

Radial Cement Bond Gamma Ray Casing Collar Log

| | | | | | |
|------------------------|-------------------------------|-------|------------------------|---------------|--|
| Company | Whiting Oil & Gas Corporation | | | | |
| Well | Razor Fed 30K-3108 | | | | |
| Field | Wildcat | | | | |
| County | Weld | | | | |
| State | Colorado | | | | |
| Company | Whiting Oil & Gas Corporation | Well | Razor Fed 30K-3108 | Field | Wildcat |
| County | Weld | State | Colorado | Location: | API #: 05-123-40215 |
| SEC 30 TWP 10N RGE 58W | | | Permanent Datum | Ground Level | Elevation |
| | | | Log Measured From | Kelly Bushing | 21 FT |
| | | | Drilling Measured From | Kelly Bushing | |
| | | | | | Other Services Plug MIT Gauge ring Elevation |
| | | | | | K.B. 4849' D.F. 4848' G.L. 4828' |

| | |
|------------------------|-----------------|
| Date | 07-AUG-2015 |
| Run Number | Three |
| Depth Driller | 13743 FT |
| Depth Logger | 5540 FT |
| Bottom Logged Interval | 5525 FT |
| Top Log Interval | Surface |
| Open Hole Size | 8.750" |
| Type Fluid | Water |
| Density / Viscosity | 8.34 lbm/gal |
| Max. Recorded Temp. | 204.3° |
| Estimated Cement Top | 468 FT |
| Time Well Ready | ROA |
| Time Logger on Bottom | 9:15 AM |
| Equipment Number | HD-0119 |
| Location | Fort Lupton, CO |
| Recorded By | R. Cameron |
| Witnessed By | Casey Jackson |
| Recorded By | A. Olmsted |

| Borehole Record | | | | Tubing Record | | | |
|-----------------|-----------|--------------|----------|---------------|----------|------|----|
| Run Number | Bit | From | To | Size | Weight | From | To |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Casing Record | Size (in) | Wgt (lbs/ft) | Grade | Top | Bottom | | |
| Surface Casing | 9 5/8 | 36 | J-55 LTC | Surface | 1612 FT | | |
| Intermediate #1 | 7 | 29 | HCL-80 | Surface | 6487 FT | | |
| Intermediate #2 | | | | | | | |
| Liner | 4 1/2 | 11.6 | HCP-110 | 5493 FT | 13743 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 referenced to casing tally reported liner top @ 5493 FT
 Adjusted log -1 FT to correlate with liner top
 Log ran to surface
 Log ran with 1500 PSI surface induced pressure
 No debris found on logging tools upon completion of operations
 Thank you for choosing FMC Technologies Completion Services, Inc.!!

Database File:08-07-15_whiting_razor fed 30k-3108_mit_rbl.db

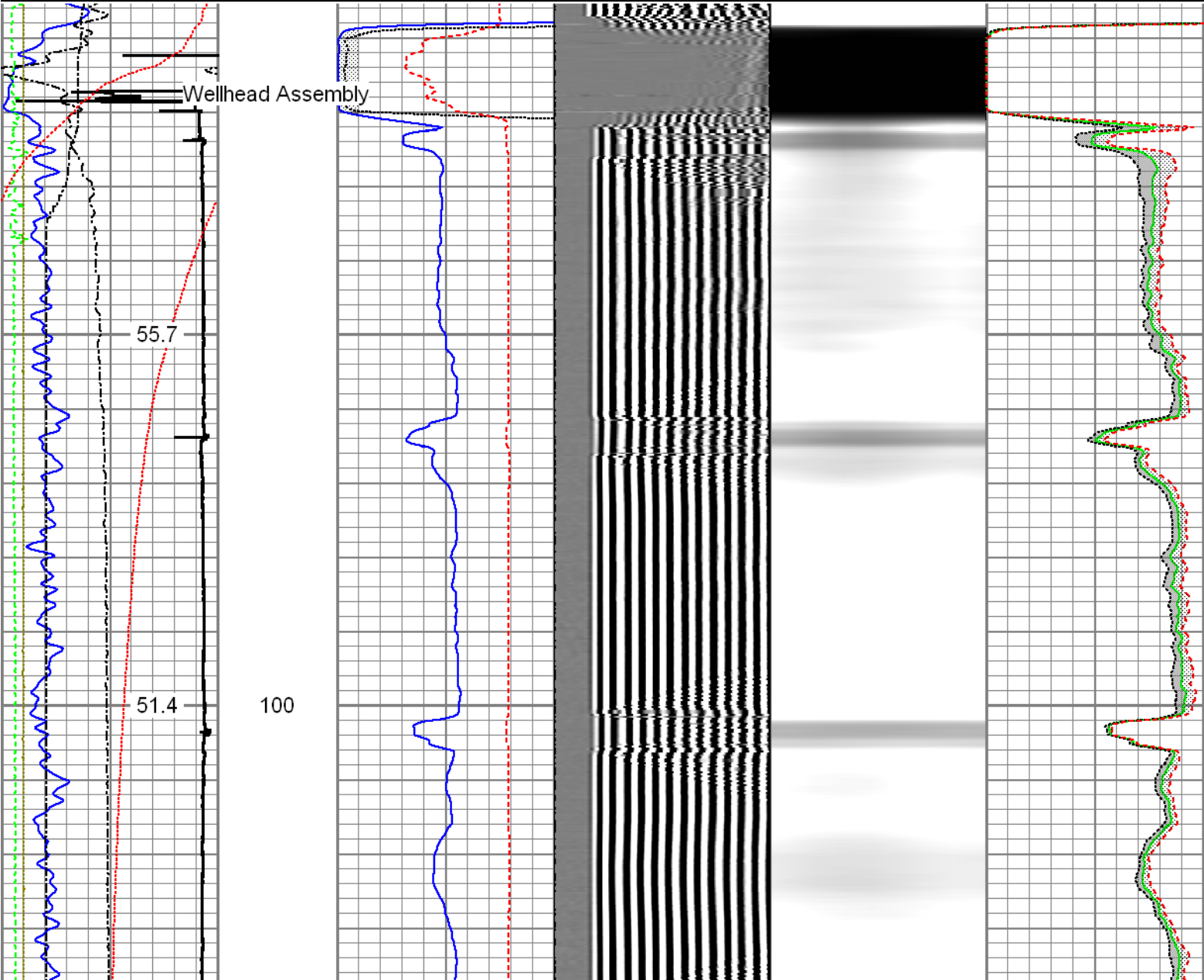
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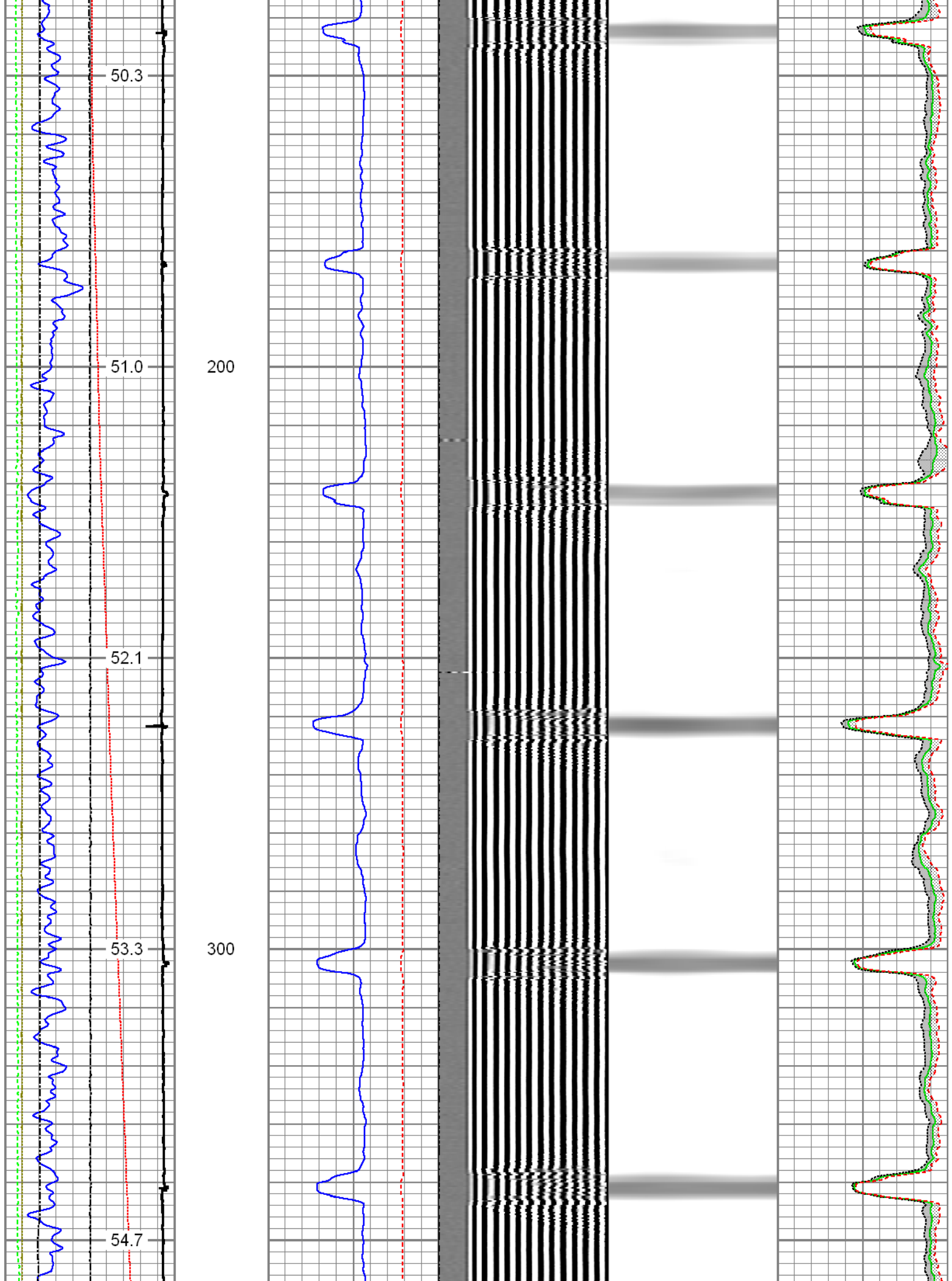
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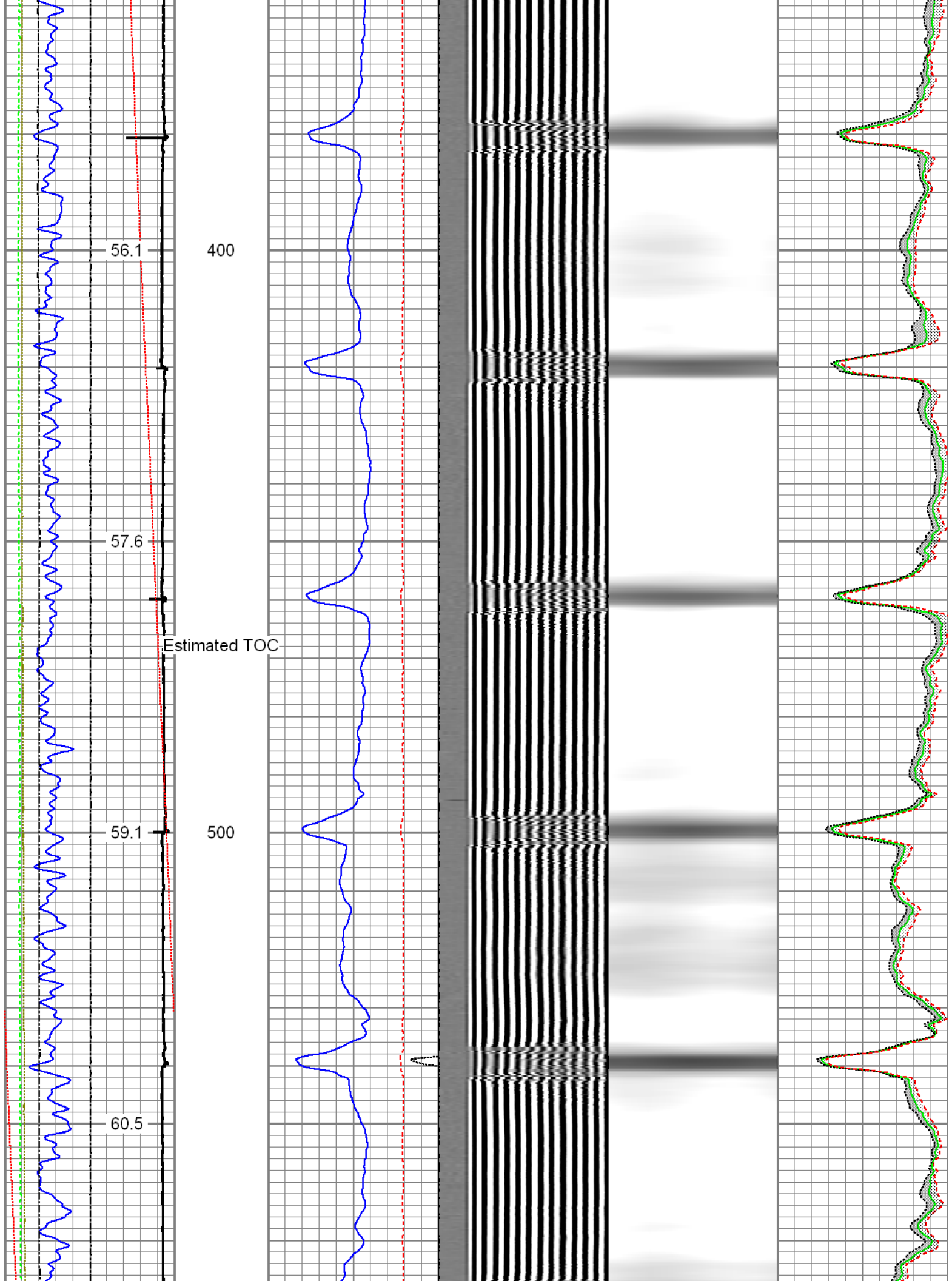
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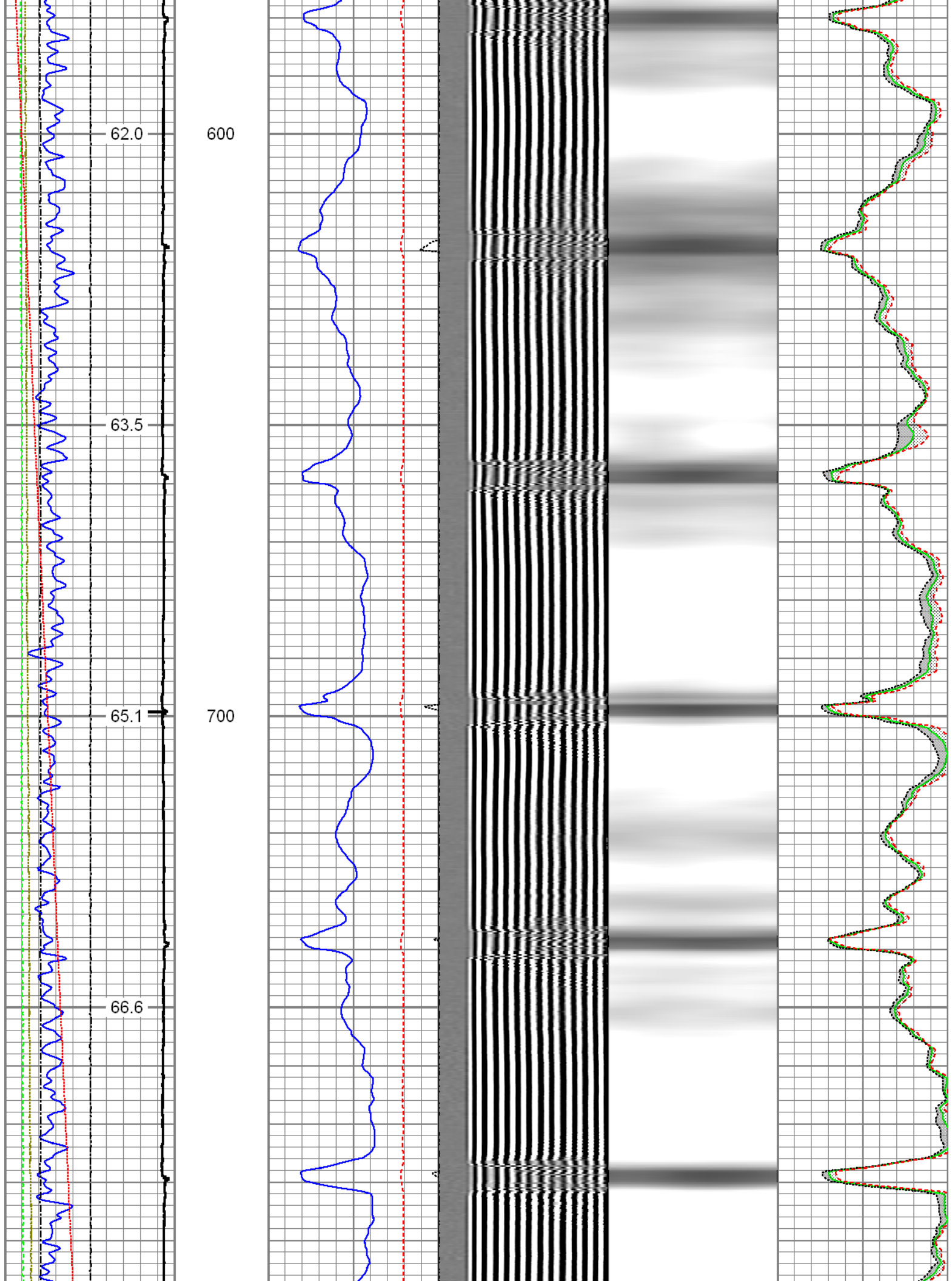
Charted by:Depth in Feet scaled 1:240

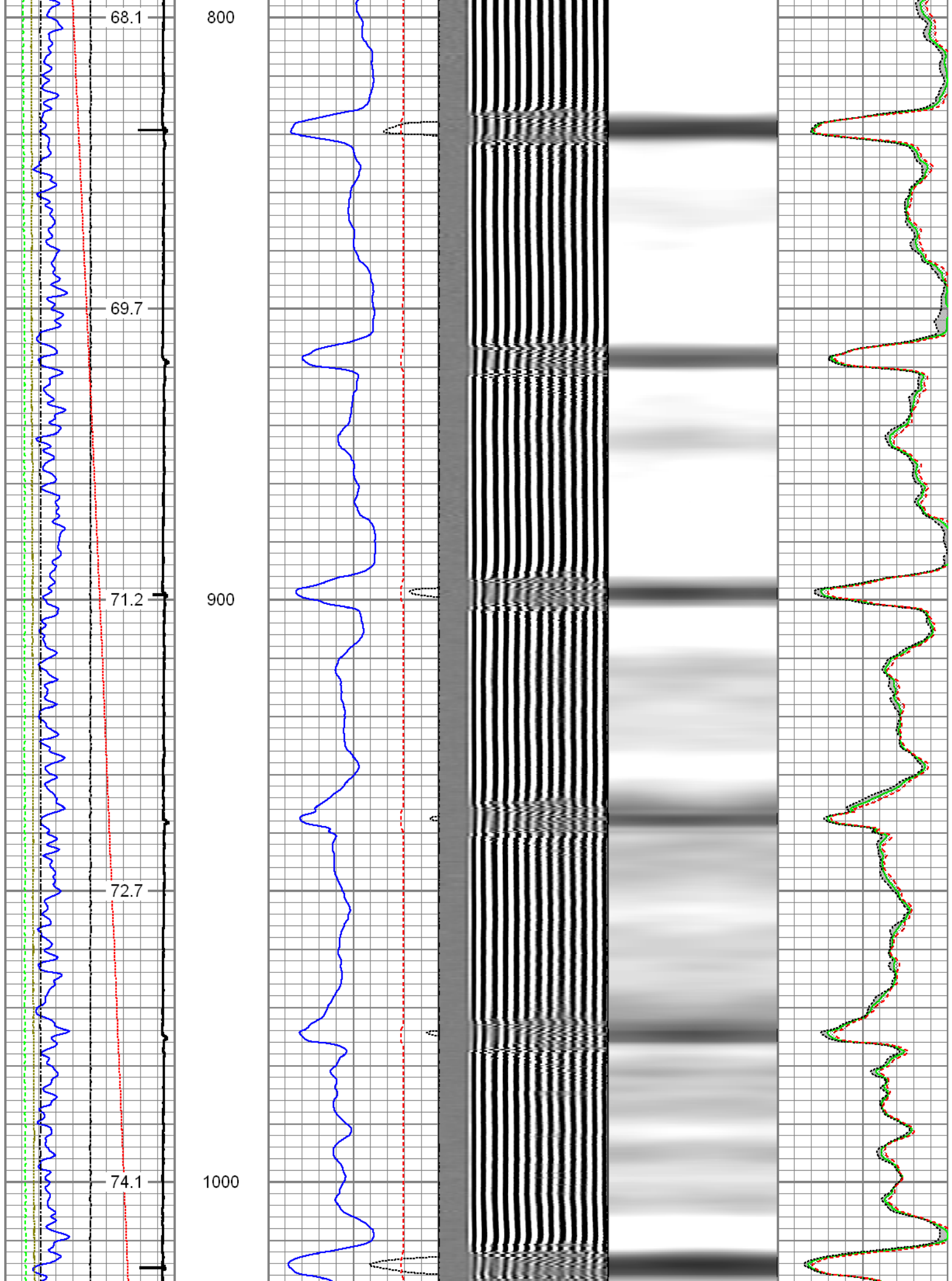
| | | | | |
|--------------------------|------------------|-------------------------|------------|-------------------|
| Gamma Ray | 3' Amplitude | 5' Variable Density Log | Sector Map | Average Amplitude |
| 0 (GAPI) 120 | 0 (mV) 100 | 200 1200 | | 0 100 |
| Casing Collar Locator | 3' Amplitude x 5 | | | 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 | | | | |
| Differential Temperature | | | | |
| -2 (degF) 2 | | | | |
| -10 Deviation (°) 90 | | | | |
| Temperature | | | | |
| 0 (degF) 20 | | | | |

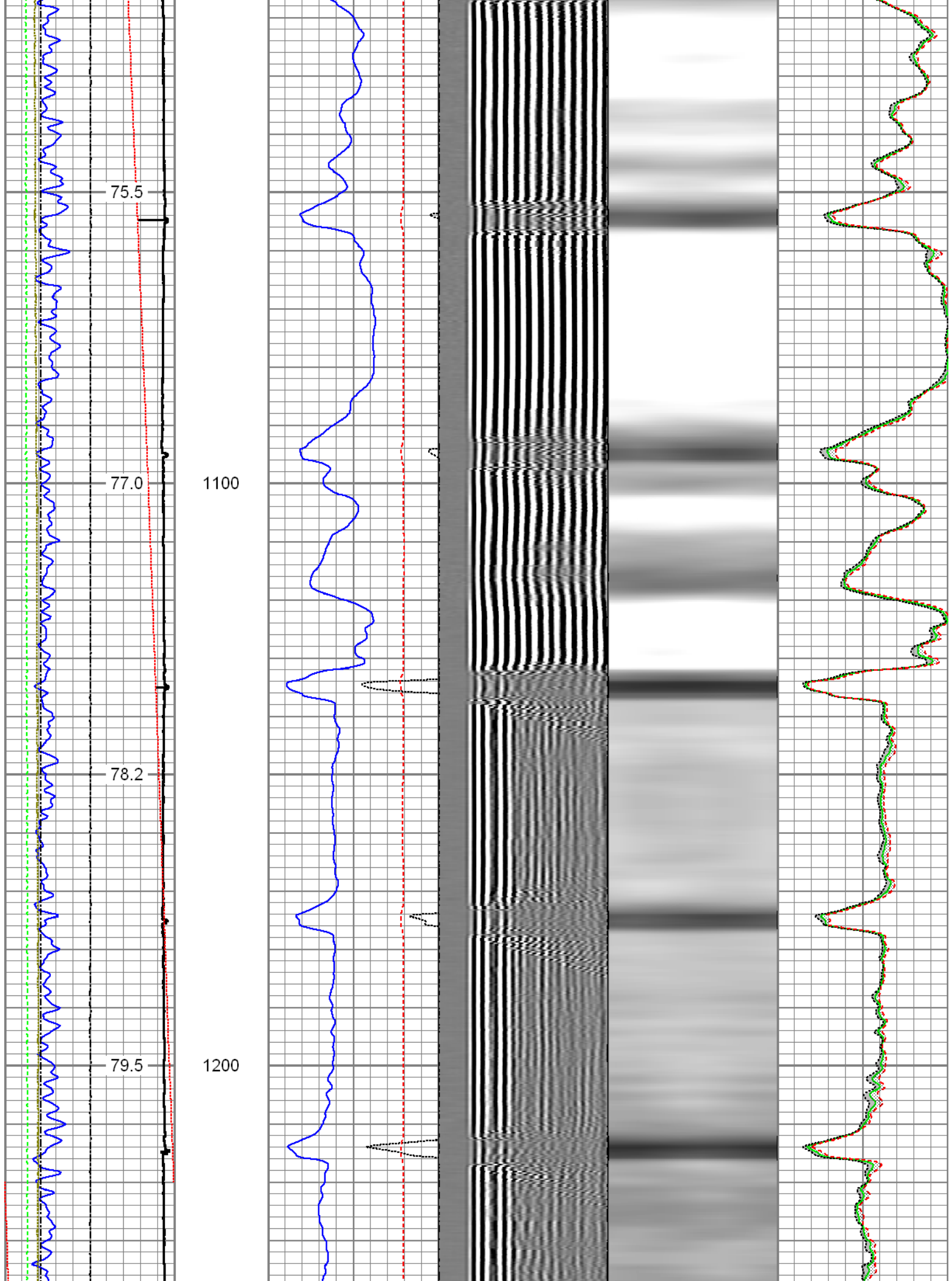


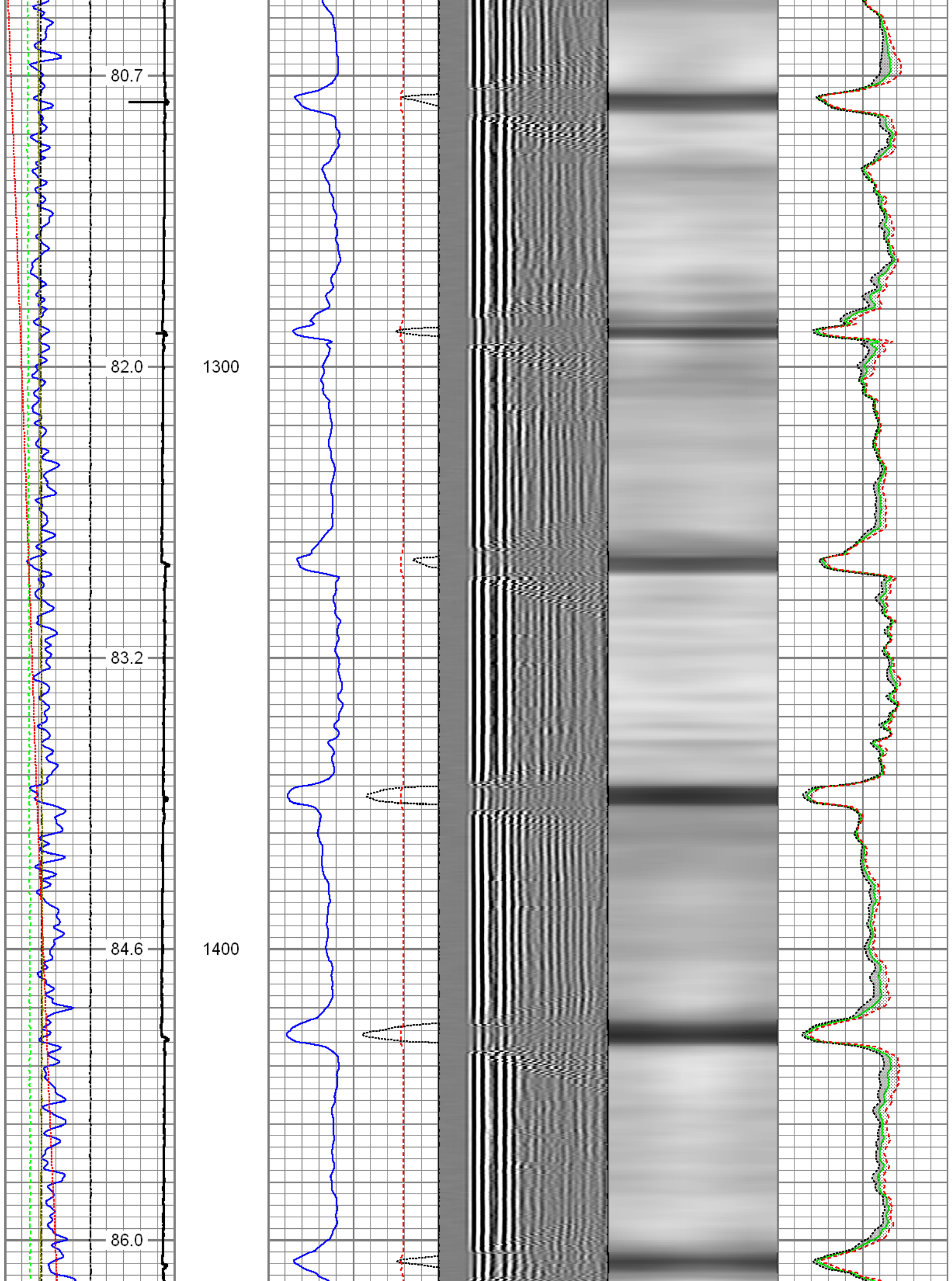


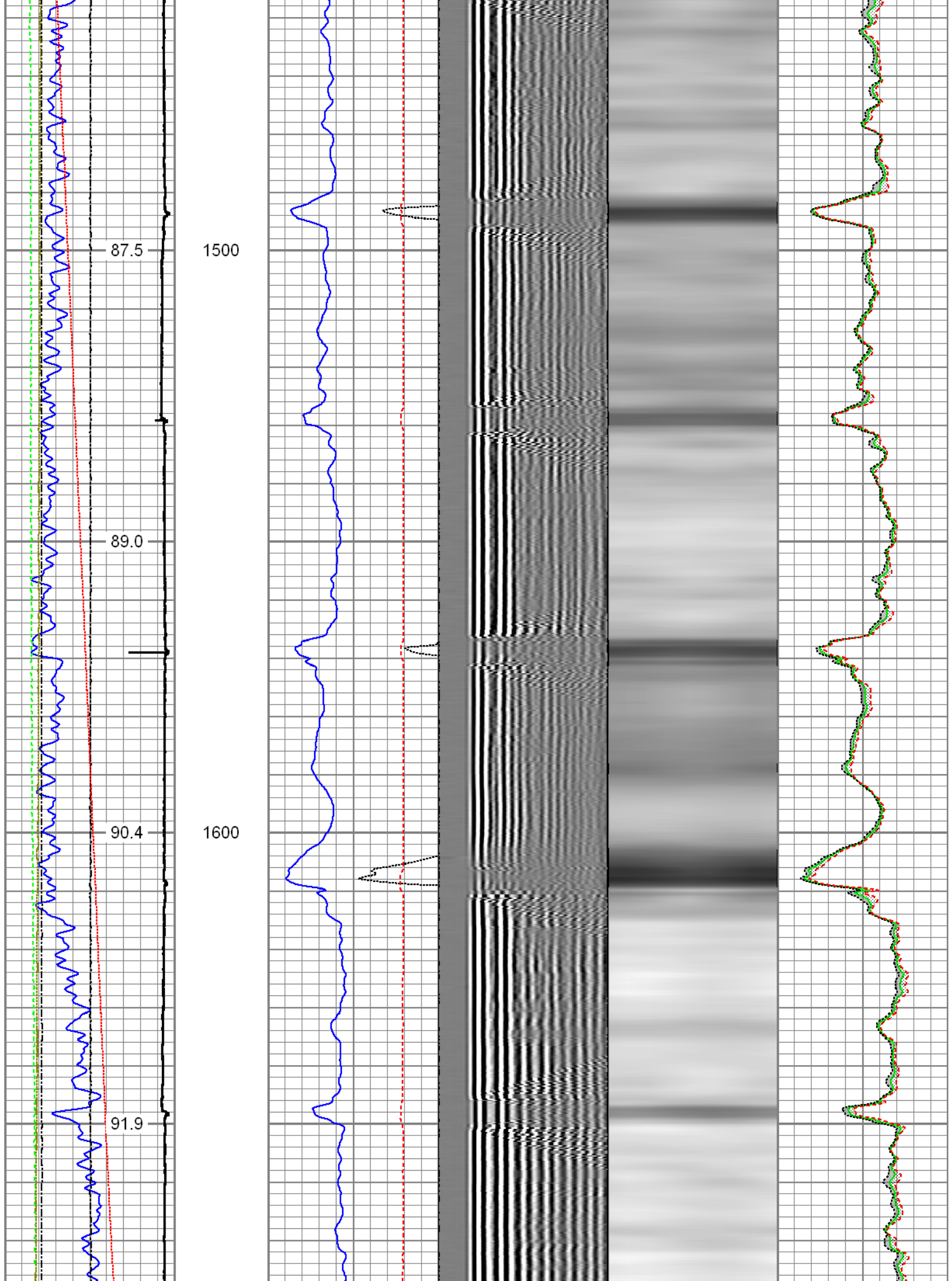


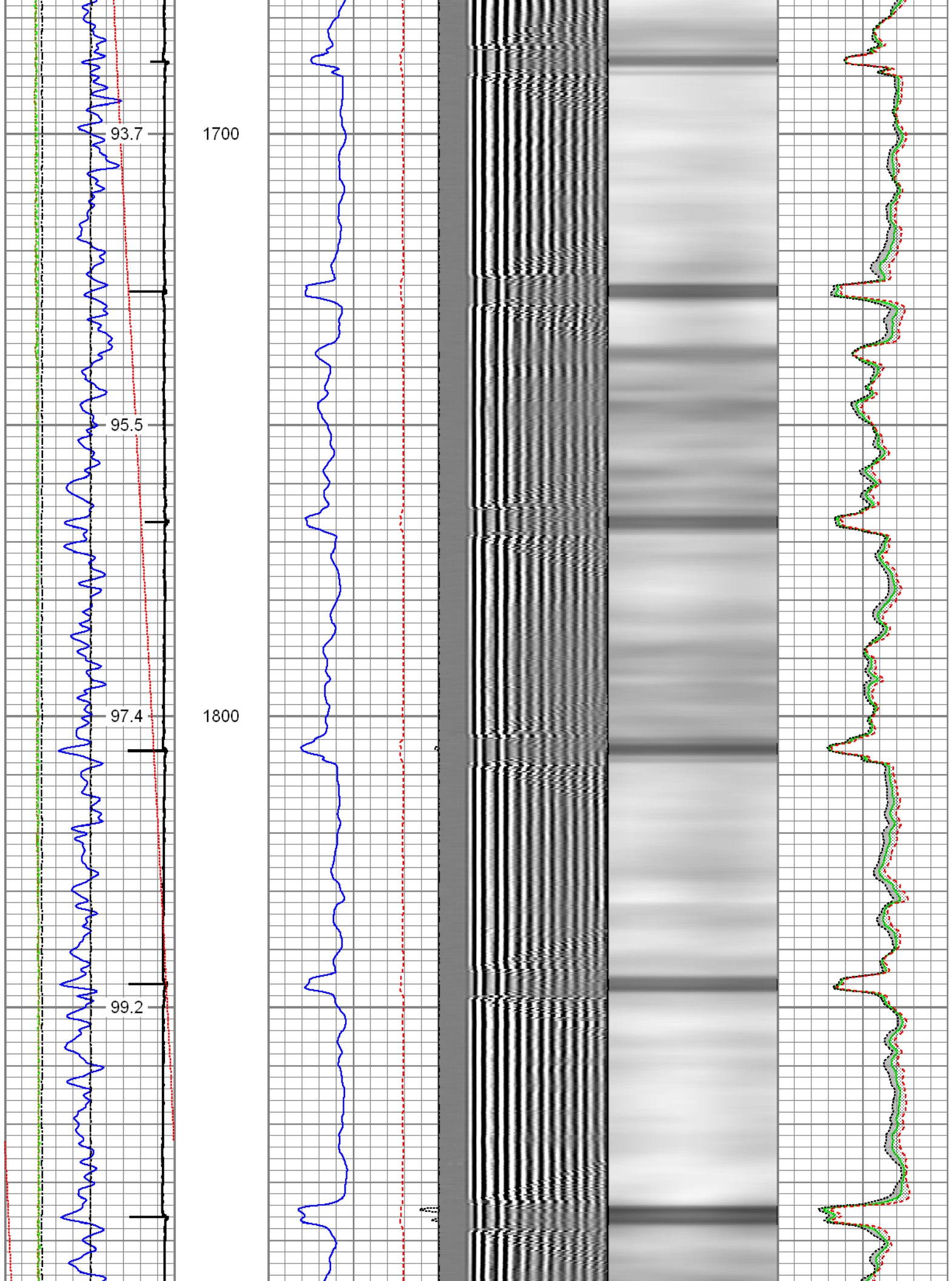


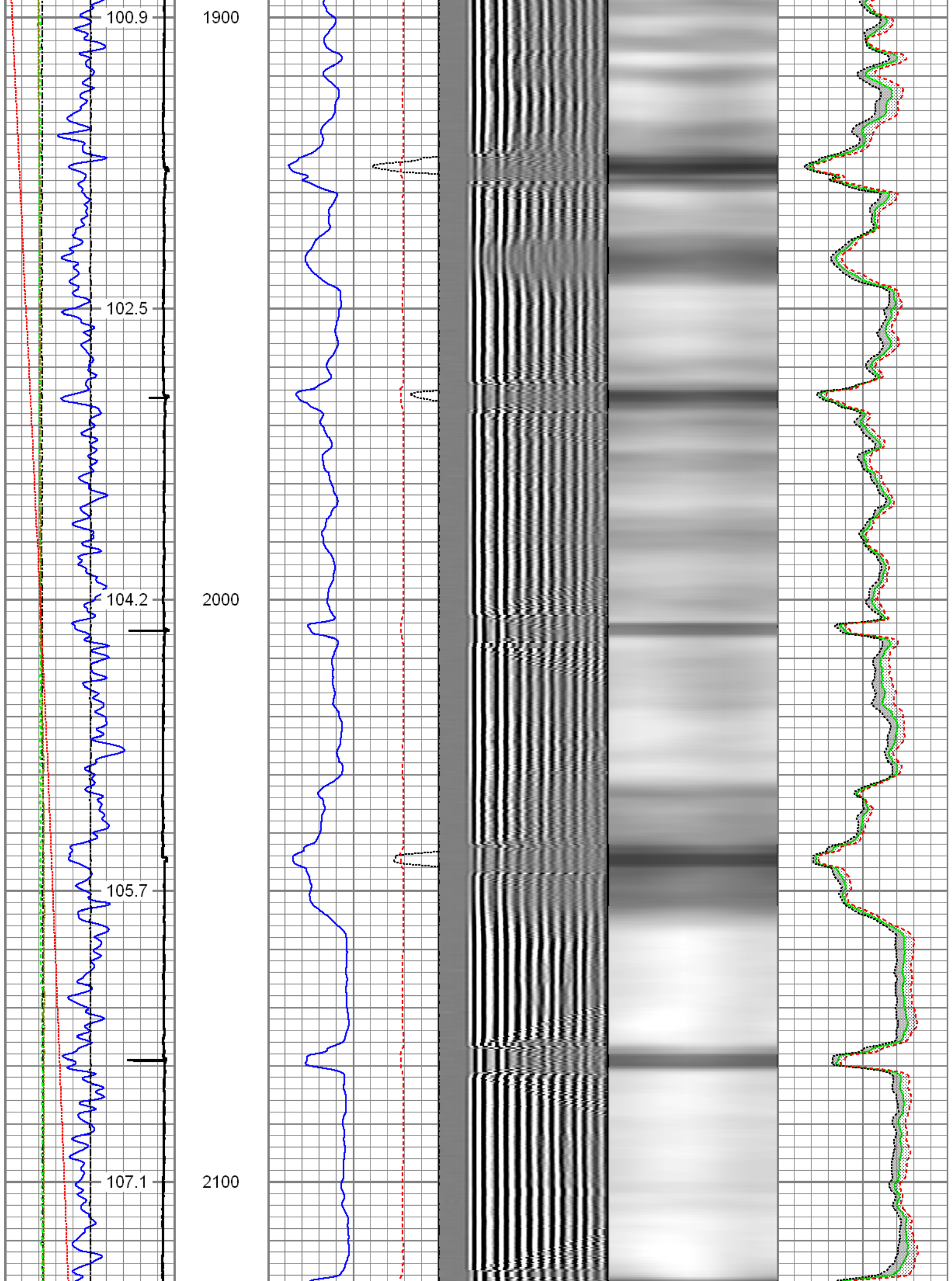


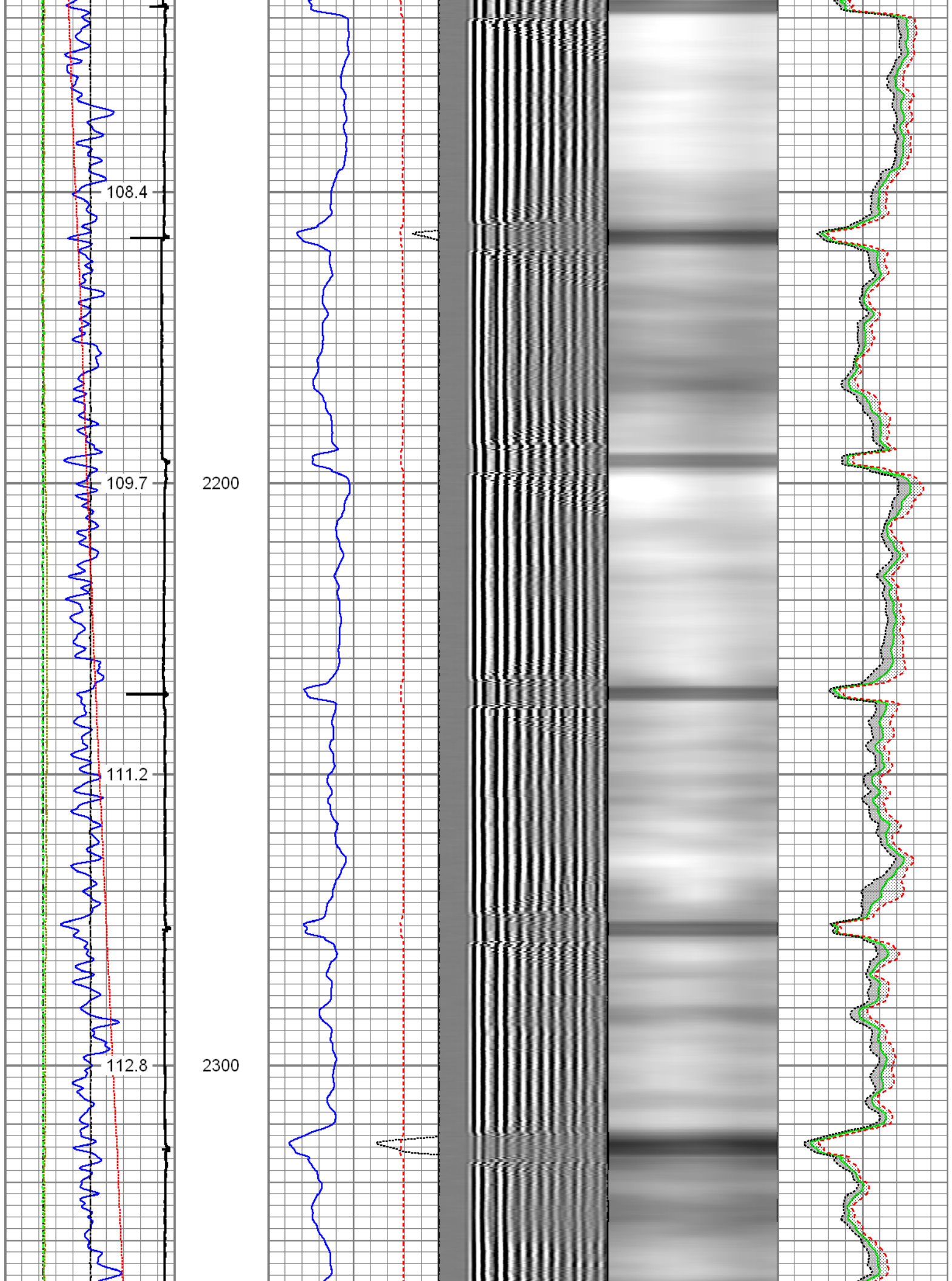


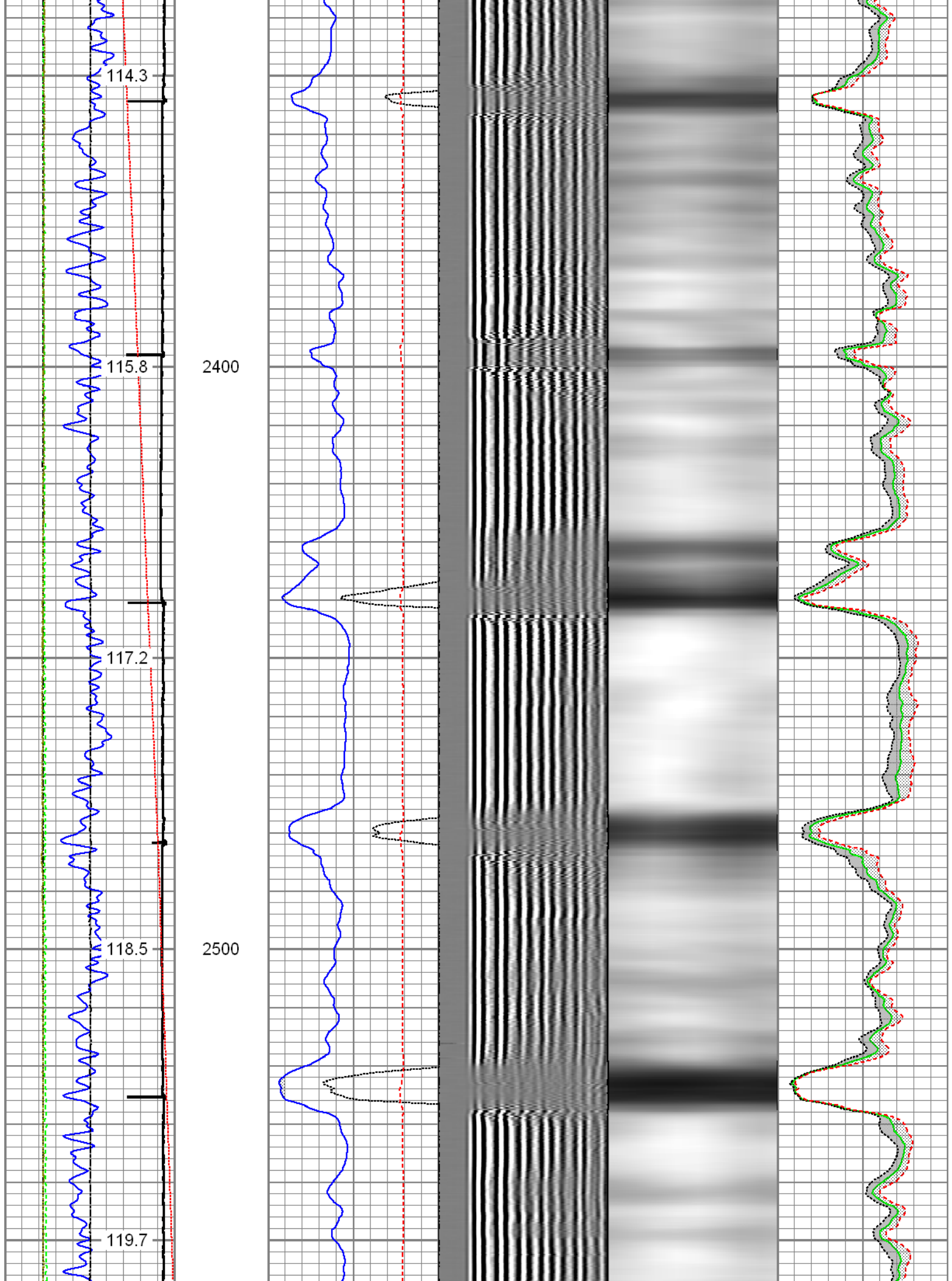


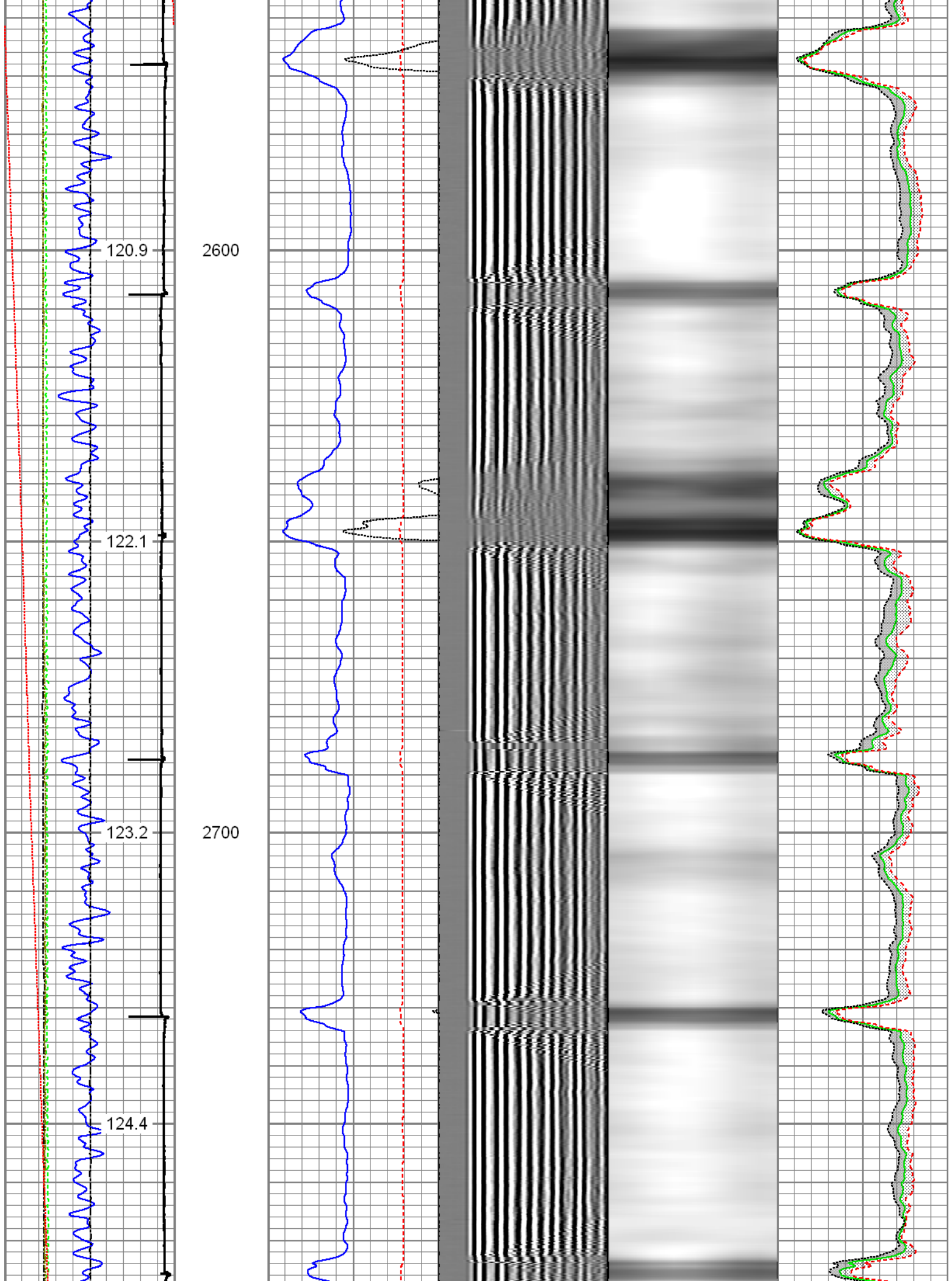


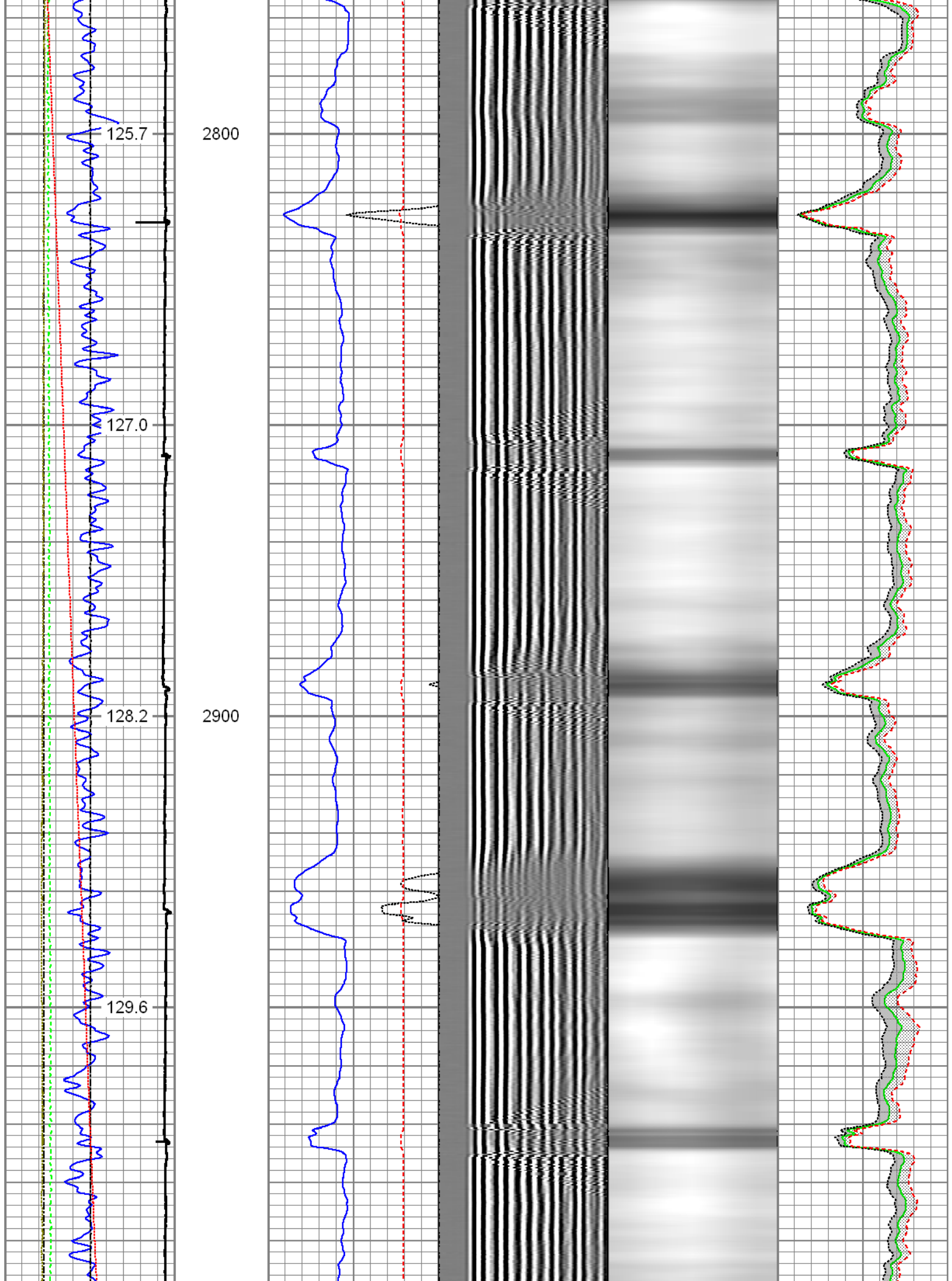


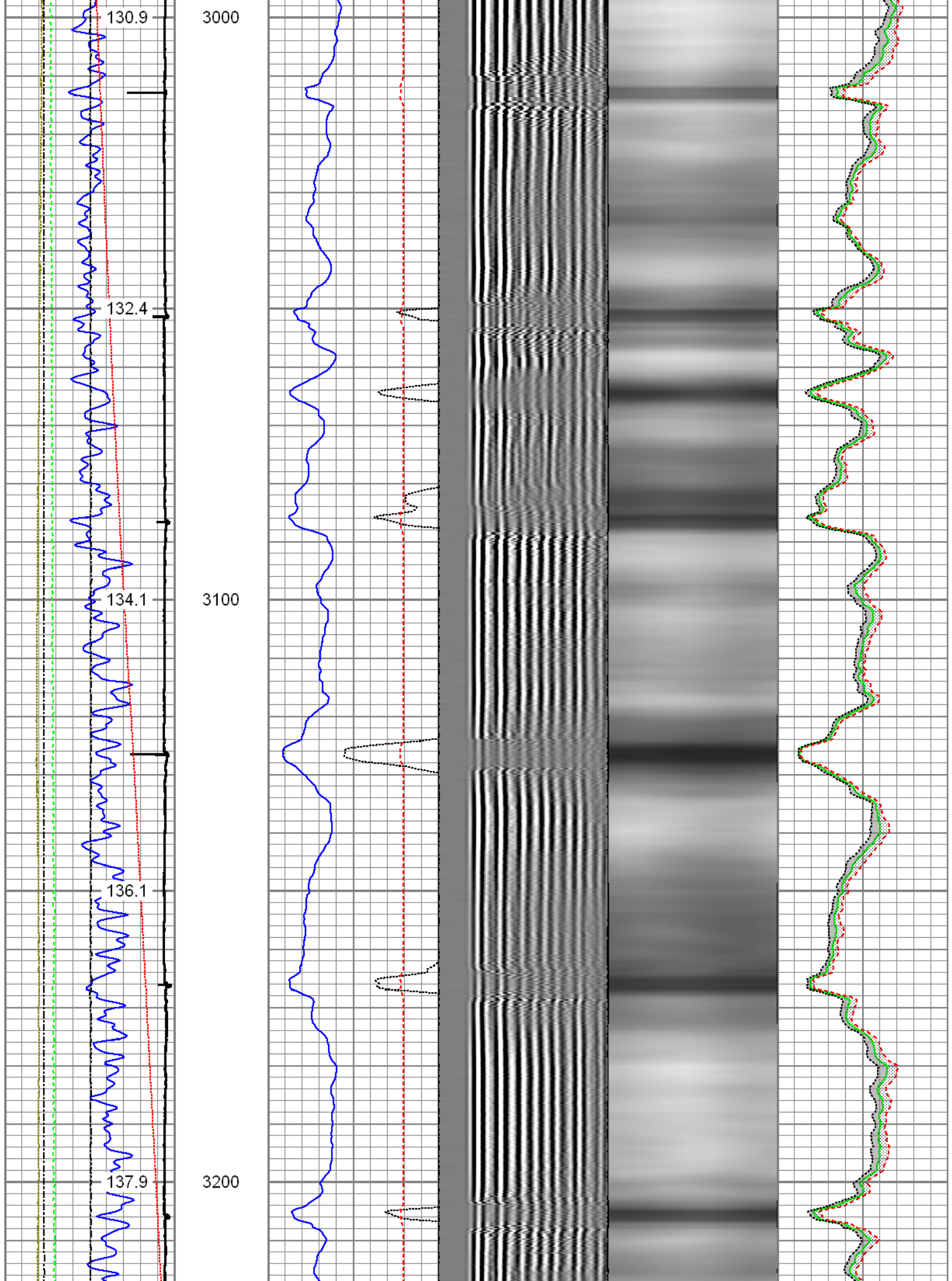


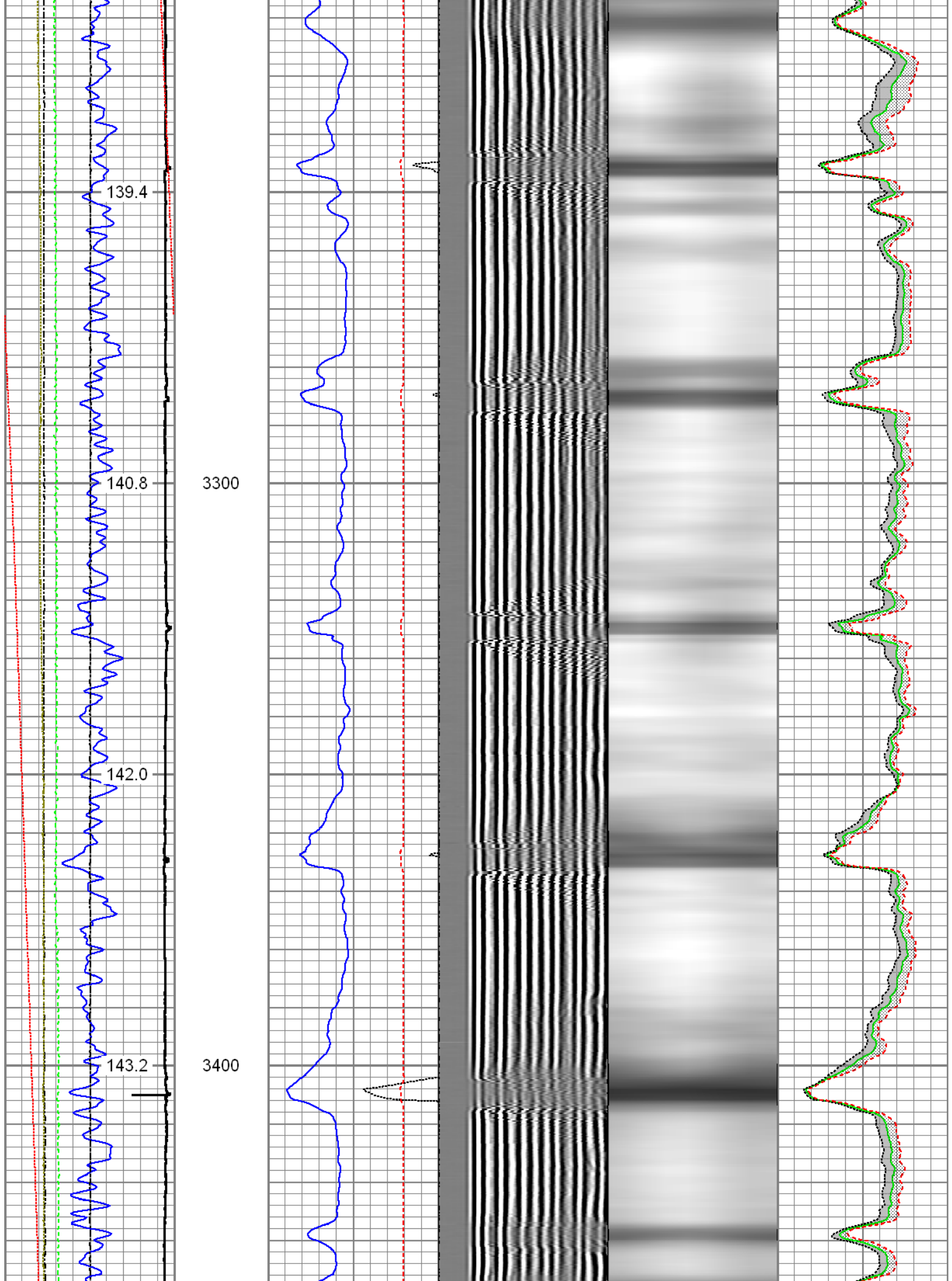


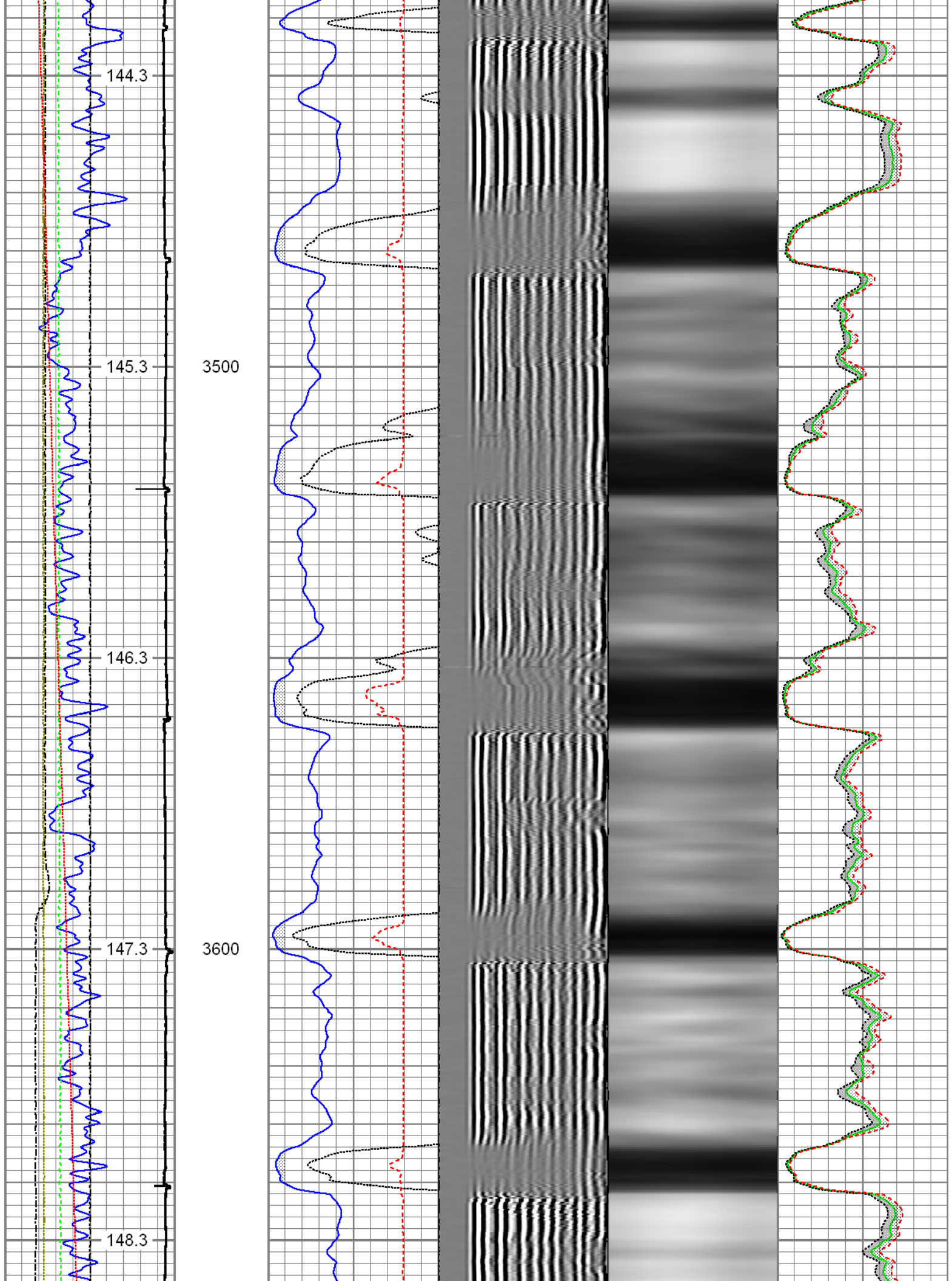


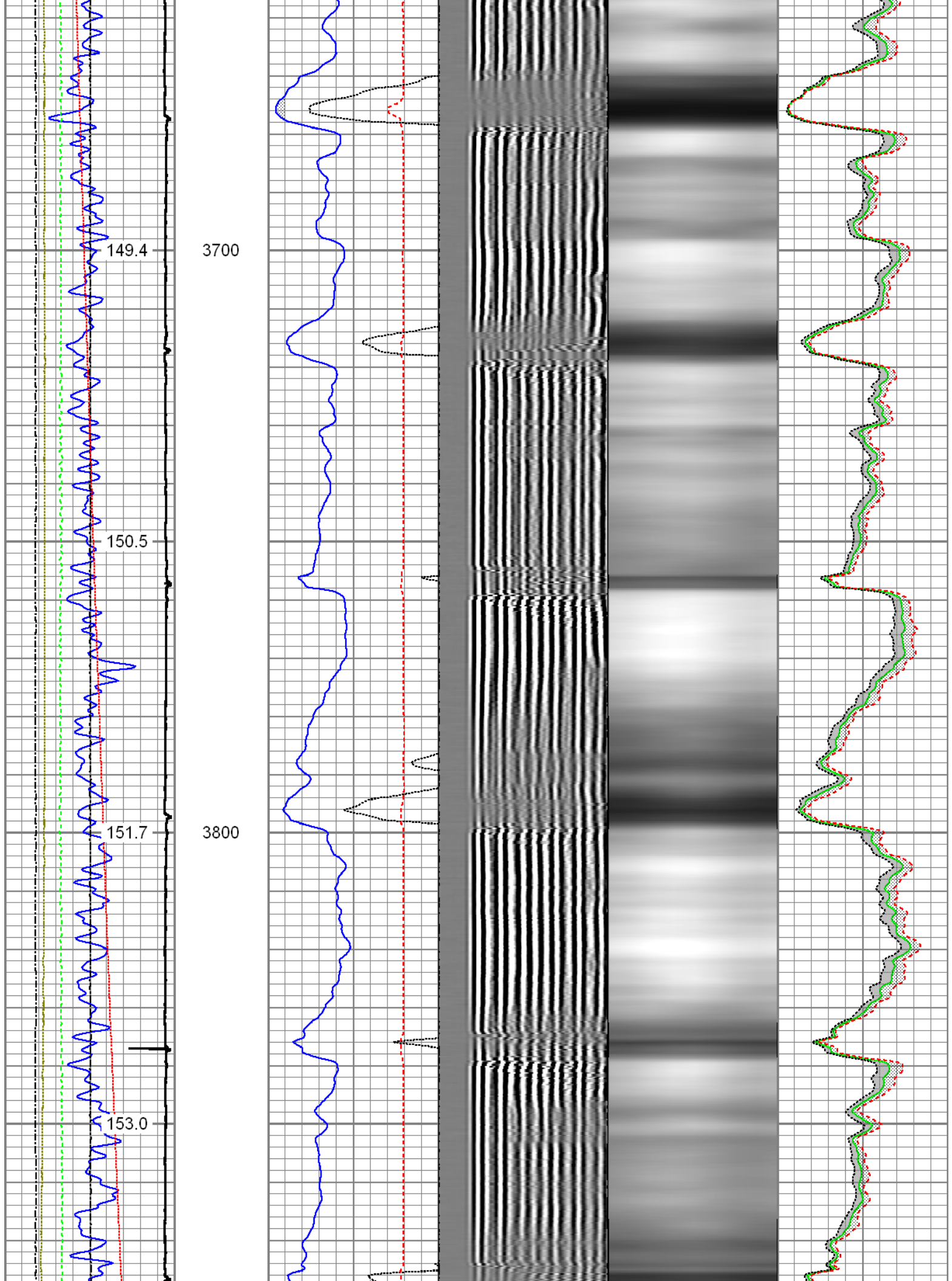


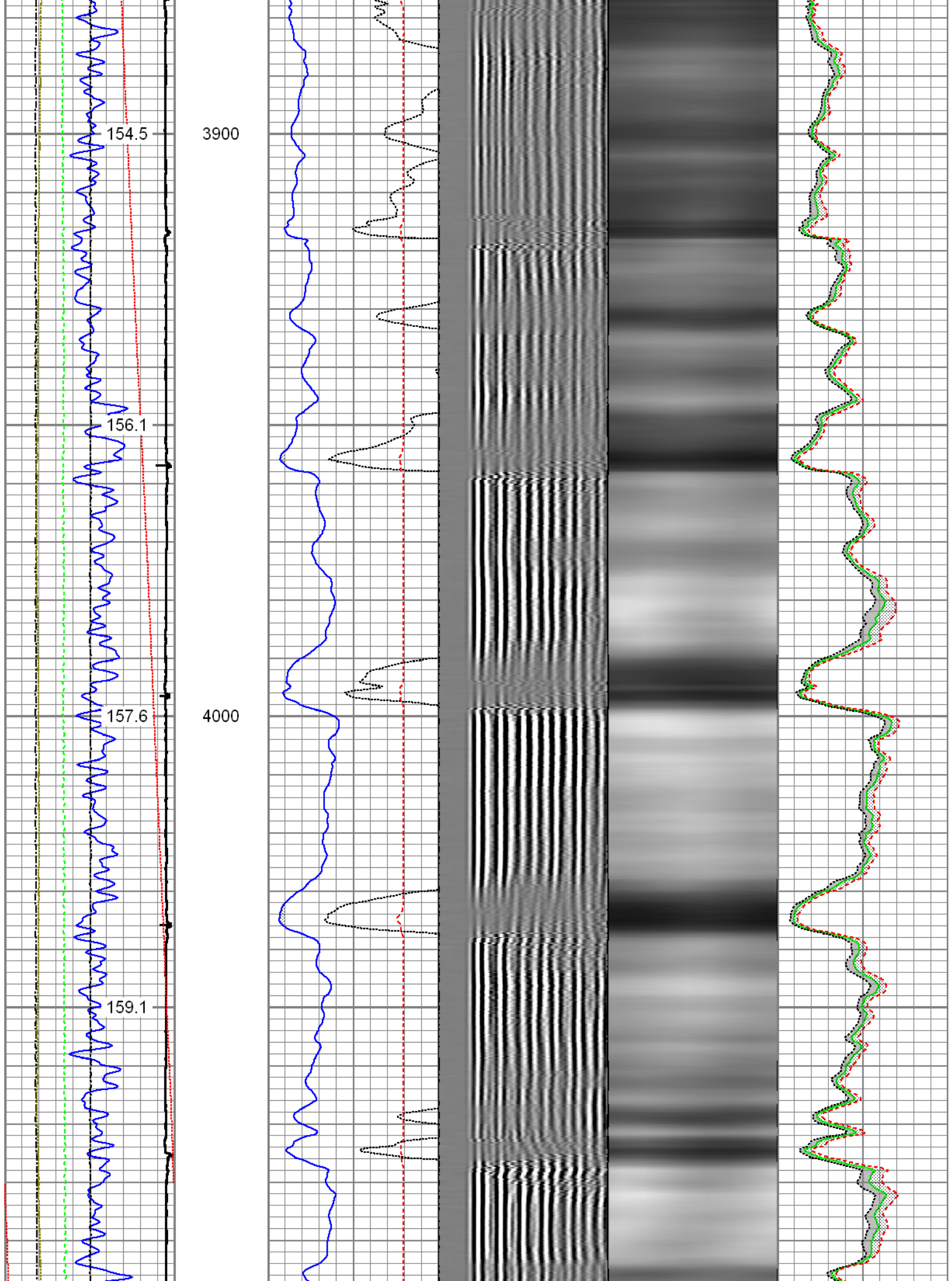


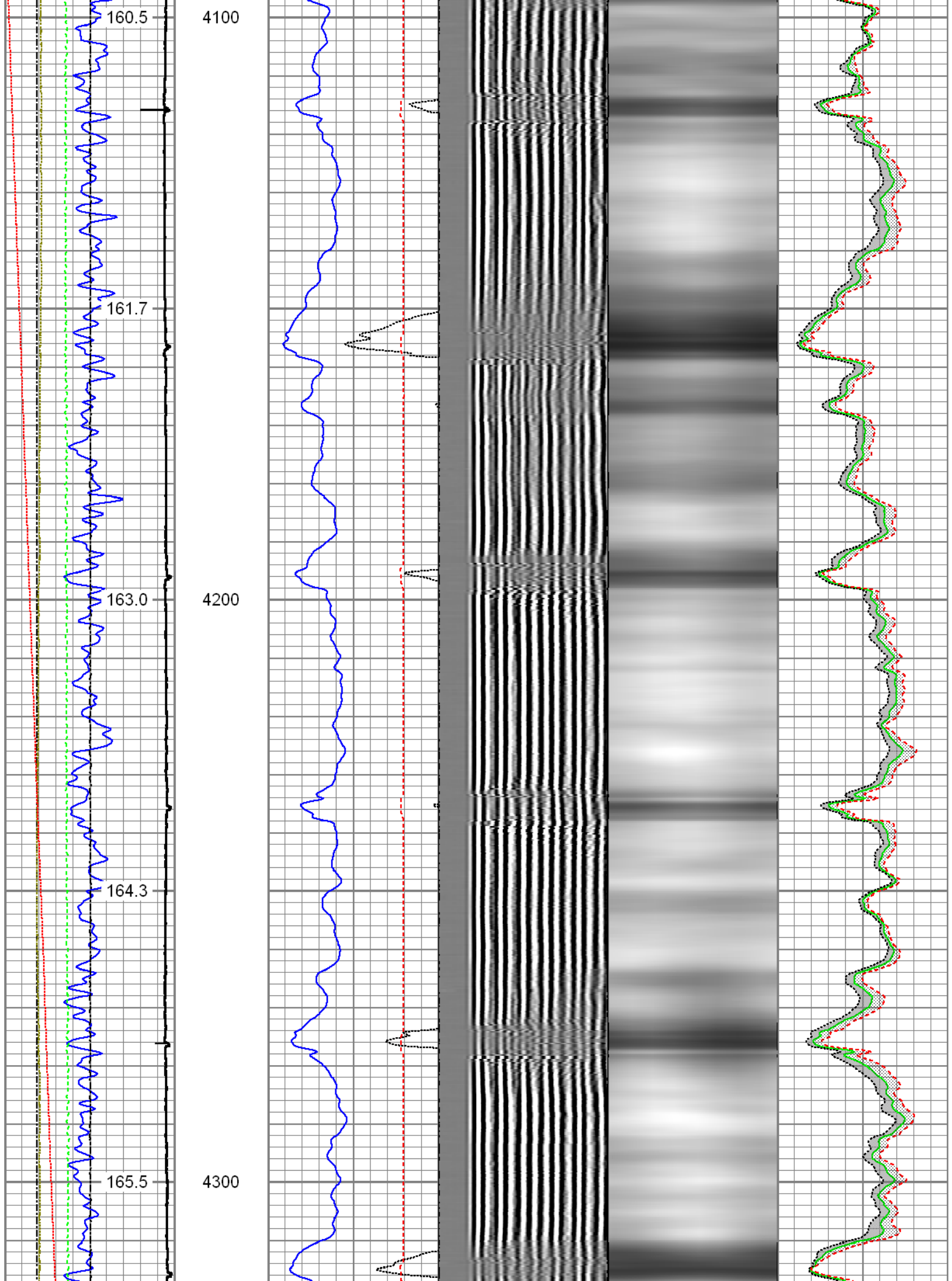


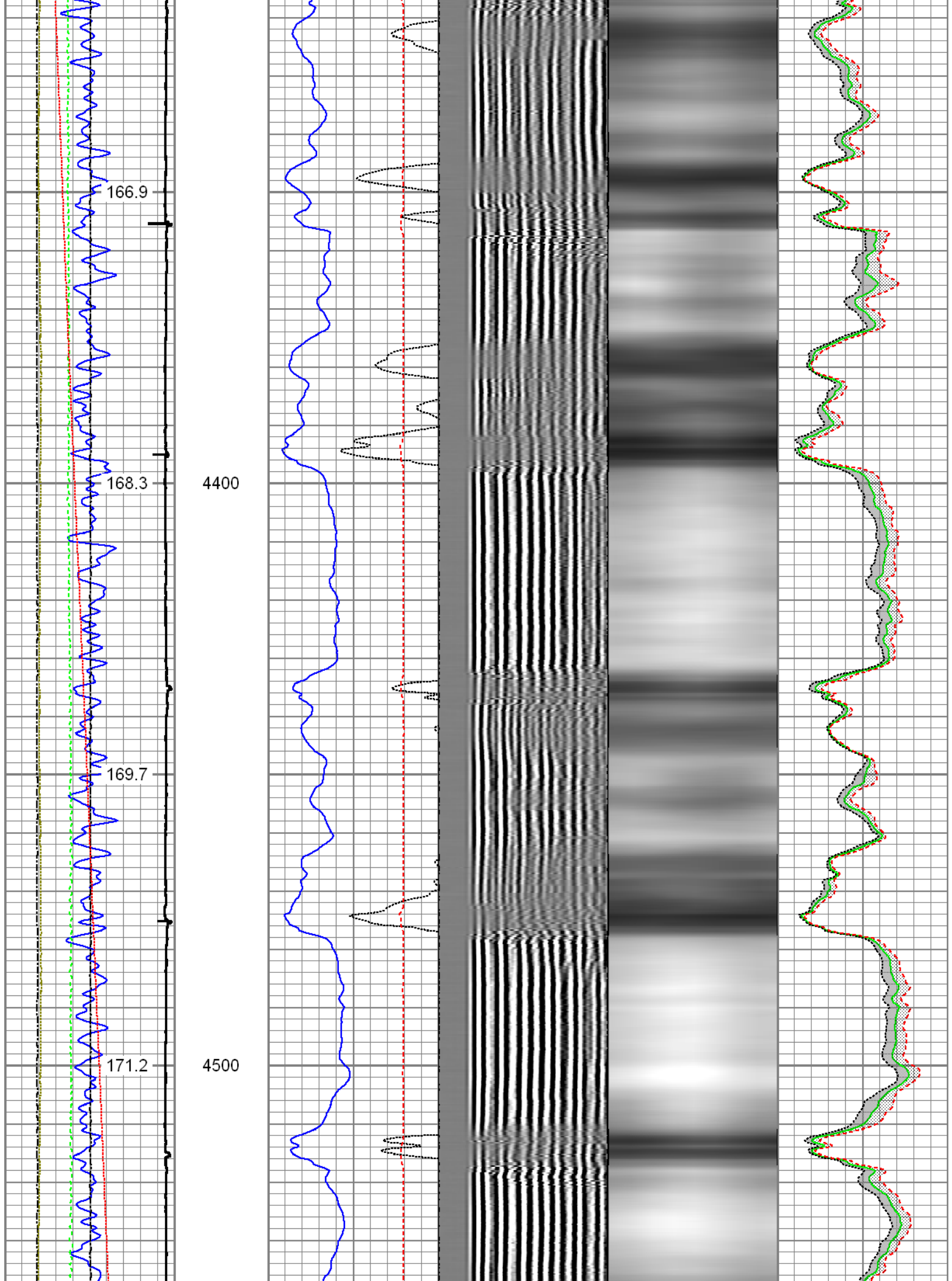


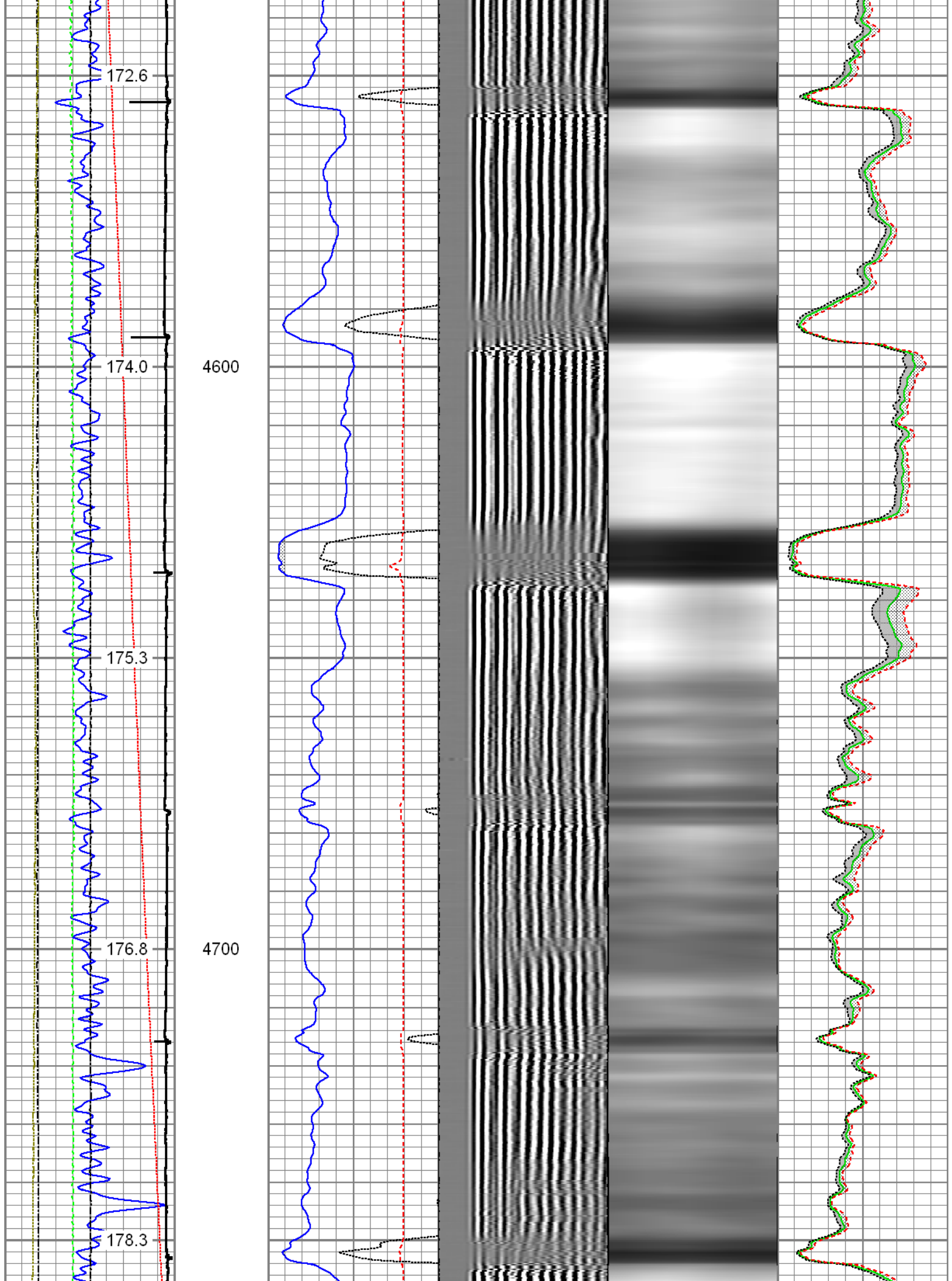


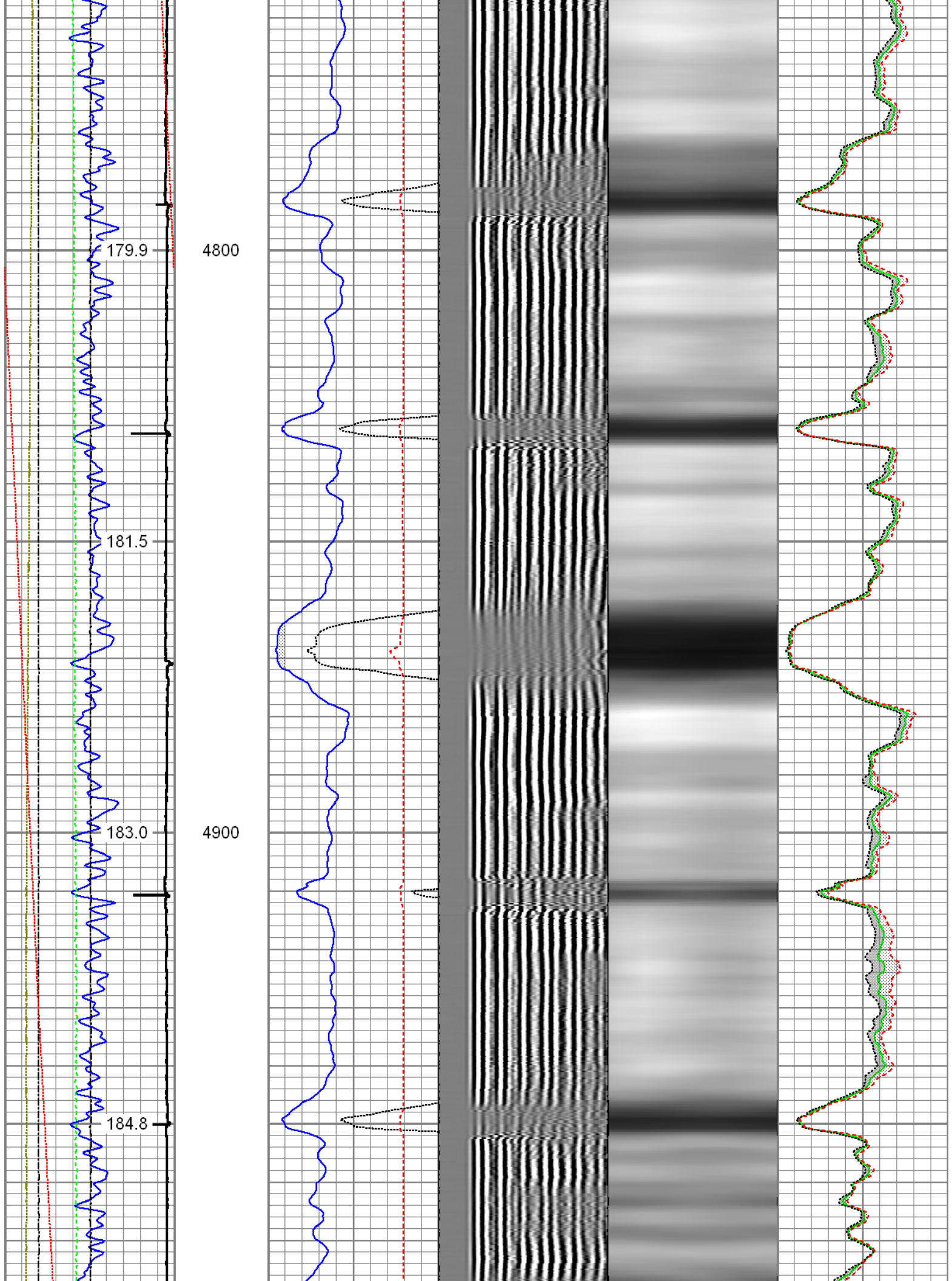


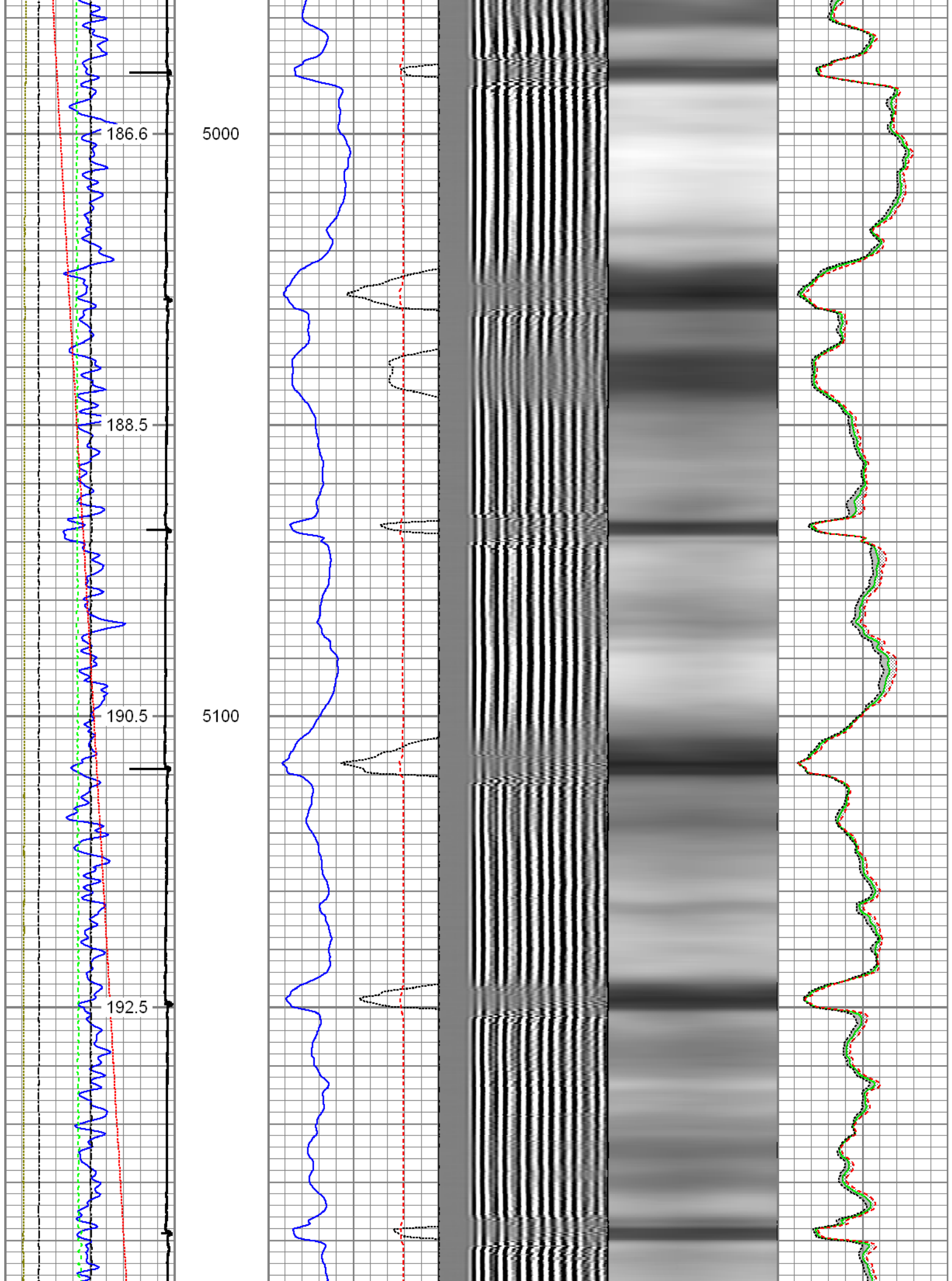


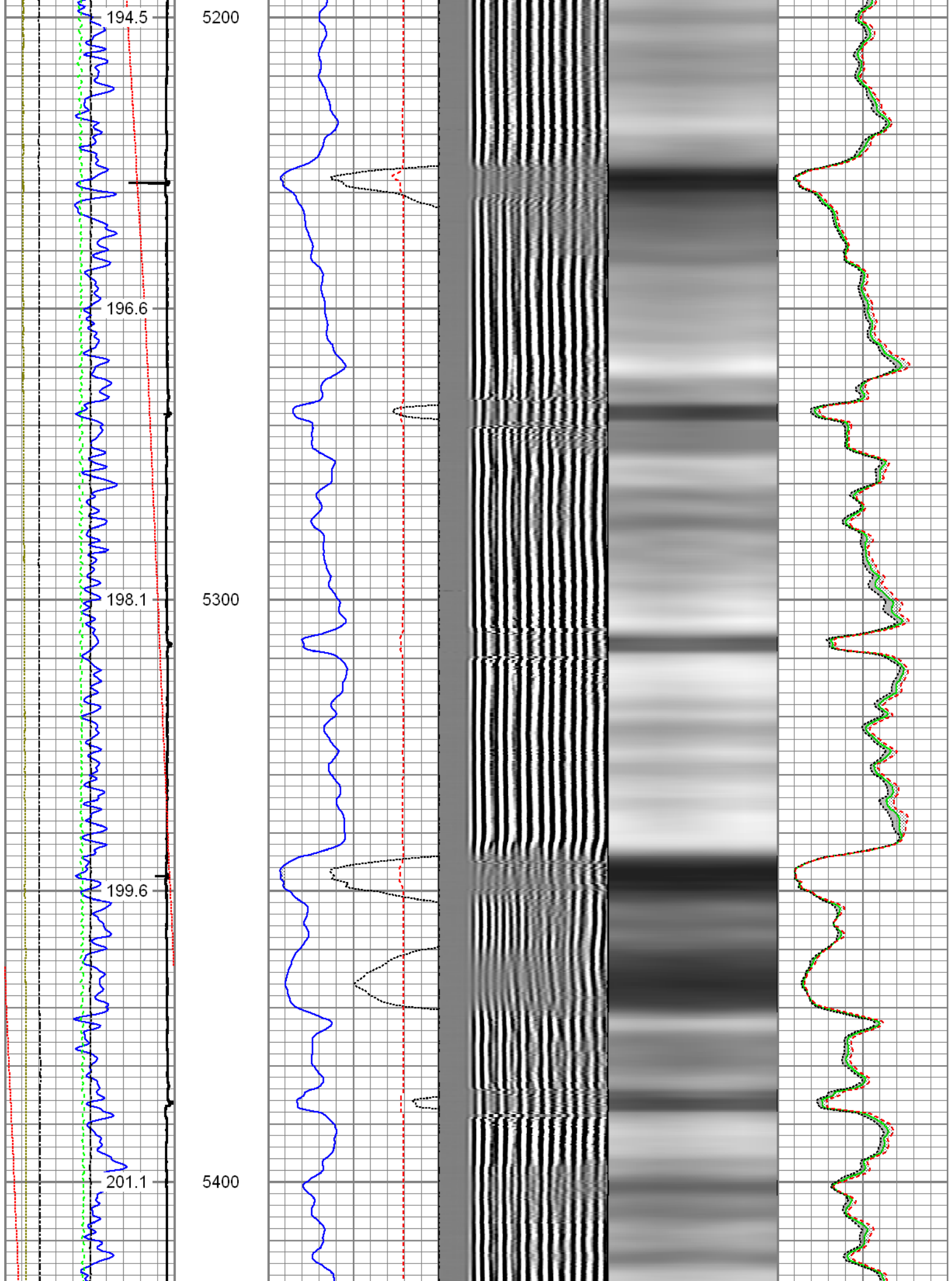


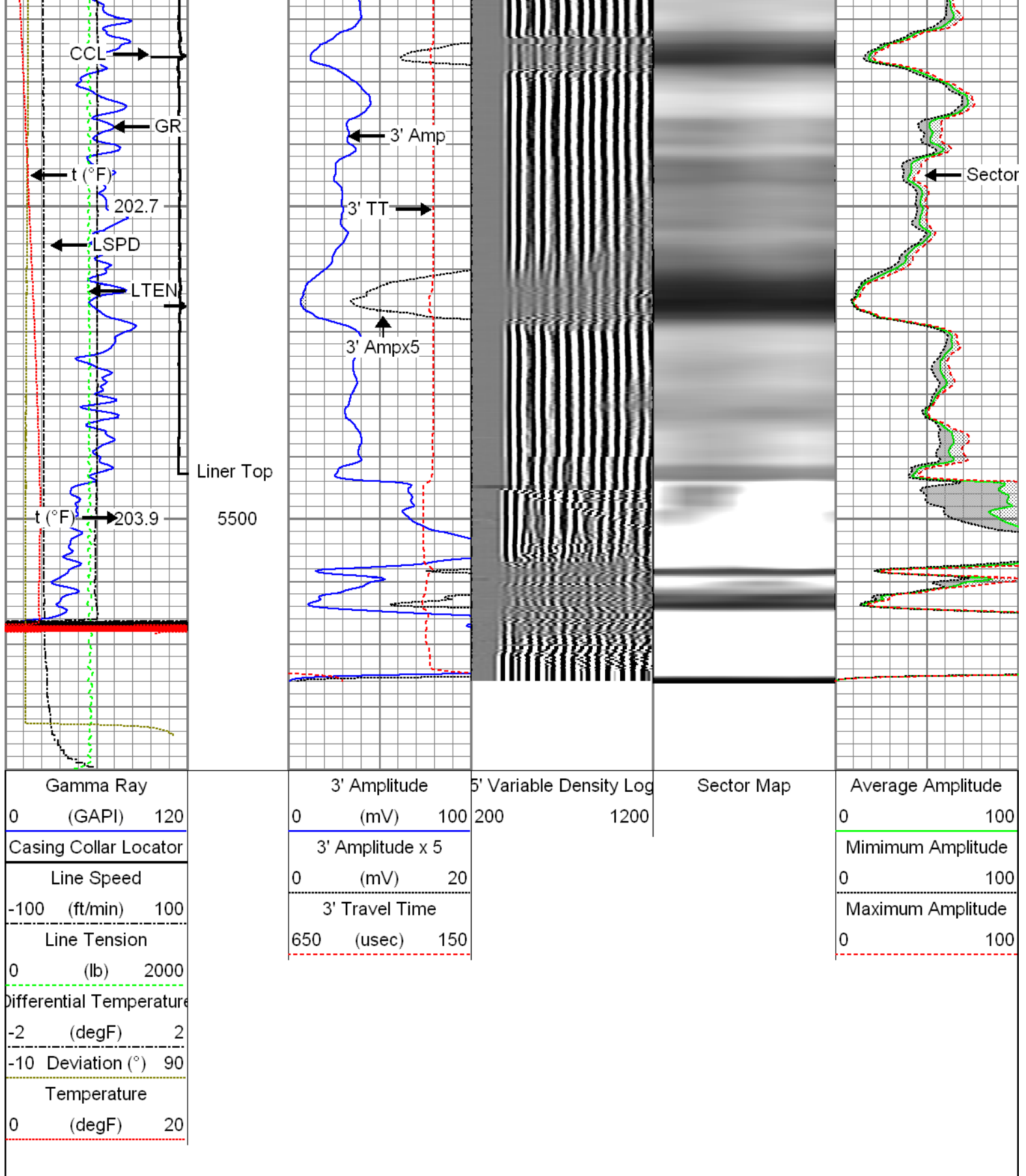






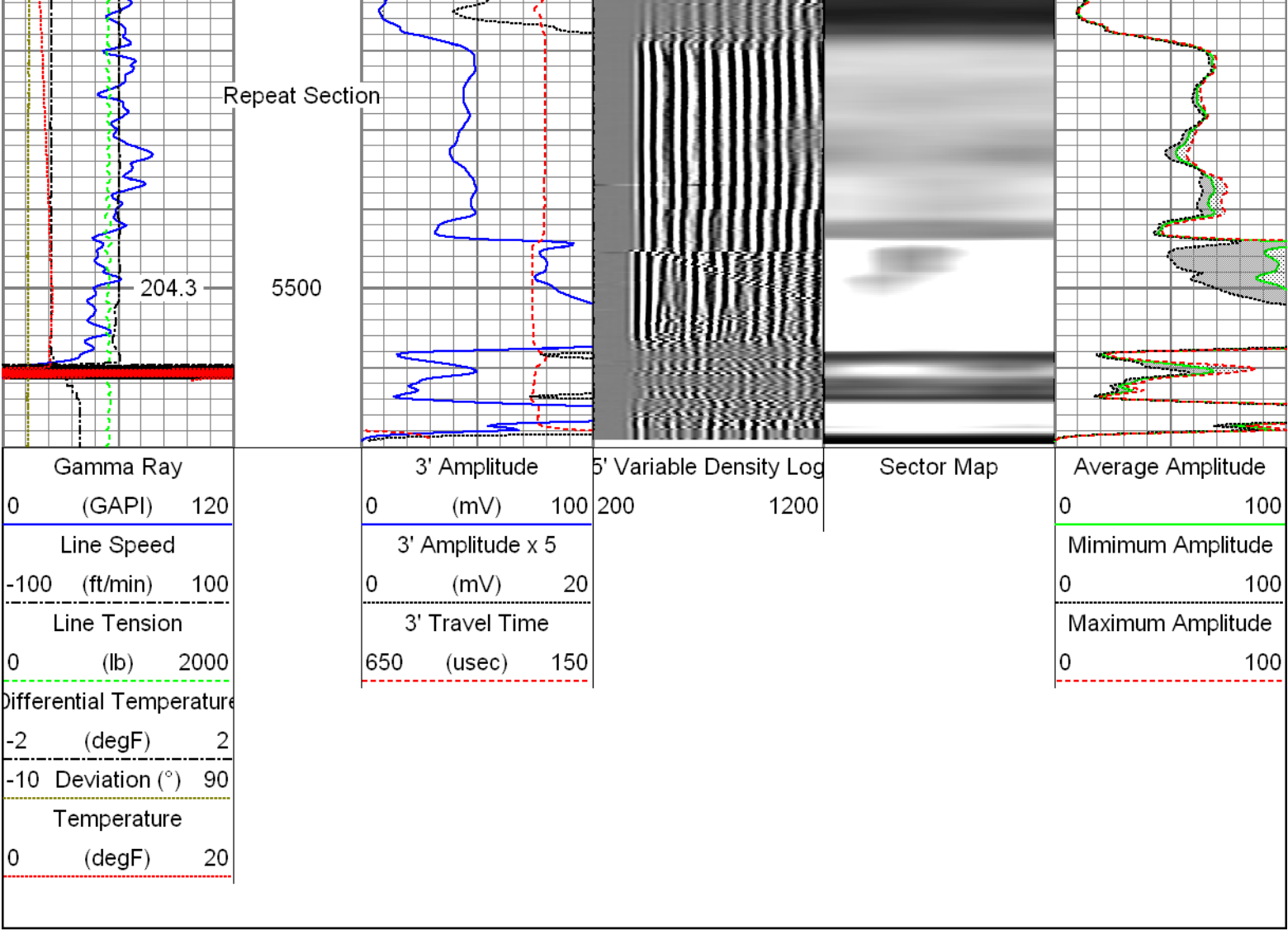




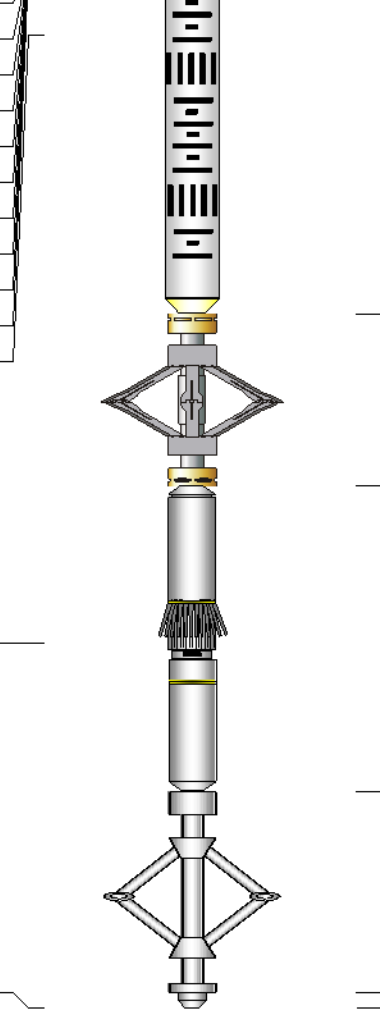


Repeat Pass

Recorded with 1500 PSI Surface Induced Pressure



| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) | |
|--------|-------------|-----------|--|----------|---------|---------|--|
| GR | 23.85 | | 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 (218874) Sondex Adapter - GO Box to Sondex Pin | 0.21 | 1.69 | 1.00 | |
| | | | UW_XTU-UW_XTU_002 (219135) 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 | |
| TEMP | 22.45 | | UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer | 1.04 | 1.69 | 5.20 | |
| | | | UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer | 2.55 | 2.75 | 32.00 | |
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| WVF256 | 15.42 | | | | | | |
| WVF257 | 15.42 | | | | | | |
| WVF258 | 15.42 | | | | | | |
| WVF259 | 15.42 | | | | | | |
| WVF260 | 15.42 | | | | | | |
| WVF261 | 15.42 | | | | | | |
| WVF262 | 15.42 | | | | | | |
| WVF263 | 15.42 | | | | | | |
| WVF264 | 15.42 | | | | | | |
| WVF265 | 15.42 | | | | | | |
| WVF266 | 15.42 | | | | | | |
| WVF267 | 15.42 | | | | | | |
| WVF268 | 15.42 | | | | | | |
| WVF269 | 15.42 | | | | | | |
| WVF270 | 15.42 | | | | | | |
| WVF271 | 15.42 | | | | | | |
| WVF272 | 15.42 | | | | | | |
| WVF273 | 15.42 | | | | | | |

| | | | | | | |
|---|-------|--|---|------|------|--------|
| WVFS1 | 15.42 |  | UW_PRC-UW_PRC_001 (1510101) Sondex Ultrawire 3-1/8" Radial Bond Tool | 0.17 | 0.15 | 115.00 |
| 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 | | UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer | 2.55 | 2.75 | 32.00 |
| WVF5FT | 14.42 | | | | | |
| MIT | 5.41 | | UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool | 4.54 | 2.75 | 61.10 |
| | | | | | | |
| | | | UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser | 2.98 | 2.75 | 32.00 |
| | | | UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator | 0.22 | 1.69 | 1.20 |
| TSTAMP | 0.00 | | | | | |
| Dataset: 08-07-15_Whiting_Razor Fed 30K-3108_MIT_RBL.db: field/well/run1/pass8.1 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in | | | | | | |

| | | | |
|--|--|-------|--|
| Calibration Report | | | |
| Database File: | 08-07-15_whiting_razor fed 30k-3108_mit_rbl.db | | |
| Dataset Pathname: | pass8.1 | | |
| Dataset Creation: | Fri Aug 07 11:25:00 2015 by Calc 7.0 B1 | | |
| 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 Aug 07 08:37:08 2015 | | |

| Ring size: (in) | 4 | Sens | 5 | Sens | 6 | Sens | 7 |
|--------------------|------|-------|------|-------|------|-------|------|
| Finger 01: | 1437 | 282.0 | 1719 | 278.0 | 1997 | 304.0 | 2301 |
| Finger 02: | 1503 | 261.0 | 1764 | 248.0 | 2012 | 267.0 | 2279 |
| Finger 03: | 1427 | 282.0 | 1709 | 280.0 | 1989 | 302.0 | 2291 |
| Finger 04: | 1449 | 284.0 | 1733 | 279.0 | 2012 | 297.0 | 2309 |
| Finger 05: | 1489 | 273.0 | 1762 | 271.0 | 2033 | 285.0 | 2318 |
| Finger 06: | 1419 | 284.0 | 1703 | 290.0 | 1993 | 306.0 | 2299 |
| Finger 07: | 1431 | 288.0 | 1719 | 289.0 | 2008 | 304.0 | 2312 |
| Finger 08: | 1426 | 282.0 | 1708 | 290.0 | 1998 | 297.0 | 2295 |
| Finger 09: | 1422 | 284.0 | 1706 | 295.0 | 2001 | 305.0 | 2306 |
| Finger 10: | 1444 | 269.0 | 1713 | 289.0 | 2002 | 291.0 | 2293 |
| Finger 11: | 1421 | 280.0 | 1701 | 298.0 | 1999 | 304.0 | 2303 |
| Finger 12: | 1384 | 277.0 | 1661 | 305.0 | 1966 | 304.0 | 2270 |
| Finger 13: | 1476 | 262.0 | 1738 | 280.0 | 2018 | 280.0 | 2298 |
| Finger 14: | 1416 | 263.0 | 1679 | 295.0 | 1974 | 294.0 | 2268 |
| Finger 15: | 1406 | 278.0 | 1684 | 306.0 | 1990 | 303.0 | 2293 |
| Finger 16: | 1405 | 274.0 | 1679 | 302.0 | 1981 | 299.0 | 2280 |
| Finger 17: | 1415 | 280.0 | 1695 | 312.0 | 2007 | 307.0 | 2314 |
| Finger 18: | 1356 | 276.0 | 1632 | 293.0 | 1925 | 294.0 | 2219 |
| Finger 19: | 1407 | 277.0 | 1684 | 302.0 | 1986 | 296.0 | 2282 |
| Finger 20: | 1409 | 277.0 | 1686 | 302.0 | 1988 | 299.0 | 2287 |
| Finger 21: | 1364 | 287.0 | 1651 | 317.0 | 1968 | 314.0 | 2282 |
| Finger 22: | 1385 | 269.0 | 1654 | 294.0 | 1948 | 293.0 | 2241 |
| Finger 23: | 1385 | 279.0 | 1664 | 297.0 | 1961 | 299.0 | 2260 |
| Finger 24: | 1413 | 280.0 | 1693 | 295.0 | 1988 | 292.0 | 2280 |
| Finger 25: | 1333 | 279.0 | 1612 | 289.0 | 1901 | 296.0 | 2197 |
| Finger 26: | 1321 | 284.0 | 1605 | 294.0 | 1899 | 303.0 | 2202 |
| Finger 27: | 1413 | 281.0 | 1694 | 287.0 | 1981 | 295.0 | 2276 |
| Finger 28: | 1399 | 292.0 | 1691 | 293.0 | 1984 | 302.0 | 2286 |
| Finger 29: | 1449 | 279.0 | 1728 | 272.0 | 2000 | 286.0 | 2286 |
| Finger 30: | 1359 | 294.0 | 1653 | 287.0 | 1940 | 308.0 | 2248 |
| Finger 31: | 1389 | 301.0 | 1690 | 291.0 | 1981 | 307.0 | 2288 |
| Finger 32: | 1452 | 286.0 | 1738 | 269.0 | 2007 | 286.0 | 2293 |
| Finger 33: | 1410 | 297.0 | 1707 | 290.0 | 1997 | 312.0 | 2309 |
| Finger 34: | 1419 | 294.0 | 1713 | 280.0 | 1993 | 307.0 | 2300 |
| Finger 35: | 1474 | 270.0 | 1744 | 255.0 | 1999 | 278.0 | 2277 |
| Finger 36: | 1459 | 280.0 | 1739 | 267.0 | 2006 | 295.0 | 2301 |
| Finger 37: | 1360 | 287.0 | 1647 | 268.0 | 1915 | 301.0 | 2216 |
| Finger 38: | 1509 | 263.0 | 1772 | 246.0 | 2018 | 273.0 | 2291 |
| Finger 39: | 1436 | 284.0 | 1720 | 270.0 | 1990 | 292.0 | 2282 |
| Finger 40: | 1407 | 295.0 | 1702 | 284.0 | 1986 | 310.0 | 2296 |

| Segmented Cement Bond Log Calibration Report | | | | | | | |
|--|--|--|--|------------|----|--|--|
| Serial Number: | | | | 10013454 | | | |
| Tool Model: | | | | UW_RBT_004 | | | |
| Calibration Casing Diameter: | | | | 5.500 | in | | |
| Calibration Depth: | | | | 2224.922 | ft | | |

| Master Calibration, performed Fri Aug 07 11:24:48 2015: | | | | | | | |
|---|---------|-------|-----------------|---------|---------|--------|--|
| | Raw (v) | | Calibrated (mv) | | Results | | |
| | Zero | Cal | Zero | Cal | Gain | Offset | |
| 3FT | 0.001 | 0.769 | 0.800 | 62.200 | 79.984 | 0.713 | |
| 5FT | -0.002 | 0.813 | 0.800 | 62.200 | 75.331 | 0.949 | |
| S1 | 0.001 | 0.877 | 0.000 | 100.000 | 114.122 | -0.127 | |
| S2 | -0.001 | 0.933 | 0.000 | 100.000 | 107.047 | 0.092 | |
| S3 | 0.000 | 0.955 | 0.000 | 100.000 | 104.694 | -0.009 | |
| S4 | -0.000 | 0.945 | 0.000 | 100.000 | 105.860 | 0.004 | |
| S5 | 0.000 | 0.901 | 0.000 | 100.000 | 111.085 | -0.036 | |

| | | | | | | |
|----|--------|-------|-------|---------|---------|-------|
| S6 | -0.001 | 0.857 | 0.000 | 100.000 | 116.628 | 0.074 |
| S7 | -0.000 | 0.820 | 0.000 | 100.000 | 121.872 | 0.035 |
| S8 | -0.000 | 0.834 | 0.000 | 100.000 | 119.906 | 0.025 |

Temperature Calibration Report

| | |
|----------------|--------------------------|
| Serial Number: | 10025100 |
| Tool Model: | UW_PRT_016 |
| Performed: | Wed Feb 11 13:47:59 2015 |

| Point # | Reading | | Reference | |
|---------|----------|-----|-----------|------|
| 1 | 13249.00 | cps | 68.00 | degF |
| 2 | 18454.00 | cps | 104.00 | degF |
| 3 | 29735.00 | cps | 176.00 | degF |
| 4 | 41457.00 | cps | 248.00 | degF |
| 5 | 52851.00 | cps | 320.00 | degF |
| 6 | 59128.00 | cps | 356.00 | degF |
| 7 | | cps | | degF |
| 8 | | cps | | degF |
| 9 | | cps | | degF |
| 10 | | cps | | degF |

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 | Whiting Oil & Gas Corporation |
| Well | Razor Fed 30K-3108 |
| Field | Wildcat |
| County | Weld |
| State | Colorado |