



# Real Time Log

## Natural Formation Evaluation

### Gamma Ray

Scale:	Company: Anadarko			
Measured Depth	1:240	Well: Greenleaf 26N-2HZ		
		Field: Weld County (Kerr McGee)		
		Region: Continental US	Country: United States	
Status:	Surface Location:		Other Services:	
Final Print	Latitude: 40° 9' 42.019" N		Directional VSS	
API Number:	Longitude: 104° 37' 38.006" W			
051234062100	Section02	TWN: 2N	Range65N	
Permanent Datum (P.D.):	Ground Level	Elevation:	4862.00 ft.	Elevations:
Log Measured From:	Kelly Bushing	16.00 ft.	Above P.D.	KB: 4878.00 ft. DF: N/A GL: 4862.00 ft.
Depth Reference:	Driller's Depth			

Interval Logged	Dates		Magnetic Field Reference	
Top: 6600.0 ft.	Date From: 18/Jan/15	Dip Angle: 66.88 °	Azi Reference North:	True
Bottom: 11967.0 ft.	Date To: 22/Jan/15	Total	Mag to Reference	
	Spud Date: 18/Jan/15	Field Strength: 52629.0 nT	North Correction:	8.45 °

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
13.500 in.	Surface	1293.0 ft.	9.625 in.	36.00 lb/ft	Surface	1283.0 ft.	
8.750 in.	1293.0 ft.	7600.0 ft.	7.000 in.	26.00 lb/ft	Surface	7590.0 ft.	
6.125 in.	7600.0 ft.	11967.0 ft.					

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water based	1293.0 ft.	11967.0 ft.	8.750 in.	85.0 ft.	0.5° / 58.4°	87.1° / 0.2°
			6.125 in.	85.0 ft.	90.0° / 0.2°	90.5° / 0.6°
					/	/
					/	/
					/	/
					/	/
					/	/

Acquisition System	Software Version	Other
Advantage	2.20U4	/ Anadarko
PATS	6.4.1.34	
	Rig: / Contractor:	
	Job No:	
	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	Bottom	From	To	Start	End	
							(m.)	(m.)	(m.)	(m.)			
1	1	2	8.750	PDC	3.000	Steerable	6600.0	7555.0	1293.0	7600.0	18/Jan/2015 05:30	20/Jan/2015 05:00	31.39
2	2	3	6.125	PDC	3.000	Steerable	7555.0	11918.0	7600.0	11967.0	21/Jan/2015 03:40	22/Jan/2015 23:13	44

## Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Donald Delay	18/Jan/2015	23/Jan/2015	Jeremiah Ward	18/Jan/2015	21/Jan/2015	Jason Williams	21/Jan/2015	23/Jan/2015

## Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (m.)	Mud Type	Density  (sg)	Viscosity  (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides  (ppm)	K+  (%)
18/Jan/2015	20:00	1	3590.0	Water Based	8.5	28	8.1	N/A	0/99	Active Mud Pit	3300	N/A
19/Jan/2015	20:00	1	7460.0	Water Based	9.8	40	9.6	N/A	1/91	Active Mud Pit	3600	N/A
20/Jan/2015	20:00	2	7600.0	Water Based	10.2	46	9.3	N/A	1.5/88.5	Active Mud Pit	3600	N/A
21/Jan/2015	20:00	2	8370.0	Water Based	9.8	33	9.7	N/A	1/91	Active Mud Pit	2300	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 (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12546347	Directional	44.93	6.750	3.250
1	SRIG	11732967	Gamma	41.56	6.750	3.250
2	DIR	12546343	Directional	52.63	4.750	2.750
2	SRIG	12131409	Gamma	49.25	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

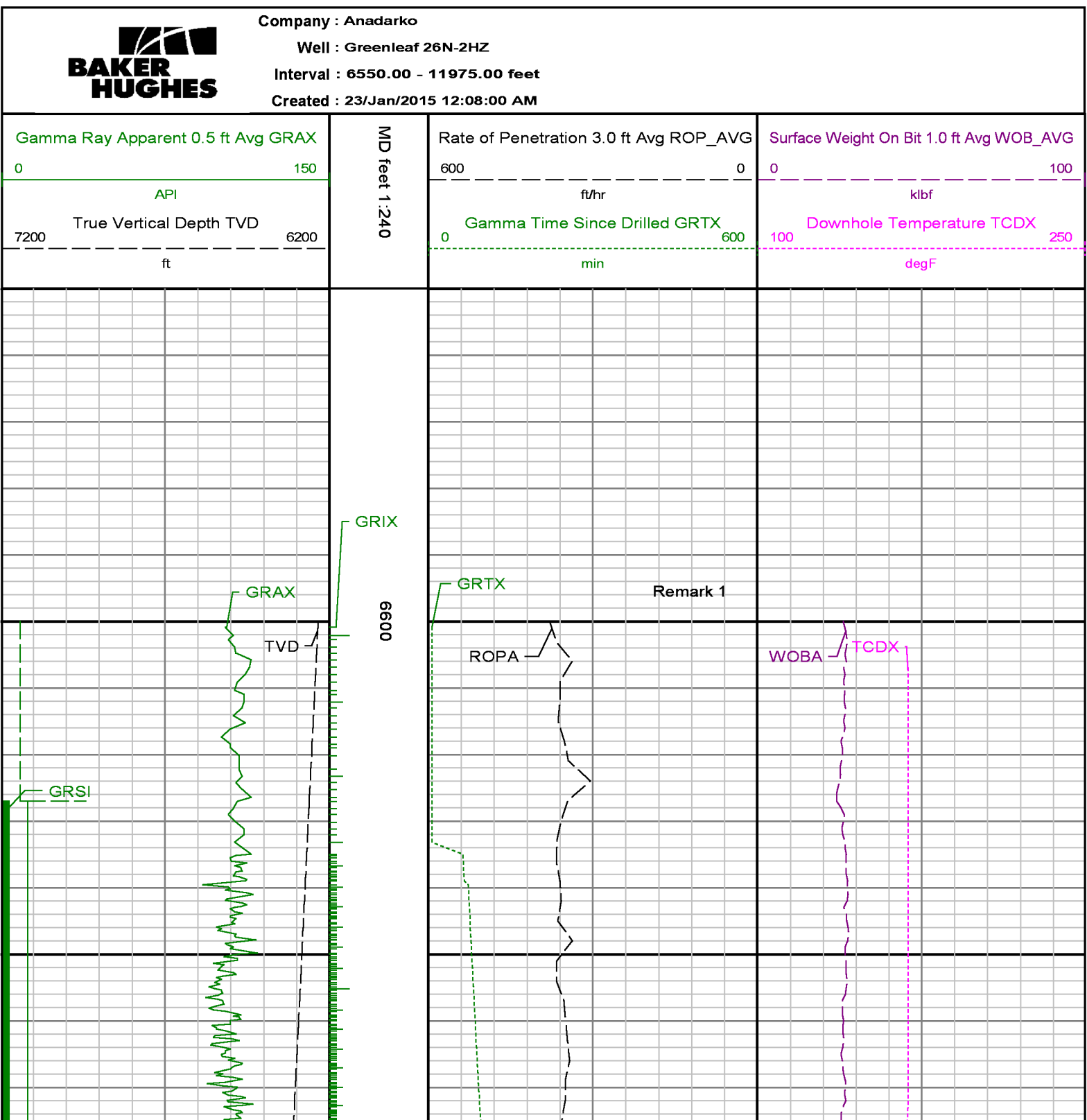
Comments

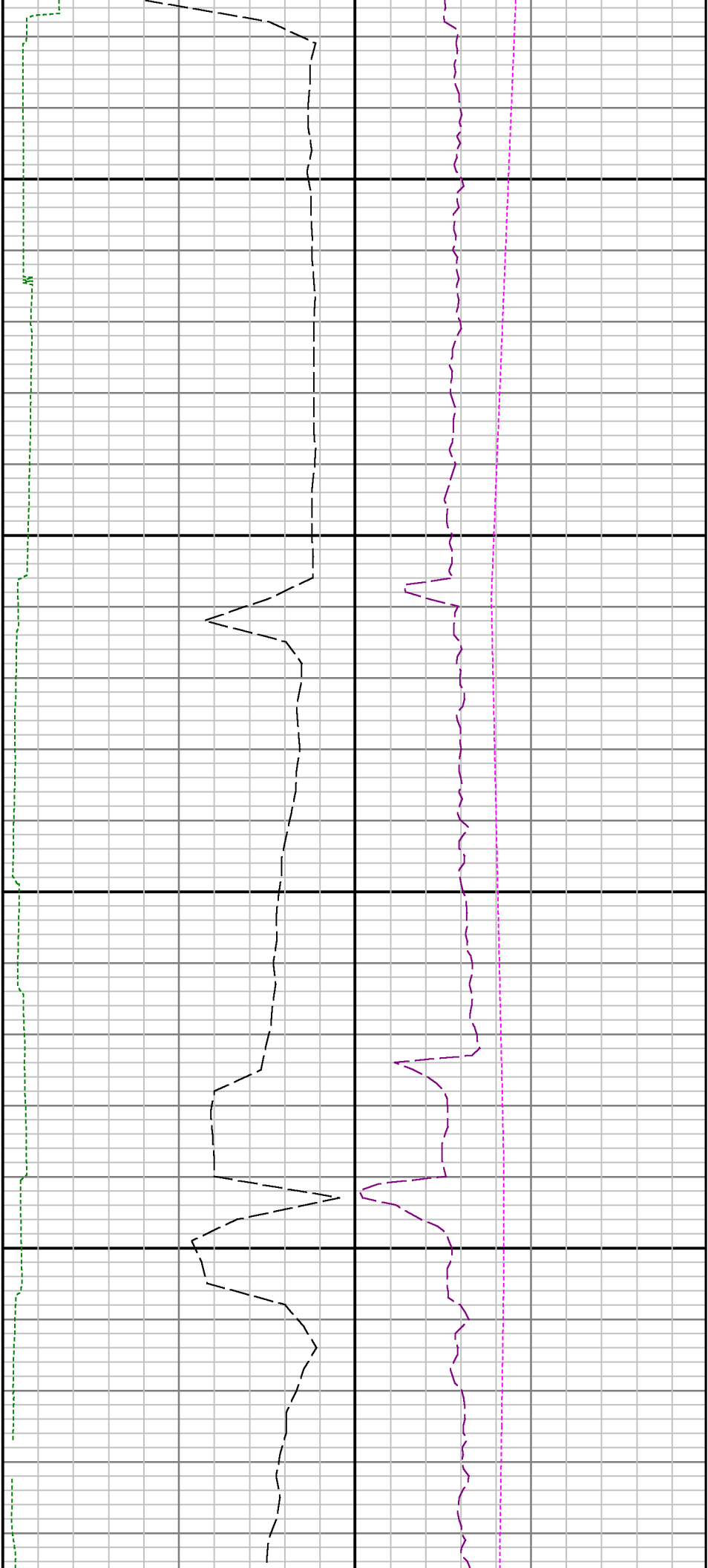
<p>1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to represent logging data.</p> <p>2.) Baker Hughes Run 1 utilized a 6 3/4 inch NaviGamma (Directional and Gamma Ray) tool behind a 8 3/4 inch bit and steerable assembly from 1296 to 7600 feet MD (1292.97 to 6893.26 feet TVD).</p> <p>3.) Baker Hughes Run 2 utilized a 4 3/4 inch NaviGamma (Directional and Gamma Ray) tool behind a 6 1/8 inch bit and steerable assembly from 7600 to 11967 feet MD (6893.26 to 6940.46 feet TVD).</p> <p>4.) A sliding indicator is shown on the left side 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 acquired while sliding.</p>
--

Remarks

Number	Measured	Hole	LWD	Remark
--------	----------	------	-----	--------

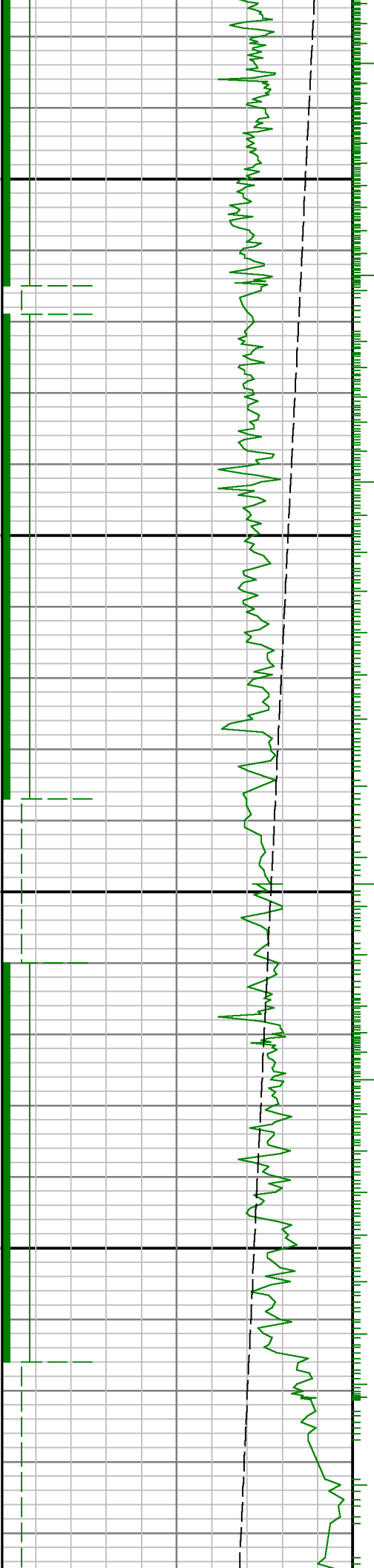
	Depth (m.)	Section (in.)	Run No.	
1	6600	8.750	1	No data prior to 6600 per Anadarko do to logging operations started at Kick off Point.
2	7600	8.750	1	GRAX, GRIX and GRTX API values from 7565 to 7606 ft. MD (6891.95 to 6893.42 ft. TVD) were logged up to 19 hours after being drilled due to a trip out of hole to run casing and pick up BHA 2
3	11919	6.125	2	GRAX, GRIX and GRTX API values were not logged from 11920 to 11967 ft. MD (6940.97 to 6940.46 ft. TVD) due to sensor offset to bit position in MWD tool at TD.

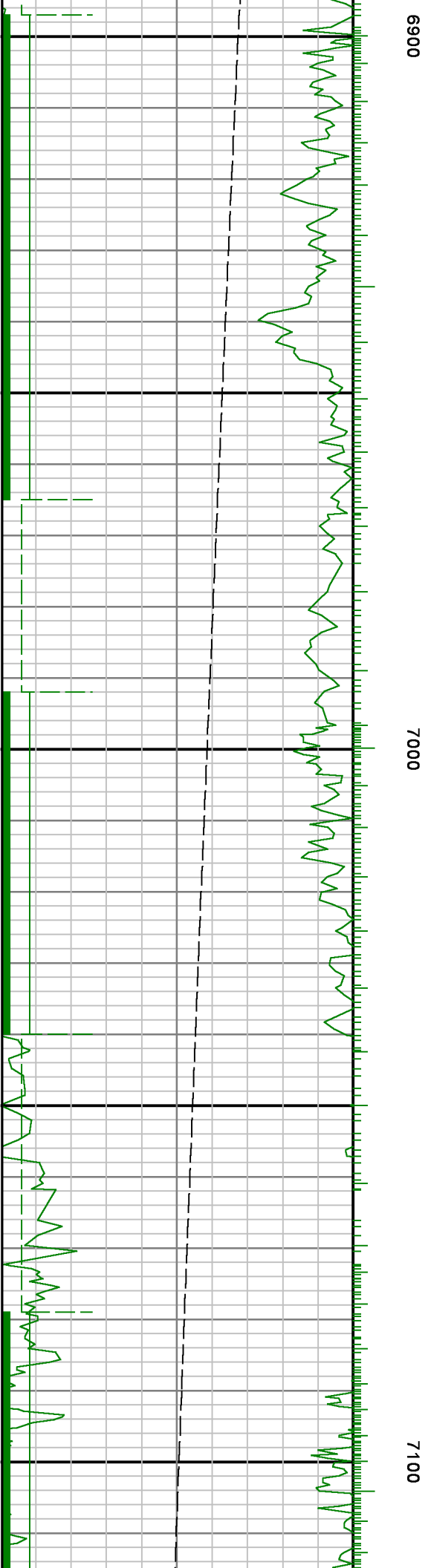
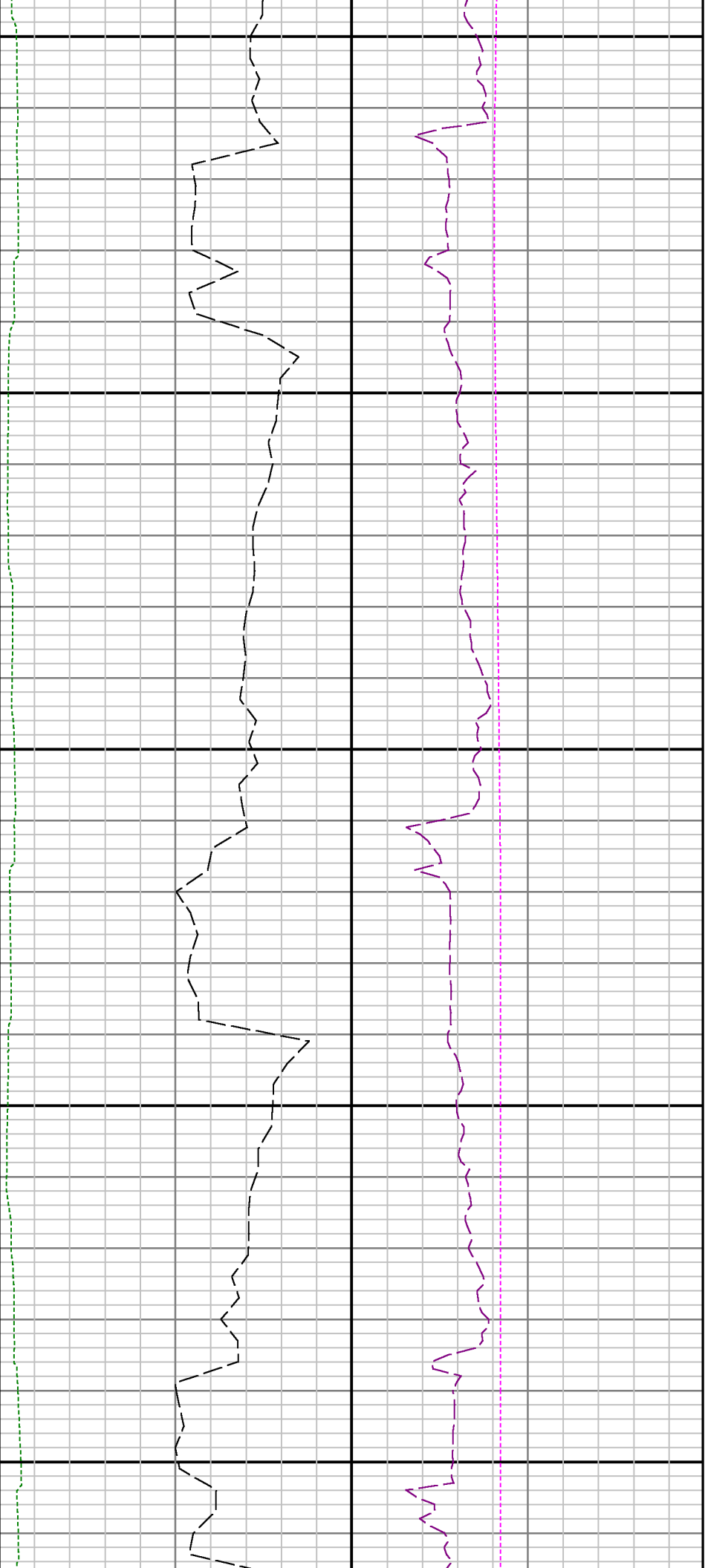




6700

6800

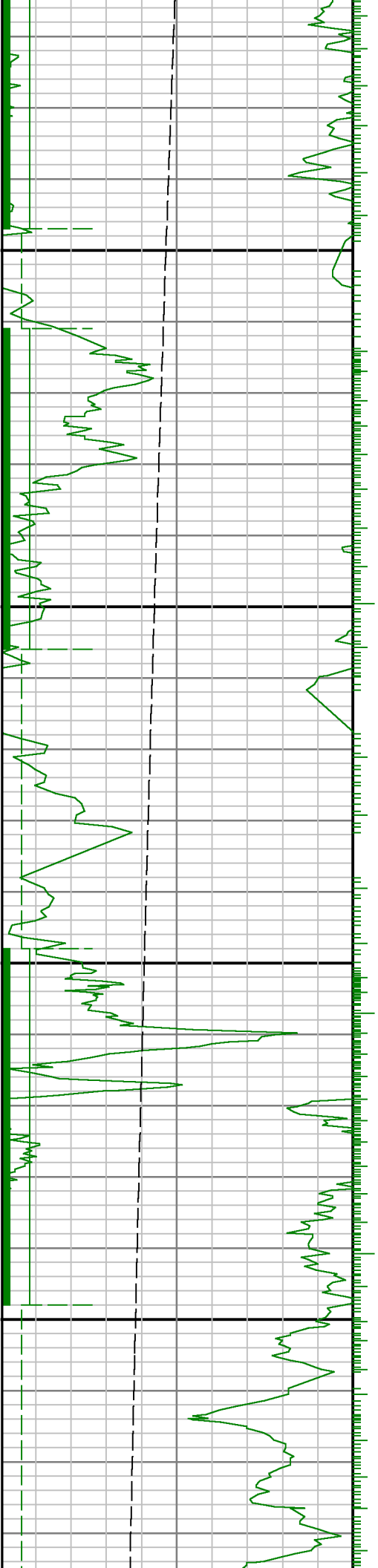


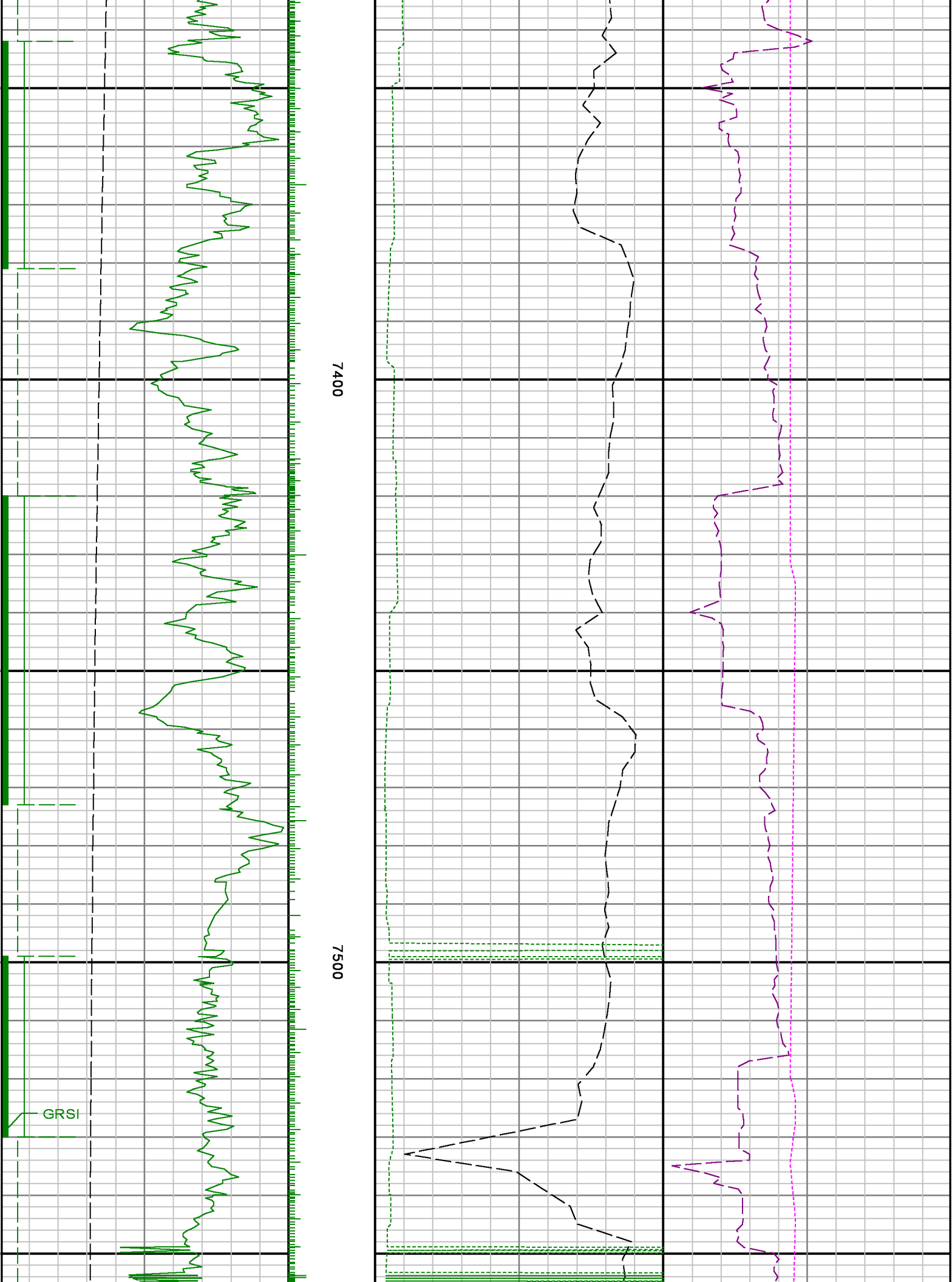


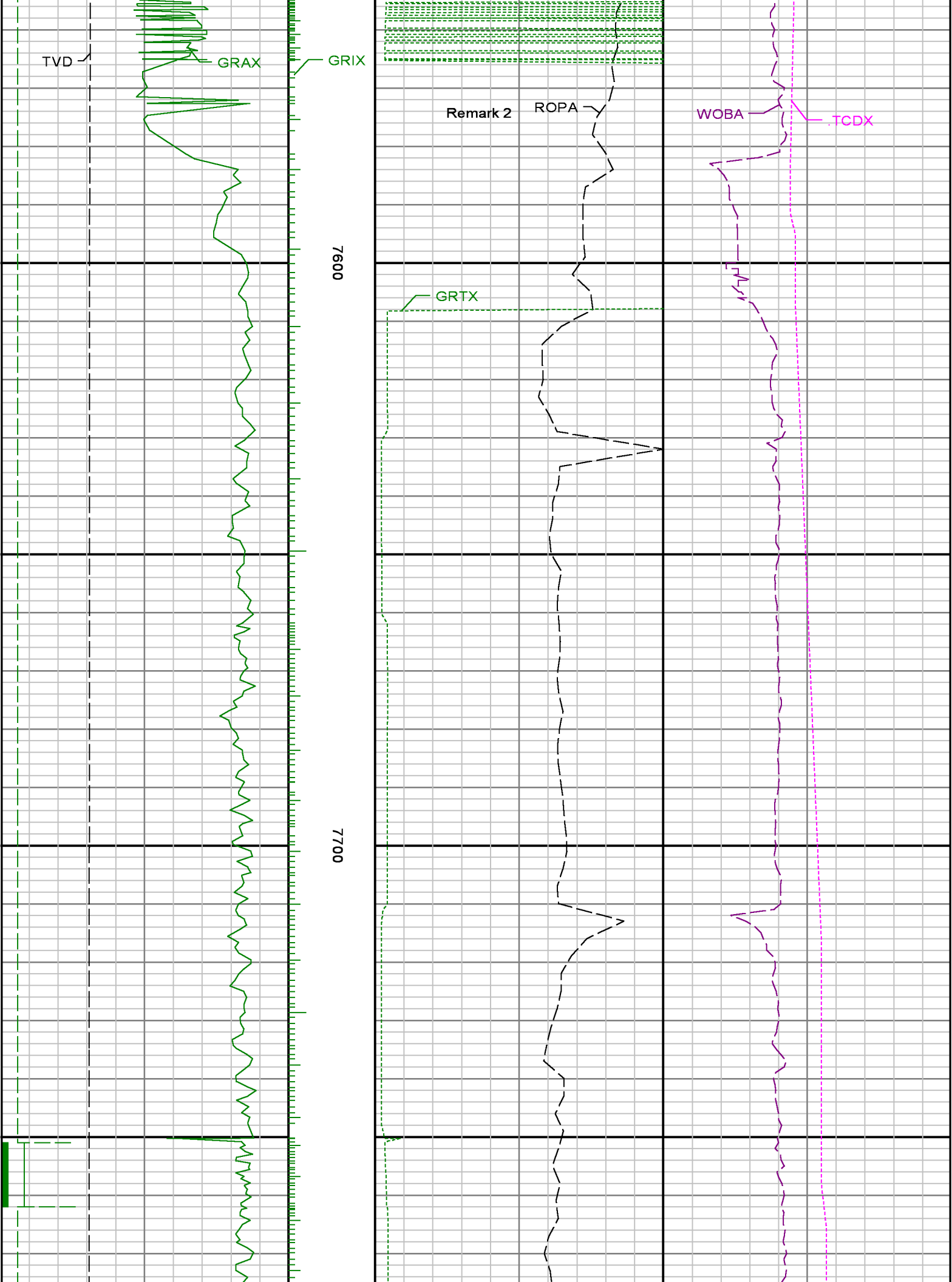


7200

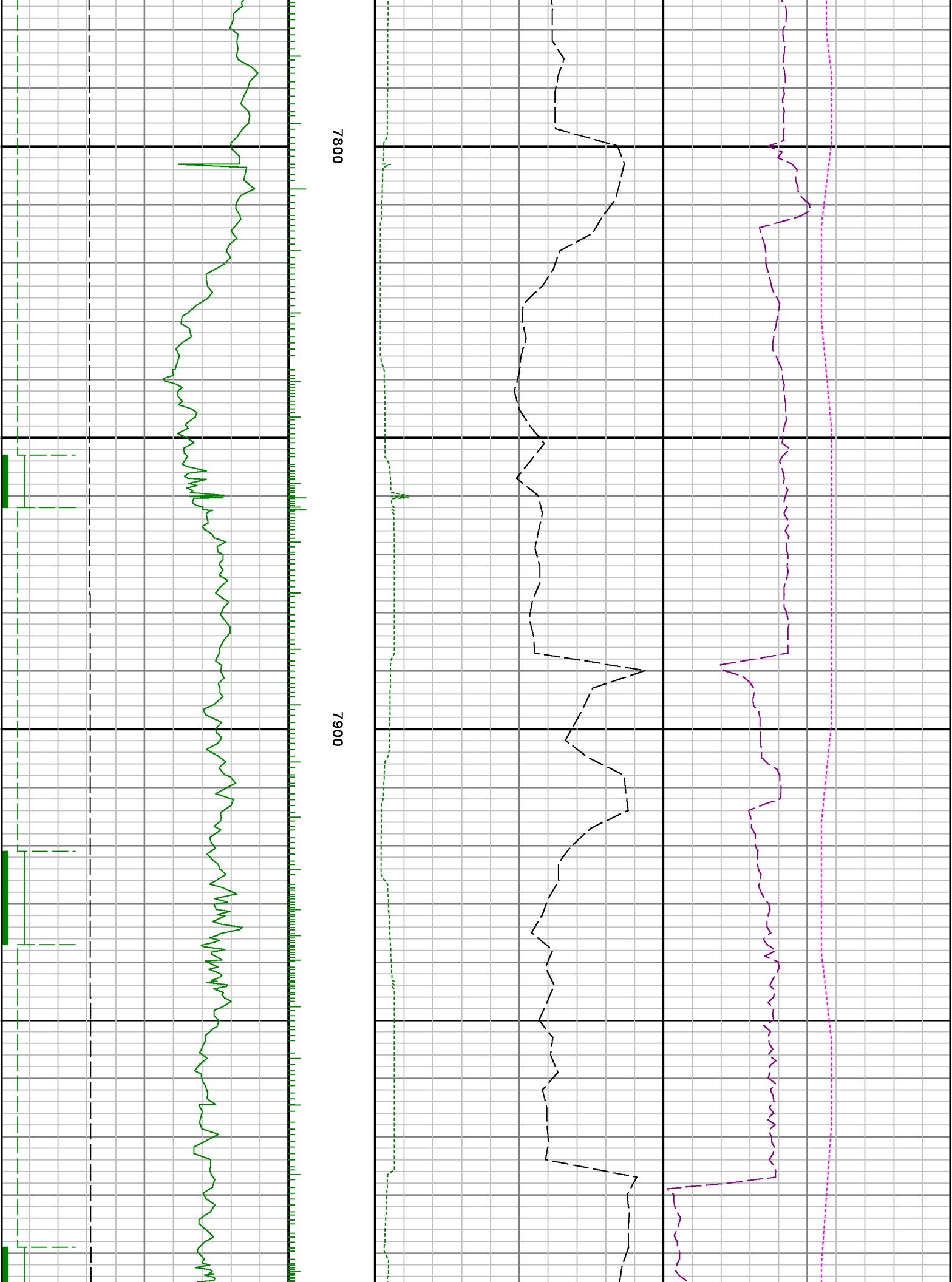
7300

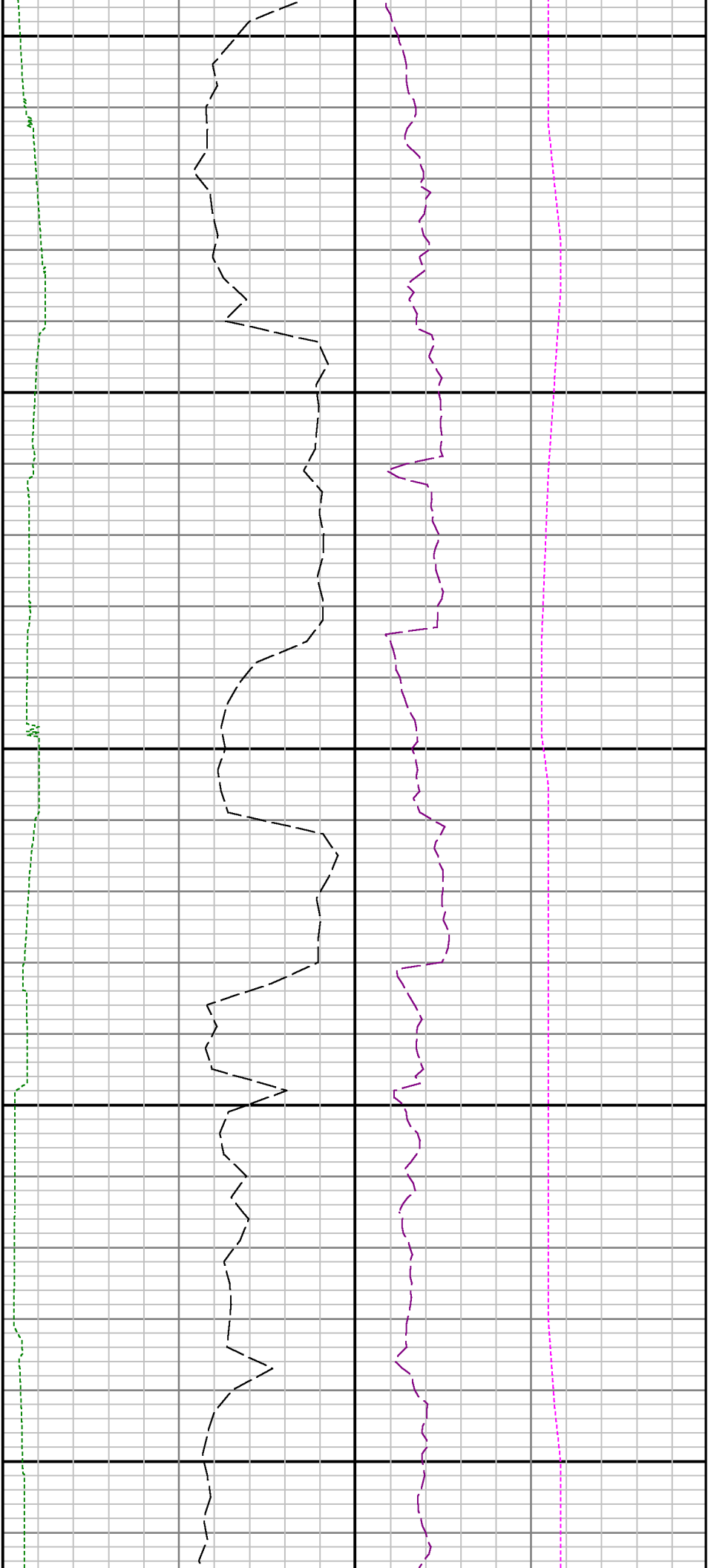








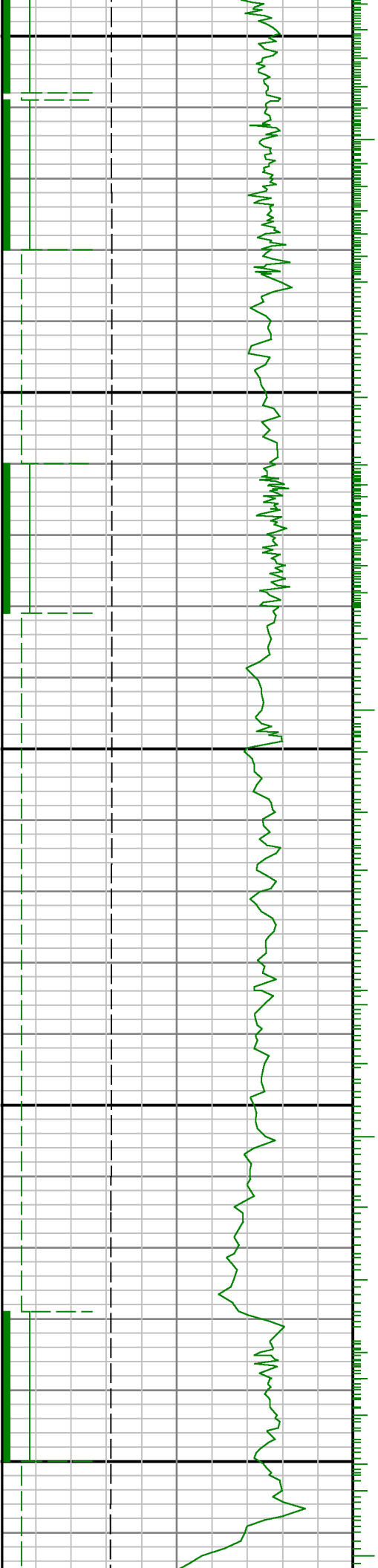




8000

8100

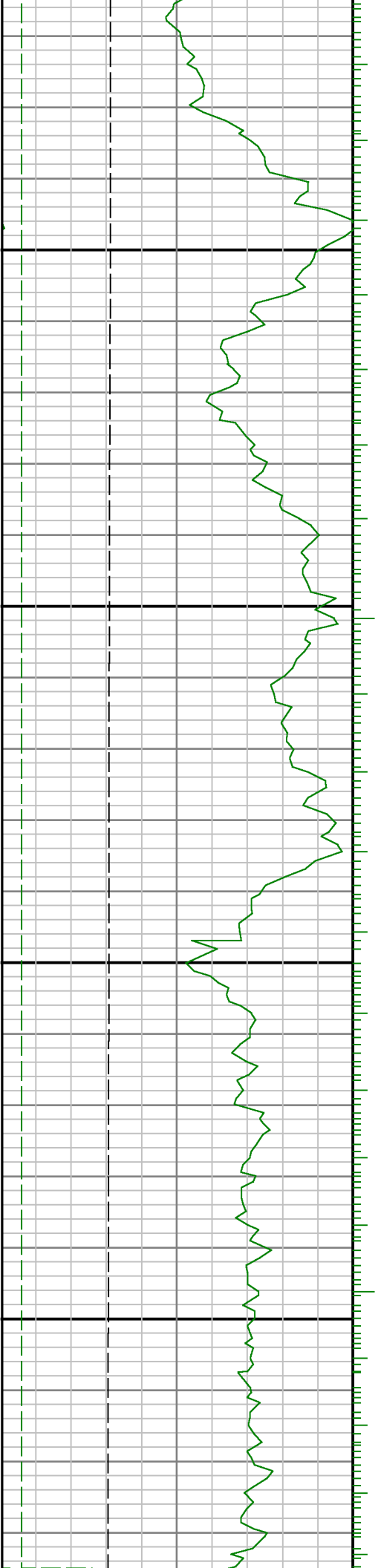
8200

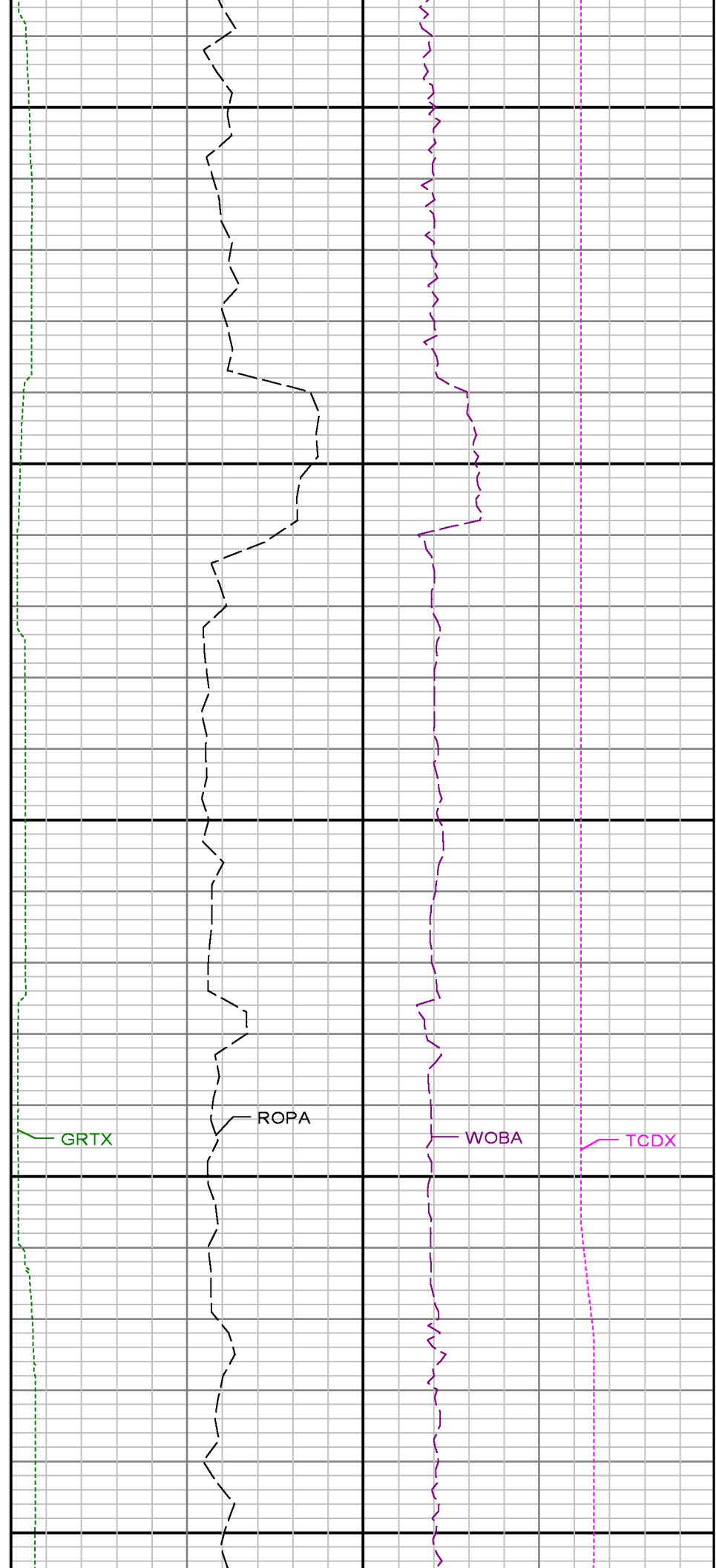
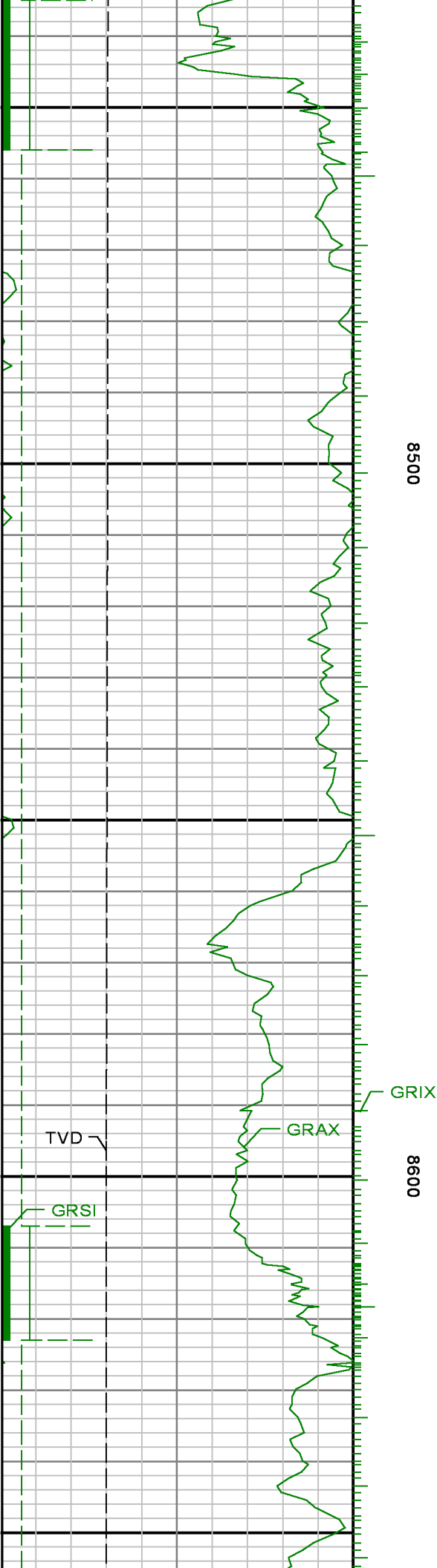


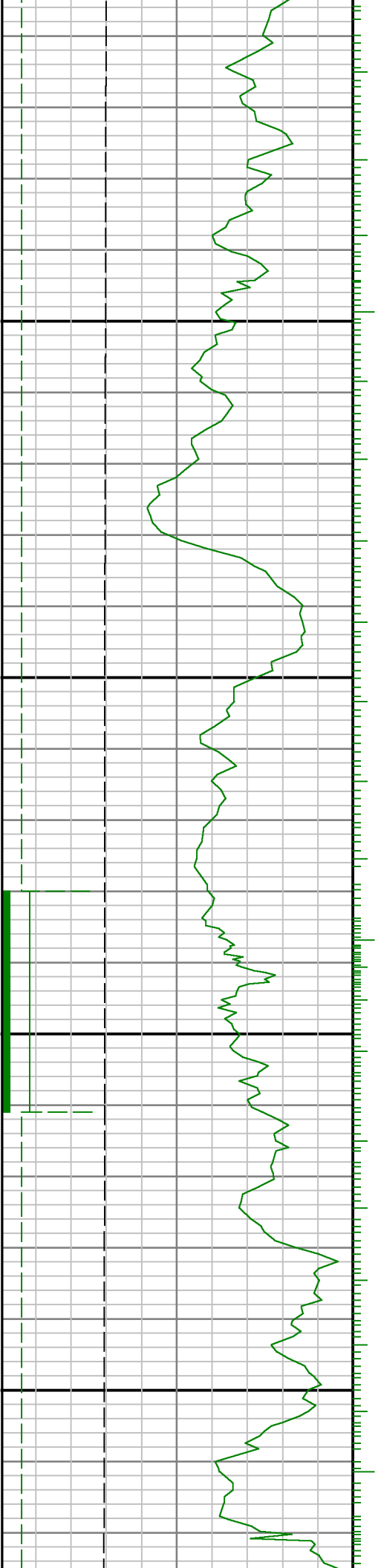


8300

8400



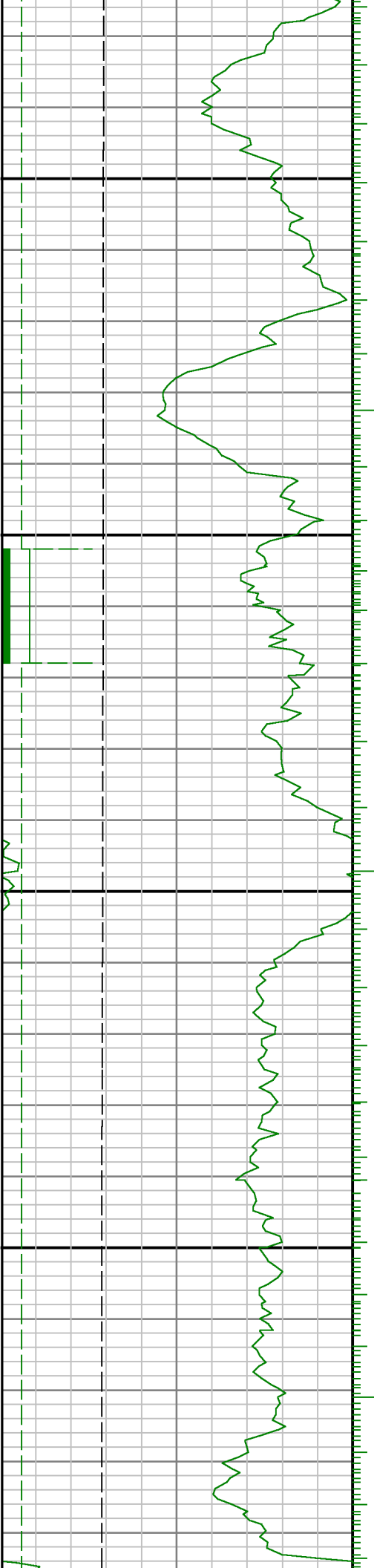




8700

8800

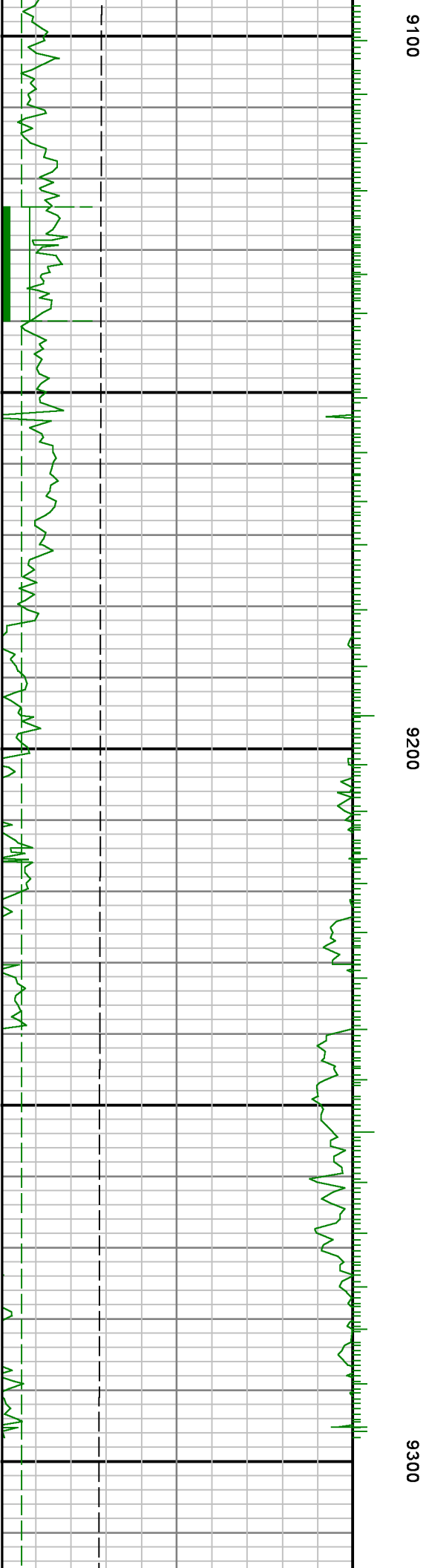
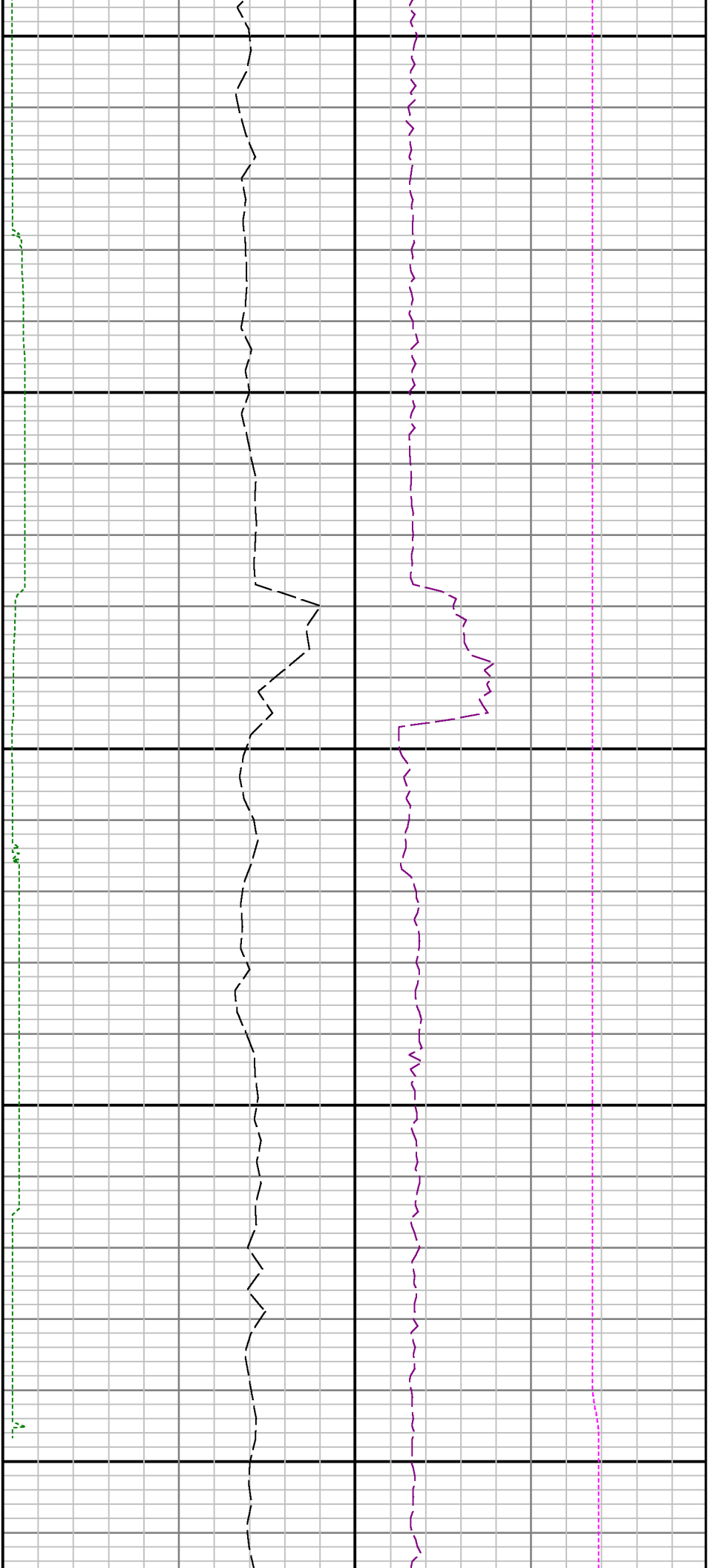


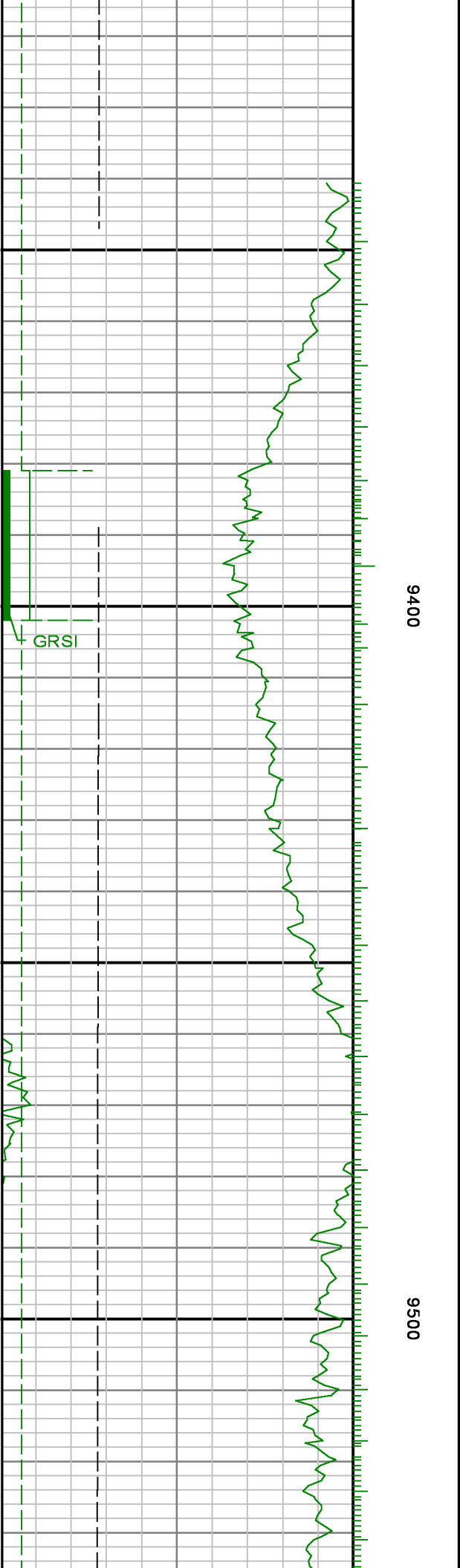
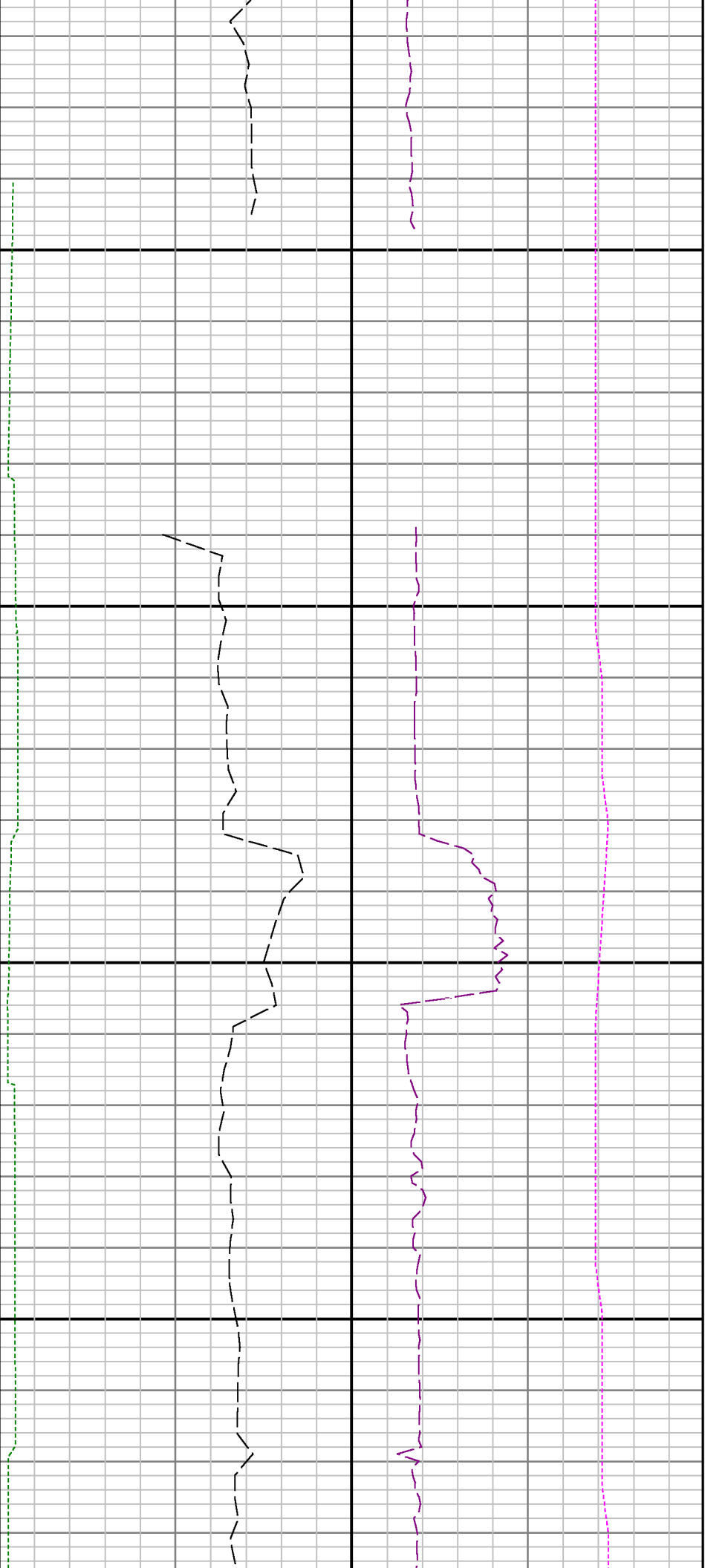


0068

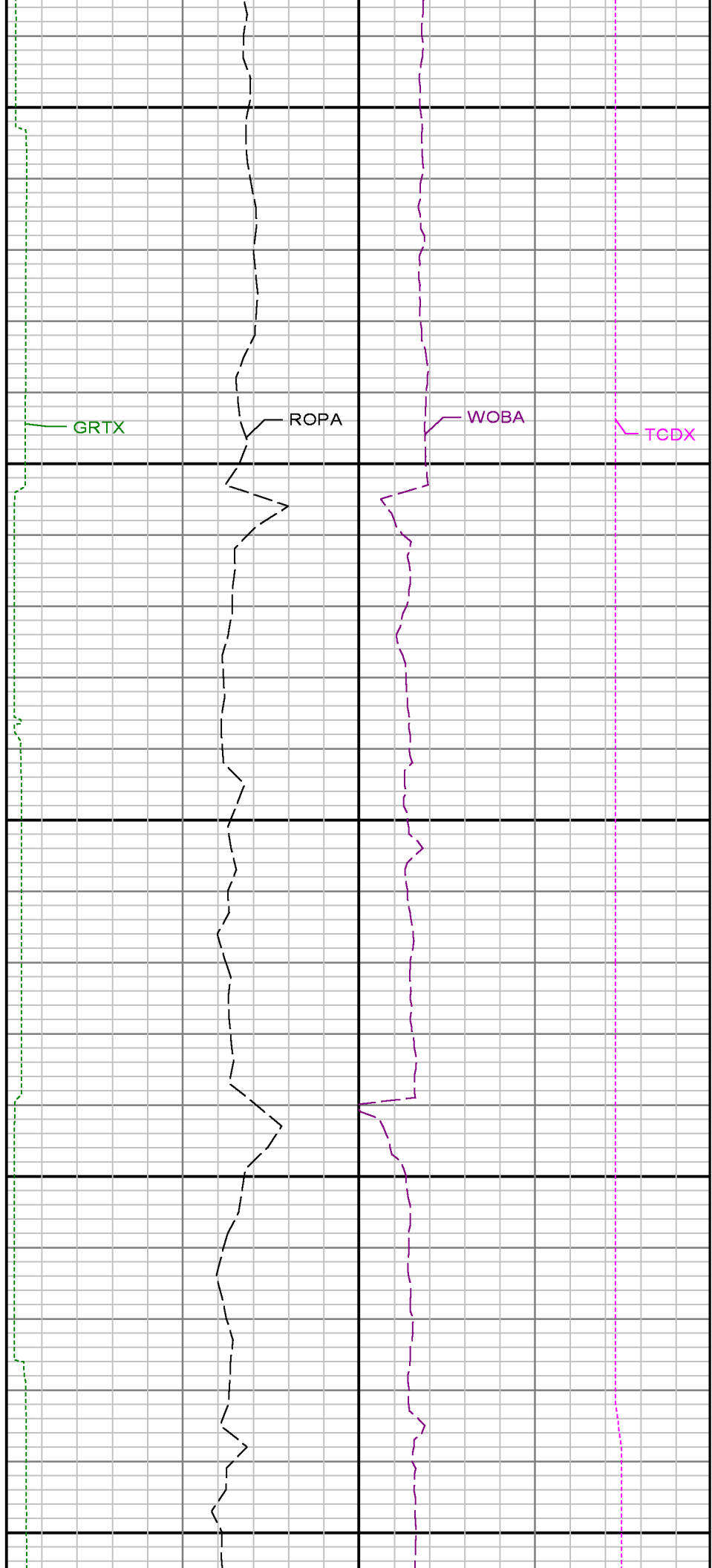
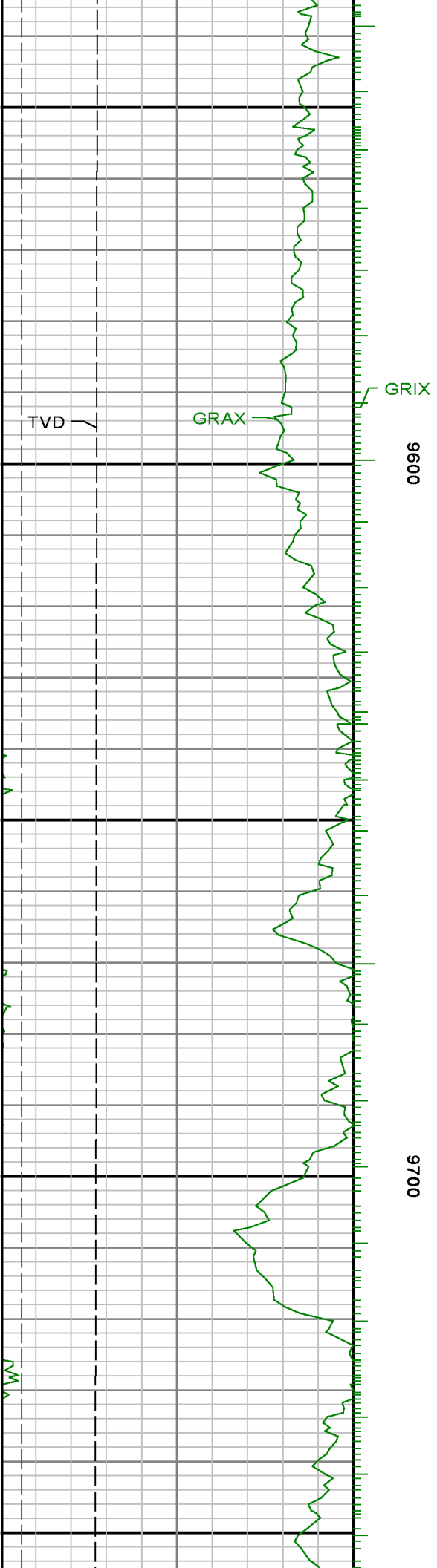
0006

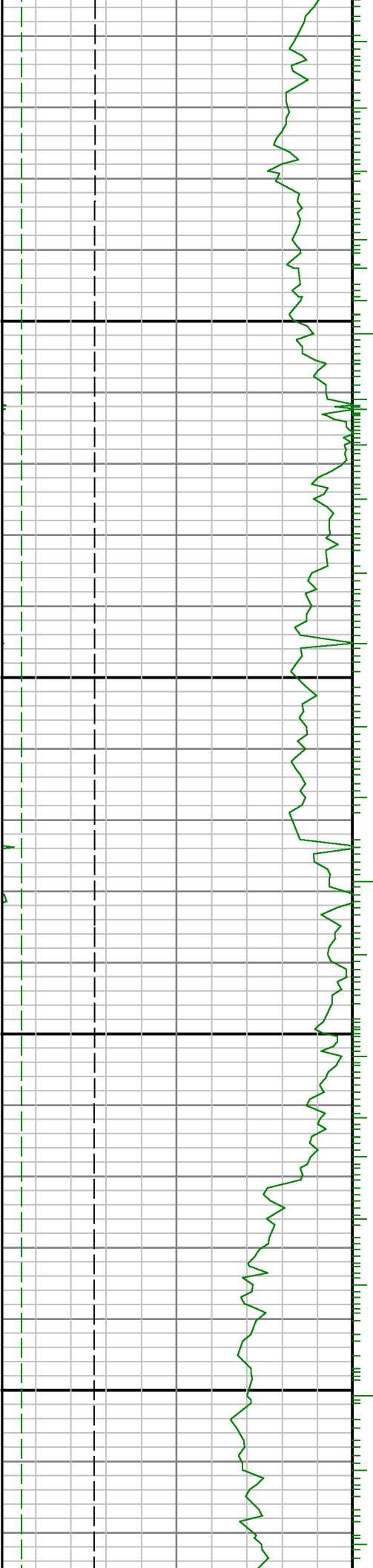








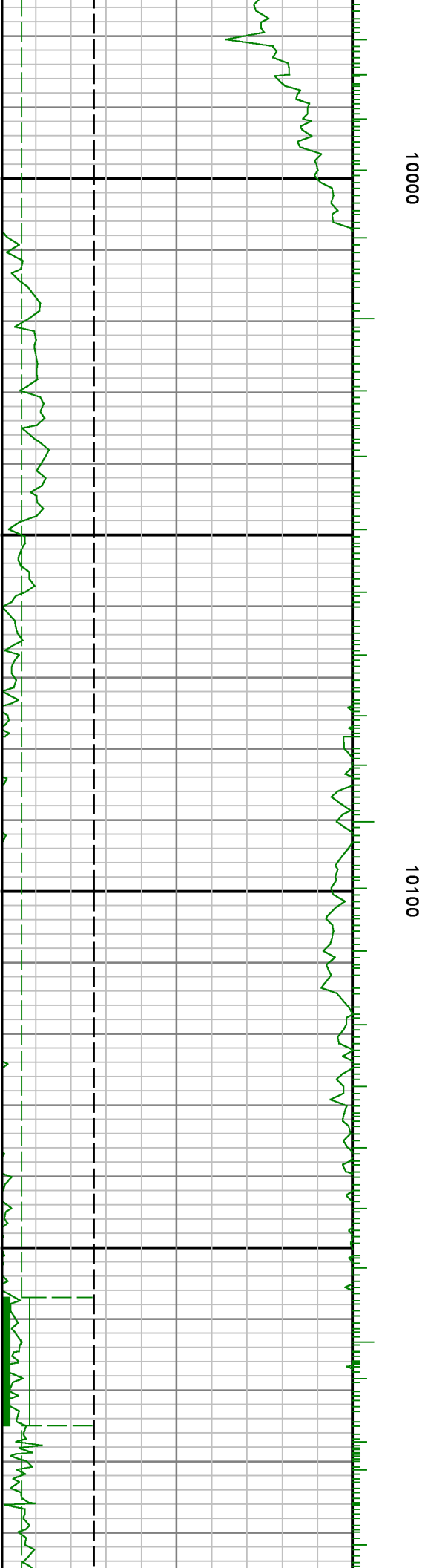
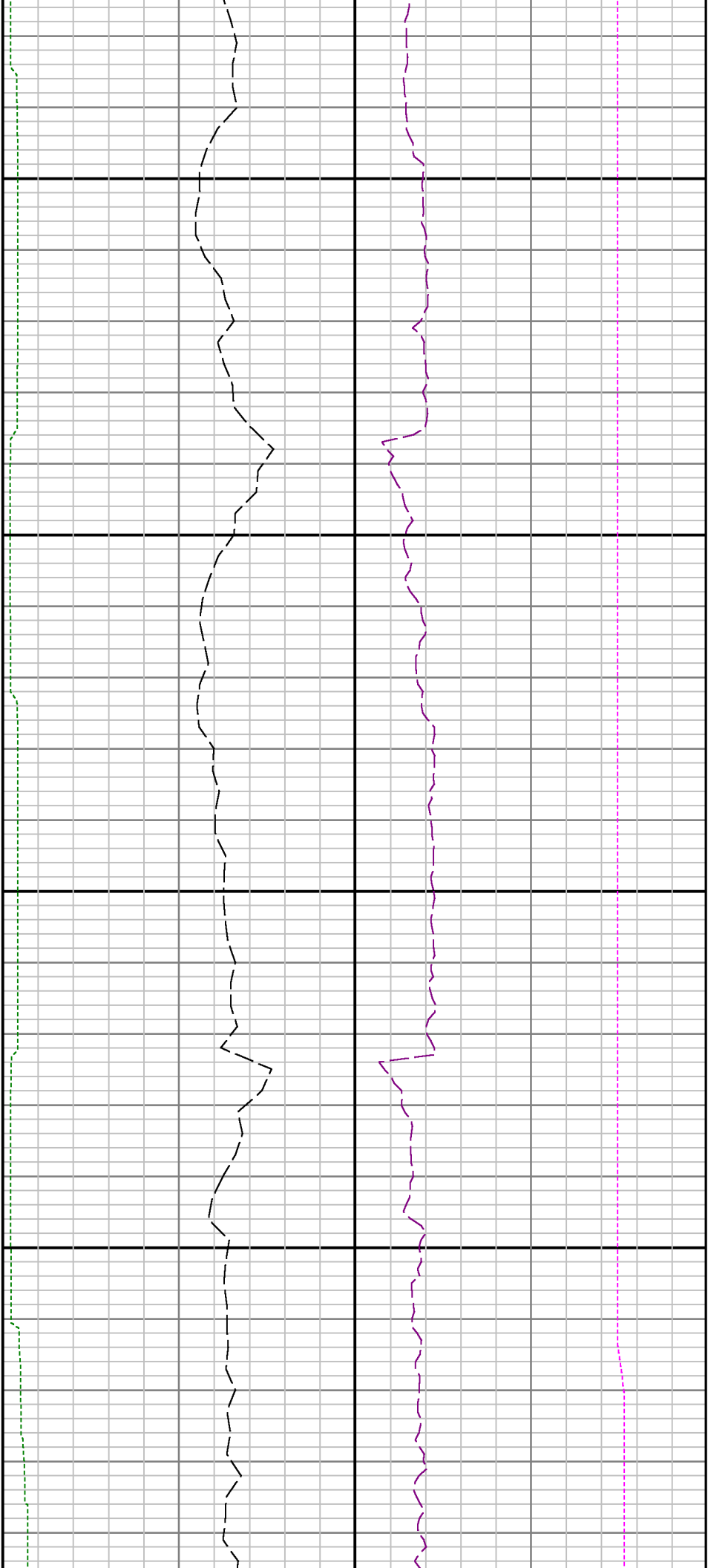


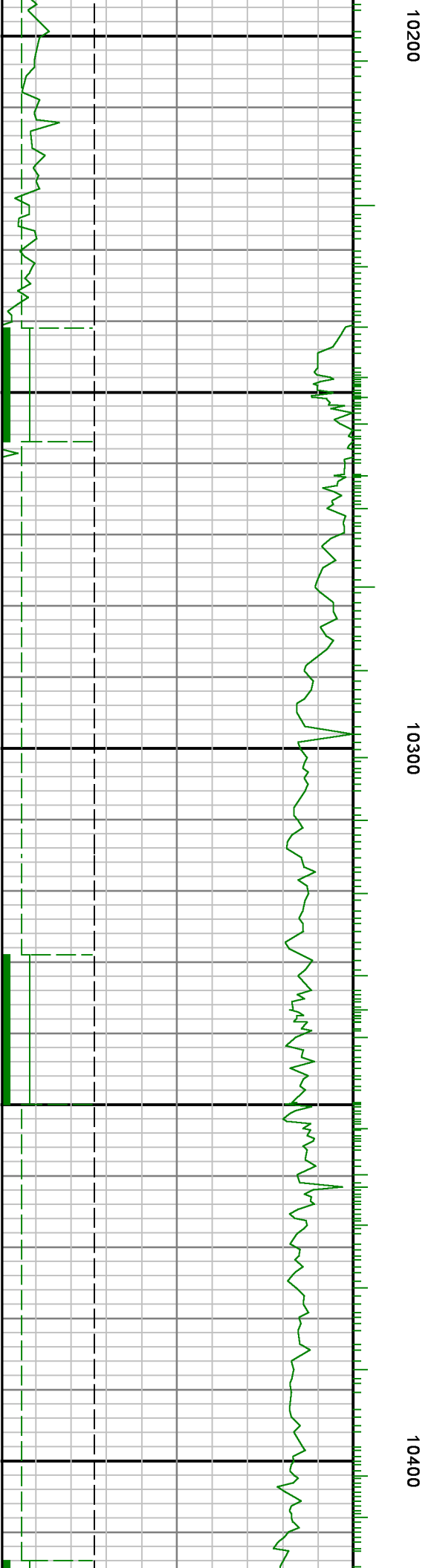
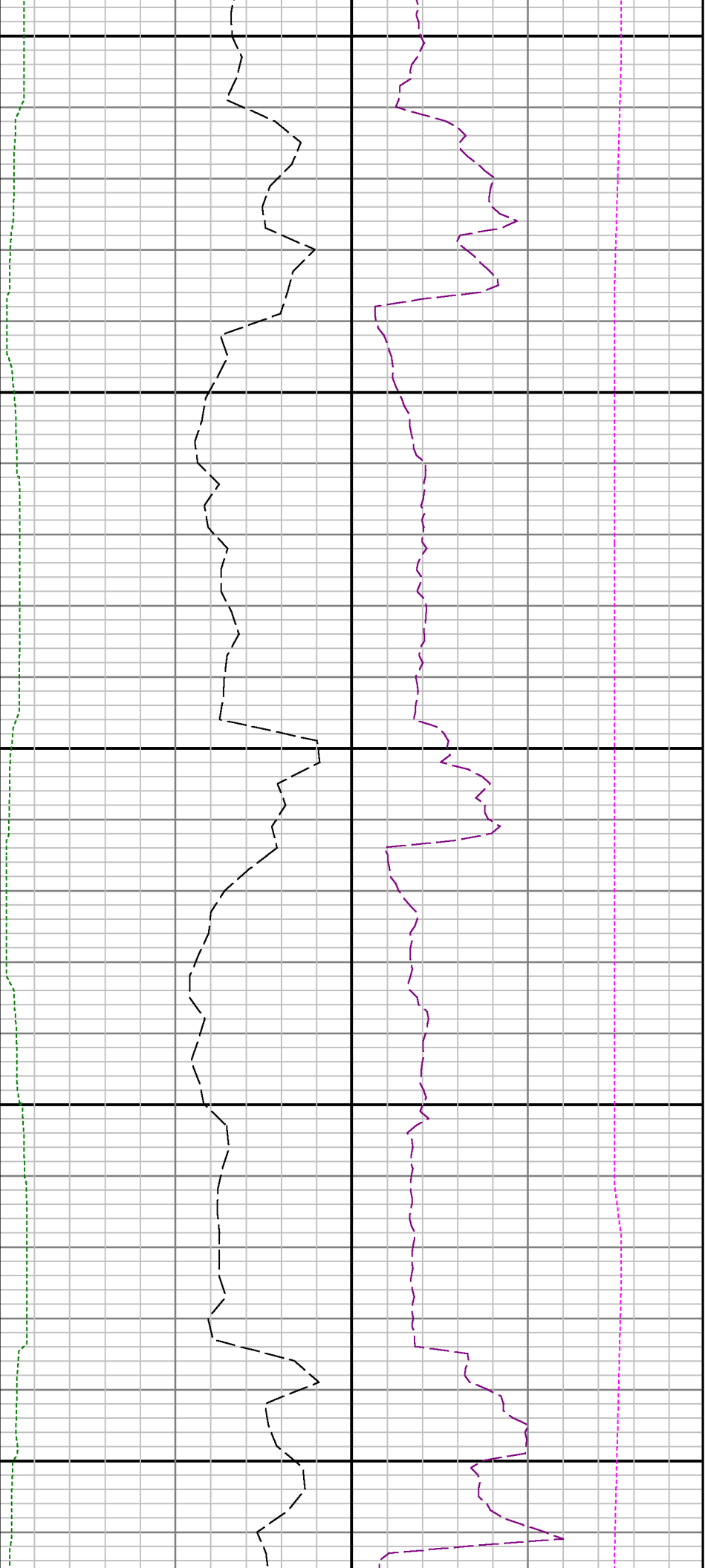


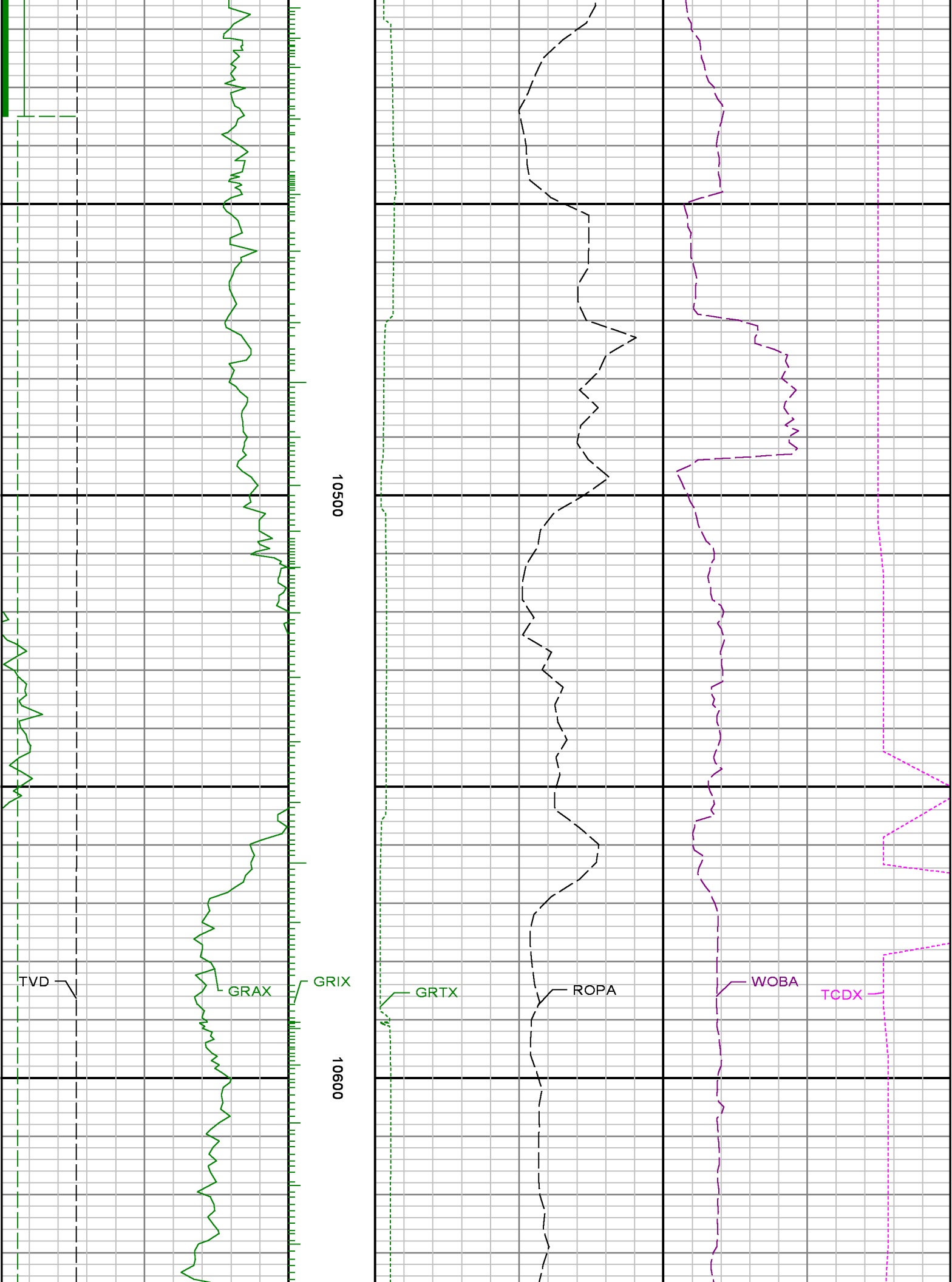
0066

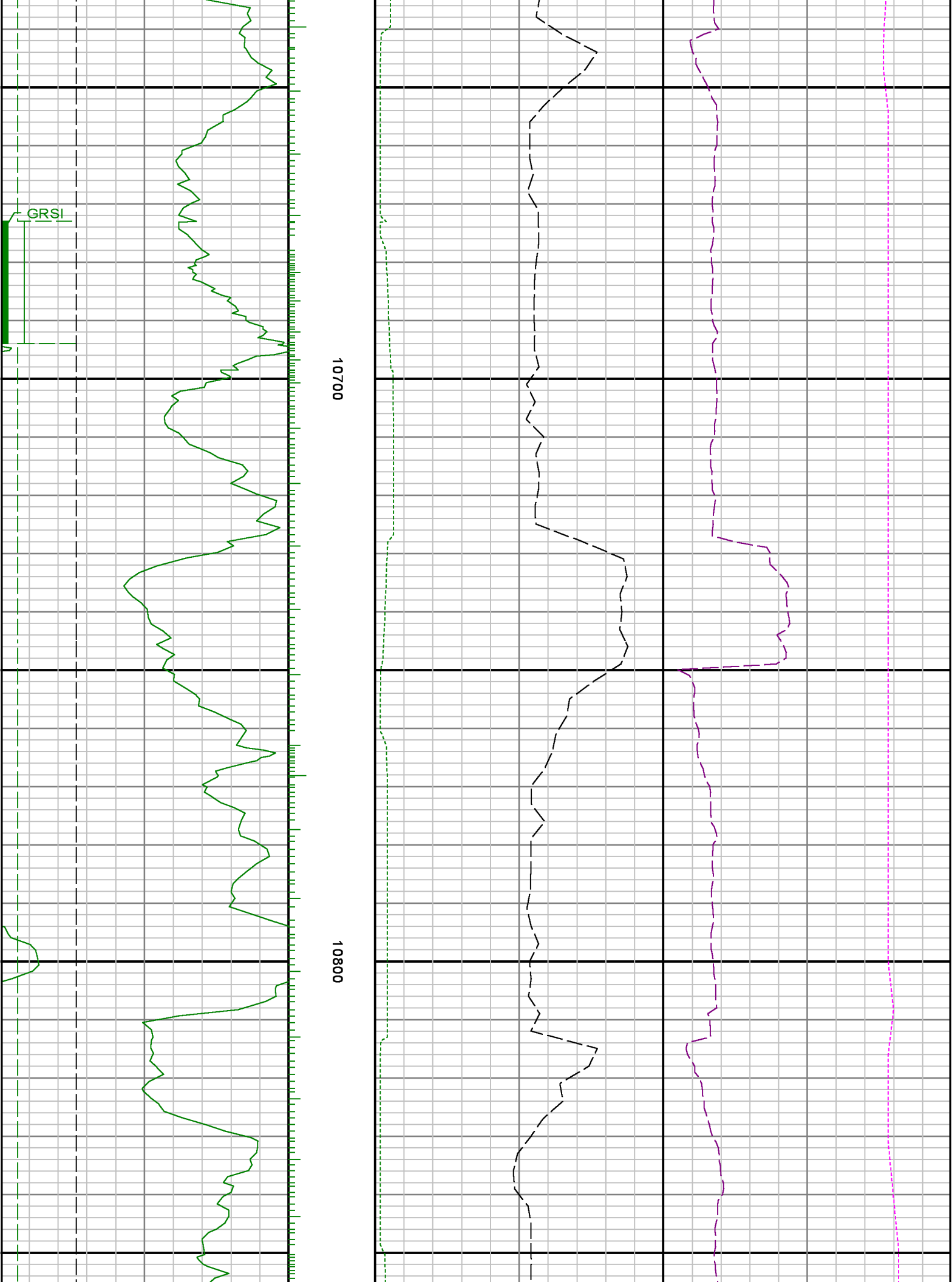
0086







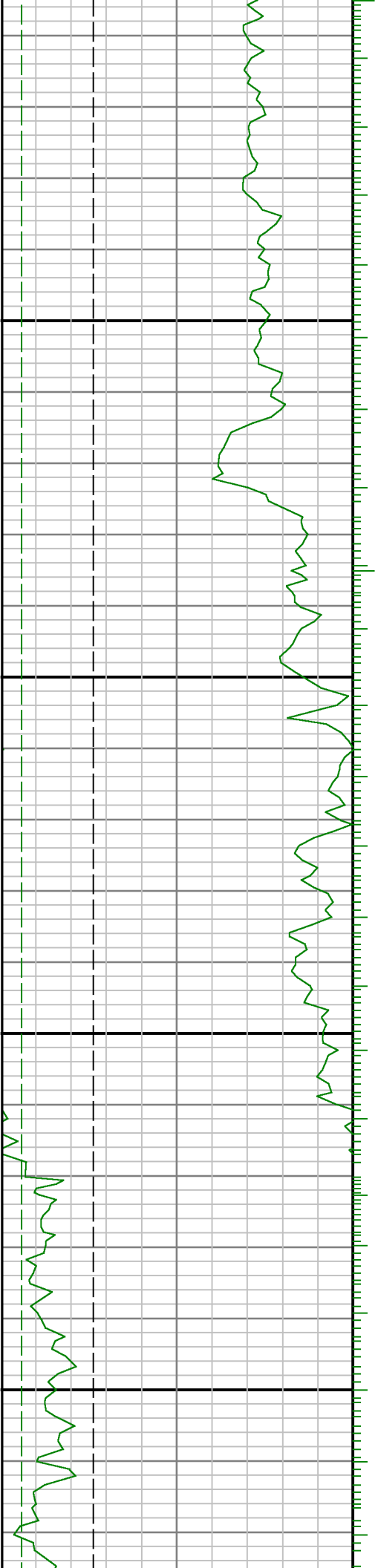






10900

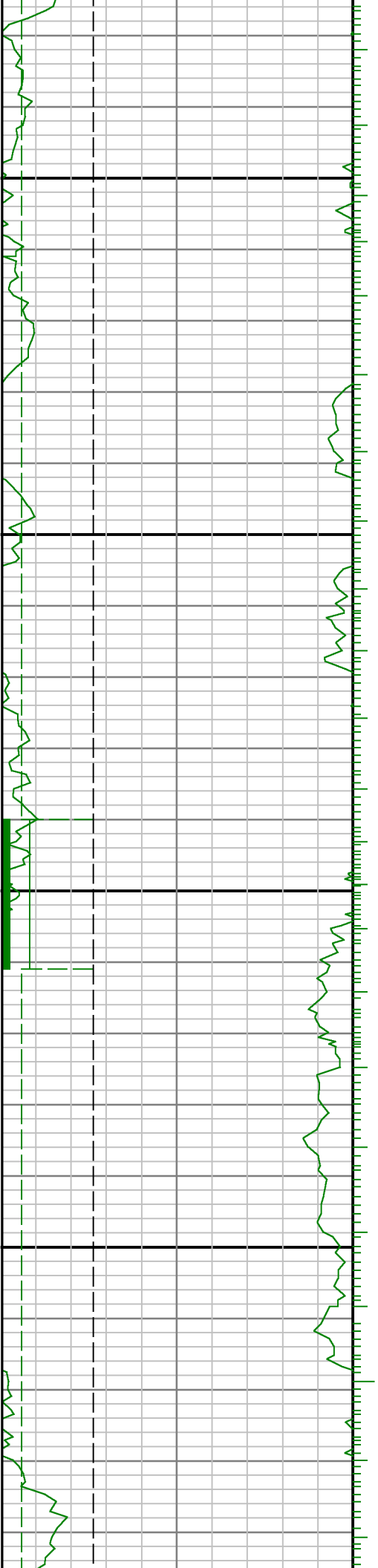
11000



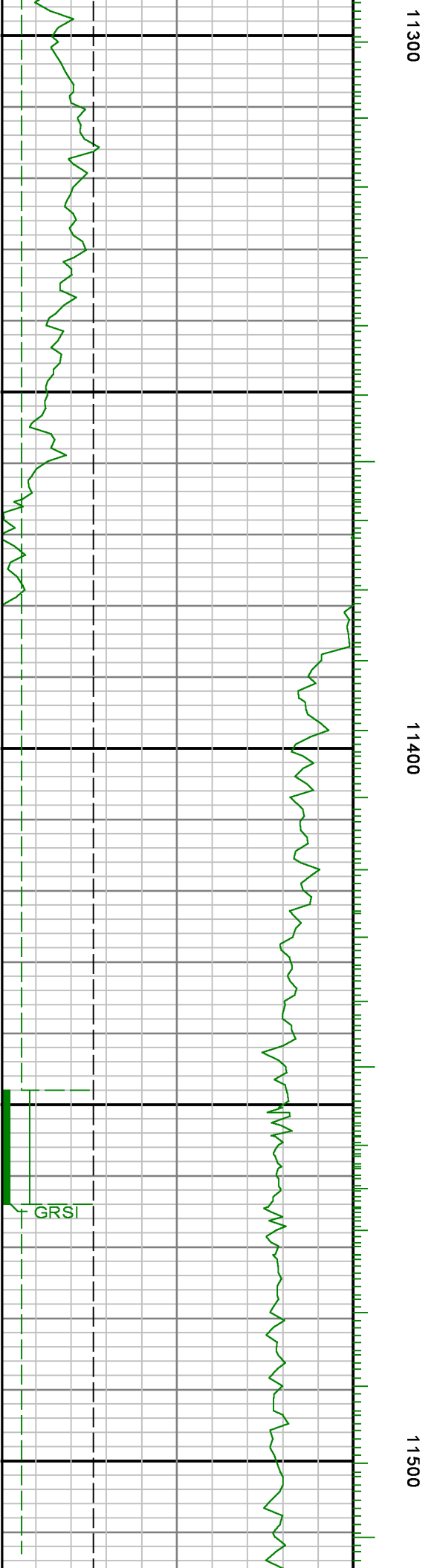


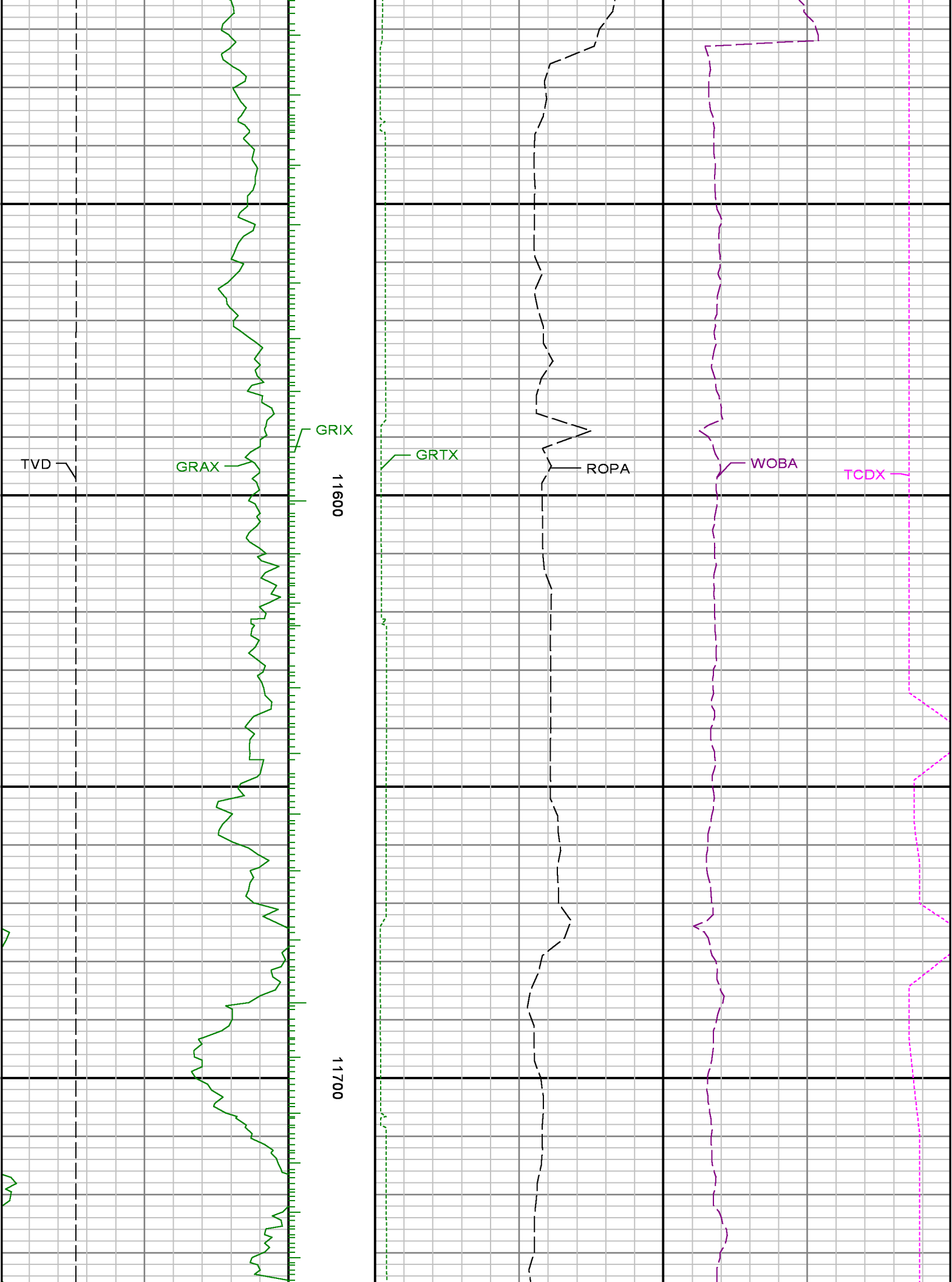
11100

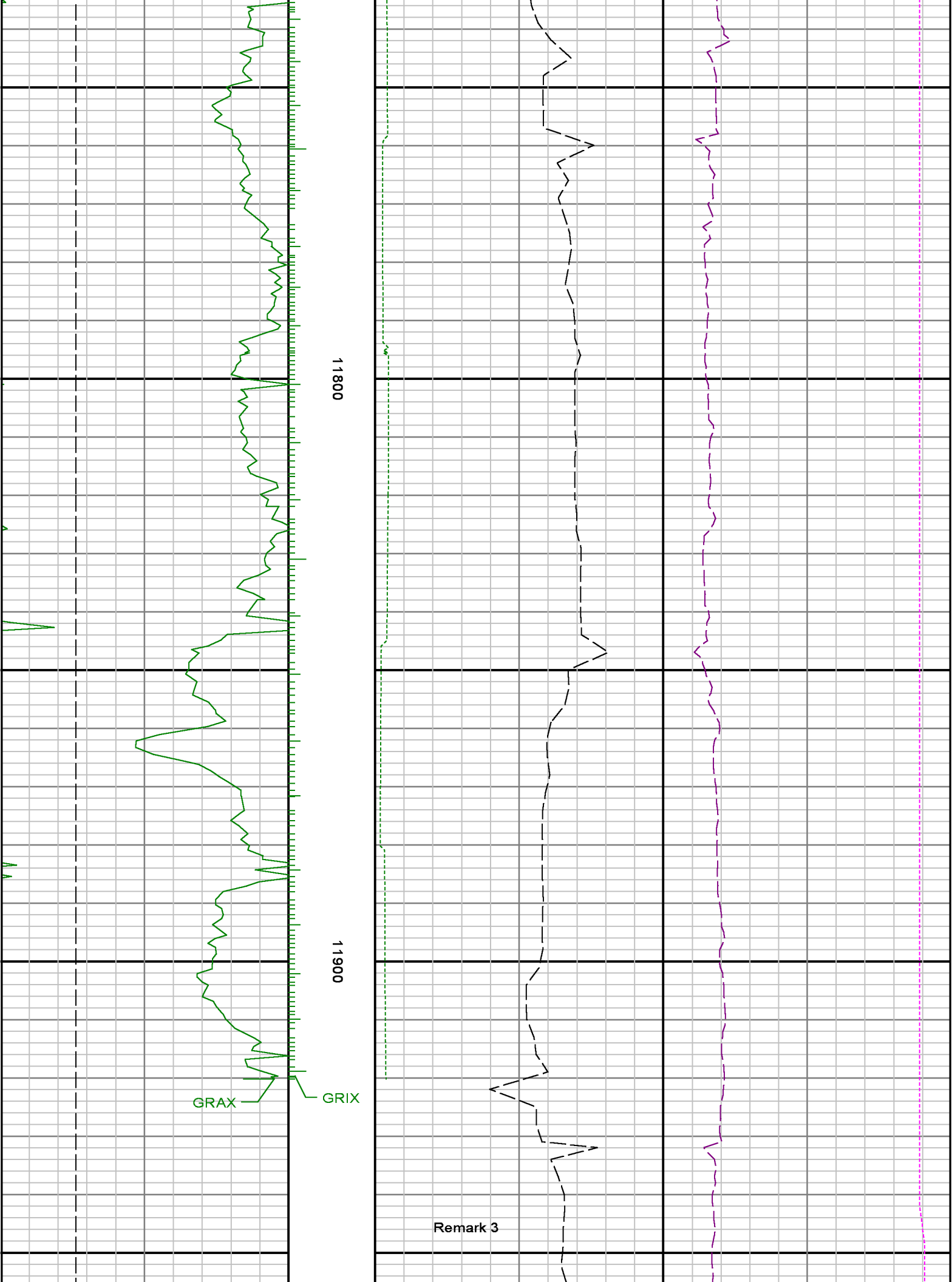
11200















 TVD		 ROPA	 WOBA	 TCDX
Gamma Ray Apparent 0.5 ft Avg GRAX 0150 API True Vertical Depth TVD 72006200 ft	MD feet 1:240	Rate of Penetration 3.0 ft Avg ROP_AVG 6000 ft/hr Gamma Time Since Drilled GRTX 0600 min	Surface Weight On Bit 1.0 ft Avg WOB_AVG 0100 klbf Downhole Temperature TCDX 100250 degF	