



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Burkhardt 15N-3HZ

Measured Depth

Field: Weld County (Kerr McGee)

County: Weld County State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 5' 10.122" N

Longitude: 104° 45' 38.473" W

Other Services:

SEC: 3 TWP: 1N RNG: 66W

Directional
VSS

API Number:
05-123-39181-00

Permanent Datum (P.D.): Ground Level Elevation: 5060.00 ft.

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

Depth Reference: Drillers Depth

Elevations:
KB: N/A
DF: 5076.00 ft.
GL: 5060.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6850.0 ft. Date From: 23/Sep/14 Dip Angle: 66.61° Azi Reference North: True

Bottom: 11782.0 ft. Date To: 29/Sep/14 Total Mag to Reference

Spud Date: 23/Sep/14 Field Strength: 52888.0 nT North Correction: 8.37°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1661.0 ft.	9.625 in.	36.00 lb/ft	Surface	1651.0 ft.
8.750 in.	1661.0 ft.	7723.0 ft.	7.000 in.	29.00 lb/ft	Surface	7684.0 ft.
6.125 in.	7723.0 ft.	11782.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	11782.0 ft.	13.500 in.	1661.0 ft.	0.0° / 0.0°	0.6° / 179.0°
			8.750 in.	6062.0 ft.	0.5° / 166.3°	90.1° / 182.4°
			6.125 in.	4059.0 ft.	91.3° / 182.8°	91.9° / 180.2°
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig:	Xtreme 6	/ Xtreme Coil Drilling Crp
PAIS	6.4.1.34	Job No:	6665864	
		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 (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	2	8.750	PDC	6.000	Steerable	6850.0	7130.0	1660.0	7176.0	27/Sep/2014 06:18	27/Sep/2014 09:42	26.1
2	2	3	8.750	PDC	3.600	Steerable	7131.0	7685.0	7176.0	7723.0	28/Sep/2014 00:23	28/Sep/2014 08:22	7.7
3	3	4	6.125	PDC	3.600	Steerable	7685.0	11732.0	7723.0	11782.0	29/Sep/2014 15:48	01/Oct/2014 02:03	33.5

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Stephen Gray	25/Sep/2014	02/Oct/2014	Matt Delmore	23/Sep/2014	25/Sep/2014	Jake Miller	23/Sep/2014	02/Oct/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+ (%)
23/Sep/2014	18:00	1	1384.0	Water Based	8.4	29	9.0	0.0	01 / 99	Active Mud Pit	1800	N/A
25/Sep/2014	10:30	1	1661.0	Water Based	8.5	30	8.9	0.0	01 / 98	Active Mud Pit	2000	N/A
26/Sep/2014	23:00	1	6153.0	Water Based	9.7	41	9.4	0.0	02 / 92	Active Mud Pit	3500	N/A
27/Sep/2014	22:00	1	7153.0	Water Based	10.3	49	9.1	0.0	02 / 89	Active Mud Pit	3300	N/A
29/Sep/2014	22:30	2	8462.0	Water Based	9.6	38	9.4	0.0	03 / 92	Active Mud Pit	2900	N/A
30/Sep/2014	22:00	3	11343.0	Water Based	9.8	40	9.5	0.0	02 / 92	Active Mud Pit	2900	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.)
2	DIR	12546374	Directional	40.48	6.750	3.250
2	SRIG	12600745	Gamma	37.11	6.750	3.250
3	DIR	12323370	Directional	52.35	4.750	2.750
3	SRIG	12722372	Gamma	48.97	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 1661 to 6850 ft. MD (1679.95 to 6798.04 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6850 to 7176 ft. MD (6798.04 to 7105.62 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
2.) Baker Hughes LWD run 2 utilized 6 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7176 to 7723 ft. MD (7105.62 to 7326.51 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
3.) Baker Hughes LWD run 3 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7723 to 11782 ft. MD (7326.51 to 7330.11 ft. TVD) behind an 6 1/8 inch bit and steerable assembly.
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.

5.) 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	7155	8.750	2	The interval from 7131 to 7177 ft. MD (7066.32 to 7106.47 ft. TVD) was logged up to 27 hours after being drilled due to a trip out of the hole to change out motor.
2	7695	8.750	2	The interval from 7685 to 7713 ft. MD (7326.70 to 7326.58 ft. TVD) was logged up to 31.4 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly, run intermediate casing, cementing operations, and to pick up the lateral assembly.
3	11745	6.125	3	The interval from 11742 to 11782 ft. MD (7332.04 to 7330.11 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.

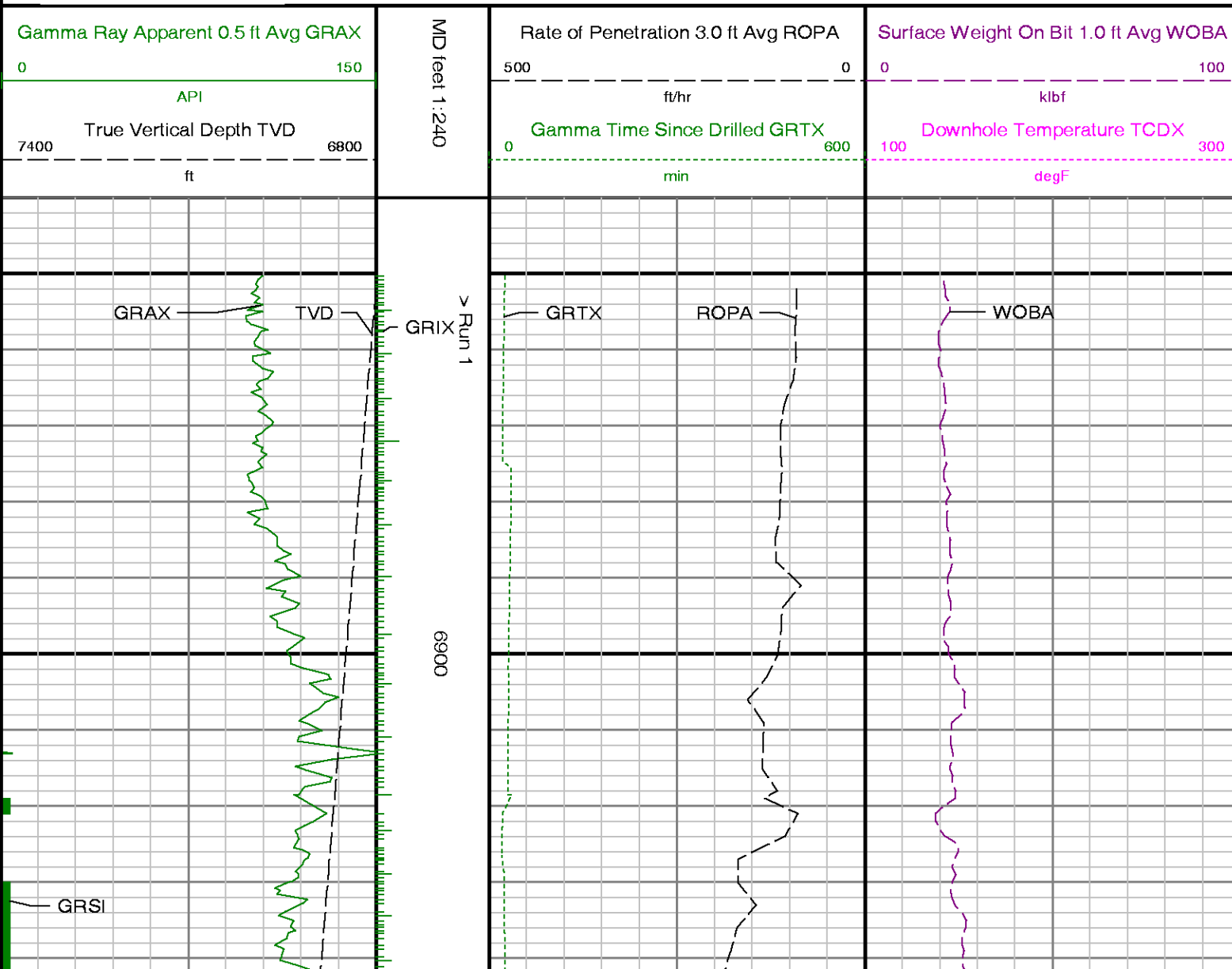


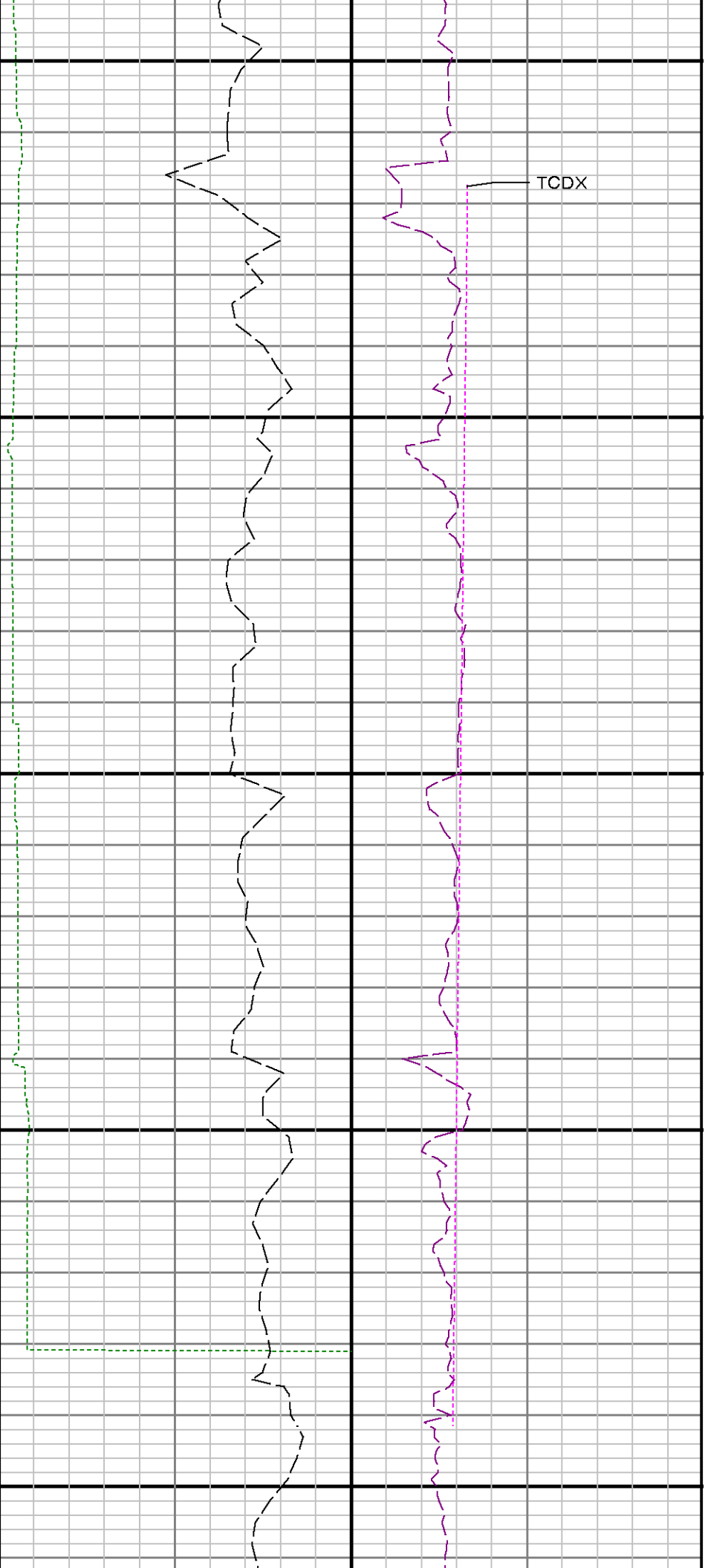
Company : Anadarko

Well : Burkhardt 15N-3HZ

Interval : 6840.00 - 11795.00 feet

Created : 01/Oct/2014 11:20:12 AM

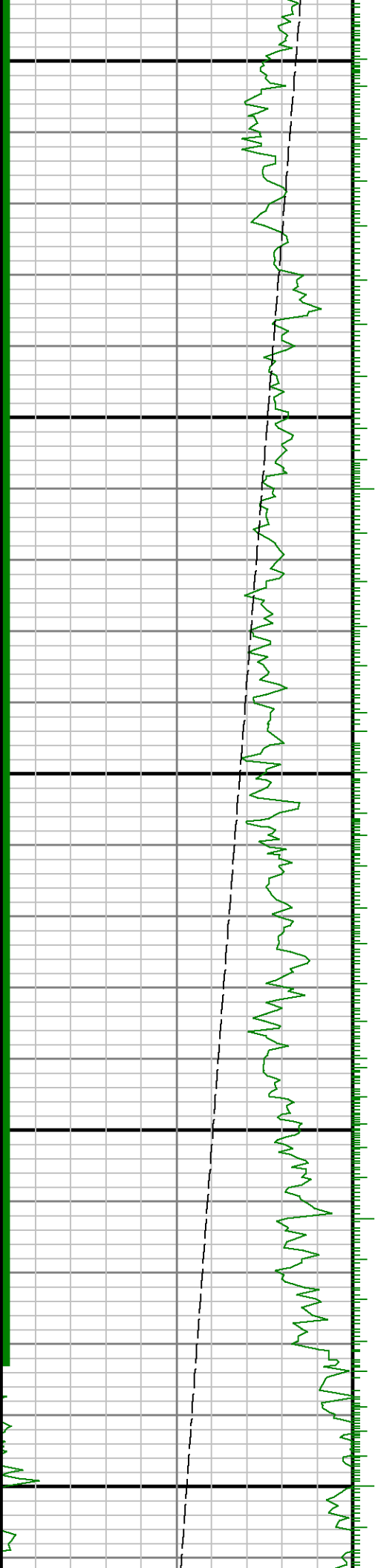




7000

7100

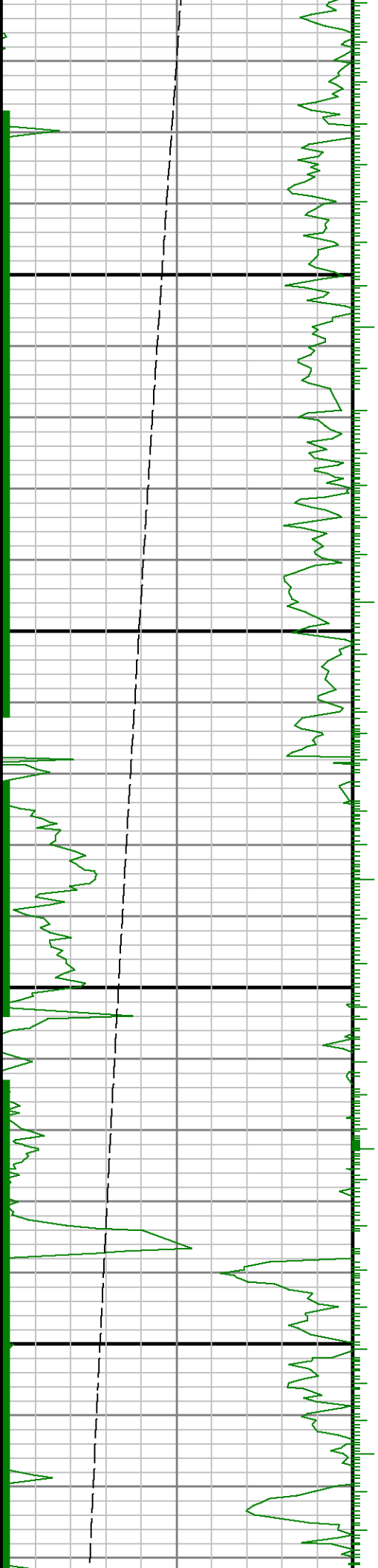
Run 1 < > Run 2

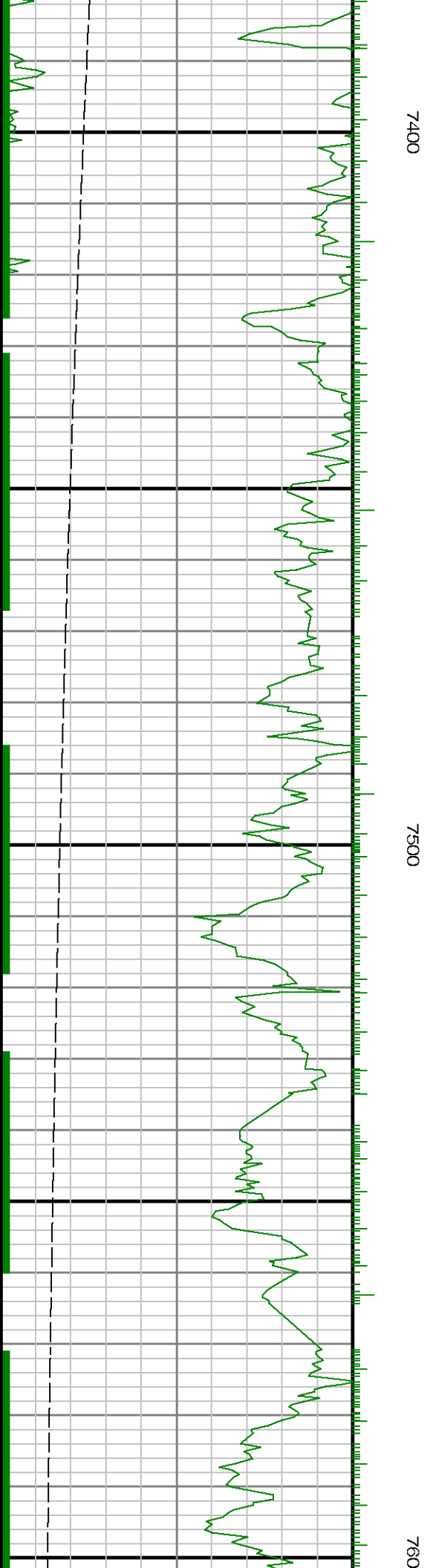




7200

7300



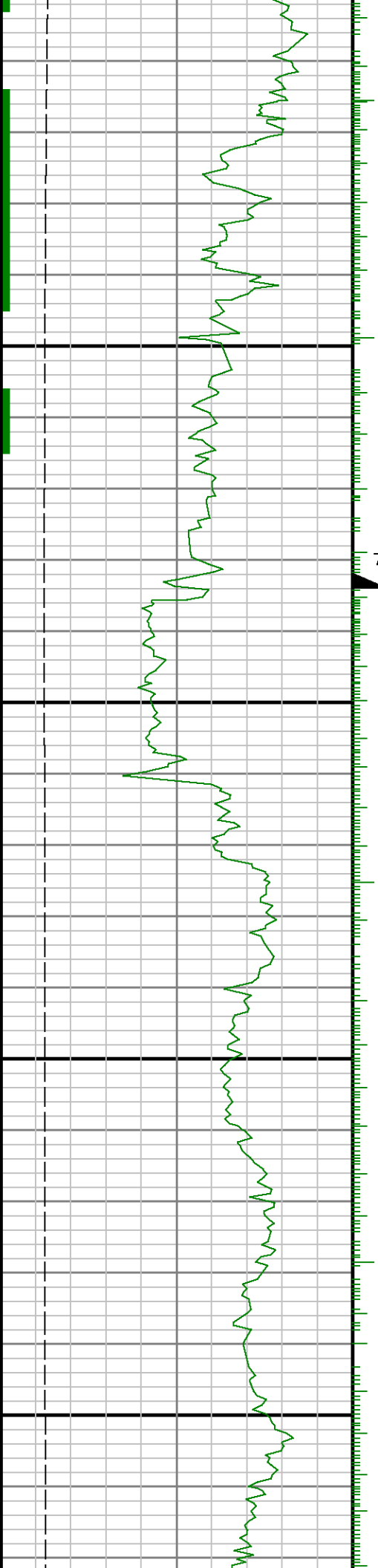


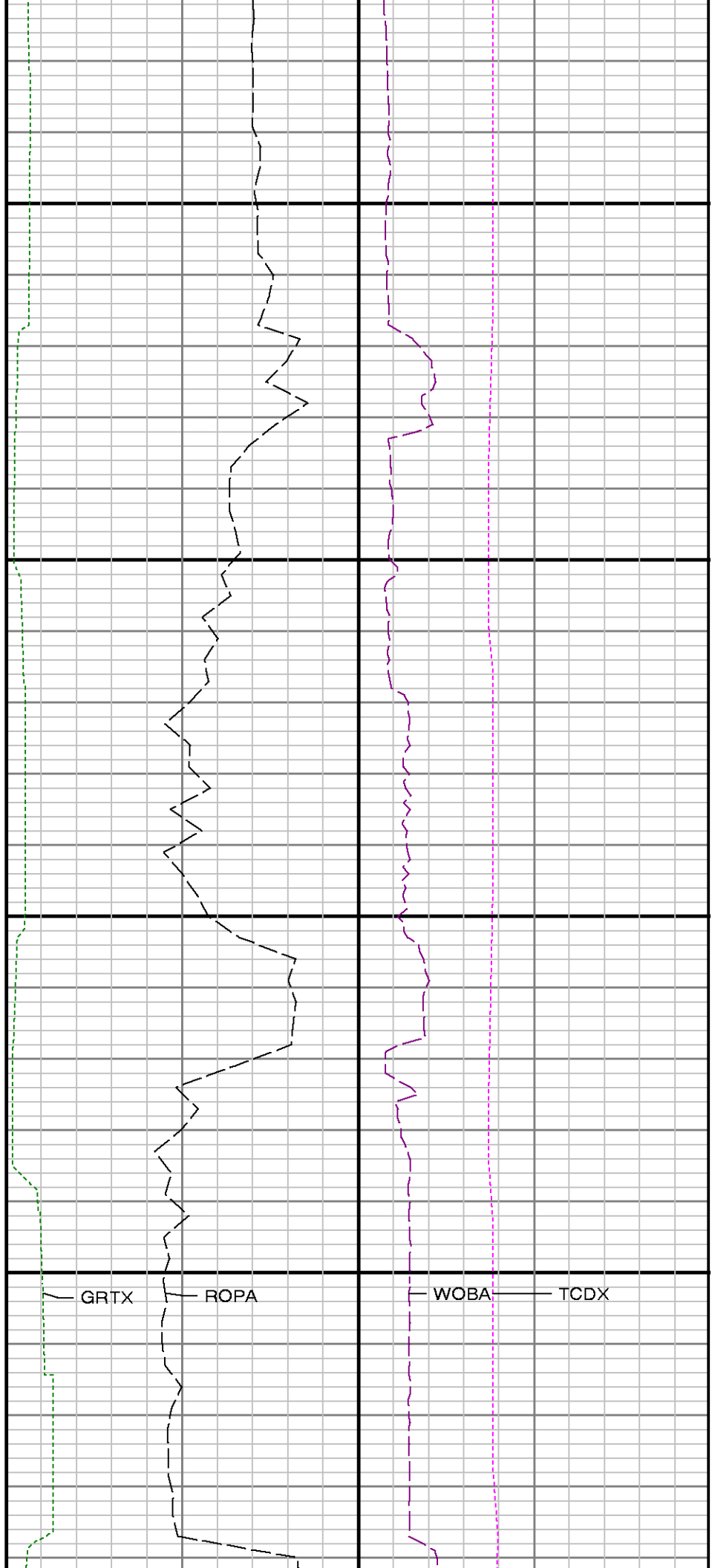
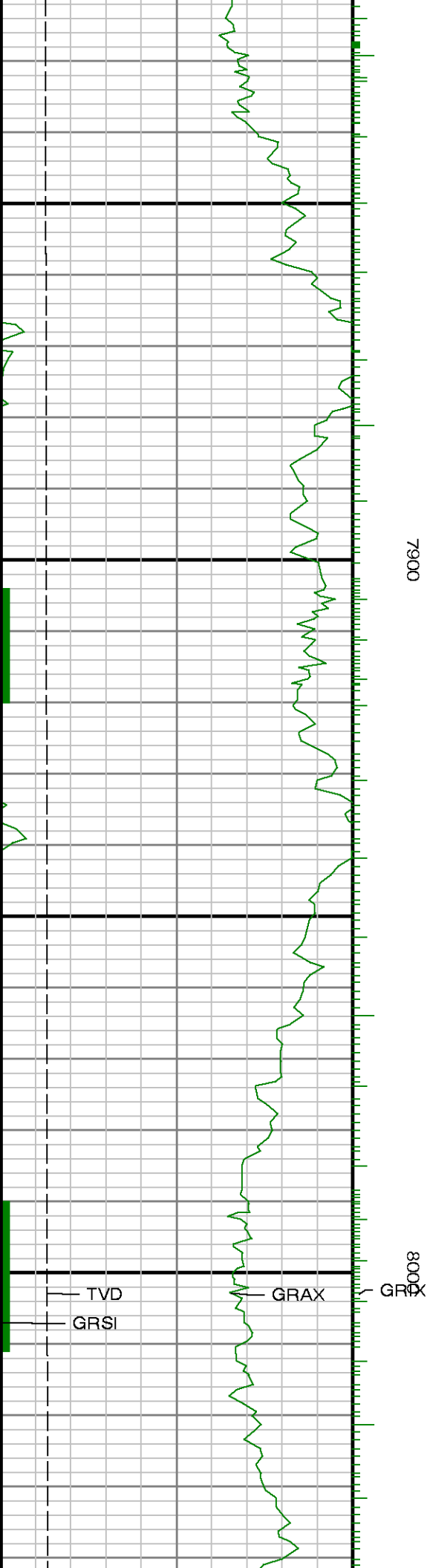


7" Casing

Run 2 < > Run 3
7700

7800

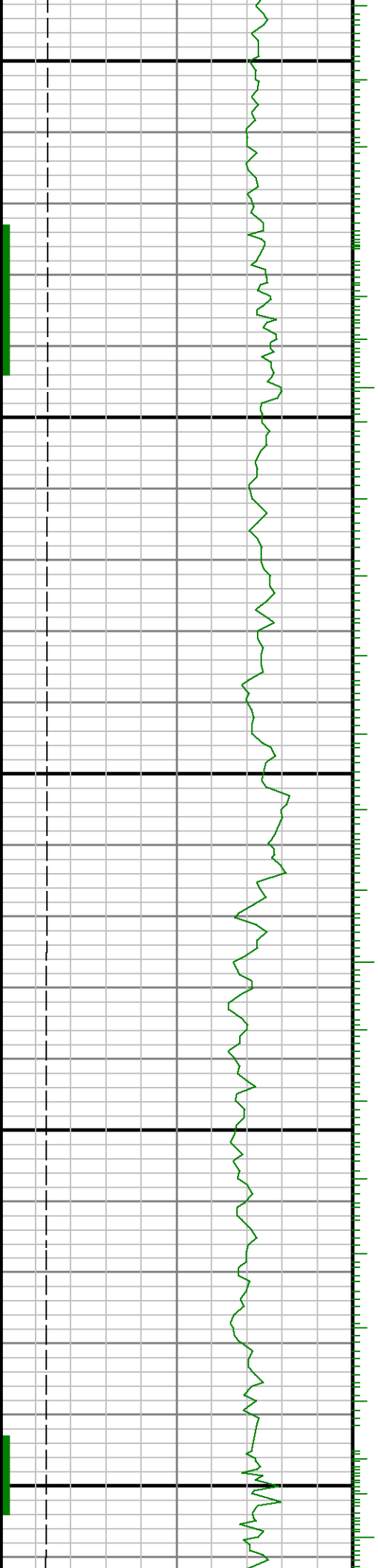


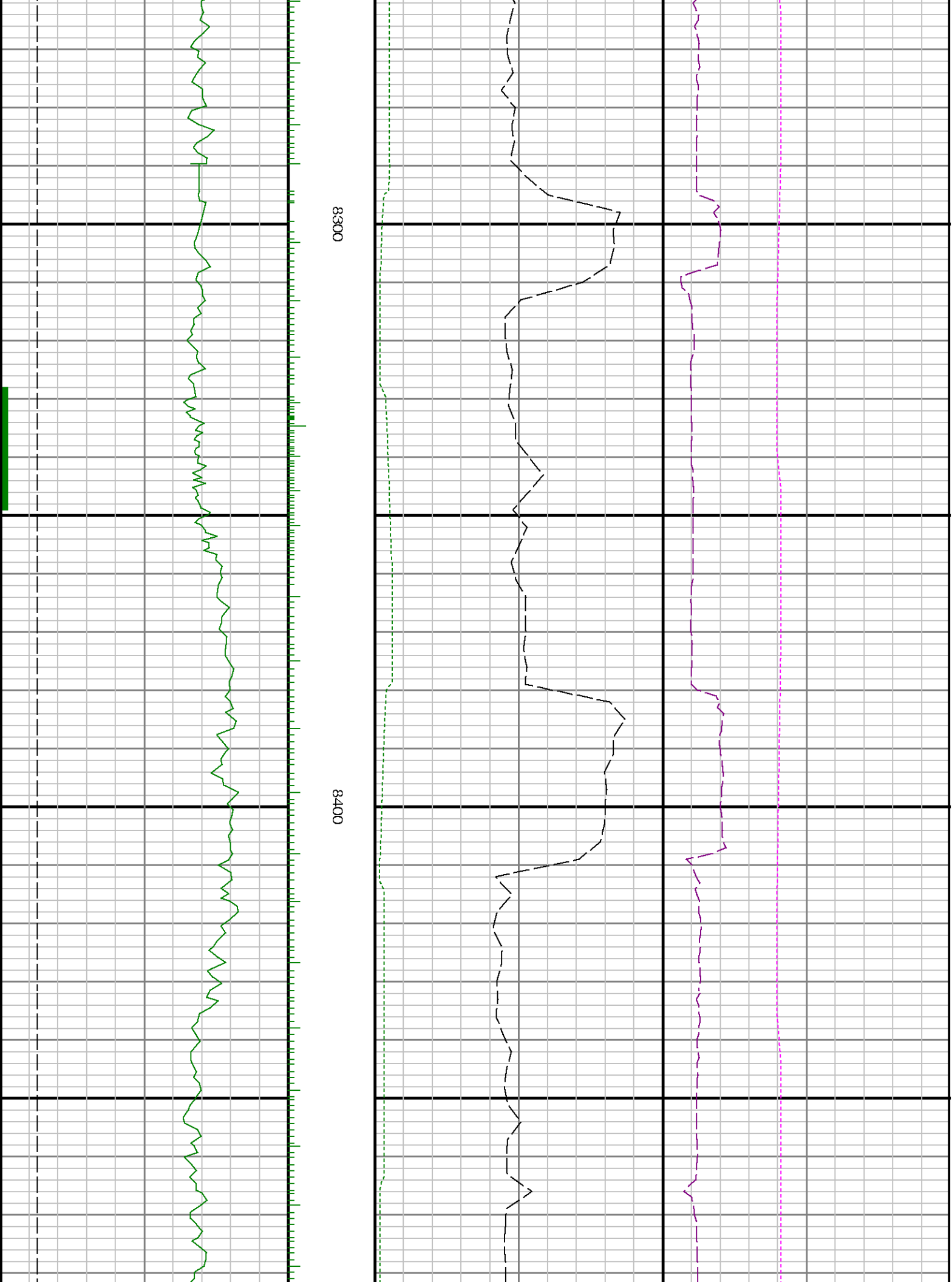


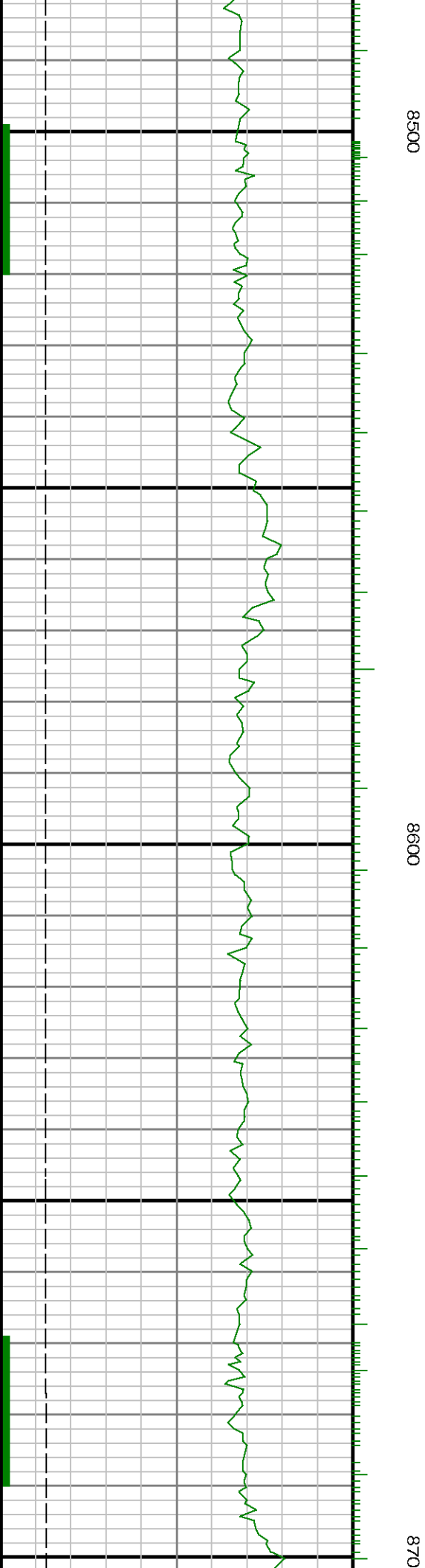


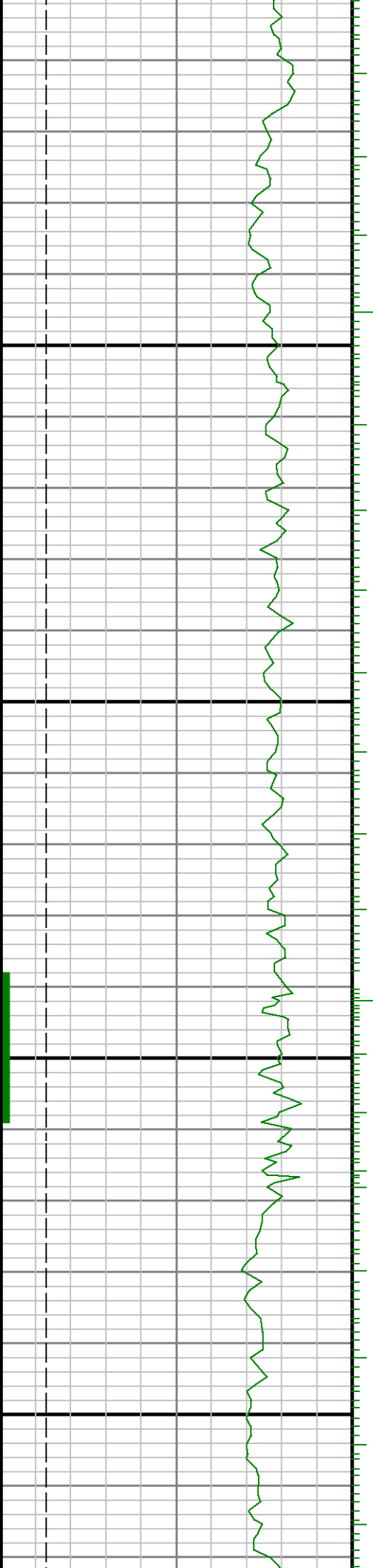
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8200







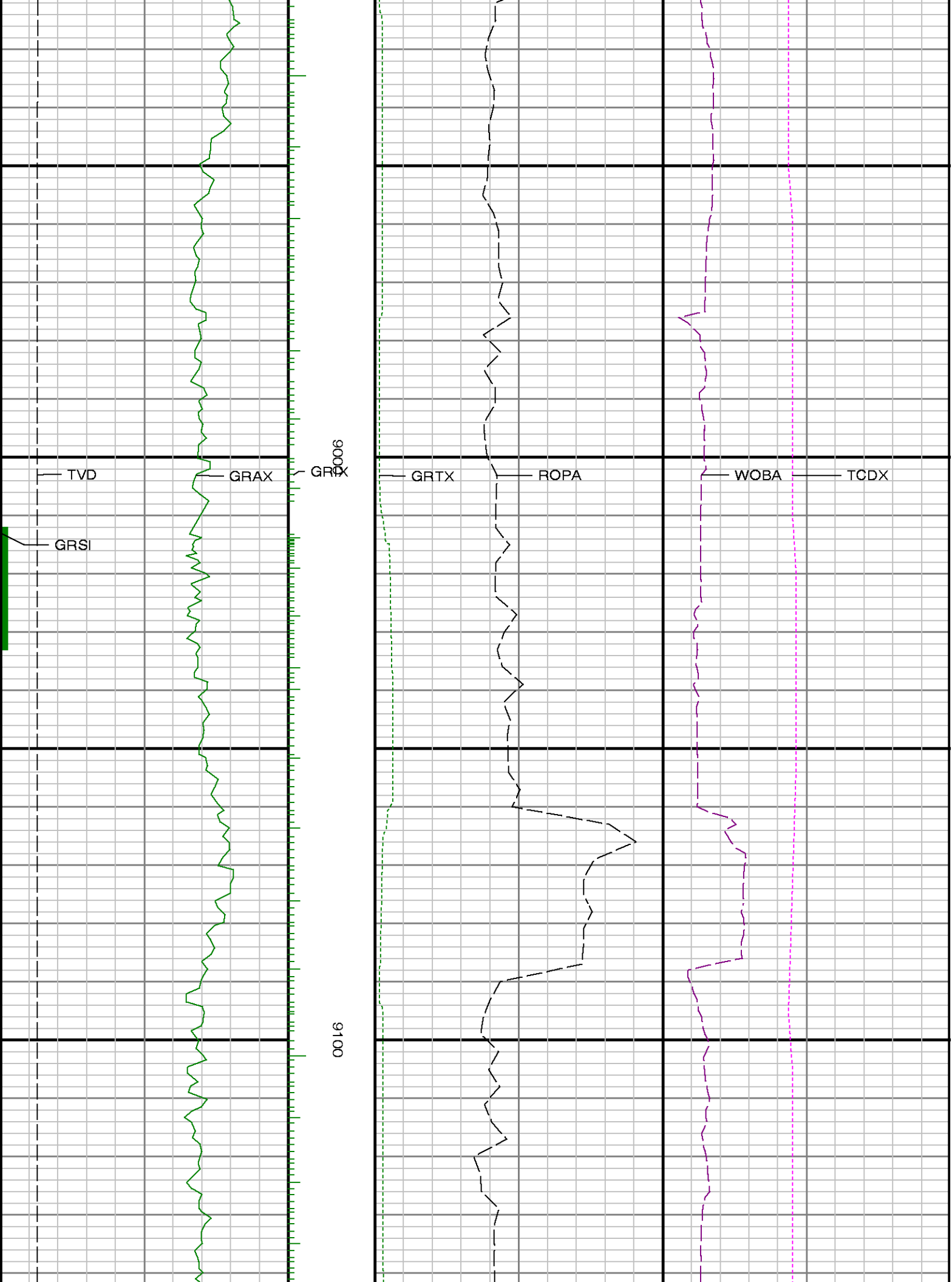


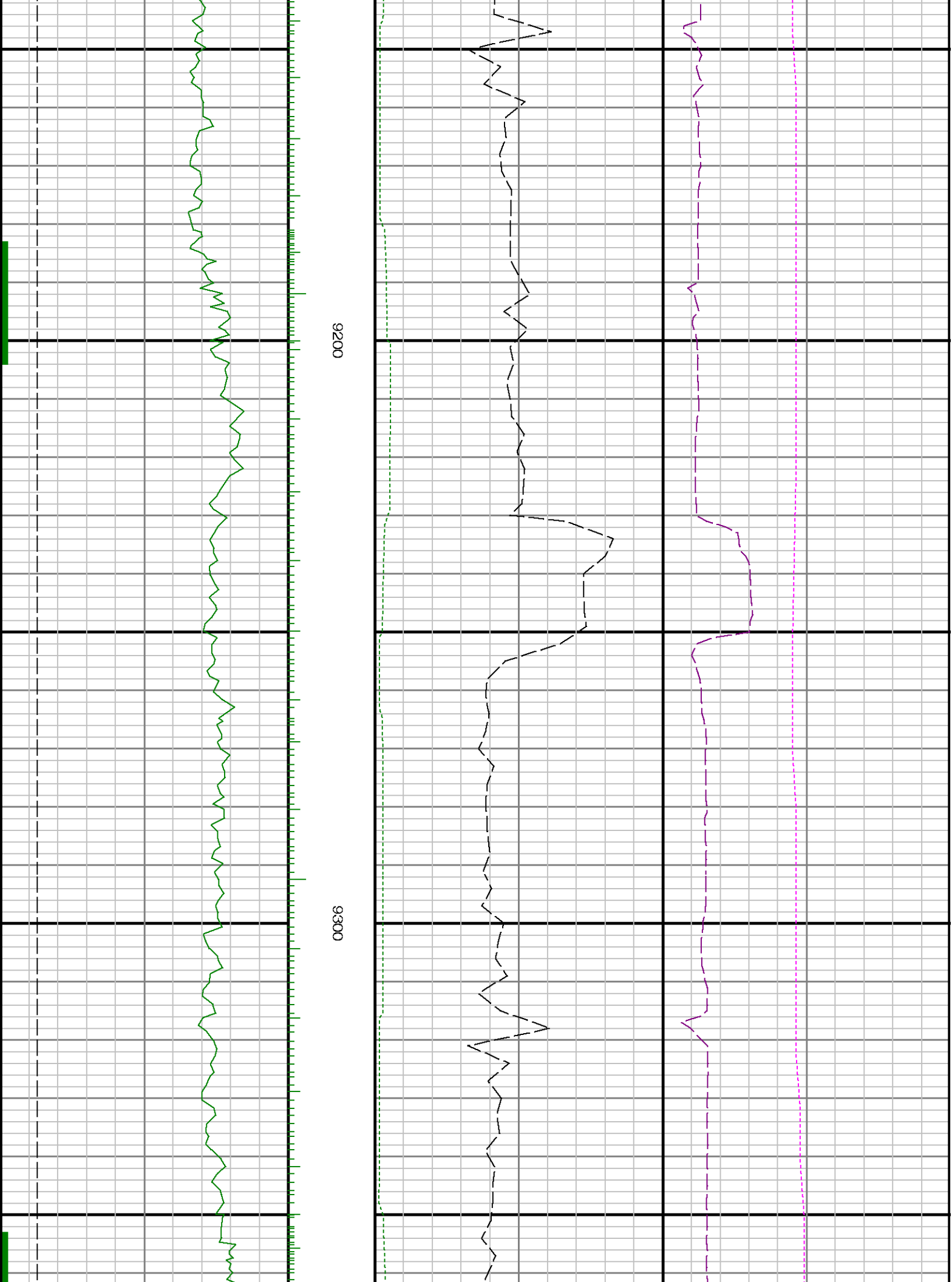
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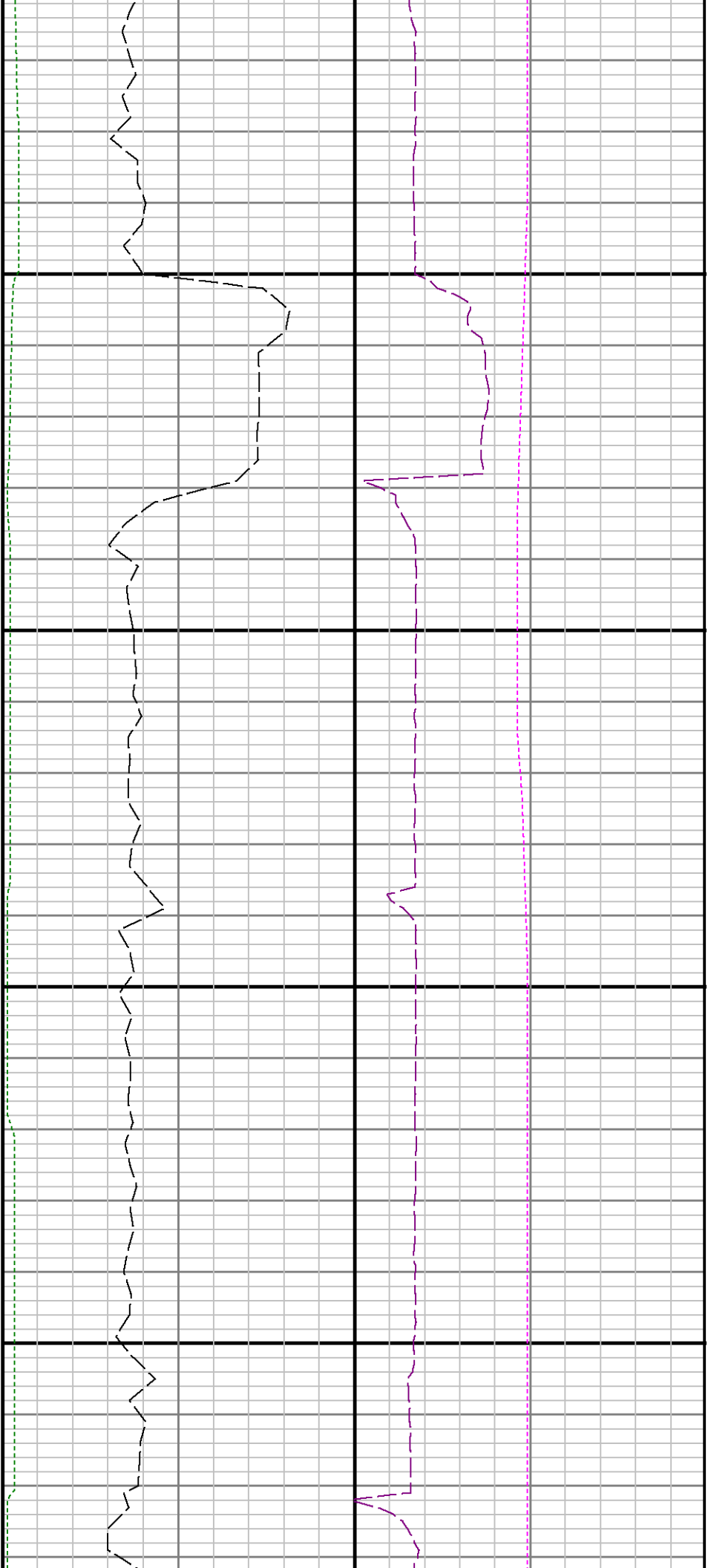
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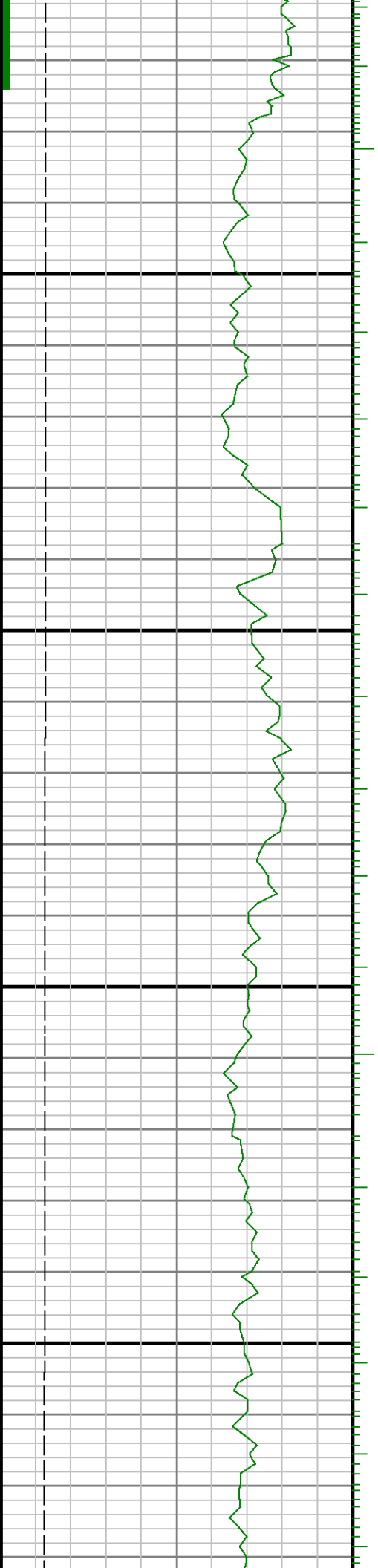


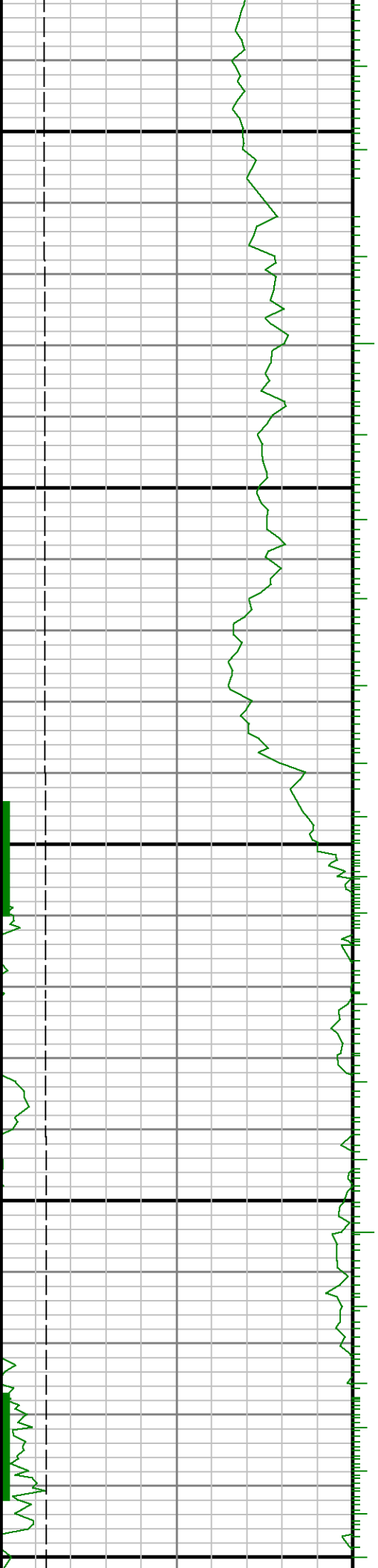




9400

9500

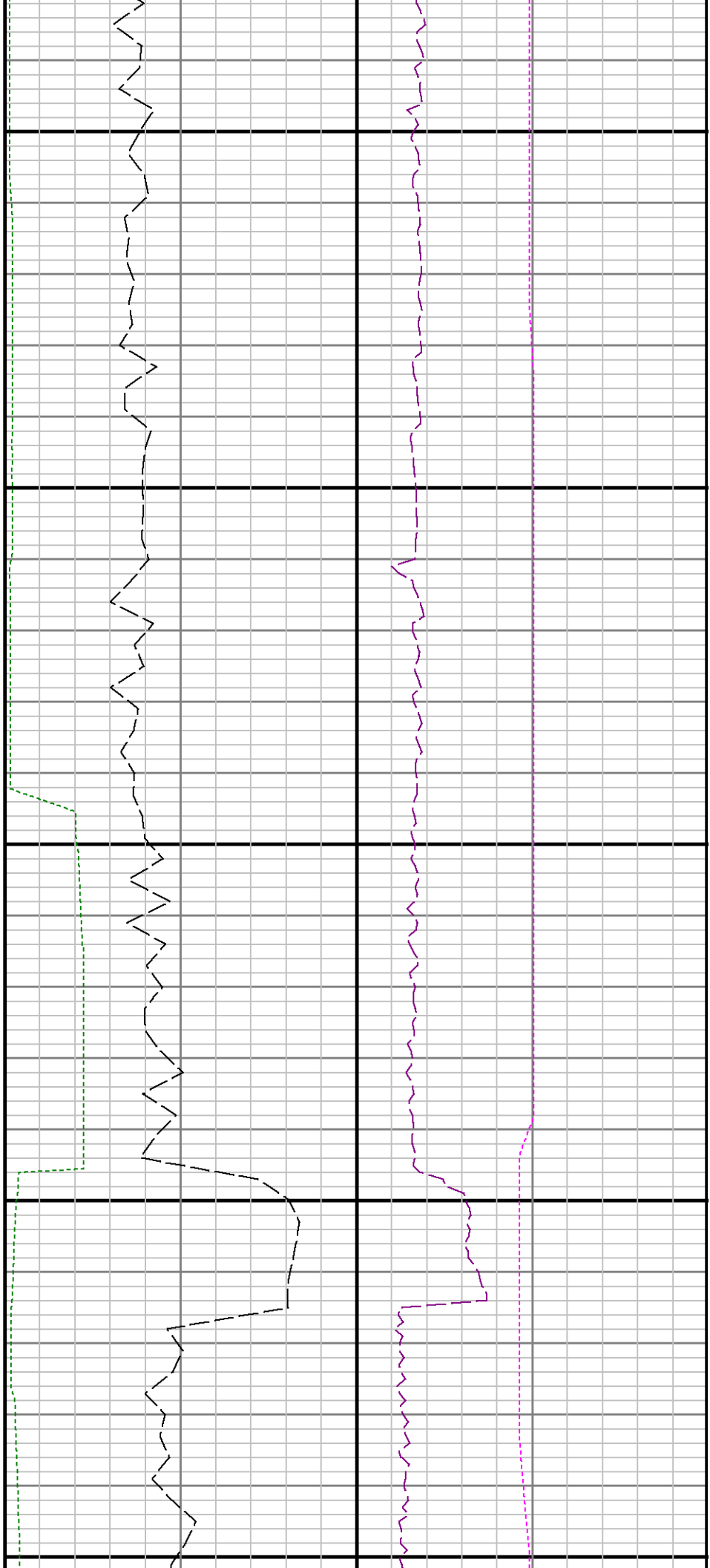


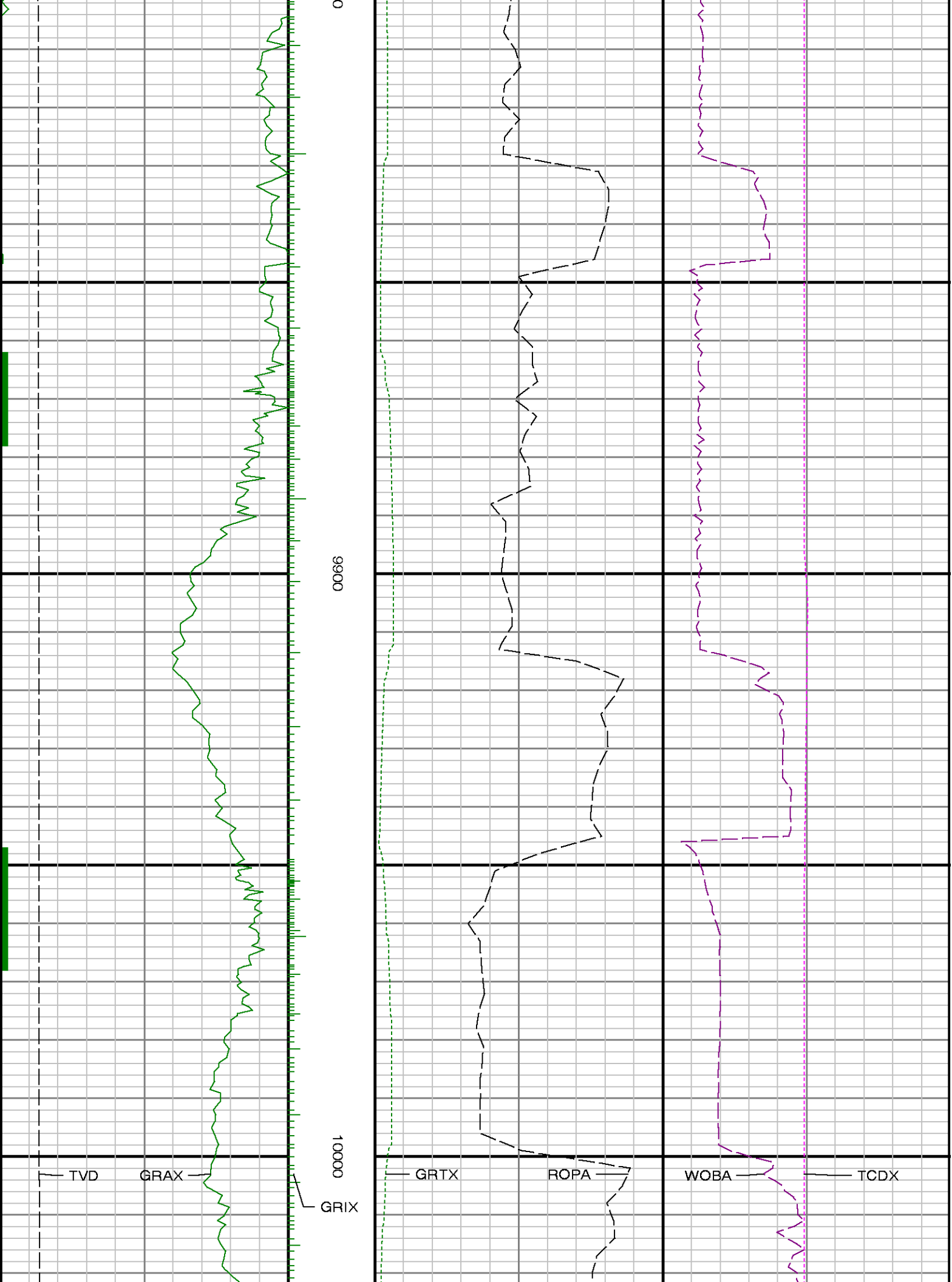


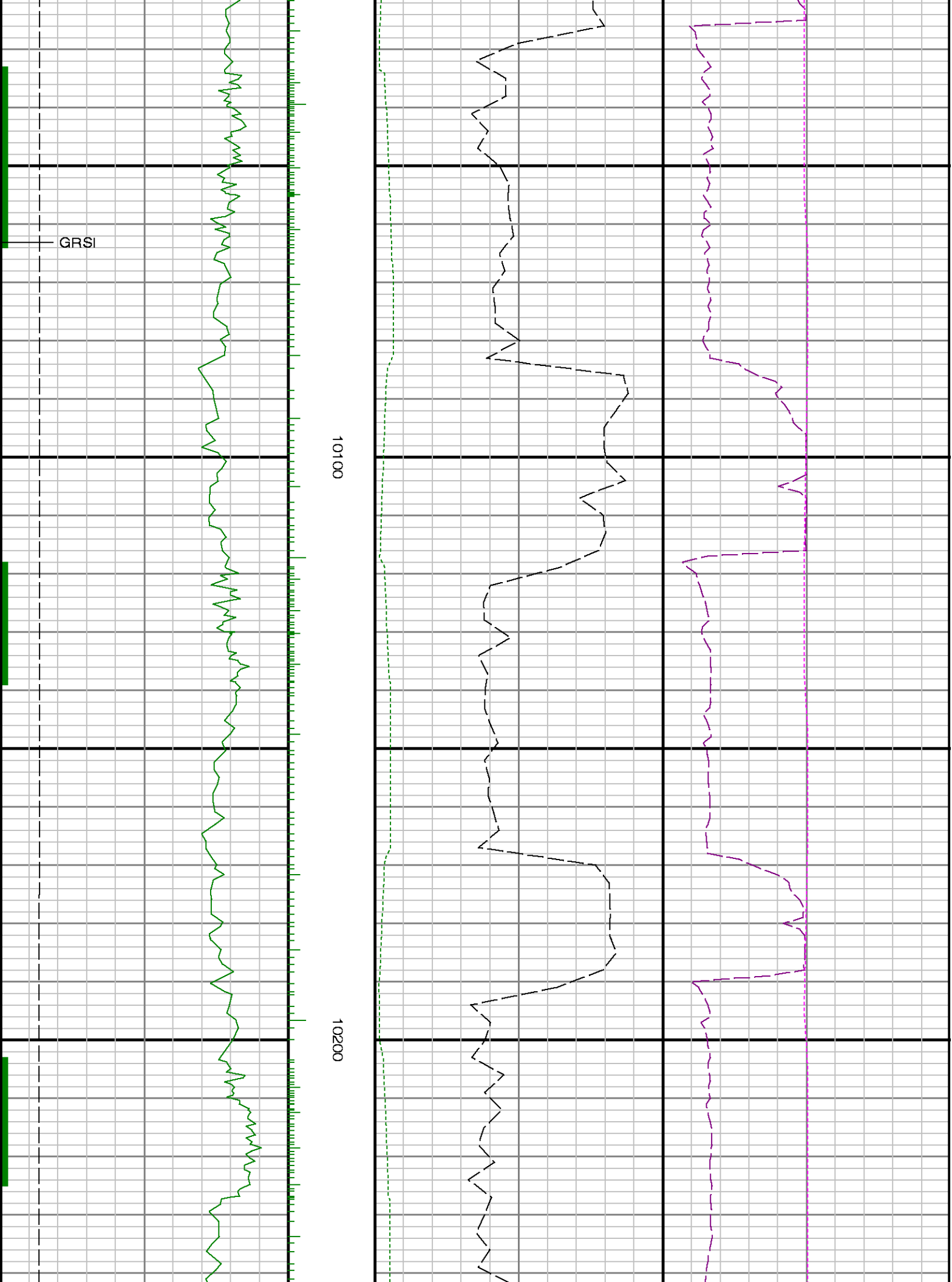
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9700

9800



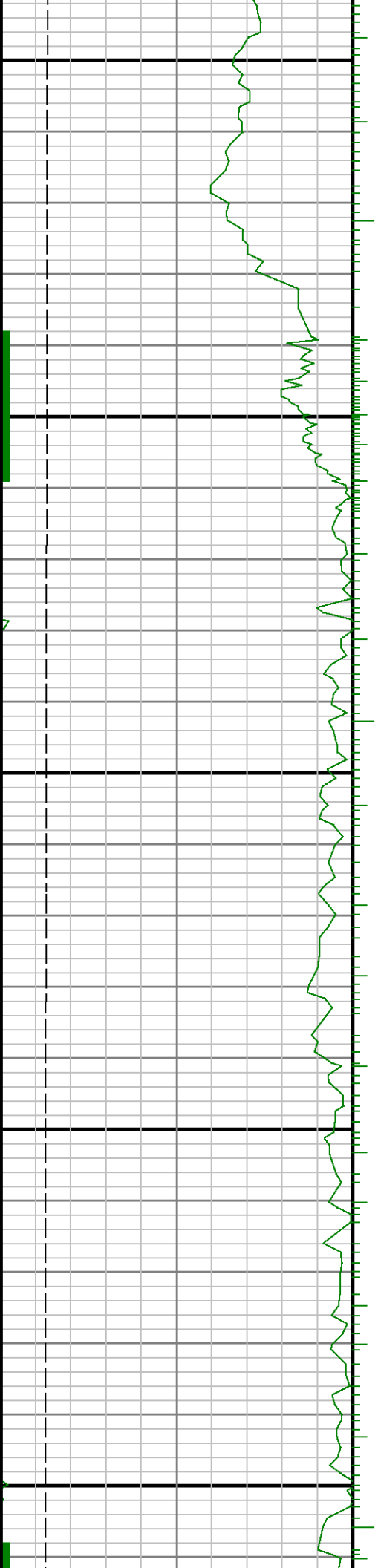


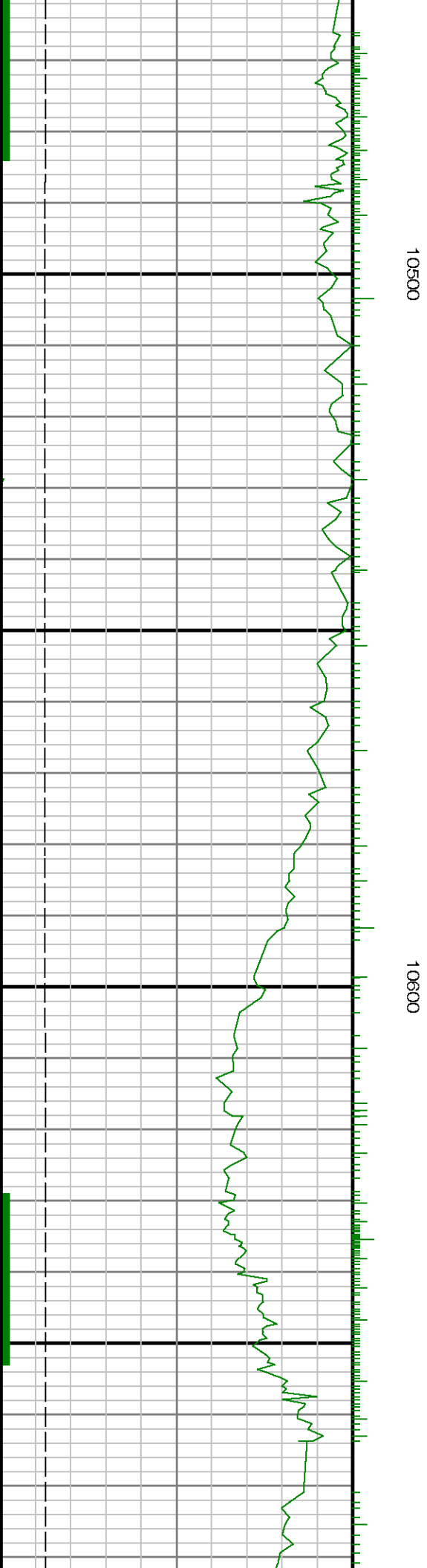
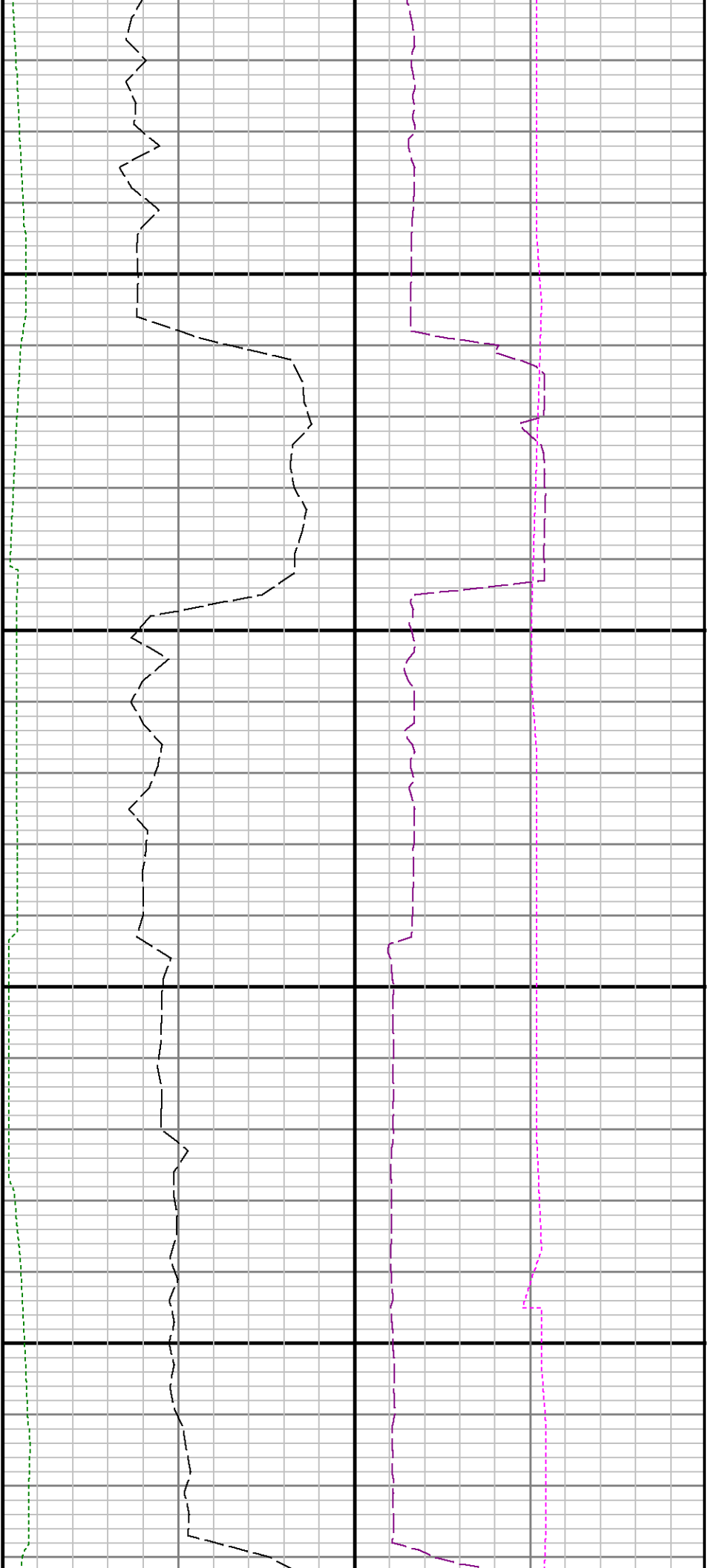


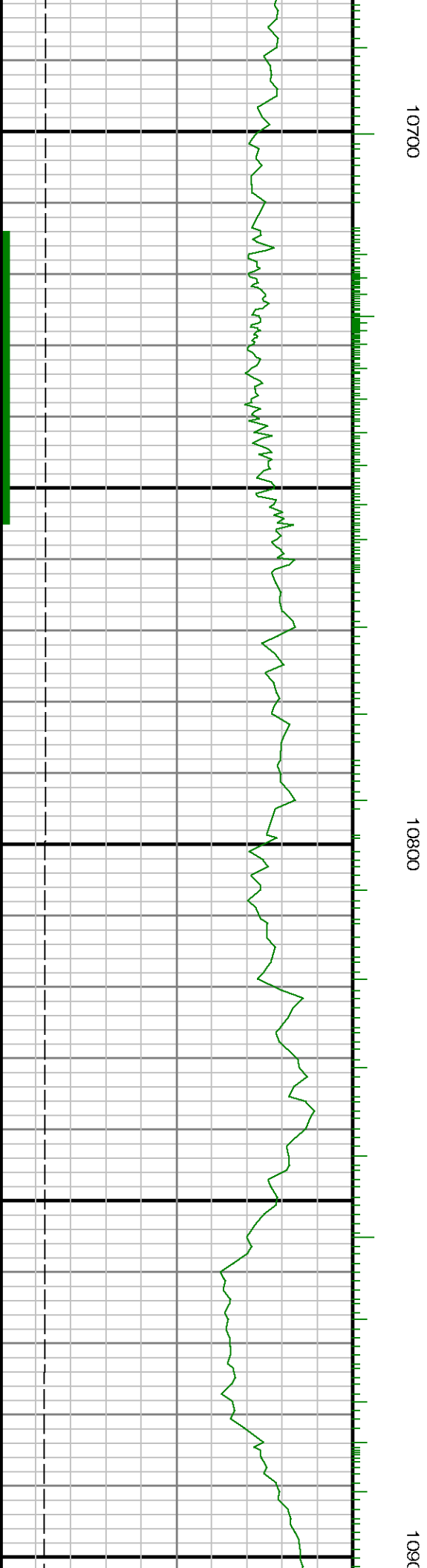


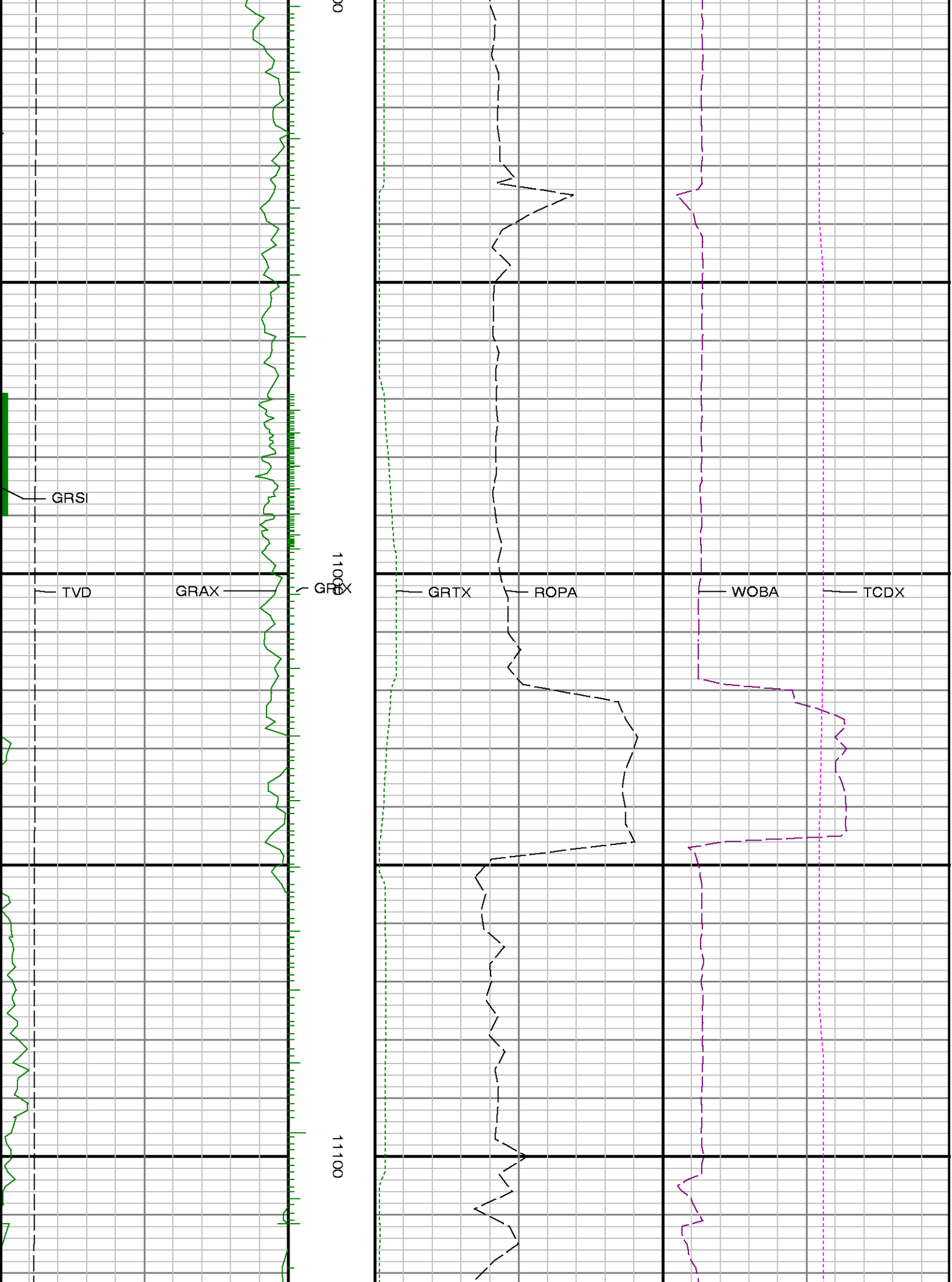
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10400







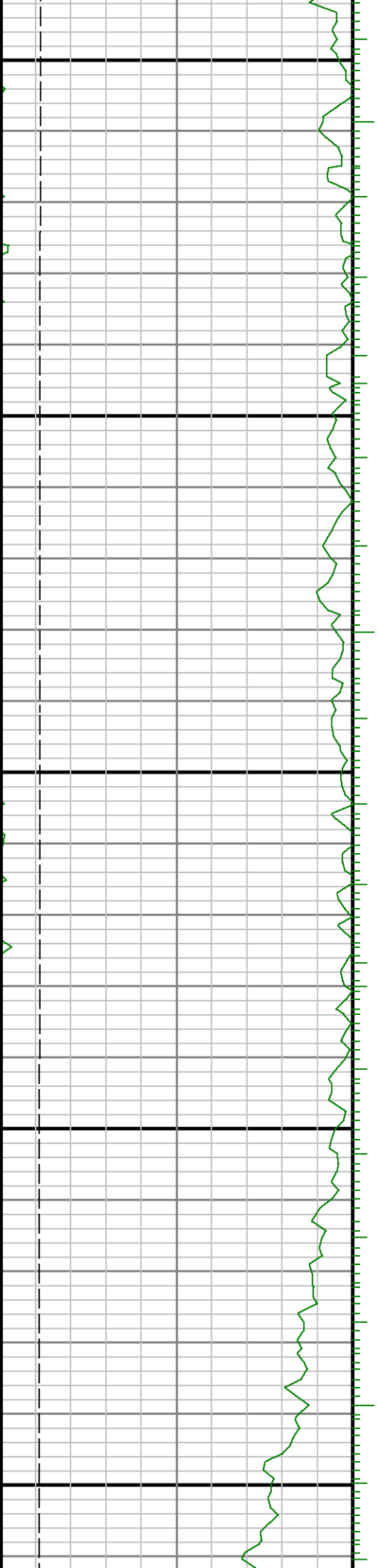


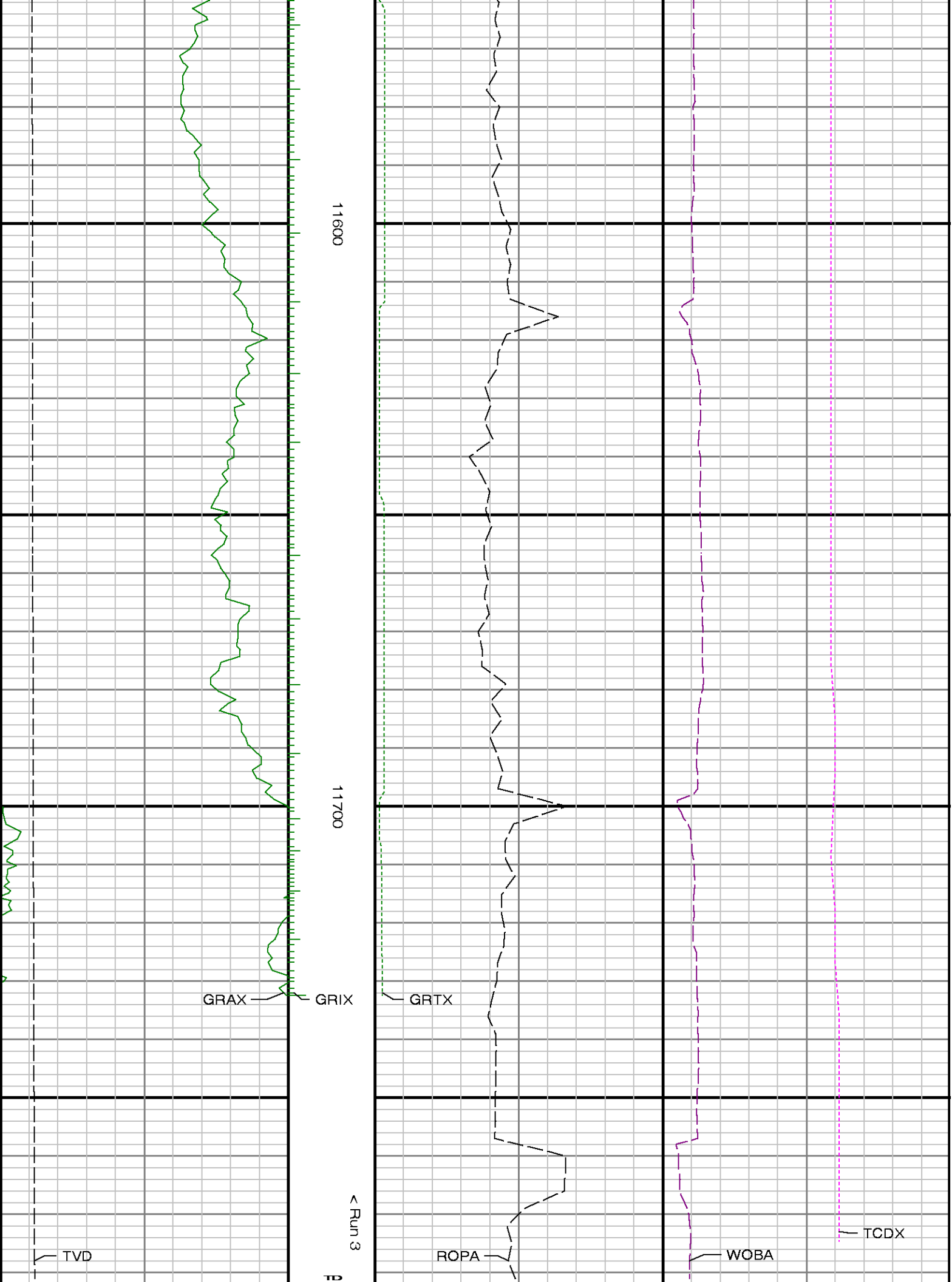




11400

11500





<p>Gamma Ray Apparent 0.5 ft Avg GRAX</p> <p>0 150</p> <p>API</p> <p>True Vertical Depth TVD</p> <p>7400 6800</p> <p>ft</p>	<p>MD feet 1:240</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>Surface Weight On Bit 1.0 ft Avg WOB</p> <p>0 100</p> <p>klbf</p> <p>Downhole Temperature TCDX</p> <p>100 300</p> <p>degF</p>