

Esso Australia Ltd.

WTN W33A

Tuna

Pool Rig 453 State: **Victoria**

GeoVision Resistivity
1:200 True Vertical Depth
Recorded Mode Log

Rig: Pool Rig 453
Field: Tuna
Location: Bass Strait
Well: WTN W33A
Company: Esso Australia Ltd.

Total depth: 2460m Spud date: 23-Apr-02 Runs: 1 To 1		K.B. Top Drive G.L. -61.00m D.F. 34.69m	
Permanent datum: _____ Log measured from: _____ Depth reference: _____		Elevation: _____ _____ _____	
API serial no. x=5771796.08m (North) y=621531.7m (East)	Longitude E 148° 23' 16.247 S 38° 11' 36.419 Latitude		

Depth logged:	1957m To 2460m	Mag decl:	13.156°
Date logged:	23-Apr-02 To 24-Apr-02	Mag dip:	-68.7°

Other services:
Directional Drilling

Bore hole record			Casing record			
Hole size	from	to	Size	Density	from	to
12 1/4	surface	1957 m	20	84 pcf	0 m	157 m
8 1/5	1957 m	2460 m	9 5/8	47 pcf	0 m	1957 m
Mud record		Borehole deviation record				
Type	from	to	Min	Max	from	to
KCL/PHPA/Polymer	1957 m	2460 m	59.82°	52.10°	1957 m	2460 m
Surface equipment		Software record		<div> <div>IDEAL</div> <div>services from</div> <div>Anadrill</div> </div>		
Unit	OLU-FB-924	IDEAL Wis	ID6_1C_10r			
Depth system	PDA	SPM	ID6_1C_10r			
		LWD	See toolsketch			
		MWD	See toolsketch			

DISCLAIMER

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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

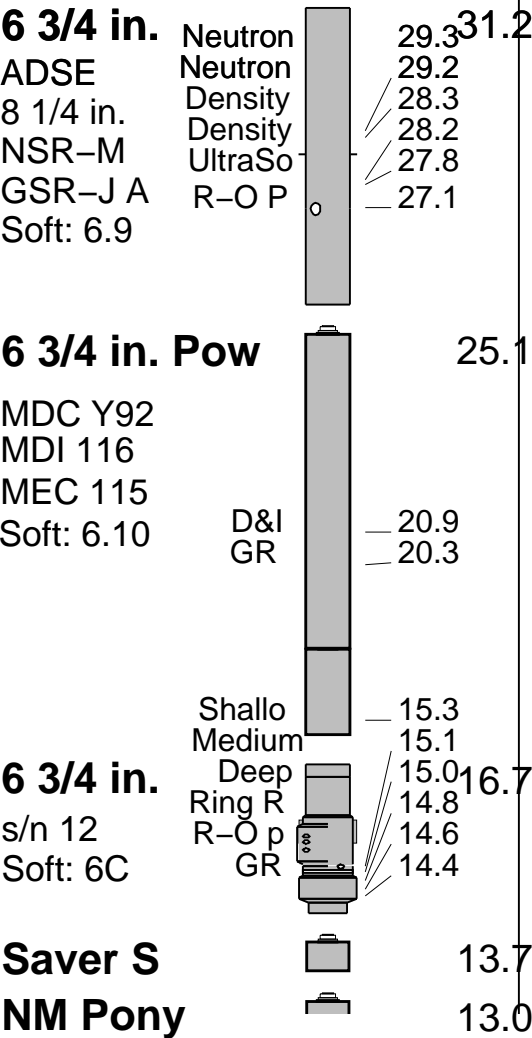
EQUIPMENT DESCRIPTION

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: ID7_0C_02

IDF

RAB id6_1c_10 MWD_10 id6_1c_10
ADN id6_1c_10

Format: RABDepthLogAvgBtns

Vertical Scale: 1:200

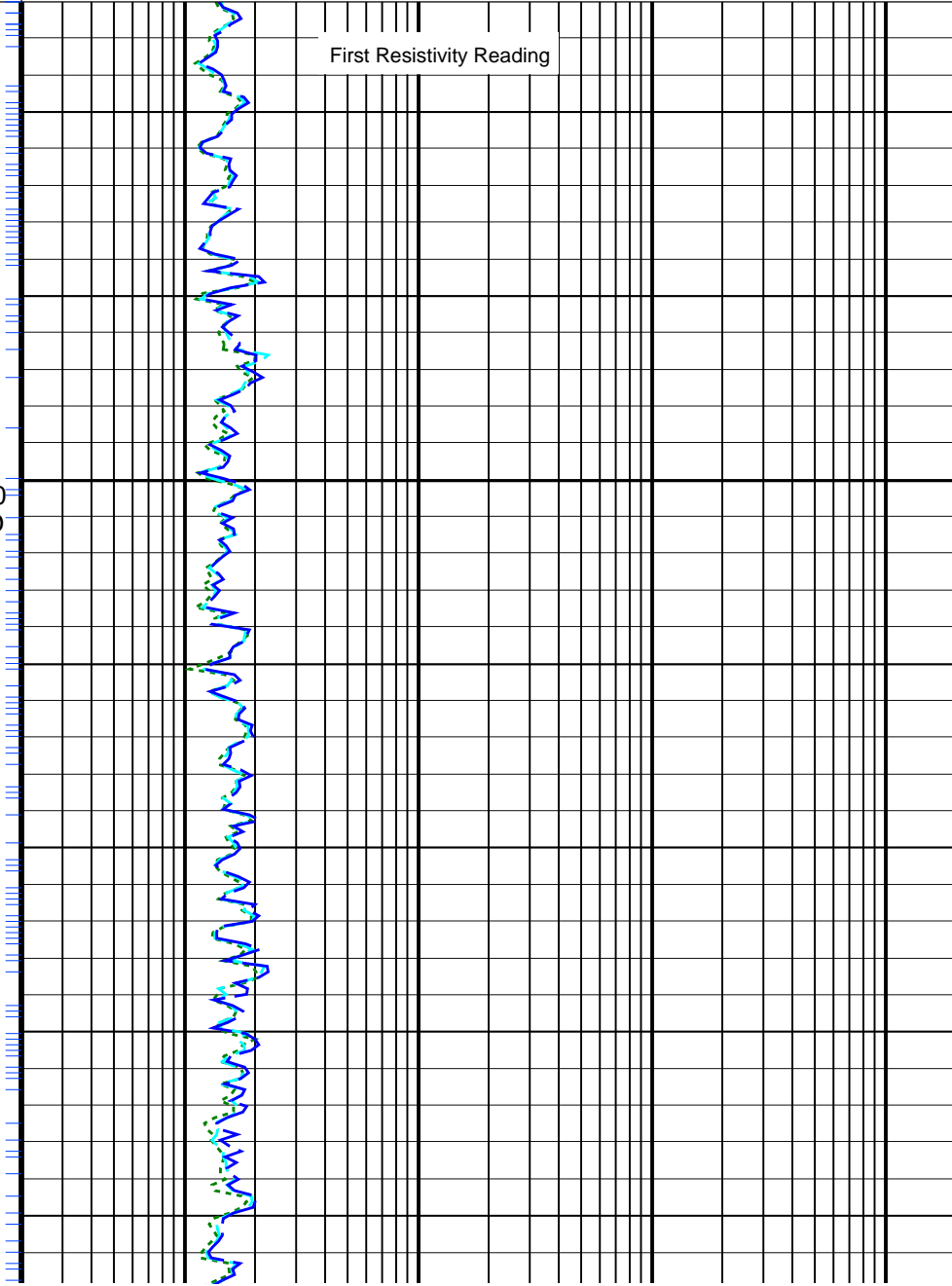
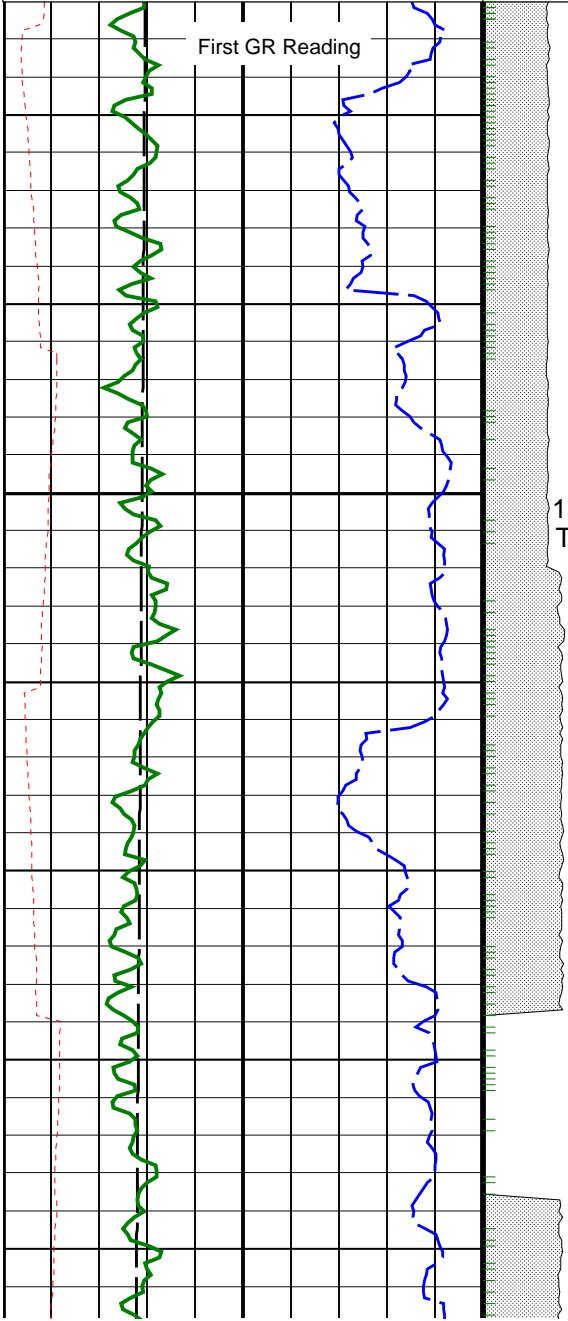
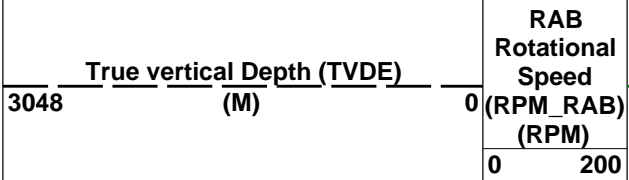
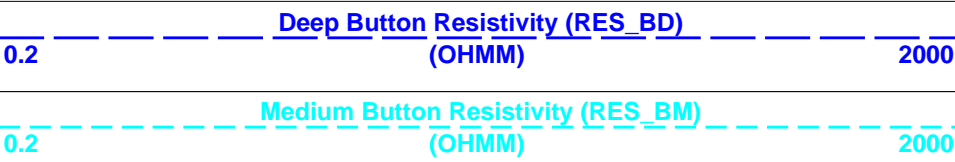
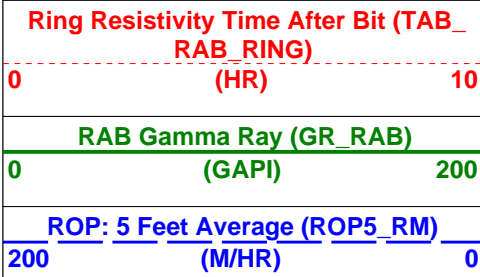
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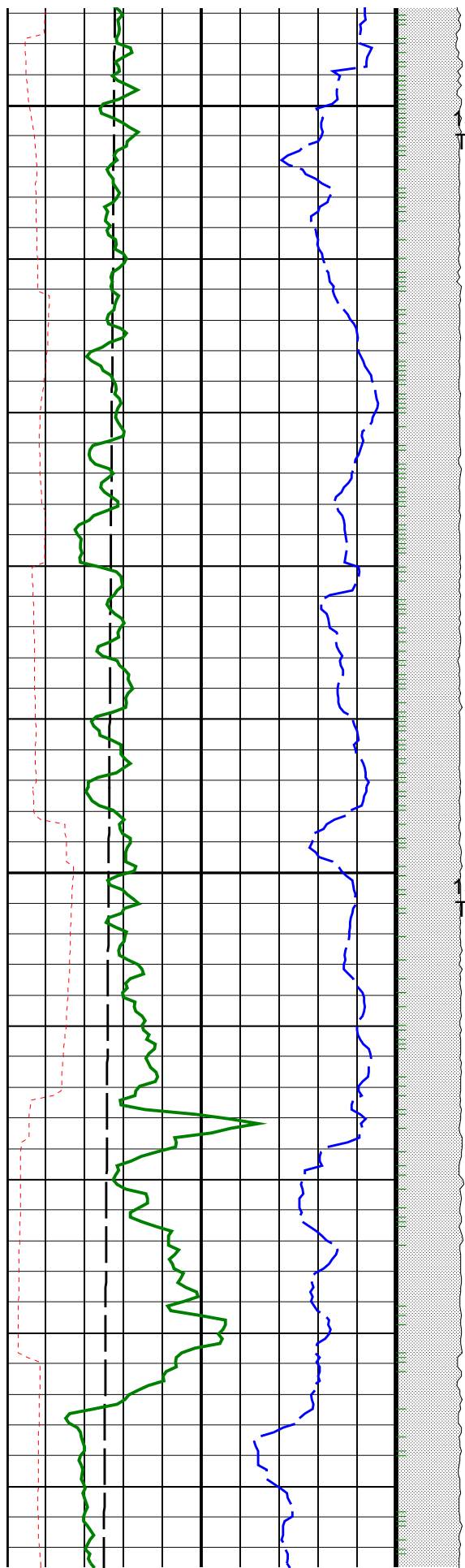
Parameters

DLIS Name	Description	Value
BDBHCA	RAB: Button Deep Borehole A Factor	0.005
BDBHCB	RAB: Button Deep Borehole B Factor	0.000
BHA_COEF_VER	RAB: BHA Coef Generator Version	2.000
BITBHCA	RAB: Bit A Borehole Factor	0.058
BITBHCB	RAB: Bit B Borehole Factor	0.000
BIT_K_FACTOR	RAB: Bit K Factor	17.214
BMBHCA	RAB: Button Medium Borehole A Factor	0.024
BMBHCB	RAB: Button Medium Borehole B Factor	0.000
BSBHCA	RAB: Button Shallow Borehole A Factor	0.024
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	-999.250
DO	Depth Offset	0.0 m
GRDC	Grid corr angle	-0.860 deg
MBUTTON_K_FACTOR	RAB: Button Medium K Factor	0.005
MST_RM	Mud Sample temperature (RM)	73.760 degF
MW_RM	Mud Weight (RM)	10.500 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	14.690 m
RINGBHCA	RAB: Ring Borehole A Factor	0.161
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)	0.101 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	-999.250
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES

PIP SUMMARY

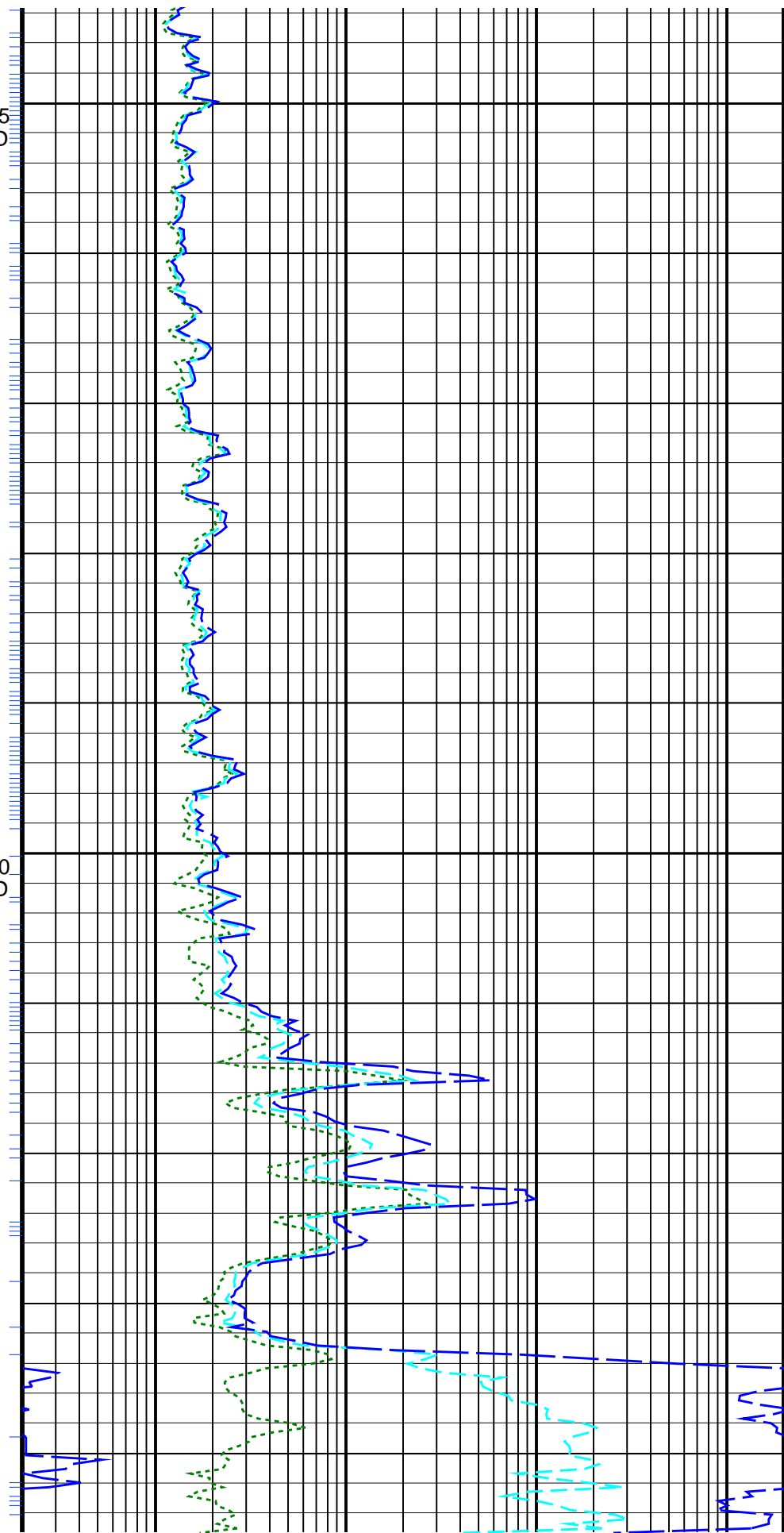
┤ Gamma Ray Samples
┤ RAB samples

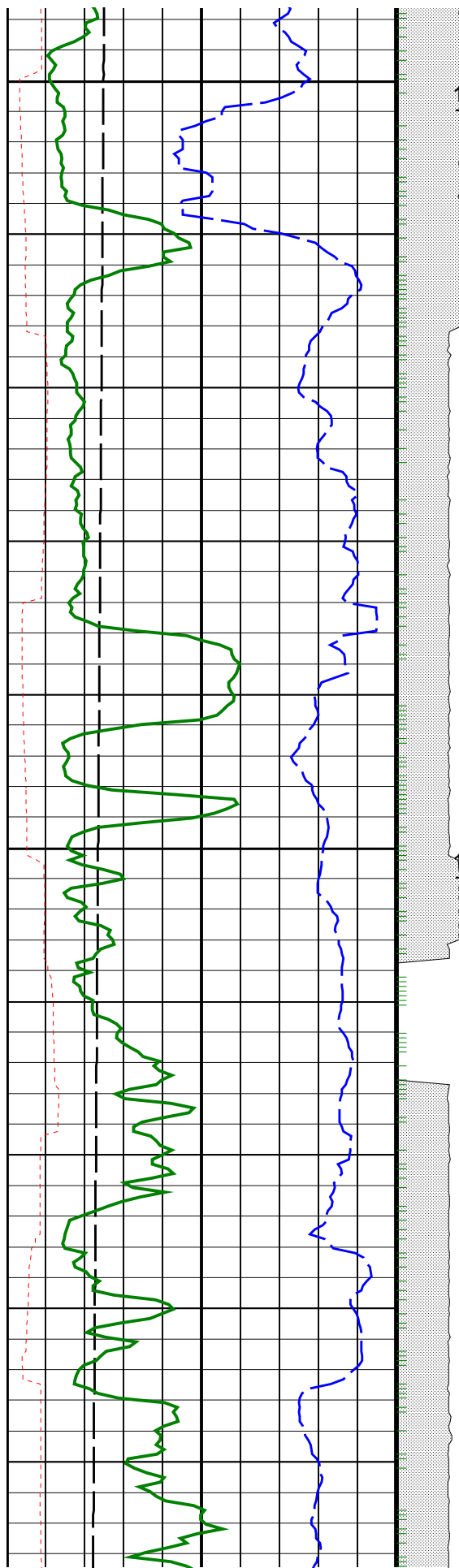




1325
TVD

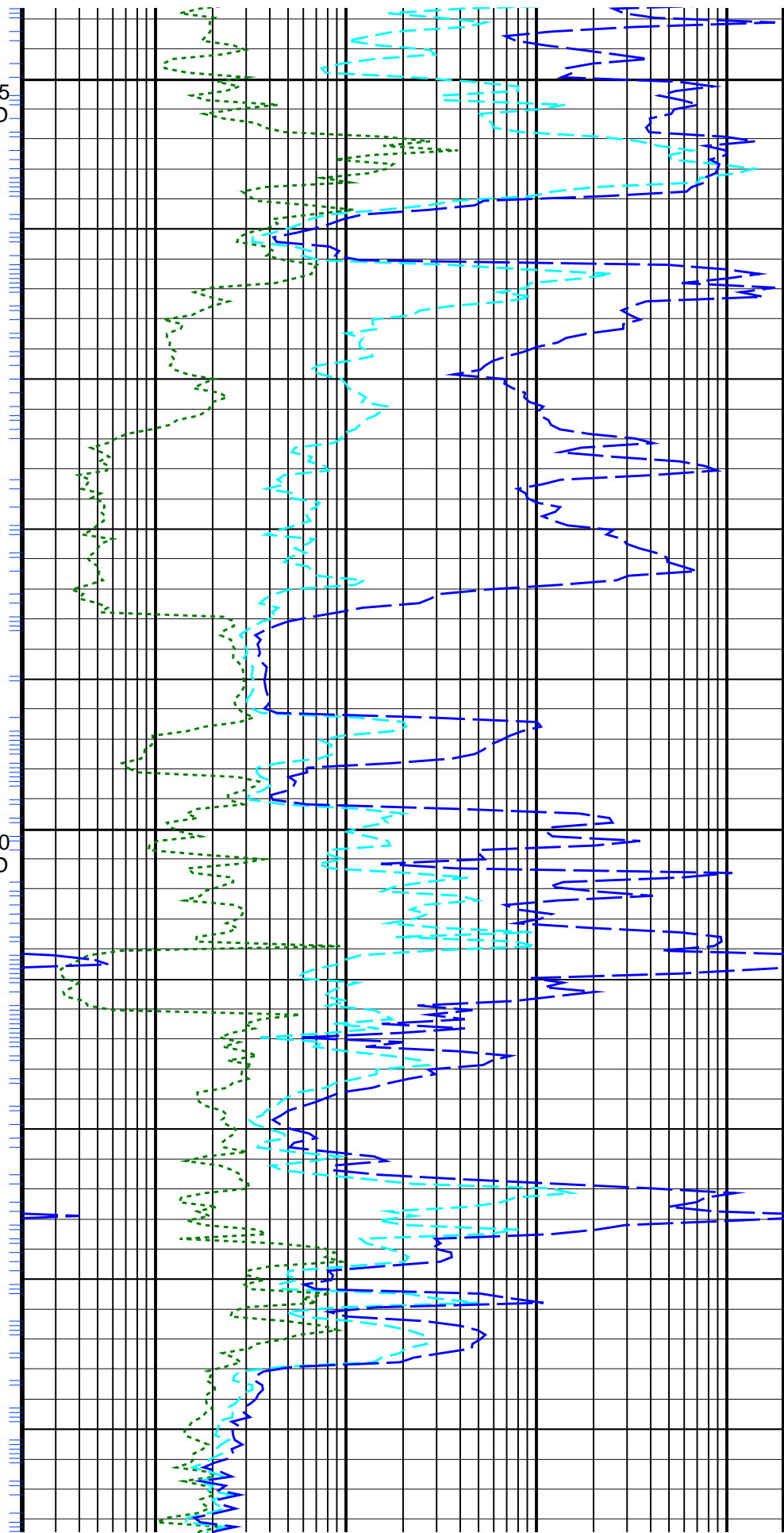
1350
TVD

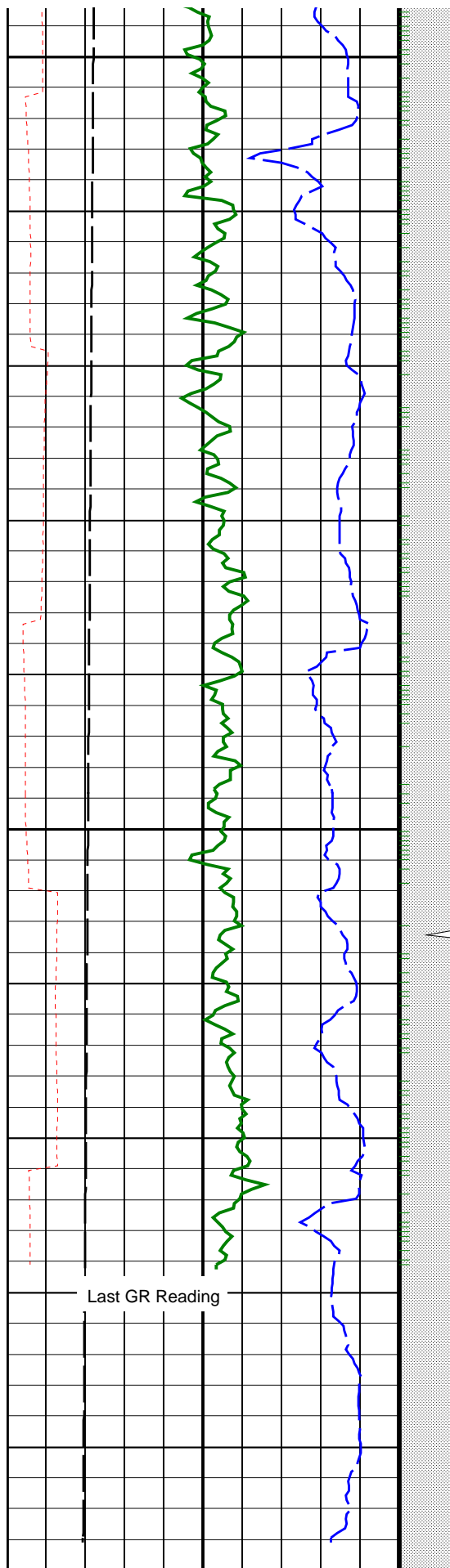




375
TVD

400
TVD

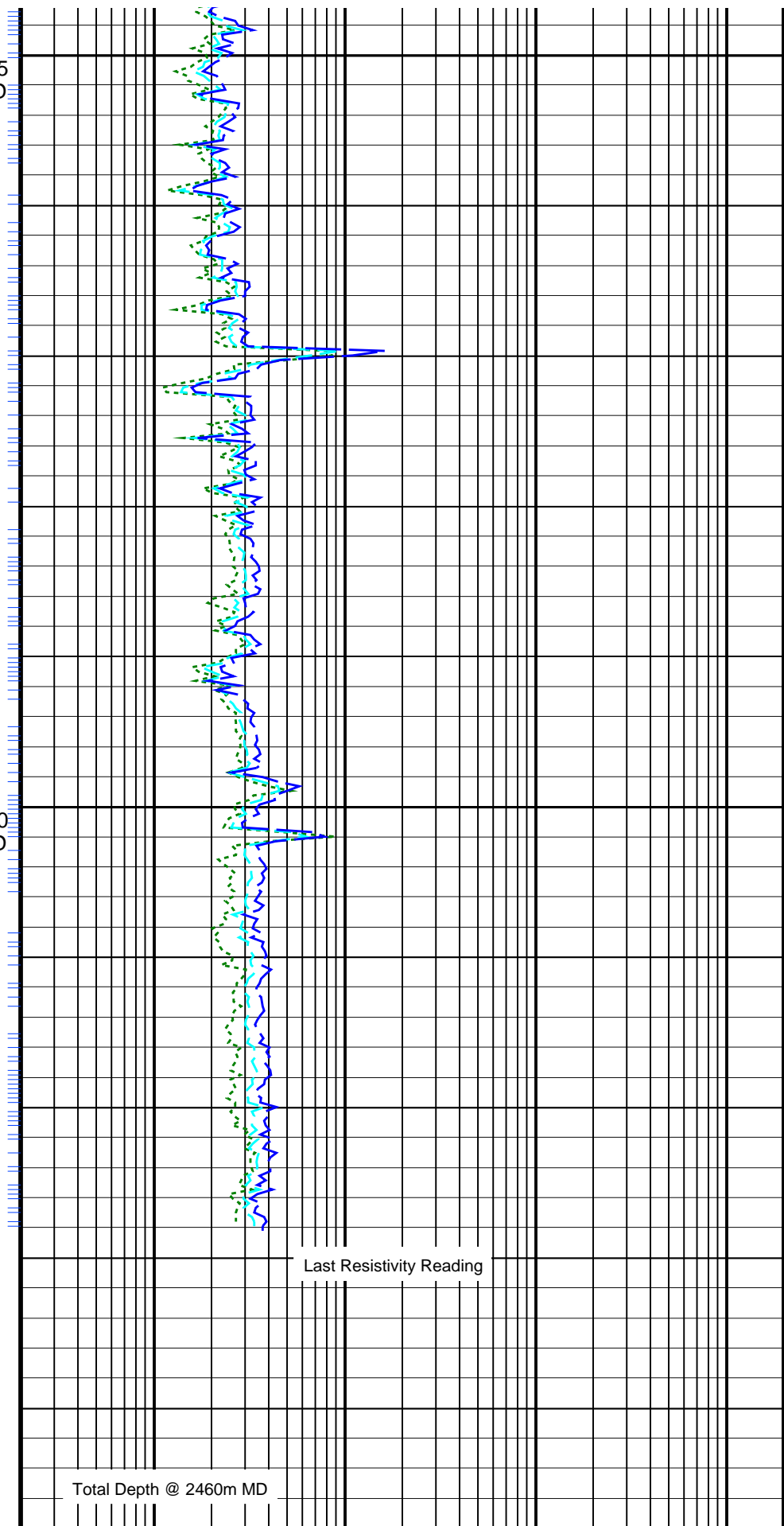




1425
TVD

1450
TVD

RAB



Last Resistivity Reading

Total Depth @ 2460m MD

True vertical Depth (TVDE)		RAB Rotational Speed (RPM_RAB) (RPM)	Shallow Button Resistivity (RES_BS)	
3048	(M)		0.2	(OHMM)
ROP: 5 Feet Average (ROP5_RM)			Medium Button Resistivity (RES_BM)	
200	(M/HR)		0.2	(OHMM)
RAB Gamma Ray (GR_RAB)			Deep Button Resistivity (RES_BD)	
0	(GAPI)		0.2	(OHMM)
Ring Resistivity Time After Bit (TAB_RAB_RING)				
0	(HR)			

PIP SUMMARY

└ Gamma Ray Samples
└ RAB samples

IDEAL Version: ID7_0C_02
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) 8000 (Maximum)			700.0 (Minimum) 9350 (Nominal) 18000 (Maximum)			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
	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

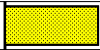
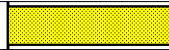
Density: Background

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		-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)	

Primary Equipment:

Tool Name and Serial Number

RAB6 - CA

127





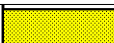
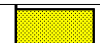



Calibration Status

-

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	EXCEEDS LIMIT	0.9620	Master	EXCEEDS LIMIT	0.9670	Master		0.9990
	0.9750 (Minimum)	1.000 (Nominal)		0.9750 (Minimum)	1.000 (Nominal)		0.9750 (Minimum)	1.000 (Nominal)
		1.025 (Maximum)			1.025 (Maximum)			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)		0.9750 (Minimum)	1.000 (Nominal)		0.9750 (Minimum)	1.000 (Nominal)
		1.025 (Maximum)			1.025 (Maximum)			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)		0.9750 (Minimum)	1.000 (Nominal)		0.9750 (Minimum)	1.000 (Nominal)
		1.025 (Maximum)			1.025 (Maximum)			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)		0.9750 (Minimum)	1.000 (Nominal)		0.9750 (Minimum)	1.000 (Nominal)
		1.025 (Maximum)			1.025 (Maximum)			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

Azimuth from rotary table to target: 352.03 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

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Company: Esso Australia Ltd.

Well: WTN W33A

Field: Tuna

Rig: Pool Rig 453

State: Victoria

IDEAL services from Anadrill

GeoVision Resistivity
1:200 True Vertical Depth
Recorded Mode Log

Schlumberger