



Realtime Log

Natural Formation Evaluation  
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Spurling 36C-34HZ

Measured Depth

Field: Weld County (Kerr McGee)

County: Weld State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 6' 3.593" N

API Number:

Longitude: 104° 52' 55.962" W

Other Services:

Directional  
VSS

SEC: 34 TWP: 2N RNG: 67W

Permanent Datum (P.D.): Ground Level Elevation: 5013.00 ft.

Log Measured From: Rig Floor 5029.00 ft. Above P.D.

Depth Reference: Driller's Depth

Elevations:

N/A

5029.00 ft.

5013.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 7130.0 ft. Date From: 18/Apr/14 Dip Angle: 66.68° Azi Reference North: True

Bottom: 12343.0 ft. Date To: 26/Apr/14 Total Mag to Reference

Spud Date: 18/Apr/14 Field Strength: 52858.0 nT North Correction: 8.61°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1086.0 ft.	9.625 in.	36.00 lb/ft	Surface	1075.0 ft.
8.750 in.	1075.0 ft.	8072.0 ft.	7.000 in.	26.00 lb/ft	Surface	8063.0 ft.
6.125 in.	8063.0 ft.	12343.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	5188.0 ft.	13.500 in.	1086.0 ft.	0.0° / 0.0°	0.5° / 22.9°
Water Based	5188.0 ft.	12343.0 ft.	8.750 in.	6997.0 ft.	0.5° / 15.2°	90.3° / 178.7°
			6.125 in.	4282.1 ft.	89.7° / 178.6°	88.7° / 178.3°
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig:	Xtreme 6	/	Xtreme Coil Drilling Corp
PAIS	6.4.1.34	Job No:	6304385		
		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	6.000	Steerable	7130.0	7450.0	1085.0	7450.0	18/Apr/2014 02:30	20/Apr/2014 19:00		38.1	
2	2	3	8.750	PDC	6.000	Steerable	N/A	N/A	N/A	N/A	20/Apr/2014 19:45	21/Apr/2014 13:30		6.6	
3	3	3	8.750	PDC	6.000	Steerable	7405.0	8072.0	7450.0	8072.0	21/Apr/2014 14:00	22/Apr/2014 21:50		19.4	
4	4	4	6.125	PDC	4.800	Steerable	8025.0	12343.0	8072.0	12343.0	23/Apr/2014 20:00	26/Apr/2014 05:30		29.8	

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	17/Apr/2014	26/Apr/2014	Stephen Gray	17/Apr/2014	26/Apr/2014			

Witness

Name	LWD Run Number
David Cornett	1, 2, 3, 4
Joe Wallum	1, 2, 3, 4

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+ (%)
17/Apr/2014 22:00	1	1075.0	Fresh Water	8.5	27	7.3	N/A	0 / 99	Active Pit	400	N/A
18/Apr/2014 09:00	1	1282.0	Fresh Water	8.5	27	7.5	N/A	0 / 99	Active Pit	400	N/A
18/Apr/2014 22:00	1	3456.0	Fresh Water	8.6	28	7.7	N/A	0 / 99	Active Pit	400	N/A
19/Apr/2014 6:00	1	4502.0	Fresh Water	8.7	29	8.0	N/A	0 / 98	Active Pit	700	N/A
19/Apr/2014 22:00	1	6699.0	Water Based	9.9	42	9.7	5.0	0 / 92	Active Pit	2300	N/A
20/Apr/2014 10:00	1	7451.0	Water Based	10.0	42	9.6	4.8	0 / 92	Active Pit	2600	N/A
20/Apr/2014 21:00	2	7451.0	Water Based	10.1	44	9.3	5.0	0 / 92	Active Pit	2700	N/A
21/Apr/2014 9:00	2	7451.0	Water Based	10.2	42	8.9	5.1	0 / 91	Active Pit	2900	N/A
21/Apr/2014 21:30	3	7528.0	Water Based	10.1	41	9.2	5.2	0 / 91	Active Pit	2800	N/A
22/Apr/2014 11:00	3	8030.0	Water Based	10.1	41	9.1	4.8	0 / 91	Active Pit	2900	N/A
22/Apr/2014 16:00	3	8072.0	Water Based	10.1	42	9.4	4.7	0 / 91	Active Pit	2900	N/A
23/Apr/2014 21:30	4	8069.0	Water Based	9.2	40	9.1	4.8	0 / 95	Active Pit	2700	N/A
24/Apr/2014 10:00	4	8111.0	Water Based	9.2	43	9.7	4.7	0 / 95	Active Pit	2800	N/A
24/Apr/2014 22:00	4	9772.0	Water Based	9.3	45	9.4	4.5	0 / 94	Active Pit	2700	N/A
25/Apr/2014 10:00	4	11202.0	Water Based	9.6	44	9.5	0.0	1 / 92	Active Pit	2800	N/A
25/Apr/2014 20:30	4	12343.0	Water Based	9.8	41	9.3	0.0	1 / 91	Active Pit	2700	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.)
1	DIR	12497612	Directional	46.98	6.750	3.250
1	SRIG	12521741	Gamma	43.61	6.750	3.250

2	DIR	12497612	Directional	40.43	6.750	3.250
2	SRIG	12521741	Gamma	37.06	6.750	3.250
3	DIR	11685175	Directional	38.54	6.750	3.250
3	SRIG	12283328	Gamma	35.17	6.750	3.250
4	DIR	12456778	Directional	47.16	4.750	2.750
4	SRIG	12342306	Gamma	43.78	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

- 1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1086 to 7130 ft. MD (1086.99 to 7007.09 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 7130 to 7450 ft. MD (7007.09 to 7319.23 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
- 2.) Baker Hughes LWD run 2, while tripping to bottom became stuck at a depth of 6272 ft. MD. After drillstring was freed up high pressure was noted and it was decided to trip out and laydown BHA as a precaution.
- 3.) Baker Hughes LWD run 3 utilized 6 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7450 to 8072 ft. MD (7319.23 ft. to 7653.39 TVD) behind an 8 3/4 inch bit and steerable assembly.
- 4.) Baker Hughes LWD run 4 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 8072 to 12343 ft. MD (7653.39 ft. to 7655.76 TVD) behind an 6 1/8 inch bit and steerable assembly.
- 5.) 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.
- 6.) 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  Depth  (ft)	Hole  Section  (in.)	LWD  Run No.	Remark
1	7450	8.750	3	The interval from 7405 to 7533 ft. MD (7276.17 to 7369.19 ft. TVD) was logged up to 35.5 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly from run 1, the curve assembly from run 2, a trip in the hole to 6272 ft. MD, a trip back to surface from 6272 ft. MD, and to pick up the curve assembly for run 3.
2	7625	8.750	4	The interval from 8036 to 8075 ft. MD (7653.54 to 7654.02 ft. TVD) was logged up to 46.5 hours after being drilled due to a trip out of the hole to lay down the curve assembly, run intermediate casing and cementing operations, and to pick up the lateral assembly.
3	12321	6.125	4	The interval from 12,299 to 12,343 ft. MD (7256.63 to 7258.09 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.



Company : Anadarko

Well : Spurling 36C-34HZ

Interval : 7120.00 - 12355.00 feet

Created : 25/Apr/2014 4:23:35 PM

Gamma Ray Apparent 0.5 ft Avg GRAX

0150

API

True Vertical Depth TVD

MD feet 1:240

Rate of Penetration 3.0 ft Avg ROPA

5000

ft/hr

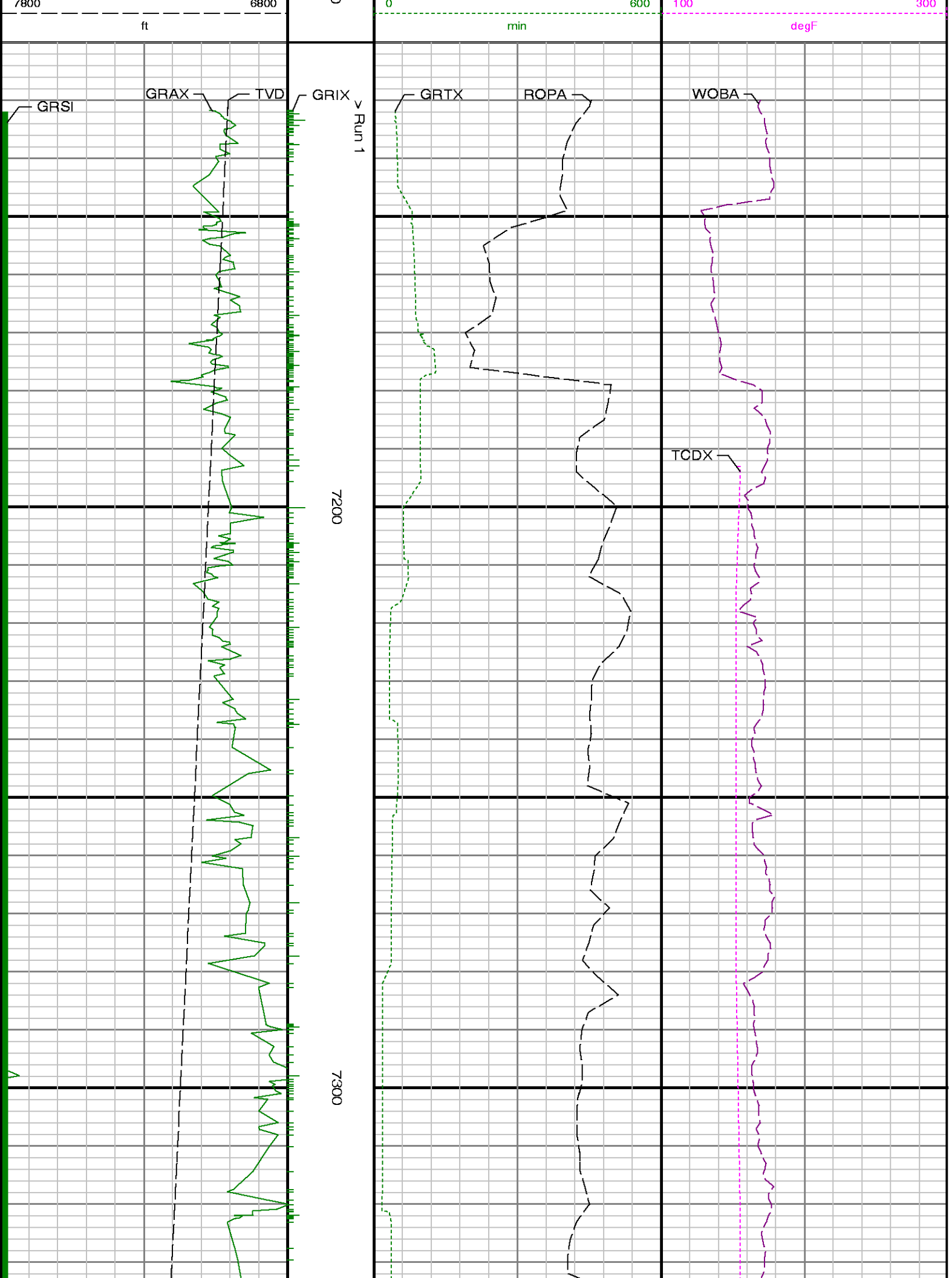
Gamma Time Since Drilled GRTX

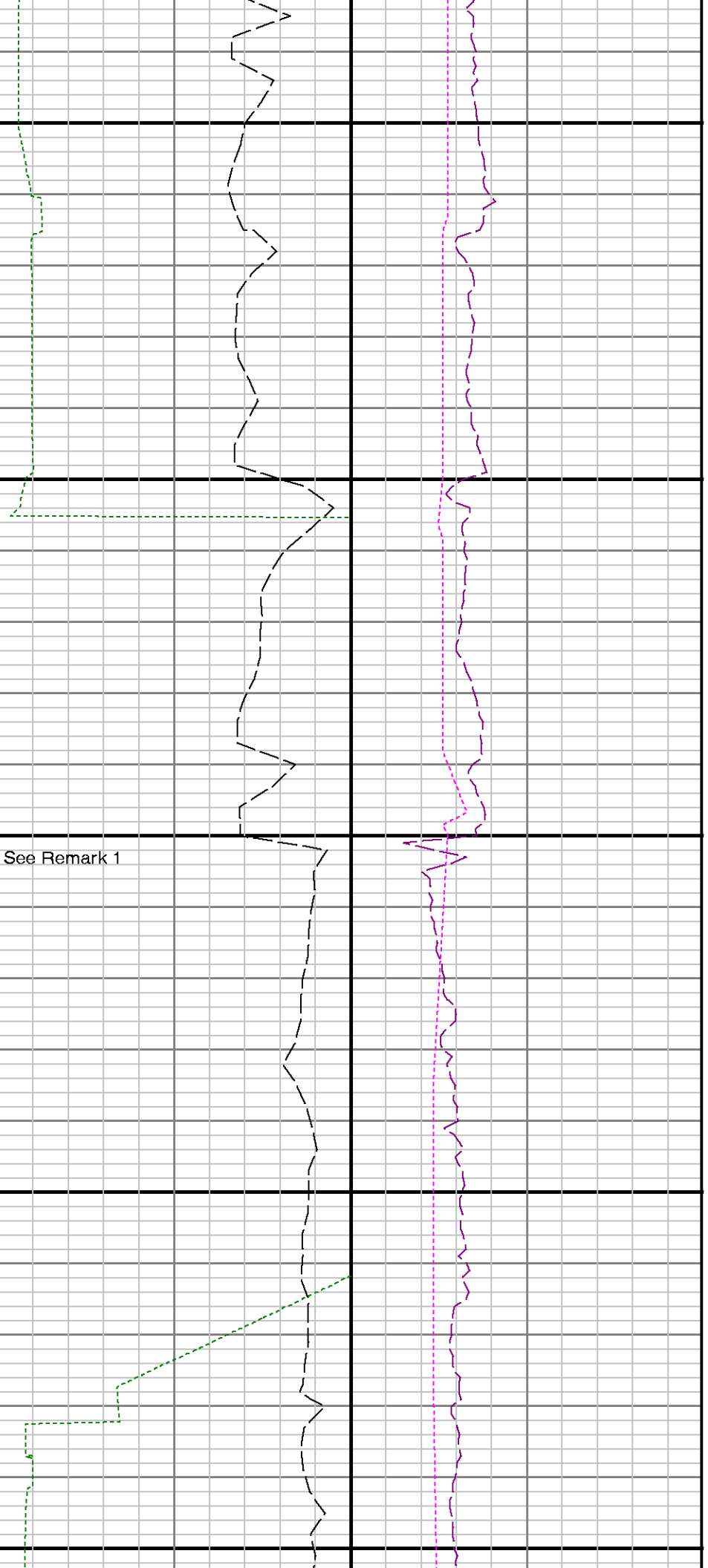
Surface Weight On Bit 1.0 ft Avg WOBA

0100

klbf

Downhole Temperature TCDX



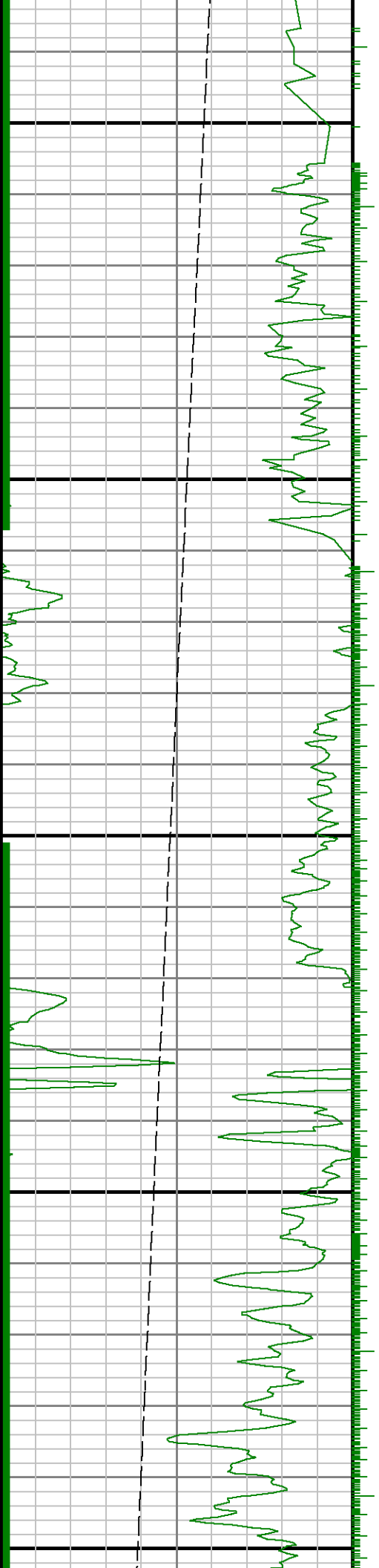


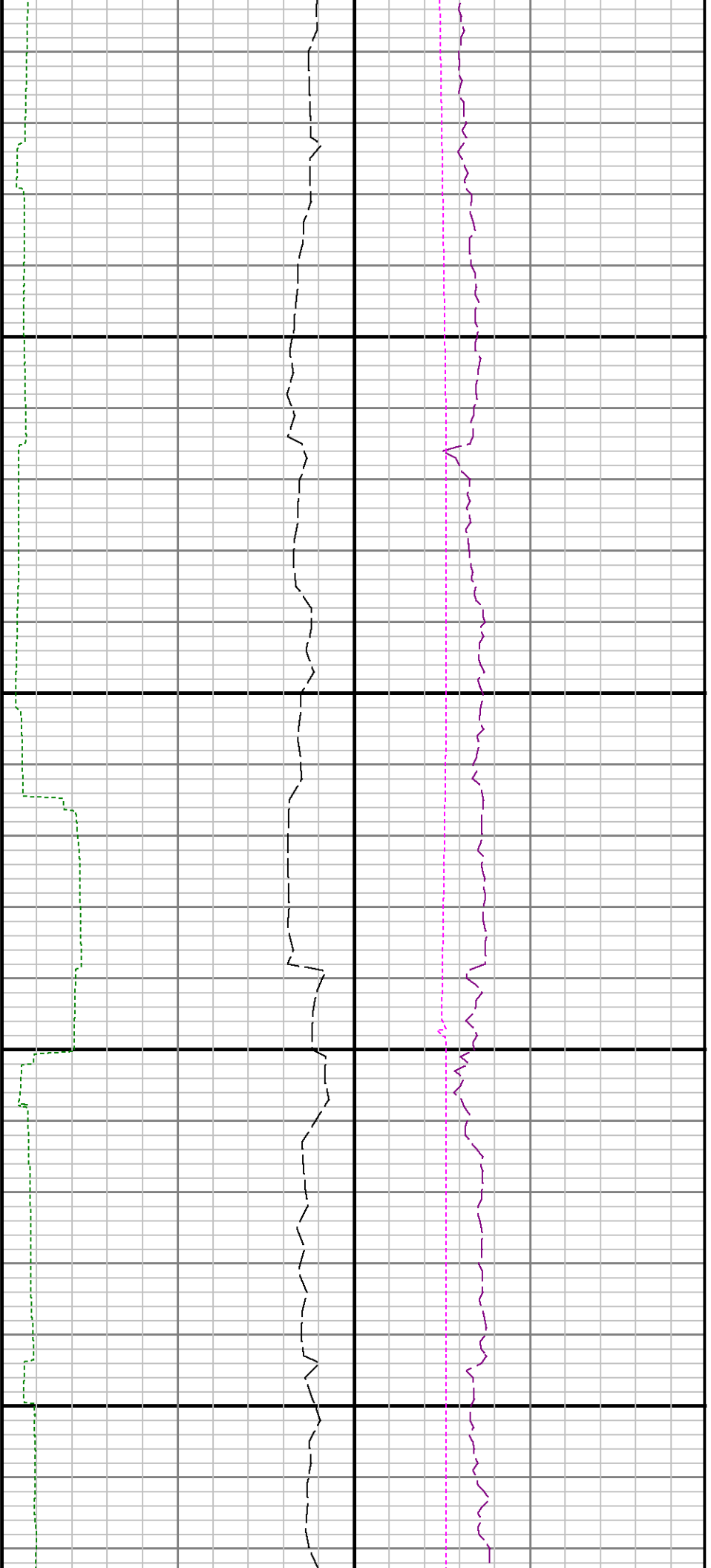
See Remark 1

7400

7500

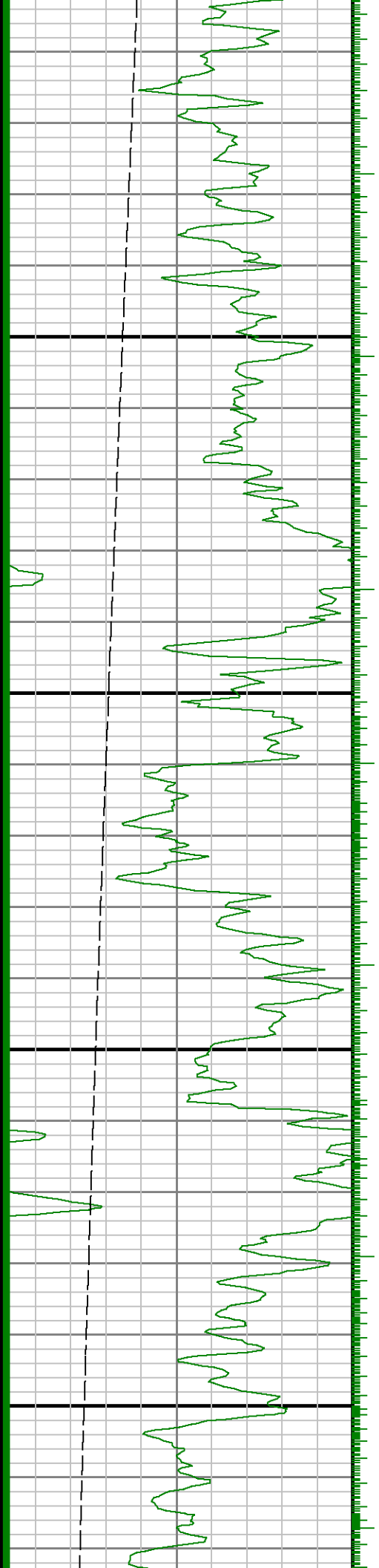
Run 1 < > Run 3

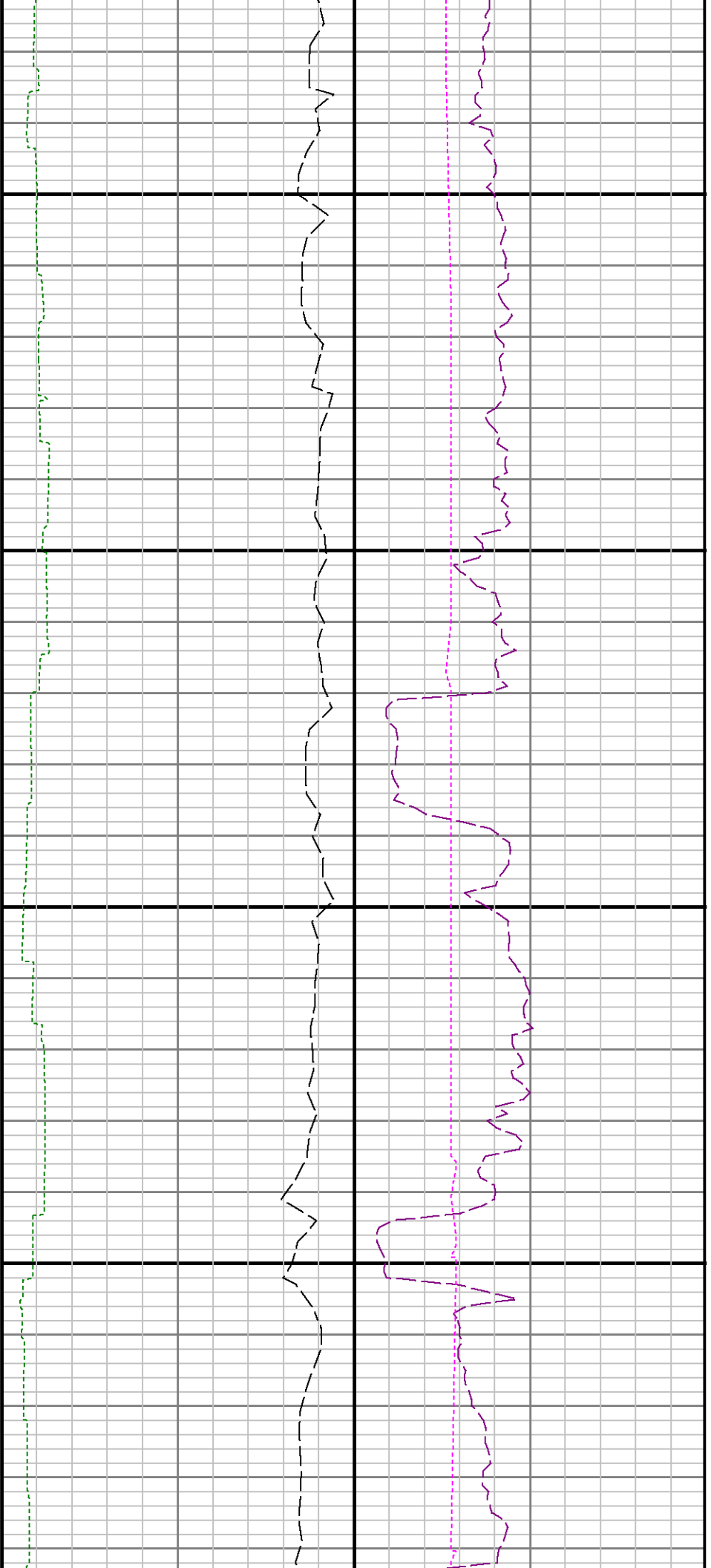




7600

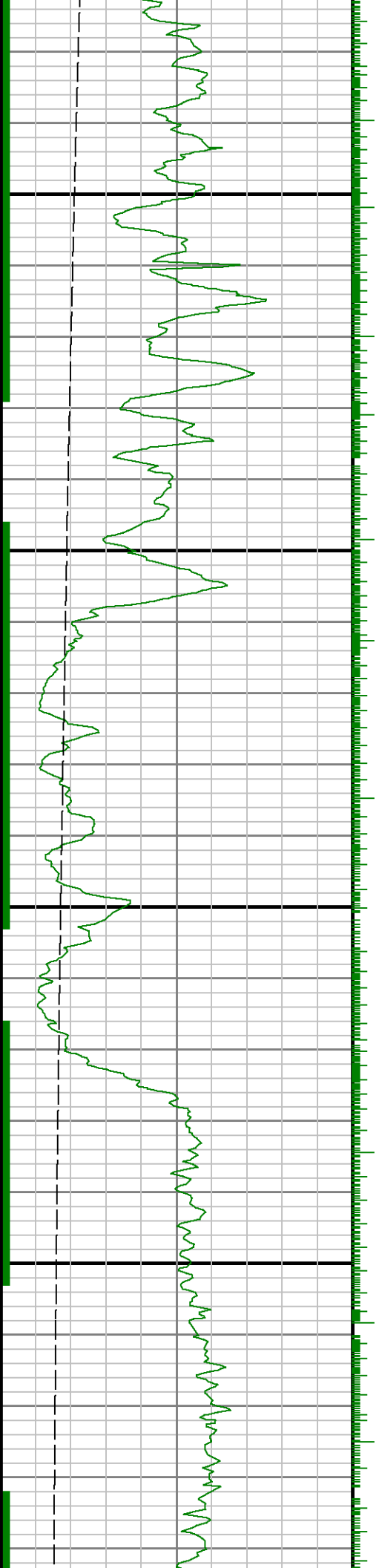
7700

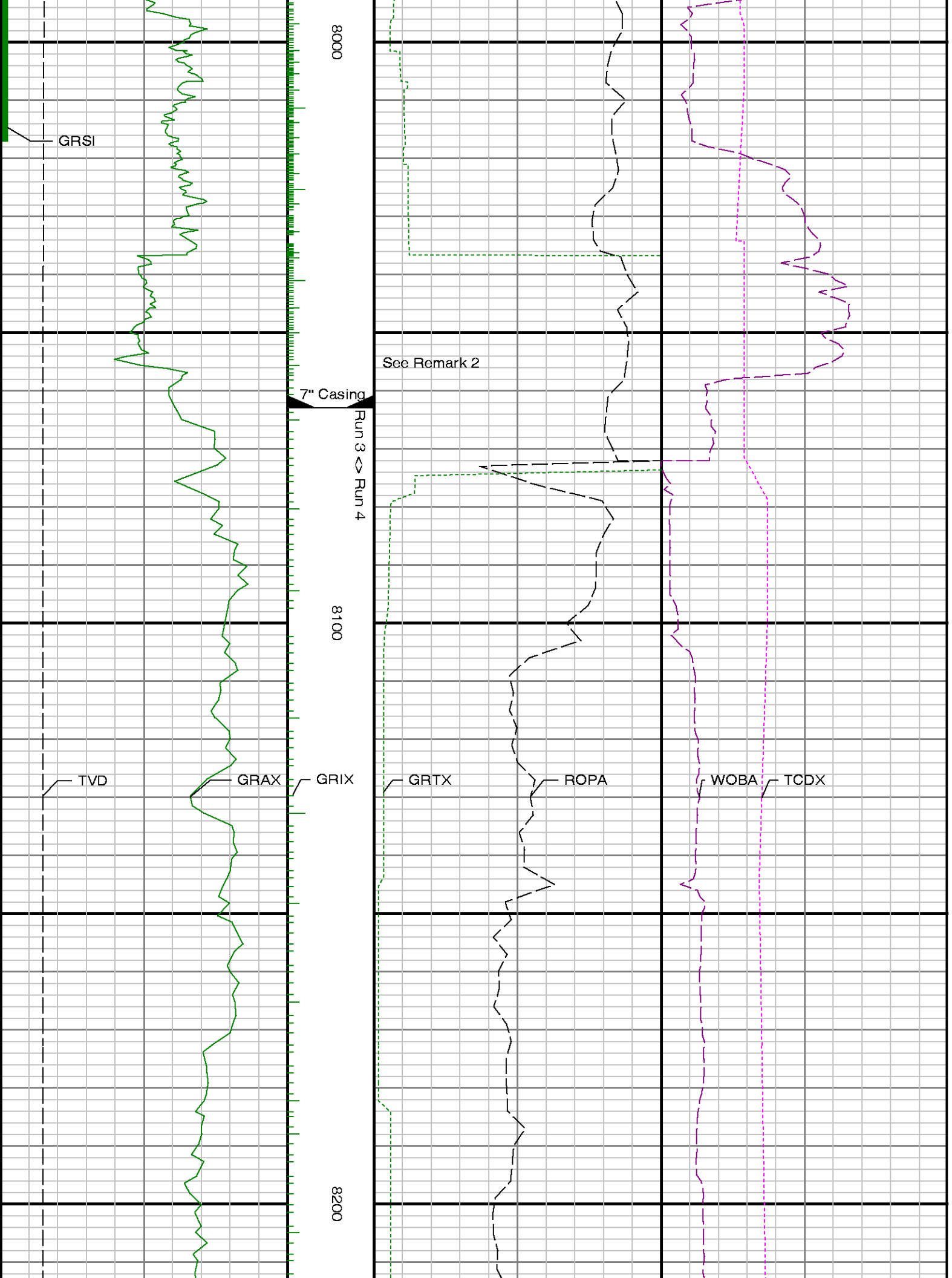




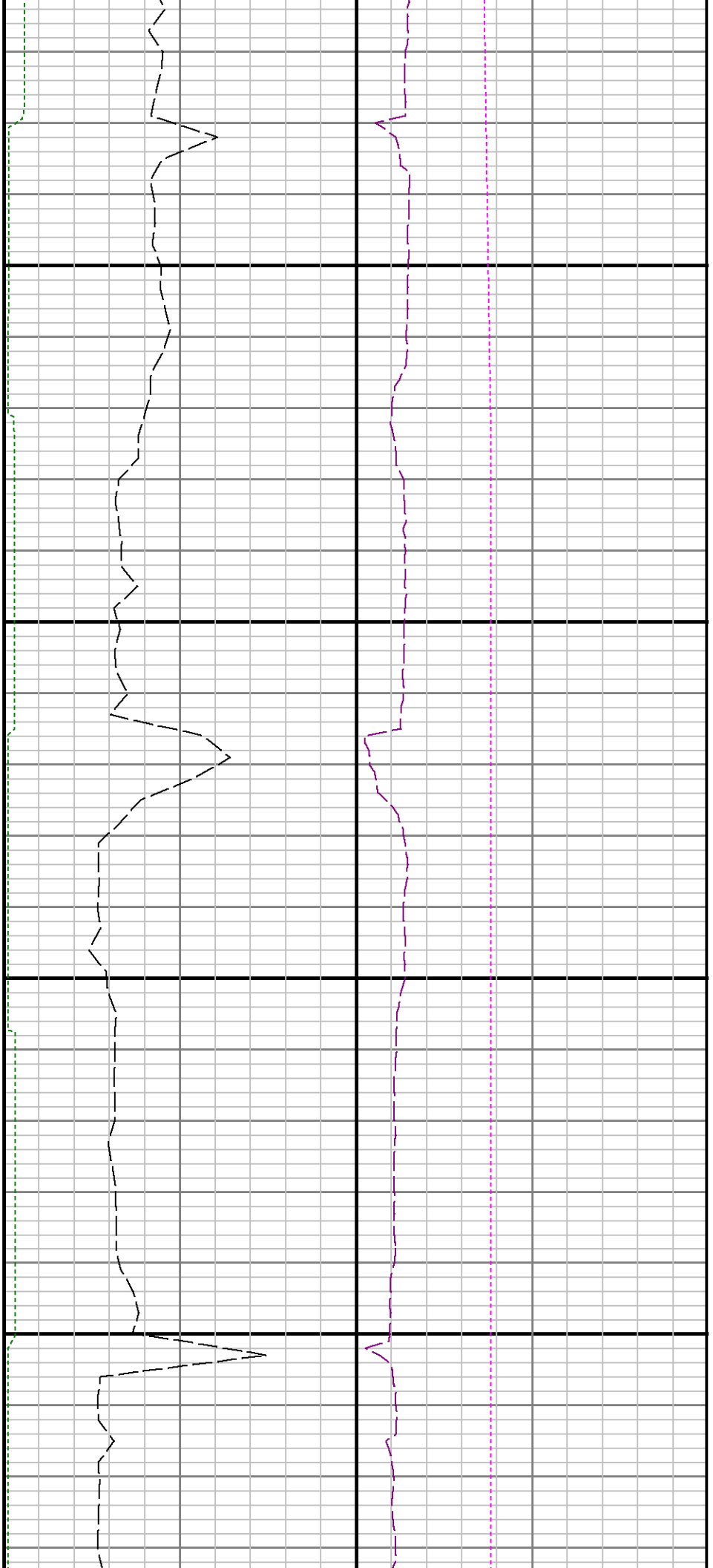
7800

7900



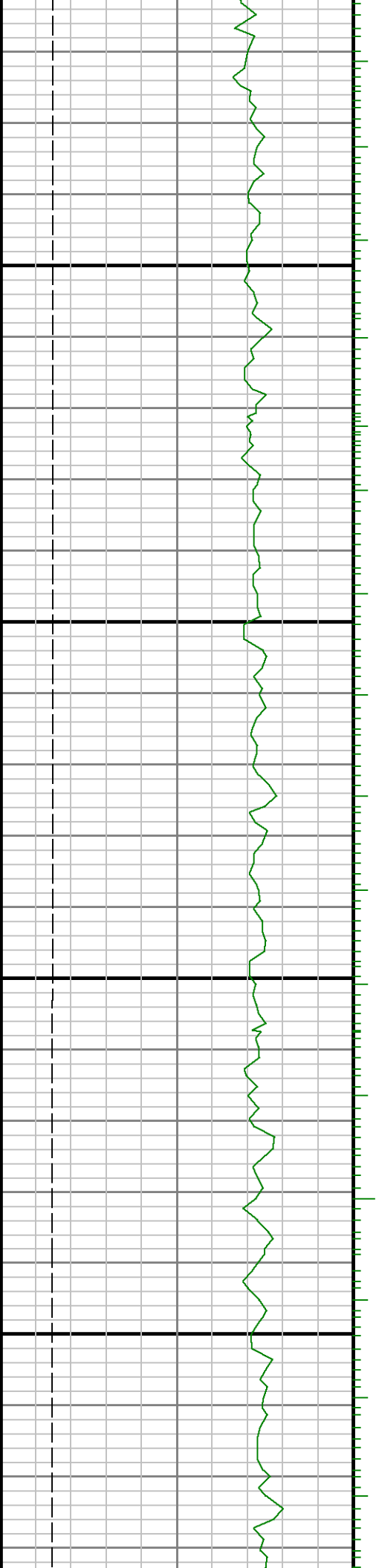


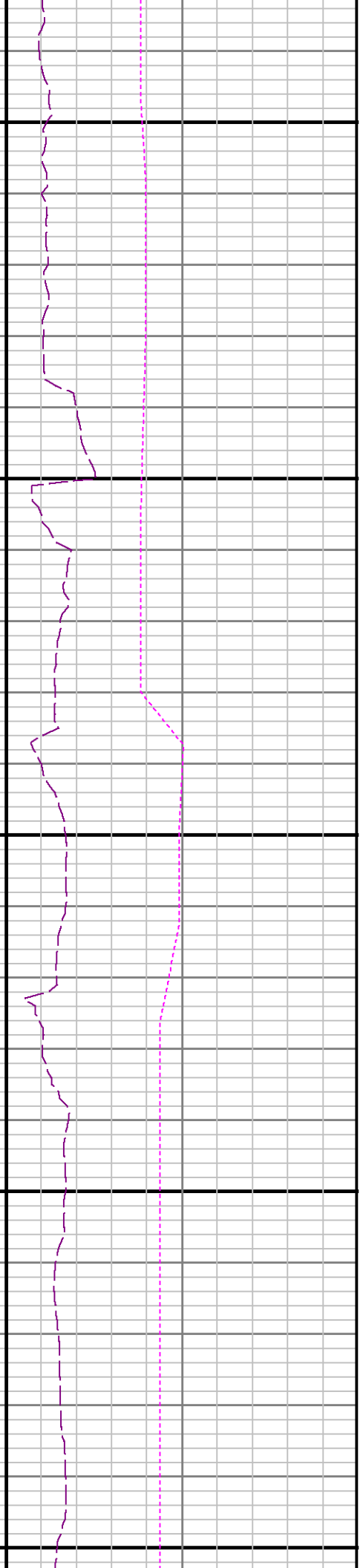
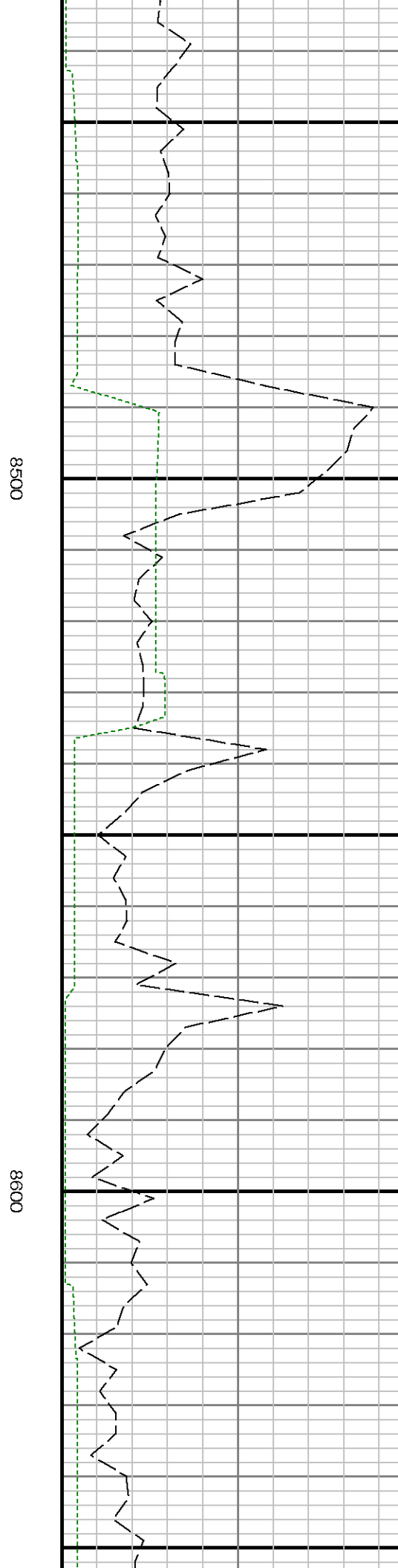
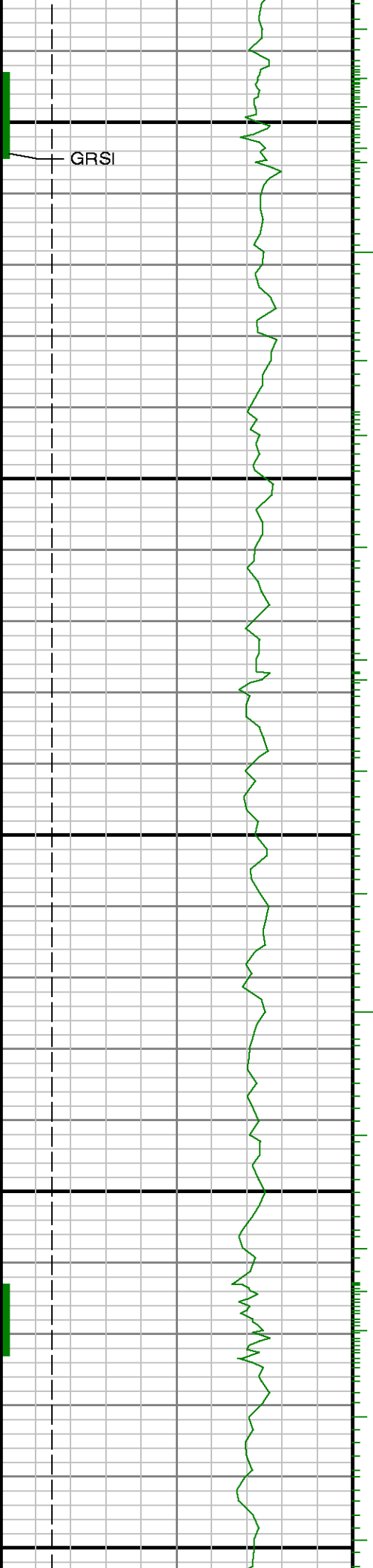


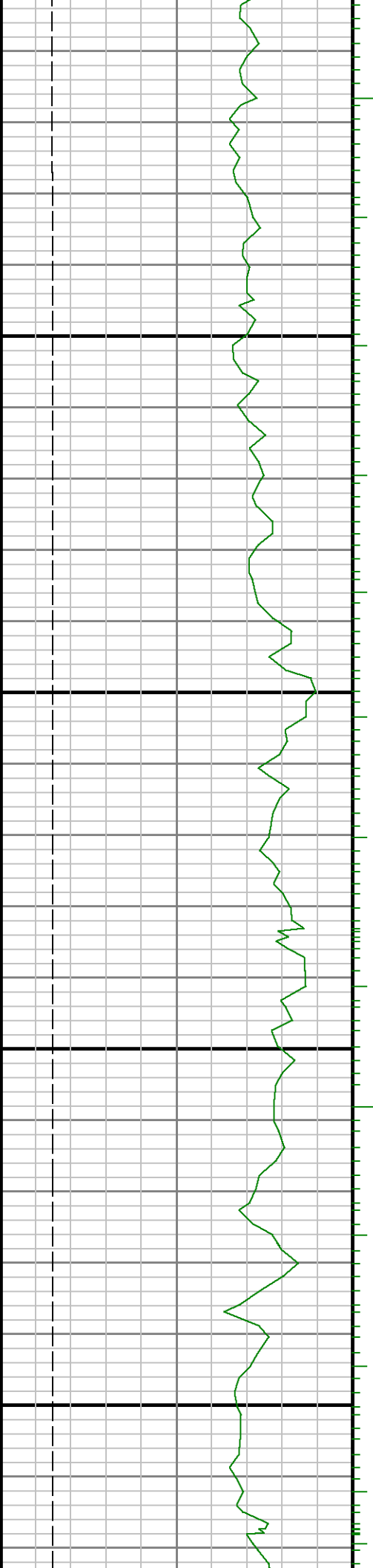


8300

8400

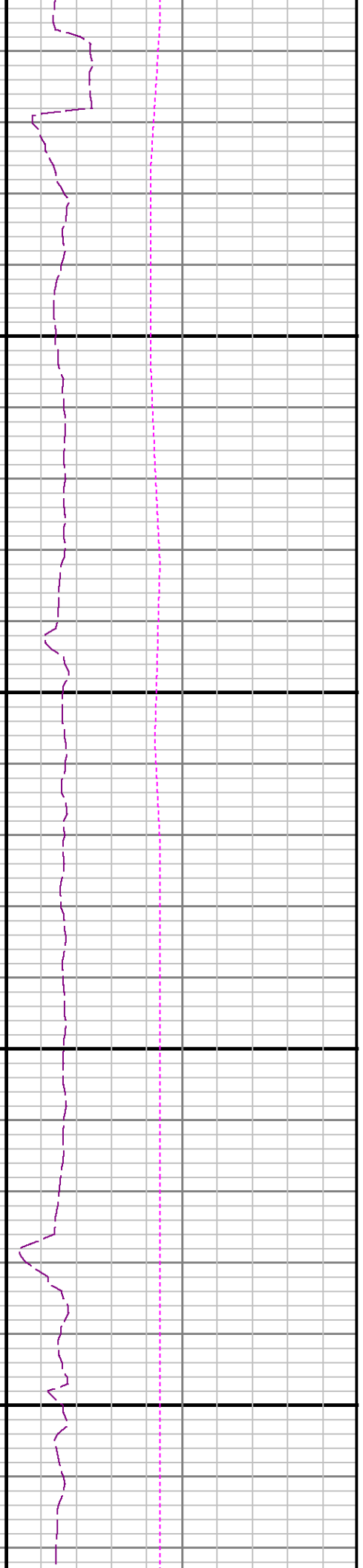
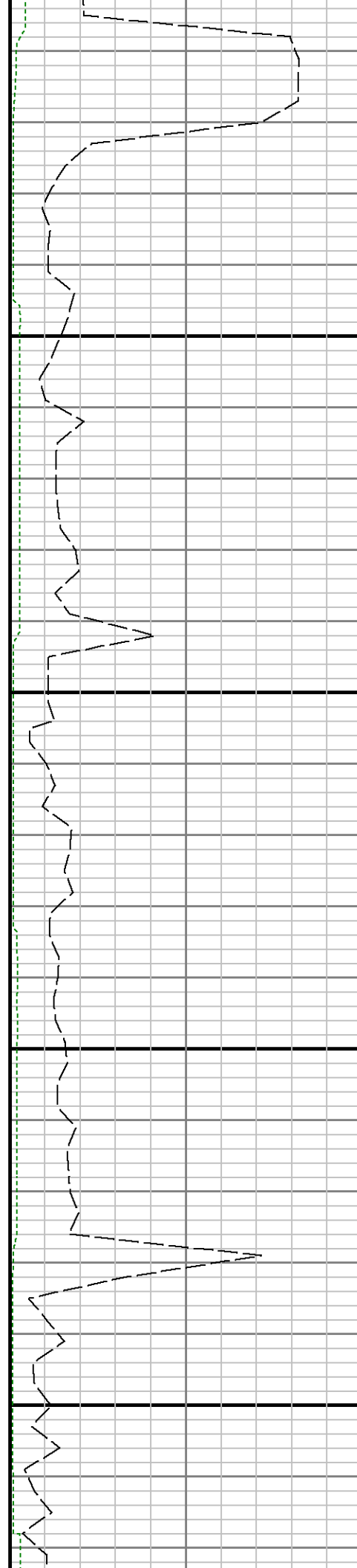


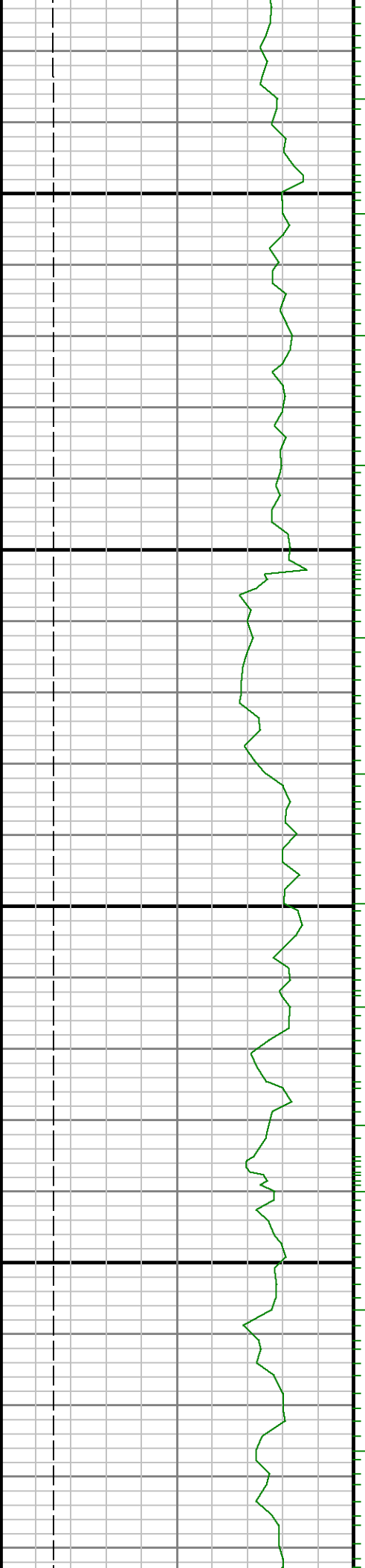




8700

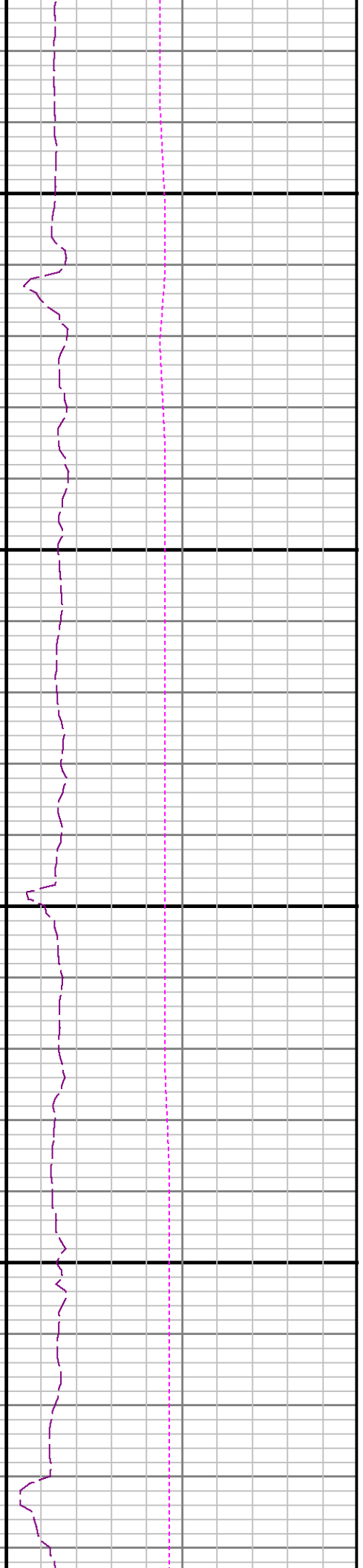
0088

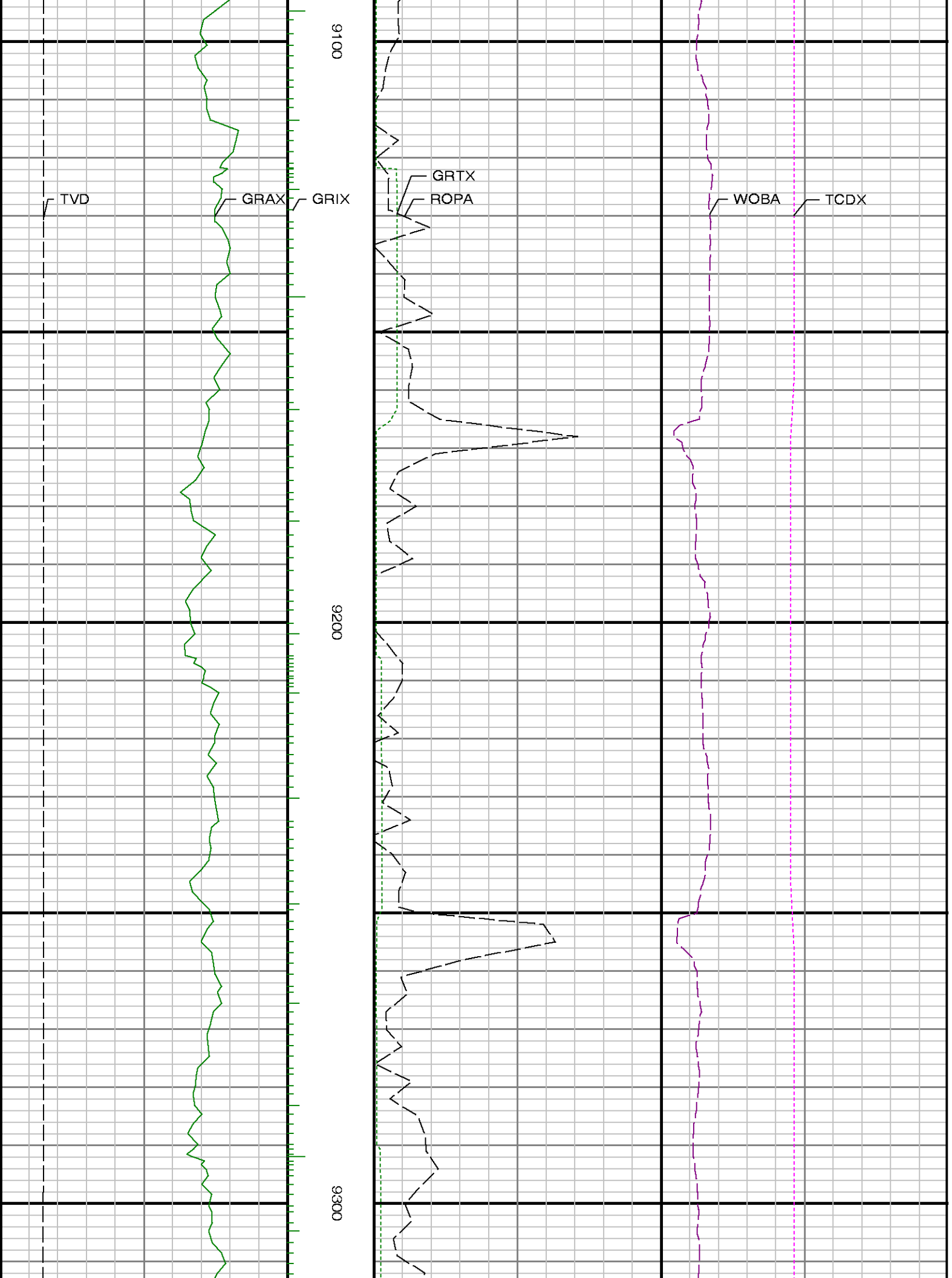


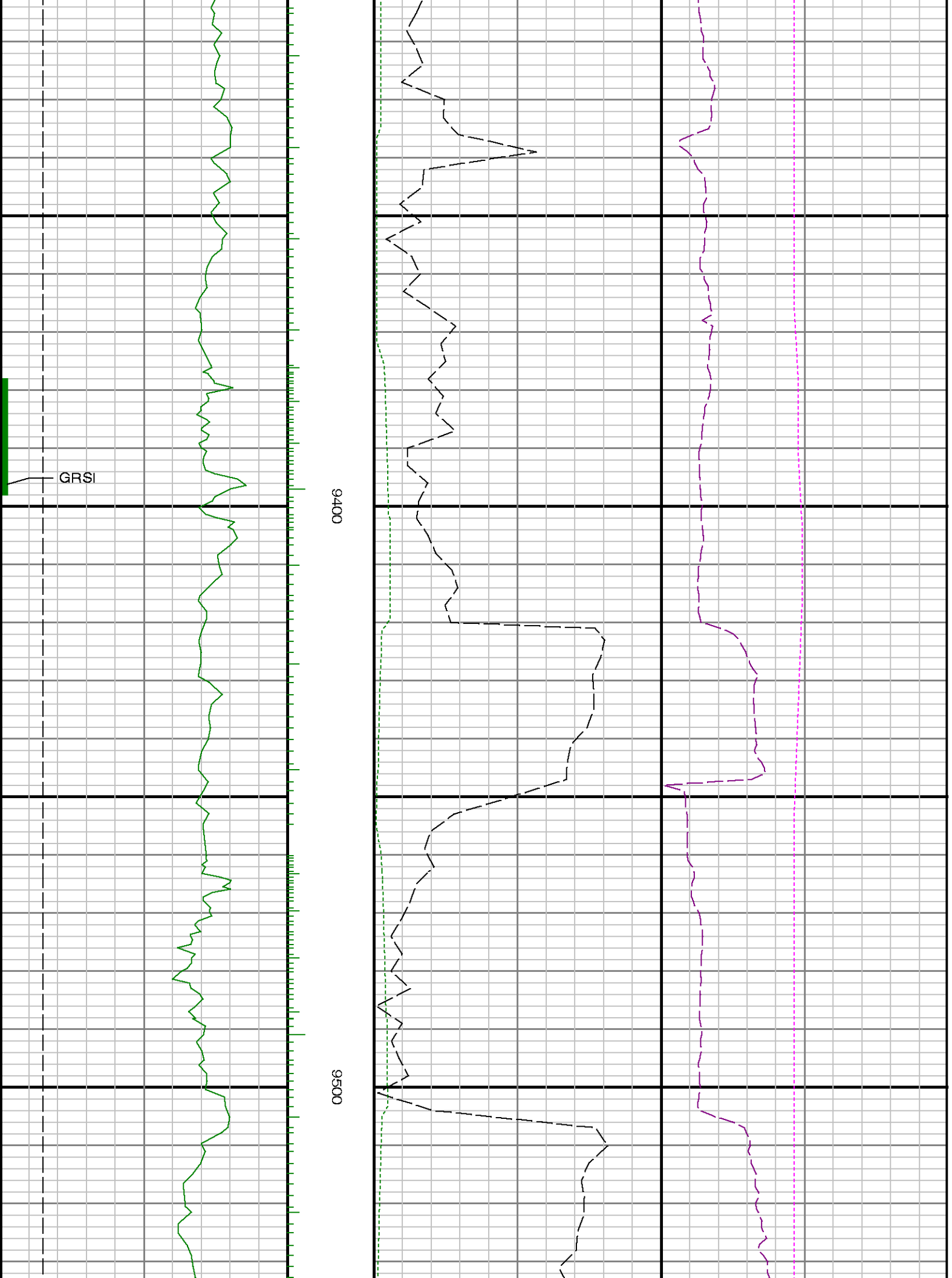


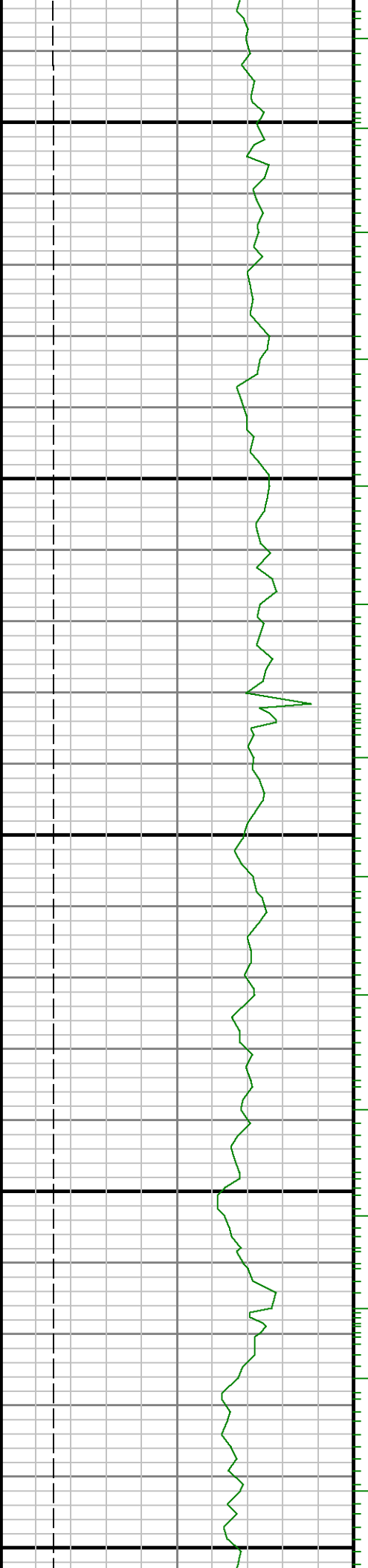
0068

0006



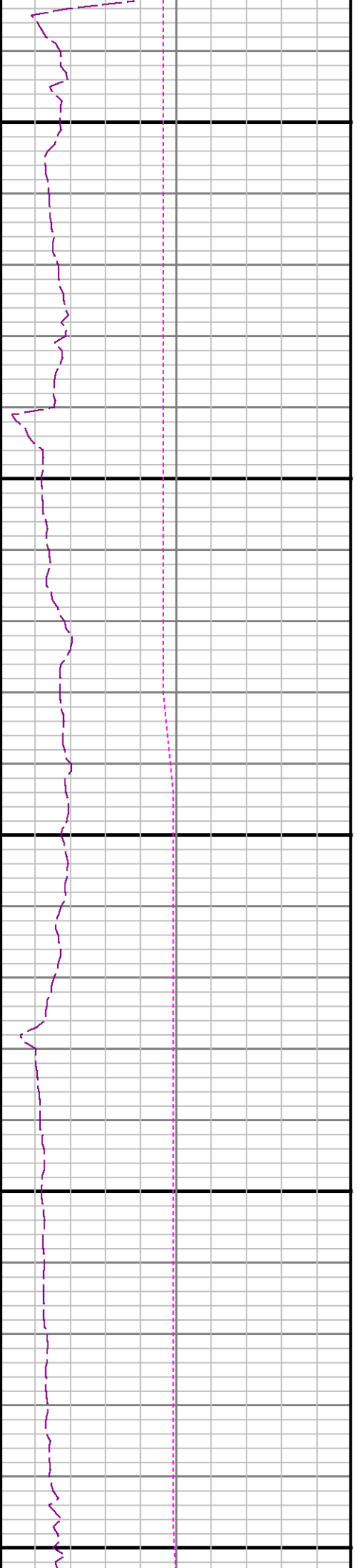
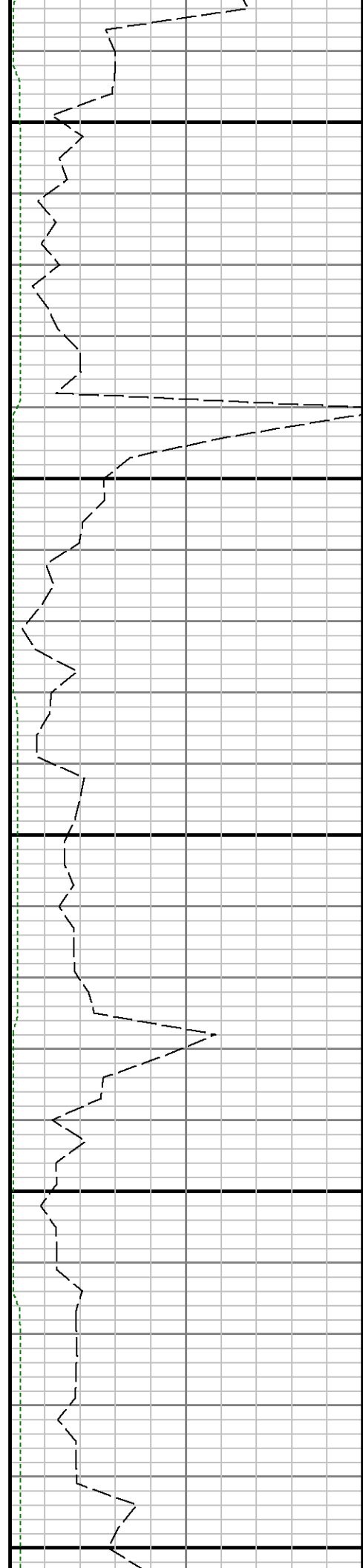


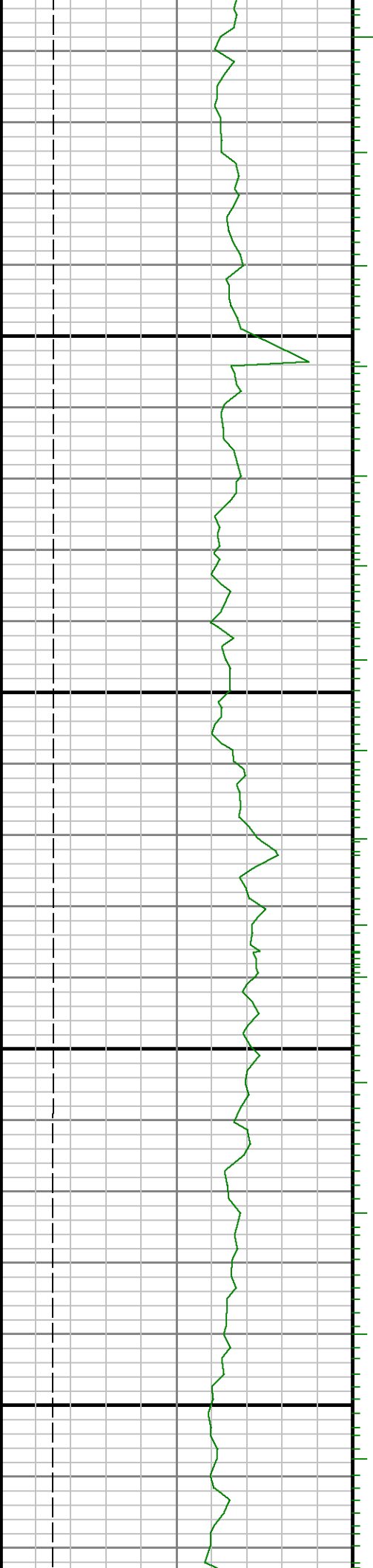




9600

9700





0066

0086

