

Esso Australia Ltd.

WTN W33A

Tuna

Pool Rig 453 State: **Victoria**

Schlumberger

K.B. Top Drive

Elev.: 0

Driller's Pipe Tally

Longitude Latitude

Pool Rig 453
Tuna
Bass Strait
WTN W33A

Mag decl: 13.156°

Directional Drilling

Bore hole record

Casing record

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.

Directional Surveys

OTHER SERVICES FOR RUN

OTHER SERVICES FOR RUN

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

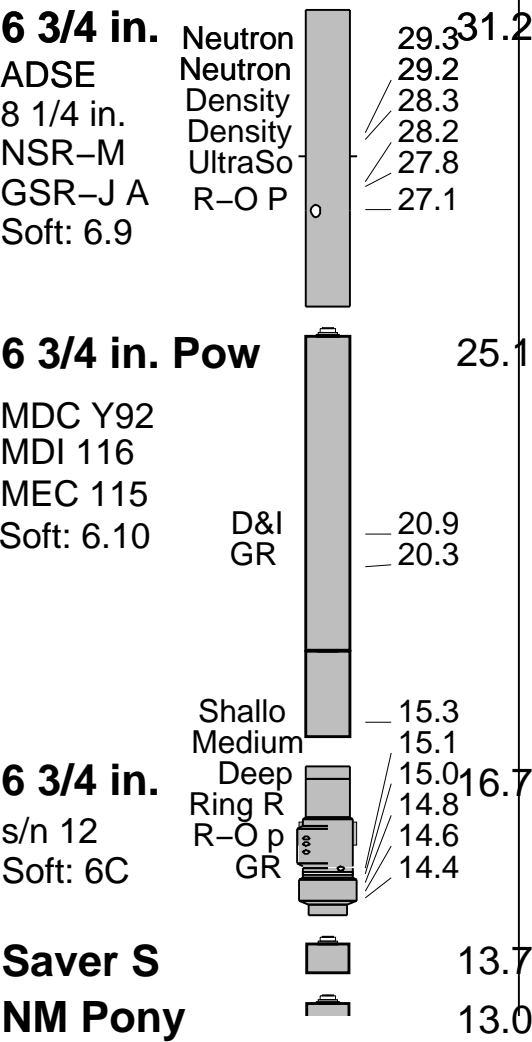
EQUIPMENT DESCRIPTION

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							

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

Graphics File Created: 04-May-2002 19:23

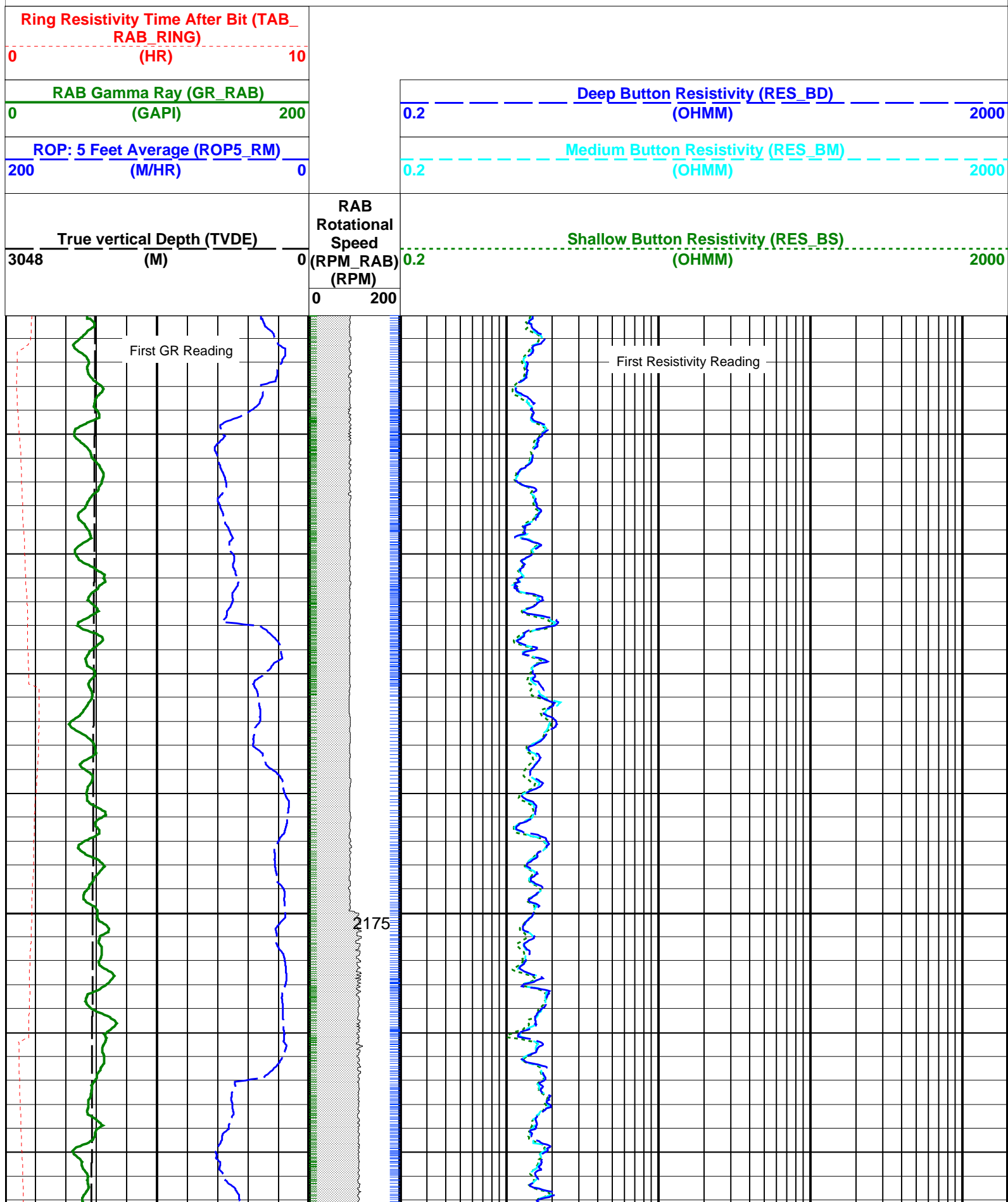
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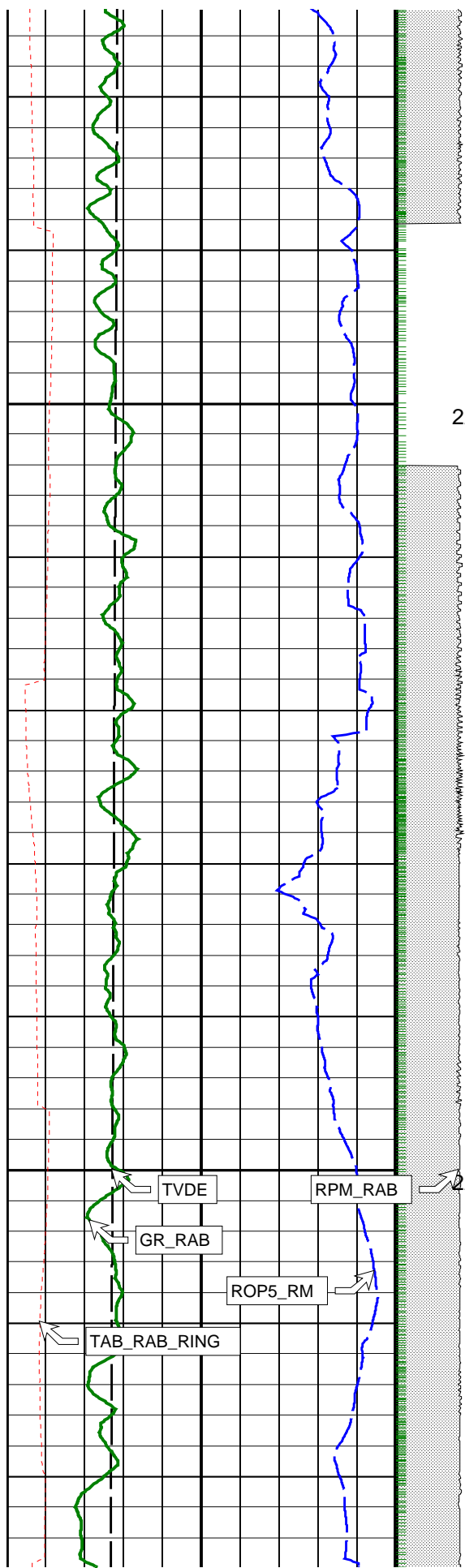
DLIS Name	Description	Value	
BDBHCA	RAB: Button Deep Borehole A Factor	0.005	
BDBHCB	RAB: Button Deep Borehole B Factor	0.000	
BHA_COEF_VER	RAB: BHA Coef Generator Version	2.000	
BITBHCA	RAB: Bit A Borehole Factor	0.058	
BITBHCB	RAB: Bit B Borehole Factor	0.000	
BIT_K_FACTOR	RAB: Bit K Factor	17.214	
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

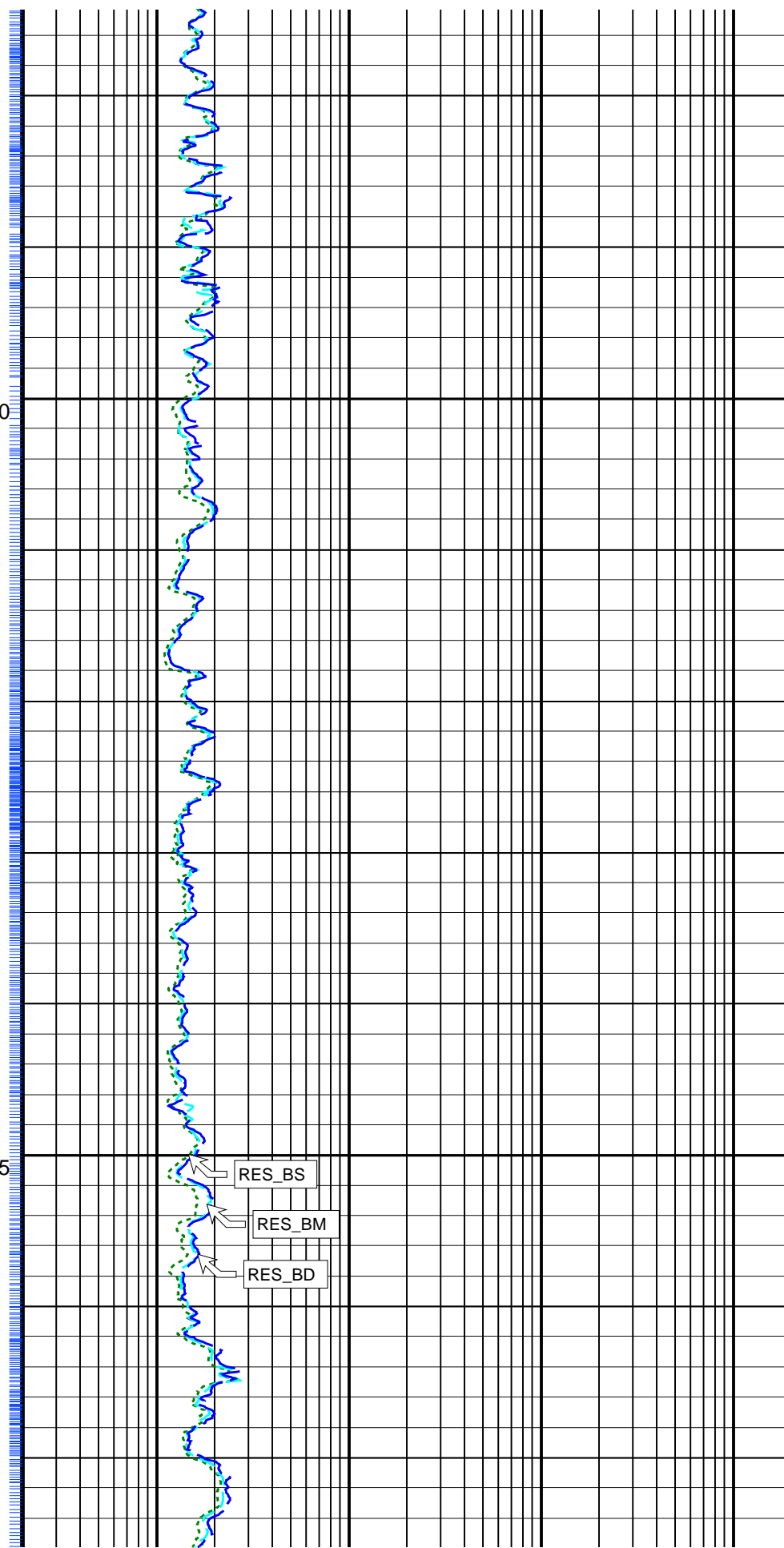
→ RAB samples

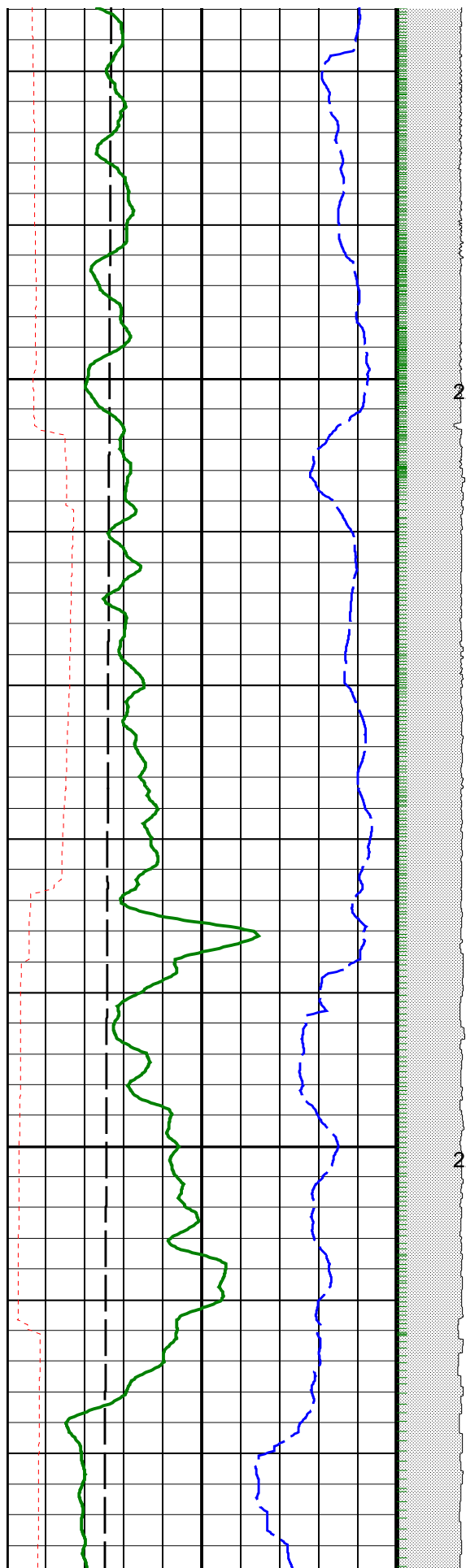




2200

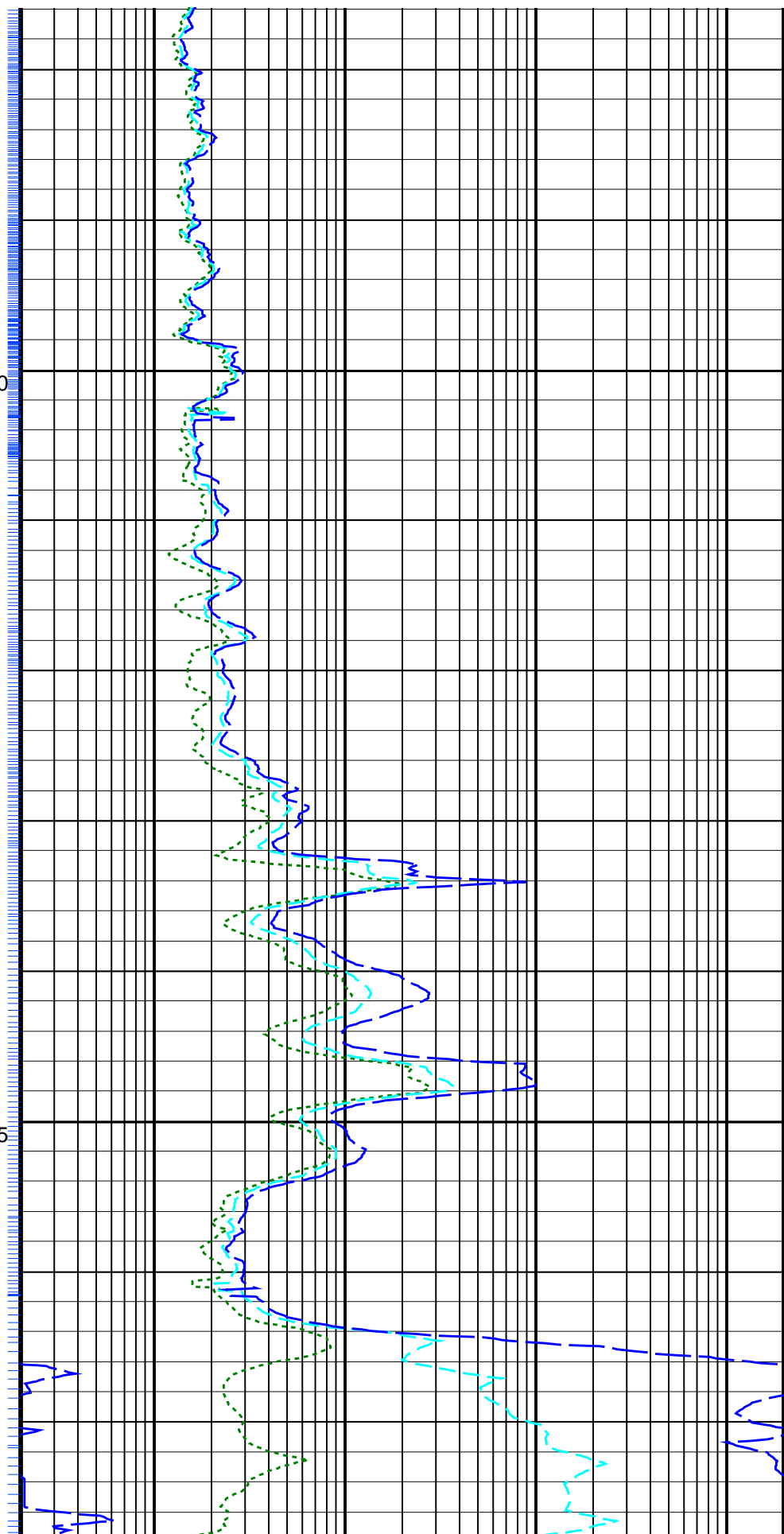
2225

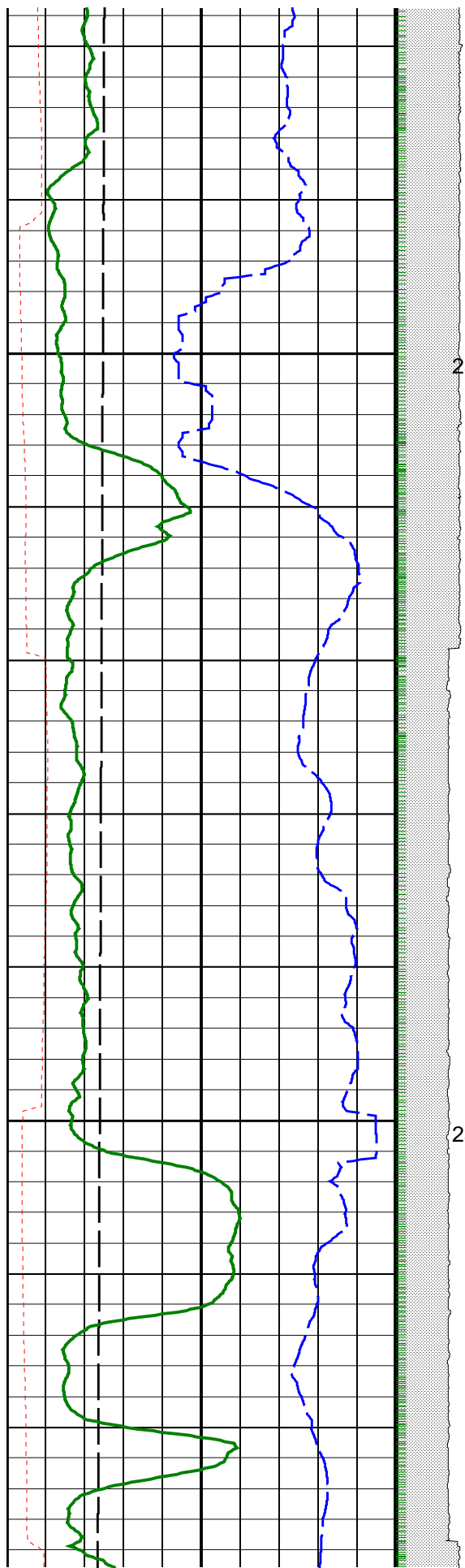




2250

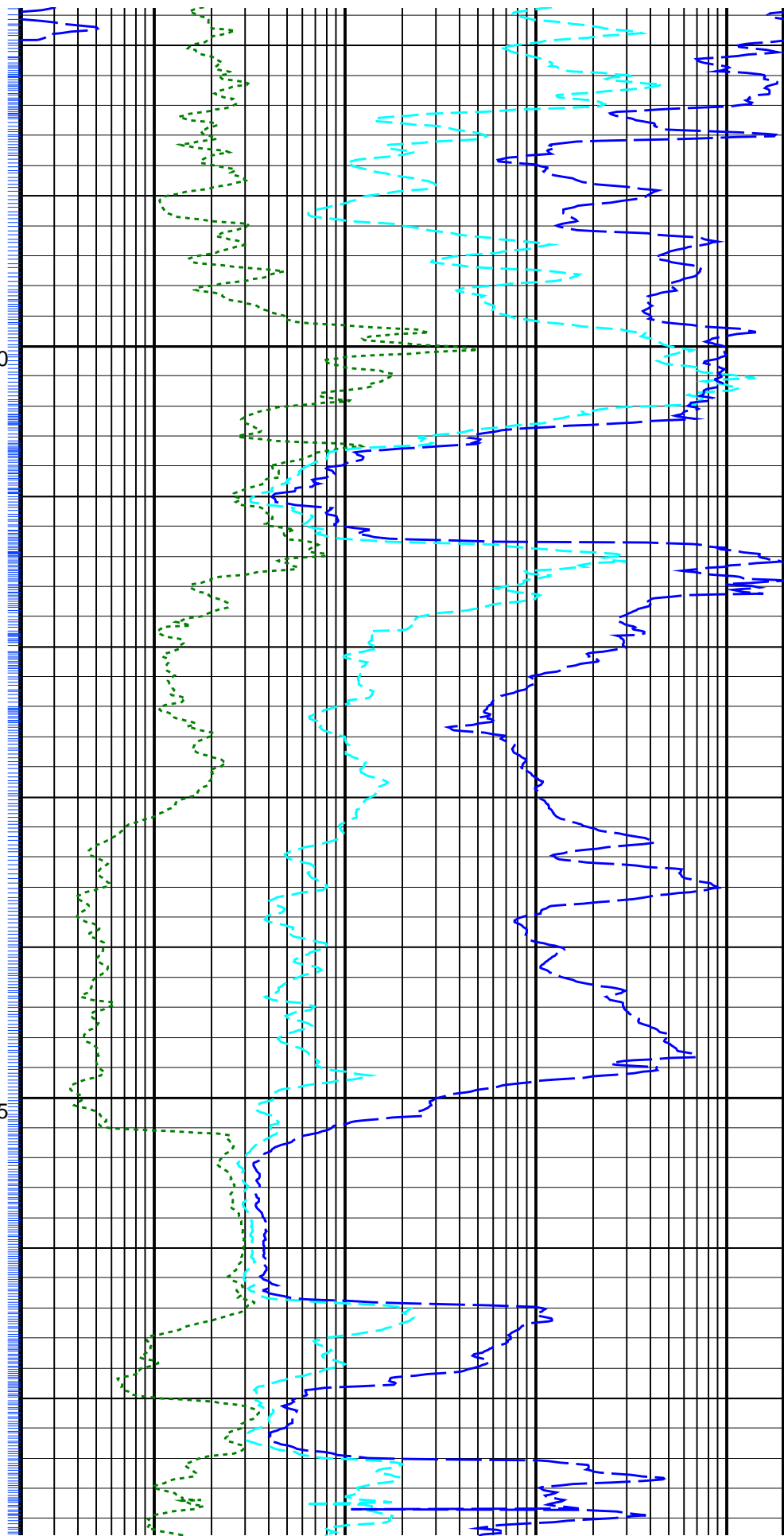
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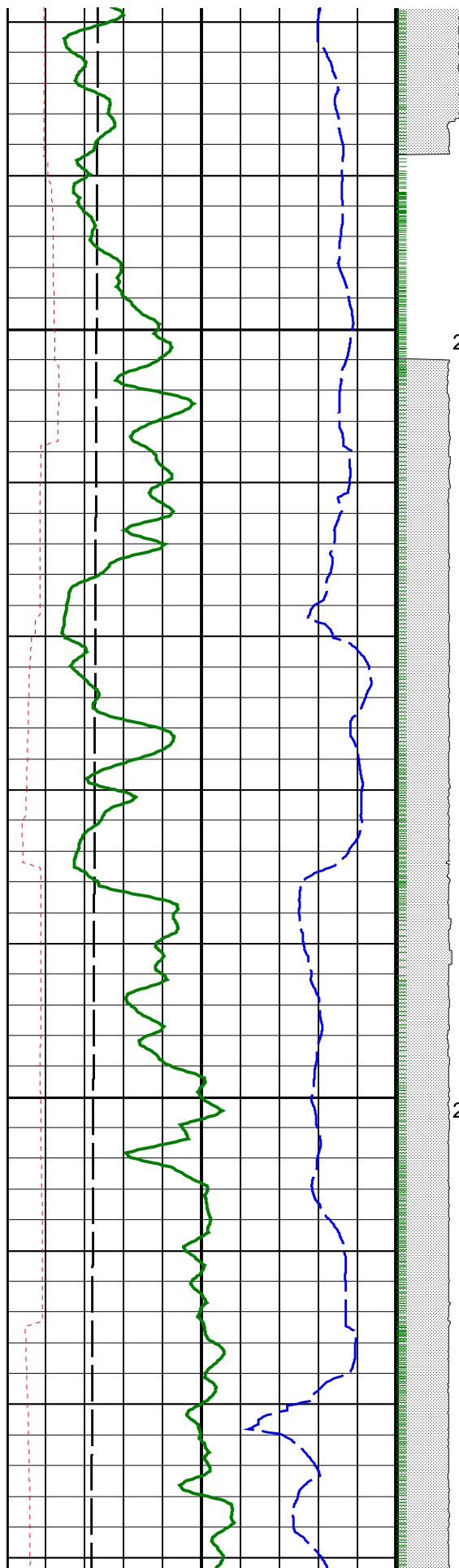




2300

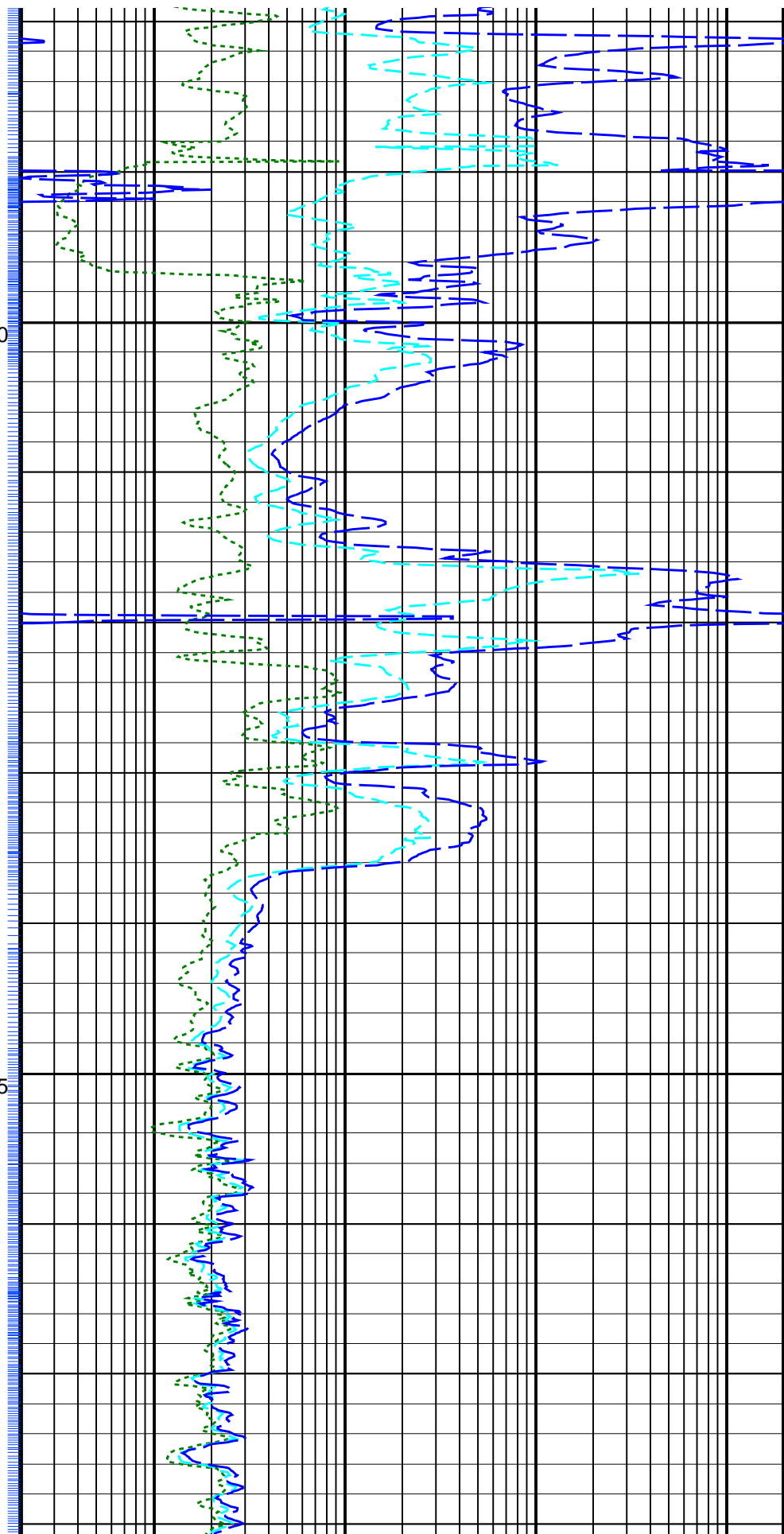
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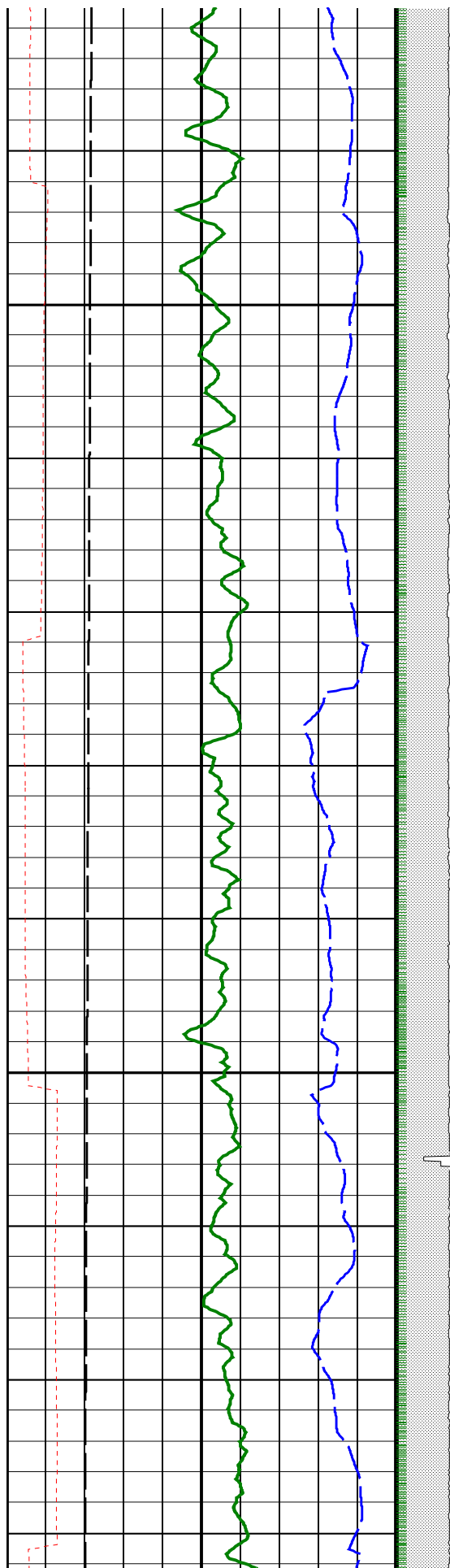




2350

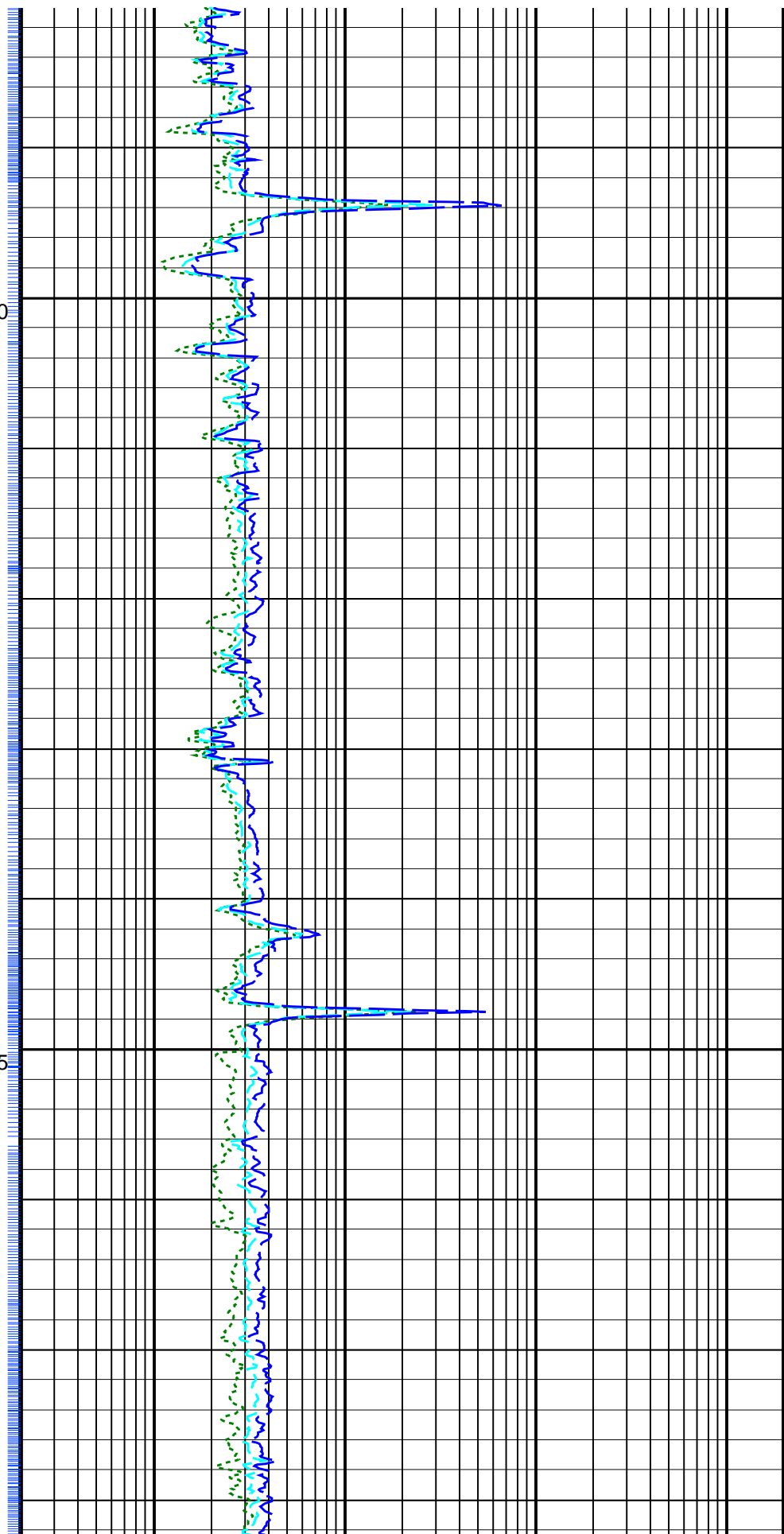
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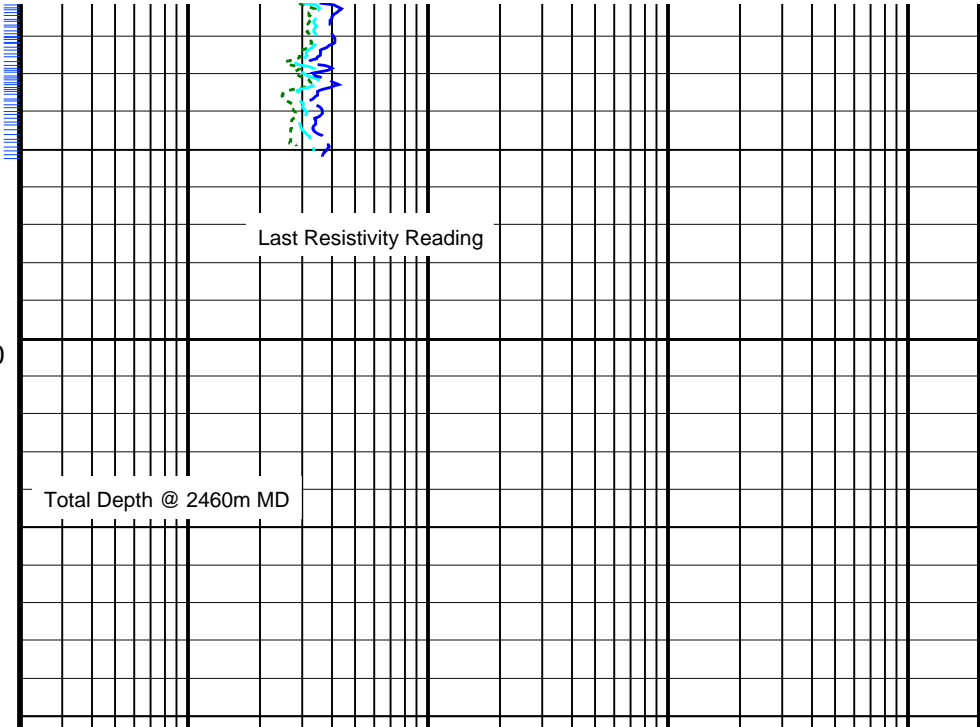
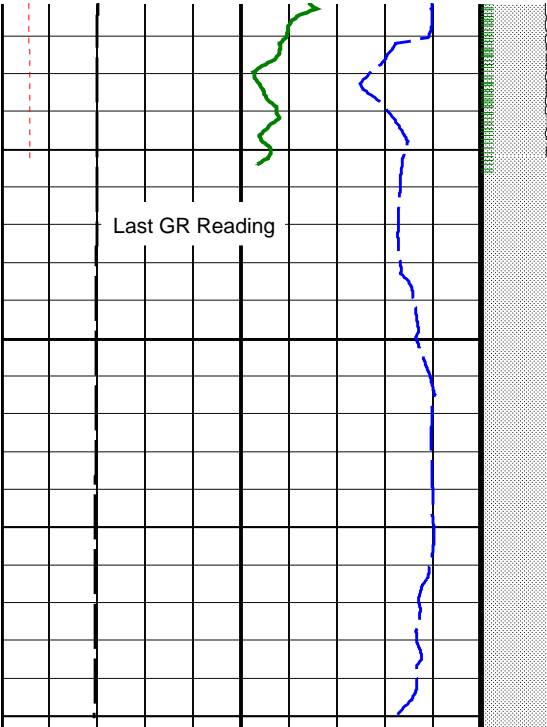




2400

2425





True vertical Depth (TVDE)		RAB Rotational Speed (RPM_RAB) (RPM) 0 200	Shallow Button Resistivity (RES_BS)	
3048	(M)		0	2000
			0.2	(OHMM)
ROP: 5 Feet Average (ROP5_RM)			Medium Button Resistivity (RES_BM)	
200	(M/HR)	0	0.2	2000
			(OHMM)	
RAB Gamma Ray (GR_RAB)			Deep Button Resistivity (RES_BD)	
0	(GAPI)	200	0.2	2000
			(OHMM)	
Ring Resistivity Time After Bit (TAB_RAB_RING)				
0	(HR)	10		

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

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

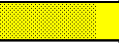
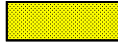
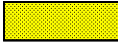
Master: 21-Apr-2002 16:57




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



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)







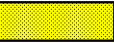

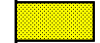



Master: 21–Apr–2002 16:57									
6.75–in. Azimuthal Density Neutron Calibration									
Density: Water Block Check									
Phase	Long spacing water density G/C3			Value	Phase	Short spacing water density G/C3			Value
Master				1.040	Master				1.139
	1.016 (Minimum)	1.032 (Nominal)	1.047 (Maximum)			1.062 (Minimum)	1.107 (Nominal)	1.151 (Maximum)	

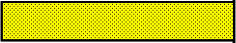
Master: Calibration date not found											
6.75–in. Azimuthal Density Neutron Calibration											
Neutron: Water Tank											
Phase	Far 1 tube 1 gain			Value	Phase	Far 1 tube 1 offset CPS			Value		
Master				1.145	Master				-0.7860		
	0.9000 (Minimum)	1.100 (Nominal)	1.300 (Maximum)			-1.200 (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	<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)			

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)	

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			0.9620	Master			0.9670	Master			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			1.007	Master			0.9940	Master			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			1.020	Master			1.028	Master			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			1.023	Master			1.014	Master			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)	

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

[(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

GeoVision Resistivity
1:200 Measured Depth
Recorded Mode Log

IDEAL services from Anadrill

Schlumberger

