

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+ (%)
21Jan 15	2300	1	1334.0	Water Based	8.4	29	8.0	N/A	0/98.0	Active Mud Pit	2000	N/A
22 Jan 15	23:00	1	6070.0	Water Based	8.8	29	8.7	N/A	0/98.0	Active Mud Pit	1600	N/A
23 Jan 15	23:00	1	8421.0	Water Based	10.0	42	9.0	N/A	2/90.0	Active Mud Pit	2000	N/A
24 Jan 15	22:30	1	8695.0	Water Based	10.3	47	8.9	N/A	2/88.5	Active Mud Pit	2000	N/A
25 Jan 15	23:45	2	9000.0	Water Based	10.0	45	9.0	N/A	2/90.0	Active Mud Pit	1800	N/A
26 Jan 15	23:00	2	11310.0	Water Based	9.8	43	9.4	N/A	2.5/90.0	Active Mud Pit	2000	N/A

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

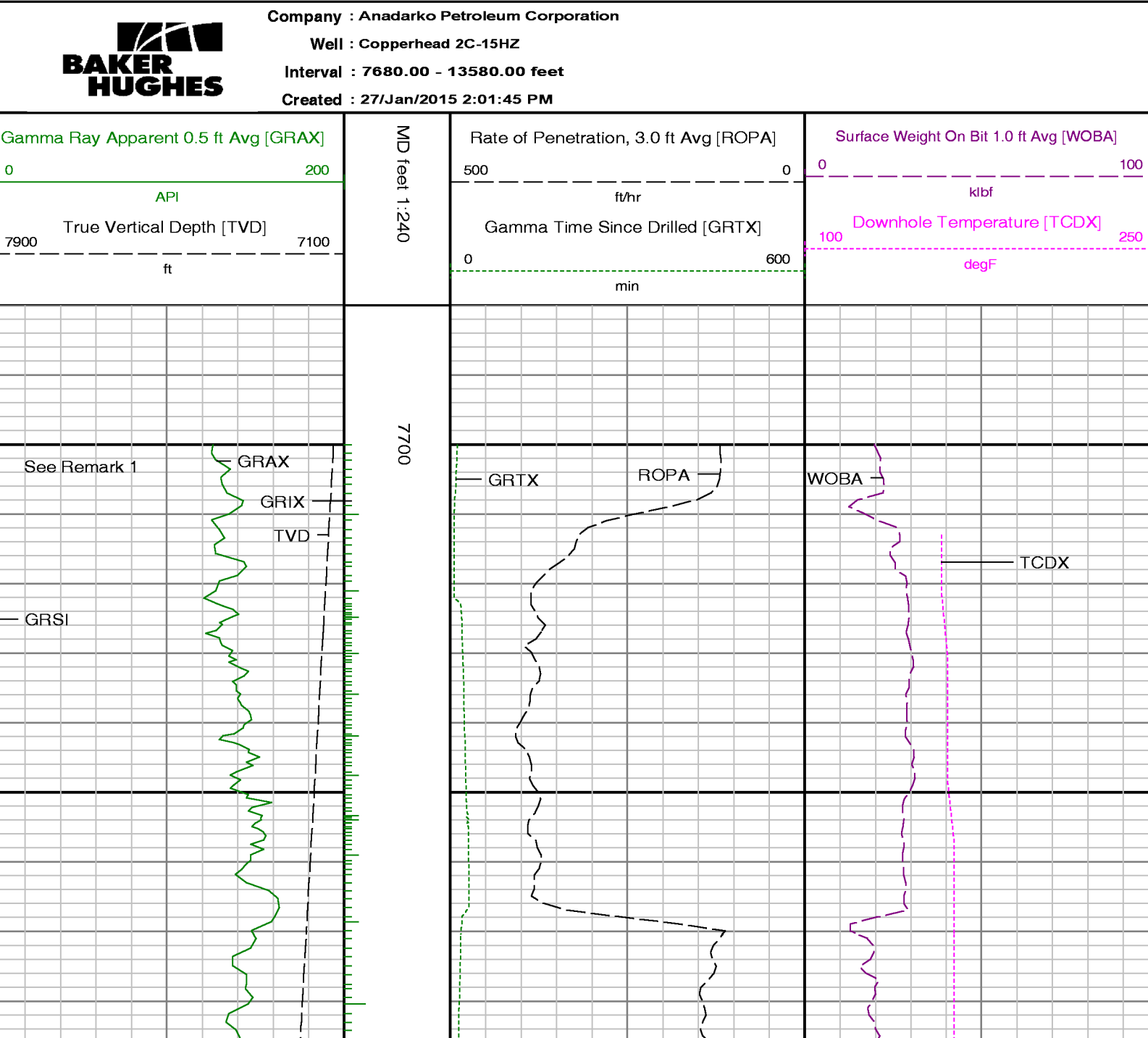
Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12566669	Directional	47.42	6.813	3.250
1	SRIG	12578114	Gamma	44.04	6.813	3.250
2	DIR	11638000	Directional	52.86	4.750	2.750
2	SRIG	12600749	Gamma	49.48	4.750	2.750

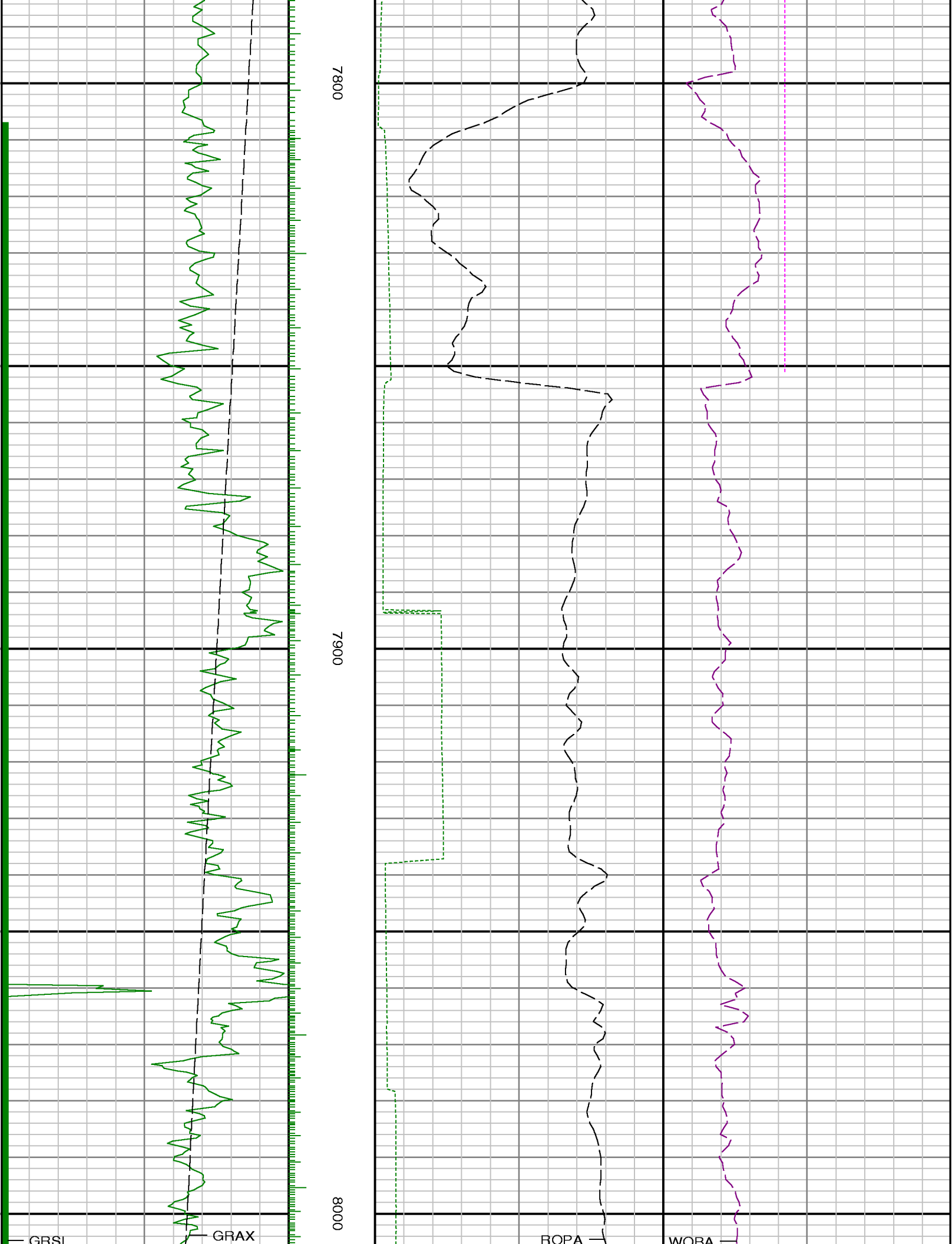
Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

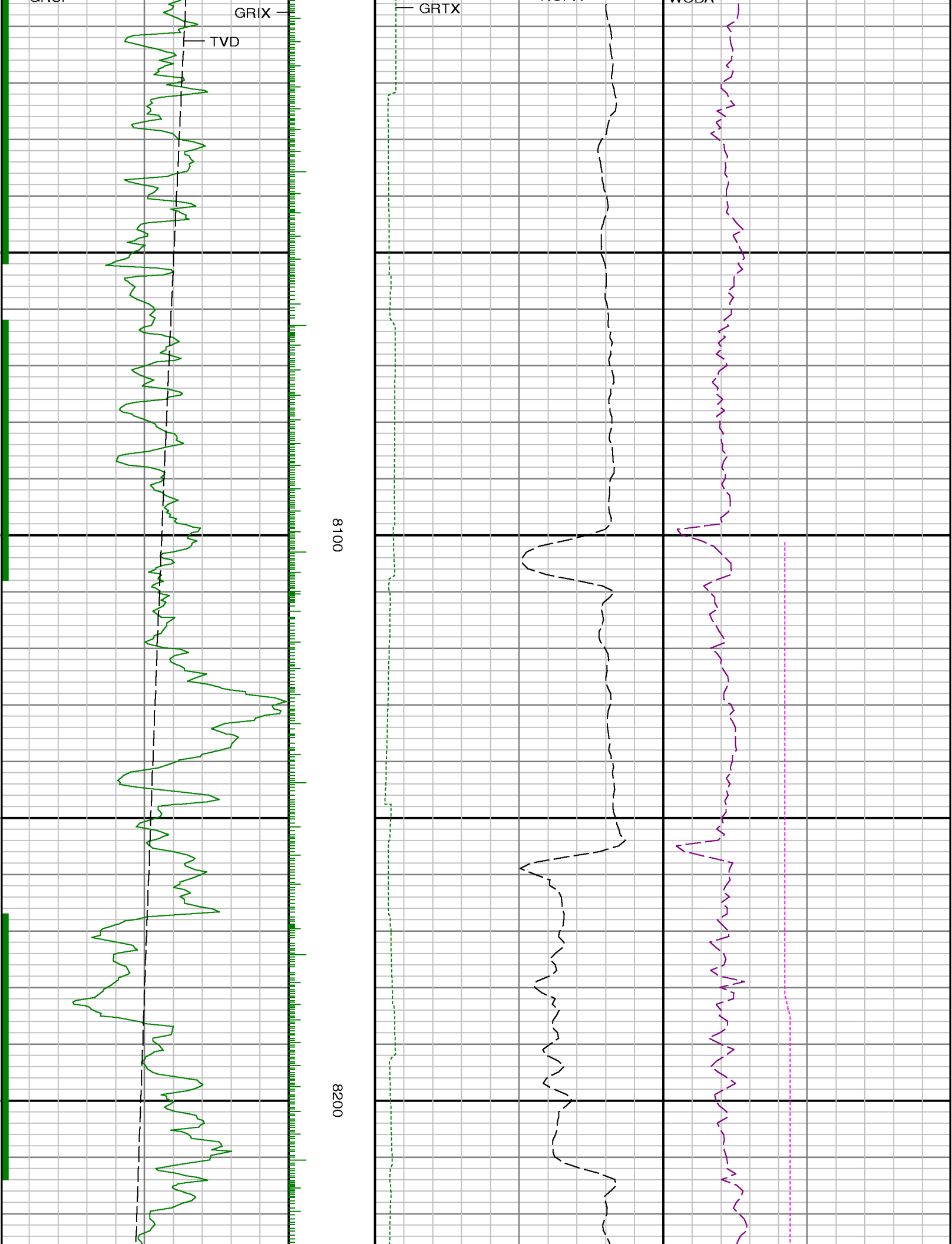
Comments
<p>1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.</p> <p>2.) Baker Hughes LWD run 1 utilized 6 1/2 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and conventional motor assembly from 1334 to 8695 ft MD (1333 to 7628 ft TVD).</p> <p>3.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and conventional motor assembly from 8695 to 13569 ft MD (7628 to 7620 ft TVD).</p> <p>4.) A sliding indicator shown on the left side of track 1 as a heavy line. This indicator has been shifted to the Gamma Ray sensor offset to correspond to Gamma Ray data acquired while sliding.</p>

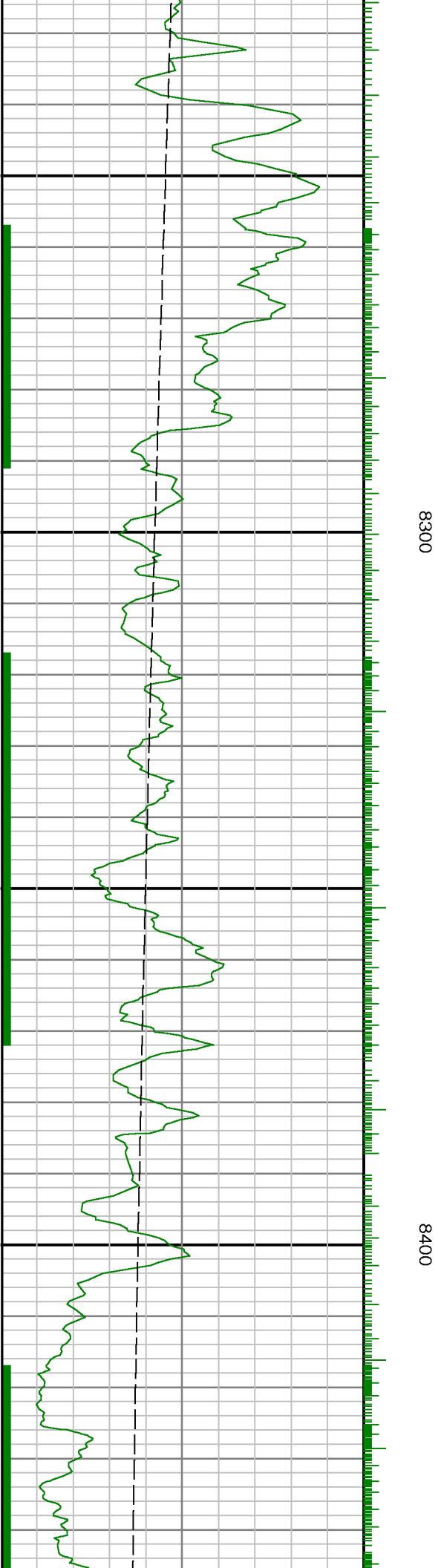
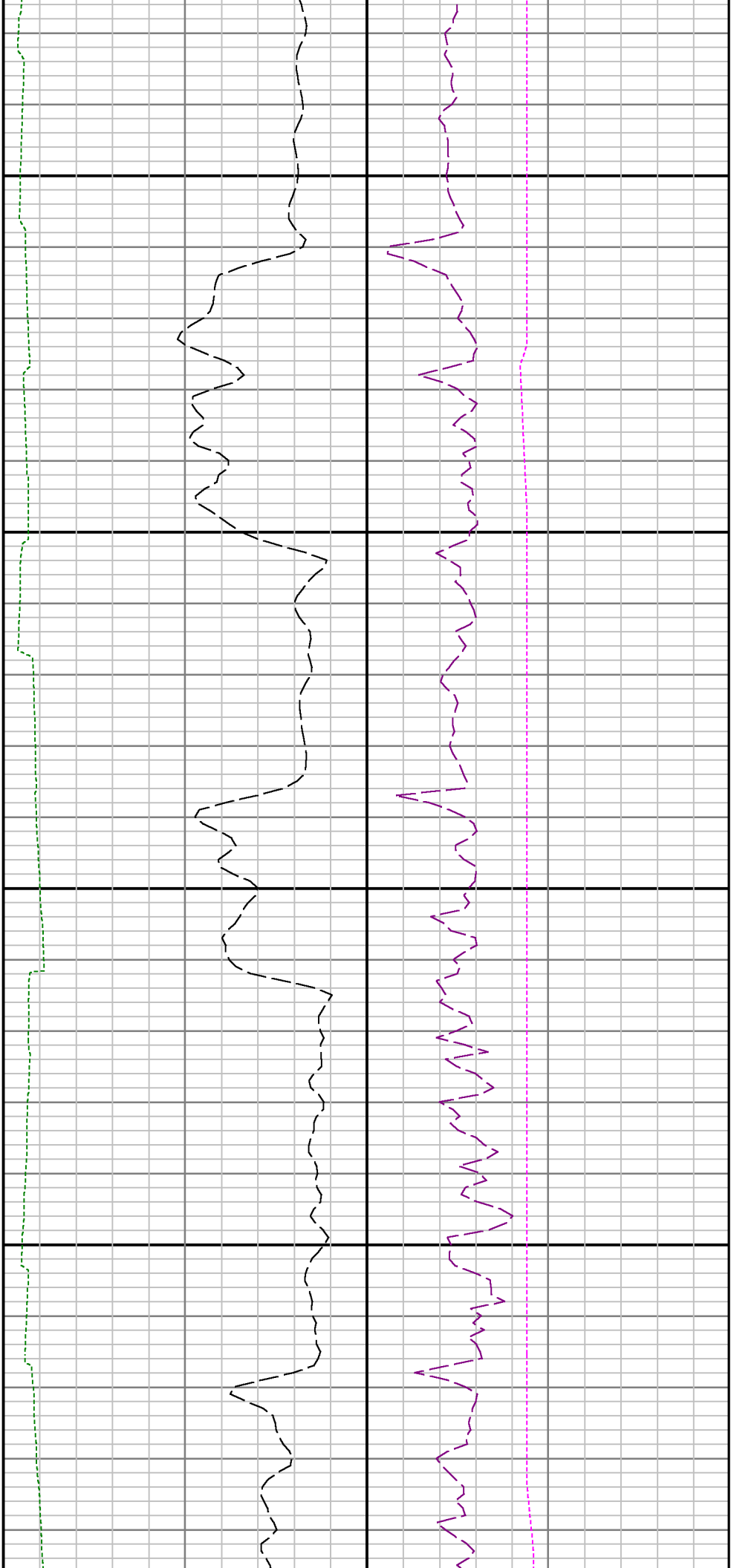
Remarks

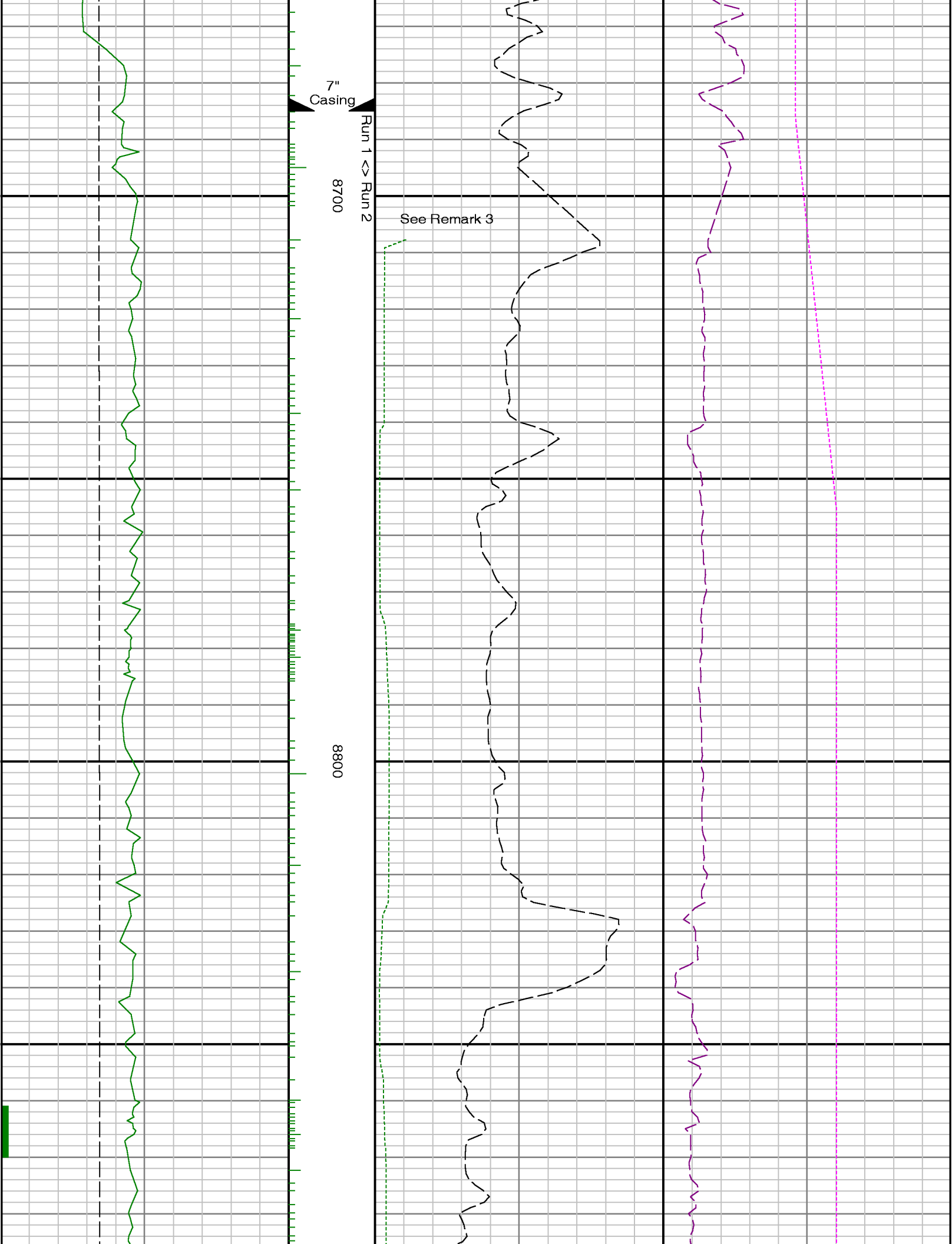
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	7700	8.750	1	Gamma Ray logging operations began at 7700 ft MD (7123 ft TVD) as per company's request.
2	8651	6.125	2	Gamma ray was logged inside casing from 8651 to 8695 ft MD (7629 to 7628 ft TVD) due to sensor offset.
3	8695	6.125	2	Gamma ray was logged up to 24 hours after being drilled from 8651 to 8695 ft MD (7629 to 7628 ft TVD) due to casing operations.
4	13519	6.125	2	There is no gamma ray data from 13519 to 13569 ft MD (7620 ft TVD) due to sensor offset at TD.

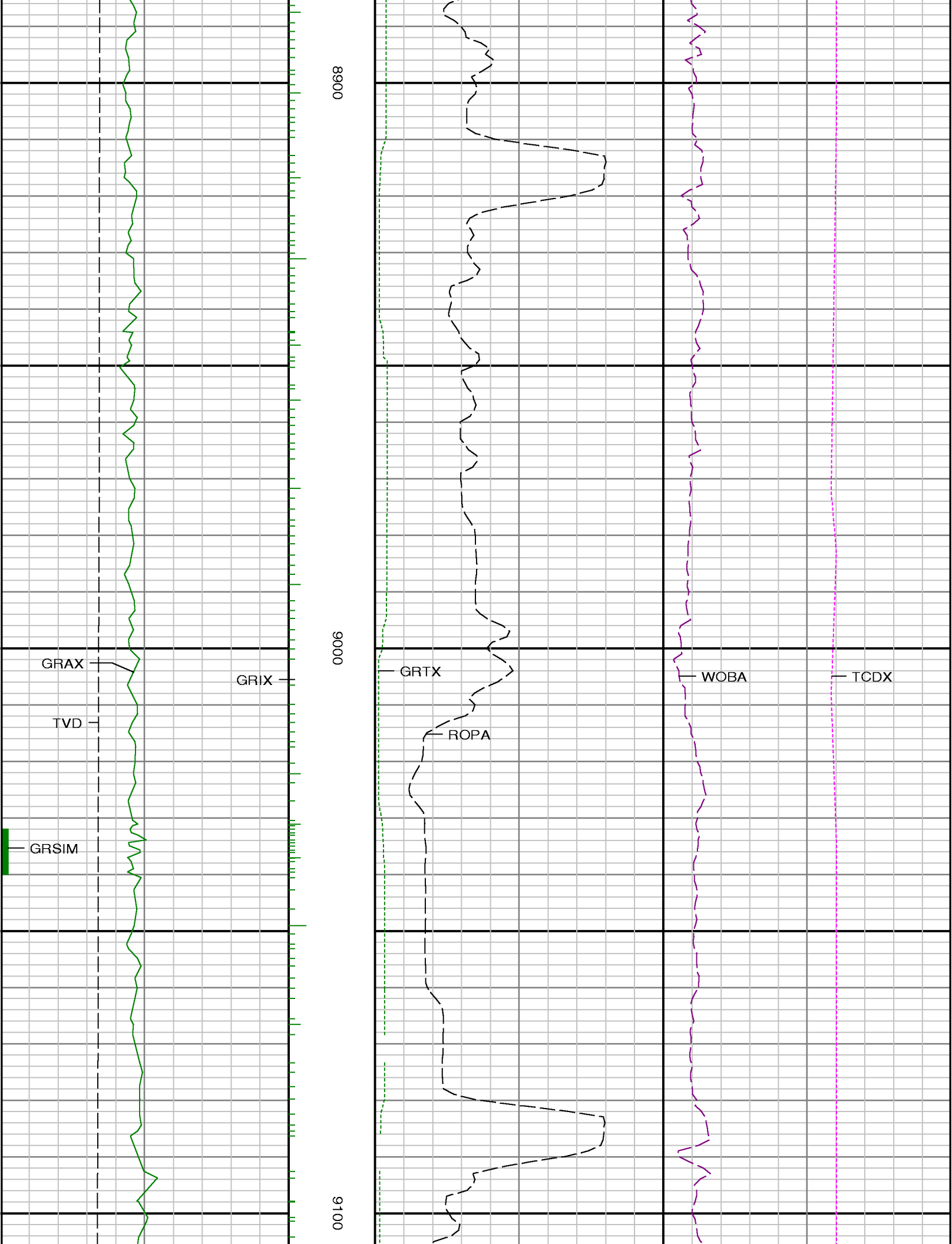


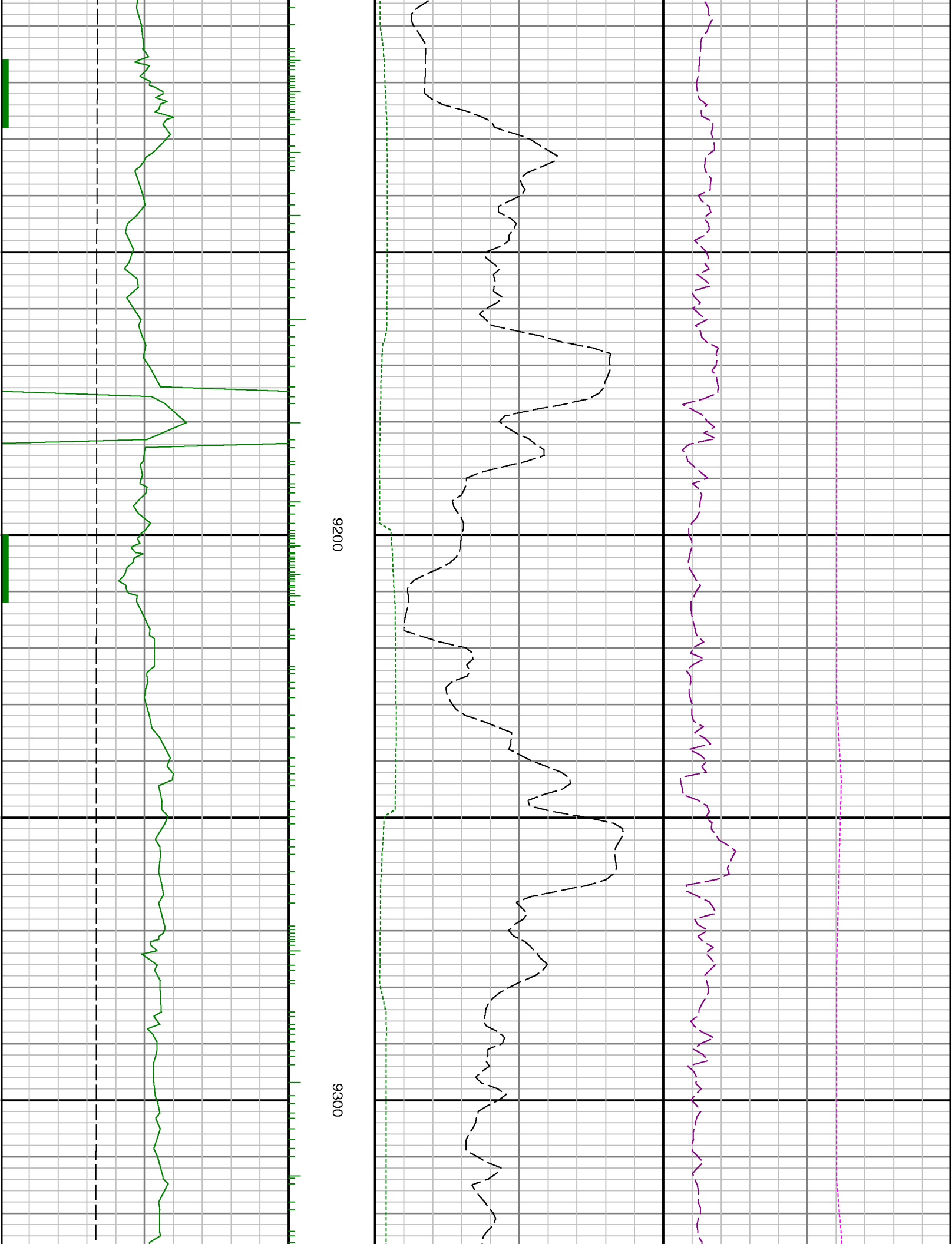


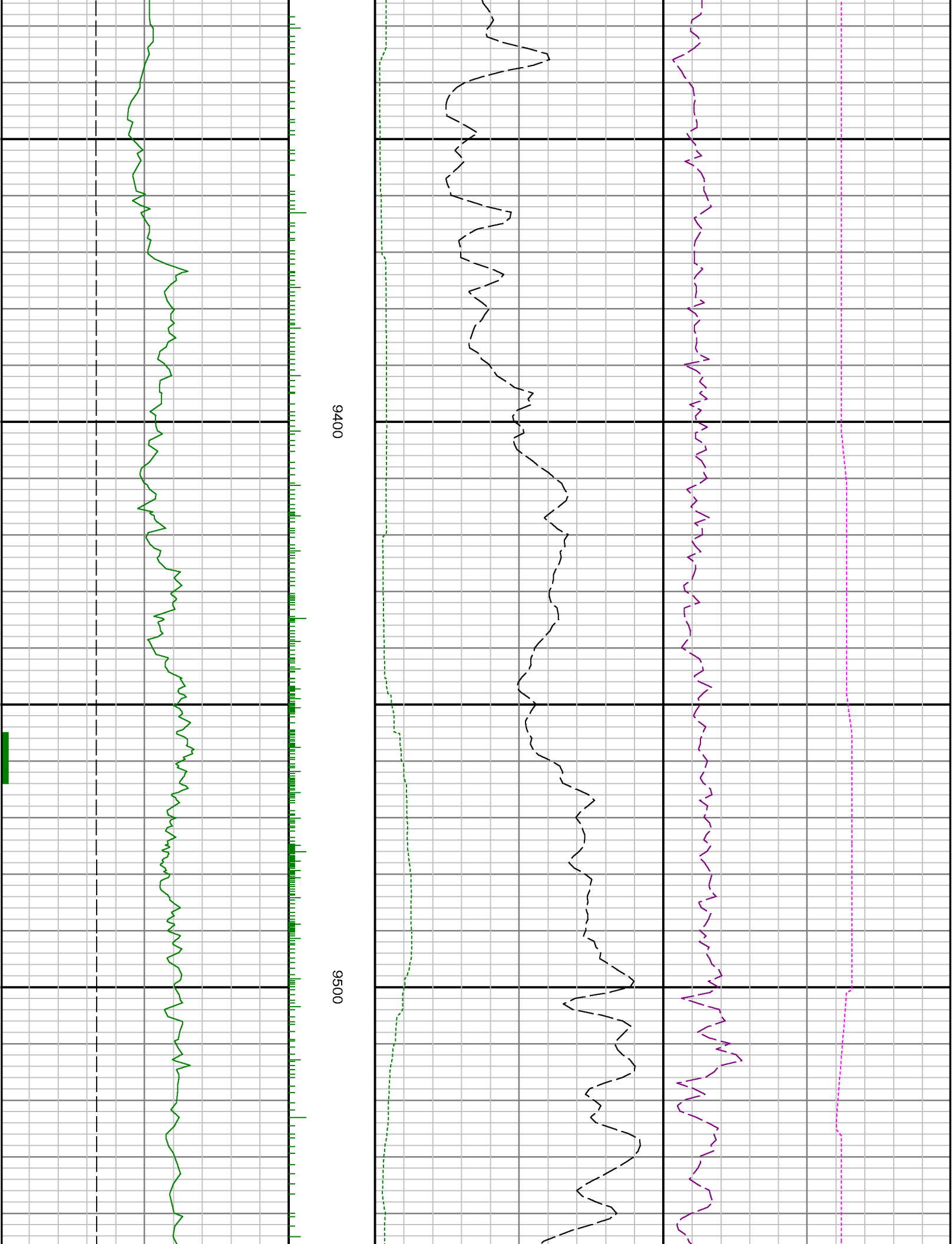


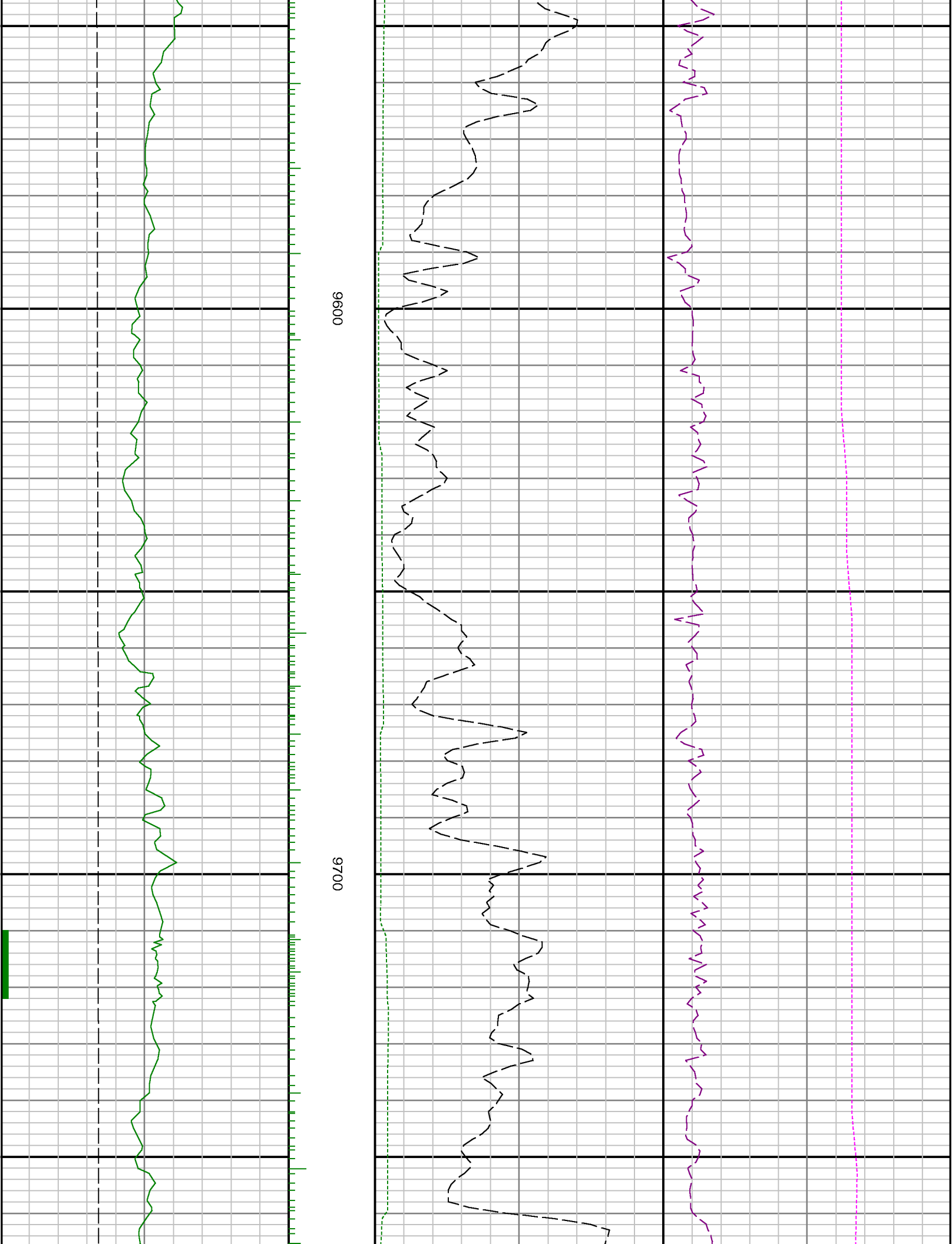


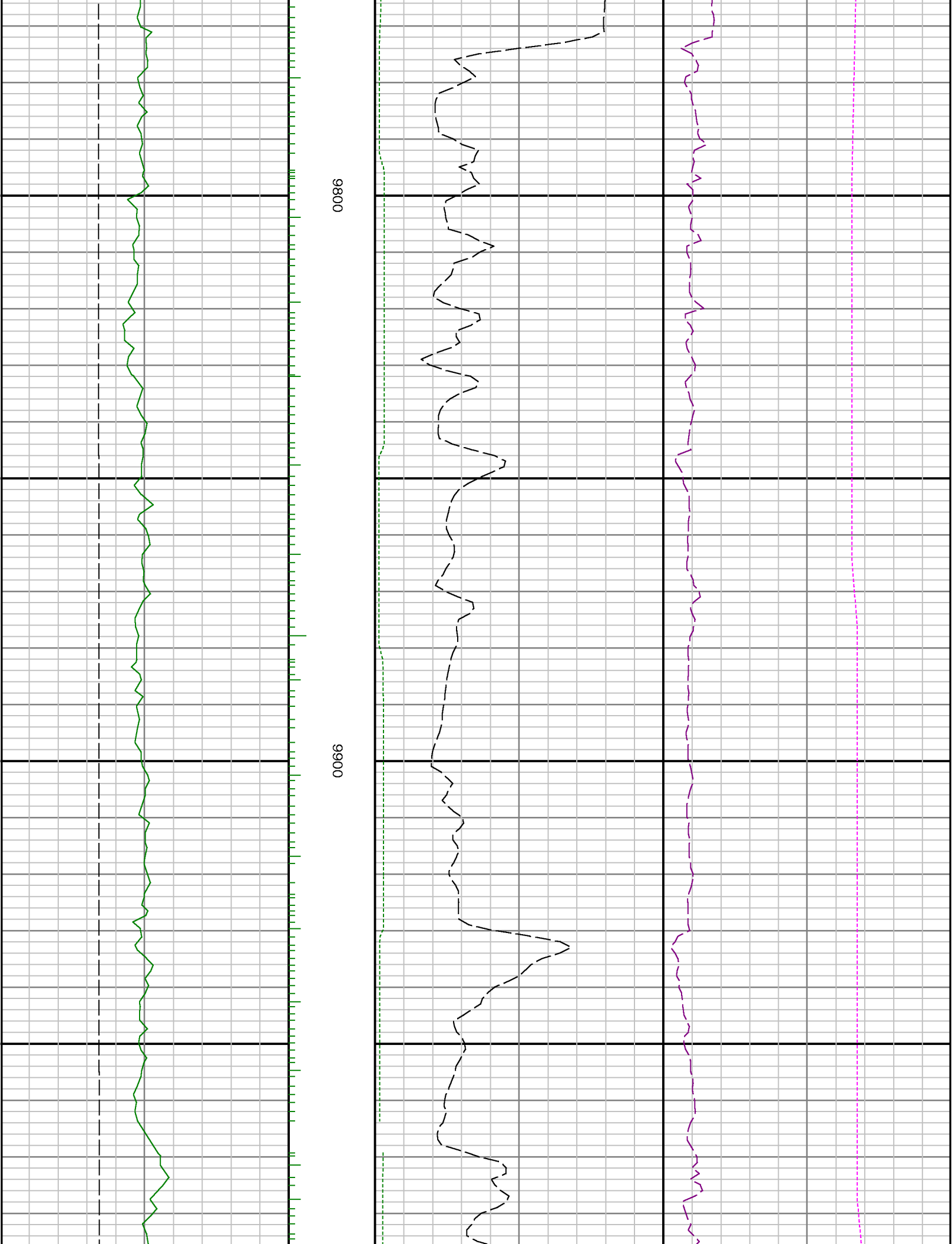


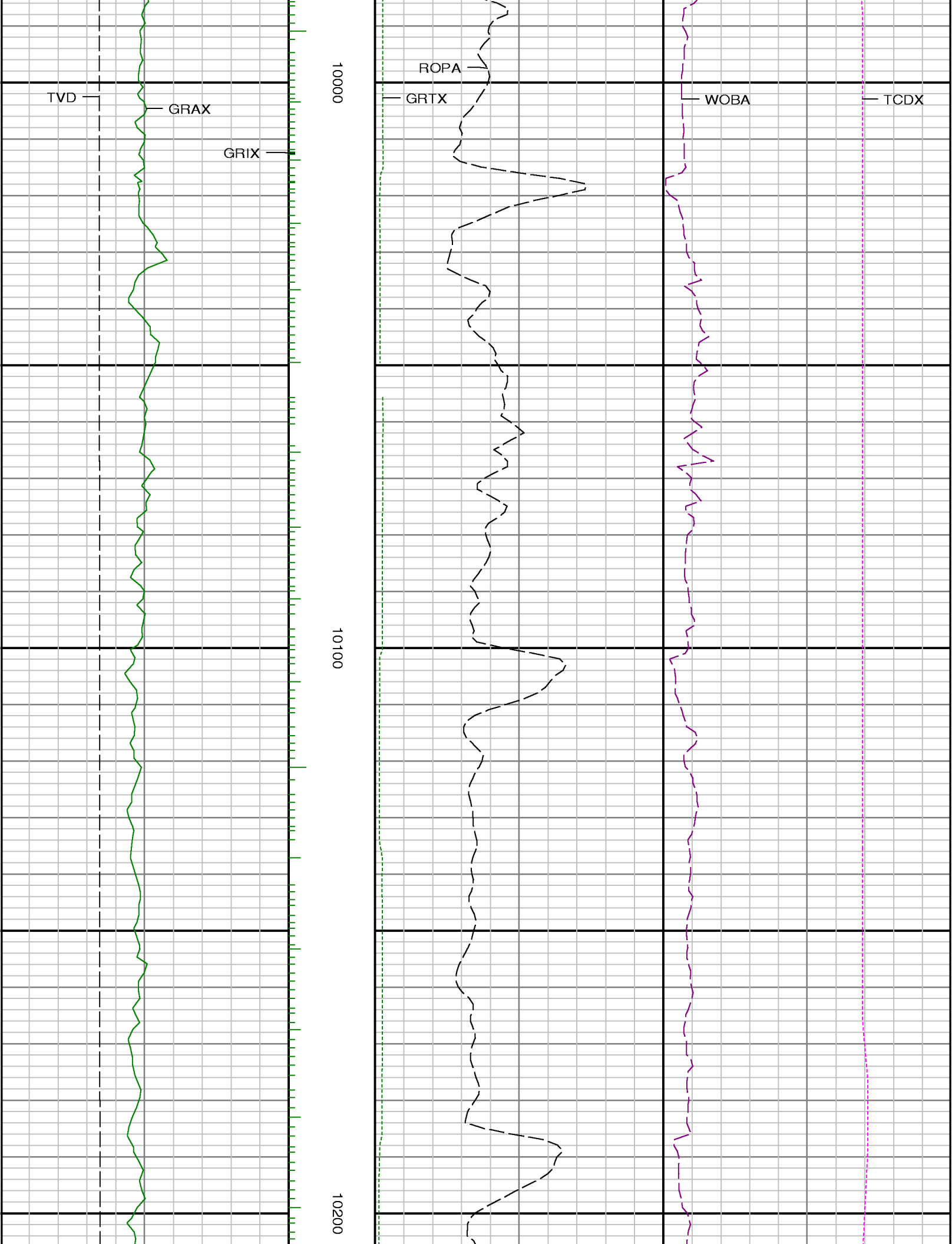


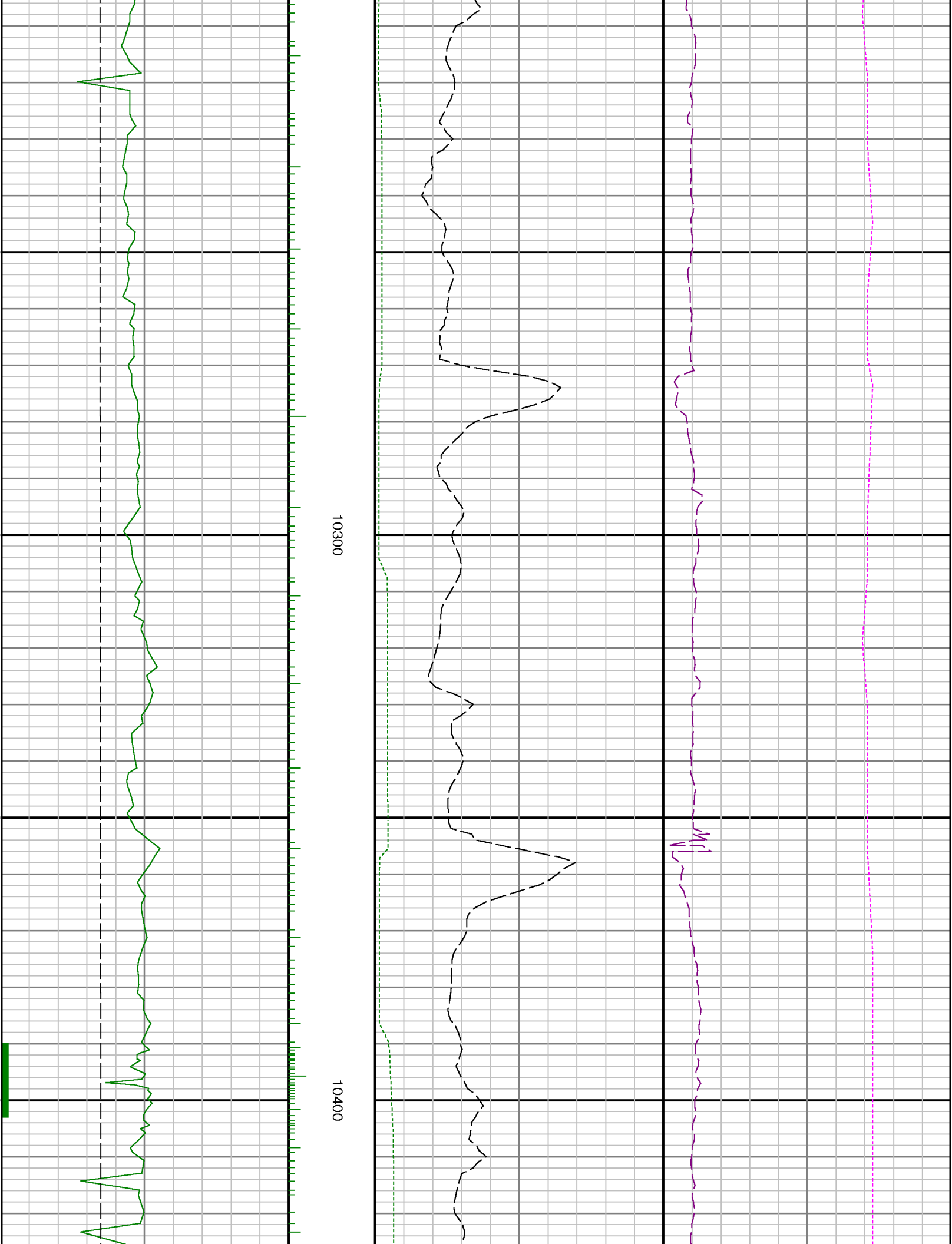










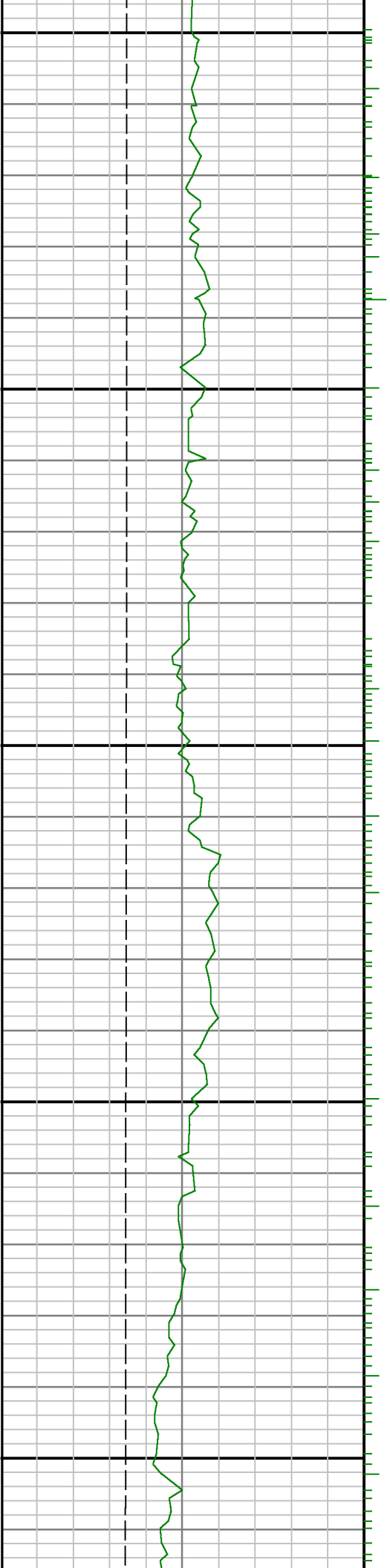


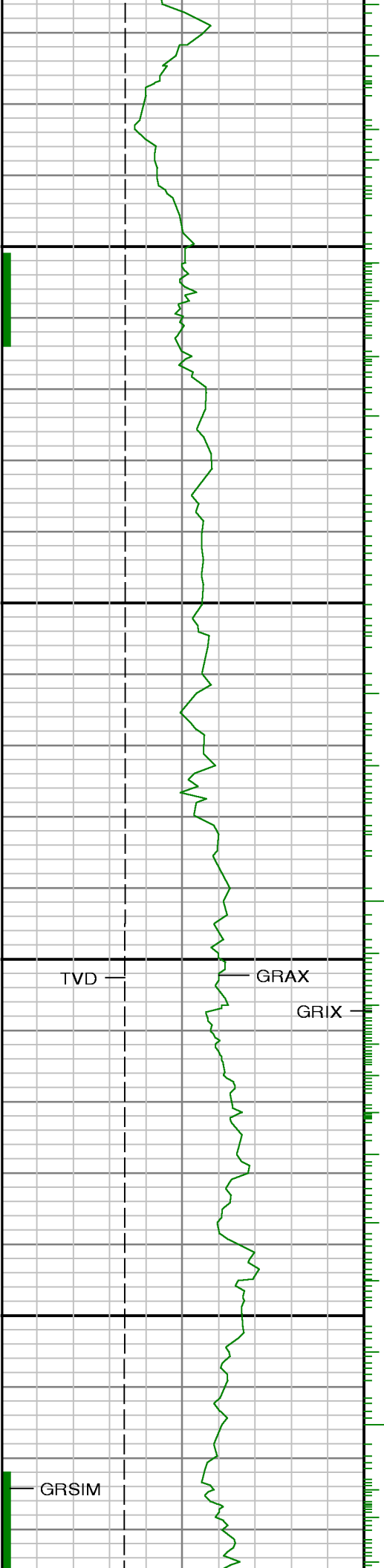




10700

10800





10900

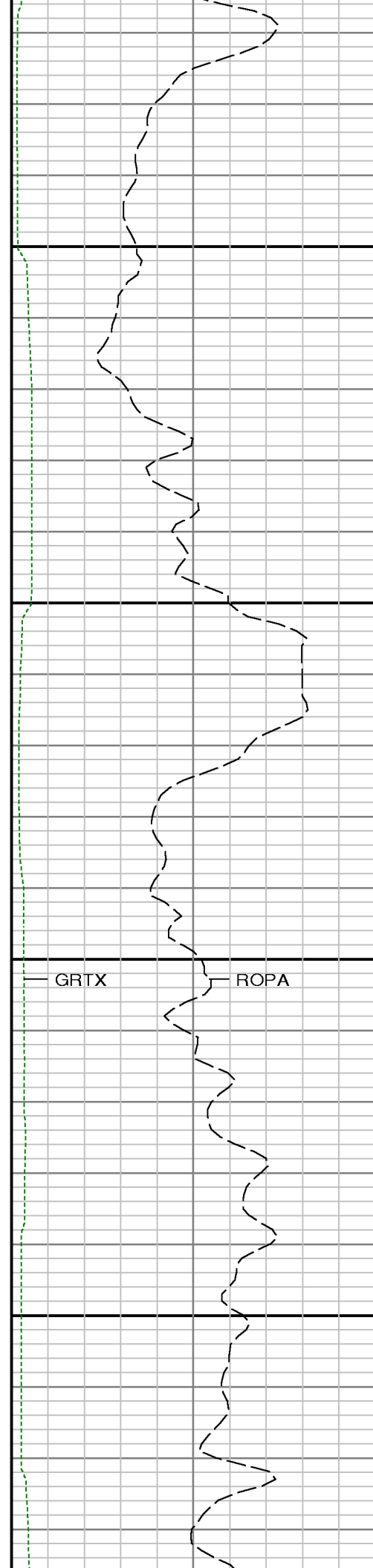
11000

TVD

GRAX

GRIX

GRSIM

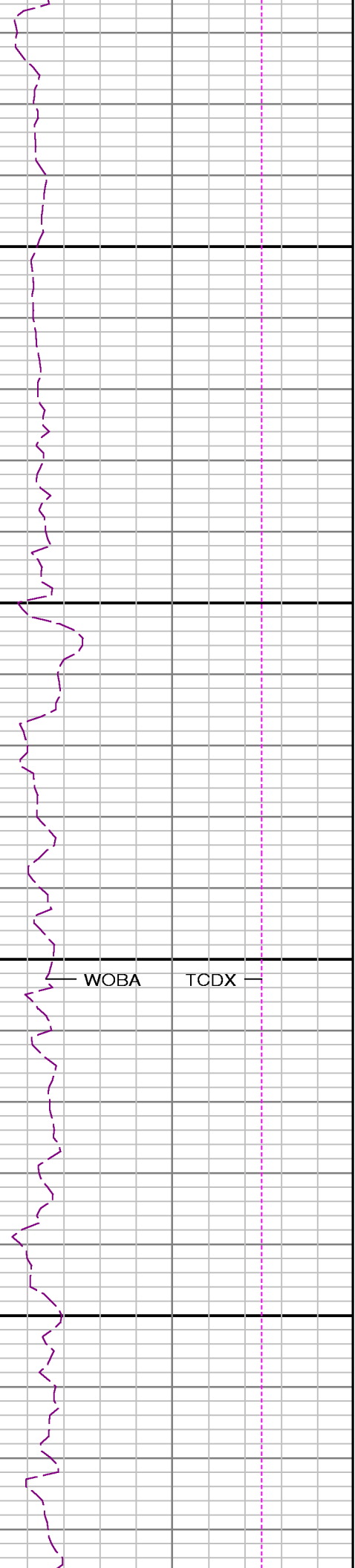


GRTX

ROPA

WOBA

TCDX

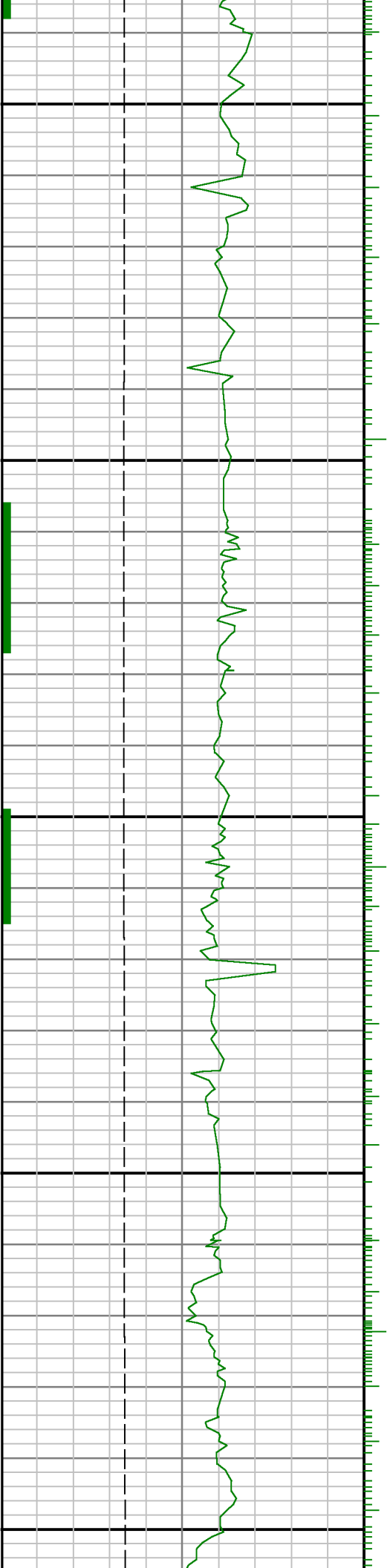


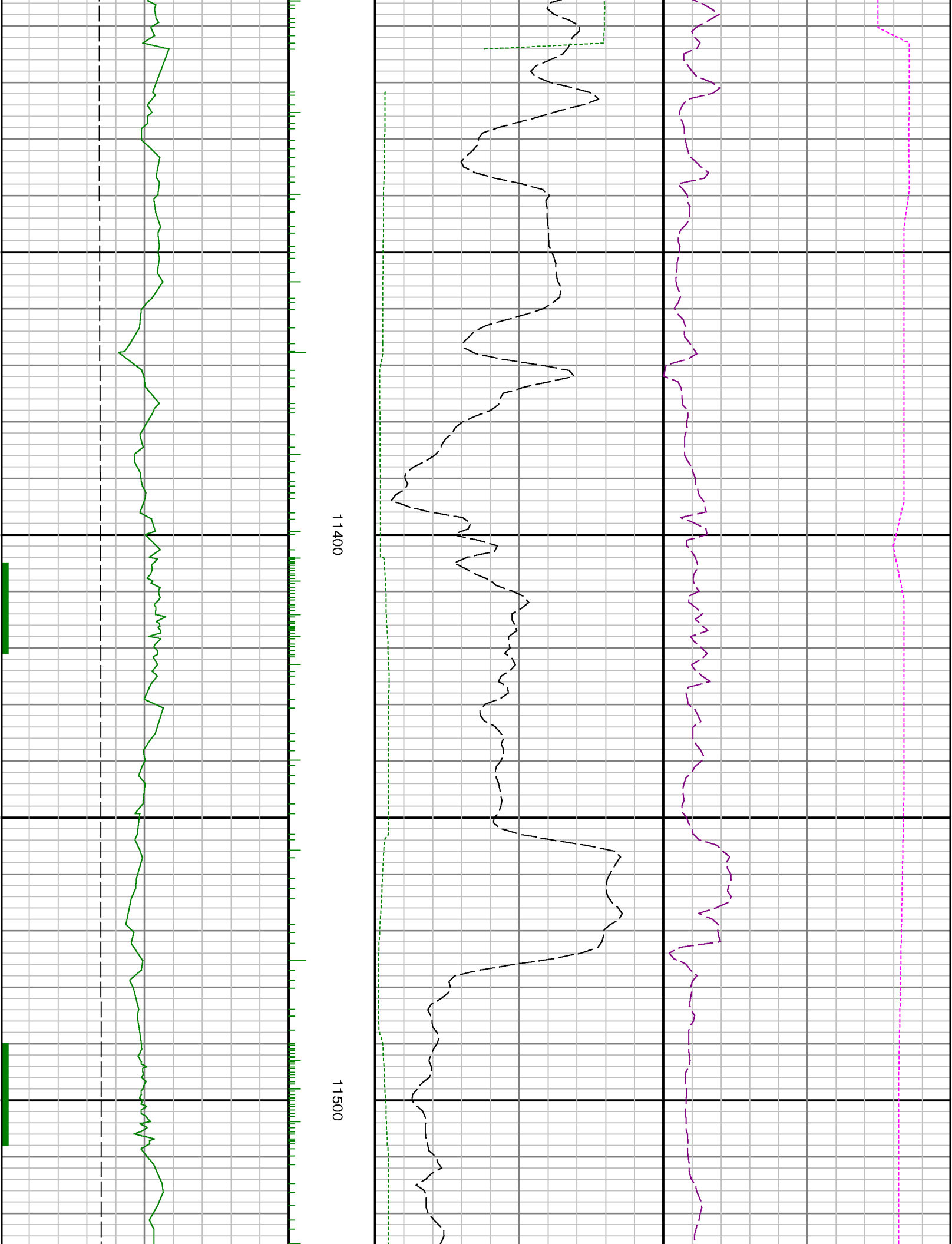


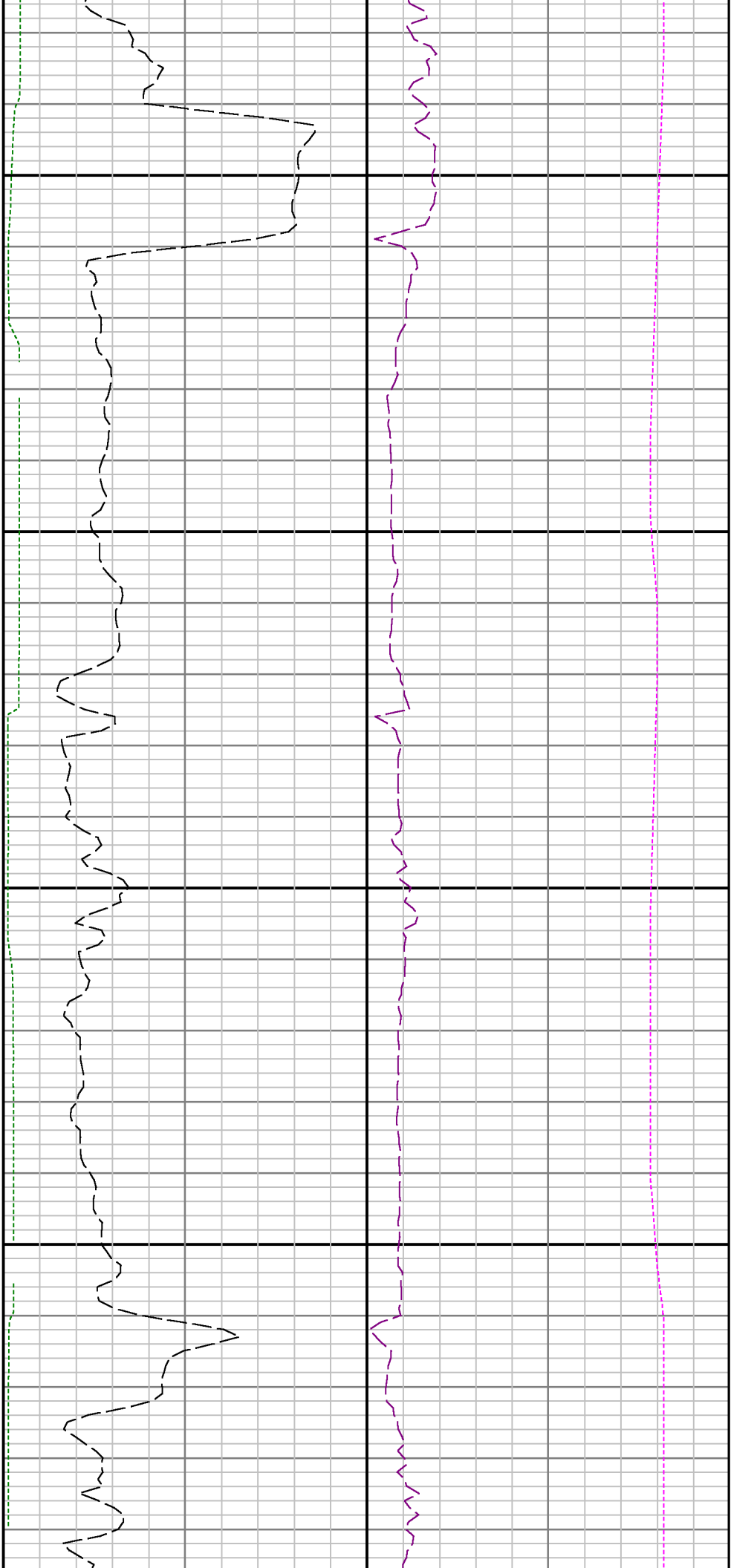
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11200

11300

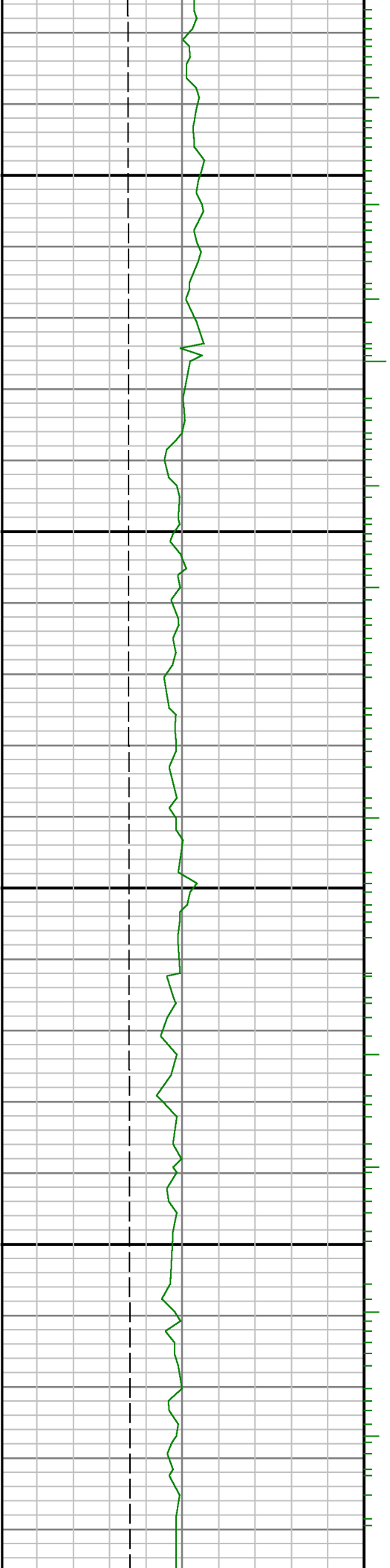






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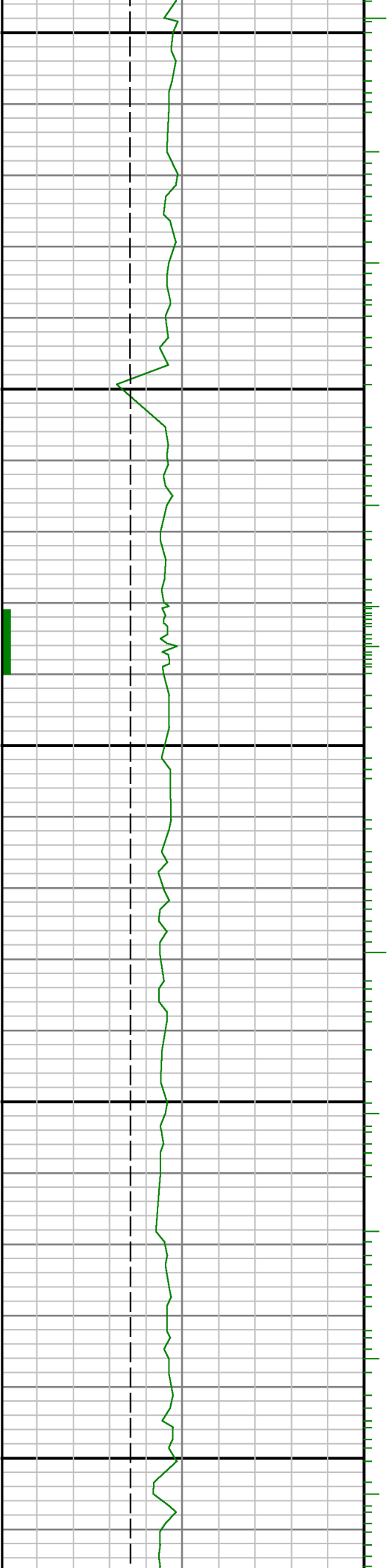
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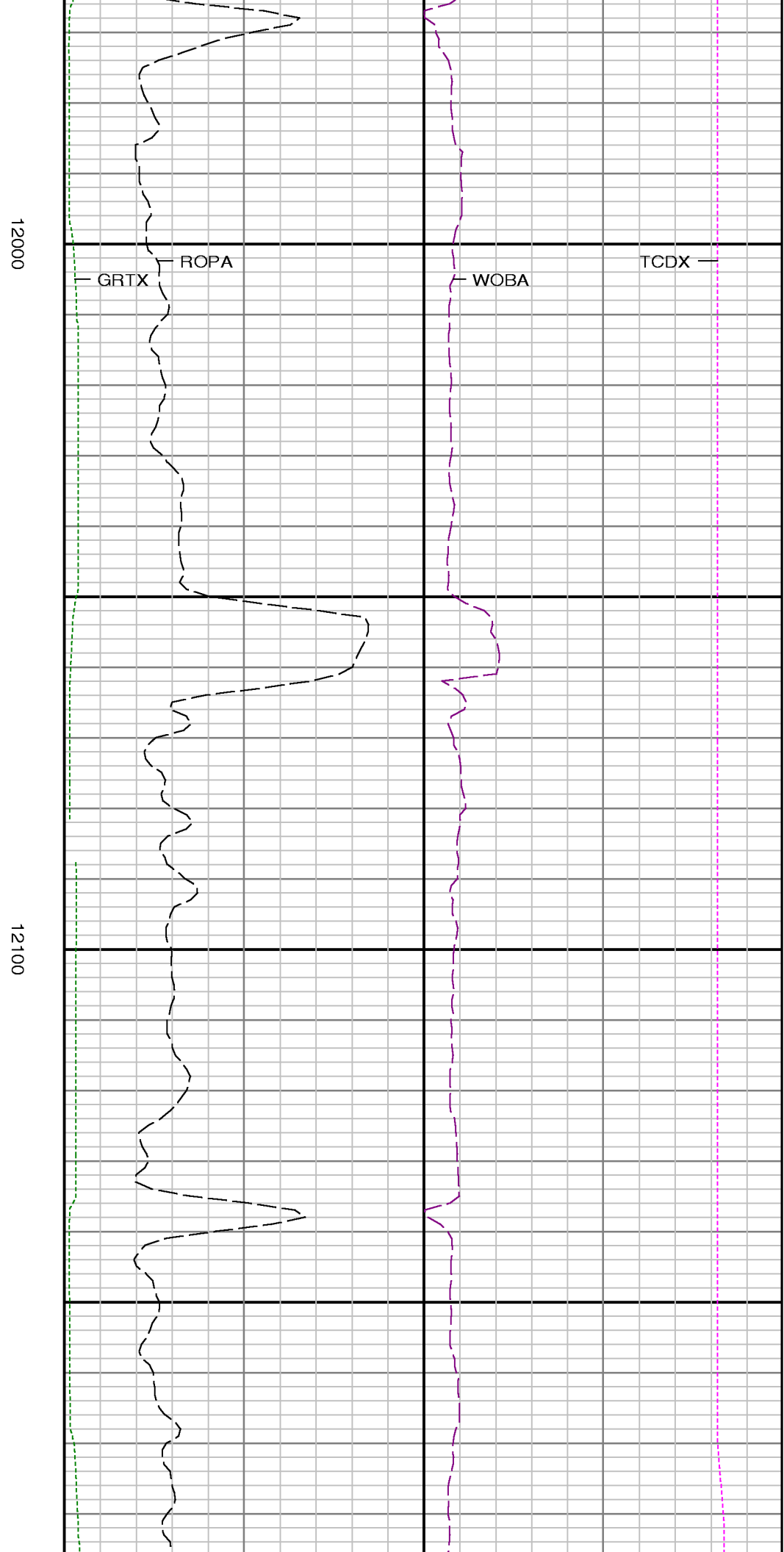
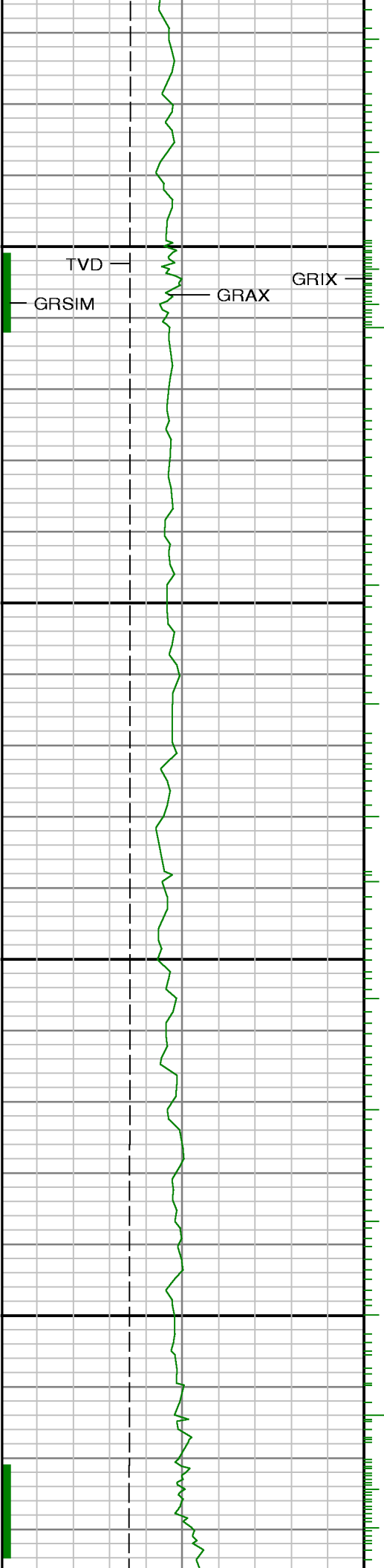


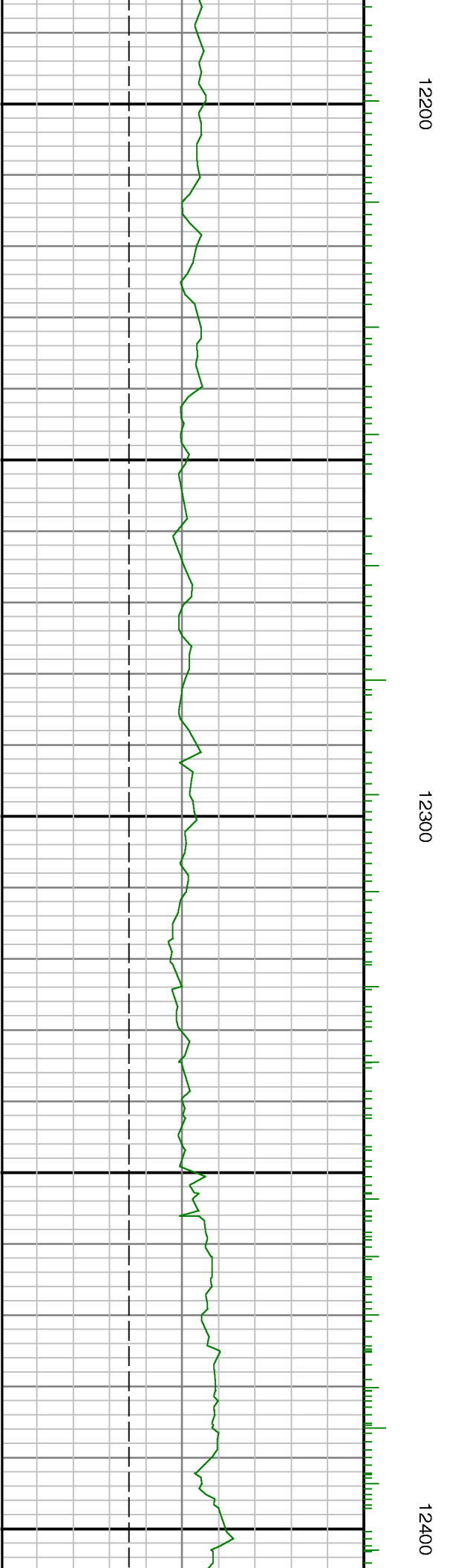
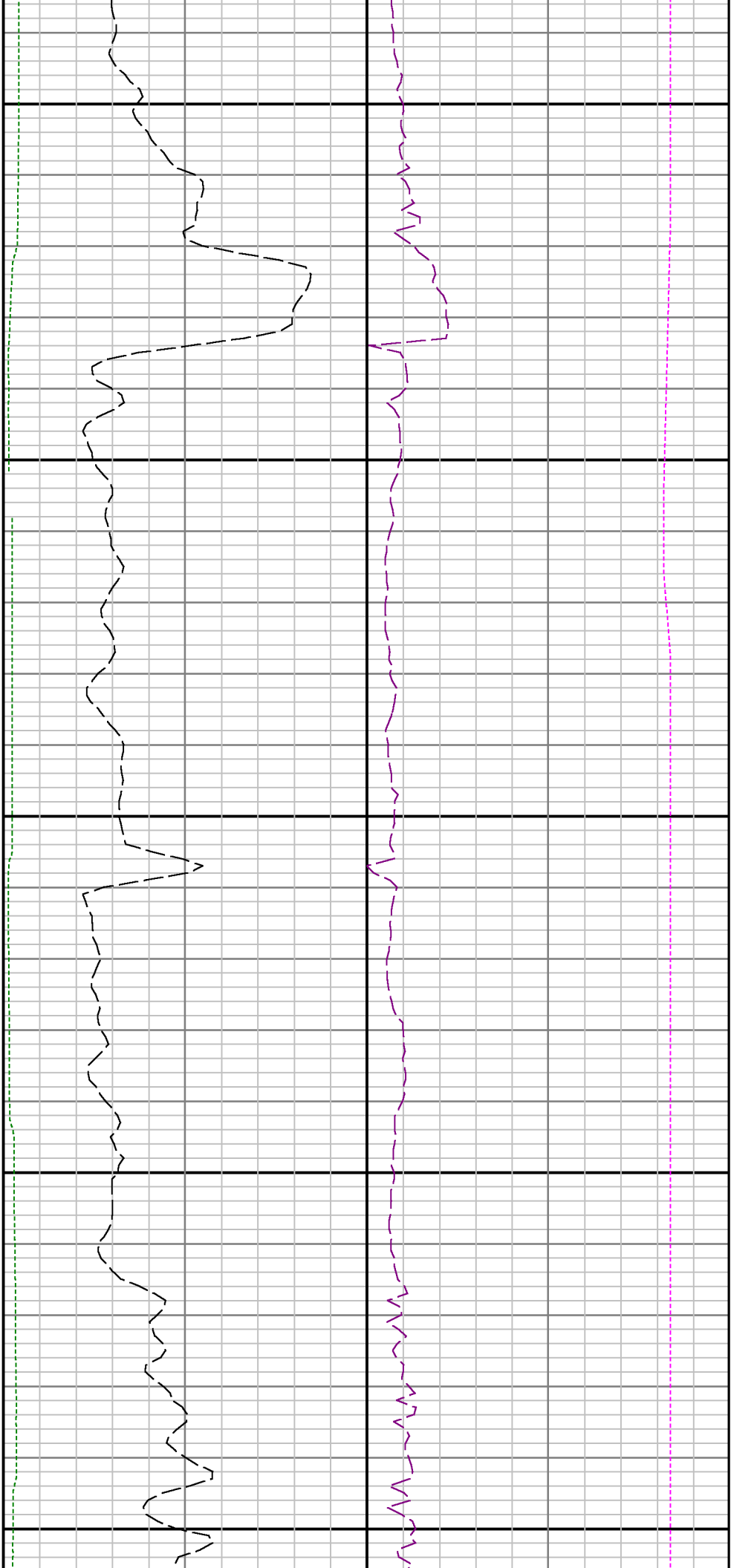


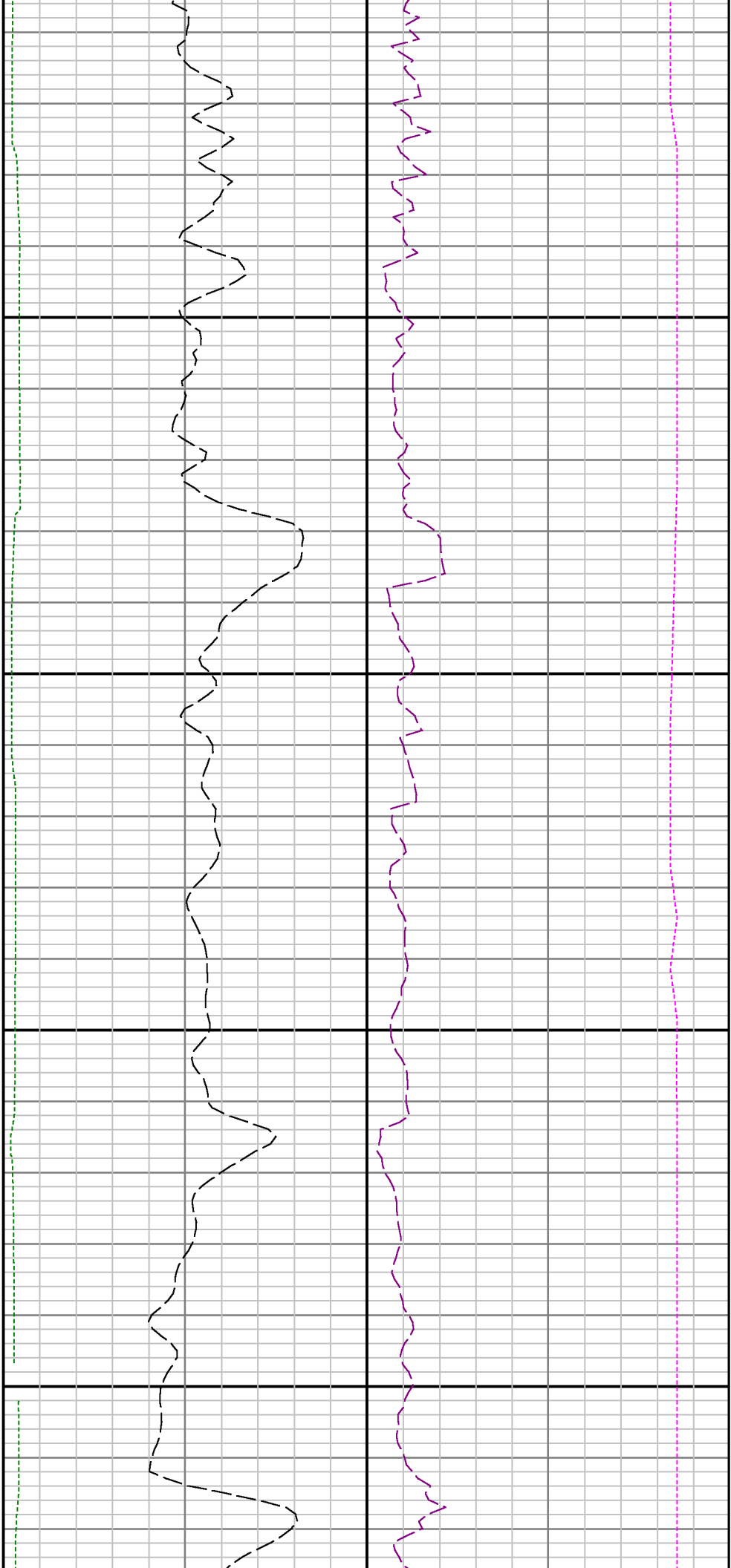
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11900



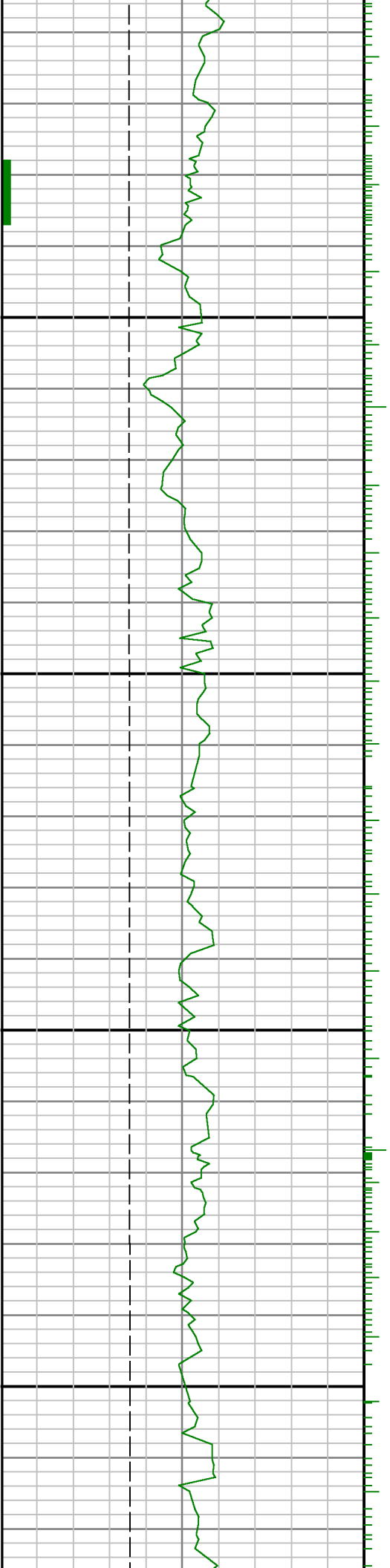


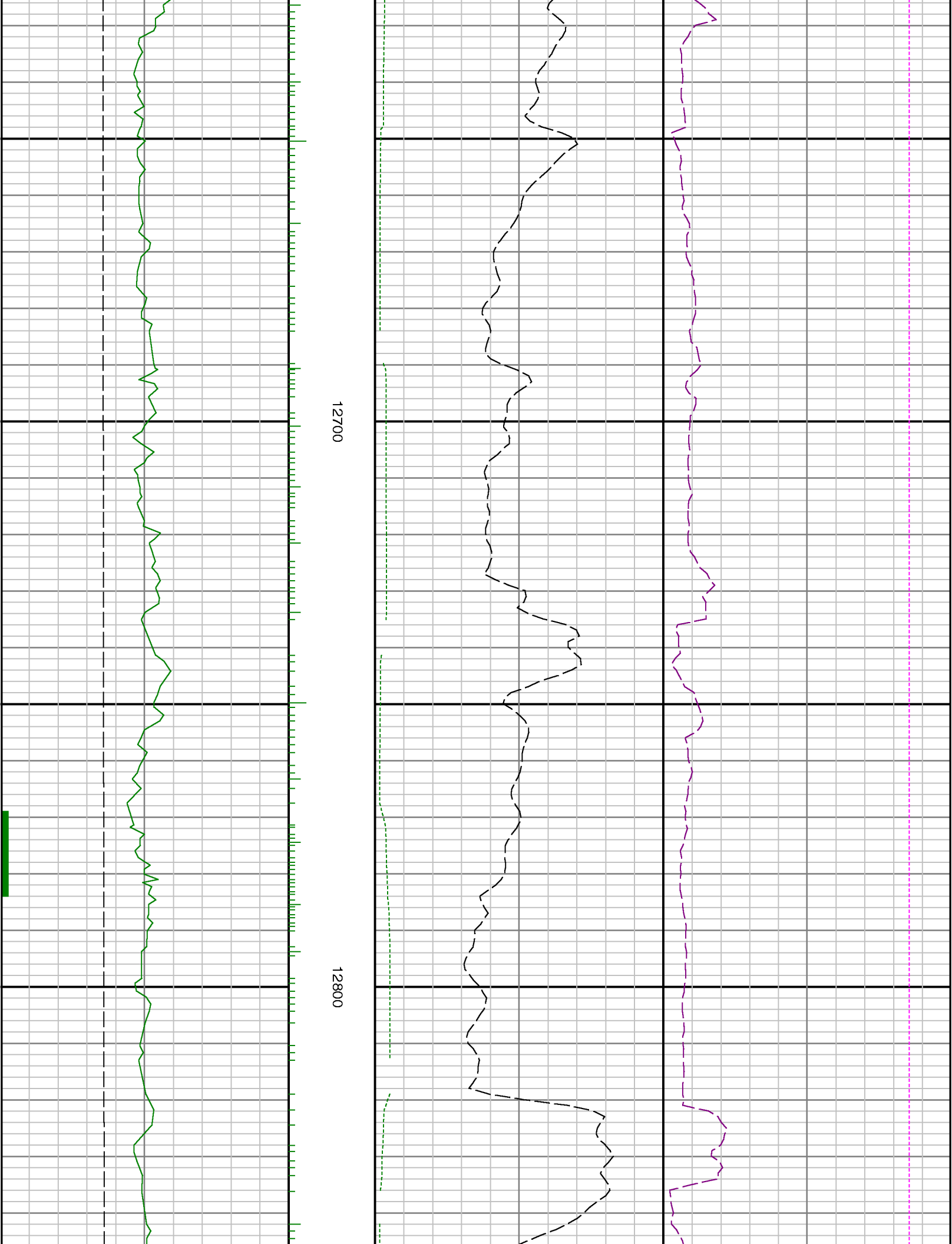


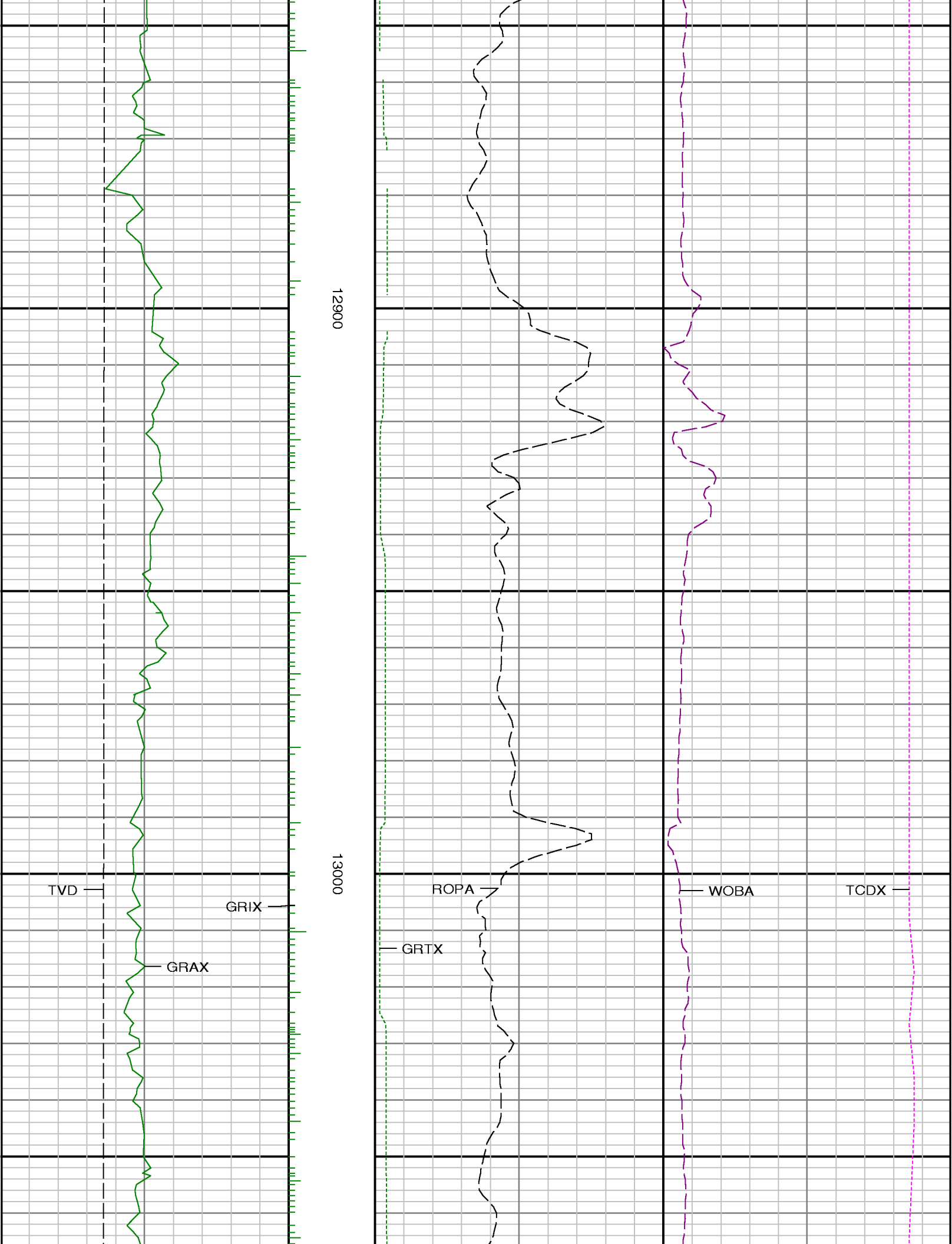


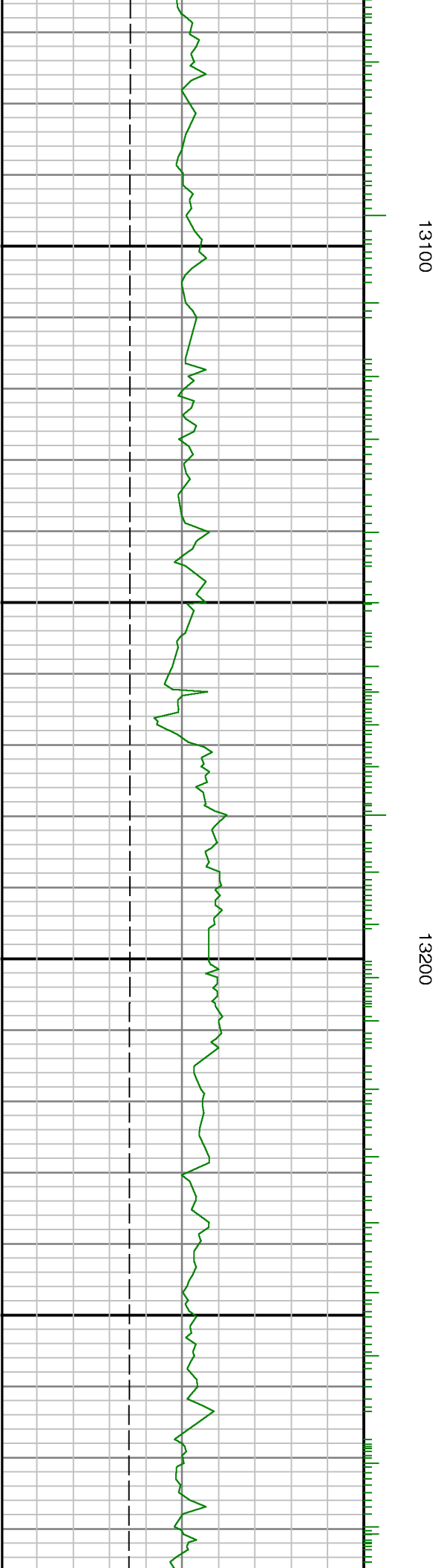
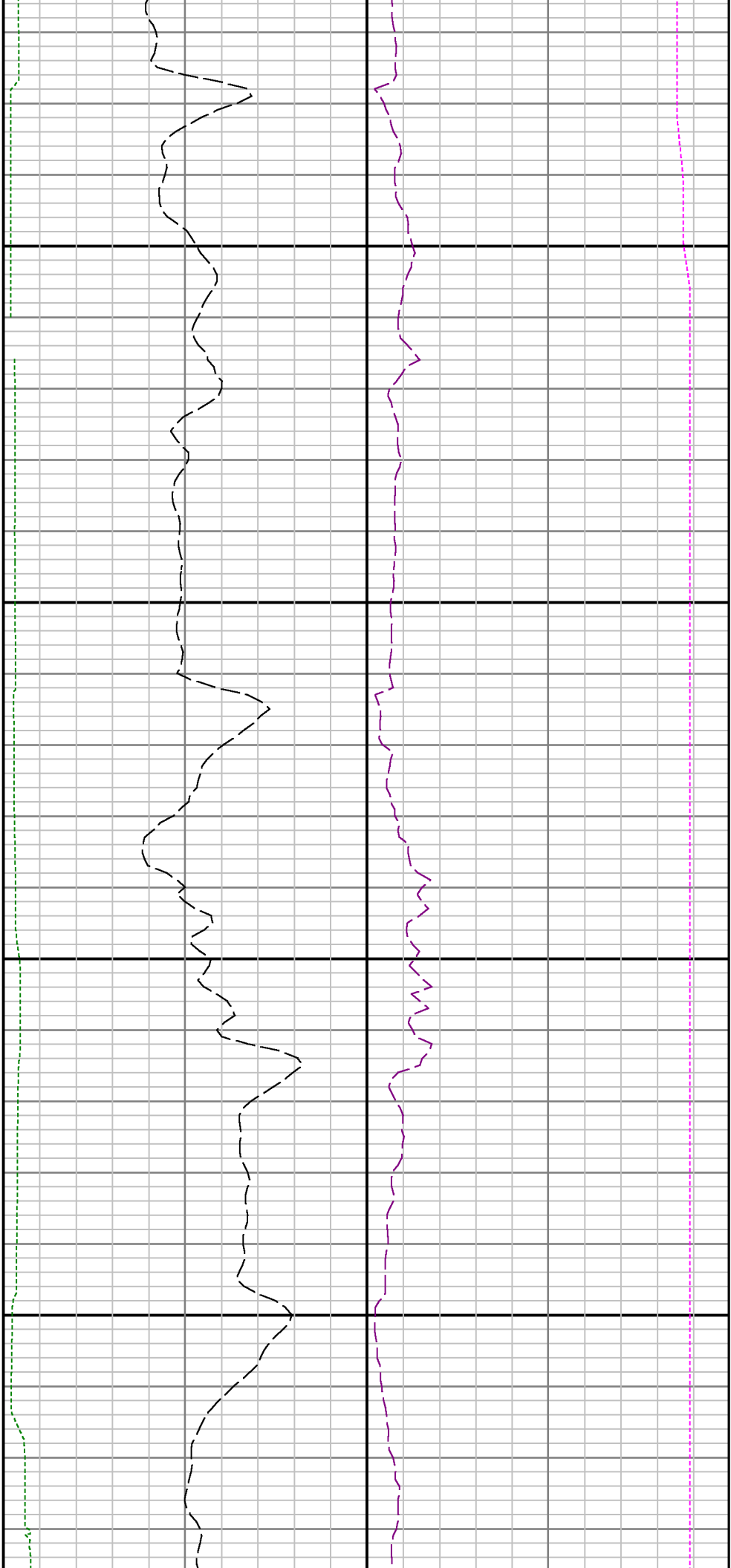
12500

12600











13300

13400

13500

