

HALLIBURTON

RESERVOIR MONITOR
TOOL i CAPTURE (MODE)

| | | | | | | | |
|-------------------------------|--|---------------------------|--|-------------------------------|--|------------------------|--|
| Company | | | | BILL BARRETT CORPORATION | | | |
| Well | | | | FIDUCIAL 06-62-34-4956BH2 | | | |
| Field | | | | WATTENBERG | | | |
| Company | | BILL BARRETT CORPORATION | | State | | CO | |
| Well | | FIDUCIAL 06-62-34-4956BH2 | | County | | WELD | |
| Field | | WATTENBERG | | State | | CO | |
| County | | WELD | | State | | CO | |
| Permanent Datum | | | | GROUND LEVEL | | | |
| Log Measured From | | | | KB , 22 Ft. above perm. datum | | | |
| Drilling Measured From | | | | KB | | | |
| Date @ Time Logged | | | | 29-OCT-2014 | | Type Fluid in Hole | |
| Run No. | | | | ONE | | Density of Fluid | |
| Depth - Driller | | | | 16200' | | Fluid Level | |
| Depth - Logger | | | | 5680' | | Cement Top Est. Logged | |
| Bottom - Logged Interval | | | | 5608' | | Equipment / Location | |
| Top - Log Interval | | | | 200' | | Recorded by | |
| Max. Recorded Temp. | | | | N/A | | Witnessed by | |
| CEMENTING DATA | | | | Surface | | Protection | |
| Date / Time Cemented | | | | String | | Production | |
| Primary / Squeeze | | | | | | | |
| Expected Compressive Strength | | | | psi@ hrs | | psi@ hrs | |
| Cement Volume | | | | | | | |
| Cement Type / Weight | | | | / | | / | |
| Formulation | | | | | | | |
| Mud Type / Mud Wgt. | | | | / | | / | |
| Borehole Record | | | | Casing & Tubing Record | | | |
| Run Number | | Bit | | From | | To | |
| | | | | 9.625" | | 36# | |
| | | | | 7" | | 26# | |
| | | | | 4.5" | | 11.6# | |
| | | | | | | 6000' | |
| | | | | | | 800' | |
| | | | | | | 6655' | |
| | | | | | | 16227' | |

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

HES RMTi-CBL LOG CORRELATED BY KB HEIGHT OF 22'
LOG INTERVAL PER CUSTOMER REQUEST

CREW : Charles Simons, Bradley Bruderer
THANK YOU FOR CHOOSING HALLIBURTON ENERGY ROCK SPRING WY

| | | | | | |
|--|-----------|------------|------------------|-----------------------|----------------------|
| Service Ticket No. | 901783573 | API No. | 05-123-392970000 | PGM Ver | warrior_8 |
| The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client | | | | | |
| EQUIPMENT DATA | | | | | |
| TELEMETRY | | XHU | | RESRVOIR MONITOR TOOL | CEMENT BOND TOOL |
| Run No. | ONE | Run No. | ONE | Run No. | ONE |
| Serial No. | 10000538 | Serial No. | 10008856 | Serial No. | 12253831 |
| Model No. | TTTC-U002 | Model No. | XHU003 | Model No. | RMTi |
| Diameter | 1.69" | Diameter | 1.69" | Diameter | 2.13" |
| LOGGING DATA | | | | | |
| General Data | | | | | |
| Pass | Depths | | Well Head | Speed | Logging Run Comments |
| No | From | To | Pressure | Ft/Min | |

| | | | | | | | | |
|-------------------------|------|--------|--------|-------|-----|-----------|-----|----------|
| No. | MAIN | 5608' | 200' | 0 | | | | |
| | | | | | | | | |
| | | FSIN | | SIGMA | | GAMMA RAY | | AMP (mV) |
| Pass | | Scale | | Scale | | Scale | | Scale |
| No. | | L | R | L | R | L | R | L |
| | | 100000 | 0 | 0 | 60 | 0 | 150 | 0 |
| | | | | | | | | 100 |
| | | | | | | | | |
| DIRECTIONAL INFORMATION | | | | | | | | |
| Maximum Deviation | | | deg. @ | | KOP | | | |
| | | | | | | | | |
| | | | | | | | | |

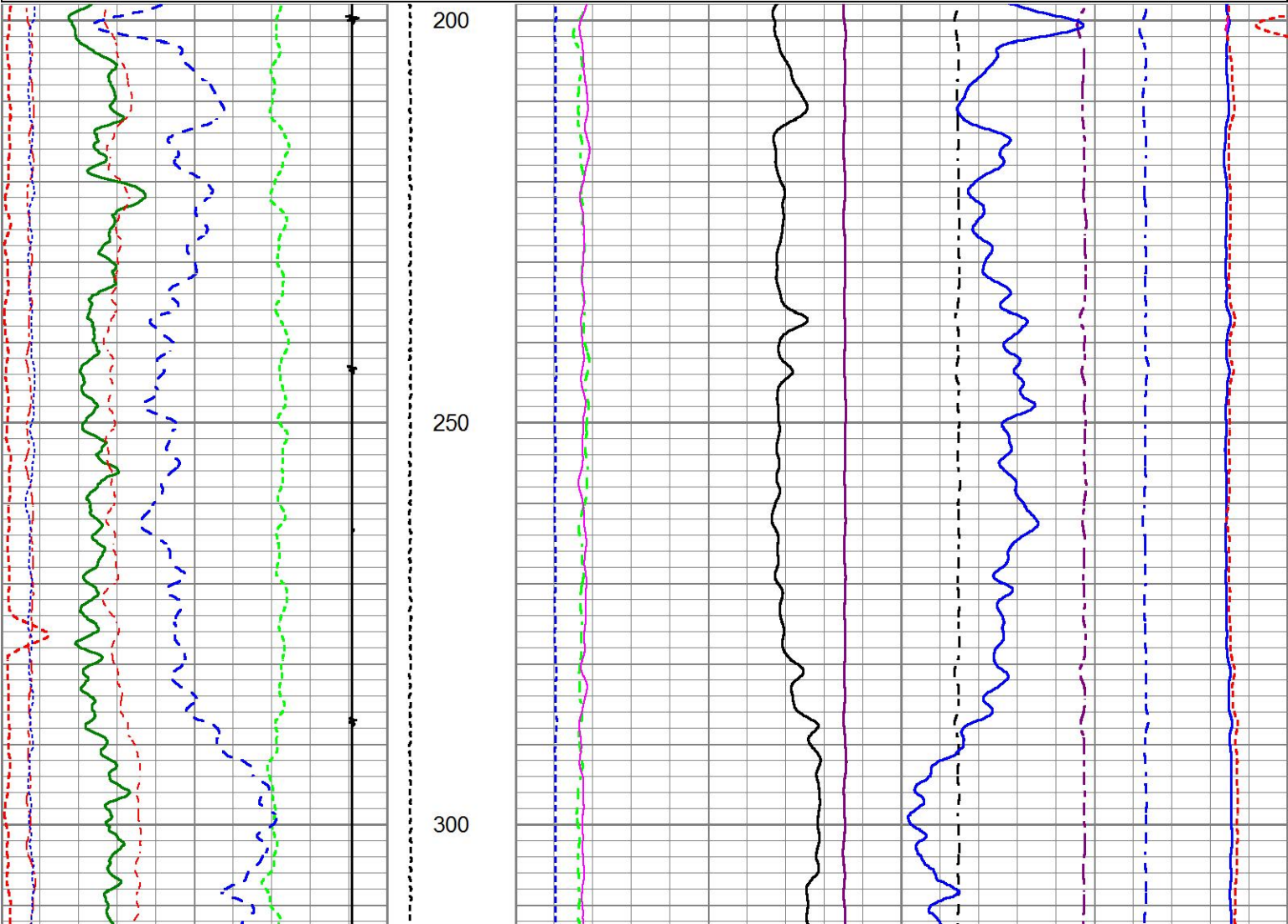
MAIN PASS

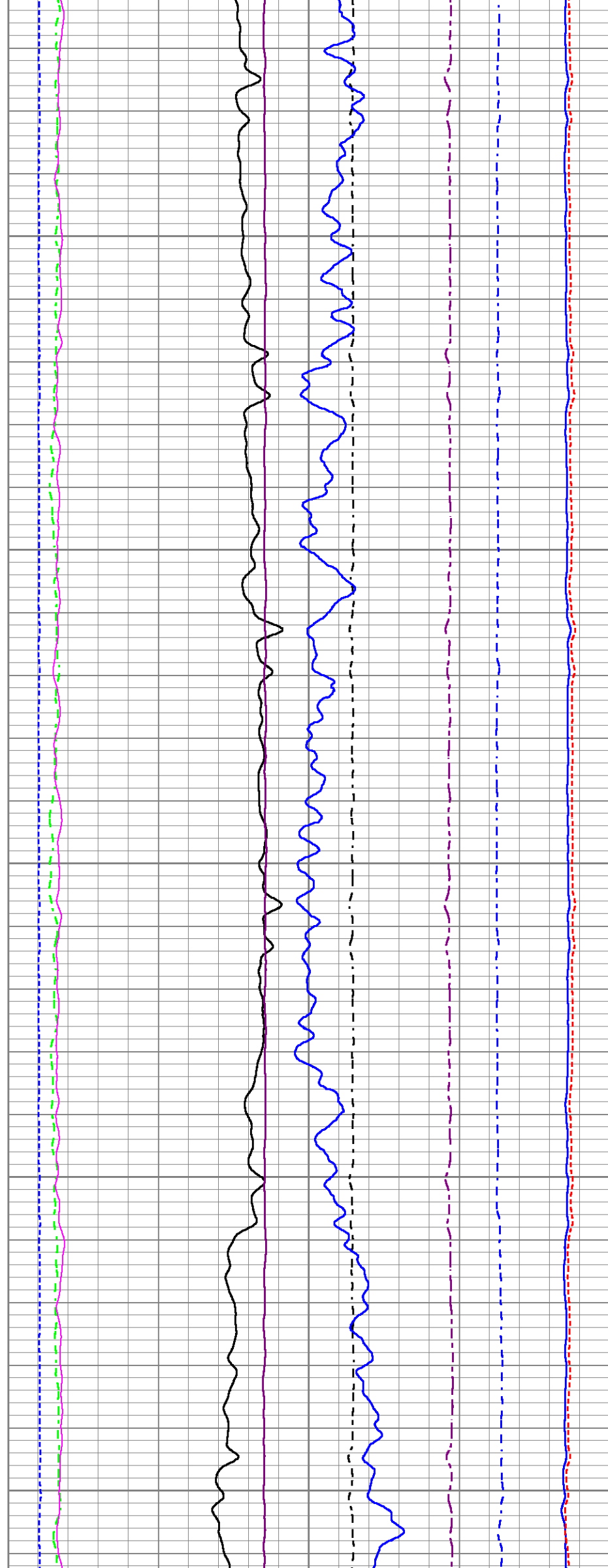
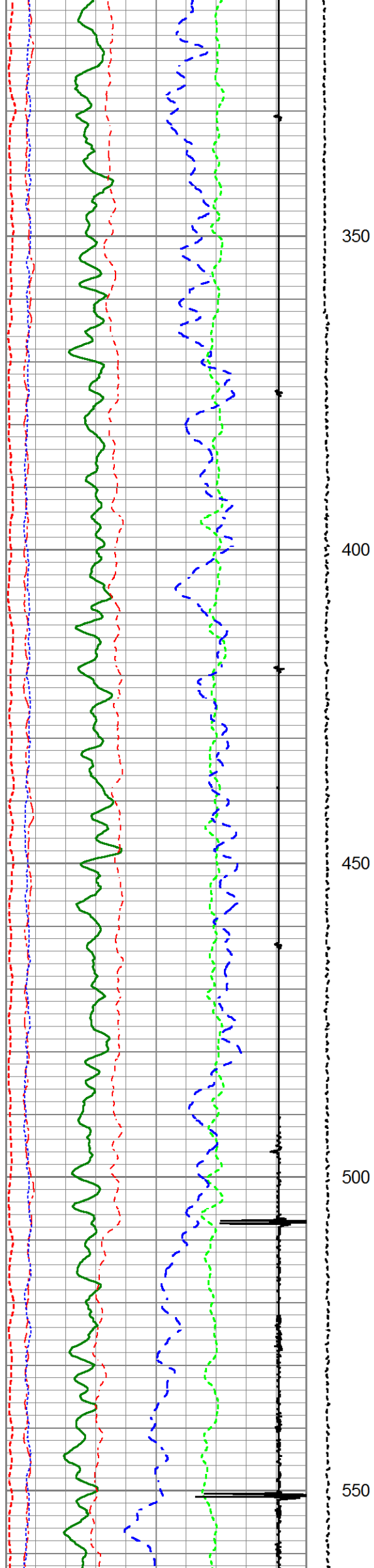
HALLIBURTON

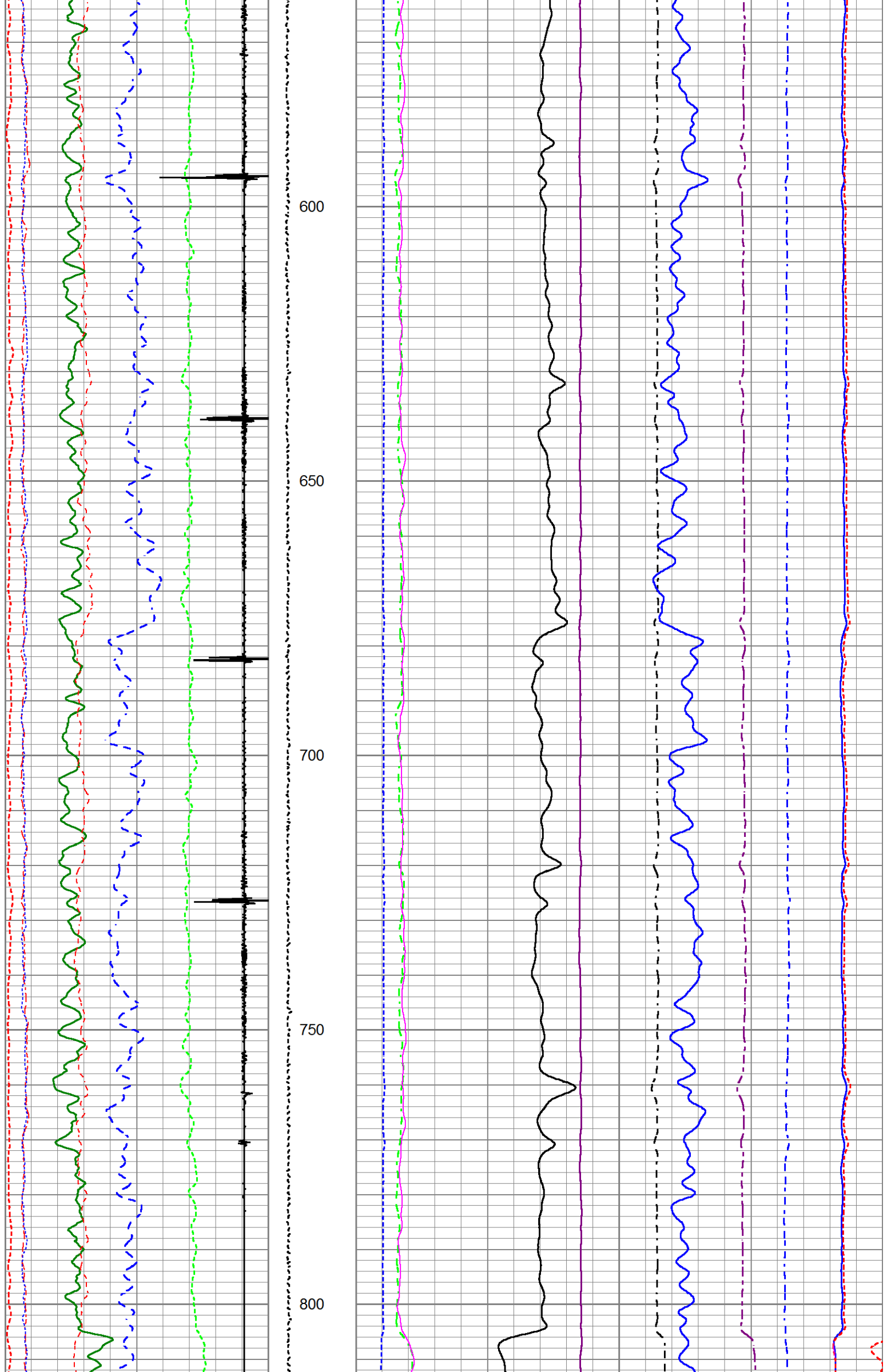
5"=100'

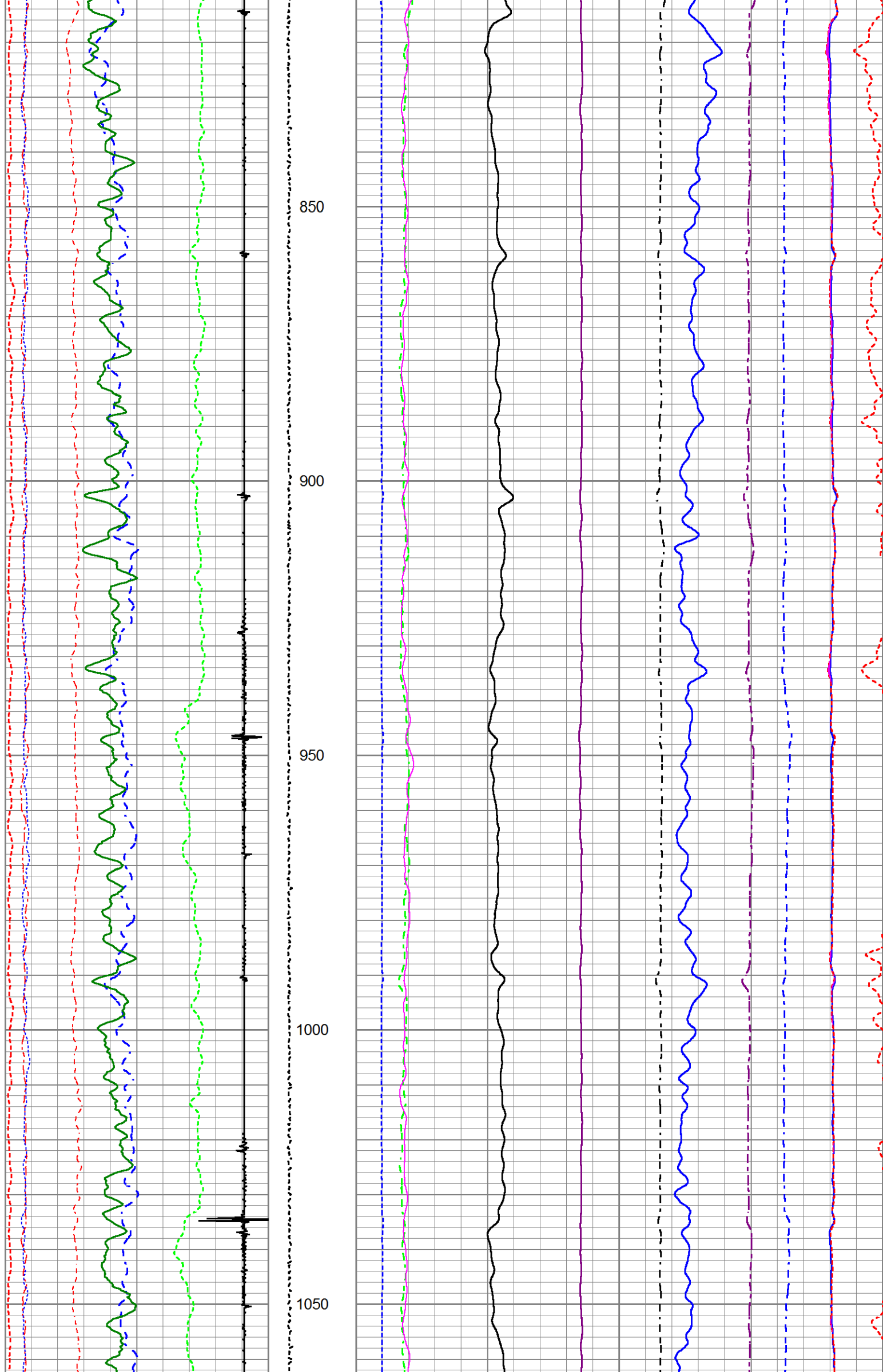
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|---------------------|---|
| Database File | old jobs\fiducial 06-62-34-4956bh2.db |
| Dataset Pathname | WATTENBURG/Fiducial_06-62-34-4956BH2/run1/MAIN2 |
| Presentation Format | RMTE_M~1 |
| Dataset Creation | Wed Oct 29 17:55:52 2014 |
| Charted by | Depth in Feet scaled 1:240 |

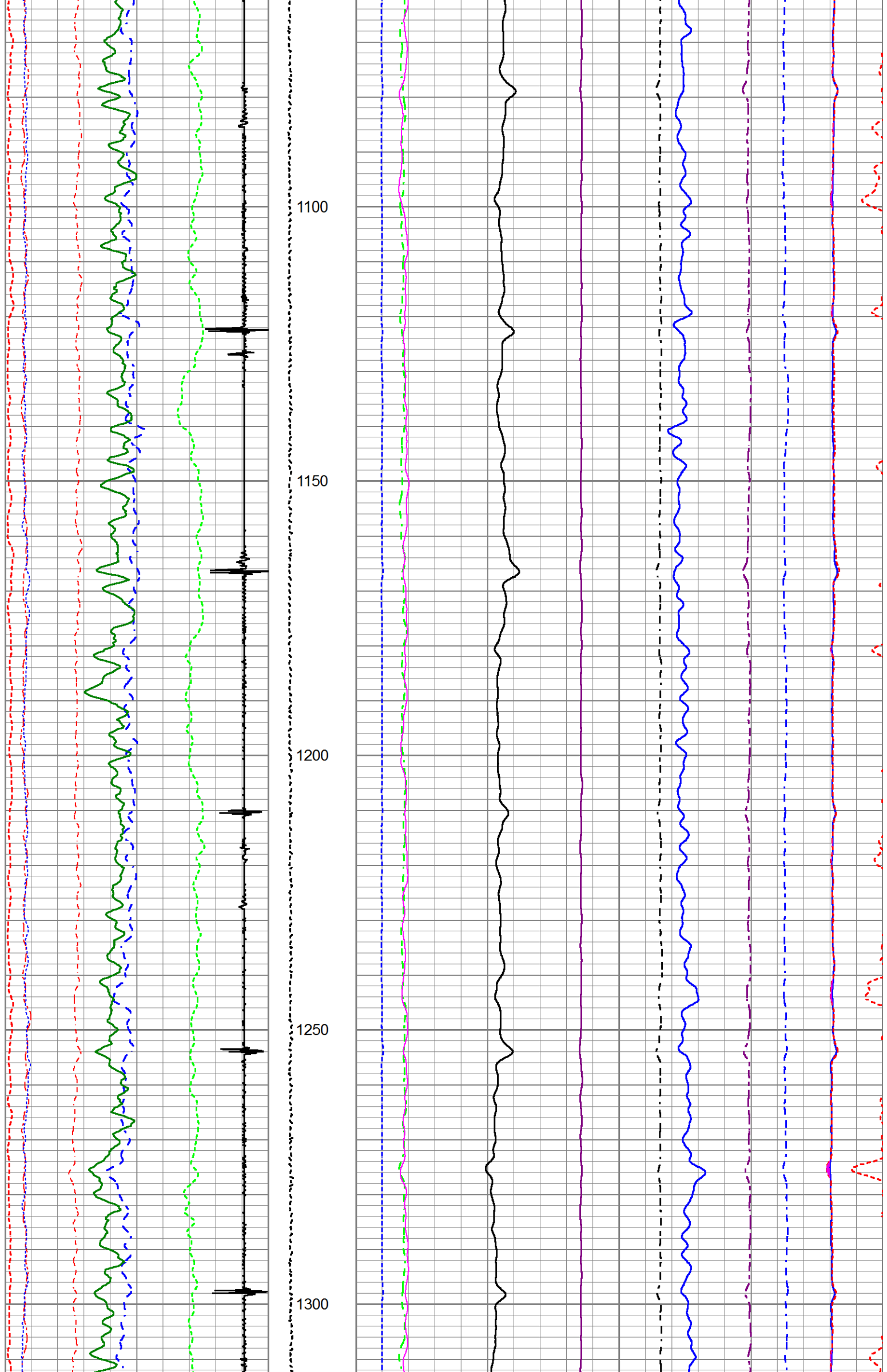
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|------|-------------------------|------|------------|-----|---------------|------------------------------|
| 200 | Near Bore Si (SGBN) | 0 | TENSION | 0 | RATIO (RNF) | 1 |
| 0 | OAI | 100 | 0 (lb 1750 | 60 | SGIN | 0 |
| 10 | FAR FIT ERR (SGFF) | 40 | | 0 | RIN | 9 60000 Near Counts (NCAP) |
| 0 | GR (GAPI) | 150 | | 0 | RICF | 6 60000 Far Counts (FCAP) |
| 0 | NEAR FIT ERR (SGFN) | 100 | | 0 | H YIELD (YH2) | 1 100000 FAR INTEL CT (FSIN) |
| 2500 | CCL | -250 | | 0 | H YIELD (YH1) | 1 10000(NEAR INTEL CT (NSIN) |
| 0 | IN FIT ERR (CFTR1) NEAR | 1 | | 0.3 | PHIT () | -0.1 ET INL NEAR (NNII |
| 0 | IN FIT ERR CFTR2) FAR | 1 | | | INOX2 | 50000 -1000 |
| | | | | | -1500 | 1500 |

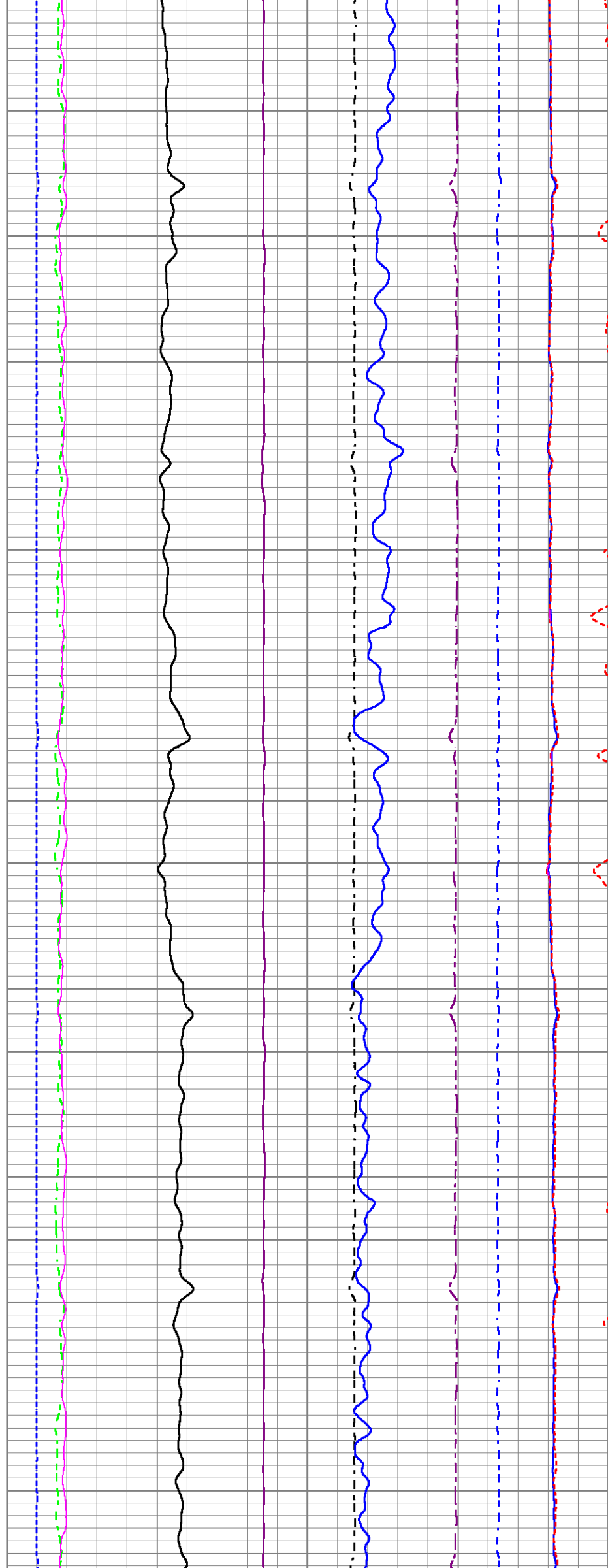
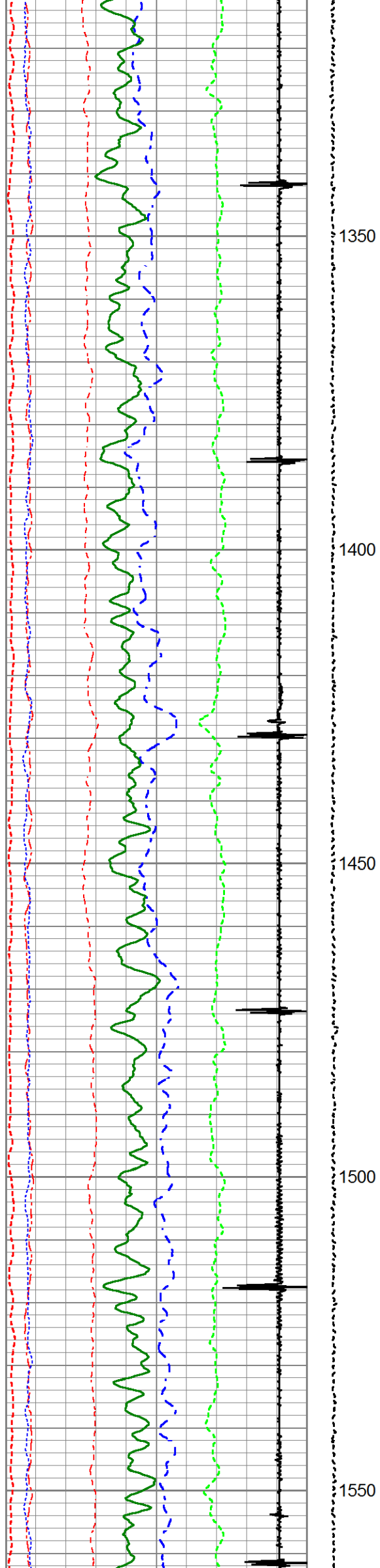


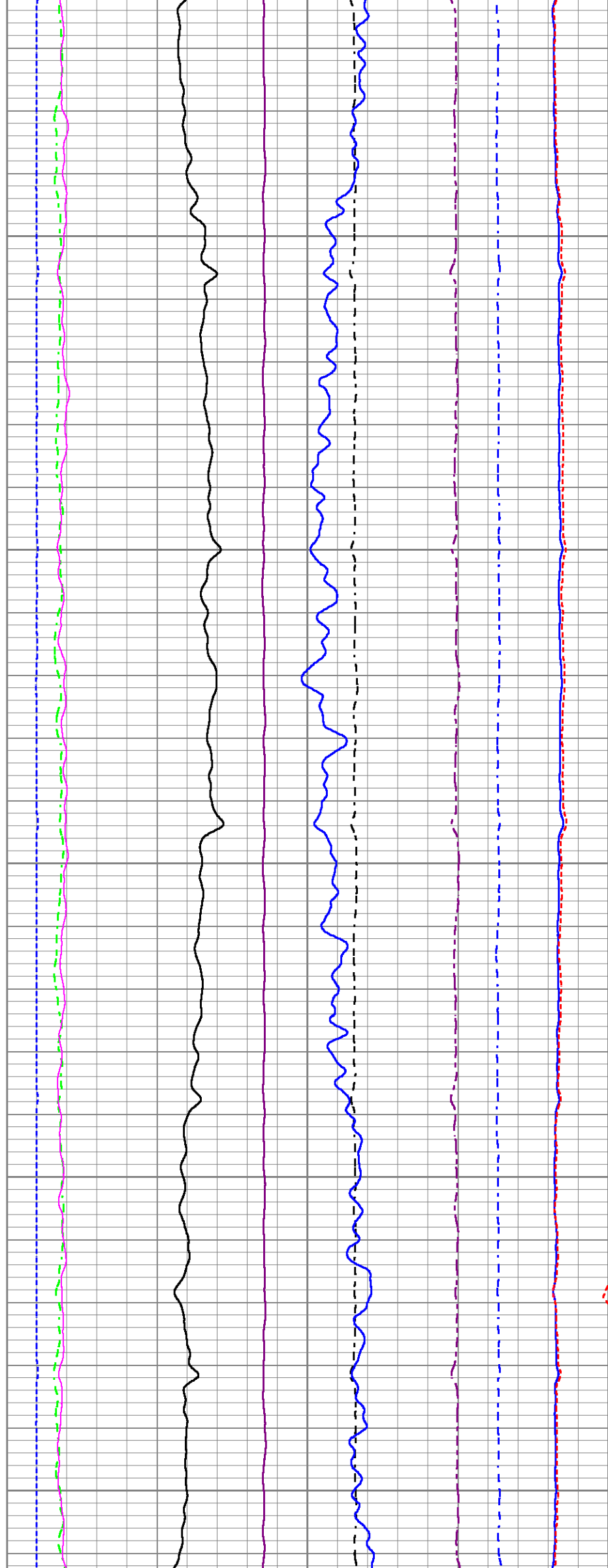
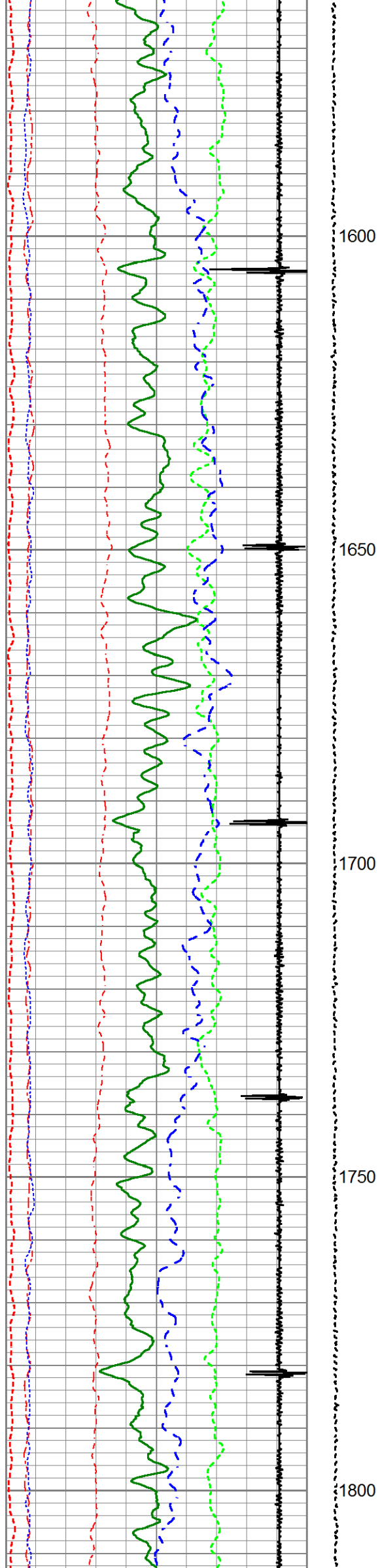


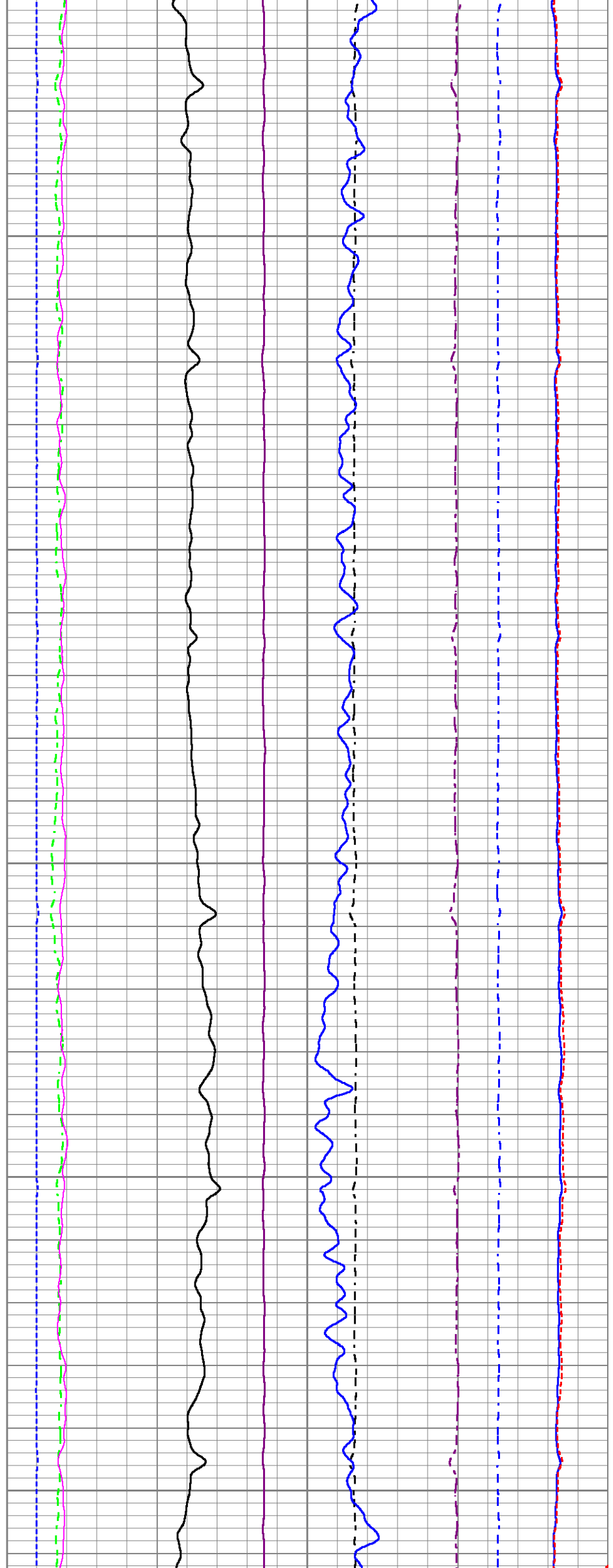
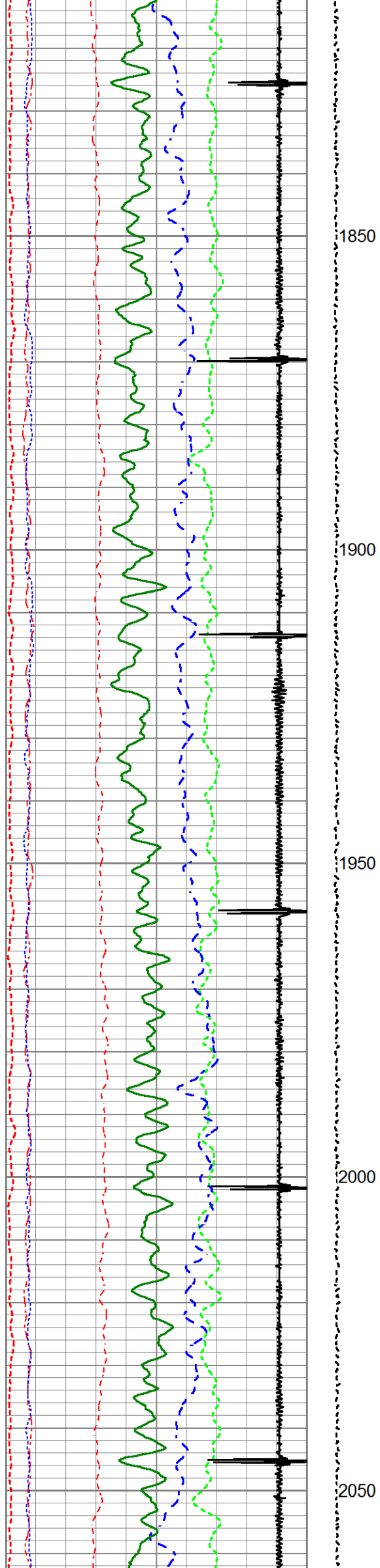


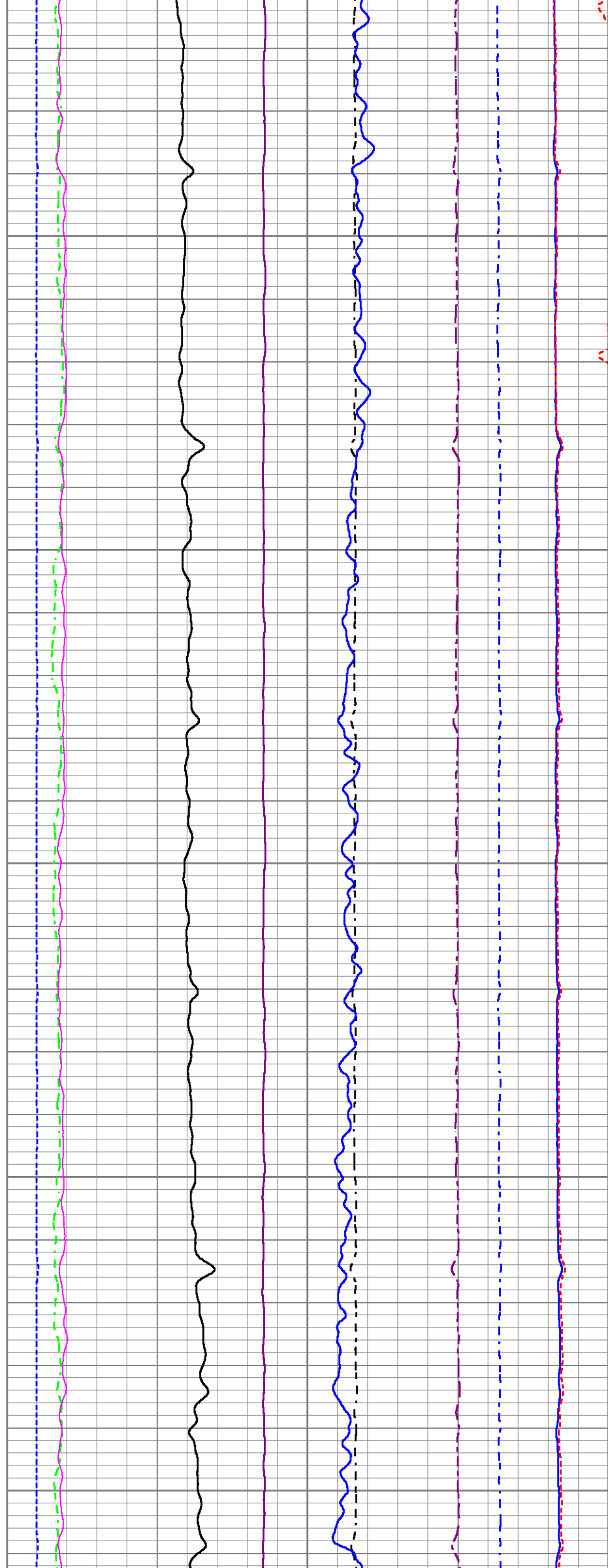
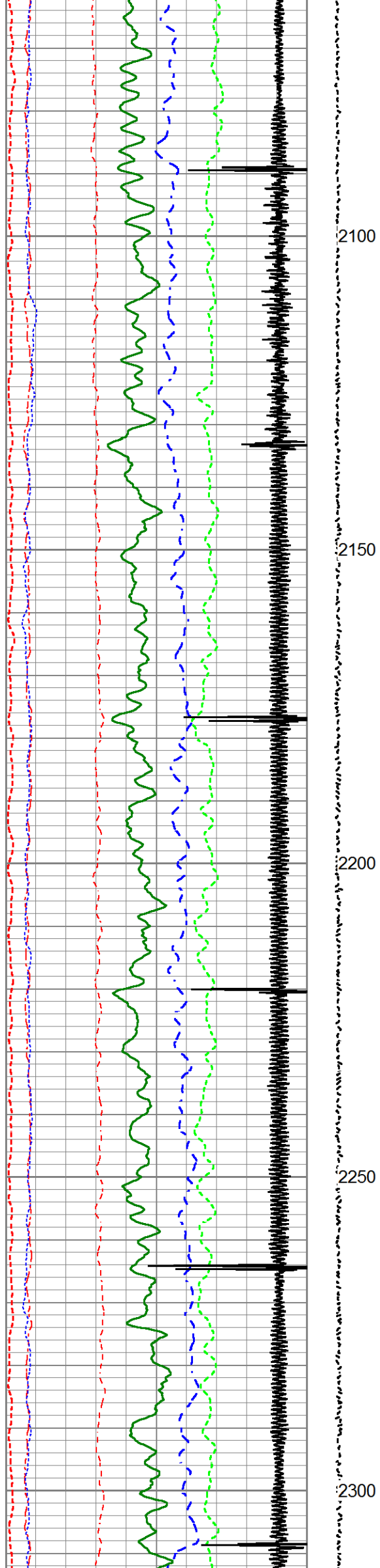


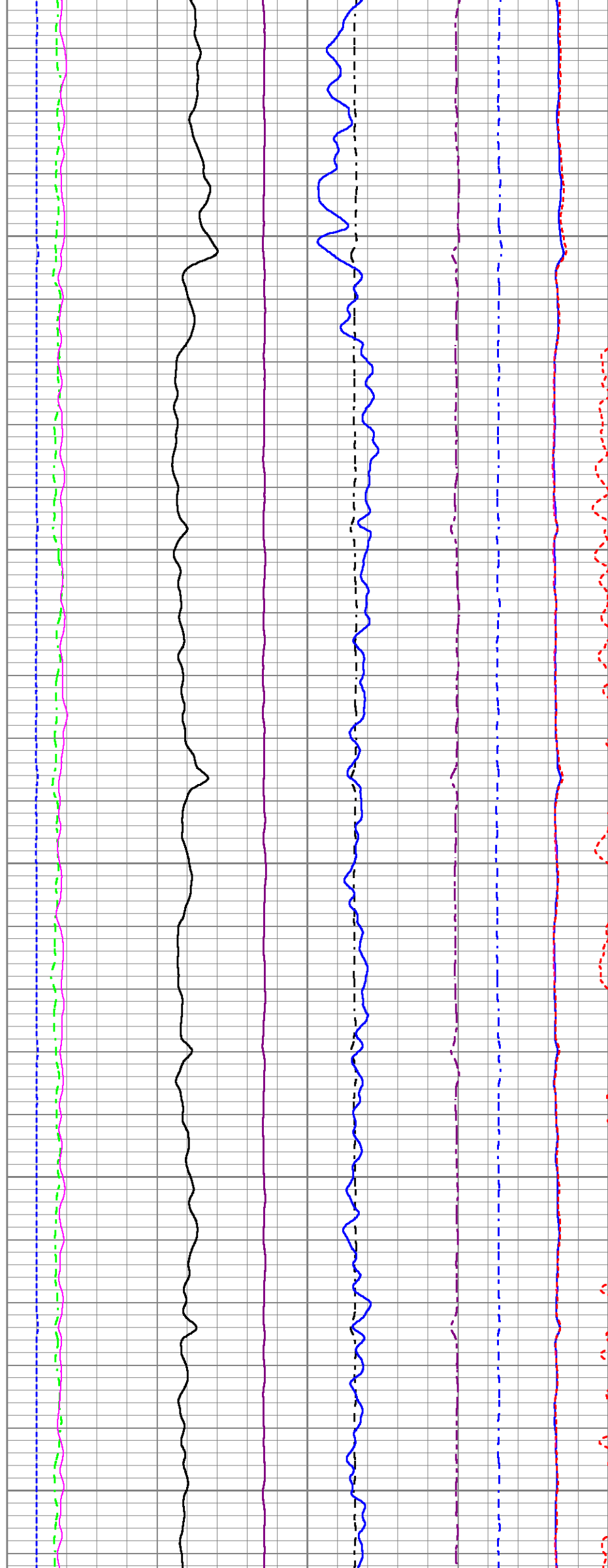
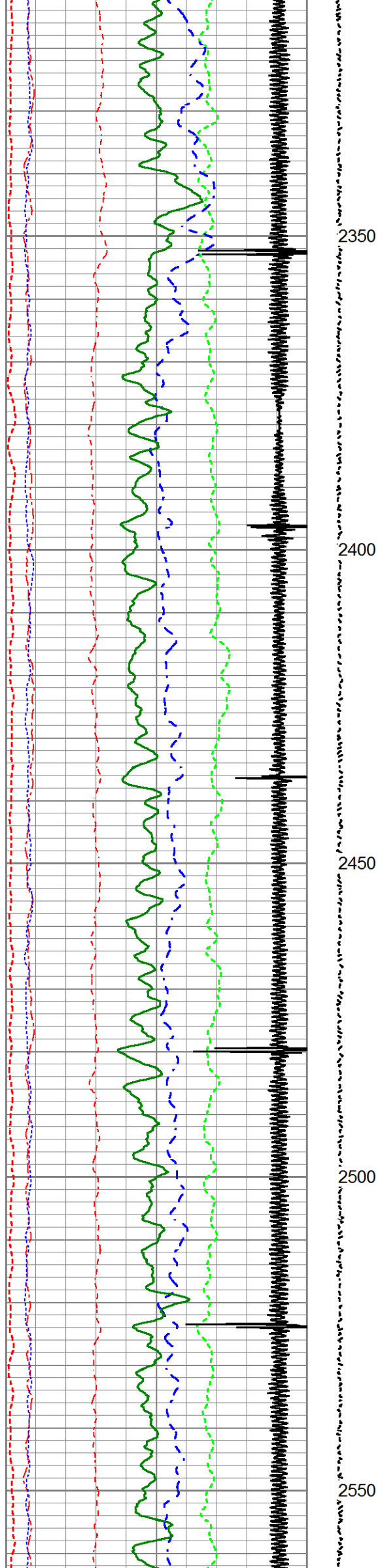


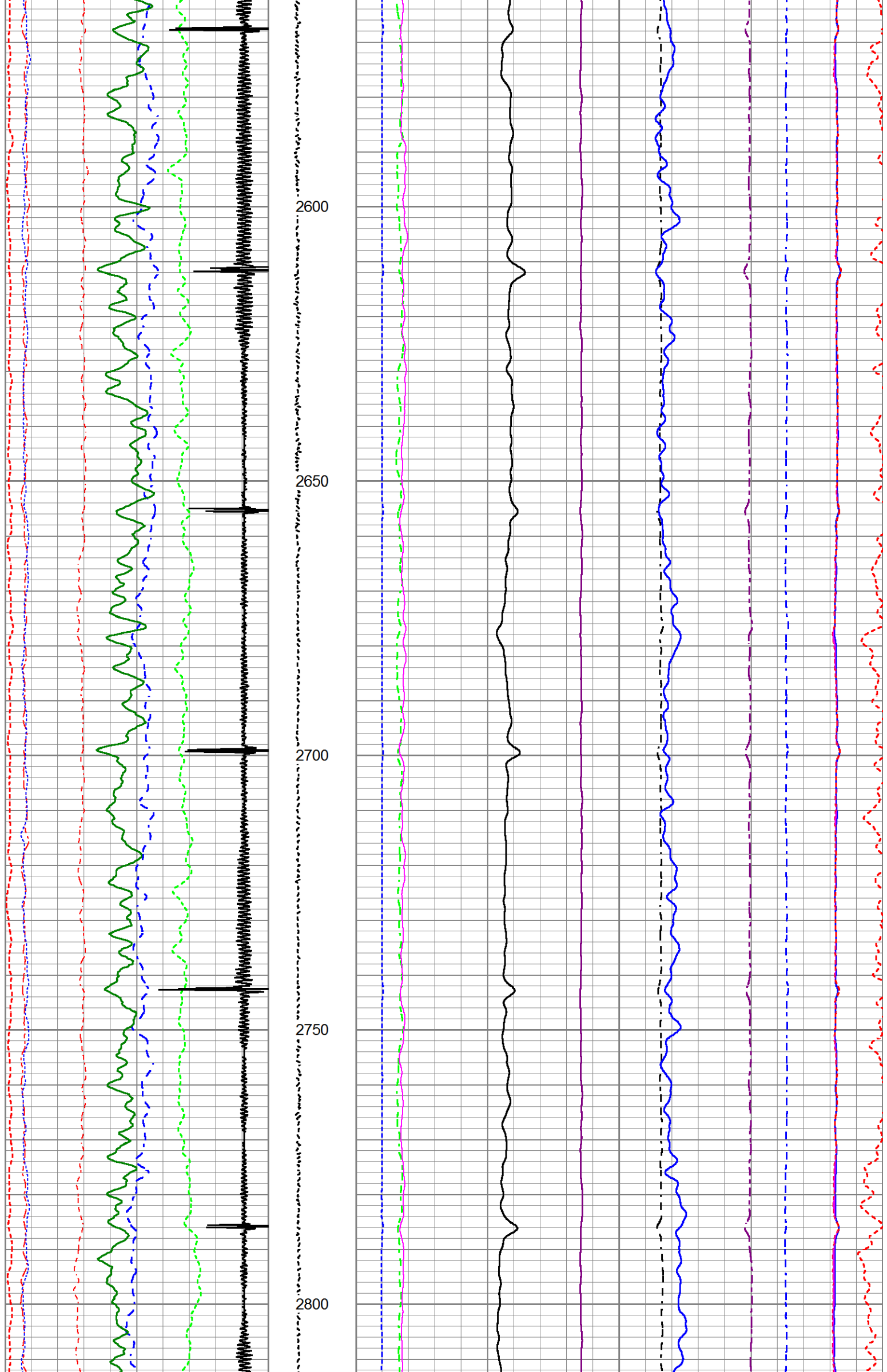


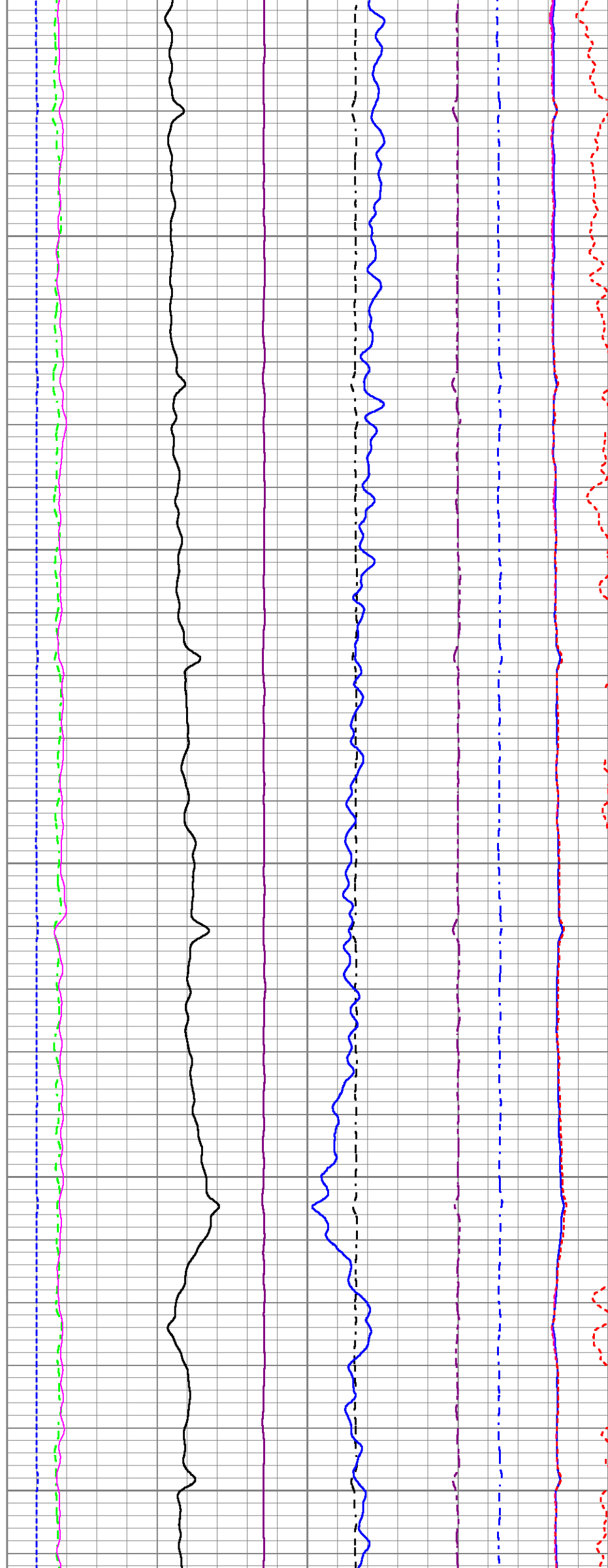
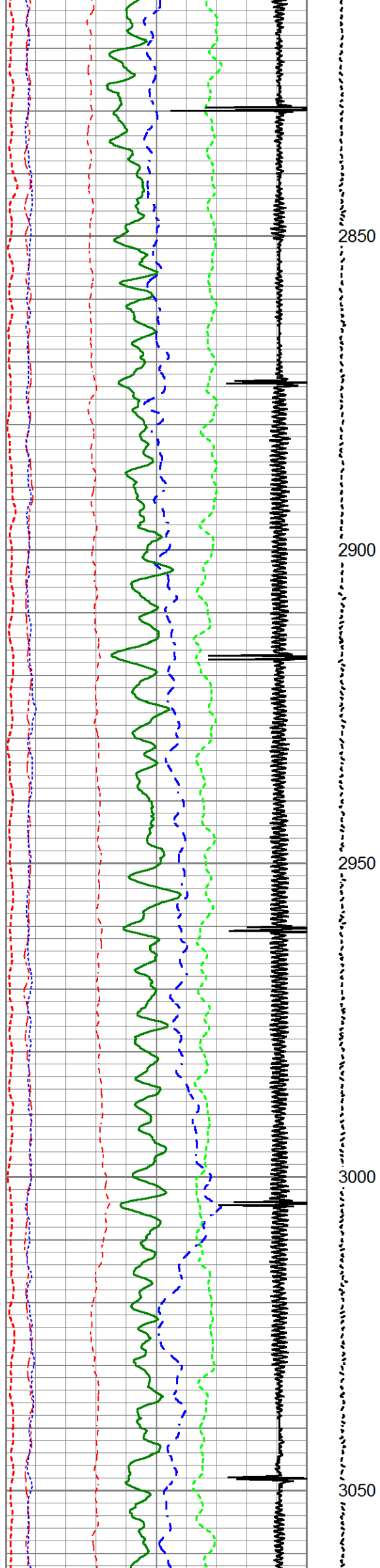


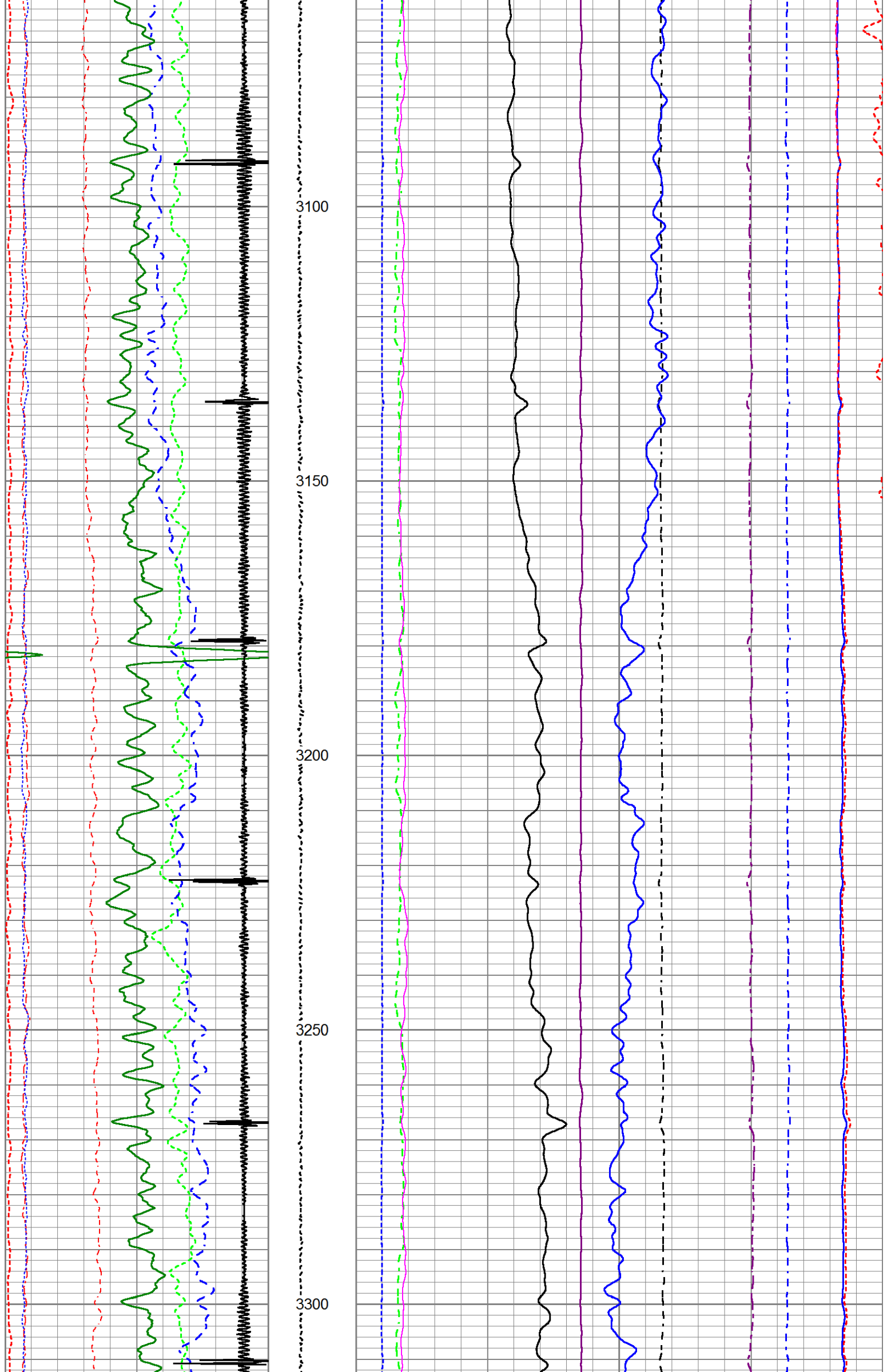


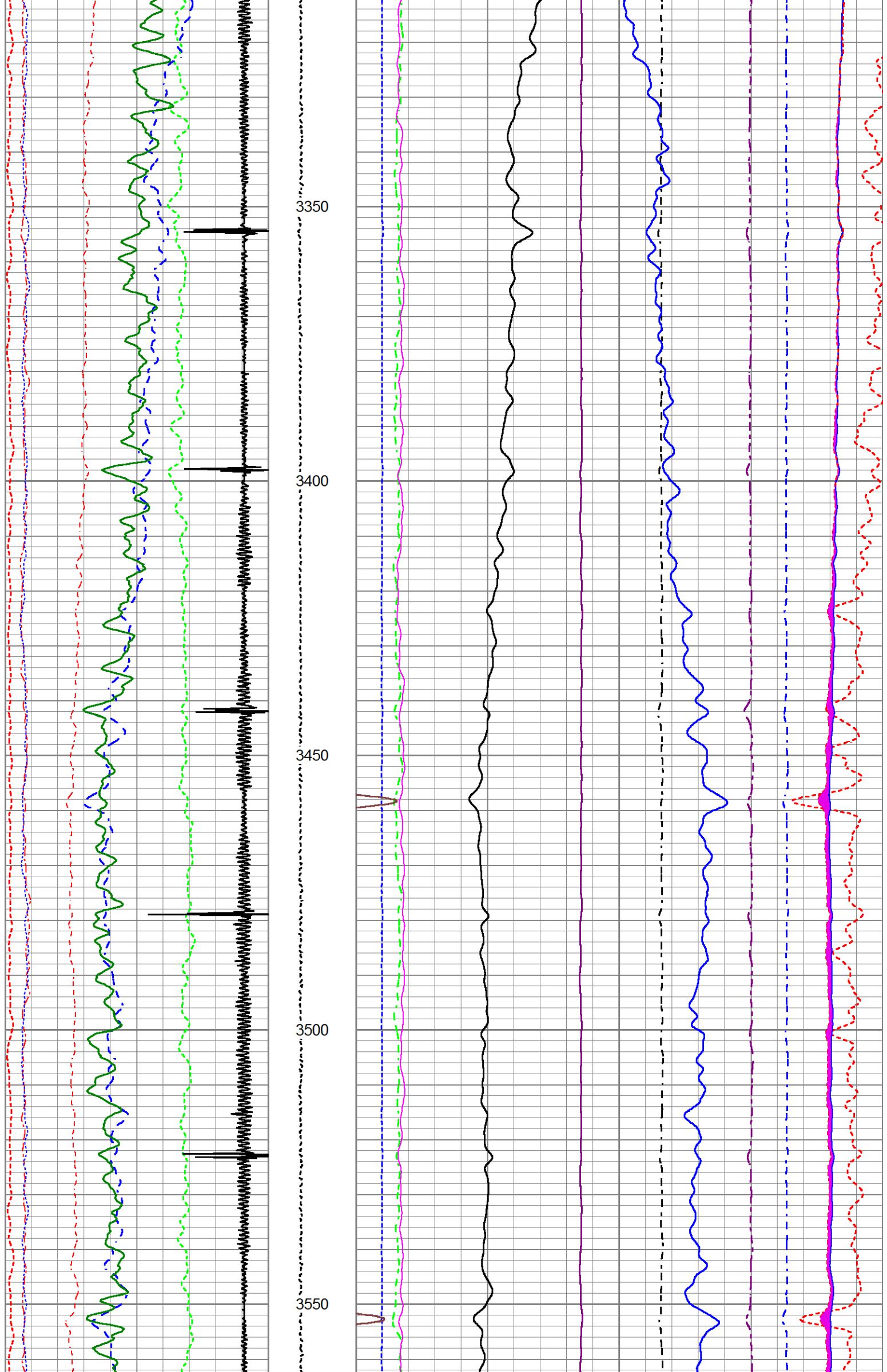


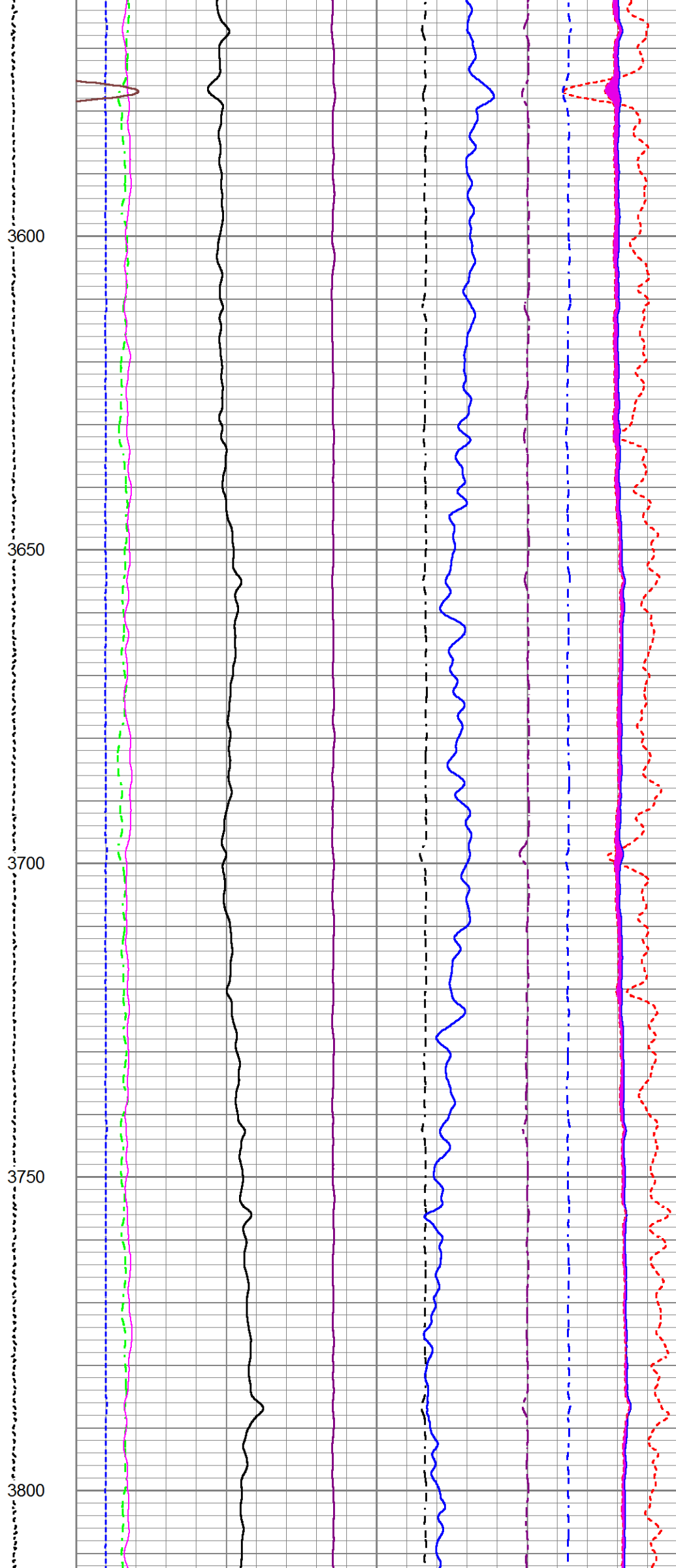
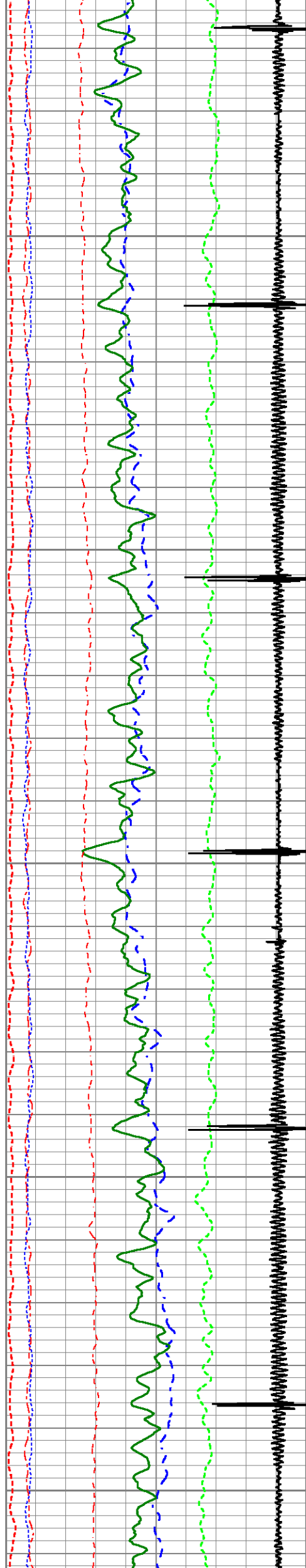


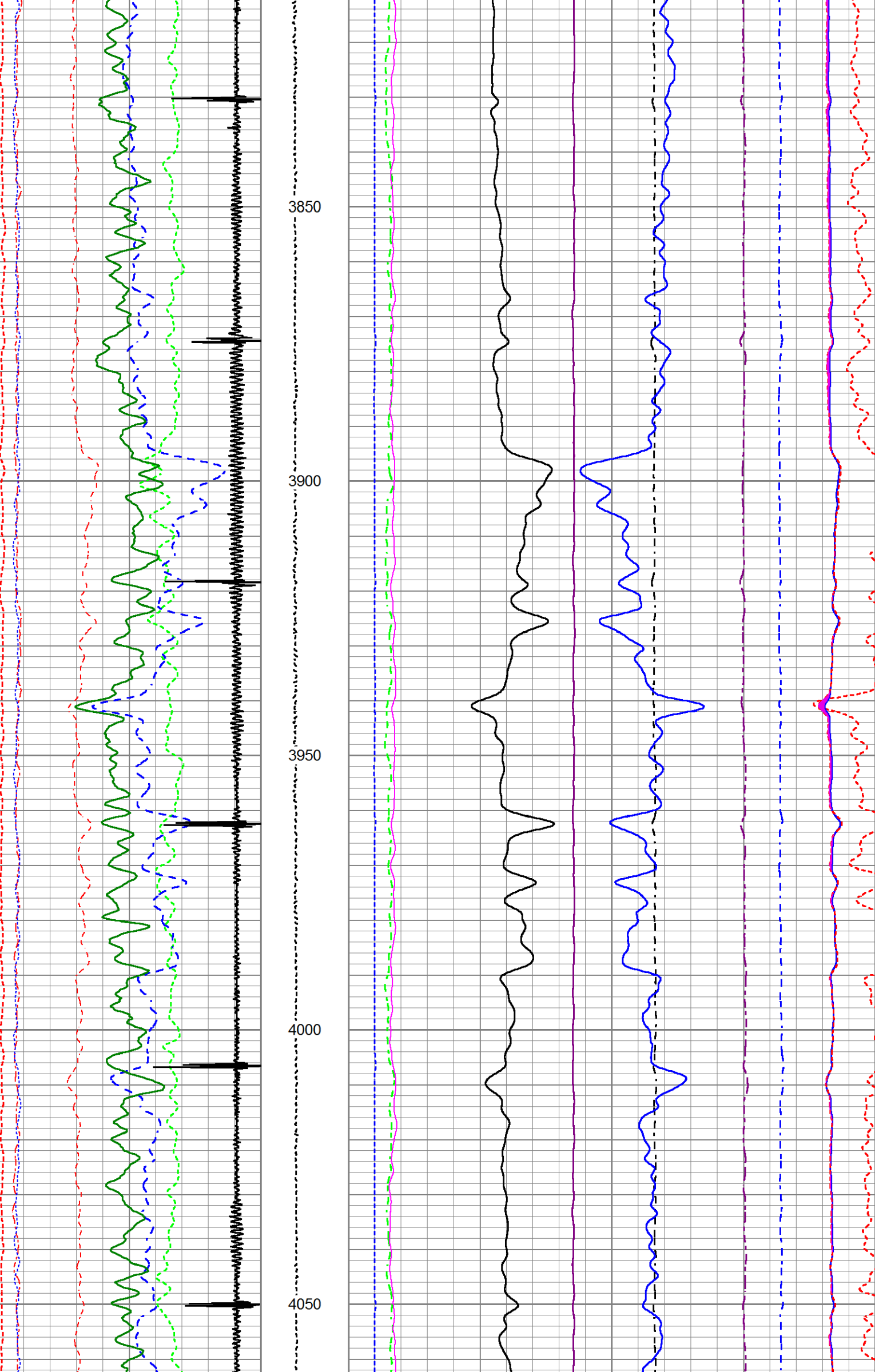


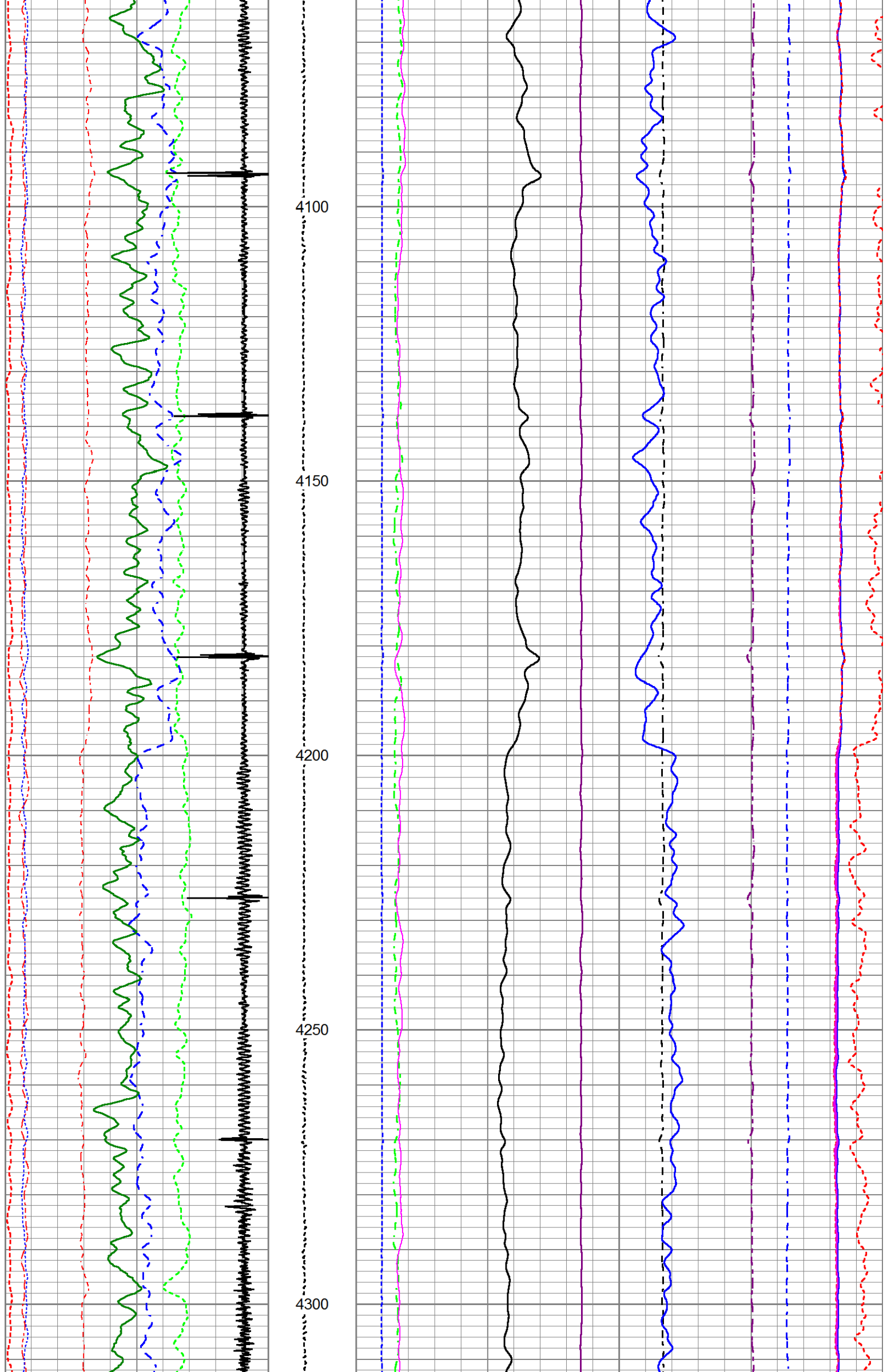


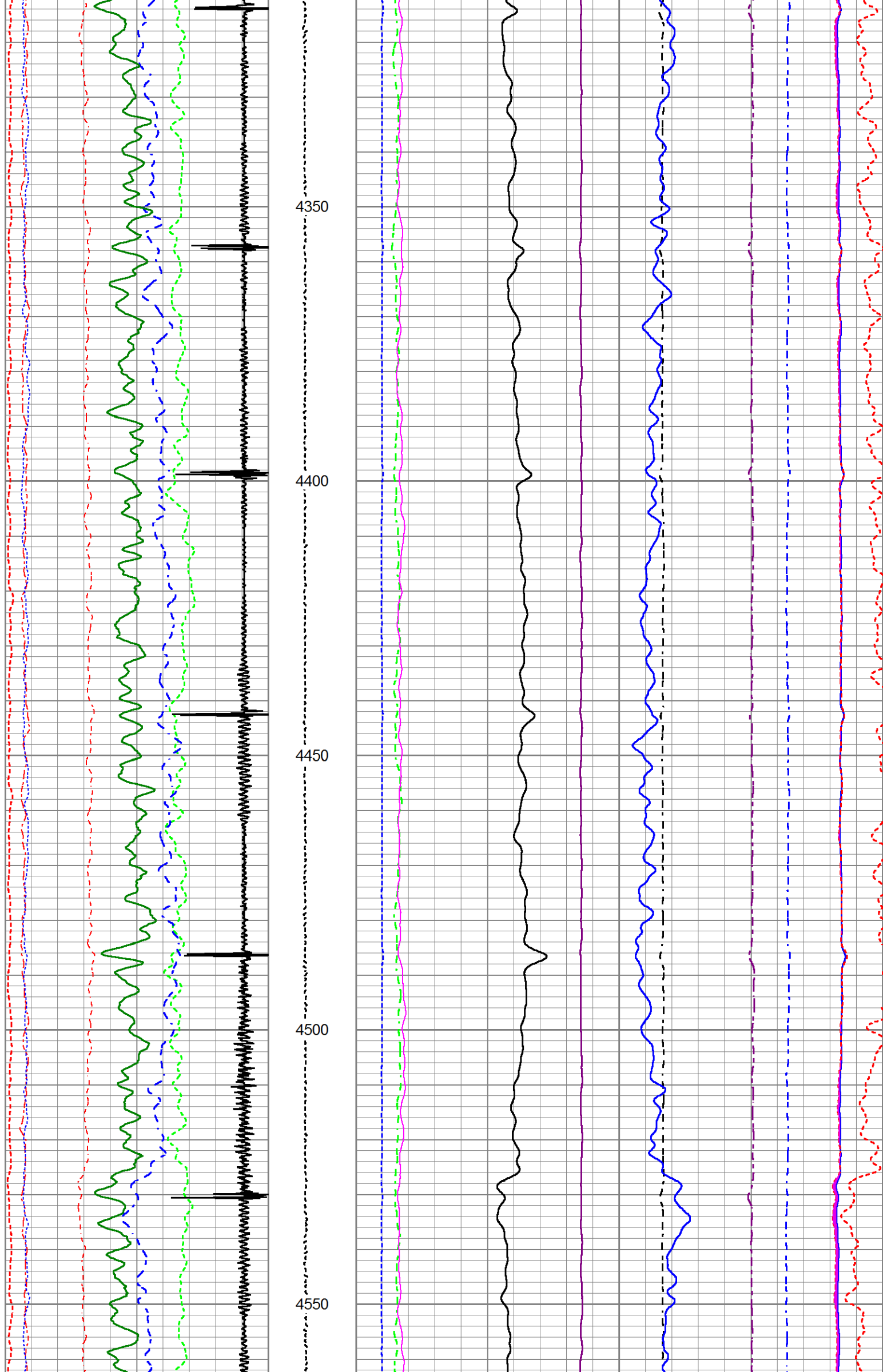


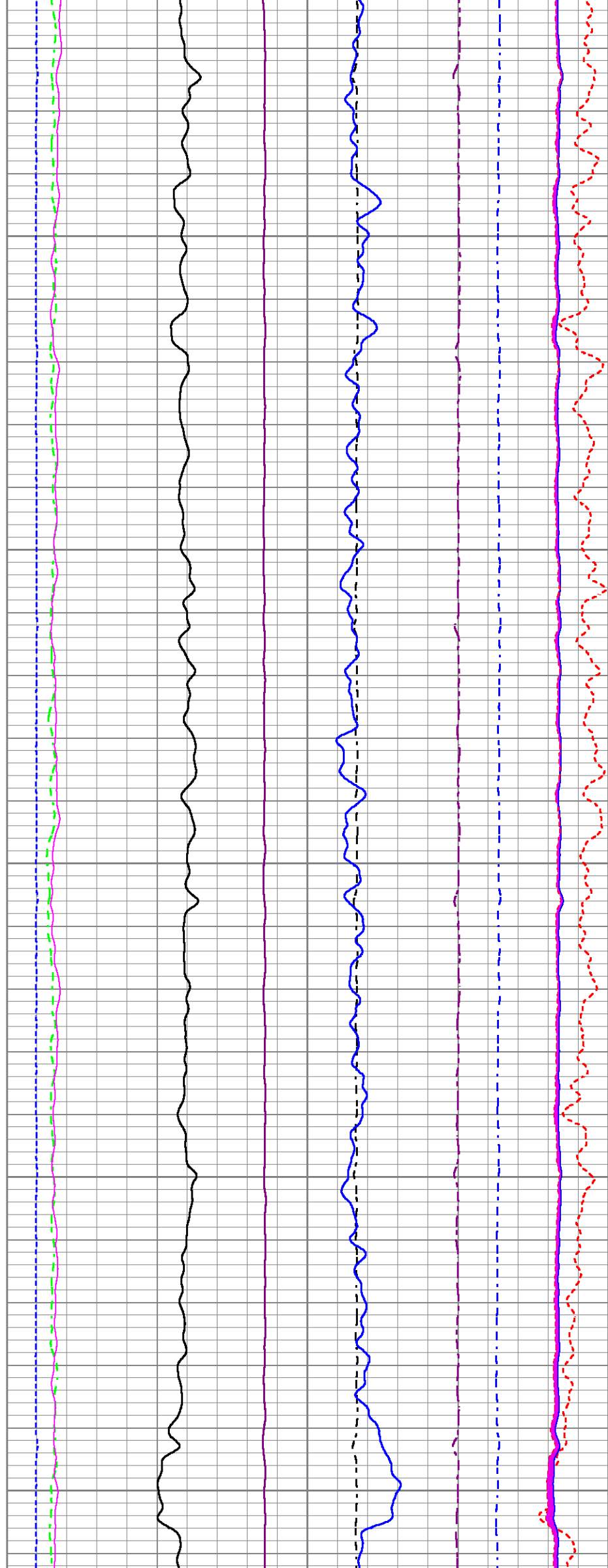
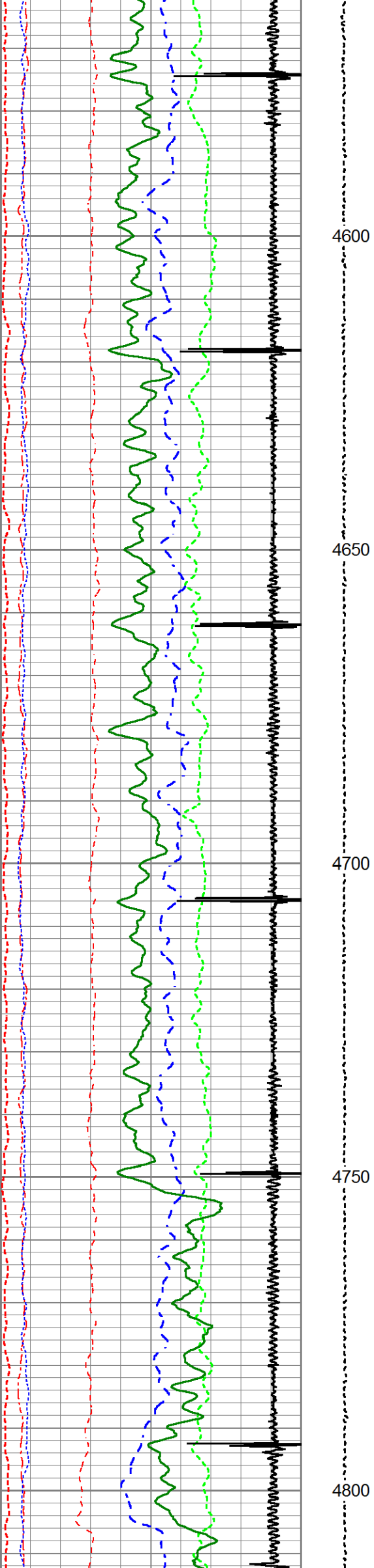


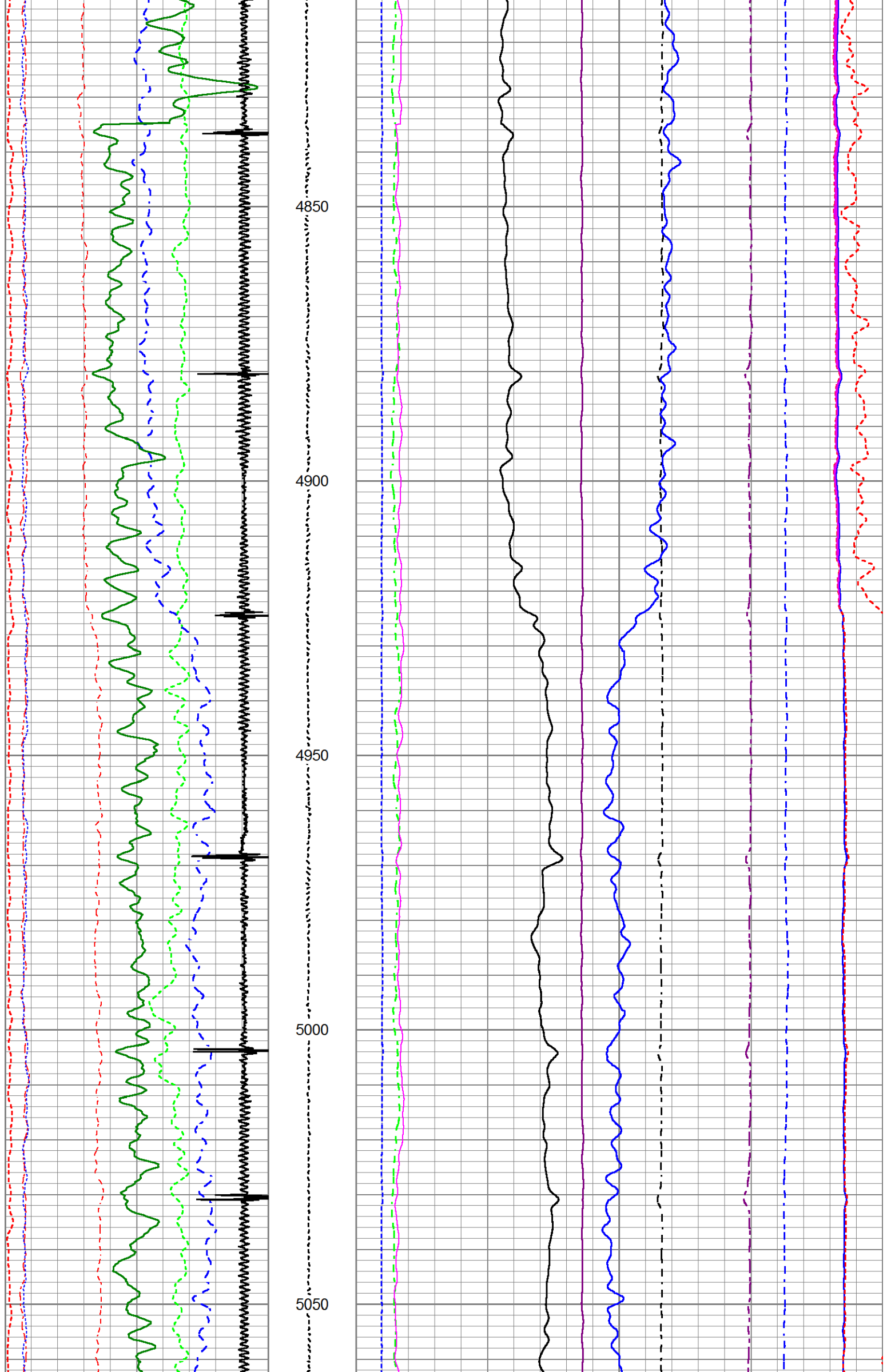


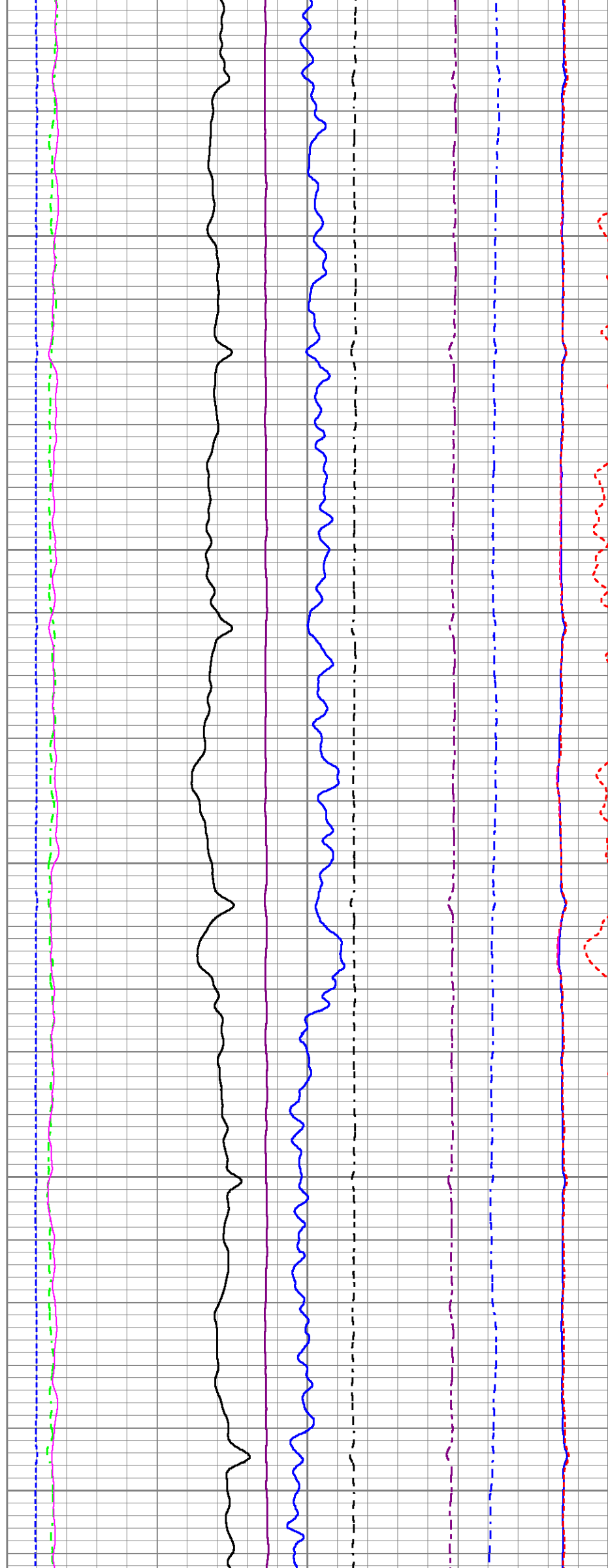
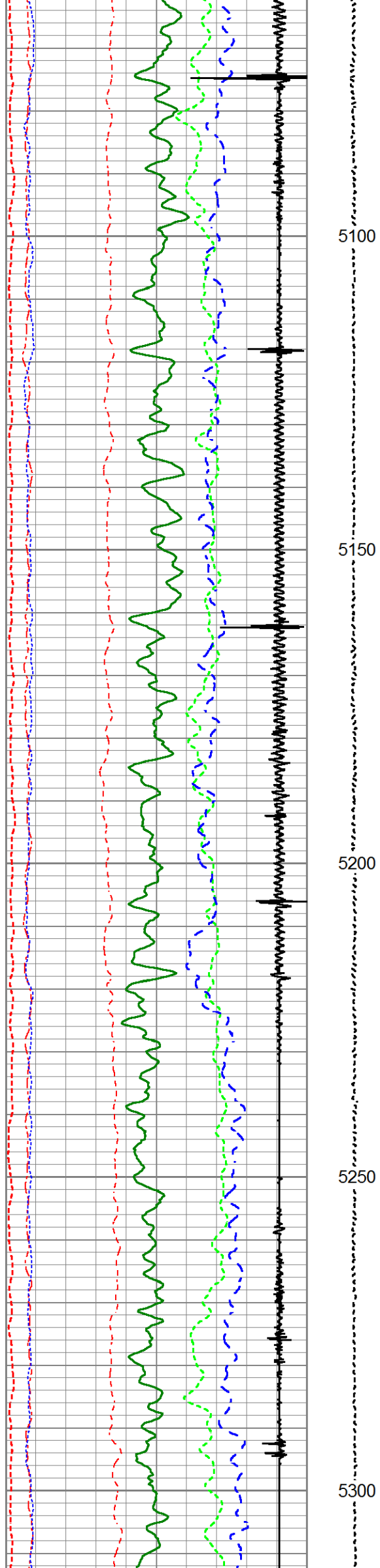


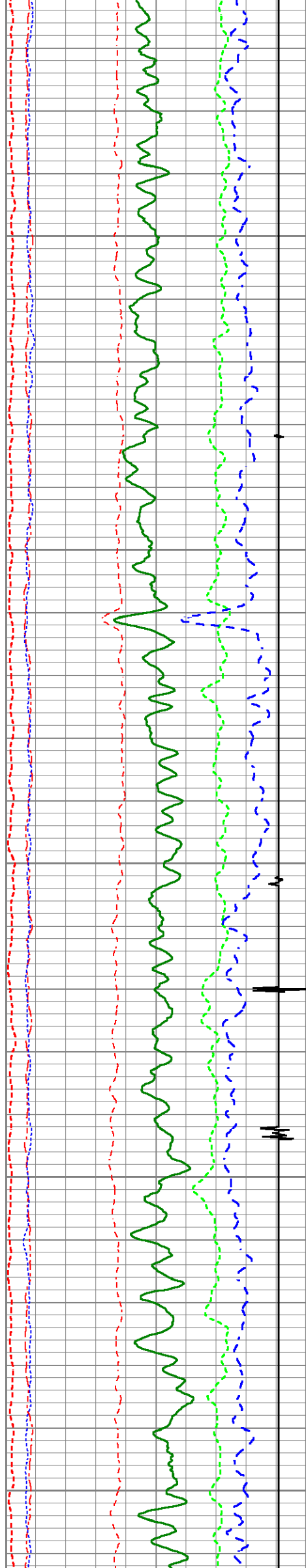












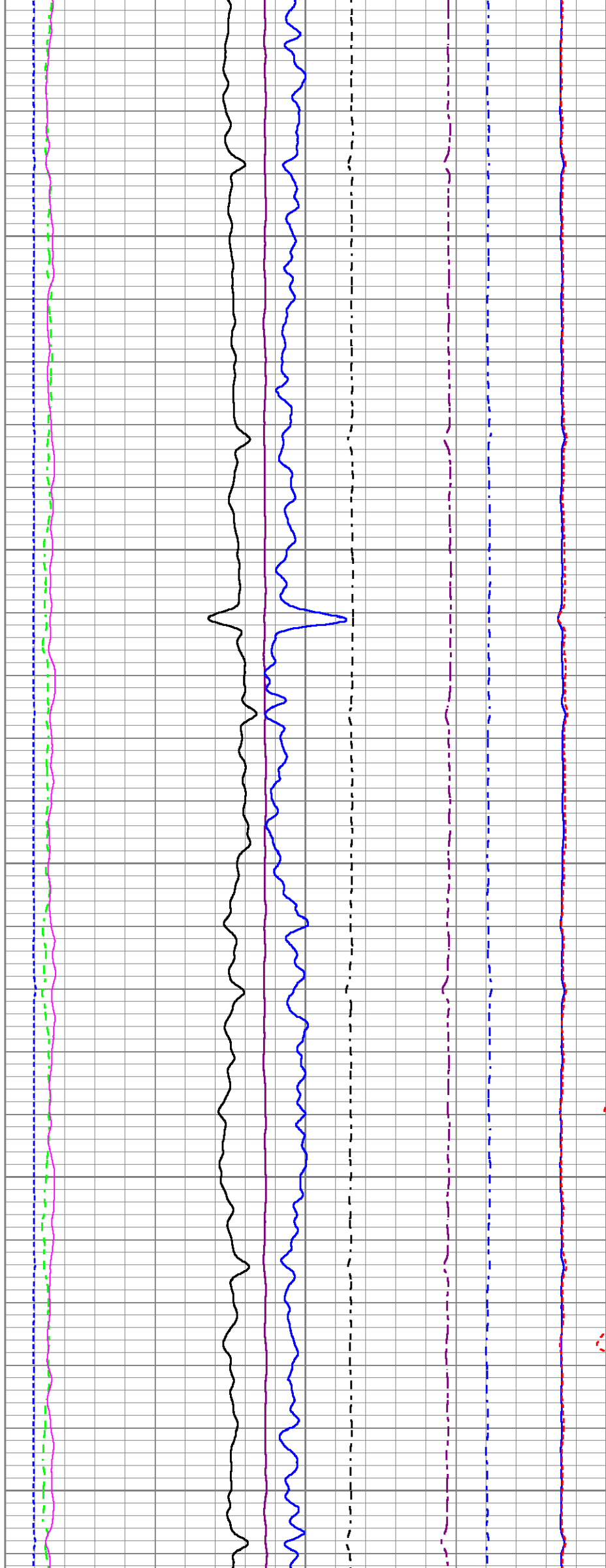
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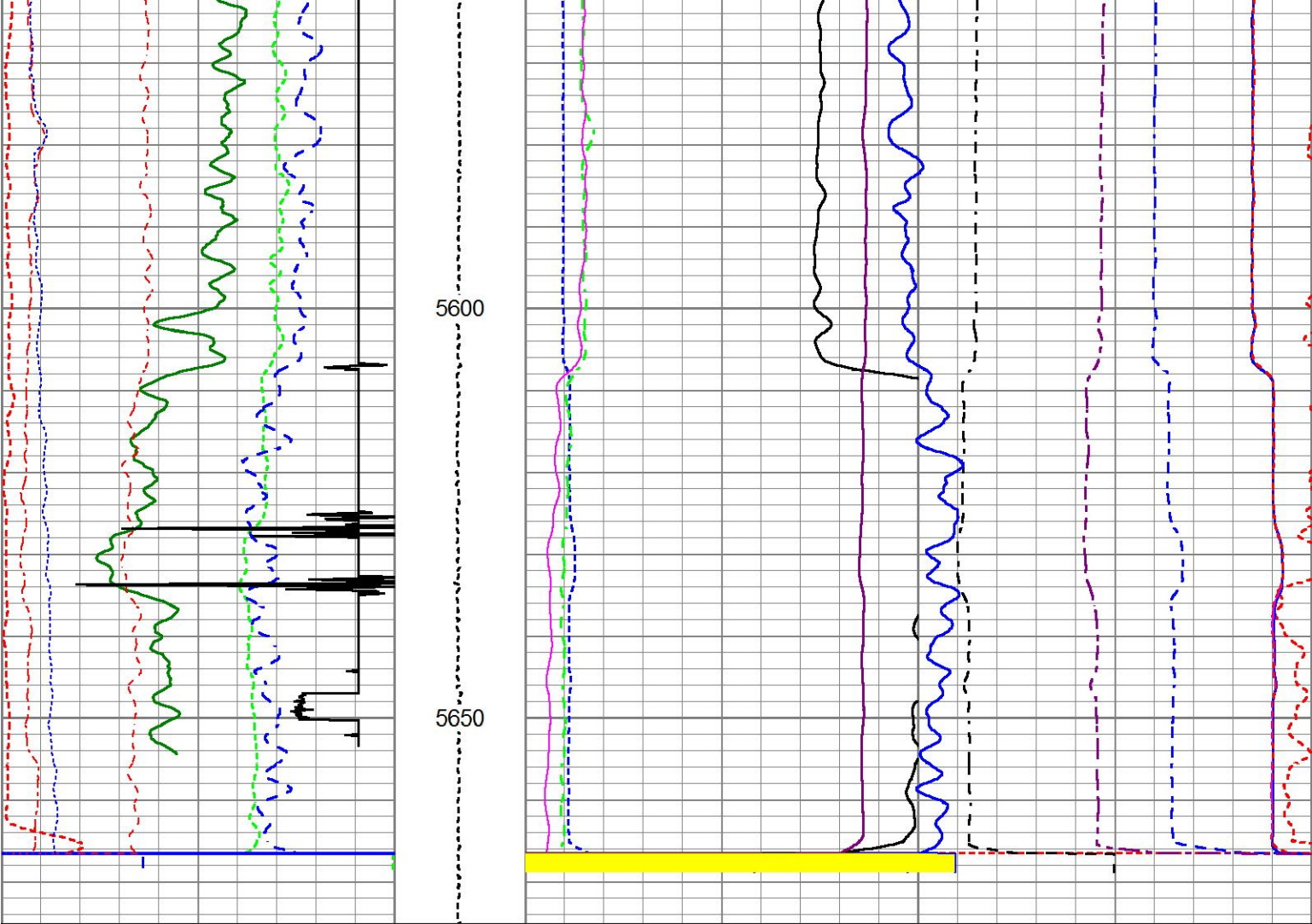
5400

5450

5500

5550





| | | | | | | | |
|------|-------------------------|------|------------|-----|---------------|------|----------------------------|
| 200 | Near Bore Si (SGBN) | 0 | TENSION | 0 | RATIO (RNF) | | 1 |
| 0 | OAI | 100 | 0 (lb.1750 | 60 | SGIN | | 0 |
| 10 | FAR FIT ERR (SGFF) | 40 | | 0 | RIN | 9 | 60000 Near Counts (NCAP) |
| 0 | GR (GAPI) | 150 | | 0 | RICF | 6 | 60000 Far Counts (FCAP) |
| 0 | NEAR FIT ERR (SGFN) | 100 | | 0 | H YIELD (YH2) | 1 | 100000 FAR INTEL CT (FSIN) |
| 2500 | CCL | -250 | | 0 | H YIELD (YH1) | 1 | 10000(NEAR INTEL CT (NSIN) |
| 0 | IN FIT ERR (CFTR1) NEAR | 1 | | 0.3 | PHIT () | -0.1 | ET INL NEAR (NNII |
| 0 | IN FIT ERR CFTR2) FAR | 1 | | | INOX2 | | 50000 -1000 |
| | | | | | -1500 | 1500 | |

MAIN PASS

5"=100'

REPEAT PASS

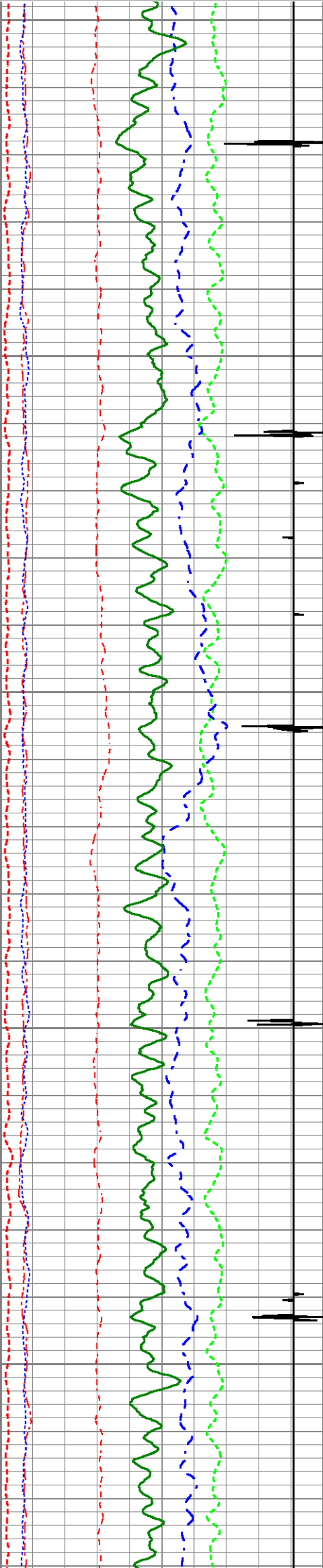
5"=100'

| | |
|---------------------|--|
| Database File | old jobs\fiducial 06-62-34-4956bh2.db |
| Dataset Pathname | WATTENBURG/Fiducial_06-62-34-4956BH2/run1/REPEAT |
| Presentation Format | RMTE_M~1 |
| Dataset Creation | Wed Oct 29 12:09:43 2014 |
| Charted by | Depth in Feet scaled 1:240 |

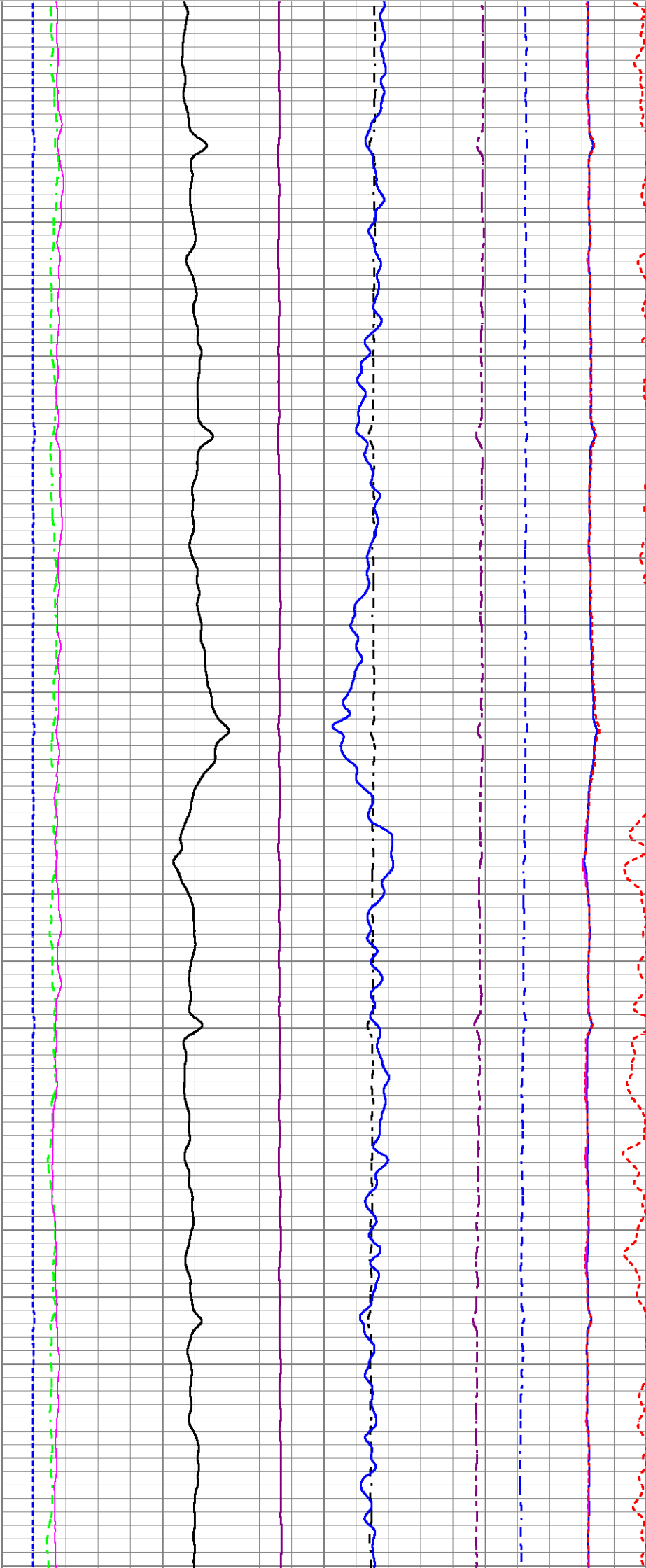
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|------|---------------------|------|------------|----|---------------|---|----------------------------|
| 200 | Near Bore Si (SGBN) | 0 | TENSION | 0 | RATIO (RNF) | | 1 |
| 0 | OAI | 100 | 0 (lb.1750 | 60 | SGIN | | 0 |
| 10 | FAR FIT ERR (SGFF) | 40 | | 0 | RIN | 9 | 60000 Near Counts (NCAP) |
| 0 | GR (GAPI) | 150 | | 0 | RICF | 6 | 60000 Far Counts (FCAP) |
| 0 | NEAR FIT ERR (SGFN) | 100 | | 0 | H YIELD (YH2) | 1 | 100000 FAR INTEL CT (FSIN) |
| 2500 | CCL | -250 | | 0 | H YIELD (YH1) | 1 | 10000(NEAR INTEL CT (NSIN) |

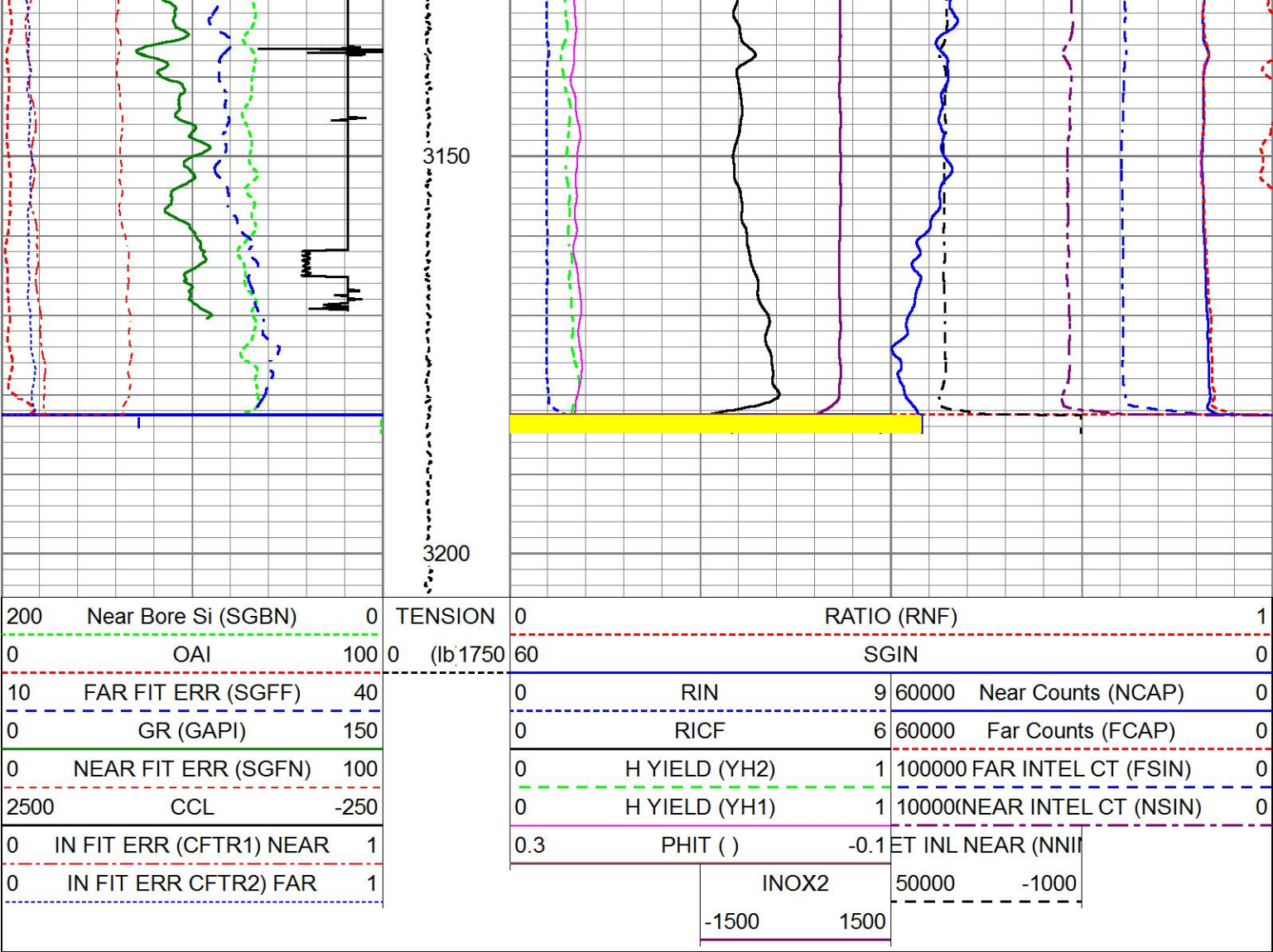
| | | |
|---|-------------------------|---|
| 0 | IN FIT ERR (CFTR1) NEAR | 1 |
| 0 | IN FIT ERR CFTR2) FAR | 1 |

| | | | |
|-----|----------|-------|------------------|
| 0.3 | PHIT () | -0.1 | ET INL NEAR (NNI |
| | INOX2 | 50000 | -1000 |
| | -1500 | 1500 | |



2900
2950
3000
3050
3100





REPEAT PASS

5"=100'

Calibration Report

Database File d:\warrior_data\old jobs\fiducial 06-62-34-4956bh2.db
Dataset Pathname WATTENBURG/Fiducial_06-62-34-4956BH2/run1/MAIN2
Dataset Creation Wed Oct 29 17:55:52 2014

Cement Bond Log Shop Calibration Report

Serial-Model: 12253831-A
Calibration Performed: Sat Aug 16 09:11:10 2014

Free Pipe Calibration

| | Measured | Units |
|---------------|----------|-------|
| TT | 261.0 | usec |
| Amplitude | 558.1 | mV |
| Log Base Line | -11.7 | mV |

Calibration References and Gain

| Name | Value | Units |
|----------------|-------|-------|
| Pipe O.D. | 5.500 | in |
| Pipe Weight | 17.0 | lb/ft |
| Pipe Ref. Amp. | 71.9 | mV |
| Amp. Gain | 0.126 | |

Reservoir Monitor Tool I Calibration Report

Serial-Model: 12270693-A


| | | | | | |
|------------------------------|------------|------------------------|------------------|-----------|------------|
| Carbon/Oxygen Mode | | | | | |
| Stabilization | | | | | |
| Result | Logged | Expected Value | Diff. | Tol. | Units |
| GENV | 80.00 | 80.00 | 0.00 | +/-15.00 | V |
| ITCR2 | 3348 | 3250 | 98 | +/-250 | cps |
| Near Detector | | | | | |
| H | Channel 60 | Expected Value 60 +/-2 | Amplitude 0.0279 | FWHM 5.18 | Tol. <6.00 |
| Fe | 207 | 206 +/-2 | 0.0950 | ----- | ----- |
| NGAIN = 0.994 NZOFF = 0.1 | | | | | |
| Far Detector | | | | | |
| H | Channel 60 | Expected Value 60 +/-2 | Amplitude 0.0350 | FWHM 5.90 | Tol. <6.50 |
| Fe | 210 | 208 +/-2 | 0.0905 | ----- | ----- |
| FGAIN = 0.989 FZOFF = 0.5 | | | | | |
| Flask Temperature | 55.4 degF | | | | |
| Result | Logged | Expected Value | Diff. | Tol. | Units |
| COIR2 | 0.45 | 0.45 | -0.00 | +/-0.02 | |
| LIRI2 | 1.65 | 1.64 | 0.01 | +/-0.05 | |
| TCCR2 | 5136 | 5000 | 136 | +/-1000 | cps |
| ITCR2 | 3310 | 3200 | 110 | +/-250 | cps |

| | | | | | |
|-----------------------|--------|----------------|-------|----------|-------|
| Sigma Mode | | | | | |
| Stabilization | | | | | |
| Result | Logged | Expected Value | Diff. | Tol. | Units |
| GENV | 80.00 | 80.00 | 0.00 | +/-15.00 | V |
| FCAP | 10167 | 10000 | 167 | +/-500 | cps |
| Horizontal Water Tank | | | | | |
| Result | Logged | Expected Value | Diff. | Tol. | Units |
| N/F Normalizer | 1.00 | 0.95 | 0.05 | | |
| N/F Inel Norm | 0.65 | 0.61 | 0.04 | | |
| RNF | 1.00 | 1.07 | -0.07 | +/-0.12 | |
| RINC | 1.55 | 1.64 | -0.09 | +/-0.18 | |
| SGFN | 24.09 | 24.00 | 0.09 | +/-0.50 | cu |
| SGFF | 22.90 | 22.85 | 0.05 | +/-0.50 | cu |
| FSIN | 24261 | 24000 | 261 | +/-2000 | cps |
| FCAP | 10213 | 10000 | 213 | +/-1000 | cps |
| NFTR | 0.86 | | | <5.00 | |
| FFTR | 0.98 | | | <5.00 | |
| NBKG | 174 | | | <500 | cps |
| FBKG | 99 | | | <500 | cps |
| RTN | 0.40 | 0.40 | 0.00 | +/-0.10 | usec |
| RTF | 0.42 | 0.40 | 0.02 | +/-0.10 | usec |

| | |
|---------------------------------------|--------------|
| Calibration Software Modules | |
| HRMTI Module | 2013.11.14.0 |
| RMTI Module | 2014.5.9.1 |
| Log Data Acquisition Software Modules | |
| HRMTI Module | 2013.11.14.0 |
| RMTI Module | 2014.5.9.1 |

| Gamma Ray Calibration Report | | | | | | |
|------------------------------|-------------|--------------------------|--------|-------|----------|--|
| Type / Serial: | | 002 / 10000538 | | | | |
| SHOP CALIBRATION | | Mon Oct 27 16:34:54 2014 | | | | |
| | Counts/Sec. | Gain | Offset | Jig | Units | |
| Background | 29.0 | | | | cps | |
| Calibrator | 179.7 | | | | cps | |
| | | 1.6128 | | | GAPI/cps | |
| PRIMARY VERIFICATION | | | | | | |
| Background | 48.4 | | | | cps | |
| Calibrator | 292.6 | | | | cps | |
| Difference | | | | 244.1 | GAPI | |
| BEFORE SURVEY VERIFICATION | | | | | | |
| Background | 0.0 | | | | cps | |
| Calibrator | 0.0 | | | | cps | |
| Difference | | | | 0.0 | GAPI | |
| AFTER SURVEY VERIFICATION | | | | | | |
| Background | 0.0 | | | | cps | |
| Calibrator | 0.0 | | | | cps | |
| Difference | | | | 0.0 | GAPI | |

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) |
|-------------|-------------|-----------|--|-------------|-----------|-------------|
| CCL | 35.74 | | STNDCH-STND_CH 1.4375 IN CABLE HEAD | 1.50 | 1.44 | 1.00 |
| GR | 33.48 | | | | | |
| RmtTFGT | 22.83 | | | | | |
| RmtFBACK | 22.83 | | | | | |
| RmtFCAPT | 22.83 | | | | | |
| RmtFINEL | 22.83 | | | | | |
| RmtTNGT | 22.33 | | | | | |
| RmtNBACK | 22.33 | | TTTCU-002 (10000538) Through Tubing Telemetry Cartridge - Ultrawire | 7.65 | 1.69 | 100.00 |
| RmtNCAPT | 22.33 | | | | | |
| RmtNINEL | 22.33 | | | | | |
| TLINICNT | 14.58 | | | | | |
| RImpBTEST | 14.58 | | | | | |
| RImpBCYC | 14.58 | | | | | |
| RImpBRGW | 14.58 | | XHU-003 (10008856) Crossover Halliburton 1553 to Ultrawire | 1.58 | 1.69 | 7.00 |
| RImpBRGO | 14.58 | | | | | |
| RImpState | 14.58 | | | | | |
| RImpPhase | 14.58 | | | | | |
| RImpCyc | 14.58 | | | | | |
| RmtGenClamp | 14.58 | | | | | |
| RmtFTemp | 14.58 | | | | | |
| RmtFP5V | 14.58 | | | | | |
| RmtFPMHV | 14.58 | | | | | |
| RmtFPMI | 14.58 | | | | | |
| RmtFPrgSt1 | 14.58 | | | | | |
| RmtFDetStat | 14.58 | | | | | |
| RmtNTemp | 14.58 | | RMTI-A (12270693) Halliburton RMTI Tool | 14.00 | 2.13 | 77.00 |
| RmtNPMHV | 14.58 | | | | | |
| RmtNPMI | 14.58 | | | | | |
| RmtNPrgSt1 | 14.58 | | | | | |
| RmtNDetStat | 14.58 | | | | | |
| RmtGenIonl | 14.58 | | | | | |
| RmtGen15Bus | 14.58 | | | | | |
| RmtGenLvds | 14.58 | | | | | |
| RmtGenSync | 14.58 | | | | | |
| RmtGenClamp | 14.58 | | | | | |
| RmtGenP5V | 14.58 | | | | | |

| Item | Length (ft) | Weight (lb) | Diameter (in) | Notes |
|--|-------------|-------------|---------------|-------|
| RmtGenP5V | 14.58 | | | |
| RmtGenP33V | 14.58 | | | |
| RmtGen200V | 14.58 | | | |
| RmtGenP15VI | 14.58 | | | |
| RmtGenTemp | 14.58 | | | |
| RmtGenP5VI | 14.58 | | | |
| RmtGenI | 14.58 | | | |
| RmtGenPv | 14.58 | | | |
| RmtGenCmd | 14.58 | | | |
| RmtGenIspl | 14.58 | | | |
| RmtGenIsppv | 14.58 | | | |
| RmtGenIsppcm | 14.58 | | | |
| RmtGenRepPv | 14.58 | | | |
| RmtGenRepSv | 14.58 | | | |
| RmtGenContSt | 14.58 | | | |
| RmtCommFWa | 14.58 | | | |
| RmtCommFlask | 14.58 | | | |
| Temp | 9.49 | | | |
| TT3FT | 7.24 | | | |
| AMP3FT | 7.24 | | | |
| WVF5FT | 6.28 | | | |
| FrameCnt | 2.76 | | | |
| TLINICNT | 39.31 | | | |
| CblCTT | 356.20 | | | |
| CblCCsgWgt | 3.13 | | | |
|  | | | | |
| <p>X-OVER-GoxSondex Go Box x Sondex Pin CrossOver</p> <p>CENT-CASTM-CENT CAST M INLINE CENTRALIZER</p> <p>HCBLM-A (12253831) Halliburton HCBLM Tool</p> <p>CENT-CASTM-CENT CAST M INLINE CENTRALIZER</p> <p>AUH-001 (000001) Adaptor Ultrawire/Halliburton</p> <p>BUL-006 (000002) Bullnose Terminator</p> | | | | |
| <p>fiducial 06-62-34-4956bh2.db: WATTENBURG/Fiducial_06-62-34-4956BH2/run1/MAIN2</p> | | | | |

| | | | |
|--------------------|--|-------|----|
| Company | BILL BARRETT CORPORATION | | |
| Well | FIDUCIAL 06-62-34-4956BH2 | | |
| Field | WATTENBERG | | |
| County | WELD | State | CO |
| HALLIBURTON | RESERVOIR MONITOR TOOL i CAPTURE (MODE) | | |

RESERVOIR MONITOR
TOOL | CAPTURE (MODE)