



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:

1:240

Measured Depth

Company: Anadarko

Well: Jester 8N-14HZ

Field: Weld County (Kerr McGee)

County: Weld State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 13' 44.947" N

Longitude: 104° 53' 7.022" W

Other Services:

Directional
VSS

API Number:
05-123-41350-00

SEC: 15 TWP: 3N RNG: 67W

Permanent Datum (P.D.): Ground Level

Elevation: 4793.00 ft.

Elevations:

Log Measured From:

Rig Floor

20.00 ft.

Above P.D.

KB:

DF:

GL:

N/A
4813.00 ft.
4793.00 ft.

Depth Reference:

Driller's Depth

GL:

4793.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6250.0 ft. Date From: 23/Jun/15 Date To: 04/Jul/15 Dip Angle: 66.88 ° Azi Reference North: True

Bottom: 17007.0 ft. Date To: 04/Jul/15 Total Mag to Reference

Spud Date: 23/Jun/15 Field Strength: 52472.0 nT North Correction: 8.35 °

Borehole Record

Casing Record

| Hole Size | From | To | Size | Weight | From | To |
|------------|------------|-------------|-----------|-------------|---------|------------|
| 13.500 in. | Surface | 889.0 ft. | 9.625 in. | 36.00 lb/ft | Surface | 879.0 ft. |
| 8.750 in. | 889.0 ft. | 7362.0 ft. | 7.000 in. | 26.00 lb/ft | Surface | 7352.0 ft. |
| 6.125 in. | 7362.0 ft. | 17007.0 ft. | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Mud Record

Deviation Record

| Type | From | To | Hole Size | Interval | Inc / Az (Start) | Inc / Az (End) |
|-----------------|------------|-------------|------------|-------------|------------------|-----------------|
| Fresh Water | Surface | 4500.0 ft. | 13.500 in. | 869.0 ft. | 0.0 ° / 69.3 ° | 0.4 ° / 25.6 ° |
| Water Based Mud | 4500.0 ft. | 17007.0 ft. | 8.750 in. | 6483.0 ft. | 0.4 ° / 21.2 ° | 87.1 ° / 90.8 ° |
| | | | 6.125 in. | 10524.0 ft. | 86.4 ° / 90.8 ° | 90.5 ° / 92.6 ° |
| | | | | | / | / |
| | | | | | / | / |
| | | | | | / | / |
| | | | | | / | / |

Acquisition System

Software Version

Other

| | | | | |
|-----------|----------|------------------|---------------|----------------------|
| Advantage | 2.20U4 | Rig: | Precision 460 | / Precision Drilling |
| PATS | 6.4.1.34 | Job No.: | 7282871 | / D&E |
| | | District / Unit: | RMD | |

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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 | | |
| | | | | | | | | | | | | | | | |
| 1 | 1 | 2 | 8.750 | PDC | 2.000 | Steerable | 6250.0 | 7362.0 | 879.0 | 7362.0 | 23/Jun/2015 | 20:20 | 26/Jun/2015 | 12:45 | 27 |
| 2 | 2 | 3 | 6.125 | PDC | 4.000 | Steerable | 7290.0 | 15922.0 | 7362.0 | 15922.0 | 27/Jun/2015 | 08:00 | 01/Jul/2015 | 23:15 | 83.5 |
| 3 | 3 | 4 | 6.125 | PDC | 4.000 | Steerable | N/A | N/A | N/A | N/A | 02/Jul/2015 | 00:55 | 02/Jul/2015 | 08:00 | 0.2 |
| 4 | 4 | 4 | 6.125 | PDC | 4.000 | Steerable | 15812.0 | 17007.0 | 15922.0 | 17007.0 | 02/Jul/2015 | 09:00 | 04/Jul/2015 | 20:00 | 27.3 |

Crew

| Name | Arrive | Depart | Name | Arrive | Depart | Name | Arrive | Depart |
|--------------|-------------|-------------|------|----------|----------|-------------|-------------|-------------|
| | Wellsite | Wellsite | | Wellsite | Wellsite | | Wellsite | Wellsite |
| Austin Small | 23/Jun/2015 | 05/Jul/2015 | | | | Barry Combs | 28/Jun/2015 | 05/Jul/2015 |

| | | | | | | | | | | | | |
|-----------------|-------------|-------------|--|--|--|--|--|--------------|-------------|-------------|--|--|
| | | | | | | | | | | | | |
| Matthew Delmore | 23/Jun/2015 | 05/Jul/2015 | | | | | | Chad Hough | 23/Jun/2015 | 27/Jun/2015 | | |
| | | | | | | | | Brad Leopold | 23/Jun/2015 | 05/Jul/2015 | | |

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/Jun/2015 | 06:00 | 1 | 2800.0 | Water Based Mud | 8.8 | 34 | 9.3 | 18.0 | 1 / 96 | Active Mud Pit | 2600 | N/A |
| 25/Jun/2015 | 16:00 | 1 | 5769.0 | Water Based Mud | 9.8 | 59 | 10.0 | 6.0 | 2 / 90 | Active Mud Pit | 2900 | N/A |
| 26/Jun/2015 | 06:00 | 1 | 7362.0 | Water Based Mud | 10.2 | 60 | 10.0 | 4.6 | 2 / 88 | Active Mud Pit | 2900 | N/A |
| 27/Jun/2015 | 19:00 | 2 | 8087.0 | Water Based Mud | 9.8 | 52 | 10.1 | 5.2 | 2 / 90 | Active Mud Pit | 2900 | N/A |
| 28/Jun/2015 | 07:00 | 2 | 9447.0 | Water Based Mud | 9.9 | 58 | 9.9 | 5.2 | 3 / 87 | Active Mud Pit | 2900 | N/A |
| 28/Jun/2015 | 19:00 | 2 | 11484.0 | Water Based Mud | 9.9 | 60 | 9.7 | 4.4 | 3 / 86 | Active Mud Pit | 2800 | N/A |
| 29/Jun/2015 | 07:00 | 2 | 13615.0 | Water Based Mud | 9.9 | 59 | 9.6 | 5.0 | 3 / 87 | Active Mud Pit | 3000 | N/A |
| 29/Jun/2015 | 19:00 | 2 | 14515.0 | Water Based Mud | 10.2 | 59 | 9.6 | 4.4 | 4 / 85 | Active Mud Pit | 3000 | N/A |
| 02/Jul/2015 | 06:30 | 3 | 15922.0 | Water Based Mud | 11.1 | 60 | 9.7 | 3.8 | 4 / 82 | Active Mud Pit | 3200 | N/A |
| 02/Jul/2015 | 19:00 | 4 | 15922.0 | Water Based Mud | 10.8 | 59 | 9.6 | 3.8 | 4 / 83 | Active Mud Pit | 3000 | N/A |
| 03/Jul/2015 | 07:00 | 4 | 15922.0 | Water Based Mud | 10.7 | 61 | 9.5 | 3.6 | 4 / 84 | Active Mud Pit | 3200 | N/A |
| 03/Jul/2015 | 19:00 | 4 | 16422.0 | Water Based Mud | 10.8 | 55 | 9.5 | 3.8 | 5 / 82 | Active Mud Pit | 3300 | 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 | 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 | 12479858 | Directional | 64.46 | 6.750 | 3.250 |
| 1 | SRIG | 12554666 | Gamma | 61.09 | 6.750 | 3.250 |
| 2 | DIR | 12617354 | Directional | 71.19 | 4.750 | 2.750 |
| 2 | SRIG | 12131406 | Gamma | 67.85 | 4.750 | 2.750 |
| 3 | DIR | 12456788 | Directional | 67.58 | 4.750 | 2.750 |
| 3 | SRIG | 11734844 | Gamma | 64.24 | 4.750 | 2.750 |
| 4 | DIR | 12456788 | Directional | 70.26 | 4.750 | 2.750 |
| 4 | SRIG | 11734844 | Gamma | 66.92 | 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

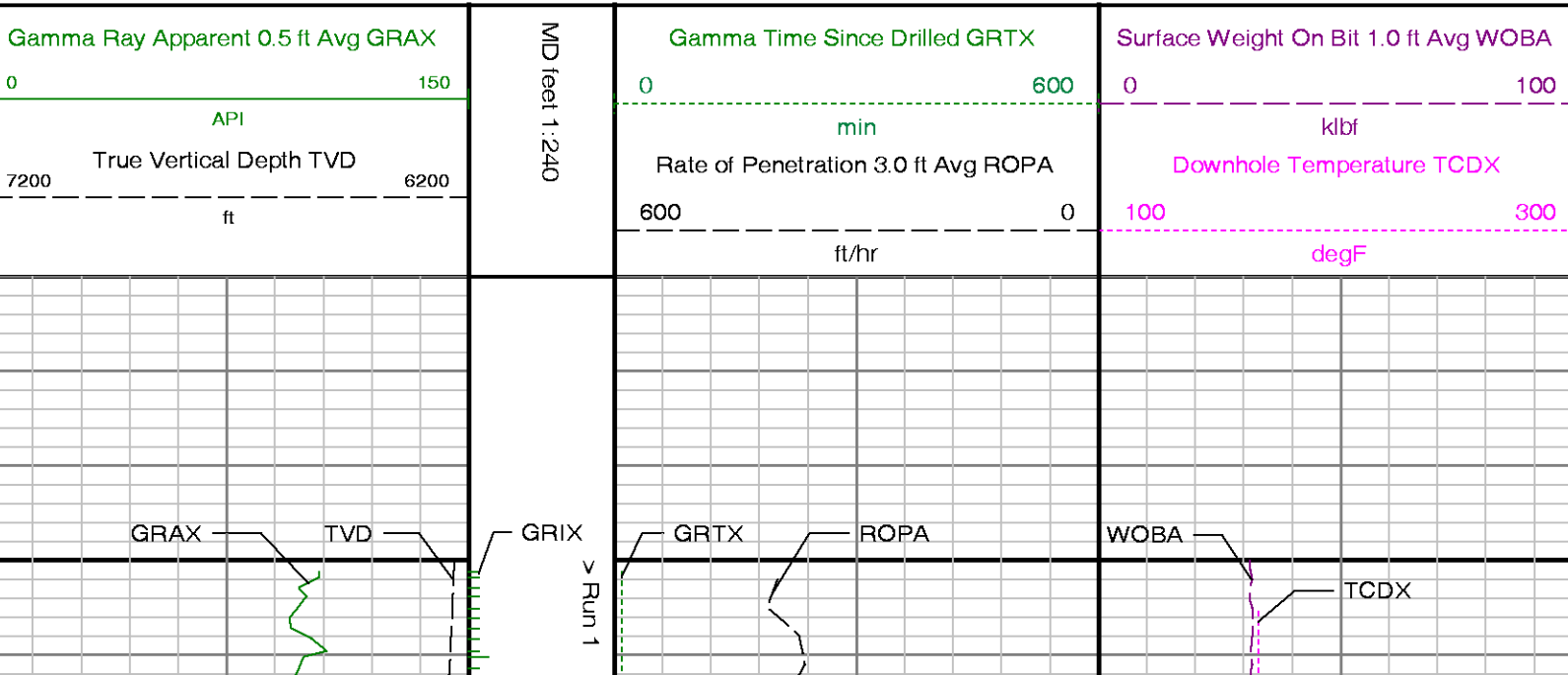
- 1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 844 to 6250 ft. MD (844 to 6228 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6250 to 7362 ft. MD (6228 to 6970 ft. TVD) behind an 8 7/8 inch bit and steerable assembly
- 2.) Baker Hughes LWD run 2, 3, and 4 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7362 to 17007 feet MD (6970 to 7139 feet TVD) behind an 6 1/8 inch bit and steerable assembly.
- 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.
- 4.) Depth measurements 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.

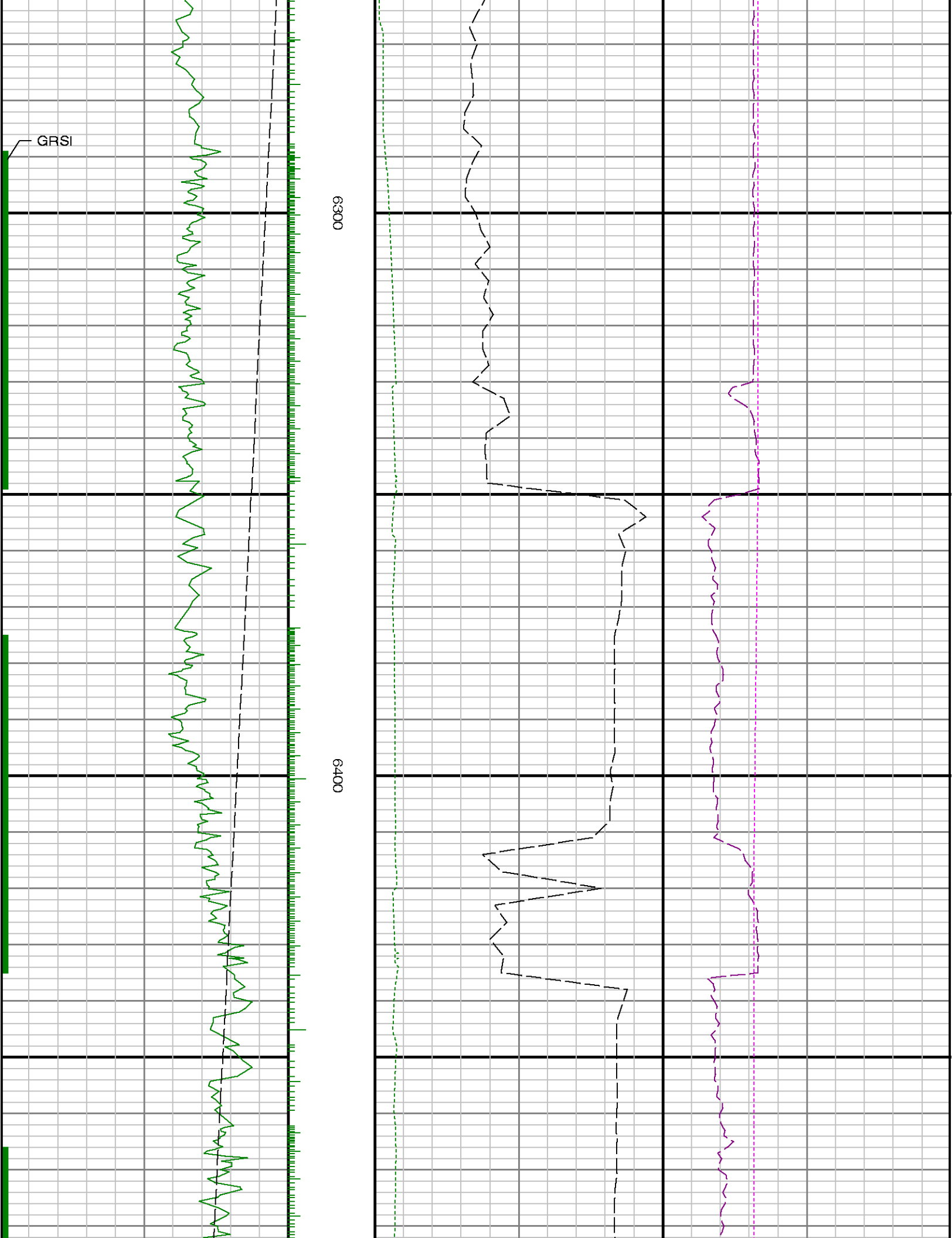
Remarks

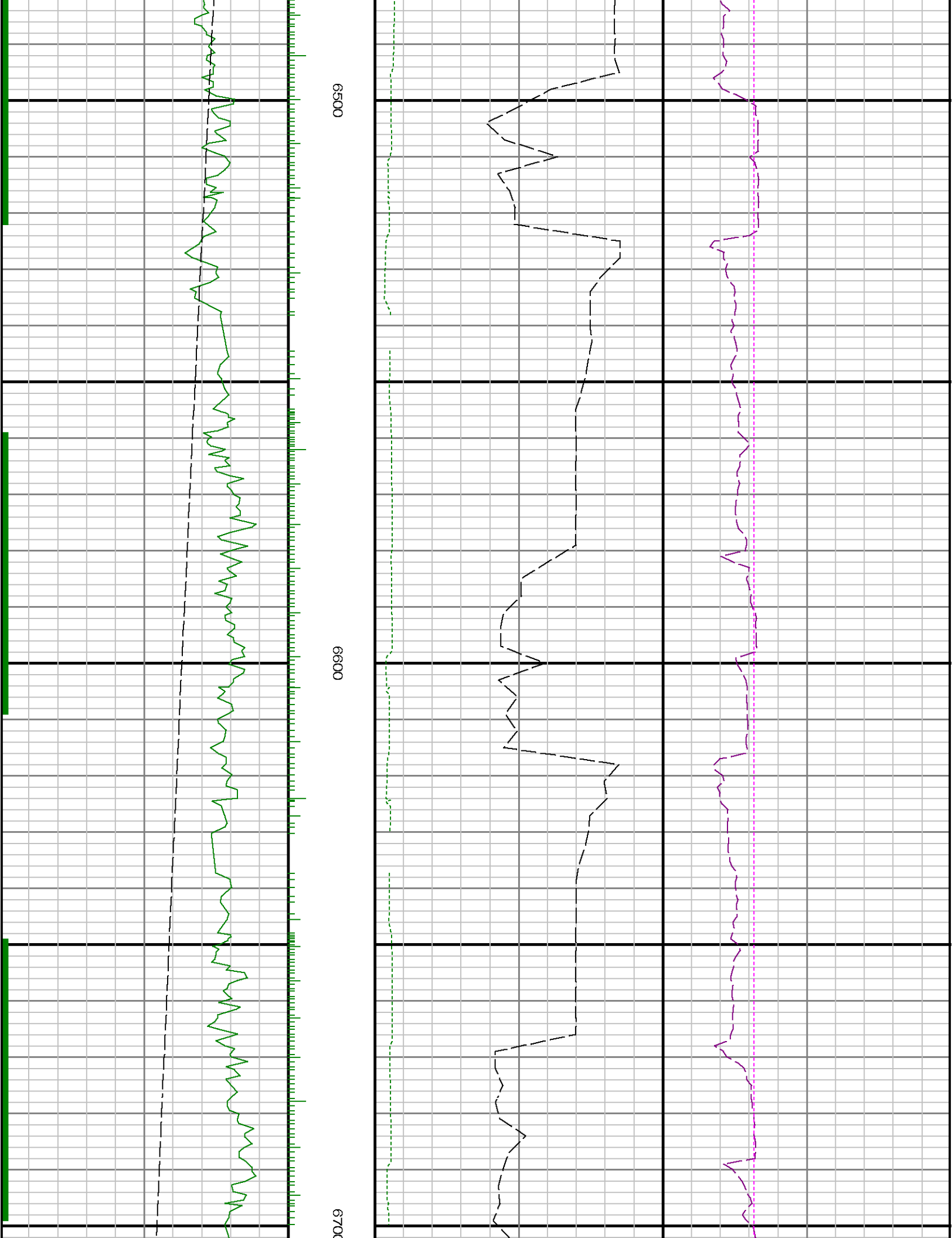
| Number | Measured Depth (ft) | Hole Section (in.) | LWD Run No. | Remark |
|--------|---------------------------|--------------------------|----------------|---|
| 1 | 7325 | 6.125 | 2 | The interval from 7290 to 7362 feet MD (6964.33 to 6970.95 feet TVD) was logged up to 34.0 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly, perform casing operations, and to pick up a lateral assembly. |
| 2 | 1890 | 6.125 | 4 | The interval from 15855 to 15923 feet MD (7133.17 to 7136.64 feet TVD) was logged up to 55.0 hours after being drilled due to a trip out of the hole to lay down the lateral assembly and to pick up a new lateral assembly. |
| 3 | 16975 | 6.125 | 4 | The interval from 16940 to 17007 feet MD (7140.63 to 7139.11 feet TVD) does not contain gamma ray logging data due to the bit to sensor offset. |

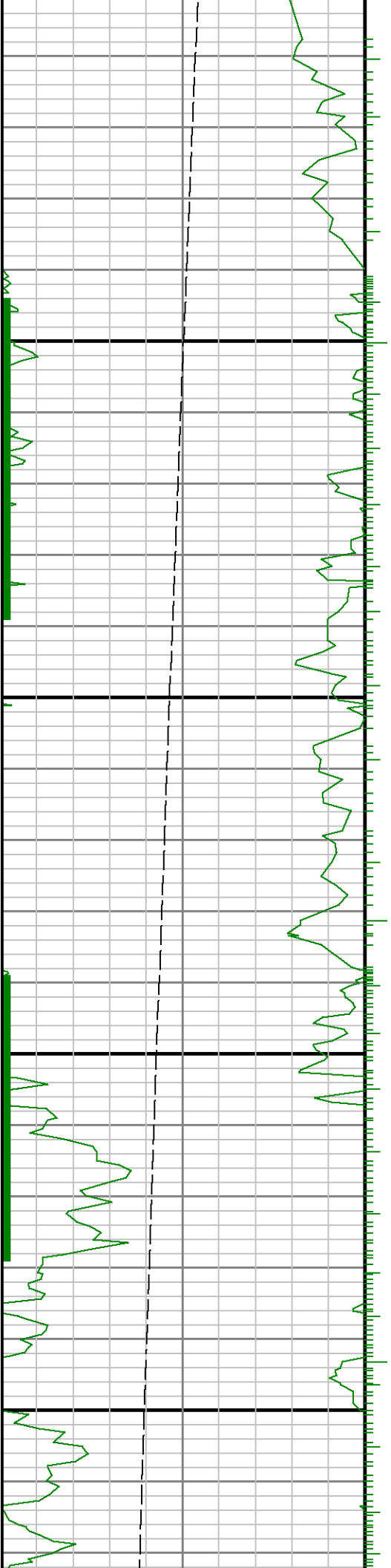


Company : Anadarko
Well : Jester 8N-14HZ
Interval : 6220.00 - 17040.00 feet
Created : 03/Jul/2015 7:49:18 PM



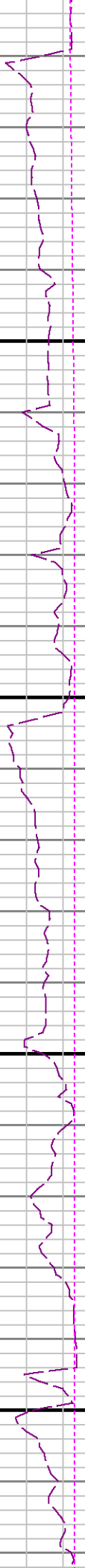


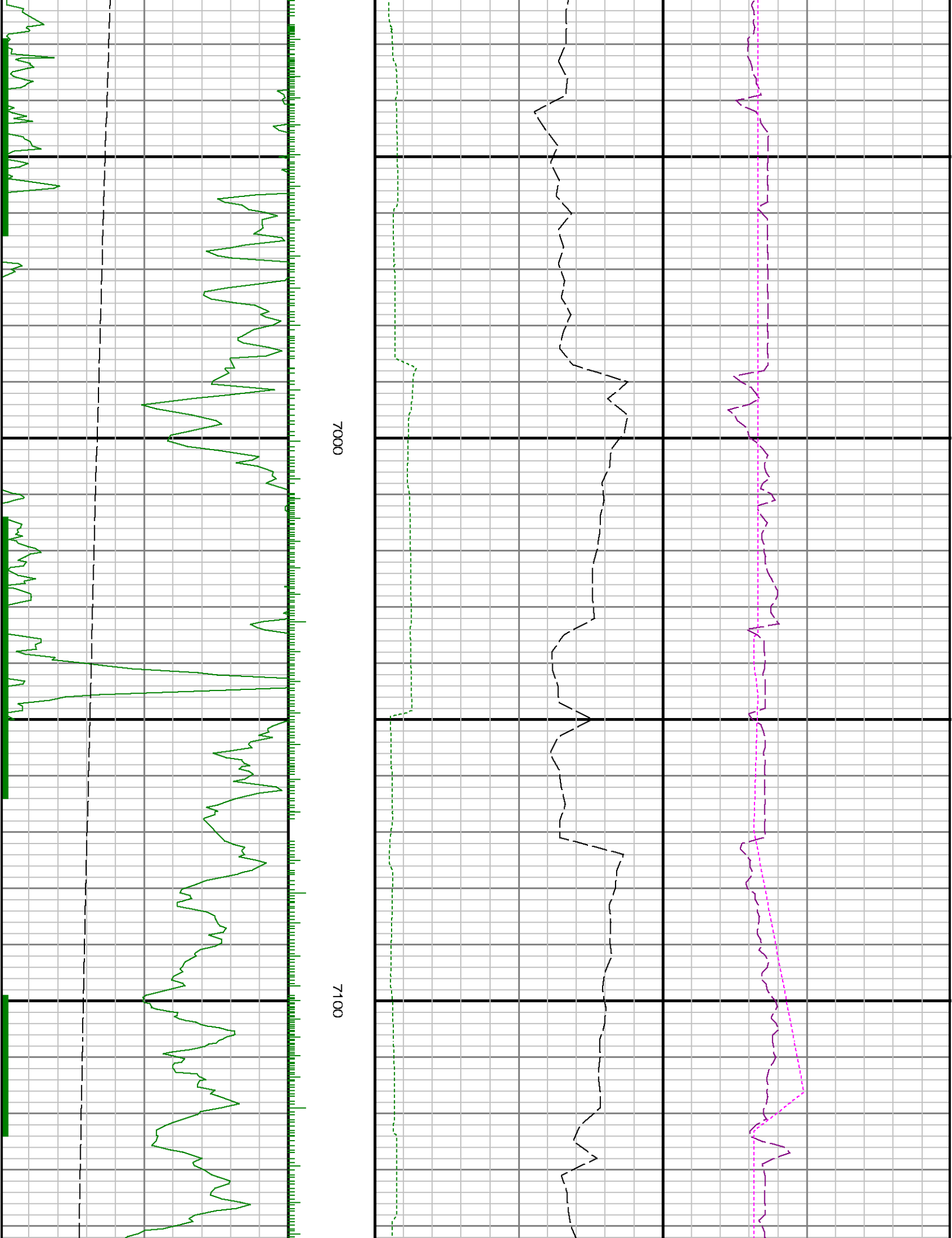


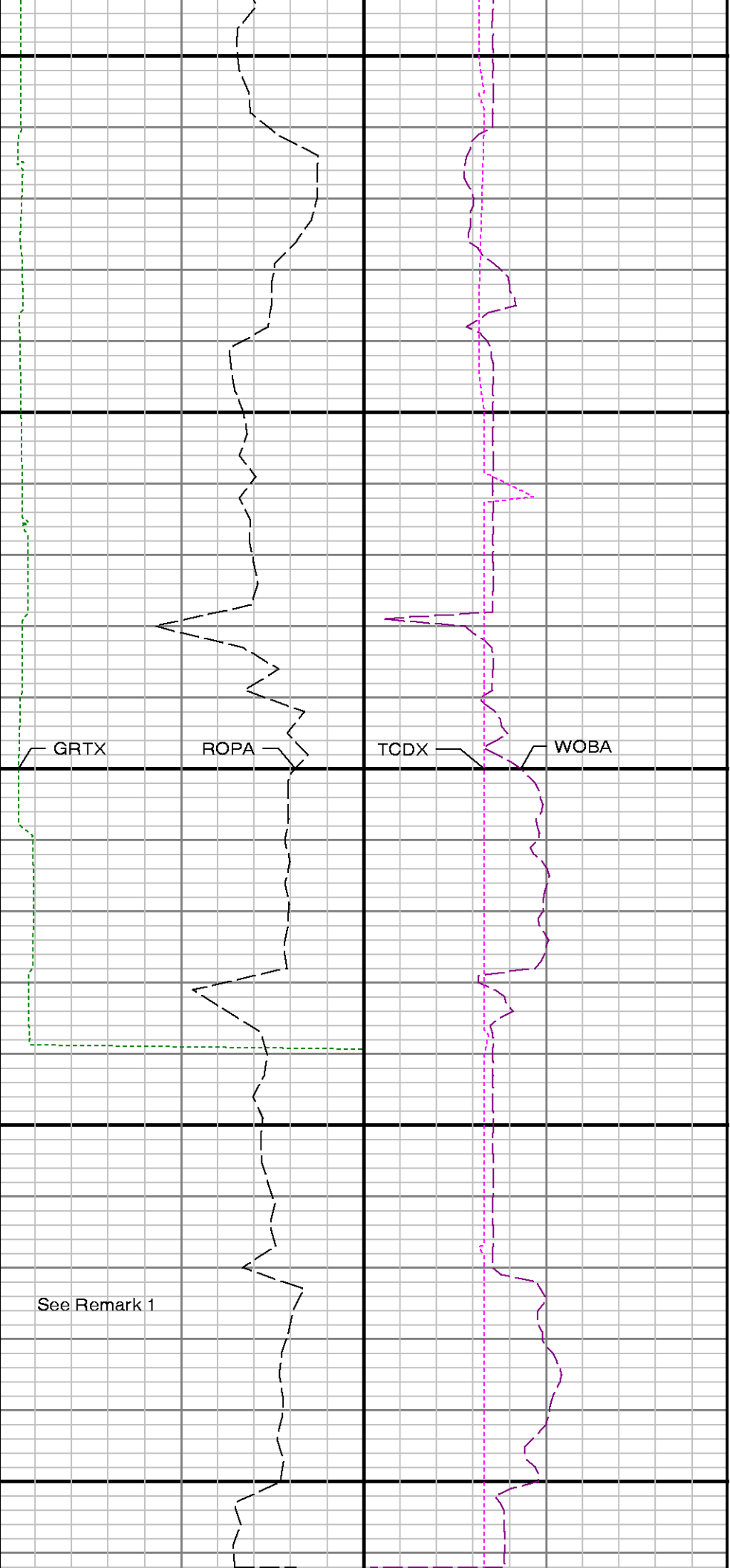
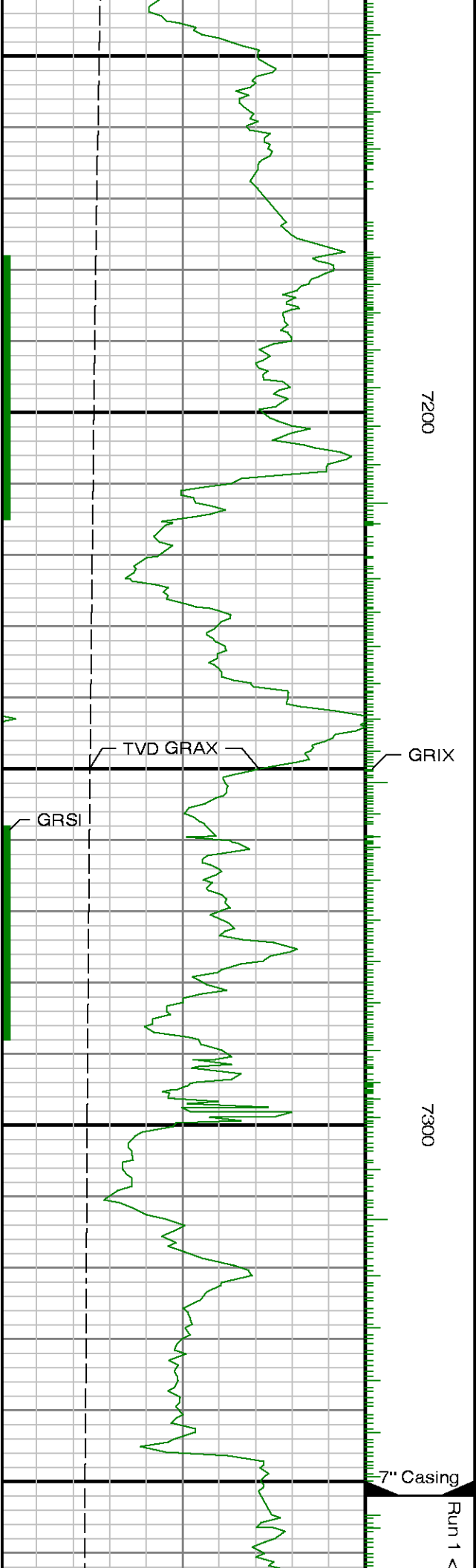


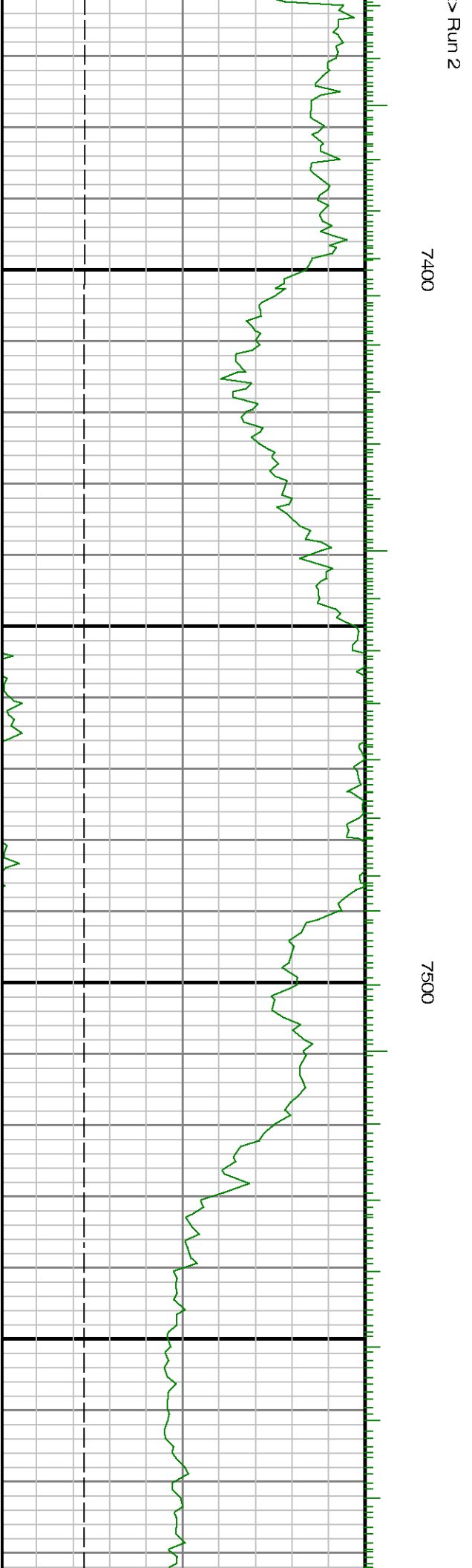
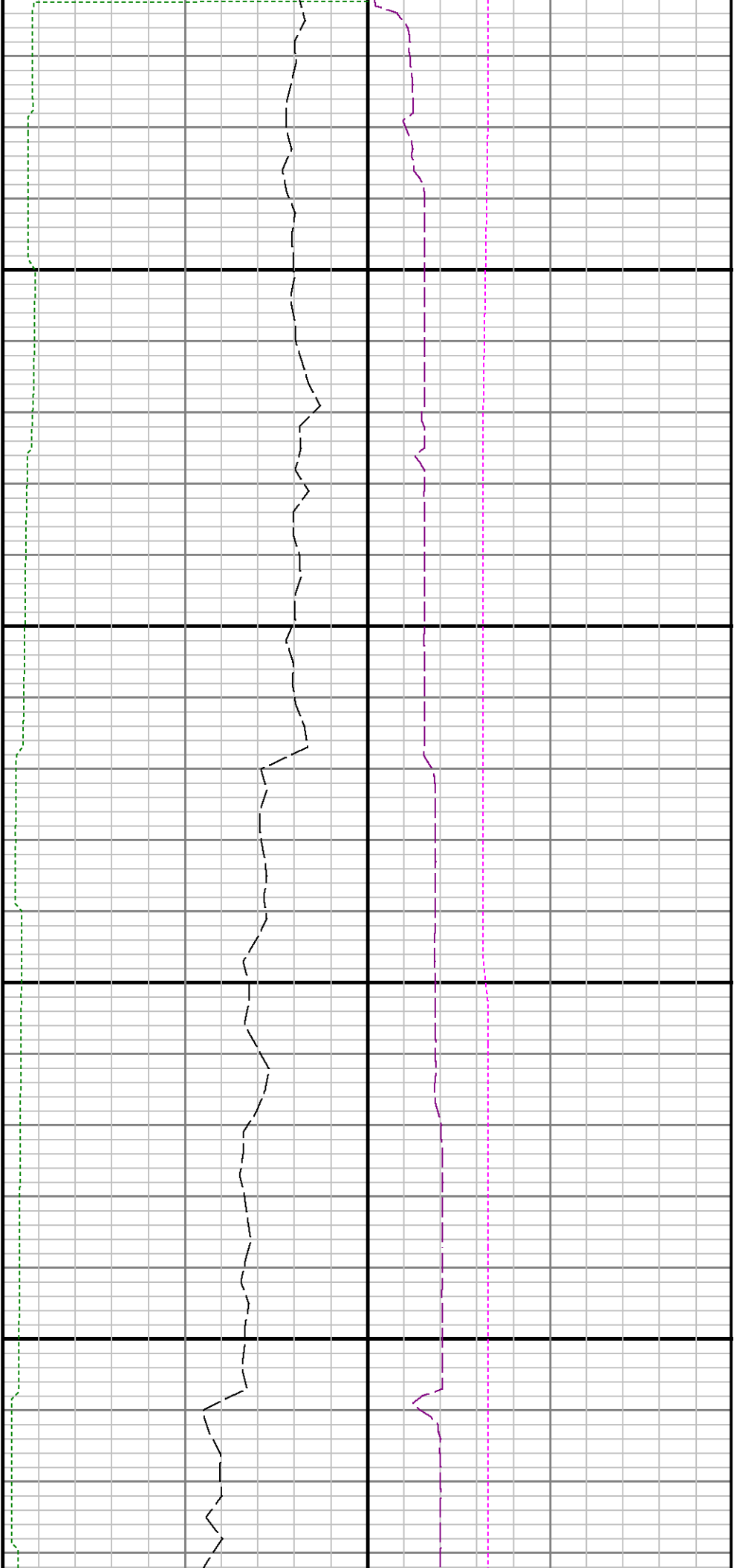
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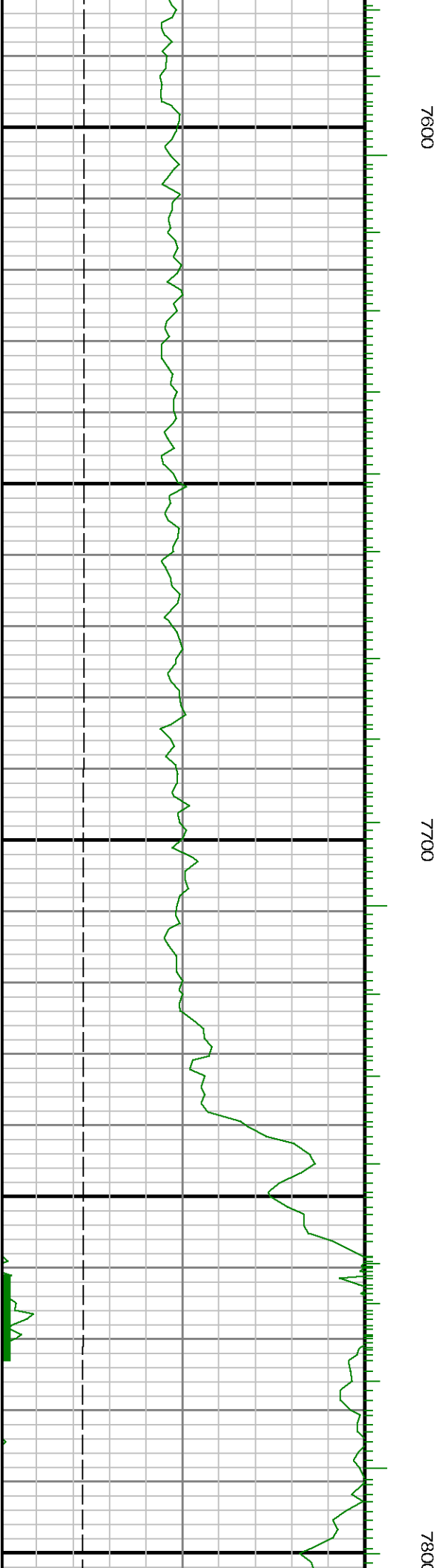
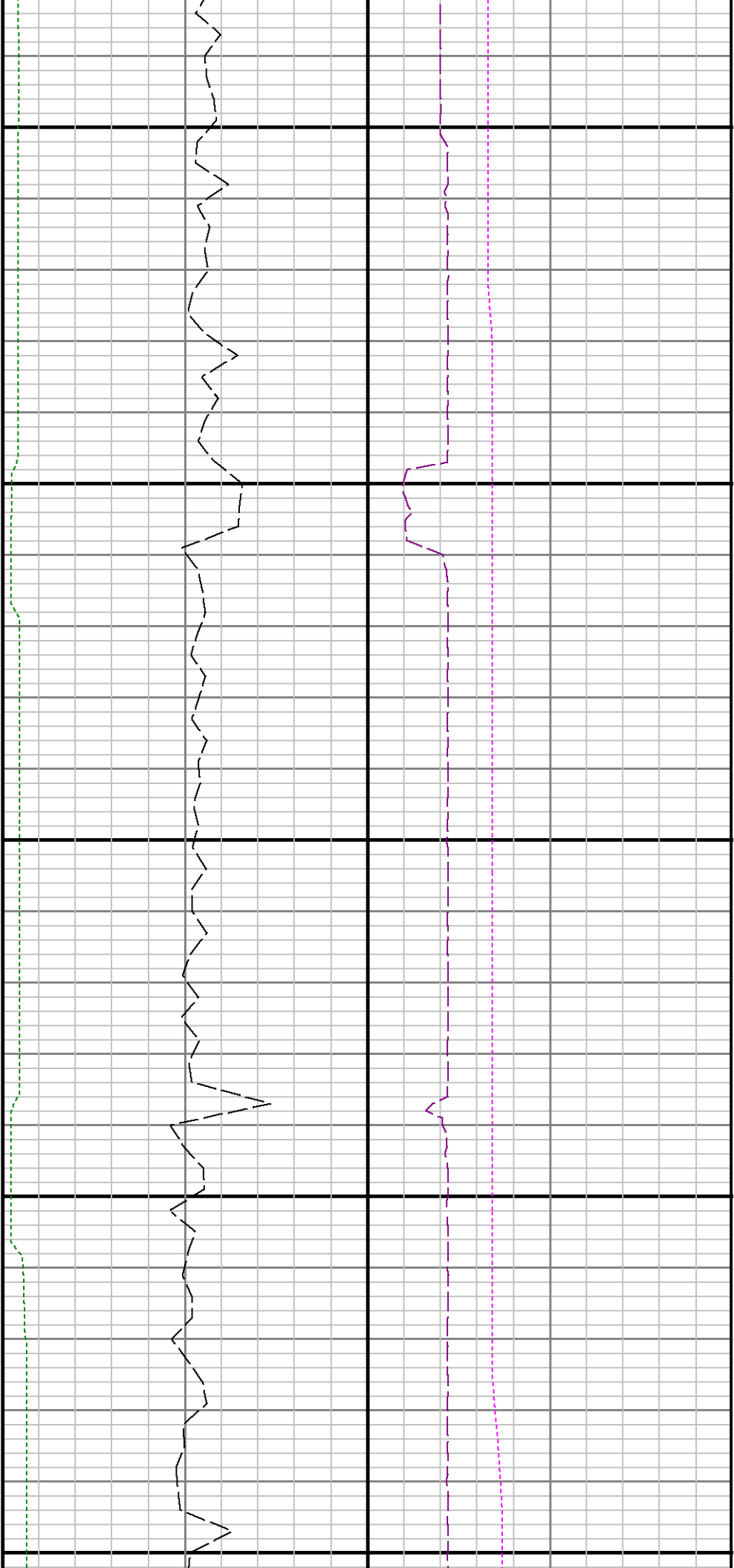
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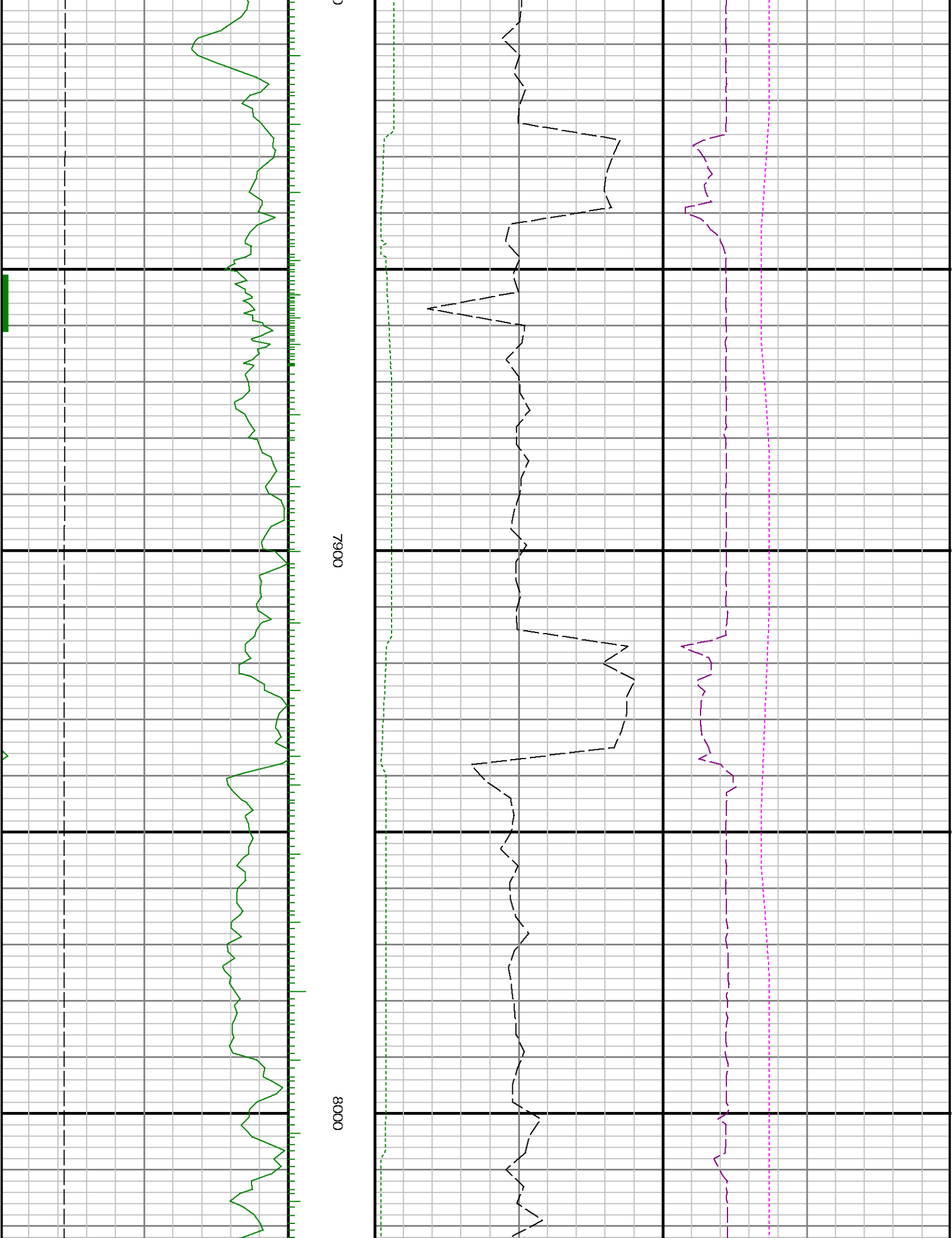


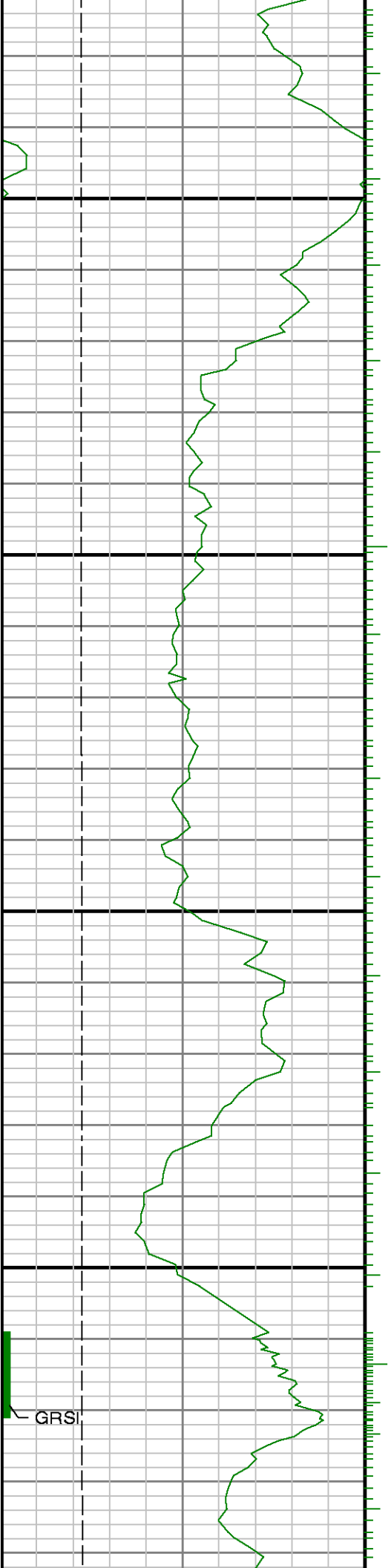






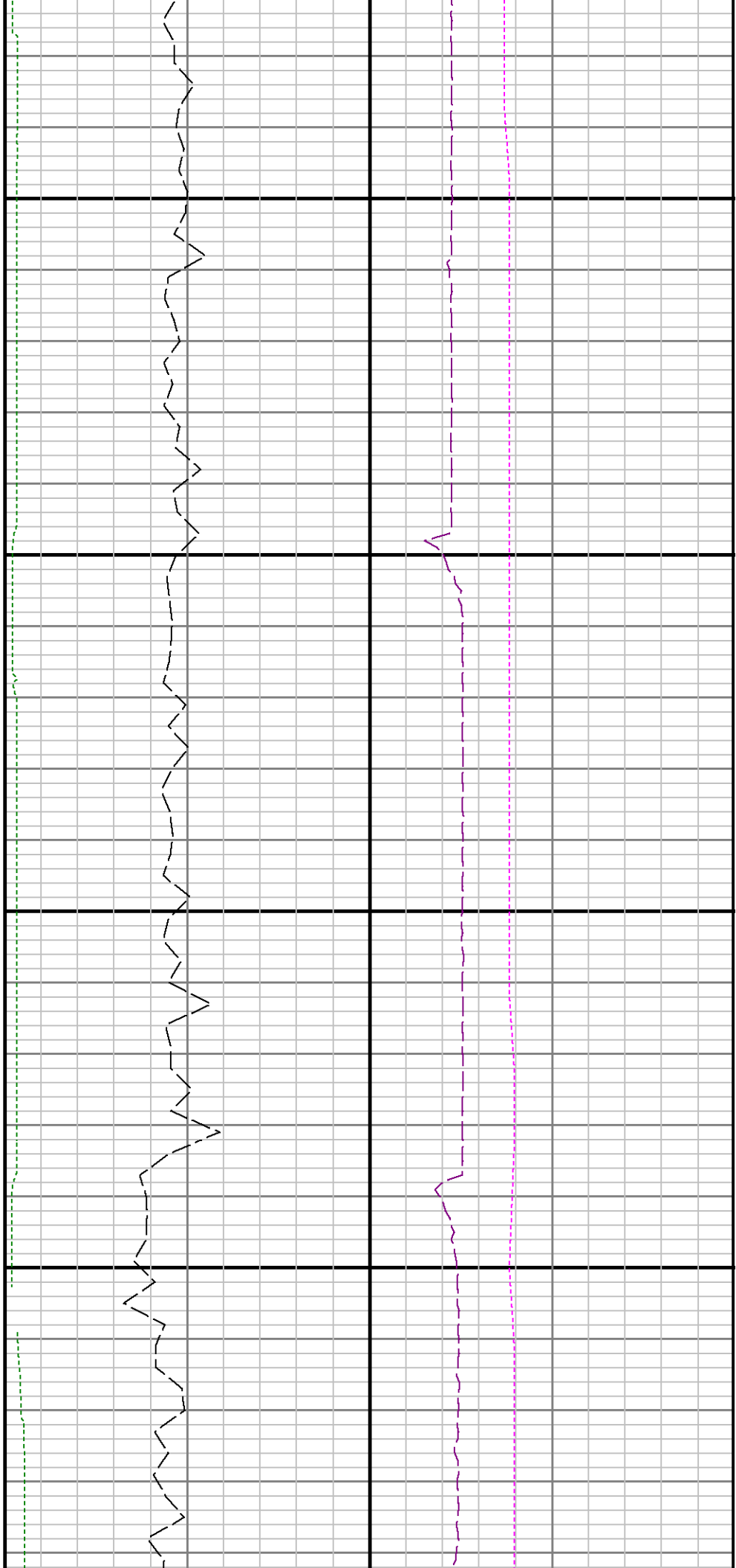


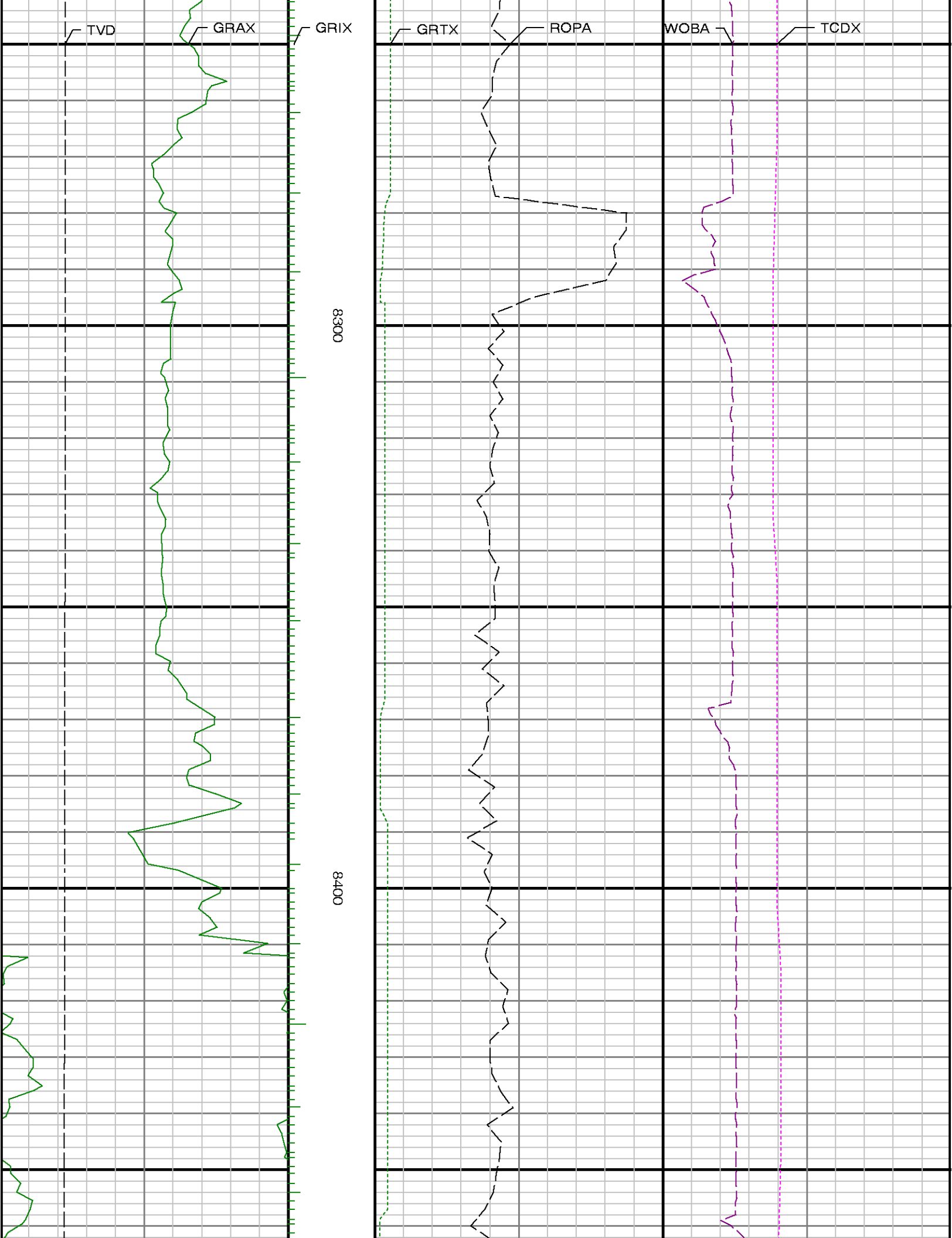


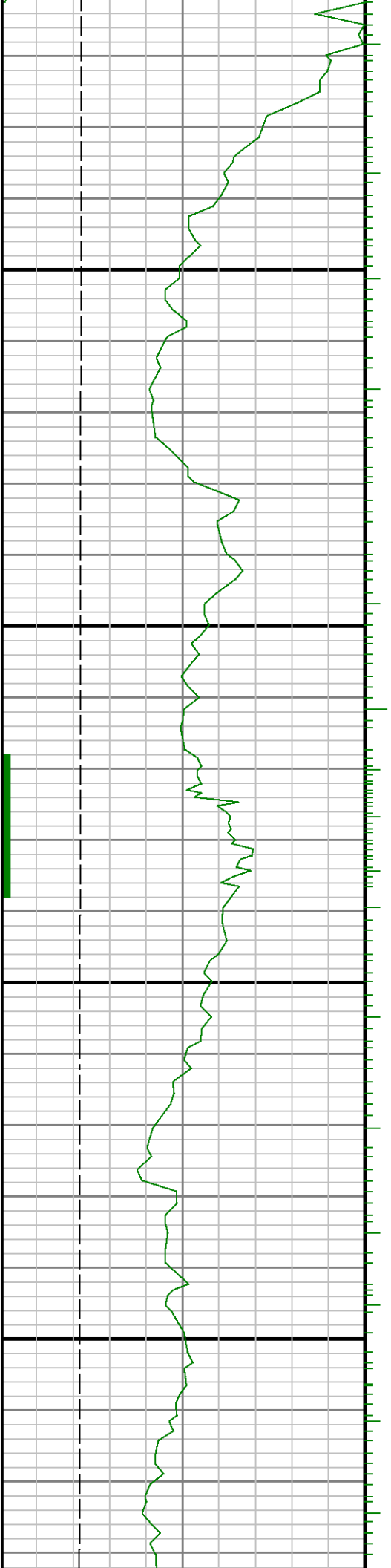


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8200

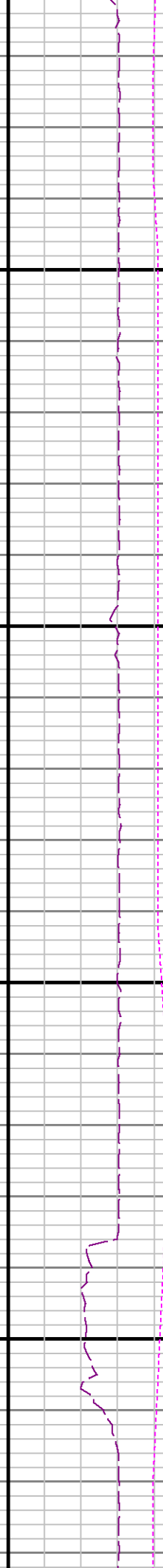
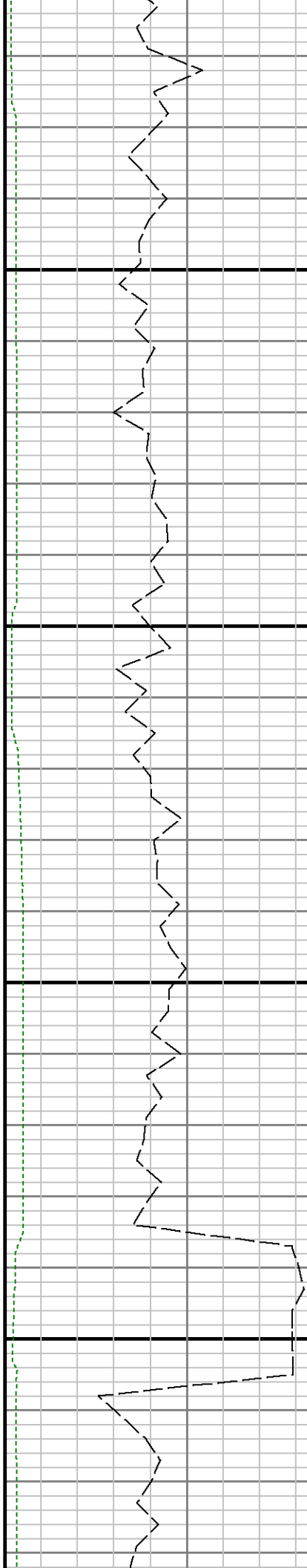


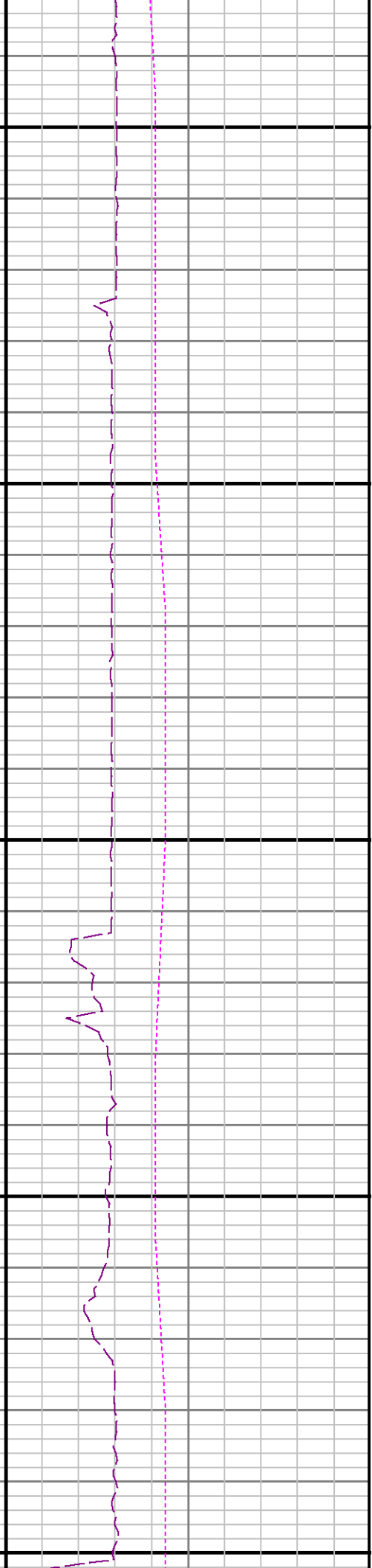
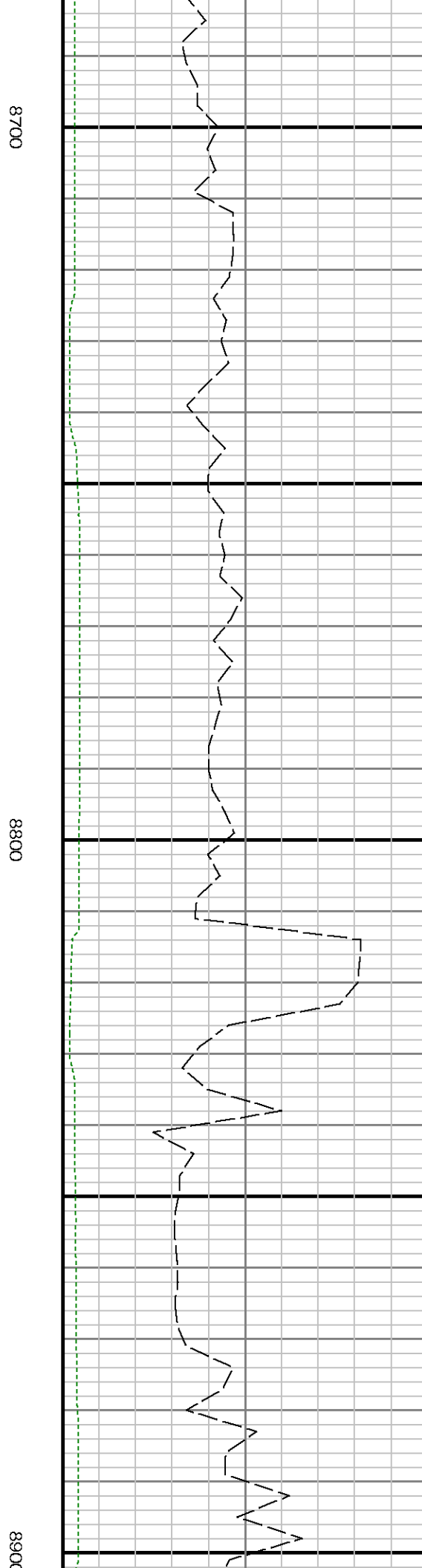
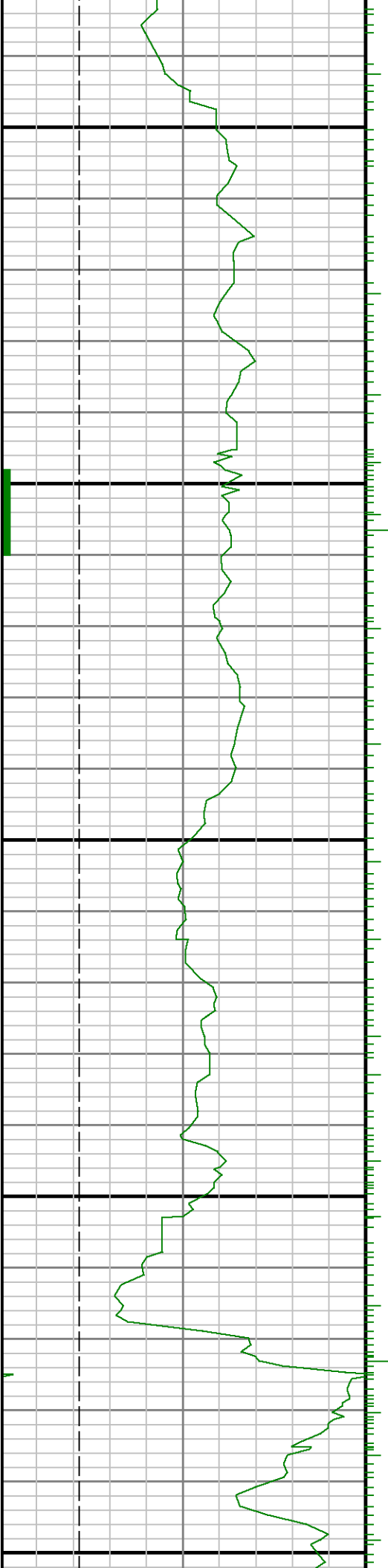


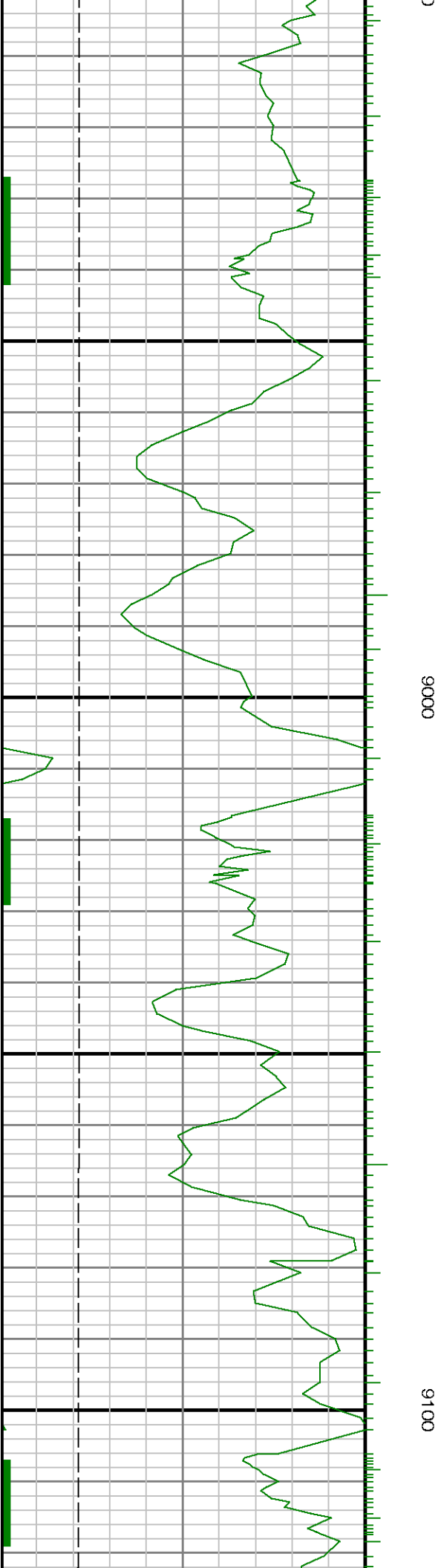
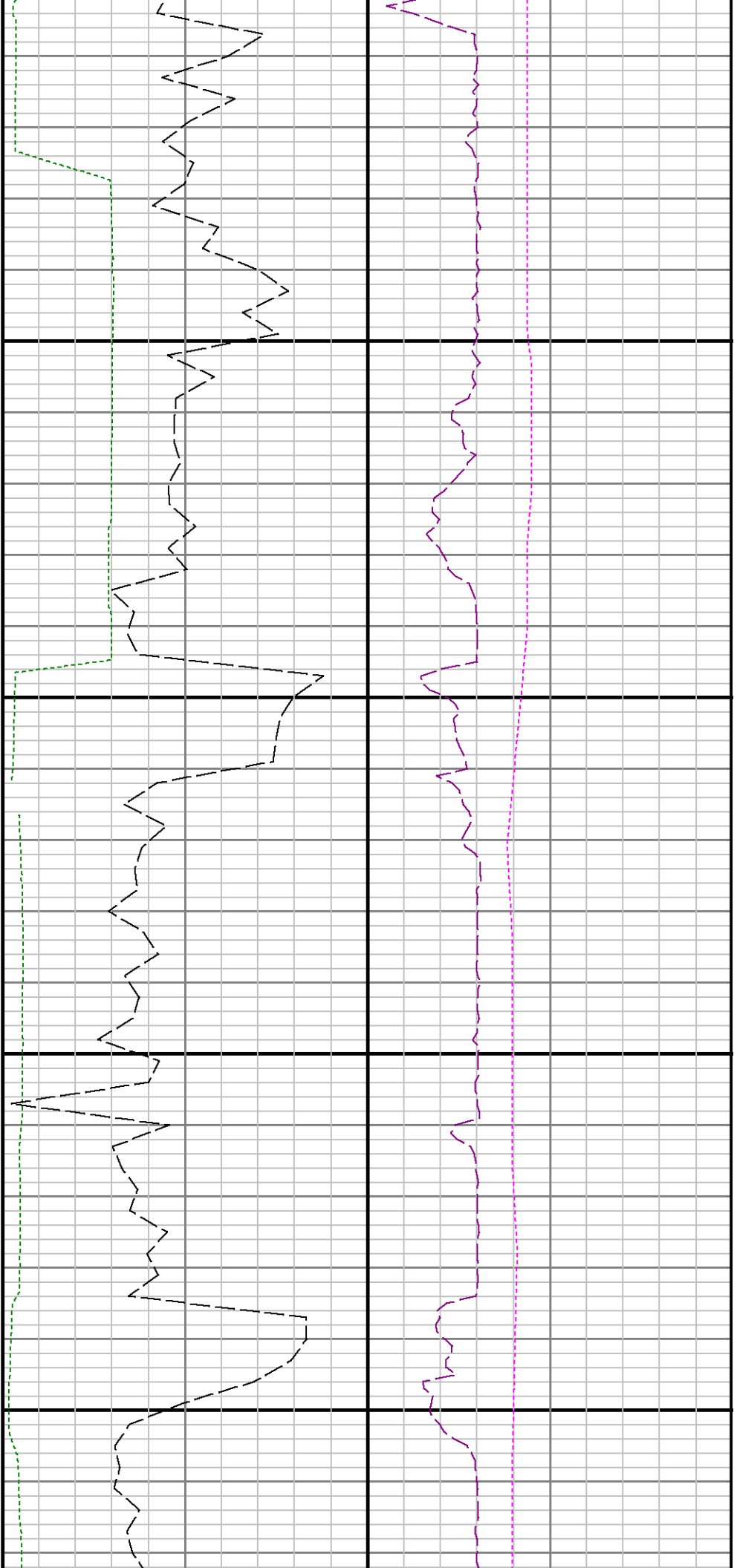


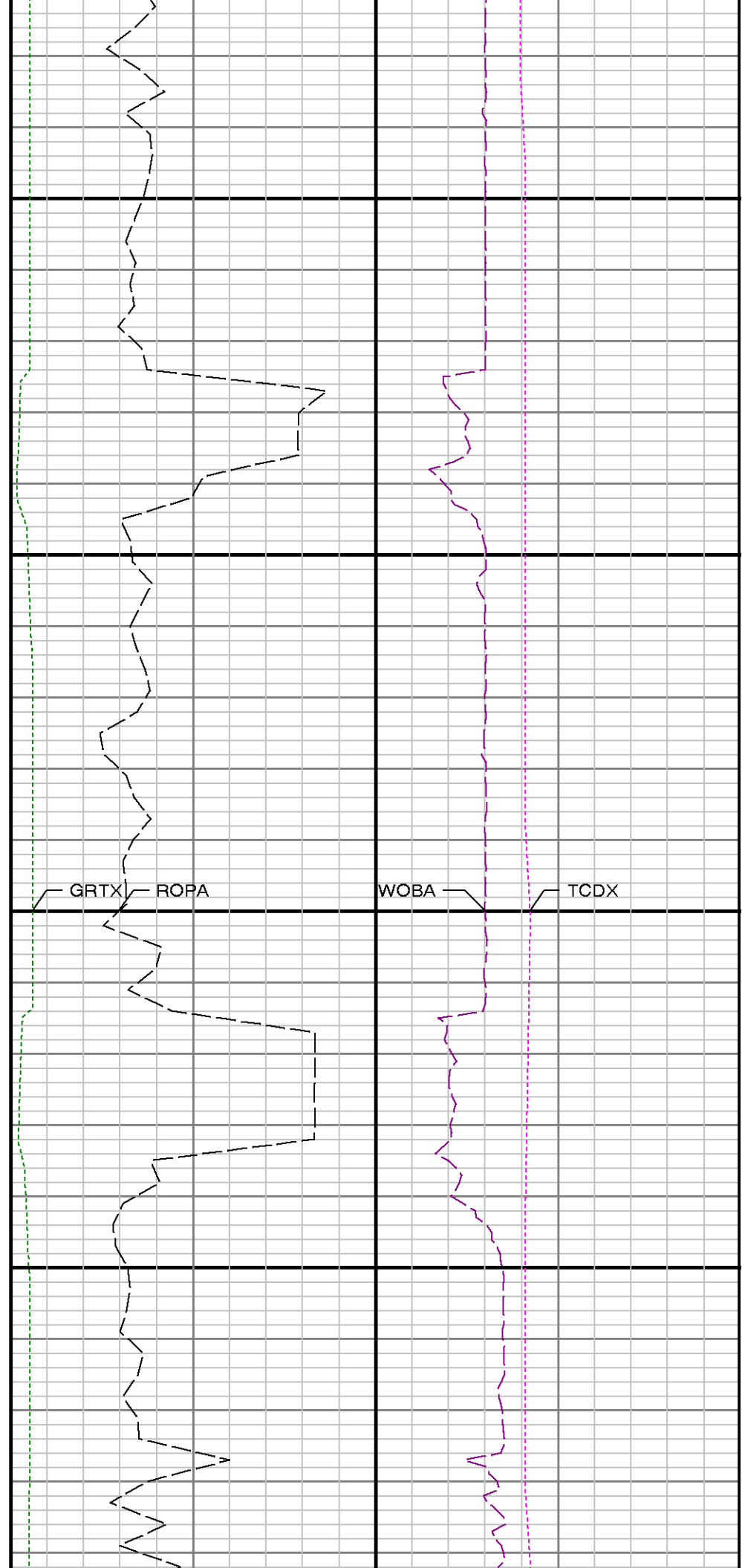
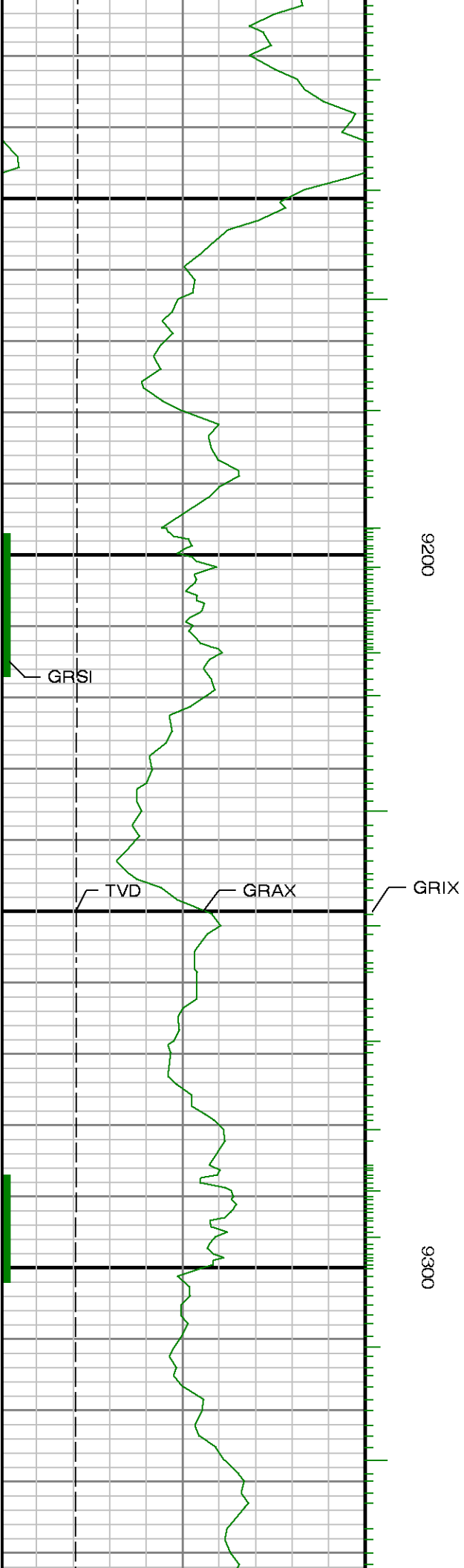
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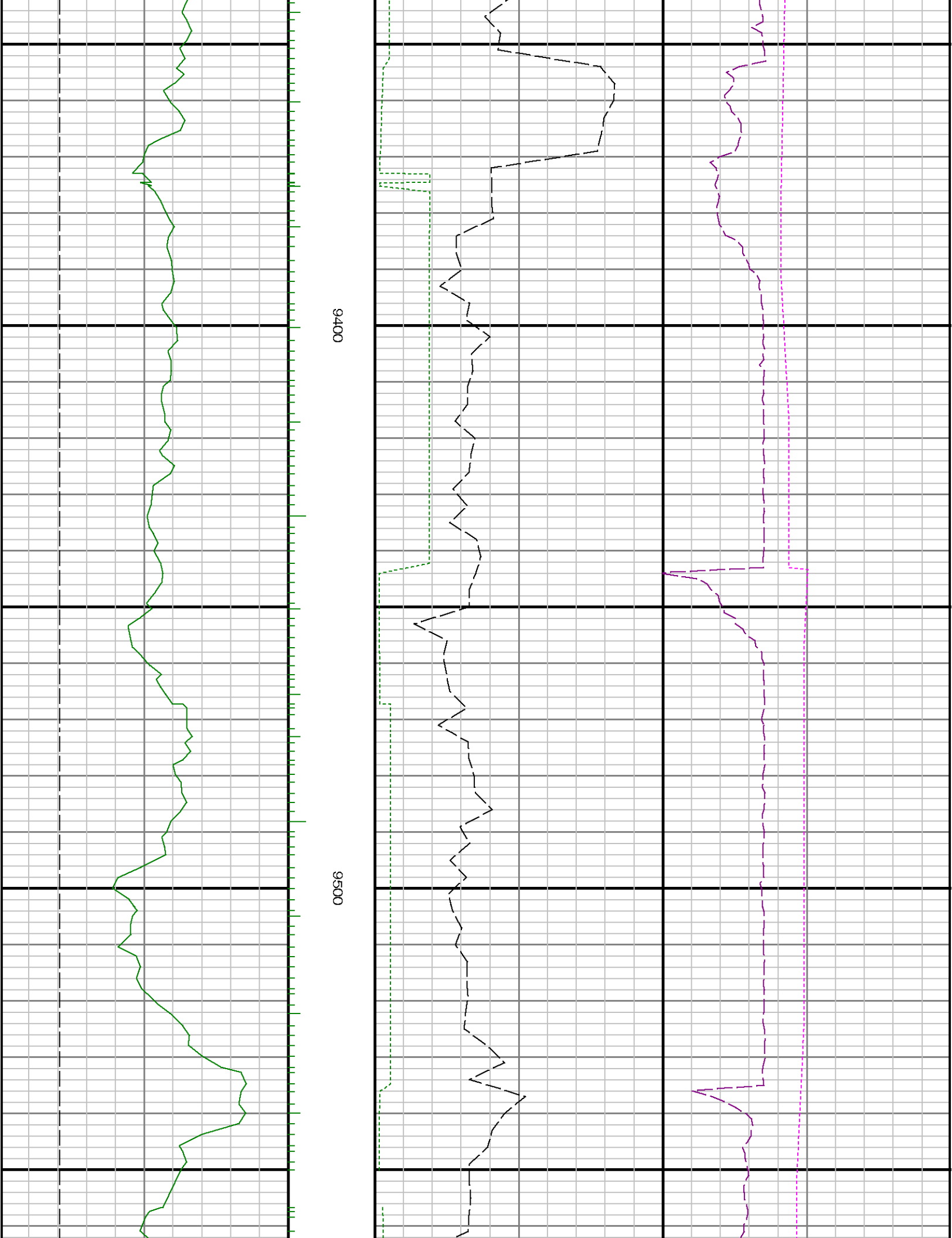
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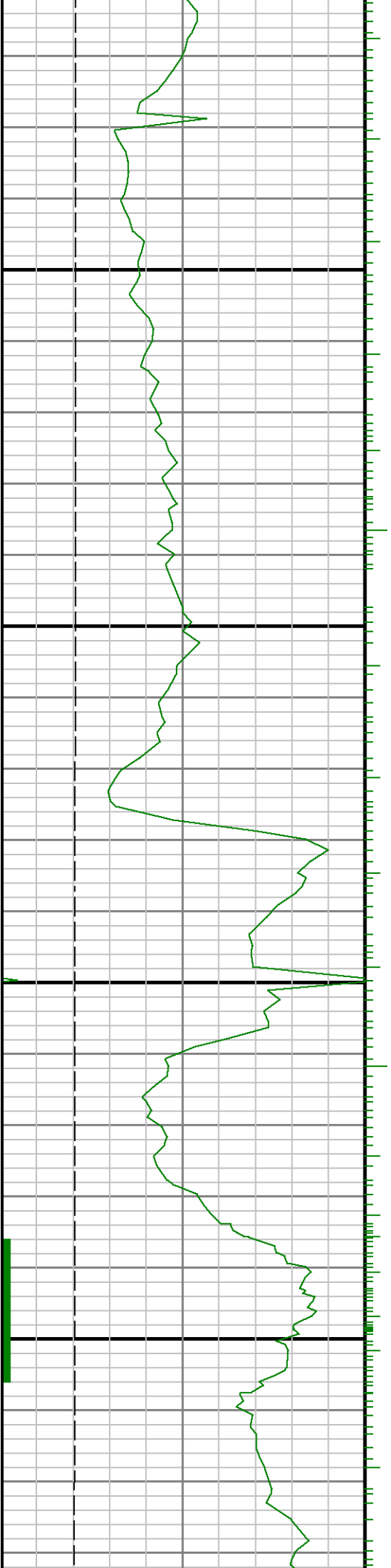






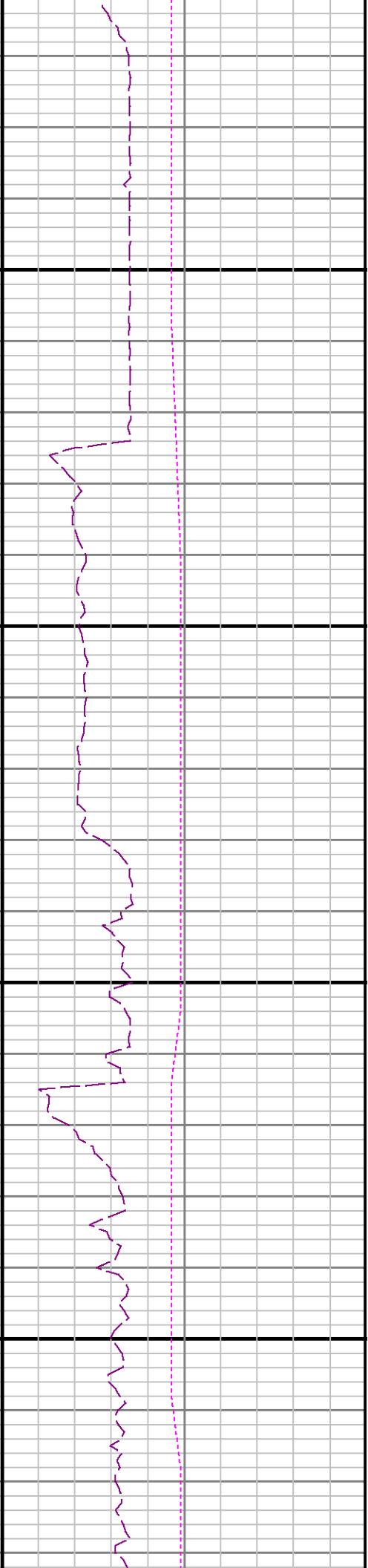
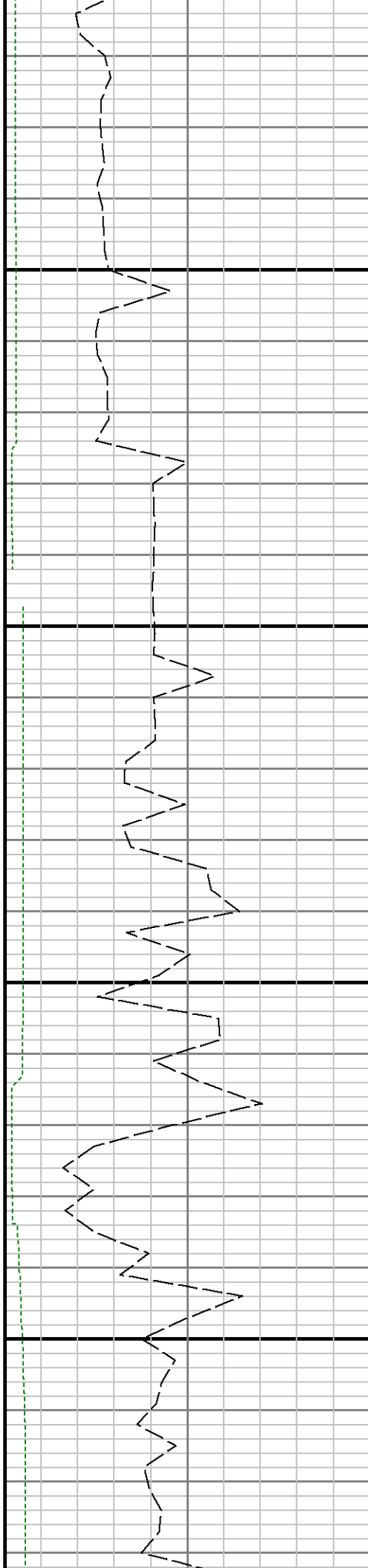


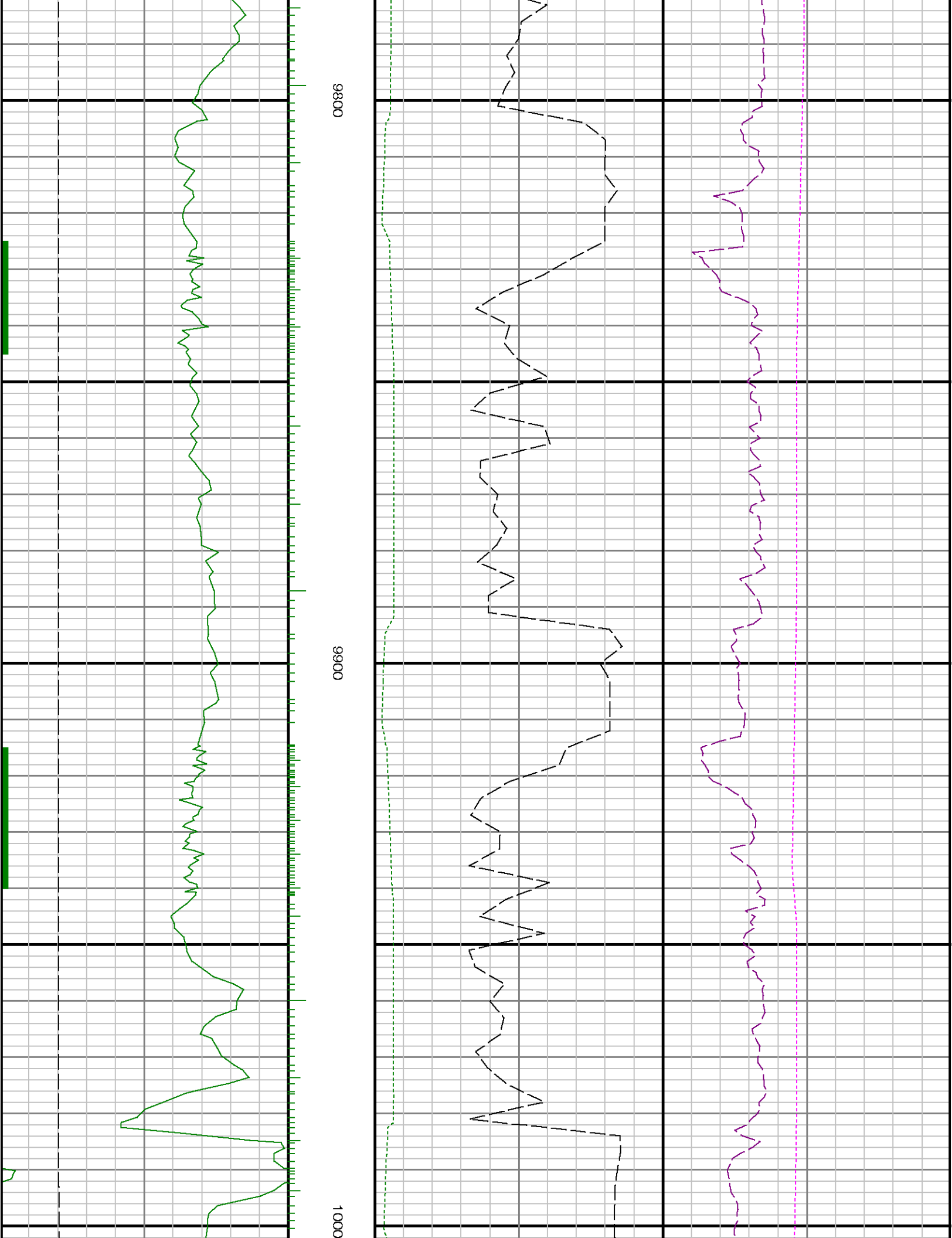


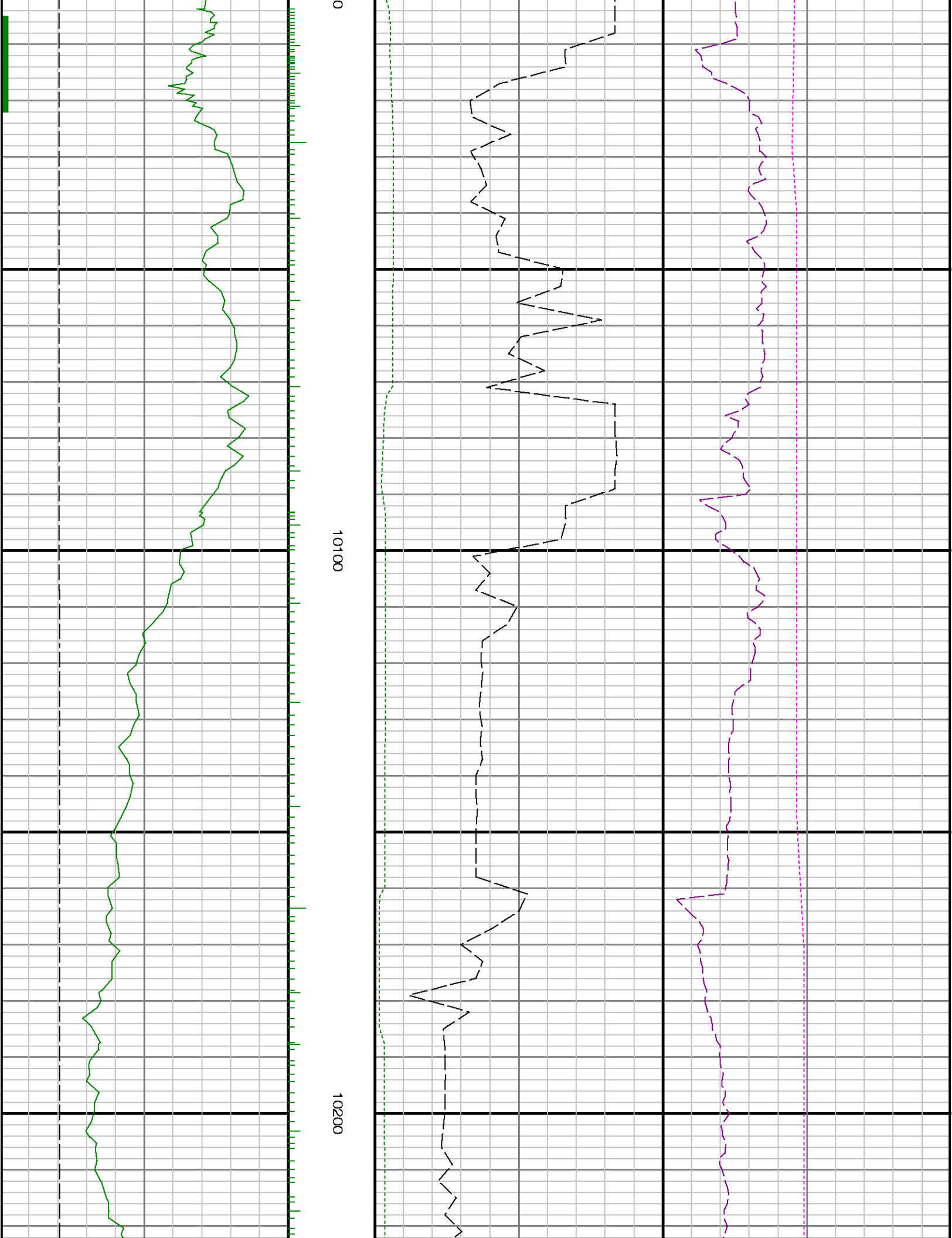


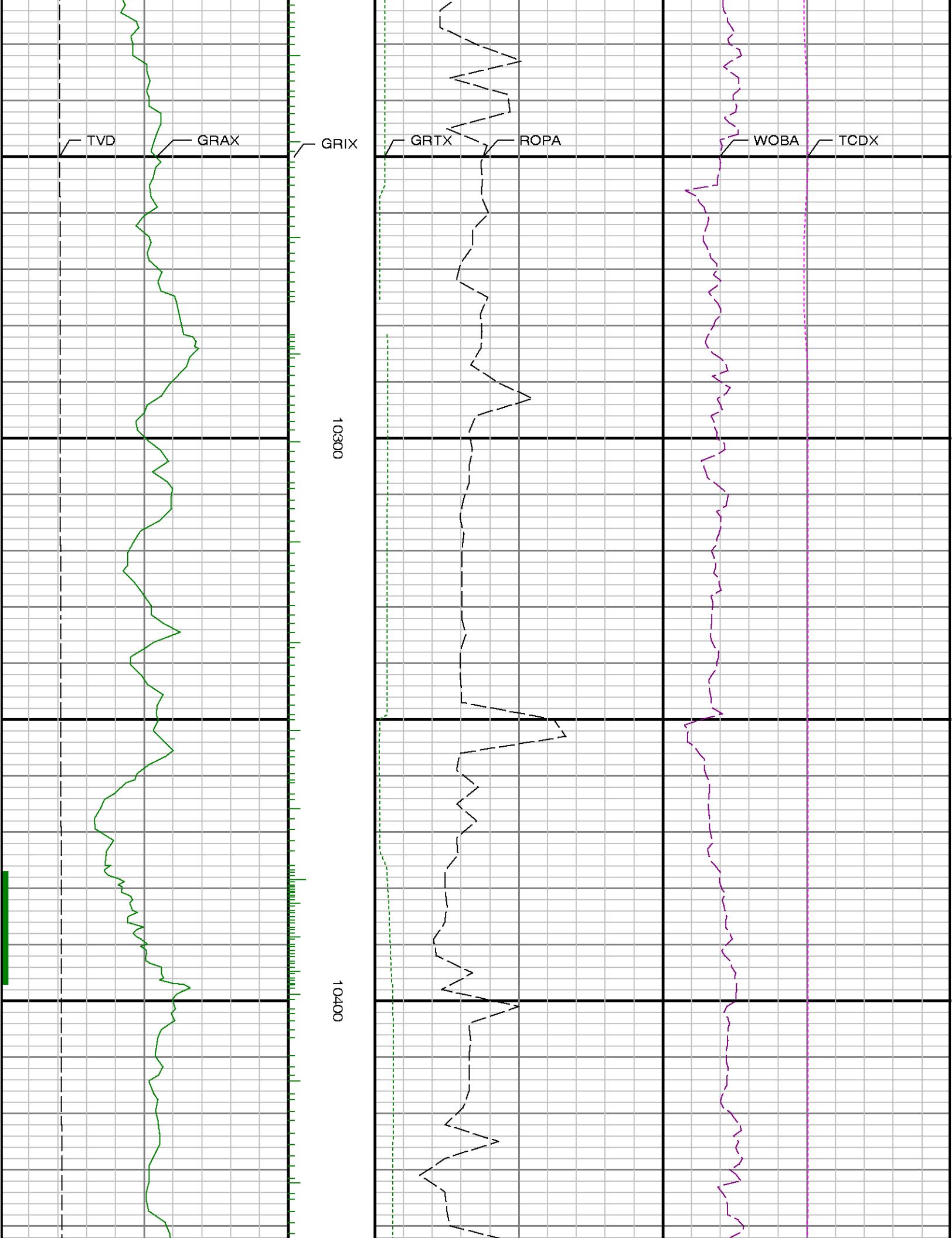
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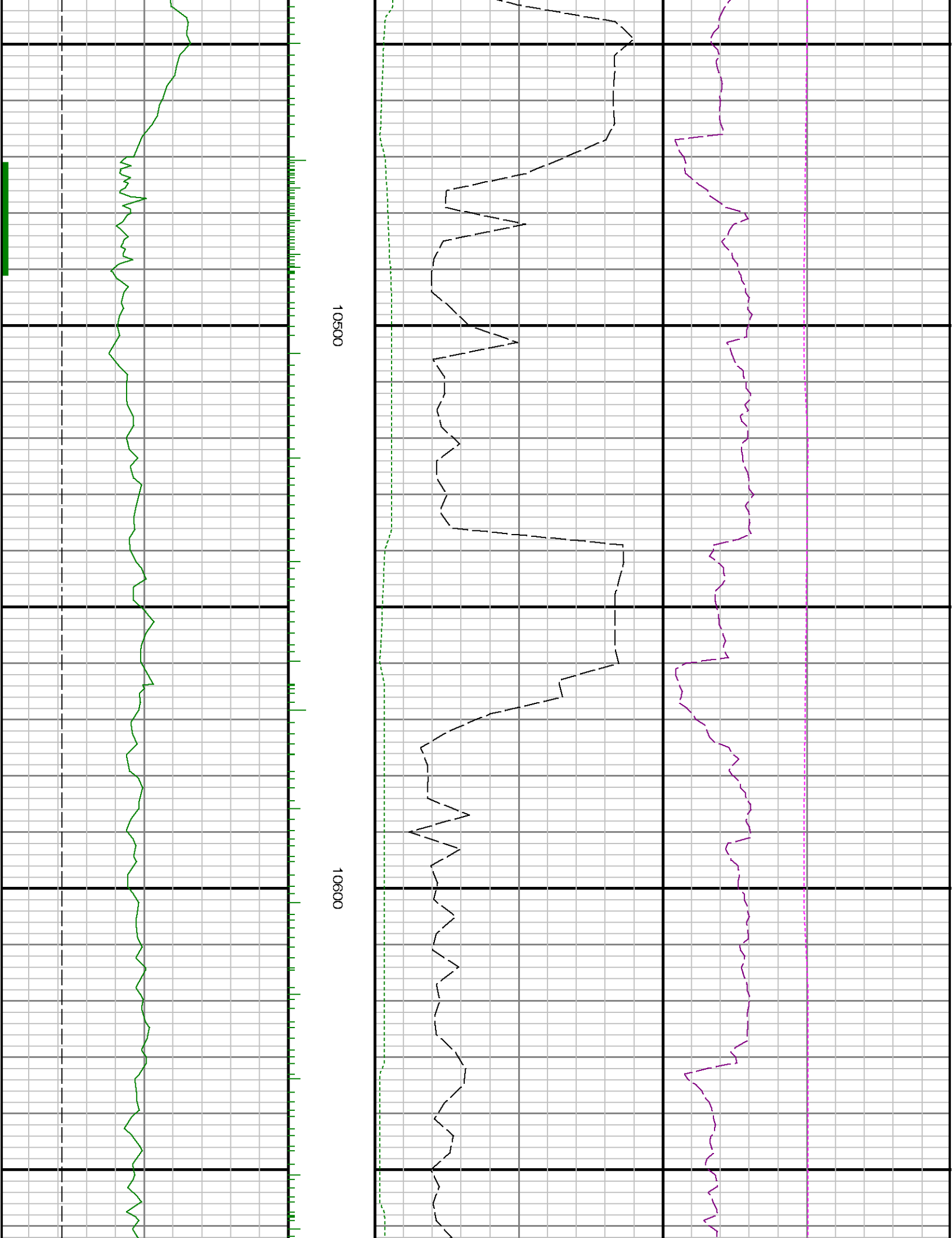
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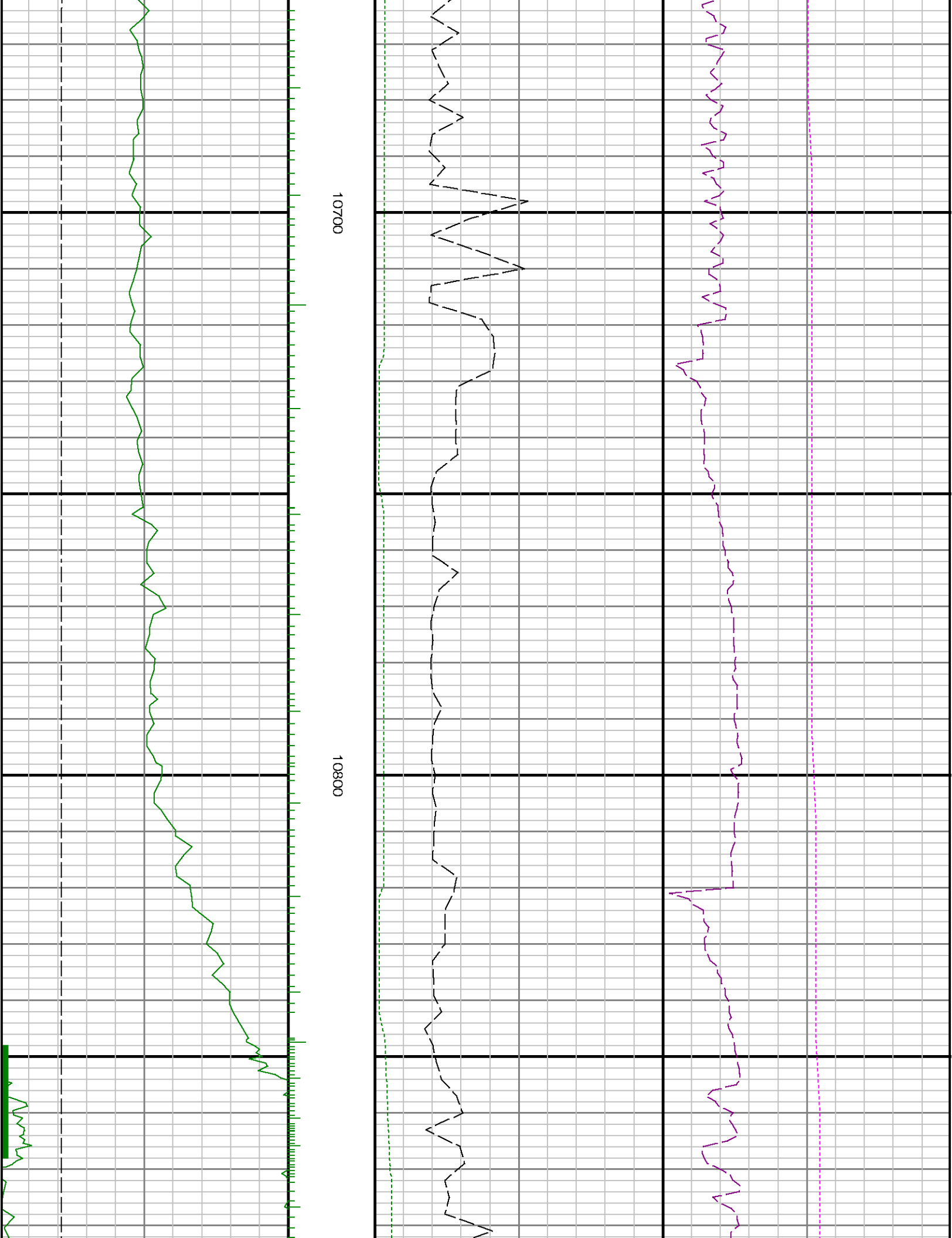


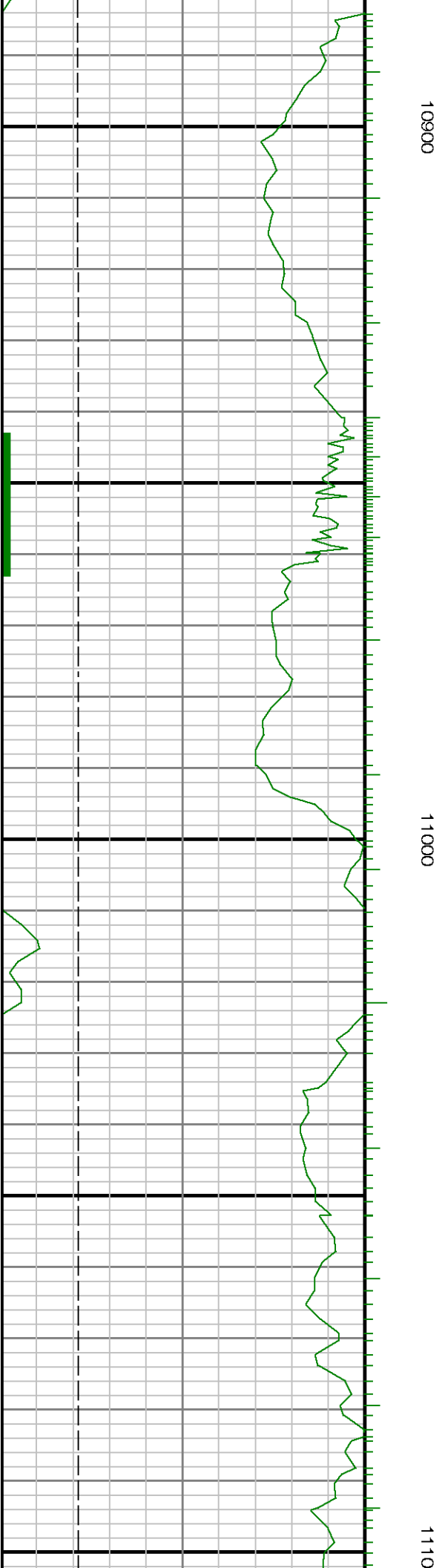
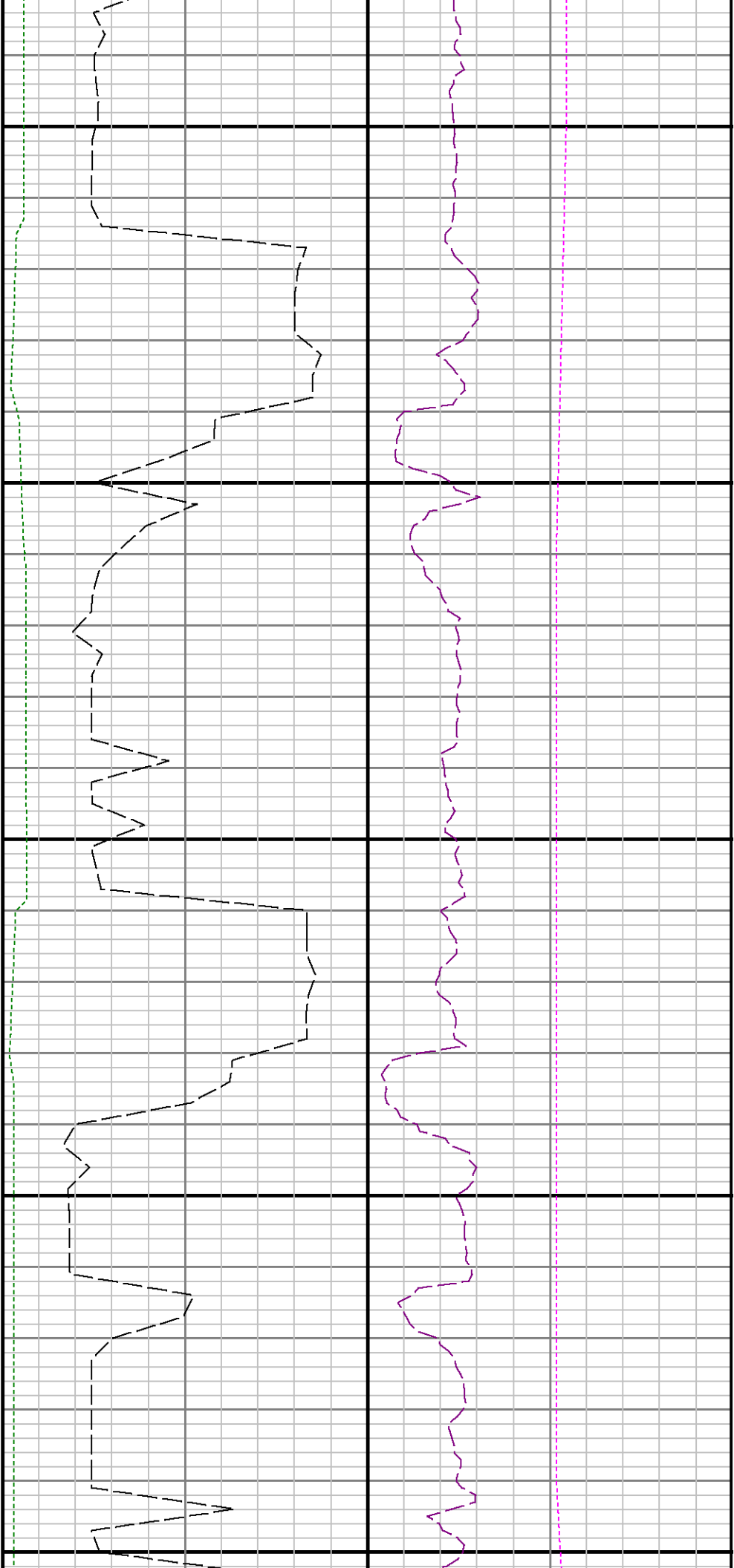


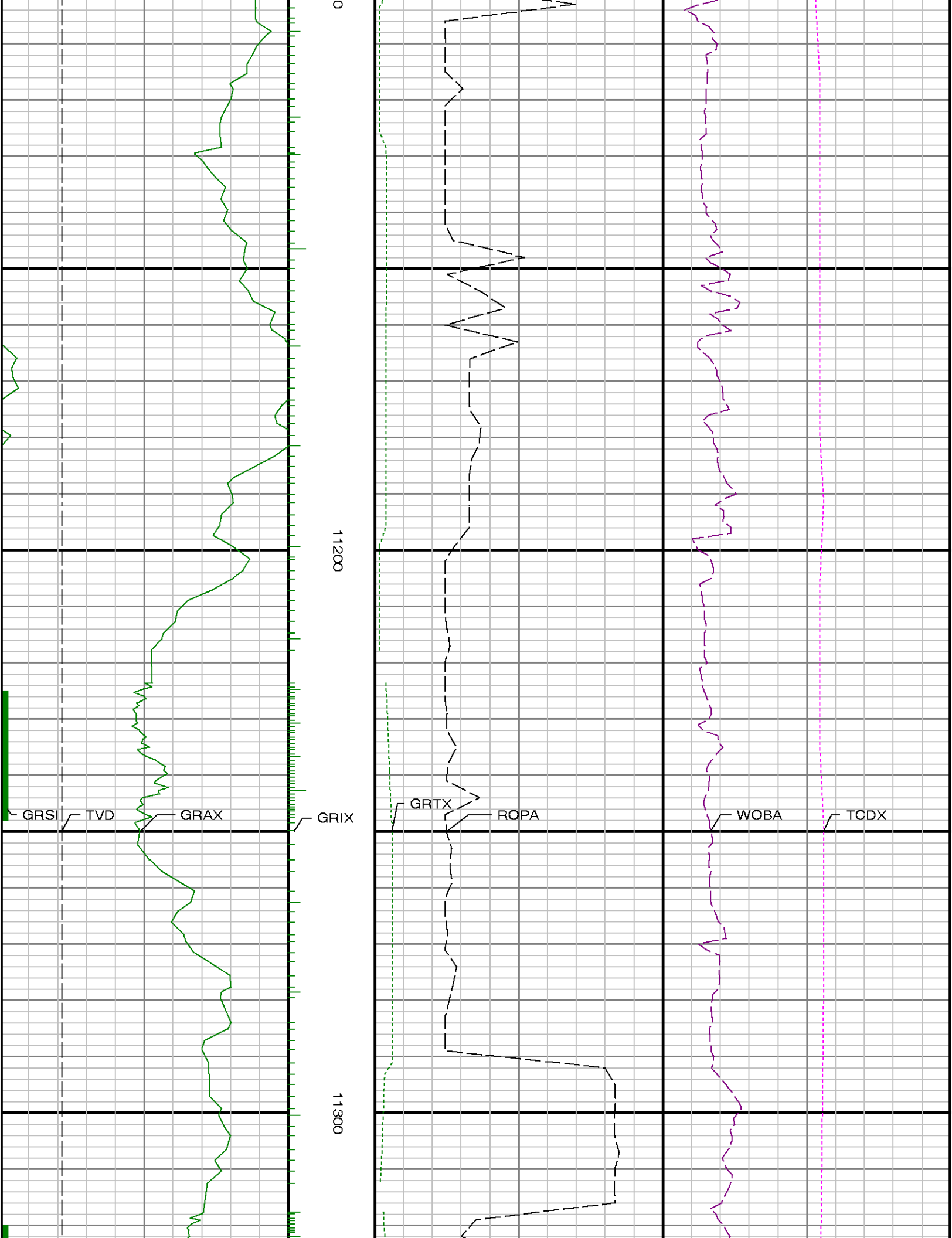


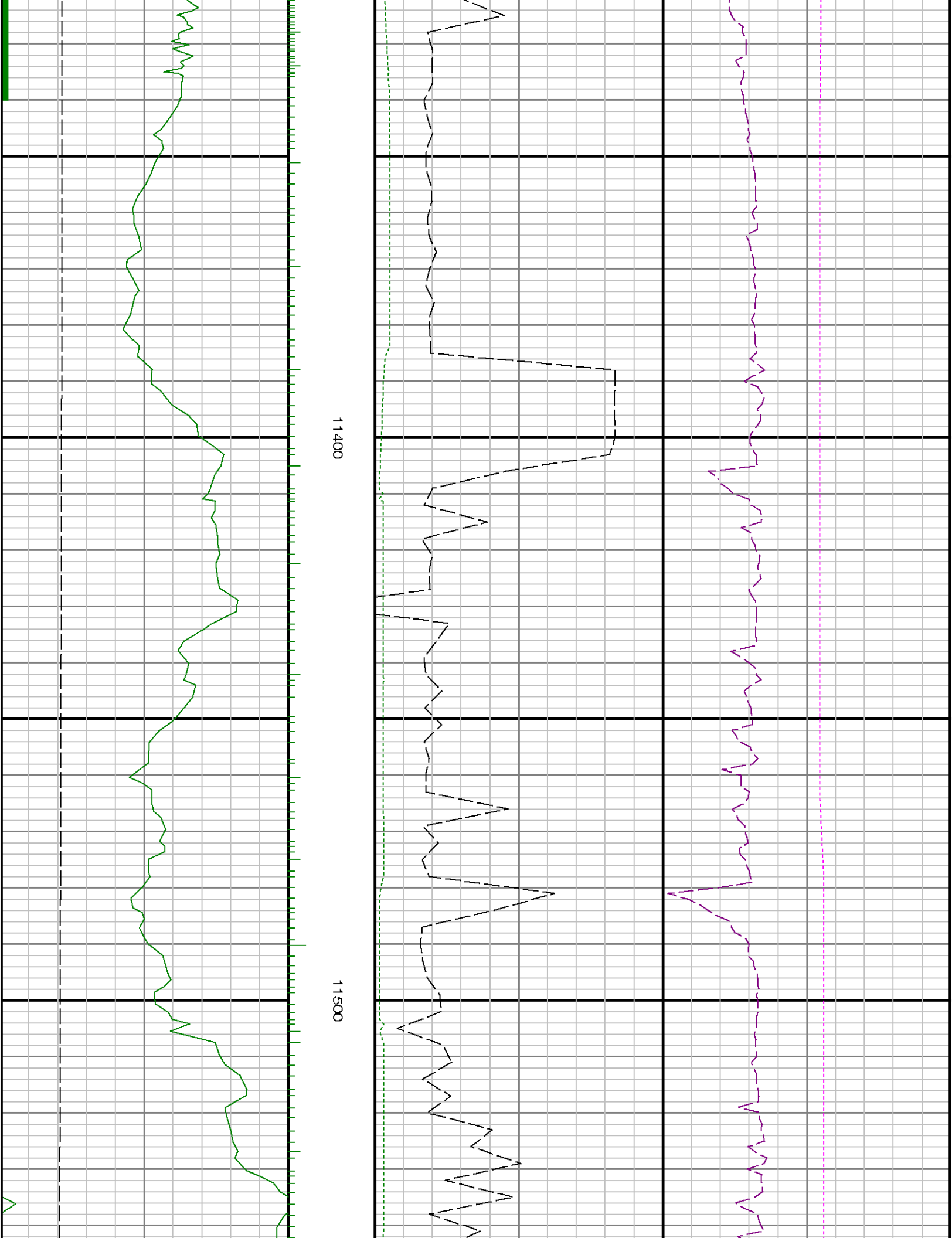


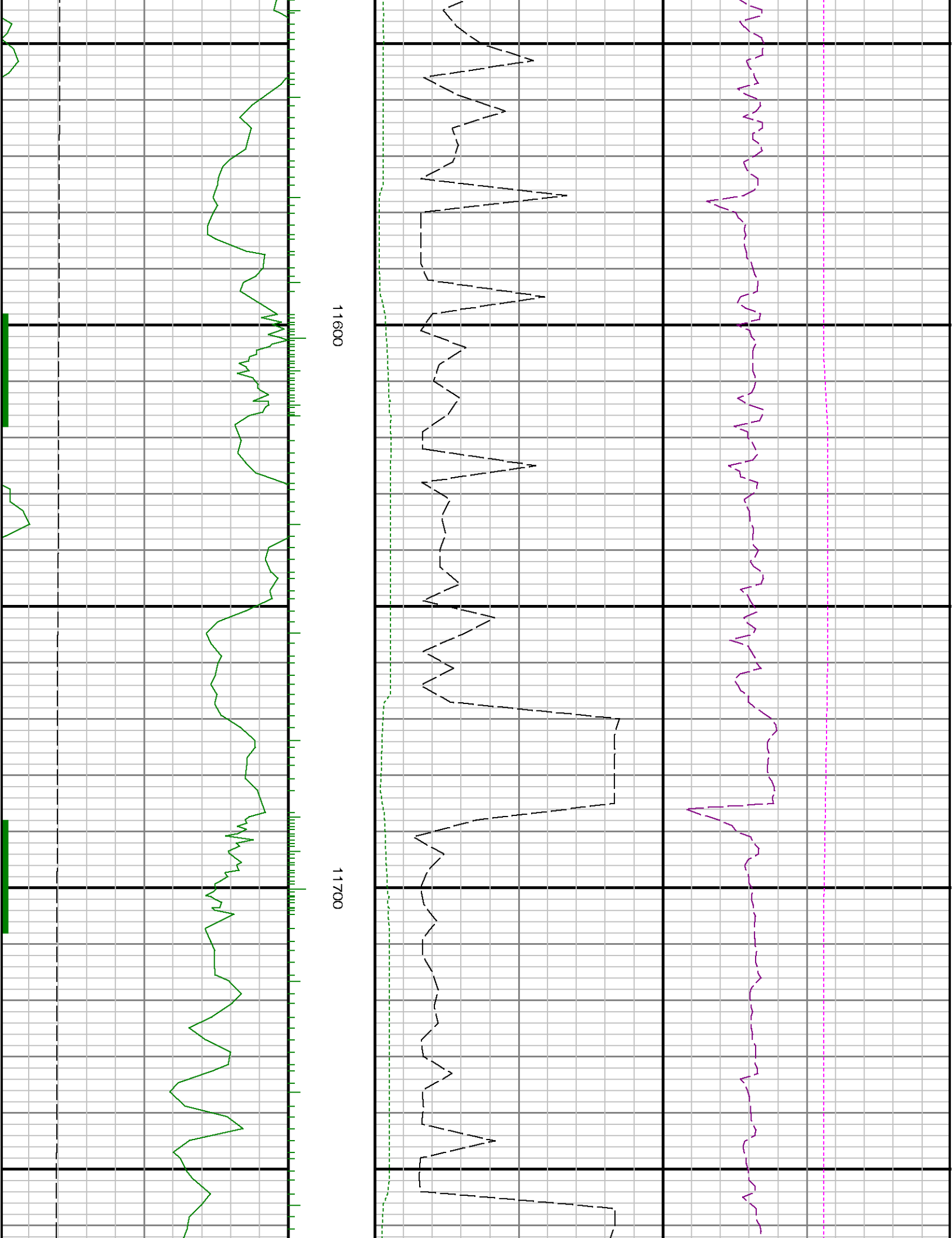


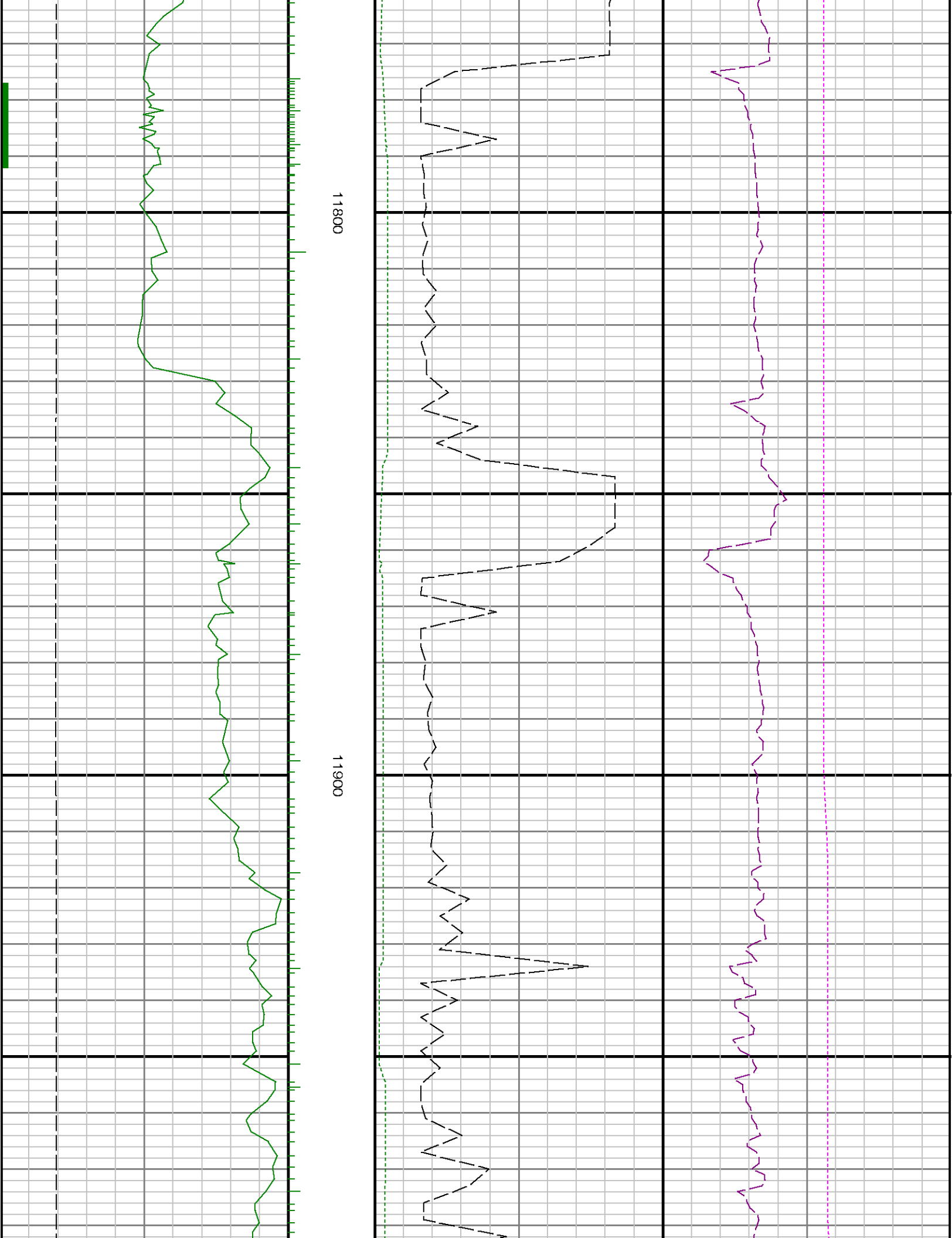


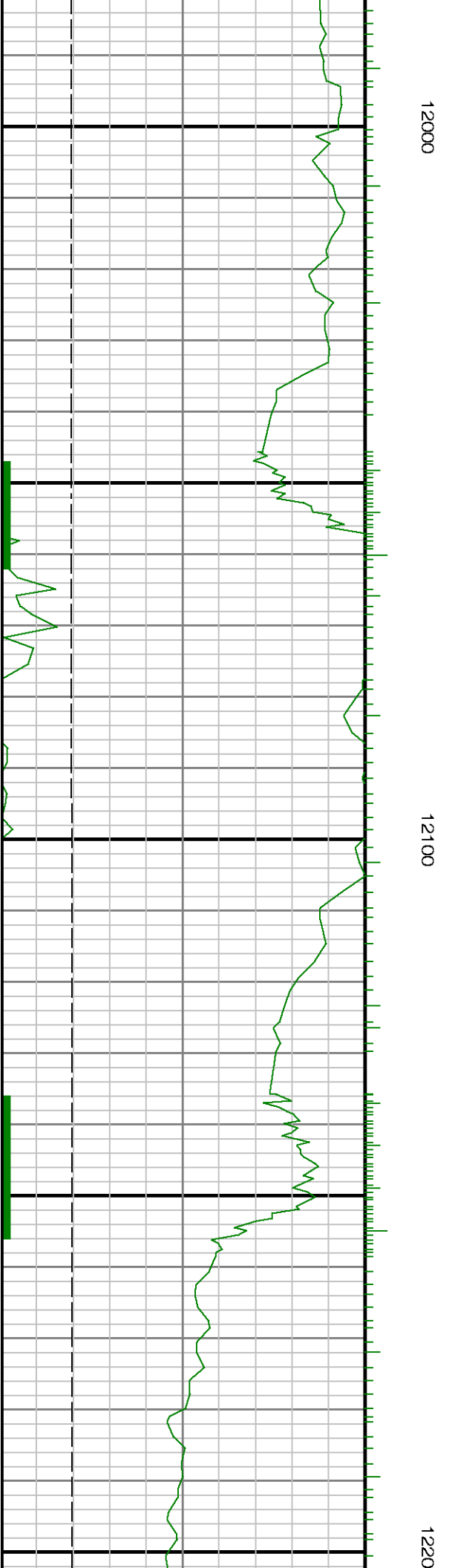
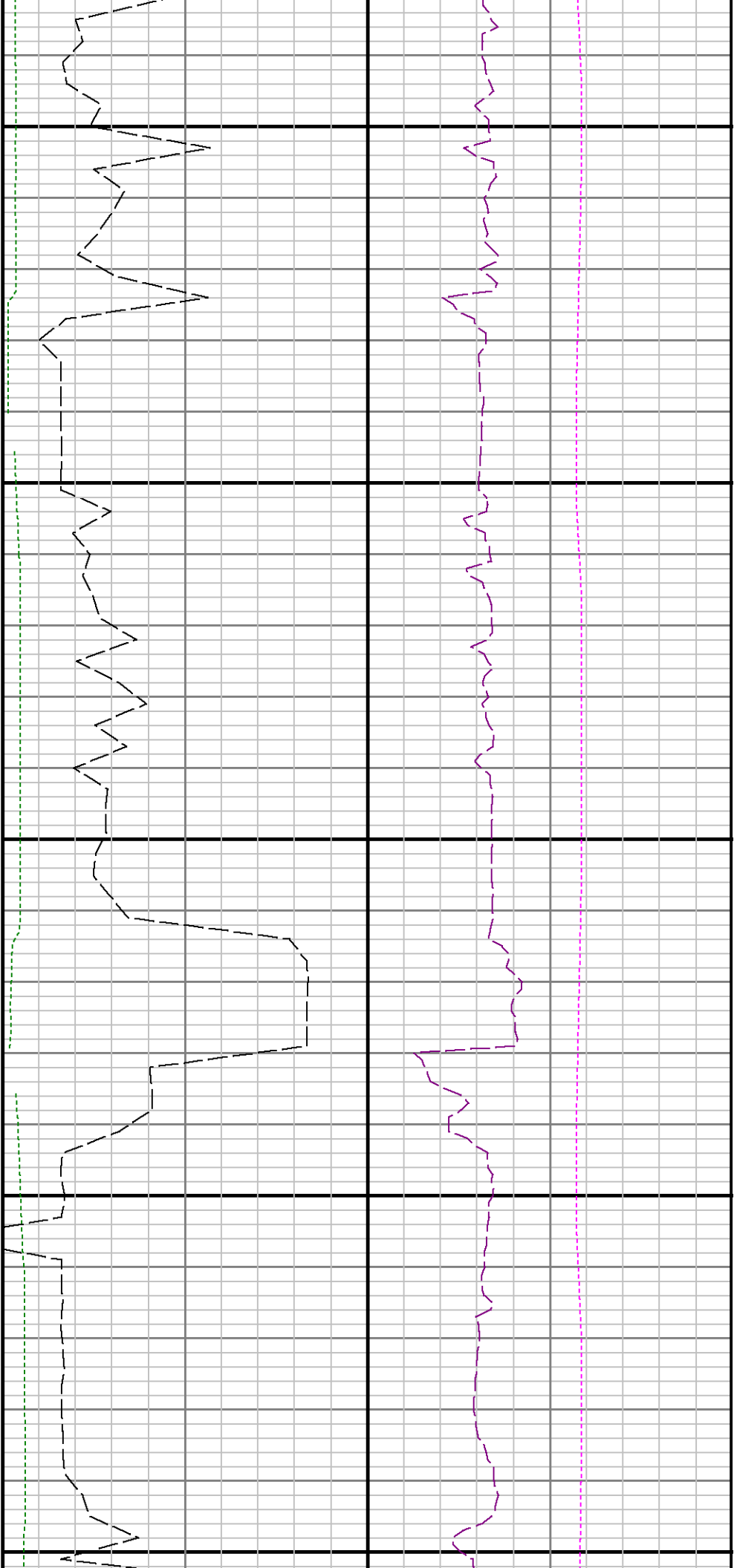


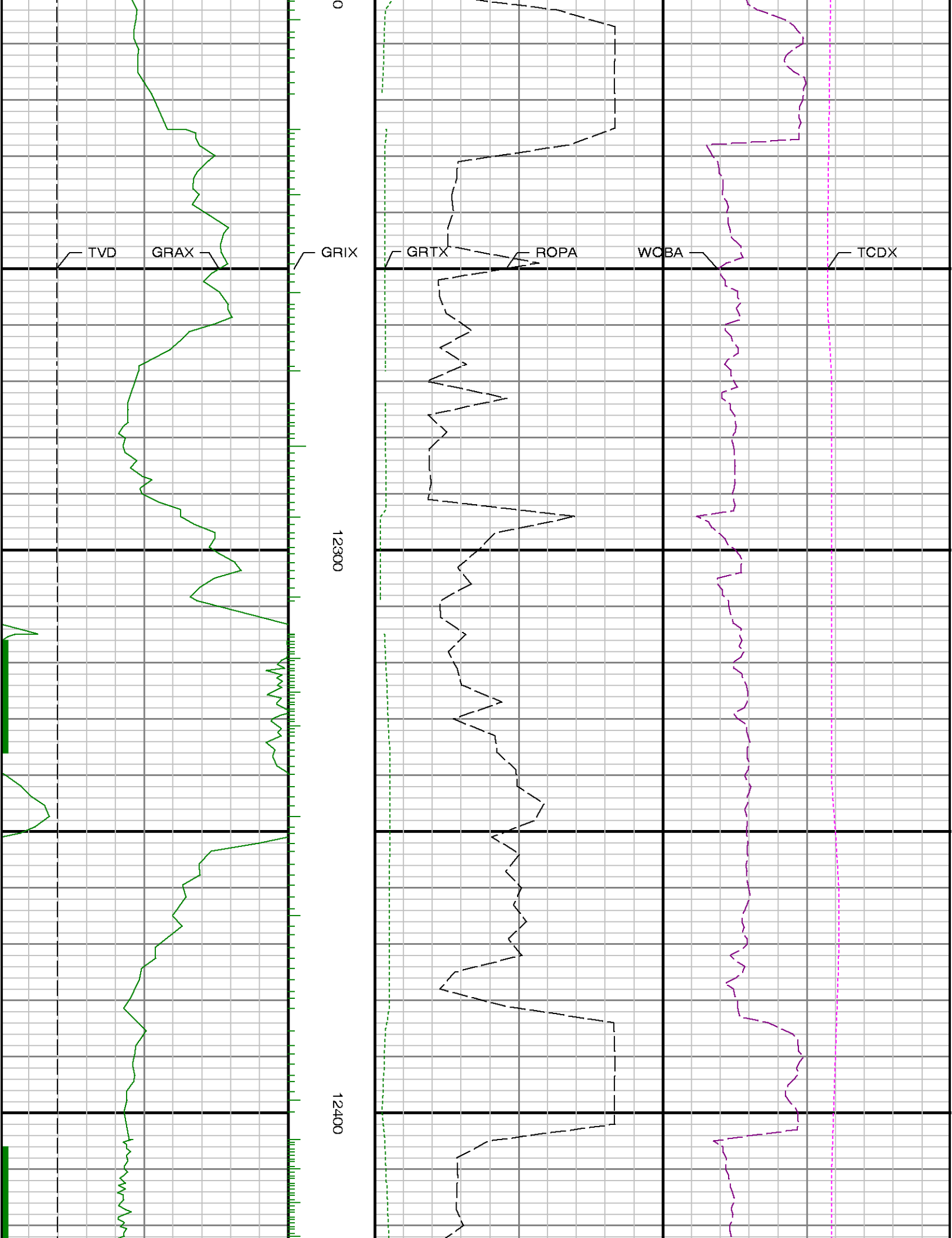


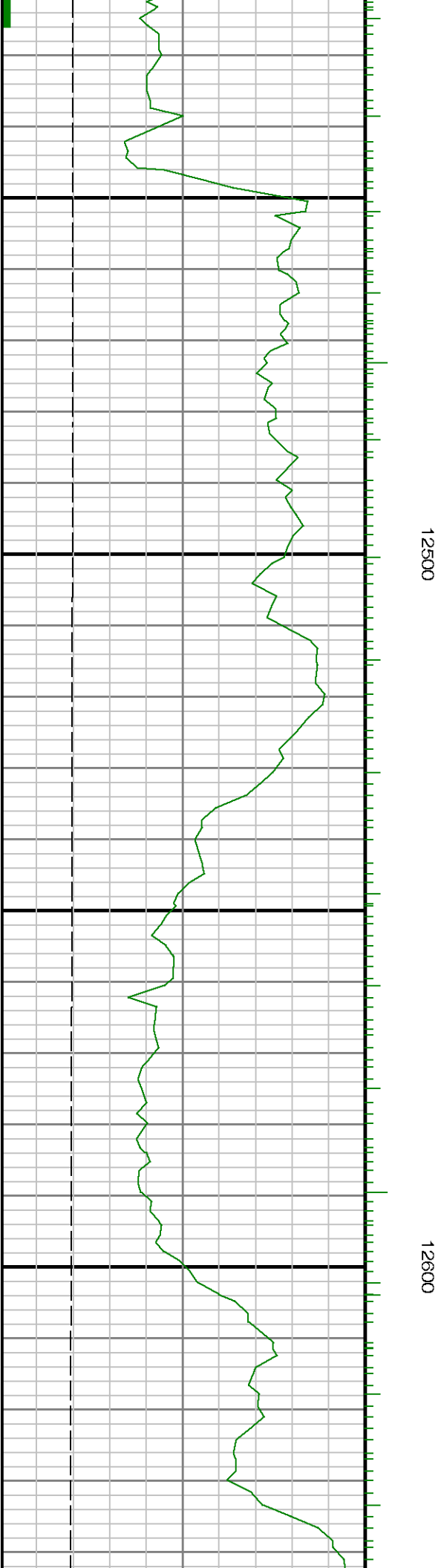
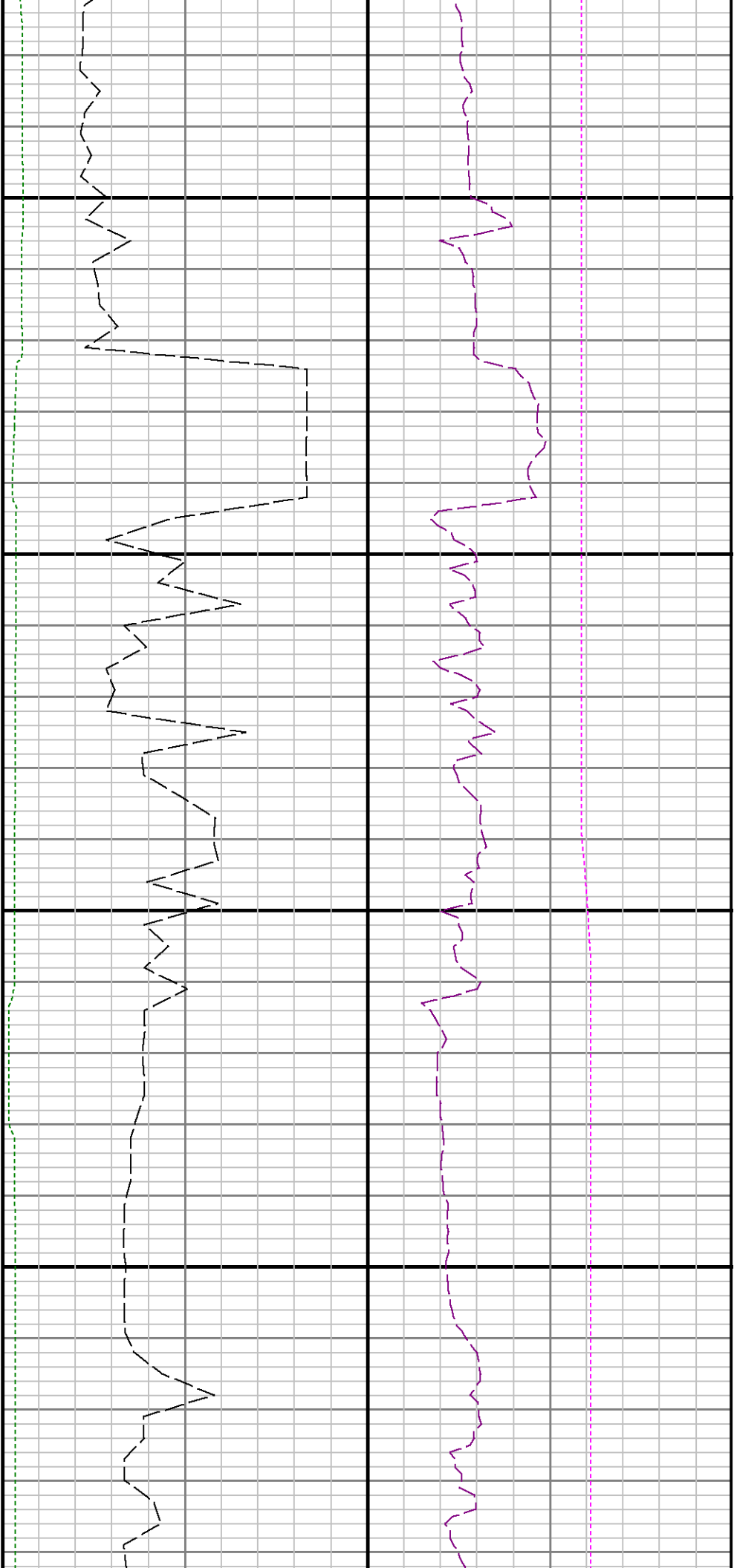


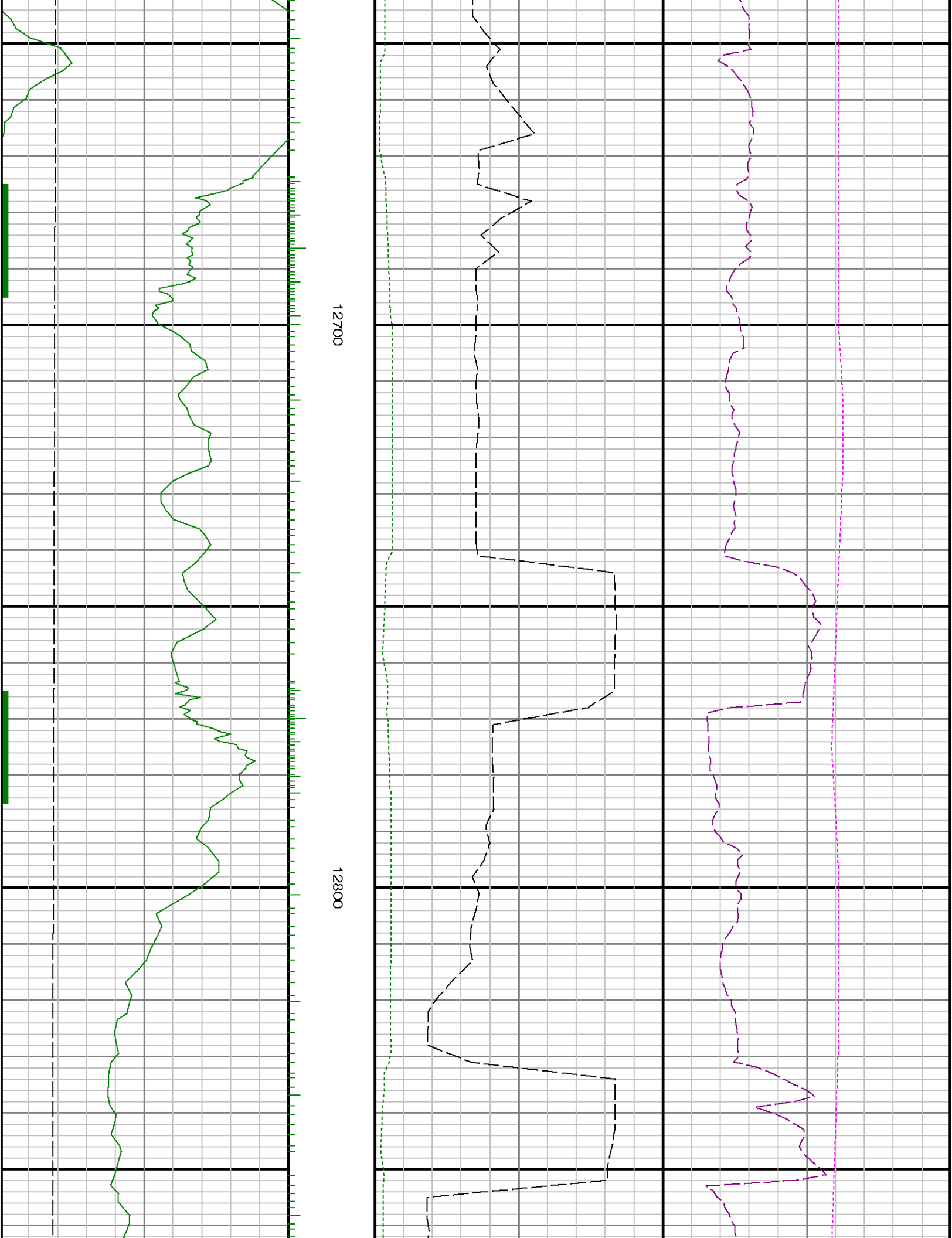


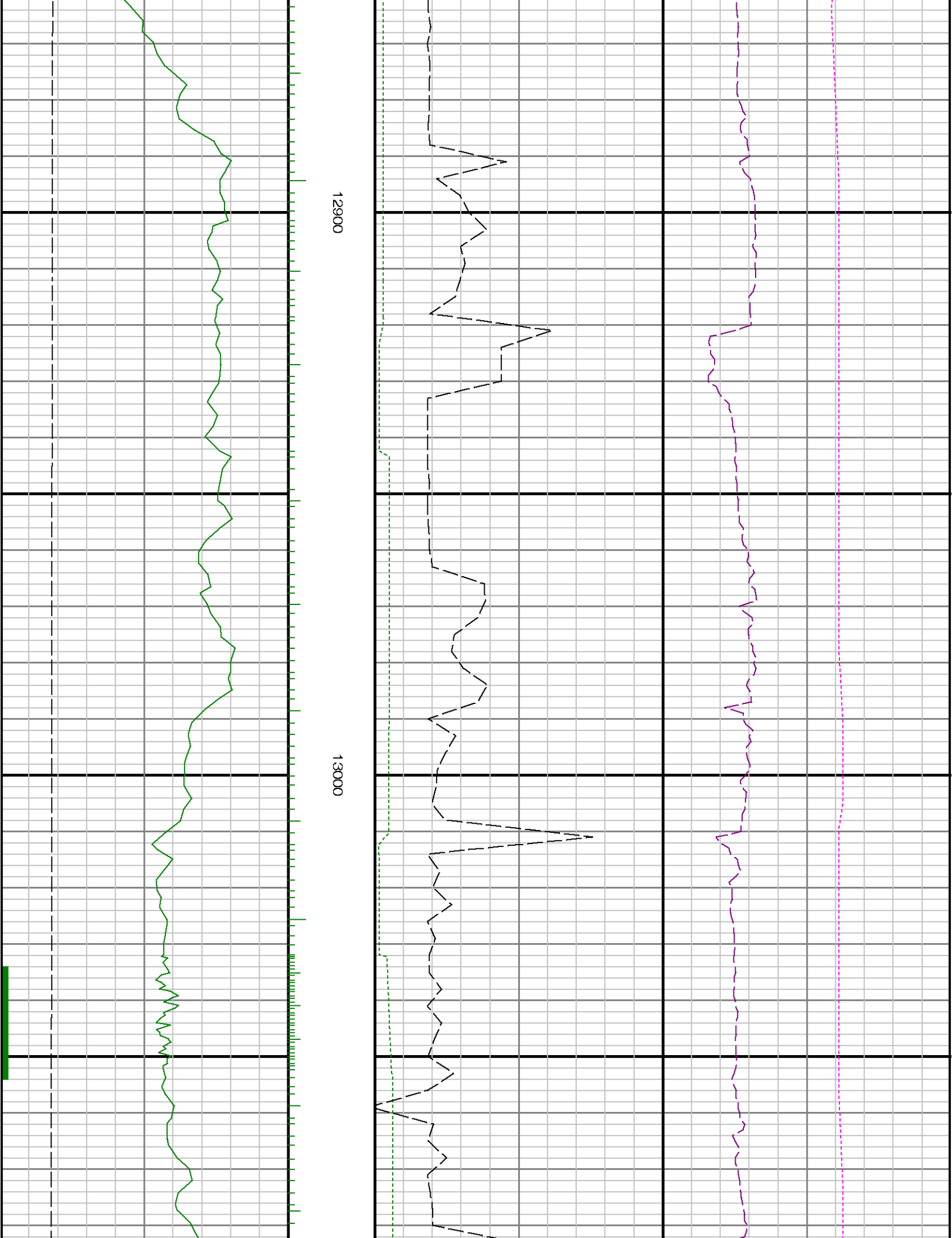


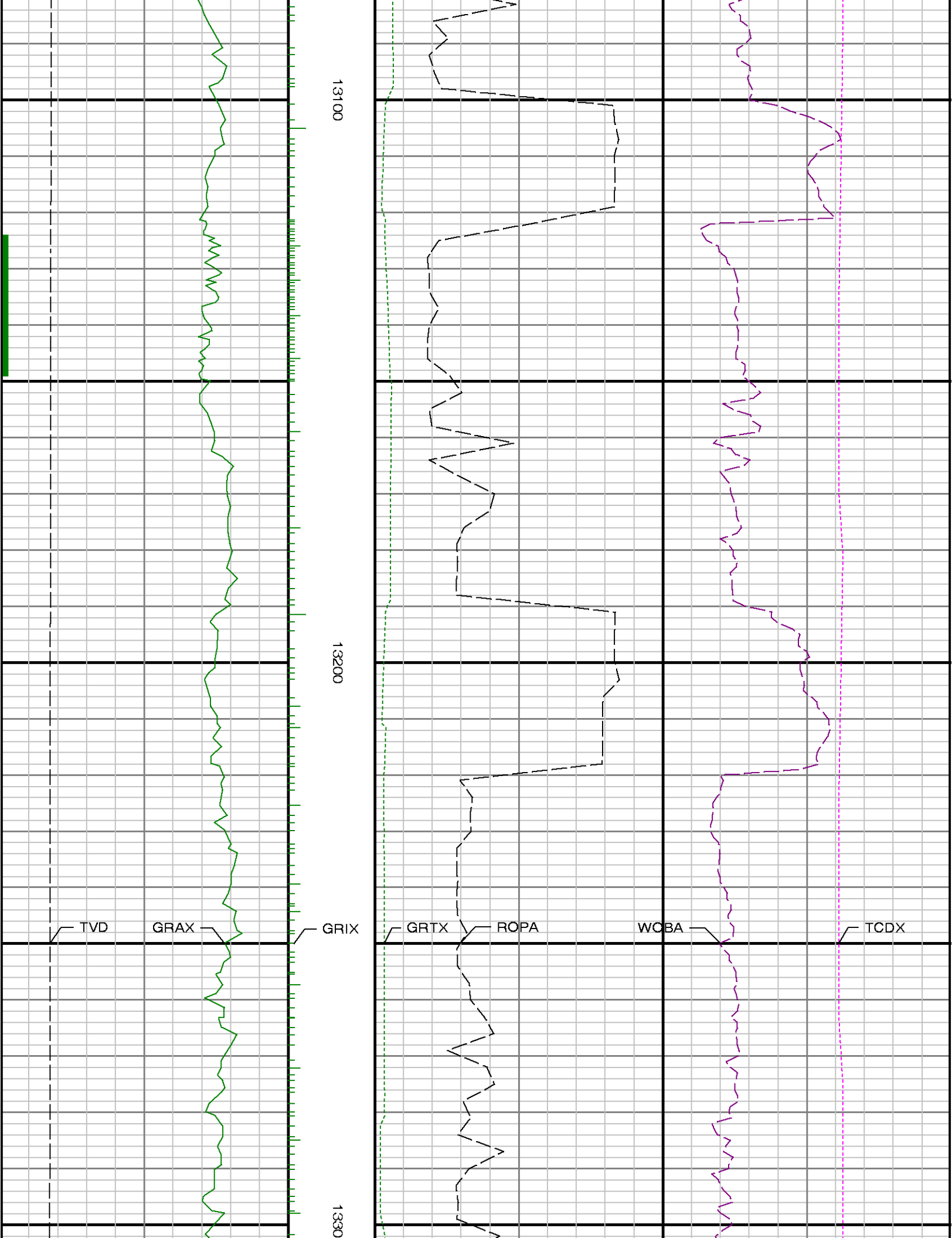


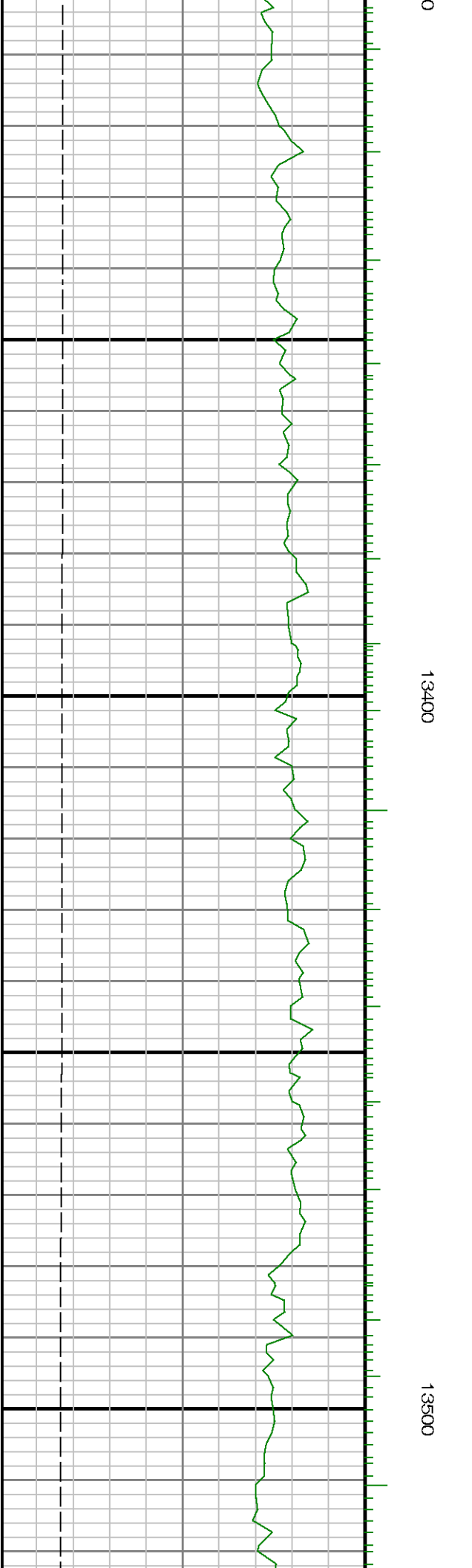
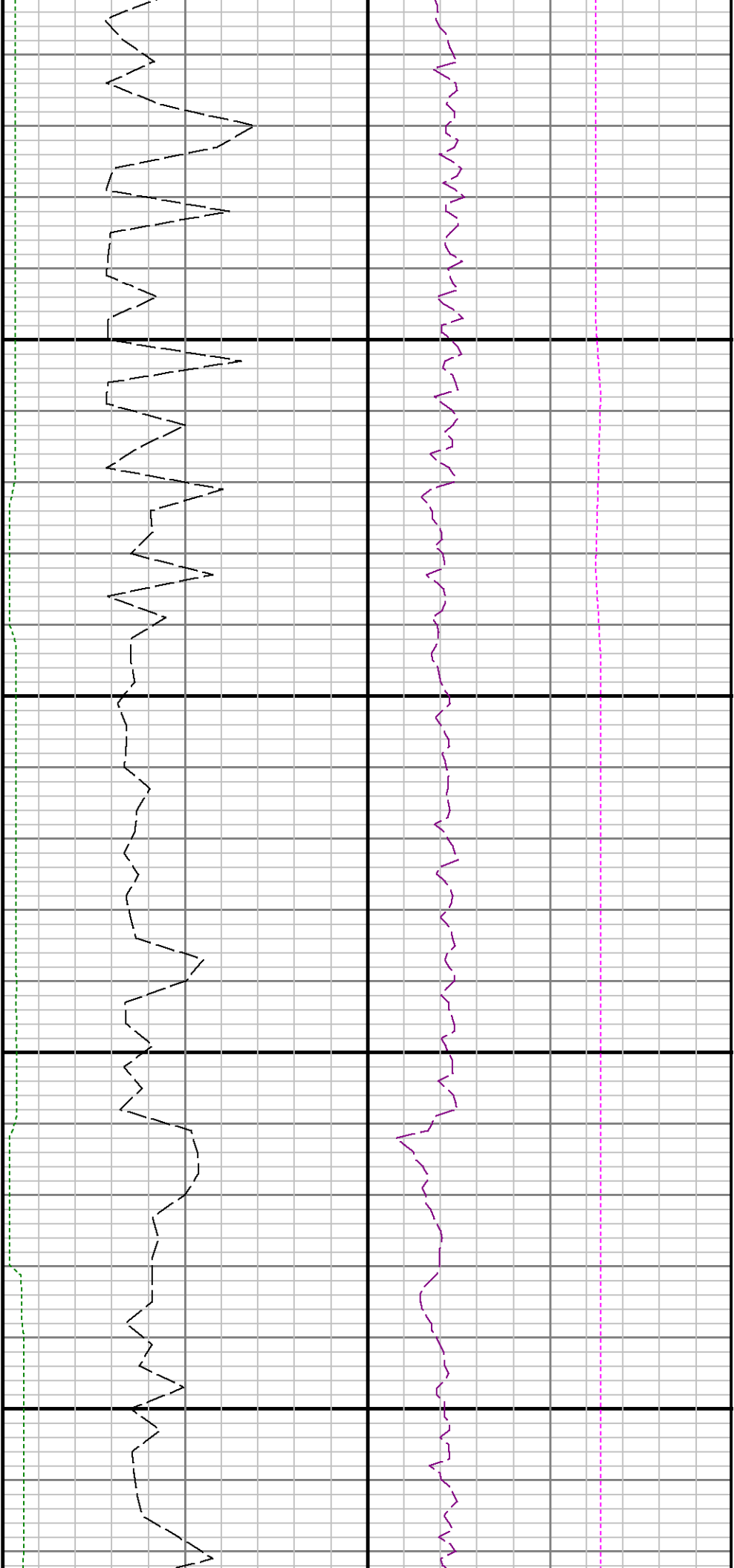


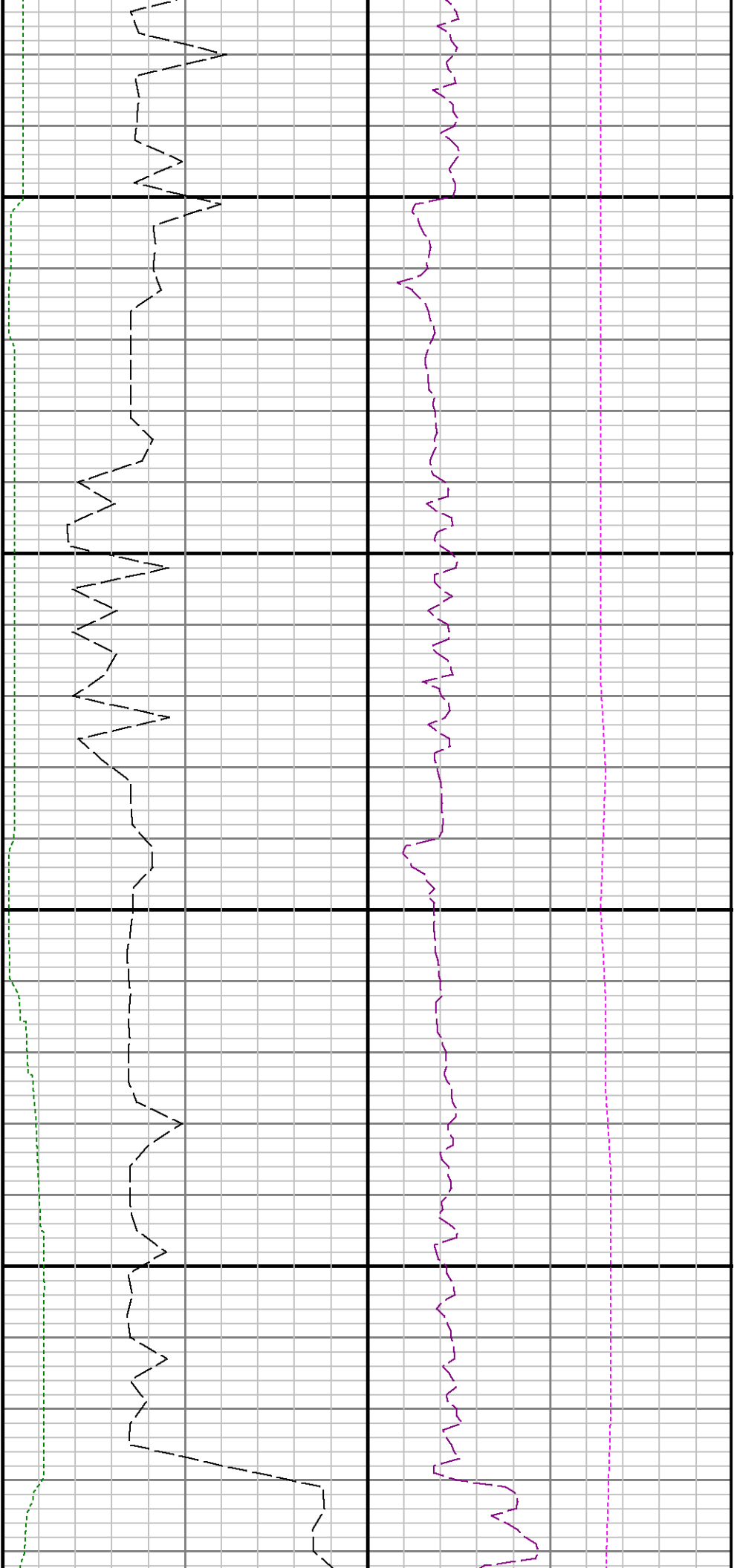






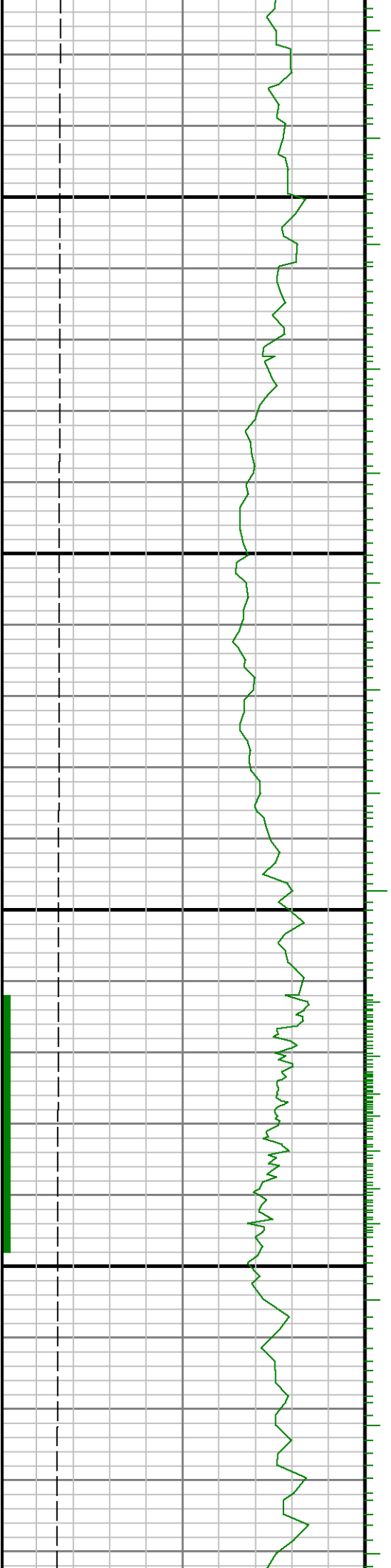


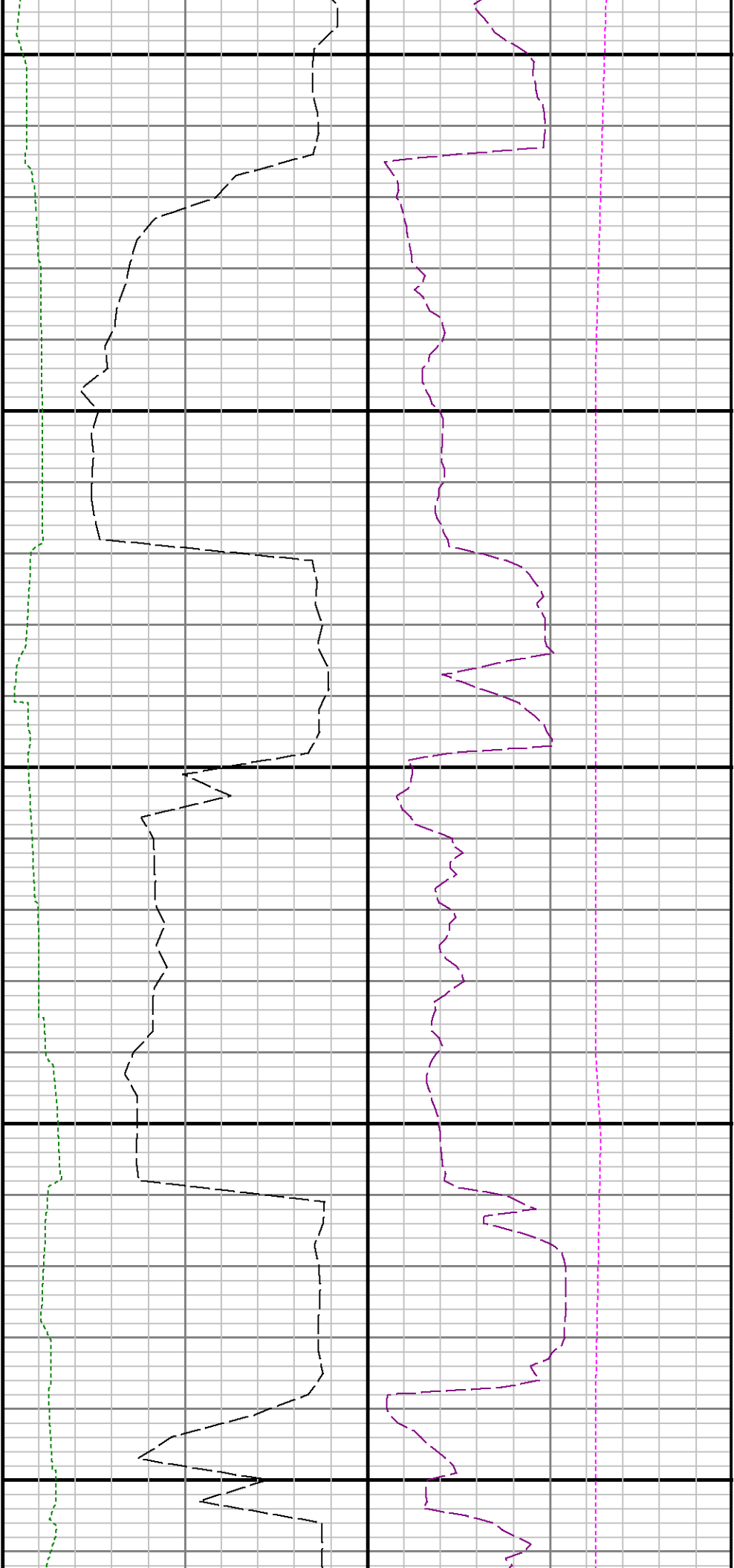




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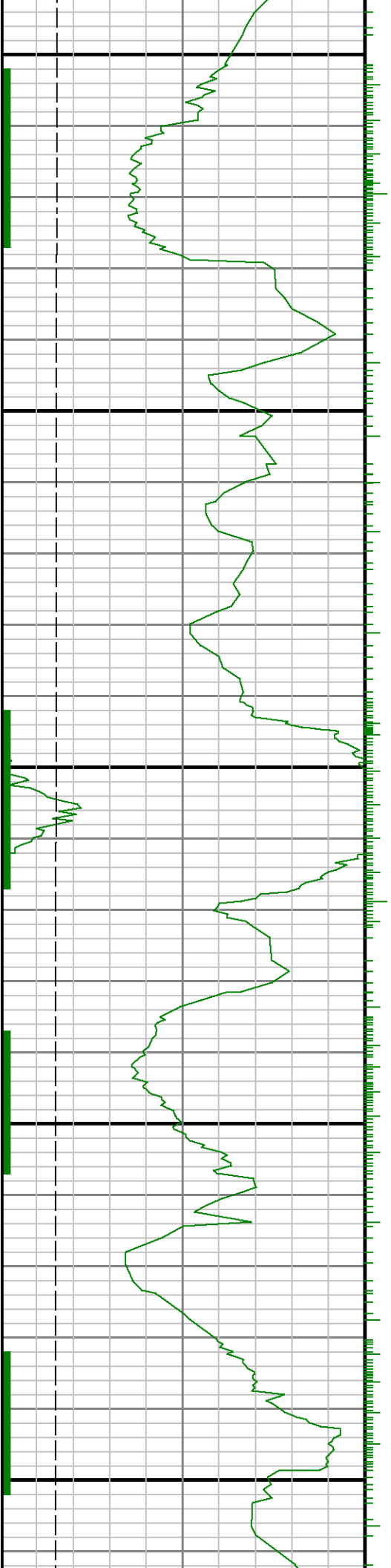
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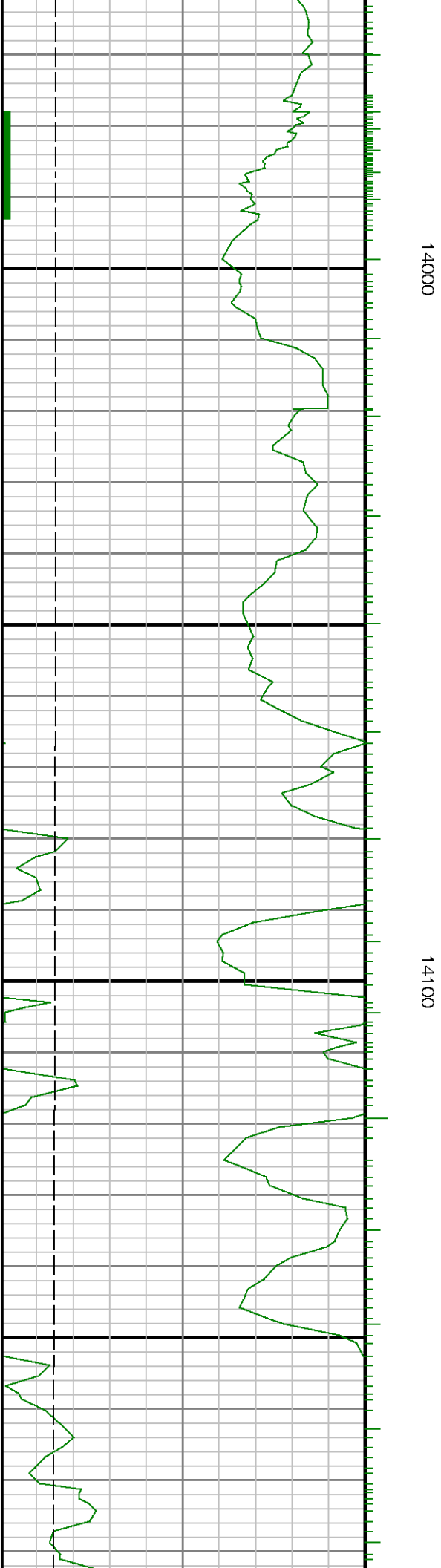
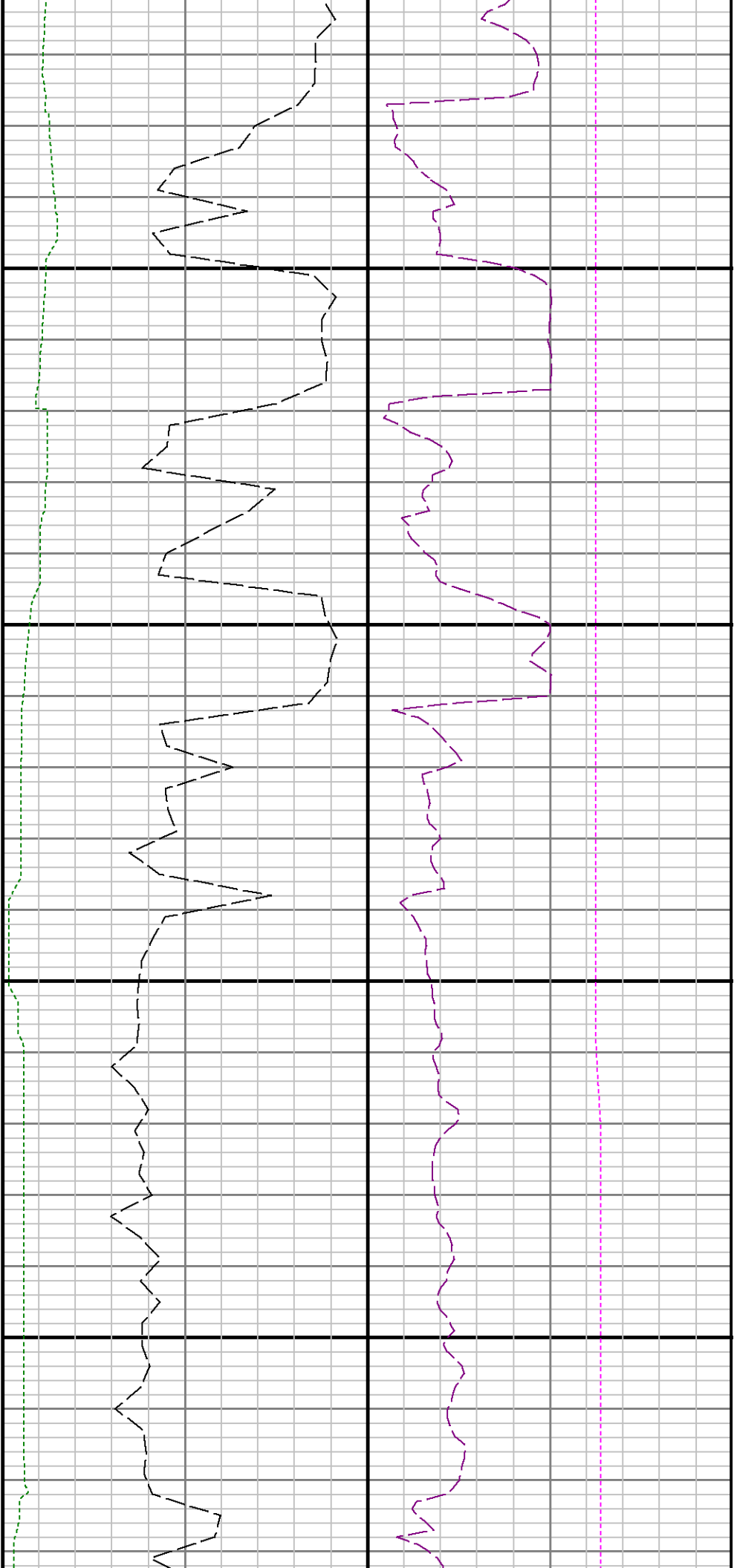


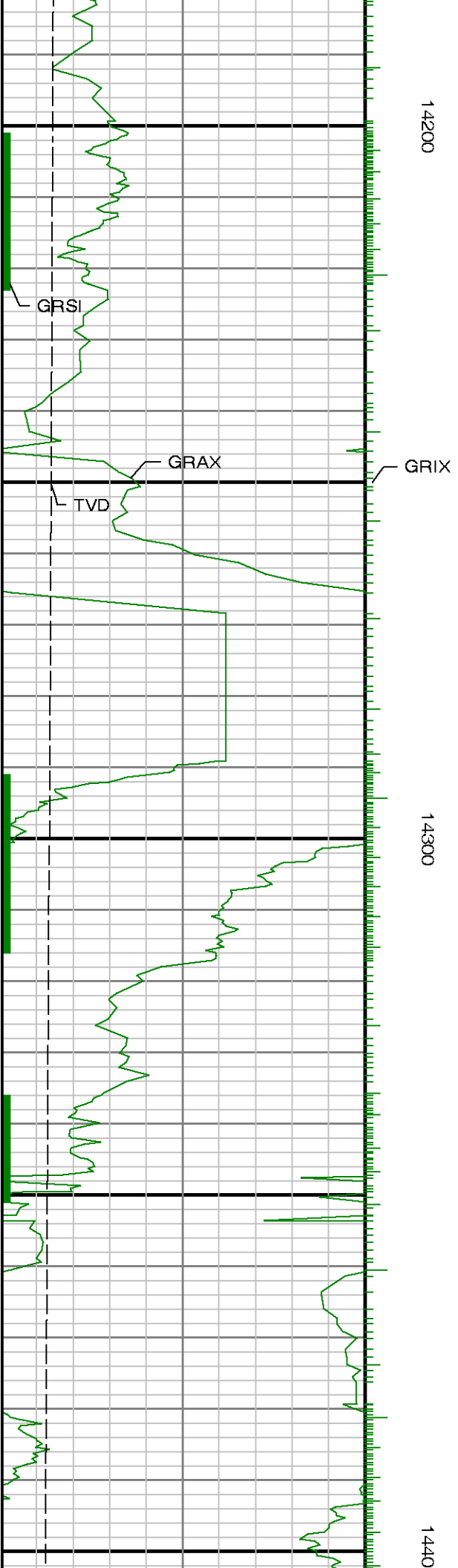
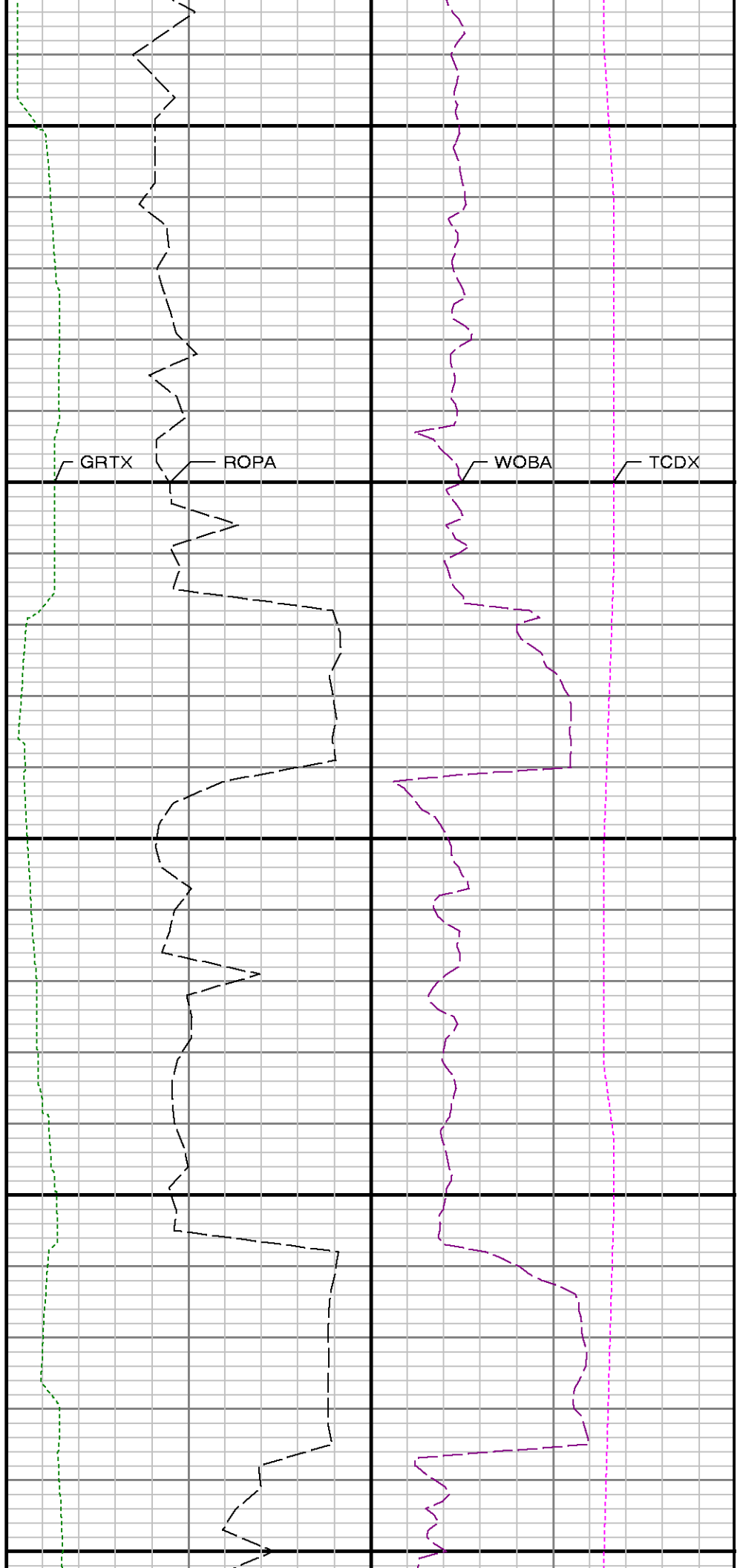
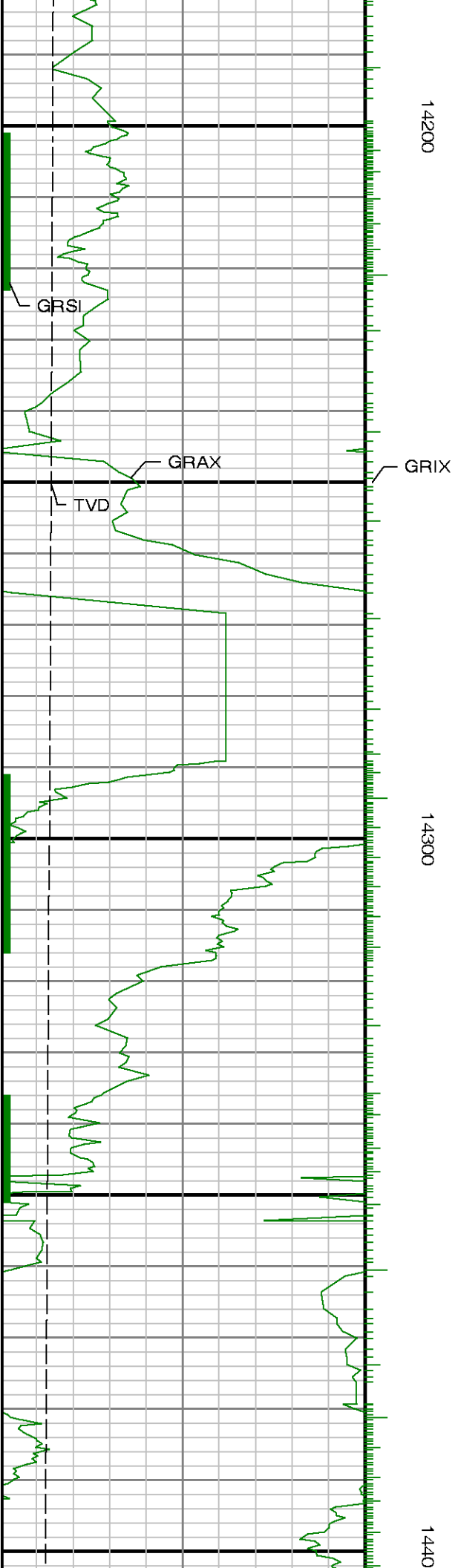


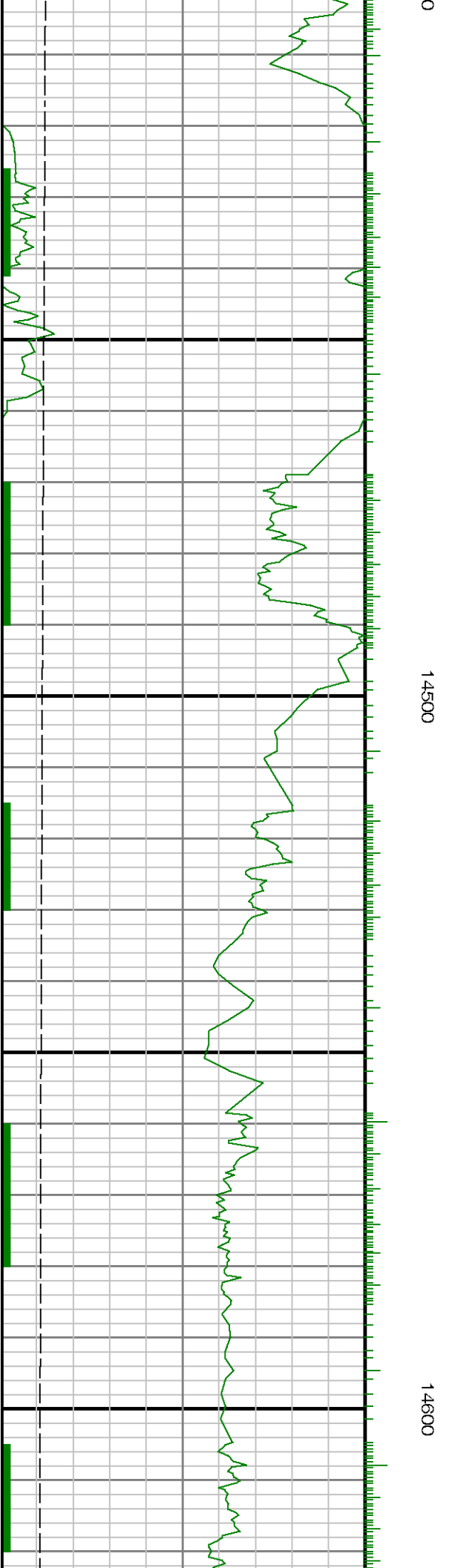
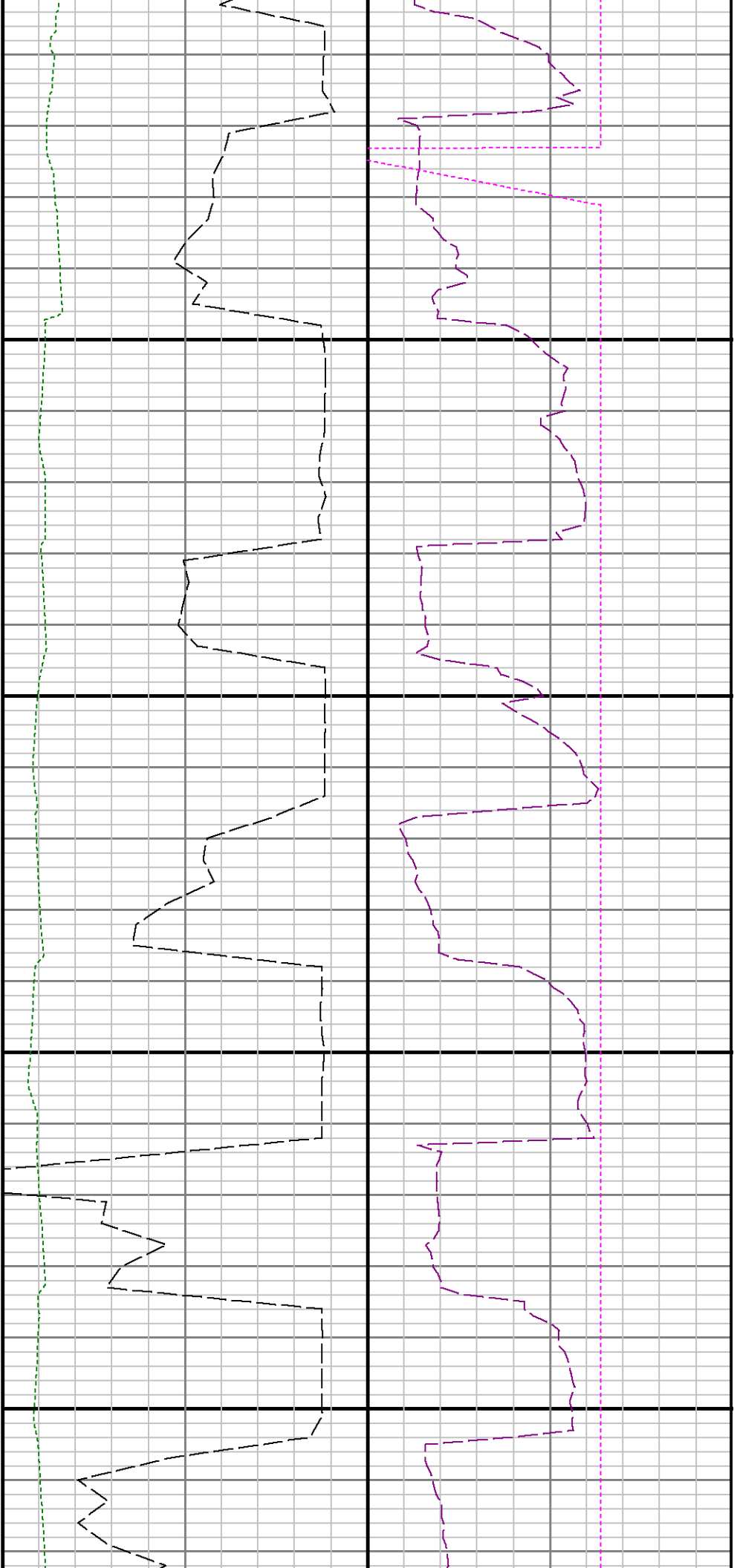
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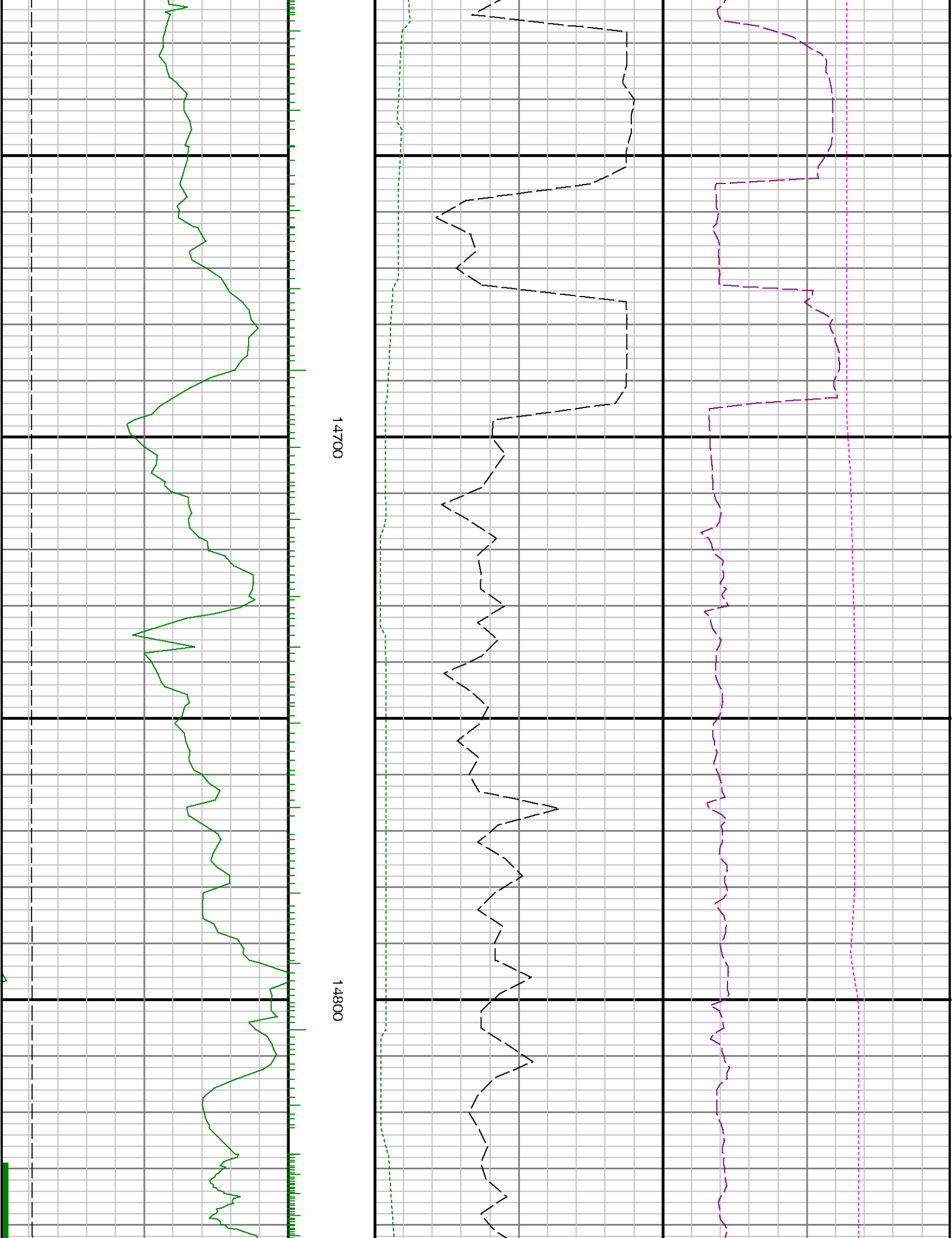
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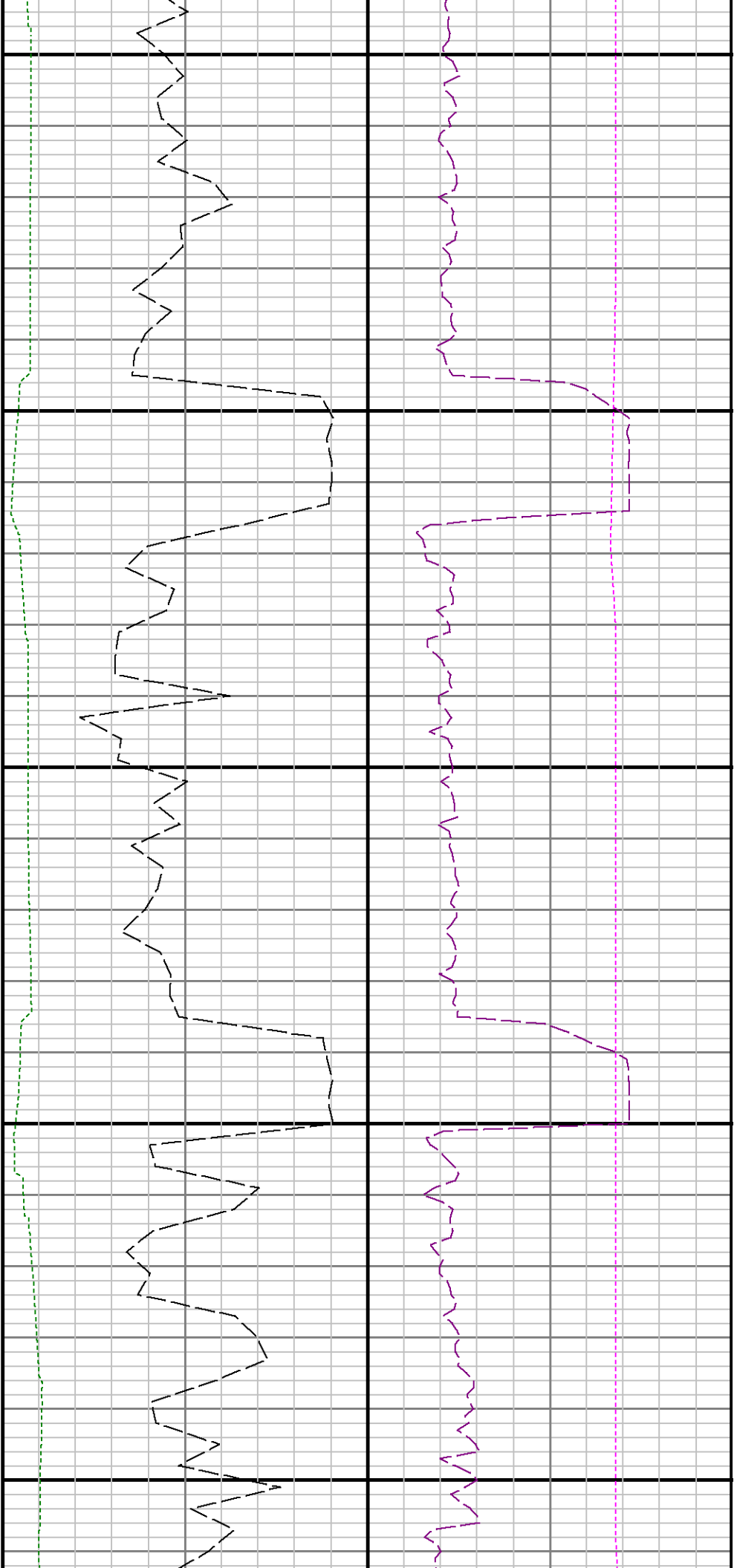






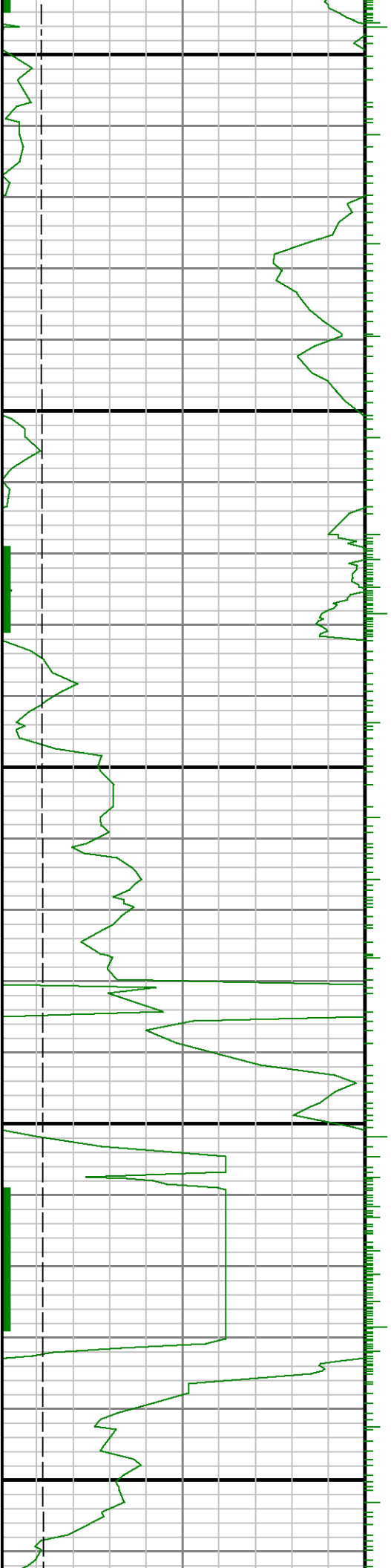


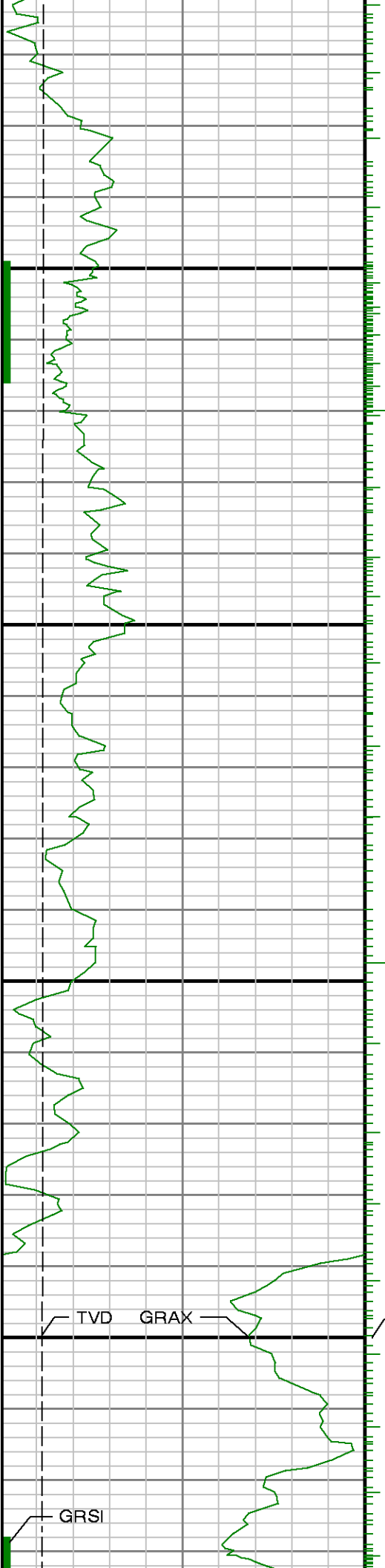




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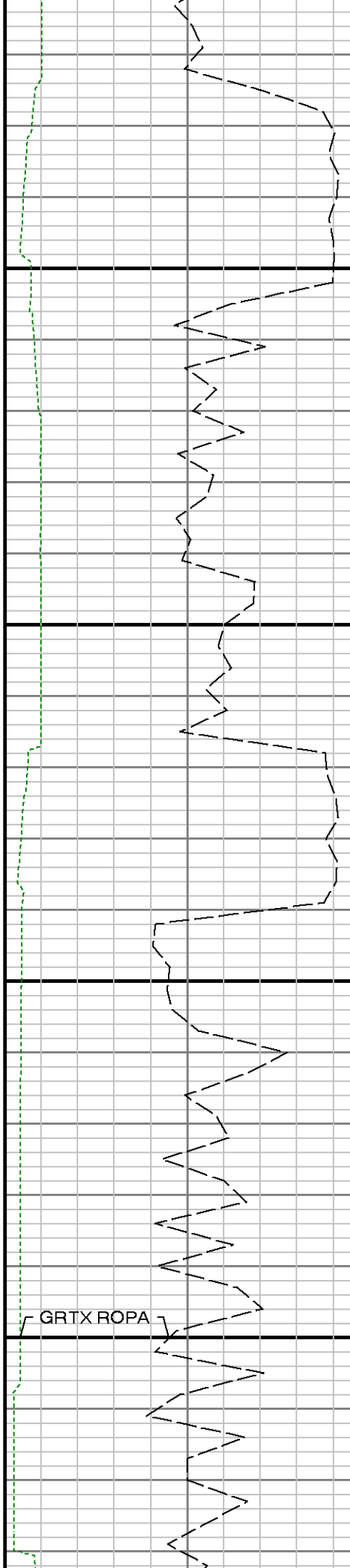
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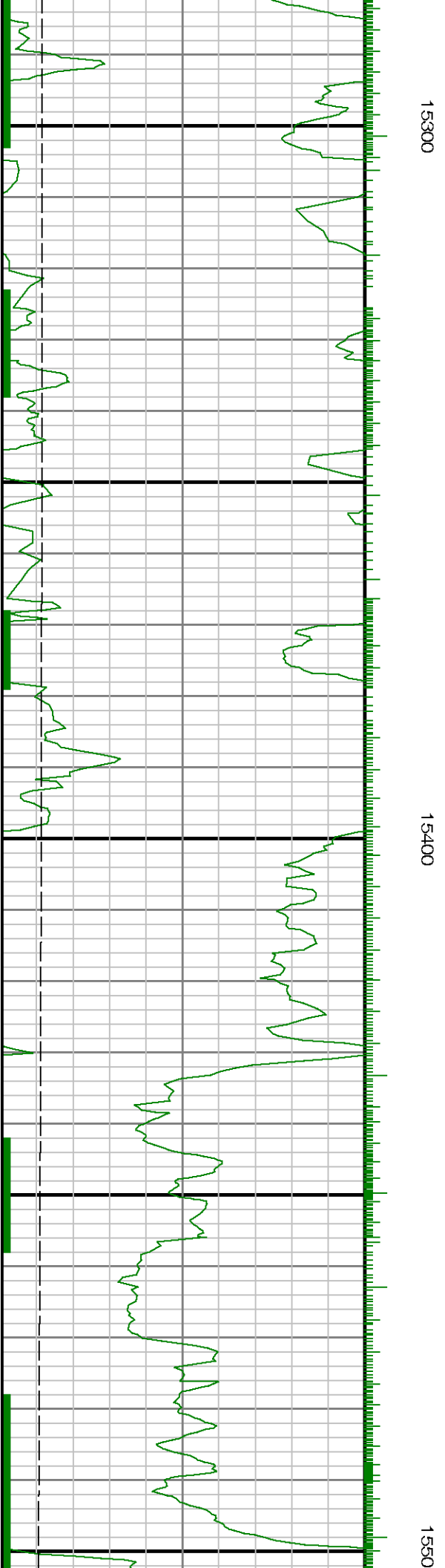
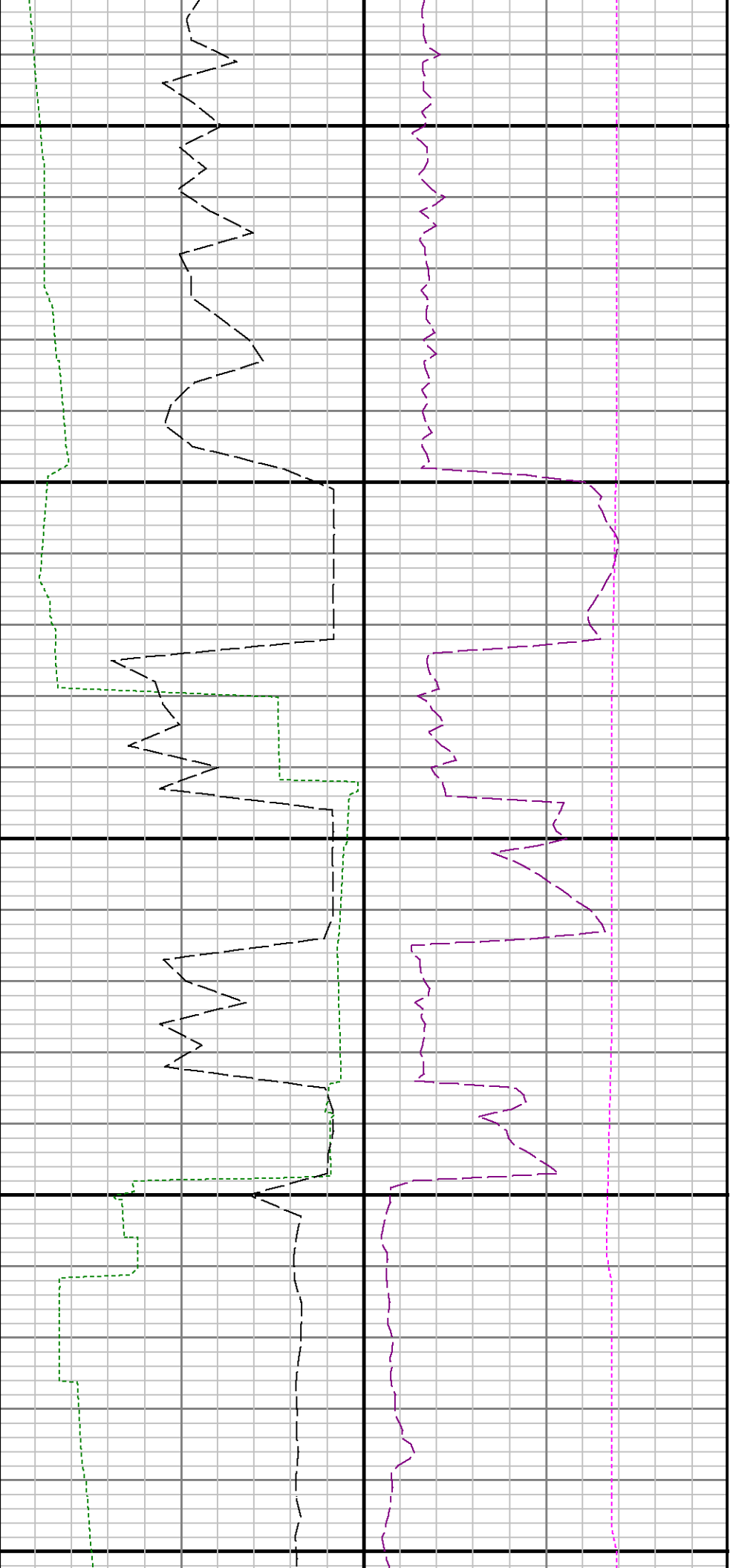
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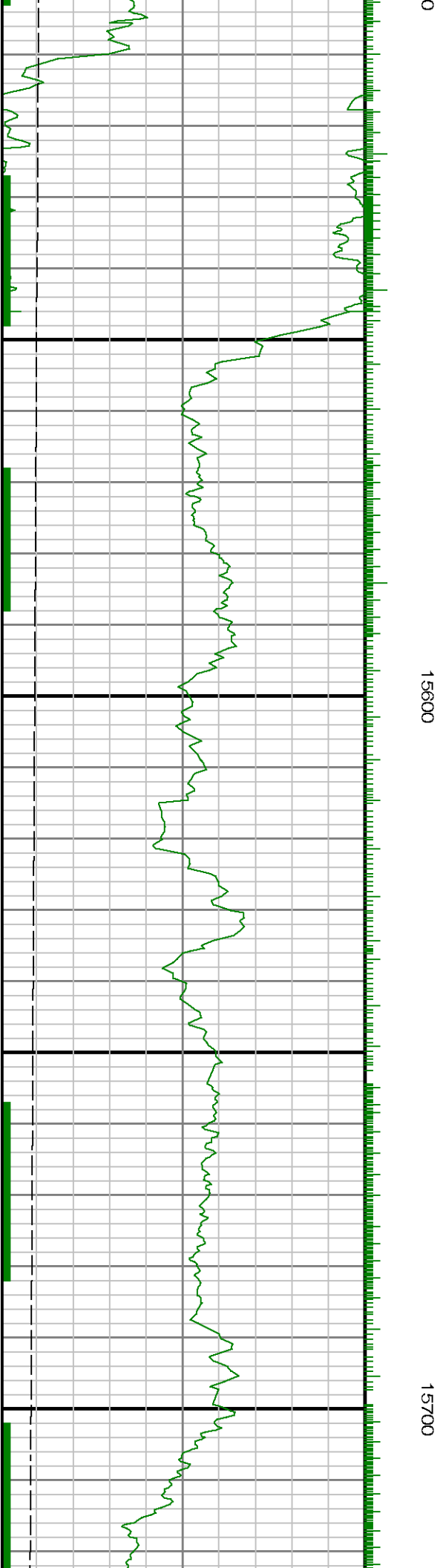
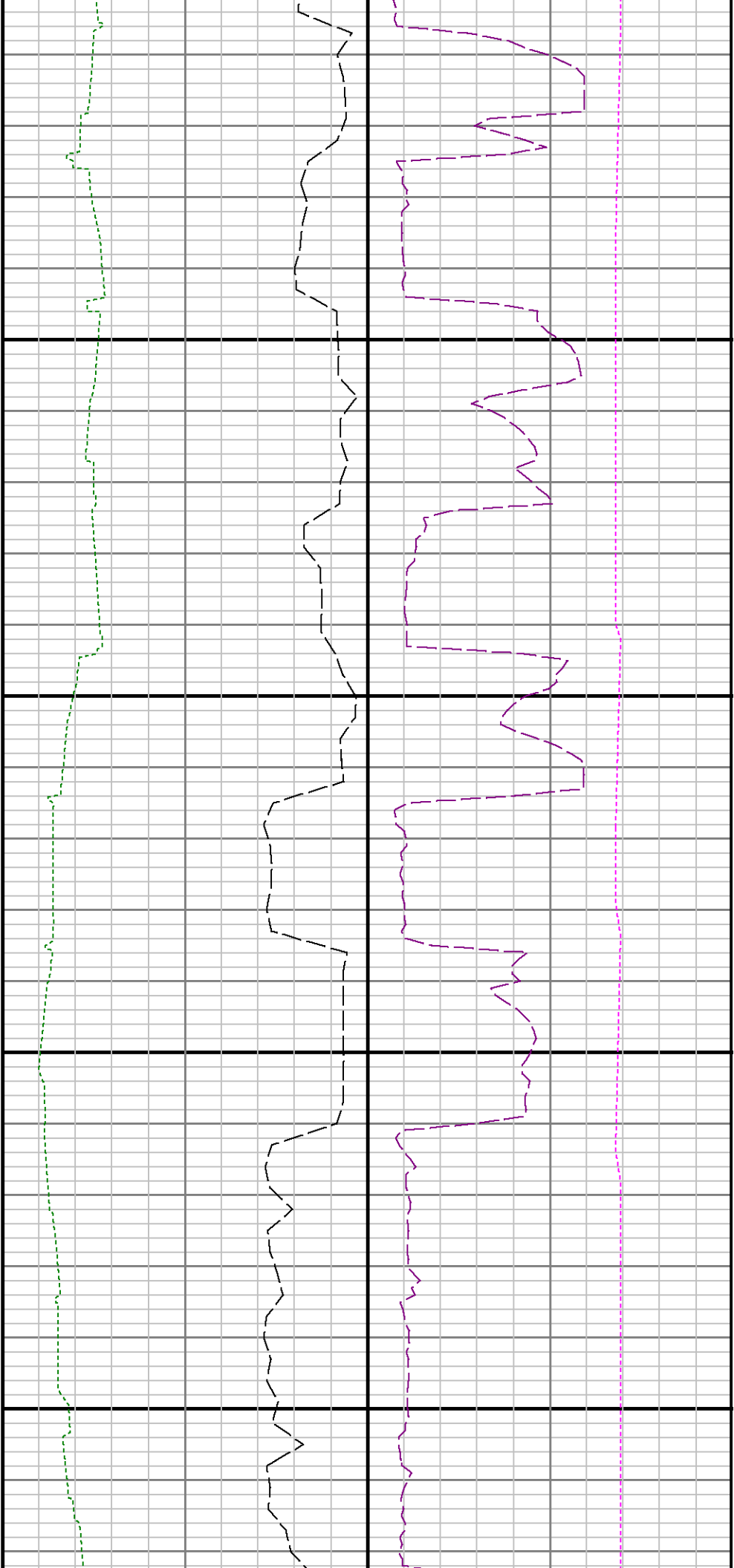
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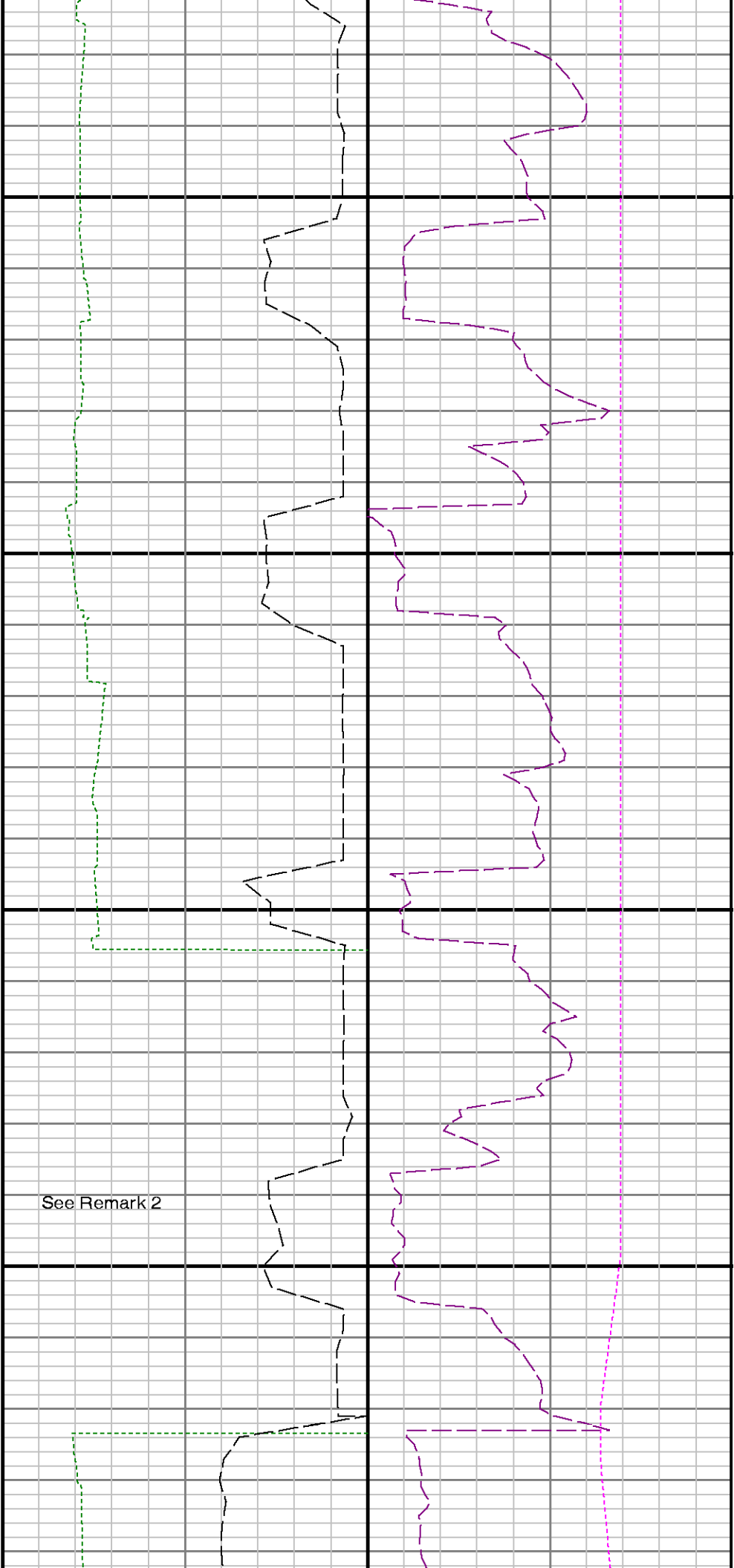


TVD GRAX GRSI

GRTX ROPA WOBA TCDX





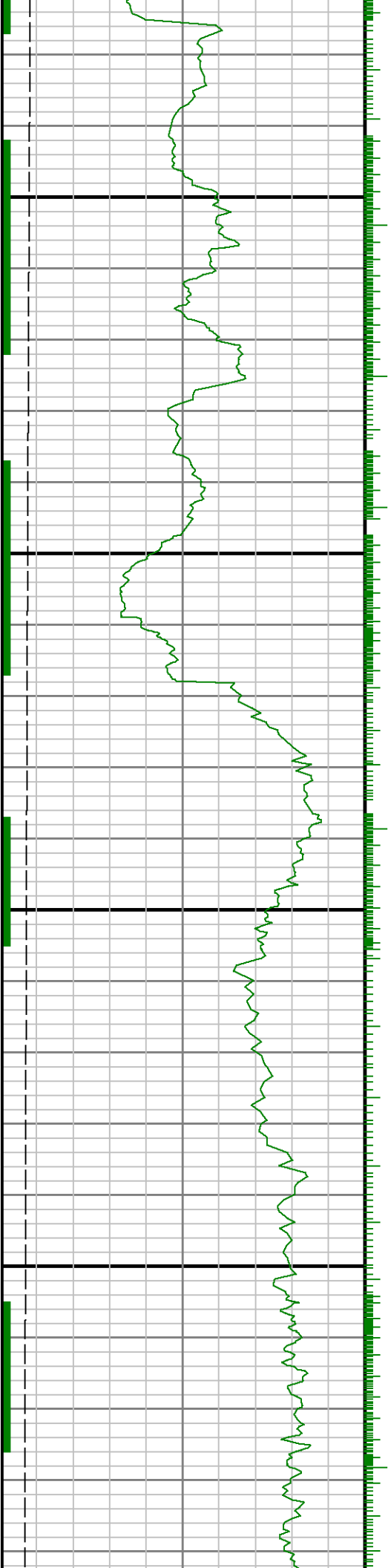


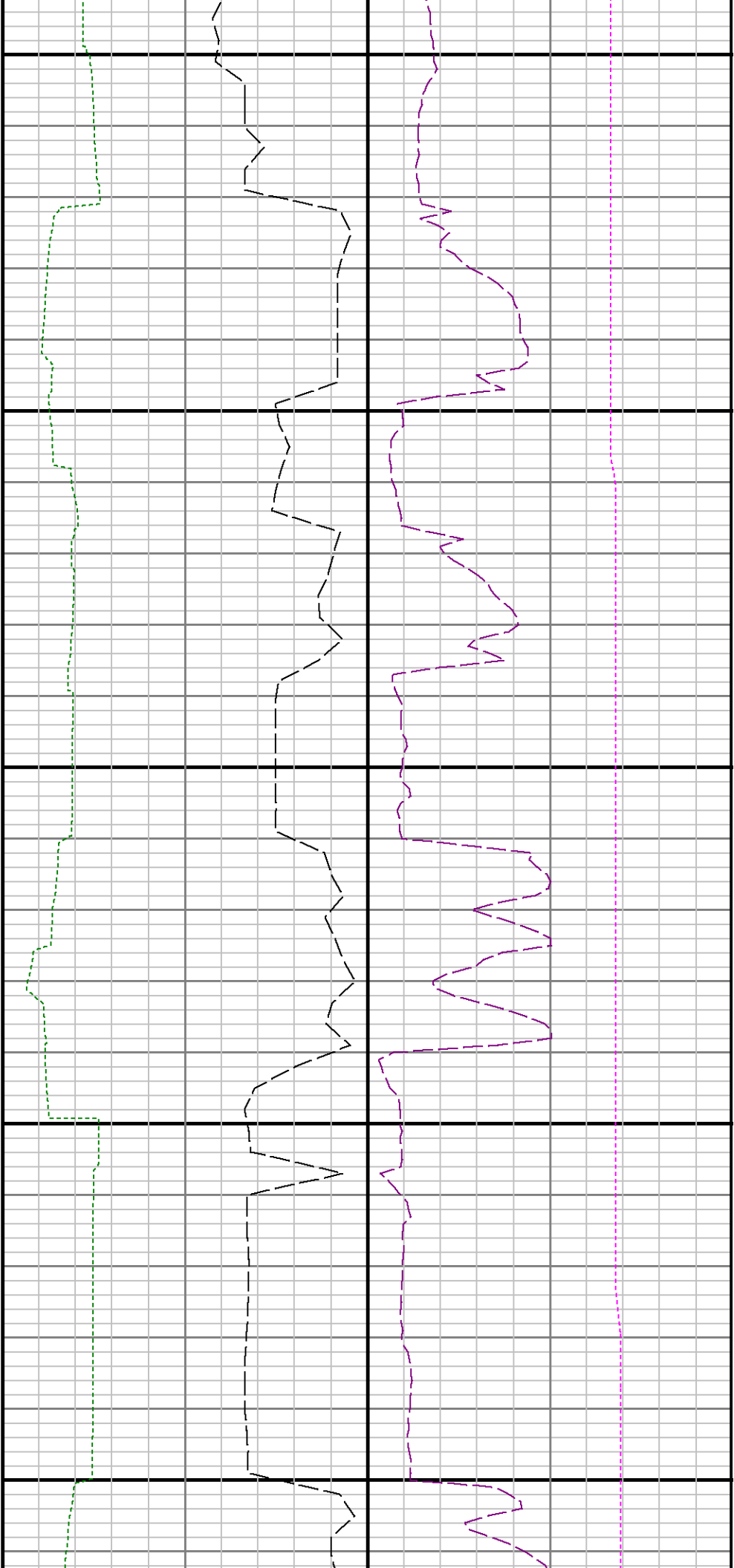
See Remark 2

15800

15900

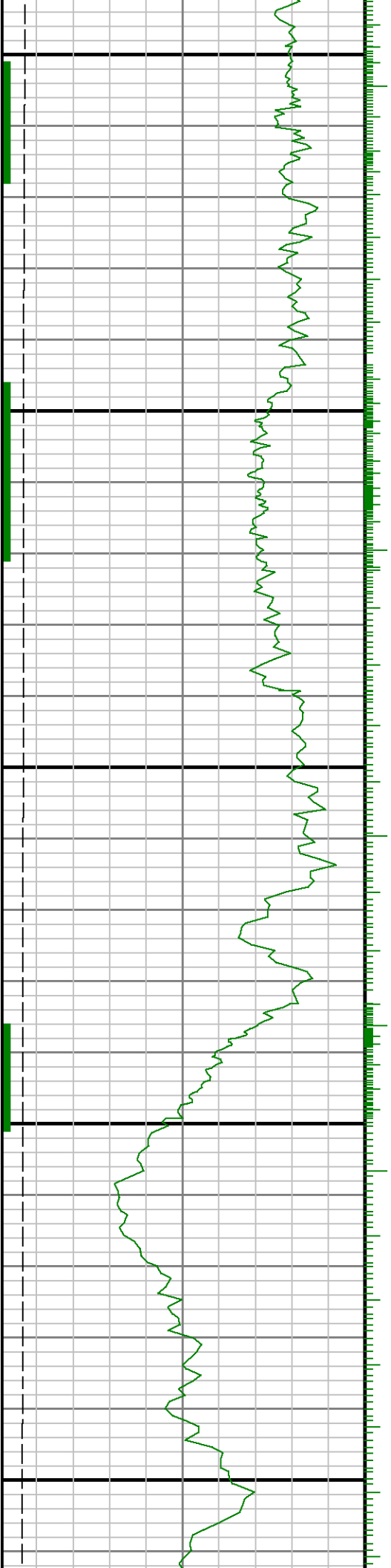
Run 2 <> Run 4

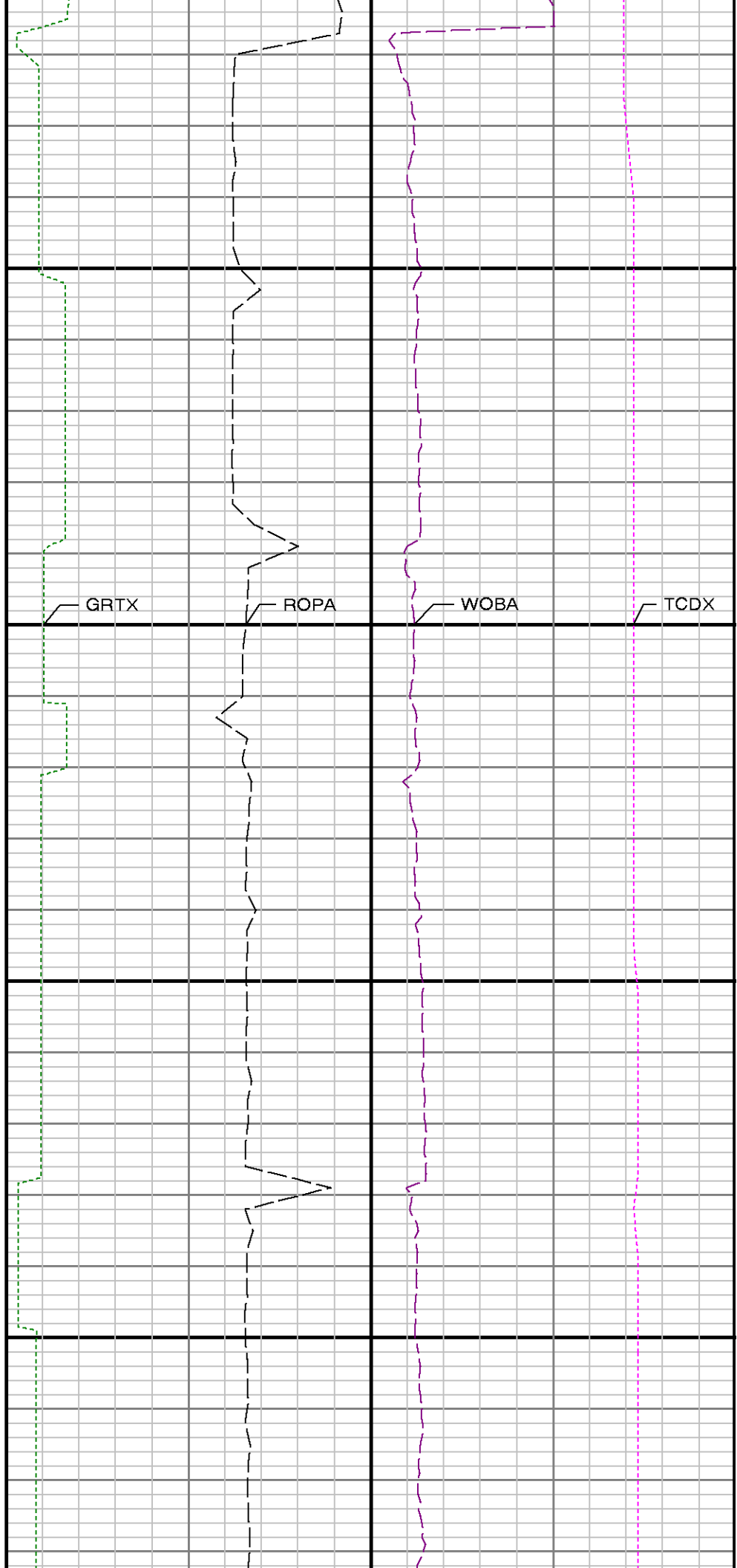
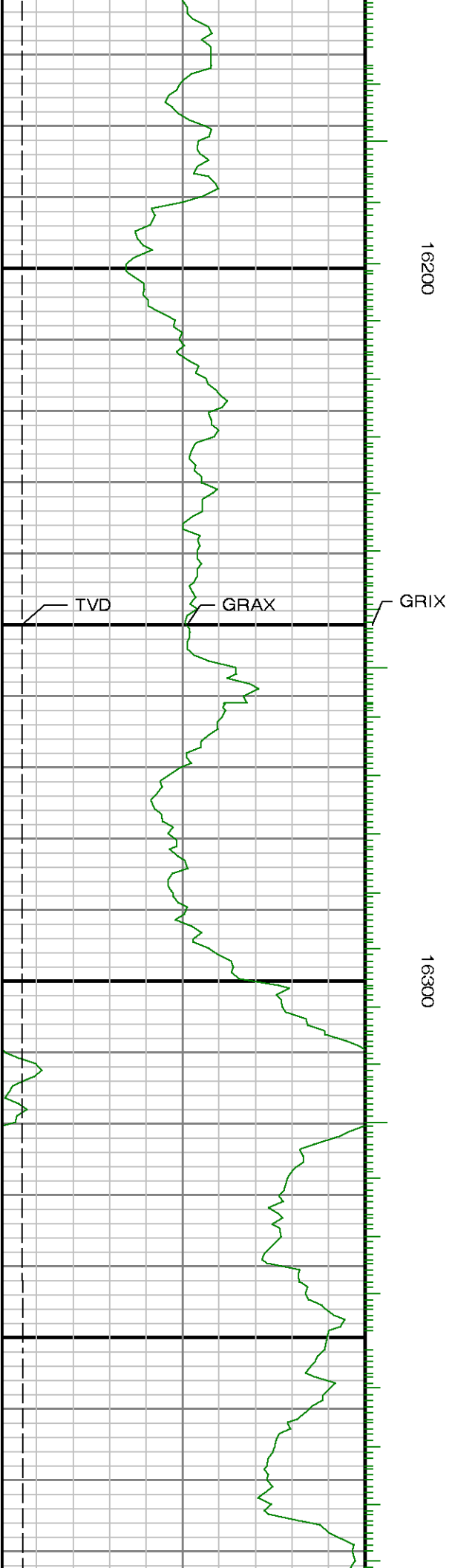


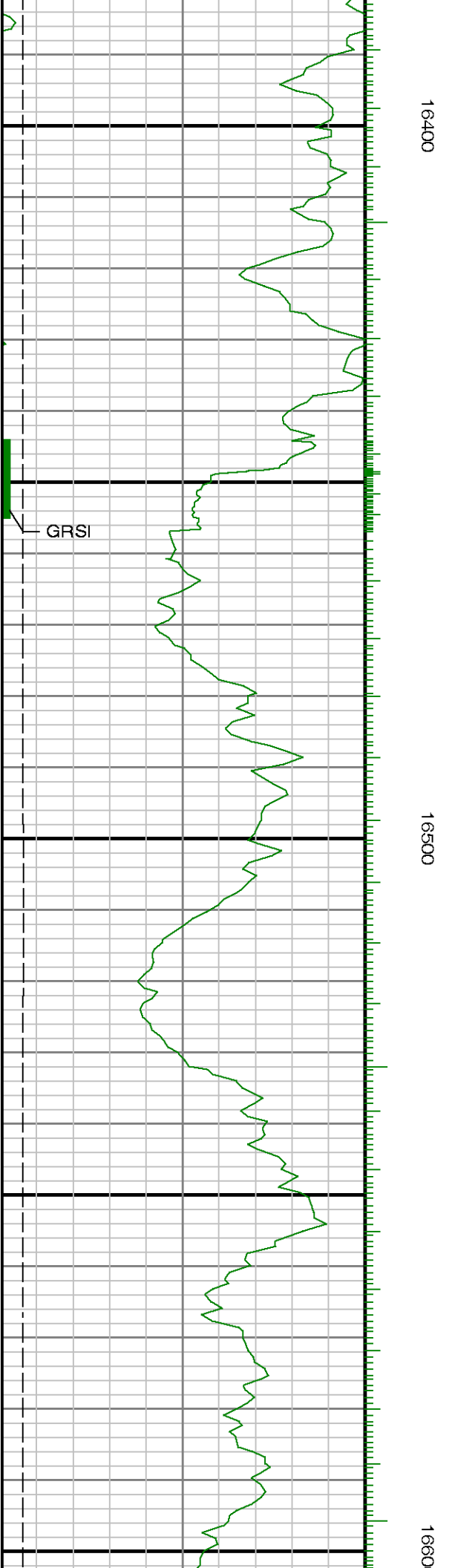
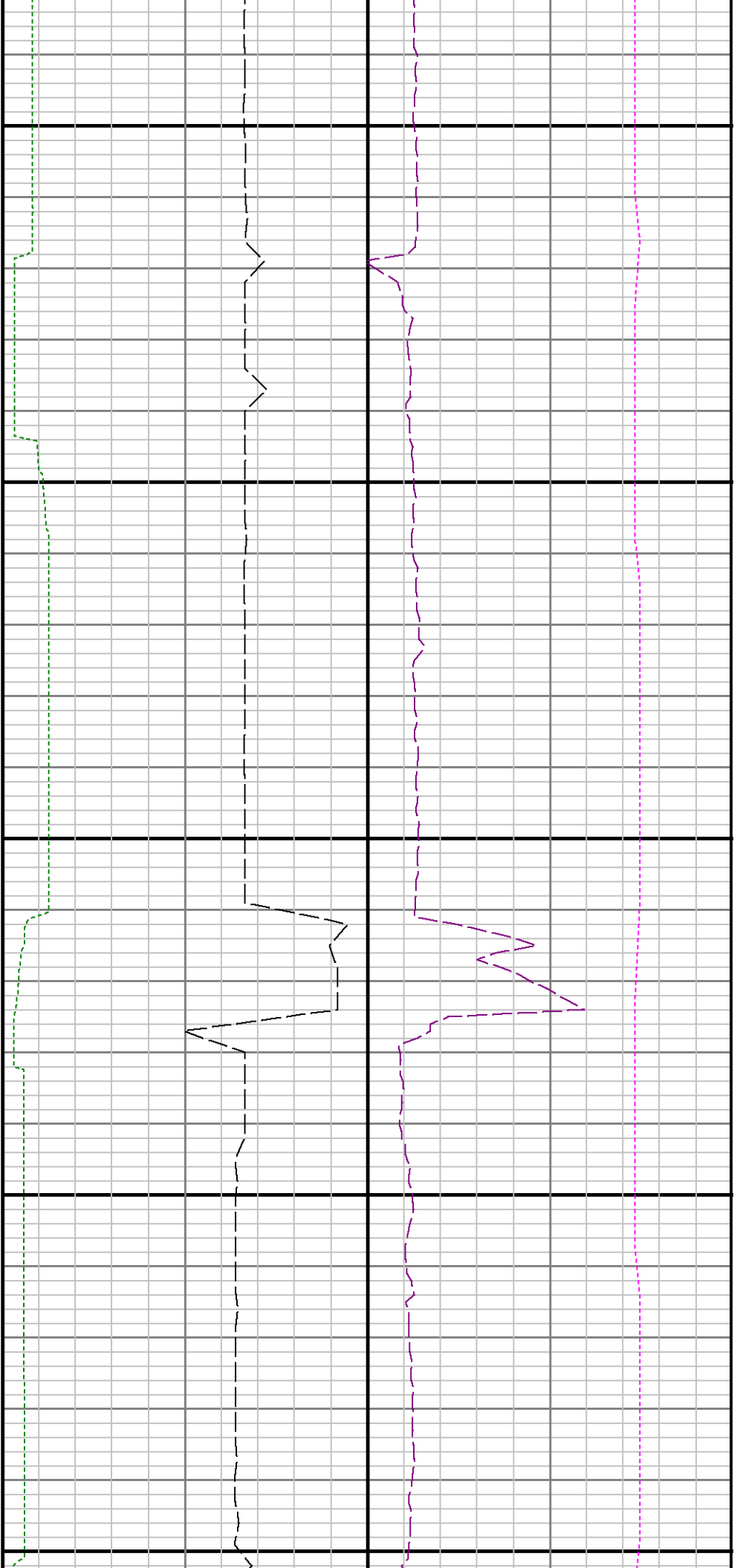


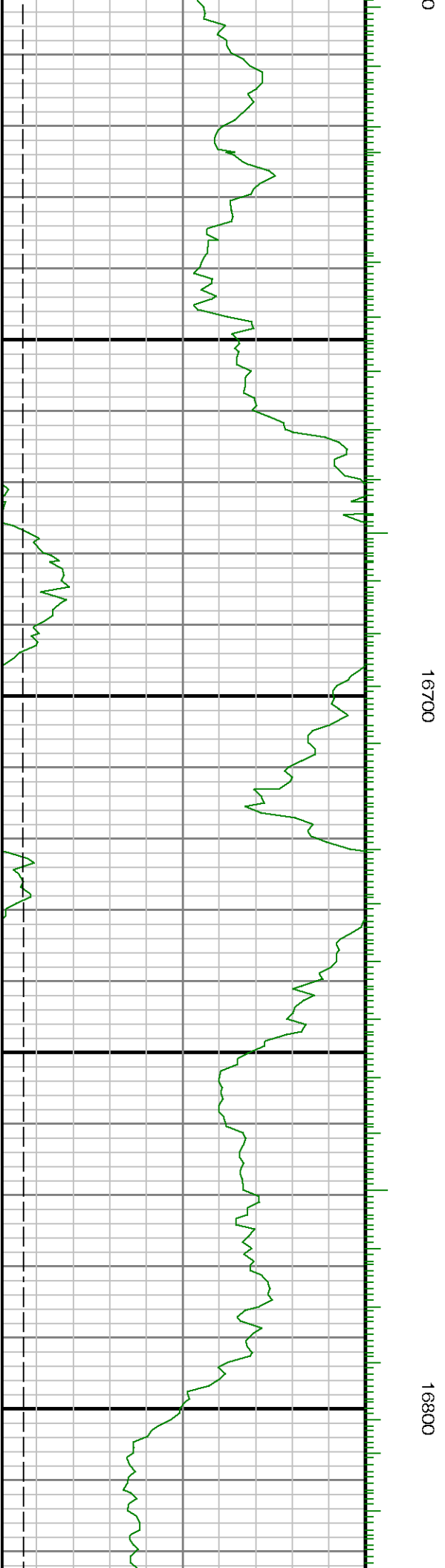
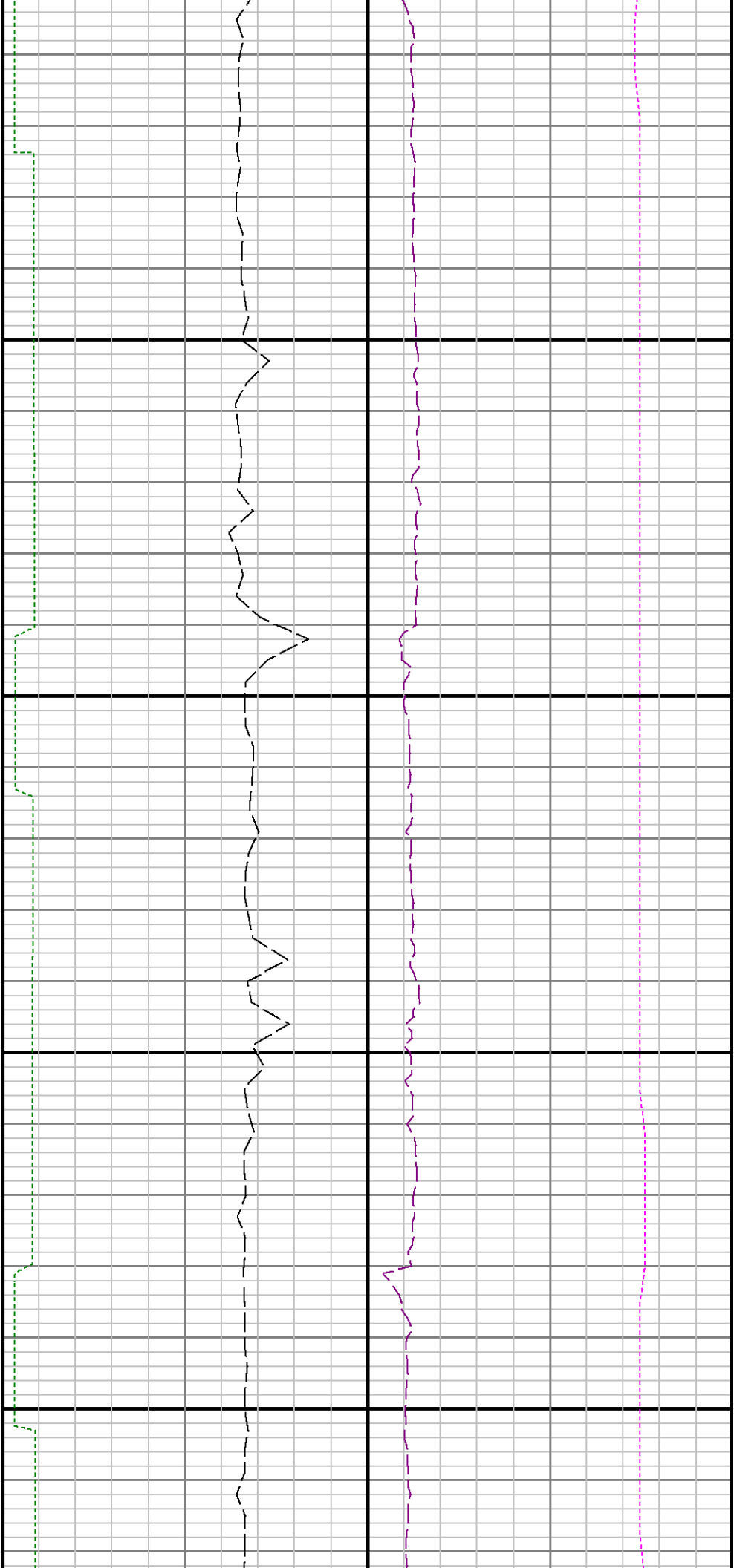
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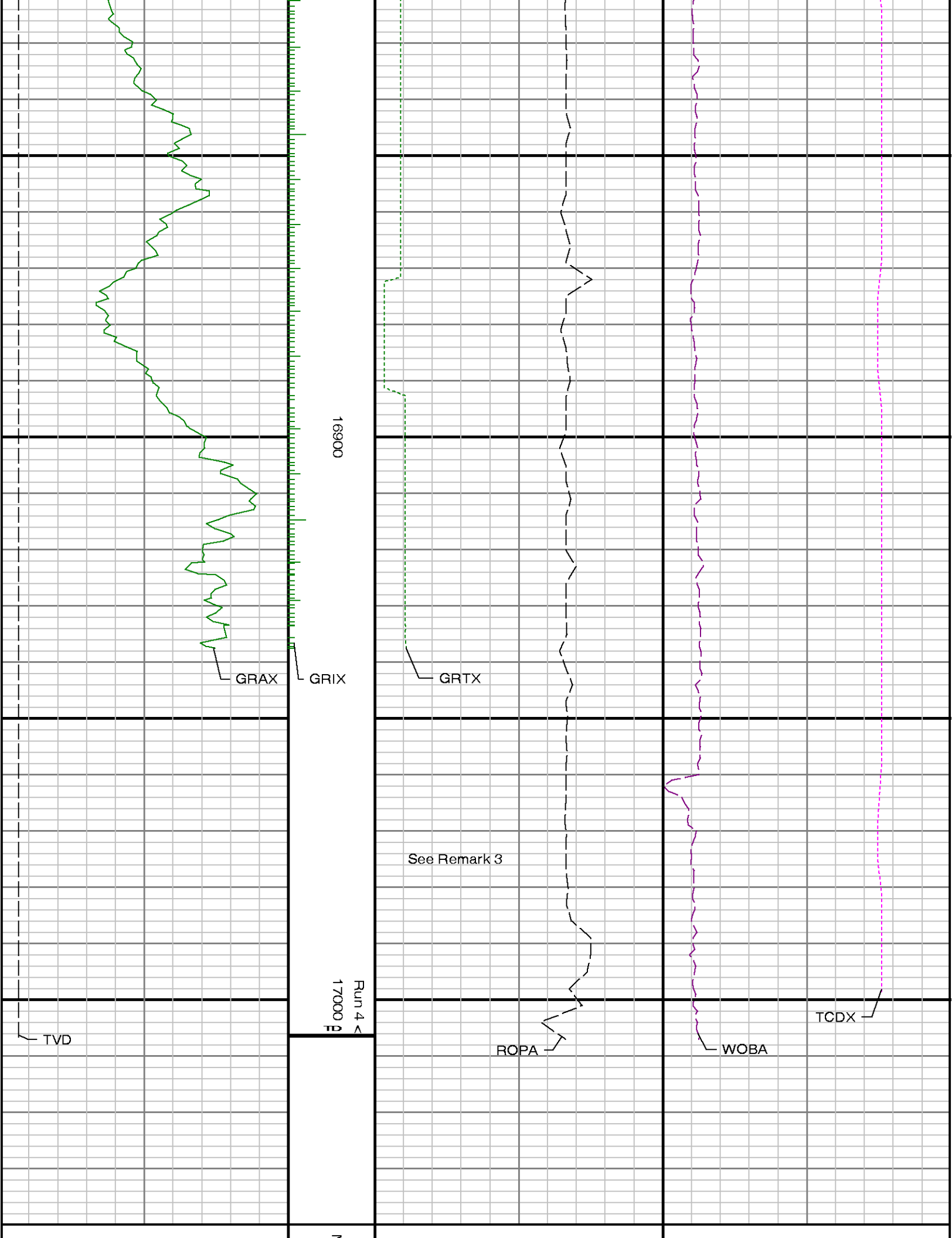
16100











| | | | |
|------------------------------------|---------------|-------------------------------------|---------------------------------------|
| Gamma Ray Apparent 0.5 ft Avg GRAX | MD feet 1:240 | Gamma Time Since Drilled GRTX | Surface Weight On Bit 1.0 ft Avg WOBA |
| 0150 | | 0600 | 0100 |
| API | | min | klbf |
| True Vertical Depth TVD | | Rate of Penetration 3.0 ft Avg ROPA | Downhole Temperature TCDX |
| 72006200 | | 6000 | 100300 |
| ft | | ft/hr | degF |