



Memory and Realtime Log

Natural Formation Evaluation  
Multiple Propagation Resistivity  
Gamma Ray

Scale: 1:240

Company: Anadarko

Well: Underhill State 26C-17HZ

Measured Depth

Field: Weld County (Kerr McGee)

Region: Rocky Mountains Country: United States

Status: Surface Location: Other Services:

Field Print

Latitude: 40° 2' 46.896" N

Longitude: 104° 54' 30.964" W

API Number: 051233690500

SEC: 17 TWN: 1N RGE: 67W

Directional

Permanent Datum (P.D.): Ground Level Elevation: 5103.00 ft.

Elevations: N/A

Log Measured From: Rig Floor 15.00 ft. Above P.D.

KB: 5119.00 ft.

Depth Reference: Driller's Depth

DF: 5103.00 ft.

GL: 5103.00 ft.

Interval Logged

Top: 7230 ft. Date From: 18/Jul/2013

Dip Angle: 66.50°

Magnetic Field Reference

Bottom: 12102 ft. Date To: 20/Aug/2013

Total

Azi Reference North: True

Spud Date: 16/Jul/2013 Field Strength: 52926.0 nT North Correction: 8.51°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	926 ft.	8275 ft.	9.625 in.	36.00 lb/ft	Surface	913 ft.
6.125 in.	8275 ft.	12149 ft.	7.000 in.	26.00 lb/ft	Surface	8262 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Drill Water	Surface	7086 ft.	8.750 in.	85 ft.	0.3° / 32.9°	2.4° / 119.2°
LSND	7086 ft.	12149 ft.	8.750 in.	42 ft.	2.4° / 119.2°	88.3° / 356.1°
			6.125 in.	85 ft.	88.3° / 356.1°	90.4° / 357.5°
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage 2.20U4 Rpt: / Contractor: Xtreme 24 / Xtreme Coil Drilling Corp

PATS 6.4.1.34 Job No: 5639377 / 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			
														(ft.)	(ft.)
1	1	1	8.750	PDC	2.000	Steerable	7230	8220	7250	8275	18/Jul/2013 19:09	19/Jul/2013 17:35		48.4	
2	2	2	6.125	PDC	6.000	Steerable	8220	9682	8275	9724	16/Aug/2013 23:00	17/Aug/2013 19:30		18.5	
3	4	3	6.125	PDC	3.000	Steerable	9682	9853	9724	9895	18/Aug/2013 07:30	18/Aug/2013 10:20		7.8	
4	4	3RR	6.125	PDC	3.000	Steerable	9853	10014	9895	10060	18/Aug/2013 23:30	19/Aug/2013 00:40		3	
5	5	3RR	6.125	PDC	3.000	Steerable	10014	12100	10060	12149	19/Aug/2013 01:18:30	20/Aug/2013 01:00		23.2	

Crew

Name			Arrive			Depart			Name			Arrive			Depart		
			Wellsite			Wellsite						Wellsite			Wellsite		

Austin Small	15/Jul/2013	20/Jul/2013	Osagie Otoikhine	15/Jul/2013	20/Jul/2013	Austin Small	16/Aug/2013	21/Aug/2013
Osagie Otoikhine	16/Aug/2013	21/Aug/2013						

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density  (ppg)	Viscosity  (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+  (%)
01/Jul/2013	18:00	1	3215	Drill Water	8.4	2	8.1	N/A	0.0/99.3	Active	600	N/A
16/Aug/2013	18:00	2	8275	LSND	9.5	11	8.7	N/A	1.0/92.5	Active	1400	N/A
17/Aug/2013	18:00	2	9560	LSND	9.2	11	8.5	N/A	1.9/93.0	Active	1300	N/A
18/Aug/2013	18:00	3	9894	LSND	9.3	9	8.6	N/A	1.9/92.5	Active	1400	N/A
19/Aug/2013	06:00	4	10062	LSND	9.1	11	8.5	N/A	2.0/93.0	Active	1400	N/A
19/Aug/2013	06:00	5	10756	LSND	9.1	11	8.7	N/A	2.0/93.0	Active	1400	N/A

Mud Resistivity Record

				Surface				Downhole			
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)
16/Aug/2013	21:23	2	8275	70	1.45	1.45	1.45	185	0.57	0.57	0.57
16/Aug/2013	22:57	2	8275	70	1.99	1.99	1.99	200	0.72	0.72	0.72
18/Aug/2013	08:18	3	9724	75	1.63	0.63	1.63	207	0.61	0.24	0.61

Mnemonics

Curve	Description	Units
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
GRAM	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIM	Gamma Ray Data Density	points
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Slide Indicator	unitless
RACHM	Resistivity (AT) (LS) 2MHz – Compensated Borehole Corrected	ohm.m
RPCLM	Resistivity (PD) (LS) 400kHz – Compensated Borehole Corrected	ohm.m
RPCHM	Resistivity (PD) (LS) 2MHz – Compensated Borehole Corrected	ohm.m
CACLM	Conductivity (AT) (LS) 400kHz – Compensated Borehole Corrected	mho/m
RPTHM	Time Since Drilled [RPCHM]	mins
RPSHIM	Resistivity Slide Indicator	unitless

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12456788	Directional	57.29	6.750	3.250
1	SRIG	12554657	Gamma	54.55	6.750	3.250
2	CS	10647097	-	73.86	5.000	2.060

2	BCPM	11705962	Telemetry	62.88	5.000	2.060
2	STAB	10354301	-	59.97	5.625	2.060
2	OTK	11827144	Directional	55.48	5.000	2.060
2	OTK	11827144	Resistivity	49.51	5.000	2.060
2	OTK	11827144	Gamma	42.32	5.000	2.060
2	OTK	11827144	Pressure	44.95	5.000	2.060
2	CS	2161723	-	37.34	5.000	2.060
3	CS	12114978	-	73.87	5.000	2.060
3	BCPM	11845221	Telemetry	62.85	5.000	2.060
3	STAB	11883702	-	59.95	5.625	2.250
3	OTK	10361336	Directional	55.52	5.000	2.060
3	OTK	10361336	Resistivity	49.55	5.000	2.060
3	OTK	10361336	Gamma	42.36	5.000	2.060
3	OTK	10361336	Pressure	44.99	5.000	2.060
3	CS	12202688	-	37.36	5.000	2.060
4	DIR	11801247	Directional	49.73	4.750	1.750
4	SRIG	12600747	Gamma	46.35	4.750	1.750
5	DIR	11801247	Directional	49.73	4.750	1.750
5	SRIG	12600747	Gamma	46.35	4.750	1.750

Comments						
(1) Baker Hughes INTEQ run 1 utilized 6 3/4 inch NaviGamma (Gamma Ray and Directional) behind a 8 3/4 inch bit and steerable assembly from 7250 feet to 8275 feet MD (7125 feet to 7761 feet TVD).						
(2) Baker Hughes INTEQ run 2 & 3 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 8275 feet to 9895 feet MD (7761 feet to 7763 feet TVD).						
(3) Baker Hughes INTEQ runs 3 & 4 utilized 4 3/4 inch NaviGamma (Gamma Ray and Directional) behind a 6 1/8 inch bit and steerable assembly from 9895 feet to 12149 feet MD (7763 feet to 7784 feet TVD).						
(4) A sliding indicator is shown on the right edge 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.						
(5) A sliding indicator is shown to the right edge of track 1 as a heavy line. The indicator has been depth-shifted to the gamma sensor offset to correspond with gamma data acquired while sliding.						

Remarks				
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	7200	8.750	1	The Interval from surface to 7230 feet MD ( 7105 feet TVD) was not logged since logging services began at the kick off point.
2	8275	8.750	2	The interval from 8220 feet to 8275 feet MD (7761 feet to 7761 feet TVD) was logged up to 28 days and 6 hours after being drilled due to trip out of the hole for casing and cementing operations and rig skid to drill the next well before drilling lateral in batch drilling operations.
3	9724	6.125	3	The interval from 9682 feet to 9724 feet MD (7763 feet to 7764 feet TVD) was logged up to 12 hours after being drilled due to trip out of hole to pick up a new OnTrak after previous Ontrak failed.
4	9895	6.125	4	The interval from 9853 feet to 9895 feet MD (7763 feet to 7763 feet TVD) was logged up to 13 hours after being drilled due to trip out of hole to pick up new Navigamma tool after Ontrak failure.
5	10060	6.125	5	The interval from 10014 feet to 10060 feet MD (7764 feet to 7765 feet TVD) was logged up to 18 hours after being drilled due to trip out of hole to laydown the agitator in string due to decode issues.
6	12100	6.125	5	Interval from 12102 feet to 12149 feet MD (7784 feet to 7783 feet TVD) was not logged due to gamma ray sensor offset at well TD.

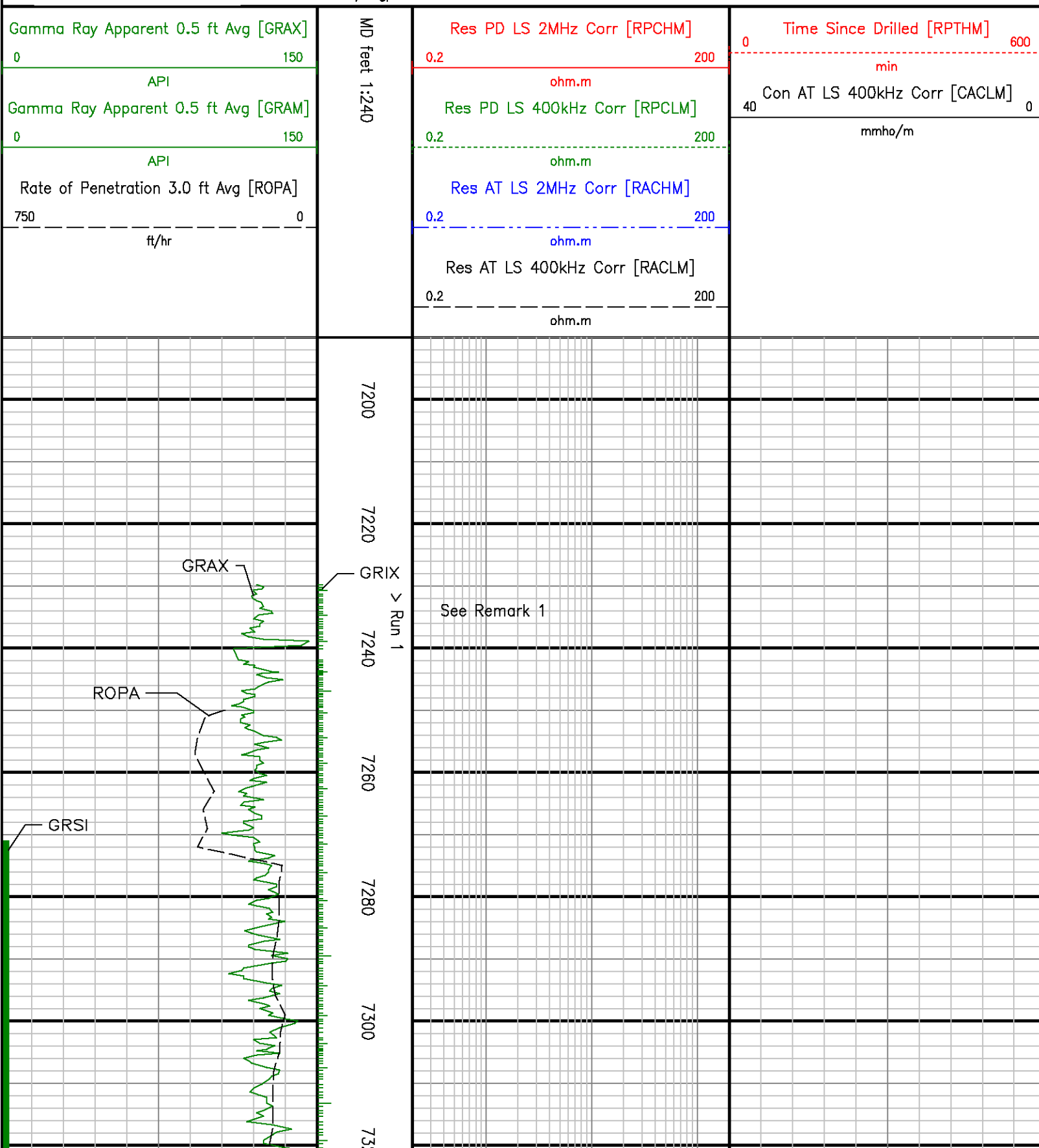


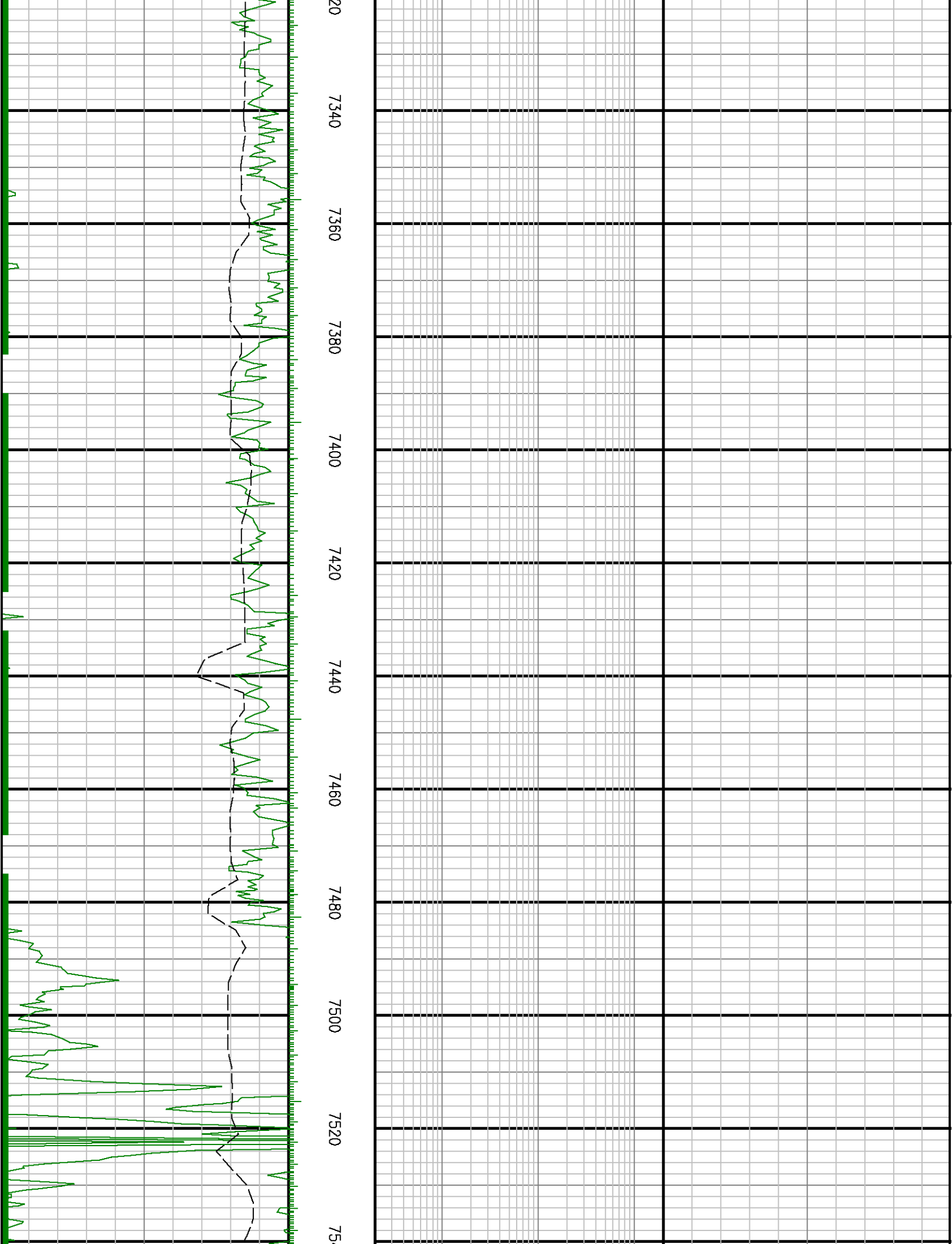
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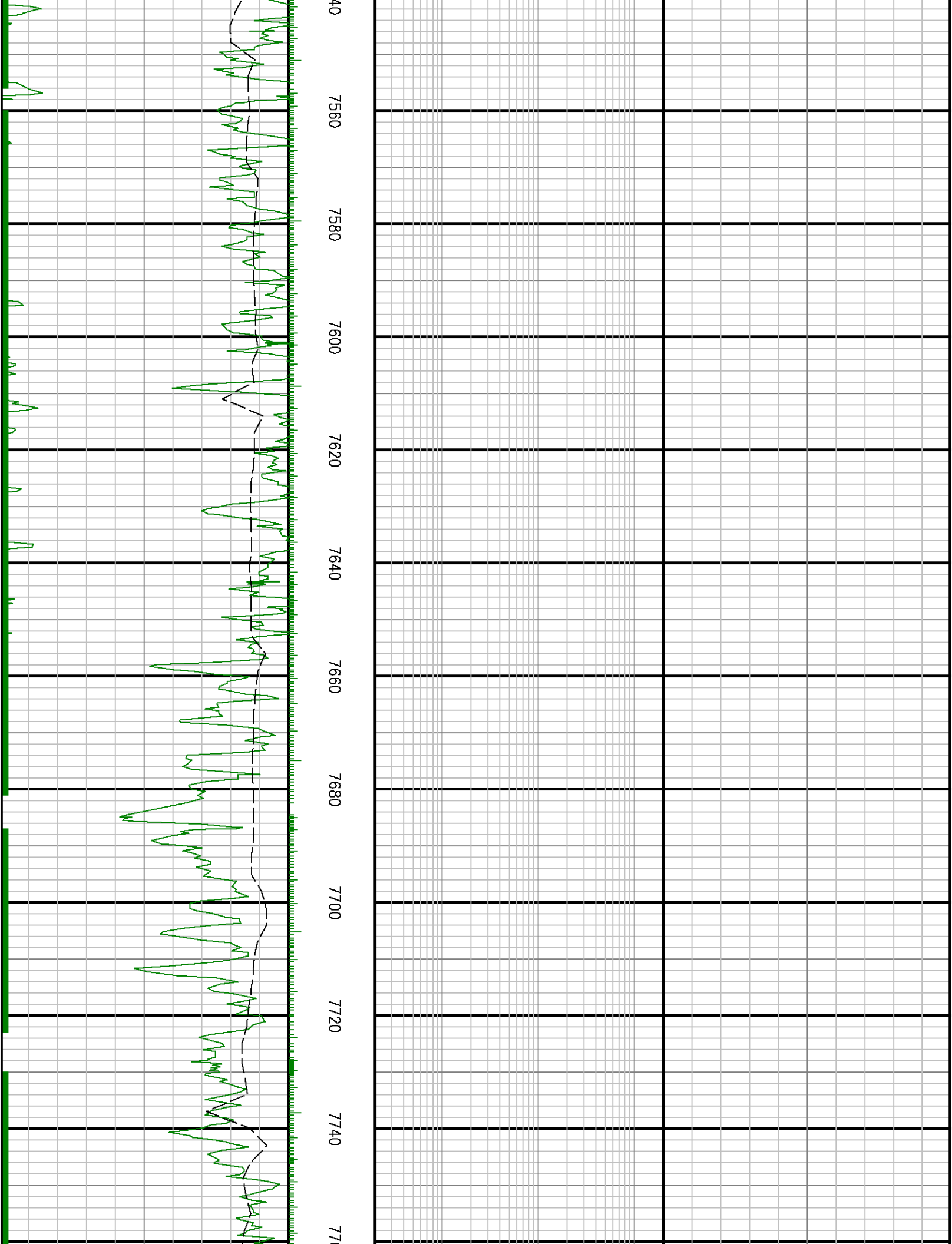
Well : Underhill State 26C-17HZ

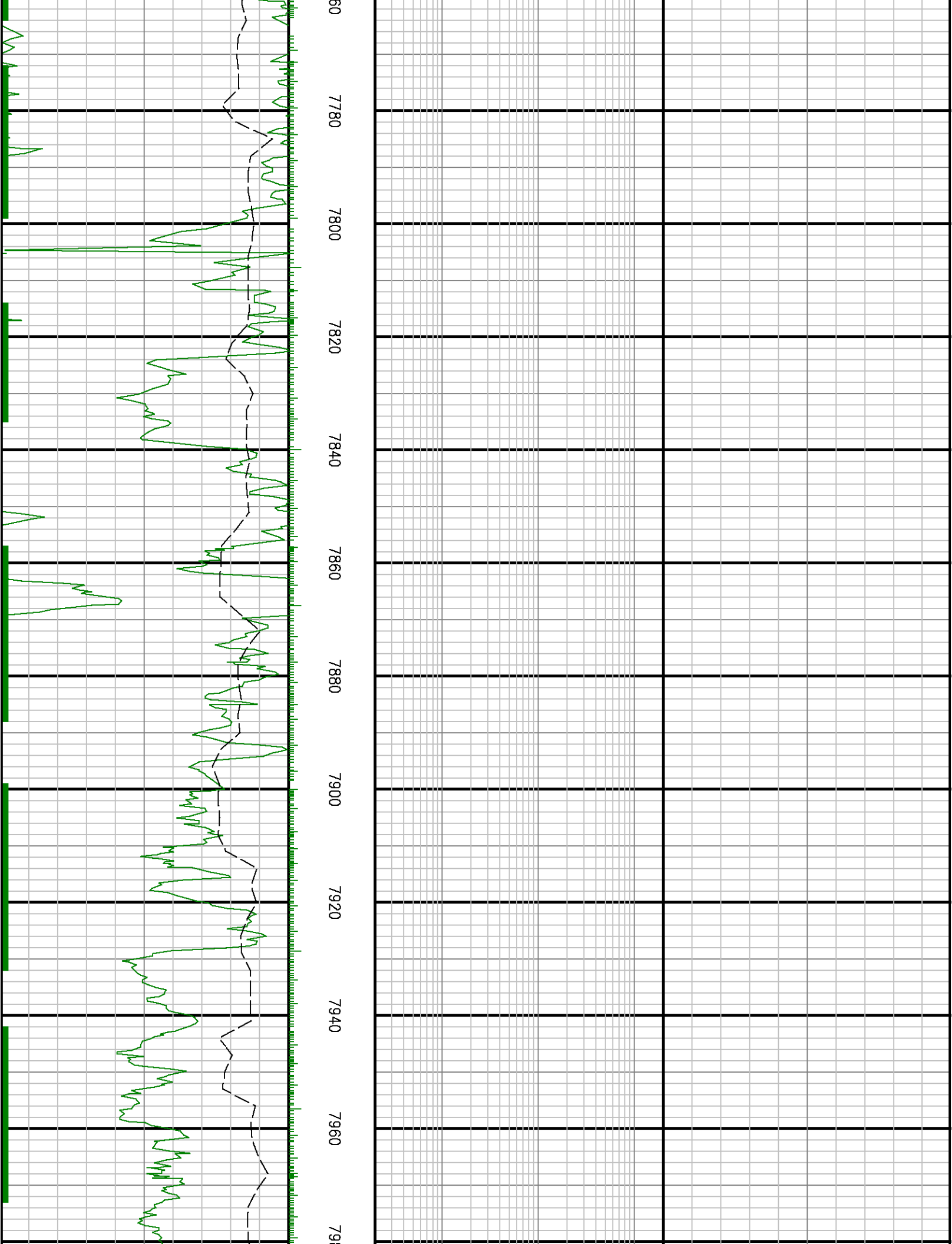
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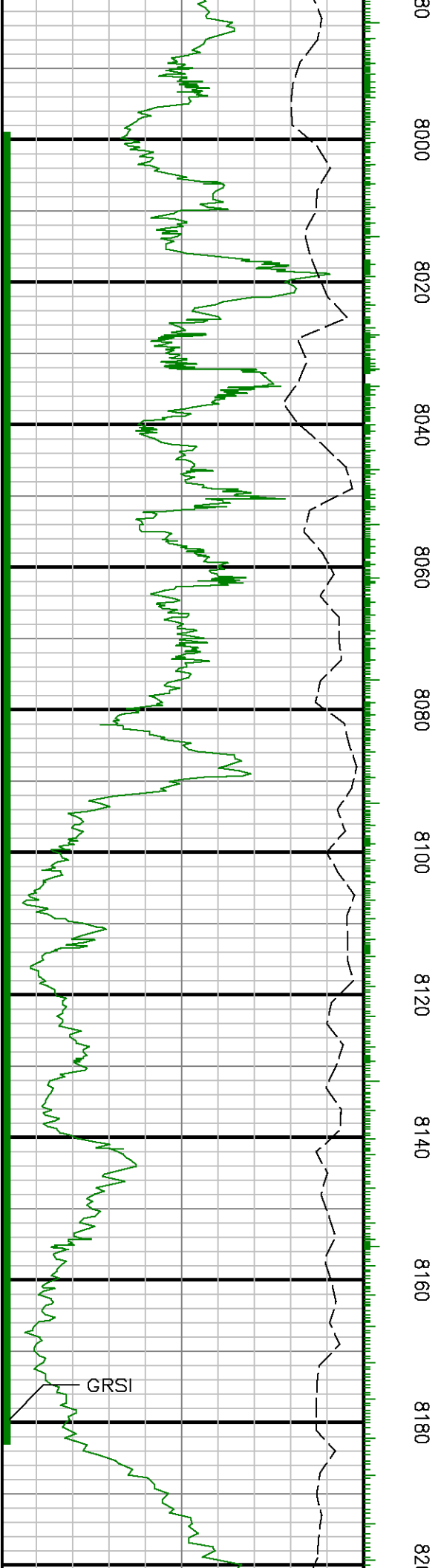
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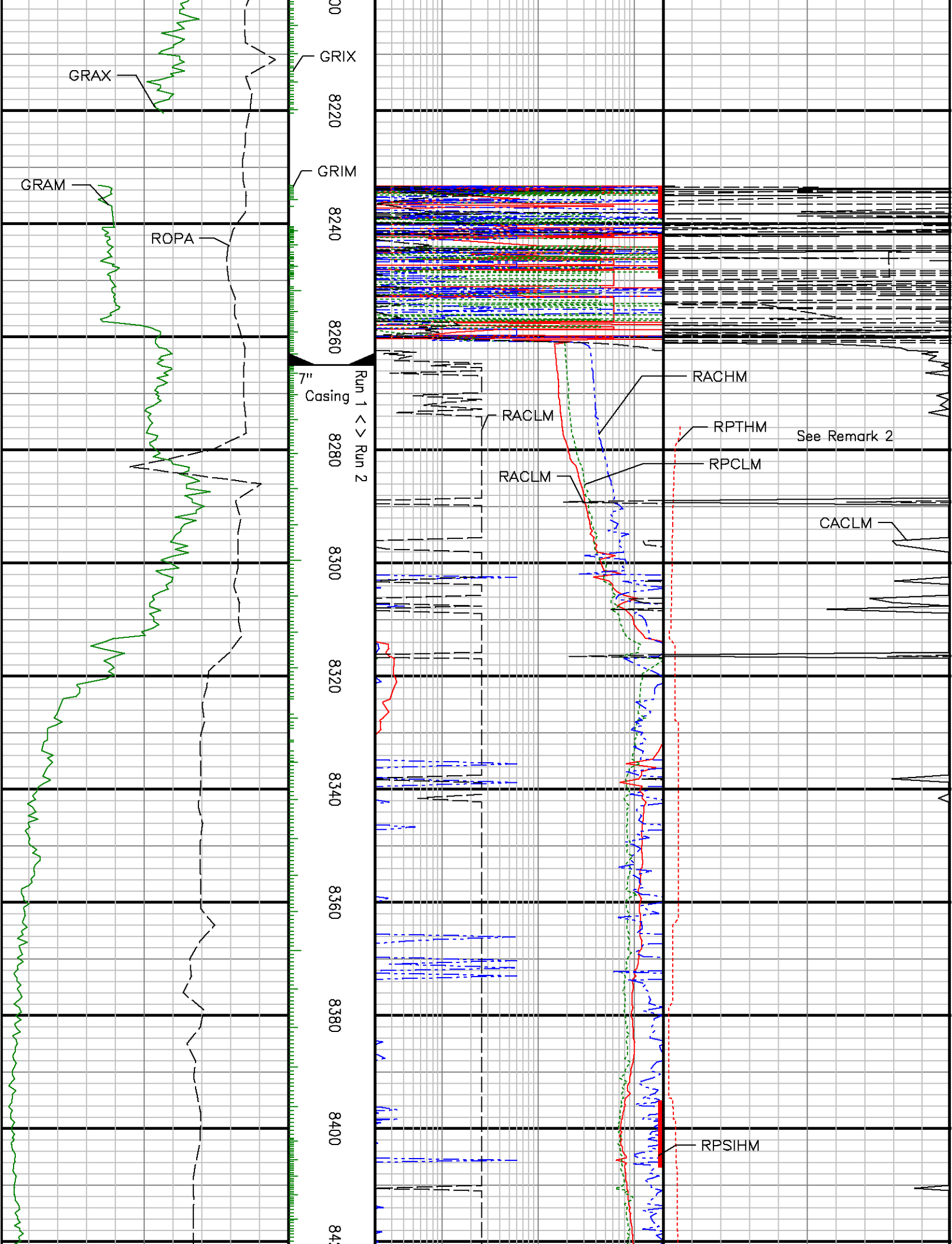


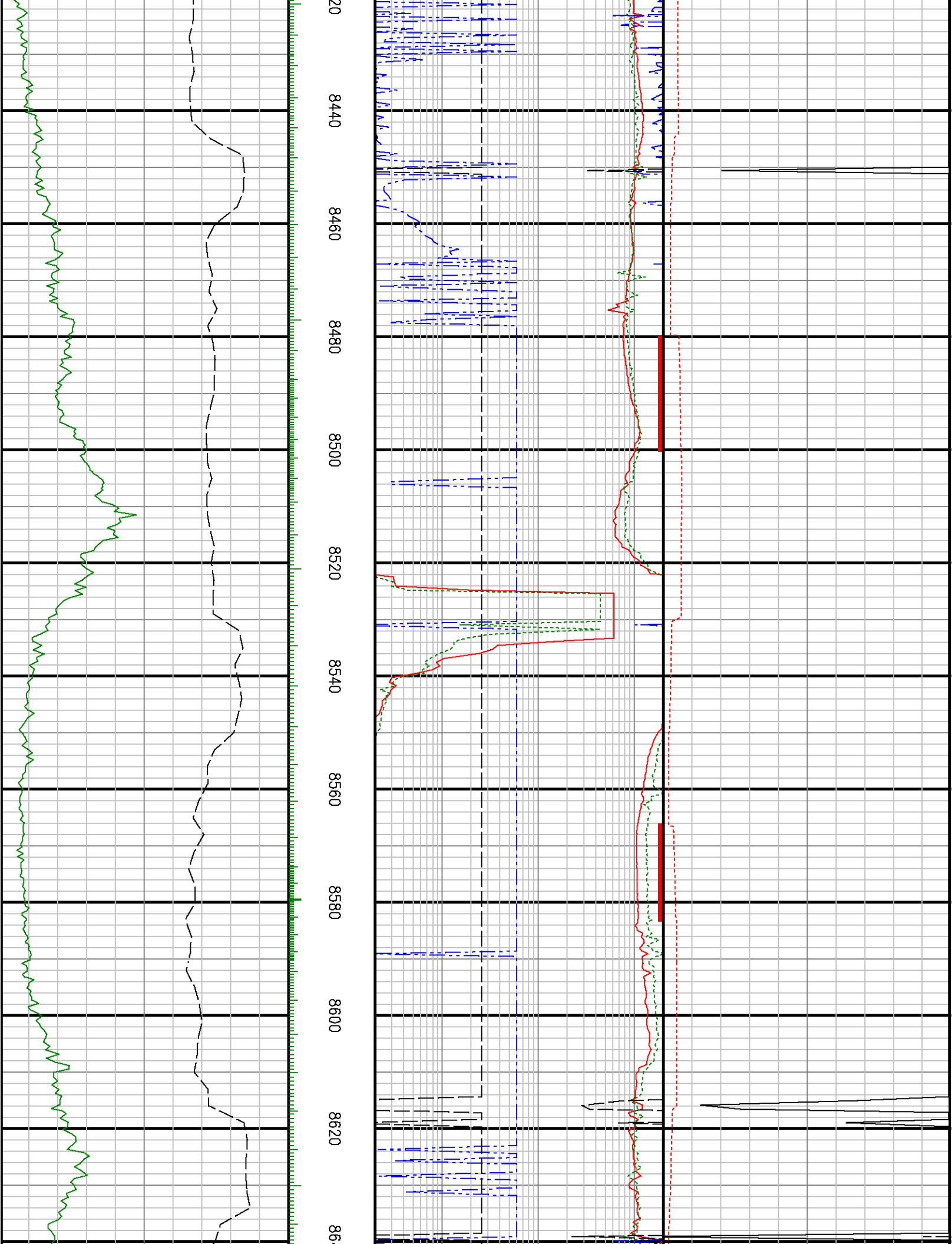


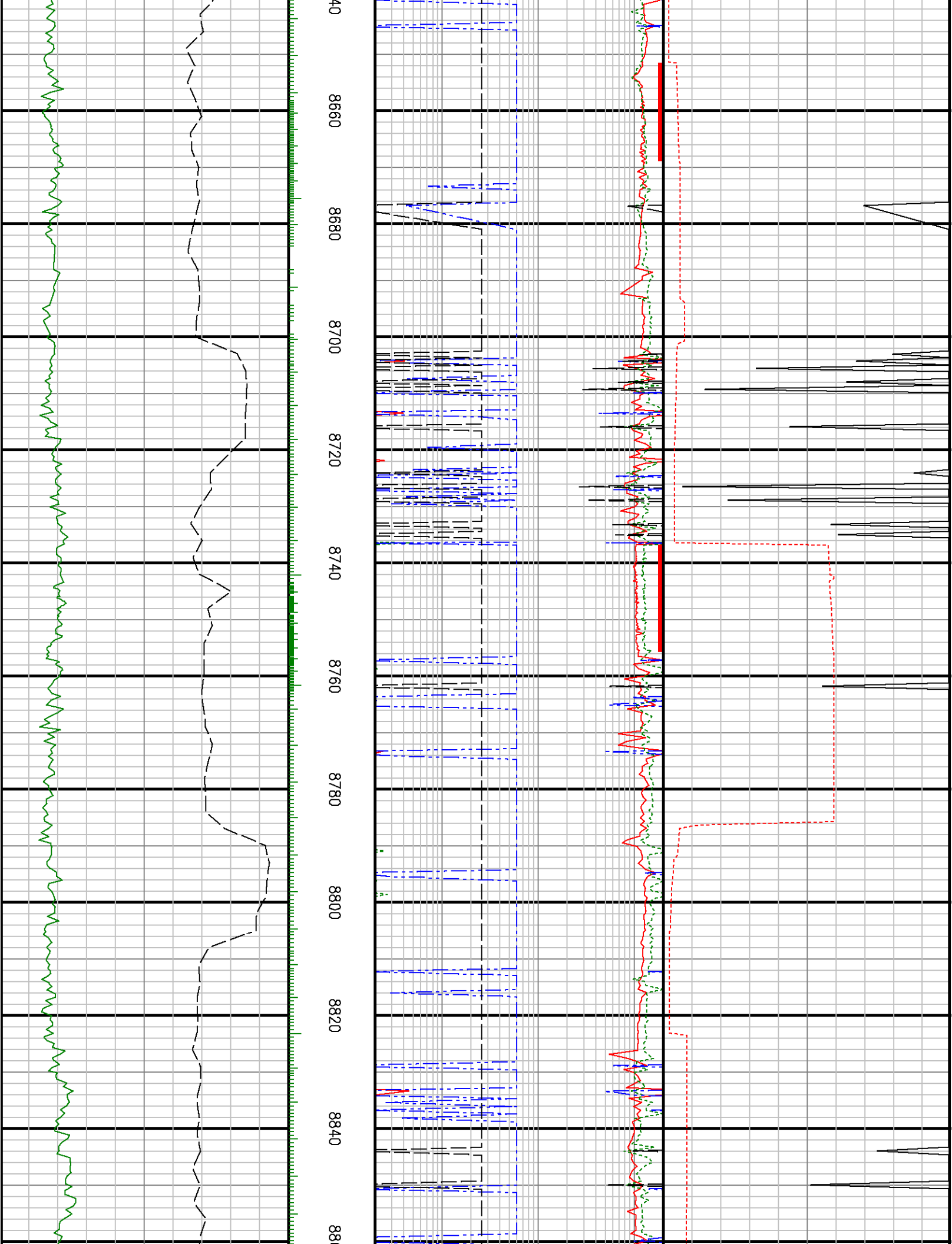


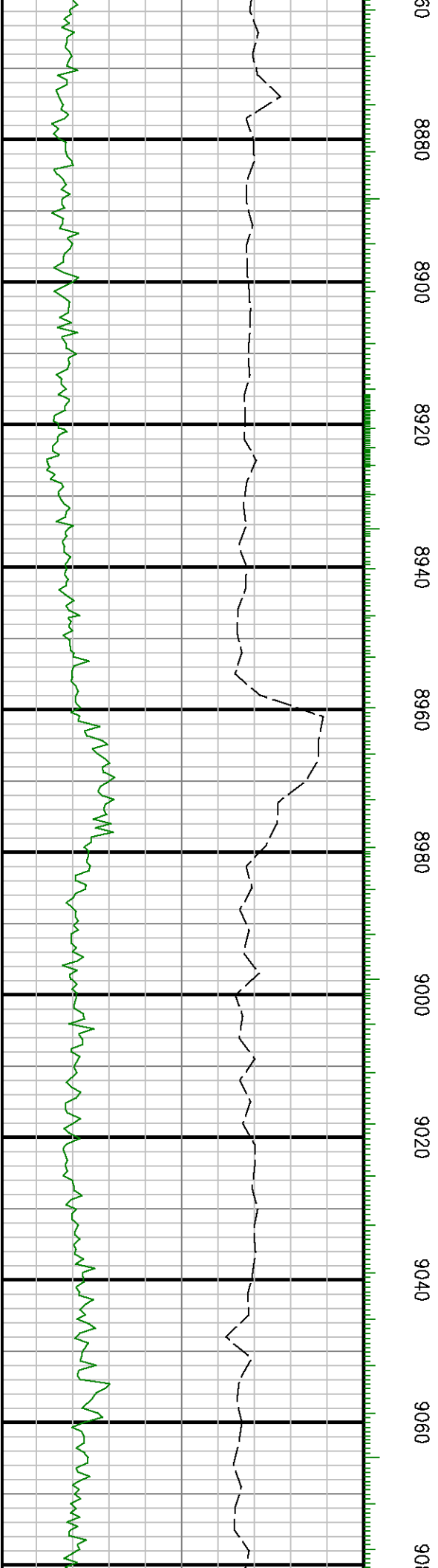
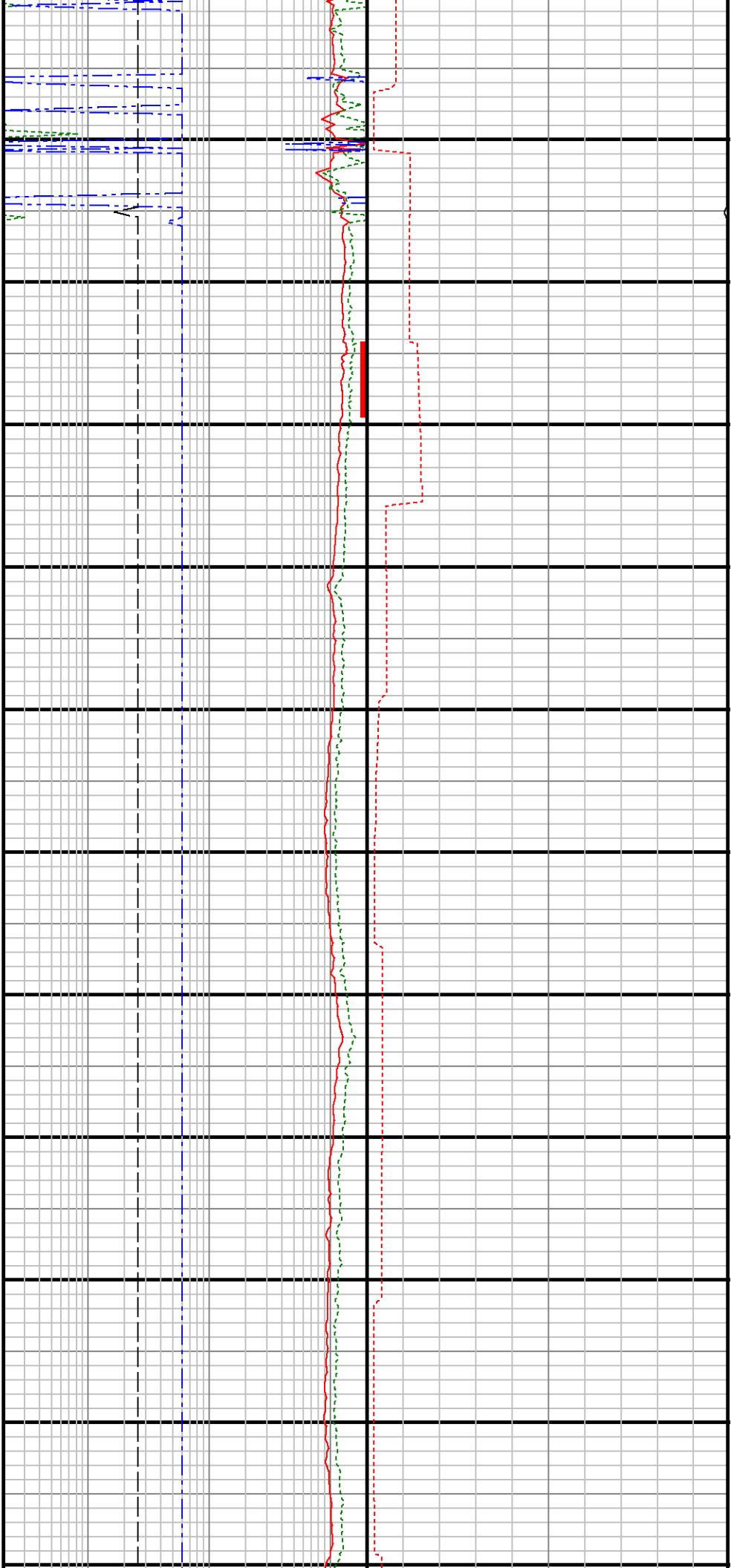


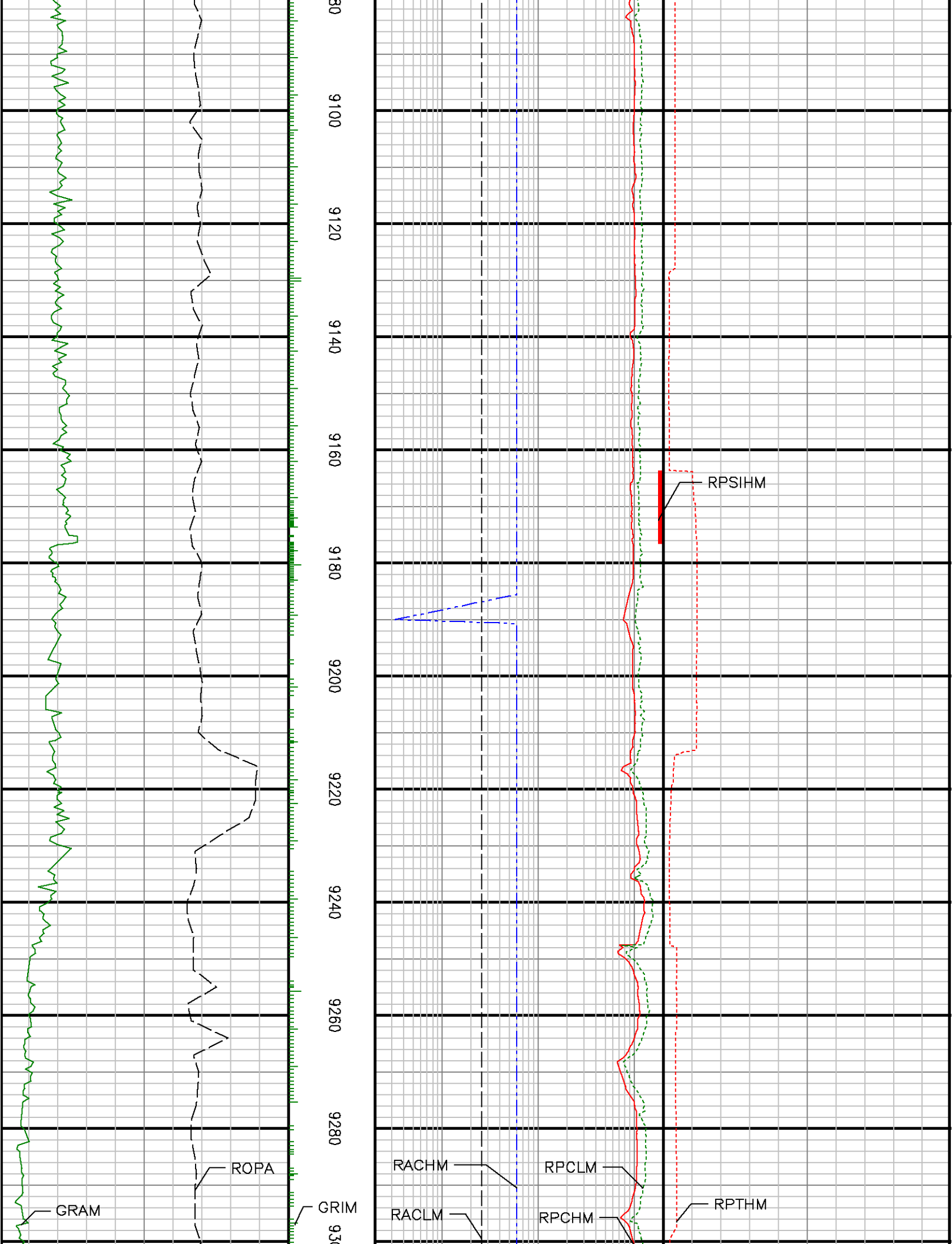


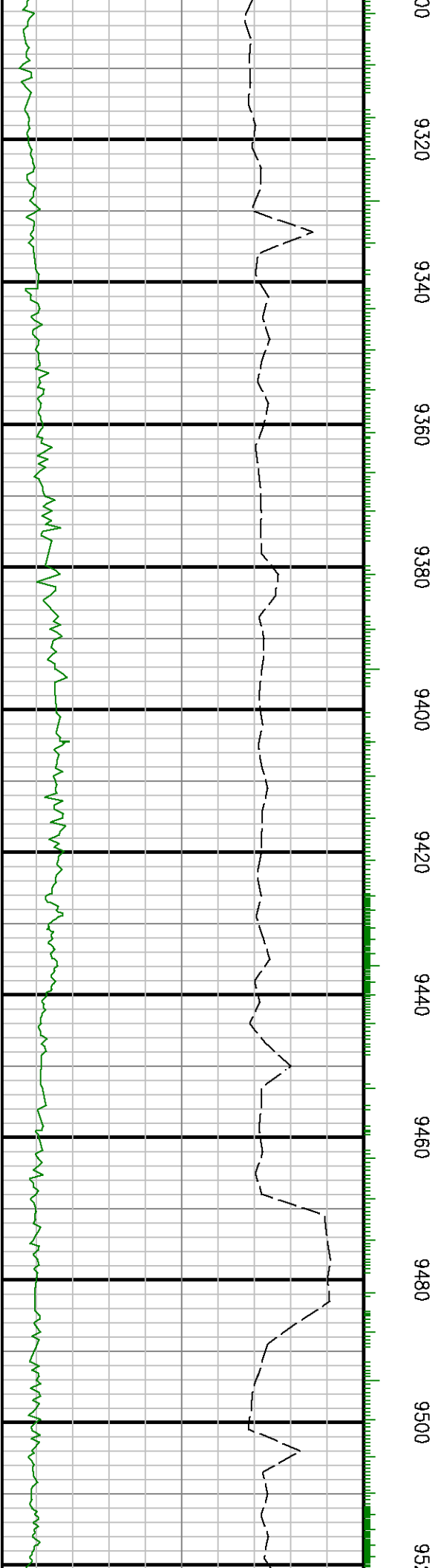
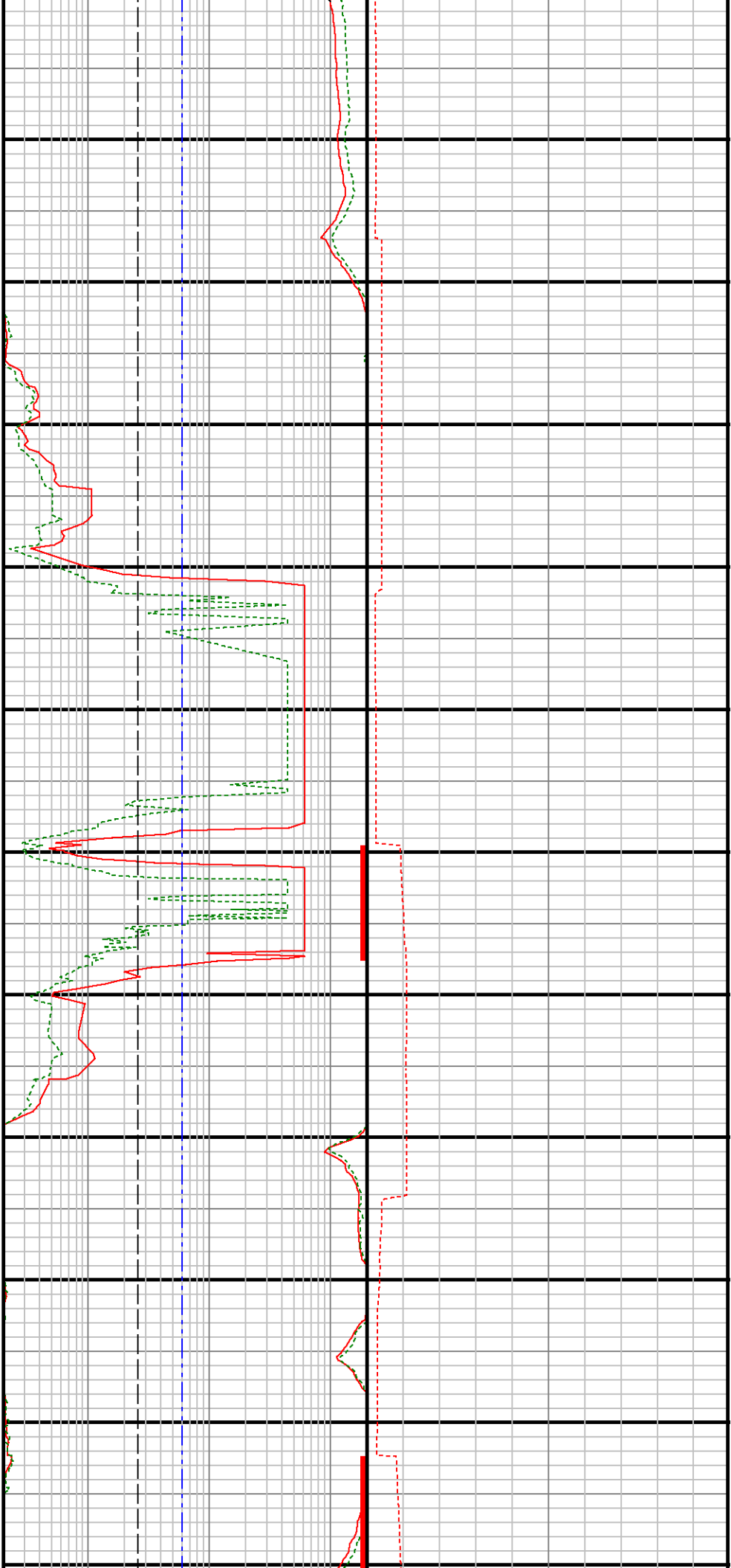


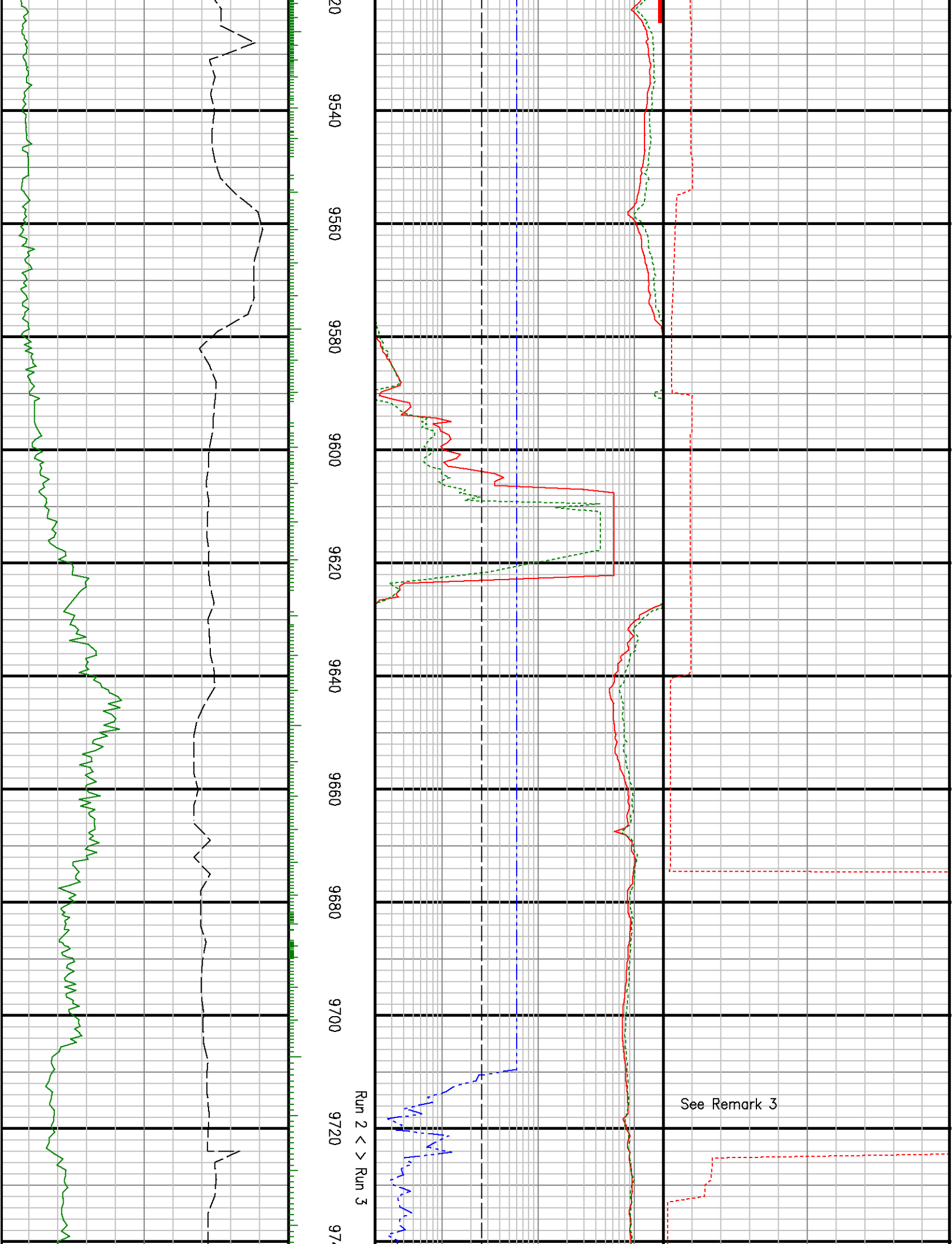


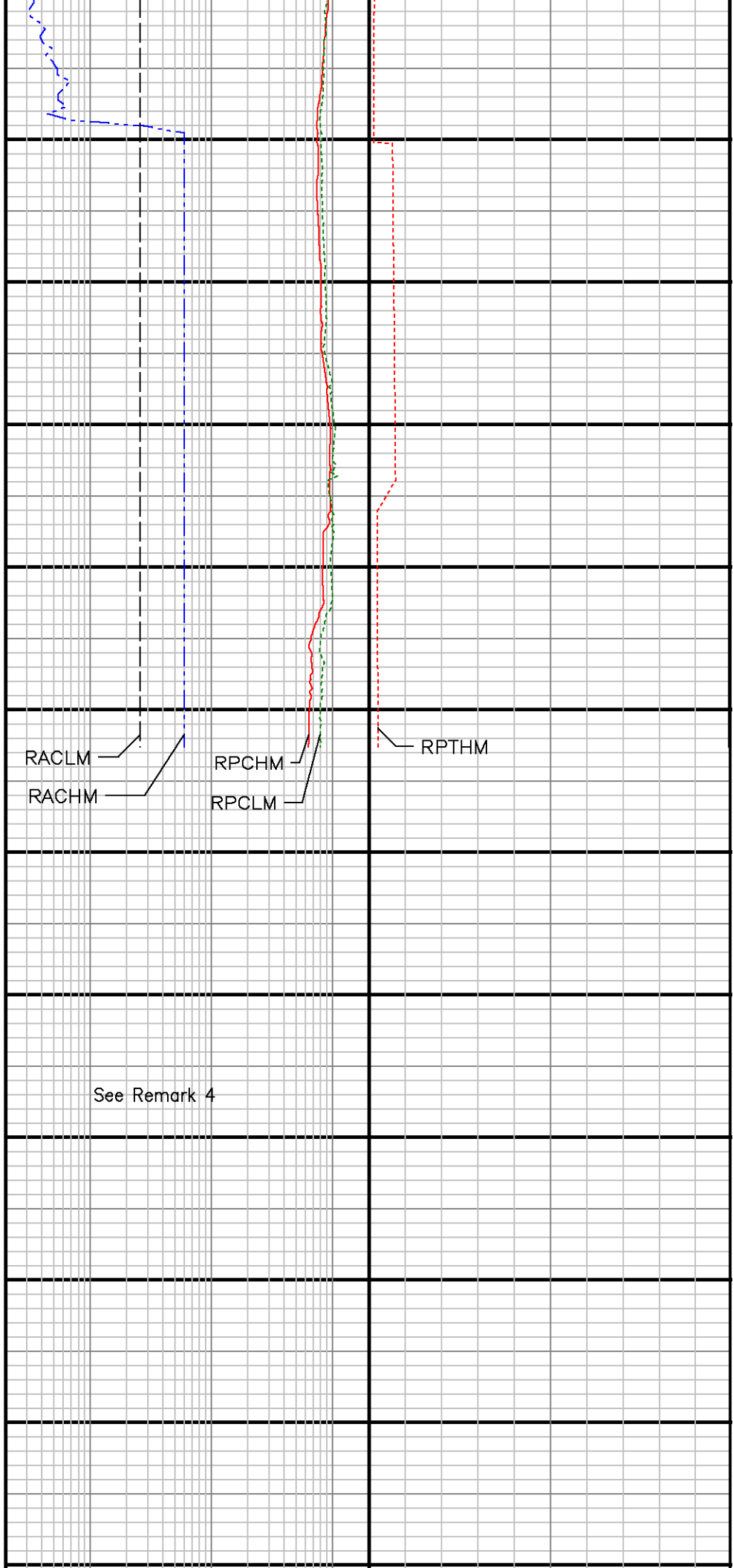
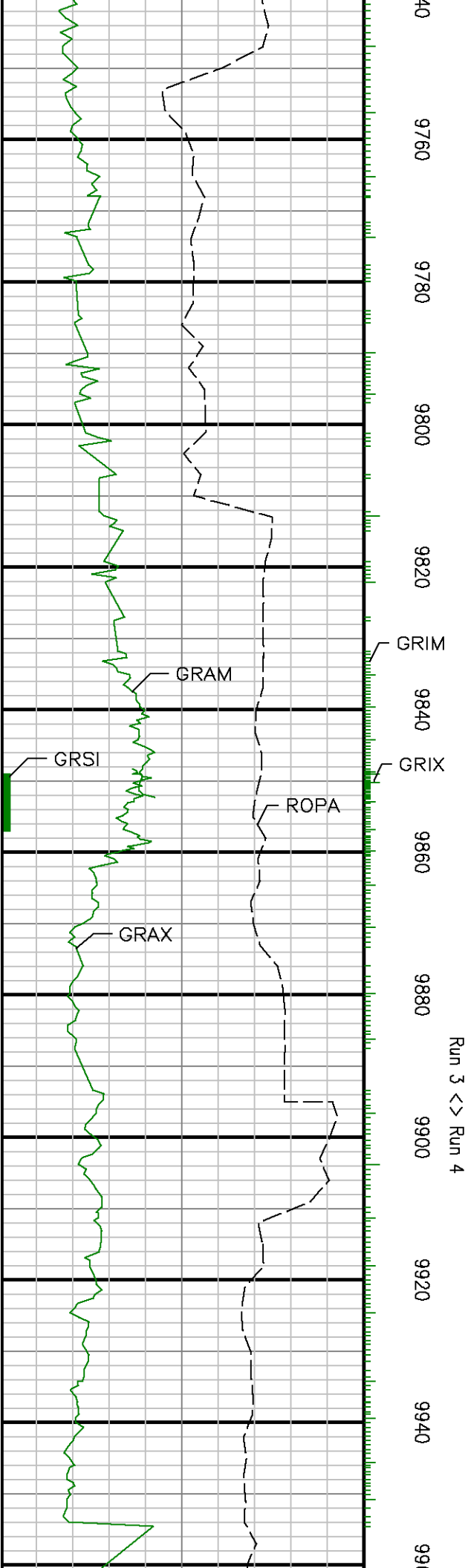






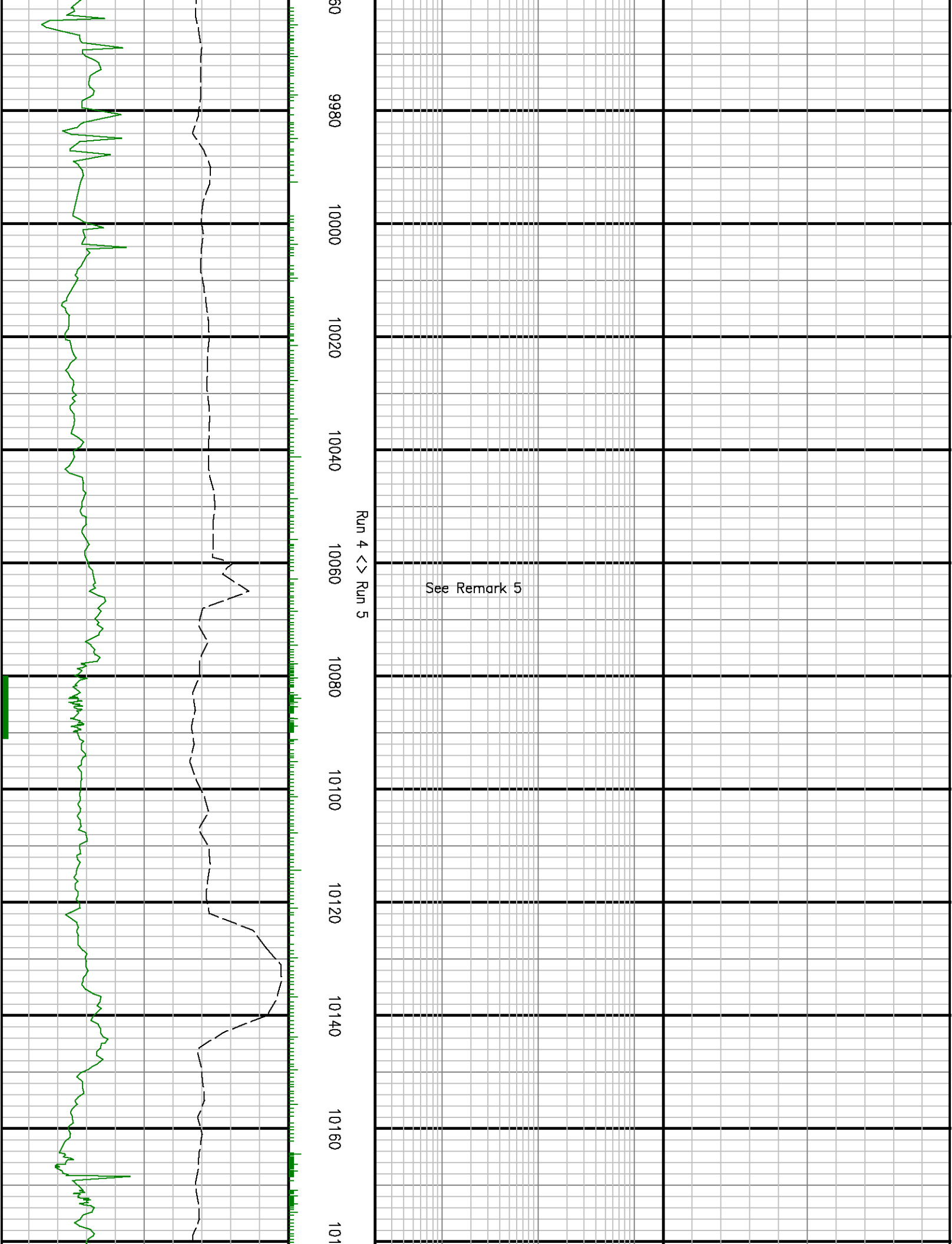


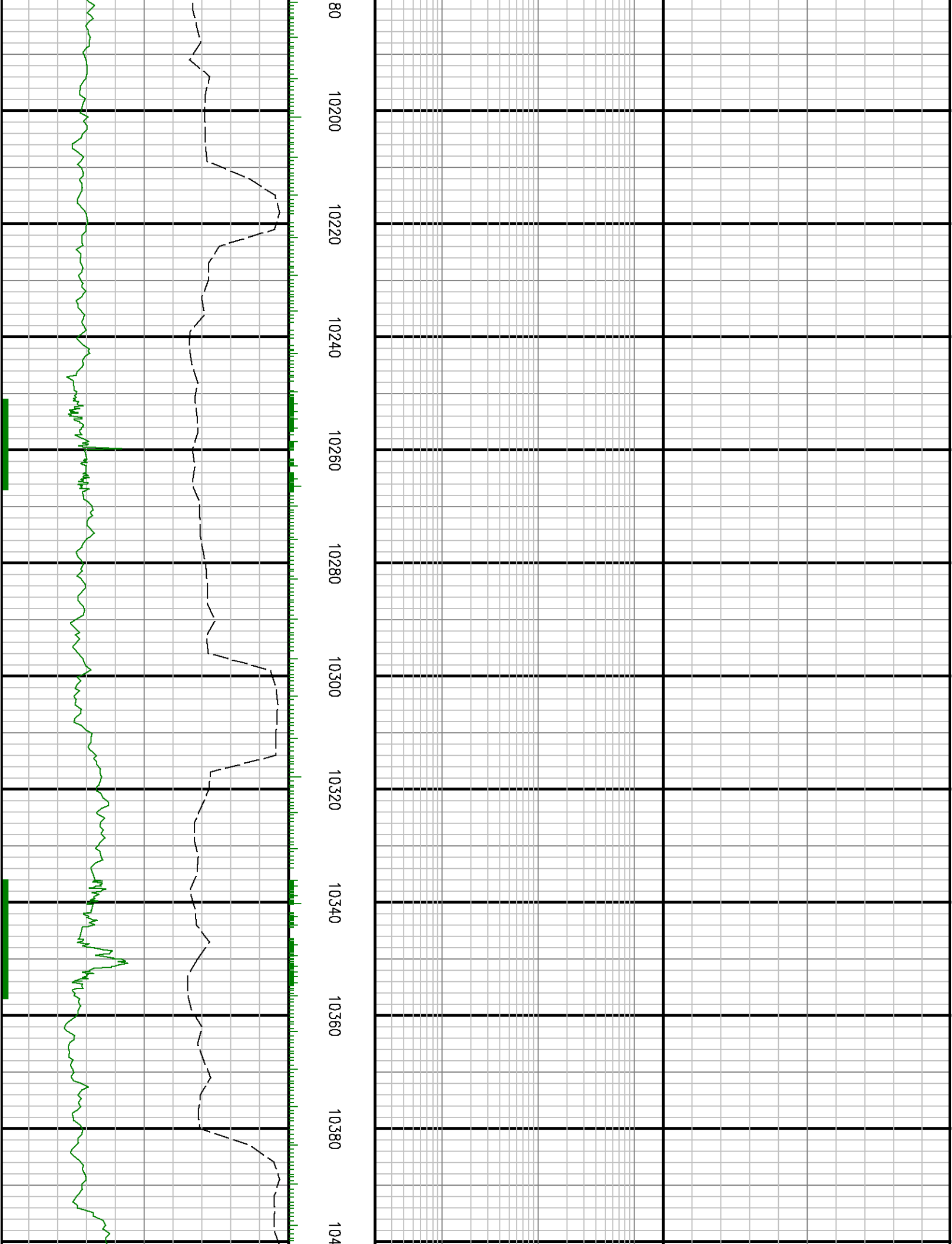


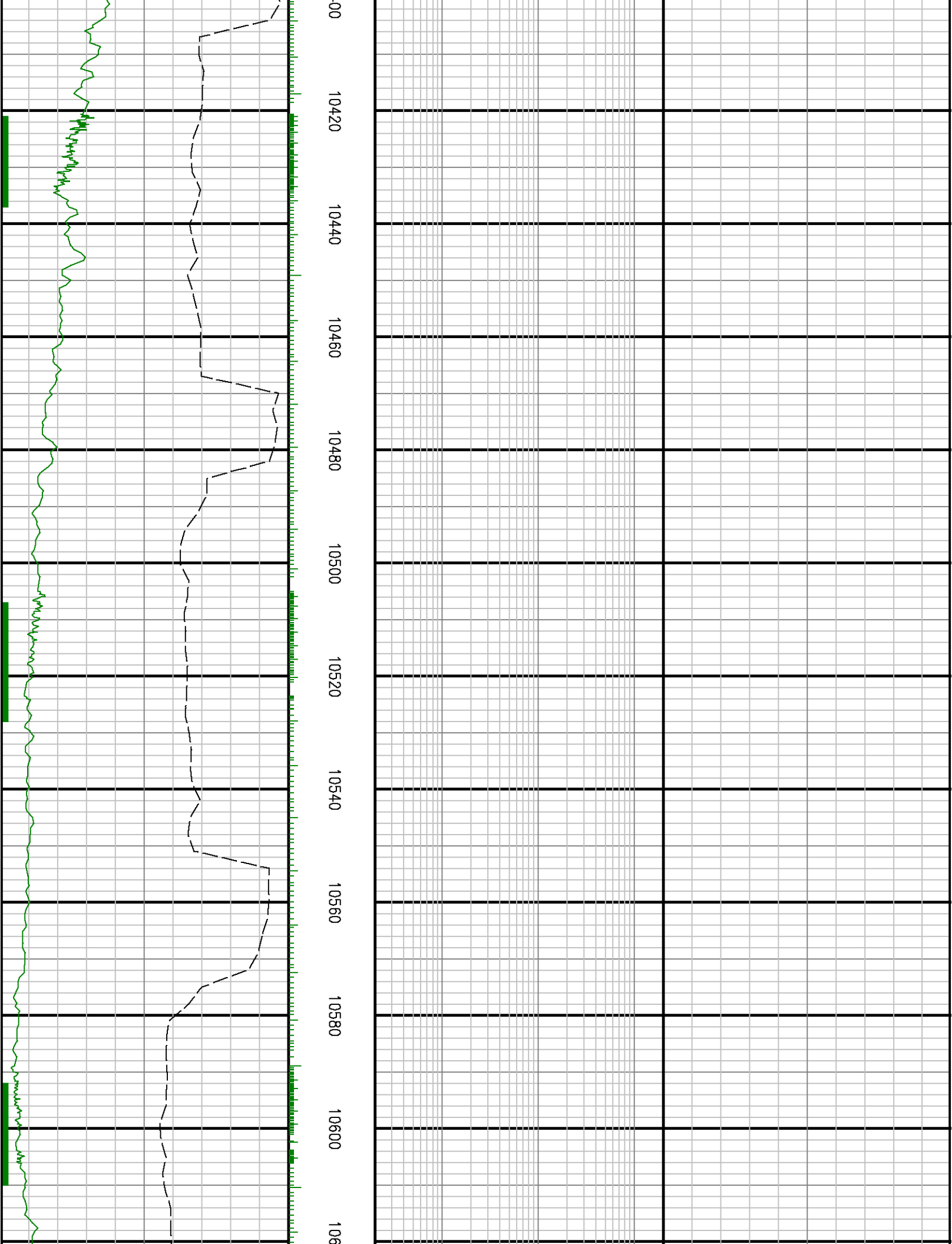


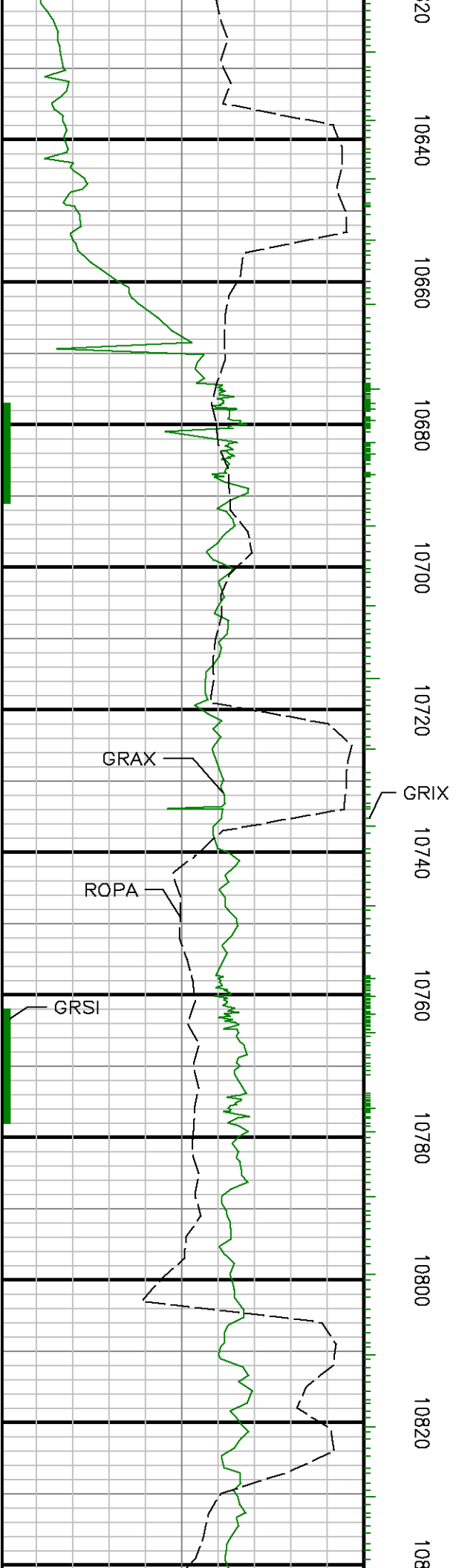
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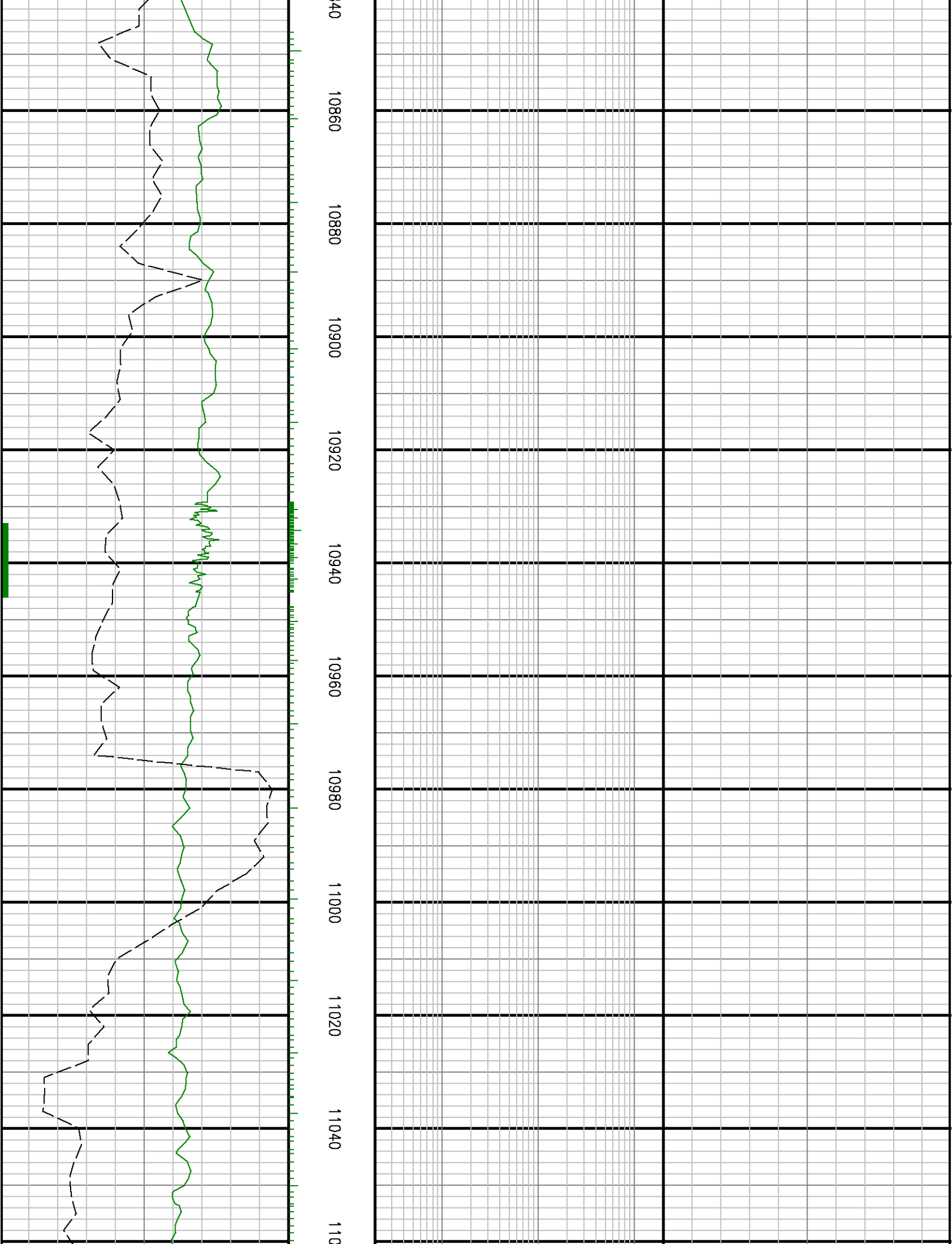


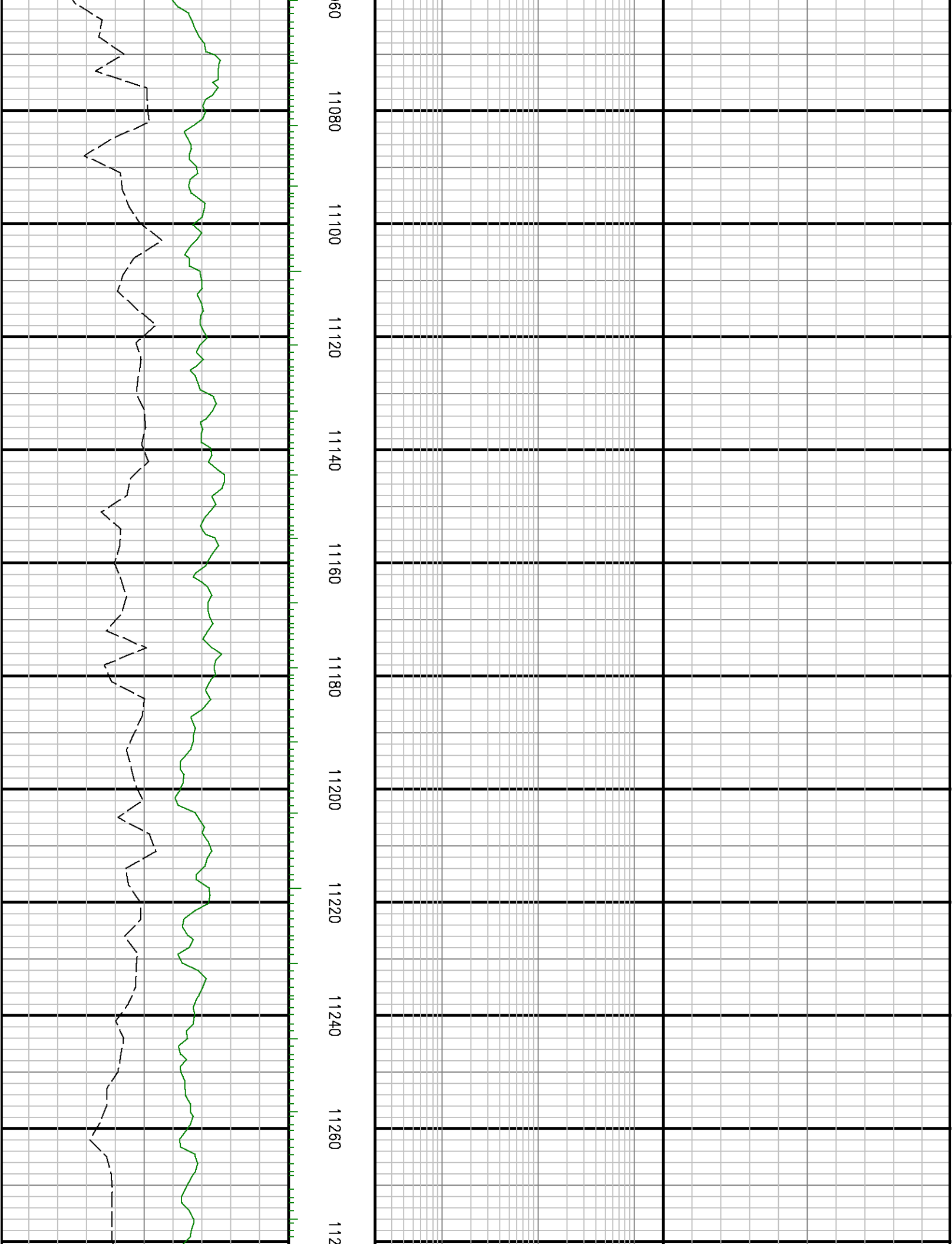


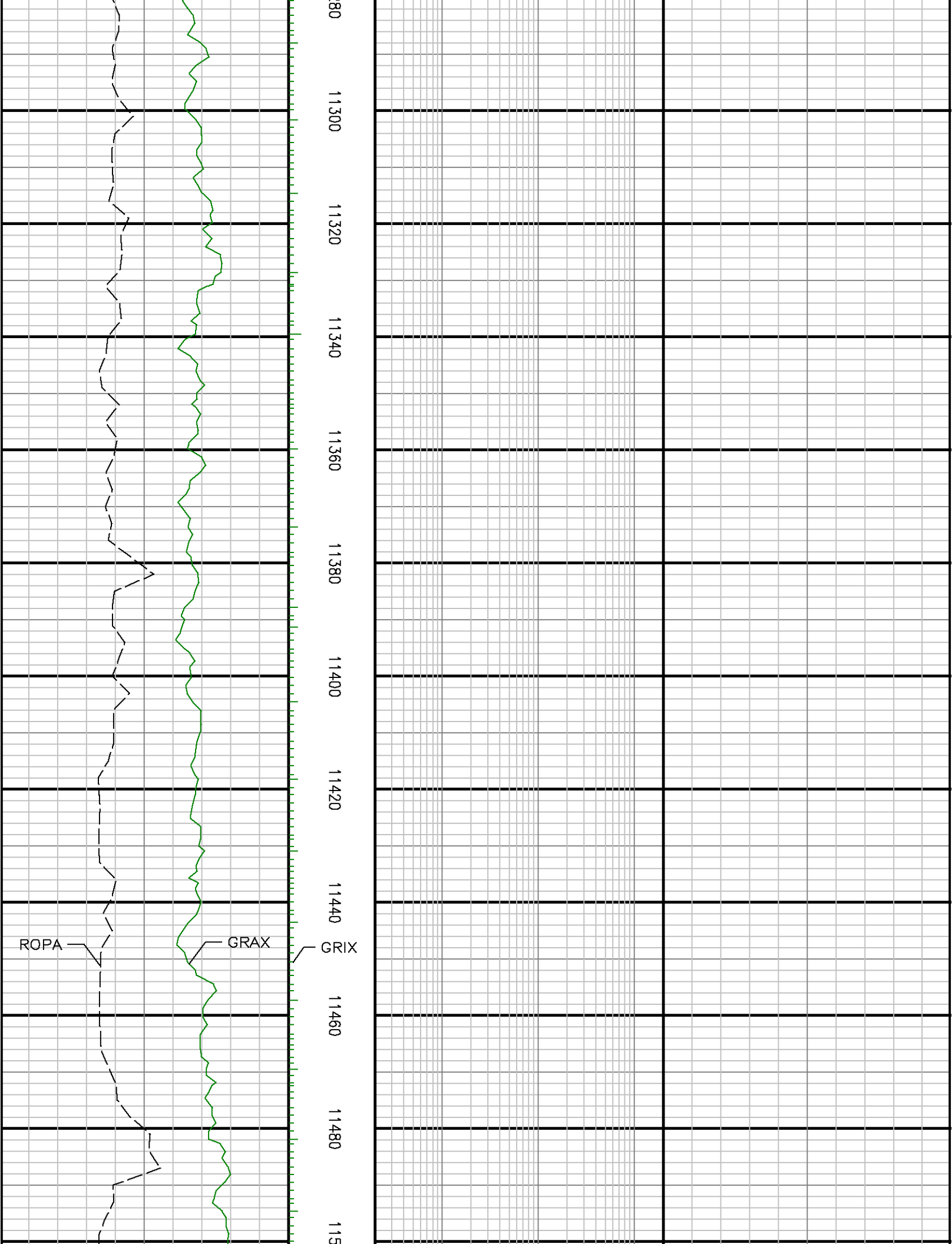


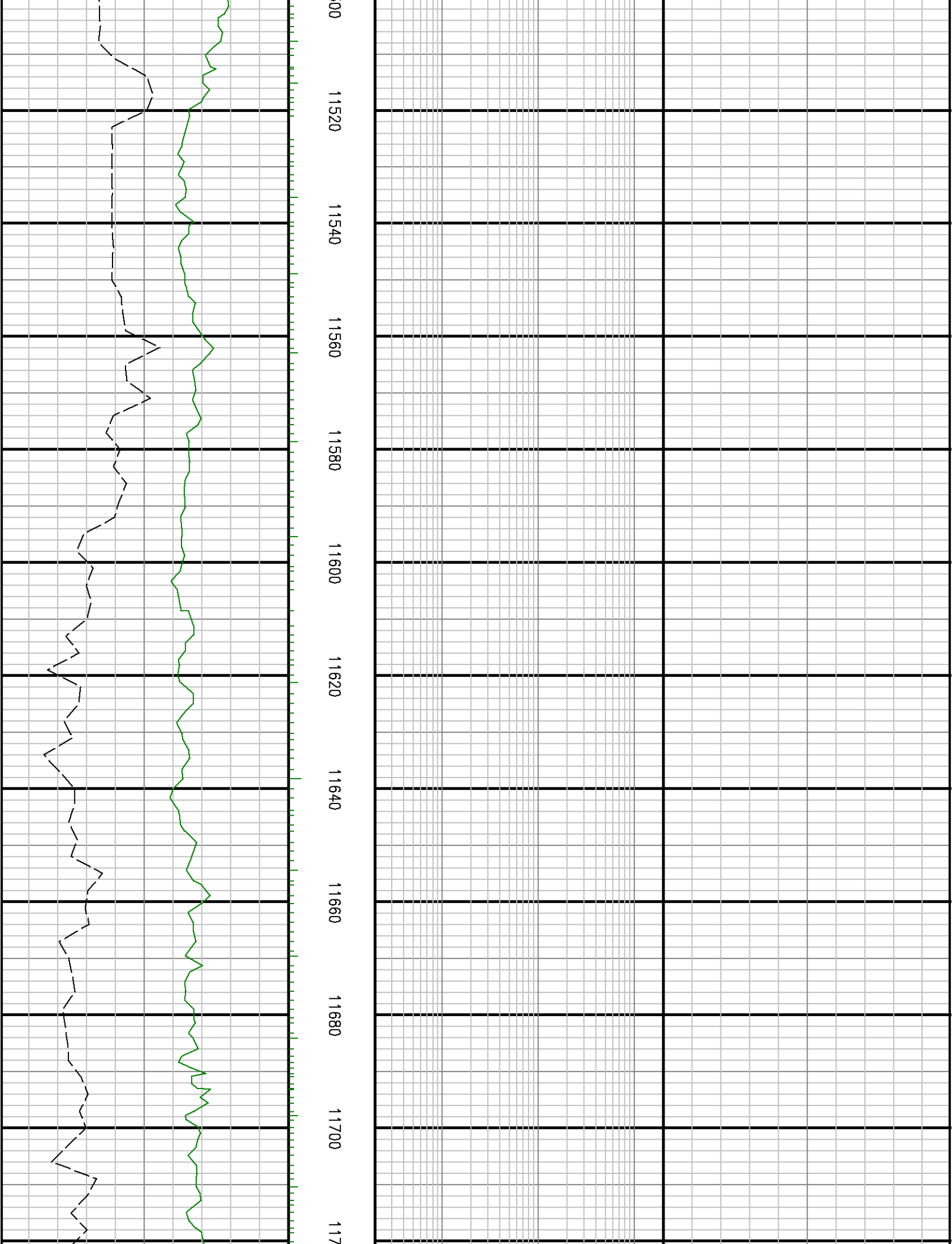




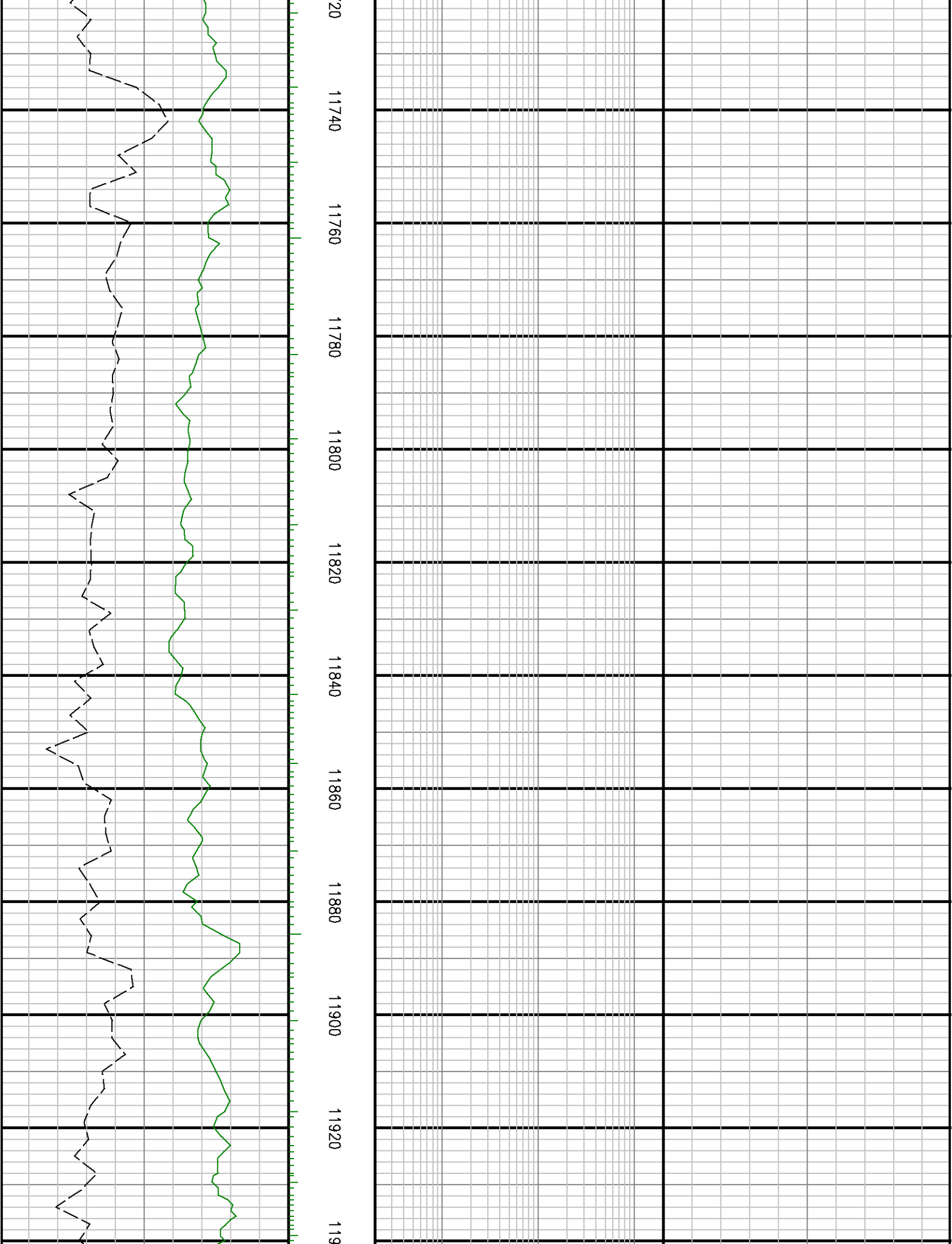


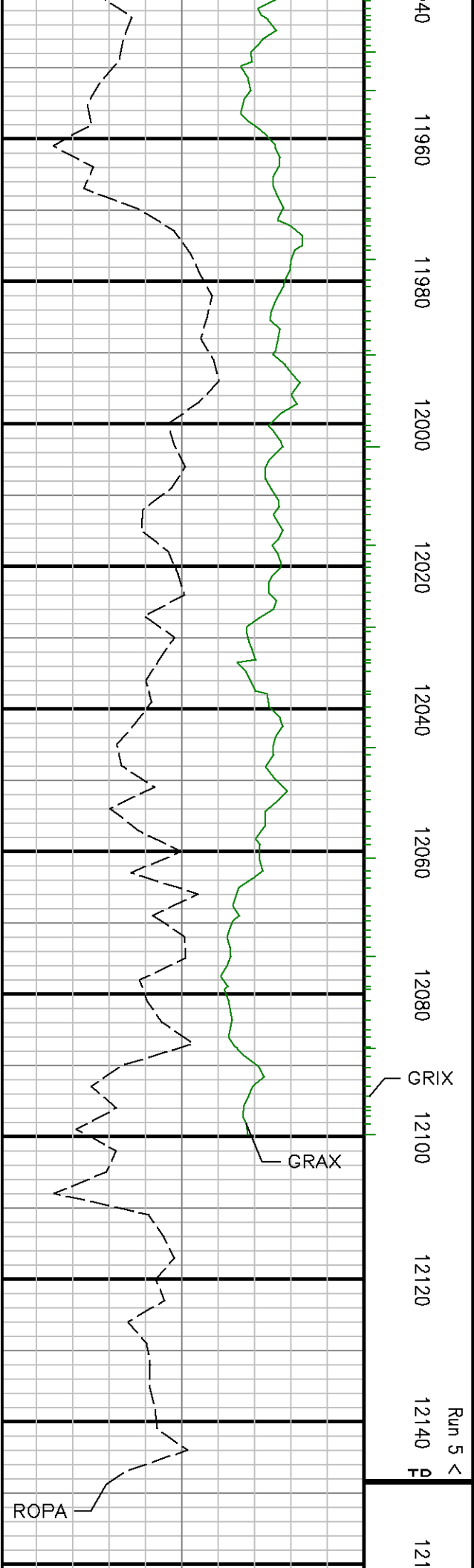












See Remark 6

GRX

GRAX

Run 5 <  
12140

121

ROPA

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