



Real Time Log

Natural Formation Evaluation  
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Dolph 15C-1HZ

Measured Depth

Field: Weld County (Kerr McGee)

County Weld County State Colorado

Status: Final Print

Surface Location:

Latitude: 40° 10' 24.106" N

Longitude: 104° 43' 37.312" W

Other Services:

Directional VSS

API Number: 123-39332-00

SEC: 1

TWN: 2N

RNG: 66W

Elevations:

N/A

Permanent Datum (P.D.): Ground Level Elevation: 5026.00 ft.

Elevations: N/A

Log Measured From: Rig Floor 13.00 ft. Above P.D.

KB: 5026.00 ft.

DF: 5013.00 ft.

Depth Reference: Drillers Depth

GL: 5013.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6891.0 ft. Date From: 29 Aug 14 Dip Angle: 66.76° Azi Reference North: True

Bottom: 12246.0 ft. Date To: 02 Sep 14 Total Mag to Reference

Spud Date: 25 Aug 14 Field Strength: 52614.4 nT North Correction: 8.49°

Borehole Record

Casing Record

Hole Size From To Size Weight From To

8.750 in. 1423.0 ft. 7835.0 ft. 7.000 in. 32.00 lb/ft. Surface 7821.0 ft.

6.125 in. 7835.0 ft. 12246.0 ft.

Mud Record

Deviation Record

Type From To Hole Size Interval Inc / Azi (Start) Inc / Azi (End)

Water Based Surface 12246.0 ft. 8.750 in. 90.0 ft. 0.3° / 121.0° 1.0° / 200.3°

8.750 in. 45.0 ft. 1.0° / 200.3° 84.1° / 158.3°

6.125 in. 90.0 ft. 84.1° / 158.3° 86.9° / 155.6°

Acquisition System Software Version

Other

Advantage 2.20U4 Rig / Contractor: Ensign 145 / Ensign Drilling

PATS 6.4.1.34 Job No: 6573061 District / Unit: RMD / D & E

INTEQ does not guarantee the accuracy or correctness of interpretations provided in or from this log. Since all interpretations are opinions based on measurements, INTEQ shall under no circumstances be responsible for consequential damages or any other loss, costs, damages or expenses incurred or sustained in connection with the use of any such interpretations. INTEQ disclaims all expressed and implied warranties related to this service. INTEQ's liabilities and obligations shall be governed by INTEQ's Standard Terms and Conditions.

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		
2	2	2	8.750	PDC	1.000	Steerable	6823.0	7790.0	6873.0	7835.0	29 Aug 14	15:34	30 Aug 14	05:34	14
3	3	3	6.125	PDC	4.250	Steerable	7791.0	19191.0	7835.0	12246.0	31 Aug 14	19:35	2 Sep 14	6:28	34

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Donald Delay	29 Aug 14	30 Aug 14	Kevin McGuire	29 Aug 14	2 Sept 14	Jason Williams	30 Aug 14	2 Sept 14

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (bbl)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
30 Aug 14	21:00	2	7229.0	Water Based	9.8	12	9.0	N/A	1/93	Flow Line	1400	N/A
01 Sep 14	22:49	2	11285.0	Water Based	9.7	13	9.0	N/A	1/91	Flow Line	1200	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	11941435	Directional	47.35	6.750	2.875
2	SRIG	12554666	Gamma	43.98	6.750	2.875
3	DIR	12456790	Directional	55.24	4.750	2.625
3	SRIG	12342306	Gamma	51.84	4.750	2.625

Service and Tool Mnemonics

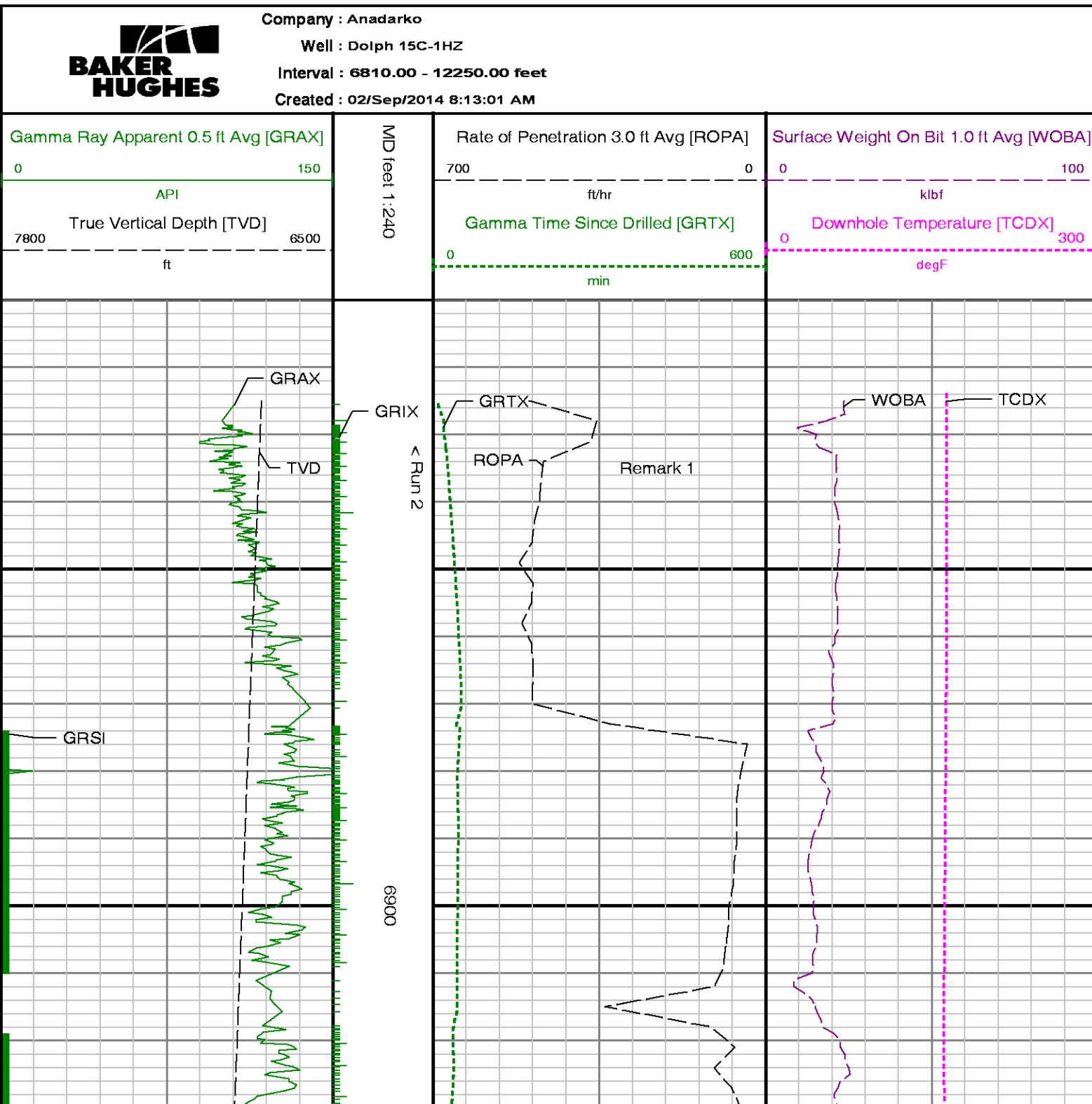
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

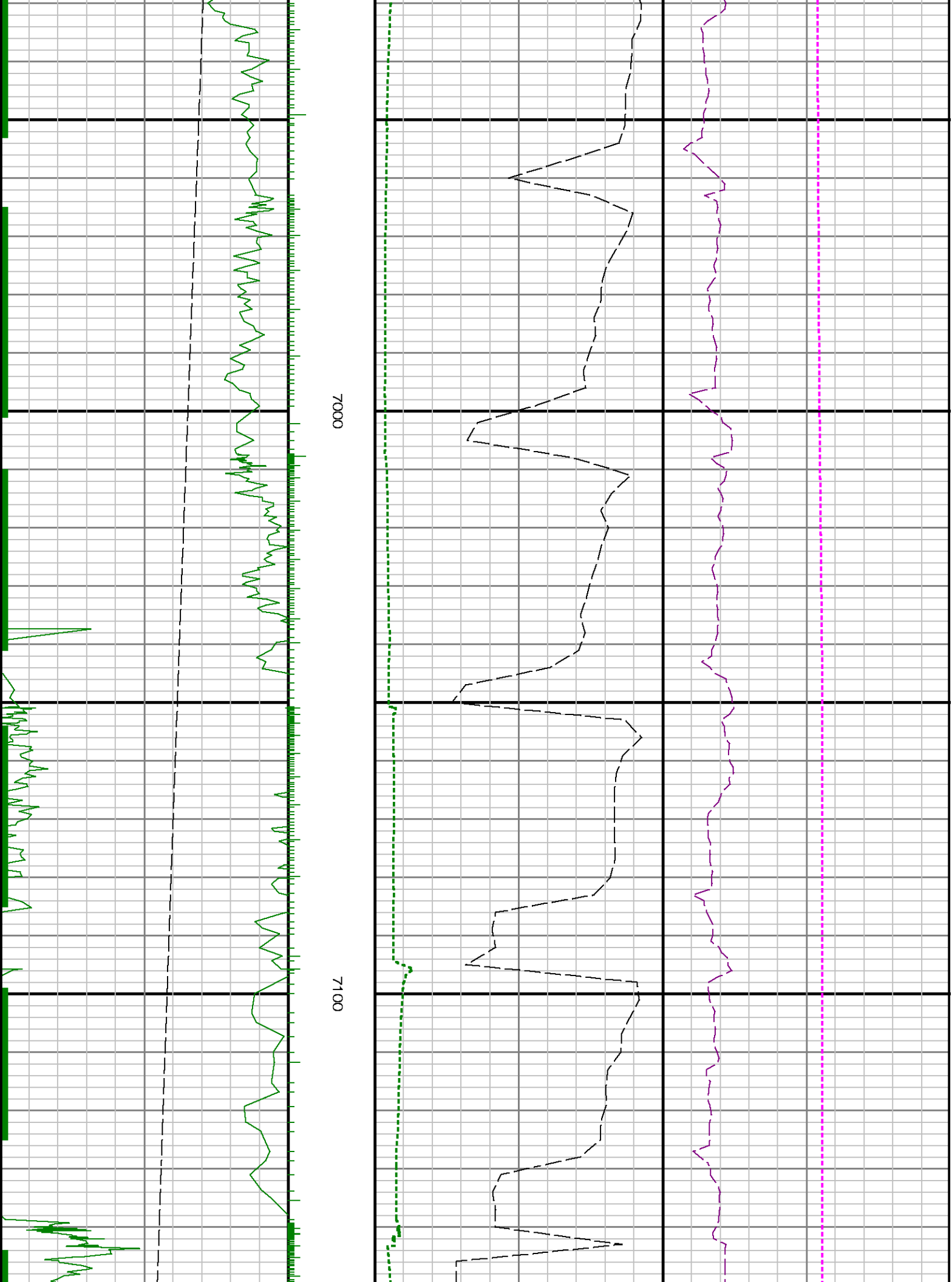
Comments

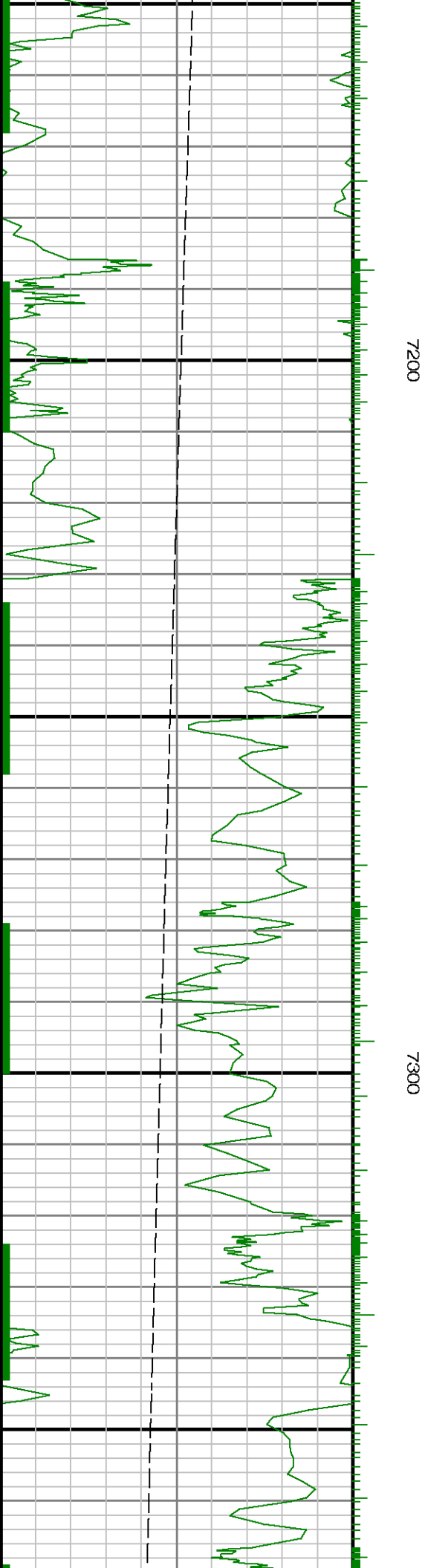
<p>1) Depth measurements are obtained from a depth control system not supplied or operated by Baker Hughes. due to a lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified. Unverified depths supplied to Baker Hughes are being used in present logging data.</p> <p>2) A Sliding indicator is 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 with Gamma Ray data acquired while sliding.</p> <p>3) Baker Hughes run 2 utilized 6 3/4 inch NaviGamma services, (Directional and Gamma Ray tool) behind an 8.75 inch bit and steerable assembly from surface to 6873 to 7835ft MD (6826.81 to 7425.51 ft TVD).</p> <p>4) Baker Hughes run 3 utilized 4 3/4 inch NaviGamma services, (Directional and Gamma Ray tool) behind an 6.125 inch bit and steerable assembly from 7835 ft MD to 12246 ft MD (7425.51 to 7449.02 ft TVD).</p>
--

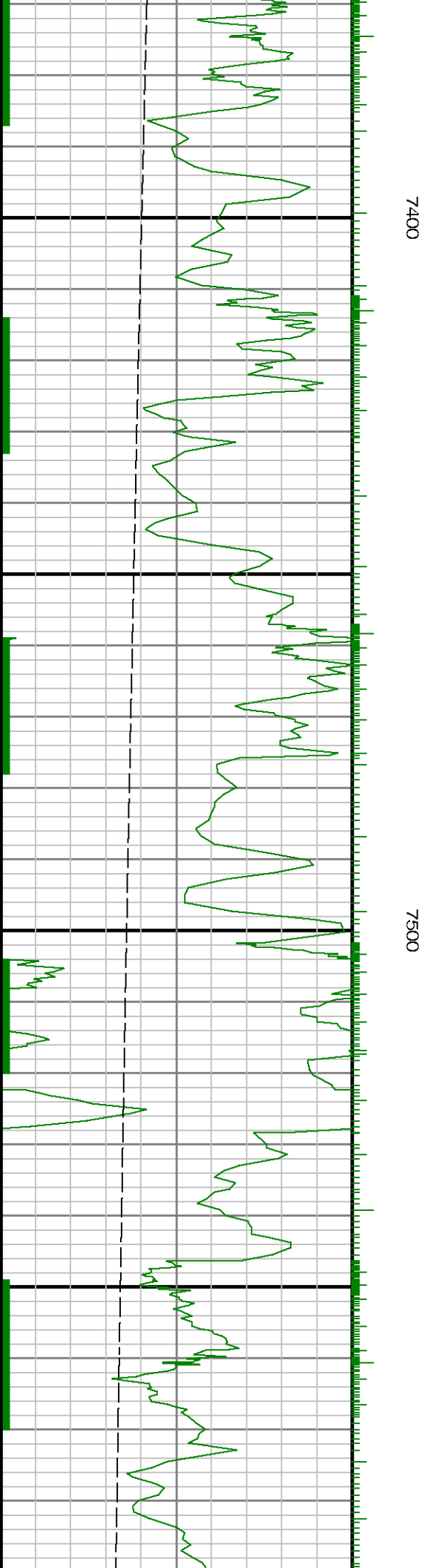
Remarks

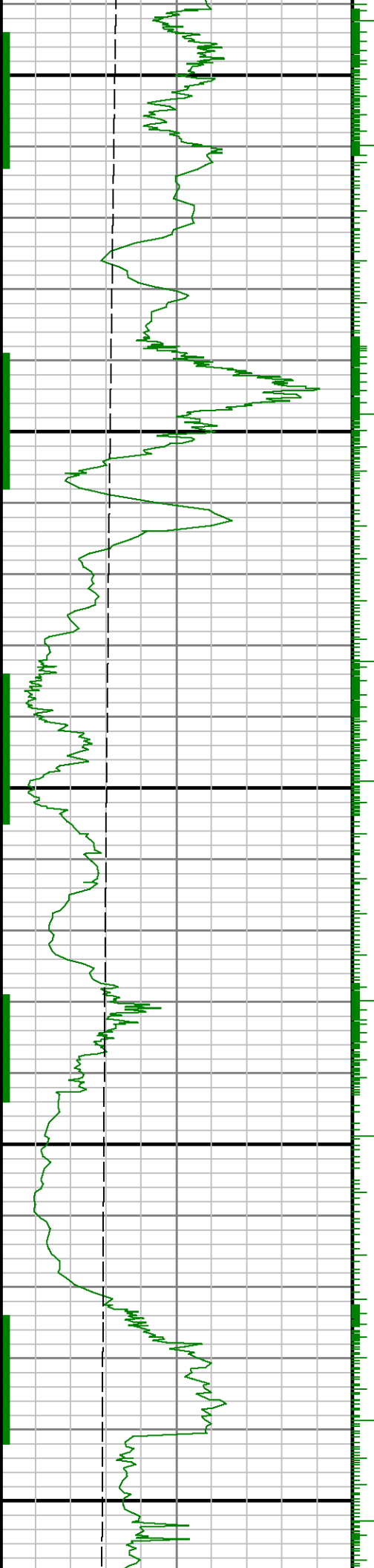
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6873	8.750	2	Logging services bega at 6823. No logging data prior to 6873 feet MD(6826.81 ft TVD) per client request
2	6823	8.750	2	The interval from 7790 to 7835 ft. MD (7422.24 to 7425.51 ft. TVD) was logged up to 34 hours after being drilled due to a casing and cement job, and rig repairs.
3	12191	6.125	3	The interval from 12191 to 12246 ft. MD (7445.62 to 7449.02 ft. TVD), was not logged due to sensor offset to bit at TD.









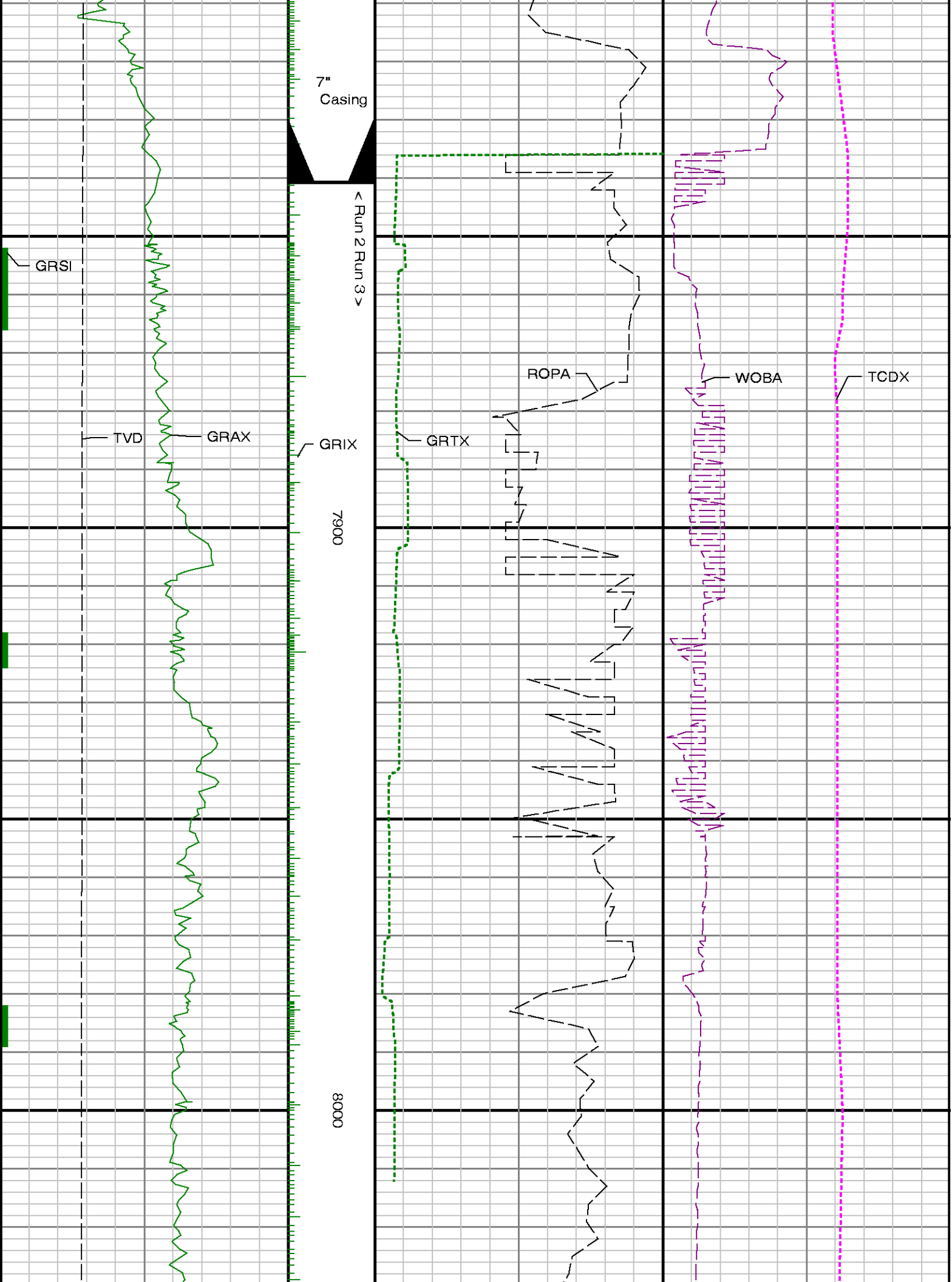


7600

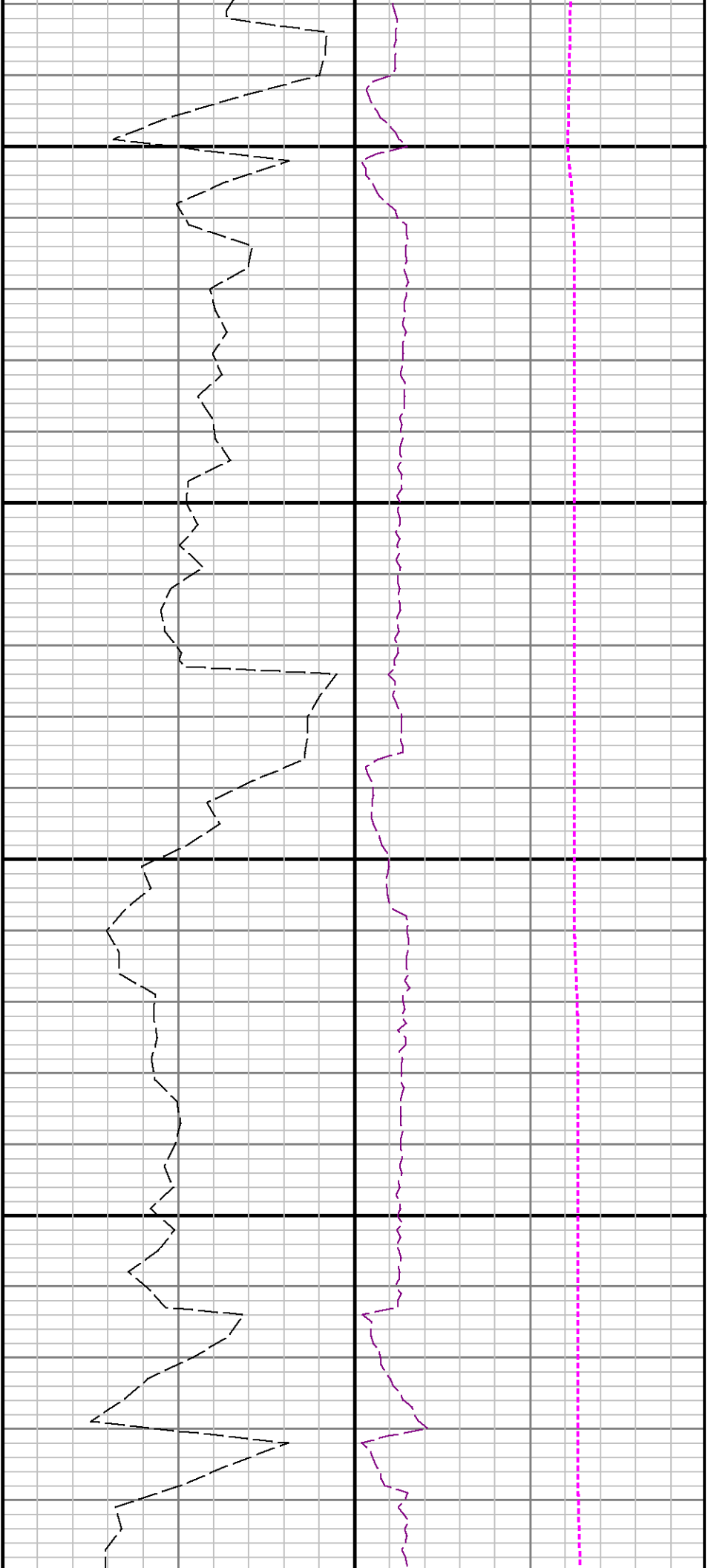
7700

7800



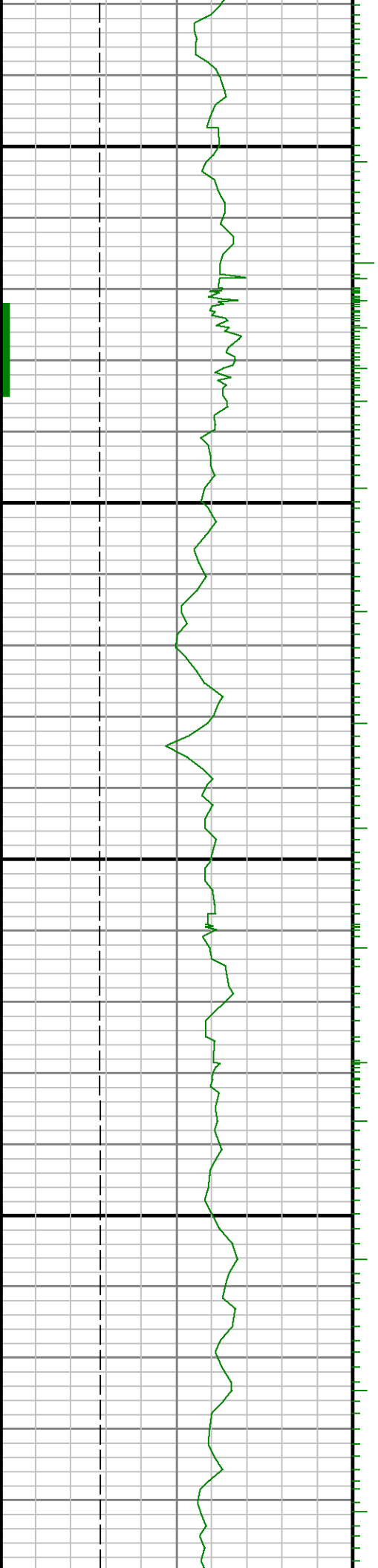


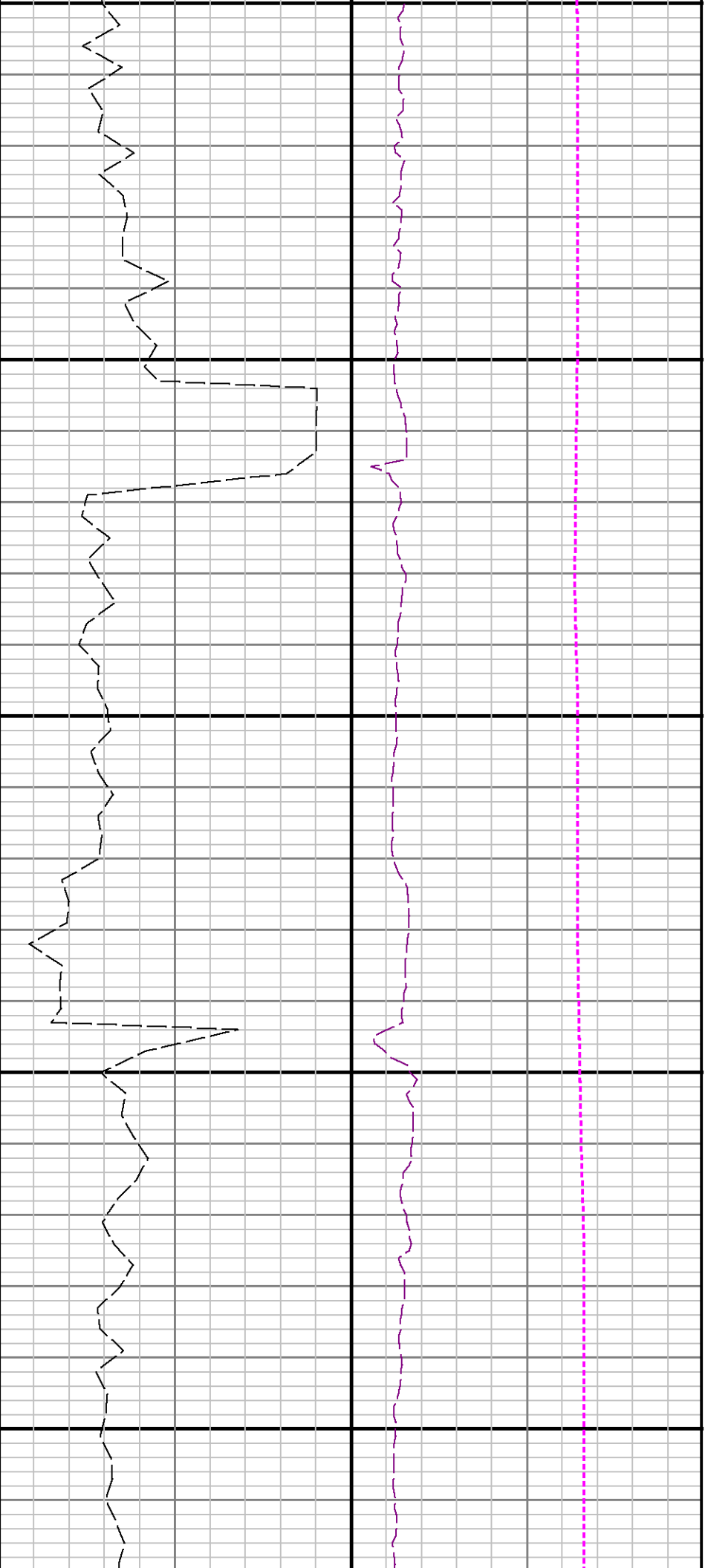




8100

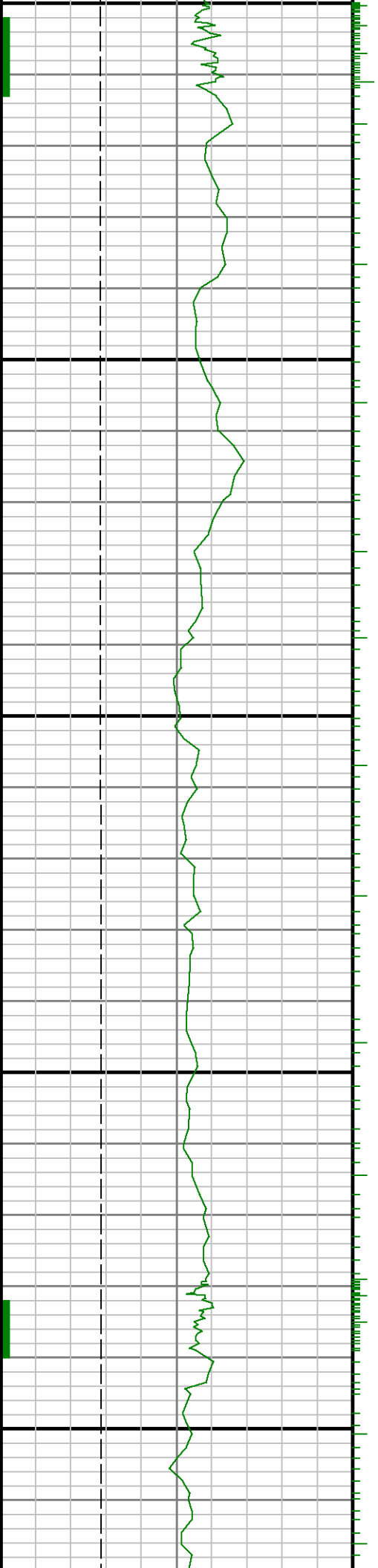
8200

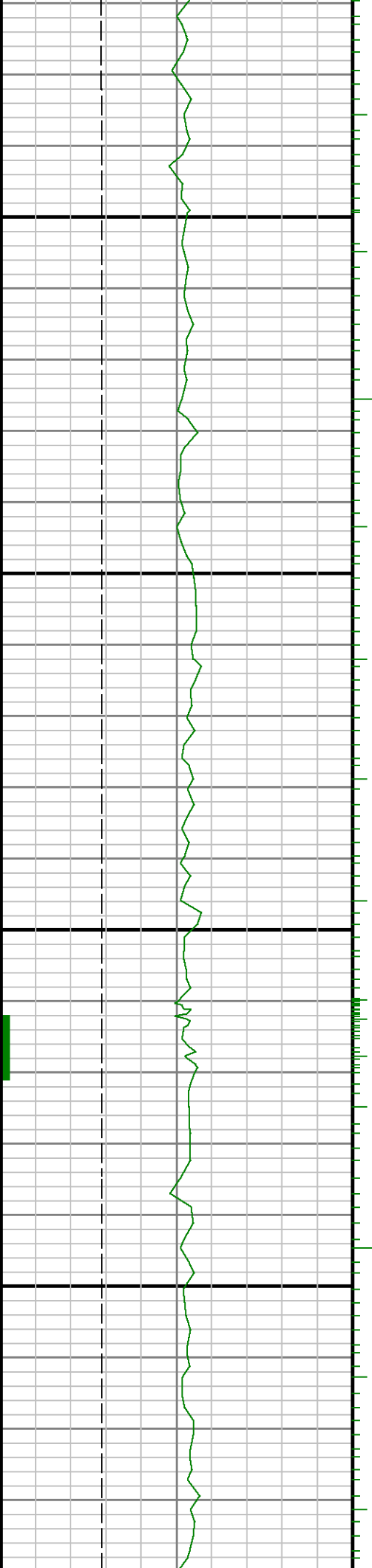




8300

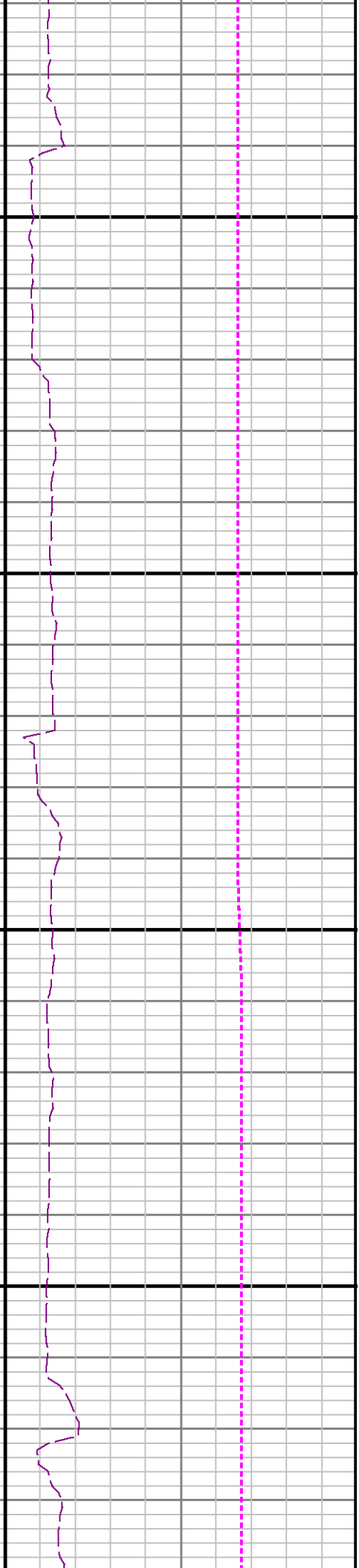
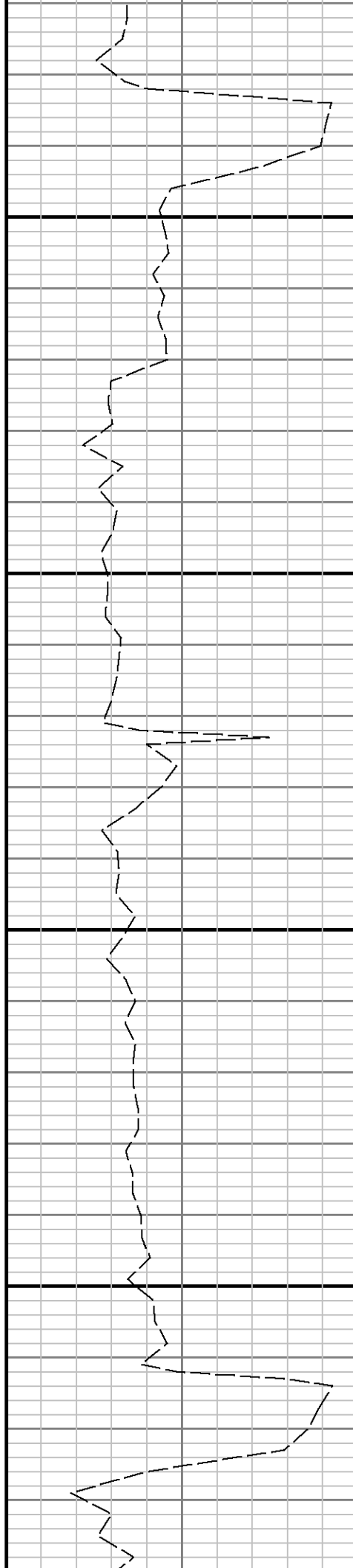
8400

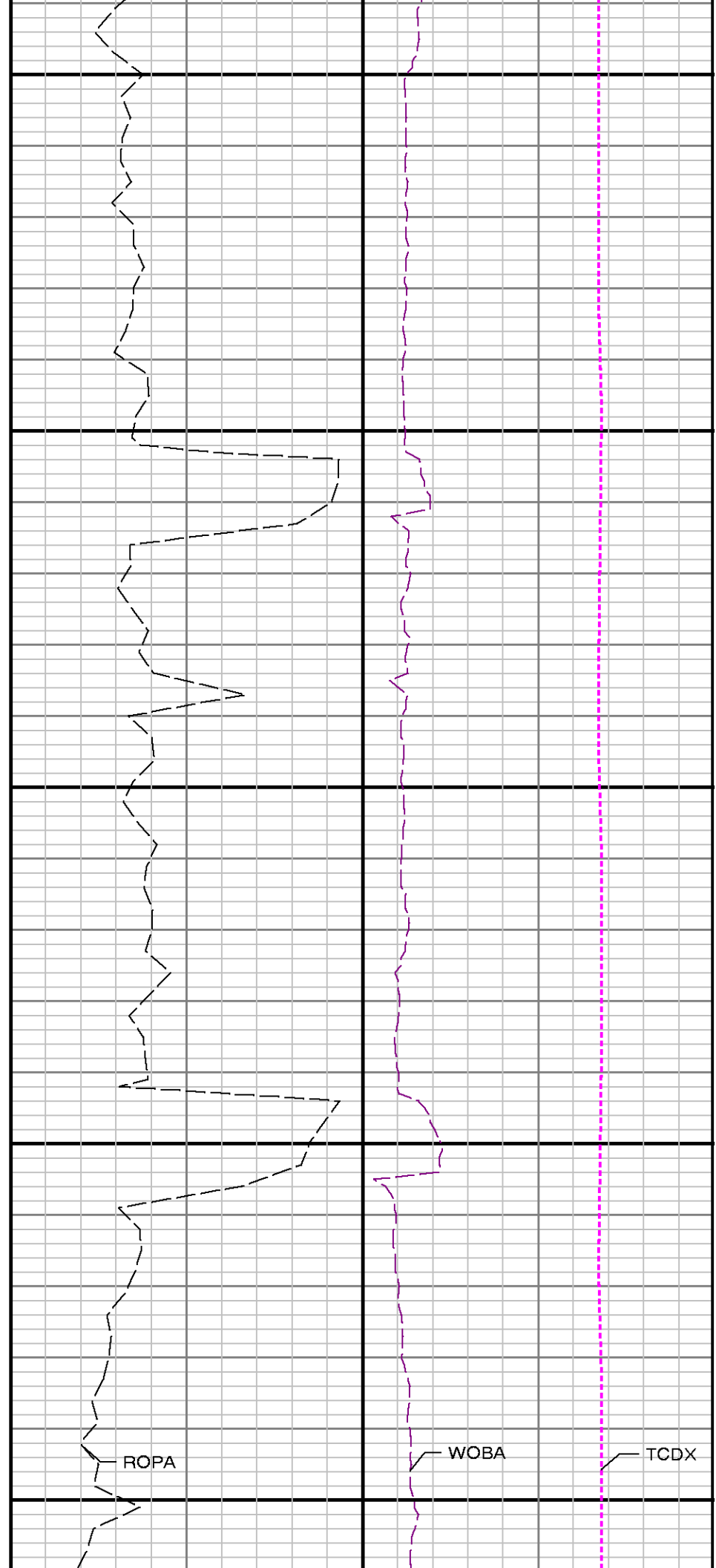
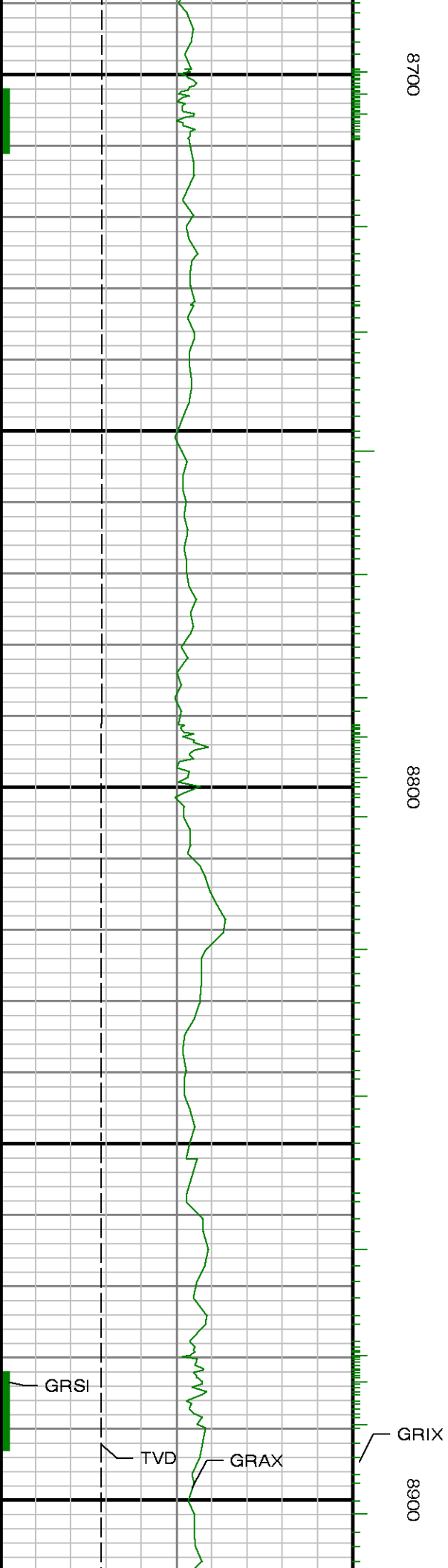


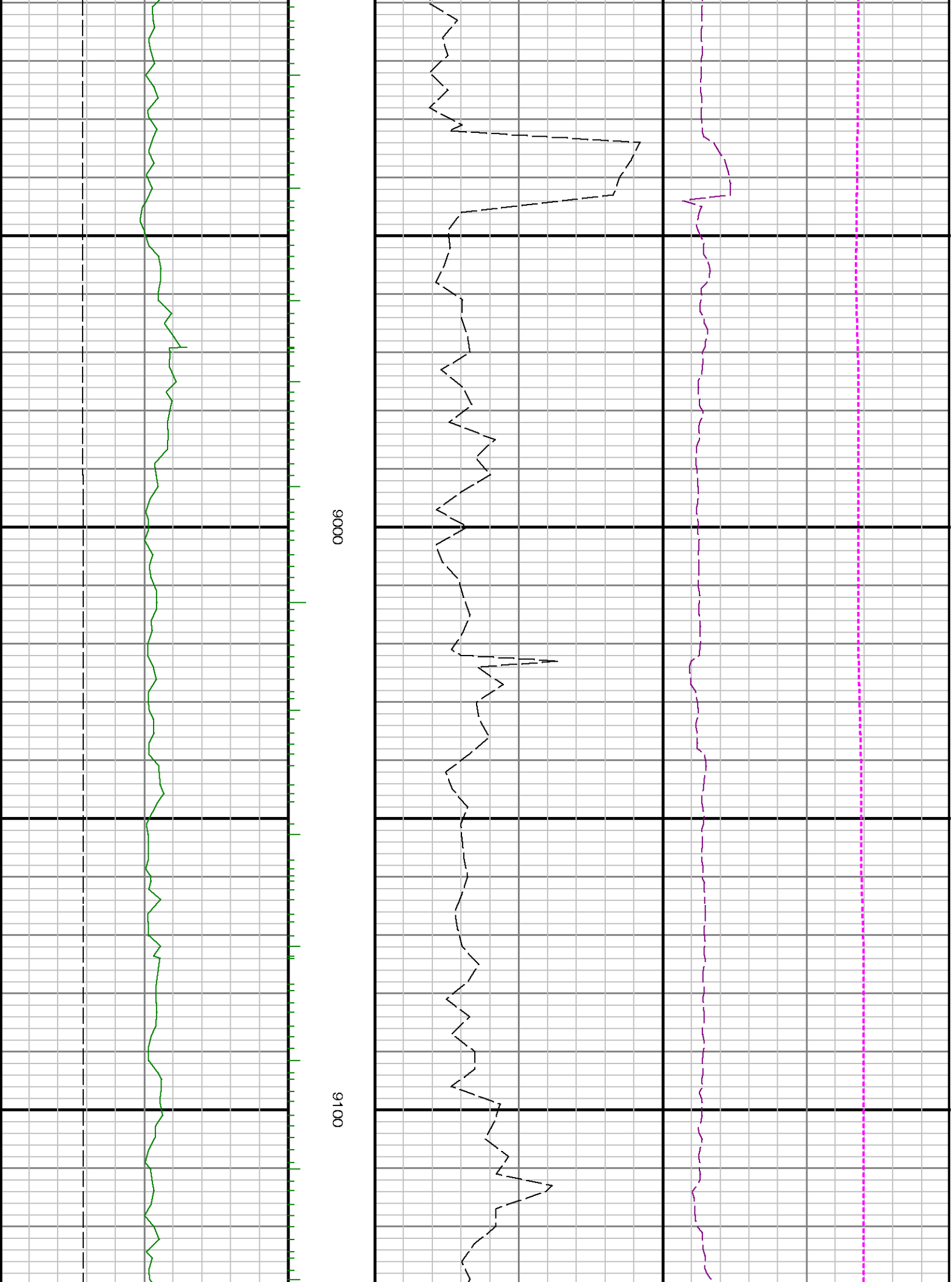


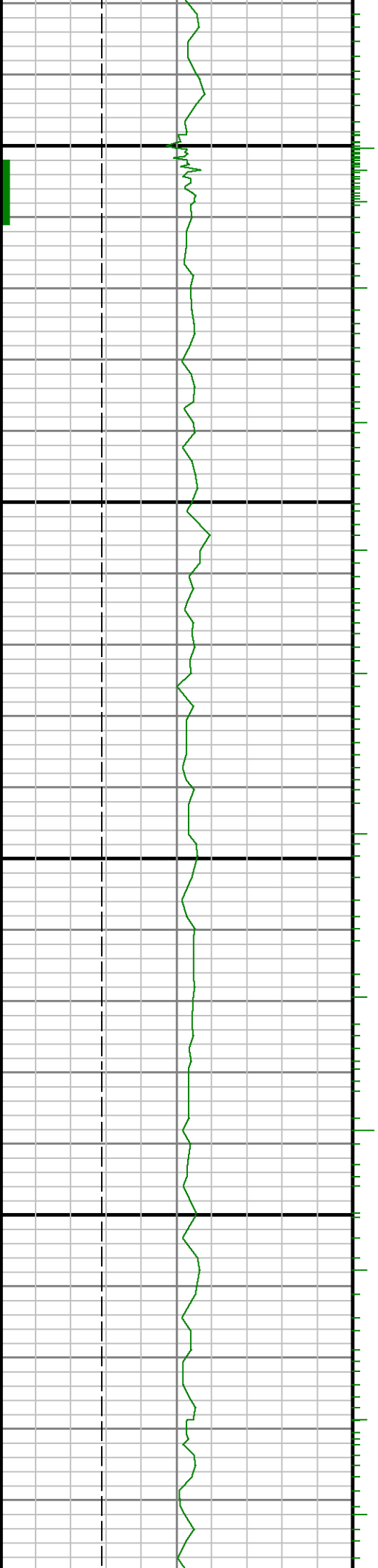
8500

0098



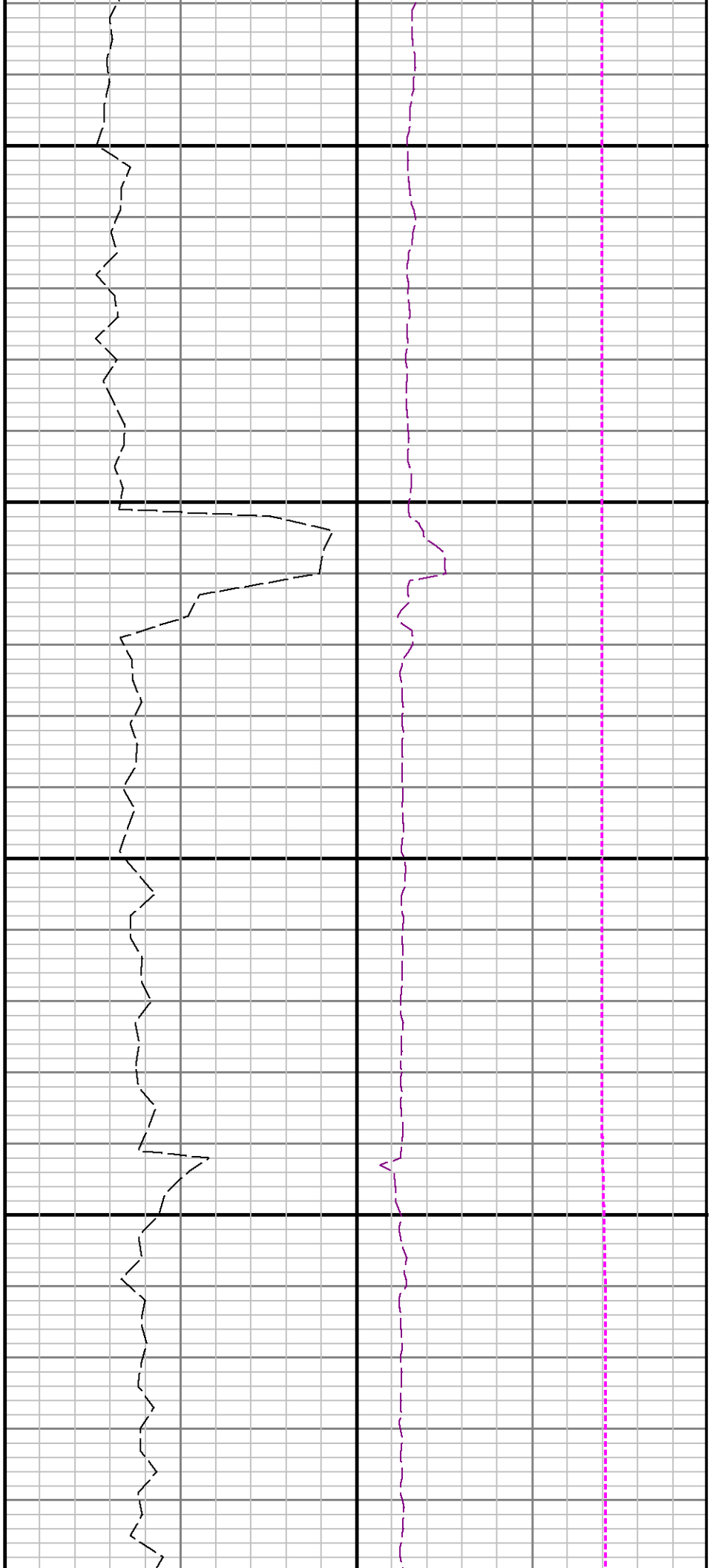


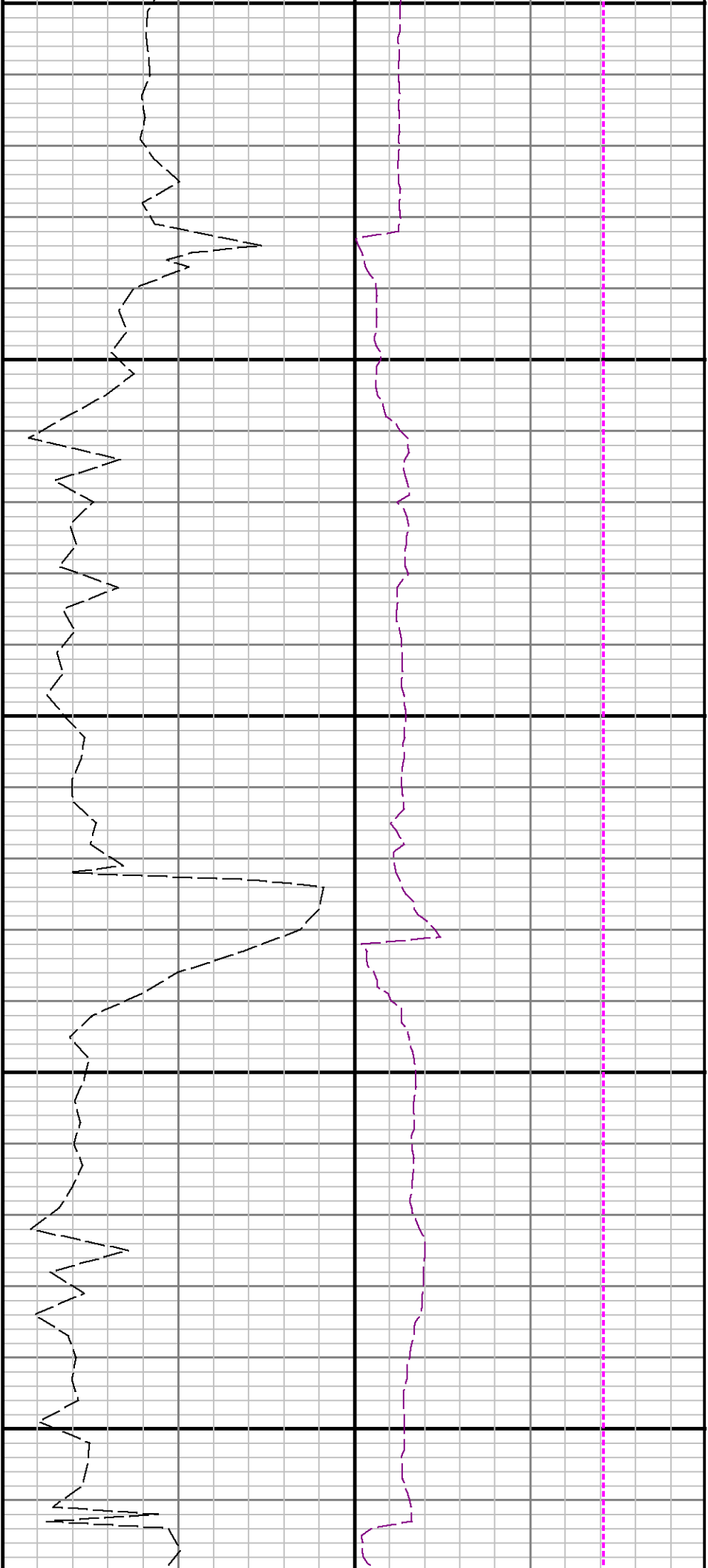




9200

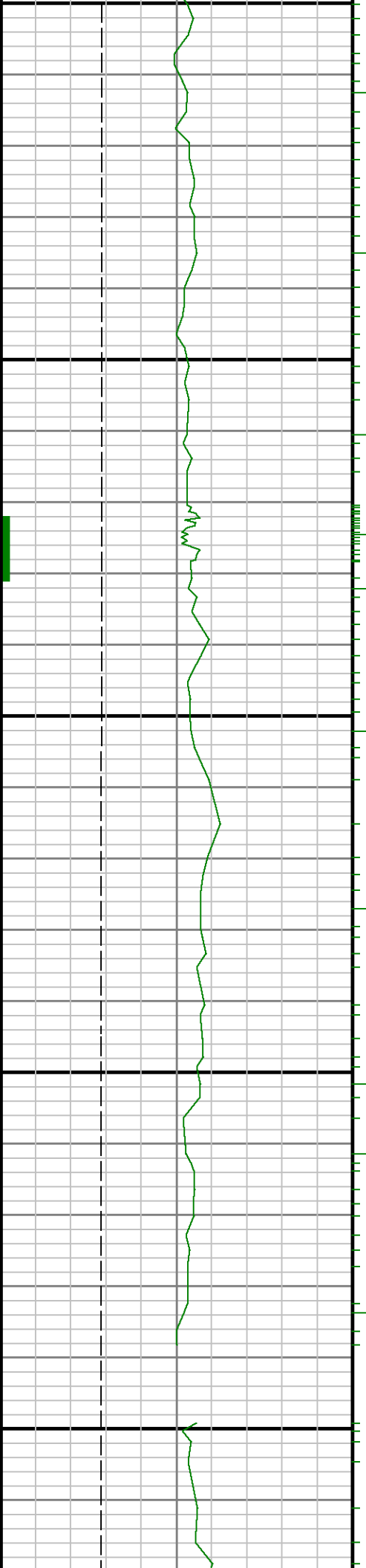
9300

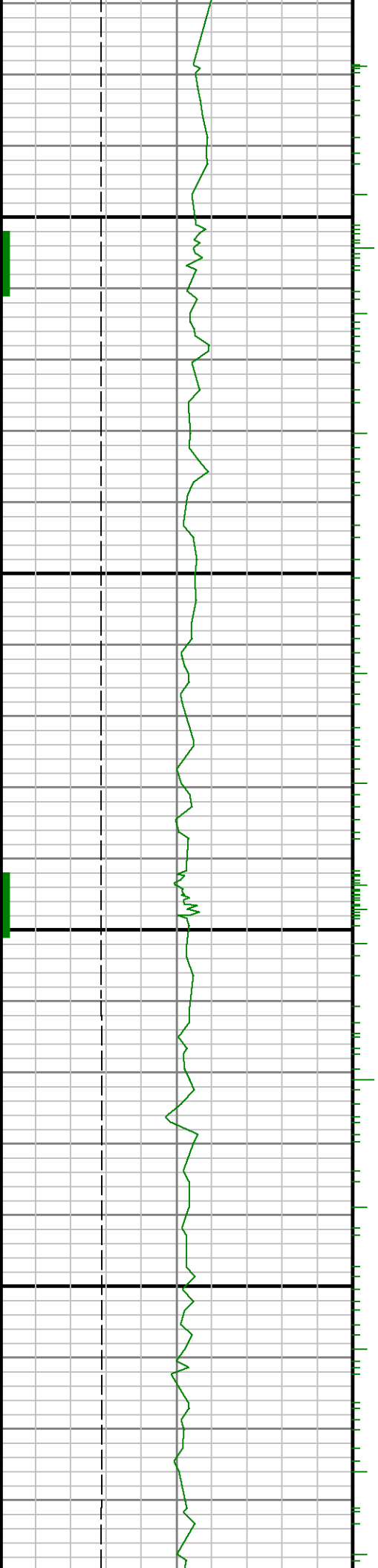




9400

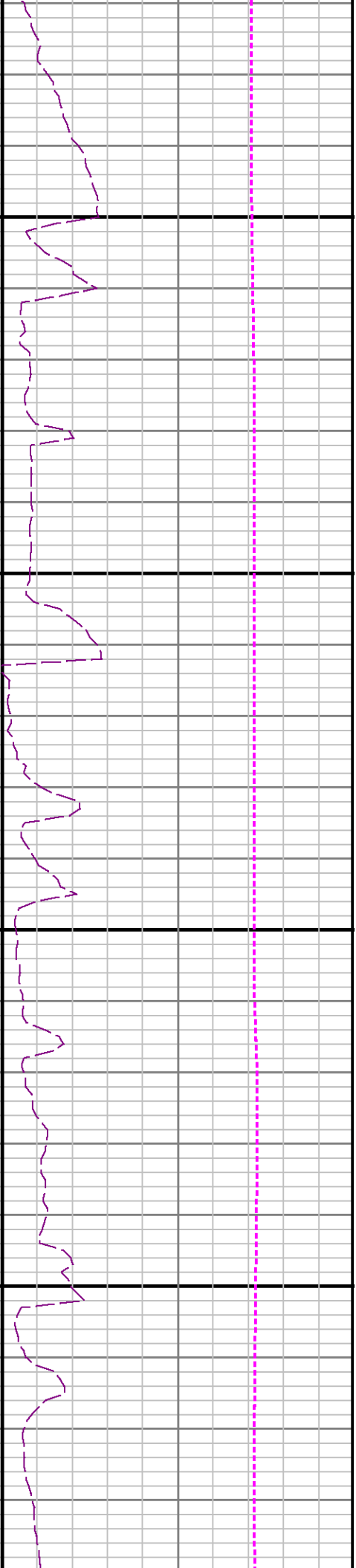
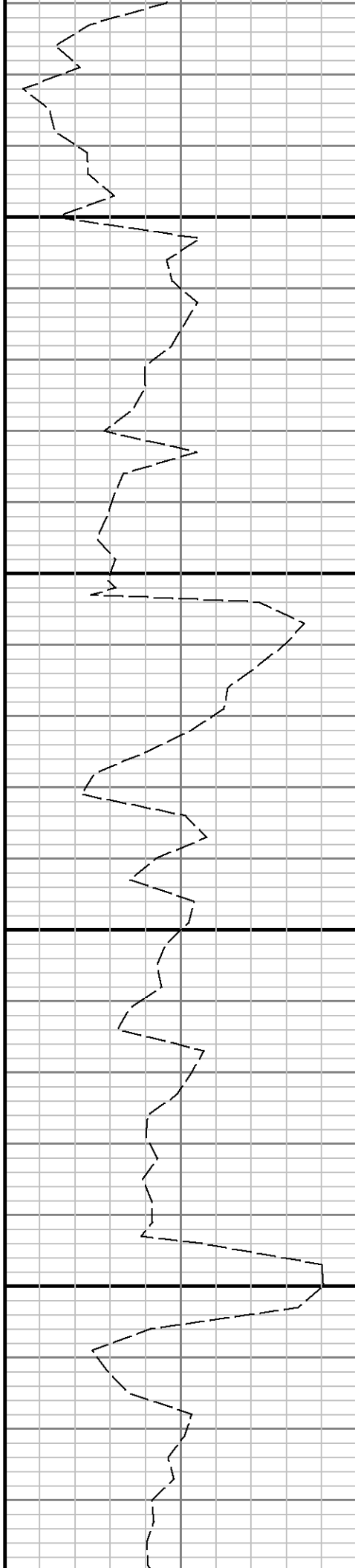
9500



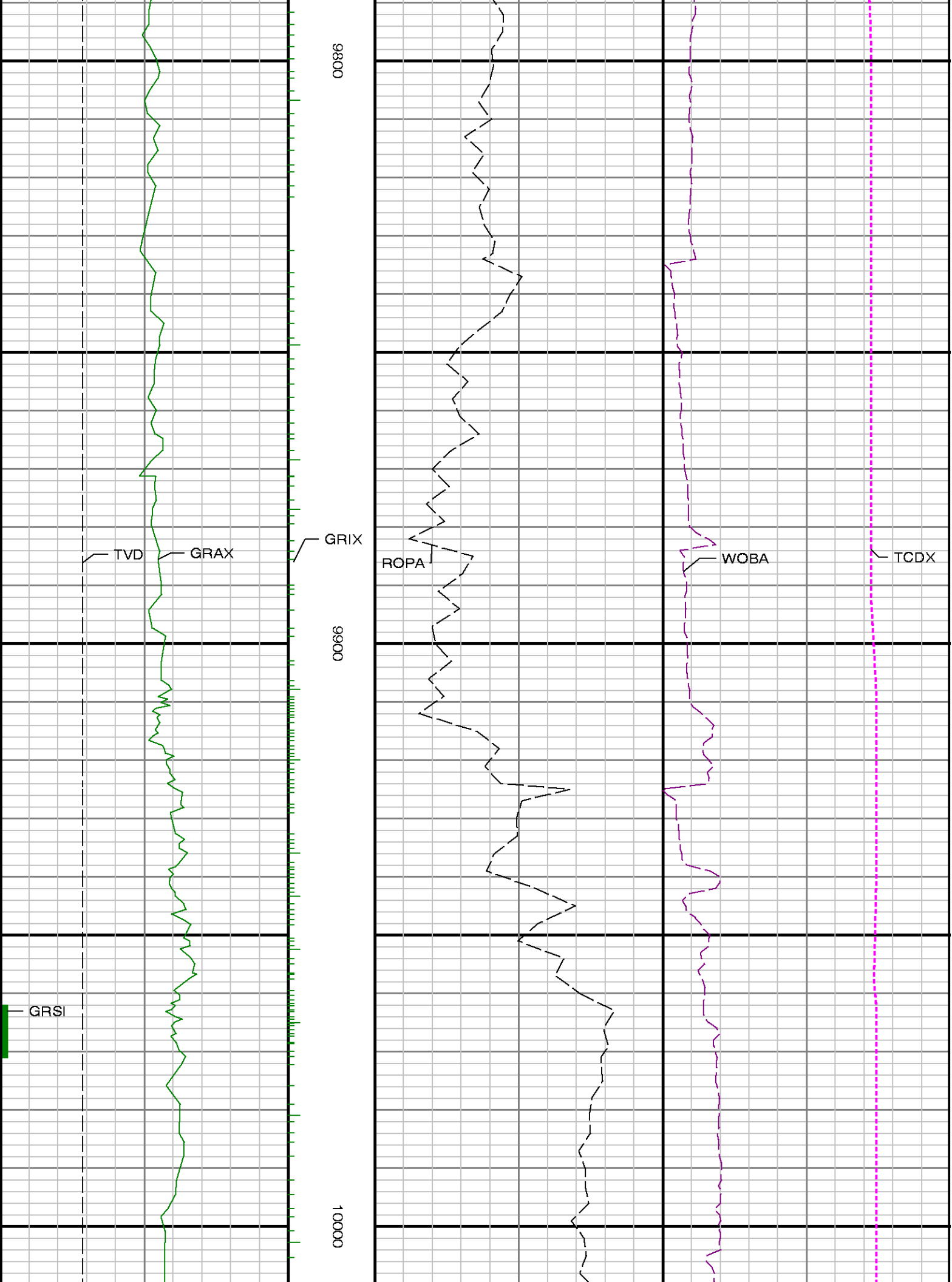


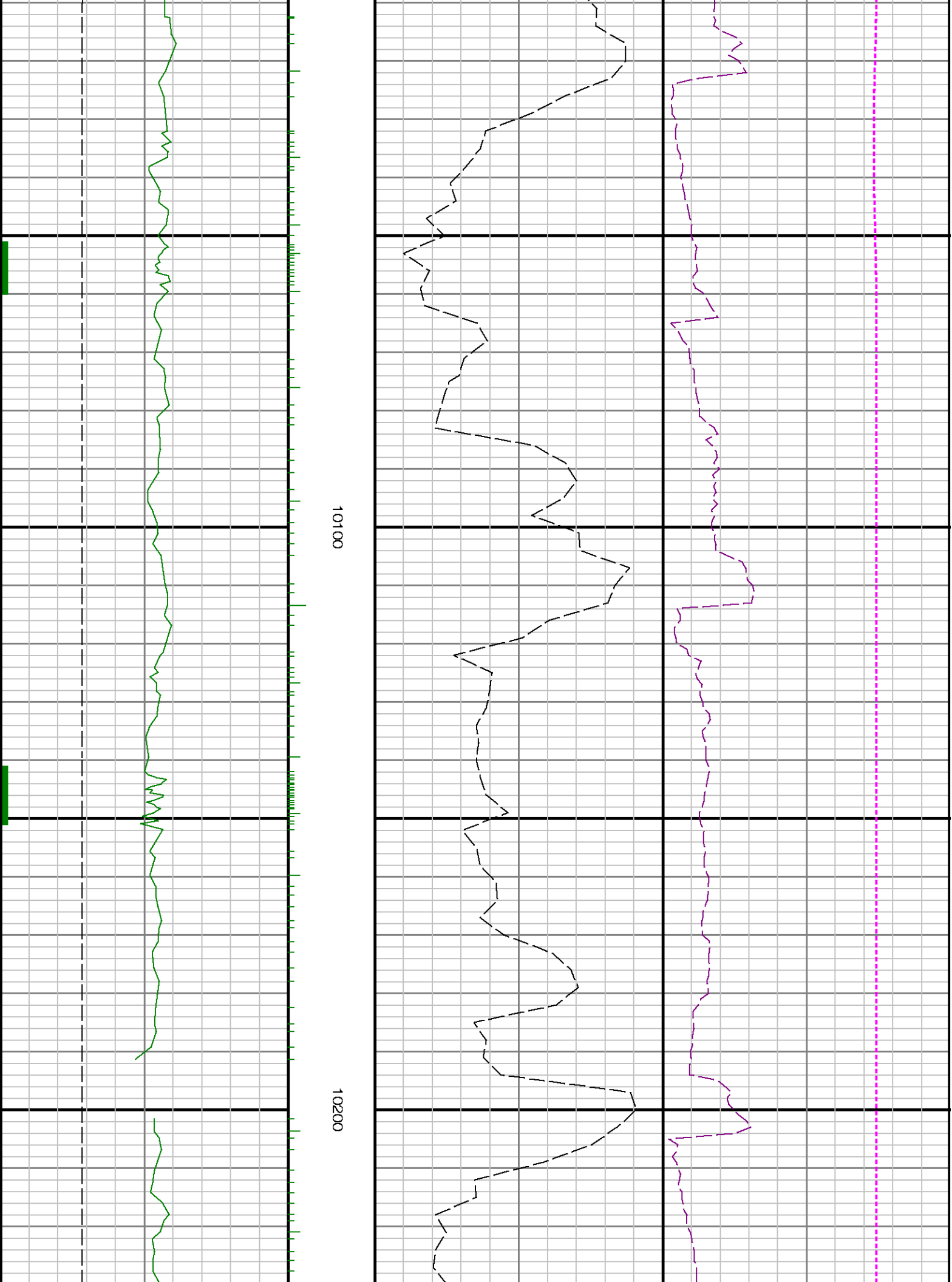
0096

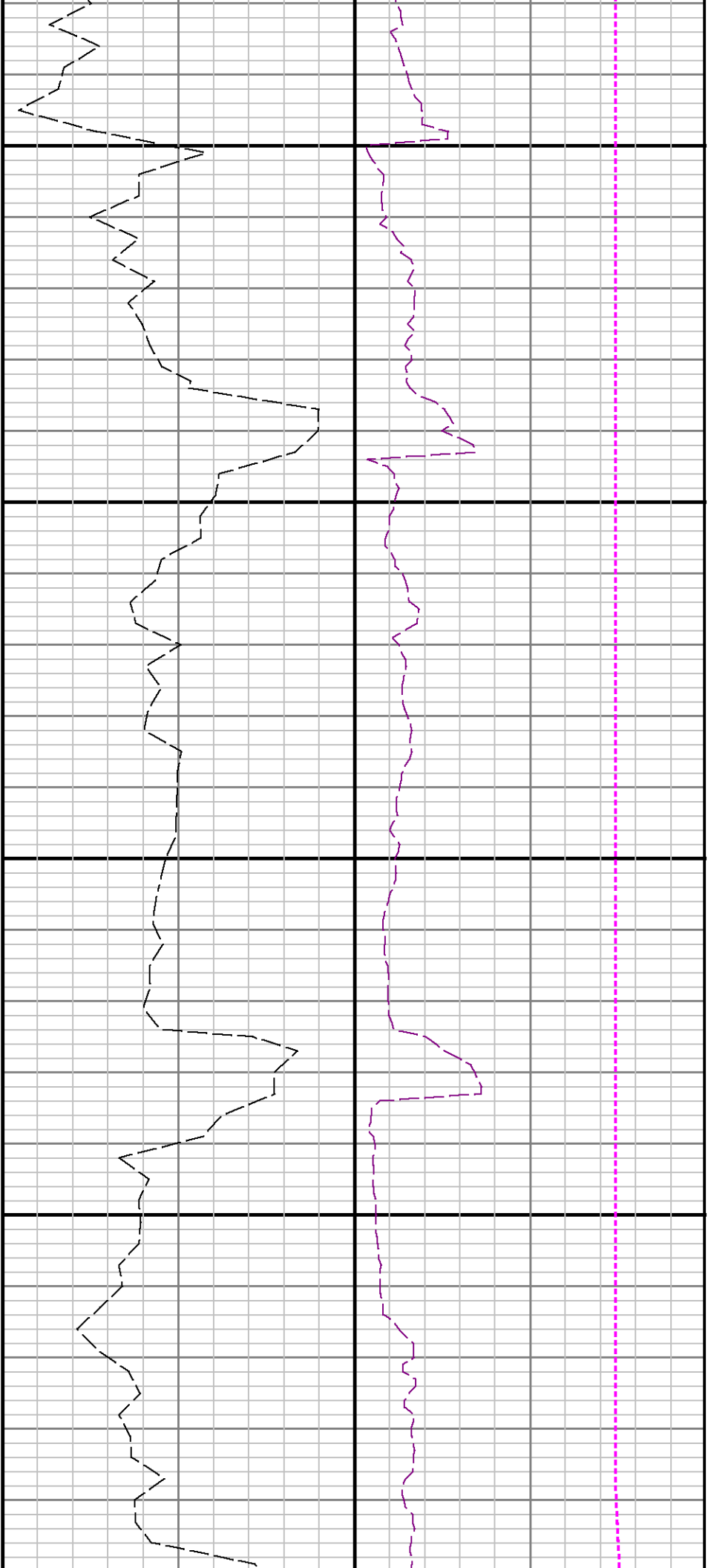
9700





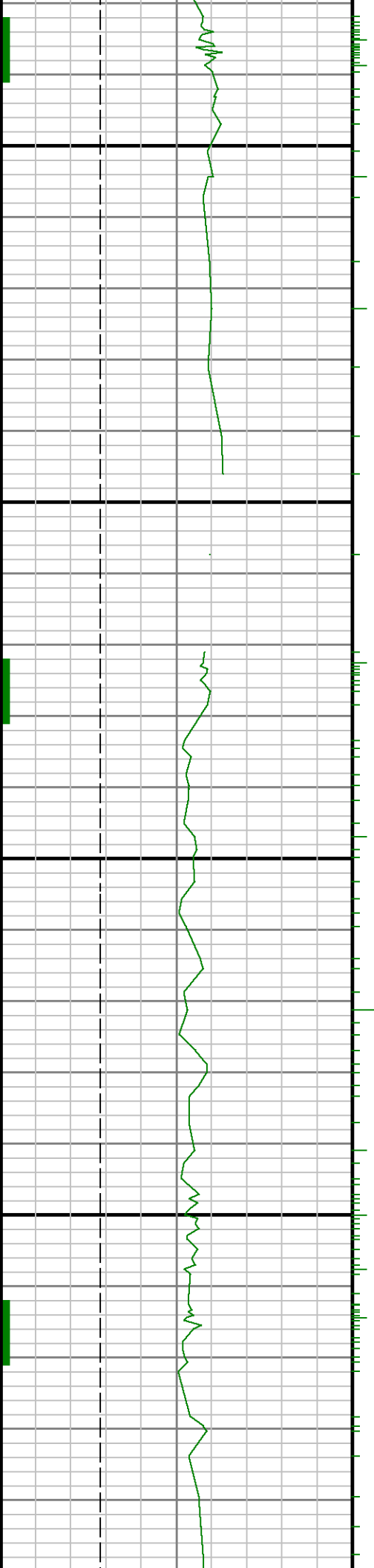


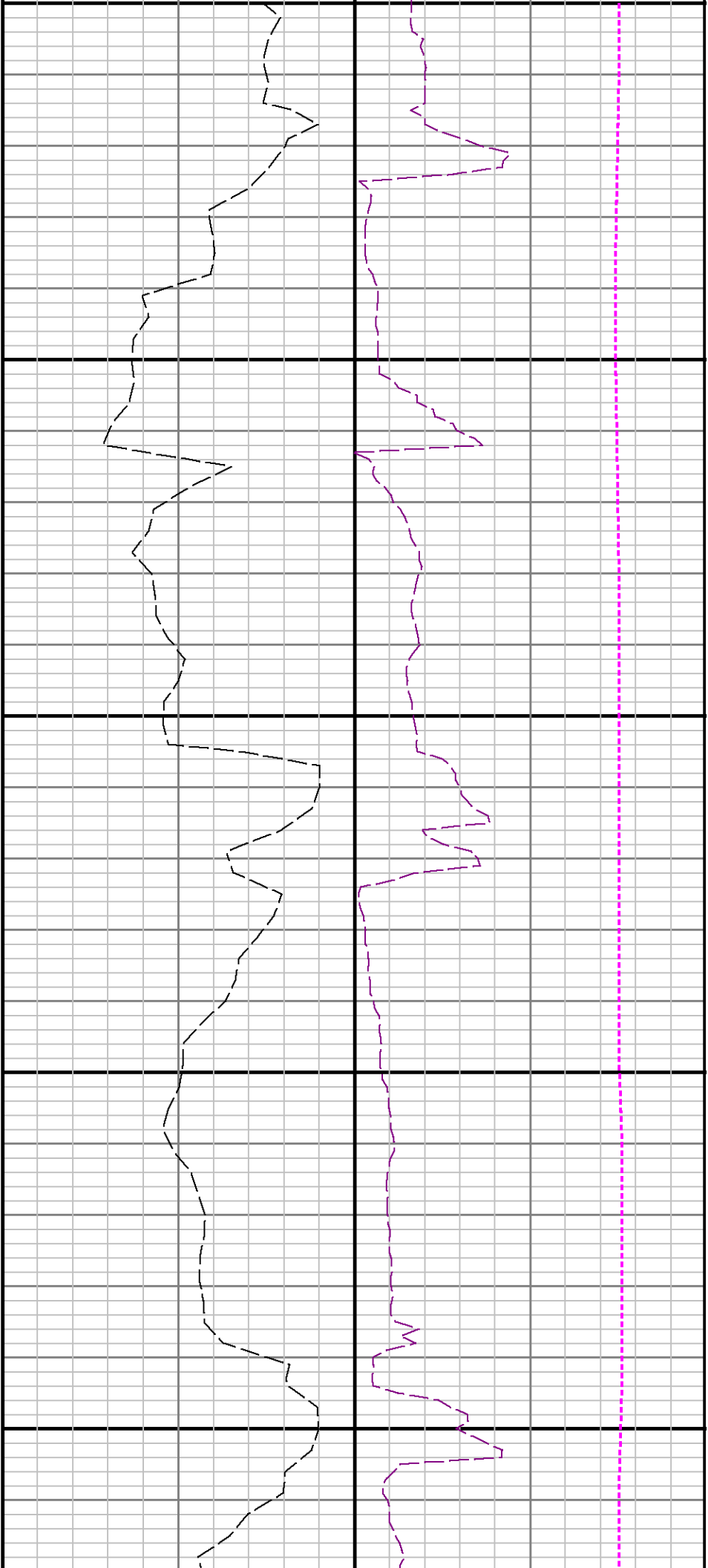




10300

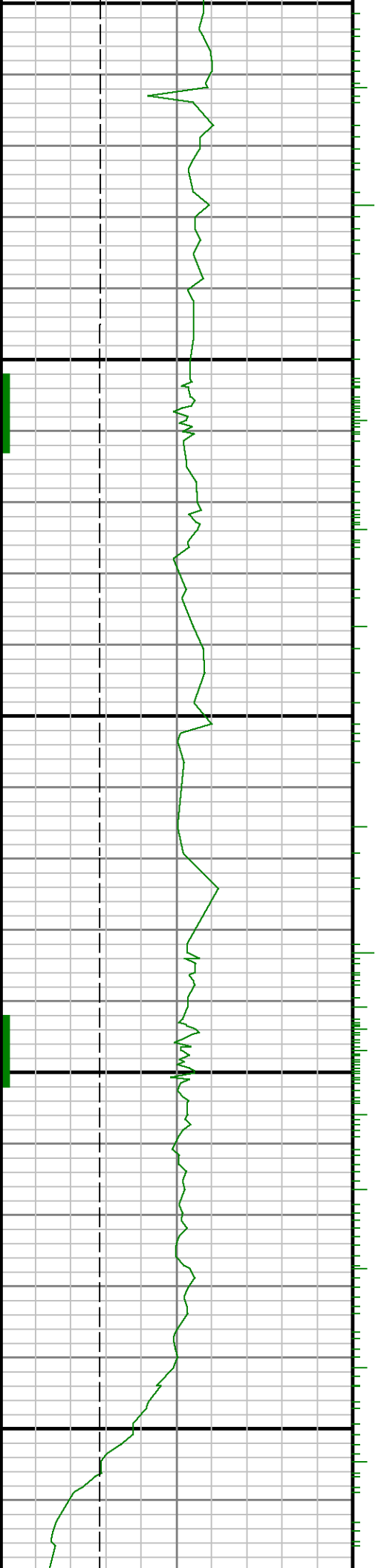
10400

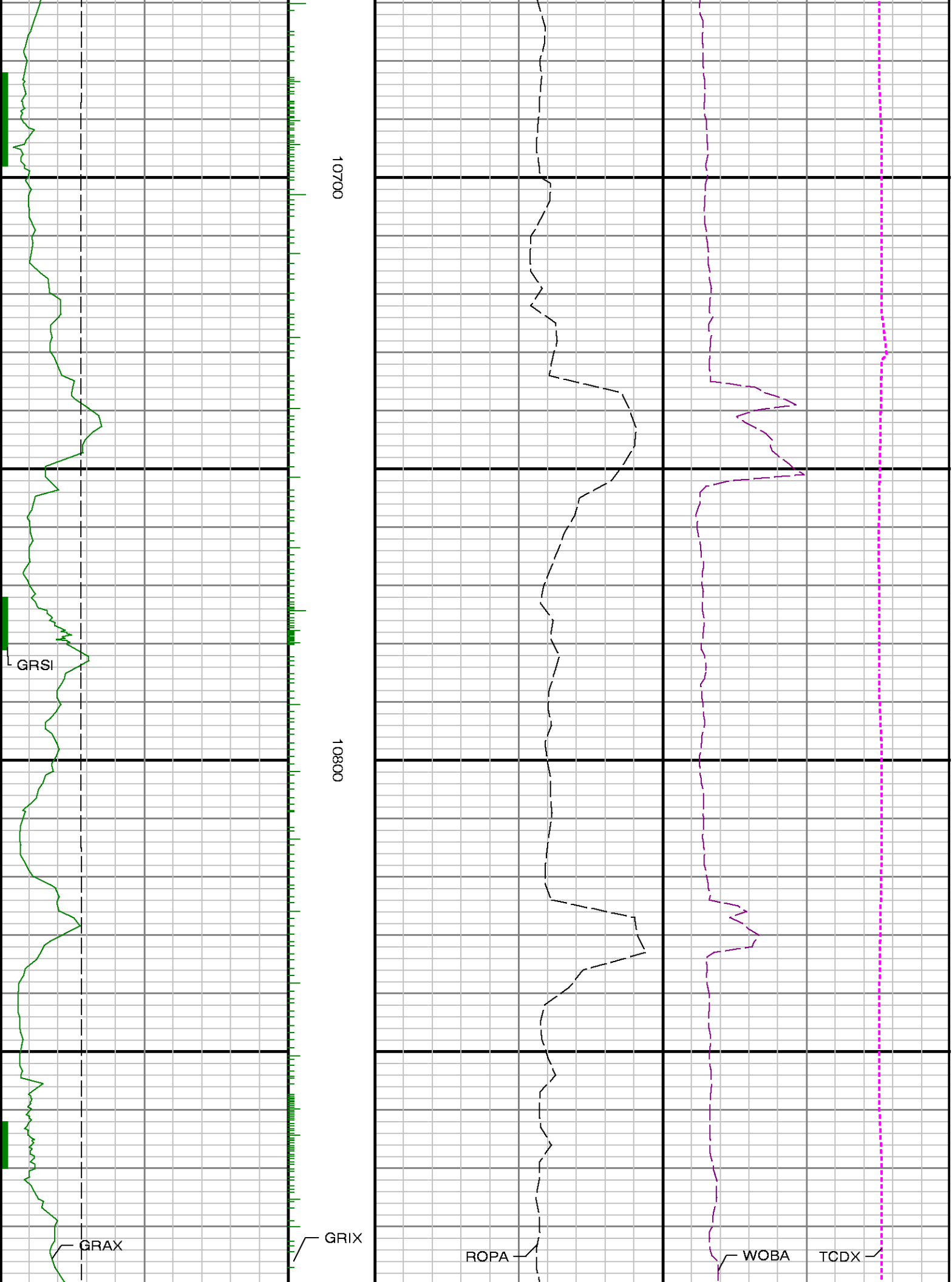


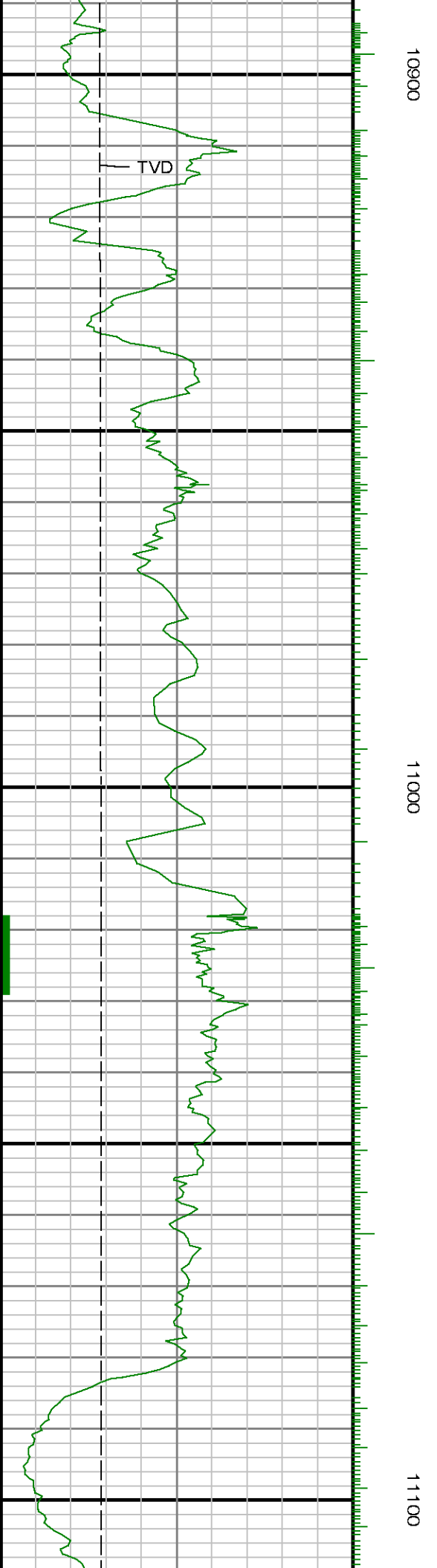
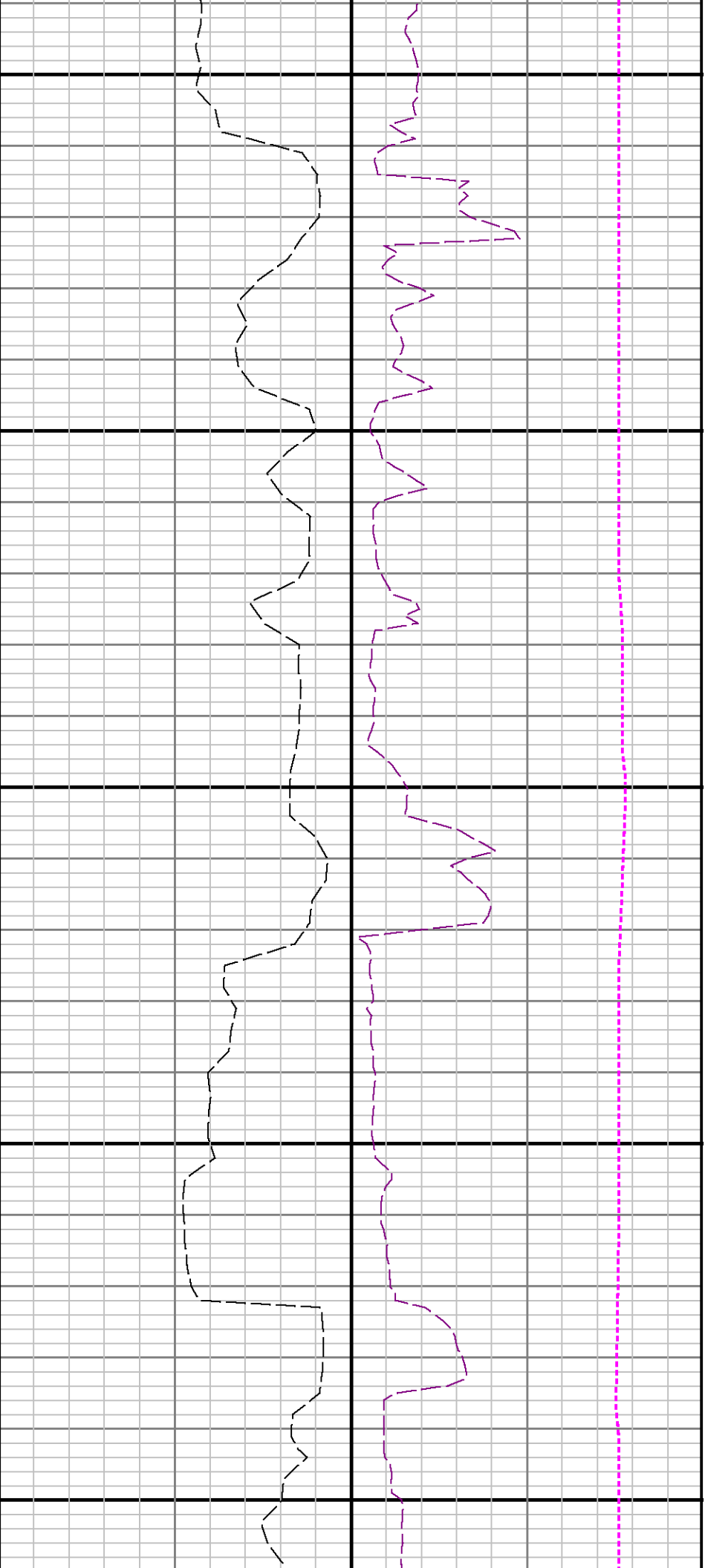


10500

10600



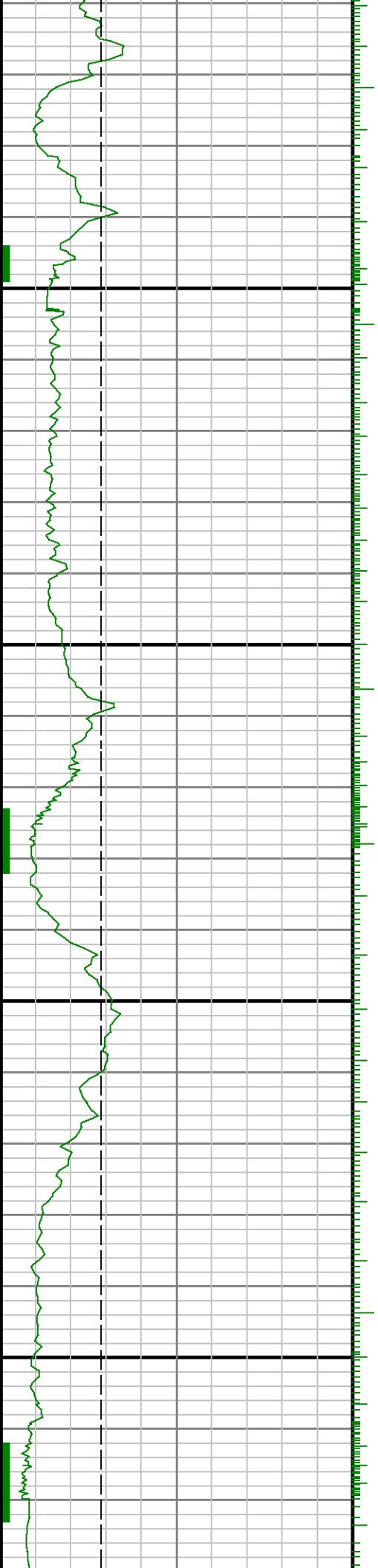


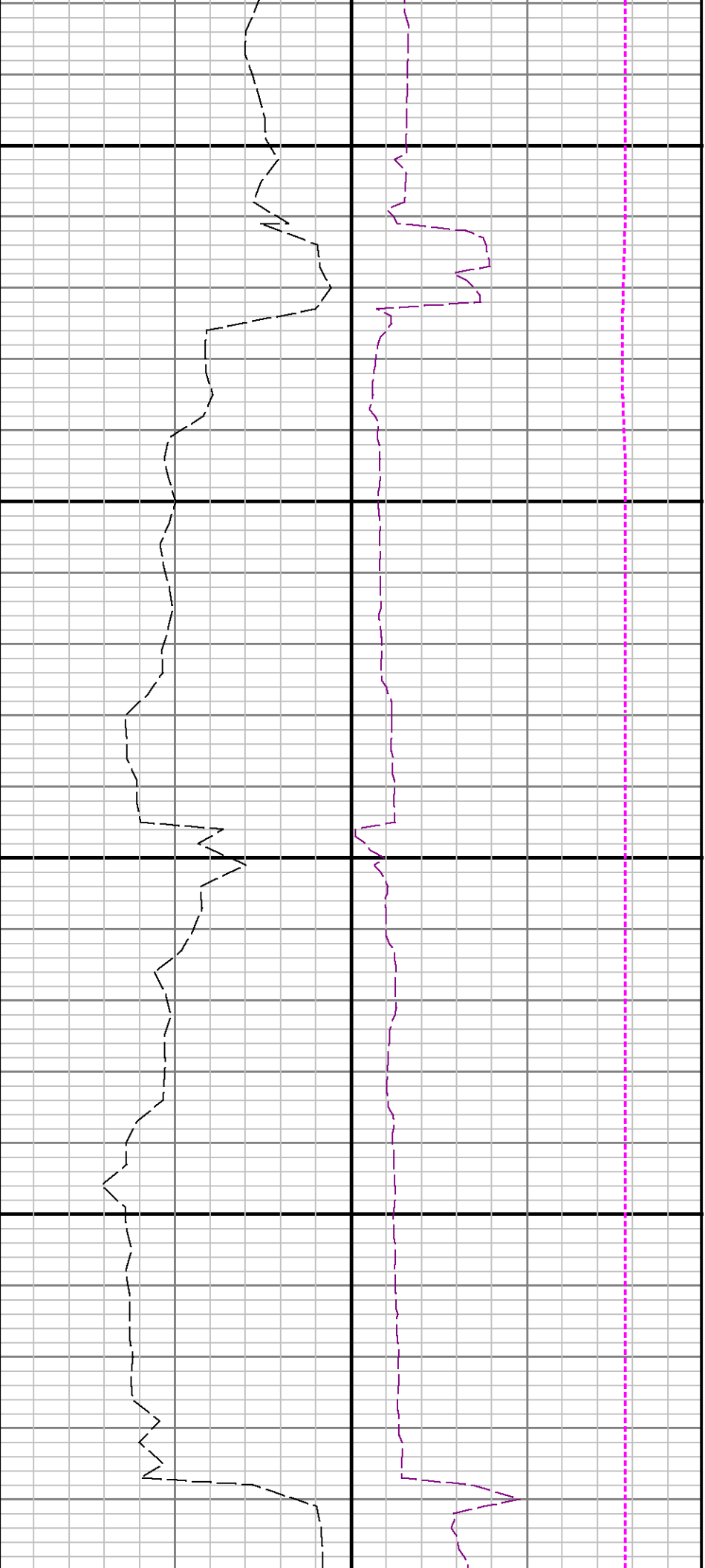




11200

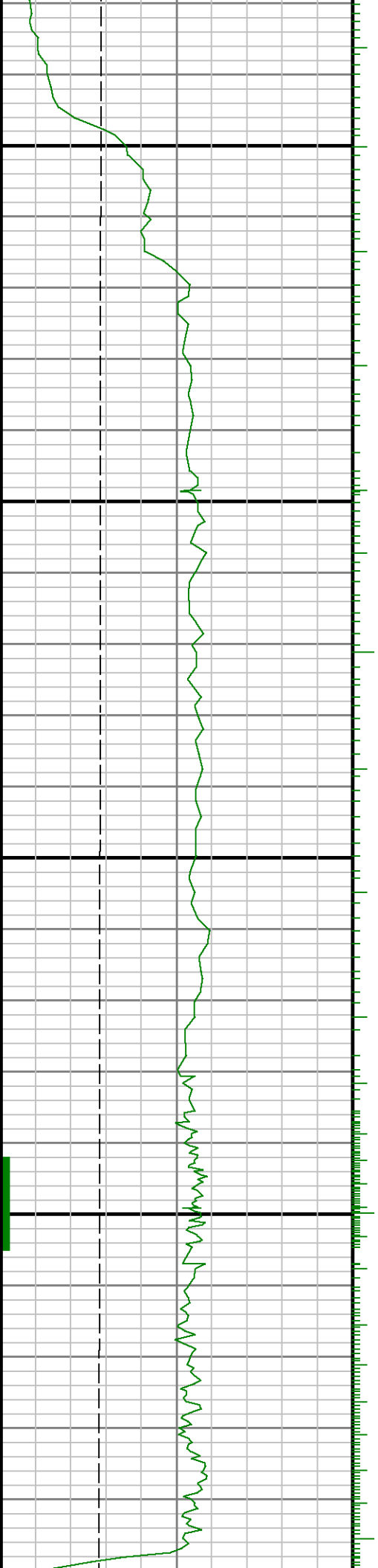
11300





11400

11500

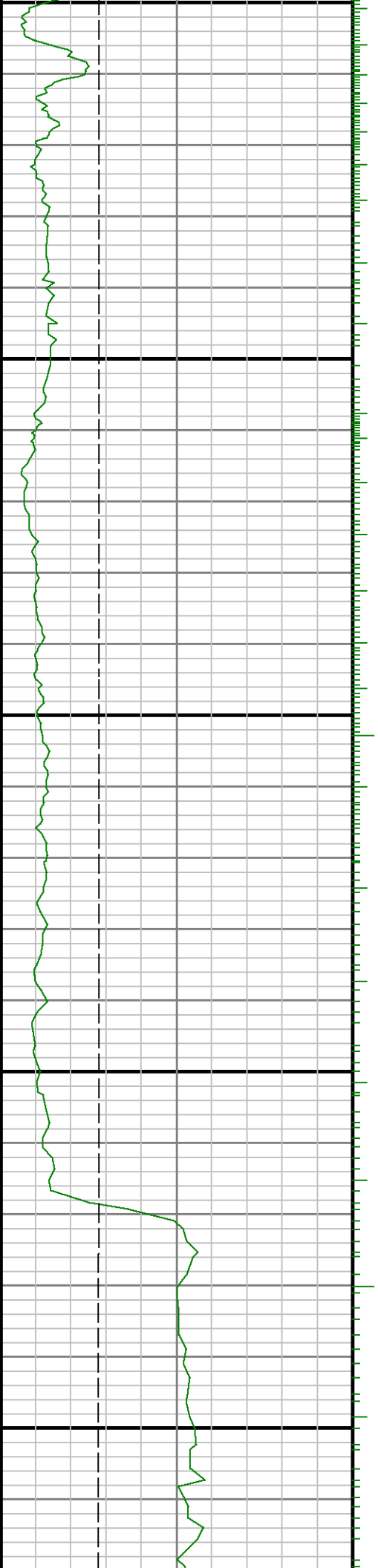


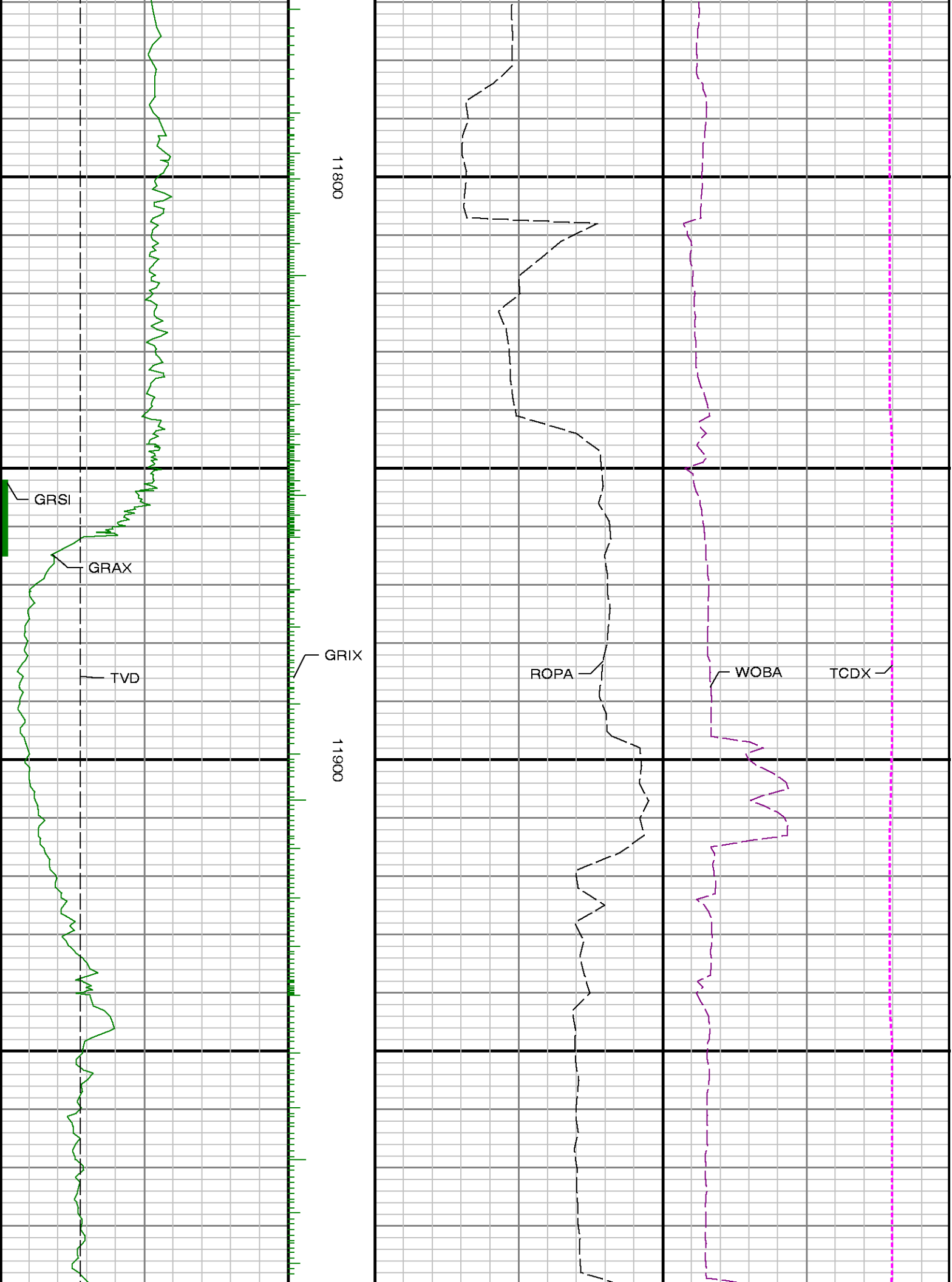




11600

11700







<p>TVD</p>	<p>Run 3</p> <p>TD</p>	<p>Remark 3</p> <p>ROPA</p>	<p>WOBA</p> <p>TCDX</p>
<p>Gamma Ray Apparent 0.5 ft Avg [GRAX]</p> <p>0 150</p> <p>API</p> <p>True Vertical Depth [TVD]</p> <p>7800 6500</p> <p>ft</p>	<p>MD feet 1:240</p>	<p>Rate of Penetration 3.0 ft Avg [ROPA]</p> <p>700 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 [WOBA]</p> <p>0 100</p> <p>klbf</p> <p>Downhole Temperature [TCDX]</p> <p>0 300</p> <p>degF</p>