



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:	Company: Anadarko		
Measured Depth	1:240	Well:	Elliott State 41C-17HZ
		Field:	Weld County (Kerr McGee)
		County:	Weld County State: Colorado
Status:	Final Print	Surface Location:	Other Services:
API Number:	05-123-39080-00	Latitude: 40° 13' 44.062" N Longitude: 104° 55' 12.900" W	Directional VSS
		SEC: 17 TWP: 3S RNG: 67W	
Permanent Datum (P.D.): Mean Sea Level		Elevation: 4812.00 ft.	Elevations:
Log Measured From: Kelly Bushing		4825.00 ft. Above P.D.	KB: 4825.00 ft. DF: N/A GL: 4812.00 ft.
Depth Reference:		Driller's Depth	

Interval Logged		Dates		Magnetic Field Reference	
Top:	6650 ft.	Date From:	23/May/14	Dip Angle:	66.88 ° Azi Reference North: True
Bottom:	12517 ft.	Date To:	30/May/14	Total	Mag to Reference
		Spud Date:	23/May/14	Field Strength:	52579.0 nT North Correction: 8.56 °

Borehole Record			Casing Record		
Hole Size	From	To	Size	Weight	From To
13.500 in.	Surface	1254 ft.	9.625 in.	51.00 lb/ft	Surface 1244 ft.
8.750 in.		1254 ft.	7.000 in.	39.00 lb/ft	Surface 7724 ft.
		7734 ft.	12517 ft.		

Mud Record			Deviation Record		
Type	From	To	Hole Size	Interval	Inc / Az (Start) Inc / Az (End)
Fresh Water Mud	Surface	7734 ft.	8.750 in.	6480 ft.	0.5 ° / 174.9 ° 86.8 ° / 89.2 °
Water Based Mud	7734 ft.	12517 ft.	6.125 in.	4783 ft.	86.8 ° / 89.2 ° 89.0 ° / 92.4 °
					/ /
					/ /
					/ /
					/ /

Acquisition System		Software Version		Other	
Advantage	2.20U4	Rig:	Ensign #138	/ Ensign Drilling	
PATS	6.4.1.34	Job No:	6304538	/ D&E	
		District / Unit:	RMD		

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	BHA	Bit	Bit	Bit	Bit	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
Run	Run	Run	Size	Type	Gauge		Top	Bottom	From	To	Start	End	
No.	No.	No.	(in.)		Length (in.)		(ft.)	(ft.)	(ft.)	(ft.)			
1	1	2	8.750	PDC	3.000	Steerable	N/A	N/A	1254	3488	23/May/2014 15:58	24/May/2014 06:48	13.1
2	2	2	8.750	PDC	3.000	Steerable	6651	7674	3489	7734	24/May/2014 13:53	25/May/2014 20:59	30
3	3	3	6.125	PDC	6.000	Steerable	7674	12453	7734	12517	29/May/2014 11:41	30/May/2014 12:09	27.5

Crew								
Name			Arrive	Depart	Name			Arrive
			Wellsite	Wellsite				Wellsite
Stephen Gray			21/May/2014	31/May/2014	Justin Foster			21/May/2014
								31/May/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+ (%)
25/May/2014	21:00	2	7649	LSND	10.1	43	9.5	4.8	0.5/90.2	Active Mud Pit	2900	N/A
26/May/2014	21:00	2	7734	LSND	10.3	42	9.1	4.8	0.5/89.5	Active Mud Pit	3200	N/A
29/May/2014	21:00	3	9255	LSND	9.3	40	9.2	4.6	0.7/93.3	Active Mud Pit	3500	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	°F
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.)
1	DIR	12479876	Directional	65.58	6.750	3.125
1	SRIG	12131378	Gamma	62.21	6.750	3.125
2	DIR	11814673	Directional	63.69	6.750	3.250
2	SRIG	12041109	Gamma	60.31	6.750	3.250
3	DIR	12456788	Directional	65.21	4.750	2.625
3	SRIG	12554666	Gamma	61.83	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

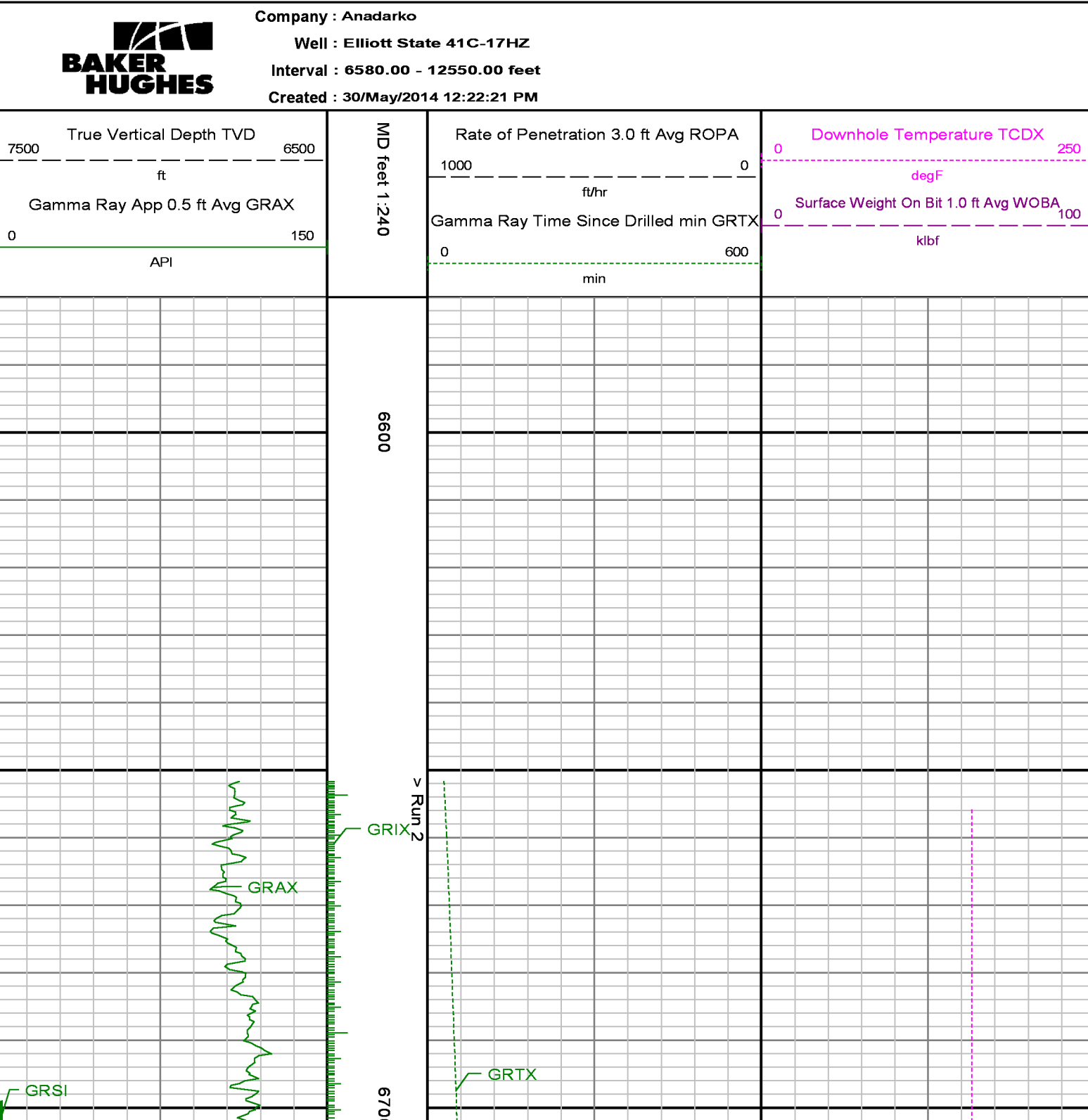
Comments

1.) Baker Hughes LWD runs 1 and 2 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1254 to 6710 ft. MD (1254 to 6541ft. TVD) and run 2 utilized NaviGamma Services (VSS, Directional, Gamma Ray) from 6710 to 7734 ft. MD (6541 to 7137 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
2.) Baker Hughes LWD run 3 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7734 to 12517 ft. MD (7137 ft. to 7138 TVD) behind an 6 1/8 inch bit and steerable assembly.
3.) 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	Hole	LWD	Remark
--------	----------	------	-----	--------

	Depth (ft)	Section (in.)	Run No.	
1	7734	6.125	3	The interval from 7394 to 7701 ft. MD (6937 to 6948 ft. TVD) was logged up to 87.43 hours after being drilled due to a trip out of the hole for intermediate casing operations and waiting on rig to fix traction motor.
2	9408	6.125	3	Intermittent gaps in gamma and drilling data due to depth tracking failure and request by client not to relog.
3	12517	6.125	3	The interval from 12454 to 12517 ft. MD (7137 to 7138 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.



MD feet 1:240

6600

> Run 2

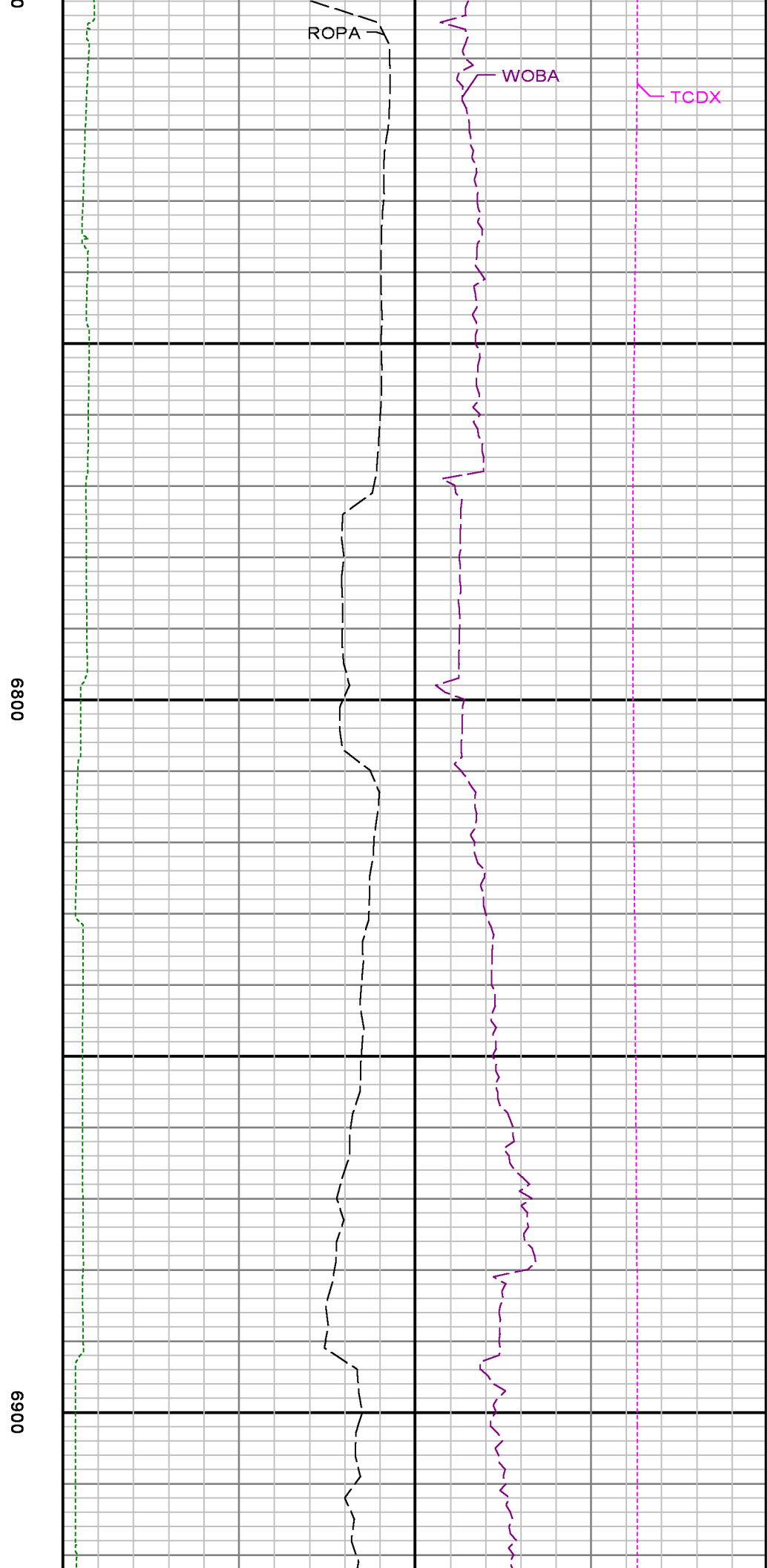
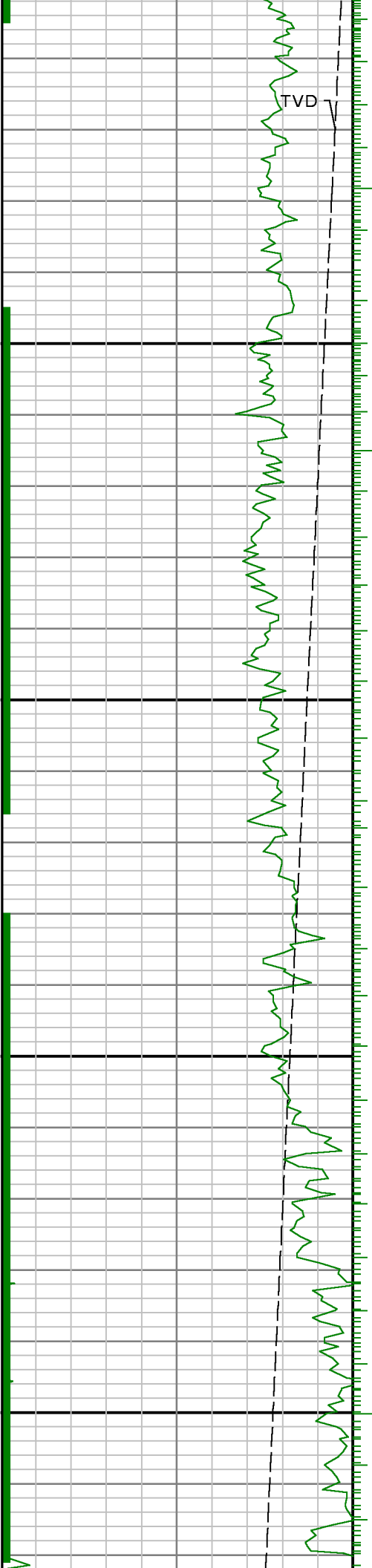
6700

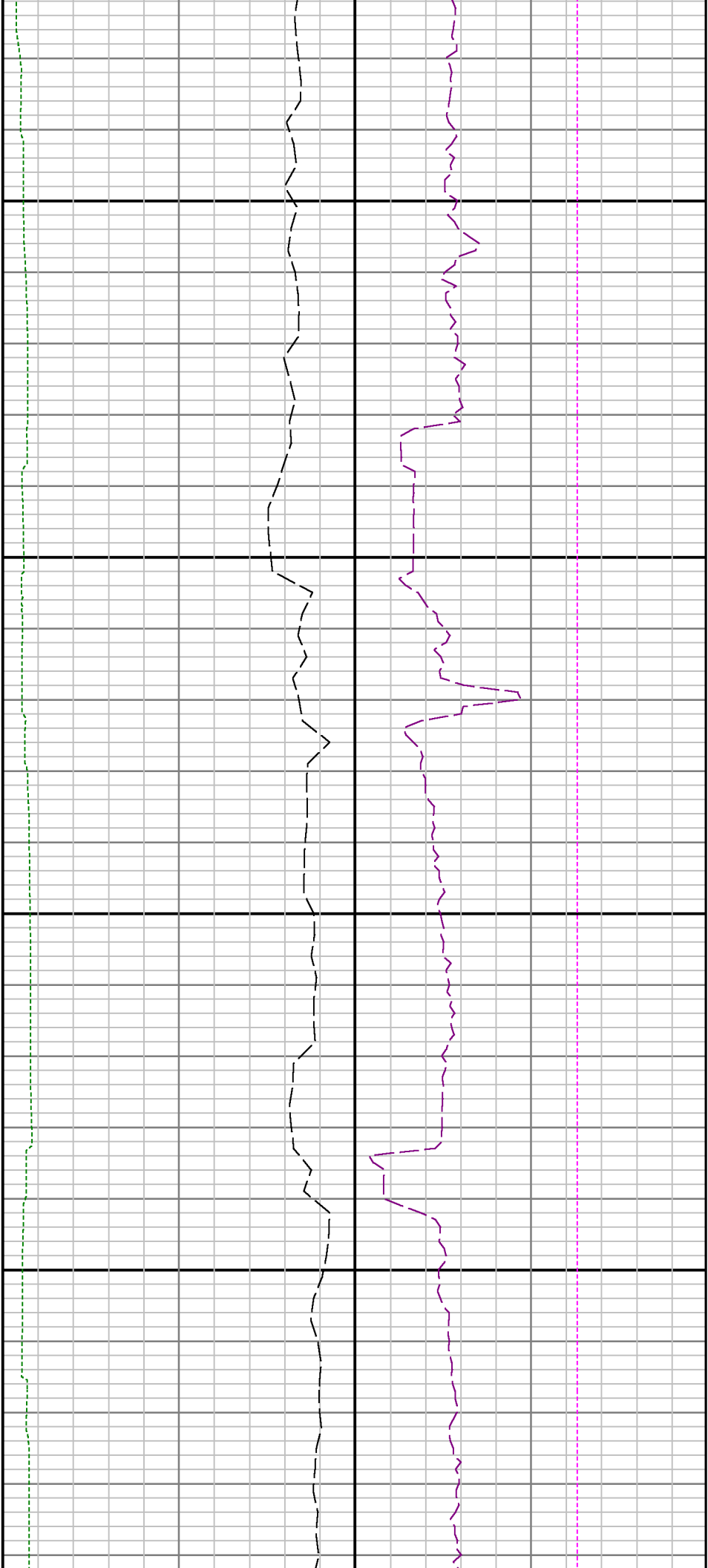
GRAX

GRIX

GRTX

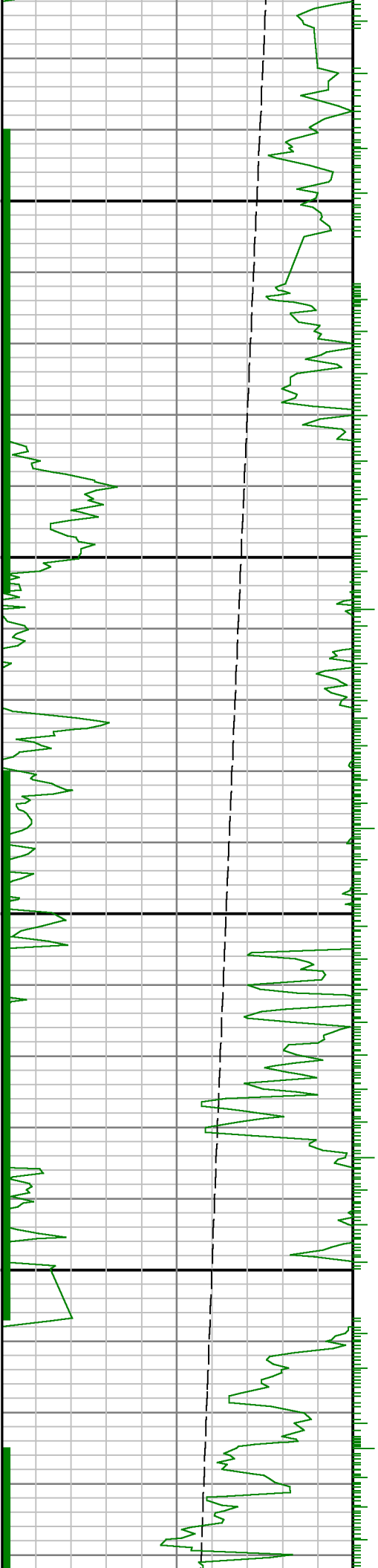
GRSI

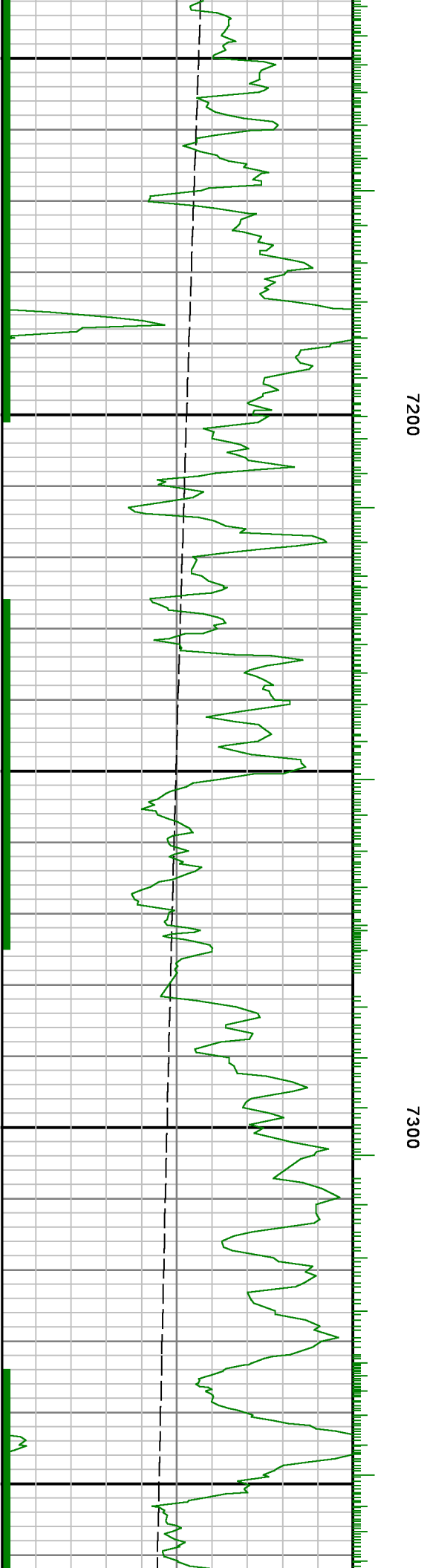
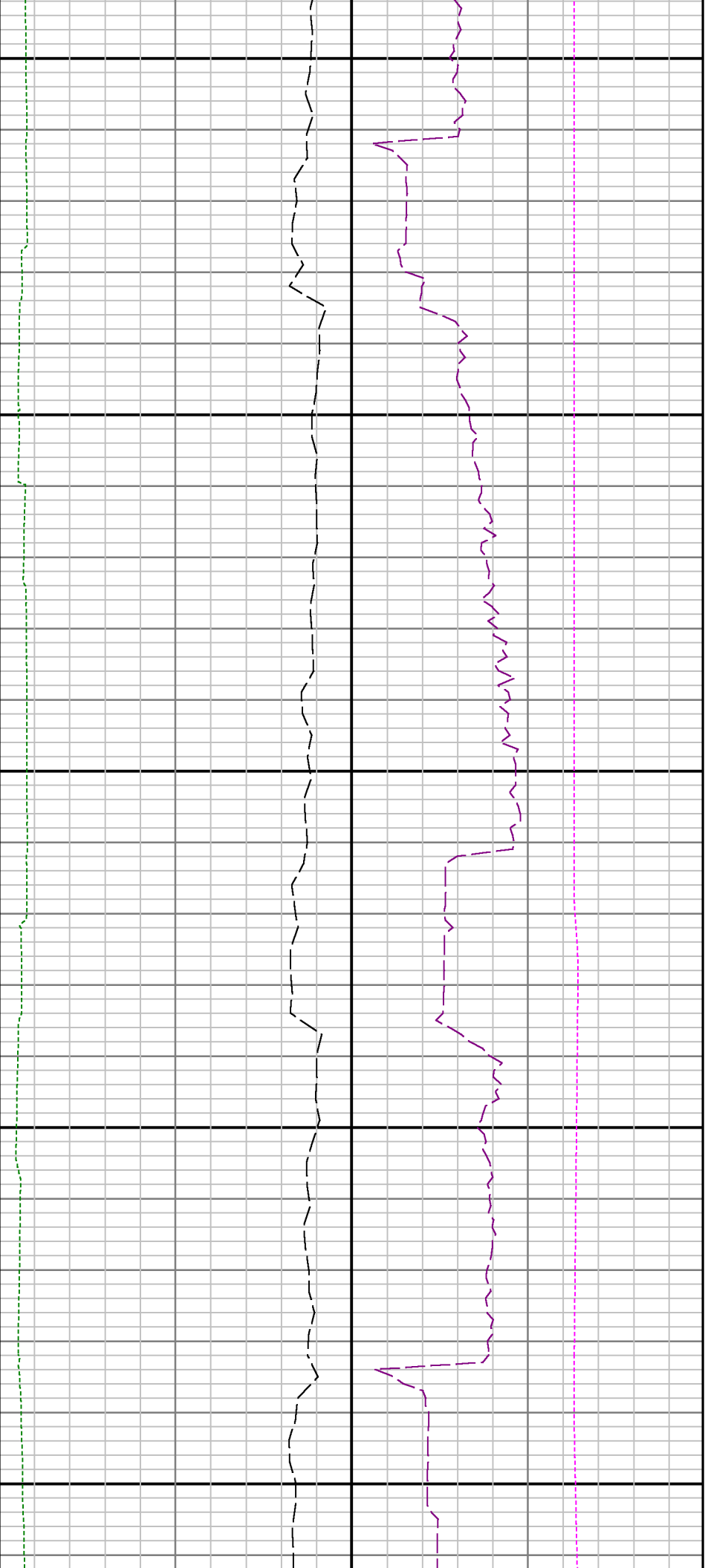


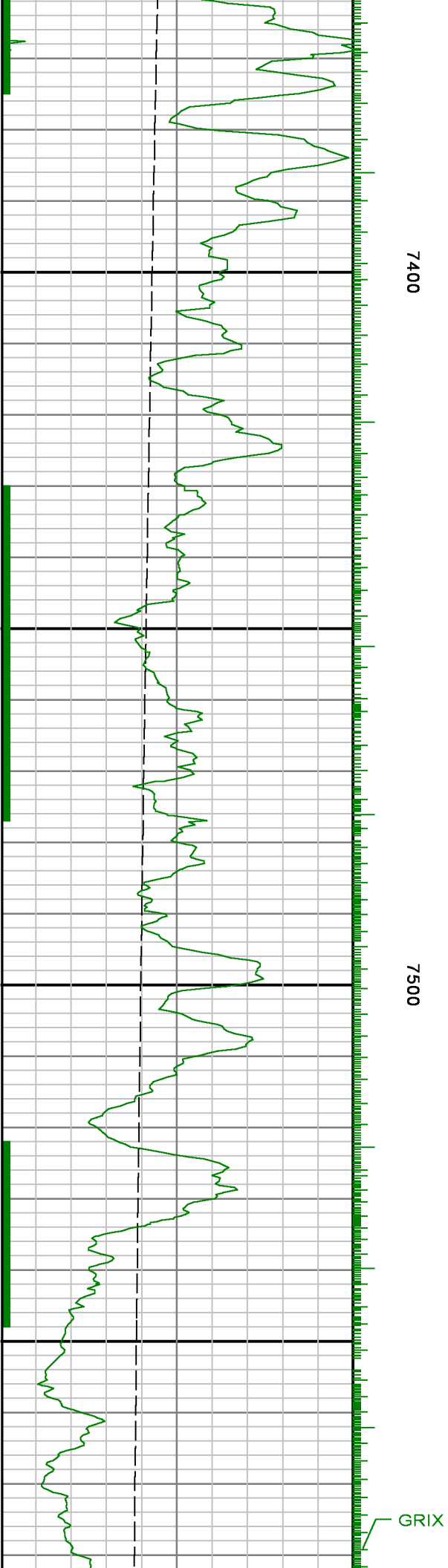
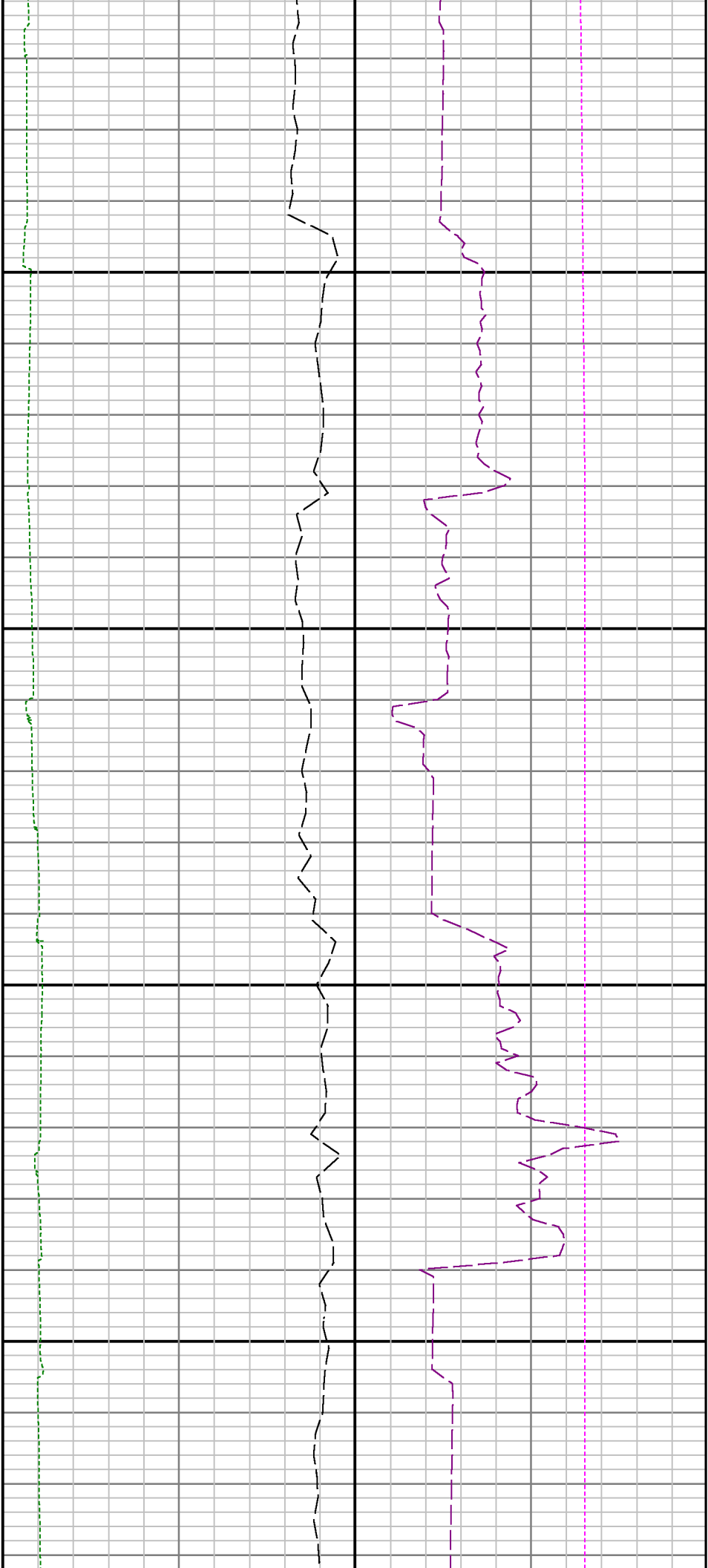


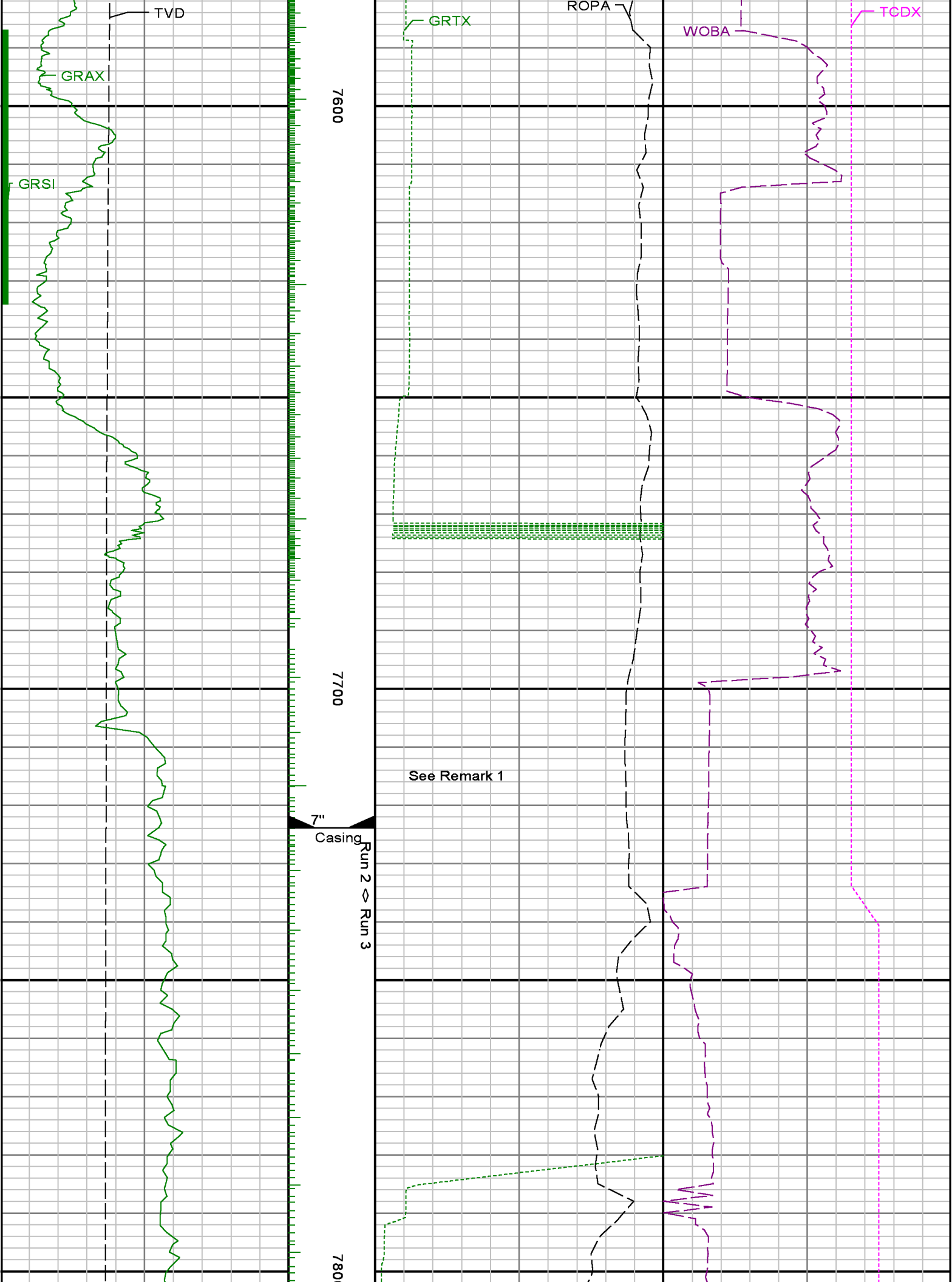
7000

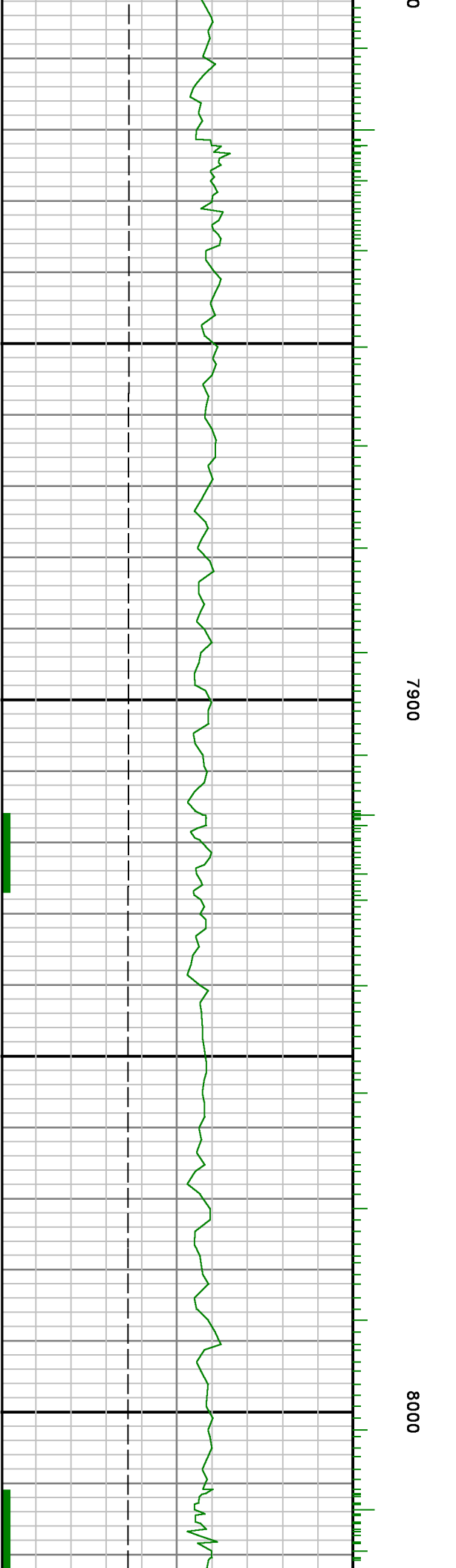
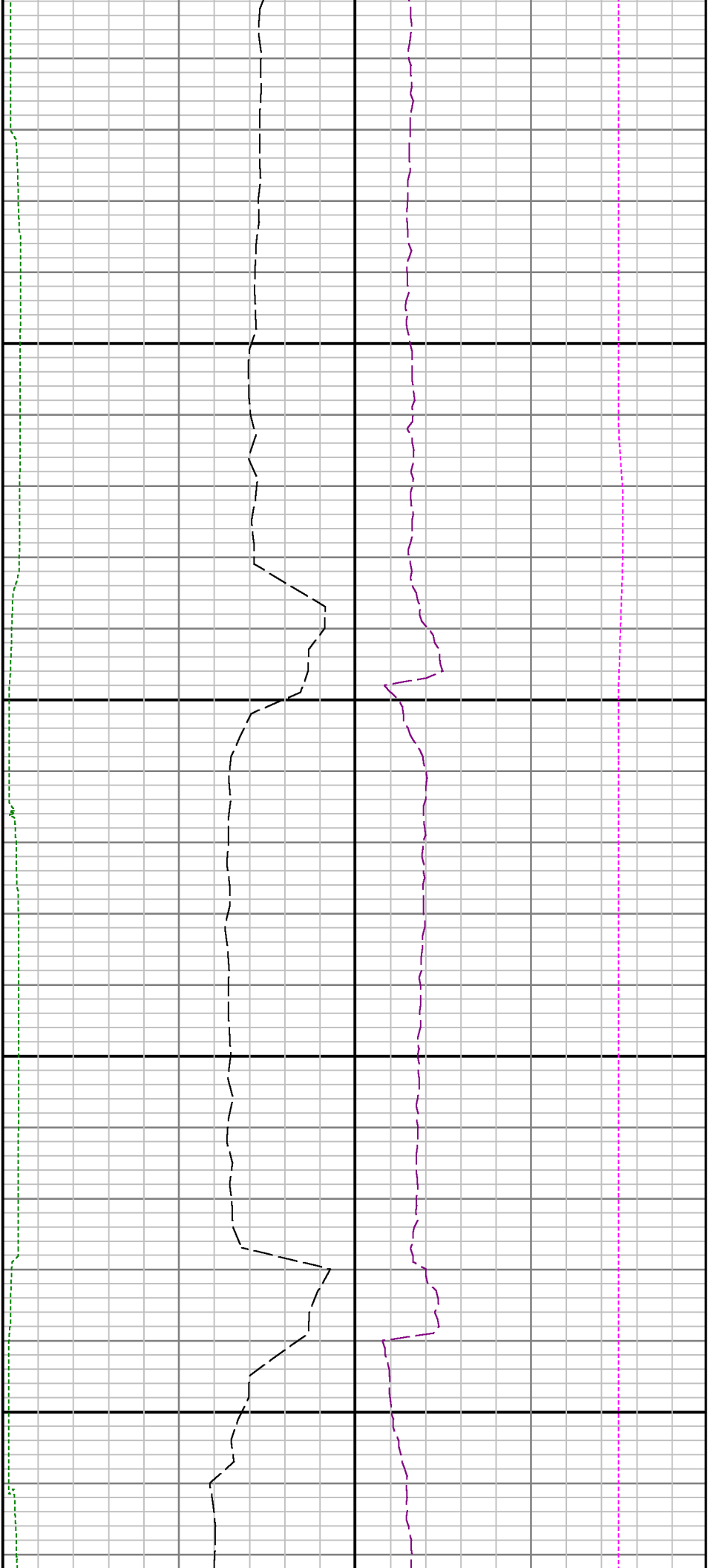
7100

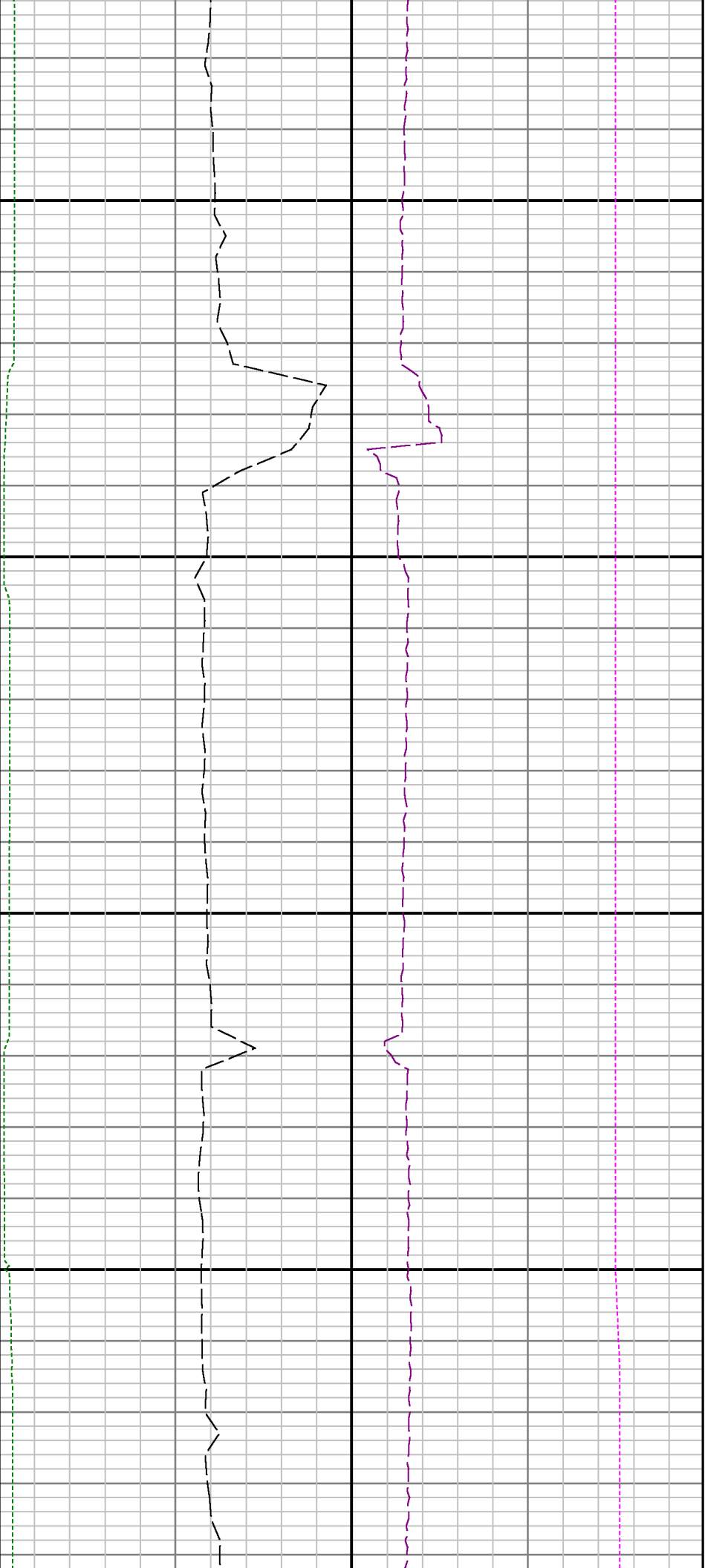






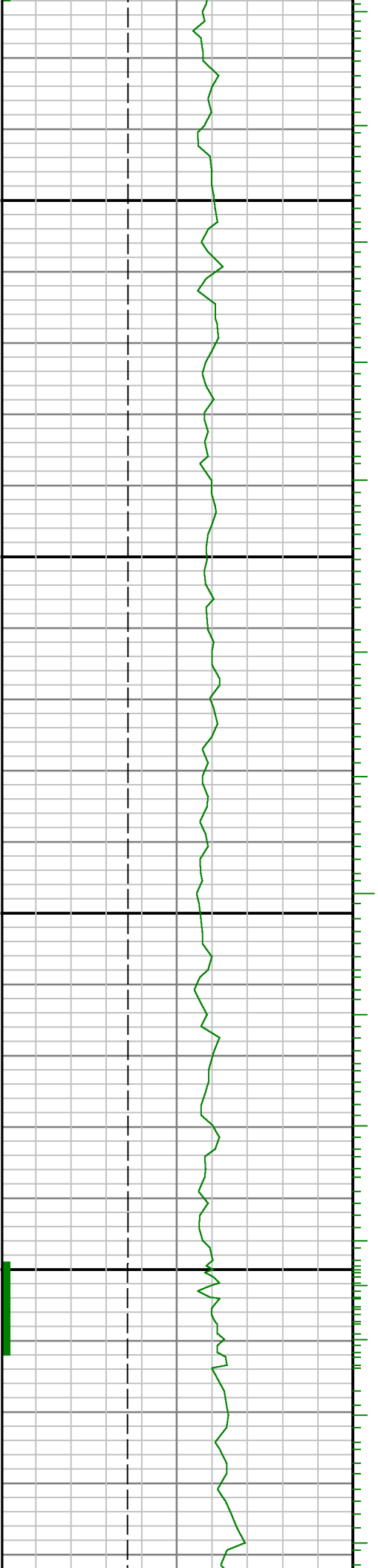




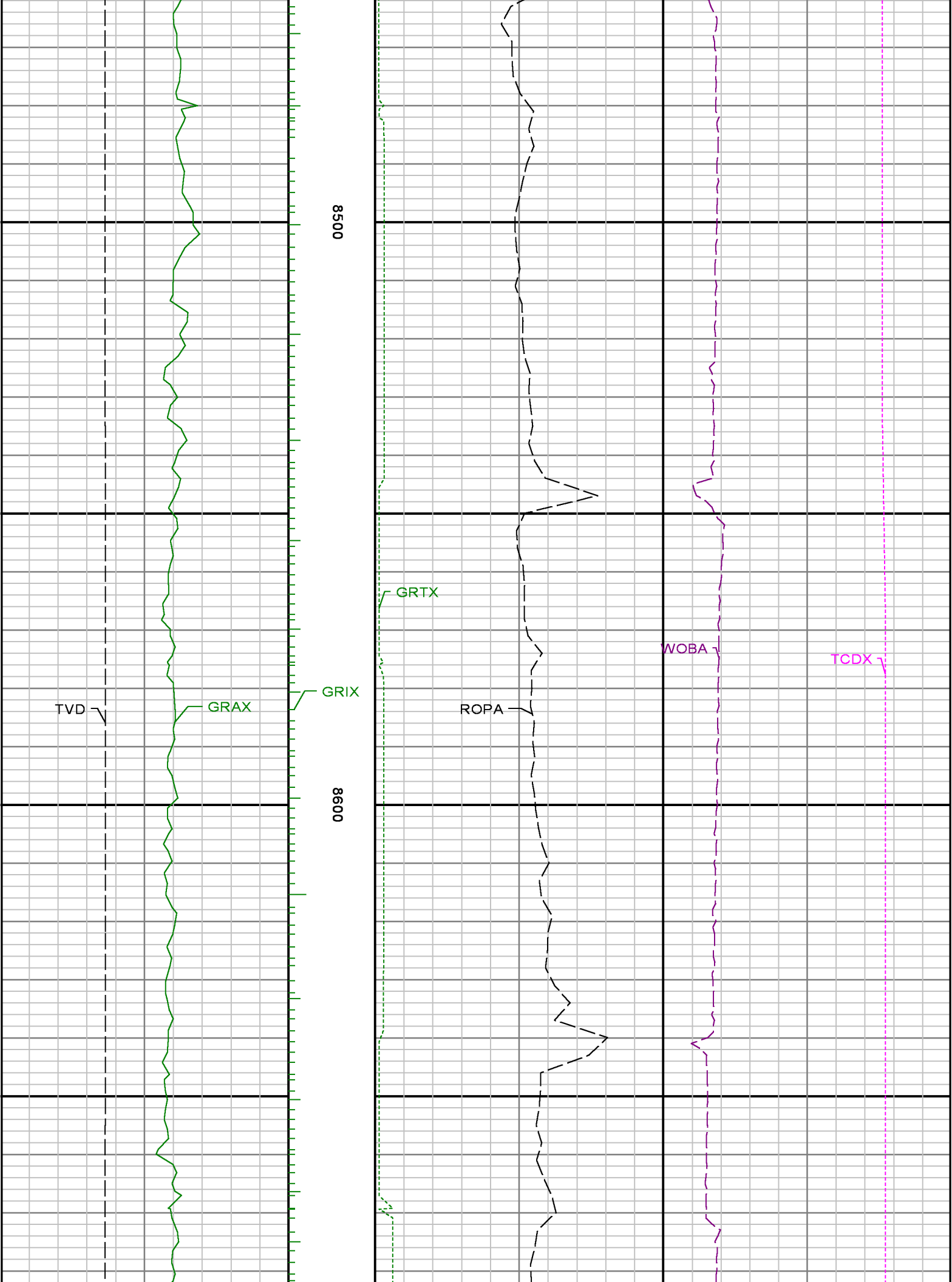


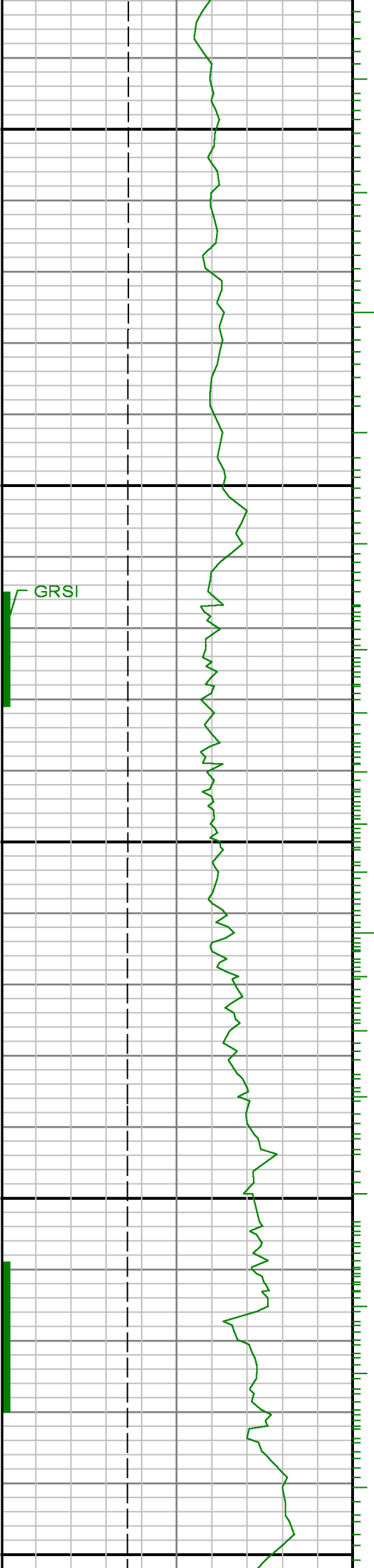
8100

8200







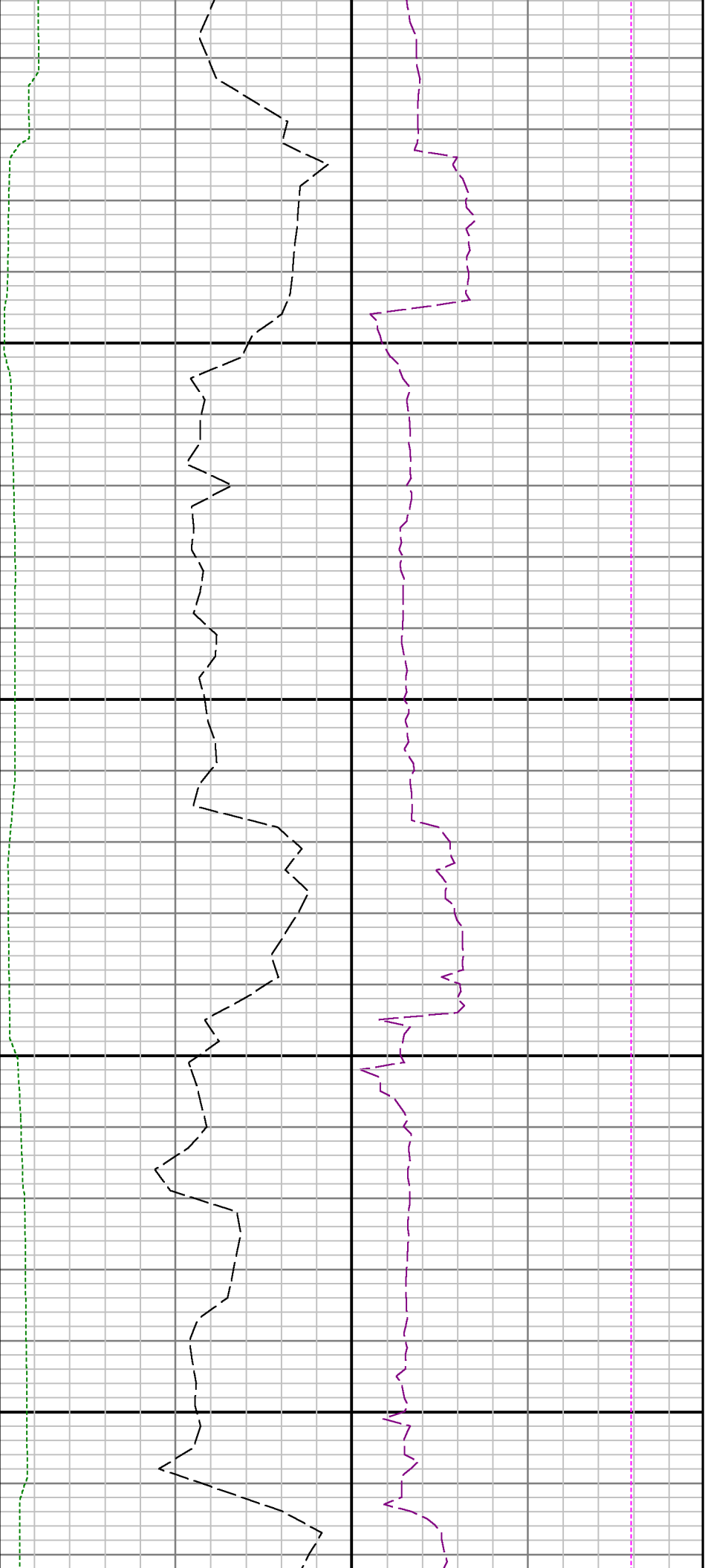


8700

8800

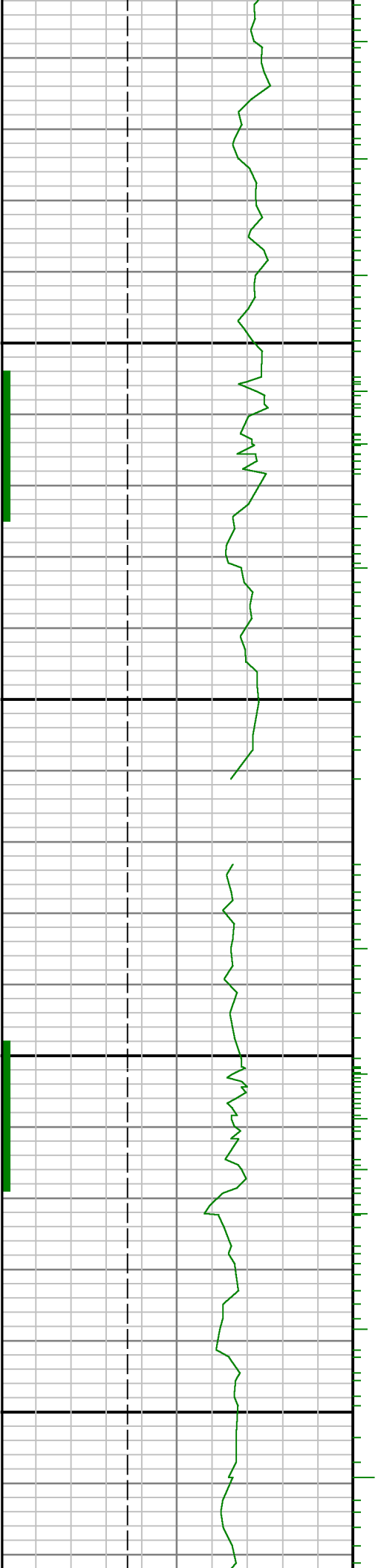
8900





9000

9100

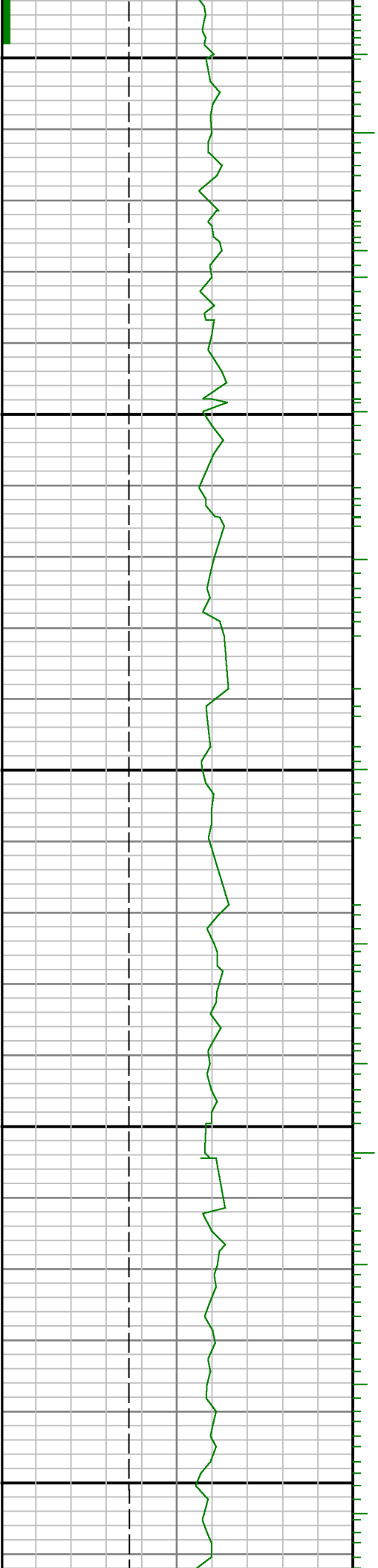


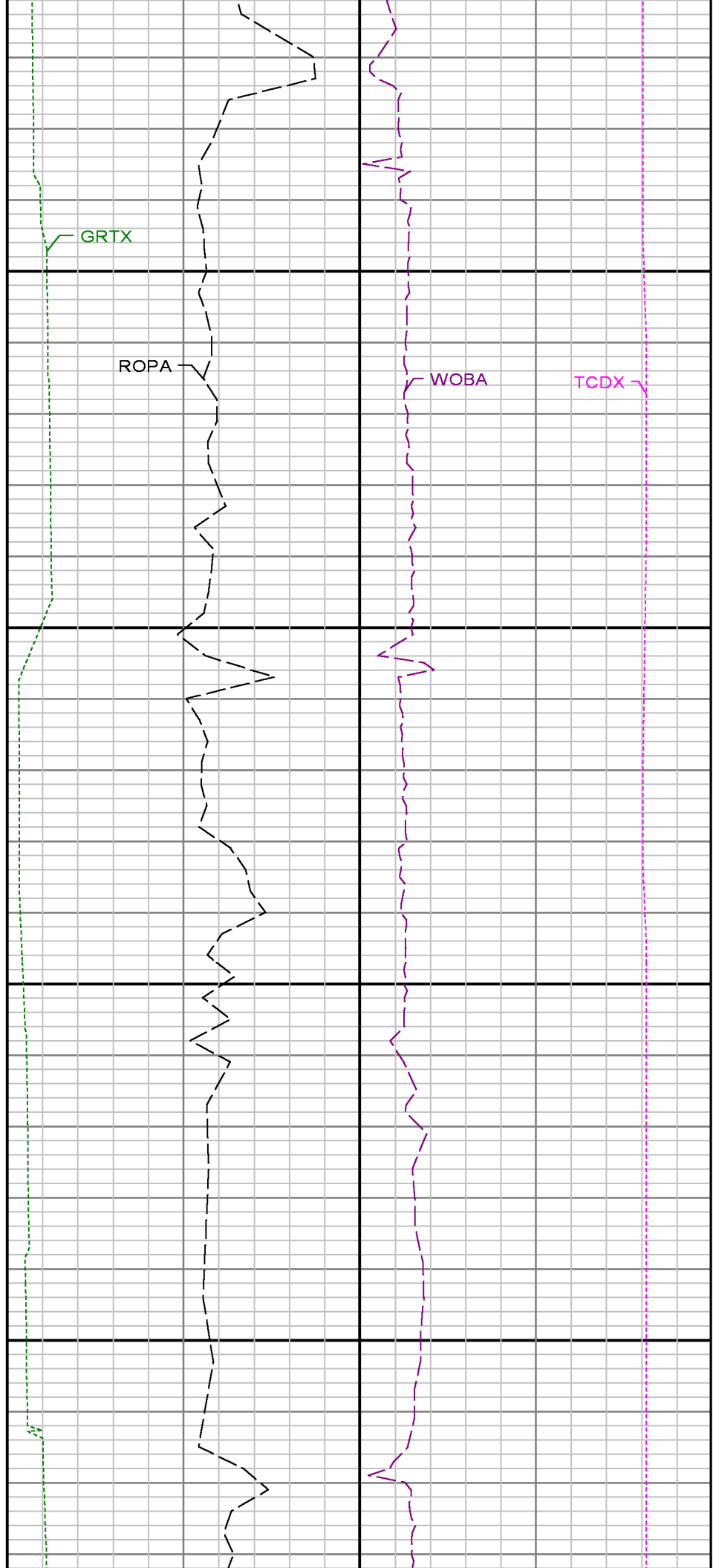
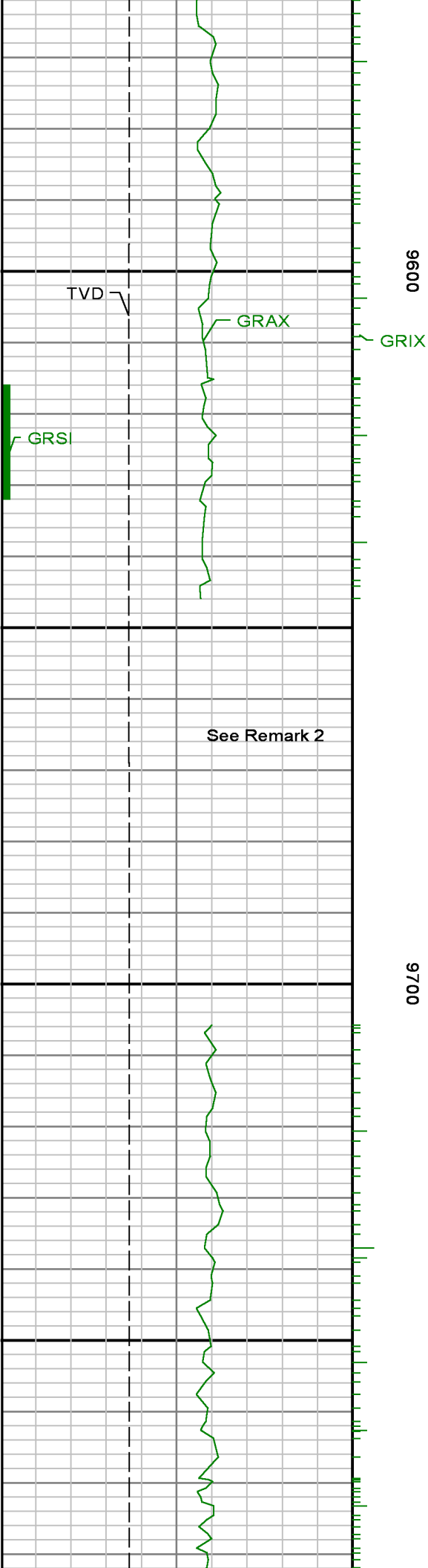


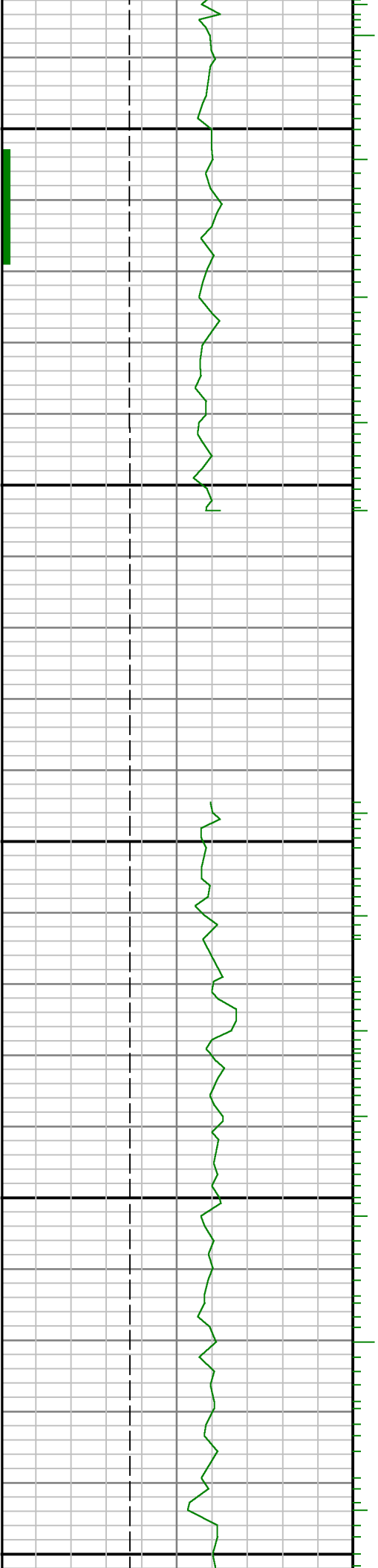


9400

9500



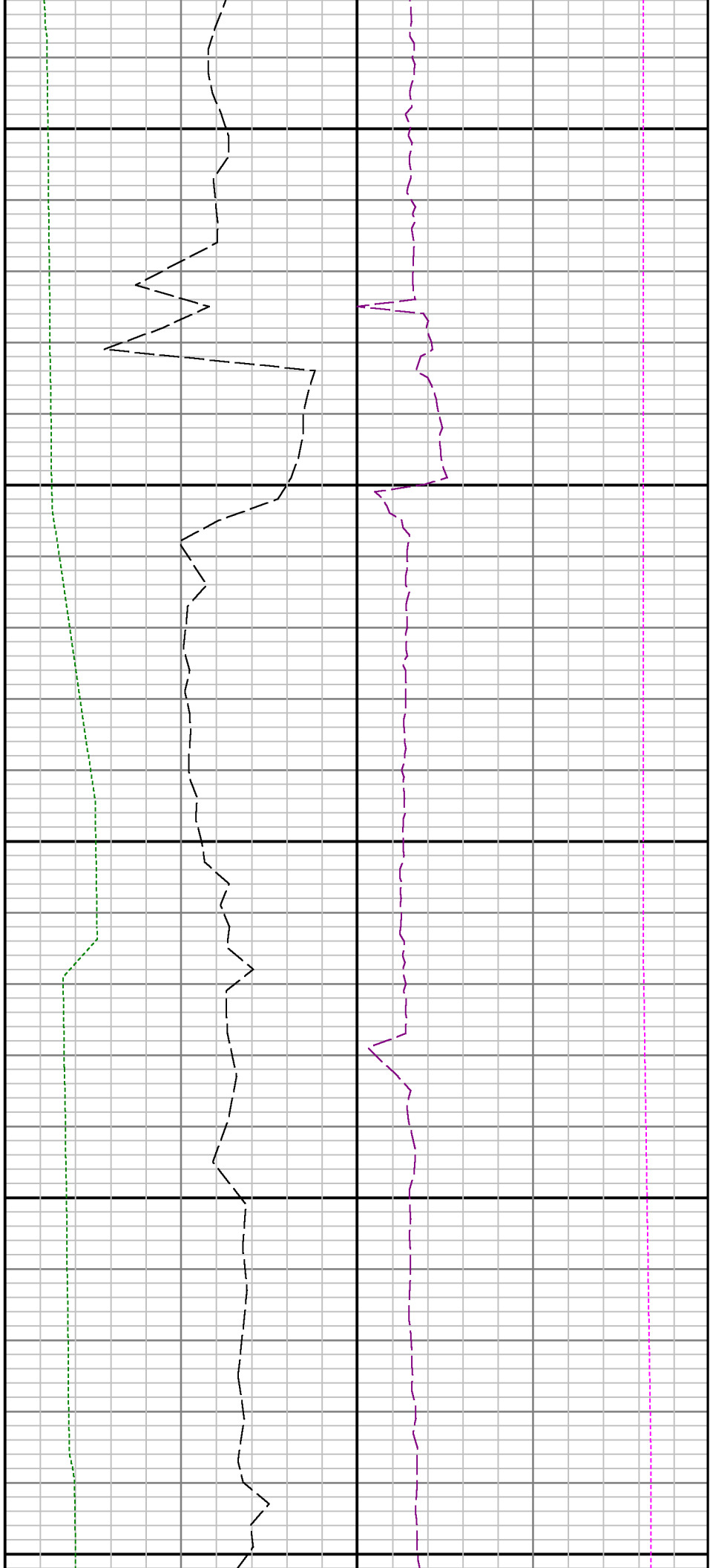


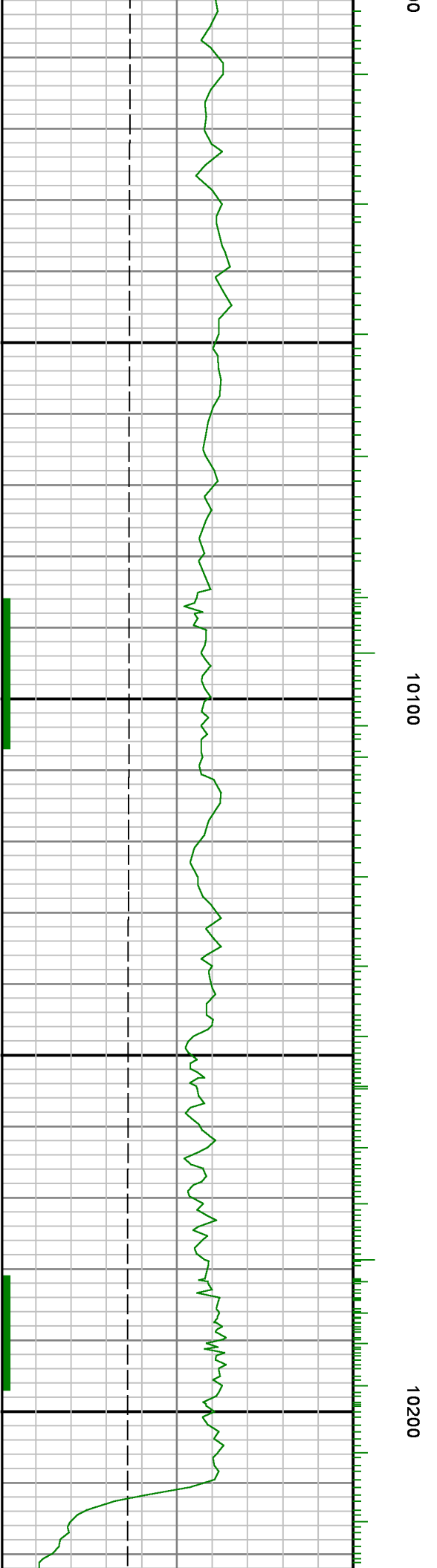


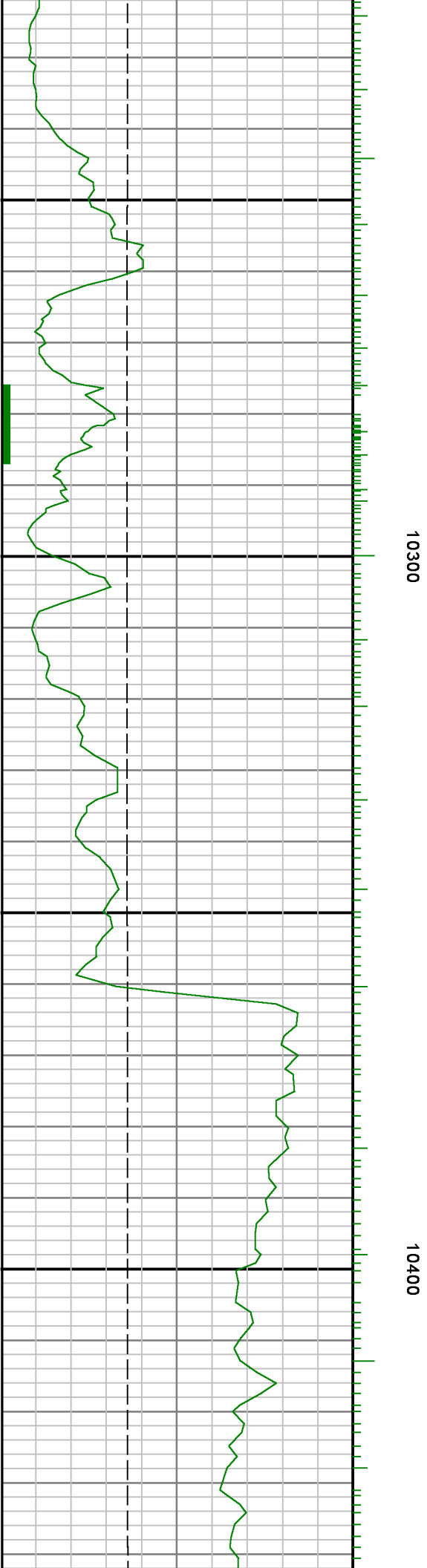
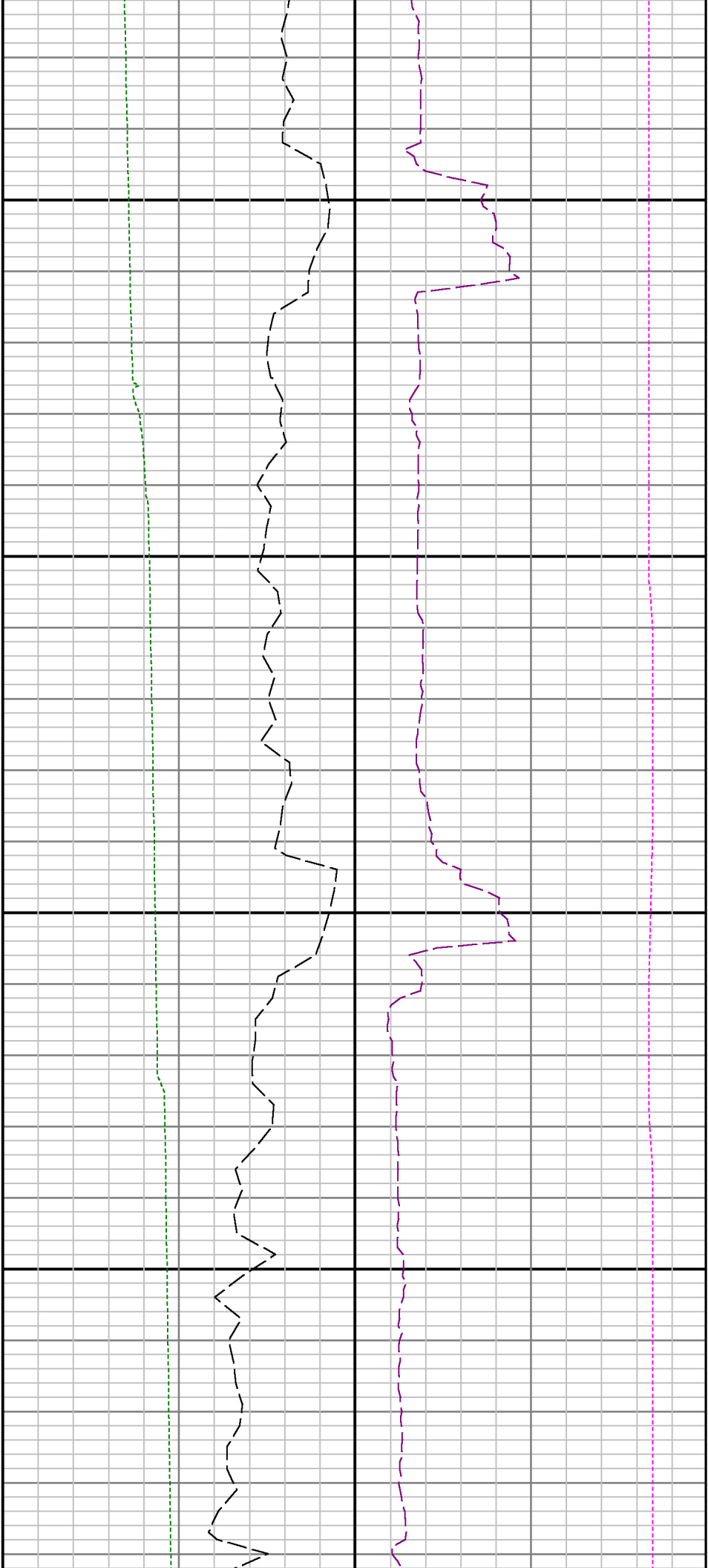
9800

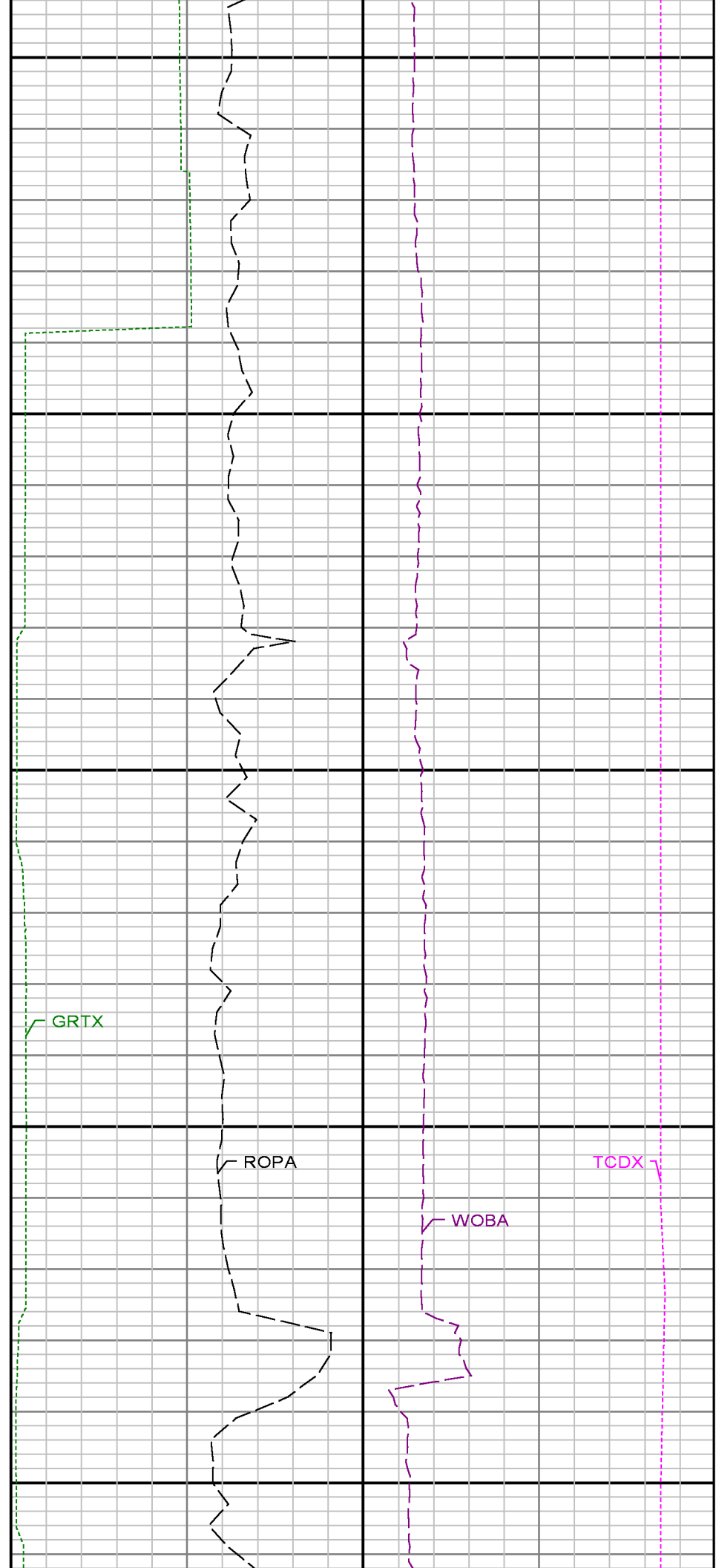
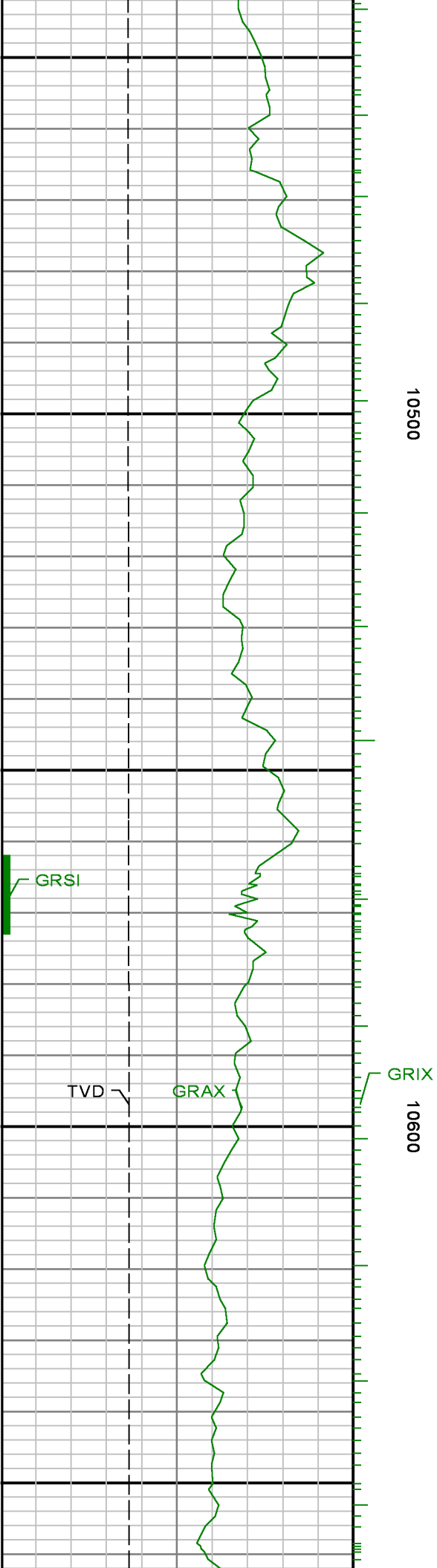
9900

10000

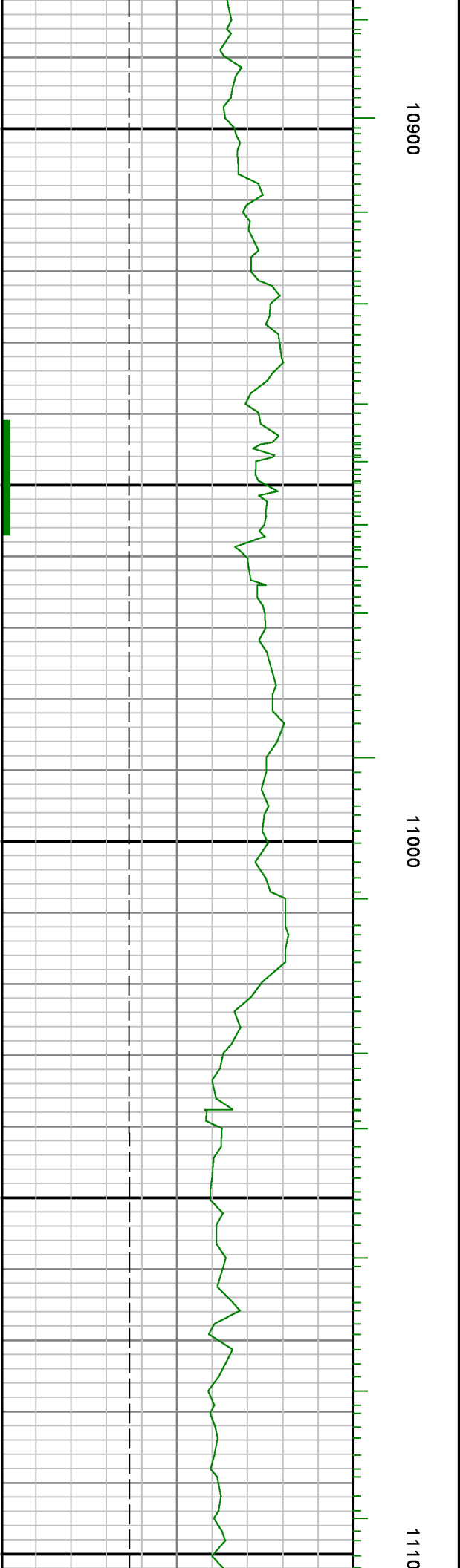
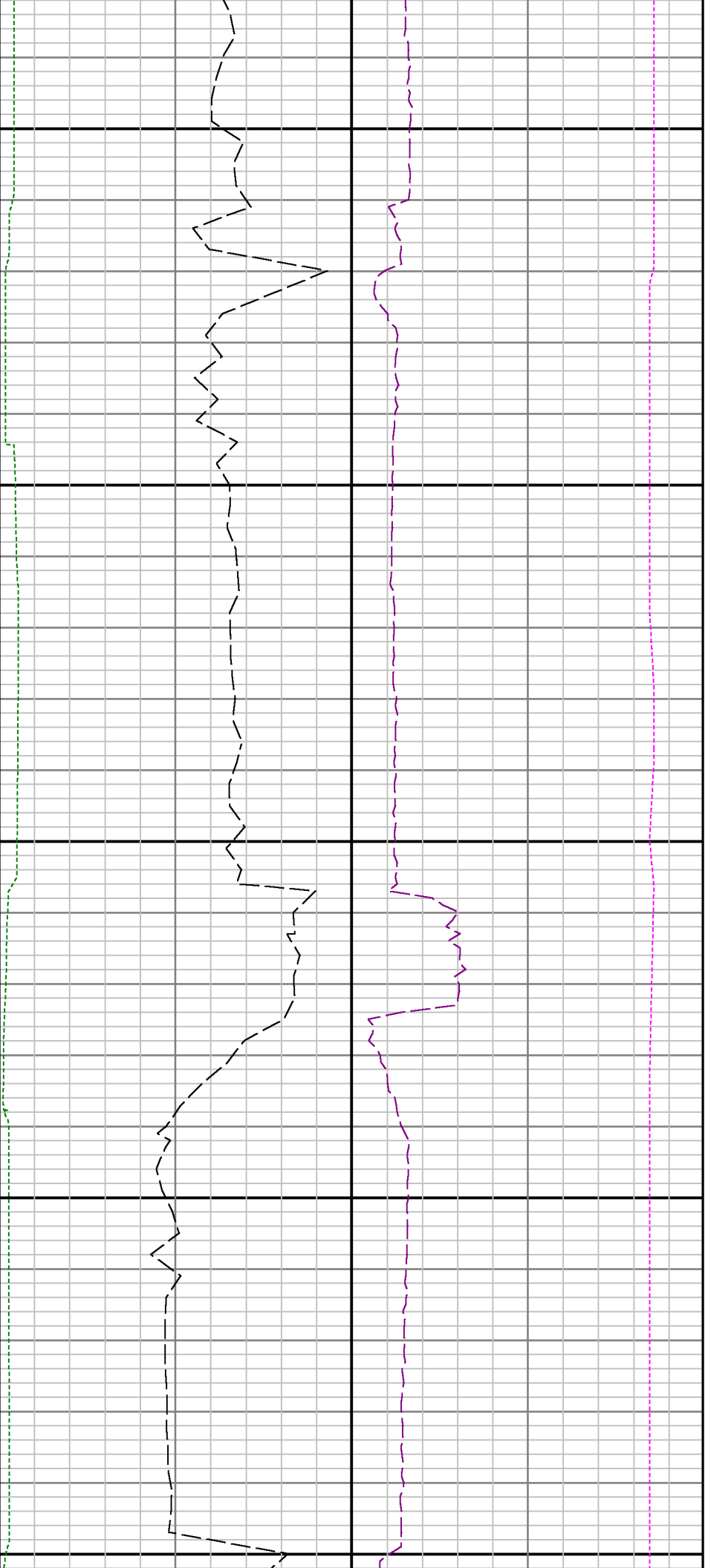


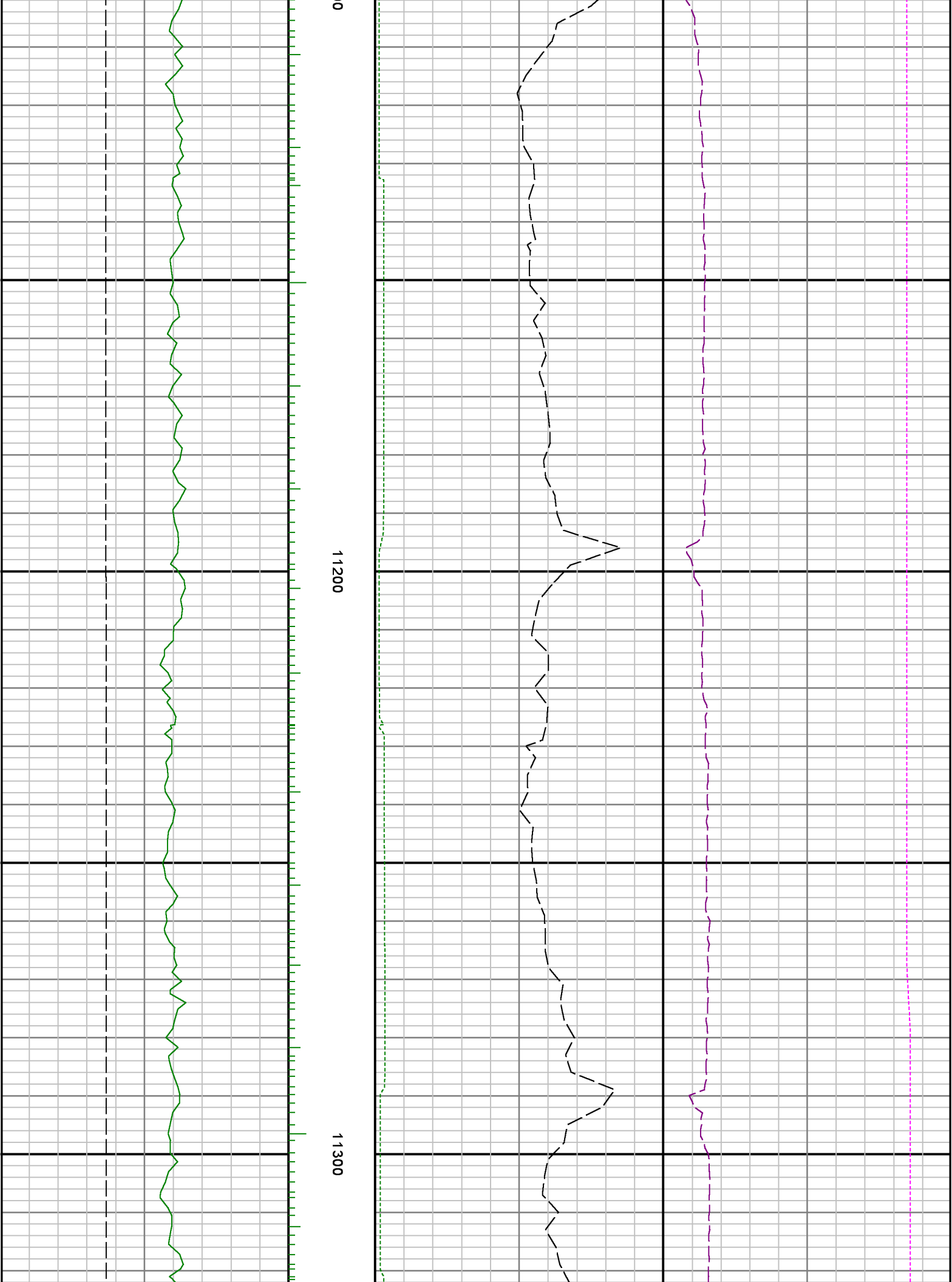








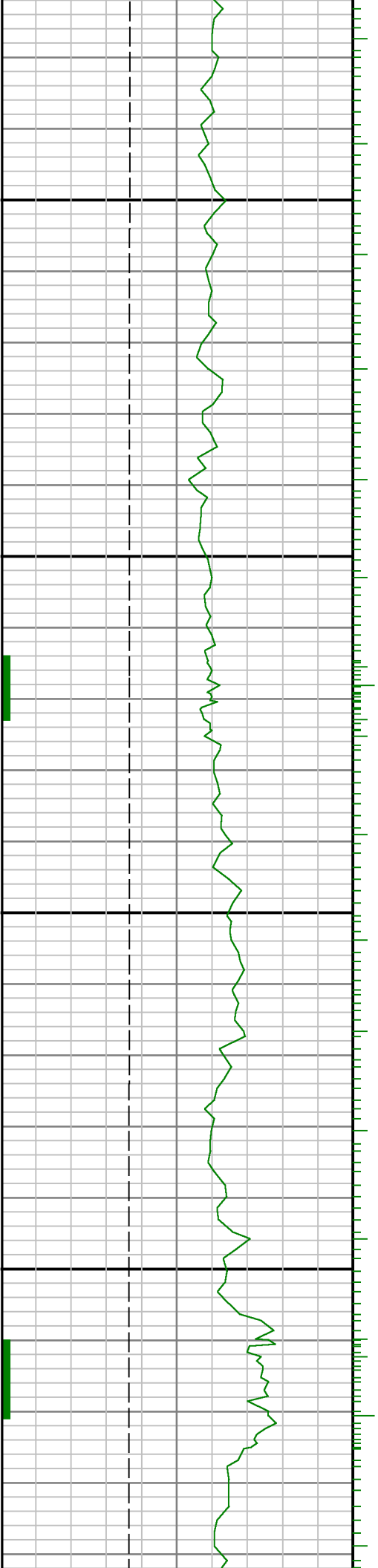


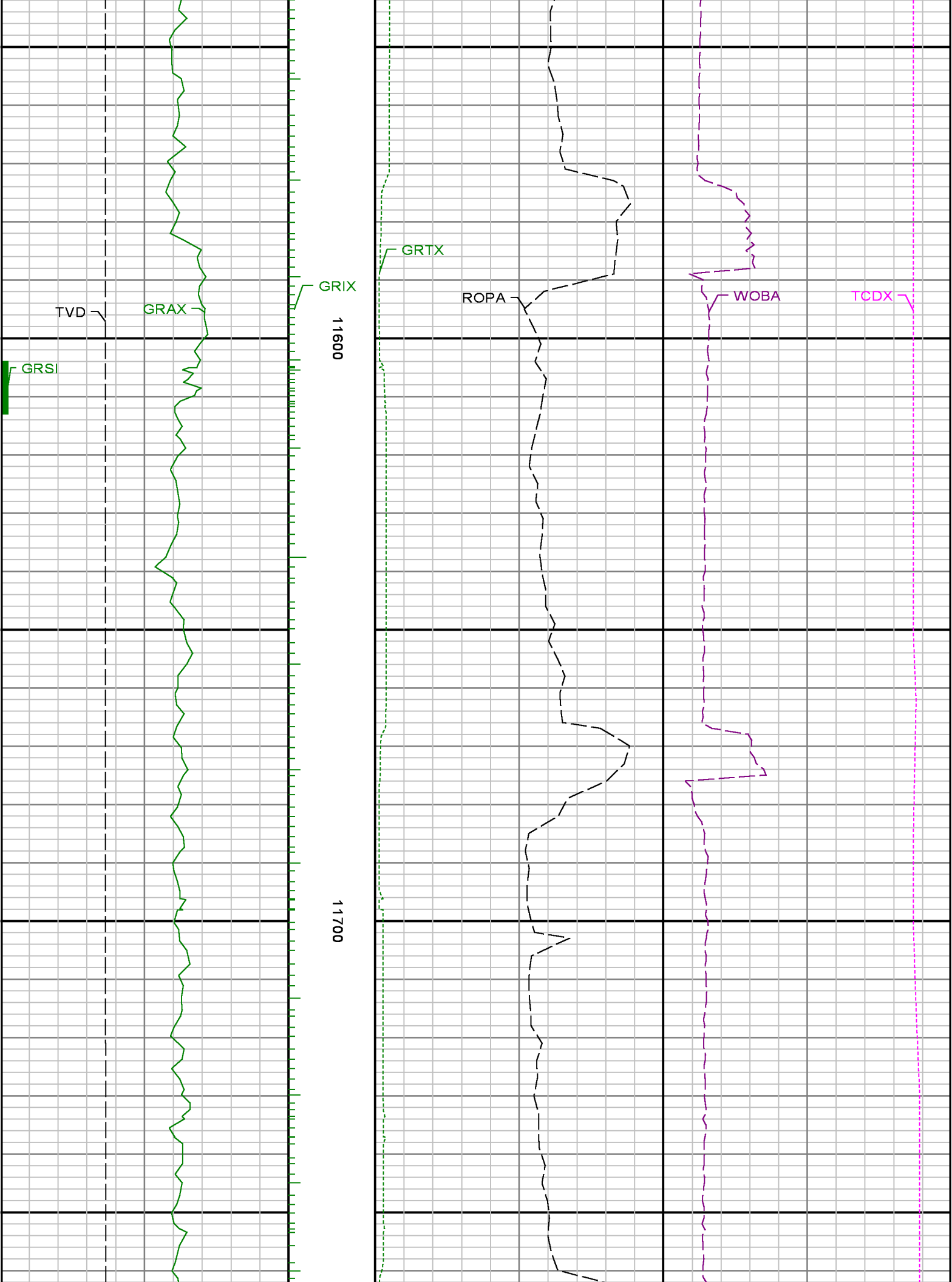




11400

11500







11800

11900

