

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

| | | | | | | | | |
|---|---|-----------------------|---|--|---------------------|--------------------------|-----------------|-----------|
| Rig: ISDL 453 Field: Tuna Location: Bass Strait Well: WTN W38A Company: Esso Australia Ltd. | <div><div>Schlumberger</div><div>GeoVISION Service 1:500 Measured Depth Recorded Mode Log</div></div> | | | | | | | |
| | 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 | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 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 | | <div><div>IDEAL</div><div>services from</div><div>Anadrill</div></div> | | | | |
| 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: 6.9B03 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

IDEAL Version: ID6_1C_10

IDF

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

Format: W38A RM GeoVision

Vertical Scale: 1:500

Graphics File Created: 22-May-2002 23:24

Parameters

| 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 |
| 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 |

| | | | |
|----------|---|----------|-------|
| 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 prosity multiplier | 0.675 | |
| XPNM_RM | Cross plot neutron prosity multiplier | 0.325 | |

PIP SUMMARY

Density Samples ▸

Neutron Samples ▸

▸ RAB samples

Rate of Penetration, Averaged over Last
5ft (ROP5_RM)
200 (M/HR) 0

RAB Gamma Ray (GR_RAB)
0 (GAPI) 200

Horizontal Hole Diameter (HORD)
6 (IN) 16

Vertical Hole Diameter (VERD)
6 (IN) 16

Density Time After Bit (TAB_DEN)
0 (HR) 10

ADN
Rotational
Speed
(RPM_ADN)
(RPM)
0 200

Ring Resistivity (RES_RING)
0.2 (OHMM) 2000

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 2000

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 2000

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 2000

Gas Area
From ADN/ROBB/DEPTH to
ADN/TNPH/DEPTH

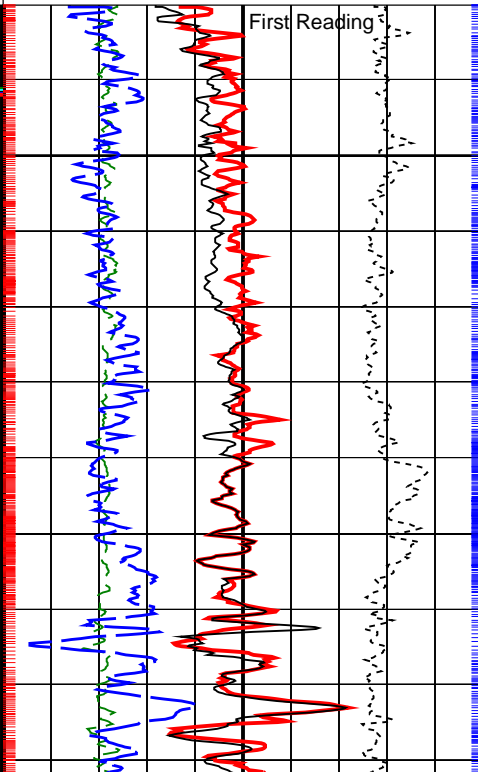
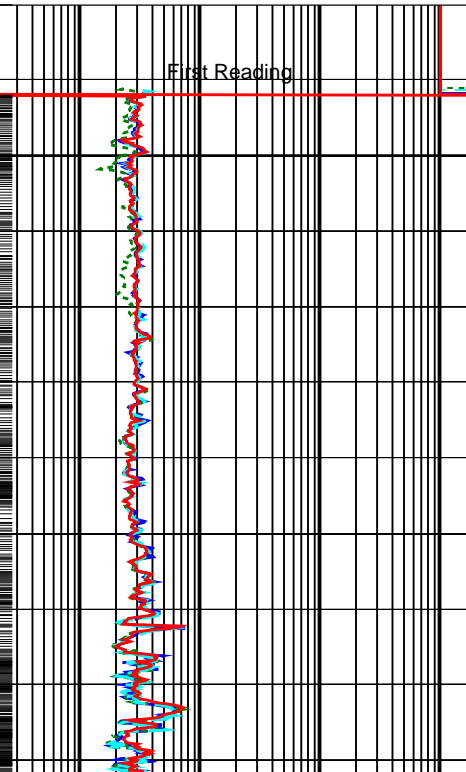
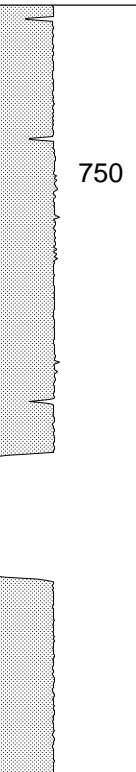
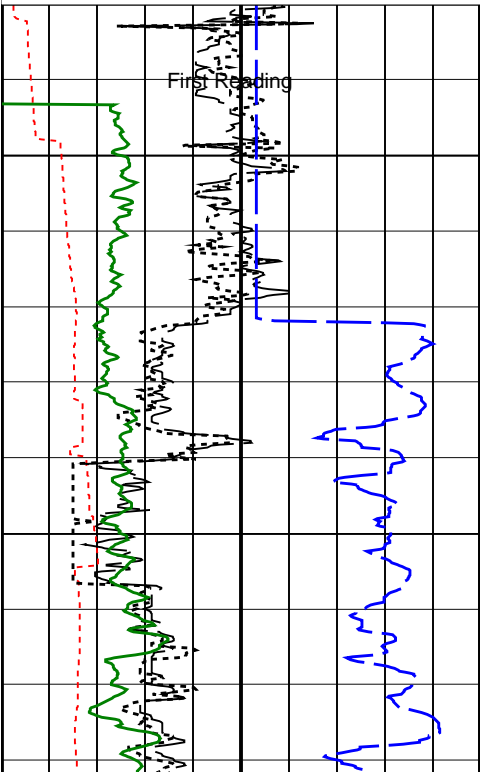
Bulk Density (RHOB)
1.85 (G/C3) 2.85

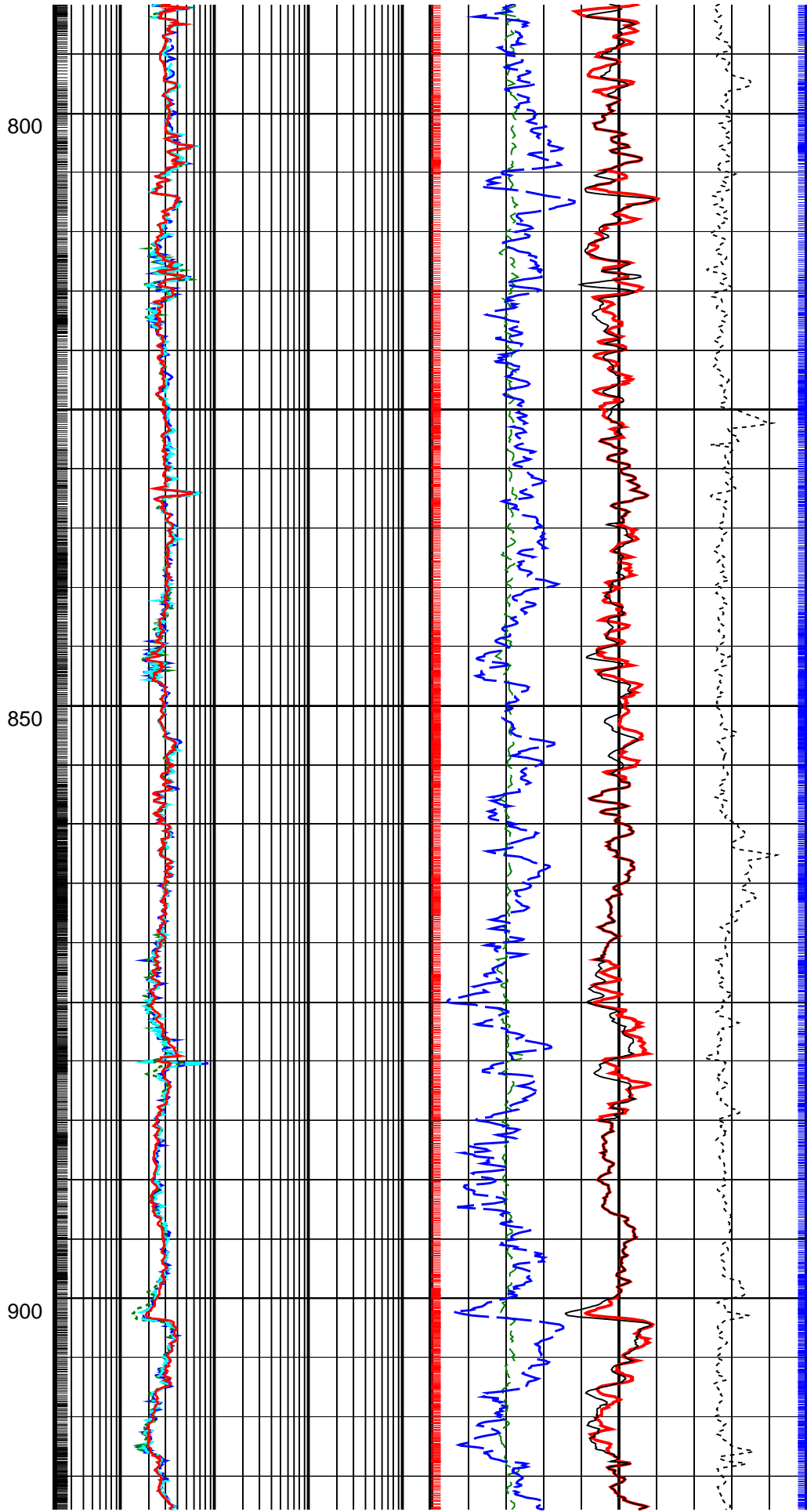
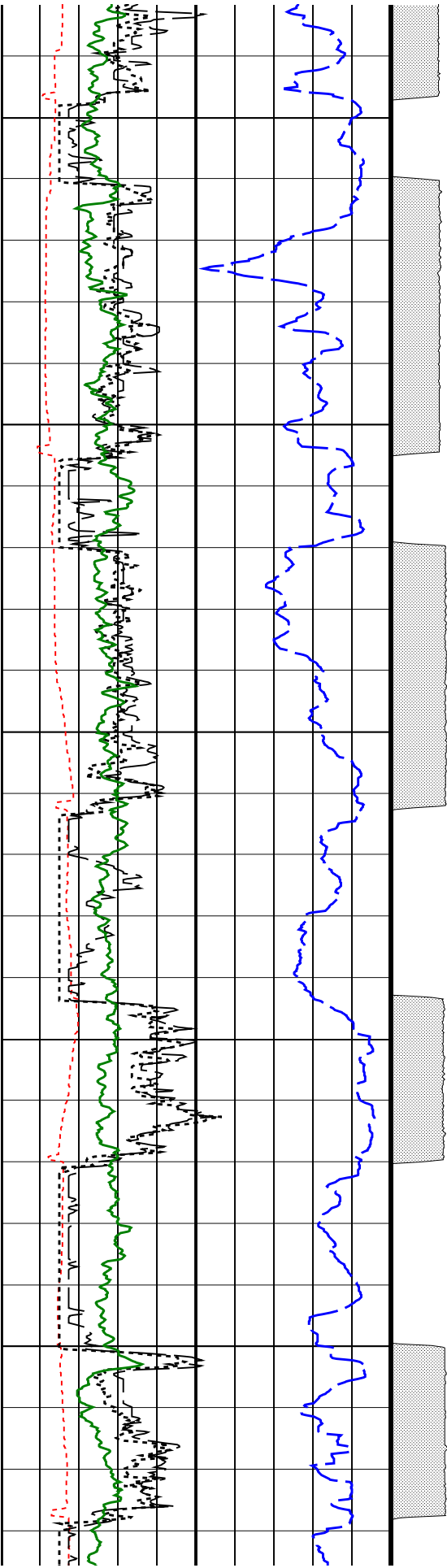
Thermal Neutron Porosity (TNPH)
45 (PU) -15

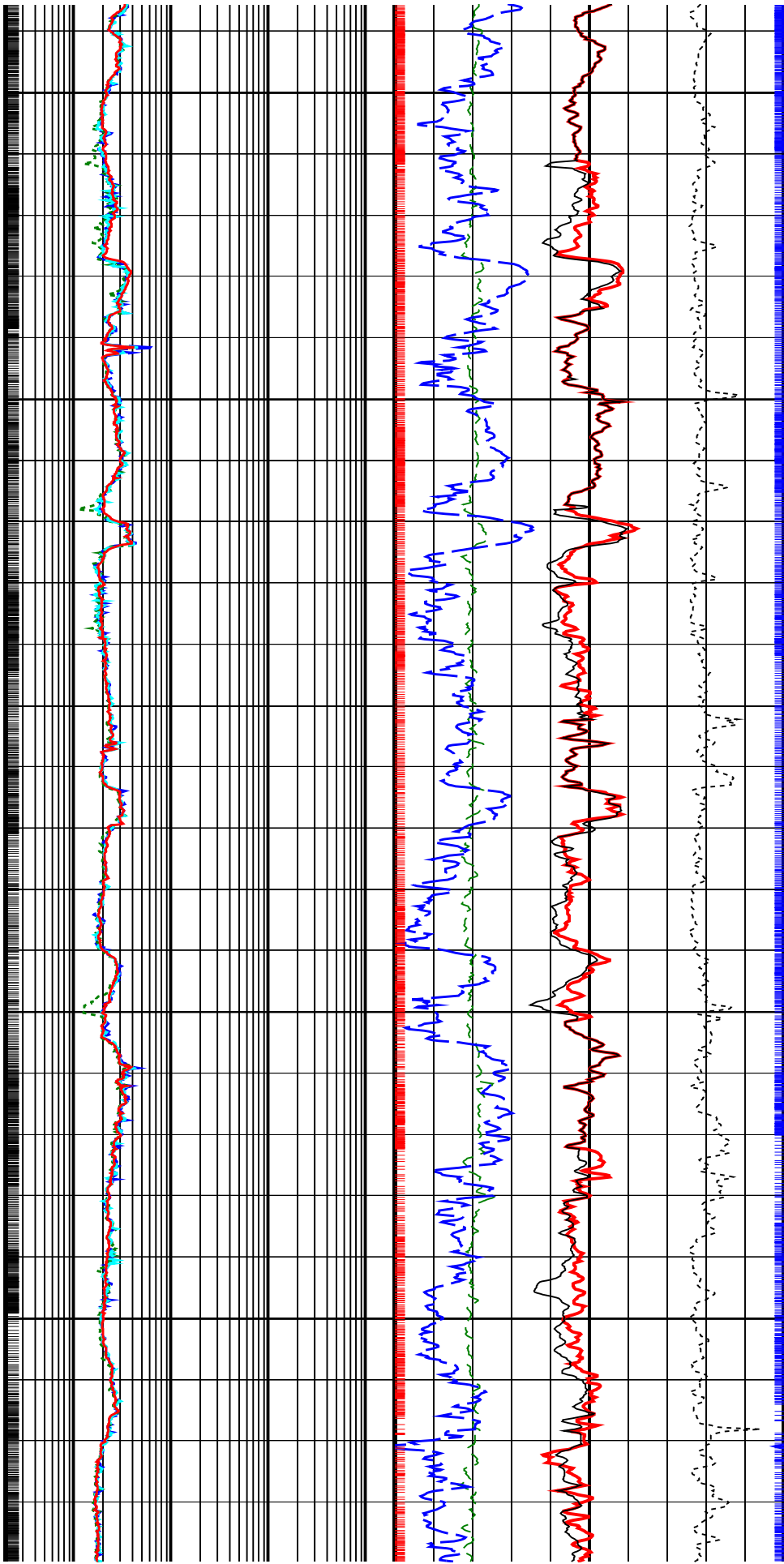
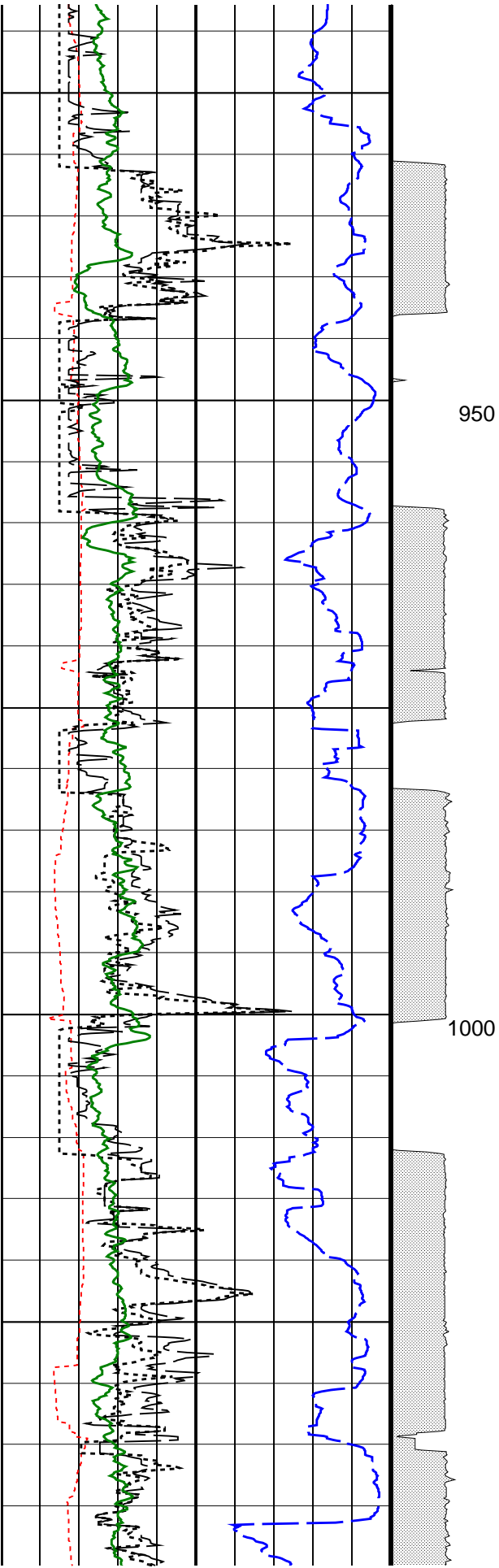
Bulk Density, Bottom (ROBB)
1.85 (G/C3) 2.85

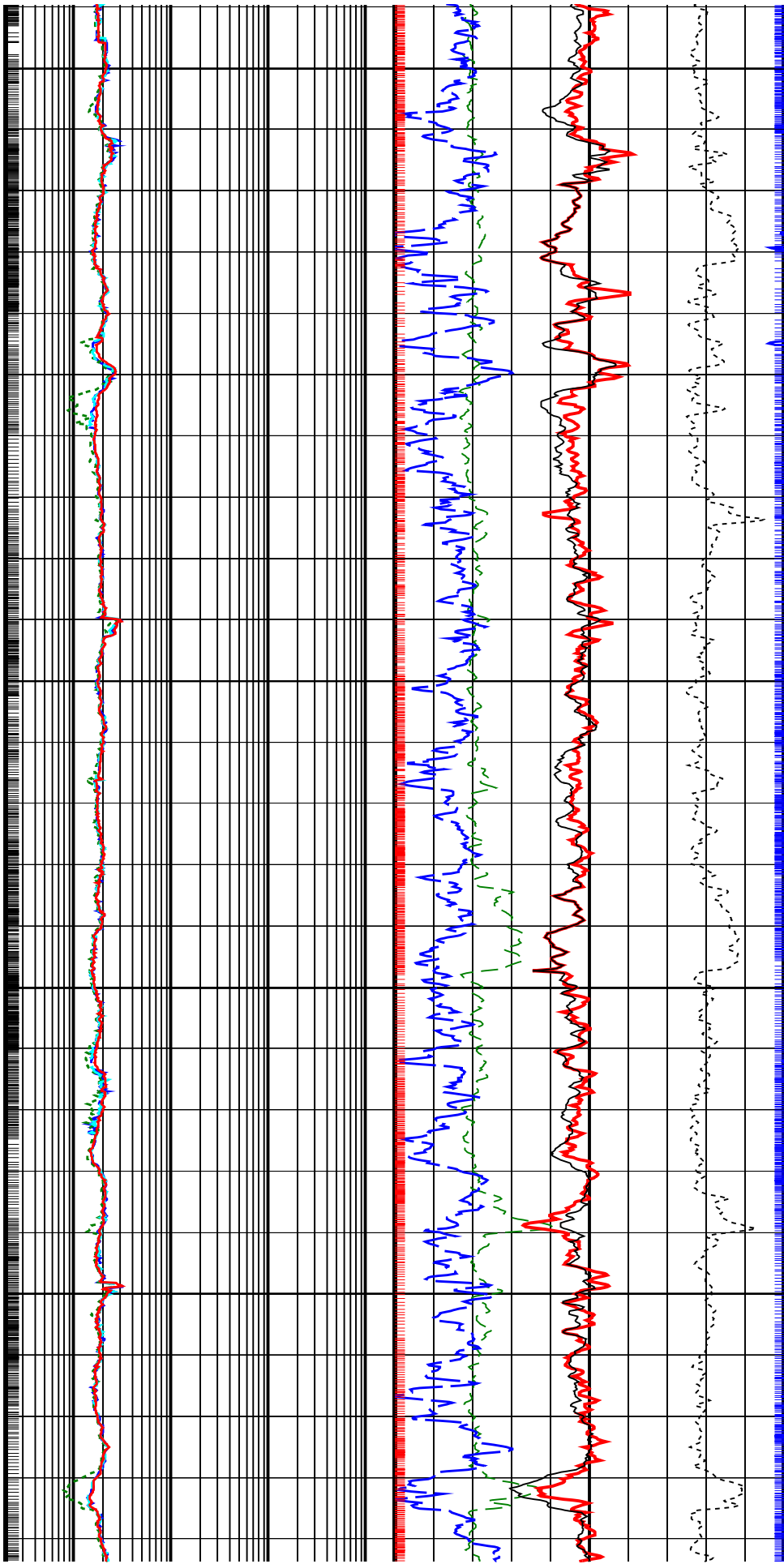
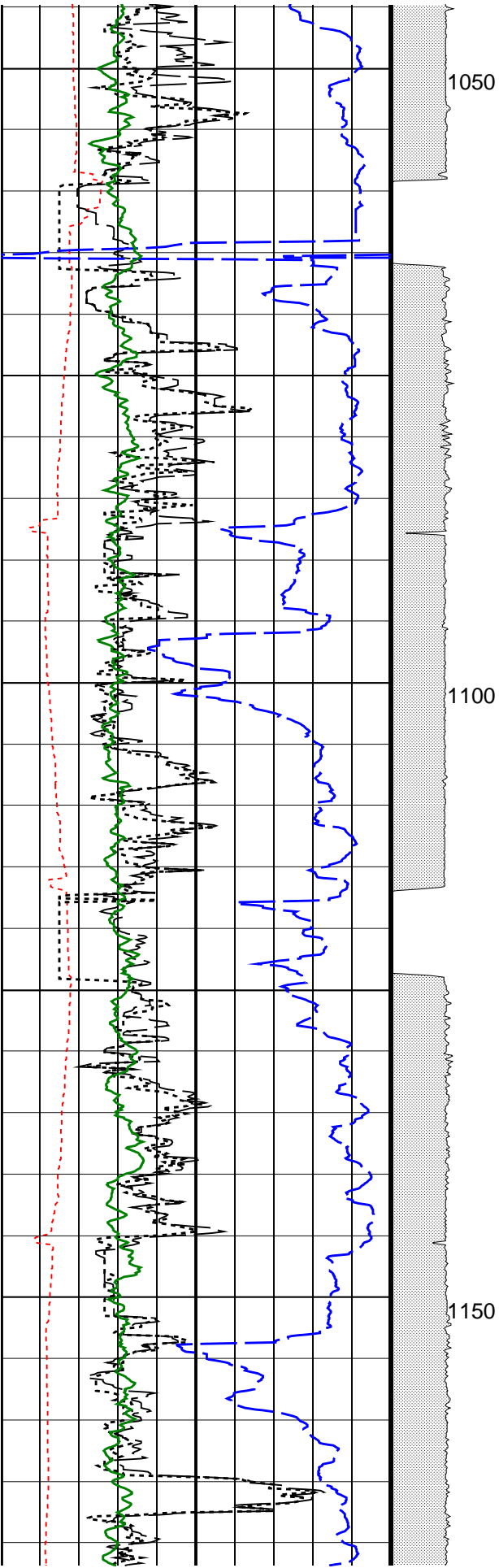
Photoelectric Factor, Bottom (PEB)
0 (----) 20

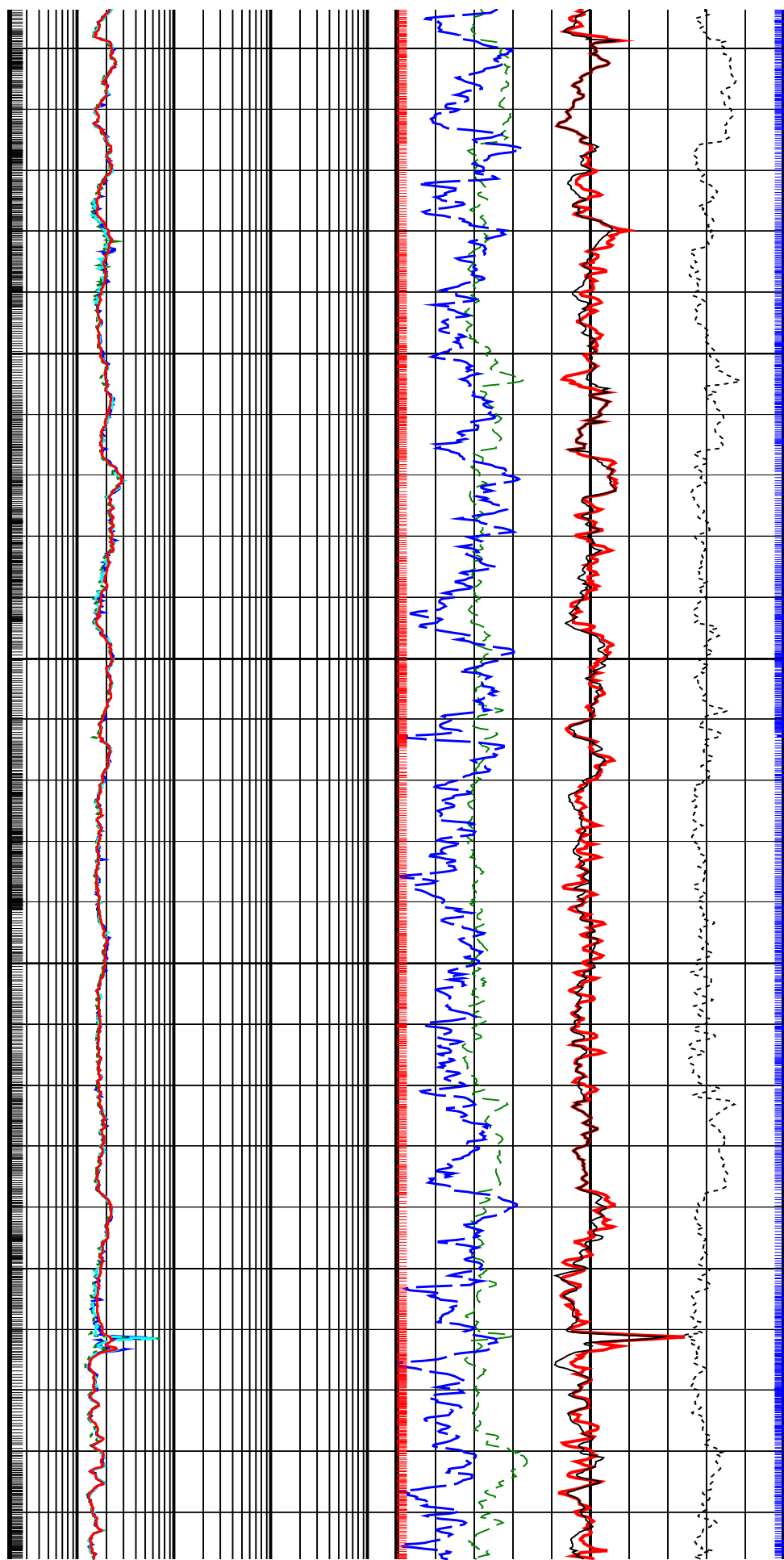
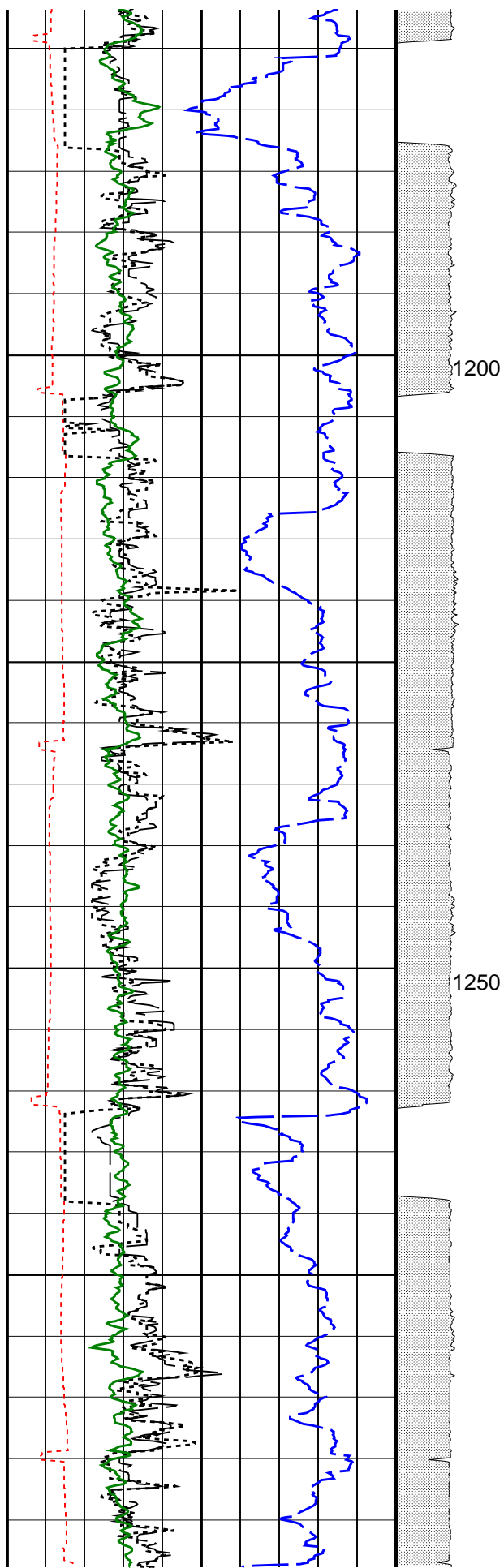
Bulk Density Correction, Bottom
(DRHB)
-0.75 (G/C3) 0.25

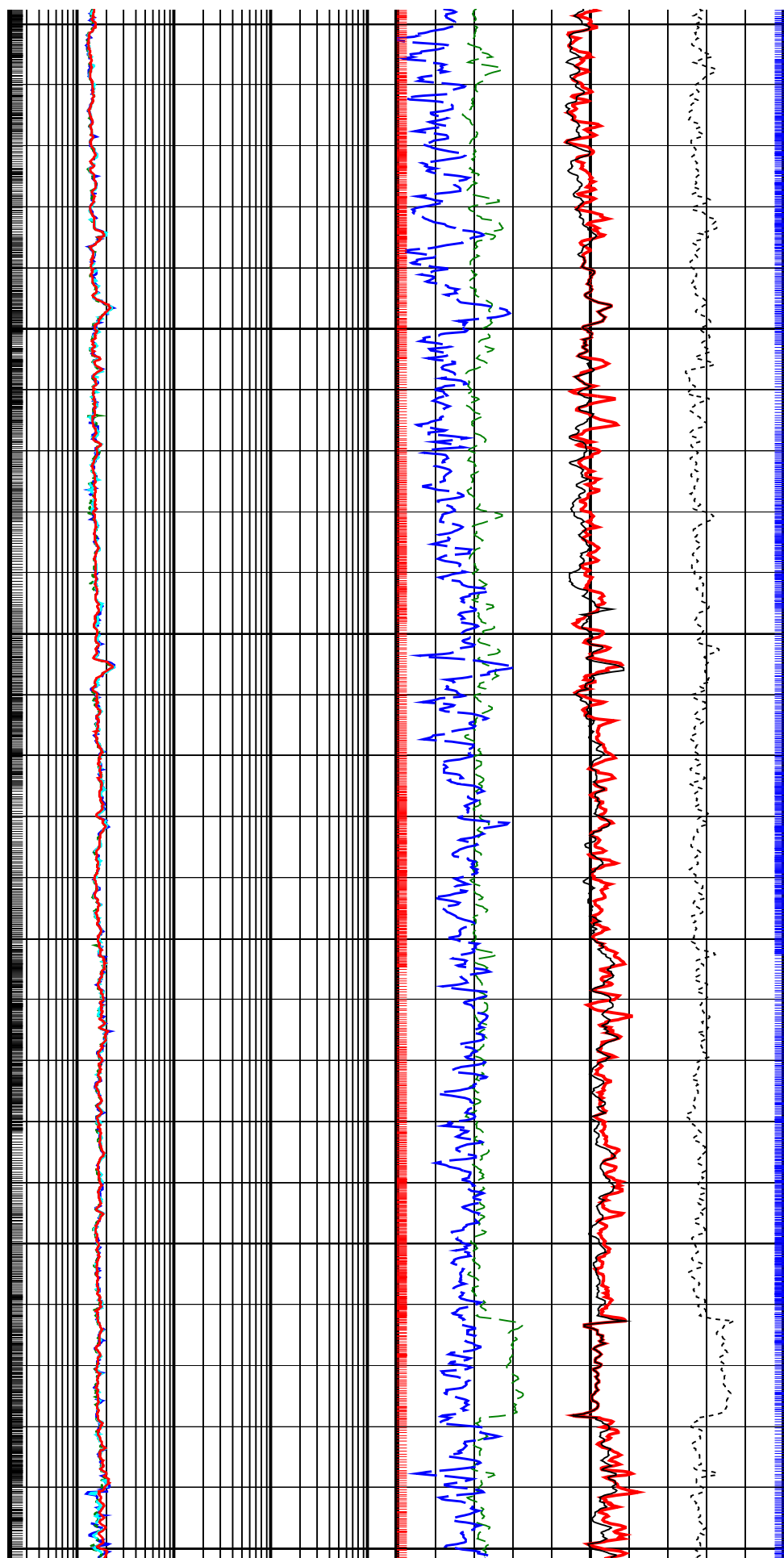
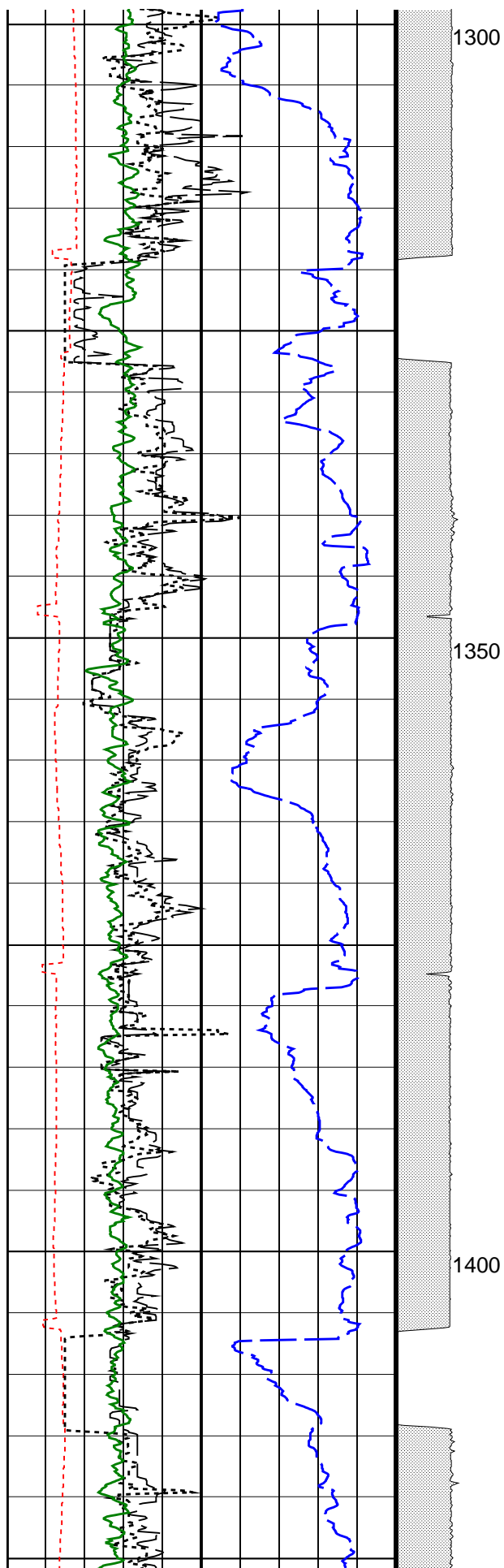


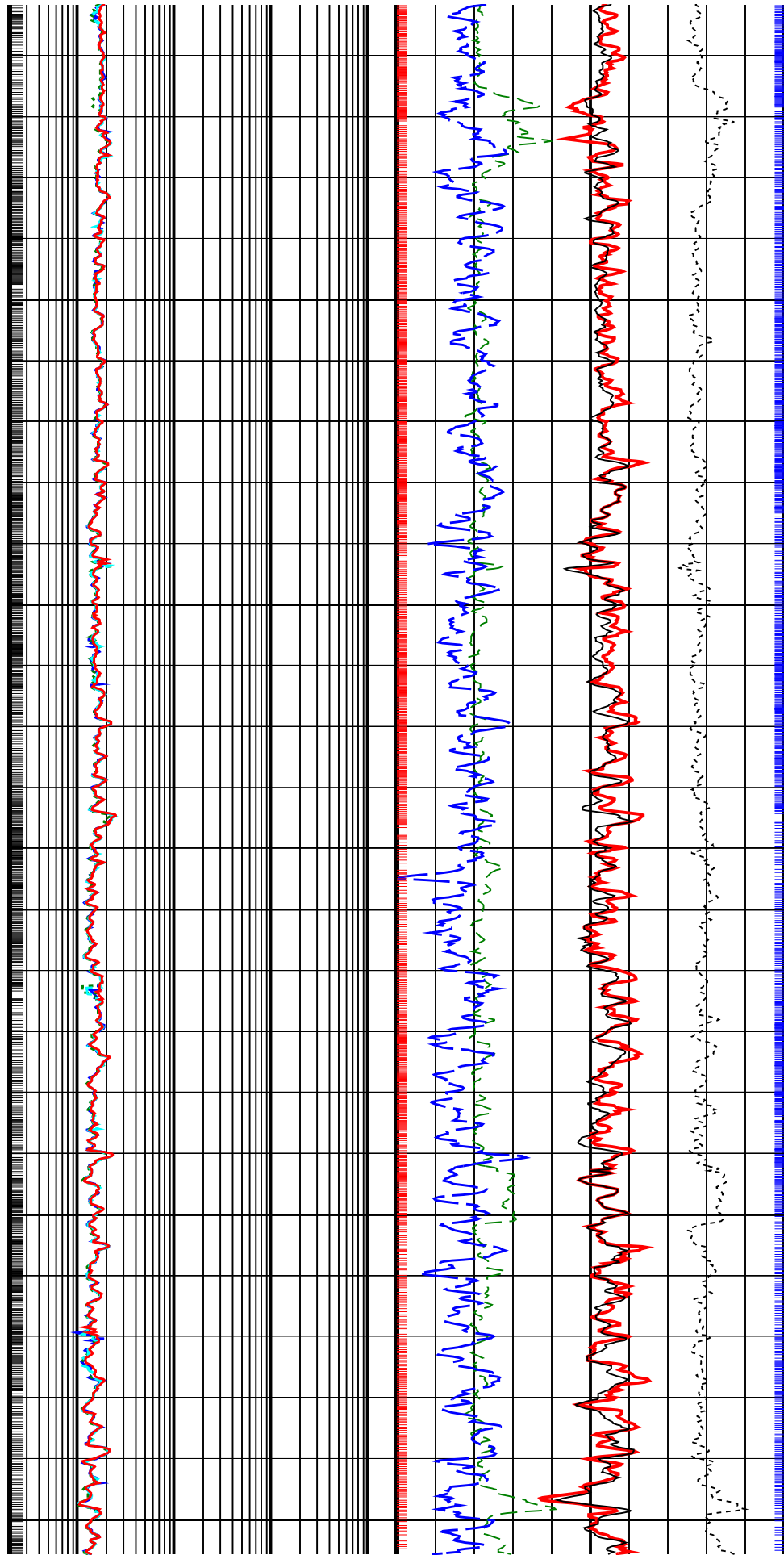
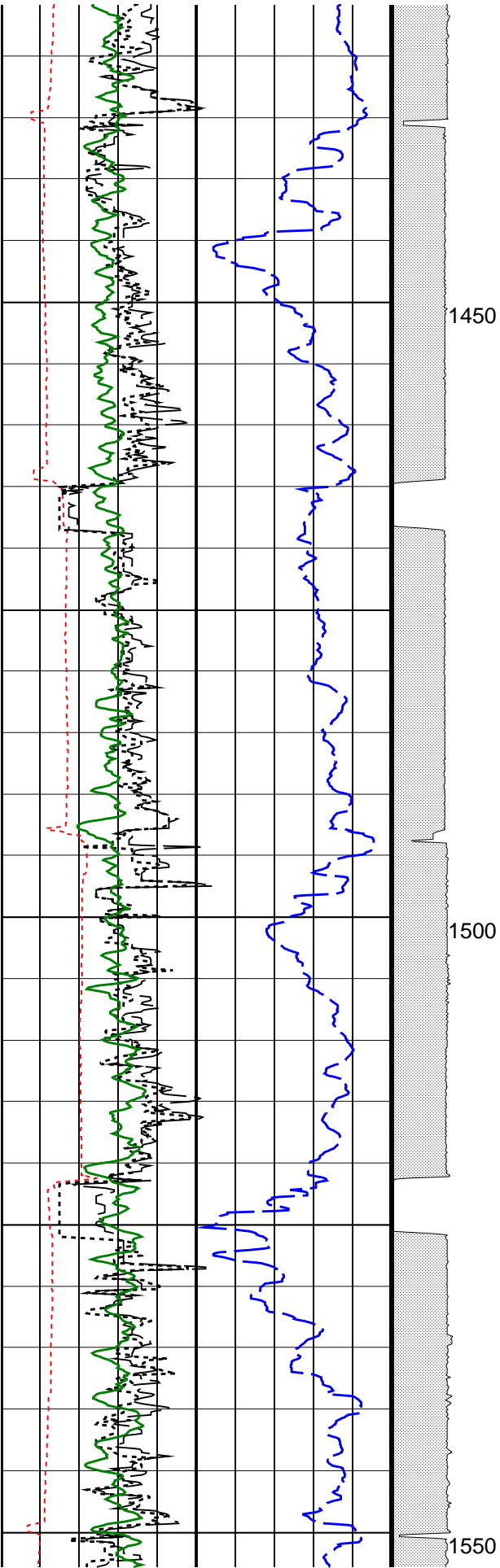


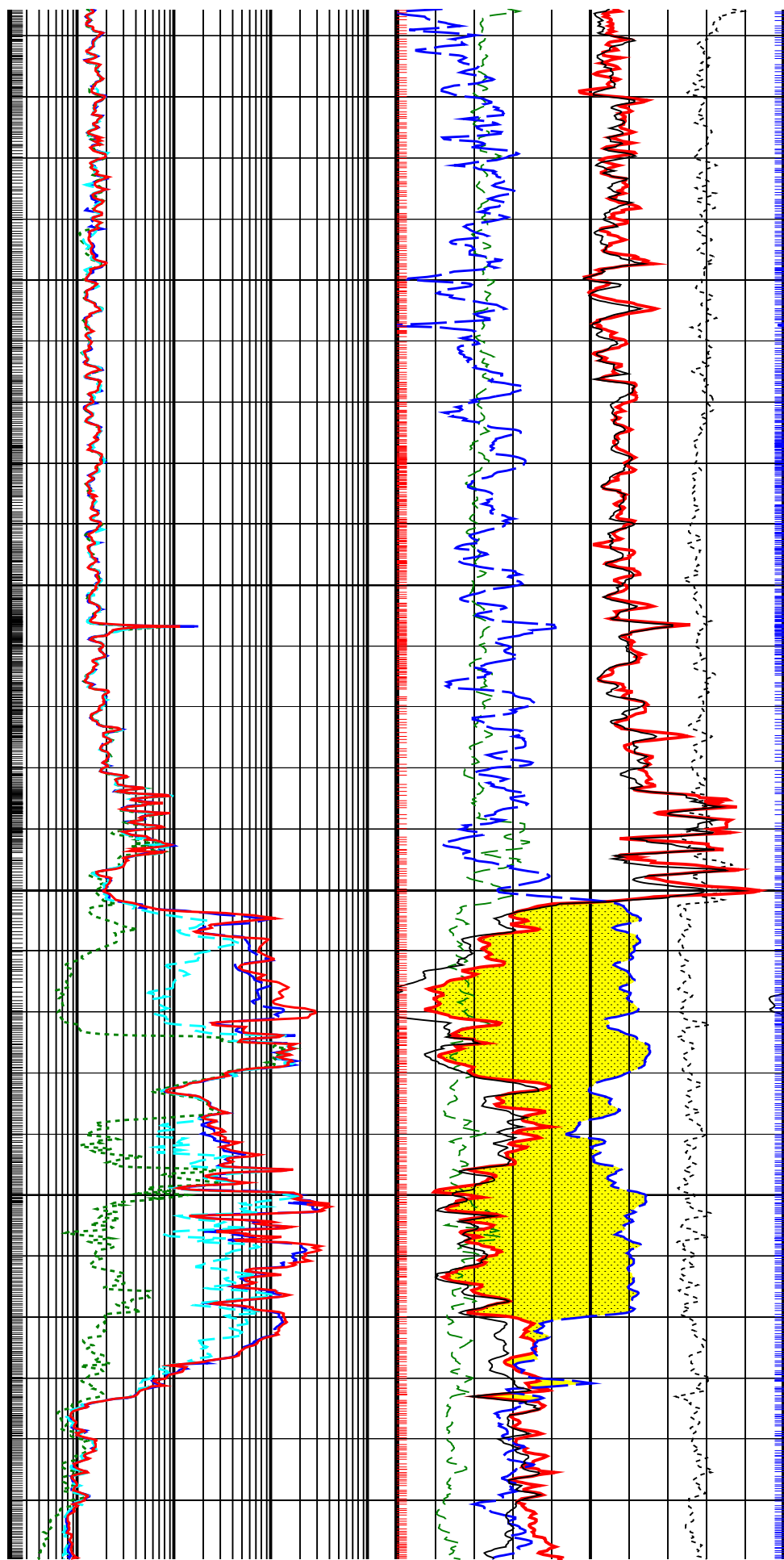
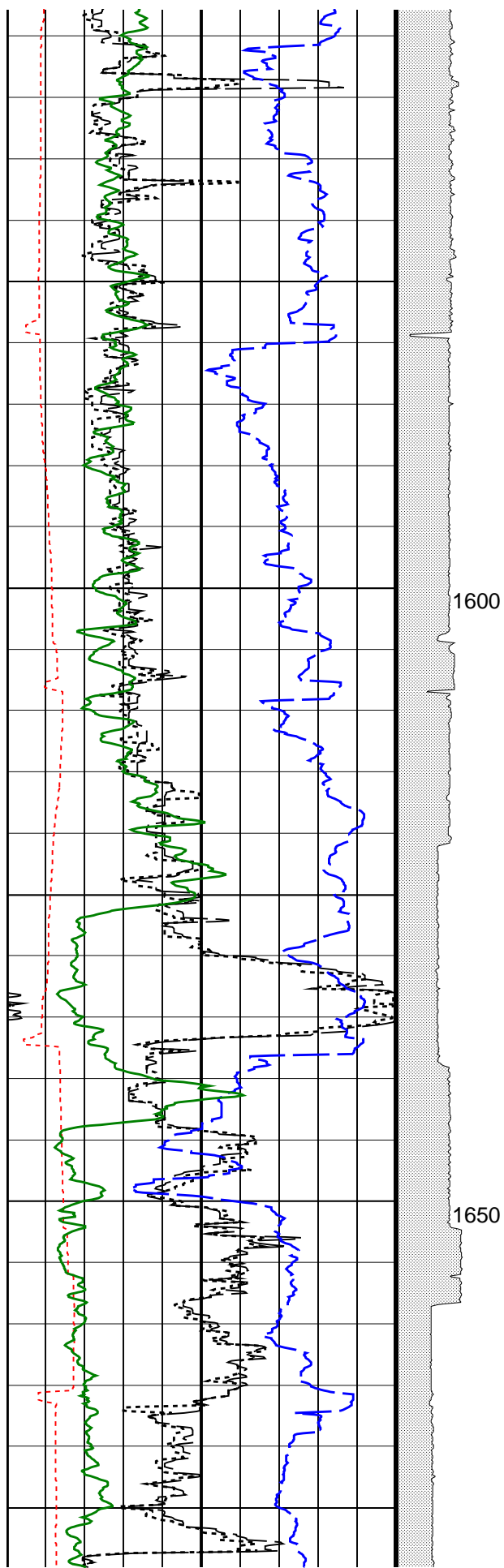


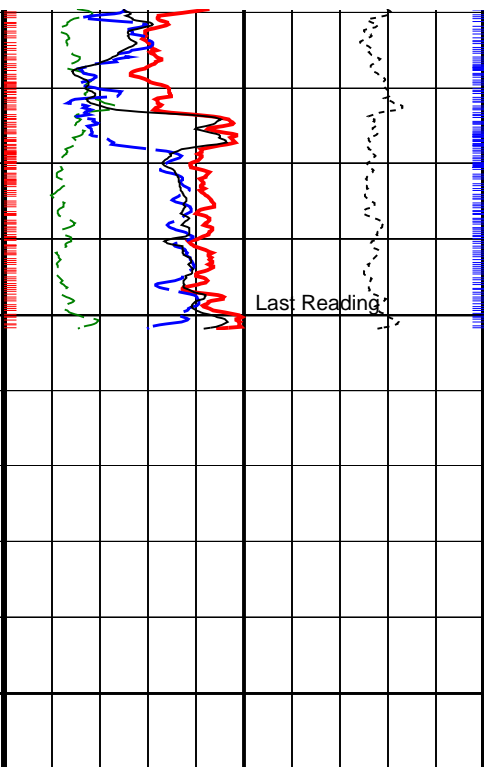
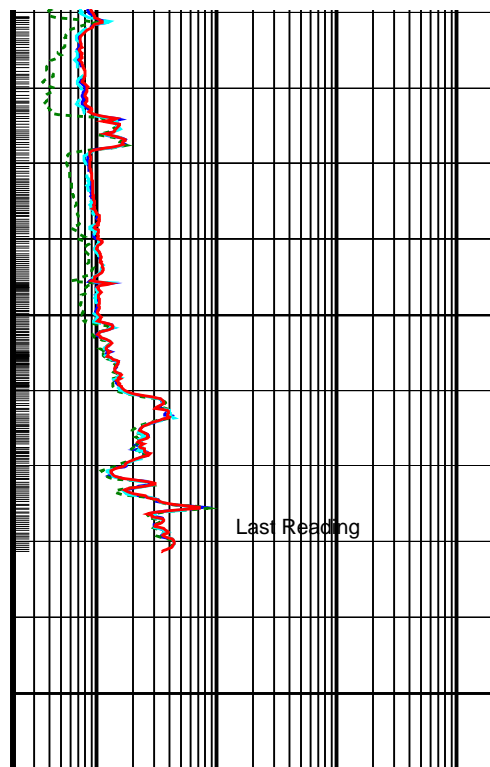
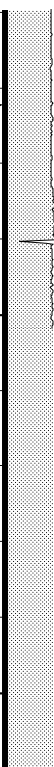
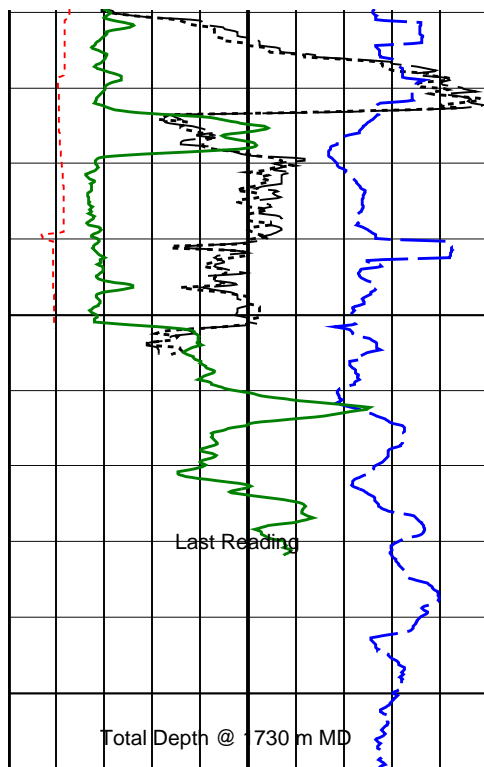












| | | |
|--|--|-----|
| Density Time After Bit (TAB_DEN) (HR) | | |
| 0 | | 10 |
| Vertical Hole Diameter (VERD) (IN) | | |
| 6 | | 16 |
| Horizontal Hole Diameter (HORD) (IN) | | |
| 6 | | 16 |
| RAB Gamma Ray (GR_RAB) (GAPI) | | |
| 0 | | 200 |
| Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR) | | |
| 200 | | 0 |

| | |
|--|-----|
| ADN Rotational Speed (RPM_ADN) (RPM) | |
| 0 | 200 |

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

| | | |
|---|--|------|
| Bulk Density Correction, Bottom (DRHB) (G/C3) | | |
| -0.75 | | 0.25 |
| Photoelectric Factor, Bottom (PEB) (--- | | |
| 0 | | 20 |
| Bulk Density, Bottom (ROBB) (G/C3) | | |
| 1.85 | | 2.85 |
| Thermal Neutron Porosity (TNPH) (PU) | | |
| 45 | | -15 |

| | | |
|--|--|------|
| Bulk Density (RHOB) (G/C3) | | |
| 1.85 | | 2.85 |
| Gas Area From ADN/ROBB/DEPTH to ADN/TNPH/DEPTH | | |

| | | |
|-----------------|--|---|
| PIP SUMMARY | | |
| Density Samples | | + |
| Neutron Samples | | + |
| RAB samples | | + |

| | | | |
|--------------------------|-----------|--------|-----------|
| IDEAL Version: ID6_1C_10 | | | |
| IDF | | | |
| RAB | id6_1c_10 | MWD_10 | id6_1c_10 |
| ADN | id6_1c_10 | | |

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

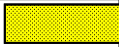
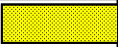
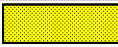
ADN6 – CA
NSR – M
GSR – J/Z
8.25 – in.
Good

289
161
2125

Master: 5–MAY–2002 12:34

6.75–in. Azimuthal Density Neutron Calibration

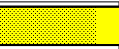
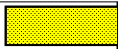
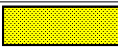
Density: Magnesium Block

| 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) | |

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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) | |

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6.75–in. Azimuthal Density Neutron Calibration

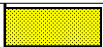
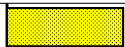
Density: Background

| 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) | |

Master: 5–MAY–2002 12:34

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) | |
| 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) | |

| | | | | | |
|---------------------|--------------------|--------------------|---------------------|-------------------------|----------------------|
| 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

136

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) | 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) | 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) | 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 (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) |

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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

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

Well.....: WTN W-38 A
API number.....:
Engineer.....: JC/LB/JW

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

Spud date.....: 17-MAY-02
Last survey date.....: 21-May-02
Total accepted surveys...: 36
MD of first survey.....: 727.80 m
MD of last survey.....: 1730.00 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 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

21-May-2002 22:45:56

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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 |
| 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

IDEAL services from **Anadrill**

GeoVISION Service
1:500 Measured Depth
Recorded Mode Log

