



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:	Company: Kerr-McGee Oil & Gas Onshore LP				
Measured Depth	1:240	Well:	Elliott State 8N-17HZ		
		Field:	Weld County		
		County:	Weld	State:	Colorado
Status:	Final Print	Surface Location:		Other Services:	
API Number:	051233907900	Latitude: 40° 13' 43.896" N		Directional VSS	
		Longitude: 104° 55' 12.288" W			
		SEC: 17	TWP: 3 N	RNG: 67 W	
Permanent Datum (P.D.):	Mean Sea Level	Elevation:	4825.00 ft.		
Log Measured From:	Rig Floor	4838.00 ft.		Above P.D.	
Depth Reference:	Driller's Depth				
			KB:	Elevations:	
			DF:	N/A	
			GL:	4838.00 ft.	
				4825.00 ft.	

Interval Logged		Dates		Magnetic Field Reference	
Top:	6480 ft.	Date From:	14/May/14	Dip Angle:	66.88 °
Bottom:	12289 ft.	Date To:	21/May/14	Total	Mag to Reference
		Spud Date:	14/May/14	Field Strength:	52583.0 nT
				North Correction:	8.57 °

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1248 ft.	9.625 in.	51.00 lb/ft	Surface	1248 ft.
8.750 in.	1248 ft.	7452 ft.	7.000 in.	39.00 lb/ft	Surface	7442ft.
6.125 in.	7452 ft.	12352 ft.				

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	1248 ft.	8.750 in.	6204 ft.	0.7 / 281.5 °	84.2 ° / 89.0 °
Water Based Mud	1248 ft.	12352 ft.	6.125 in.	4900 ft.	84.2 ° / 89.0 °	91.9 ° / 90.4 °
					/	/
					/	/
					/	/
					/	/

Acquisition System		Software Version		Other	
Advantage	2.20U4	Rig:	Ensign 138	/ Kerr-McGee Oil & Gas Onshore LP	
PATS	6.4.1.34	Job No:	6304556	/ 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. Time (hrs.)
							Top	Bottom	From	To	Start	End	
							(ft.)	(ft.)	(ft.)	(ft.)			
1	1	2	8.750	PDC	3.000	Steerable	6480	7395	1248	7452	14/May/2014 02:00	17/May/2014 11:57	37.8
2	2	3	6.125	PDC	6.000	Steerable	7395	7442	7452	7505	18/May/2014 19:34	18/May/2014 20:58	3.92
3	3	4	6.125	PDC	6.000	Steerable	7442	7635	7505	7701	19/May/2014 07:07	19/May/2014 9:35	3.63
4	4	4	6.125	PDC	6.000	Steerable	7635	12289	7701	12352	20/May/2014 01:04	21/May/2014 03:41	27.6

Crew								
Name			Arrive	Depart	Name			Arrive
			Wellsite	Wellsite				Wellsite

Justin Foster	11/May/2014	21/May/2014	Jason Williams	12/May/2014	21/May/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 (ppm)	K+ (%)
13/May/2014 21:00	1	1260	Fresh Water Mud	8.6	29	9.3	25.0	0 / 98.5	Active Mud Pit	2000	N/A
14/May/2014 21:00	1	4362	LSND	8.6	29	9.3	35.0	0 / 98.5	Active Mud Pit	2400	N/A
15/May/2014 21:00	1	6511	LSND	9.8	39	9.0	5.0	0 / 91.8	Active Mud Pit	2300	N/A
16/May/2014 21:00	1	6511	LSND	9.8	39	9.0	5.0	0 / 91.8	Active Mud Pit	2500	N/A
18/May/2014 21:00	3	7505	LSND	9.1	35	9.7	6.5	0 / 94.8	Active Mud Pit	2500	N/A
20/May/2014 21:00	4	10941	LSND	9.1	43	9.3	5.0	0 / 94.4	Active Mud Pit	3000	N/A

Mnemonics		
Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
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	12093879	Directional	62.20	6.750	2.875
1	SRIG	12606956	Gamma	58.82	6.750	2.875
2	DIR	10136653	Directional	65.49	4.750	2.750
2	SRIG	12578113	Gamma	62.31	4.750	2.750
3	DIR	10136653	Directional	65.50	4.750	2.750
3	SRIG	12578113	Gamma	62.32	4.750	2.750
4	SRIG	12613296	Gamma	66.23	4.750	2.750
4	DIR	11852218	Directional	61.11	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.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1248 to 6540 ft. MD (1248 to 6356 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6540 to 7452 ft. MD (6356 to 6020 ft. TVD) behind an 8 3/4 inch bit and steering assembly.

(VSS, Directional, Gamma Ray) from 6340 to 7452 ft. MD (6336 to 6939 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.

2.) Baker Hughes LWD runs 2, 3, and 4 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7452 to 12352 ft. MD (6356 ft. to 6926 TVD) behind an 6 1/8 inch bit and steerable assembly.

3.) 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.

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	7452	6.125	1	The interval from 7394 to 7701 ft. MD (6937 to 6948 ft. TVD) was logged up to 43.33 hours after being drilled due to a trip out of the hole to for intermediate casing operations, a trip for a new motor, and another trip for a new MWD.
2	12352	6.125	4	The interval from 12289 to 12352 ft. MD (6928 to 6926 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.

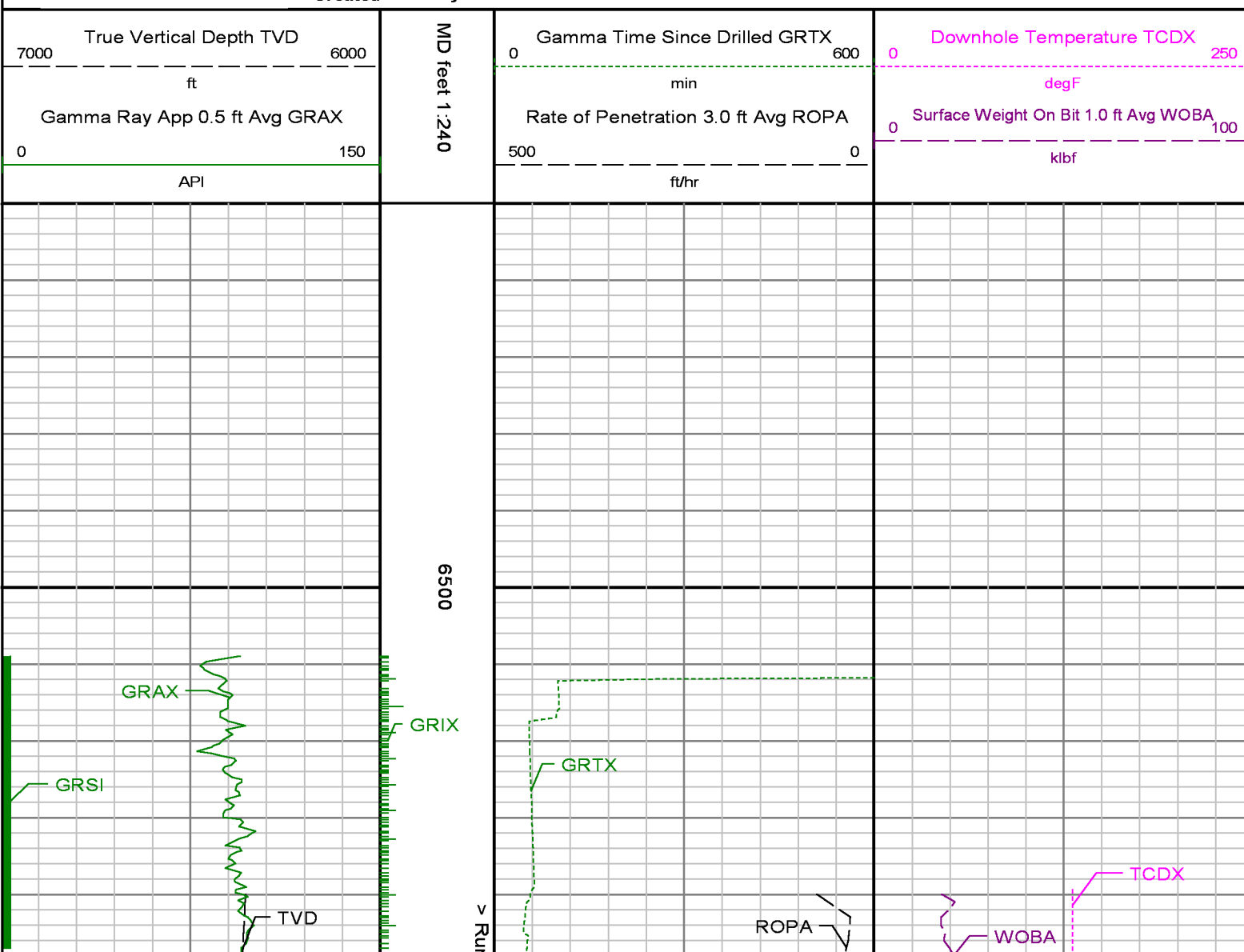


Company : Kerr-McGee Oil & Gas Onshore LF

Well : Elliot State 8N-17HZ

Interval : 6450.00 - 12415.00 feet

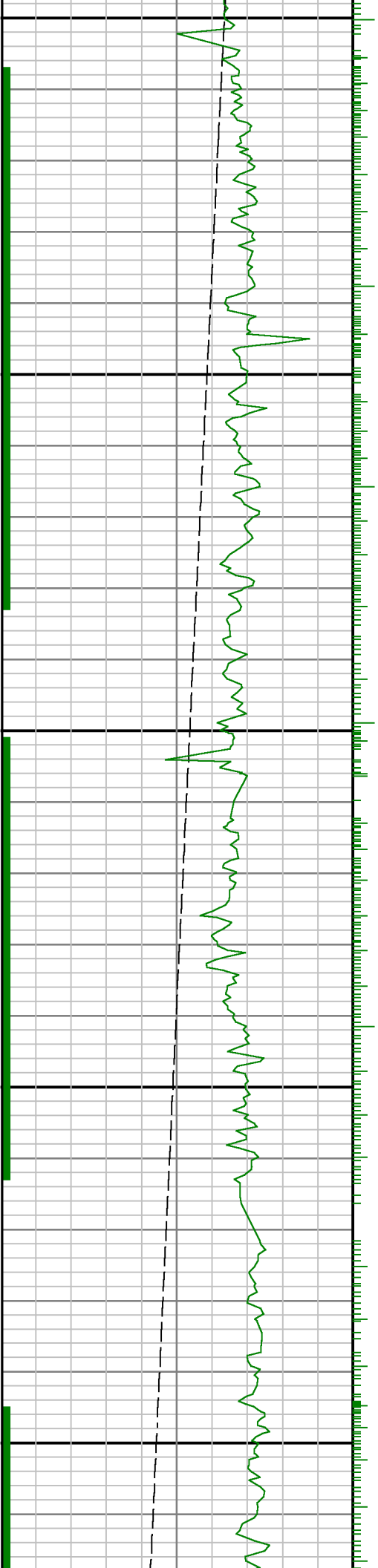
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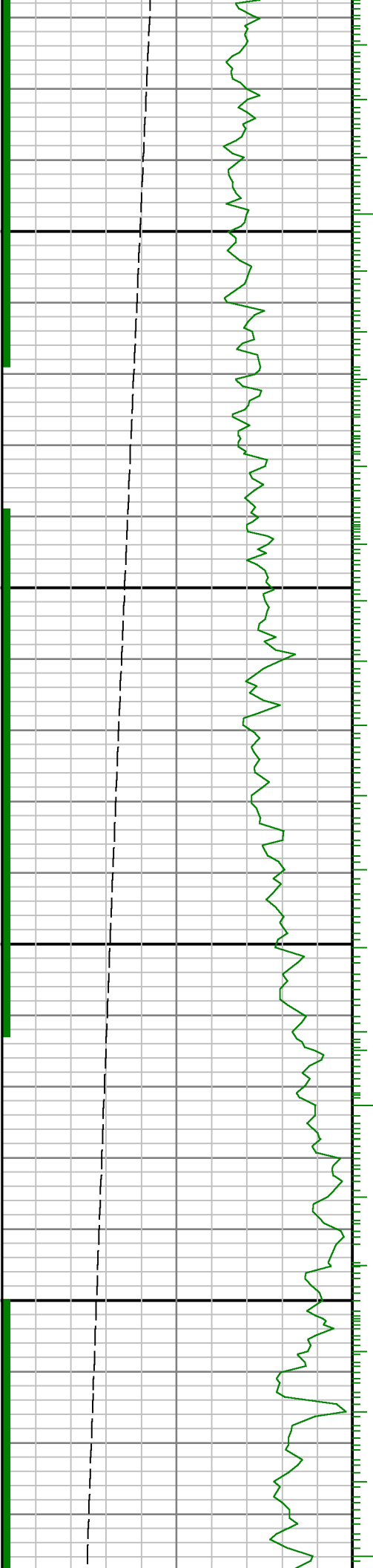




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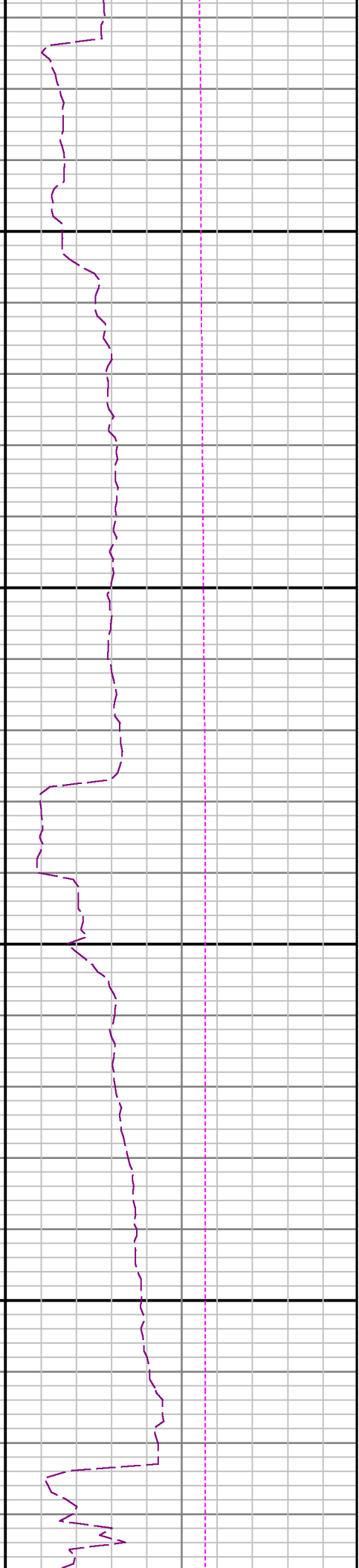
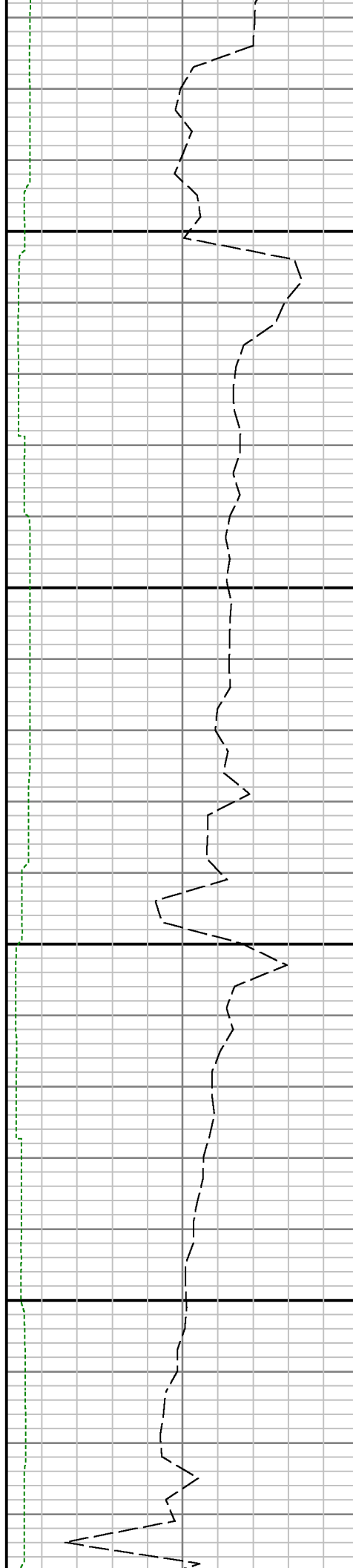
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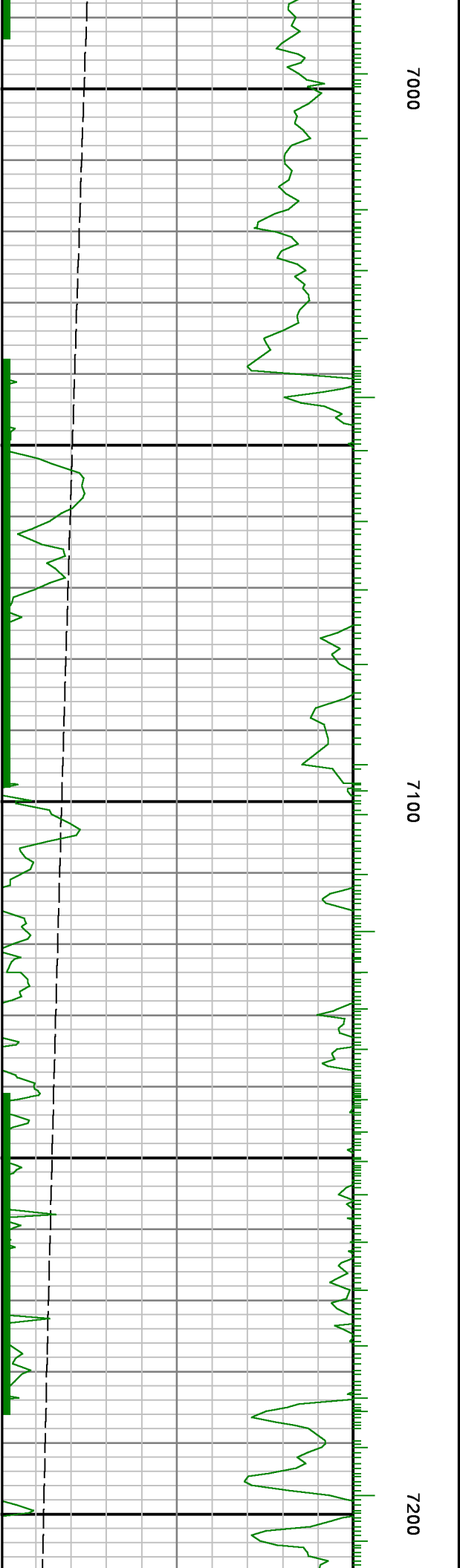
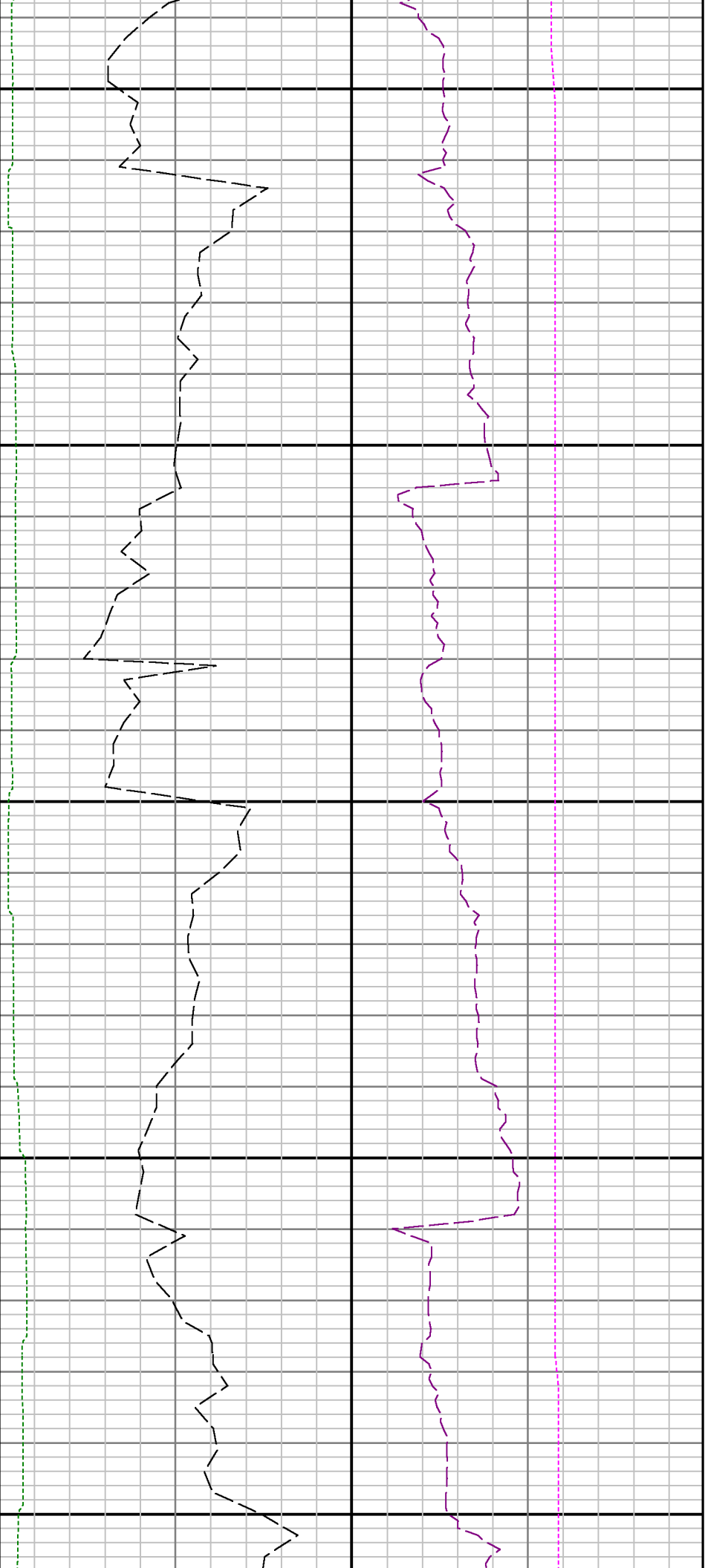


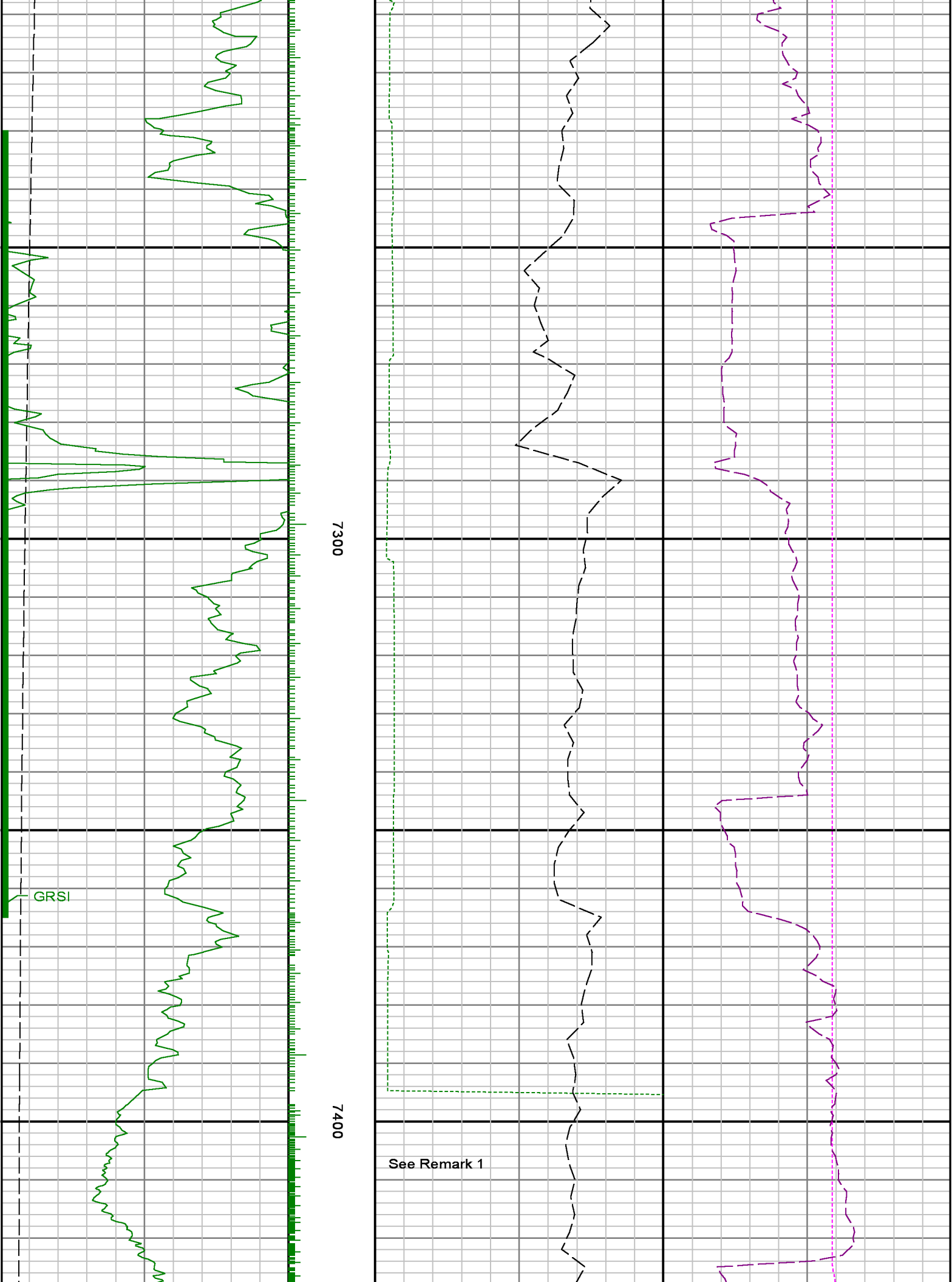


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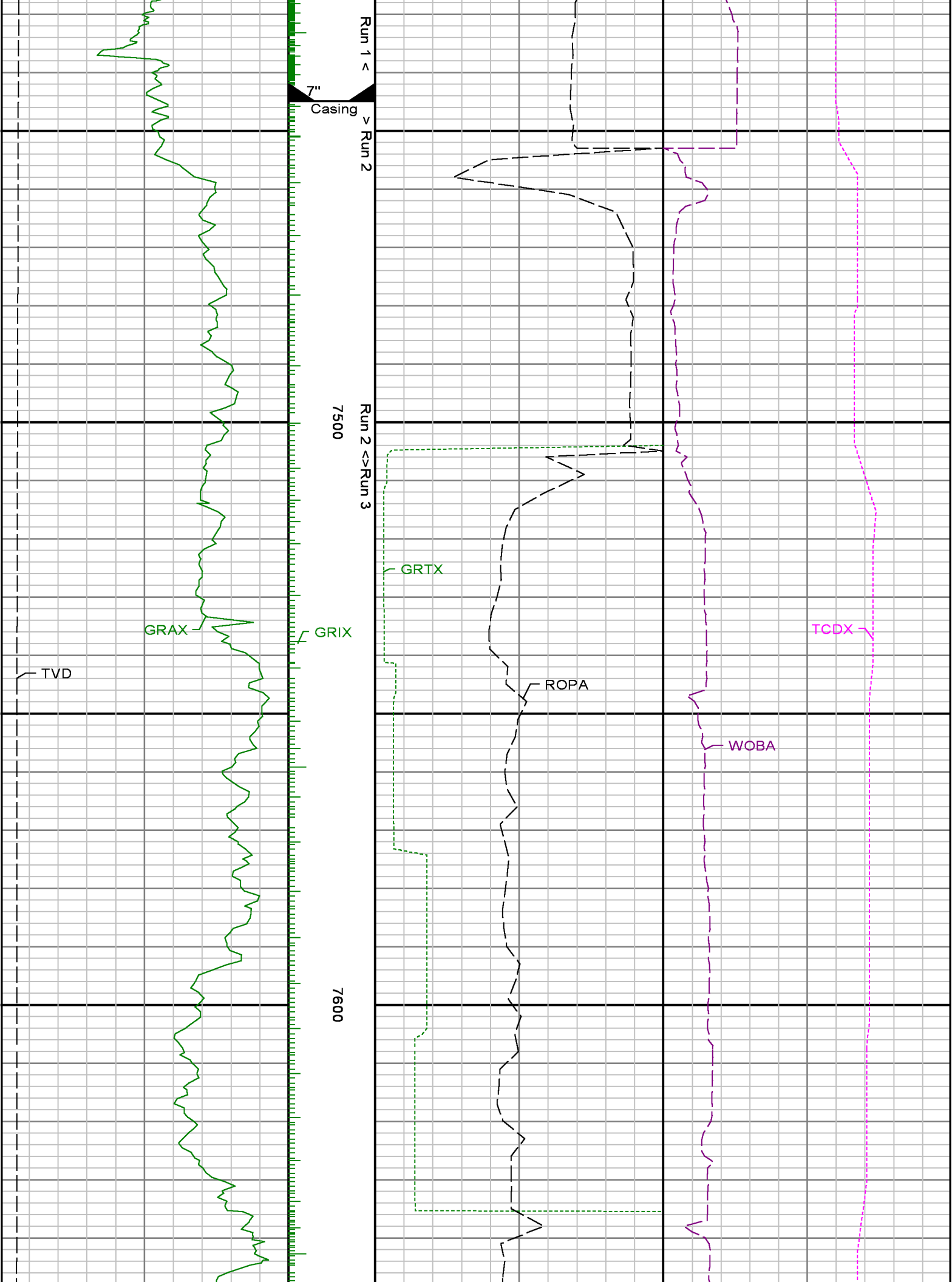
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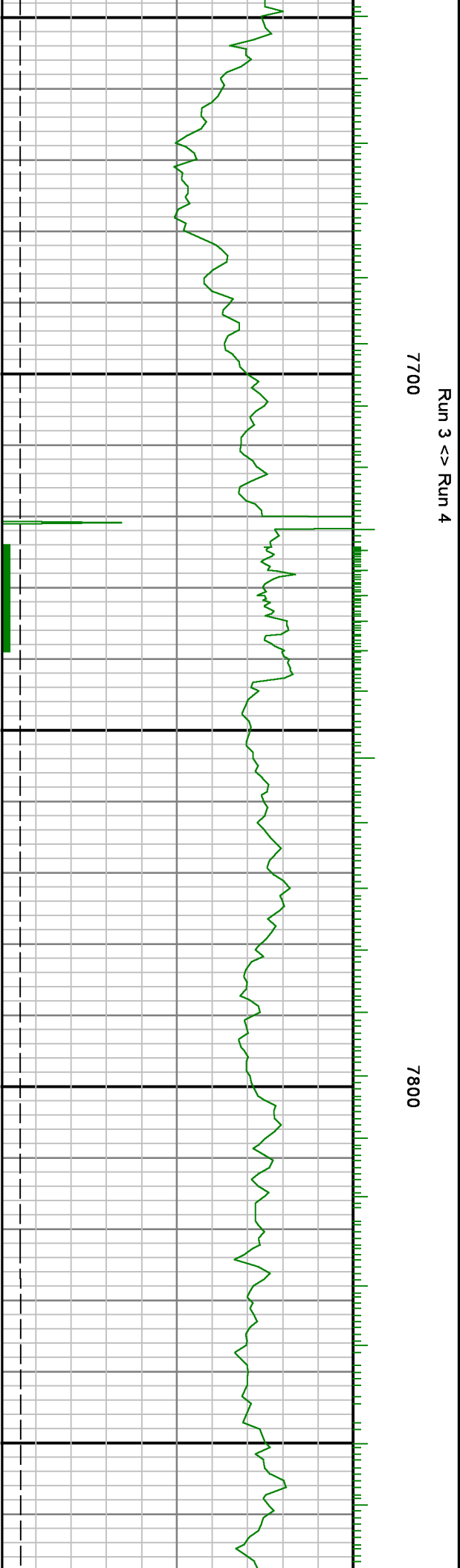
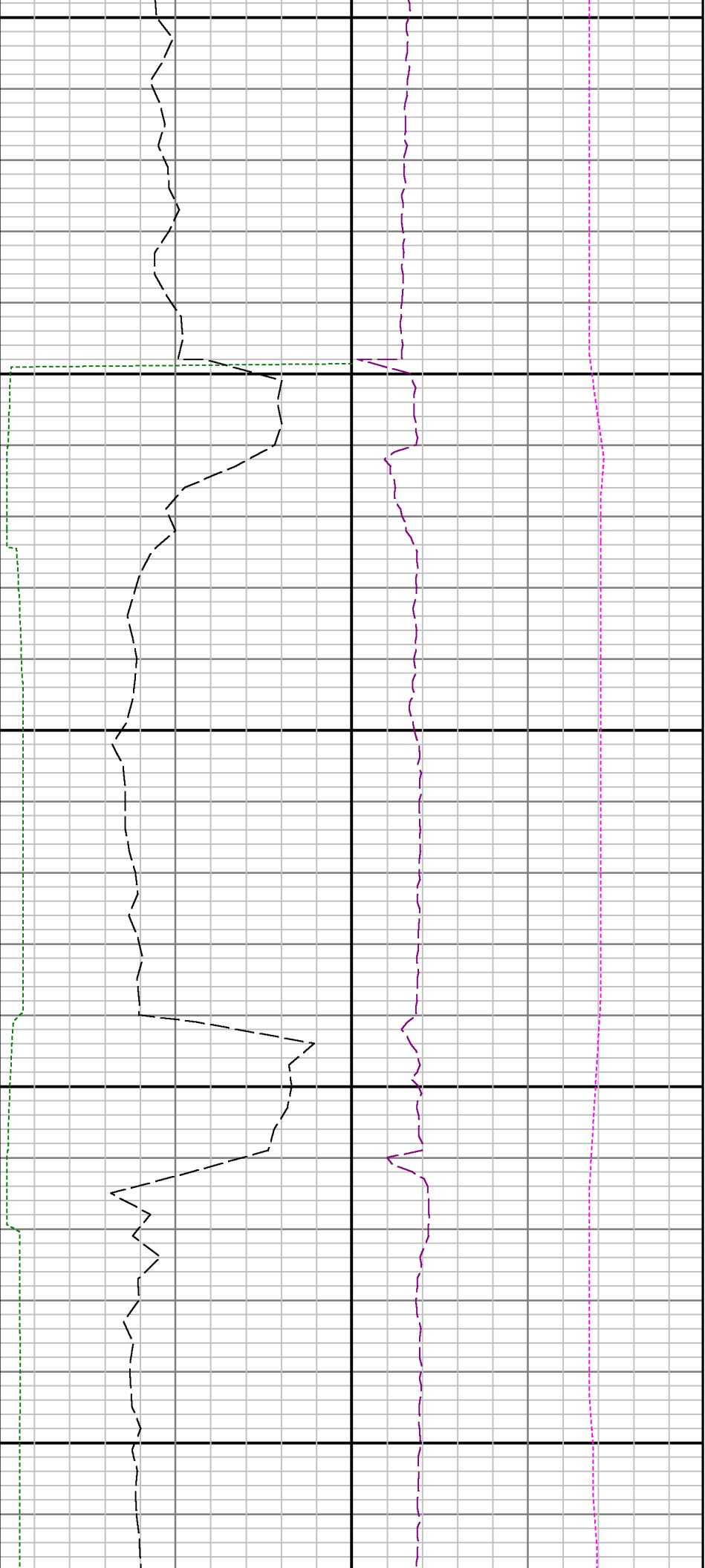


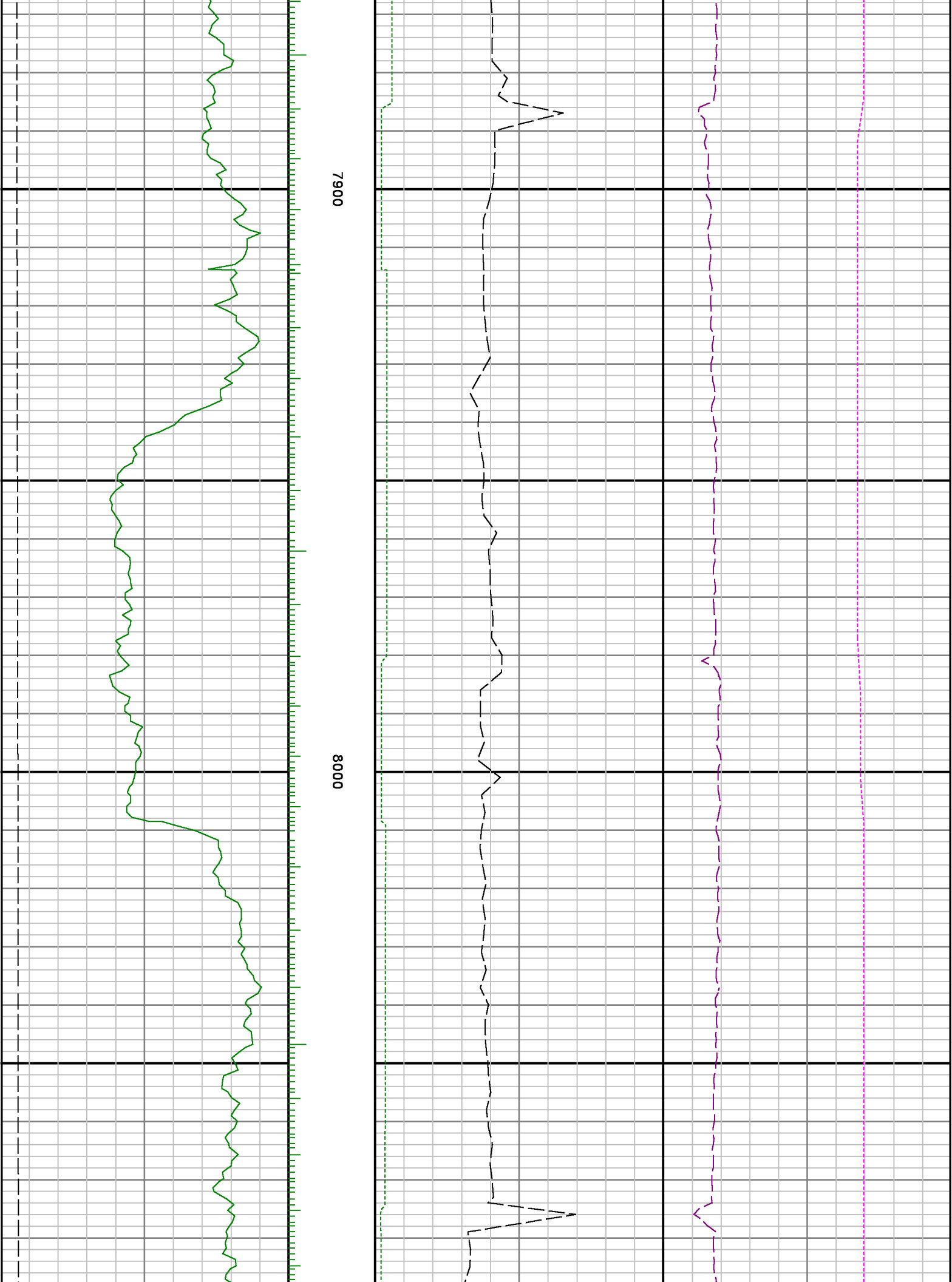




See Remark 1





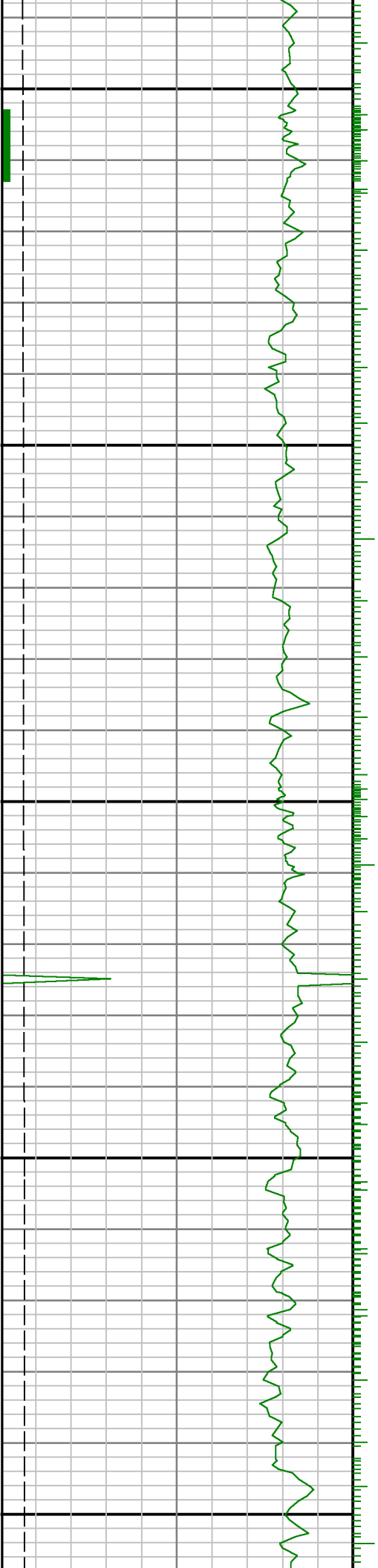


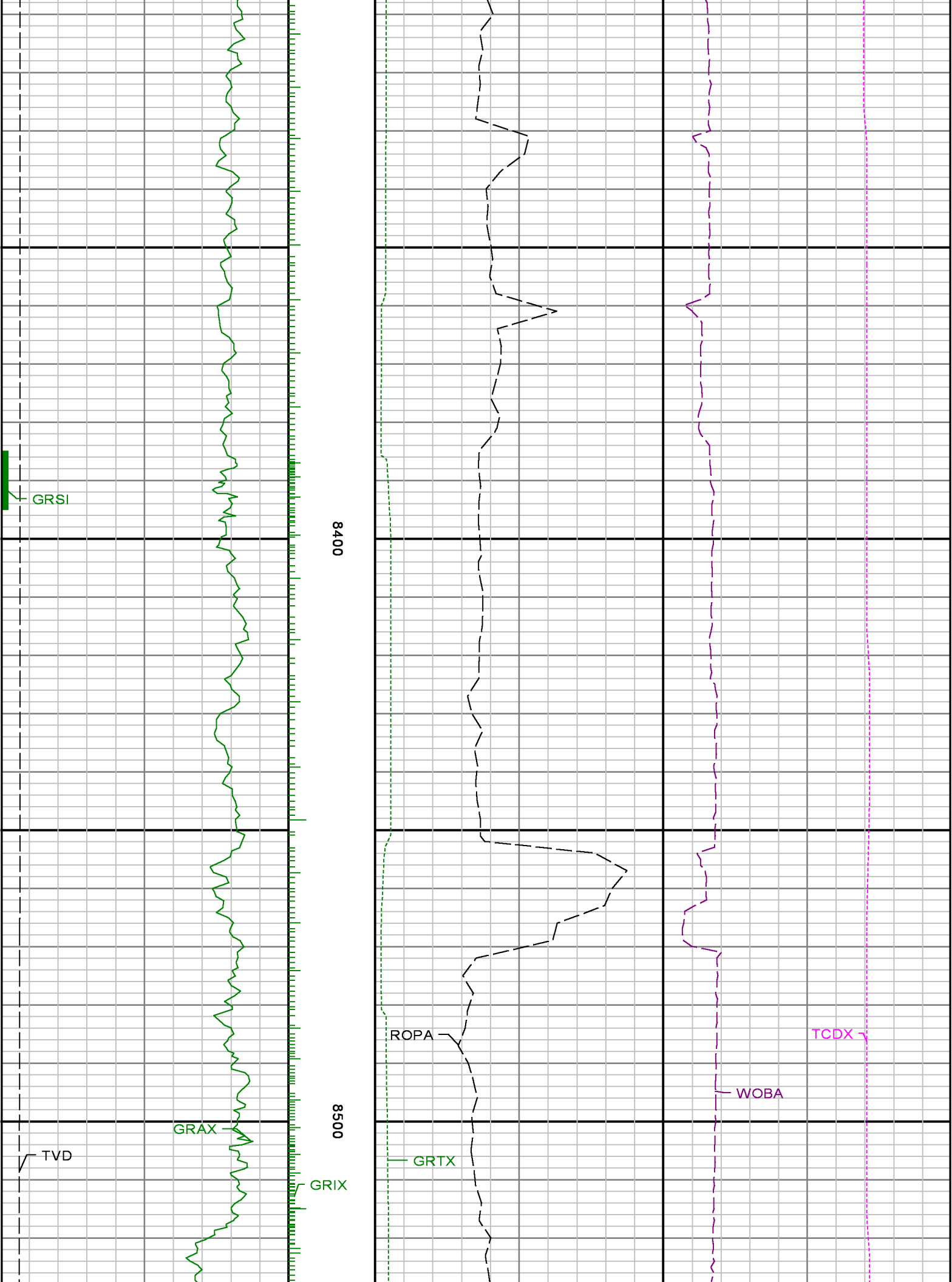


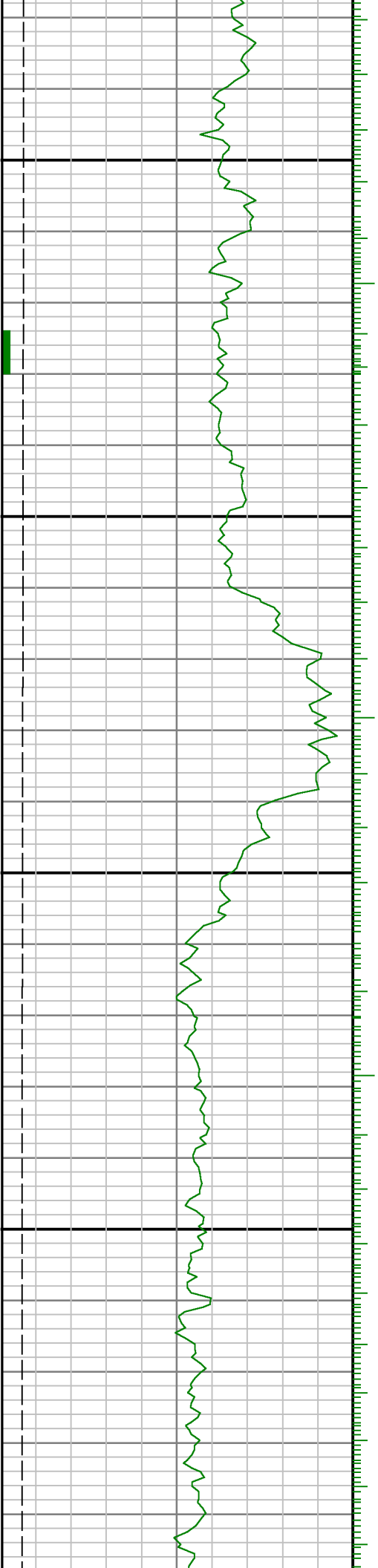
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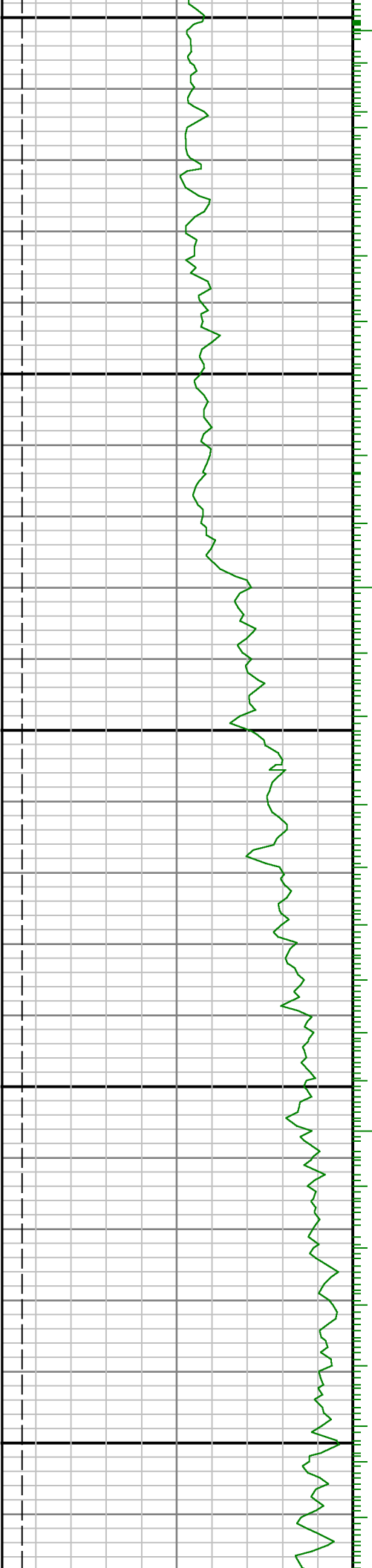




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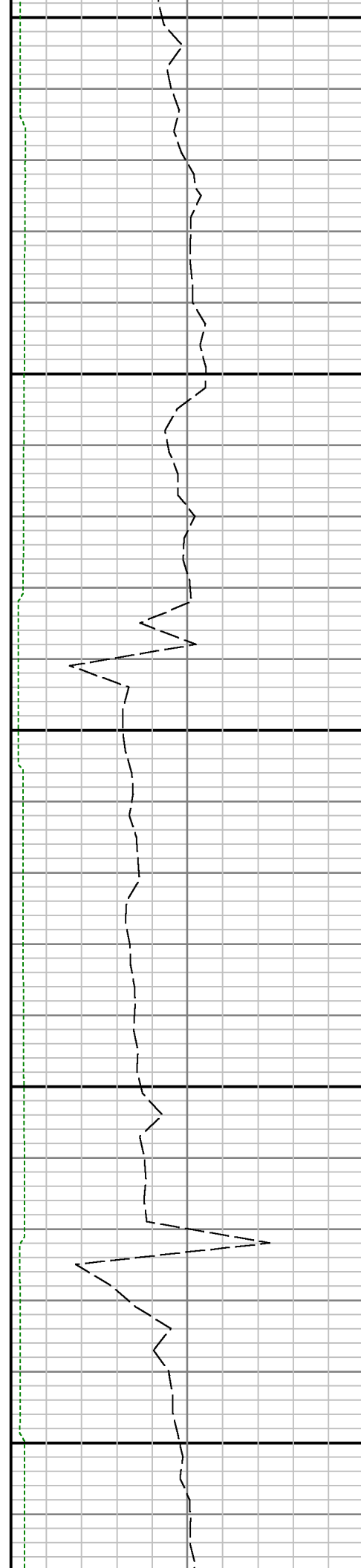
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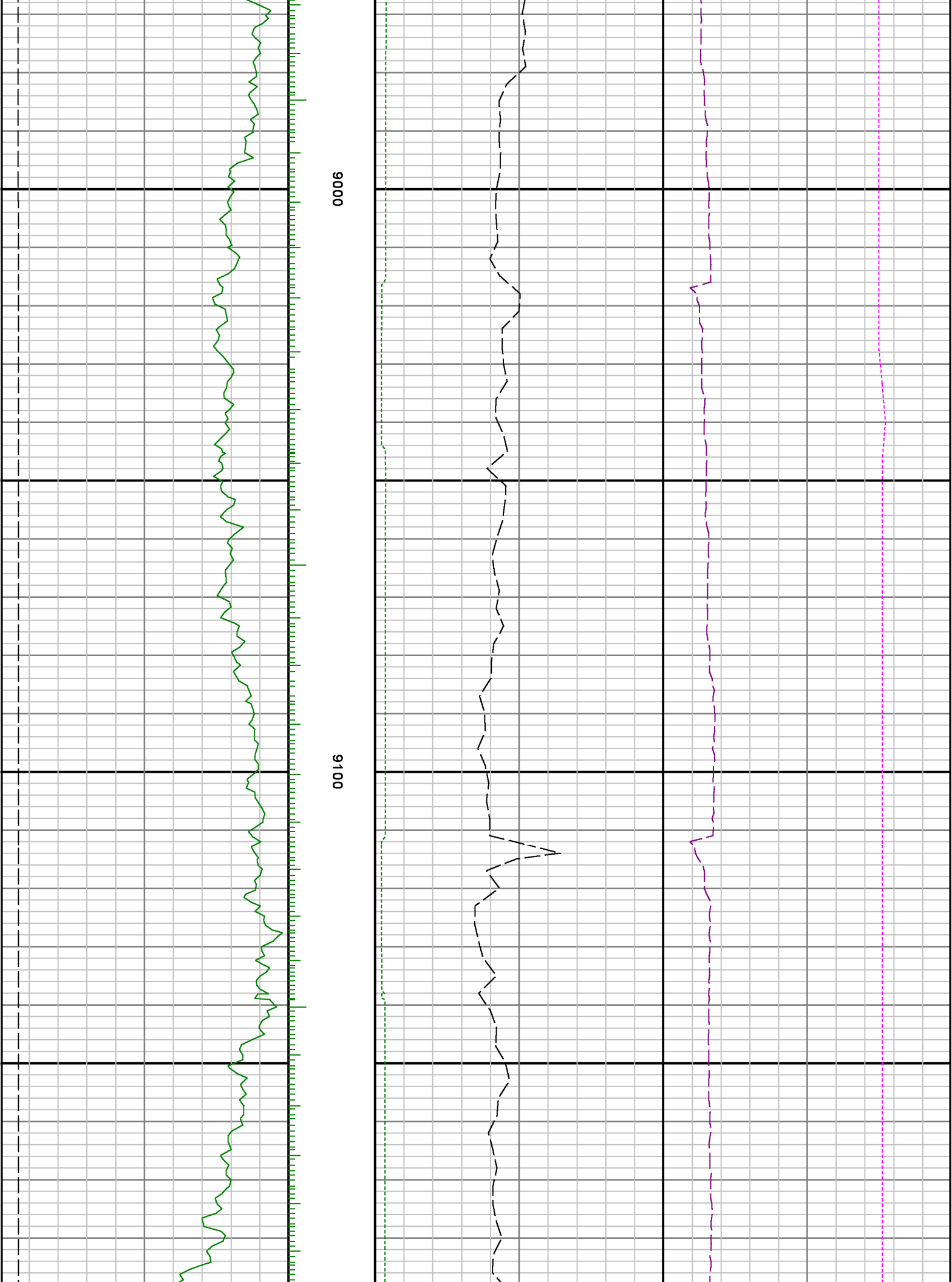




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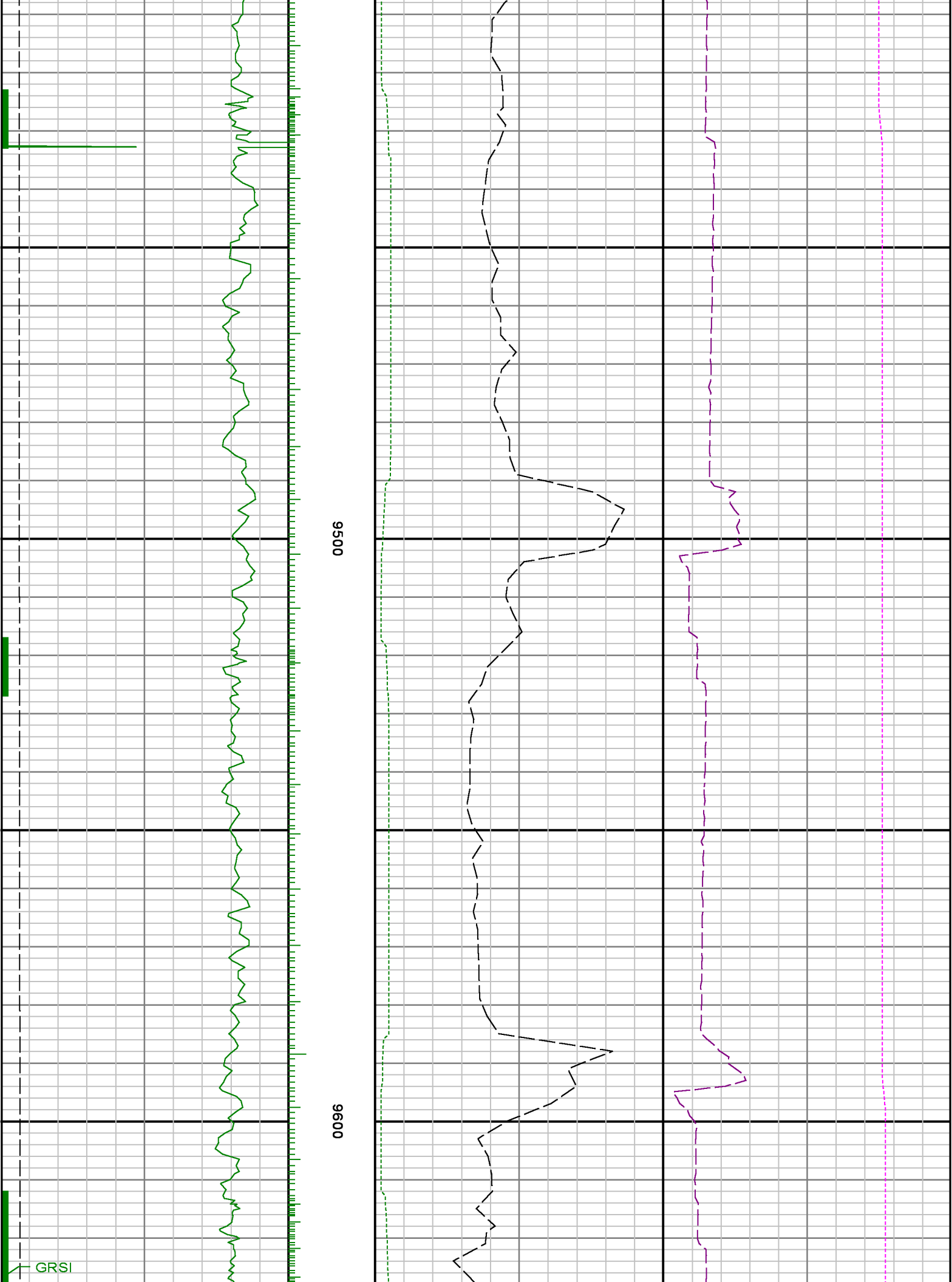


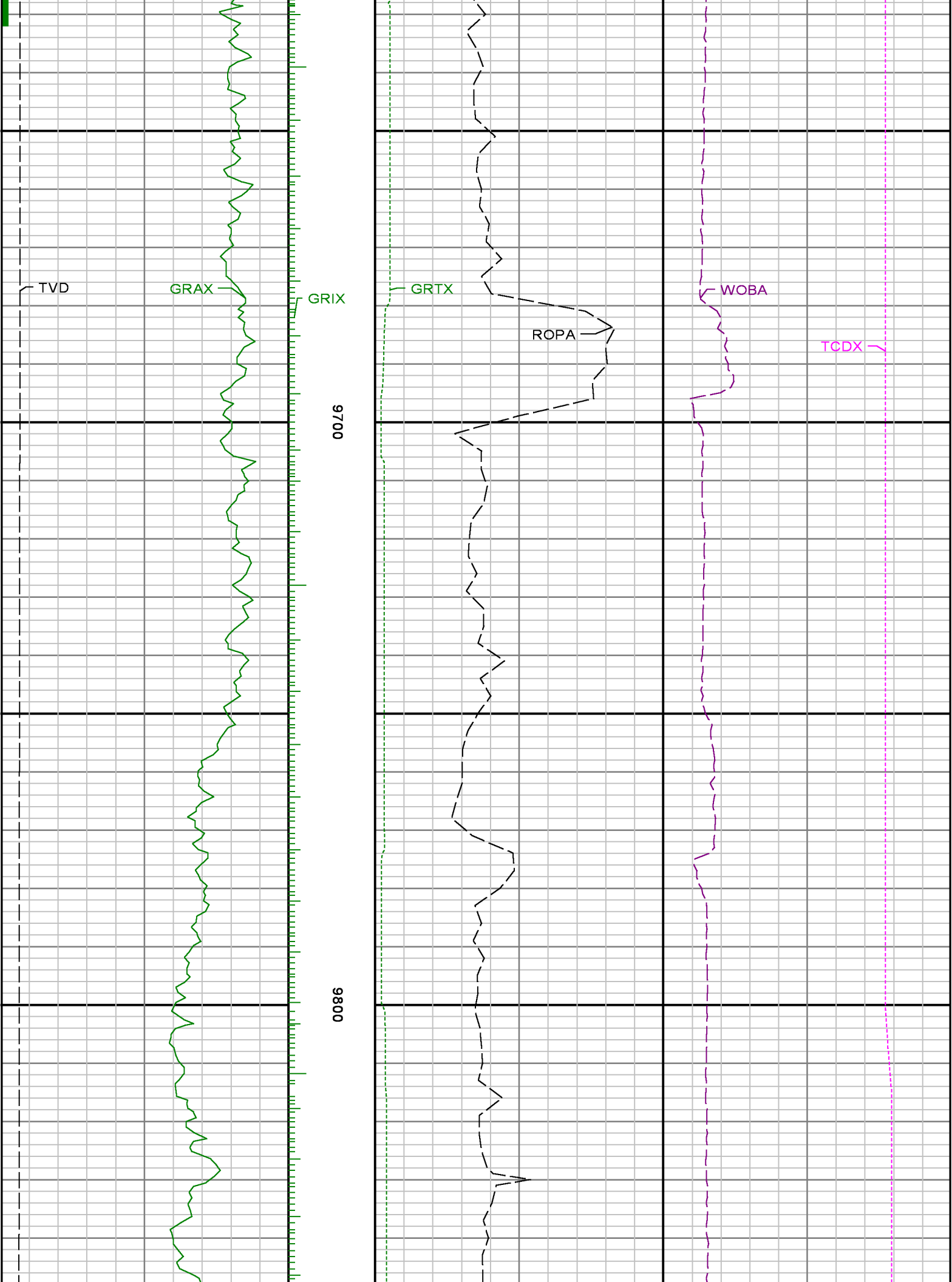


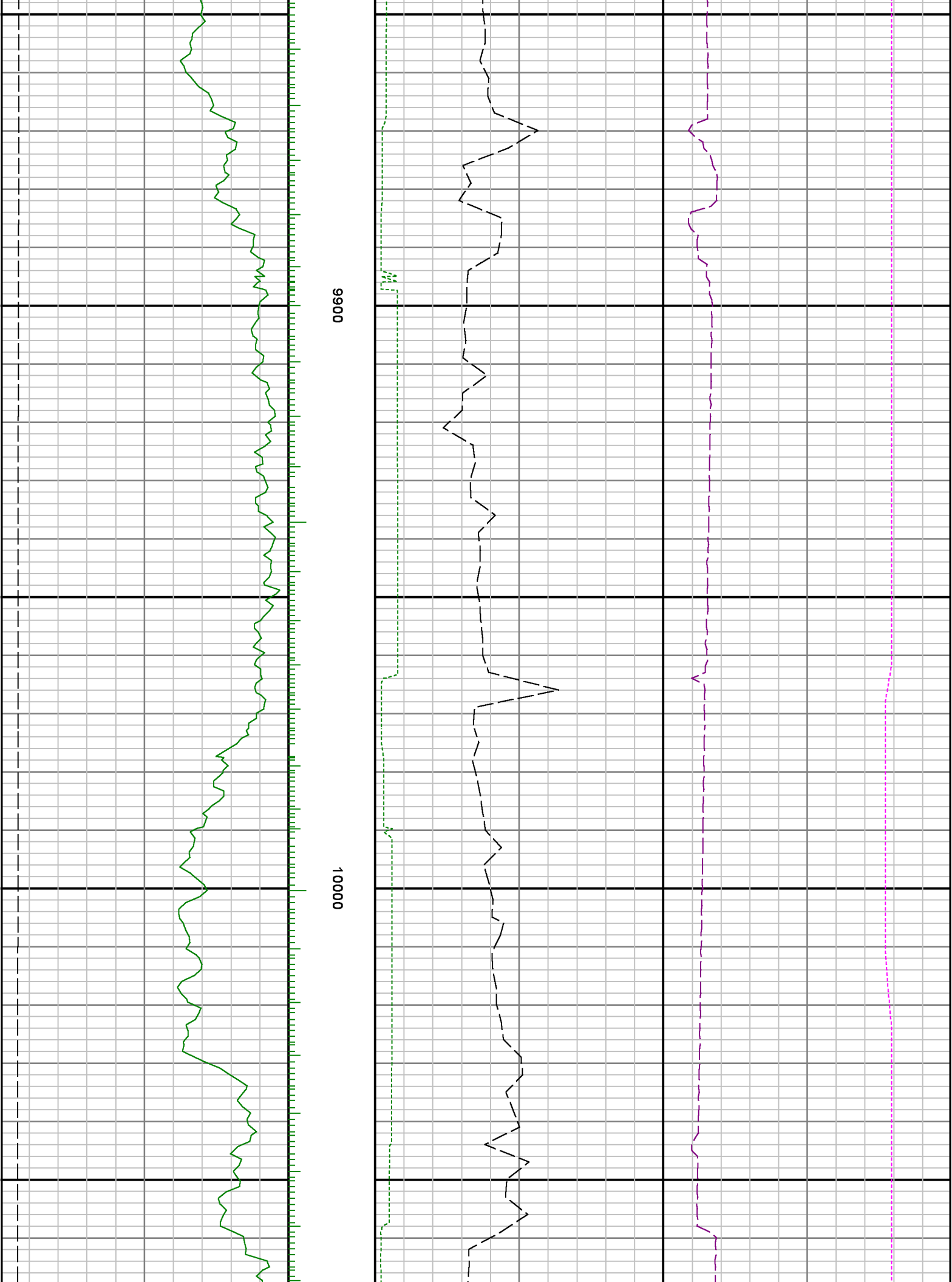
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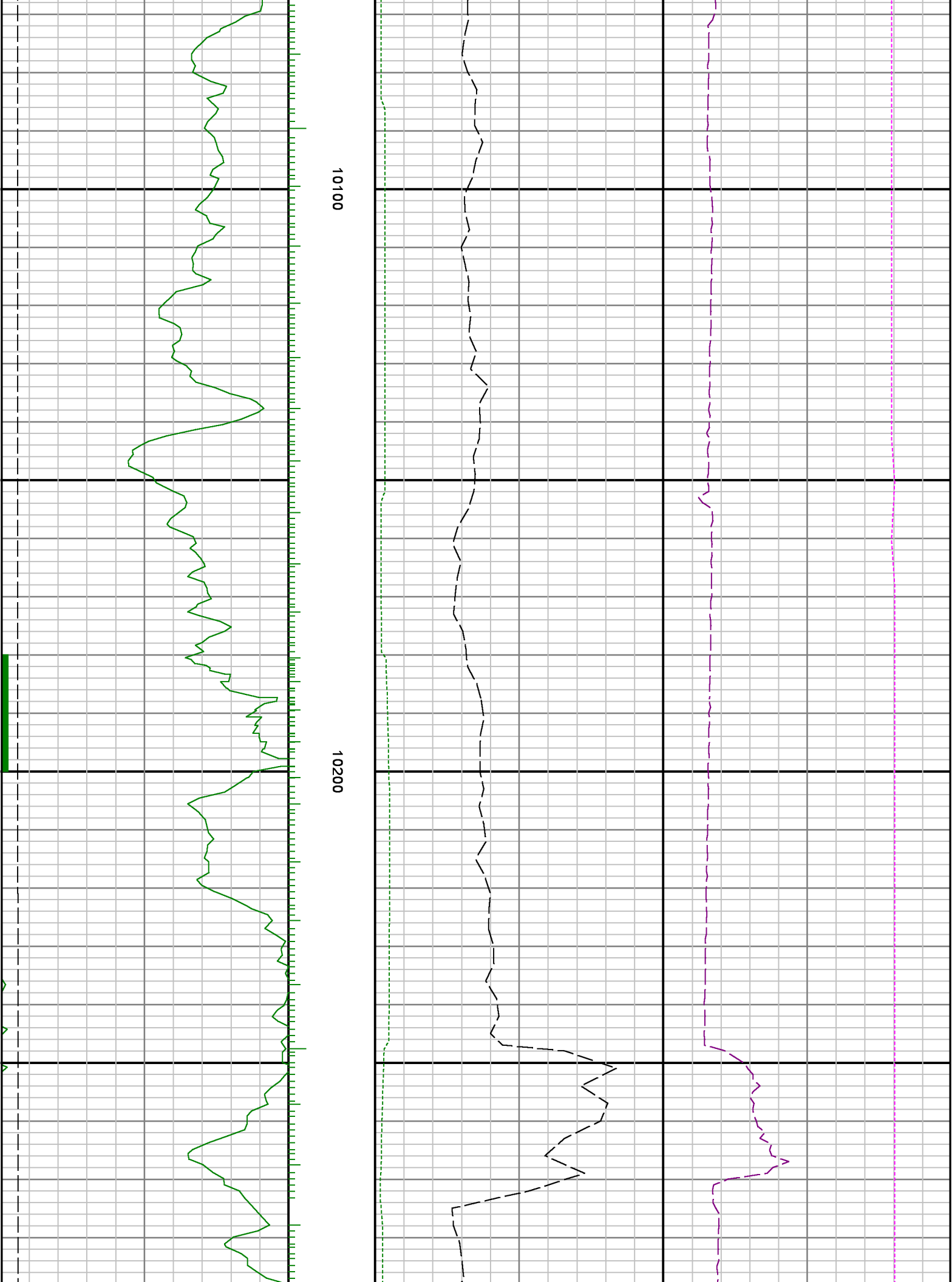
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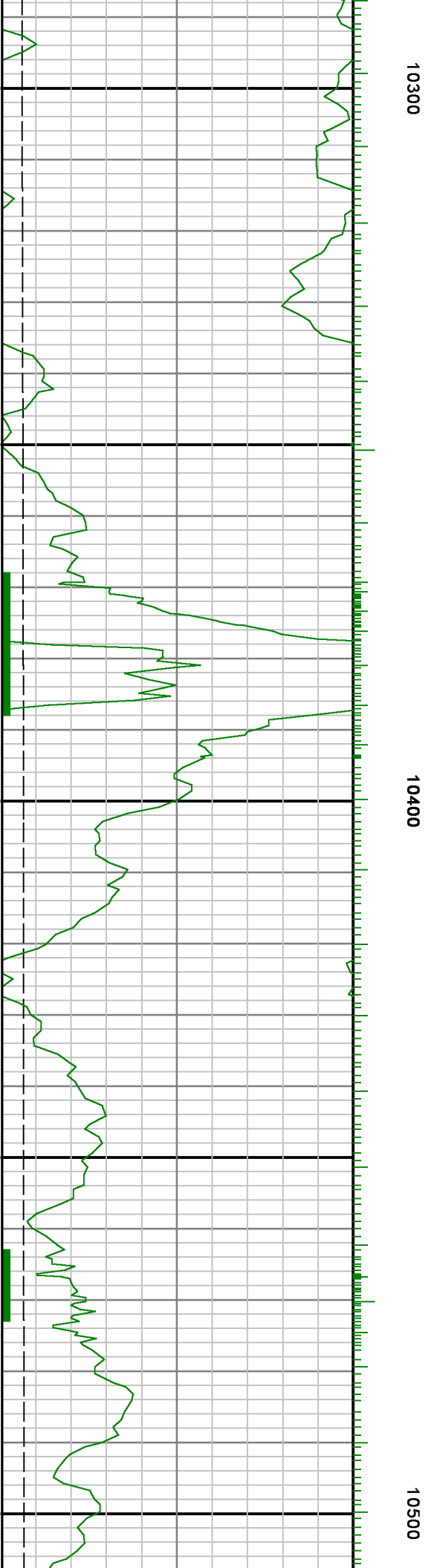
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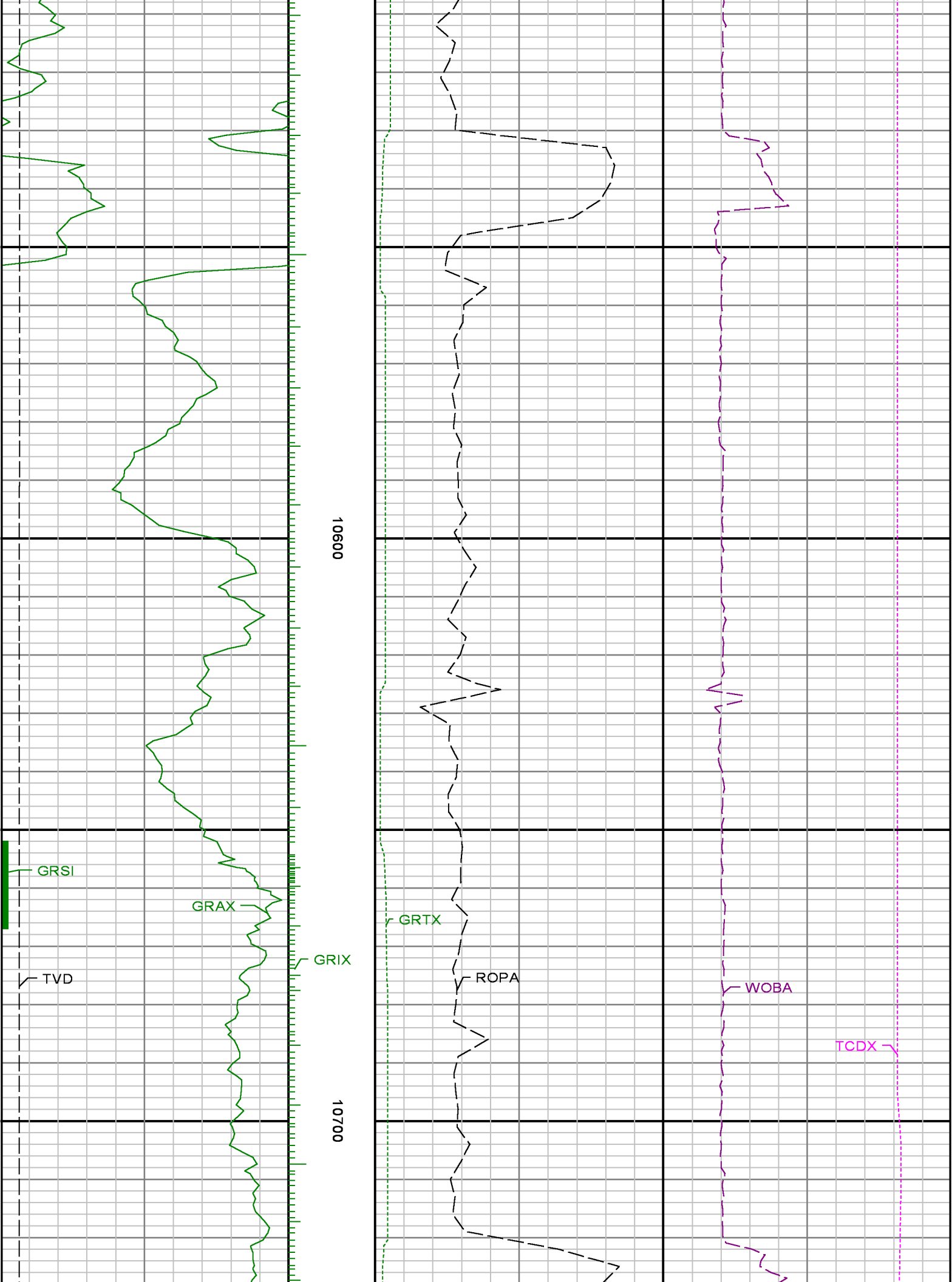


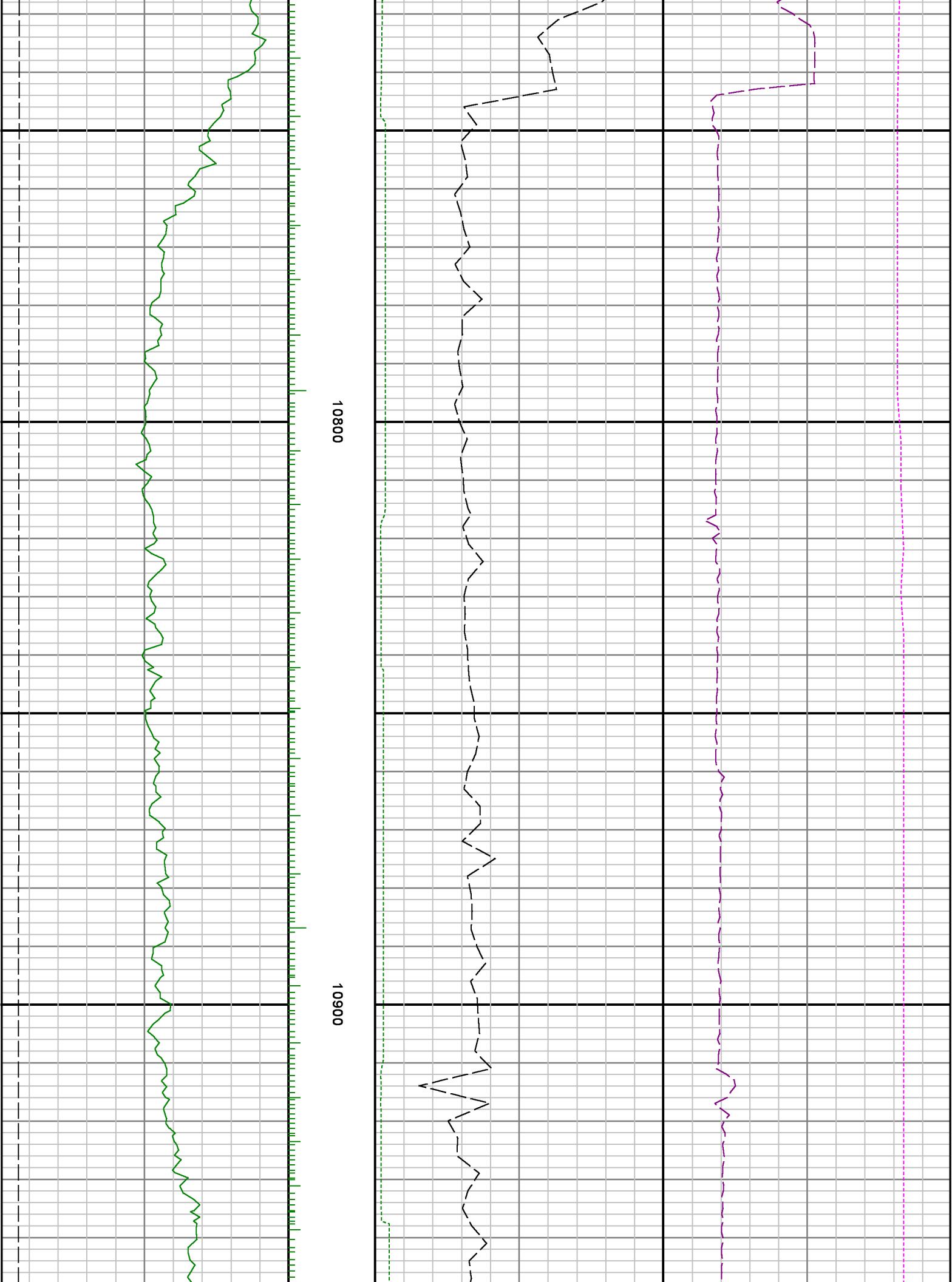


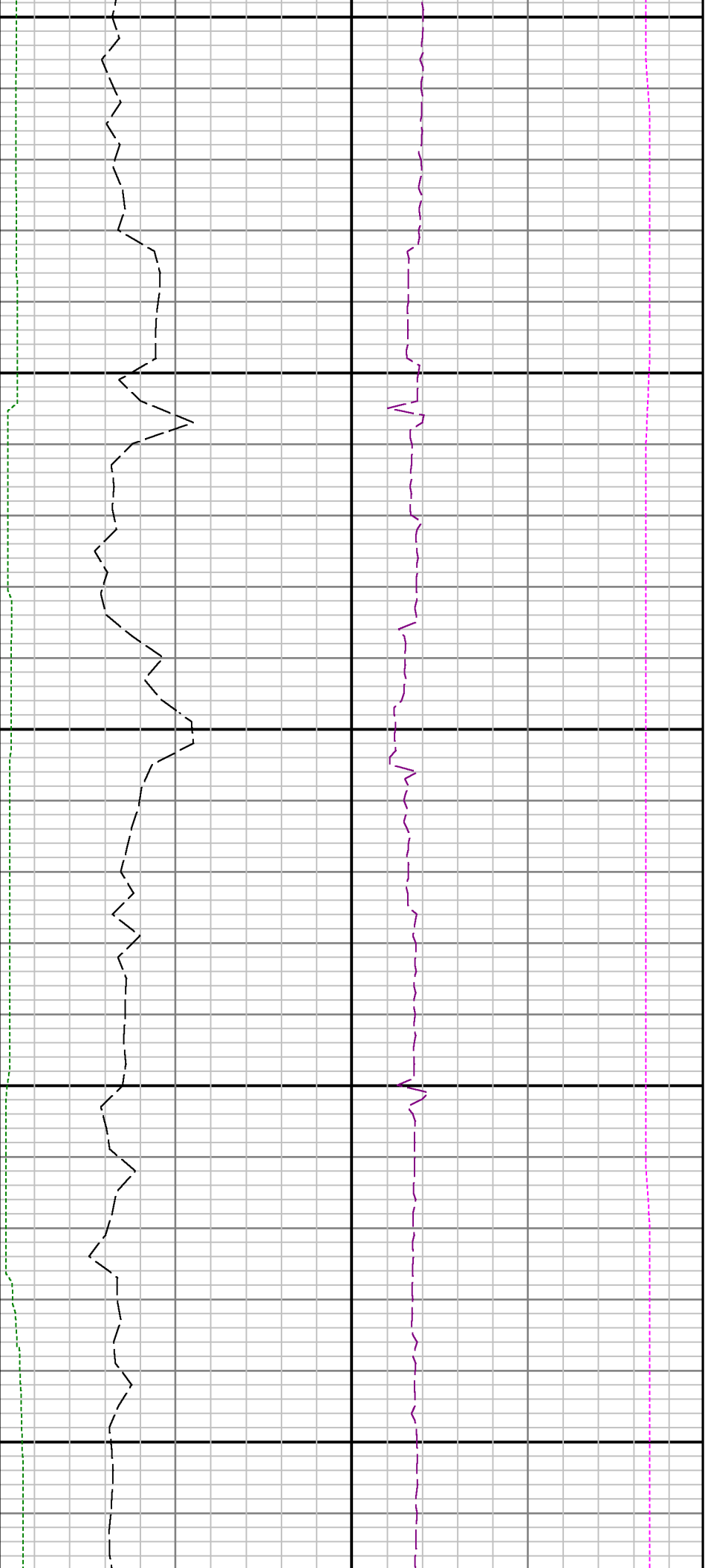






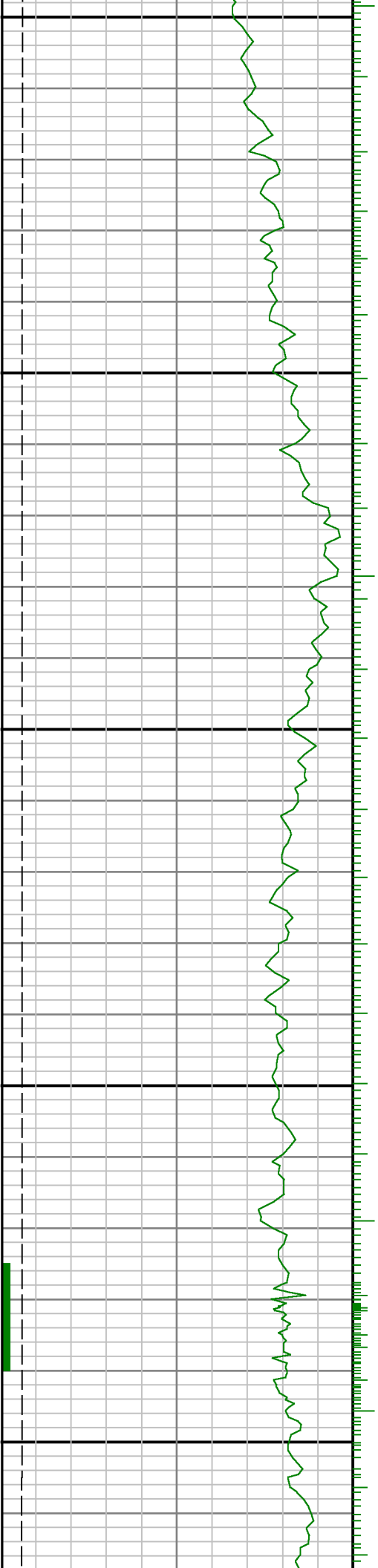


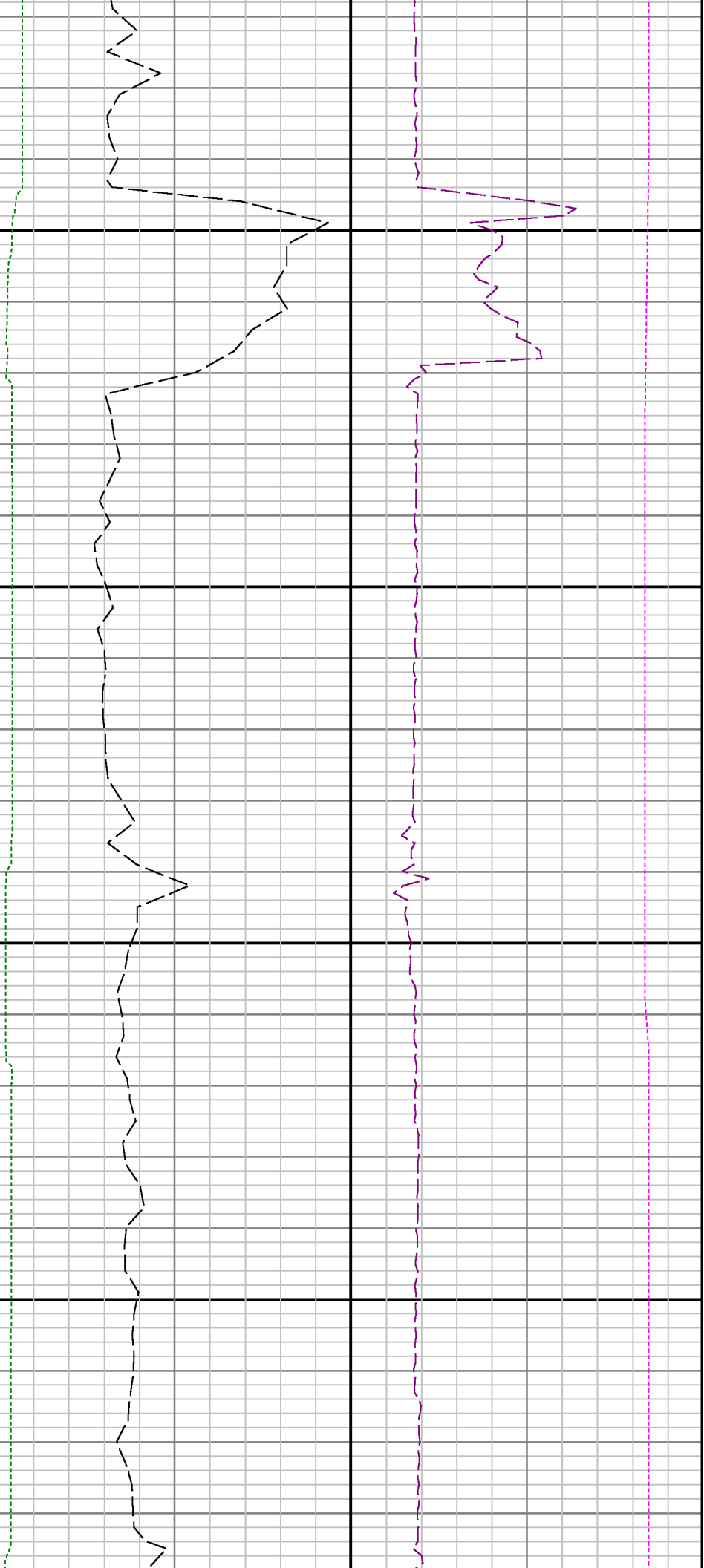




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