

Reeves

DUAL LATEROLOG - GR

DENSITY - NEUTRON

1:200 TVD

| | | | | | | | |
|--|----------------------|-----|-----|--|--|---|--|
| COMPANY | | | | ESSO AUSTRALIA PTY. LTD. | | | |
| WELL | | | | TUNA A-05A | | | |
| FIELD | | | | GIPPSLAND BASIN | | | |
| PROVINCE/COUNTY | | | | BASS STRAIT | | | |
| COUNTRY/STATE | | | | AUSTRALIA | | | |
| LOCATION | | | | X: 624233.40 m E, Y: 5774225.83 m N 38°10'16.282" S, 148°25'05.756" E | | | |
| LSD | SEC | TWP | RGE | Other Services COMPENSATED SONIC | | | |
| API Number | | | | | | | |
| Permit Number | | | | | | | |
| Permanent Datum MSL | | | | , Elevation 0 | | metres | |
| Log Measured From DF@ 31.32 metres above Permanent Datum | | | | | | | |
| Drilling Measured From DF | | | | | | | |
| Date | 26-Dec-2002 | | | | | Elevations: KB 31.32 metres DF 31.32 metres GL -59.40 metres | |
| Run Number | 1 | | | | | | |
| Depth Driller | 1450.68 | | | metres | | | |
| Depth Logger | 1450.68 | | | metres | | | |
| First Reading | 1448.70 | | | metres | | | |
| Last Reading | 1319.80 | | | metres | | | |
| Casing Driller | 652.00 | | | metres | | | |
| Casing Logger | | | | | | | |
| Bit Size | 8.50 | | | Inches | | | |
| Hole Fluid Type | KCL/PPH/AGLY | | | | | | |
| Density / Viscosity | 10.30 lb/USg | | | 64.00 secs/ct | | | |
| PH / Fluid Loss | 9.00 | | | 3.20 ml/30Min | | | |
| Sample Source | FLOWLINE | | | | | | |
| Rm @ Measured Temp | 0.118 @ 25.0 | | | ohm-m | | | |
| Rmf @ Measured Temp | 0.085 @ 25.0 | | | ohm-m | | | |
| Rmc @ Measured Temp | 0.193 @ 25.0 | | | ohm-m | | | |
| Source Rmf / Rmc | PRESS | | | FILTER | | | |
| Rm @ BHT | 0.059 @ 73.0 | | | ohm-m | | | |
| Time Since Circulation | 36:15 hrs | | | | | | |
| Max Recorded Temp | 73.00 | | | deg C | | | |
| Equipment Name | SHUTTLE | | | | | | |
| Equipment / Base | 1 | | | CML | | | |
| Recorded By | M. BARNES, B. ARNOLD | | | D. MACHIN, G. MCMAHUS | | | |
| Witnessed By | G. SMITH | | | | | | |
| Circ. Stopped | 09:00 25-Dec | | | | | | |

BOREHOLE RECORD

| Bit Size inches | Depth From metres | Depth To metres |
|--------------------|----------------------|--------------------|
| 12.250 | 218.00 | 841.00 |
| 8.500 | 841.00 | 3257.00 |

CASING RECORD

| Type | Size inches | Depth From metres | Shoe Depth metres | Weight pounds/ft |
|------|----------------|----------------------|----------------------|---------------------|
| | 9.625 | 0.00 | 836.41 | 47.00 |

REMARKS

DRILLING RIG: NABORS (ISDL) RIG 453.

COMPACT WIRELINE TOOLS DEPLOYED BY COMPACT WELL SHUTTLE TECHNIQUE.

MESSENGER DEPLOYED WITH RIG MUD PUMPS.

RING SHEARED AT 21:10 26-DEC-02.

SHEARING PRESSURE WAS 1200 PSI.

HTHP FILTER LOSS = 10.8 ml/30min.

CASING DETAILS:

20" 133.0 lb/ft from surface to 164.60 m.

13 3/8" 54.5 lb/ft from surface to 609.65 m (window milled from 210.39 m to 218.39 m).

9 5/8" 47.0 lb/ft from surface to 836.41 m.

CALIPER READING 8.68" ON TIME LOG IN 9 5/8" 47 LB/FT CASING.

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

MAIN LOG 1:200

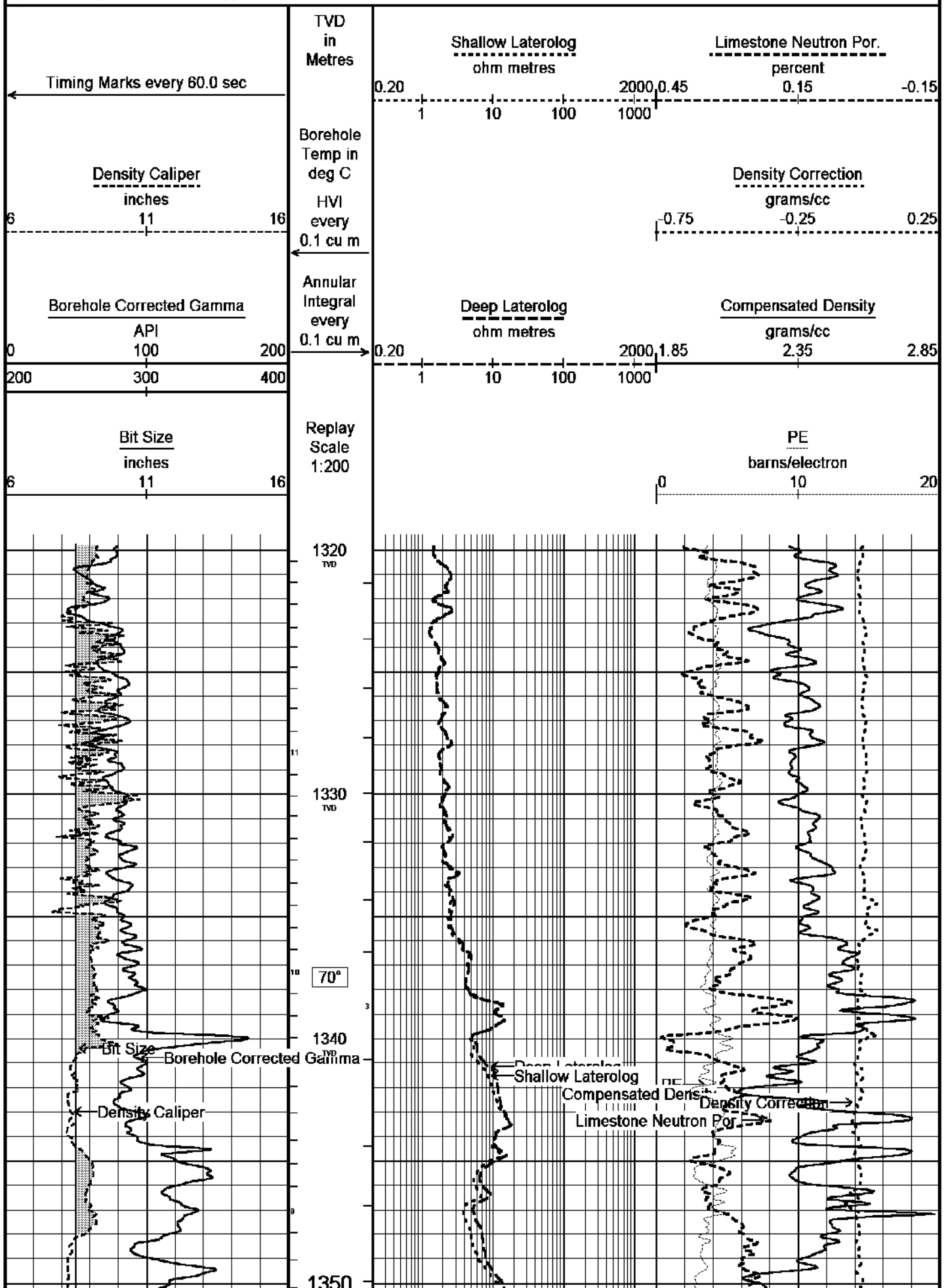
Depth Based Data - Maximum Sampling Increment 10.0cm

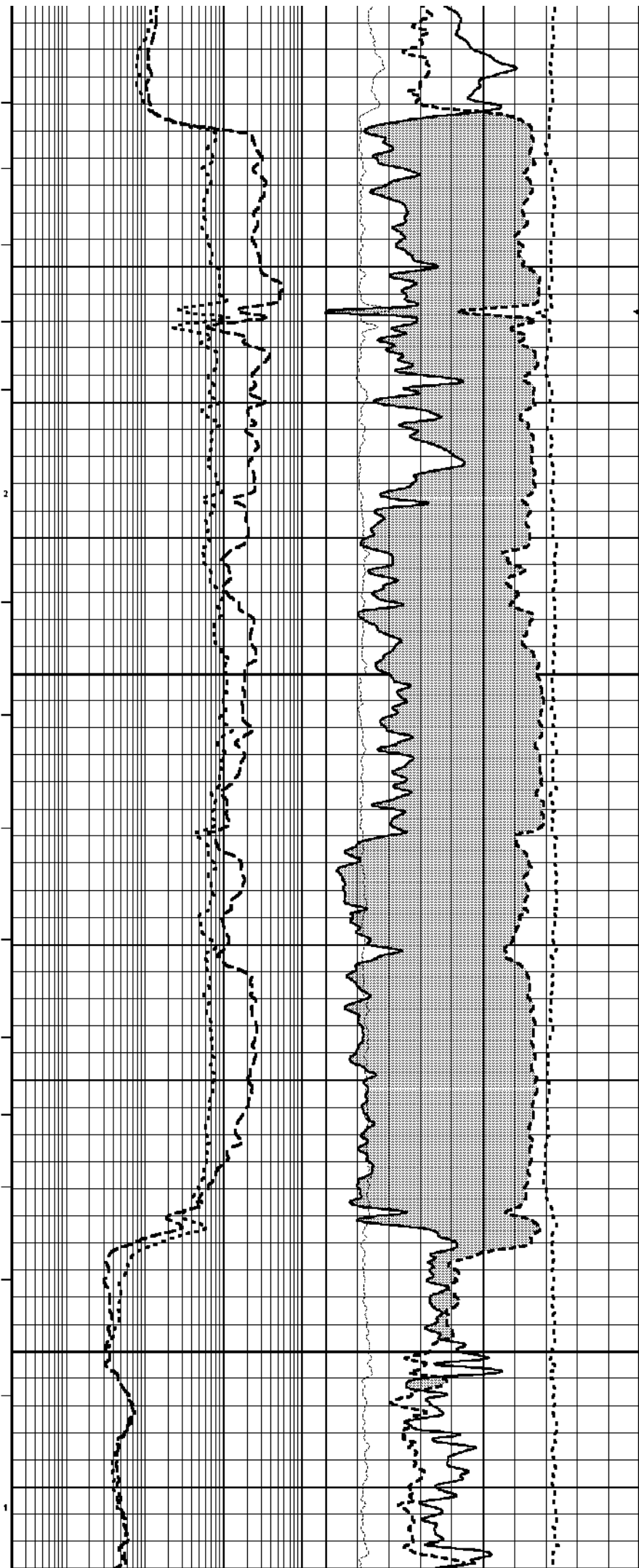
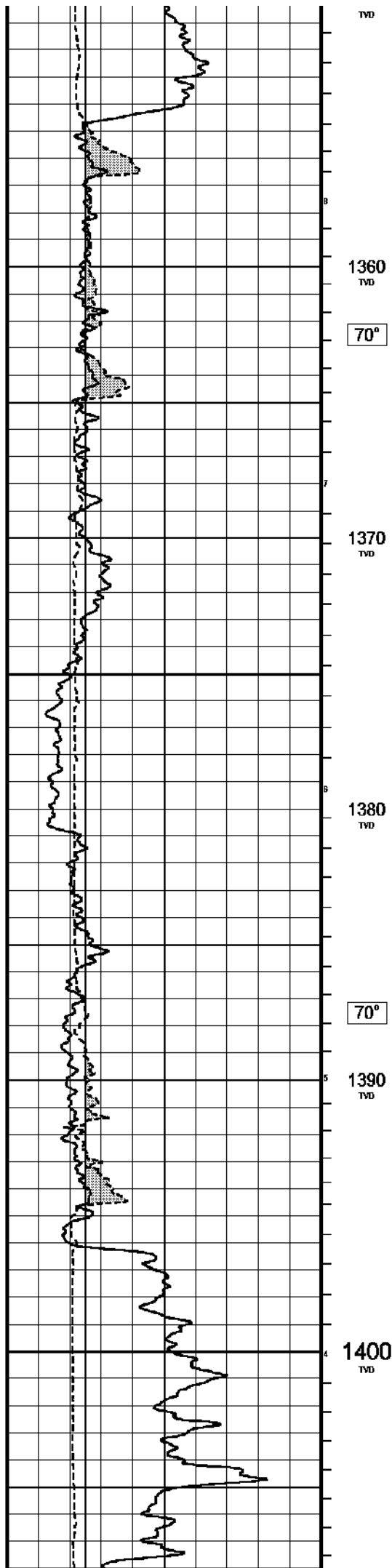
Plotted on 27-DEC-2002 09:43

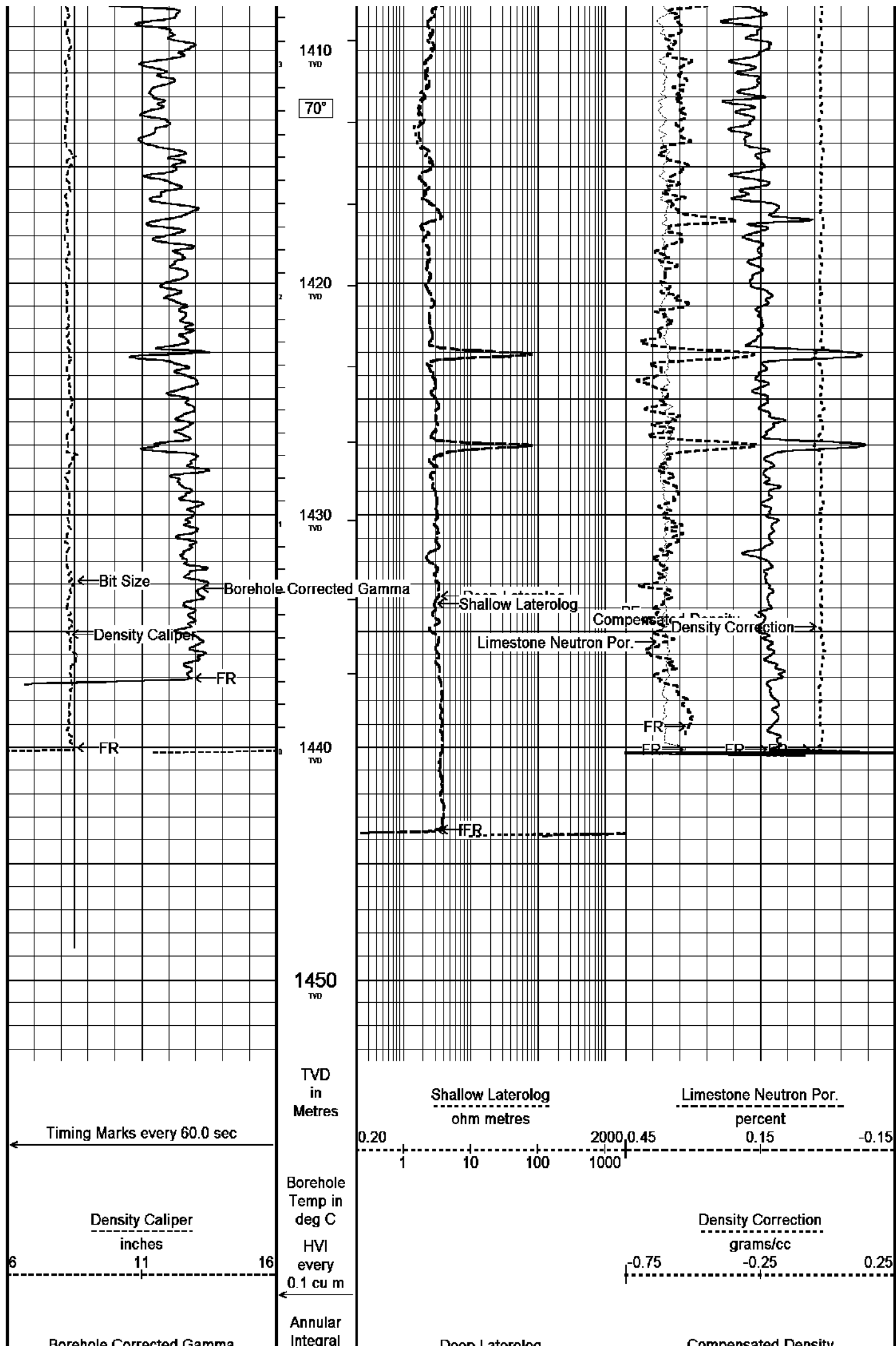
Filename: C:\Data\Tuna A05A\MAIN LOG DSC.dta

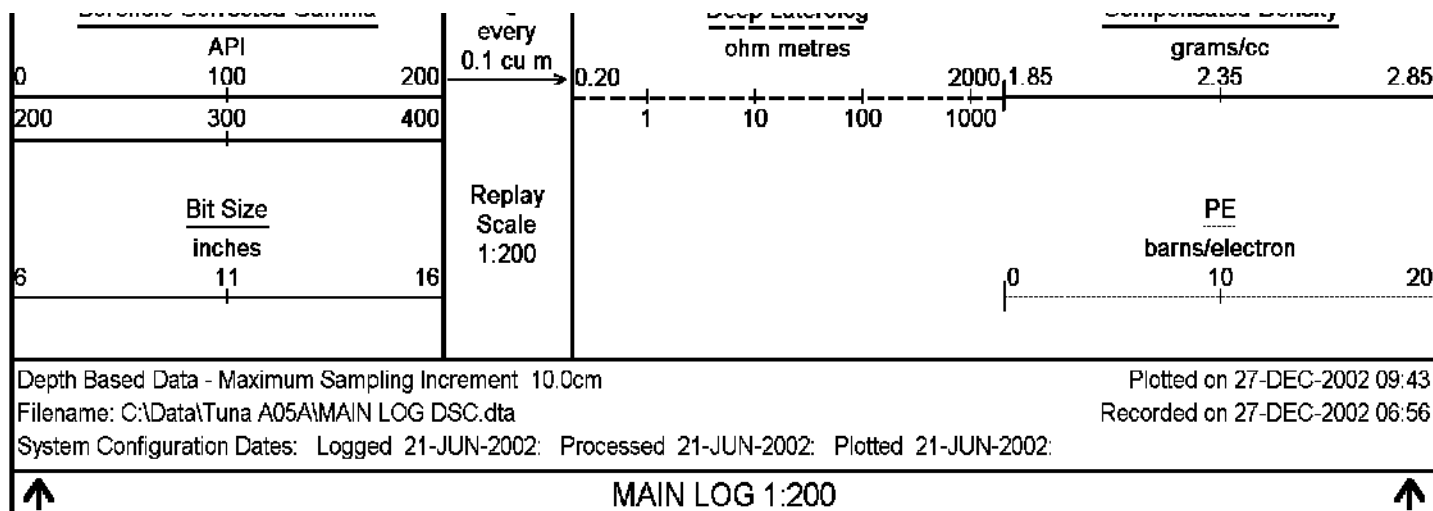
Recorded on 27-DEC-2002 06:56

System Configuration Dates: Logged 21-JUN-2002: Processed 21-JUN-2002: Plotted 21-JUN-2002









BEFORE SURVEY CALIBRATION

C:\Data\Tuna A05A\MAIN LOG DSC.dta

General Constants All 000

General Parameters

| | | |
|-----------------------------|----------|------------|
| Mud Resistivity | 0.06 | ohm-metres |
| Mud Resistivity Temperature | 73.00 | degrees C |
| Water Level | 0.00 | metres |
| Density/Neutron Processing | Wet Hole | |

Hole/Annular Volume Parameters

| | | |
|-------------------------|-----------------|--------|
| HVOL Caliper 1 | Density Caliper | |
| HVOL Caliper 2 | Density Caliper | |
| Annular Volume Diameter | 7.00 | inches |

Rwa Parameters

| | | |
|------------------|-----------------------|--|
| Porosity used | Base Density Porosity | |
| Resistivity used | Deep Induction | |
| RWA Constant A | 0.61 | |
| RWA Constant M | 2.15 | |

Gamma Calibration MCG 044

Field Calibration on 24-DEC-2002 10:04

| | Measured | Calibrated (API) |
|--------------------|----------|------------------|
| Background | 11 | 7 |
| Calibrator (Gross) | 1439 | 916 |
| Calibrator (Net) | 1428 | 909 |

Gamma Constants MCG 044

| | | |
|-------------------------------|-----------------|-------|
| Gamma Calibrator Number | 060 | |
| Mud Density | 1.24 | gm/cc |
| Caliper Source for Processing | Density Caliper | |
| Tool Position | Eccentred | |
| Concentration of KCl | 0.00 | kppm |

High Resolution Temperature Calibration MCG 044

Field Calibration on 4-SEP-2002,14:58

| | Measured | Calibrated(Deg C) |
|-------|----------|-------------------|
| Lower | 1.00 | 1.00 |
| Upper | 150.00 | 150.00 |

High Resolution Temperature Constants MCG 044

| | |
|-------------------|----|
| Pre-filter Length | 11 |
|-------------------|----|

Neutron Calibration MDN 068

Base Calibration on 5-DEC-2002 18:20

Field Check on 24-DEC-2002 10:24

Base Calibration

| | Measured | | Calibrated (cps) | |
|-------|----------|-----|------------------|-----|
| | Near | Far | Near | Far |
| Ratio | 2886 | 90 | 3714 | 110 |
| | 32.026 | | 33.764 | |

Field Calibrator at Base

Calibrated (cps)

| | | | |
|-----------------------------------|--------------------------|--|------------------|
| Ratio | 1833 | 2640 | 0.694 |
| Field Check | Calibrated (cps) | | |
| Ratio | 1849 | 2675 | 0.691 |
| Neutron Constants MDN 068 | | | |
| Neutron Source Id | 724 | | |
| Neutron Jig Number | 52 | | |
| Epithermal Neutron | No | | |
| Caliper Source for Processing | Density Caliper | | |
| Stand-off | 0.00 | inches | |
| Mud Density | 1.24 | gm/cc | |
| Limestone Sigma | 7.10 | cu | |
| Sandstone Sigma | 4.26 | cu | |
| Dolomite Sigma | 4.70 | cu | |
| Formation Pressure Source | None | | |
| Formation Pressure | N/A | kpsi | |
| Temperature Source | MCG External Temperature | | |
| Temperature | 20.00 | degrees C | |
| Mud Salinity | 56.00 | kppm | |
| Formation Fluid Salinity Source | None | | |
| Formation Fluid Salinity | N/A | kppm | |
| Barite Mud Correction | Not Applied | | |
| Caliper Calibration MPD 066 | | Base Calibration on 27-DEC-2002,09:09 Field Calibration on | |
| Base Calibration | | | |
| Reading No | Measured | Calibrator Size (in) | |
| 1 | 11999 | 4.31 | |
| 2 | 20143 | 6.29 | |
| 3 | 28915 | 8.28 | |
| 4 | 37314 | 10.24 | |
| 5 | 46672 | 12.31 | |
| 6 | N/A | N/A | |
| Field Calibration | 0 | 0 | |
| | 0.00 | 0.00 | |
| Photo Density Calibration MPD 066 | | Base Calibration on 4-DEC-2002 16:29 Field Check on 26-DEC-2002 05:42 | |
| Density Calibration | | | |
| Base Calibration | | Measured | Calibrated (sdu) |
| | Near | Far | Near Far |
| Reference 1 | 54476 | 19731 | 53282 19349 |
| Reference 2 | 29983 | 2875 | 25298 2555 |
| Field Check at Base | 993.0 | 1165.2 | |
| Field Check | 990.1 | 1159.3 | |
| PE Calibration | | | |
| Base Calibration | | Measured | Calibrated |
| | WS | WH | Ratio |
| Background | 189 | 869 | |
| Reference 1 | 17146 | 54295 | 0.317 0.318 |
| Reference 2 | 7927 | 29843 | 0.267 0.273 |
| Field Check at Base | 189.1 | 868.6 | |
| Field Check | 187.7 | 868.8 | |
| Density Constants MPD 066 | | | |
| Density Source Id | 226 | | |
| Nylon Calibrator Number | 517 | | |
| Aluminium/Fe Calibrator Number | 517 | | |

| | | |
|-------------------------------|-----------------|-------|
| Density Shoe Profile | 4 inch | |
| Caliper Source for Processing | Density Caliper | |
| Gamma Strip Coefficient | 0.00 | |
| PE Correction to Density | Not Applied | |
| Mud Density | 1.24 | gm/cc |
| Mud Density Z/A Correction | 1.11 | |
| Mud Filtrate Density | 1.00 | gm/cc |
| Dry Hole Mud Filtrate Density | 1.00 | gm/cc |
| DNCT | 0.00 | gm/cc |
| CRCT | 0.00 | gm/cc |

| | |
|------------------------|-----------|
| Matrix Density (gm/cc) | Depth (m) |
| 2.71 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |

Laterolog Calibration MLE 015

Base Calibration on 4-SEP-2002,14:40

Field Check on 24-DEC-2002,10:46

Base Calibration

| Channel | Measured | | Calibrated (ohm-m) | |
|-----------|------------|------------|--------------------|------------|
| | Resistor 1 | Resistor 2 | Resistor 1 | Resistor 2 |
| Shallow | 0.0 | 972.3 | 0.0 | 1327.3 |
| Deep | 0.0 | 972.9 | 0.0 | 852.7 |
| Groningen | 0.0 | 996.2 | 0.0 | 852.7 |

| Channel | Base Check (ohm-m) | Field Check (ohm-m) |
|-----------|--------------------|---------------------|
| Shallow | 49.1 | 49.1 |
| Deep | 31.5 | 31.5 |
| Groningen | 246.3 | 246.3 |

Laterolog Constants MLE 015

| | | |
|------------------------------|---------------------|-------|
| Squasher Start | 40000 | ohm-m |
| Shallow Laterolog K Factor | 1.3273 | |
| Deep Laterolog K Factor | 0.8527 | |
| Groningen Laterolog K Factor | 0.8527 | |
| Interference Rejection | 50 Hz | |
| SP Connection | SP Bridle Electrode | |
| Groningen Connection | Groningen Electrode | |

DOWNHOLE EQUIPMENT

All measurements relative to tool zero.

Compact Battery Sub.
MBS 99 Length: 4.34 m Weight: 44.09 lb

Compact Knuckle Joint
SKJ 47 Length: 0.66 m Weight: 24.25 lb



Compact Inline Standoff B
MIS 52 Length: 0.65 m Weight: 15.43 lb

Compact Stiff Bridle Electrode Sub.
MBE 9 Length: 3.76 m Weight: 94.80 lb

Compact Inline Standoff B
MIS 77 Length: 0.65 m Weight: 15.43 lb

Compact Stiff Bridle Electrode Sub.
MBE 5 Length: 3.76 m Weight: 94.80 lb

Compact Inline Standoff B
MIS 31 Length: 0.65 m Weight: 15.43 lb



Compact Knuckle Joint
SKJ 44 Length: 0.66 m Weight: 24.25 lb

Compact Gamma
MCG 44 Length: 2.65 m Weight: 63.93 lb

Compact Memory Sub.
MMS 24 Length: 0.95 m Weight: 22.05 lb

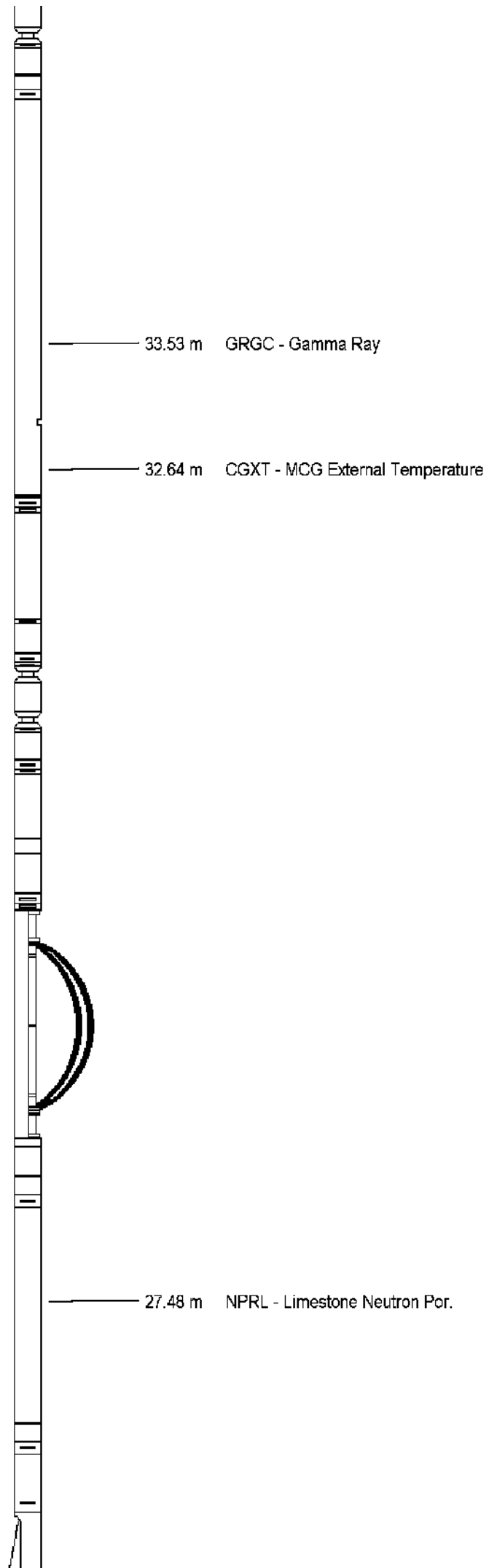
Compact Knuckle Joint
SKJ 46 Length: 0.66 m Weight: 24.25 lb

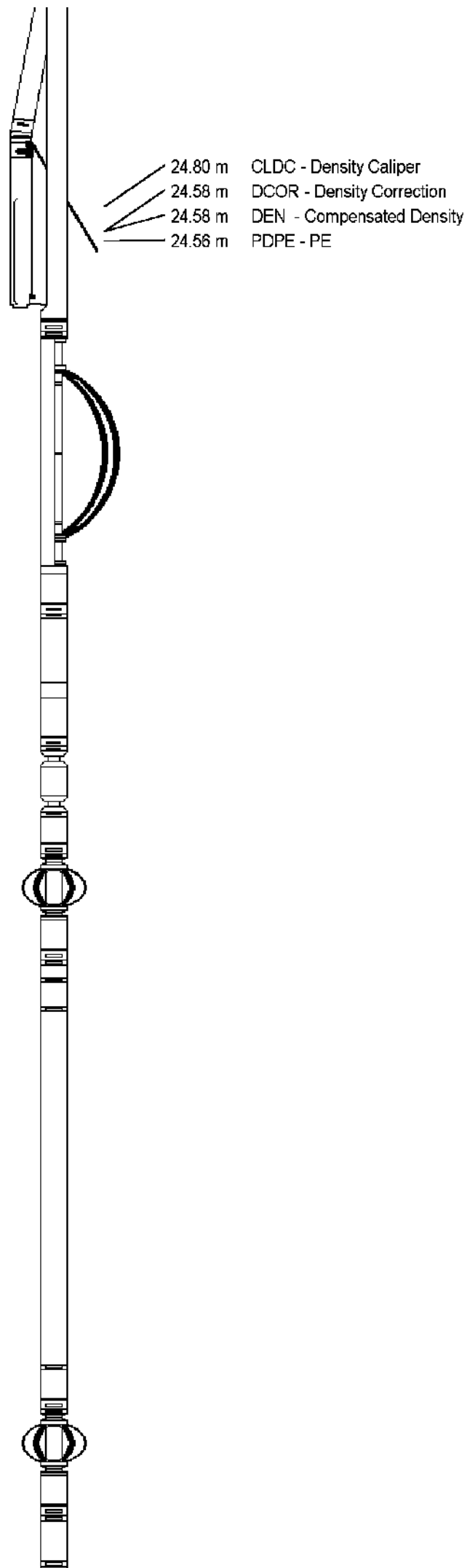
Compact Swivel Head Adaptor
SHA 27 Length: 0.83 m Weight: 26.46 lb

Compact Inline Bowspring A
MIS 24 Length: 1.74 m Weight: 33.07 lb

Compact Neutron
MDN 68 Length: 1.53 m Weight: 50.71 lb

Compact Density/Caliper
MPD 66 Length: 2.92 m Weight: 90.39 lb





Compact Inline Bowspring A
MIS 25 Length: 1.74 m Weight: 33.07 lb

Compact Swivel Head Adaptor
SHA 28 Length: 0.83 m Weight: 26.46 lb

Compact Knuckle Joint
SKJ 45 Length: 0.66 m Weight: 24.25 lb

Compact Inline Standoff B
MIS 53 Length: 0.65 m Weight: 15.43 lb

Compact Upper Guard Sub.
MUG 17 Length: 2.74 m Weight: 68.34 lb

Compact Inline Standoff B
MIS 49 Length: 0.65 m Weight: 15.43 lb

Compact Laterolog Electrode Sub.
MIE 15 Length: 3.76 m Weight: 97.59 lb

MIS 76 Length: 0.65 m Weight: 15.43 lb

Compact Inline Standoff B
MIS 76 Length: 0.65 m Weight: 15.43 lb

Compact Lower Guard Sub.
MLG 7 Length: 2.44 m Weight: 55.12 lb

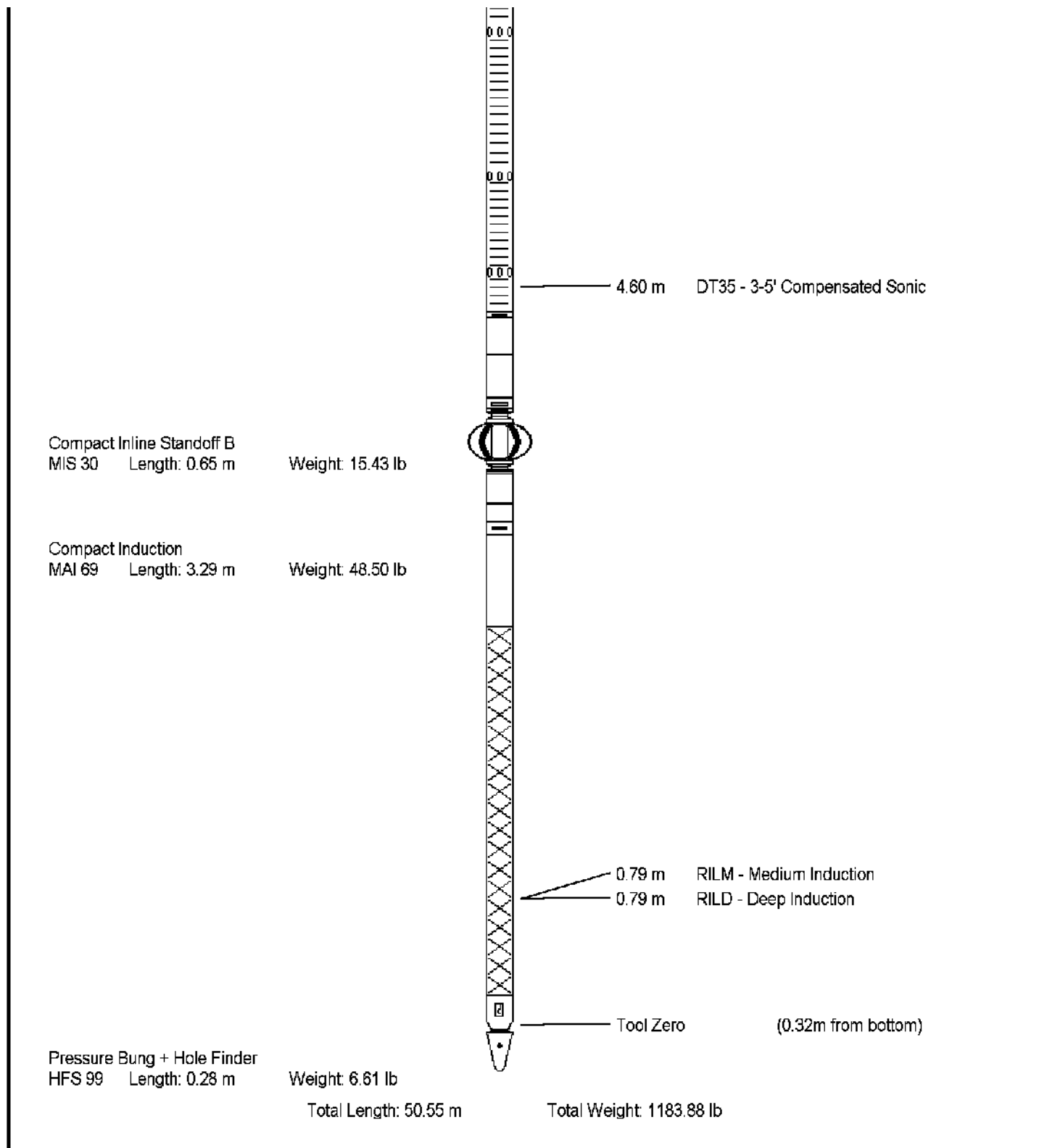
Compact Inline Standoff B
MIS 73 Length: 0.65 m Weight: 15.43 lb

Compact Knuckle Joint
SKJ 48 Length: 0.66 m Weight: 24.25 lb

Compact Inline Standoff B
MIS 75 Length: 0.65 m Weight: 15.43 lb

Compact Sonic
MSS 45 Length: 3.82 m Weight: 72.75 lb





| | | | |
|-------------------------------|--------------------------|---------------|----------------|
| COMPANY | ESSO AUSTRALIA PTY. LTD. | | |
| WELL | TUNA A-05A | | |
| FIELD | GIPPSLAND BASIN | | |
| PROVINCE/COUNTY | BASS STRAIT | | |
| COUNTRY/STATE | AUSTRALIA | | |
| Elevation Kelly Bushing | metres | First Reading | 1448.70 metres |
| Elevation Drill Floor 31.32 | metres | Depth Driller | 1450.68 metres |
| Elevation Ground Level -59.40 | metres | Depth Logger | 1450.68 metres |



DUAL LATEROLOG - GR
DENSITY - NEUTRON
1:200 TVD

