



|                |           |           |  |  |  |             |           |           |
|----------------|-----------|-----------|--|--|--|-------------|-----------|-----------|
| John Nguyen    | 01 Aug 14 | 10 Aug 14 |  |  |  | Ely Danner  | 02 Aug 14 | 10 Aug 14 |
| Robert G. Klos | 01 Aug 14 | 10 Aug 14 |  |  |  | Jason Cross | 01 Aug 14 | 02 Aug 14 |
|                |           |           |  |  |  | Mark Snyder | 01 Aug 14 | 07 Aug 14 |
|                |           |           |  |  |  | Jason Cross | 07 Aug 14 | 10 Aug 14 |

### Mud Properties Record

| Date / Time |       | LWD<br>Run No. | Measured<br>Depth<br>(ft.) | Mud<br>Type | Density<br>(lb/gal) | Viscosity<br>(s/qt) | pH  | Fluid<br>Loss<br>(cc) | Oil /<br>Water | Source      | Total<br>Chlorides<br>(mg/L) | K+<br>(%) |
|-------------|-------|----------------|----------------------------|-------------|---------------------|---------------------|-----|-----------------------|----------------|-------------|------------------------------|-----------|
| 01 Aug 14   | 08:00 | 1              | 1003                       | Water base  | 8.4                 | 27                  | 7.8 | N/A                   | 0/100          | Active Pits | 1200                         | N/A       |
| 02 Aug 14   | 08:00 | 1              | 2938                       | Water base  | 8.5                 | 27                  | 8.0 | N/A                   | 0/99           | Active Pits | 1300                         | N/A       |
| 03 Aug 14   | 10:30 | 1              | 7108                       | Water base  | 10.3                | 44                  | 9.6 | N/A                   | 2/88           | Active Pits | 1500                         | N/A       |
| 05 Aug 14   | 10:00 | 2              | 7603                       | Water base  | 10.3                | 54                  | 9.1 | N/A                   | 2/88           | Active Pits | 1600                         | N/A       |
| 06 Aug 14   | 09:00 | 3              | 7956                       | Water base  | 9.3                 | 37                  | 9.6 | N/A                   | 2/93           | Active Pits | 1600                         | N/A       |
| 07 Aug 14   | 10:00 | 3              | 11393                      | Water base  | 9.3                 | 40                  | 9.0 | N/A                   | 4/89           | Active Pits | 1600                         | 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 Indication       | Unitless |
| GRTX  | Gamma Ra Time Since Drilled        | Mins     |
| 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<br>Run<br>No. | Tool | Serial<br>Number | Measurement | Bit<br>Offset<br>(m.) | Max<br>O.D.<br>(in.) | Min<br>I.D.<br>(in.) |
|-------------------|------|------------------|-------------|-----------------------|----------------------|----------------------|
| 1                 | DIR  | 12546343         | Directional | 47.40                 | 6.750                | 3.788                |
| 1                 | SRIG | 12600744         | Gamma       | 44.03                 | 6.750                | 3.788                |
| 2                 | DIR  | 12546343         | Directional | 40.75                 | 6.750                | 3.788                |
| 2                 | SRIG | 12600744         | Gamma       | 37.38                 | 6.750                | 3.788                |
| 3                 | DIR  | 12142328         | Directional | 52.65                 | 4.750                | 1.780                |
| 3                 | SRIG | 10392040         | Gamma       | 49.27                 | 4.750                | 1.780                |

### Service and Tool Mnemonics

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

Comments

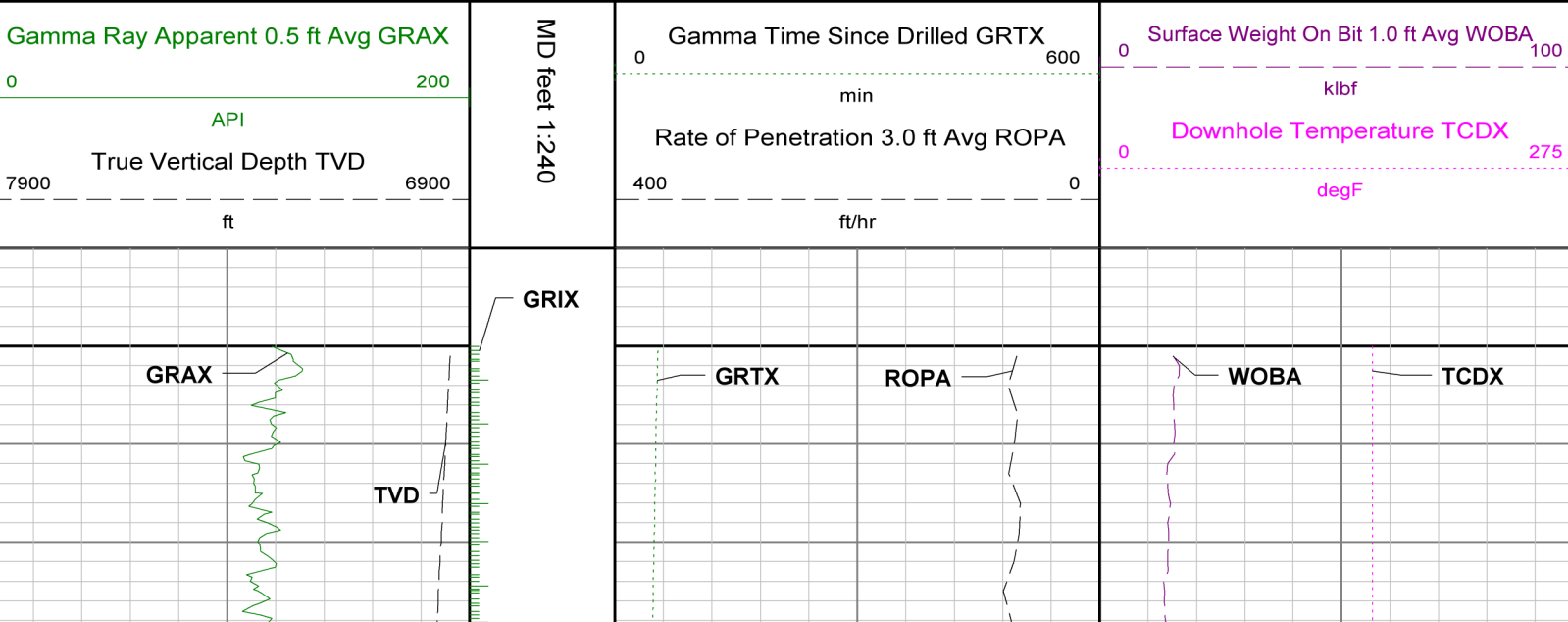
1. Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes INTEQ. Due to lack of control by Baker Hughes INTEQ logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to INTEQ are being used to represent logging data.
2. 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.
3. Baker Hughes runs 1 and 2 utilized a 6.75 inch Navigamma (Gamma Ray and Directionl) tool behind a 8.75 inch bit and steerable assembly from 1003 feet to 7830 feet MD (1002.99 feet to 7562.94 feet TVD.)
4. Baker Hughes run 3 utilized a 4.75 inch Navigamma (Gamma Ray and Directionl) tool behind a 6.125 inch bit and steerable assembly from 7830 feet to 14898 feet MD (7562.94 feet to 7554.79 feet TVD.)

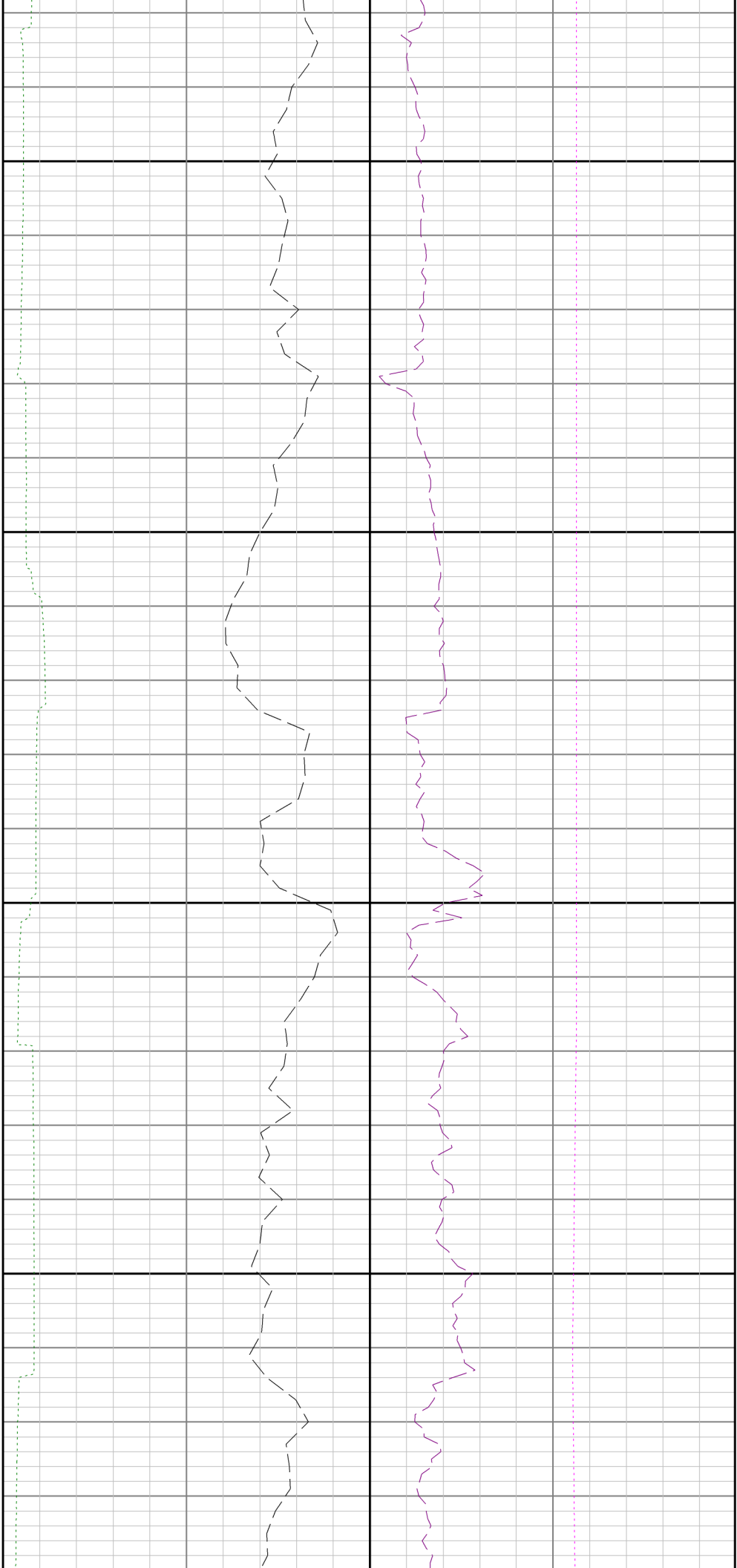
Remarks

| Number | Measured<br>Depth<br>(m.) | Hole<br>Section<br>(in.) | LWD<br>Run No. | Remark  |
|--------|---------------------------|--------------------------|----------------|---|
| 1      | 7383                      | 8.750                    | 1              | Gamma Ray Apparent from 7342 feet to 7388 feet MD (7309.32 feet to 7349.31 feet TVD) was logged 17.03 hours after being drilled due to tripping out of hole to change out Motor and Bit.                                |
| 2      | 7805                      | 8.750                    | 2              | Gamma Ray Apparent from 7793 feet to 7830 feet MD (7560.61 feet to 7562.94 feet TVD) was logged 44.22 hours after being drilled due to tripping out of hole to pick up the Lateral Section Assembly, Casing Operations. |
| 3      | Various                   | 6.125                    | 3              | Interval from 11693 to 11719 ft. MD and 14.679 to 14706 ft. MD (7568.58 to 7568.69 ft. TVD and 7561.10 to 7560.15 ft.) is missing GRAX, GRIX, GRTX, ROP and WOBA data due to complications with Surface Gear.           |
| 4      | 14865                     | 6.125                    | 3              | Interval from 14843 to 14898 ft. MD (7556.33 to 7554.79 ft. TVD) has no GRAX, GRIX and GRTX due to bit to sensor offset.  |



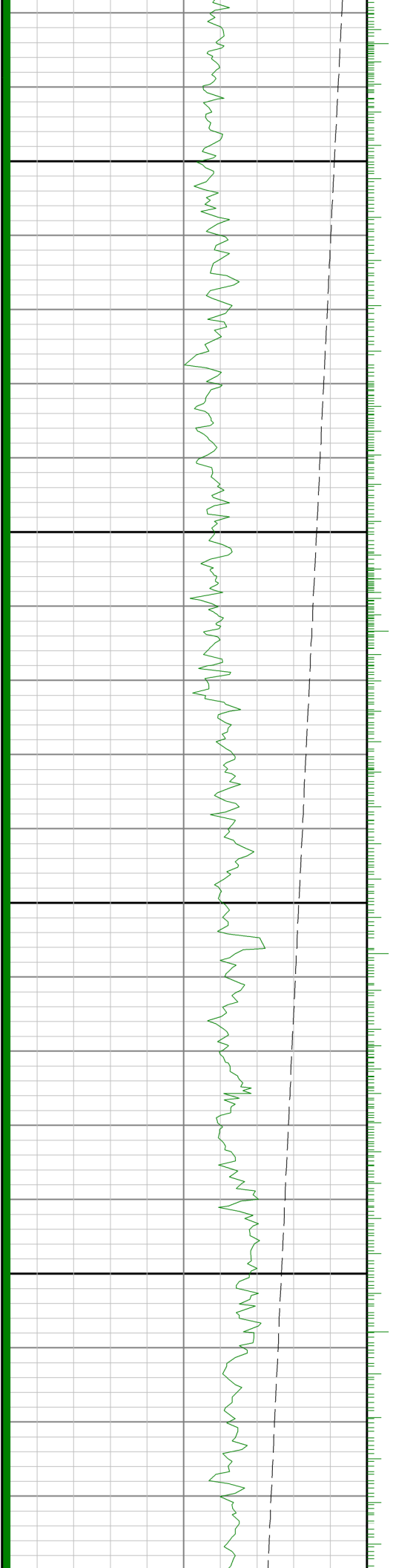
Company : Anadarko E & P Company LP  
Well : Howard 4N-29HZ  
Interval : 6940.00 - 14910.00 feet  
Created : 06/Aug/2014 6:40:53 AM



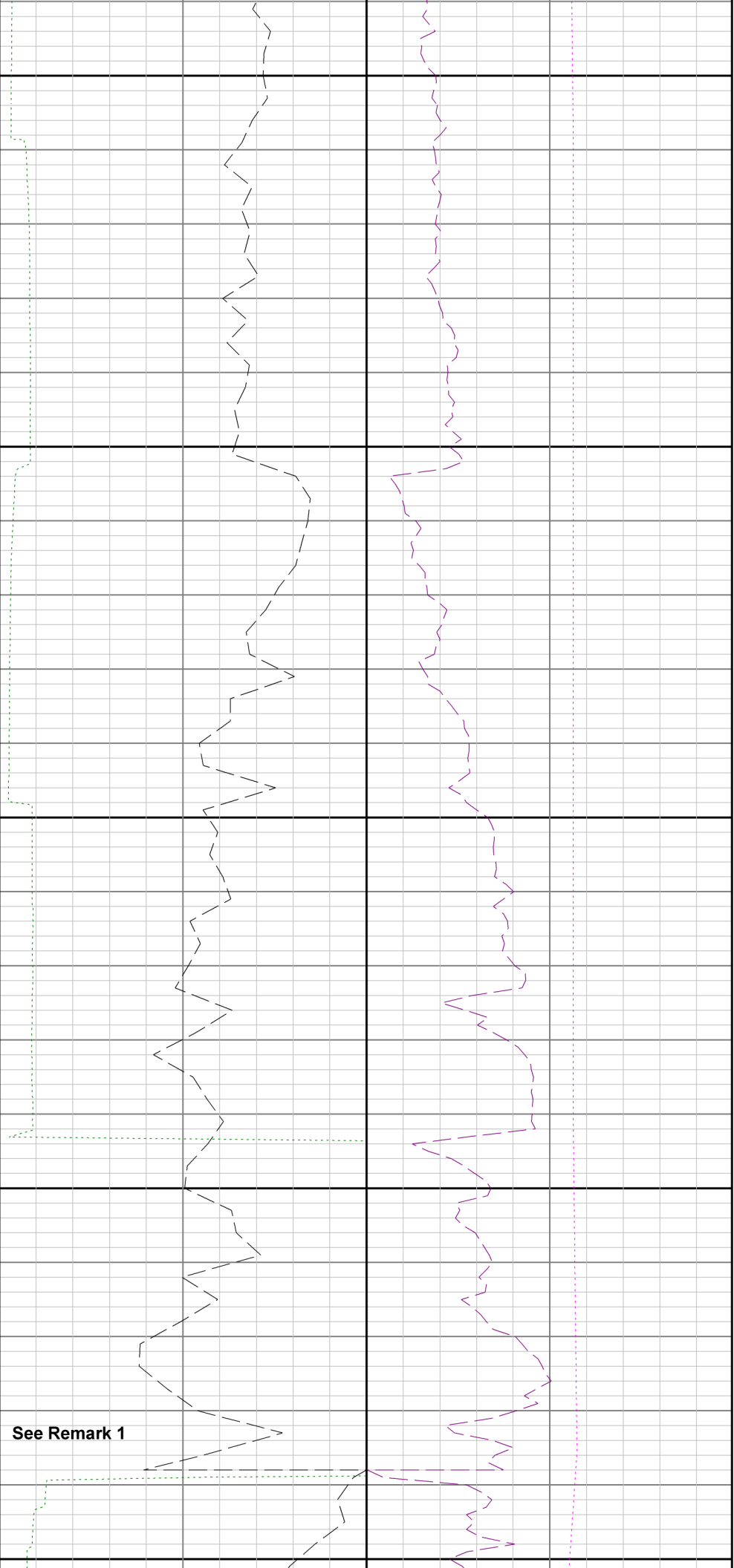


7000

7100







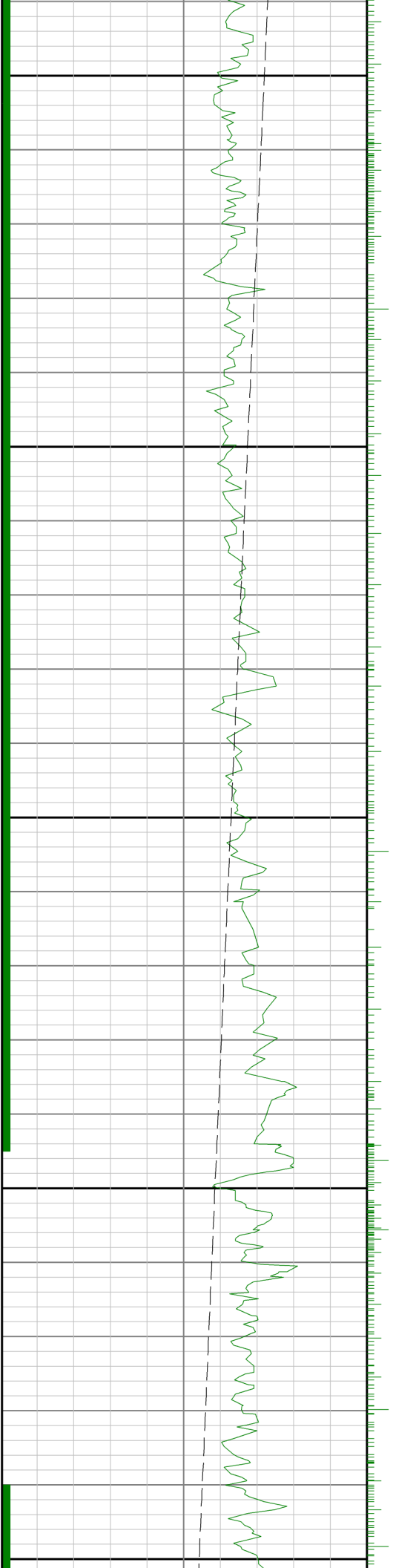
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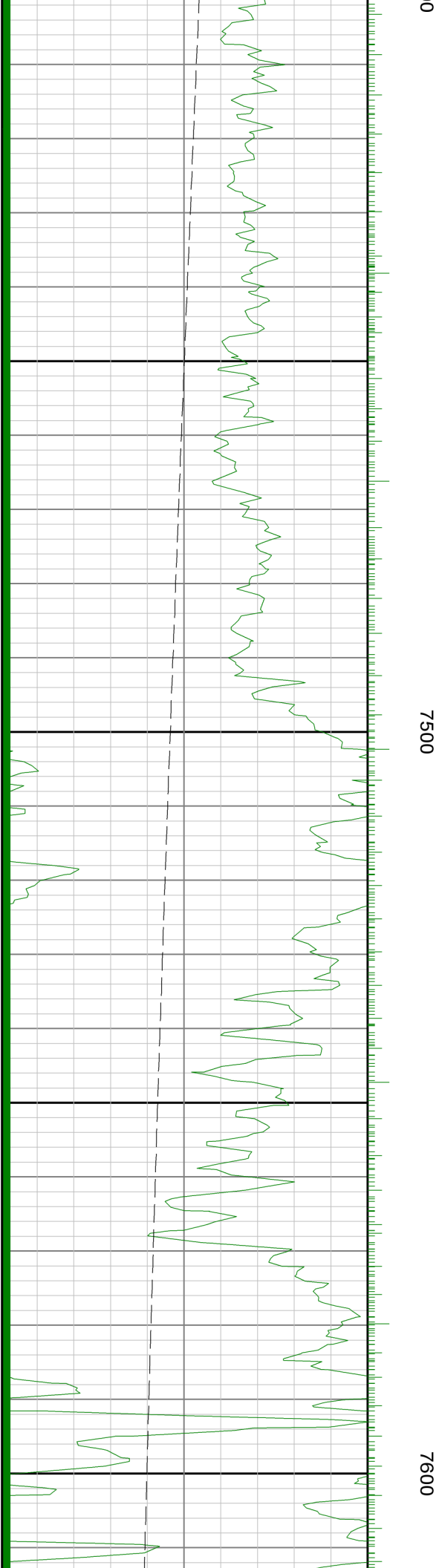
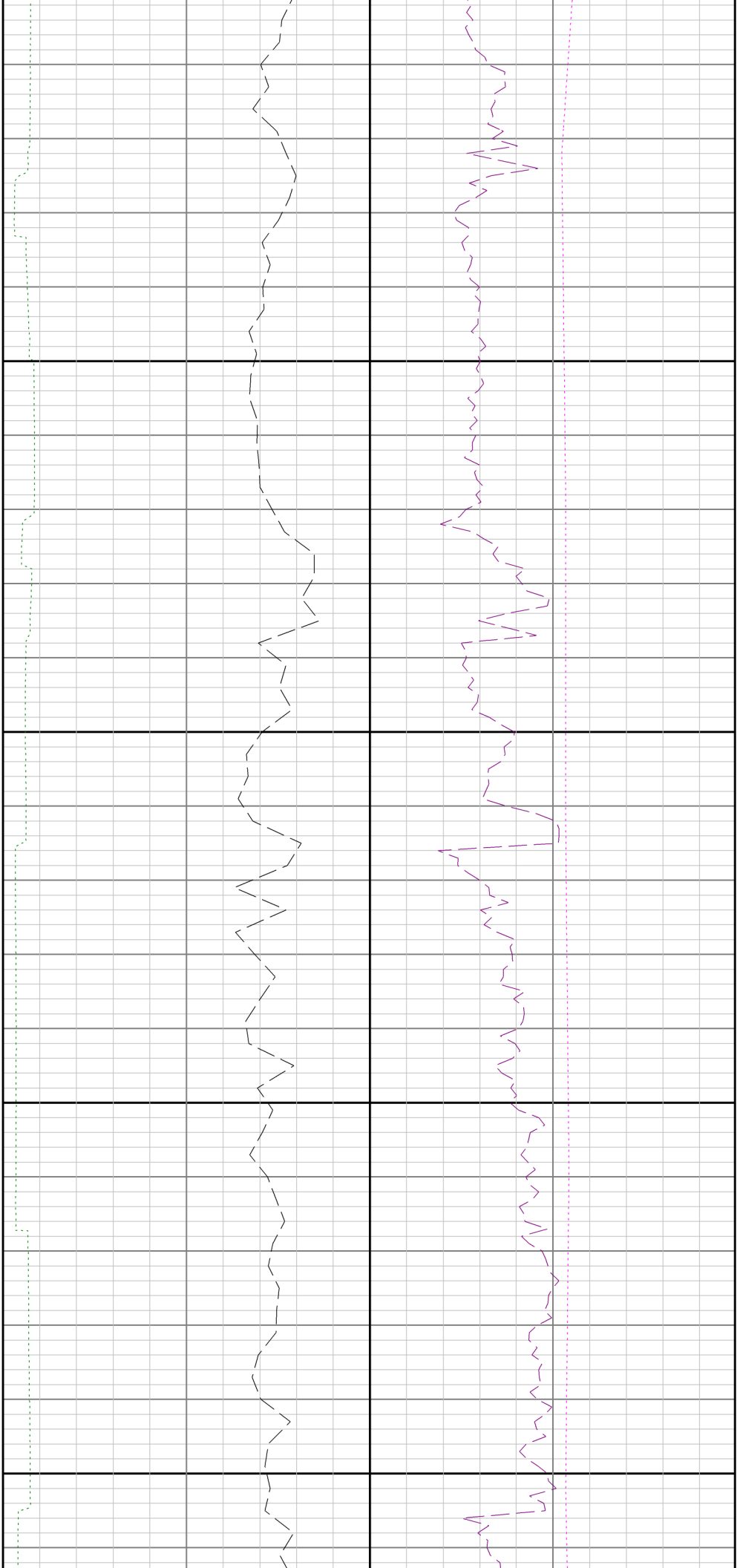
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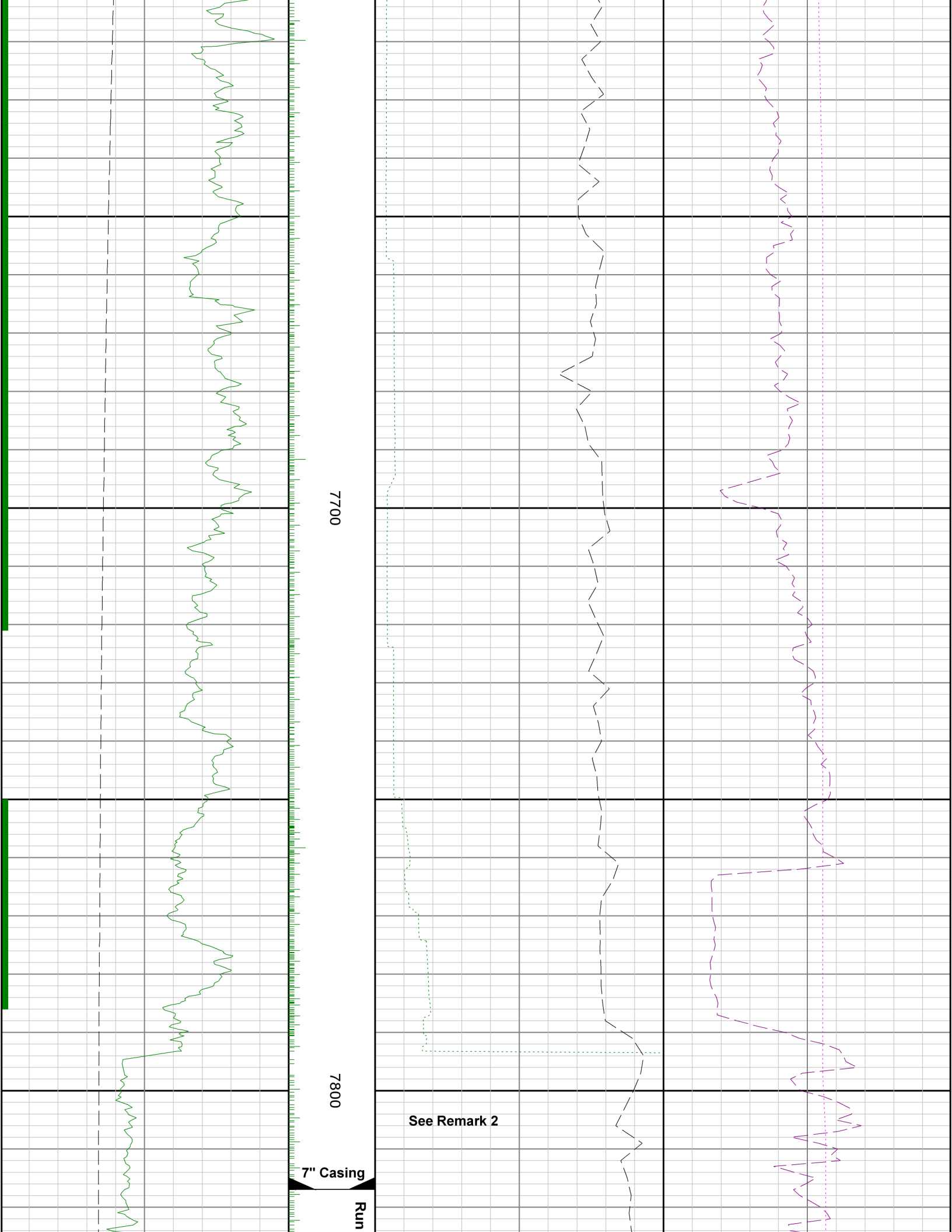
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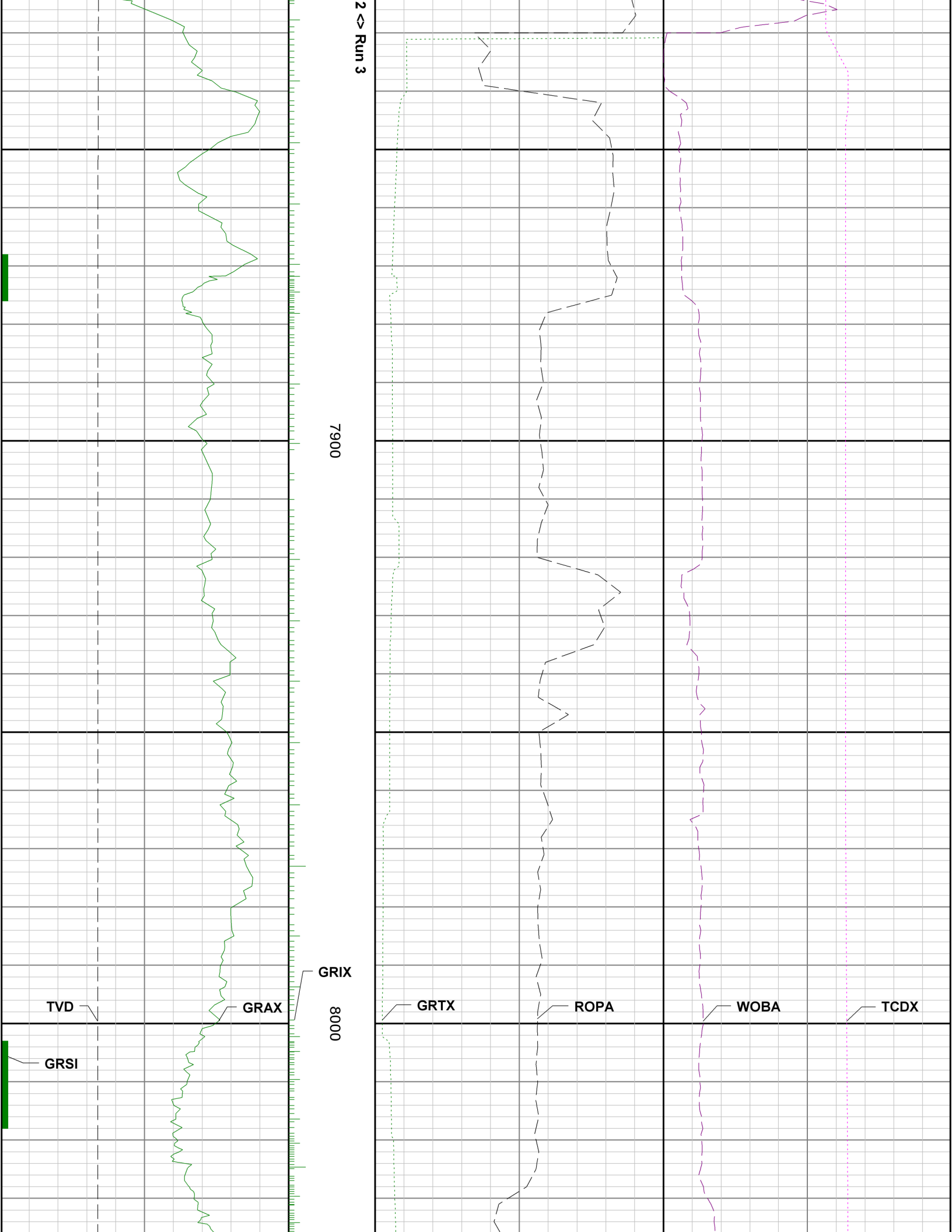
Run 1 ⇔ Run 2

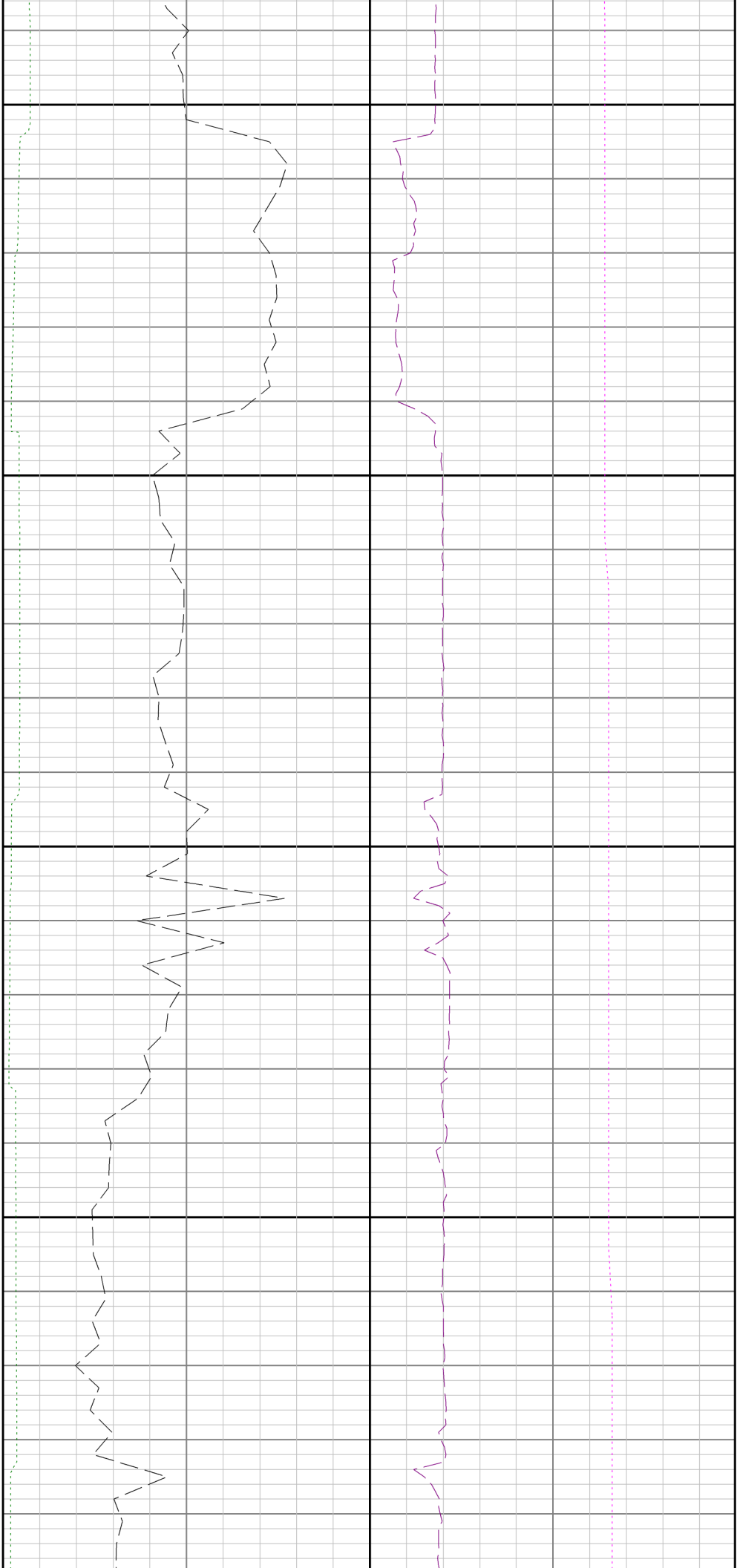
See Remark 1





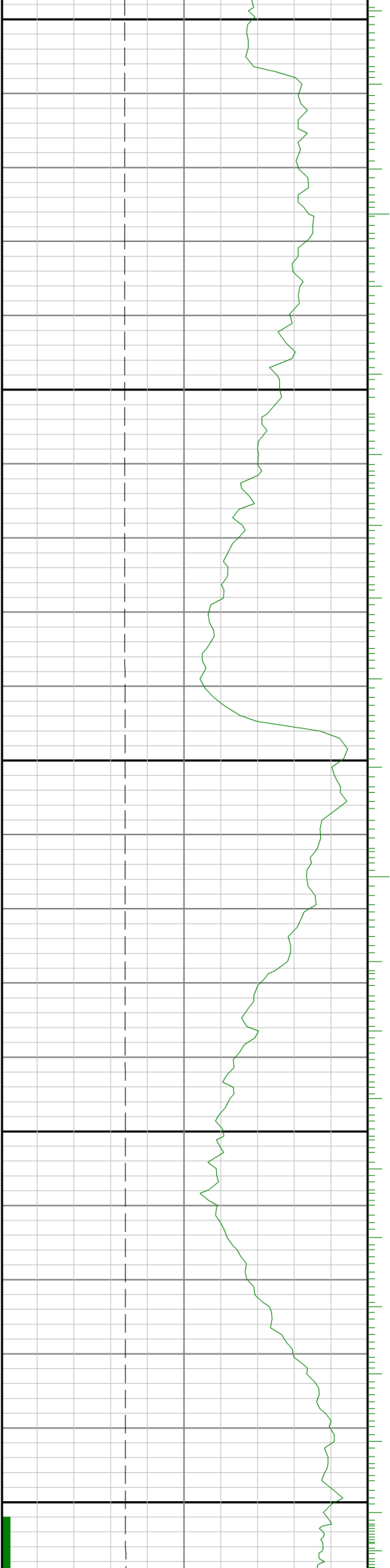
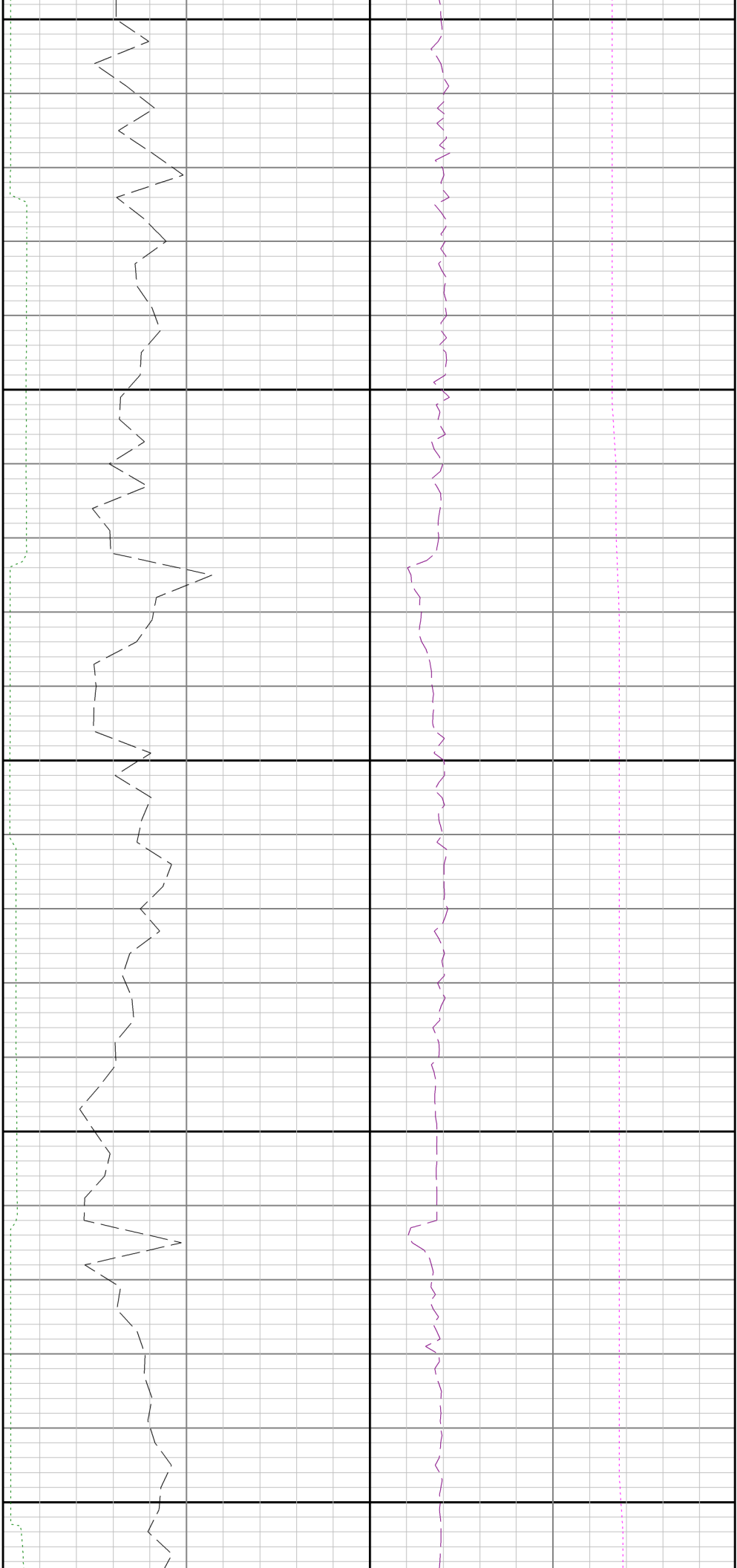


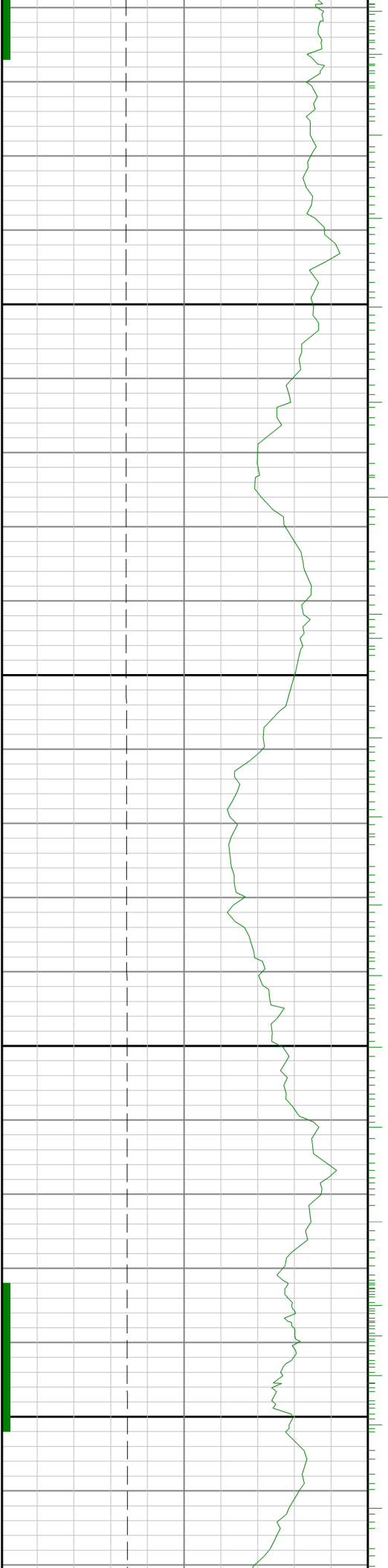




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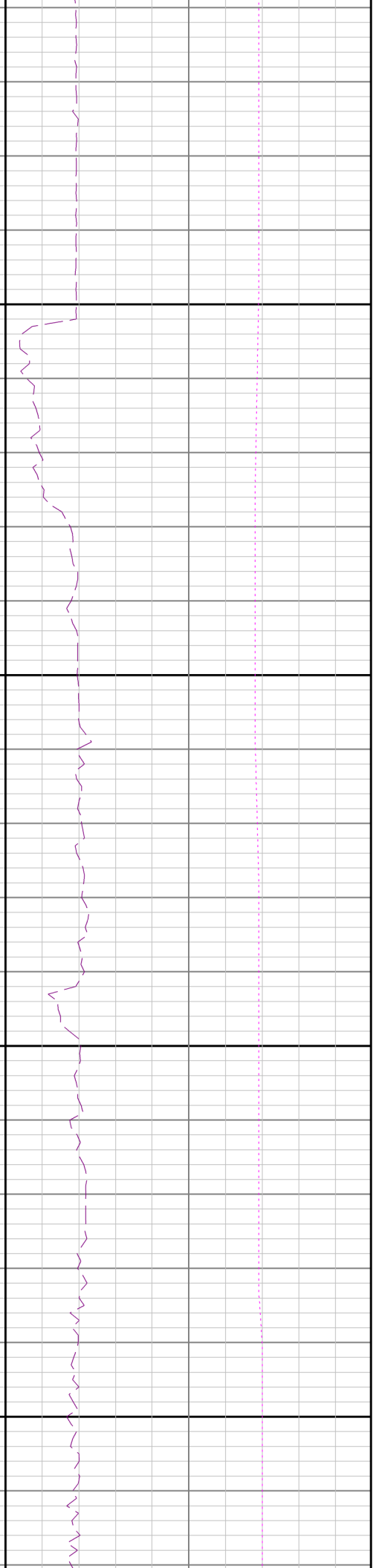
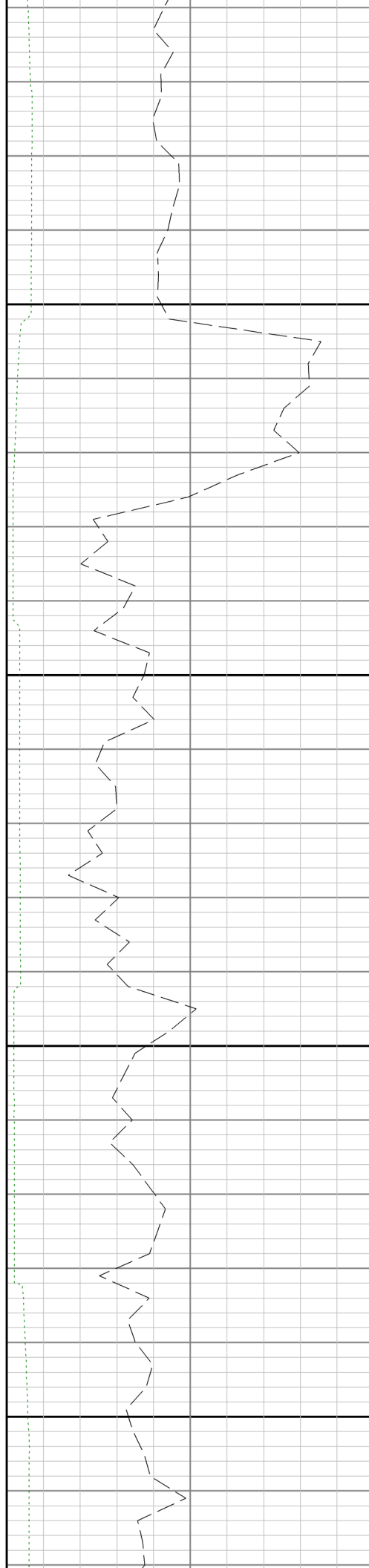
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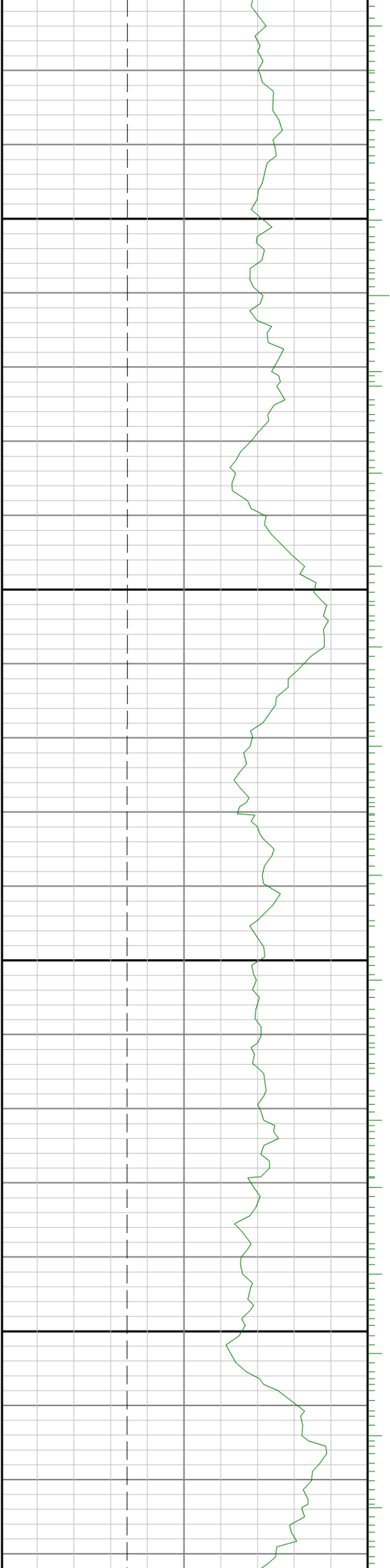




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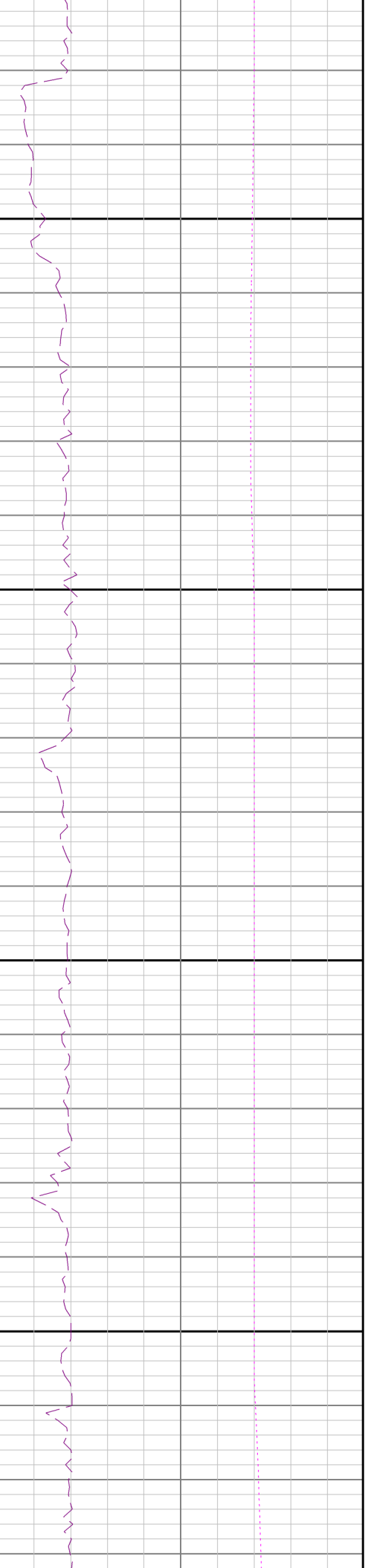
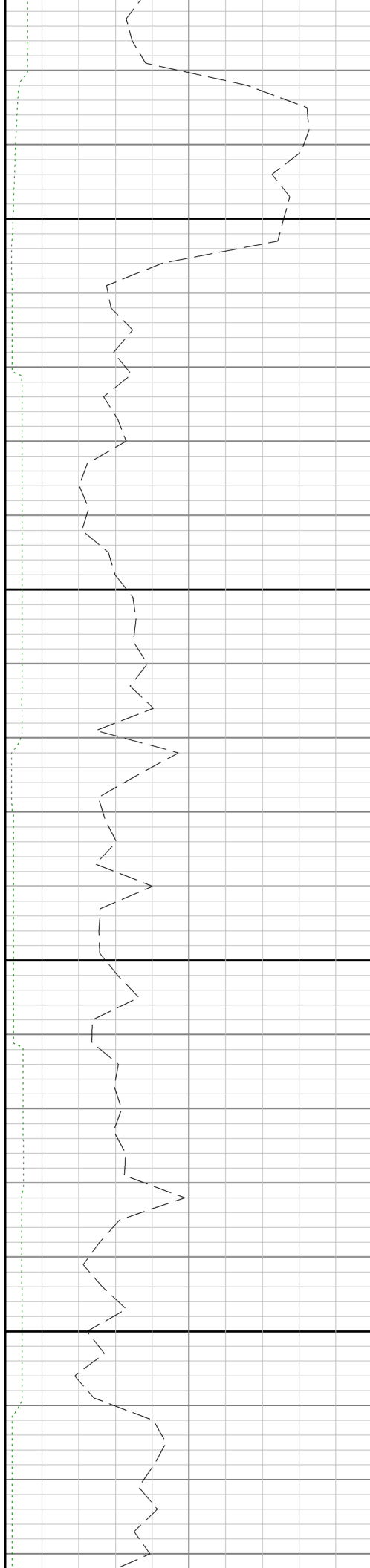
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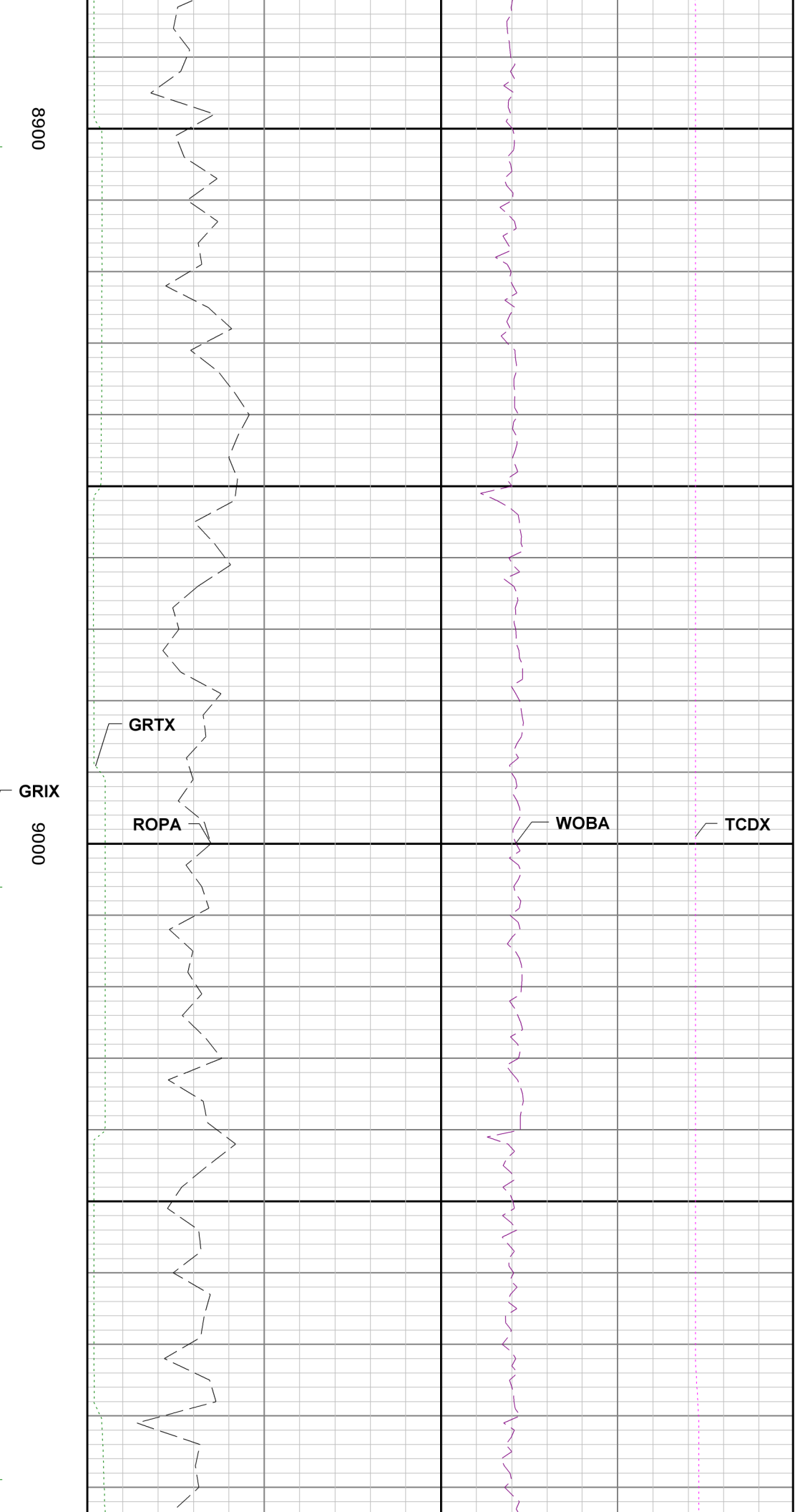
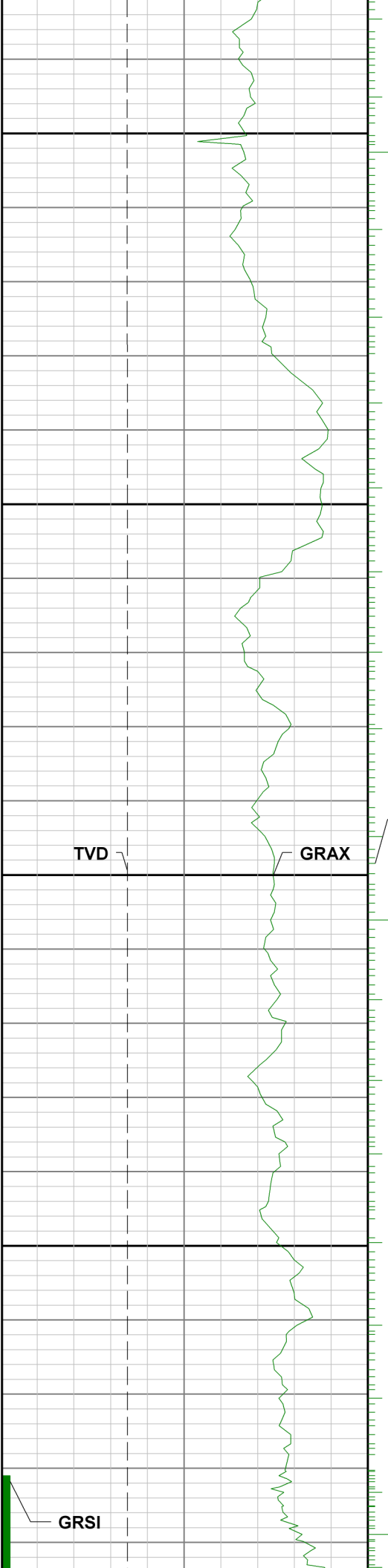


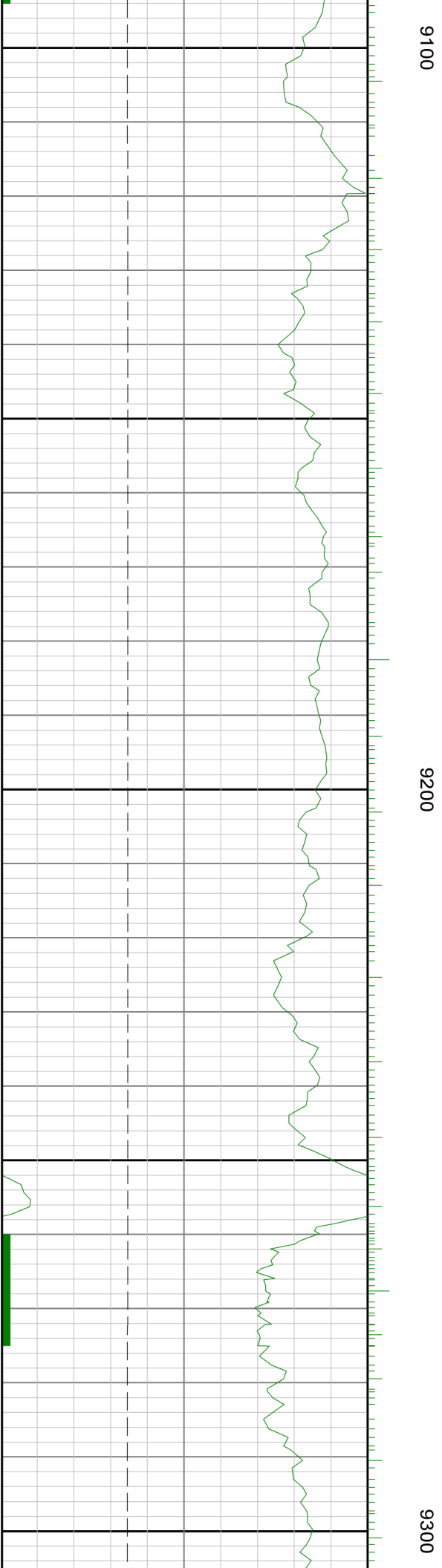
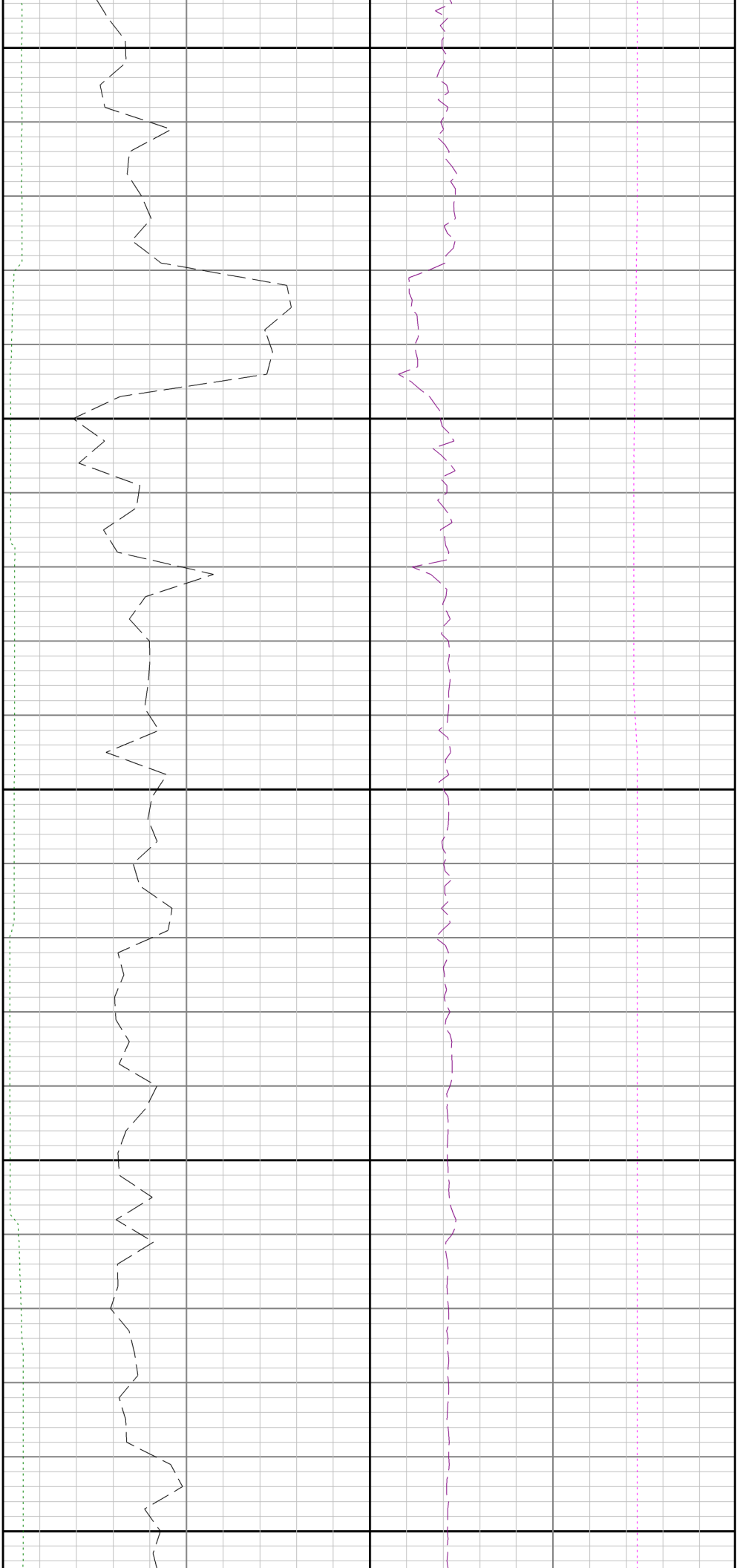
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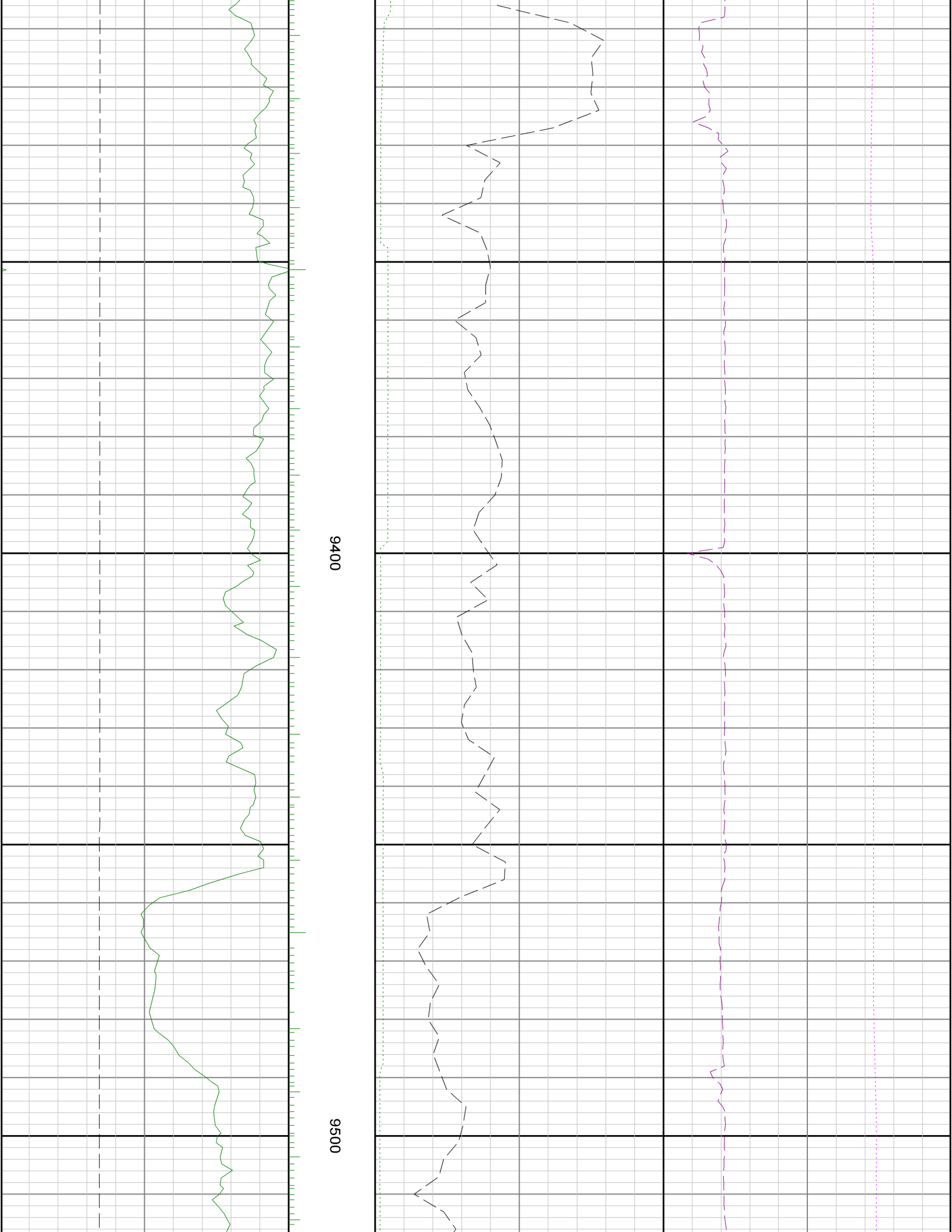
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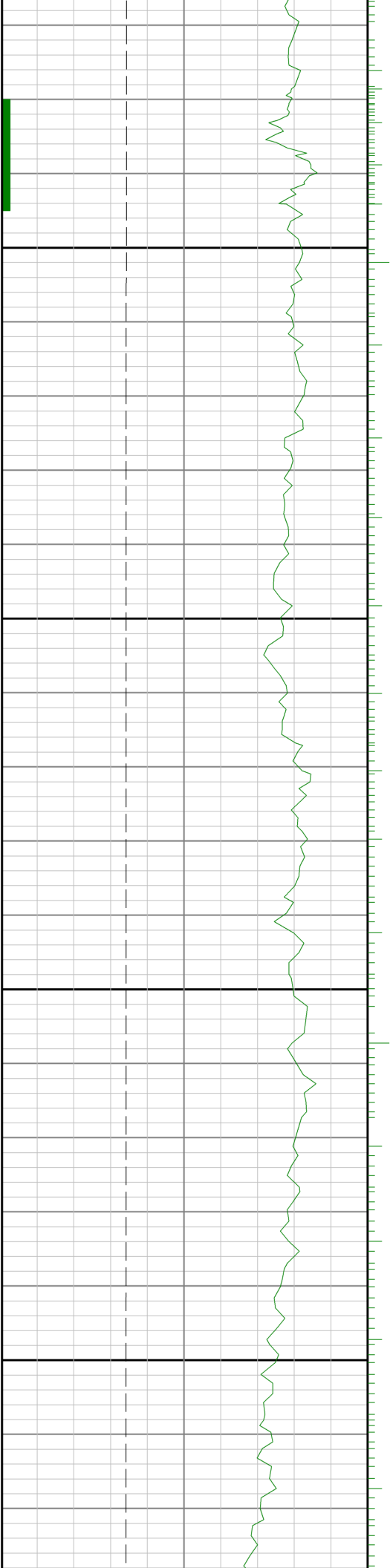






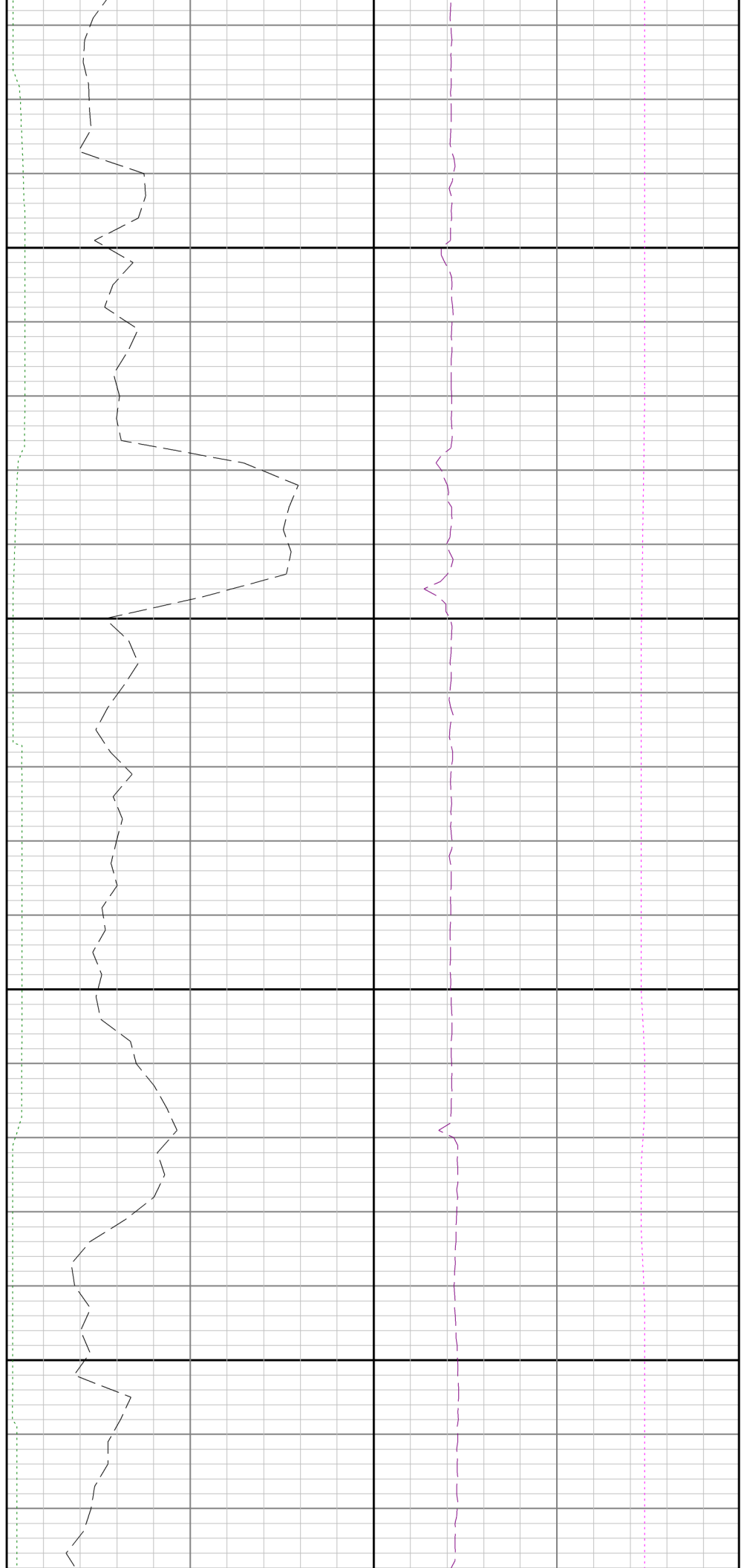


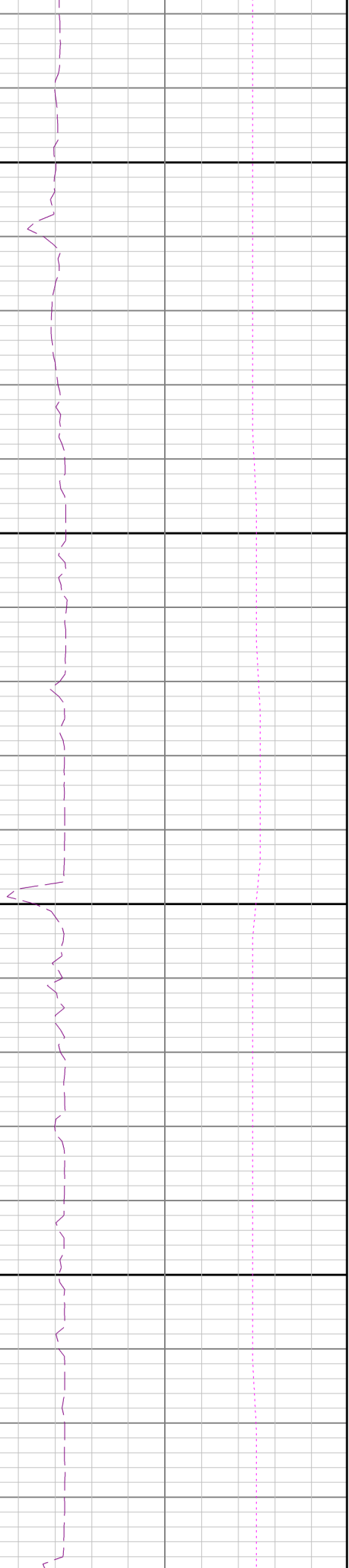
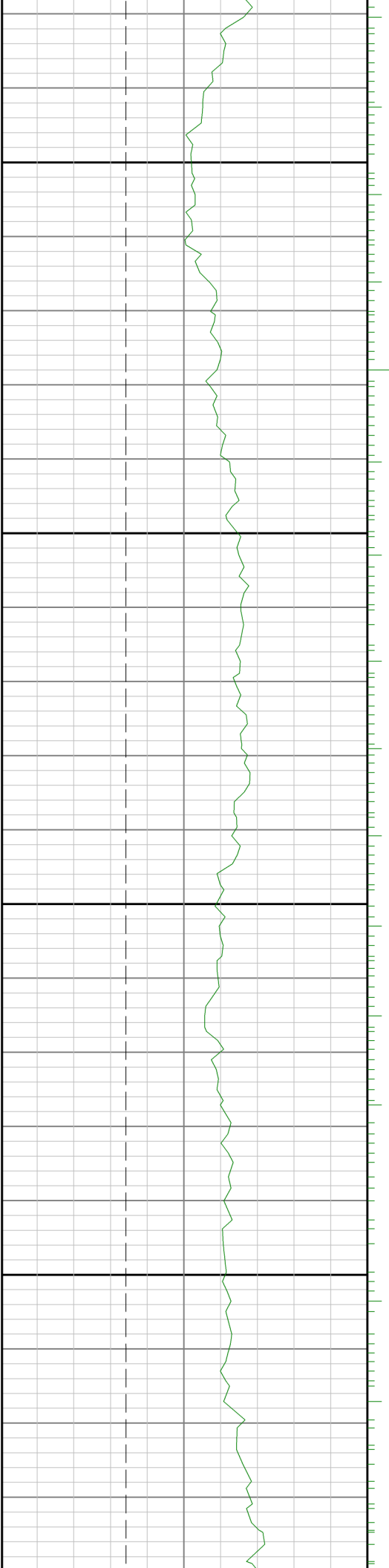


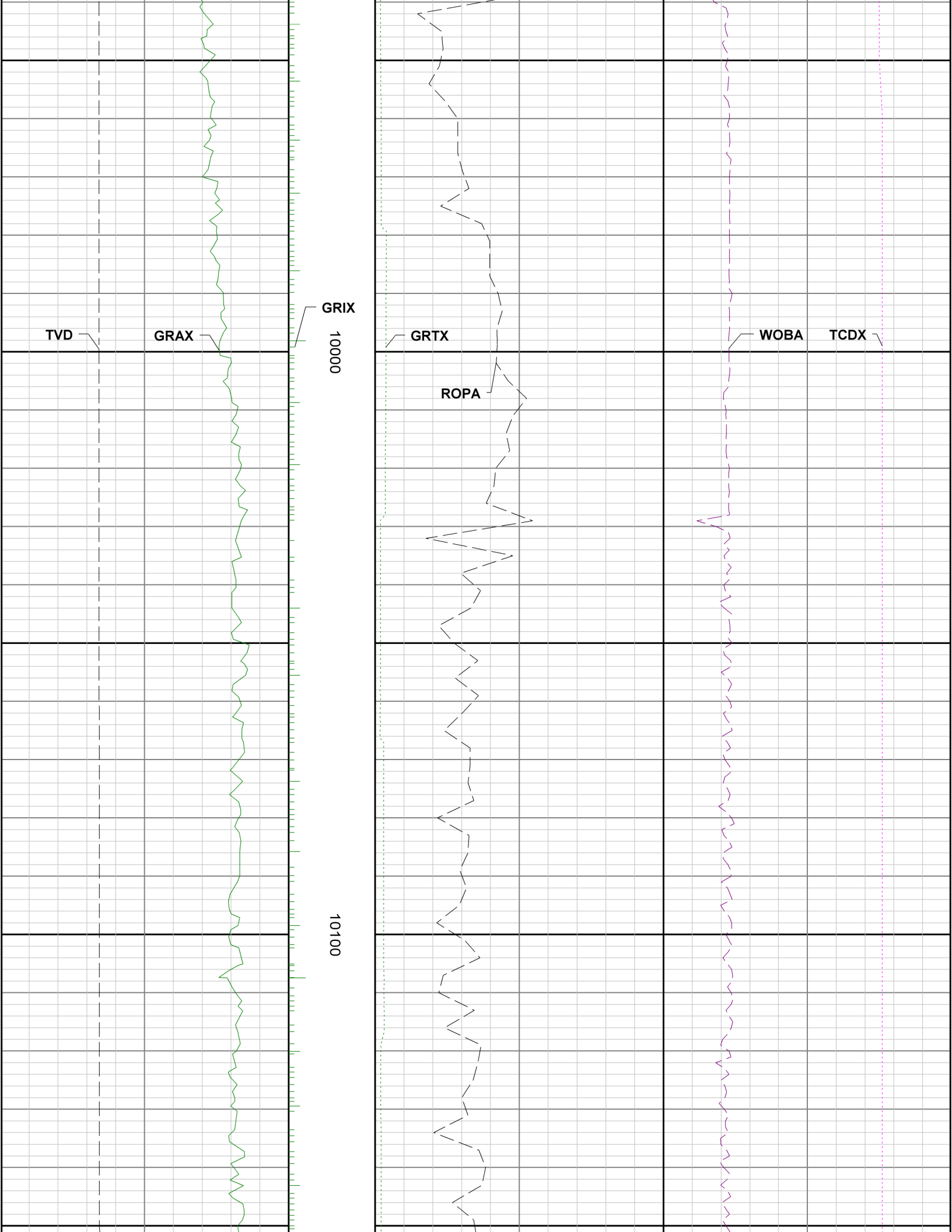


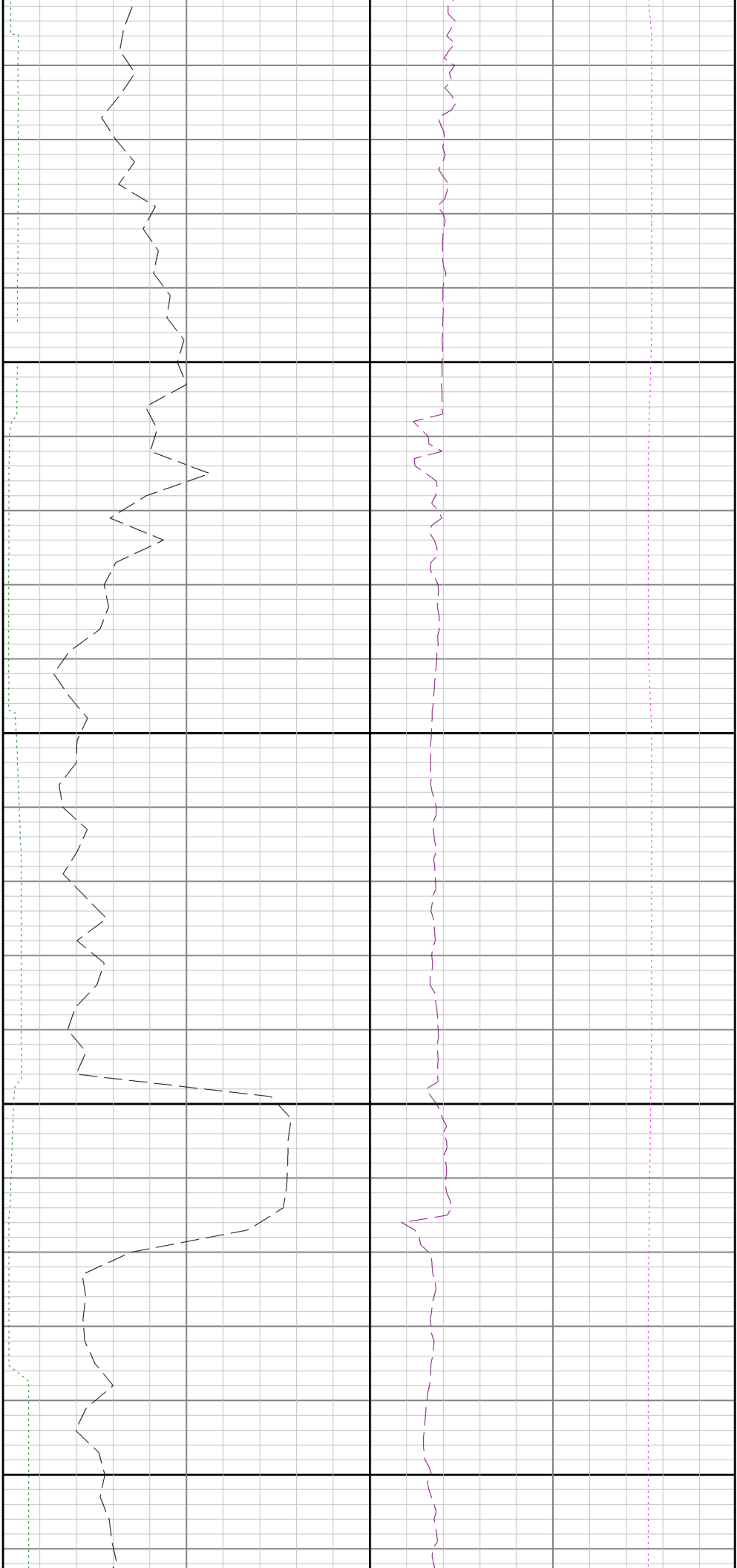
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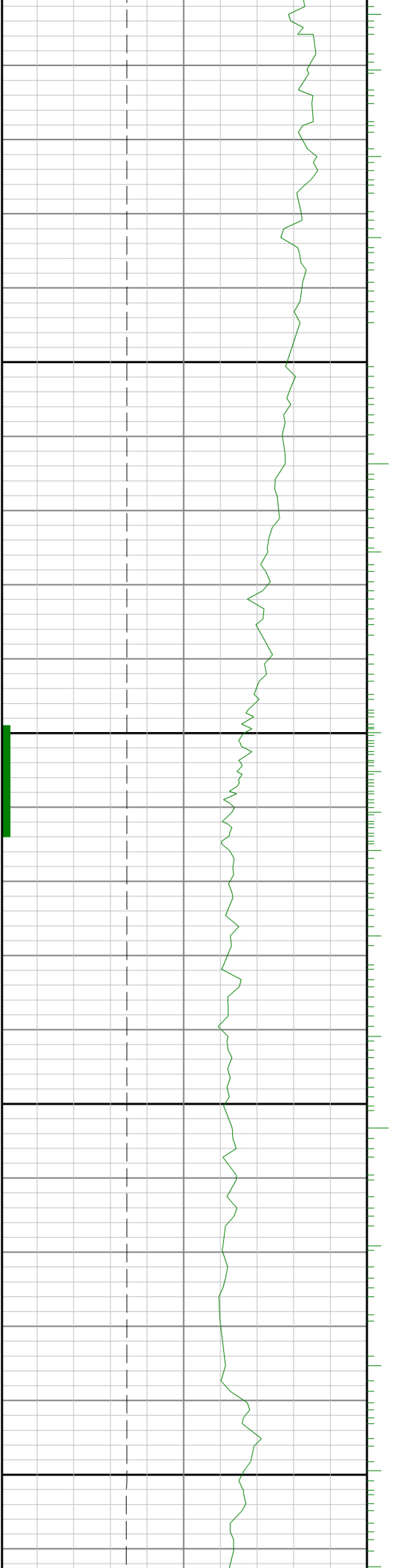


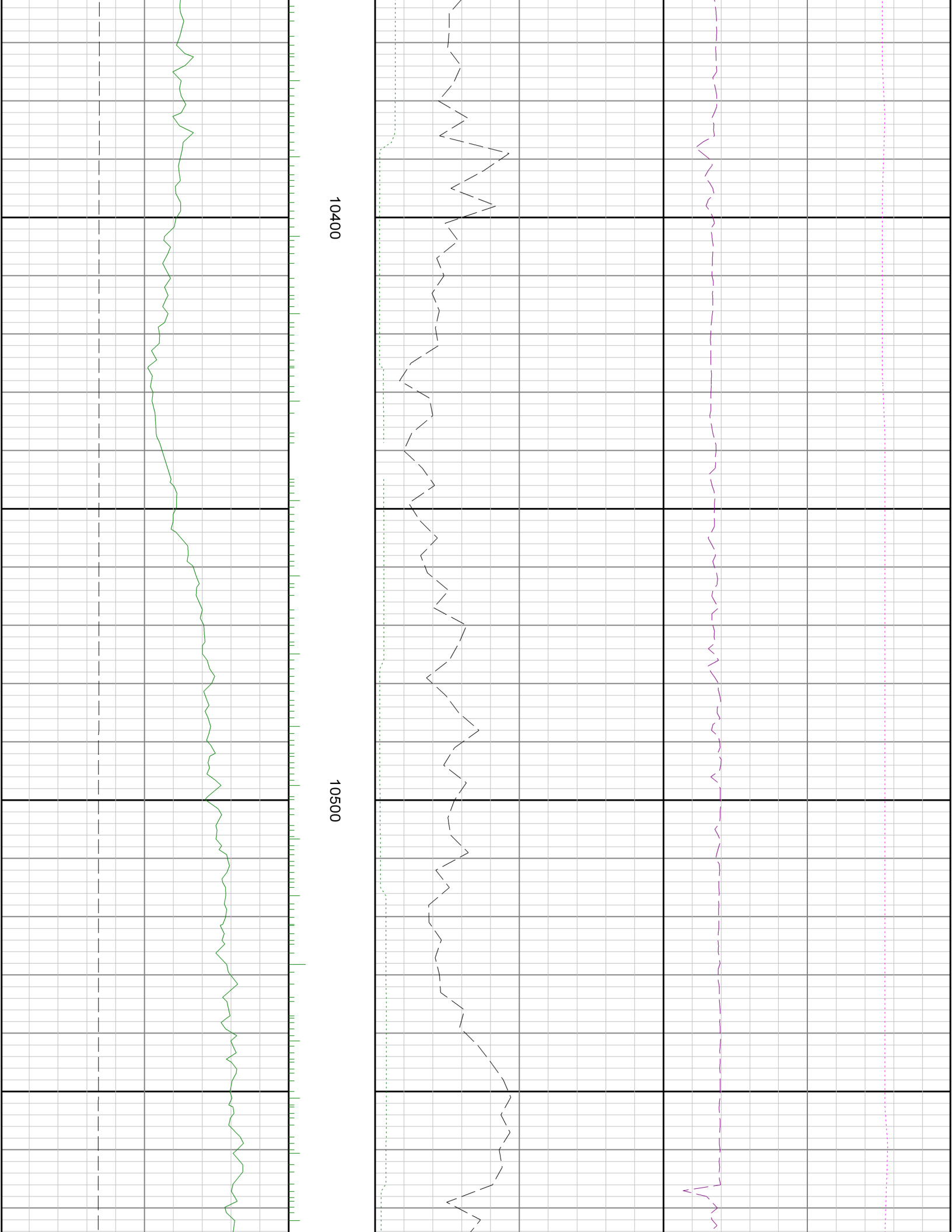




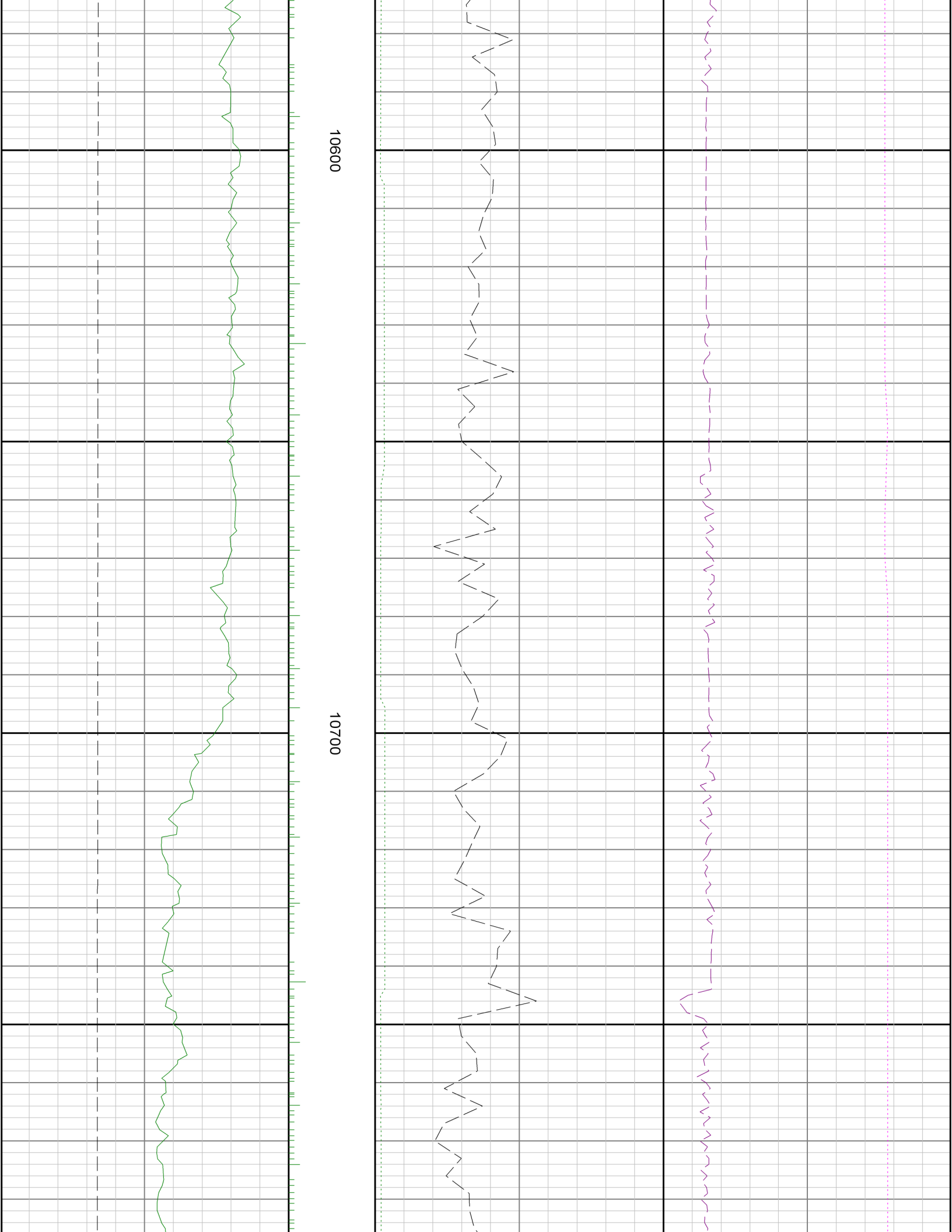
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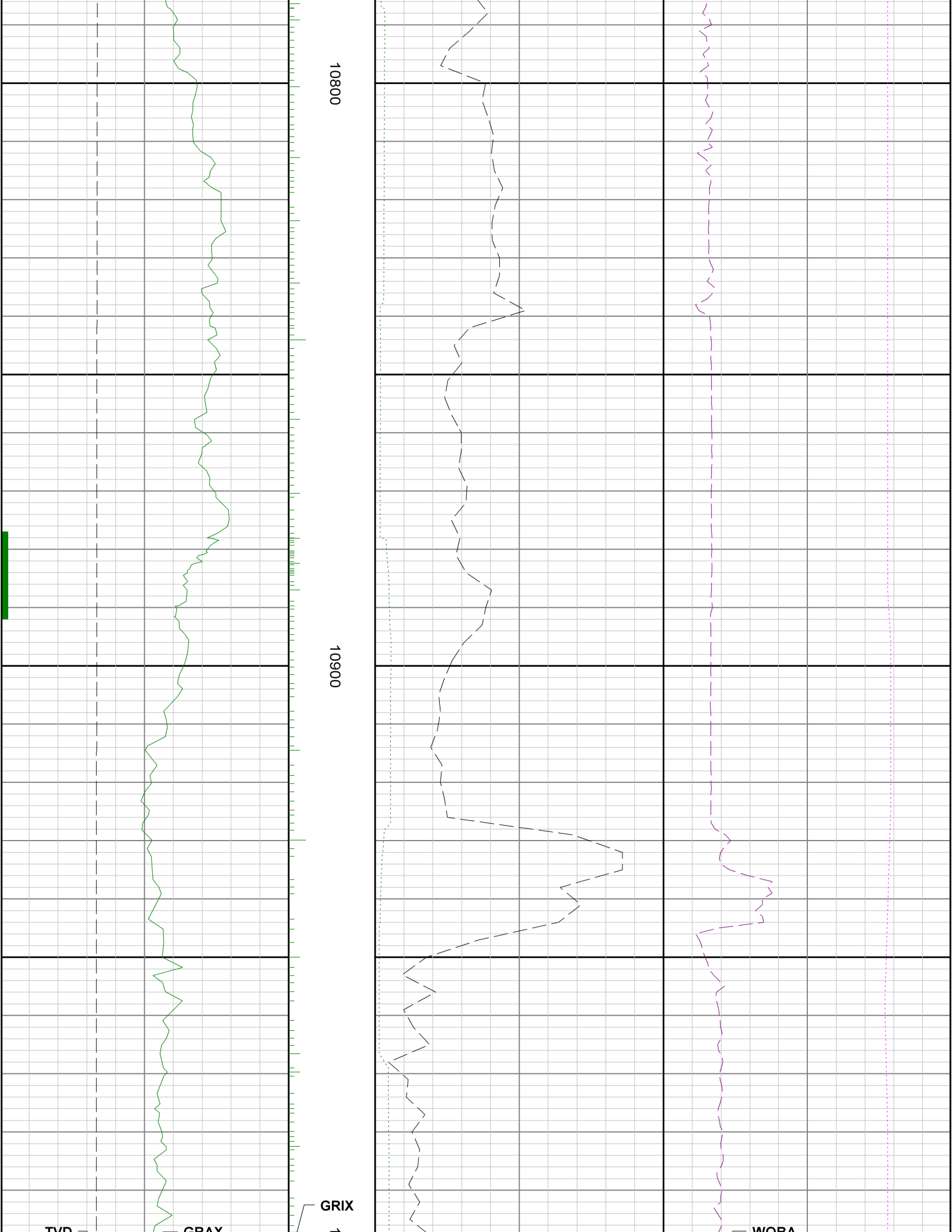
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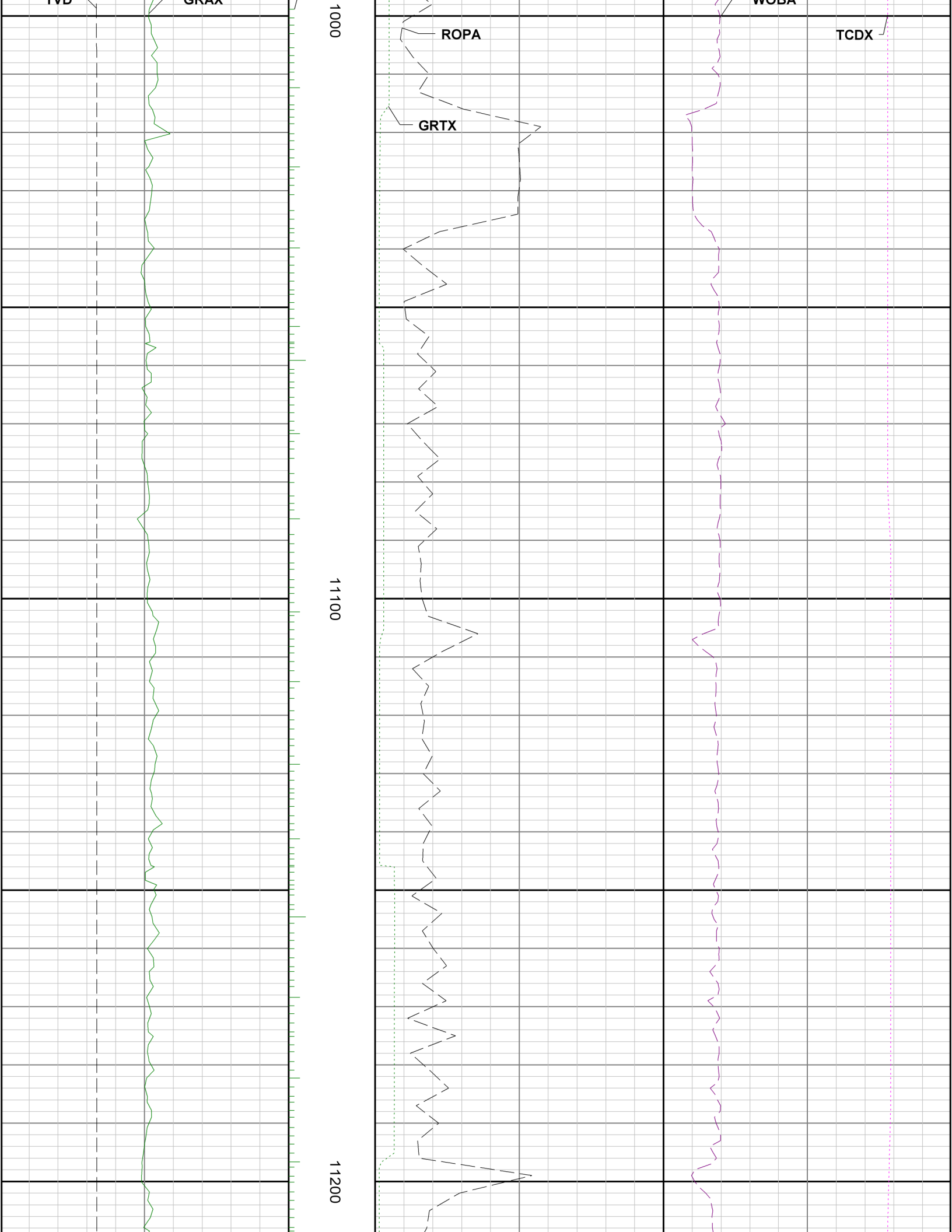


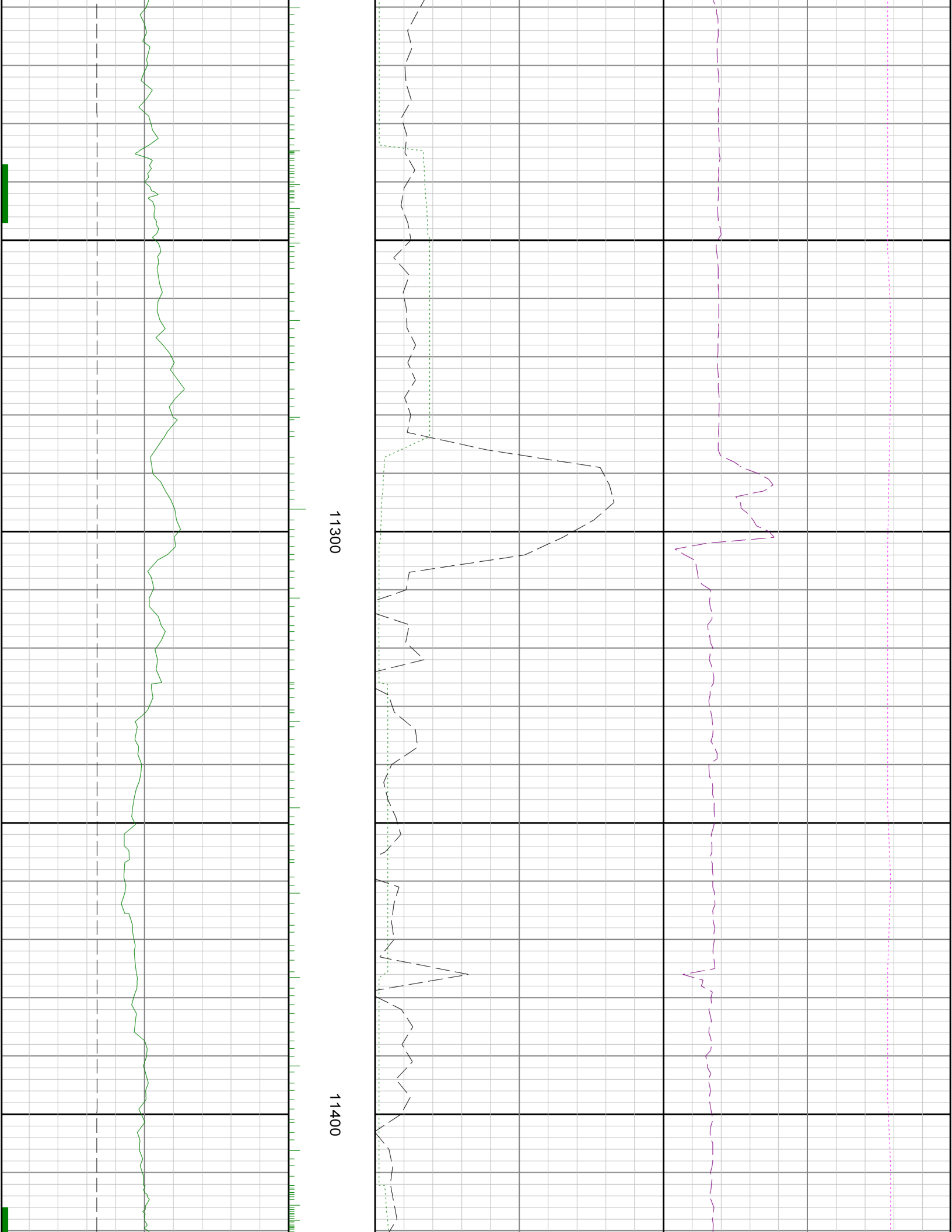


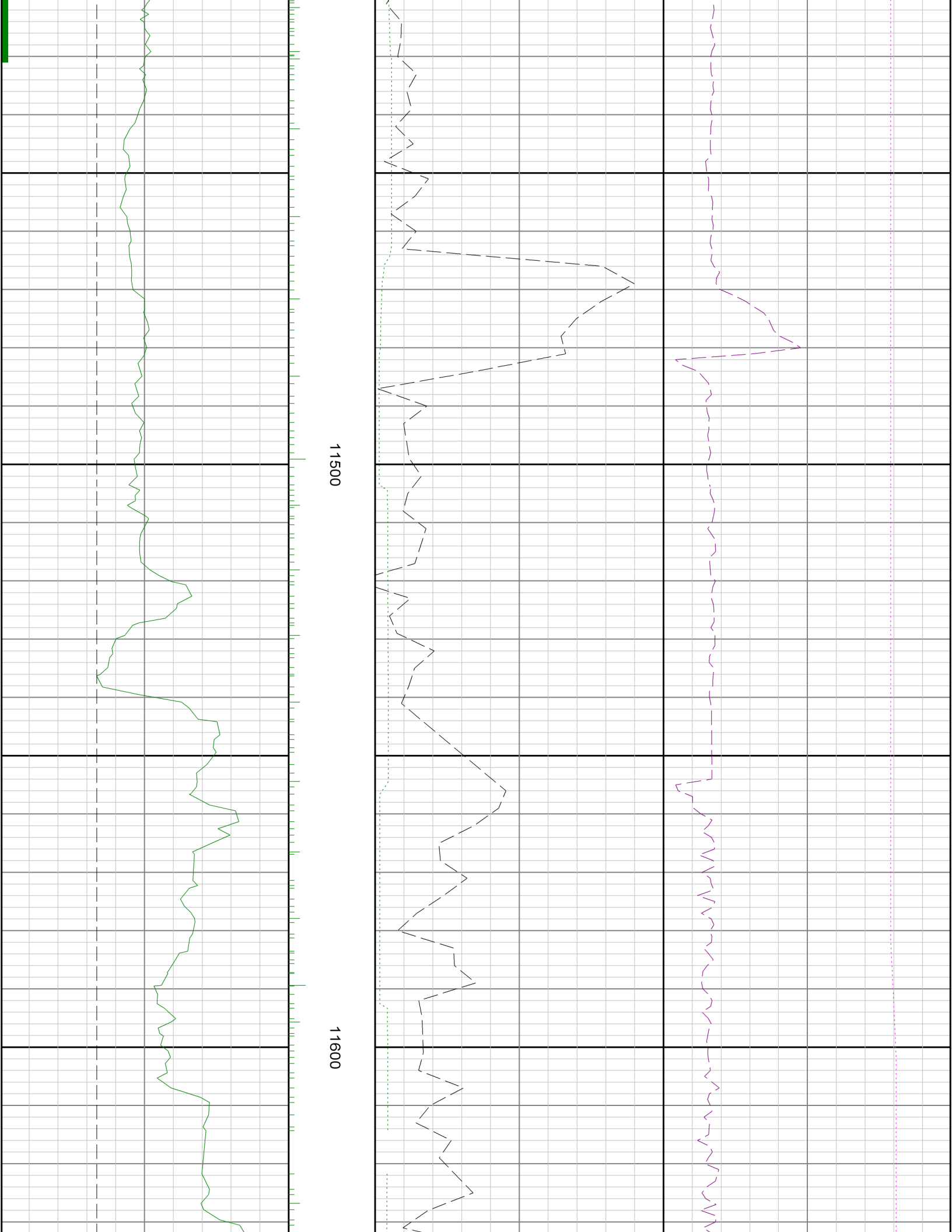


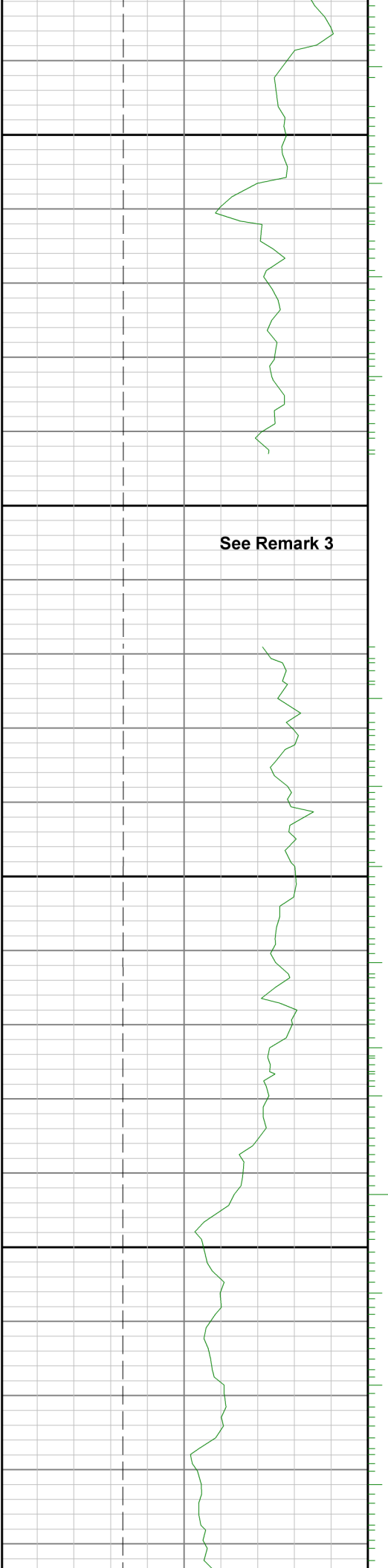






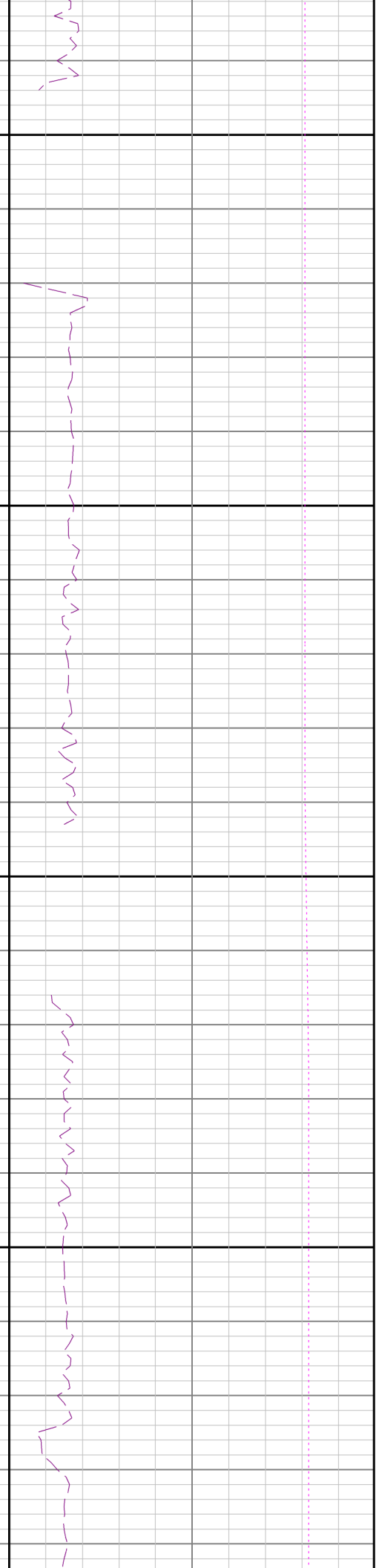
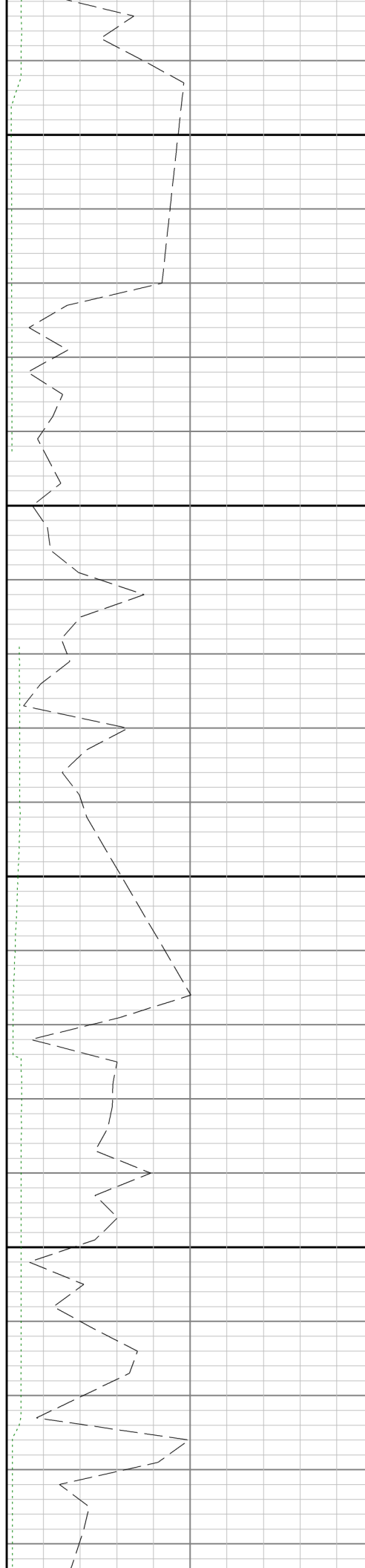


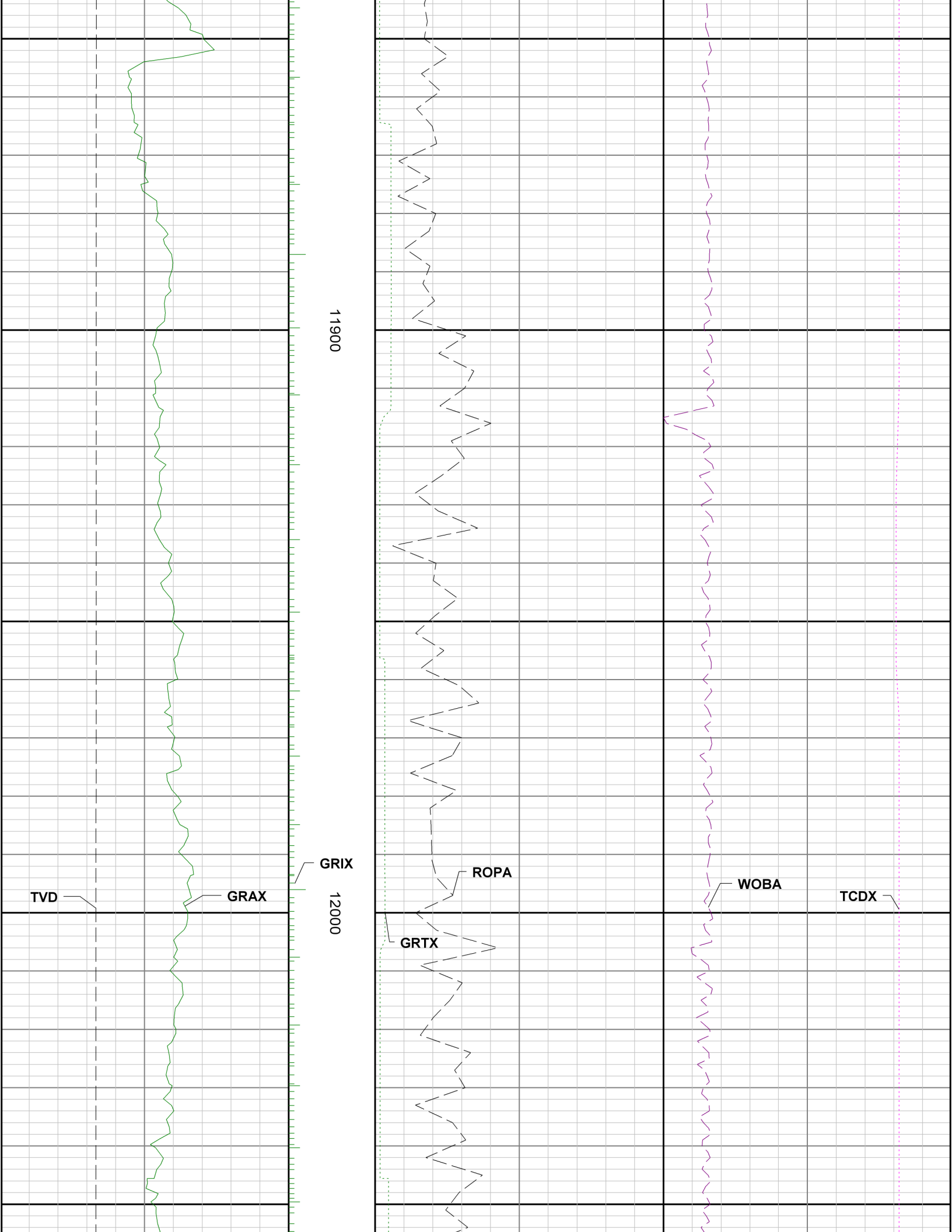




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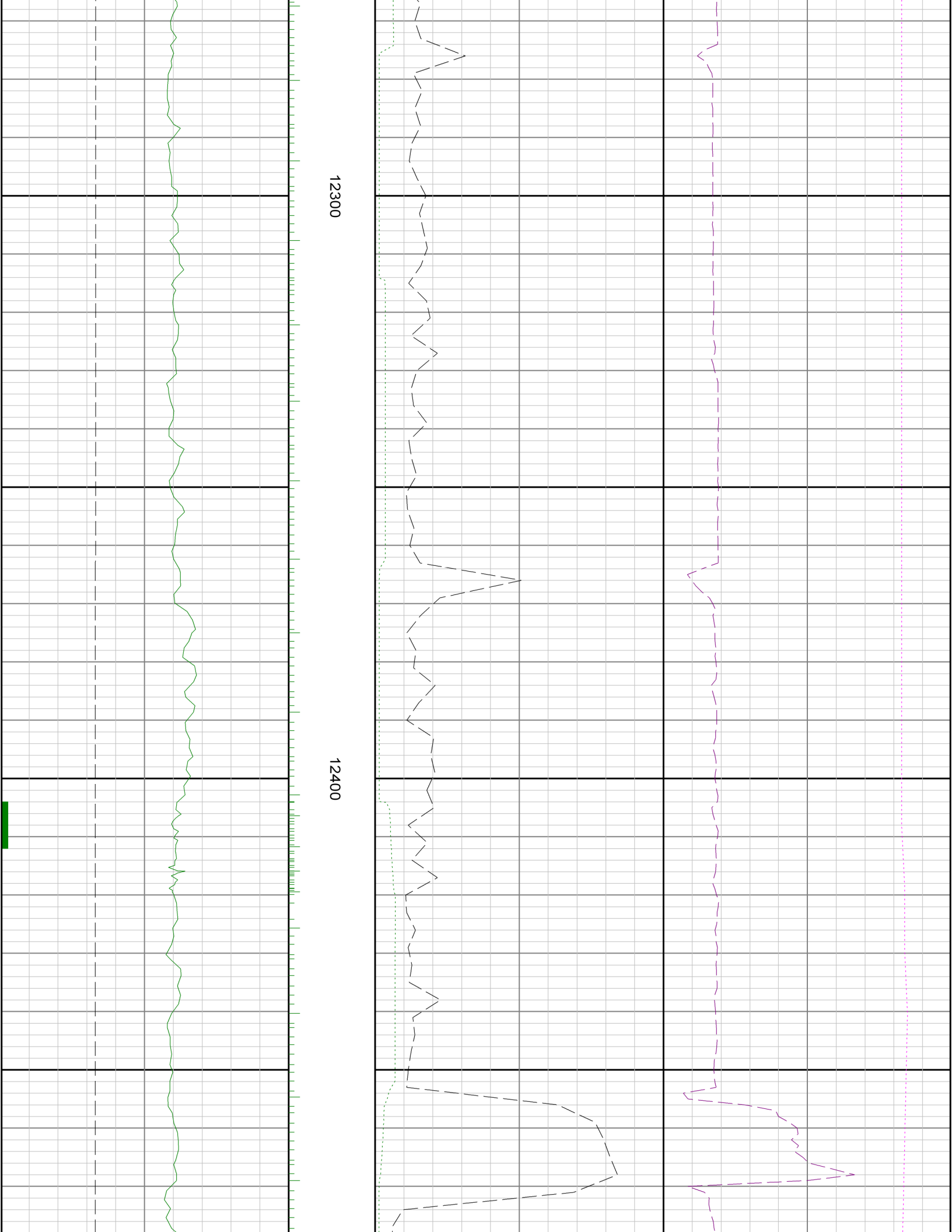
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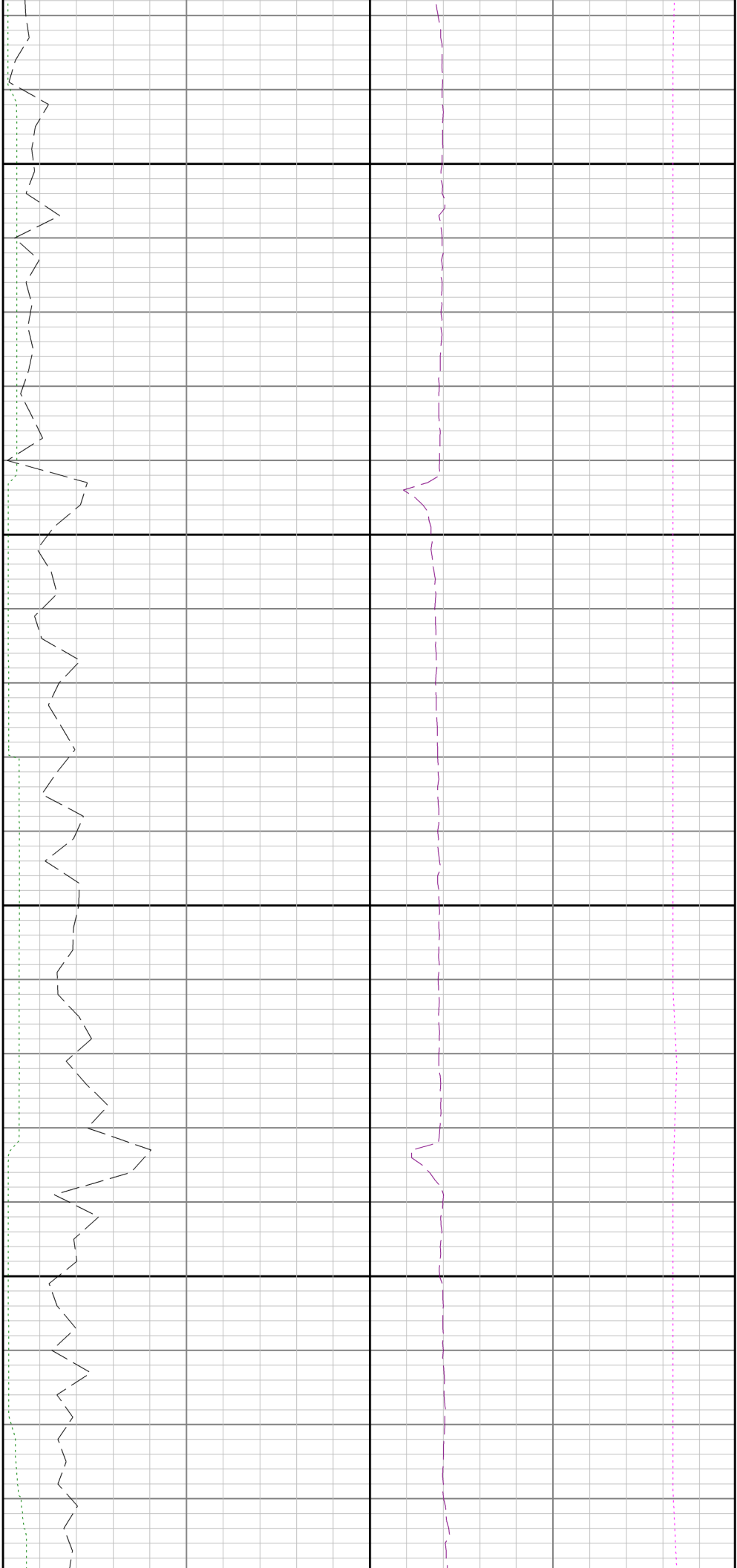






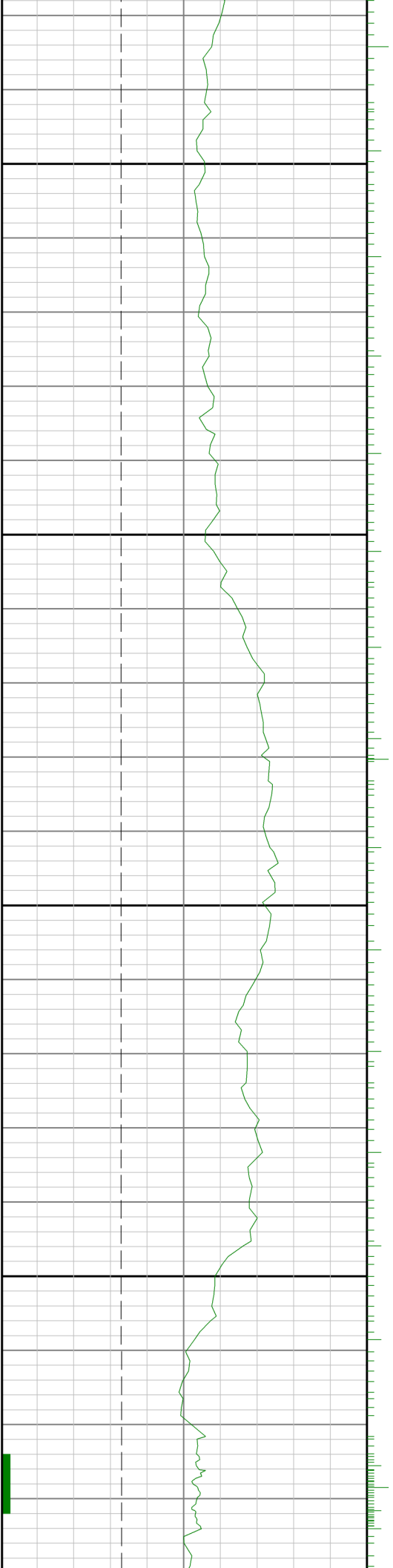


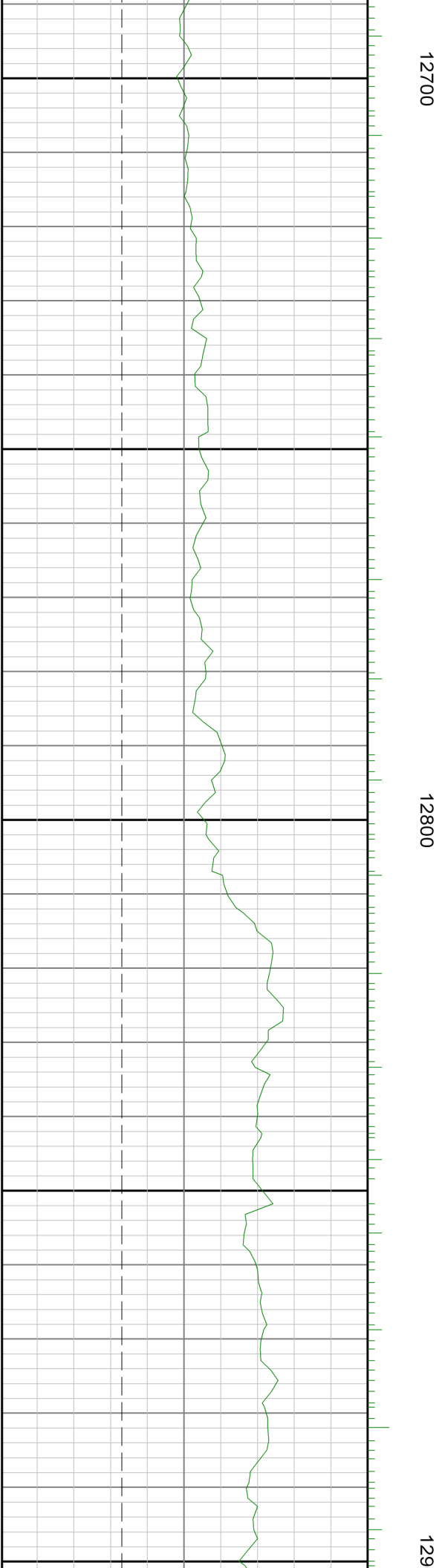
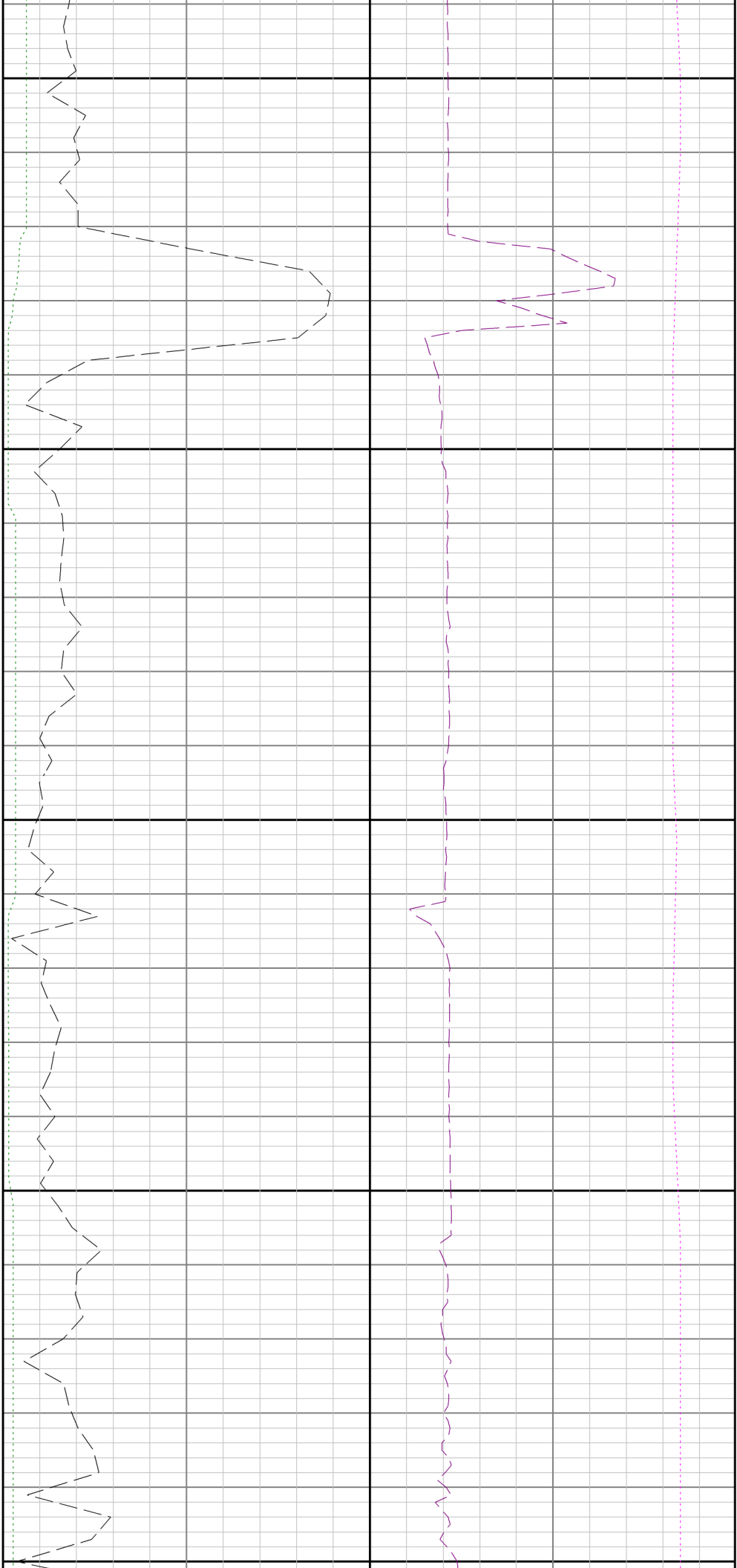


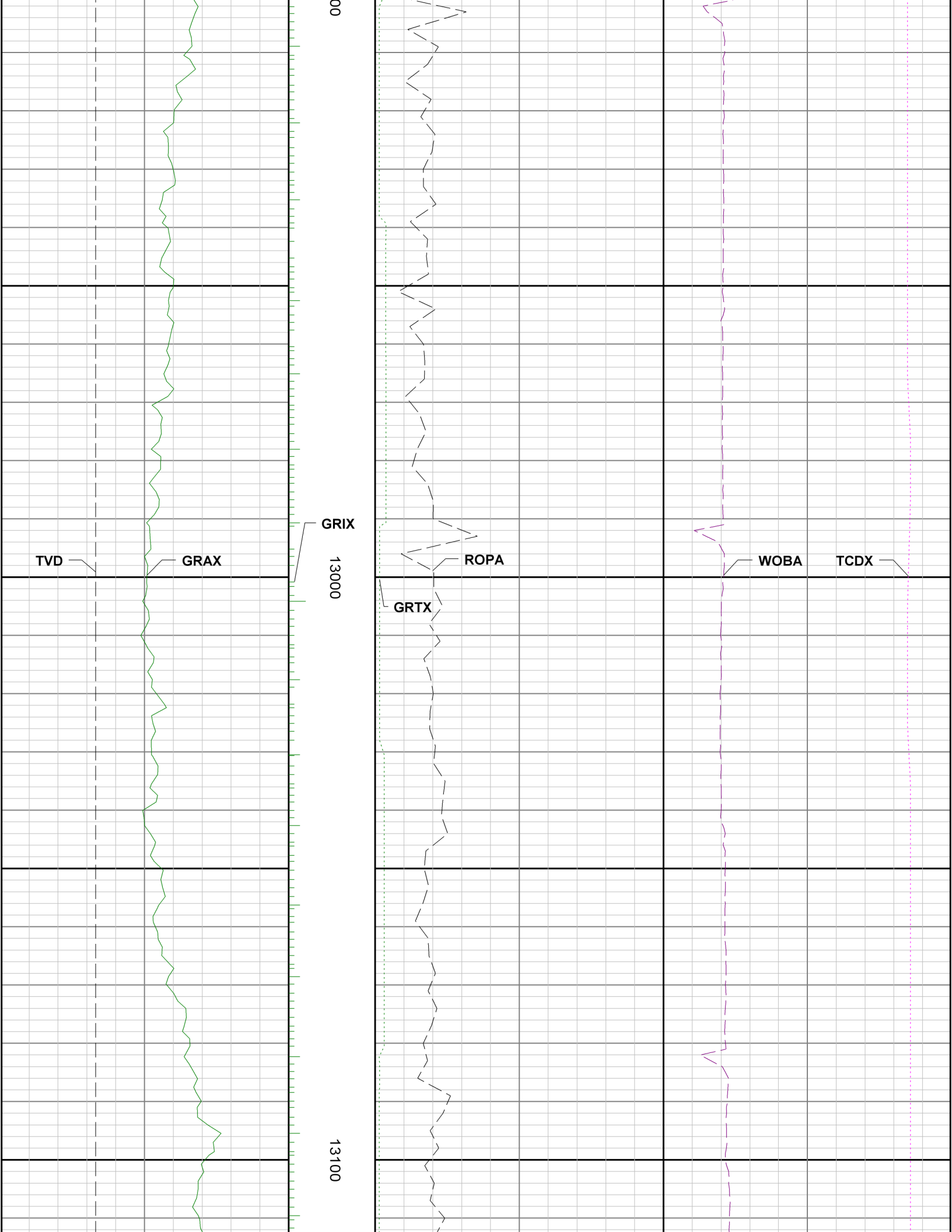


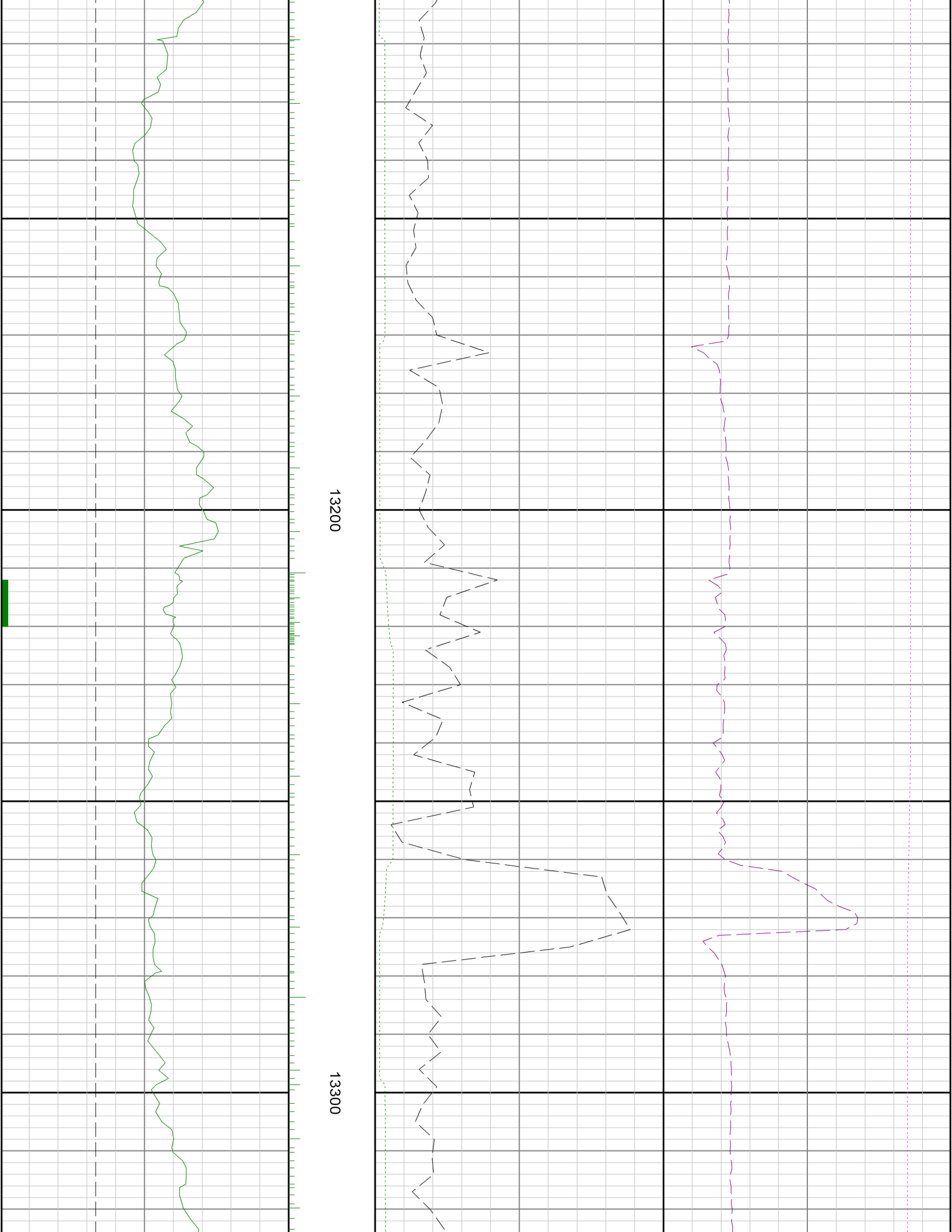
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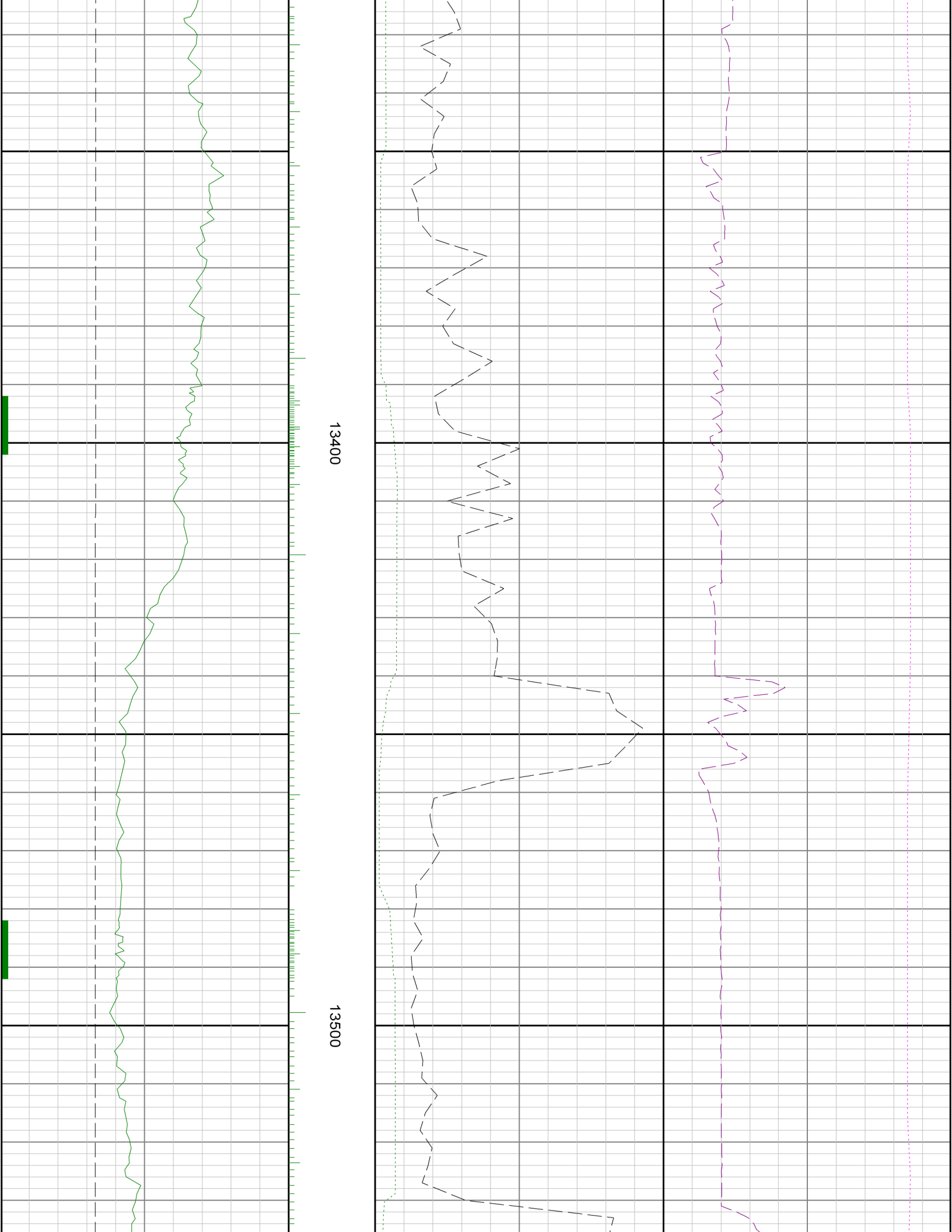
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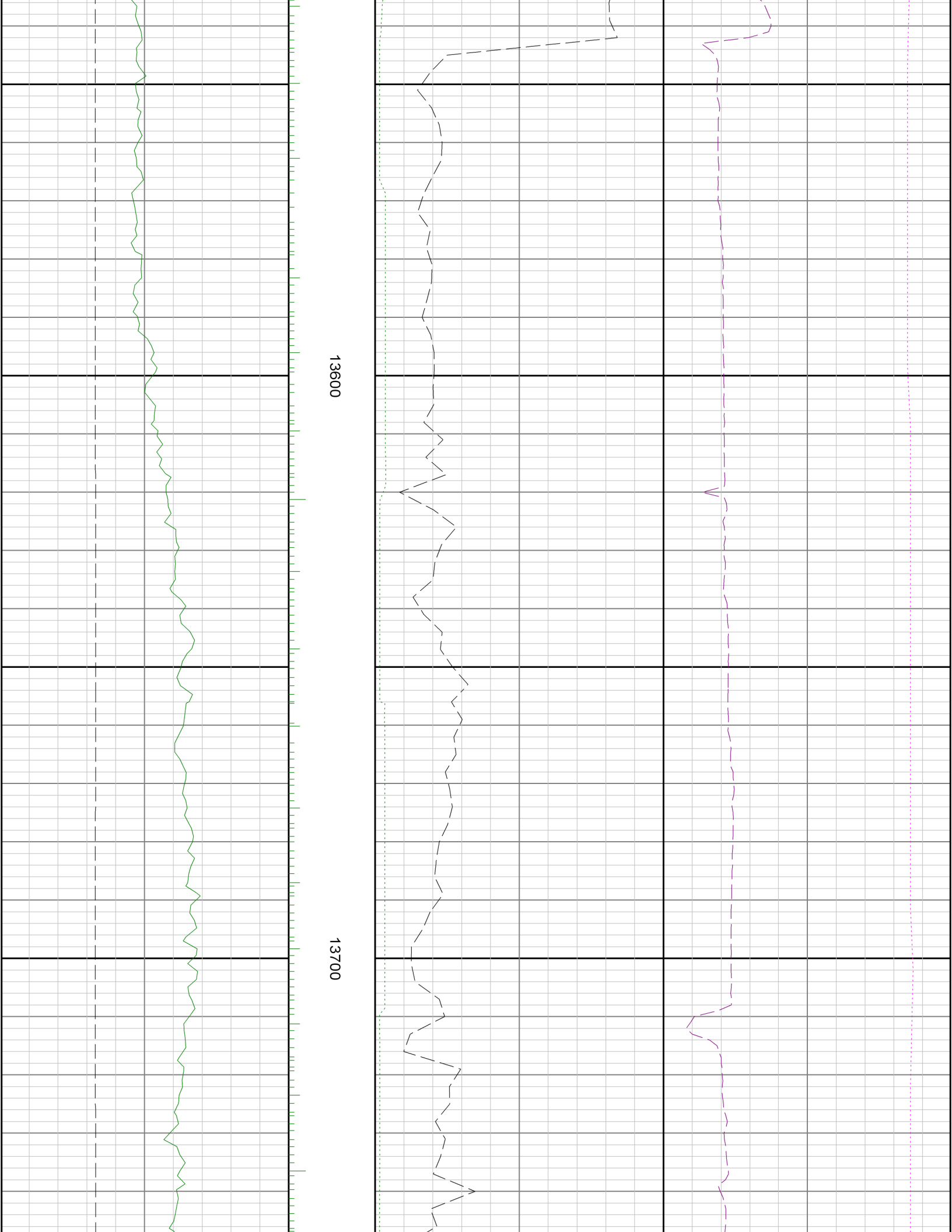


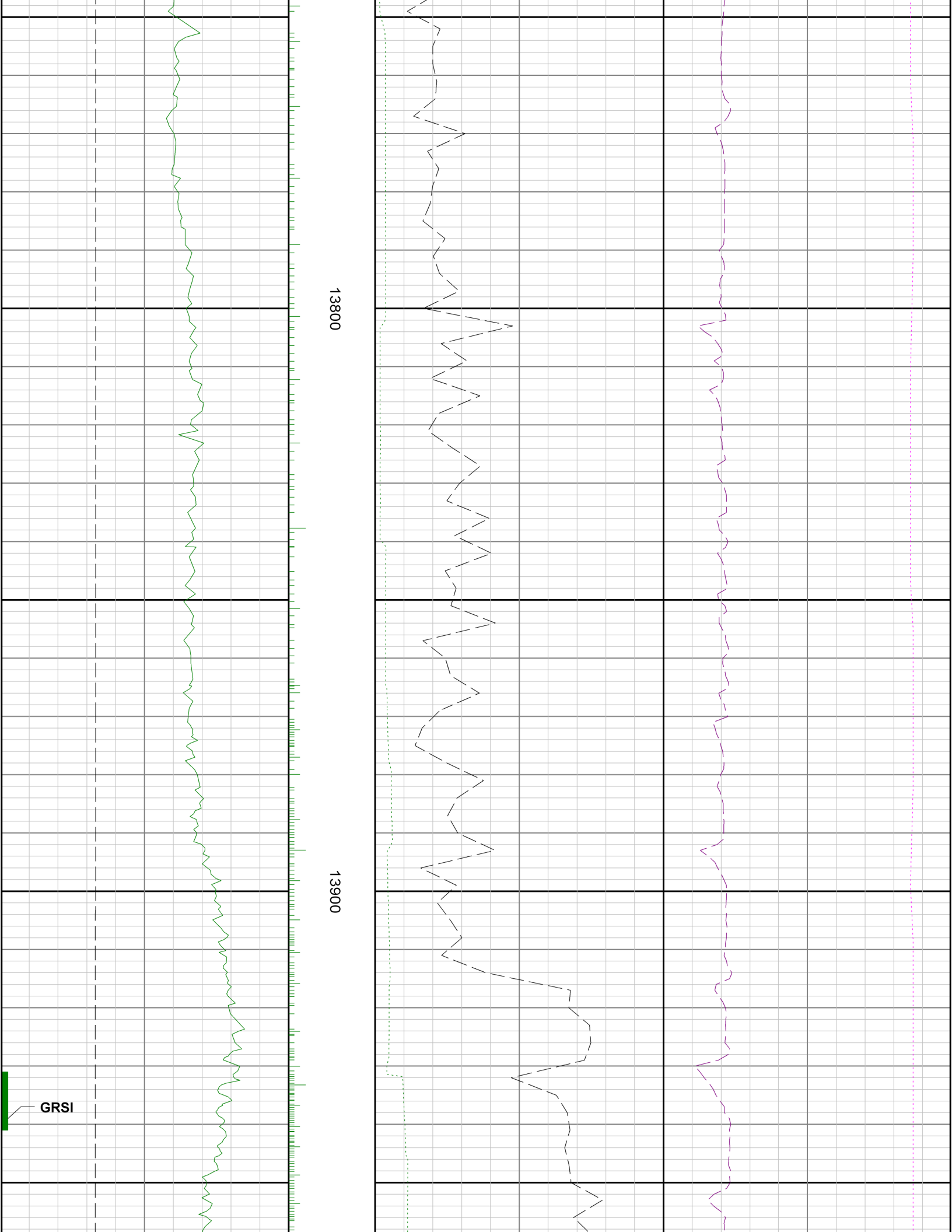




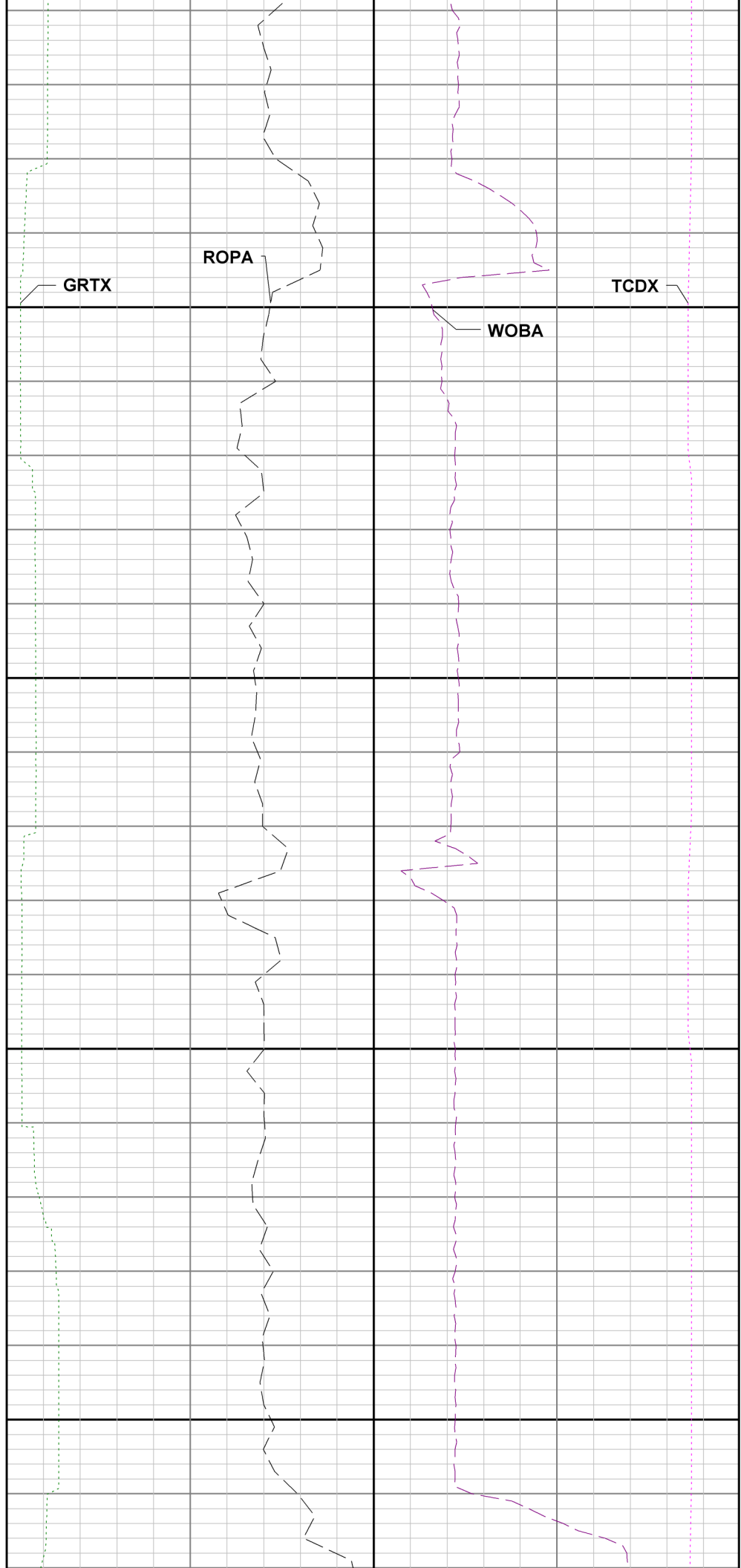
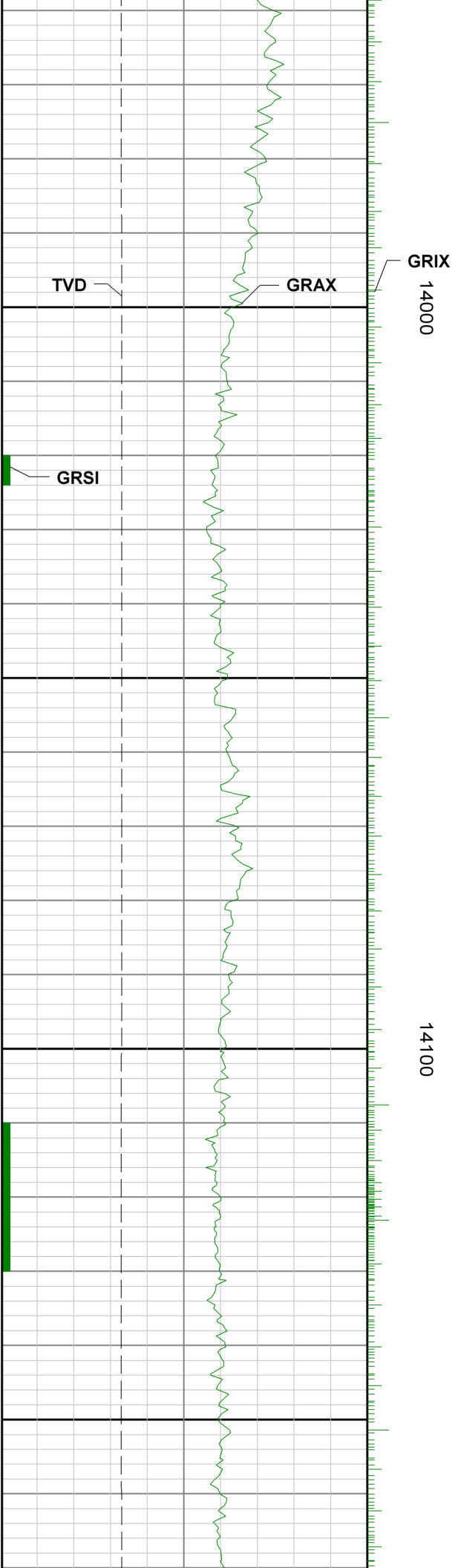


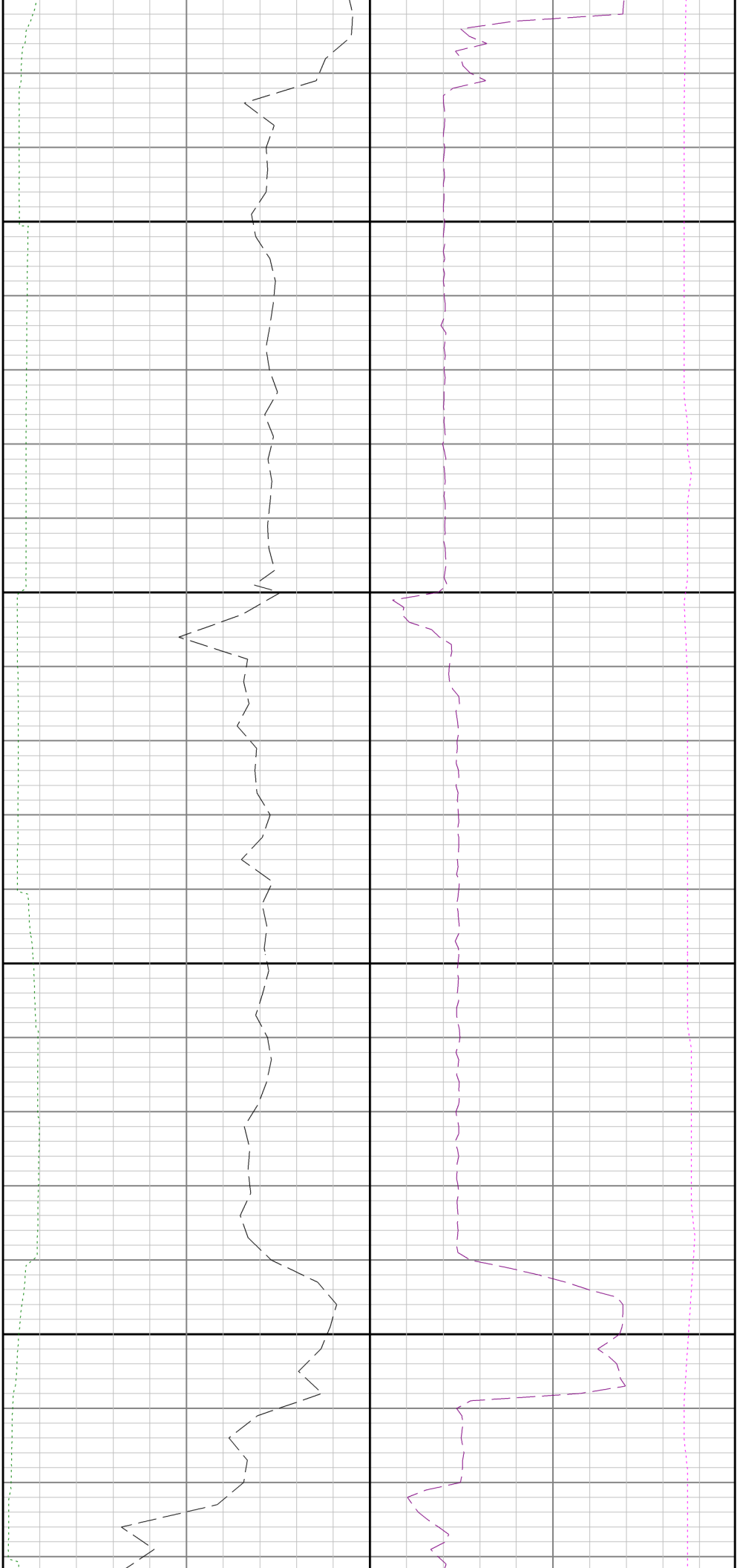






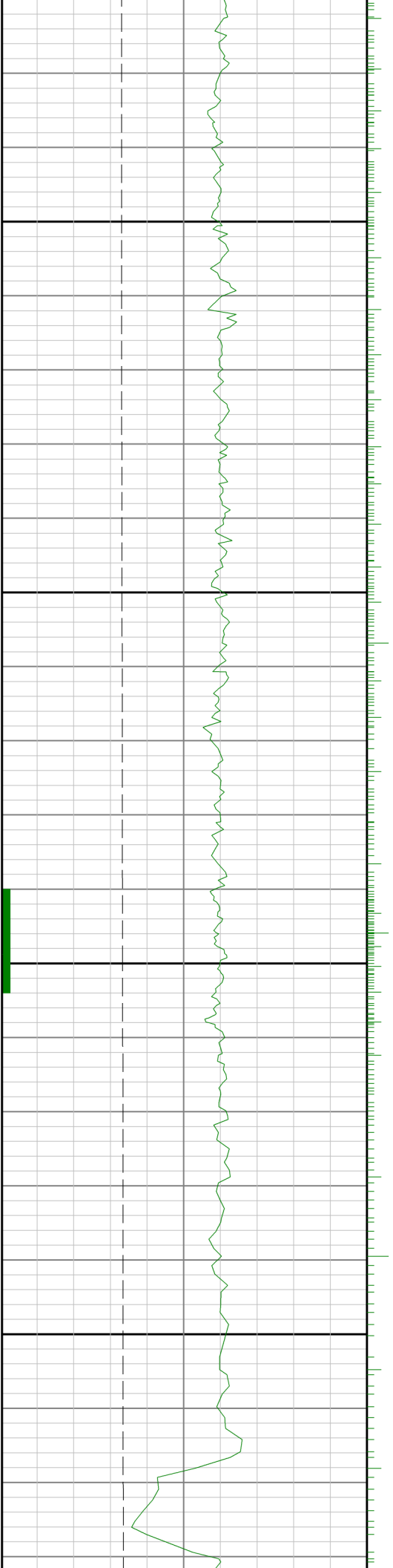


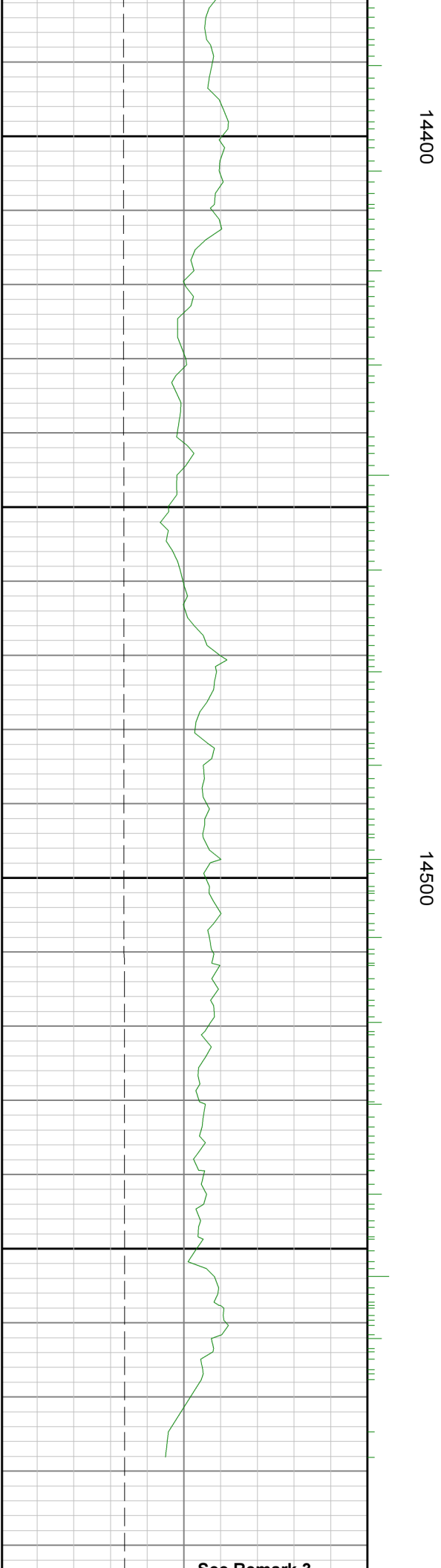
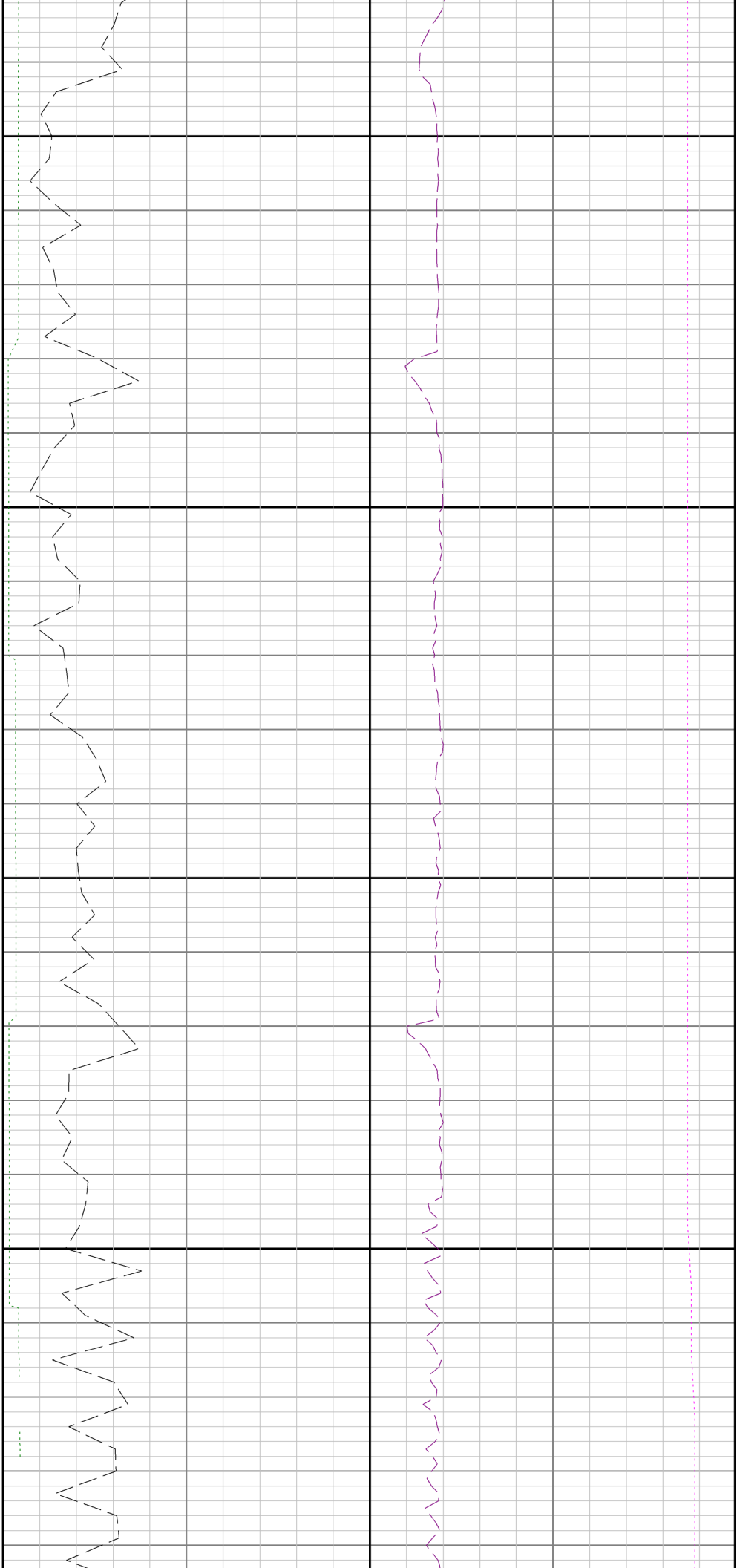




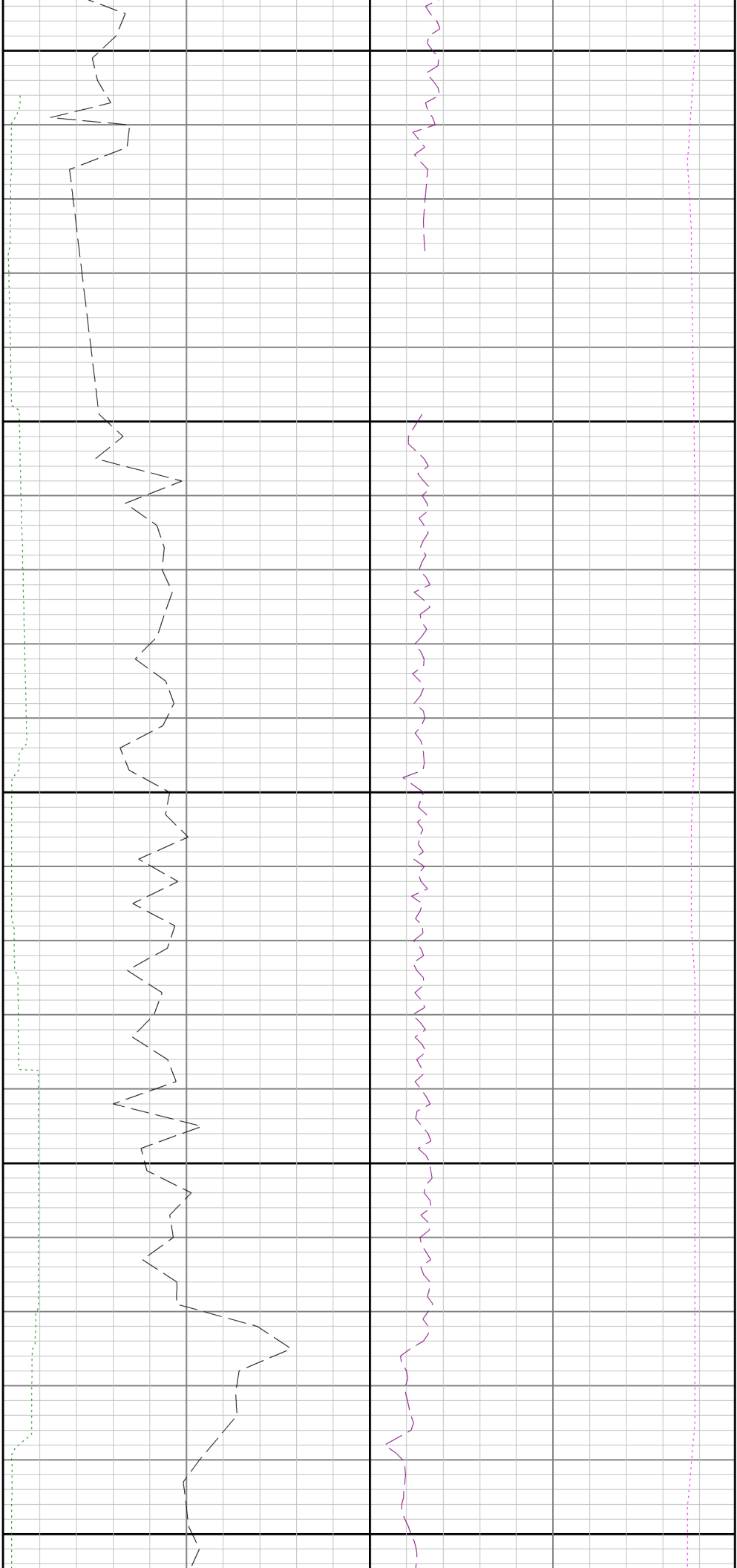
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14300





See Remark 2



14600

14700

14800

See Remark 3

