Schlumberger

Company: **ESSO Australia Pty. Ltd.**

**8.5 in. Section**

Well: **BMB−B16**

Field: **Bream B**

Rig: **ENSCO 102** State: **Victoria**

Rig: ENSCO 102
Field: Bream B
Location: Bass Strait
Well: BMB−B16
Company: ESSO Australia Pty. Ltd.

# GeoVISION Density Neutron
# 1:200 True Vertical Depth
# Recorded Mode Log

| Location | | | Elevation | | |
|---|---|---|---|---|---|
| | Total depth: | 2641.0 m | | K.B. | Top Drive |
| | Spud date: | 05−Jul−05 | | G.L. | −61.0 m |
| | Runs: | 2 To 4 | | D.F. | 47.2 m |
| | Permanent datum: | Mean Sea Level | | Elev.: | 0.0 m |
| | Log measured from: | Drill Floor | | 47.2 m | above Perm. datum |
| | Depth reference: | Driller's Depth | | | |

| Service Order no. | x = 573164.77m (East) | Longitude | Latitude |
|---|---|---|---|
| ASQ−05−10 | y = 5736349.58m (North) | E 147º 50' 21.375" | S 38º 31' 5.642" |

| | | | |
|---|---|---|---|
| Depth logged: | 836.0 m To 2931.8 m | Mag decl: 13.133 deg. | Other services: |
| Date logged: | 04−Aug−05 To 09−Aug−05 | Mag dip: −69.032 deg. | Xceed* RSS, D&I Survey |

| Bore hole record | | | Casing record | | | |
|---|---|---|---|---|---|---|
| Hole size | from | to | Size | Density | from | to |
| 12.25 in. | 181.0 m | 843.0 m | 9.625 in. | 47.0 lb/ft | 27.2 m | 836.0 m |
| 8.5 in. | 843.0 m | 2641.0 m | | | | |

| Mud record | | | Borehole deviation record | | | |
|---|---|---|---|---|---|---|
| Type | from | to | Min | Max | from | to |
| S−W/Bentonite | 181.0 m | 843.0 m | 0.57 deg. | 6.79 deg. | 181.0 m | 843.0 m |
| KCl/PHPA/Glycol | 843.0 m | 2641.0 m | 4.85 deg. | 58.13 deg. | 843.0 m | 2641.0 m |

| Surface equipment | | Software record | |
|---|---|---|---|
| Unit | OLU−JA−9602 | IDEAL Wis | ID10_2C_01 |
| Depth system | PDA − DES−DA | SPM | hspm10_1c_05 |
| | | LWD | See Toolsketch |
| | | MWD | V8.0B96 |

# Bit Run Summary

| Run number | | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Bit size | in. | 8.5 | 8.5 | 8.5 | |
| Bit start depth | m | 843.0 | 1253.0 | 1902.0 | |
| Bit end depth | m | 1253.0 | 1902.0 | 2641.0 | |
| Top interval logged | m | 836.0 | 1221.2 | 1870.2 | |
| Bottom interval logged | m | 1243.8 | 1892.8 | 2631.8 | |
| Begin log: time | | 19:21 | 20:56 | 06:30 | |
| Begin log: date | | 04−Aug−05 | 06−Aug−05 | 08−Aug−05 | |
| End log: time | | 07:49 | 16:49 | 13:05 | |
| End log: date | | 06−Aug−05 | 07−Aug−05 | 09−Aug−05 | |
| **Mud data** | | | | | |
| Depth | m | 1192.0 | 1809.0 | 2641.0 | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | | KCl/PHPA/Glycol | KCl/PHPA/Glycol | KCl/PHPA/Glycol | | | | | | | |
| Mud weight | ppg | 9.60 | 9.70 | 9.85 | | | | | | | |
| Solids | % | 4.2 | 5.0 | 6.0 | | | | | | | |
| Chlorides | mg/L | 43000 | 45000 | 46000 | | | | | | | |
| Rm | ohm.m@ºC | 0.10@21.0 | 0.10@21.1 | 0.09@20.8 | | | | | | | |
| Rmf | ohm.m@ºC | 0.08@20.9 | 0.09@21.0 | 0.08@20.6 | | | | | | | |
| Rmc | ohm.m@ºC | 0.13@21.0 | 0.13@21.7 | 0.14@21.0 | | | | | | | |
| Potassium | % | 8.0 | 8.0 | 8.0 | | | | | | | |
| **Environmental data** | | | | | | | | | | | |
| **GR** | | | | | | | | | | | |
| Mud weight | ppg | 9.60 | 9.70 | 9.85 | | | | | | | |
| Bit size | in. | 8.5 | 8.5 | 8.5 | | | | | | | |
| **Resistivity** | | | | | | | | | | | |
| **Neutron porosity** | | | | | | | | | | | |
| Hole Size | in. | 8.5 | 8.5 | 8.5 | | | | | | | |
| Mud weight | ppg | 9.60 | 9.70 | 9.85 | | | | | | | |
| Temperature | ºC | 65.0 | 68.0 | 87.0 | | | | | | | |
| Mud salinity | ppm | 84775 | 76924 | 83929 | | | | | | | |
| Formation salinity | | | | | | | | | | | |
| Recording rate 1 | SEC | 5 sec. | 5 sec. | 5 sec. | | | | | | | |
| Recording rate 2 | SEC | 5 sec. | 5 sec. | 5 sec. | | | | | | | |
| Filtering GR | | 3 pt. | 3 pt. | 3 pt. | | | | | | | |
| Filtering density | | 3 pt. | 3 pt. | 3 pt. | | | | | | | |
| Filtering Neutron | | 3 pt. | 3 pt. | 3 pt. | | | | | | | |
| Company representative | | R. Bain | M. Jackson | J. MacKinnon | | | | | | | |
| Schlumberger D&M Personnel | | J. Dolan | M. Y. Tan | D. Hastie | T. Auger | C. Soper | B. Hanson | | | | |



| OTHER SERVICES FOR RUN2 | OTHER SERVICES FOR RUN3 | OTHER SERVICES FOR RUN4 |
|---|---|---|
| Xceed* RSS<br>D&I Survey | Xceed* RSS<br>D&I Survey | Xceed* RSS<br>D&I Survey |
| REMARKS: RUN NUMBER 2<br>8−1/2 in. hole section was drilled from 843.0 m to 1253.0 m.<br><br>Depth is referenced to Driller's Depth.<br><br>All data presented is from tool memory.<br><br>Environmental Corrections: −<br>GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content.<br>GVR* resistivity is corrected for bit size, mud resistivity and borehole temperature.<br>Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hyrdogen index (derived from mud weight. temperature and pressure at depth).<br>Surface temperature is adjusted to give a correct computed downhole temperature gradient.<br><br>Neutron porosity data was procesed without | REMARKS: RUN NUMBER 3<br>8−1/2 in. hole section was drilled from 1253.0 m to 1902.0 m.<br><br>Depth is referenced to Driller's Depth.<br><br>All data presented is from tool memory.<br><br>Environmental Corrections: −<br>GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content.<br>GVR*6 resistivity is corrected for bit size, mud resistivity and borehole temperature.<br>Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hydrogen index (derived from mud weight, temperature and pressure at depth).<br>Surface temperature is adjusted to give a correct computed downhole temperature gradient.<br><br>Resistivity data was processed until the depth | REMARKS: RUN NUMBER 4<br>8−1/2 in. hole section was drilled from 1902.0 m to 2641.0 m.<br><br>Depth is referenced to Driller's Depth.<br><br>All data presented is from tool memory.<br><br>Environmental Corrections: −<br>GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content.<br>GVR* resistivity is corrected for bit size, mud resistivity and borehole temperature.<br>Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hydrogen index (derived from mud weight, temperature and pressure at depth).<br>Surface temperature is adjusted to give a correct computed downhole temperature gradient.<br><br>Resistivity data between the interval of |

FR11 and FR21.

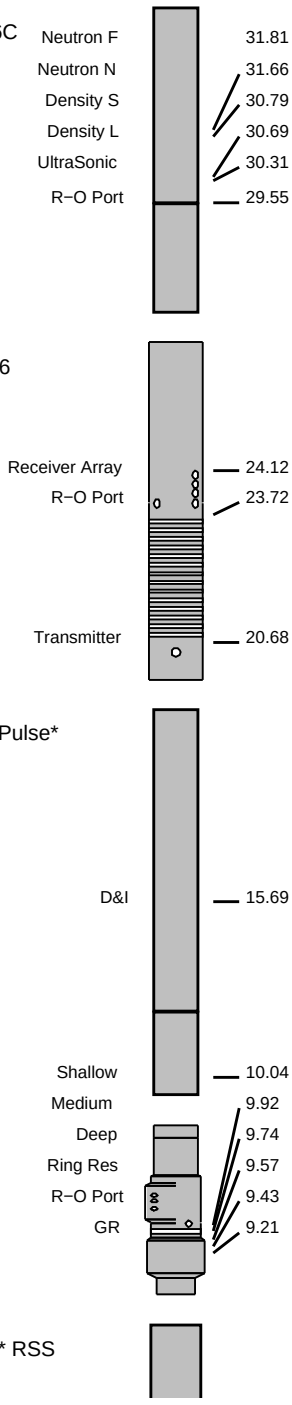
of 1864.0 m MD.

1864.0 m to 1893.0 m MD was acquired by reaming down the section.

# EQUIPMENT DESCRIPTION

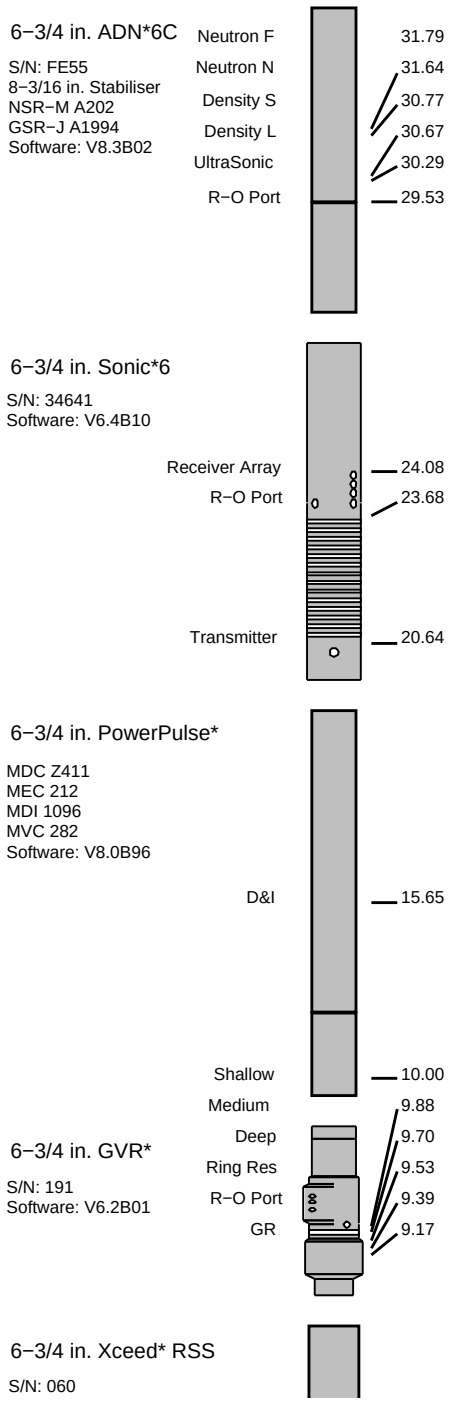
## RUN2

DOWNHOLE EQUIPMENT



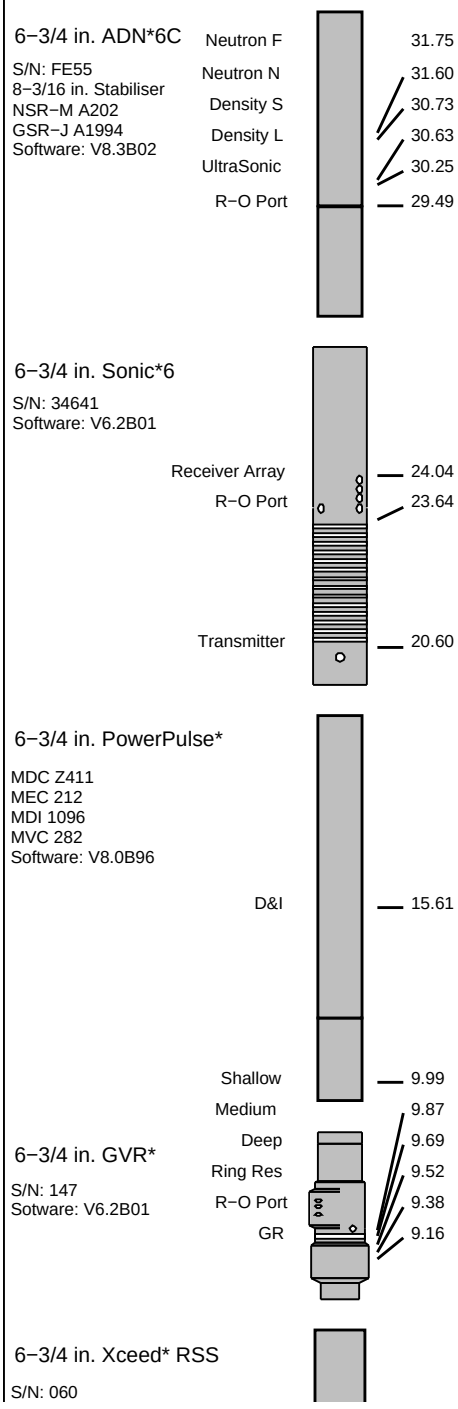

## RUN3

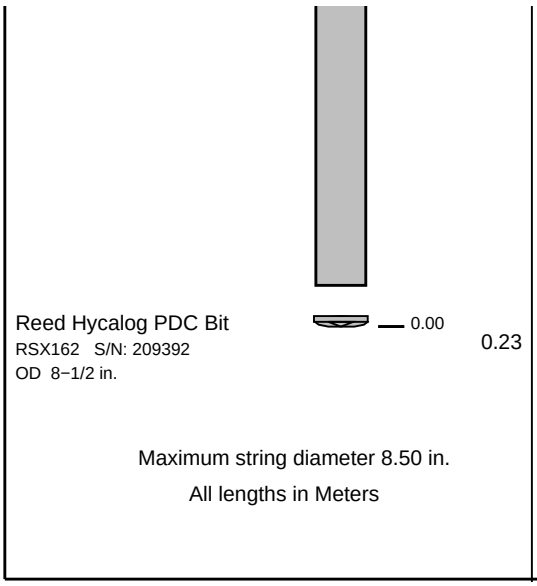
DOWNHOLE EQUIPMENT

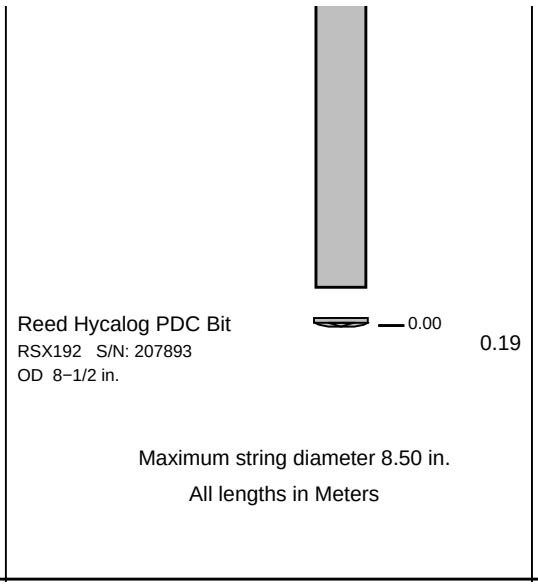


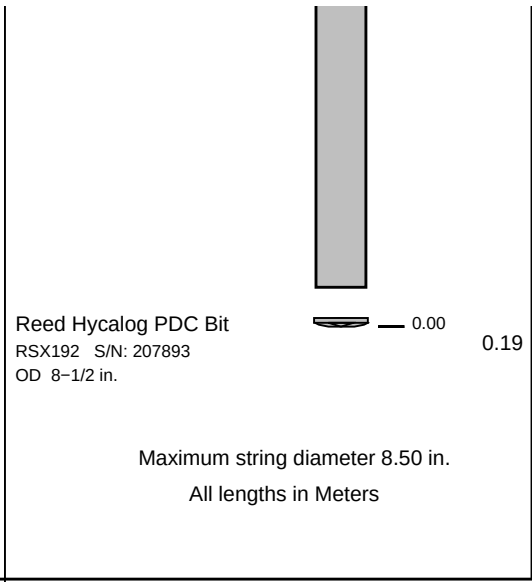

## RUN4

DOWNHOLE EQUIPMENT





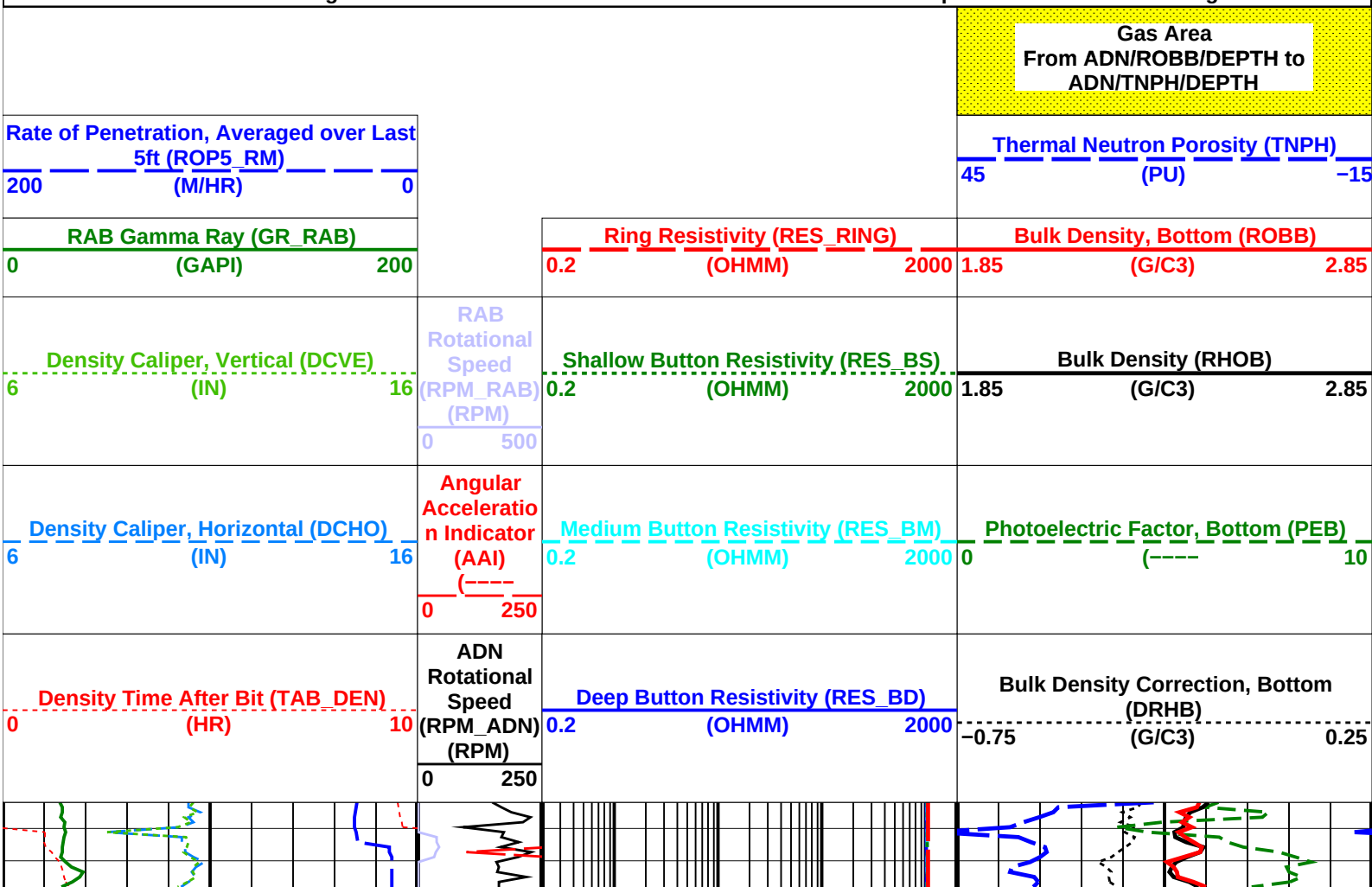

# True Vertical Depth Log

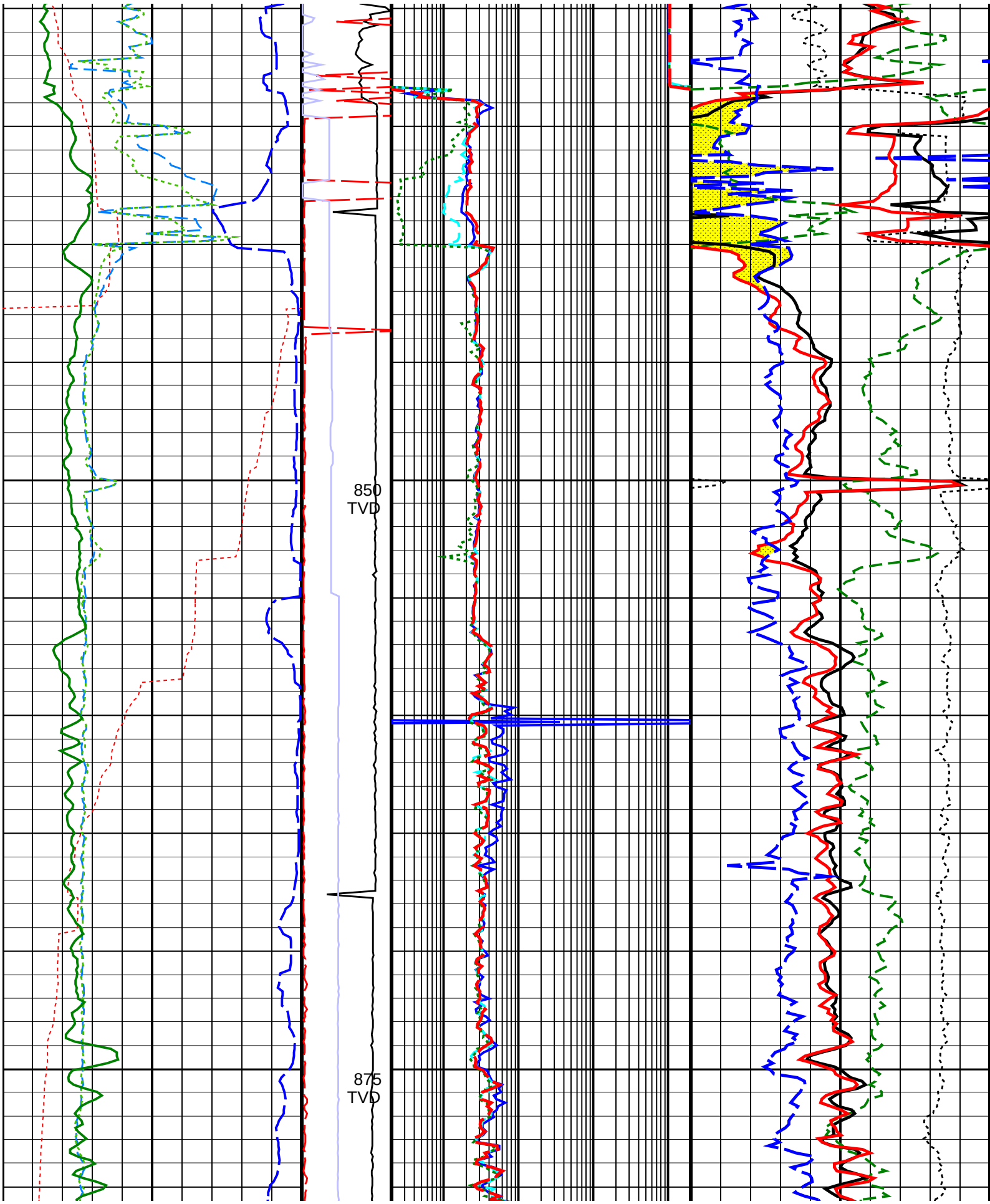
## IDEAL Version: ID10_0C_04

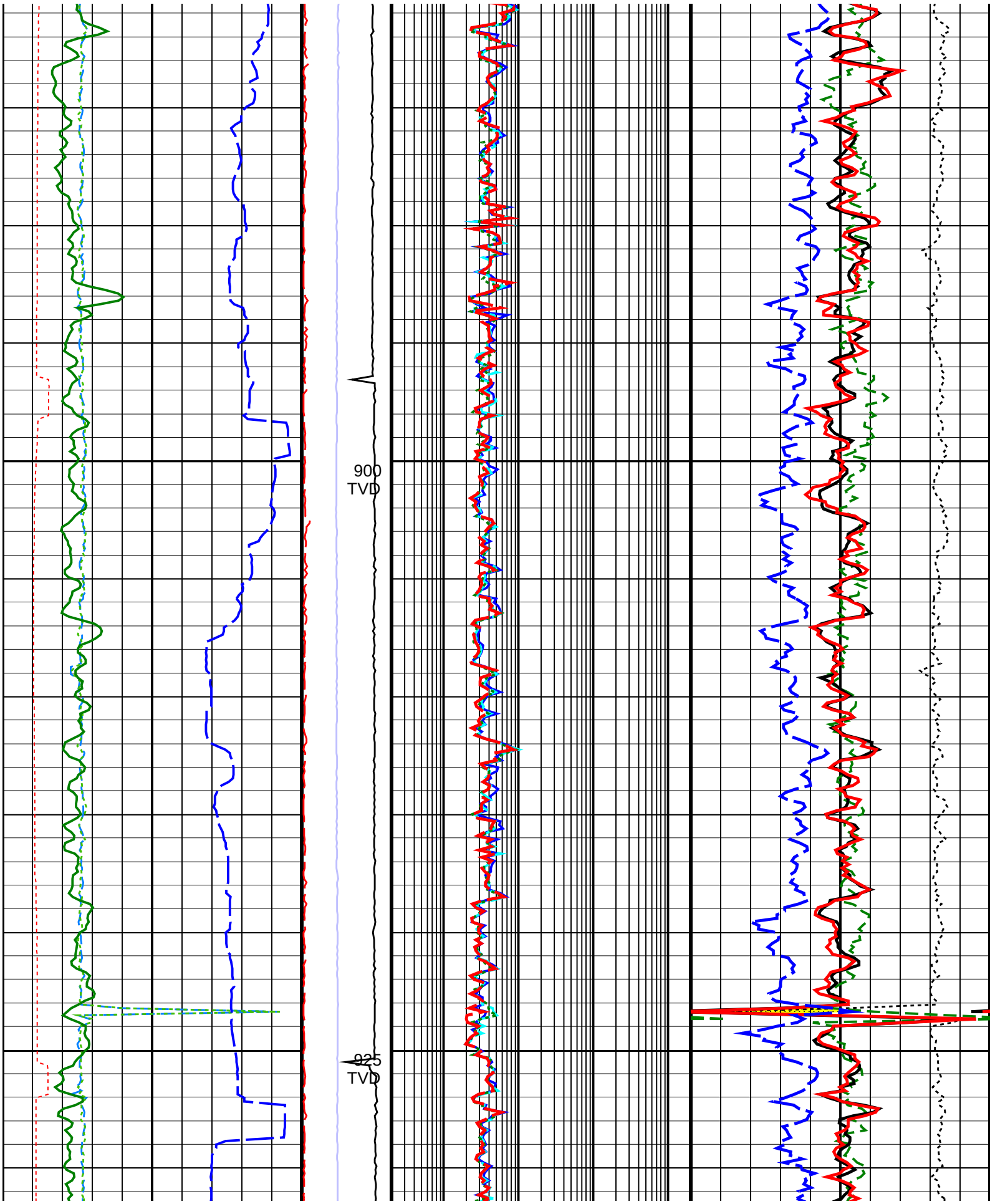
IDF

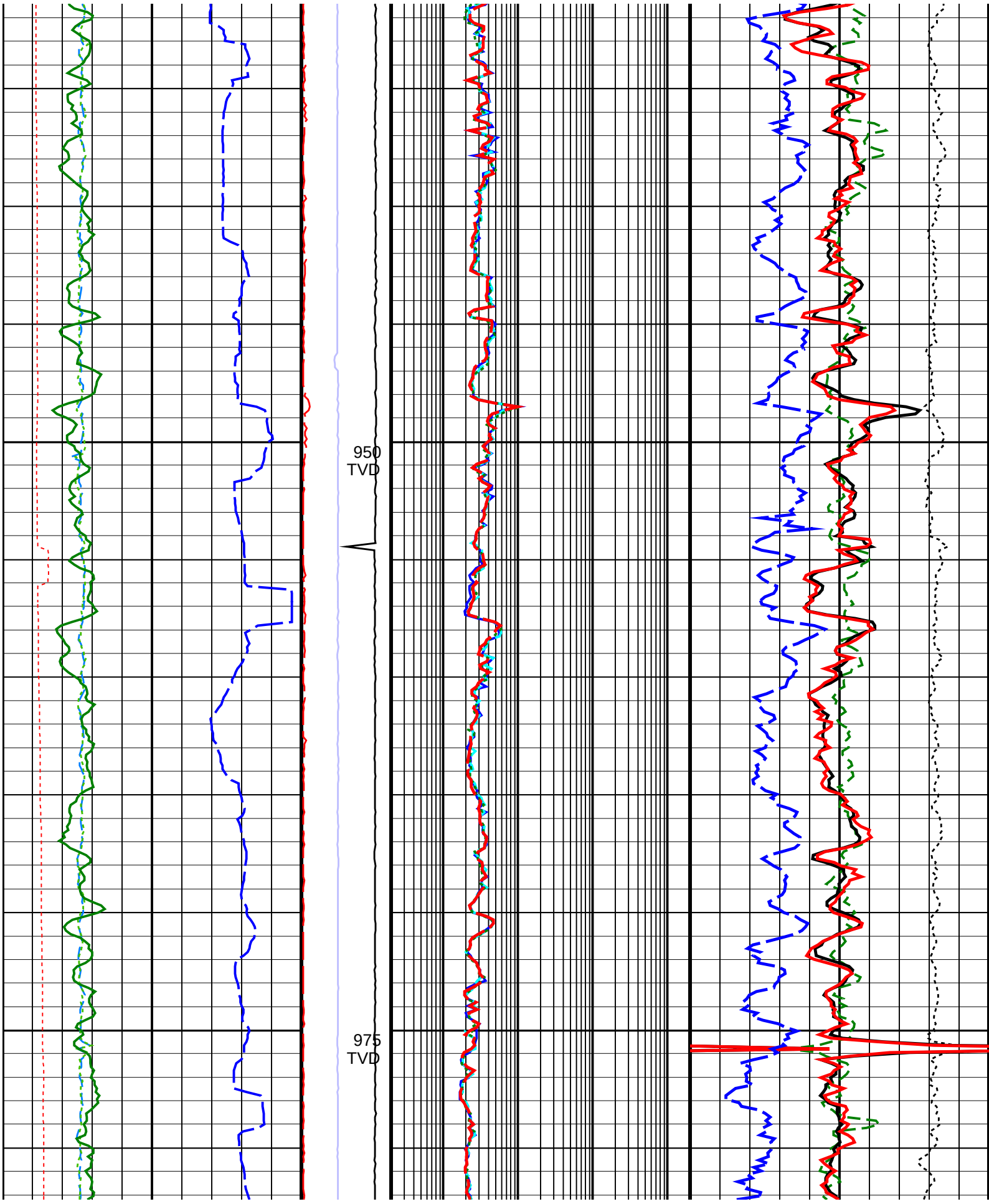
| | | | |
|---|---|---|---|
| **RAB** | **id10_0c_04** | **MWD_10** | **id10_0c_04** |
| **ADN** | **id10_0c_04** | | |

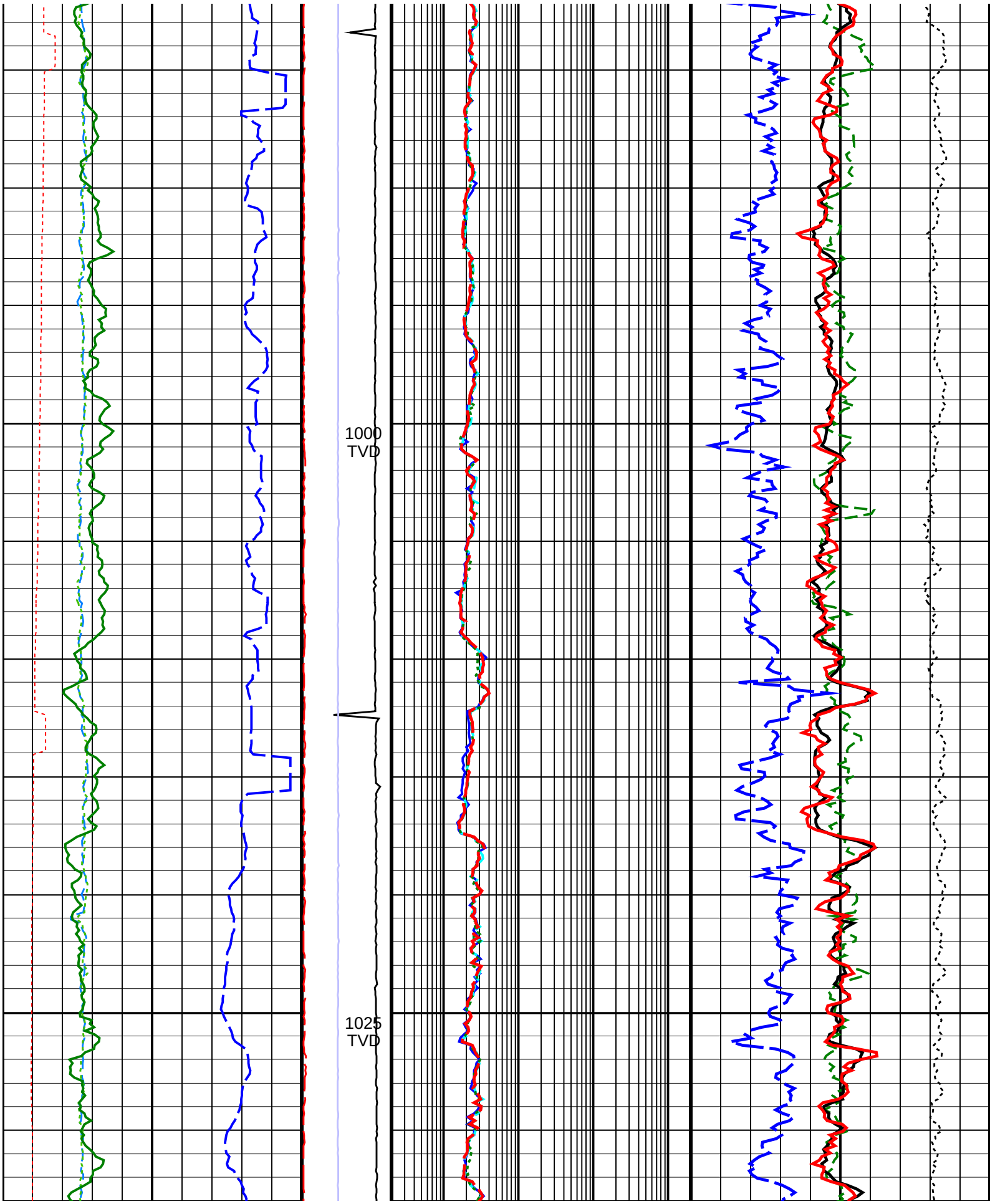
**Format: GeoVISION Service Log** **Vertical Scale: 1:200** **Graphics File Created: 17−Aug−2005 11:01**

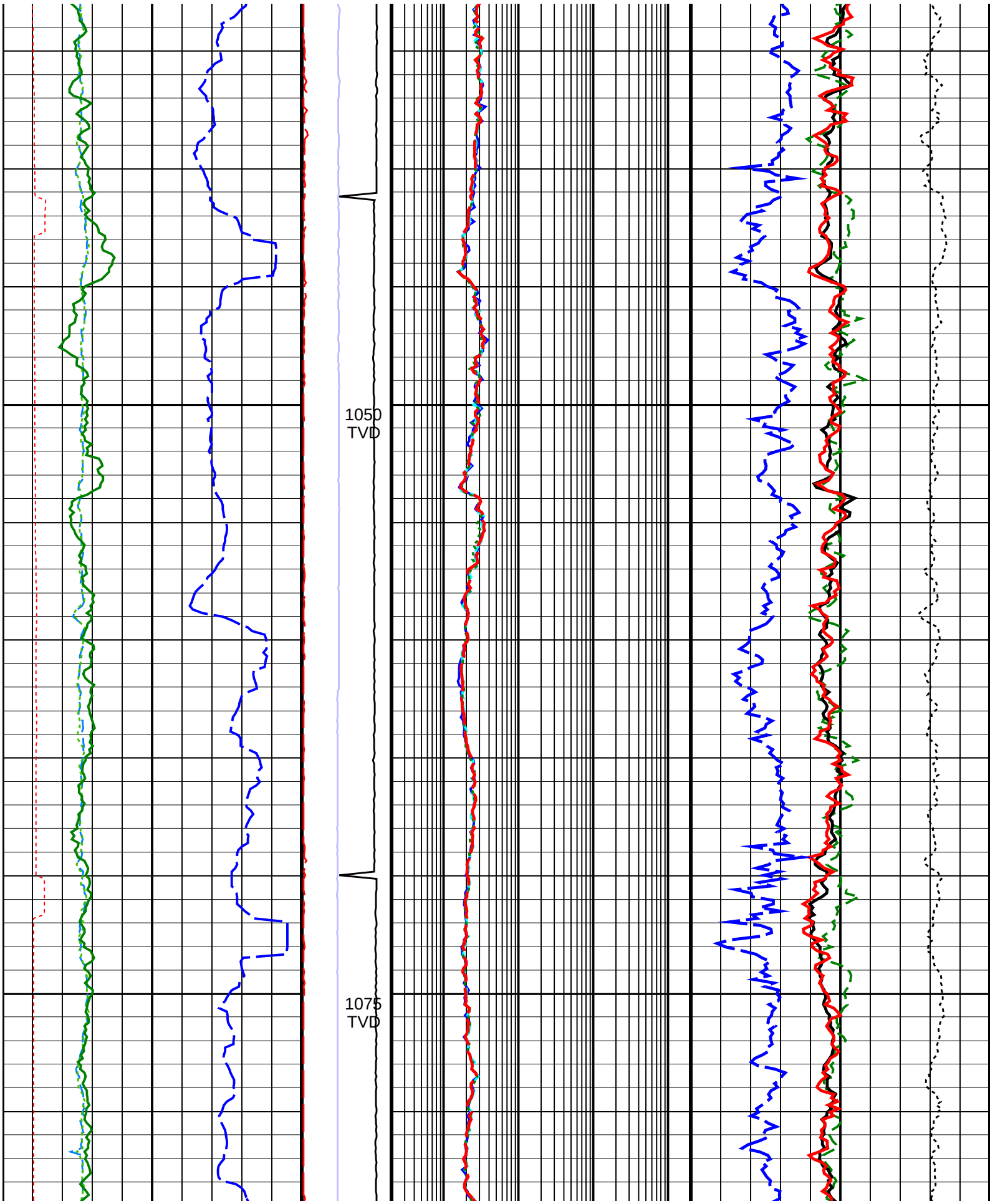


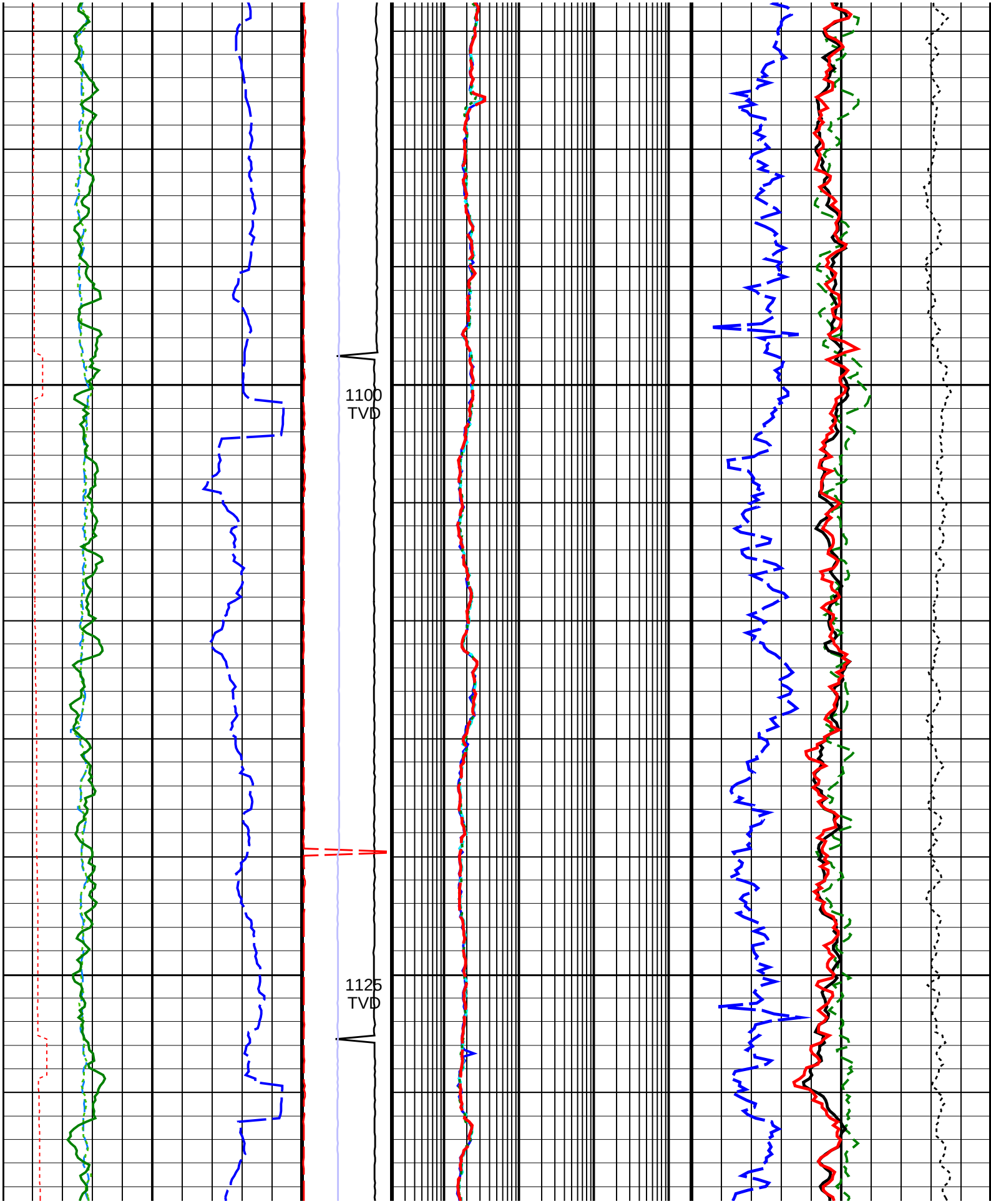

850
TVD
875
TVD

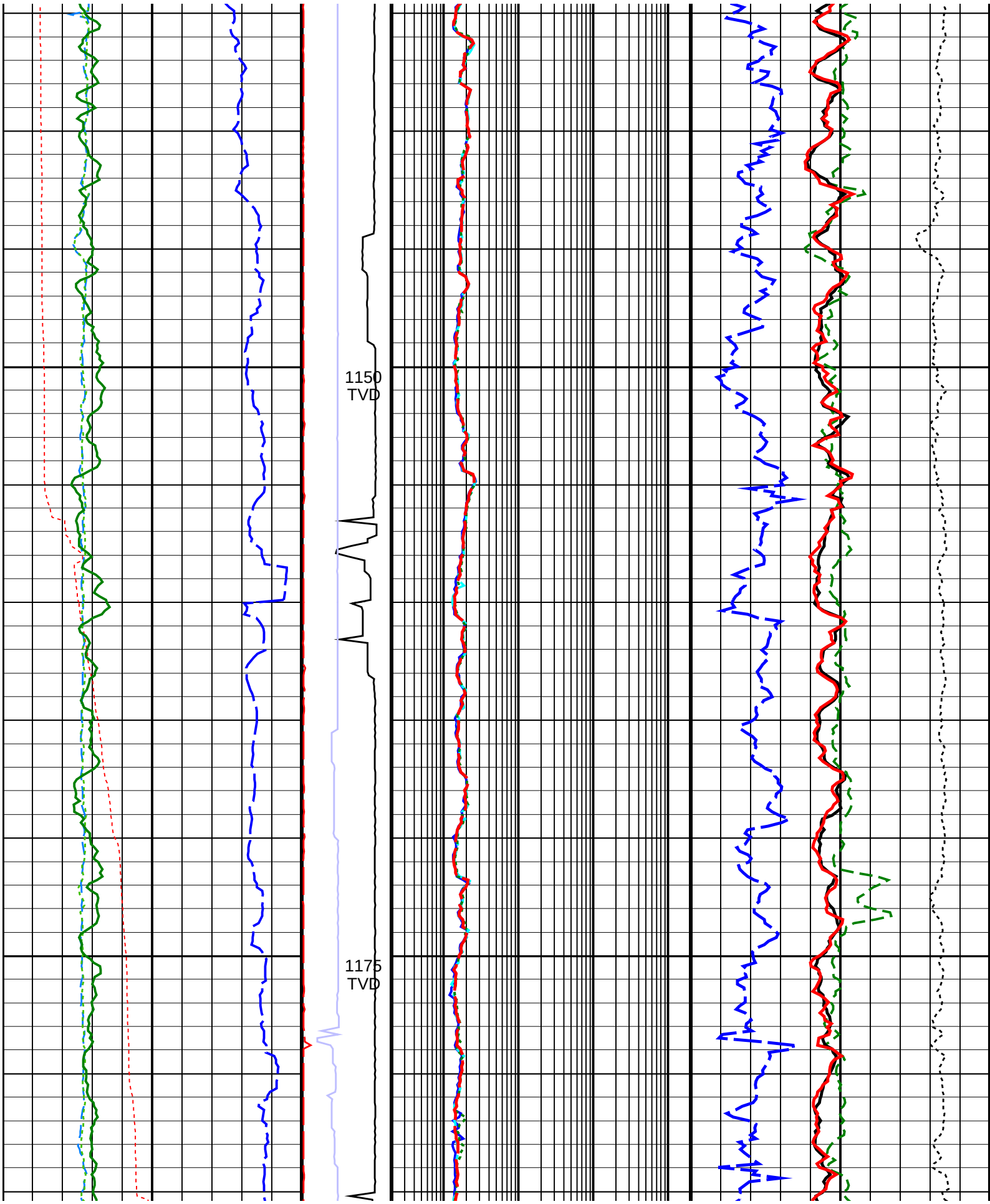

900
TVD
925
TVD

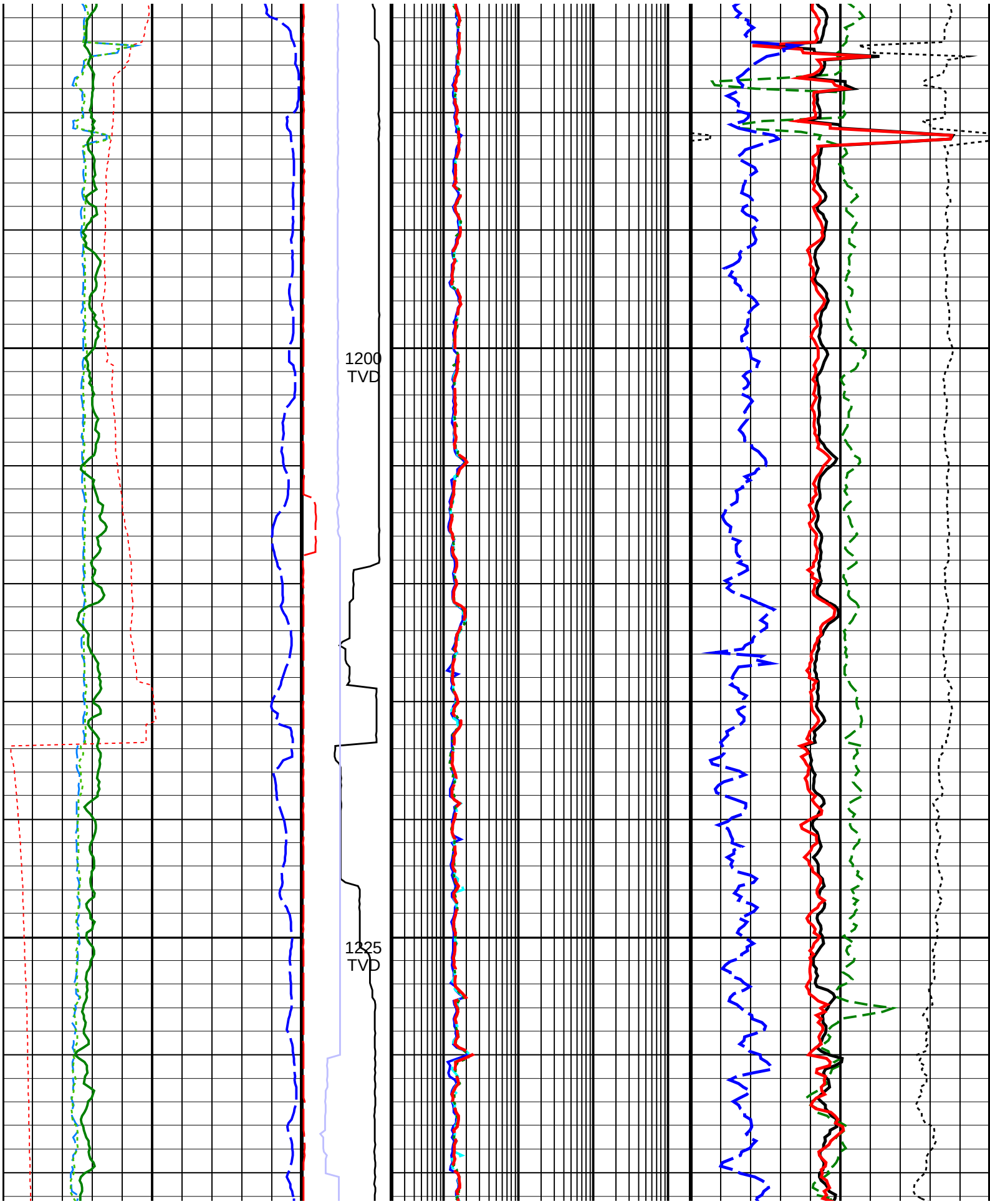

950
TVD
975
TVD

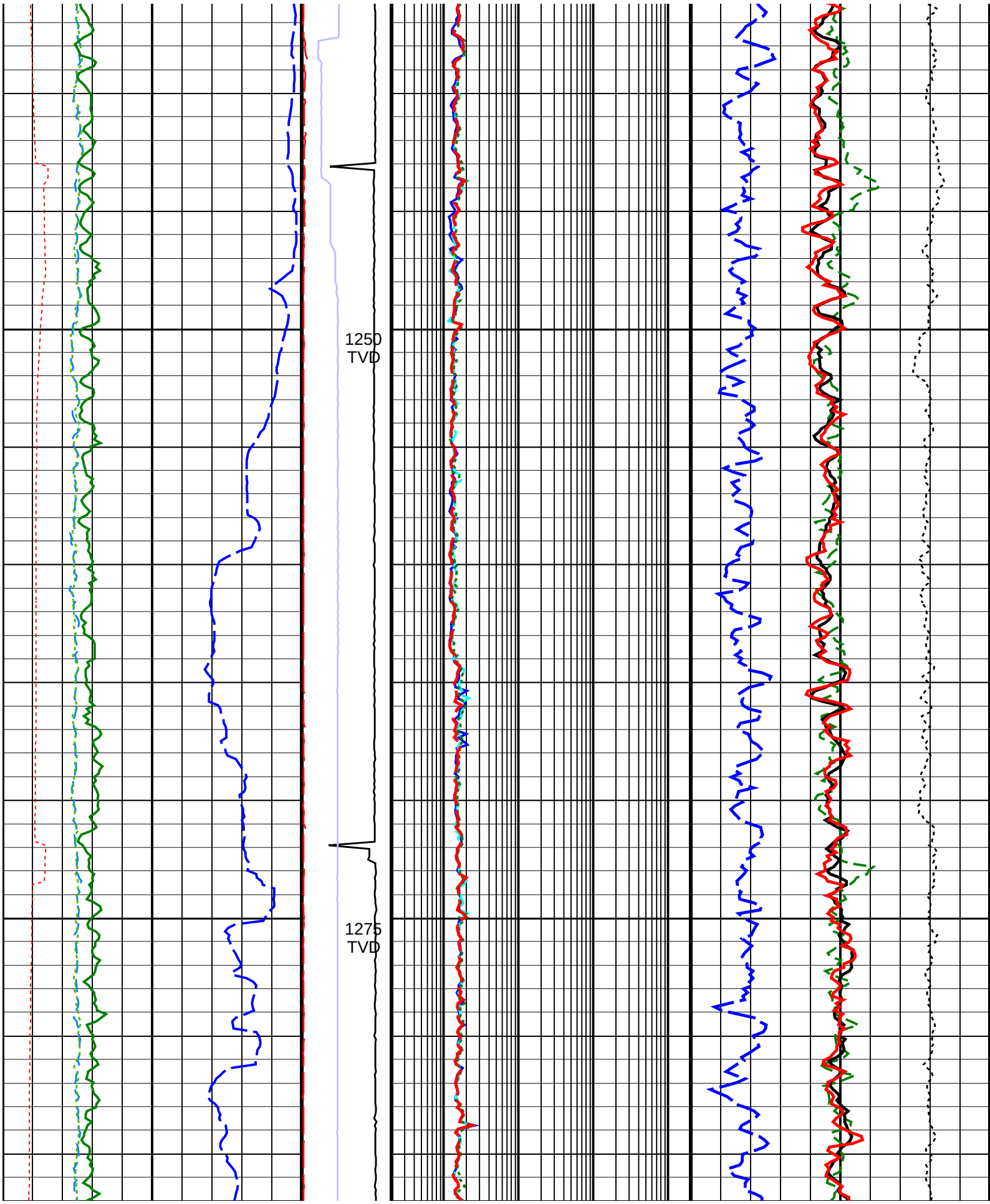

1000
TVD
1025
TVD

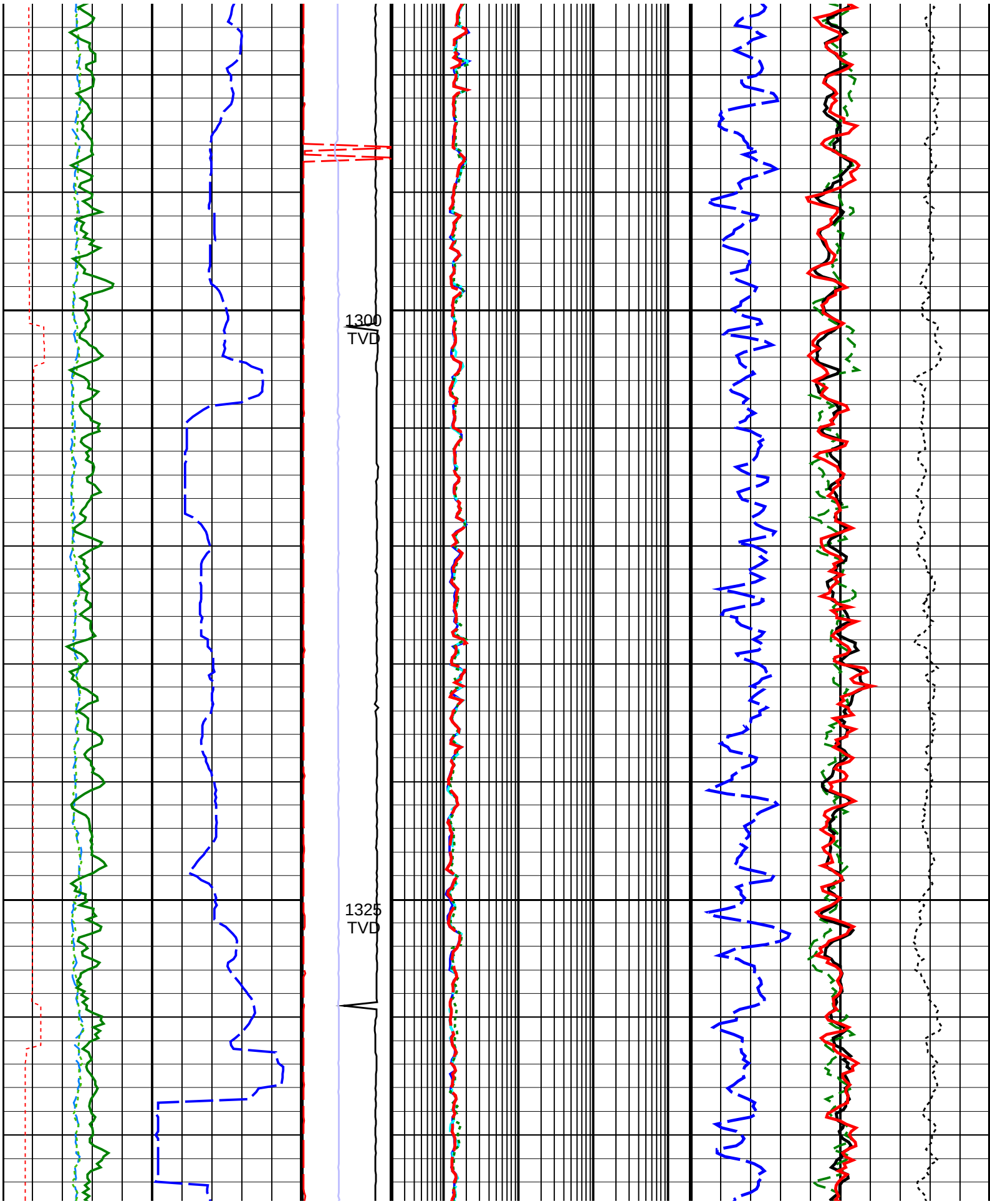

1050
TVD
1075
TVD

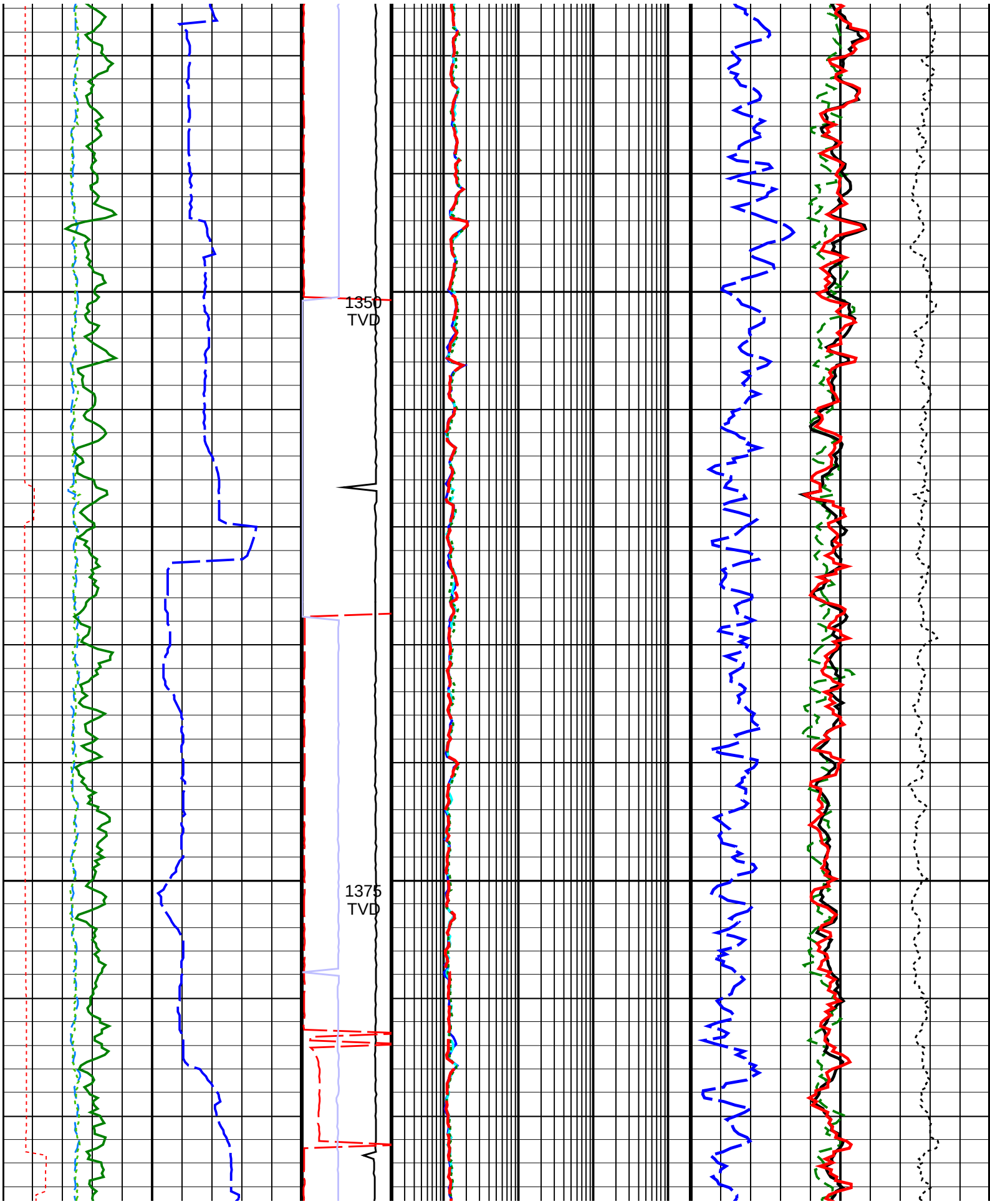

1100
TVD
1125
TVD

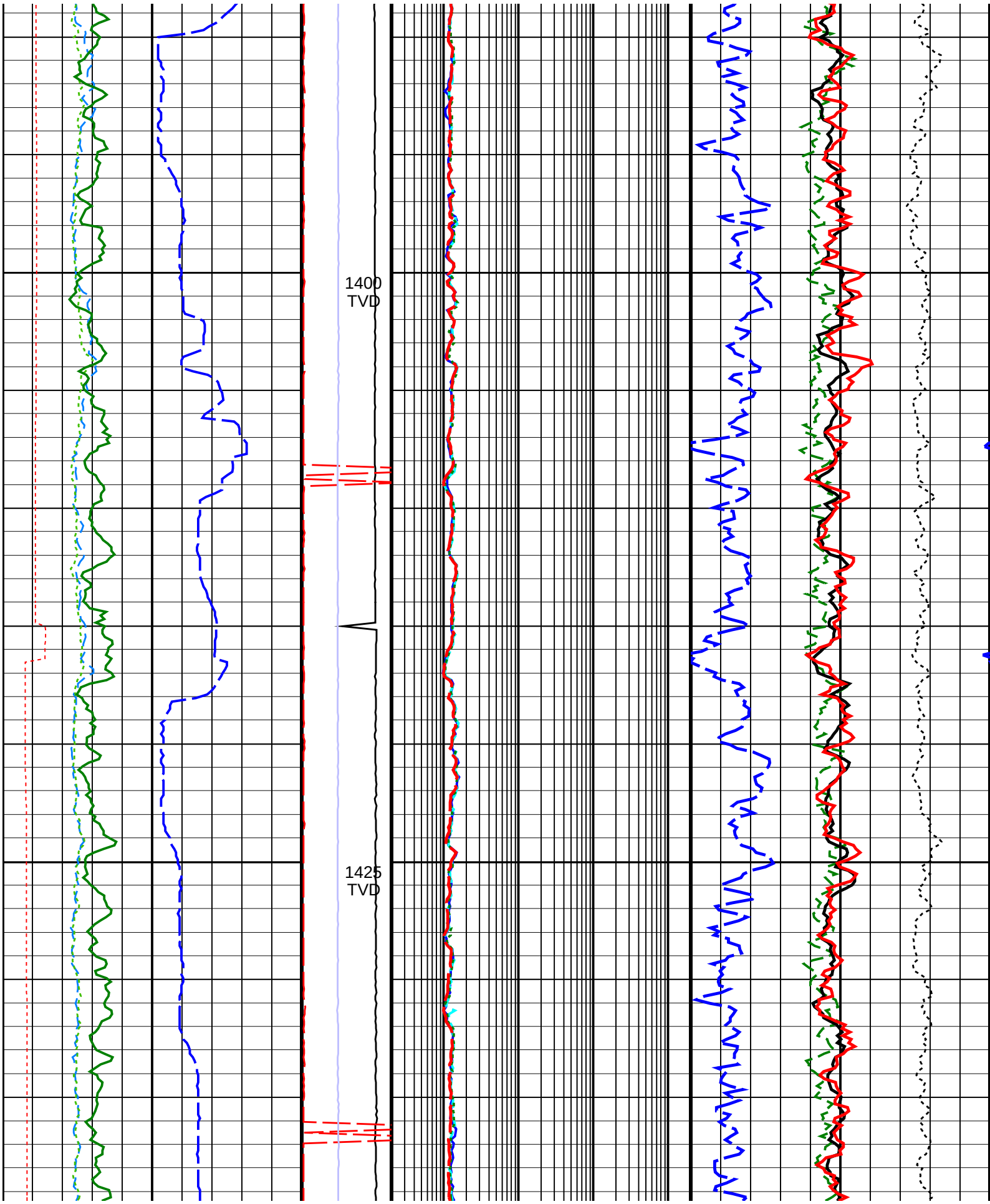

1150
TVD
1175
TVD

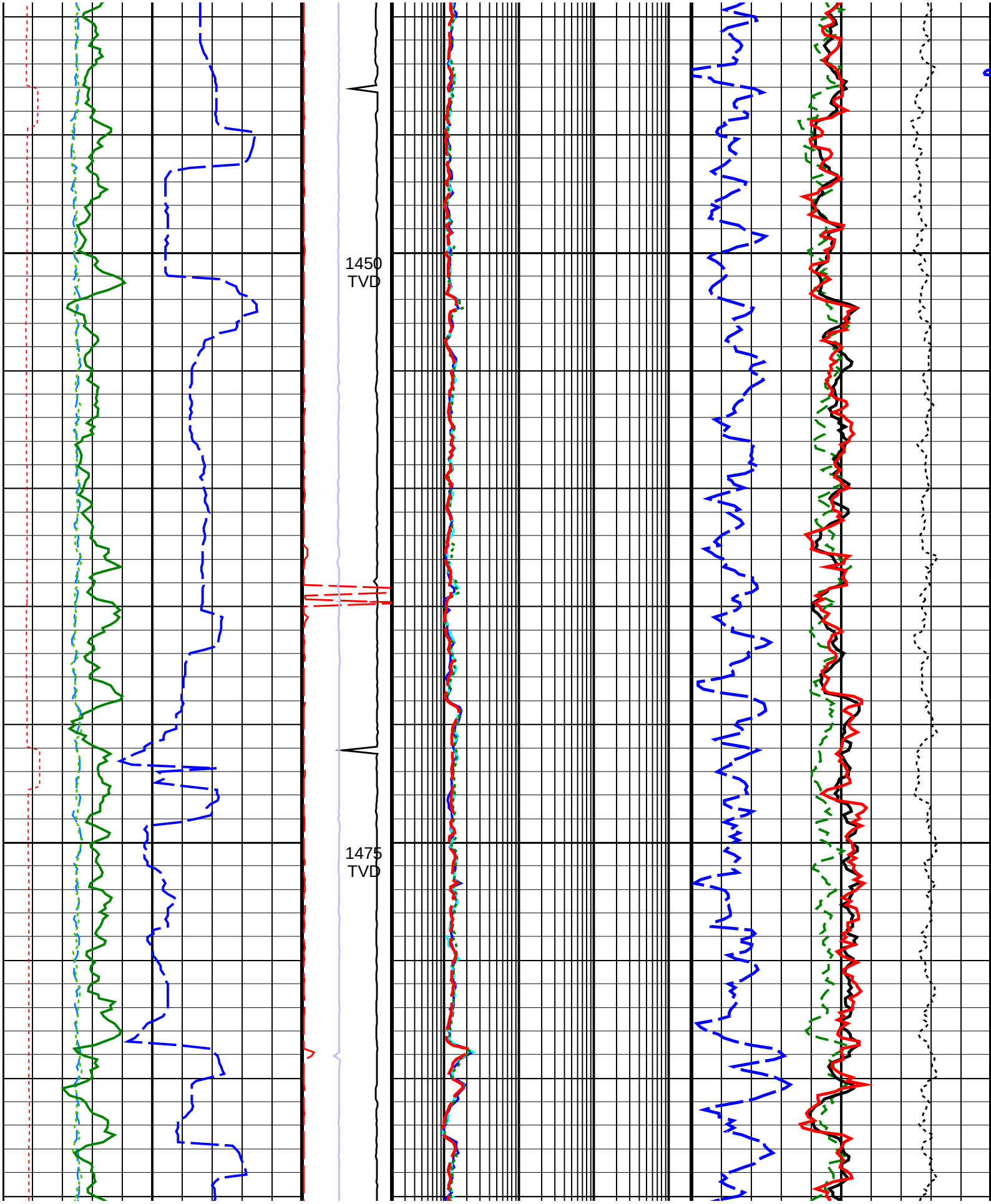

1200
TVD
1225
TVD

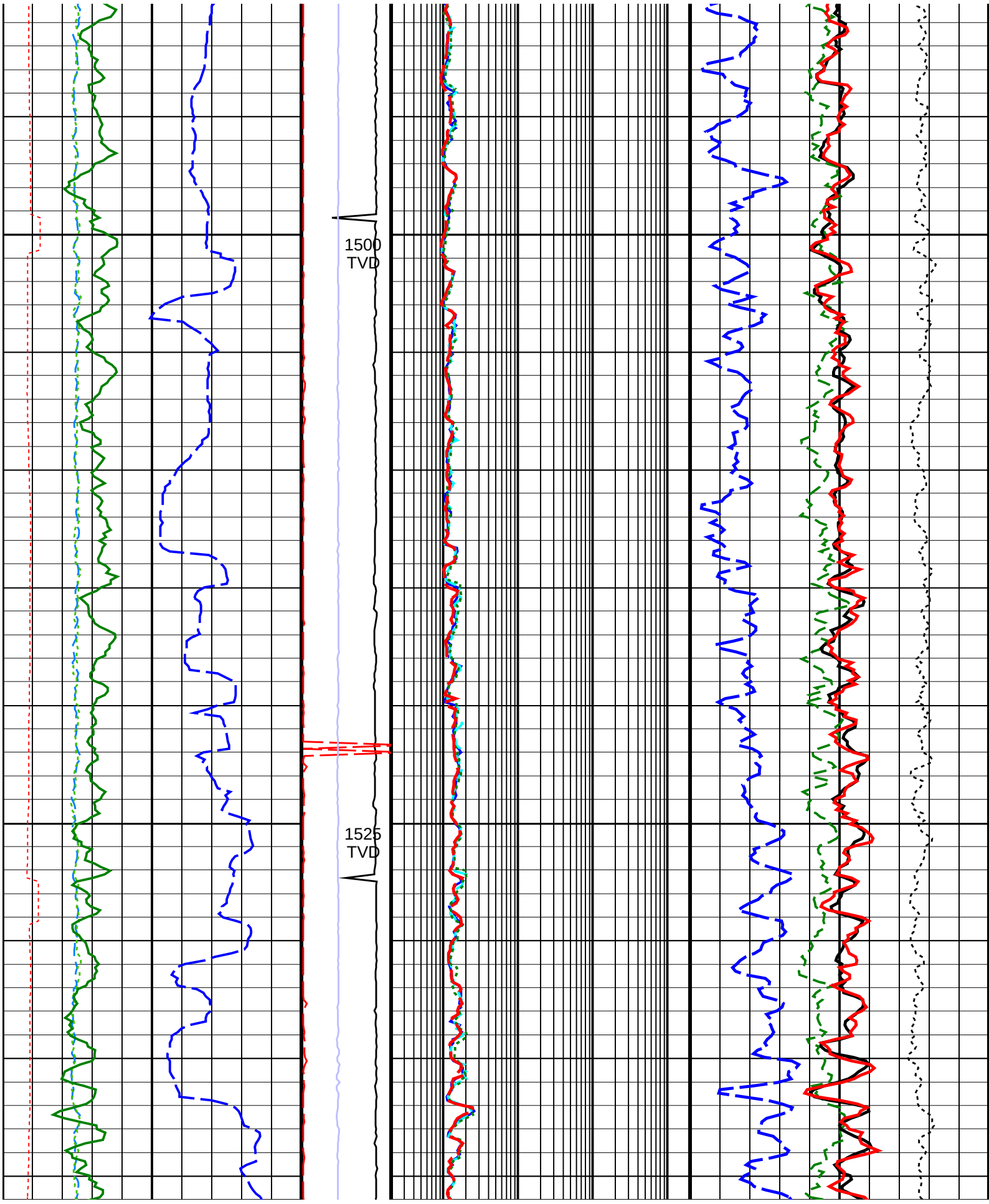

1250
TVD
1275
TVD

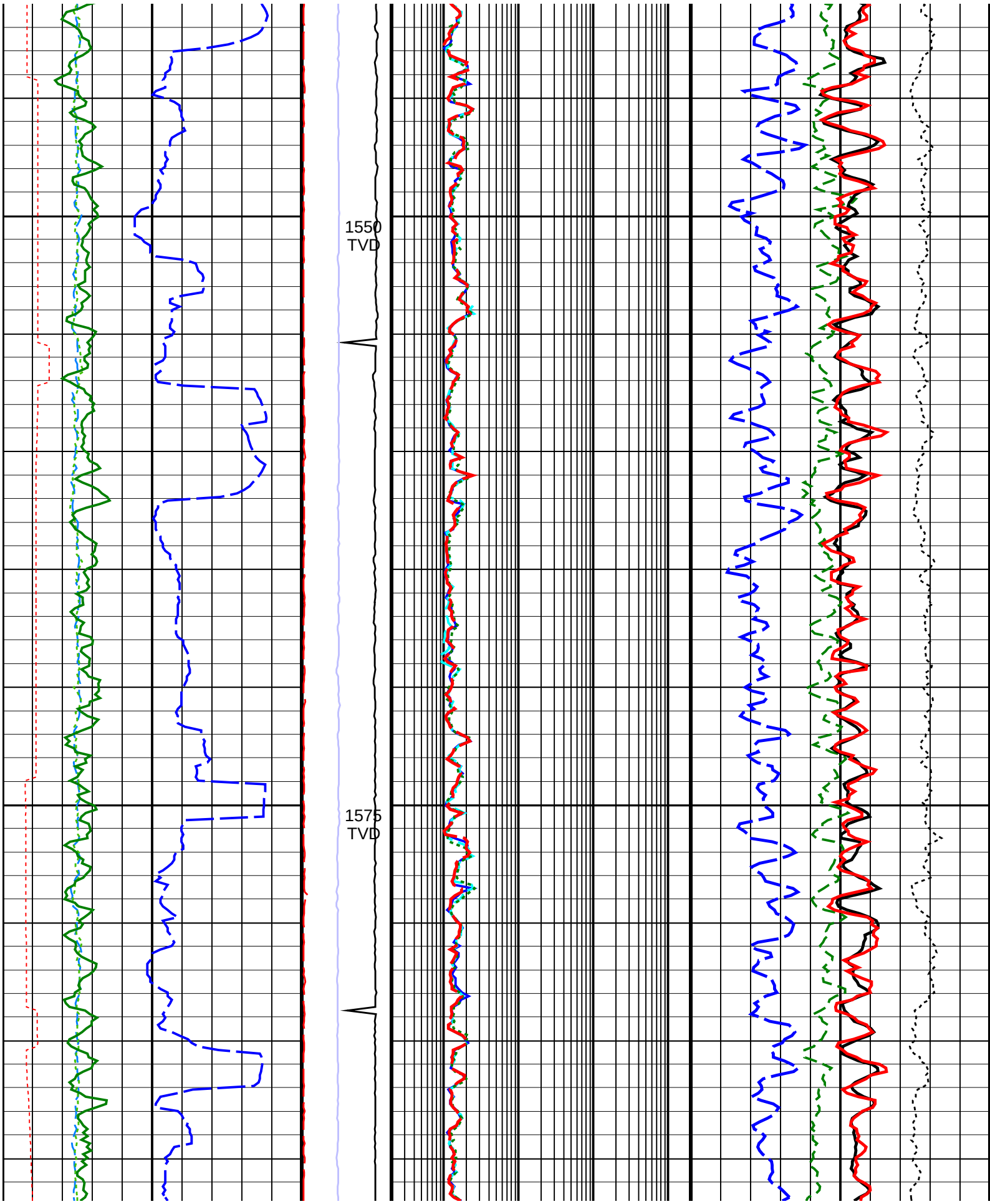

1300
TVD
1325
TVD

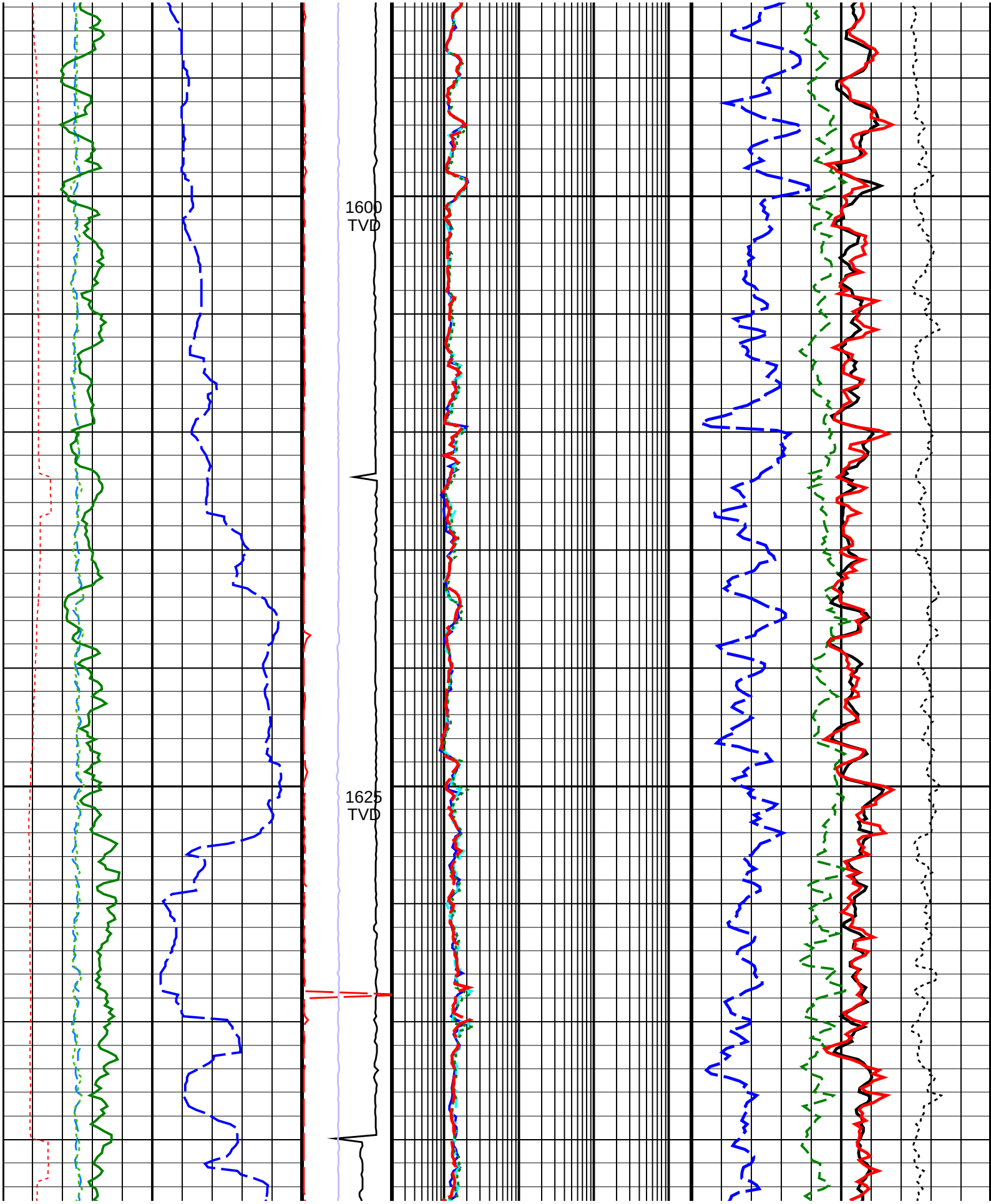

1350
TVD
1375
TVD

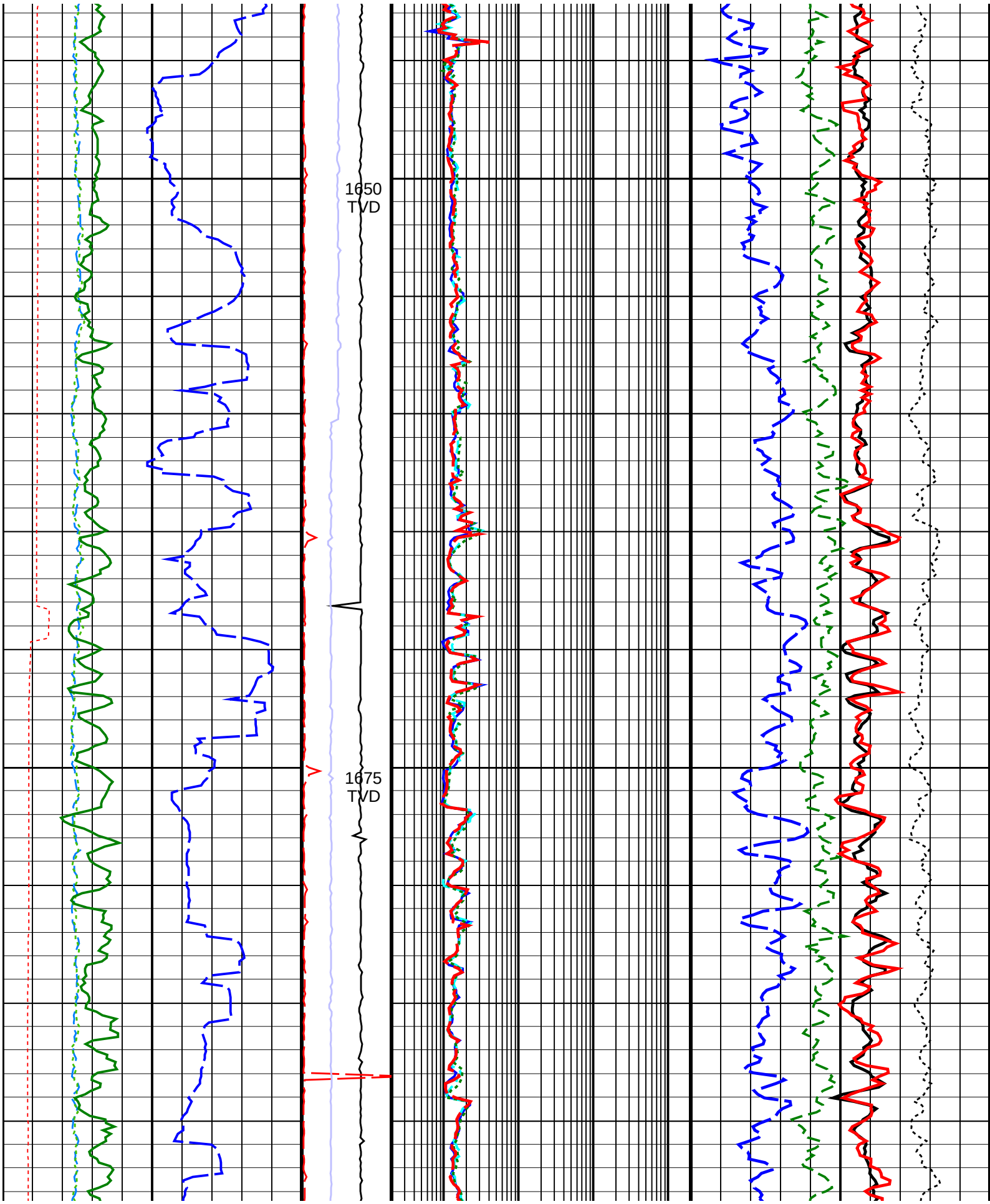

1400
TVD
1425
TVD

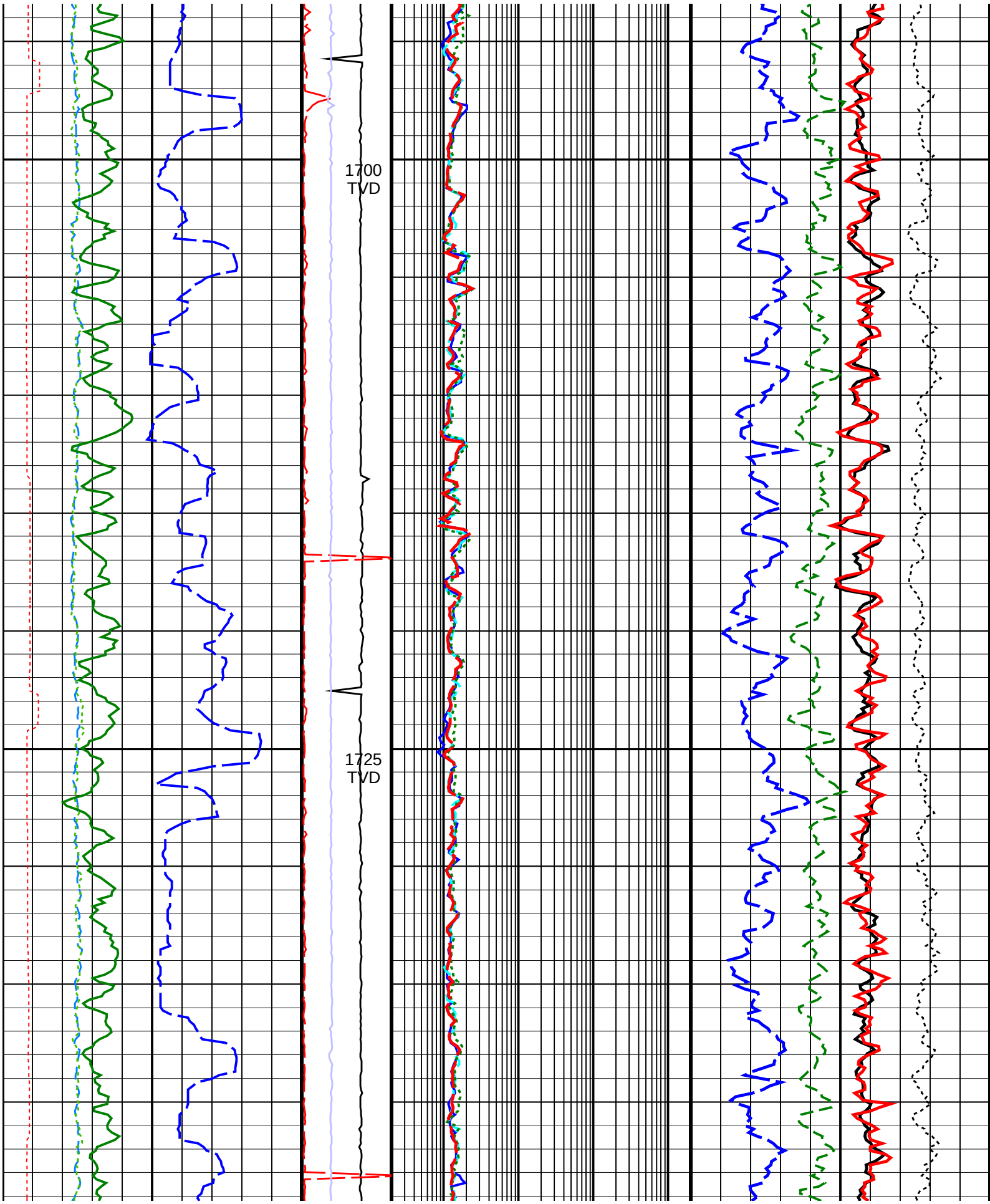

1450
TVD
1475
TVD

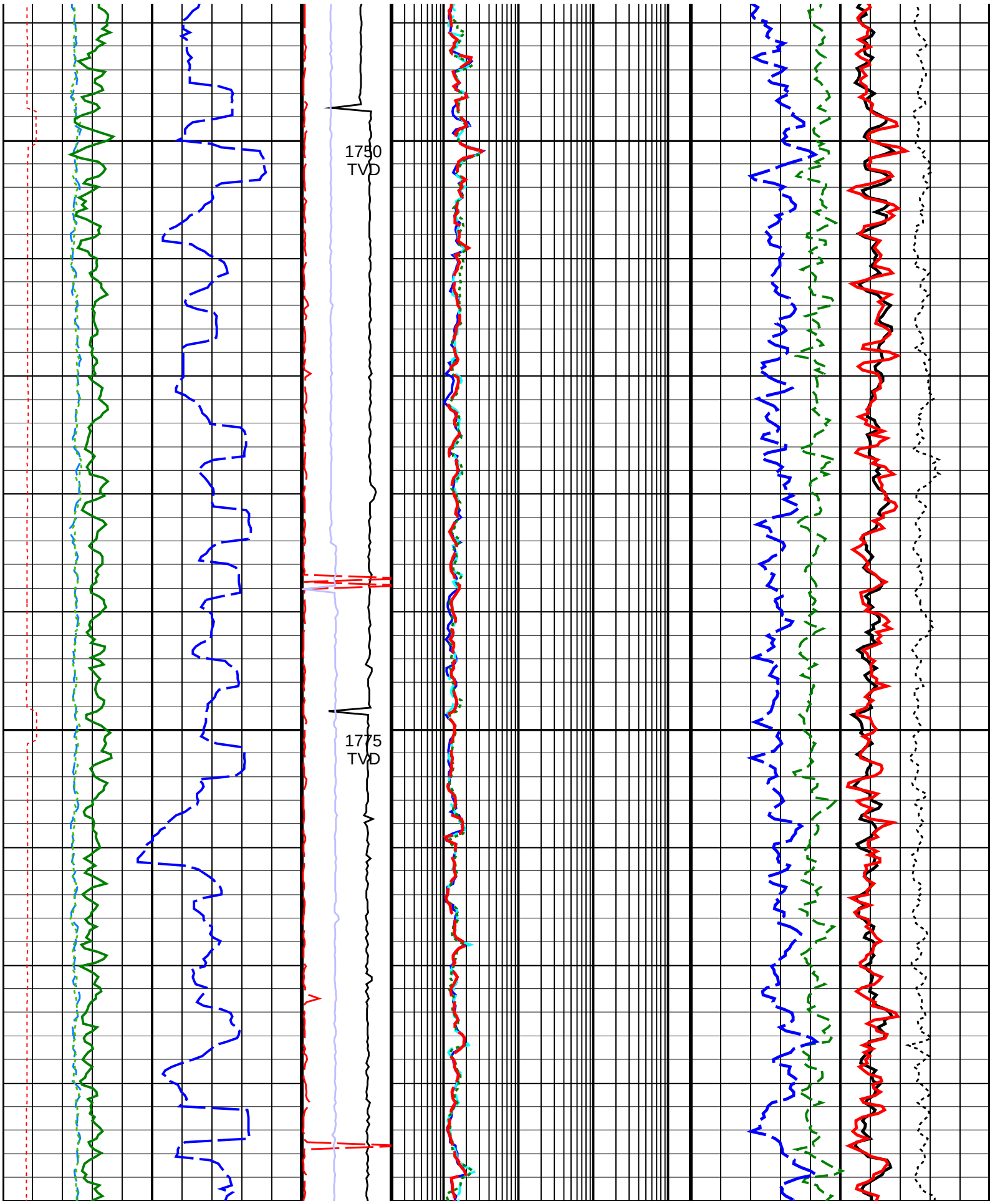

1500
TVD
1525
TVD

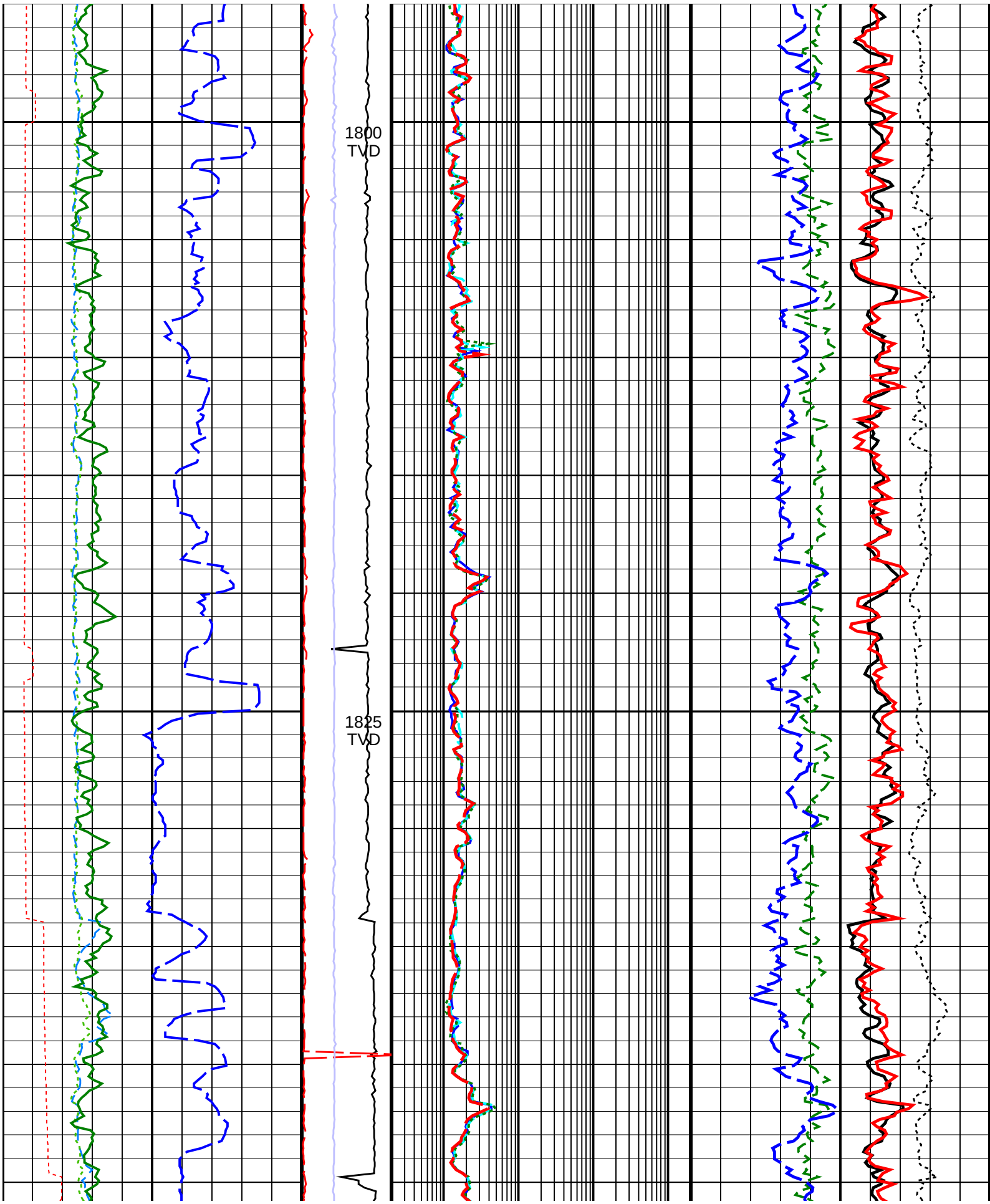

1550
TVD
1575
TVD

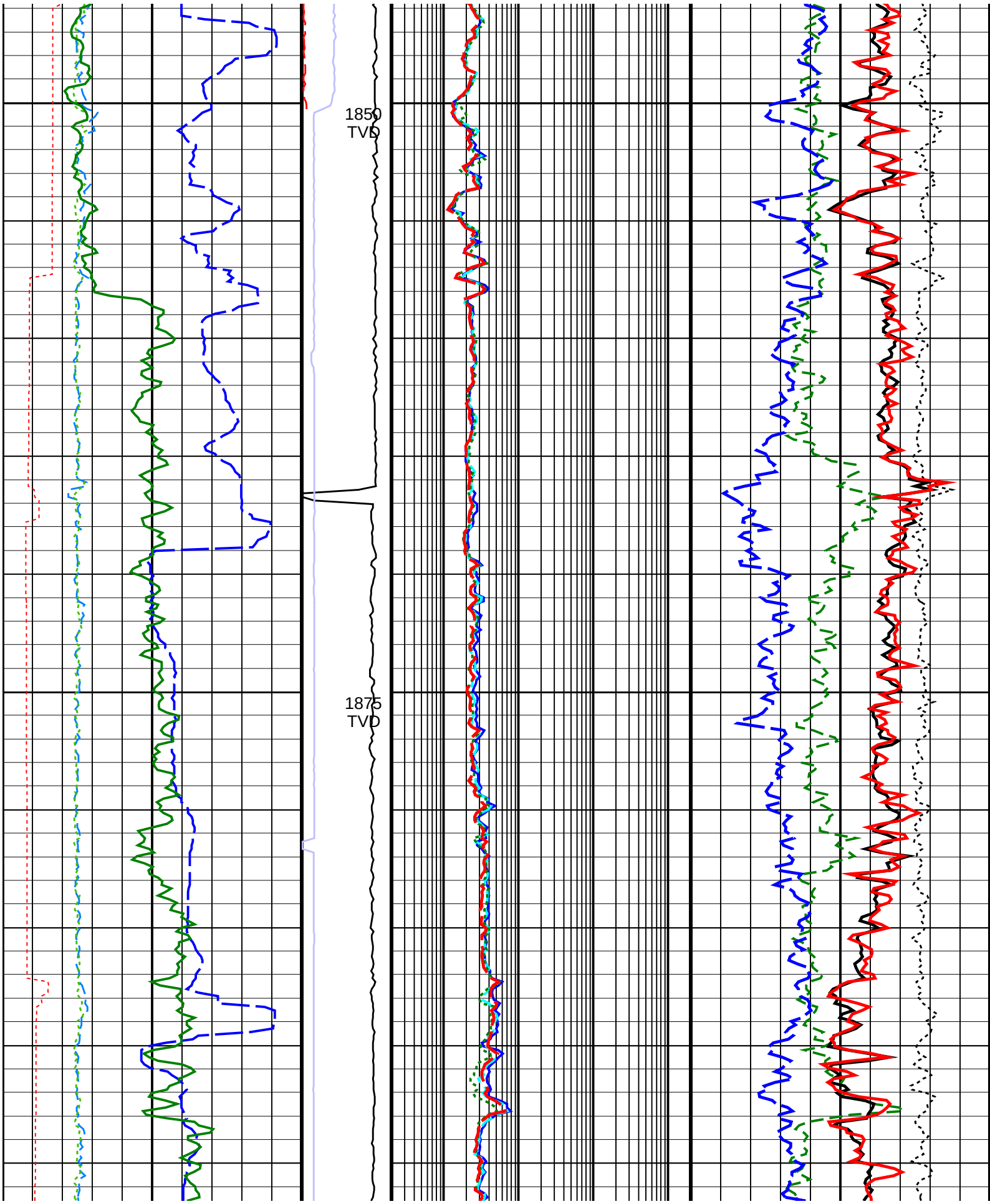

1600
TVD
1625
TVD

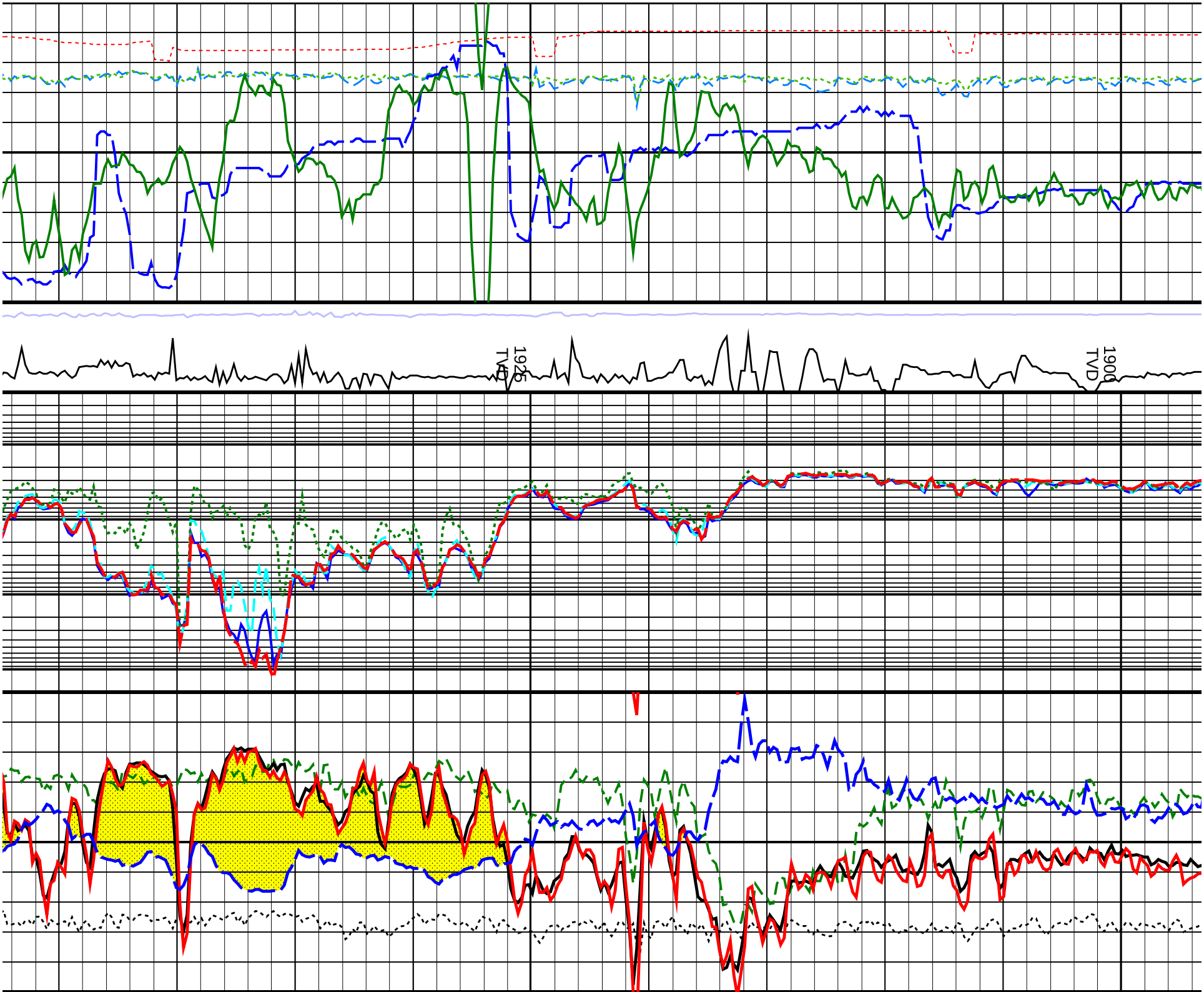

1650
TVD
1675
TVD

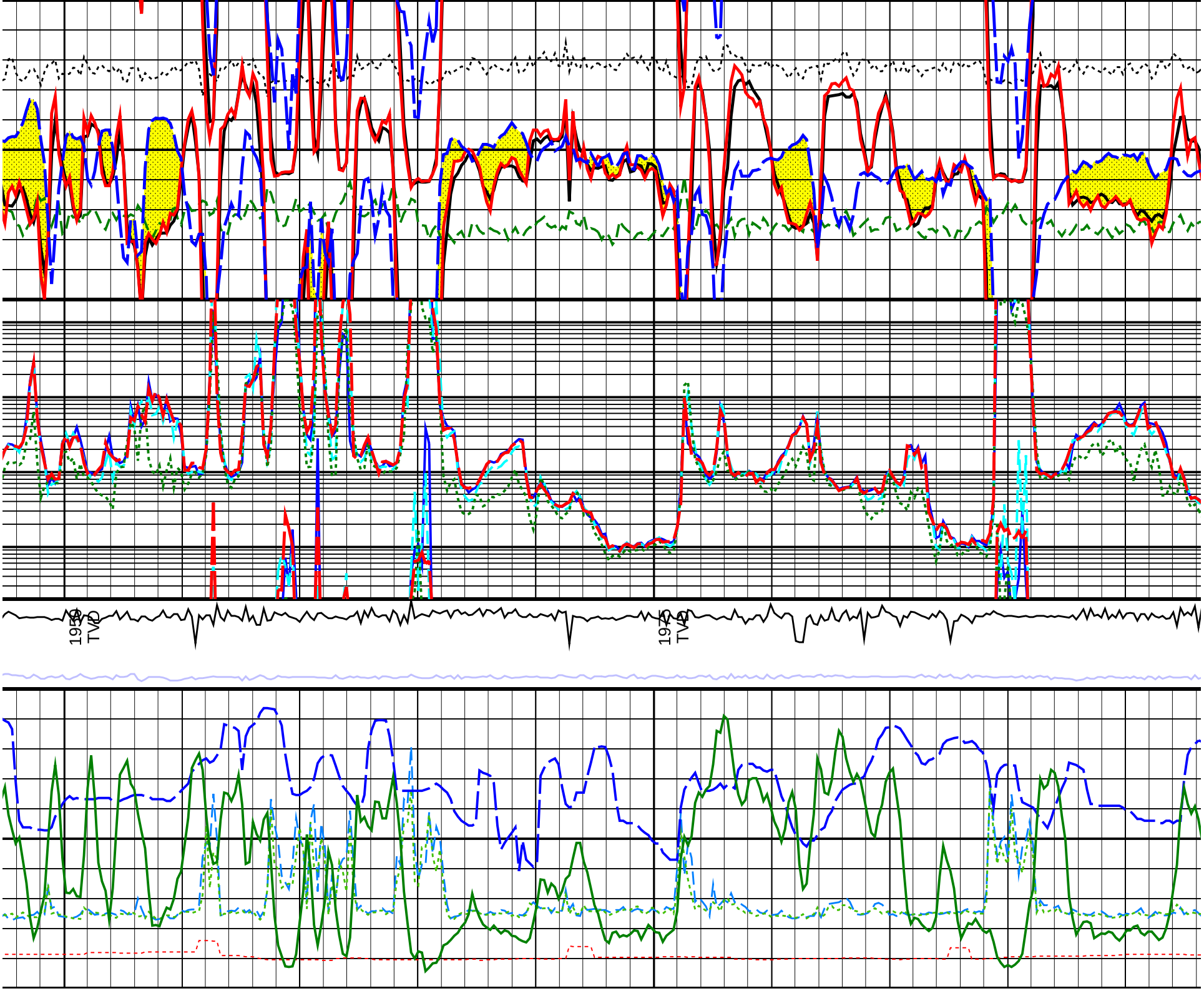

1700
TVD
1725
TVD

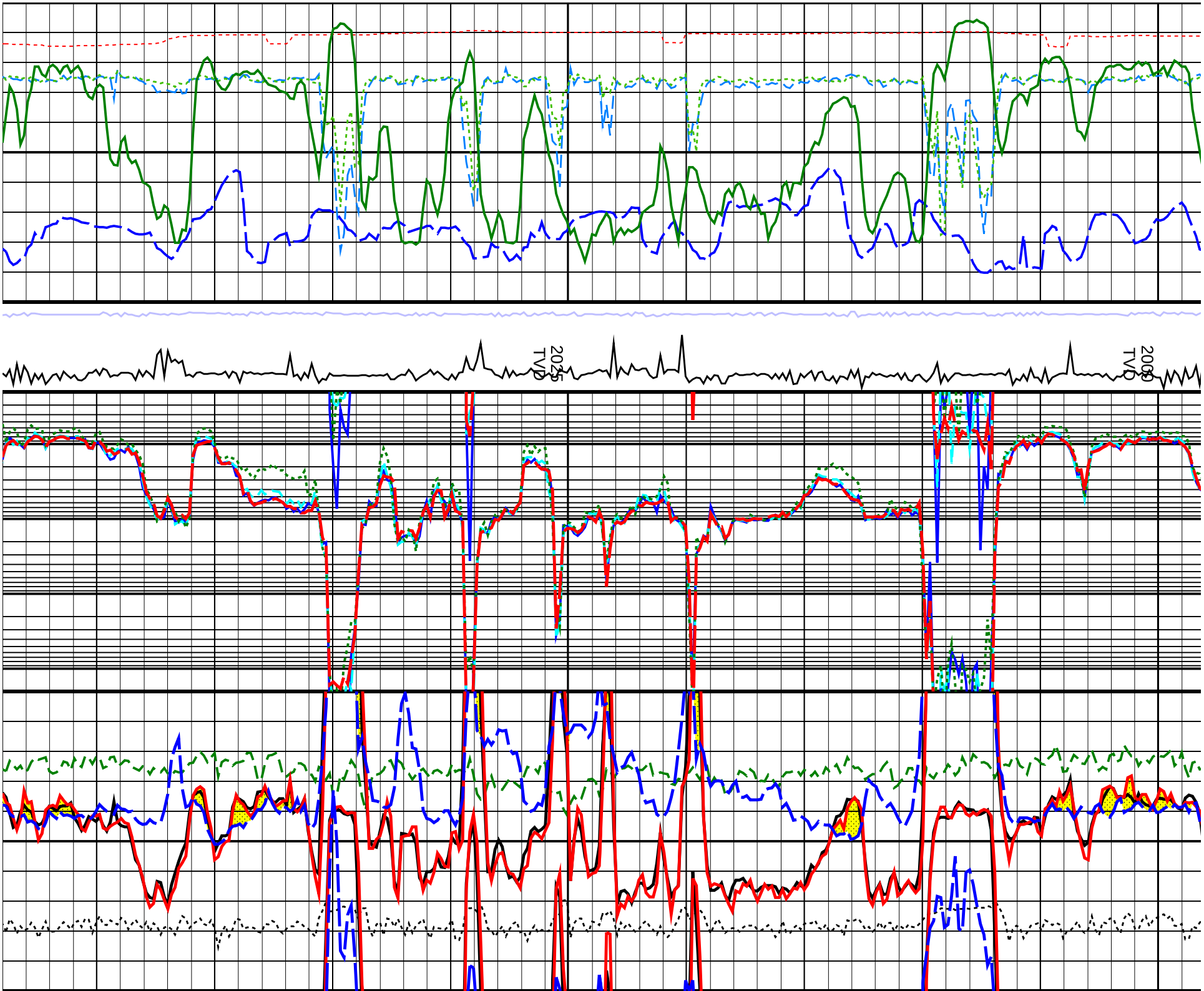

1750
TVD
1775
TVD

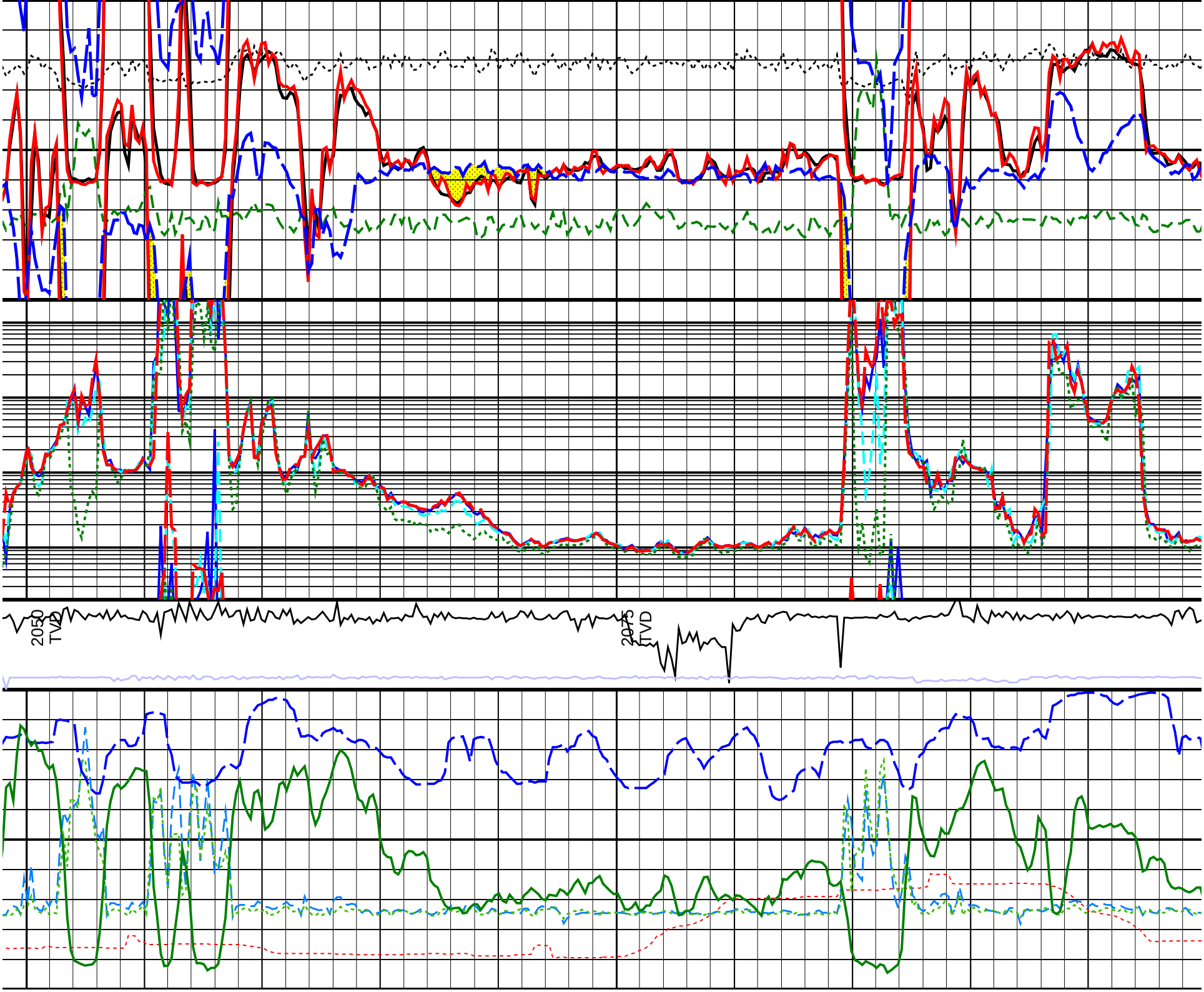

1800
TVD
1825
TVD

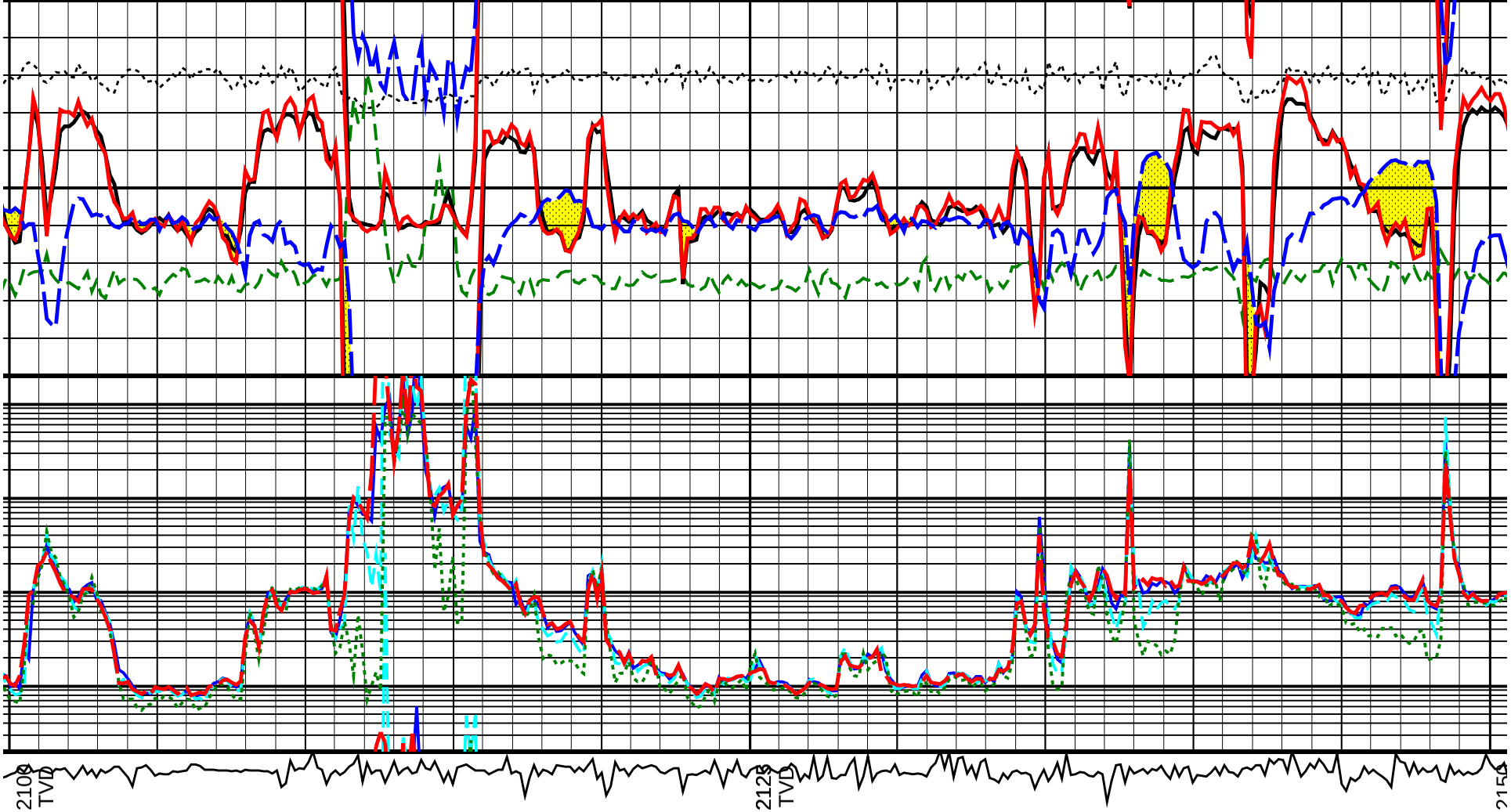

1850
TVD
1875
TVD

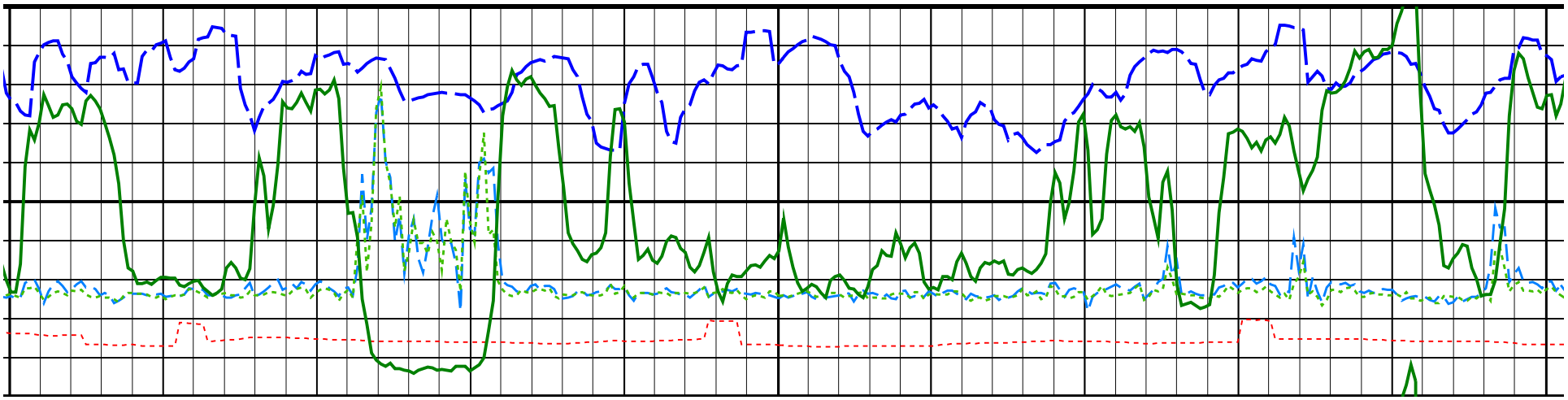

1925
TVD
1900
TVD

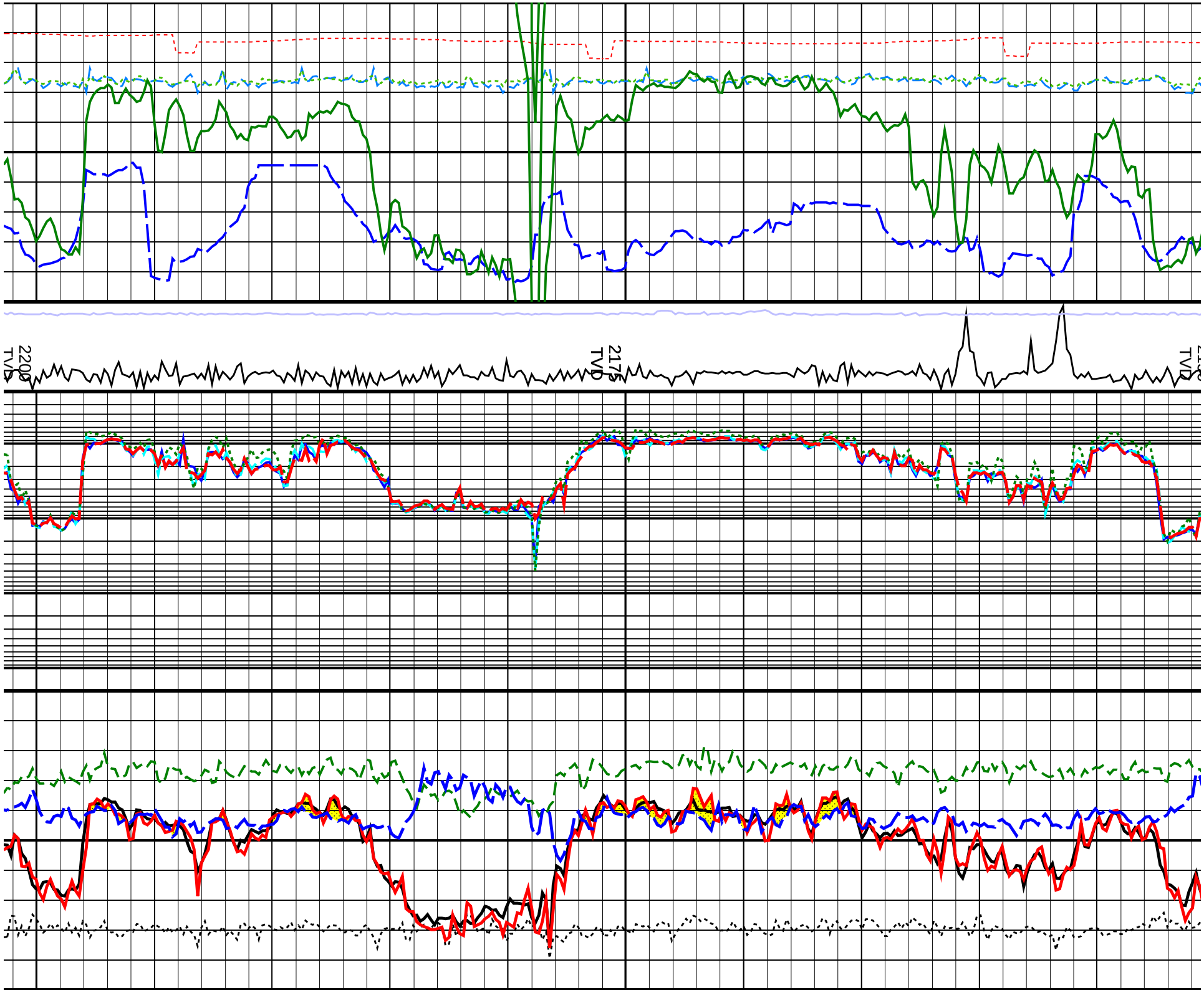

1950
TVD
1975
TVD

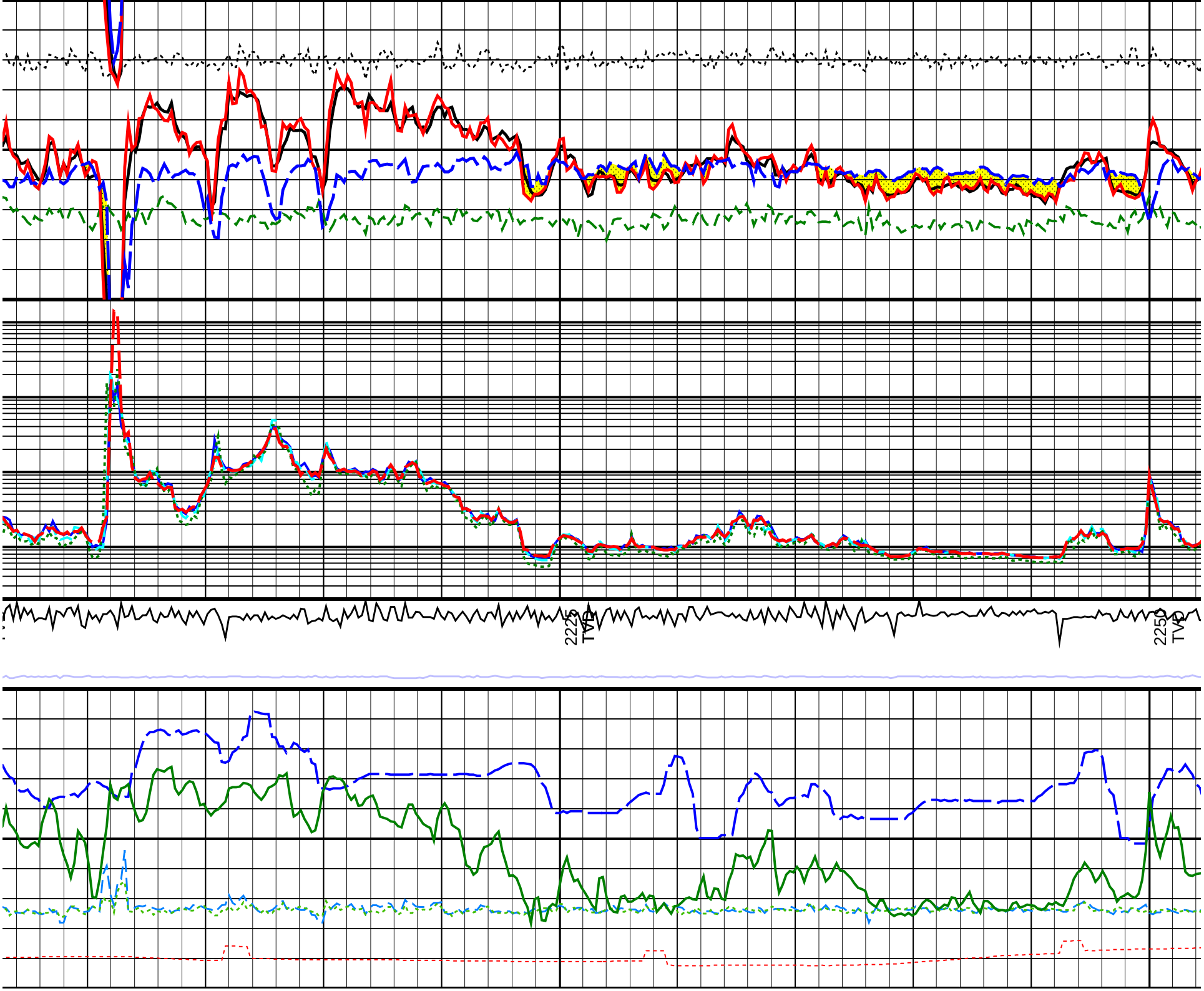

2025
TVD
2030
TVD

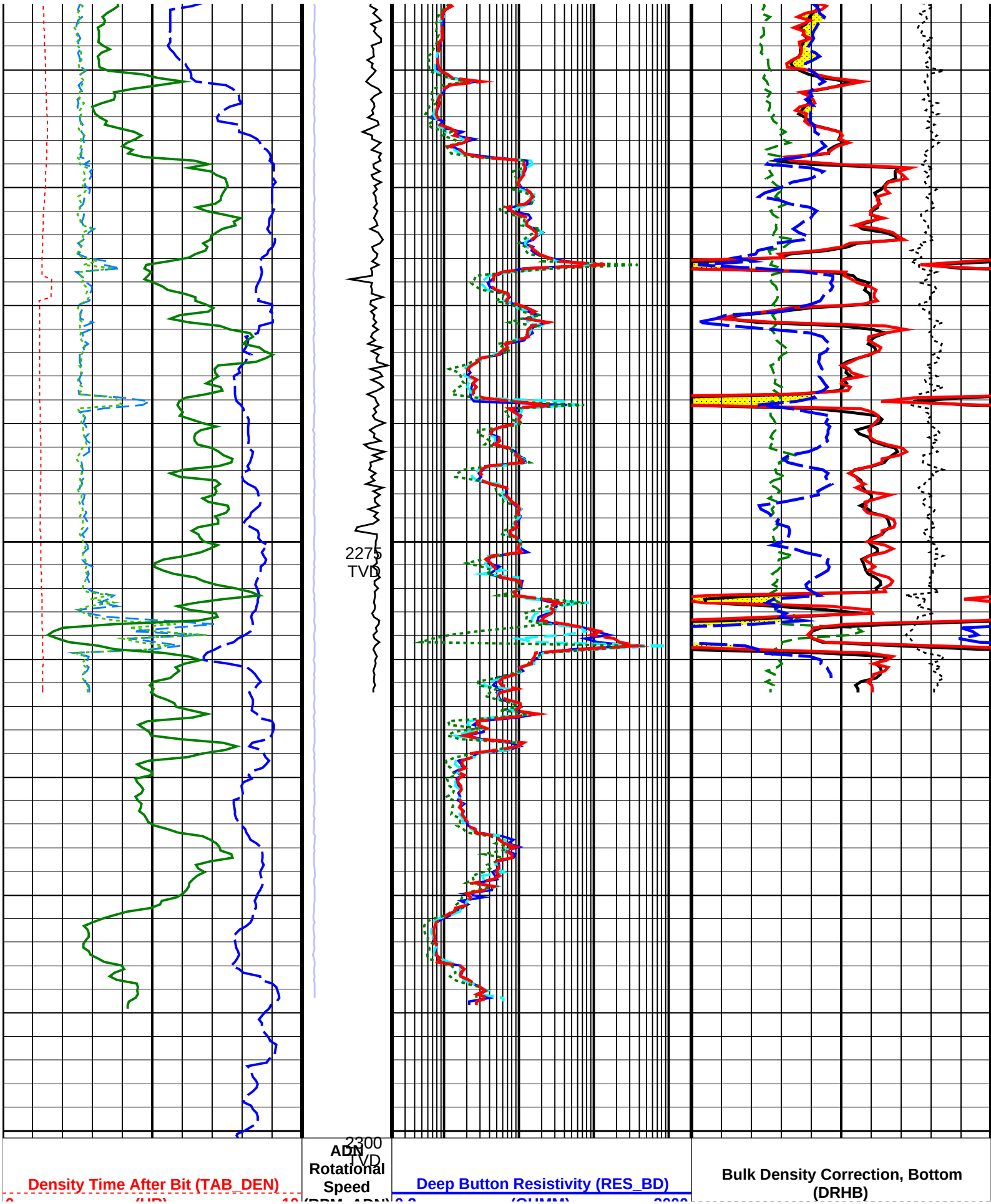

2050
TVD
2075
TVD


2100
TVD
2125
TVD
2150




2200
TVD
2175
TVD


2225
TVD
2250
TVD


2275
TVD
2300
TVD
Density Time After Bit (TAB_DEN)
ADN
Rotational
Speed
Deep Button Resistivity (RES_BD)
Bulk Density Correction, Bottom
(DRHB)

| | | |
|---|---|---|
| 0 (HR) 10 | (RPM_ADN) (RPM) 0 250 | 0.2 (OHMM) 2000 |
| Density Caliper, Horizontal (DCHO) 6 (IN) 16 | Angular Acceleration Indicator (AAI) (---- 0 250 | Medium Button Resistivity (RES_BM) 0.2 (OHMM) 2000 |
| Density Caliper, Vertical (DCVE) 6 (IN) 16 | RAB Rotational Speed (RPM_RAB) (RPM) 0 500 | Shallow Button Resistivity (RES_BS) 0.2 (OHMM) 2000 |
| RAB Gamma Ray (GR_RAB) 0 (GAPI) 200 | | Ring Resistivity (RES_RING) 0.2 (OHMM) 2000 |
| Rate of Penetration, Averaged over Last 5ft (ROP5_RM) 200 (M/HR) 0 | | |

| | | |
|---|---|---|
| −0.75 (G/C3) 0.25 | | |
| Photoelectric Factor, Bottom (PEB) 0 (---- 10 | | |
| Bulk Density (RHOB) 1.85 (G/C3) 2.85 | | |
| Bulk Density, Bottom (ROBB) 1.85 (G/C3) 2.85 | | |
| Thermal Neutron Porosity (TNPH) 45 (PU) −15 | | |
| Gas Area From ADN/ROBB/DEPTH to ADN/TNPH/DEPTH | | |

# IDEAL Version: ID10_0C_04

IDF

| | | | |
|---|---|---|---|
| **RAB** | **id10_0c_04** | **MWD_10** | **id10_0c_04** |
| **ADN** | **id10_0c_04** | | |

## True Vertical Depth Log

6.75−in. Azimuthal Density Neutron / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Tool Name and Serial Number | ADN6 − CA | 0403 |
| Collar Type and Serial Number | ADDC − AA | 0403 |
| Chassis Type and Serial Number | ADSE − EA | 18 |
| Stabilizer Type and Serial Number | Clamp−On | 699198 |
| Neutron Logging Source | NSR − M | 202 |
| Density Logging Source | GSR − J/Z | 1994 |
| Stabilizer Size | 8.25 − in. | |
| Calibration Status | Valid | |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

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 | | 1052 | Master | | 2361 | Master | | 6156 |
| 250.0 (Minimum) | 4125 (Nominal) | 8000 (Maximum) | 700.0 (Minimum) | 9350 (Nominal) | 18000 (Maximum) | 2500 (Minimum) | 23750 (Nominal) | 45000 (Maximum) |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

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 | | 163.3 | Master | | 1238 | Master | | 3922 |
| 50.00 (Minimum) | 725.0 (Nominal) | 1400 (Maximum) | 500.0 (Minimum) | 4250 (Nominal) | 8000 (Maximum) | 1500 (Minimum) | 15750 (Nominal) | 30000 (Maximum) |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

Density: Background

| Phase | LS window 3 − Background CPS | Value |
|---|---|---|
| Master | | 33.84 |
| | 15.00 (Minimum) 82.50 (Nominal) 150.0 (Maximum) | |

| Phase | SS window 1 − Background CPS | Value |
|---|---|---|
| Master | | 106.5 |
| | 40.00 (Minimum) 220.0 (Nominal) 400.0 (Maximum) | |

| Phase | SS window 3 − Background CPS | Value |
|---|---|---|
| Master | | 474.2 |
| | 150.0 (Minimum) 825.0 (Nominal) 1500 (Maximum) | |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

Density: Water Block Check

| Phase | Long spacing water density G/C3 | Value |
|---|---|---|
| Master | | 1.030 |
| | 1.024 (Minimum) 1.039 (Nominal) 1.054 (Maximum) | |

| Phase | Short spacing water density G/C3 | Value |
|---|---|---|
| Master | | 1.120 |
| | 1.096 (Minimum) 1.126 (Nominal) 1.156 (Maximum) | |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

Neutron: 3−Point Calibration

| Phase | Far 1 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.01 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 1 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.142 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.060 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 1 tube 2 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.12 |
| | 16.00 (Minimum) 19.05 (Nominal) 22.00 (Maximum) | |

| Phase | Far 1 tube 2 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.335 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 2 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.137 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.800 (Maximum) | |

| Phase | Far 1 tube 3 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.15 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 1 tube 3 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.188 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 3 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.066 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 2 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.52 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 2 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.365 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.173 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 2 tube 2 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.07 |
| | 16.00 (Minimum) 19.05 (Nominal) 22.00 (Maximum) | |

| Phase | Far 2 tube 2 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.211 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 2 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 1.982 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.800 (Maximum) | |

| Phase | Far 2 tube 3 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.03 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 2 tube 3 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.348 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 3 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.060 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Near 1 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 458.8 |
| | 400.0 (Minimum) 487.5 (Nominal) 540.0 (Maximum) | |

| Phase | Near 1 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 722.7 |
| | 610.0 (Minimum) 768.8 (Nominal) 850.0 (Maximum) | |

| Phase | Near 1 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 319.9 |
| | 270.0 (Minimum) 343.7 (Nominal) 390.0 (Maximum) | |

| Phase | Near 2 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 454.0 |
| | 400.0 (Minimum) 487.5 (Nominal) 540.0 (Maximum) | |

| Phase | Near 2 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 727.3 |
| | 610.0 (Minimum) 768.8 (Nominal) 850.0 (Maximum) | |

| Phase | Near 2 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 320.0 |
| | 270.0 (Minimum) 343.7 (Nominal) 390.0 (Maximum) | |

Master: 21−Jun−2005 11:22

6.75−in. Azimuthal Density Neutron Calibration

Neutron: Water Block Check

| Phase | Far Neutron water porosity PU | Value |
|---|---|---|
| Master | | 92.83 |
| | 90.00 (Minimum) 100.0 (Nominal) 125.0 (Maximum) | |

## 6.75−in. Resistivity At−the−Bit / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| Tool Name and Serial Number | RAB6 − CA | 191 |
| Calibration Status | Valid | |

Master: 29−Jul−2005 15:21

### 6.75−in. Resistivity At−the−Bit Calibration

Resistivity: Fixture

| Phase | Ring/T1 factor ---- | Value | Phase | Ring/T2 factor ---- | Value | Phase | M0/T1 factor ---- | Value |
|---|---|---|---|---|---|---|---|---|
| Master | 0.9949 | | Master | 0.9924 | | Master | 1.006 | |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | M0/T2 factor ---- | Value | Phase | M2/T1 factor ---- | Value | Phase | M2/T2 factor ---- | Value |
| Master | 1.003 | | Master | 1.007 | | Master | 1.003 | |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | BTN shallow/T1 factor ---- | Value | Phase | BTN shallow/T2 factor ---- | Value | Phase | BTN medium/T1 factor ---- | Value |
| Master | 1.002 | | Master | 0.9996 | | Master | 0.9951 | |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | BTN medium/T2 factor ---- | Value | Phase | BTN deep/T1 factor ---- | Value | Phase | BTN deep/T2 factor ---- | Value |
| Master | 0.9922 | | Master | 1.012 | | Master | 1.009 | |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |

Master: 29−Jul−2005 15:21

### 6.75−in. Resistivity At−the−Bit Calibration

Gamma Ray: Blanket

| Phase | Gamma ray factor ---- | Value |
|---|---|---|
| Master | | 0.9256 |
| | 0.7500 (Minimum) 1.000 (Nominal) 1.250 (Maximum) | |

## 6.75−in. Azimuthal Density Neutron / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| Tool Name and Serial Number | ADN6 − CA | FE55 |
| Collar Type and Serial Number | ADDC − AA | FE55 |
| Chassis Type and Serial Number | ADSE − EA | 380 |
| Stabilizer Type and Serial Number | IBS | |
| Neutron Logging Source | NSR − M | 202 |
| Density Logging Source | GSR − J/Z | 1994 |
| Stabilizer Size | 8−3/16 − in. | |
| Calibration Status | Valid | |

Master: 19−Jun−2005 14:46

### 6.75−in. Azimuthal Density Neutron Calibration

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 | 1069 | | Master | 2586 | | Master | 6392 | |
| | 250.0 (Minimum) 4125 (Nominal) 8000 (Maximum) | | | 700.0 (Minimum) 9350 (Nominal) 18000 (Maximum) | | | 2500 (Minimum) 23750 (Nominal) 45000 (Maximum) | |

Master: 19−Jun−2005 14:46

6.75−in. Azimuthal Density Neutron Calibration

Density: Aluminum Block

| Phase | LS window 3 − Al CPS | Value |
|---|---|---|
| Master | | 160.3 |
| | 50.00 (Minimum) 725.0 (Nominal) 1400 (Maximum) | |

| Phase | SS window 1 − Al CPS | Value |
|---|---|---|
| Master | | 1306 |
| | 500.0 (Minimum) 4250 (Nominal) 8000 (Maximum) | |

| Phase | SS window 3 − Al CPS | Value |
|---|---|---|
| Master | | 4004 |
| | 1500 (Minimum) 15750 (Nominal) 30000 (Maximum) | |

Master: 19−Jun−2005 14:46

6.75−in. Azimuthal Density Neutron Calibration

Density: Background

| Phase | LS window 3 − Background CPS | Value |
|---|---|---|
| Master | | 50.02 |
| | 15.00 (Minimum) 82.50 (Nominal) 150.0 (Maximum) | |

| Phase | SS window 1 − Background CPS | Value |
|---|---|---|
| Master | | 127.9 |
| | 40.00 (Minimum) 220.0 (Nominal) 400.0 (Maximum) | |

| Phase | SS window 3 − Background CPS | Value |
|---|---|---|
| Master | | 555.3 |
| | 150.0 (Minimum) 825.0 (Nominal) 1500 (Maximum) | |

Master: 19−Jun−2005 14:46

6.75−in. Azimuthal Density Neutron Calibration

Density: Water Block Check

| Phase | Long spacing water density G/C3 | Value |
|---|---|---|
| Master | | 1.031 |
| | 1.024 (Minimum) 1.039 (Nominal) 1.054 (Maximum) | |

| Phase | Short spacing water density G/C3 | Value |
|---|---|---|
| Master | | 1.130 |
| | 1.096 (Minimum) 1.126 (Nominal) 1.156 (Maximum) | |

Master: 19−Jun−2005 14:46

6.75−in. Azimuthal Density Neutron Calibration

Neutron: 3−Point Calibration

| Phase | Far 1 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.72 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 1 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.474 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.147 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 1 tube 2 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.93 |
| | 16.00 (Minimum) 19.05 (Nominal) 22.00 (Maximum) | |

| Phase | Far 1 tube 2 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.707 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 2 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.299 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.800 (Maximum) | |

| Phase | Far 1 tube 3 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.55 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 1 tube 3 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.486 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 1 tube 3 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.279 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 2 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 17.65 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 2 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.416 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.151 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Far 2 tube 2 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.97 |
| | 16.00 (Minimum) 19.05 (Nominal) 22.00 (Maximum) | |

| Phase | Far 2 tube 2 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.543 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 2 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.222 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.800 (Maximum) | |

| Phase | Far 2 tube 3 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 18.19 |
| | 15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum) | |

| Phase | Far 2 tube 3 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 4.596 |
| | 4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum) | |

| Phase | Far 2 tube 3 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 2.253 |
| | 1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum) | |

| Phase | Near 1 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 455.2 |
| | 400.0 (Minimum) 487.5 (Nominal) 540.0 (Maximum) | |

| Phase | Near 1 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 728.7 |
| | 610.0 (Minimum) 768.8 (Nominal) 850.0 (Maximum) | |

| Phase | Near 1 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 326.1 |
| | 270.0 (Minimum) 343.7 (Nominal) 390.0 (Maximum) | |

| Phase | Near 2 tube 1 Air Point Measure CPS | Value |
|---|---|---|
| Master | | 474.0 |

| Phase | Near 2 tube 1 Rod Point Measure CPS | Value |
|---|---|---|
| Master | | 746.7 |

| Phase | Near 2 tube 1 H2O Point Measure CPS | Value |
|---|---|---|
| Master | | 342.4 |

| 400.0 (Minimum) | 487.5 (Nominal) | 540.0 (Maximum) | 610.0 (Minimum) | 768.8 (Nominal) | 850.0 (Maximum) | 270.0 (Minimum) | 343.7 (Nominal) | 390.0 (Maximum) |
|---|---|---|---|---|---|---|---|---|

Master: 19−Jun−2005 14:46

6.75−in. Azimuthal Density Neutron Calibration

Neutron: Water Block Check

| Phase | Far Neutron water porosity PU | Value |
|---|---|---|
| Master | | 94.31 |

90.00 (Minimum) 100.0 (Nominal) 125.0 (Maximum)

6.75−in. Resistivity At−the−Bit / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| Tool Name and Serial Number | RAB6 − CA | 147 |
| Calibration Status | Valid | |

Master: 29−Jul−2005 17:20

6.75−in. Resistivity At−the−Bit Calibration

Resistivity: Fixture

| Phase | Ring/T1 factor ---- | Value | Phase | Ring/T2 factor ---- | Value | Phase | M0/T1 factor ----- | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 1.012 | Master | | 1.011 | Master | | 1.002 |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | M0/T2 factor ----- | Value | Phase | M2/T1 factor ----- | Value | Phase | M2/T2 factor ----- | Value |
| Master | | 1.002 | Master | | 0.9986 | Master | | 0.9982 |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | BTN shallow/T1 factor ---- | Value | Phase | BTN shallow/T2 factor ---- | Value | Phase | BTN medium/T1 factor ---- | Value |
| Master | | 1.009 | Master | | 1.009 | Master | | 1.002 |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |
| Phase | BTN medium/T2 factor ---- | Value | Phase | BTN deep/T1 factor ---- | Value | Phase | BTN deep/T2 factor ---- | Value |
| Master | | 1.001 | Master | | 1.001 | Master | | 0.9999 |
| | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | | | 0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum) | |

Master: 29−Jul−2005 17:20

6.75−in. Resistivity At−the−Bit Calibration

Gamma Ray: Blanket

| Phase | Gamma ray factor ---- | Value |
|---|---|---|
| Master | | 0.9611 |

0.7500 (Minimum) 1.000 (Nominal) 1.250 (Maximum)

SCHLUMBERGER

Survey report 9-Aug-2005 16:39:27 Page 1 of 5

Client.....: ESSO Australia Pty. Ltd.
Field.....: Bream B

Well.....: BMB-B16
API number.....:
Engineer.....: J.Dolan, M.Y.Tan, D.Hastie

RIG:.....: ENSCO 102
STATE:.....: Victoria

Spud date.....: 05-Jul-2005
Last survey date.....: 09-Aug-05
Total accepted surveys...: 92
MD of first survey.....: 0.00 m
MD of last survey.....: 2641.00 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.....: -61.00 m
KB above permanent.....: Top Drive
DF above permanent.....: 47.17 m

----- Vertical section origin-----
Latitude (+N/S-).....: -7.80 m
Departure (+E/W-).....: -0.30 m

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

Azimuth from Vsect Origin to target: 119.19 degrees

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2005
Magnetic date.....: 29-Jul-2005
Magnetic field strength..: 1203.00 HCNT
Magnetic dec (+E/W-).....: 13.10 degrees
Magnetic dip.....: -69.05 degrees

----- MWD survey Reference Criteria -----
Reference G.....: 1000.05 mGal
Reference H.....: 1203.00 HCNT
Reference Dip.....: -69.05 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-) 6.00 HCNT
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-).....: 13.10 degrees
Grid convergence (+E/W-).: -0.52 degrees
Total az corr (+E/W-).....: 13.62 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



| 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 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -7.80 | -0.30 | 7.81 | 182.20 | 0.00 | TIP | None |
| 2 | 107.50 | 0.00 | 0.00 | 107.50 | 107.50 | 0.00 | -7.80 | -0.30 | 7.81 | 182.20 | 0.00 | GYR | None |
| 3 | 110.30 | 0.15 | 158.53 | 2.80 | 110.30 | 0.00 | -7.80 | -0.30 | 7.81 | 182.19 | 1.63 | GYR | None |
| **4** | **138.80** | **0.18** | **157.67** | **28.50** | **138.80** | **0.07** | **-7.88** | **-0.27** | **7.88** | **181.95** | **0.03** | **GYR** | **None** |
| **5** | **157.60** | **0.16** | **154.47** | **18.80** | **157.60** | **0.11** | **-7.93** | **-0.25** | **7.93** | **181.77** | **0.04** | **GYR** | **None** |
| 6 | 174.50 | 0.11 | 156.53 | 16.90 | 174.50 | 0.14 | -7.97 | -0.23 | 7.97 | 181.65 | 0.09 | GYR | None |
| 7 | 183.49 | 0.57 | 272.31 | 8.99 | 183.49 | 0.11 | -7.97 | -0.27 | 7.98 | 181.94 | 2.12 | GYR | None |
| 8 | 214.10 | 2.13 | 263.97 | 30.61 | 214.09 | -0.49 | -8.03 | -0.99 | 8.09 | 187.02 | 1.56 | GYR | None |
| 9 | 244.30 | 4.13 | 267.49 | 30.20 | 244.24 | -1.87 | -8.13 | -2.63 | 8.55 | 197.94 | 2.03 | GYR | None |
| 10 | 273.44 | 6.20 | 258.68 | 29.14 | 273.26 | -3.96 | -8.49 | -5.22 | 9.97 | 211.61 | 2.31 | GYR | None |
| 11 | 302.32 | 6.79 | 248.99 | 28.88 | 301.96 | -6.24 | -9.41 | -8.35 | 12.58 | 221.59 | 1.31 | GYR | None |
| 12 | 320.98 | 6.50 | 238.20 | 18.66 | 320.49 | -7.46 | -10.36 | -10.27 | 14.59 | 224.77 | 2.09 | MWD | None |
| 13 | 360.36 | 6.56 | 225.35 | 39.38 | 359.62 | -9.17 | -13.11 | -13.77 | 19.02 | 226.40 | 1.13 | GYR | None |
| 14 | 389.61 | 6.38 | 219.35 | 29.25 | 388.69 | -9.92 | -15.54 | -15.99 | 22.30 | 225.81 | 0.73 | GYR | None |
| 15 | 418.79 | 6.26 | 225.03 | 29.18 | 417.69 | -10.64 | -17.92 | -18.14 | 25.50 | 225.35 | 0.66 | GYR | None |
| 16 | 447.48 | 6.24 | 222.63 | 28.69 | 446.21 | -11.43 | -20.18 | -20.30 | 28.62 | 225.18 | 0.28 | GYR | None |
| 17 | 476.58 | 6.16 | 224.05 | 29.10 | 475.14 | -12.20 | -22.46 | -22.46 | 31.77 | 225.00 | 0.18 | GYR | None |
| 18 | 505.66 | 6.06 | 219.91 | 29.08 | 504.05 | -12.88 | -24.76 | -24.53 | 34.85 | 224.73 | 0.47 | GYR | None |
| 19 | 534.65 | 6.06 | 217.45 | 28.99 | 532.88 | -13.39 | -27.15 | -26.44 | 37.90 | 224.25 | 0.27 | GYR | None |
| 20 | 563.70 | 6.02 | 217.76 | 29.05 | 561.77 | -13.83 | -29.57 | -28.31 | 40.94 | 223.75 | 0.05 | GYR | None |
| 21 | 592.73 | 5.72 | 226.27 | 29.03 | 590.65 | -14.49 | -31.77 | -30.29 | 43.90 | 223.63 | 0.97 | GYR | None |
| 22 | 621.85 | 5.72 | 231.95 | 29.12 | 619.62 | -15.47 | -33.67 | -32.48 | 46.78 | 223.97 | 0.59 | GYR | None |
| 23 | 650.71 | 5.56 | 228.28 | 28.86 | 648.34 | -16.49 | -35.49 | -34.65 | 49.60 | 224.32 | 0.42 | GYR | None |
| 24 | 680.04 | 5.51 | 231.33 | 29.33 | 677.54 | -17.48 | -37.31 | -36.81 | 52.41 | 224.61 | 0.31 | GYR | None |
| 25 | 697.53 | 5.50 | 228.98 | 17.49 | 694.95 | -18.08 | -38.39 | -38.10 | 54.08 | 224.78 | 0.39 | MWD | None |
| 26 | 726.22 | 5.50 | 228.97 | 28.69 | 723.50 | -19.01 | -40.19 | -40.17 | 56.82 | 224.99 | 0.00 | MWD | None |
| 27 | 755.02 | 5.47 | 224.63 | 28.80 | 752.17 | -19.84 | -42.07 | -42.18 | 59.57 | 225.07 | 0.44 | MWD | None |
| 28 | 784.05 | 5.45 | 220.42 | 29.03 | 781.07 | -20.48 | -44.11 | -44.04 | 62.33 | 224.96 | 0.42 | MWD | None |
| 29 | 812.94 | 5.55 | 224.13 | 28.89 | 809.83 | -21.11 | -46.15 | -45.91 | 65.10 | 224.85 | 0.39 | MWD | None |
| 30 | 856.11 | 5.52 | 225.75 | 43.17 | 852.80 | -22.24 | -49.10 | -48.85 | 69.26 | 224.85 | 0.11 | MWD | 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 | 885.50 | 5.60 | 224.98 | 29.39 | 882.05 | -23.03 | -51.10 | -50.87 | 72.11 | 224.87 | 0.11 | MWD | None |
| 32 | 914.67 | 5.60 | 223.80 | 29.17 | 911.08 | -23.78 | -53.14 | -52.86 | 74.95 | 224.85 | 0.12 | MWD | None |
| 33 | 943.84 | 5.47 | 223.94 | 29.17 | 940.11 | -24.49 | -55.16 | -54.81 | 77.77 | 224.82 | 0.14 | MWD | None |
| 34 | 972.77 | 5.37 | 223.05 | 28.93 | 968.91 | -25.17 | -57.15 | -56.69 | 80.50 | 224.77 | 0.14 | MWD | None |
| 35 | 1001.99 | 5.46 | 223.36 | 29.22 | 998.00 | -25.83 | -59.16 | -58.58 | 83.26 | 224.72 | 0.10 | MWD | None |
| 36 | 1030.57 | 5.41 | 224.95 | 28.58 | 1026.46 | -26.53 | -61.10 | -60.47 | 85.96 | 224.70 | 0.17 | MWD | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | 1059.72 | 5.32 | 225.10 | 29.15 | 1055.48 | -27.28 | -63.03 | -62.40 | 88.69 | 224.71 | 0.10 | MWD | None |
| 38 | 1088.71 | 5.11 | 226.63 | 28.99 | 1084.35 | -28.03 | -64.86 | -64.29 | 91.32 | 224.75 | 0.26 | MWD | None |
| 39 | 1117.66 | 5.03 | 225.28 | 28.95 | 1113.18 | -28.77 | -66.64 | -66.13 | 93.88 | 224.78 | 0.15 | MWD | None |
| 40 | 1146.60 | 5.09 | 226.31 | 28.94 | 1142.01 | -29.50 | -68.42 | -67.96 | 96.43 | 224.81 | 0.11 | MWD | None |
| 41 | 1175.41 | 5.01 | 225.26 | 28.81 | 1170.71 | -30.22 | -70.19 | -69.77 | 98.97 | 224.83 | 0.13 | MWD | None |
| 42 | 1204.65 | 4.90 | 227.98 | 29.24 | 1199.84 | -30.98 | -71.92 | -71.61 | 101.49 | 224.87 | 0.27 | MWD | None |
| 43 | 1233.79 | 4.85 | 227.90 | 29.14 | 1228.87 | -31.78 | -73.58 | -73.45 | 103.96 | 224.95 | 0.05 | MWD | None |
| 44 | 1262.27 | 5.07 | 228.33 | 28.48 | 1257.25 | -32.57 | -75.22 | -75.28 | 106.42 | 225.02 | 0.24 | MWD | None |
| 45 | 1291.51 | 5.31 | 229.22 | 29.24 | 1286.37 | -33.46 | -76.97 | -77.27 | 109.06 | 225.11 | 0.26 | MWD | None |
| 46 | 1320.64 | 5.99 | 219.17 | 29.13 | 1315.36 | -34.19 | -79.03 | -79.25 | 111.92 | 225.08 | 1.25 | MWD | None |
| 47 | 1349.52 | 7.66 | 193.37 | 28.88 | 1344.04 | -33.92 | -82.07 | -80.65 | 115.06 | 224.50 | 3.64 | MWD | None |
| 48 | 1378.46 | 10.94 | 165.80 | 28.94 | 1372.61 | -31.51 | -86.61 | -80.42 | 118.19 | 222.88 | 5.73 | MWD | None |
| 49 | 1407.52 | 13.12 | 139.65 | 29.06 | 1401.05 | -26.52 | -91.80 | -77.61 | 120.21 | 220.21 | 6.09 | MWD | None |
| 50 | 1436.56 | 14.26 | 126.97 | 29.04 | 1429.27 | -19.89 | -96.46 | -72.61 | 120.74 | 216.97 | 3.36 | MWD | None |
| 51 | 1465.33 | 14.22 | 127.37 | 28.77 | 1457.16 | -12.88 | -100.74 | -66.97 | 120.97 | 213.62 | 0.11 | MWD | None |
| 52 | 1494.32 | 13.91 | 123.06 | 28.99 | 1485.28 | -5.88 | -104.80 | -61.22 | 121.37 | 210.29 | 1.15 | MWD | None |
| 53 | 1523.35 | 13.91 | 114.26 | 29.03 | 1513.46 | 1.08 | -108.14 | -55.12 | 121.38 | 207.01 | 2.22 | MWD | None |
| 54 | 1552.33 | 13.77 | 107.16 | 28.98 | 1541.60 | 7.93 | -110.59 | -48.64 | 120.82 | 203.74 | 1.79 | MWD | None |
| 55 | 1581.19 | 13.47 | 106.93 | 28.86 | 1569.65 | 14.57 | -112.58 | -42.15 | 120.21 | 200.52 | 0.32 | MWD | None |
| 56 | 1610.23 | 13.22 | 106.90 | 29.04 | 1597.90 | 21.12 | -114.53 | -35.73 | 119.98 | 197.33 | 0.26 | MWD | None |
| 57 | 1639.24 | 12.97 | 106.76 | 29.01 | 1626.16 | 27.54 | -116.43 | -29.44 | 120.10 | 194.19 | 0.26 | MWD | None |
| 58 | 1668.40 | 14.75 | 106.71 | 29.16 | 1654.47 | 34.36 | -118.45 | -22.75 | 120.61 | 190.87 | 1.86 | MWD | None |
| 59 | 1697.46 | 18.56 | 110.49 | 29.06 | 1682.31 | 42.55 | -121.13 | -14.88 | 122.04 | 187.00 | 4.15 | MWD | None |
| 60 | 1726.01 | 22.22 | 113.20 | 28.55 | 1709.06 | 52.41 | -124.85 | -5.65 | 124.98 | 182.59 | 4.03 | MWD | 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 | 1755.12 | 25.46 | 114.56 | 29.11 | 1735.69 | 64.12 | -129.62 | 5.10 | 129.72 | 177.75 | 3.44 | MWD | None |
| 62 | 1784.08 | 28.71 | 115.07 | 28.96 | 1761.47 | 77.27 | -135.15 | 17.06 | 136.23 | 172.80 | 3.43 | MWD | None |
| 63 | 1813.12 | 32.21 | 113.25 | 29.04 | 1786.50 | 91.93 | -141.17 | 30.50 | 144.42 | 167.81 | 3.80 | MWD | None |
| 64 | 1842.22 | 35.30 | 112.90 | 29.10 | 1810.69 | 108.01 | -147.50 | 45.37 | 154.32 | 162.90 | 3.24 | MWD | None |
| 65 | 1871.31 | 38.11 | 113.30 | 29.09 | 1834.01 | 125.29 | -154.32 | 61.36 | 166.08 | 158.32 | 2.95 | MWD | None |
| 66 | 1899.95 | 41.20 | 113.37 | 28.64 | 1856.05 | 143.47 | -161.56 | 78.14 | 179.47 | 154.19 | 3.29 | MWD | None |
| 67 | 1929.05 | 45.21 | 113.03 | 29.10 | 1877.26 | 163.28 | -169.41 | 96.45 | 194.94 | 150.35 | 4.21 | MWD | None |
| 68 | 1958.45 | 49.07 | 111.54 | 29.40 | 1897.26 | 184.67 | -177.57 | 116.39 | 212.32 | 146.76 | 4.16 | MWD | None |
| **69** | **1987.31** | **52.44** | **109.37** | **28.86** | **1915.51** | **206.75** | **-185.37** | **137.33** | **230.70** | **143.47** | **3.98** | **MWD** | **None** |
| **70** | **2016.22** | **56.23** | **108.21** | **28.91** | **1932.37** | **229.85** | **-192.93** | **159.56** | **250.36** | **140.41** | **4.12** | **MWD** | **None** |
| 71 | 2044.75 | 58.13 | 107.85 | 28.53 | 1947.83 | 253.37 | -200.35 | 182.36 | 270.91 | 137.69 | 2.06 | MWD | None |
| 72 | 2073.75 | 56.68 | 107.89 | 29.00 | 1963.45 | 277.33 | -207.84 | 205.61 | 292.36 | 135.31 | 1.52 | MWD | None |
| 73 | 2102.65 | 56.17 | 107.47 | 28.90 | 1979.43 | 300.92 | -215.16 | 228.55 | 313.89 | 133.27 | 0.65 | MWD | None |
| 74 | 2131.41 | 55.69 | 106.87 | 28.76 | 1995.54 | 324.22 | -222.19 | 251.32 | 335.45 | 131.48 | 0.73 | MWD | None |
| 75 | 2160.35 | 55.85 | 106.48 | 28.94 | 2011.82 | 347.58 | -229.06 | 274.24 | 357.31 | 129.87 | 0.38 | MWD | None |
| 76 | 2189.30 | 54.86 | 106.25 | 28.95 | 2028.28 | 370.80 | -235.77 | 297.09 | 379.27 | 128.44 | 1.06 | MWD | None |
| 77 | 2218.83 | 53.99 | 105.47 | 29.53 | 2045.46 | 394.17 | -242.33 | 320.19 | 401.56 | 127.12 | 1.11 | MWD | None |
| 78 | 2247.97 | 53.59 | 105.31 | 29.14 | 2062.68 | 417.01 | -248.57 | 342.86 | 423.49 | 125.94 | 0.44 | MWD | None |
| 79 | 2277.03 | 54.85 | 105.22 | 29.06 | 2079.67 | 439.89 | -254.78 | 365.60 | 445.62 | 124.87 | 1.32 | MWD | None |
| 80 | 2306.49 | 53.74 | 104.80 | 29.46 | 2096.86 | 463.08 | -260.97 | 388.71 | 468.19 | 123.88 | 1.20 | MWD | None |
| 81 | 2335.48 | 53.21 | 104.61 | 28.99 | 2114.11 | 485.64 | -266.89 | 411.24 | 490.25 | 122.98 | 0.58 | MWD | None |
| 82 | 2364.40 | 53.21 | 104.10 | 28.92 | 2131.43 | 508.03 | -272.63 | 433.68 | 512.25 | 122.16 | 0.43 | MWD | None |
| 83 | 2393.21 | 51.92 | 103.86 | 28.81 | 2148.94 | 530.10 | -278.16 | 455.88 | 534.04 | 121.39 | 1.38 | MWD | None |
| 84 | 2422.27 | 52.23 | 104.37 | 29.06 | 2166.81 | 552.23 | -283.75 | 478.11 | 555.97 | 120.69 | 0.53 | MWD | None |
| 85 | 2451.33 | 52.61 | 104.69 | 29.06 | 2184.53 | 574.52 | -289.53 | 500.40 | 578.12 | 120.05 | 0.48 | MWD | None |
| 86 | 2480.33 | 52.86 | 105.28 | 29.00 | 2202.09 | 596.89 | -295.49 | 522.70 | 600.44 | 119.48 | 0.56 | MWD | None |
| 87 | 2509.25 | 51.86 | 105.68 | 28.92 | 2219.75 | 619.14 | -301.60 | 544.77 | 622.68 | 118.97 | 1.11 | MWD | None |
| 88 | 2538.42 | 52.71 | 106.56 | 29.17 | 2237.59 | 641.61 | -308.01 | 566.93 | 645.20 | 118.52 | 1.15 | MWD | None |
| 89 | 2567.49 | 53.16 | 106.46 | 29.07 | 2255.11 | 664.24 | -314.60 | 589.17 | 667.91 | 118.10 | 0.48 | MWD | None |
| 90 | 2596.48 | 52.44 | 107.42 | 28.99 | 2272.64 | 686.81 | -321.33 | 611.26 | 690.58 | 117.73 | 1.10 | MWD | 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 | 2623.96 | 51.70 | 107.50 | 27.48 | 2289.53 | 708.03 | -327.83 | 631.94 | 711.91 | 117.42 | 0.82 | MWD | None |
| 92 | 2641.00 | 51.70 | 107.50 | 17.04 | 2300.10 | 721.13 | -331.86 | 644.69 | 725.09 | 117.24 | 0.00 | Projection to TD | |

Schlumberger

| | |
|---|---|
| Well: | **BMB−B16** |
| Field: | **Bream B** |
| Rig: | **ENSCO 102** |
| State: | **Victoria** |

**8.5 in. Section**

**GeoVISION Service**
**1:200 True Vertical Depth**
**Recorded Mode Log**