



Natural Formation Evaluation
Gamma Ray

Real Time Log

Scale:	Company: Anadarko
1:240	Well: Aggregate State 15N-16HZ
Measured Depth	Field: Weld County (Kerr McGee)
	Region: RMD Country: U.S.A

Status:	Final Print	Surface Location:	Other Services:
API Number:	05-123-3832900	Latitude: 40° 9' 6.948" N Longitude: 104° 46' 34.475" W	Directional VSS
Permanent Datum (P.D.):	Ground Level	Elevation: 4937.00 ft.	Elevations: N/A
Log Measured From:	Rig Floor	13.00 ft.	Above P.D.
Depth Reference:	Drillers Depth		KB: N/A DF: 4950.00 ft. GL: 4937.00 ft.

Interval Logged	Dates	Magnetic Field Reference
Top: 6682.0 ft.	Date From: 13/Apr/2014	Dip Angle: 66.93 °
Bottom: 14741.0 ft.	Date To: 26/Apr/2014	Azi Reference North: Mag to Reference
	Spud Date: 13/Apr/2014	Field Strength: 52802.0 nT North Correction: 8.45 °

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
13,500 in.	0.0 ft.	1039.0 ft.	9.625 in.	36.00 lb/ft	0.0 ft.	1029.0 ft.	
8,750 in.	1039.0 ft.	7676.0 ft.	7.000 in.	26.00 lb/ft	1029.0 ft.	7667.0 ft.	
6,125 in.	7676.0 ft.	14792.0 ft.					

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	0.0 ft.	1039.0 ft.	13,500 in.	1039.0 ft.	0.0 ° / 0.0 °	0.3 ° / 333.8 °
Water Based	1039.0 ft.	7676.0 ft.	8,750 in.	6637.0 ft.	0.3 ° / 333.8 °	89.3 ° / 182.9 °
Water Based	7676.0 ft.	14792.0 ft.	6,125 in.	7116.0 ft.	89.3 ° / 182.9 °	92.2 ° / 180.3 °
					/	/
					/	/
					/	/

Acquisition System	Software Version	Other
Advantage	2.20U4	Rig: / Contractor: Ensign 145 / Anadarko
PATS	6.4.1.34	Job No: 6177000 / 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 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	1	8.750	PDC	2.000	Steerable	6682.0	6896.0	1039.0	6948.0	15/Apr/2014 00:11	15/Apr/2014 07:04	28.1
2	2	2	8.750	PDC	2.000	Steerable	6896.0	7251.0	6948.0	7296.0	16/Apr/2014 00:53	16/Apr/2014 13:26	13.1
3	3	3	8.750	Tricone	1.000	Steerable	7251.0	7626.0	7296.0	7676.0	17/Apr/2014 05:05	18/Apr/2014 06:07	28.3
4	4	4	8.750	PDC	3.000	Steerable	N/A	N/A	N/A	N/A	21/Apr/2014 05:30	21/Apr/2014 21:45	2.2
5	5	5	6.125	PDC	3.000	Steerable	7626.0	12500.0	7676.0	12552.0	23/Apr/2014 05:24	25/Apr/2015 10:32	50
6	6	6	6.125	PDC	3.000	Steerable	12500.0	14741.0	12552.0	14792.0	26/Apr/2014 05:27	27/Apr/2014 16:16	38

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
------	--------	--------	------	--------	--------	------	--------	--------

	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Michael Gurnsey	13/Apr/2014	18/Apr/2014	Donald Delay	13/Apr/2014	24/Apr/2014			
Alexander Janorschke	13/Apr/2014	28/Apr/2014	Thanh Hoang Nguyen	13/Apr/2014	28/Apr/2014			
Peter Adebayo	18/Apr/2014	28/Apr/2014	Daniel Lee	25/Apr/2014	28/Apr/2014			

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc/30min)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
13/Apr/2014	20:00	1	1075.0	Water Based	8.4	29	8.0	NC	0 / 100	Active Mud Pit	1500	N/A
14/Apr/2014	14:00	1	1075.0	Water Based	8.4	28	8.0	NC	0 / 100	Active Mud Pit	1500	N/A
15/Apr/2014	22:00	2	6349.0	Water Based	9.7	45	9.7	4.8	1 / 93	Active Mud Pit	1800	N/A
16/Apr/2014	10:00	2	7296.0	Water Based	9.9	44	9.6	4.6	1 / 91	Active Mud Pit	3200	N/A
17/Apr/2014	10:30	3	7475.0	Water Based	10.0	45	9.6	4.4	1 / 91	Active Mud Pit	3200	N/A
18/Apr/2014	10:23	3	7676.0	Water Based	10.2	45	9.5	4.2	1 / 90	Active Mud Pit	3000	N/A
21/Apr/2014	10:30	4	7676.0	Water Based	10.5	45	9.3	4.0	1 / 89	Active Mud Pit	2800	N/A
22/Apr/2014	12:00	5	7676.0	Water Based	10.4	43	9.5	5.0	1 / 89	Active Mud Pit	2000	N/A
23/Apr/2014	08:30	5	7950.0	Water Based	10.1	41	9.5	4.5	2 / 89	Active Mud Pit	2000	N/A
24/Apr/2014	09:30	5	11152.0	Water Based	10.2	44	9.3	4.5	2 / 89	Active Mud Pit	2000	N/A
25/Apr/2014	10:00	5	12521.0	Water Based	10.1	44	9.0	4.5	2 / 89	Active Mud Pit	2300	N/A
26/Apr/2014	08:30	6	13500.0	Water Based	10.3	48	9.2	5.0	2 / 89	Active Mud Pit	2400	N/A
27/Apr/2014	22000	6	14792.0	Water Based	10.1	43	9.2	4.5	2 / 89	Active Mud Pit	2300	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent 0.5 ft. avg.	API
GRIX	Gamma Ray Density	points
GRSI	Gamma Ray Slide Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min.
ROPA	Rate of Penetration, 3.0 ft. avg.	ft. / hr.
TCDX	Downhole Temperature	deg. F
TVD	True Vertical Depth, 3.0 ft. avg.	ft. / hr.
WOBA	Surface Weight on Bit, 1.0 ft. avg.	klbf.

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	11941435	Directional	55.88	6.750	2.875
1	SRIG	12600745	Gamma	52.51	6.750	2.875
2	DIR	11941435	Directional	49.13	6.750	2.875
2	SRIG	12600745	Gamma	45.76	6.750	2.875
3	DIR	11991886	Directional	52.98	6.750	2.875
3	SRIG	12673191	Gamma	49.61	6.750	2.875

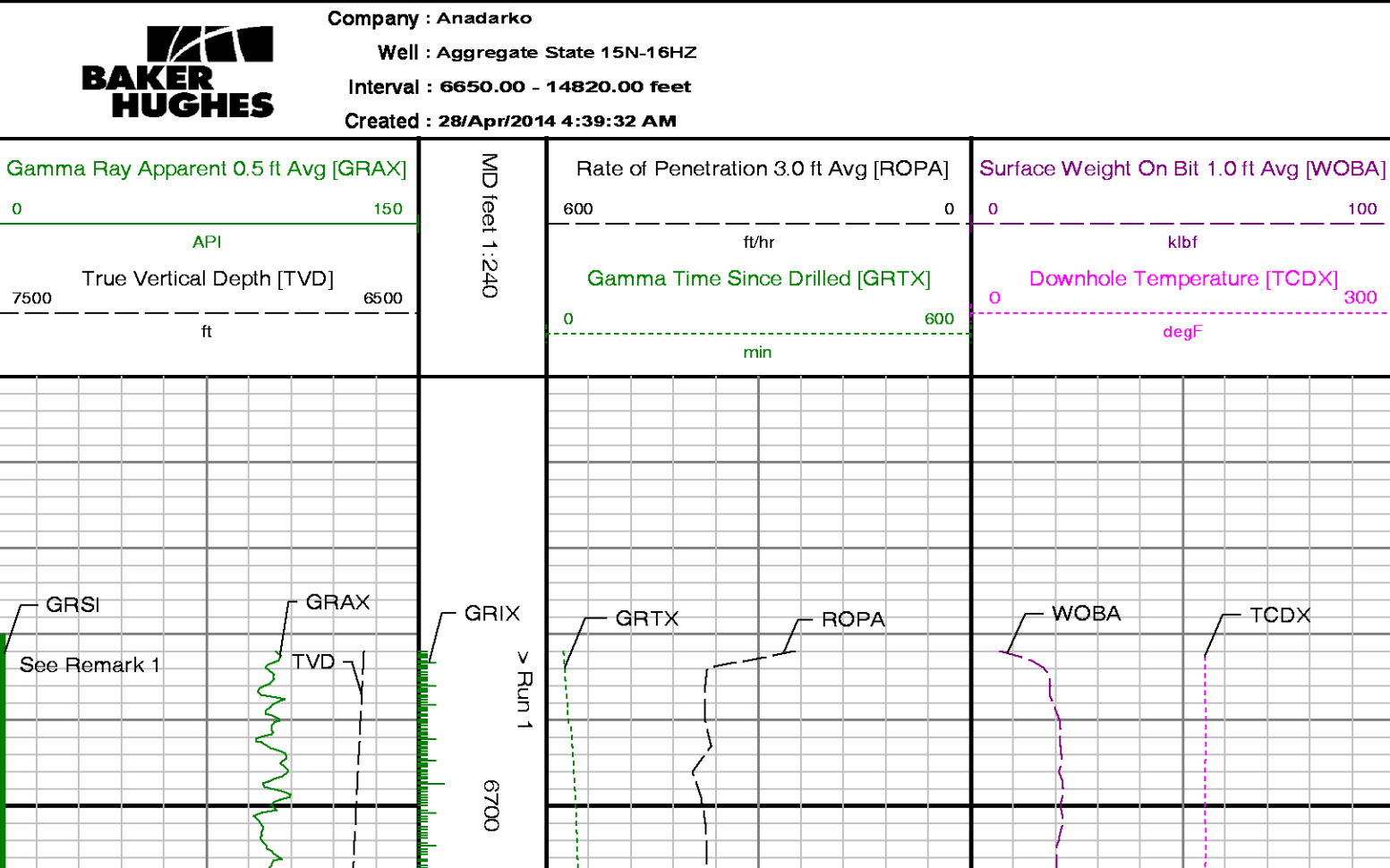
4	DIR	11991886	Directional	46.24	6.750	2.875
4	SRIG	12673191	Gamma	42.87	6.750	2.875
5	DIR	12456780	Directional	54.97	4.750	2.625
5	SRIG	12722372	Gamma	51.59	4.750	2.625
6	DIR	12846347	Directional	54.32	4.750	2.625
6	SRIG	12600744	Gamma	50.94	4.750	2.625

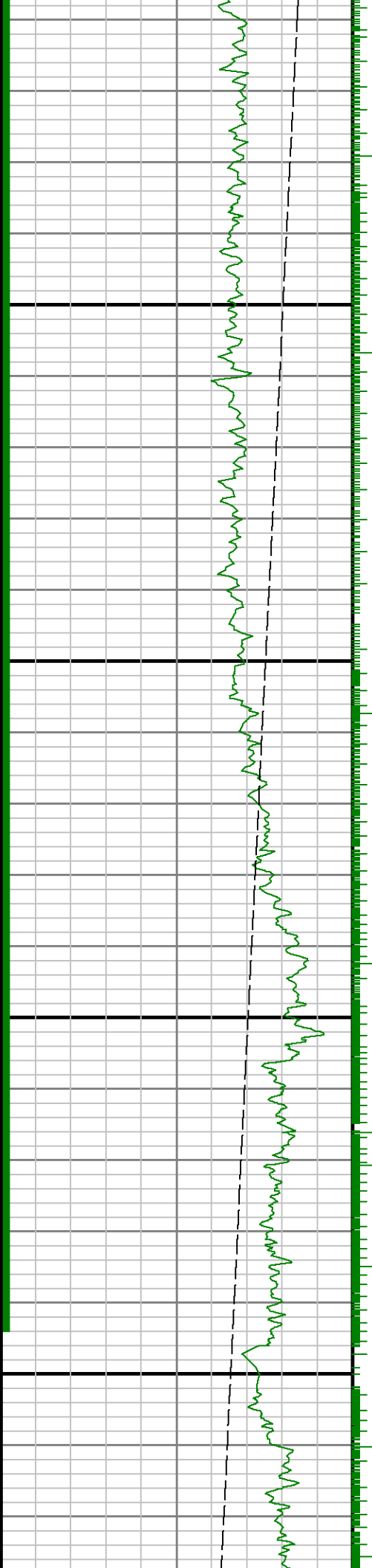
Service and Tool Mnemonics

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

Comments

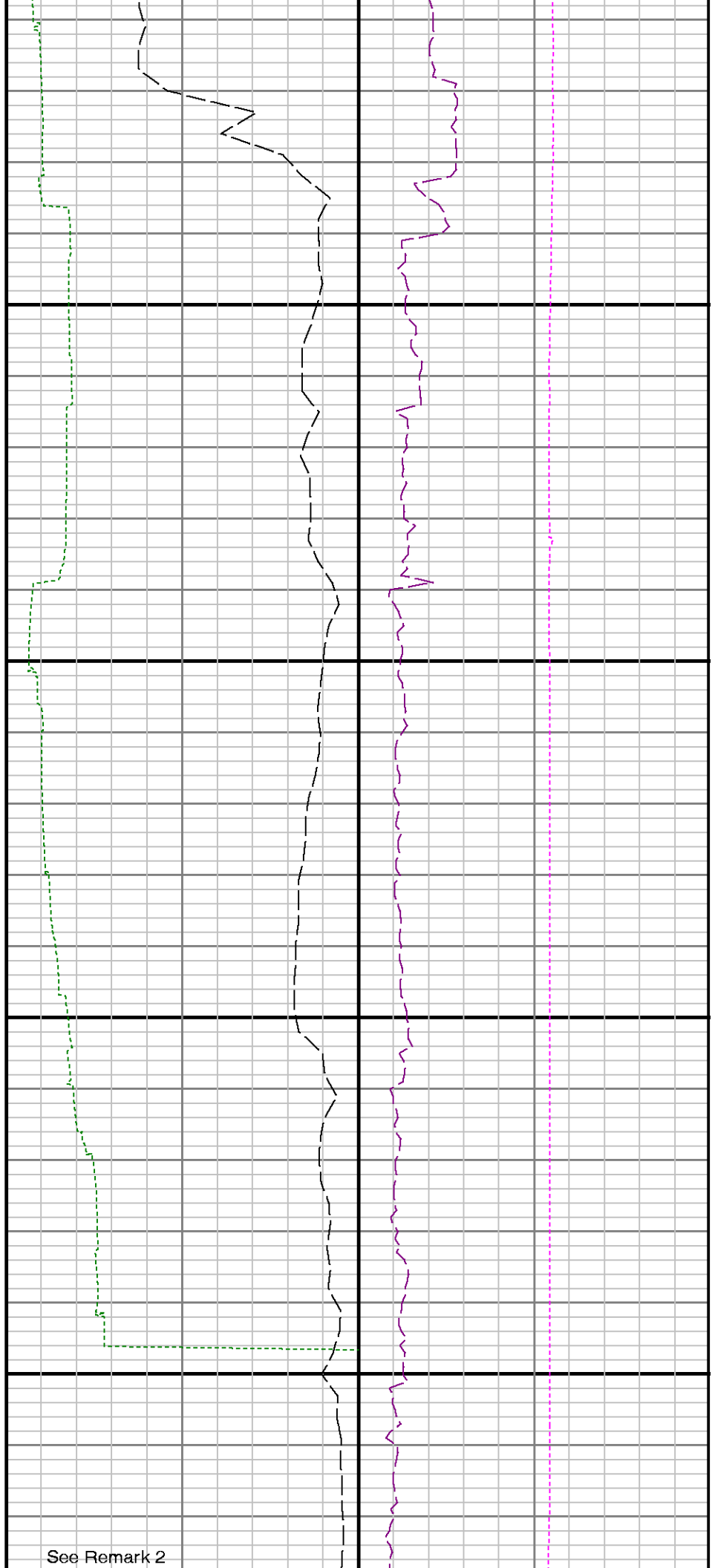
- 1) Baker Hughes runs 1, 2, 3 and 4 utilized 6 1/2 inch NaviGamma services (VSS, Directional, Gamma Ray) behind an 8 3/4 inch bit and steerable assembly from 1039 to 7676 feet MD (1038 to 7310 feet TVD).
- 2) Baker Hughes runs 5 and 6 utilized 4 3/4 inch NaviGamma services (VSS, Directional, Gamma Ray) behind an 6 1/8 inch bit and steerable assembly from 7676 to 14792 feet MD (7310 to 7283 feet TVD).
- 3) 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.
- 4) Depth measurements were obtained from a depth tracking system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes LWD logging engineers, depth calibrations could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.



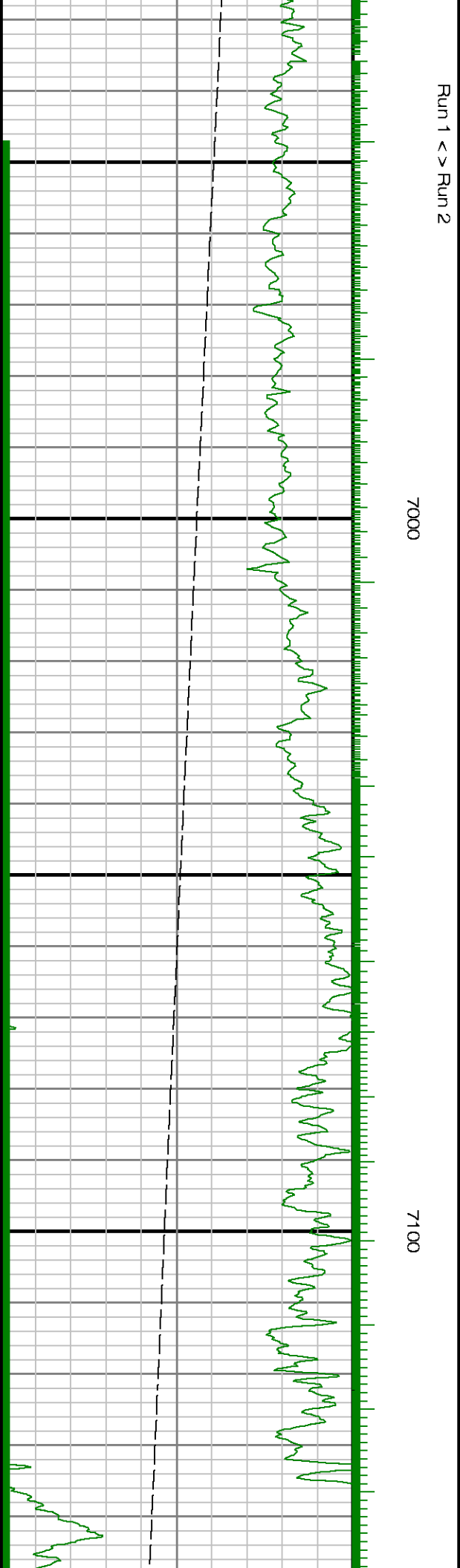


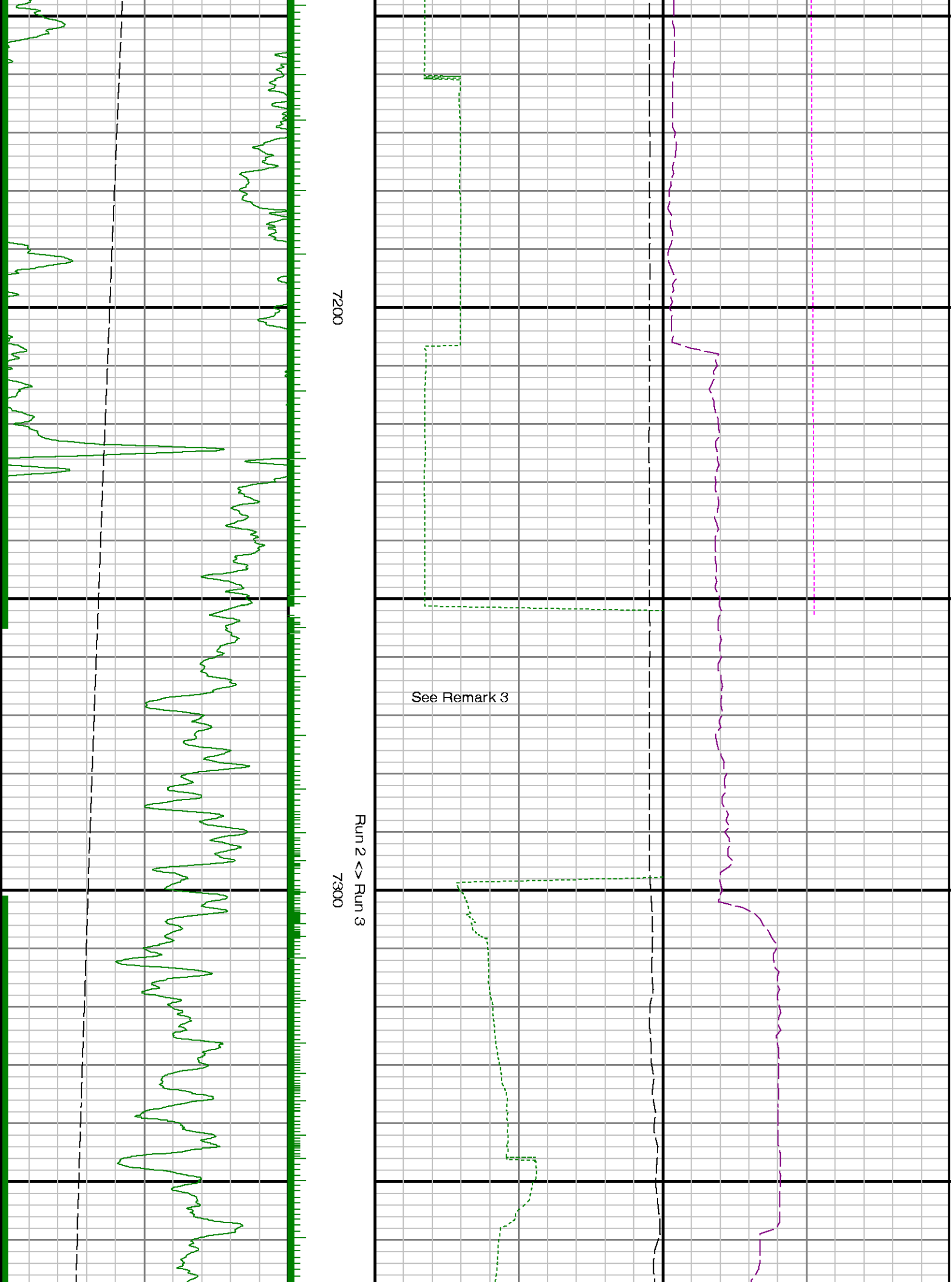
0089

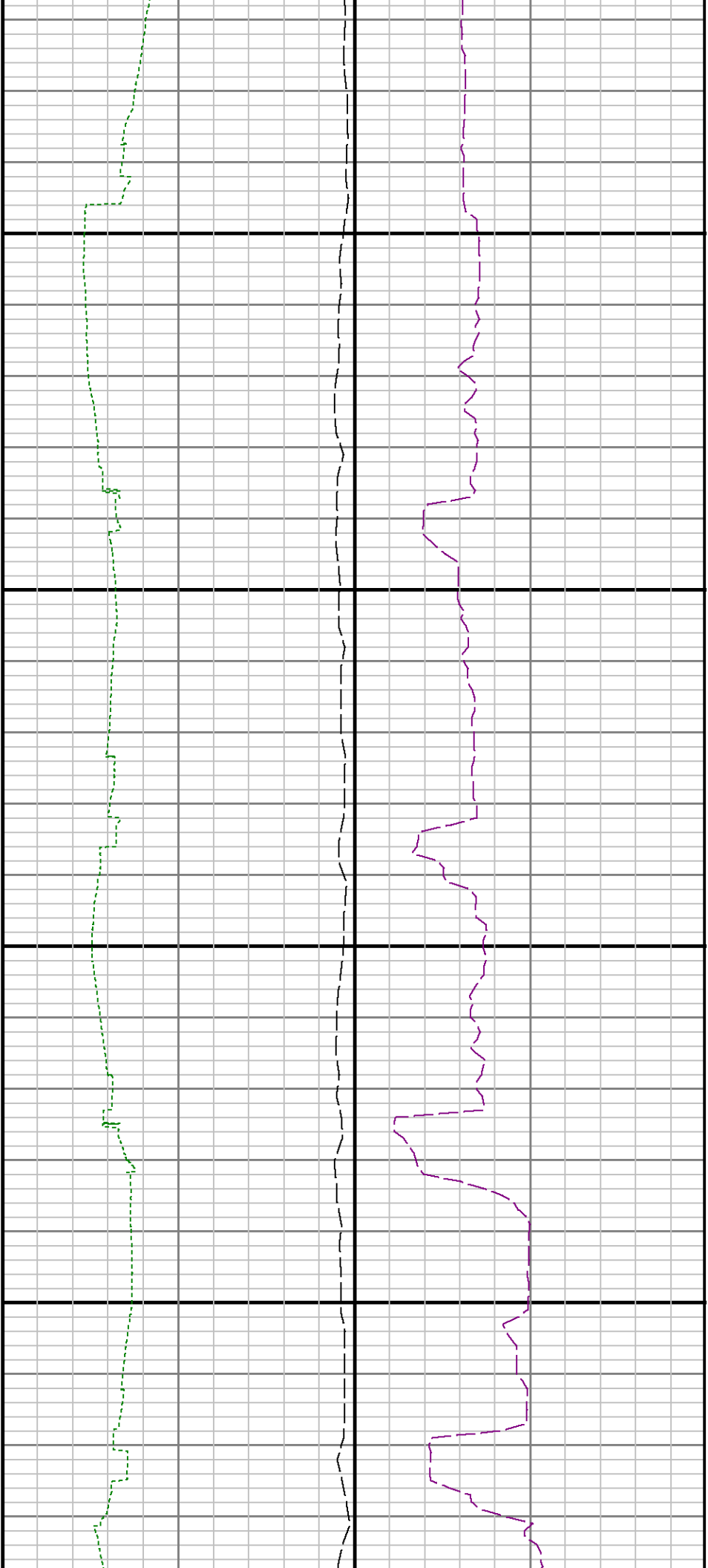
0069



See Remark 2

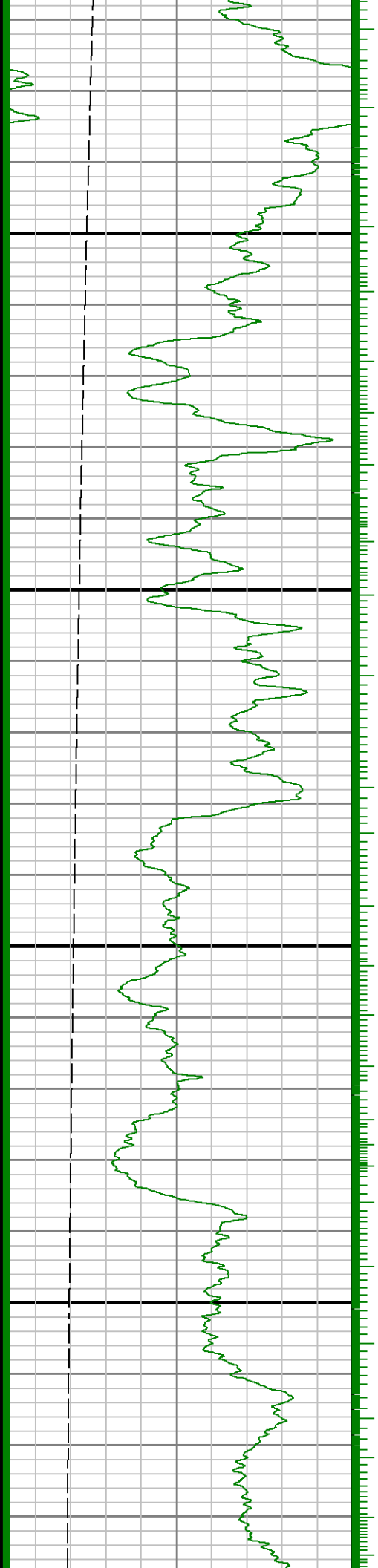


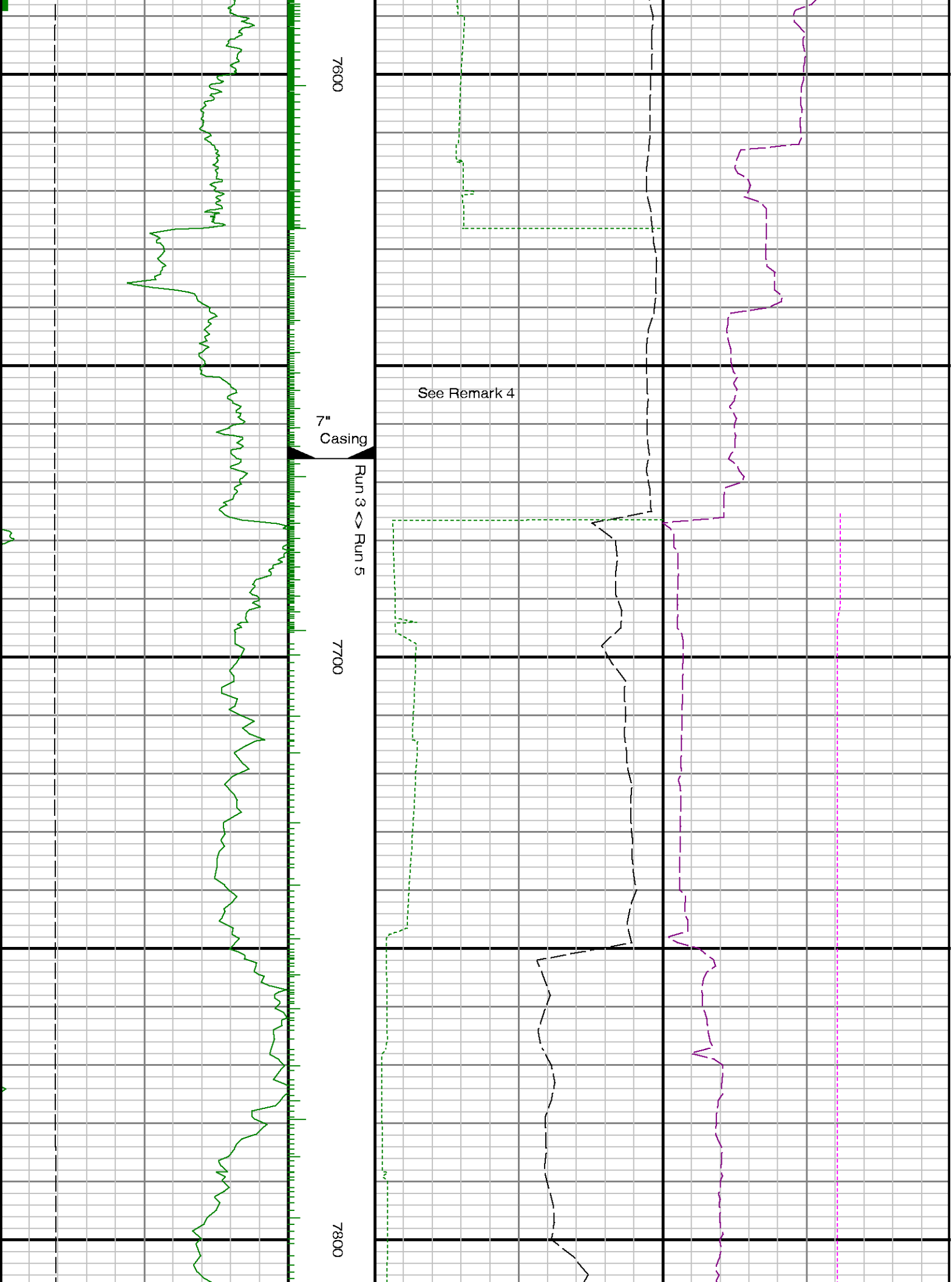


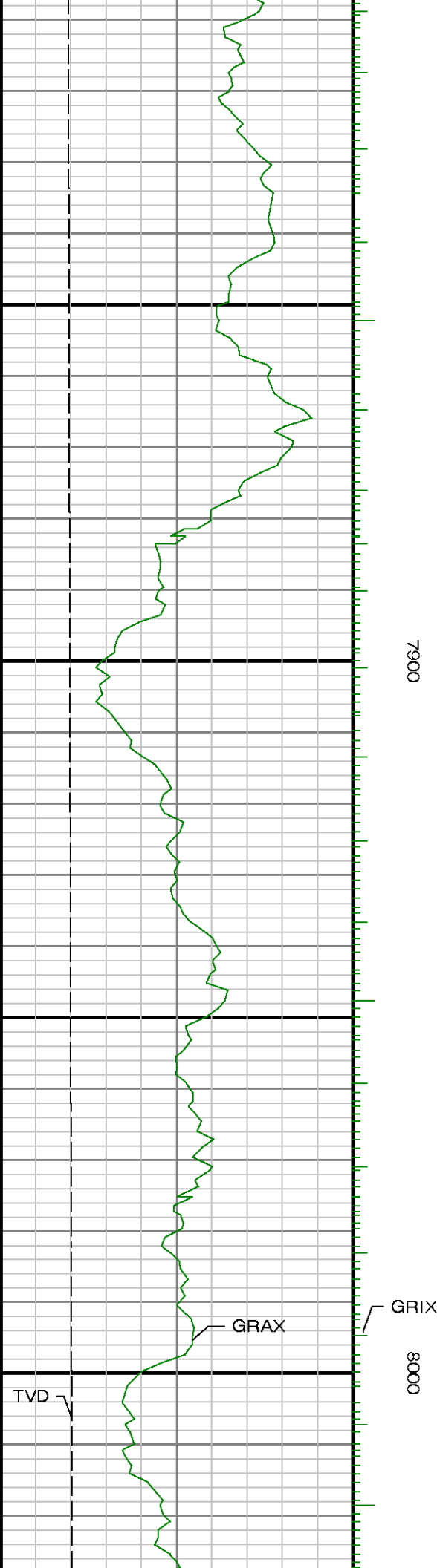


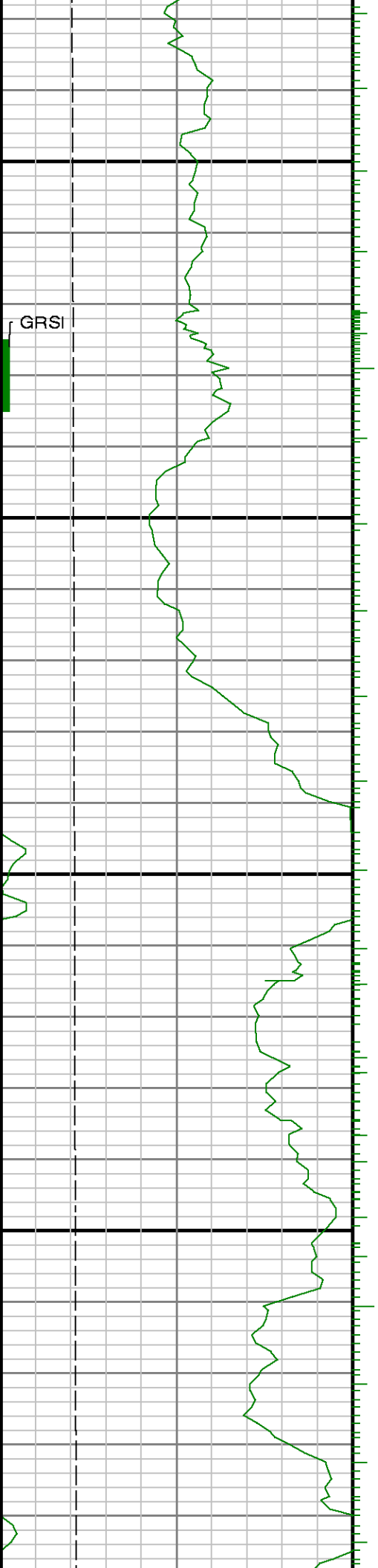
7400

7500



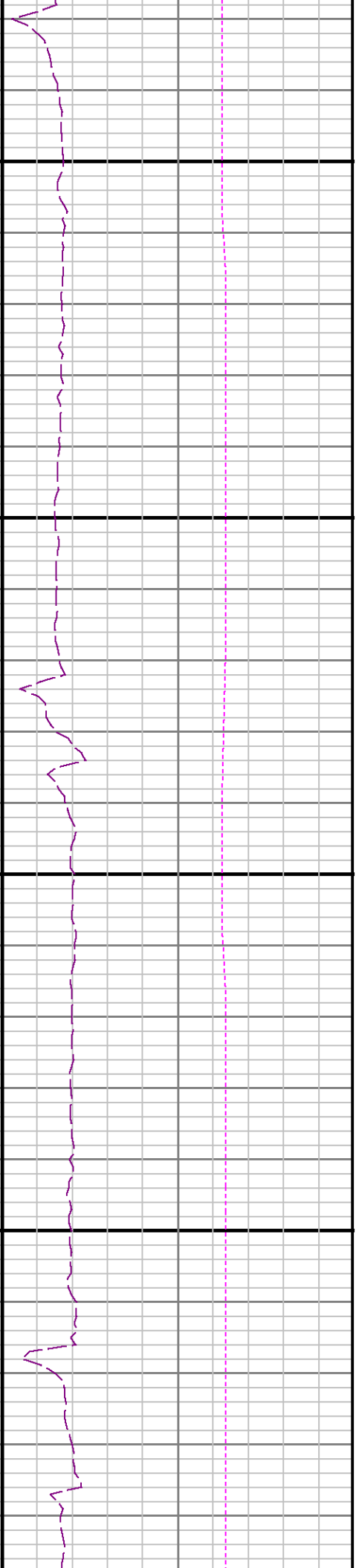
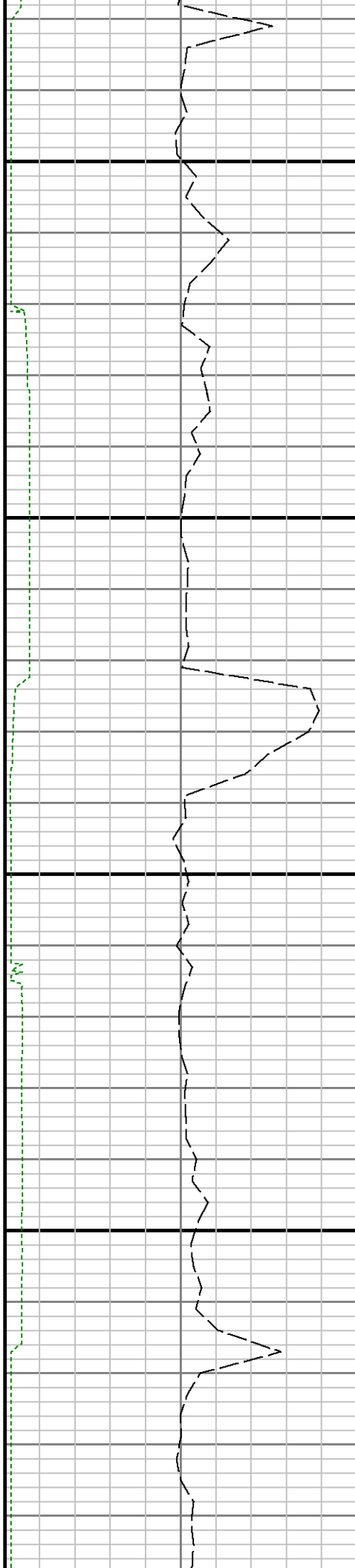


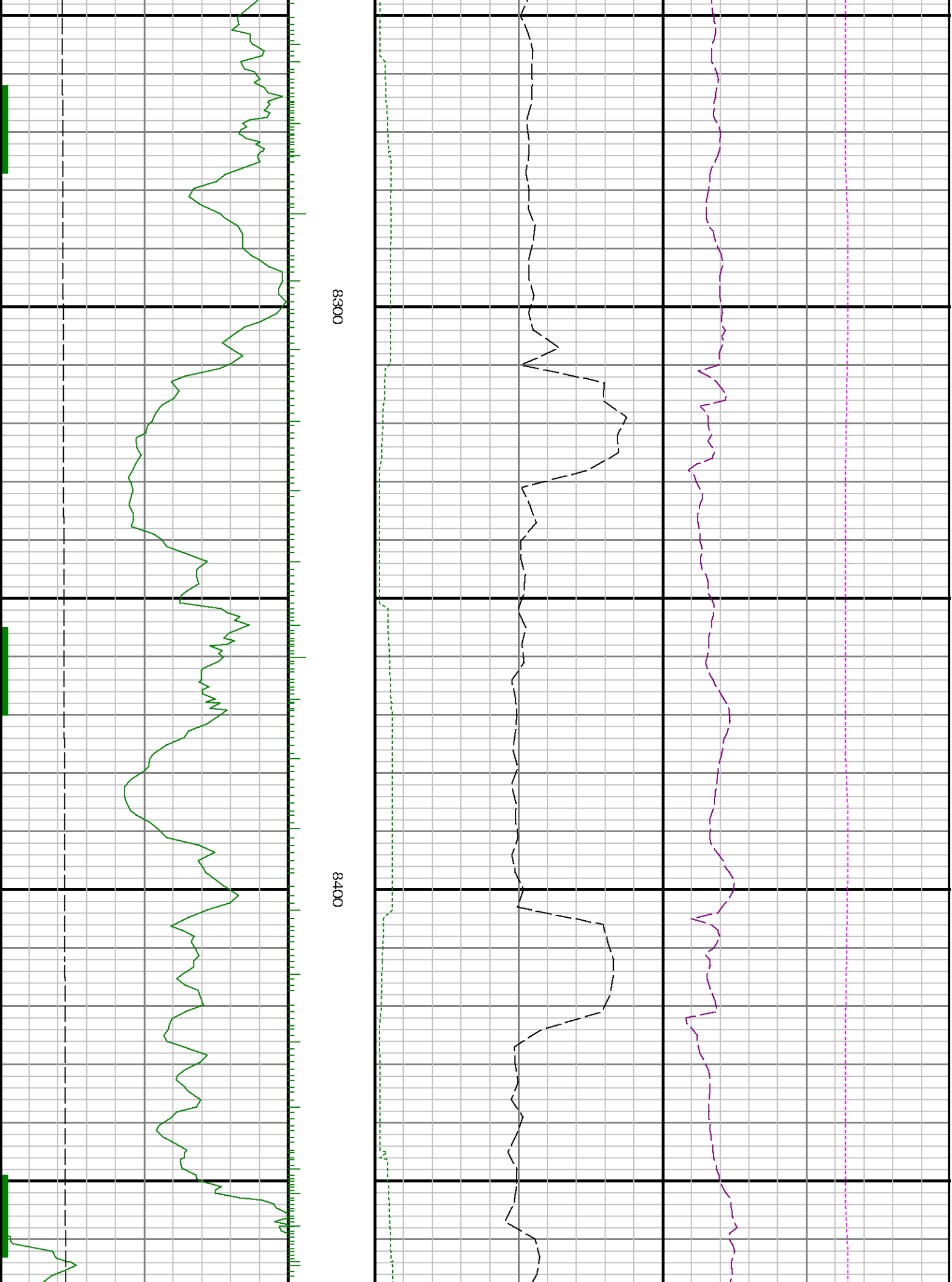


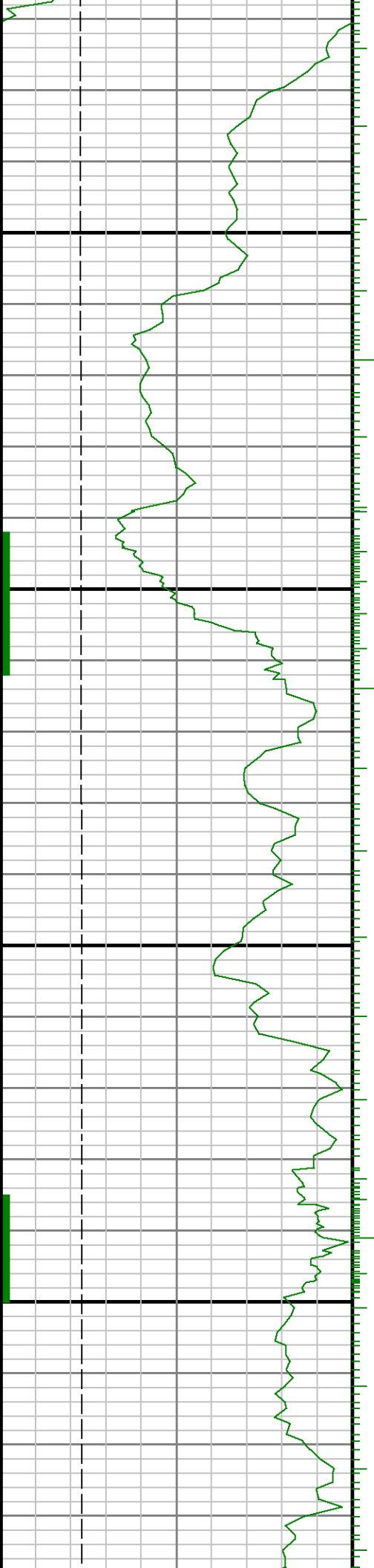


8100

8200

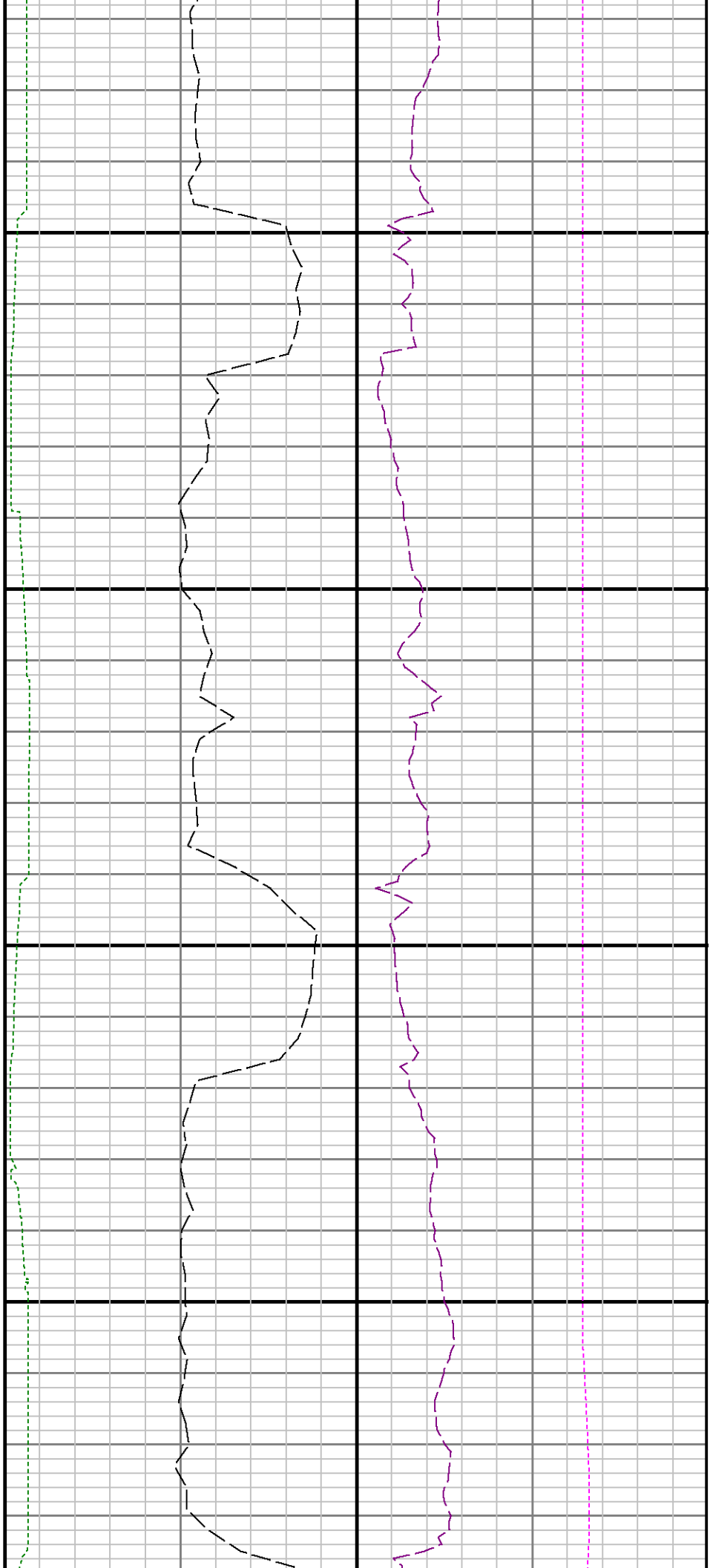


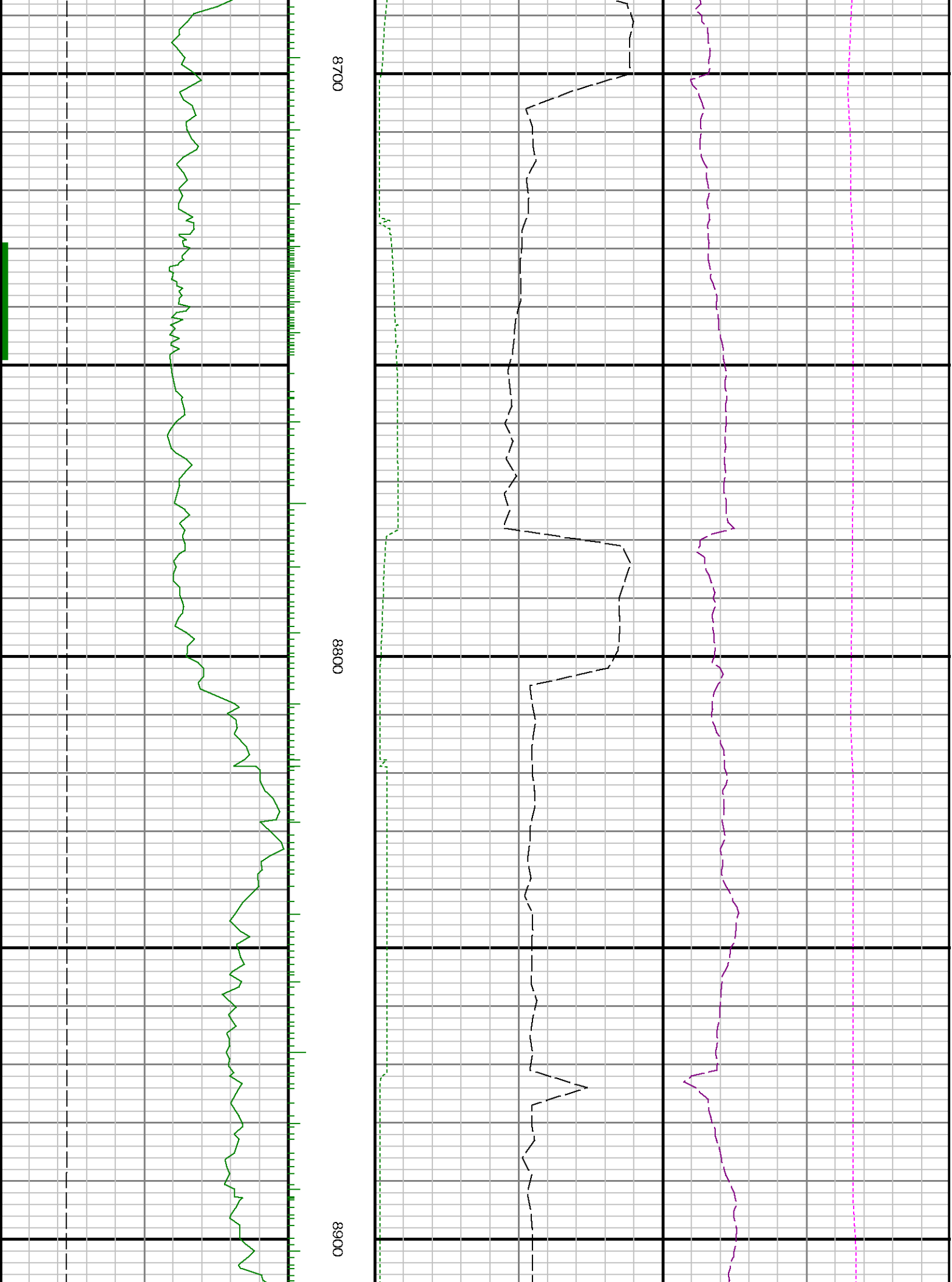


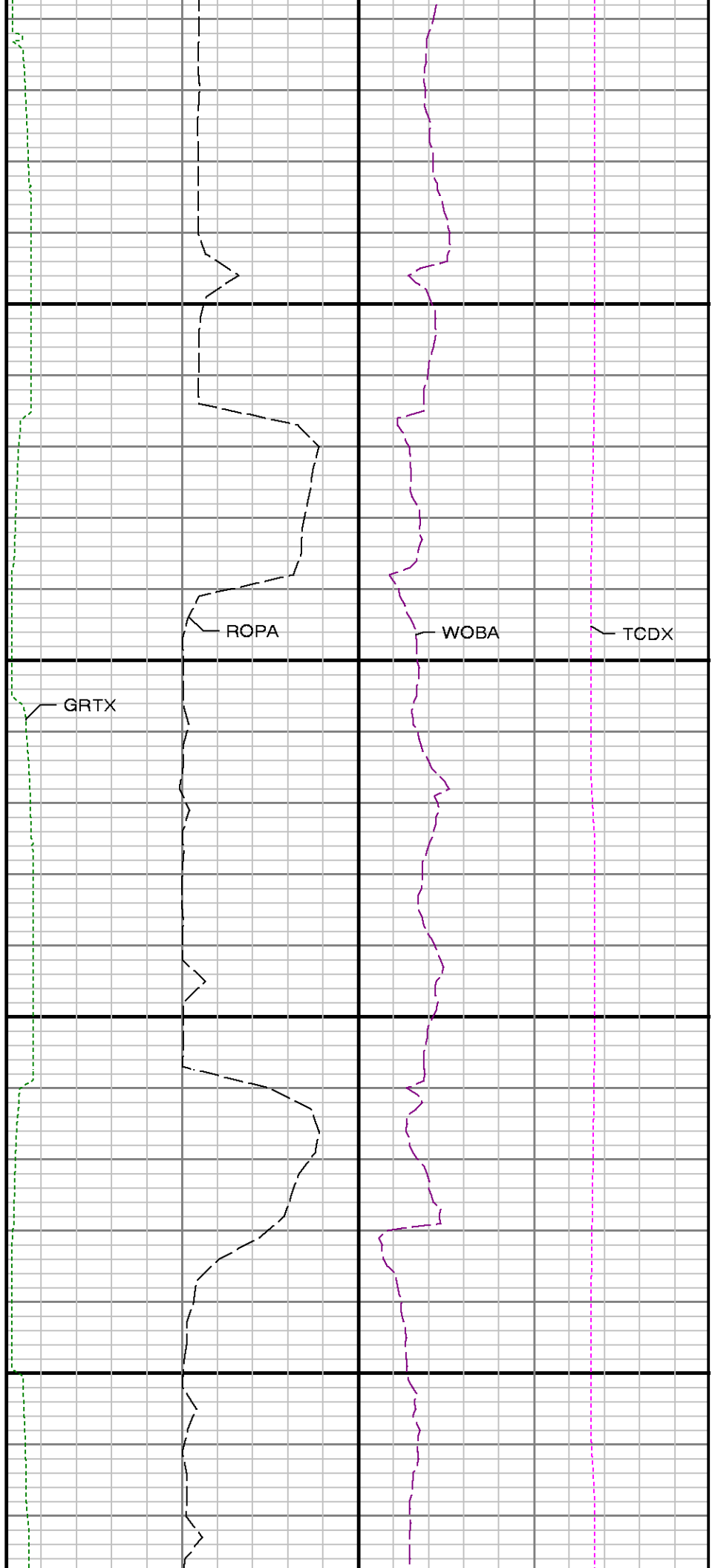
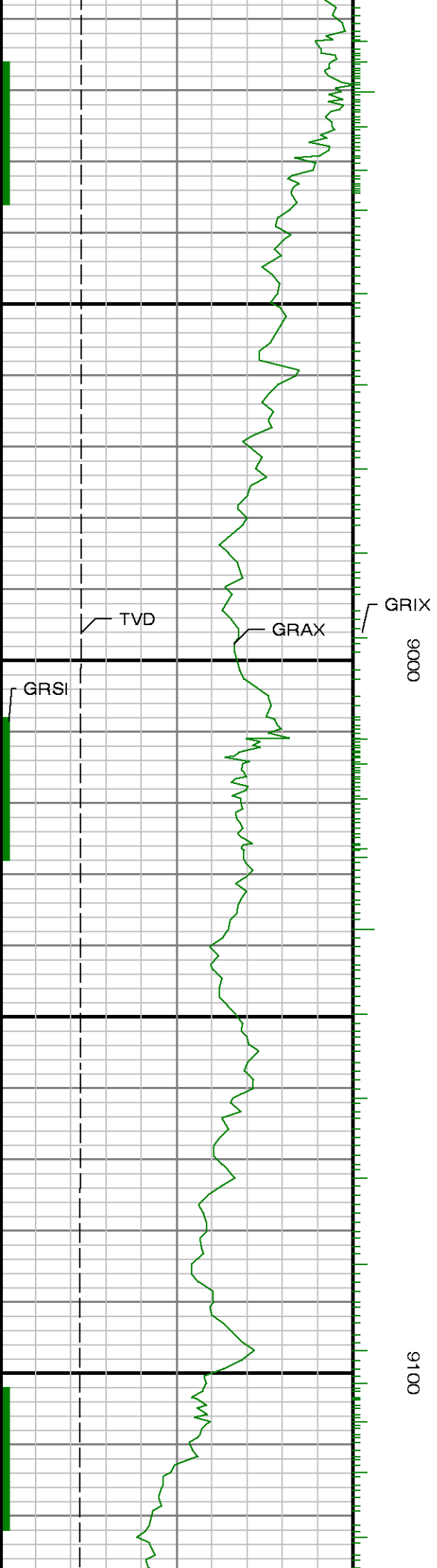


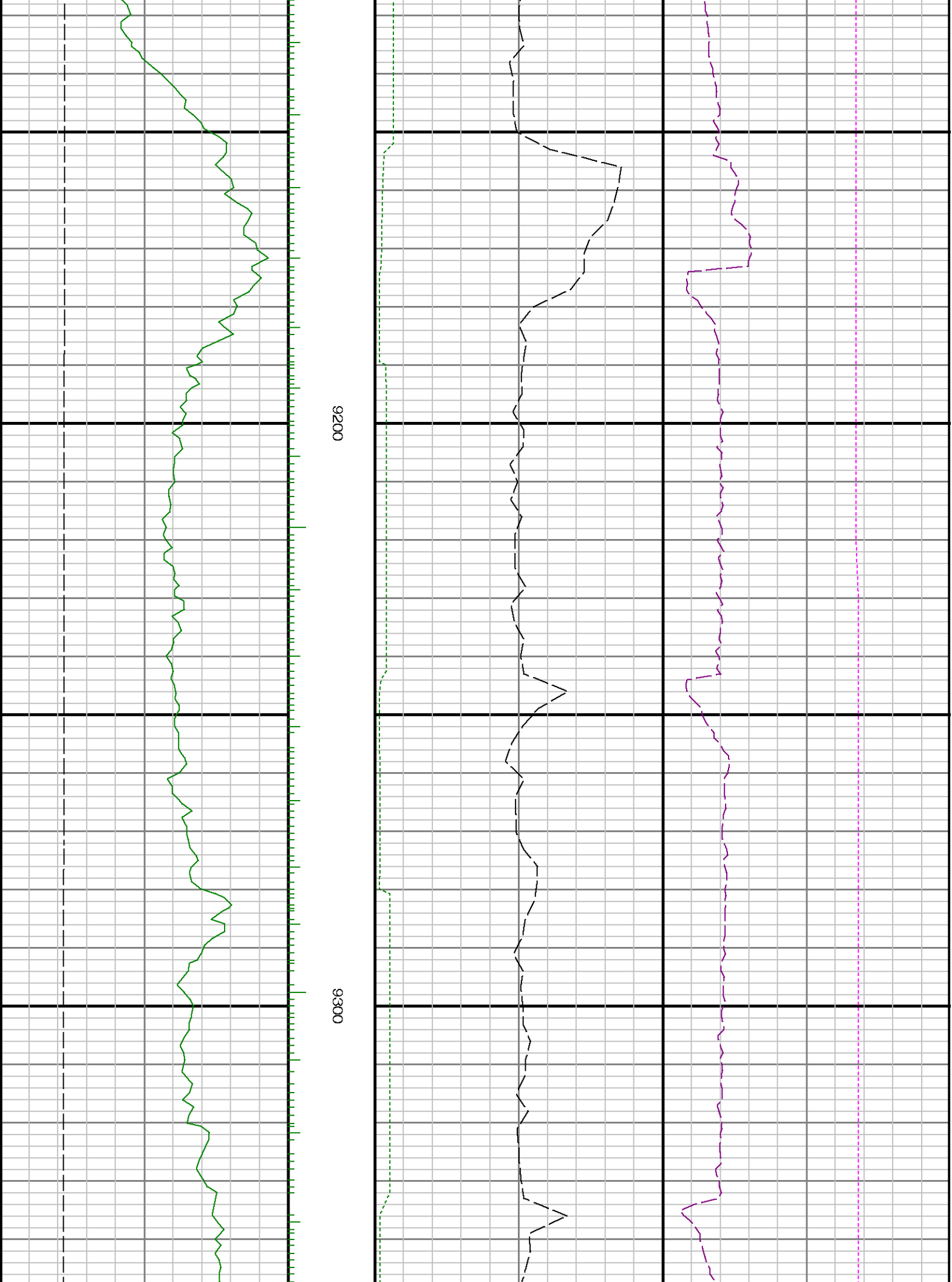
8500

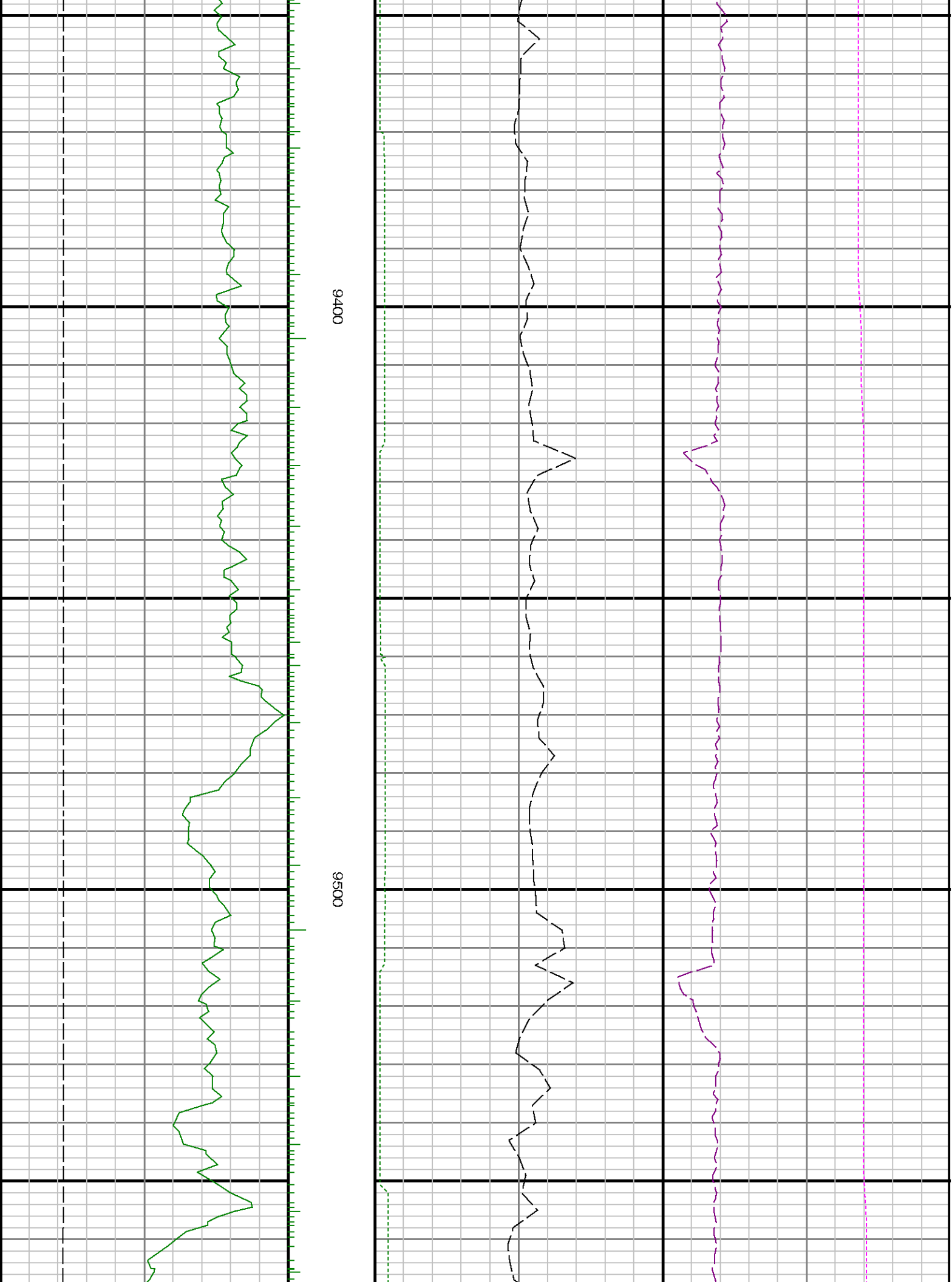
0098



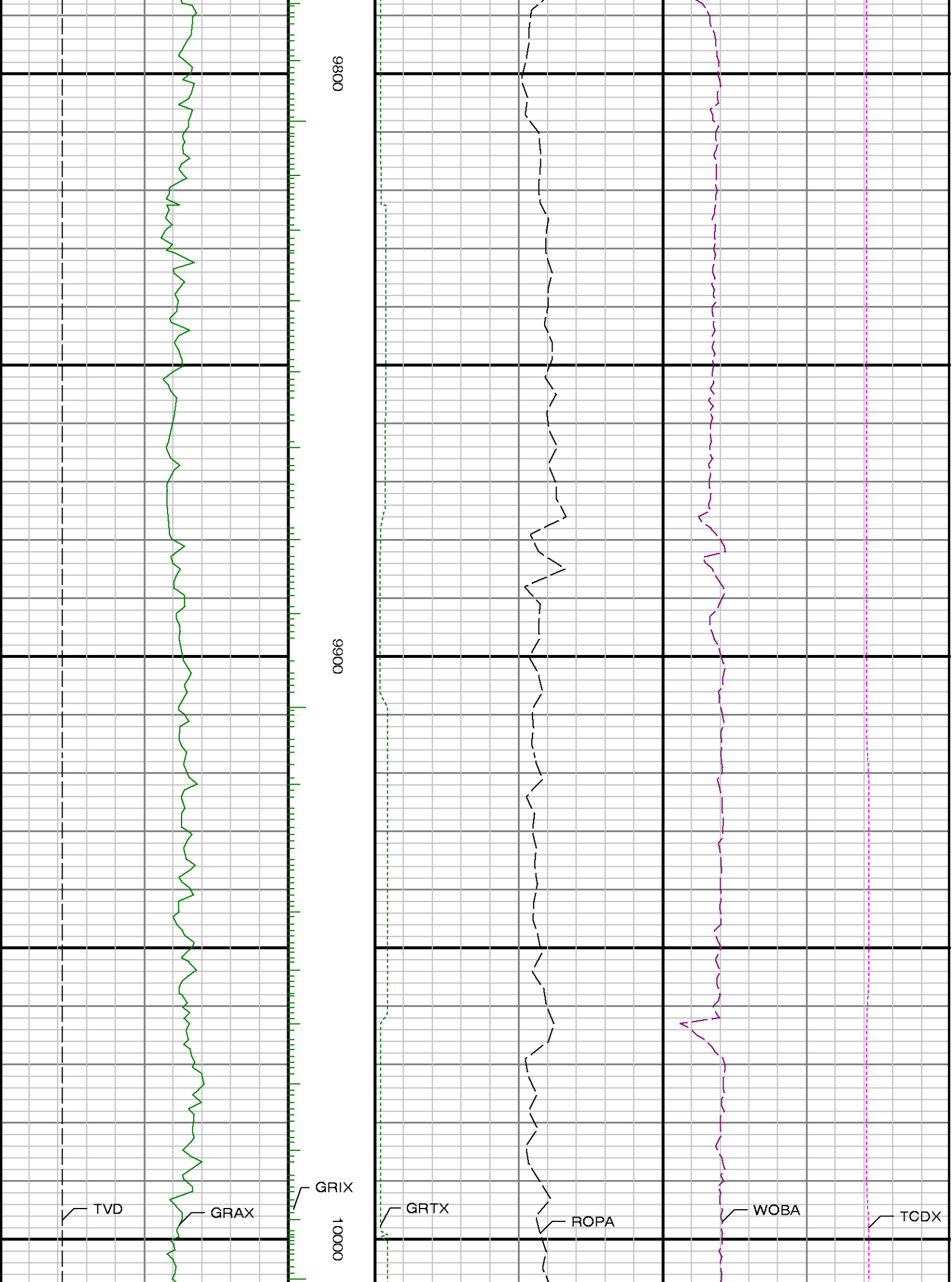








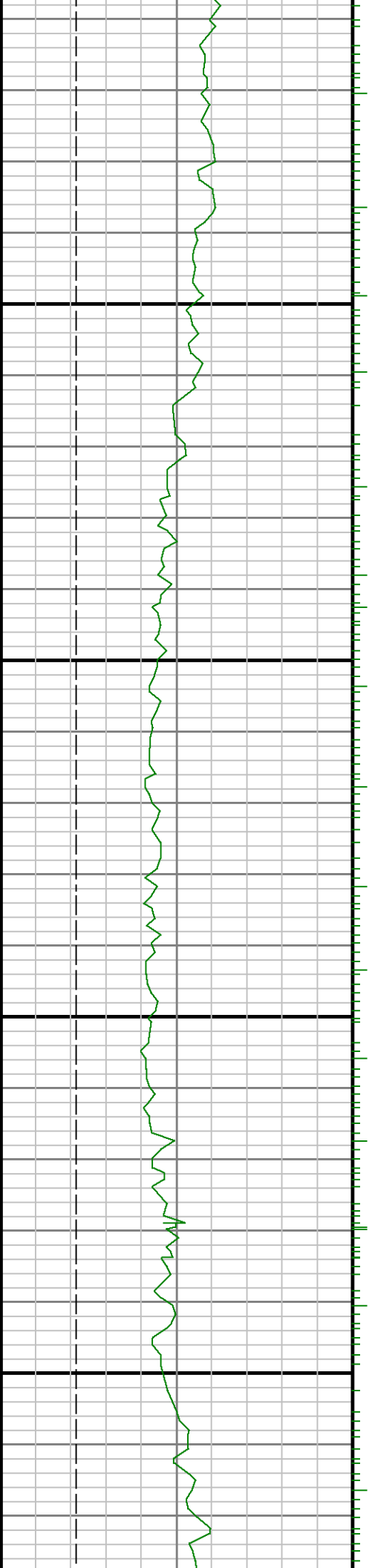


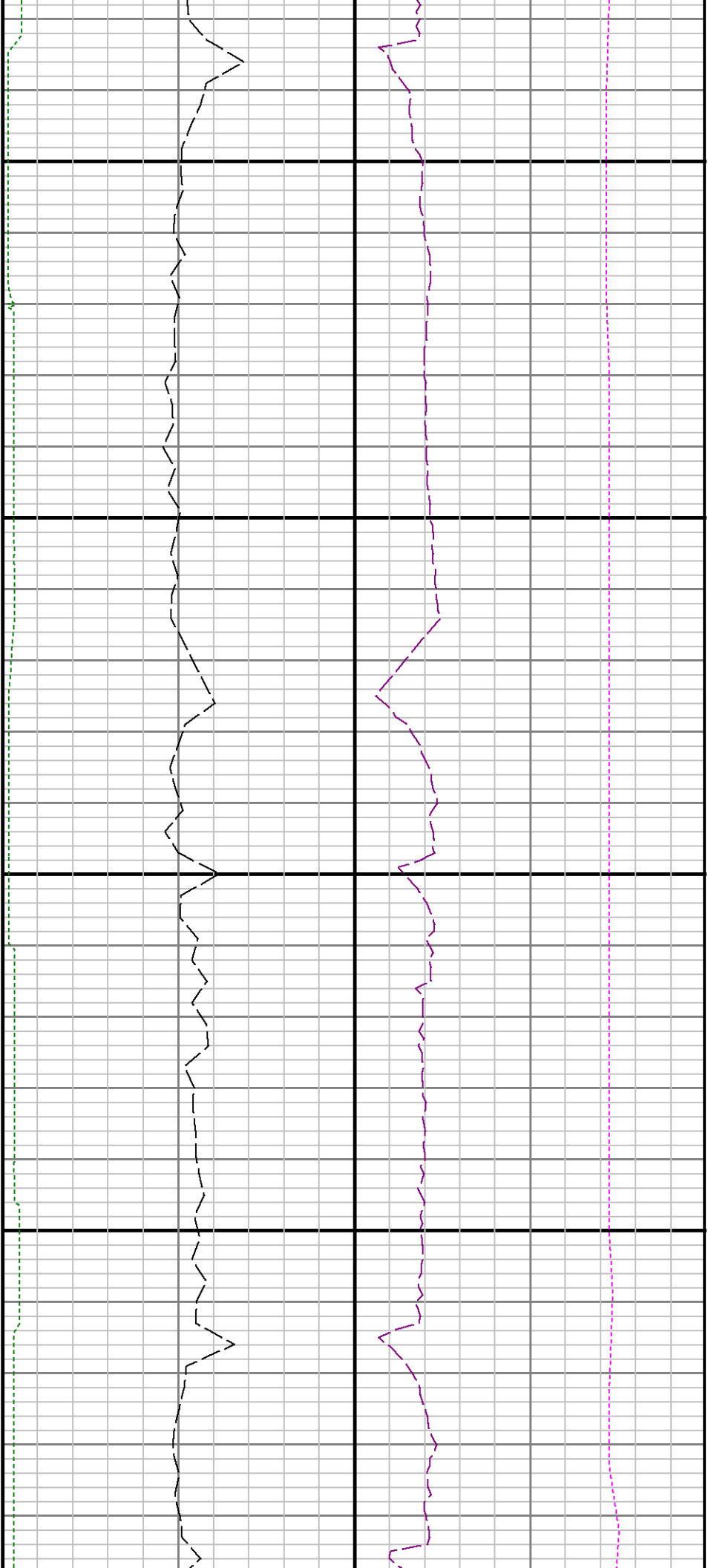




10100

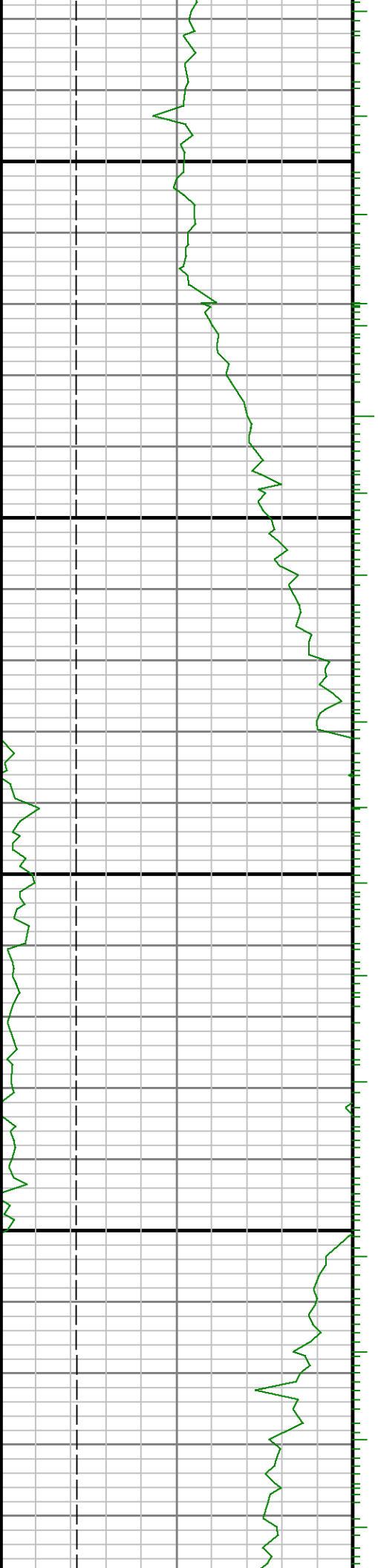
10200



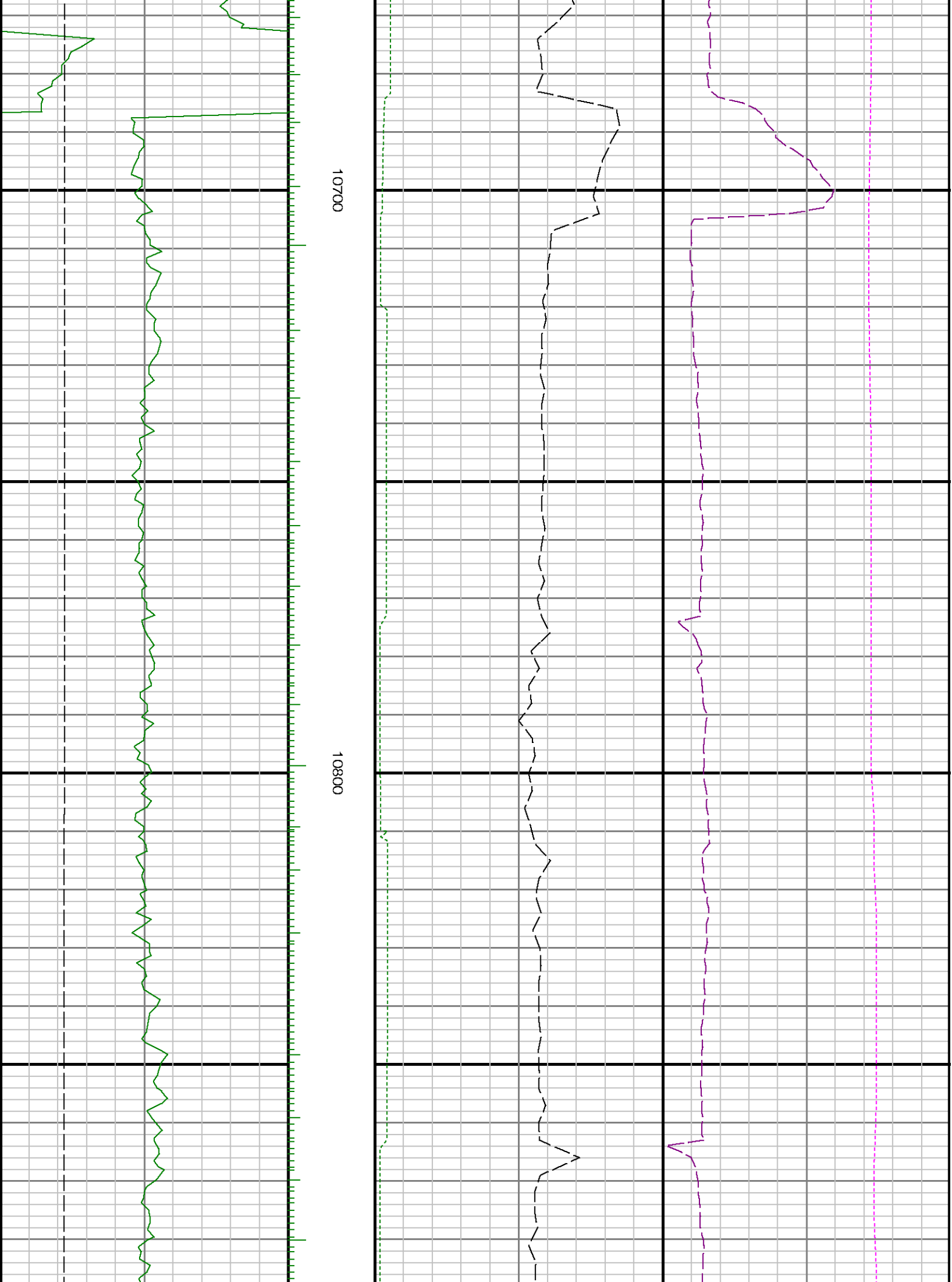


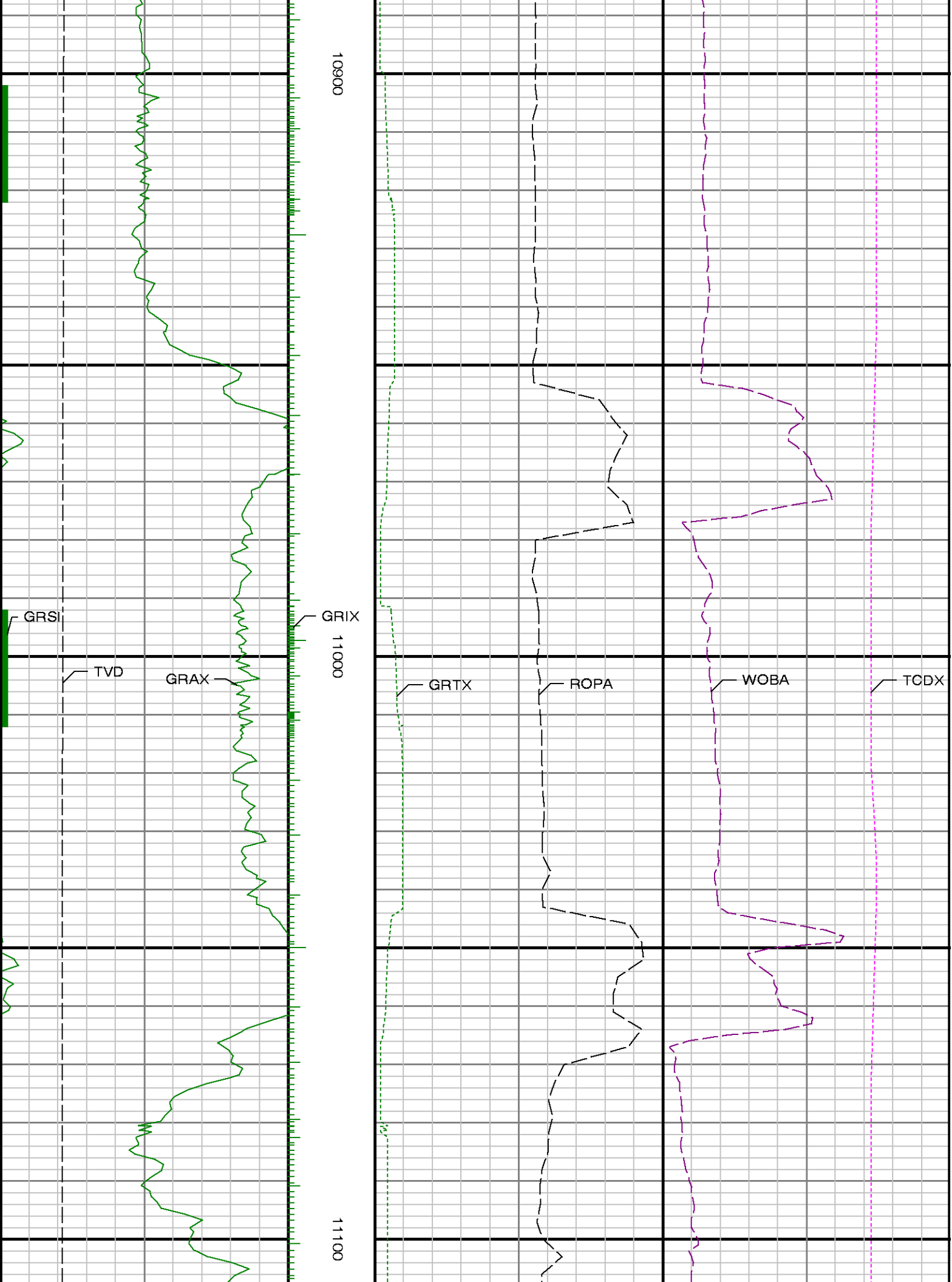
10300

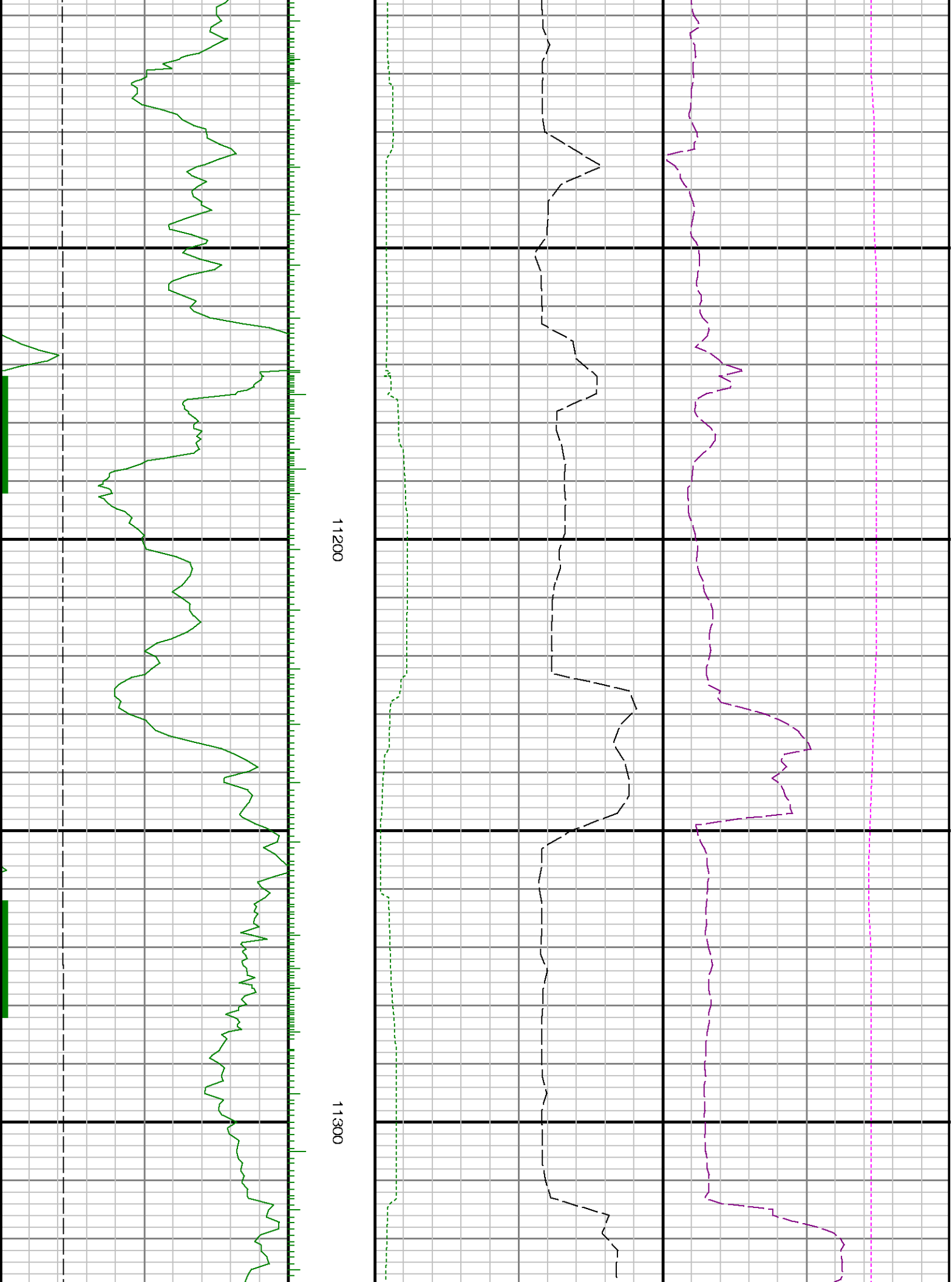
10400

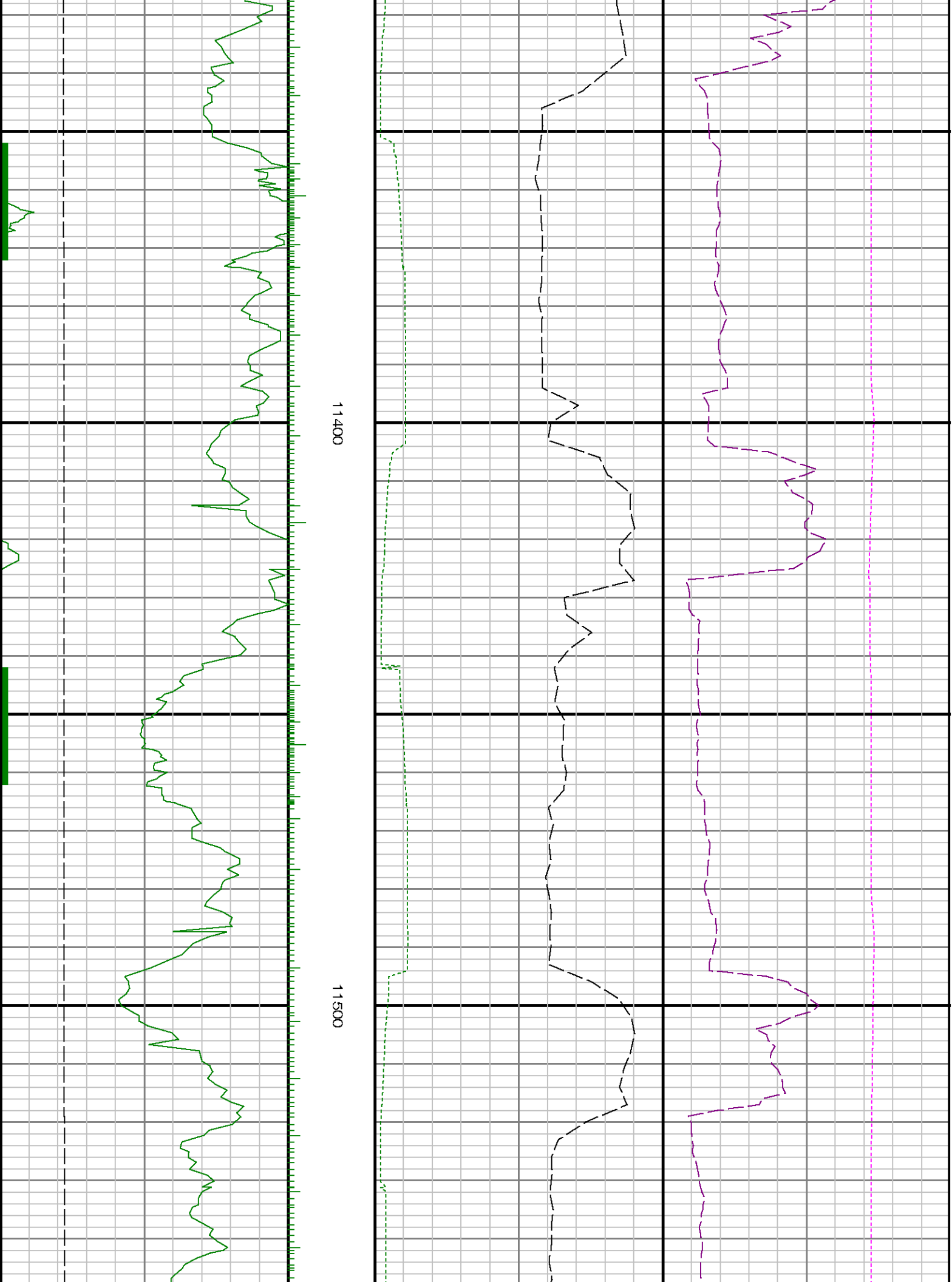


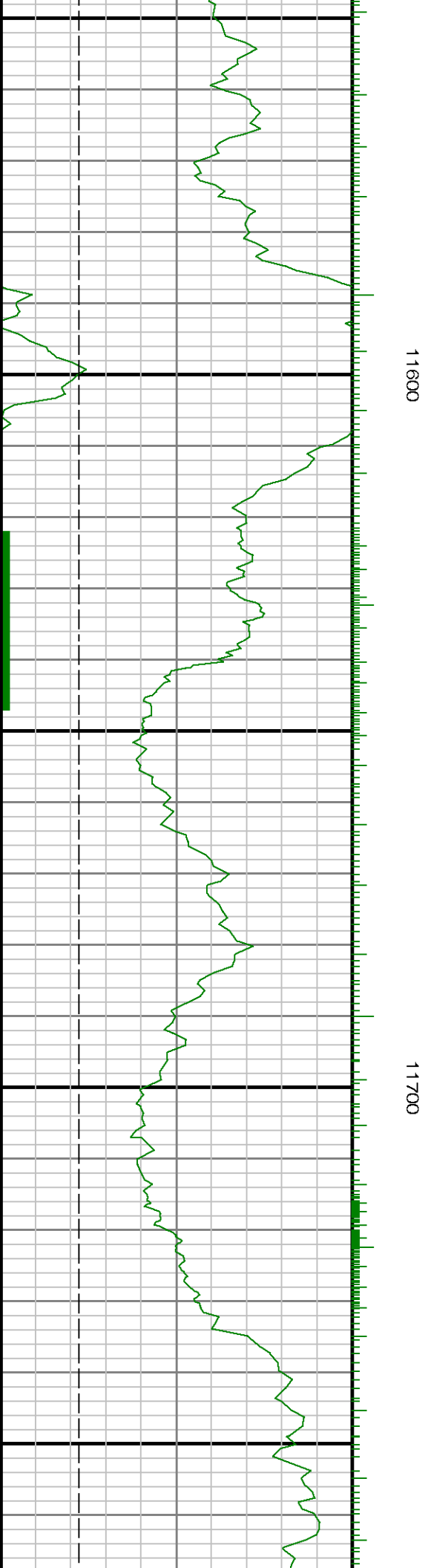
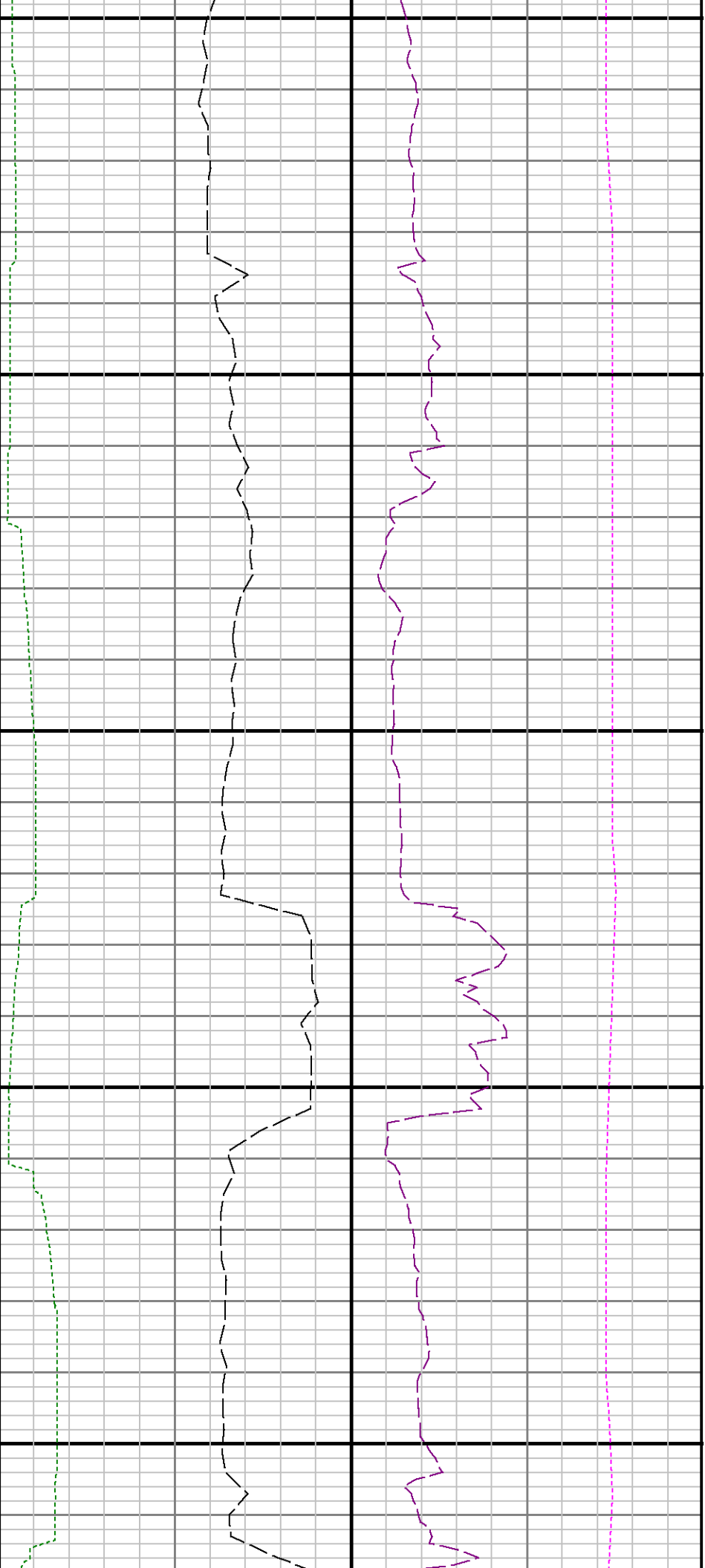


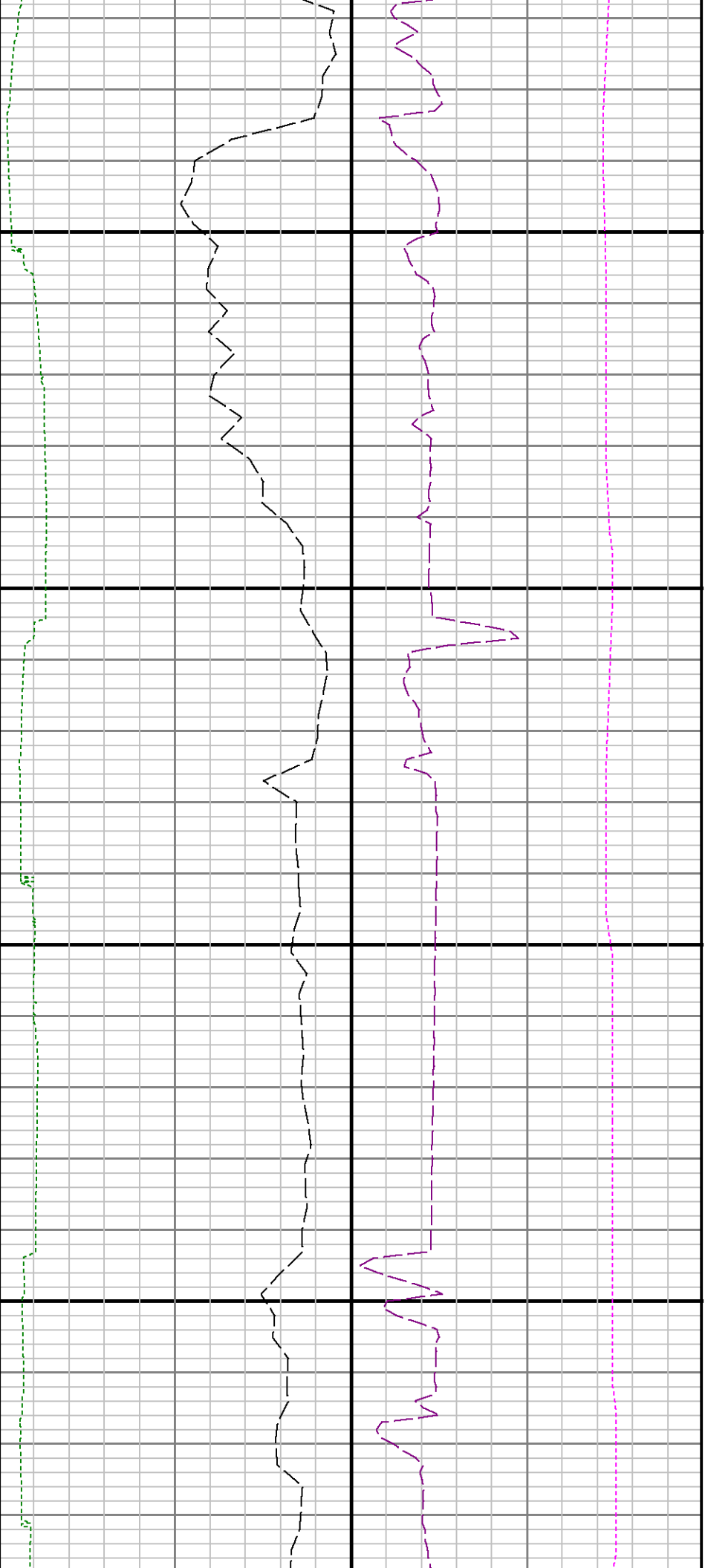






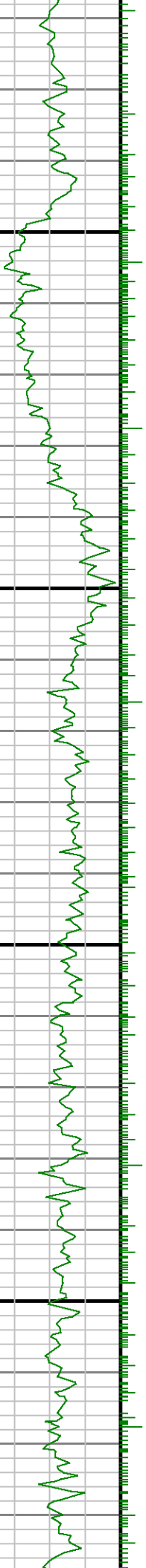


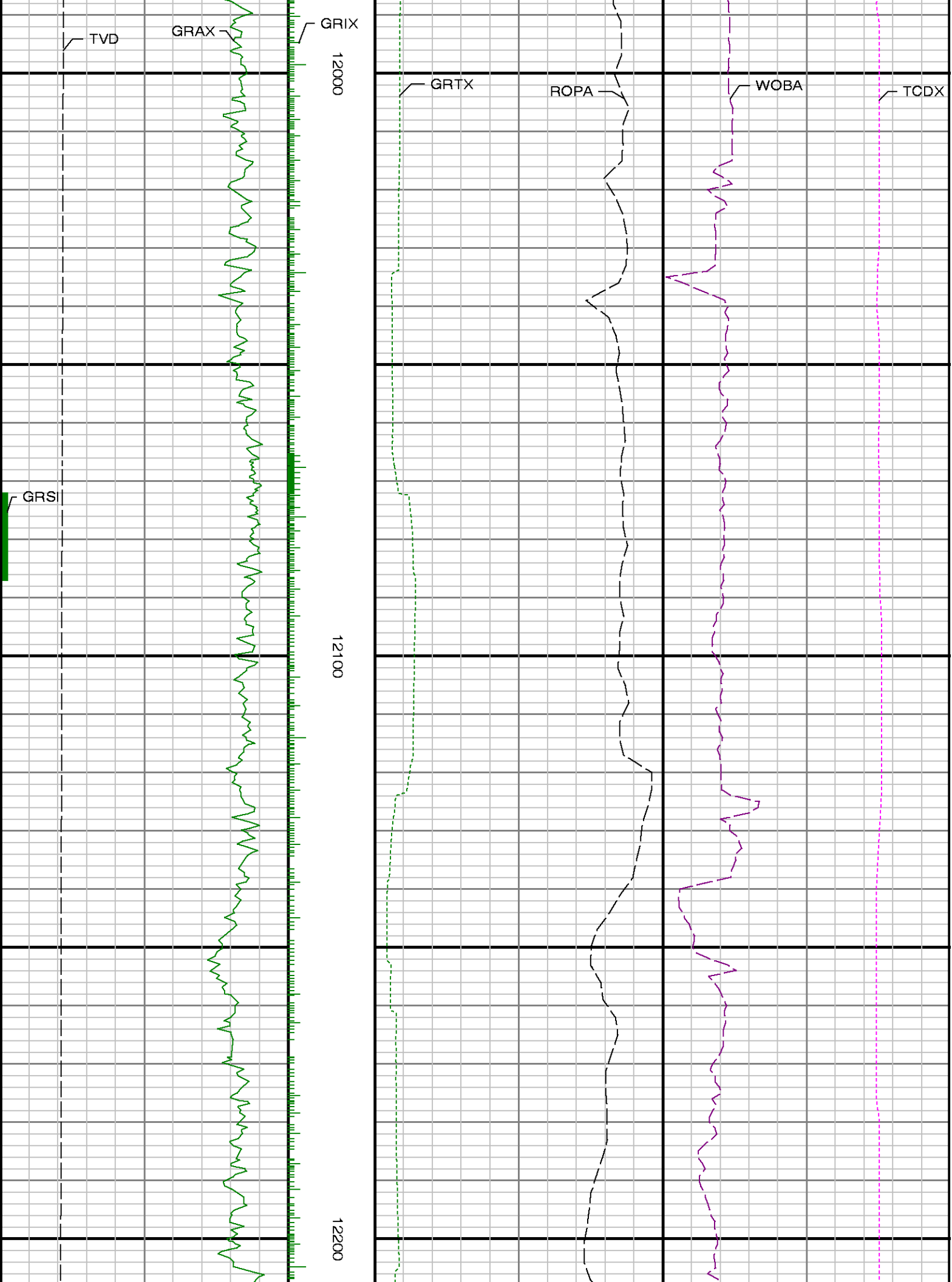


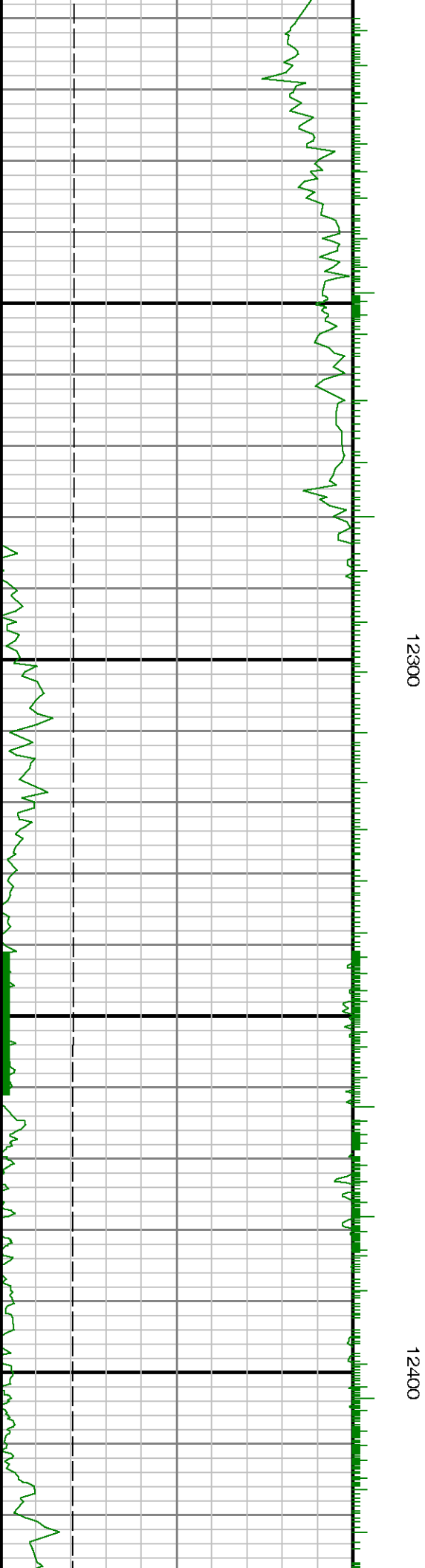


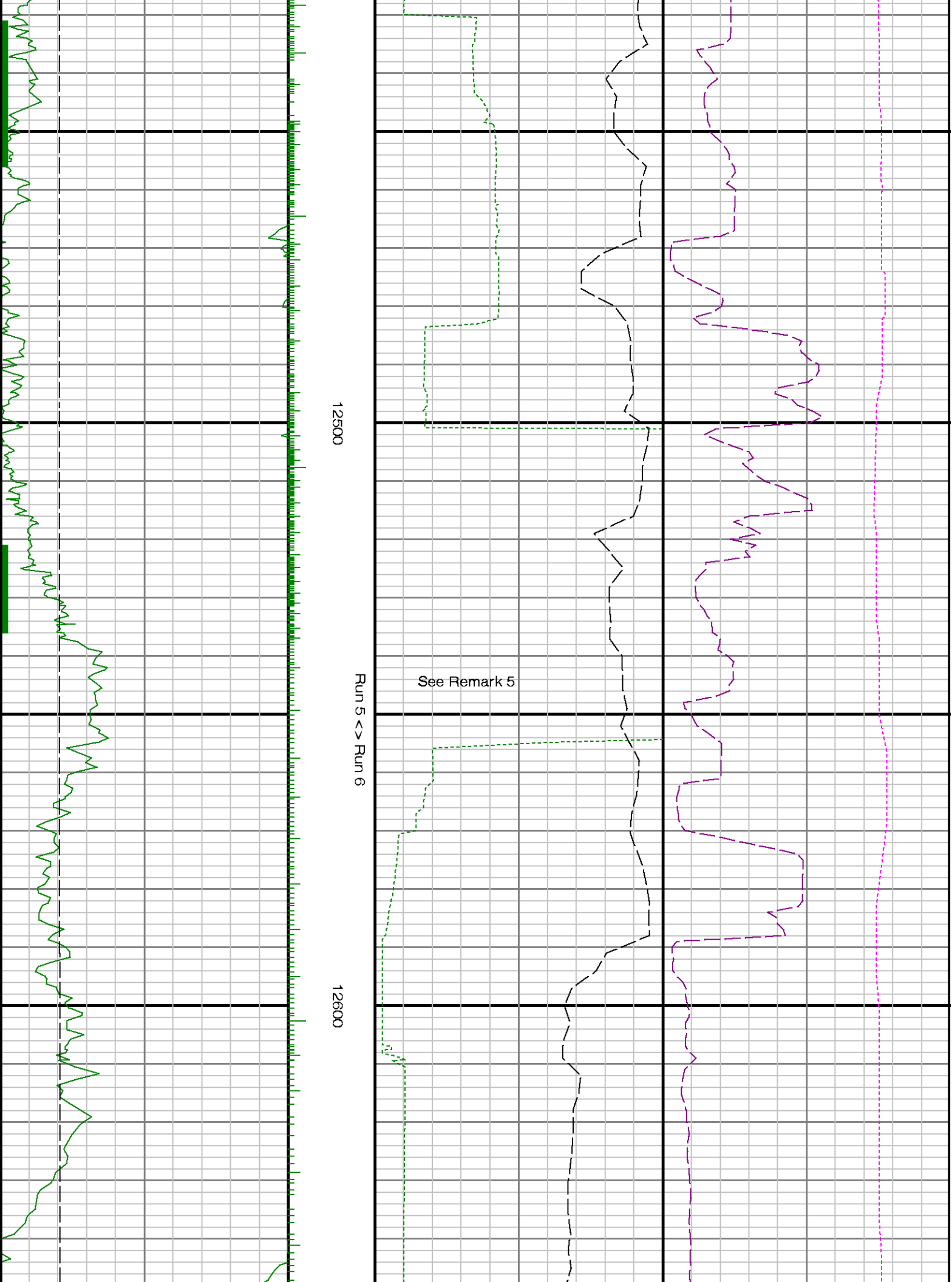
11800

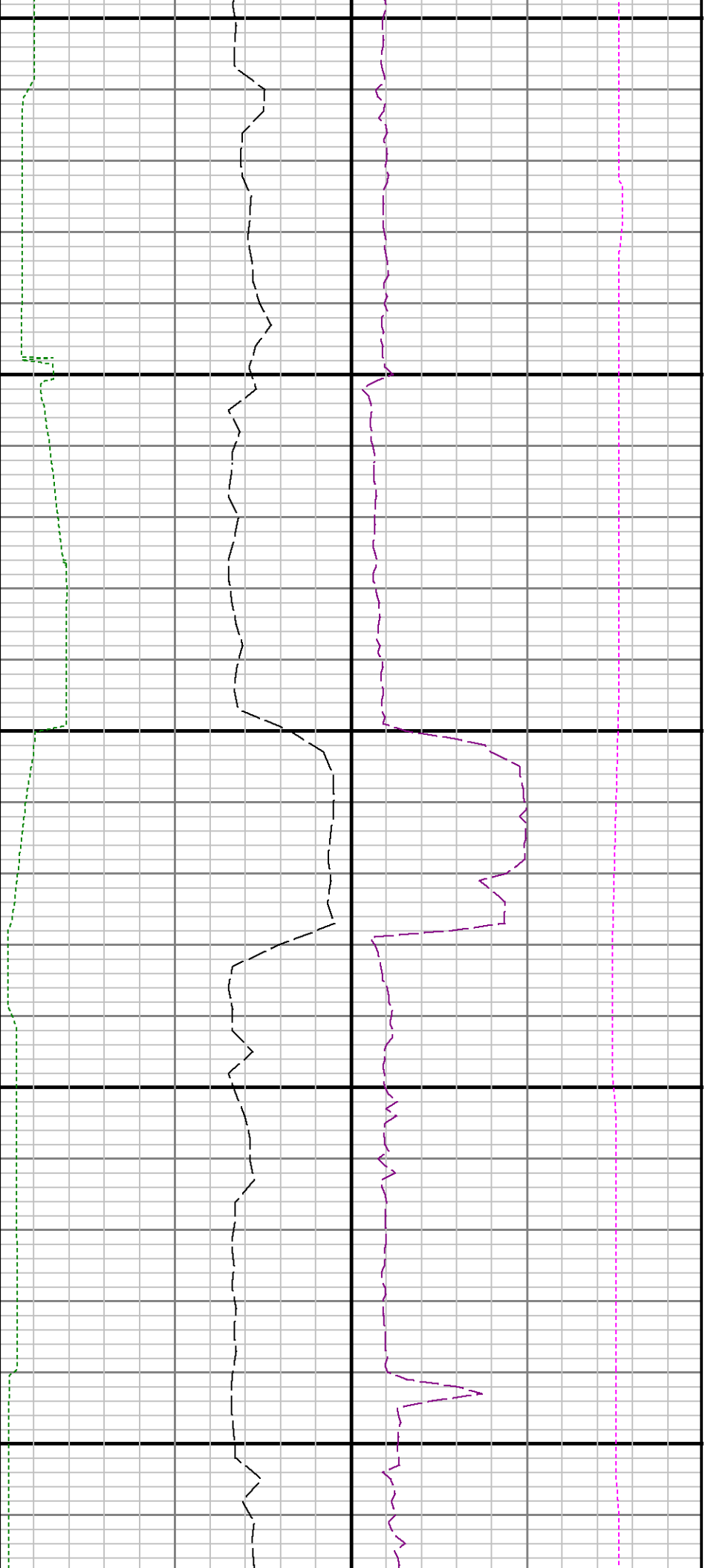
11900





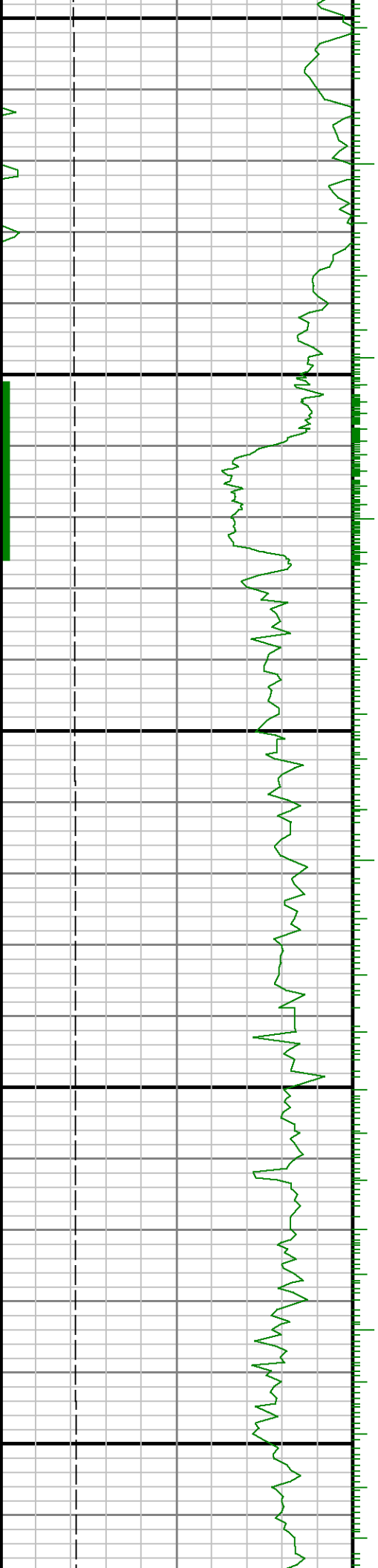


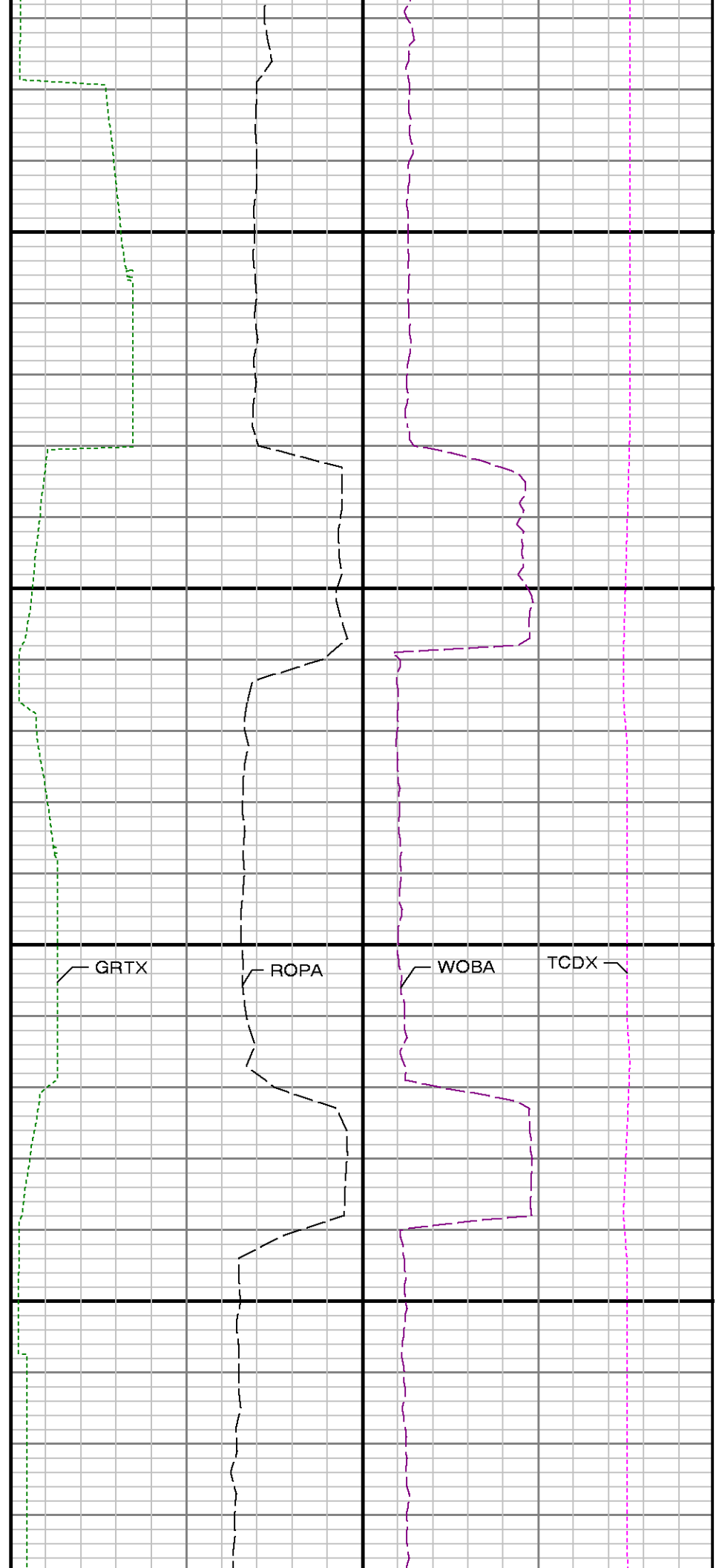
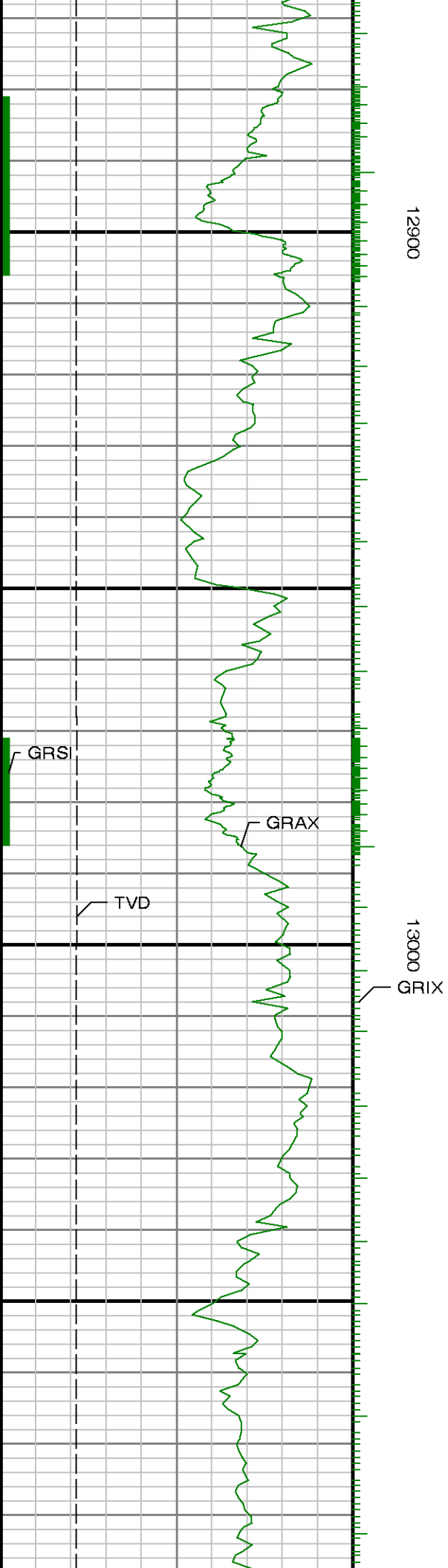


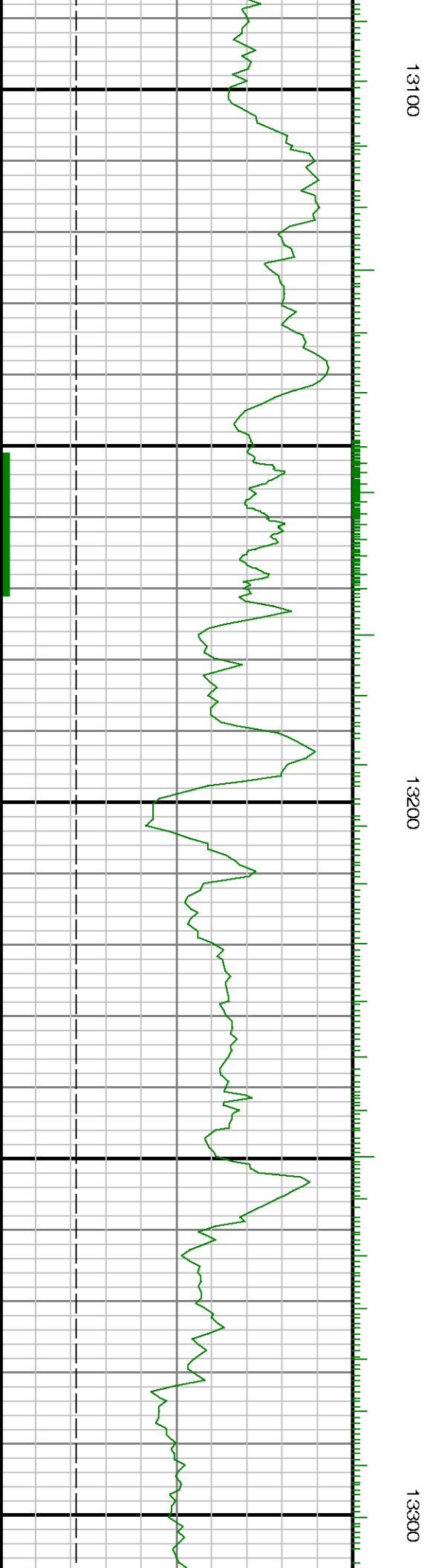


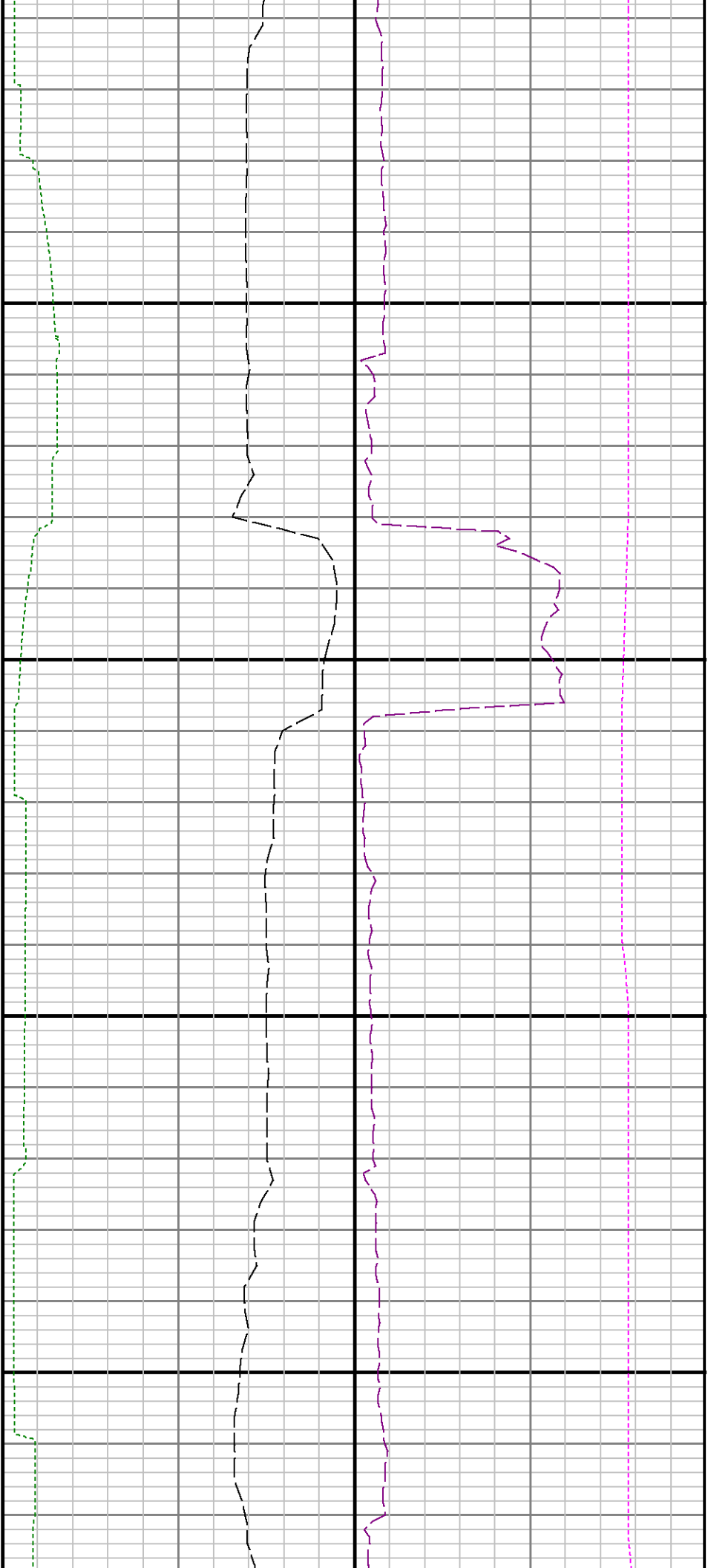
12700

12800



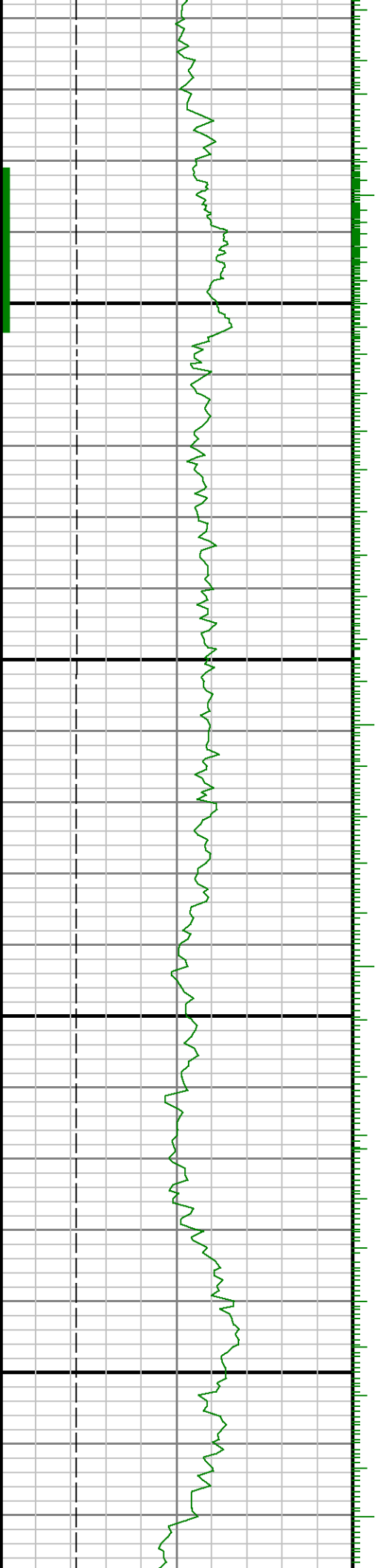


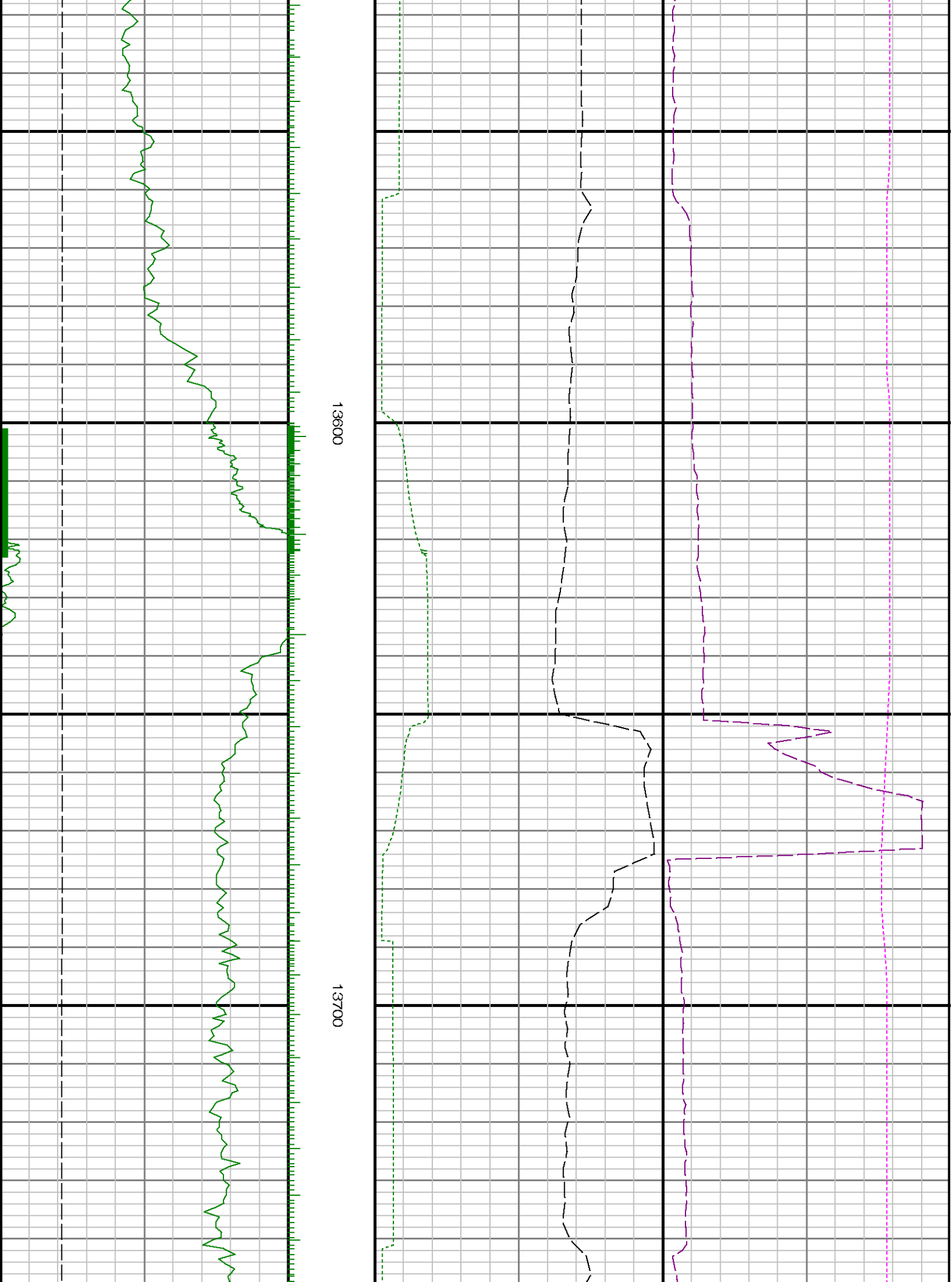




13400

13500

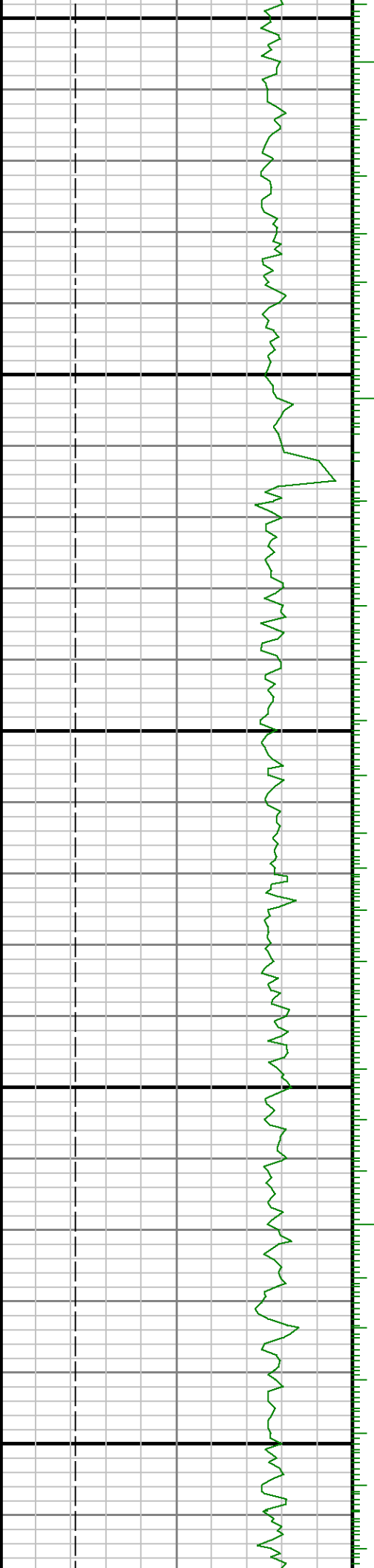


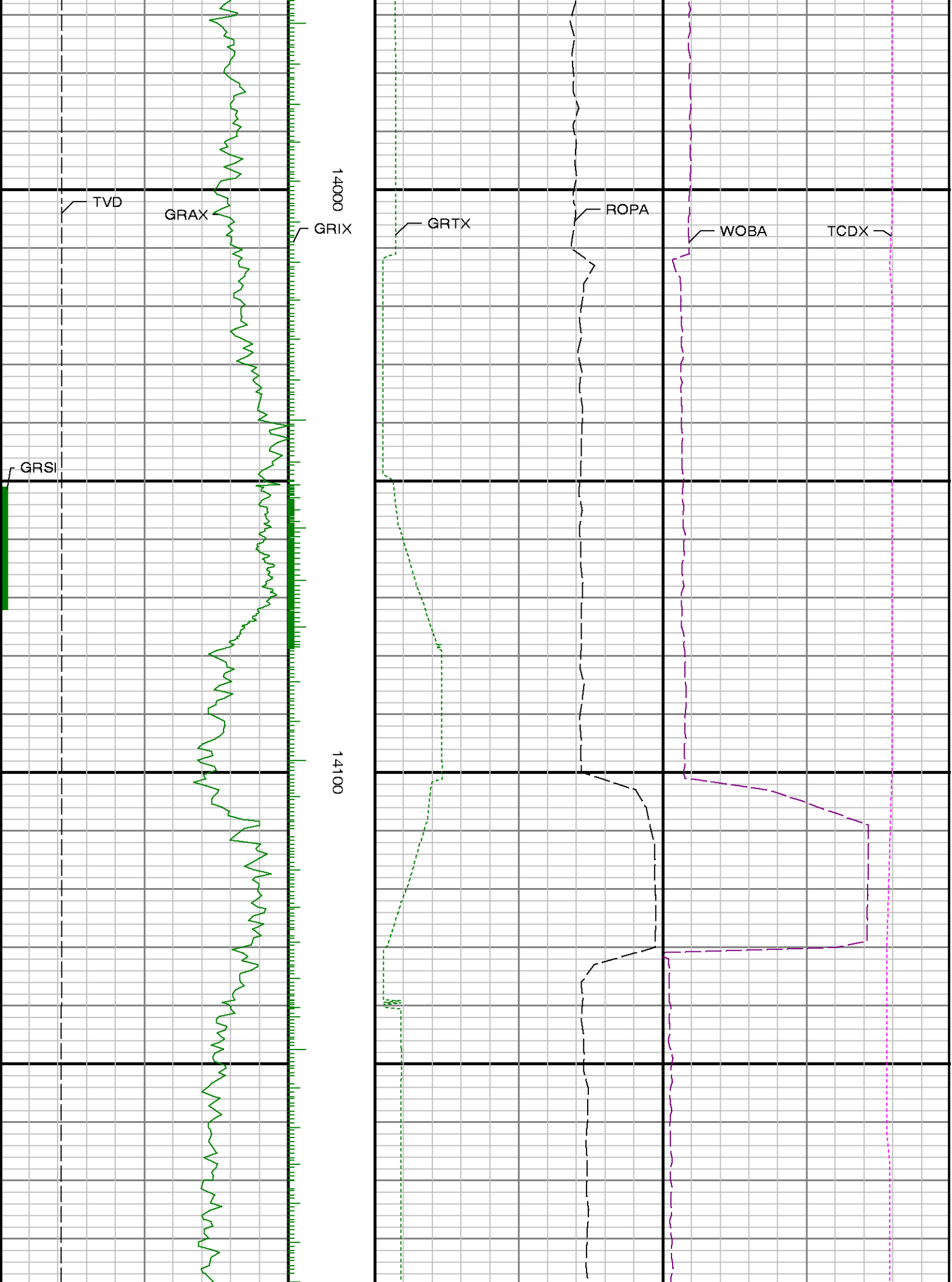


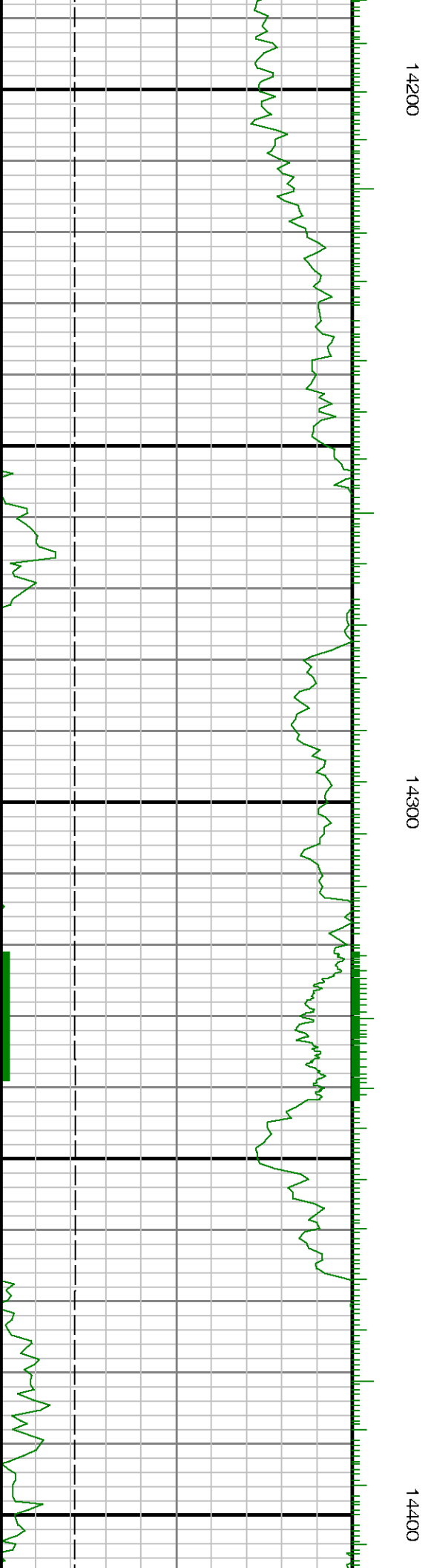


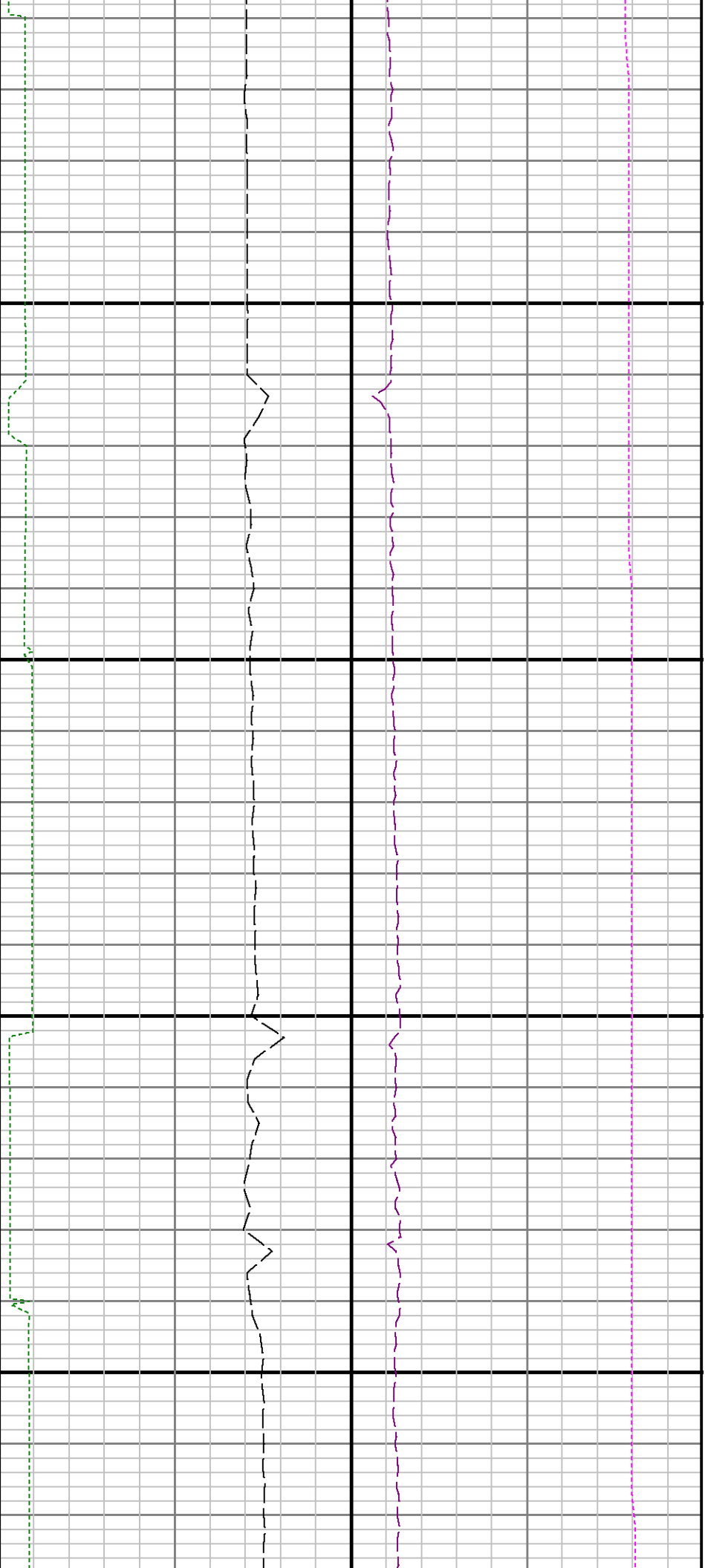
13800

13900









14500

14600

