

Rig: **ISDL 453** State: **Victoria**

| | | | | | | | | | | |
|---|---|-----------------------|---|---------------------------|------------------------------------|--------------------------|-----------------|------------------------------------|-----------|--|
| Rig: ISDL 453 Field: Tuna Location: Bass Strait Well: WTN W38A Company: Esso Australia Ltd. | GeoVISION Resistivity 1:200 True Vertical Depth Recorded Mode Log | | | | | | | | | |
| | Location | Total depth: | | 1730 m | | Elevation | K.B. | | Top Drive | |
| | | Spud date: | | 17-May-02 | | | G.L. | | -60.26 m | |
| | | Runs: | | 2 To 2 | | | D.F. | | 34.69 m | |
| | | Permanent datum: | | Mean Sea Level | | Elev.: | | 60.26 m | | |
| | | Log measured from: | | Drill Floor | | 34.69m above Perm. datum | | | | |
| | Depth reference: | | Driller's Pipe Tally | | | | | | | |
| | API serial no. | | x=5771796.08m (North) y=621531.7m (East) | | Longitude | | Latitude | | | |
| | | | | | E 148° 23' 16.169 S 38° 11' 36.515 | | | | | |
| | Depth logged: | | 740 m To 1716 m | | Mag decl: 13.16° | | Other services: | | | |
| Date logged: | | 19-May-02To 21-May-02 | | Mag dip: -68.7° | | Directional Drilling | | | | |
| Bore hole record | | | | Casing record | | | | | | |
| Hole size | | from to | | Size | | Density | | from to | | |
| 8 1/2 | | 726.8 m 1730 m | | 20 | | 84 ppf | | 0 m 166.8 m | | |
| | | | | 10 3/4 | | 47 ppf | | 0 m 726.8 m | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Mud record | | | | Borehole deviation record | | | | | | |
| Type | | from to | | Min Max | | from to | | | | |
| KCL/PHPA/GLYCOL | | 760 m 1730 m | | 35.0° 41.5° | | 760 m 1730 | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Surface equipment | | | | Software record | | | | IDEAL services from Anadrill | | |
| Unit | | OLU-FB-924 | | IDEAL Wis | | ID6_1C_10r | | | | |
| Depth system | | PDA | | SPM | | ID6_1C_10r | | | | |
| | | | | LWD | | See toolsketch | | | | |
| | | | | MWD | | See toolsketch | | | | |

Bit Run Summary

[illegible]

| | | | | | | | | | | |
|---------------------------|-----------------|-----------|--------|--|--|--|--|--|--|--|
| Type | KQL/PHPA/GLYCOL | | | | | | | | | |
| Mud weight | ppg | 10.5 | | | | | | | | |
| Solids | %vol | 9.8 | | | | | | | | |
| Chlorides | mg/l | 48,500 | | | | | | | | |
| Rm | Ohmm @ degC | 0.1243@21 | | | | | | | | |
| Rmf | Ohmm @ degC | 0.0966@21 | | | | | | | | |
| Rmc | Ohmms @ degC | 0.1631@21 | | | | | | | | |
| Potassium | %vol | 6.9 | | | | | | | | |
| Environmental data | | | | | | | | | | |
| GR | | | | | | | | | | |
| Mud weight | ppg | 10.5 | | | | | | | | |
| Bit size | in | 8.5 | | | | | | | | |
| Resistivity | | | | | | | | | | |
| Neutron porosity | | | | | | | | | | |
| Hole Size | in | 8.5 | | | | | | | | |
| Mud weight | ppg | 10.5 | | | | | | | | |
| Temperature | degC | 60 | | | | | | | | |
| Mud salinity | mg/l | 80,000 | | | | | | | | |
| Formation salinity | | | | | | | | | | |
| Recording rate 1 | SEC | 10 s | | | | | | | | |
| Recording rate 2 | SEC | 10 s | | | | | | | | |
| Filtering GR | | | | | | | | | | |
| Filtering density | | 3 pt | | | | | | | | |
| Filtering Neutron | | 3 pt | | | | | | | | |
| Company representative | J. Booker | B. Davies | | | | | | | | |
| Anadrill personnel | J. Chong | J. Walta | L. Bon | | | | | | | |

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| | | |
|---|------------------------|------------------------|
| OTHER SERVICES FOR RUN2 Directional Surveys | OTHER SERVICES FOR RUN | OTHER SERVICES FOR RUN |
| REMARKS: RUN NUMBER 2 8-1/2in Hole Section was logged from 740 m to 1730 m MD. Depth is referenced to the Driller's pipe tally. All data presented is from tool memory. GR is corrected for mud weight and bit size. RAB6 Resistivity is corrected for the bit size, mud resistivity and borehole temperature. Bottom quadrant density is presented. Neutron porosity is calculated with limestone matrix and is corrected for the bit size, borehome salinity, temperature and mud hydrogen index (from mud weight, temperature and pressure) Mud type is water based KCl/PHPA/GLYCOL. Barite is present in the mud. RAB6C Downhole Software 6C-V6.1 ADN6C Downhole Software 6.2B08 | REMARKS: RUN NUMBER | REMARKS: RUN NUMBER |

EQUIPMENT DESCRIPTION

RUN2

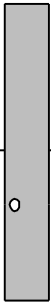
RUN

RUN

DOWNHOLE EQ

31.32

6 3/4 in. ADN6* Neutron
ADSE 289 Neutron
8 1/4 in. Stab Density
NSR-M A161 Density
GSR-J A2125 UltraSo
Soft: 6.2B08 R-O P



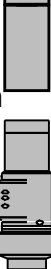
29.34
29.19
28.32
28.22
27.84
27.08

6 3/4 in. PowerPulse*
MDC Z408
MDI 626BC
MEC 612BB
Soft: 6.100C00 D&I



25.07
20.91

6 3/4 in. GVR6*
S/N 136
Soft: 6C-V61
Shallo
Medium
Deep
Ring R
R-O p
GR



16.74
15.27
15.15
14.97
14.80
14.66
14.44

Cross Over S/N 9916



13.68

NM Pony Collar



13.07

S/N 6649

NM Pony Collar



9.29

S/N H956

PowerPak* Mud Motor



7.88

A675XP S/N 3604

1.15 deg bend



Bit-PDC

Geo-Diamond Model: S75HPX

MAXIMUM STRING DI

ALL LENGTHS I

0.00^{0.18}

True Vertical Depth Log

IDEAL Version: ID6_1C_10

IDF

| | | | |
|-----|-----------|--------|-----------|
| RAB | id6_1c_10 | MWD_10 | id6_1c_10 |
| ADN | id6_1c_10 | | |

Format: W38A RM Resistivity

Vertical Scale: 1:200

Graphics File Created: 22-May-2002 23:27

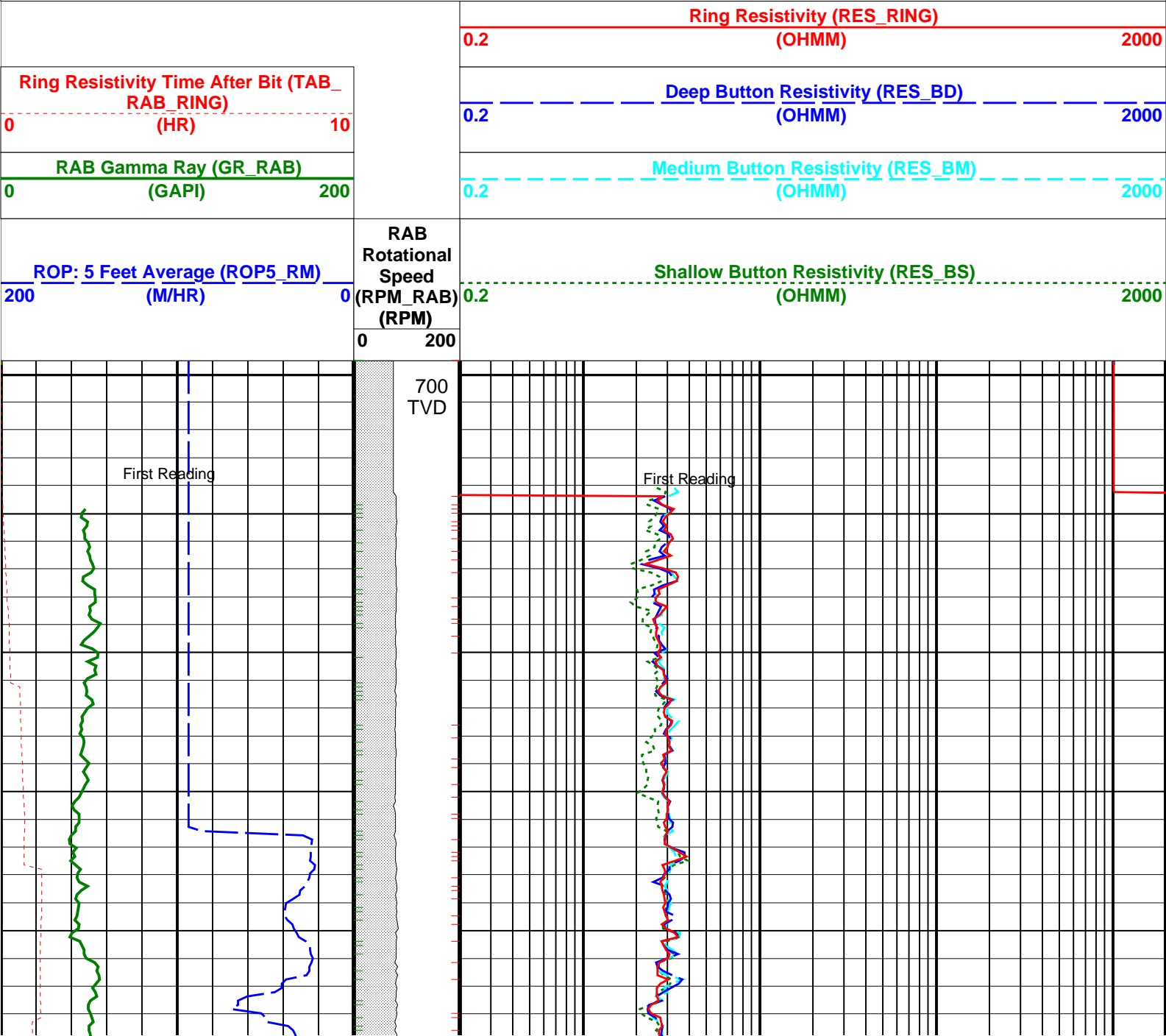
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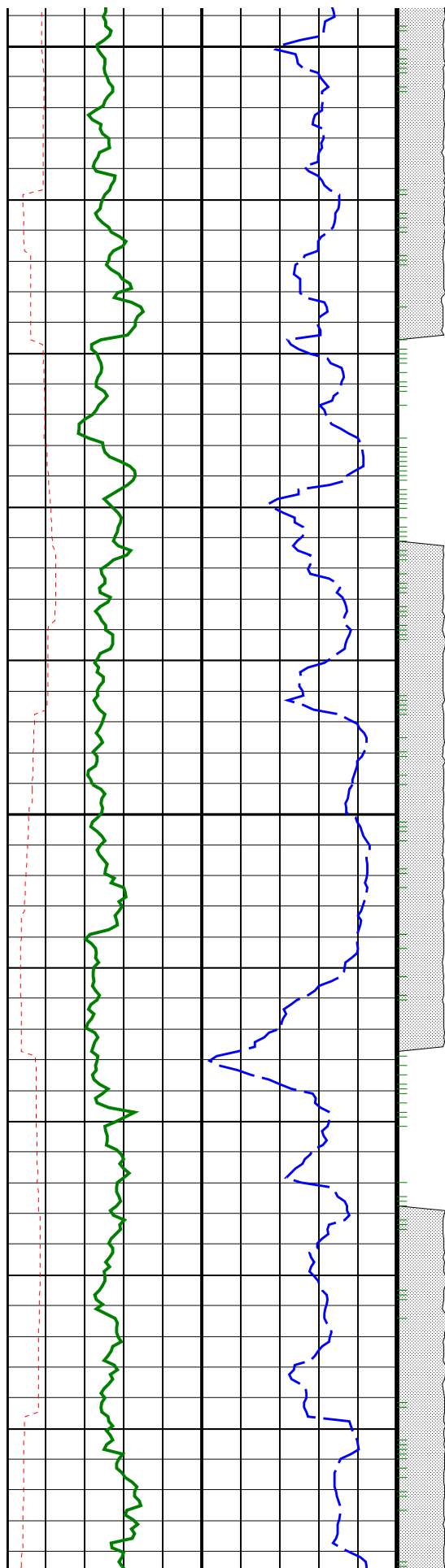
| DLIS Name | Description | Value | |
|-----------------------|--|---------|---------|
| ALPHA_COMPUTE_DEN_ADN | Perform Density Enhanced Vertical Resolution process ? | NO | |
| AVE_ADN | ADN/Array Channels: perform averaging(RM) : | YES | |
| BHT_RM | Bottom Hole Temperature (RM) | 140.0 | degF |
| BSAL_RM | Mud Salinity (RM) | 80.000 | ppk |
| BS_RM | Bit Size (RM) | 8.500 | in |
| CHI_RM | Caliper High Limit from BS(RM) for Neutron BH Corr | 2.000 | in |
| CLO_RM | Caliper Low Limit from BS(RM) for Neutron BH Corr | 0.000 | in |
| COEF_M | User Defined FEXP in Clean Sand | 1.650 | |
| C_WS | Overpressure correction to Sw and M | 1.000 | |
| DEVI | Average angle of the hole (RM) | 35.210 | deg |
| DO | Depth Offset | 0.0 | m |
| DTMUD | Delta-T for Mud | 190.3 | us/m |
| DYN_IMG_COMPUTE_ADN | Generate Dynamic Normalized Image? | NO | |
| ENVCOR | Neutron Quadrant Processing: Environmental Correction? | YES | |
| EVRL | EVR Process averaging level (RM) | 49 | |
| FEXP | Formation Factor Exponent(RM) | 2.000 | |
| FNUM | Formation Factor Enumerator(RM) | 1.000 | |
| FPHI_RM | Formation Factor Porosity Source (RM) | XPLOT | |
| GCSE | Caliper for Neutron BH Corr | BS | |
| IMAGE_MAX_SOA | Image SOA (Quadrant) Right Scale | 2.500 | in |
| IMAGE_MAX_SPEF | Image PEF(Segment) Right Scale | 6.000 | |
| IMAGE_MAX_SRHOB | Image RHOB(Segment) Right Scale | 2.650 | g/cm3 |
| IMAGE_MIN_SOA | Image SOA (Quadrant) Left Scale | 0.000 | in |
| IMAGE_MIN_SPEF | Image PEF(Segment) Left Scale | 2.000 | |
| IMAGE_MIN_SRHOB | Image RHOB(Segment) Left Scale | 2.050 | g/cm3 |
| LITHO_TYPE_ADN | Lithology (RM) | LIME | |
| MST_RM | Mud Sample temperature (RM) | 70.700 | degF |
| MW_RM | Mud Weight (RM) | 10.500 | lbm/gal |
| OBMF_RM | Oil Based Mud | NO | |
| RHOF_RM | Mud Filtrate Density (RM) | 1.000 | g/cm3 |
| RHOM_RM | Matrix density (RM) | 2.710 | g/cm3 |
| RMS_RM | Resistivity of Mud Sample (RM) | 0.124 | ohm.m |
| RWA_COMP_MOD | Rwa computation model | BASIC | |
| RWA_DEN_INPUT | Rwa Density Input | RHOB | |
| RWA_FORM_MOD | Rwa computation formation model | CLASTIC | |
| RWA_RES_INPUT | Rwa computation resistivity input | RT | |

| | | | |
|---------------|---|----------|-------|
| RWA_FORM_MOD | Rwa computation formation model | CLASTIC | |
| RWA_RES_INPUT | Rwa computation resistivity input | RT | |
| RWS_RM | Resistivity of Connate Water (RM) | 1.000 | ohm.m |
| SHT_RM | Surface Hole Temperature (RM) | 68.000 | degF |
| SSIZ_ADN | ADN:Stabilizer Size (RM) | 8.250 | in |
| STOH | ADN Density Top of Hole Sector (Left Boundary): | SECTOR_0 | |
| TD_RM | Total Measured Depth (RM) | 1730.0 | m |
| TRPM_RM | Average Tool rotational Speed (RM) | 20.000 | c/min |
| TWS_RM | Temperature of Connate Water (RM) | 75.000 | degF |
| USMIN_RM | ADN:Minimum ultra-sonic standoff (RM) | 0.300 | in |
| VERS_ADN | ADN downhole software | 6.200 | |
| VF_ILLI | Fraction of illite in shales | 0.500 | |
| VF_KAOL | Fraction of kaolinite in shales | 0.500 | |
| VF_MONT | Fraction of montmorillonite in shales | 0.000 | |
| WSDI | Window Size of Dynamic Normalization Image | 4.572 | m |
| XPDM_RM | Cross plot density prosiy multiplier | 0.675 | |
| XPNM_RM | Cross plot neutron prosiy multiplier | 0.325 | |

PIP SUMMARY

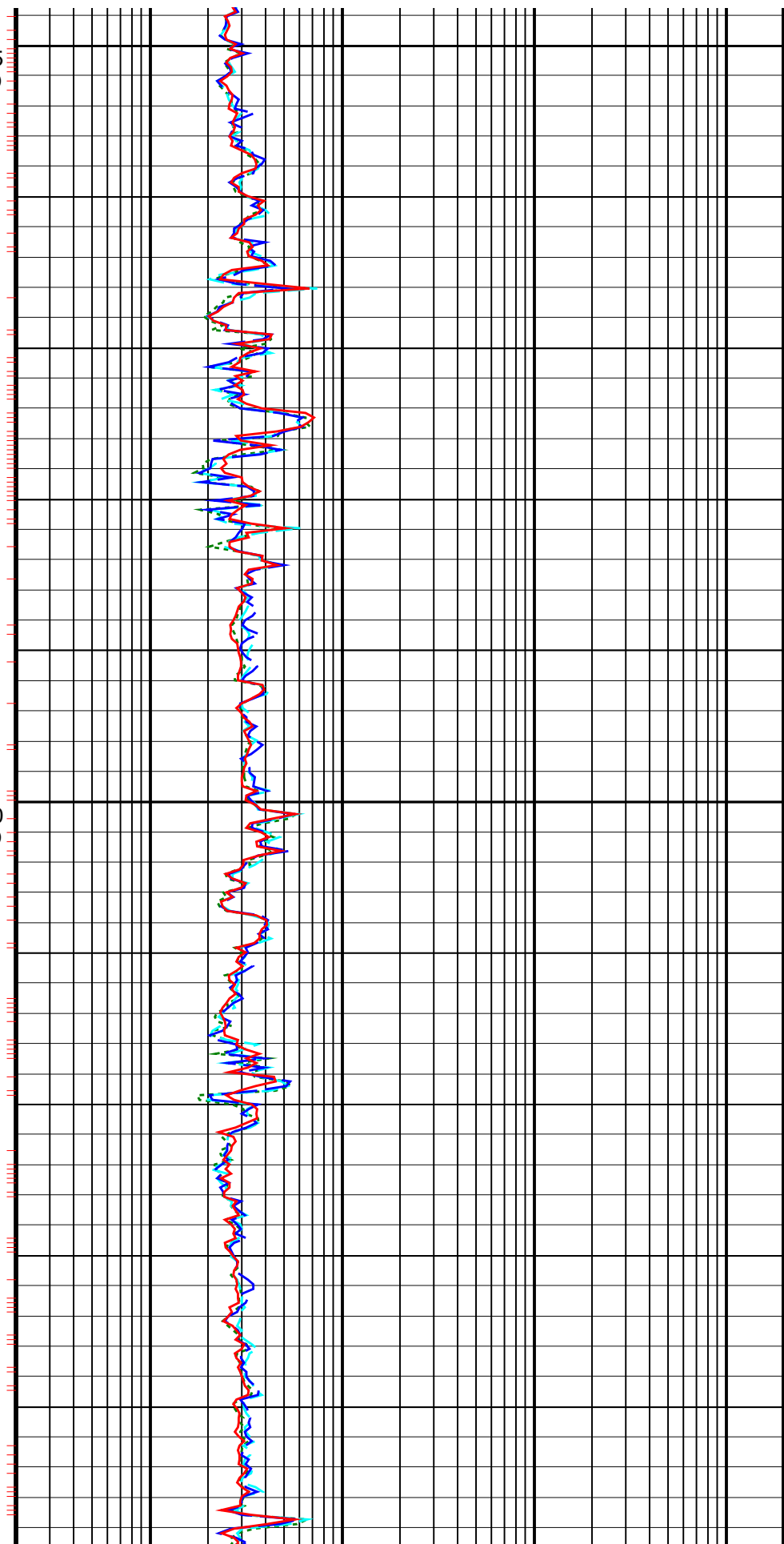
┤ Gamma Ray Samples
┤ Ring Samples

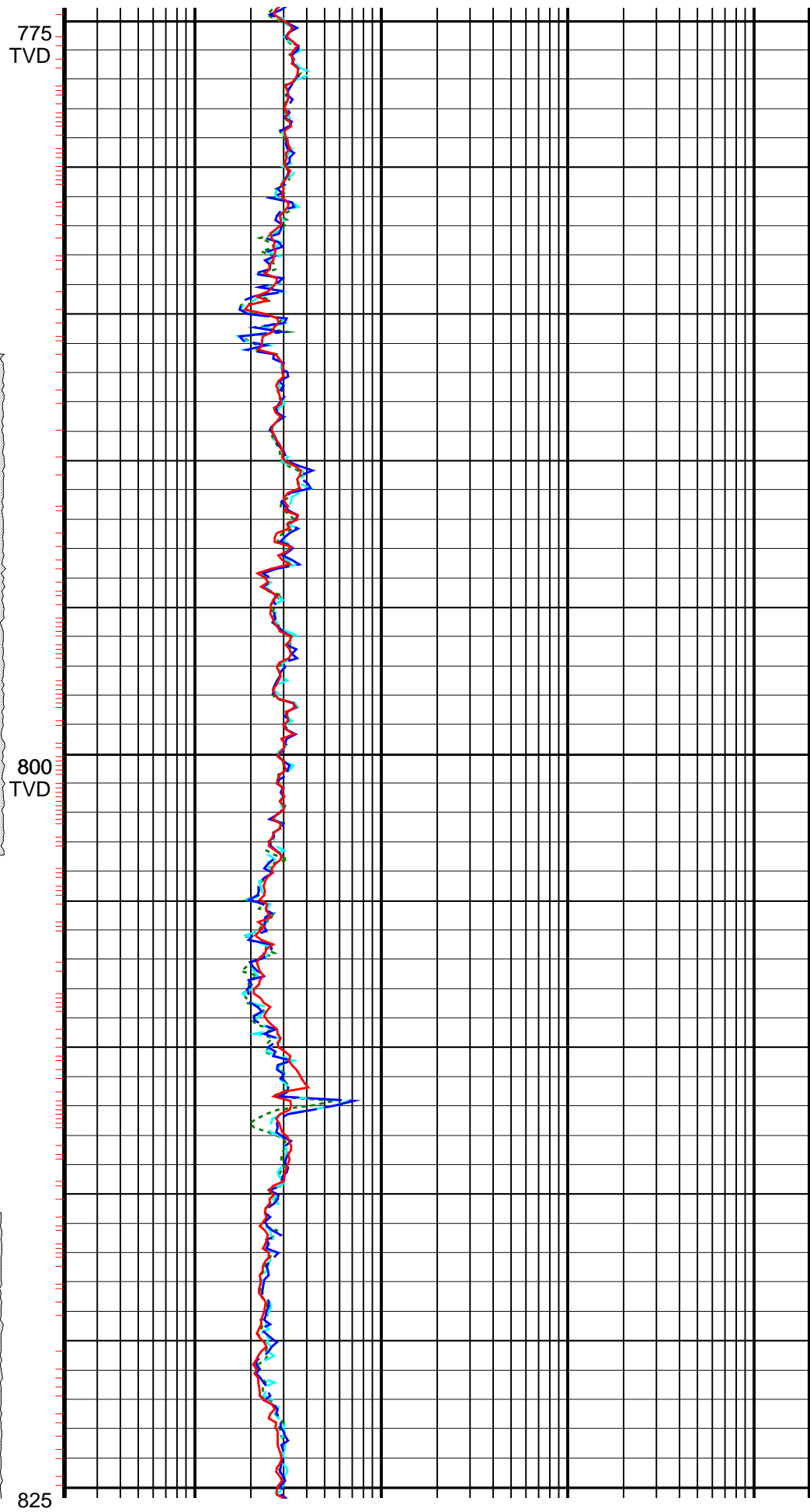
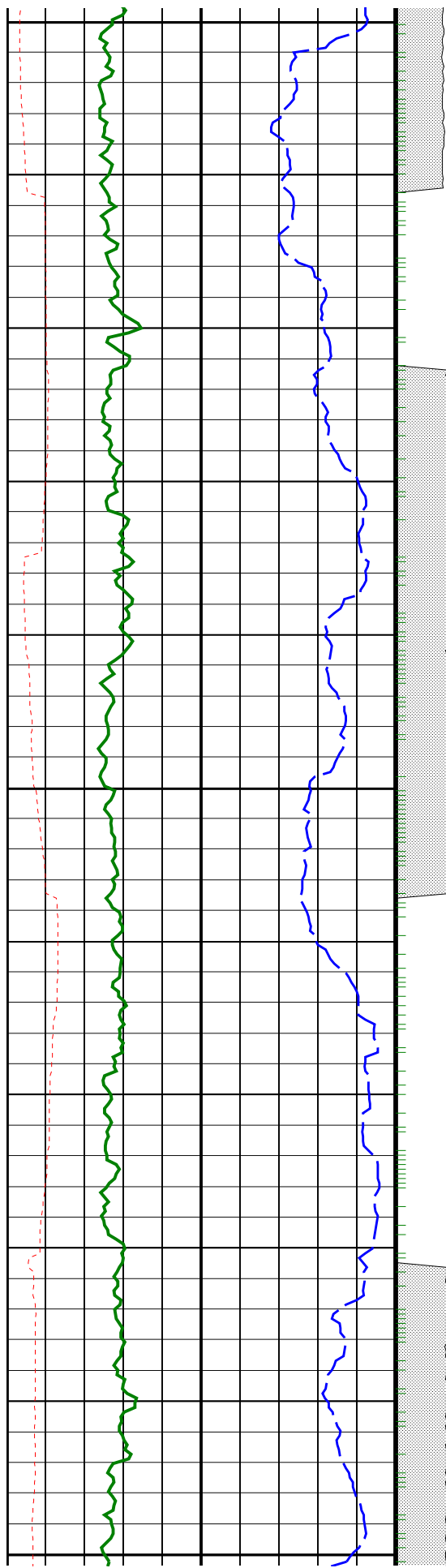


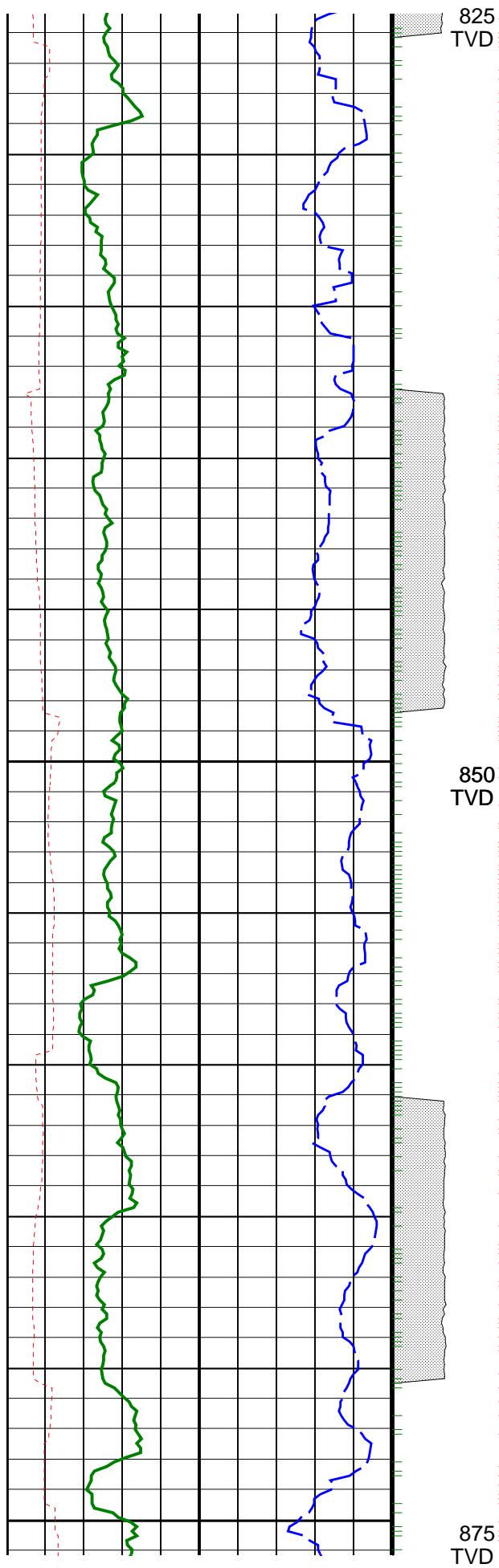


725
TVD

750
TVD



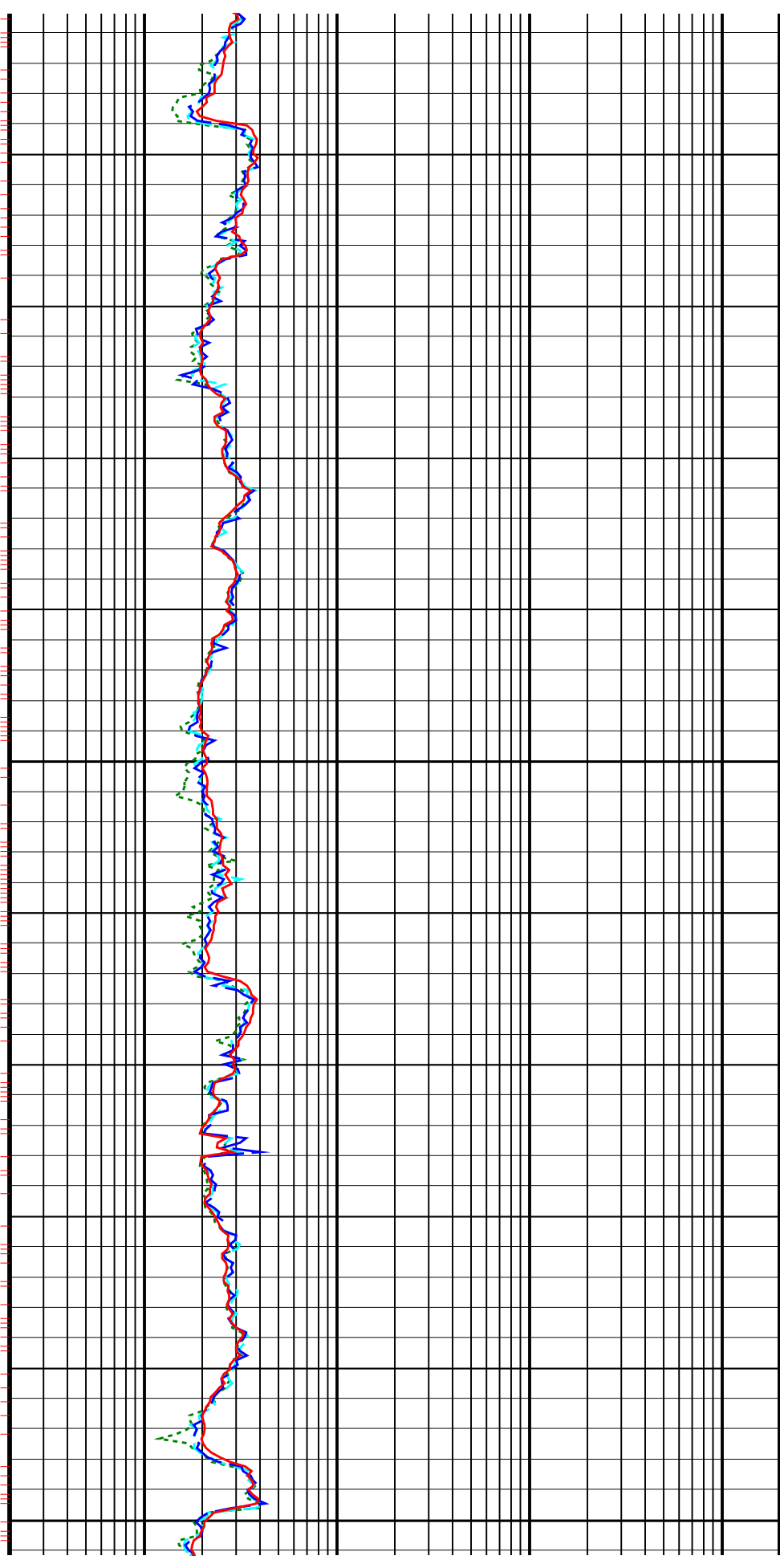


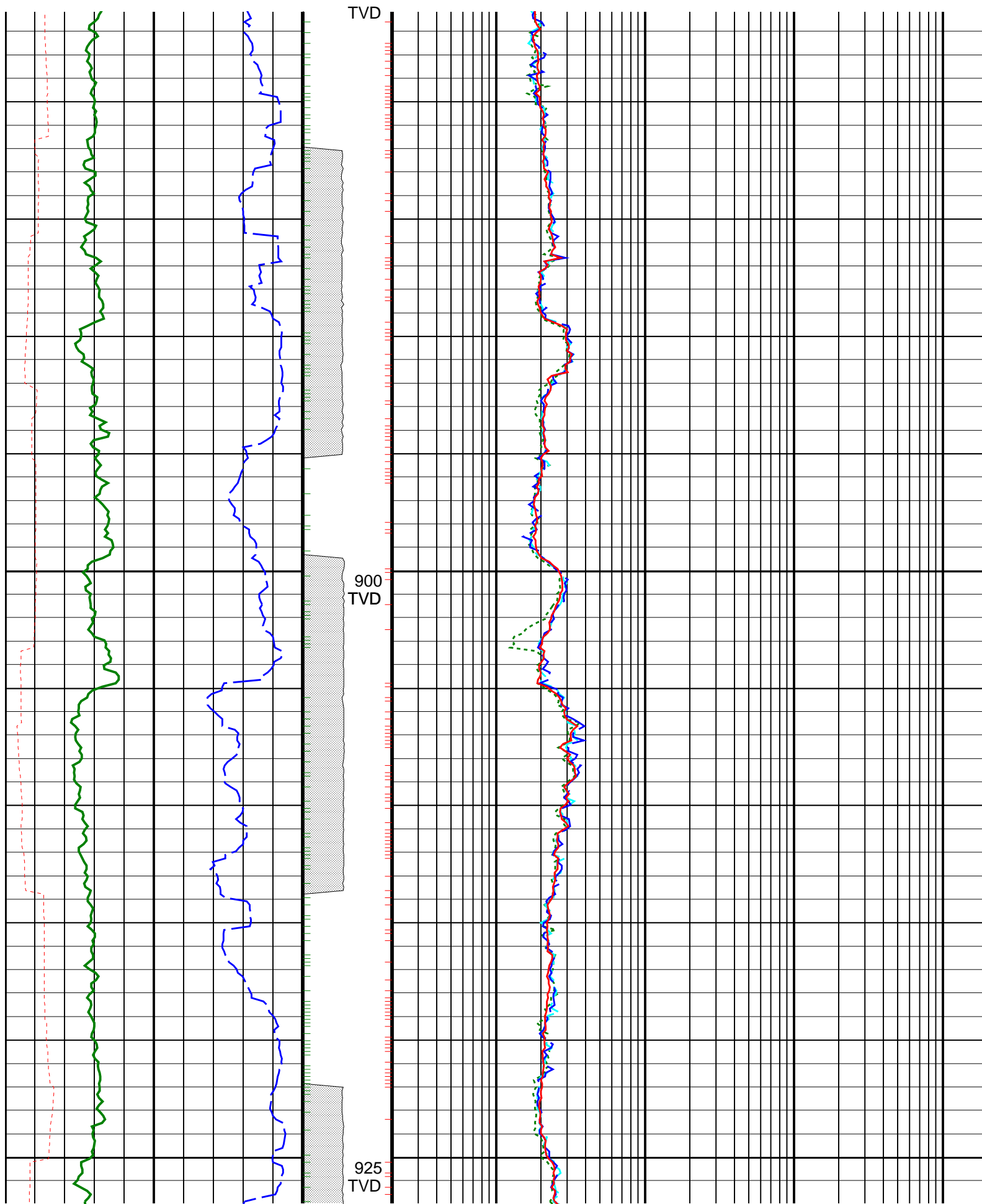


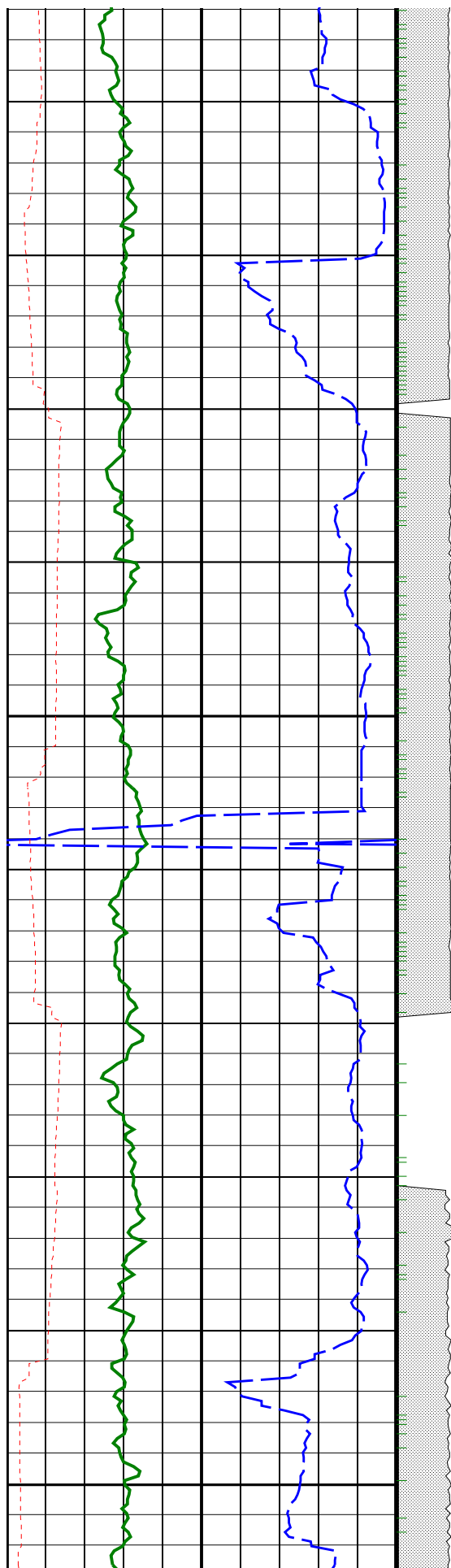
825
TVD

850
TVD

875
TVD

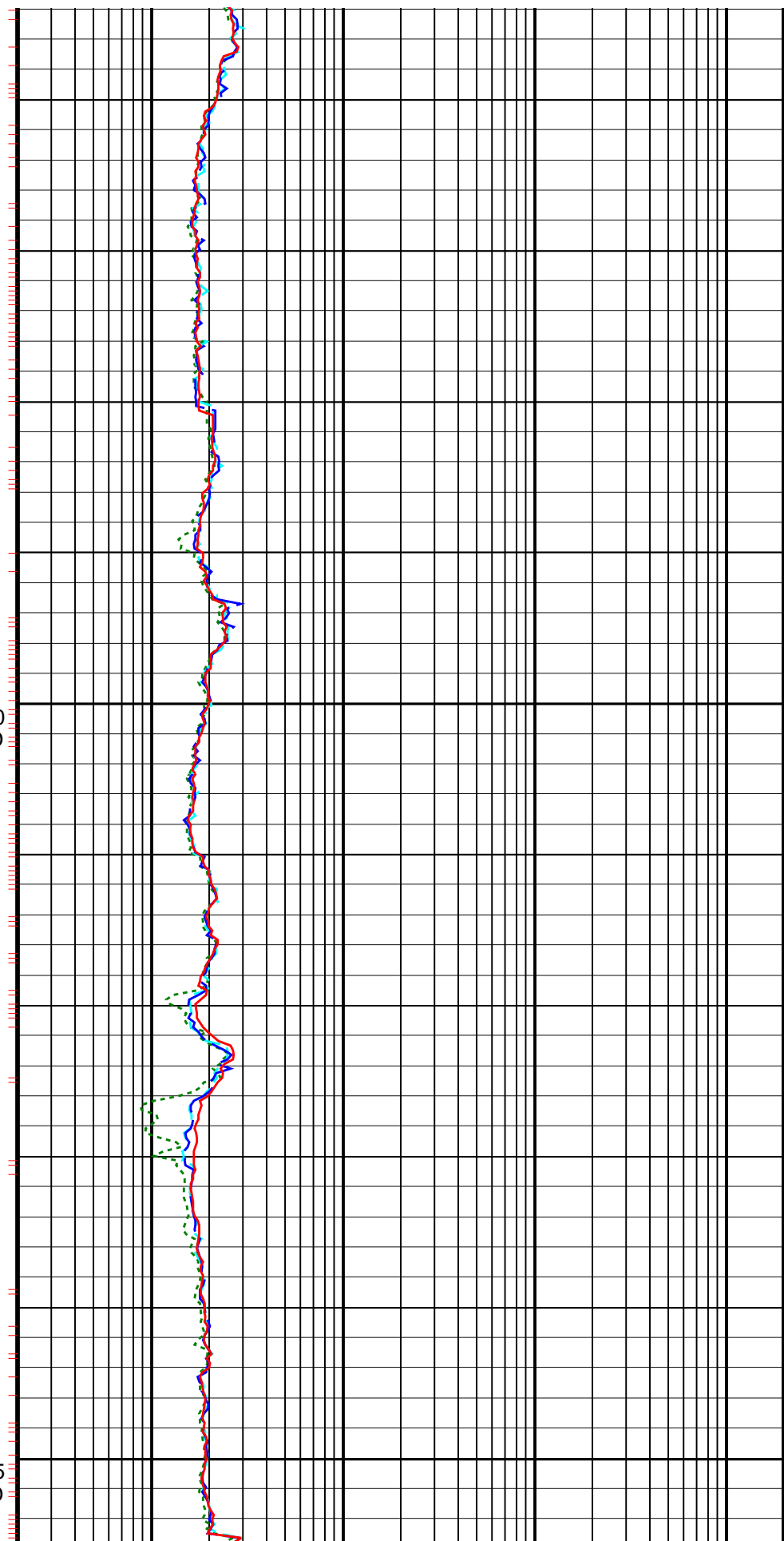


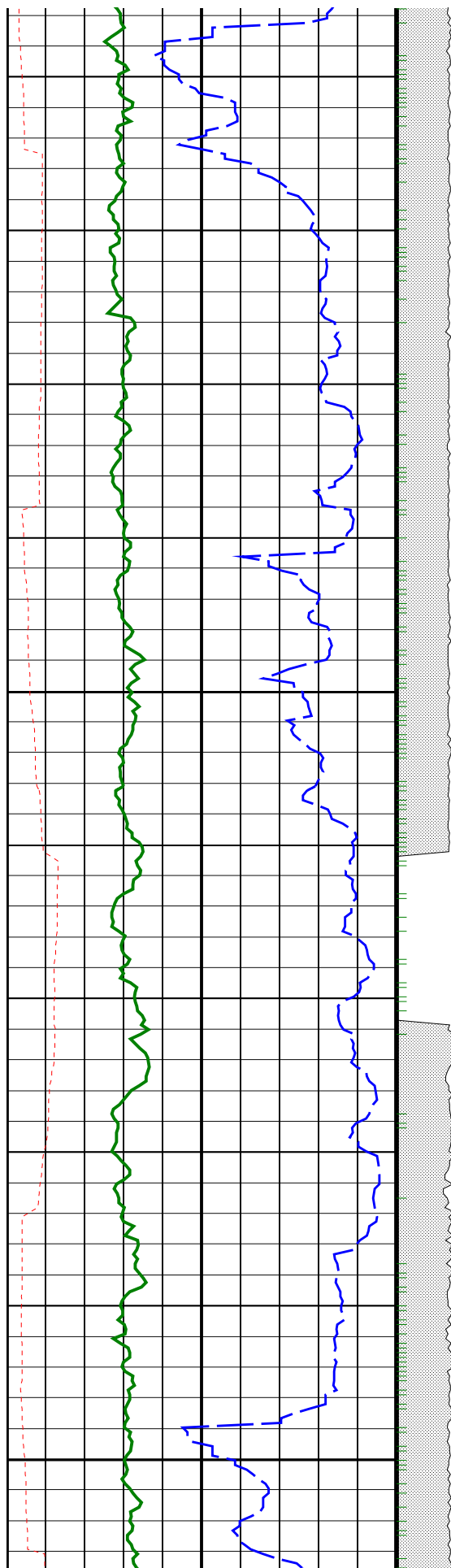




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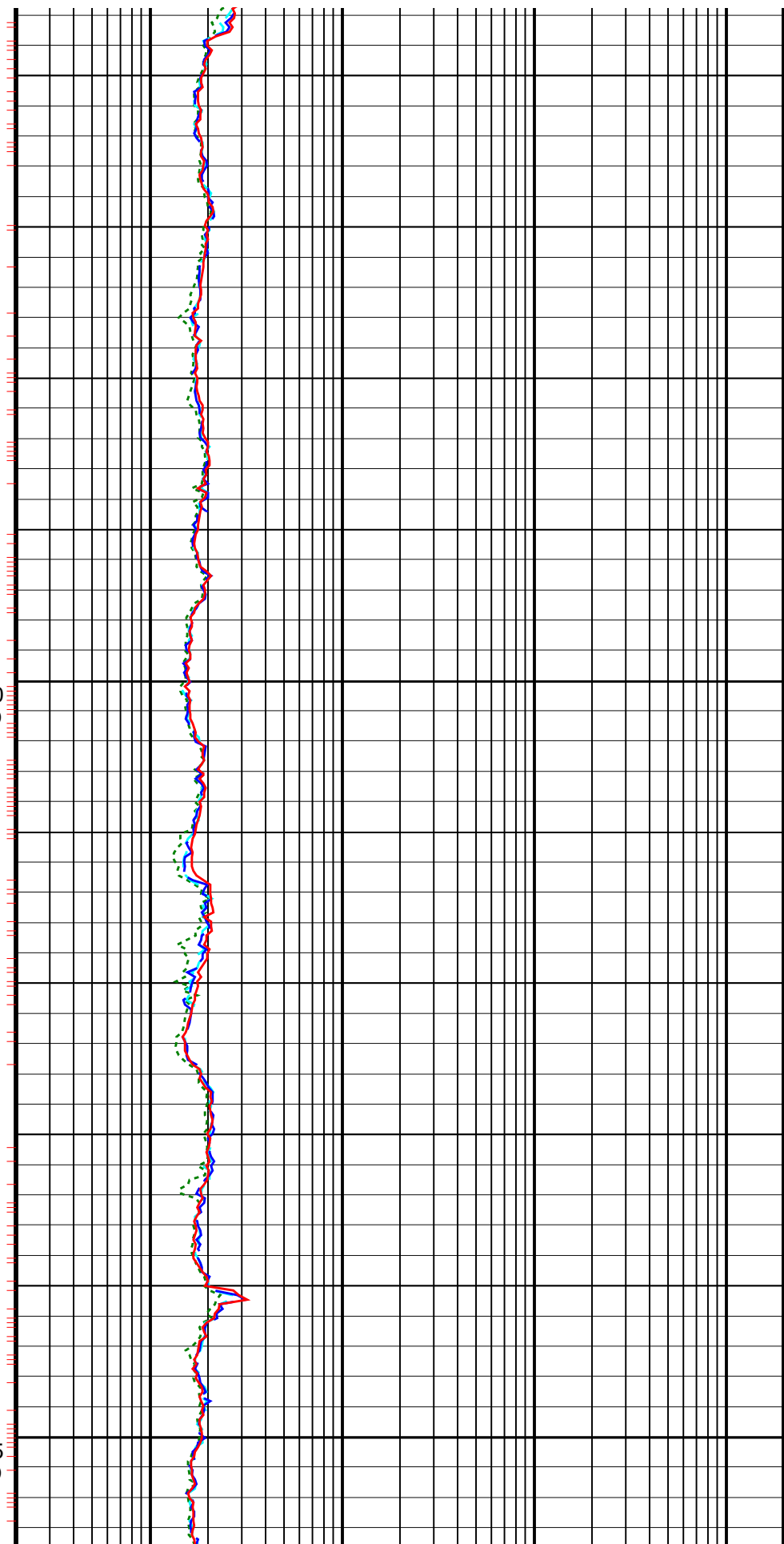
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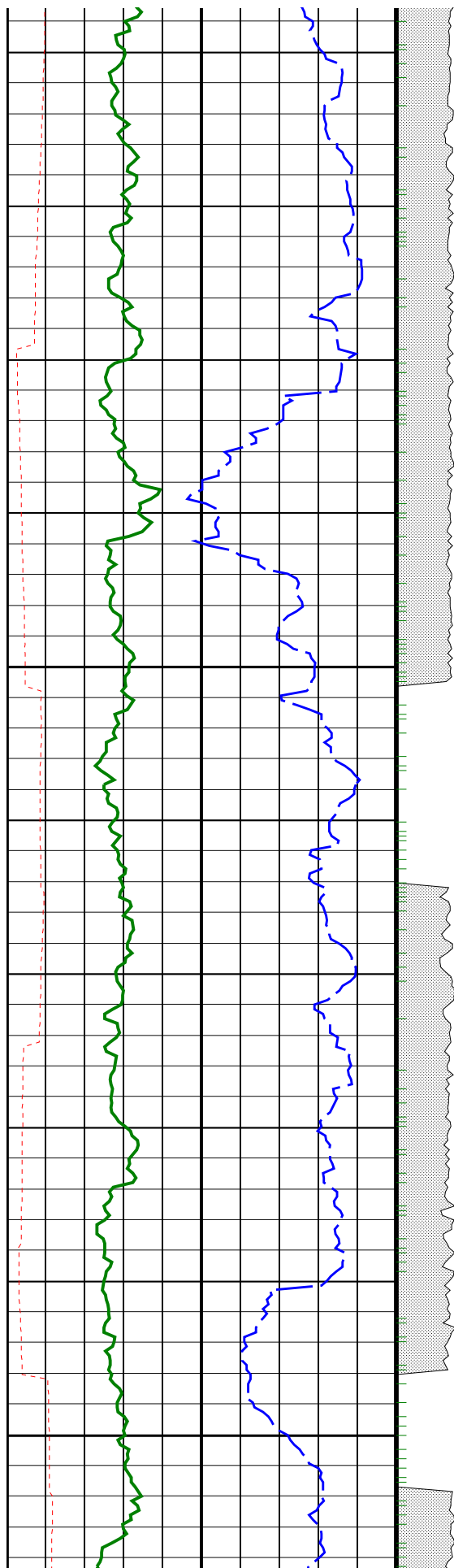




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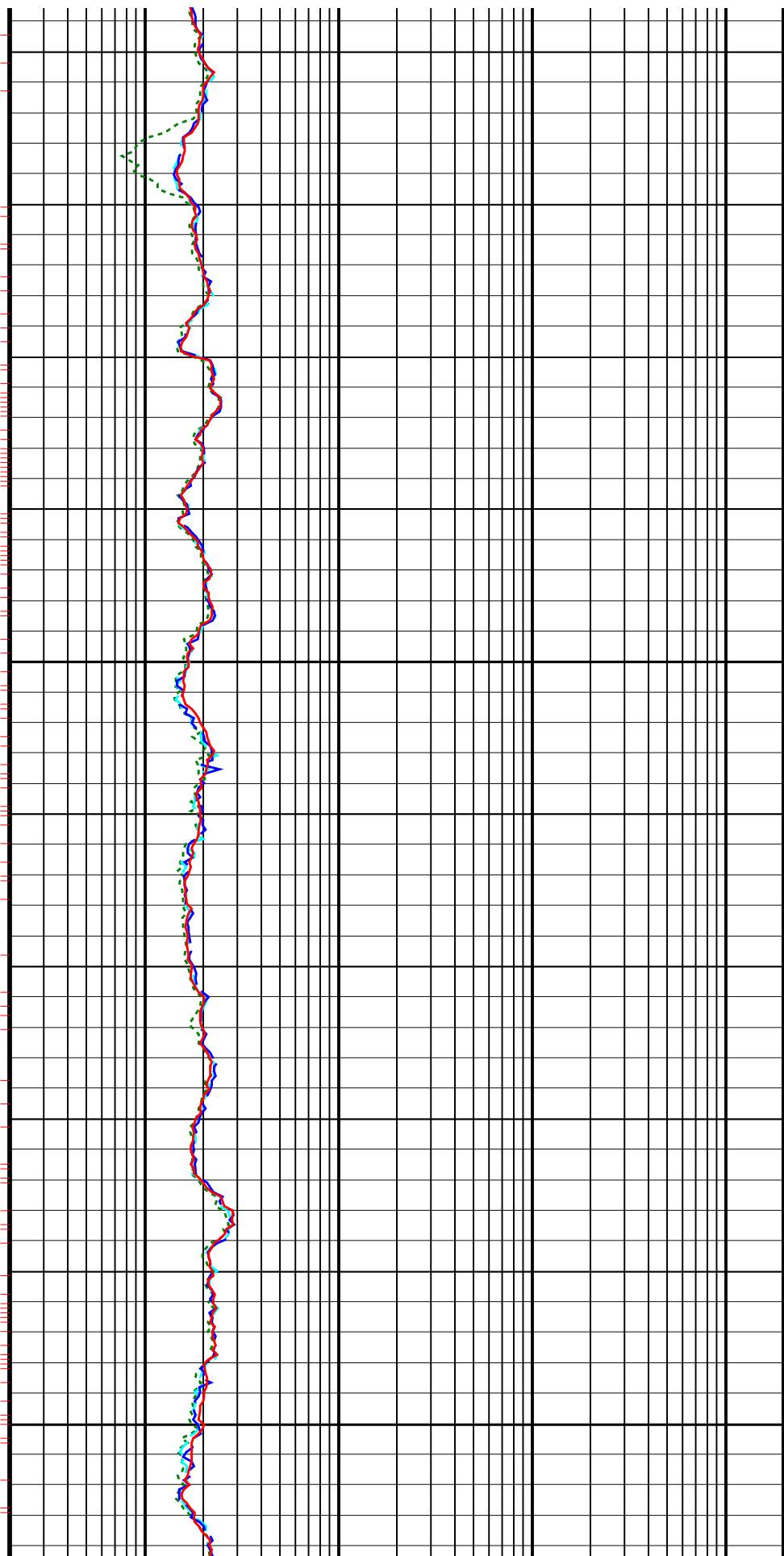
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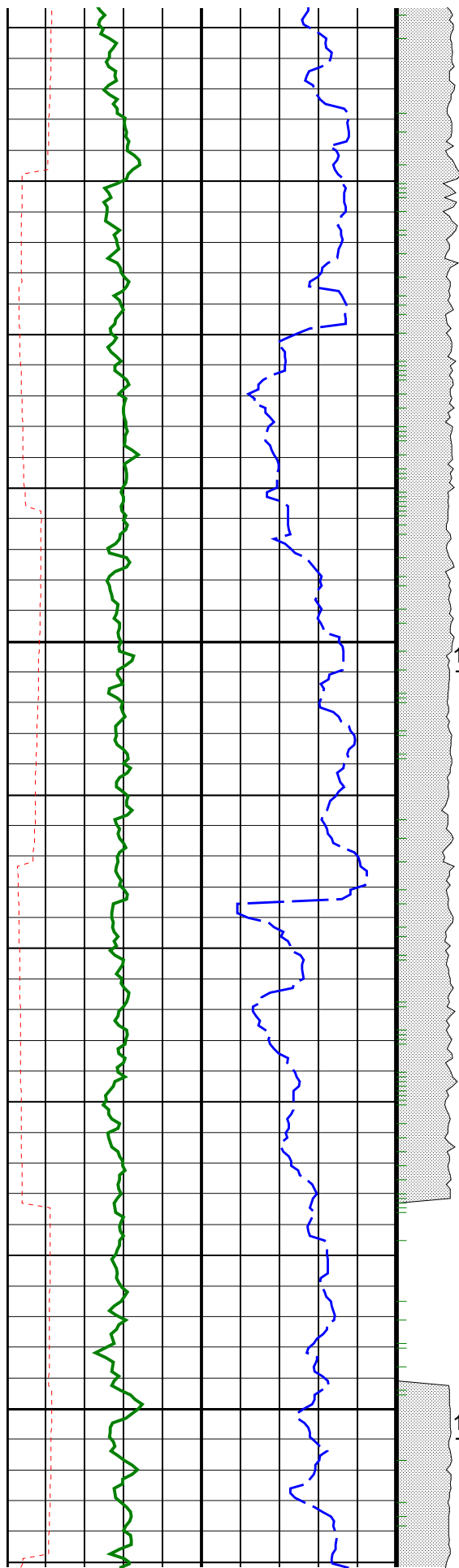




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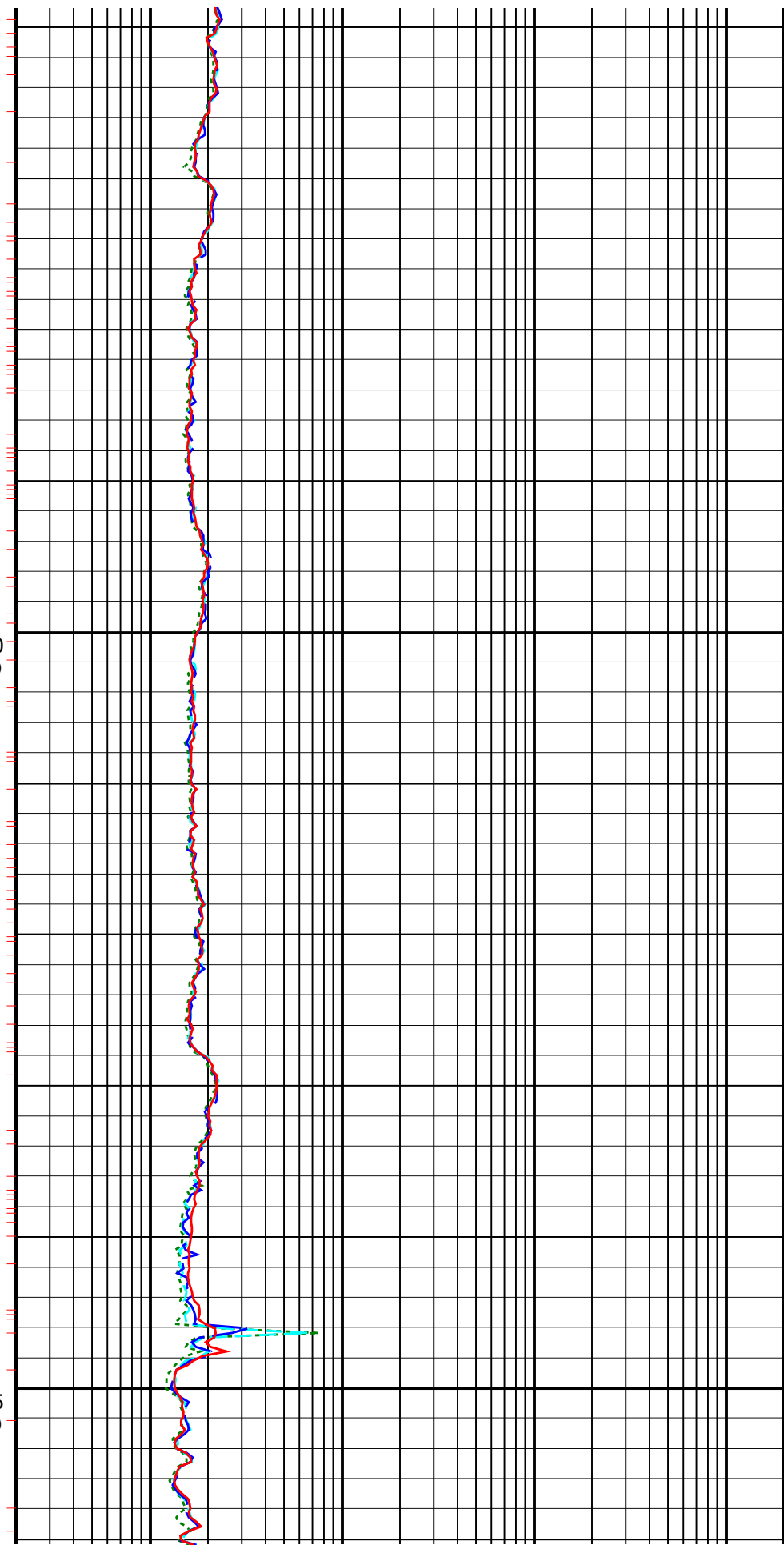
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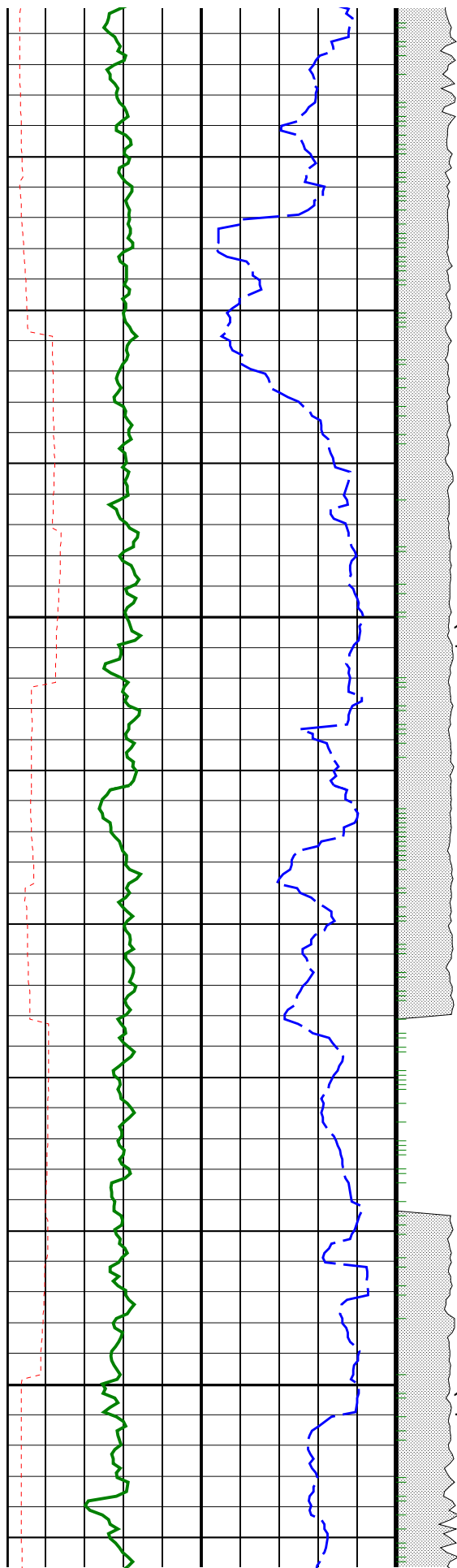




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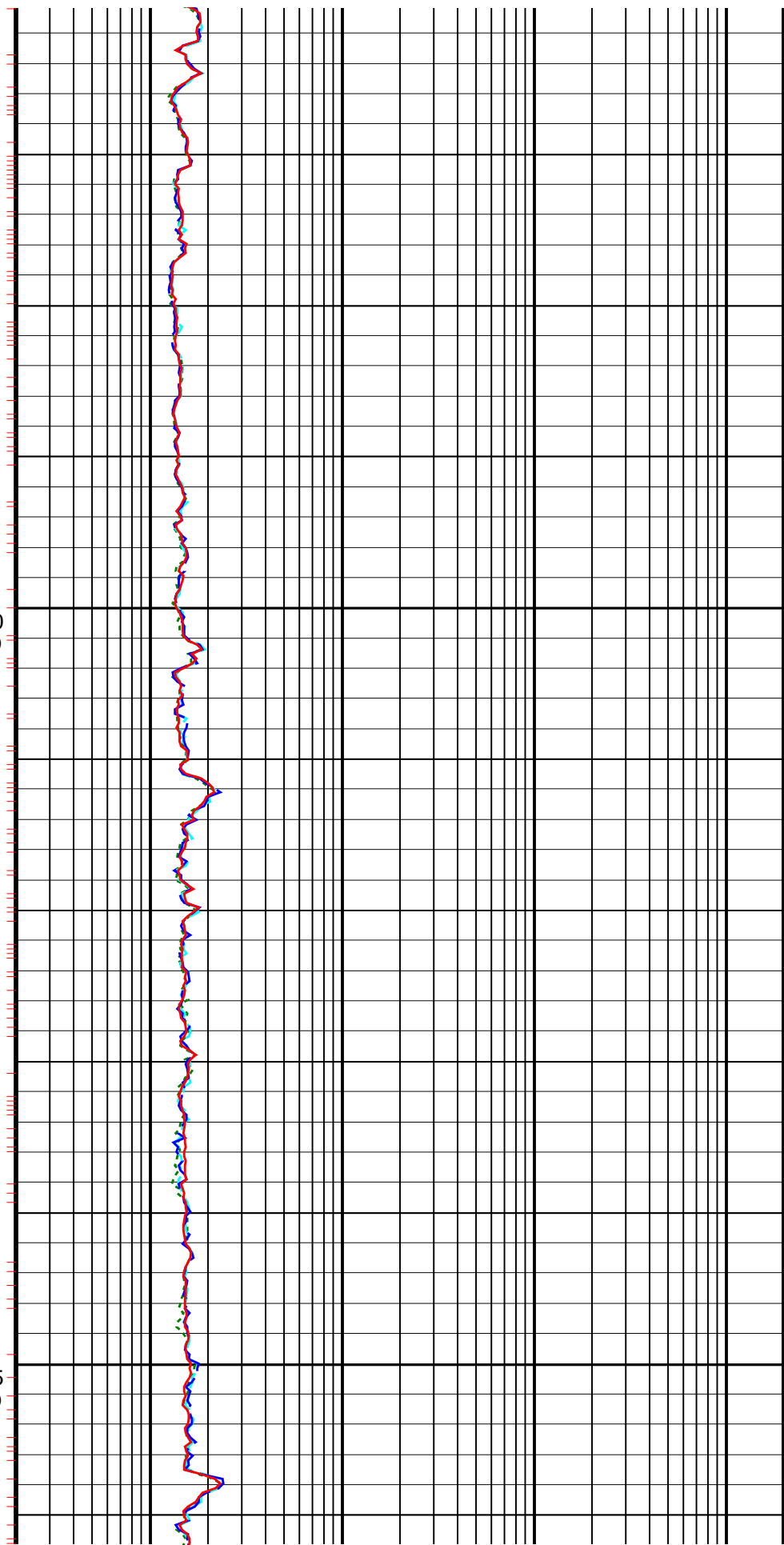
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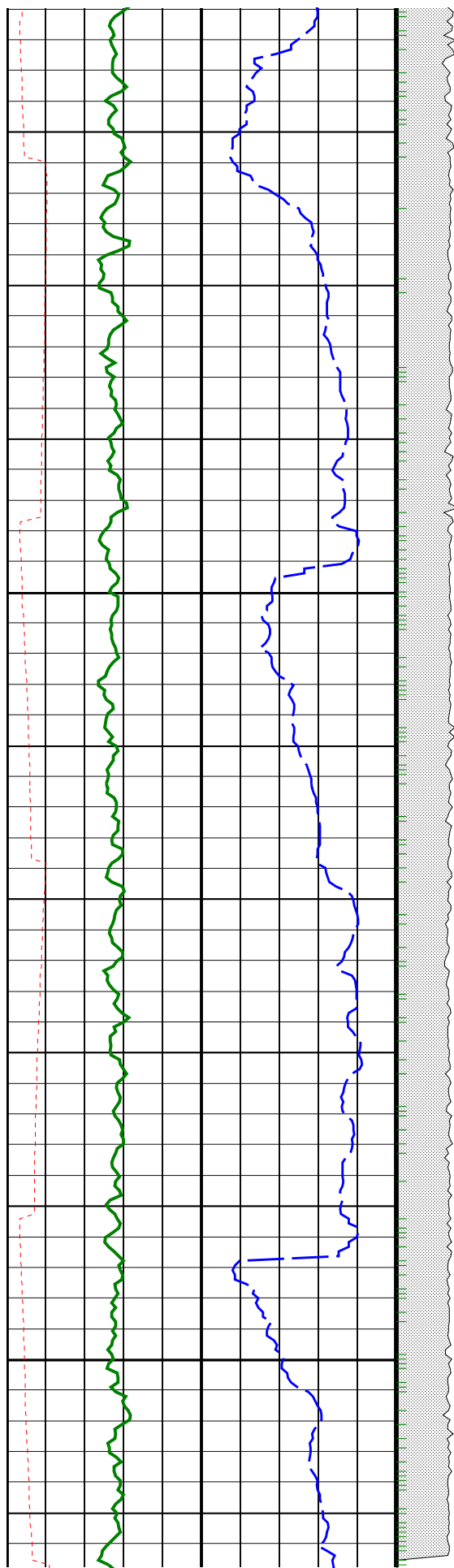




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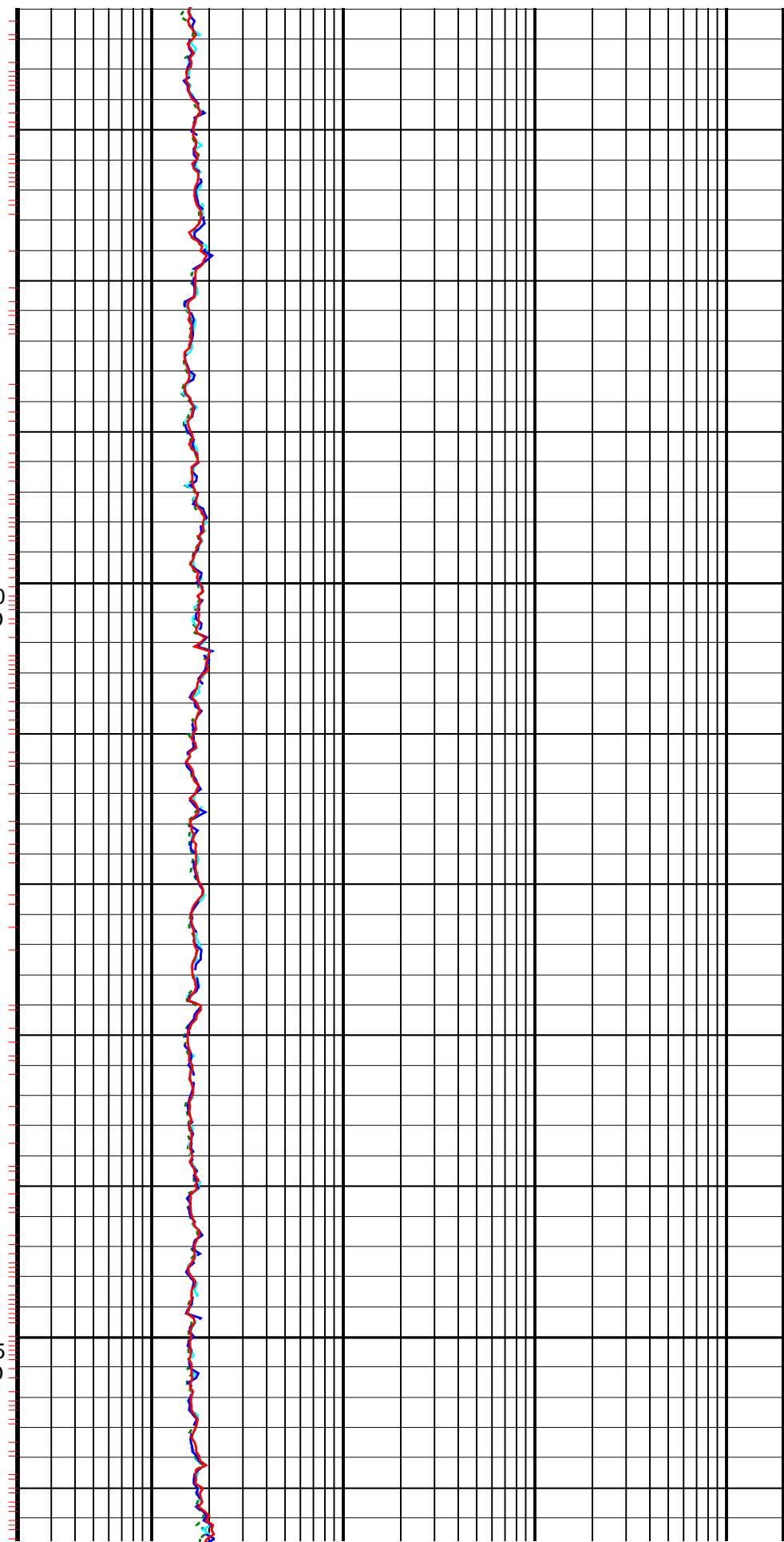
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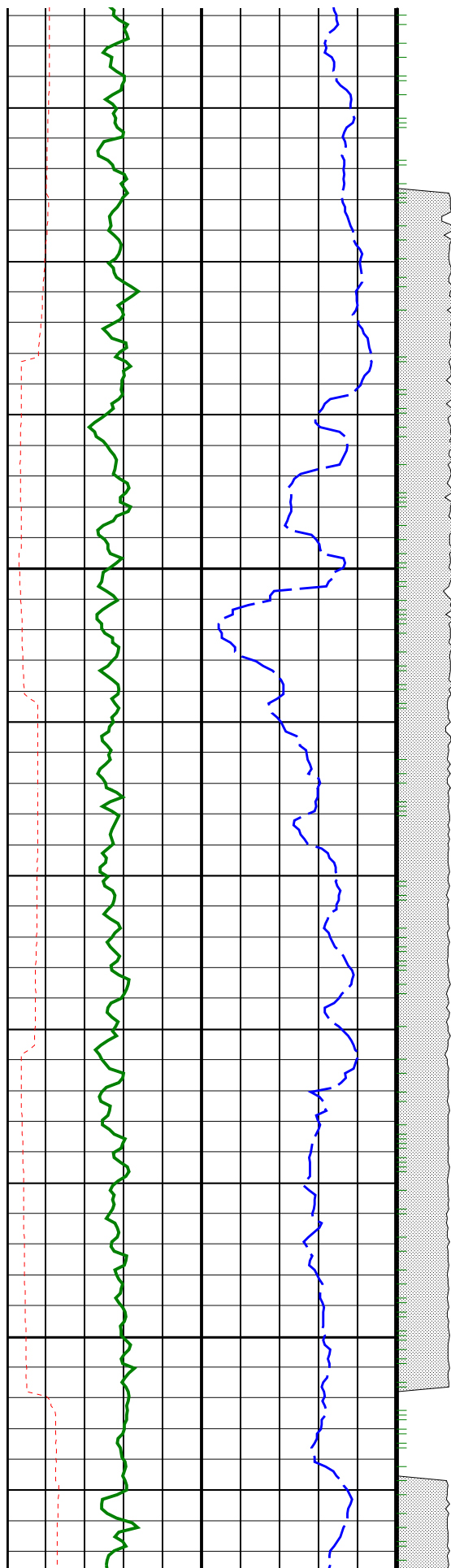




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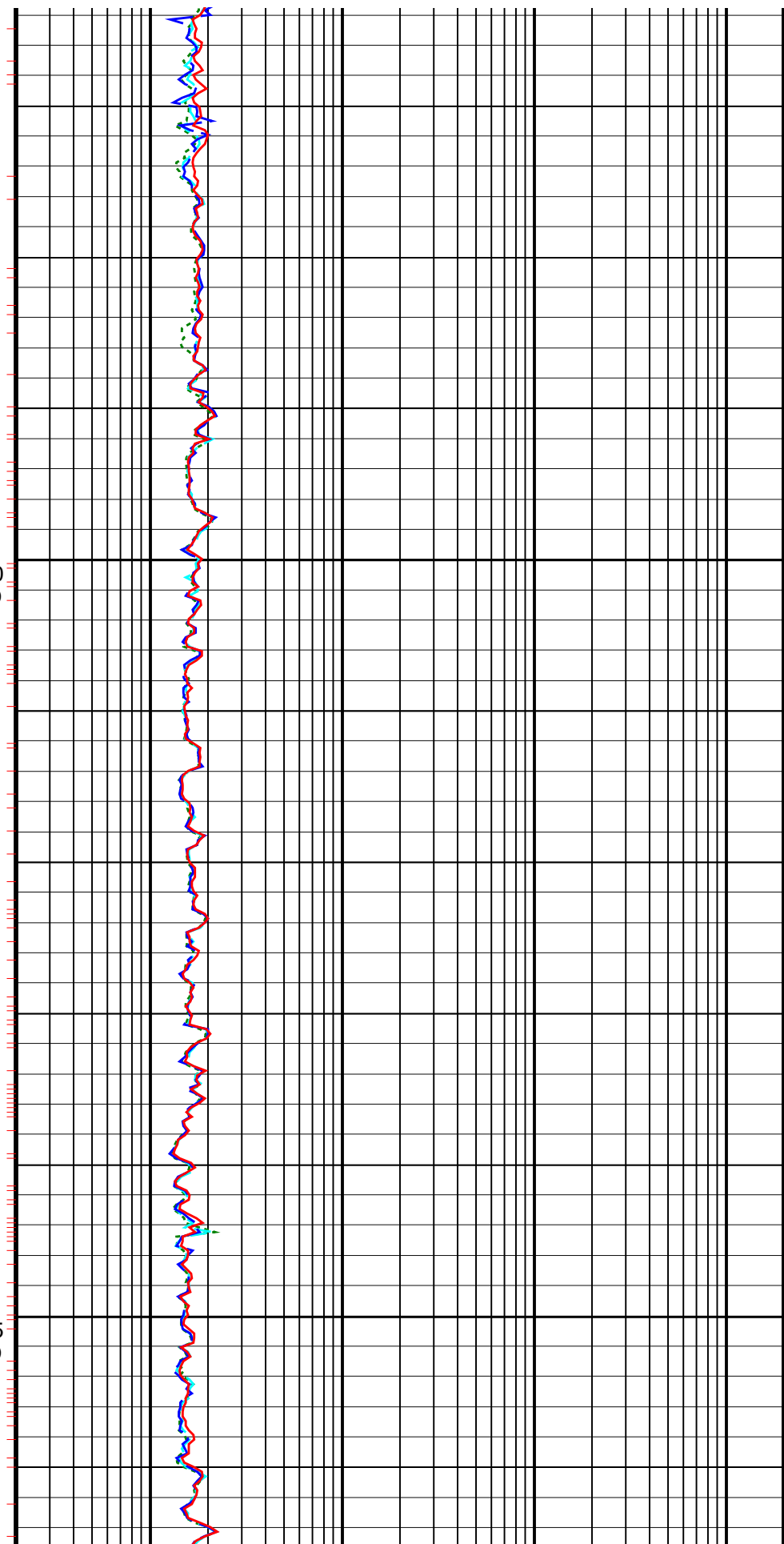
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TVD

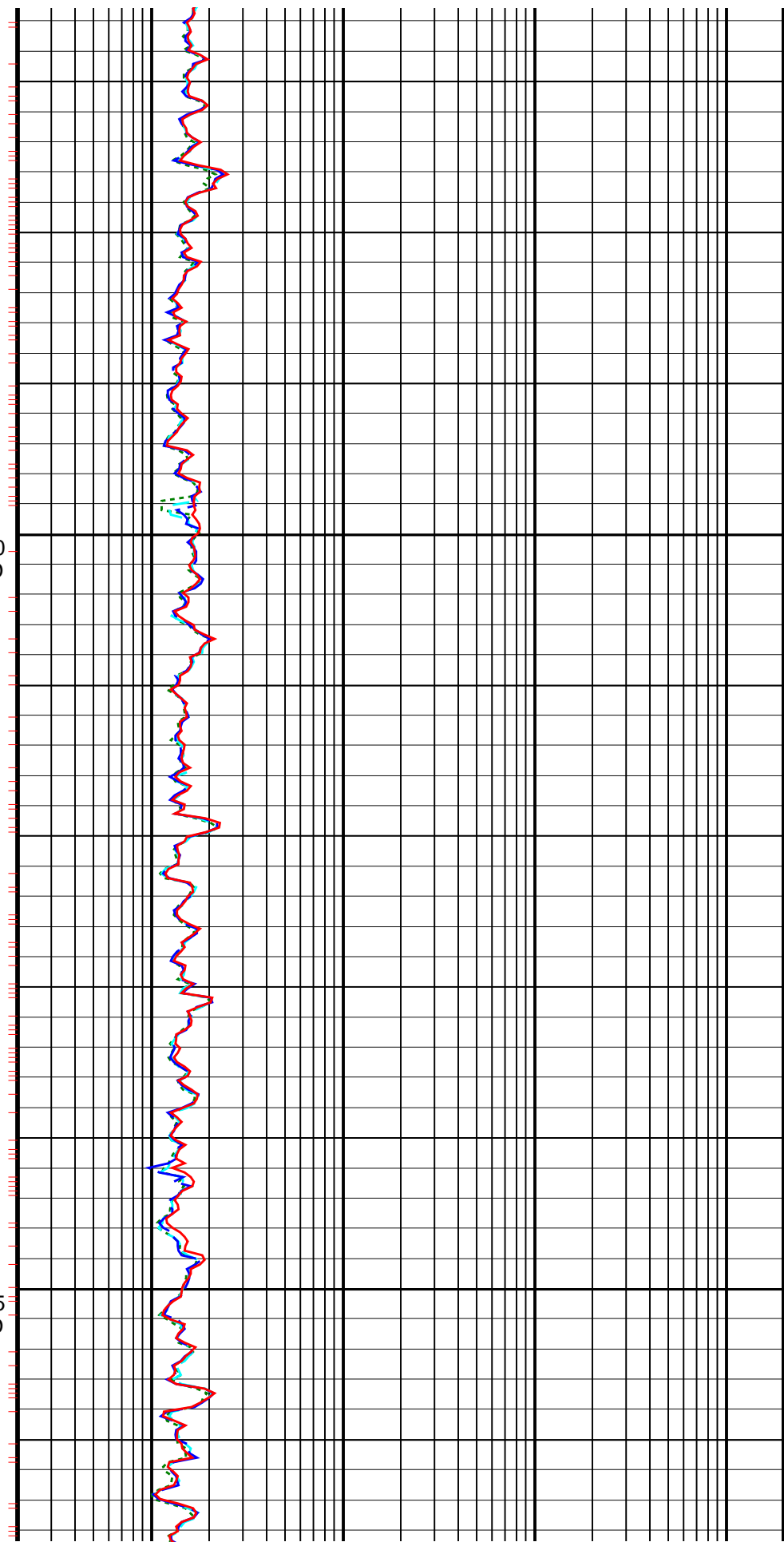
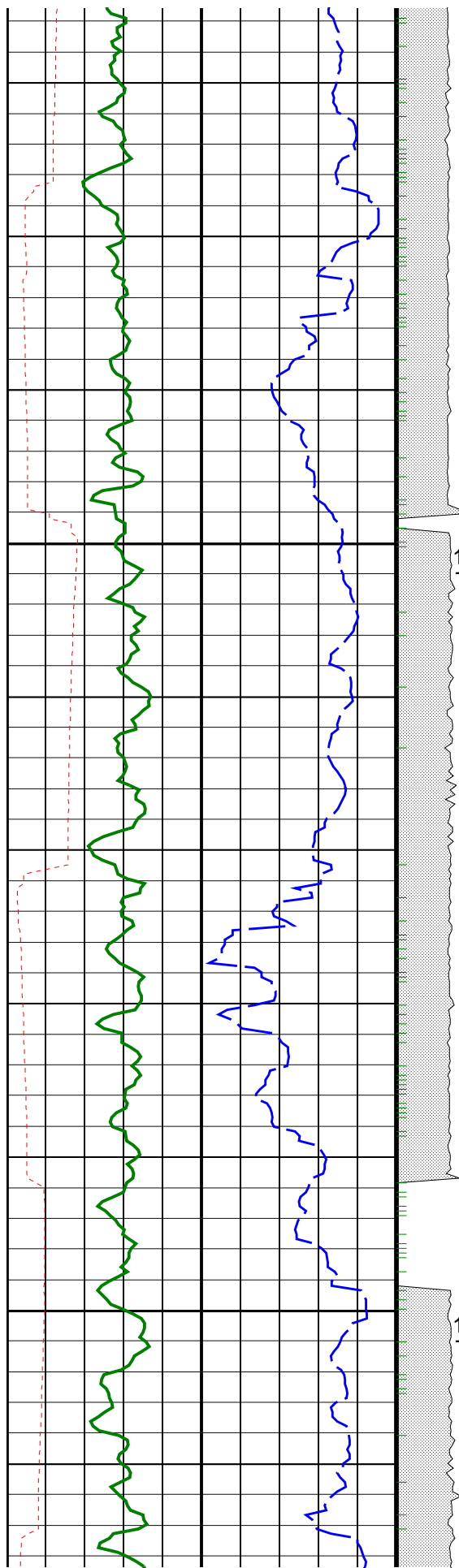


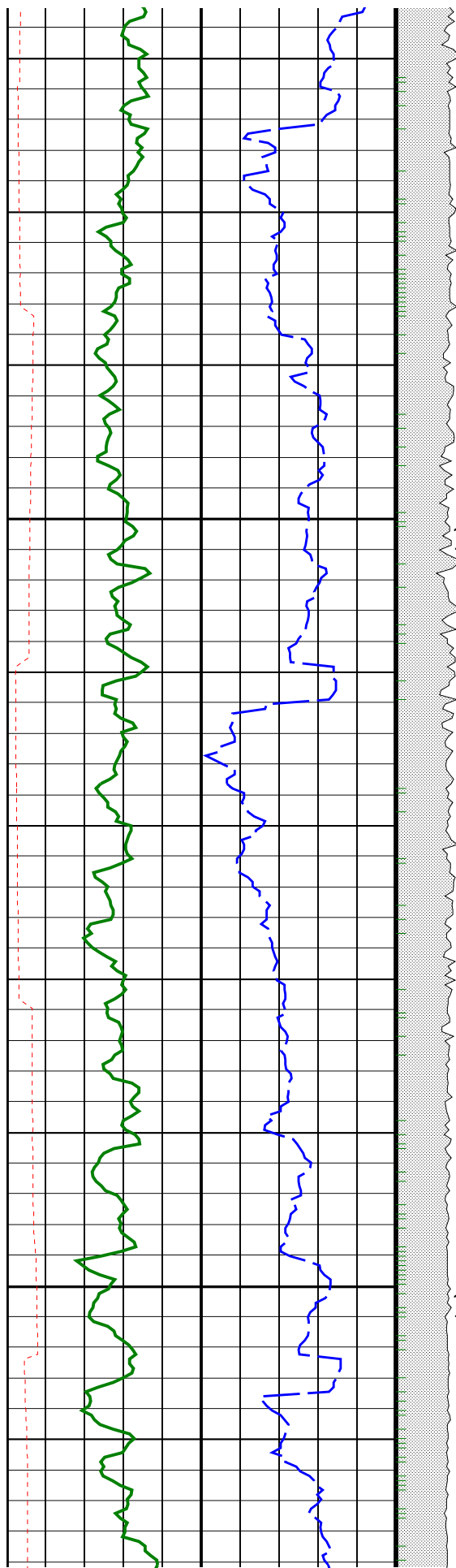


1250
TVD

1275
TVD

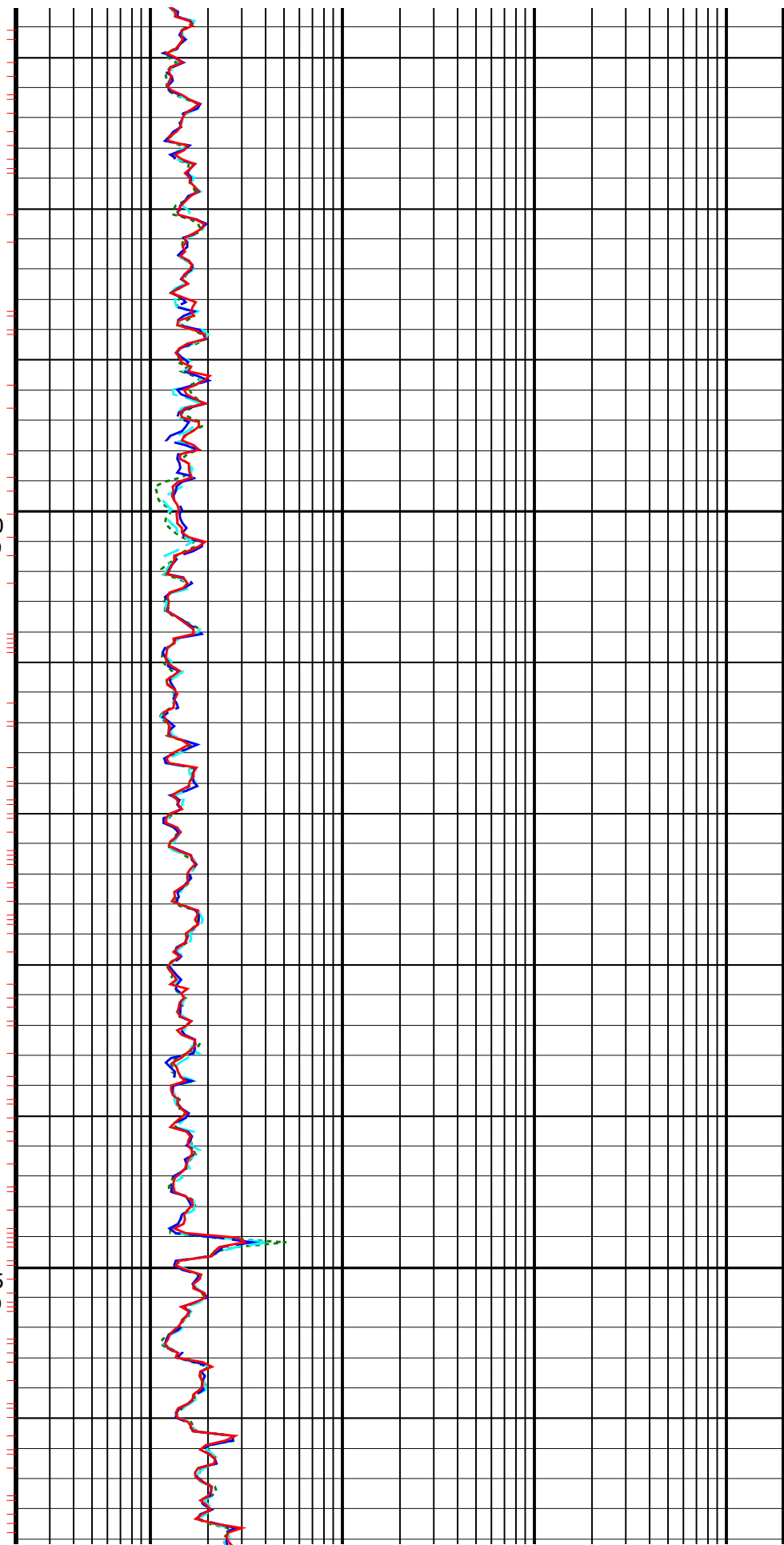


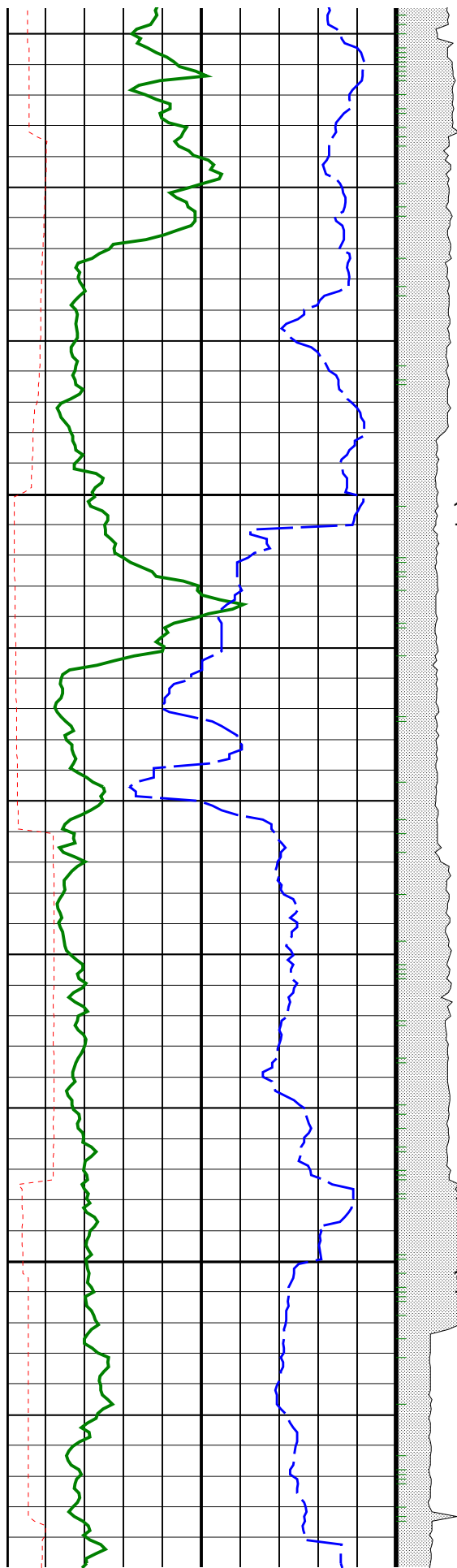




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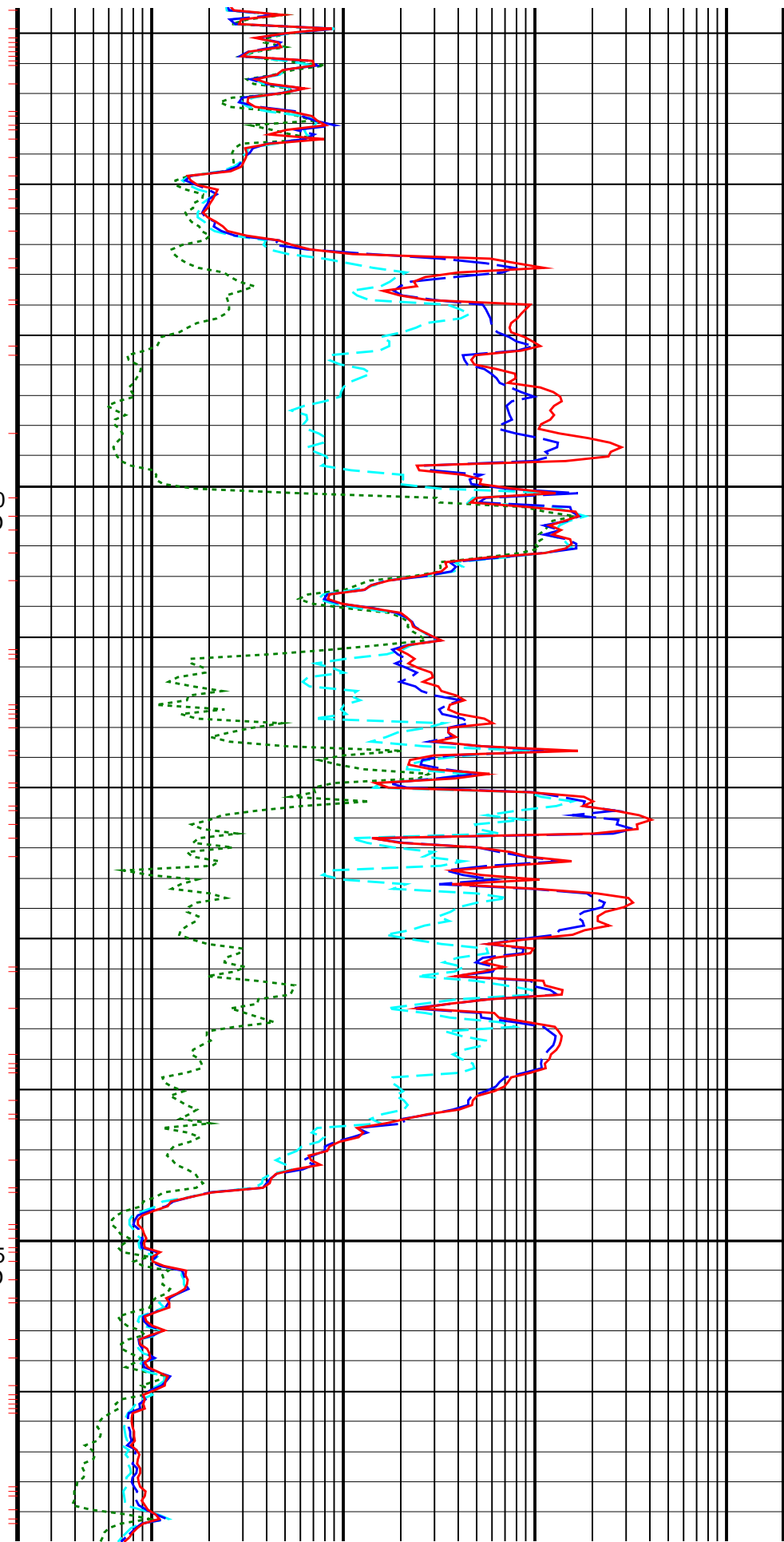
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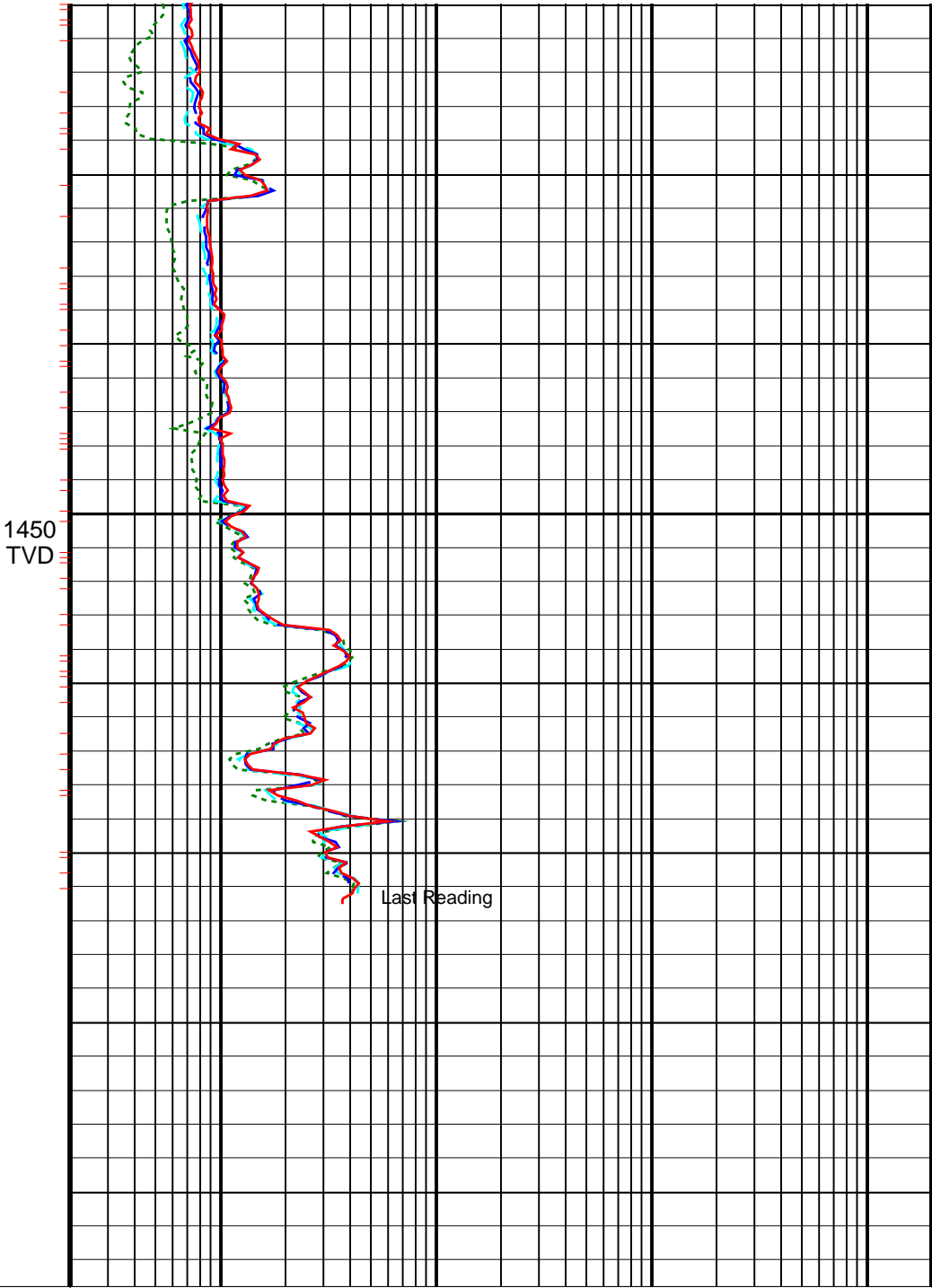
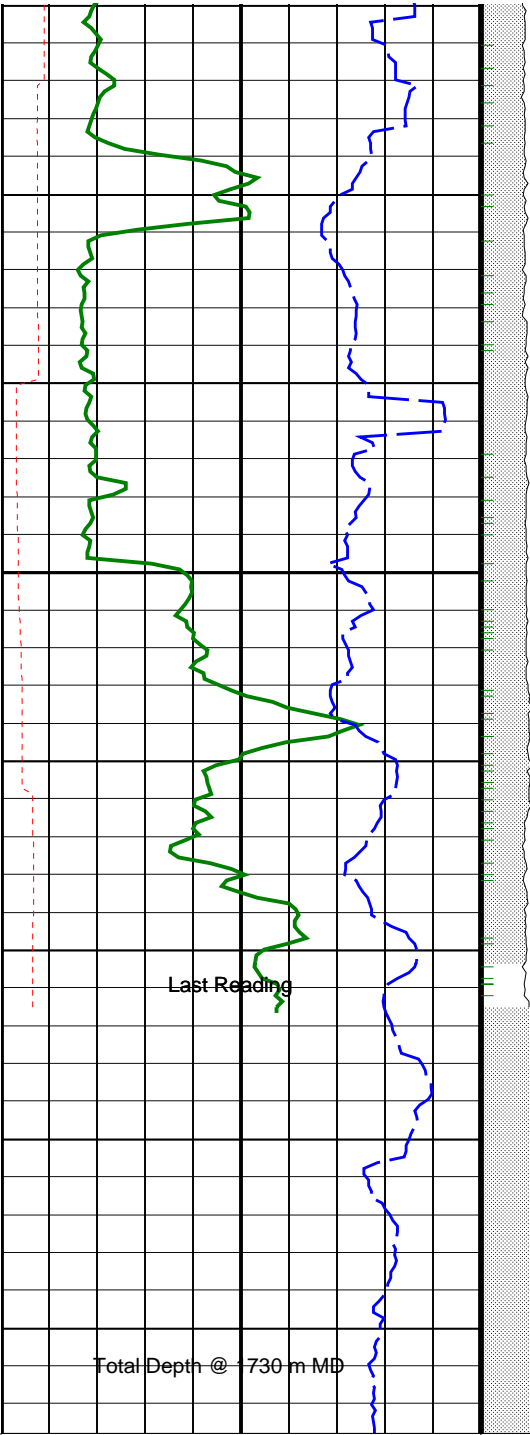




1400
TVD

1425
TVD





| | | |
|--|--------|-----|
| ROP: 5 Feet Average (ROP5_RM) | | |
| 200 | (M/HR) | 0 |
| RAB Gamma Ray (GR_RAB) | | |
| 0 | (GAPI) | 200 |
| Ring Resistivity Time After Bit (TAB_RAB_RING) | | |
| 0 | (HR) | 10 |

RAB
Rotational
Speed
(RPM_RAB)
(RPM)
0 200

| | | |
|-------------------------------------|--------|------|
| Shallow Button Resistivity (RES_BS) | | |
| 0.2 | (OHMM) | 2000 |
| Medium Button Resistivity (RES_BM) | | |
| 0.2 | (OHMM) | 2000 |
| Deep Button Resistivity (RES_BD) | | |
| 0.2 | (OHMM) | 2000 |
| Ring Resistivity (RES_RING) | | |
| 0.2 | (OHMM) | 2000 |

PIP SUMMARY

└ Gamma Ray Samples
└ Ring Samples

IDEAL Version: ID6_1C_10
IDF

RAB id6_1c_10 MWD_10 id6_1c_10
ADN id6_1c_10

True Vertical Depth Log

6.75-in. Azimuthal Density Neutron / Equipment Identification




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

ADN6 – CA 289
NSR – M 161
GSR – J/Z 2125
8.25 – in.
Good

Master: 5-MAY-2002 12:34

6.75-in. Azimuthal Density Neutron Calibration

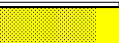


Density: Magnesium Block

| Phase | LS window 3 – Mg CPS | Value | Phase | SS window 1 – Mg CPS | Value | Phase | SS window 3 – Mg CPS | Value |
|--------|---|-------|--------|---|-------|--------|---|-------|
| Master |  | 1304 | Master |  | 3005 | Master |  | 7415 |
| | 250.0 (Minimum) 4125 (Nominal) 8000 (Maximum) | | | 700.0 (Minimum) 9350 (Nominal) 18000 (Maximum) | | | 2500 (Minimum) 23750 (Nominal) 45000 (Maximum) | |

Master: 5-MAY-2002 12:34

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 |  | 201.7 | Master |  | 1593 | Master |  | 4761 |
| | 50.00 (Minimum) 725.0 (Nominal) 1400 (Maximum) | | | 500.0 (Minimum) 4250 (Nominal) 8000 (Maximum) | | | 1500 (Minimum) 15750 (Nominal) 30000 (Maximum) | |

Master: 5-MAY-2002 12:34

6.75-in. Azimuthal Density Neutron Calibration


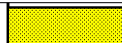
Density: Background

| Phase | LS window 3 – Background CPS | Value | Phase | SS window 1 – Background CPS | Value | Phase | SS window 3 – Background CPS | Value |
|--------|---|-------|--------|---|-------|--------|---|-------|
| Master |  | 52.44 | Master |  | 125.1 | Master |  | 546.0 |
| | 15.00 (Minimum) 82.50 (Nominal) 150.0 (Maximum) | | | 40.00 (Minimum) 220.0 (Nominal) 400.0 (Maximum) | | | 150.0 (Minimum) 825.0 (Nominal) 1500 (Maximum) | |

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6.75-in. Azimuthal Density Neutron Calibration



Density: Water Block Check













| Phase | Long spacing water density G/C3 | Value | Phase | Short spacing water density G/C3 | Value |
|--------|---|-------|--------|---|-------|
| Master |  | 1.035 | Master |  | 1.136 |
| | 1.011 (Minimum) 1.026 (Nominal) 1.041 (Maximum) | | | 1.093 (Minimum) 1.118 (Nominal) 1.143 (Maximum) | |

Master: 5-MAY-2002 12:34

6.75-in. Azimuthal Density Neutron Calibration

Neutron: Water Tank

| Phase | Far 1 tube 1 gain | Value | Phase | Far 1 tube 1 offset CPS | Value |
|--------|---|-------|--------|---|---------|
| Master |  | 1.123 | Master |  | -0.8040 |
| | 0.9000 (Minimum) 1.100 (Nominal) 1.300 (Maximum) | | | -1.200 (Minimum) -0.9000 (Nominal) -0.6000 (Maximum) | |

| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
|---------------------|---|--------------------|--------|---------------------|---|----------------------|---------|
| Phase | Far 1 tube 2 gain | | Value | Phase | Far 1 tube 2 offset CPS | | Value |
| Master |  | | 1.054 | Master |  | | -0.9360 |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
| Phase | Far 1 tube 3 gain | | Value | Phase | Far 1 tube 3 offset CPS | | Value |
| Master |  | | 1.093 | Master |  | | -0.6810 |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
| Phase | Far 2 tube 1 gain | | Value | Phase | Far 2 tube 1 offset CPS | | Value |
| Master |  | | 1.114 | Master |  | | -0.7390 |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
| Phase | Far 2 tube 2 gain | | Value | Phase | Far 2 tube 2 offset CPS | | Value |
| Master |  | | 0.9960 | Master |  | | -0.9070 |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
| Phase | Far 2 tube 3 gain | | Value | Phase | Far 2 tube 3 offset CPS | | Value |
| Master |  | | 1.117 | Master |  | | -0.7540 |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | -1.200 (Minimum) | -0.9000 (Nominal) | -0.6000 (Maximum) | |
| Phase | Near 1 tube 1 gain | | Value | | | | |
| Master |  | | 1.091 | | | | |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | | | | |
| Phase | Near 2 tube 1 gain | | Value | | | | |
| Master |  | | 1.070 | | | | |
| 0.9000 (Minimum) | 1.100 (Nominal) | 1.300 (Maximum) | | | | | |

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

Primary Equipment:

Tool Name and Serial Number

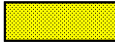











Calibration Status

RAB6 - CA

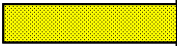
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Good

Master: 1-MAY-2002 20:48

| 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 |  | | | 0.9800 | Master |  | | | 0.9890 | Master |  | | | 0.9940 | | | |
| 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 |  | | | 0.9990 | Master |  | | | 0.9960 | Master |  | | | 1.001 | | | |
| 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 |  | | | 1.014 | Master |  | | | 1.020 | Master |  | | | 1.017 | | | |
| 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 |  | | | 1.024 | Master |  | | | 1.014 | Master |  | | | 1.020 | | | |
| 0.9750 | | | | 1.000 | 1.025 | | | | 0.9750 | | | | 1.000 | 1.025 | | | |

| | | | | | | | | |
|---------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|--------------------|
| 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: 1-MAY-2002 20:48 | | |
| 6.75-in. Resistivity At-the-Bit Calibration | | |
| Gamma Ray: Blanket | | |
| Phase | Gamma ray factor | Value |
| Master |  | 0.9060 |
| 0.7500 (Minimum) | 1.000 (Nominal) | 1.250 (Maximum) |

ANADRILL
SCHLUMBERGER

Survey report 21-May-2002 22:45:56 Page 1 of 3

Client.....: ESSO AUSTRALIA LTD
Field.....: TUNA

Well.....: WTN W-38 A Spud date.....: 17-MAY-02
API number.....: Last survey date.....: 21-May-02
Engineer.....: JC/LB/JW Total accepted surveys...: 36
MD of first survey.....: 727.80 m
MD of last survey.....: 1730.00 m

RIG:.....: ISDL 453
STATE:.....: Victoria

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

----- Depth reference -----
Permanent datum.....: MEAN SEA LEVEL
Depth reference.....: DRILLER'S PIPE TALLY
GL above permanent.....: -60.26 m
KB above permanent.....: 34.70 m
DF above permanent.....: 34.70 m

----- Vertical section origin-----
Latitude (+N/S-).....: 0.00 m
Departure (+E/W-).....: 0.00 m

----- Platform reference point-----
Latitude (+N/S-).....: -3.61 m
Departure (+E/W-).....: 47.09 m

Azimuth from rotary table to target: 265.95 degrees

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2001
Magnetic date.....: 20-Apr-2002
Magnetic field strength..: 1200.71 HCNT
Magnetic dec (+E/W-).....: 13.16 degrees
Magnetic dip.....: -68.71 degrees

----- MWD survey Reference Criteria -----
Reference G.....: 1000.02 mGal
Reference H.....: 1200.71 HCNT
Reference Dip.....: -68.71 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-) 6.00 HCNT
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-).....: 13.16 degrees
Grid convergence (+E/W-)..: -0.86 degrees
Total az corr (+E/W-).....: 14.02 degrees
(Total az corr = magnetic dec - grid conv)
Sag applied (Y/N).....: No degree: 0.00

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ANADRILL SCHLUMBERGER Survey Report

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| 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/10m) | Srvy tool type | Tool qual type |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-----------------|---------------|---------------|----------------|----------------|
| 1 | 727.80 | 35.00 | 244.30 | 0.00 | 689.49 | 139.20 | -78.25 | -87.17 | 153.62 | 228.09 | 0.91 | TIP | - |
| 2 | 747.80 | 35.40 | 249.67 | 20.00 | 705.84 | 150.09 | -82.75 | -97.77 | 165.07 | 229.76 | 4.70 | MWD | 6-axis |
| 3 | 776.56 | 35.42 | 252.91 | 28.76 | 729.28 | 166.21 | -88.09 | -113.55 | 181.51 | 232.20 | 1.96 | MWD | 6-axis |
| 4 | 805.18 | 36.70 | 255.01 | 28.62 | 752.42 | 182.69 | -92.74 | -129.74 | 198.03 | 234.44 | 1.87 | MWD | 6-axis |
| 5 | 833.73 | 37.88 | 256.50 | 28.55 | 775.13 | 199.71 | -97.00 | -146.51 | 214.95 | 236.49 | 1.56 | MWD | 6-axis |
| 6 | 862.72 | 37.22 | 258.68 | 28.99 | 798.12 | 217.19 | -100.80 | -163.76 | 232.17 | 238.39 | 1.54 | MWD | 6-axis |
| 7 | 891.61 | 37.97 | 262.00 | 28.89 | 821.01 | 234.72 | -103.75 | -181.13 | 249.23 | 240.20 | 2.22 | MWD | 6-axis |
| 8 | 920.64 | 40.34 | 266.11 | 29.03 | 843.52 | 253.03 | -105.64 | -199.35 | 266.73 | 242.08 | 3.65 | MWD | 6-axis |
| 9 | 949.70 | 41.54 | 270.05 | 29.06 | 865.48 | 272.05 | -106.27 | -218.38 | 284.62 | 244.05 | 2.94 | MWD | 6-axis |
| 10 | 982.75 | 41.41 | 275.40 | 33.05 | 890.25 | 293.77 | -105.23 | -240.22 | 304.76 | 246.34 | 3.22 | MWD | 6-axis |
| 11 | 1007.05 | 40.30 | 275.57 | 24.30 | 908.63 | 309.45 | -103.71 | -256.05 | 319.14 | 247.95 | 1.38 | MWD | 6-axis |
| 12 | 1036.61 | 38.12 | 277.21 | 29.56 | 931.53 | 327.83 | -101.64 | -274.62 | 336.31 | 249.69 | 2.45 | MWD | 6-axis |
| 13 | 1065.48 | 37.34 | 277.36 | 28.87 | 954.36 | 345.15 | -99.40 | -292.14 | 352.49 | 251.21 | 0.82 | MWD | 6-axis |
| 14 | 1094.62 | 38.44 | 278.38 | 29.14 | 977.36 | 362.66 | -96.94 | -309.87 | 368.96 | 252.63 | 1.30 | MWD | 6-axis |
| 15 | 1123.67 | 37.67 | 278.14 | 29.05 | 1000.24 | 380.15 | -94.37 | -327.59 | 385.51 | 253.93 | 0.81 | MWD | 6-axis |
| 16 | 1152.47 | 38.48 | 276.87 | 28.80 | 1022.91 | 397.55 | -92.05 | -345.20 | 402.13 | 255.07 | 1.17 | MWD | 6-axis |
| 17 | 1181.11 | 37.84 | 277.20 | 28.64 | 1045.43 | 414.92 | -89.89 | -362.76 | 418.83 | 256.08 | 0.70 | MWD | 6-axis |
| 18 | 1209.97 | 38.87 | 275.31 | 28.86 | 1068.06 | 432.54 | -87.94 | -380.56 | 435.88 | 256.99 | 1.62 | MWD | 6-axis |
| 19 | 1238.78 | 39.15 | 273.45 | 28.81 | 1090.45 | 450.47 | -86.56 | -398.64 | 453.38 | 257.75 | 1.25 | MWD | 6-axis |
| 20 | 1267.65 | 38.34 | 273.70 | 28.87 | 1112.96 | 468.38 | -85.43 | -416.67 | 470.92 | 258.41 | 0.86 | MWD | 6-axis |
| 21 | 1296.56 | 39.55 | 273.44 | 28.91 | 1135.44 | 486.39 | -84.30 | -434.81 | 488.61 | 259.03 | 1.27 | MWD | 6-axis |
| 22 | 1325.42 | 39.04 | 273.18 | 28.86 | 1157.78 | 504.52 | -83.24 | -453.05 | 506.44 | 259.59 | 0.56 | MWD | 6-axis |
| 23 | 1354.65 | 38.66 | 275.86 | 29.23 | 1180.55 | 522.65 | -81.80 | -471.33 | 524.28 | 260.15 | 1.77 | MWD | 6-axis |
| 24 | 1383.79 | 38.34 | 275.89 | 29.14 | 1203.35 | 540.52 | -79.94 | -489.37 | 541.87 | 260.72 | 0.33 | MWD | 6-axis |
| 25 | 1412.68 | 37.73 | 275.91 | 28.89 | 1226.11 | 558.05 | -78.11 | -507.08 | 559.16 | 261.24 | 0.63 | MWD | 6-axis |
| 26 | 1442.31 | 39.21 | 275.11 | 29.63 | 1249.30 | 576.22 | -76.35 | -525.43 | 577.12 | 261.73 | 1.58 | MWD | 6-axis |
| 27 | 1470.96 | 39.08 | 274.64 | 28.56 | 1271.52 | 594.09 | -74.81 | -543.45 | 594.81 | 262.16 | 0.34 | MWD | 6-axis |
| 28 | 1499.43 | 39.03 | 275.70 | 28.56 | 1293.63 | 611.80 | -73.19 | -561.31 | 612.37 | 262.57 | 0.71 | MWD | 6-axis |

| | | | | | | | | | | | | | |
|----|---------|-------|--------|-------|---------|--------|--------|---------|--------|--------|------|-----|--------|
| 27 | 1470.96 | 39.08 | 274.64 | 28.56 | 1271.52 | 594.09 | -74.81 | -543.45 | 594.81 | 262.16 | 0.34 | MWD | 6-axis |
| 28 | 1499.43 | 39.03 | 275.70 | 28.56 | 1293.63 | 611.80 | -73.19 | -561.31 | 612.37 | 262.57 | 0.71 | MWD | 6-axis |
| 29 | 1528.19 | 38.85 | 275.61 | 28.76 | 1316.00 | 629.61 | -71.41 | -579.30 | 630.05 | 262.97 | 0.20 | MWD | 6-axis |
| 30 | 1557.23 | 39.69 | 275.78 | 29.04 | 1338.48 | 647.73 | -69.59 | -597.59 | 648.05 | 263.36 | 0.87 | MWD | 6-axis |

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 ANADRILL SCHLUMBERGER Survey Report

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| 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/ 10m) | Srvy tool type | Tool qual type |
|---------------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|----------------------|----------------------|----------------------|
| 31 | 1586.04 | 39.26 | 275.76 | 28.81 | 1360.72 | 665.78 | -67.74 | -615.81 | 666.00 | 263.72 | 0.45 | MWD | 6-axis |
| 32 | 1615.48 | 38.87 | 275.66 | 29.44 | 1383.58 | 684.06 | -65.90 | -634.27 | 684.21 | 264.07 | 0.40 | MWD | 6-axis |
| 33 | 1644.11 | 38.89 | 275.87 | 28.63 | 1405.87 | 701.77 | -64.09 | -652.15 | 701.86 | 264.39 | 0.14 | MWD | 6-axis |
| 34 | 1673.54 | 39.10 | 275.64 | 29.43 | 1428.74 | 720.02 | -62.24 | -670.58 | 720.06 | 265.00 | 0.23 | MWD | 6-axis |
| 35 | 1702.07 | 39.12 | 275.30 | 28.53 | 1450.88 | 737.77 | -60.52 | -688.50 | 737.78 | 265.00 | 0.23 | MWD | 6-axis |
| 36 | 1730.00 | 39.19 | 275.10 | 27.93 | 1472.54 | 755.17 | -58.93 | -706.06 | 755.18 | 265.23 | 0.17 | Bit | Projection |

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Company:

Esso Australia Ltd.

Well:

WTN W38A

Field:

Tuna

Rig:

ISDL 453

State:

Victoria

GeoVISION Resistivity
 1:200 True Vertical Depth
 Recorded Mode Log



IDEAL services from
 Anadrill