

# Reeves

## DUAL LATEROLOG - GR

### DENSITY - NEUTRON

### 1:500 MD

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			
API Number				COMPENSATED SONIC			
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 DF 31.32 GL -59.40 metres metres metres	
Run Number	1						
Depth Driller	3257.00			metres			
Depth Logger	3257.00			metres			
First Reading	3251.20			metres			
Last Reading	2900.00			metres			
Casing Driller	836.41			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. MCMANUS			
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 1:500

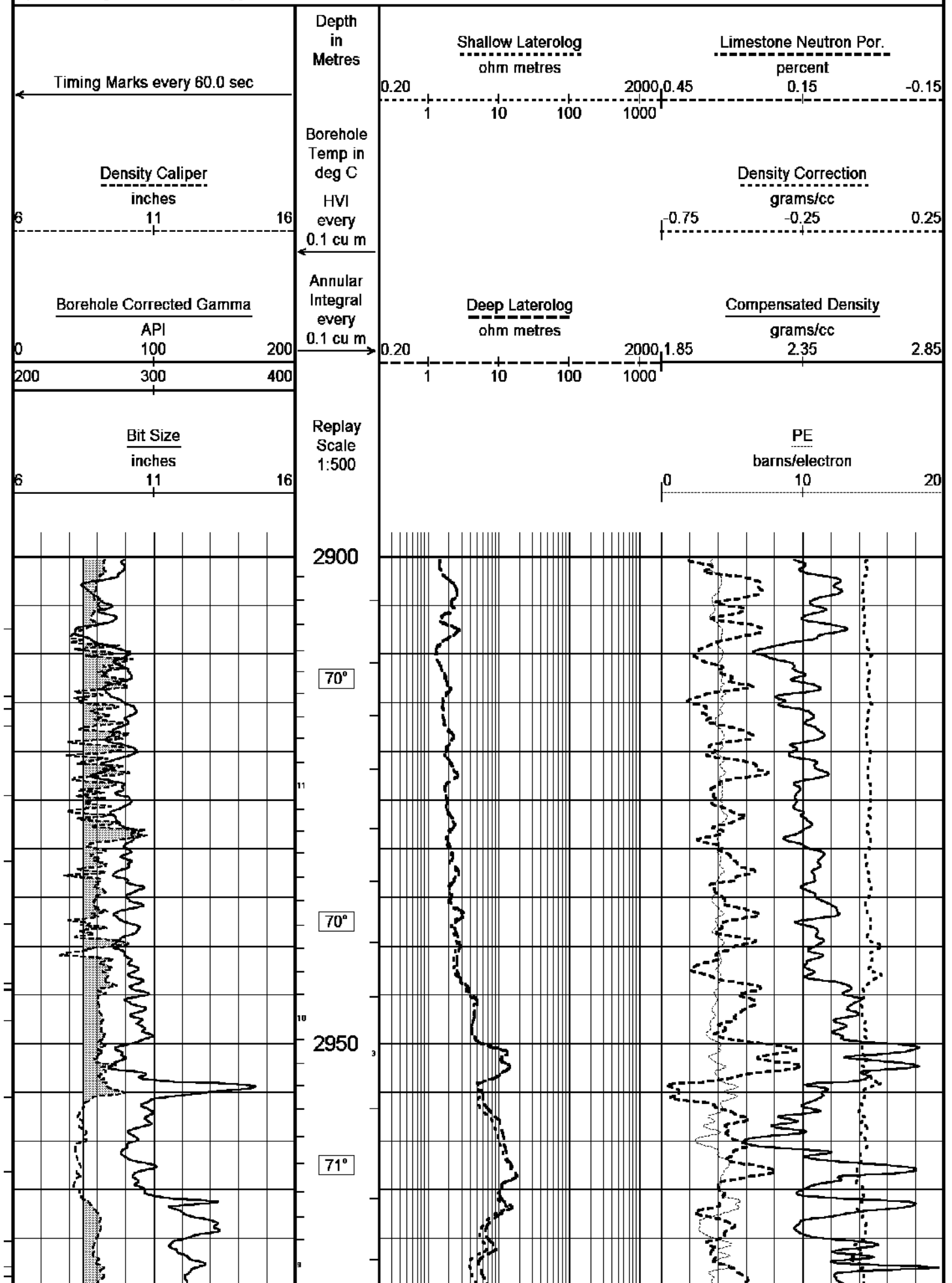
Depth Based Data - Maximum Sampling Increment 10.0cm

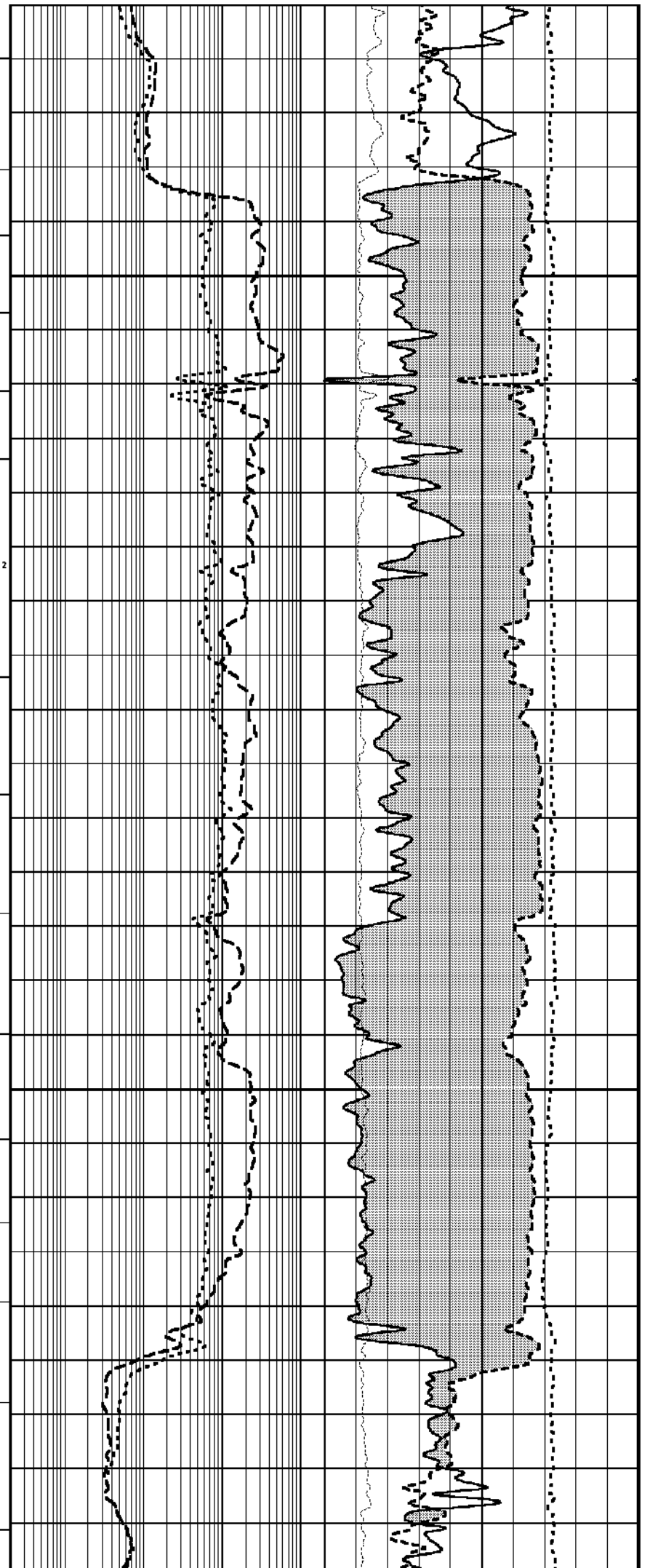
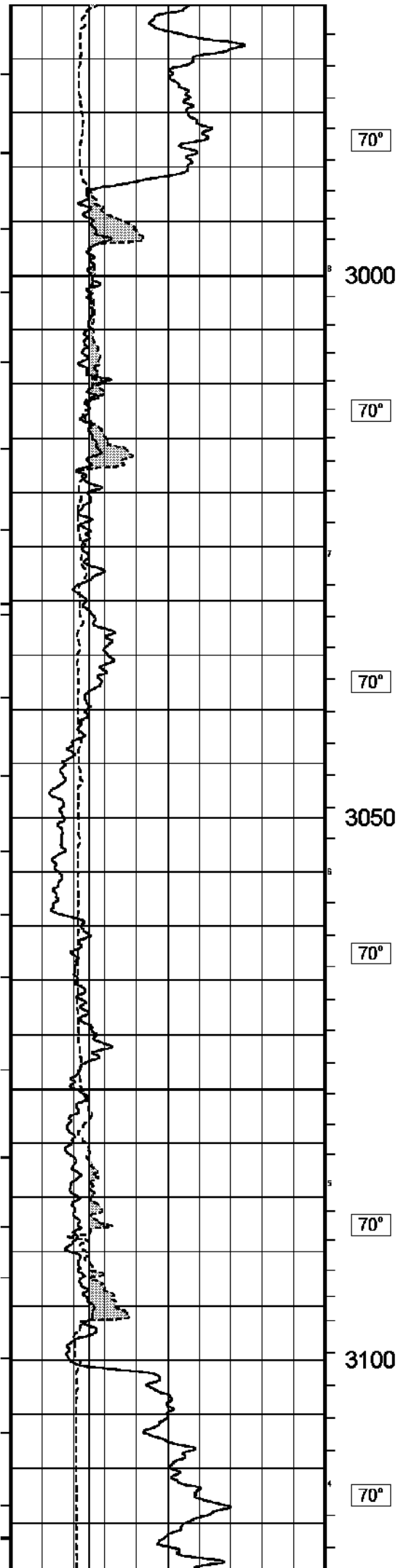
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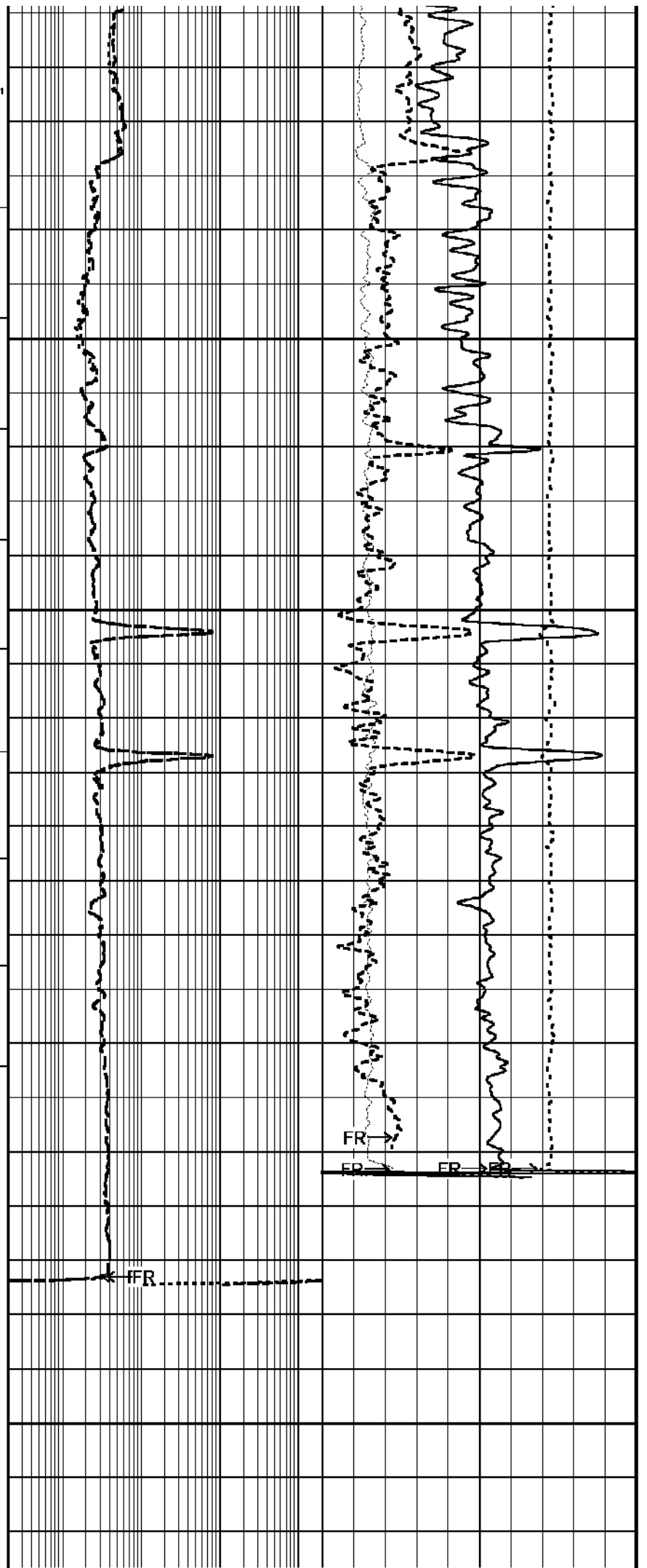
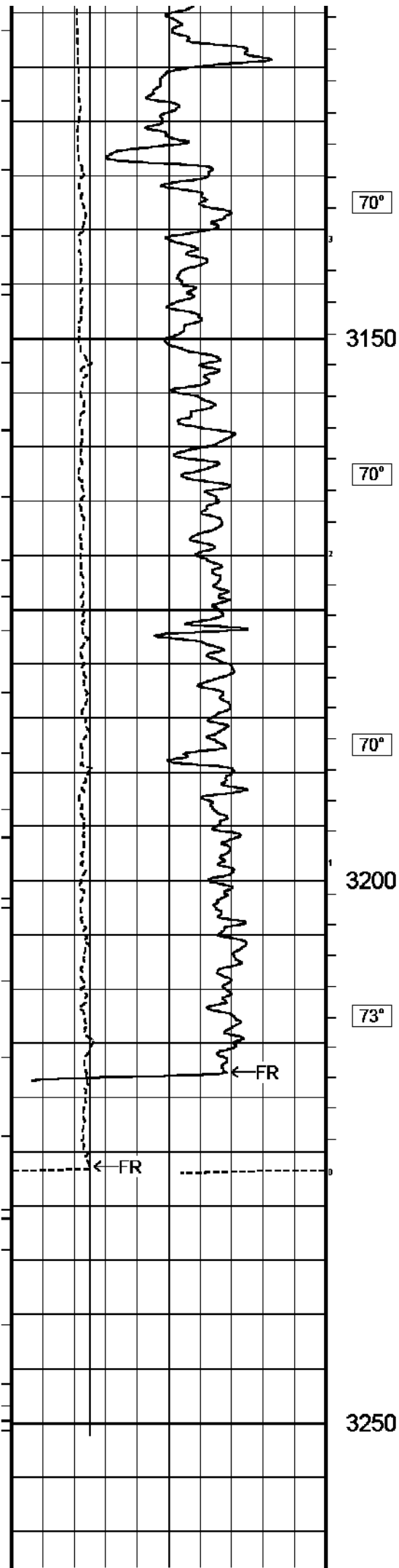
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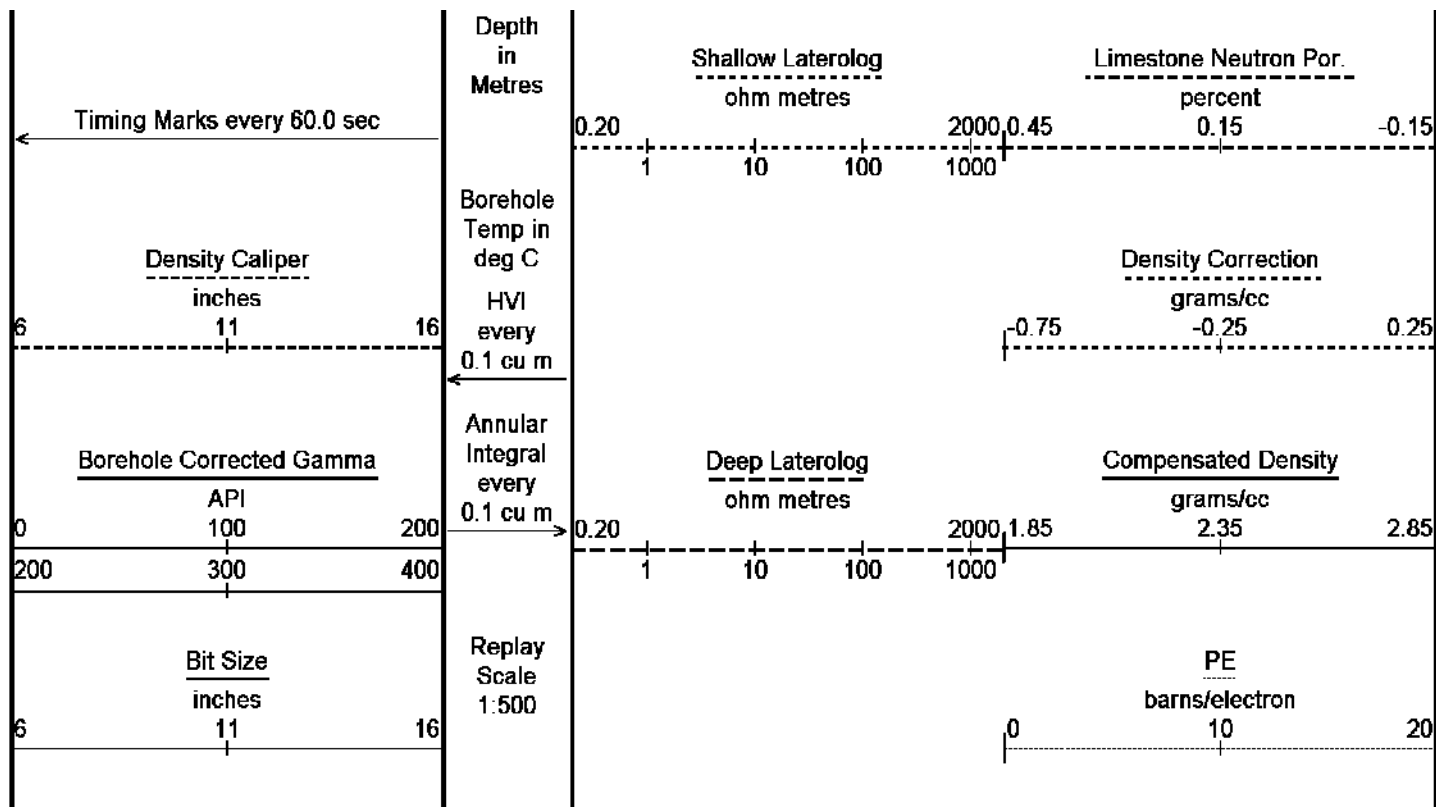
Recorded on 27-DEC-2002 06:56

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









Depth Based Data - Maximum Sampling Increment: 10.0cm

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

Plotted on 27-DEC-2002 13:13

Recorded on 27-DEC-2002 08:56

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

MAIN LOG 1:500

## 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
	2886 90	3714 110
Ratio	32.026	33.764
Field Calibrator at Base		
		Calibrated (cps)
		1833 2640
Ratio		0.694
Field Check		
		Calibrated (cps)
		1849 2675
Ratio		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

	VVO	VFI	Ratio	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

#### 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



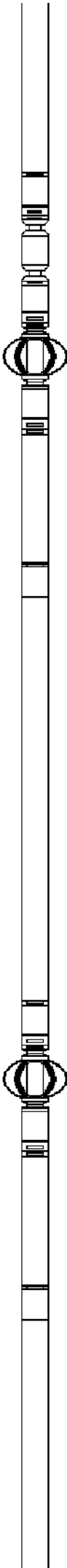
Compact Knuckle Joint  
SKJ 47    Length: 0.66 m    Weight: 24.25 lb

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

33.53 m GRGC - Gamma Ray

32.64 m CGXT - MCG External Temperature

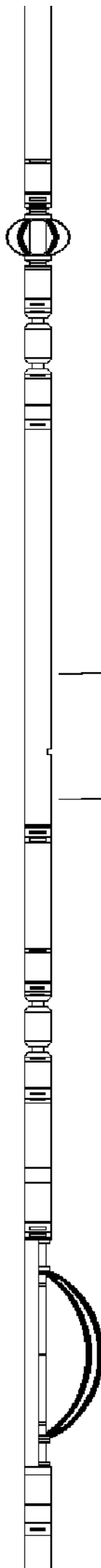
Compact Memory Sub.  
MMS 24 Length: 0.95 m Weight: 22.05 lb

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  
MNN 69 Length: 1.52 m Weight: 50.74 lb



MDN 66 Length: 1.33 m Weight: 30.7 lb

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

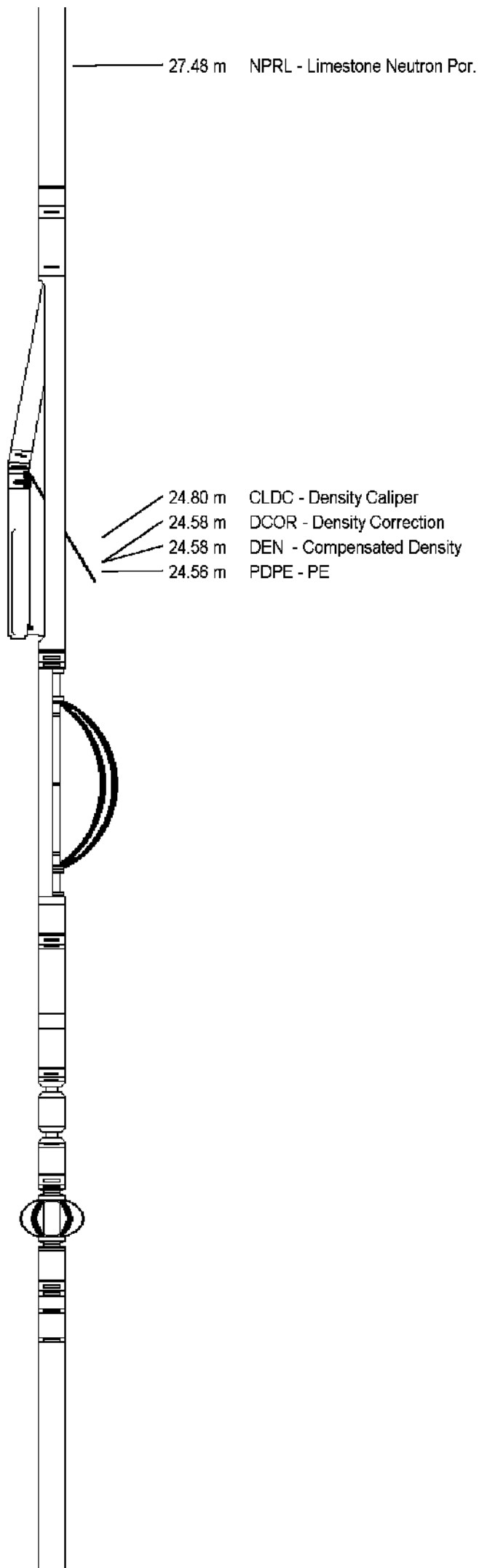
Compact Inline Bowspring A  
MIS 25 Length: 1.74 m Weight: 33.07 lb

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.  
MLE 15    Length: 3.76 m    Weight: 92.59 lb

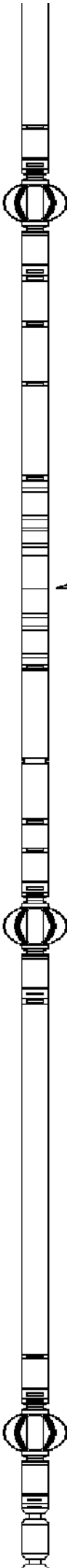
14.66 m    DSLL - Shallow Laterolog  
14.66 m    DGLL - Groningen Laterolog

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



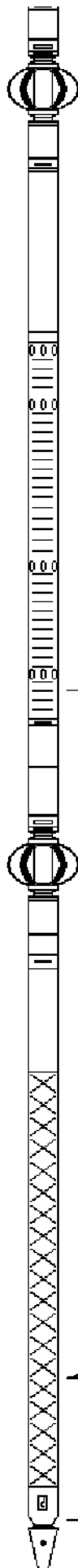
Compact Inline Standoff B  
MIS 75 Length: 0.65 m Weight: 15.43 lb

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

Compact Inline Standoff B  
MIS 30 Length: 0.65 m Weight: 15.43 lb

Compact Induction  
MAI 69 Length: 3.29 m Weight: 48.50 lb

Pressure Bung + Hole Finder  
HFS 99 Length: 0.28 m Weight: 6.61 lb



4.60 m DT35 - 3-5' Compensated Sonic

0.79 m RILM - Medium Induction  
0.79 m RILD - Deep Induction

Tool Zero (0.32m from bottom)

Total Length: 50.55 m Total Weight: 1183.88 lb

FIELD		GIPPSLAND BASIN	
PROVINCE/COUNTY		BASS STRAIT	
COUNTRY/STATE		AUSTRALIA	
Elevation Kelly Bushing		metres	
Elevation Drill Floor	31.32	metres	
Elevation Ground Level	-59.40	metres	
First Reading	3251.20	metres	
Depth Driller	3257.00	metres	
Depth Logger	3257.00	metres	
<div><div><div>Reeves</div></div></div> <div>DUAL LATEROLOG - GR DENSITY - NEUTRON 1:500 MD</div>			