



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale: Company: Kerr-McGee Oil & Gas Onshore LP

Well: Whipsnake 28N-22HZ

Measured Depth 1:240
Field: Weld County (Kerr-McGee)

Region: Continental US Country: United States

Status: Surface Location: Other Services:

Final Print Latitude: 40° 7' 2.179" N

API Number: 05123394380000 Longitude: 104° 52' 33.427" W

Permanent Datum (P.D.): Mean Sea Level Elevation: 5003.00 ft.

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

Depth Reference: Driller's Depth Elevations: KB: N/A
DF: 5003.00 ft.
GL: 4987.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6923.0 ft. Date From: 10/Aug/14 Dip Angle: 66.80 ° Az Reference North: True

Bottom: 12655.0 ft. Date To: 12/Aug/14 Total Mag to Reference

Spud Date: 08/Aug/14 Field Strength: 52786.7 nT North Correction: 8.67 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.750 in.	Surface	1367.0 ft.	9.625 in.	36.00 lb/ft	Surface	1359.0 ft.
8.750 in.	1367.0 ft.	7858.0 ft.	7.000 in.	26.00 lb/ft	Surface	7846.0 ft.
6.125 in.	7858.0 ft.	12655.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based - Fresh	5349.0 ft.	12655.0 ft.	13.500 in.	1367.0 ft.	0.0 ° / 237.7 °	0.3 ° / 263.7 °
			8.750 in.	6492.0 ft.	0.3 ° / 263.7 °	90.0 ° / 360.0 °
			6.125 in.	6163.0 ft.	90.0 ° / 360.0 °	89.4 ° / 0.7 °
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig: / Contractor:	Xtreme 6	/ Kerr-McGee Oil & Gas Onshore LP
PATS	6.4.1.34	Job No:	6554255	
		District / Unit:	RMD	/ D&E

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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. Time (hrs.)
							Top (m.)	Bottom (m.)	From (m.)	To (m.)	Start	End	
1	1	2	8.750	PDC	6.000	Steerable	6923.0	7858.0	6923.0	7859.0	10/Aug/2014 13:47	11/Aug/2014 07:43	36.52
2	3	3	8.750	PDC	5.000	Steerable	7858.0	12655.0	7858.0	12655.0	12/Aug/2014 08:58	12/Aug/2014 16:05	34.31

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
David Campbell	Aug 08 2014	Aug 15 2014	Jake Miller	Aug 09 2014	Aug 15 2014			

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (m.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
10/Aug/2014 02:50	1	5349.0	Water Based - Fresh	8.8	30	9.2	0.0	0 / 99	Active Mud Pit	2600	0.0
11/Aug/2014 02:57	1	7668.0	Water Based - Fresh	10.2	44	9.4	0.0	0 / 91	Active Mud Pit	3100	0.0
13/Aug/2014 02:37	2	8349.0	Water Based - Fresh	9.2	38	9.2	0.0	0 / 95	Active Mud Pit	3000	0.0
14/Aug/2014 01:51	2	11034.0	Water Based - Fresh	9.5	44	9.4	0.0	1 / 93	Active Mud Pit	3100	0.0

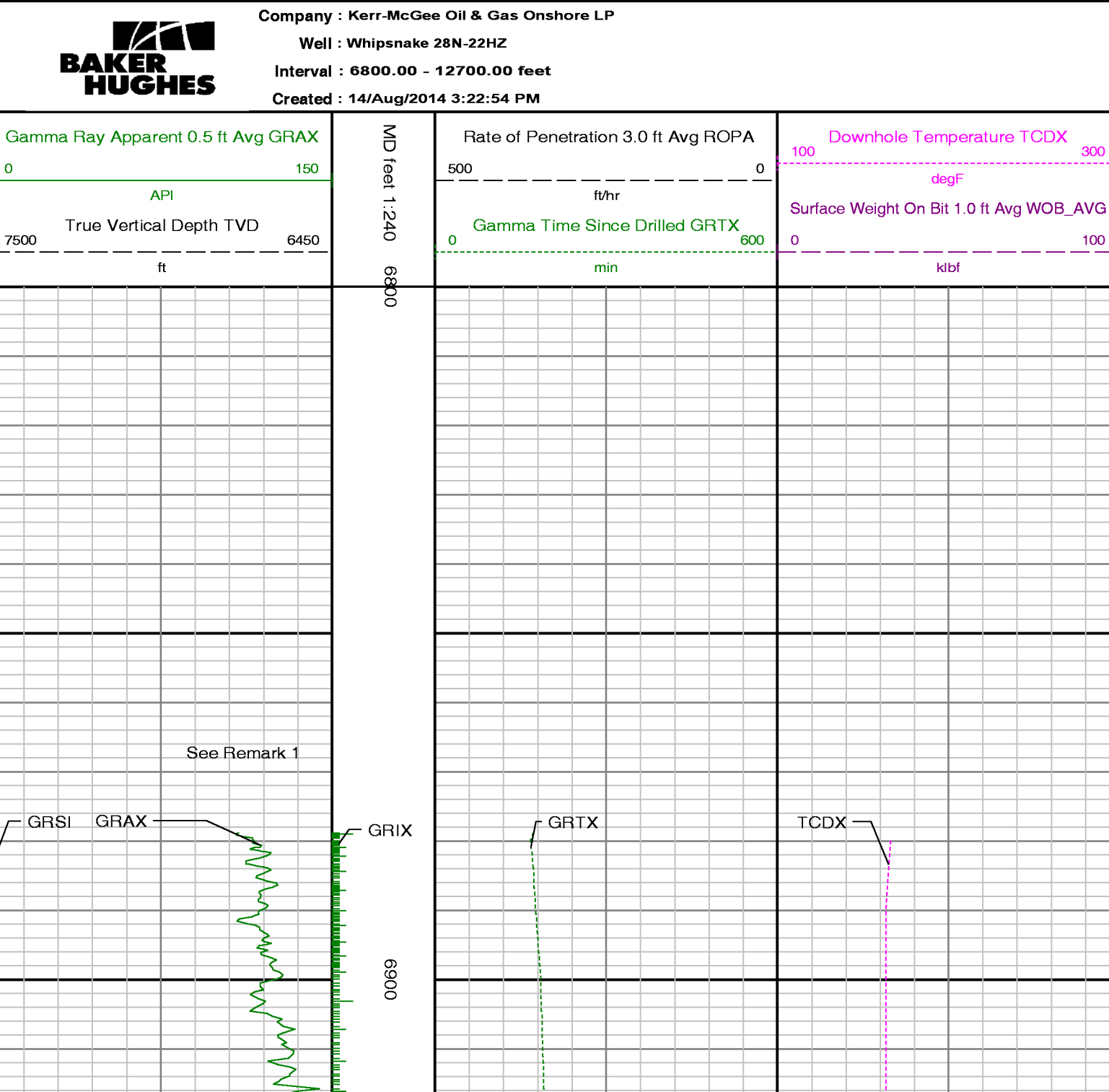
Mnemonics		
Curve	Description	Units
GRAX	GRAX Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	GRIX Gamma Ray Data Density	point
GRSI	GRSI Gamma Ray Sliding Indicator	unitless
GRTX	GRTX Gamma Ray Time Since Drilled	min
ROPA	ROPA Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	TCDX Downhole Temperature	degF
TVD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

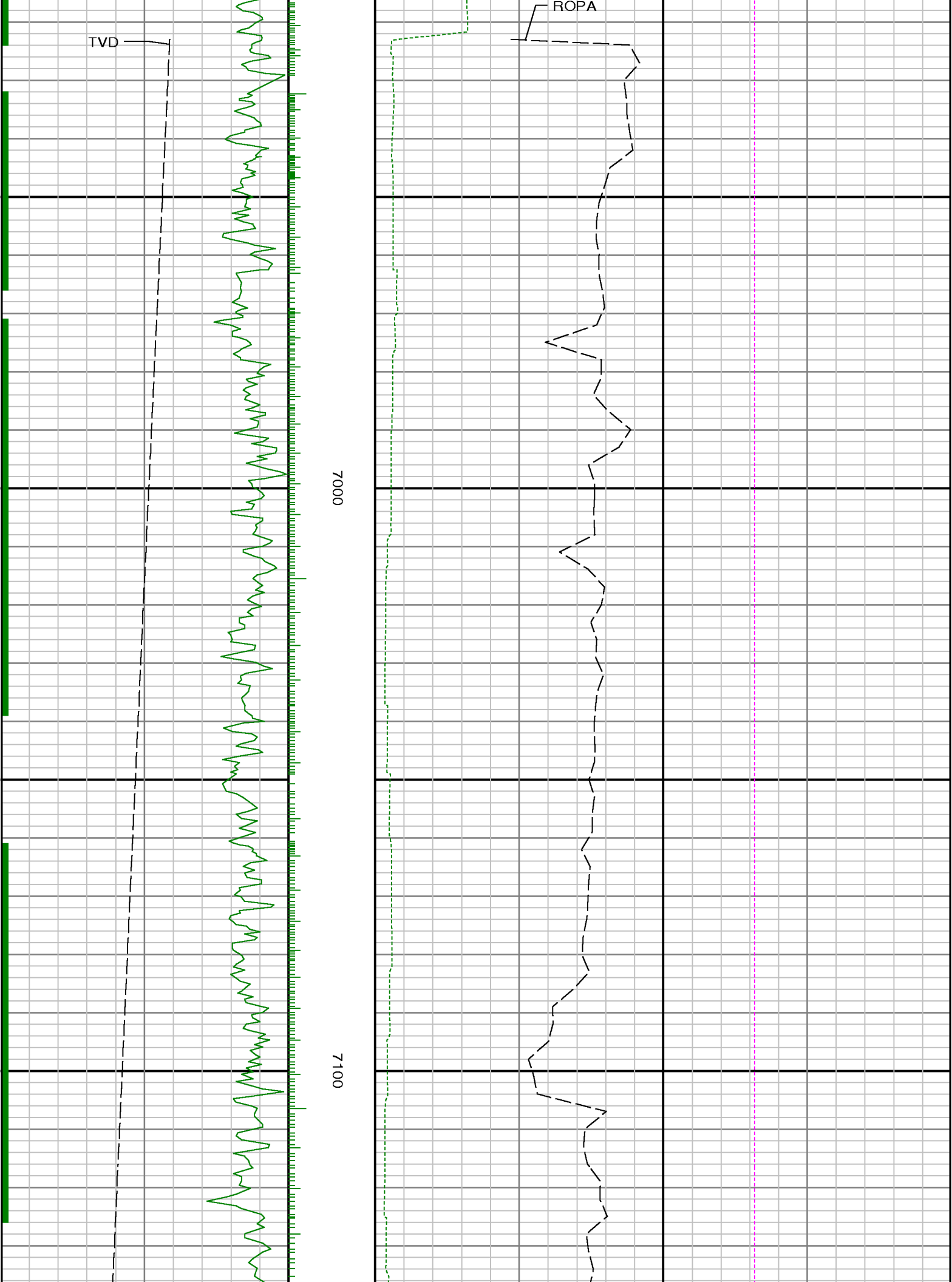
Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12422312	Directional	47.22	6.750	0.000
1	SRIG	12131373	Gamma	43.84	6.750	0.000
2	DIR	12497612	Directional	49.52	4.750	0.000
2	SRIG	12600745	Gamma	46.14	4.750	0.000

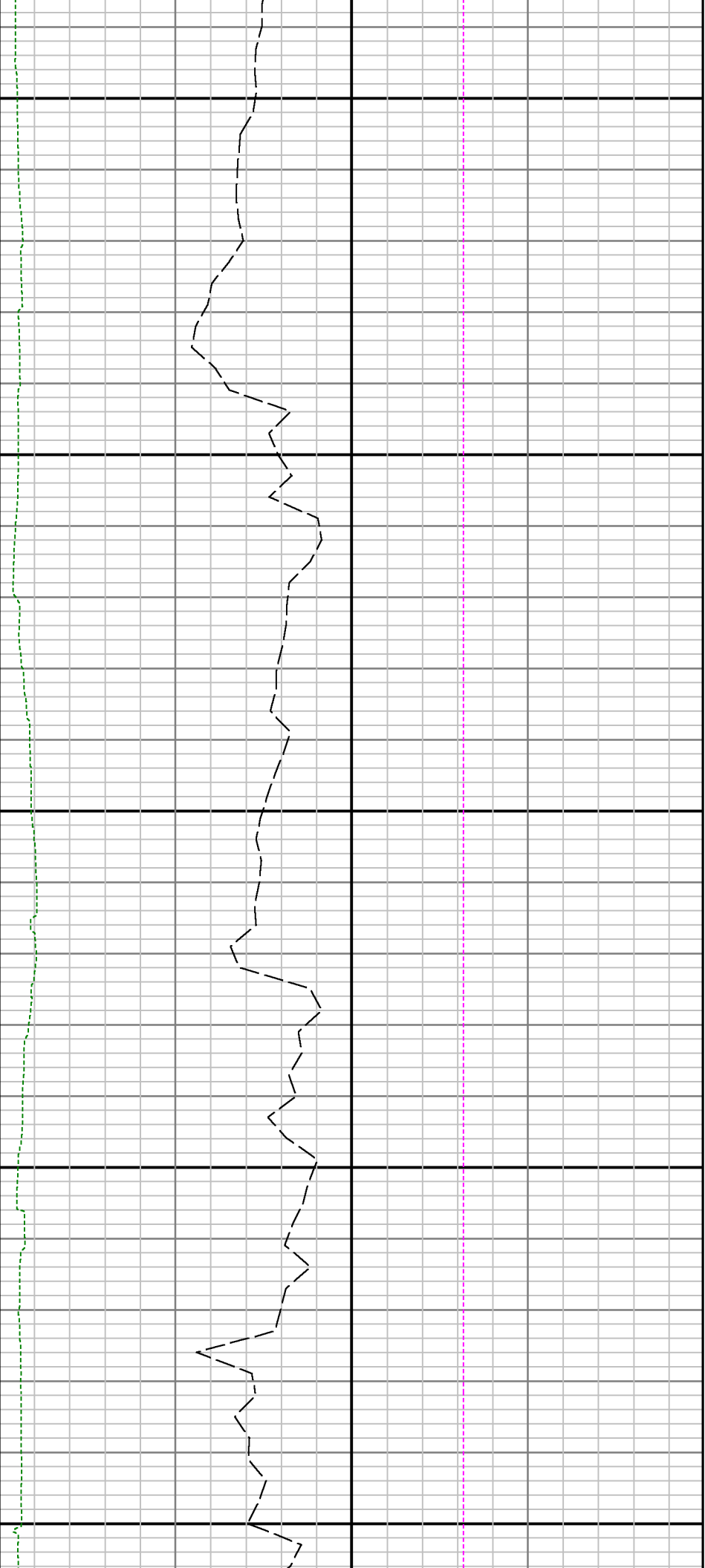
Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments
<p>1.) Depth measurements 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>2.) Baker Hughes run 1 utilized 6 3/4 inch NaviTrak services (Directional only) behind an 8 3/4 inch bit and steerable assembly from 1367 to 6923 feet MD (1366.94 to 6884.53 feet TVD) and NaviGamma services (Gamma Ray, Directional and VSS) from 6923 to7858 feet MD (6884.53 to 7489.69 feet TVD.)</p> <p>3.) Baker Hughes run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 7858 to 12655 feet MD (6884.53 to 7474.04 feet TVD).</p> <p>4.) The interval from 1367 to 6923 feet MD (1366.94 to 6884.53 feet TVD) was not logged due to directional only services being provided through the straight-hole and nudge section for Baker Hughes run 1.</p>

Remarks				
Number	Measured Depth (m.)	Hole Section (in.)	LWD Run No.	Remark
1	6923	8.750	1	The interval from 1367 to 6923 feet MD (1366.94 to 6884.53 feet TVD) was not logged due directional only service being provided through vertical section.
2	7815	8.750	1	The interval from 7815 to 7859 feet MD (7490.01 to 7489.37 feet TVD) was logged up to 24 hours after being drilled due to a trip out of the hole to lay down curve assembly, intermediate casing and cement operations, and to pick up the lateral assembly.
3	12605	6.125	2	The interval from 12605 to 12655 feet MD (7472.90 to 7474.04 feet TVD) was not logged due to sensor to bit offsets at well TD.

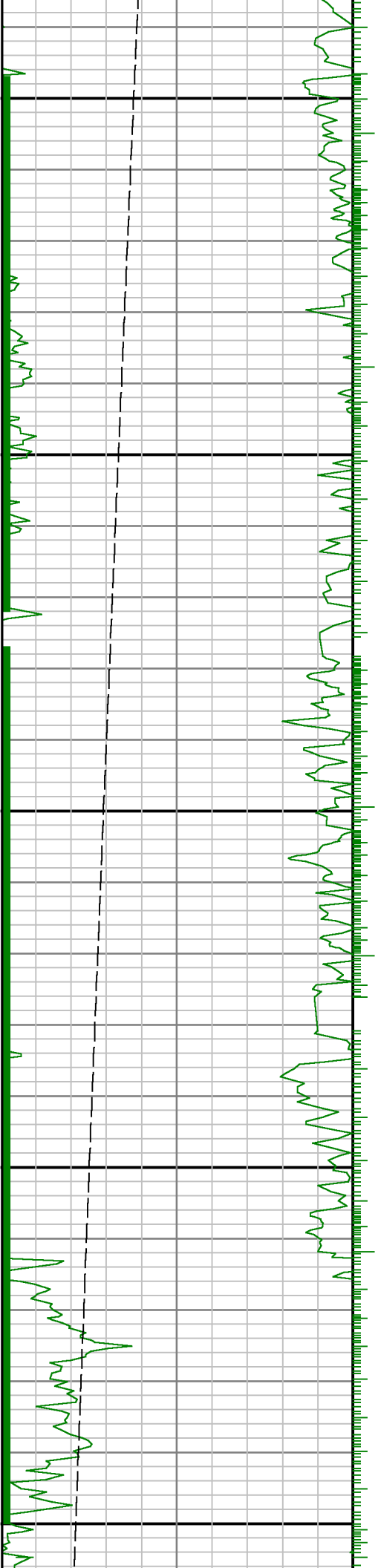






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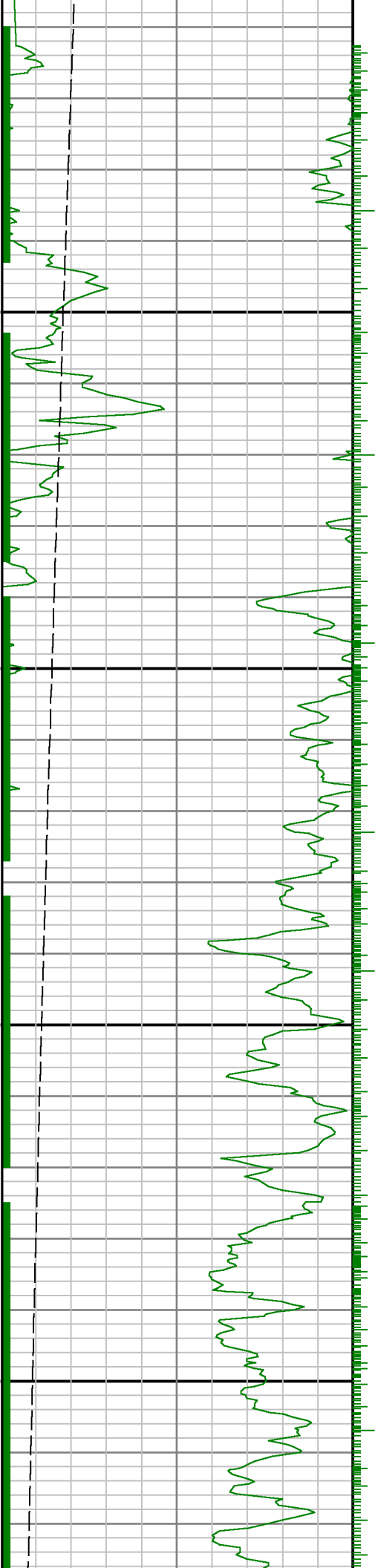
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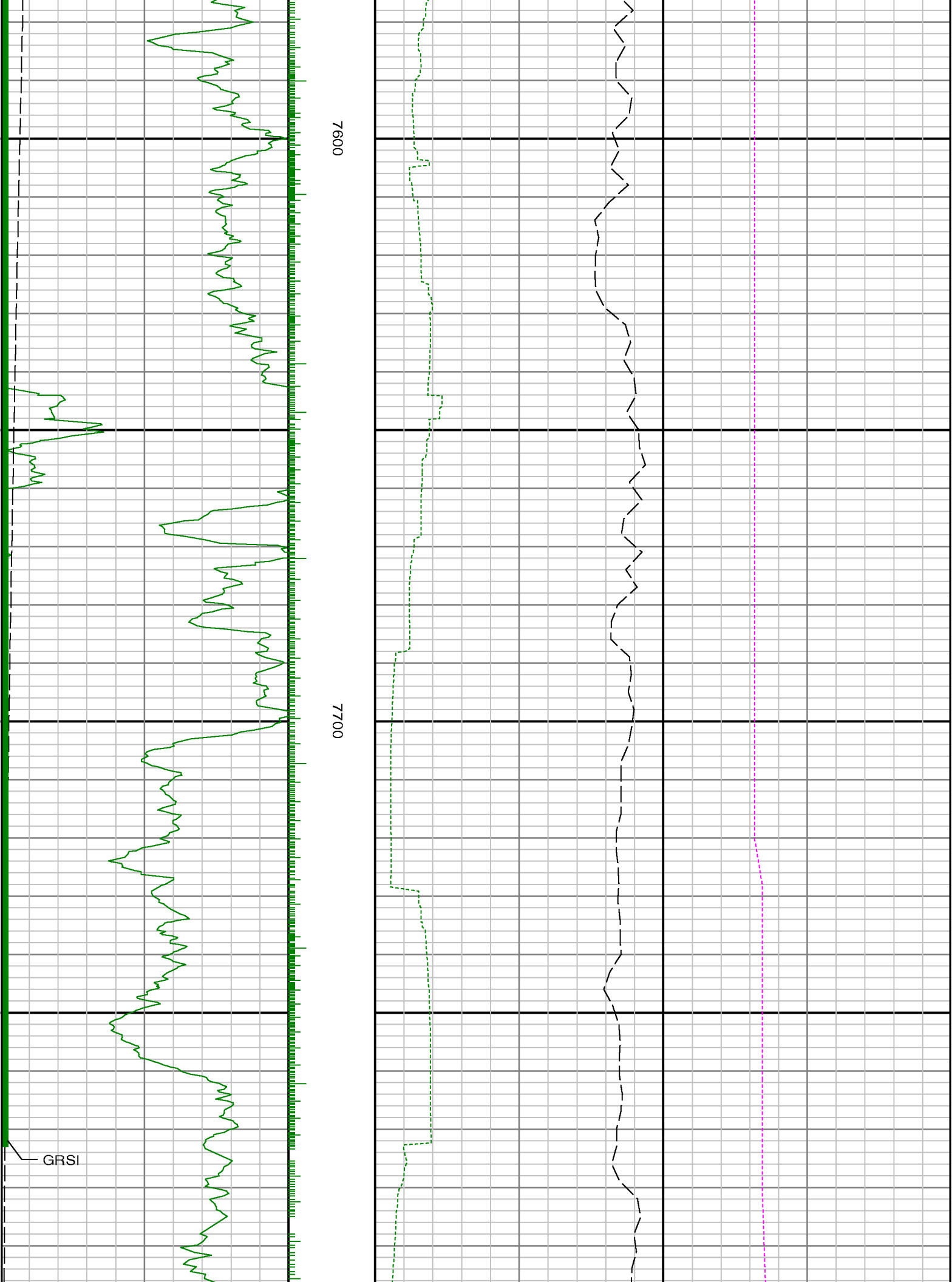


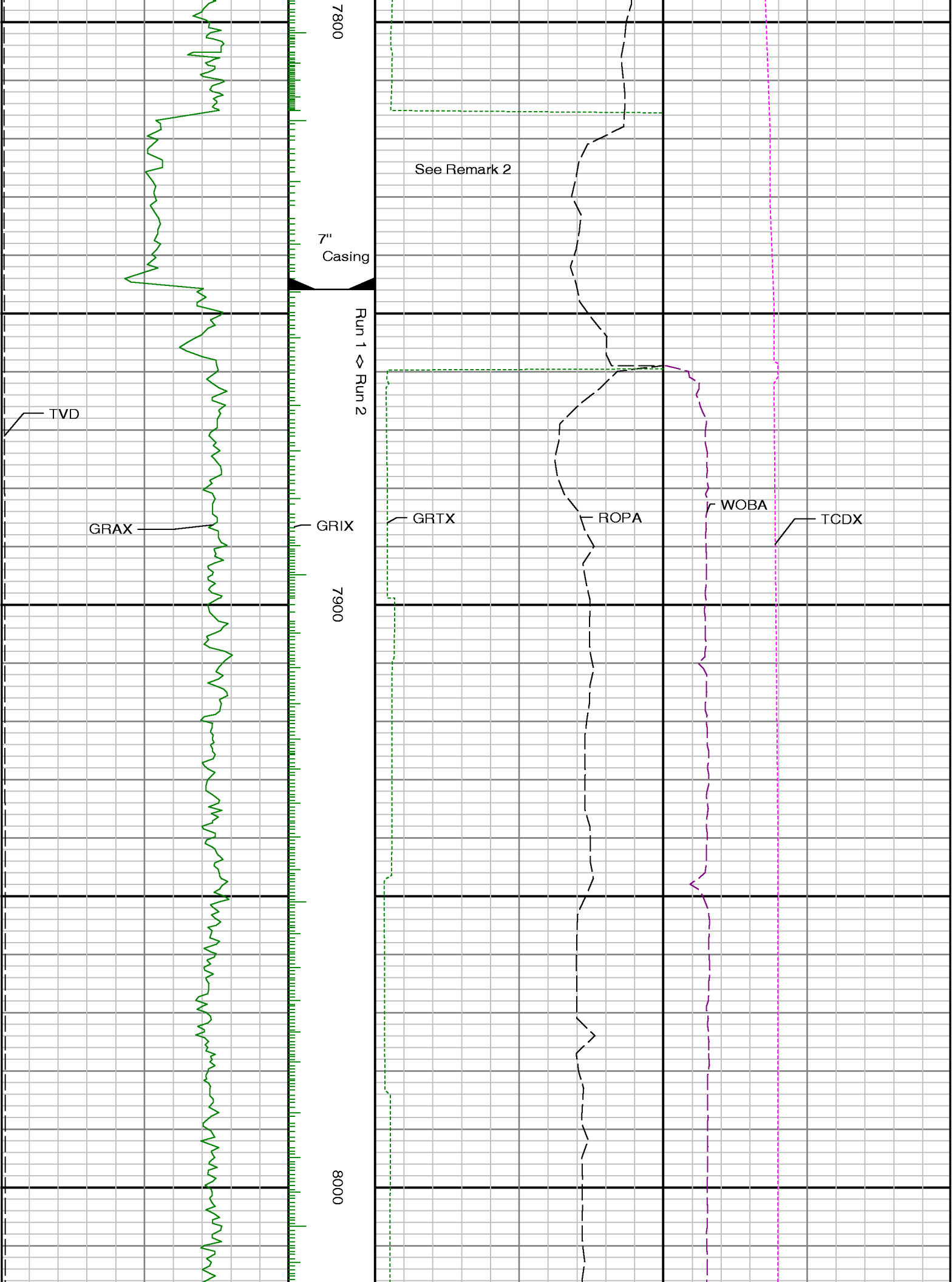


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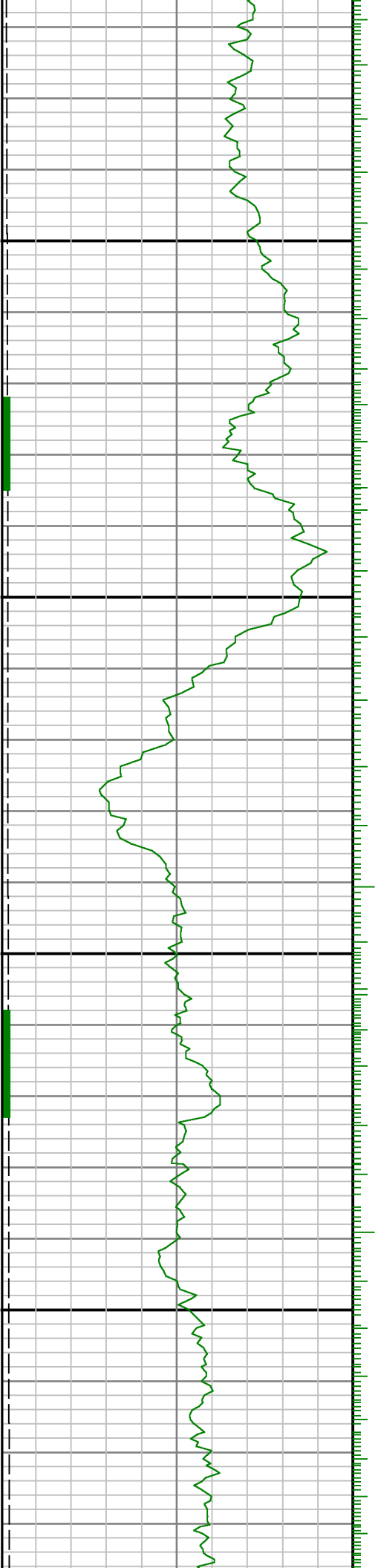






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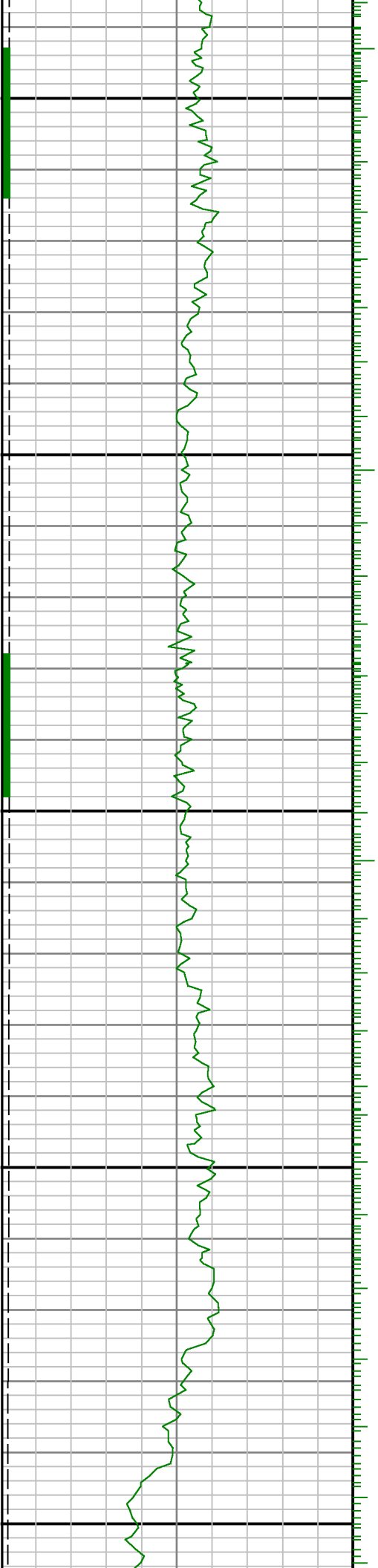
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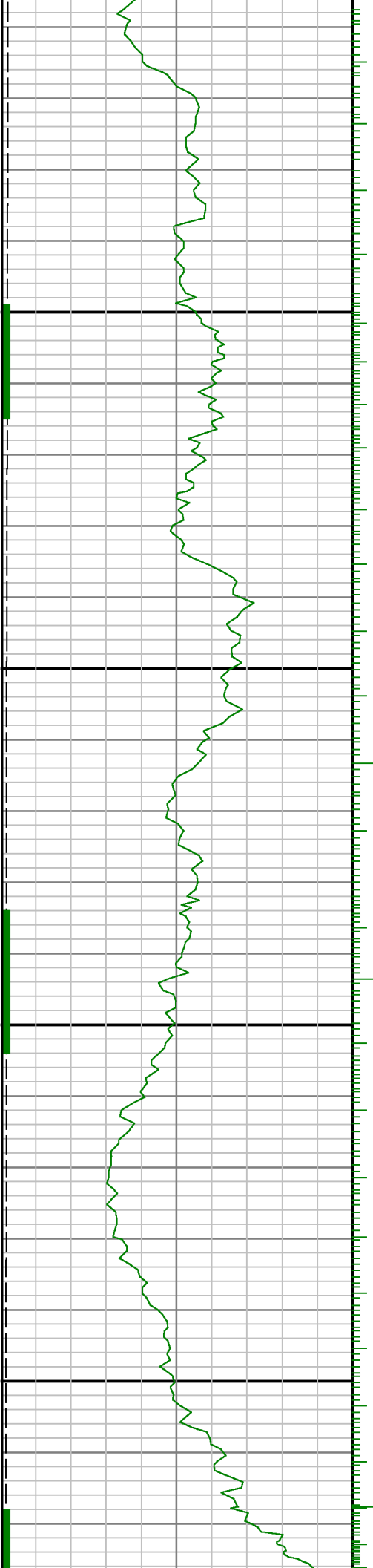




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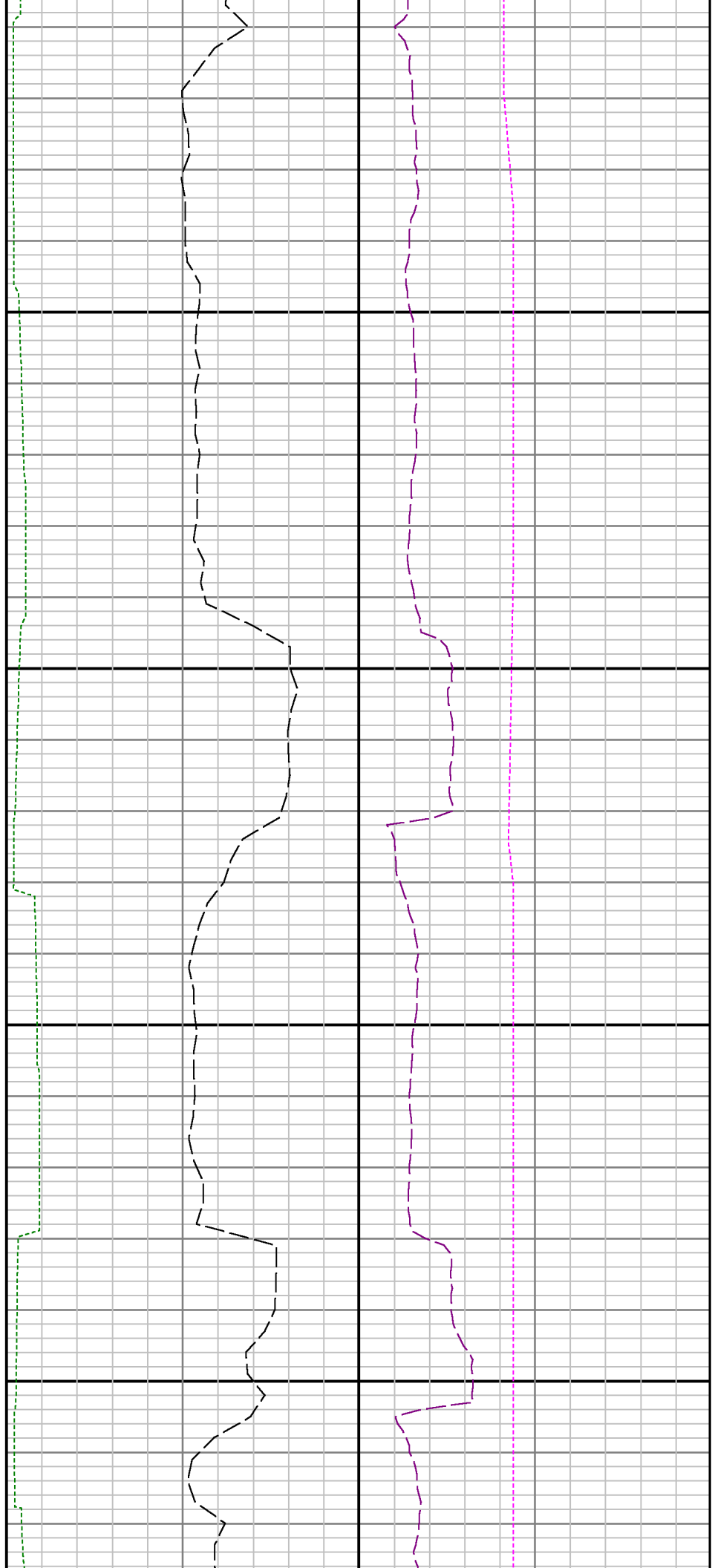
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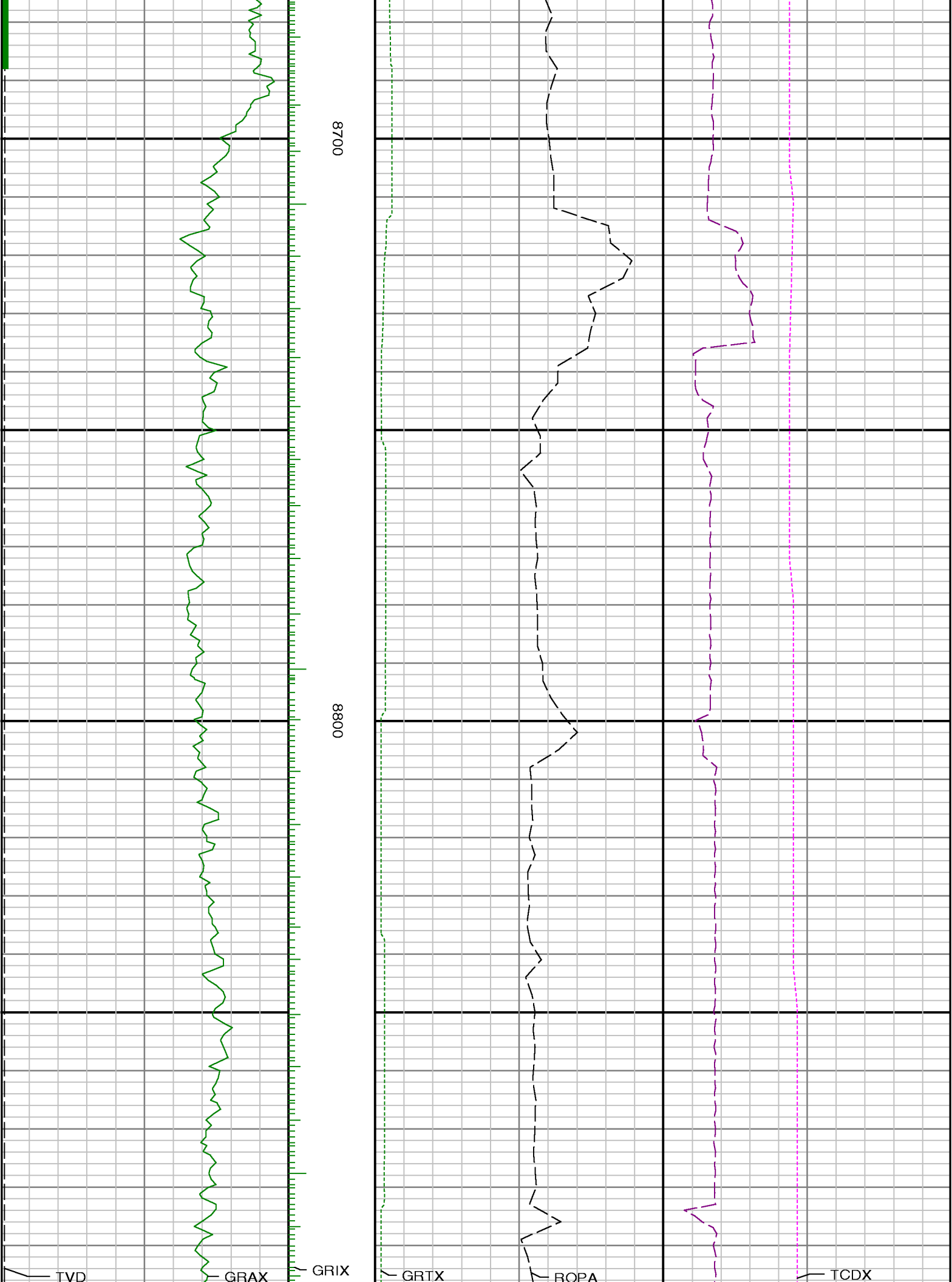


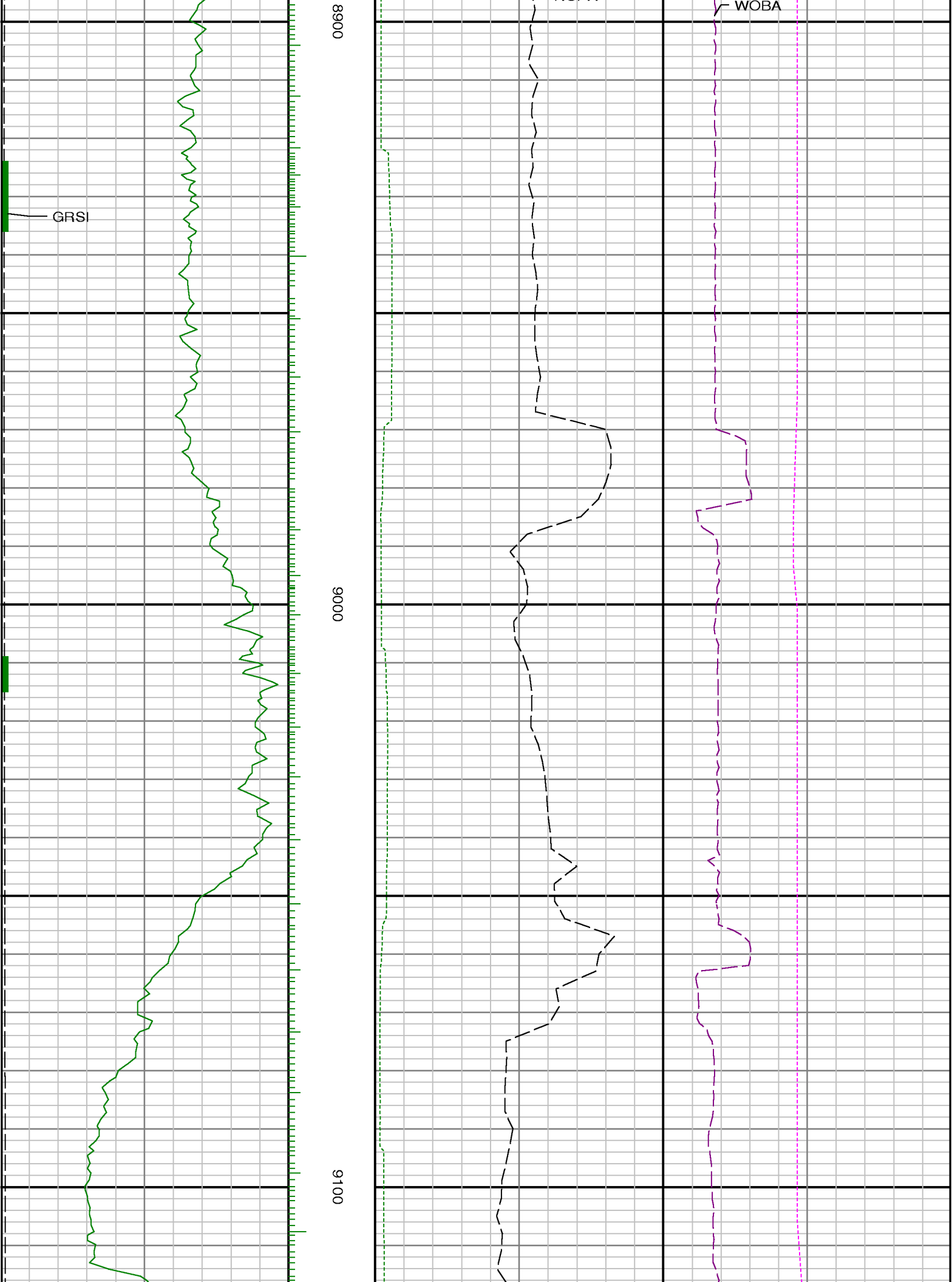


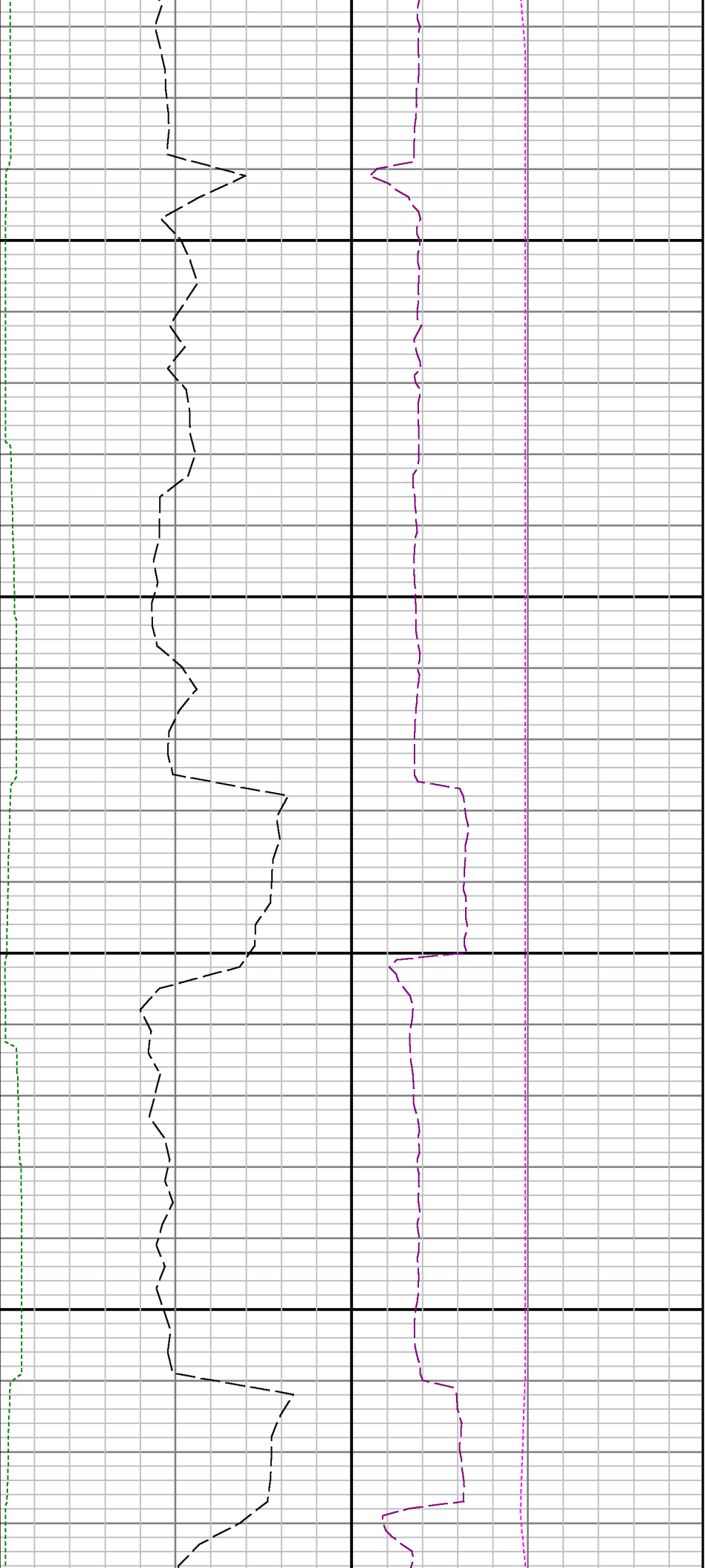
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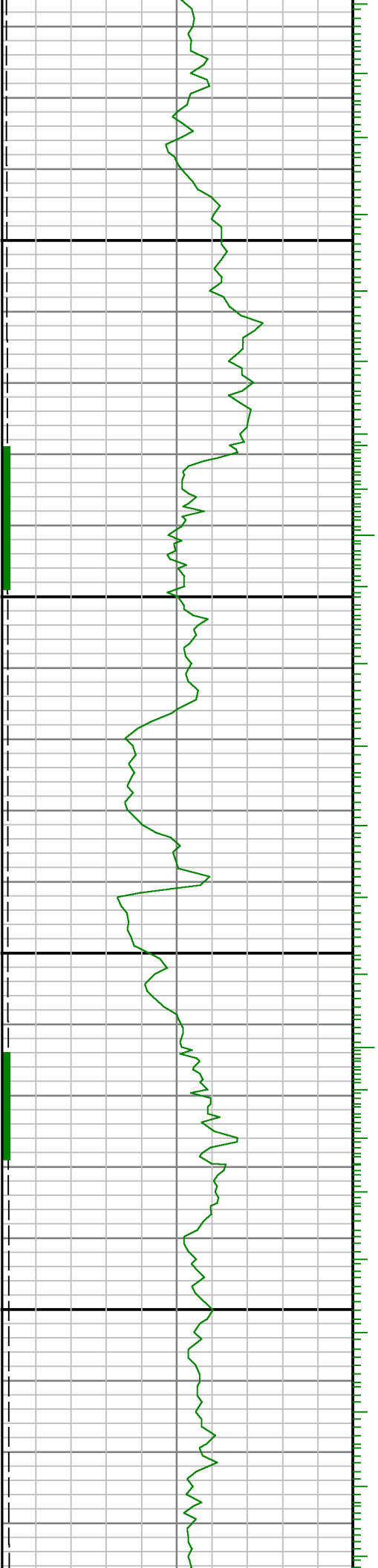


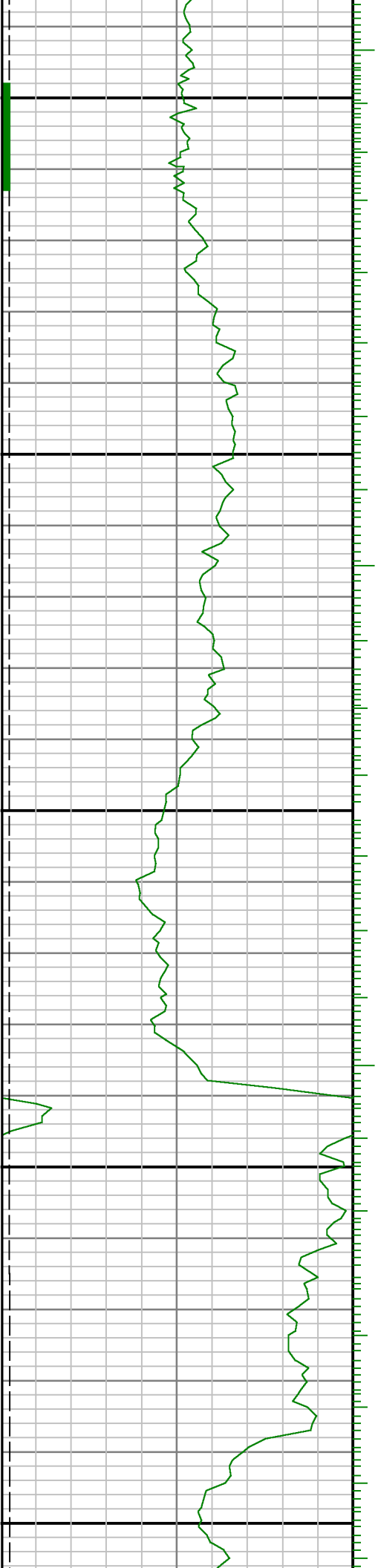




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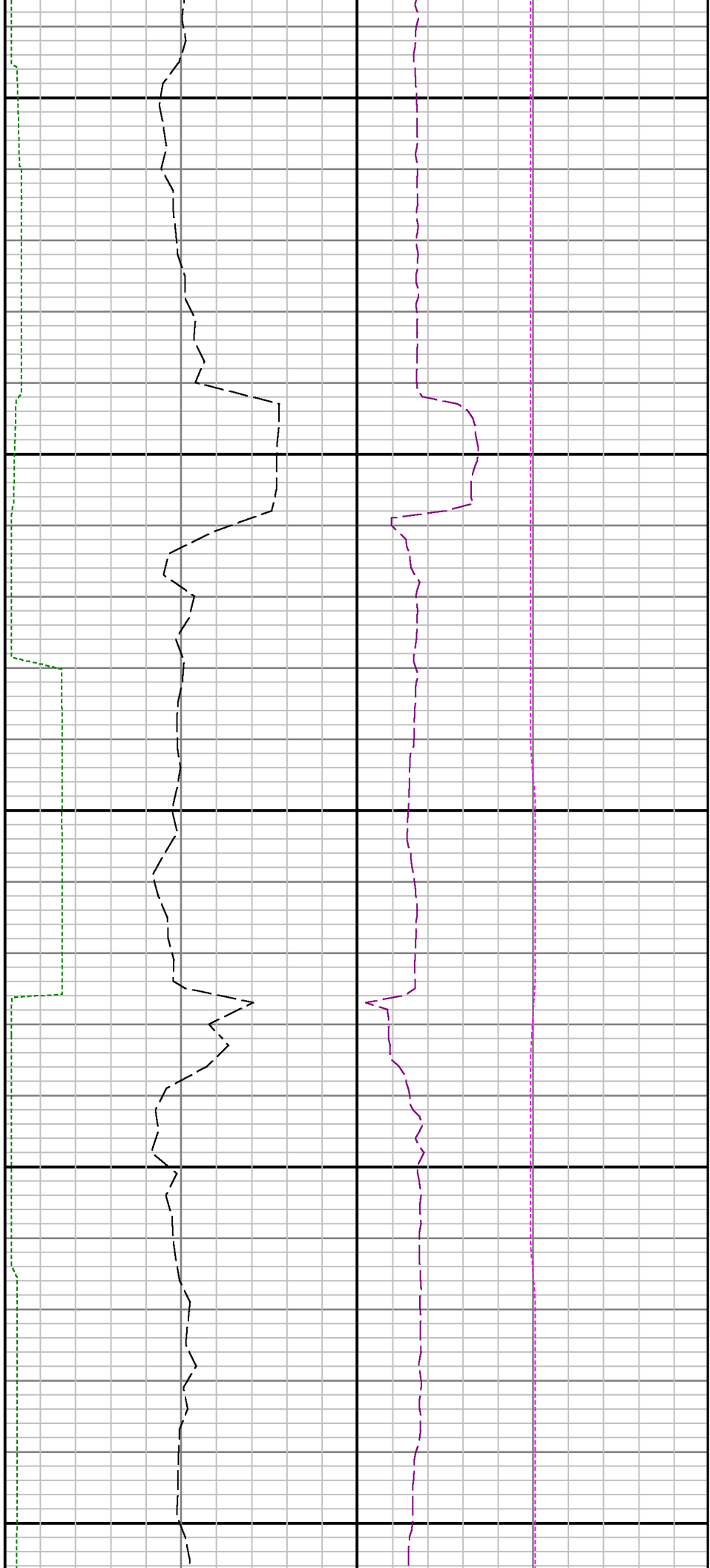
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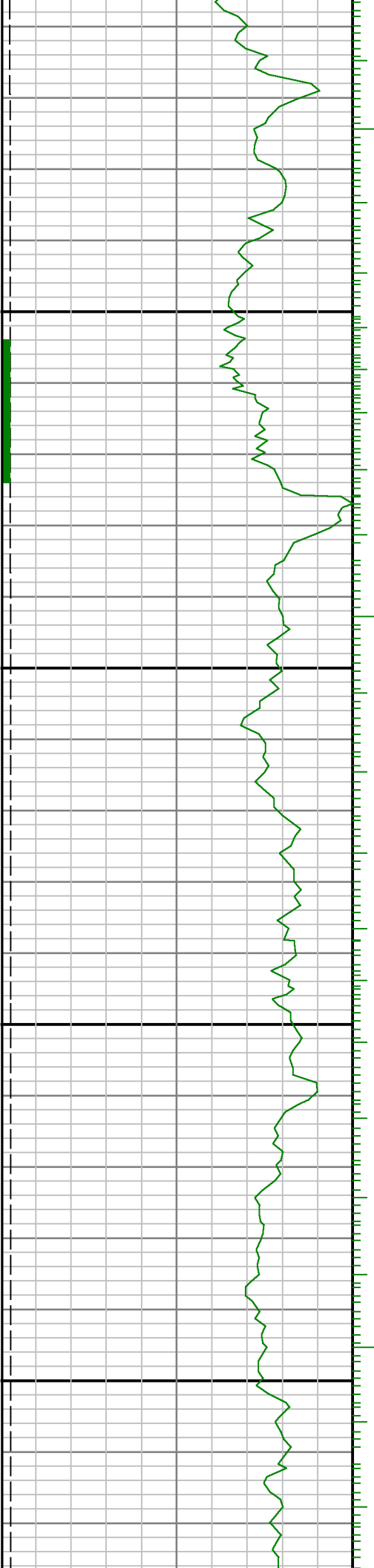




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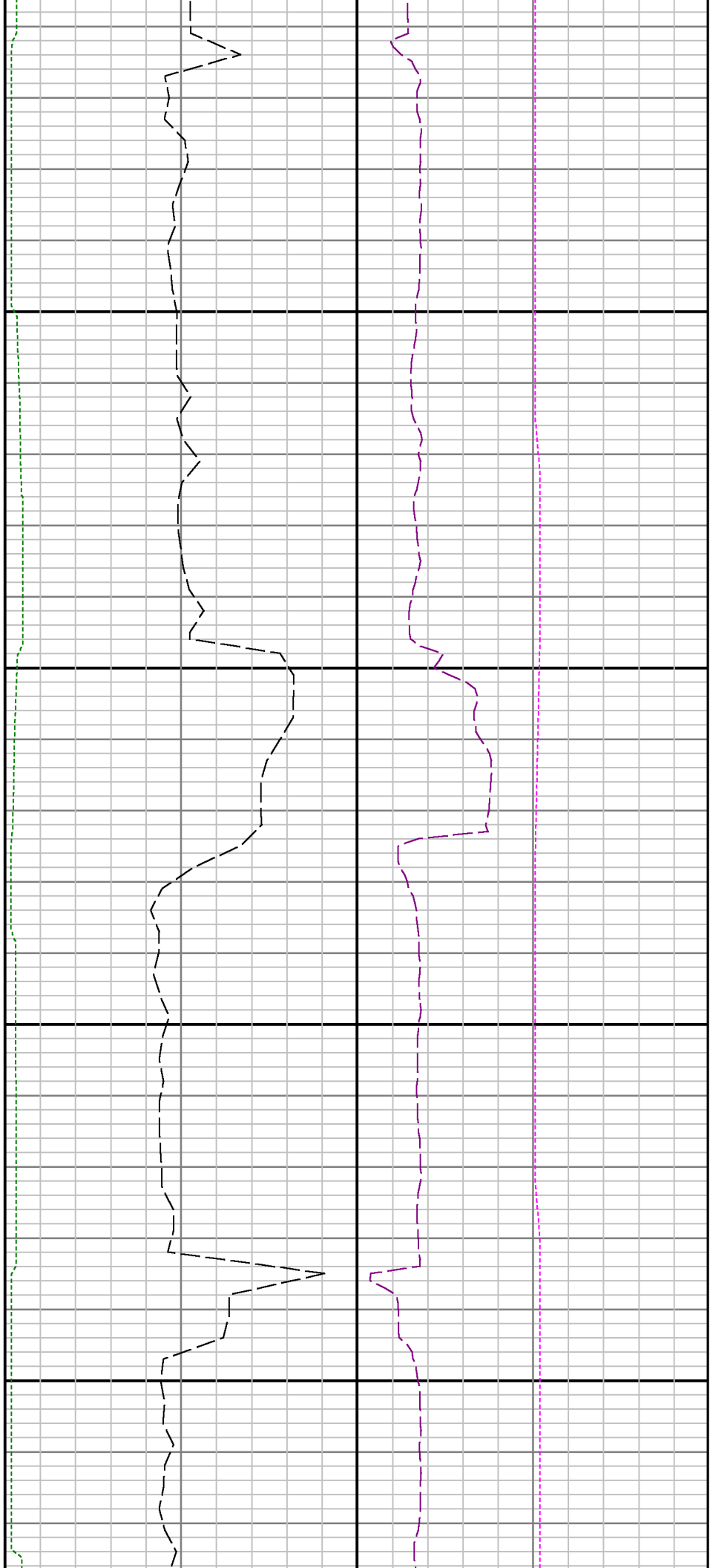
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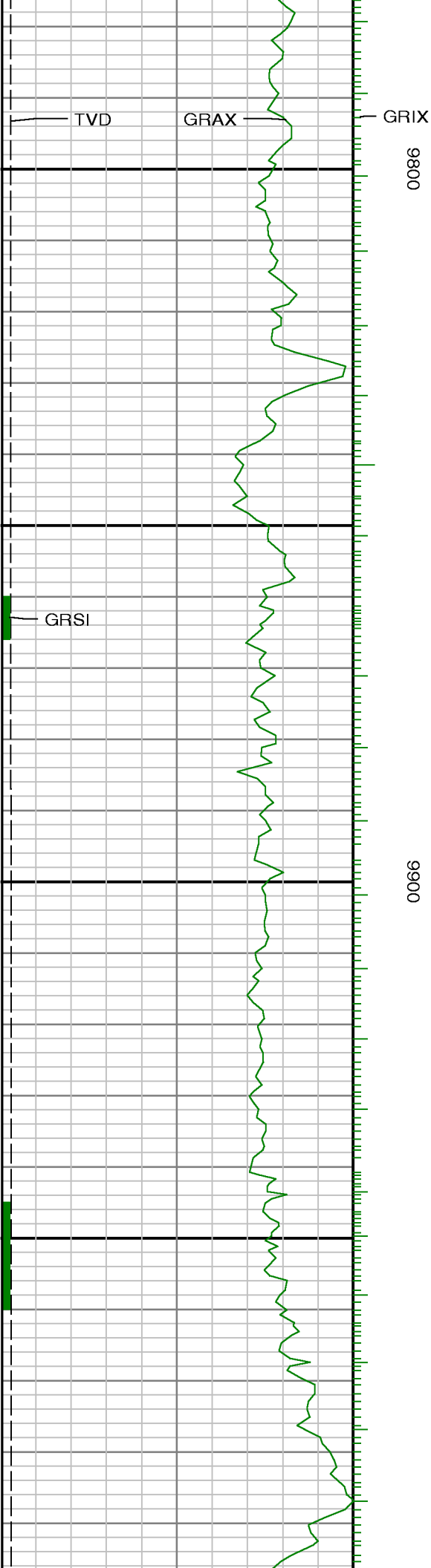


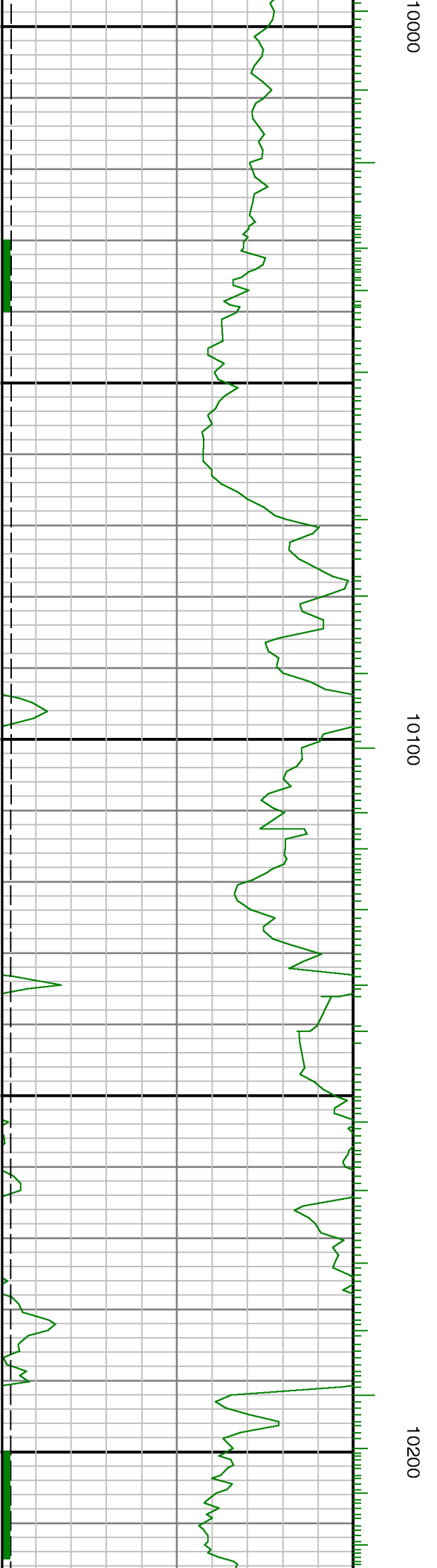
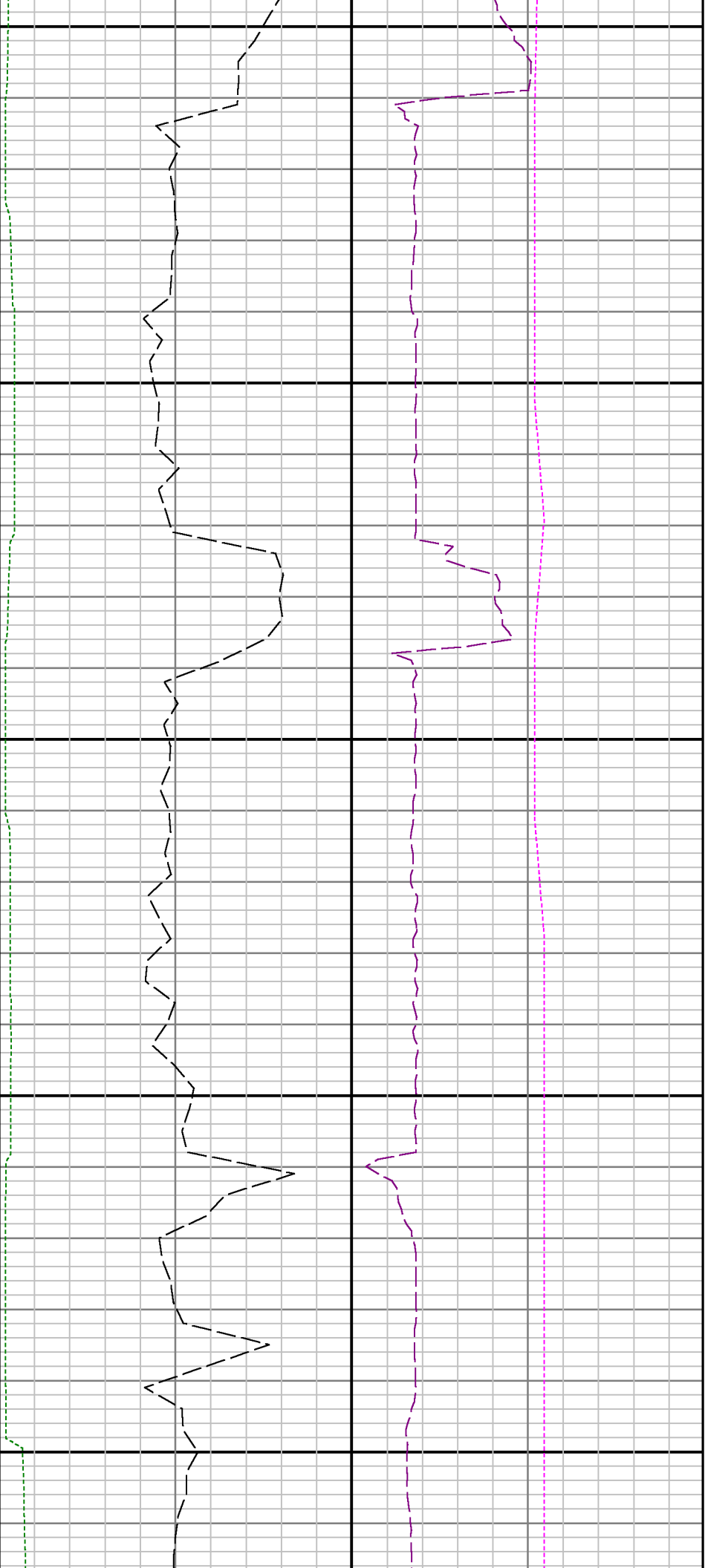


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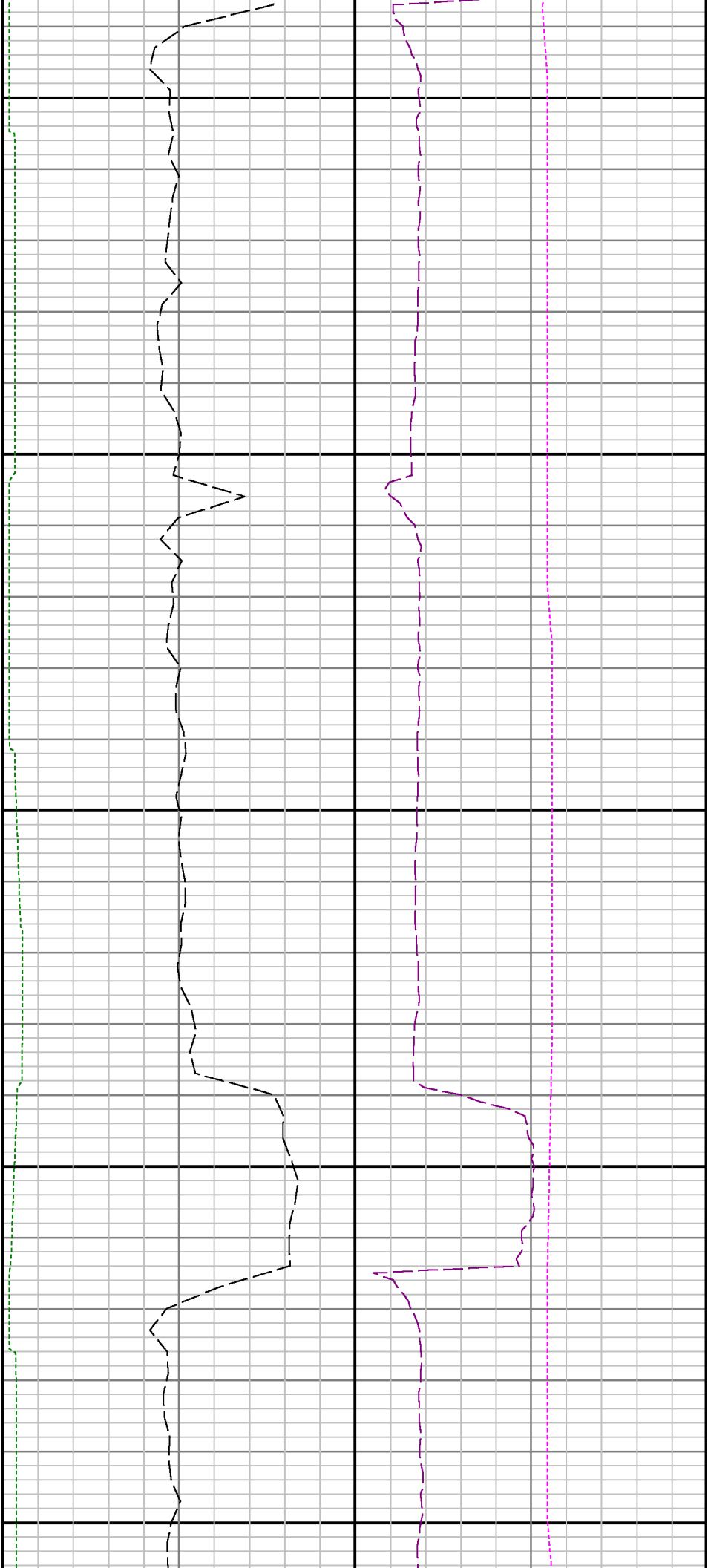






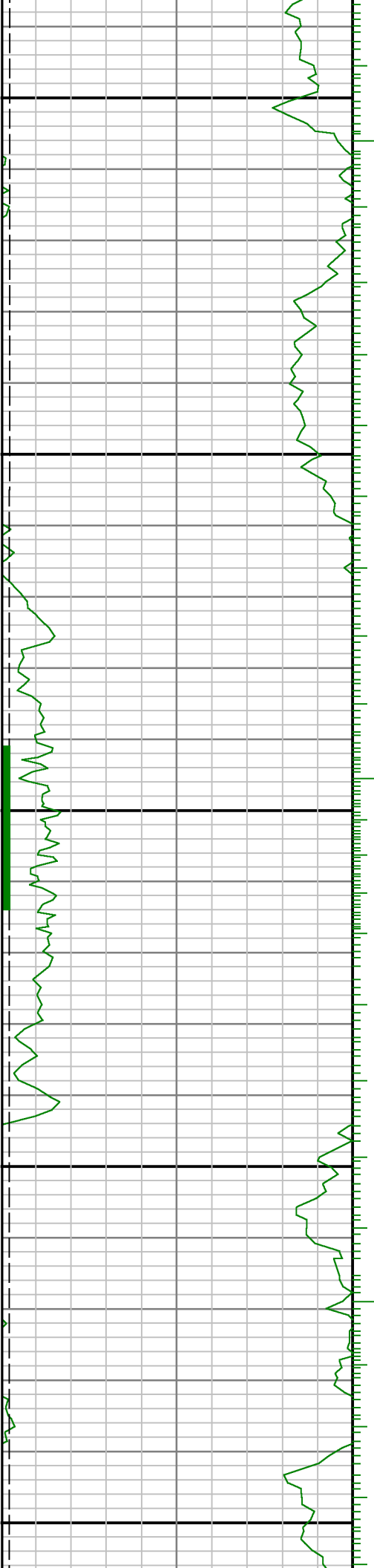
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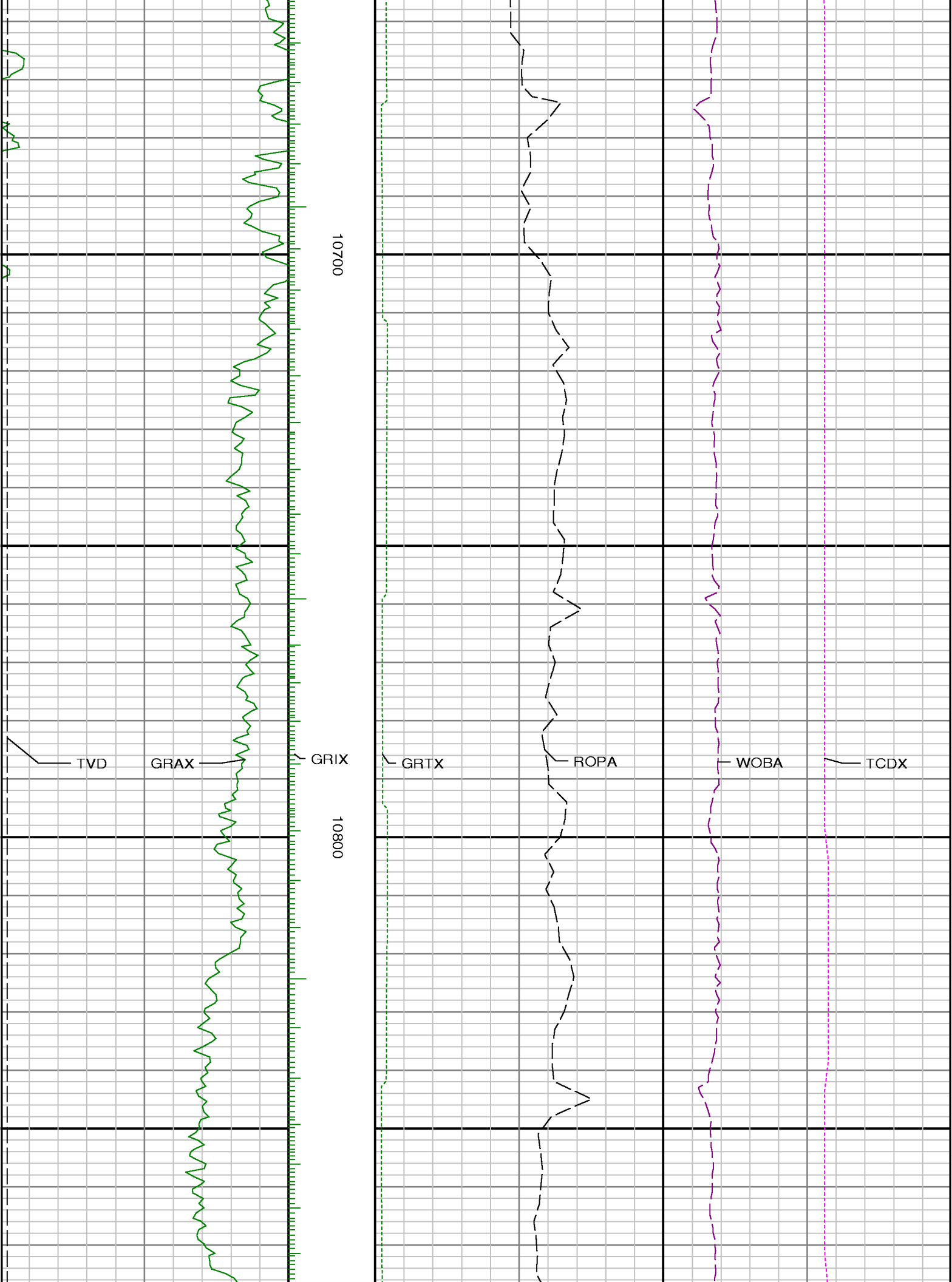
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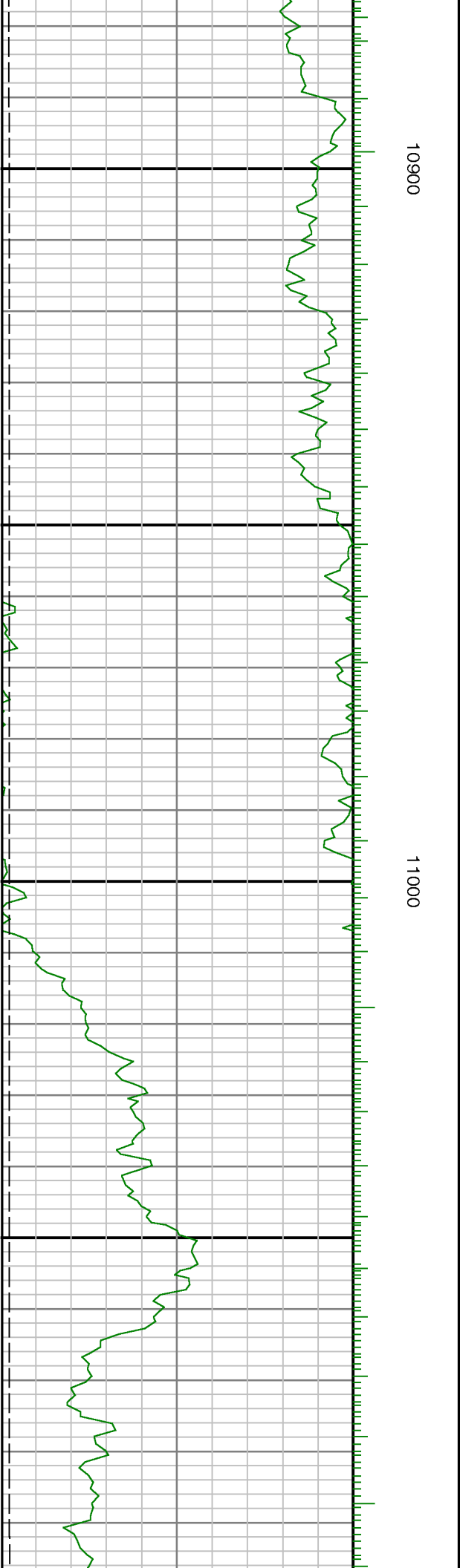
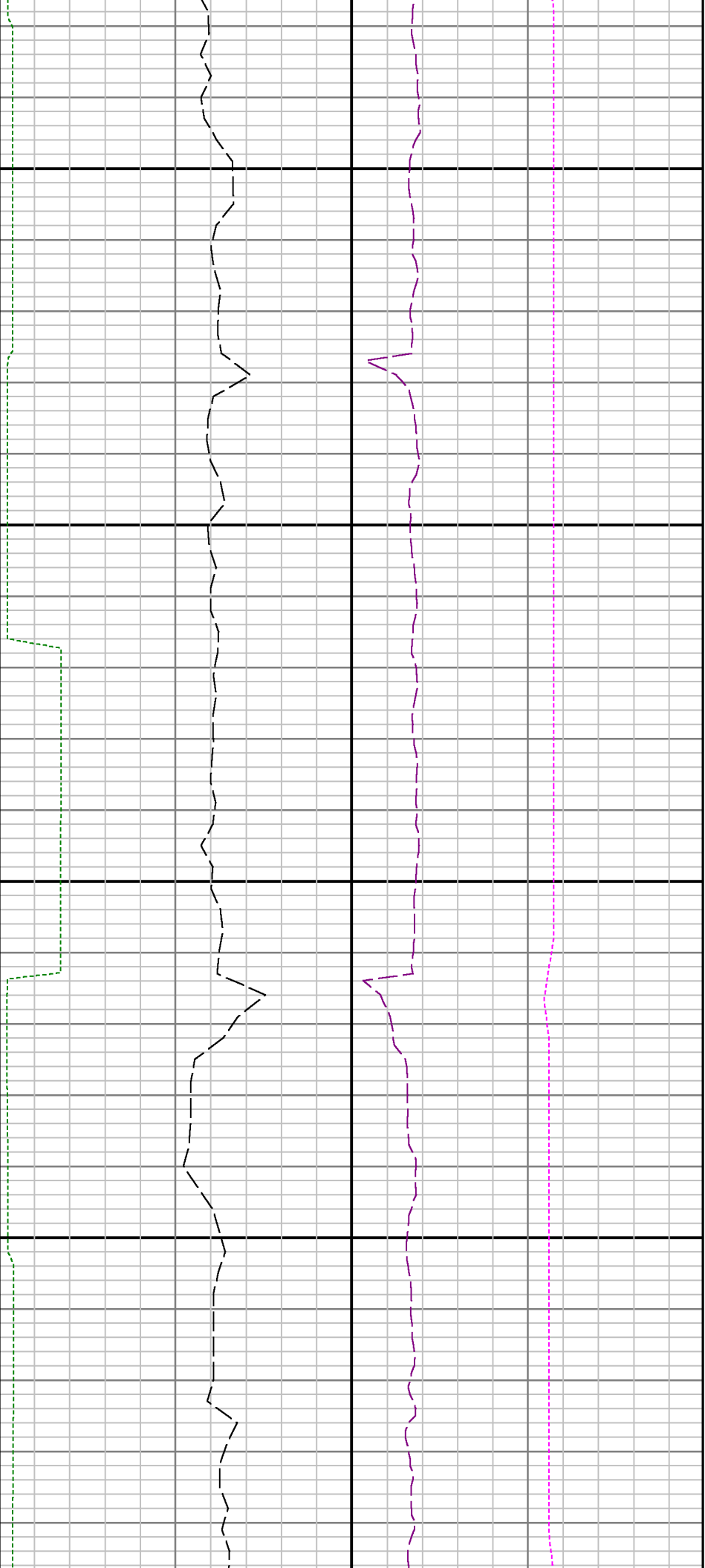


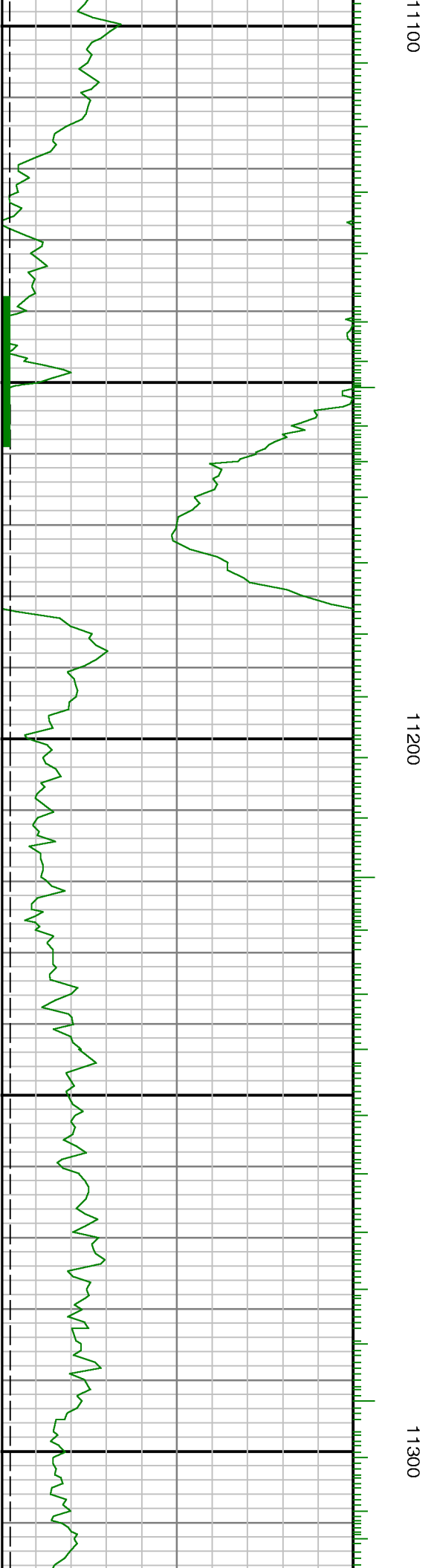
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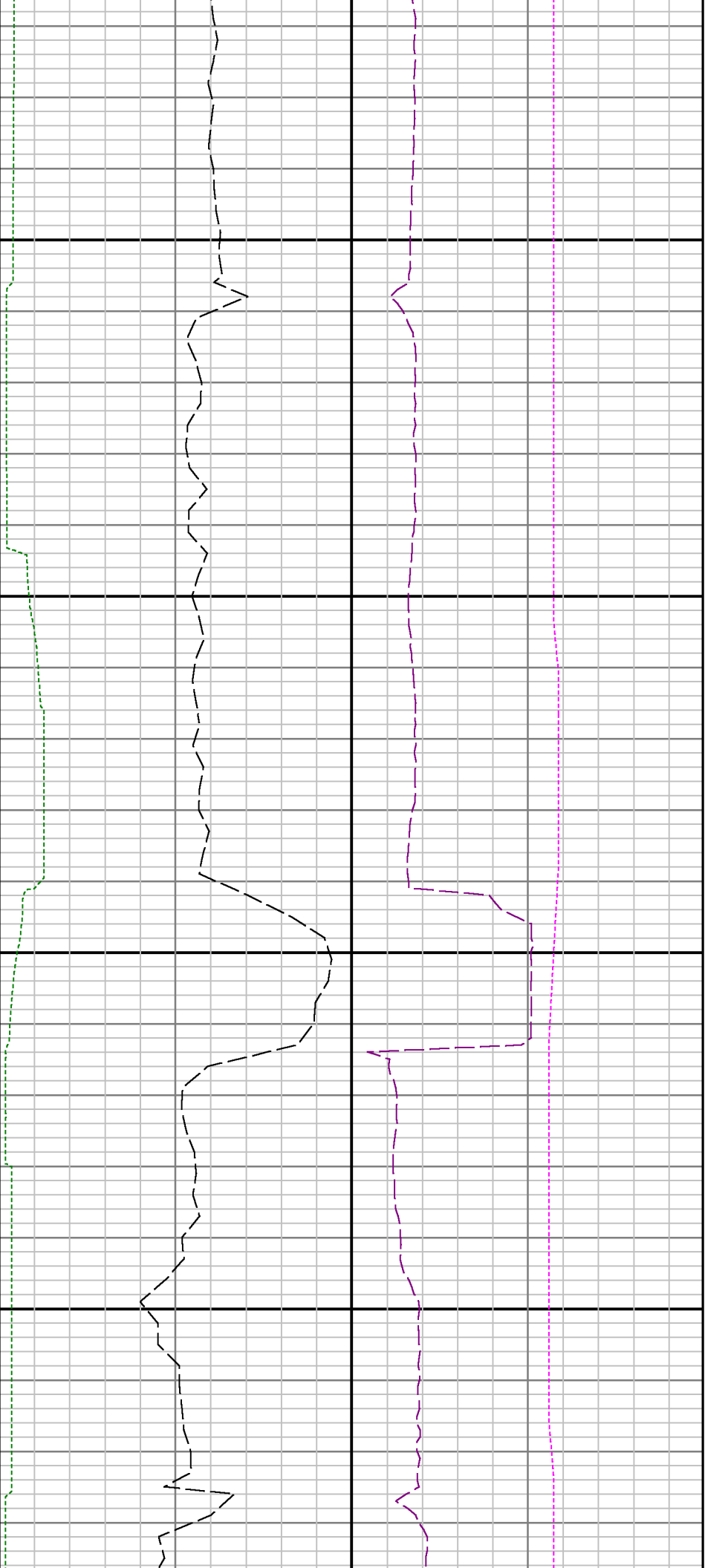
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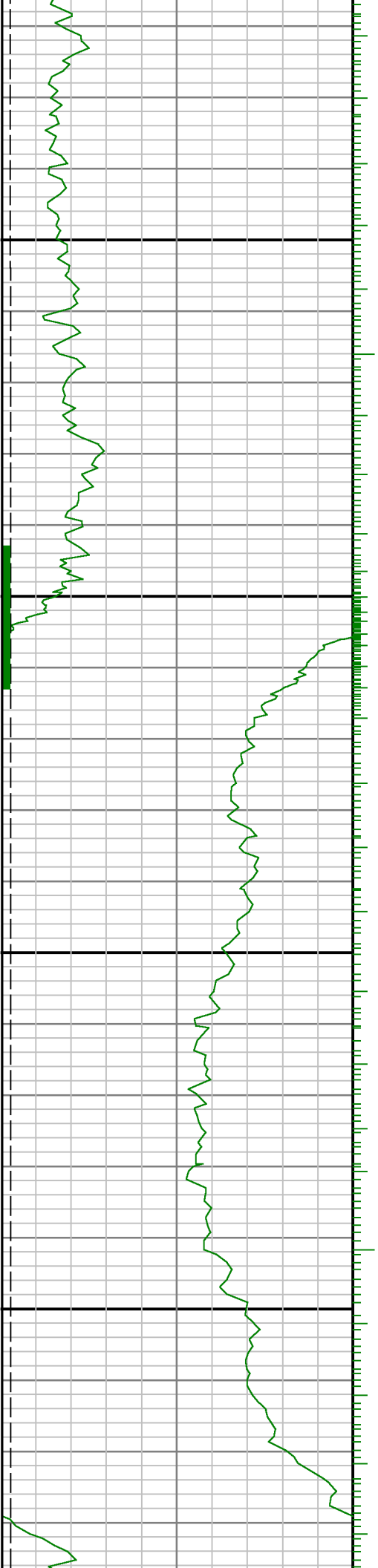


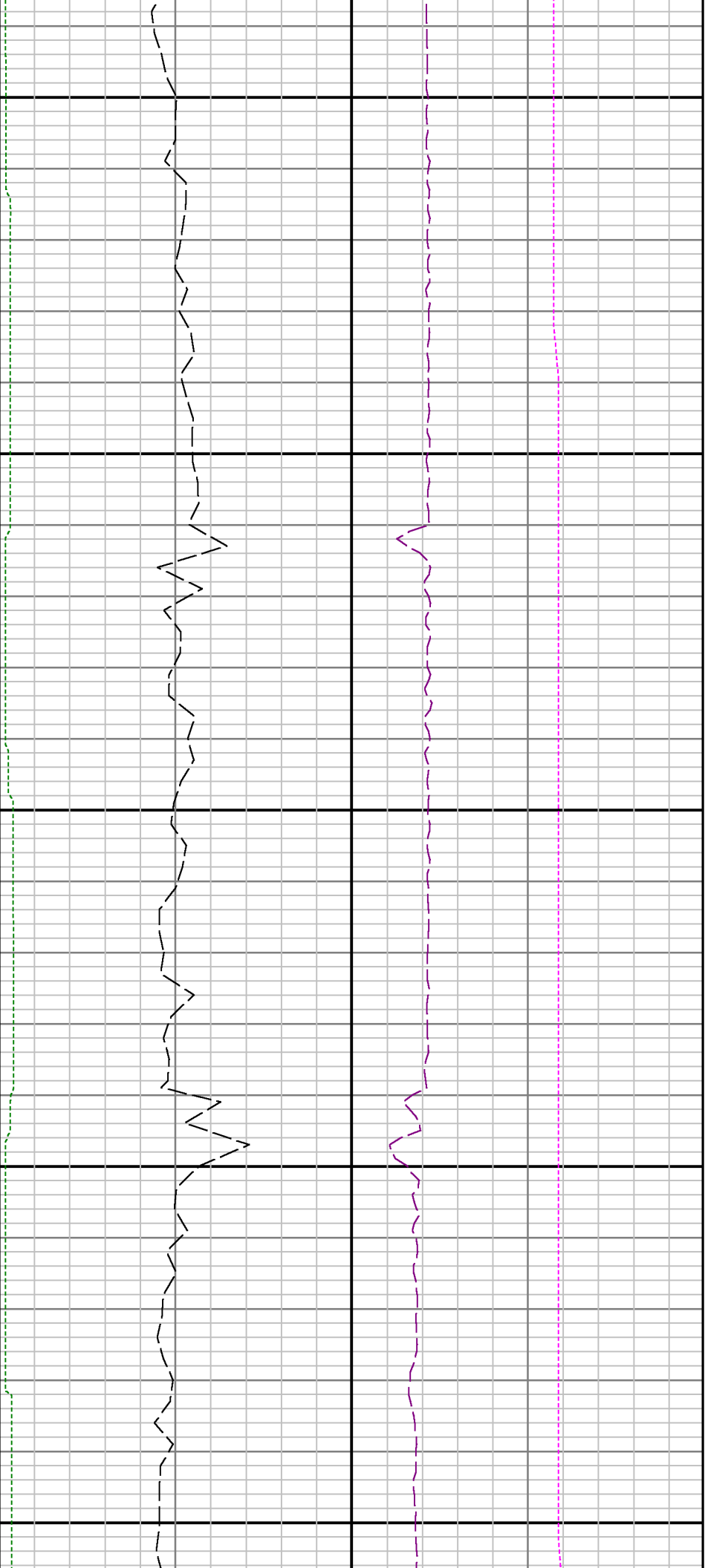




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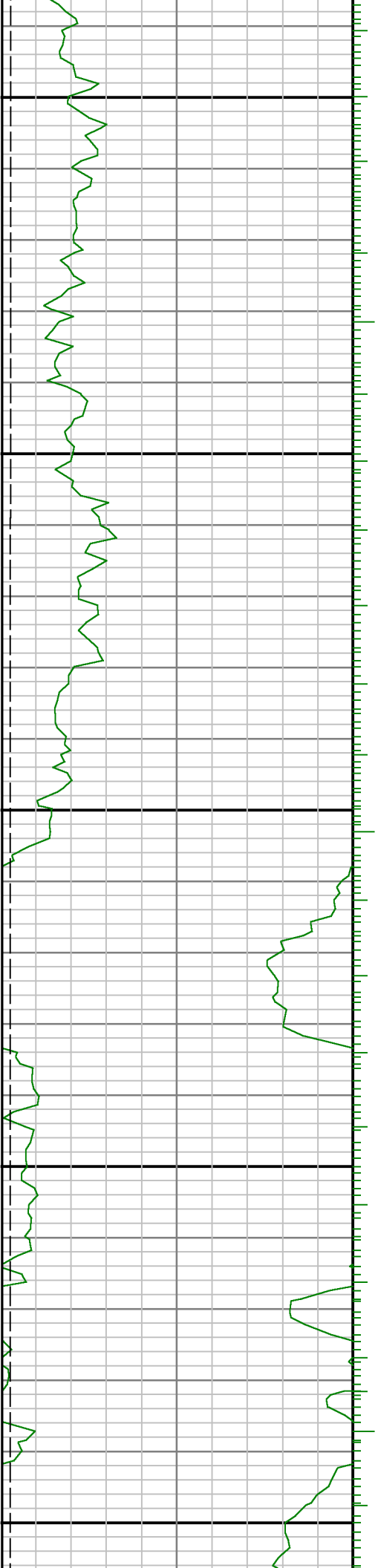
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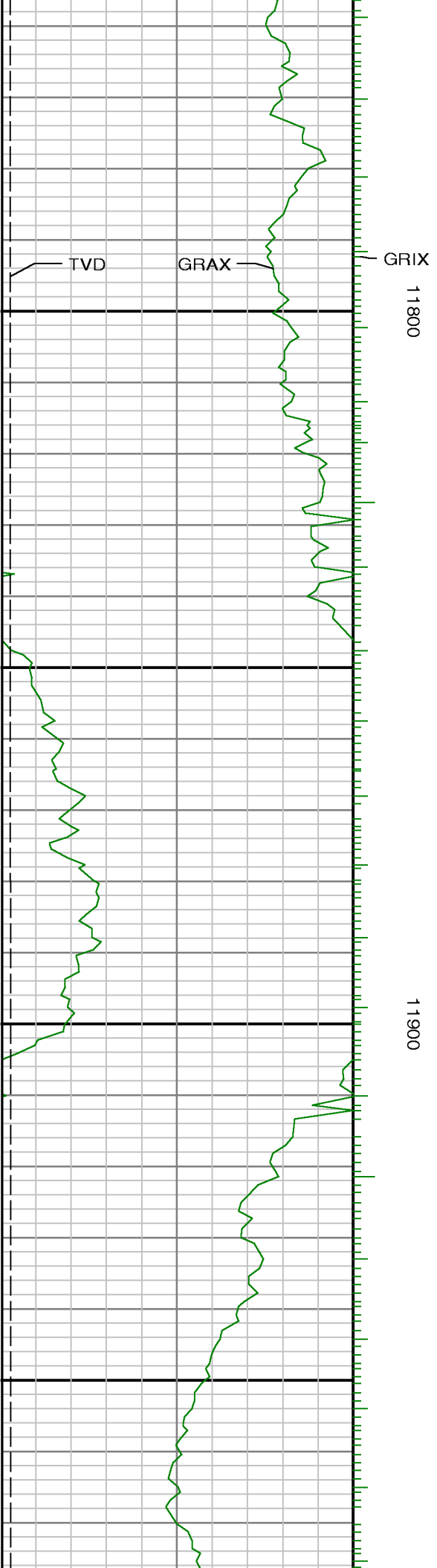


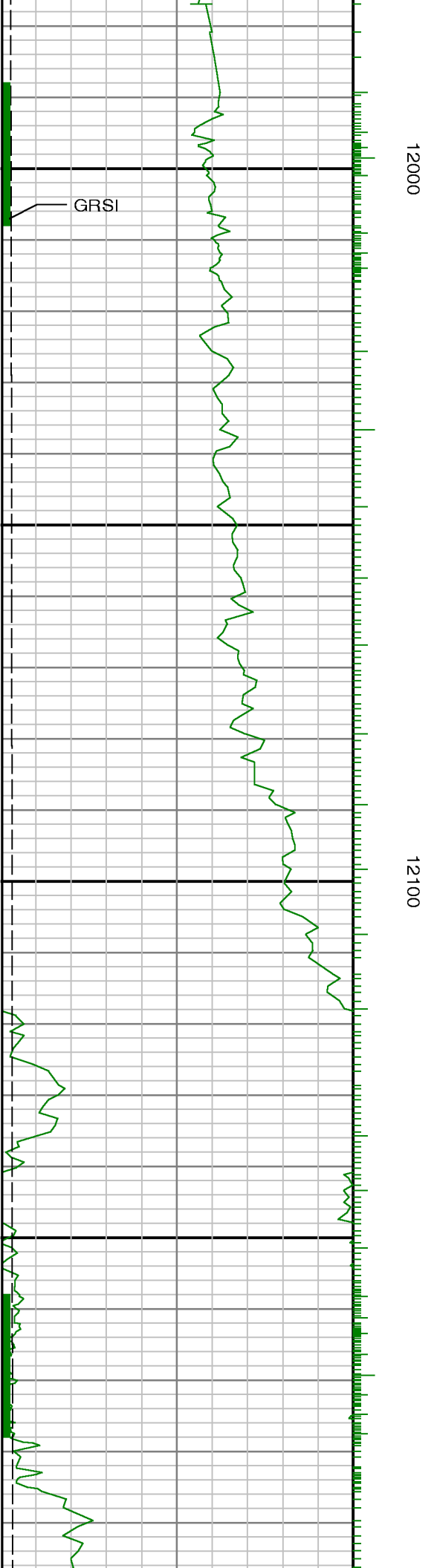


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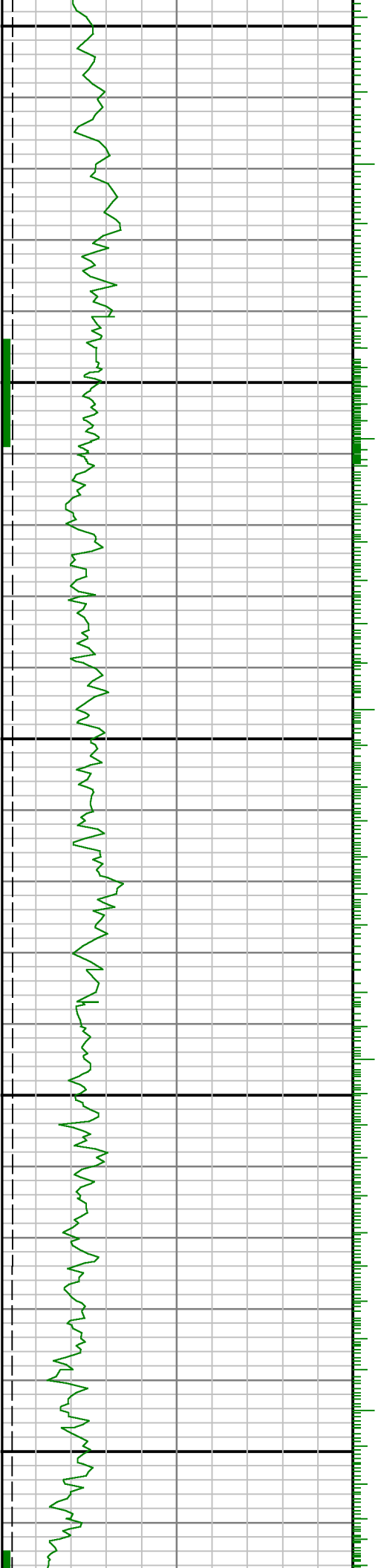


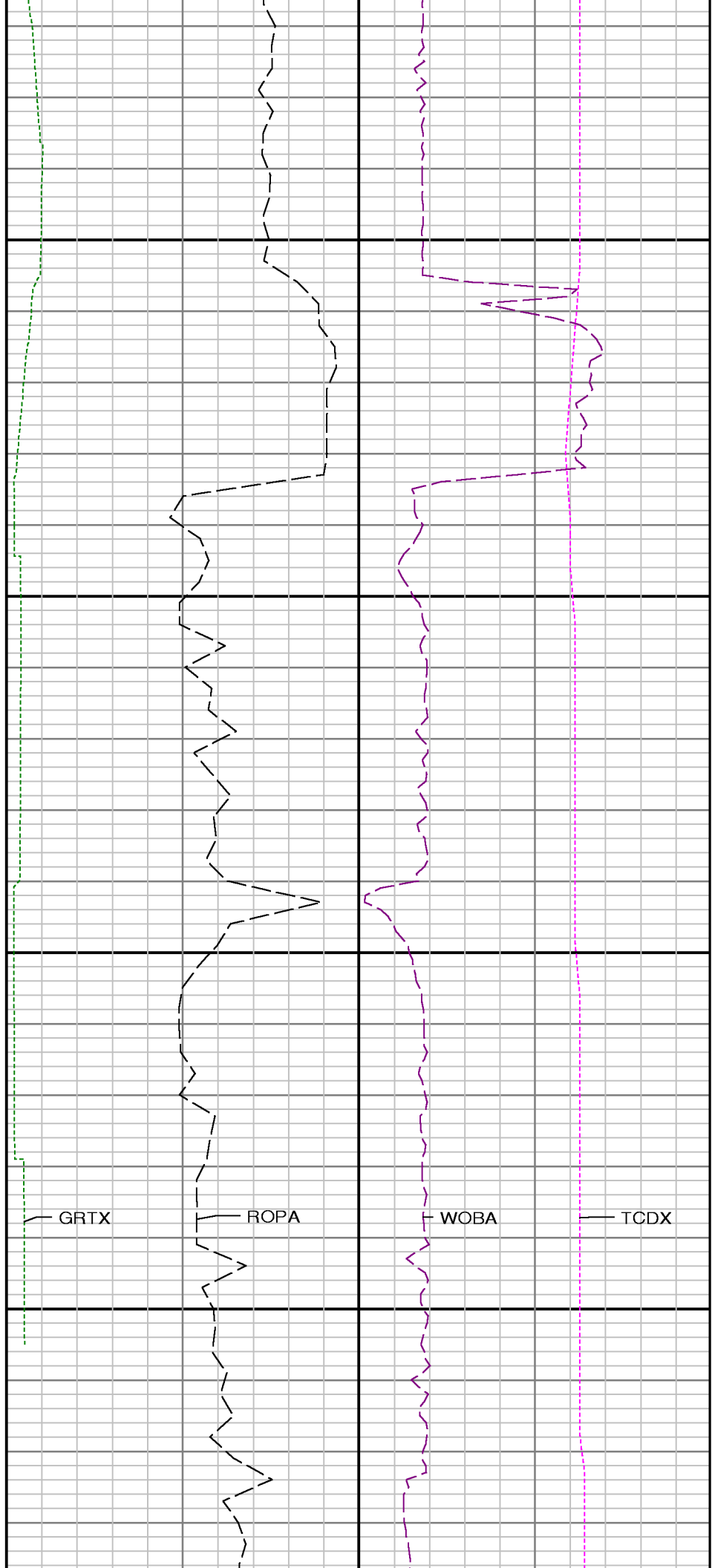
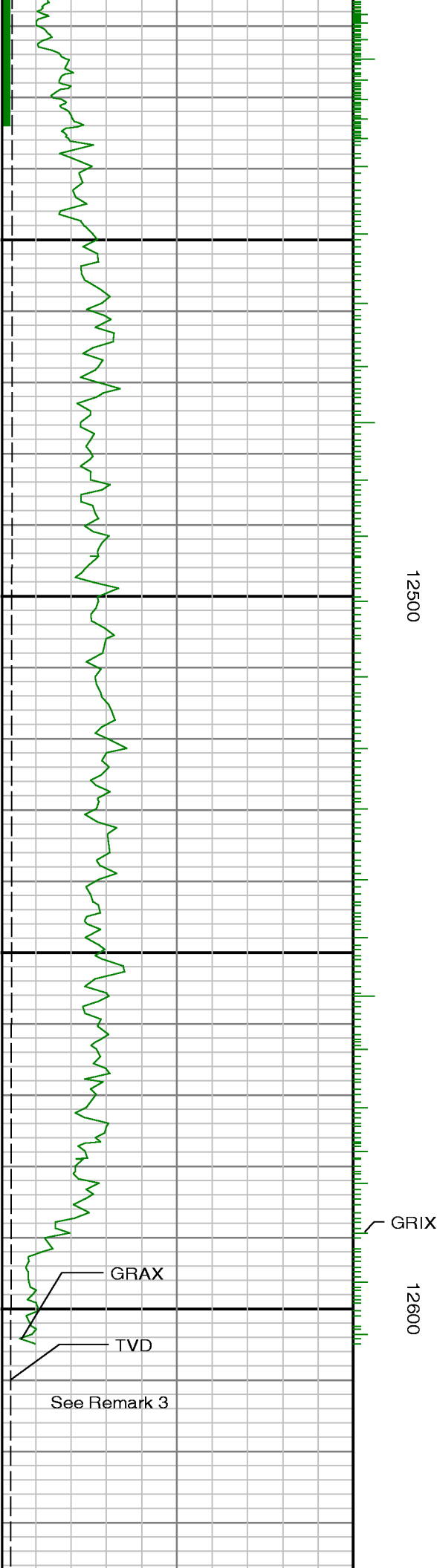


12200

12300

12400





	ID		
	12700D feet 1:240		
<p>Gamma Ray Apparent 0.5 ft Avg GRAX</p> <p>0 150</p> <p>API</p> <p>True Vertical Depth TVD</p> <p>7500 6450</p> <p>ft</p>		<p>Rate of Penetration 3.0 ft Avg ROPA</p> <p>500 0</p> <p>ft/hr</p> <p>Gamma Time Since Drilled GRTX</p> <p>0 600</p> <p>min</p>	<p>Downhole Temperature TCDX</p> <p>100 300</p> <p>degF</p> <p>Surface Weight On Bit 1.0 ft Avg WOB_AVG</p> <p>0 100</p> <p>klbf</p>