



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

Well: Summit 13C-32HZ

Field: Weld County (Kerr McGee)

County: Weld County State: Colorado

1:240

Measured Depth

Status: Surface Location: Other Services:

Final Print

Latitude: 40° 6' 11.953" N

Longitude: 104° 41' 36.474" W

API Number:

SEC: 29 TWP: 2N RNG: 6SW

Permanent Datum (P.D.): Mean Sea Level Elevation: 0.00 ft.

Kelly Bushing 4957.00 ft. Above P.D.

Log Measured From: Drillers Depth

KB: Elevations: N/A
DF: 4957.00 ft.
GL: 4941.00 ft.

Depth Reference:

Interval Logged

Dates

Magnetic Field Reference

Top: 6675.0 ft. Date From: 24/Nov/14 Dip Angle: 66.73° Azi Reference North: True

Bottom: 12950.0 ft. Date To: 29/Nov/14 Total Mag to Reference

Spud Date: 25/Nov/14 Field Strength: 52772.0 nT North Correction: 8.12°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1128.0 ft.	9.625 in.	36.00 lb/ft	Surface	1105.0 ft.
8.750 in.	1128.0 ft.	7734.0 ft.	7.000 in.	26.00 lb/ft	Surface	7724.0 ft.
6.125 in.	7734.0 ft.	12950.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	6500.0 ft.	13.500 in.	1128.0 ft.	0.0° / 0.0°	0.8° / 319.5°
Water Based Mud	6500.0 ft.	12950.0 ft.	8.750 in.	6606.0 ft.	0.8° / 323.6°	89.2° / 182.9°
			6.125 in.	5216.0 ft.	88.7° / 182.6°	91.3° / 178.6°
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig:	Xtreme #6	/ Xtreme Drilling Co.
PATS	6.4.1.34	Job No:	6708616	
		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	
1	1	2	8.750	PDC	3.000	Rotary Steerable	6675.0	7695.0	1128.0	7734.0	27/Nov/2014 18:31	24/Nov/2014 19:42	46.8
2	2	3	6.125	PDC	3.600	Rotary Steerable	7695.0	12899.0	7734.0	12950.0	30/Nov/2014 01:32	01/Dec/2014 16:15	39.2

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Stephen Gray	17/Nov/2014	02/Dec/2014	Donald Delay	18/Nov/2014	29/Nov/2014	Matthew Delmore	30/Nov/2014	02/Dec/2014

Mud Properties Record

Date / Time		LWD	Measured	Mud	Density	Viscosity	pH	Fluid	Oil /	Source	Total	K+
		Run No.	Depth (ft.)	Type	(ppg)	(s/qt)		Loss (cc)	Water		Chlorides (mg/L)	(%)
25/Nov/2014	22:15	1	1128.0	Fresh Water	8.5	29	9.2	0.0	0 / 99	Active Mud Pit	16000	N/A
27/Nov/2014	21:00	1	6918.0	Water Based Mud	10.2	42	9.6	0.0	1 / 90	Active Mud Pit	5200	N/A
29/Nov/2014	20:30	1	7724.0	Water Based Mud	10.2	42	9.7	0.0	1 / 90	Active Mud Pit	5000	N/A
30/Nov/2014	20:30	2	10762.0	Water Based Mud	10.2	44	9.4	0.0	0 / 90	Active Mud Pit	4800	N/A
01/Dec/2014	18:00	2	12950.0	Water Based Mud	10.4	43	9.3	0.0	1 / 89	Active Mud Pit	4800	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	Tool	Serial	Measurement	Bit	Max	Min
Run		Number		Offset	O.D.	I.D.
No.				(ft)	(in.)	(in.)
1	DIR	10239728	Directional	46.49	6.750	3.250
1	SRIG	12554661	Gamma	43.12	6.750	3.250
2	DIR	12566681	Directional	53.18	4.750	2.750
2	SRIG	12604926	Gamma	49.80	4.750	2.750

Service and Tool Mnemonics

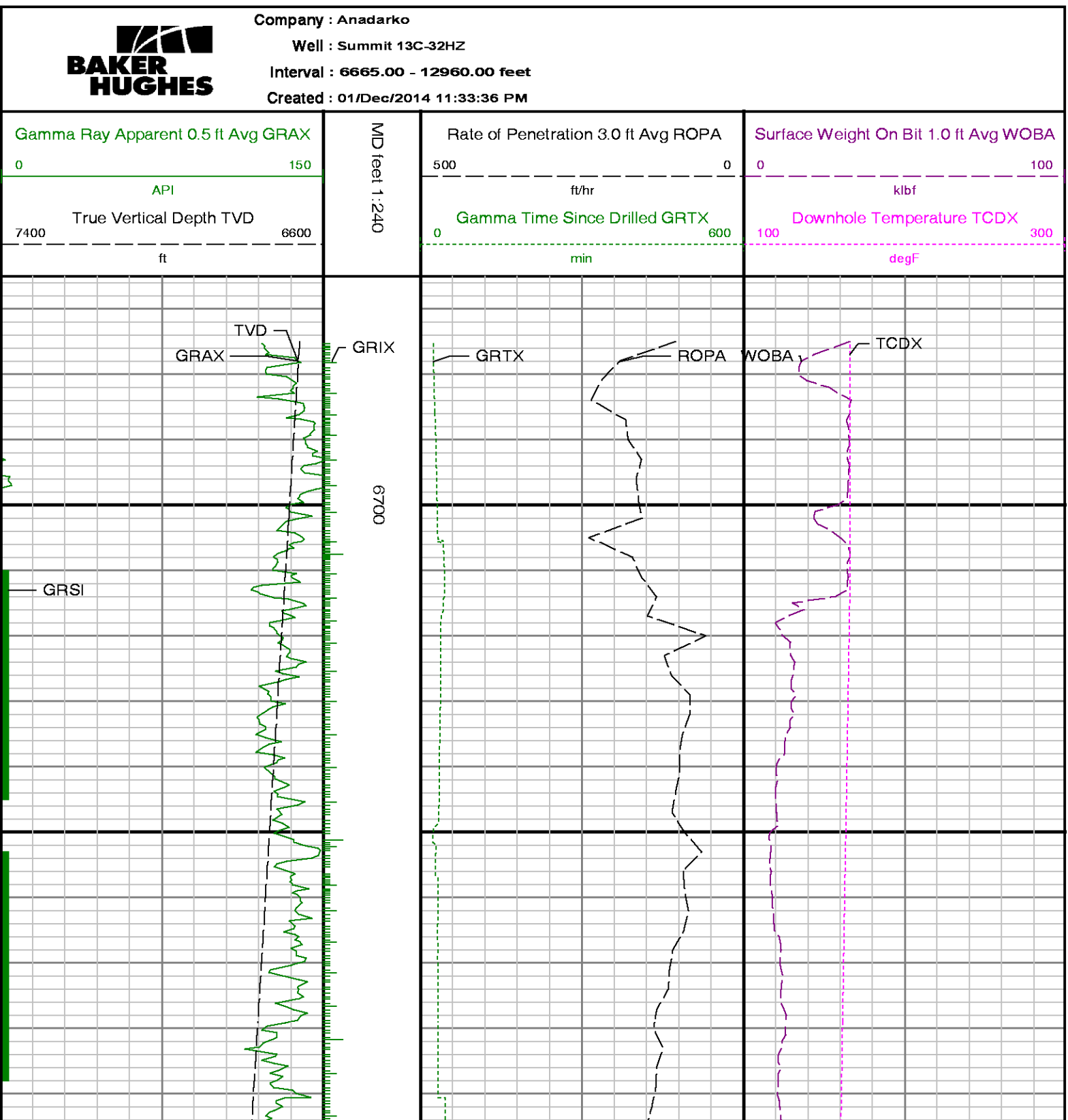
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

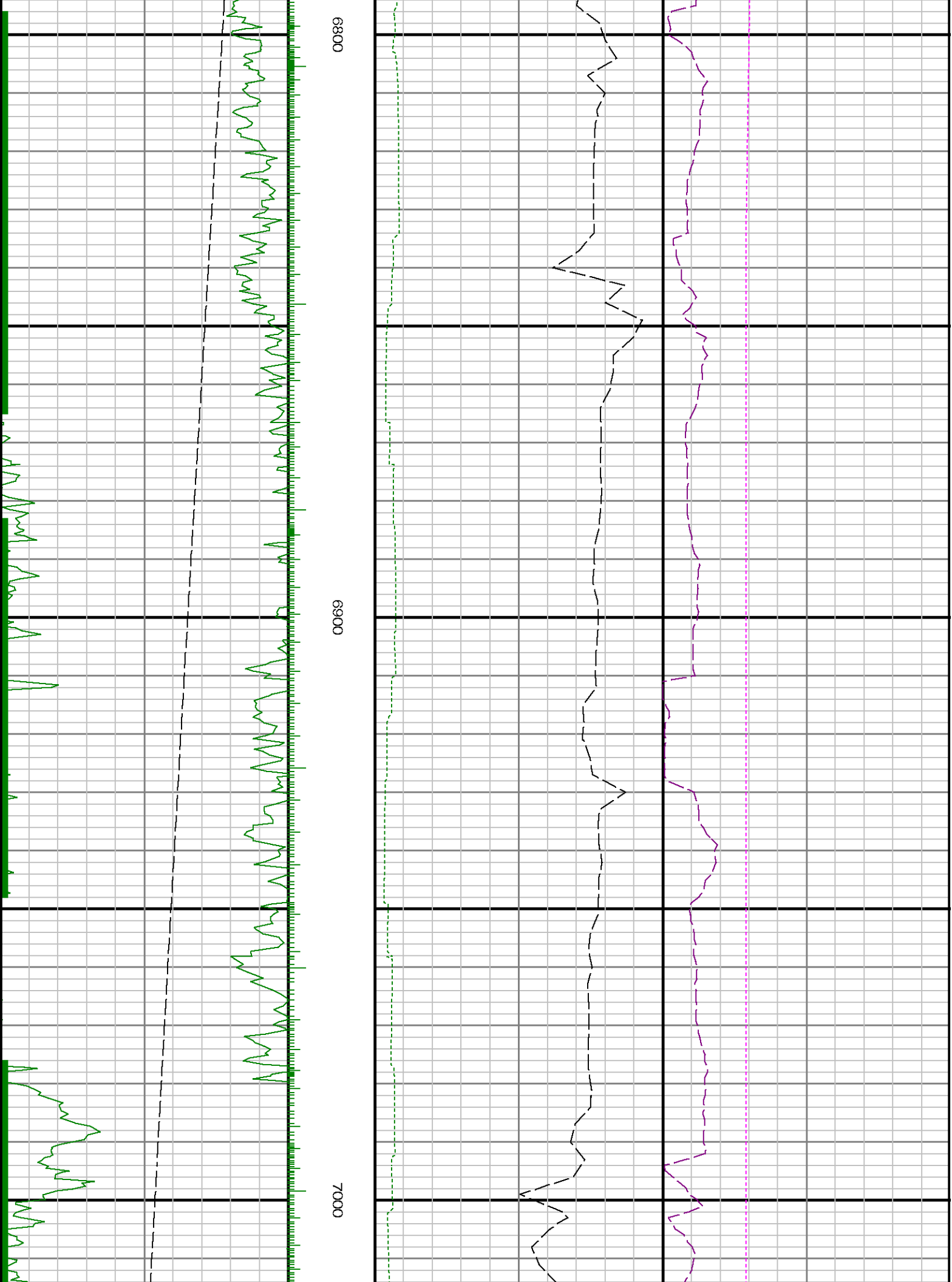
Comments

<p>1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1128 to 6675 ft. MD (1127.98 to 6658.38 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6675 to 7734 ft. MD (6658.38 to 7317.16 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.</p> <p>2.) Baker Hughes LWD run 2 utilized 6 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7734 to 12950 ft. MD (7317.16 to 7326.32 ft. TVD) behind an 6 1/8 inch bit and steerable assembly.</p> <p>3.) 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.</p> <p>4.) 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.</p>
--

Remarks

Number	Measured	Hole	LWD	Remark
	Depth (ft)	Section (in.)	Run No.	
1	7725	8.750	1	The interval from 6994 to 7734 ft. MD (6966.06 to 7317.16 ft. TVD) was logged up to 10.5 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly and to pick up a new curve assembly.
2	12795	6.125	2	The interval from 12900 to 12950 ft. MD (7327.48 to 7326.32 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.

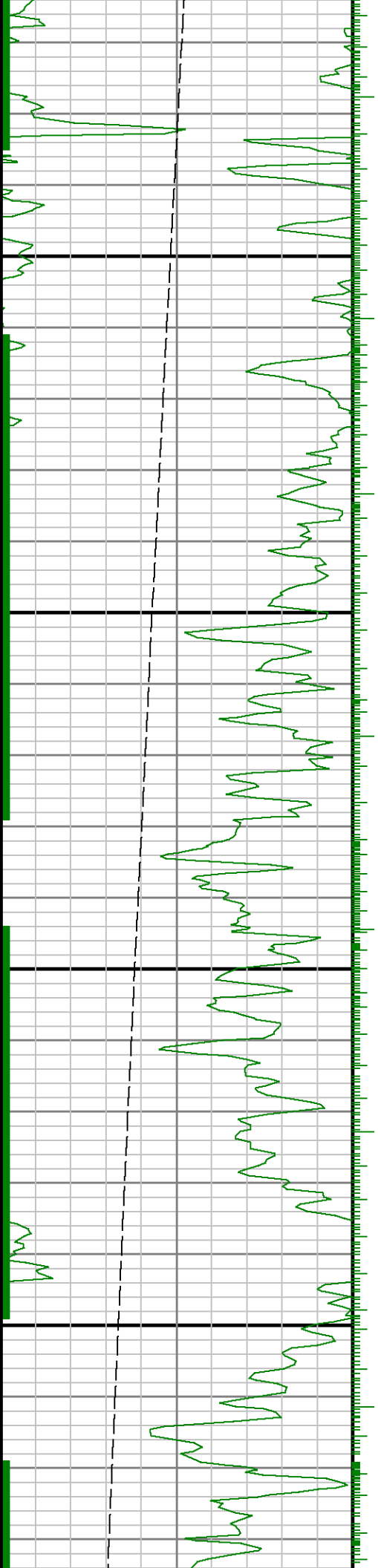


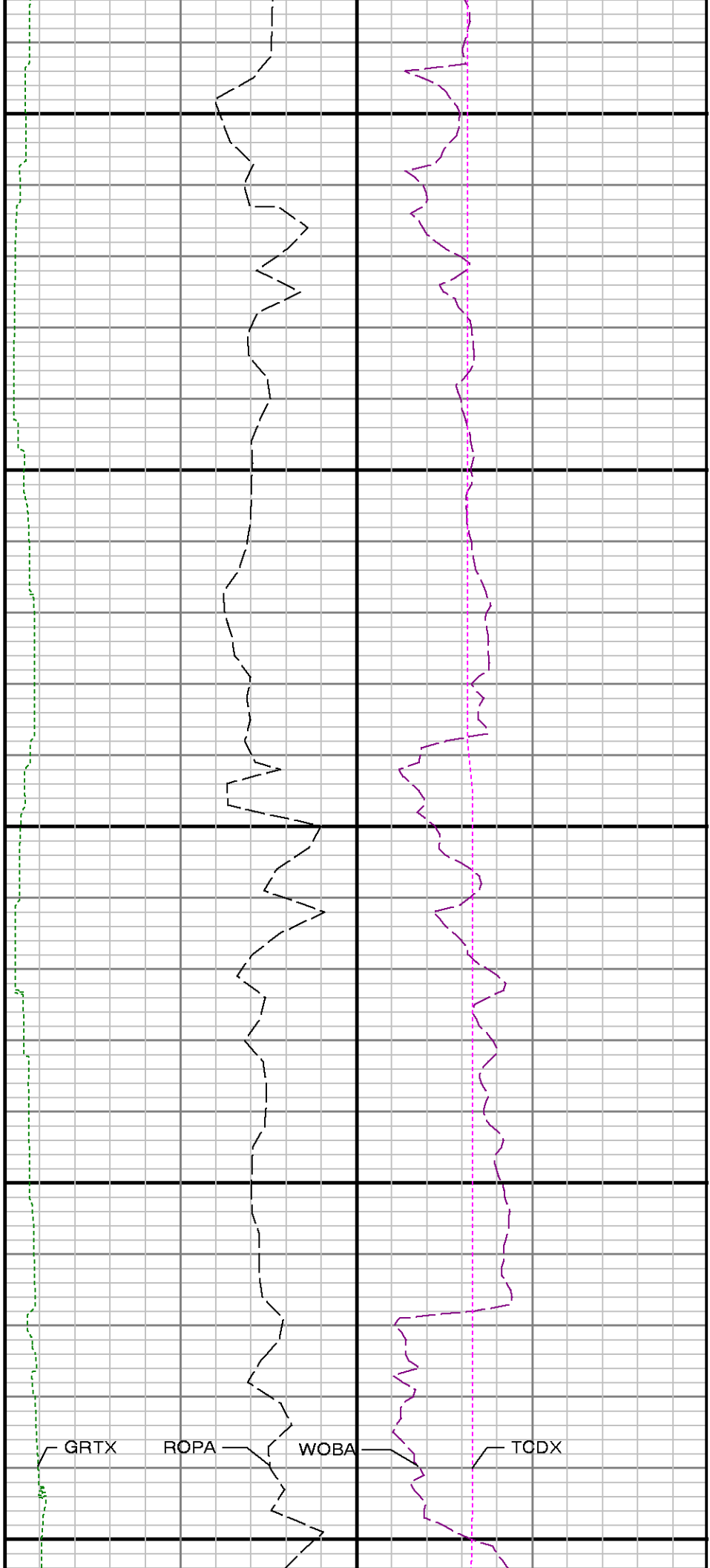
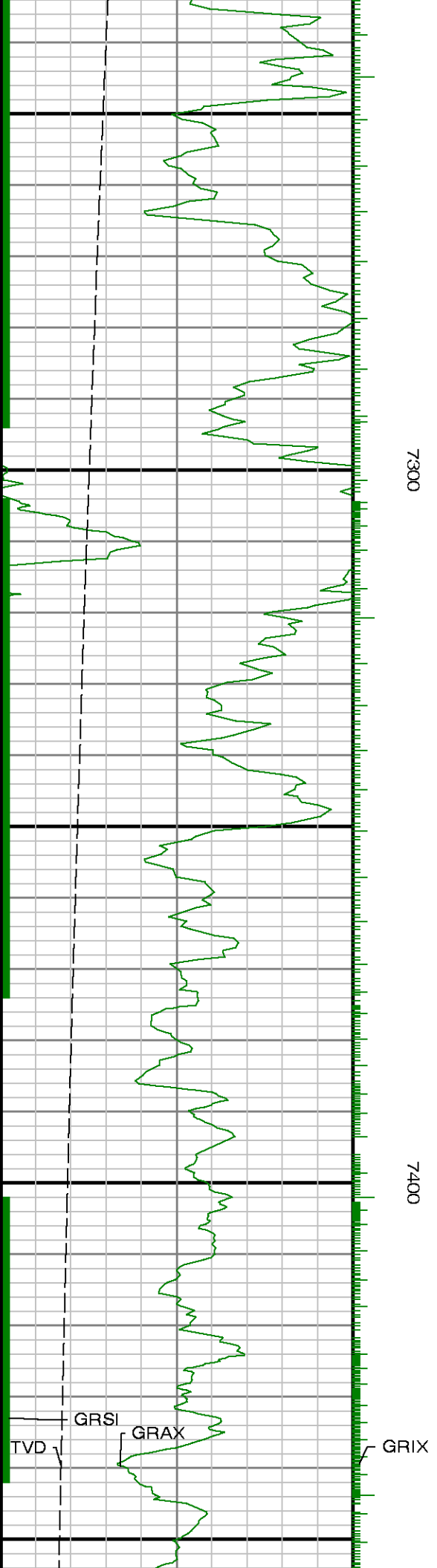


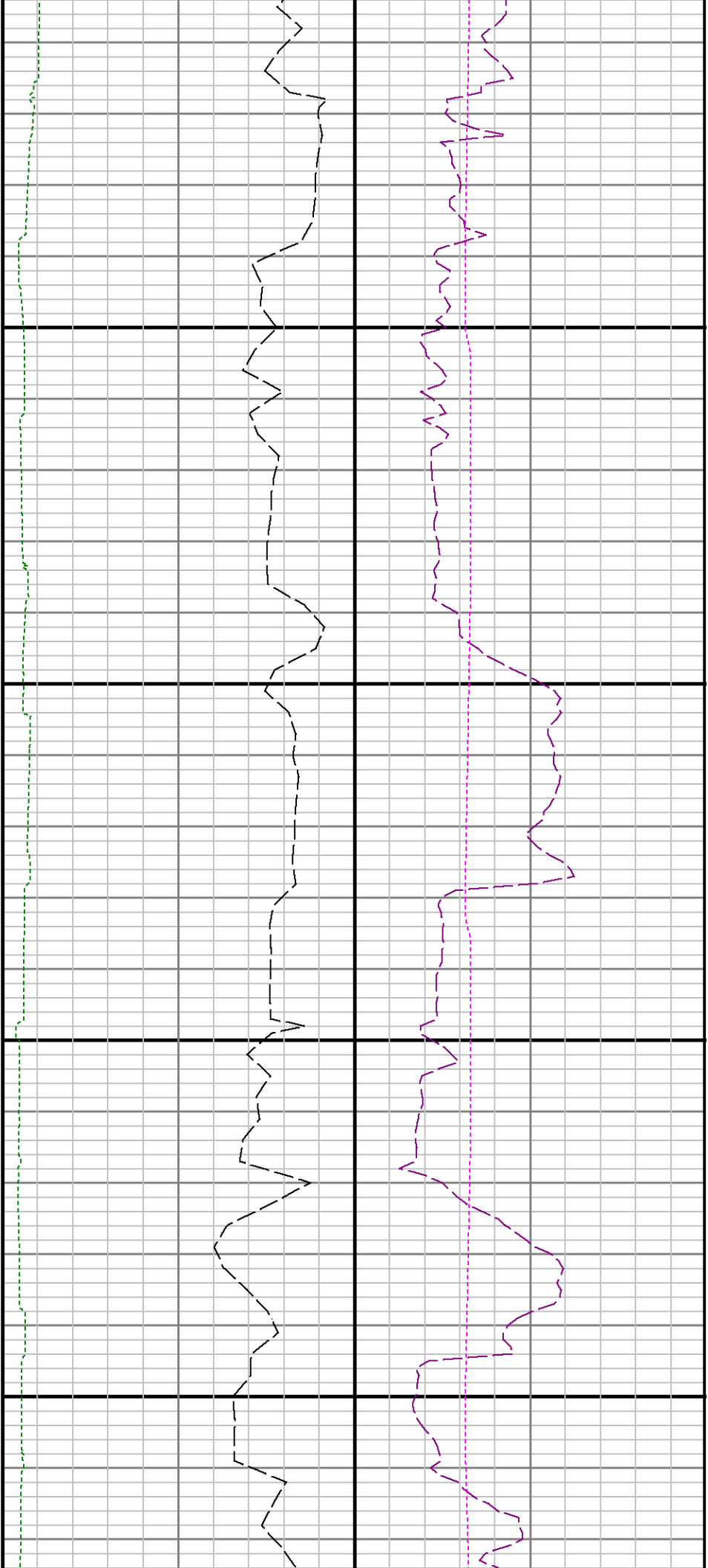


7100

7200

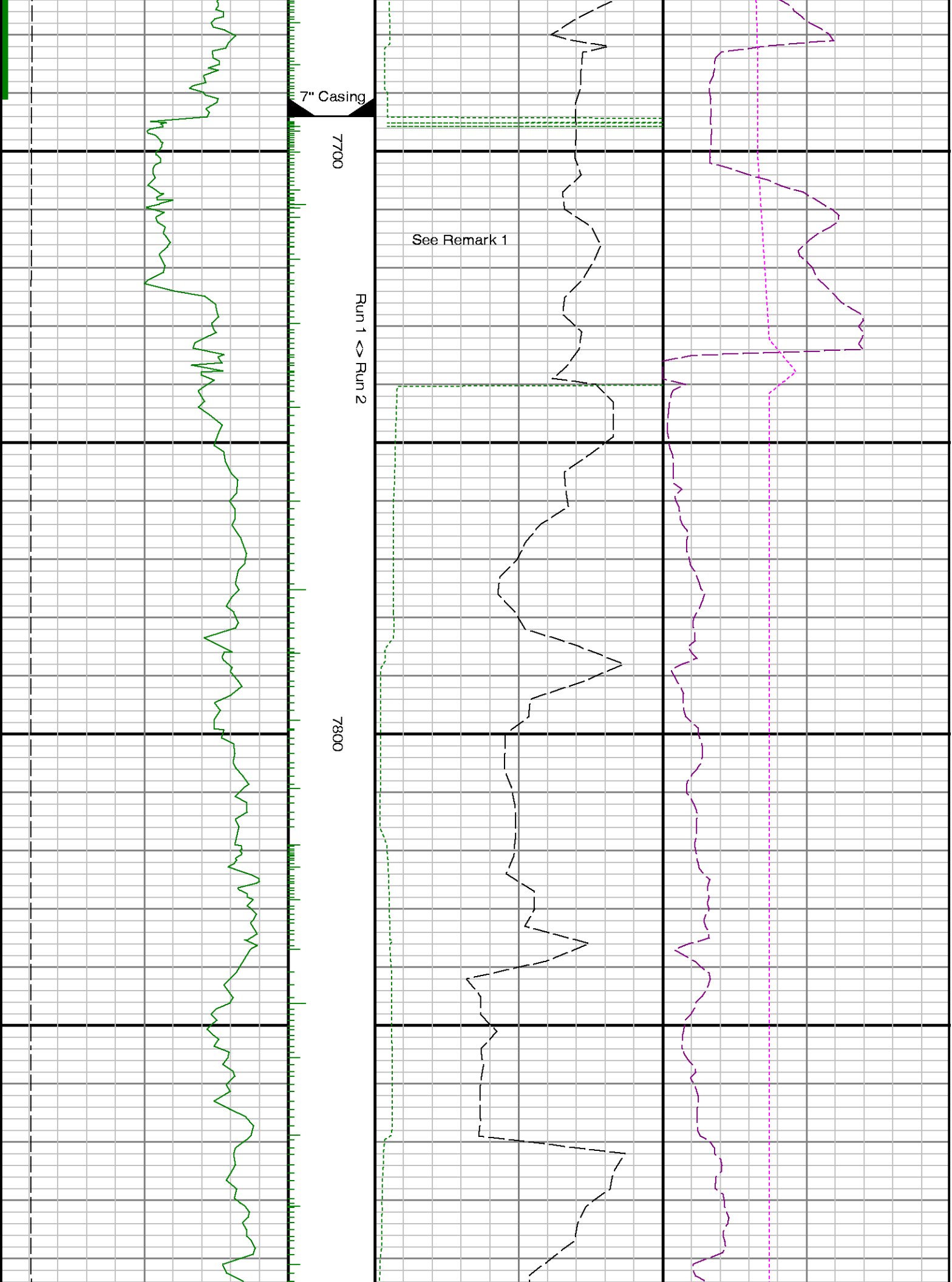


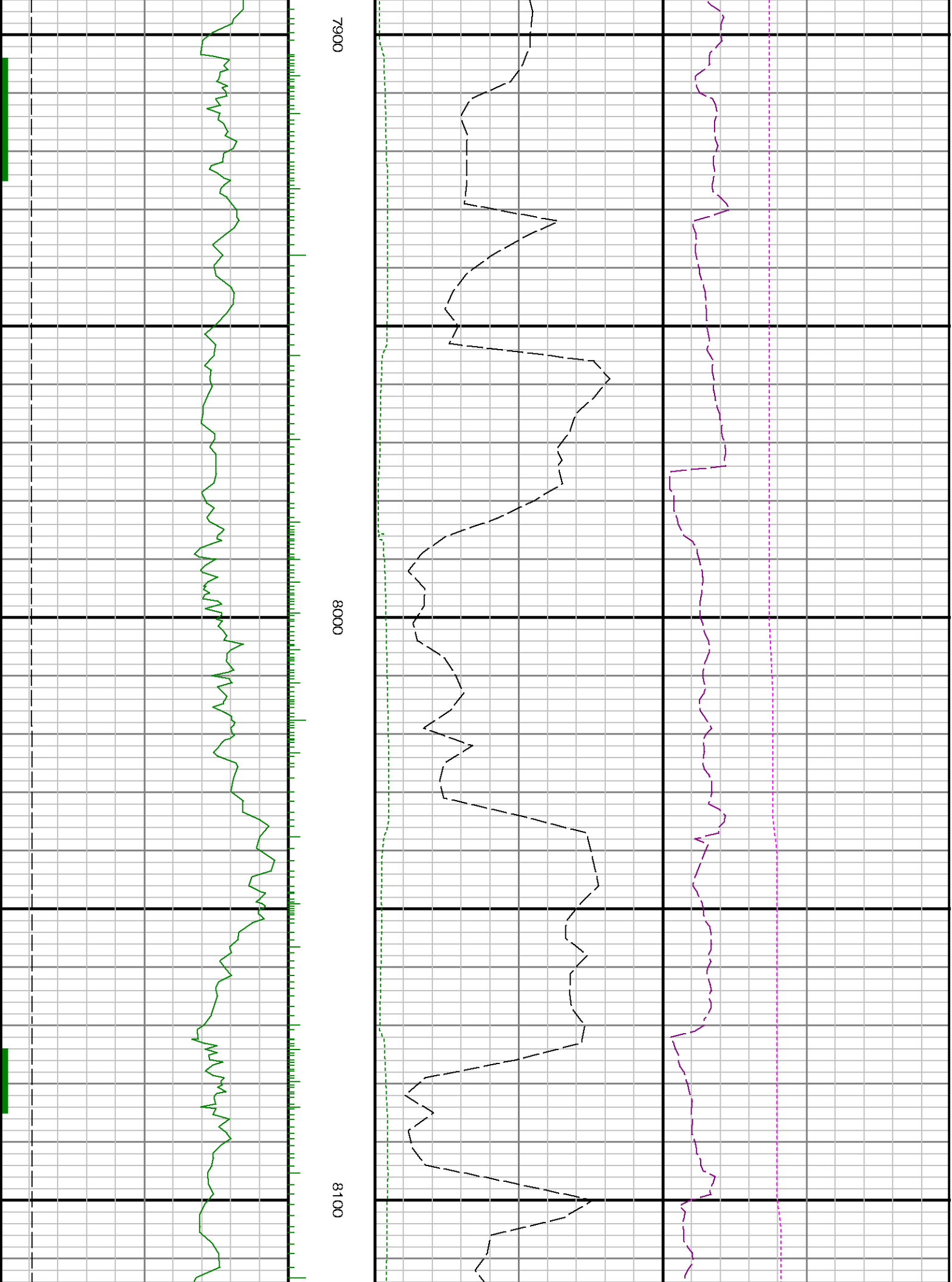


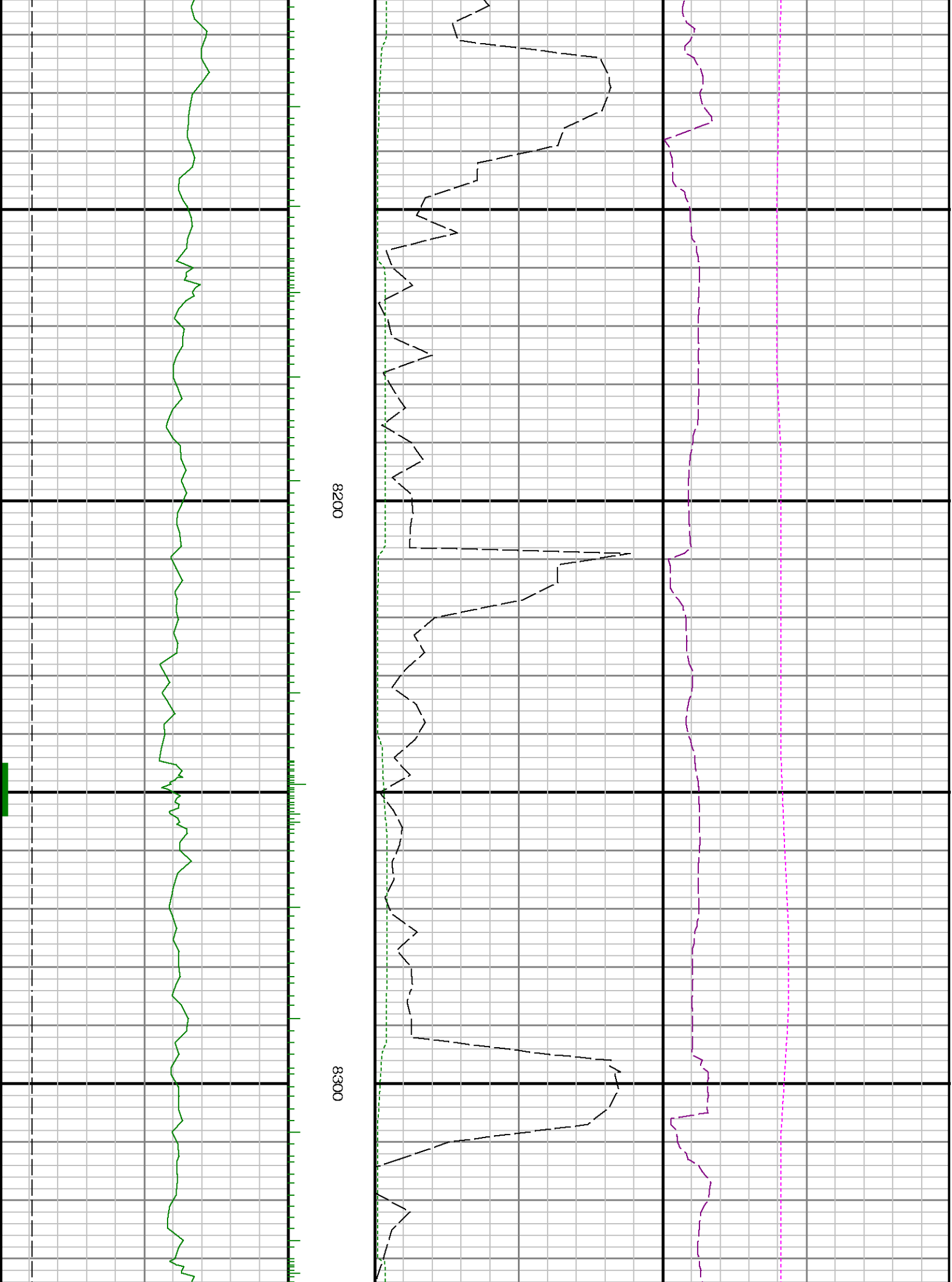


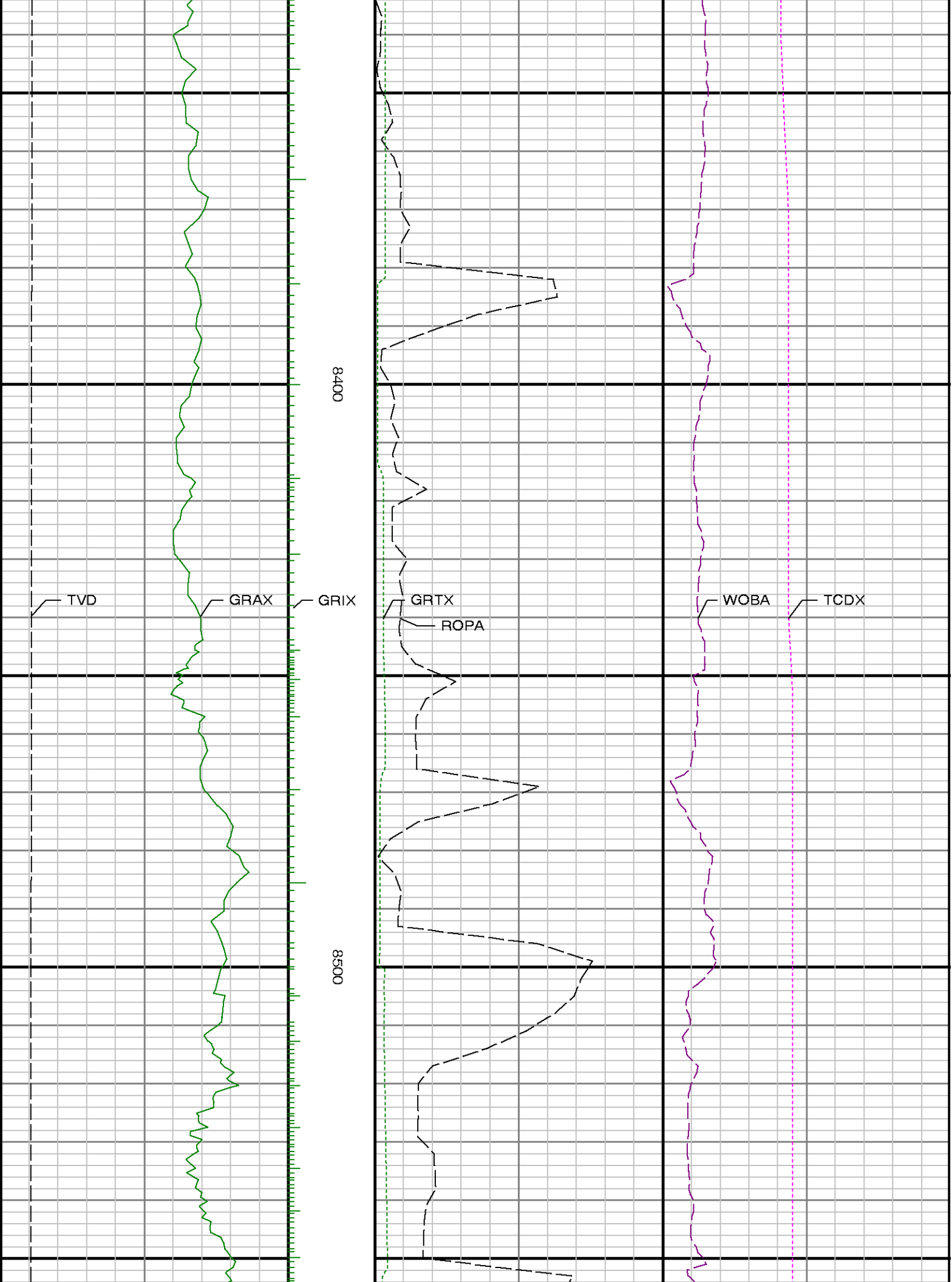
7500

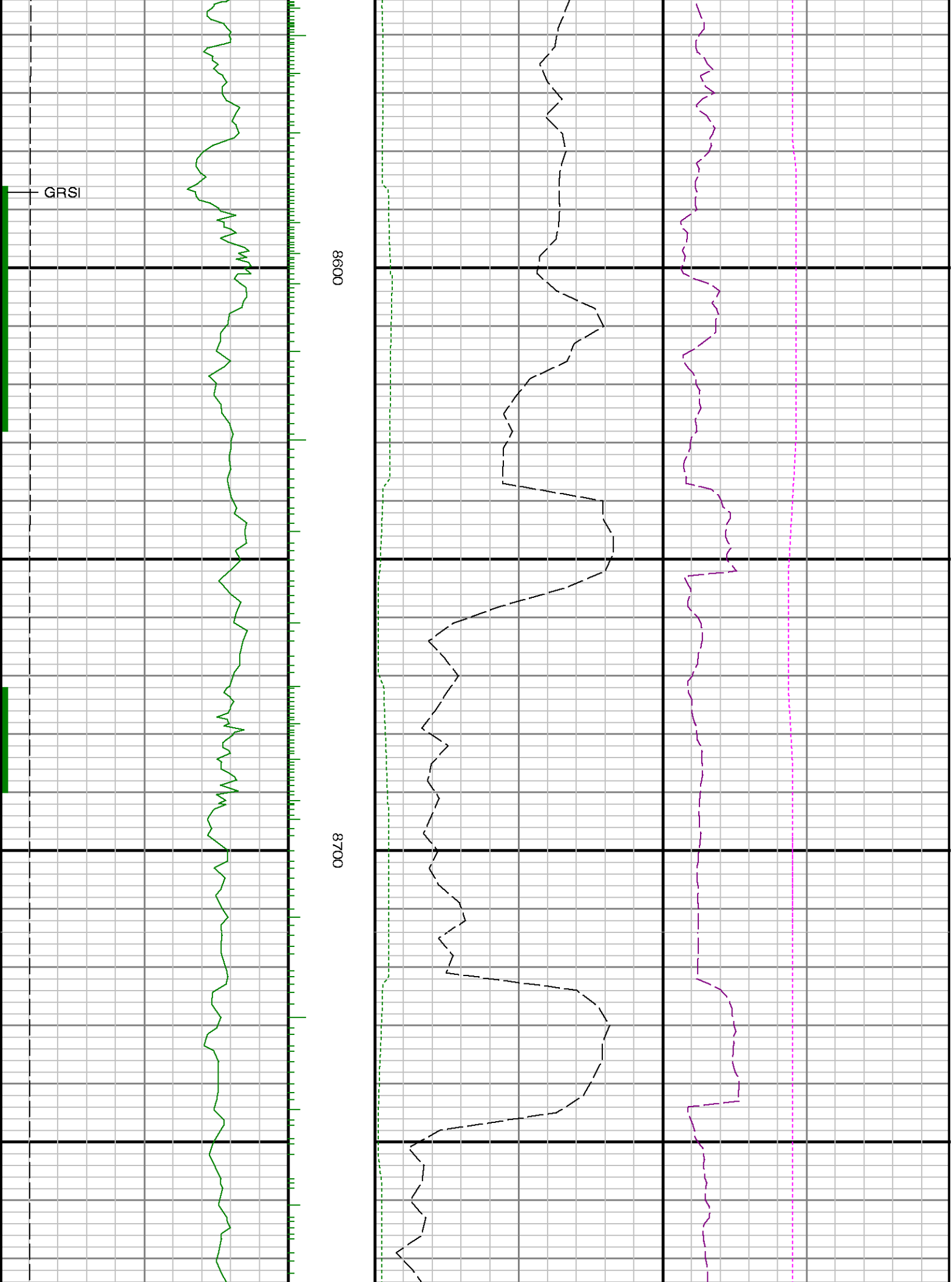
7600

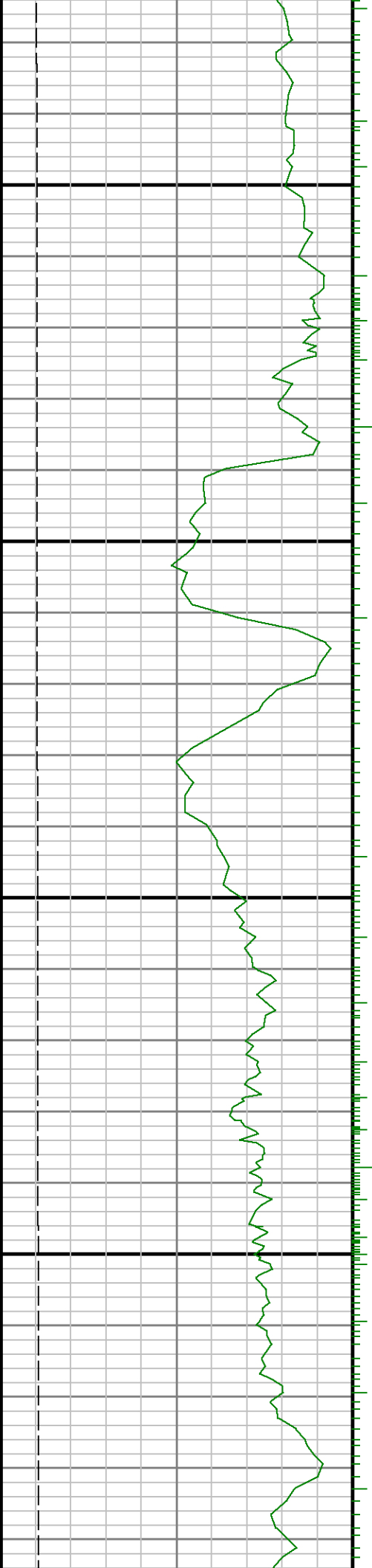








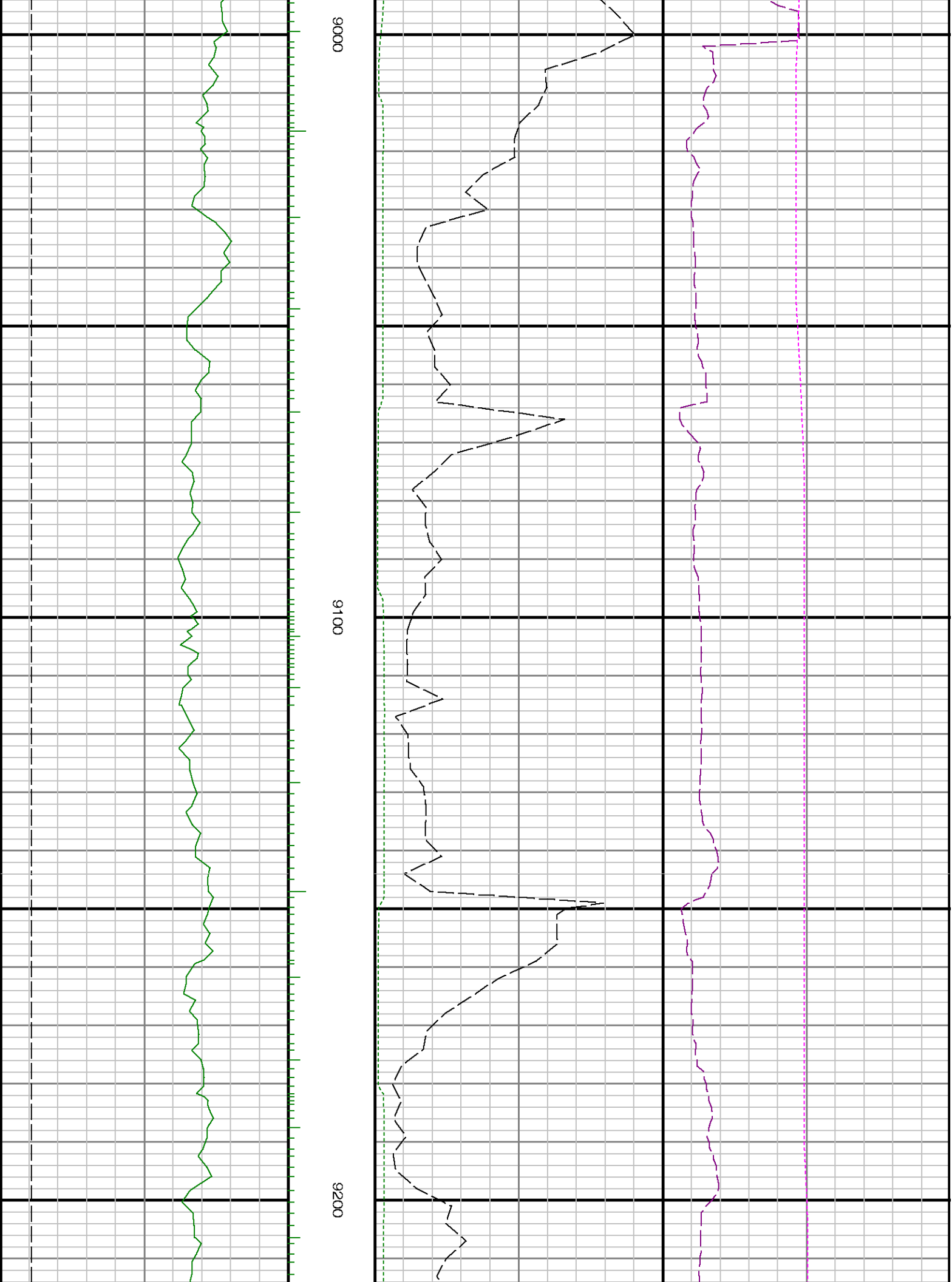


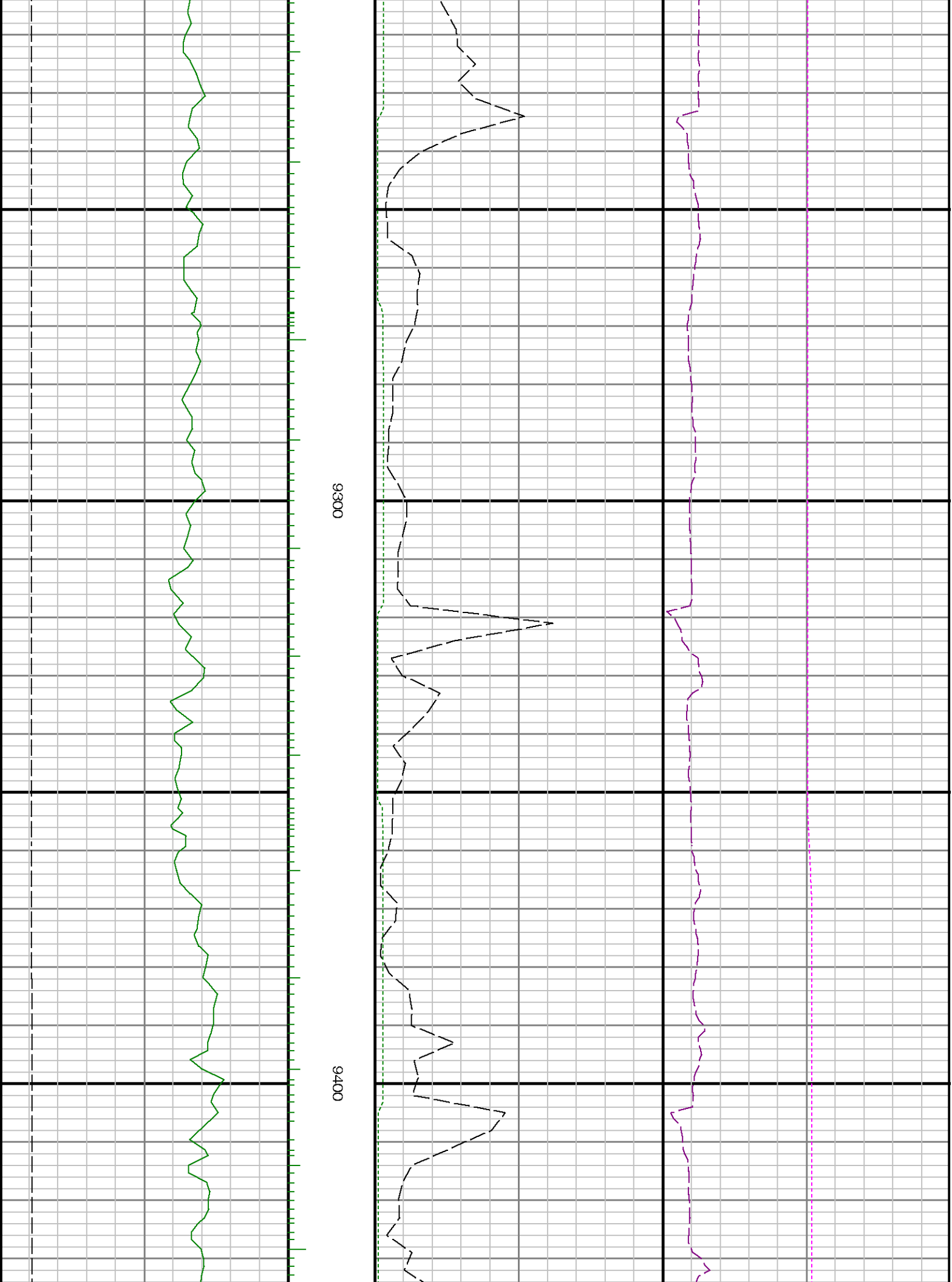


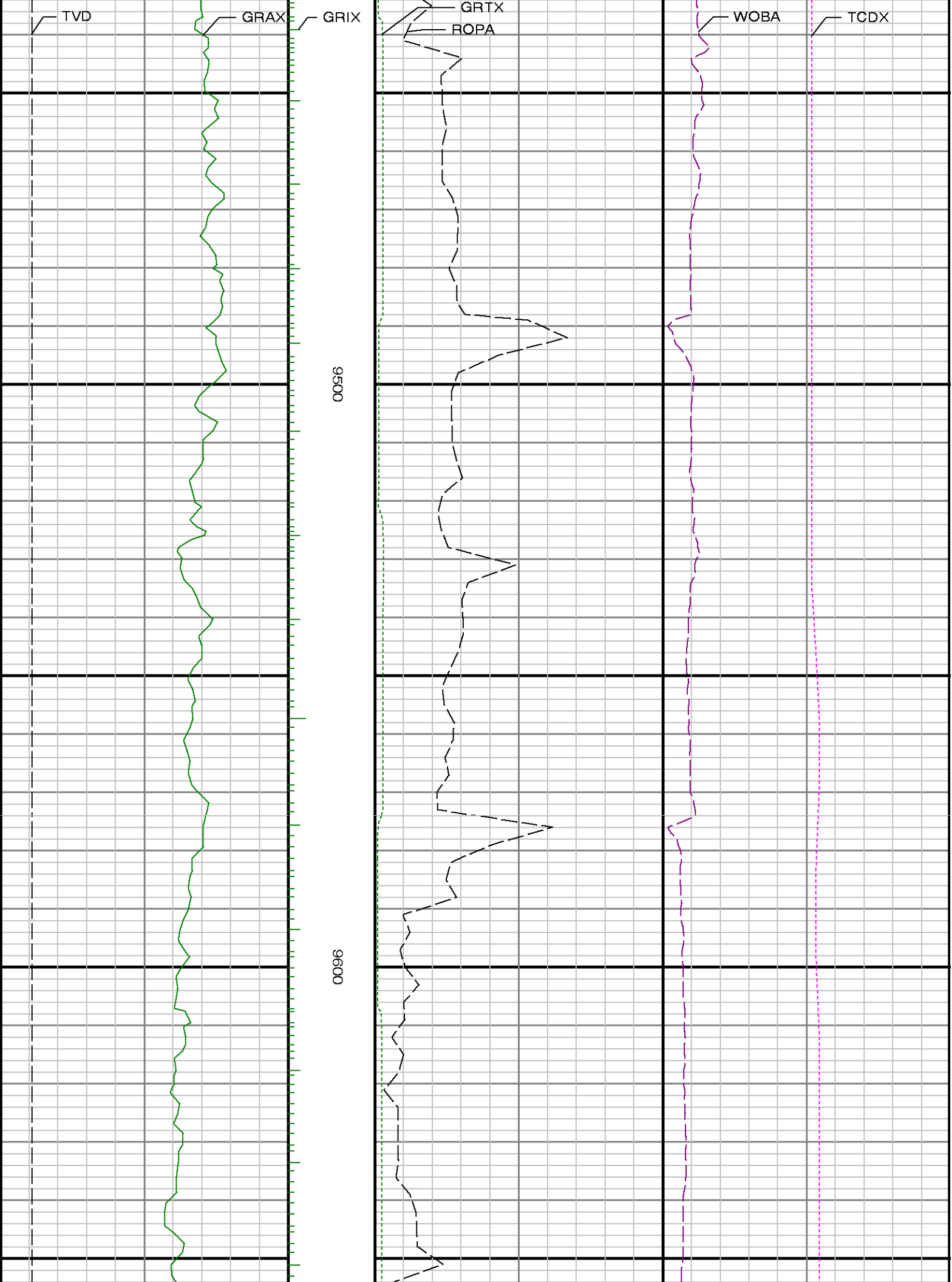
0088

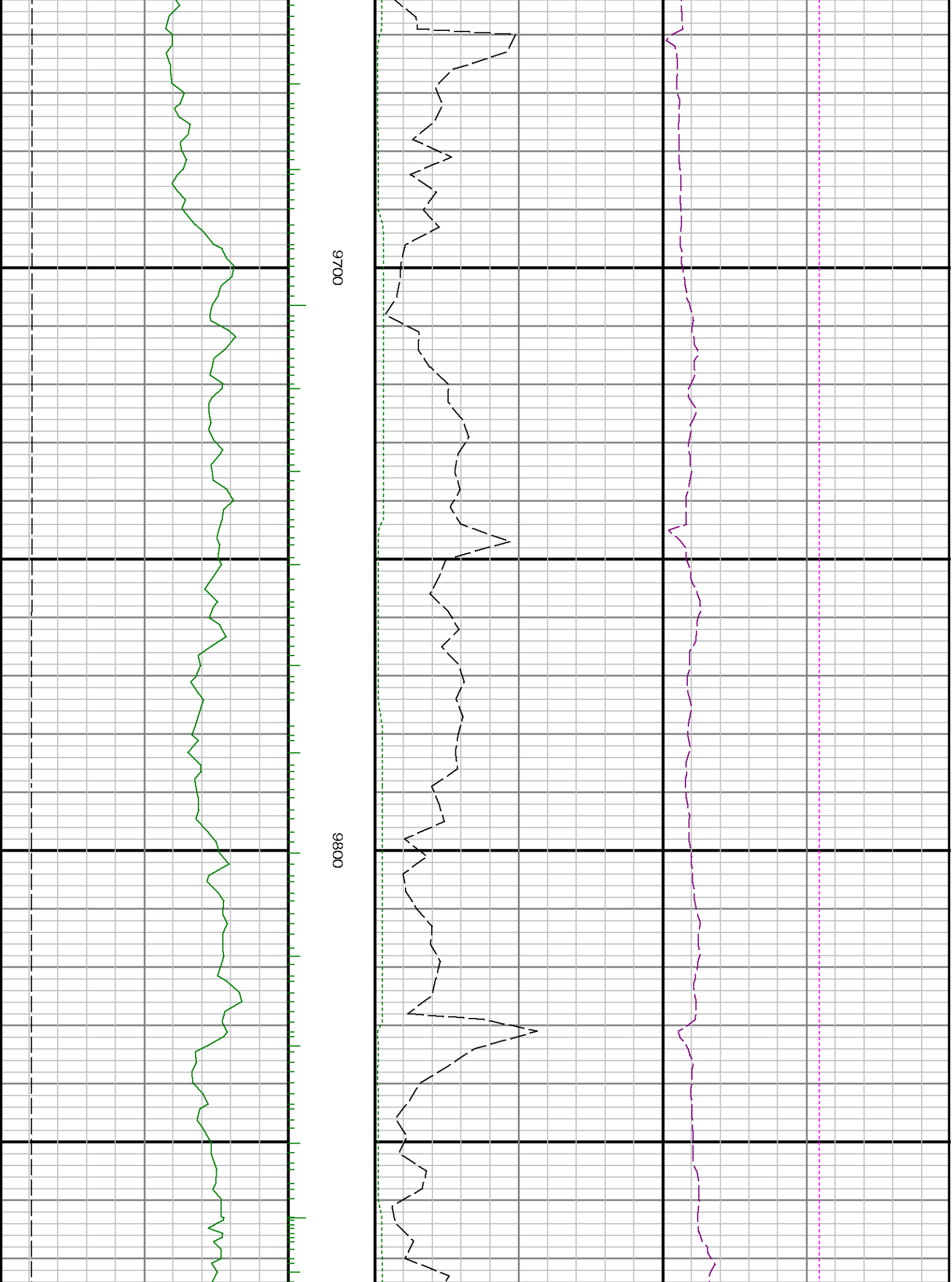
0068

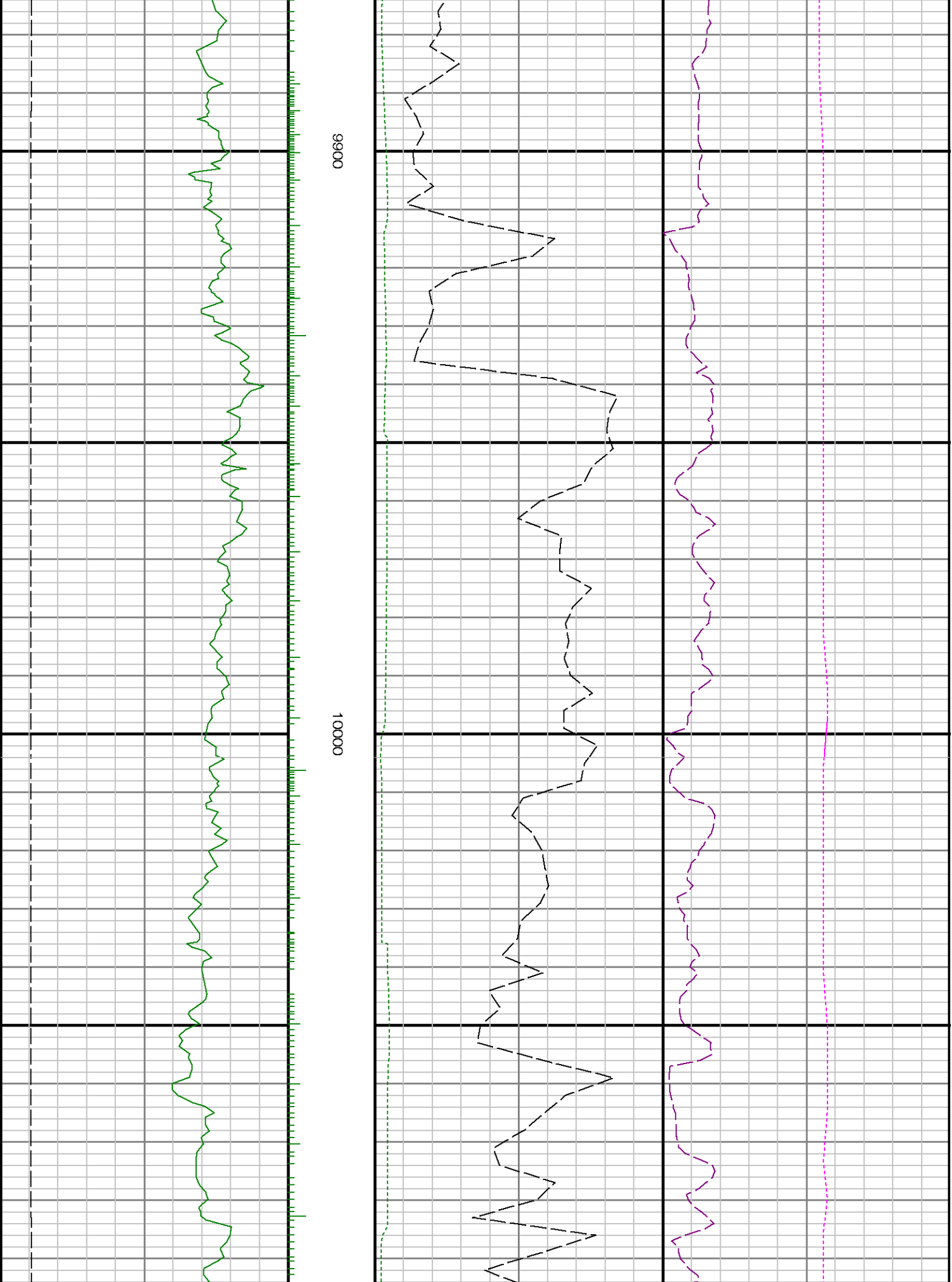


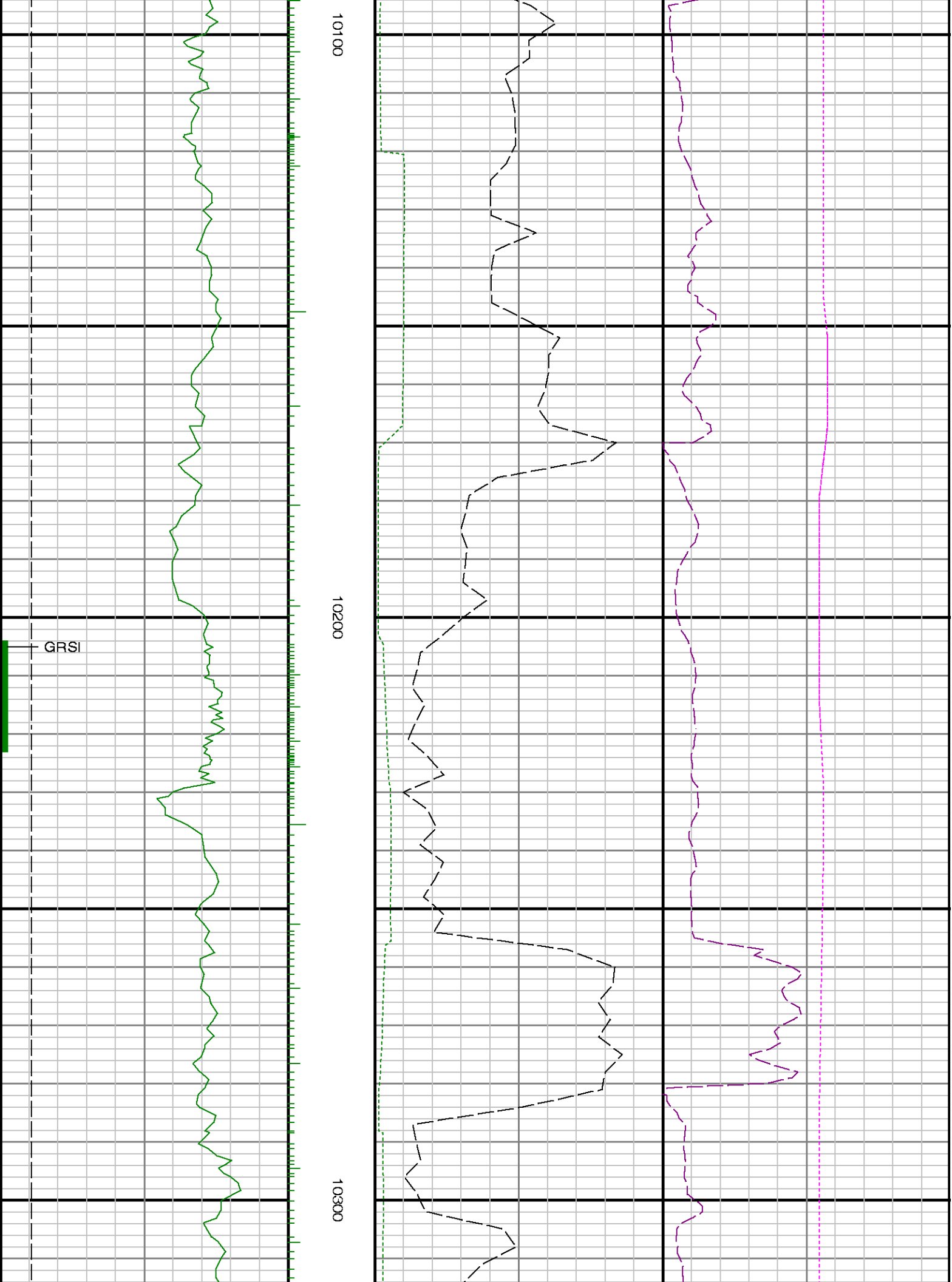


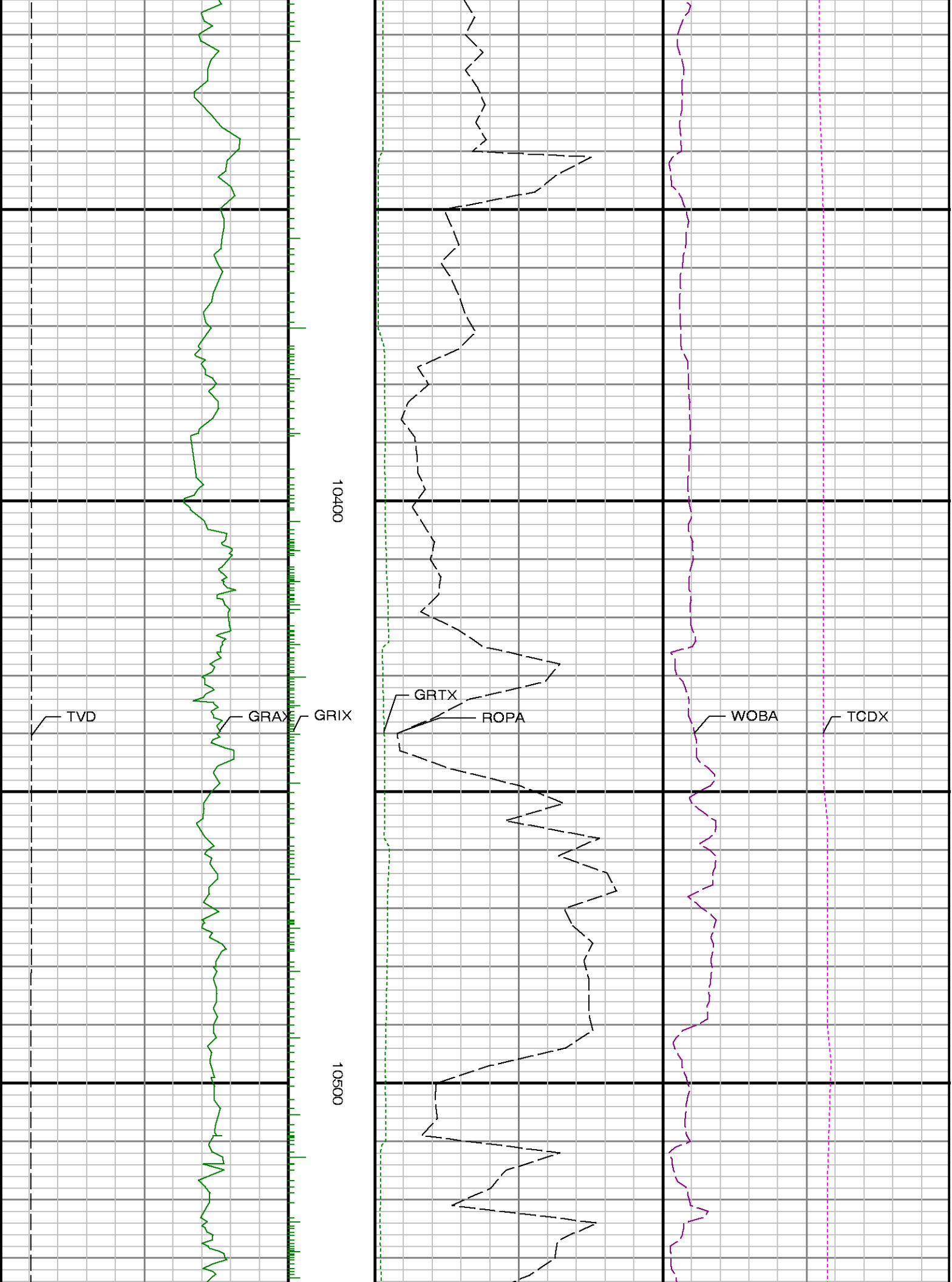


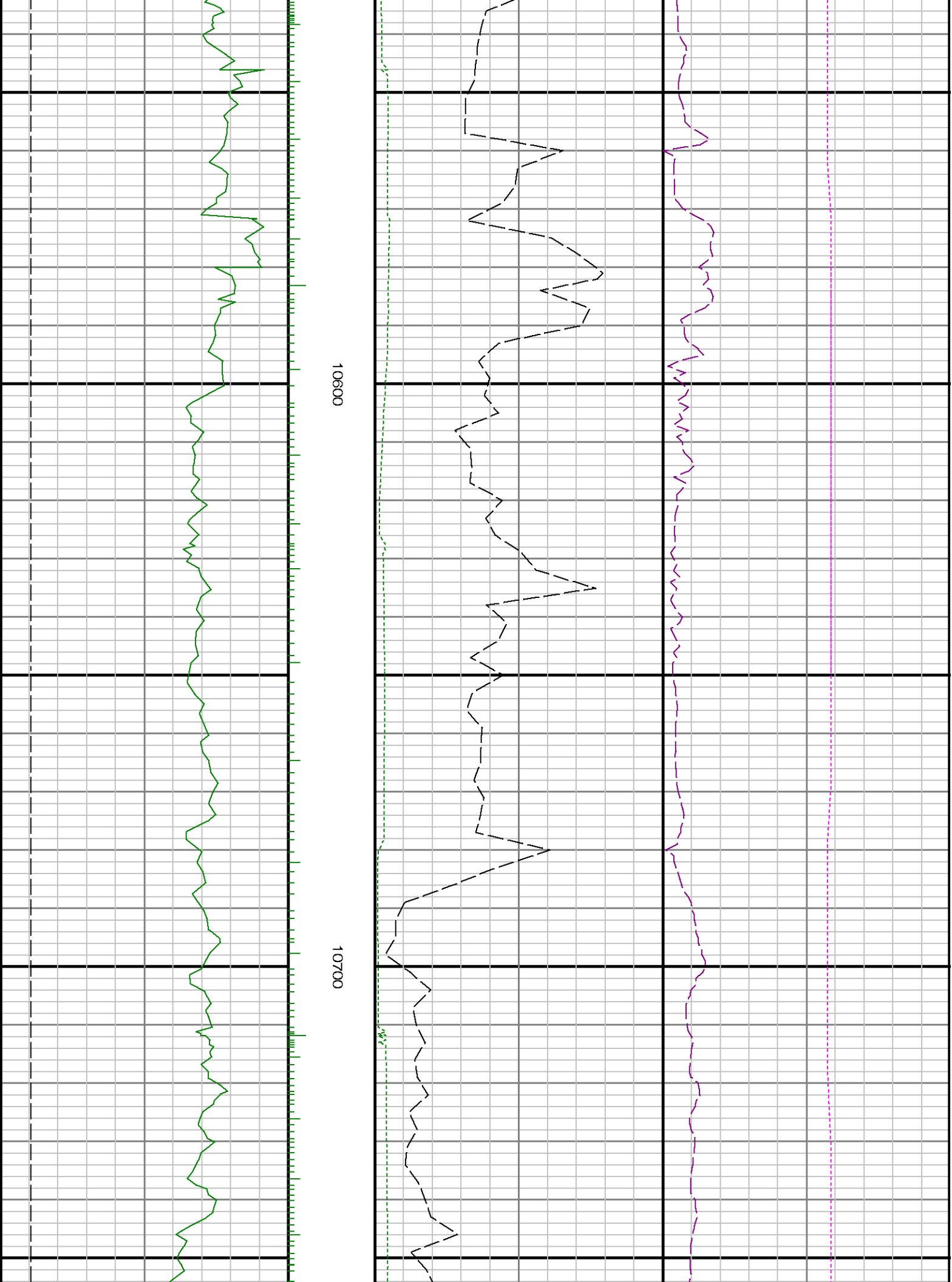


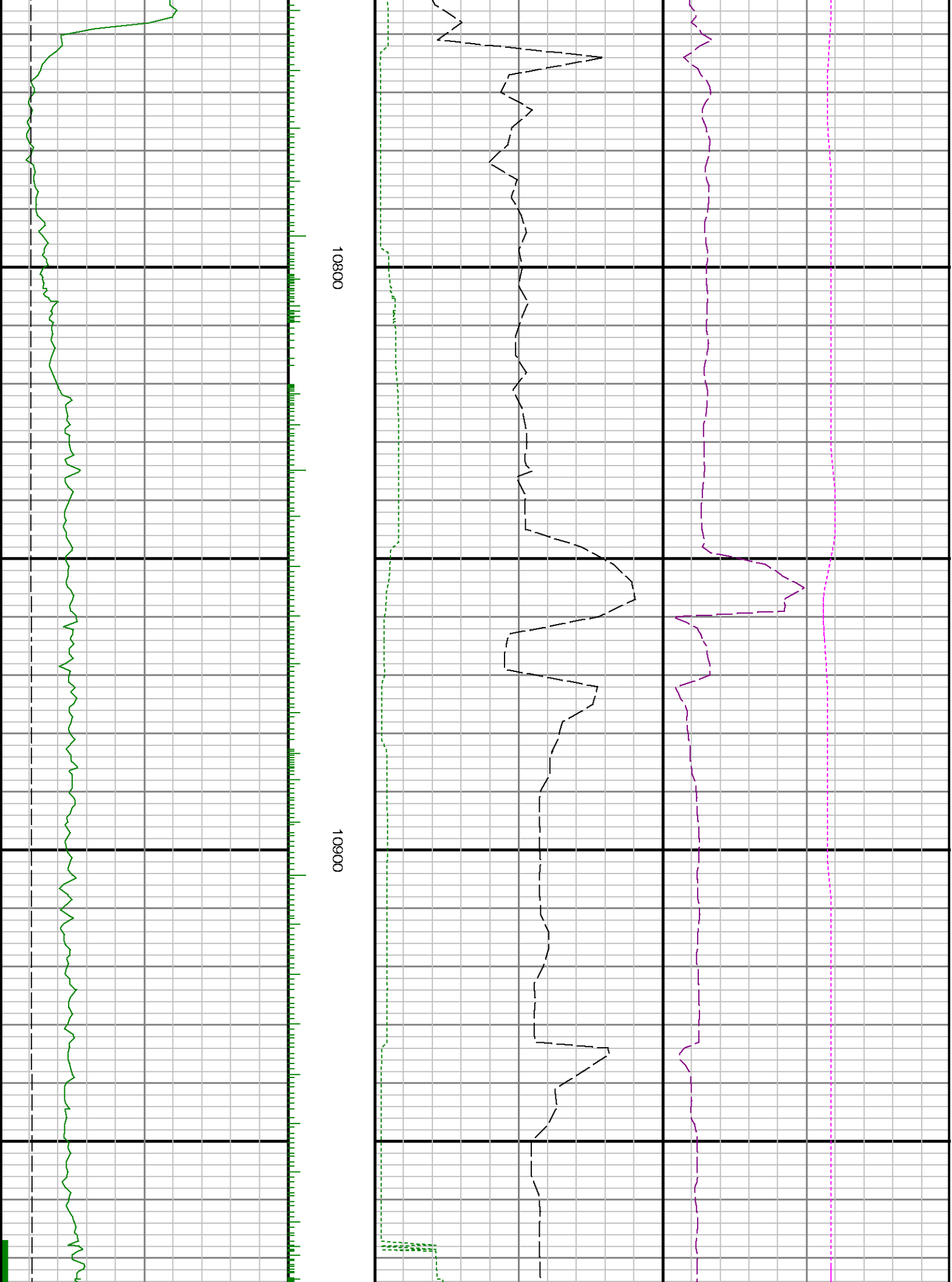








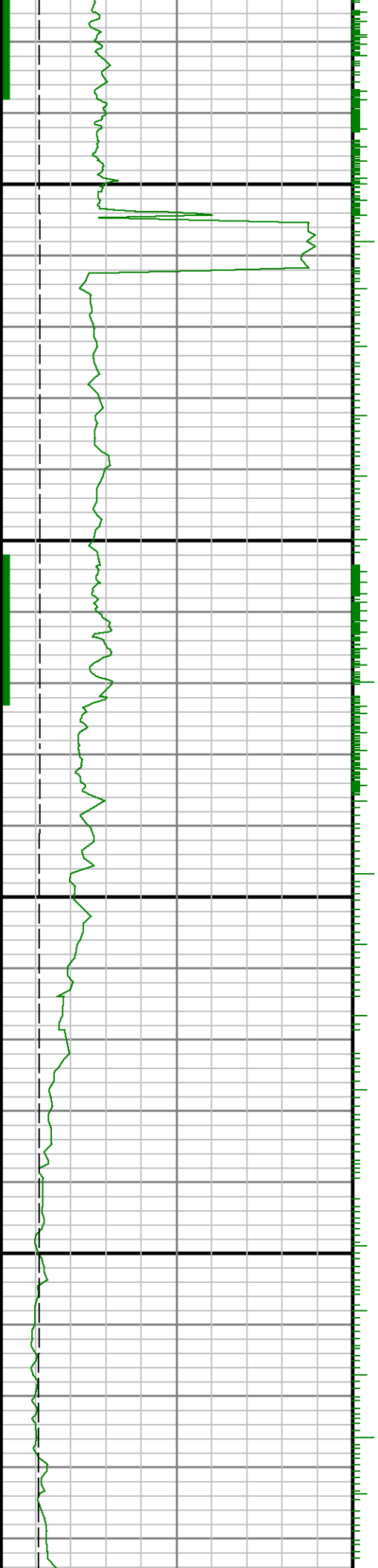


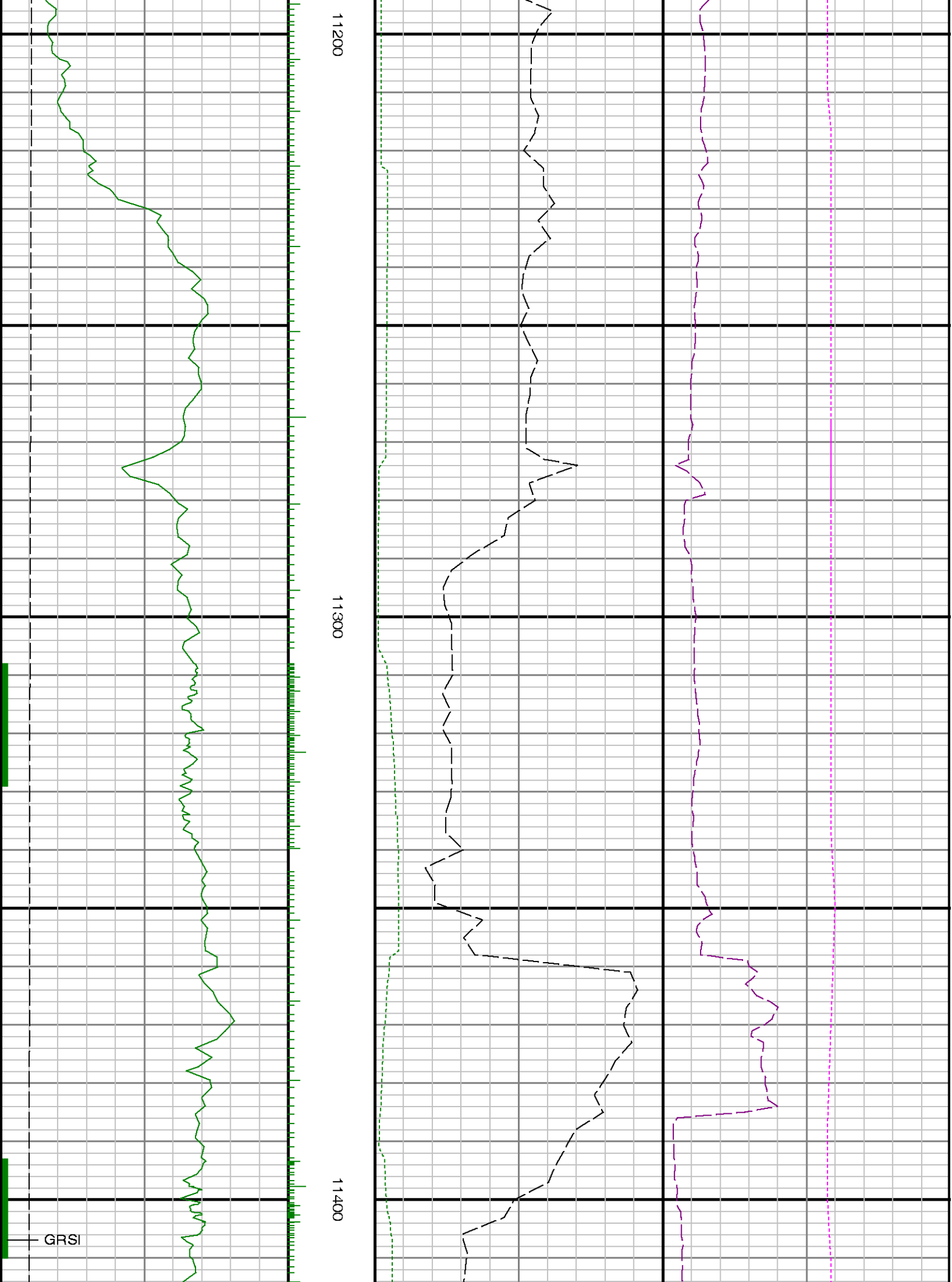


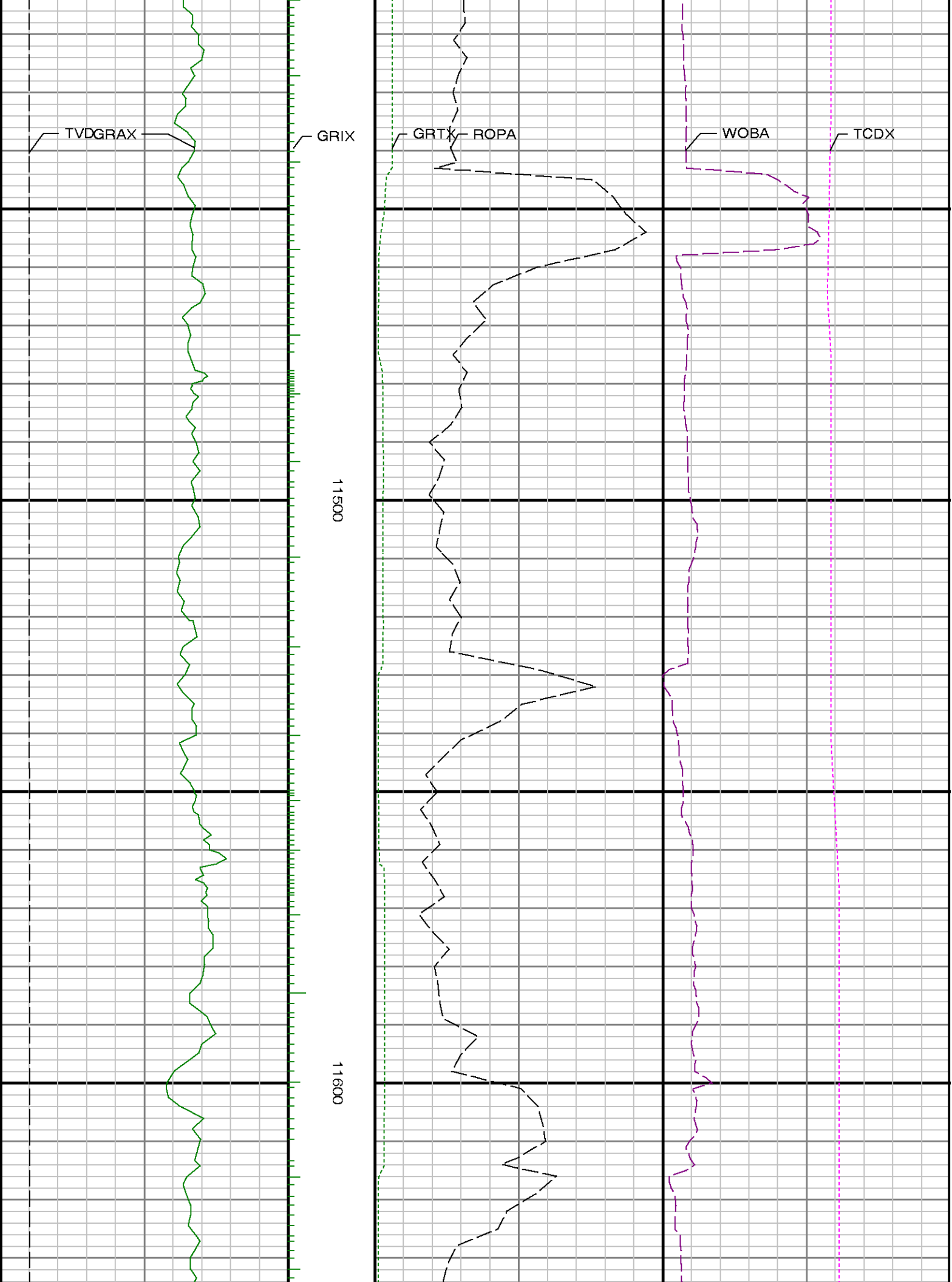


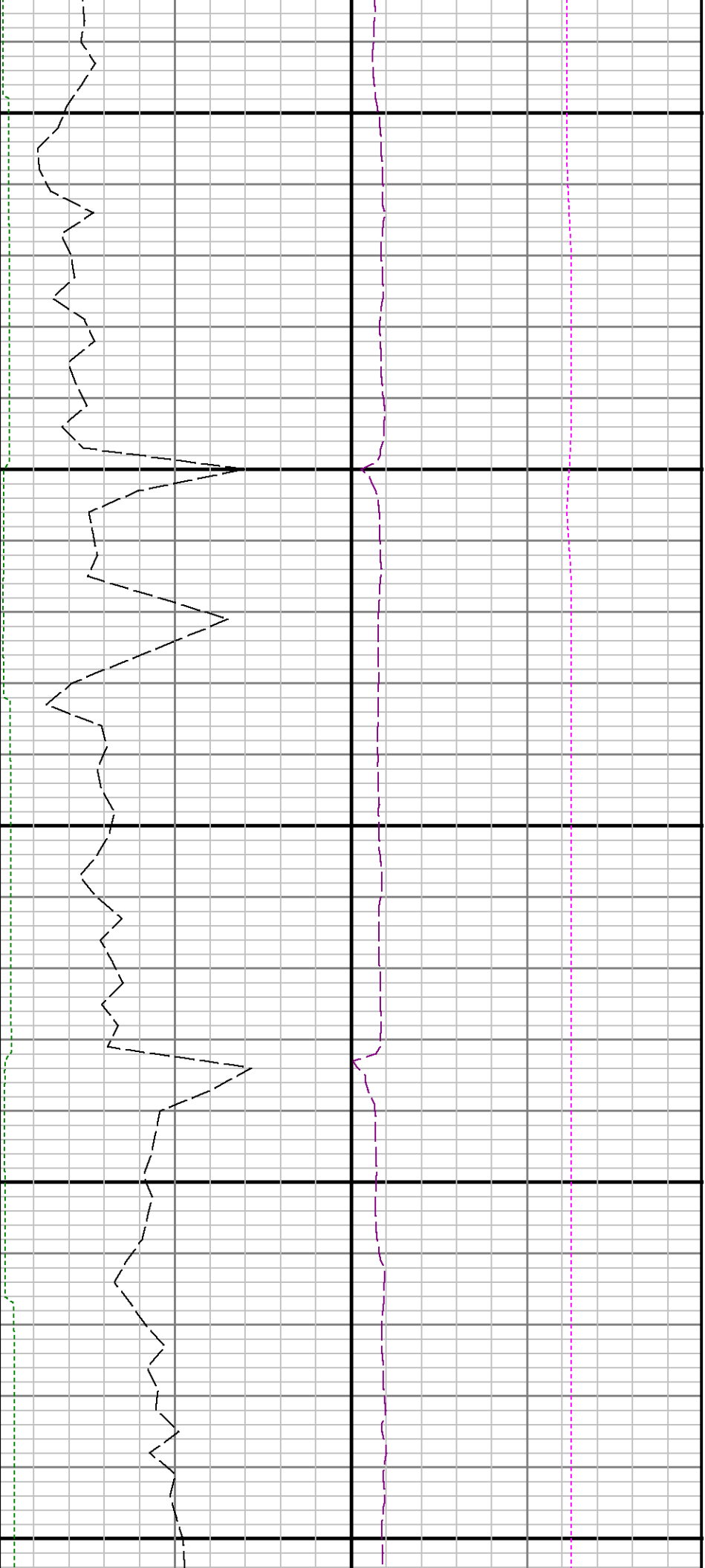
11000

11100



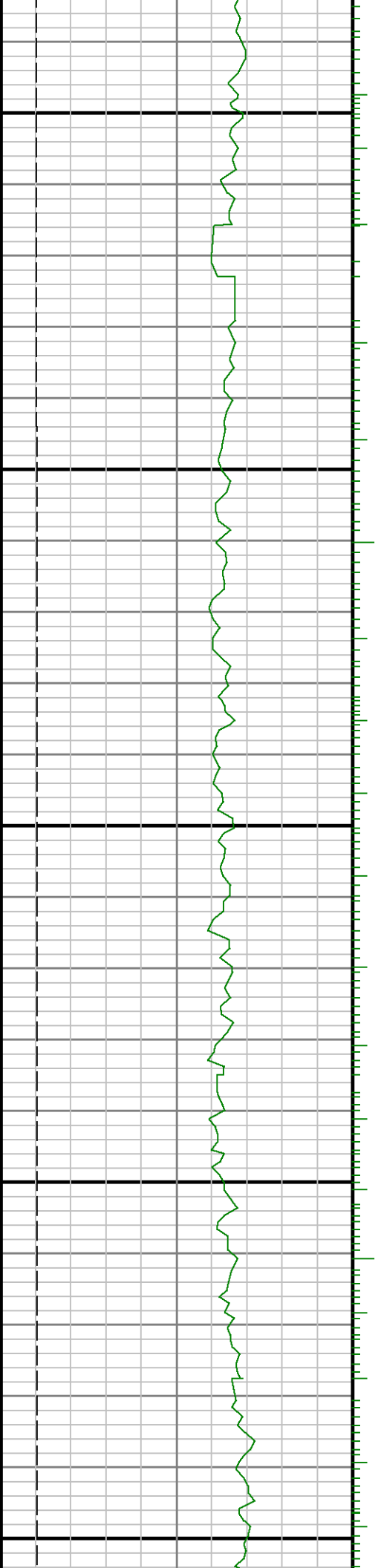






11700

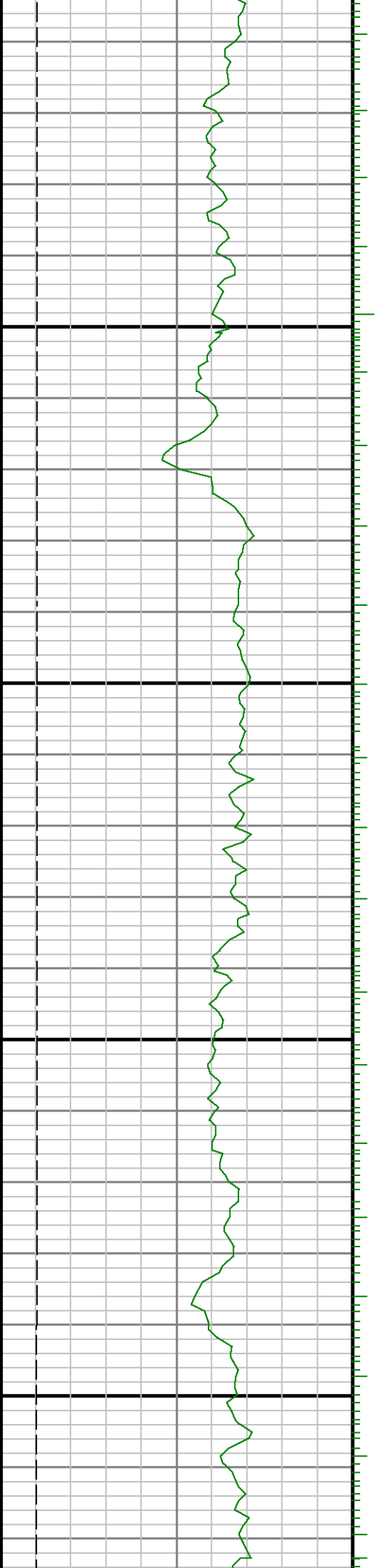
11800

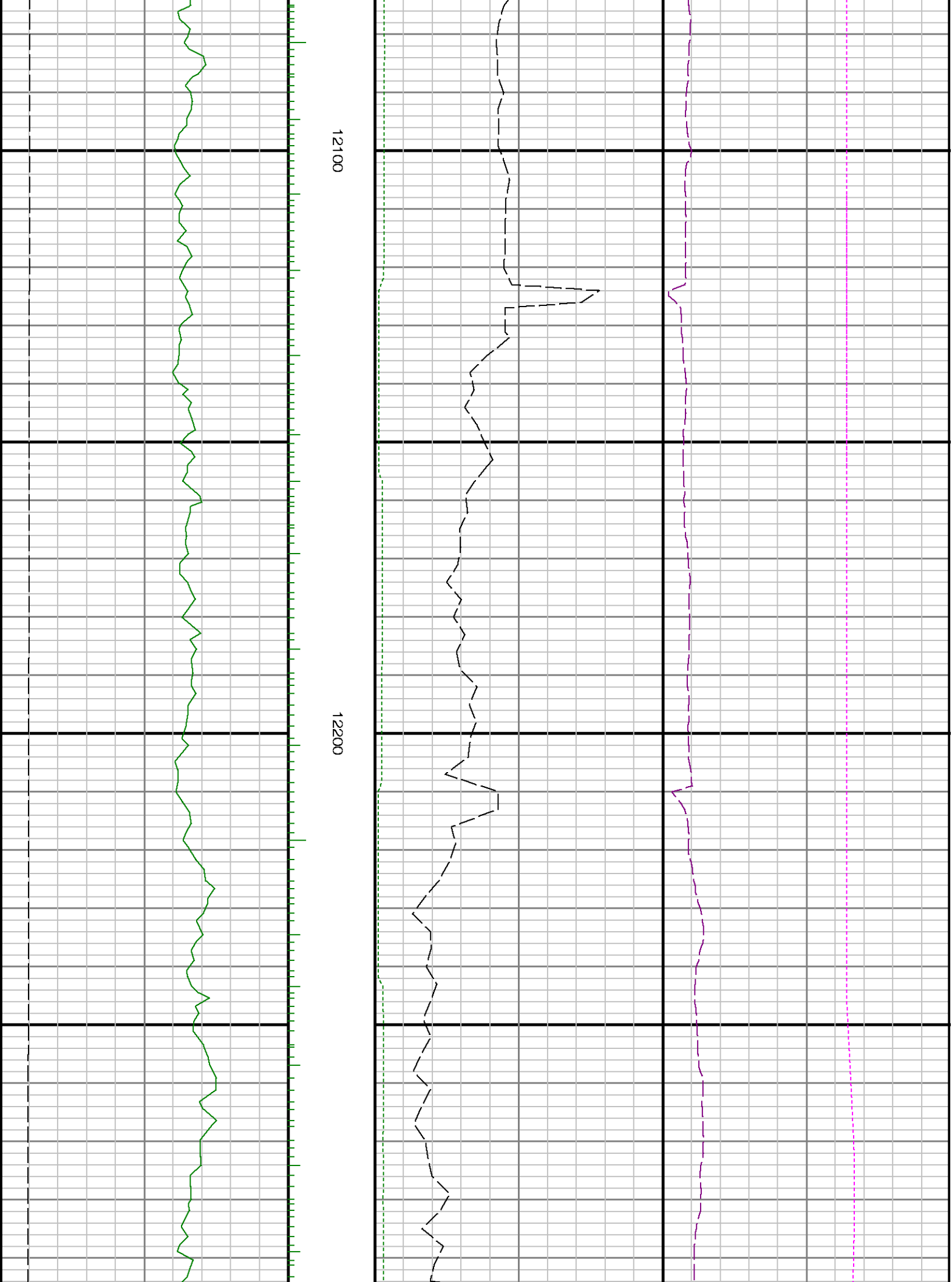


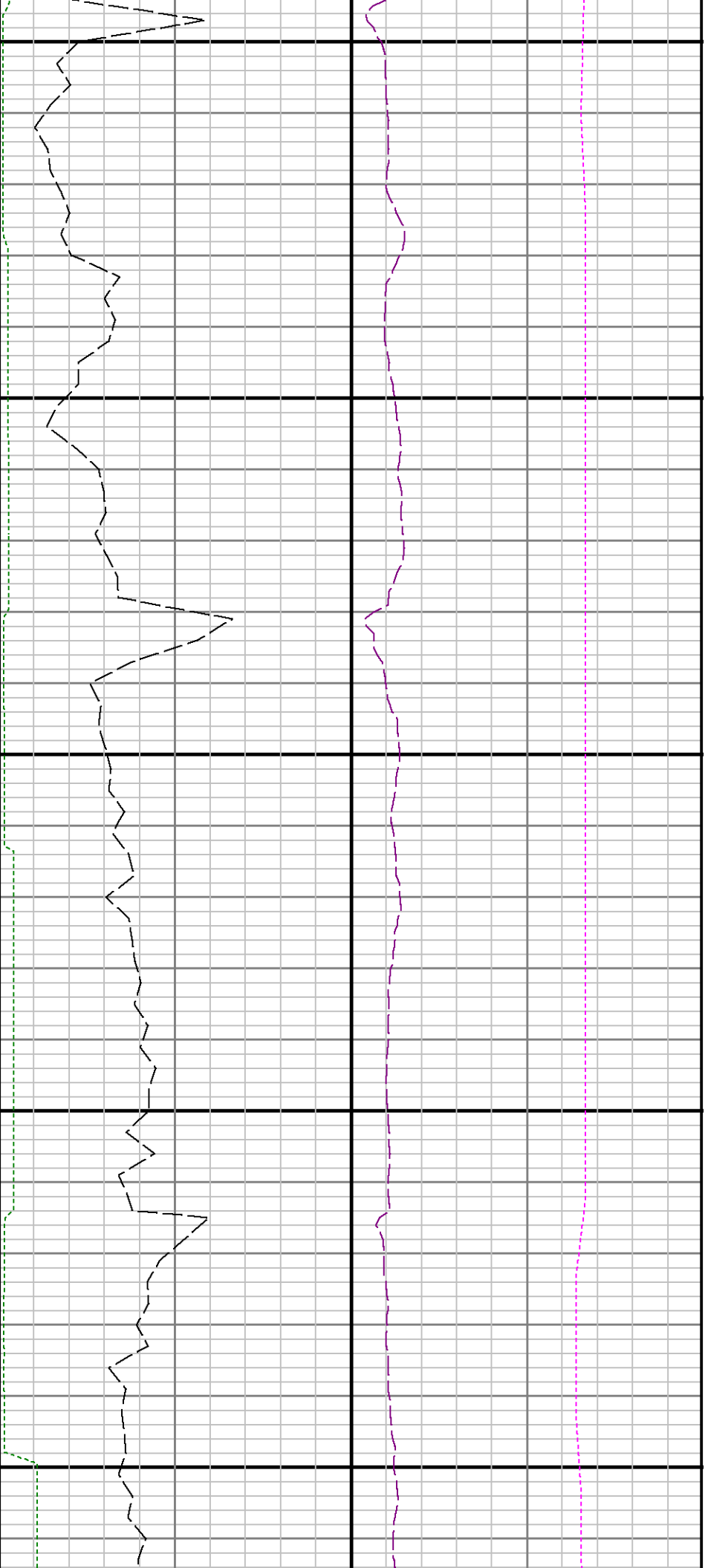


11900

12000



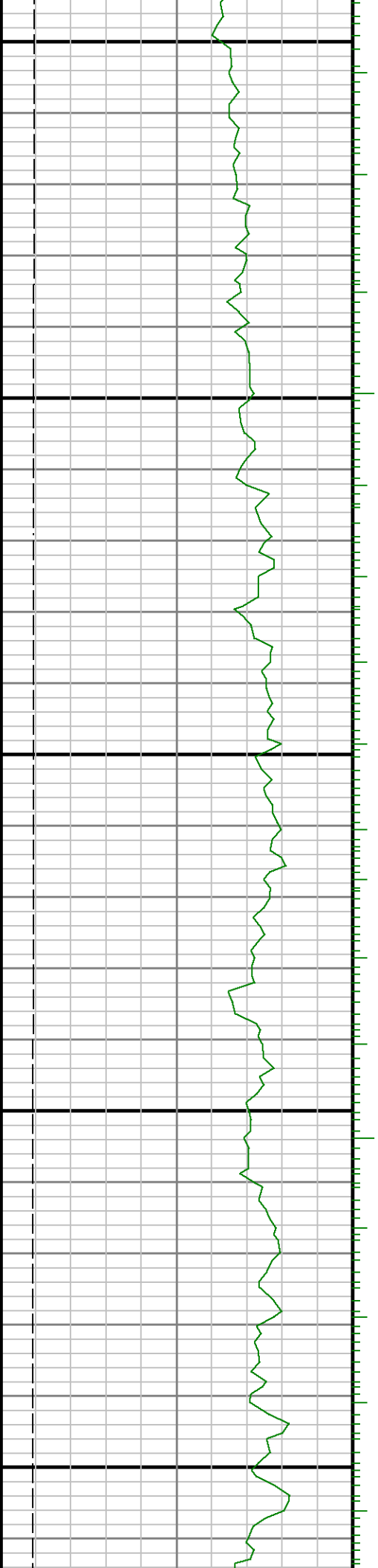


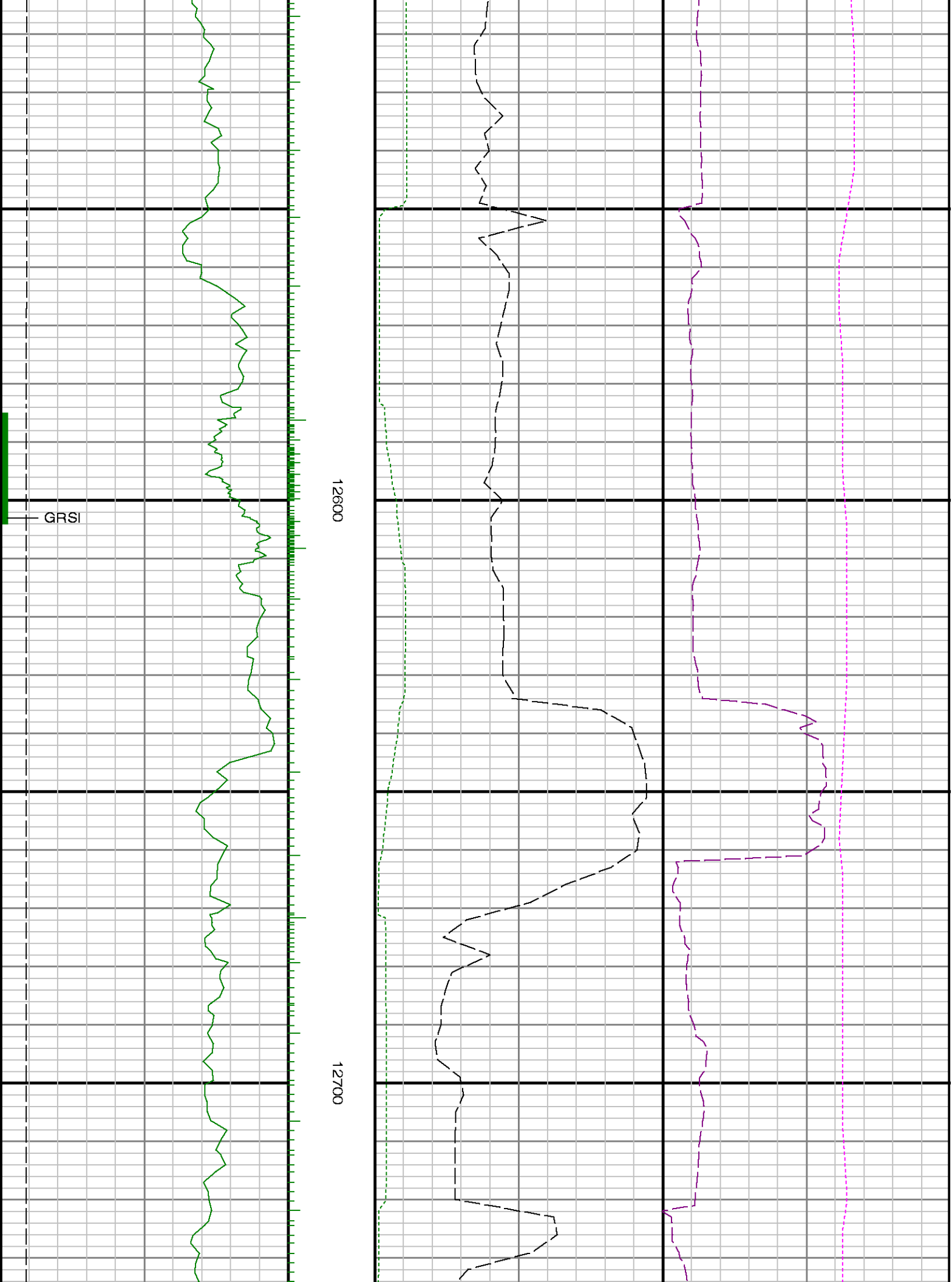


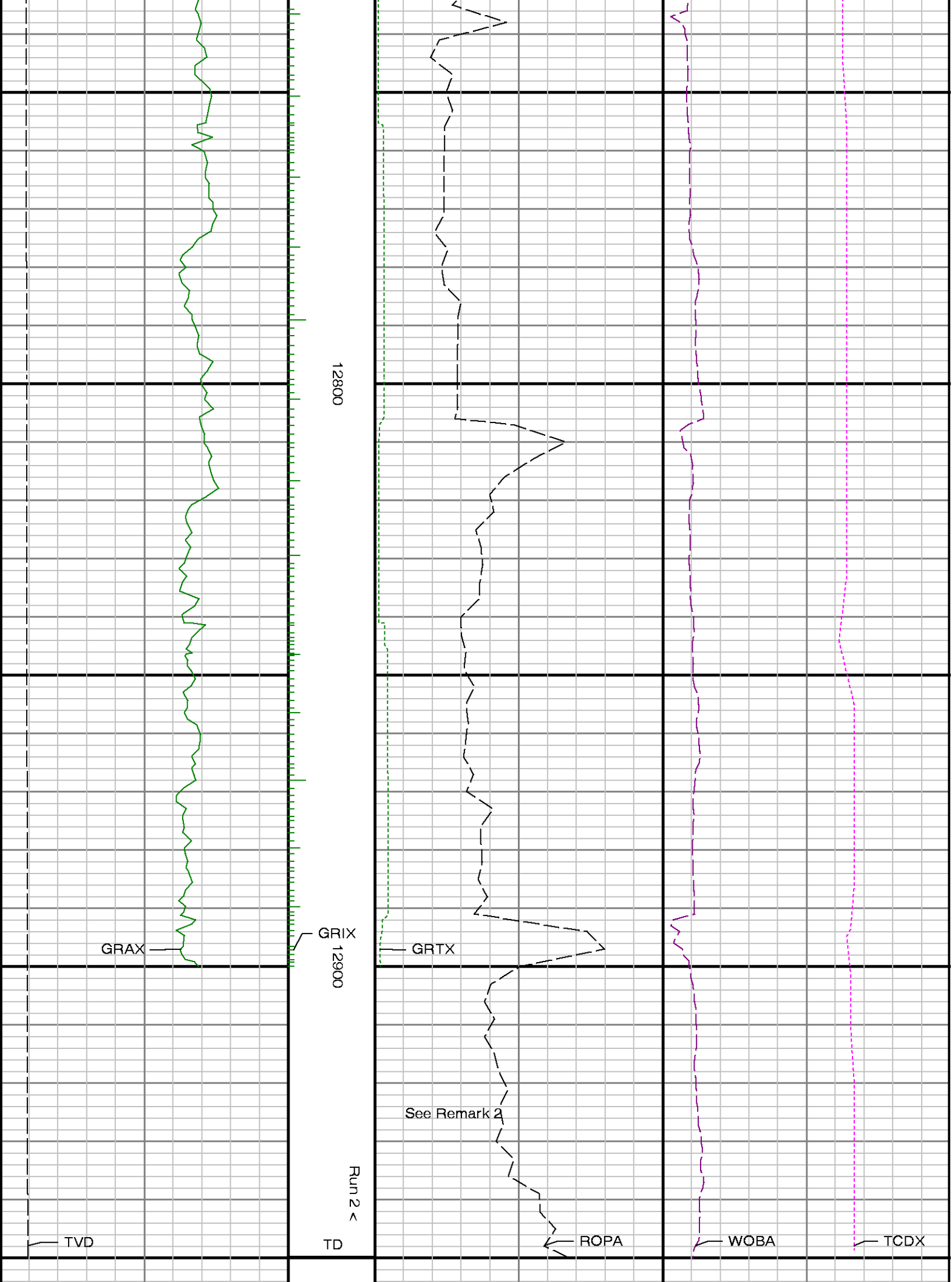
12300

12400

12500







[illegible]