

Company: **ESSO Australia Ltd.**

Well: **WTN-W48 A**

Field: Tuna

Rig: **NABORS 453** State: **Victoria**

Schlumberger
VISION Density Neutron
1 : 500 True Vertical Depth
Recorded Mode

Rig: NABORS 453
Field: Tuna
Location: Bass Strait
Well: WTN-W48 A
Company: ESSO Australia Ltd.

Location	
Total depth:	2268 m
Spud date:	19-Jan-02
Runs:	1 To 2
Permanent datum:	Mean Sea Level
Log measured from:	Drill Floor
Depth reference:	Driller's Depth
	Elev.: 0 m
	34.69 m above Perm. datum

API serial no.	Longitude	Latitude
x = 5,771,791.69 m y = 621,538.528 m	E 148 23' 16.531"	S 38 11' 36.558"

Depth logged:	622 m	To	2253 m	Mag decl:	13.18 deg	Other services:
Date logged:	20-Jan-02	To	24-Jan-02	Mag dip:	-68.71 deg	Directional Surveys

Bore hole record

Casing record

Hole size	from	to	Size	Density	from	to
8.5 in.	622 m	2268 m	10.75 in.	40.5 lbm/ft	Surface	622 m


[illegible][illegible]

Type	Bearing			
	from	to	Min	Max
SeaWater	632 m	647 m	25.50 deg	25.67 deg
			628 m	647

KCl/PHPA	647 m	2268 m	25.67 deg	66.50 deg	647 m	2266 m
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[illegible]

Unit	OLU-FB-924	IDEAL wis id6_1c_10



Depth system	PDA	SPM	See Toolsketch
 services from			

		7/11/2011
	MWD	
		See Toolsketch

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 RUN2

Directional Surveys

OTHER SERVICES FOR RUN

REMARKS: RUN NUMBER 1
622 to 637 m interval was drilled in sliding mode.
All data presented is from memory.
GR is corrected for mud weight and bit size.
GVR Resistivity is corrected for bit size, mud resistivity and borehole temperature.
Neutron porosity is calculated with a limestone matrix, and is corrected for bit size, borehole salinity (from R_m), temperature, and mud hydrogen index (from mud weight, temperature and pressure).

REMARKS: RUN NUMBER 2
637 to 2268 m interval was drilled in rotating and sliding mode.
All data presented is from memory.
GR is corrected for mud weight and bit size.
GVR Resistivity is corrected for bit size, mud resistivity and borehole temperature.
There was barite in the mud.
The PEF curve is not presented.
Bottom quadrant density is presented.
Neutron porosity is calculated with a limestone matrix, and is corrected for bit size, borehole

REMARKS: RUN NUMBER

hydrogen index (from mud weight, temperature and pressure).
Pulled out of the hole at 637 m to change the bit and motor bend after kicking off.

Neutron porosity is calculated with a limestone matrix, and is corrected for bit size, borehole salinity (from Rm), temperature, and mud hydrogen index (from mud weight, temperature and pressure).
Mud weight was increased from 9 to 10 lbm/gal at 1600 m before drilling into the Lakes Entrance formation.
Mud weight was increased from 10 to 10.5 lbm/gal at 2125 m to improve well stability.
Zoned processing used for mud weight and mud salinity.
Pulled out of the hole at 2268 m to run casing after reaching TD.

EQUIPMENT DESCRIPTION

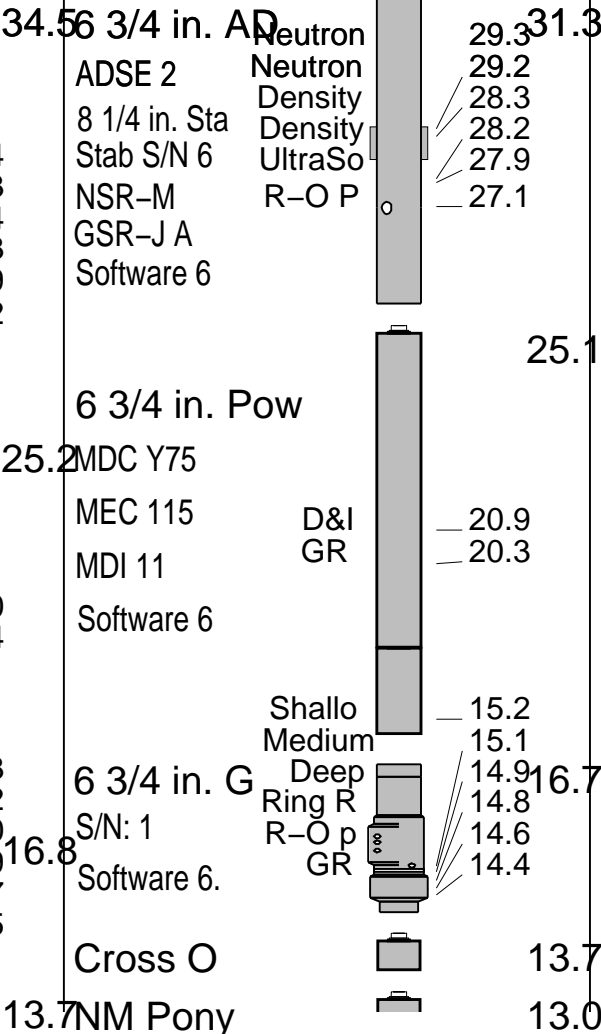
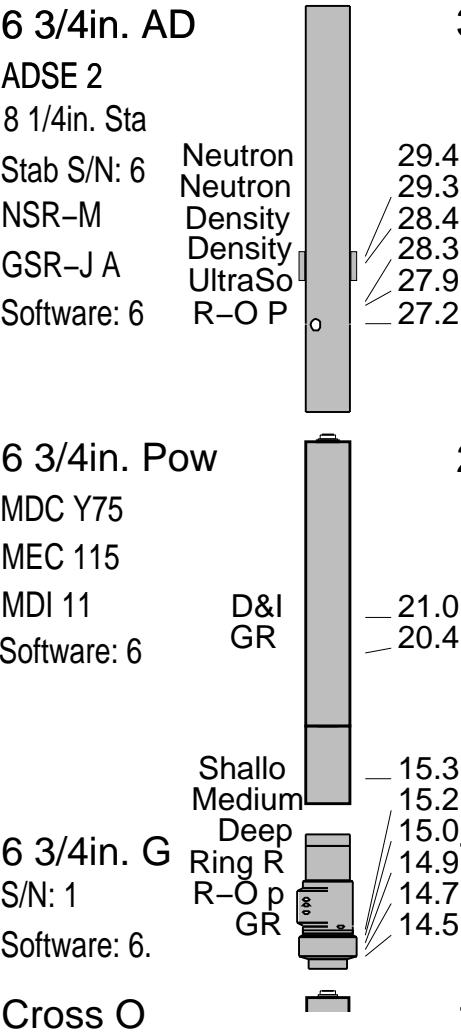
RUN1

RUN2

RUN

DOWNHOLE EQ

DOWNHOLE E



Environmental data

GR											
Mud weight	lbm/gal	8.5	10.5								
Bit size	in.	8.5	8.5								
Resistivity											
Neutron porosity											
Hole Size	in.	8.5	8.5								
Mud weight	lbm/gal	8.5	10.5								
Temperature	deg C	30	74.5								
Mud salinity	mg/l	0.0	72,600								
Formation salinity	mg/l	n/a	n/a								
Recording rate 1	SEC	10	10	GR/Res							
Recording rate 2	SEC	10	10	Den/Neut							
Filtering GR		3 pt.	3 pt.								
Filtering density		3 pt.	3 pt.								
Filtering Neutron		3 pt.	3 pt.								
Company representative	B.Woodward	J.Booker	B.Davis								
Anadrill personnel	T.Sims	T.Ford	L.Bon	C.Soper	T.Harvey	C.Cocks					

True Vertical Depth Log

IDEAL Version: ID6_1C_10

IDF

RAB id6_1c_10 MWD_10 id6_1c_10
ADN id6_1c_10

Format: ADNDetailLog Vertical Scale: 1:500

Graphics File Created: 28-Jan-2002 19:05

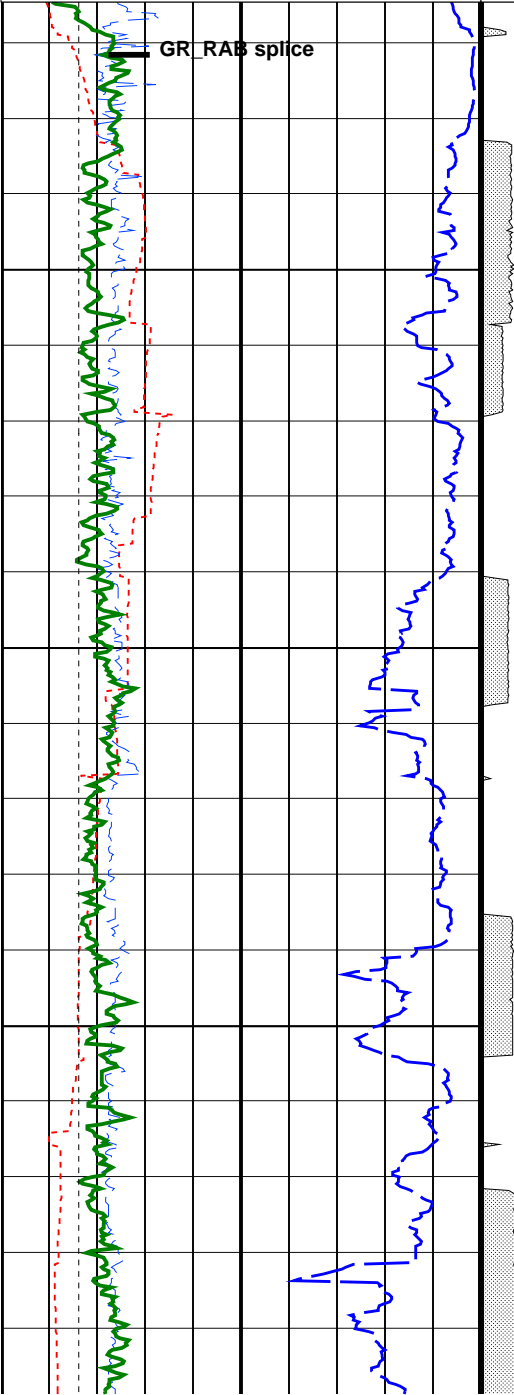
Parameters

DLIS Name	Description	Value
AVE_ADN	ADN/Array Channels: perform averaging(RM) :	YES
BHA_COEF_VER	RAB: BHA Coef Generator Version	62012.0
BHT_RM	Bottom Hole Temperature (RM)	74.500 degC
BSAL_RM	Mud Salinity (RM)	57.700 ppk
BS_RM	Bit Size (RM)	8.500 in
DEVI	Average angle of the hole (RM)	61.000 deg
DHS_VERSION	RAB: DownHole Software Version	6.101
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)	21.000 degC
MW_RM	Mud Weight (RM)	10.500 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	14.718 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)	0.130 ohm.m
RWS_RM	Resistivity of Connate Water (RM)	1.000 ohm.m
SHT_RM	Surface Hole Temperature (RM)	23.889 degC
SSIZ_ADN	ADN:Stabilizer Size (RM)	8.250 in
STAB	RAB: Run with Stabilizer	YES
TD_RM	Total Measured Depth (RM)	2268.0 m
TOOLTYPE	RAB: Azimuthal Tool	YES
TRPM_RM	Average Tool rotational Speed (RM)	20.000 c/min
TSIZ_ADN	ADN:Tool Size (RM)	6.750 in
TS_VERSION	RAB: ToolScope Software Version	6.101
TWS_RM	Temperature of Connate Water (RM)	23.889 degC
USMIN_RM	ADN:Minimum ultra-sonic standoff (RM)	0.300 in
VERS_ADN	ADN downhole software	6.200
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES

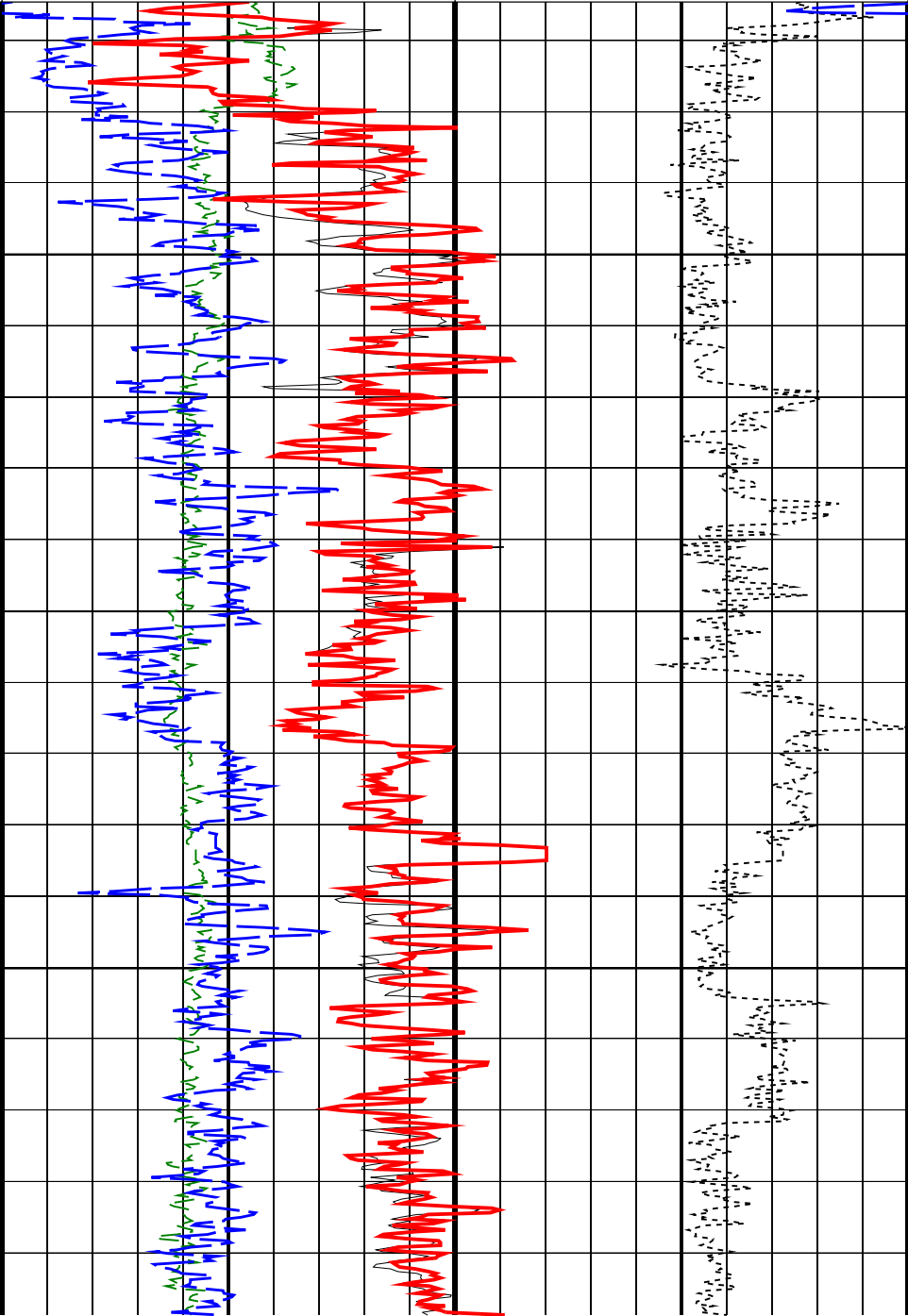
Rate of Penetration, Averaged over Last
5ft (ROP5_RM)

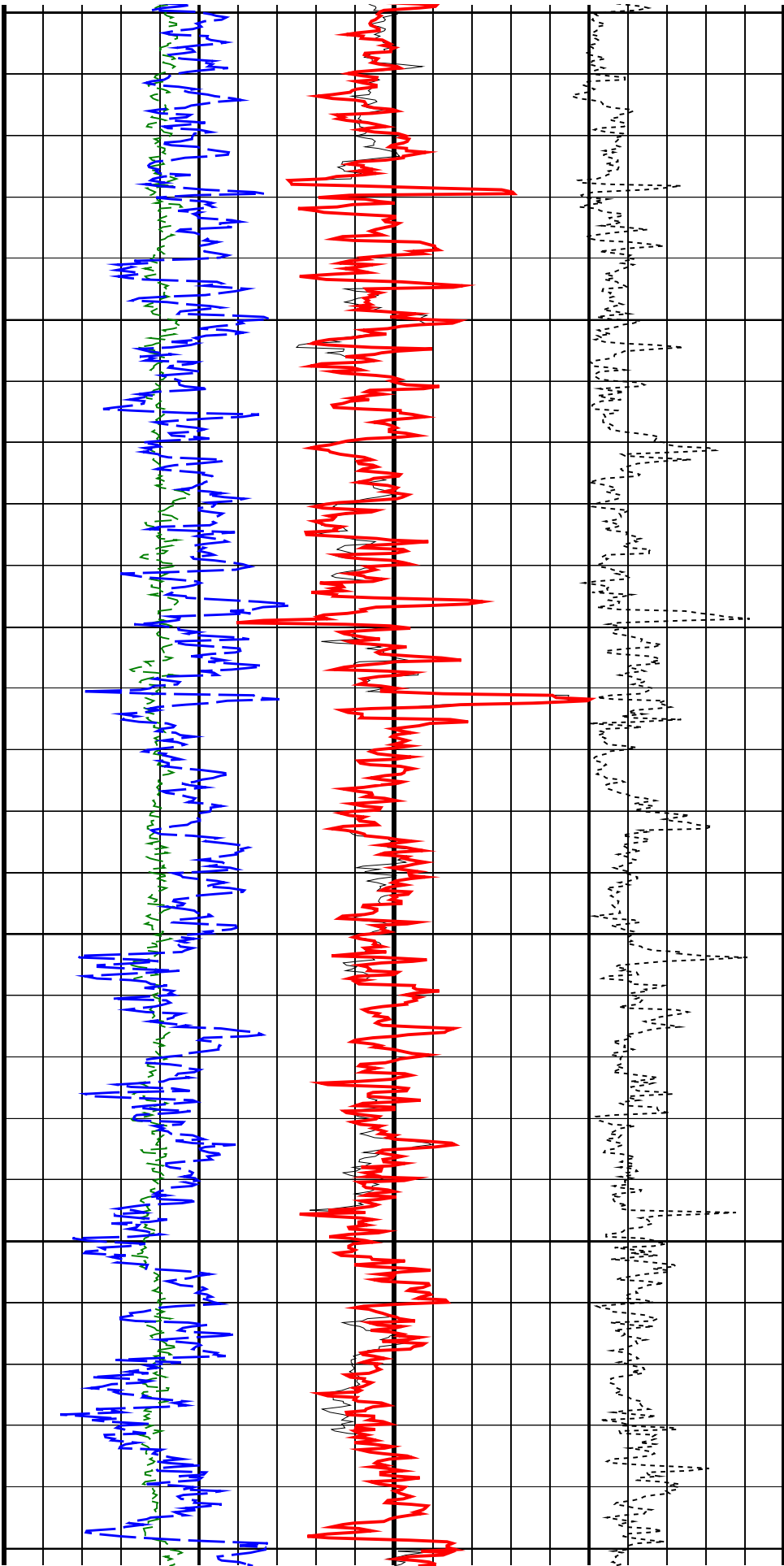
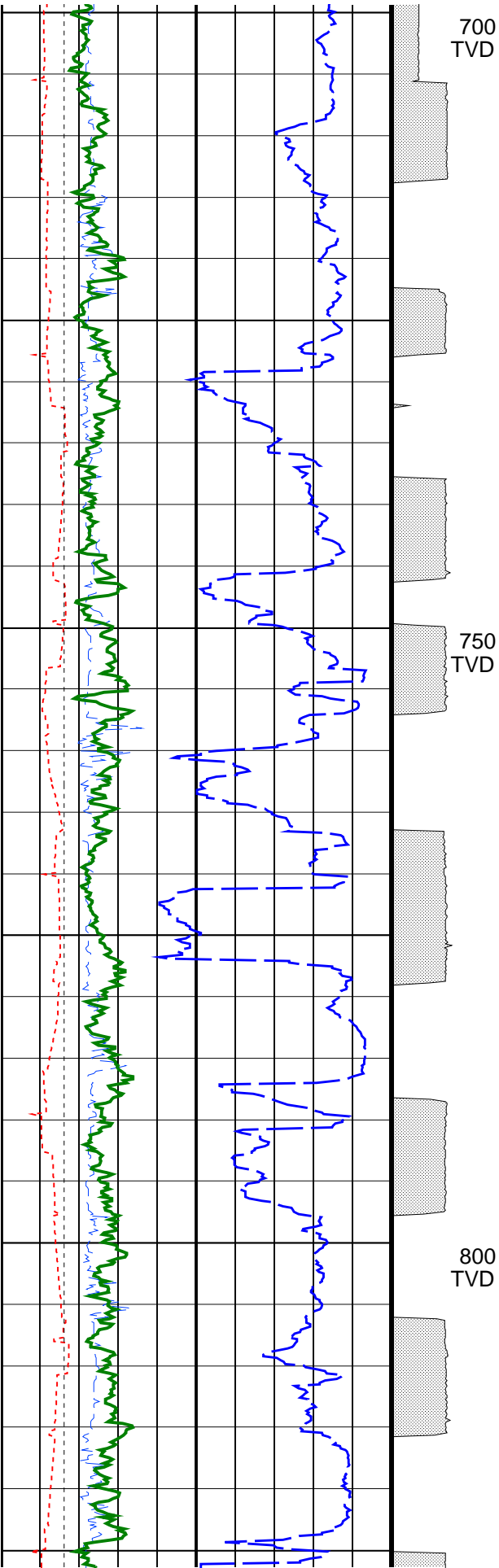
Gas Area
From ROBB to TNPH

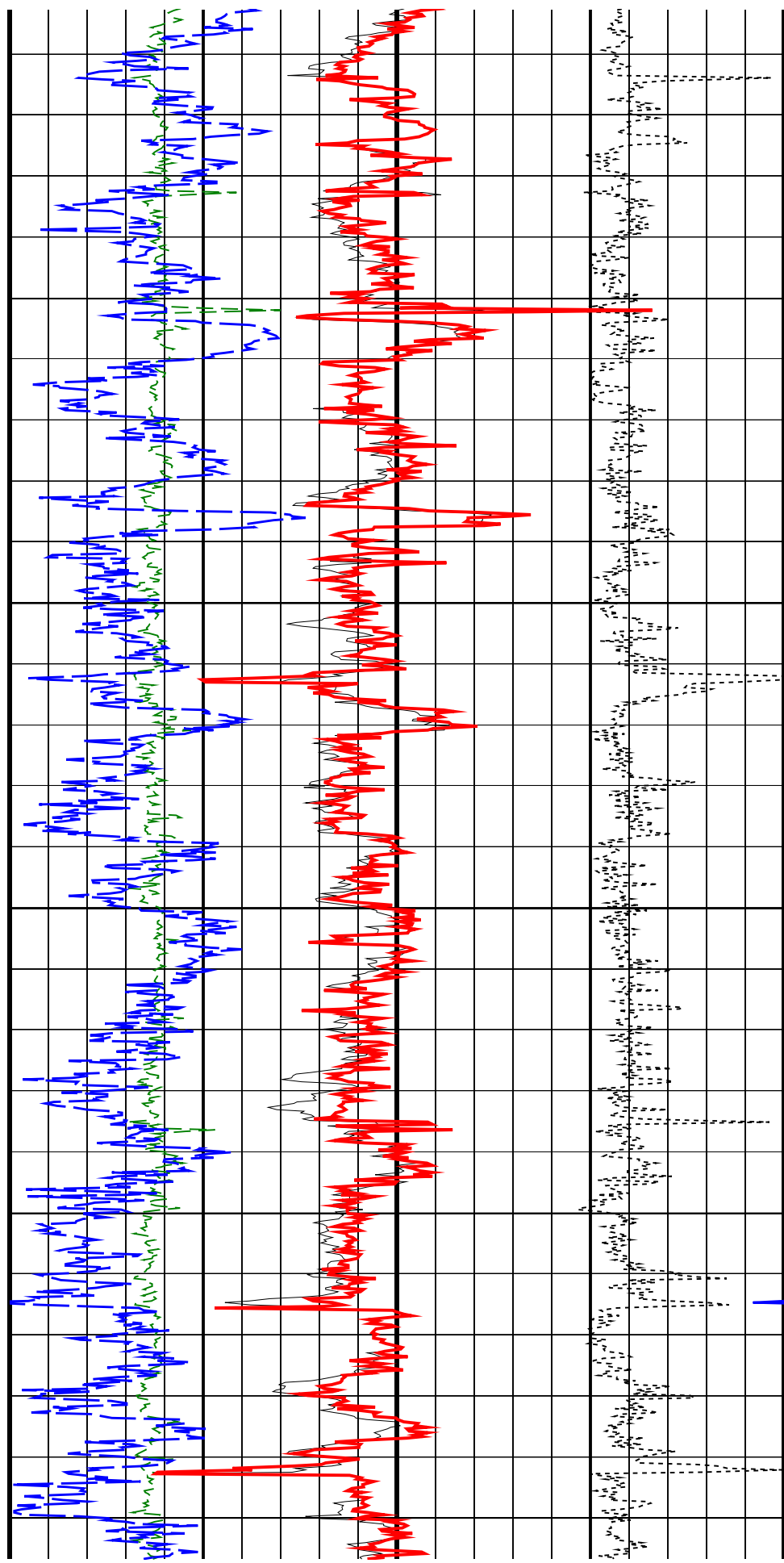
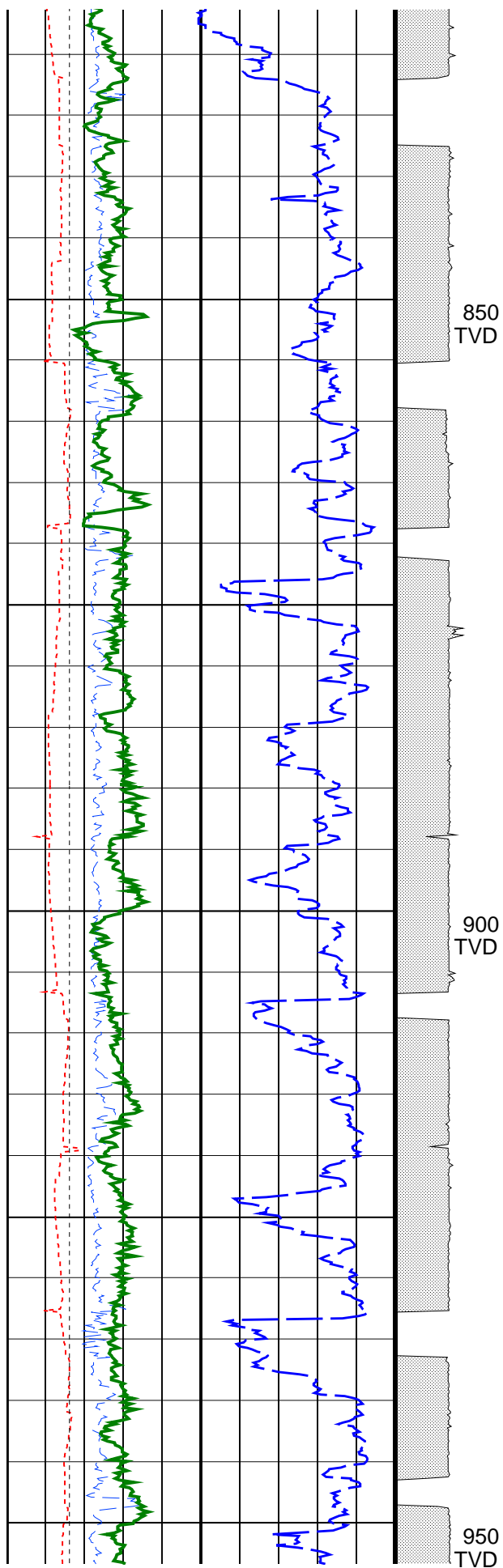
5ft (ROP5_RM)		
(M/HR)		
200		0
RAB Gamma Ray (GR_RAB)		
(GAPI)		
0		200
Density Time After Bit (TAB_DEN)		
(HR)		
0		10
Vertical Hole Diameter (VERD)		
(IN)		
6		16
Horizontal Hole Diameter (HORD)		
(IN)		
6		16
ADN Rotational Speed (RPM_ADN) (RPM)		
0		200

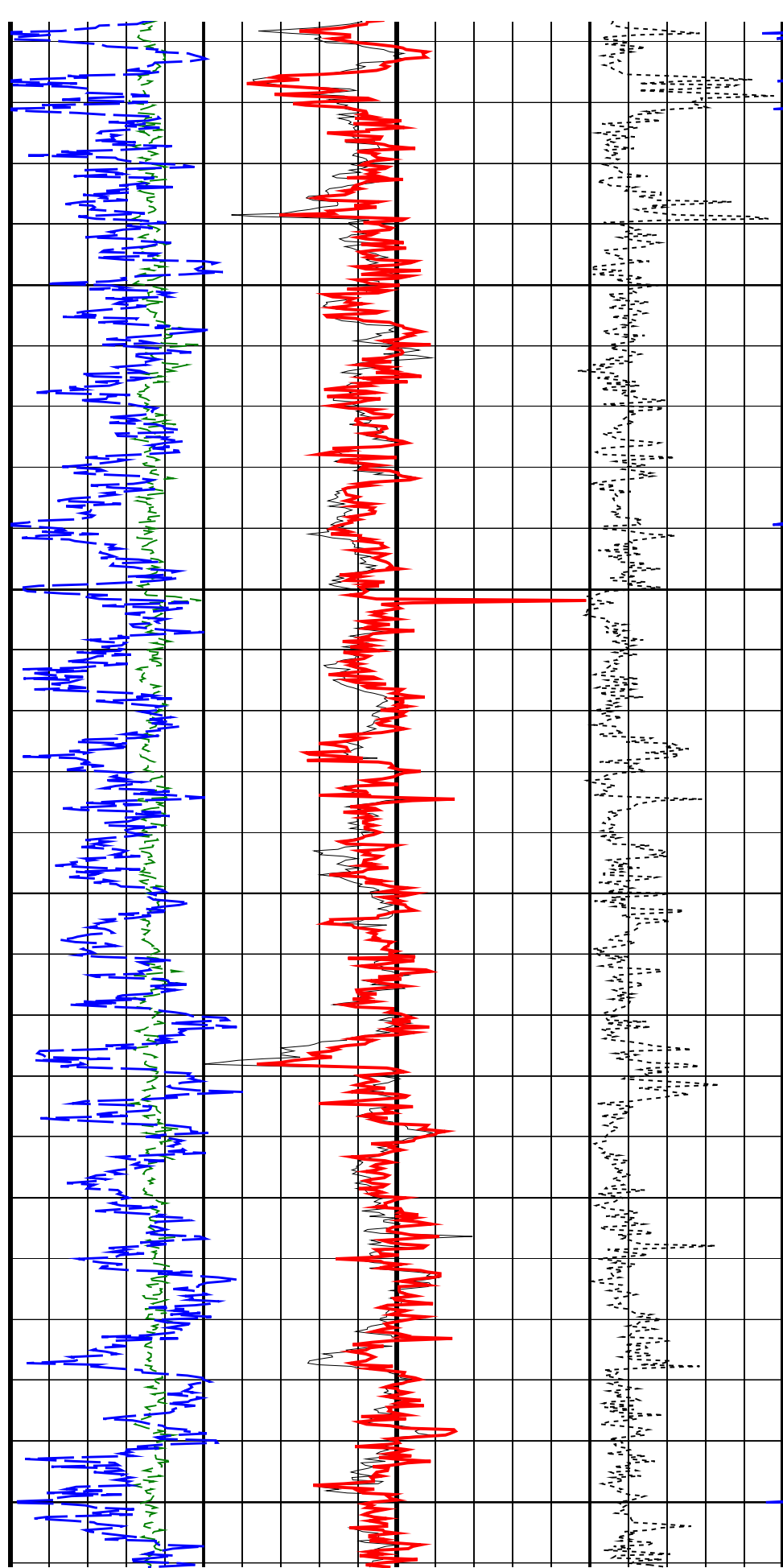
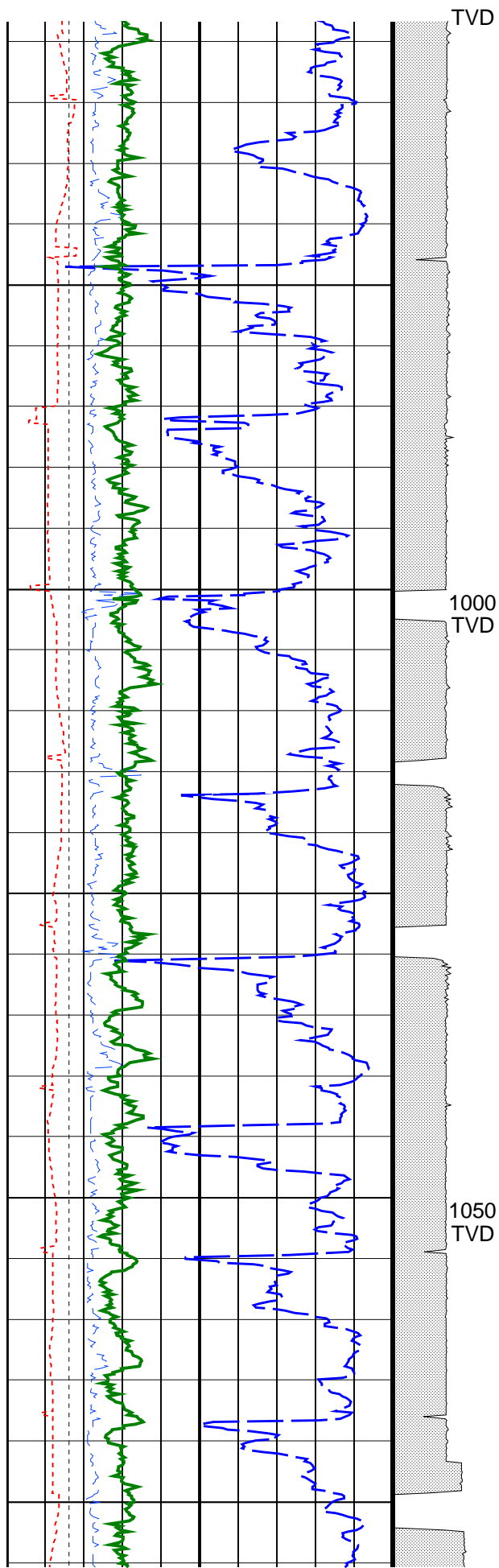


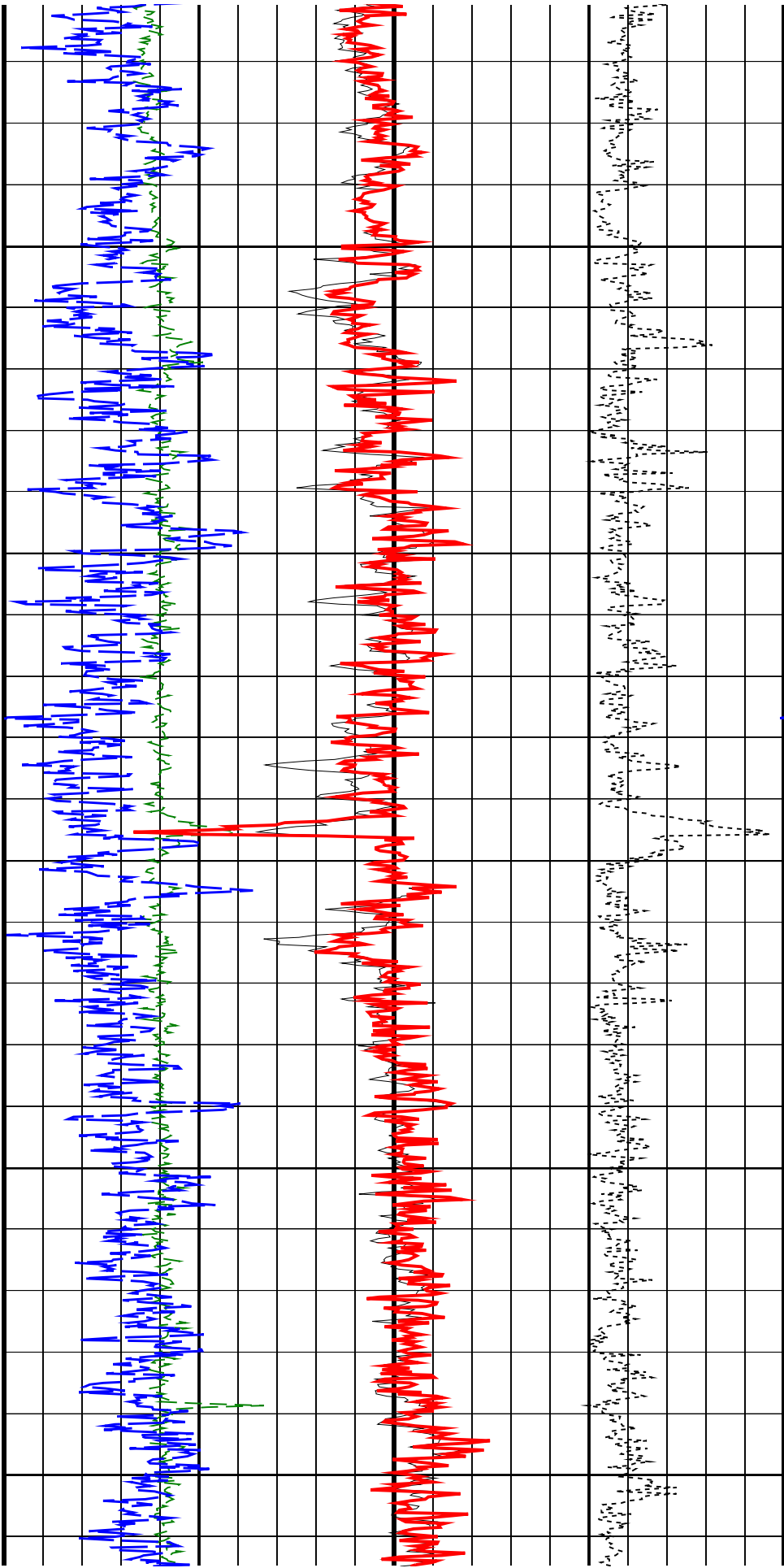
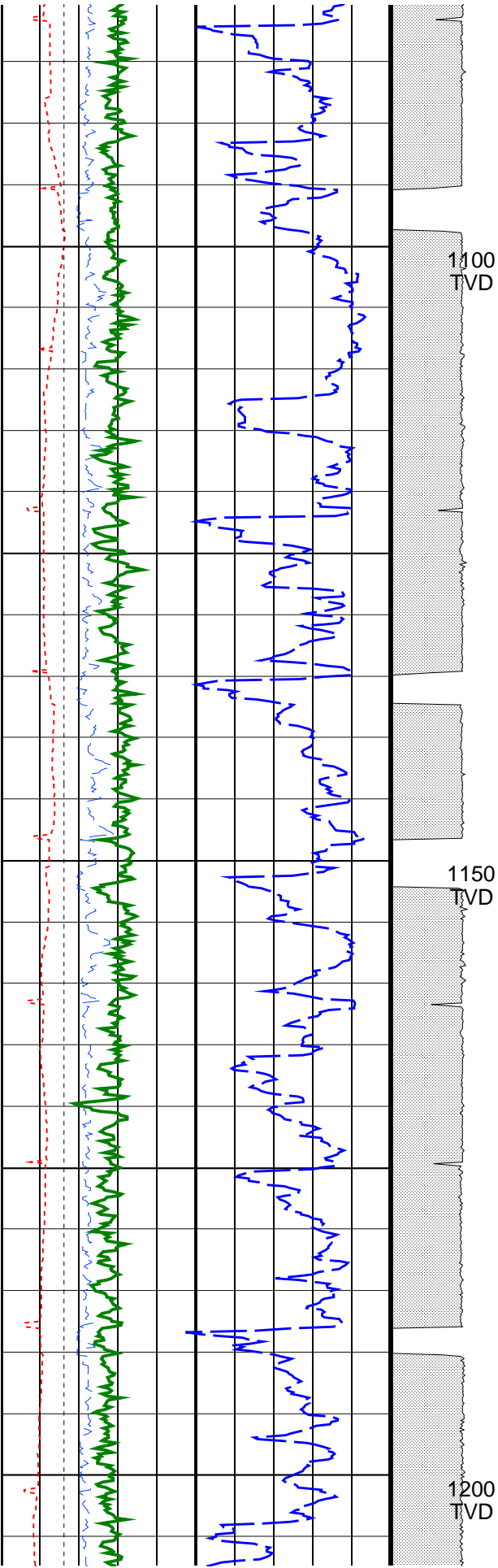
Gas Area		
From ROBB to TNPH		
Bulk Density, Bottom (ROBB)		
(G/C3)		
1.85		2.85
Thermal Neutron Porosity (TNPH)		
(PU)		
45		-15
Bulk Density (RHOB)		
(G/C3)		
1.85		2.85
Photoelectric Factor, Bottom (PEB)		
(-----)		
0		10
Bulk Density Correction, Bottom (DRHB)		
(G/C3)		
-0.25		0.25

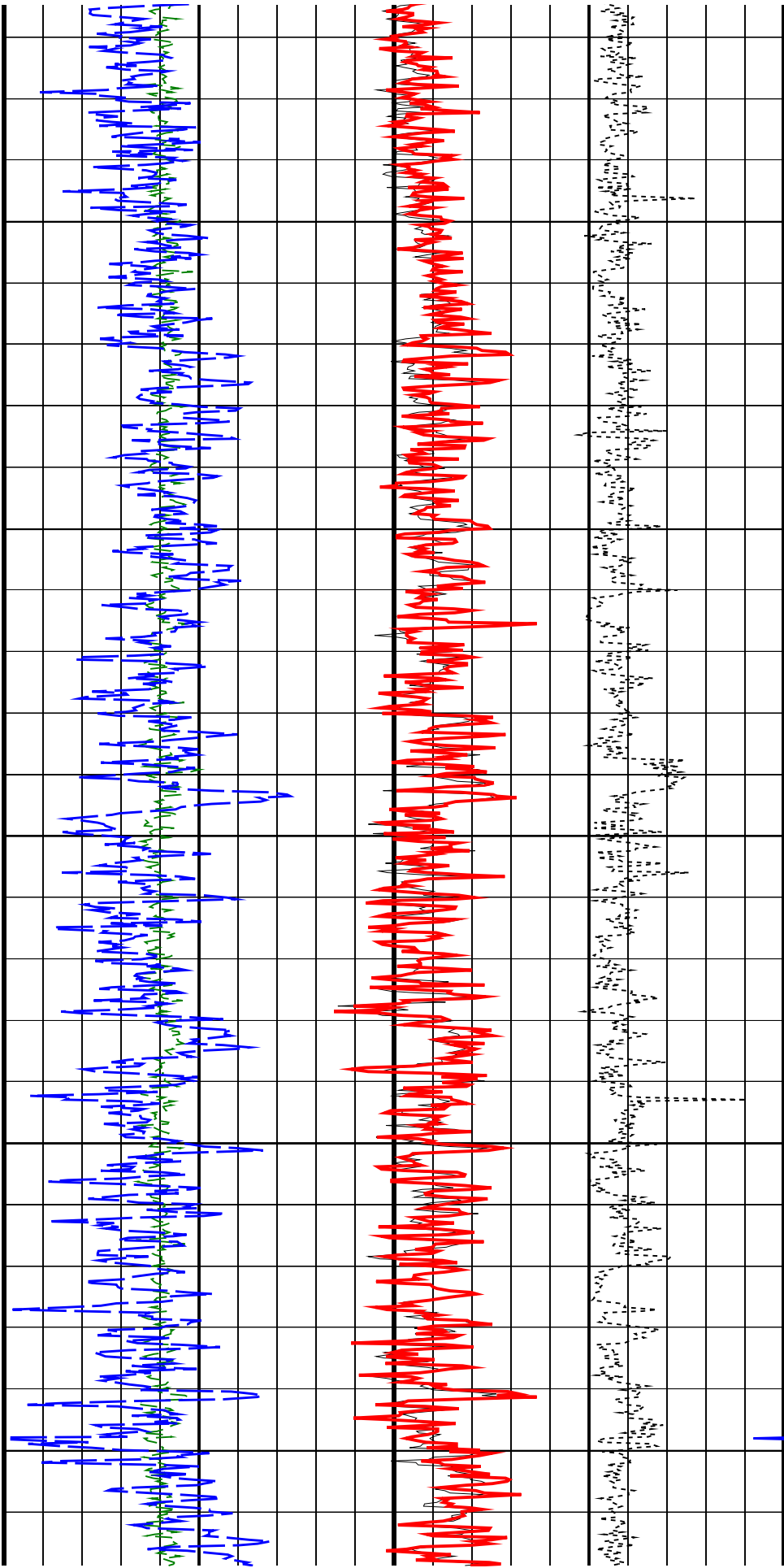
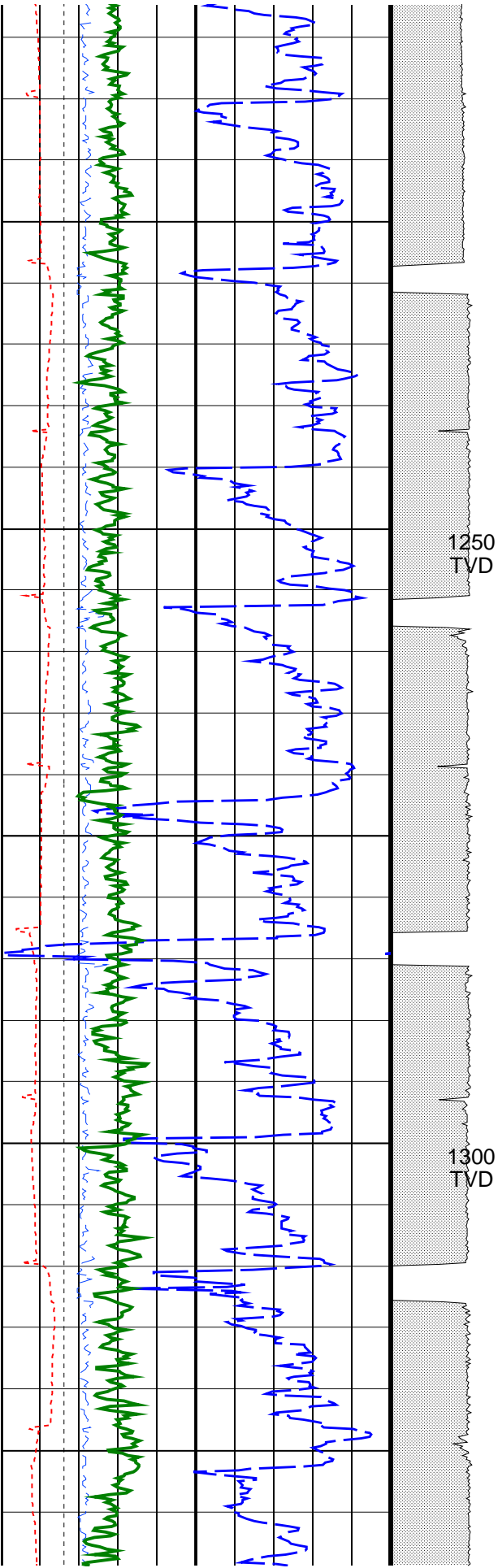


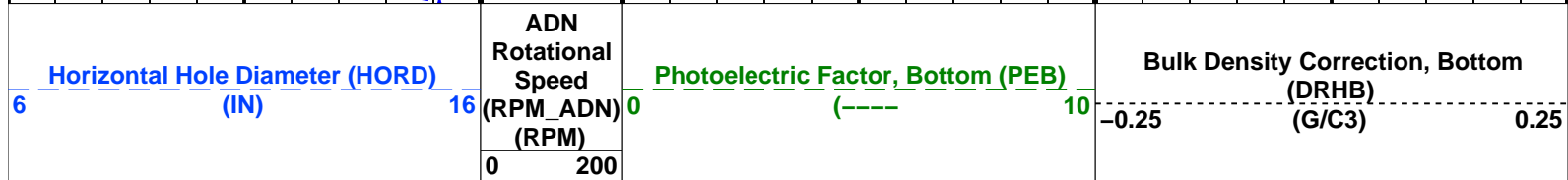
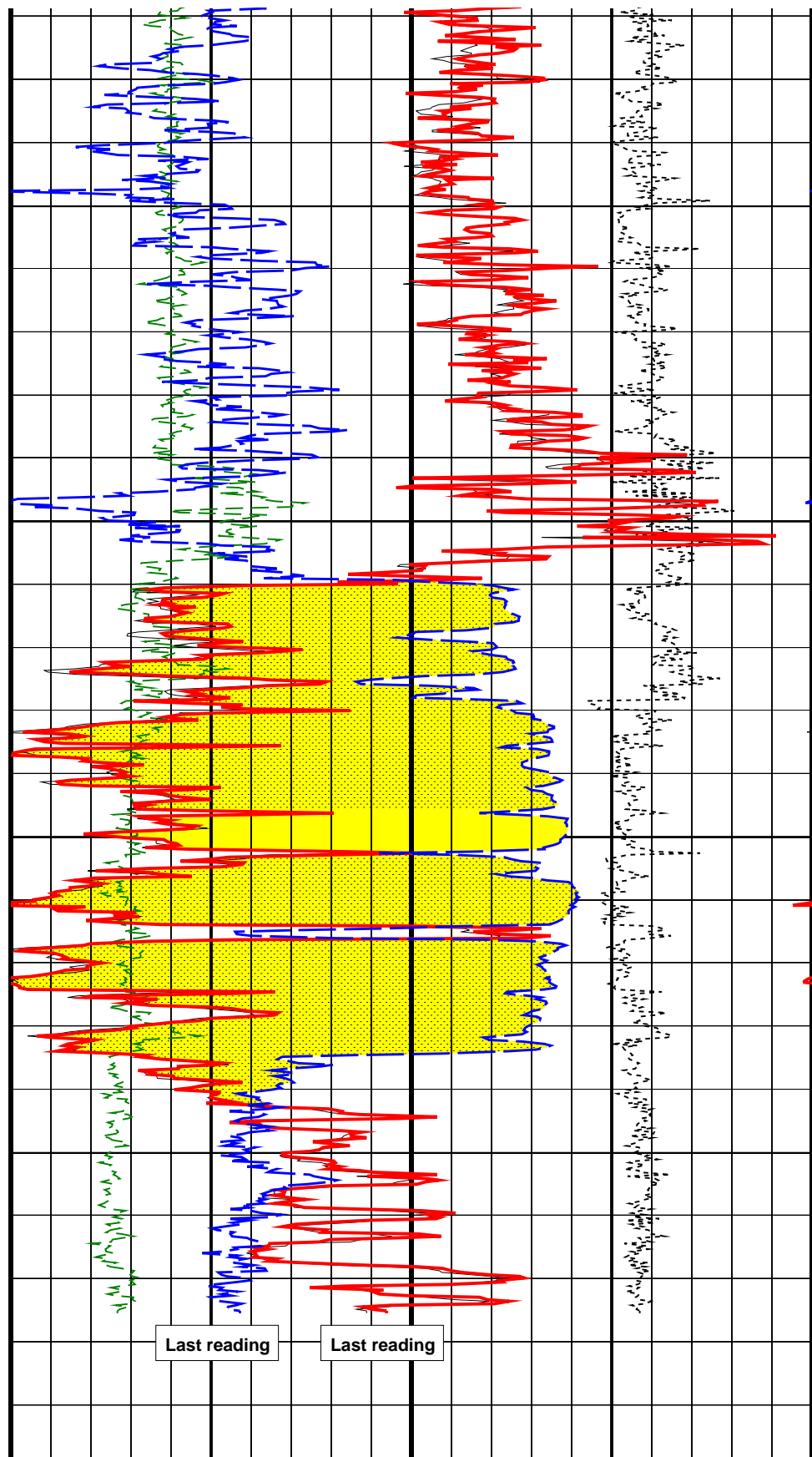
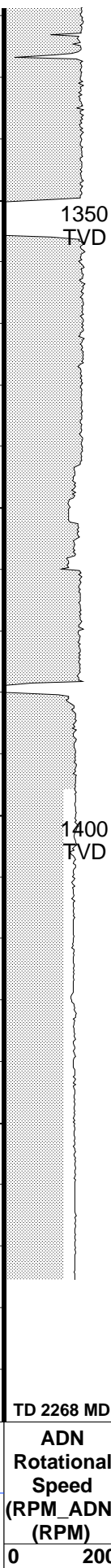
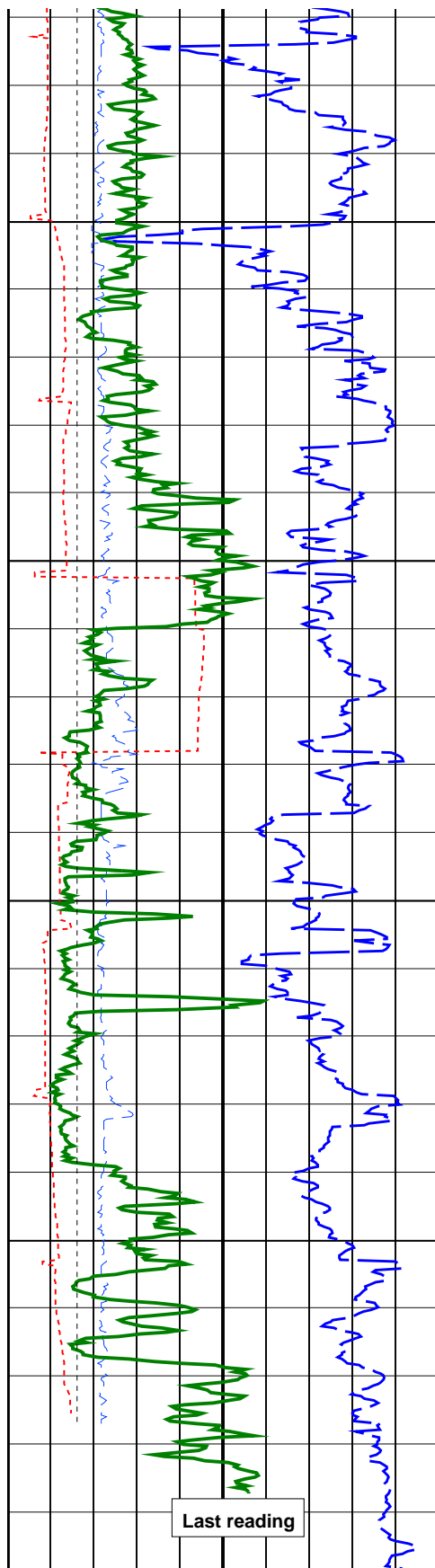






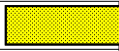
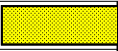


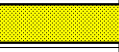
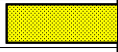








0			200					
Vertical Hole Diameter (VERD)			Bulk Density (RHOB)					
6	(IN)	16	1.85	(G/C3)	2.85			
Density Time After Bit (TAB_DEN)			Thermal Neutron Porosity (TNPH)					
0	(HR)	10	45	(PU)	-15			
RAB Gamma Ray (GR_RAB)			Bulk Density, Bottom (ROBB)					
0	(GAPI)	200	1.85	(G/C3)	2.85			
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)			Gas Area From ROBB to TNPH					
200	(M/HR)	0						
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			ADN6 – CA		
Neutron Logging Source			NSR – M		
Density Logging Source			GSR – J/Z		
Stabilizer Size			8.25 – in.		
Calibration Status			Valid		
			289		
			161		
			2125		

Master: 16-NOV-2001 1:40					
6.75-in. Azimuthal Density Neutron Calibration					
Density: Magnesium Block					
Phase	LS window 3 – Mg CPS	Value	Phase	SS window 1 – Mg CPS	Value
Master		1325	Master		3006
	250.0 (Minimum) 4125 (Nominal) 8000 (Maximum)			700.0 (Minimum) 9350 (Nominal) 18000 (Maximum)	
				2500 (Minimum) 23750 (Nominal) 45000 (Maximum)	

Master: 16-NOV-2001 1:40					
6.75-in. Azimuthal Density Neutron Calibration					
Density: Aluminum Block					
Phase	LS window 3 – Al CPS	Value	Phase	SS window 1 – Al CPS	Value
Master		207.4	Master		1606
	50.00 (Minimum) 725.0 (Nominal) 1400 (Maximum)			500.0 (Minimum) 4250 (Nominal) 8000 (Maximum)	
				1500 (Minimum) 15750 (Nominal) 30000 (Maximum)	

Master: 16-NOV-2001 1:40					
6.75-in. Azimuthal Density Neutron Calibration					
Density: Background					
Phase	LS window 3 – Background CPS	Value	Phase	SS window 1 – Background CPS	Value
Master		53.02	Master		122.8
	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: 16-NOV-2001 1:40					
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		1.033	Master		1.116
	1.011 (Minimum) 1.026 (Nominal) 1.041 (Maximum)			1.093 (Minimum) 1.118 (Nominal) 1.143 (Maximum)	

15	1009.06	62.87	59.54	28.39	871.72	405.98	59.12	421.25	425.38	82.01	0.46	MWD	6-axis
16	1037.57	64.15	59.67	28.51	884.44	431.40	72.03	443.26	449.07	80.77	0.45	MWD	6-axis
17	1066.26	63.79	59.11	28.69	897.03	457.07	85.16	465.45	473.17	79.63	0.22	MWD	6-axis
18	1094.51	63.16	58.43	28.25	909.64	482.21	98.27	487.06	496.87	78.59	0.31	MWD	6-axis
19	1122.19	61.98	59.38	27.68	922.40	506.66	110.95	508.10	520.07	77.68	0.52	MWD	6-axis
20	1150.39	61.14	59.16	28.20	935.83	531.34	123.63	529.41	543.65	76.86	0.31	MWD	6-axis
21	1178.94	62.03	60.19	28.55	949.41	556.36	136.30	551.09	567.69	76.11	0.44	MWD	6-axis
22	1207.15	63.15	60.28	28.21	962.40	581.33	148.73	572.83	591.82	75.44	0.40	MWD	6-axis
23	1236.27	62.43	59.97	29.12	975.71	607.15	161.63	595.28	616.83	74.81	0.26	MWD	6-axis
24	1265.12	62.15	59.81	28.85	989.13	632.60	174.45	617.38	641.55	74.22	0.11	MWD	6-axis
25	1293.99	61.08	59.79	28.87	1002.85	657.91	187.22	639.33	666.18	73.68	0.37	MWD	6-axis
26	1323.58	61.56	59.93	29.59	1017.05	683.78	200.26	661.78	691.41	73.16	0.17	MWD	6-axis
27	1351.66	61.96	60.22	28.08	1030.34	708.44	212.60	683.22	715.53	72.72	0.17	MWD	6-axis
28	1380.99	62.87	60.44	29.33	1043.92	734.36	225.47	705.80	740.94	72.28	0.32	MWD	6-axis
29	1410.08	62.26	60.33	29.09	1057.32	760.10	238.22	728.25	766.22	71.89	0.21	MWD	6-axis
30	1439.00	62.01	60.44	28.92	1070.84	785.60	250.86	750.48	791.29	71.52	0.09	MWD	6-axis

[(c)2002 Anadrill IDEAL ID6_1C_10]
ANADRILL SCHLUMBERGER Survey Report

24-Jan-2002 04:41:48

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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
31	1468.28	60.88	60.22	29.28	1084.84	811.25	263.59	772.82	816.54	71.17	0.39	MWD	6-axis
32	1496.90	62.33	59.64	28.62	1098.45	836.34	276.20	794.61	841.25	70.83	0.54	MWD	6-axis
33	1525.62	63.33	59.19	28.72	1111.56	861.78	289.21	816.61	866.31	70.50	0.38	MWD	6-axis
34	1554.18	62.76	59.51	28.56	1124.51	887.13	302.18	838.51	891.30	70.18	0.22	MWD	6-axis
35	1583.01	62.03	59.58	28.83	1137.87	912.58	315.13	860.53	916.42	69.89	0.25	MWD	6-axis
36	1612.06	62.03	59.85	29.05	1151.49	938.14	328.07	882.68	941.68	69.61	0.08	MWD	6-axis
37	1641.08	63.64	58.36	29.02	1164.74	963.84	341.33	904.84	967.08	69.33	0.72	MWD	6-axis
38	1670.28	63.05	58.63	29.20	1177.84	989.78	354.97	927.09	992.72	69.05	0.22	MWD	6-axis
39	1699.28	62.23	58.75	29.00	1191.17	1015.40	368.35	949.09	1018.07	68.79	0.29	MWD	6-axis
40	1728.42	62.83	59.01	29.14	1204.61	1041.12	381.71	971.23	1043.54	68.54	0.22	MWD	6-axis
41	1757.48	62.30	59.03	29.06	1218.00	1066.79	394.99	993.34	1068.99	68.32	0.18	MWD	6-axis
42	1785.41	61.38	59.30	27.93	1231.18	1091.30	407.61	1014.48	1093.31	68.11	0.34	MWD	6-axis
43	1814.52	61.98	59.01	29.11	1244.99	1116.81	420.75	1036.48	1118.63	67.91	0.22	MWD	6-axis
44	1843.43	61.56	59.12	28.91	1258.66	1142.16	433.84	1058.33	1143.80	67.71	0.15	MWD	6-axis
45	1871.96	62.19	59.37	28.53	1272.11	1167.21	446.71	1079.95	1168.69	67.53	0.23	MWD	6-axis
46	1900.95	61.63	59.56	28.99	1285.76	1192.68	459.70	1101.98	1194.02	67.36	0.20	MWD	6-axis
47	1929.89	62.51	59.14	28.94	1299.32	1218.14	472.74	1123.98	1219.35	67.19	0.33	MWD	6-axis
48	1958.60	61.74	59.42	28.71	1312.74	1243.41	485.70	1145.79	1244.49	67.03	0.28	MWD	6-axis
49	1987.71	62.93	59.29	29.11	1326.26	1269.08	498.85	1167.98	1270.04	66.87	0.41	MWD	6-axis
50	2016.29	62.64	59.41	28.58	1339.33	1294.39	511.80	1189.84	1295.25	66.73	0.11	MWD	6-axis
51	2045.59	61.94	59.77	29.30	1352.95	1320.23	524.93	1212.21	1320.99	66.59	0.26	MWD	6-axis
52	2074.80	63.76	59.47	29.21	1366.28	1346.12	538.08	1234.63	1346.79	66.45	0.63	MWD	6-axis
53	2103.81	63.69	60.18	29.01	1379.12	1372.04	551.15	1257.12	1372.63	66.33	0.22	MWD	6-axis
54	2130.96	62.44	60.29	27.15	1391.42	1396.17	563.17	1278.13	1396.70	66.22	0.46	MWD	6-axis
55	2160.05	63.95	59.90	29.09	1404.54	1422.05	576.11	1300.64	1422.52	66.11	0.53	MWD	6-axis
56	2189.53	64.50	59.77	29.48	1417.36	1448.51	589.45	1323.59	1448.91	65.99	0.19	MWD	6-axis
57	2218.85	65.72	59.79	29.32	1429.70	1475.01	602.84	1346.57	1475.35	65.88	0.42	MWD	6-axis
58	2243.88	66.47	59.87	25.03	1439.84	1497.81	614.34	1366.35	1498.11	65.79	0.30	MWD	6-axis
59	2268.00	66.50	59.90	24.12	1449.46	1519.85	625.44	1385.49	1520.11	65.70	0.02	MWD	Projection

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Company: **ESSO Australia Ltd.**

Well: **WTN-W48 A**

Field: **Tuna**

Rig: **NABORS 453**

State: **Victoria**

IDEAL services from **Anadrill**

**VISION Density Neutron
1 : 500 True Vertical Depth
Recorded Mode**

Schlumberger

