

BAKER HUGHES			LWD REALTIME LOG											
			Natural Formation Evaluation Gamma Ray											
Scale:			Company: Noble Energy											
1:240 MD			Well: ANNI LD29-763											
Depth Reference:			Field: Noble NAD 83 GRID											
Driller's Depth			County: Weld County State: Colorado											
Status:			Surface Location:					Other Services:						
Final Print			Latitude: 040° 43' 49.116" N					Directional						
API No: 0512343288			Longitude: 103° 53' 33.684" W											
Job ID: 8176364			SEC: 20		TMW: 9N		RGE: 68W							
Permanent Datum (P.D.):			Ground Level		Elevation:		4865.00 ft		KB:		N/A			
Log Measured From:			Rig Floor		Above P.D.		30.00 ft		DF:		4895.00 ft			
									GL:		4865.00 ft			
Dates			Interval Logged					Magnetic Field Reference						
Date From: 2016-10-18			Top: (ft) 1876.00		Azi Reference North: Grid					Dip Angle: (deg) 67.21				
Date To: 2016-10-20			Bottom: (ft) 10974.00		Total Magnetic Field Strength: (nT) 52626									
Spud Date: 2016-10-17			Mag to Reference North Correction: (deg) 6.65 E											
Borehole Record			Casing Record											
Hole Size (in)			From (ft)		To (ft)		Size (in)		Weight (lb/ft)		From (ft)		To (ft)	
13.500			0.00		1938.00		9.625		36.00		0.00		1928.00	
8.500			1938.00		10974.00									

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Log Run Summary												
Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
						1	1	8.500	PDC	2.50	Motor	

Crew											
Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Alex Osborne		2016-10-17	2016-10-20	Austin Small		2016-10-17	2016-10-20	Hans Cary		2016-10-17	2016-10-20
Mark Wilson		2016-10-17	2016-10-20								

Mud Properties Record											
Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2016-10-17 22:35	1	1938.00	Oil Based Mud	9.6	60	N/A	16.4	0.72/0.17	Active Pit	21500	0.00
2016-10-18 21:54	1	5402.82	Oil Based Mud	9.3	43	N/A	16.4	0.74/0.16	Active Pit	22500	0.00
2016-10-19 08:00	1	6814.51	Oil Based Mud	9.2	41	N/A	16.4	0.76/0.14	Active Pit	22500	0.00
2016-10-19 20:00	1	8796.59	Oil Based Mud	9.3	42	N/A	17.6	0.74/0.16	Active Pit	25000	0.00
2016-10-20 08:00	1	10808.91	Oil Based Mud	9.3	41	N/A	20.4	0.75/0.14	Active Pit	21000	0.00

Equipment and Service Data							
Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviGamma	13312569	Gamma (single)	11.33	62.08	6.800	3.250
1	NaviGamma	13312569	VSS	14.71	65.46	6.800	3.250
1	NaviGamma	13312569	Directional (mag)	14.71	65.46	6.800	3.250

Comments


- 1
- Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
- 2
- Baker Hughes LWD Run 1 utilized 6 ¾ inch NaviGamma service (Gamma Ray and Directional) behind an 8 ½ inch bit from 1938 to 10974 feet MD (1938 to 5840 feet TVD).

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1876.00	8.500	1	Gamma Ray logging operations began at 1876 feet (1876 feet TVD).
2	2078.00	8.500	1	The interval from 2073 to 2084 feet MD (2073 to 2084 feet TVD) has no Gamma Ray data due to surface depth tracking problems.
3	10925.09	8.500	1	Gamma Ray logging operations ended at 10913 feet (5840 feet TVD).

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
GRAX	Gamma Ray - Apparent 0.5 ft Average	API
GRIX	Gamma Ray - Data Point Indicator	unitless
GRTX	Gamma Time Since Drilled	min
GRSI	Sliding Indicator Flag	unitless
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb



Company

Well

Interval

Created

Noble Energy

ANNI LD29-763

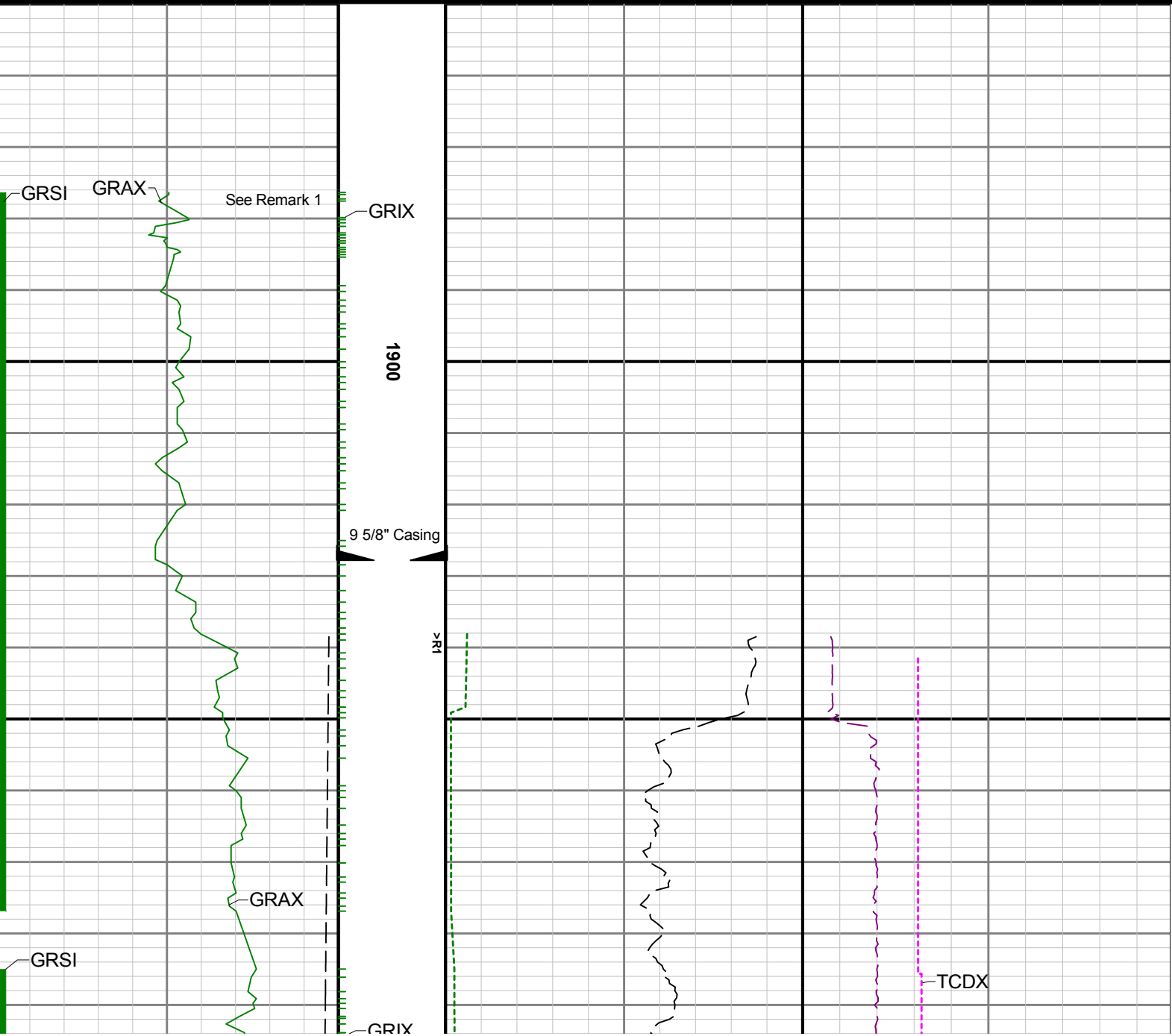
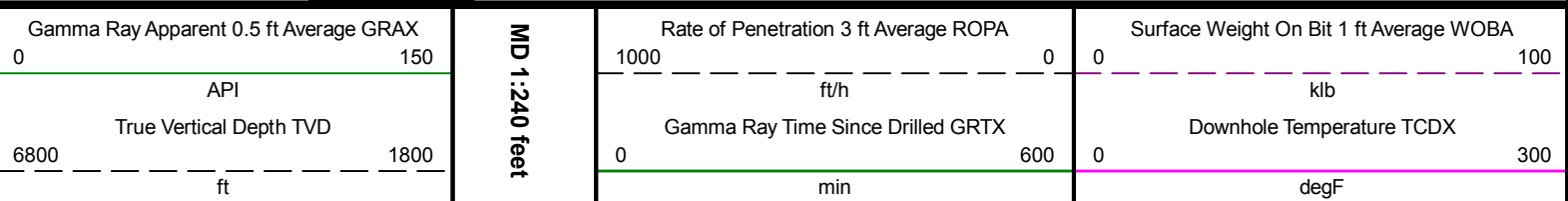
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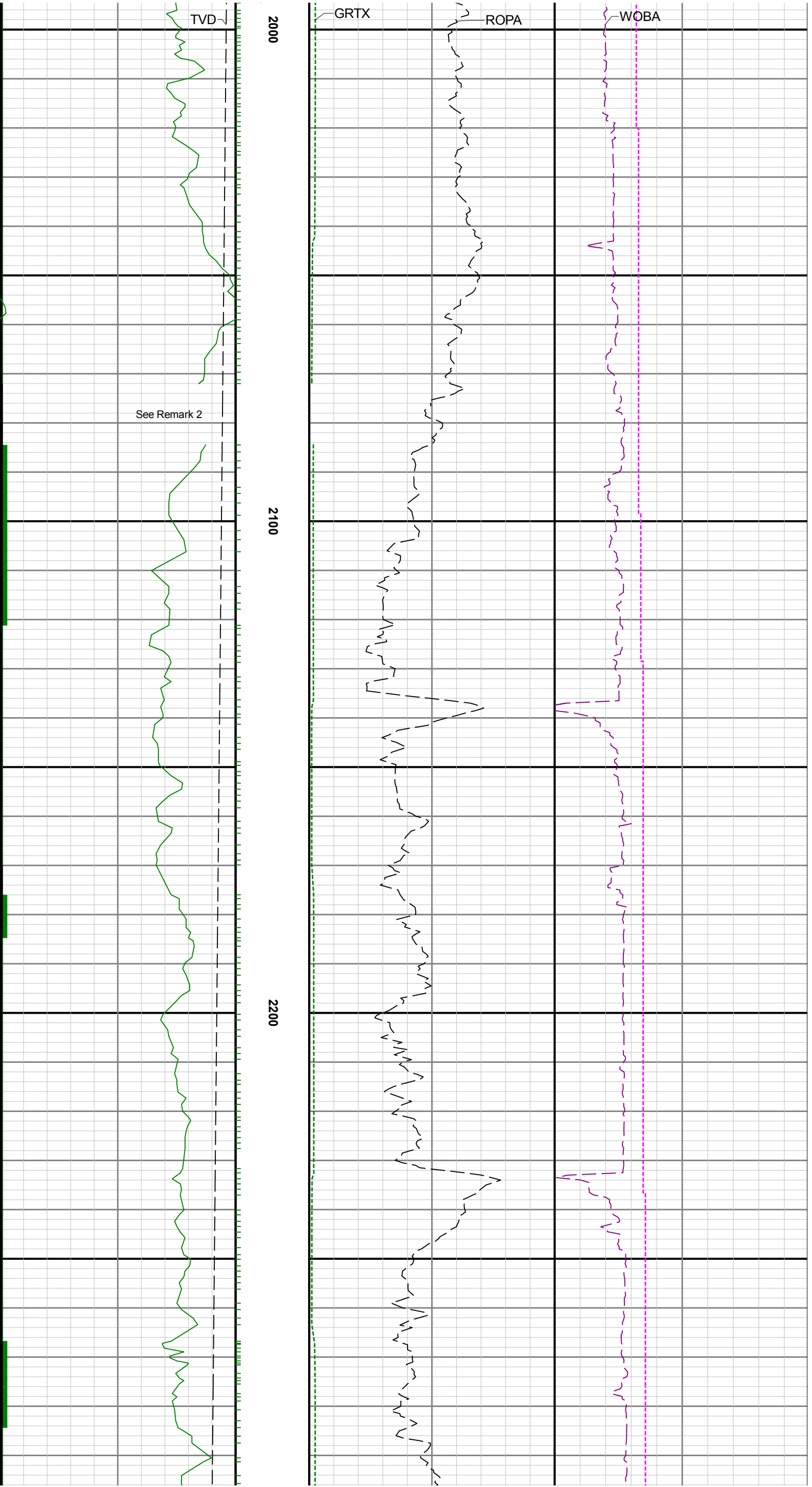
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Top: 1876.00

Bottom: 10974.00





WOBA

ROPA

GRTX

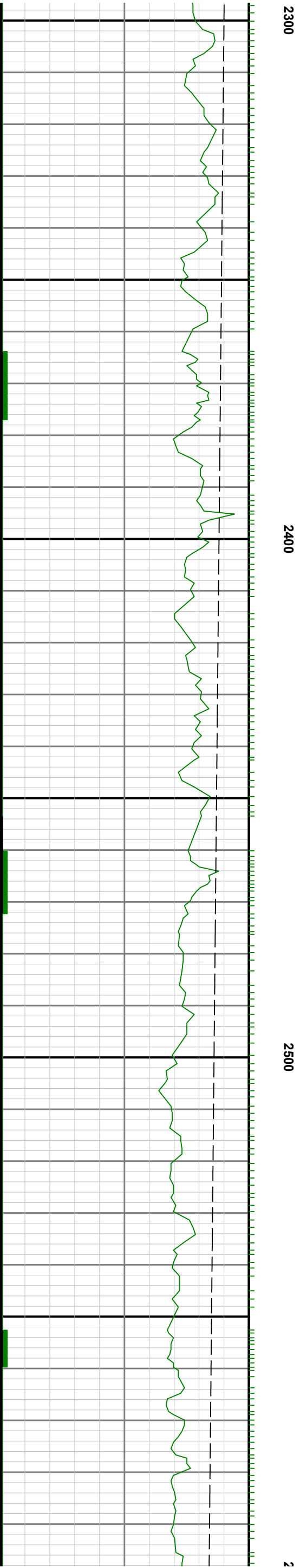
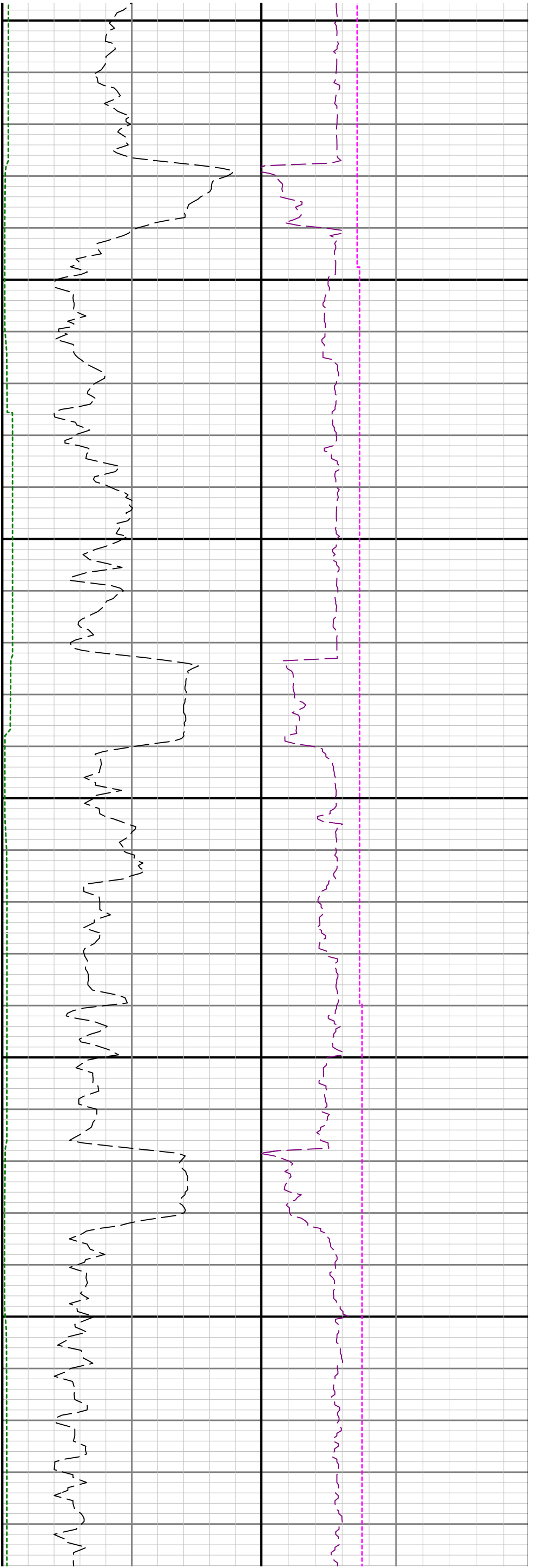
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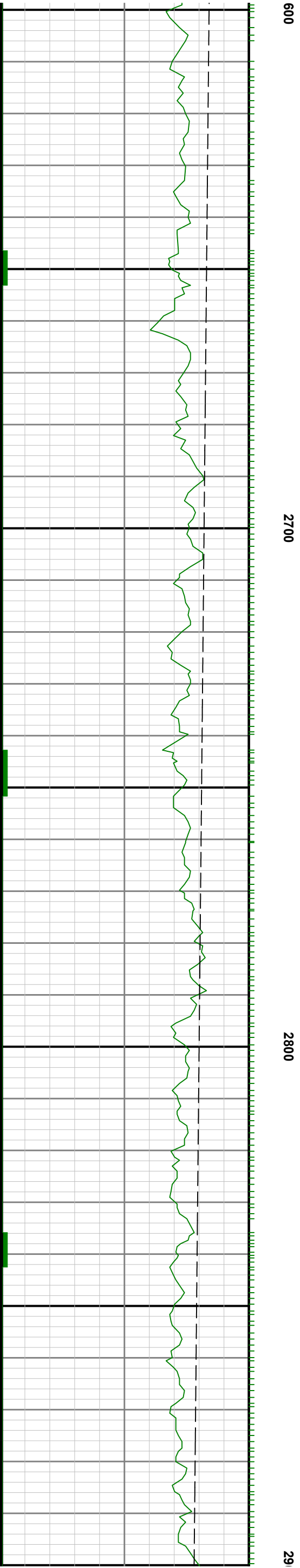
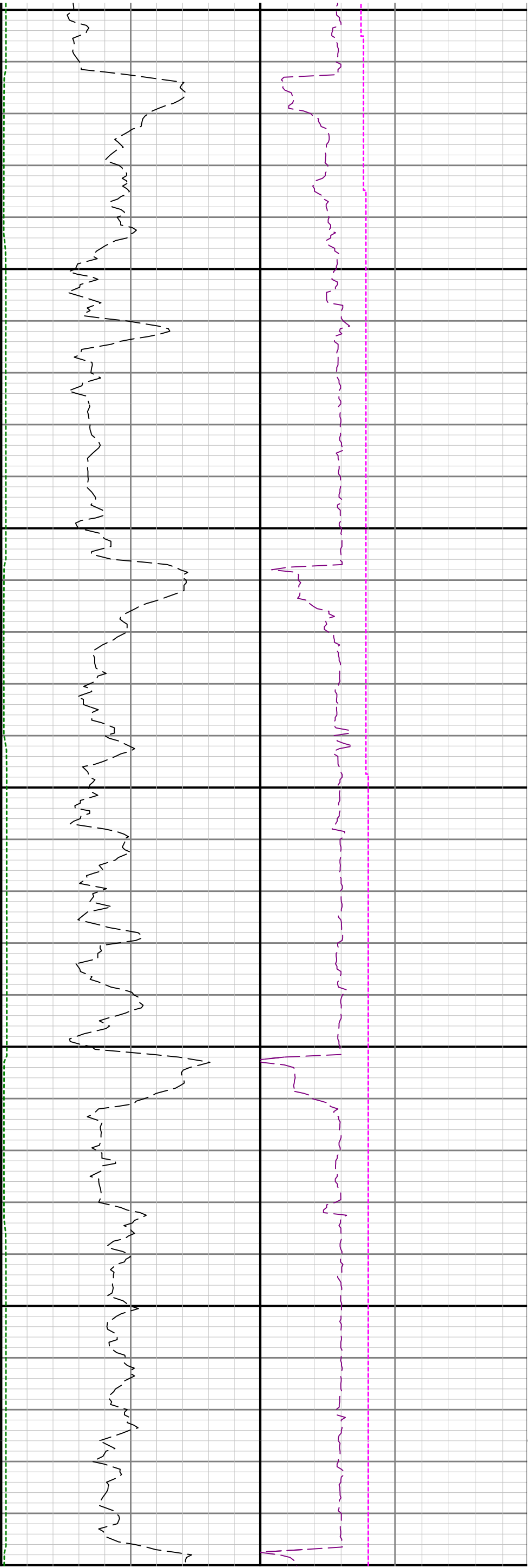
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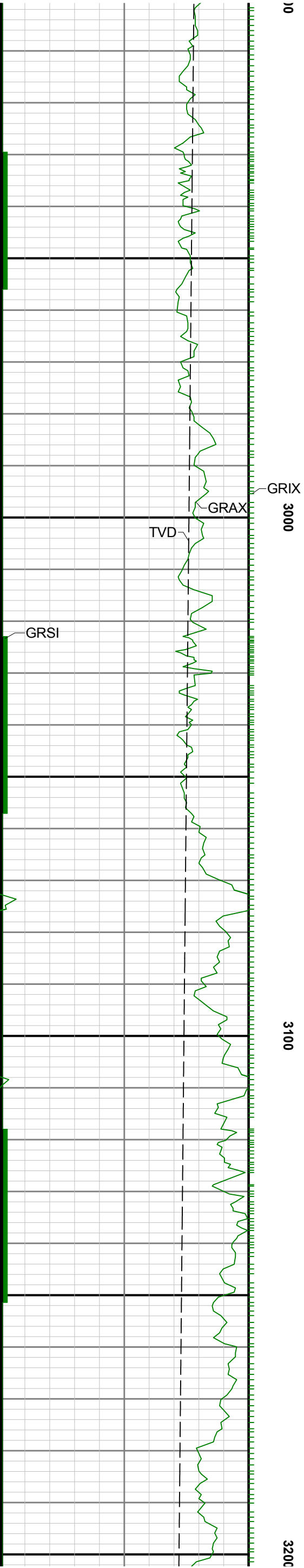
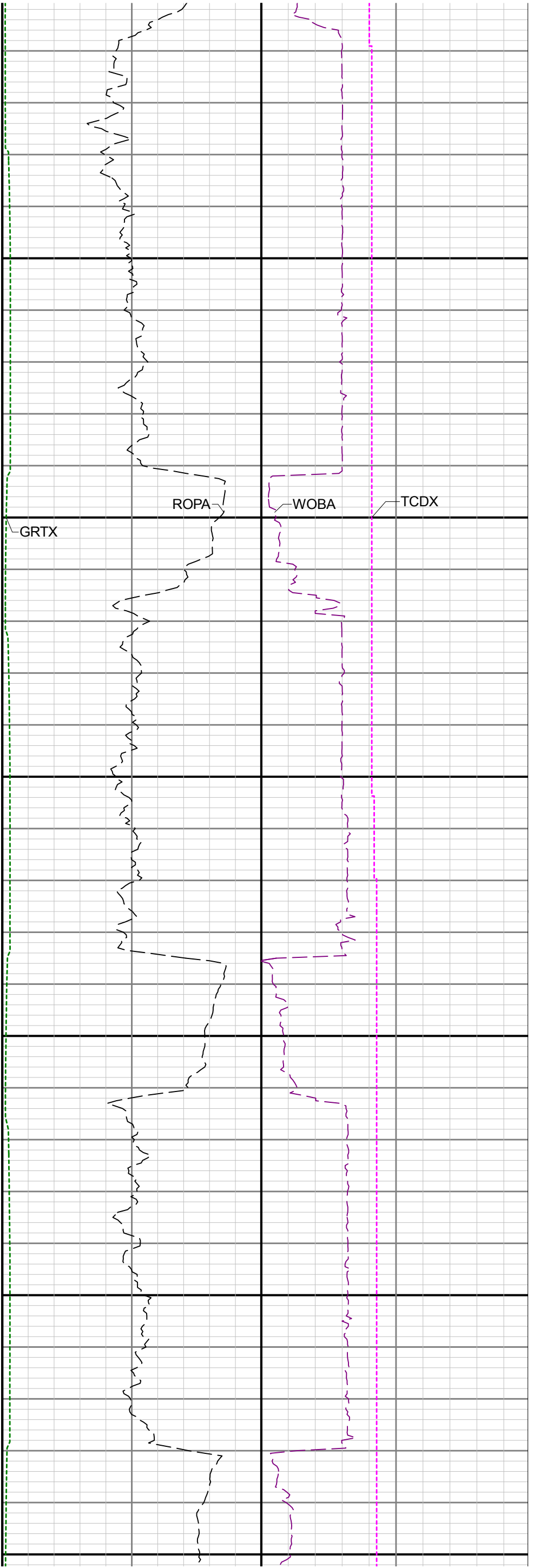
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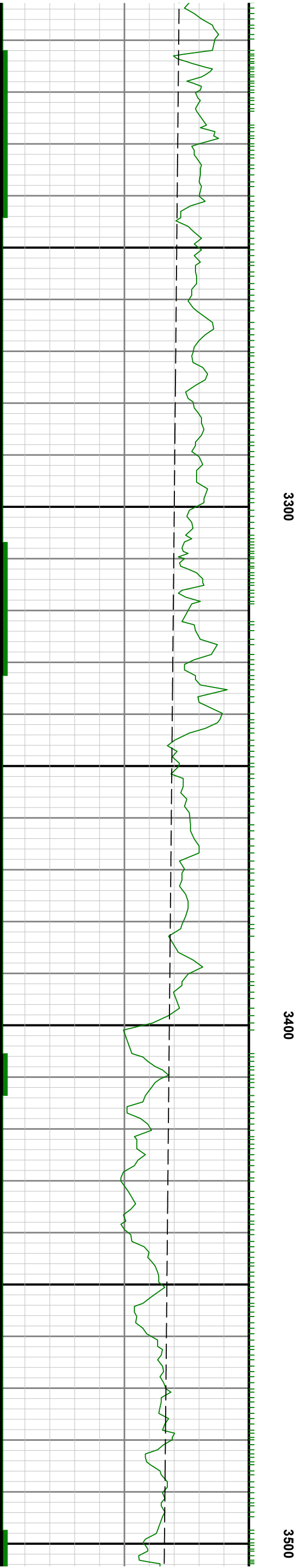
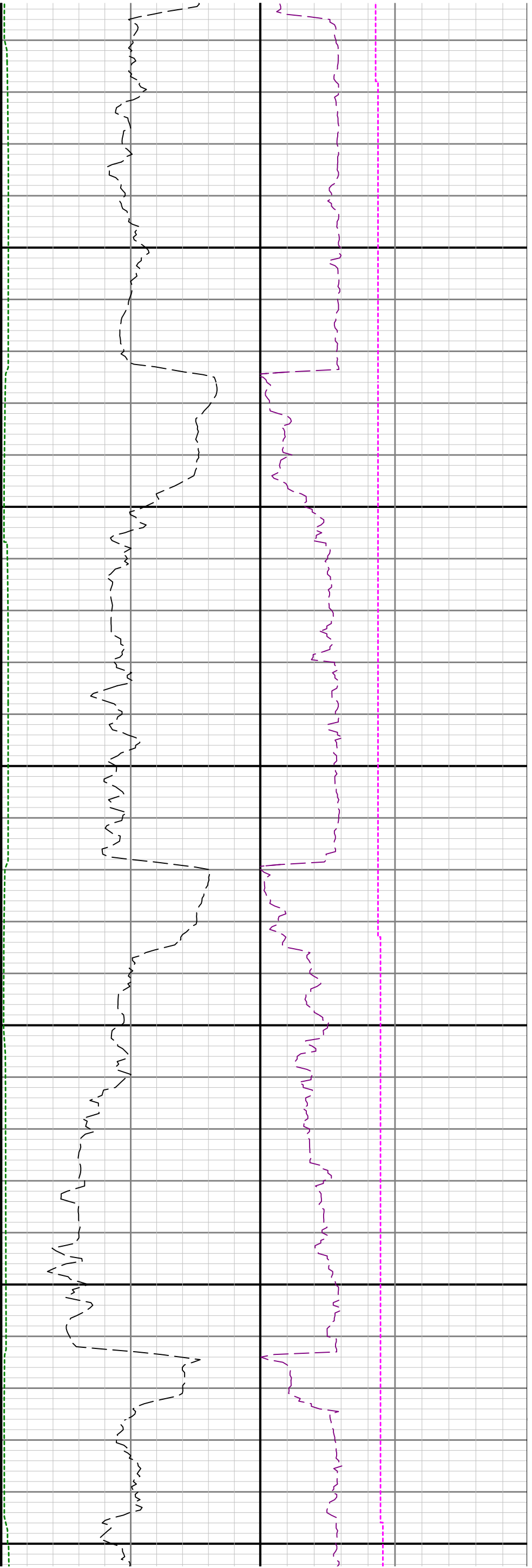
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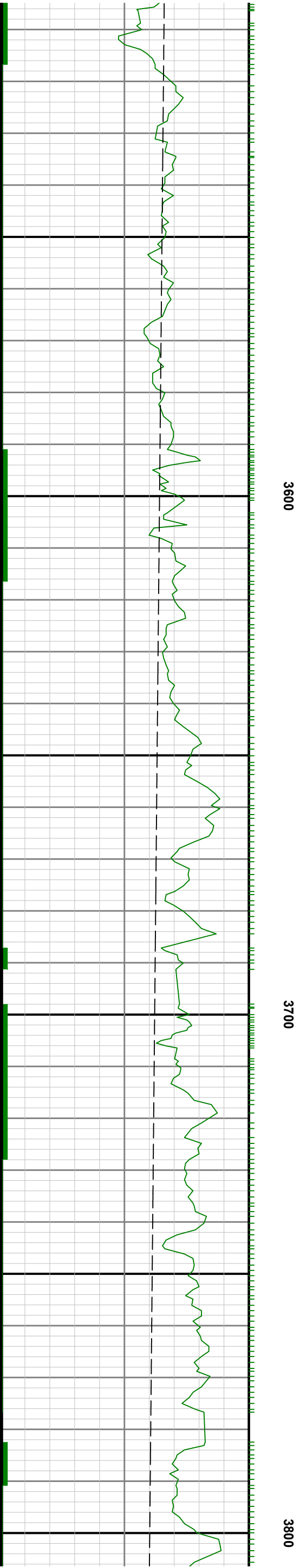
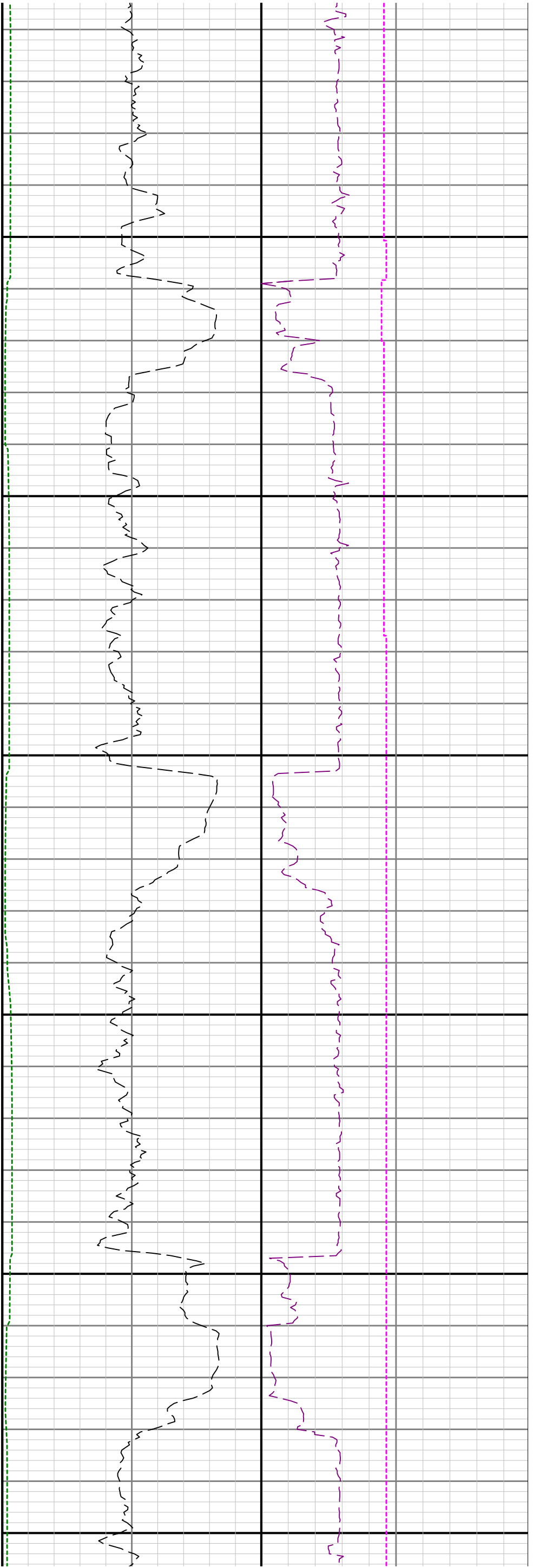
See Remark 2

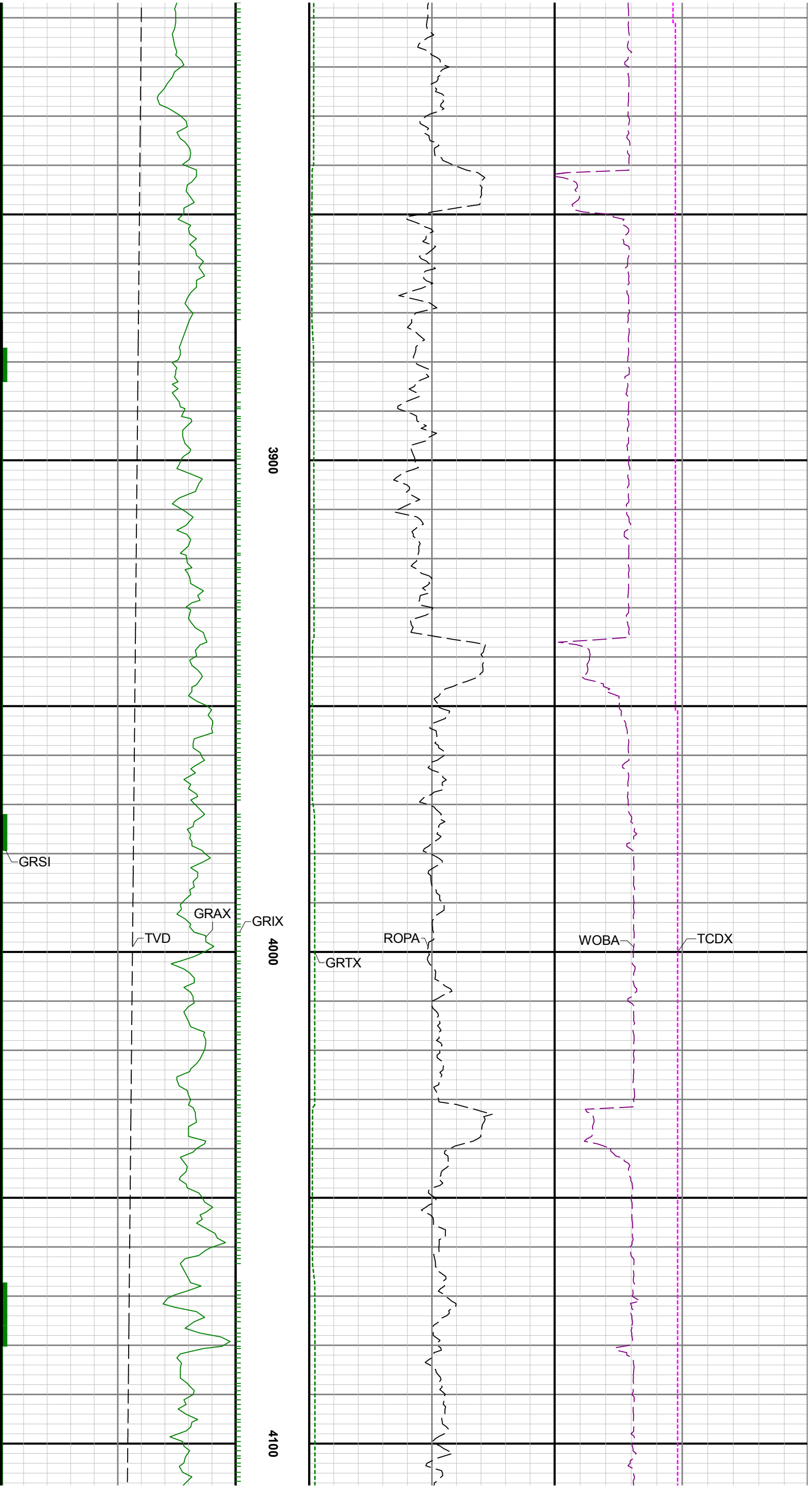


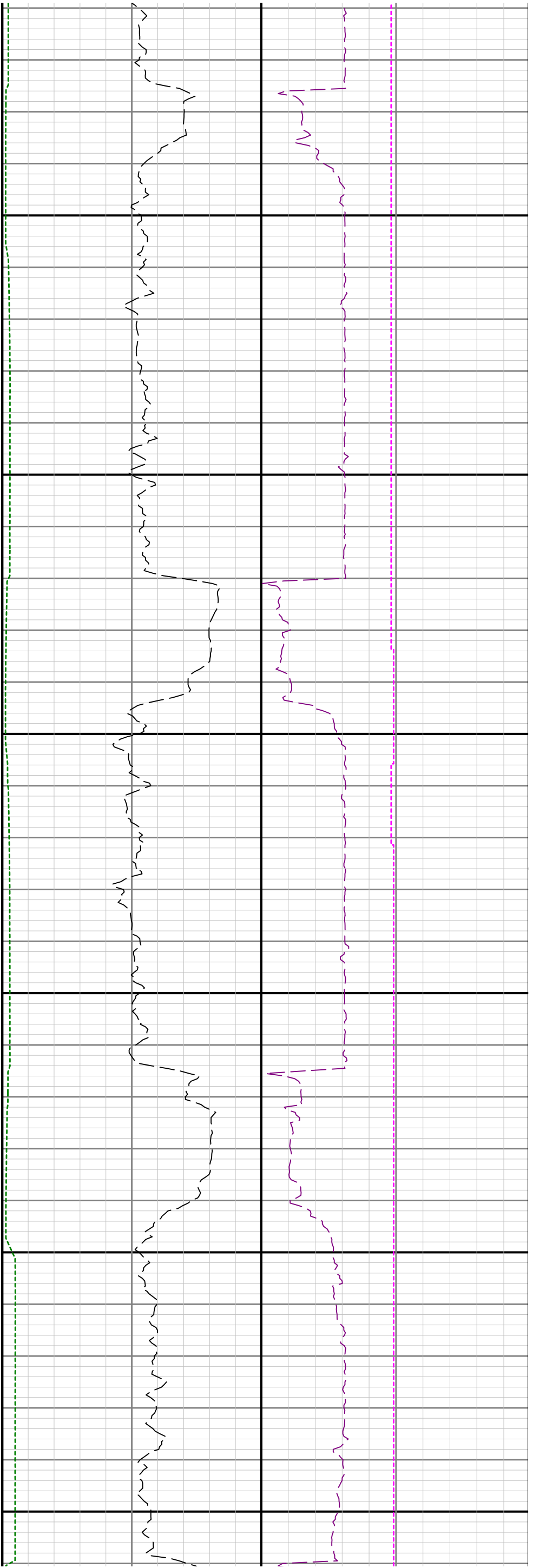








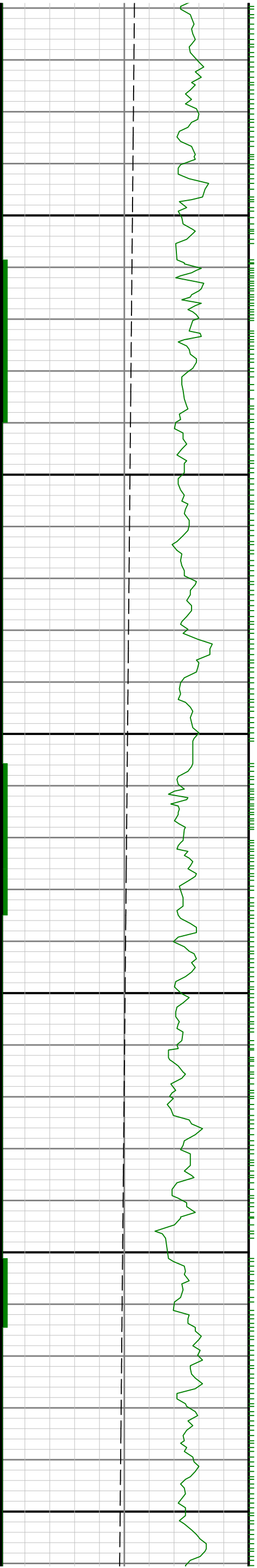


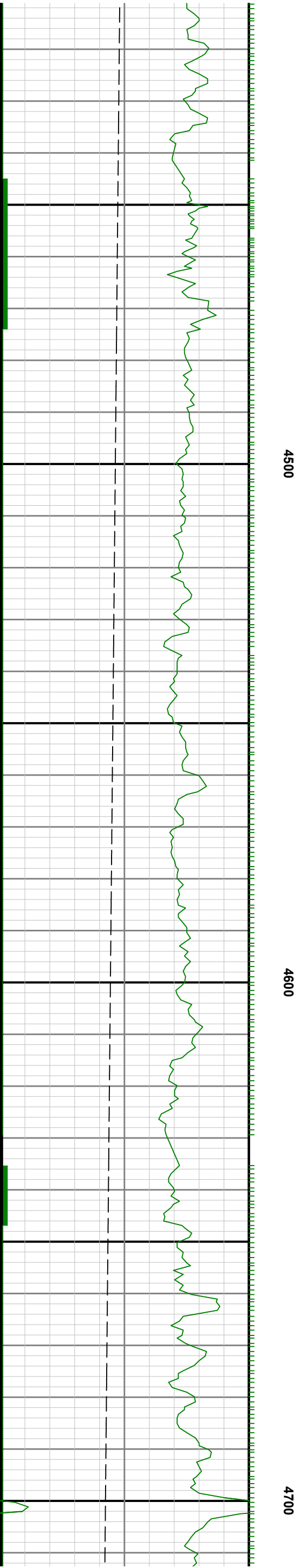
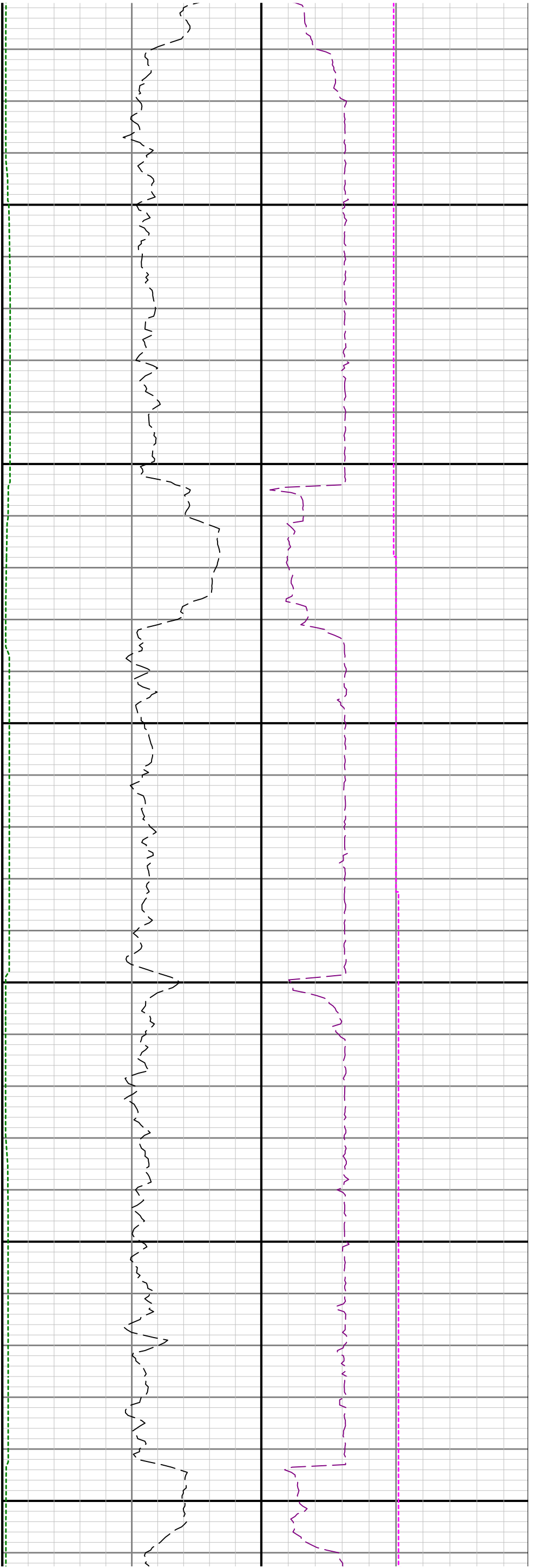


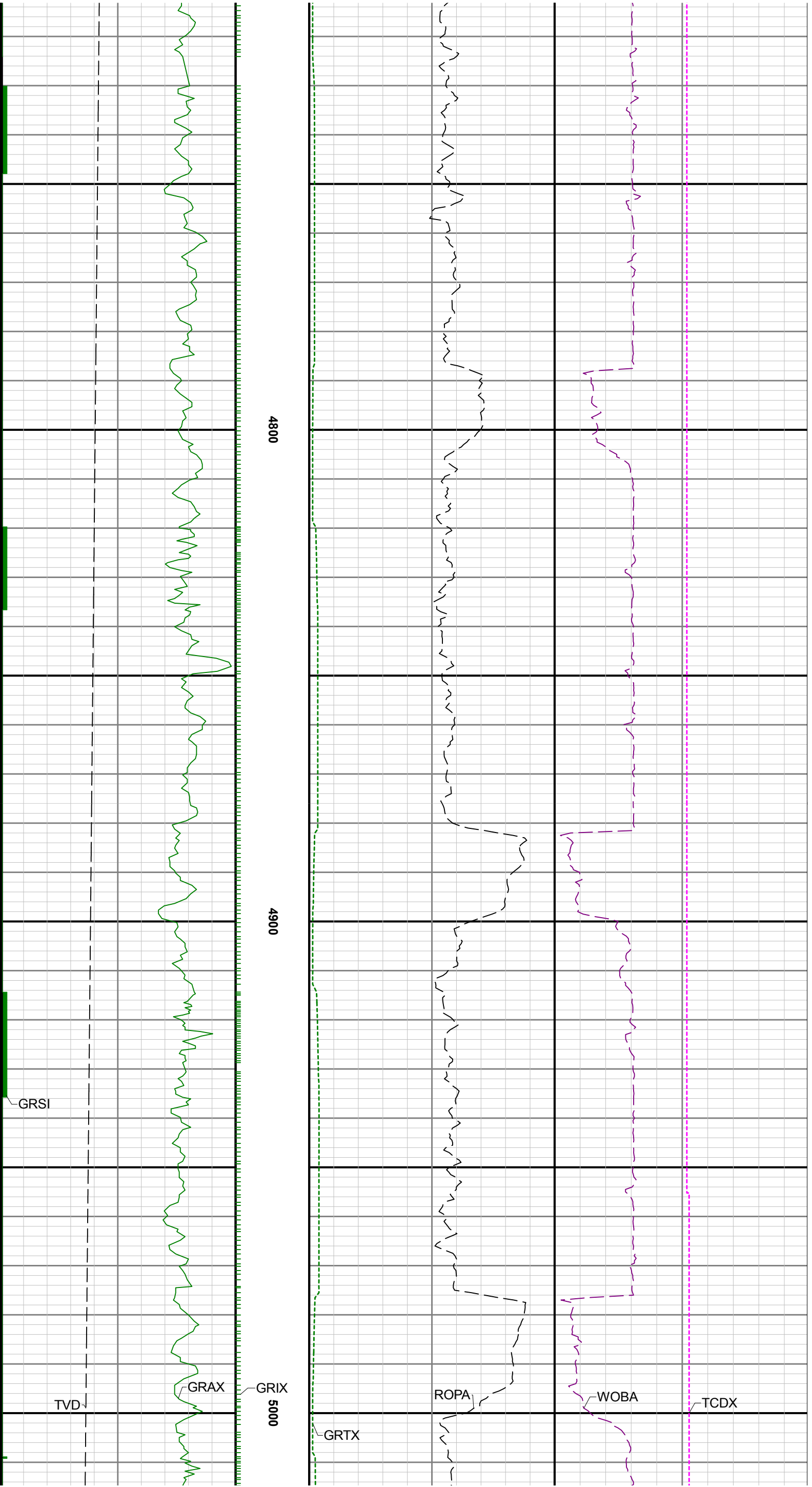
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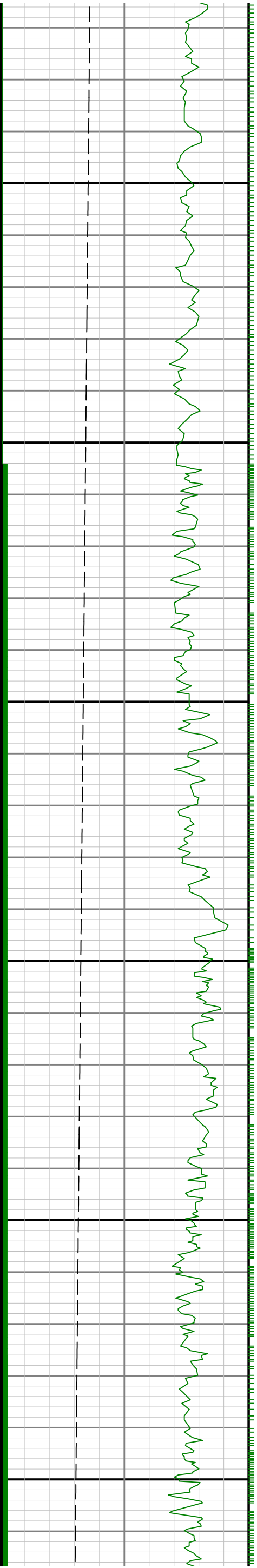


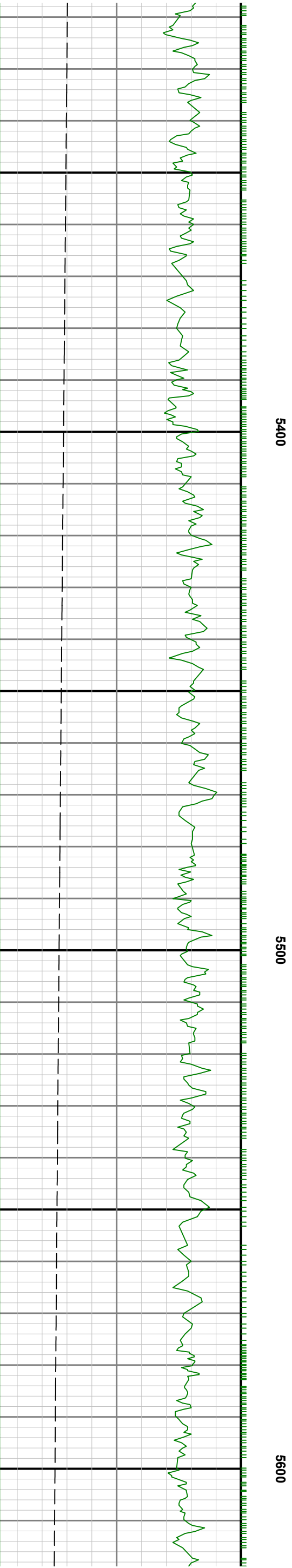
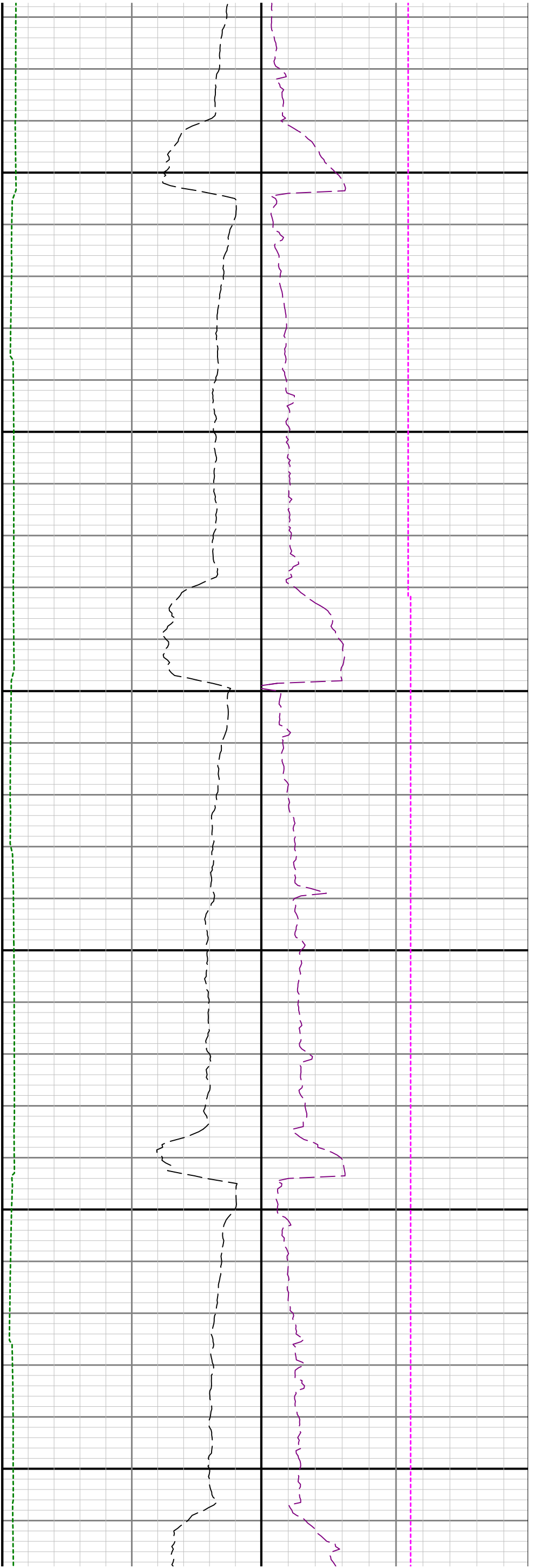


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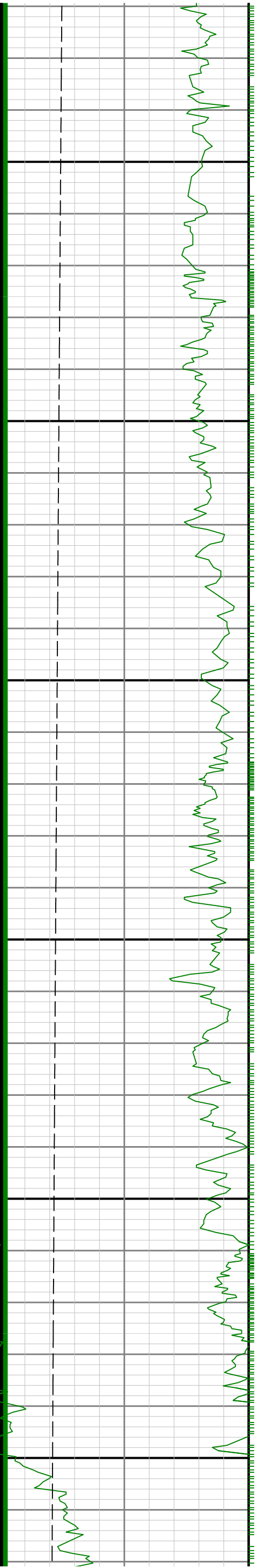


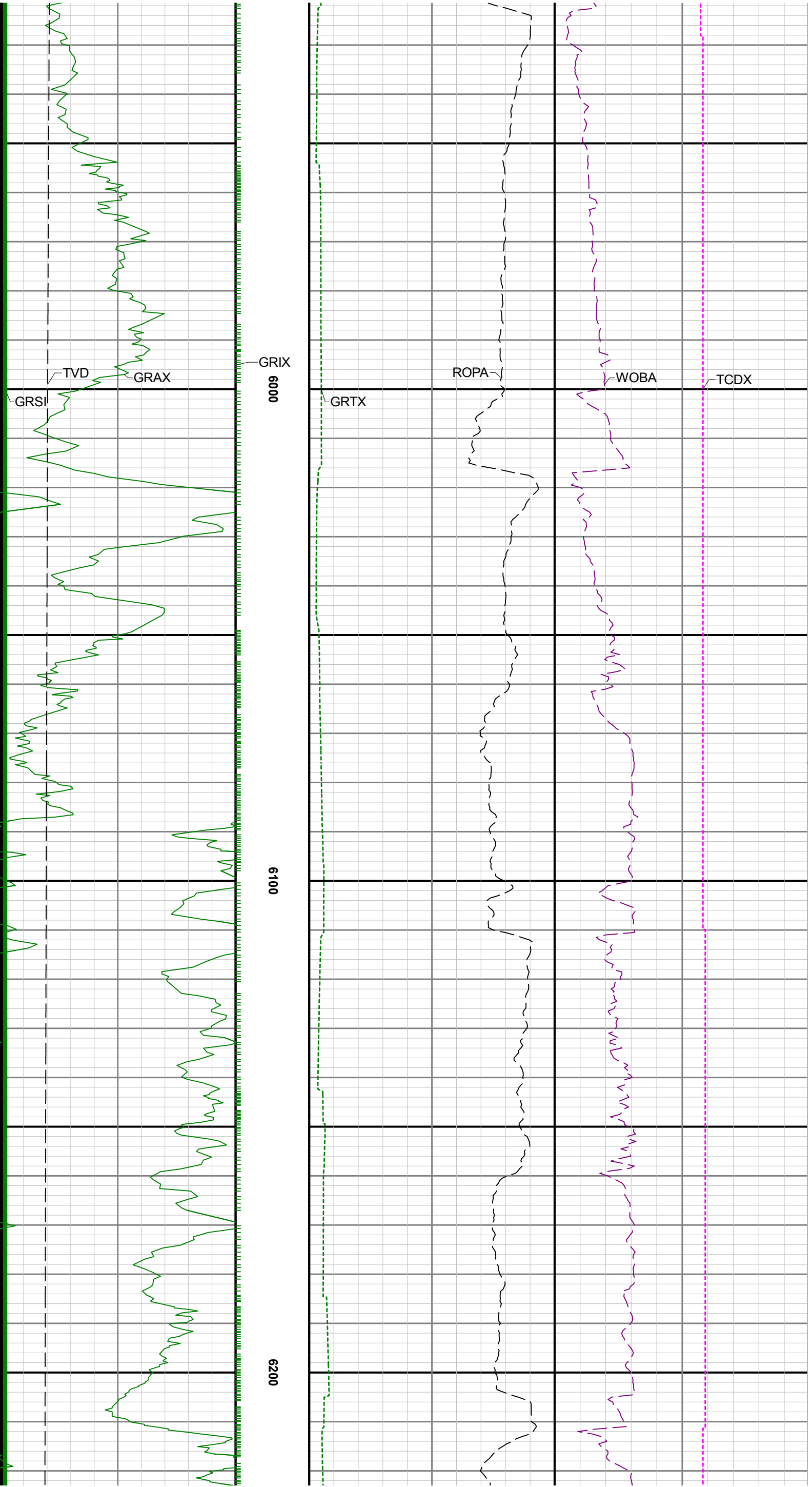


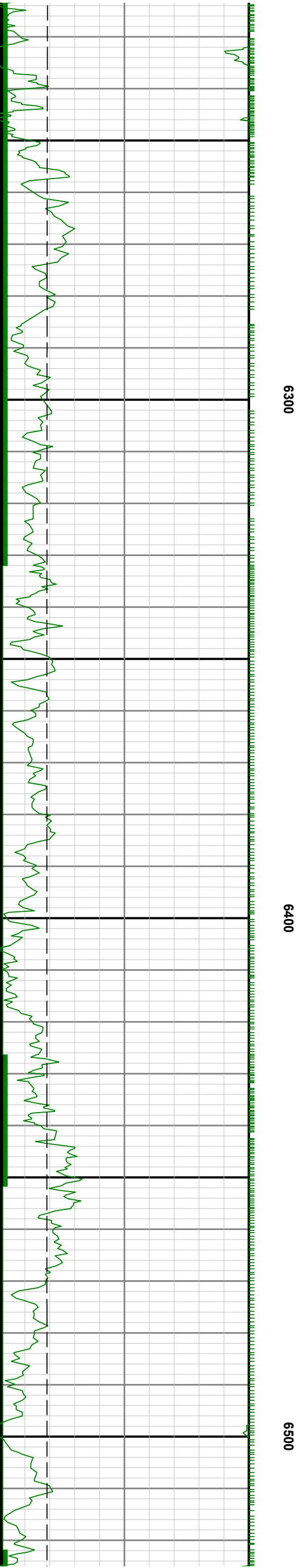
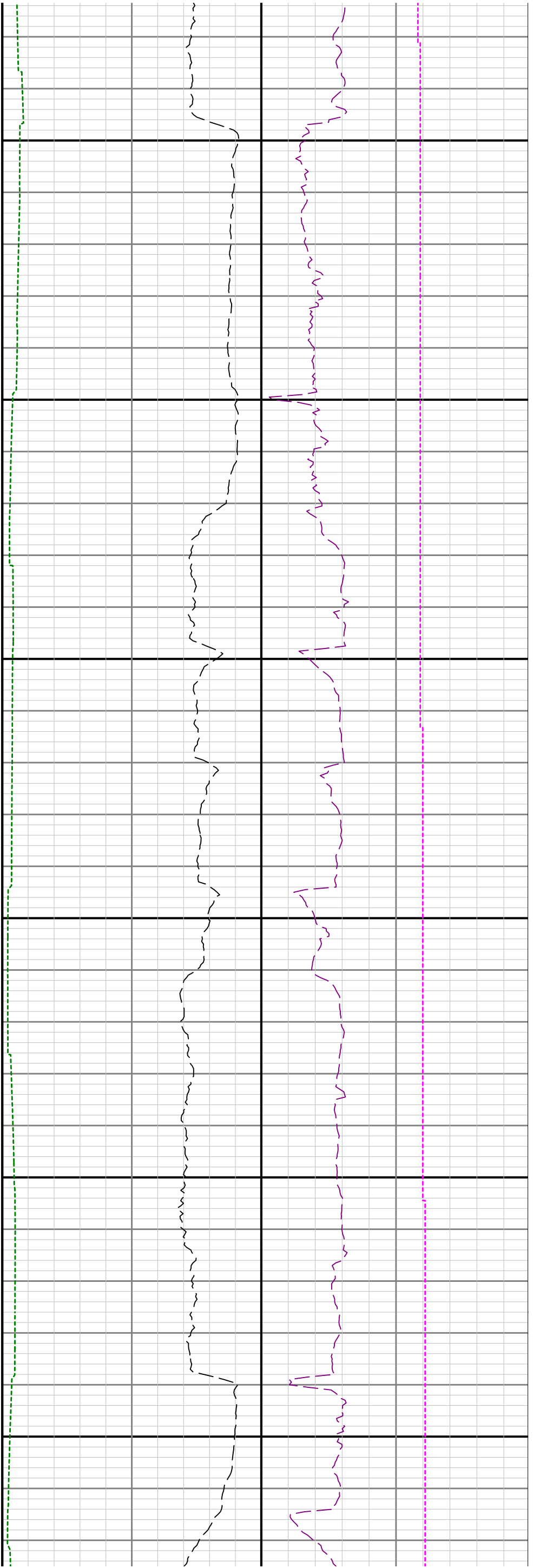
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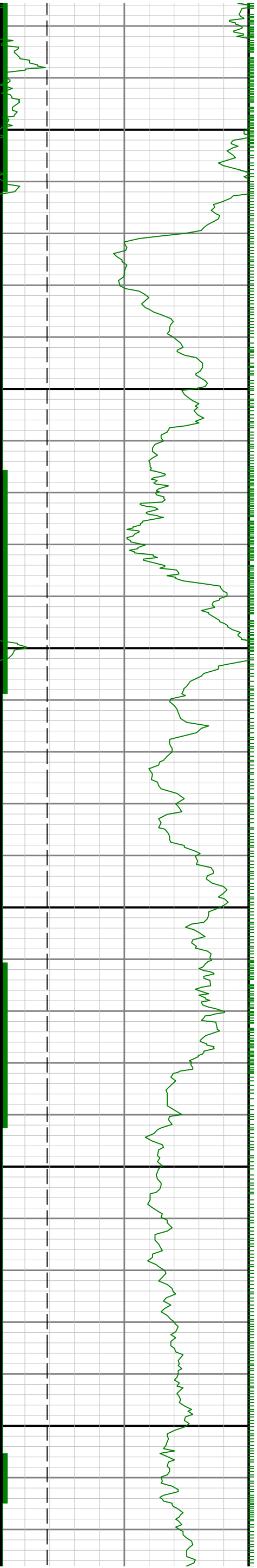
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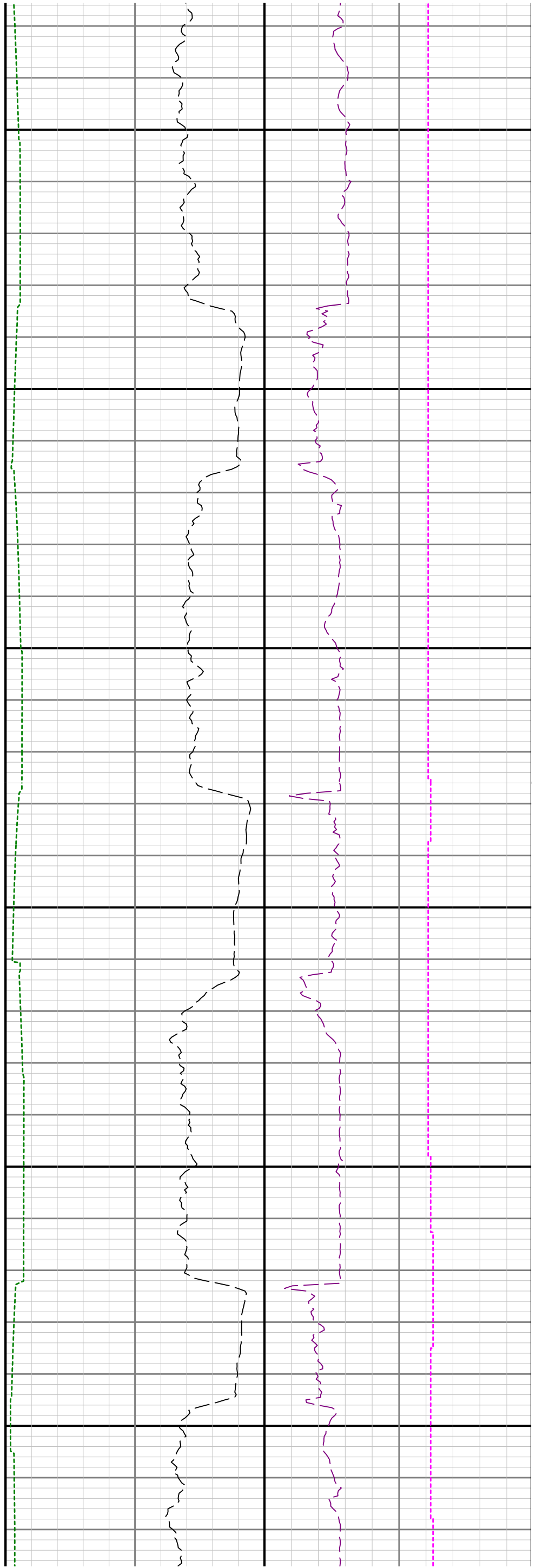


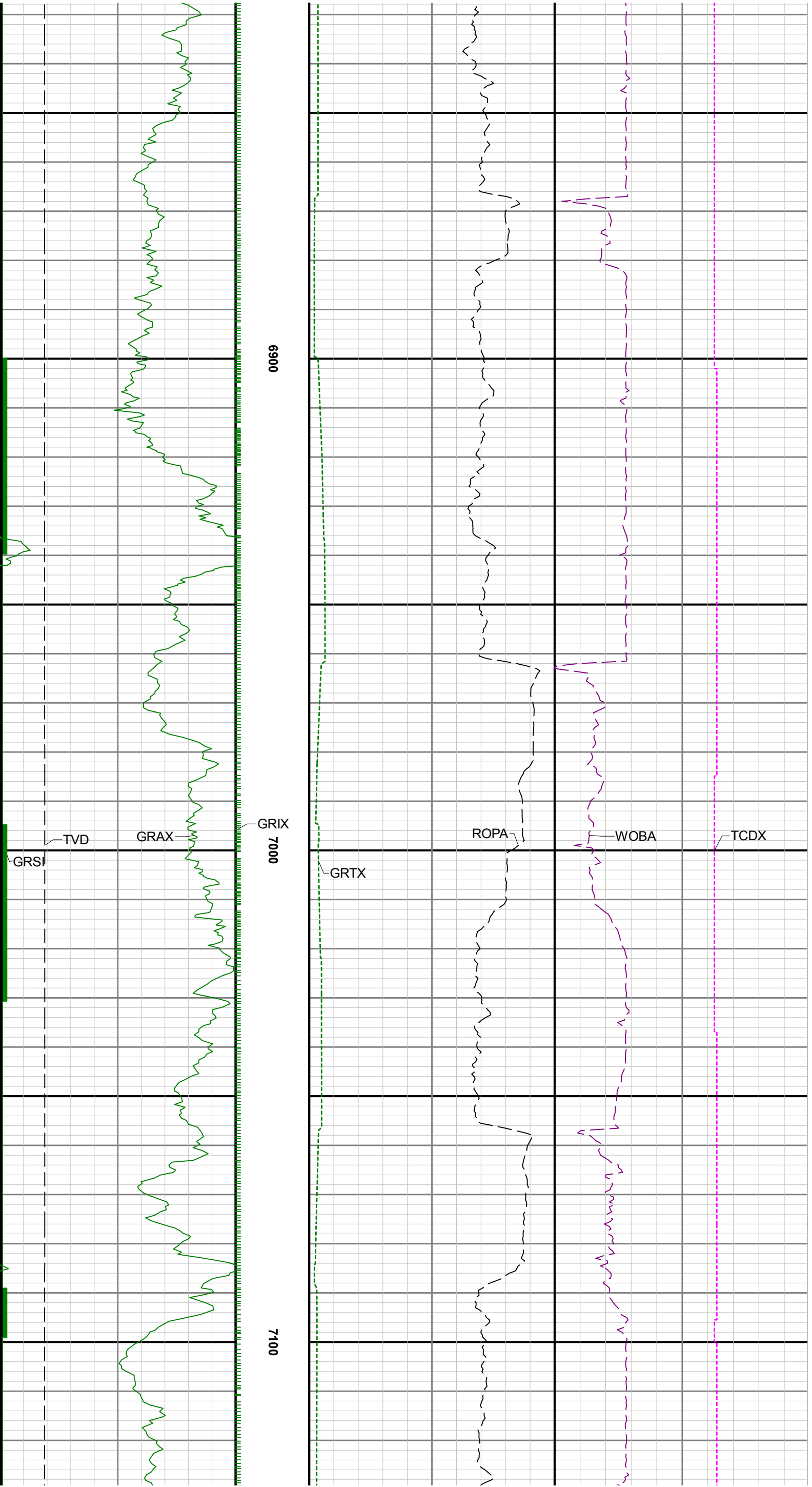


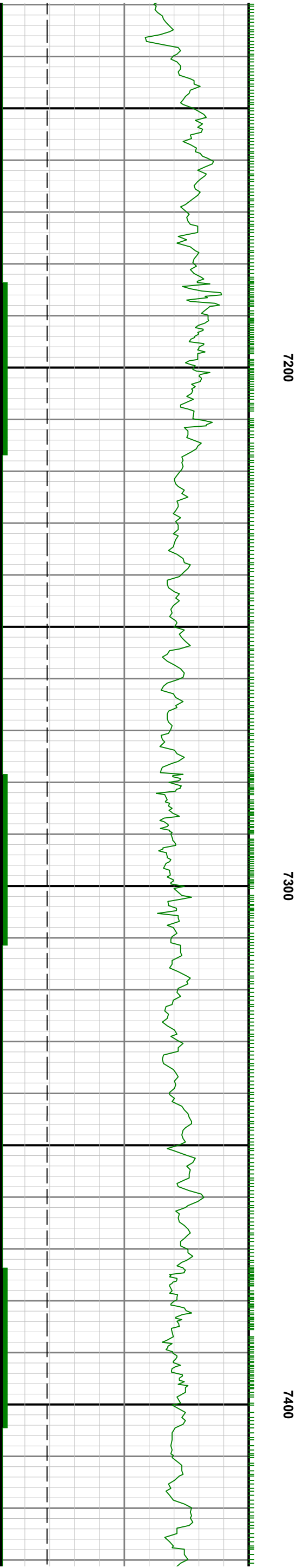
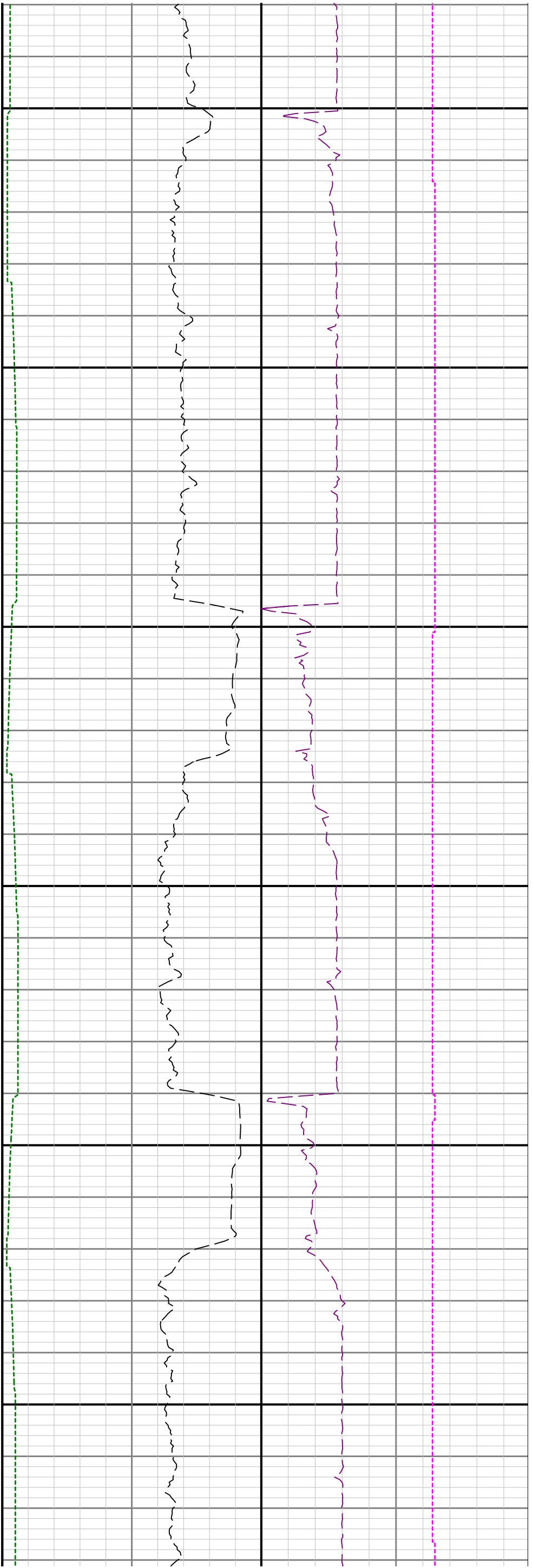
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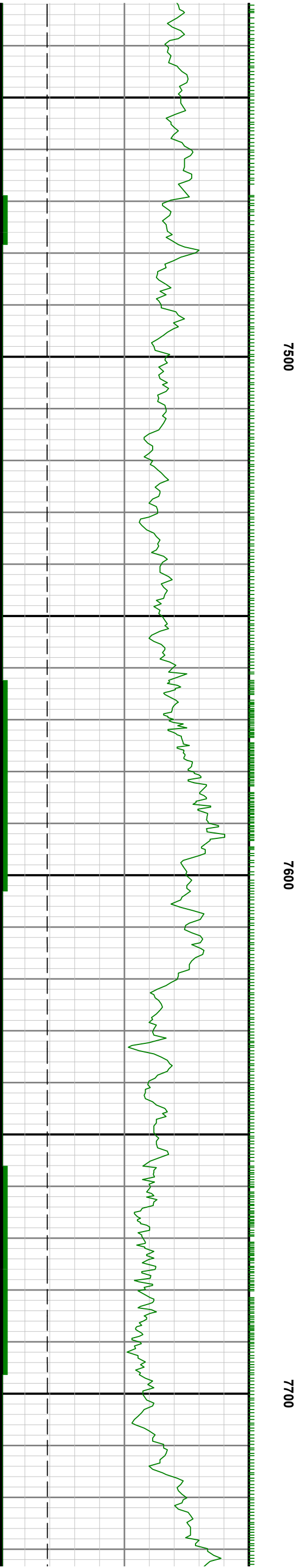
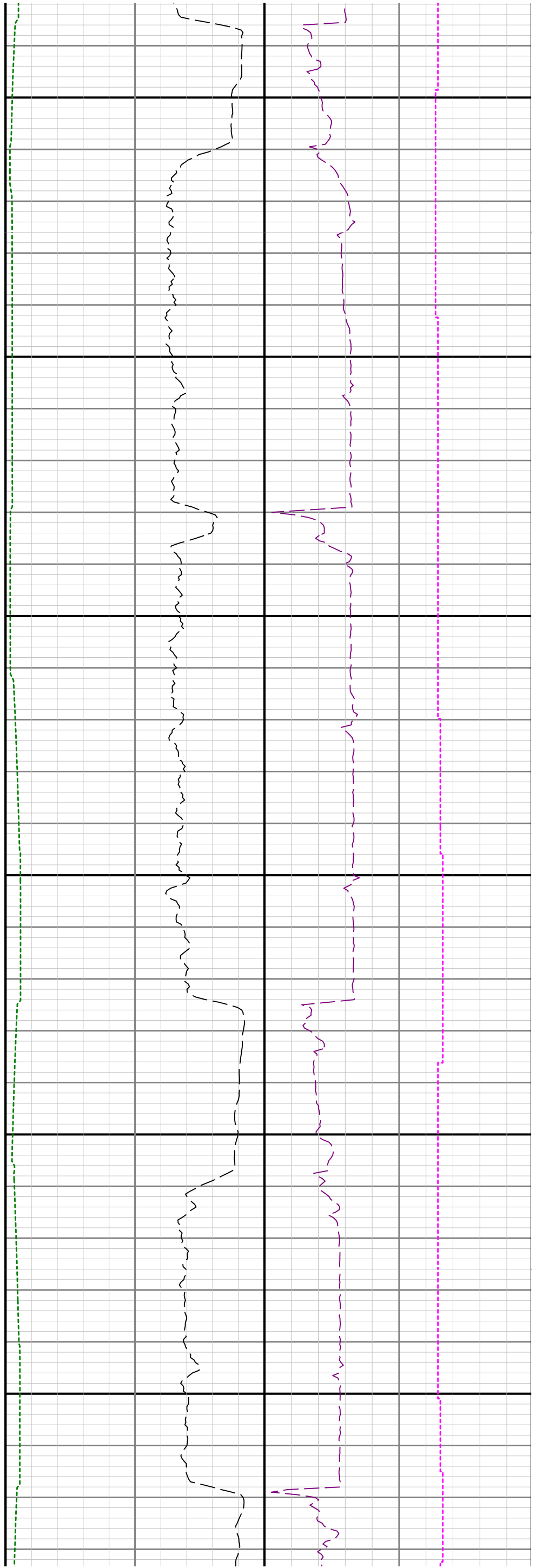
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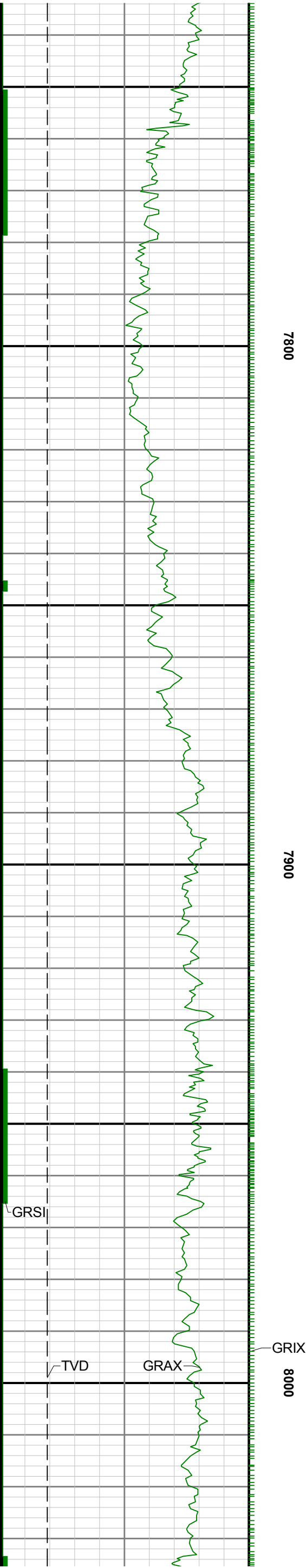
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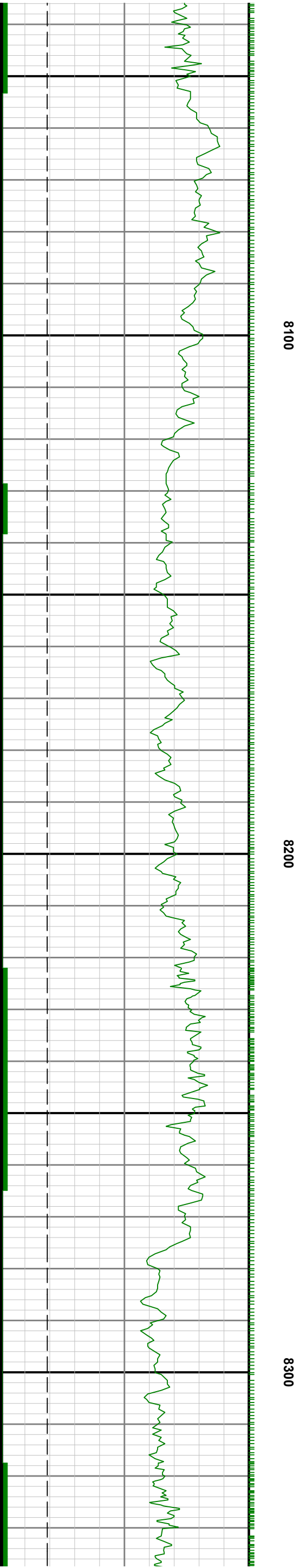
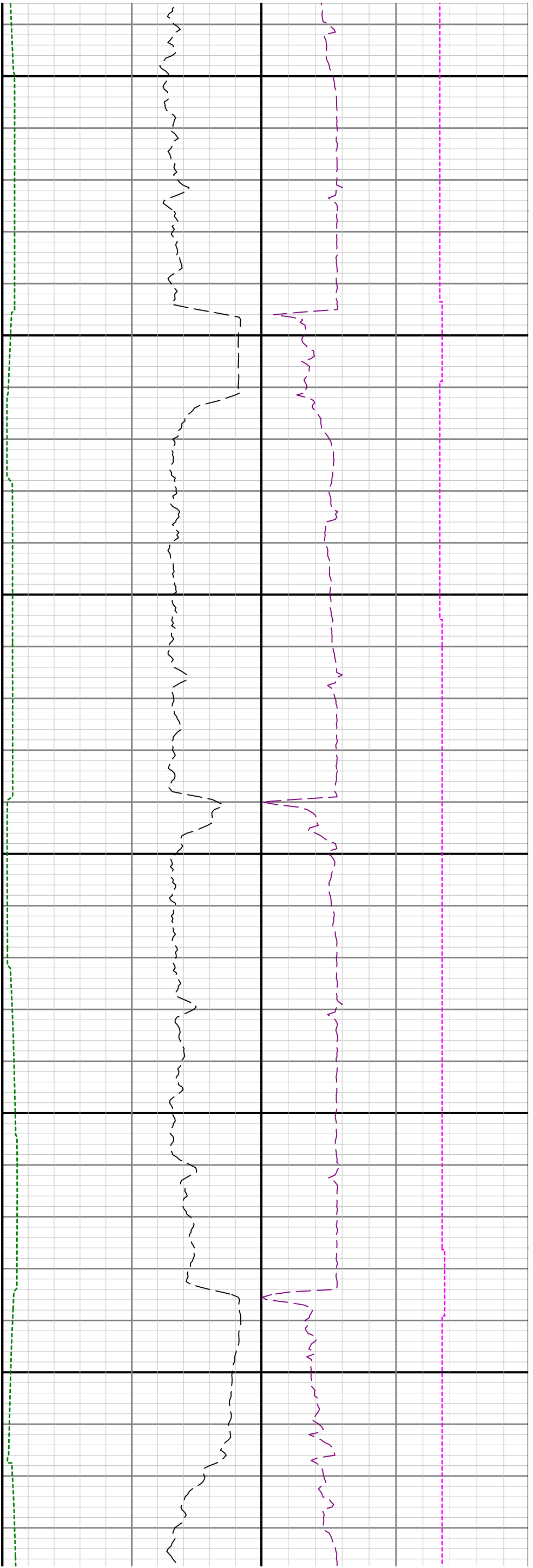


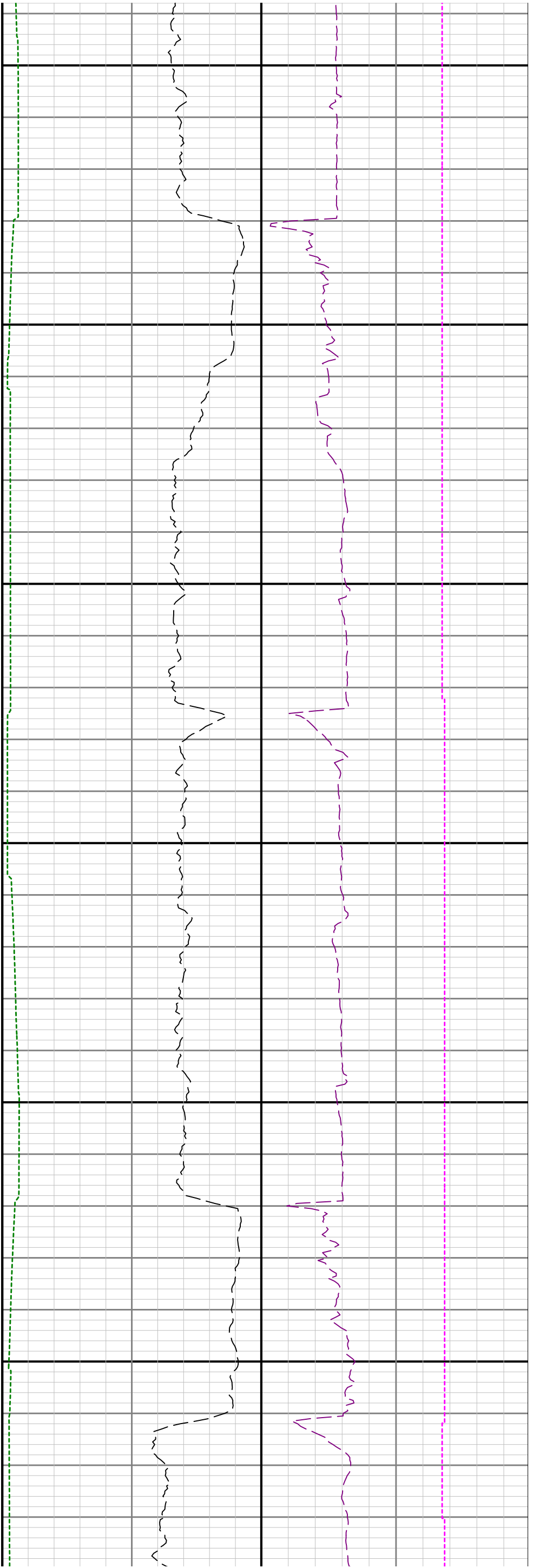








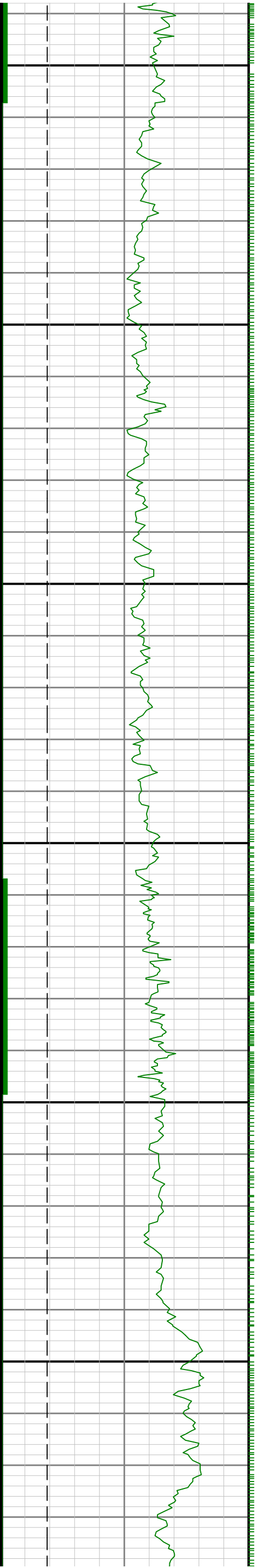


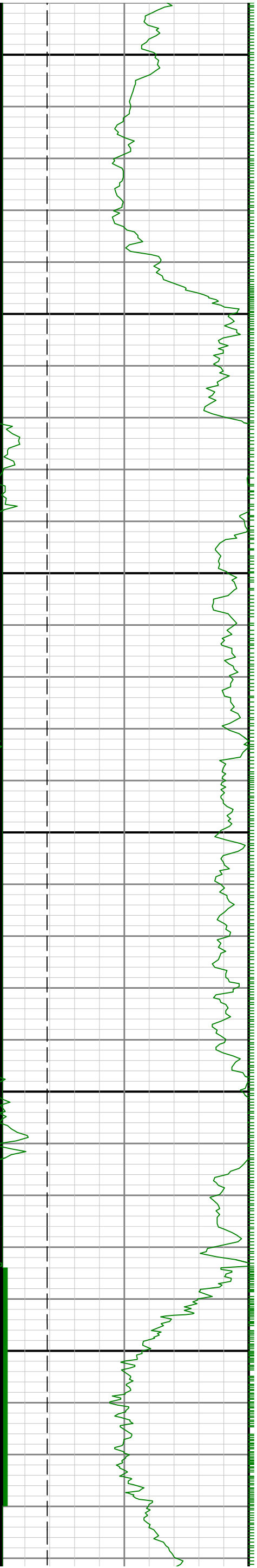


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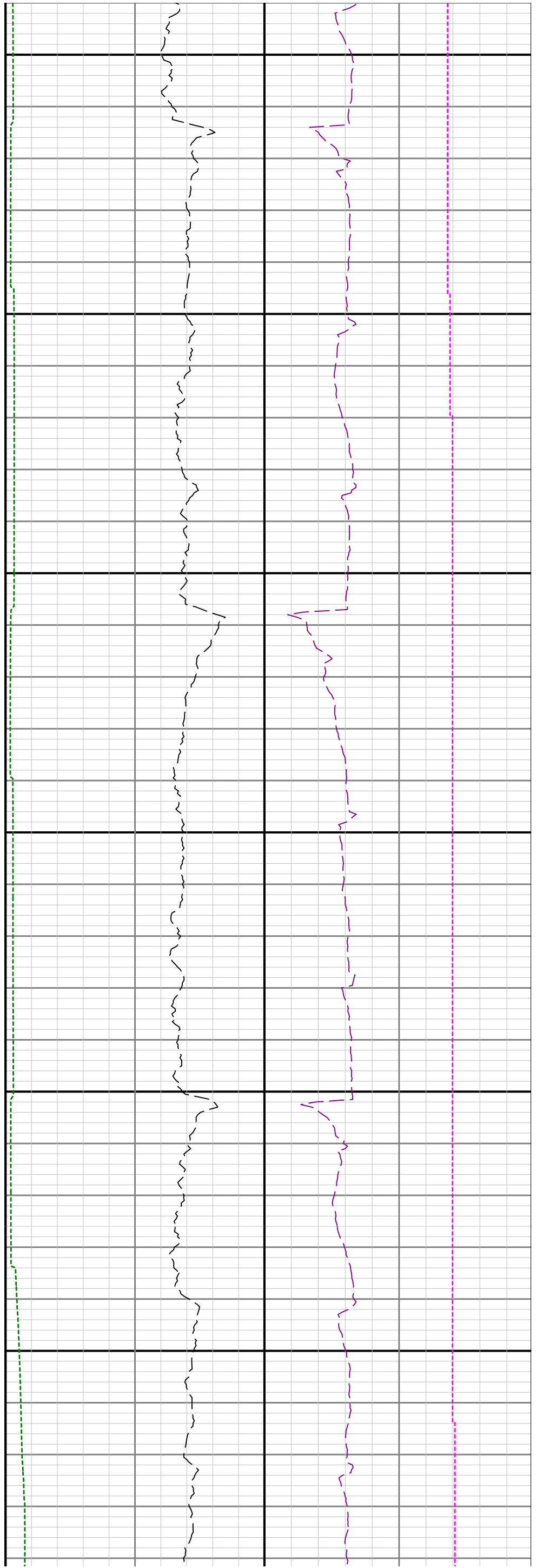


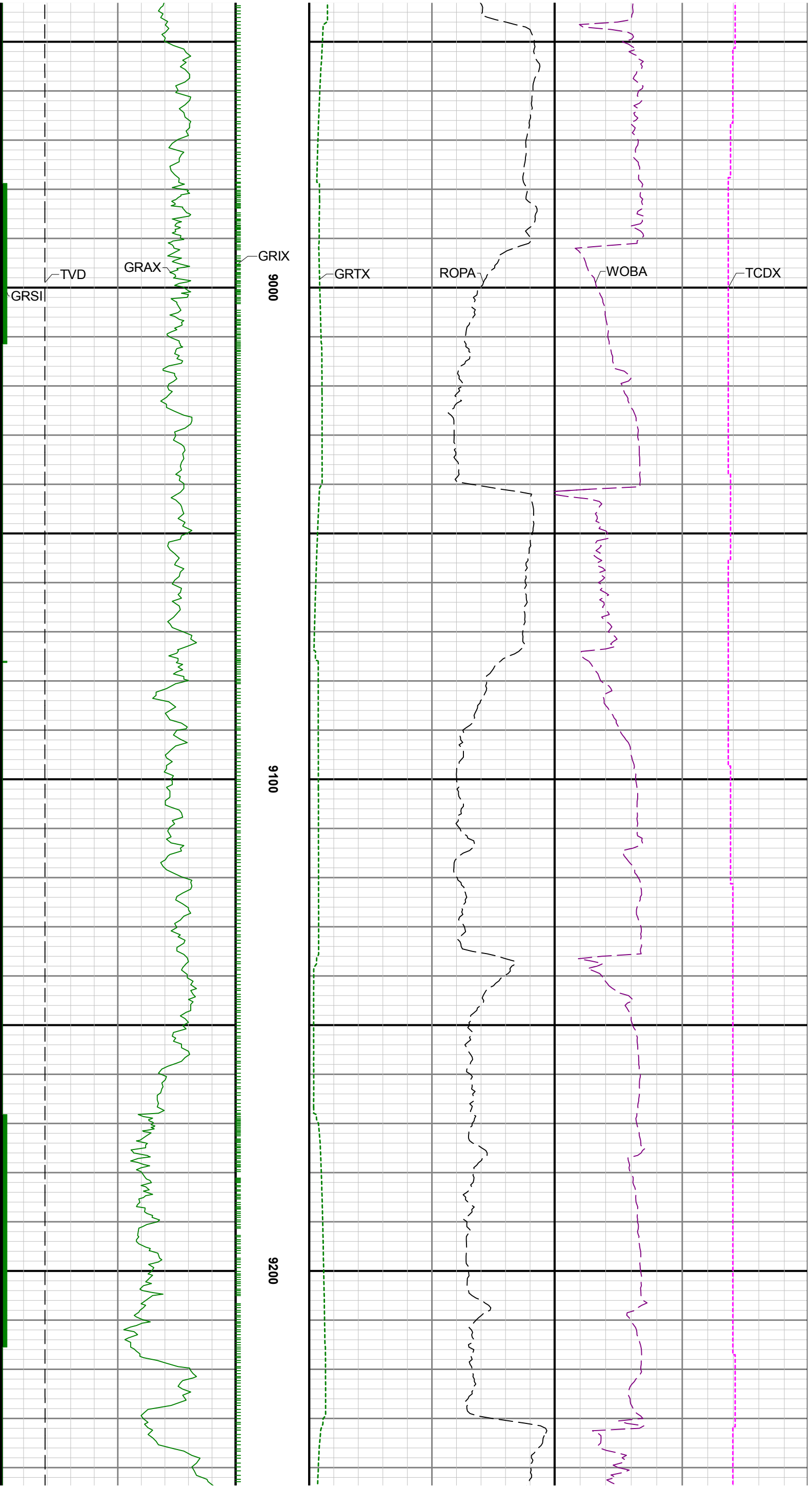


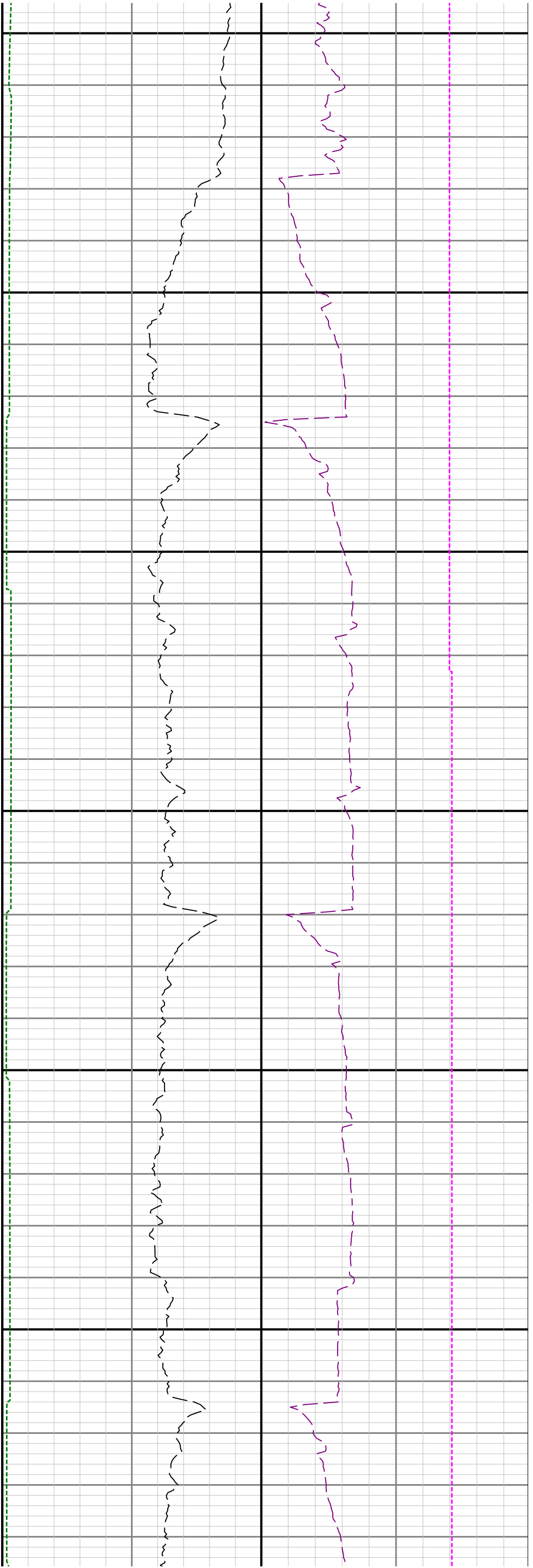
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