Schlumberger

Company: **ESSO Australia Ltd Pty**

Well: **TNA A−10A ST**
Field: **Tuna**
Rig: **ISDL 453** State: **Victoria**

Rig: ISDL 453
Field: Tuna
Location: Bass Strait
Well: TNA A−10A ST
Company: ESSO Australia Ltd Pty

GeoVISION* Density Neutron
1:200 True Vertical Depth
Recorded Mode Data

Location

Total depth:	2243.0 m
Spud date:	5−Oct−2002
Runs:	2 To 2

Elevation

K.B.	31.32 m
G.L.	−59.4 m
D.F.	31.32 m

Permanent datum:	Mean Sea Level	Elev.: 59.4 m
Log measured from:	Drill Floor	31.32 m above Perm. datum
Depth reference:	Driller's Depth	

API serial no.	Y = 5,774,222.491 m N X = 624,224.990 m E	Longitude E 148º 25' 5.413''	Latitude S 38º 10' 16.394''

Depth logged: 1948.9 m To 2231.4 m	Mag decl: 13.166 deg.	Other services:
Date logged: 15−Oct−02 To 16−Oct−02	Mag dip: −68.686 deg.	D & I, Directional Drilling

Bore hole record

Hole size	from	to
8 1/2 in.	661.1 m	2243.0 m

Casing record

Size	Density	from	to
20 in.	285 lbm/m	0.0 m	155.0 m
13 3/8 in.	226 lbm/m	0.0 m	647.0 m
9 5/8 in.	154 lbm/m	617.0 m	661.1 m

Mud record

Type	from	to
KCl/PHPA/Glycol	661.1 m	2243.0 m

Borehole deviation record

Min	Max	from	to
37.4 deg.	42.5 deg.	646.4 m	1015.5 m
42.5 deg.	60.9 deg.	1015.5 m	1218.5 m
60.9 deg.	68.7 deg.	1218.5 m	1796.9 m
54.1 deg.	68.7 deg.	1796.9 m	2243.0 m

Surface equipment

Unit	OLU−FB−924
Depth system	PDA−AB

Software record

IDEAL Wis	ID7_0C_02r
SPM	HSPM7_0C_10a
LWD	See Toolsketch
MWD	See Toolsketch

Bit Run Summary

Run number	2
Bit size in.	8.5
Bit start depth m	1976.0
Bit end depth m	2243.0
Top interval logged m	1948.9
Bottom interval logged m	2231.4
Begin log: time	11:00
Begin log: date	15−Oct−02
End log: time	10:35
End log: date	16−Oct−02
Mud data	
Depth m	2243
Type	KCl/Phpa/Glycol

Type		KCl/Phpa/Glycol									
Mud weight	lb/gal	10.25									
Solids	%	9.4									
Chlorides	mg/L	40,500									
Rm	ohm−m@ºC	0.125@21.5									
Rmf	ohm−m@ºC	0.231@22.0									
Rmc	ohm−m@ºC	0.104@20.8									
Potassium	%	4									
Environmental data											
GR											
Mud weight	lb/gal	10.25									
Bit size	in.	8.5									
Resistivity											
Neutron porosity											
Hole Size	in.	8.5									
Mud weight	lb/gal	10.25									
Temperature	ºC	68.5									
Mud salinity	ppk	66.825									
Formation salinity											
Recording rate 1	SEC	10									
Recording rate 2	SEC	10									
Filtering GR		3 pt									
Filtering density		3 pt									
Filtering Neutron		3 pt									
Company representative		B. Steel	B. Woodward								
Anadrill personnel		L. Bon	J. Dolan	K. Handley							

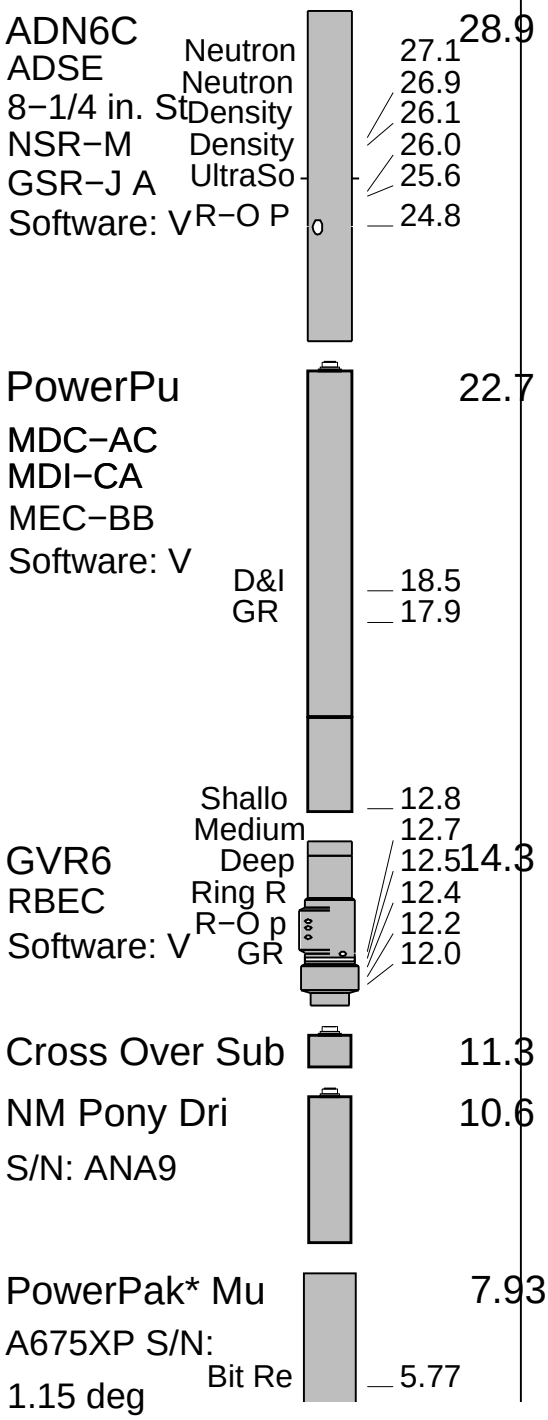
OTHER SERVICES FOR RUN2	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
D & I Directional Drilling		
REMARKS: RUN NUMBER 2	**REMARKS: RUN NUMBER**	**REMARKS: RUN NUMBER**
All data presented is from tool memory. GR corrected for mud weight, tool and bit size. GVR6* resistivity is corrected for the bit size, mud resistivity and borehole temperature. Bottom quadrant density is presented. Neutron porosity is calculated with a limestone matrix and is corrected for the bit size, borehole salinity, temperature and mud hydrogen index. Mud type is water−based KCl/PHPA/Glycol. Barite was present in the mud system.		

GVR6* downhole software: 6.1B14
ADN6* downhole software: 6.2B08

EQUIPMENT DESCRIPTION

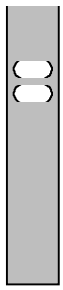
RUN2	RUN	RUN

DOWNHOLE EQ



1.15 deg

Bit Re 5.77



0.00 0.24

Security T

XS30D S/N:

MAXIMUM STRING DI

ALL LENGTHS I

True Vertical Depth Log

IDEAL Version: ID7_0C_02

IDF

RAB	**IDEAL Version: ID7_0C_02**	**MWD_10**	**IDEAL Version: ID7_0C_02**
ADN	**IDEAL Version: ID7_0C_02**		

Format: TNA A−10A GeoVISION Density Neutron **Vertical Scale: 1:200** **Graphics File Created: 18−Oct−2002 06:25**

Parameters

DLIS Name	Description	Value	
ADN_COLLAR_STR	ADN Collar Type String	ADDC−AA: Slick	
ADN_STAB_STR	ADN Stabilizer Type String	None	
AVE_ADN	ADN/Array Channels: perform averaging(RM) :	YES	
A_DHS	ADN Down Hole Software Version String	V6.2B	
BHA_COEF_VER	RAB: BHA Coef Generator Version	62012.0	
BHT_RM	Bottom Hole Temperature (RM)	158.0	degF
BSAL_RM	Mud Salinity (RM)	66.825	ppk
BS_RM	Bit Size (RM)	8.500	in
DEVI	Well Section Deviation	49.540	deg
DHS_VERSION	RAB: DownHole Software Version	6.101	
DO	Depth Offset	0.0	m
ENVCOR	Neutron Quadrant Processing: Environmental Correction?	YES	
GRDC	Grid corr angle	−0.880	deg
LITHO_TYPE_ADN	Lithology (RM)	LIME	
MST_RM	Mud Sample temperature (RM)	70.700	degF
MW_RM	Mud Weight (RM)	10.250	lbm/gal
OBM	RAB: Oil base Mud	NO	
OBMF_RM	Oil Based Mud	NO	
RAB_TEMP_SELECT	RAB Temperature Selection	MEAS	
READOUT_PORT_MP	RAB: ROP to Bit Face Distance	12.280	m
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)	0.125	ohm.m
RWS_RM	Resistivity of Connate Water (RM)	1.000	ohm.m
SHT_RM	Surface Hole Temperature (RM)	62.600	degF
SSIZ_ADN	ADN Stabilizer Size	8.250	in
STAB	RAB: Run with Stabilizer	YES	
TD_RM	Total Measured Depth (RM)	2243.0	m
TOOLTYPE	RAB: Azimuthal Tool	YES	
TRPM_RM	Average Tool Rotational Speed	20.000	c/min
TSIZ_ADN	ADN Tool Size	6.750	in
TS_VERSION	RAB: ToolScope Software Version	6.101	
TWS_RM	Temperature of Connate Water (RM)	75.000	degF
VERS_ADN	ADN Downhole Software Version	6.200	
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES	

VRAB6 | Rab Tool type (ENP/PILOT) | RAB6_C_SERIES

PIP SUMMARY

Density Ticks, 0.1 ft

Neutron Ticks, 0.1 ft

Gamma Ray Samples

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

Thermal Neutron Porosity (TNPH)
45 (PU) −15

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

Bulk Density, Bottom (ROBB)
1.85 (G/C3) 2.85

RAB Gamma Ray (GR_RAB)
0 (GAPI) 200

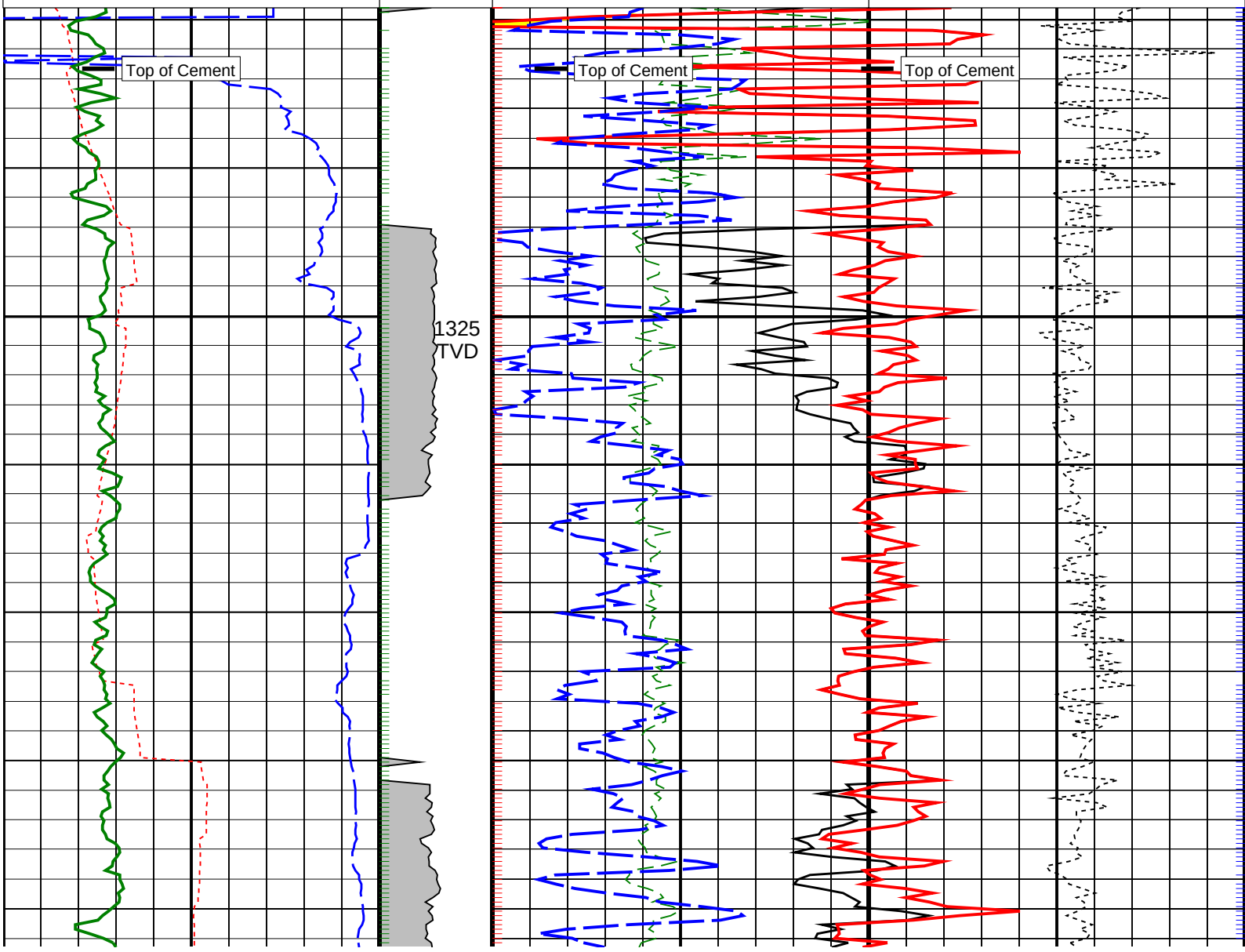
Bulk Density (RHOB)
1.85 (G/C3) 2.85

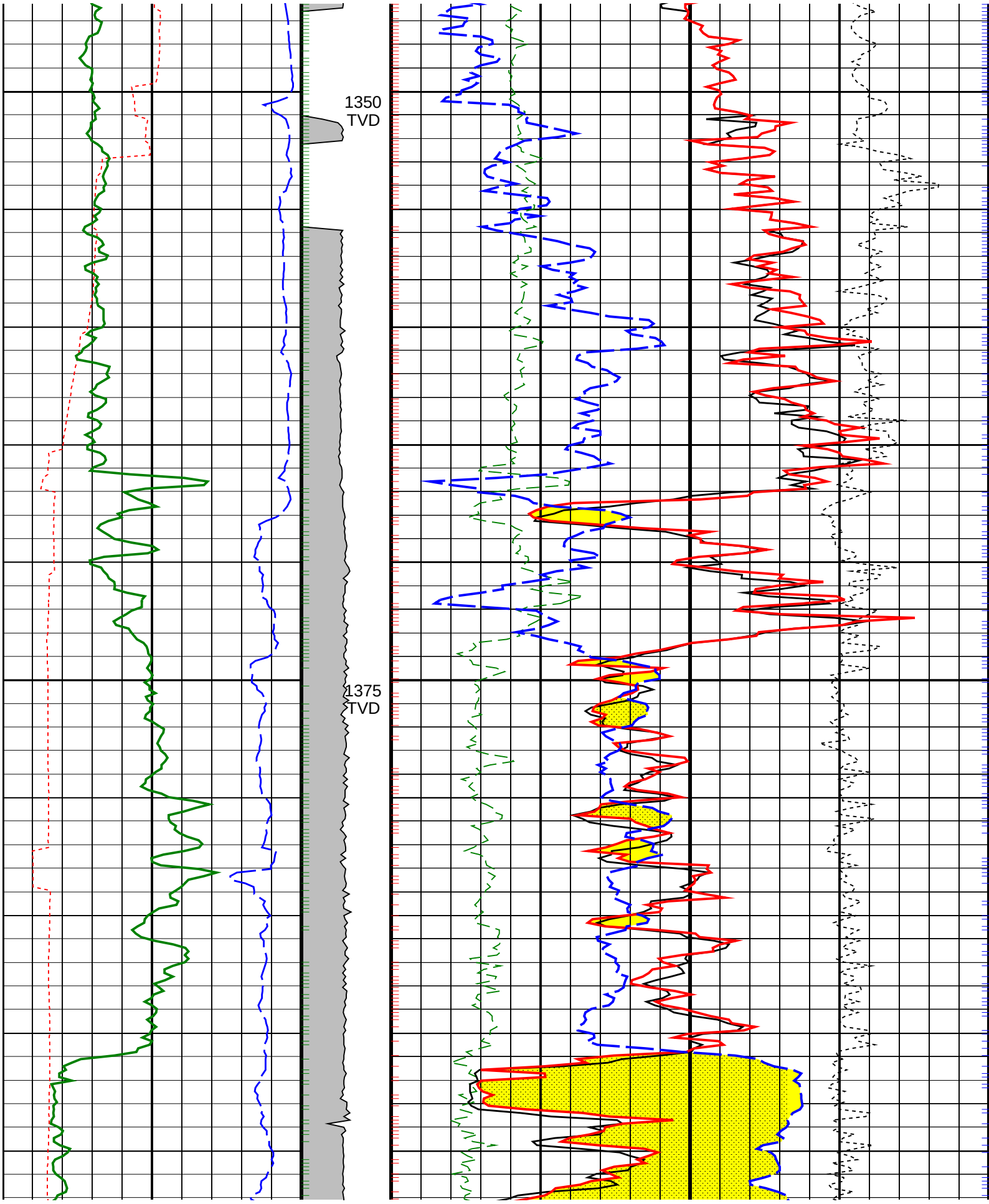
Density Time After Bit (TAB_DEN)
0 (HR) 10

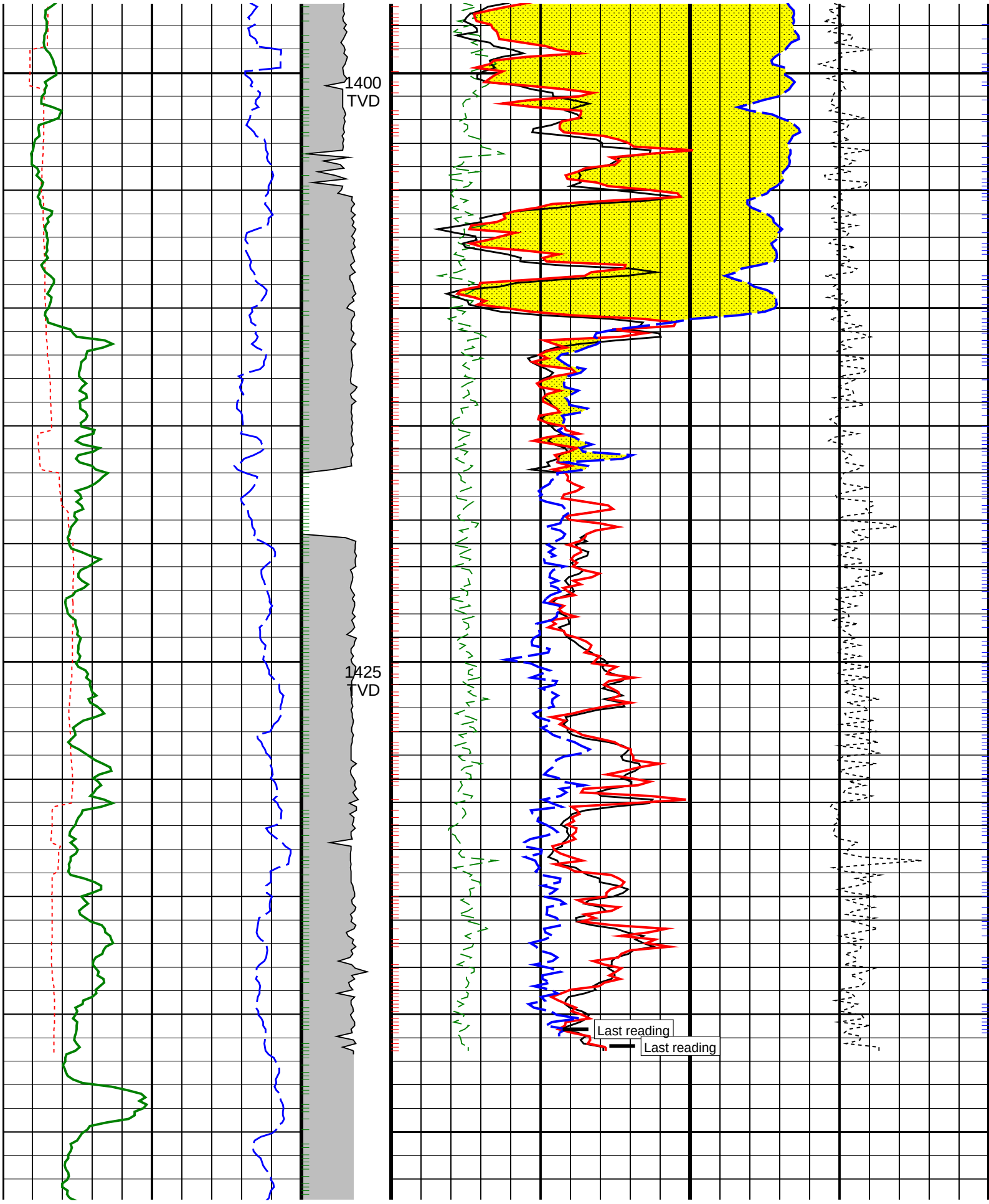
ADN Rotational Speed (RPM_ADN) (RPM)
0 200

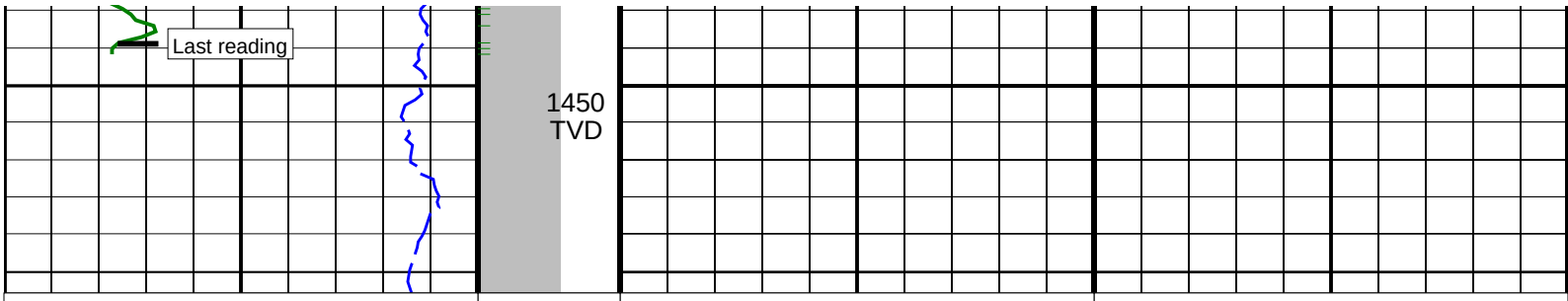
Photoelectric Factor, Bottom (PEB)
0 (−−−− 10

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




1350
TVD
1375
TVD


1400
TVD
1425
TVD
Last reading
Last reading



Density Time After Bit (TAB_DEN)
0 (HR) 10

ADN Rotational Speed (RPM_ADN) (RPM)
0 200

Photoelectric Factor, Bottom (PEB)
0 (---- 10

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

RAB Gamma Ray (GR_RAB)
0 (GAPI) 200

Bulk Density (RHOB)
1.85 (G/C3) 2.85

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

Bulk Density, Bottom (ROBB)
1.85 (G/C3) 2.85

Thermal Neutron Porosity (TNPH)
45 (PU) −15

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

PIP SUMMARY

Density Ticks, 0.1 ft

Neutron Ticks, 0.1 ft

Gamma Ray Samples

IDEAL Version: ID7_0C_02

IDF

RAB	IDEAL Version: ID7_0C_02	MWD_10	IDEAL Version: ID7_0C_02
ADN	IDEAL Version: ID7_0C_02		

True Vertical Depth Log

6.75−in. Azimuthal Density Neutron / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ADN6C* S/N: 289
Collar Type and Serial Number	ADDC − AA
Chassis Type and Serial Number	ADSE − EA
Stabilizer Type and Serial Number	Clamp−On Stabilizer
Neutron Logging Source	NSR−M S/N: A161
Density Logging Source	GSR−J S/N: A2125
Stabilizer Size	8.25 − in.
Calibration Status	Valid

Master: 20−Aug−2002 12:00

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		1286	Master		2974	Master		7375
	250.0 (Minimum) 4125 (Nominal) 8000 (Maximum)			700.0 (Minimum) 9350 (Nominal) 18000 (Maximum)			2500 (Minimum) 23750 (Nominal) 45000 (Maximum)	

Master: 20−Aug−2002 12:00

6.75−in. Azimuthal Density Neutron Calibration

Density: Aluminum Block

Density: Aluminum Block

Phase	LS window 3 − Al CPS	Value
Master		199.3
	50.00 (Minimum) / 725.0 (Nominal) / 1400 (Maximum)	

Phase	SS window 1 − Al CPS	Value
Master		1579
	500.0 (Minimum) / 4250 (Nominal) / 8000 (Maximum)	

Phase	SS window 3 − Al CPS	Value
Master		4746
	1500 (Minimum) / 15750 (Nominal) / 30000 (Maximum)	

Master: 20−Aug−2002 12:00

6.75−in. Azimuthal Density Neutron Calibration

Density: Background

Phase	LS window 3 − Background CPS	Value
Master		51.89
	15.00 (Minimum) / 82.50 (Nominal) / 150.0 (Maximum)	

Phase	SS window 1 − Background CPS	Value
Master		125.3
	40.00 (Minimum) / 220.0 (Nominal) / 400.0 (Maximum)	

Phase	SS window 3 − Background CPS	Value
Master		546.5
	150.0 (Minimum) / 825.0 (Nominal) / 1500 (Maximum)	

Master: 20−Aug−2002 12:00

6.75−in. Azimuthal Density Neutron Calibration

Density: Water Block Check

Phase	Long spacing water density G/C3	Value
Master		1.034
	1.015 (Minimum) / 1.030 (Nominal) / 1.045 (Maximum)	

Phase	Short spacing water density G/C3	Value
Master		1.130
	1.095 (Minimum) / 1.120 (Nominal) / 1.145 (Maximum)	

Master: 20−Aug−2002 12:00

6.75−in. Azimuthal Density Neutron Calibration

Neutron: Water Tank

Phase	Far 1 tube 1 gain	Value
Master		1.102
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 1 tube 1 offset CPS	Value
Master		−0.8340
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Far 1 tube 2 gain	Value
Master		1.048
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 1 tube 2 offset CPS	Value
Master		−0.9090
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Far 1 tube 3 gain	Value
Master		1.071
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 1 tube 3 offset CPS	Value
Master		−0.7690
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Far 2 tube 1 gain	Value
Master		1.107
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 2 tube 1 offset CPS	Value
Master		−0.7220
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Far 2 tube 2 gain	Value
Master		1.000
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 2 tube 2 offset CPS	Value
Master		−0.8370
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Far 2 tube 3 gain	Value
Master		1.108
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Far 2 tube 3 offset CPS	Value
Master		−0.7300
	−1.200 (Minimum) / −0.9000 (Nominal) / −0.6000 (Maximum)	

Phase	Near 1 tube 1 gain	Value
Master		1.088
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Near 1 tube 1 offset CPS	Value
Master		0
	−50.00 (Minimum) / 0 (Nominal) / 50.00 (Maximum)	

Phase	Near 2 tube 1 gain	Value
Master		1.062
	0.9000 (Minimum) / 1.100 (Nominal) / 1.300 (Maximum)	

Phase	Near 2 tube 1 offset CPS	Value
Master		0
	−50.00 (Minimum) / 0 (Nominal) / 50.00 (Maximum)	

Master: Calibration date not found

6.75−in. Azimuthal Density Neutron Calibration

Master: Calibration date not found

6.75−in. Azimuthal Density Neutron Calibration

Neutron: Water Block Check

Phase	Far Neutron water porosity V/V	Value
Master		1.000
	0.9000 (Minimum) 1.000 (Nominal) 1.150 (Maximum)	

Phase	Near Neutron water porosity V/V	Value
Master		1.000
	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	GVR6* S/N: 160
Calibration Status	Valid

Master: 11−Sep−2002 12:00

6.75−in. Resistivity At−the−Bit Calibration

Resistivity: Fixture

Phase	Ring/T1 factor	Value
Master		0.9975
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	Ring/T2 factor	Value
Master		0.9991
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	M0/T1 factor	Value
Master		1.001
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	M0/T2 factor	Value
Master		1.002
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	M2/T1 factor	Value
Master		0.9983
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	M2/T2 factor	Value
Master		0.9994
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN shallow/T1 factor	Value
Master		1.006
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN shallow/T2 factor	Value
Master		1.007
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN medium/T1 factor	Value
Master		1.002
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN medium/T2 factor	Value
Master		1.003
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN deep/T1 factor	Value
Master		1.012
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Phase	BTN deep/T2 factor	Value
Master		1.012
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	

Master: 11−Sep−2002 12:00

6.75−in. Resistivity At−the−Bit Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor	Value
Master		0.8590
	0.7500 (Minimum) 1.000 (Nominal) 1.250 (Maximum)	

ANADRILL

SCHLUMBERGER

Survey report 16−Oct−2002 12:09:07 Page 1 of 3

Client.....: Esso Australia Ltd.
Field.....: Tuna

Well.....: TNA A−10A
API number.....:
Engineer.....: L. Bon

Spud date.....: 4−Oct−2002
Last survey date.....: 16−Oct−02
Total accepted surveys...: 57
MD of first survey.....: 646.50 m

Engineer.....: L. Bon
RIG:.....: ISDL 453
STATE:.....: Victoria

Total accepted surveys...: 57
MD of first survey.....: 646.50 m
MD of last survey.....: 2243.00 m

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

−−−−− Depth reference −−−−−−−−−−−−−−−−−−−−−−
Permanent datum.....: Mean Sea Level
Depth reference.....: Driller's Depth
GL above permanent.....: −59.40 m
KB above permanent.....: 31.32 m
DF above permanent.....: 31.32 m

−−−−− Geomagnetic data −−−−−−−−−−−−−−−−−−−−
Magnetic model.....: BGGM version 2001
Magnetic date.....: 20−Sep−2002
Magnetic field strength..: 1200.29 HCNT
Magnetic dec (+E/W−).....: 13.17 degrees
Magnetic dip.....: −68.69 degrees

−−−−− MWD survey Reference Criteria −−−−−−−−−
Reference G.....: 1000.02 mGal
Reference H.....: 1200.29 HCNT
Reference Dip.....: −68.69 degrees
Tolerance of G.....: (+/−) 2.50 mGal
Tolerance of H.....: (+/−) 6.00 HCNT
Tolerance of Dip.....: (+/−) 0.45 degrees

−−−−− Platform reference point−−−−−−−−−−−−−−−
Latitude (+N/S−).....: −3.05 m
Departure (+E/W−).....: 0.11 m

−−−−− Corrections −−−−−−−−−−−−−−−−−−−−−−−−−
Magnetic dec (+E/W−).....: 13.17 degrees
Grid convergence (+E/W−).: −0.88 degrees
Total az corr (+E/W−)....: 14.05 degrees
Azimuth from rotary table to target: 332.28 degrees (Total az corr = magnetic dec − grid conv)
Sag applied (Y/N).....: No degree: 0.00

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/ 100f)	Srvy tool type	Tool qual
1	646.5	37.39	204.16	0	614.23	−101.72	−136.8	−35.75	138.47	194.65	0	TIP	−
2	661.2	37.68	204.31	14.7	625.89	−107.24	−144.96	−39.43	147.32	195.21	0.63	GYR	−
3	700.49	38.02	219.27	39.29	656.98	−119.38	−165.32	−52.05	170.44	197.48	7.11	MWD	6−axis
4	729	38.66	224.98	28.51	679.35	−125.46	−178.42	−63.91	186.69	199.71	3.85	MWD	6−axis
5	757.82	37.29	233.89	28.82	702.08	−129.42	−189.94	−77.34	202.3	202.15	5.97	MWD	6−axis
6	785.91	37.06	243.45	28.09	724.48	−130.48	−198.74	−91.8	216.2	204.79	6.27	MWD	6−axis
7	814.55	37.96	252.29	28.64	747.22	−128.78	−205.29	−107.92	229.28	207.73	5.8	MWD	6−axis
8	843.56	39.69	259.68	29.01	769.83	−124.45	−209.66	−125.54	241.82	210.91	5.19	MWD	6−axis
9	871.13	40.19	267.56	27.57	790.98	−118.02	−211.62	−143.1	253	214.07	5.62	MWD	6−axis
10	901.08	40.82	274.91	29.95	813.77	−108.61	−211.19	−162.52	264.15	217.58	4.9	MWD	6−axis
11	927.94	40.93	282.75	26.86	834.09	−98.15	−208.5	−179.86	273.13	220.78	5.82	MWD	6−axis
12	956.4	41.73	290.78	28.46	855.48	−85	−203.08	−197.82	281.4	224.25	5.74	MWD	6−axis
13	986.18	42.47	297.76	29.78	877.59	−69.28	−194.87	−216	288.96	227.94	4.85	MWD	6−axis
14	1015.52	42.54	305.13	29.34	899.23	−52.29	−184.55	−232.88	295.34	231.61	5.17	MWD	6−axis
15	1044.86	42.2	312.78	29.34	920.92	−34.16	−172.14	−248.24	300.45	235.26	5.37	MWD	6−axis
16	1073.87	45.34	320.38	29.01	941.88	−14.86	−157.56	−261.98	304.25	238.98	6.43	MWD	6−axis
17	1102.84	49.02	325.14	28.97	961.58	6.08	−140.64	−274.81	307.43	242.9	5.34	MWD	6−axis
18	1131.52	51.38	330.94	28.68	979.94	28.04	−121.95	−286.45	310.25	246.94	5.36	MWD	6−axis
19	1160.5	54.35	336.25	28.98	997.44	51.12	−101.26	−296.7	312.63	251.15	5.44	MWD	6−axis
20	1189.57	58.35	338.23	29.07	1013.55	75.22	−78.95	−306.05	315.43	255.53	4.54	MWD	6−axis
21	1218.51	60.94	341.52	28.94	1028.18	99.97	−55.51	−314.63	319.08	259.99	4.05	MWD	6−axis
22	1247.44	64.09	344.91	28.93	1041.53	125.15	−30.94	−322.03	323.34	264.51	4.59	MWD	6−axis
23	1276.26	68.16	347.68	28.82	1053.19	150.71	−5.34	−328.26	328.38	269.07	5.07	MWD	6−axis
24	1304.91	68.17	350.31	28.65	1063.85	176.18	20.76	−333.34	334.29	273.56	2.6	MWD	6−axis
25	1334.11	67.47	350.2	29.2	1074.88	201.9	47.41	−337.91	341.77	277.99	0.74	MWD	6−axis
26	1363.21	66.92	349.8	29.1	1086.15	227.45	73.83	−342.57	351.2	282.16	0.69	MWD	6−axis
27	1391.75	67.53	350.62	28.54	1097.2	252.49	99.76	−347.04	362.06	286.04	1.04	MWD	6−axis
28	1420.36	67.08	350.51	28.61	1108.24	277.55	125.8	−351.37	374.35	289.7	0.49	MWD	6−axis
29	1448.66	68.99	350.9	28.3	1118.83	302.45	151.7	−355.61	387.92	293.1	2.09	MWD	6−axis
30	1477.72	68.34	350.63	29.06	1129.4	328.12	178.41	−359.95	403.21	296.37	0.73	MWD	6−axis

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/ 100f)	Srvy tool type	Tool qual
31	1506.45	67.61	350.84	28.73	1140.17	353.38	204.7	−364.24	419.42	299.33	0.8	MWD	6−axis
32	1535.61	68.97	350.83	29.16	1150.96	379.07	231.44	−368.56	436.92	302.13	1.42	MWD	6−axis
33	1565.41	68.26	350.58	29.8	1161.82	405.39	258.83	−373.04	455.87	304.75	0.76	MWD	6−axis
34	1594.42	67.8	350.83	29.01	1172.68	430.92	285.38	−377.38	475.07	307.1	0.54	MWD	6−axis
35	1623.51	67.52	350.94	29.09	1183.74	456.42	311.95	−381.65	494.93	309.26	0.31	MWD	6−axis

35	1623.51	67.52	350.94	29.09	1183.74	456.42	311.95	−381.65	494.93	309.26	0.31	MWD 6−axis
36	1652.59	68.41	350.68	29.08	1194.64	481.98	338.55	−385.95	515.5	311.26	0.97	MWD 6−axis
37	1681.35	68.05	350.92	28.76	1205.31	507.3	364.92	−390.22	536.43	313.08	0.45	MWD 6−axis
38	1710.58	67.88	350.84	29.23	1216.28	532.98	391.67	−394.52	558.15	314.79	0.19	MWD 6−axis
39	1739.39	67.67	350.96	28.81	1227.18	558.25	418.01	−398.73	579.97	316.35	0.25	MWD 6−axis
40	1767.87	67.3	351.21	28.48	1238.08	583.16	444	−402.81	601.83	317.78	0.47	MWD 6−axis
41	1796.96	68.71	351.25	29.09	1248.98	608.67	470.65	−406.92	624.56	319.15	1.48	MWD 6−axis
42	1825.58	67.9	351.27	28.62	1259.56	633.82	496.94	−410.96	647.28	320.41	0.86	MWD 6−axis
43	1854.31	67.69	350.38	28.73	1270.41	659.03	523.2	−415.21	670.39	321.56	0.9	MWD 6−axis
44	1883.82	67.24	350.44	29.51	1281.72	684.94	550.07	−419.75	694.42	322.65	0.47	MWD 6−axis
45	1912.74	68.05	348.78	28.92	1292.72	710.47	576.38	−424.57	718.39	323.62	1.83	MWD 6−axis
46	1941.53	67.75	348.8	28.79	1303.55	736.04	602.54	−429.76	742.65	324.5	0.32	MWD 6−axis
47	1970.81	67.57	348.94	29.28	1314.68	762	629.12	−434.98	767.43	325.34	0.23	MWD 6−axis
48	1999.66	67.07	349.15	28.85	1325.81	787.49	655.25	−440.04	791.89	326.12	0.57	MWD 6−axis
49	2034.43	62.98	349.79	34.77	1340.49	817.59	686.23	−445.8	820.94	326.99	3.62	MWD 6−axis
50	2063.19	57.85	350.62	28.76	1354.68	841.38	710.87	−450.06	844	327.66	5.49	MWD 6−axis
51	2092.26	54.07	349.1	29.07	1370.95	864.34	734.58	−454.3	866.36	328.27	4.18	MWD 6−axis
52	2121.17	54.36	349.19	28.91	1387.86	886.78	757.61	−458.71	888.32	328.81	0.32	MWD 6−axis
53	2150	55.5	349.25	28.83	1404.42	909.35	780.79	−463.13	910.49	329.33	1.21	MWD 6−axis
54	2179.27	56.64	349.55	29.27	1420.76	932.56	804.66	−467.59	933.35	329.84	1.22	MWD 6−axis
55	2208.3	56.7	349.39	29.03	1436.71	955.73	828.51	−472.02	956.24	330.33	0.15	MWD 6−axis
56	2224.38	57.39	349.38	16.08	1445.46	968.63	841.77	−474.51	969.01	330.59	1.31	MWD 6−axis
57	2243	57.75	349.37	18.62	1455.44	983.65	857.21	−477.41	983.91	330.89	0.59	MWD −

Company: **ESSO Australia Ltd Pty**

Schlumberger

Well: **TNA A−10A ST**

Field: **Tuna**

Rig: **ISDL 453**

State: **Victoria**

GeoVISION* Density Neutron
1:200 True Vertical Depth
Recorded Mode Data