



Memory Log

Gamma Ray, Propagation Resistivity

Scale:

Company: Kerr-McGee Oil & Gas Onshore LP

1:240 MEASURED DEPTH

Well: Gobbler 34C-23HZ

Field: Wattenburg

County: Weld State: Colorado

Status:

Field Print

Surface Location:

Latitude: 40° 7' 45.768" N

Longitude: 104° 45' 17.629" W

Other Services:

Section: 22 TWN: 2N Range: 66W

Wellbore Survey

API Number: 05-123-36476

Permanent Datum (P.D.): Mean Sea Level Elevation: 0.00 ft.

Elevations:

Log Measured From: Drill Floor 5100.00 ft. Above P.D.

KB: N/A
DF: 5100.00 ft.
GL: 5084.00 ft.

Depth Reference: Driller's Depth

GL: 5084.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 7000.0 ft. Date From: 24/Jul/13 Dip Angle: 66.93° Azi Reference North: True

Bottom: 12027.0 ft. Date To: 30/Jul/13 Total Mag to Reference

Spud Date: 24/Jul/13 Field Strength: 52987.0 nT North Correction: 8.44°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1026.0 ft.	9.625 in.	36.00 lb/ft	Surface	1016.0 ft.
8.750 in.	1026.0 ft.	7953.0 ft.	7.000 in.	26.00 lb/ft	Surface	7927.0 ft.
6.125 in.	7953.0 ft.	12075.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based Mud	1026.0 ft.	12076.0 ft.	13.500 in.	1026.0 ft.	0.0° / 81.4°	0.1° / 213.5°
			8.750 in.	6927.0 ft.	0.4° / 233.5°	82.7° / 180.4°
			6.125 in.	4122.0 ft.	87.6° / 180.1°	89.6° / 179.0°
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage 2.20U4 Rpt: / Contractor: Xtreme 20 / Xtreme Coil Drilling Corp.

PATS 6.4.1.34 Job No: 5587288 / D&E

District: / Unit: RMD

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time				Circ.
							Top	Bottom	From	To	Start		End		Time
							(ft.)	(ft.)	(ft.)	(ft.)					
2	2	2	8.750	PDC	3.000	Steerable	7000.0	7899.0	1026.0	7953.0	24/Jul/2013	20:10	26/Jul/2013	20:25	43.6
3	3	3	6.125	PDC	3.000	Steerable	7899.0	12027.0	7953.0	12076.0	28/Jul/2013	09:00	30/Jul/2013	02:40	44.2

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Mark Dix	24 July 2013	30 July 2013	Adam Schlenz	24 July 2013	30 July 2013			

Witness

Name	LWD Run Number
Marvin Hackworth	1,2
Ricky Carroll	1,2

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (sec/qt)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
26 July 2013 08:00	1	7100.0	Water Based	10.2	43	8.2	N/A	3.5/88.2	Active Mud Pit	1700	0.0
26 July 2013 20:00	1	7940.0	Water Based	10.0	44	8.3	N/A	4.5/87.9	Active Mud Pit	1700	0.0
27 July 2013 08:00	1	7953.0	Water Based	10.1	45	8.2	N/A	4.5/87.5	Active Mud Pit	1800	0.0
28 July 2013 08:00	2	7953.0	Water Based	10.1	45	8.2	N/A	4.5/87.5	Active Mud Pit	1800	0.0
28 July 2013 20:00	2	9055.0	Water Based	9.9	42	8.3	N/A	4.5/88.2	Active Mud Pit	1800	0.0
29 July 2013 07:00	2	9962.0	Water Based	9.8	45	8.2	N/A	4.5/88.2	Active Mud Pit	1800	0.0
29 July 2013 20:00	2	11230.0	Water Based	10.0	42	8.5	N/A	5.0/87.0	Active Mud Pit	1800	0.0

Mud Resistivity Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Surface Temp (deg F)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg F)	Rm Ⓢ BHCT (ohm.m)	Rmf Ⓢ BHCT (ohm.m)	Rmc Ⓢ BHCT (ohm.m)
27/Jul/2013	17:55	2	7953.0	72	1.10	N/A	N/A	180	0.46	N/A	N/A
28/Jul/2013	13:20	2	8313.0	77	1.54	N/A	N/A	182	0.66	N/A	N/A
29/Jul/2013	01:00	2	9560.0	75	1.60	N/A	N/A	206	0.60	N/A	N/A
29/Jul/2013	13:10	2	10611.0	75	1.56	N/A	N/A	217	0.56	N/A	N/A
30/Jul/2013	00:15	2	11793.0	74	1.57	N/A	N/A	225	0.53	N/A	N/A

Mnemonics

Curve	Description	Units
ROPA	Rate of Penetration, 3.0 ft. Avg	ft/hr
GRIM	Gamma Ray Data Point Indicator	unitless
GRAM	Gamma Ray – Apparent, 0.5 ft. Avg	API
GRAUFM	Gamma Ray – Apparent, Up	API
GRADFM	Gamma Ray – Apparent, Down	API
RPCHM	Resistivity Phase – Corrected – 2MHz	ohm.m
RPCLM	Resistivity Phase – Corrected – 400kHz	ohm.m
RACHM	Resistivity Attenuation – Corrected – 2MHz	ohm.m
RACLM	Resistivity Attenuation – Corrected – 400kHz	ohm.m
RPTHM	Resistivity Time Since Drilled	min
RPSIHM	Resistivity Phase Short Space Sliding Indicator – 2MHz	unitless
CACLM	Conductivity Attenuation – Corrected – 400kHz	mmho/m
TCDM	Downhole Temperature	degF

Equipment and Service Data

LWD	Tool Joint	Control	Motor	Bit	Mud	Misc
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LWD	Tool	Serial	Measurement	Bit	Max	Min
Run No.		Number		Offset (ft.)	O.D. (in.)	I.D. (in.)
2	DIR	12422312	Directional	56.93	6.750	3.250
2	SRIG	12606956	Gamma	53.51	6.750	3.250
3	CS	10623618	-	75.30	5.000	1.750
3	BCPM	10167370	Telemetry	64.21	5.000	1.750
3	STAB	11826085	-	61.09	5.625	1.750
3	OTK	12891650	Directional	55.21	5.066	1.750
3	OTK	12891650	Resistivity	49.24	7.031	2.165
3	OTK	12891650	Gamma	42.05	5.066	1.750
3	OTK	12891650	Pressure	44.68	5.066	1.750
3	CS	12161723	-	36.77	5.000	1.750

Service and Tool Mnemonics

Mnemonic	Name	Description
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
DIR	Directional	Wellbore directional survey
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module
STAB	Stabilizer	Stabilizer assembly
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA

Comments

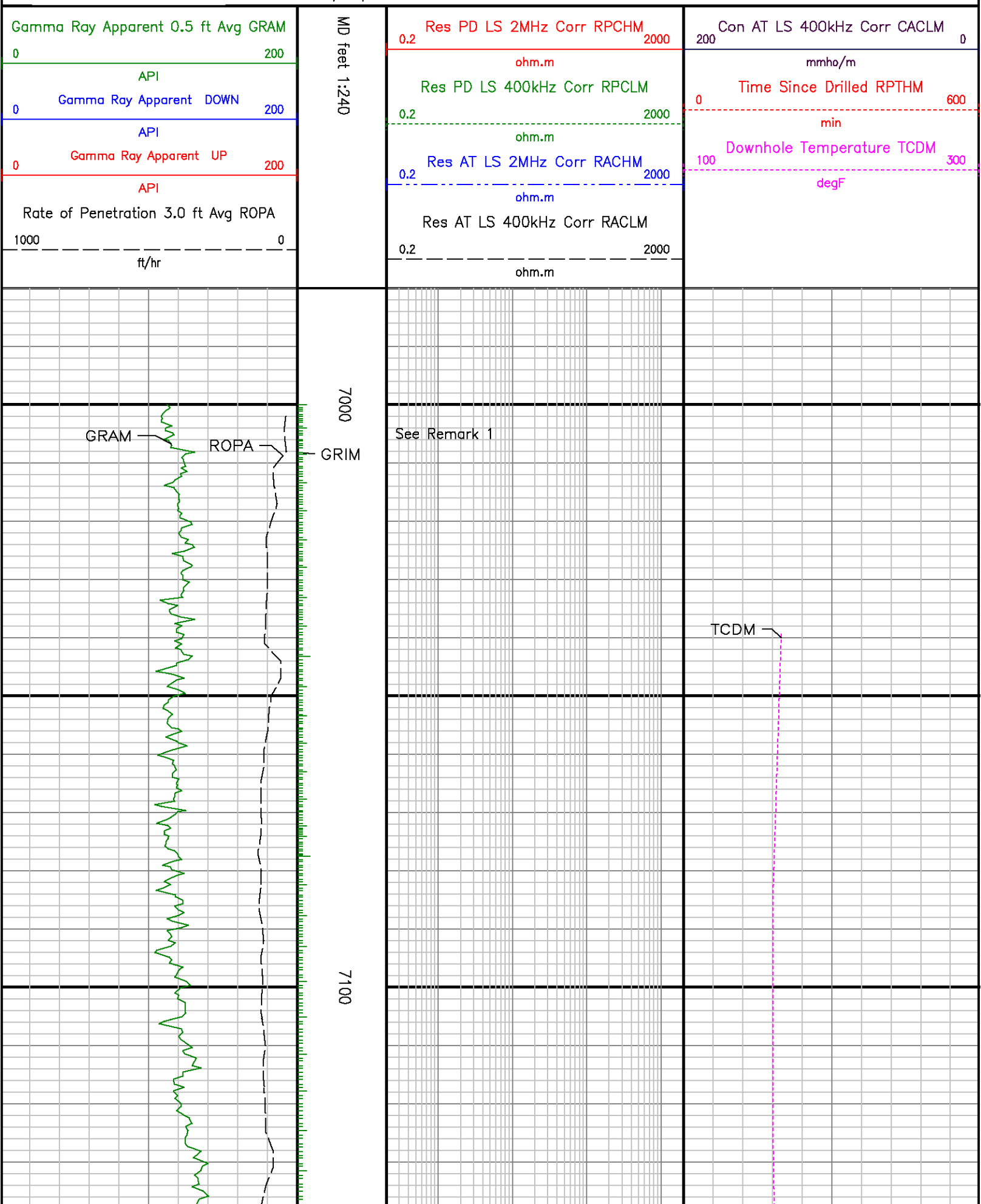
<p>(1) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1026 to 7953 feet MD (1026 to 7535 feet TVD).</p> <p>(2) Baker Hughes LWD run 2 utilized 4 3/4 inch OnTrak services (Multiple Propagation Resistivity, Gamma Ray, and Directional) behind a 6 1/8 inch bit and steerable assembly from 7953 to 12075 feet MD (7535 to 7537 feet TVD).</p> <p>(3) A sliding indicator is shown to the right edged of track 2 as a heavy line. The indicator has been depth-shifted to the resistivity sensor offset to correspond with resistivity data acquired while sliding.</p>
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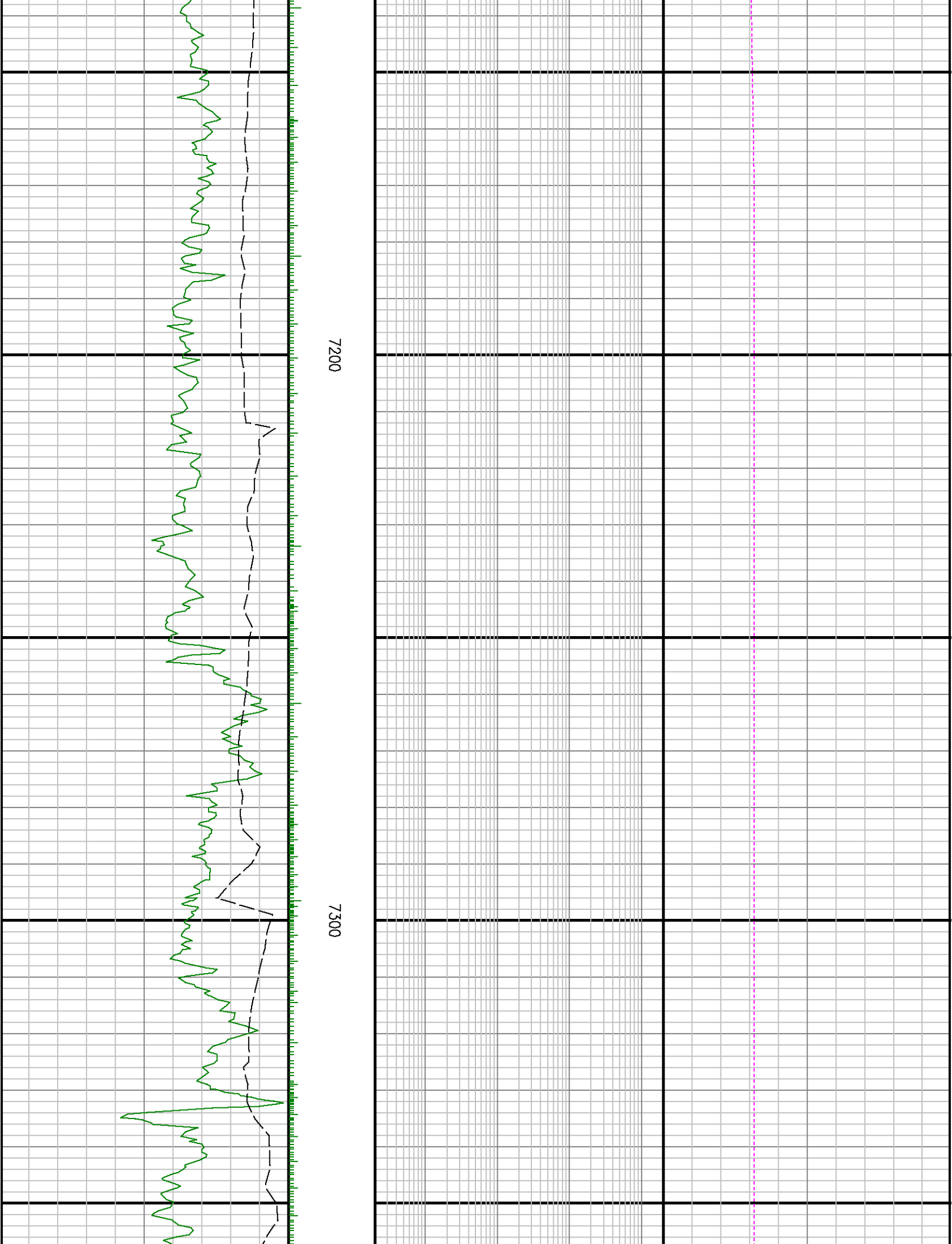
Remarks

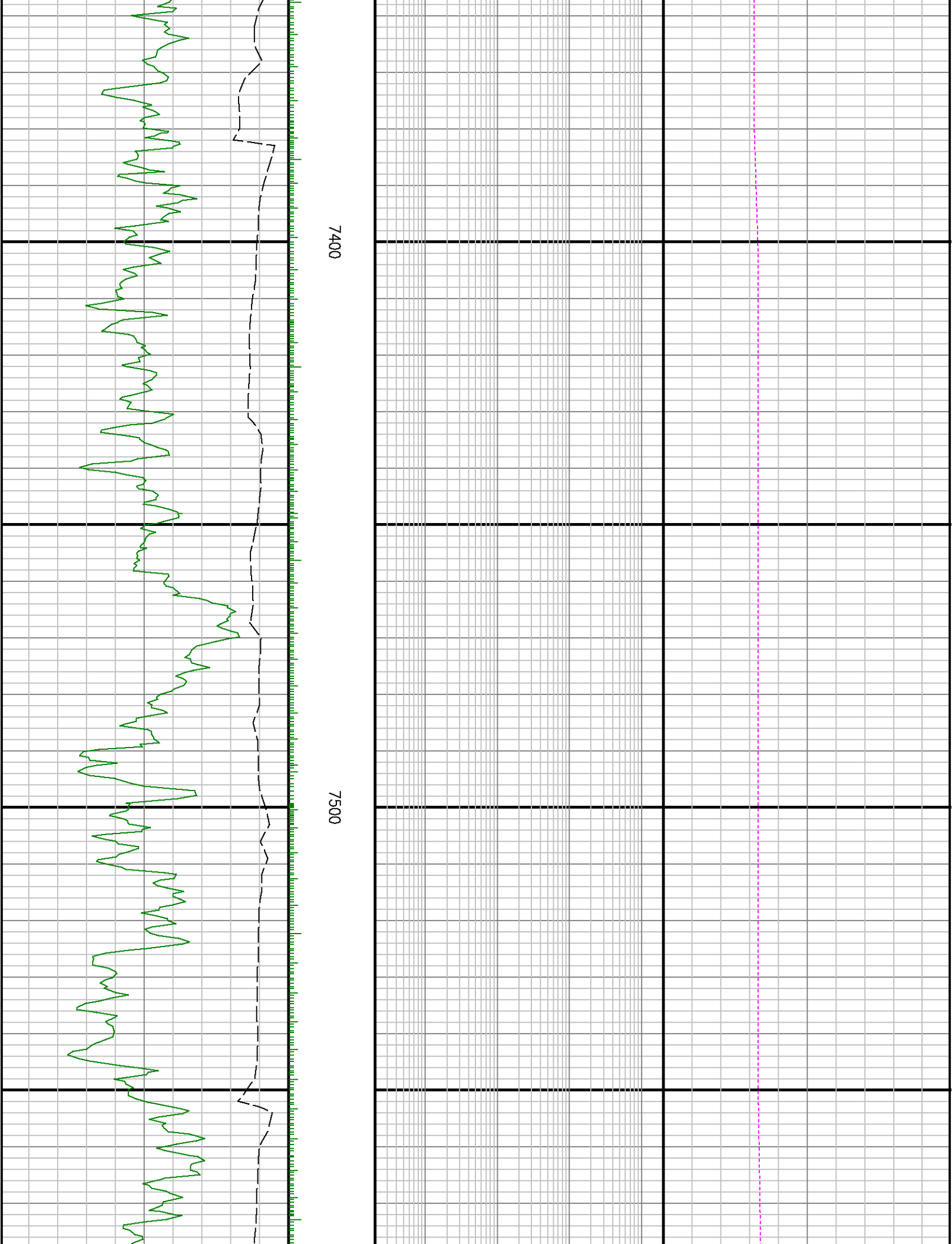
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	7000	8.750	1	Began logging gamma ray on the first slide of the build section at 7000 feet MD (6927 feet TVD)
2	7900	8.750	2	The interval from 7899 to 7953 feet MD (7531 to 7535 feet TVD) was logged more than 10 hours after being drilled due to a trip out of the hole for casing and cement operations, and to pickup the lateral assembly.
3	12030	6.125	2	The interval from 12027 to 12075 feet MD (7537 feet TVD) was not logged up due to sensors offsets to bit at TD.

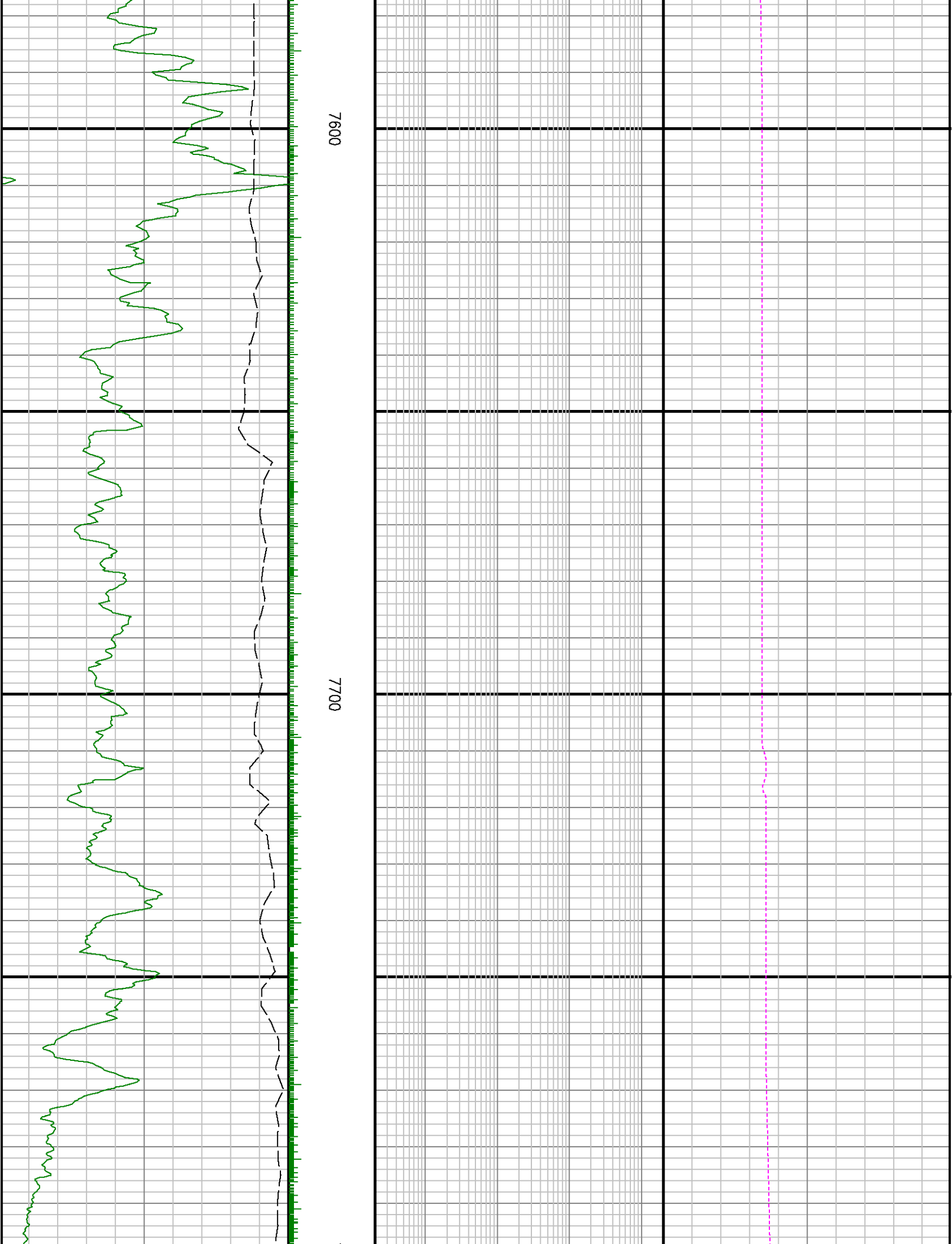


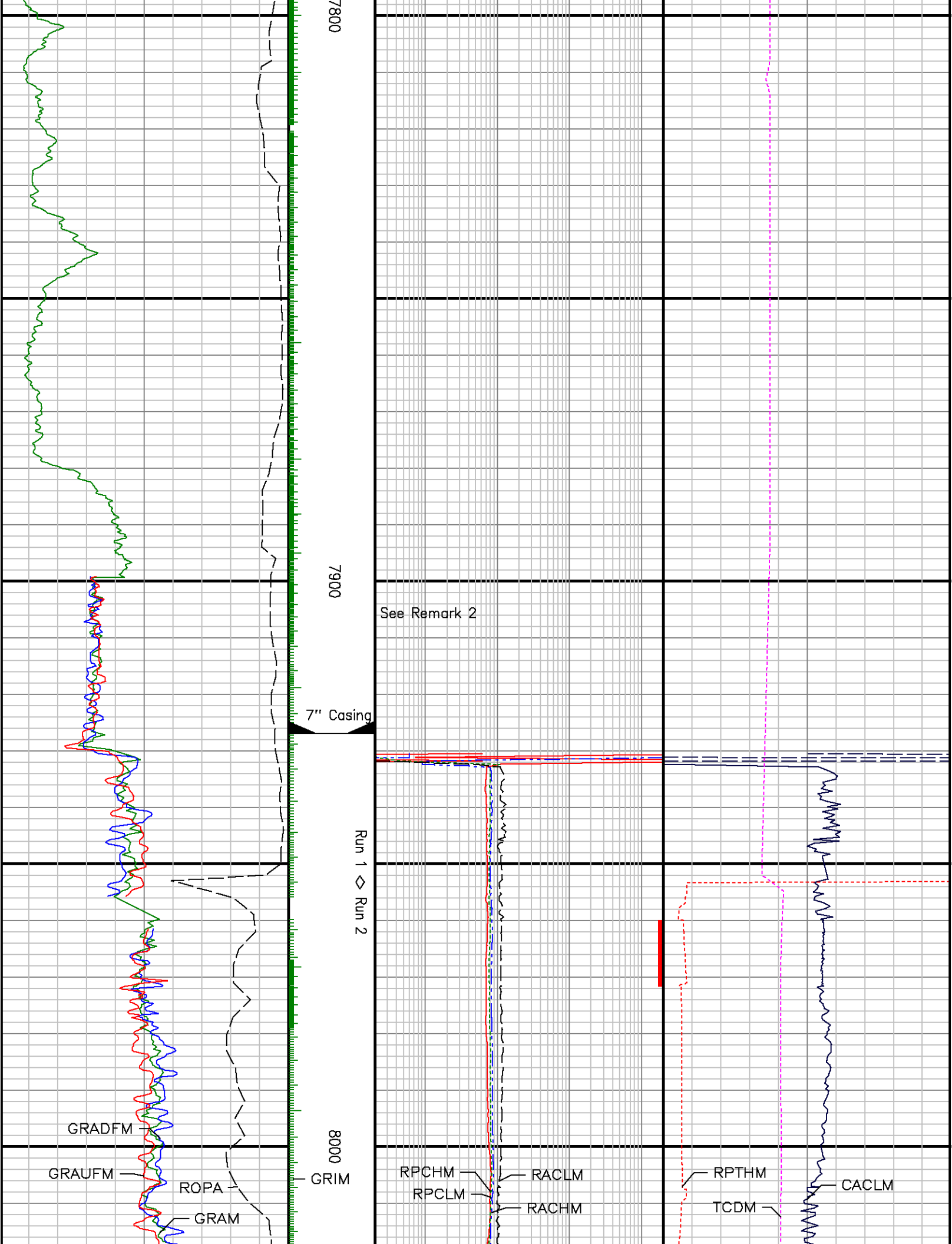
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Well : Gobbler 34C-23HZ
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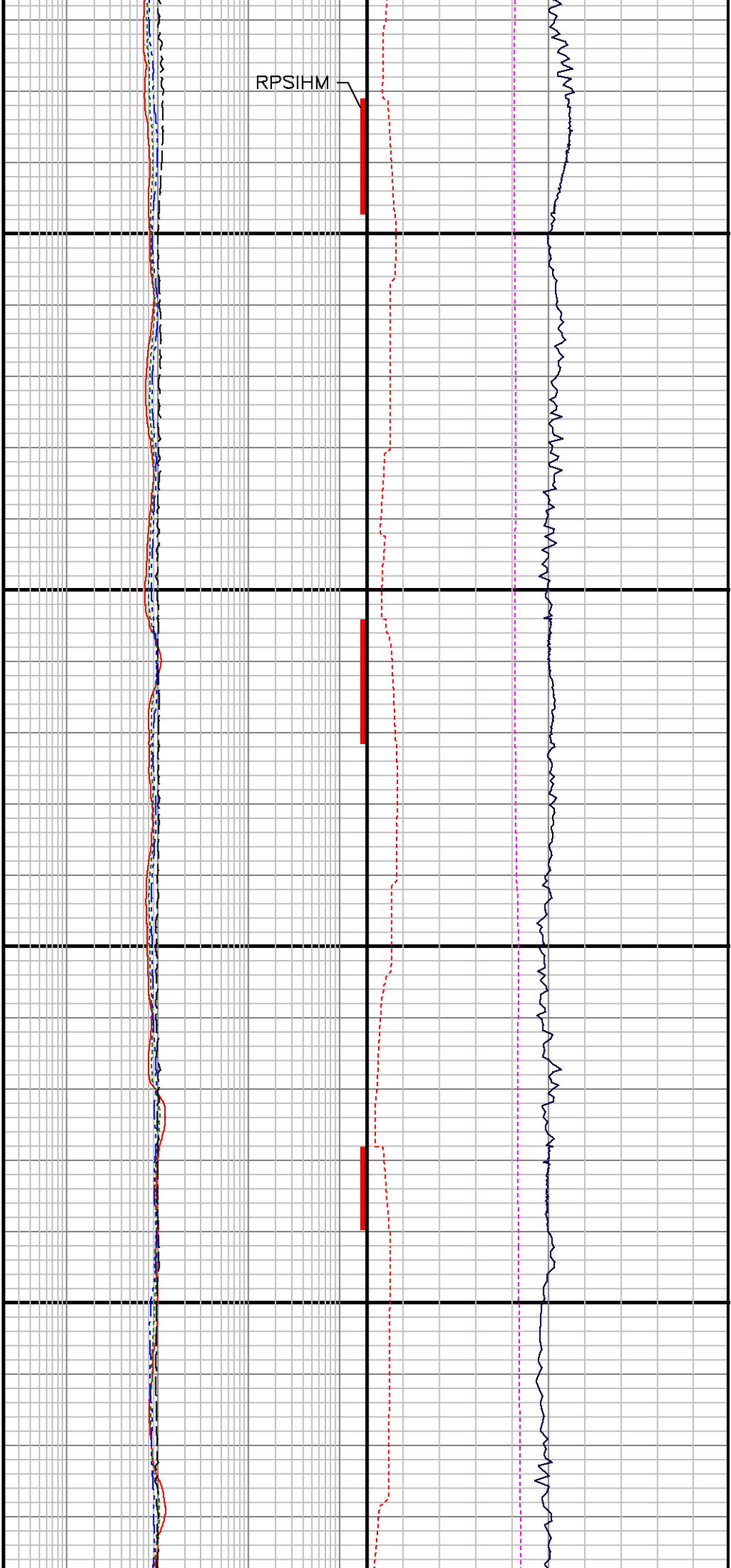






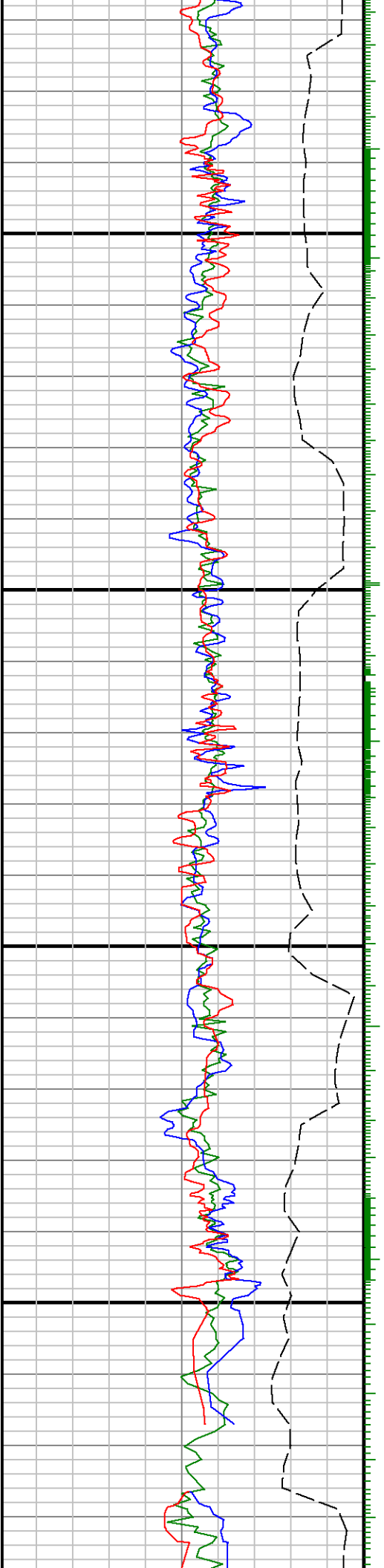


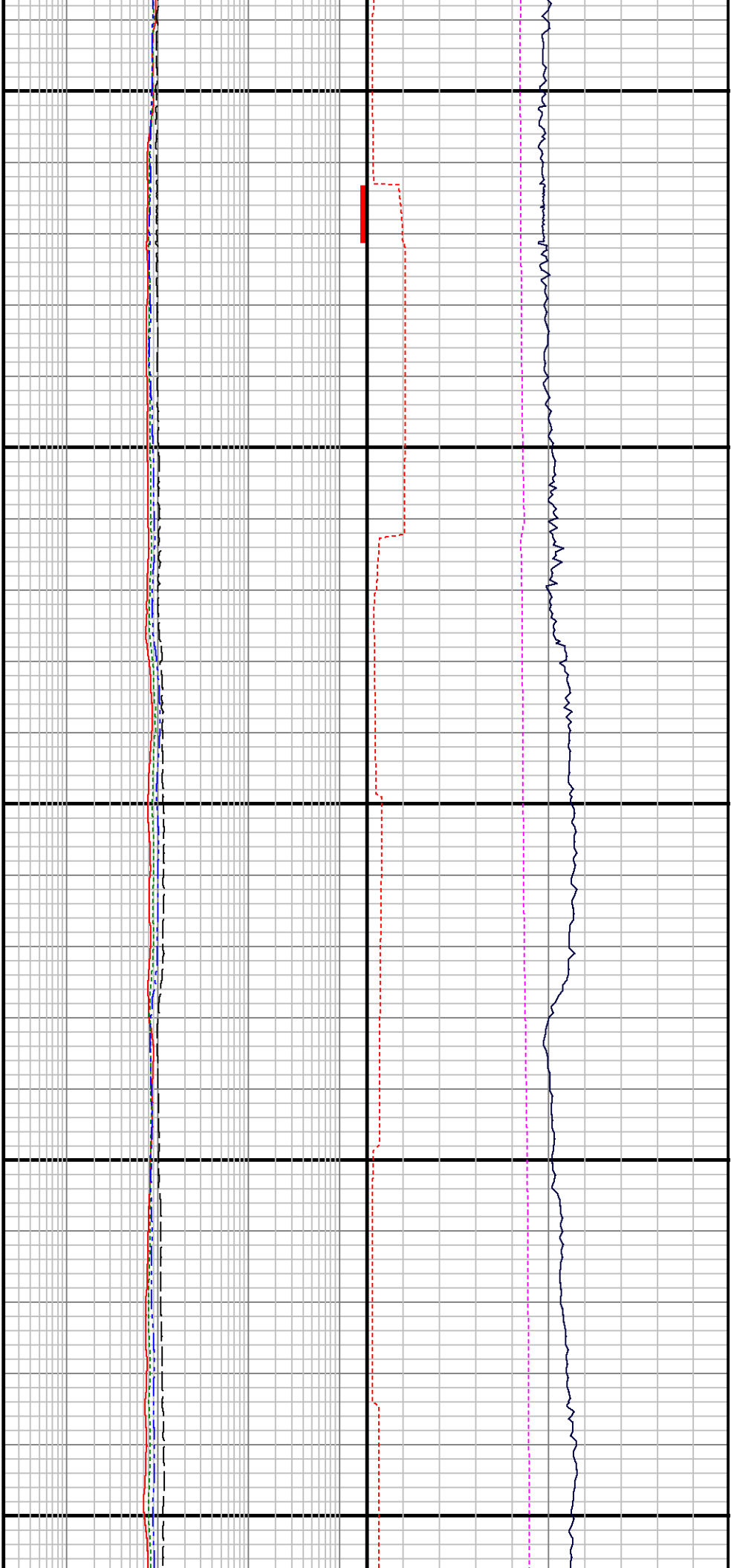




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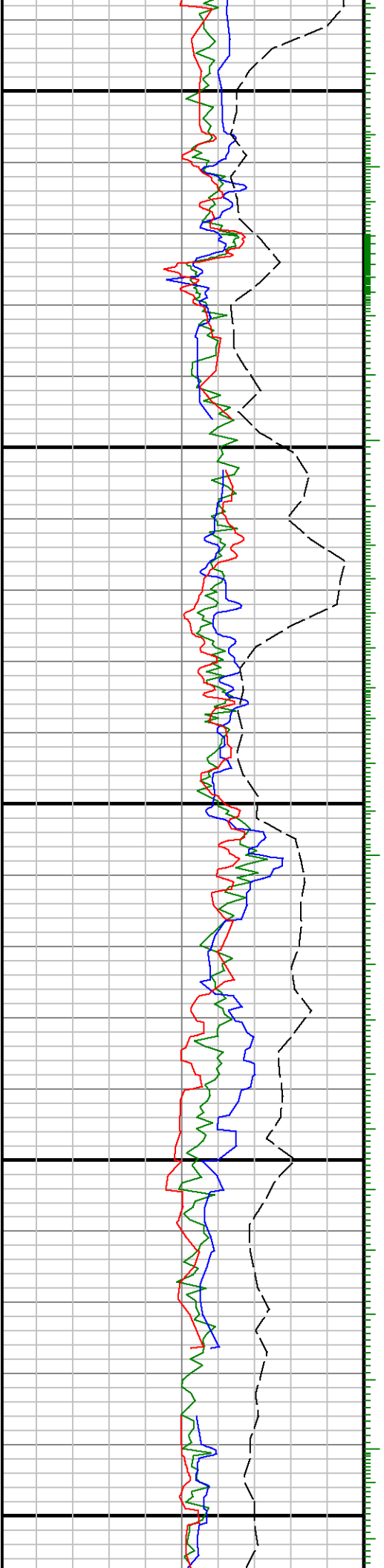
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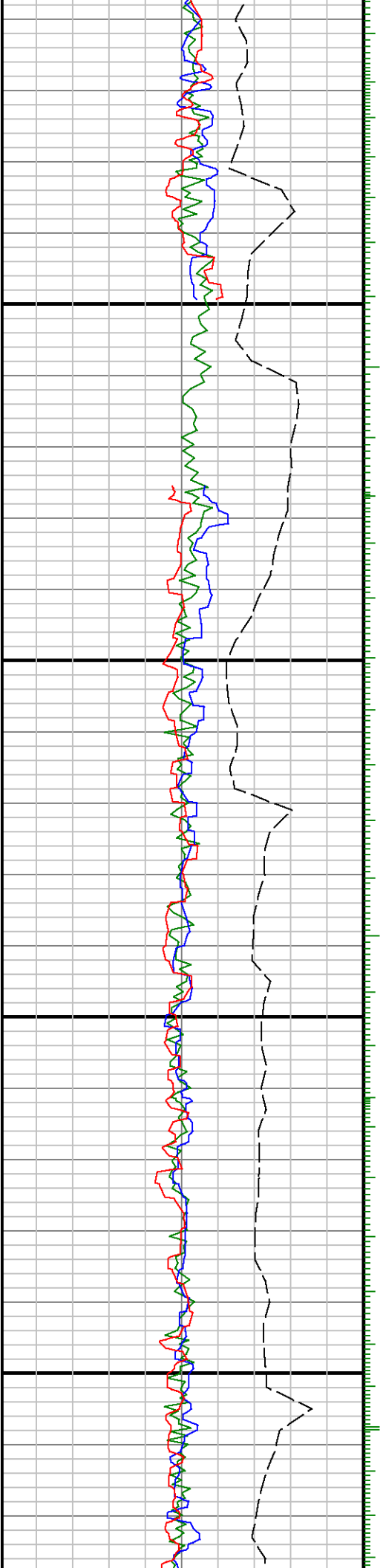




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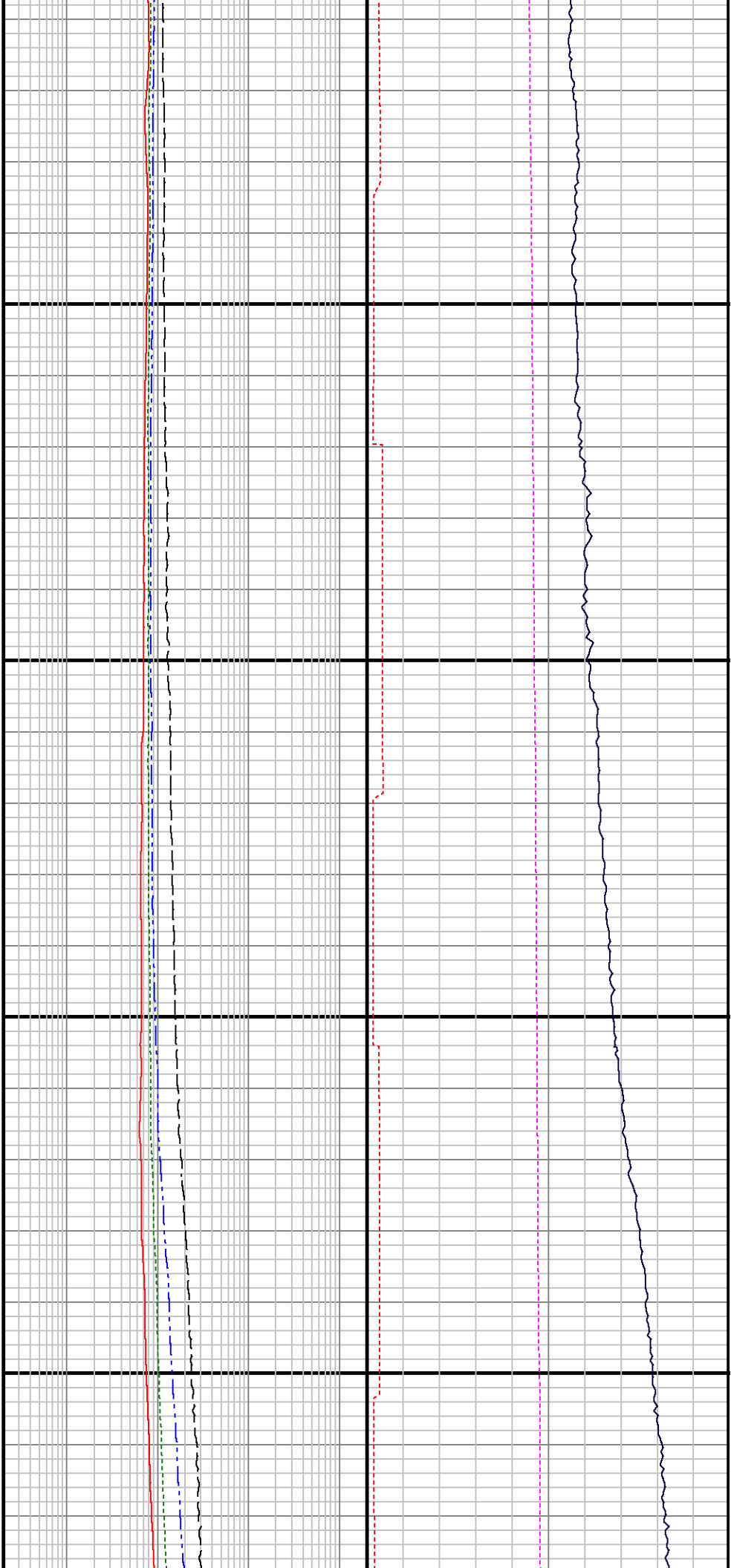
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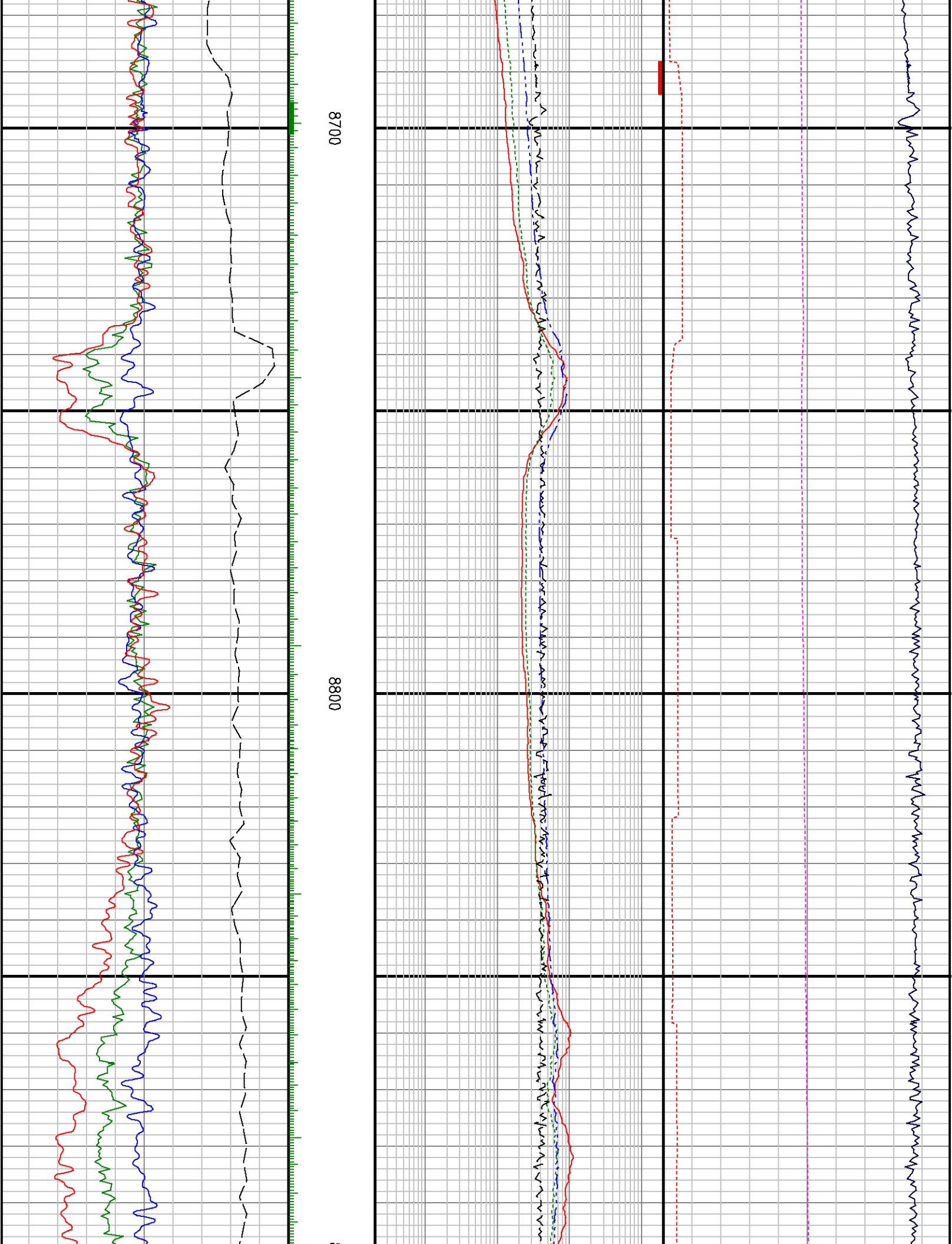


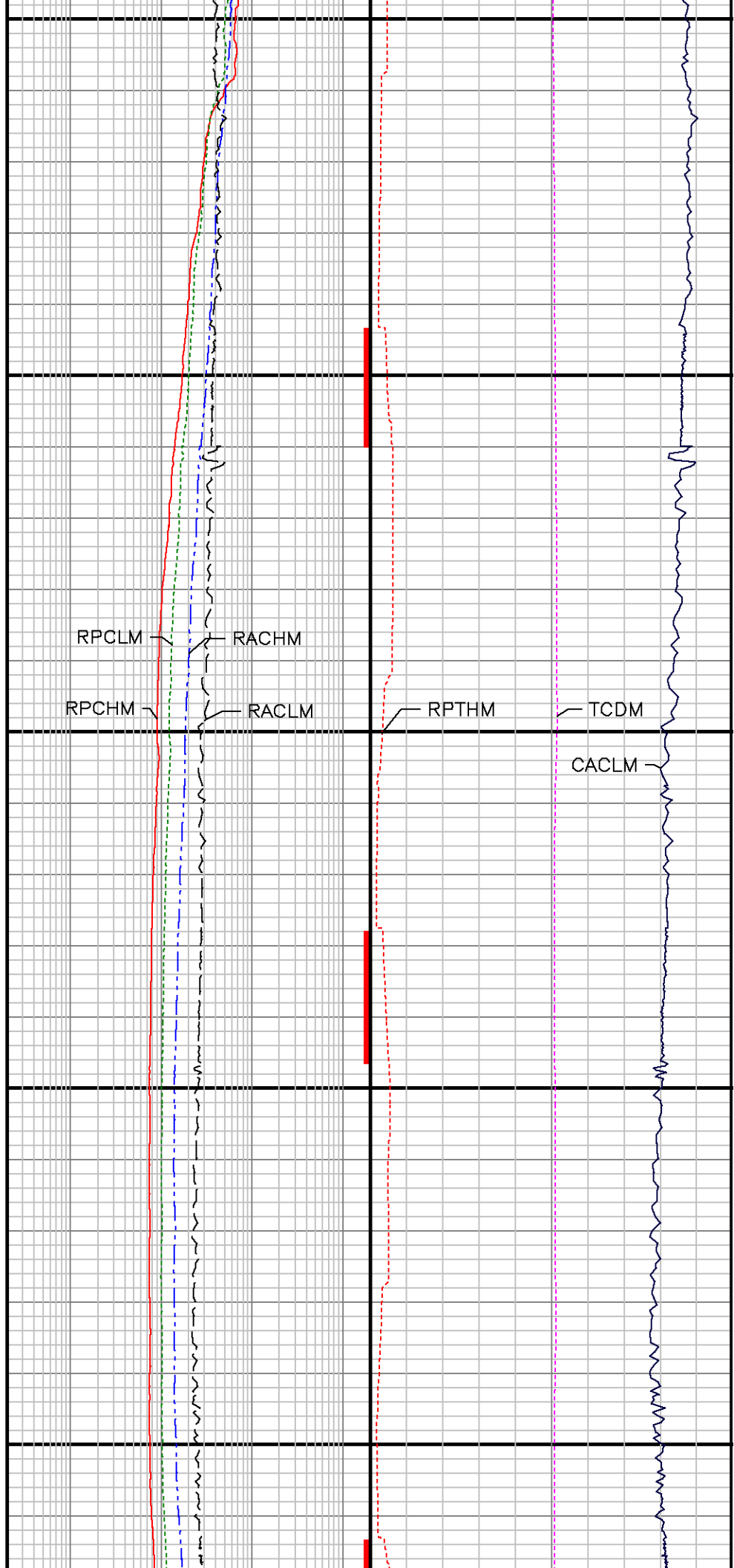
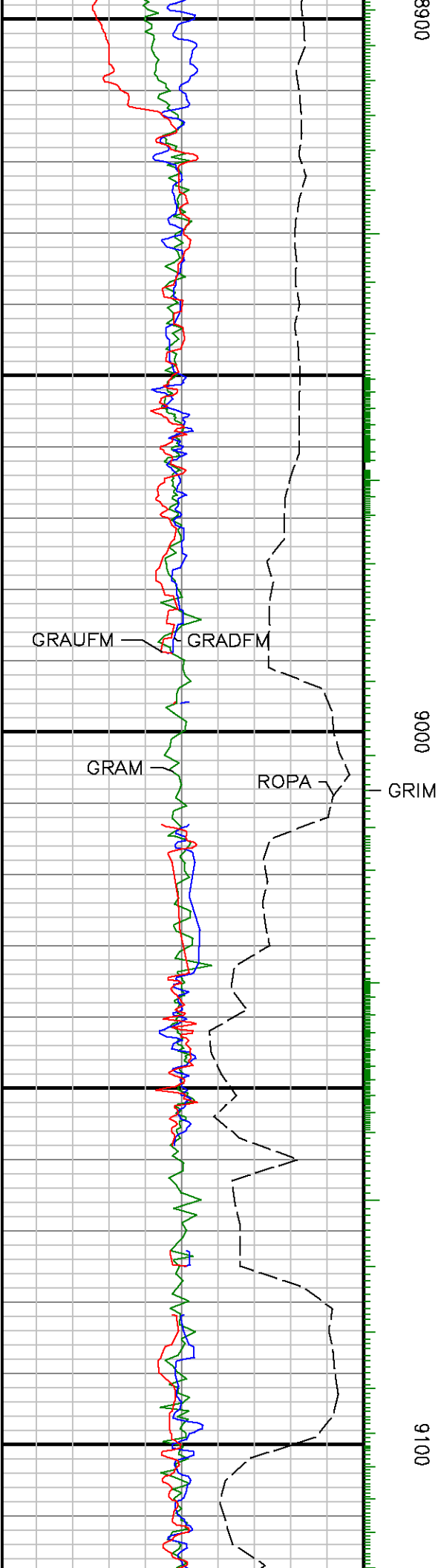


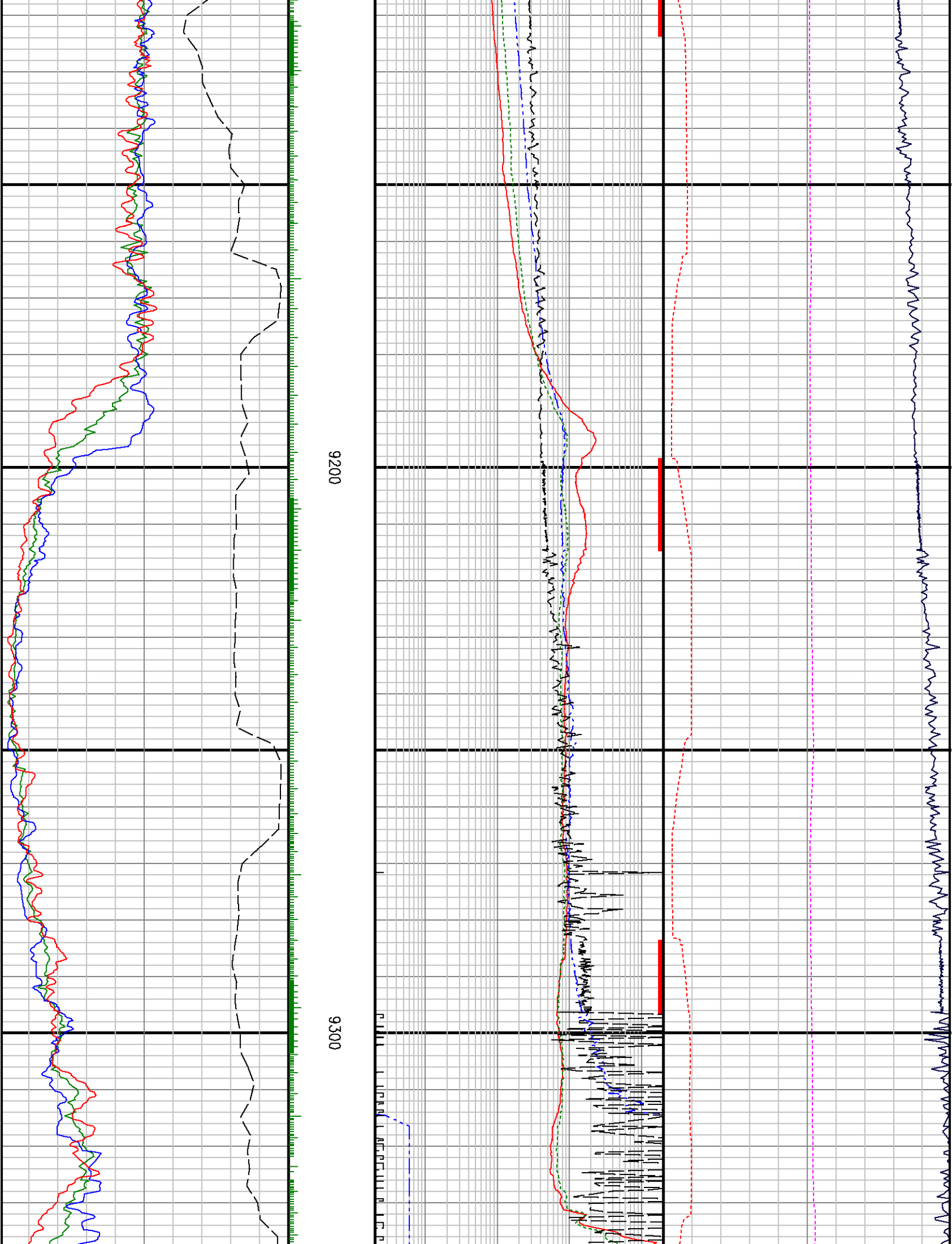
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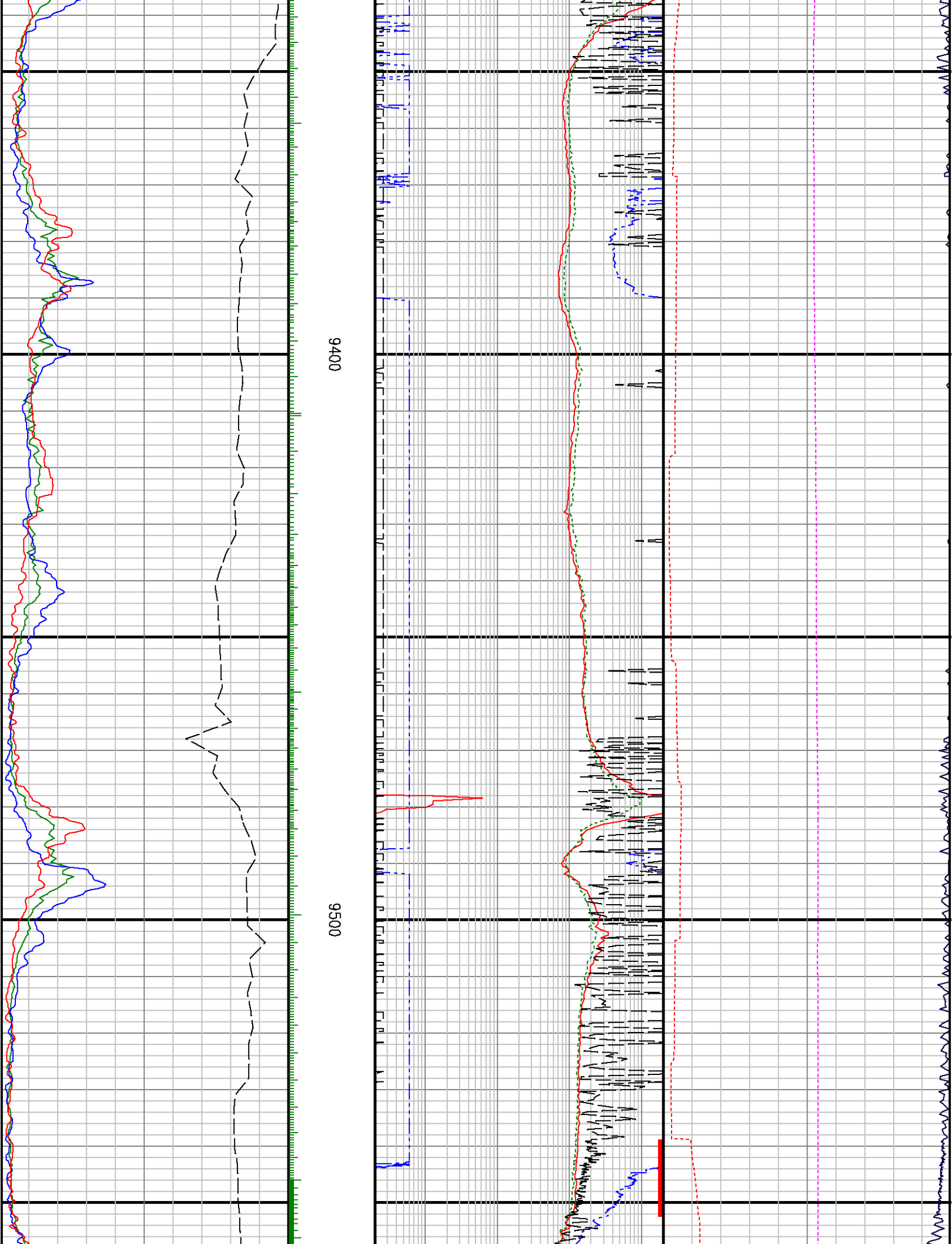
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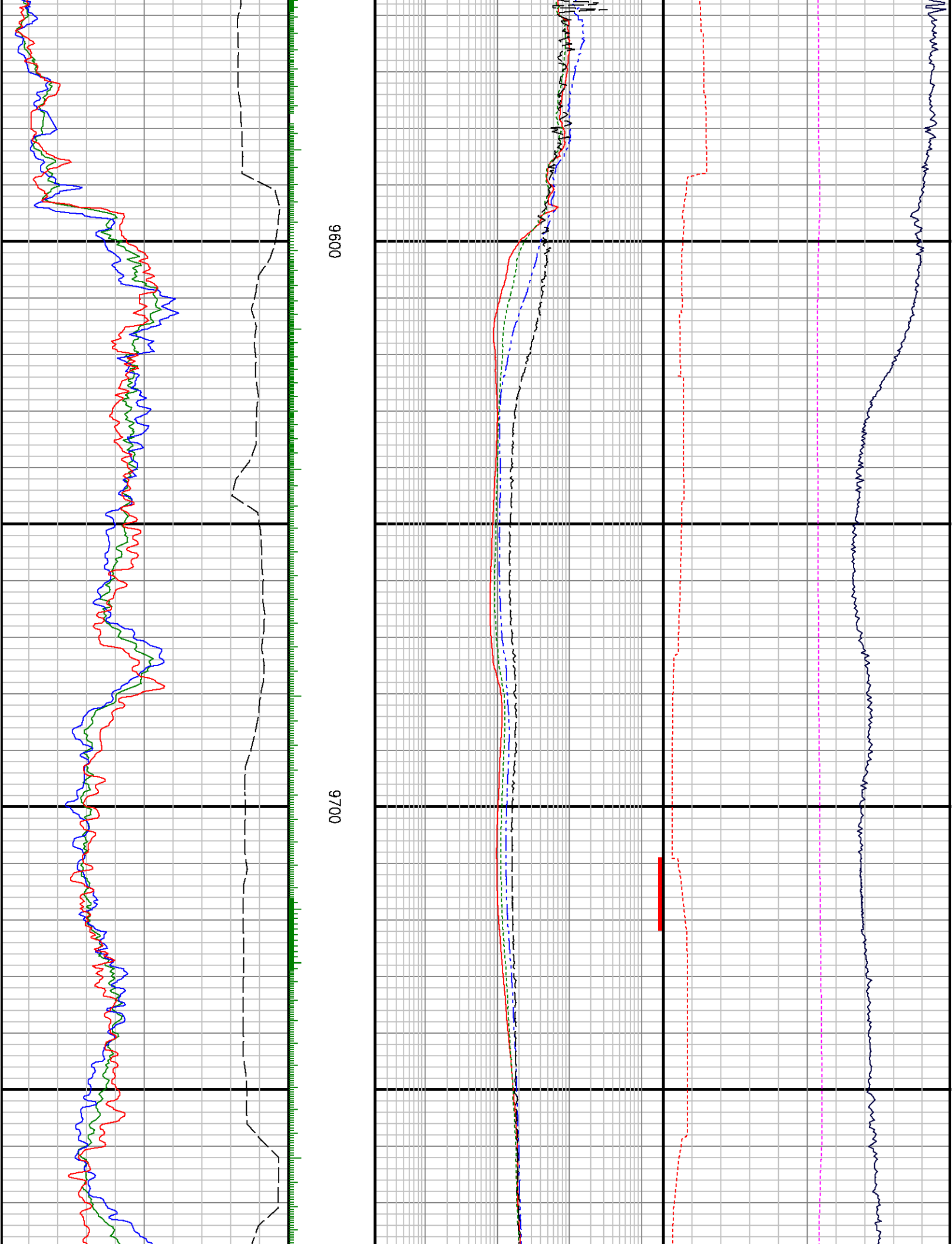


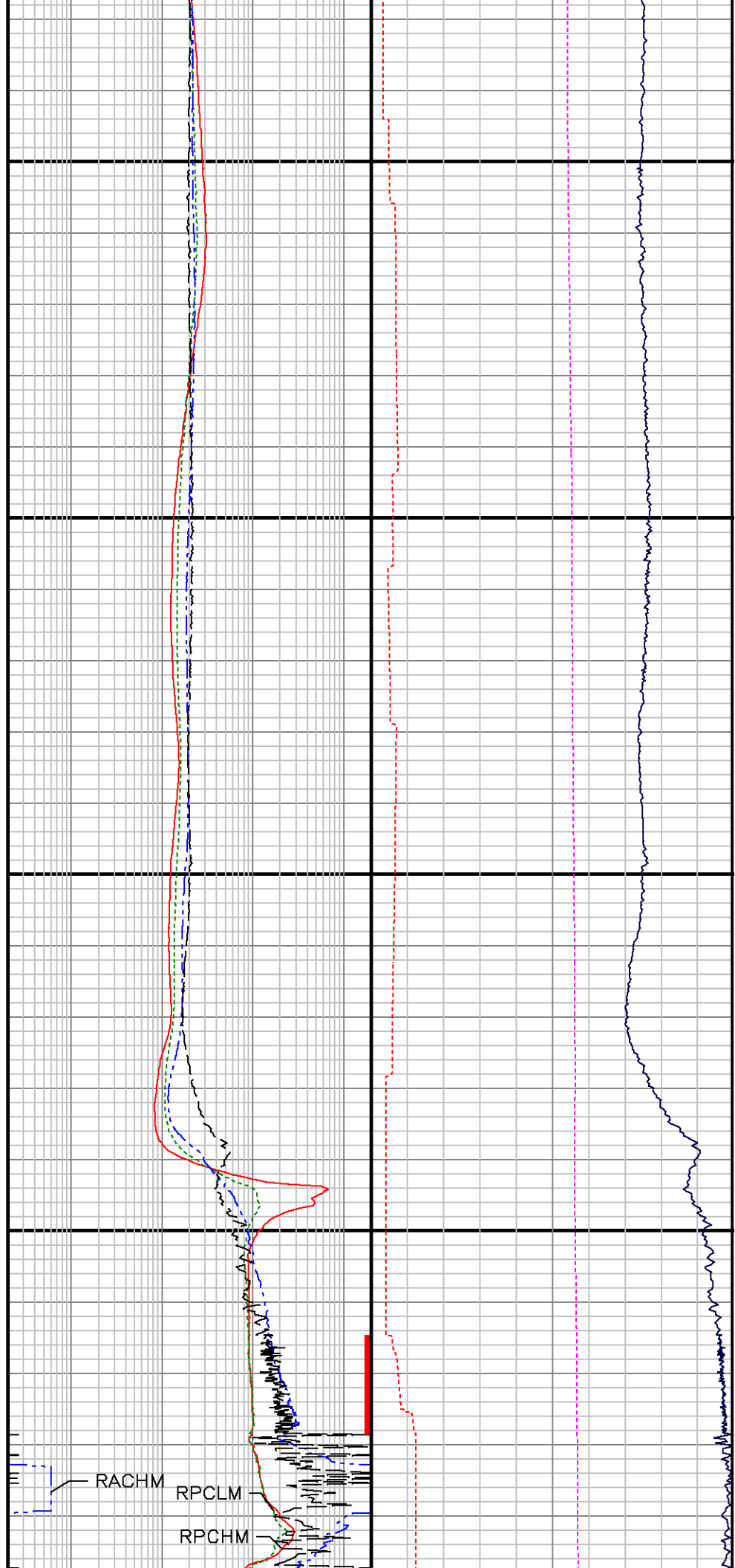
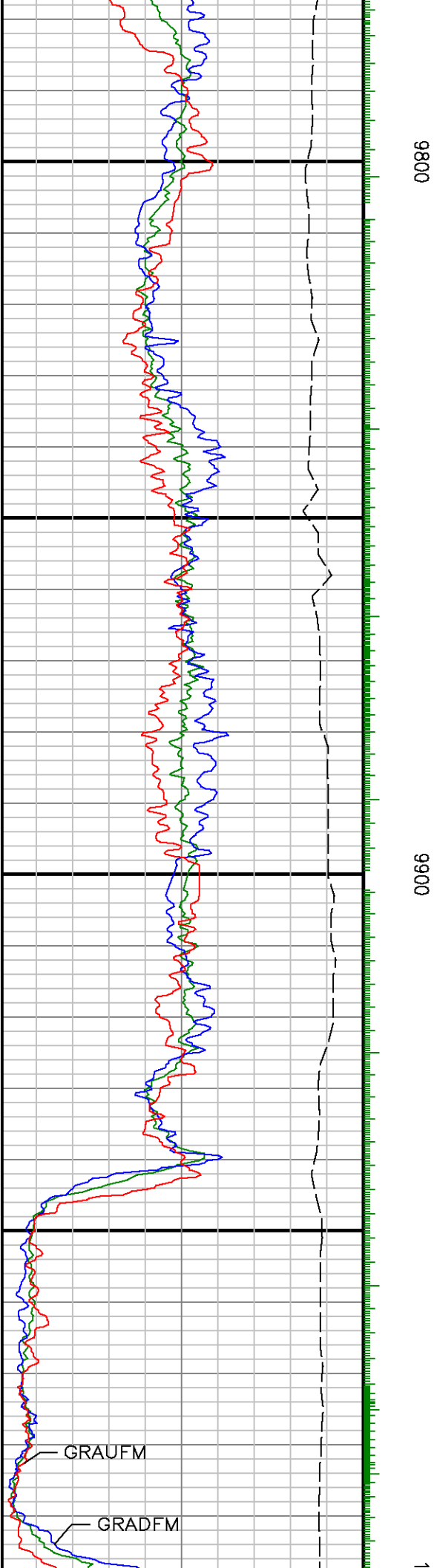


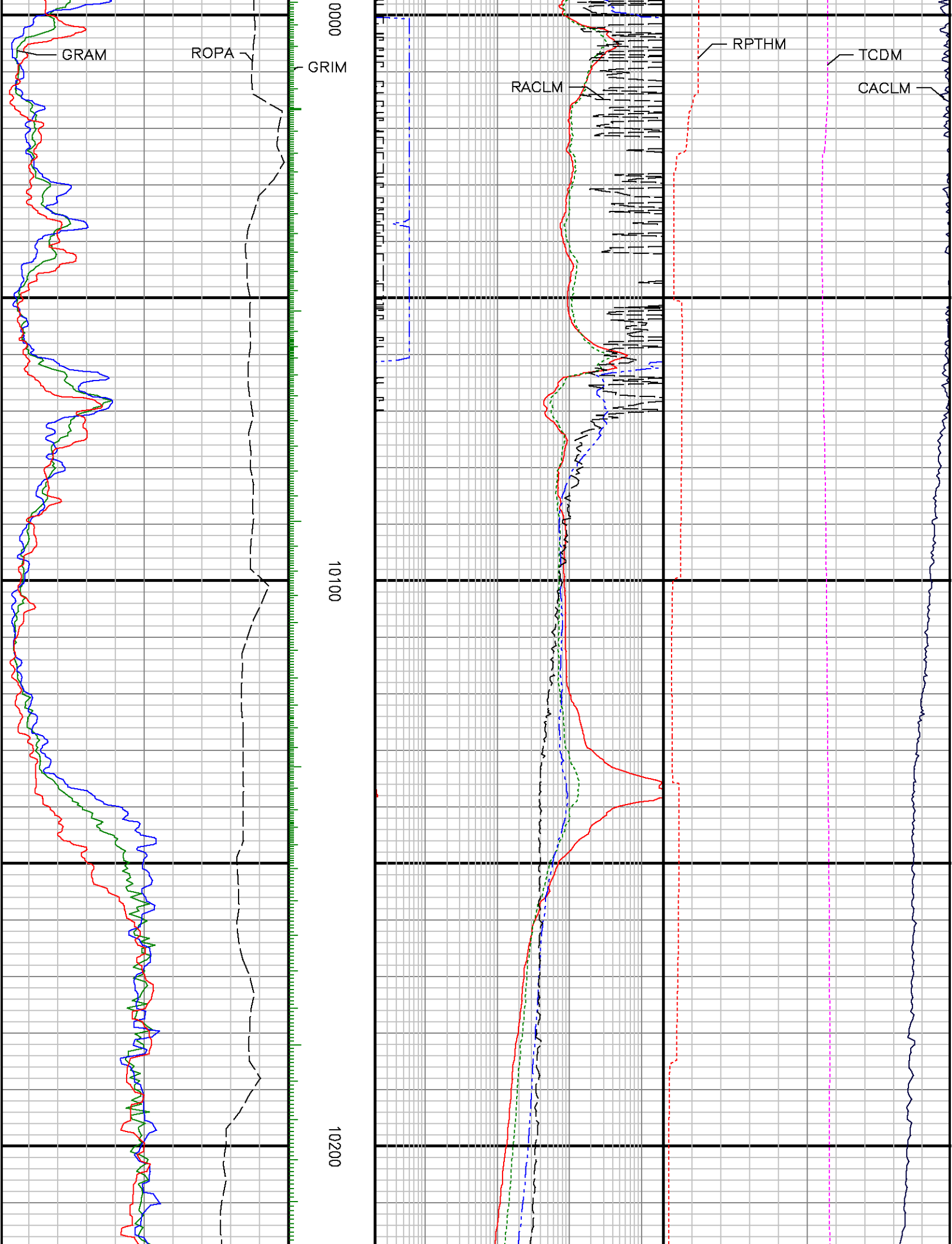


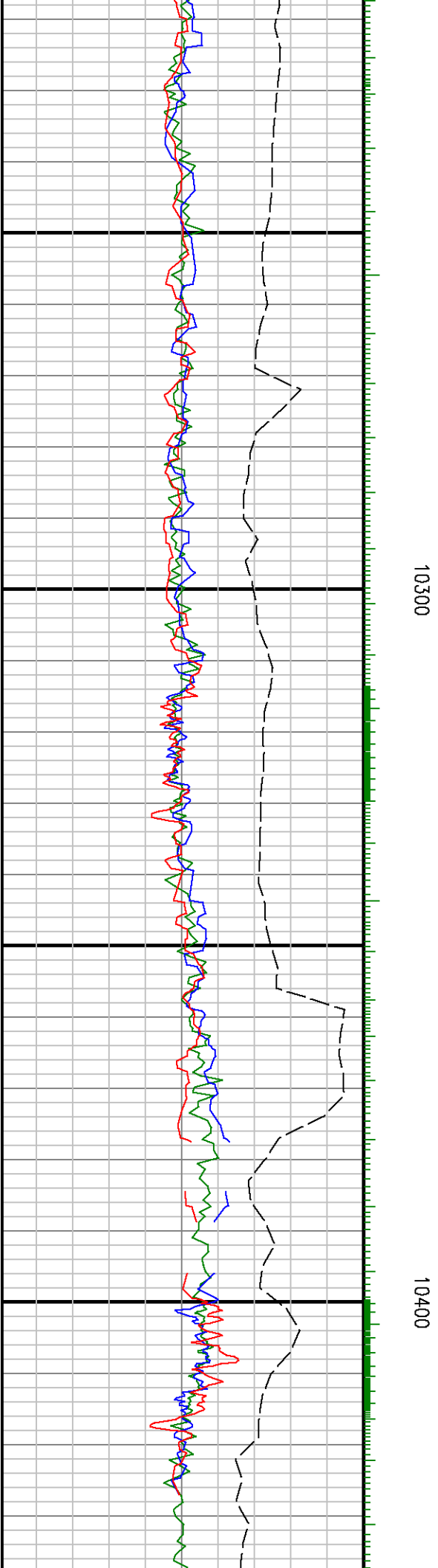
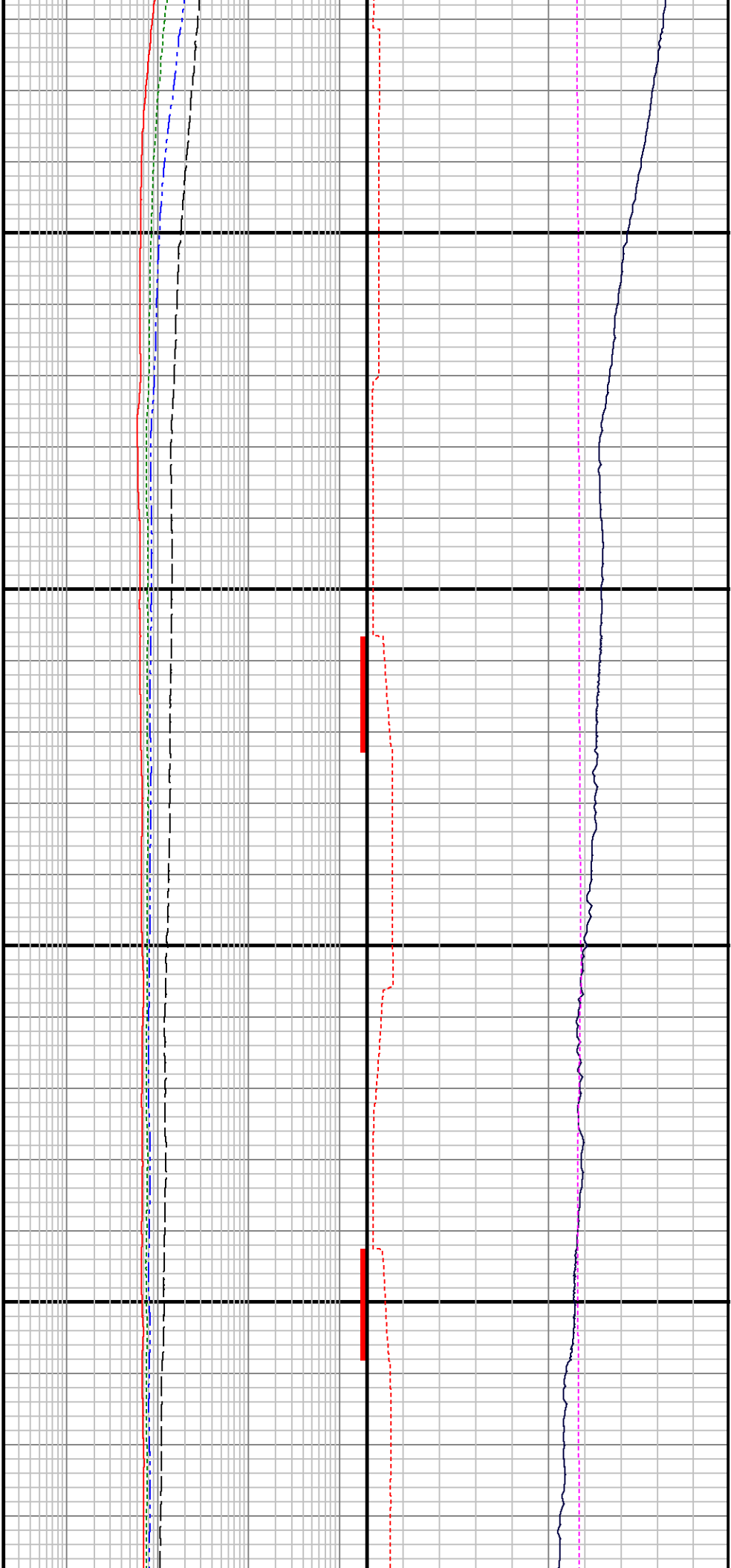


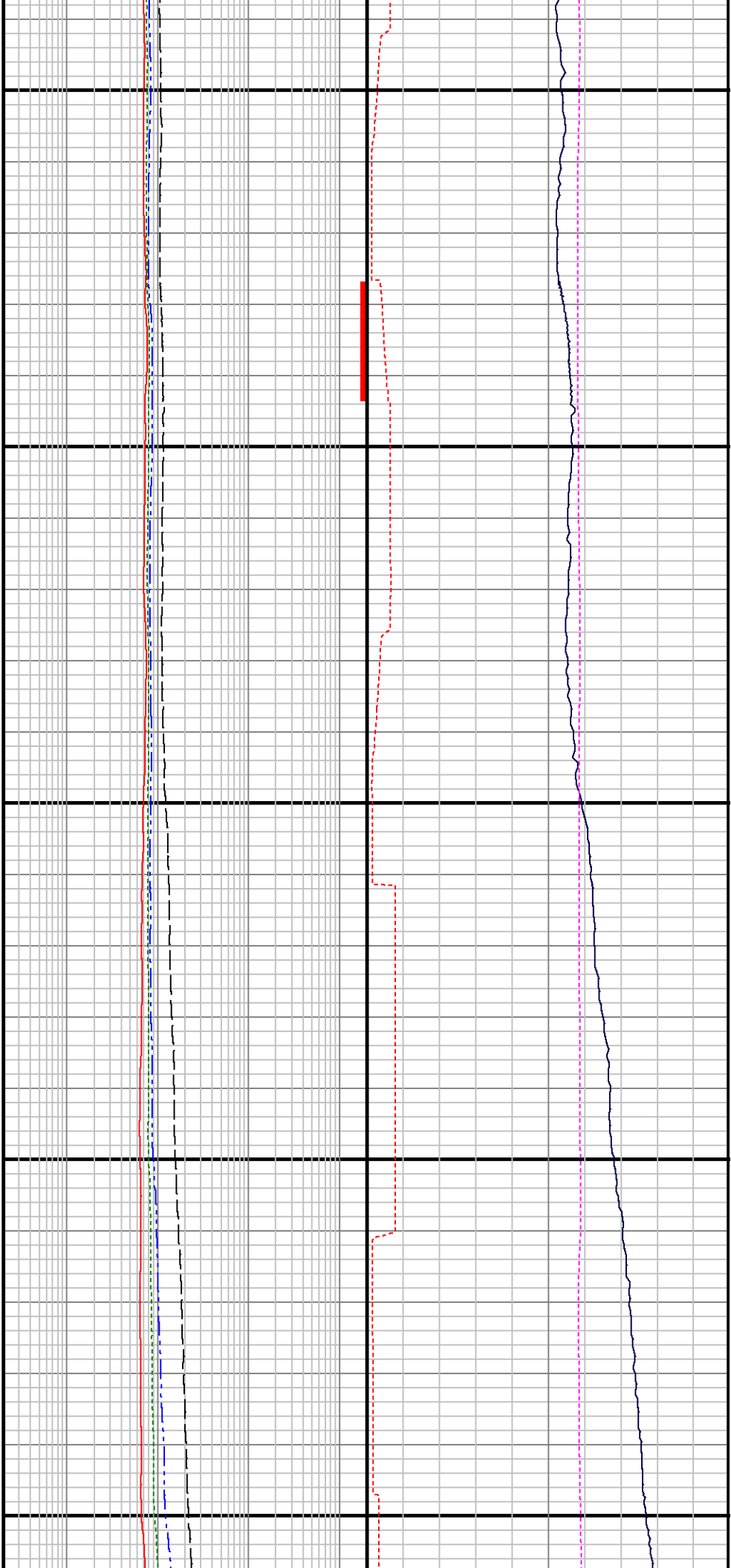






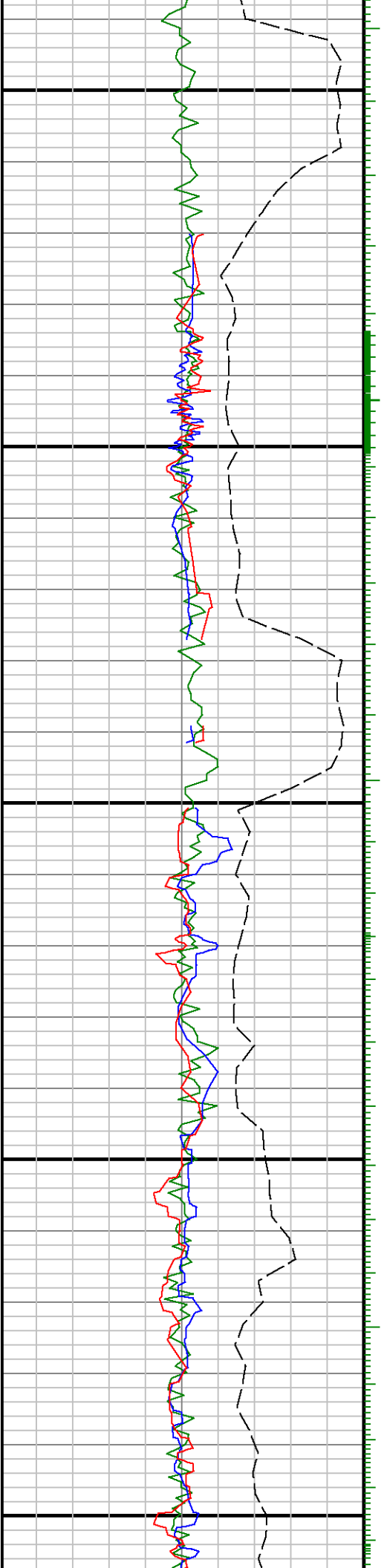


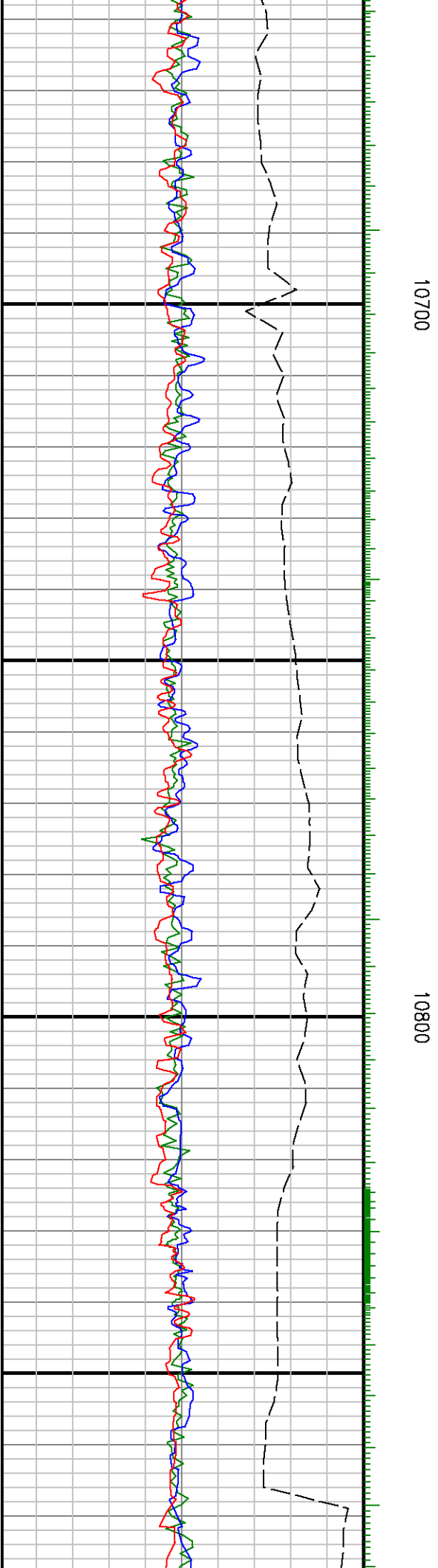
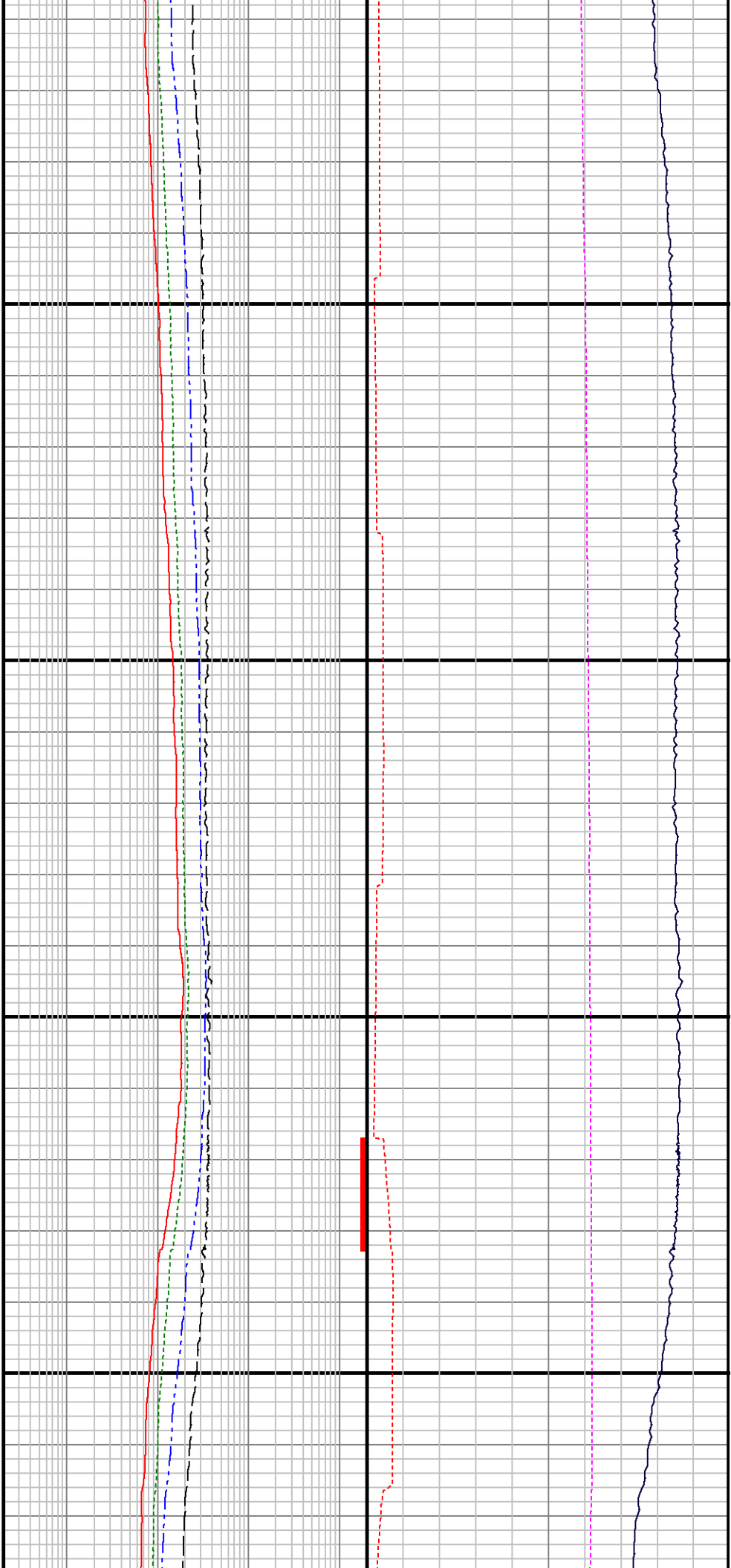


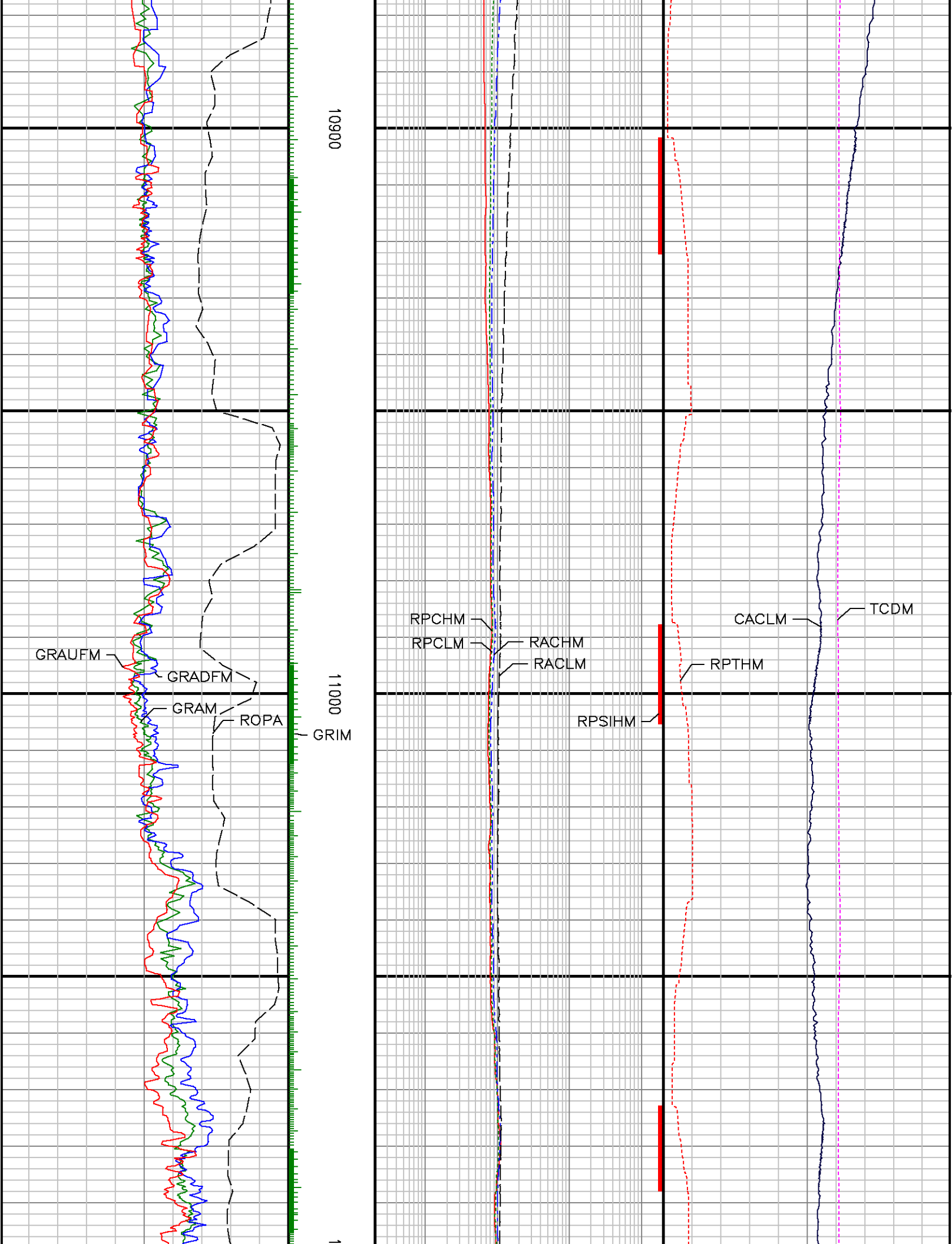


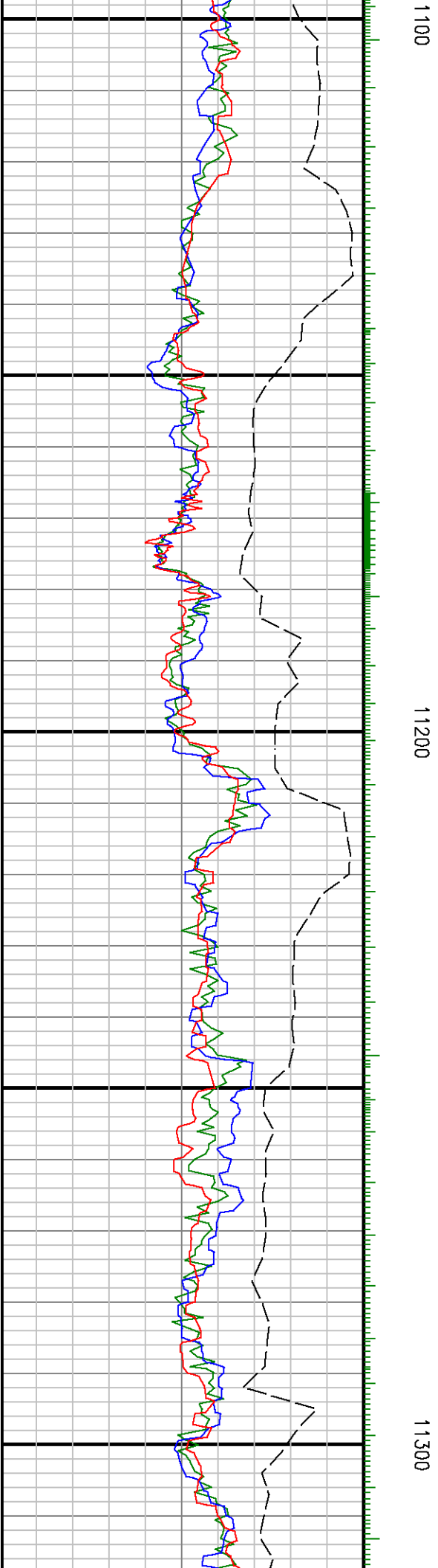
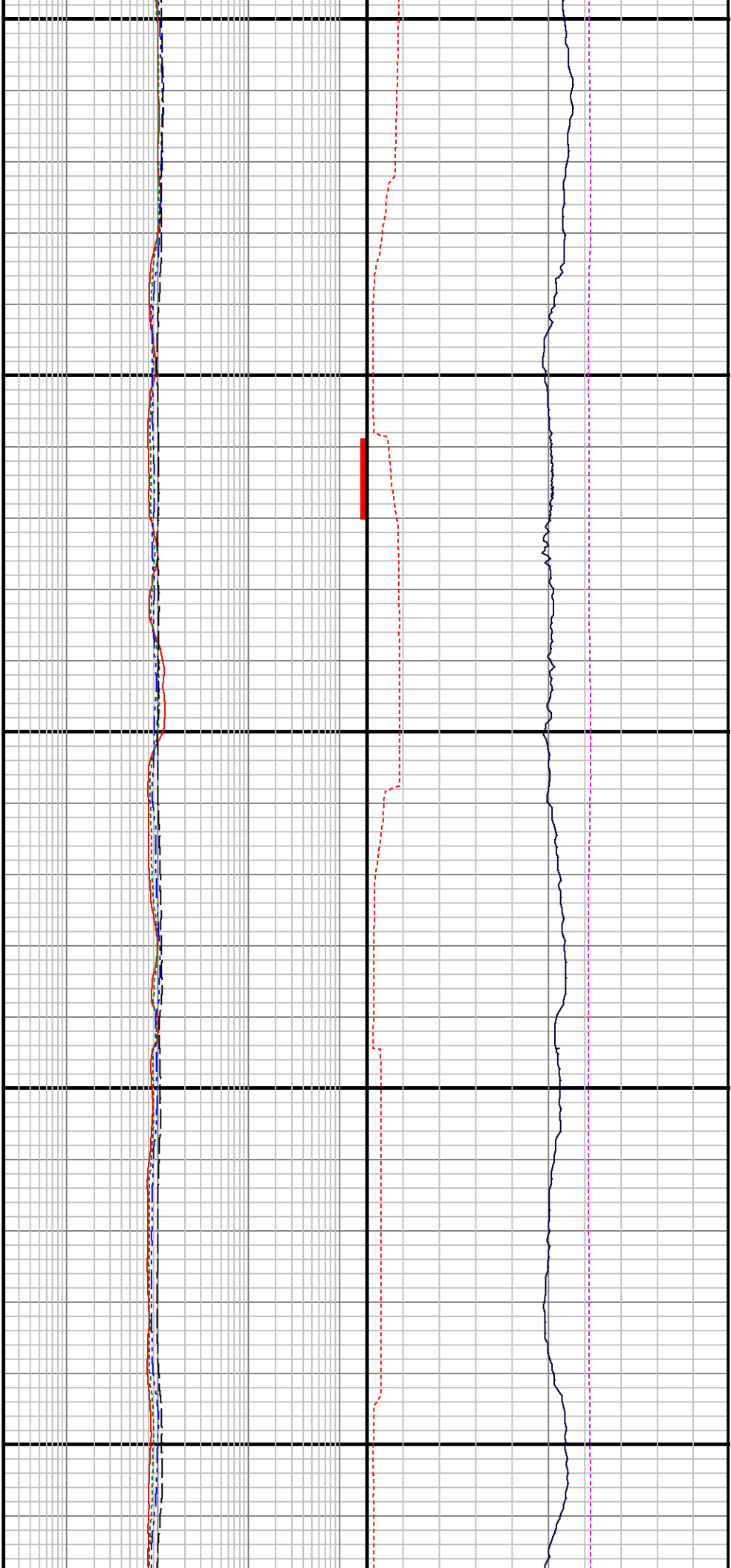
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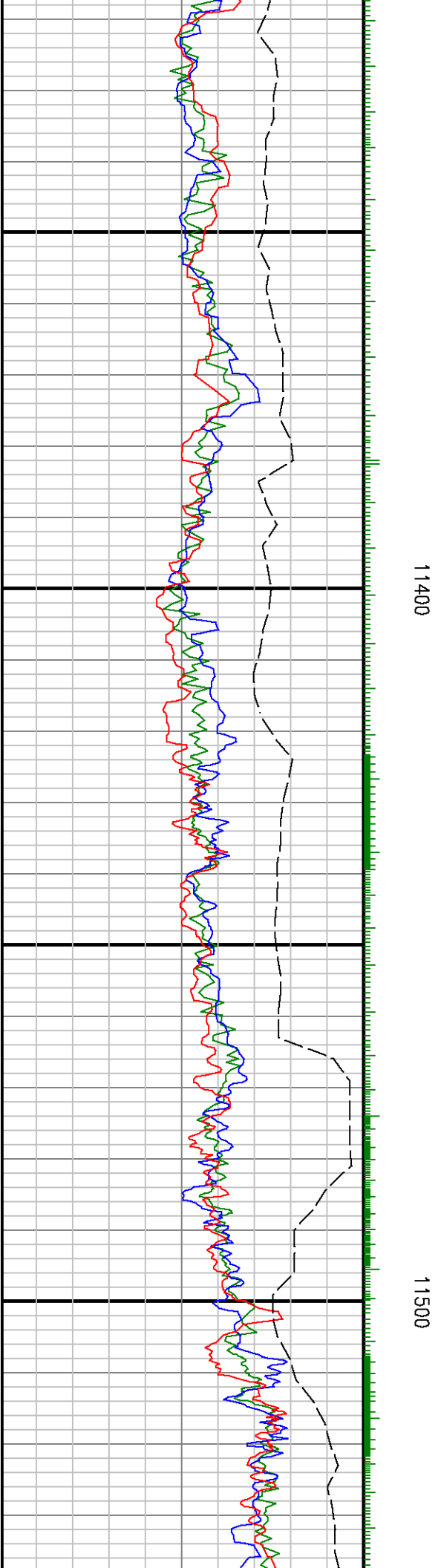
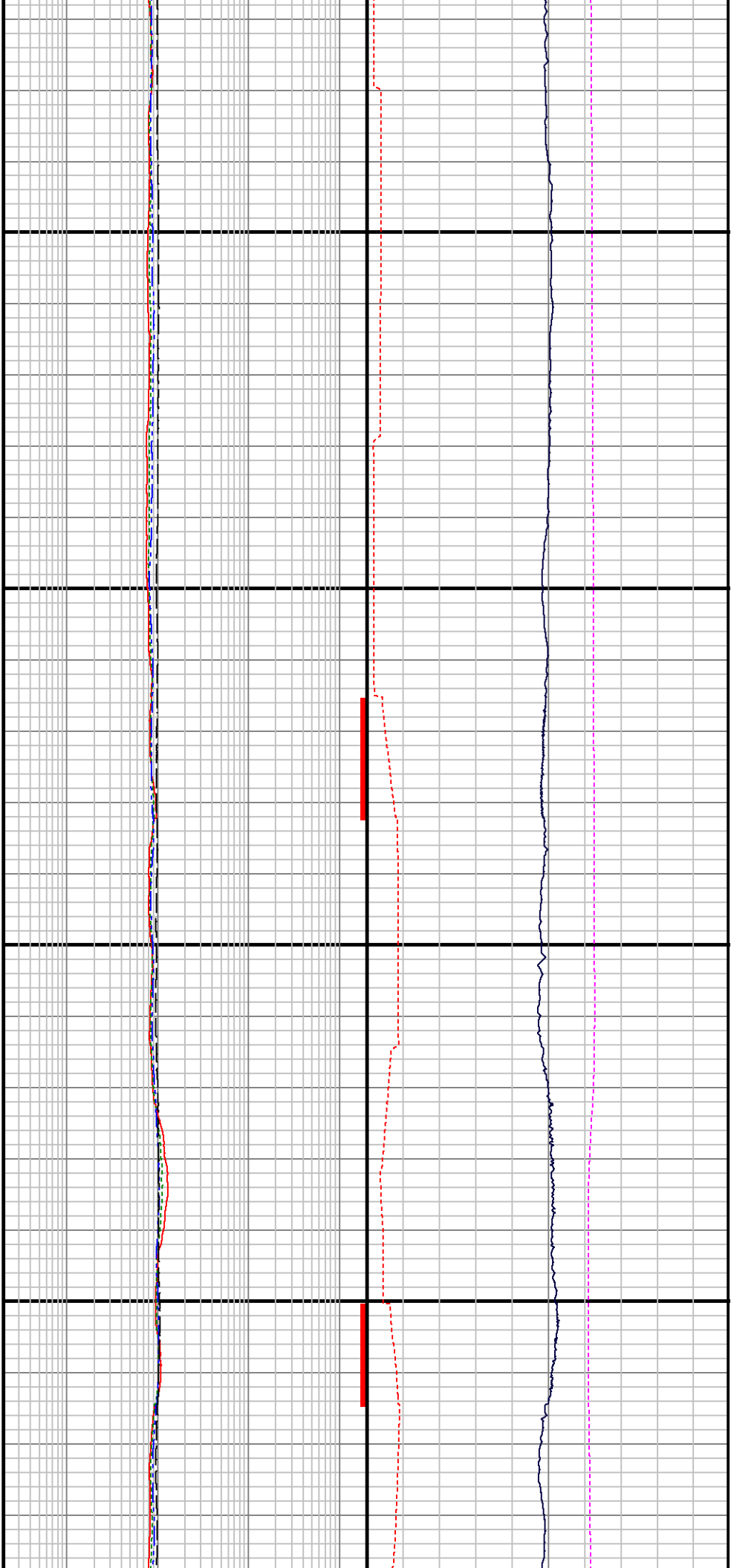
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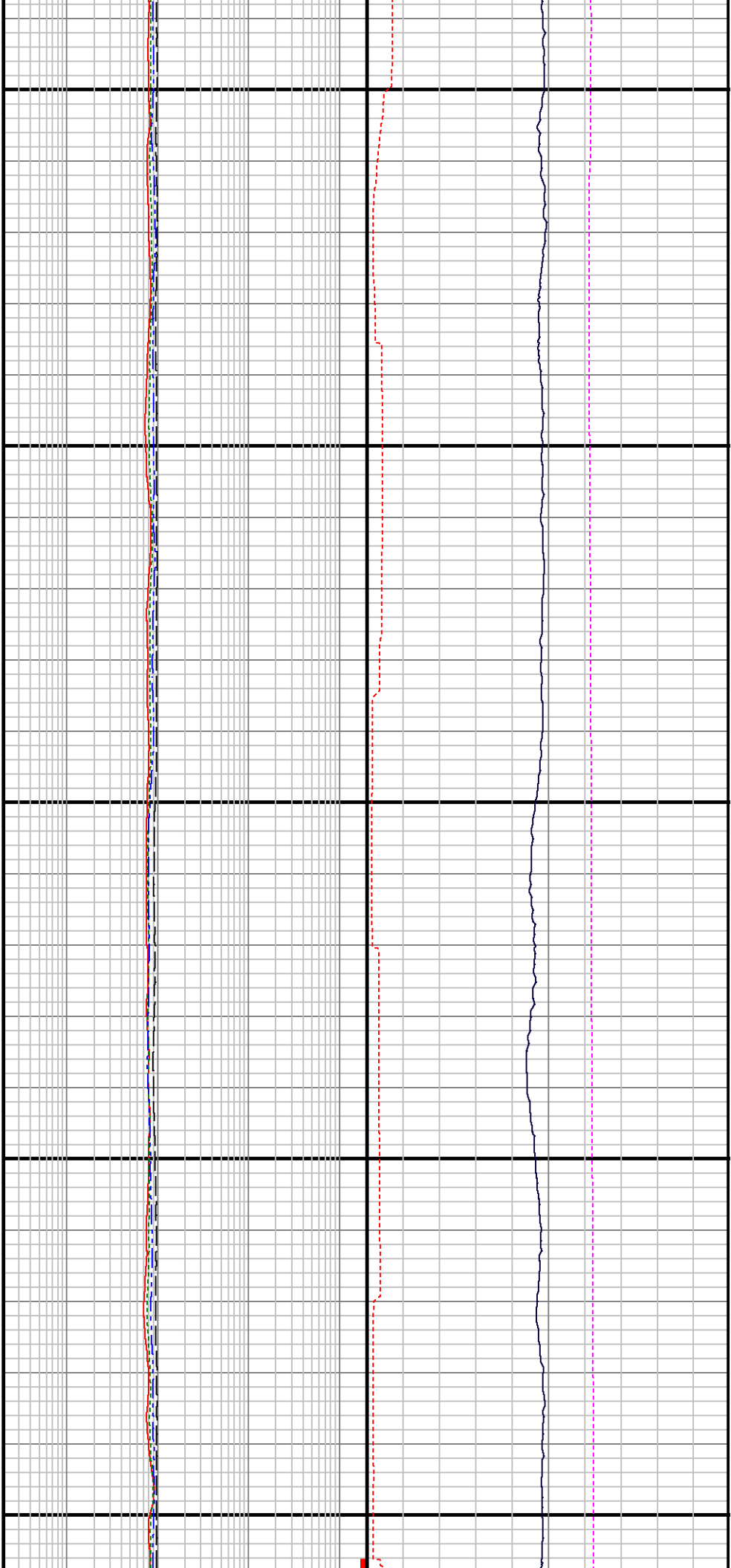






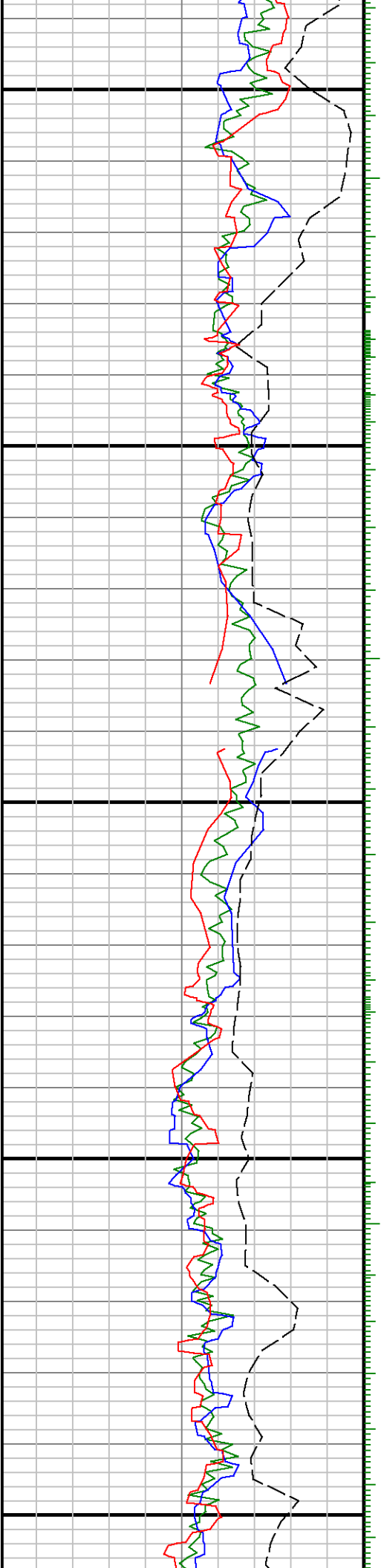


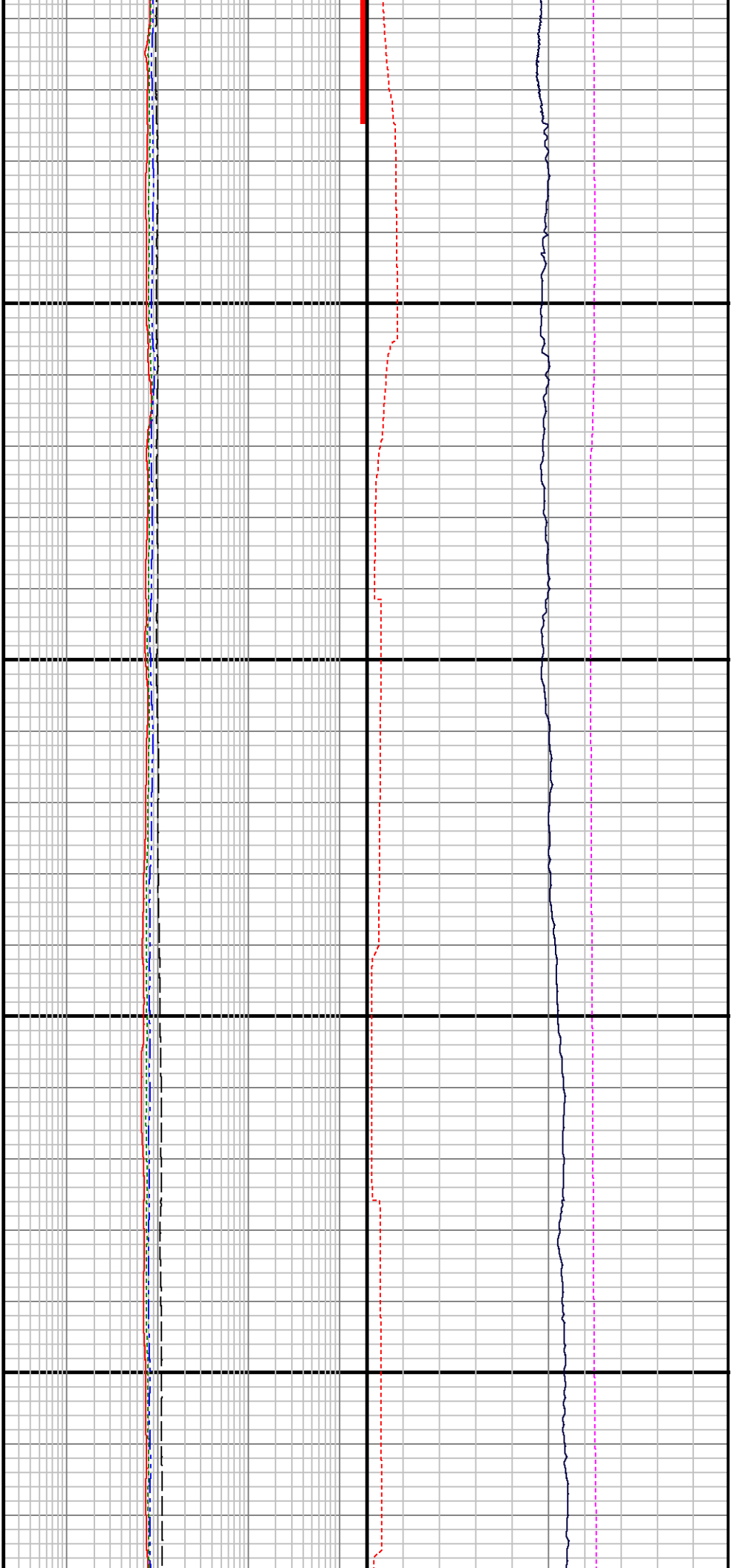




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