

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

| | | | | | | | |
|--|--|---------------------------------|--|-----------------------------|-------------------------------------|----------|---------|
| Rig: ISDL 453 Field: Tuna Location: Bass Strait Well: TNA A-10A ST Company: ESSO Australia Ltd Pty | GeoVISION* Resistivity 1:500 Measured Depth Recorded Mode Data | | | | | | |
| | Location | Total depth: 2243.0 m | | | Elevation | K.B. | 31.32 m |
| | | Spud date: 5-Oct-2002 | | | | G.L. | -59.4 m |
| | | Runs: 2 To 2 | | | | D.F. | 31.32 m |
| | | Permanent datum: Mean Sea Level | | | Elev.: 59.4 m | | |
| | | Log measured from: Drill Floor | | | 31.32 m above Perm. datum | | |
| | Depth reference: Driller's Depth | | | | | | |
| | API serial no. | | Y = 5,774,222.491 m N X = 624,224.990 m E | | Longitude Latitude | | |
| | | | | | E 148° 25' 5.413" S 38° 10' 16.394" | | |
| | Depth logged: 1948.9 m To 2231.4 m | | Mag decl: 13.166 deg. | | Other services: | | |
| Date logged: 15-Oct-02 To 16-Oct-02 | | Mag dip: -68.686 deg. | | D & I, Directional Drilling | | | |
| Bore hole record | | | Casing record | | | | |
| Hole size | from | to | Size | Density | from | to | |
| 8 1/2 in. | 661.1 m | 2243.0 m | 20 in. | 285 lbm/m | 0.0 m | 155.0 m | |
| | | | 13 3/8 in. | 226 lbm/m | 0.0 m | 647.0 m | |
| | | | 9 5/8 in. | 154 lbm/m | 617.0 m | 661.1 m | |
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| | | | | | | | |
| | | | | | | | |
| Mud record | | | Borehole deviation record | | | | |
| Type | from | to | Min | Max | from | to | |
| KCI/PHPA/Glycol | 661.1 m | 2243.0 m | 37.4 deg. | 42.5 deg. | 646.4 m | 1015.5 m | |
| | | | 42.5 deg. | 60.9 deg. | 1015.5 m | 1218.5 m | |
| | | | 60.9 deg. | 68.7 deg. | 1218.5 m | 1796.9 m | |
| | | | 54.1 deg. | 68.7 deg. | 1796.9 m | 2243.0 m | |
| Surface equipment | | Software record | | | | | |
| Unit | OLU-FB-924 | IDEAL Wis | ID7_OC_02r | | | | |
| Depth system | PDA-AB | SPM | HSPM7_OC_10a | | | | |
| | | LWD | See Toolsketch | | | | |
| | | MWD | See Toolsketch | | | | |

Bit Run Summary

[illegible]

| | | | | | | | | | | | |
|---------------------------|----------|-----------------|------------|--|--|--|--|--|--|--|--|
| Type | | KCl/Phpa/Glycol | | | | | | | | | |
| Mud weight | lb/gal | 10.25 | | | | | | | | | |
| Solids | % | 9.4 | | | | | | | | | |
| Chlorides | mg/L | 40,500 | | | | | | | | | |
| Rm | ohm-m@°C | 0.125@21.5 | | | | | | | | | |
| Rmf | ohm-m@°C | 0.231@22.0 | | | | | | | | | |
| Rmc | ohm-m@°C | 0.104@20.8 | | | | | | | | | |
| Potassium | % | 4 | | | | | | | | | |
| Environmental data | | | | | | | | | | | |
| GR | | | | | | | | | | | |
| Mud weight | lb/gal | 10.25 | | | | | | | | | |
| Bit size | in. | 8.5 | | | | | | | | | |
| Resistivity | | | | | | | | | | | |
| Neutron porosity | | | | | | | | | | | |
| Hole Size | in. | 8.5 | | | | | | | | | |
| Mud weight | lb/gal | 10.25 | | | | | | | | | |
| Temperature | °C | 68.5 | | | | | | | | | |
| Mud salinity | ppk | 66.825 | | | | | | | | | |
| Formation salinity | | | | | | | | | | | |
| Recording rate 1 | SEC | 10 | | | | | | | | | |
| Recording rate 2 | SEC | 10 | | | | | | | | | |
| Filtering GR | | 3 pt | | | | | | | | | |
| Filtering density | | 3 pt | | | | | | | | | |
| Filtering Neutron | | 3 pt | | | | | | | | | |
| Company representative | B. Steel | B. Woodward | | | | | | | | | |
| Anadrill personnel | L. Bon | J. Dolan | K. Handley | | | | | | | | |

DISCLAIMER

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| | | |
|---|------------------------|------------------------|
| OTHER SERVICES FOR RUN2 D & I Directional Drilling | OTHER SERVICES FOR RUN | OTHER SERVICES FOR RUN |
| REMARKS: RUN NUMBER 2 All data presented is from tool memory. GR corrected for mud weight, tool and bit size. GVR6* resistivity is corrected for the bit size, mud resistivity and borehole temperature. Bottom quadrant density is presented. Neutron porosity is calculated with a limestone matrix and is corrected for the bit size, borehole salinity, temperature and mud hydrogen index. Mud type is water-based KCl/PHPA/Glycol. Barite was present in the mud system. | REMARKS: RUN NUMBER | REMARKS: RUN NUMBER |

GVR6* downhole software: 6.1B14
ADN6* downhole software: 6.2B08

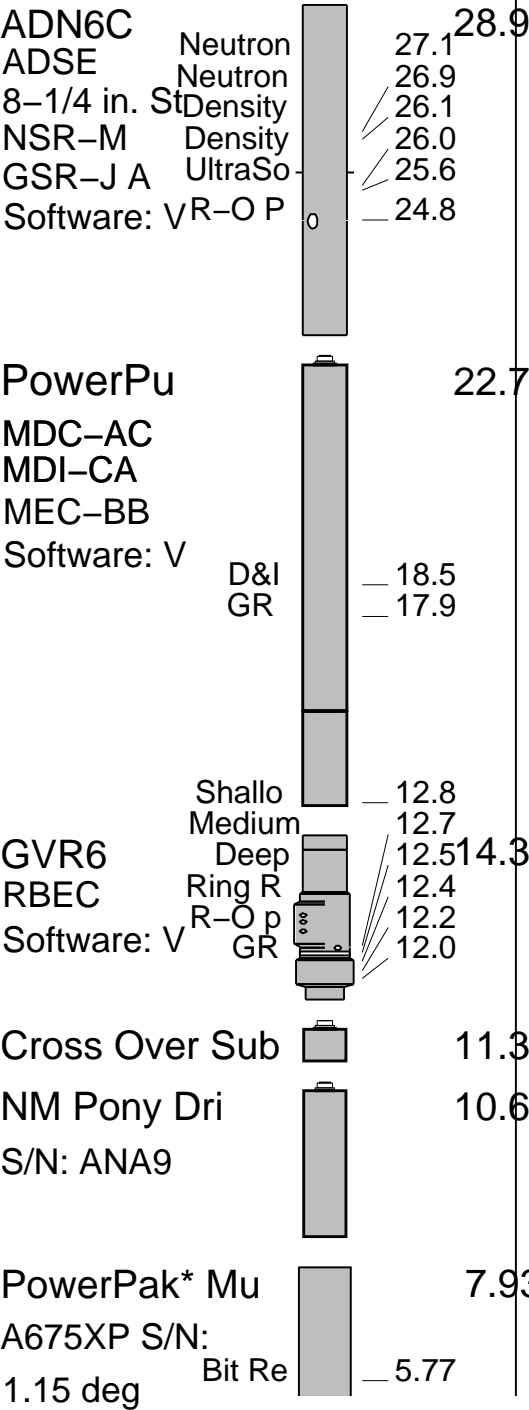
EQUIPMENT DESCRIPTION

RUN2


RUN

RUN

DOWNHOLE EQ



1.15 deg Bit Re 5.77



Security T 0.00 0.24

XS30D S/N:

MAXIMUM STRING DI

ALL LENGTHS I

IDEAL Version: ID7_0C_02

IDF

RAB IDEAL Version: ID7_0C_02 MWD_10 IDEAL Version: ID7_0C_02

ADN IDEAL Version: ID7_0C_02

Format: TNA A-10A GeoVISION Resistivity Vertical Scale: 1:500 Graphics File Created: 18-Oct-2002 06:27

Parameters

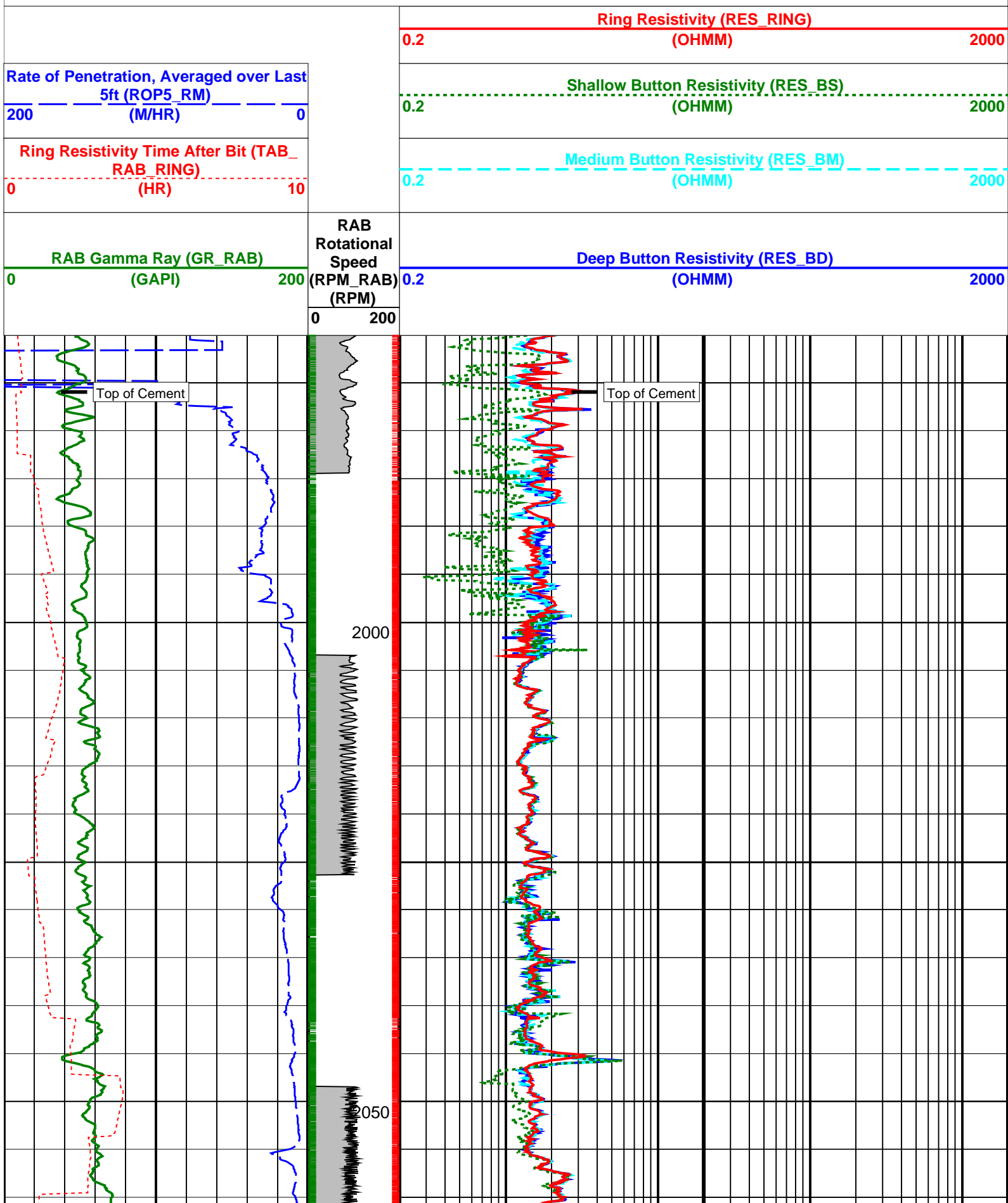
| DLIS Name | Description | Value |
|------------------|---------------------------------------|----------------|
| BDBHCA | RAB: Button Deep Borehole A Factor | 0.004 |
| BDBHCB | RAB: Button Deep Borehole B Factor | 0.000 |
| BHA_COEF_VER | RAB: BHA Coef Generator Version | 62012.0 |
| BITBHCA | RAB: Bit A Borehole Factor | 0.058 |
| BITBHCB | RAB: Bit B Borehole Factor | 0.000 |
| BIT_K_FACTOR | RAB: Bit K Factor | 14.966 |
| BMBHCA | RAB: Button Medium Borehole A Factor | 0.023 |
| BMBHCB | RAB: Button Medium Borehole B Factor | 0.000 |
| BSBHCA | RAB: Button Shallow Borehole A Factor | 0.022 |
| BSBHCB | RAB: Button Shallow Borehole B Factor | 0.000 |
| BS_RM | Bit Size (RM) | 8.500 in |
| BUT_KIMP_A | RAB: Button Impedance Coeff A | 0.000 |
| BUT_KIMP_B | RAB: Button Impedance Coeff B | 0.000 |
| DBUTTON_K_FACTOR | RAB: Button Deep K factor | 0.005 |
| DHS_VERSION | RAB: DownHole Software Version | 6.101 |
| DO | Depth Offset | 0.0 m |
| GRDC | Grid corr angle | -0.880 deg |
| MBUTTON_K_FACTOR | RAB: Button Medium K Factor | 0.005 |
| MST_RM | Mud Sample temperature (RM) | 70.700 degF |
| MW_RM | Mud Weight (RM) | 10.250 lbm/gal |
| OBM | RAB: Oil base Mud | NO |
| RABEC | RAB: Resistivity Env-Cor | YES |
| RAB_TEMP_SELECT | RAB Temperature Selection | MEAS |
| READOUT_PORT_MP | RAB: ROP to Bit Face Distance | 12.280 m |
| RINGBHCA | RAB: Ring Borehole A Factor | 0.159 |
| RINGBHCB | RAB: Ring Borehole B Factor | 0.000 |
| RING_KIMP_A | RAB: Ring Impedance Coeff A | 0.000 |
| RING_KIMP_B | RAB: Ring Impedance Coeff B | 0.000 |
| RING_K_FACTOR | RAB: Ring K Factor | 0.153 |
| RMS_RM | Resistivity of Mud Sample (RM) | 0.125 ohm.m |
| SBUTTON_K_FACTOR | RAB: Button Shallow K Factor | 0.007 |
| STAB | RAB: Run with Stabilizer | YES |
| TOOLTYPE | RAB: Azimuthal Tool | YES |
| TS_VERSION | RAB: ToolScope Software Version | 6.101 |
| VRAB6 | Rab Tool type (ENP/PILOT) | RAB6_C_SERIES |

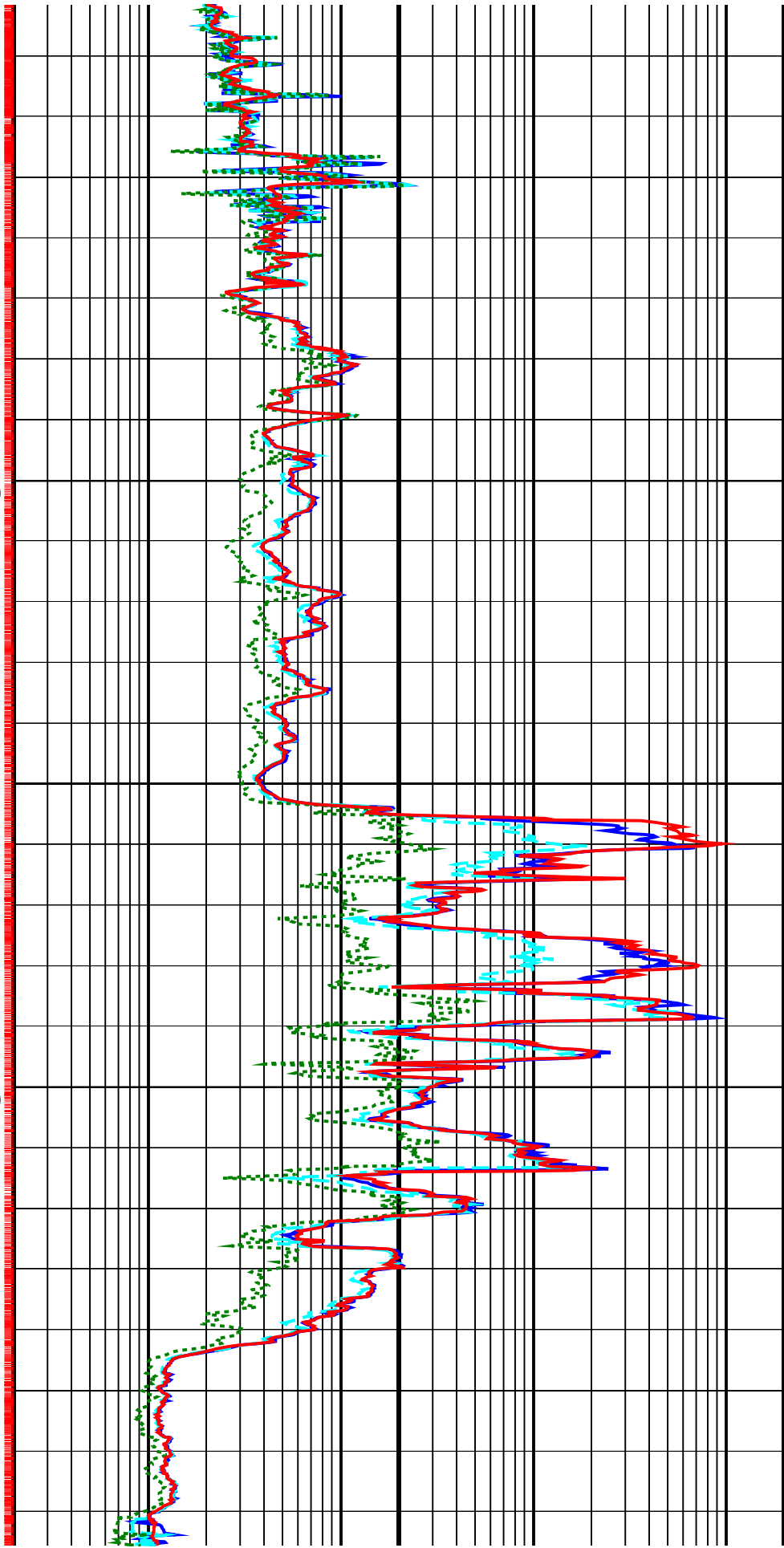
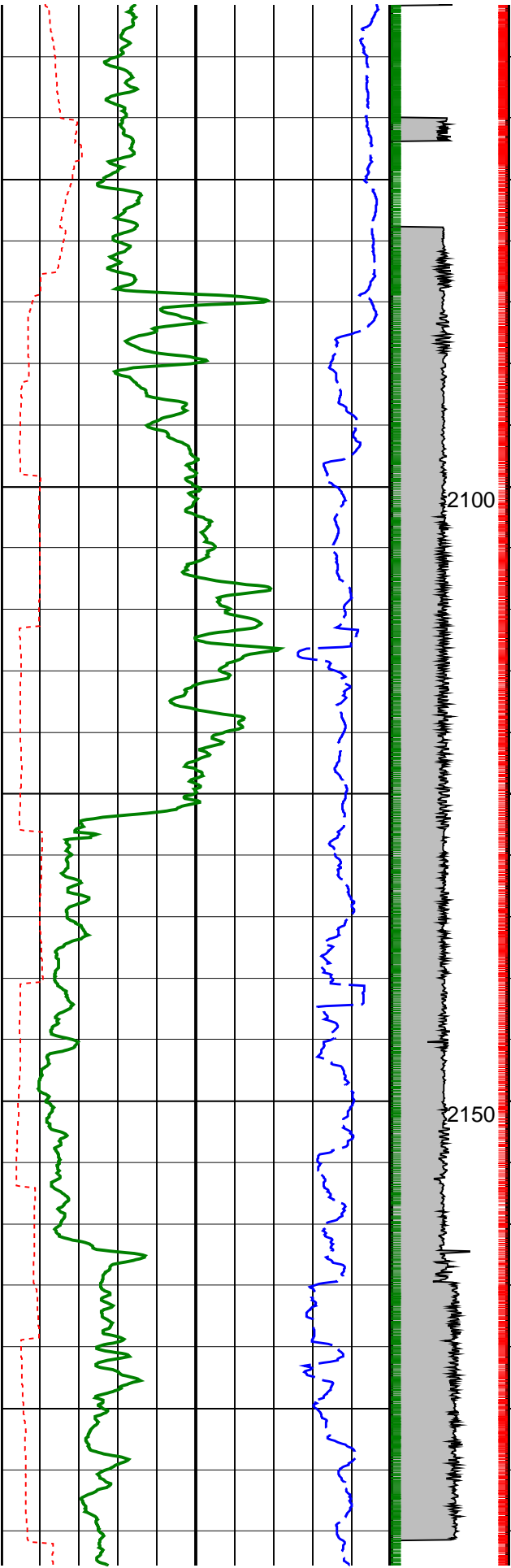
PIP SUMMARY

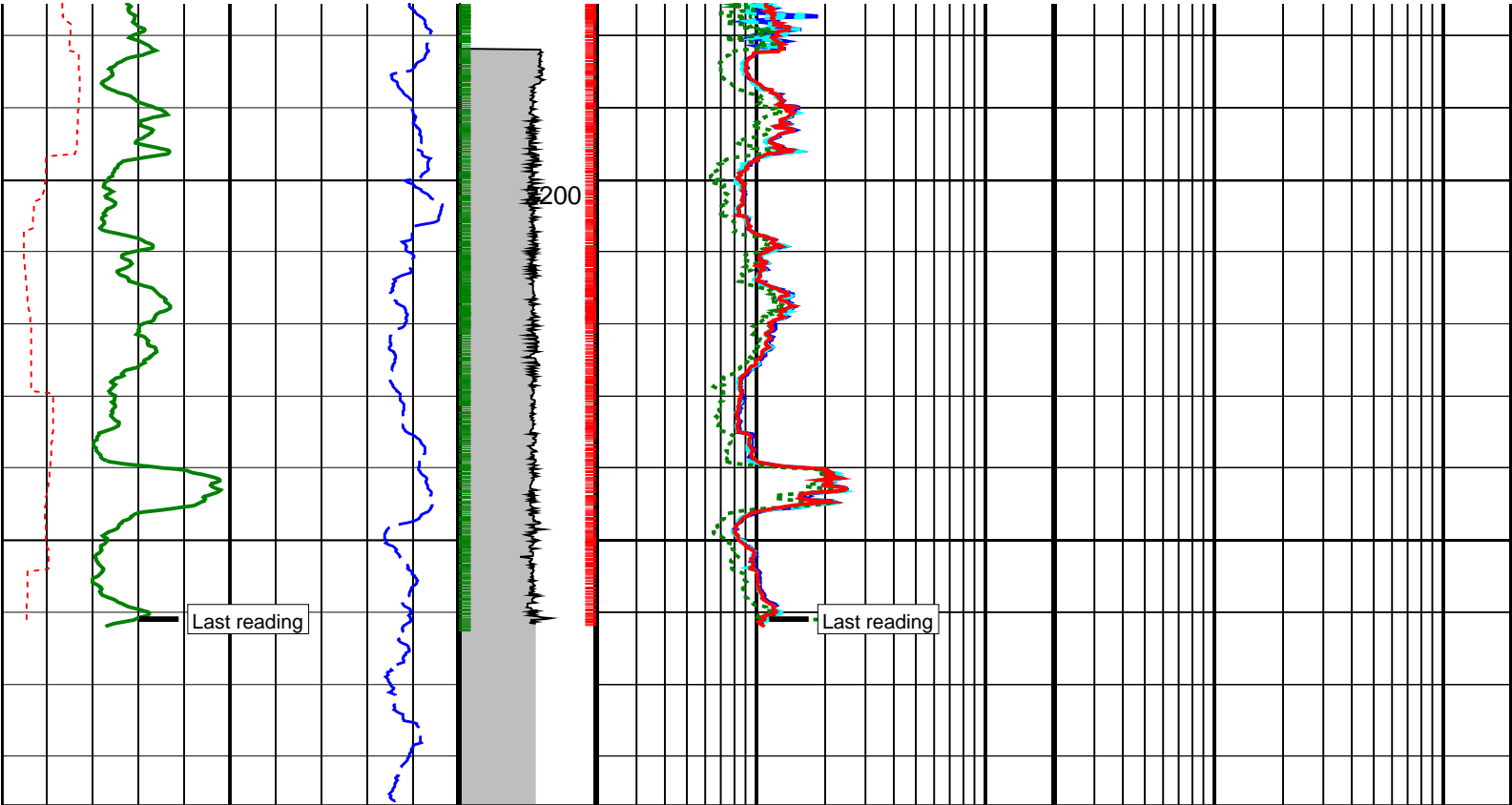
└ Gamma Ray Samples

└ Ring Samples

Ring Samples







| | | | | | |
|---|-----|--|-----|---|------|
| RAB Gamma Ray (GR_RAB) (GAPI) | | RAB Rotational Speed (RPM_RAB) (RPM) | | Deep Button Resistivity (RES_BD) (OHMM) | |
| 0 | 200 | 0 | 200 | 0.2 | 2000 |
| Ring Resistivity Time After Bit (TAB_RAB_RING) (HR) | | | | Medium Button Resistivity (RES_BM) (OHMM) | |
| 0 | 10 | | | 0.2 | 2000 |
| Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR) | | | | Shallow Button Resistivity (RES_BS) (OHMM) | |
| 200 | 0 | | | 0.2 | 2000 |
| | | | | Ring Resistivity (RES_RING) (OHMM) | |
| | | | | 0.2 | 2000 |

| | |
|---------------------|--|
| PIP SUMMARY | |
| └ Gamma Ray Samples | |
| └ Ring Samples | |

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|--------------------------|--------------------------|--------|--------------------------|
| IDEAL Version: ID7_0C_02 | | | |
| IDF | | | |
| RAB | IDEAL Version: ID7_0C_02 | MWD_10 | IDEAL Version: ID7_0C_02 |
| ADN | IDEAL Version: ID7_0C_02 | | |

| | |
|---|---------------------|
| 6.75-in. Azimuthal Density Neutron / Equipment Identification | |
| Primary Equipment: | |
| Tool Name and Serial Number | ADN6C* S/N: 289 |
| Collar Type and Serial Number | ADDC - AA |
| Chassis Type and Serial Number | ADSE - EA |
| Stabilizer Type and Serial Number | Clamp-On Stabilizer |
| Neutron Logging Source | NSR-M S/N: A161 |
| Density Logging Source | GSR-J S/N: A2125 |
| Stabilizer Size | 8.25 - in. |
| Calibration Status | Valid |





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|--|----------------------|-----------|-----------|-------|-----------|----------------------|-----------|--|-----------|-----------|----------------------|--|--|-------|
| Master: 20-Aug-2002 12:00 | | | | | | | | | | | | | | |
| 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 | | | | 1286 | Master | | | | 2974 | Master | | | | 7375 |
| | 250.0 | 4125 | 8000 | | 700.0 | 9350 | 18000 | | 2500 | 23750 | 45000 | | | |
| | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) | | | |



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|--|----------------------|-----------|-----------|-------|-----------|----------------------|-----------|--|-----------|-----------|----------------------|--|--|-------|
| Master: 20-Aug-2002 12:00 | | | | | | | | | | | | | | |
| 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 | | | | 199.3 | Master | | | | 1579 | Master | | | | 4746 |
| | 50.00 | 725.0 | 1400 | | 500.0 | 4250 | 8000 | | 1500 | 15750 | 30000 | | | |
| | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) | | | |

| | | | | | | | | | | | | | | |
|--|--------------------------|-----------|-----------|-------|-----------|--------------------------|-----------|-----|-------|-----------|--------------------------|-----------|-----|-------|
| Master: 20-Aug-2002 12:00 | | | | | | | | | | | | | | |
| 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 | | | | 51.89 | Master | | | | 125.3 | Master | | | | 546.5 |
| | 15.00 | 82.50 | 150.0 | | 40.00 | 220.0 | 400.0 | | | 150.0 | 825.0 | 1500 | | |
| | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | | |











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|--|---------------------------------|-----------|-----------|-------|--------|----------------------------------|-----------|-----------|-------|
| Master: 20-Aug-2002 12:00 | | | | | | | | | |
| 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 | | | | 1.034 | Master | | | | 1.130 |
| | 1.015 | 1.030 | 1.045 | | | 1.095 | 1.120 | 1.145 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |


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|--|-------------------|-----------|-----------|-------|--------|-------------------------|-----------|-----------|---------|
| Master: 20-Aug-2002 12:00 | | | | | | | | | |
| 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 | | | | 1.102 | Master | | | | -0.8340 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |
| Phase | Far 1 tube 2 gain | | | Value | Phase | Far 1 tube 2 offset CPS | | | Value |
| Master | | | | 1.048 | Master | | | | -0.9090 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |
| Phase | Far 1 tube 3 gain | | | Value | Phase | Far 1 tube 3 offset CPS | | | Value |
| Master | | | | 1.071 | Master | | | | -0.7690 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |
| Phase | Far 2 tube 1 gain | | | Value | Phase | Far 2 tube 1 offset CPS | | | Value |
| Master | | | | 1.107 | Master | | | | -0.7220 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |
| Phase | Far 2 tube 2 gain | | | Value | Phase | Far 2 tube 2 offset CPS | | | Value |
| Master | | | | 1.000 | Master | | | | -0.8370 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |
| Phase | Far 2 tube 3 gain | | | Value | Phase | Far 2 tube 3 offset CPS | | | Value |
| Master | | | | 1.108 | Master | | | | -0.7300 |
| | 0.9000 | 1.100 | 1.300 | | | -1.200 | -0.9000 | -0.6000 | |
| | (Minimum) | (Nominal) | (Maximum) | | | (Minimum) | (Nominal) | (Maximum) | |

| | | | | | | | | | | | | | | | | | |
|---------------------|--|--|---|--|--|--------------------|--|--|---------------------|--|--|---|--|--|----------------------|--|--|
| 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 | | | Phase | | | Near 1 tube 1 offset CPS | | | Value | | |
| Master | | |  | | | 1.088 | | | Master | | |  | | | 0 | | |
| 0.9000 (Minimum) | | | 1.100 (Nominal) | | | 1.300 (Maximum) | | | -50.00 (Minimum) | | | 0 (Nominal) | | | 50.00 (Maximum) | | |
| Phase | | | Near 2 tube 1 gain | | | Value | | | Phase | | | Near 2 tube 1 offset CPS | | | Value | | |
| Master | | |  | | | 1.062 | | | Master | | |  | | | 0 | | |
| 0.9000 (Minimum) | | | 1.100 (Nominal) | | | 1.300 (Maximum) | | | -50.00 (Minimum) | | | 0 (Nominal) | | | 50.00 (Maximum) | | |

| | | | | | | | | | | | | | | | | | |
|--|--|--|---|--|--|--------------------|--|--|---------------------|--|--|---|--|--|--------------------|--|--|
| Master: Calibration date not found | | | | | | | | | | | | | | | | | |
| 6.75-in. Azimuthal Density Neutron Calibration | | | | | | | | | | | | | | | | | |
| Neutron: Water Block Check | | | | | | | | | | | | | | | | | |
| Phase | | | Far Neutron water porosity V/V | | | Value | | | Phase | | | Near Neutron water porosity V/V | | | Value | | |
| Master | | |  | | | 1.000 | | | Master | | |  | | | 1.000 | | |
| 0.9000 (Minimum) | | | 1.000 (Nominal) | | | 1.150 (Maximum) | | | 0.9000 (Minimum) | | | 1.000 (Nominal) | | | 1.150 (Maximum) | | |

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|--|--|--|--|--|--|--|--|--|--|----------------|--|--|--|--|--|--|--|
| 6.75-in. Resistivity At-the-Bit / Equipment Identification | | | | | | | | | | | | | | | | | |
| Primary Equipment: | | | | | | | | | | | | | | | | | |
| Tool Name and Serial Number | | | | | | | | | | GVR6* S/N: 160 | | | | | | | |
| Calibration Status | | | | | | | | | | Valid | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|---------------------|--|--|---|--|--|--------------------|--|--|
| Master: 11-Sep-2002 12:00 | | | | | | | | | | | | | | | | | |
| 6.75-in. Resistivity At-the-Bit Calibration | | | | | | | | | | | | | | | | | |
| Resistivity: Fixture | | | | | | | | | | | | | | | | | |
| Phase | | | Ring/T1 factor | | | Value | | | Phase | | | Ring/T2 factor | | | Value | | |
| Master | | |  | | | 0.9975 | | | Master | | |  | | | 0.9991 | | |
| 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 | | |
| Master | | |  | | | 1.002 | | | Master | | |  | | | 0.9983 | | |
| 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 | | |
| Master | | |  | | | 1.006 | | | Master | | |  | | | 1.007 | | |
| 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 | | |
| Master | | |  | | | 1.003 | | | Master | | |  | | | 1.012 | | |
| 0.9750 (Minimum) | | | 1.000 (Nominal) | | | 1.025 (Maximum) | | | 0.9750 (Minimum) | | | 1.000 (Nominal) | | | 1.025 (Maximum) | | |
| Phase | | | BTN deep/T2 factor | | | Value | | | Phase | | | BTN deep/T2 factor | | | Value | | |
| Master | | |  | | | 1.012 | | | Master | | |  | | | 1.012 | | |
| 0.9750 (Minimum) | | | 1.000 (Nominal) | | | 1.025 (Maximum) | | | 0.9750 (Minimum) | | | 1.000 (Nominal) | | | 1.025 (Maximum) | | |

| | | | | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|--|
| Master: 11-Sep-2002 12:00 | | | | | | | | | | | | | | | | | |
| 6.75-in. Resistivity At-the-Bit Calibration | | | | | | | | | | | | | | | | | |
| Gamma Ray: Blanket | | | | | | | | | | | | | | | | | |
| Phase | | | Gamma ray factor | | | | | | | | | | | | Value | | |
| Master | | |  | | | | | | | | | | | | 0.8590 | | |
| 0.7500 (Minimum) | | | 1.000 (Nominal) | | | | | | | | | | | | 1.250 (Maximum) | | |

ANADRILL

SCHLUMBERGER

Survey report 16-Oct-2002 12:09:07 Page 1 of 3

Client.....: Esso Australia Ltd.
Field.....: TunaWell.....: TNA A-10A Spud date.....: 4-Oct-2002
API number.....: Last survey date.....: 16-Oct-02
Engineer.....: L. Bon Total accepted surveys...: 57
MD of first survey.....: 646.50 m
RIG.....: ISDL 453 MD of last survey.....: 2243.00 m
STATE.....: Victoria

----- Survey calculation methods-----

Method for positions.....: Minimum curvature
Method for DLS.....: Mason & Taylor

----- Geomagnetic data -----

Magnetic model.....: BGGM version 2001
Magnetic date.....: 20-Sep-2002
Magnetic field strength...: 1200.29 HCNT
Magnetic dec (+E/W-).....: 13.17 degrees
Magnetic dip.....: -68.69 degrees

----- Depth reference -----

Permanent datum.....: Mean Sea Level
Depth reference.....: Driller's Depth
GL above permanent.....: -59.40 m
KB above permanent.....: 31.32 m
DF above permanent.....: 31.32 m

----- MWD survey Reference Criteria -----

Reference G.....: 1000.02 mGal
Reference H.....: 1200.29 HCNT
Reference Dip.....: -68.69 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-) 6.00 HCNT
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Platform reference point-----

Latitude (+N/S-).....: -3.05 m
Departure (+E/W-).....: 0.11 m

----- Corrections -----

Magnetic dec (+E/W-).....: 13.17 degrees
Grid convergence (+E/W-).....: -0.88 degrees
Total az corr (+E/W-).....: 14.05 degrees
Azimuth from rotary table to target: 332.28 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 | Incl | Azimuth | Course | TVD | Vertical | Displ | Displ | Total | At | DLS | Srvy | Tool |
|-----|----------|-------|---------|--------|---------|----------|---------|---------|--------|--------|-------|------|--------|
| # | depth | angle | angle | length | depth | section | +N/S- | +E/W- | displ | Azim | (deg/ | tool | qual |
| - | (m) | (deg) | (deg) | (m) | (m) | (m) | (m) | (m) | (deg) | 100f) | type | type | |
| 1 | 646.5 | 37.39 | 204.16 | 0 | 614.23 | -101.72 | -136.8 | -35.75 | 138.47 | 194.65 | 0 | TIP | - |
| 2 | 661.2 | 37.68 | 204.31 | 14.7 | 625.89 | -107.24 | -144.96 | -39.43 | 147.32 | 195.21 | 0.63 | GYR | - |
| 3 | 700.49 | 38.02 | 219.27 | 39.29 | 656.98 | -119.38 | -165.32 | -52.05 | 170.44 | 197.48 | 7.11 | MWD | 6-axis |
| 4 | 729 | 38.66 | 224.98 | 28.51 | 679.35 | -125.46 | -178.42 | -63.91 | 186.69 | 199.71 | 3.85 | MWD | 6-axis |
| 5 | 757.82 | 37.29 | 233.89 | 28.82 | 702.08 | -129.42 | -189.94 | -77.34 | 202.3 | 202.15 | 5.97 | MWD | 6-axis |
| 6 | 785.91 | 37.06 | 243.45 | 28.09 | 724.48 | -130.48 | -198.74 | -91.8 | 216.2 | 204.79 | 6.27 | MWD | 6-axis |
| 7 | 814.55 | 37.96 | 252.29 | 28.64 | 747.22 | -128.78 | -205.29 | -107.92 | 229.28 | 207.73 | 5.8 | MWD | 6-axis |
| 8 | 843.56 | 39.69 | 259.68 | 29.01 | 769.83 | -124.45 | -209.66 | -125.54 | 241.82 | 210.91 | 5.19 | MWD | 6-axis |
| 9 | 871.13 | 40.19 | 267.56 | 27.57 | 790.98 | -118.02 | -211.62 | -143.1 | 253 | 214.07 | 5.62 | MWD | 6-axis |
| 10 | 901.08 | 40.82 | 274.91 | 29.95 | 813.77 | -108.61 | -211.19 | -162.52 | 264.15 | 217.58 | 4.9 | MWD | 6-axis |
| 11 | 927.94 | 40.93 | 282.75 | 26.86 | 834.09 | -98.15 | -208.5 | -179.86 | 273.13 | 220.78 | 5.82 | MWD | 6-axis |
| 12 | 956.4 | 41.73 | 290.78 | 28.46 | 855.48 | -85 | -203.08 | -197.82 | 281.4 | 224.25 | 5.74 | MWD | 6-axis |
| 13 | 986.18 | 42.47 | 297.76 | 29.78 | 877.59 | -69.28 | -194.87 | -216 | 288.96 | 227.94 | 4.85 | MWD | 6-axis |
| 14 | 1015.52 | 42.54 | 305.13 | 29.34 | 899.23 | -52.29 | -184.55 | -232.88 | 295.34 | 231.61 | 5.17 | MWD | 6-axis |
| 15 | 1044.86 | 42.2 | 312.78 | 29.34 | 920.92 | -34.16 | -172.14 | -248.24 | 300.45 | 235.26 | 5.37 | MWD | 6-axis |
| 16 | 1073.87 | 45.34 | 320.38 | 29.01 | 941.88 | -14.86 | -157.56 | -261.98 | 304.25 | 238.98 | 6.43 | MWD | 6-axis |
| 17 | 1102.84 | 49.02 | 325.14 | 28.97 | 961.58 | 6.08 | -140.64 | -274.81 | 307.43 | 242.9 | 5.34 | MWD | 6-axis |
| 18 | 1131.52 | 51.38 | 330.94 | 28.68 | 979.94 | 28.04 | -121.95 | -286.45 | 310.25 | 246.94 | 5.36 | MWD | 6-axis |
| 19 | 1160.5 | 54.35 | 336.25 | 28.98 | 997.44 | 51.12 | -101.26 | -296.7 | 312.63 | 251.15 | 5.44 | MWD | 6-axis |
| 20 | 1189.57 | 58.35 | 338.23 | 29.07 | 1013.55 | 75.22 | -78.95 | -306.05 | 315.43 | 255.53 | 4.54 | MWD | 6-axis |
| 21 | 1218.51 | 60.94 | 341.52 | 28.94 | 1028.18 | 99.97 | -55.51 | -314.63 | 319.08 | 259.99 | 4.05 | MWD | 6-axis |
| 22 | 1247.44 | 64.09 | 344.91 | 28.93 | 1041.53 | 125.15 | -30.94 | -322.03 | 323.34 | 264.51 | 4.59 | MWD | 6-axis |
| 23 | 1276.26 | 68.16 | 347.68 | 28.82 | 1053.19 | 150.71 | -5.34 | -328.26 | 328.38 | 269.07 | 5.07 | MWD | 6-axis |
| 24 | 1304.91 | 68.17 | 350.31 | 28.65 | 1063.85 | 176.18 | 20.76 | -333.34 | 334.29 | 273.56 | 2.6 | MWD | 6-axis |
| 25 | 1334.11 | 67.47 | 350.2 | 29.2 | 1074.88 | 201.9 | 47.41 | -337.91 | 341.77 | 277.99 | 0.74 | MWD | 6-axis |
| 26 | 1363.21 | 66.92 | 349.8 | 29.1 | 1086.15 | 227.45 | 73.83 | -342.57 | 351.2 | 282.16 | 0.69 | MWD | 6-axis |
| 27 | 1391.75 | 67.53 | 350.62 | 28.54 | 1097.2 | 252.49 | 99.76 | -347.04 | 362.06 | 286.04 | 1.04 | MWD | 6-axis |
| 28 | 1420.36 | 67.08 | 350.51 | 28.61 | 1108.24 | 277.55 | 125.8 | -351.37 | 374.35 | 289.7 | 0.49 | MWD | 6-axis |
| 29 | 1448.66 | 68.99 | 350.9 | 28.3 | 1118.83 | 302.45 | 151.7 | -355.61 | 387.92 | 293.1 | 2.09 | MWD | 6-axis |
| 30 | 1477.72 | 68.34 | 350.63 | 29.06 | 1129.4 | 328.12 | 178.41 | -359.95 | 403.21 | 296.37 | 0.73 | MWD | 6-axis |

30 1477.72 68.34 350.63 29.06 1129.4 328.12 178.41 -359.95 403.21 296.37 0.73 MWD 6-axis

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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 (deg) | At 100f | DLS type | Srvy tool | Tool qual |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-------------------|---------|----------|-----------|-----------|
| 31 | 1506.45 | 67.61 | 350.84 | 28.73 | 1140.17 | 353.38 | 204.7 | -364.24 | 419.42 | 299.33 | 0.8 | MWD | 6-axis |
| 32 | 1535.61 | 68.97 | 350.83 | 29.16 | 1150.96 | 379.07 | 231.44 | -368.56 | 436.92 | 302.13 | 1.42 | MWD | 6-axis |
| 33 | 1565.41 | 68.26 | 350.58 | 29.8 | 1161.82 | 405.39 | 258.83 | -373.04 | 455.87 | 304.75 | 0.76 | MWD | 6-axis |
| 34 | 1594.42 | 67.8 | 350.83 | 29.01 | 1172.68 | 430.92 | 285.38 | -377.38 | 475.07 | 307.1 | 0.54 | MWD | 6-axis |
| 35 | 1623.51 | 67.52 | 350.94 | 29.09 | 1183.74 | 456.42 | 311.95 | -381.65 | 494.93 | 309.26 | 0.31 | MWD | 6-axis |
| 36 | 1652.59 | 68.41 | 350.68 | 29.08 | 1194.64 | 481.98 | 338.55 | -385.95 | 515.5 | 311.26 | 0.97 | MWD | 6-axis |
| 37 | 1681.35 | 68.05 | 350.92 | 28.76 | 1205.31 | 507.3 | 364.92 | -390.22 | 536.43 | 313.08 | 0.45 | MWD | 6-axis |
| 38 | 1710.58 | 67.88 | 350.84 | 29.23 | 1216.28 | 532.98 | 391.67 | -394.52 | 558.15 | 314.79 | 0.19 | MWD | 6-axis |
| 39 | 1739.39 | 67.67 | 350.96 | 28.81 | 1227.18 | 558.25 | 418.01 | -398.73 | 579.97 | 316.35 | 0.25 | MWD | 6-axis |
| 40 | 1767.87 | 67.3 | 351.21 | 28.48 | 1238.08 | 583.16 | 444 | -402.81 | 601.83 | 317.78 | 0.47 | MWD | 6-axis |
| 41 | 1796.96 | 68.71 | 351.25 | 29.09 | 1248.98 | 608.67 | 470.65 | -406.92 | 624.56 | 319.15 | 1.48 | MWD | 6-axis |
| 42 | 1825.58 | 67.9 | 351.27 | 28.62 | 1259.56 | 633.82 | 496.94 | -410.96 | 647.28 | 320.41 | 0.86 | MWD | 6-axis |
| 43 | 1854.31 | 67.69 | 350.38 | 28.73 | 1270.41 | 659.03 | 523.2 | -415.21 | 670.39 | 321.56 | 0.9 | MWD | 6-axis |
| 44 | 1883.82 | 67.24 | 350.44 | 29.51 | 1281.72 | 684.94 | 550.07 | -419.75 | 694.42 | 322.65 | 0.47 | MWD | 6-axis |
| 45 | 1912.74 | 68.05 | 348.78 | 28.92 | 1292.72 | 710.47 | 576.38 | -424.57 | 718.39 | 323.62 | 1.83 | MWD | 6-axis |
| 46 | 1941.53 | 67.75 | 348.8 | 28.79 | 1303.55 | 736.04 | 602.54 | -429.76 | 742.65 | 324.5 | 0.32 | MWD | 6-axis |
| 47 | 1970.81 | 67.57 | 348.94 | 29.28 | 1314.68 | 762 | 629.12 | -434.98 | 767.43 | 325.34 | 0.23 | MWD | 6-axis |
| 48 | 1999.66 | 67.07 | 349.15 | 28.85 | 1325.81 | 787.49 | 655.25 | -440.04 | 791.89 | 326.12 | 0.57 | MWD | 6-axis |
| 49 | 2034.43 | 62.98 | 349.79 | 34.77 | 1340.49 | 817.59 | 686.23 | -445.8 | 820.94 | 326.99 | 3.62 | MWD | 6-axis |
| 50 | 2063.19 | 57.85 | 350.62 | 28.76 | 1354.68 | 841.38 | 710.87 | -450.06 | 844 | 327.66 | 5.49 | MWD | 6-axis |
| 51 | 2092.26 | 54.07 | 349.1 | 29.07 | 1370.95 | 864.34 | 734.58 | -454.3 | 866.36 | 328.27 | 4.18 | MWD | 6-axis |
| 52 | 2121.17 | 54.36 | 349.19 | 28.91 | 1387.86 | 886.78 | 757.61 | -458.71 | 888.32 | 328.81 | 0.32 | MWD | 6-axis |
| 53 | 2150 | 55.5 | 349.25 | 28.83 | 1404.42 | 909.35 | 780.79 | -463.13 | 910.49 | 329.33 | 1.21 | MWD | 6-axis |
| 54 | 2179.27 | 56.64 | 349.55 | 29.27 | 1420.76 | 932.56 | 804.66 | -467.59 | 933.35 | 329.84 | 1.22 | MWD | 6-axis |
| 55 | 2208.3 | 56.7 | 349.39 | 29.03 | 1436.71 | 955.73 | 828.51 | -472.02 | 956.24 | 330.33 | 0.15 | MWD | 6-axis |
| 56 | 2224.38 | 57.39 | 349.38 | 16.08 | 1445.46 | 968.63 | 841.77 | -474.51 | 969.01 | 330.59 | 1.31 | MWD | 6-axis |
| 57 | 2243 | 57.75 | 349.37 | 18.62 | 1455.44 | 983.65 | 857.21 | -477.41 | 983.91 | 330.89 | 0.59 | MWD | - |

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Company: **ESSO Australia Ltd Pty**

Schlumberger

Well: **TNA A-10A ST**

Field: **Tuna**

Rig: **ISDL 453**

State: **Victoria**

**GeoVISION* Resistivity
1:500 Measured Depth
Recorded Mode Data**