

| | | | | | |
|--|--|-----|-------------|--|--|
| | | MWD | See Remarks | | |
|--|--|-----|-------------|--|--|

| Run number | | 3 | 4 | 5 | | | | | | |
|------------------------|----------|--------------|--------------|--------------|--|--|--|--|--|--|
| Bit size | in. | 9.875 | 9.875 | 9.875 | | | | | | |
| Bit start depth | m | 2042.0 | 4602.0 | 4950.0 | | | | | | |
| Bit end depth | m | 4602.0 | 4950.0 | 5097.0 | | | | | | |
| Top interval logged | m | 2012.3 | 4572.3 | 4920.2 | | | | | | |
| Bottom interval logged | m | 4592.2 | 4940.0 | 5087.0 | | | | | | |
| Begin log: time | | 18:48 | 02:27 | 08:40 | | | | | | |
| Begin log: date | | 14-Oct-07 | 22-Oct-07 | 26-Oct-07 | | | | | | |
| End log: time | | 20:34 | 11:31 | 19:02 | | | | | | |
| End log: date | | 18-Oct-07 | 23-Oct-07 | 26-Oct-07 | | | | | | |
| Mud data | | | | | | | | | | |
| Depth | m | 4589.0 | 4950.0 | 5096.0 | | | | | | |
| Type | | Accolade SBM | Accolade SBM | Accolade SBM | | | | | | |
| Mud weight | ppg | 11.45 | 12.10 | 12.15 | | | | | | |
| Solids | % | 17.1 | 20.1 | 20.2 | | | | | | |
| Chlorides | mg/L | 40,774 | 41,104 | 39,804 | | | | | | |
| Rm | ohm.m@°C | n/a | n/a | n/a | | | | | | |
| Rmf | ohm.m@°C | n/a | n/a | n/a | | | | | | |
| Rmc | ohm.m@°C | n/a | n/a | n/a | | | | | | |

| | | | | | | | | | | |
|----------------------------|-----|-------------|-------------|-------------|----------|--------|--|--|--|--|
| Potassium | % | n/a | n/a | n/a | | | | | | |
| Environmental data | | | | | | | | | | |
| GR | | | | | | | | | | |
| Mud weight | ppg | 11.45 | 12.10 | 12.15 | | | | | | |
| Bit size | in. | 9.875 | 9.875 | 9.875 | | | | | | |
| Resistivity | | | | | | | | | | |
| Neutron porosity | | | | | | | | | | |
| Hole Size | in. | 9.875 | 9.875 | 9.875 | | | | | | |
| Mud weight | ppg | 11.45 | 12.10 | 12.15 | | | | | | |
| Temperature | °C | 100.0 | 107.0 | 106.0 | | | | | | |
| Mud salinity | ppk | 52.464 | 50.771 | 49.619 | | | | | | |
| Formation salinity | | n/a | n/a | n/a | | | | | | |
| Recording rate 1 | SEC | 4 (RES,GR) | 2 (RES,GR) | 2 (RES,GR) | | | | | | |
| Recording rate 2 | SEC | 8 (DEN,NEU) | 4 (DEN,NEU) | 4 (DEN,NEU) | | | | | | |
| Filtering GR | | 3 pts | 3 pts | 3 pts | | | | | | |
| Filtering density | | 3 pts | 3 pts | 3 pts | | | | | | |
| Filtering Neutron | | 3 pts | 3 pts | 3 pts | | | | | | |
| Company representative | | R. Moore | G. Doty | | | | | | | |
| Schlumberger D&M Personnel | | M. Y. Tan | C. Skiba | M. Lu | C. Soper | M. How | | | | |

| | | |
|---|---|--|
| <p style="text-align: center;">DISCLAIMER</p> <p>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.</p> | | |
| OTHER SERVICES FOR RUN3 Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations | OTHER SERVICES FOR RUN4 Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations | OTHER SERVICES FOR RUN5 Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations |
| REMARKS: RUN NUMBER 3 Depth is referenced to Driller's Depth. Gamma ray is corrected for mud weight, tool size and bit size. Resistivity is borehole compensated and environmentally corrected. Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure). Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3. Delta-T is borehole compensated. High PEB due to addition of barite from 2068-2090m (sensor depth). No porosity data from 2157-4602m (sensor depth). POOH due to PNG failure in EcoScope*. | REMARKS: RUN NUMBER 4 Depth is referenced to Driller's Depth. Gamma ray is corrected for mud weight, tool size and bit size. Resistivity is borehole compensated and environmentally corrected. Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure). Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3. Delta-T is borehole compensated. POOH due to loss of MWD signal. | REMARKS: RUN NUMBER 5 Depth is referenced to Driller's Depth. Gamma ray is corrected for mud weight, tool size and bit size. Resistivity is borehole compensated and environmentally corrected. Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure). Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3. Delta-T is borehole compensated. POOH due to reaching TD of FTA A30A. |

| EQUIPMENT DESCRIPTION | | |
|------------------------------|--------------------|--------------------|
| RUN3 | RUN4 | RUN5 |
| DOWNHOLE EQUIPMENT | DOWNHOLE EQUIPMENT | DOWNHOLE EQUIPMENT |

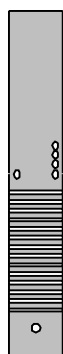
DOWNHOLE EQUIPMENT

DOWNHOLE EQUIPMENT

DOWNHOLE EQUIPMENT

6-3/4" sonicVISION*
DHS: 6.6B04
S/N: 630

Delta-T
R-O port



32.70

9-5/8" ILS
S/N: OSS060564C



25.48

6-3/4" TeleScope*
MDC: FA28
MEC: AB-232
MDI: CA-2084
MVC: AA-109

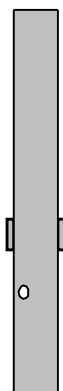
D&I
MVC



24.37

6-3/4" EcoScope*
DHS: V2.1
Blade OD: 9-3/8"
S/N: 808
PNG-C: 2242-41357
Source S/N: A2474

PNG Monit
Neutron N
Spectroscopy
Neutron D
Neutron F
Receiver
Ultrasonic
Density S
Density L
Continuous
R-O Port
Pressure
Gamma Ray



15.97

6-3/4" PowerDrive Xceed*
S/N: 111



7.92

9-7/8" Reed Hycalog PDC Bit
S/N: 216695



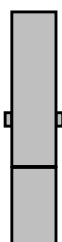
0.25

Maximum string diameter 9-7/8 in.

All lengths in Meters

6-3/4" adnVISION*
DHS: V8.3A02
Blade OD: 8-1/4"
S/N: 373

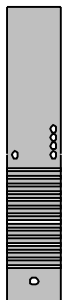
Neutron F
Neutron N
Density S
Density L
UltraSonic
R-O Port



37.45
37.29 39.06
36.34
36.24
35.86
35.10

6-3/4" sonicVISION*
DHS: 6.6B04
S/N: 630

Delta-T
R-O port



33.08

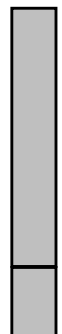
9-5/8" ILS
S/N: OSS060564C



25.49

6-3/4" TeleScope*
MDC: FA28
MEC: AB-232
MDI: CA-2084
MVC: AA-109

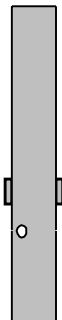
D&I
MVC



24.38

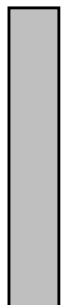
6-3/4" EcoScope*
DHS: V2.1
Blade OD: 9-3/8"
S/N: 821
PNG-C: 2242-41357
Source S/N: A2474

PNG Monit
Neutron N
Spectroscopy
Neutron D
Neutron F
Receiver
Ultrasonic
Density S
Density L
Continuous
R-O Port
Pressure
Gamma Ray



15.98

6-3/4" PowerDrive Xceed*
S/N: 111



7.92

9-7/8" Reed Hycalog PDC Bit
S/N: 216695



0.25

Maximum string diameter 9-7/8 in.

All lengths in Meters

6-3/4" sonicVISION*
DHS: 6.6B04
S/N: 630

Delta-T
R-O port



32.81

9-5/8" ILS
S/N: OSS060564C



25.49

6-3/4" TeleScope*
MDC: V875
MEC: AB-373
MDI: CA-1841
MVC: AA-282

D&I
MVC



24.48

6-3/4" EcoScope*
DHS: V2.1
Blade OD: 9-3/8"
S/N: 821
PNG-C: 2073-41121
Source S/N: A2474

PNG Monit
Neutron N
Spectroscopy
Neutron D
Neutron F
Receiver
Ultrasonic
Density S
Density L
Continuous
R-O Port
Pressure
Gamma Ray



15.98

6-3/4" PowerDrive Xceed*
S/N: 111



7.92

9-7/8" Reed Hycalog PDC Bit
S/N: 216695



0.25

Maximum string diameter 9-7/8 in.

All lengths in Meters

| Variable Name | Variable Description | Run Name & Value | | |
|----------------------|--|------------------|--------------|--------------|
| Run Number | | 3 | 4 | 5 |
| General Information | | | | |
| BHT_RM | Bottom Hole Temperature (RM) | 100.00 | 107.00 | 106.00 |
| BSAL_RM | Mud Salinity (RM) | 52.464 | 50.771 | 49.619 |
| BS_RM | Bit Size (RM) | 9.875 | 9.875 | 9.875 |
| COEF_M | User Defined FEXP in Clean Sand | 1.650000 | 1.650000 | 1.650000 |
| C_WS | Overpressure correction to Sw and M | 1.000000 | 1.000000 | 1.000000 |
| FEXP | Formation Factor Exponent (RM) | 2.000000 | 2.000000 | 2.000000 |
| FNUM | Formation Factor Enumerator (RM) | 1.000000 | 1.000000 | 1.000000 |
| FPHI_RM | Formation Factor Porosity Source (RM) | XPLOT | XPLOT | XPLOT |
| MST_RM | Mud Sample temperature (RM) | 75.000000 | 75.000000 | 75.000000 |
| MW_RM | Mud Weight (RM) | 11.45 | 12.10 | 12.15 |
| OBMF_RM | Oil Based Mud (RM) | YES | YES | YES |
| RHOF_RM | Mud Filtrate Density (RM) | 1.000000 | 1.000000 | 1.000000 |
| RHOM_RM | Matrix density (RM) | 2.710000 | 2.710000 | 2.710000 |
| RMS_RM | Resistivity of Mud Sample (RM) | 1000 | 1000 | 1000 |
| RWA_COMP_M | Rwa computation model | BASIC | BASIC | BASIC |
| RWA_DEN_AD | Rwa Density Input ADN | RHOB | RHOB | RHOB |
| RWA_DEN_CD | Rwa Density Input CDN | RHOB | RHOB | RHOB |
| RWA_DEN_IN | Rwa Density Input | RHOB | RHOB | RHOB |
| RWA_FORM_M | Rwa computation formation model | CLASTIC | CLASTIC | CLASTIC |
| RWA_RES_IN | Rwa computation resistivity input | RT | P34H | RT |
| RWS_RM | Resistivity of Connate Water (RM) | 1.000000 | 1.000000 | 1.000000 |
| SHT_RM | Surface Hole Temperature (RM) | | | |
| TD_RM | Total Measured Depth (RM) | 4602.00 | 4950.00 | 5097.00 |
| TWS_RM | Temperature of Connate Water (RM) | 75.000000 | 75.000000 | 75.000000 |
| VF_ILLI | Fraction of illite in shales | 0.500000 | 0.500000 | 0.500000 |
| VF_KAOL | Fraction of kaolinite in shales | 0.500000 | 0.500000 | 0.500000 |
| VF_MONT | Fraction of montmorillonite in shales | 0.000000 | 0.000000 | 0.000000 |
| XPDM_RM | Cross plot density porosity multiplier | 0.675000 | 0.675000 | 0.675000 |
| XPNM_RM | Cross plot neutron porosity multiplier | 0.325000 | 0.325000 | 0.325000 |
| ISONIC | | | | |
| FP_SD | First Sample delay | 400.00 | 400.00 | 400.00 |
| STC_CF | Center frequency of Filter | 13.00 | 13.00 | 13.00 |
| STC_BW | Bandwidth (kHz) | Default | Default | Default |
| STC_RWI | Receiver waveform ignored | None | None | None |
| PM_TOFF | Tool Time offset from surface system | 0.00 | 0.00 | 0.00 |
| DT_COH | Delta-T Coherence Cutoff Value | 0.70 | 0.70 | 0.70 |
| PPC_PF | Porosity Formula | Raymer-Hunt | Raymer-Hunt | Raymer-Hunt |
| PPC_PS | Sonic Porosity Source | DTRA | DTRA | DTRA |
| PPC_MDT | Matrix Delta-T | 47.60 | 47.60 | 47.60 |
| PPC_FDT | Fluid Delta-T | 189.00 | 189.00 | 189.00 |
| DVD | | | | |
| LWD_RM/STATION_FILE/ | PARAMETERStation Time-frame file name | | | |
| ----- | -----Density Parameters----- | | | |
| ----- | -----Neutron Parameters----- | | | |
| ----- | -----Image Parameters----- | | | |
| ----- | -----Sigma Parameters----- | | | |
| A12A | ARC Air Cal Attenuation From T1 at 2 MHz | 9.530100 | 8.531670 | 8.531670 |
| A14A | ARC Air Cal Attenuation From T1 at 400 KHz | 8.462110 | 8.527910 | 8.527910 |
| A22A | ARC Air Cal Attenuation From T2 at 2 MHz | 4.872150 | 5.881960 | 5.881960 |
| A24A | ARC Air Cal Attenuation From T2 at 400 KHz | 5.973420 | 5.907090 | 5.907090 |
| A32A | ARC Air Cal Attenuation From T3 at 2 MHz | 6.131120 | 5.136020 | 5.136020 |
| A34A | ARC Air Cal Attenuation From T3 at 400 KHz | 5.056190 | 5.126850 | 5.126850 |
| A42A | ARC Air Cal Attenuation From T4 at 2 MHz | 3.275440 | 4.281080 | 4.281080 |
| A44A | ARC Air Cal Attenuation From T4 at 400 KHz | 4.371600 | 4.300000 | 4.300000 |
| A52A | ARC Air Cal Attenuation From T5 at 2 MHz | 4.691160 | 3.695010 | 3.695010 |
| A54A | ARC Air Cal Attenuation From T5 at 400 KHz | 3.611300 | 3.681320 | 3.681320 |
| ABNT | Abnormal Transmitter Indicator | No_Tx_Failed | No_Tx_Failed | No_Tx_Failed |
| ALPHA_DEN | Density Enhanced Vertical Resolution Processing Switch | YES | YES | YES |
| ANISO_COMP | Anisotropy Computation Option | YES | YES | YES |
| ATMP_ARC | ARC Select Temperature Channel | Annulus_Temp | Annulus_Temp | Annulus_Temp |
| AZMF | Formation DIP Azimuth | 0.000000 | 0.000000 | 0.000000 |
| BH_COMPUTE | Borehole Inversion Computation Option | YES | YES | YES |
| CALG | DVDM Gamma Ray Cal Gain Factor | -1.000000 | -1.000000 | -1.000000 |
| CDPTH_ARC | Process Start Depth | 100.000000 | 100.000000 | 100.000000 |
| CHI_RM | Caliper High Limit from BS (RM) | 10.000000 | 10.000000 | 10.000000 |
| CLO_RM | Caliper Low Limit from BS (RM) | -5.000000 | -5.000000 | -5.000000 |
| DIELEC_COM | Dielectric Computation Option | YES | YES | YES |
| DIPF | Formation DIP Angle | 0.000000 | 0.000000 | 0.000000 |
| DTMUD | Delta-T for Mud (RM) | 216.04 | 215.24 | 213.99 |
| DTMUD_DH | Delta-T for Mud Downhole (RT) | 216.04 | 215.24 | 213.99 |
| DVDMDH\$ | DVDM Down Hole Software Version | V21 | V21 | V21 |
| DYN_IMAGE_ | Generate Dynamic Normalized Image? | YES | YES | YES |
| EDPTH | Wizard Process Stop Depth | 4602.00 | 4950.00 | 5097.00 |
| EN_WIZARD | Enable ARC Wizard Processing | YES | YES | YES |
| ERRCT | Percentage Error Cutoff | 4.500000 | 4.500000 | 4.500000 |
| EVRL | EVR Process averaging number of samples (RM) | 49 | 49 | 49 |
| FWVN | Firmware Version Number | 2.100000 | 2.100000 | 2.100000 |
| GCSE | Generalized Caliper Selection | BS | BS | BS |
| GRBC | RM: DVDM Gamma Ray Blanket (CPS) | 75.000000 | 75.000000 | 75.000000 |
| GRSH | GR Shale (Invasion Computation Cutoff) | 1000.000000 | 1000.000000 | 1000.000000 |
| GR_CF | Gamma Ray Correction Factor | 2.250000 | 2.250000 | 2.250000 |
| GR_O2COR_O | Enable Gamma Ray Oxygen Activation Correction | YES | YES | YES |
| HIGH_BLEND | High Resistivity Threshold for Blending | 2.000000 | 2.000000 | 2.000000 |
| IDQT | Image Derived Quality Threshold | 1.000000 | 1.000000 | 2.000000 |
| IMAGE_MAX | Image Density Caliper Right Scale | 8.000000 | 8.000000 | 8.000000 |

| | | | | |
|------------|---|---------------|---------------|---------------|
| IMAGE_MAX | Image Density Quality Right Scale | 1.000000 | 1.000000 | 1.000000 |
| IMAGE_MAX | Image PEF(Segment) Right Scale | 6.000000 | 6.000000 | 6.000000 |
| IMAGE_MAX | Image RHOB(Segment) Right Scale | 2.650000 | 2.650000 | 2.650000 |
| IMAGE_MIN | Image Density Caliper Left Scale | 2.000000 | 2.000000 | 2.000000 |
| IMAGE_MIN | Image Density Quality Left Scale | 0.000000 | 0.000000 | 0.000000 |
| IMAGE_MIN | Image PEF(Segment) Left Scale | 2.000000 | 2.000000 | 2.000000 |
| IMAGE_MIN | Image RHOB(Segment) Left Scale | 2.050000 | 2.050000 | 2.050000 |
| INCLIN_B0 | ARC Bias Constant (mg) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_B1 | ARC Bias First-order Coefficient (mg/degC) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_B2 | ARC Bias Secod-order Coeeficient (mg/degC) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_B3 | ARC Bias Third-order Coeeficient (mg/degC) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_C0 | ARC Current Scale Factor Constant (mA/g) | 1.000000 | 1.000000 | 1.000000 |
| INCLIN_C1 | ARC Scale First-order Coeeficient (mA/g/degC) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_C2 | ARC Scale Second-order Coeeficient (mA/g/degC) | 0.000000 | 0.000000 | 0.000000 |
| INCLIN_C3 | ARC Scale Third-order Coeeficient (mA/g/degC) | 0.000000 | 0.000000 | 0.000000 |
| INVAS_COMP | Invasion Computation Option | YES | YES | YES |
| JSD | Acquisition start date | YES | YES | YES |
| JSD_ARC | ARC Acquisition start date | YES | YES | YES |
| LOW_BLEND | Low Resistivity Threshold for Blending | 1.000000 | 1.000000 | 1.000000 |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | LIMESTONE | LIMESTONE |
| MSWS | ARC Wizard Model Switch Window | 5.000000 | 5.000000 | 5.000000 |
| MULTIEFFEC | Multi Effect Option | YES | YES | YES |
| NEU_DCOR_O | Density Correction Source for Neutron Processing | Bottom | Bottom | Bottom |
| NEU_FTUBE | Far Thermal Tube Selection | Both | Both | Both |
| NEU_PRESCO | Pressure Correction Source for Neutron Processing | Annulus_Press | Annulus_Press | Annulus_Press |
| NTIK_SEL | Neutron Tick Channel Name | FAZ1 | FAZ1 | FAZ1 |
| OACF | Oxygen Activation Correction Factor (RM) | 8.000000 | 8.000000 | 8.000000 |
| P12A | ARC Air Cal Phase-Shift From T1 at 2 MHz | -0.991514 | 3.732350 | 3.732350 |
| P14A | ARC Air Cal Phase-Shift From T1 at 400 KHz | 1.613050 | -1.612500 | -1.612500 |
| P22A | ARC Air Cal Phase-Shift From T2 at 2 MHz | 0.887621 | -3.842230 | -3.842230 |
| P24A | ARC Air Cal Phase-Shift From T2 at 400 KHz | -1.590020 | 1.589550 | 1.589550 |
| P32A | ARC Air Cal Phase-Shift From T3 at 2 MHz | -1.029130 | 3.691090 | 3.691090 |
| P34A | ARC Air Cal Phase-Shift From T3 at 400 KHz | 1.617380 | -1.595490 | -1.595490 |
| P42A | ARC Air Cal Phase-Shift From T4 at 2 MHz | 0.870618 | -3.819860 | -3.819860 |
| P44A | ARC Air Cal Phase-Shift From T4 at 400 KHz | -1.592440 | 1.600640 | 1.600640 |
| P52A | ARC Air Cal Phase-Shift From T5 at 2 MHz | -0.992042 | 3.727520 | 3.727520 |
| P54A | ARC Air Cal Phase-Shift From T5 at 400 KHz | 1.627430 | -1.596340 | -1.596340 |
| PMUD | Potassium Concentration in Mud | 0.000000 | 0.000000 | 0.000000 |
| POFFSET | Pressure Offset | 0.000000 | 0.000000 | 0.000000 |
| PRTD | Preferred Resistivity Log for Rt Display | P34B | P34B | P34B |
| PSOF_ADJ_T | ARC: User Input Phase offset | 0.000000 | 0.000000 | 0.000000 |
| RESTIK | ARC resistivity tick source | Phase | Phase | Phase |
| SDPTH | Wizard Process Start Depth | 1951.00 | 4602.00 | 4950.00 |
| SHT_RM | Ground Level Temperature (Mud-Line When Offshore) (RM) | 10.00 | 10.00 | 10.00 |
| SIG_PCOR_O | Porosity Correction Source for Sigma Processing | Best | Best | Best |
| SPEC_CSG_D | Casing Depth for Spectroscopy Processing | 1951.00 | 1951.00 | 1951.00 |
| SPEC_K_OPT | Potassium standard used during acquisition? | NO | NO | NO |
| SPL_CLAY_M | SpectroLith Clay Model | ARENITE | ARENITE | ARENITE |
| SPL_COAL_O | SpectroLith Coal Processing Option | BITUMINOUS | BITUMINOUS | LIGNITE |
| SPL_SULFUR | SpectroLith Sulfur Mineral Option | PYRITE | PYRITE | PYRITE |
| STAB_SIZE | Stabilizer Size | 9.375 | 9.375 | 9.375 |
| STOH | Top of Hole Sector | SECTOR_0 | SECTOR_0 | SECTOR_0 |
| TRNO | Tool Run Number | 3 | 4 | 5 |
| TSIZ_ARC | ARC Tool Size | 6.900000 | 6.900000 | 6.900000 |
| TSNO | Tool Serial Number | 6.900000 | 6.900000 | 6.900000 |
| UNIFORM_CO | Uniform Rock Option | YES | YES | YES |
| VERS_ARC | ARC Down hole software version Number | 2.100000 | 2.100000 | 2.100000 |
| WPPV | Water Phase as Percent of Total Volume in OBM | 22.00 | 19.00 | 18.00 |
| WPSL | Salinity of the Water Phase Emulsified within the OBM | 238.473 | 267.216 | 275.660 |
| WRK | Way to Report Potassium Concentration | K by Wgt % | K by Wgt % | K by Wgt % |
| WSDI | Window Size of Dynamic Normalization Image | 15.000000 | 15.000000 | 15.000000 |

Schlumberger Drilling & Measurements

Parameter Insert Header Software version 2.0c

IDEAL Version: ID12_0C_13

IDF

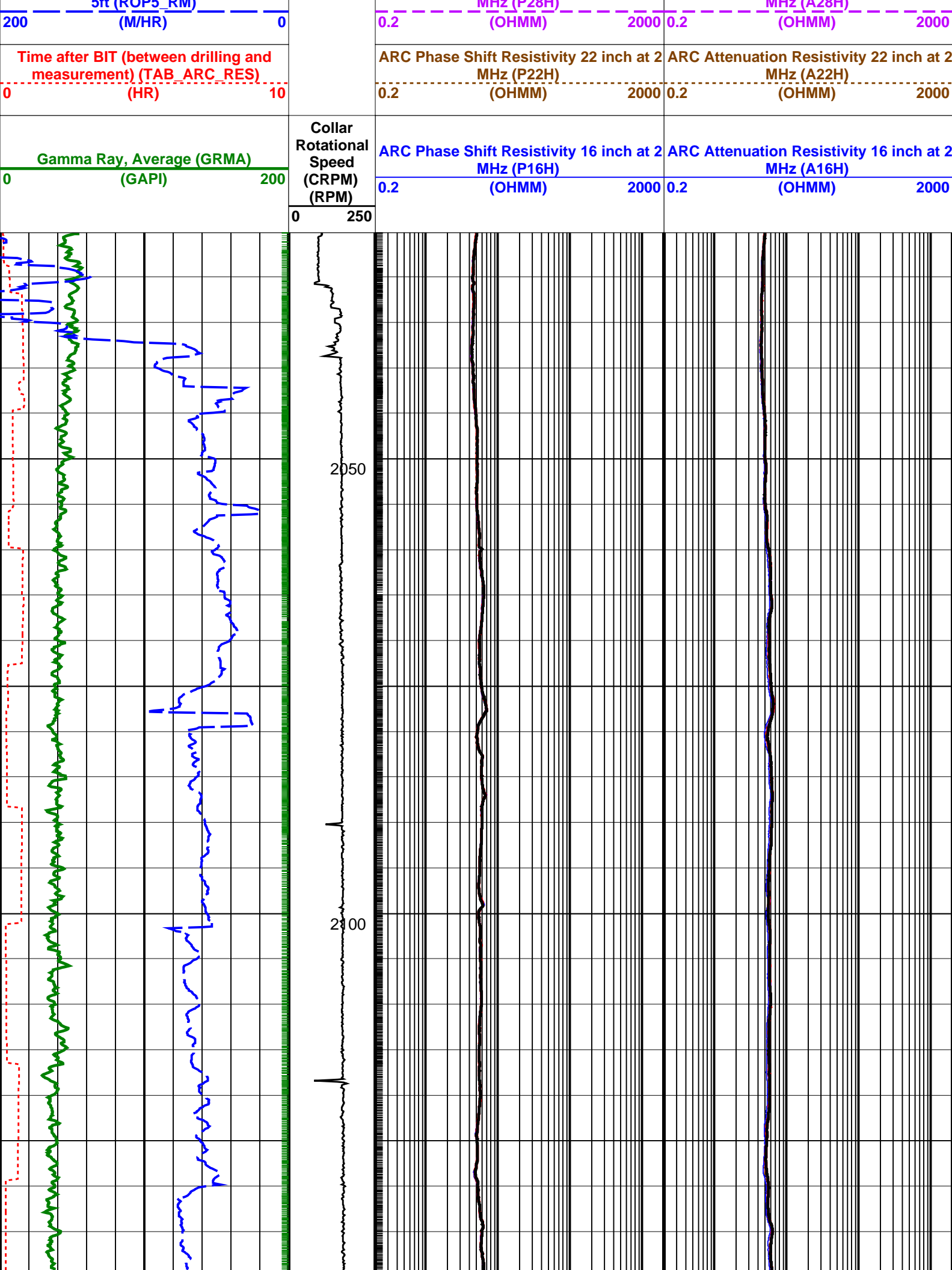
| | | | |
|--------|------------|--------|------------|
| ECO6 | id12_0c_01 | MWD_10 | id12_0c_01 |
| SON675 | id12_0c_01 | | |

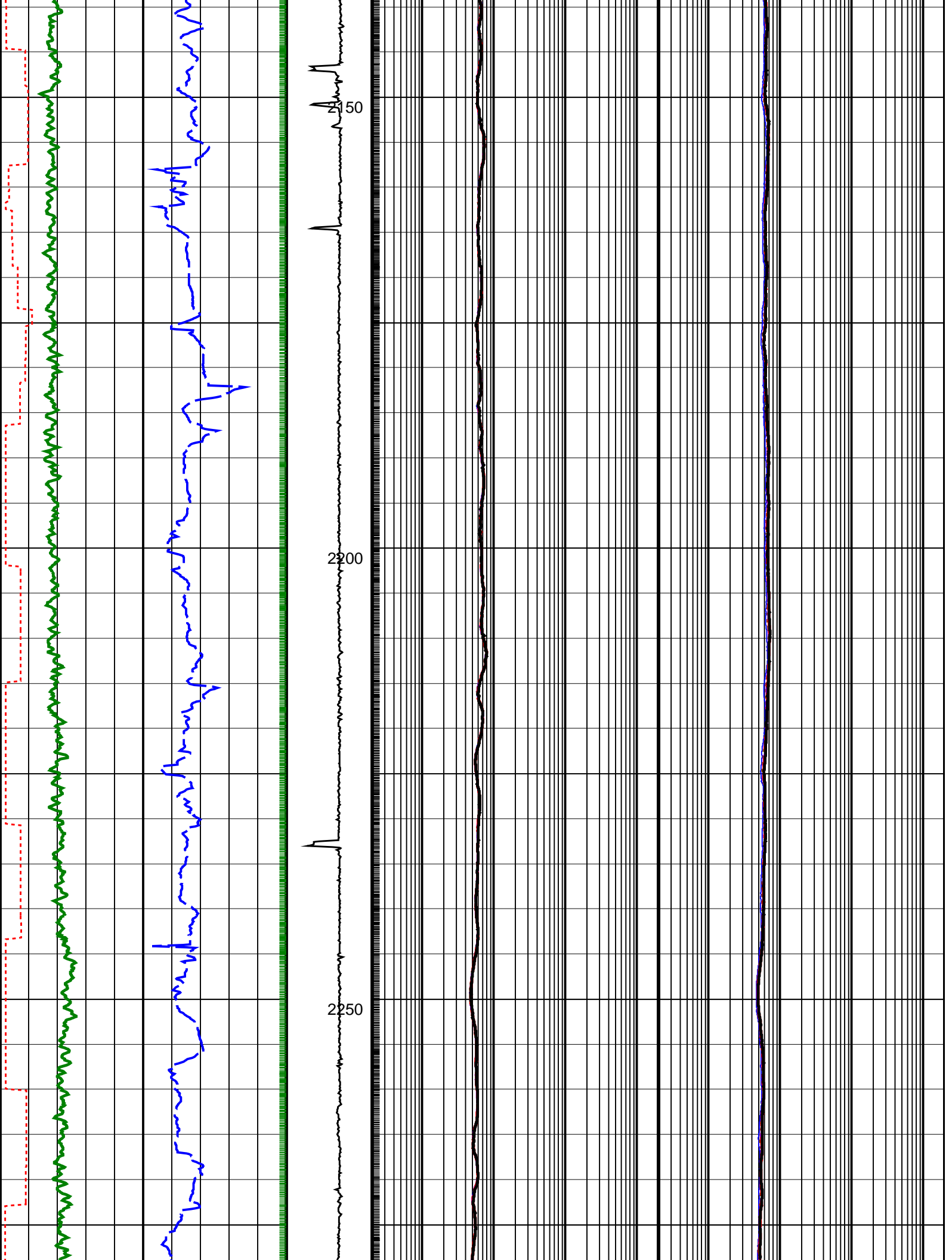
| | | |
|-----------------------------------|-----------------------|--|
| Format: EcoScope Resistivity 2Mhz | Vertical Scale: 1:500 | Graphics File Created: 29-Oct-2007 17:38 |
|-----------------------------------|-----------------------|--|

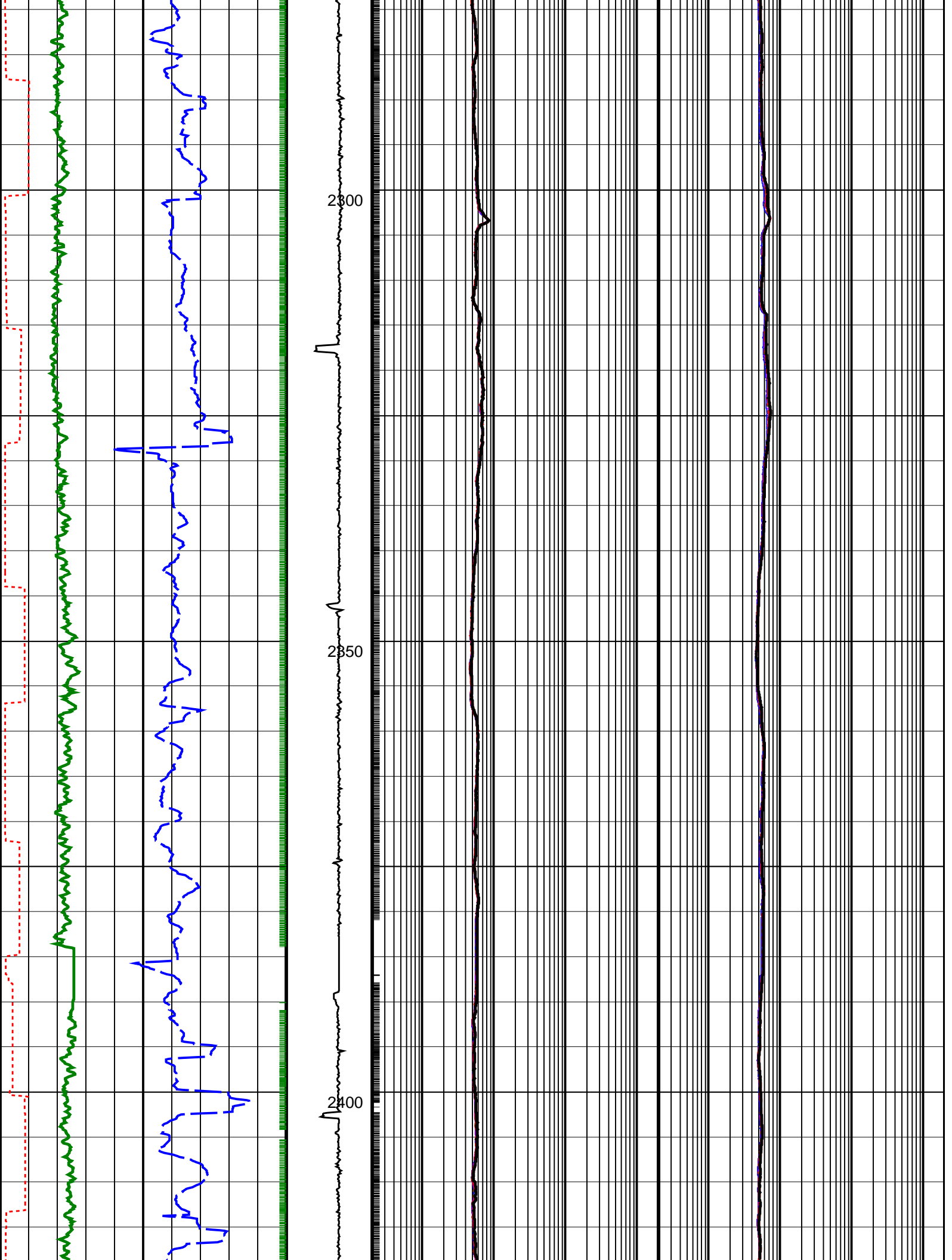
PIP SUMMARY

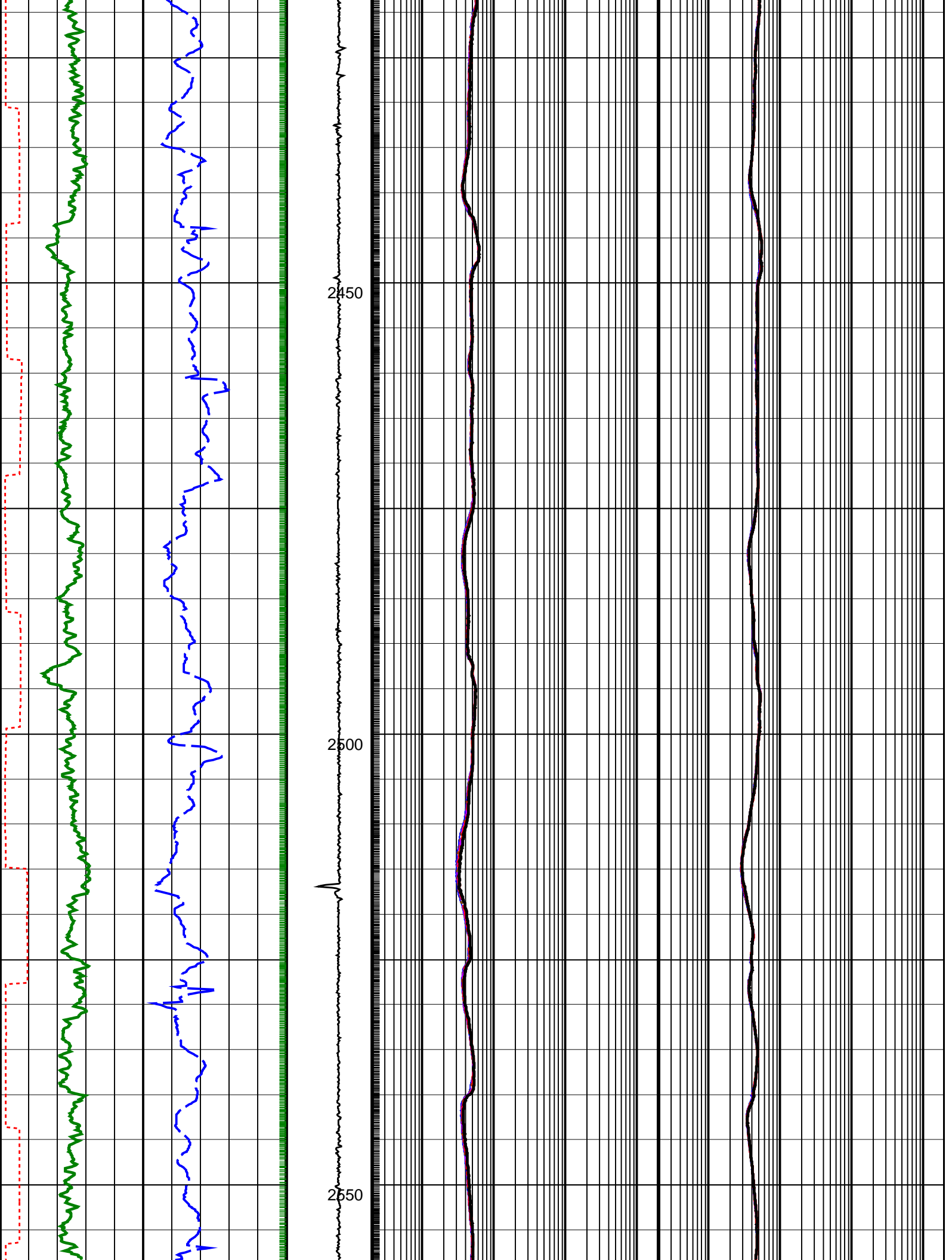
☒ Gamma Ray Samples
☐ Resistivity Samples

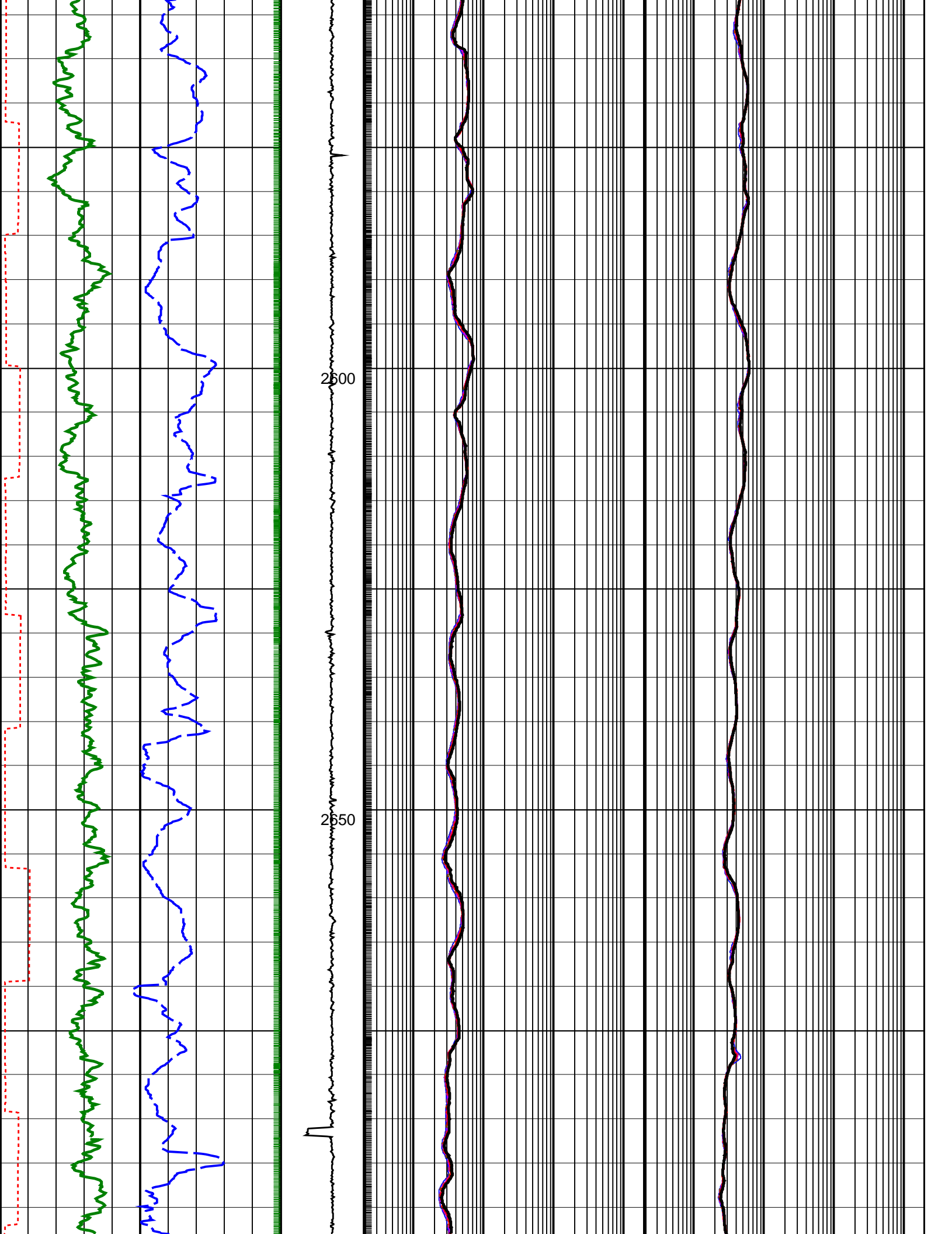
| | ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H) | ARC Attenuation Resistivity 40 inch at 2 MHz (A40H) |
|--|---|---|
| 0.2 (OHMM) 2000 | 0.2 (OHMM) 2000 | 0.2 (OHMM) 2000 |
| ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H) | ARC Attenuation Resistivity 34 inch at 2 MHz (A34H) | |
| 0.2 (OHMM) 2000 | 0.2 (OHMM) 2000 | 0.2 (OHMM) 2000 |
| Rate of Penetration, Averaged over Last 5% (ROP5_RM) | ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H) | ARC Attenuation Resistivity 28 inch at 2 MHz (A28H) |

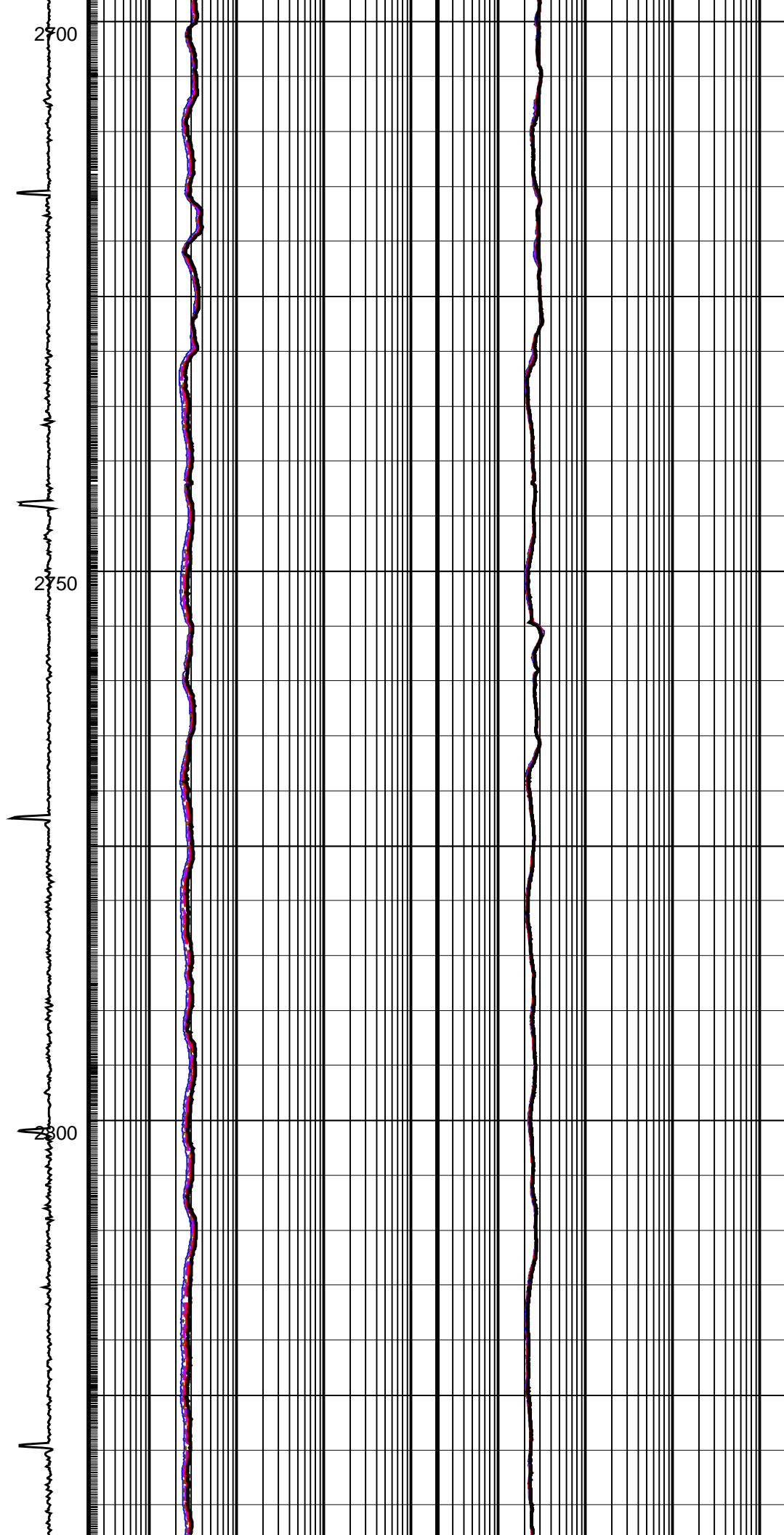
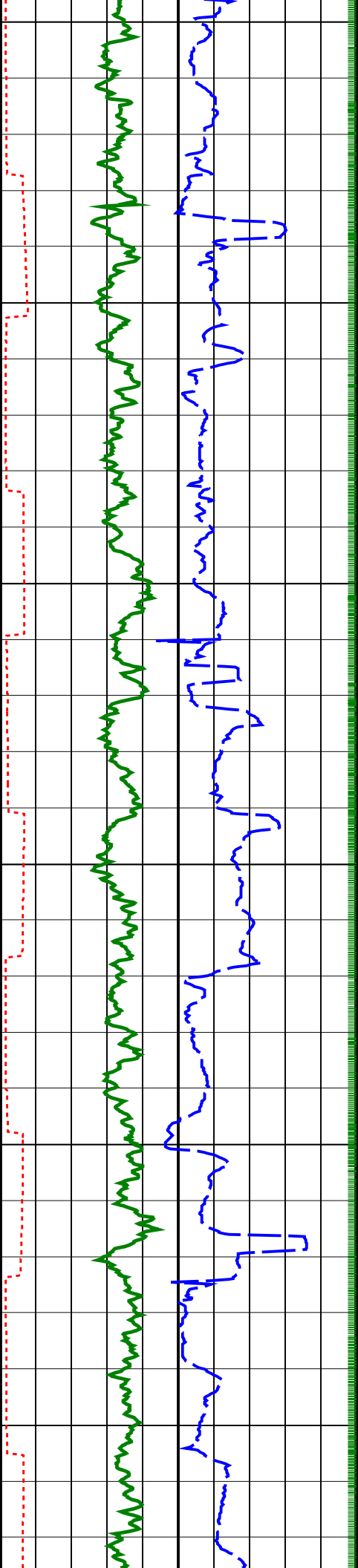


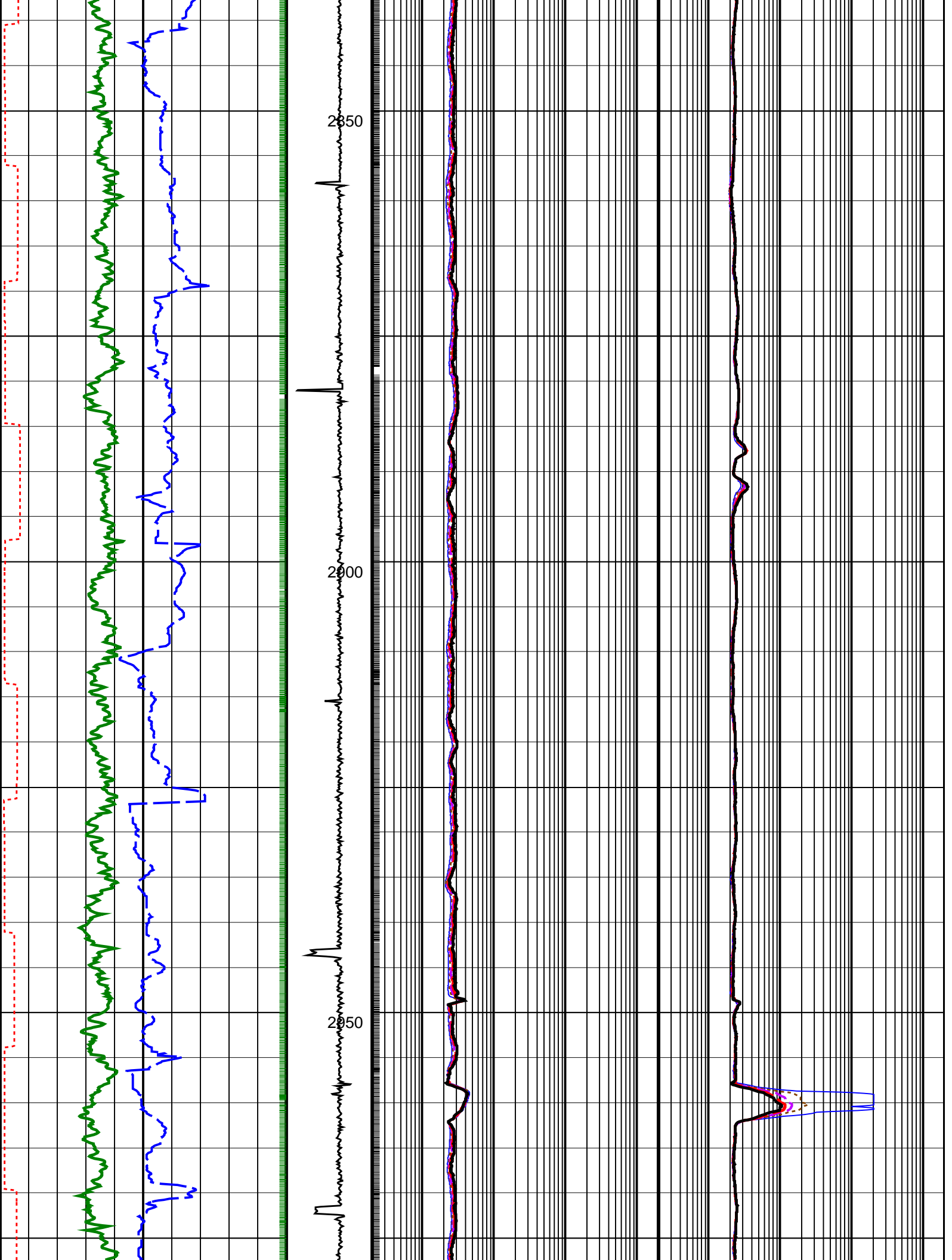


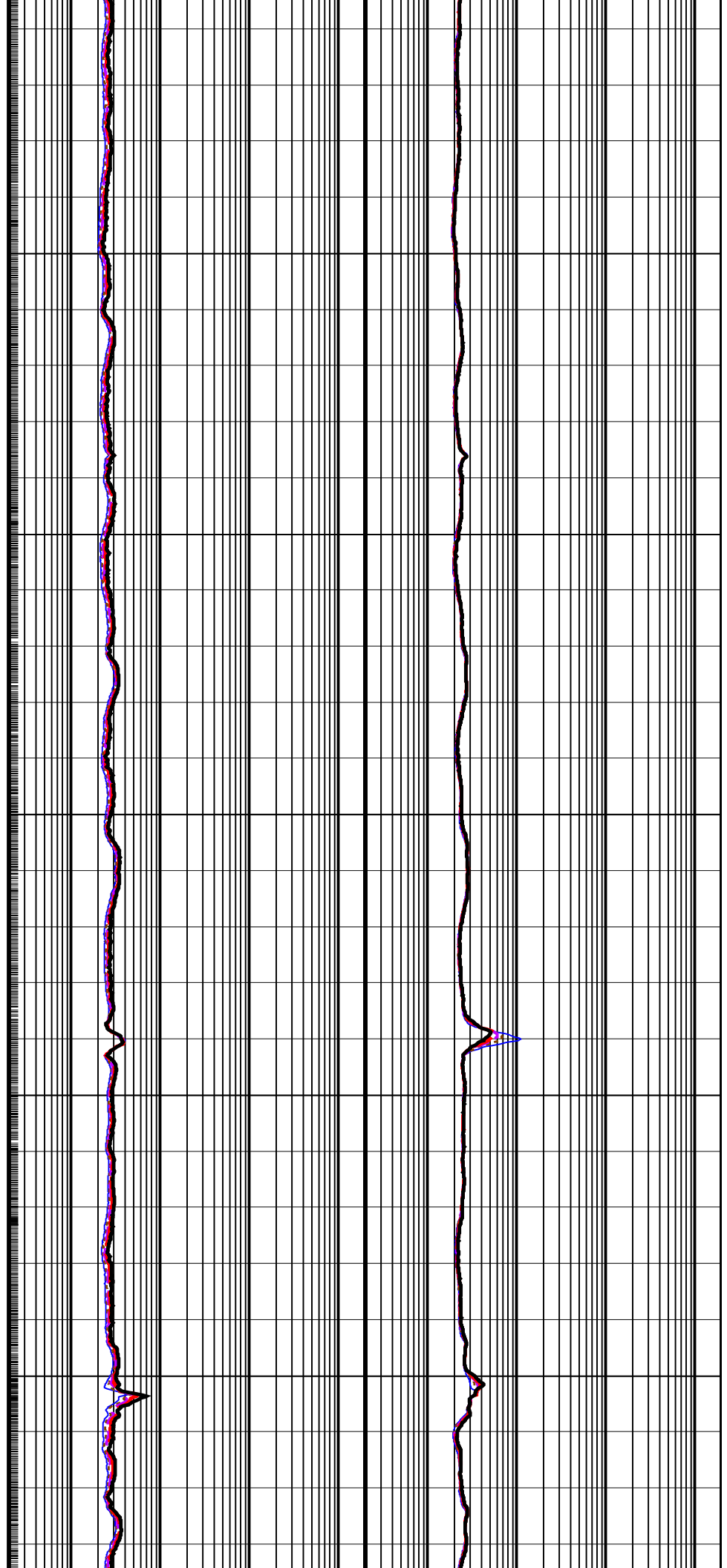
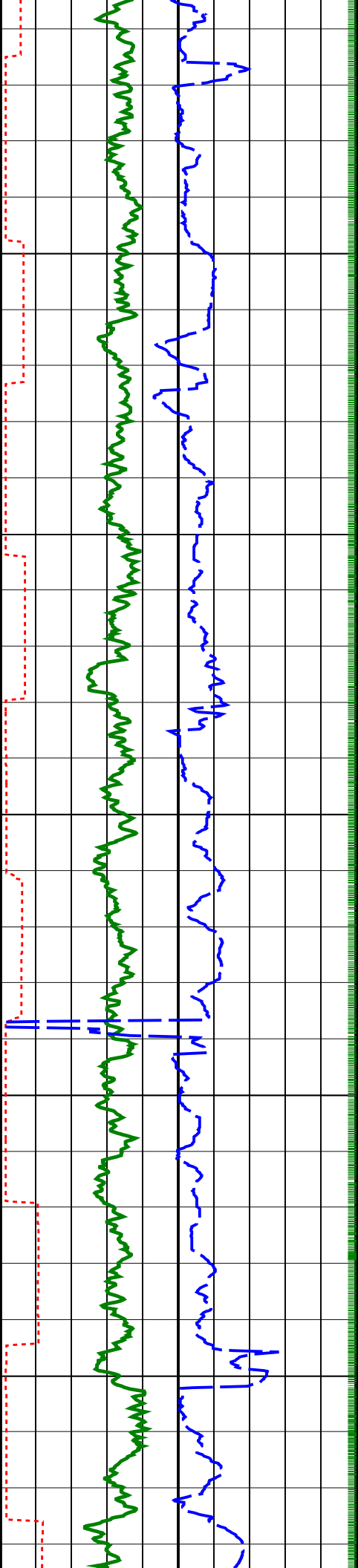


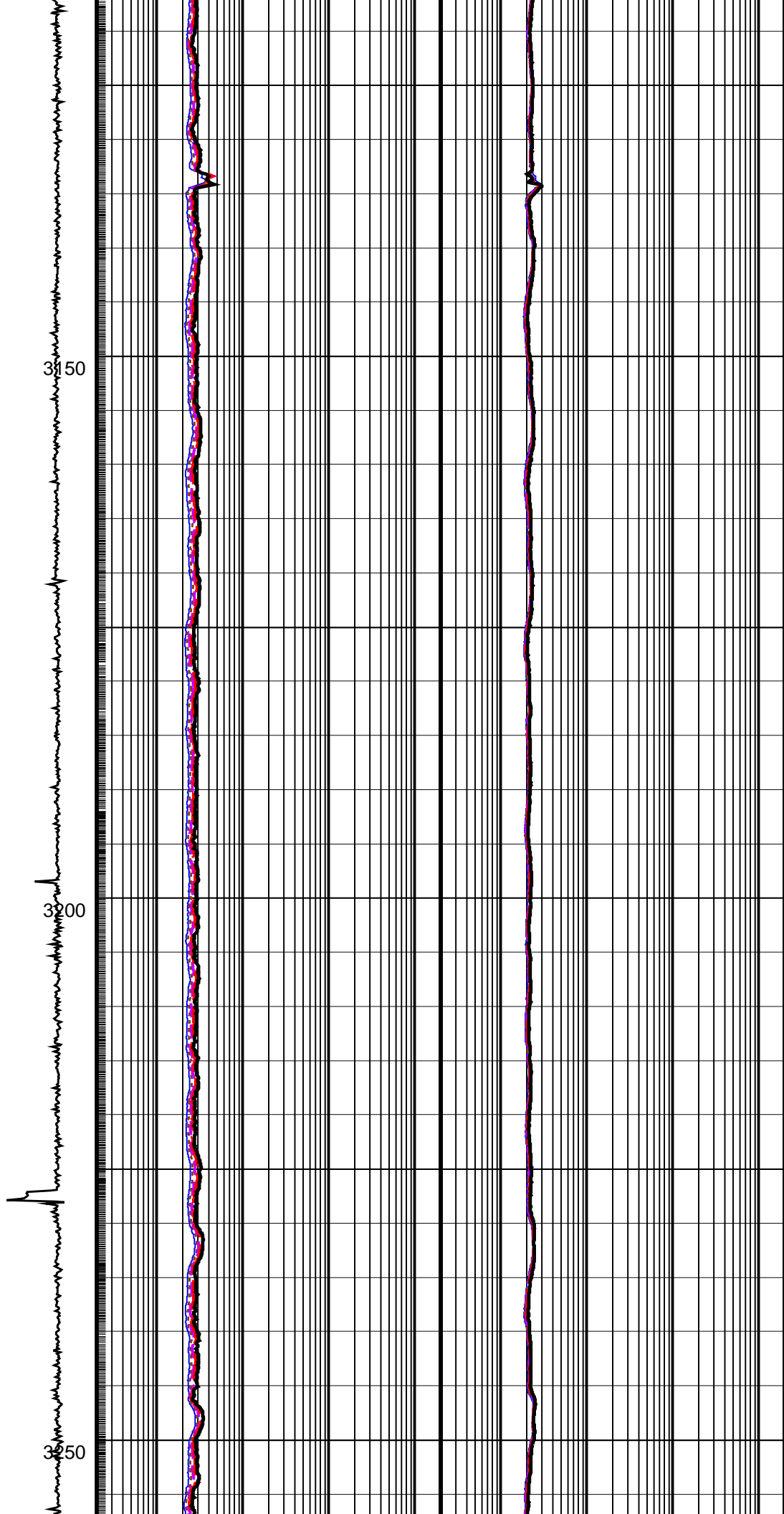
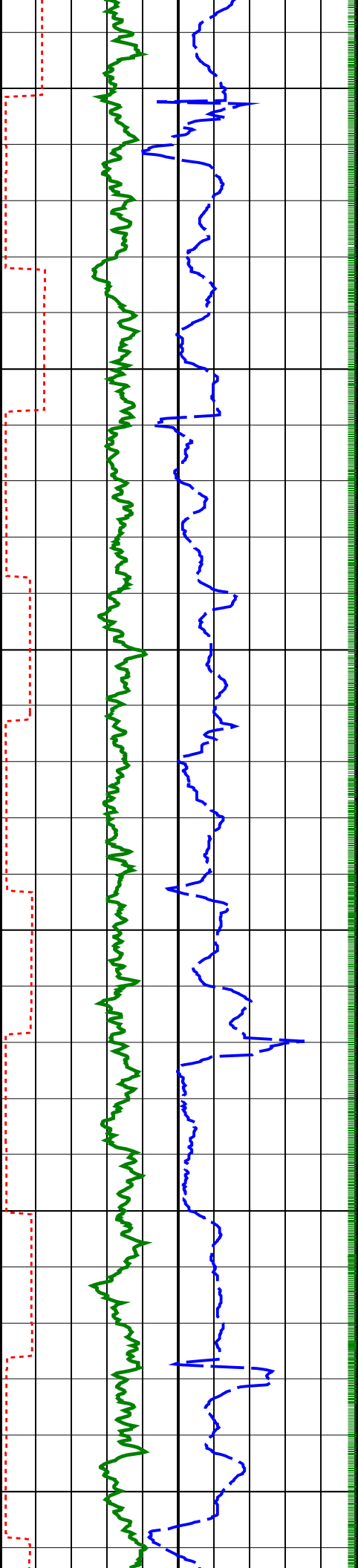


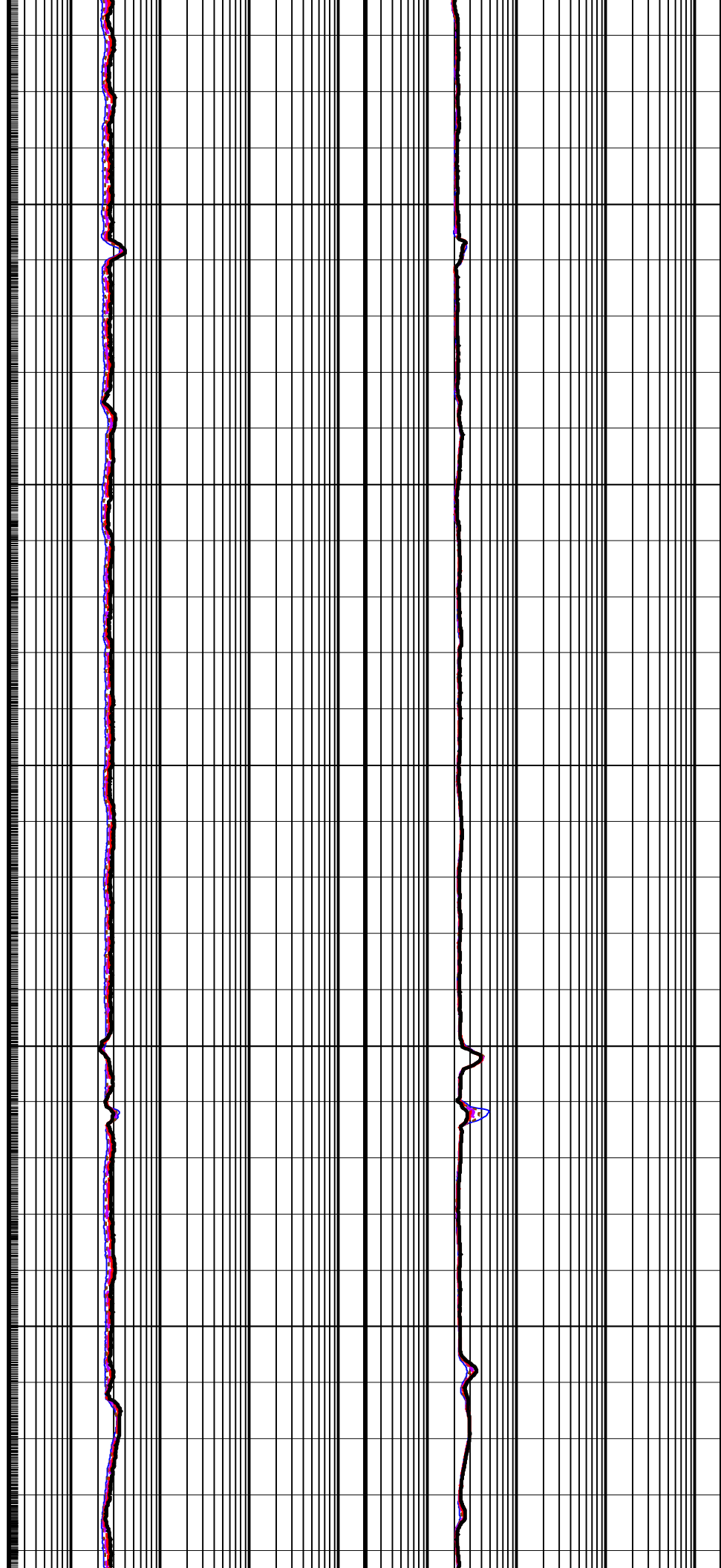
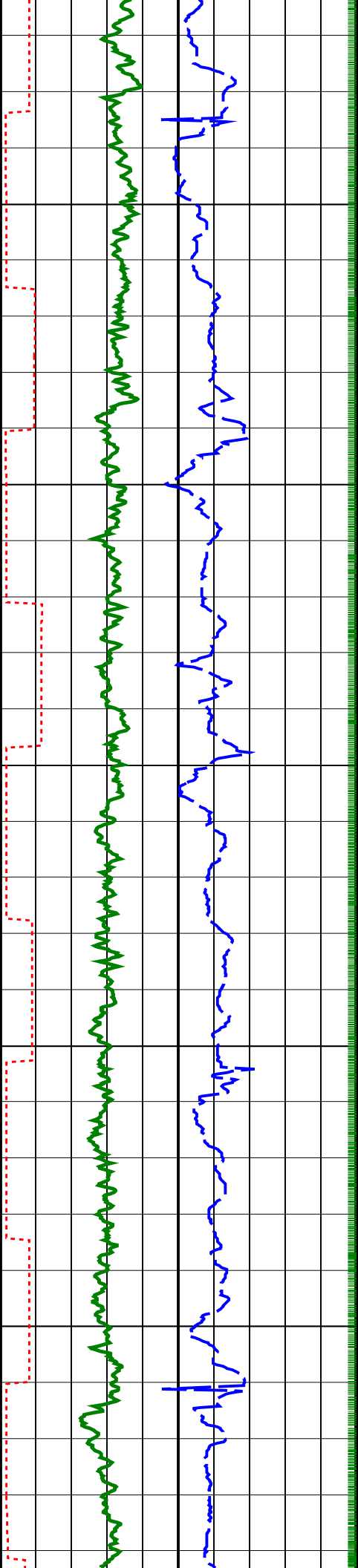


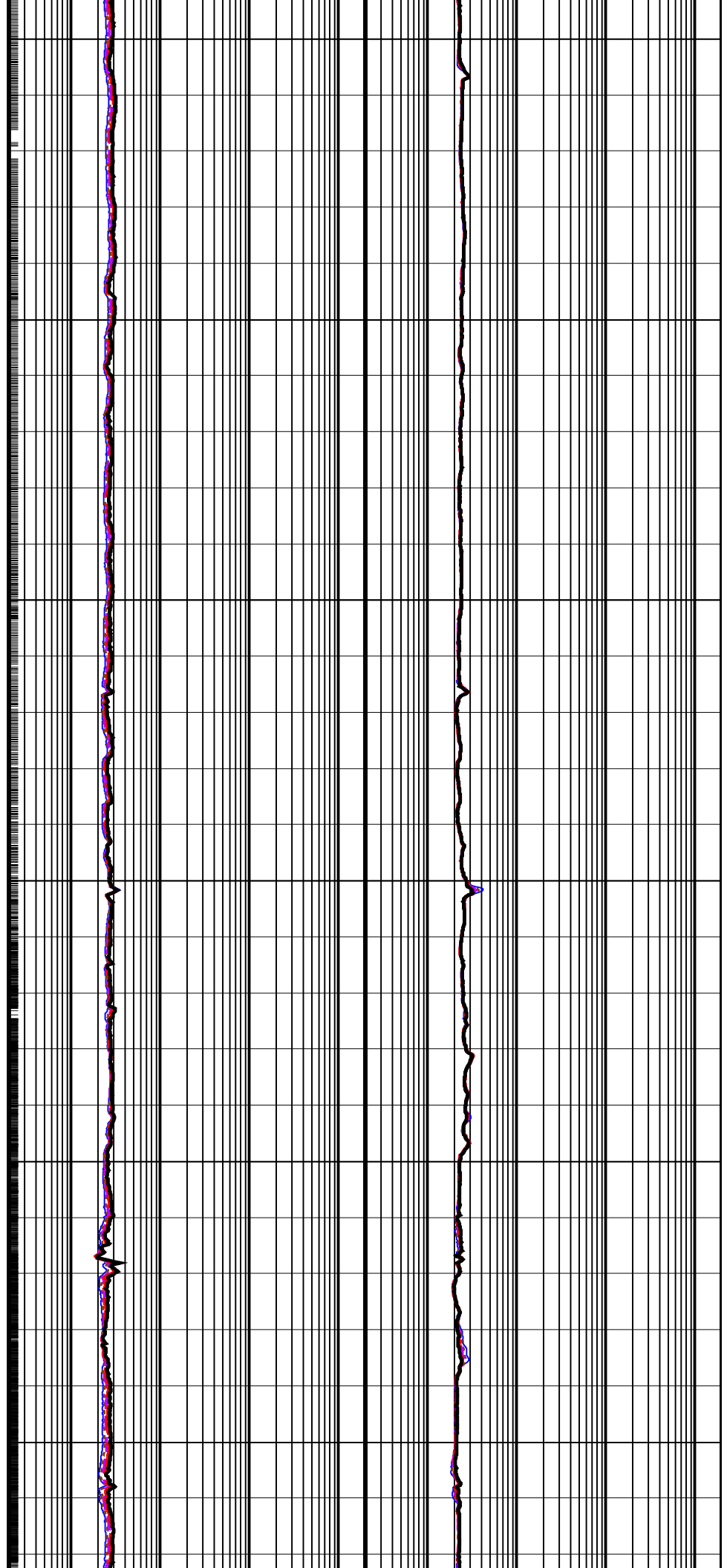
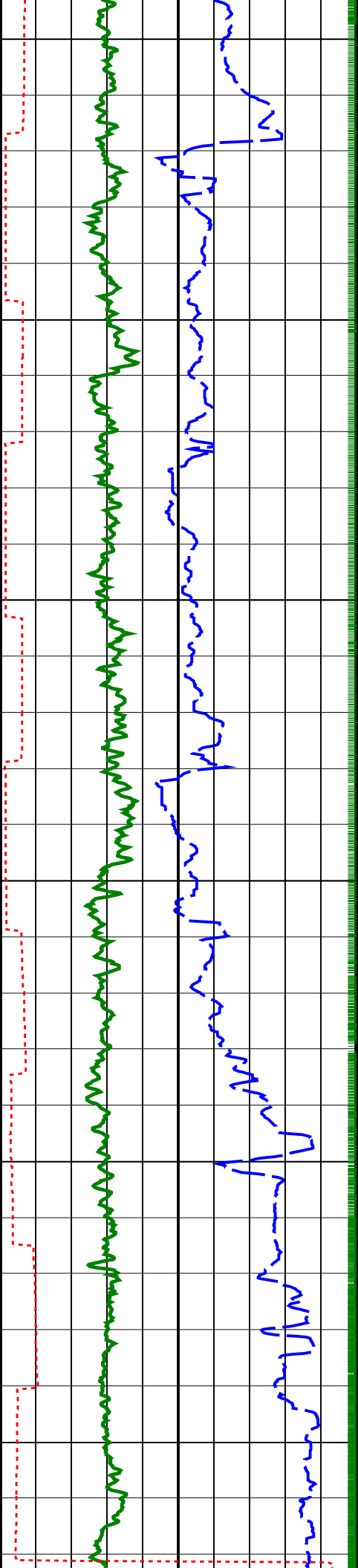


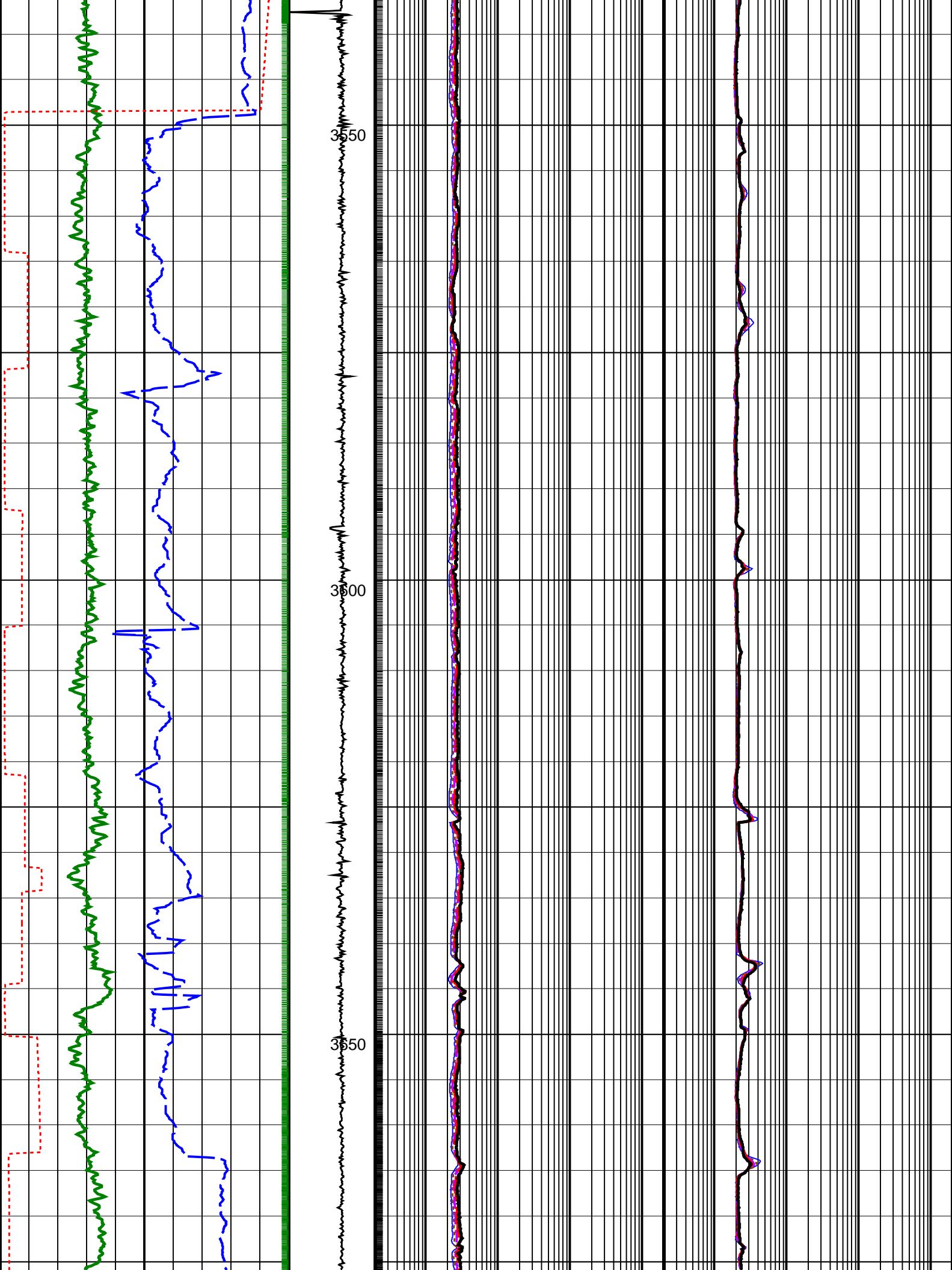


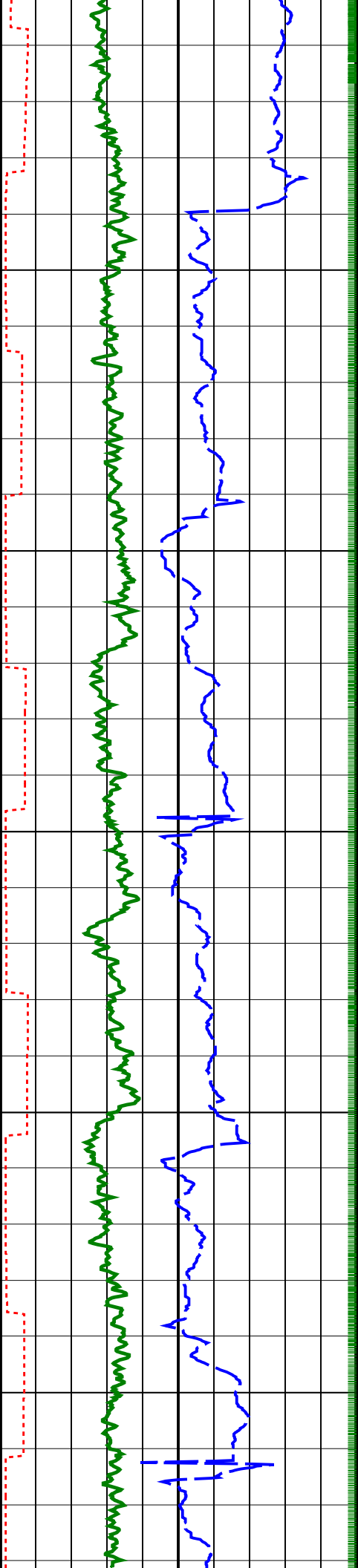


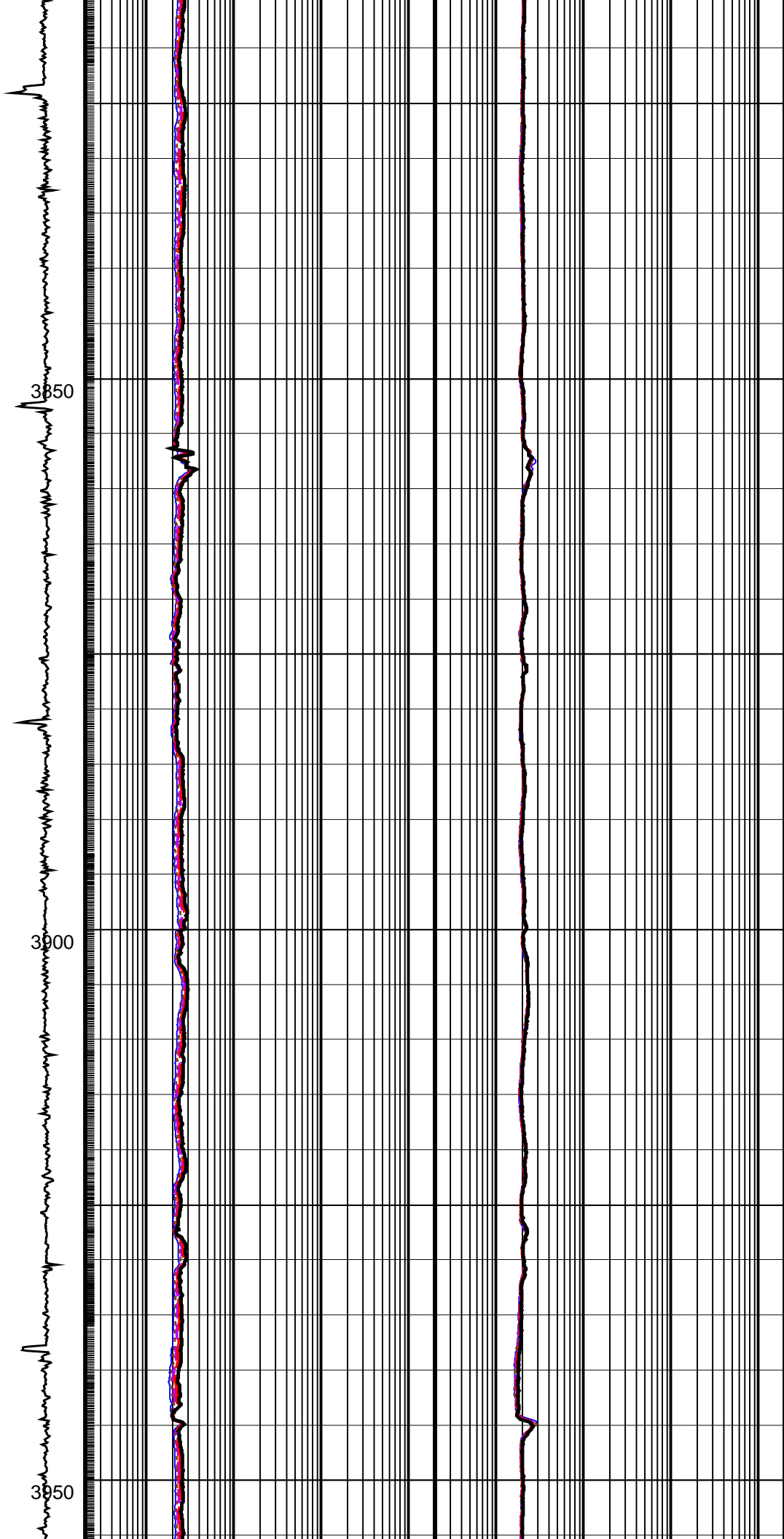
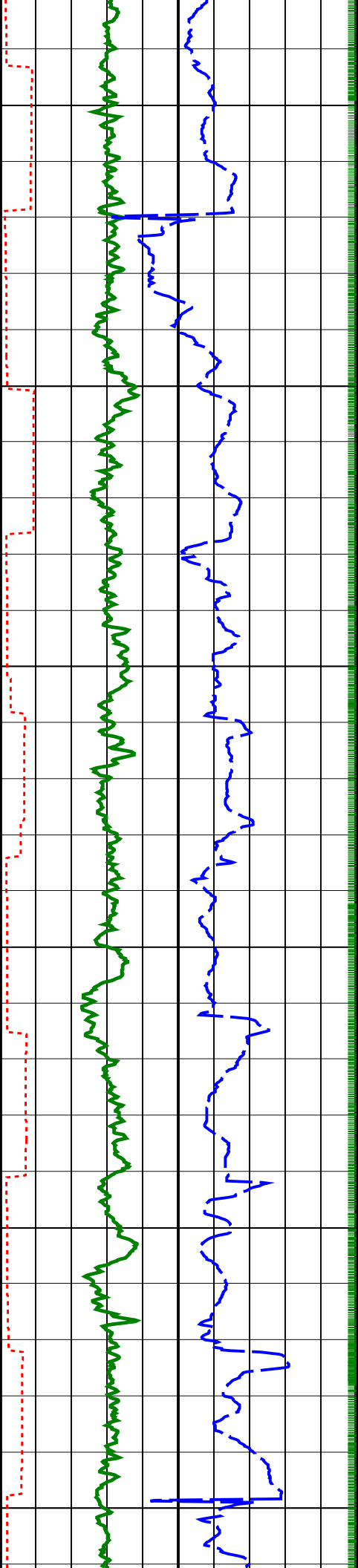


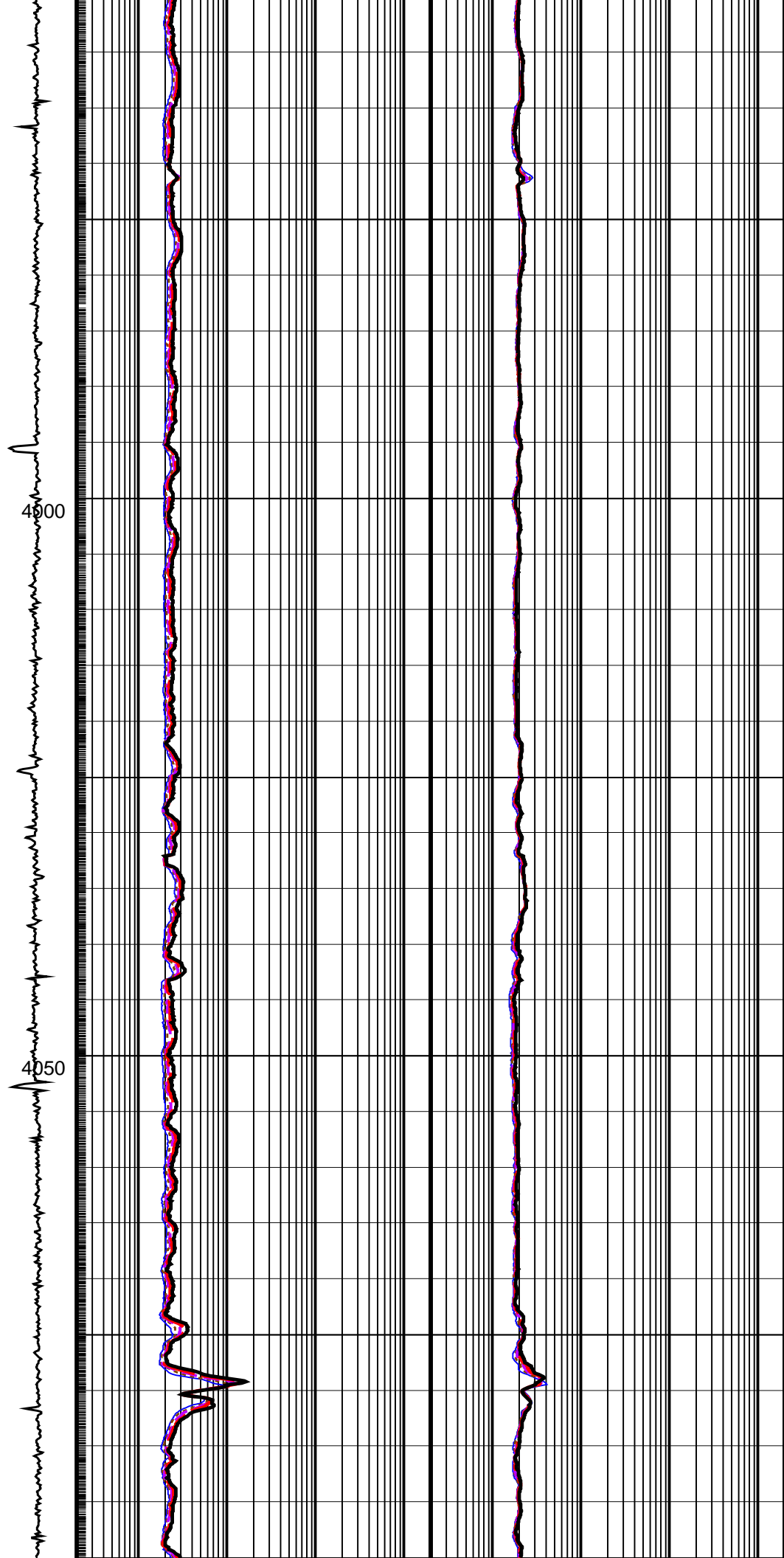
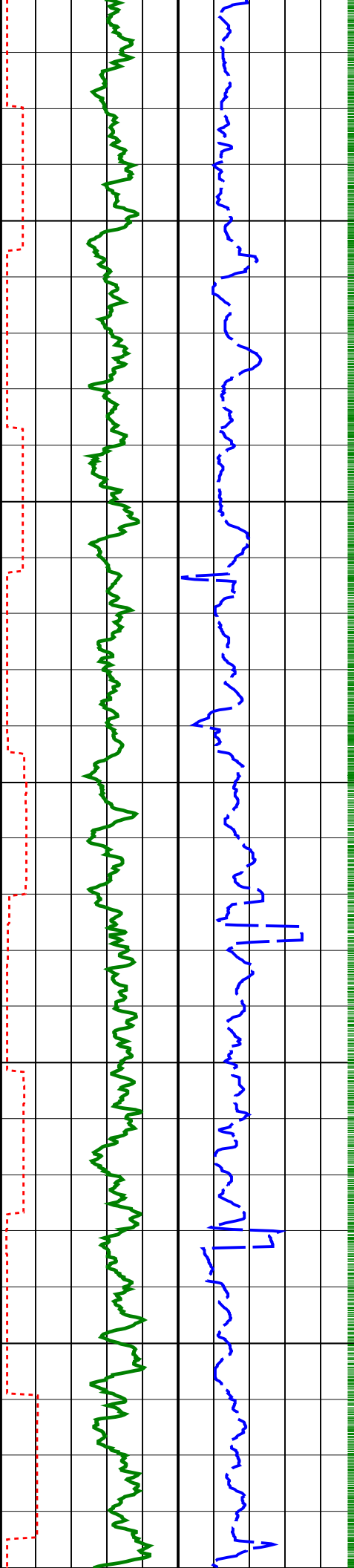


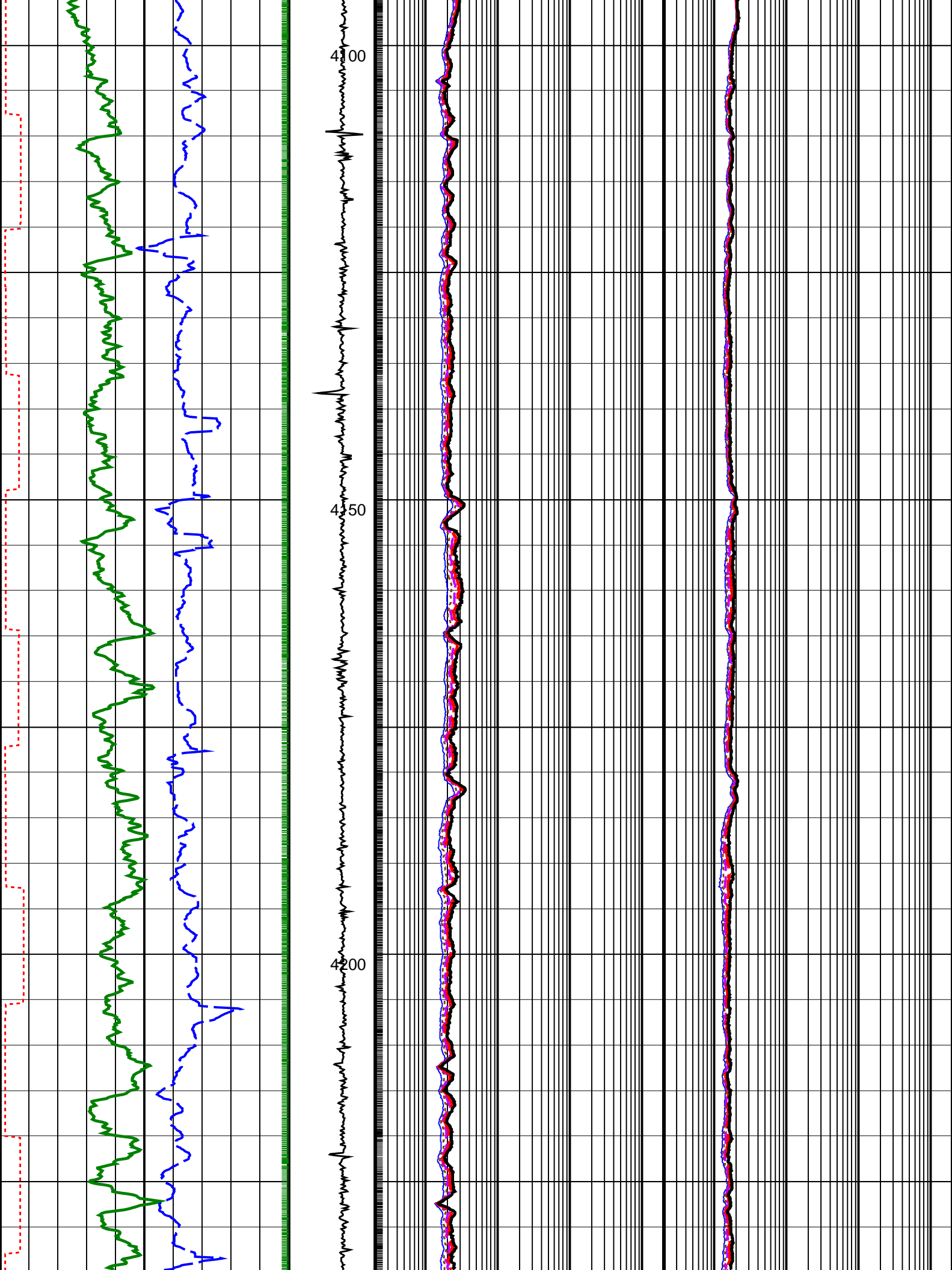


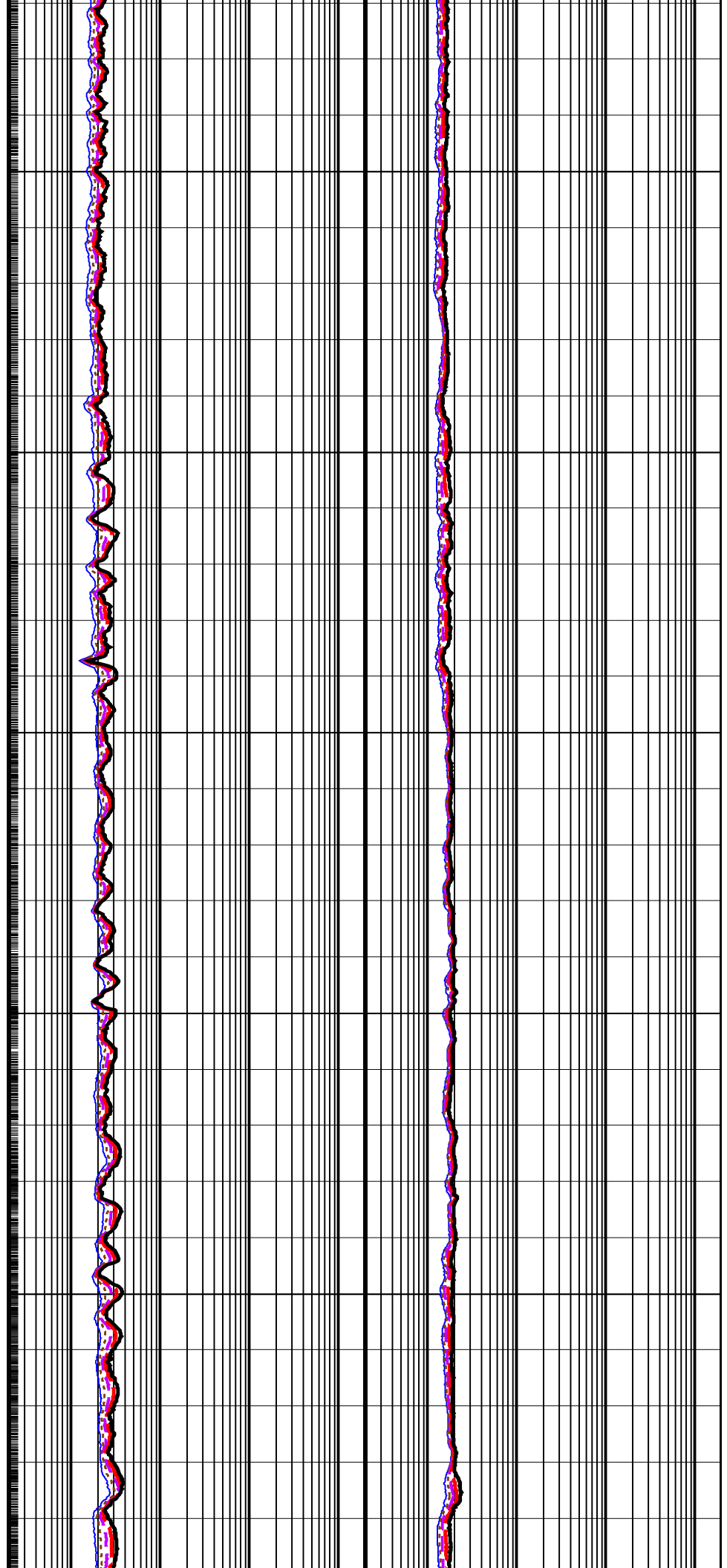
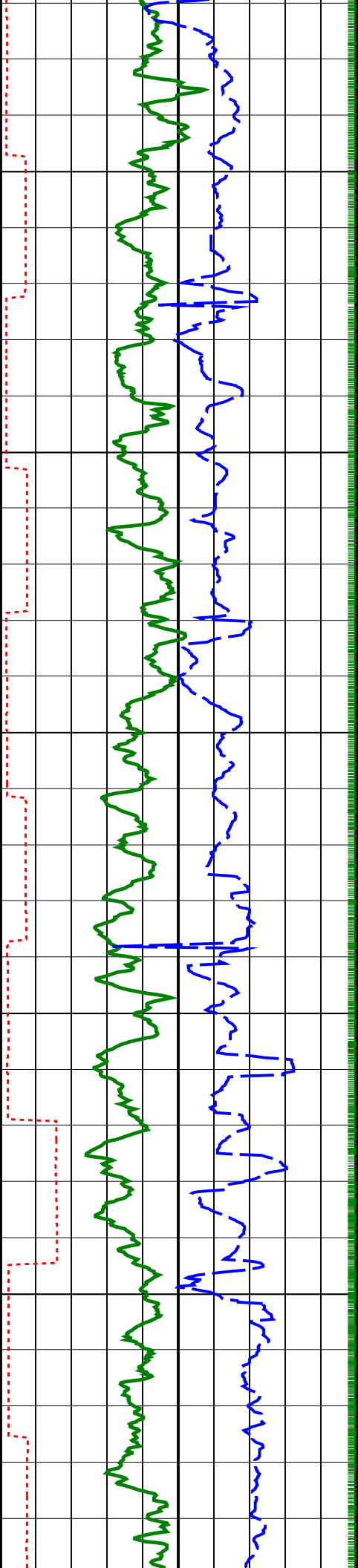


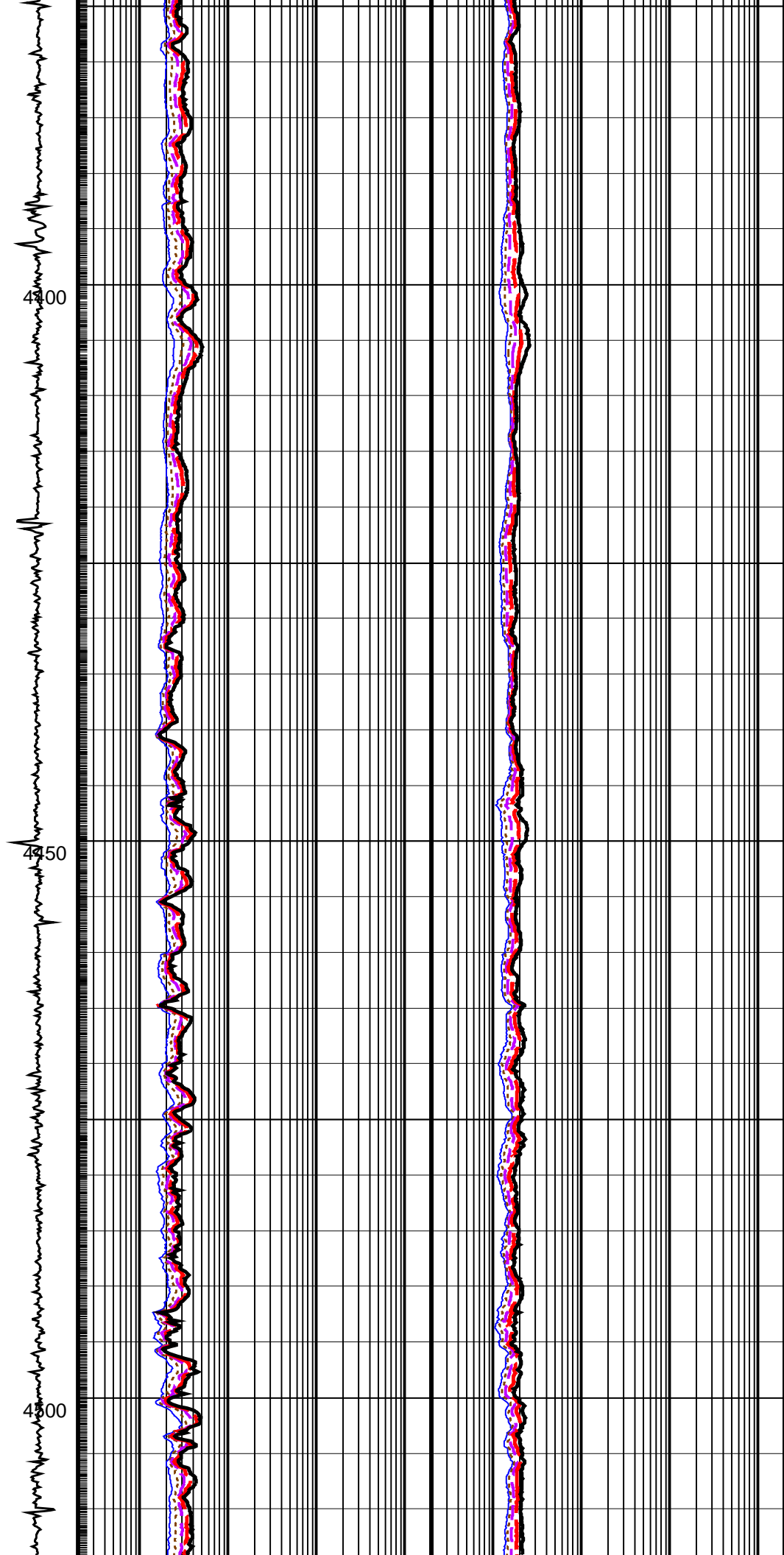
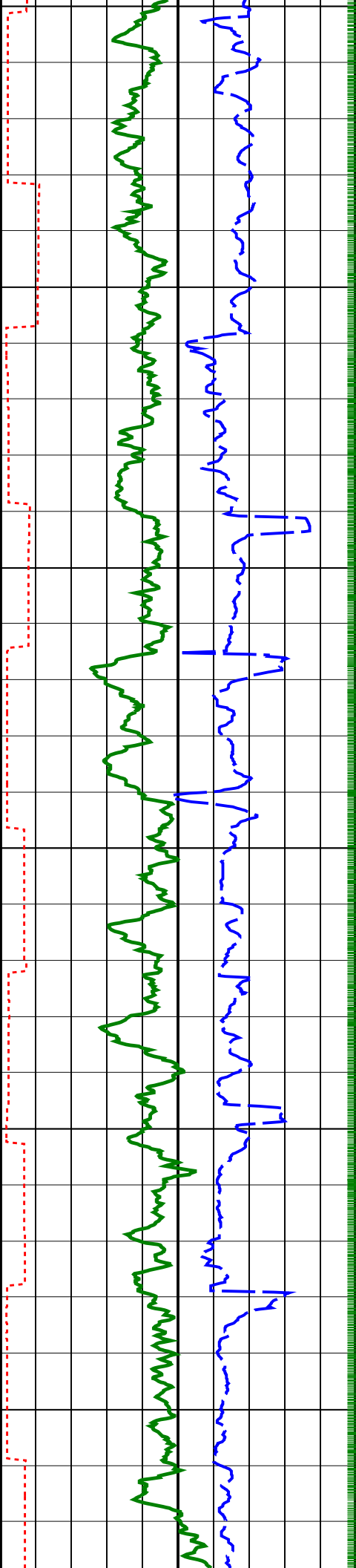


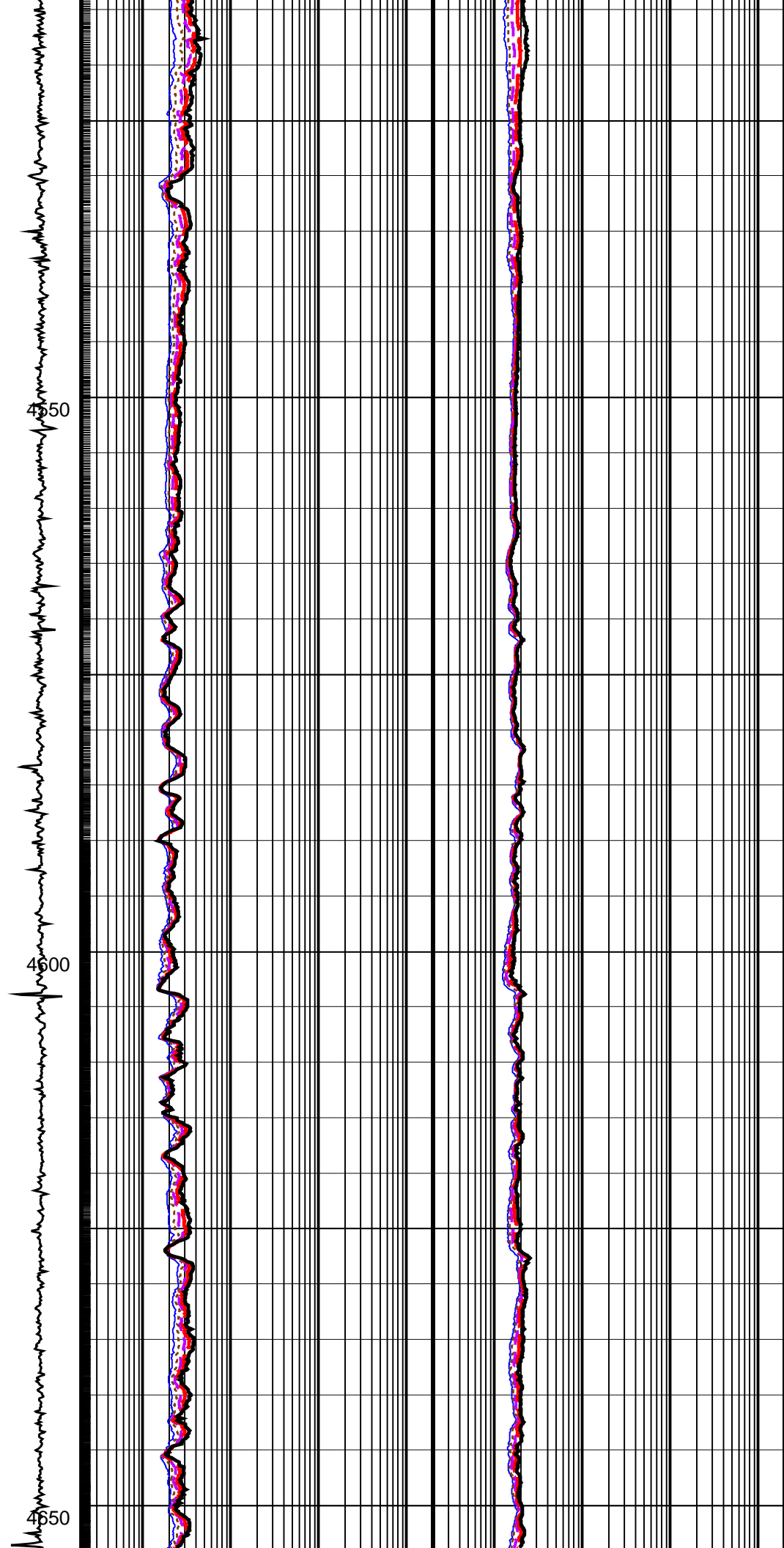
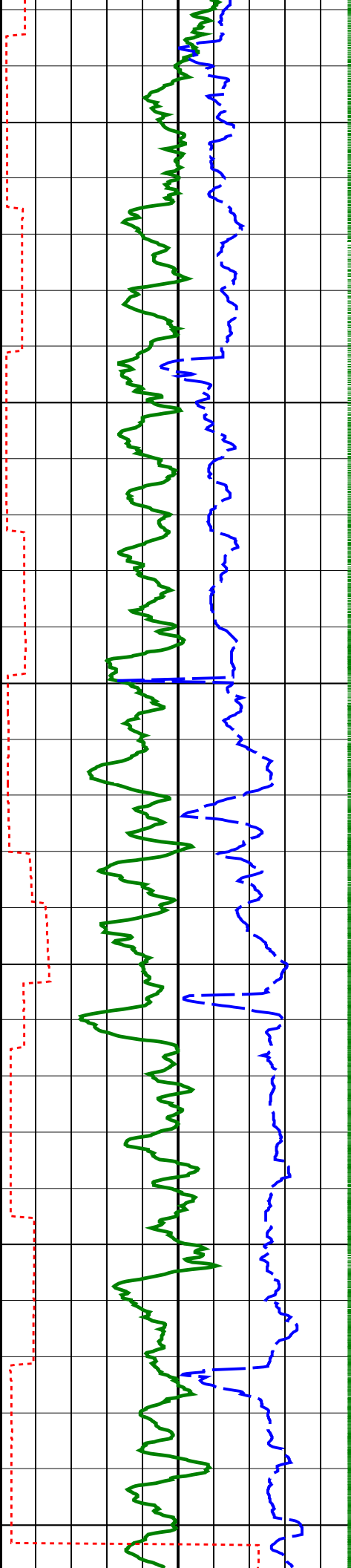


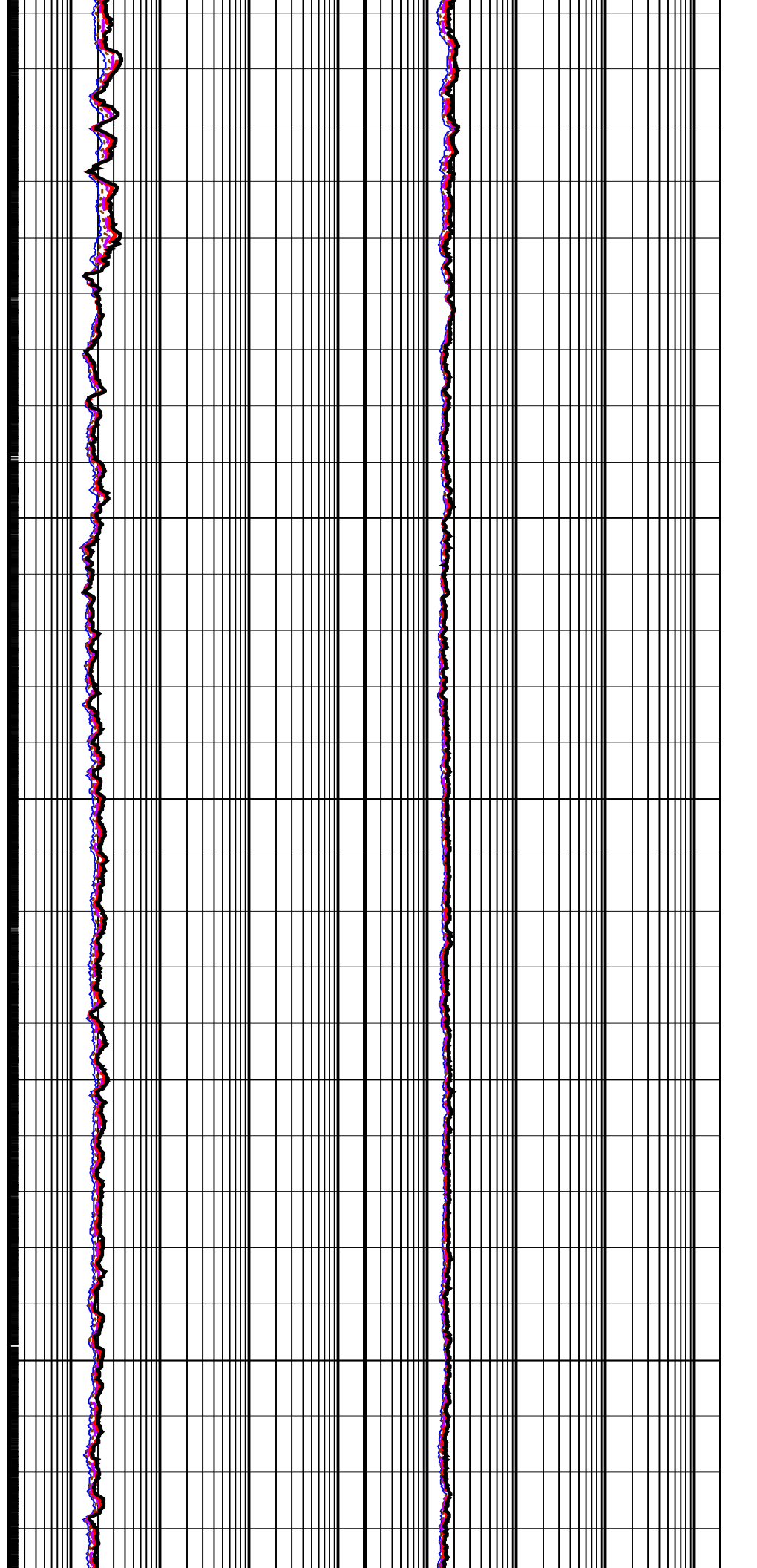
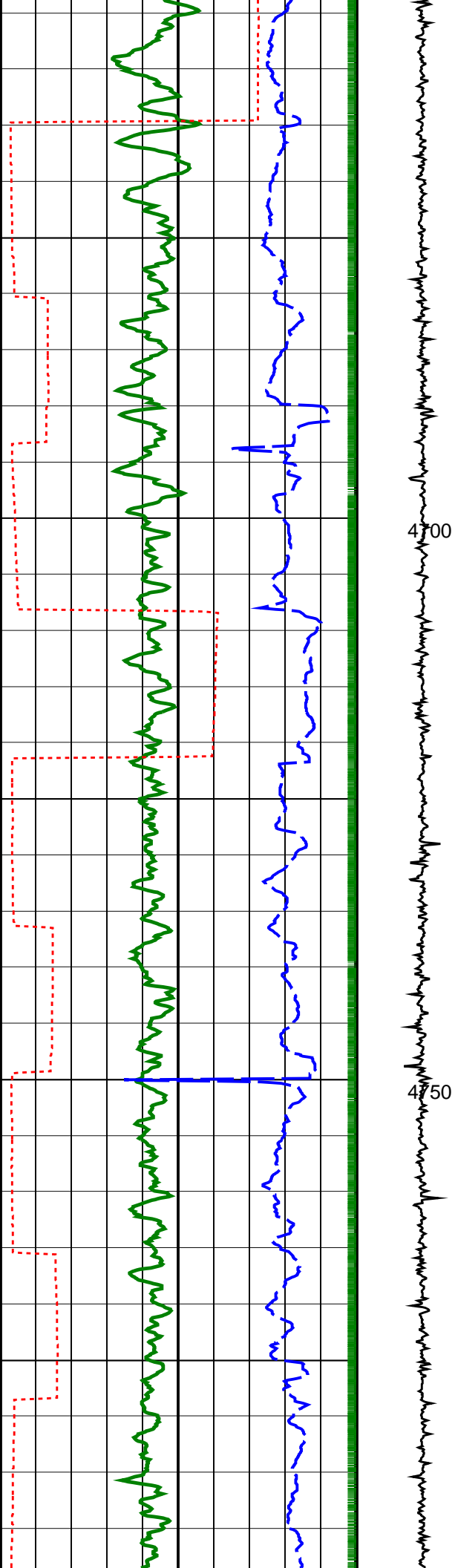


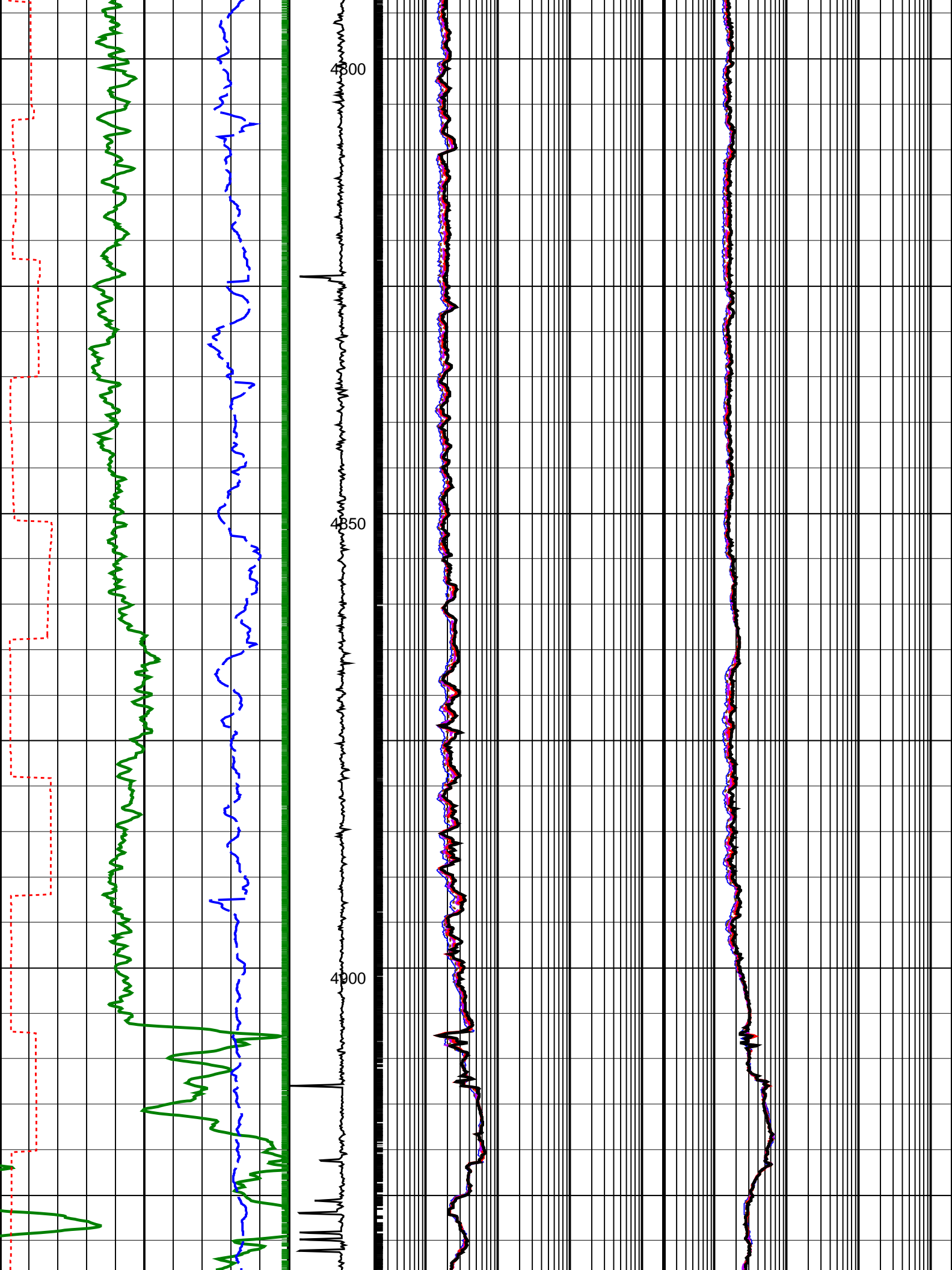


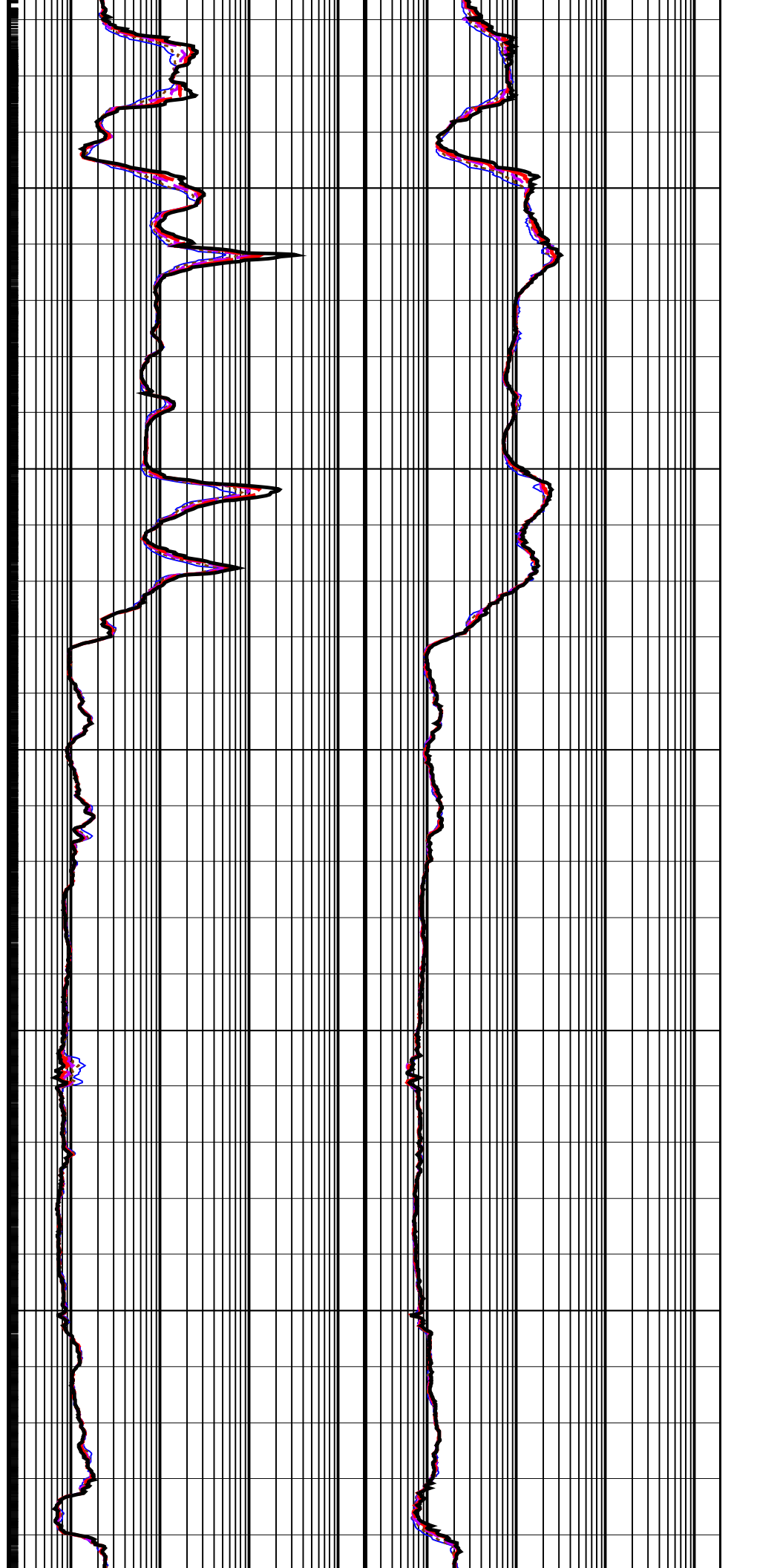
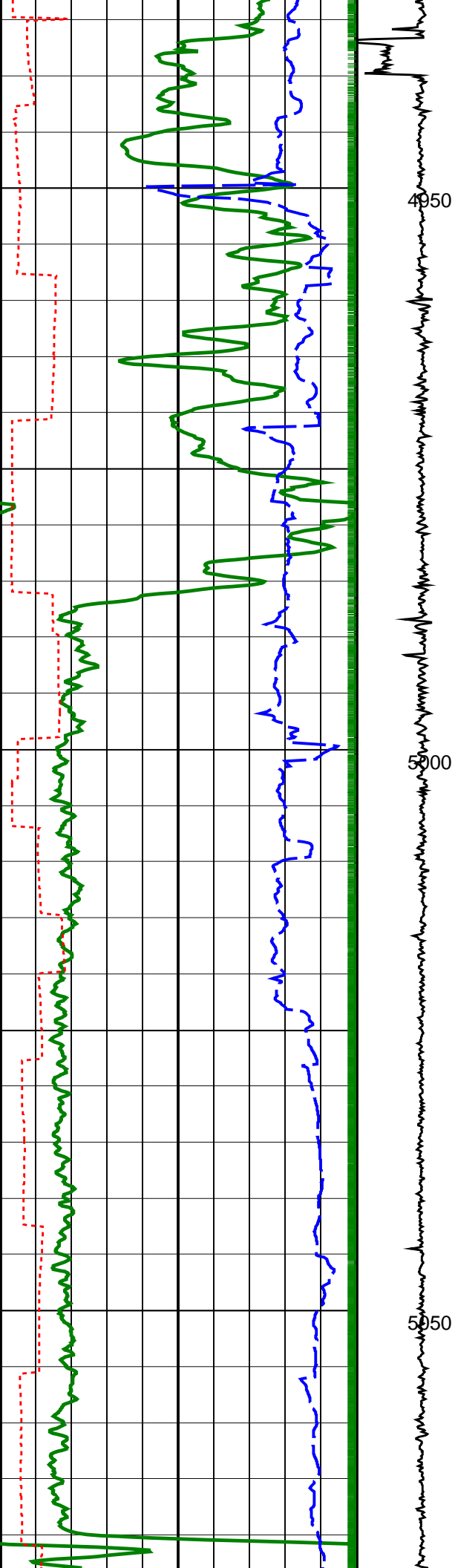


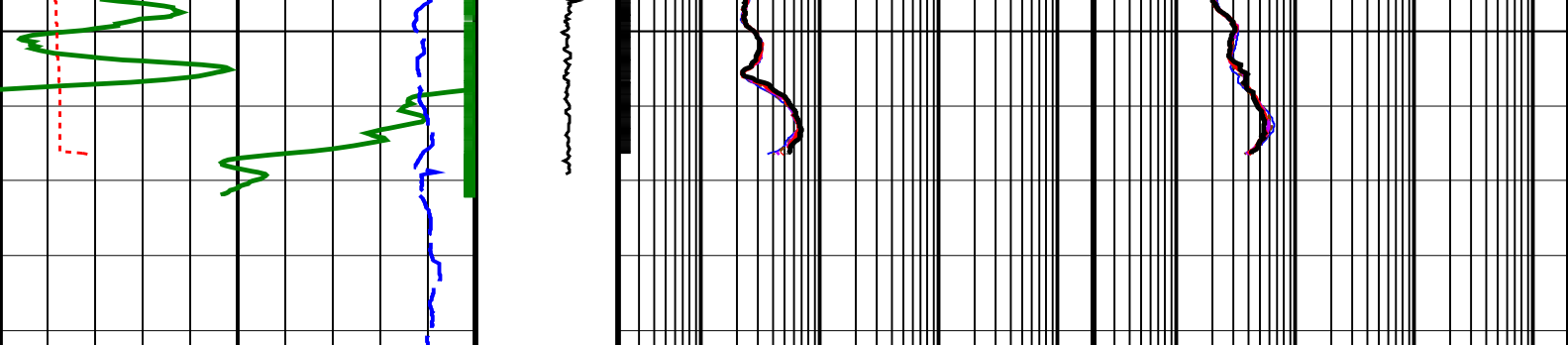












| | | | | | | | |
|--|--|--|--------|--|-----|--------|------|
| Gamma Ray, Average (GRMA) (GAPI) | Collar Rotational Speed (CRPM) (RPM) | ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H) | | ARC Attenuation Resistivity 16 inch at 2 MHz (A16H) | | | |
| | | 0.2 | (OHMM) | 2000 | 0.2 | (OHMM) | 2000 |
| | | 0 | 250 | | | | |
| Time after BIT (between drilling and measurement) (TAB_ARC_RES) (HR) | | ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H) | | ARC Attenuation Resistivity 22 inch at 2 MHz (A22H) | | | |
| | | 0.2 | (OHMM) | 2000 | 0.2 | (OHMM) | 2000 |
| Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR) | | ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H) | | ARC Attenuation Resistivity 28 inch at 2 MHz (A28H) | | | |
| | | 0.2 | (OHMM) | 2000 | 0.2 | (OHMM) | 2000 |
| | | ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H) | | ARC Attenuation Resistivity 34 inch at 2 MHz (A34H) | | | |
| | | 0.2 | (OHMM) | 2000 | 0.2 | (OHMM) | 2000 |
| | | ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H) | | ARC Attenuation Resistivity 40 inch at 2 MHz (A40H) | | | |
| | | 0.2 | (OHMM) | 2000 | 0.2 | (OHMM) | 2000 |

PIP SUMMARY

Gamma Ray Samples
Resistivity Samples

IDEAL Version: ID12_0C_13
IDF

ECO6 id12_0c_01 MWD_10 id12_0c_01
SON675 id12_0c_01

EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch / Equipment Identification

Primary Equipment:
Tool Name and Serial Number
Calibration Status
Neutron Logging Source
Density Logging Source
Stabilizer Size

EcoScope* 804 (Collar 808)
Valid
PNG-C 2242-41357
GSR-Z A2474
9.38 – in.

| | | | | | |
|---|--------------------|--------------------|---------------------|-----------------|--------------------|
| Master: 15-Sep-2007 12:07 | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | |
| SSn LSn : Water Tank | | | | | |
| Phase | SSn Gain ---- | Value | Phase | SSn Offset ---- | Value |
| Master | | 1.087 | Master | | 0 |
| 0.6000 (Minimum) | 1.000 (Nominal) | 1.400 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| Phase | LSn Gain ---- | Value | Phase | LSn Offset ---- | Value |
| Master | | 1.062 | Master | | 0 |
| 0.6000 (Minimum) | 1.000 (Nominal) | 1.400 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| Master: 15-Sep-2007 12:07 | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | |
| Neutron: Water Tank | | | | | |

| | | | | | | | |
|---------------------|---------------------------|--------------------|--------------------|---------------------|-----------------------------|----------------|--------------------|
| Phase | Far 2 Gain ---- | | Value | Phase | Far 2 Offset ---- | | Value |
| Master | | | 1.000 | Master | | | 0.8053 |
| 0.7000 (Minimum) | | 1.000 (Nominal) | 1.300 (Maximum) | -3.000 (Minimum) | | 0 (Nominal) | 3.000 (Maximum) |
| Phase | Far 1 Gain ---- | | Value | Phase | Far 1 Offset ---- | | Value |
| Master | | | 1.006 | Master | | | 0.6186 |
| 0.7000 (Minimum) | | 1.000 (Nominal) | 1.300 (Maximum) | -3.000 (Minimum) | | 0 (Nominal) | 3.000 (Maximum) |
| Phase | Thermal Near gain ---- | | Value | Phase | Thermal Near offset ---- | | Value |
| Master | | | 1.015 | Master | | | 25.89 |
| 0.7000 (Minimum) | | 1.000 (Nominal) | 1.300 (Maximum) | -500.0 (Minimum) | | 0 (Nominal) | 500.0 (Maximum) |
| Phase | Epithermal Near gain ---- | | Value | Phase | Epithermal Near offset ---- | | Value |
| Master | | | 1.037 | Master | | | 100.7 |
| 0.7000 (Minimum) | | 1.000 (Nominal) | 1.300 (Maximum) | -300.0 (Minimum) | | 0 (Nominal) | 300.0 (Maximum) |

| | | | | | | | | | |
|---|----------------------|--|--------------------|--------------------|-------------------|----------------------|--|--------------------|--------------------|
| Master: 15-Sep-2007 12:07 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Gamma Density: Magnesium Block | | | | | | | | | |
| Phase | LS window 3 – Mg CPS | | | Value | Phase | SS window 1 – Mg CPS | | | Value |
| Master | | | | 1965 | Master | | | | 4716 |
| 1000 (Minimum) | | | 2000 (Nominal) | 3000 (Maximum) | 2500 (Minimum) | | | 5250 (Nominal) | 8000 (Maximum) |
| Phase | SS window 3 – Mg CPS | | | Value | Phase | SS window 3 – Mg CPS | | | Value |
| Master | | | | 11100 | Master | | | | 11100 |
| 6000 (Minimum) | | | 12000 (Nominal) | 18000 (Maximum) | 6000 (Minimum) | | | 12000 (Nominal) | 18000 (Maximum) |











| | | | | | | | | | |
|---|----------------------|--|--------------------|--------------------|-------------------|----------------------|--|-------------------|--------------------|
| Master: 15-Sep-2007 12:07 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Gamma Density: Aluminum Block | | | | | | | | | |
| Phase | LS window 3 – Al CPS | | | Value | Phase | SS window 1 – Al CPS | | | Value |
| Master | | | | 368.8 | Master | | | | 2457 |
| 200.0 (Minimum) | | | 400.0 (Nominal) | 600.0 (Maximum) | 1500 (Minimum) | | | 3000 (Nominal) | 4500 (Maximum) |
| Phase | SS window 3 – Al CPS | | | Value | Phase | SS window 3 – Al CPS | | | Value |
| Master | | | | 8183 | Master | | | | 8183 |
| 4000 (Minimum) | | | 8500 (Nominal) | 13000 (Maximum) | 4000 (Minimum) | | | 8500 (Nominal) | 13000 (Maximum) |

| | | | | | | | | | |
|---|------------------------------|--|--------------------|--------------------|--------------------|------------------------------|--|--------------------|--------------------|
| Master: 15-Sep-2007 12:07 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Gamma Density: Background | | | | | | | | | |
| Phase | LS window 3 – Background CPS | | | Value | Phase | SS window 1 – Background CPS | | | Value |
| Master | | | | 59.30 | Master | | | | 72.40 |
| 50.00 (Minimum) | | | 70.00 (Nominal) | 90.00 (Maximum) | 50.00 (Minimum) | | | 75.00 (Nominal) | 100.0 (Maximum) |
| Phase | SS window 3 – Background CPS | | | Value | Phase | SS window 3 – Background CPS | | | Value |
| Master | | | | 353.9 | Master | | | | 353.9 |
| 270.0 (Minimum) | | | 370.0 (Nominal) | 470.0 (Maximum) | 270.0 (Minimum) | | | 370.0 (Nominal) | 470.0 (Maximum) |





| | | | | | | | | | |
|---|---------------------------------|--|--------------------|--------------------|---------------------|----------------------------------|--|--------------------|--------------------|
| Master: 15-Sep-2007 12:07 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Gamma Density: Water Block Check | | | | | | | | | |
| Phase | Long spacing water density G/C3 | | | Value | Phase | Short spacing water density G/C3 | | | Value |
| Master | | | | 1.024 | Master | | | | 1.280 |
| 0.9000 (Minimum) | | | 1.150 (Nominal) | 1.400 (Maximum) | 0.9000 (Minimum) | | | 1.150 (Nominal) | 1.400 (Maximum) |







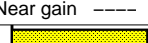

| | | | | | | | | | |
|---|--------------------------|--|----------------|--------------------|---------------------|--------------------------|--|----------------|--------------------|
| Master: 11-Sep-2007 7:12 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Resistivity: Air | | | | | | | | | |
| Phase | Phase-Shift T1 | | | Value | Phase | Phase-Shift T2 | | | Value |
| Master | | | | -0.9915 | Master | | | | 0.8876 |
| -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) | -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) |
| Phase | Phase-Shift T4 | | | Value | Phase | Phase-Shift T5 | | | Value |
| Master | | | | 0.8706 | Master | | | | -0.9920 |
| -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) | -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) |
| Phase | Phase-Shift T2 at 400KHz | | | Value | Phase | Phase-Shift T3 at 400KHz | | | Value |
| Master | | | | -1.590 | Master | | | | 1.617 |
| -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) | -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) |
| Phase | Phase-Shift T5 at 400KHz | | | Value | Phase | Phase-Shift T4 at 400KHz | | | Value |
| Master | | | | -1.592 | Master | | | | 1.613 |
| -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) | -4.000 (Minimum) | | | 0 (Nominal) | 4.000 (Maximum) |




| | | | |
|--------|--|----------------|--------------------|
| Master |  | 1.627 | |
| | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) |




| | | | | | | | | | | | | | | |
|---|---|--------------------|--------------------|-------|--------------------|---|--------------------|--|-------|--------------------|---|--------------------|--|-------|
| Master: 11-Sep-2007 7:12 | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | |
| Resistivity: Air | | | | | | | | | | | | | | |
| Phase | Attenuation T1 | | | Value | Phase | Attenuation T2 | | | Value | Phase | Attenuation T3 | | | Value |
| Master |  | | | 9.530 | Master |  | | | 4.872 | Master |  | | | 6.131 |
| | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | | |
| Phase | Attenuation T4 | | | Value | Phase | Attenuation T5 | | | Value | Phase | Attenuation T1 at 400KHz | | | Value |
| Master |  | | | 3.275 | Master |  | | | 4.691 | Master |  | | | 8.462 |
| | 2.500 (Minimum) | 4.500 (Nominal) | 6.500 (Maximum) | | 2.000 (Minimum) | 4.000 (Nominal) | 6.000 (Maximum) | | | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | | |
| Phase | Attenuation T2 at 400KHz | | | Value | Phase | Attenuation T3 at 400KHz | | | Value | Phase | Attenuation T4 at 400KHz | | | Value |
| Master |  | | | 5.973 | Master |  | | | 5.056 | Master |  | | | 4.372 |
| | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | | | 2.500 (Minimum) | 4.500 (Nominal) | 6.500 (Maximum) | | |
| Phase | Attenuation T5 at 400KHz | | | Value | | | | | | | | | | |
| Master |  | | | 3.611 | | | | | | | | | | |
| | 2.000 (Minimum) | 4.000 (Nominal) | 6.000 (Maximum) | | | | | | | | | | | |




| | |
|--|--|
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch / Equipment Identification | |
| Primary Equipment: Tool Name and Serial Number Calibration Status Neutron Logging Source Density Logging Source Stabilizer Size | EcoScope* 817 (Collar 821) Valid PNG-C 2073-41121 GSR-Z A2474 9.38 – in. |



| | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|---------------------|--|---|--|--|--------------------|--|
| Master: 15-Sep-2007 17:26 | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | |
| SSn LSn : Water Tank | | | | | | | | | | | | | |
| Phase | | SSn Gain ---- | | | Value | | Phase | | SSn Offset ---- | | | Value | |
| Master | |  | | | 1.112 | | Master | |  | | | 0 | |
| 0.6000 (Minimum) | | 1.000 (Nominal) | | | 1.400 (Maximum) | | -3.000 (Minimum) | | 0 (Nominal) | | | 3.000 (Maximum) | |
| Phase | | LSn Gain ---- | | | Value | | Phase | | LSn Offset ---- | | | Value | |
| Master | |  | | | 1.108 | | Master | |  | | | 0 | |
| 0.6000 (Minimum) | | 1.000 (Nominal) | | | 1.400 (Maximum) | | -3.000 (Minimum) | | 0 (Nominal) | | | 3.000 (Maximum) | |

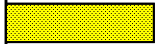
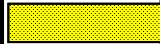
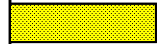

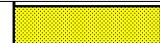





| | | | | | | | | | |
|---|---|--------------------|--------------------|-------|--------|---|----------------|--------------------|--------|
| Master: 15-Sep-2007 17:26 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Neutron: Water Tank | | | | | | | | | |
| Phase | Far 2 Gain ---- | | | Value | Phase | Far 2 Offset ---- | | | Value |
| Master |  | | | 1.001 | Master |  | | | 0.9219 |
| | 0.7000 (Minimum) | 1.000 (Nominal) | 1.300 (Maximum) | | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| Phase | Far 1 Gain ---- | | | Value | Phase | Far 1 Offset ---- | | | Value |
| Master |  | | | 1.014 | Master |  | | | 1.825 |
| | 0.7000 (Minimum) | 1.000 (Nominal) | 1.300 (Maximum) | | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| Phase | Thermal Near gain ---- | | | Value | Phase | Thermal Near offset ---- | | | Value |
| Master |  | | | 1.139 | Master |  | | | 4.922 |
| | 0.7000 (Minimum) | 1.000 (Nominal) | 1.300 (Maximum) | | | -500.0 (Minimum) | 0 (Nominal) | 500.0 (Maximum) | |
| Phase | Epithermal Near gain ---- | | | Value | Phase | Epithermal Near offset ---- | | | Value |
| Master |  | | | 1.172 | Master |  | | | 77.68 |
| | 0.7000 (Minimum) | 1.000 (Nominal) | 1.300 (Maximum) | | | -300.0 (Minimum) | 0 (Nominal) | 300.0 (Maximum) | |







| | | | | | | | | | | | | | | |
|---|---|-------------------|-------------------|-------|--------|---|-------------------|-------------------|-------|--------|---|--------------------|--------------------|-------|
| Master: 15-Sep-2007 17:26 | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | |
| Gamma Density: Magnesium Block | | | | | | | | | | | | | | |
| Phase | LS window 3 – Mg CPS | | | Value | Phase | SS window 1 – Mg CPS | | | Value | Phase | SS window 3 – Mg CPS | | | Value |
| Master |  | | | 1893 | Master |  | | | 4625 | Master |  | | | 10810 |
| | 1000 (Minimum) | 2000 (Nominal) | 3000 (Maximum) | | | 2500 (Minimum) | 5250 (Nominal) | 8000 (Maximum) | | | 6000 (Minimum) | 12000 (Nominal) | 18000 (Maximum) | |

| | | | | | | | | | | | | | | |
|---|---|--------------------|--------------------|-------|--------|---|-------------------|-------------------|-------|--------|---|-------------------|--------------------|-------|
| Master: 15-Sep-2007 17:26 | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | |
| Gamma Density: Aluminum Block | | | | | | | | | | | | | | |
| Phase | LS window 3 – Al CPS | | | Value | Phase | SS window 1 – Al CPS | | | Value | Phase | SS window 3 – Al CPS | | | Value |
| Master |  | | | 347.9 | Master |  | | | 2407 | Master |  | | | 7966 |
| | 200.0 (Minimum) | 400.0 (Nominal) | 600.0 (Maximum) | | | 1500 (Minimum) | 3000 (Nominal) | 4500 (Maximum) | | | 4000 (Minimum) | 8500 (Nominal) | 13000 (Maximum) | |

| | | | | | | | | | | | | | | |
|---|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Master: 15-Sep-2007 17:26 | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | |
| Gamma Density: Background | | | | | | | | | | | | | | |
| Phase | LS window 3 – Background | | CPS | Value | Phase | SS window 1 – Background | | CPS | Value | Phase | SS window 3 – Background | | CPS | Value |
| Master |  | | | 60.03 | Master |  | | | 84.39 | Master |  | | | 402.2 |
| | 50.00 (Minimum) | 70.00 (Nominal) | 90.00 (Maximum) | | | 50.00 (Minimum) | 75.00 (Nominal) | 100.0 (Maximum) | | | 270.0 (Minimum) | 370.0 (Nominal) | 470.0 (Maximum) | |

| | | | | | | | | | |
|---|---|--------------------|--------------------|--------|---|--------------------|--------------------|--|--|
| Master: 15-Sep-2007 17:26 | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | |
| Gamma Density: Water Block Check | | | | | | | | | |
| Phase | Long spacing water density G/C3 | | Value | Phase | Short spacing water density G/C3 | | Value | | |
| Master |  | | 1.039 | Master |  | | 1.298 | | |
| | 0.9000 (Minimum) | 1.150 (Nominal) | 1.400 (Maximum) | | 0.9000 (Minimum) | 1.150 (Nominal) | 1.400 (Maximum) | | |

| | | | | | | | | | | | | | | | | | |
|---|---|--|--|----------------|--------------------|---|--|--|---------------------|--------|---|--|----------------|--------------------|--|--|--|
| Master: 11-Sep-2007 16:03 | | | | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | | | | |
| Resistivity: Air | | | | | | | | | | | | | | | | | |
| Phase | Phase-Shift T1 | | | Value | Phase | Phase-Shift T2 | | | Value | Phase | Phase-Shift T3 | | | Value | | | |
| Master |  | | | 3.732 | Master |  | | | -3.842 | Master |  | | | 3.691 | | | |
| -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | | -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | |
| Phase | Phase-Shift T4 | | | Value | Phase | Phase-Shift T5 | | | Value | Phase | Phase-Shift T1 at 400KHz | | | Value | | | |
| Master |  | | | -3.820 | Master |  | | | 3.728 | Master |  | | | -1.612 | | | |
| -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | | -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | |
| Phase | Phase-Shift T2 at 400KHz | | | Value | Phase | Phase-Shift T3 at 400KHz | | | Value | Phase | Phase-Shift T4 at 400KHz | | | Value | | | |
| Master |  | | | 1.590 | Master |  | | | -1.595 | Master |  | | | 1.601 | | | |
| -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | | -4.000 (Minimum) | | | | 0 (Nominal) | 4.000 (Maximum) | | | |
| Phase | Phase-Shift T5 at 400KHz | | | Value | | | | | | | | | | | | | |
| Master |  | | | -1.596 | | | | | | | | | | | | | |
| -4.000 (Minimum) | | | | 0 (Nominal) | | | | | | | | | | 4.000 (Maximum) | | | |

| | | | | | | | | | | | | | | |
|---|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Master: 11-Sep-2007 16:03 | | | | | | | | | | | | | | |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration | | | | | | | | | | | | | | |
| Resistivity: Air | | | | | | | | | | | | | | |
| Phase | Attenuation T1 | | | Value | Phase | Attenuation T2 | | | Value | Phase | Attenuation T3 | | | Value |
| Master |  | | | 8.532 | Master |  | | | 5.882 | Master |  | | | 5.136 |
| | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | | | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | |
| Phase | Attenuation T4 | | | Value | Phase | Attenuation T5 | | | Value | Phase | Attenuation T1 at 400KHz | | | Value |
| Master |  | | | 4.281 | Master |  | | | 3.695 | Master |  | | | 8.528 |
| | 2.500 (Minimum) | 4.500 (Nominal) | 6.500 (Maximum) | | | 2.000 (Minimum) | 4.000 (Nominal) | 6.000 (Maximum) | | | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | |
| Phase | Attenuation T2 at 400KHz | | | Value | Phase | Attenuation T3 at 400KHz | | | Value | Phase | Attenuation T4 at 400KHz | | | Value |

| | | | | | | | | | | | |
|--------|--------------------------|--------------------|--------------------|--------|--------------------|--------------------|--------------------|--------|--------------------|--------------------|--------------------|
| Master | | | 5.907 | Master | | | 5.127 | Master | | | 4.300 |
| | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | | 2.500 (Minimum) | 4.500 (Nominal) | 6.500 (Maximum) |
| Phase | Attenuation T5 at 400KHz | | Value | | | | | | | | |
| Master | | | 3.681 | | | | | | | | |
| | 2.000 (Minimum) | 4.000 (Nominal) | 6.000 (Maximum) | | | | | | | | |

SCHLUMBERGER

Survey report 27-Oct-2007 08:17:36 Page 1 of 5

Client..... ESSO Australia
Field..... Fortescue

Well..... FTA A30A
API number.....
Engineer..... MYT/ML/CS

RIG..... ISDL 175
STATE..... Victoria

Spud date..... 30-Sep-07
Last survey date..... 26-Oct-07
Total accepted surveys... 114
MD of first survey..... 1955.00 m
MD of last survey..... 5097.00 m

----- Survey calculation methods-----
Method for positions..... Minimum curvature
Method for DLS..... Mason & Taylor

----- Depth reference -----
Permanent datum..... Mean Sea Level
Depth reference..... Driller's Depth
GL above permanent..... -69.00 m
KB above permanent..... Top Drive
DF above permanent..... 42.50 m

----- Vertical section origin-----
Latitude (+N/S-)..... -3.03 m
Departure (+E/W-)..... 2.26 m

----- Platform reference point-----
Latitude (+N/S-).....
Departure (+E/W-).....

Azimuth from Vsect Origin to target: 167.02 degrees

----- Geomagnetic data -----
Magnetic model..... BGGM version 2007
Magnetic date..... 07-Oct-2007
Magnetic field strength... 1199.38 HCNT
Magnetic dec (+E/W-)..... 13.21 degrees
Magnetic dip..... -68.86 degrees

----- MWD survey Reference Criteria -----
Reference G..... 1000.04 mGal
Reference H..... 1199.38 HCNT
Reference Dip..... -68.86 degrees
Tolerance of G..... (+/-) 2.50 mGal
Tolerance of H..... (+/-) 6.00 HCNT
Tolerance of Dip..... (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-)..... 13.21 degrees
Grid convergence (+E/W-).. -0.79 degrees
Total az corr (+E/W-)..... 14.00 degrees
(Total az corr = magnetic dec - grid conv)
Survey Correction Type ...:
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
R=Magnetic Resonance Tool Correction
D=Dmag Magnetic Correction

[(c)2007 IDEAL ID12_OC_13]
SCHLUMBERGER Survey Report

27-Oct-2007 08:17:36 Page 2 of 5

| Seq # | Measured depth (m) | Incl angle (deg) | Azimuth angle (deg) | Course length (m) | TVD depth (m) | Vertical section (m) | Displ +N/S- (m) | Displ +E/W- (m) | Total displ (m) | At Azim (deg) | DLS (deg/ 100f) | Srvy tool type | Tool Corr (deg) |
|----------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| --- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1 | 1955.00 | 55.75 | 162.23 | 0.00 | 1455.85 | 1092.63 | -1055.69 | 299.95 | 1097.47 | 164.14 | 0.00 | TIP | None |
| 2 | 1967.03 | 55.33 | 162.53 | 12.03 | 1462.66 | 1102.51 | -1065.14 | 302.95 | 1107.39 | 164.12 | 1.23 | PUP | None |
| 3 | 1995.21 | 57.22 | 163.80 | 28.18 | 1478.30 | 1125.90 | -1087.58 | 309.74 | 1130.82 | 164.10 | 2.34 | PUP | None |
| 4 | 2023.24 | 64.72 | 166.80 | 28.03 | 1491.90 | 1150.37 | -1111.27 | 315.93 | 1155.30 | 164.13 | 8.64 | PUP | None |
| 5 | 2051.45 | 71.49 | 169.04 | 28.21 | 1502.41 | 1176.53 | -1136.85 | 321.39 | 1181.40 | 164.21 | 7.65 | PUP | None |
| 6 | 2079.96 | 71.14 | 169.37 | 28.51 | 1511.55 | 1203.52 | -1163.38 | 326.45 | 1208.31 | 164.33 | 0.50 | PUP | None |
| 7 | 2108.05 | 71.14 | 168.88 | 28.09 | 1520.63 | 1230.08 | -1189.48 | 331.46 | 1234.80 | 164.43 | 0.50 | PUP | None |
| 8 | 2136.64 | 71.84 | 167.68 | 28.59 | 1529.70 | 1257.18 | -1216.03 | 336.97 | 1261.85 | 164.51 | 1.42 | PUP | None |
| 9 | 2165.43 | 72.05 | 166.40 | 28.79 | 1538.63 | 1284.55 | -1242.70 | 343.11 | 1289.20 | 164.57 | 1.31 | PUP | None |
| 10 | 2193.72 | 71.76 | 165.69 | 28.29 | 1547.41 | 1311.44 | -1268.80 | 349.60 | 1316.08 | 164.60 | 0.79 | PUP | None |
| 11 | 2222.75 | 70.62 | 165.82 | 29.03 | 1556.77 | 1338.91 | -1295.43 | 356.36 | 1343.55 | 164.62 | 1.20 | PUP | None |
| 12 | 2250.77 | 69.65 | 165.71 | 28.02 | 1566.29 | 1365.26 | -1320.98 | 362.84 | 1369.90 | 164.64 | 1.06 | PUP | None |
| 13 | 2279.13 | 68.83 | 165.75 | 28.36 | 1576.35 | 1391.77 | -1346.68 | 369.37 | 1396.41 | 164.66 | 0.88 | PUP | None |
| 14 | 2307.45 | 68.81 | 166.28 | 28.32 | 1586.58 | 1418.17 | -1372.30 | 375.76 | 1422.81 | 164.69 | 0.53 | PUP | None |
| 15 | 2336.15 | 69.07 | 166.58 | 28.70 | 1596.89 | 1444.96 | -1398.34 | 382.04 | 1449.58 | 164.72 | 0.41 | PUP | None |
| 16 | 2363.54 | 70.29 | 167.44 | 27.39 | 1606.40 | 1470.64 | -1423.36 | 387.81 | 1475.25 | 164.76 | 1.63 | PUP | None |
| 17 | 2392.16 | 71.60 | 168.26 | 28.62 | 1615.75 | 1497.69 | -1449.81 | 393.50 | 1502.26 | 164.81 | 1.62 | PUP | None |
| 18 | 2422.17 | 72.98 | 169.08 | 30.01 | 1624.88 | 1526.26 | -1477.84 | 399.12 | 1530.78 | 164.89 | 1.61 | PUP | None |
| 19 | 2450.13 | 73.24 | 169.08 | 27.96 | 1633.00 | 1553.00 | -1504.11 | 404.19 | 1557.47 | 164.96 | 0.28 | PUP | None |
| 20 | 2477.76 | 73.66 | 168.98 | 27.63 | 1640.87 | 1579.47 | -1530.11 | 409.23 | 1583.89 | 165.03 | 0.48 | PUP | None |
| 21 | 2506.35 | 73.52 | 169.22 | 28.59 | 1648.95 | 1606.88 | -1557.04 | 414.41 | 1611.25 | 165.10 | 0.29 | PUP | None |
| 22 | 2535.11 | 73.48 | 169.23 | 28.76 | 1657.11 | 1634.43 | -1584.13 | 419.57 | 1638.75 | 165.17 | 0.04 | PUP | None |
| 23 | 2563.32 | 73.38 | 169.36 | 28.21 | 1665.16 | 1661.45 | -1610.70 | 424.59 | 1665.72 | 165.23 | 0.17 | PUP | None |
| 24 | 2591.23 | 73.09 | 169.77 | 27.91 | 1673.21 | 1688.15 | -1636.98 | 429.43 | 1692.37 | 165.30 | 0.53 | PUP | None |
| 25 | 2619.31 | 72.74 | 169.82 | 28.08 | 1681.46 | 1714.96 | -1663.39 | 434.19 | 1719.13 | 165.37 | 0.38 | PUP | None |
| 26 | 2646.86 | 72.67 | 170.03 | 27.55 | 1689.65 | 1741.23 | -1689.29 | 438.79 | 1745.35 | 165.44 | 0.23 | PUP | None |
| 27 | 2675.66 | 72.54 | 170.06 | 28.80 | 1698.26 | 1768.67 | -1716.36 | 443.54 | 1772.75 | 165.51 | 0.14 | PUP | None |
| 28 | 2705.19 | 72.91 | 169.05 | 29.53 | 1707.03 | 1796.84 | -1744.09 | 448.65 | 1800.87 | 165.57 | 1.07 | PUP | None |
| 29 | 2733.18 | 73.05 | 168.39 | 27.99 | 1715.22 | 1823.59 | -1770.34 | 453.89 | 1827.60 | 165.62 | 0.70 | PUP | None |
| 30 | 2762.14 | 73.03 | 167.70 | 28.96 | 1723.67 | 1851.29 | -1797.44 | 459.63 | 1855.27 | 165.66 | 0.69 | PUP | None |

| Seq # | Measured depth (m) | Incl angle (deg) | Azimuth angle (deg) | Course length (m) | TVD depth (m) | Vertical section (m) | Displ +N/S- (m) | Displ +E/W- (m) | Total displ (m) | At Azim (deg) | DLS (deg/100f) | Srvy tool type | Tool Corr (deg) |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-----------------|---------------|----------------|----------------|-----------------|
| 31 | 2790.66 | 72.58 | 166.77 | 28.52 | 1732.10 | 1878.53 | -1824.01 | 465.65 | 1882.51 | 165.68 | 1.06 | PUP | None |
| 32 | 2819.04 | 72.14 | 166.23 | 28.38 | 1740.70 | 1905.58 | -1850.31 | 471.96 | 1909.55 | 165.69 | 0.73 | PUP | None |
| 33 | 2847.52 | 71.38 | 165.87 | 28.48 | 1749.62 | 1932.62 | -1876.56 | 478.48 | 1936.60 | 165.70 | 0.89 | PUP | None |
| 34 | 2876.23 | 70.52 | 165.19 | 28.71 | 1758.99 | 1959.75 | -1902.84 | 485.26 | 1963.74 | 165.69 | 1.14 | PUP | None |
| 35 | 2904.84 | 70.51 | 165.27 | 28.61 | 1768.53 | 1986.71 | -1928.92 | 492.14 | 1990.71 | 165.69 | 0.08 | PUP | None |
| 36 | 2933.11 | 70.44 | 165.55 | 28.27 | 1777.98 | 2013.34 | -1954.70 | 498.85 | 2017.35 | 165.68 | 0.29 | PUP | None |
| 37 | 2961.11 | 70.40 | 165.16 | 28.00 | 1787.36 | 2039.71 | -1980.22 | 505.52 | 2043.73 | 165.68 | 0.40 | PUP | None |
| 38 | 2990.07 | 70.34 | 165.59 | 28.96 | 1797.09 | 2066.98 | -2006.62 | 512.41 | 2071.01 | 165.68 | 0.43 | PUP | None |
| 39 | 3019.13 | 70.41 | 166.88 | 29.06 | 1806.85 | 2094.35 | -2033.20 | 518.92 | 2098.38 | 165.68 | 1.28 | PUP | None |
| 40 | 3047.70 | 70.22 | 167.71 | 28.57 | 1816.48 | 2121.25 | -2059.44 | 524.83 | 2125.27 | 165.70 | 0.86 | PUP | None |
| 41 | 3075.91 | 70.20 | 168.07 | 28.21 | 1826.03 | 2147.79 | -2085.40 | 530.40 | 2151.79 | 165.73 | 0.37 | PUP | None |
| 42 | 3101.77 | 70.63 | 168.59 | 25.86 | 1834.69 | 2172.14 | -2109.26 | 535.33 | 2176.13 | 165.76 | 0.77 | PUP | None |
| 43 | 3129.68 | 71.74 | 168.99 | 27.91 | 1843.70 | 2198.55 | -2135.17 | 540.47 | 2202.51 | 165.80 | 1.28 | PUP | None |
| 44 | 3158.09 | 72.47 | 169.15 | 28.41 | 1852.43 | 2225.57 | -2161.72 | 545.59 | 2229.50 | 165.84 | 0.80 | PUP | None |
| 45 | 3185.00 | 72.31 | 169.08 | 26.91 | 1860.57 | 2251.20 | -2186.90 | 550.44 | 2255.11 | 165.87 | 0.20 | PUP | None |
| 46 | 3214.29 | 72.21 | 169.14 | 29.29 | 1869.49 | 2279.08 | -2214.30 | 555.71 | 2282.97 | 165.91 | 0.12 | PUP | None |
| 47 | 3243.73 | 72.15 | 169.05 | 29.44 | 1878.50 | 2307.09 | -2241.82 | 561.01 | 2310.95 | 165.95 | 0.11 | PUP | None |
| 48 | 3271.59 | 71.93 | 168.94 | 27.86 | 1887.09 | 2333.57 | -2267.84 | 566.07 | 2337.42 | 165.98 | 0.27 | PUP | None |
| 49 | 3299.14 | 72.18 | 169.06 | 27.55 | 1895.58 | 2359.77 | -2293.56 | 571.07 | 2363.59 | 166.02 | 0.30 | PUP | None |
| 50 | 3325.55 | 72.20 | 169.41 | 26.41 | 1903.66 | 2384.89 | -2318.27 | 575.77 | 2388.69 | 166.05 | 0.39 | PUP | None |
| 51 | 3356.80 | 72.07 | 169.33 | 31.25 | 1913.24 | 2414.61 | -2347.50 | 581.25 | 2418.39 | 166.09 | 0.15 | PUP | None |
| 52 | 3387.14 | 71.86 | 169.69 | 30.34 | 1922.64 | 2443.43 | -2375.86 | 586.50 | 2447.19 | 166.13 | 0.40 | PUP | None |
| 53 | 3414.68 | 71.65 | 170.11 | 27.54 | 1931.26 | 2469.56 | -2401.62 | 591.09 | 2473.29 | 166.17 | 0.50 | PUP | None |
| 54 | 3442.97 | 71.57 | 169.99 | 28.29 | 1940.18 | 2496.36 | -2428.06 | 595.73 | 2500.07 | 166.21 | 0.15 | PUP | None |
| 55 | 3470.84 | 71.56 | 170.28 | 27.87 | 1949.00 | 2522.76 | -2454.11 | 600.26 | 2526.45 | 166.26 | 0.30 | PUP | None |
| 56 | 3498.51 | 72.70 | 170.48 | 27.67 | 1957.49 | 2549.05 | -2480.07 | 604.66 | 2552.72 | 166.30 | 1.27 | PUP | None |
| 57 | 3527.37 | 73.43 | 169.99 | 28.86 | 1965.90 | 2576.62 | -2507.28 | 609.34 | 2580.26 | 166.34 | 0.92 | PUP | None |
| 58 | 3555.31 | 73.83 | 169.16 | 27.94 | 1973.77 | 2603.40 | -2533.64 | 614.19 | 2607.02 | 166.37 | 0.97 | PUP | None |
| 59 | 3581.96 | 73.58 | 168.35 | 26.65 | 1981.25 | 2628.97 | -2558.73 | 619.18 | 2632.58 | 166.40 | 0.93 | PUP | None |
| 60 | 3610.60 | 73.39 | 167.91 | 28.64 | 1989.39 | 2656.42 | -2585.60 | 624.83 | 2660.03 | 166.41 | 0.49 | PUP | None |

| Seq # | Measured depth (m) | Incl angle (deg) | Azimuth angle (deg) | Course length (m) | TVD depth (m) | Vertical section (m) | Displ +N/S- (m) | Displ +E/W- (m) | Total displ (m) | At Azim (deg) | DLS (deg/100f) | Srvy tool type | Tool Corr (deg) |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-----------------|---------------|----------------|----------------|-----------------|
| 61 | 3641.92 | 73.26 | 167.11 | 31.32 | 1998.38 | 2686.42 | -2614.89 | 631.32 | 2690.03 | 166.43 | 0.76 | PUP | None |
| 62 | 3667.99 | 73.14 | 166.98 | 26.07 | 2005.91 | 2711.38 | -2639.22 | 636.91 | 2714.98 | 166.43 | 0.20 | PUP | None |
| 63 | 3698.90 | 73.03 | 167.34 | 30.91 | 2014.90 | 2740.95 | -2668.05 | 643.49 | 2744.55 | 166.44 | 0.36 | PUP | None |
| 64 | 3725.38 | 72.89 | 167.44 | 26.48 | 2022.66 | 2766.27 | -2692.76 | 649.01 | 2769.87 | 166.45 | 0.20 | PUP | None |
| 65 | 3754.21 | 73.00 | 167.96 | 28.83 | 2031.12 | 2793.83 | -2719.69 | 654.88 | 2797.42 | 166.46 | 0.54 | PUP | None |
| 66 | 3780.98 | 72.75 | 168.14 | 26.77 | 2039.00 | 2819.41 | -2744.72 | 660.18 | 2822.99 | 166.48 | 0.35 | PUP | None |
| 67 | 3812.46 | 72.59 | 167.98 | 31.48 | 2048.38 | 2849.45 | -2774.12 | 666.40 | 2853.03 | 166.49 | 0.21 | PUP | None |
| 68 | 3841.49 | 72.37 | 167.51 | 29.03 | 2057.12 | 2877.13 | -2801.17 | 672.27 | 2880.71 | 166.50 | 0.52 | PUP | None |
| 69 | 3870.65 | 72.06 | 166.75 | 29.16 | 2066.03 | 2904.90 | -2828.24 | 678.46 | 2908.48 | 166.51 | 0.82 | PUP | None |
| 70 | 3898.80 | 71.64 | 166.28 | 28.15 | 2074.80 | 2931.65 | -2854.25 | 684.70 | 2935.23 | 166.51 | 0.66 | PUP | None |
| 71 | 3927.38 | 71.44 | 166.18 | 28.58 | 2083.84 | 2958.76 | -2880.58 | 691.15 | 2962.33 | 166.51 | 0.24 | PUP | None |
| 72 | 3955.78 | 71.27 | 166.09 | 28.40 | 2092.92 | 2985.66 | -2906.70 | 697.60 | 2989.24 | 166.50 | 0.20 | PUP | None |
| 73 | 3985.06 | 71.32 | 166.66 | 29.28 | 2102.31 | 3013.39 | -2933.66 | 704.13 | 3016.98 | 166.50 | 0.56 | PUP | None |
| 74 | 4013.30 | 71.39 | 166.57 | 28.24 | 2111.34 | 3040.15 | -2959.69 | 710.32 | 3043.73 | 166.50 | 0.12 | PUP | None |
| 75 | 4041.55 | 70.81 | 166.80 | 28.25 | 2120.49 | 3066.88 | -2985.70 | 716.48 | 3070.46 | 166.51 | 0.67 | PUP | None |
| 76 | 4070.92 | 69.83 | 166.40 | 29.37 | 2130.38 | 3094.53 | -3012.60 | 722.89 | 3098.11 | 166.51 | 1.09 | PUP | None |
| 77 | 4099.00 | 69.81 | 166.95 | 28.08 | 2140.07 | 3120.89 | -3038.24 | 728.96 | 3124.47 | 166.51 | 0.56 | PUP | None |
| 78 | 4127.50 | 69.68 | 167.19 | 28.50 | 2149.94 | 3147.62 | -3064.30 | 734.95 | 3151.21 | 166.51 | 0.28 | PUP | None |
| 79 | 4155.41 | 69.44 | 167.27 | 27.91 | 2159.68 | 3173.78 | -3089.81 | 740.73 | 3177.36 | 166.52 | 0.27 | PUP | None |
| 80 | 4181.20 | 69.14 | 167.67 | 25.79 | 2168.81 | 3197.90 | -3113.36 | 745.96 | 3201.48 | 166.53 | 0.57 | PUP | None |
| 81 | 4209.46 | 69.02 | 167.88 | 28.26 | 2178.90 | 3224.29 | -3139.16 | 751.55 | 3227.87 | 166.54 | 0.25 | PUP | None |
| 82 | 4236.82 | 69.10 | 168.10 | 27.36 | 2188.67 | 3249.84 | -3164.15 | 756.87 | 3253.41 | 166.55 | 0.25 | PUP | None |
| 83 | 4264.92 | 69.52 | 168.57 | 28.10 | 2198.60 | 3276.12 | -3189.90 | 762.18 | 3279.69 | 166.56 | 0.66 | PUP | None |
| 84 | 4293.42 | 70.73 | 168.86 | 28.50 | 2208.29 | 3302.91 | -3216.18 | 767.43 | 3306.47 | 166.58 | 1.33 | PUP | None |
| 85 | 4325.97 | 72.40 | 170.04 | 32.55 | 2218.58 | 3333.76 | -3246.54 | 773.08 | 3337.31 | 166.61 | 1.88 | PUP | None |
| 86 | 4352.00 | 73.35 | 170.95 | 26.03 | 2226.25 | 3358.59 | -3271.07 | 777.19 | 3362.13 | 166.63 | 1.51 | PUP | None |
| 87 | 4380.55 | 72.91 | 171.60 | 28.55 | 2234.53 | 3385.84 | -3298.07 | 781.33 | 3389.36 | 166.67 | 0.81 | PUP | None |
| 88 | 4410.01 | 72.80 | 171.51 | 29.46 | 2243.22 | 3413.90 | -3325.92 | 785.46 | 3417.41 | 166.71 | 0.15 | PUP | None |
| 89 | 4438.08 | 72.64 | 170.90 | 28.07 | 2251.56 | 3440.63 | -3352.41 | 789.56 | 3444.13 | 166.75 | 0.65 | PUP | None |
| 90 | 4465.56 | 72.51 | 170.54 | 27.48 | 2259.79 | 3466.80 | -3378.28 | 793.79 | 3470.29 | 166.78 | 0.41 | PUP | None |

| Seq # | Measured depth (m) | Incl angle (deg) | Azimuth angle (deg) | Course length (m) | TVD depth (m) | Vertical section (m) | Displ +N/S- (m) | Displ +E/W- (m) | Total displ (m) | At Azim (deg) | DLS (deg/100f) | Srvy tool type | Tool Corr (deg) |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-----------------|---------------|----------------|----------------|-----------------|
| 91 | 4495.81 | 72.13 | 170.07 | 30.25 | 2268.98 | 3495.57 | -3406.69 | 798.64 | 3499.05 | 166.81 | 0.59 | PUP | None |
| 92 | 4523.80 | 71.77 | 169.83 | 27.99 | 2277.65 | 3522.15 | -3432.90 | 803.29 | 3525.63 | 166.83 | 0.46 | PUP | None |
| 93 | 4552.62 | 71.83 | 169.27 | 28.82 | 2286.65 | 3549.50 | -3459.82 | 808.25 | 3552.97 | 166.85 | 0.57 | PUP | None |
| 94 | 4581.24 | 71.87 | 168.75 | 28.62 | 2295.57 | 3576.68 | -3486.52 | 813.44 | 3580.15 | 166.87 | 0.53 | PUP | None |
| 95 | 4586.10 | 71.89 | 168.59 | 4.86 | 2297.08 | 3581.30 | -3491.05 | 814.35 | 3584.77 | 166.87 | 0.96 | PUP | None |
| 96 | 4614.12 | 71.42 | 168.12 | 28.02 | 2305.90 | 3607.88 | -3517.09 | 819.71 | 3611.35 | 166.88 | 0.70 | PUP | None |

| | | | | | | | | | | | | | |
|----------------------------|---------|-------|--------|-------|---------|---------|----------|--------|---------|--------|------|------------------|------|
| 97 | 4642.99 | 70.92 | 168.05 | 28.87 | 2315.22 | 3635.20 | -3543.83 | 825.36 | 3638.67 | 166.89 | 0.53 | PUP | None |
| 98 | 4669.70 | 70.18 | 167.62 | 26.71 | 2324.11 | 3660.39 | -3568.45 | 830.66 | 3663.86 | 166.90 | 0.96 | PUP | None |
| 99 | 4699.74 | 69.28 | 167.57 | 30.04 | 2334.52 | 3688.56 | -3595.97 | 836.72 | 3692.03 | 166.90 | 0.91 | PUP | None |
| 100 | 4728.16 | 69.87 | 167.86 | 28.42 | 2344.44 | 3715.20 | -3621.99 | 842.38 | 3718.66 | 166.91 | 0.70 | PUP | None |
| 101 | 4756.28 | 70.40 | 168.49 | 28.12 | 2353.99 | 3741.64 | -3647.88 | 847.80 | 3745.10 | 166.92 | 0.86 | PUP | None |
| 102 | 4783.28 | 70.00 | 169.54 | 27.00 | 2363.11 | 3767.02 | -3672.82 | 852.64 | 3770.49 | 166.93 | 1.20 | PUP | None |
| 103 | 4812.44 | 69.81 | 168.96 | 29.16 | 2373.16 | 3794.39 | -3699.72 | 857.75 | 3797.85 | 166.95 | 0.60 | PUP | None |
| 104 | 4841.30 | 69.64 | 168.30 | 28.86 | 2383.16 | 3821.45 | -3726.26 | 863.09 | 3824.91 | 166.96 | 0.68 | PUP | None |
| 105 | 4870.22 | 69.39 | 167.62 | 28.92 | 2393.28 | 3848.54 | -3752.76 | 868.74 | 3852.00 | 166.97 | 0.72 | PUP | None |
| 106 | 4898.55 | 69.55 | 167.00 | 28.33 | 2403.21 | 3875.07 | -3778.64 | 874.57 | 3878.53 | 166.97 | 0.65 | PUP | None |
| 107 | 4926.41 | 69.43 | 166.64 | 27.86 | 2412.97 | 3901.16 | -3804.05 | 880.52 | 3904.62 | 166.97 | 0.39 | PUP | None |
| 108 | 4949.28 | 69.44 | 166.15 | 22.87 | 2421.01 | 3922.57 | -3824.86 | 885.55 | 3926.03 | 166.96 | 0.61 | PUP | None |
| 109 | 4977.56 | 69.03 | 163.97 | 28.28 | 2431.03 | 3949.00 | -3850.41 | 892.37 | 3952.46 | 166.95 | 2.24 | PUP | None |
| 110 | 5006.00 | 68.79 | 160.71 | 28.44 | 2441.27 | 3975.44 | -3875.69 | 900.42 | 3978.91 | 166.92 | 3.27 | PUP | None |
| 111 | 5034.09 | 68.99 | 160.80 | 28.09 | 2451.39 | 4001.49 | -3900.43 | 909.05 | 4004.96 | 166.88 | 0.24 | PUP | None |
| 112 | 5062.20 | 69.16 | 160.84 | 28.11 | 2461.43 | 4027.59 | -3925.22 | 917.68 | 4031.07 | 166.84 | 0.19 | PUP | None |
| 113 | 5073.92 | 69.18 | 161.05 | 11.72 | 2465.59 | 4038.48 | -3935.58 | 921.26 | 4041.97 | 166.83 | 0.51 | PUP | None |
| 114 | 5097.00 | 69.22 | 161.40 | 23.08 | 2473.79 | 4059.95 | -3956.01 | 928.20 | 4063.44 | 166.80 | 0.44 | Projection to TD | |
| [(c)2007 IDEAL ID12 OC 13] | | | | | | | | | | | | | |

Company: ESSO Australia Pty Ltd



Well: FTA A30A

Field: Fortescue

Rig: ISDL 175

9.875 in. Section

State: Victoria

EcoScope* Resistivity
1:500 Measured Depth
Recorded Mode Log