



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:

Company: Anadarko

Well: Cream 15N-A28HZ

Field: Weld County (Kerr McGee)

Region: Continental US State: Colorado

1:240

MEASURED DEPTH

Status: Surface Location: Other Services:

Final Print

Latitude: 40° 12' 9.104" N

Longitude: 104° 39' 52.024" W

API Number: 051234095100

Section: 28 TWN: 3S Range: 65W

Directional VSS

Permanent Datum (P.D.): Ground Level Elevation: 4824.00 ft.

Log Measured From: Rig Floor 20.00 ft. Above P.D.

Depth Reference: Drillers Depth Elevations: KB: N/A DF: 4844.00 ft. GL: 4824.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6400.0 ft. Date From: 29/May/15 Dip Angle: 66.88° Azi Reference North: True

Bottom: 12651.0 ft. Date To: 02/Jun/15 Total Mag to Reference

Spud Date: 28/May/15 Field Strength: 52517.0 nT North Correction: 8.45°

Borehole Record

Casing Record

Hole Size From To Size Weight From To

8.750 in. 1238.0 ft. 7574.0 ft. 9.600 in. 36.00 lb/ft. Surface 1206.0 ft.

6.125 in. 7574.0 ft. 12651.0 ft. 7.000 in. 26.00 lb/ft. Surface 7553.0 ft.

Mud Record

Deviation Record

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

Water Based Surface 12651.0 ft. 8.750 in. 7574.0 ft. 0.9° / 353.3° 87.3° / 181.7°

6.125 in. 5077.0 ft. 87.3° / 181.7° 90.7° / 180.6°

Acquisition System Software Version

Other

Advantage 2.20U4 Rig / Contractor: Precision 462 / Precision Drilling

PATS 6.4.1.34 Job No: 7224295 / 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.
							Top	Bottom	From	To	Start		End		
Run	Run	Run	Size	Type	Gauge	Type									
No.	No.	No.	(in.)		Length		(ft.)	(ft.)	(ft.)	(ft.)				(hrs.)	
1	1	1	8.750	PDC	3.500	Mud Motor	6400.0	7532.0	1237.0	7574.0	29/May/15 08:30	30/May/15 20:50	23.6		
2	2	2	6.125	PDC	4.500	Mud Motor	7532.0	12603.0	7574.0	12651.0	31/May/15 20:45	02/Jun/15 08:00	26.2		

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Andrew King	28/May/15	31/May/15	Nick Gerard	28/May/15	02/Jun/15	Mike Gurnsey	28/May/15	02/Jun/15
Bill Herbers	28/May/15	02/Jun/15	Donald Delay	01/Jun/15	02/Jun/15			

Mud Properties Record

Date / Time	LWD	Measured	Mud	Density	Viscosity	pH	Fluid	Oil /	Source	Total	K+
	Run No.	Depth (ft.)	Type	(lb/gal)	(s/qt)		Loss (cc)	Water		Chlorides (mg/L)	(%)
30May/15 18:00	1	7574.0	PHPA	10.2	45	8.8	5.0	2/88	Mud Pit	500	N/A
01/Jun/15 06:00	2	10751.0	PHPA	9.8	43	9.2	5.4	3/89	Mud Pit	500	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Slide Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min.
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	Deg. F
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	12373466	Directional	46.16	6.750	3.250
1	SRIG	11734840	Gamma	42.79	6.750	3.250
2	DIR	13026213	Directional	50.62	4.750	2.750
2	SRIG	5015	Gamma	47.25	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

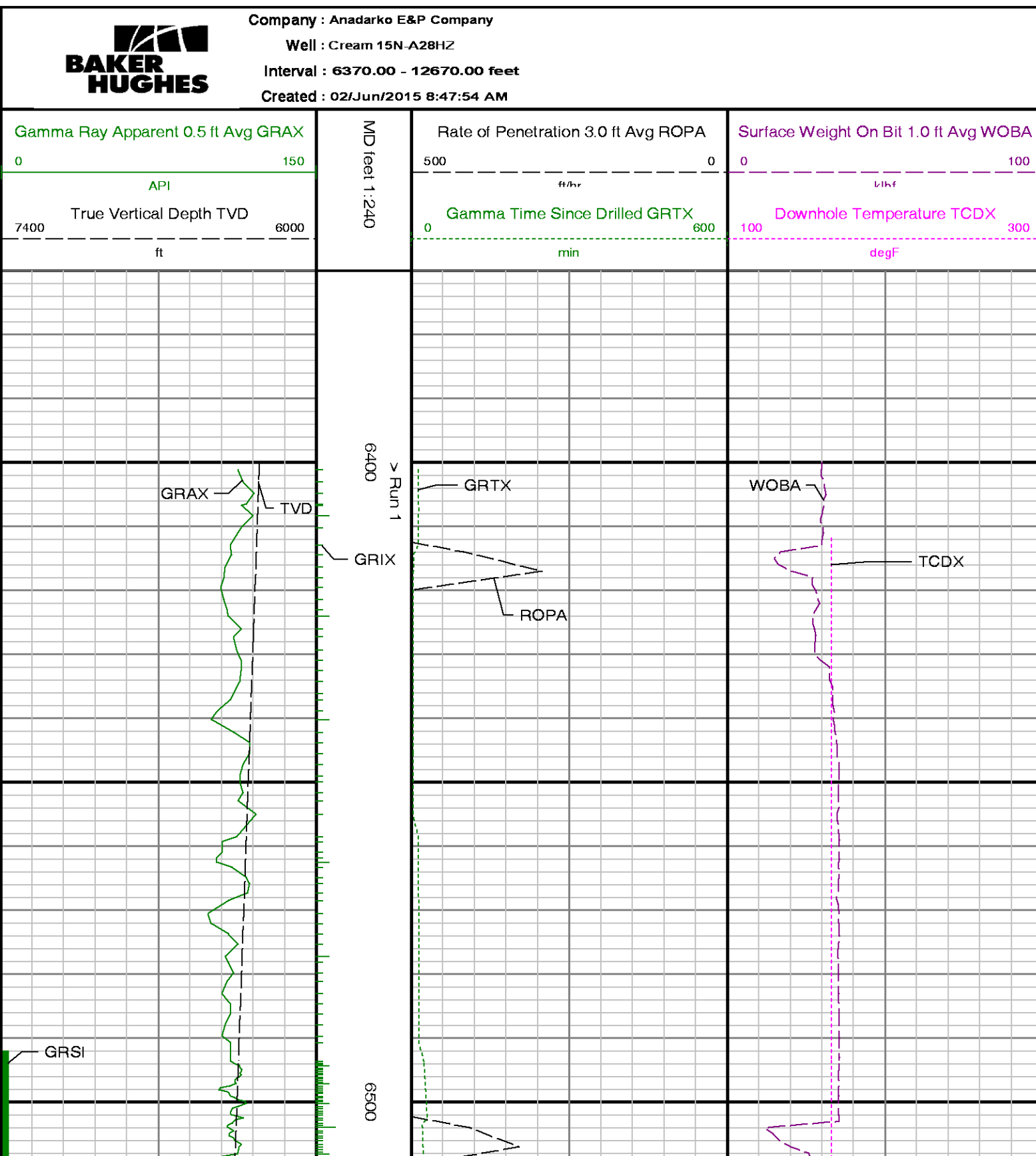
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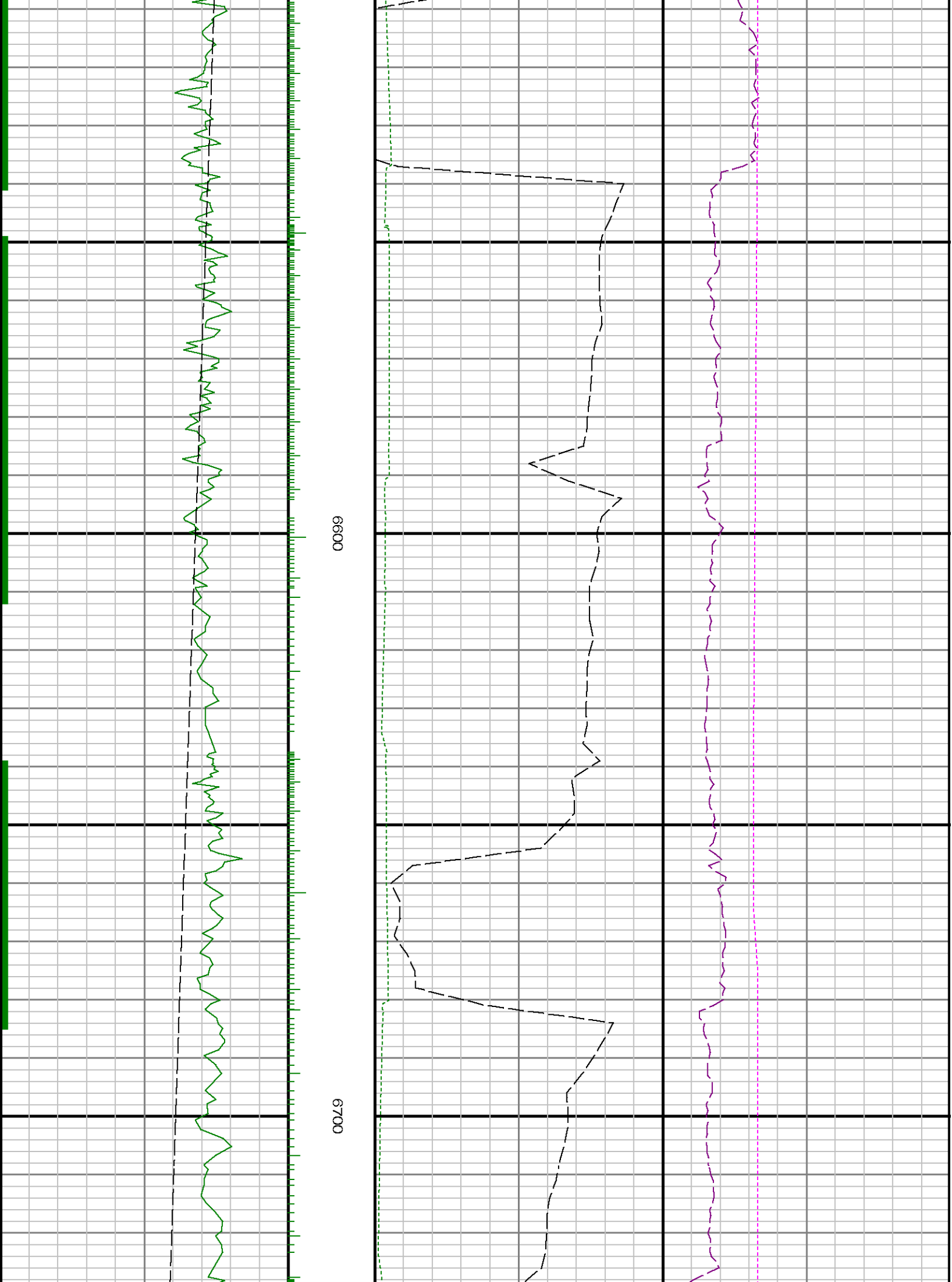
<p>1.) Baker Hughes Run 1 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1217 to 7574 feet MD (1209 to 7007 feet TVD).</p> <p>2.) Baker Hughes Run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind a 6 1/8 inch bit and steerable assembly from 7574 to 12651 feet MD (7007 to 7061 feet TVD).</p> <p>3.) 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 logging engineers, depth calibrations and measurements could not be independently verified.</p> <p>4.) A sliding indicator is shown on the left edge of track 1 as a heavy line. This indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.</p>
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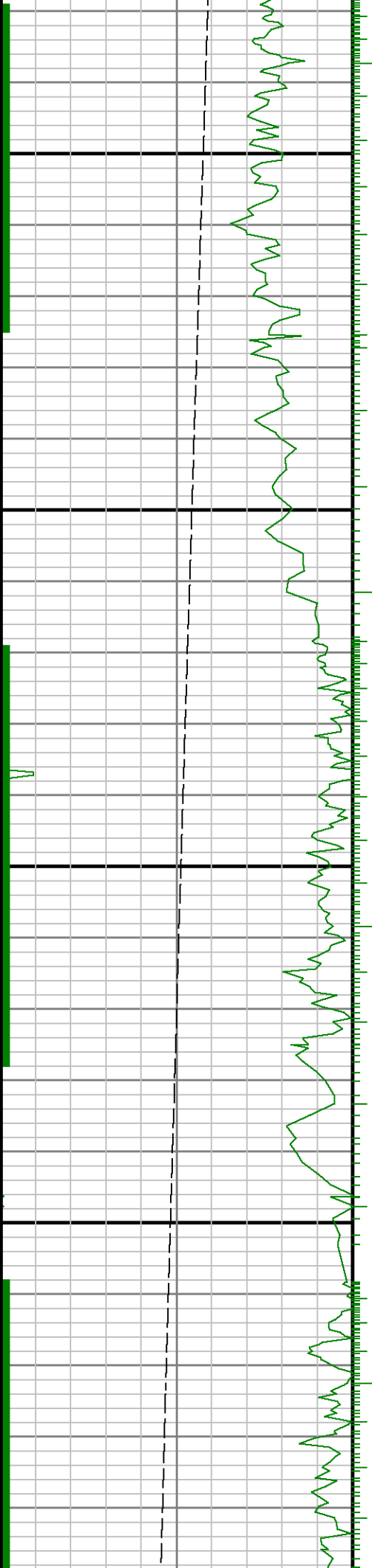
Remarks

Number	Measured Depth	Hole Section	LWD Run No.	Remark
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	(ft.)	(in.)		
1	7555	8.750	1	The interval from 7532 to 7574 feet MD (7005 to 7007 feet TVD) was logged up to 42 hours after being drilled due to casing operations.
2	12630	6.125	2	The interval from 12604 to 12651 feet MD (7062 to 7061 feet TVD) has no logging data due to sensor to bit offset at well TD.

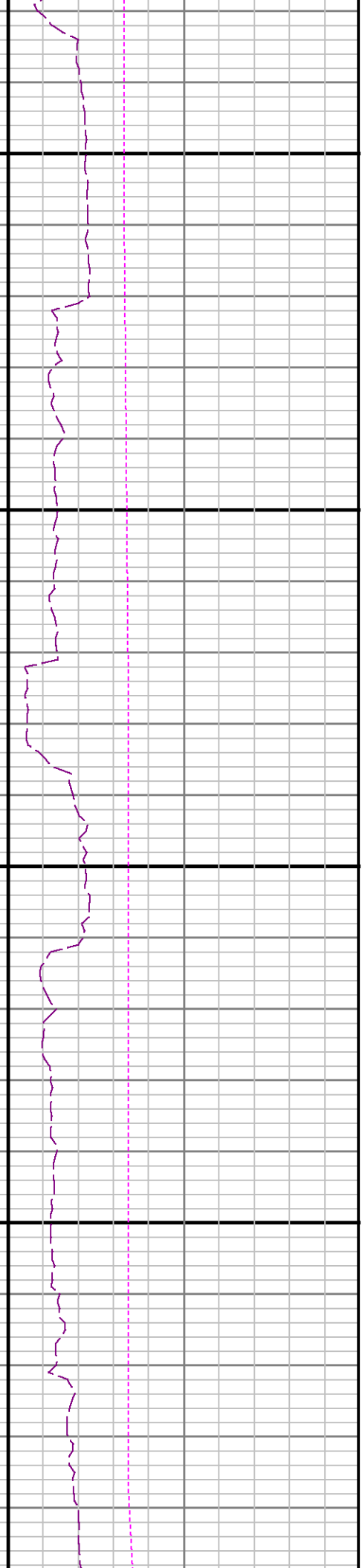
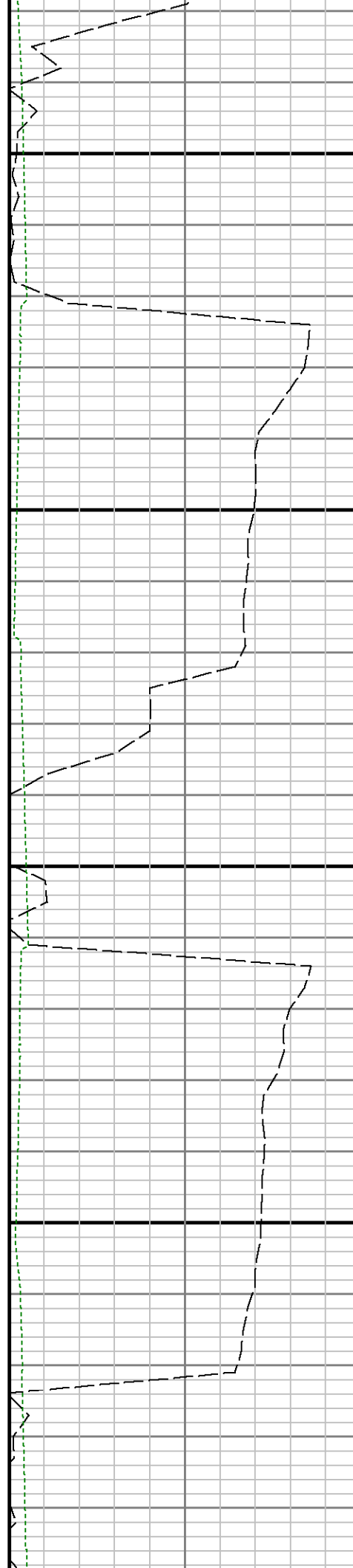


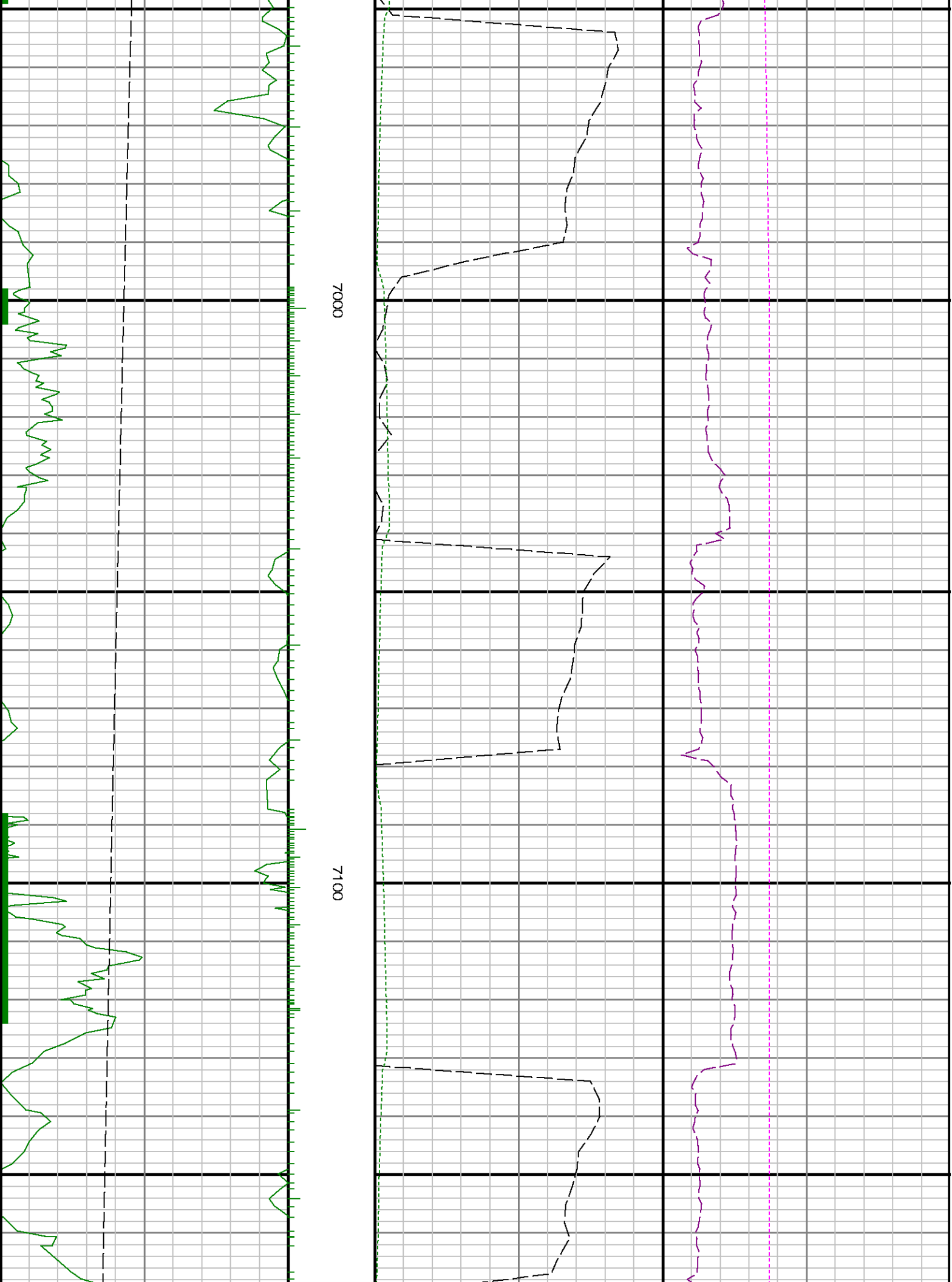


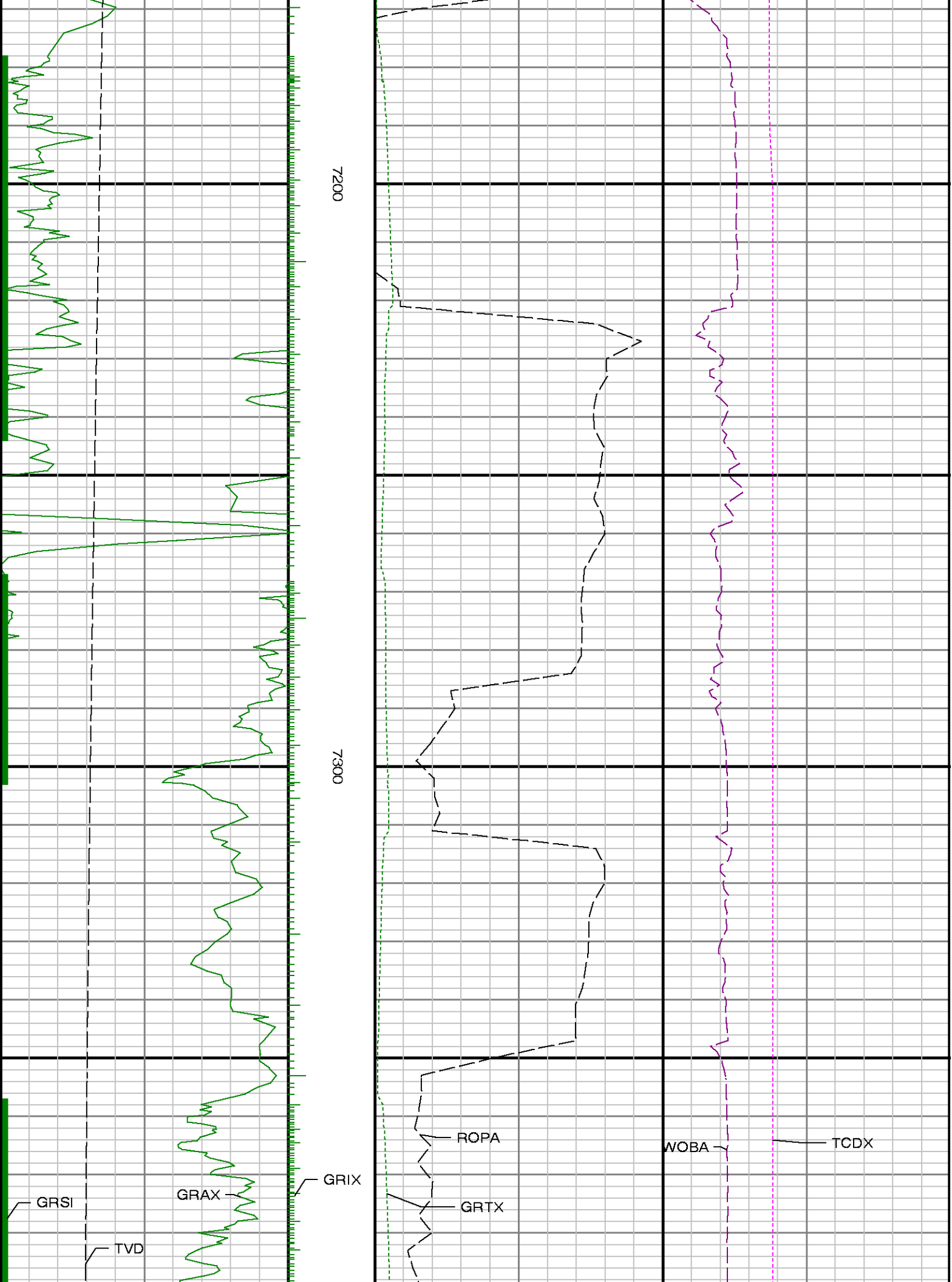


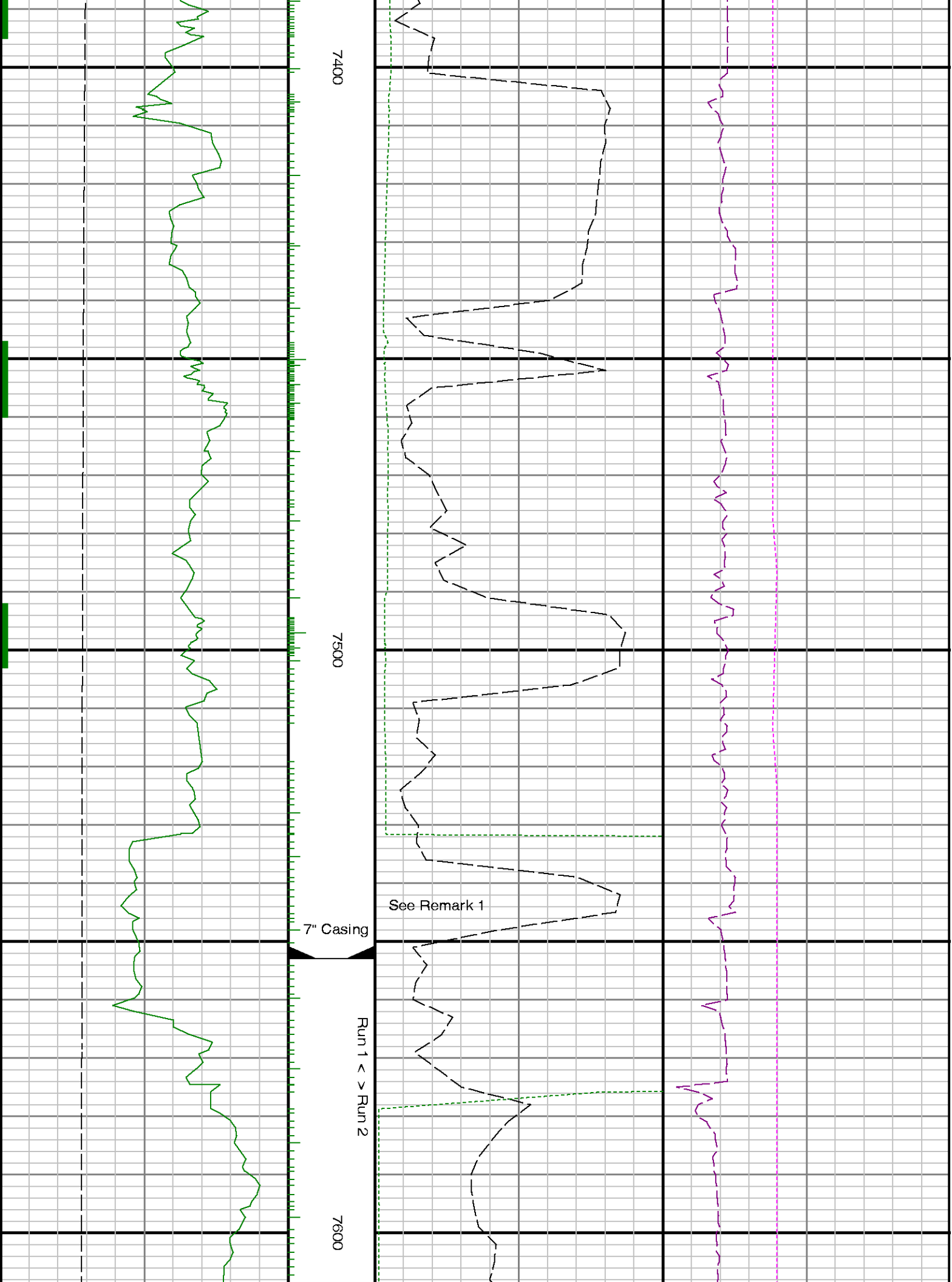
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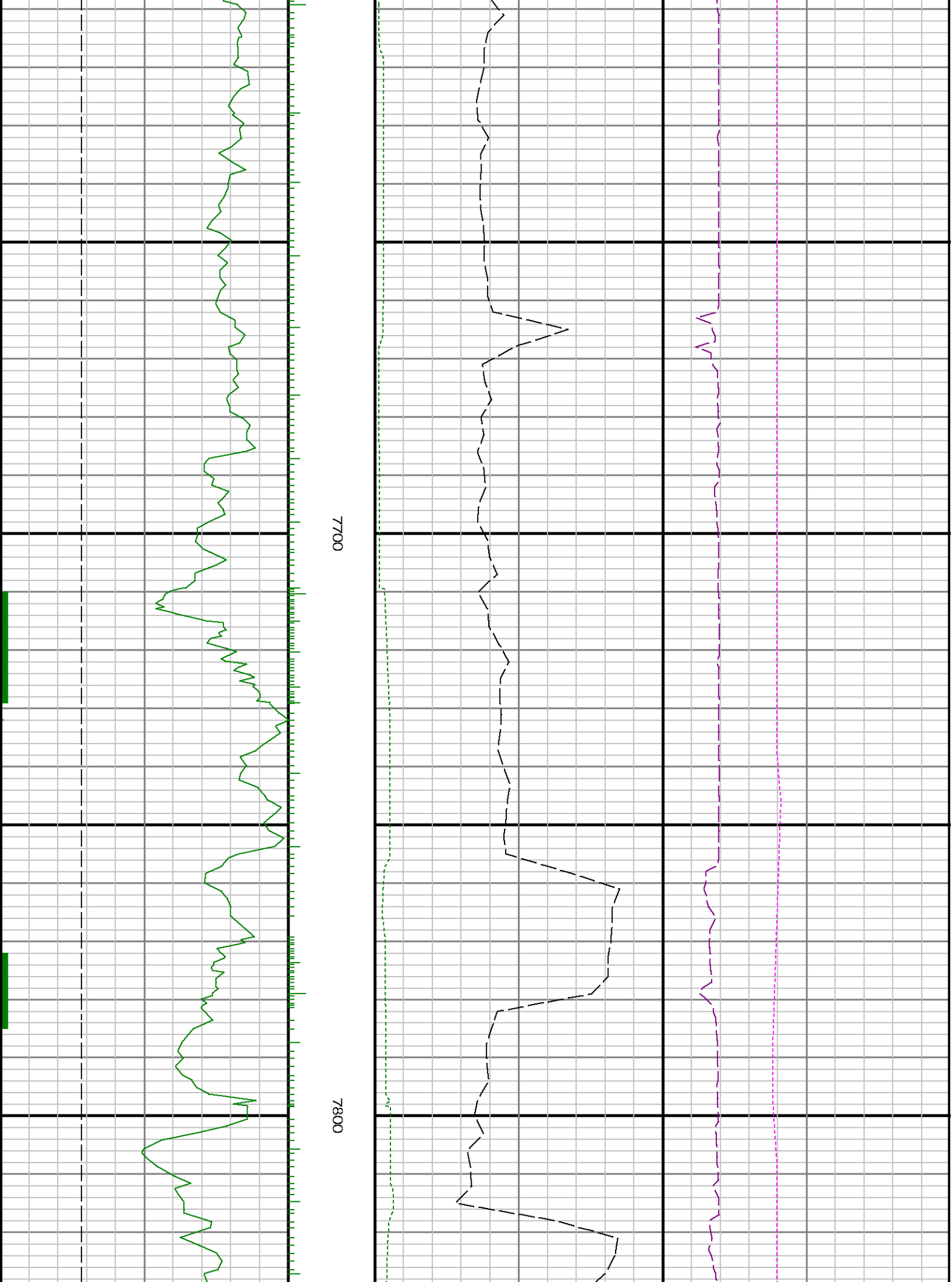
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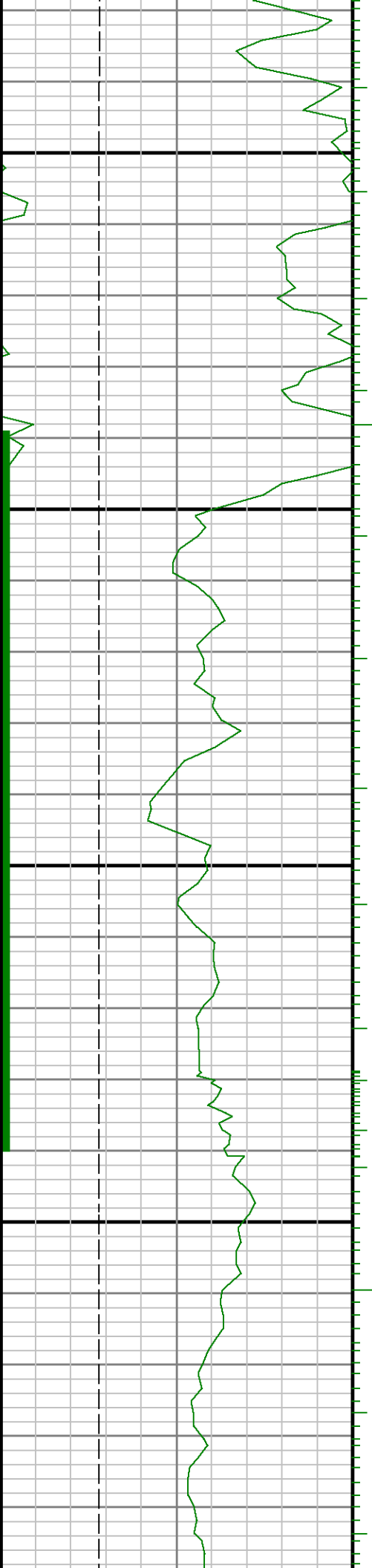






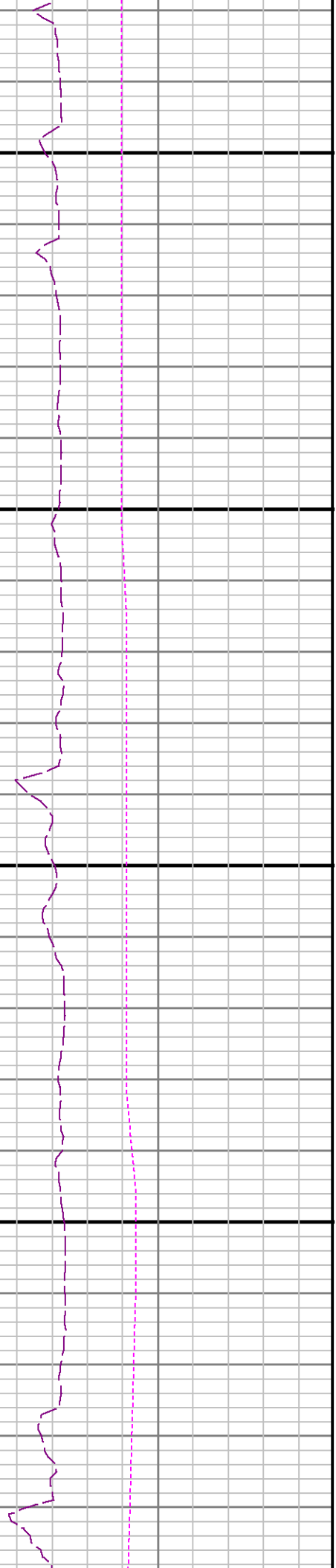
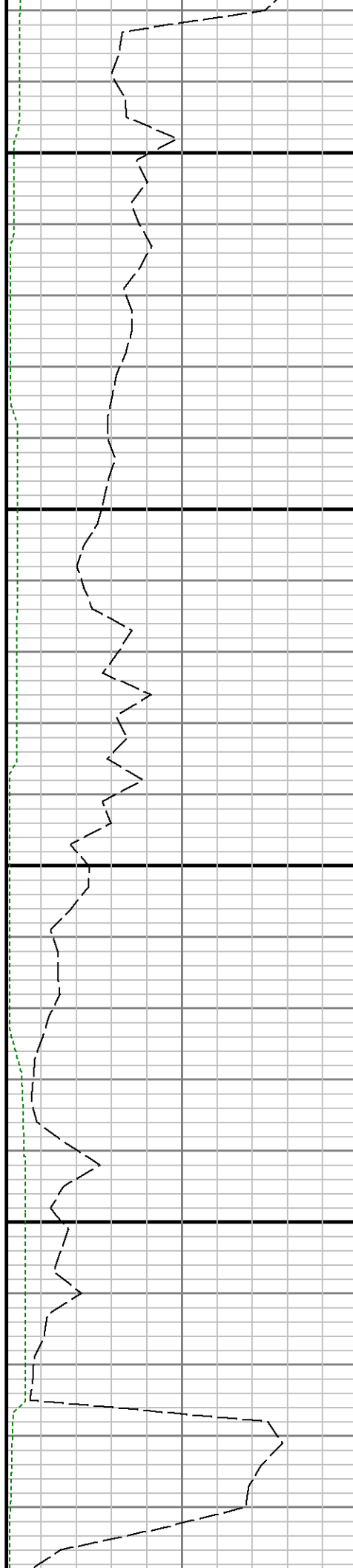


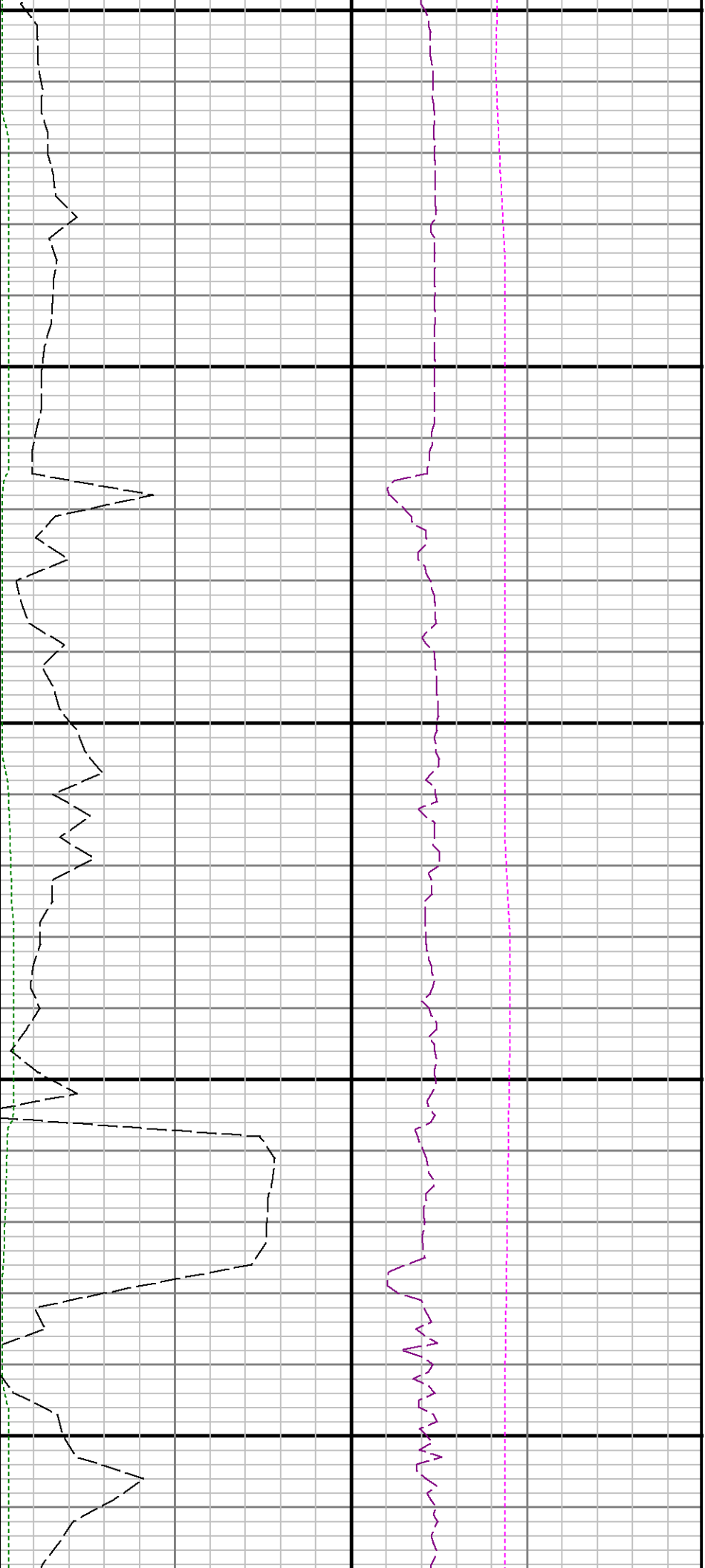




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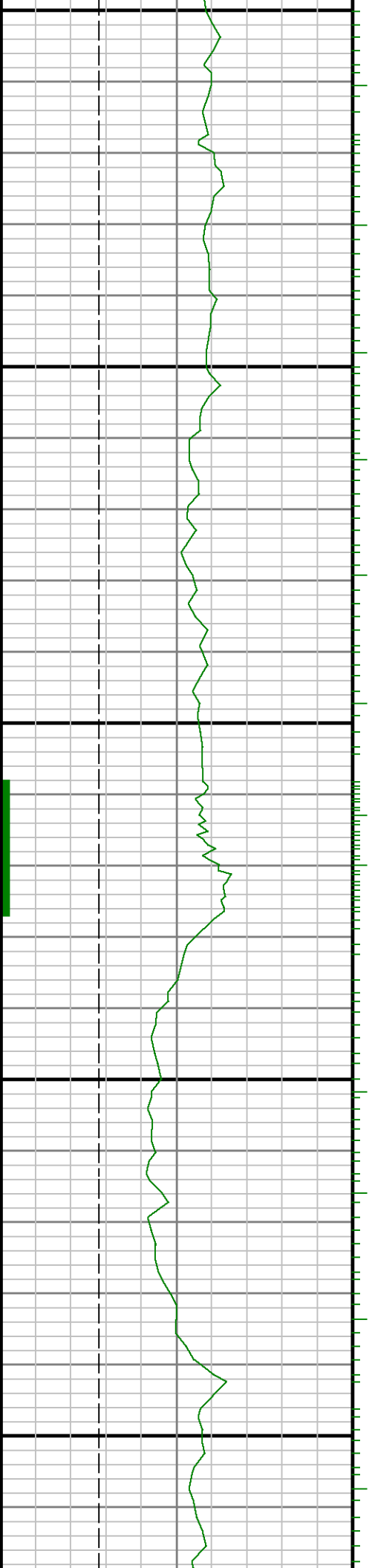
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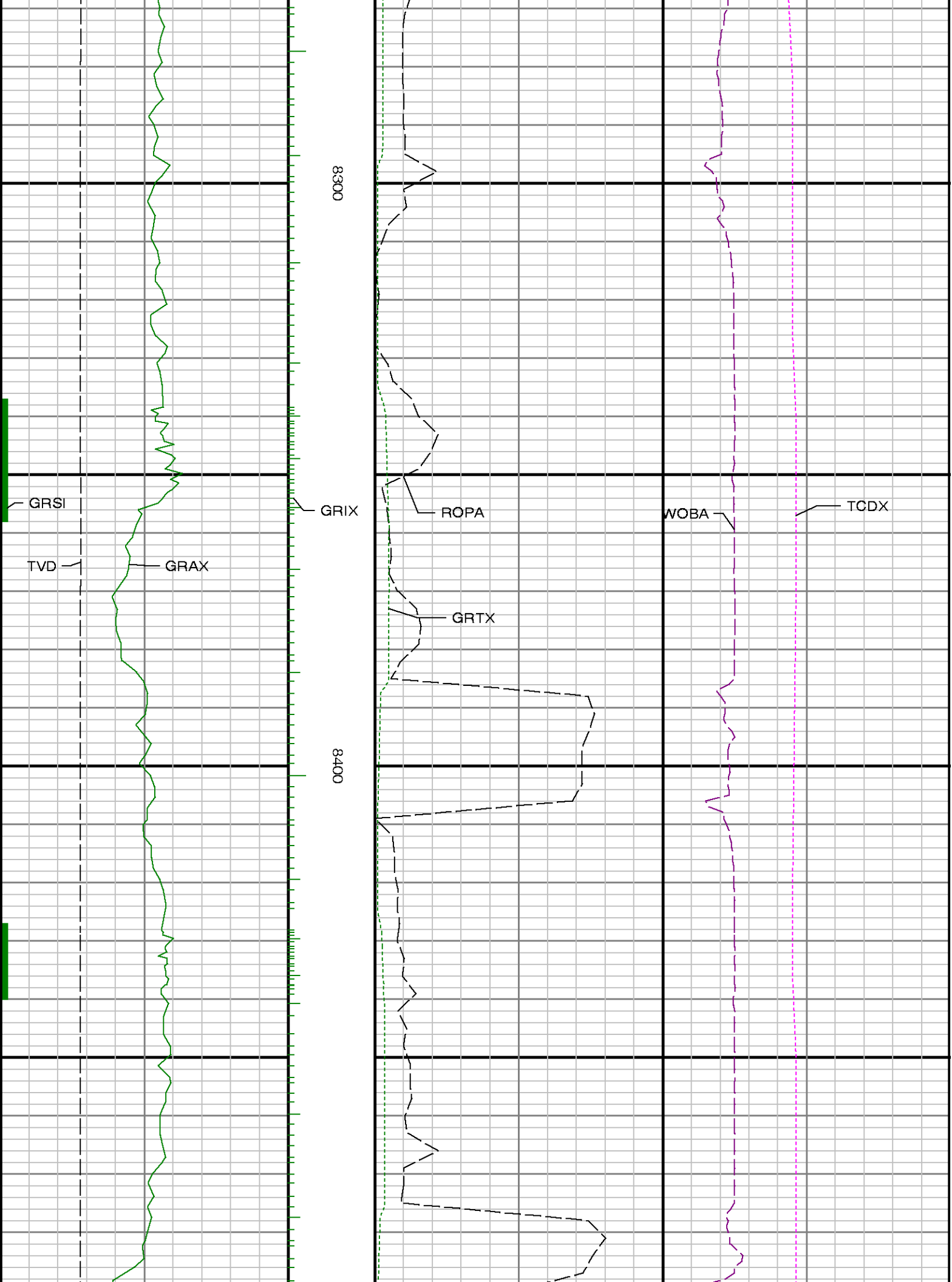


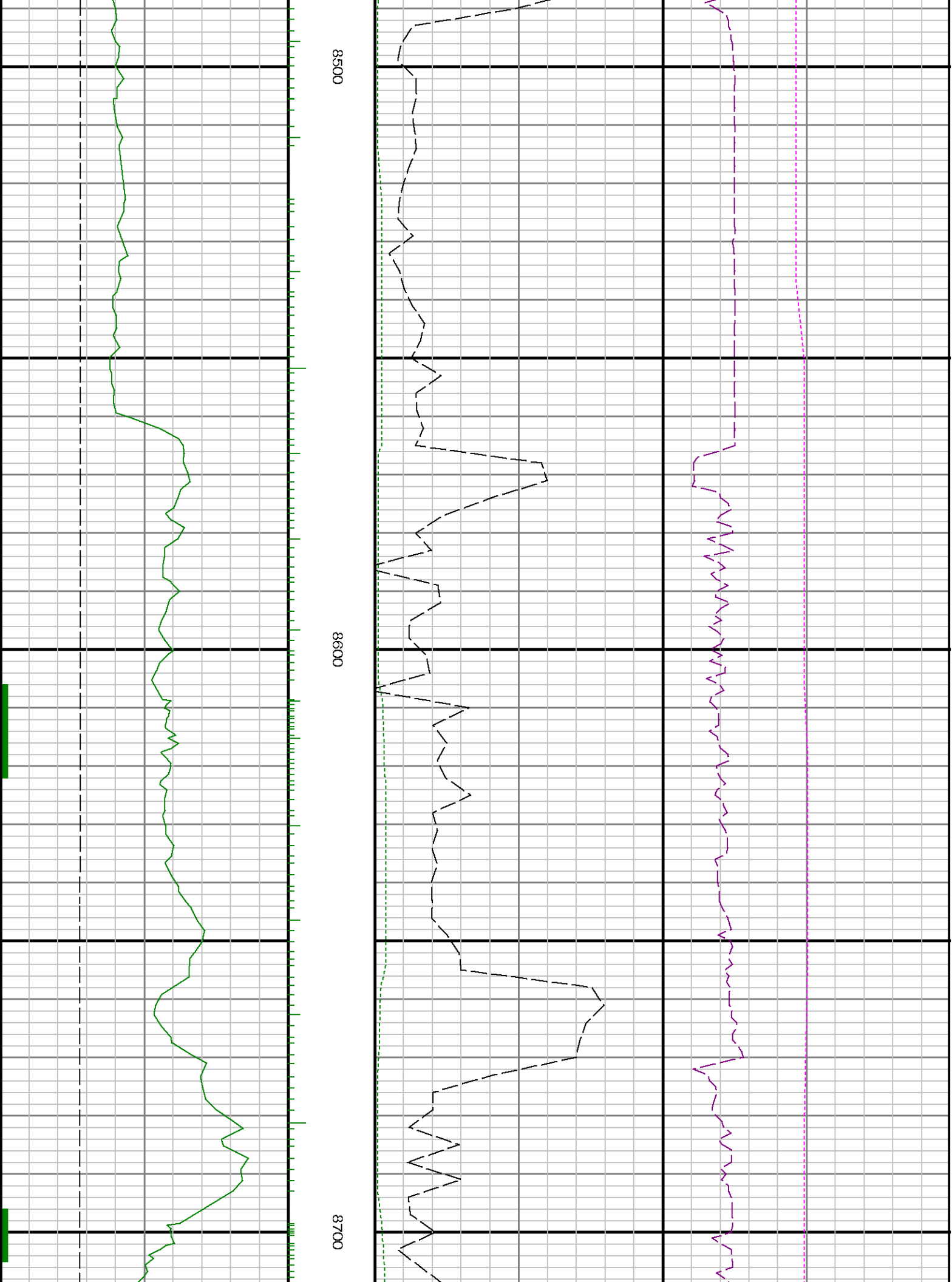


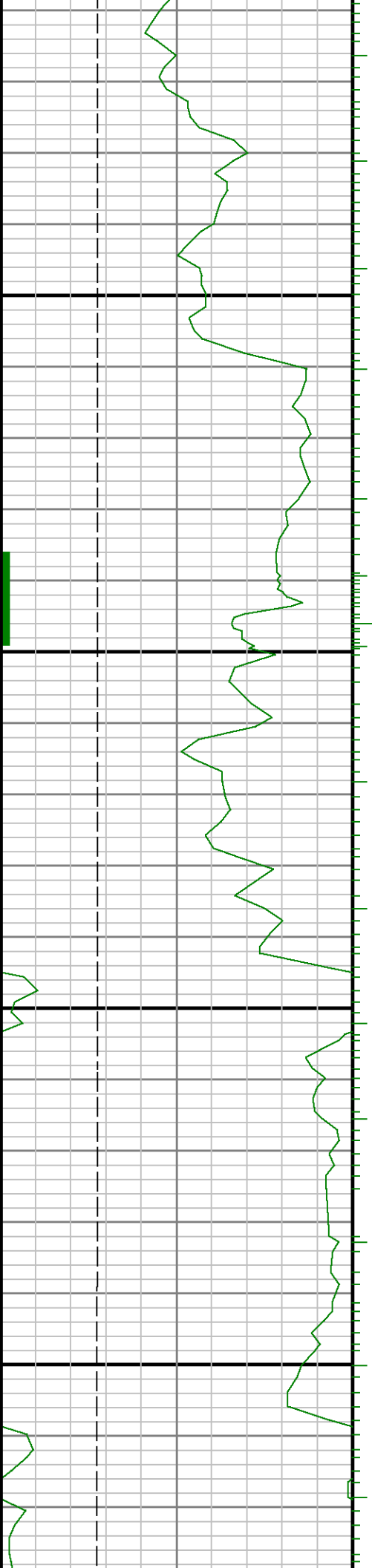
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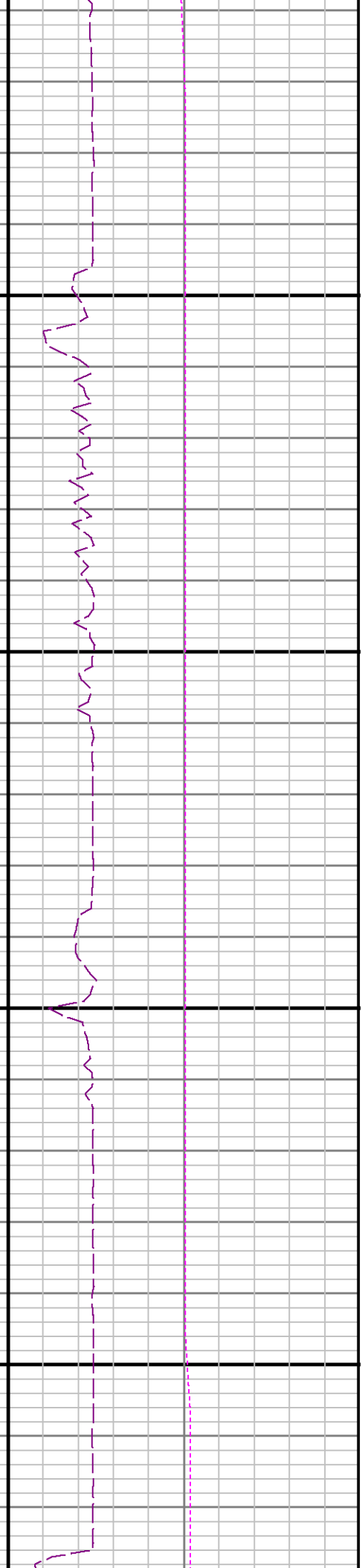
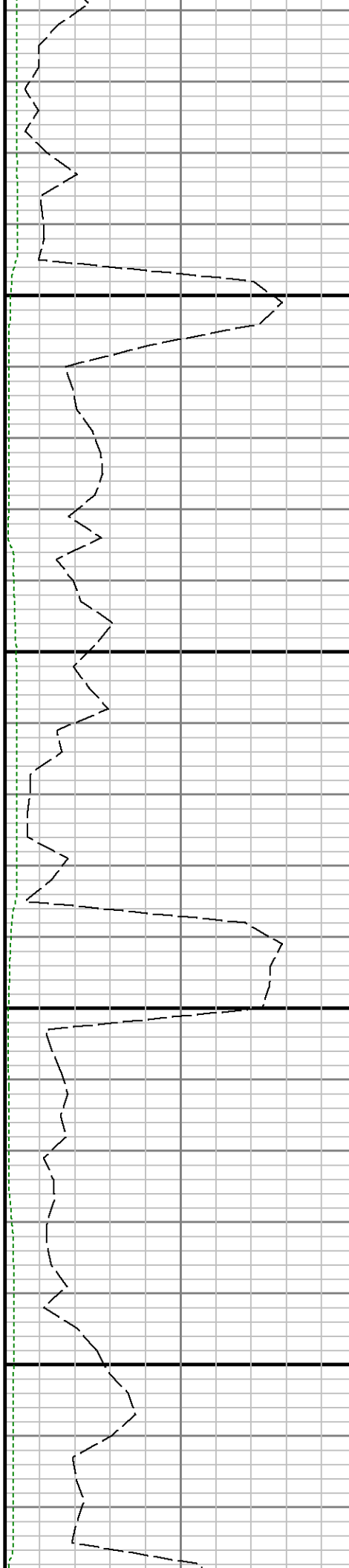


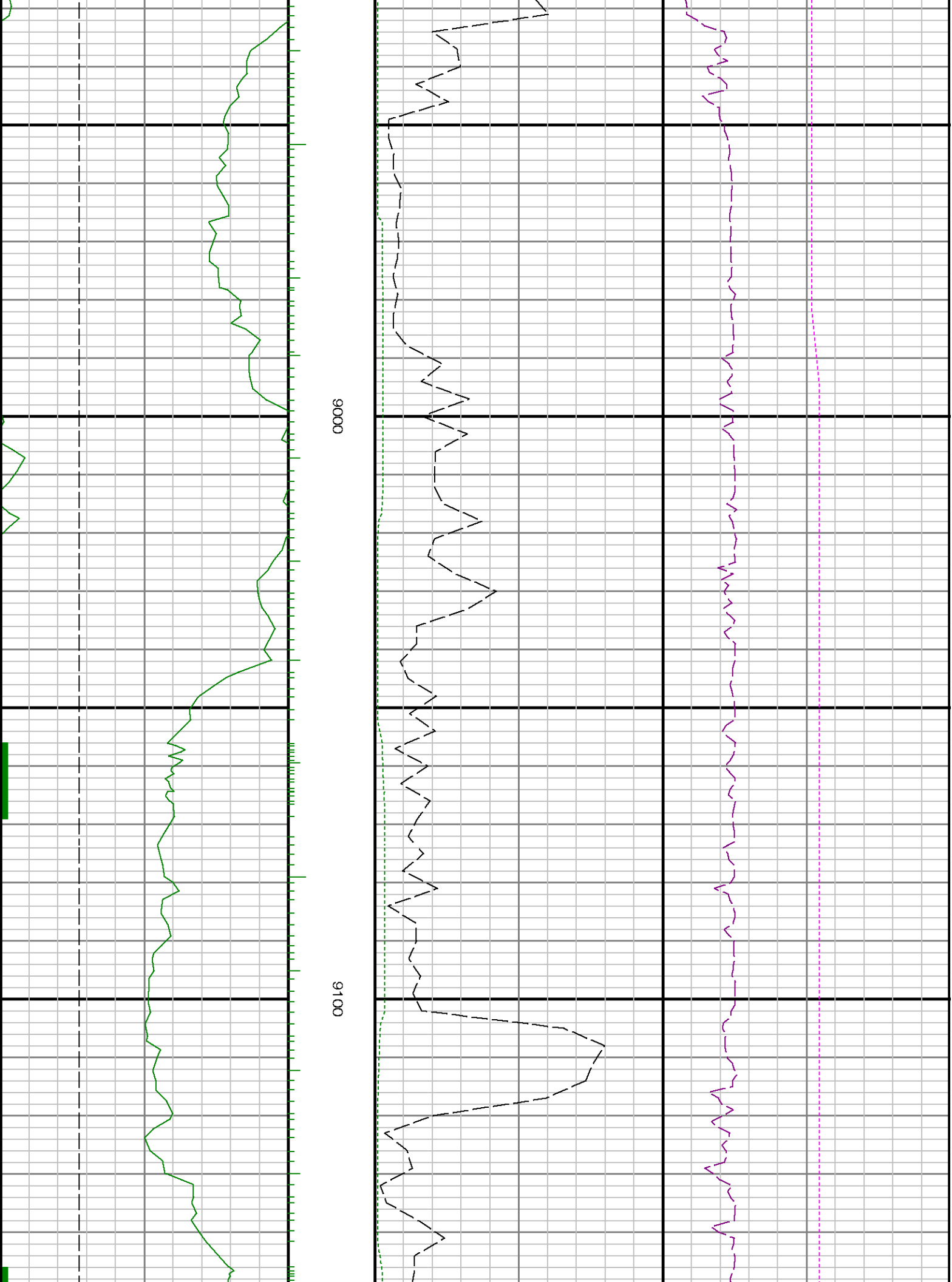


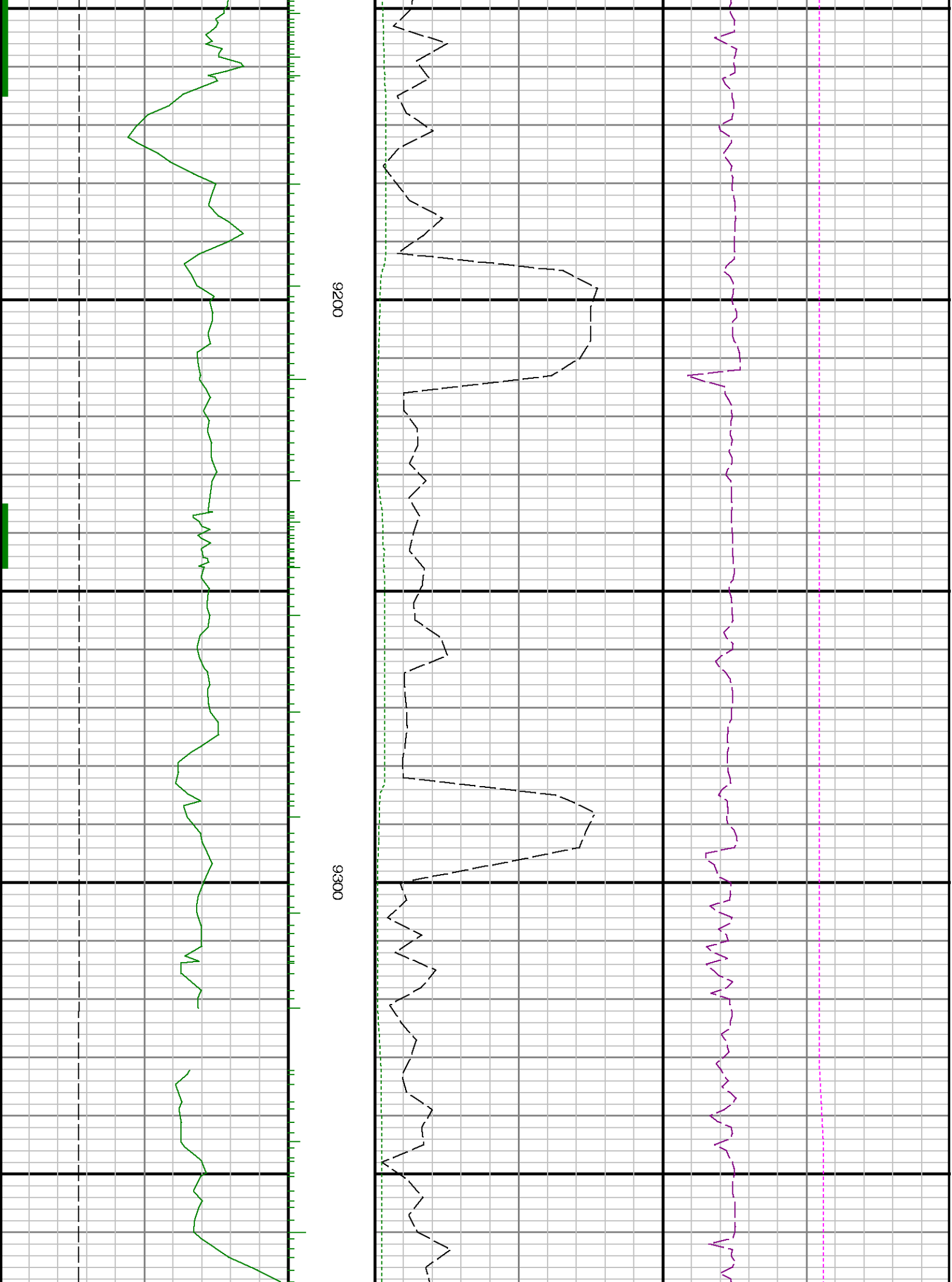


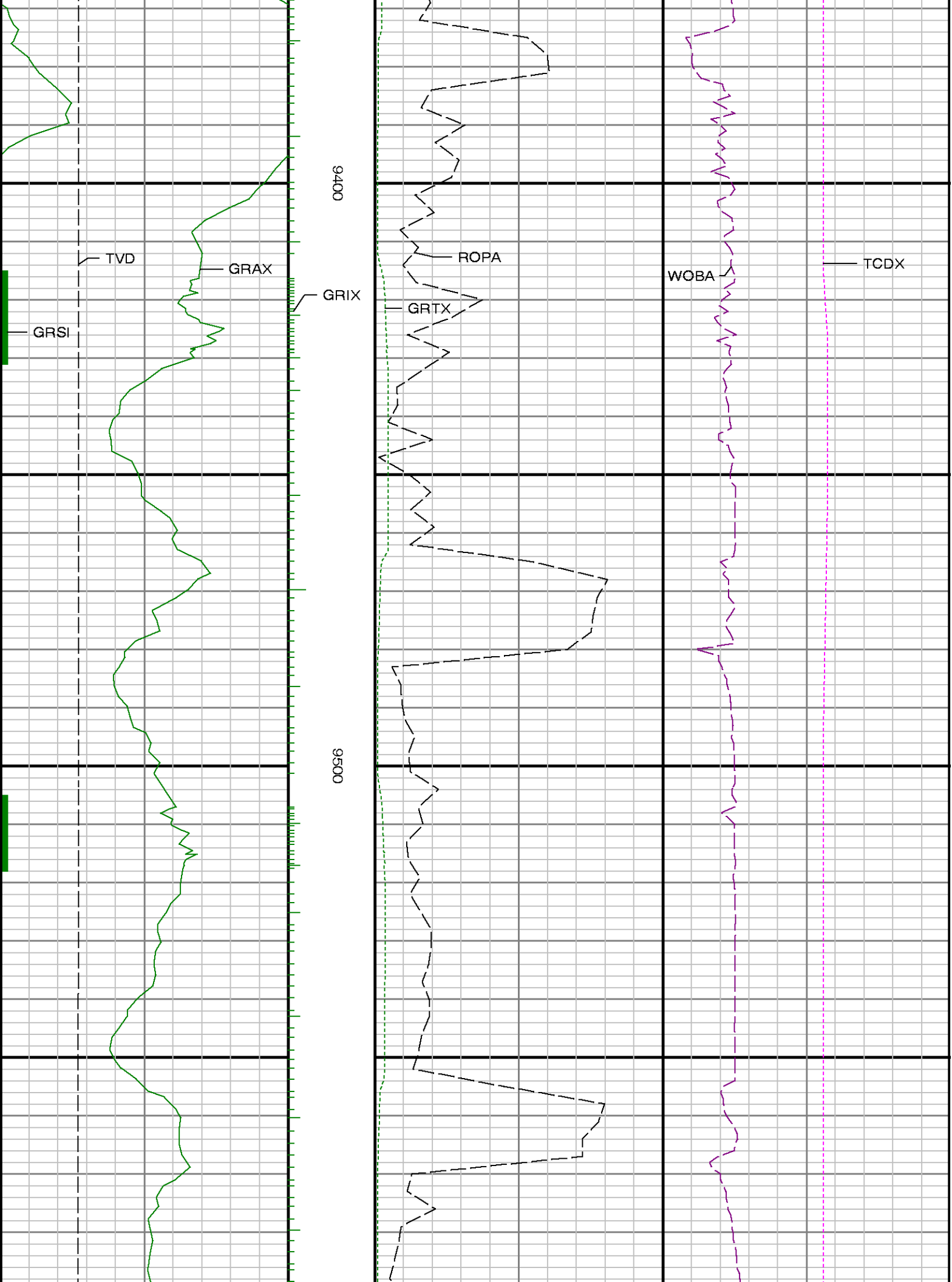
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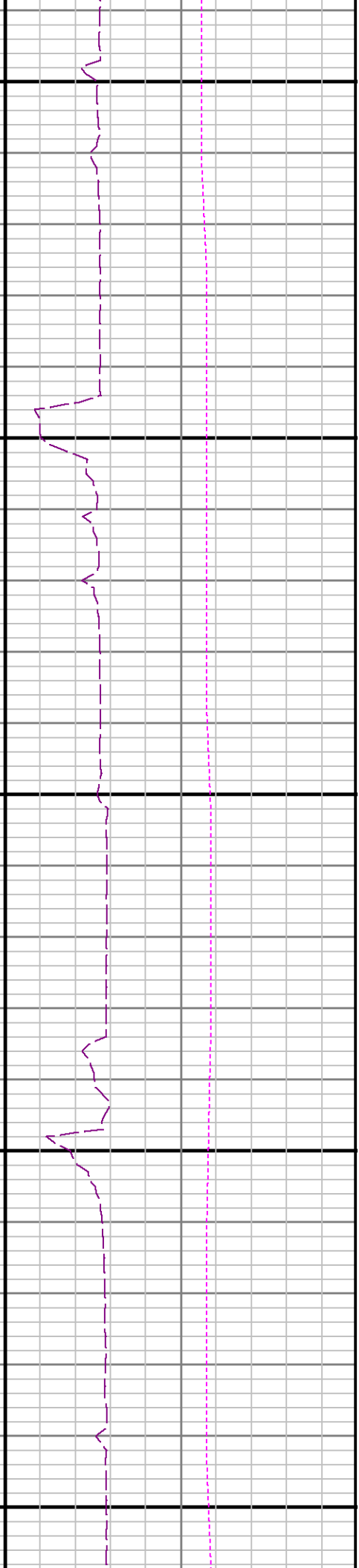
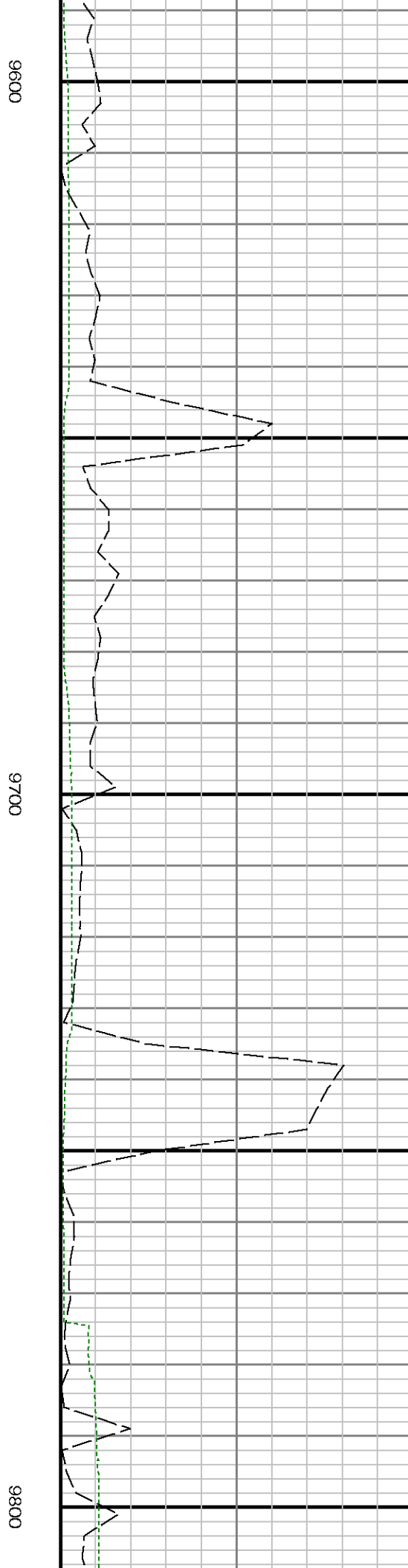
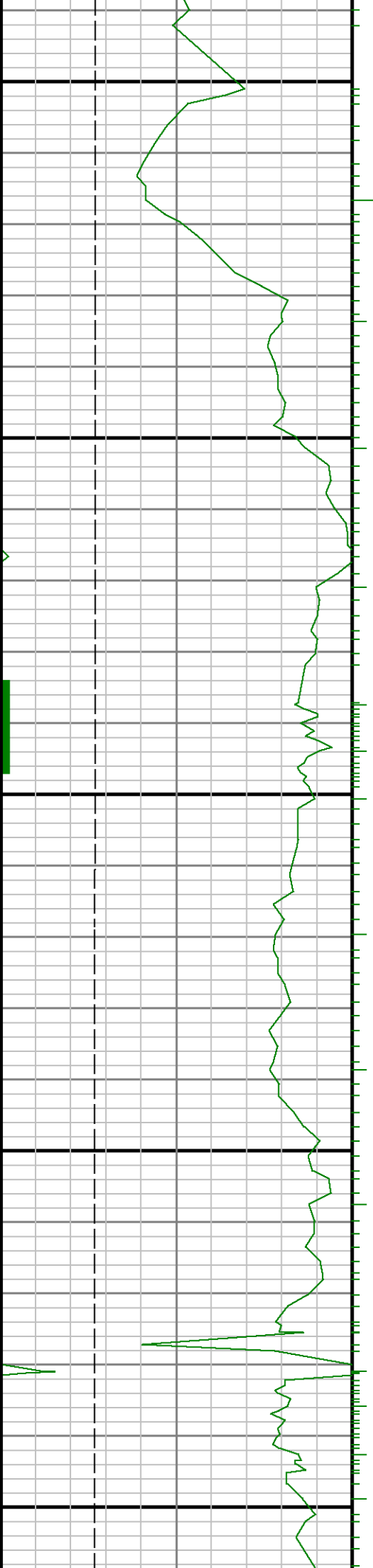
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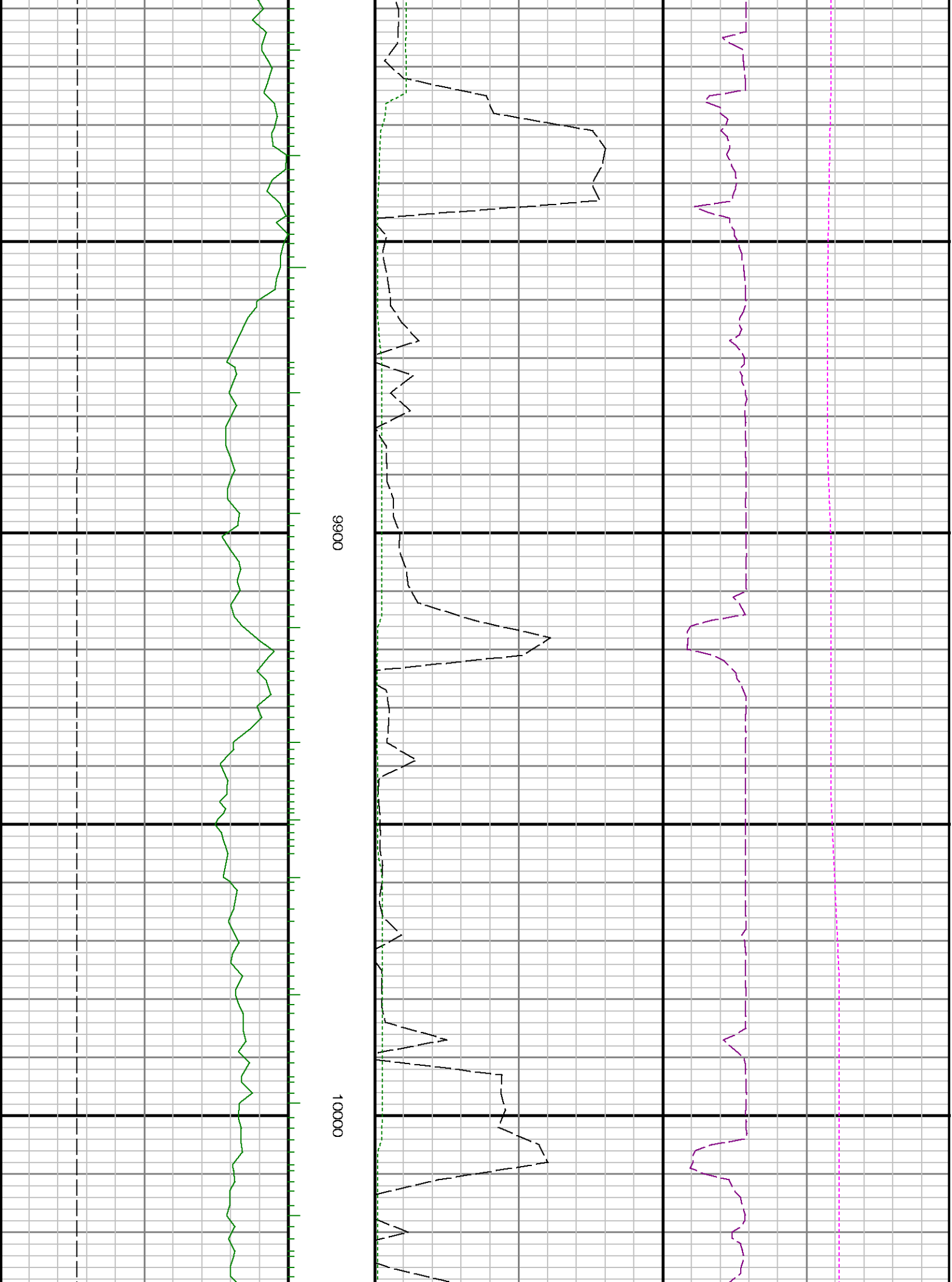


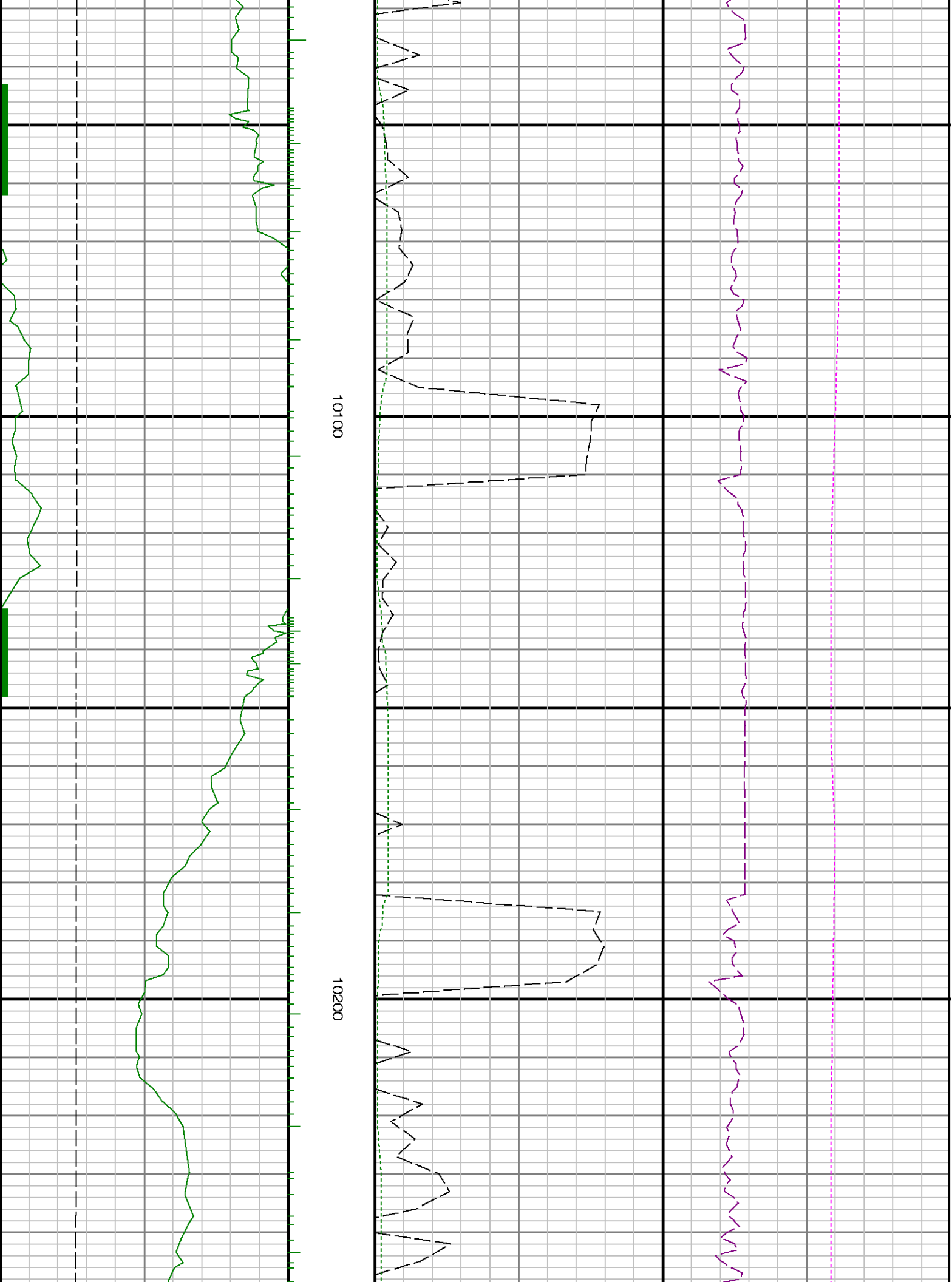


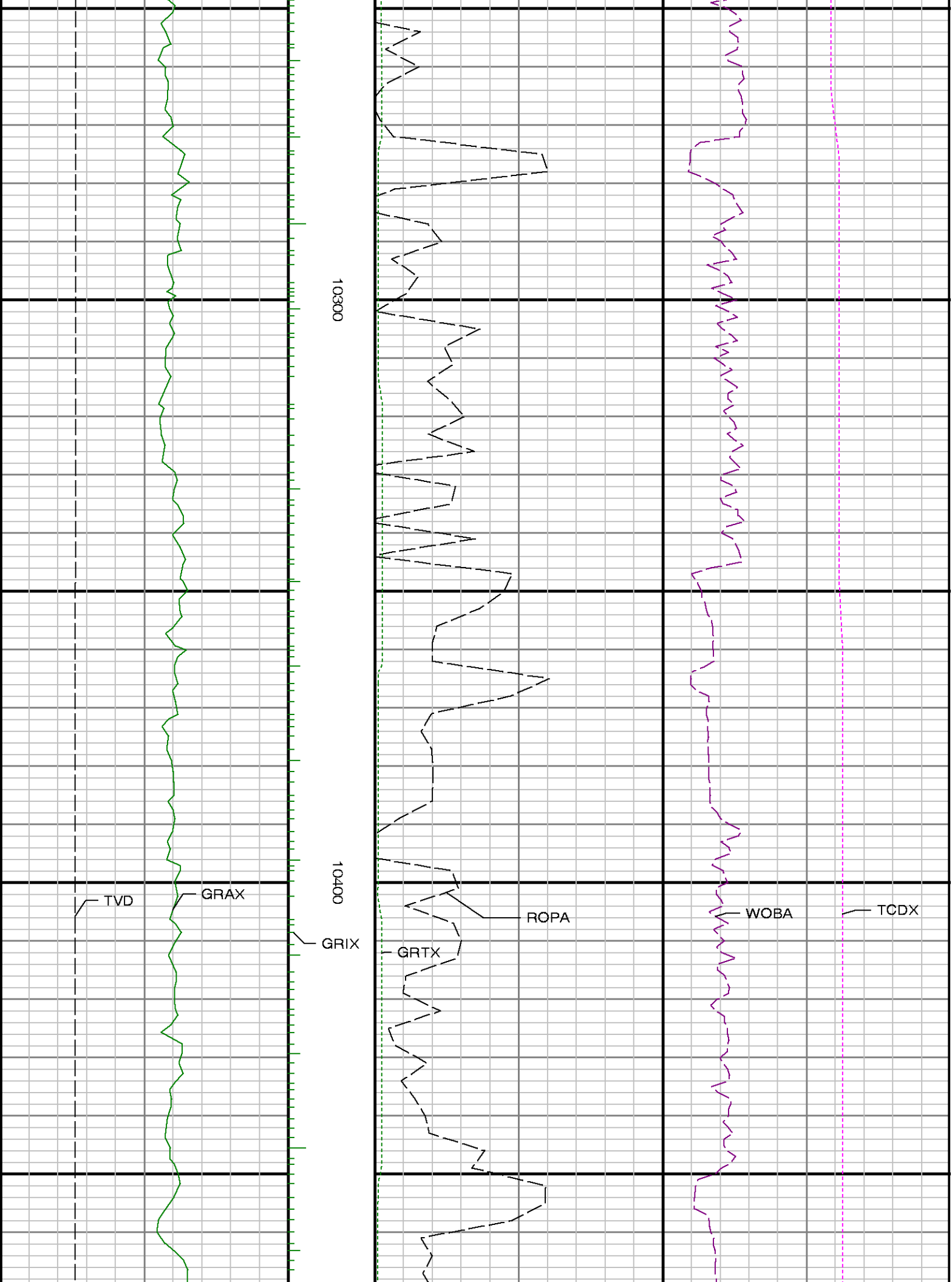


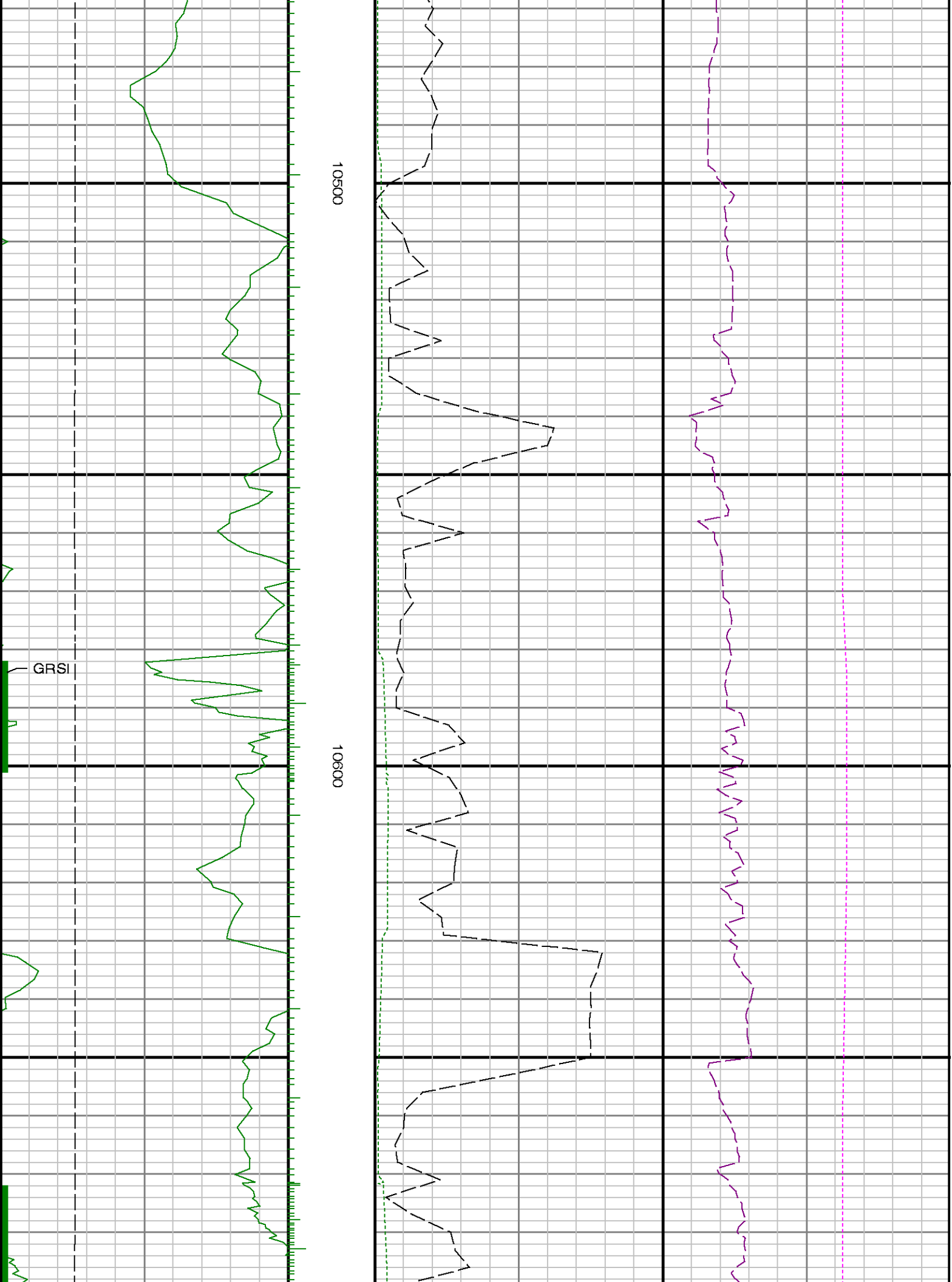


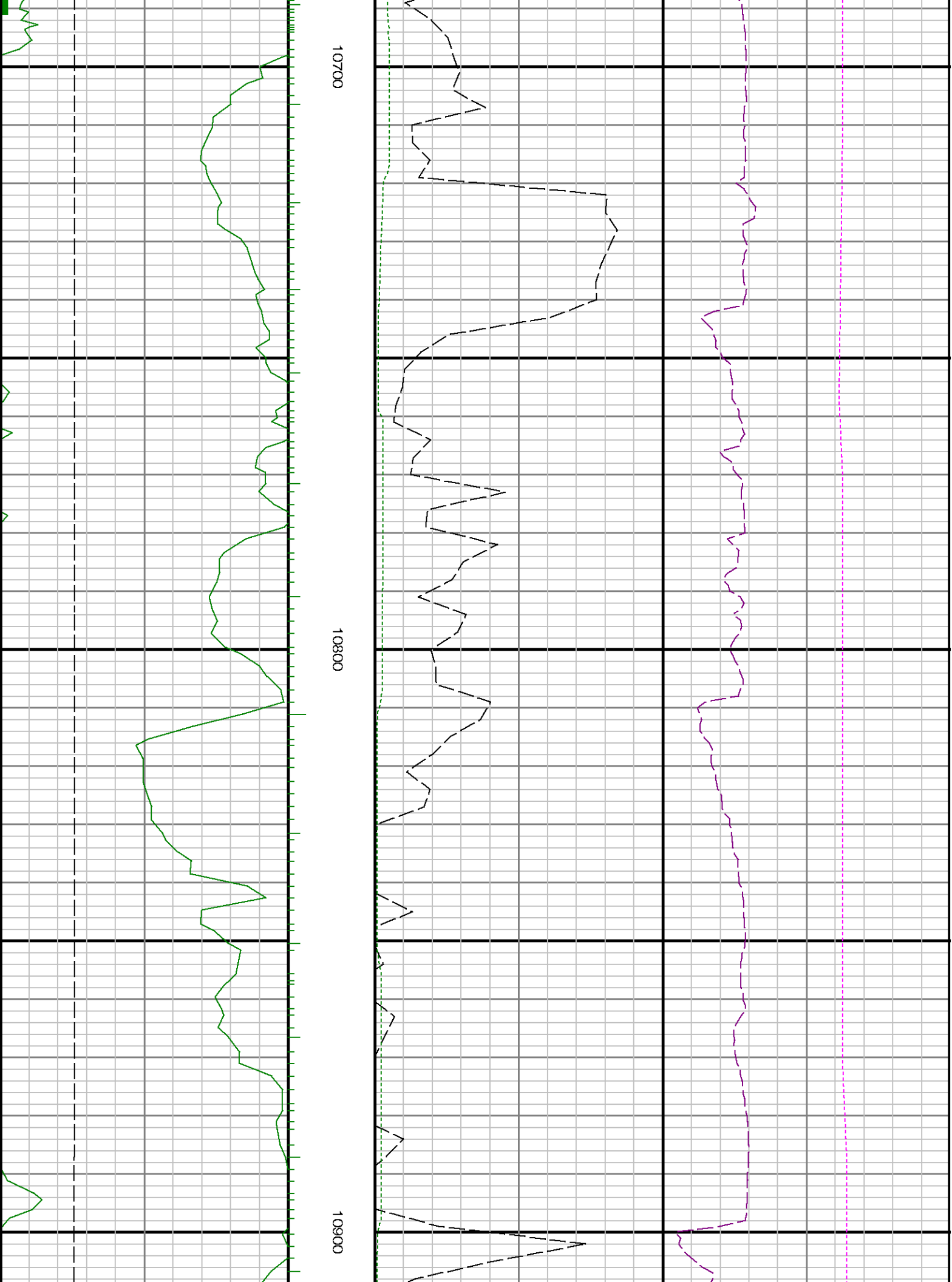


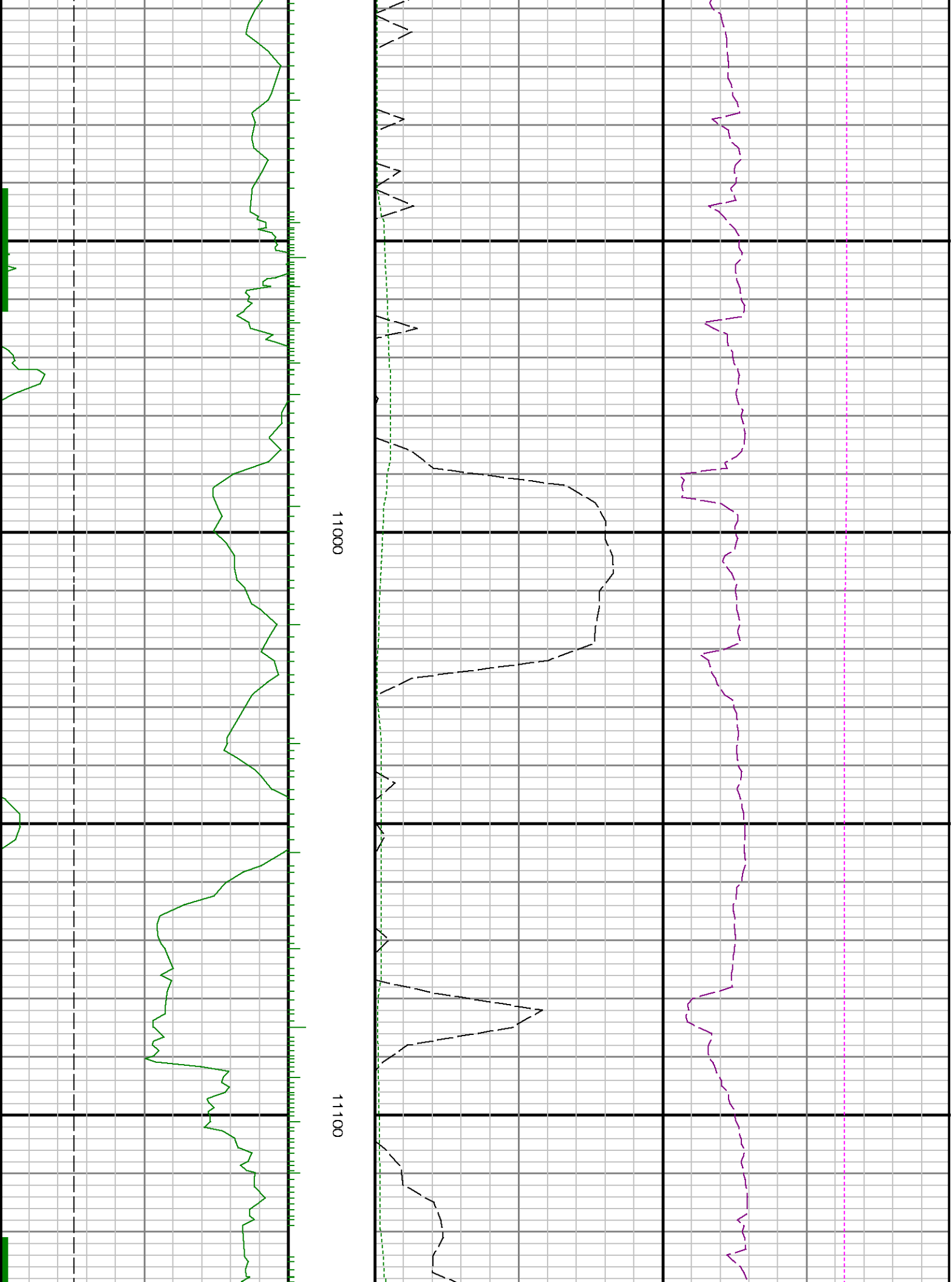


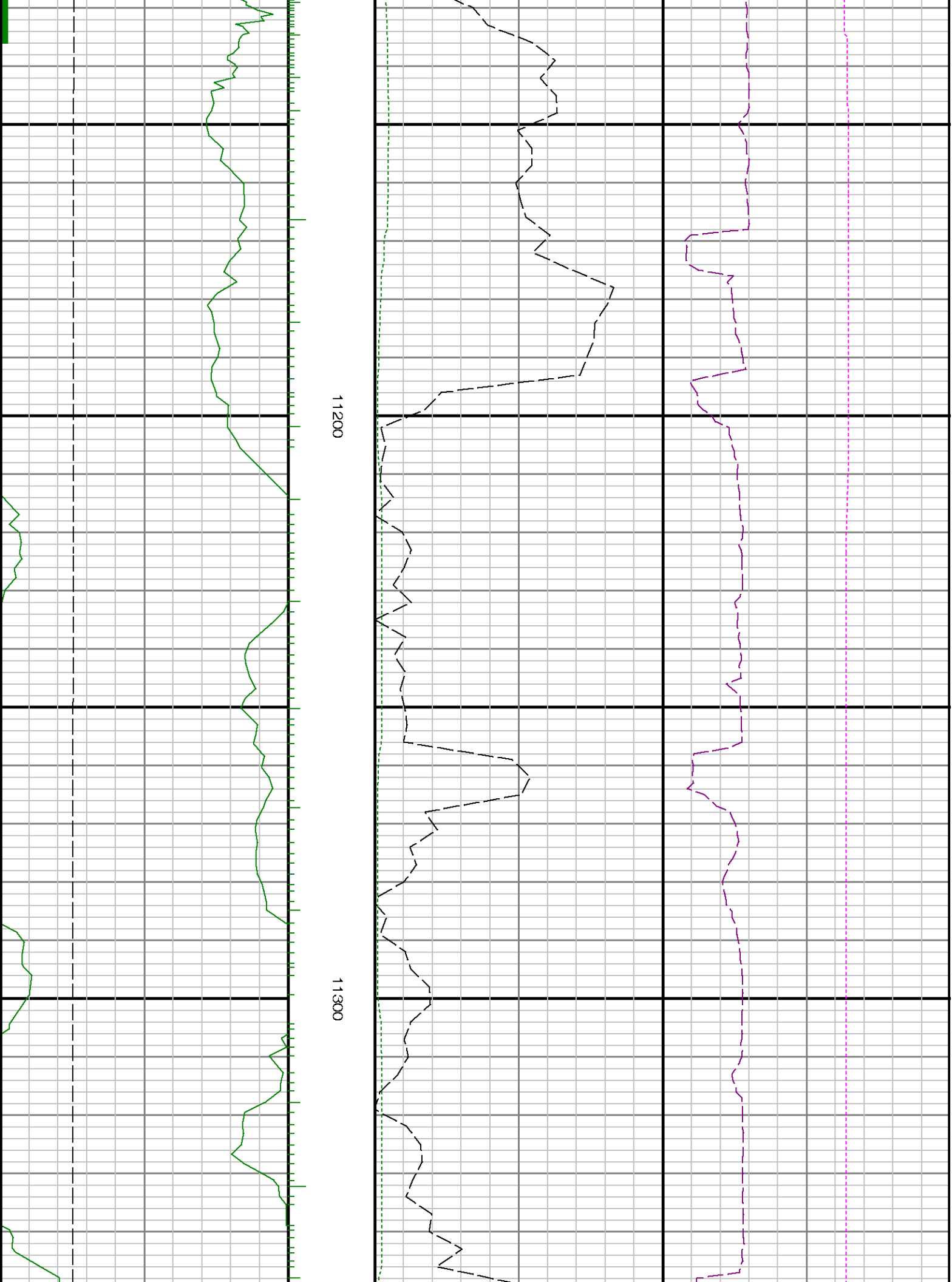


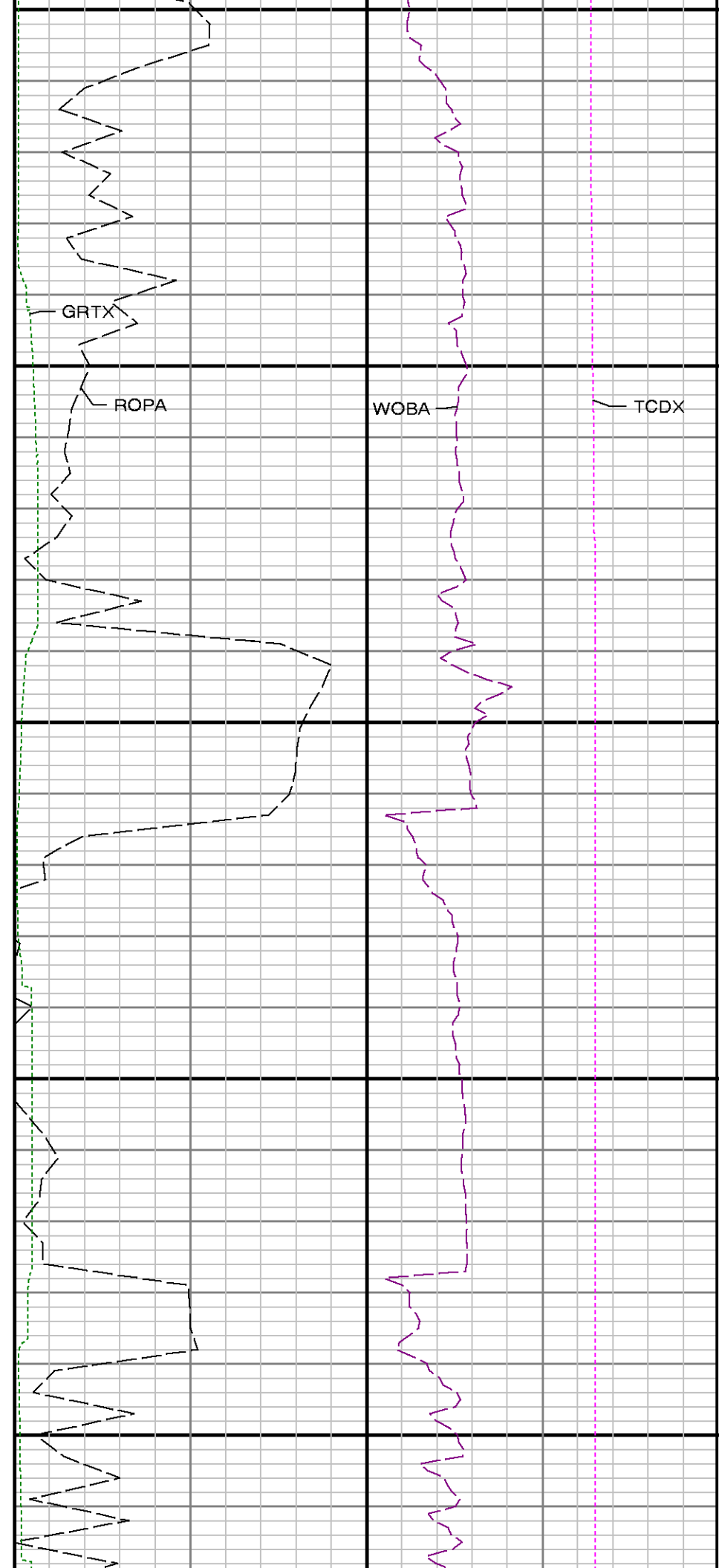
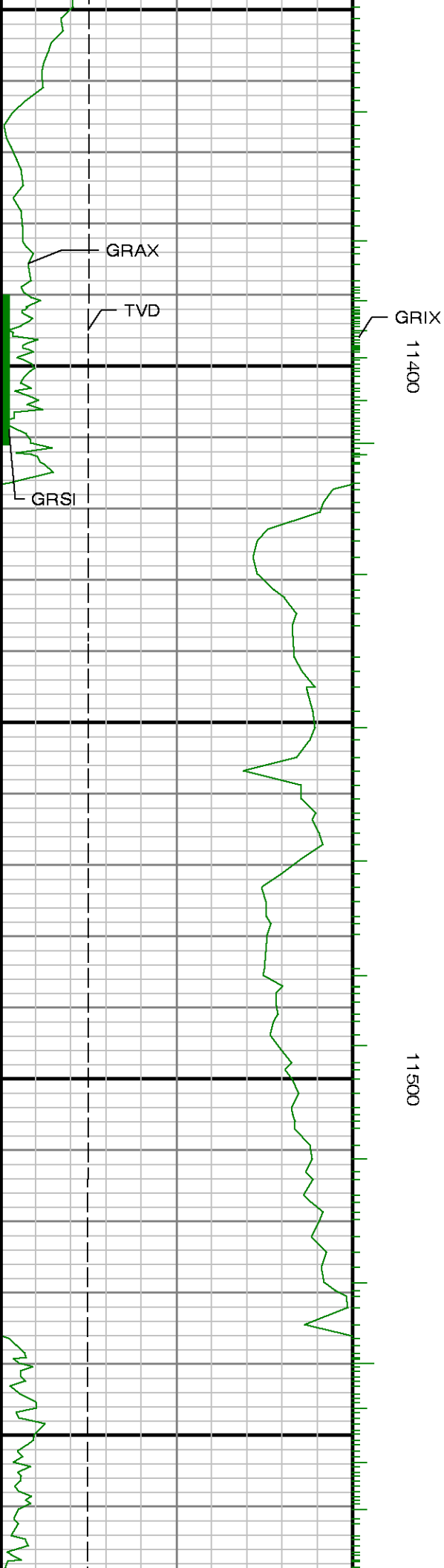


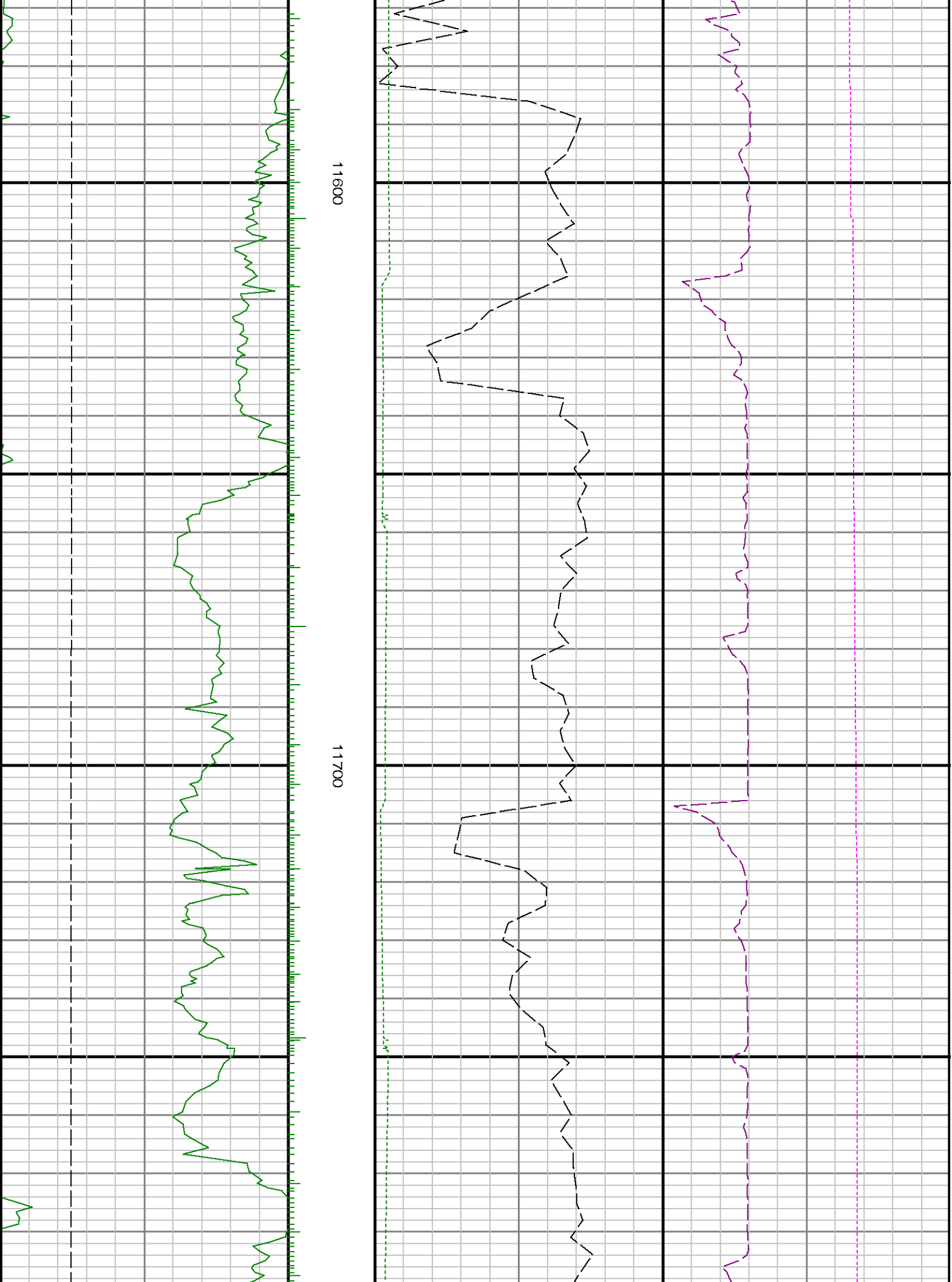


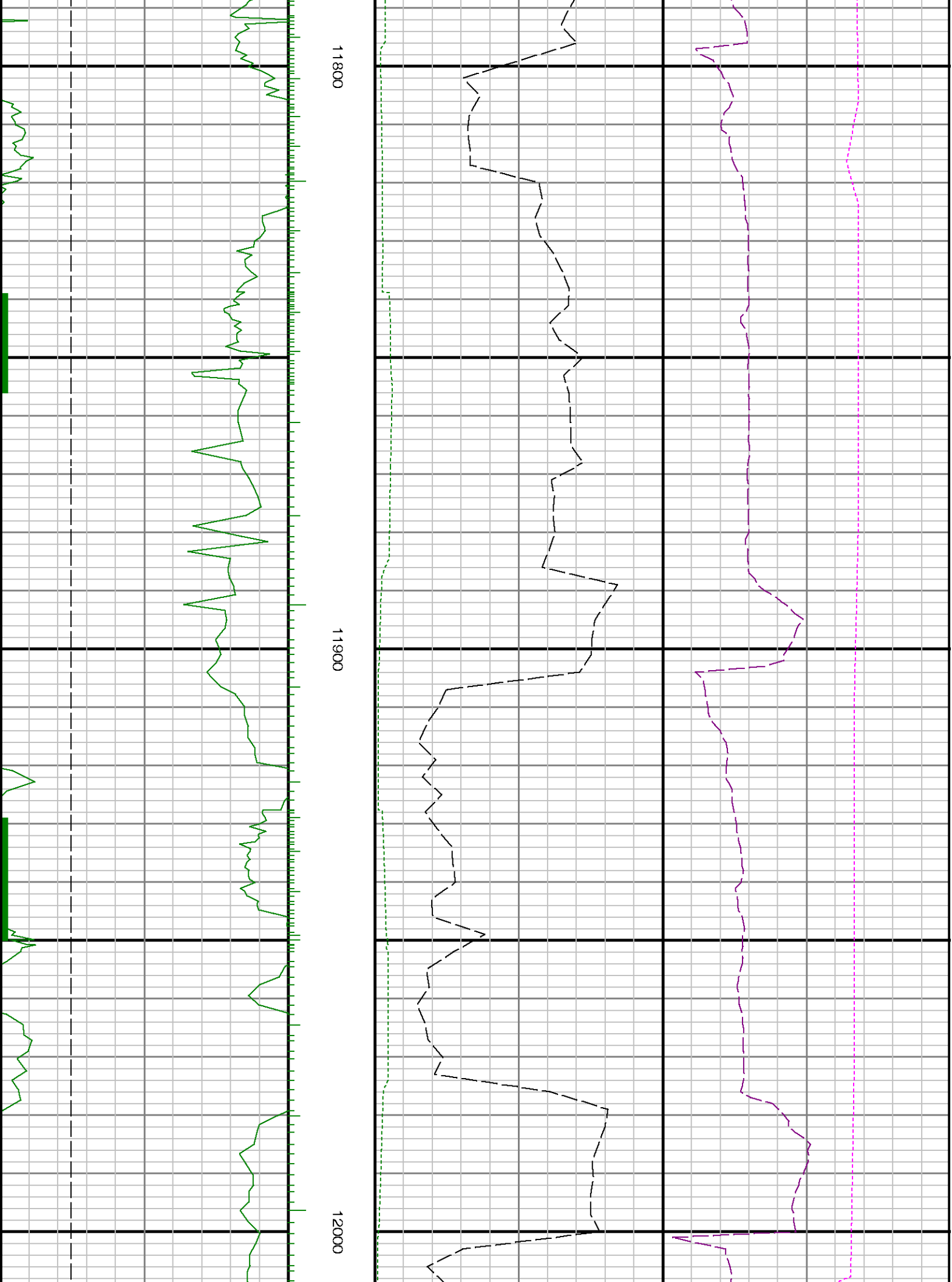


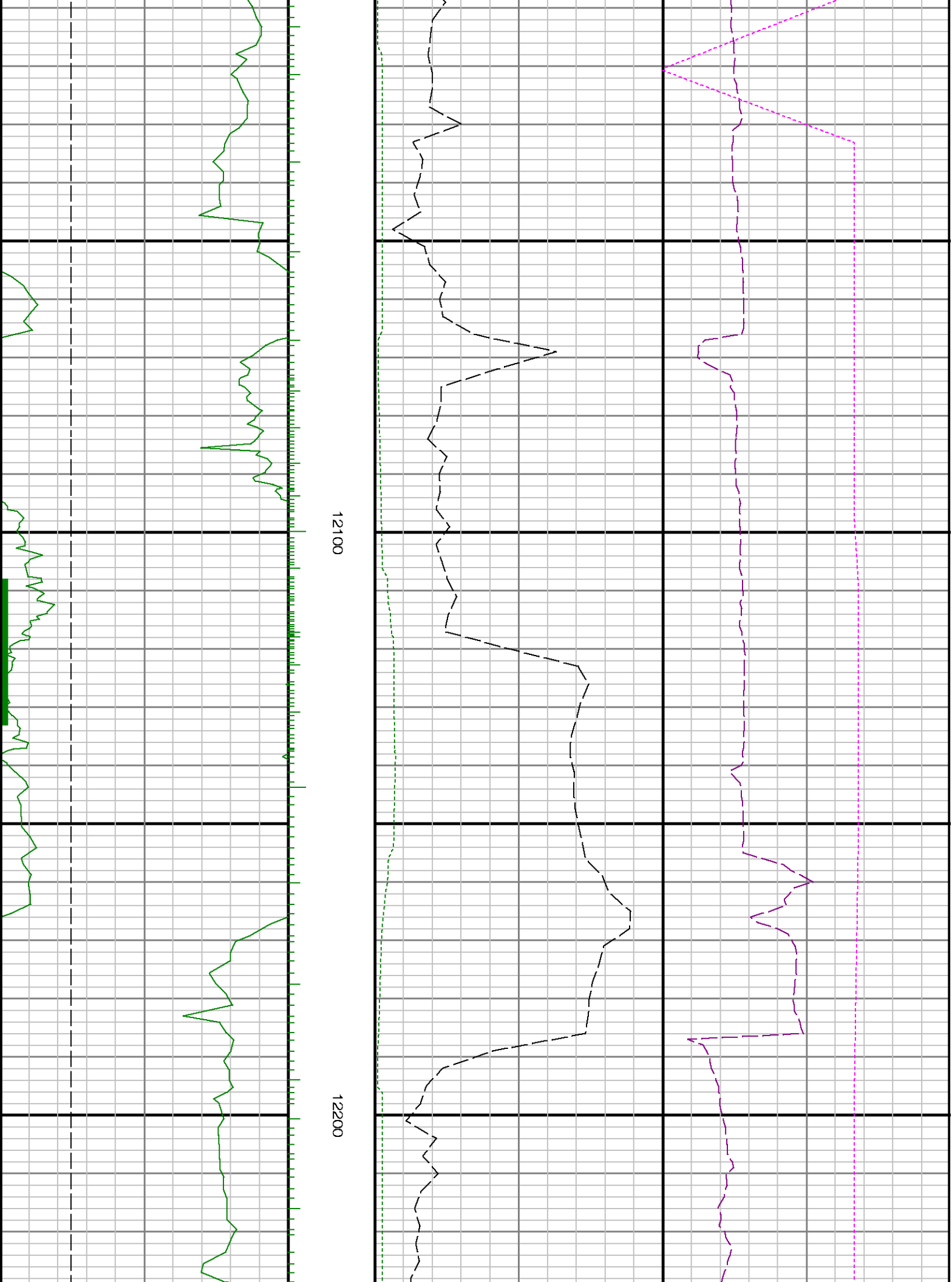


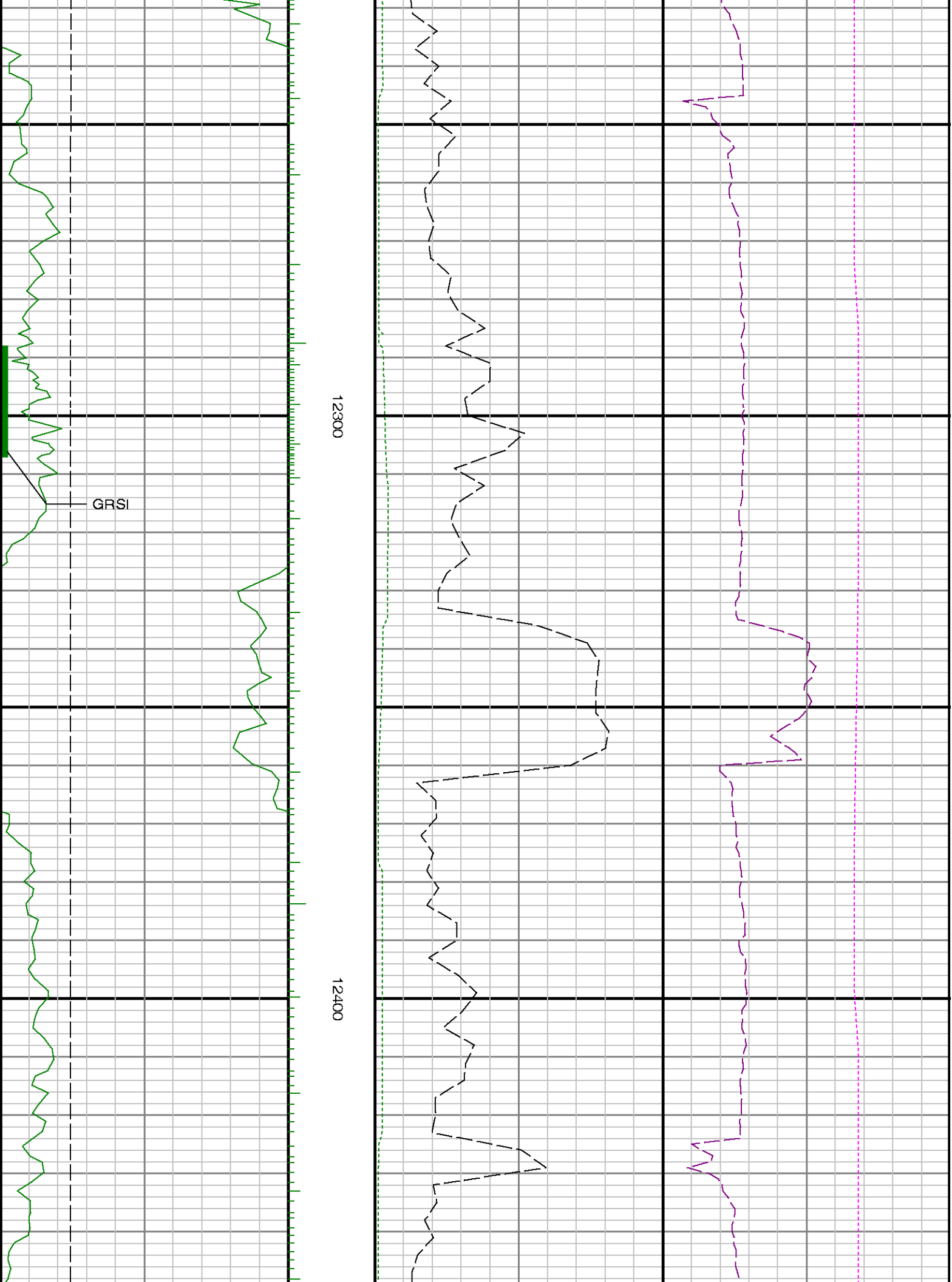


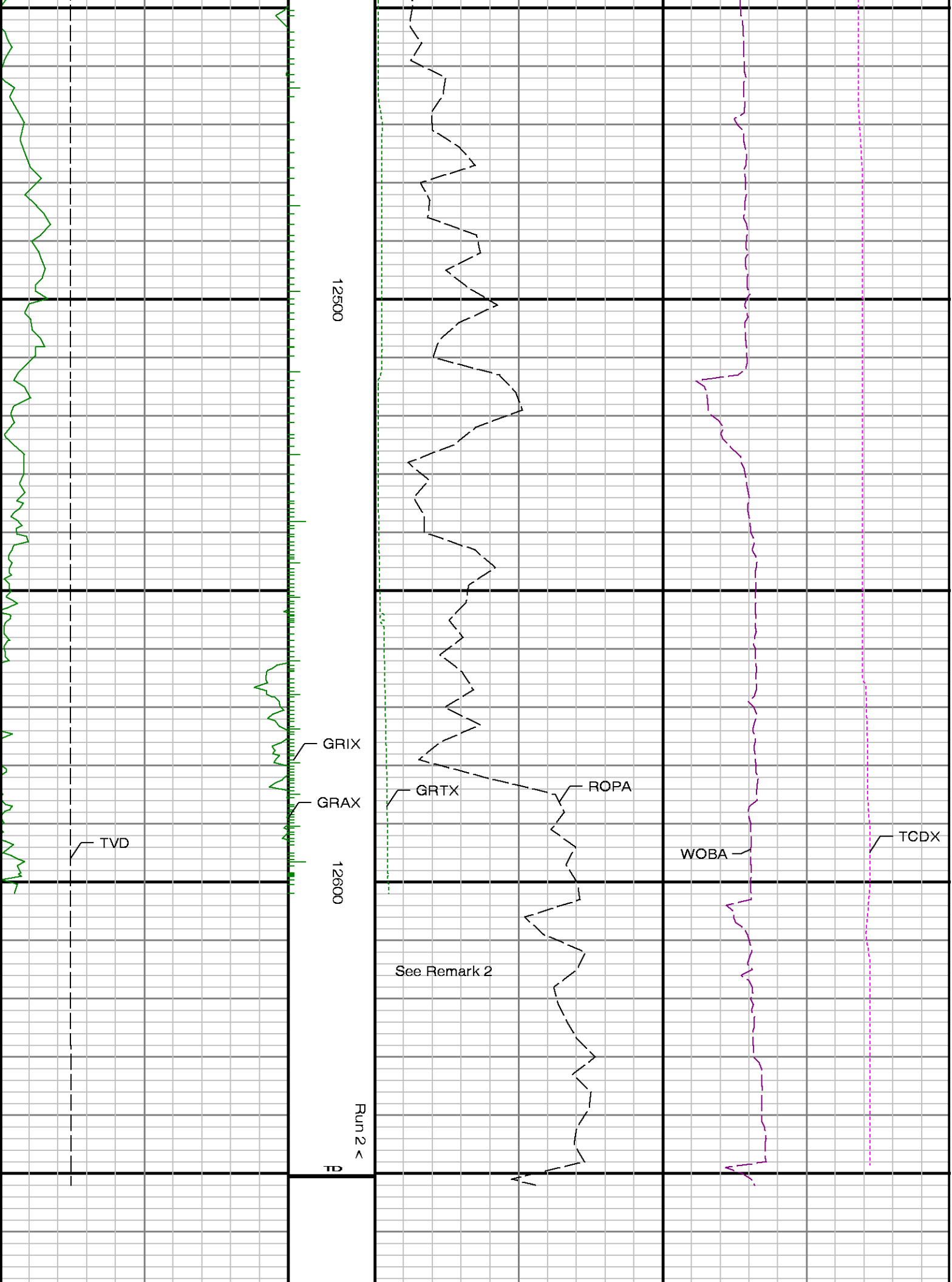












<div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0150</div> <div>API</div> <div>True Vertical Depth TVD</div> <div>74006000</div> <div>ft</div>	MD feet 1:240	<div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>5000</div> <div>ft/hr</div> <div>Gamma Time Since Drilled GRTX</div> <div>0600</div> <div>min</div>	<div>Surface Weight On Bit 1.0 ft Avg WOBA</div> <div>0100</div> <div>kibf</div> <div>Downhole Temperature TCDX</div> <div>100300</div> <div>degF</div>
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