



Realtime Logs

Natural Formation Evaluation  
Gamma Ray

Company: Anadarko

Well: Houston 12C-8HZ

Field: Weld County (KERR MCGEE)

County: Weld State: Colorado

Surface Location: Latitude: 40° 14' 16.231" N Longitude: 104° 54' 24.520" W

Section: 8 TWN: 3N Range: 67W Directional

Permanent Datum (P.D.): Ground Level Elevation: 4823.00 ft.

Log Measured From: Kelly Bushing 17.00 ft. Above P.D. Elevations: 17.00 ft. N/A

Depth Reference: Driller's Depth GL: 4823.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6590 ft. Date From: 05/June/14 Date To: 08/June/14 Dip Angle: 66.88 ° Azi Reference North: True

Bottom: 11834 ft. Spud Date: 04/May/2014 Field Strength: 52563.0 nT North Correction: 8.58 °

Borehole Record

Casing Record

| Hole Size  | From     | To        | Size      | Weight      | From    | To       |
|------------|----------|-----------|-----------|-------------|---------|----------|
| 13,500 in. | Surface  | 825 ft.   | 9,000 in. | 36.00 lb/ft | Surface | 825 ft.  |
| 8,750 in.  | 825 ft.  | 7566 ft.  | 7,000 in. | 36.00 lb/ft | Surface | 7453 ft. |
| 6,125 in.  | 7566 ft. | 11894 ft. |           |             |         |          |
|            |          |           |           |             |         |          |
|            |          |           |           |             |         |          |
|            |          |           |           |             |         |          |
|            |          |           |           |             |         |          |

Mud Record

Deviation Record

| Type       | From    | To        | Hole Size  | Interval     | Inc / Az (Start) | Inc / Az (End)   |
|------------|---------|-----------|------------|--------------|------------------|------------------|
| Water Base | Surface | 11894 ft. | 13,500 in. | Surface      | 0.0 ° / 0.0 °    | 0.2 ° / 241.3 °  |
|            |         |           | 8,750 in.  | Vert / Curve | 0.2 ° / 241.3 °  | 80.8 ° / 272.2 ° |
|            |         |           | 6,125 in.  | Lateral      | 80.8 ° / 272.2 ° | 88.1 ° / 270.9 ° |
|            |         |           |            |              | /                | /                |
|            |         |           |            |              | /                | /                |
|            |         |           |            |              | /                | /                |
|            |         |           |            |              | /                | /                |

Acquisition System Software Version

Other

|           |        |                    |          |   |            |
|-----------|--------|--------------------|----------|---|------------|
| Advantage | 2.20U4 | Rig: / Contractor: | Xtreme 8 | / | Anadarko   |
| PATS      |        | Job No:            | 6325619  |   |            |
| 6.4       |        | District: / Unit:  | RMD      |   | / Anadarko |

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Log Run Summary

| LWD<br>Run<br>No. | BHA<br>Run<br>No. | Bit<br>Run<br>No. | Bit<br>Size<br><br>(in.) | Bit<br>Type | Bit<br>Gauge<br>Length<br><br>(in.) | Assembly<br><br>Type | Logged Interval |        | Bit Depth Interval |       | Date / Time       |                   |       |  | Circ.<br><br>Time<br><br>(hrs.) |
|-------------------|-------------------|-------------------|--------------------------|-------------|-------------------------------------|----------------------|-----------------|--------|--------------------|-------|-------------------|-------------------|-------|--|---------------------------------|
|                   |                   |                   |                          |             |                                     |                      | Top             | Bottom | From               | To    | Start             |                   | End   |  |                                 |
|                   |                   |                   |                          |             |                                     |                      | (ft.)           | (ft.)  | (ft.)              | (ft.) |                   |                   |       |  |                                 |
| 1                 | 1                 | 2                 | 8.750                    | PDC         |                                     | Mud Motor            | 6590            | 7510   | 6590               | 7565  | 03/Jun/2014 03:00 | 03/Jun/2014 22:59 | 46.4  |  |                                 |
| 2                 | 2                 | 3                 | 6.125                    | PDC         |                                     | Mud Motor            | 7510            | 11834  | 7565               | 11894 | 05/Jun/2014 22:47 | 07/Jun/2014 08:33 | 33.25 |  |                                 |

Crew

| Name           | Arrive       | Depart      | Name           | Arrive      | Depart      | Name | Arrive   | Depart   |
|----------------|--------------|-------------|----------------|-------------|-------------|------|----------|----------|
|                | Wellsite     | Wellsite    |                | Wellsite    | Wellsite    |      | Wellsite | Wellsite |
| Kevin Sheridan | 01/June/2014 | 08/Jun/2014 | Shirley Arimah | 01/Jun/2014 | 08/Jun/2014 |      |          |          |

Mud Properties Record

| Date / Time |       | LWD<br>Run No. | Measured<br>Depth<br>(ft.) | Mud<br>Type | Density<br>(sg) | Viscosity<br>(cp) | pH  | Fluid<br>Loss<br>(cc) | Oil /<br>Water | Source          | Total<br>Chlorides<br>(ppm) | K+<br>(%) |
|-------------|-------|----------------|----------------------------|-------------|-----------------|-------------------|-----|-----------------------|----------------|-----------------|-----------------------------|-----------|
| 3/Jun/2014  | 21:30 | 1              | 6575                       | Water Base  | 9.4             | 40                | N/A | 0.0                   | 1/91           | Active Mud Pits | 1800                        | N/A       |
| 06/Jun/2014 | 21:30 | 2              | 8415                       | Water Base  | 9.7             | 40                | N/A | 0.0                   | 1/90           | Active Mud Pits | 1900                        | N/A       |

### Mnemonics

| Curve    | Description           | Units              |
|----------|-----------------------|--------------------|
| GRAX     | Gamma Ray Apparent    | API 0.5 ft. avg.   |
| GRIX     | Gamma Ray Density     | Points             |
| ROP_AVG  | Rate of Penetration   | ft/hr 3.0 ft. avg. |
| TCDX     | Downhole Temperature  | deg F              |
| TVD      | True Vertical Depth   | ft.                |
| WOBA_AVG | Surface Weight On Bit | klbf 1.0 ft. avg.  |

### Equipment and Service Data

| LWD<br>Run<br>No. | Tool | Serial<br>Number | Measurement | Bit<br>Offset<br>(ft.) | Max<br>O.D.<br>(in.) | Min<br>I.D.<br>(in.) |
|-------------------|------|------------------|-------------|------------------------|----------------------|----------------------|
| 1                 | DIR  | 12497607         | Directional | 58.60                  | 6.750                | 5.000                |
| 1                 | SRIG | 12600751         | Gamma       | 57.05                  | 6.750                | 5.000                |
| 2                 | DIR  | 11592525         | Directional | 63.98                  | 6.750                | 2.750                |
| 2                 | SRIG | 11892058         | Gamma       | 62.85                  | 6.750                | 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 |

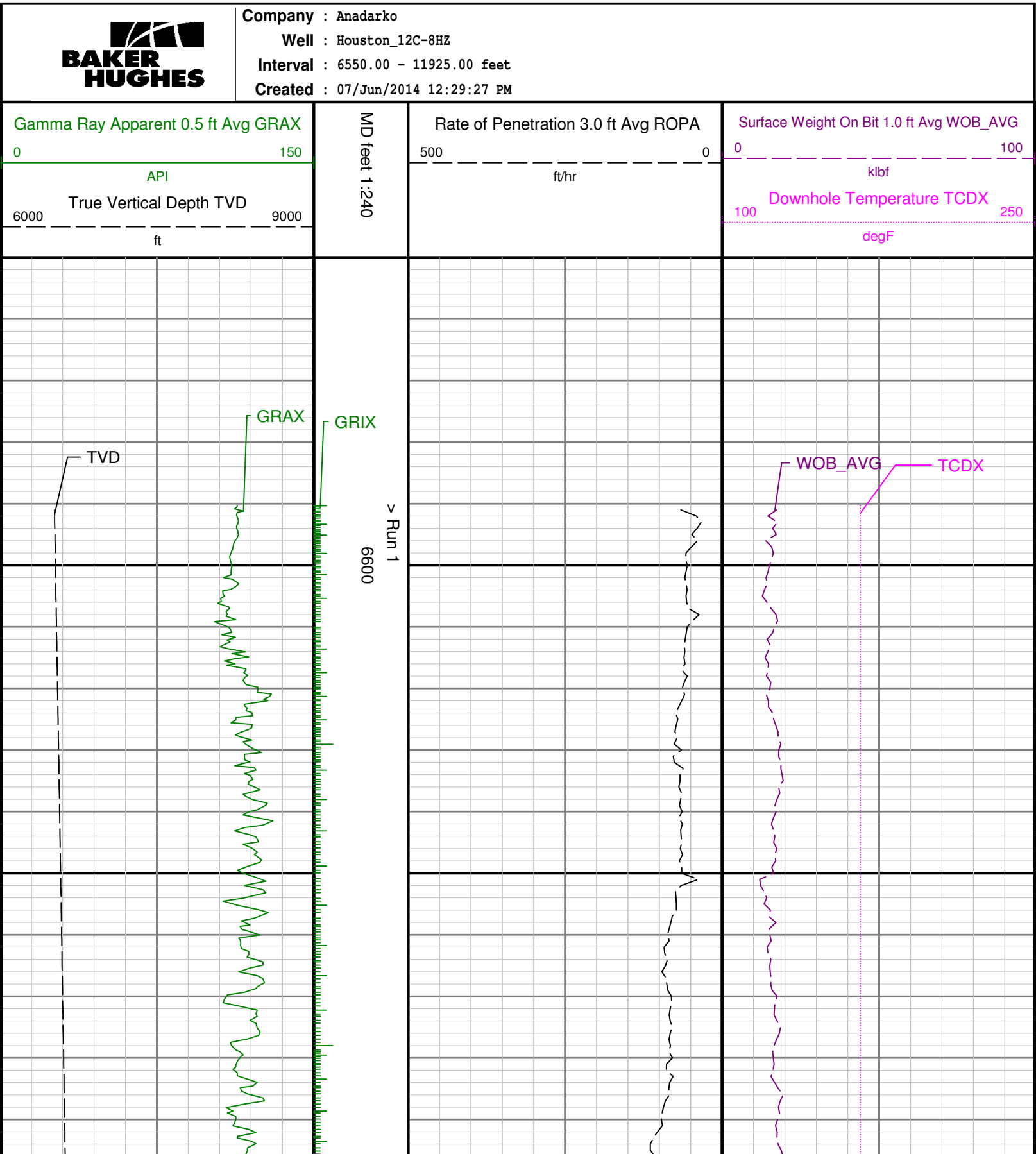
### Comments

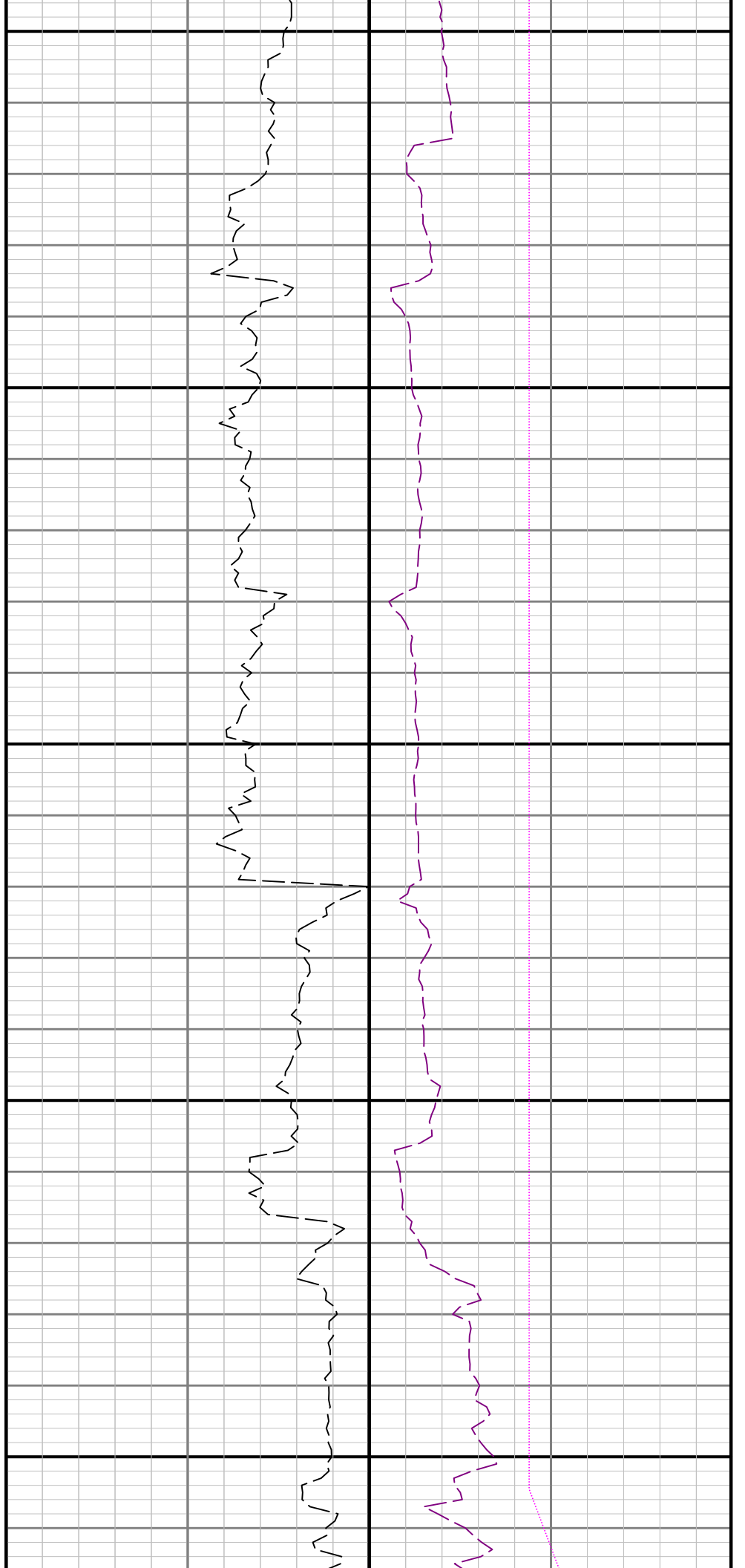
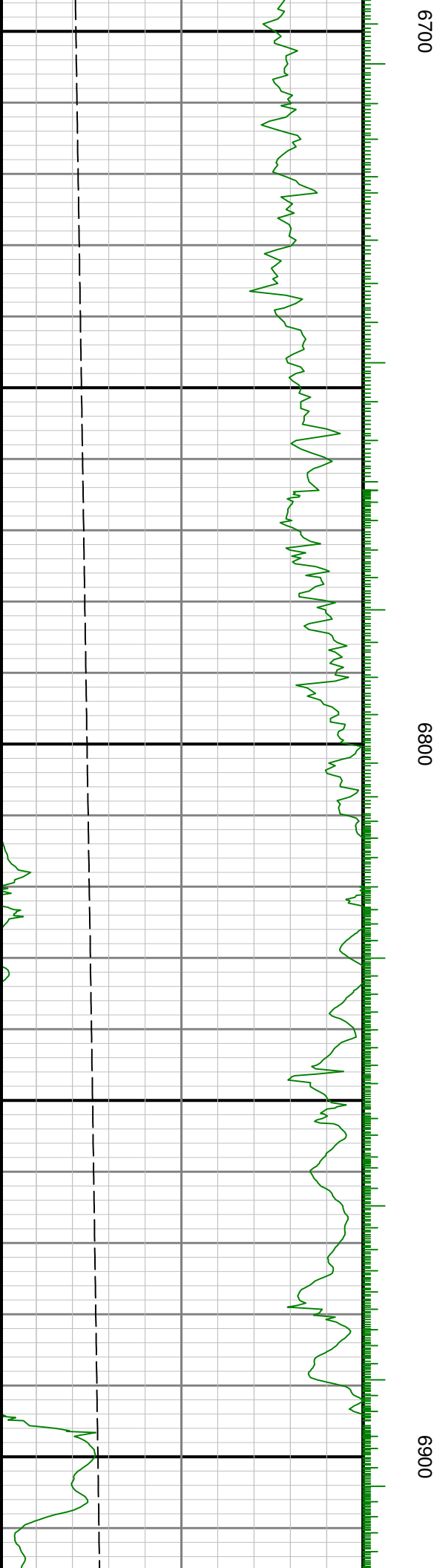
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|--|
| <p>1) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes INTEQ. Due to lack of control by Baker Hughes INTEQ logging engineers depth calibrations and measures could not be independently verified.</p> <p>2) Baker Hughes INTEQ run 1 utilized a 6.5 inch NaviGamma (Gamma Ray and Directional) tool behind a 8 3/4inch bit and steerable assembly from 6590 to 7565 ft. MD (6510 to 7134 ft. TVD).</p> <p>3) Baker Hughes INTEQ run 2 utilized a 4.75 inch NaviGamma (Gamma Ray and Directional) tool behind a 6 1/8 inch bit and steerable assembly from 7565 to 11894 ft. MD (7134 to 7132 ft. TVD).</p> |
|--|

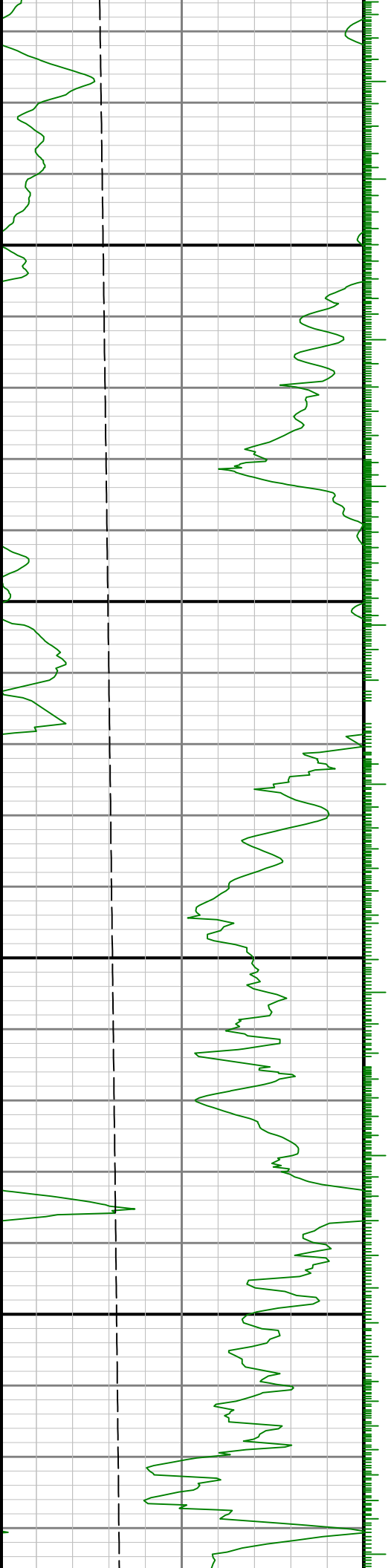
### Remarks

| Number | Measured<br>Depth<br>(ft.) | Hole<br>Section<br>(in.) | LWD<br>Run No. | Remark   |
|--------|----------------------------|--------------------------|----------------|--|
| 1      | 6590                       | 8.750                    | 1              | The interval from surface to 6590 feet MD (0 to 6510 feet TVD) was not logged due to logging services not beginning until the kick of the curve. |
|        |                            |                          |                |  |

|   |      |       |   |  |
|---|------|-------|---|--|
| 2 | 7565 | 6.125 | 2 | The interval from 7510 to 7565 feet MD (7127 to 7134 feet TVD) was logged up to 15 hours after drilling due to tripping out of the hole for casing and cement operations. Gamma data is attenuated due to logging behind casing. |
| 2 |      |       | 2 | The interval from 11834 to 11894 feet MD (7130 to 7132 feet TVD) was not logged due to sensor offsets to bit at TD.  |

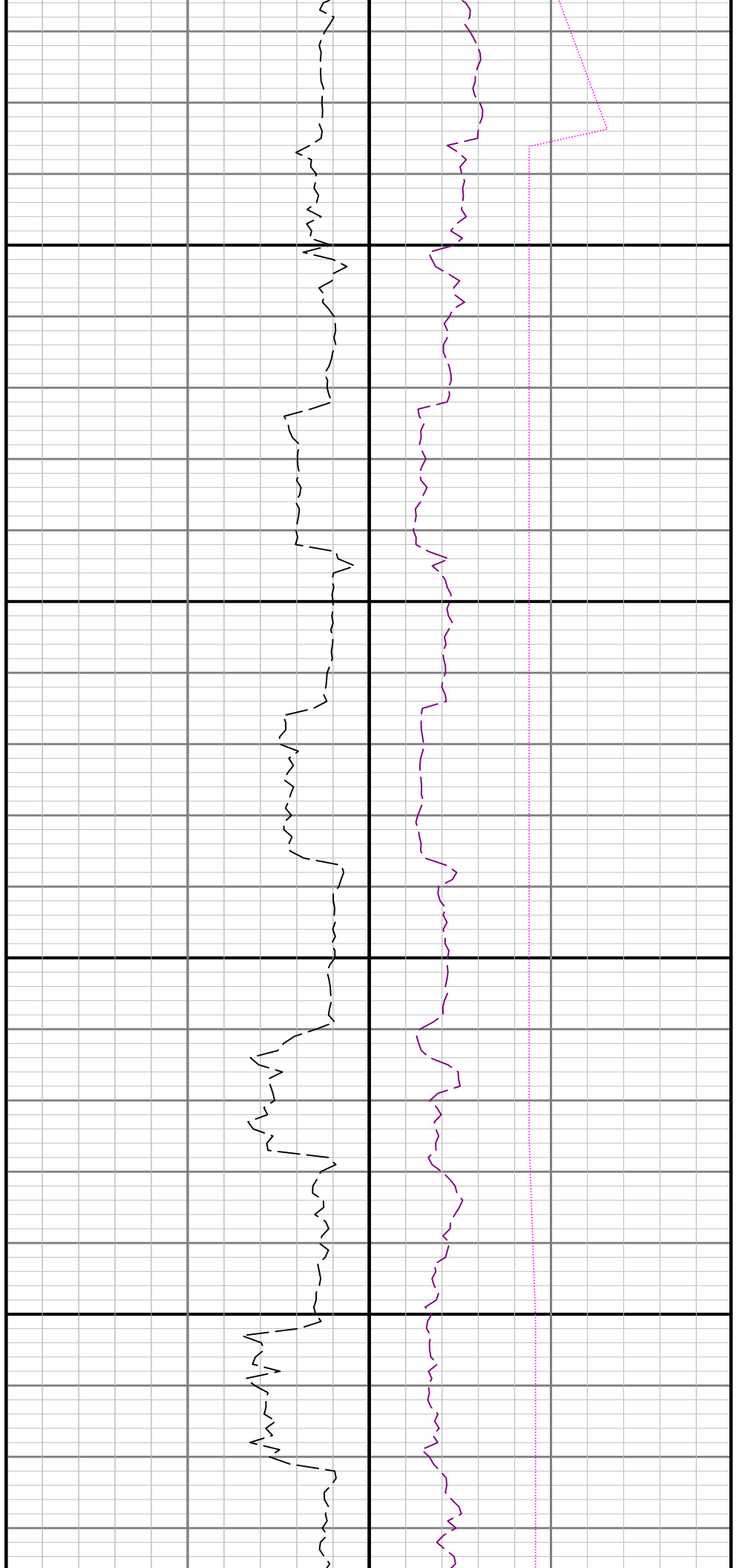


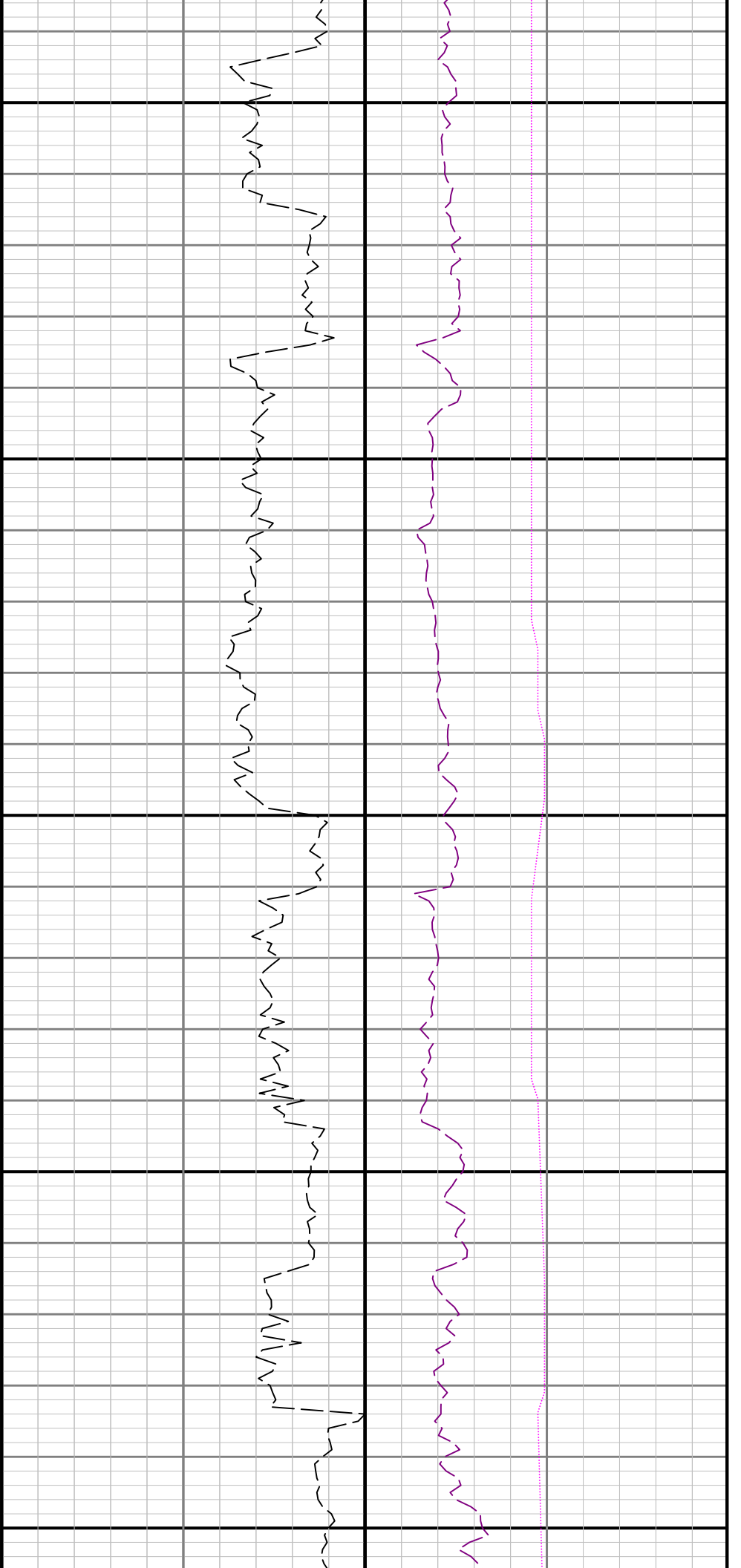




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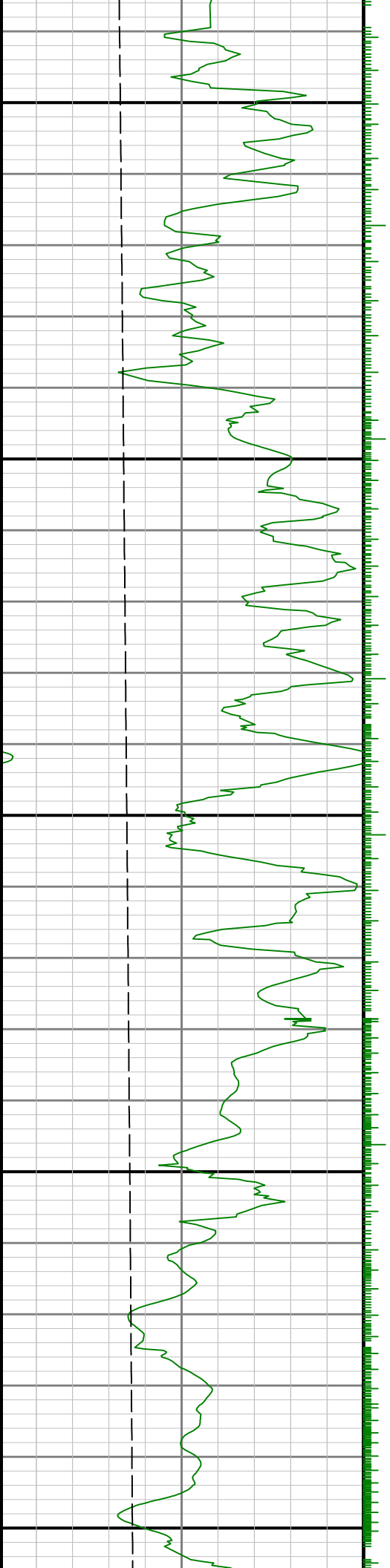
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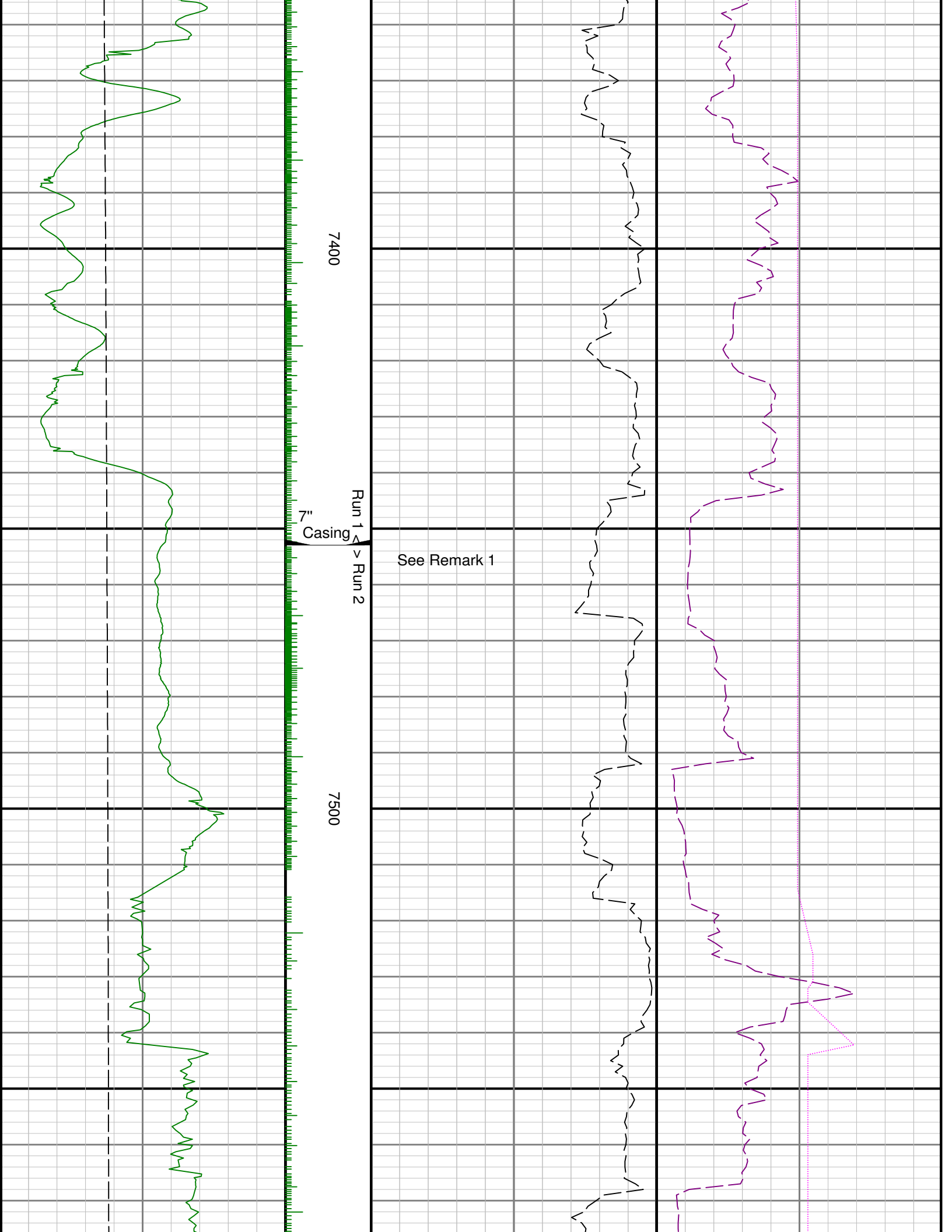


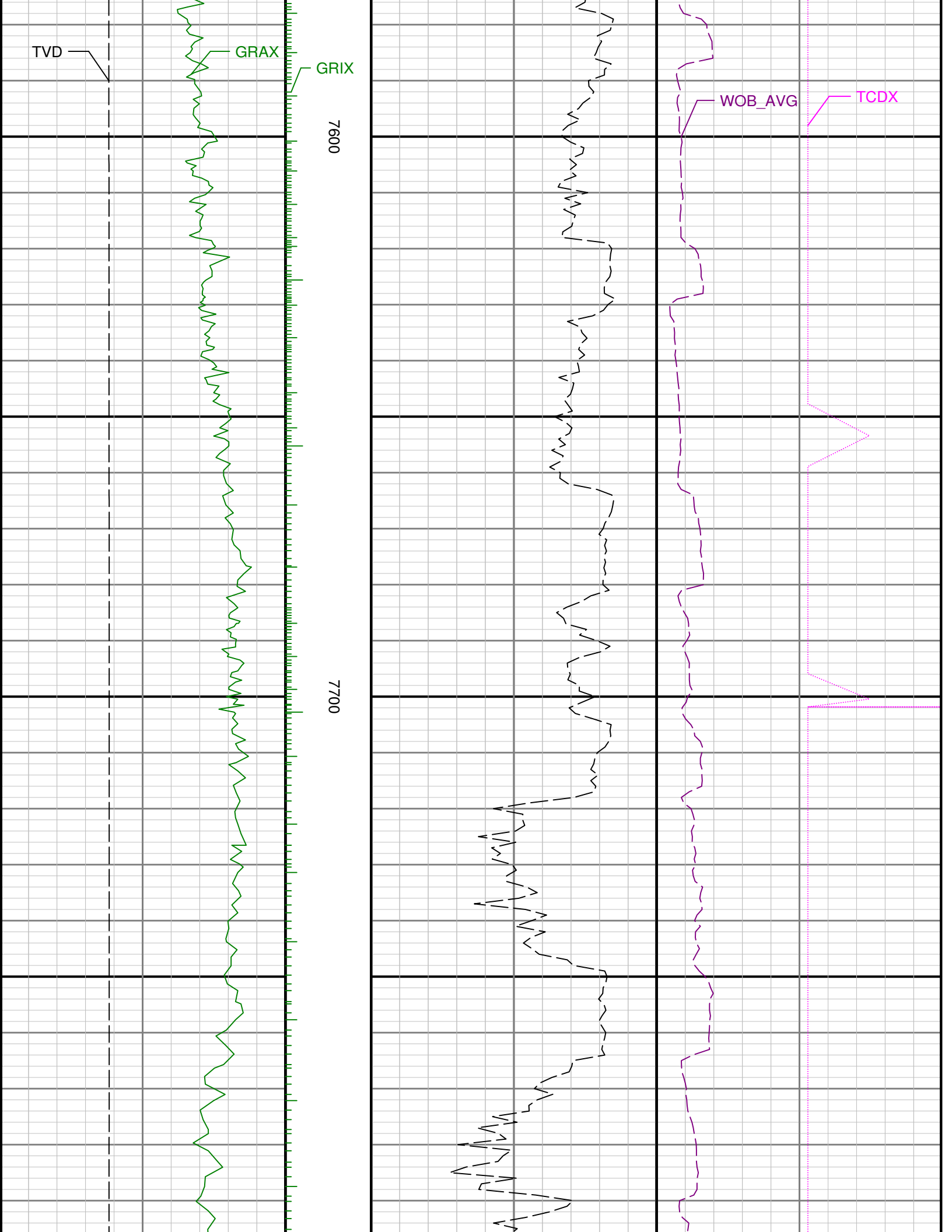


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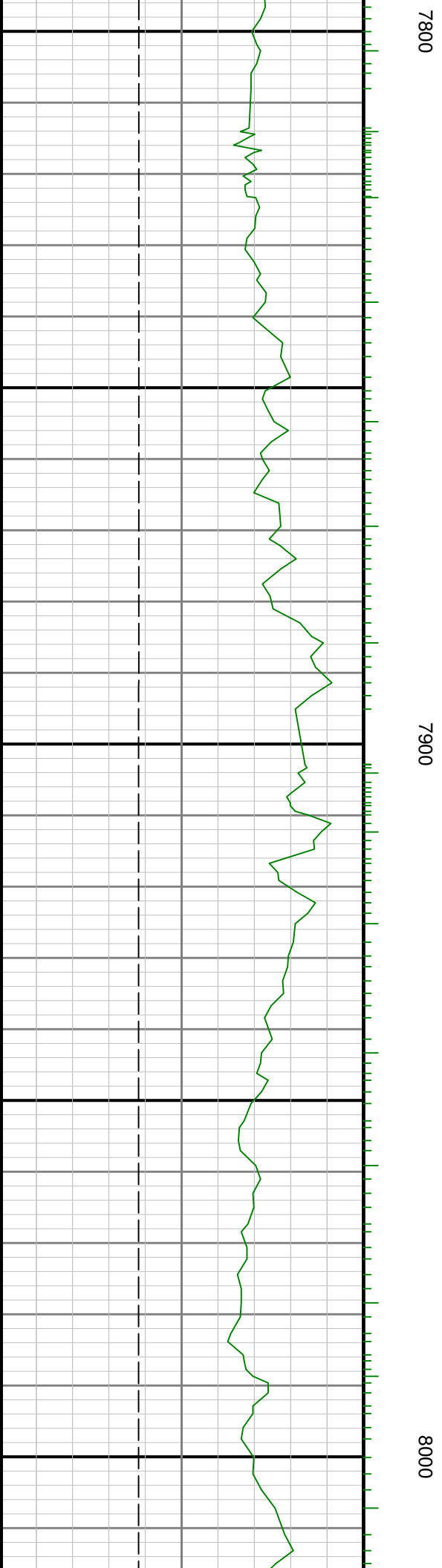
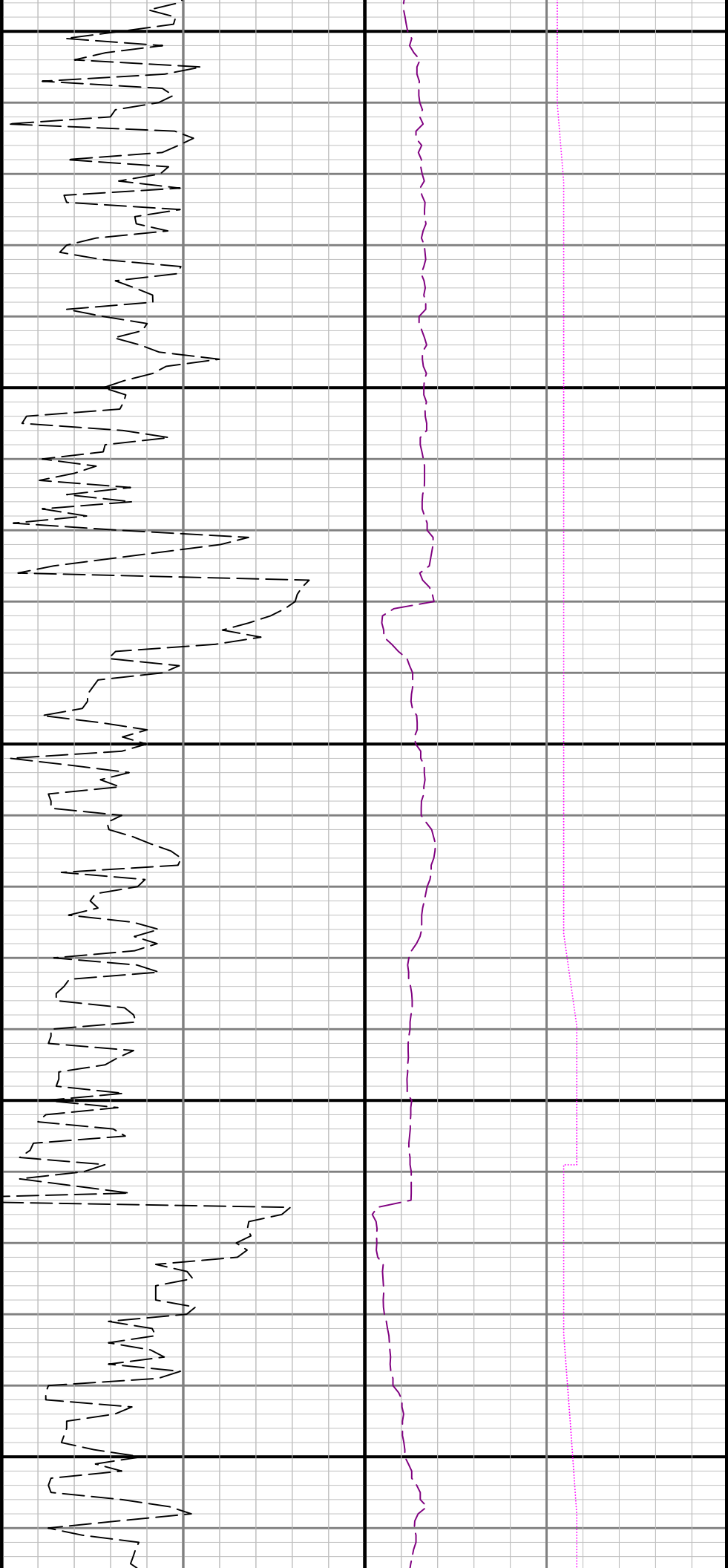
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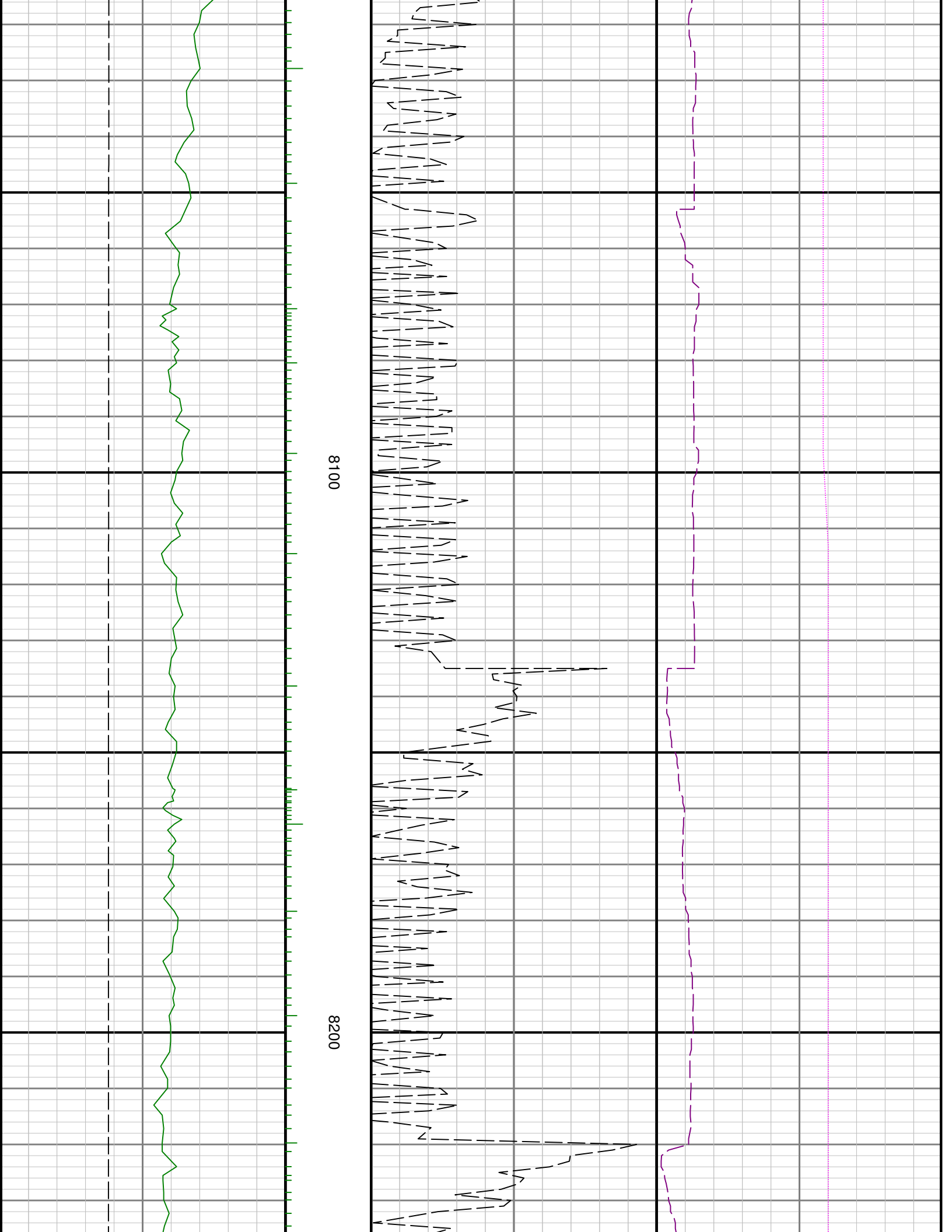


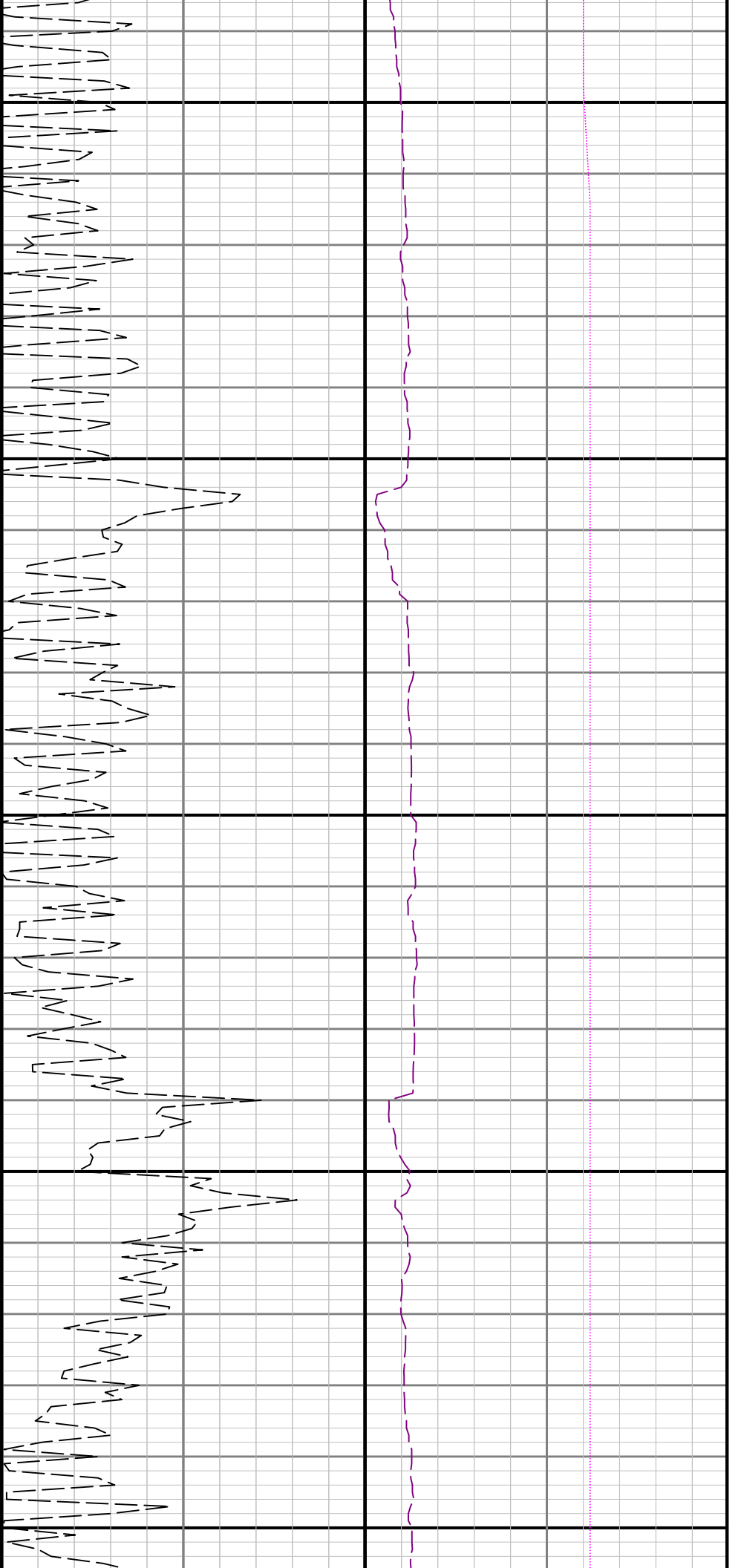






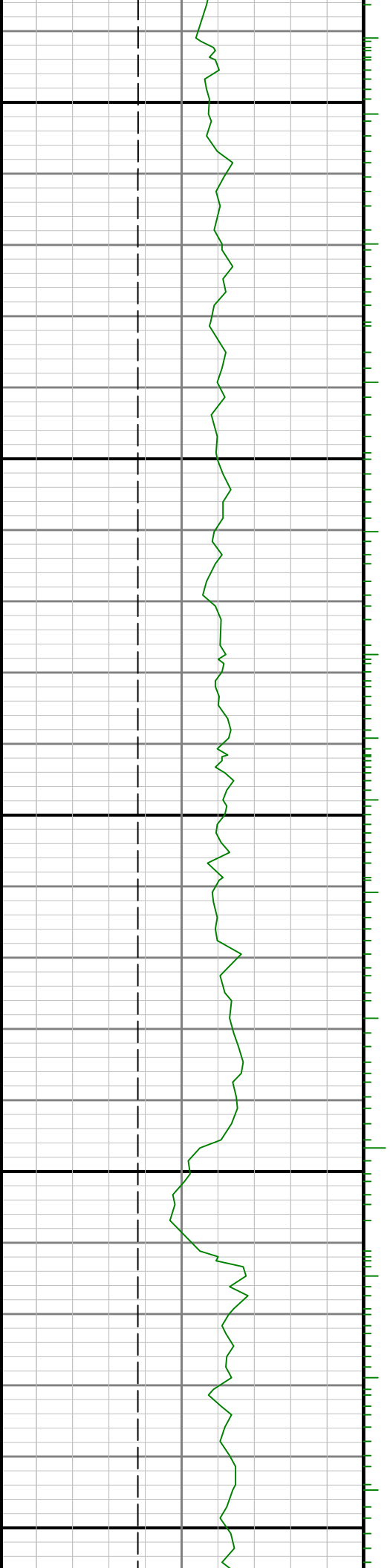


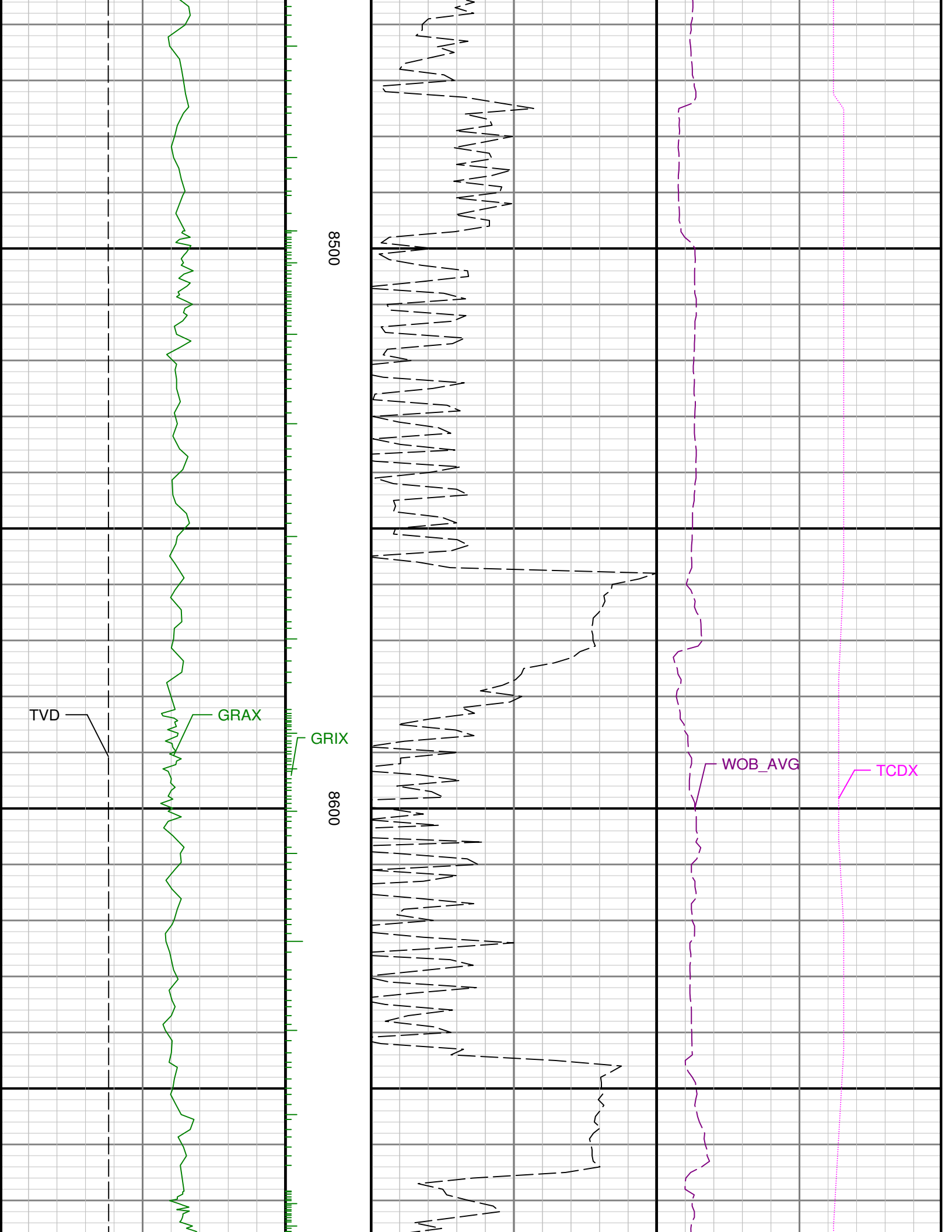


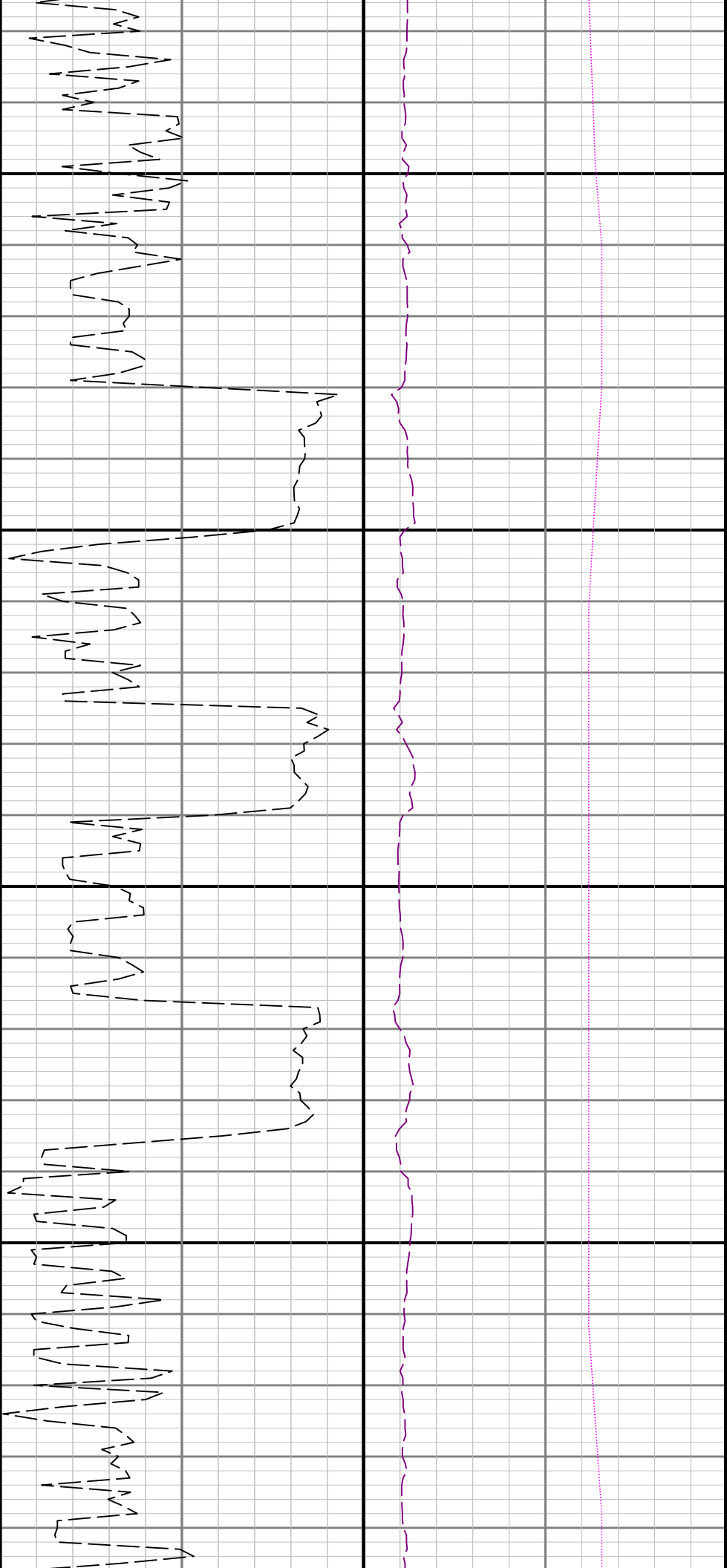


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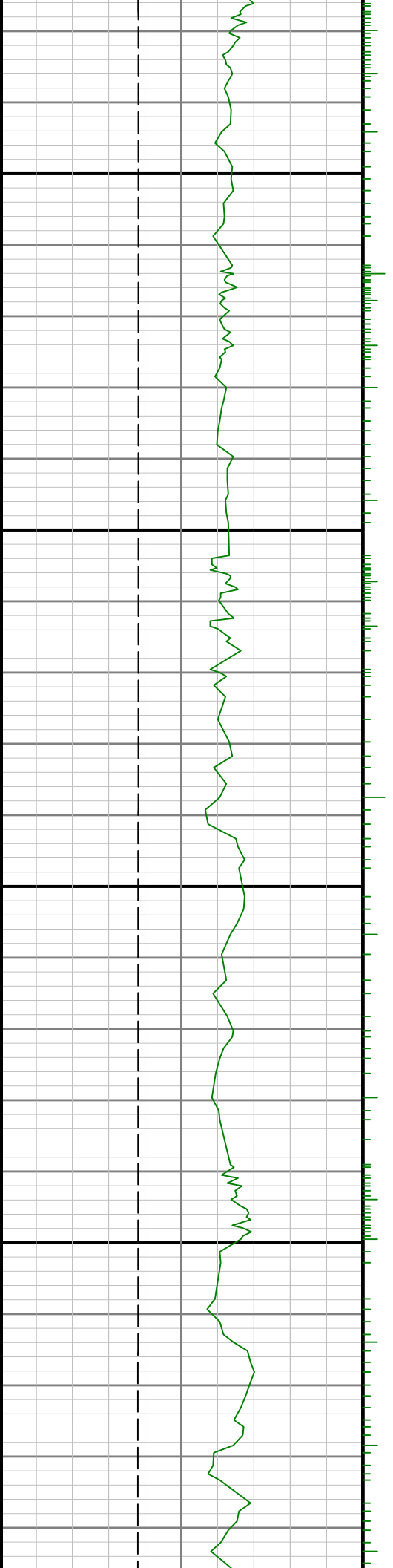


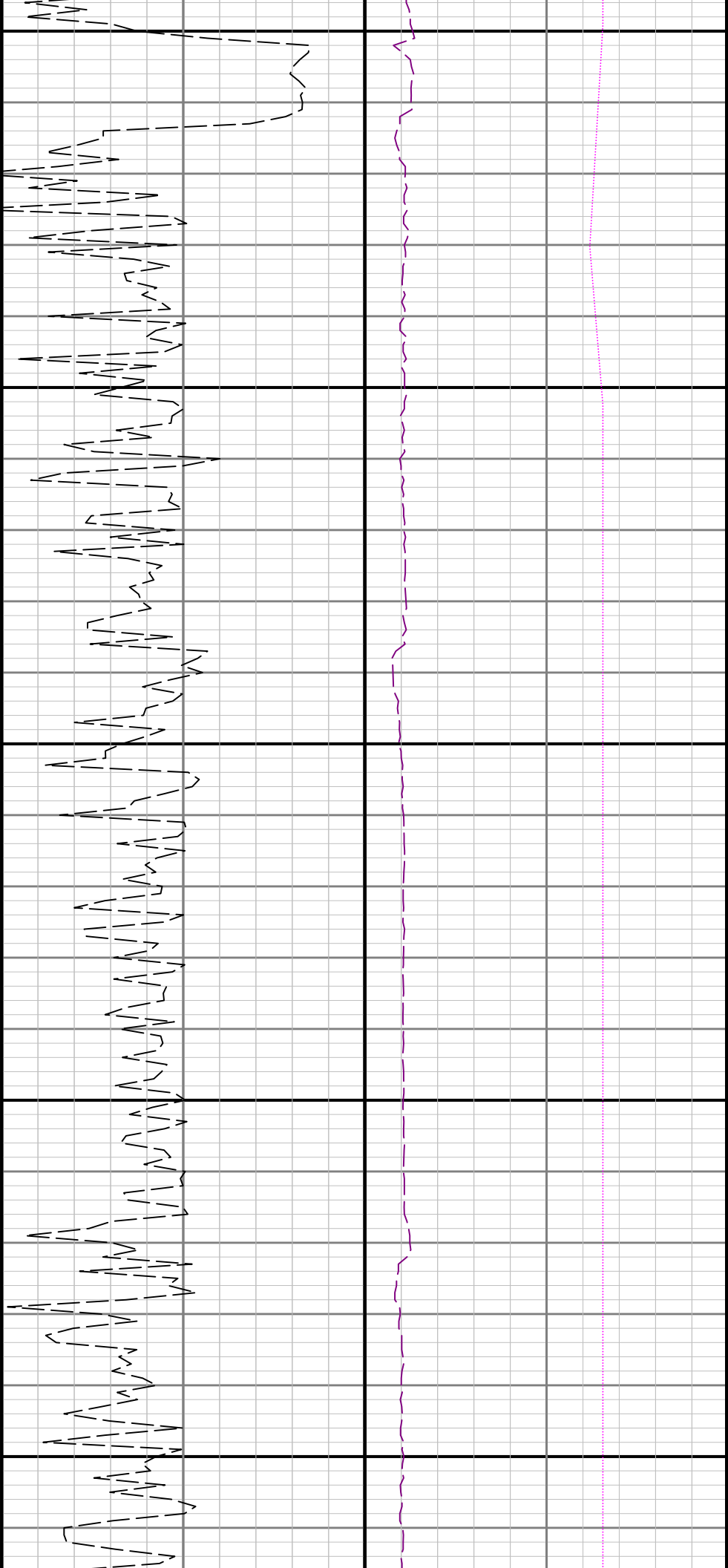




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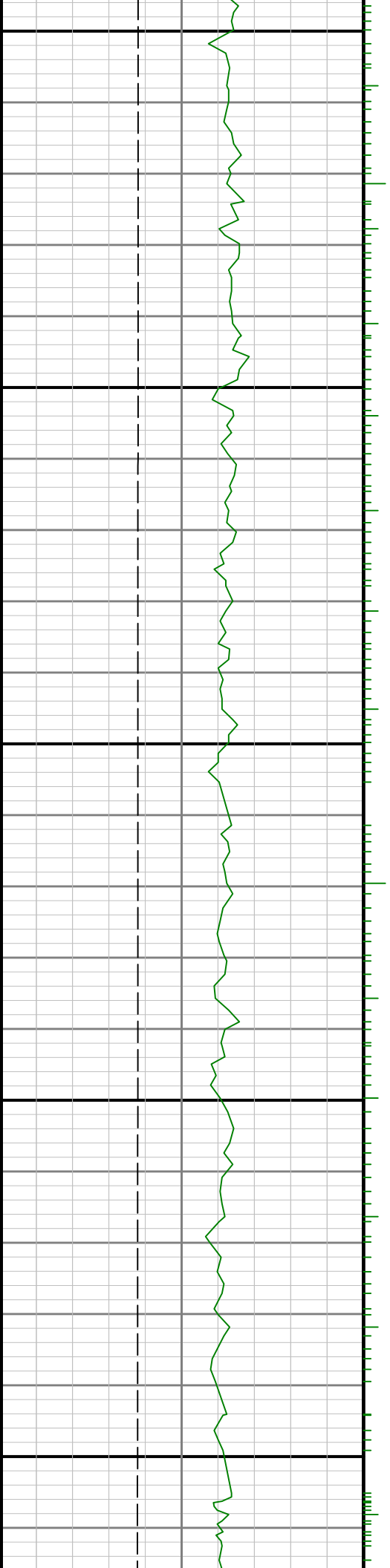


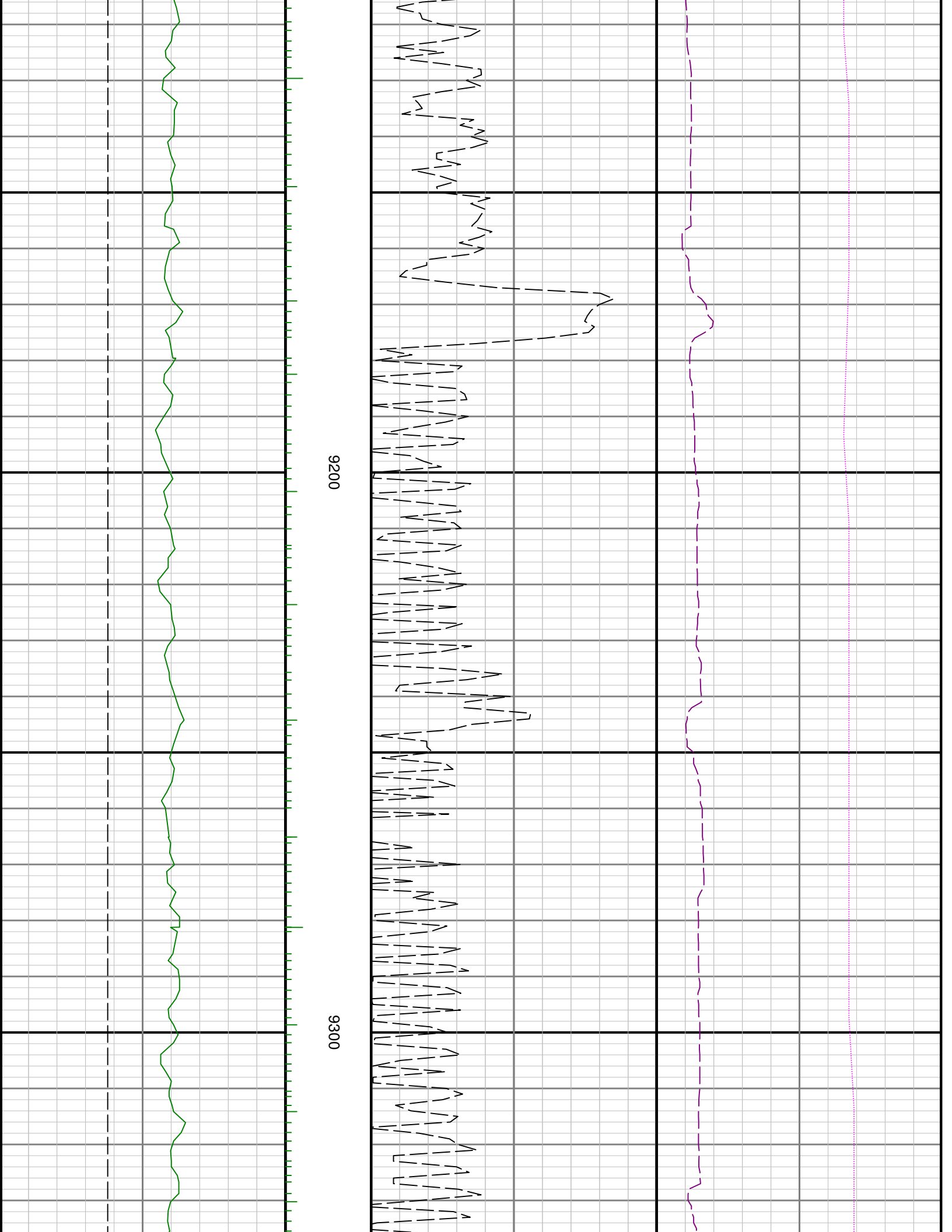


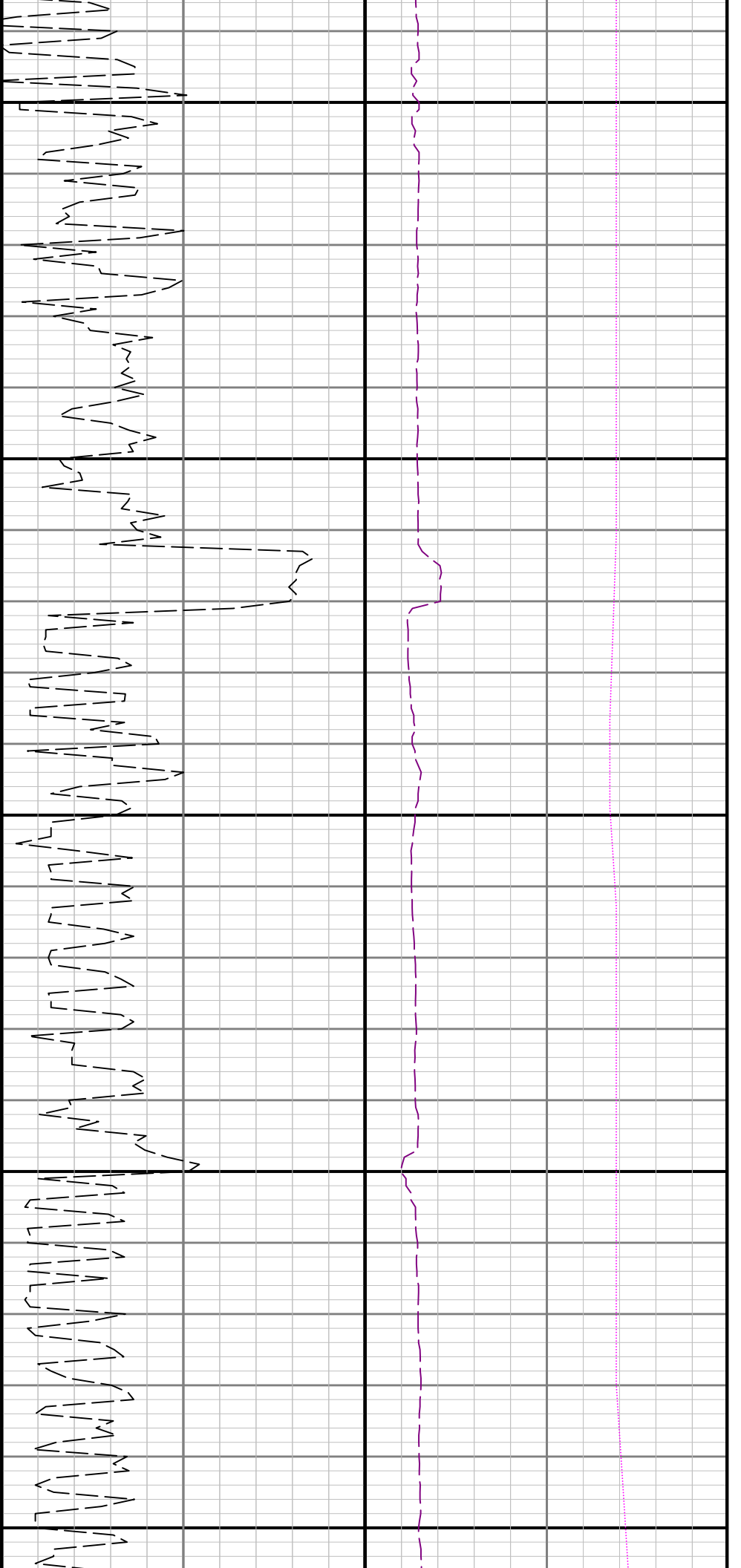
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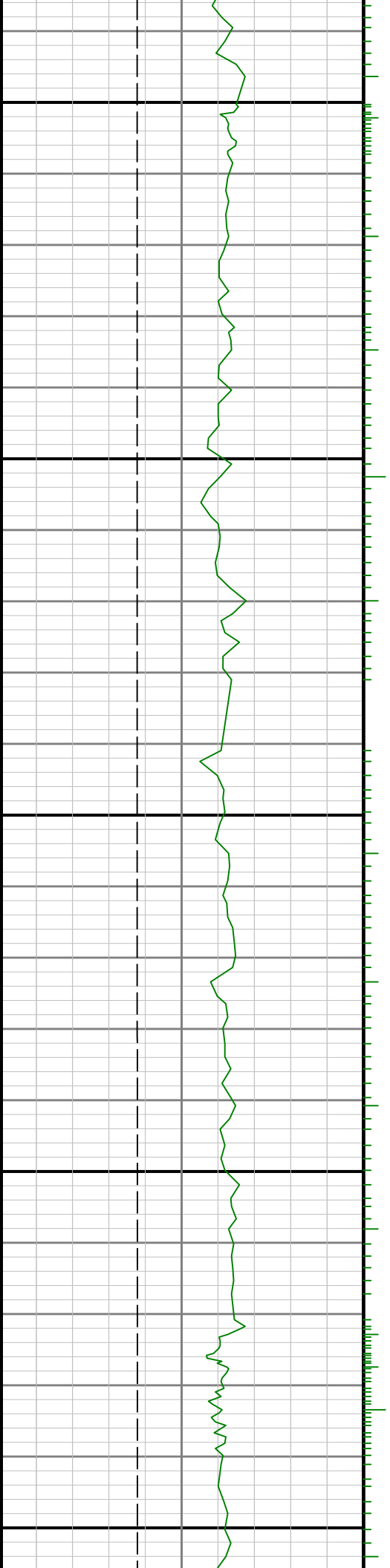




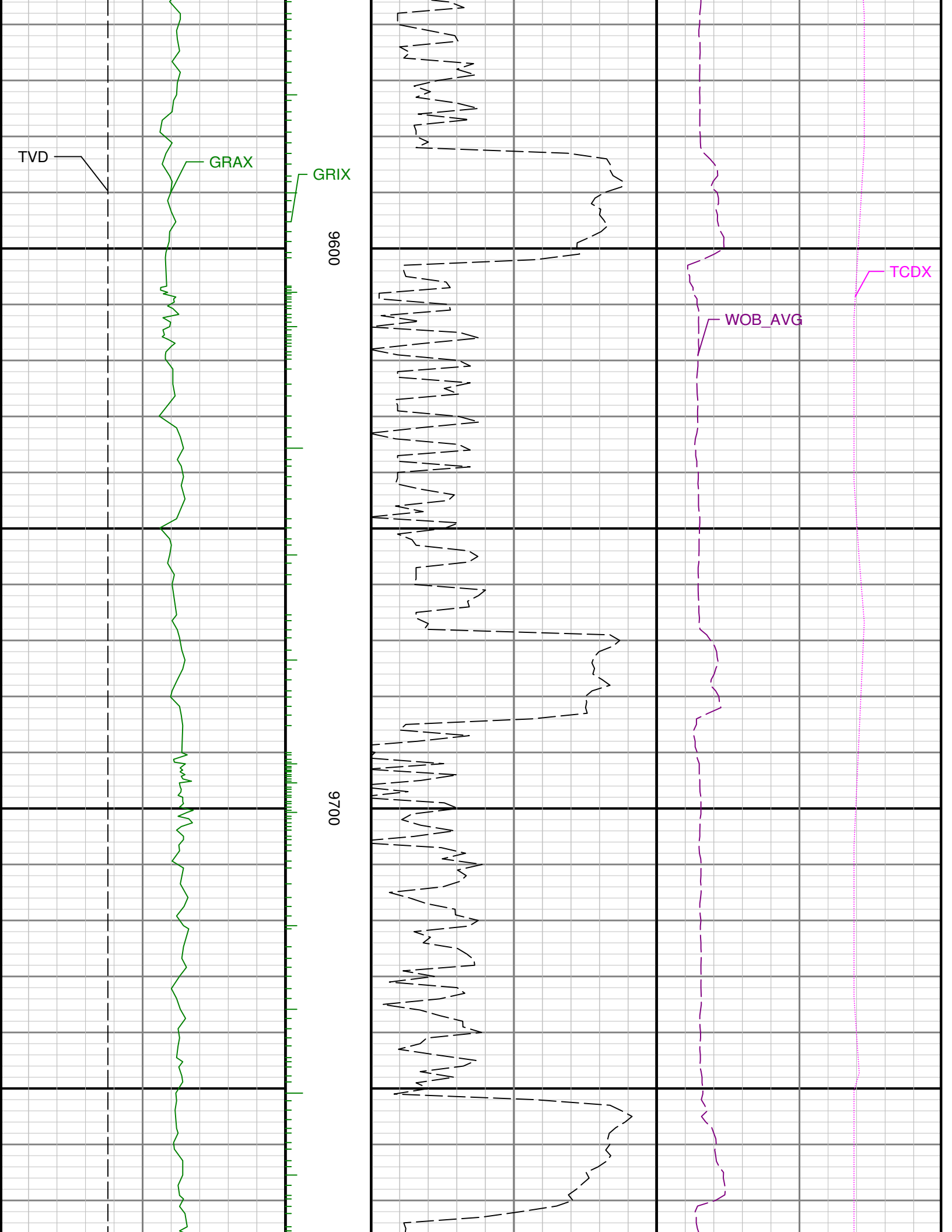


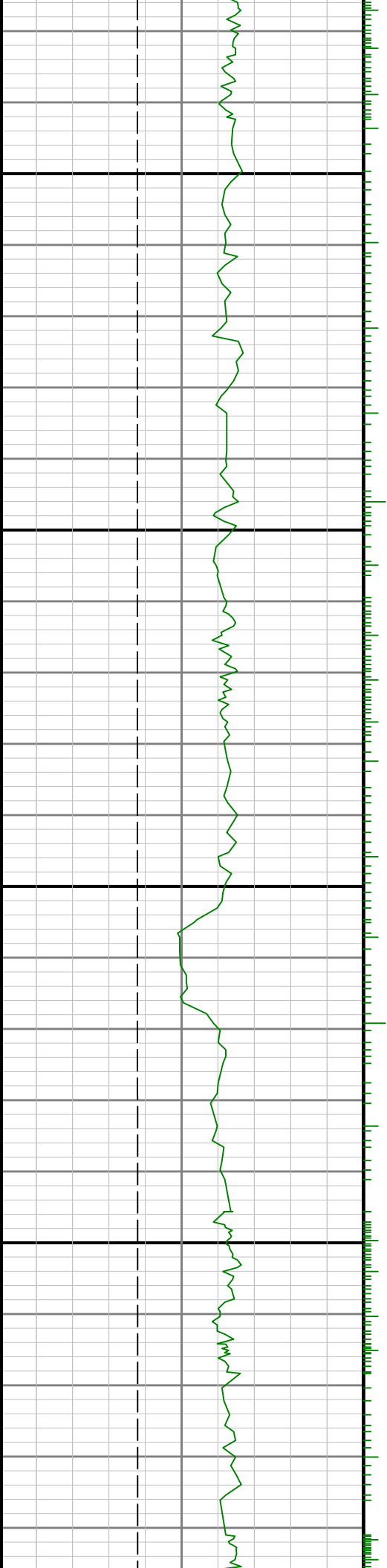
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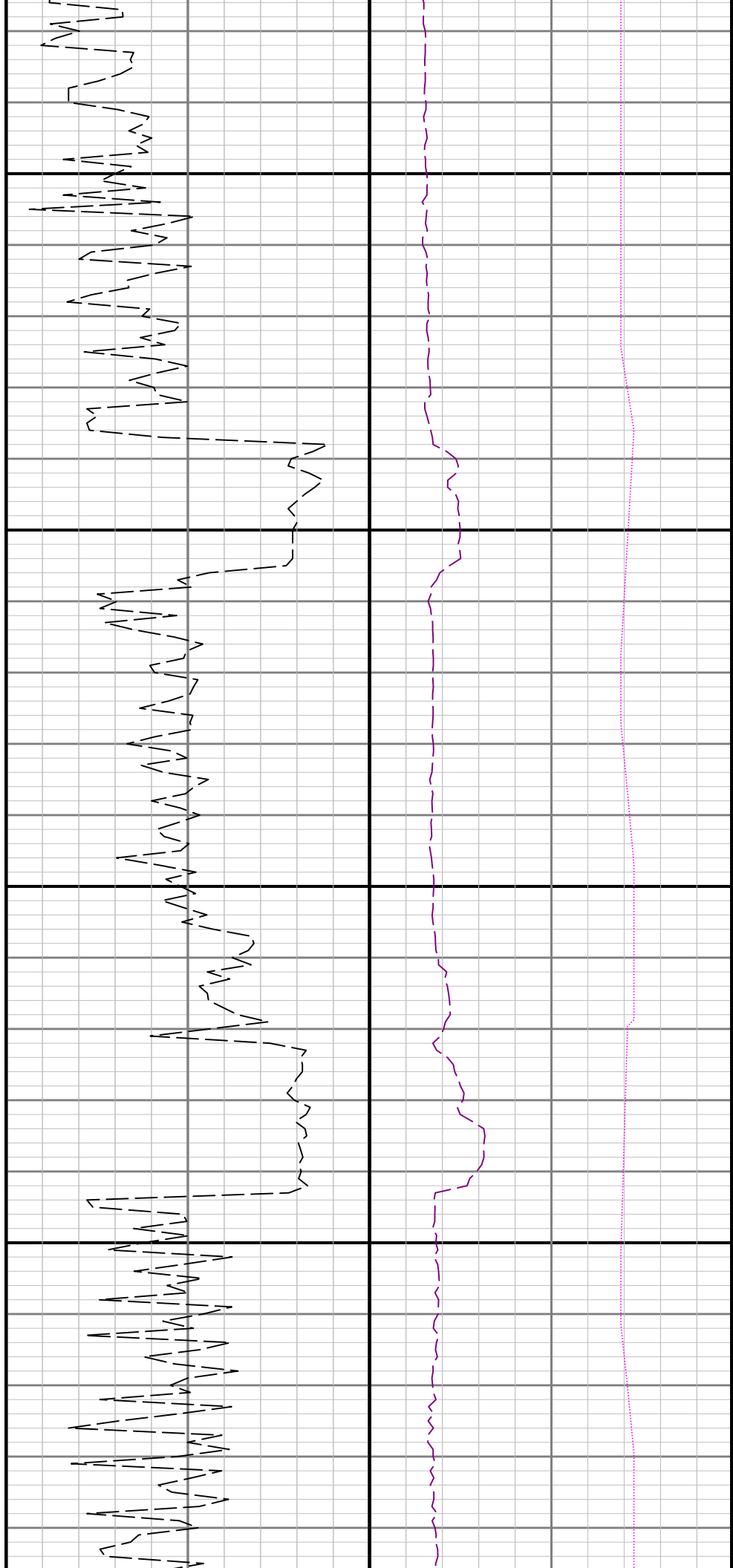


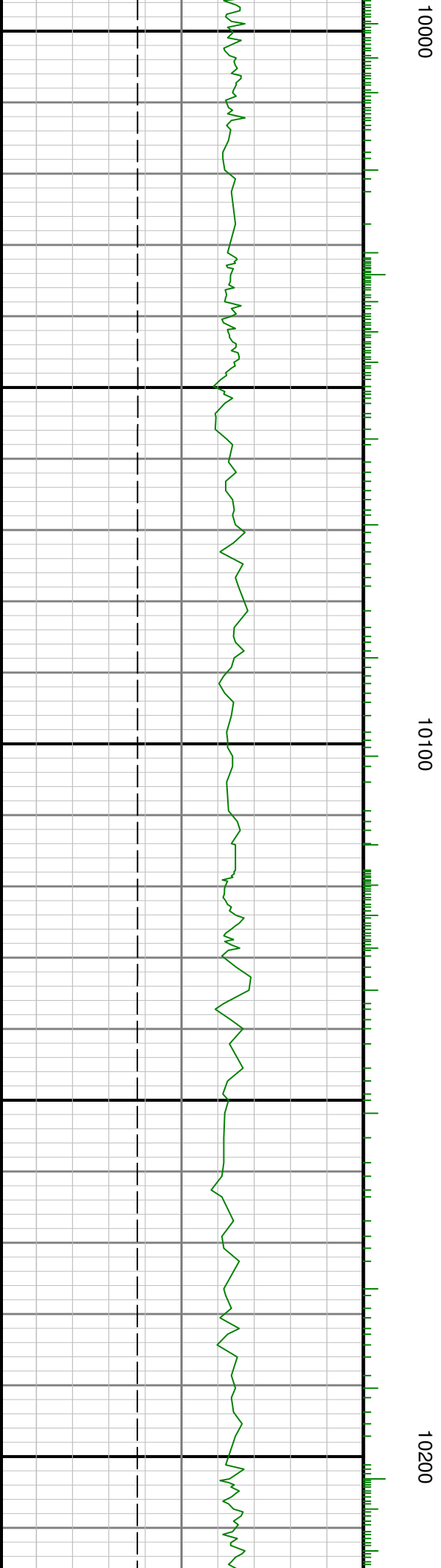
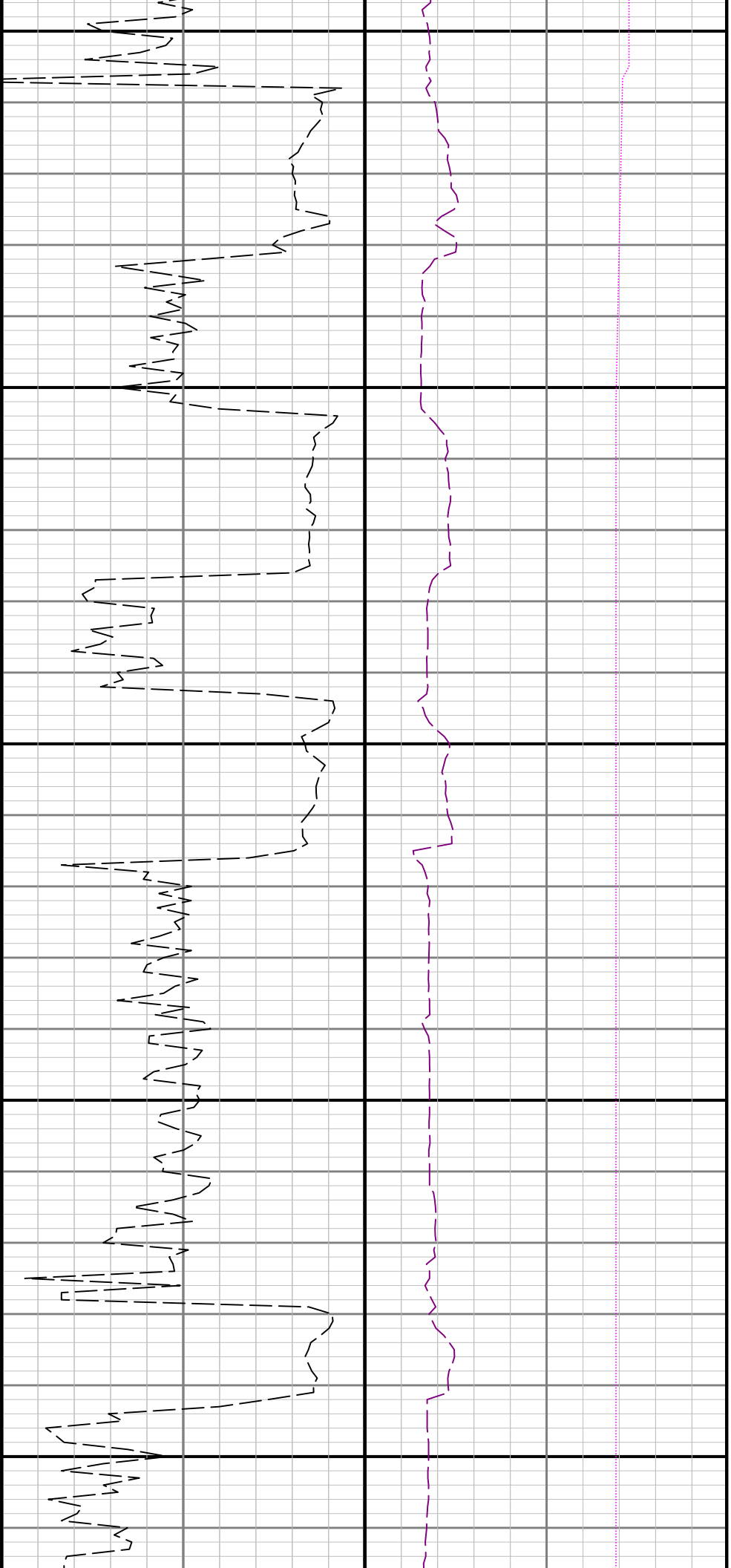


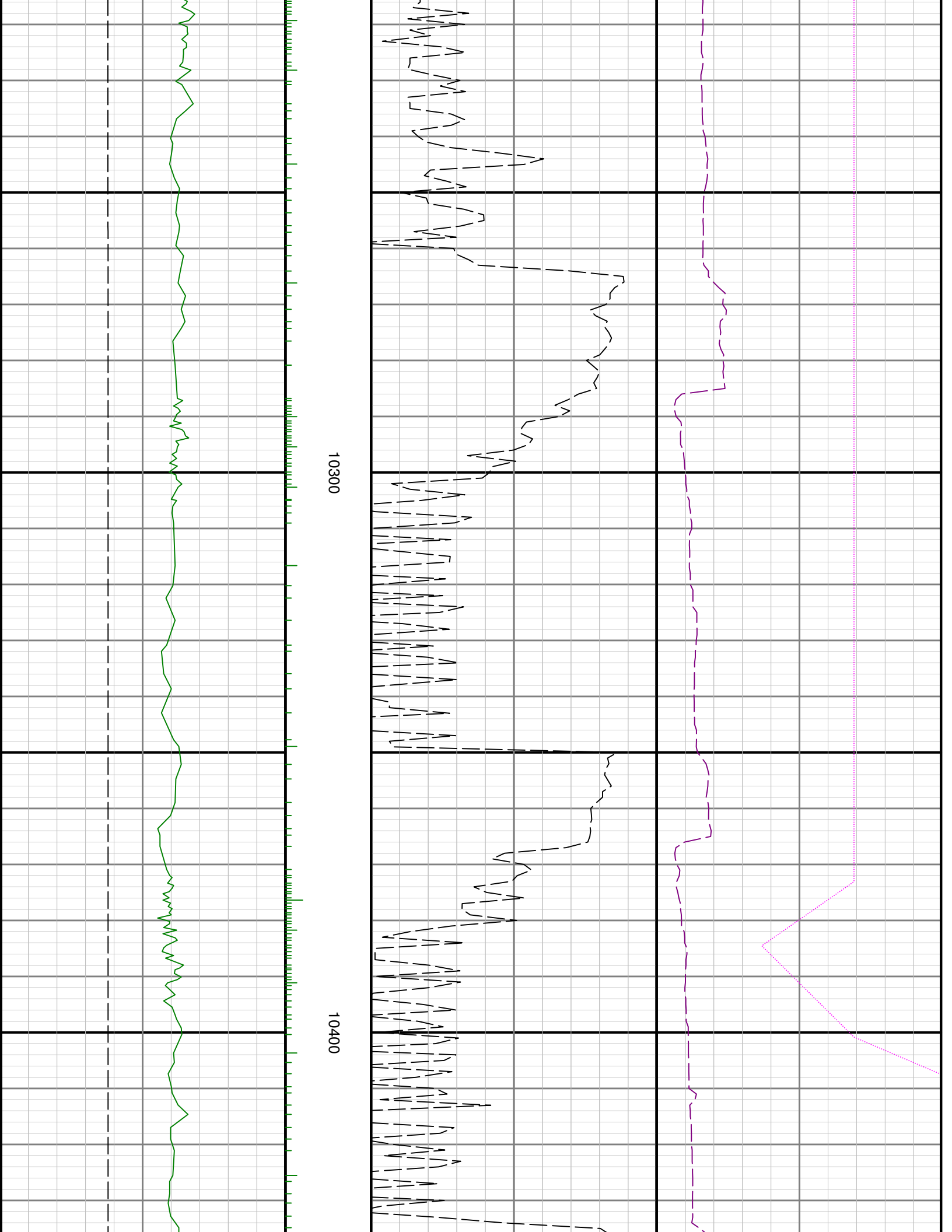


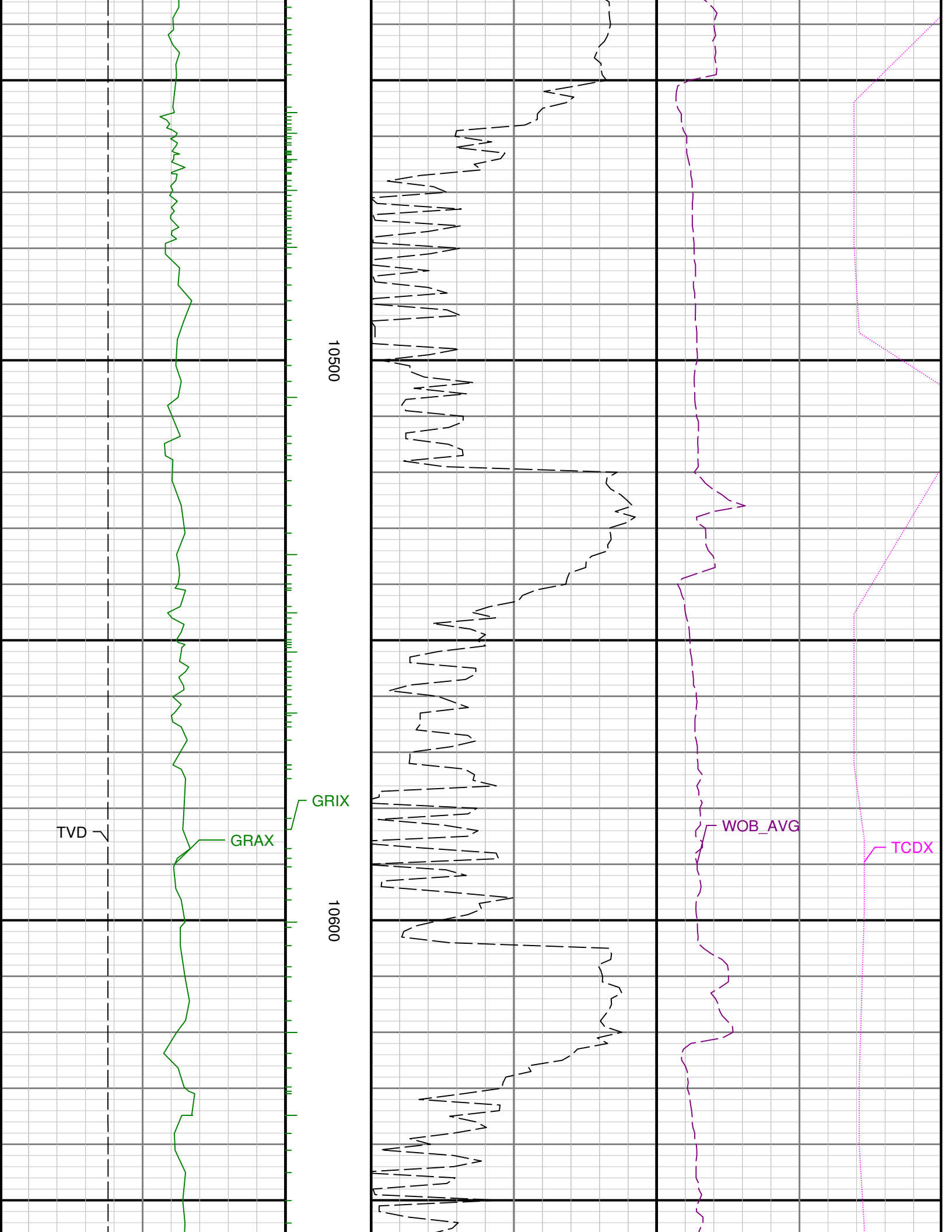
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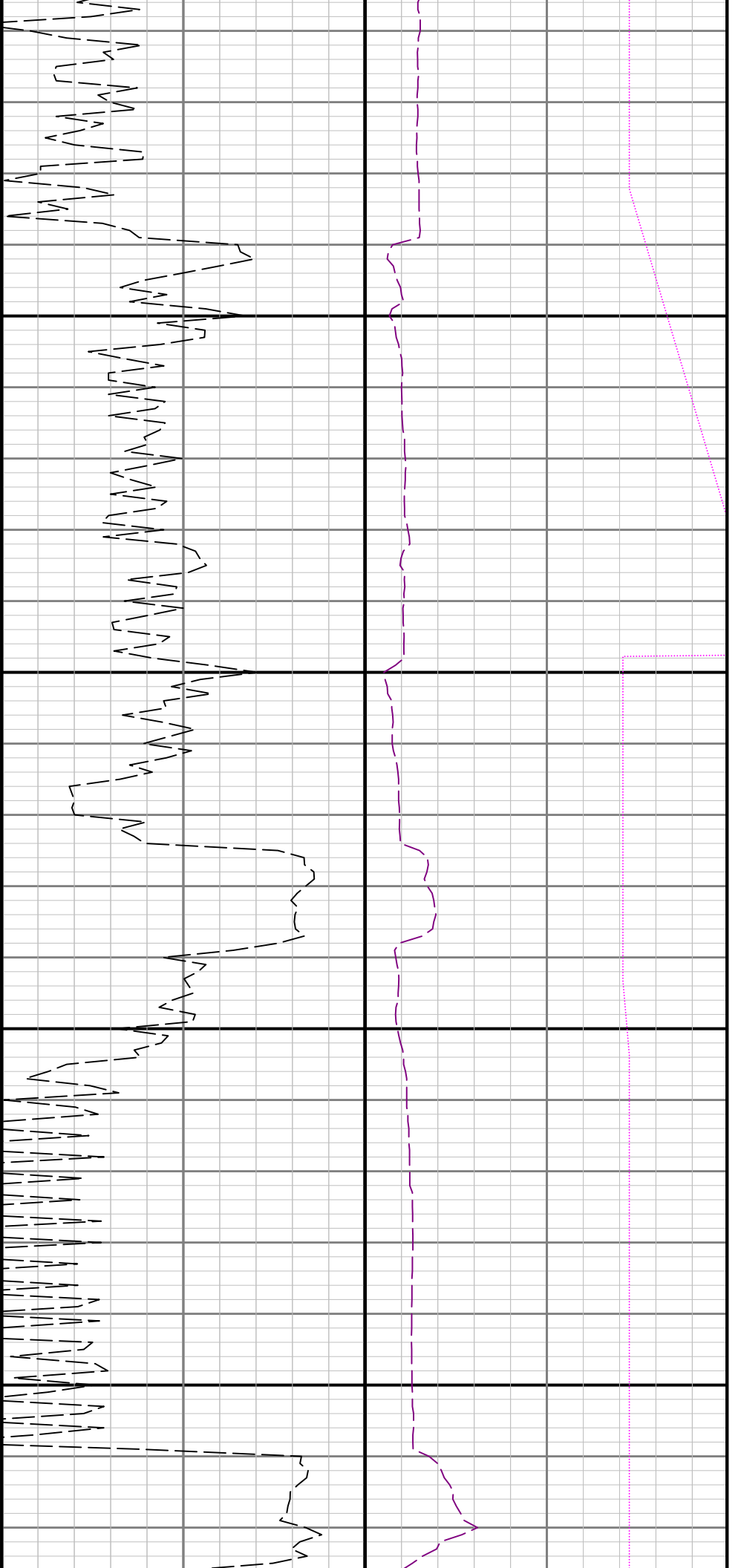
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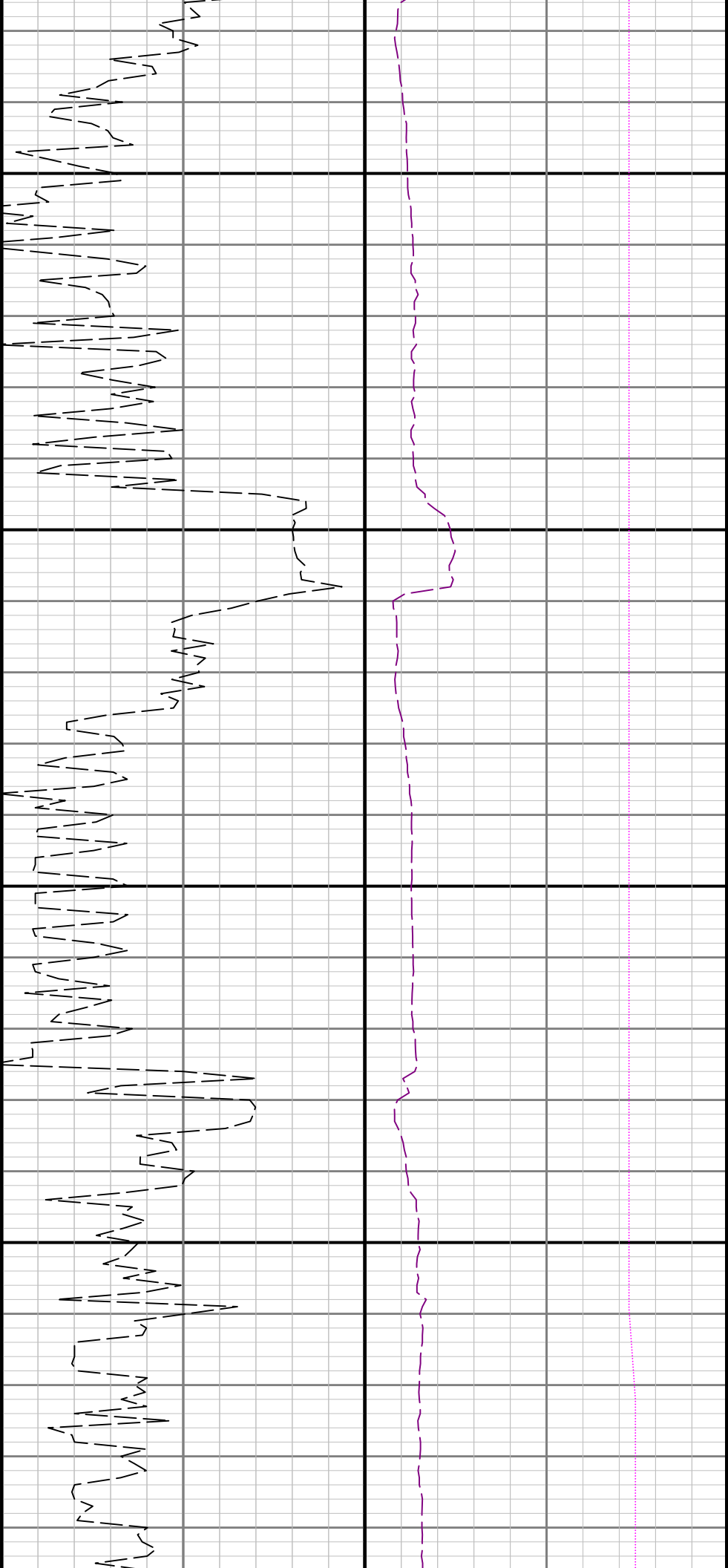






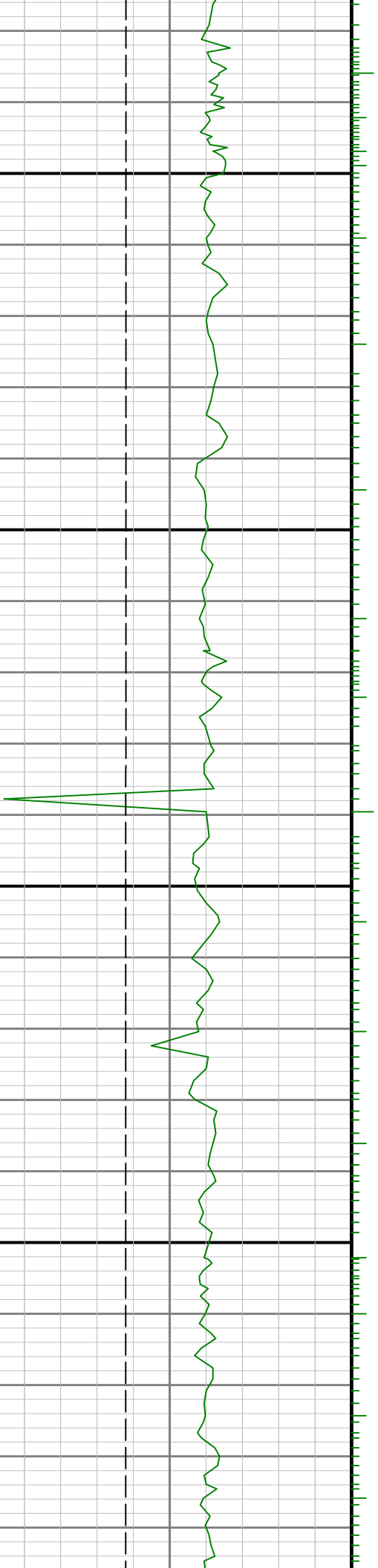
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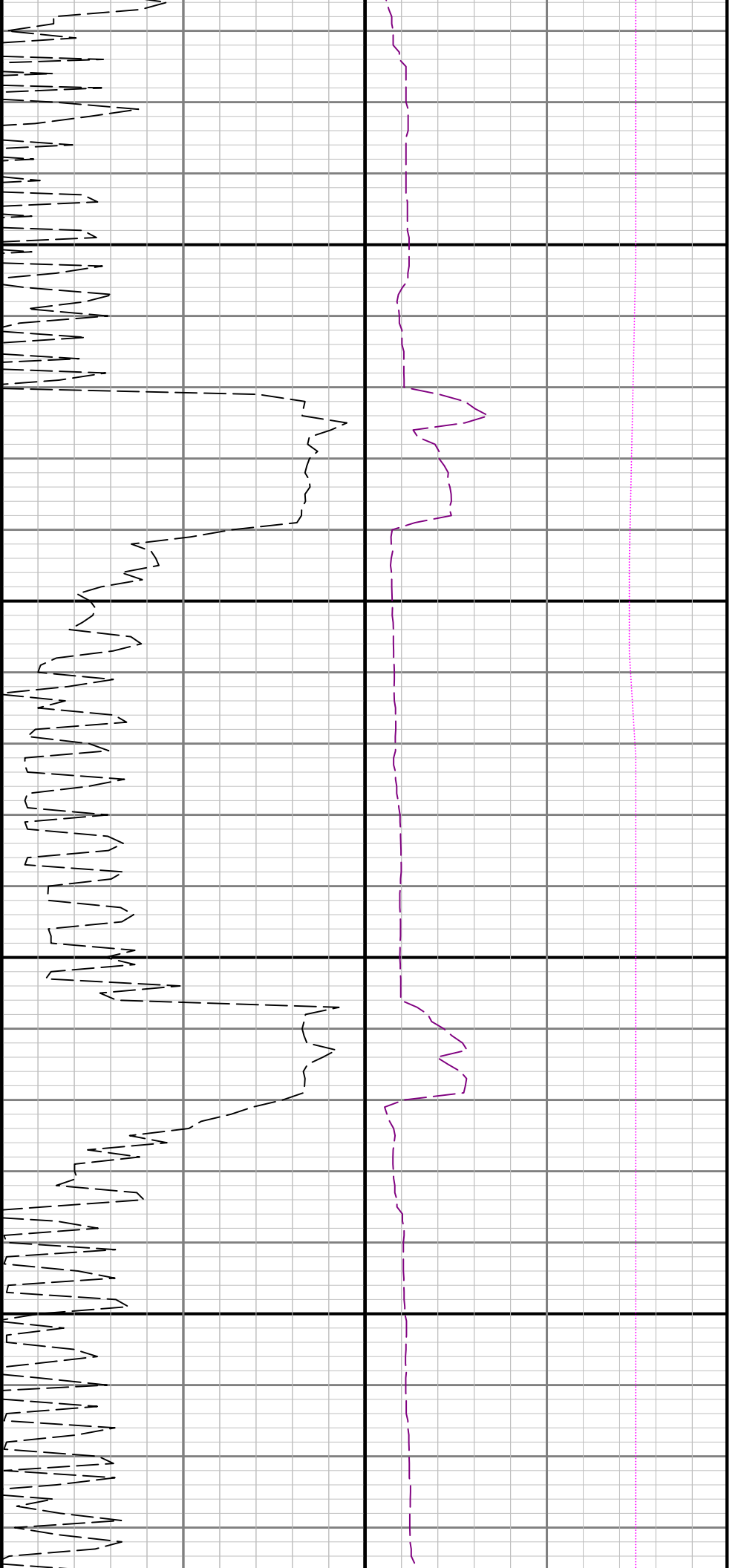
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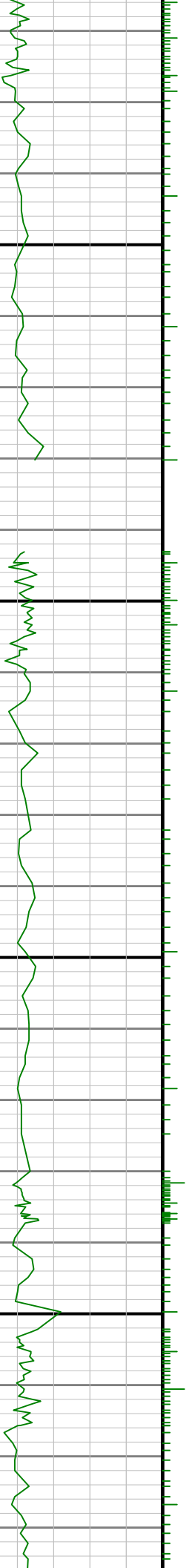


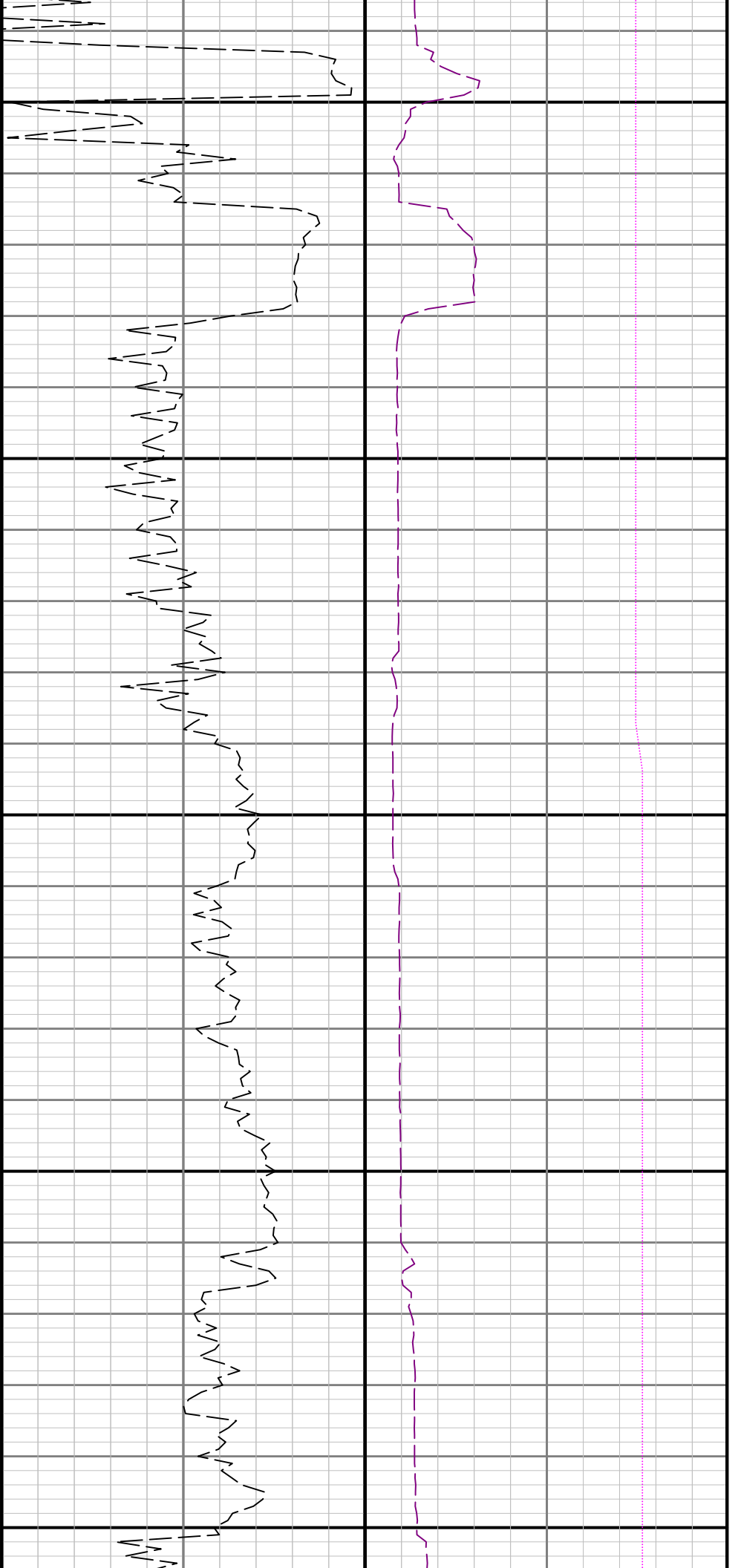




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