

**Company: Lamont Doherty**

**Well: Expedition 317 Site U1351C**  
**Field: Canterbury Basin**  
**Rig: JOIDES Resolution**      **Ocean: Pacific**

## Litho-Density

**Rig:** JOIDES Resolution  
**Field:** Canterbury Basin  
**Location:** Latitude: S 44° 53.044'  
**Well:** Expedition 317 Site U1351C  
**Company:** Lamont Doherty

|                               |                       |                         |                         |
|-------------------------------|-----------------------|-------------------------|-------------------------|
| <b>LOCATION</b>               |                       |                         |                         |
| Latitude: S 44° 53.044'       | Elev.: K.B. 133.50 m  |                         |                         |
| Longitude: E 171° 50.408'     | G.L. 0.00 m           |                         |                         |
|                               | D.F. 133.50 m         |                         |                         |
| Permanent Datum: _____        | Sea Floor _____       |                         |                         |
| Log Measured From: _____      | Drill Floor _____     |                         |                         |
| Drilling Measured From: _____ | Drill Floor _____     |                         |                         |
| API Serial No. _____          | Max. Hole Devi. 0 deg | Longitude S 44° 43.044' | Latitude E 171° 50.408' |

|                             |                   |  |  |
|-----------------------------|-------------------|--|--|
| Logging Date                | 28-Nov-2009       |  |  |
| Run Number                  | 1                 |  |  |
| Depth Driller               | 967.2 m           |  |  |
| Schlumberger Depth          | 785 m             |  |  |
| Bottom Log Interval         | 782.5 m           |  |  |
| Top Log Interval            | 84.6 m            |  |  |
| Casing Driller Size @ Depth | 4.500 in @ 84.6 m |  |  |
| Casing Schlumberger         | 84.6 m            |  |  |
| Bit Size                    | 11.438 in         |  |  |
| Type Fluid In Hole          | Seawater Gel      |  |  |
| Density                     | 1.258 g/cm3       |  |  |
| Fluid Loss                  | PH                |  |  |
| Source Of Sample            | N/A               |  |  |

|                               |                      |             |         |   |
|-------------------------------|----------------------|-------------|---------|---|
| RM @ Measured Temperature     | @                    |             | @       |   |
| RMF @ Measured Temperature    | @                    |             | @       |   |
| RMC @ Measured Temperature    | @                    |             | @       |   |
| Source RMF                    | RMC                  |             |         |   |
| RM @ MRT                      | RMF @ MRT            |             |         |   |
| Maximum Recorded Temperatures | 15 degC              | @ 15        | @ 15    | @ |
| Circulation Stopped           | Time                 | 24-Nov-2009 | 11:00   |   |
| Logger On Bottom              | Time                 | 28-Nov-2009 | 7:00    |   |
| Unit Number                   | Location             | 625003      | Houston |   |
| Recorded By                   | C. Furman            |             |         |   |
| Witnessed By                  | A. Slagle, G. Guerin |             |         |   |

|                               |                      |             |         |       |       |
|-------------------------------|----------------------|-------------|---------|-------|-------|
| Logging Date                  | 28-Nov-2009          |             |         | Run 1 | Run 2 |
| Run Number                    | 1                    |             |         |       |       |
| Depth Driller                 | 967.2 m              |             |         |       |       |
| Schlumberger Depth            | 785 m                |             |         |       |       |
| Bottom Log Interval           | 782.5 m              |             |         |       |       |
| Top Log Interval              | 84.6 m               |             |         |       |       |
| Casing Driller Size @ Depth   | 4.500 in @ 84.6 m    |             |         |       |       |
| Casing Schlumberger           | 84.6 m               |             |         |       |       |
| Bit Size                      | 11.438 in            |             |         |       |       |
| Type Fluid In Hole            | Seawater Gel         |             |         |       |       |
| Density                       | 1.258 g/cm3          |             |         |       |       |
| Fluid Loss                    | PH                   |             |         |       |       |
| Source Of Sample              | N/A                  |             |         |       |       |
| RM @ Measured Temperature     | @                    |             | @       |       |       |
| RMF @ Measured Temperature    | @                    |             | @       |       |       |
| RMC @ Measured Temperature    | @                    |             | @       |       |       |
| Source RMF                    | RMC                  |             |         |       |       |
| RM @ MRT                      | RMF @ MRT            |             |         |       |       |
| Maximum Recorded Temperatures | 15 degC              | @ 15        | @ 15    | @     |       |
| Circulation Stopped           | Time                 | 24-Nov-2009 | 11:00   |       |       |
| Logger On Bottom              | Time                 | 28-Nov-2009 | 7:00    |       |       |
| Unit Number                   | Location             | 625003      | Houston |       |       |
| Recorded By                   | C. Furman            |             |         |       |       |
| Witnessed By                  | A. Slagle, G. Guerin |             |         |       |       |

**DISCLAIMER**

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1  
 OS1: DIT  
 OS2: HNGS

**REMARKS: RUN NUMBER 1**

Logs run in third hole ("C" hole) of drilling site U1351 to aid in depth correlation of core data collected in surface labs.  
 Average heave during the run was up to 0.9m; Active Heave Compensator used.  
 Cable became stuck (collapsed formation above tool) as tool reached approx. 915m during the down log.  
 Downgoing Log data provided as per client request -- APS Minitron was OFF; Caliper was CLOSED.  
 TD was not reached; no upgoing logging passes could be performed due to hole conditions.  
 Density data not corrected for hole size -- caliper closed during downlog.  
 Density pad contact with borehole may not be reliable; tool eccentered only by bowspring below APS.  
 Density data should be used for QUALITATIVE purposes only; actual values may be unreliable from a downlog.




Depth "Zero" reference adjusted to Sea Bed picked by client.  
 Depths shown are measured depth below sea floor, as per client request.

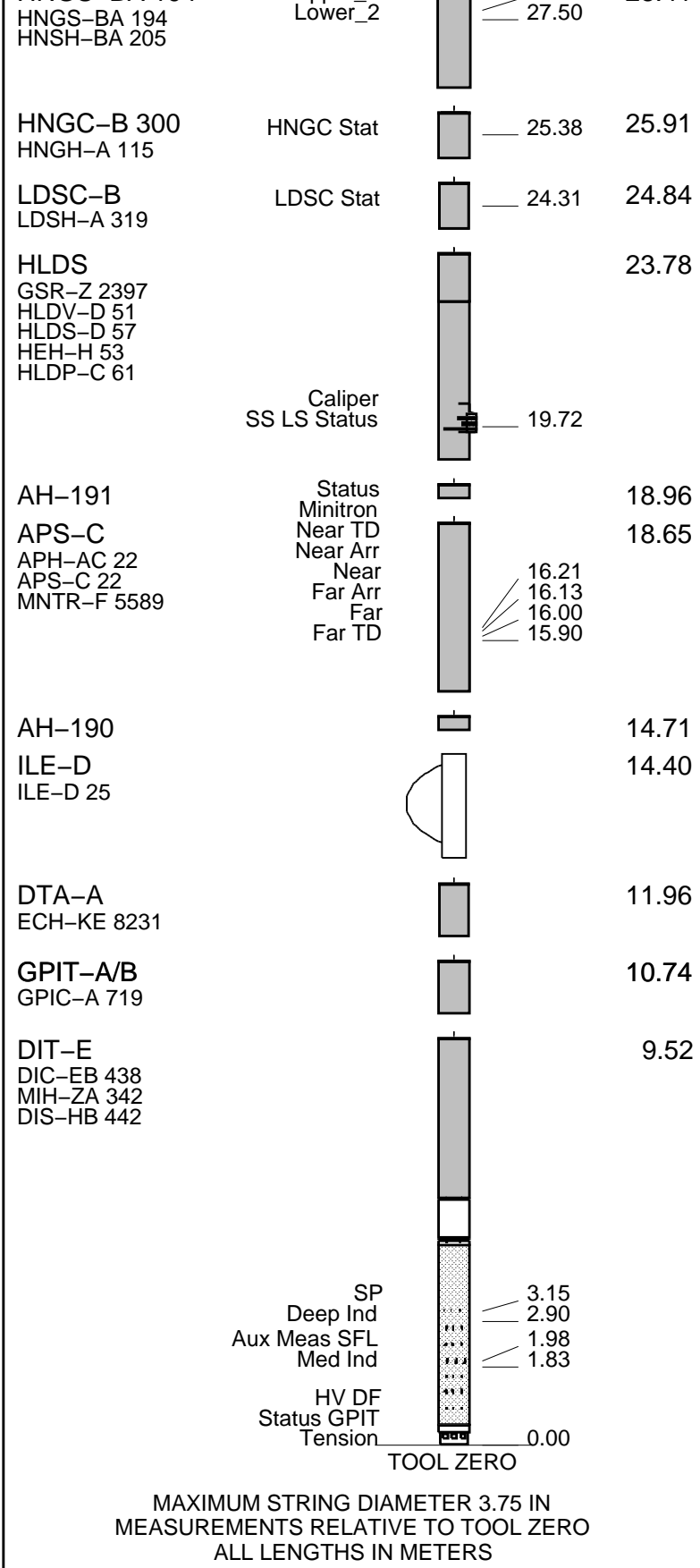
DOWNLOG DATA

| RUN 1                     |       |      | RUN 2            |       |      |
|---------------------------|-------|------|------------------|-------|------|
| SERVICE ORDER #:          |       |      | SERVICE ORDER #: |       |      |
| PROGRAM VERSION: 17C0-154 |       |      | PROGRAM VERSION: |       |      |
| FLUID LEVEL:              |       |      | FLUID LEVEL:     |       |      |
| LOGGED INTERVAL           | START | STOP | LOGGED INTERVAL  | START | STOP |
|                           |       |      |                  |       |      |
|                           |       |      |                  |       |      |
|                           |       |      |                  |       |      |

**EQUIPMENT DESCRIPTION**

| RUN 1  | RUN 2 |
|--|-------|
| <b>SURFACE EQUIPMENT</b>                               |       |
| SFT-281 2<br>SFT-178 2<br>GSR-U 616008<br>WITM (DTS)-A |       |

| DOWNHOLE EQUIPMENT |           |   |             |
|--------------------|-----------|---|-------------|
| LEH-QT             |           |  | 30.21       |
| LEH-QT 301         |           |   |             |
| DTC-H              | CTEM      |  | 29.04       |
| ECH-KC 2304        | TelStatus | —   | 29.32       |
|                    | ToolStatu | —   | 28.41       |
| HNGS-BA 194        | Upper 1   |  | 27.71 28.41 |



| Production String | (in) | (m) | Well Schematic | (m) | (in) | Casing String |
|-------------------|------|-----|----------------|-----|------|---------------|
|                   | SP   | Ind |                | MD  | MD   |               |

Kelly Bushing Elevation

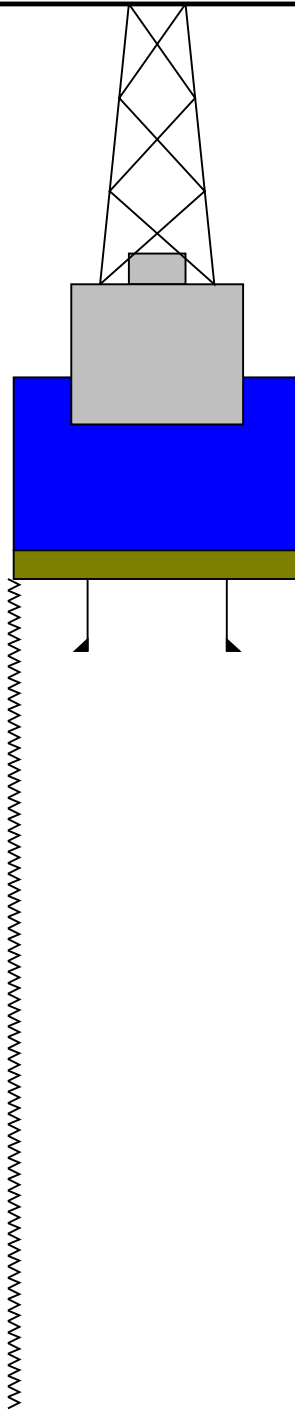
Derrick Floor Elevation

Mean Sea Level

0.0

0.0

11.0



132.7

11.340

218.1

5.500

Sea Bed

"Bit" Depth (open pipe)

1100.7

11.340

Total Depth - Driller

**Schlumberger**

**Down Log**

MAXIS Field Log

**Input DLIS Files**

|         |                       |       |          |                   |         |        |
|---------|-----------------------|-------|----------|-------------------|---------|--------|
| DEFAULT | PI_APS_LDL_NGS_014PUP | FN:14 | PRODUCER | 06-Dec-2009 12:31 | 934.8 M | 91.4 M |
|---------|-----------------------|-------|----------|-------------------|---------|--------|

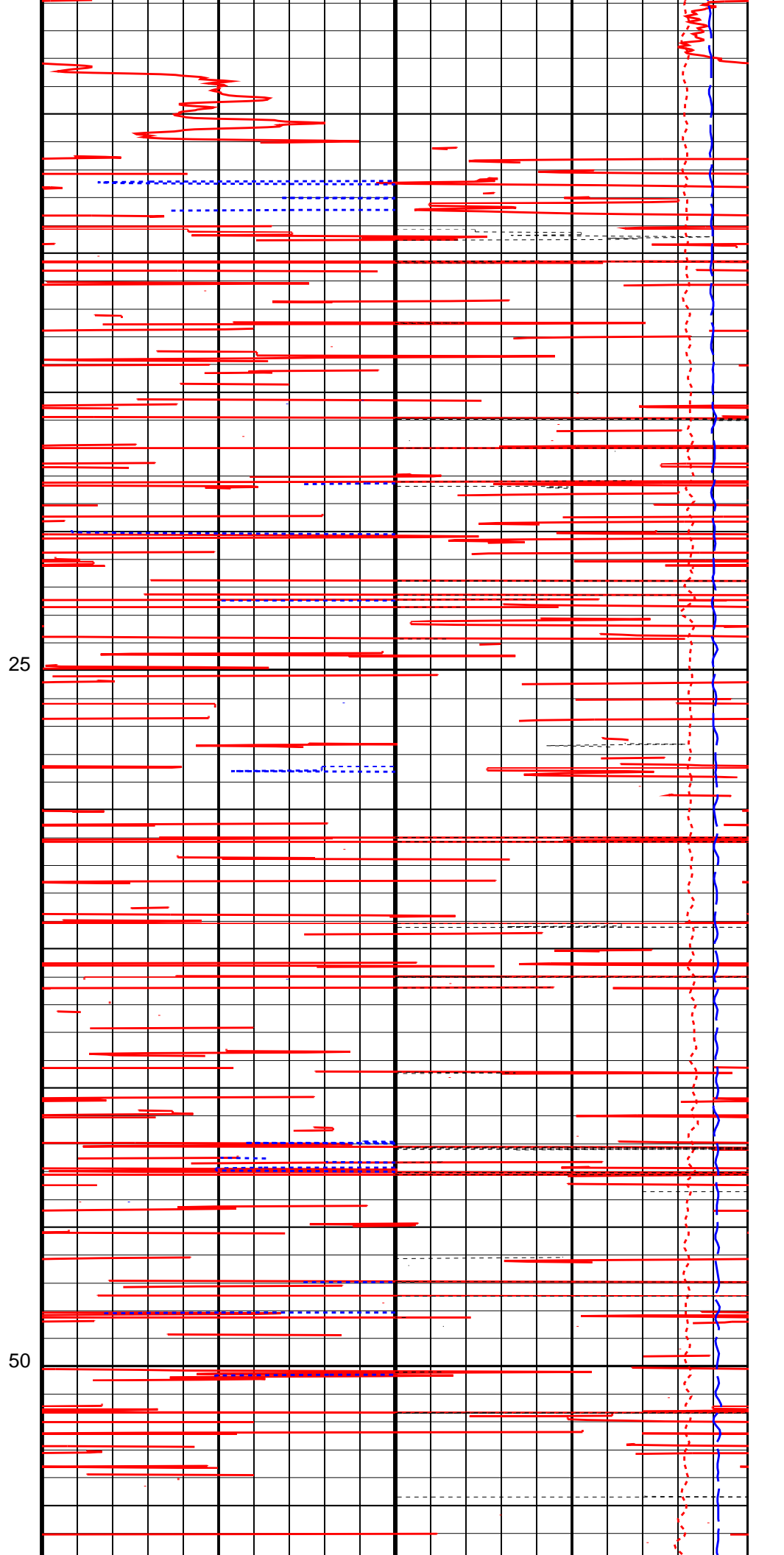
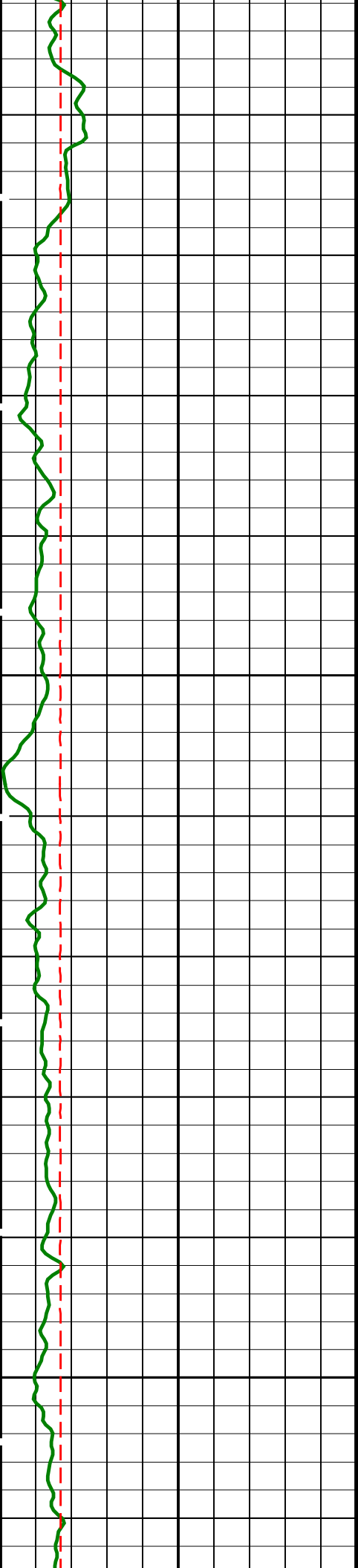
**Output DLIS Files**

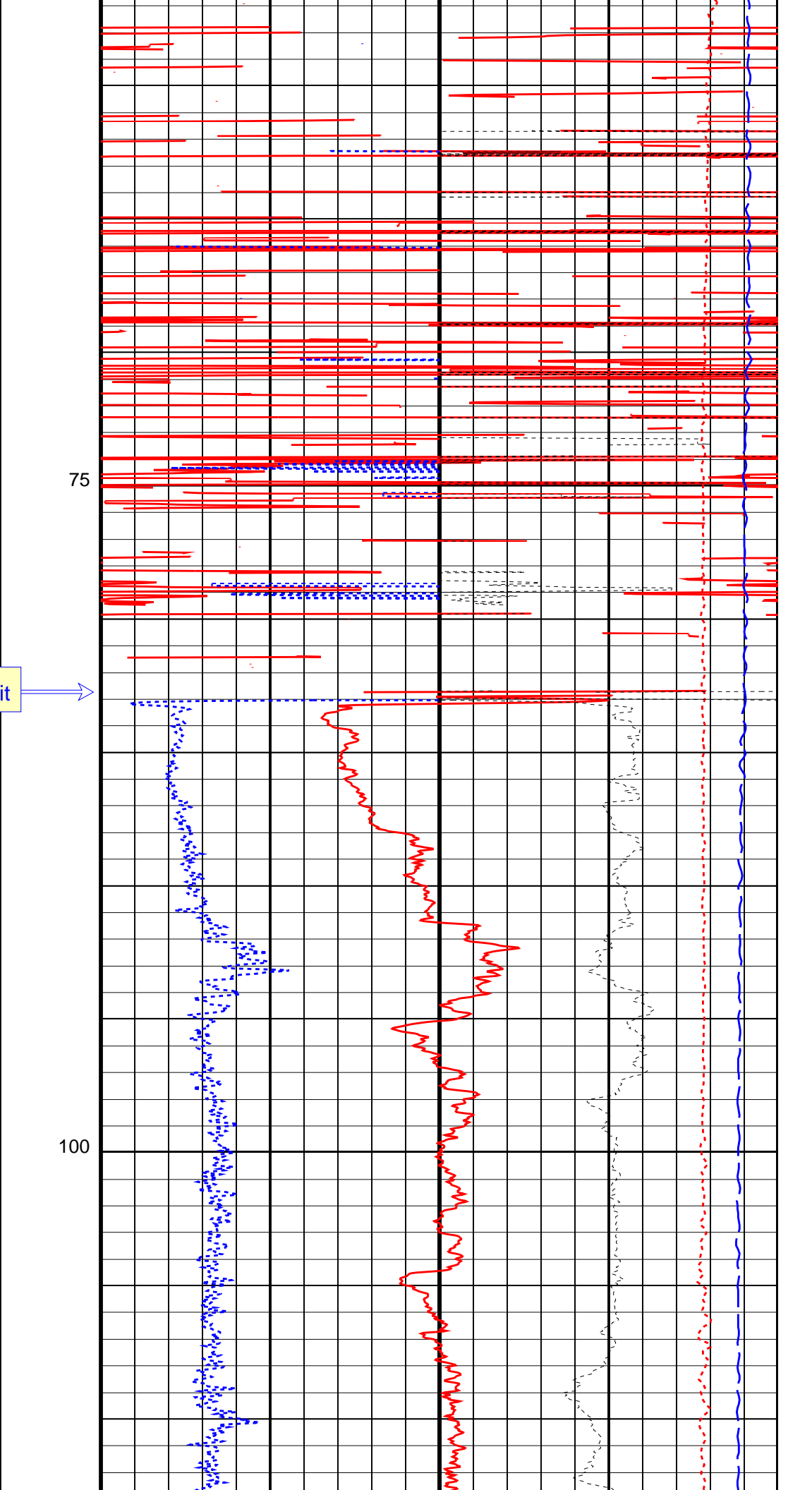
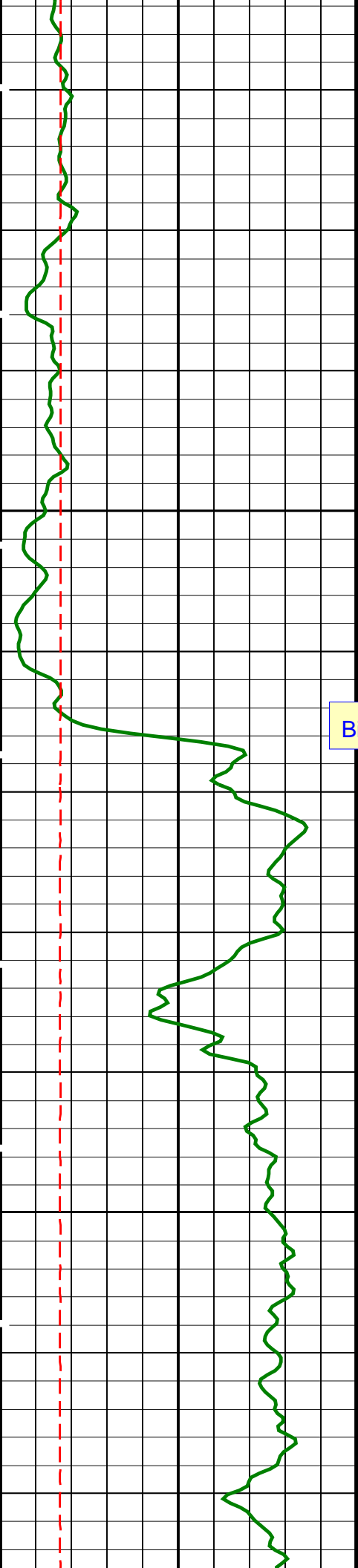
|         |                       |       |          |                   |         |         |
|---------|-----------------------|-------|----------|-------------------|---------|---------|
| DEFAULT | PI_APS_LDL_NGS_022PUP | FN:22 | PRODUCER | 31-Dec-2009 21:37 | 802.4 M | -42.1 M |
|---------|-----------------------|-------|----------|-------------------|---------|---------|

**OP System Version: 17C0-154**

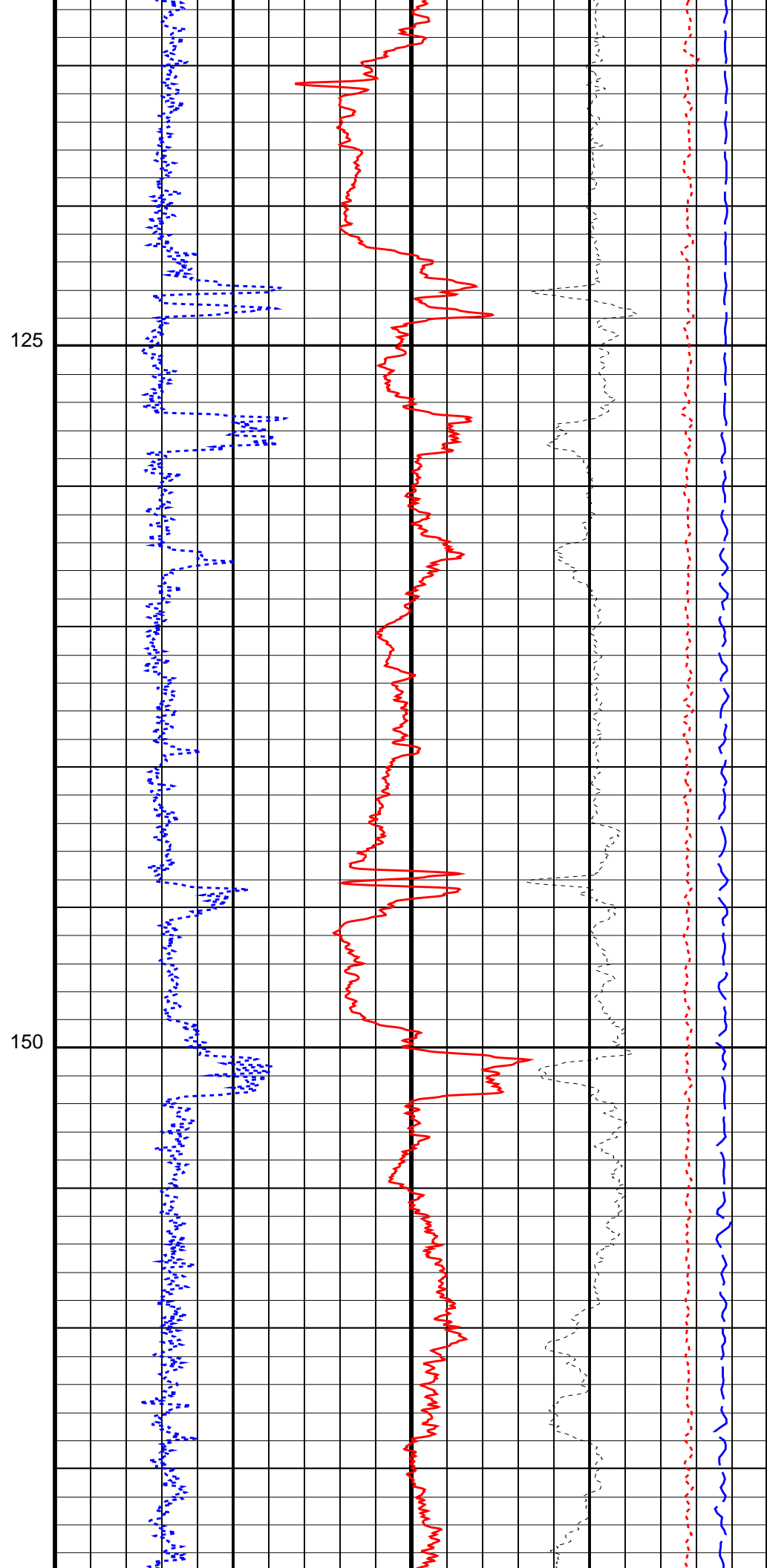
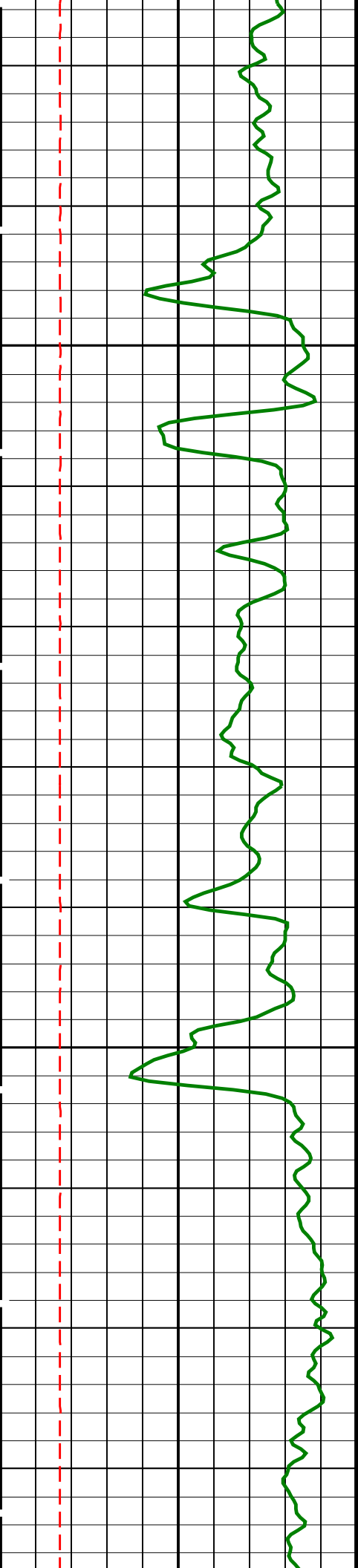
|        |          |          |                             |
|--------|----------|----------|-----------------------------|
| DIT-E  | 17C0-154 | GPIT-A/B | SRPC-3870_Q3_2009_OP17_V3_b |
| DTA-A  | 17C0-154 | APS-C    | 17C0-154                    |
| HLDS   | 17C0-154 | LDSC-B   | 17C0-154                    |
| HNGC-B | 17C0-154 | HNGS-BA  | 17C0-154                    |
| DTC-H  | 17C0-154 |          |                             |

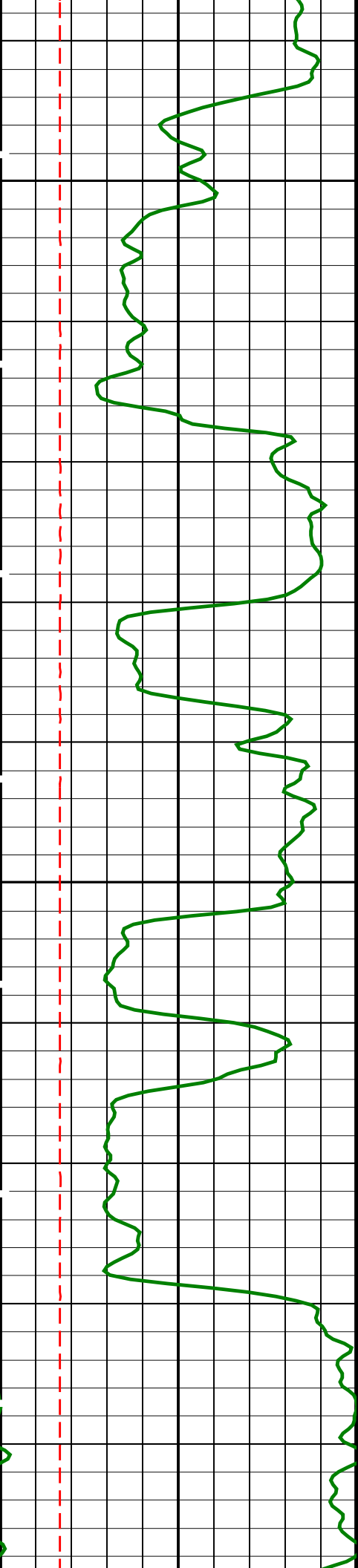






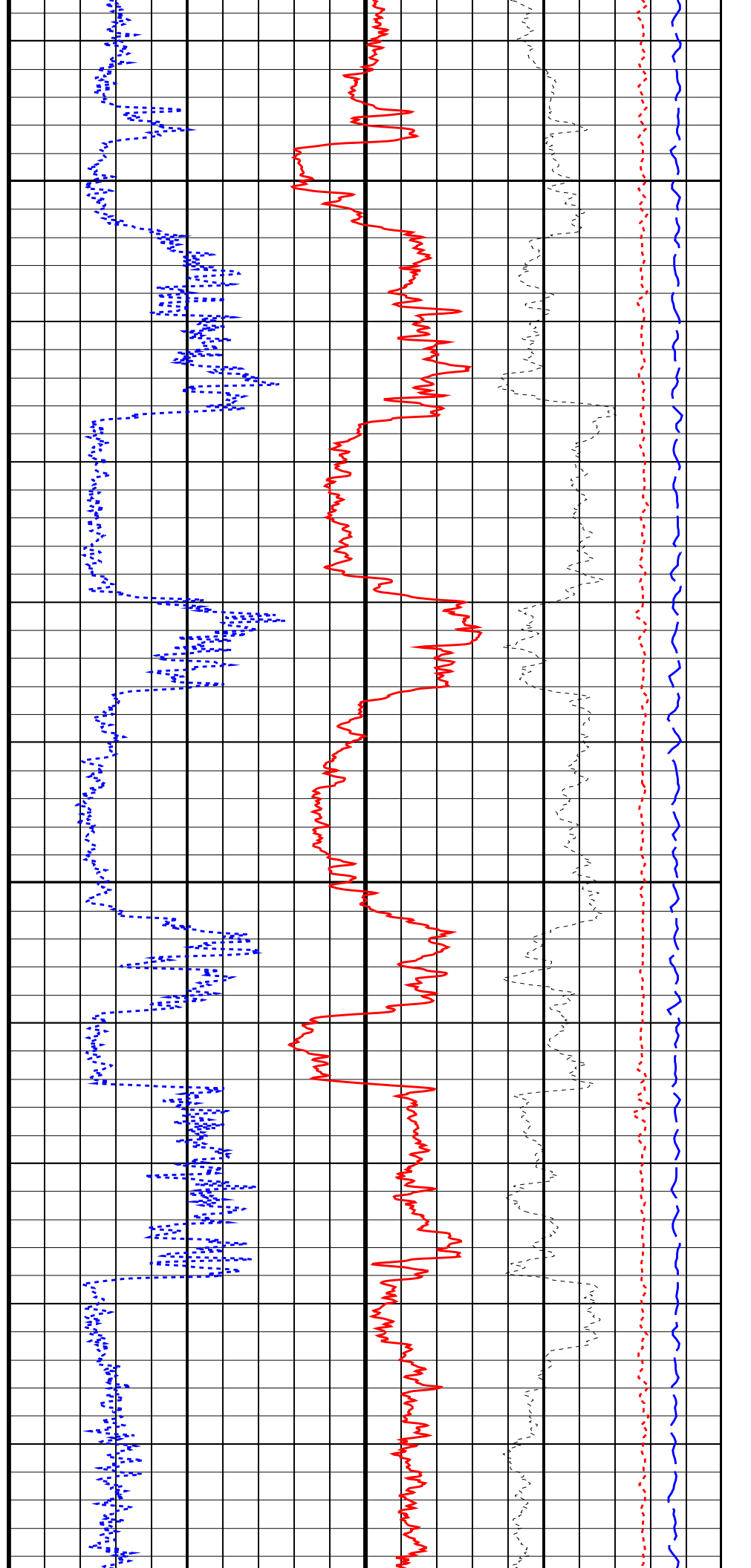


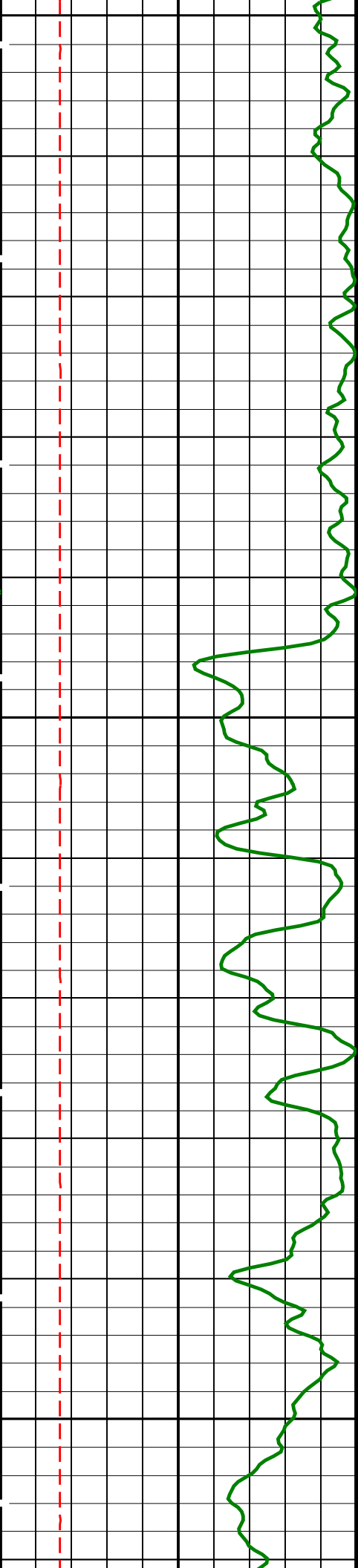




175

200

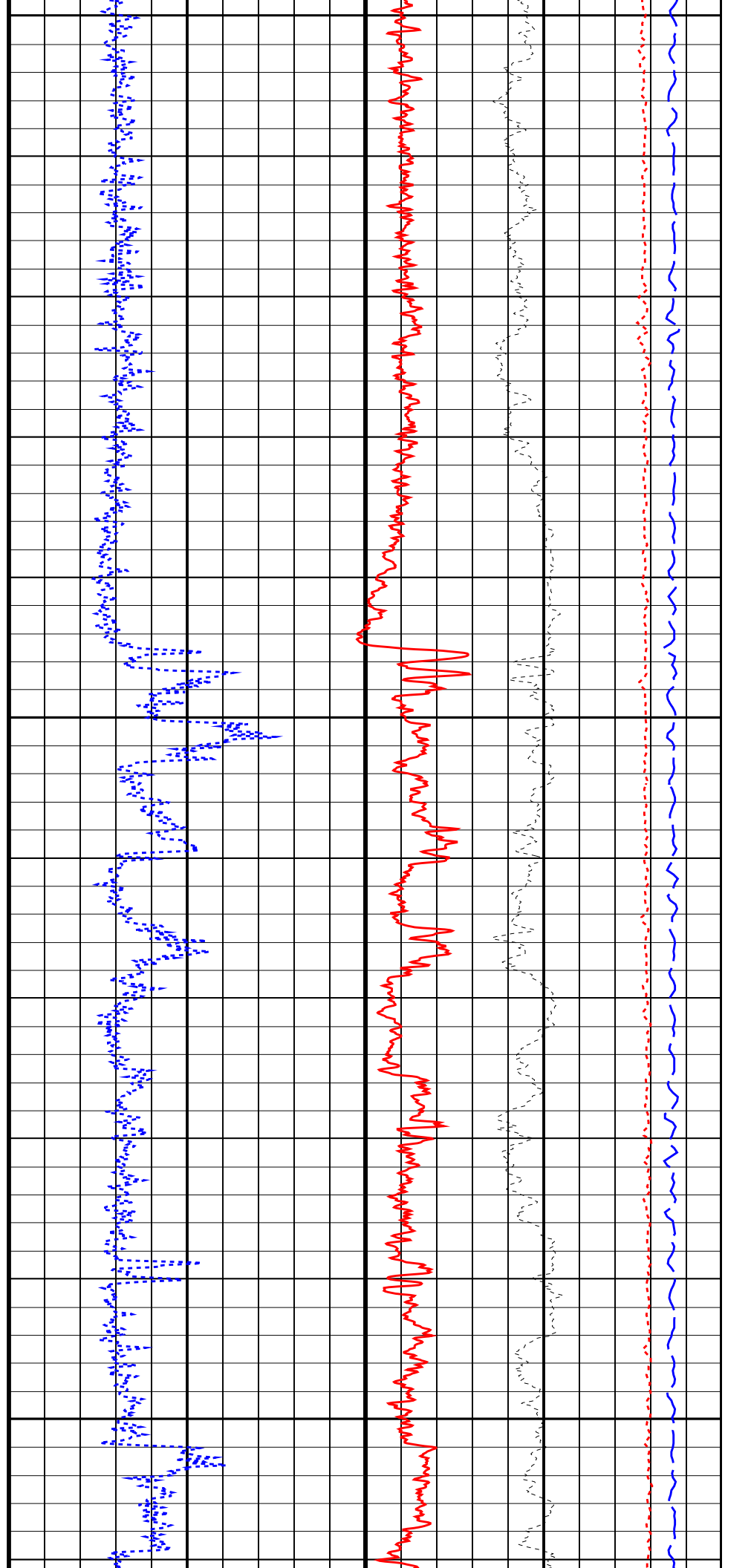


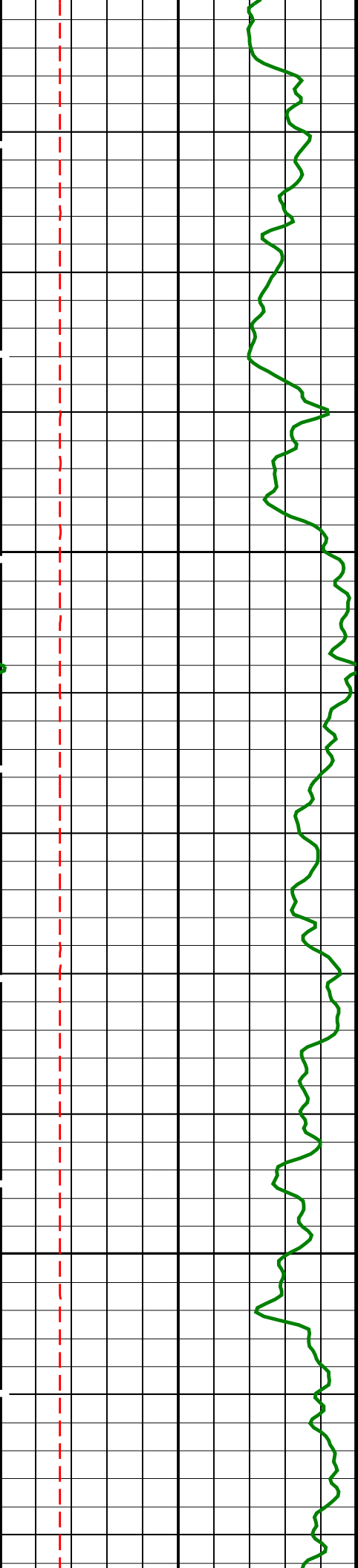


225

250

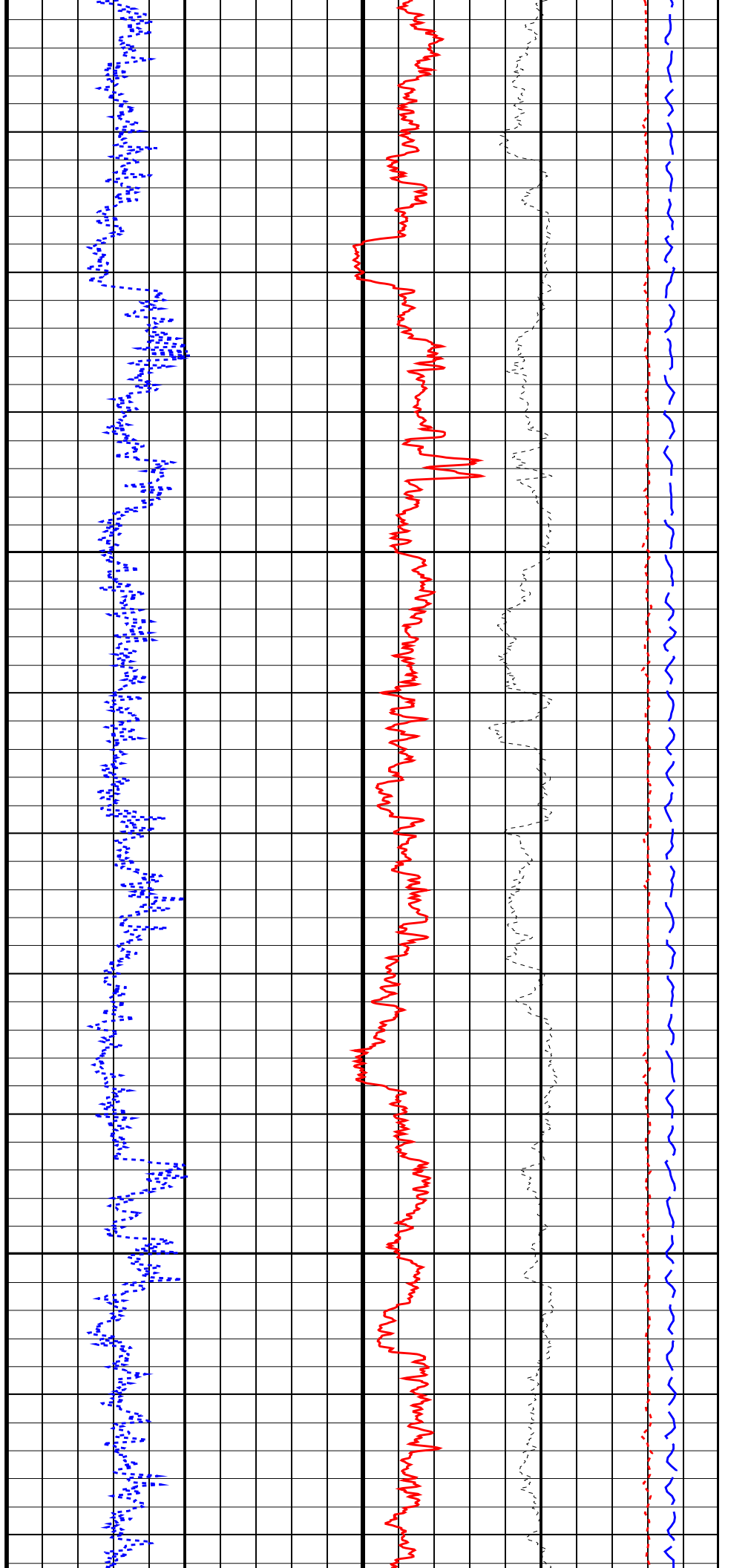
275

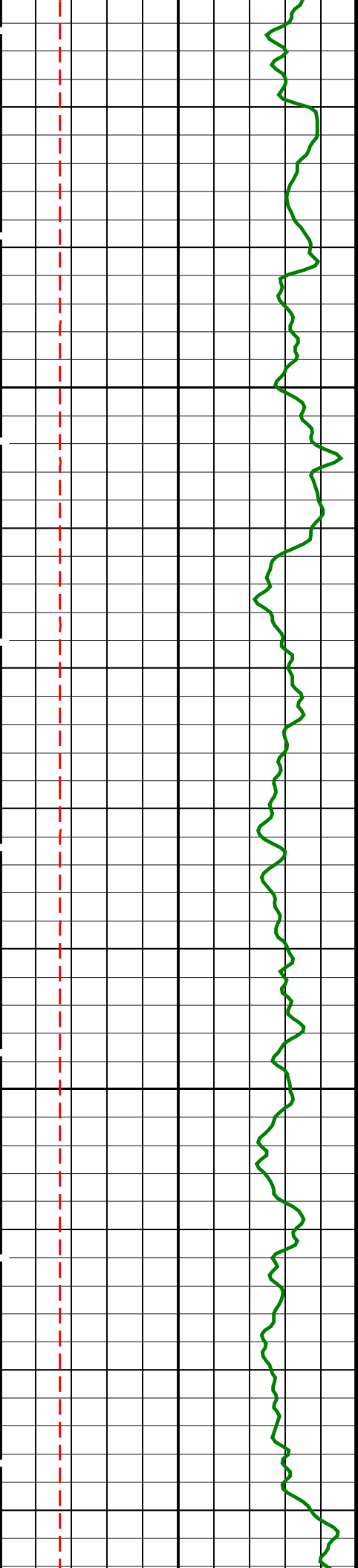




300

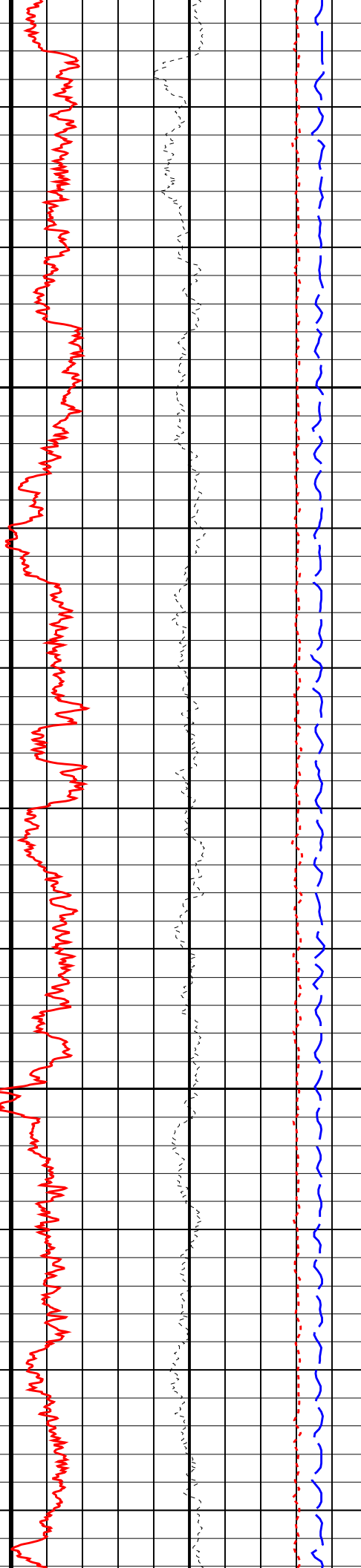
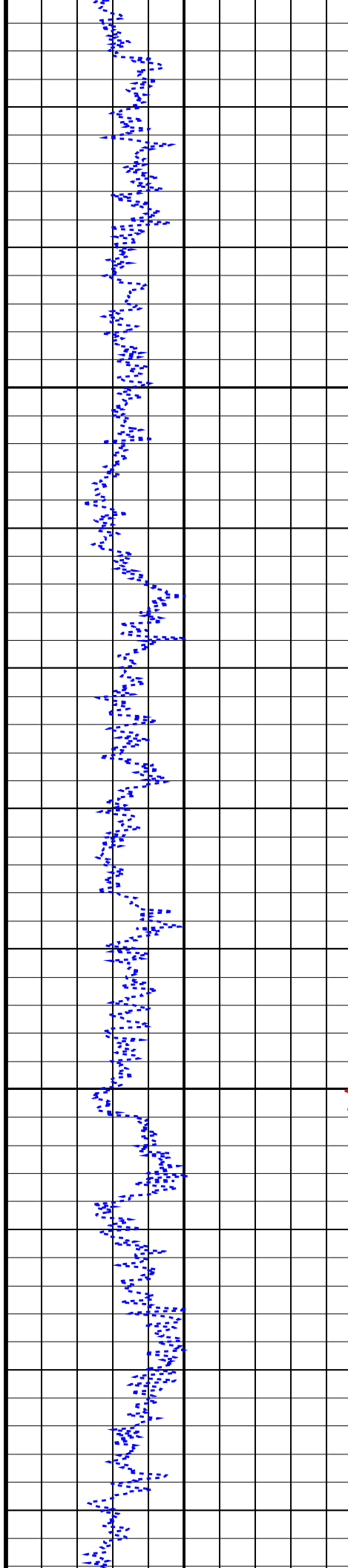
325

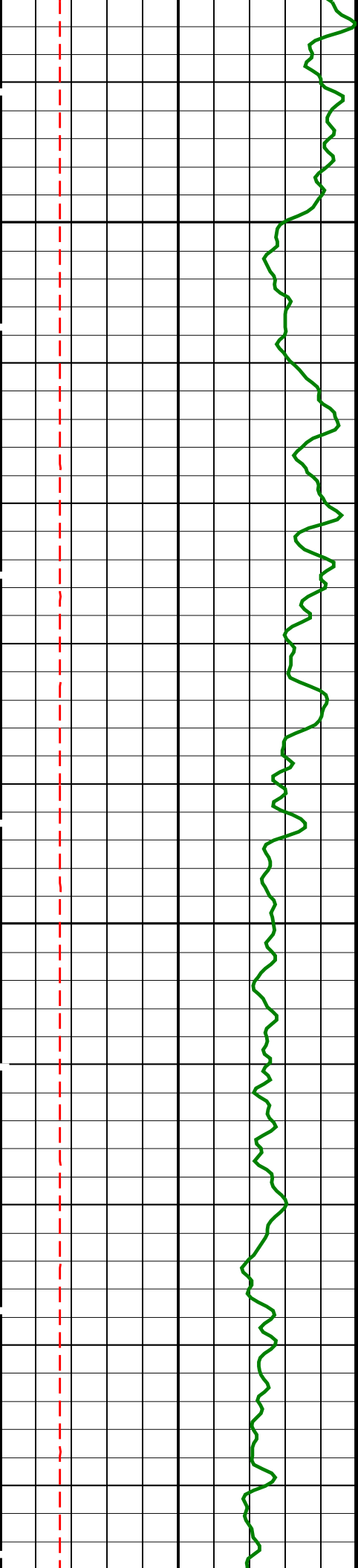




350

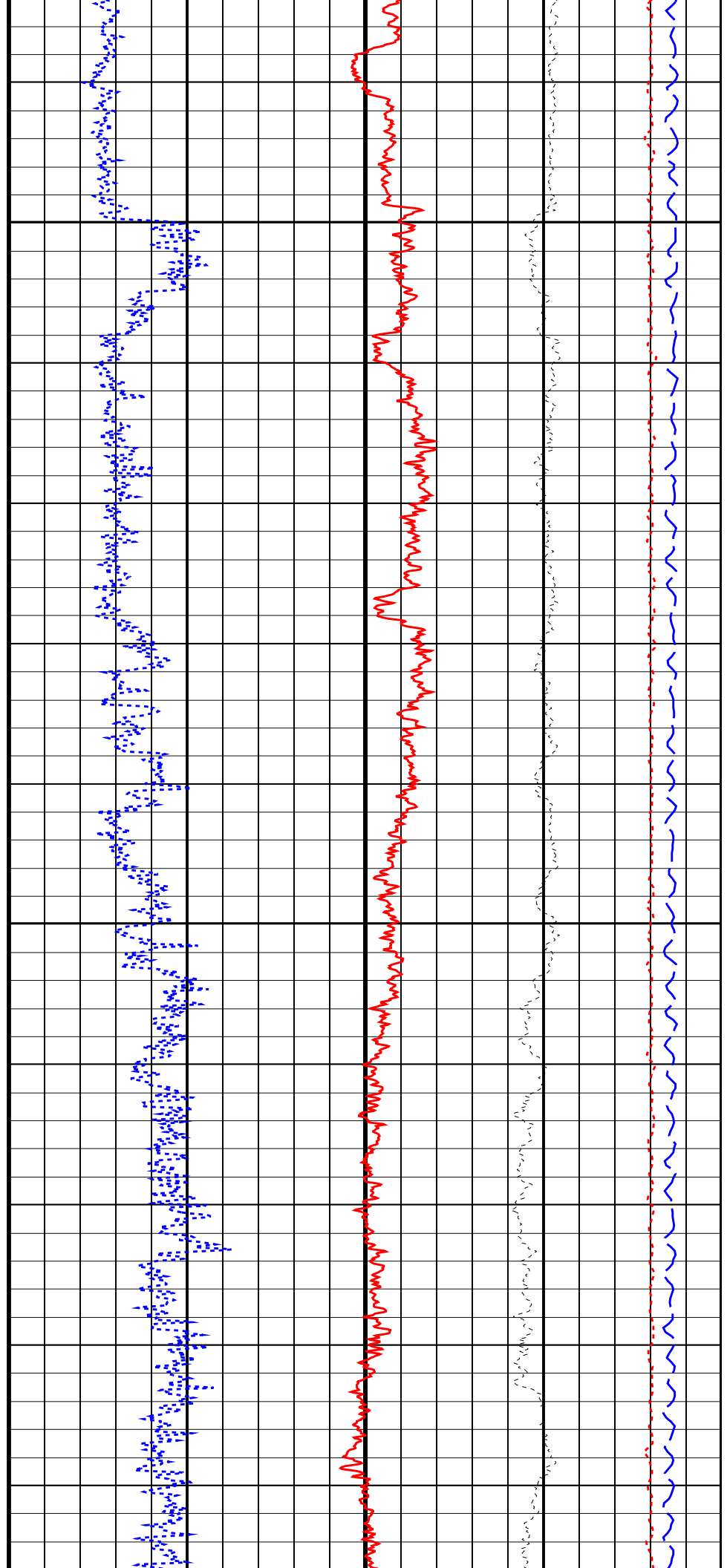
375

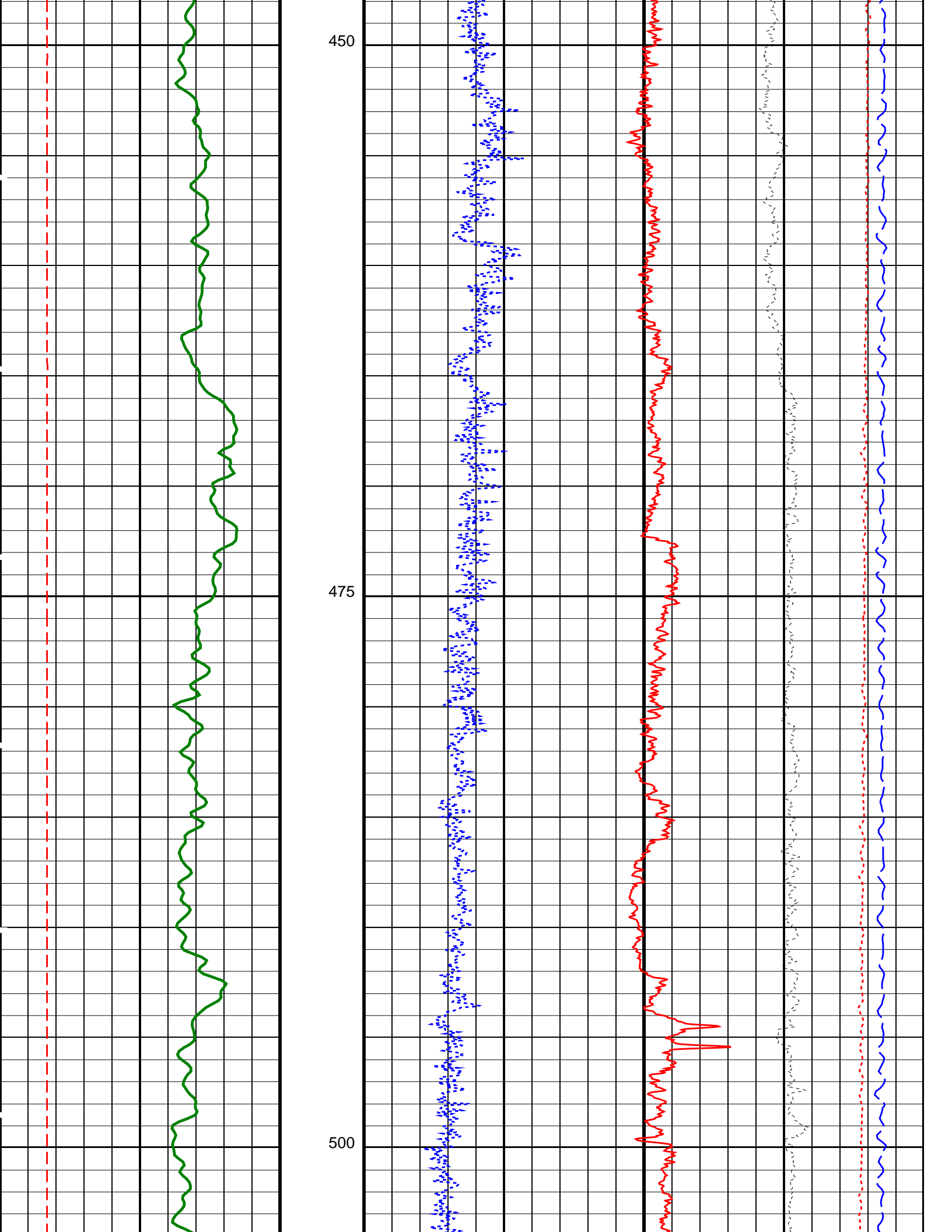


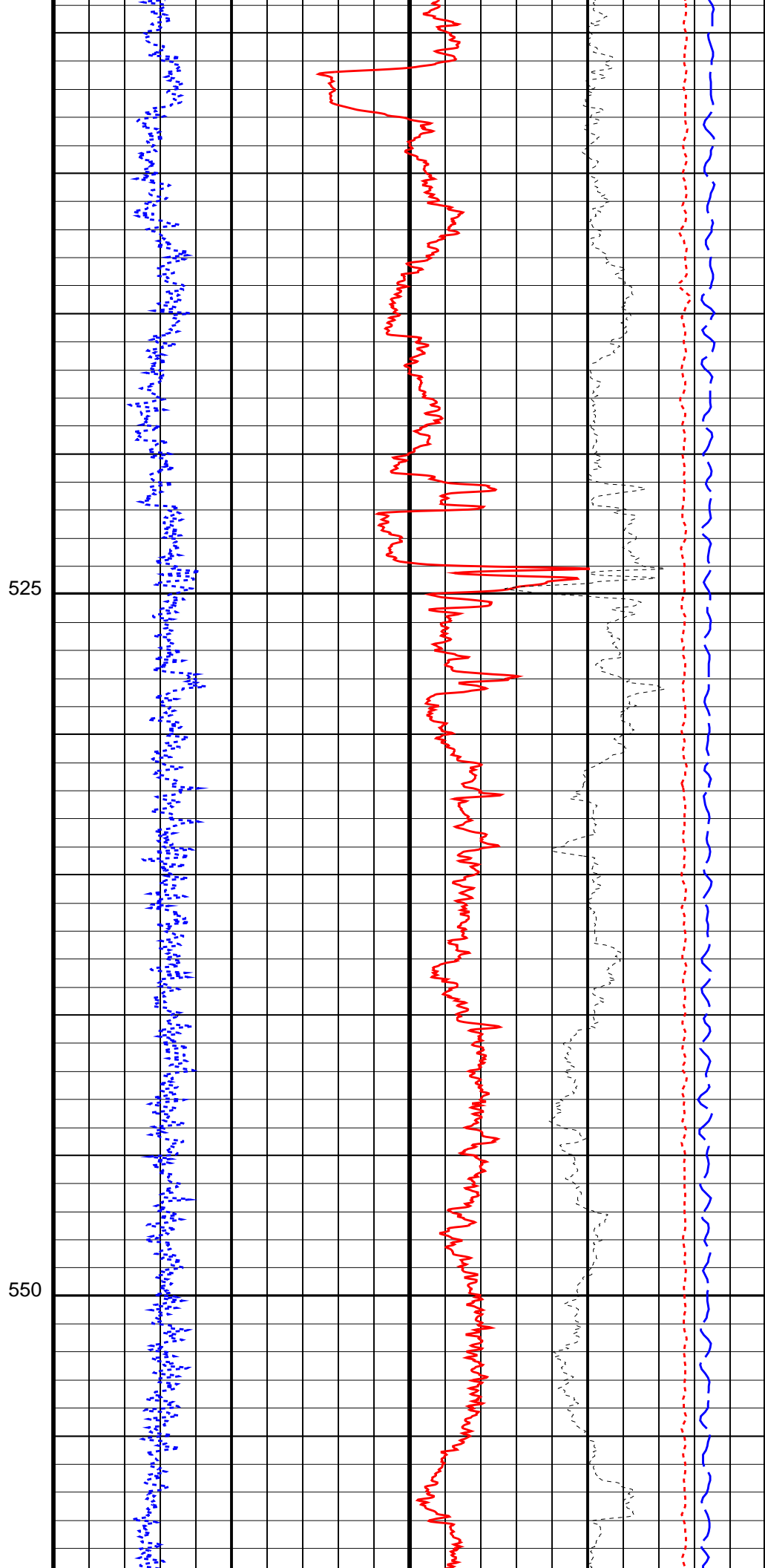
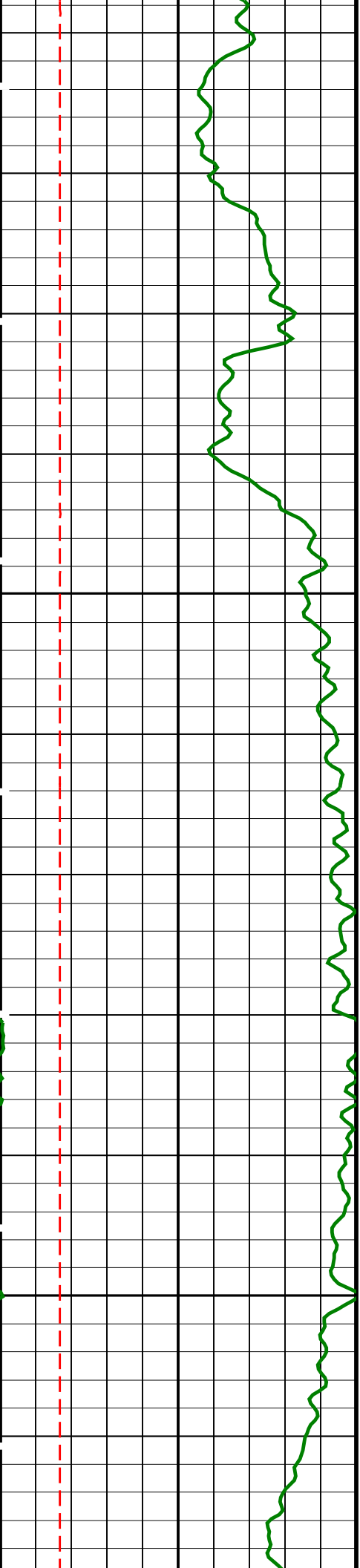


400

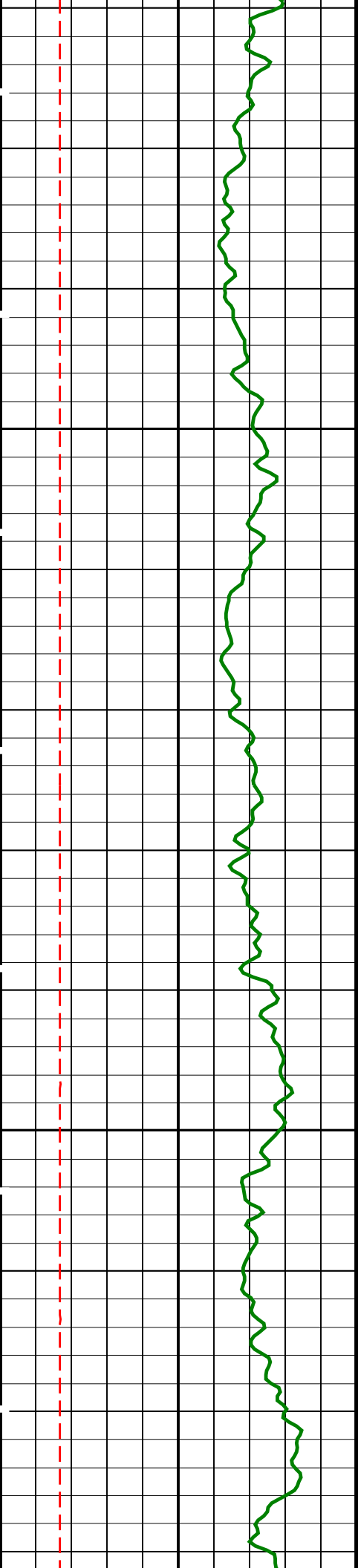
425





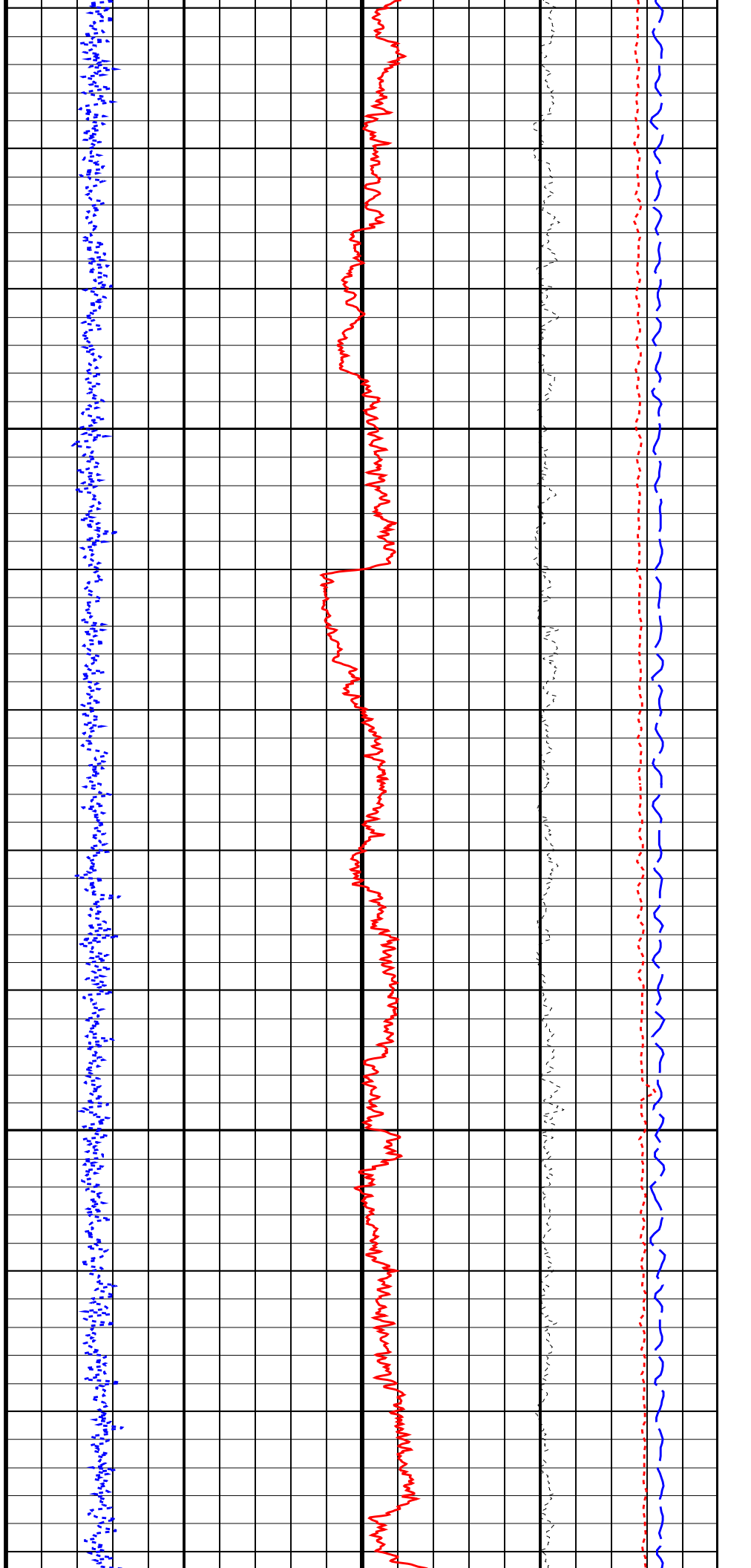


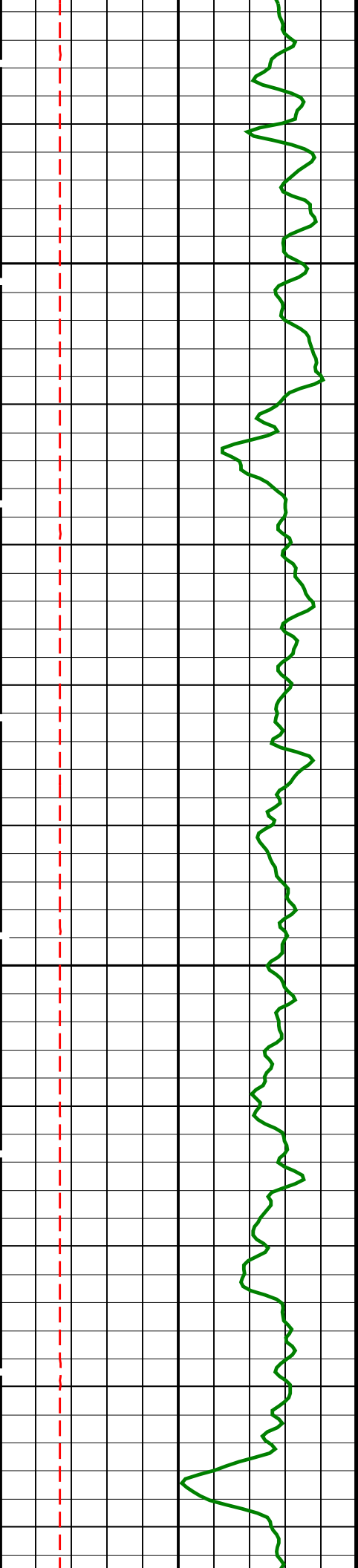




575

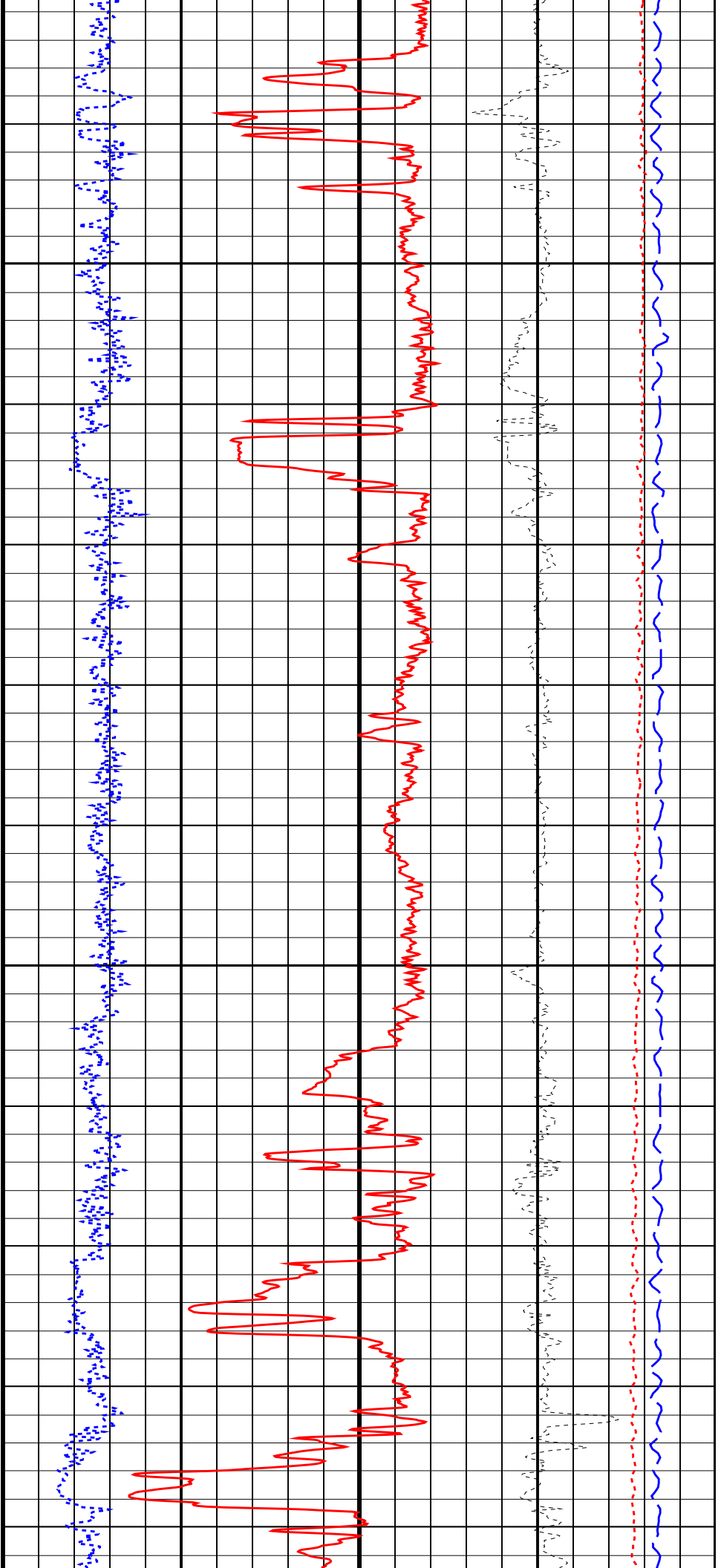
600

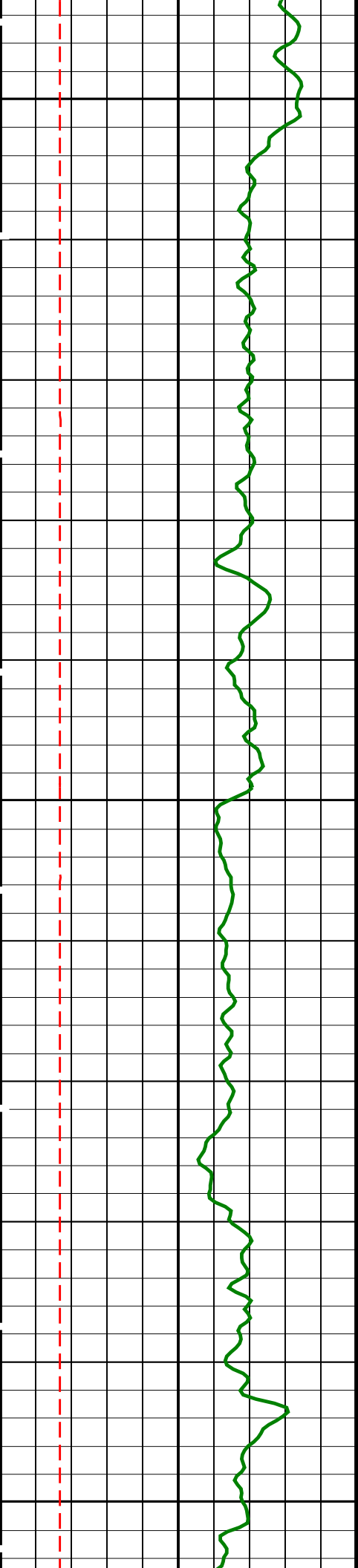




625

650

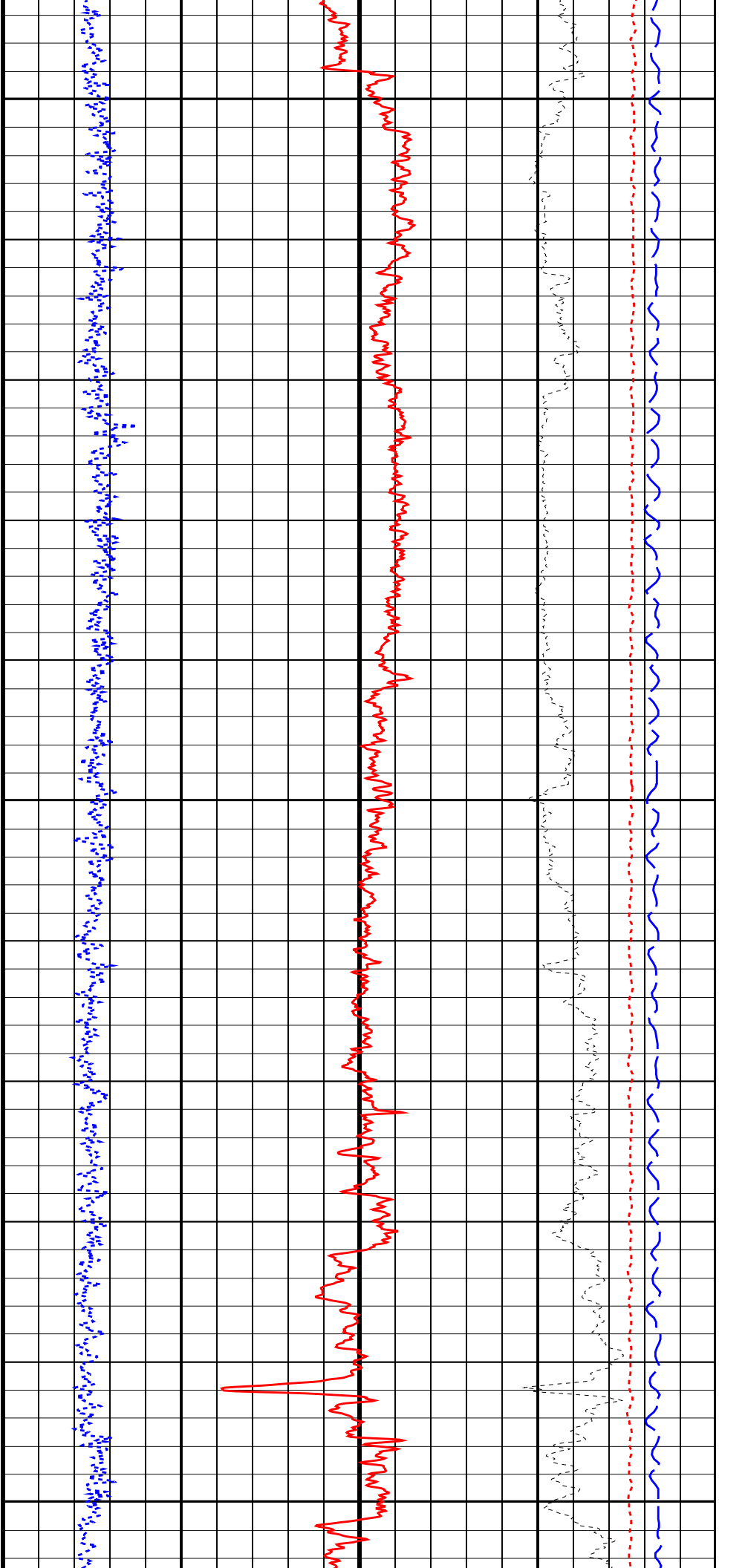


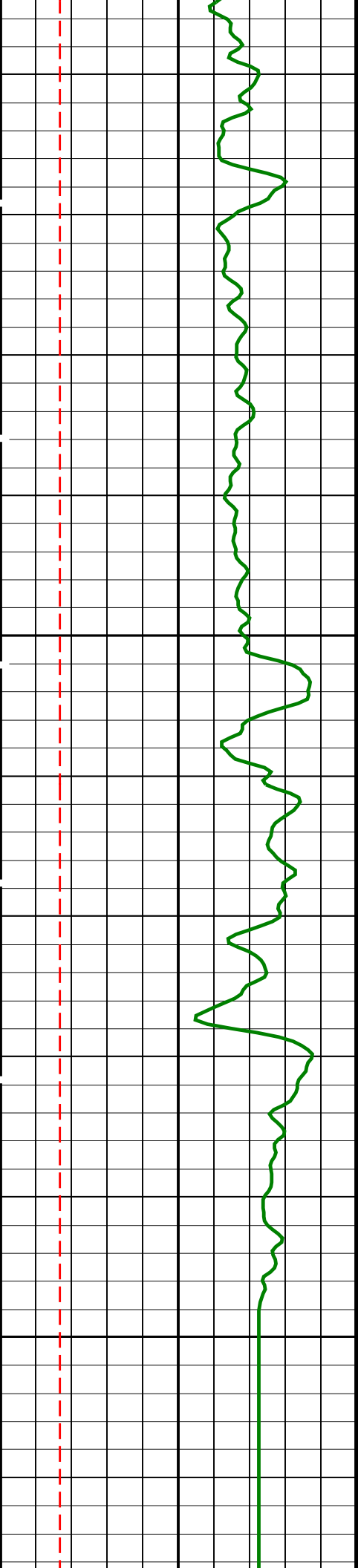


675

700

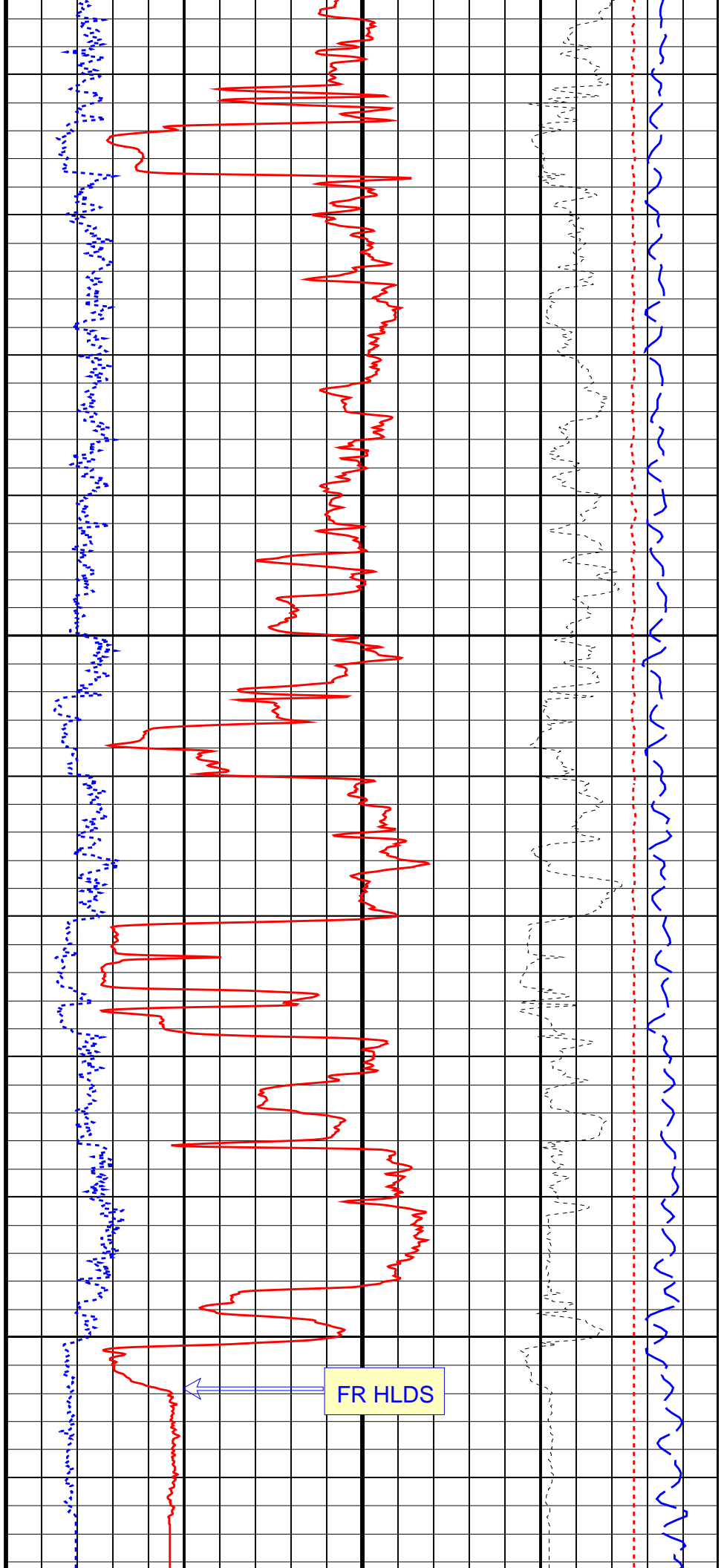
725



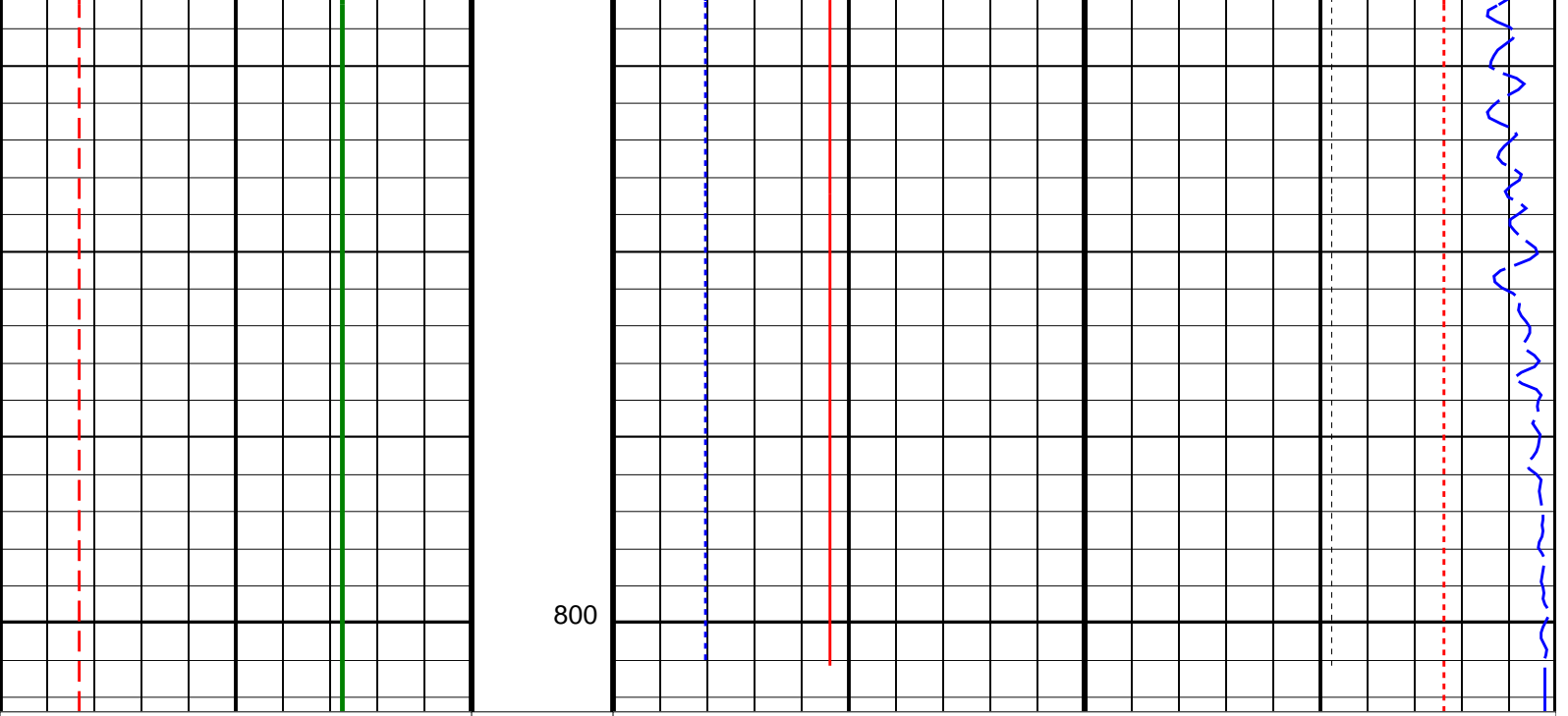


750

775



FR HLDS



|                                    |     |
|------------------------------------|-----|
| HLDS Caliper (LCAL)                |     |
| (IN)                               | 20  |
| HNGS Spectroscopy Gamma Ray (HSGR) |     |
| (GAPI)                             | 100 |

|   |      |
|---|------|
| HLDS HR Bulk Density (HROM)                     |      |
| (G/C3)  | 3    |
| HLDS HR Long Spaced Photoelectric Effect (HLEF) |      |
| (---  | 10   |
| Calibrated Downhole Force (CDF)                 |      |
| (LBF)   | 0    |
| Tension (TENS)                                  |      |
| (LBF)   | 0    |
| HLDS HR Bulk Density Correction (HBDC)          |      |
| (G/C3)  | 0.25 |

PIP SUMMARY

Time Mark Every 60 S

Parameters

| DLIS Name                 | Description                                       | Value           |
|---------------------------|---|-----------------|
| DIT-E: Dual Induction - E |   |                 |
| BHS                       | Borehole Status                                   | OPEN            |
| BHT                       | Bottom Hole Temperature (used in calculations)    | 60 DEG F        |
| DGF1                      | Deep 10 kHz Gain Factor                           | 0.968036        |
| DGF2                      | Deep 20 kHz Gain Factor                           | 0.981641        |
| DGF4                      | Deep 40 kHz Gain Factor                           | 1.00354         |
| DPH1                      | Deep 10 kHz Phase Shift                           | 0.519505 DEG    |
| DPH2                      | Deep 20 kHz Phase Shift                           | 0.58231 DEG     |
| DPH4                      | Deep 40 kHz Phase Shift                           | -0.0231022 DEG  |
| DRE1                      | Deep Real 10 kHz Sonde Error Correction           | 47.0269 MM/M    |
| DRE2                      | Deep Real 20 kHz Sonde Error Correction           | 16.7871 MM/M    |
| DRE4                      | Deep Real 40 kHz Sonde Error Correction           | 5.70109 MM/M    |
| DRIM                      | DIT-E Radial Invasion Mode                        | Rxo>Rt          |
| DSR1                      | Deep Sigma Reference (10 kHz)                     | 7637 MM/M       |
| DSR2                      | Deep Sigma Reference (20 kHz)                     | 1843 MM/M       |
| DSR4                      | Deep Sigma Reference (40 kHz)                     | 405 MM/M        |
| DSTA                      | DIT-E Transversal Standoff                        | 0 IN            |
| DXE1                      | Deep Quad 10 kHz Sonde Error Correction           | 100.491 MM/M    |
| DXE2                      | Deep Quad 20 kHz Sonde Error Correction           | 62.191 MM/M     |
| DXE4                      | Deep Quad 40 kHz Sonde Error Correction           | 44.6702 MM/M    |
| GCSE                      | Generalized Caliper Selection                     | BS              |
| GDEV                      | Average Angular Deviation of Borehole from Normal | 0 DEG           |
| GRGD                      | Geothermal Gradient                               | 0.01 DF/F       |
| GRSE                      | Generalized Mud Resistivity Selection             | CHART_GEN 9     |
| GTSE                      | Generalized Temperature Selection                 | LINEAR_ESTIMATE |
| IFRS                      | DIT-E Induction Frequency Selector                | 20              |
| IPHA                      | DIT-E Phasor Processing Mode                      | ALL             |
| IPRO                      | DIT-E Induction Processing Selector               | PHASOR          |
| ISSBAR                    | Barite Mud Switch                                 | NOBARITE        |
| ITEN                      | DIT-E Temperature Enable                          | ENABLE          |

|  |   |                     |      |
|--|---|---------------------|------|
| MATR                                   | Rock Matrix for Neutron Porosity Corrections                          | LIMESTONE           |      |
| MGF1                                   | Medium 10 kHz Gain Factor   | 1.00192             |      |
| MGF2                                   | Medium 20 kHz Gain Factor   | 1.01122             |      |
| MGF4                                   | Medium 40 kHz Gain Factor   | 1.04786             |      |
| MPH1                                   | Medium 10 kHz Phase Shift   | 0.190245            | DEG  |
| MPH2                                   | Medium 20 kHz Phase Shift   | -0.139176           | DEG  |
| MPH4                                   | Medium 40 kHz Phase Shift   | -1.01614            | DEG  |
| MRE1                                   | Medium Real 10 kHz Sonde Error Correction                             | 17.1122             | MM/M |
| MRE2                                   | Medium Real 20 kHz Sonde Error Correction                             | -2.07993            | MM/M |
| MRE4                                   | Medium Real 40 kHz Sonde Error Correction                             | -9.895              | MM/M |
| MSR1                                   | Medium Sigma Reference (10 kHz)                                       | 13520               | MM/M |
| MSR2                                   | Medium Sigma Reference (20 kHz)                                       | 3250                | MM/M |
| MSR4                                   | Medium Sigma Reference (40 kHz)                                       | 685                 | MM/M |
| MXE1                                   | Medium Quad 10 kHz Sonde Error Correction                             | -94.7355            | MM/M |
| MXE2                                   | Medium Quad 20 kHz Sonde Error Correction                             | -32.0861            | MM/M |
| MXE4                                   | Medium Quad 40 kHz Sonde Error Correction                             | 12.9006             | MM/M |
| SBR                                    | Shoulder Bed Resistivity Factor                                       | 1                   | OHMM |
| SFCR                                   | SFL Channel Ratio   | 1000                |      |
| SFLE                                   | SFL Enable  | ENABLE              |      |
| SHT                                    | Surface Hole Temperature  | 68                  | DEGF |
| SPAE                                   | DIT-E SPARC Processing Enable   | ENABLE              |      |
| SPNV                                   | SP Next Value   | 0                   | MV   |
| GPIT-A/B: General Purpose Inclinometer |   |                     |      |
| ACPP                                   | Accelerometer PROM Presence   | PRESENT             |      |
| AFMO                                   | Accelerometer Filtering Mode  | MOVING_AVERAGE      |      |
| ART                                    | Accelerometer Reference Temperature                                   | 20                  | DEGC |
| GLM                                    | GPIT Logging Mode   | DIPM                |      |
| ICMO                                   | Inclinometry Computation Mode   | AUTOMATIC_SELECTION |      |
| MAPP                                   | Magnetometer PROM Presence  | PRESENT             |      |
| MDEC                                   | Magnetic Field Declination  | 24.4                | DEG  |
| MRTE                                   | Magneto Reference Temperature   | 19                  | DEGC |
| TEMS                                   | GPIT Temperature Sensor Used  | BOTH                |      |
| U-GPOF                                 | Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ? | NO                  |      |
| APS-C: Accelerator-Porosity Tool       |   |                     |      |
|  | APS Software Version  | 0                   |      |
| AASD                                   | APS Thermal and Array Detectors High Voltage Setting                  | 1965.28             | V    |
| ADSO                                   | APS Array Detectors Data Source Switch                                | Both                |      |
| AFSD                                   | APS Far Detector High Voltage Setting                                 | 2077.04             | V    |
| AHCS                                   | APS Holesize Correction Source  | BS                  |      |
| AHSS                                   | APS Holesize Correction Switch  | ON                  |      |
| AMTY                                   | APS Environmental Corrections Mud Type                                | WaterBaseBarite     |      |
| ANSD                                   | APS Near Detector High Voltage Setting                                | 1734.68             | V    |
| ASOS                                   | APS Standoff Correction Switch  | ON                  |      |
| ATSS                                   | APS Temperature-Pressure-Salinity Correction Switch                   | ON                  |      |
| BHFL_APS                               | APS TNPH Borehole Fluid Type  | WATER               |      |
| BHS                                    | Borehole Status   | OPEN                |      |
| BHT                                    | Bottom Hole Temperature (used in calculations)                        | 60                  | DEGF |
| BSCO_APS                               | APS TNPH Borehole Salinity Correction Option                          | YES                 |      |
| DPPM                                   | Density Porosity Processing Mode                                      | HIRS                |      |
| DSCO_APS                               | APS TNPH Density Source   | COMPUTED            |      |
| FSAL                                   | Formation Salinity  | -50000              | PPM  |
| FSCO_APS                               | APS TNPH Formation Salinity Correction Option                         | NO                  |      |
| GCSE                                   | Generalized Caliper Selection   | BS                  |      |
| GDEV                                   | Average Angular Deviation of Borehole from Normal                     | 0                   | DEG  |
| GGRD                                   | Geothermal Gradient   | 0.01                | DF/F |
| GRSE                                   | Generalized Mud Resistivity Selection                                 | CHART_GEN_9         |      |
| GTSE                                   | Generalized Temperature Selection                                     | LINEAR_ESTIMATE     |      |
| HSCO_APS                               | APS TNPH Hole Size Correction Option                                  | YES                 |      |
| ISSBAR                                 | Barite Mud Switch   | NOBARITE            |      |
| MATR                                   | Rock Matrix for Neutron Porosity Corrections                          | LIMESTONE           |      |
| MCCO_APS                               | APS TNPH Mud Cake Correction Option                                   | YES                 |      |
| MCOR_APS                               | APS TNPH Mud Correction   | NATU                |      |
| MWCO_APS                               | APS TNPH Mud Weight Correction Option                                 | YES                 |      |
| NARC                                   | APS Near/Array Calibration Ratio                                      | 1.05996             |      |
| NFRC                                   | APS Near/Far Calibration Ratio  | 0.890086            |      |
| PTCO_APS                               | APS TNPH Pressure/Temperature Correction Option                       | YES                 |      |
| SHT                                    | Surface Hole Temperature  | 68                  | DEGF |
| TNCO_APS                               | APS TNPH Computation Option   | NO                  |      |
| HLDS: Hostile Litho-Density Sonde      |   |                     |      |
| CLCL                                   | HLDS LS Control Loop Controller Mode                                  | AUTO_DEFAULT        |      |
| CLCS                                   | HLDS SS Control Loop Controller Mode                                  | AUTO_DEFAULT        |      |
| CLLS                                   | HLDS Mode Loop Long Spacing   | AUTO                |      |
| CLSS                                   | HLDS Mode Loop Short Spacing  | AUTO                |      |
| DHC                                    | Density Hole Correction   | BS                  |      |
| DPPM                                   | Density Porosity Processing Mode                                      | HIRS                |      |
| FD                                     | Fluid Density   | 1                   | G/C3 |
| LATC                                   | HLDS Activation Correction  | OFF                 |      |
| LLDL                                   | HLDS LS Low Level Discriminator DAC                                   | 14000               |      |
| LLDS                                   | HLDS SS Low Level Discriminator DAC                                   | 14000               |      |
| LLML                                   | HLDS LS Low Level Discriminator Mode                                  | AUTO                |      |
| LLMS                                   | HLDS SS Low Level Discriminator Mode                                  | AUTO                |      |
| MDEN                                   | Matrix Density  | 2.71                | G/C3 |
| PHVL                                   | HLDS Long Spacing High Voltage Setting                                | 1000                | V    |
| PHVS                                   | HLDS Short Spacing High Voltage Setting                               | 1000                | V    |

|   |  |                 |      |
|---|--|-----------------|------|
| PSDL  | HLDS LS Pulse Shape Compensation DAC                   | 30000           |      |
| PSDS  | HLDS SS Pulse Shape Compensation DAC                   | 30000           |      |
| PSML  | HLDS LS Pulse Shape Compensation Mode                  | AUTO            |      |
| PSMS  | HLDS SS Pulse Shape Compensation Mode                  | AUTO            |      |
| <b>HNGS-BA: Hostile Natural Gamma Ray Sonde</b> |  |                 |      |
| BAR1  | HNGS Detector 1 Barite Constant                        | 1               |      |
| BAR2  | HNGS Detector 2 Barite Constant                        | 1               |      |
| BHK   | HNGS Borehole Potassium Correction Concentration       | 0               |      |
| BHS   | Borehole Status  | OPEN            |      |
| BHT   | Bottom Hole Temperature (used in calculations)         | 60              | DEGF |
| CSD1  | Inner Casing Outer Diameter                            | 0               | IN   |
| CSD2  | Outer Casing Outer Diameter                            | 0               | IN   |
| CSW1  | Inner Casing Weight                                    | 0               | LB/F |
| CSW2  | Outer Casing Weight                                    | 0               | LB/F |
| DBCC  | HNGS Barite Constant Correction Flag                   | NONE            |      |
| GCSE  | Generalized Caliper Selection                          | BS              |      |
| GDEV  | Average Angular Deviation of Borehole from Normal      | 0               | DEG  |
| GGRD  | Geothermal Gradient                                    | 0.01            | DF/F |
| GRSE  | Generalized Mud Resistivity Selection                  | CHART_GEN_9     |      |
| GTSE  | Generalized Temperature Selection                      | LINEAR_ESTIMATE |      |
| H1P   | HNGS Detector 1 Allow/Disallow In Processing           | ALLOW           |      |
| H2P   | HNGS Detector 2 Allow/Disallow In Processing           | ALLOW           |      |
| HABK  | HNGS Borehole Potassium Running Average                | 0.00142136      |      |
| HALF  | HNGS Alpha Filter Length                               | 60              | IN   |
| HCRB  | HNGS Apply Borehole Potassium Correction               | NONE            |      |
| HMWM  | Mud Weighting Material                                 | BARI            |      |
| HNPE  | HNGS Processing Enable                                 | YES             |      |
| ISSBAR  | Barite Mud Switch                                      | NOBARITE        |      |
| MATR  | Rock Matrix for Neutron Porosity Corrections           | LIMESTONE       |      |
| S1BI  | HNGS Detector 1 Calibration Bismuth Count Rate         | 1.3             | CPS  |
| S2BI  | HNGS Detector 2 Calibration Bismuth Count Rate         | 1.3             | CPS  |
| SGRC  | HNGS Standard Gamma-Ray Correction Flag                | YES             |      |
| SHT   | Surface Hole Temperature                               | 68              | DEGF |
| TPOS  | Tool Position  | ECCE            |      |
| VBA1  | HNGS Detector 1 Variable Barite Factor Running Average | 0.984209        |      |
| VBA2  | HNGS Detector 2 Variable Barite Factor Running Average | 0.977226        |      |

**DIR: Directional Survey Computation**

|      |                                   |   |     |
|------|-----------------------------------|---|-----|
| SPED | East Departure of Starting Point  | 0 | M   |
| SPND | North Departure of Starting Point | 0 | M   |
| SPVD | TVD of Starting Point             | 0 | M   |
| TAZI | Vertical Section Azimuth          | 0 | DEG |
| TIED | East Departure of Tie-in Point    | 0 | M   |
| TIMD | Along-hole depth of Tie-in Point  | 0 | M   |
| TIND | North Departure of Tie-in Point   | 0 | M   |
| TIVD | TVD of Tie-in Point               | 0 | M   |

**System and Miscellaneous**

|            |  |                     |      |
|------------|--|---------------------|------|
| ALTDPCCHAN | Name of alternate depth channel          | SpeedCorrectedDepth |      |
| BS         | Bit Size                                 | 11.438              | IN   |
| BSAL       | Borehole Salinity                        | -50000.00           | PPM  |
| CSIZ       | Current Casing Size                      | 4.500               | IN   |
| CWEI       | Casing Weight                            | 0.00                | LB/F |
| DFD        | Drilling Fluid Density                   | 1.26                | G/C3 |
| DO         | Depth Offset for Playback                | -133.5              | M    |
| FLEV       | Fluid Level                              | -50000.00           | M    |
| MST        | Mud Sample Temperature                   | -50000.00           | DEGC |
| PBVSADP    | Use alternate depth channel for playback | NO                  |      |
| PP         | Playback Processing                      | NORMAL              |      |
| RMFS       | Resistivity of Mud Filtrate Sample       | -50000.0000         | OHMM |
| RW         | Resistivity of Connate Water             | 1.0000              | OHMM |
| TD         | Total Depth                              | 2750.9              | M    |
| TDD        | Total Depth - Driller                    | 967.20              | M    |
| TDL        | Total Depth - Logger                     | 785.00              | M    |
| TWS        | Temperature of Connate Water Sample      | 37.78               | DEGC |

Format: APSLiquidPorosity\_1      Vertical Scale: 1:200      Graphics File Created: 31-Dec-2009 21:37

**OP System Version: 17C0-154**

|        |          |          |                             |
|--------|----------|----------|-----------------------------|
| DIT-E  | 17C0-154 | GPIT-A/B | SRPC-3870_Q3_2009_OP17_V3_b |
| DTA-A  | 17C0-154 | APS-C    | 17C0-154                    |
| HLDS   | 17C0-154 | LDSC-B   | 17C0-154                    |
| HNGC-B | 17C0-154 | HNGS-BA  | 17C0-154                    |
| DTC-H  | 17C0-154 |          |                             |

**Input DLIS Files**

|         |                       |       |          |                   |         |        |
|---------|-----------------------|-------|----------|-------------------|---------|--------|
| DEFAULT | PI_APS_LDL_NGS_014PUP | FN:14 | PRODUCER | 06-Dec-2009 12:31 | 934.8 M | 91.4 M |
|---------|-----------------------|-------|----------|-------------------|---------|--------|

**Output DLIS Files**

|         |                       |       |          |                   |  |  |
|---------|-----------------------|-------|----------|-------------------|--|--|
| DEFAULT | PI_APS_LDL_NGS_022PUP | FN:22 | PRODUCER | 31-Dec-2009 21:37 |  |  |
|---------|-----------------------|-------|----------|-------------------|--|--|

## MAXIS Field Log

### Calibration and Check Summary

| Measurement  | Nominal | Master | Before | After | Change | Limit | Units |
|--|---------|--------|--------|-------|--------|-------|-------|
| General Purpose Inclinometer Wellsite Calibration – CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY |         |        |        |       |        |       |       |
| Before: 28–Nov–2009 4:38   |         |        |        |       |        |       |       |
| TEMPERATURE REFERENCE :  | N/A     | N/A    | 20     | N/A   | N/A    | N/A   | DEGC  |
| YEAR OF CALIBRATION :  | N/A     | N/A    | 92     | N/A   | N/A    | N/A   |       |
| MONTH OF CALIBRATION :   | N/A     | N/A    | 10     | N/A   | N/A    | N/A   |       |
| SERIAL NUMBER :  | N/A     | N/A    | 448    | N/A   | N/A    | N/A   |       |
| General Purpose Inclinometer Wellsite Calibration – CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY  |         |        |        |       |        |       |       |
| Before: 28–Nov–2009 4:38   |         |        |        |       |        |       |       |
| TEMPERATURE REFERENCE :  | N/A     | N/A    | 19     | N/A   | N/A    | N/A   | DEGC  |
| YEAR OF CALIBRATION :  | N/A     | N/A    | 99     | N/A   | N/A    | N/A   |       |
| MONTH OF CALIBRATION :   | N/A     | N/A    | 12     | N/A   | N/A    | N/A   |       |
| SERIAL NUMBER :  | N/A     | N/A    | 428    | N/A   | N/A    | N/A   |       |
| Accelerator–Porosity Tool Wellsite Calibration – Detector Background                                   |         |        |        |       |        |       |       |
| Master: 5–Nov–2009 1:02 Before: 28–Nov–2009 4:42   |         |        |        |       |        |       |       |
| Near Det Bkg Cntrate   | 30.00   | 31.30  | 31.42  | N/A   | N/A    | N/A   | CPS   |
| Far Det Bkg Cntrate  | 30.00   | 33.28  | 33.68  | N/A   | N/A    | N/A   | CPS   |
| Array–1 Det Bkg Cntrate  | 30.00   | 29.03  | 29.63  | N/A   | N/A    | N/A   | CPS   |
| Array–2 Det Bkg Cntrate  | 30.00   | 29.71  | 29.96  | N/A   | N/A    | N/A   | CPS   |
| Array Therm Det Bkg Cntrate  | 30.00   | 33.23  | 34.30  | N/A   | N/A    | N/A   | CPS   |
| Accelerator–Porosity Tool Wellsite Calibration – Calibration Ratios                                    |         |        |        |       |        |       |       |
| Master: 5–Nov–2009 1:02  |         |        |        |       |        |       |       |
| Near/Far Calibration Ratio   | 0.9250  | 0.8901 | N/A    | N/A   | N/A    | N/A   |       |
| Near/Array Calibration Ratio   | 1.030   | 1.060  | N/A    | N/A   | N/A    | N/A   |       |
| Near/Array Cal Ratio Up/Down   | 1.000   | 1.007  | N/A    | N/A   | N/A    | N/A   |       |
| Accelerator–Porosity Tool Wellsite Calibration – Tank Check  |         |        |        |       |        |       |       |
| Master: 5–Nov–2009 1:02  |         |        |        |       |        |       |       |
| Array–1 Standoff Porosity  | 11.75   | 11.51  | N/A    | N/A   | N/A    | N/A   | PU    |
| Array–2 Standoff Porosity  | 11.75   | 11.21  | N/A    | N/A   | N/A    | N/A   | PU    |
| Average Slowing Down Time  | 6.000   | 5.881  | N/A    | N/A   | N/A    | N/A   | US    |
| Array–1 SDT Ratio Up/Down  | 1.000   | 0.9799 | N/A    | N/A   | N/A    | N/A   |       |
| Array–2 SDT Ratio Up/Down  | 1.000   | 0.9831 | N/A    | N/A   | N/A    | N/A   |       |
| Sigma Formation  | 27.50   | 27.90  | N/A    | N/A   | N/A    | N/A   | CU    |
| Accelerator–Porosity Tool Wellsite Calibration – CCR7 signal boxes                                     |         |        |        |       |        |       |       |
| Master: 5–Nov–2009 1:02  |         |        |        |       |        |       |       |
| Near Detector Plateau Setting  | 1650    | 1735   | N/A    | N/A   | N/A    | N/A   | V     |
| Far Detector Plateau Setting   | 2000    | 2077   | N/A    | N/A   | N/A    | N/A   | V     |
| Array Detector Plateau Setting   | 2000    | 1965   | N/A    | N/A   | N/A    | N/A   | V     |
| Hostile Litho–Density Sonde Wellsite Calibration – Background Measurement                              |         |        |        |       |        |       |       |
| Master: 4–Nov–2009 17:36 Before: 28–Nov–2009 4:42  |         |        |        |       |        |       |       |
| SS Cs Resolution Bkg   | 9.000   | 7.756  | 7.779  | N/A   | N/A    | 1.800 | %     |
| LS Cs Resolution Bkg   | 9.000   | 8.165  | 8.005  | N/A   | N/A    | 1.800 | %     |
| LSW1 Background  | 100.0   | 92.48  | 92.05  | N/A   | N/A    | 3.000 | CPS   |
| LSW2 Background  | 100.0   | 84.63  | 83.64  | N/A   | N/A    | 3.000 | CPS   |
| LSW3 Background  | 200.0   | 191.1  | 189.4  | N/A   | N/A    | 6.000 | CPS   |
| LSW4 Background  | 250.0   | 233.7  | 234.1  | N/A   | N/A    | 7.500 | CPS   |
| LSW5 Background  | 600.0   | 544.1  | 542.2  | N/A   | N/A    | 18.00 | CPS   |
| SSW1 Background  | 100.0   | 90.17  | 88.00  | N/A   | N/A    | 3.000 | CPS   |
| SSW2 Background  | 200.0   | 152.5  | 153.8  | N/A   | N/A    | 6.000 | CPS   |
| SSW3 Background  | 500.0   | 429.0  | 430.6  | N/A   | N/A    | 15.00 | CPS   |
| SSW4 Background  | 270.0   | 231.1  | 230.6  | N/A   | N/A    | 8.100 | CPS   |



| SSW5 Background   | 200.0 | 164.3 | 164.6 | N/A | N/A | 6.000 | CPS |
|---|-------|-------|-------|-----|-----|-------|-----|
| Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement |       |       |       |     |     |       |     |
| Master: 4-Nov-2009 17:36  |       |       |       |     |     |       |     |
| LSW1 Aluminum   | 600.0 | 567.1 | N/A   | N/A | N/A | N/A   | CPS |
| LSW2 Aluminum   | 900.0 | 807.6 | N/A   | N/A | N/A | N/A   | CPS |
| LSW3 Aluminum   | 1100  | 967.1 | N/A   | N/A | N/A | N/A   | CPS |
| LSW4 Aluminum   | 580.0 | 490.9 | N/A   | N/A | N/A | N/A   | CPS |
| LSW5 Aluminum   | 570.0 | 441.4 | N/A   | N/A | N/A | N/A   | CPS |
| SSW1 Aluminum   | 2800  | 2502  | N/A   | N/A | N/A | N/A   | CPS |
| SSW2 Aluminum   | 8000  | 6869  | N/A   | N/A | N/A | N/A   | CPS |
| SSW3 Aluminum   | 11600 | 9623  | N/A   | N/A | N/A | N/A   | CPS |
| SSW4 Aluminum   | 5000  | 3958  | N/A   | N/A | N/A | N/A   | CPS |
| SSW5 Aluminum   | 660.0 | 476.5 | N/A   | N/A | N/A | N/A   | CPS |

|  |       |       |     |     |     |     |     |
|--|-------|-------|-----|-----|-----|-----|-----|
| Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement |       |       |     |     |     |     |     |
| Master: 4-Nov-2009 17:36   |       |       |     |     |     |     |     |
| LSW1 Iron  | 400.0 | 388.6 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Iron  | 730.0 | 657.3 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Iron  | 1000  | 863.8 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Iron  | 520.0 | 446.9 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Iron  | 470.0 | 407.2 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Iron  | 2100  | 1834  | N/A | N/A | N/A | N/A | CPS |
| SSW2 Iron  | 6800  | 5739  | N/A | N/A | N/A | N/A | CPS |
| SSW3 Iron  | 10800 | 8813  | N/A | N/A | N/A | N/A | CPS |
| SSW4 Iron  | 4600  | 3631  | N/A | N/A | N/A | N/A | CPS |
| SSW5 Iron  | 580.0 | 422.9 | N/A | N/A | N/A | N/A | CPS |

|  |       |     |       |     |     |     |    |
|--|-------|-----|-------|-----|-----|-----|----|
| Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration |       |     |       |     |     |     |    |
| Before: Calibration out of date 16-Jul-2009 8:33                       |       |     |       |     |     |     |    |
| HLDS Caliper Small Ring  | 12.00 | N/A | 13.30 | N/A | N/A | N/A | IN |
| HLDS Caliper Large Ring  | 15.14 | N/A | 16.70 | N/A | N/A | N/A | IN |

|   |       |       |       |     |     |       |      |
|---|-------|-------|-------|-----|-----|-------|------|
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check |       |       |       |     |     |       |      |
| Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42                      |       |       |       |     |     |       |      |
| Na 511 Peak Loc   | 40.00 | 39.48 | 39.66 | N/A | N/A | 1.000 |      |
| Na 511 Peak Res   | 15.50 | 16.07 | 14.94 | N/A | N/A | 2.000 | %    |
| High Voltage  | 1150  | 1200  | 1153  | N/A | N/A | N/A   | V    |
| Na 1785 Peak Loc  | 142.6 | 142.5 | 142.2 | N/A | N/A | 7.000 |      |
| Na 1785 Peak Res  | 8.500 | 8.076 | 7.965 | N/A | N/A | 2.000 | %    |
| Temperature   | 15.50 | 36.12 | 18.31 | N/A | N/A | N/A   | DEGC |
| Na Count Rate   | 45.00 | 34.81 | 33.95 | N/A | N/A | 8.000 | CPS  |

|   |       |       |       |     |     |       |      |
|---|-------|-------|-------|-----|-----|-------|------|
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check |       |       |       |     |     |       |      |
| Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42                      |       |       |       |     |     |       |      |
| Na 511 Peak Loc   | 40.00 | 39.63 | 39.53 | N/A | N/A | 1.000 |      |
| Na 511 Peak Res   | 15.50 | 15.54 | 16.02 | N/A | N/A | 2.000 | %    |
| High Voltage  | 1150  | 1123  | 1087  | N/A | N/A | N/A   | V    |
| Na 1785 Peak Loc  | 142.6 | 142.2 | 142.8 | N/A | N/A | 7.000 |      |
| Na 1785 Peak Res  | 8.500 | 8.652 | 7.541 | N/A | N/A | 2.000 | %    |
| Temperature   | 15.50 | 36.37 | 18.97 | N/A | N/A | N/A   | DEGC |
| Na Count Rate   | 45.00 | 35.36 | 34.12 | N/A | N/A | 8.000 | CPS  |

|  |       |        |        |     |     |         |  |
|--|-------|--------|--------|-----|-----|---------|--|
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2 |       |        |        |     |     |         |  |
| Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42                                       |       |        |        |     |     |         |  |
| Coincidence Count Rate Ratio   | 1.000 | 0.9839 | 0.9971 | N/A | N/A | 0.05000 |  |

Accelerator-Porosity Tool – Detector Plateau Settings :

|                                |        |
|--------------------------------|--------|
| Near Detector Plateau Setting  | 1735 V |
| Far Detector Plateau Setting   | 2077 V |
| Array Detector Plateau Setting | 1965 V |

Dual Induction – E / Equipment Identification

Primary Equipment:

|                          |          |     |
|--------------------------|----------|-----|
| Dual Induction Sonde     | DIS – HB | 442 |
| Dual Induction Cartridge | DIC – EB | 438 |

Auxiliary Equipment:

|                       |          |     |
|-----------------------|----------|-----|
| Mass Isolated Housing | MIH – ZA | 342 |
|-----------------------|----------|-----|

Dual Induction – E Wellsite Calibration

Induction Electronics (10 kHz)

|        |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
|--------|-----------------------------|----------------|--------------------|--------|---------------------------|--------------------|--------------------|-----------------------|---------------------|----------------|--------------------|
| Phase  | ID Elect Real Offset 10 kHz | MM/M           | Value              | Phase  | ID Elect Real Gain 10 kHz | Value              | Phase              | ID Elect Phase 10 kHz | DEG                 | Value          |                    |
| Before |                             |                | 31.05              | Before |                           | 0.9385             | Before             |                       |                     | 9.060          |                    |
|        | -300.0<br>(Minimum)         | 0<br>(Nominal) | 300.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -10.00<br>(Minimum) | 0<br>(Nominal) | 10.00<br>(Maximum) |
| Phase  | ID Elect Quad Offset 10 kHz | MM/M           | Value              | Phase  | ID Elect Quad Gain 10 kHz | Value              | Phase              | IM Elect Phase 10 kHz | DEG                 | Value          |                    |
| Before |                             |                | 23.92              | Before |                           | 0.9546             | Before             |                       |                     | 8.901          |                    |
|        | -300.0<br>(Minimum)         | 0<br>(Nominal) | 300.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -10.00<br>(Minimum) | 0<br>(Nominal) | 10.00<br>(Maximum) |
| Phase  | IM Elect Real Offset 10 kHz | MM/M           | Value              | Phase  | IM Elect Real Gain 10 kHz | Value              |                    |                       |                     |                |                    |
| Before |                             |                | 83.66              | Before |                           | 0.9473             |                    |                       |                     |                |                    |
|        | -550.0<br>(Minimum)         | 0<br>(Nominal) | 550.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |
| Phase  | IM Elect Quad Offset 10 kHz | MM/M           | Value              | Phase  | IM Elect Quad Gain 10 kHz | Value              |                    |                       |                     |                |                    |
| Before |                             |                | 43.93              | Before |                           | 0.9278             |                    |                       |                     |                |                    |
|        | -550.0<br>(Minimum)         | 0<br>(Nominal) | 550.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |

Before: 24-Nov-2009 13:24

|   |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
|---|-----------------------------|----------------|--------------------|--------|---------------------------|--------------------|--------------------|-----------------------|---------------------|----------------|--------------------|
| Dual Induction – E Wellsite Calibration |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
| Induction Electronics (20 kHz)          |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
| Phase                                   | ID Elect Real Offset 20 kHz | MM/M           | Value              | Phase  | ID Elect Real Gain 20 kHz | Value              | Phase              | ID Elect Phase 20 kHz | DEG                 | Value          |                    |
| Before                                  |                             |                | 12.28              | Before |                           | 0.9665             | Before             |                       |                     | 4.391          |                    |
|   | -125.0<br>(Minimum)         | 0<br>(Nominal) | 125.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -15.00<br>(Minimum) | 0<br>(Nominal) | 15.00<br>(Maximum) |
| Phase                                   | ID Elect Quad Offset 20 kHz | MM/M           | Value              | Phase  | ID Elect Quad Gain 20 kHz | Value              | Phase              | IM Elect Phase 20 kHz | DEG                 | Value          |                    |
| Before                                  |                             |                | 9.659              | Before |                           | 0.9858             | Before             |                       |                     | 4.791          |                    |
|   | -125.0<br>(Minimum)         | 0<br>(Nominal) | 125.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -15.00<br>(Minimum) | 0<br>(Nominal) | 15.00<br>(Maximum) |
| Phase                                   | IM Elect Real Offset 20 kHz | MM/M           | Value              | Phase  | IM Elect Real Gain 20 kHz | Value              |                    |                       |                     |                |                    |
| Before                                  |                             |                | 34.35              | Before |                           | 0.9917             |                    |                       |                     |                |                    |
|   | -225.0<br>(Minimum)         | 0<br>(Nominal) | 225.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |
| Phase                                   | IM Elect Quad Offset 20 kHz | MM/M           | Value              | Phase  | IM Elect Quad Gain 20 kHz | Value              |                    |                       |                     |                |                    |
| Before                                  |                             |                | 18.19              | Before |                           | 0.9711             |                    |                       |                     |                |                    |
|   | -225.0<br>(Minimum)         | 0<br>(Nominal) | 225.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |

Before: 24-Nov-2009 13:25

|   |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
|---|-----------------------------|----------------|--------------------|--------|---------------------------|--------------------|--------------------|-----------------------|---------------------|----------------|--------------------|
| Dual Induction – E Wellsite Calibration |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
| Induction Electronics (40 kHz)          |                             |                |                    |        |                           |                    |                    |                       |                     |                |                    |
| Phase                                   | ID Elect Real Offset 40 kHz | MM/M           | Value              | Phase  | ID Elect Real Gain 40 kHz | Value              | Phase              | ID Elect Phase 40 kHz | DEG                 | Value          |                    |
| Before                                  |                             |                | 8.040              | Before |                           | 0.9520             | Before             |                       |                     | 15.63          |                    |
|   | -85.00<br>(Minimum)         | 0<br>(Nominal) | 85.00<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -20.00<br>(Minimum) | 0<br>(Nominal) | 20.00<br>(Maximum) |
| Phase                                   | ID Elect Quad Offset 40 kHz | MM/M           | Value              | Phase  | ID Elect Quad Gain 40 kHz | Value              | Phase              | IM Elect Phase 40 kHz | DEG                 | Value          |                    |
| Before                                  |                             |                | 6.450              | Before |                           | 0.9803             | Before             |                       |                     | 15.42          |                    |
|   | -85.00<br>(Minimum)         | 0<br>(Nominal) | 85.00<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) | 1.200<br>(Maximum) |                       | -20.00<br>(Minimum) | 0<br>(Nominal) | 20.00<br>(Maximum) |
| Phase                                   | IM Elect Real Offset 40 kHz | MM/M           | Value              | Phase  | IM Elect Real Gain 40 kHz | Value              |                    |                       |                     |                |                    |
| Before                                  |                             |                | 22.15              | Before |                           | 0.9943             |                    |                       |                     |                |                    |
|   | -130.0<br>(Minimum)         | 0<br>(Nominal) | 130.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |
| Phase                                   | IM Elect Quad Offset 40 kHz | MM/M           | Value              | Phase  | IM Elect Quad Gain 40 kHz | Value              |                    |                       |                     |                |                    |
| Before                                  |                             |                | 11.81              | Before |                           | 0.9732             |                    |                       |                     |                |                    |
|   | -130.0<br>(Minimum)         | 0<br>(Nominal) | 130.0<br>(Maximum) |        | 0.8500<br>(Minimum)       | 1.000<br>(Nominal) |                    |                       |                     |                | 1.200<br>(Maximum) |

Before: 24-Nov-2009 13:26

|   |                     |                |                    |        |                     |                    |                    |
|---|---------------------|----------------|--------------------|--------|---------------------|--------------------|--------------------|
| Dual Induction – E Wellsite Calibration |                     |                |                    |        |                     |                    |                    |
| SFL Electronics                         |                     |                |                    |        |                     |                    |                    |
| Phase                                   | SFL Voltage Offset  | MV             | Value              | Phase  | SFL Voltage Gain    | Value              |                    |
| Before                                  |                     |                | 0.1613             | Before |                     | 0.9984             |                    |
|   | -15.00<br>(Minimum) | 0<br>(Nominal) | 15.00<br>(Maximum) |        | 0.8500<br>(Minimum) | 1.000<br>(Nominal) | 1.200<br>(Maximum) |
| Phase                                   | SFL Current Offset  | MA             | Value              | Phase  | SFL Current Gain    | Value              |                    |

|                           |                |                     |                     |                    |                    |
|---------------------------|----------------|---------------------|---------------------|--------------------|--------------------|
| Before                    |                | 0.03676             | Before              |                    | 1.010              |
| -0.6000<br>(Minimum)      | 0<br>(Nominal) | 0.6000<br>(Maximum) | 0.8500<br>(Minimum) | 1.000<br>(Nominal) | 1.200<br>(Maximum) |
| Before: 24-Nov-2009 13:26 |                |                     |                     |                    |                    |

**General Purpose Inclinerometer / Equipment Identification**

|                      |          |      |  |
|----------------------|----------|------|--|
| Primary Equipment:   |          |      |  |
| GPIT Cartridge - A   | GPIC - A | 719  |  |
| Auxiliary Equipment: |          |      |  |
| GPIT Housing         | GPIH - A | 2864 |  |

**Accelerator-Porosity Tool / Equipment Identification**

|                                |           |      |  |
|--------------------------------|-----------|------|--|
| Primary Equipment:             |           |      |  |
| Accelerator-Porosity Sonde     | APS - C   | 22   |  |
| APS Minitron                   | MNTR - F  | 5589 |  |
| Auxiliary Equipment:           |           |      |  |
| Accelerator-Porosity Housing   | APH - AC  | 22   |  |
| APS Calibration Water Tank     | SFT - 178 | 2    |  |
| APS Aluminum Calibrator Sleeve | SFT - 281 | 2    |  |

**Accelerator-Porosity Tool Wellsite Calibration**

**Detector Background**

| Phase  | Near Det Bkg Cntrate CPS                        | Value | Phase  | Far Det Bkg Cntrate CPS                         | Value | Phase  | Array-1 Det Bkg Cntrate CPS                     | Value |
|--------|---|-------|--------|---|-------|--------|---|-------|
| Master |   | 31.30 | Master |   | 33.28 | Master |   | 29.03 |
| Before |   | 31.42 | Before |   | 33.68 | Before |   | 29.63 |
|        | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) |       |        | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) |       |        | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) |       |
| Phase  | Array-2 Det Bkg Cntrate CPS                     | Value | Phase  | Array Therm Det Bkg Cntrate CPS                 | Value |        |   |       |
| Master |   | 29.71 | Master |   | 33.23 |        |   |       |
| Before |   | 29.96 | Before |   | 34.30 |        |   |       |
|        | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) |       |        | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) |       |        |   |       |

Master: 5-Nov-2009 1:02

Before: 28-Nov-2009 4:42

**Accelerator-Porosity Tool Wellsite Calibration**

**Calibration Ratios**

| Phase  | Near/Far Calibration Ratio                        | Value  | Phase  | Near/Array Calibration Ratio                     | Value | Phase  | Near/Array Cal Ratio Up/Down                     | Value |
|--------|---|--------|--------|--|-------|--------|--|-------|
| Master |   | 0.8901 | Master |  | 1.060 | Master |  | 1.007 |
|        | 0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum) |        |        | 0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum) |       |        | 0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum) |       |

Master: 5-Nov-2009 1:02

**Accelerator-Porosity Tool Wellsite Calibration**

**Tank Check**

| Phase  | Array-1 Standoff Porosity PU                     | Value  | Phase  | Array-2 Standoff Porosity PU                     | Value  | Phase  | Average Slowing Down Time US                    | Value |
|--------|--|--------|--------|--|--------|--------|---|-------|
| Master |  | 11.51  | Master |  | 11.21  | Master |   | 5.881 |
|        | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)  |        |        | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)  |        |        | 5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum) |       |
| Phase  | Array-1 SDT Ratio Up/Down                        | Value  | Phase  | Array-2 SDT Ratio Up/Down                        | Value  | Phase  | Sigma Formation CU                              | Value |
| Master |  | 0.9799 | Master |  | 0.9831 | Master |   | 27.90 |
|        | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) |        |        | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) |        |        | 20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum) |       |

Master: 5-Nov-2009 1:02

**Hostile Litho-Density Sonde / Equipment Identification**

|                               |          |    |  |
|-------------------------------|----------|----|--|
| Primary Equipment:            |          |    |  |
| Hostile Litho Density Sonde   | HLDS - D | 57 |  |
| Hostile Litho Density Housing | HLDH - B | 27 |  |

Hostile Litho Density High Voltage  
Gamma Source Radioactive

HLDV - D 51  
GSR - Z 2397

Auxiliary Equipment:  
Hostile Litho Density Pad  
Hostile Litho Density High Voltage Housi

HLDP - C 61  
HEH - H 53

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

| Phase  | SS Cs Resolution Bkg % | Value | Phase  | LS Cs Resolution Bkg % | Value | Phase   | LSW1 Background CPS | Value |  |
|--|------------------------|-------|--|------------------------|-------|---|---------------------|-------|--|
| Master   |                        | 7.756 | Master   |                        | 8.165 | Master  |                     | 92.48 |  |
| Before   |                        | 7.779 | Before   |                        | 8.005 | Before  |                     | 92.05 |  |
| 7.000 (Minimum) 9.000 (Nominal) 11.000 (Maximum) |                        |       | 7.000 (Minimum) 9.000 (Nominal) 11.000 (Maximum) |                        |       | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum) |                     |       |  |
| Phase  | LSW2 Background CPS    | Value | Phase  | LSW3 Background CPS    | Value | Phase   | LSW4 Background CPS | Value |  |
| Master   |                        | 84.63 | Master   |                        | 191.1 | Master  |                     | 233.7 |  |
| Before   |                        | 83.64 | Before   |                        | 189.4 | Before  |                     | 234.1 |  |
| 50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)  |                        |       | 110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)  |                        |       | 140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum) |                     |       |  |
| Phase  | LSW5 Background CPS    | Value | Phase  | SSW1 Background CPS    | Value | Phase   | SSW2 Background CPS | Value |  |
| Master   |                        | 544.1 | Master   |                        | 90.17 | Master  |                     | 152.5 |  |
| Before   |                        | 542.2 | Before   |                        | 88.00 | Before  |                     | 153.8 |  |
| 330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)  |                        |       | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)  |                        |       | 100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum) |                     |       |  |
| Phase  | SSW3 Background CPS    | Value | Phase  | SSW4 Background CPS    | Value | Phase   | SSW5 Background CPS | Value |  |
| Master   |                        | 429.0 | Master   |                        | 231.1 | Master  |                     | 164.3 |  |
| Before   |                        | 430.6 | Before   |                        | 230.6 | Before  |                     | 164.6 |  |
| 280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)  |                        |       | 150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)  |                        |       | 110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum) |                     |       |  |
| Master: 4-Nov-2009 17:36                         |                        |       | Before: 28-Nov-2009 4:42                         |                        |       |   |                     |       |  |

Litho-Density Spectroscopy Cartridge - B / Equipment Identification

Primary Equipment:  
LDSC Cartridge

LDSC - B 326

Auxiliary Equipment:  
LDSC Housing

LDSH - A 319

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment:  
HNGC Cartridge

HNGC - B 300

Auxiliary Equipment:  
HNGC Housing

HNGH - A 115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:  
HNGS Sonde

HNGS - BA 194

Auxiliary Equipment:  
HNGS Sonde Housing  
Gamma Source Radioactive

HNSH - BA 205  
GSR - U 616008

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

| Phase  | Na 511 Peak Loc | Value | Phase  | Na 511 Peak Res % | Value | Phase  | High Voltage V | Value |
|--------|-----------------|-------|--------|-------------------|-------|--------|----------------|-------|
| Master |                 | 39.48 | Master |                   | 16.07 | Master |                | 1200  |
| Before |                 | 39.66 | Before |                   | 14.94 | Before |                | 1153  |

| Phase                     | Na 1785 Peak Loc                                | Value | Phase                    | Na 1785 Peak Res %                              | Value | Phase  | Temperature DEGC                                 | Value |
|---------------------------|---|-------|--------------------------|---|-------|--------|--|-------|
| Master                    |   | 142.5 | Master                   |   | 8.076 | Master |  | 36.12 |
| Before                    |   | 142.2 | Before                   |   | 7.965 | Before |  | 18.31 |
|                           | 135.0 (Minimum) 40.00 (Nominal) 150.3 (Maximum) |       |                          | 7.000 (Minimum) 15.50 (Nominal) 11.00 (Maximum) |       |        | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) |       |
| Phase                     | Na Count Rate CPS                               | Value |                          |   |       |        |  |       |
| Master                    |   | 34.81 |                          |   |       |        |  |       |
| Before                    |   | 33.95 |                          |   |       |        |  |       |
|                           | 10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum) |       |                          |   |       |        |  |       |
| Master: 31-Oct-2009 23:09 |   |       | Before: 28-Nov-2009 4:42 |   |       |        |  |       |

| Hostile Natural Gamma Ray Sonde Wellsite Calibration |   |       |                          |   |       |        |  |       |
|--|---|-------|--------------------------|---|-------|--------|--|-------|
| Detector 2 Check                                     |   |       |                          |   |       |        |  |       |
| Phase  | Na 511 Peak Loc                                 | Value | Phase                    | Na 511 Peak Res %                               | Value | Phase  | High Voltage V                                   | Value |
| Master   |   | 39.63 | Master                   |   | 15.54 | Master |  | 1123  |
| Before   |   | 39.53 | Before                   |   | 16.02 | Before |  | 1087  |
|  | 37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum) |       |                          | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) |       |        | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)    |       |
| Phase  | Na 1785 Peak Loc                                | Value | Phase                    | Na 1785 Peak Res %                              | Value | Phase  | Temperature DEGC                                 | Value |
| Master   |   | 142.2 | Master                   |   | 8.652 | Master |  | 36.37 |
| Before   |   | 142.8 | Before                   |   | 7.541 | Before |  | 18.97 |
|  | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) |       |                          | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) |       |        | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) |       |
| Phase  | Na Count Rate CPS                               | Value |                          |   |       |        |  |       |
| Master   |   | 35.36 |                          |   |       |        |  |       |
| Before   |   | 34.12 |                          |   |       |        |  |       |
|  | 10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum) |       |                          |   |       |        |  |       |
| Master: 31-Oct-2009 23:09                            |   |       | Before: 28-Nov-2009 4:42 |   |       |        |  |       |

| Hostile Natural Gamma Ray Sonde Wellsite Calibration |  |        |
|--|--|--------|
| Ratio Of Detector 1 To Detector 2                    |  |        |
| Phase  | Coincidence Count Rate Ratio                     | Value  |
| Master   |  | 0.9839 |
| Before   |  | 0.9971 |
|  | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) |        |
| Master: 31-Oct-2009 23:09                            |  |        |
| Before: 28-Nov-2009 4:42                             |  |        |

| DTS Telemetry Tool / Equipment Identification |          |      |
|---|----------|------|
| Primary Equipment:                            |          |      |
| DTC-H Auxiliary Cartridge                     | DTCH - A |      |
| DTC-H Telemetry Cartridge                     | DTCH - A | 8798 |
| Auxiliary Equipment:                          |          |      |
| DTCH Telemetry Cartridge Housing              | ECH - KC | 2304 |

Well: **Expedition 317 Site U1351C**  
Field: **Canterbury Basin**  
Rig: **JOIDES Resolution**  
Ocean: **Pacific**

Litho-Density