



Realtime Log

Natural Formation Evaluation  
Gamma Ray

Scale: 1:240 Measurd Depth

Company: Anadarco E&P Company LP

Well: Reynolds Cattle 31N-23HZ

Field: Wattenberg

Region: Continental US Country: United States

Status: FINAL PRINT

API Number: 05-123-39136

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

Log Measured From: Rig Floor 16.00 ft. Above P.D.

Depth Reference: Driller's Depth

Other Services: Directional

Elevations: N/A

KB: 4947.00 ft.

DF: 4963.00 ft.

GL: 4963.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6600.0 ft. Date From: 18/Jun/14 Dip Angle: 66.92° Azi Reference North: True

Bottom: 12457 ft. Date To: 25/Jun/15 Total Mag to Reference

Spud Date: 17/Jun/14 Field Strength: 52605.0 nT North Correction: 8.71°

Borehole Record

Casing Record

Hole Size From To Size Weight From To

13.500 in. Surface 1363.0 ft. 9.625 in. 36.00 lb/ft. Surface 1353.0 ft.

8.670 in. 1363.0 ft. 7533.0 ft. 7.000 in. 26.00 lb/ft. Surface 7521.0 ft.

6.125 in. 7533.0 ft. 12457.0 ft.

Mud Record

Deviation Record

Type From To Hole Size Interval Inc / Az (Start) Inc / Az (End)

Water Based Surface 12457.0 ft. 13.500 in. 1363.0 ft. 0.0° / 0.0° 0.6° / 61.2°

8.750 in. 6170.0 ft. 0.6° / 61.2° 80.6° / 267.9°

6.125 in. 4924.0 ft. 80.6° / 267.9° 91.1° / 266.8°

Acquisition System Software Version Other

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

PATS 6.4.1.34 Job No: 6362752 / D&E

District / Unit: RMD

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Log Run Summary

LWD	BHA	Bit	Bit	Bit	Bit	Assembly	Logged Interval		Bit Depth Interval		Date / Time				Circ.
Run	Run	Run	Size	Type	Gauge	Type	Top	Bottom	From	To	Start		End		Time
No.	No.	No.	(in.)		Length (in.)		(ft.)	(ft.)	(ft.)	(ft.)					(hrs.)
1	1	1	8.750	PDC	2.000	Steerable	6600.0	7475.0	1363.0	7533.0	18/Jun/2014	02:05	21/Jun/2014	01:21	43.2
2	2	2	6.125	PDC	6.000	Steerable	7475.0	12393.0	7533.0	12457.0	22/Jun/2014	05:20	24/Jun/2015	09:43	42.3

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
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	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Adam Schlenz	17/Jun/2014	21/Jun/2014	Greg Dore	17/Jun/2014	25/Jun/2014	David Campbell	22/Jun/2014	25/Jun/2014

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 (mg/L)	K+ (%)
17/Jun/2014	22:00	1	2413.0	Water Based	8.4	N/A	0.1	N/A	.5/98.5	Active Mud Pit	2000	N/A
18/Jun/2014	22:00	1	6609.0	Water Based	9.8	8	9.5	N/A	1/96	Active Mud Pit	2200	N/A
19/Jun/2014	22:00	1	7533.0	Water Based	10.2	12	9.5	N/A	3/87.9	Active Mud Pit	2200	N/A
20/Jun/2014	22:00	1	7533.0	Water Based	10.2	13	9.5	N/A	3/97.9	Active Mud Pit	2200	N/A
21/Jun/2014	22:00	2	8251.0	Water Based	9.8	11	9.7	N/A	3.5/89	Active Mud Pit	2300	N/A
22/Jun/2014	22:00	2	11051.0	Water Based	9.5	13	9.5	N/A	3.8/89.7	Active Mud Pit	2300	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	point
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	klbs

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12592567	Directional	61.99	6.750	3.250
1	SRIG	11858322	Gamma	58.61	6.750	3.250
2	DIR	12479858	Directional	66.30	4.750	2.750
2	SRIG	12722376	Gamma	62.94	4.750	2.750

Service and Tool Mnemonics

Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments

1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.
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2.) The solid line on the left side of the gamma ray track indicates the interval over which data was collected while not rotating.

3.) 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 1363 to 7533 feet MD (1363 to 7112 feet TVD).

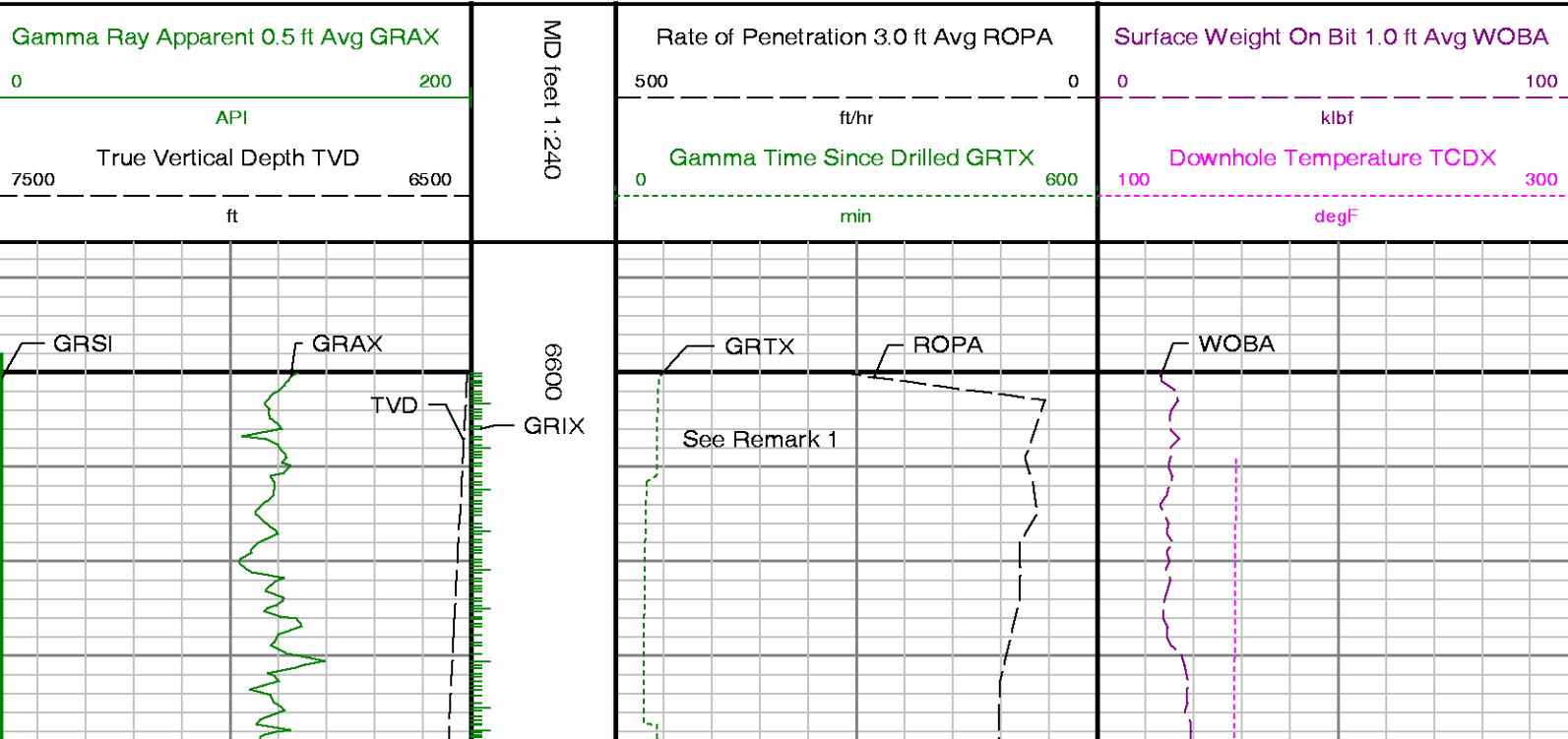
4.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7533 to 12457 feet MD (7112 to 7100 feet TVD).

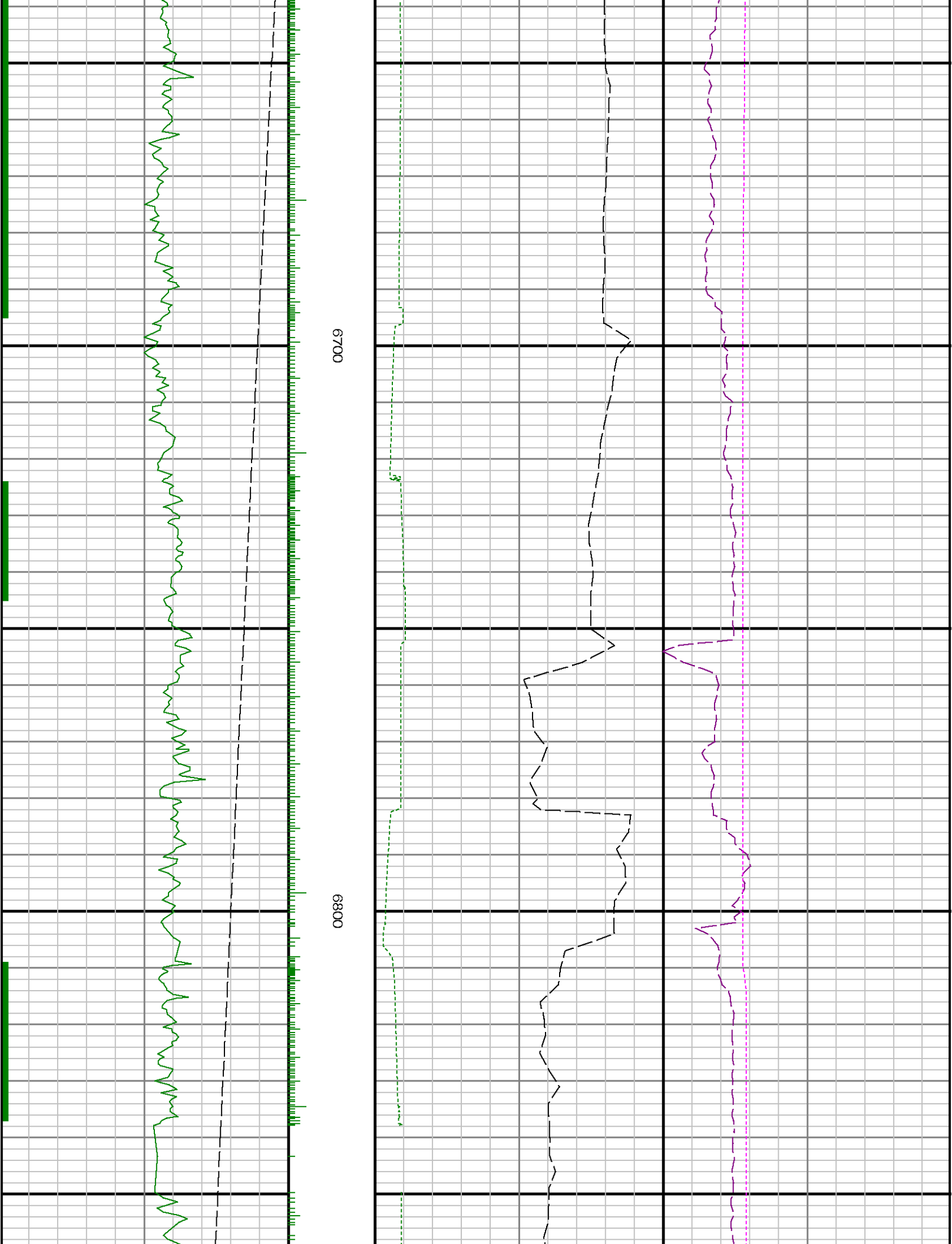
# Remarks

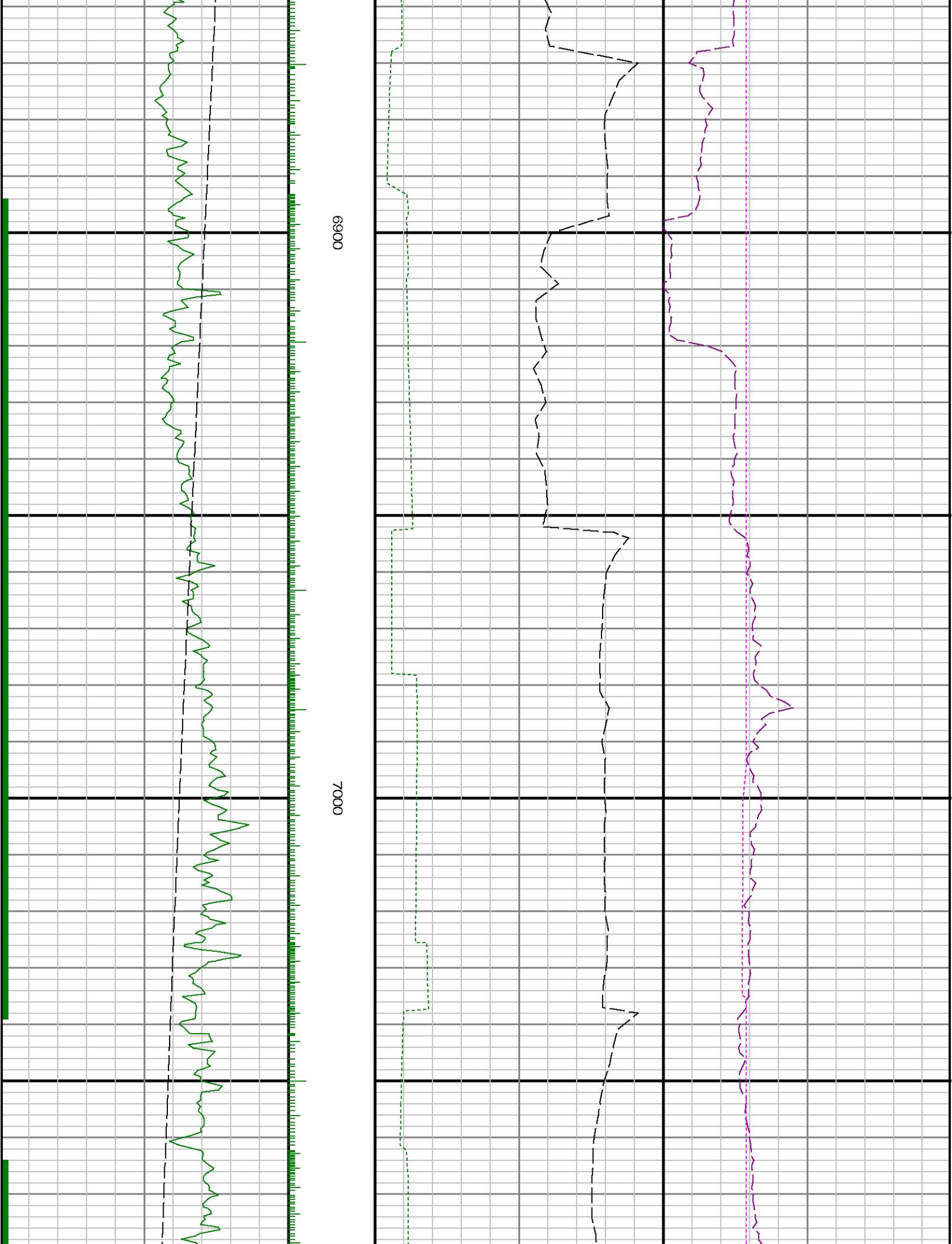
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6600	8.750	1	Gamma ray logging operations began at 6600 feet MD (6508 feet TVD).
2	7533	8.750	1	The interval from 7475 to 7533 feet MD ( 7105 to 7112 feet TVD) was logged more than 10 hrs after being drilled due to a trip out of the hole for casing and cement operations.
3	9528	6.125	2	No data was recorded due to depth tracking issue from 9530 to 9557 feet MD (7110 to 7110 feet TVD).
4	12393	6.125	2	No sensor data logged from 12393 to 12457 feet MD ( 7100 feet TVD) due to sensor to bit offset at well TD.

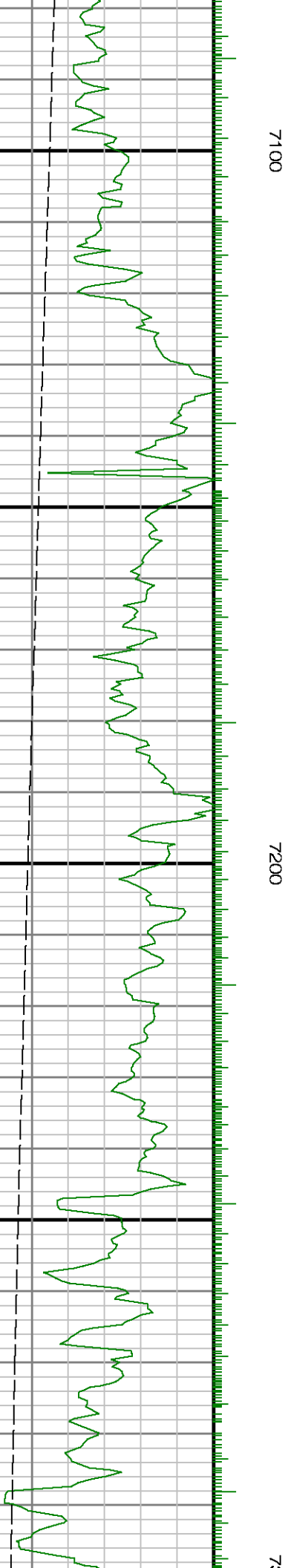
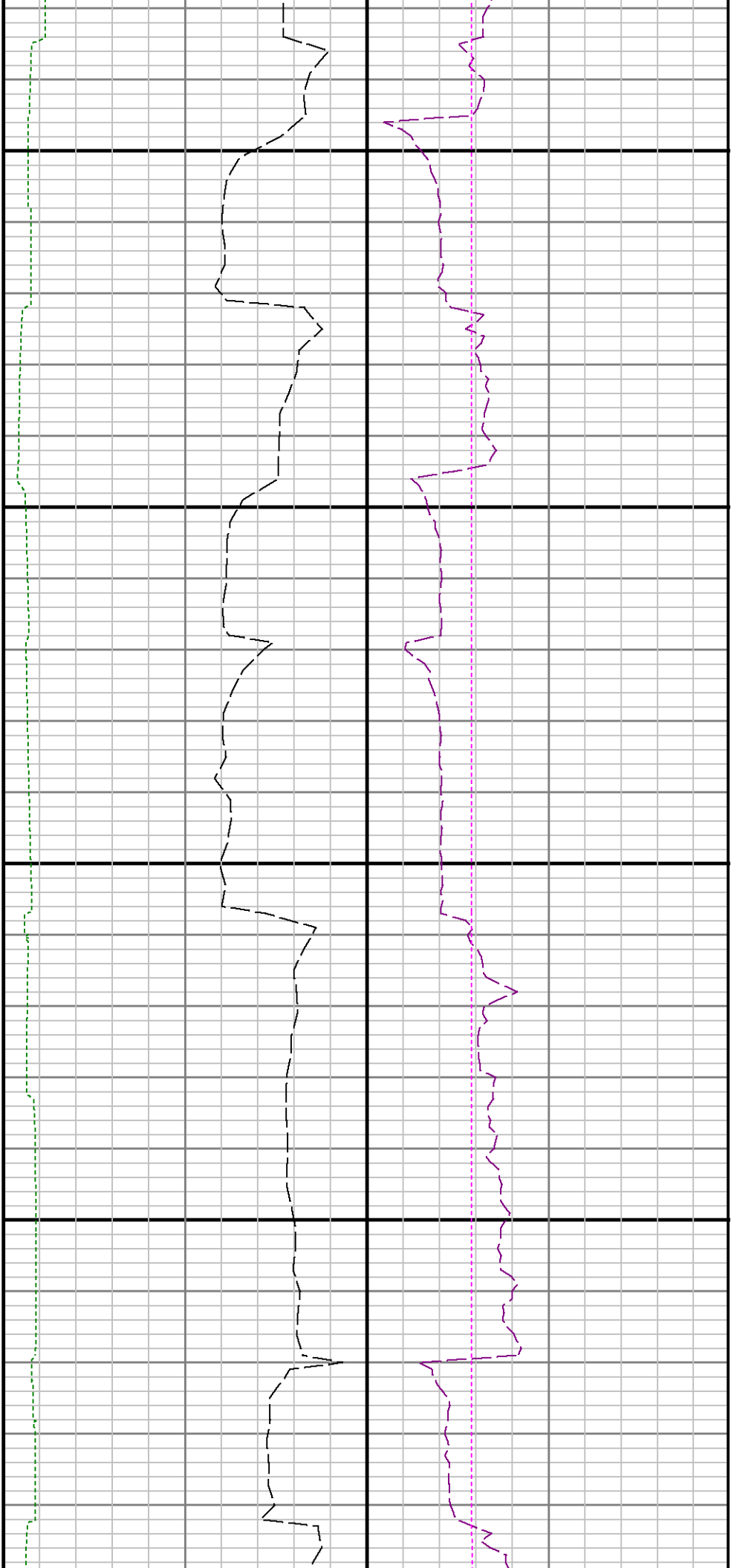


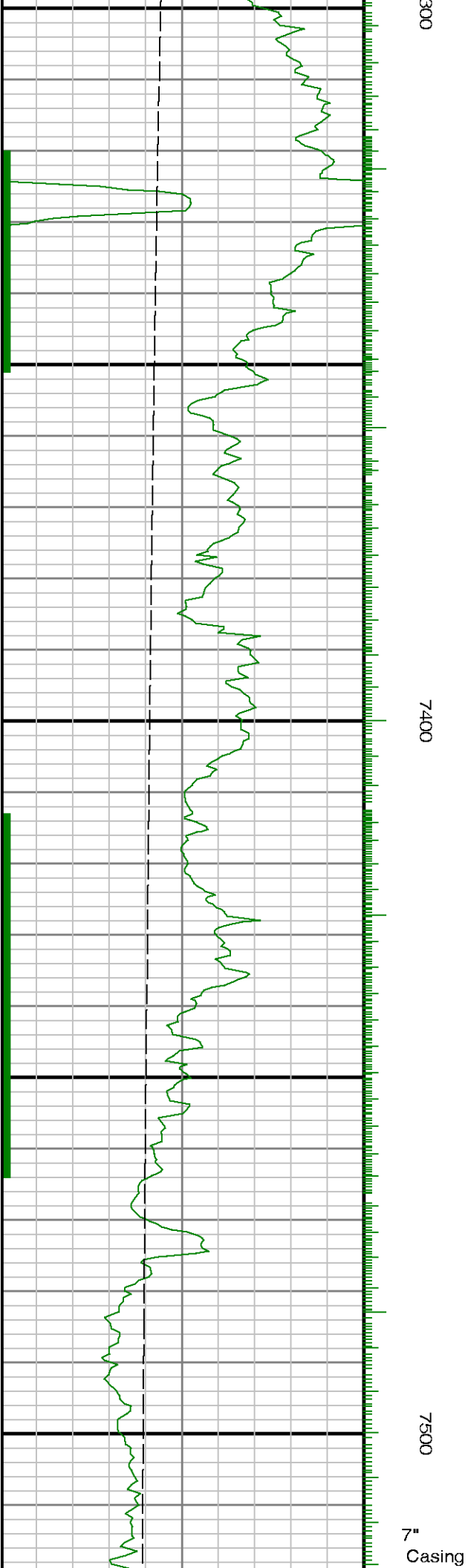
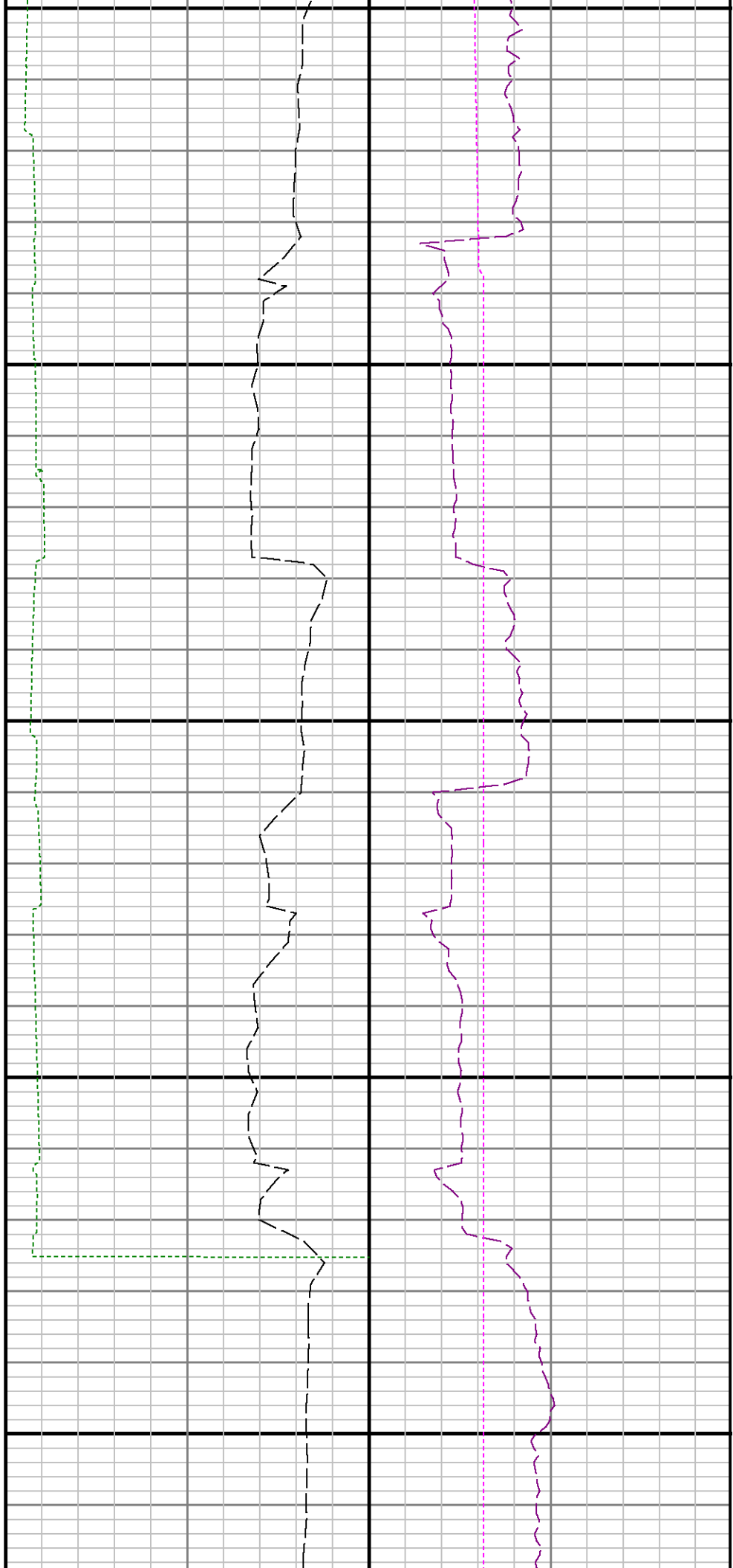
Company : Anadarko E&P Company LP  
Well : Reynolds Cattle 31N-23HZ  
Interval : 6586.17 - 12470.00 feet  
Created : 24/Jun/2014 8:54:13 AM

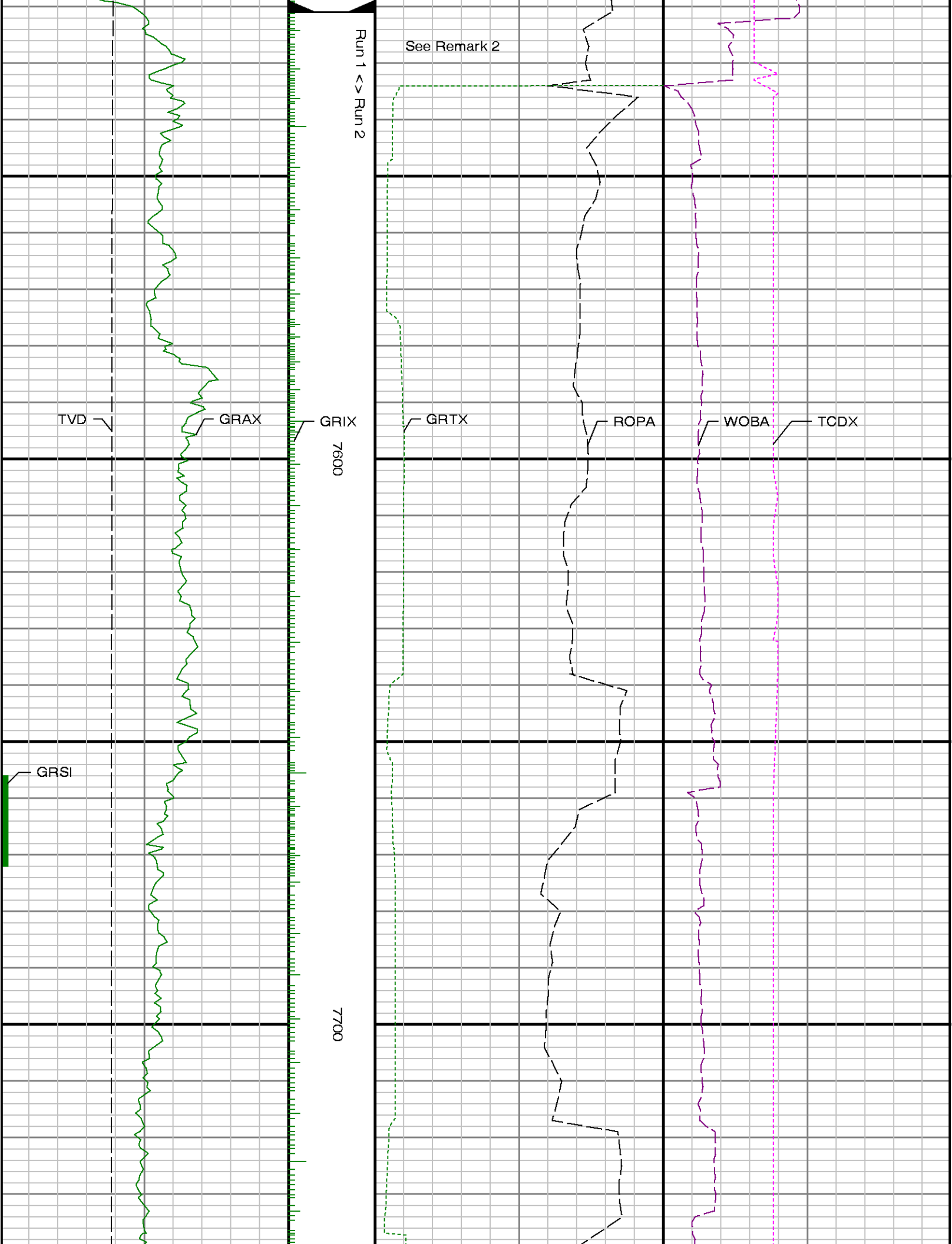




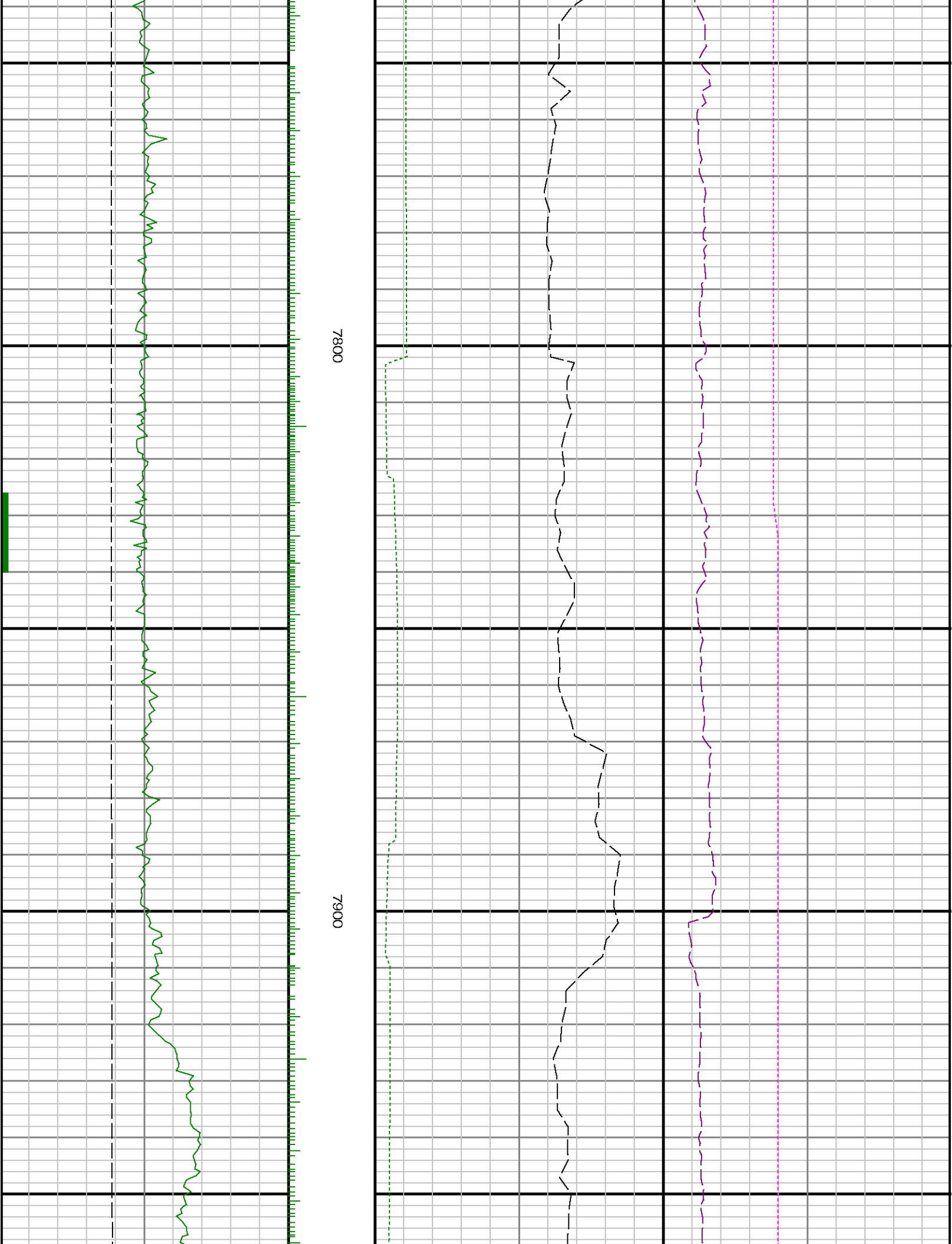


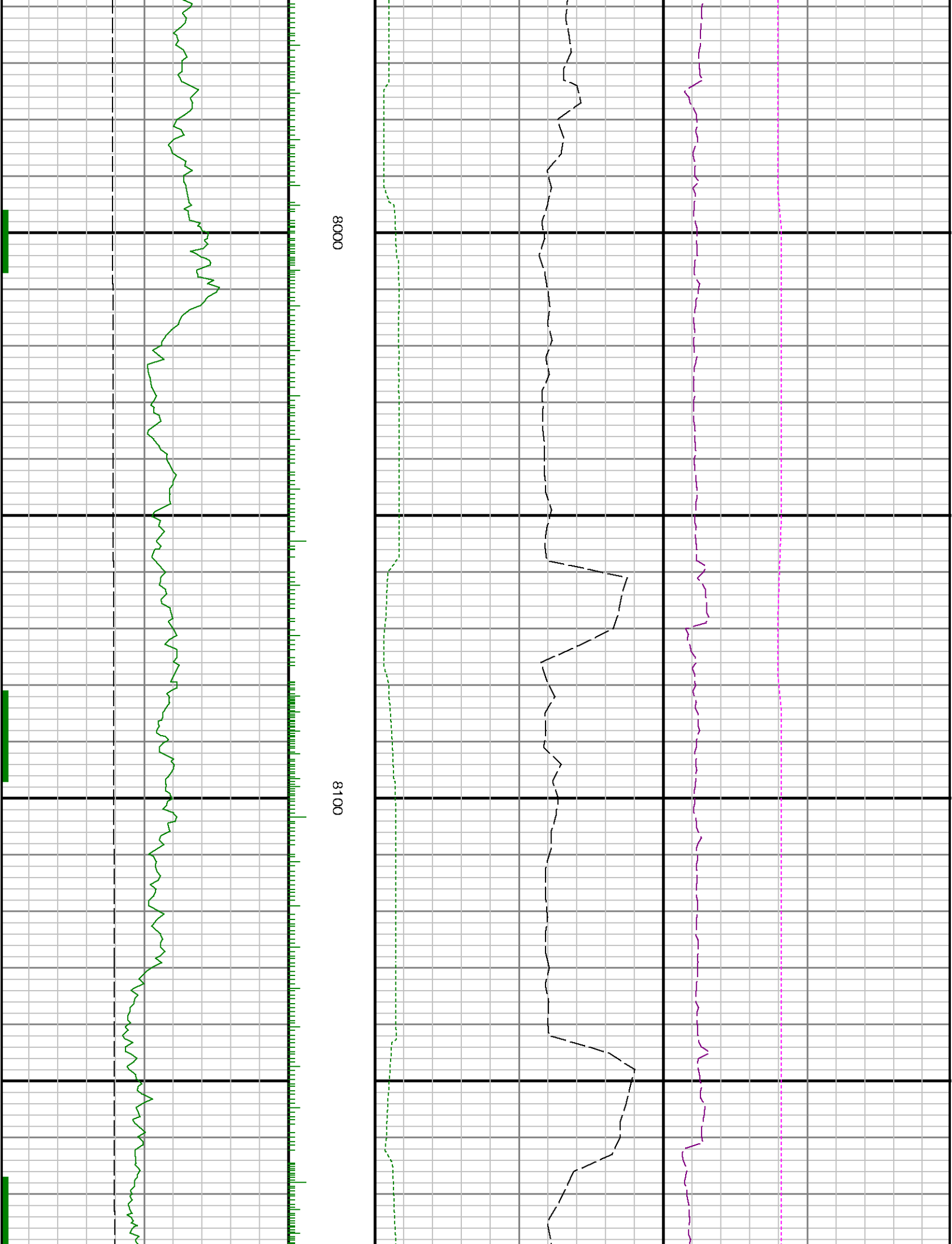


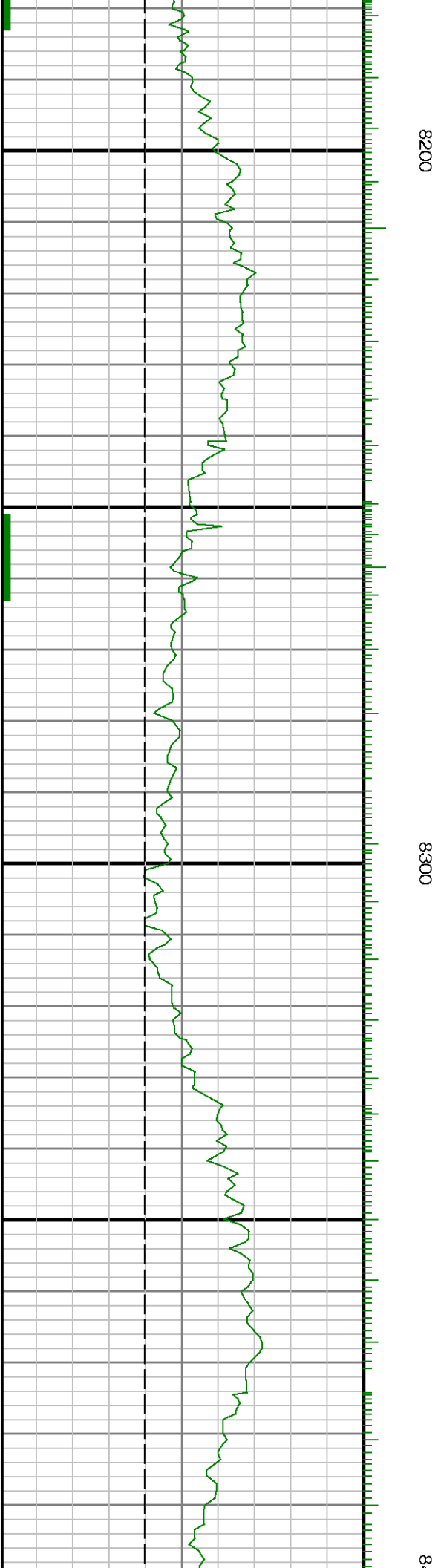


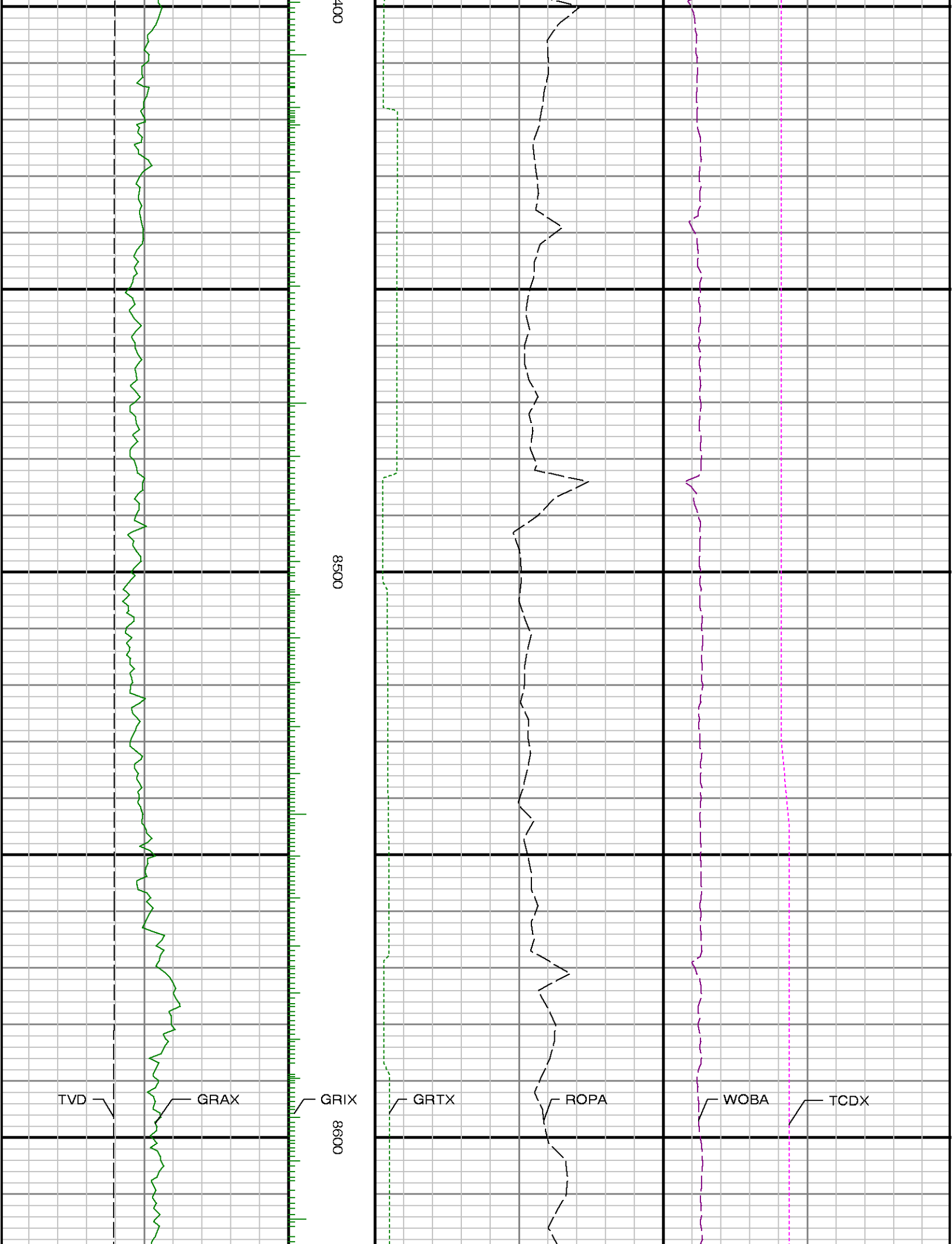


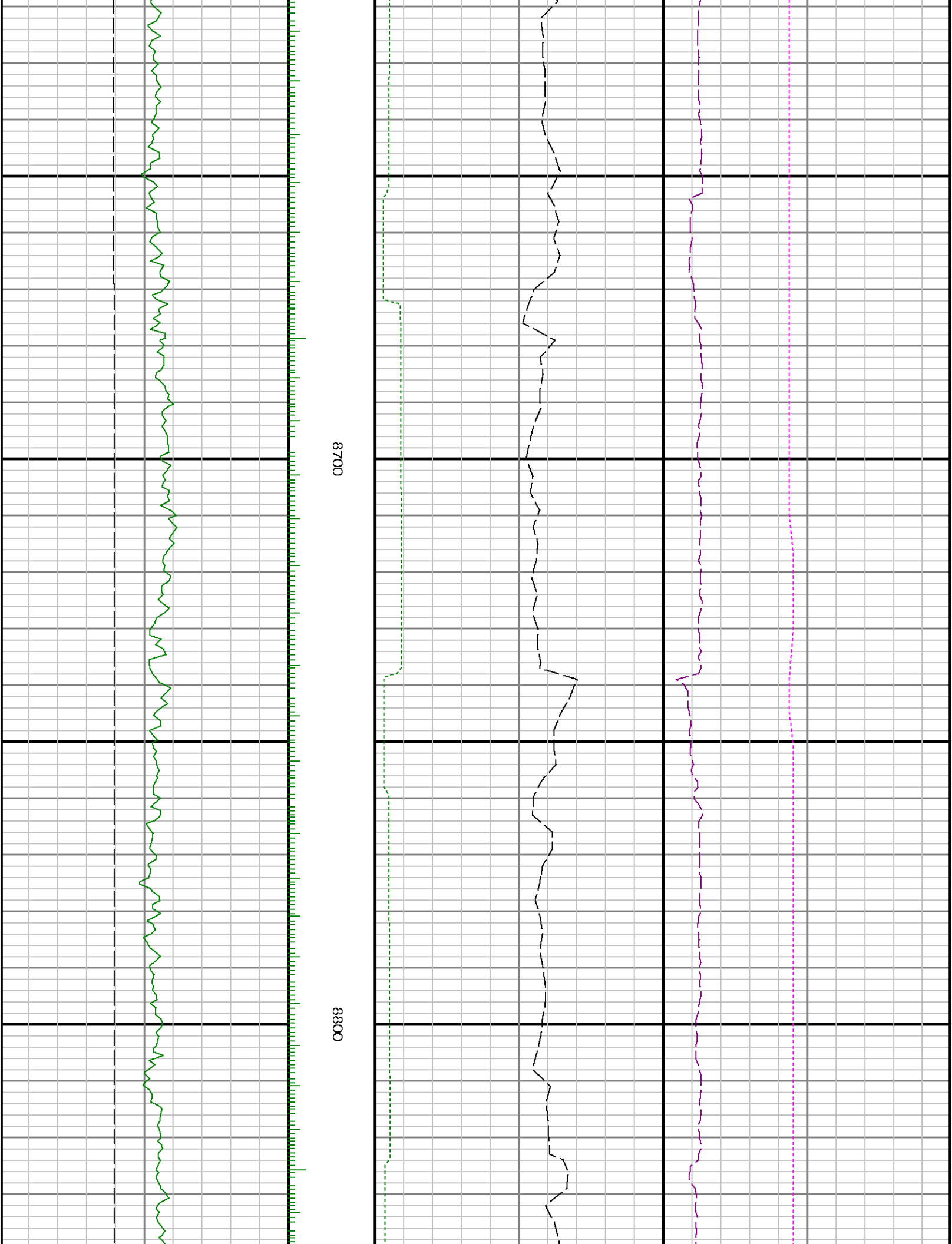


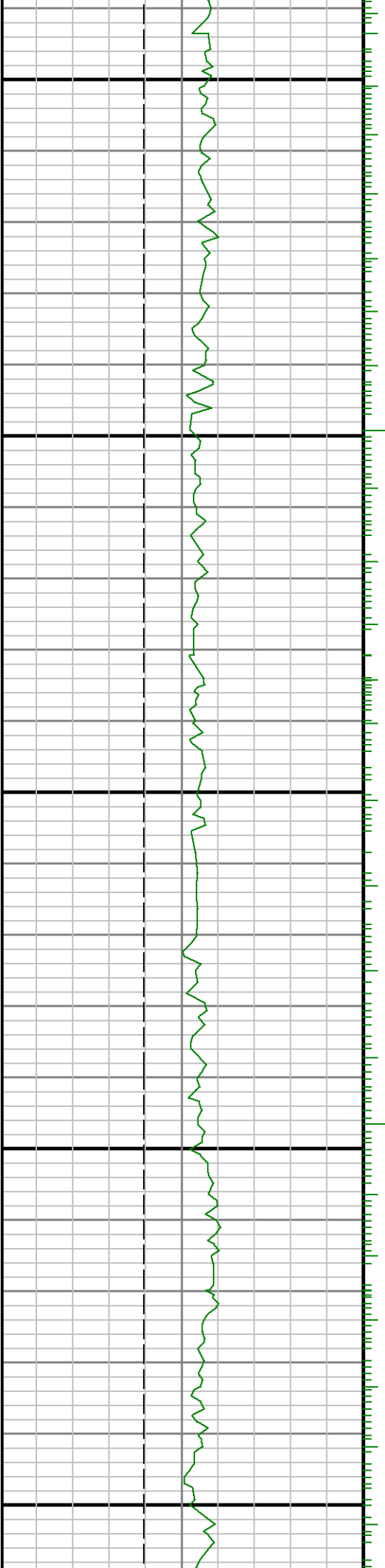






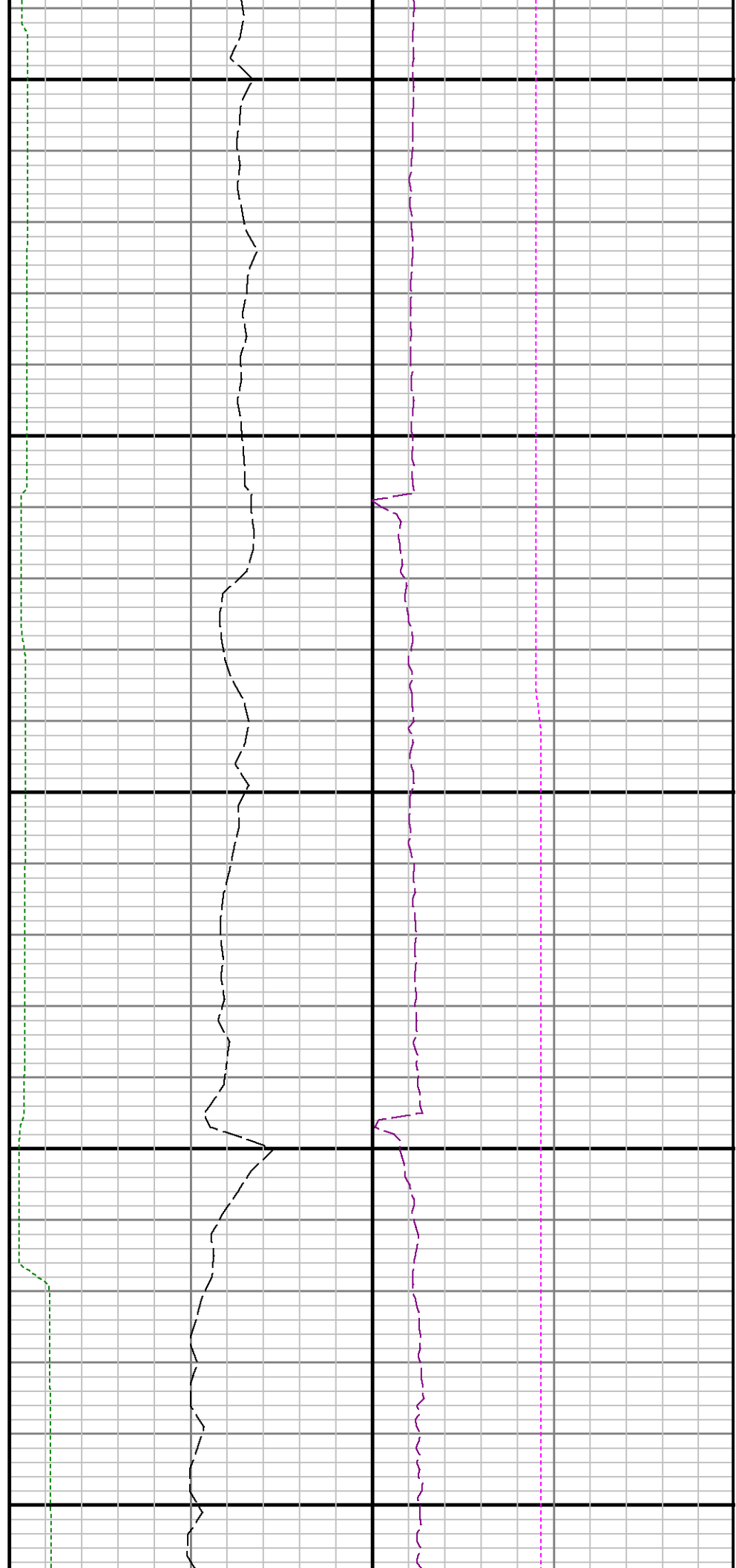


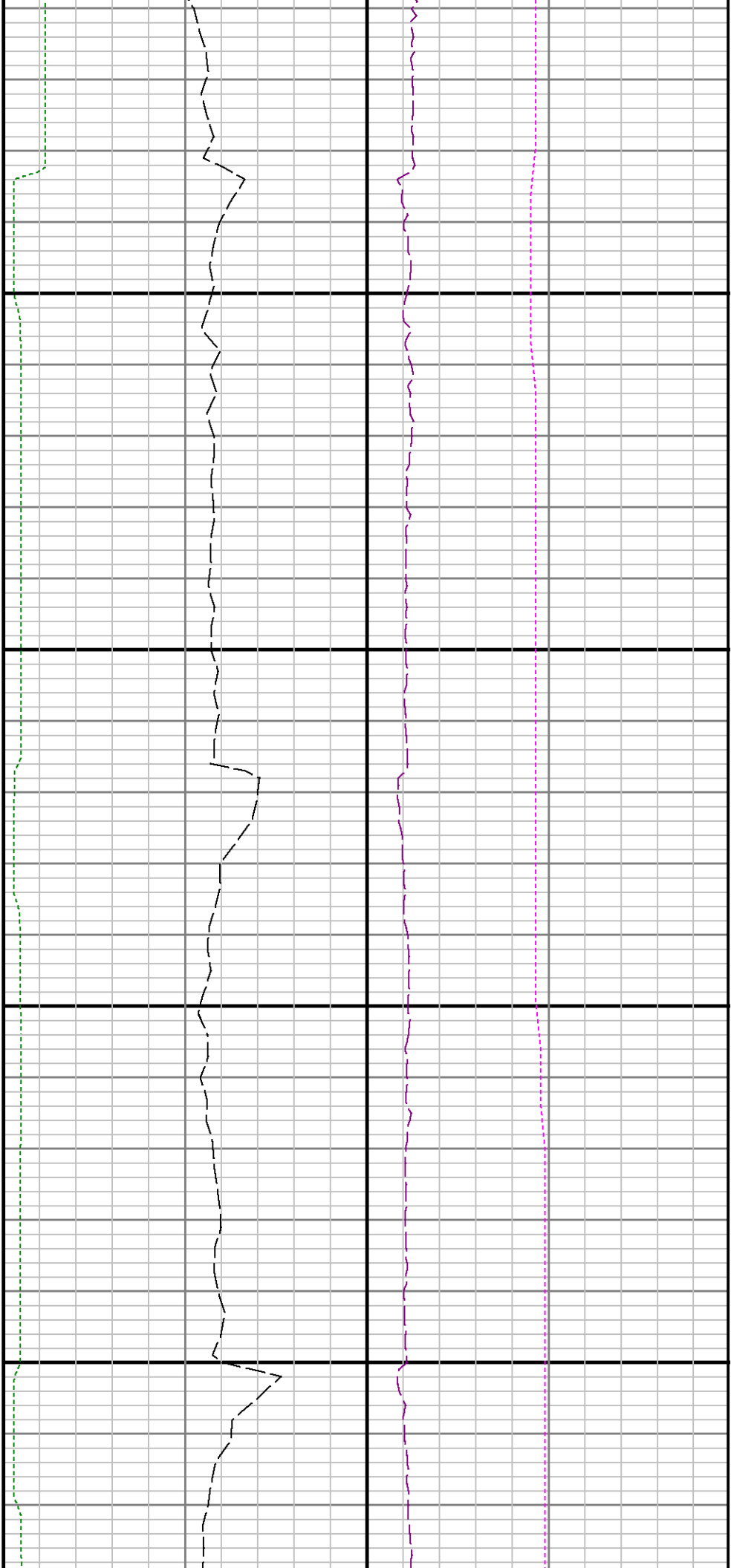




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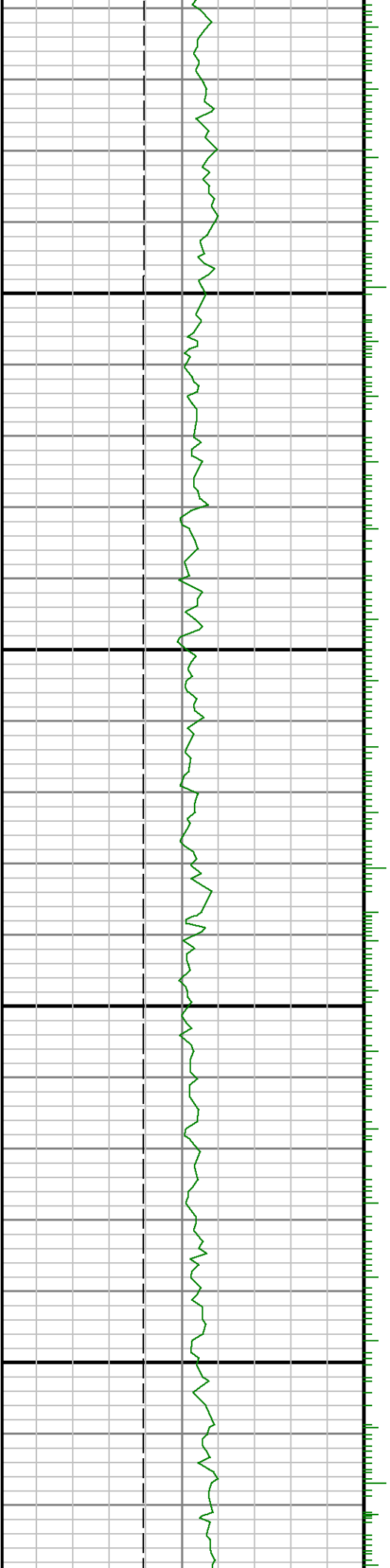
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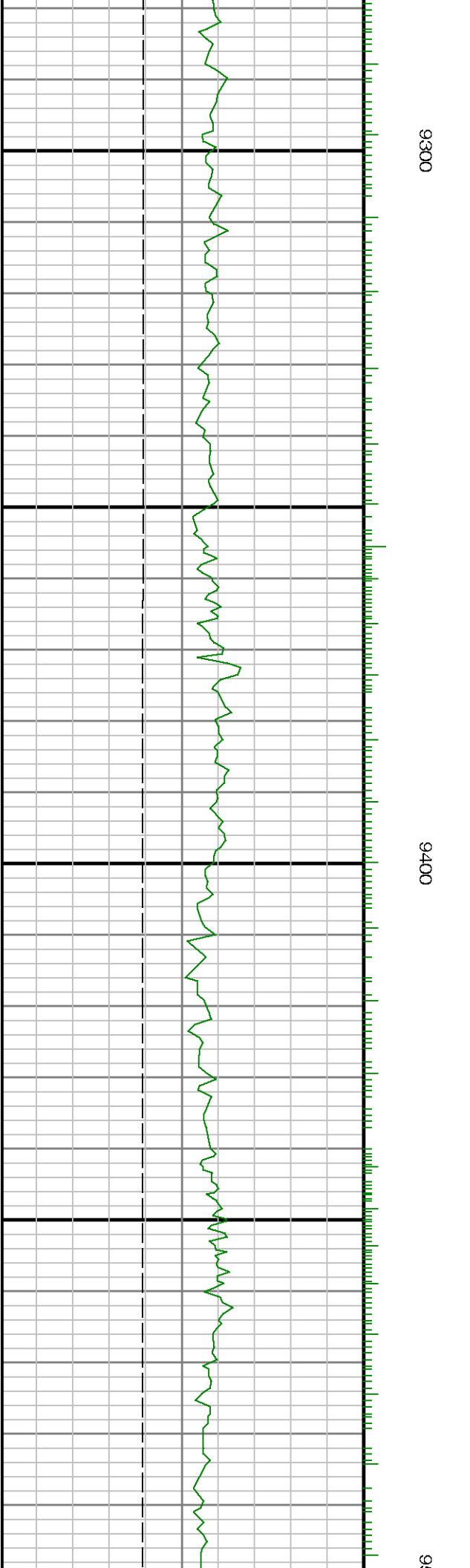
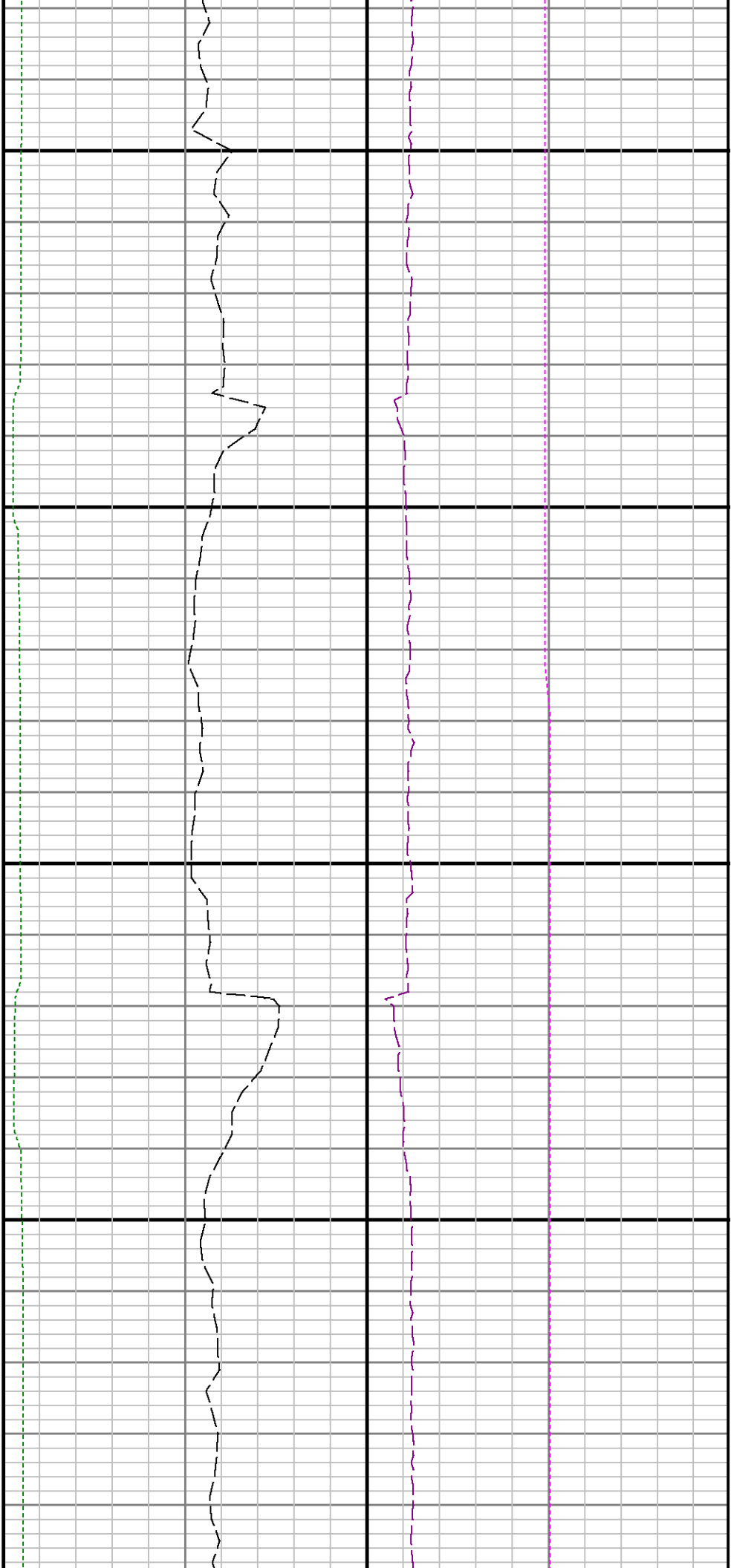




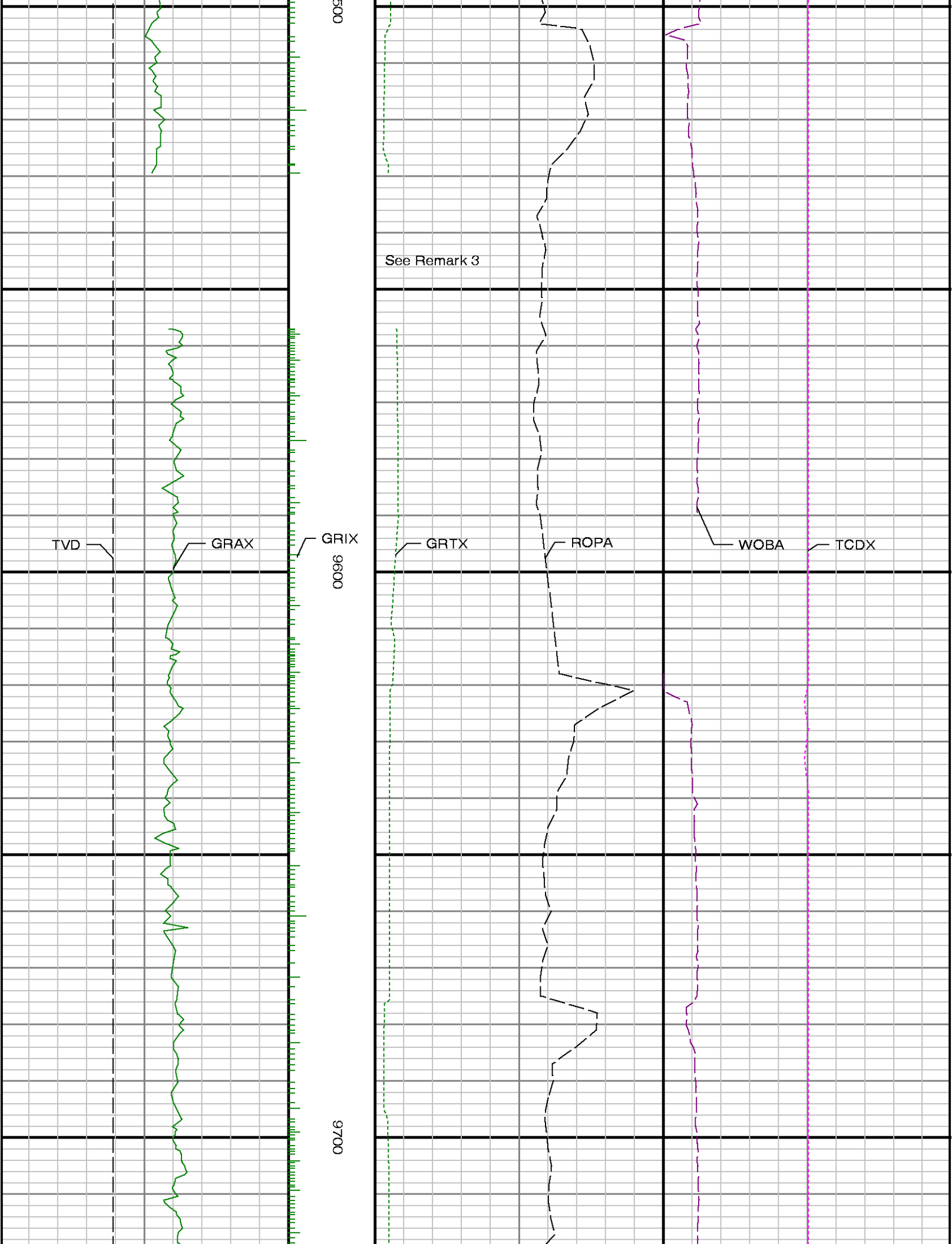
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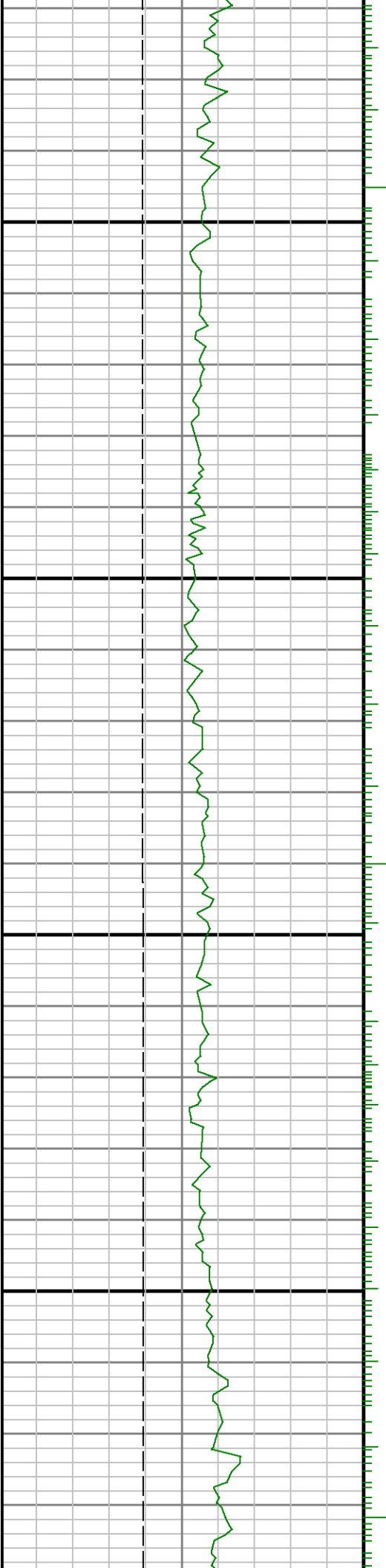
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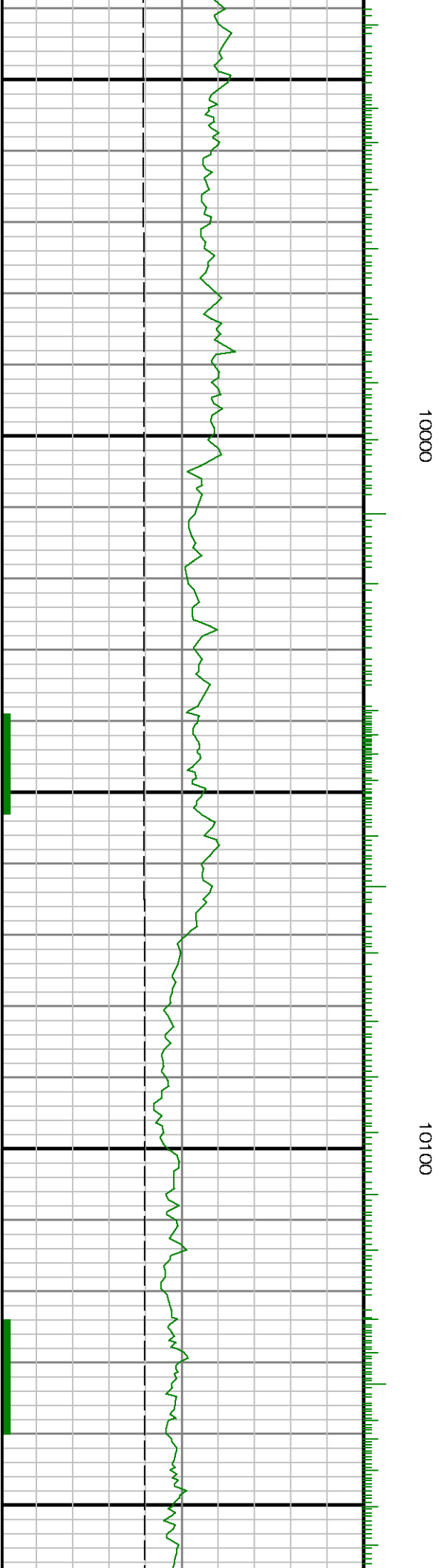




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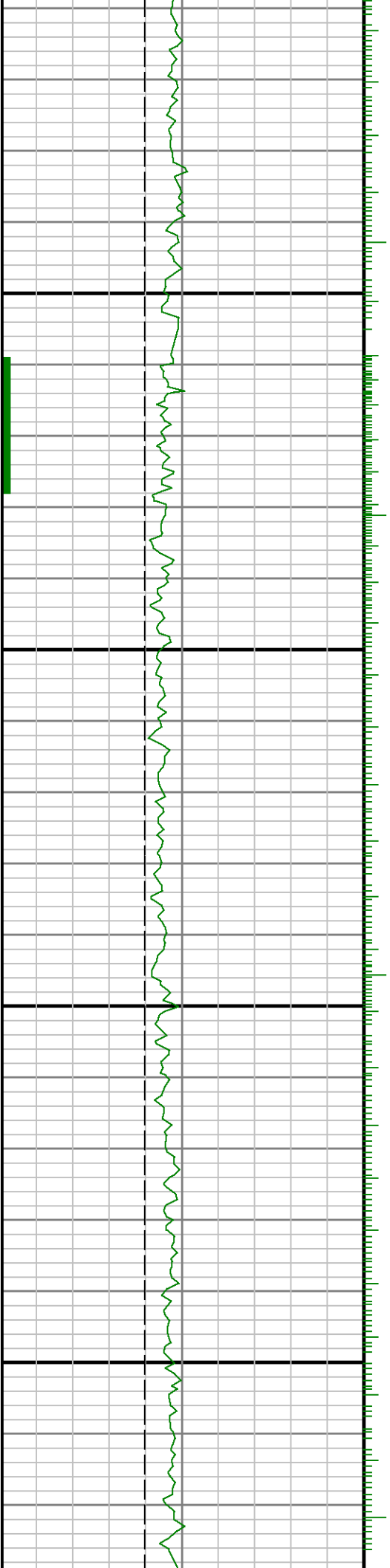


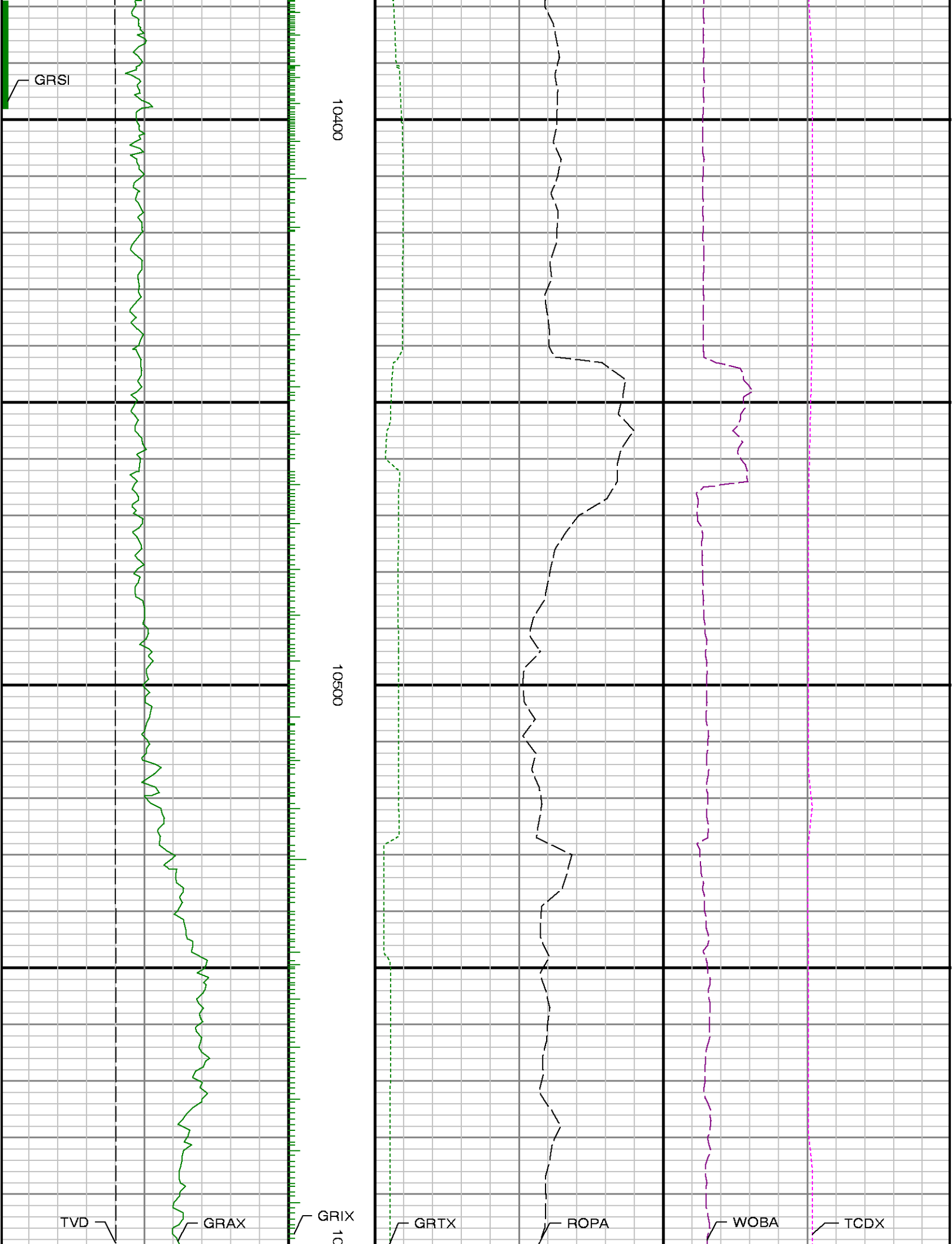


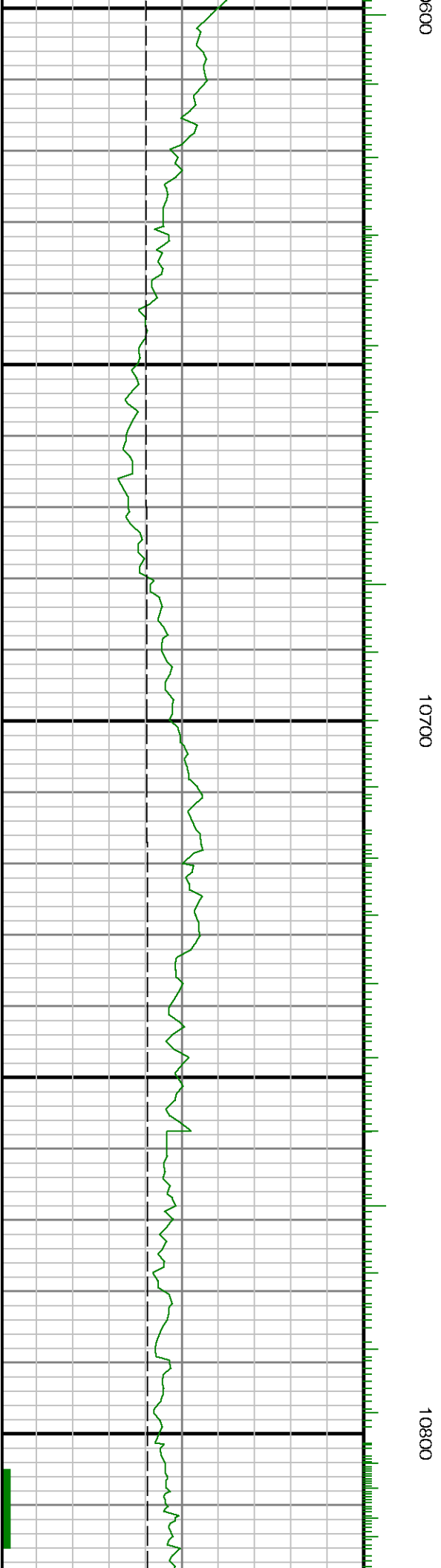


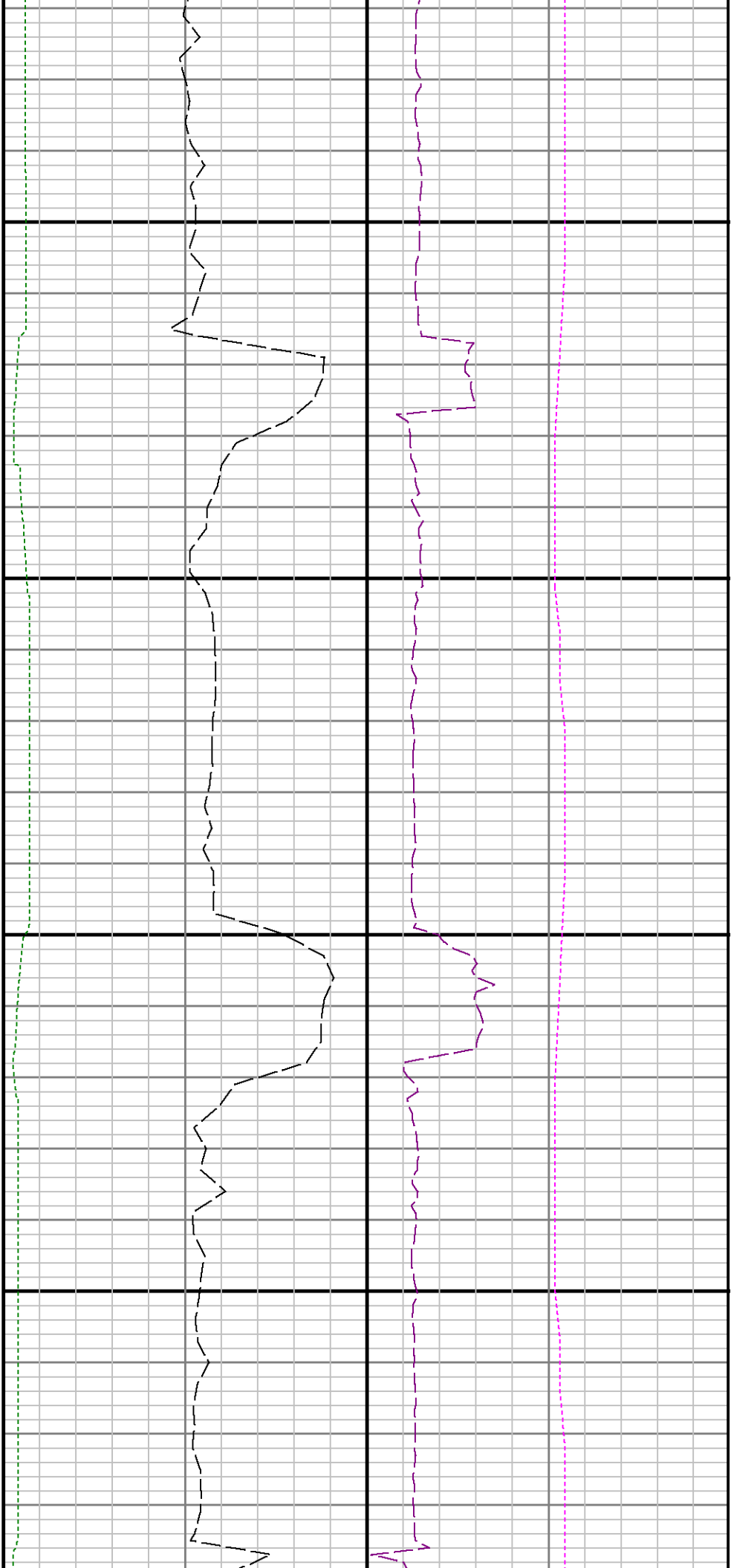
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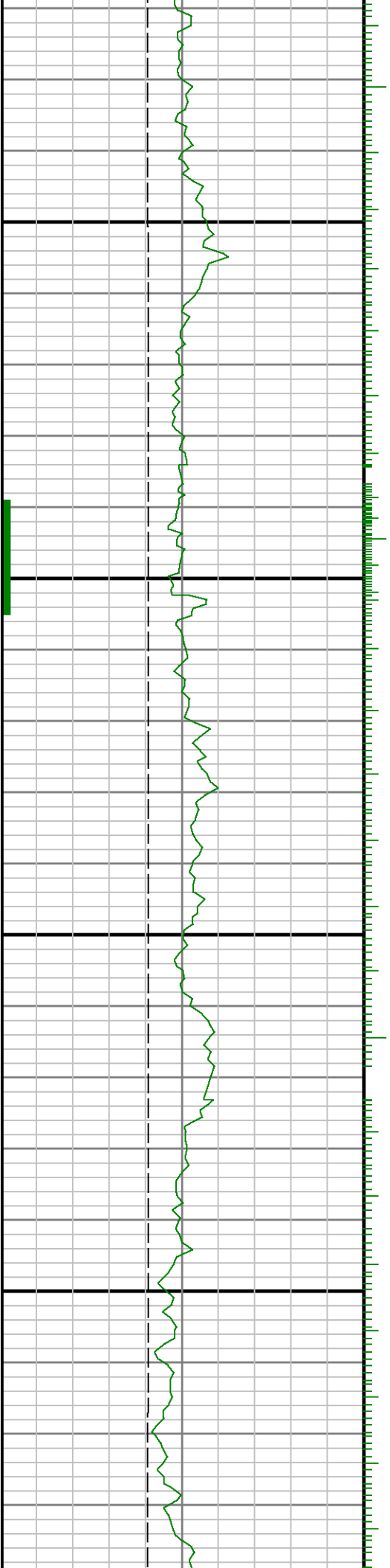


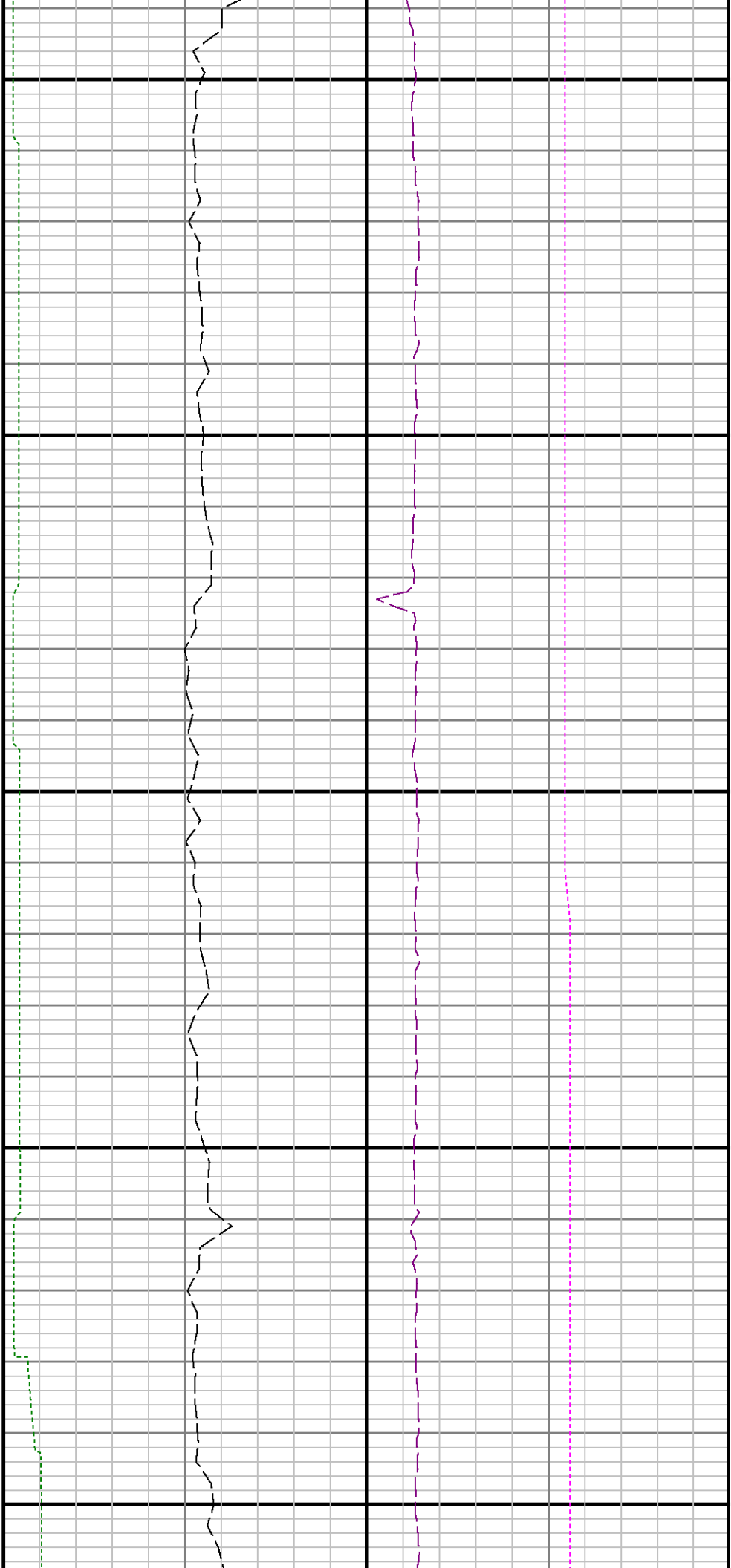




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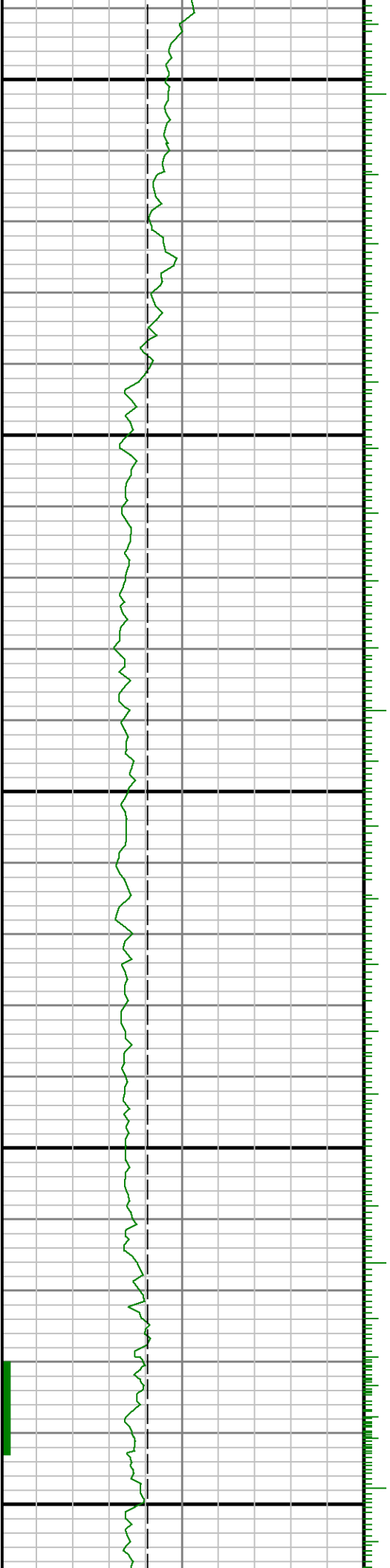
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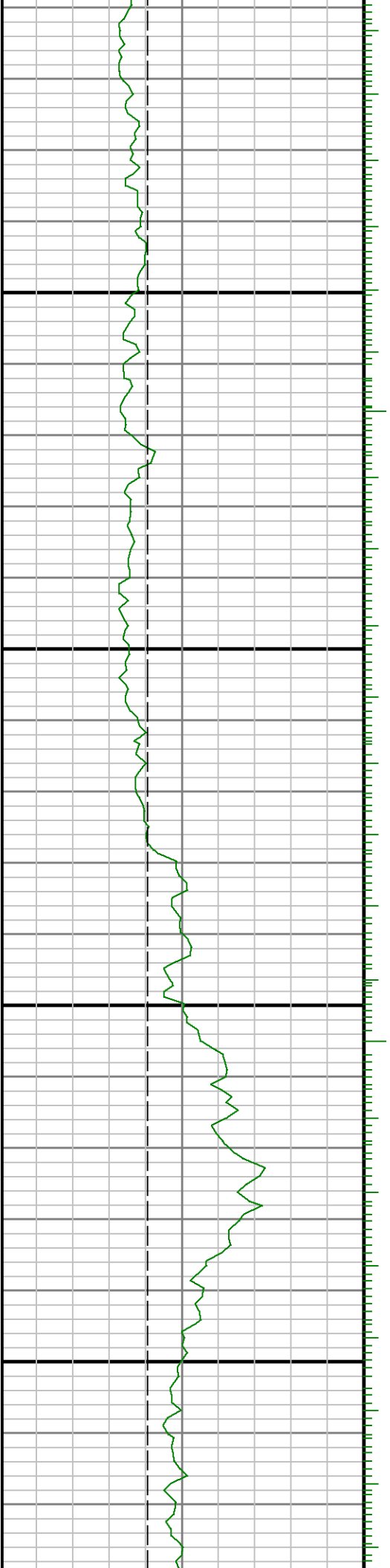


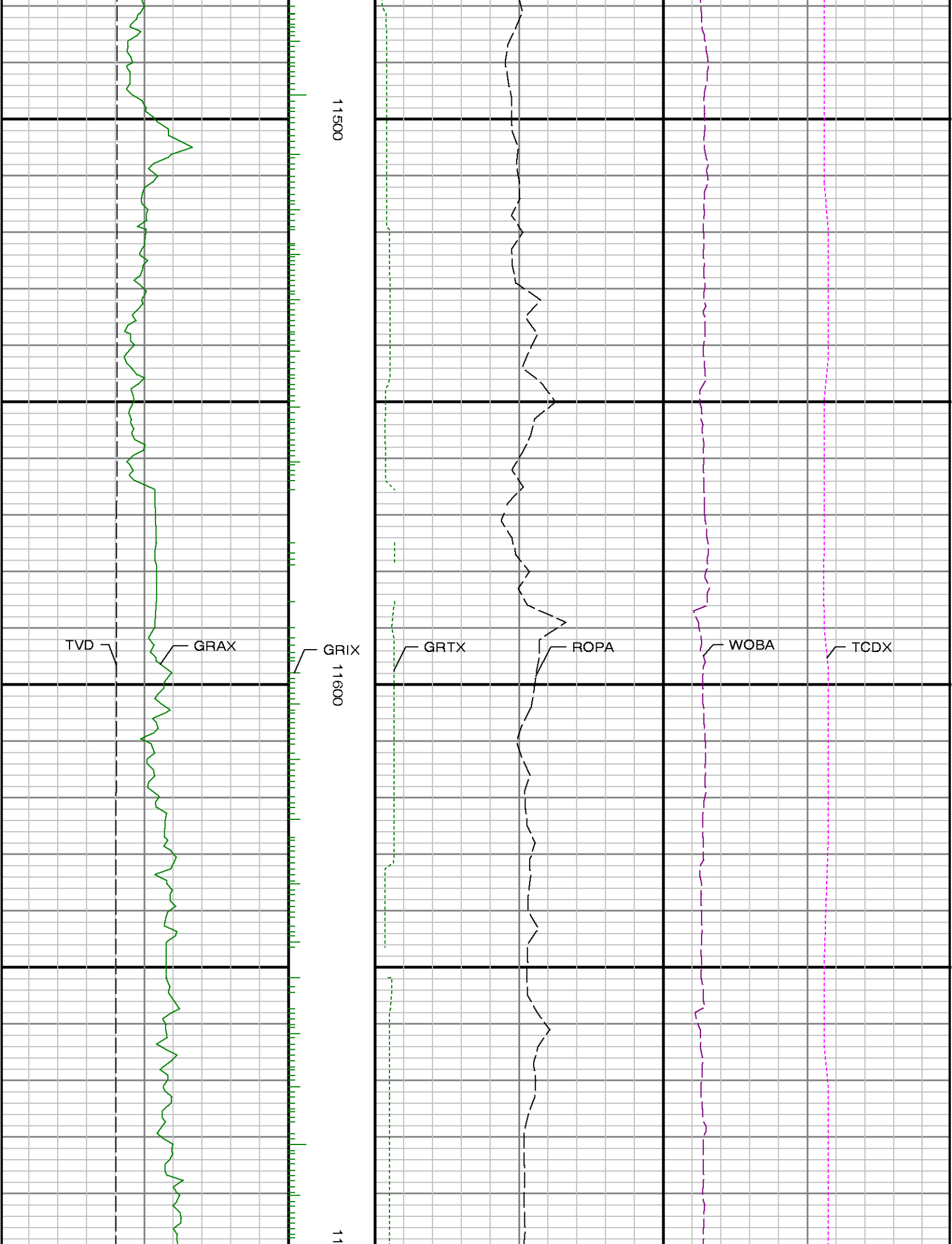


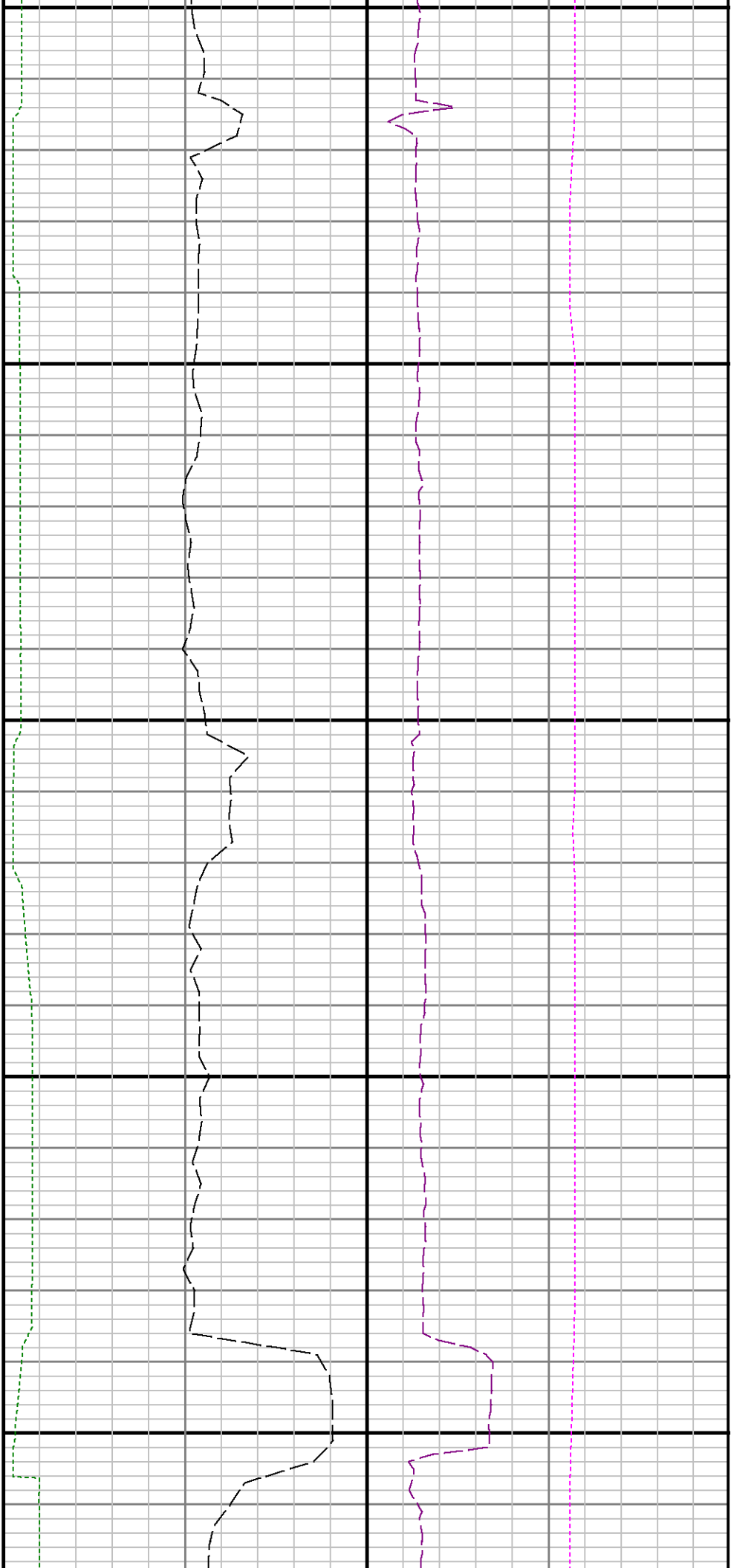


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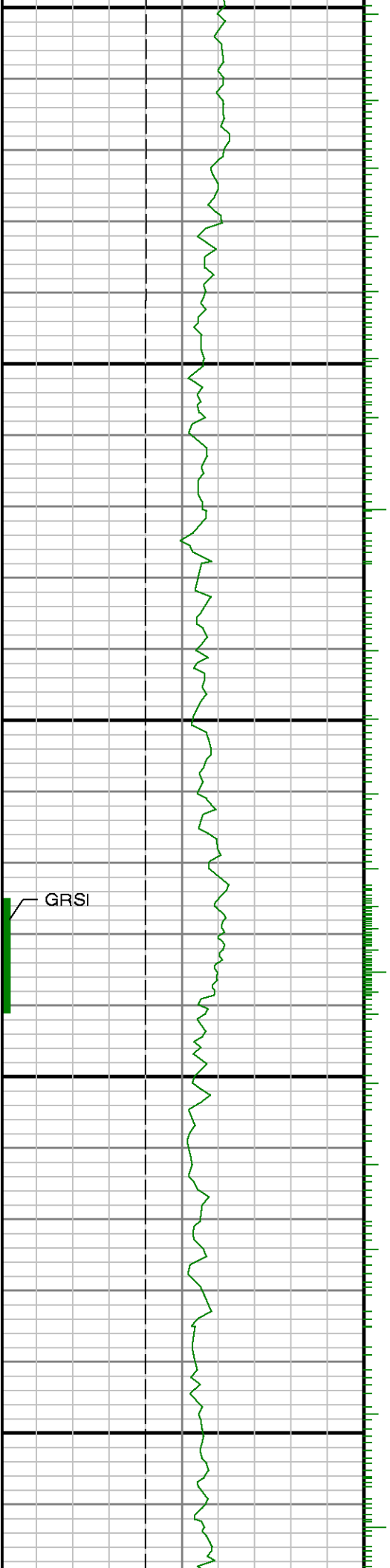




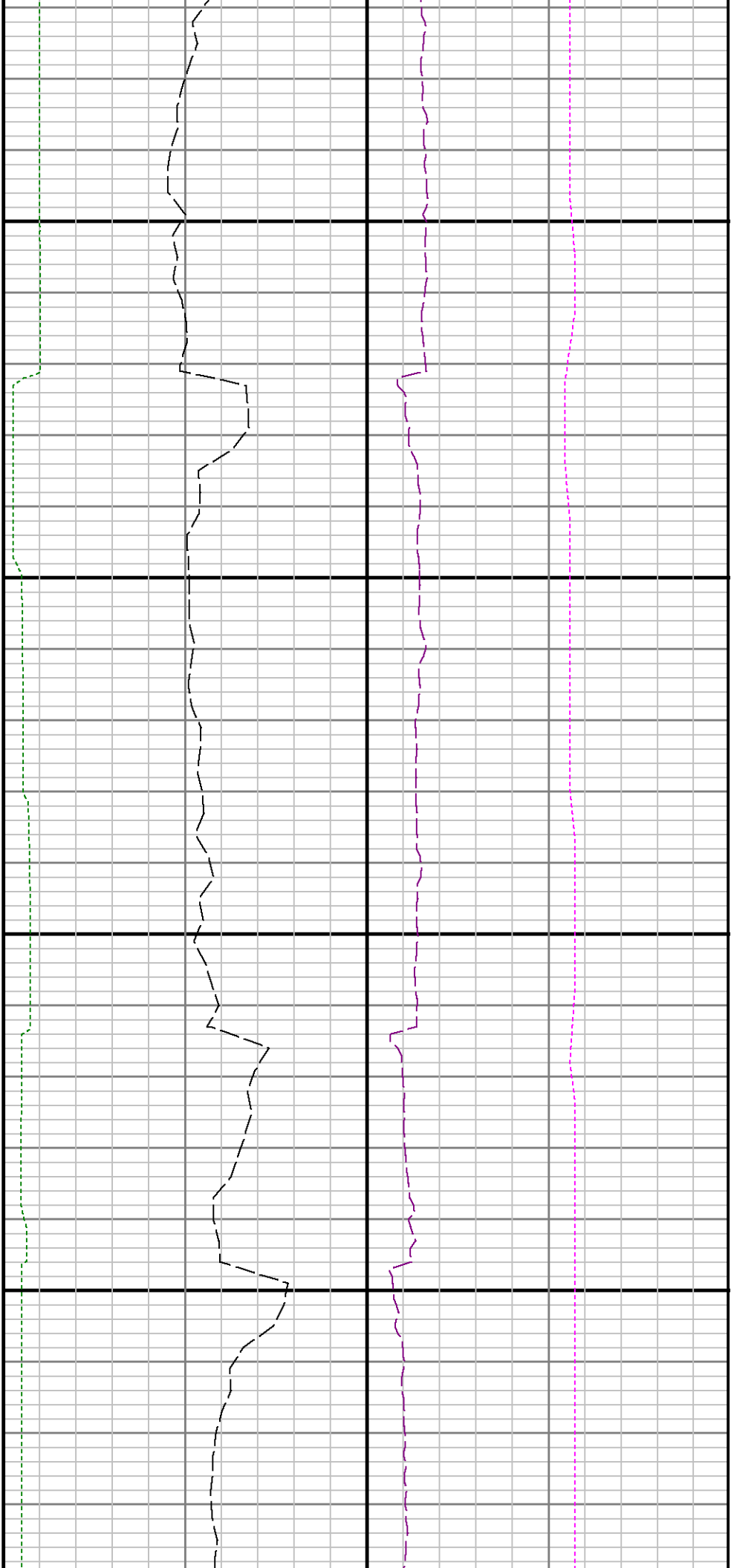
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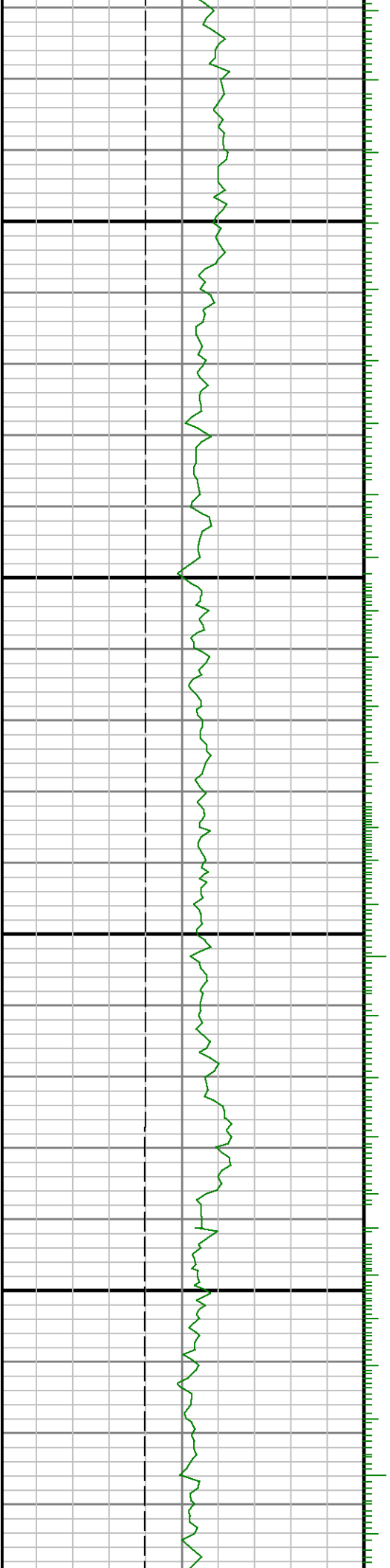


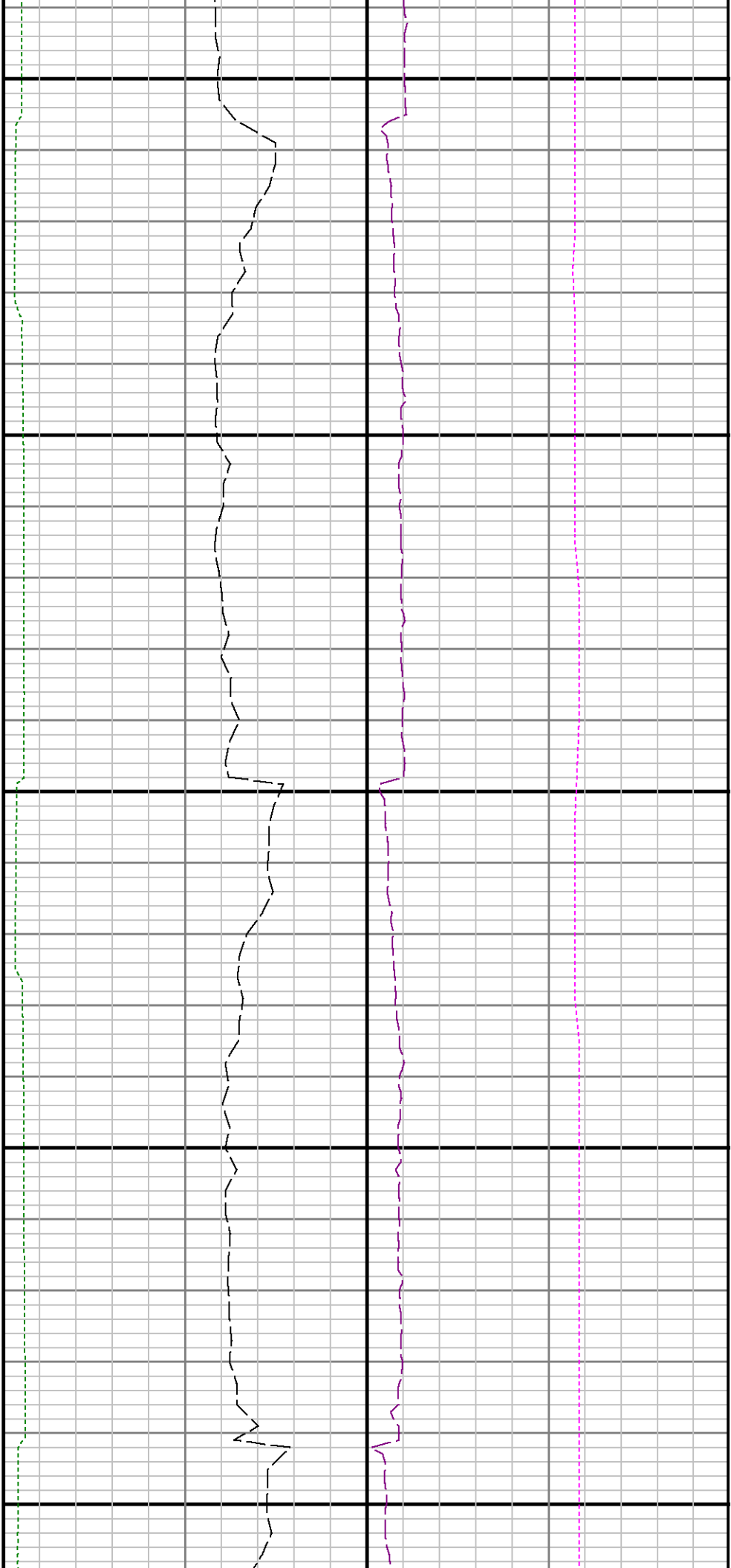
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