

**Eso Australia Ltd.**

**WTN W33A**

# Tuna

**Pool Rig 453**      State: **Victoria**

# Schlumberger

on	K.B.	Top Drive
----	------	-----------

Elev.: 0

## Driller's Pipe Tally

Longitude      Latitude

Pool Rig 453  
Tuna  
Bass Strait  
WTN W33A

Mag decl: 13.156°

## Directional Drilling

## Casing record

0120	
20	

7 m

Borehole deviation record	
Max	from

to


Software record

ID	AL Wis
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
26	1
27	1
28	1
29	1
30	1
31	1
32	1
33	1
34	1
35	1
36	1
37	1
38	1
39	1
40	1
41	1
42	1
43	1
44	1
45	1
46	1
47	1
48	1
49	1
50	1
51	1
52	1
53	1
54	1
55	1
56	1
57	1
58	1
59	1
60	1
61	1
62	1
63	1
64	1
65	1
66	1
67	1
68	1
69	1
70	1
71	1
72	1
73	1
74	1
75	1
76	1
77	1
78	1
79	1
80	1
81	1
82	1
83	1
84	1
85	1
86	1
87	1
88	1
89	1
90	1
91	1
92	1
93	1
94	1
95	1
96	1
97	1
98	1
99	1
100	1

# DEA

SPM

services from

**IDEAL**  
services from  
**Anadrill**

## DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

## Directional Surveys

OTHER SERVICES FOR RUN

OTHER SERVICES FOR RUN

8-1/2in Hole Section was logged from  
2150 m to 2460 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.

REMARKS: RUN NUMBER

REMARKS: RUN NUMBER

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.  
Barite is present in the mud.

RAB6C Downhole Software 6C-V6.1  
ADN6C Downhole Software 6.9B03

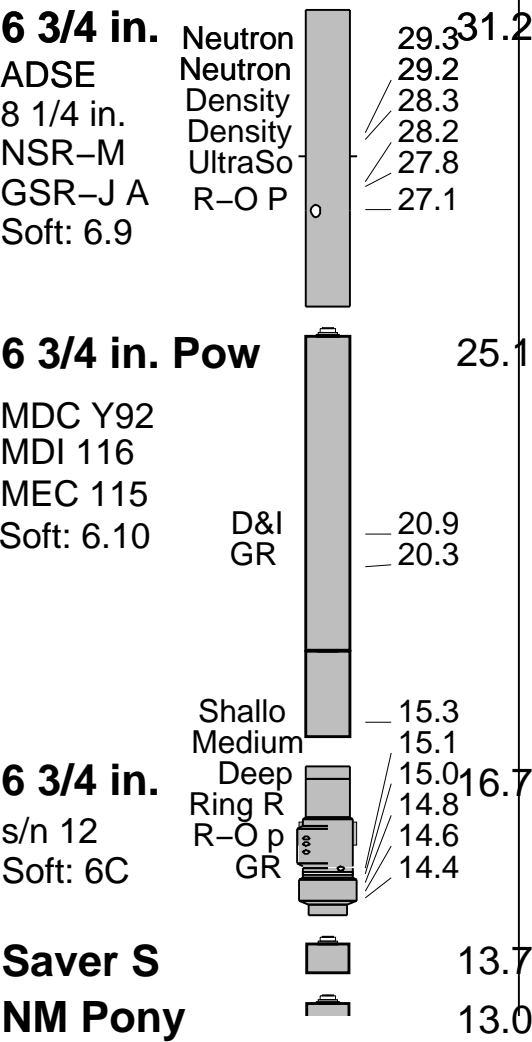
EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE EQ





**Environmental data**

<b>GR</b>											
Mud weight	ppg	10.5									
Bit size	in.	8.5									
<b>Resistivity</b>											
<b>Neutron porosity</b>											
Hole Size	in.	8.5									
Mud weight	ppg	10.5									
Temperature	degC	53									
Mud salinity	mg/l	54,500									
Formation salinity											
Recording rate GR/Res		10 s									
Recording rate Dens/Neut		10 s									
Filtering GR		3 pt									
Filtering density		3 pt									
Filtering Neutron		3 pt									
Company representative		T. Basit	B. Davies								
Anadrill personnel		J. Chong	T. Ford	J. Walta							

**IDEAL Version: ID7\_0C\_02**

IDEAL

 RAB6-CA  
ADN-CA

 unofficial  
unofficial

MWD\_10-A

unofficial

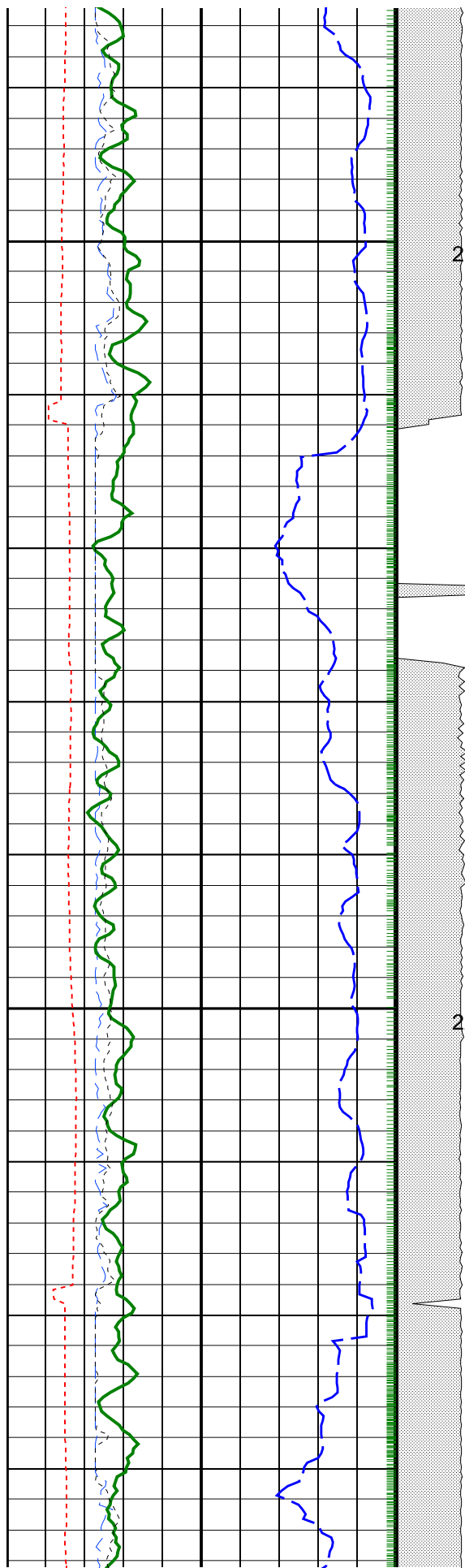
Format: ADNDetailLog Vertical Scale: 1:200

Graphics File Created: 04-May-2002 23:01

**Parameters**
**DLIS Name**
**Description**
**Value**

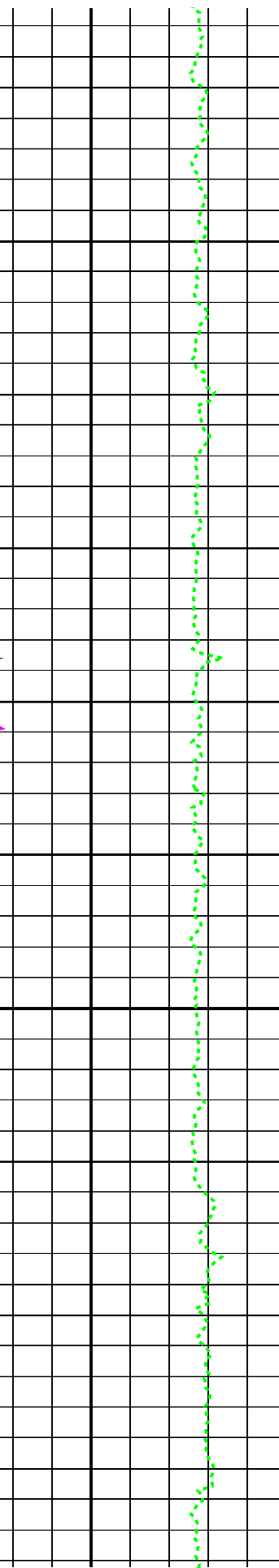
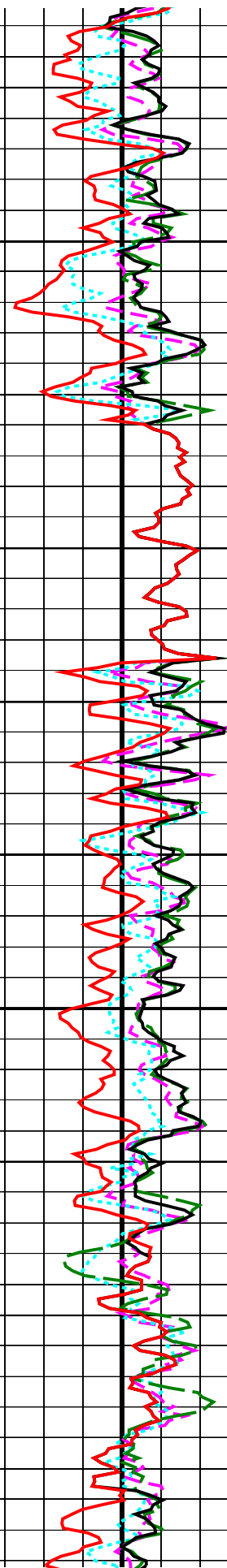
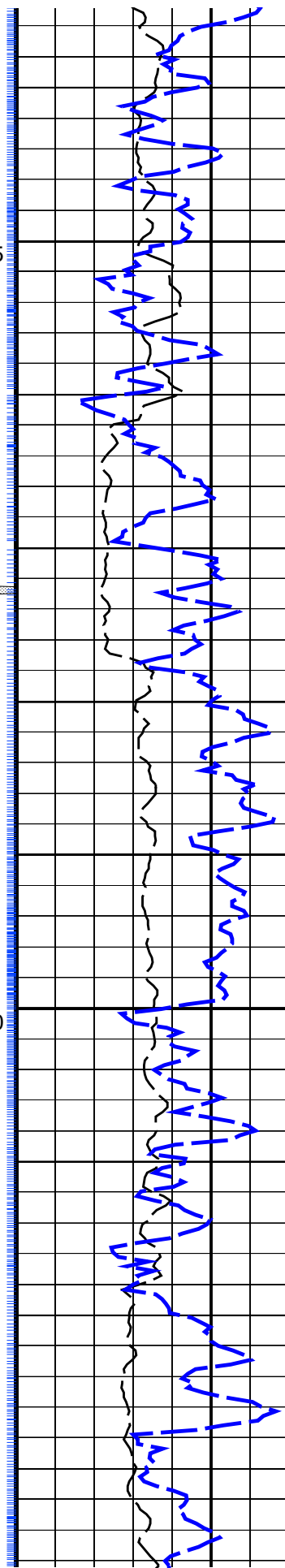
LWD RM: Generate techlog only? 0  
 LWD RM: Log direction DOWN  
 LWD RM: Default directory D:\users\ideal\fm\Clients\ESSO\WTN-W33A\LWD001\  
 LWD RM: Flush depth streams? YES  
 RAB: Button Sleeve Diameter RAB6: 8 1/8 IN  
 LWD RM: Depth file name DEPTH  
 RAB: Stabilizer Diameter RAB6: 8.25-8.5 IN  
 LWD RM: Default file extension BIN\_DB  
 ADN CHASSIS\_STR ADN Chassis Type String Undefined  
 ADN COLLAR\_STR ADN Collar Type String Undefined  
 ADN STAB\_STR ADN Stabilizer Type String Undefined  
 AVE\_ADN ADN/Array Channels: perform averaging(RM) : YES  
 A\_DHS ADN Down Hole Software Version String Undefined  
 BHA\_COEF\_VER RAB: BHA Coef Generator Version 62011  
 BHT\_RM Bottom Hole Temperature (RM) 158 DEGF  
 BSAL\_RM Mud Salinity (RM) 87.45 PPK  
 BS\_RM Bit Size (RM) 8.5 IN  
 DEVI Well Section Deviation 52 DEG  
 DHS\_VERSION RAB: DownHole Software Version 6.1012  
 DTMUD Delta-T for Mud 645.177 US/M  
 ENVCOR Neutron Quadrant Processing: Environmental Correction? YES  
 IDQT Image Derived Quality Threshold 0.4  
 LITHO\_TYPE\_ADN Lithology (RM) LIME  
 MST\_RM Mud Sample temperature (RM) 73.76 DEGF  
 MW\_RM Mud Weight (RM) 10.5 LB/G  
 OBM RAB: Oil base Mud NO  
 OBMF\_RM Oil Based Mud NO  
 PP\_RM ADN: Porosity Processing for each bank : YES  
 RAB\_TEMP\_SELECT RAB Temperature Selection MEASURED  
 READOUT\_PORT\_MP RAB: ROP to Bit Face Distance 14.69 M  
 RHOF\_RM Mud Filtrate Density (RM) 1 G/C3  
 RHOM\_RM Matrix density (RM) 2.71 G/C3  
 RMS\_RM Resistivity of Mud Sample (RM) 0.1007 OHMM  
 RWS\_RM Resistivity of Connate Water (RM) 1 OHMM  
 SHT\_RM Surface Hole Temperature (RM) 75 DEGF  
 SSIZ\_ADN ADN Stabilizer Size 8.25 IN  
 STAB RAB: Run with Stabilizer YES  
 STOHN ADN Density Top of Hole Sector (Left Boundary): SECTOR\_0  
 TD\_RM Total Measured Depth (RM) 2460 M  
 TFF\_OFFSET\_ADN ADN Time Frame File Time Offset 0 S

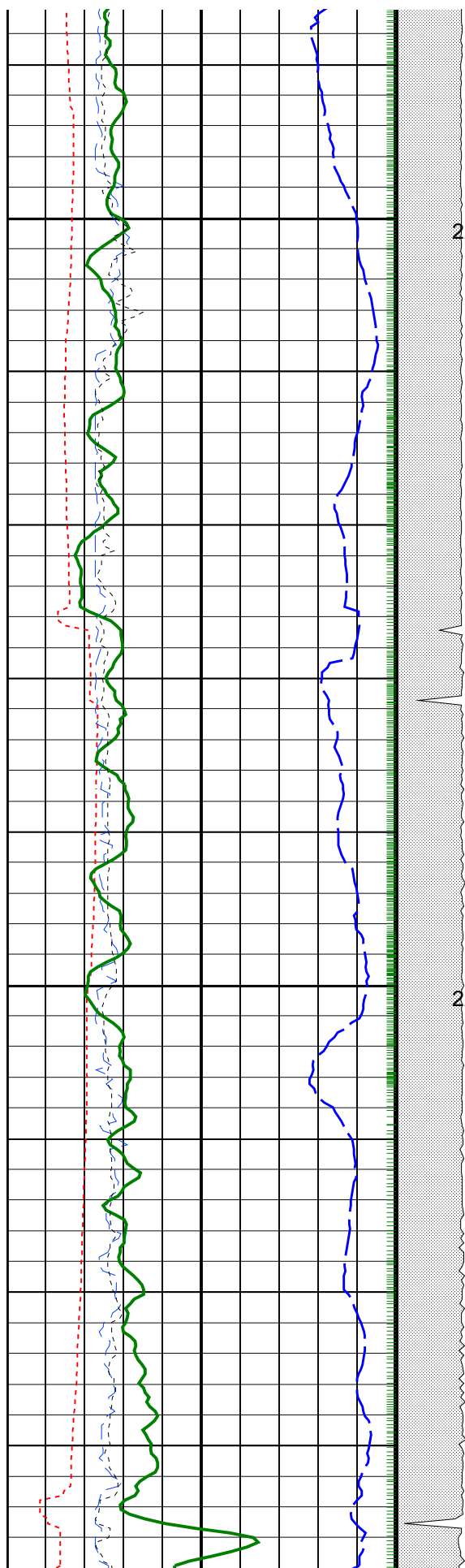




2175

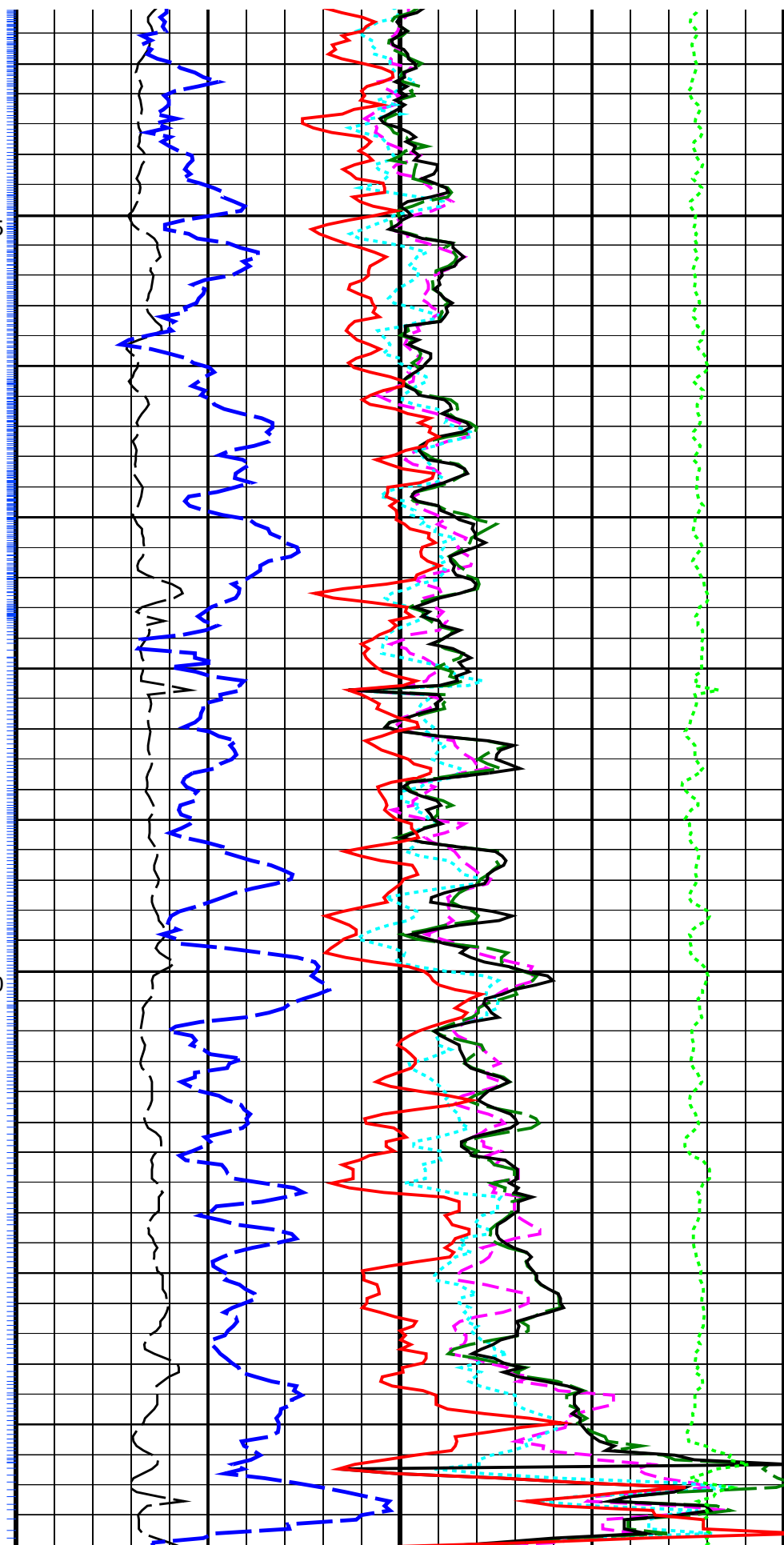
2200

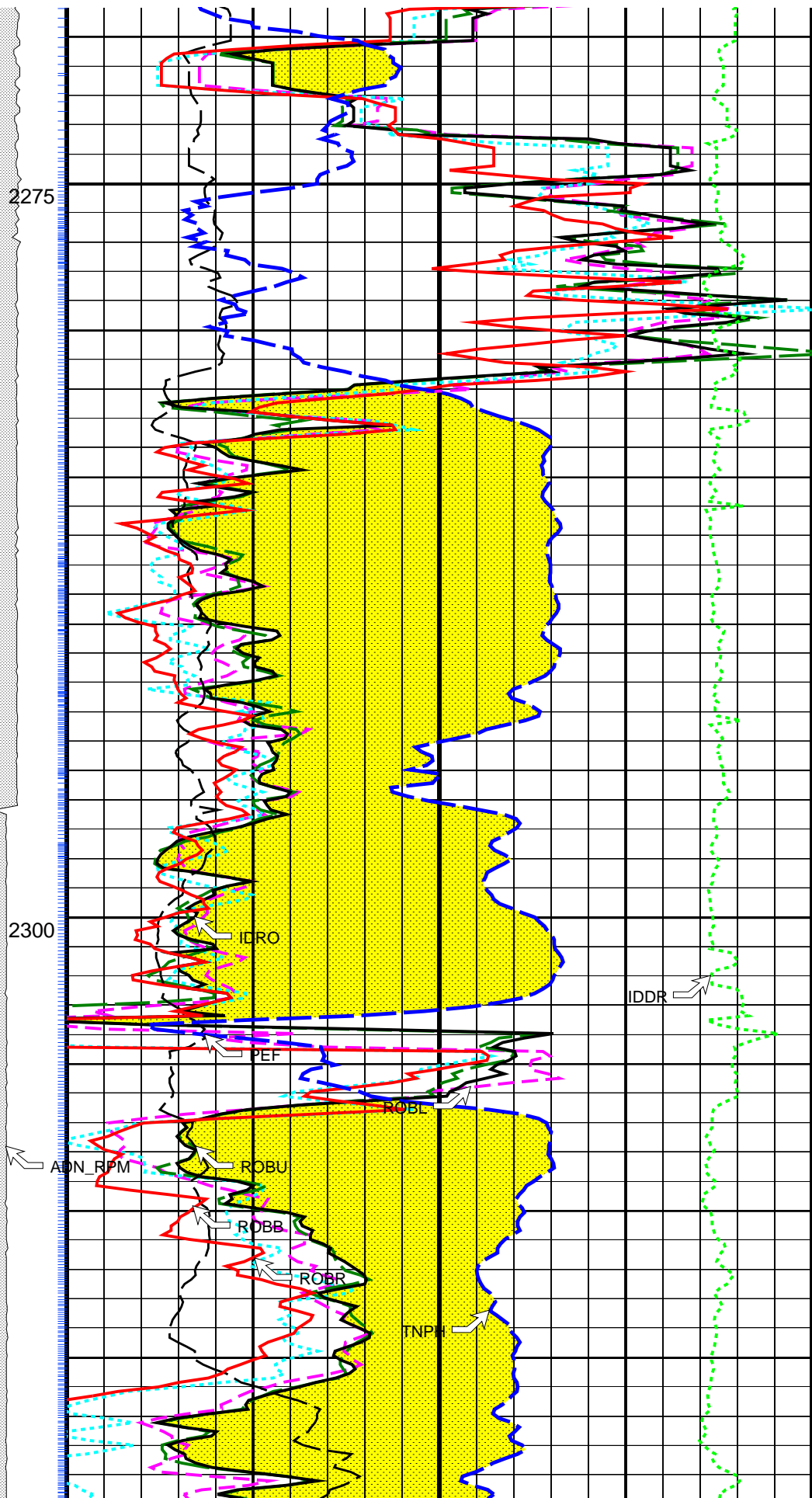
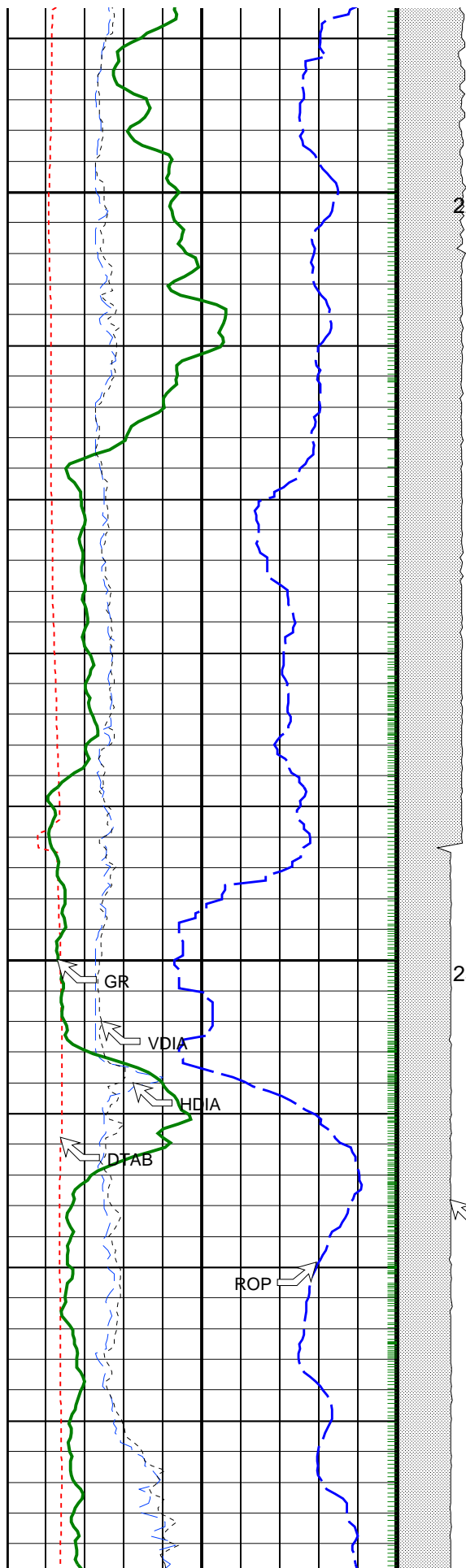




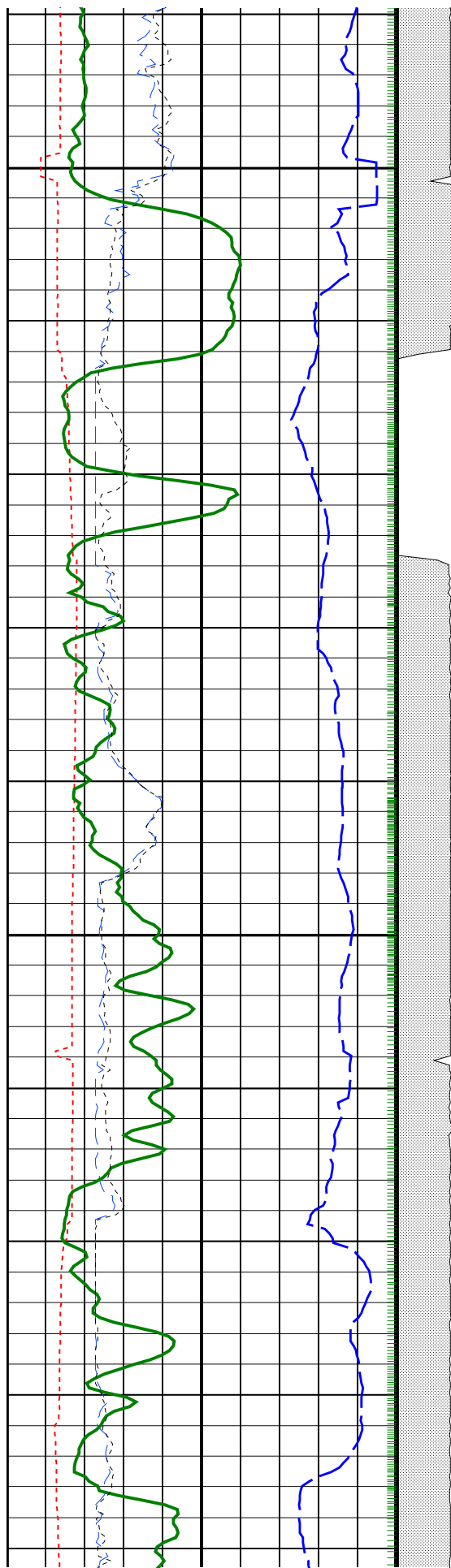
2225

2250



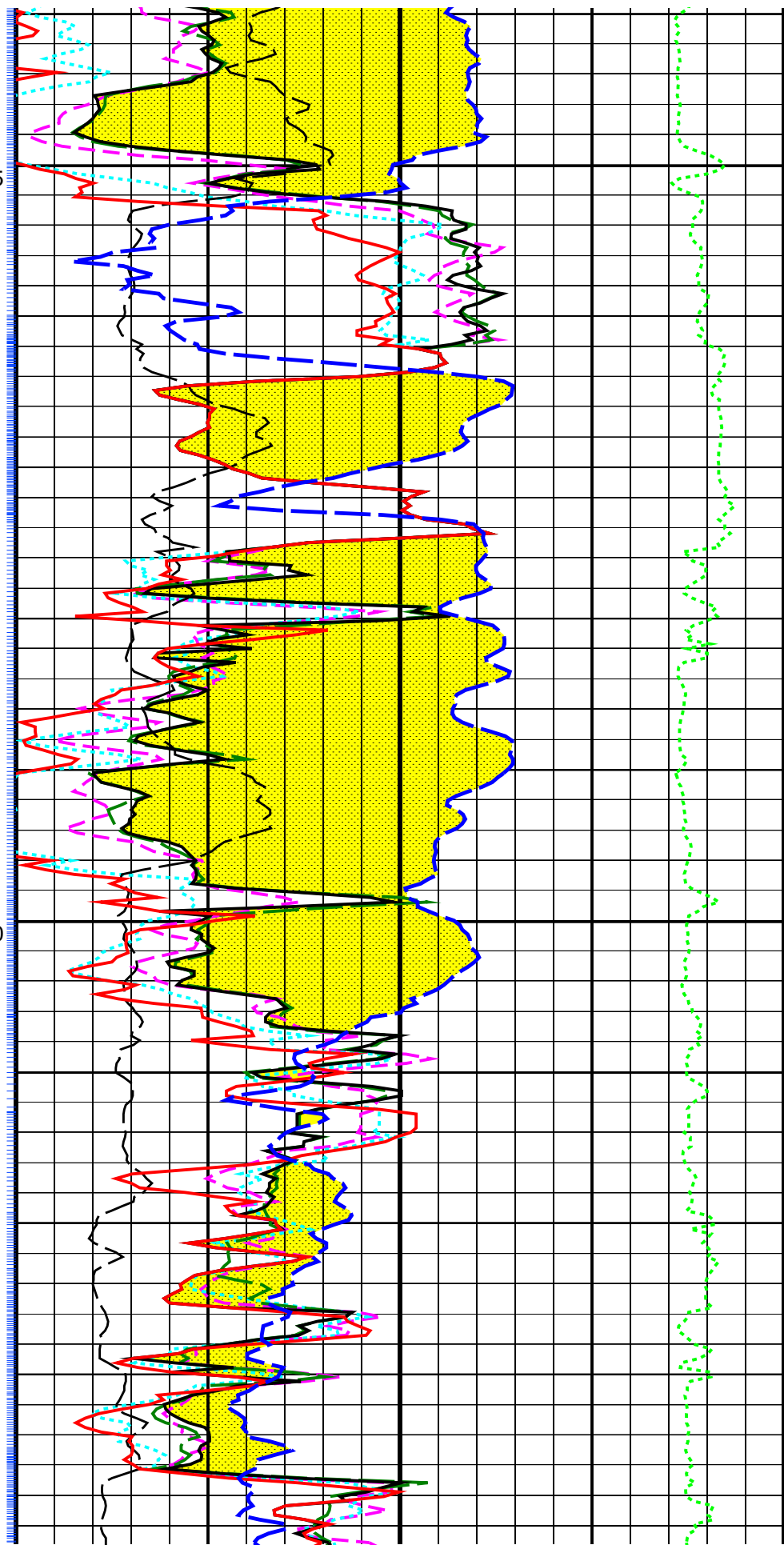


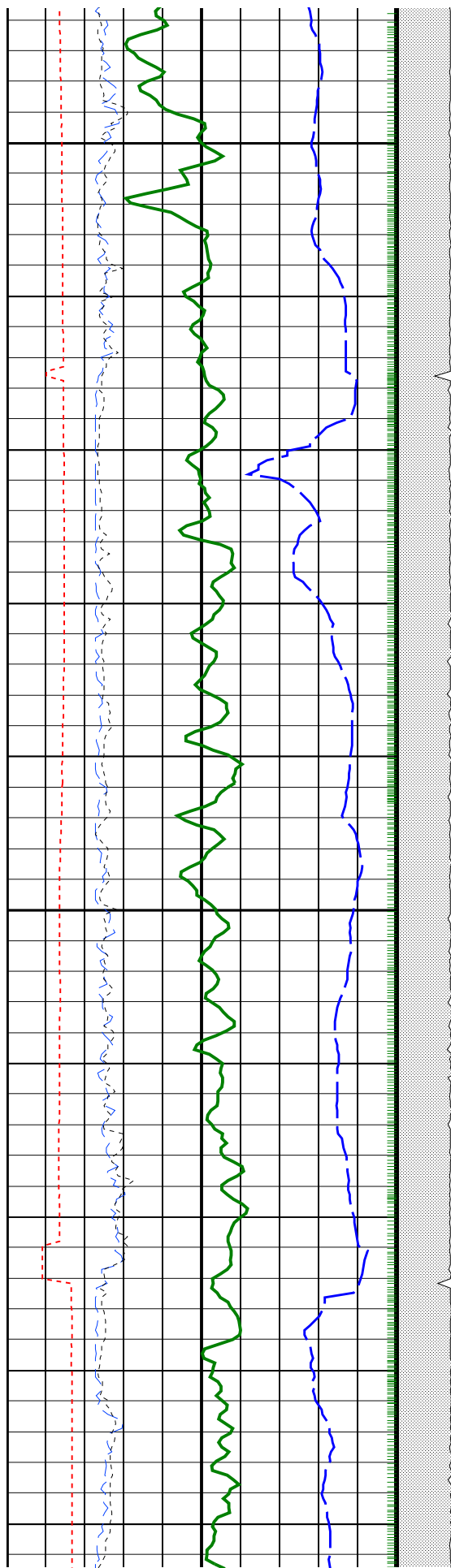




2325

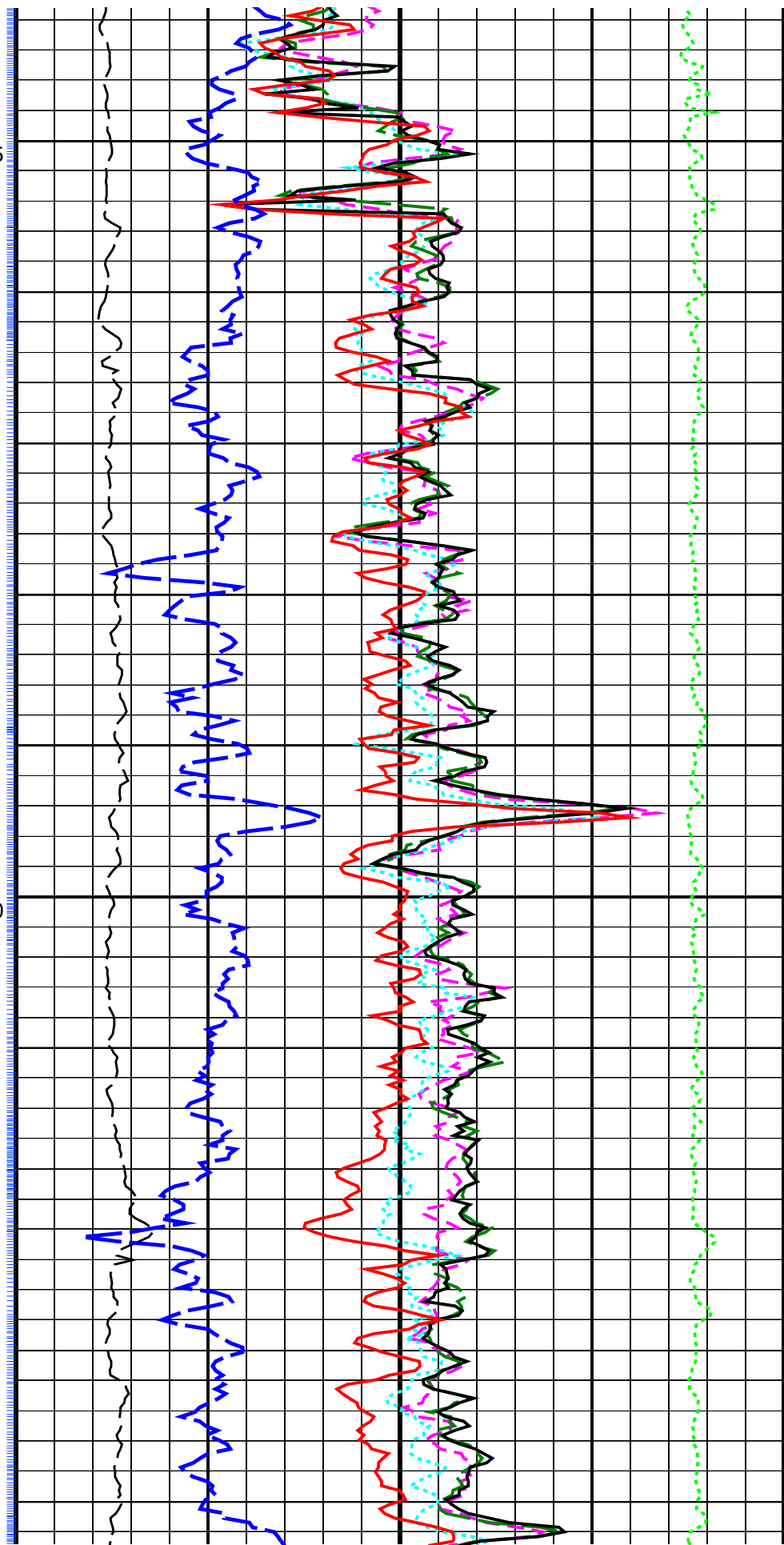
2350

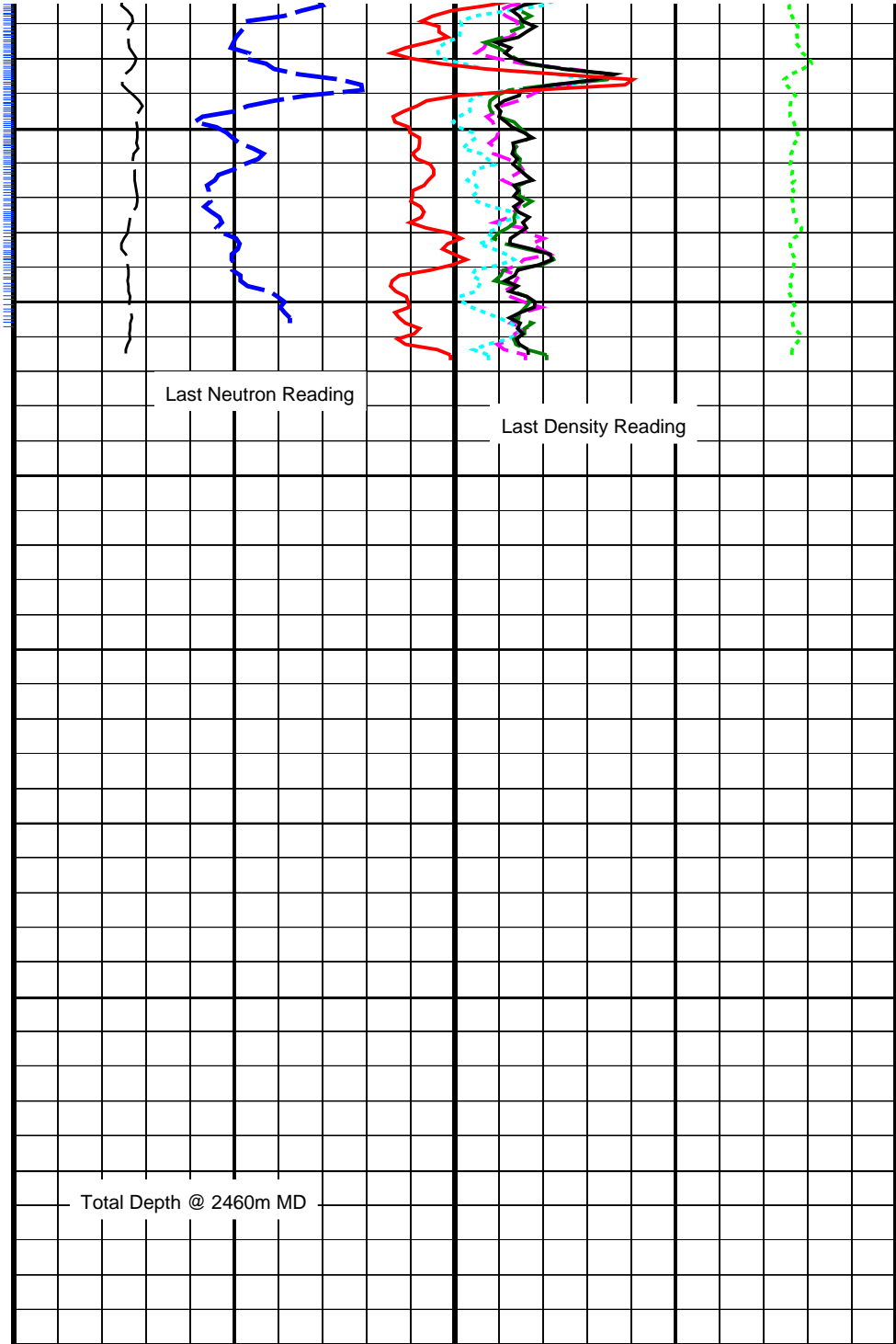
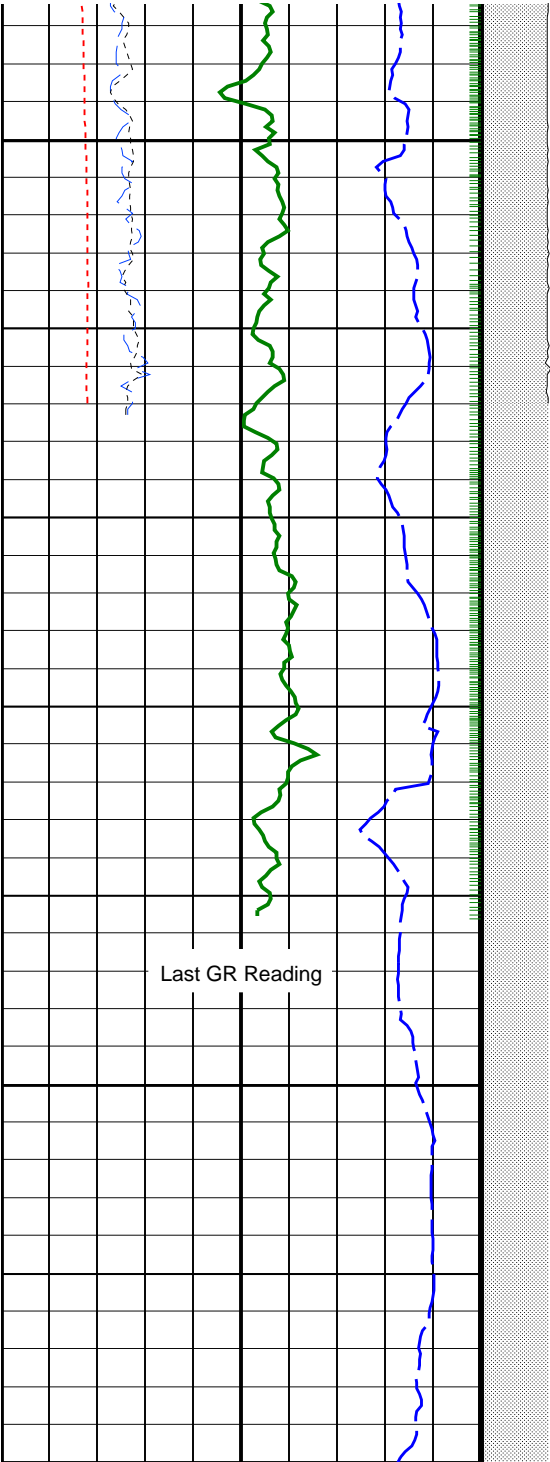




2375

2400





Horizontal Hole Diameter (HORD) (IN)	
6	16
Vertical Hole Diameter (VERD) (IN)	
6	16
Density Time After Bit (TAB_DEN) (HR)	
0	10
RAB Gamma Ray (GR_RAB) (GAPI)	
0	200

ADN Rotational Speed (RPM_ADN) (RPM)
0 200

Bulk Density, Left (ROBL) (G/C3)	
1.85	2.85
Photoelectric Factor (PEF) (----	
0	20
Image Derived Density Correction (IDDR) (G/C3)	
-0.75	0.25
Bulk Density, Right (ROBR) (G/C3)	
1.85	2.85
Bulk Density, Up (ROBU) (G/C3)	
1.85	2.85

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

1.85	(G/C3)	2.85
Image Derived Density (IDRO)		
1.85	(G/C3)	2.85
Bulk Density, Bottom (ROBB)		
1.85	(G/C3)	2.85
Thermal Neutron Porosity (TNPH)		
45	(PU)	-15
Gas Area From ADN/IDRH/DEPTH to TNPH		

PIP SUMMARY		
+ Neutron Samples		Density Samples
+ Gamma Ray Samples		

IDEAL Version: ID7_0C_02			
IDEAL			
RAB6-CA	unofficial	MWD_10-A	unofficial
ADN-CA	unofficial		


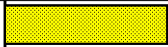
Primary Equipment:		6.75-in. Azimuthal Density Neutron / Equipment Identification	
Tool Name and Serial Number		ADN6 – 014	
Collar Type and Serial Number		ADDC – AA	
Chassis Type and Serial Number		ADSE – EA	
Stabilizer Type and Serial Number		Clamped On	
Neutron Logging Source		NSR – M – A161	
Density Logging Source		GSR – Z – A2125	
Stabilizer Size		8.25 – in.	
Calibration Status		Valid	

Master: 21-Apr-2002 16:57														
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				1323	Master				2920	Master				7699
	250.0	4125	8000			700.0	9350	18000			2500	23750	45000	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	

Master: 21-Apr-2002 16:57														
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				201.5	Master				1508	Master				4850
	50.00	725.0	1400			500.0	4250	8000			1500	15750	30000	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	

Master: 21-Apr-2002 16:57														
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				48.41	Master				117.8	Master				520.6
	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)	








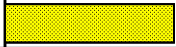







Master: 21-Apr-2002 16:57											
6.75-in. Azimuthal Density Neutron Calibration											
Density: Water Block Check											
Phase	Long spacing water density G/C3				Value	Phase	Short spacing water density G/C3				Value

Phase	Long spacing water density G/C3			Value	Phase	Short spacing water density G/C3			Value
Master				1.040	Master				1.139
	1.016 (Minimum)	1.032 (Nominal)	1.047 (Maximum)			1.062 (Minimum)	1.107 (Nominal)	1.151 (Maximum)	

Master: Calibration date not found

#### 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				1.145	Master				-0.7860
	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				1.073	Master				-0.7780
	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				1.138	Master				-0.8870
	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				1.137	Master				-0.6860
	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				1.095	Master				-0.7400
	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				1.167	Master	<div>EXCEEDS LIMIT</div>			-0.5990
	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				1.101	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				1.118	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)	

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

Primary Equipment:

Tool Name and Serial Number

Calibration Status

RAB6 – CA










127

–

Master: 12-Apr-2002 14:53

## 6.75-in. Resistivity At-the-Bit Calibration

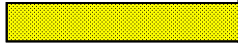
## Resistivity: Fixture

Phase	Ring/T1 factor		Value	Phase	Ring/T2 factor		Value	Phase	M0/T1 factor		Value
Master	EXCEEDS LIMIT		0.9620	Master	EXCEEDS LIMIT		0.9670	Master			0.9990
	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			1.007	Master			0.9940	Master			0.9970
	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			1.020	Master	EXCEEDS LIMIT		1.028	Master			1.014
	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			1.023	Master			1.014	Master			1.021
	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: Calibration date not found

## 6.75-in. Resistivity At-the-Bit Calibration

## Gamma Ray: Blanket

Phase	Gamma ray factor		Value
Master			0.8760
	0.7500 (Minimum)	1.000 (Nominal)	1.250 (Maximum)

## ANADRILL

## SCHLUMBERGER

Survey report

24-Apr-2002 21:10:53

Page 1 of 2

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

Well.....: WTN-W33A  
API number.....:  
Engineer.....: JC/TF/JW

COUNTY.....: POOL RIG 453  
VICTORIA.....:

Spud date.....: 23-Apr-02  
Last survey date.....: 24-Apr-02  
Total accepted surveys...: 19  
MD of first survey.....: 1957.51 m  
MD of last survey.....: 2460.00 m

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

----- Depth reference -----  
Permanent datum.....: RIG FLOOR  
Depth reference.....:  
GL above permanent.....: -61.00 m  
KB above permanent.....: 34.69 m  
DF above permanent.....: 34.69 m

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

----- Platform reference point-----  
Latitude (+N/S-).....: -304.57 m  
Departure (+E/W-).....: -304.57 m

Azimuth from rotary table to target: 352.03 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

[(c)2002 Anadrill IDEAL ID6\_1C\_10]  
ANADRILL SCHLUMBERGER Survey Report

24-Apr-2002 21:10:53

Page 2 of 2

Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
-----	----------	------	---------	--------	-----	----------	-------	-------	-------	----	-----	------	------

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	1957.51	59.83	355.70	0.00	1178.14	1382.83	1387.57	-62.45	1388.97	357.42	0.00	TIP	-
2	1996.55	57.23	346.48	39.04	1198.55	1416.06	1420.41	-67.56	1422.02	357.28	2.12	MWD	6-axis
3	2013.81	55.78	347.88	17.26	1208.08	1430.40	1434.45	-70.76	1436.19	357.18	1.08	MWD	6-axis
4	2043.39	55.72	344.56	29.58	1224.73	1454.72	1458.19	-76.58	1460.20	356.99	0.93	MWD	6-axis
5	2071.65	55.31	342.51	28.26	1240.73	1477.76	1480.53	-83.18	1482.86	356.78	0.62	MWD	6-axis
6	2100.42	54.31	339.51	28.77	1257.31	1500.83	1502.76	-90.83	1505.50	356.54	0.92	MWD	6-axis
7	2129.98	53.14	336.66	29.56	1274.80	1523.96	1524.86	-99.71	1528.12	356.26	0.87	MWD	6-axis
8	2158.76	52.62	336.39	28.78	1292.17	1546.07	1545.91	-108.86	1549.74	355.97	0.20	MWD	6-axis
9	2187.60	52.02	336.16	28.84	1309.80	1568.04	1566.81	-118.04	1571.25	355.69	0.22	MWD	6-axis
10	2216.23	53.57	337.03	28.63	1327.11	1590.02	1587.73	-127.09	1592.81	355.42	0.59	MWD	6-axis
11	2245.01	53.13	336.69	28.78	1344.29	1612.30	1608.97	-136.17	1614.72	355.16	0.18	MWD	6-axis
12	2274.45	52.78	336.77	29.44	1362.03	1634.97	1630.55	-145.45	1637.03	354.90	0.12	MWD	6-axis
13	2303.44	53.50	337.36	28.99	1379.42	1657.38	1651.91	-154.49	1659.12	354.66	0.30	MWD	6-axis
14	2332.31	53.54	337.73	28.87	1396.58	1679.85	1673.37	-163.36	1681.32	354.42	0.10	MWD	6-axis
15	2360.71	53.49	336.74	28.40	1413.47	1701.93	1694.42	-172.19	1703.15	354.20	0.28	MWD	6-axis
16	2389.60	53.68	335.85	28.89	1430.62	1724.31	1715.71	-181.54	1725.29	353.96	0.26	MWD	6-axis
17	2418.63	53.23	335.53	29.03	1447.90	1746.69	1736.96	-191.14	1747.45	353.72	0.18	MWD	6-axis
18	2438.02	52.65	335.37	19.39	1459.59	1761.52	1751.04	-197.57	1762.15	353.56	0.31	MWD	6-axis
19	2460.00	52.10	335.20	21.98	1473.01	1778.19	1766.85	-204.85	1778.69	353.39	0.26	Bit	Projection

[(c)2002 Anadrill IDEAL ID6\_1C\_10]

Company: Esso Australia Ltd.

Well: WTN W33A

Field: Tuna

Rig: Pool Rig 453

State: Victoria

IDEAL services from Anadrill

VISION Density Neutron  
1:200 Measured Depth  
Recorded Mode Log

Schlumberger