

Esso Australia Ltd.

WTN W33A

Tuna

Pool Rig 453 State: **Victoria**

[illegible]

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.

OTHER SERVICES FOR RUN1 Directional Surveys	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
REMARKS: RUN NUMBER 1 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

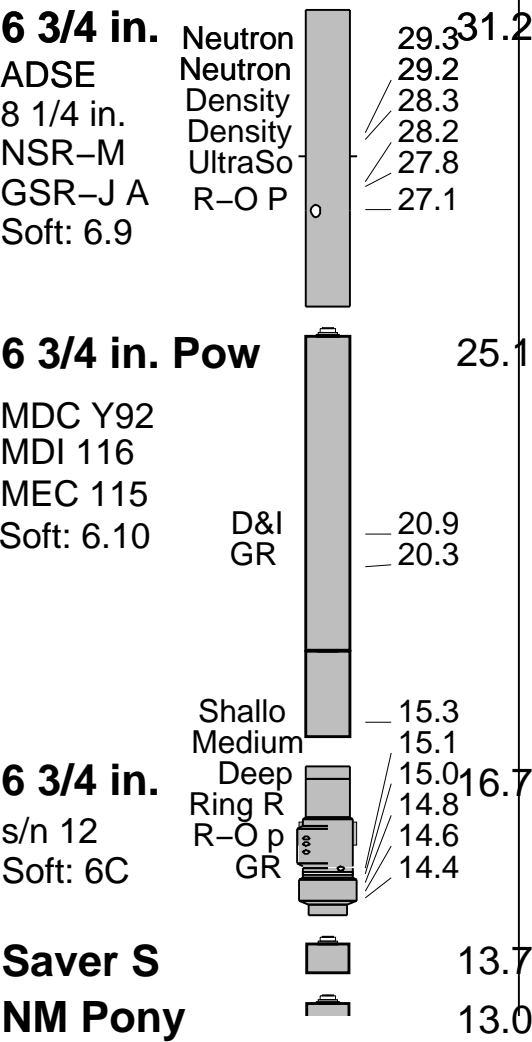
EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE EQ



Environmental data

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	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							

True Vertical Depth Log

IDEAL Version: ID6_1C_10
IDF

RAB id6_1c_10 MWD_10 id6_1c_10
ADN id6_1c_10

Format: WTN-W33A GeoVisionLog Vertical Scale: 1:200 Graphics File Created: 30-Apr-2002 10:59

Parameters

DLIS Name	Description	Value	
AVE_ADN	ADN/Array Channels: perform averaging(RM) :	YES	
BHT_RM	Bottom Hole Temperature (RM)	158.0	degF
BSAL_RM	Mud Salinity (RM)	87.450	ppk
BS_RM	Bit Size (RM)	8.500	in
DEVI	Average angle of the hole (RM)	52.000	deg
DO	Depth Offset	0.0	m
DTMUD	Delta-T for Mud	645.2	us/m
ENVCOR	Neutron Quadrant Processing: Environmental Correction?	YES	
LITHO_TYPE_ADN	Lithology (RM)	LIME	
MST_RM	Mud Sample temperature (RM)	73.760	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)	0.101	ohm.m
RWS_RM	Resistivity of Connate Water (RM)	1.000	ohm.m
SHT_RM	Surface Hole Temperature (RM)	75.000	degF
SSIZ_ADN	ADN:Stabilizer Size (RM)	8.250	in
TD_RM	Total Measured Depth (RM)	2460.0	m
TRPM_RM	Average Tool rotational Speed (RM)	20.000	c/min
TSIZ_ADN	ADN:Tool Size (RM)	6.750	in
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	6.900	

PIP SUMMARY

Density Samples ▬

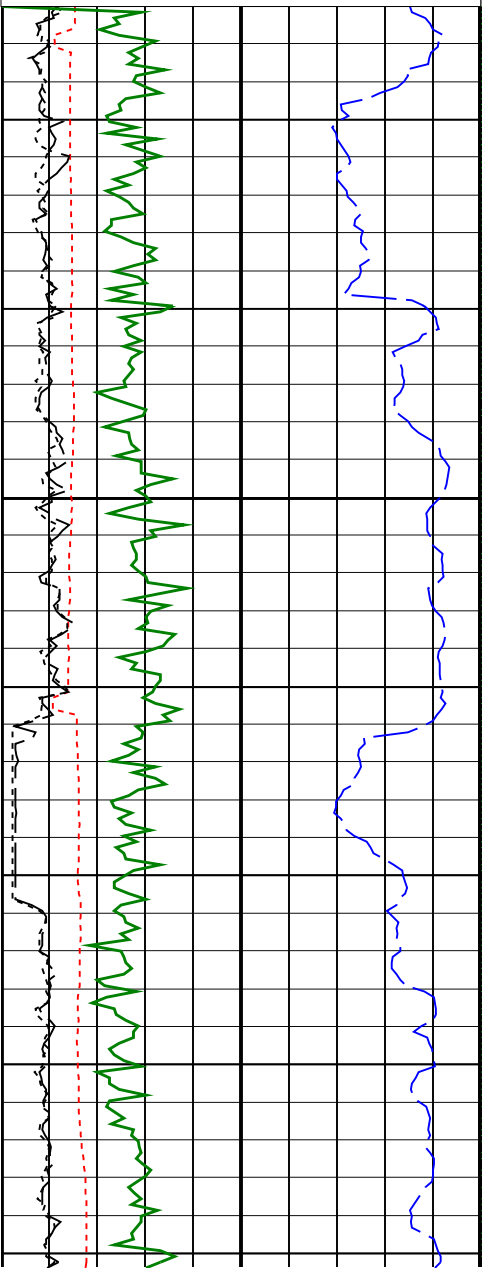
Neutron Samples ▬

▬ Deep Button Samples
▬ GRRA_R PIP

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

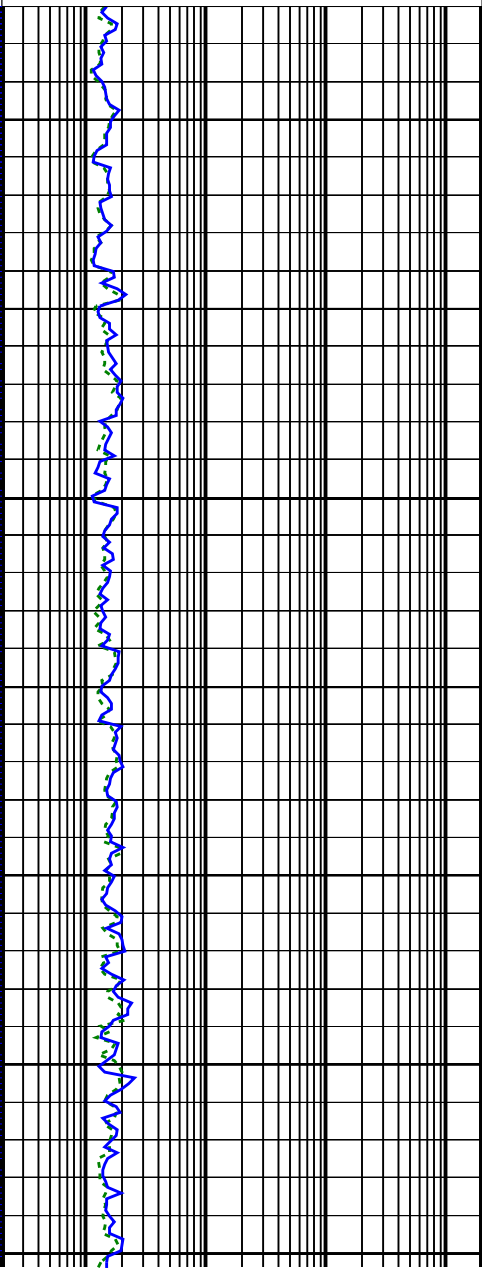
RAB Gamma Ray, Real-Time (GR_RAB_RT)		
0	(GAPI)	200
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		
200	(M/HR)	0
Horizontal Hole Diameter (HORD)		
6	(IN)	16
Vertical Hole Diameter (VERD)		
6	(IN)	16

Density Time After Bit (TAB_DEN)		
0	(HR)	10
ADN Rotational Speed (RPM_ADN) (RPM)		
0	200	



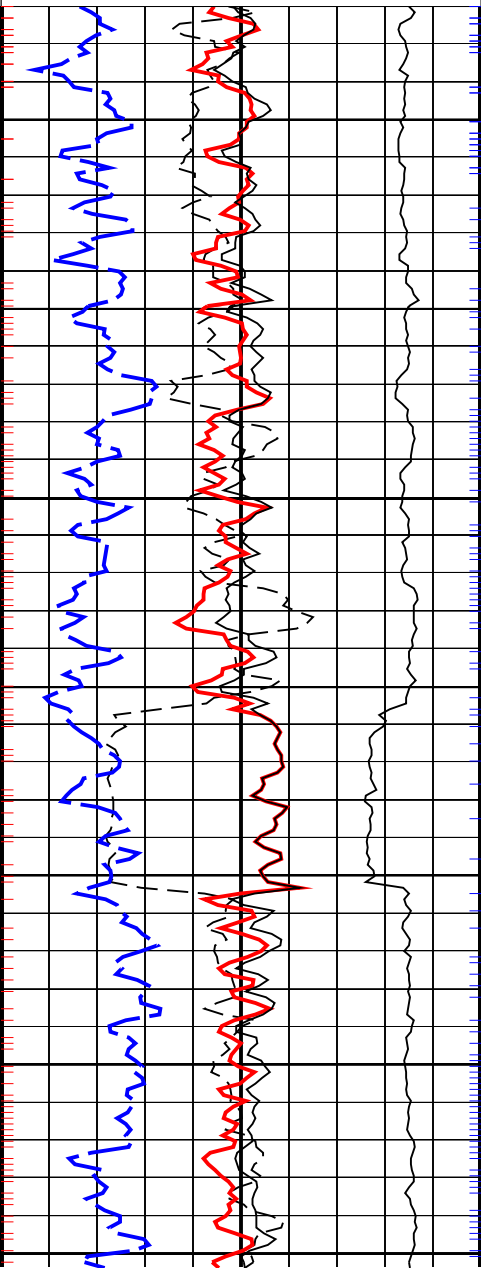
Deep Button Resistivity, Real-Time (RES_BD_RT)		
0.2	(OHMM)	2000

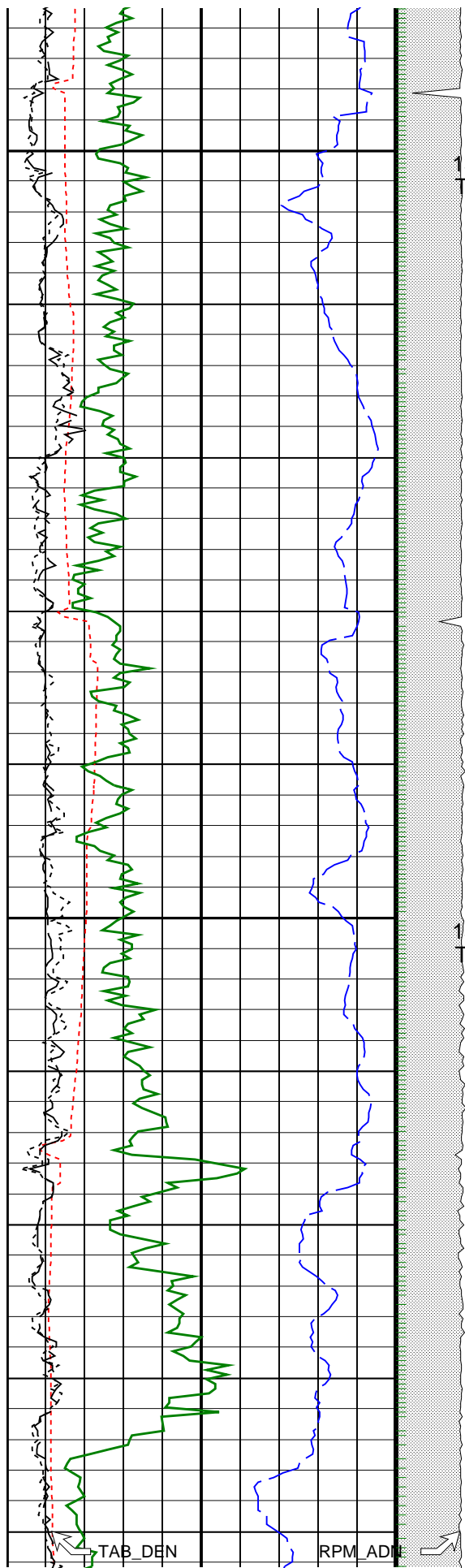
Shallow Button Resistivity, Real-Time (RES_BS_RT)		
0.2	(OHMM)	2000



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

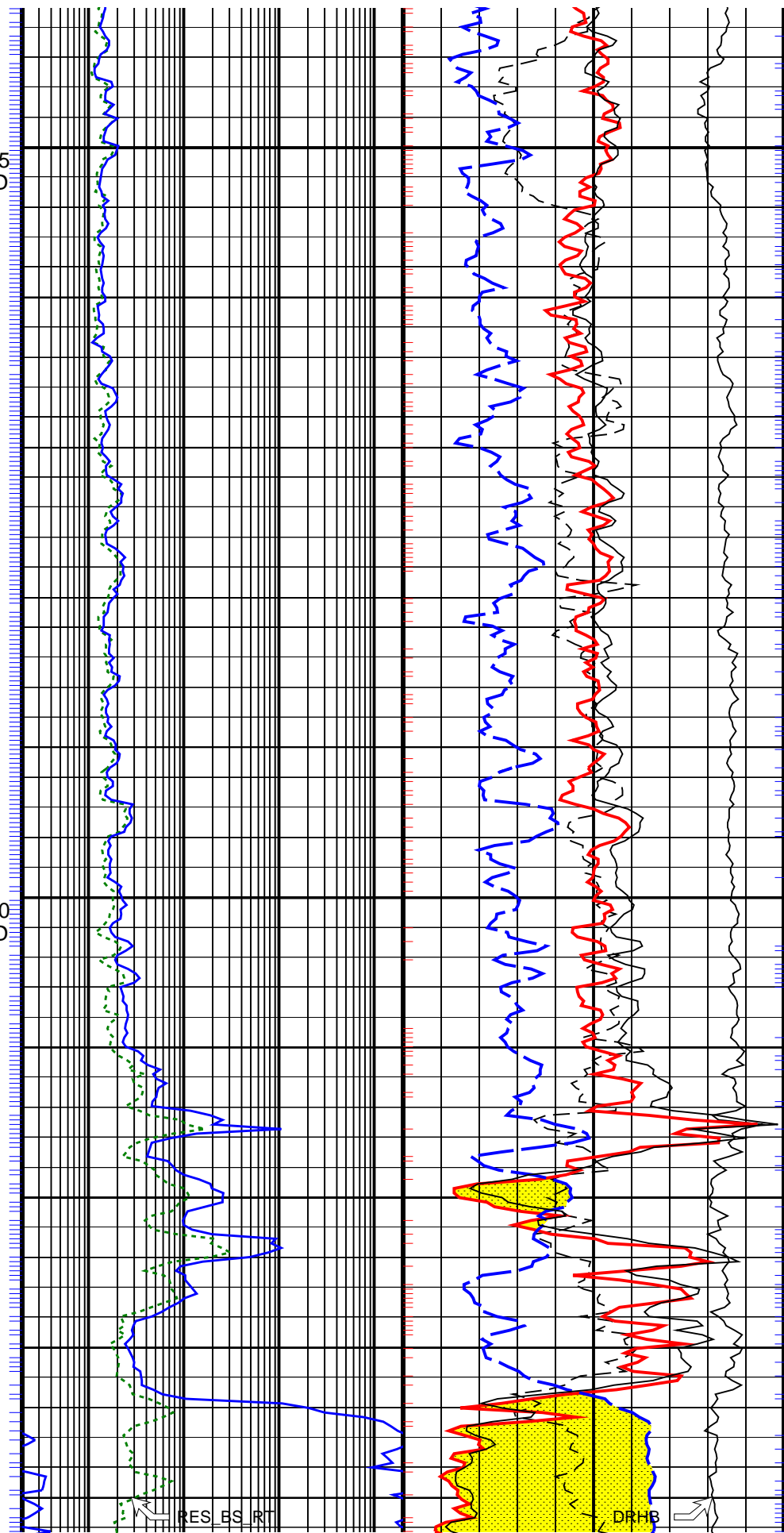
Bulk Density Correction, Bottom (DRHB)		
-0.75	(G/C3)	0.25

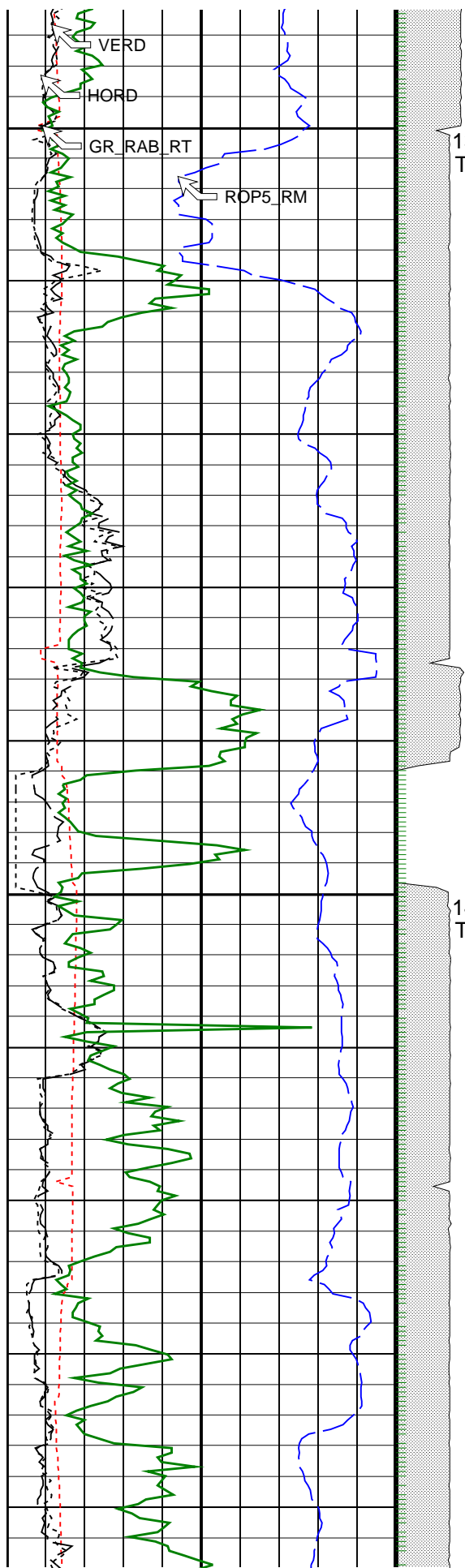




1325
TVD

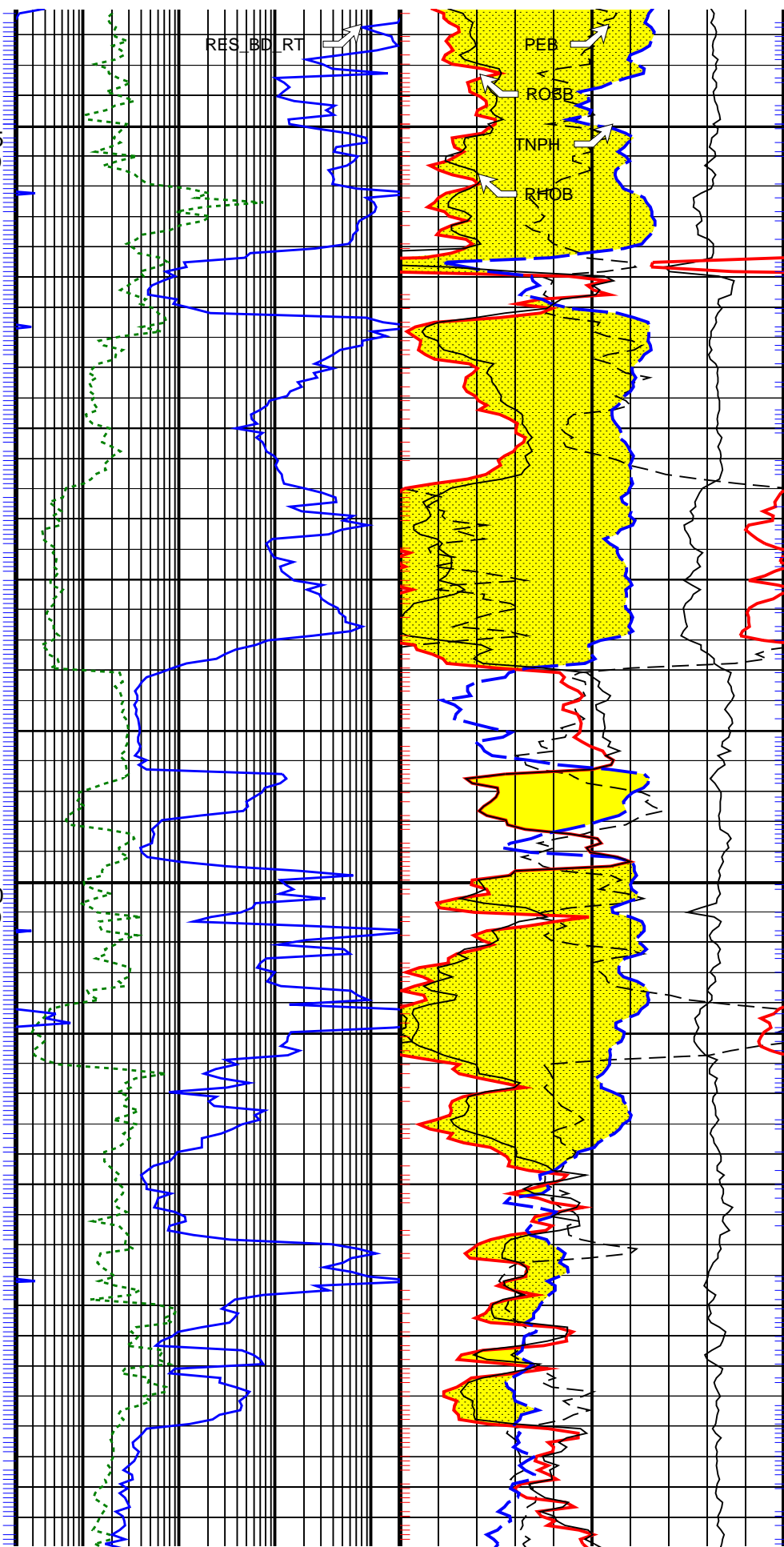
1350
TVD

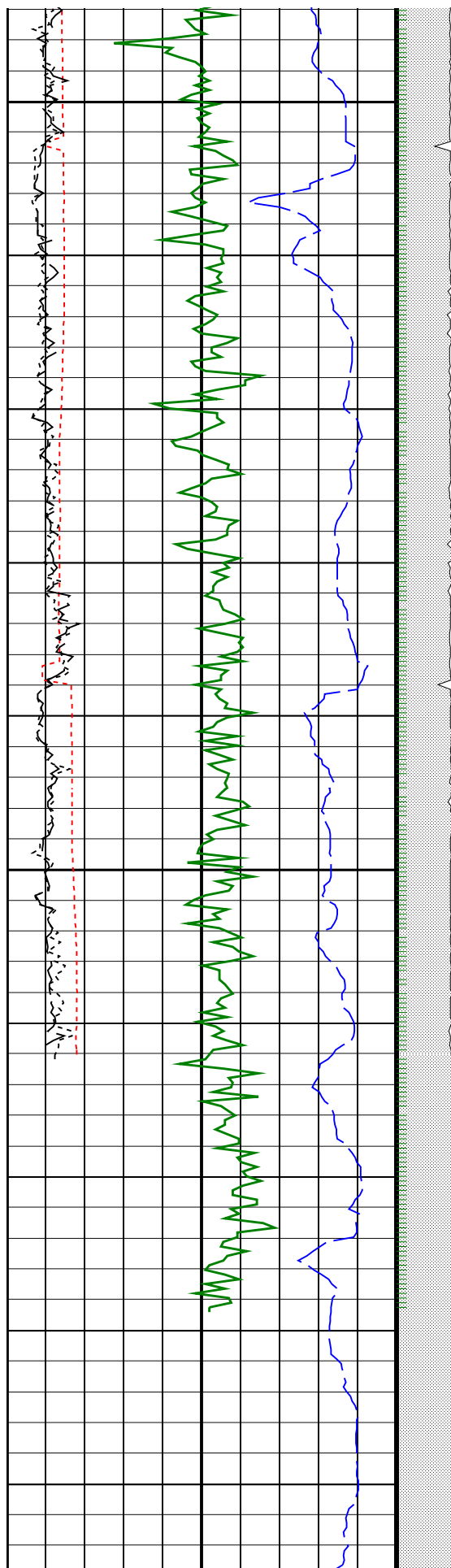




1375
TVD

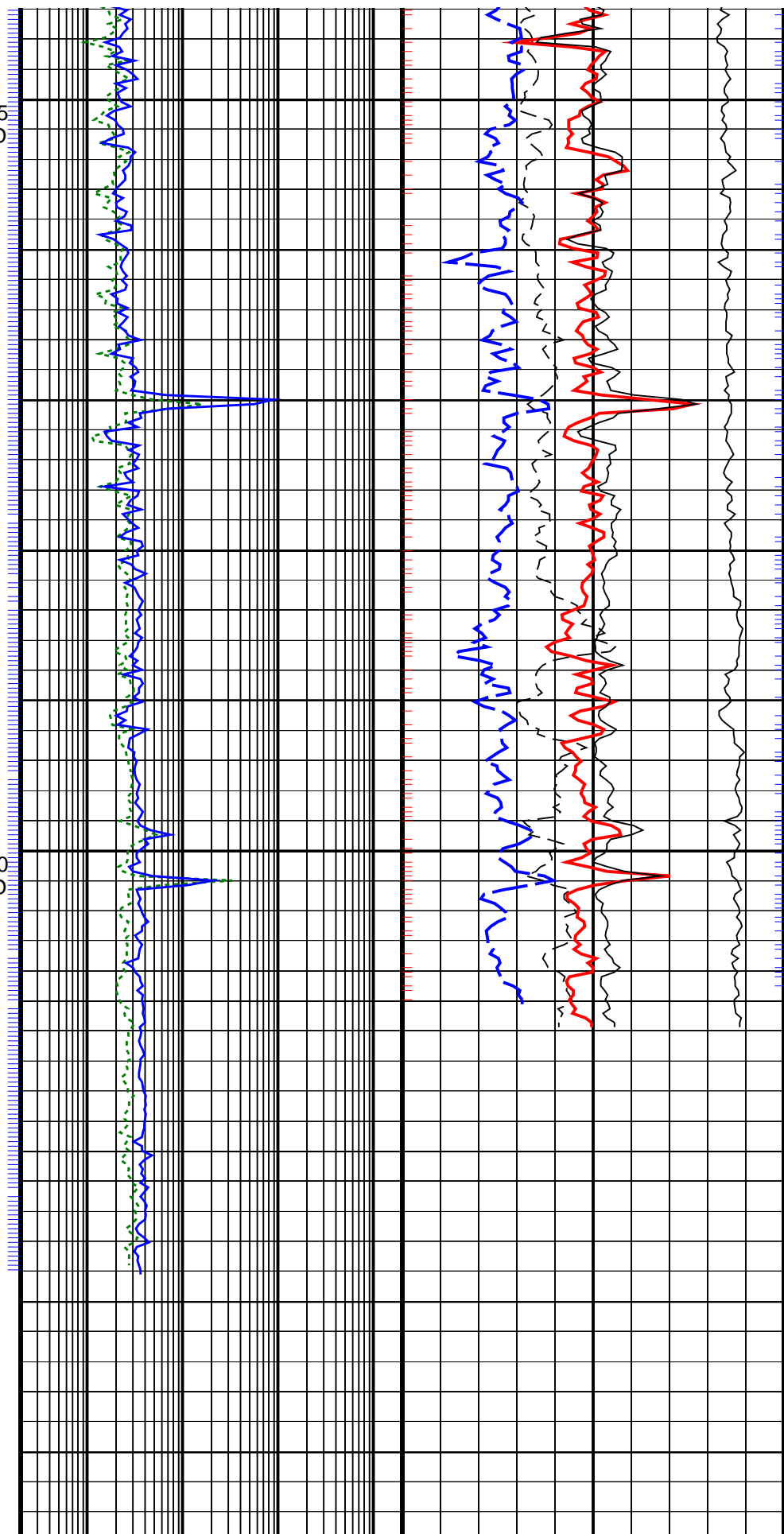
1400
TVD





1425
TVD

1450
TVD



<div>Density Time After Bit (TAB_DEN) (HR)</div> <div>010</div>		<div>ADN Rotational Speed (RPM_ADN) (RPM) 0200</div>	<div>Shallow Button Resistivity, Real-Time (RES_BS_RT) (OHMM)</div> <div>0.22000</div>		<div>Bulk Density Correction, Bottom (DRHB) (G/C3)</div> <div>-0.750.25</div>	
<div>Vertical Hole Diameter (VERD) (IN)</div> <div>616</div>			<div>Deep Button Resistivity, Real-Time (RES_BD_RT) (OHMM)</div> <div>0.22000</div>		<div>Photoelectric Factor, Bottom (PEB) (----</div> <div>020</div>	
<div>Horizontal Hole Diameter (HORD) (IN)</div> <div>616</div>					<div>Bulk Density, Bottom (ROBB) (G/C3)</div> <div>1.852.85</div>	
<div>Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR)</div> <div>2000</div>					<div>Thermal Neutron Porosity (TNPH) (PU)</div> <div>45-15</div>	
<div>RAB Gamma Ray, Real-Time (GR_RAB_RT) (GAPI)</div> <div>0200</div>					<div>Bulk Density (RHOB) (G/C3)</div> <div>1.852.85</div>	
					<div>Gas Area From ADN/ROBB/DEPTH to ADN/TNPH/DEPTH</div>	

PIP SUMMARY		
Density Samples		Neutron Samples
Deep Button Samples		
GRRA_R PIP		

IDEAL Version: ID6_1C_10			
IDF			
RAB	id6_1c_10	MWD_10	id6_1c_10
ADN	id6_1c_10		

True Vertical Depth Log	
-------------------------	--

6.75-in. Azimuthal Density Neutron / Equipment Identification	
Primary Equipment: Tool Name and Serial Number Collar Type and Serial Number Chassis Type and Serial Number Stabilizer Type and Serial Number Neutron Logging Source Density Logging Source Stabilizer Size Calibration Status	ADN6 - 014 ADDC - AA ADSE - EA Clamped On NSR - M - A161 GSR - Z - A2125 8.25 - in. 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 (Minimum)		4125 (Nominal)	700.0 (Minimum)		9350 (Nominal)	2500 (Minimum)		23750 (Nominal)	45000 (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	



Master		201.5	Master		1508	Master		4850
50.00 (Minimum)	725.0 (Nominal)	1400 (Maximum)	500.0 (Minimum)	4250 (Nominal)	8000 (Maximum)	1500 (Minimum)	15750 (Nominal)	30000 (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 (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: 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
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

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

RAB6 – CA 127

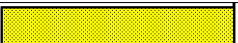
Calibration Status

-

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	<div>EXCEEDS LIMIT</div>			0.9620	Master	<div>EXCEEDS LIMIT</div>			0.9670	Master	<div></div>			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	<div></div>			1.007	Master	<div></div>			0.9940	Master	<div></div>			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	<div></div>			1.020	Master	<div>EXCEEDS LIMIT</div>			1.028	Master	<div></div>			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	<div></div>			1.023	Master	<div></div>			1.014	Master	<div></div>			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

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2001
Magnetic date.....: 20-Apr-2002

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

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 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

GeoVision

1:200 True Vertical Depth
Recorded Mode Log

IDEAL services from Anadrill

Schlumberger