

Company: **ESSO Australia Ltd.**

Well: **WTN-W48 A**

# Field: Tuna

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

**Schlumberger**  
GeoVISION Resistivity  
1 : 500 Measured 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

API serial no.	x = 5,771,791.69 m y = 621,538,528 m	Longitude	Latitude
		E 148 23' 16.53"	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	<b>Surface</b>	622 m



[illegible]




[illegible]

Mud record		Borehole deviation record	
Turns from	to	Mins from	to

Type	Min	Max	Min	Max
Coil Motor	632 m	617 m	3550 dms	3567 dms

047 III	047 III	020 III	23.07 deg	23.00 deg	047 III	047 III
047 III	047 III	020 III	23.07 deg	23.00 deg	047 III	047 III

KCL/PHPA	64 / m	2268 m	23.6 / deg	66.50 deg	64 / m	2268 m
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[illegible]


Surface equipment	Software record
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(0 9 8 7 6 5 4 3 2 1 0		(0 9 8 7 6 5 4 3 2 1 0	
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Unit	OLU-FB-924	IDEAL Wis	id6_1c_10

Depth system	PDA	SPM	id6 1c 10	services from

[illegible]

	LWD	See Toolsketch

# Anadrill

MWD	See Toolsketch
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**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

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

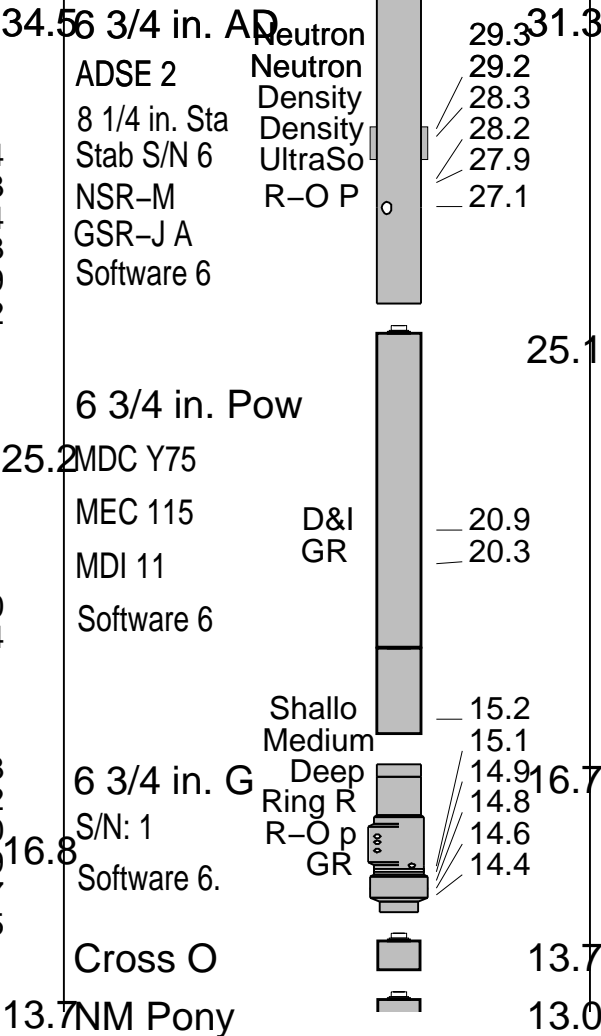
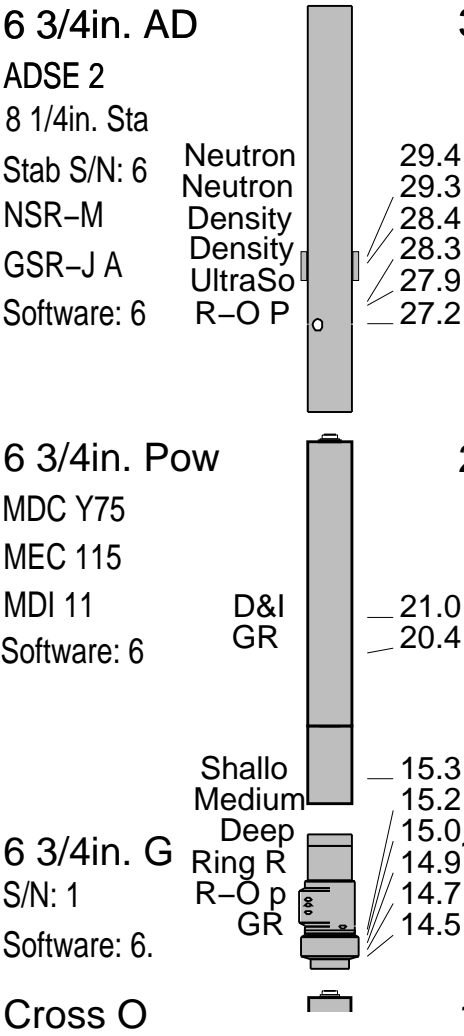
RUN1

RUN2

RUN

DOWNHOLE EQ

DOWNHOLE E





**Environmental data**

<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					

**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 19:38

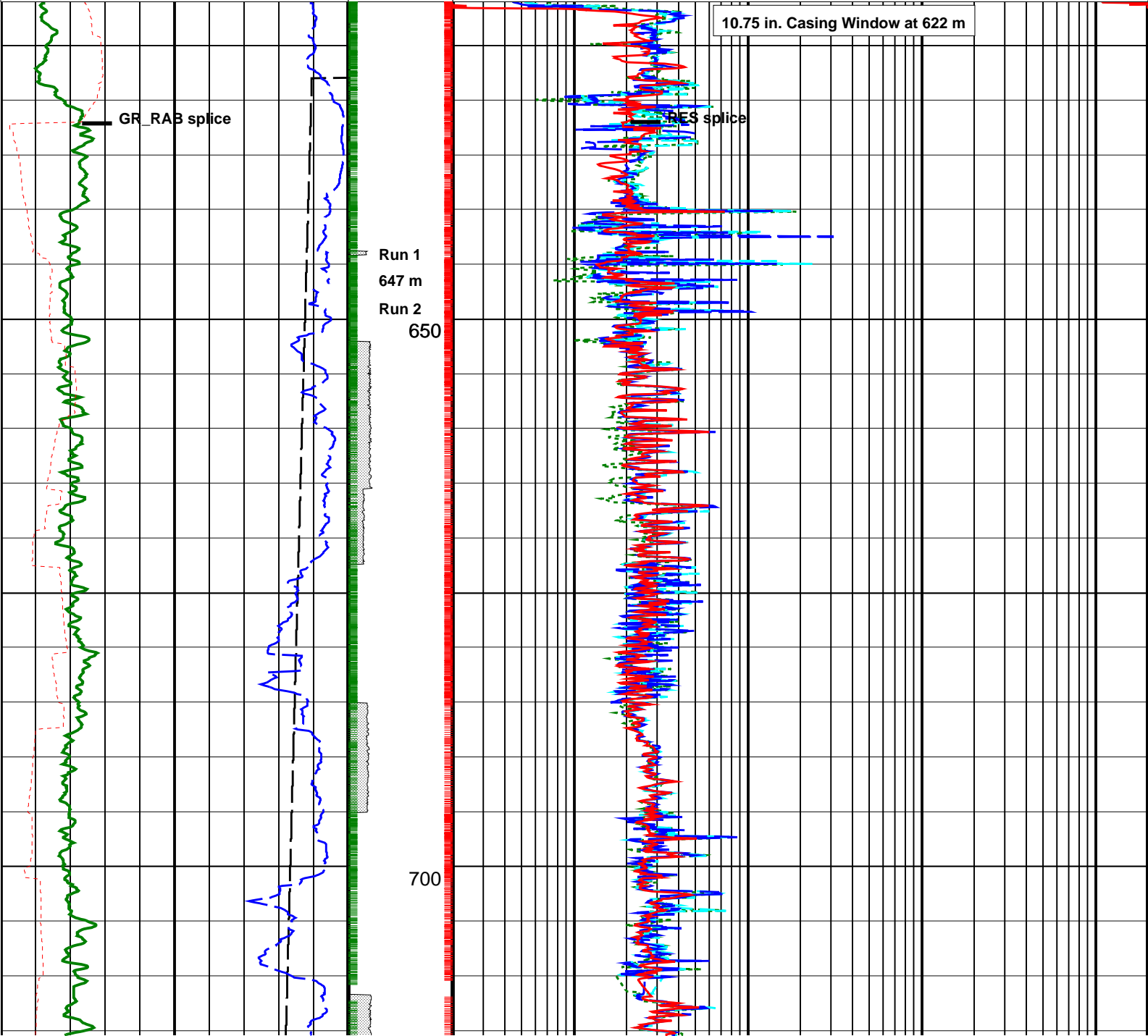
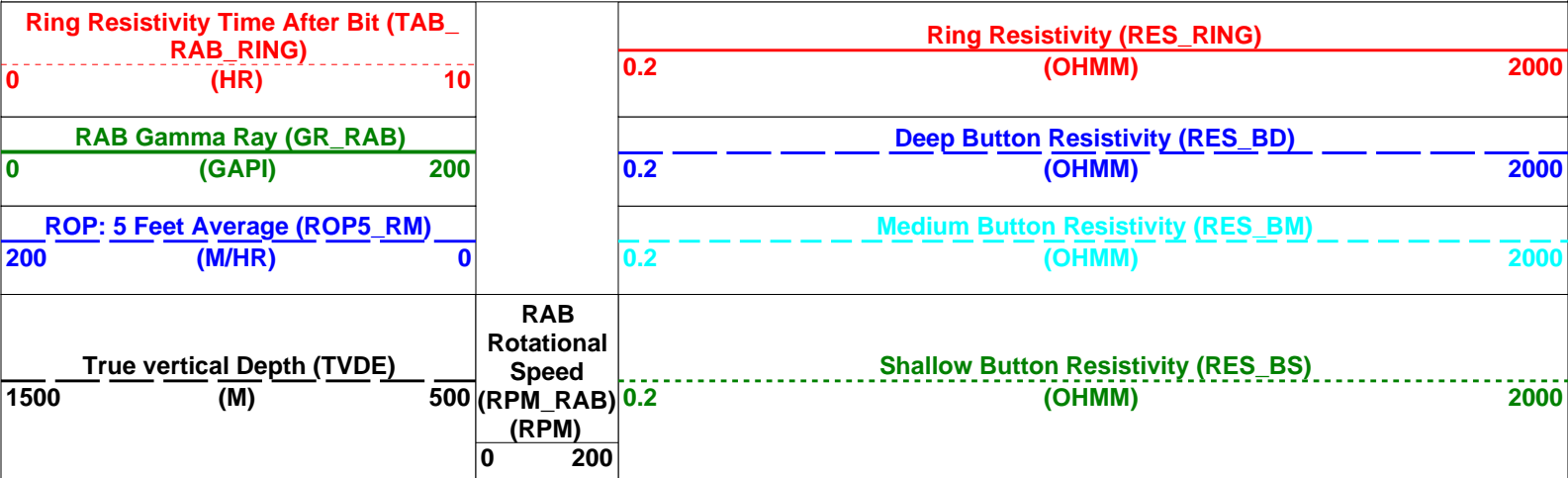
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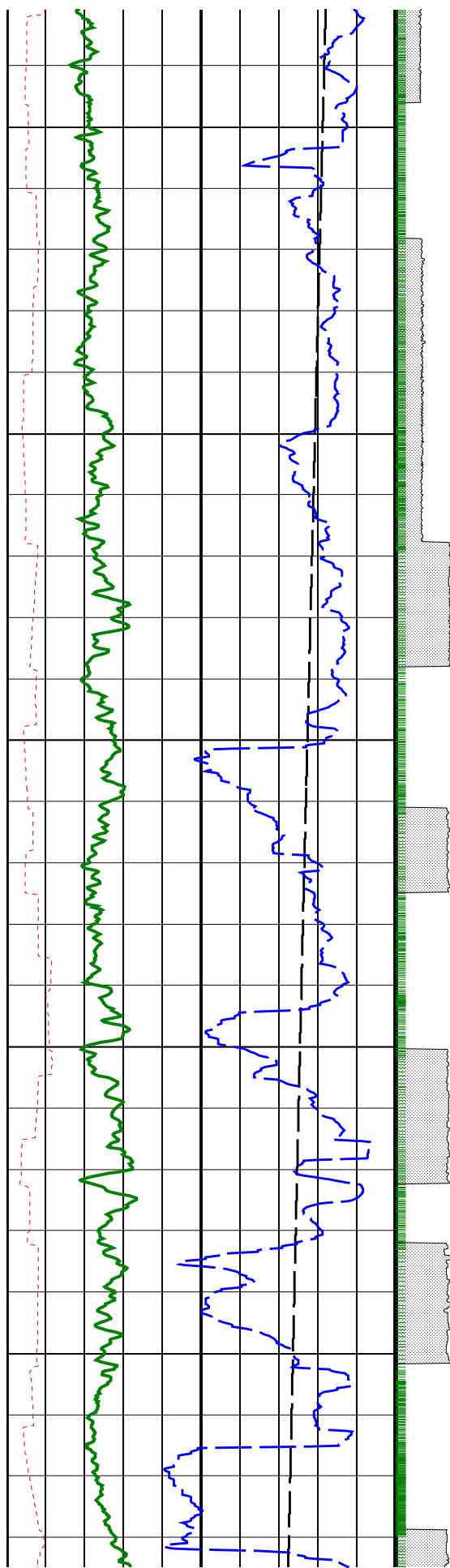
DLIS Name	Description	Value
BDBHCA	RAB: Button Deep Borehole A Factor	0.005
BDBHCB	RAB: Button Deep Borehole B Factor	0.000
BHA_COEF_VER	RAB: BHA Coef Generator Version	62012.0
BITBHCA	RAB: Bit A Borehole Factor	0.058
BITBHCB	RAB: Bit B Borehole Factor	0.000
BIT_K_FACTOR	RAB: Bit K Factor	17.240
BMBHCA	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

**PIP SUMMARY**

- └ Gamma Ray Samples
- └ Ring Samples

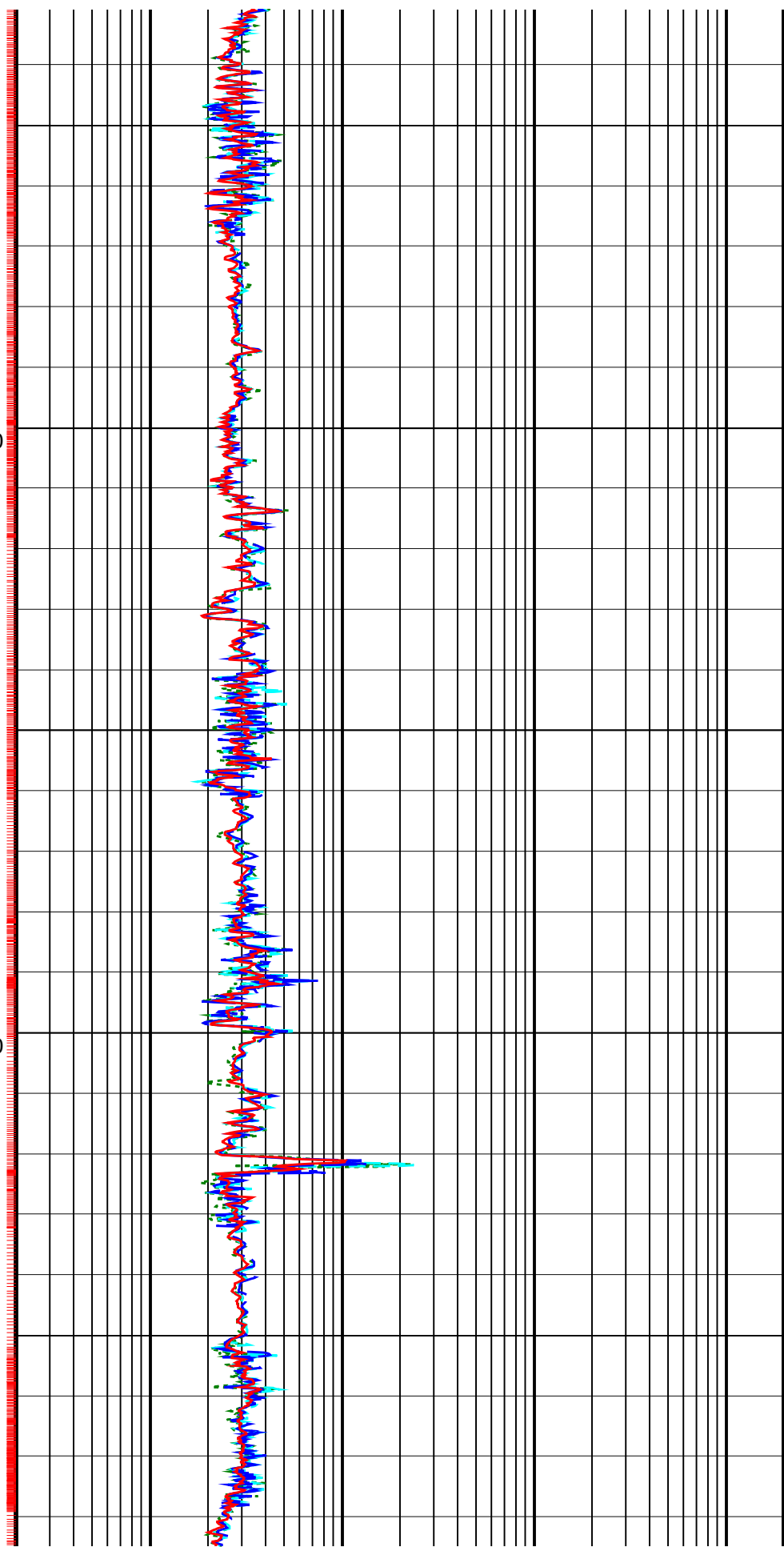
Ring Resistivity Time After Bit (TAB\_

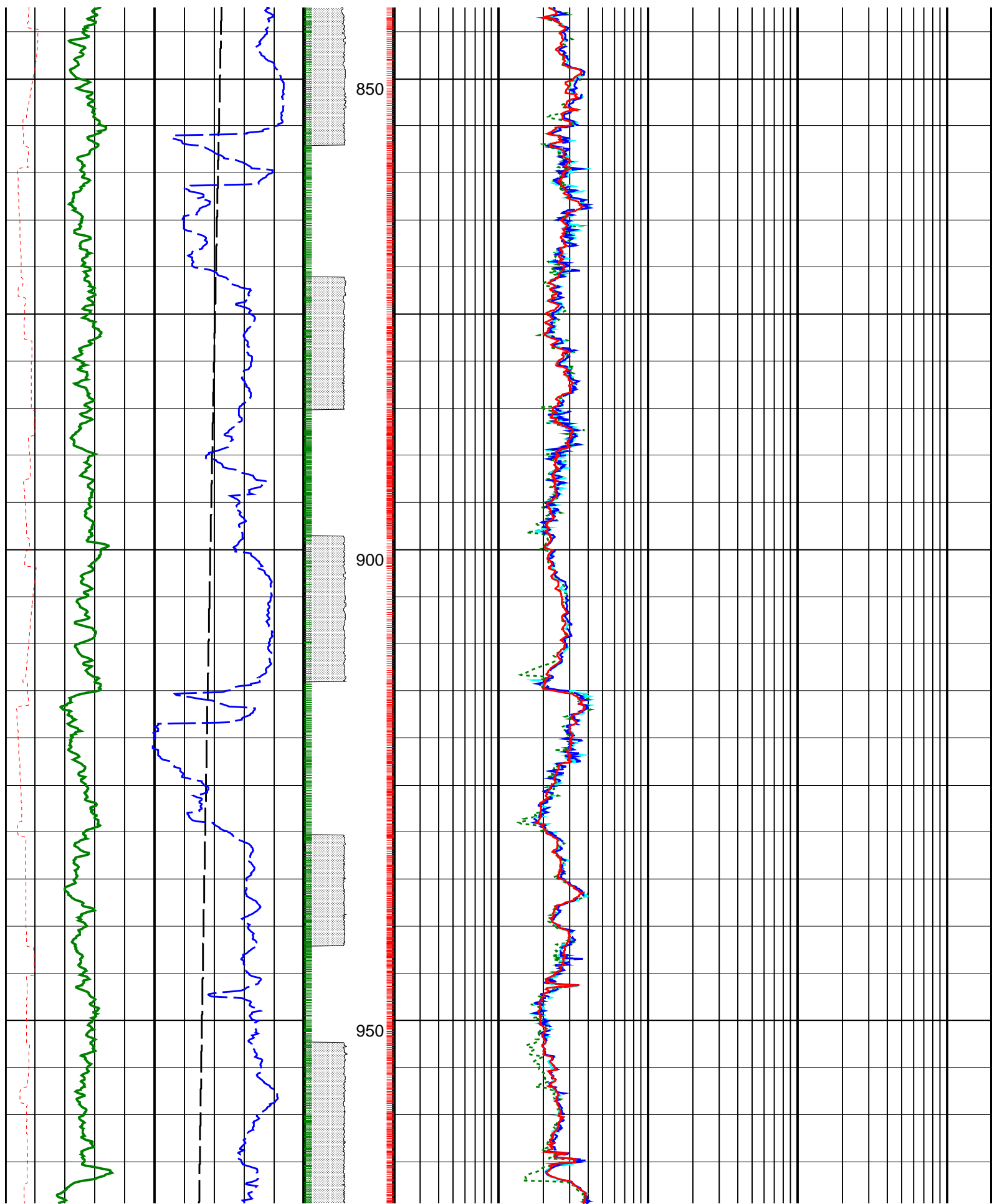


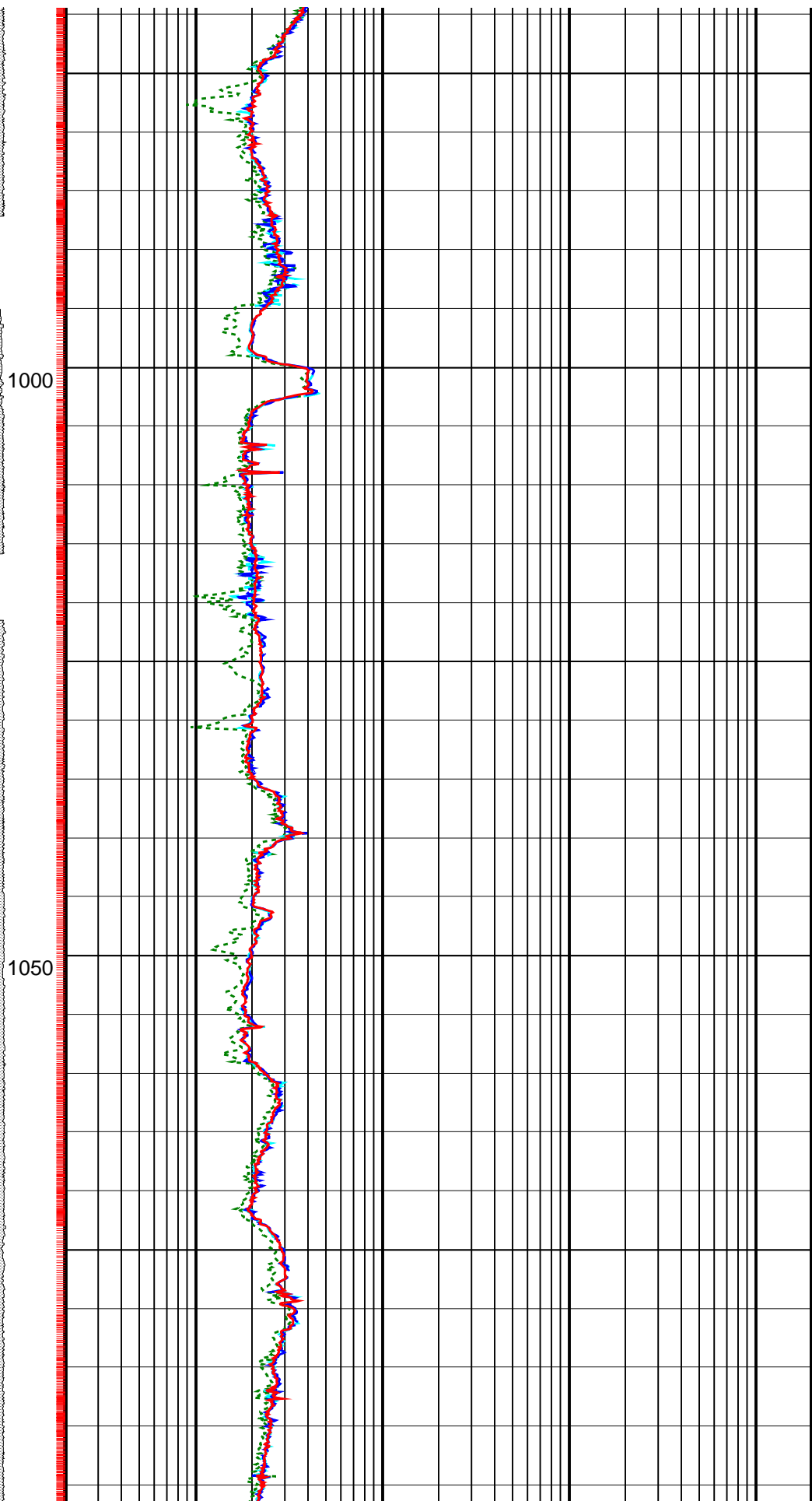
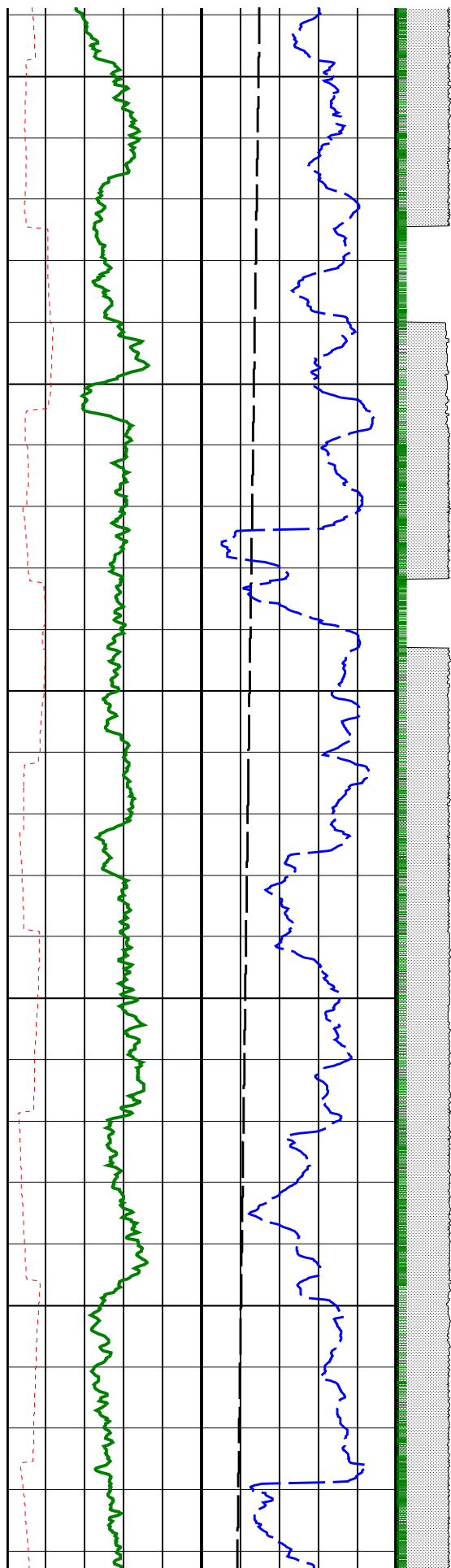


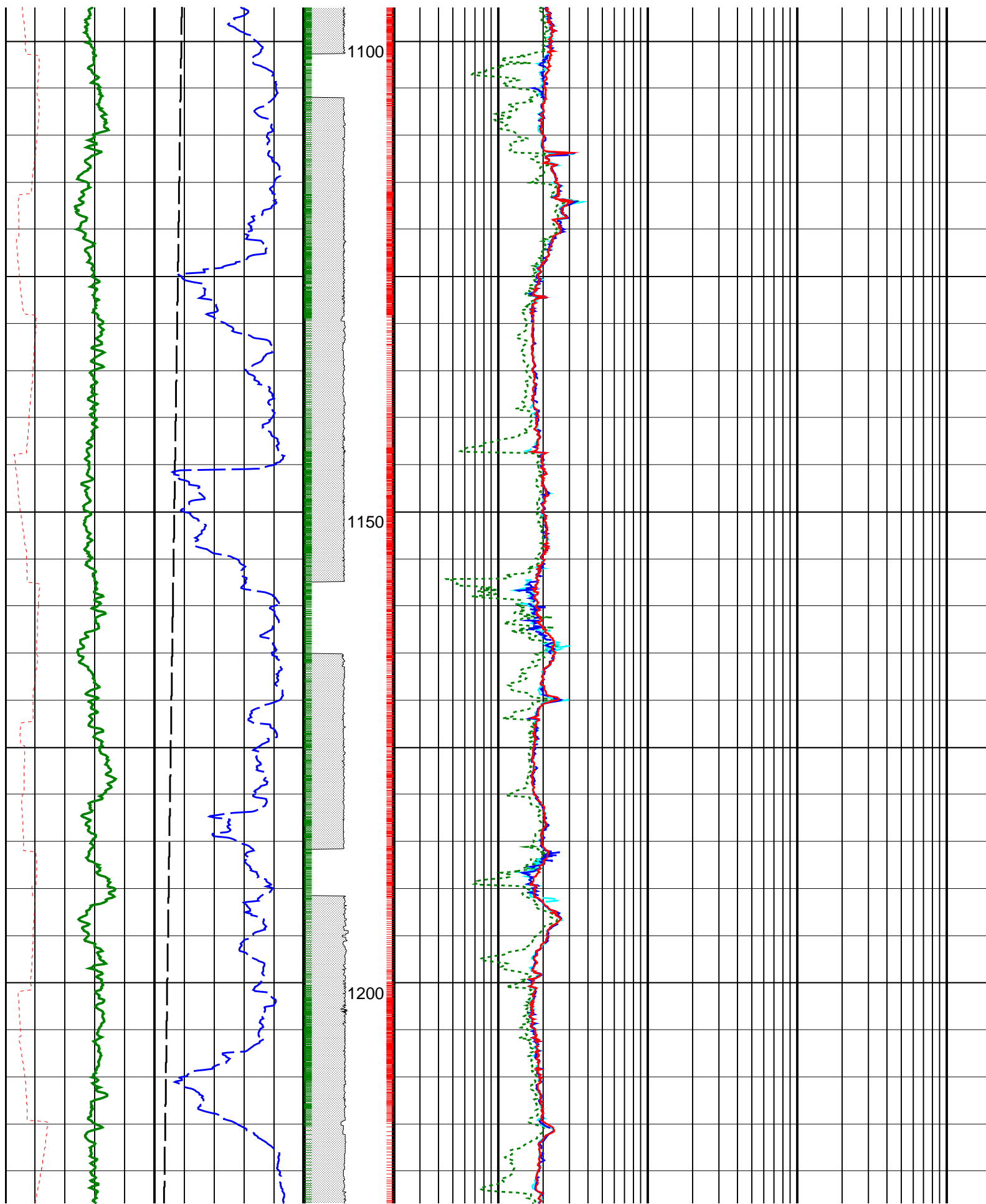
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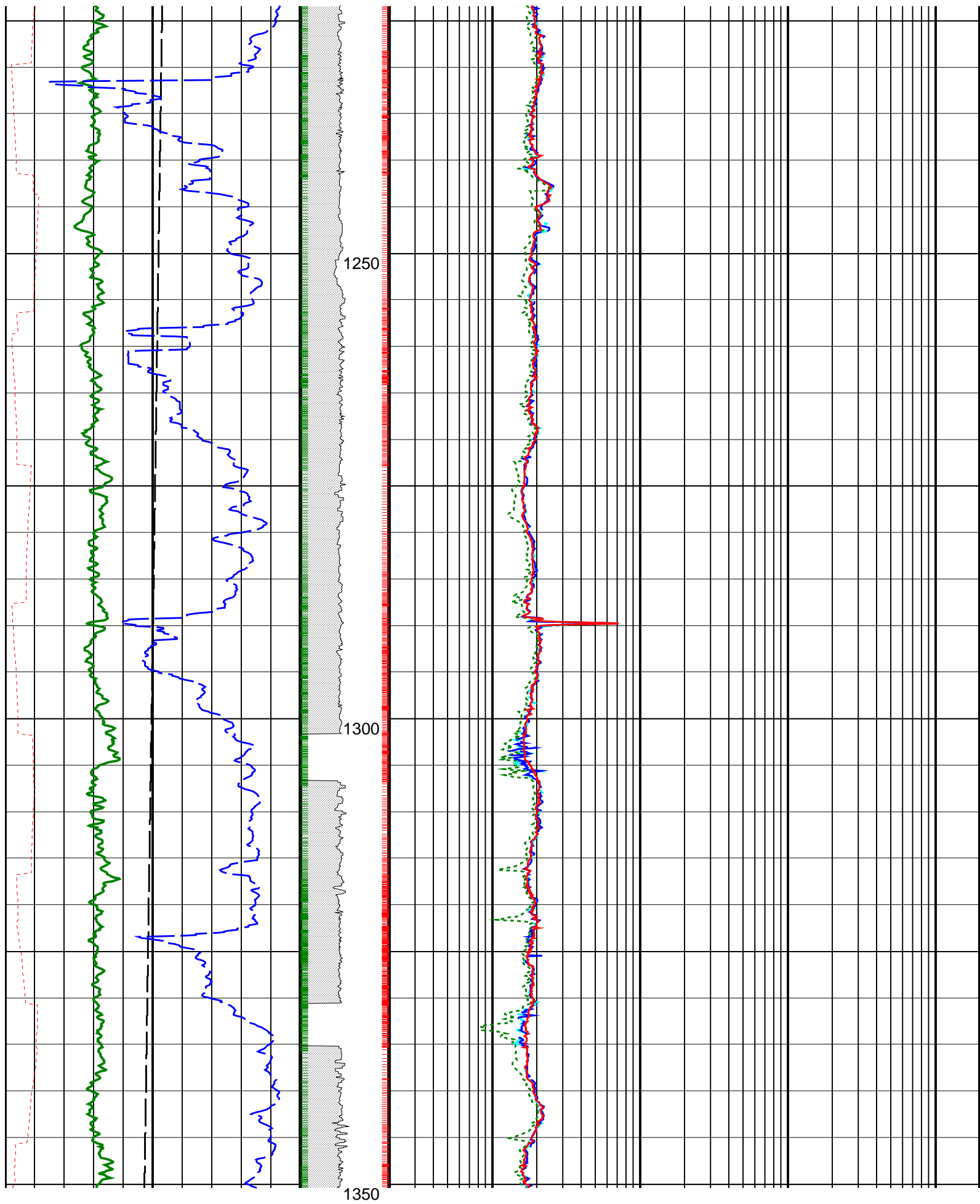
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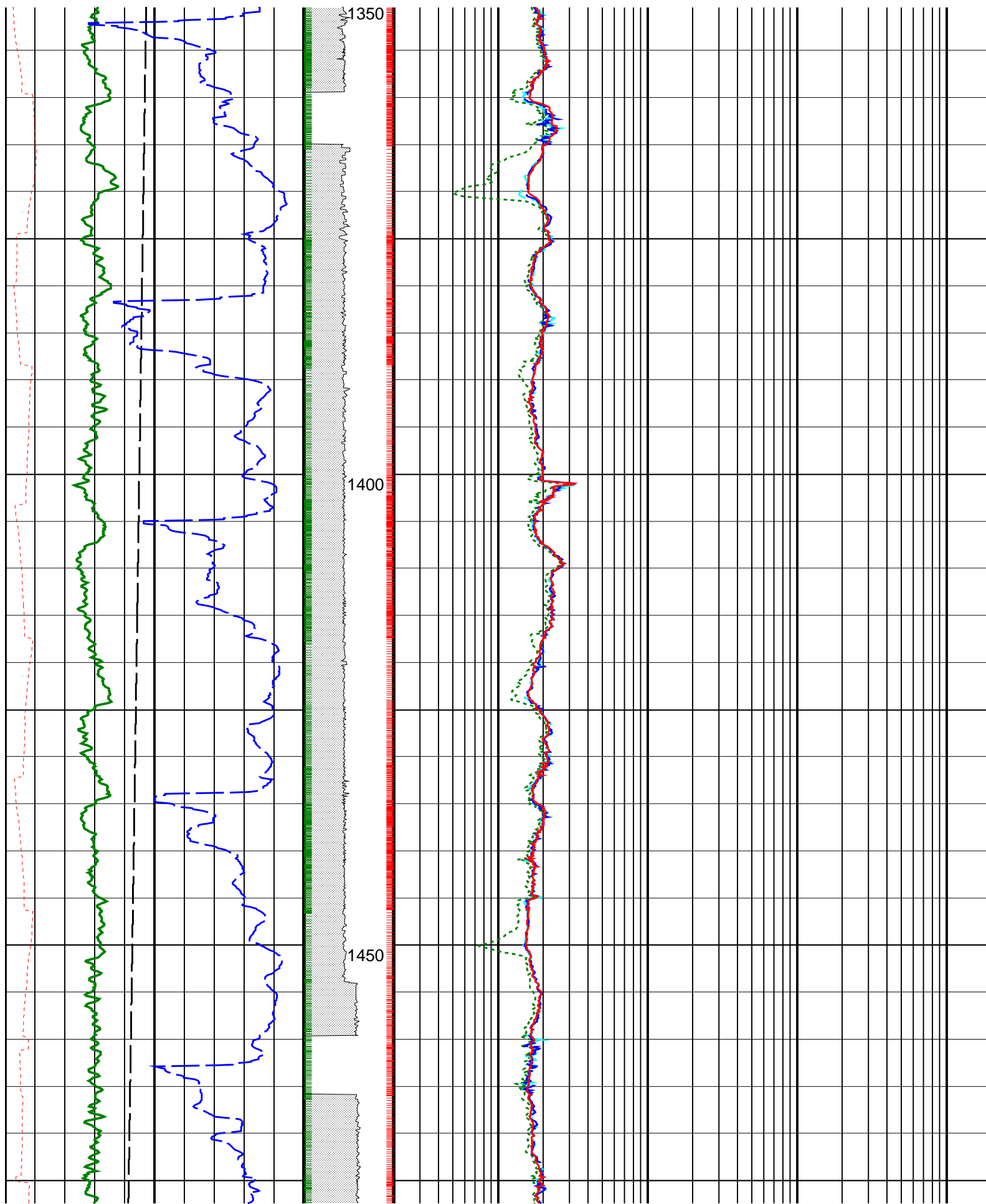


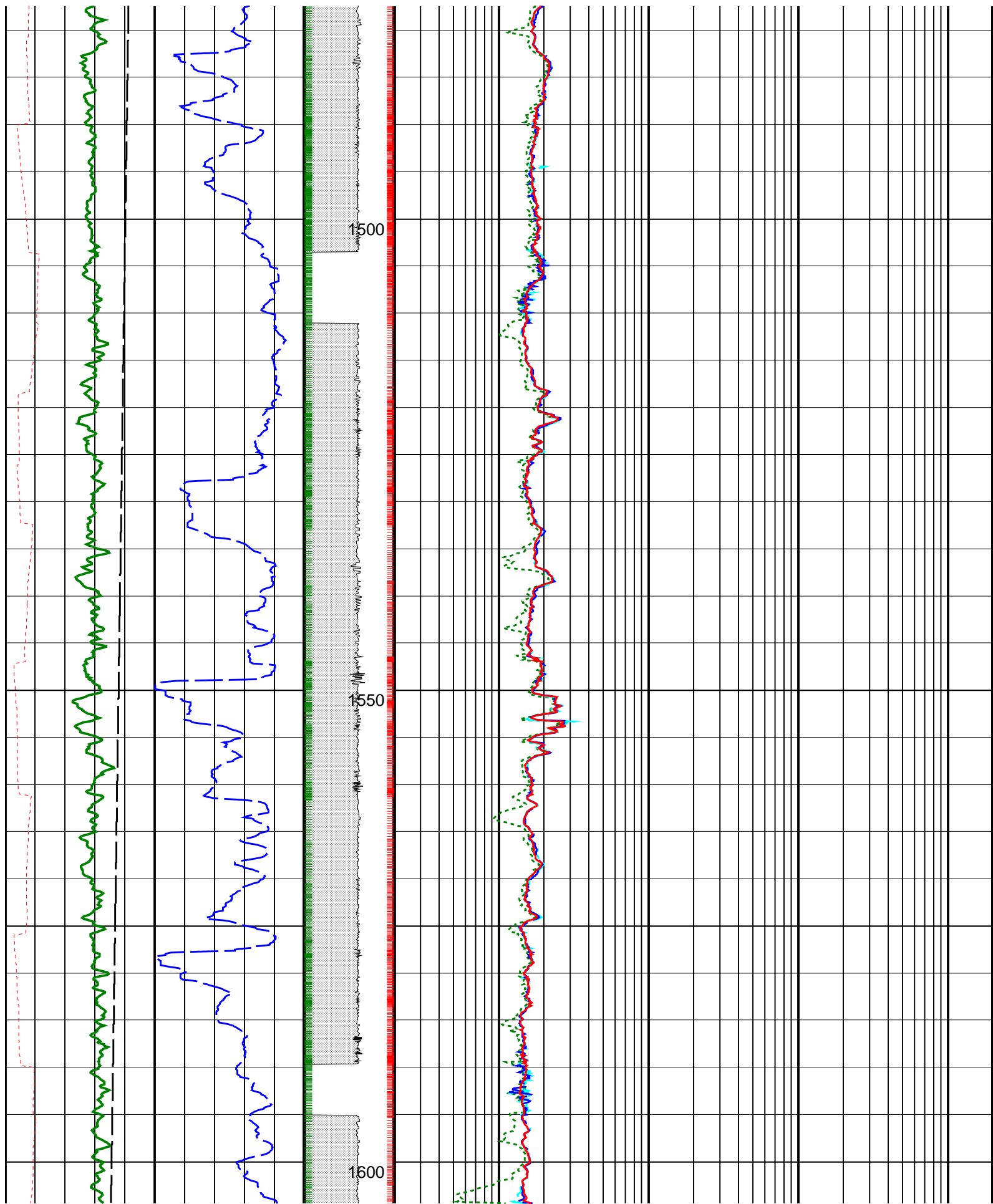


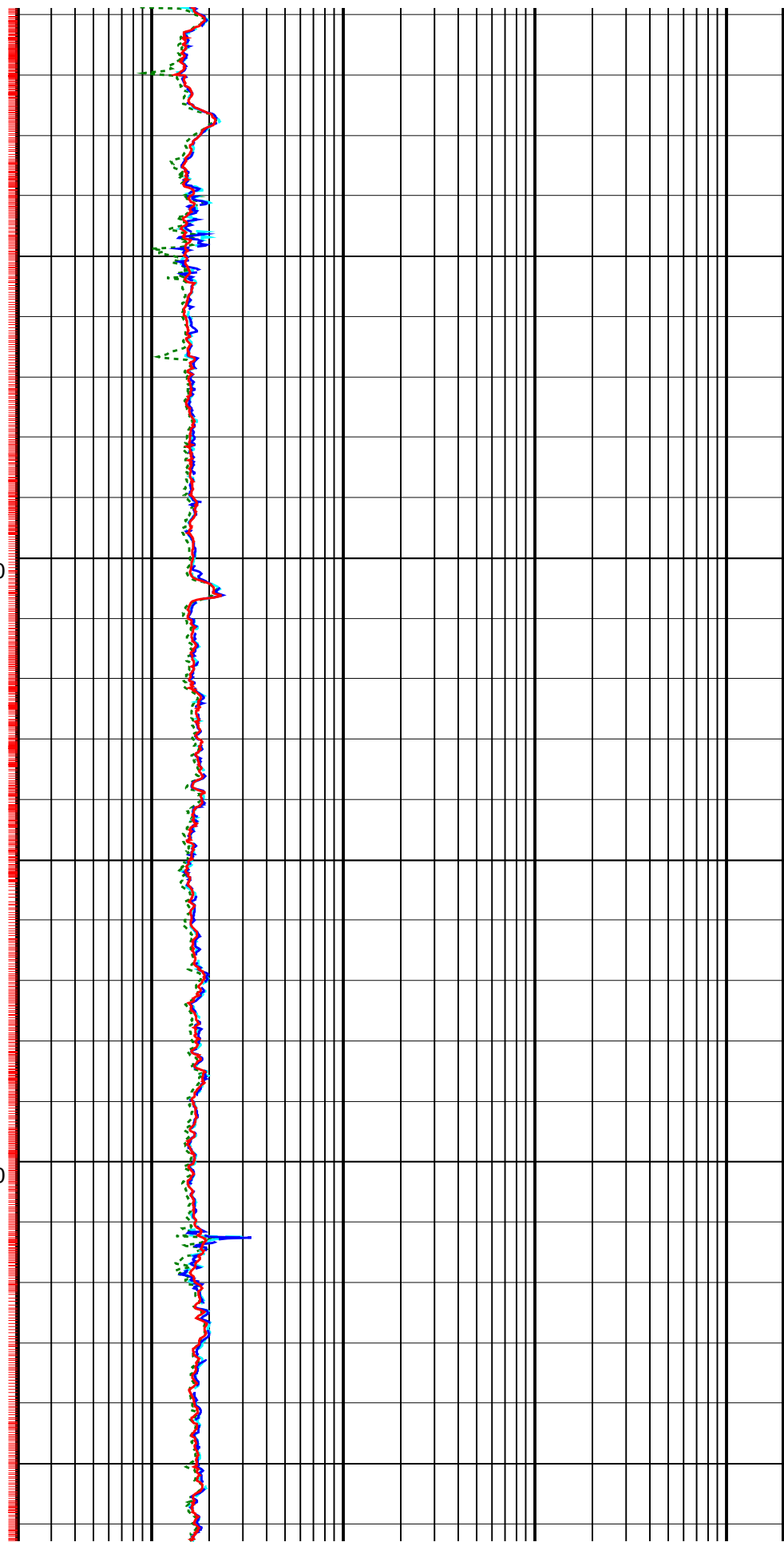
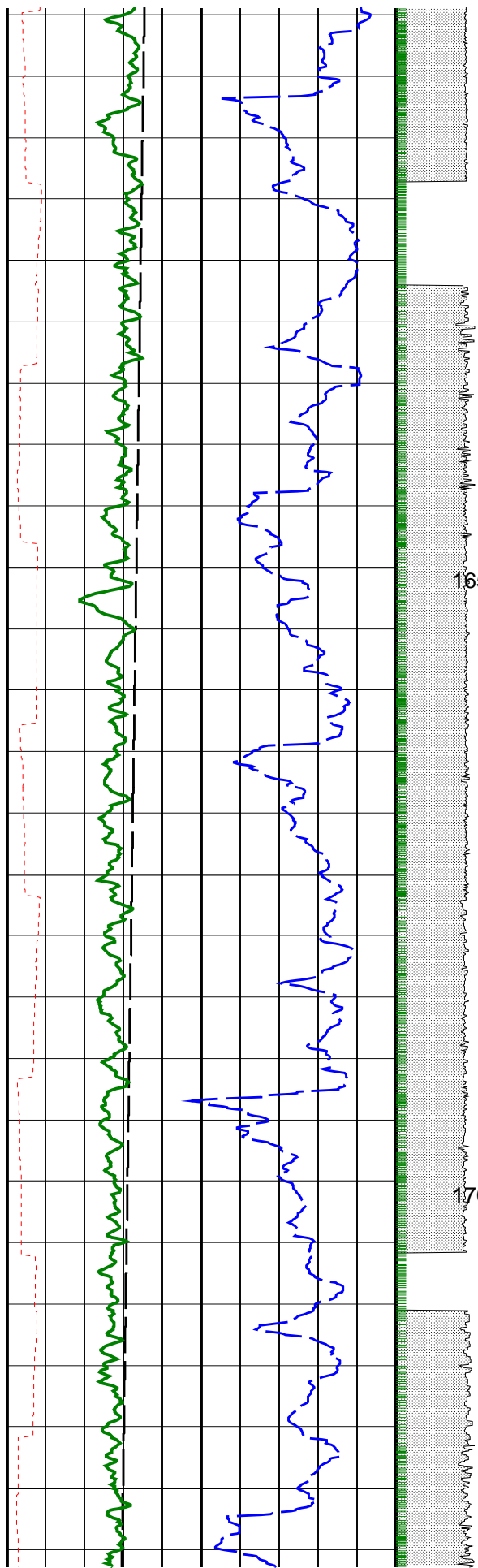


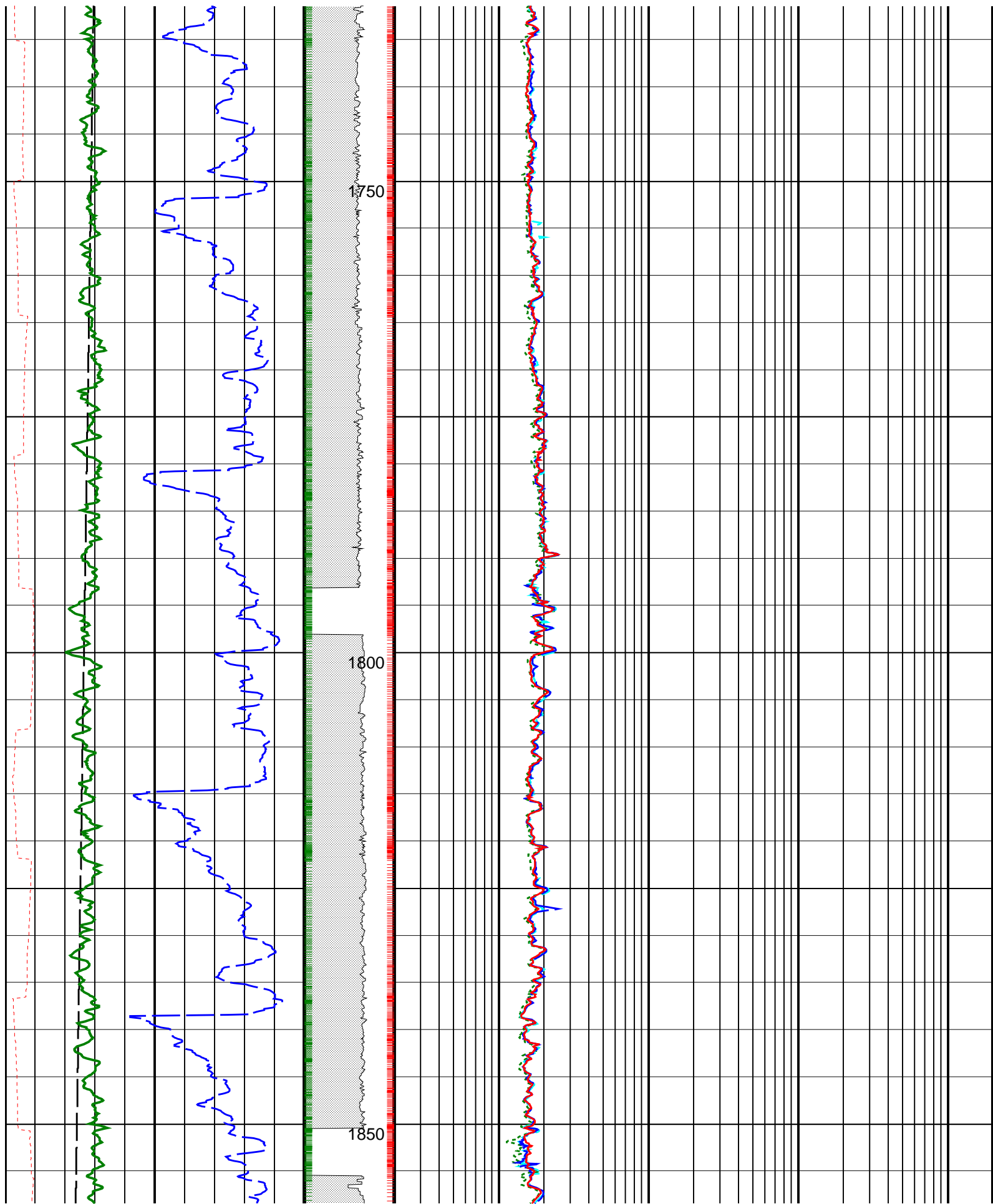


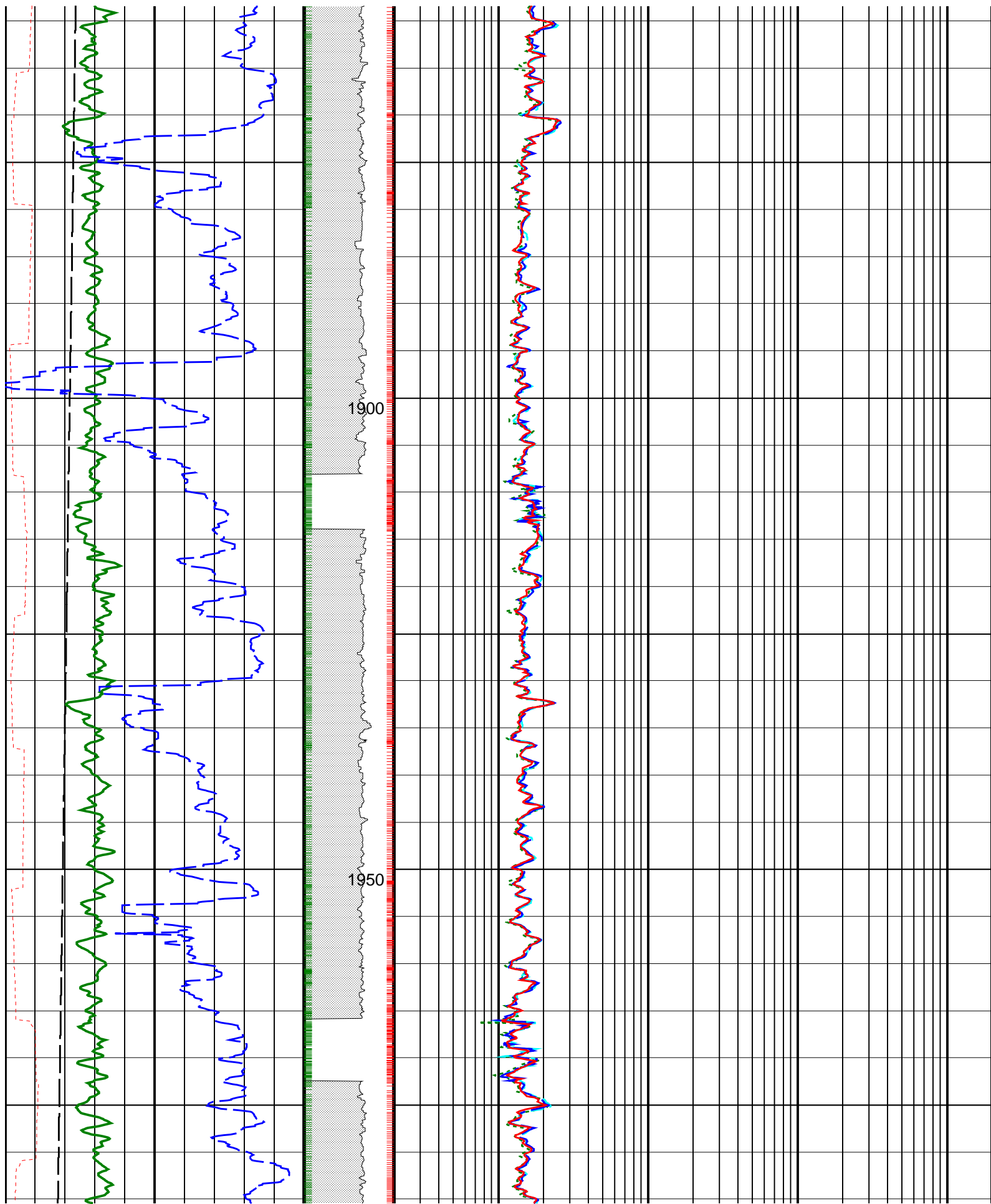


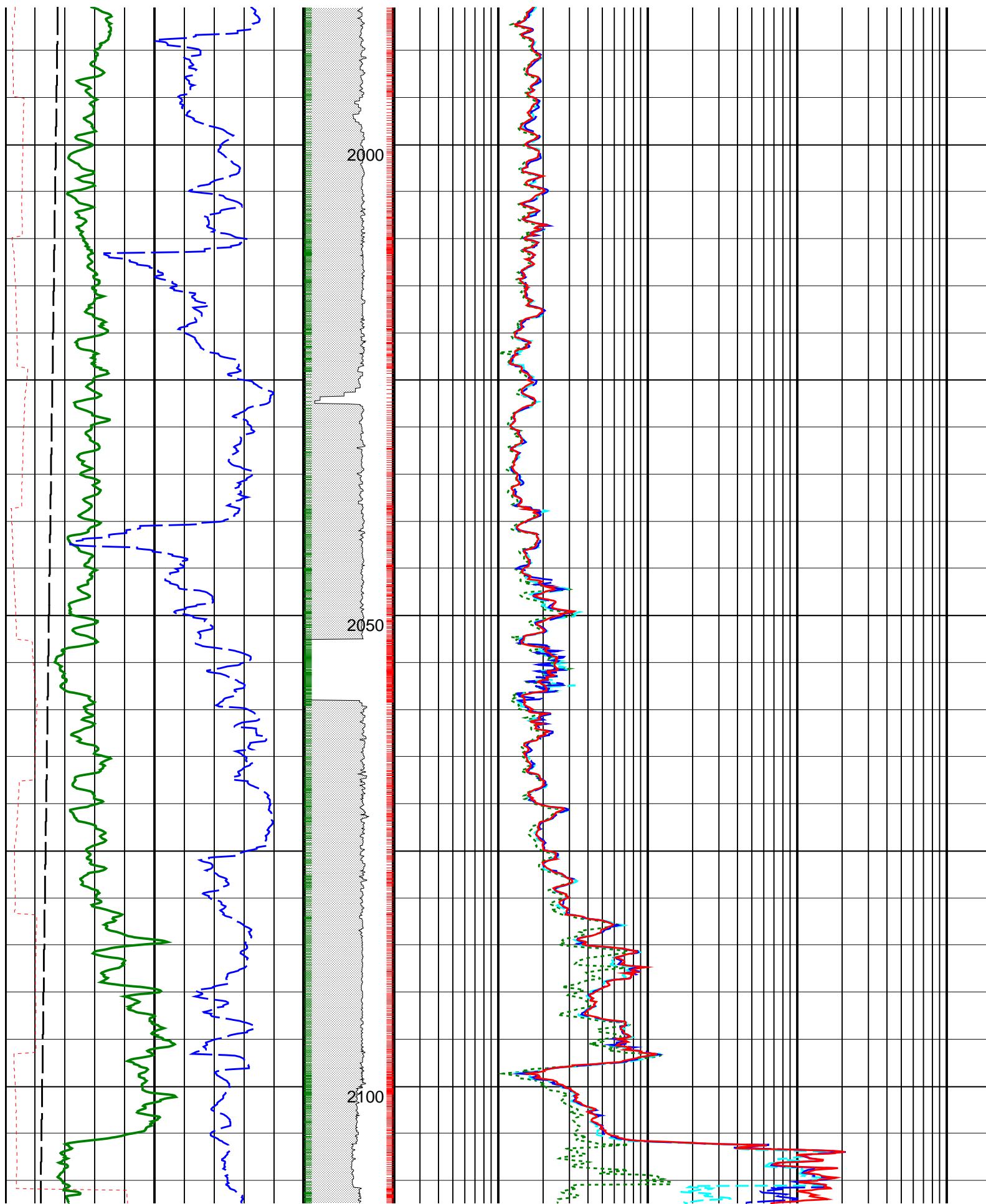


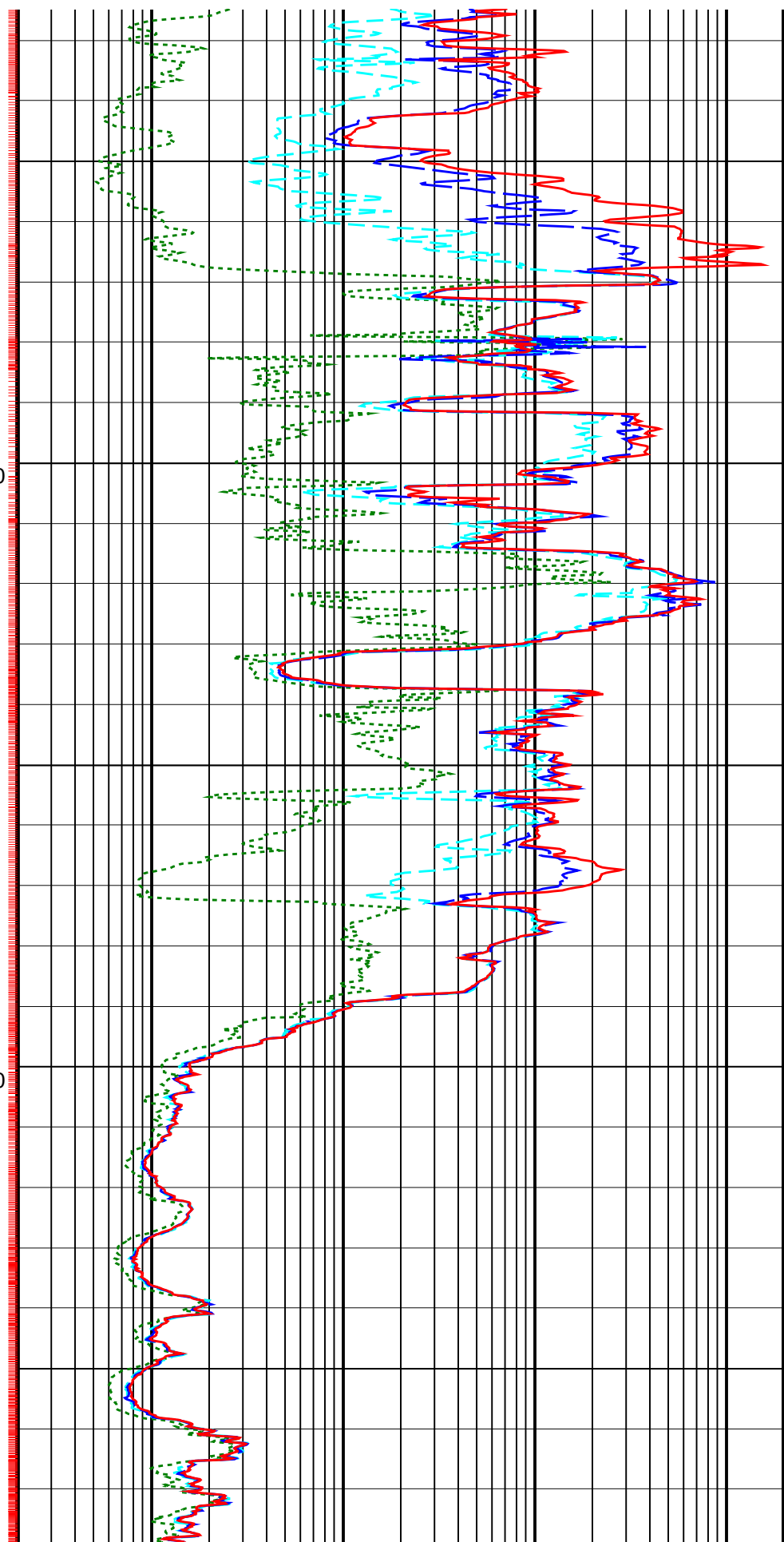
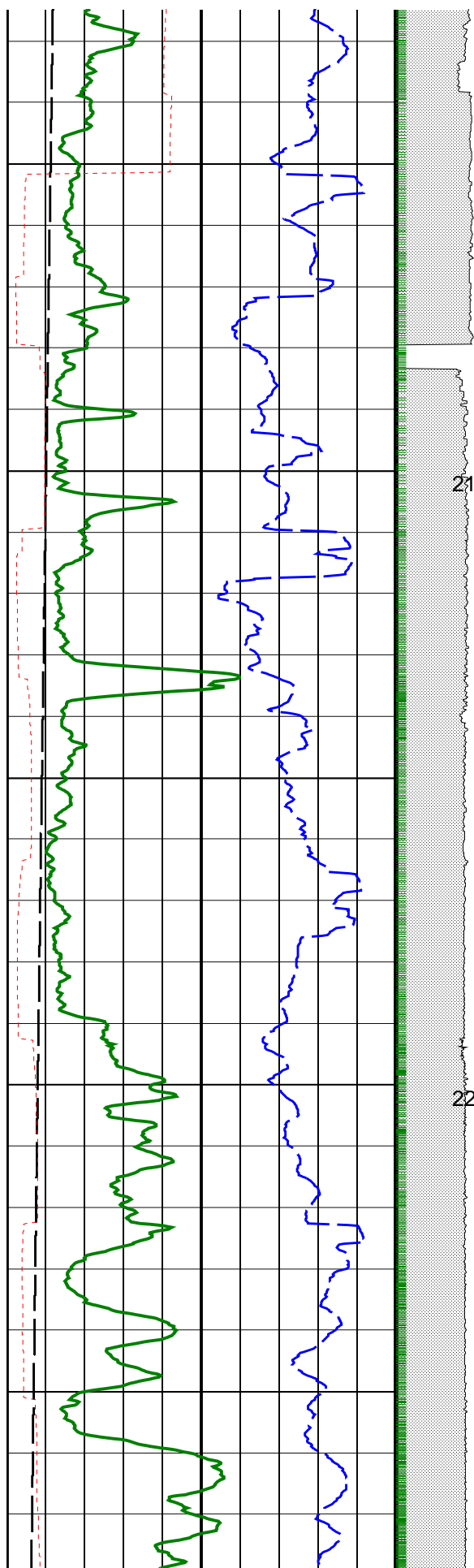


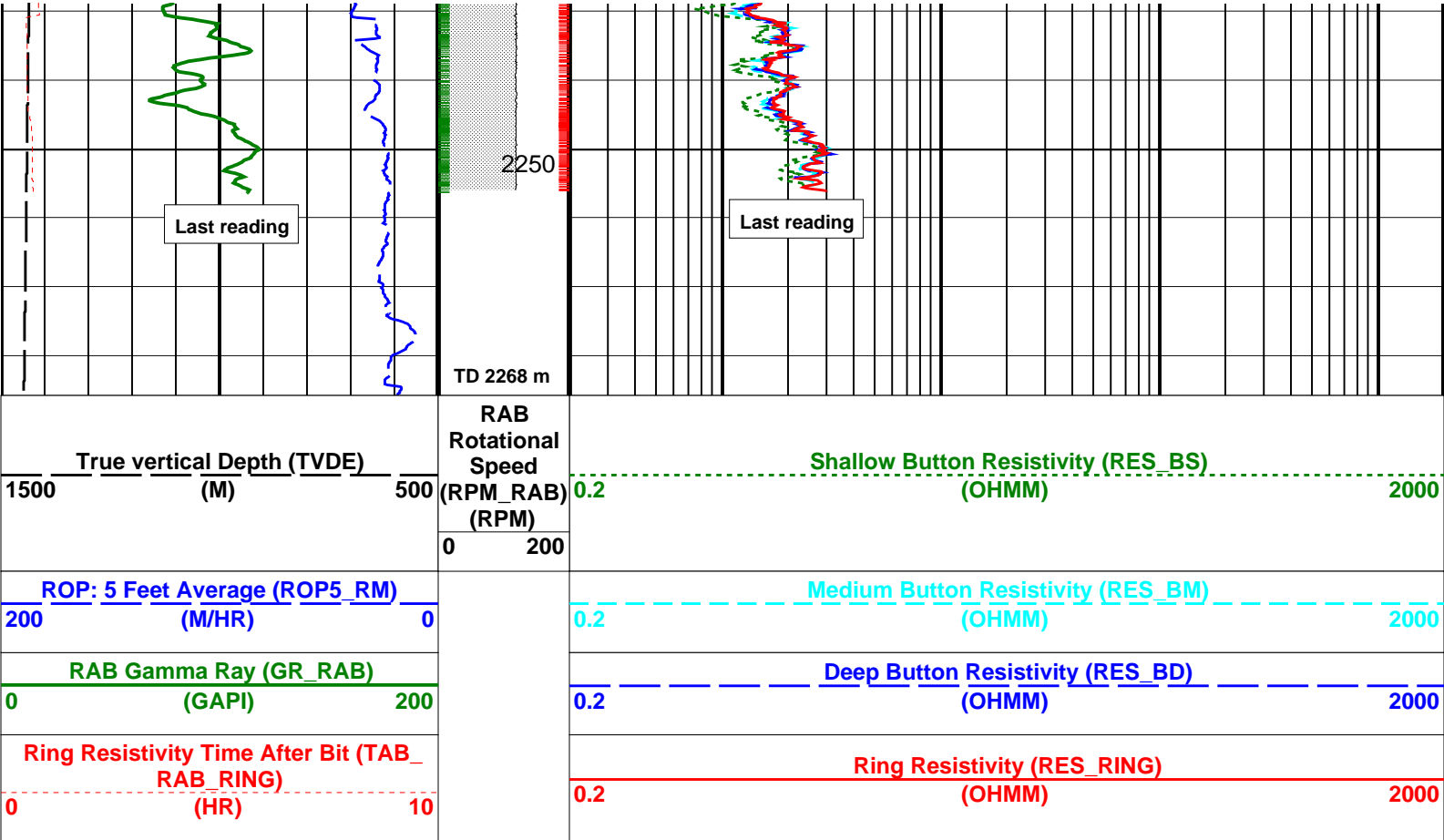












PIP SUMMARY			
└ Gamma Ray Samples			
└ Ring Samples			

IDEAL Version: ID6_1C_10			
IDF			
RAB	id6_1c_10	MWD_10	id6_1c_10
ADN	id6_1c_10		

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

Master	<div><div></div></div>	1.003	Master	<div><div></div></div>	0.9987	Master	<div><div></div></div>	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	<div><div></div></div>	1.001	Master	<div><div></div></div>	1.005	Master	<div><div></div></div>	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	<div><div></div></div>	0.8812
0.7500 (Minimum)	1.000 (Nominal)	1.250 (Maximum)

ANADRILL  
SCHLUMBERGER

Survey report      24-Jan-2002 04:41:48      Page    1 of 3

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)



Company: ESSO Australia Ltd.

Well: WTN-W48 A

Field: Tuna

Rig: NABORS 453

State: Victoria

**IDEAL** services from **Anadrill**

**GeoVISION Resistivity**  
**1 : 500 Measured Depth**  
**Recorded Mode**

**Schlumberger**