

Company: **ESSO Australia Ltd.**

Well: **WTN-W48 A**

# Field: Tuna

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

**Schlumberger**  
GeoVISION Resistivity  
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.	x = 5,771,791.69 m	Longitude	Latitude
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

8.5 in.	622 m	2268 m	10.75 in.	40.5 lbm/ft	Surface	622 m

[illegible]

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[illegible]



[illegible][illegible]

Mud record		Borehole deviation record	
Time from	to	Min. Max.	from to

Type	from	to	Min	Max	from	to
0 - 1000	000	047	0000	0007	000	047

SeaWater	622 m	647 m	25.50 deg	25.67 deg	628 m	647
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Occupancy	647 m	2268 m	25.67 deg	66.50 deg	647 m	2268 m
KCL/PPA	647 m	2268 m	25.67 deg	66.50 deg	647 m	2268 m

KC/PHPA	64 / m	2268 m	25.6 / deg	66.50 deg	64 / m	2268



[illegible]

Surface equipment	Software record		
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Surface equipment	Software record

Unit	OLU-FB-924	IDEAL Wis	id6_1c_10
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Depth variation	BDV	SPM	ide 1c 10
Orill	ULO-T-B-924	IDEAL WIS	100_1c_10



service from

Depth system	PDA	SPM	id6_1c_10
			services from

# Anadroll

		LWD	See Toolsketch

	MWD	See Toolsketch

## DISCLAIMER

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### 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

Pulled out of the hole at 637 m to change the bit and motor bend after kicking off.

Pulled out of the hole at 2268 m to run casing after reaching TD.

13.0



**Environmental data**

<b>GR</b>											
Mud weight	lbm/gal	8.5	10.5								
Bit size	in.	8.5	8.5								
<b>Resistivity</b>											
<b>Neutron porosity</b>											
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: RABDepthLogAvgBtns

Vertical Scale: 1:500

Graphics File Created: 28-Jan-2002 19:46

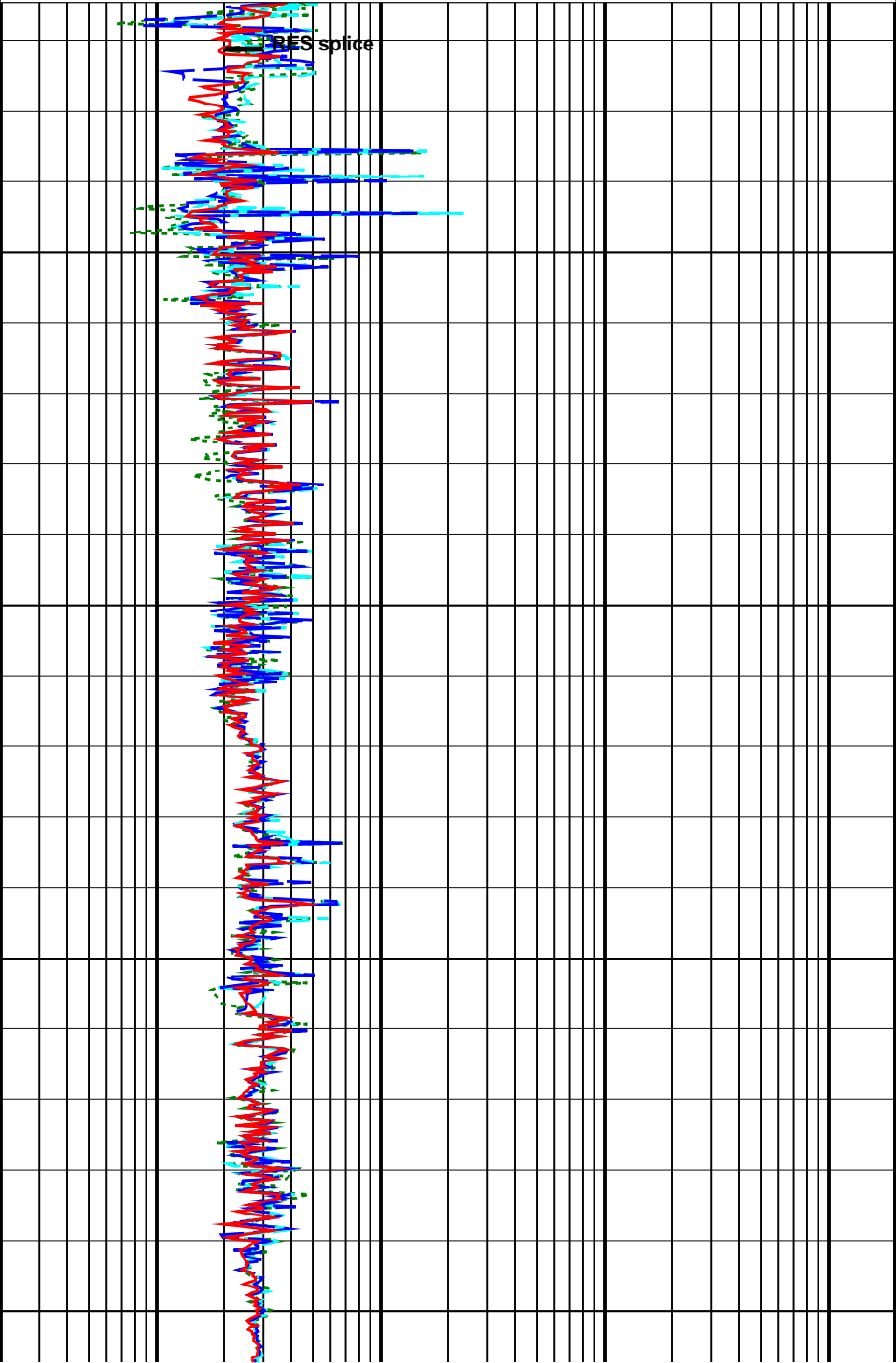
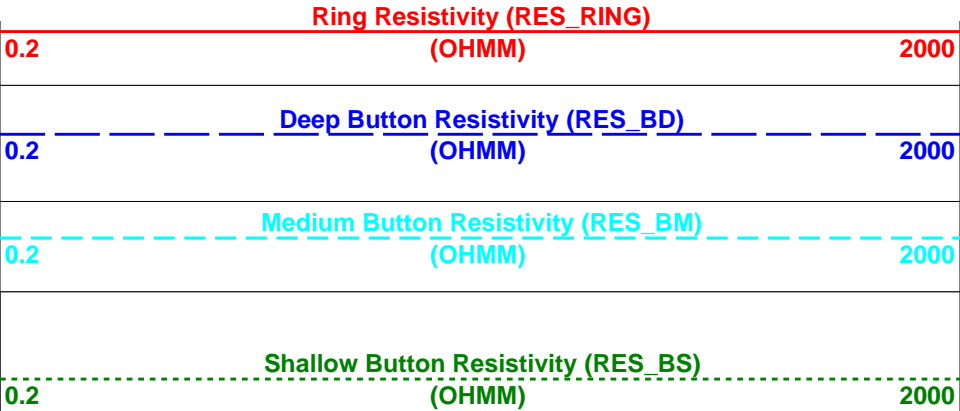
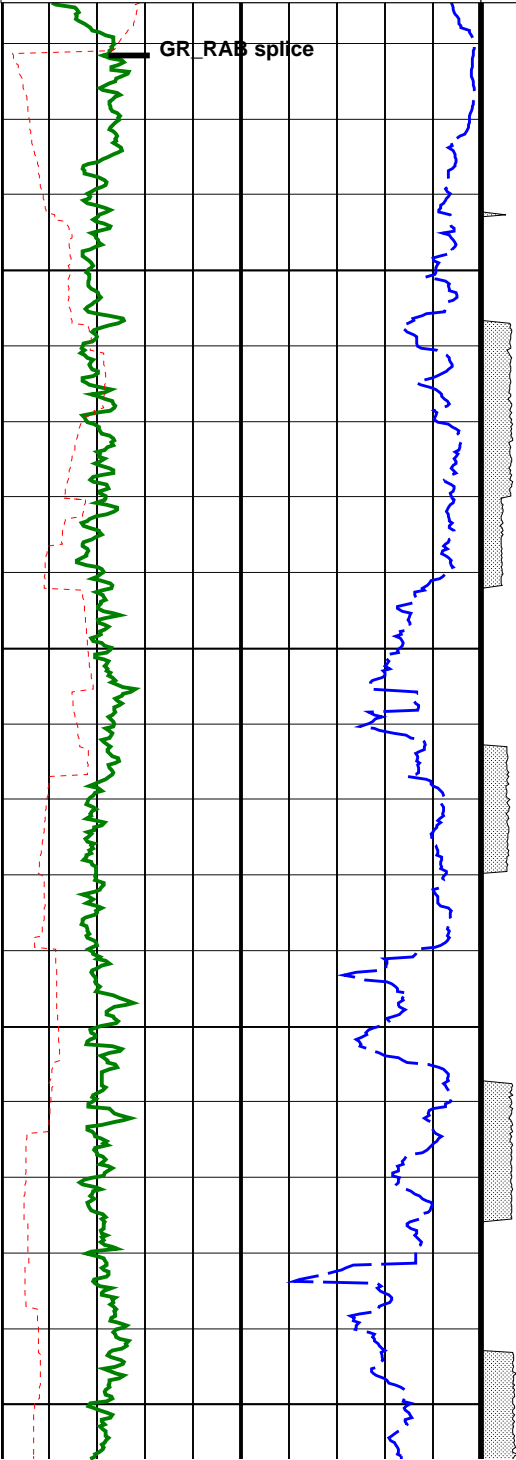
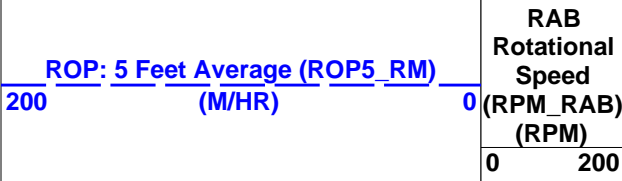
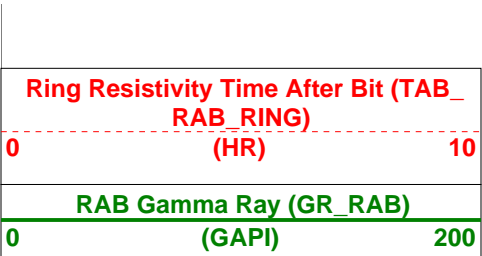
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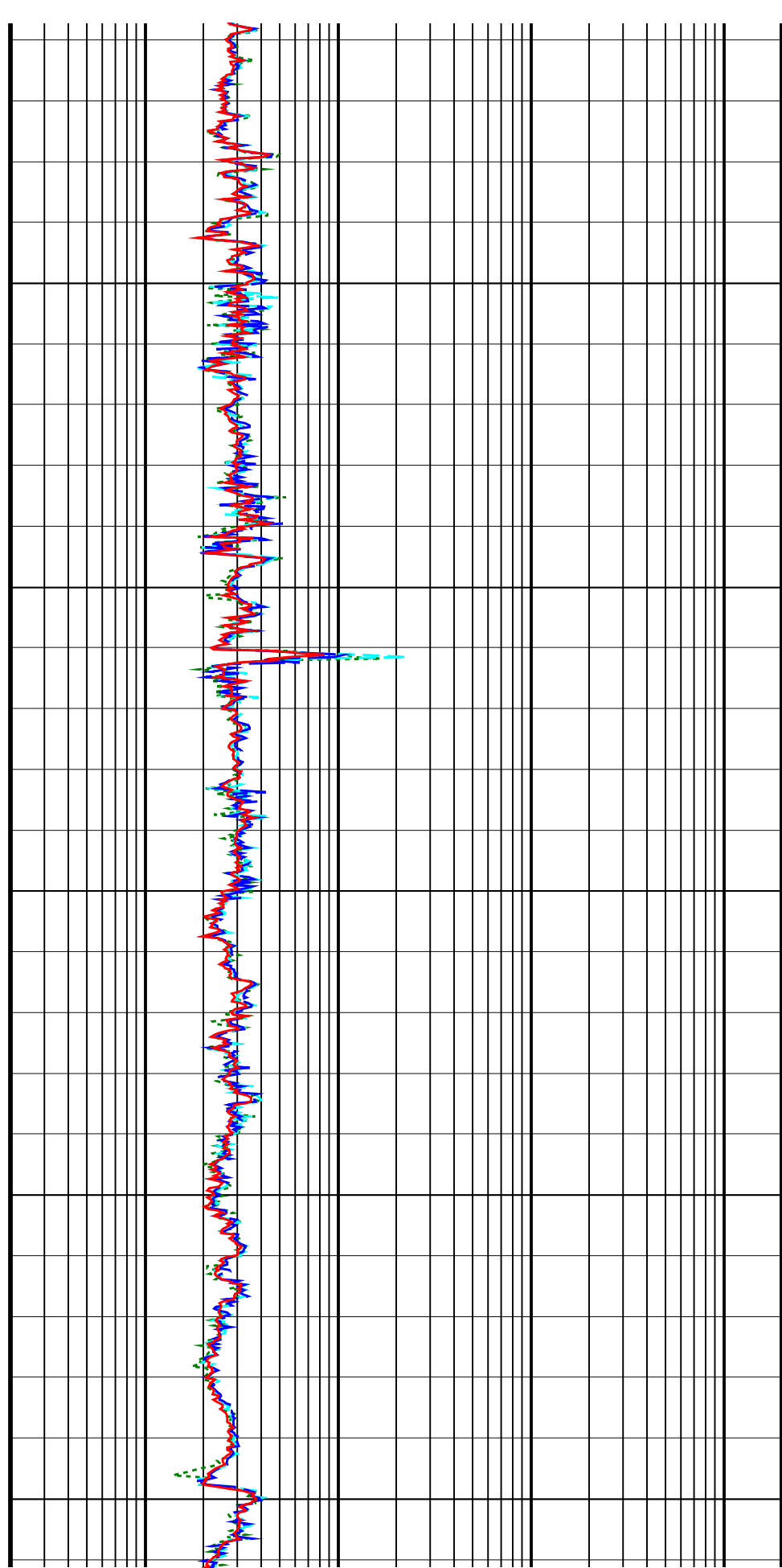
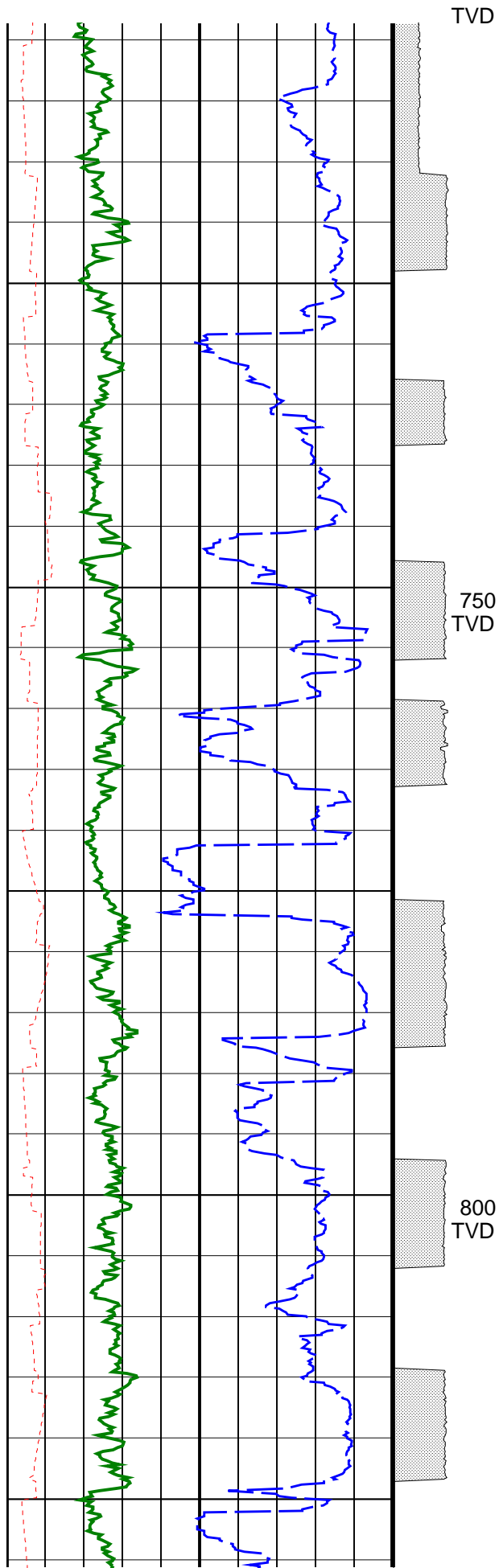
DLIS Name	Description	Value
BDBHCA	RAB: Button Deep Borehole A Factor	0.005
BDBHCB	RAB: Button Deep Borehole B Factor	0.000
BHA_COEF_VER	RAB: BHA Coef Generator Version	62012.0
BITBHCA	RAB: Bit A Borehole Factor	0.058
BITBHCB	RAB: Bit B Borehole Factor	0.000
BIT_K_FACTOR	RAB: Bit K Factor	17.240
BMBHCA	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	6.101
DO	Depth Offset	0.0 m
MBUTTON_K_FACTOR	RAB: Button Medium K Factor	0.005
MST_RM	Mud Sample temperature (RM)	21.000 degC
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	14.718 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)	0.130 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	6.101
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES

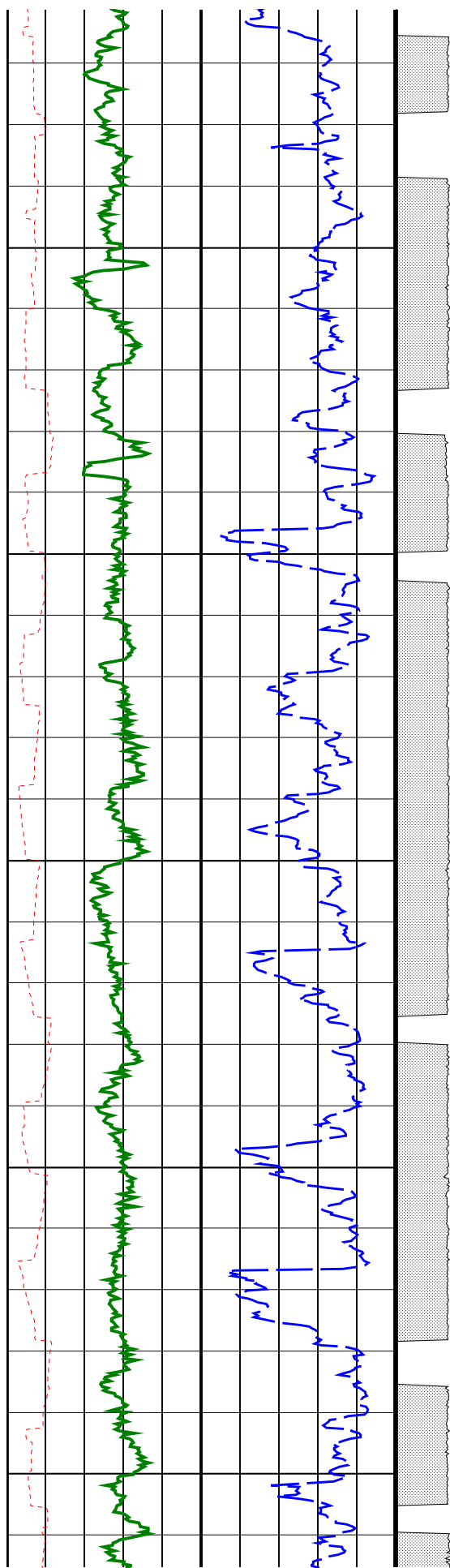
0.2

Ring Resistivity (RES\_RING)  
(OHMM)

2000



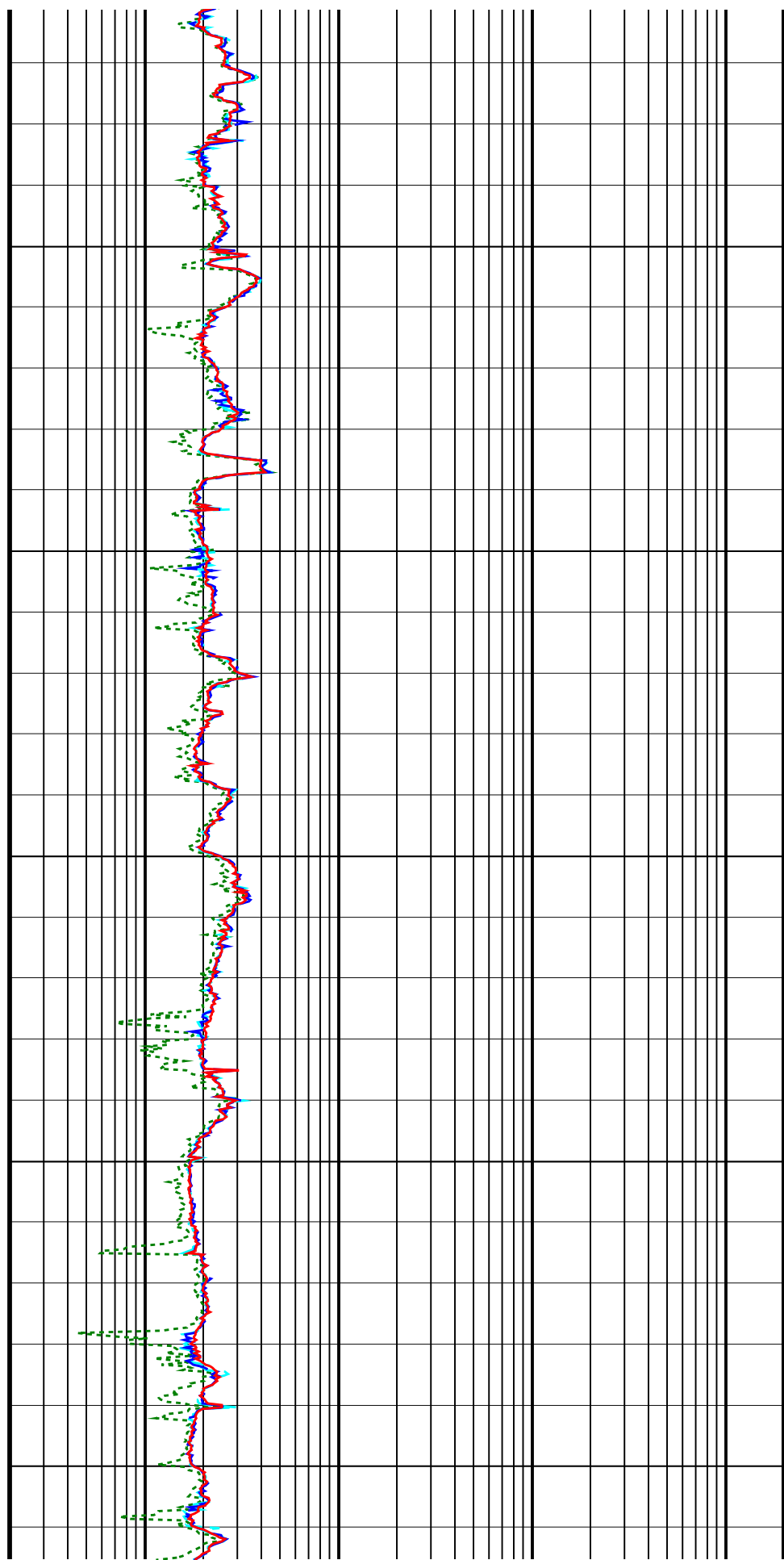


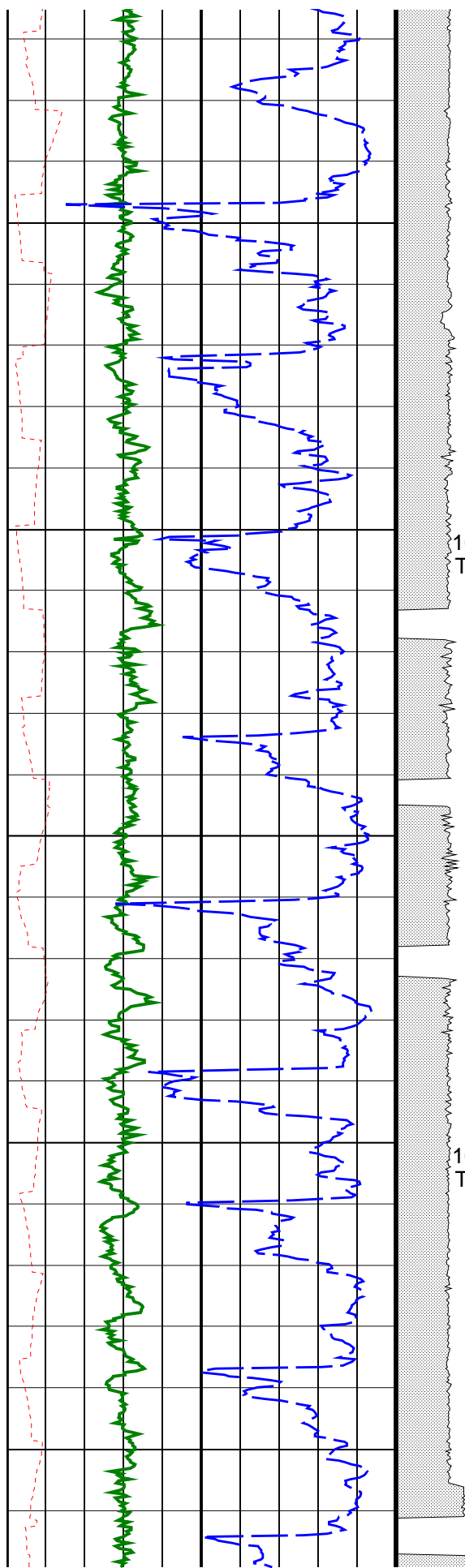


850  
TVD

900  
TVD

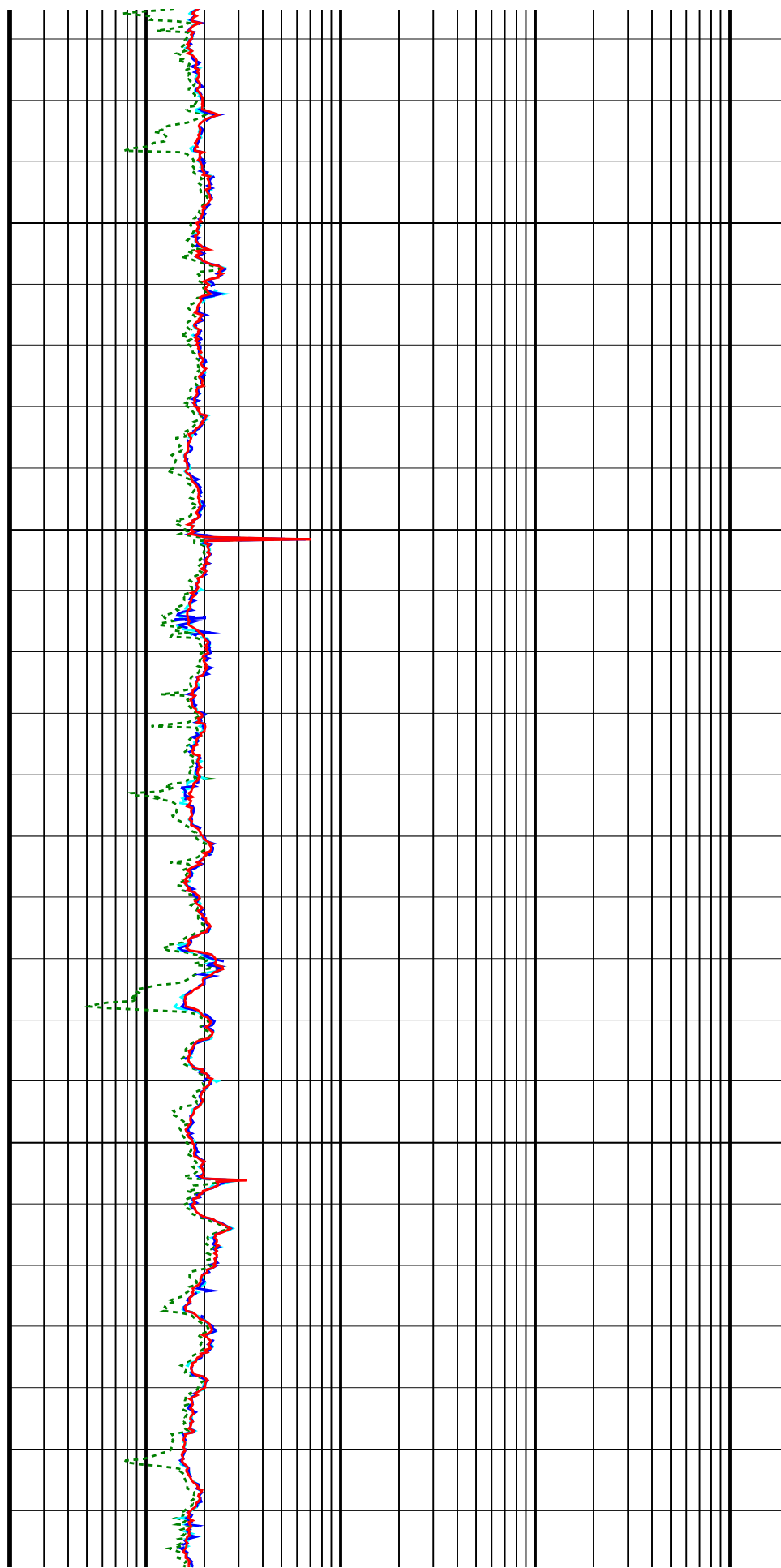
950  
TVD

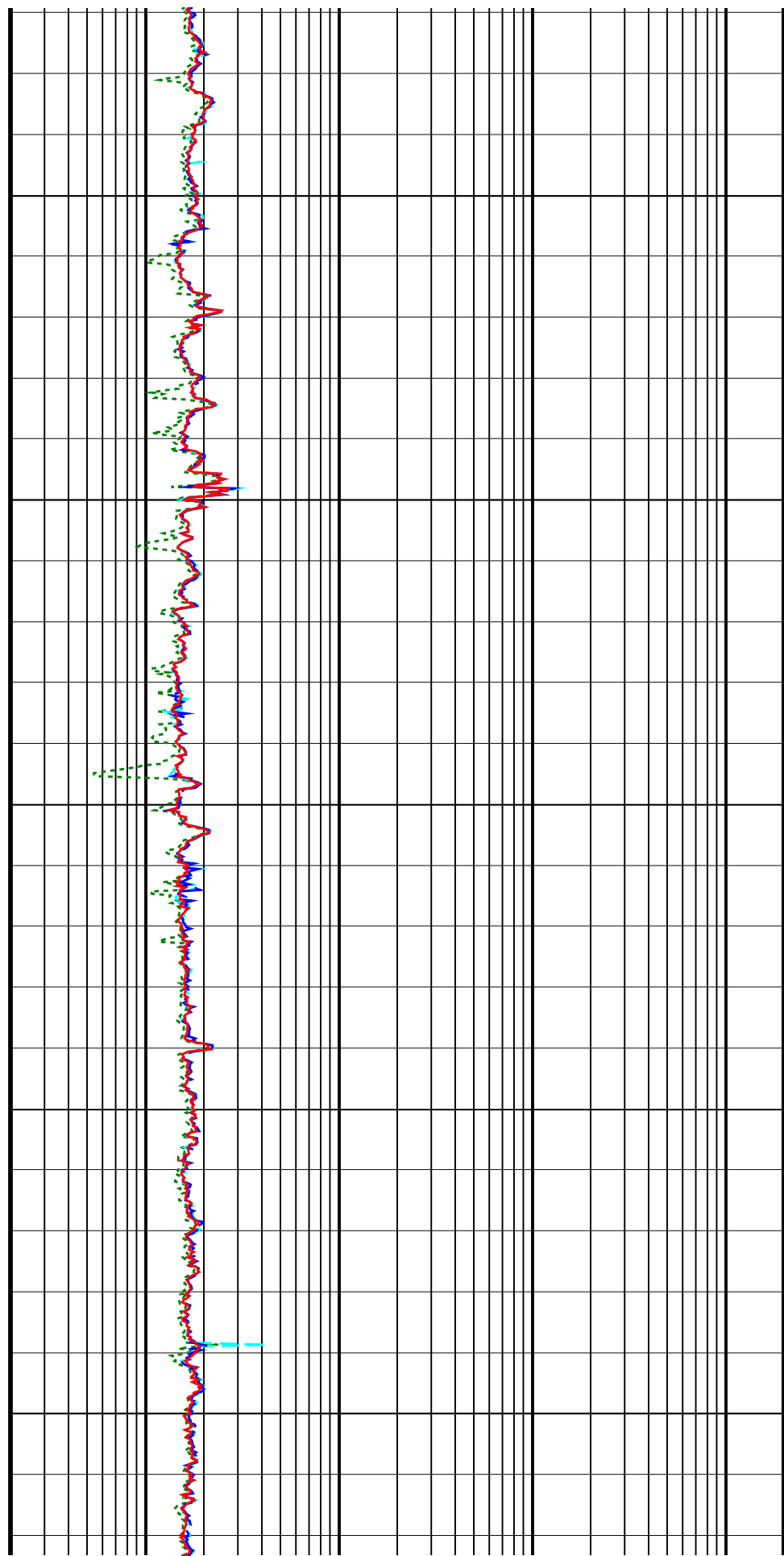
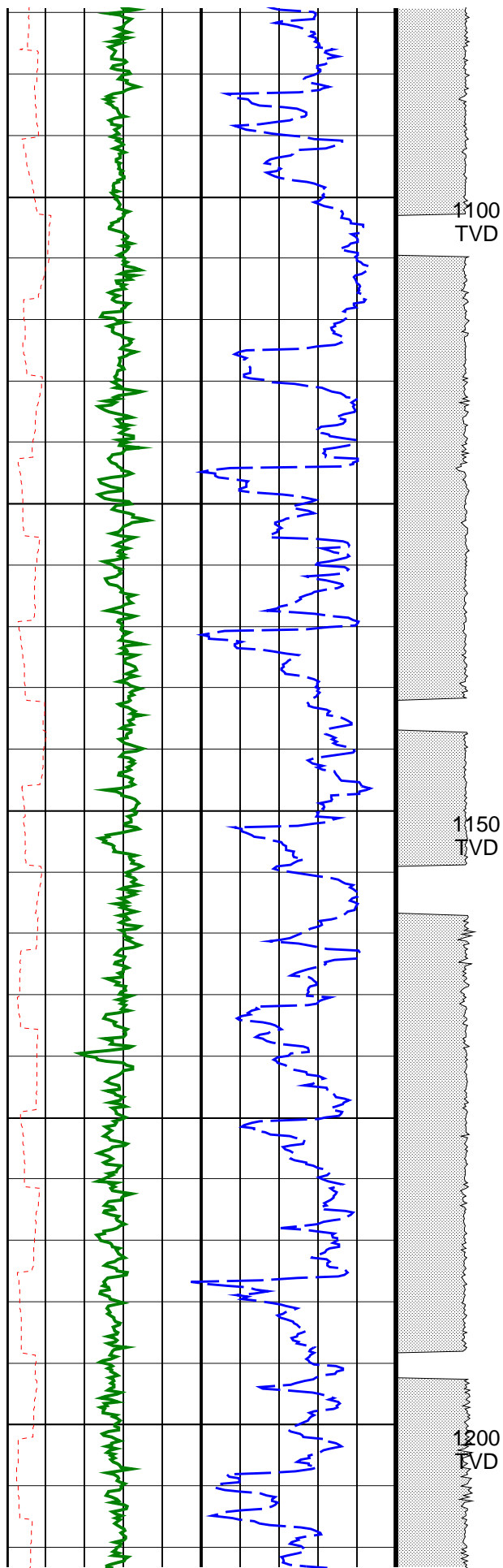


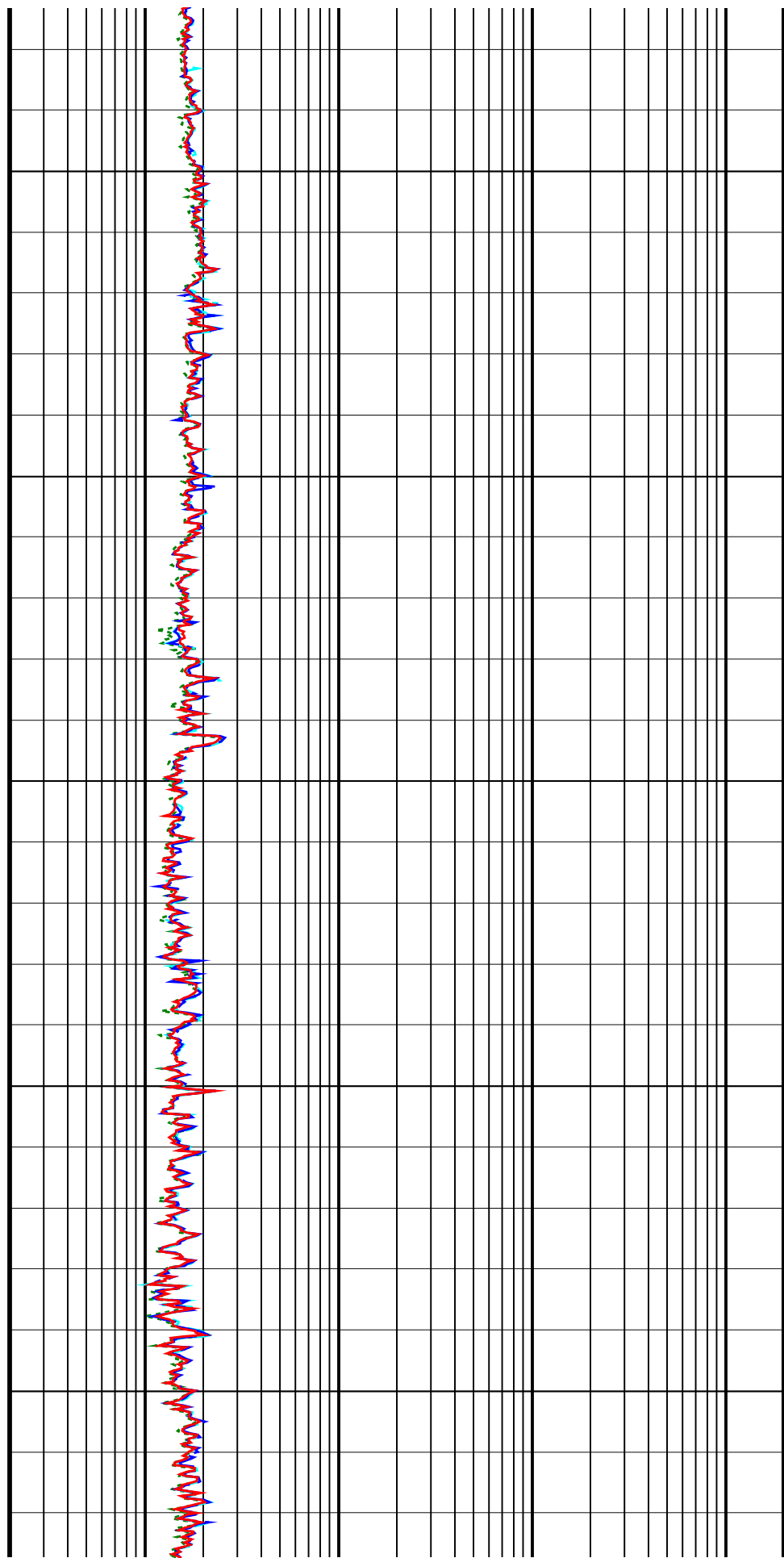
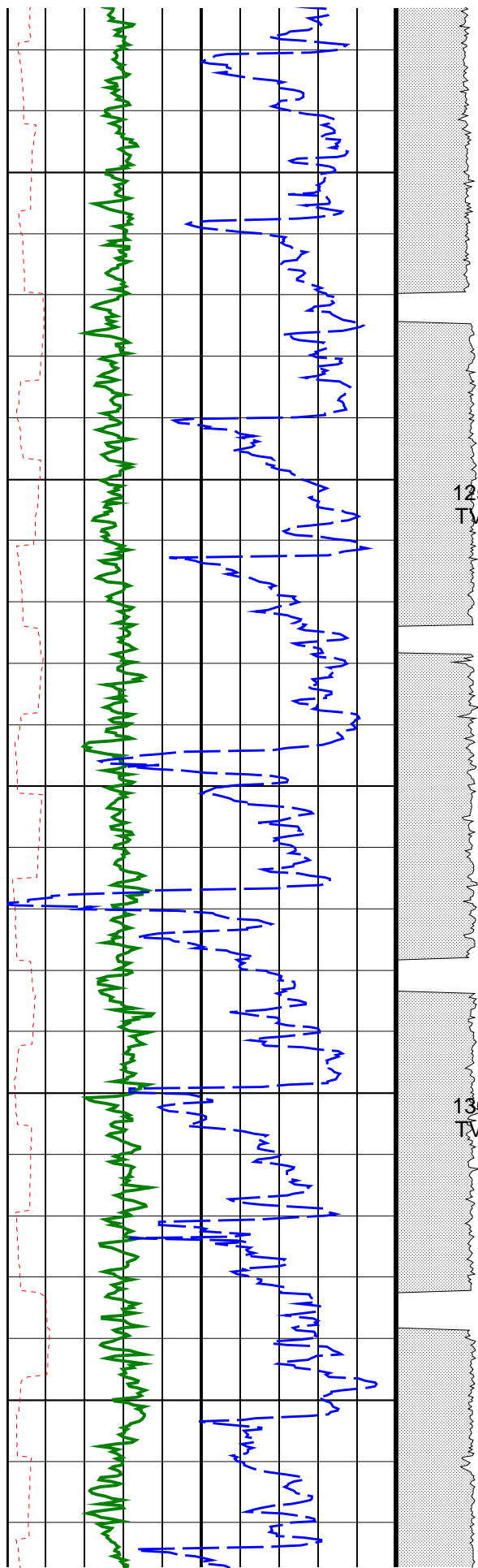


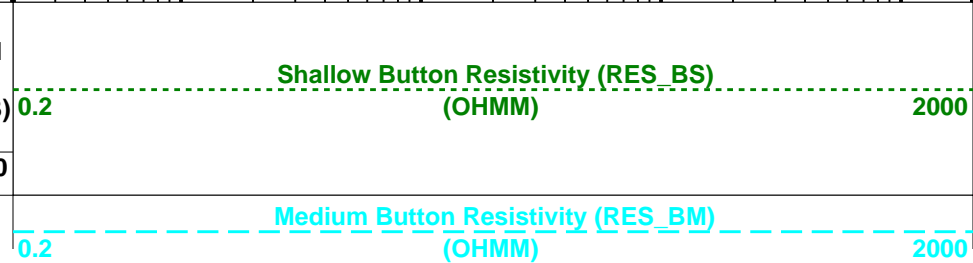
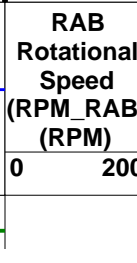
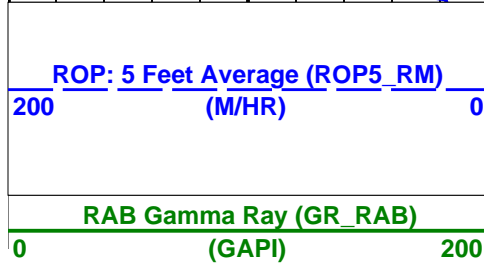
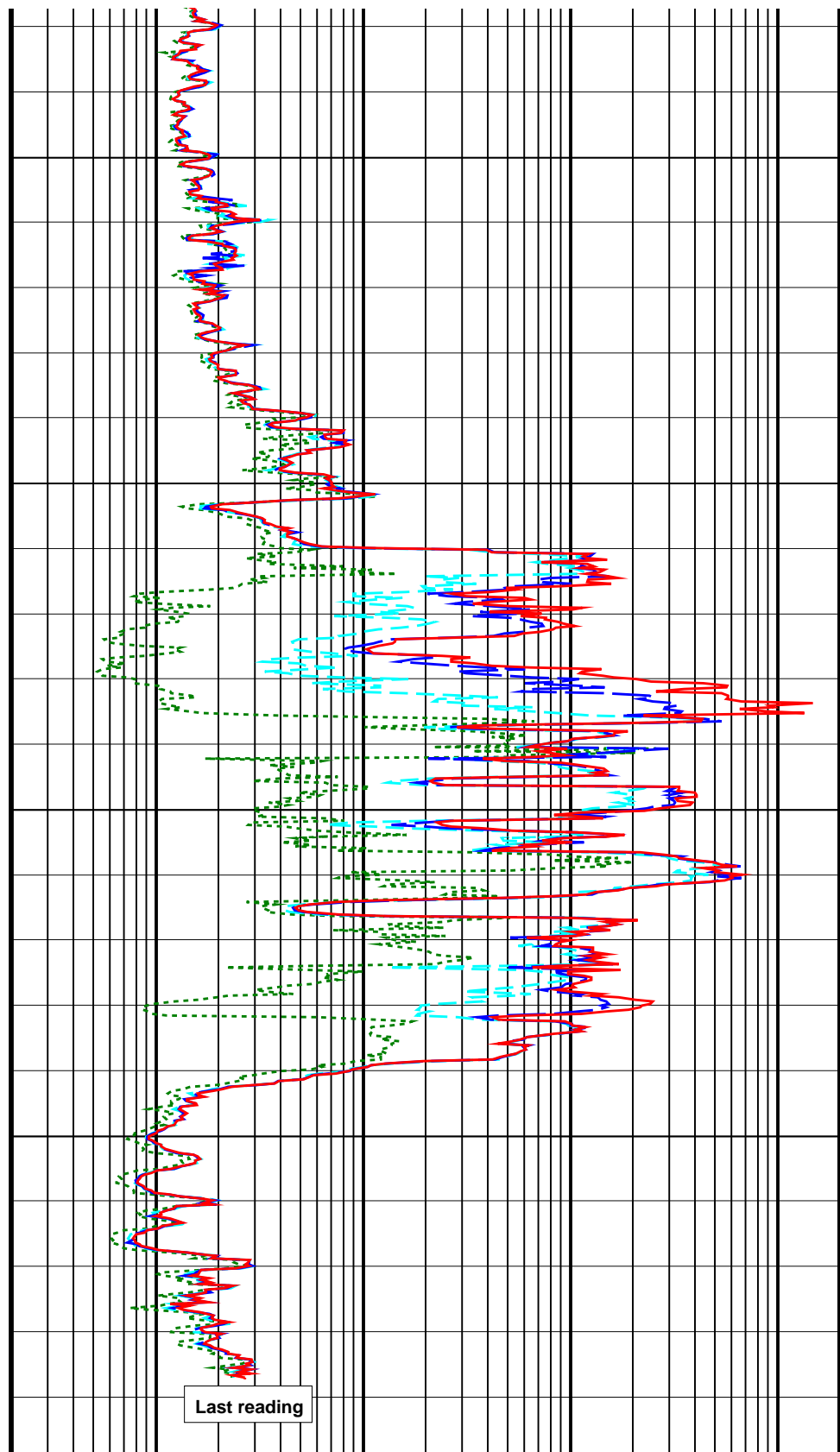
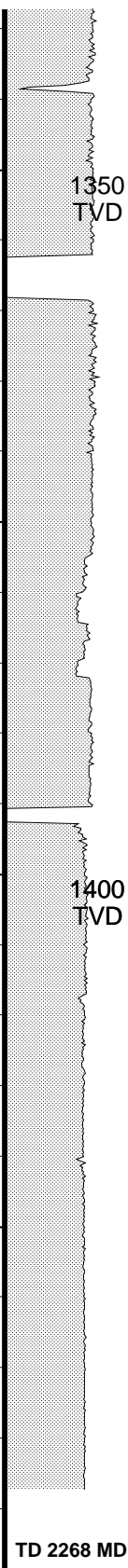
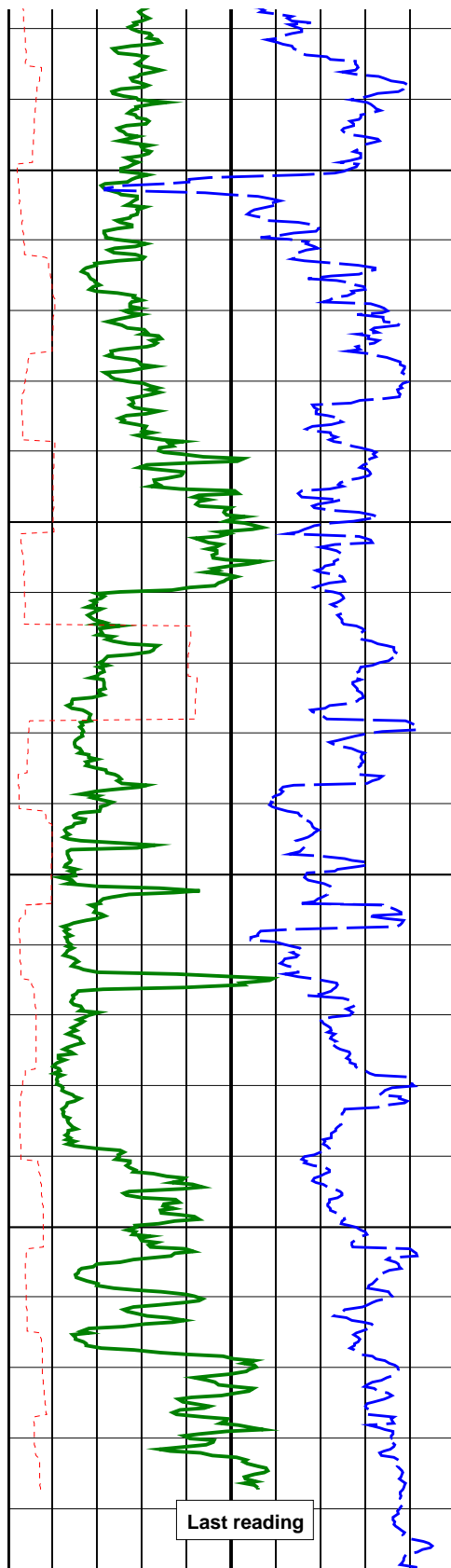
1000  
TVD

1050  
TVD









0	(GAPI)	200
Ring Resistivity Time After Bit (TAB_		
RAB_RING)		
0	(HR)	10

0.2	(OHMM)	2000
Deep Button Resistivity (RES_BD)		
0.2	(OHMM)	2000
Ring Resistivity (RES_RING)		
0.2	(OHMM)	2000

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. Resistivity At-the-Bit / Equipment Identification

Primary Equipment:  
Tool Name and Serial Number RAB6 – CA 125  
Calibration Status Valid

Master: Calibration out of date 20-MAY-2001 9:46

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		1.001	Master		0.9962	Master		1.004
	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		0.9992	Master		0.9975	Master		0.9926
	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		1.003	Master		0.9987	Master		1.006
	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		1.001	Master		1.005	Master		1.000
	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 out of date 20-MAY-2001 9:46

6.75-in. Resistivity At-the-Bit Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor	Value
Master		0.8812
	0.7500 (Minimum) 1.000 (Nominal) 1.250 (Maximum)	



ANADRILL  
SCHLUMBERGER  
Survey report

24-Jan-2002 04:41:48

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Client.....: ESSO Australia Ltd.  
Field.....: Tuna

Well.....: WTN-W48 A  
API number.....:  
Engineer.....: T.Sims

Rig.....: NABORS 453  
STATE.....: Victoria

Spud date.....: 19-Jan-02  
Last survey date.....: 24-Jan-02  
Total accepted surveys...: 59  
MD of first survey.....: 628.00 m  
MD of last survey.....: 2268.00 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.....: -61.00 m  
KB above permanent.....: 34.70 m  
DF above permanent.....: 34.70 m

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

----- Platform reference point-----  
Latitude (+N/S-).....: -5.06 m  
Departure (+E/W-).....: 55.86 m

Azimuth from rotary table to target: 64.64 degrees

----- Geomagnetic data -----  
Magnetic model.....: BGGM version 2000  
Magnetic date.....: 31-Dec-2001  
Magnetic field strength...: 1200.65 HCNT  
Magnetic dec (+E/W-).....: 13.18 degrees  
Magnetic dip.....: -68.71 degrees

----- MWD survey Reference Criteria -----  
Reference G.....: 1000.02 mGal  
Reference H.....: 1200.65 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-).....: 13.18 degrees  
Grid convergence (+E/W-)..: -0.86 degrees  
Total az corr (+E/W-)....: 14.04 degrees  
(Total az corr = magnetic dec - grid conv)  
Sag applied (Y/N).....: No degree: 0.00

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ANADRILL SCHLUMBERGER Survey Report

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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
1	628.00	25.50	95.71	0.00	607.03	144.98	-32.99	176.08	179.14	100.61	0.00	TIP	-
2	637.42	25.67	90.66	9.42	615.53	148.55	-33.22	180.14	183.17	100.45	2.32	MWD	6-axis
3	665.50	32.04	84.68	28.08	640.11	161.03	-32.59	193.65	196.38	99.55	2.49	MWD	6-axis
4	695.37	33.51	81.07	29.87	665.23	176.39	-30.58	209.69	211.91	98.30	0.82	MWD	6-axis
5	723.88	36.79	76.42	28.51	688.54	192.30	-27.35	225.77	227.42	96.91	1.48	MWD	6-axis
6	751.52	38.73	72.29	27.64	710.40	208.97	-22.78	242.06	243.13	95.38	1.15	MWD	6-axis
7	780.30	38.69	71.34	28.78	732.85	226.83	-17.16	259.16	259.72	93.79	0.21	MWD	6-axis
8	808.87	43.85	69.48	28.57	754.32	245.57	-10.83	276.90	277.11	92.24	1.86	MWD	6-axis
9	837.41	45.97	69.57	28.54	774.53	265.65	-3.78	295.77	295.80	90.73	0.74	MWD	6-axis
10	865.79	48.92	67.80	28.38	793.72	286.50	3.82	315.24	315.26	89.31	1.14	MWD	6-axis
11	893.98	52.42	65.60	28.19	811.59	308.29	12.46	335.26	335.49	87.87	1.38	MWD	6-axis
12	923.17	55.44	63.56	29.19	828.78	331.87	22.59	356.56	357.28	86.38	1.18	MWD	6-axis
13	952.07	59.26	60.72	28.90	844.37	356.18	33.97	378.06	379.58	84.87	1.56	MWD	6-axis
14	980.67	61.56	59.44	28.60	858.49	380.96	46.37	399.61	402.29	83.38	0.89	MWD	6-axis
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

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

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ANADRILL SCHLUMBERGER Survey Report

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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**

**GeoVISION Resistivity**  
**1 : 500 True Vertical Depth**  
**Recorded Mode**

**Schlumberger**

