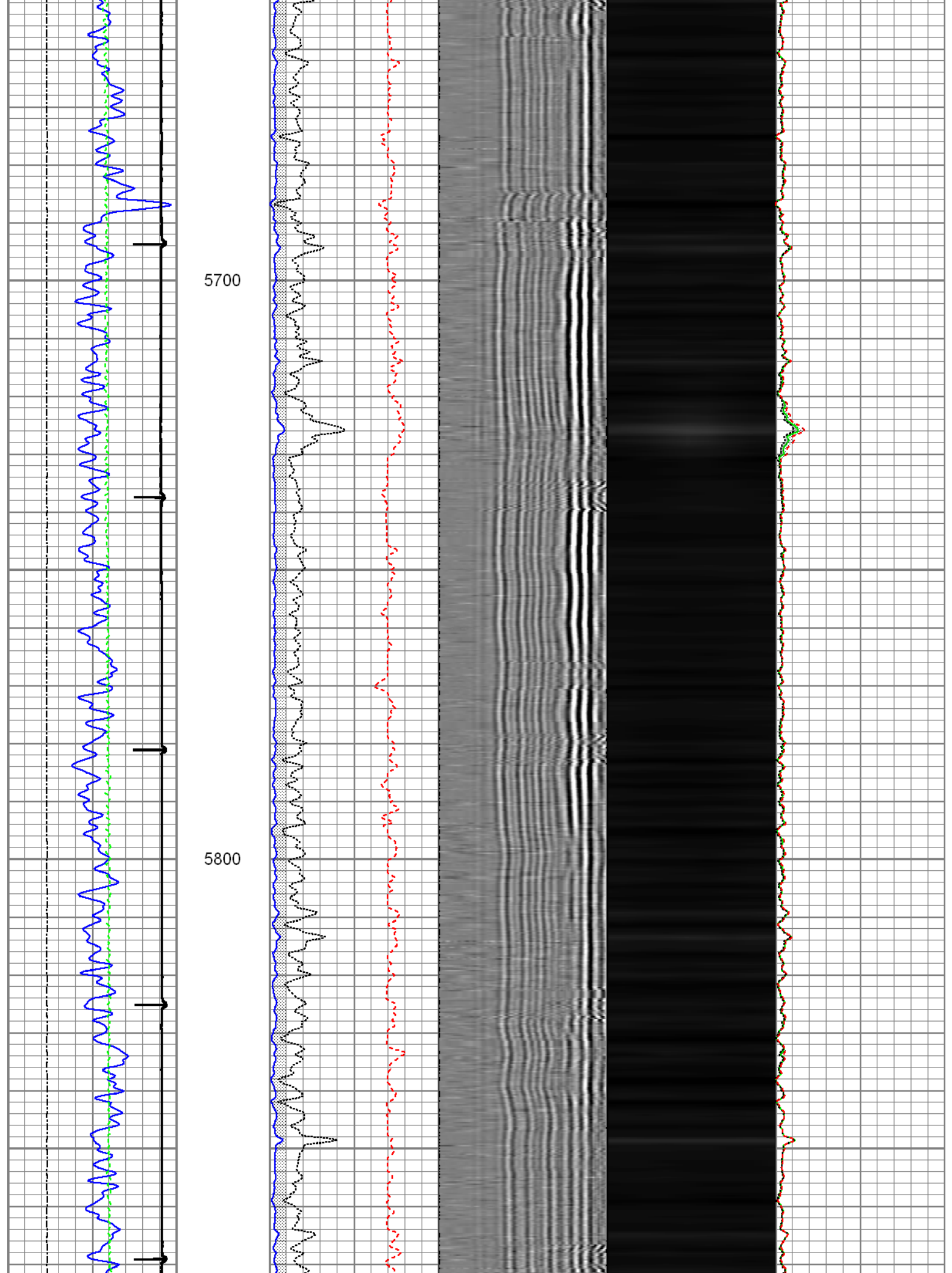
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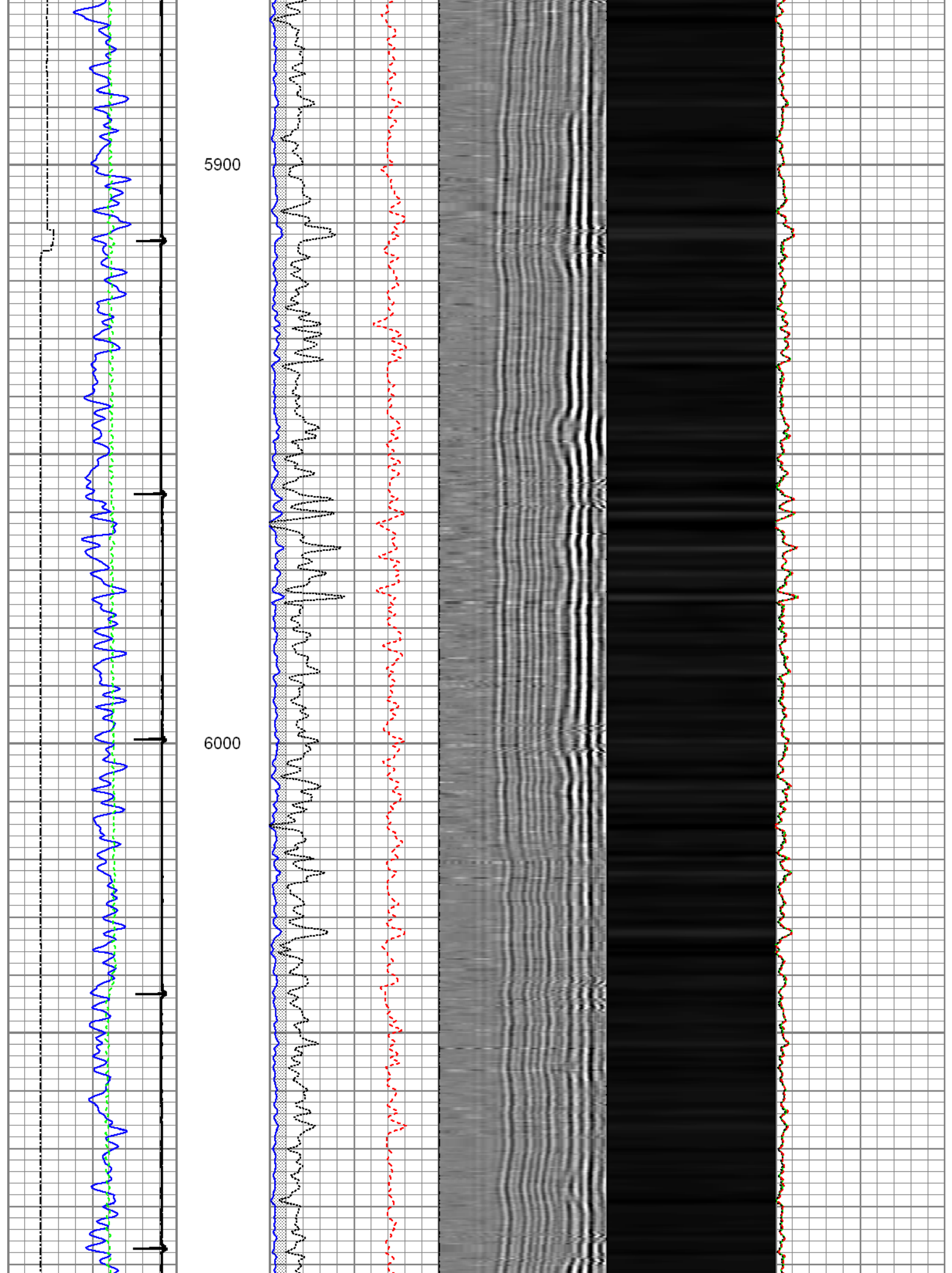
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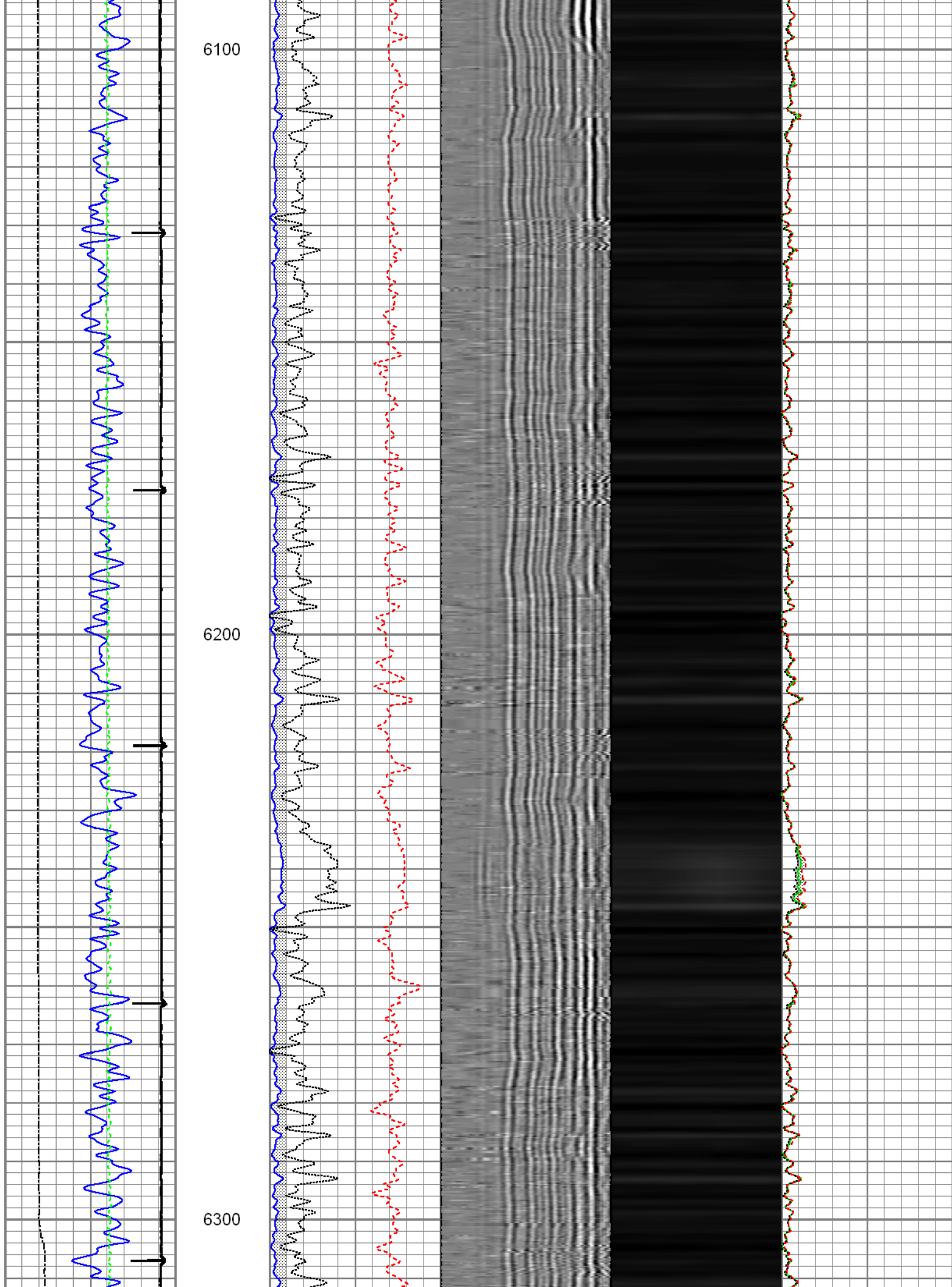


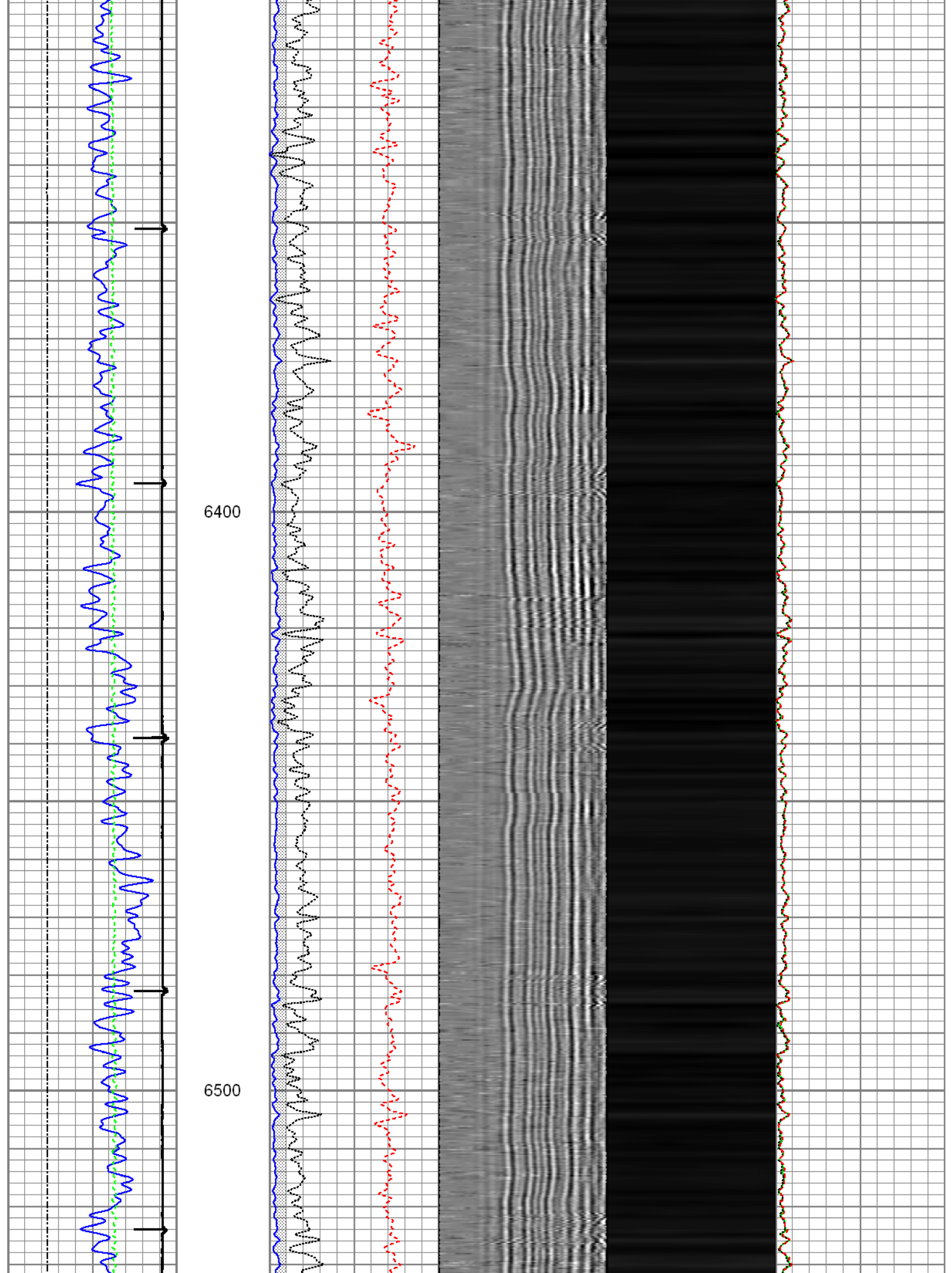


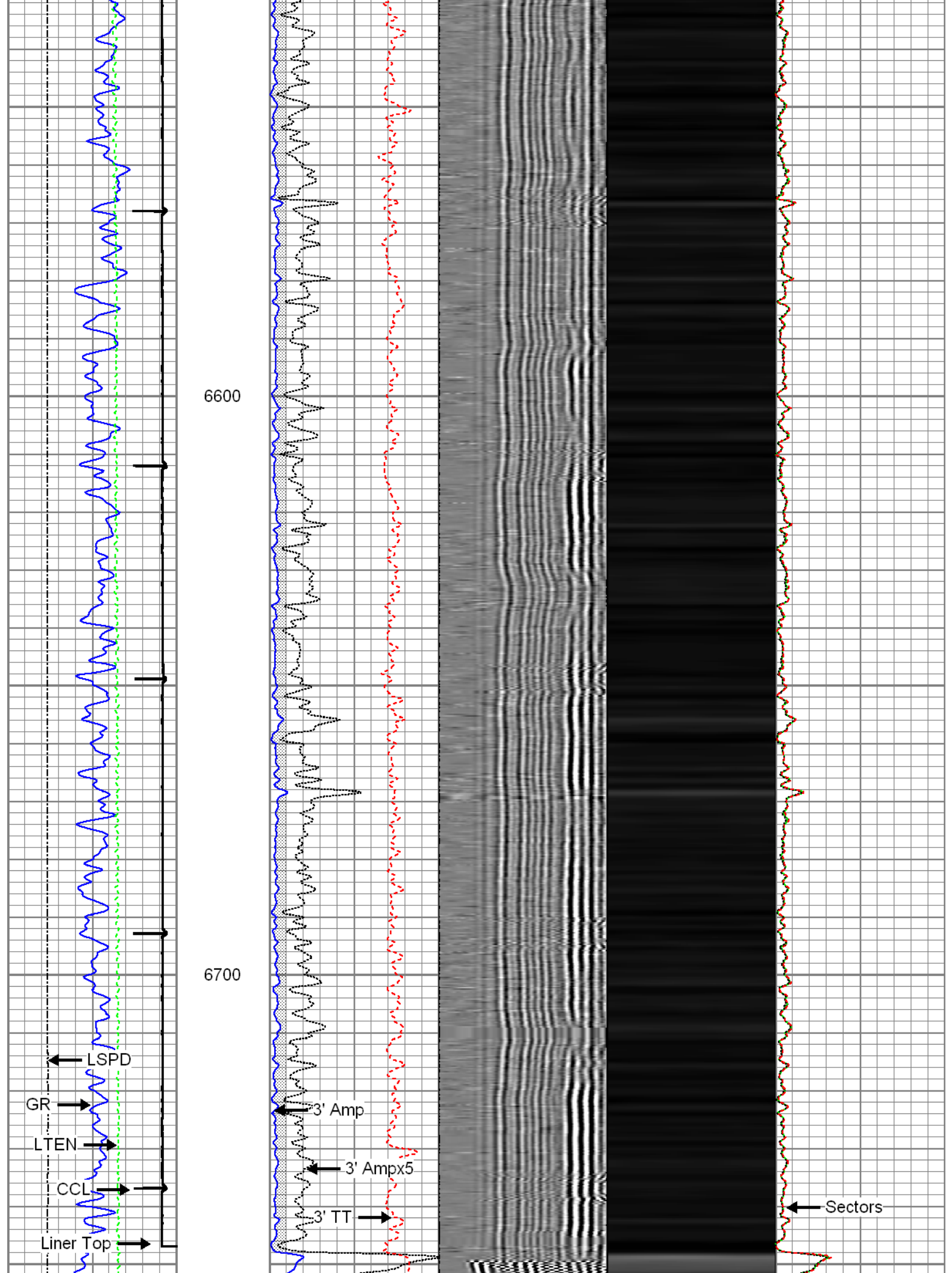
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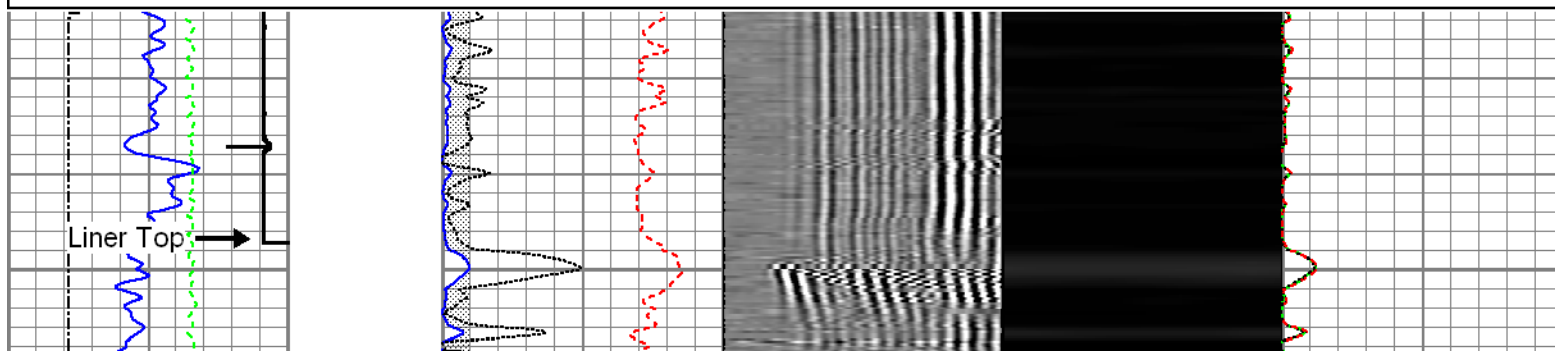
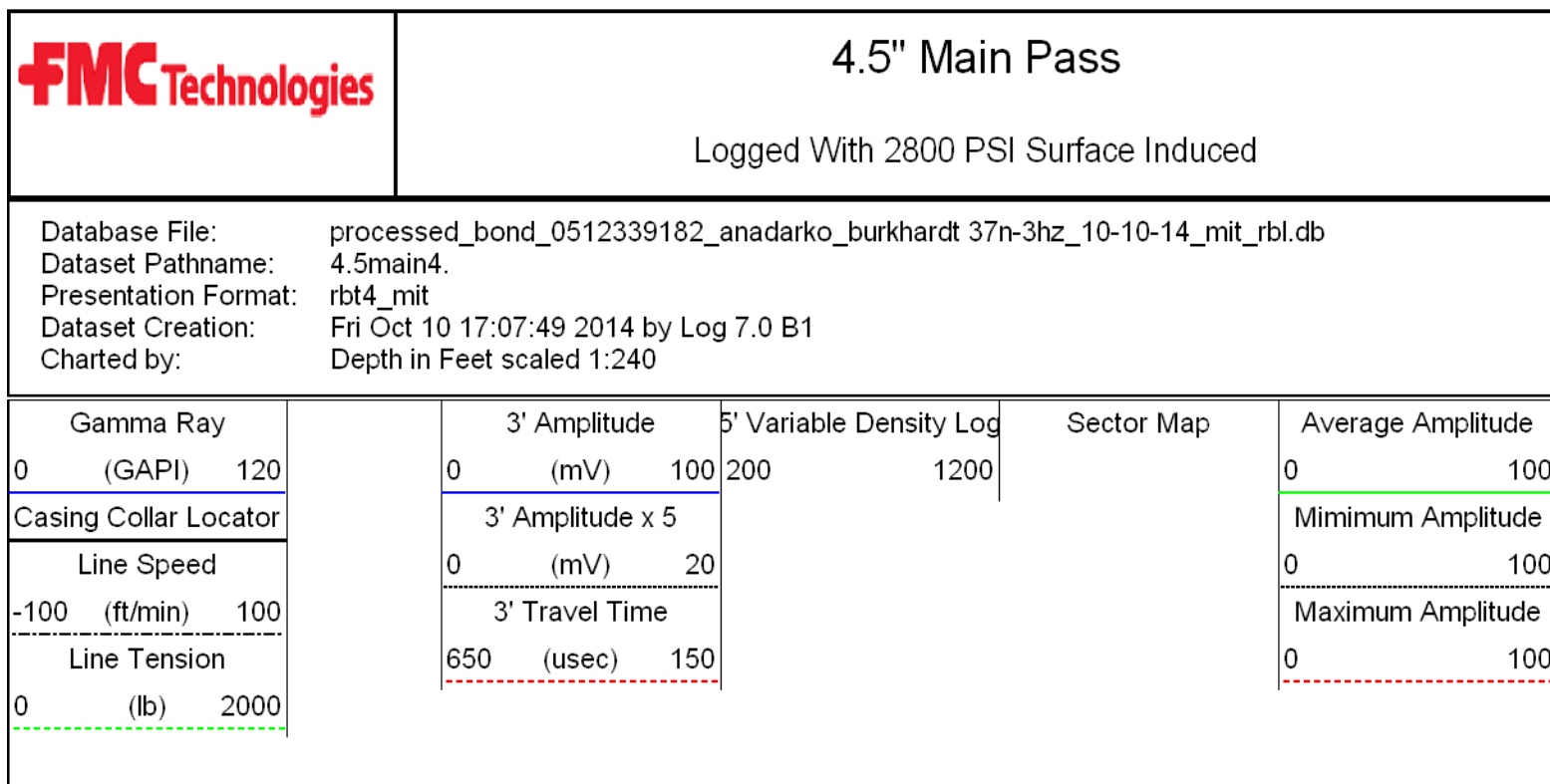
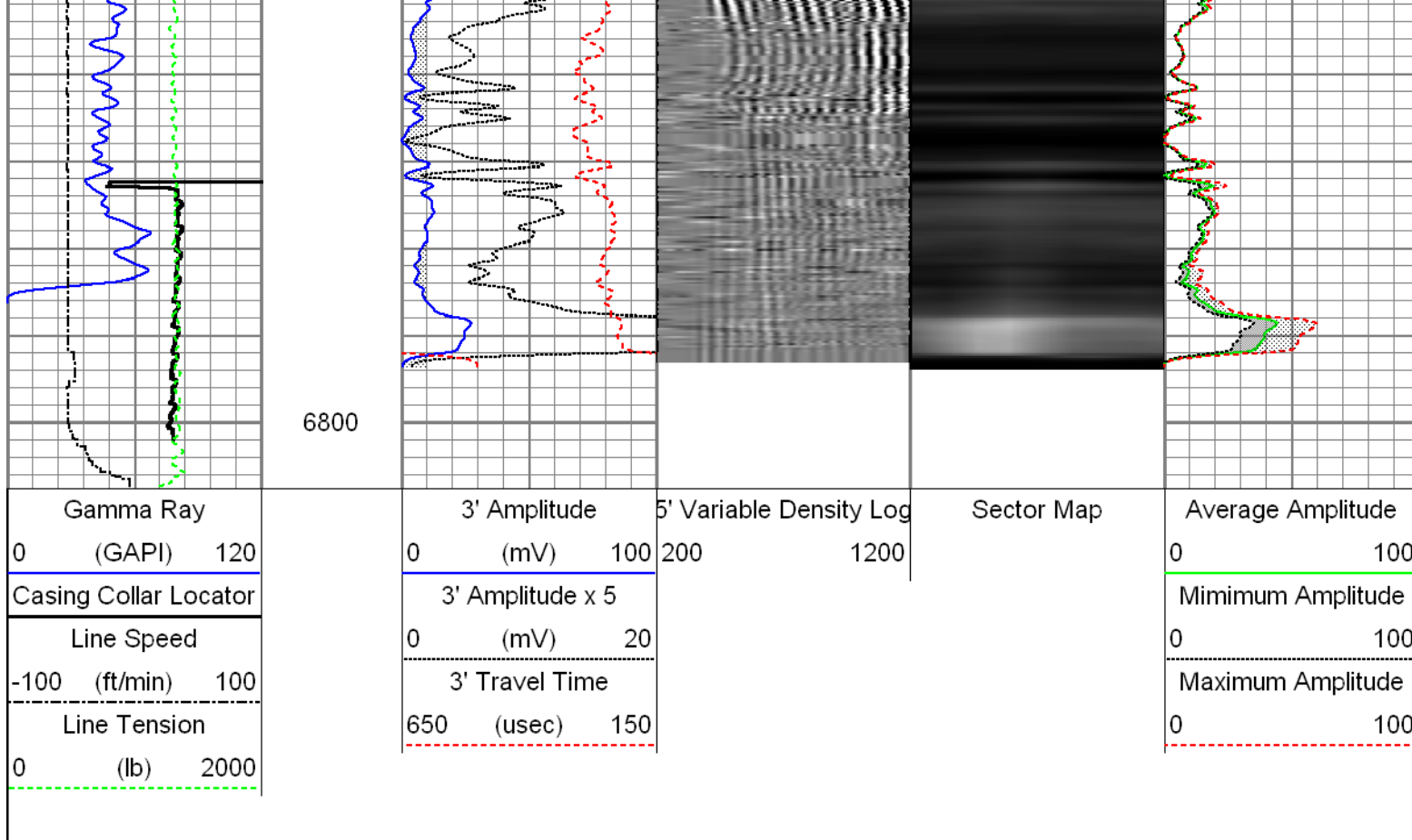
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6300



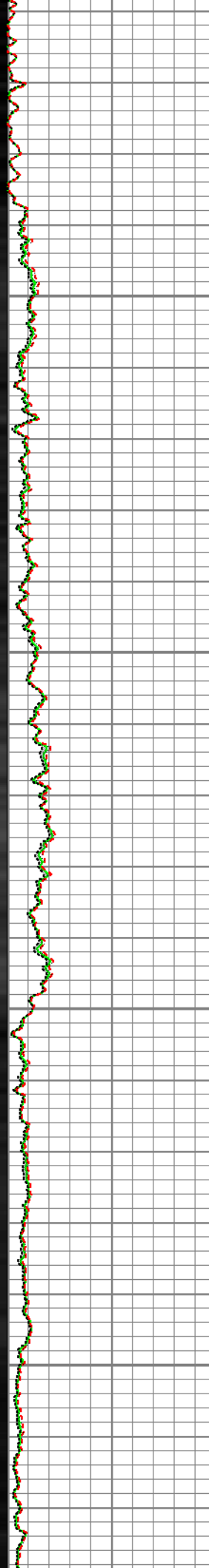
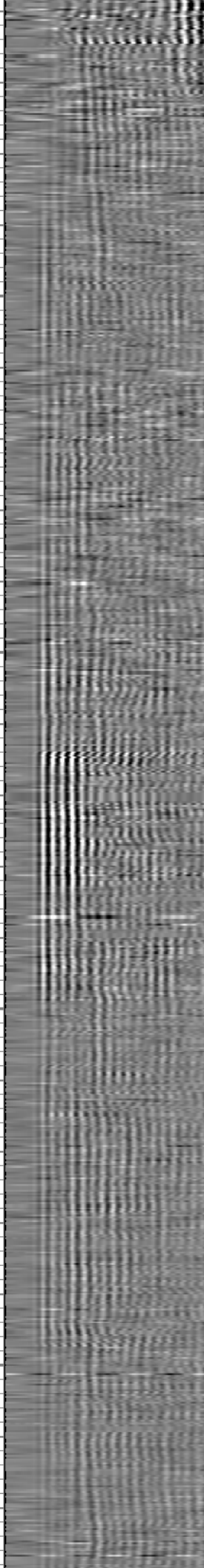
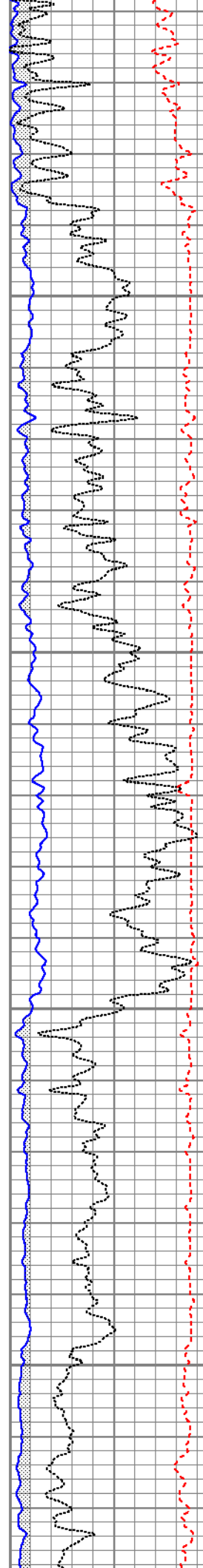


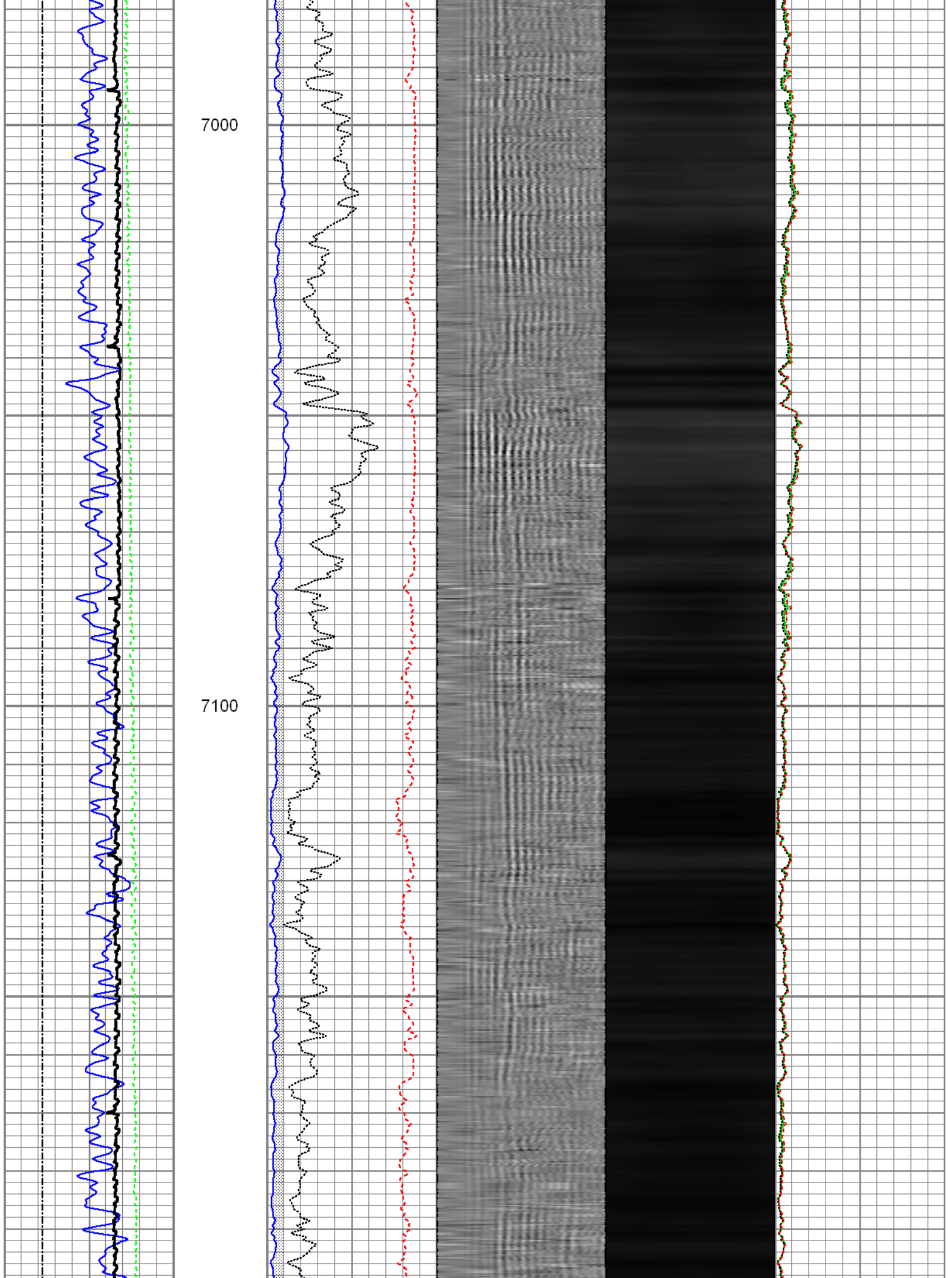


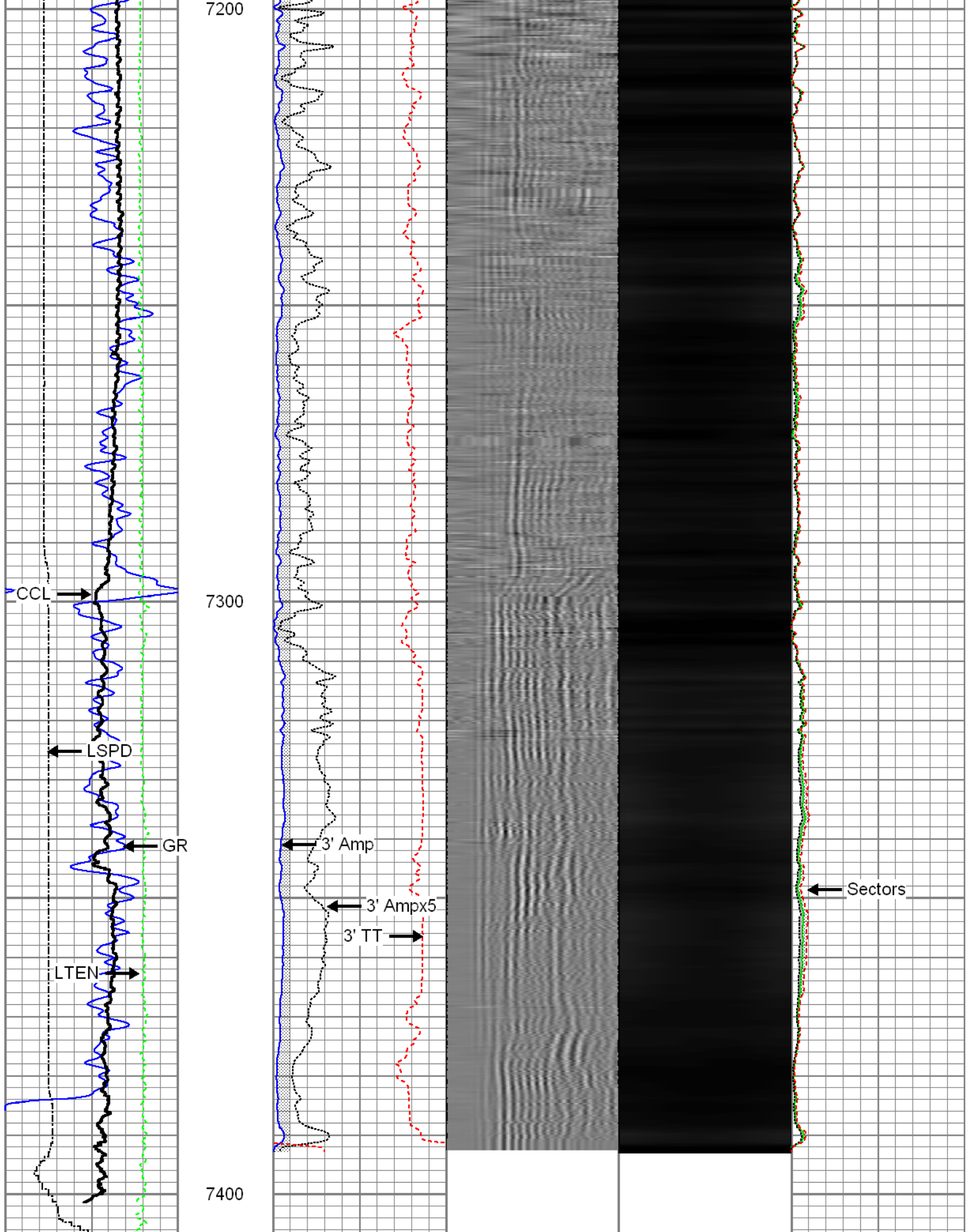


6800

6900




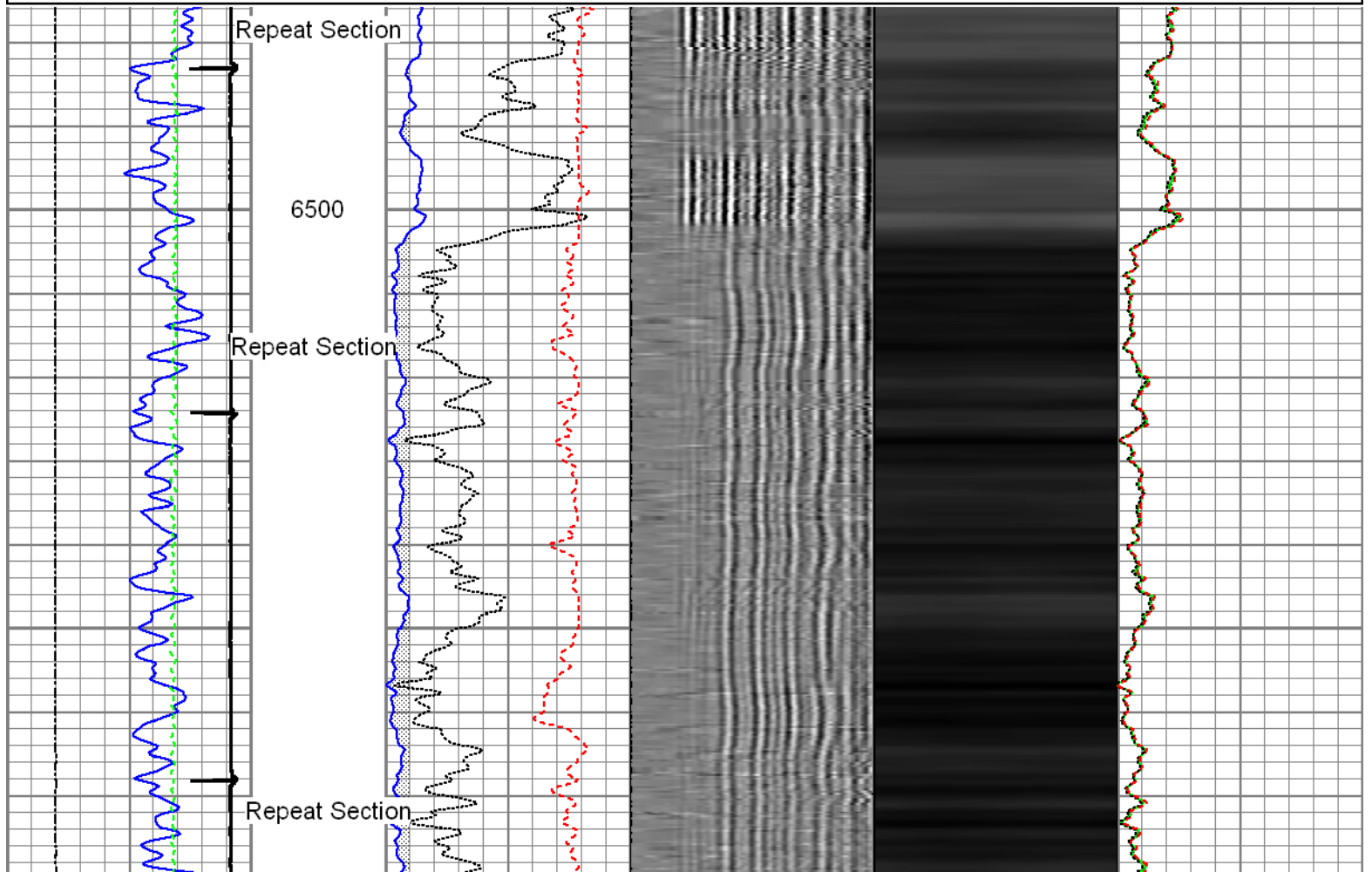


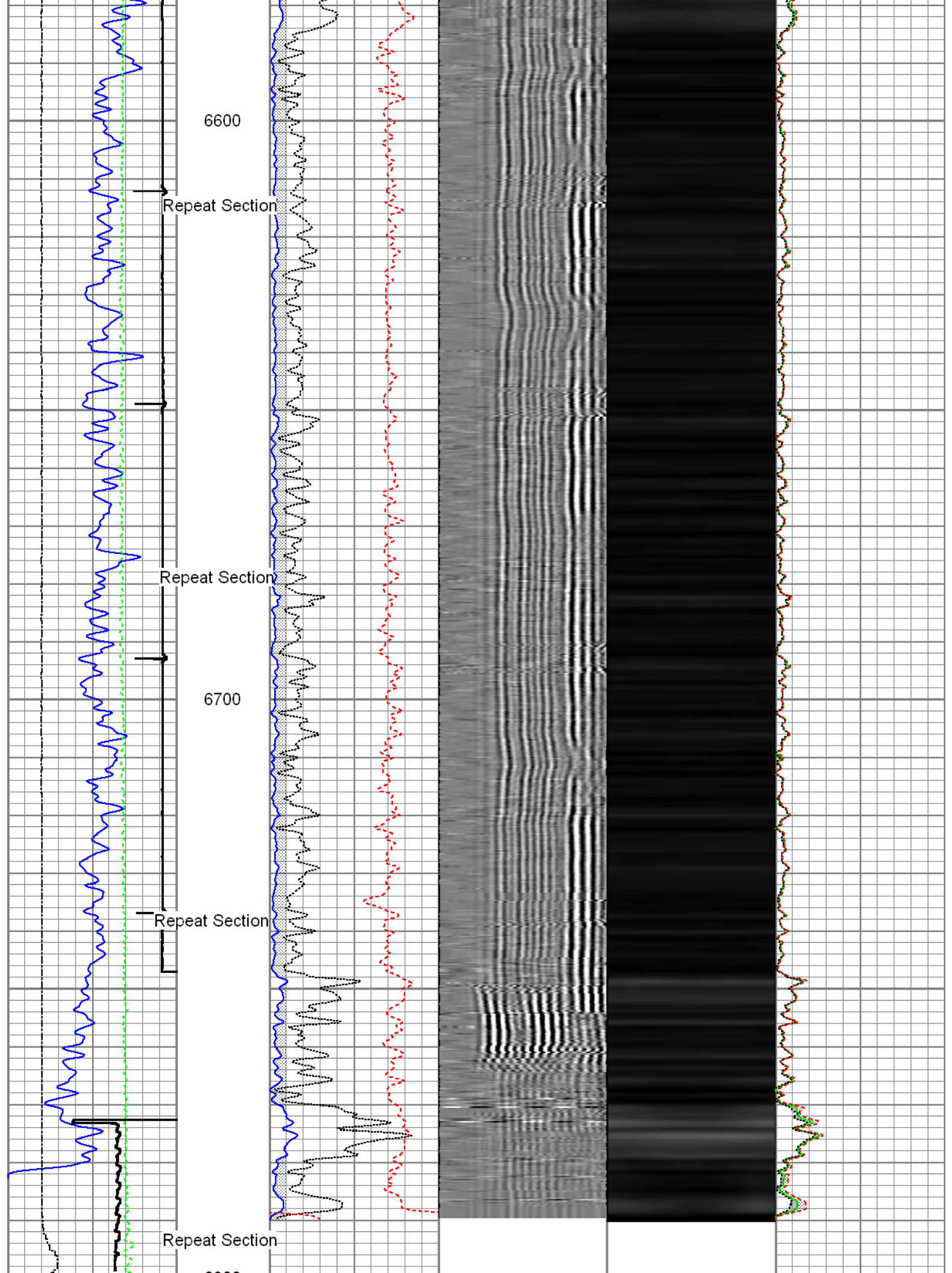


| Gamma Ray | 3' Amplitude | 5' Variable Density Log | Sector Map | Average Amplitude |
|-------------------|------------------|-------------------------|------------|-------------------|
| 0 (GAPI) 120 | 0 (mV) 100 | 200 1200 | | 0 100 |
| Casing Collar Log | 3' Amplitude x 5 | | | Minimum Amplitude |

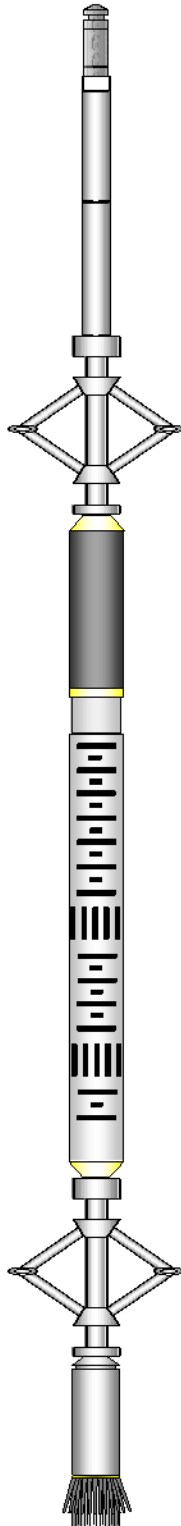
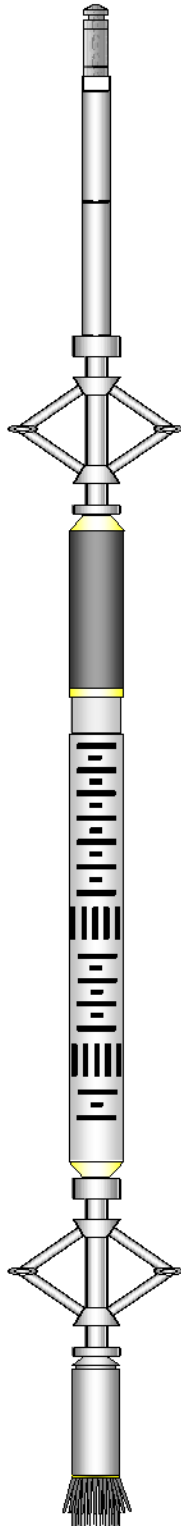
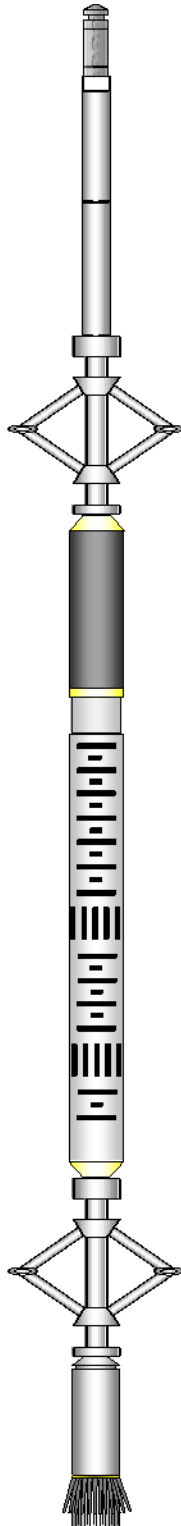
| | | |
|---------------------------------|----------------------------------|----------------------------|
| Casing Collar Locator | 3' Amplitude x 5 | Minimum Amplitude |
| Line Speed -100 (ft/min) 100 | 0 (mV) 20 | 0 100 |
| Line Tension 0 (lb) 2000 | 3' Travel Time 650 (usec) 150 | Maximum Amplitude 0 100 |

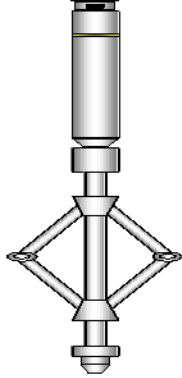
| | | | | | |
|--|----------------------------------|--|------------|----------------------------|--|
|  | | <h2>Repeat Pass</h2> <p>Logged With 2800 PSI Surface Indiced</p> | | | |
| Database File: processed_bond_0512339182_anadarko_burkhardt 37n-3hz_10-10-14_mit_rbl.db Dataset Pathname: repeat Presentation Format: rbt4_mit Dataset Creation: Fri Oct 10 16:46:17 2014 by Log 7.0 B1 Charted by: Depth in Feet scaled 1:240 | | | | | |
| Gamma Ray 0 (GAPI) 120 | 3' Amplitude 0 (mV) 100 | 5' Variable Density Log 200 1200 | Sector Map | Average Amplitude 0 100 | |
| Casing Collar Locator | 3' Amplitude x 5 0 (mV) 20 | | | Minimum Amplitude 0 100 | |
| Line Speed -100 (ft/min) 100 | 3' Travel Time 650 (usec) 150 | | | Maximum Amplitude 0 100 | |
| Line Tension 0 (lb) 2000 | | | | | |





| | | | | | |
|---------------------------------|------|----------------------------------|-------------------------------------|------------|----------------------------|
| | 6800 | | | | |
| Gamma Ray 0 (GAPI) 120 | | 3' Amplitude 0 (mV) 100 | 5' Variable Density Log 200 1200 | Sector Map | Average Amplitude 0 100 |
| Casing Collar Locator | | 3' Amplitude x 5 0 (mV) 20 | | | Minimum Amplitude 0 100 |
| Line Speed -100 (ft/min) 100 | | 3' Travel Time 650 (usec) 150 | | | Maximum Amplitude 0 100 |
| Line Tension 0 (lb) 2000 | | | | | |

| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) |
|---------|-------------|--|--|----------|---------|---------|
| GR | 22.81 |  | T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck | 1.03 | 1.44 | 4.00 |
| | | | UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin | 0.21 | 1.69 | 1.00 |
| | | | UW_XTU-UW_XTU_002 (211461) Crossover Ultrawire Toolbus to Ultralink | 1.58 | 1.69 | 6.50 |
| | | | UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray | 1.93 | 1.69 | 9.50 |
| | | | UW_PRC #4 -DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer | 2.55 | 2.75 | 32.00 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| WVF3FT | 15.42 |  | UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool | 9.47 | 3.13 | 140.00 |
| WVFS1 | 15.42 | | | | | |
| WVFS2 | 15.42 | | | | | |
| WVFS3 | 15.42 | | | | | |
| WVFS4 | 15.42 | | | | | |
| WVFS5 | 15.42 | | | | | |
| WVFS6 | 15.42 | | | | | |
| WVFS7 | 15.42 | | | | | |
| WVFS8 | 15.42 | | | | | |
| CBLTEMP | 15.42 | | | | | |
| CBLROT | 15.42 | | | | | |
| WVF5FT | 14.42 |  | UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer | 2.55 | 2.75 | 32.00 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | | | | |
| MIT | 5.41 | | UW MIT-UW MIT40 027 (218950) | 4.54 | 2.75 | 61.10 |

| | | | | | | |
|---|------|---|---|------|------|-------|
| | 0.11 |  | 40 Multifinger Imaging Tool | | | |
| | | | UW_PRC #3 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser | 2.98 | 2.75 | 32.00 |
| TSTAMP | 0.00 | | UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator | 0.22 | 1.69 | 1.20 |
| Dataset: PROCESSED_BOND_0512339182_Anadarko_Burkhardt 37N-3HZ_10-10-14_MIT_RBL.db: field/well/run1/7main.4 Total Length: 27.05 ft Total Weight: 319.30 lb O.D. 3.13 in | | | | | | |

| | | | |
|--|--|-------|--|
| Calibration Report | | | |
| Database File: | PROCESSED_BOND_0512339182_Anadarko_Burkhardt 37N-3HZ_10-10-14_MIT_RBL.db | | |
| Dataset Pathname: | 7main.4 | | |
| Dataset Creation: | Wed Oct 15 17:02:42 2014 by Calc SCH 120430 | | |
| Multi-finger Imaging Tool Calibration Report | | | |
| Serial Number: | 218950 | | |
| Number of Fingers: | 40 | | |
| Tool Model: | UW_MIT40_027 | | |
| Inclinometer Calibration Report | | | |
| Performed: | Fri, Oct, 10 10:41:51 2008 | | |
| Calibration Angle: | 45 | | |
| | Inc X | Inc Y | |
| Vertical: | 1996 | 1975 | |
| Finger 1 up: | 2238 | 2226 | |
| Finger 31 up: | 1760 | 2216 | |
| Finger 21 up: | 1769 | 1745 | |
| Finger 11 up: | 2250 | 1738 | |
| Sensitivity ratio: | 1.00023 | | |
| X-axis angle: | 314.283 | | |
| Deviation const.: | 339.139 | | |

| | | | | | | | |
|---------------------------|------|-------|------|--------------------------|------|-------|------|
| Finger Calibration Report | | | | | | | |
| Performed: | | | | Fri Oct 10 16:11:05 2014 | | | |
| Ring size: | 4 | 5 | 6 | 7 | | | |
| (in) | | | | | | | |
| | Sens | Sens | Sens | | | | |
| Finger 01: | 1444 | 269.0 | 1713 | 292.0 | 2005 | 306.0 | 2311 |
| Finger 02: | 1497 | 248.0 | 1745 | 261.0 | 2006 | 271.0 | 2277 |
| Finger 03: | 1401 | 275.0 | 1676 | 293.0 | 1969 | 306.0 | 2275 |
| Finger 04: | 1434 | 276.0 | 1710 | 288.0 | 1998 | 297.0 | 2295 |
| Finger 05: | 1473 | 266.0 | 1739 | 275.0 | 2014 | 285.0 | 2299 |
| Finger 06: | 1396 | 279.0 | 1675 | 292.0 | 1967 | 304.0 | 2271 |
| Finger 07: | 1397 | 276.0 | 1673 | 287.0 | 1960 | 300.0 | 2260 |
| Finger 08: | 1399 | 272.0 | 1671 | 283.0 | 1954 | 292.0 | 2246 |
| Finger 09: | 1413 | 281.0 | 1694 | 289.0 | 1983 | 298.0 | 2281 |
| Finger 10: | 1416 | 271.0 | 1687 | 280.0 | 1967 | 287.0 | 2254 |
| Finger 11: | 1404 | 279.0 | 1683 | 286.0 | 1969 | 295.0 | 2264 |
| Finger 12: | 1363 | 283.0 | 1646 | 293.0 | 1939 | 301.0 | 2240 |
| Finger 13: | 1464 | 263.0 | 1727 | 264.0 | 1991 | 270.0 | 2261 |
| Finger 14: | 1414 | 271.0 | 1685 | 277.0 | 1962 | 286.0 | 2248 |
| Finger 15: | 1409 | 284.0 | 1693 | 287.0 | 1980 | 296.0 | 2276 |
| Finger 16: | 1423 | 275.0 | 1698 | 282.0 | 1980 | 289.0 | 2269 |
| Finger 17: | 1419 | 283.0 | 1702 | 290.0 | 1992 | 297.0 | 2289 |

| | | | | | | | |
|------------|------|-------|------|-------|------|-------|------|
| Finger 18: | 1416 | 273.0 | 1689 | 280.0 | 1969 | 289.0 | 2258 |
| Finger 19: | 1465 | 275.0 | 1740 | 282.0 | 2022 | 287.0 | 2309 |
| Finger 20: | 1455 | 274.0 | 1729 | 285.0 | 2014 | 295.0 | 2309 |
| Finger 21: | 1388 | 284.0 | 1672 | 299.0 | 1971 | 310.0 | 2281 |
| Finger 22: | 1442 | 267.0 | 1709 | 278.0 | 1987 | 286.0 | 2273 |
| Finger 23: | 1448 | 272.0 | 1720 | 286.0 | 2006 | 292.0 | 2298 |
| Finger 24: | 1483 | 270.0 | 1753 | 285.0 | 2038 | 288.0 | 2326 |
| Finger 25: | 1463 | 273.0 | 1736 | 291.0 | 2027 | 296.0 | 2323 |
| Finger 26: | 1429 | 275.0 | 1704 | 294.0 | 1998 | 303.0 | 2301 |
| Finger 27: | 1485 | 266.0 | 1751 | 285.0 | 2036 | 290.0 | 2326 |
| Finger 28: | 1447 | 271.0 | 1718 | 295.0 | 2013 | 304.0 | 2317 |
| Finger 29: | 1531 | 258.0 | 1789 | 279.0 | 2068 | 283.0 | 2351 |
| Finger 30: | 1401 | 270.0 | 1671 | 295.0 | 1966 | 312.0 | 2278 |
| Finger 31: | 1460 | 276.0 | 1736 | 302.0 | 2038 | 309.0 | 2347 |
| Finger 32: | 1520 | 260.0 | 1780 | 281.0 | 2061 | 287.0 | 2348 |
| Finger 33: | 1437 | 275.0 | 1712 | 305.0 | 2017 | 314.0 | 2331 |
| Finger 34: | 1466 | 267.0 | 1733 | 301.0 | 2034 | 314.0 | 2348 |
| Finger 35: | 1489 | 249.0 | 1738 | 273.0 | 2011 | 283.0 | 2294 |
| Finger 36: | 1488 | 259.0 | 1747 | 286.0 | 2033 | 299.0 | 2332 |
| Finger 37: | 1466 | 271.0 | 1737 | 298.0 | 2035 | 308.0 | 2343 |
| Finger 38: | 1509 | 241.0 | 1750 | 266.0 | 2016 | 277.0 | 2293 |
| Finger 39: | 1447 | 263.0 | 1710 | 289.0 | 1999 | 294.0 | 2293 |
| Finger 40: | 1403 | 278.0 | 1681 | 301.0 | 1982 | 315.0 | 2297 |

| Segmented Cement Bond Log Calibration Report | | | | | | |
|---|---------|------------|-----------------|---------|---------|--------|
| Serial Number: | | 10013454 | | | | |
| Tool Model: | | UW_RBT_004 | | | | |
| Calibration Casing Diameter: | | 7.000 | in | | | |
| Calibration Depth: | | 16.000 | ft | | | |
| Master Calibration, performed Wed Oct 15 17:02:38 2014: | | | | | | |
| | Raw (v) | | Calibrated (mv) | | Results | |
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3FT | 0.001 | 0.565 | 0.800 | 62.165 | 108.746 | 0.687 |
| 5FT | 0.005 | 0.562 | 0.800 | 62.165 | 110.266 | 0.195 |
| S1 | 0.002 | 0.566 | 0.000 | 100.000 | 177.396 | -0.387 |
| S2 | -0.001 | 0.557 | 0.000 | 100.000 | 179.203 | 0.120 |
| S3 | -0.001 | 0.556 | 0.000 | 100.000 | 179.496 | 0.121 |
| S4 | -0.001 | 0.562 | 0.000 | 100.000 | 177.606 | 0.180 |
| S5 | 0.001 | 0.574 | 0.000 | 100.000 | 174.379 | -0.138 |
| S6 | 0.001 | 0.586 | 0.000 | 100.000 | 170.879 | -0.171 |
| S7 | 0.002 | 0.584 | 0.000 | 100.000 | 171.856 | -0.297 |
| S8 | 0.002 | 0.576 | 0.000 | 100.000 | 174.059 | -0.320 |

| Gamma Ray Calibration Report | | | |
|------------------------------|--|--------------------------|----------|
| Serial Number: | | 10013902 | |
| Tool Model: | | UW_PGR_020 | |
| Performed: | | Sun Jun 13 13:33:21 1993 | |
| Calibrator Value: | | 1.0 | GAPI |
| Background Reading: | | 0.0 | cps |
| Calibrator Reading: | | 1.0 | cps |
| Sensitivity: | | 1.0000 | GAPI/cps |

| | | |
|---------|--|---------------------------------|
| Company | | Kerr McGee Oil & Gas Onshore LP |
|---------|--|---------------------------------|



| | |
|---------|---------------------------------------|
| Company | Watt Wattenburg Oilfield Services LLC |
| Well | Burkhardt 37N-3HZ |
| Field | Wattenberg |
| County | Weld |
| State | Colorado |