



LWD MEMORY LOG

Gamma Ray

| | | | | | |
|--|--|--|------------------------|-----------------------|--|
| Scale: | Company: Great Western Operating Company LLC | | | | |
| | Well: RIO LC 12-369HNX | | | | |
| | Field: Adams County | | | | |
| | County: Adams | | Country: United States | | |
| | Depth Reference: | | | | |
| Measured Depth | | | | | |
| Driller's Depth | | | | | |
| Status: | | Surface Location: | | Other Services: | |
| Final Print | | Latitude: | | 039° 59' 58.628" N | |
| API No: 05-001-10468 | | Longitude: | | 104° 56' 23.219" W | |
| Job ID: 109935723 | | SEC: 6 TWN: 1S RGE: 67W | | Directional | |
| Permanent Datum (P.D.): | | Ground Level | | Elevation: 5068.40 ft | |
| Log Measured From: | | Rig Floor | | Above P.D.: 20.00 ft | |
| Elev. KB: | | Elev. DF: | | N/A | |
| | | Elev. GL: | | 5088.40 ft | |
| | | | | 5068.40 ft | |
| Dates | | | | | |
| From: 2019-08-17 | | Drilled (ft) | | Logged (ft) | |
| To: 2019-08-21 | | Top: 1779.00 | | Top: 1779.00 | |
| Spud: 2019-07-07 | | Bottom: 18102.00 | | Bottom: 18089.00 | |
| Total Magnetic Field Strength: (nT) | | Total Magnetic Field Strength: (nT) | | True Dip Angle: (deg) | |
| Mag to Reference North Correction: (deg) | | Mag to Reference North Correction: (deg) | | 66.43 | |
| | | | | 51895 | |
| | | | | 8.23 | |
| Borehole Record | | | | | |
| Hole Size (in) | | From (ft) | | To (ft) | |
| 13.500 | | 20.00 | | 1779.00 | |
| 8.500 | | 1779.00 | | 18102.00 | |
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| Casing Record | | | | | |
| Hole Size (in) | | From (ft) | | To (ft) | |
| 13.500 | | 20.00 | | 1779.00 | |
| 8.500 | | 1779.00 | | 18102.00 | |
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| Mud Record | | | | | |
| Type | | From (ft) | | To (ft) | |
| Oil Based Mud | | 1779.00 | | 18102.00 | |
| | | | | | |
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| Deviation Record | | | | | |
| Type | | From (ft) | | To (ft) | |
| Oil Based Mud | | 1779.00 | | 18102.00 | |
| | | | | | |
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| Acquisition System | | | | | |
| Cadence | | RT 5.2 | | PD 460 | |
| Plot Studio | | 5.2.8472.1 | | Precision Drilling | |
| | | | | Unit: D&E | |

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Log Run Summary

| Run No | Bit Run No. | Bit Size (in) | Bit Type | Bit Gauge Length (in) | Assembly Type | Logged Interval | | Bit Depth Interval | | Date / Time | | Circ. Hours (h) |
|--------|-------------|------------------|----------|--------------------------|----------------|-----------------|----------|--------------------|----------|------------------|------------------|--------------------|
| | | | | | | Top | Bottom | From | To | Start Logging | End Logging | |
| | | | | | | (ft) | (ft) | (ft) | (ft) | | | |
| 1 | 1 | 8.500 | PDC | 4.00 | AutoTrak Curve | 1779.00 | 18089.00 | 1779.00 | 18102.00 | 2019-08-17 21:37 | 2019-08-21 05:22 | 73.45 |

Crew

| Name | Arrive Wellsite | Depart Wellsite | Name | Arrive Wellsite | Depart Wellsite | Name | Arrive Wellsite | Depart Wellsite |
|--------------|--------------------|--------------------|--------------|--------------------|--------------------|-----------------|--------------------|--------------------|
| Alain Atemoh | 2019-08-17 | 2019-08-20 | Jairo Garcia | 2019-08-18 | 2019-08-21 | Garrett Gerdson | 2019-08-20 | 2019-08-21 |

Mud Properties Record

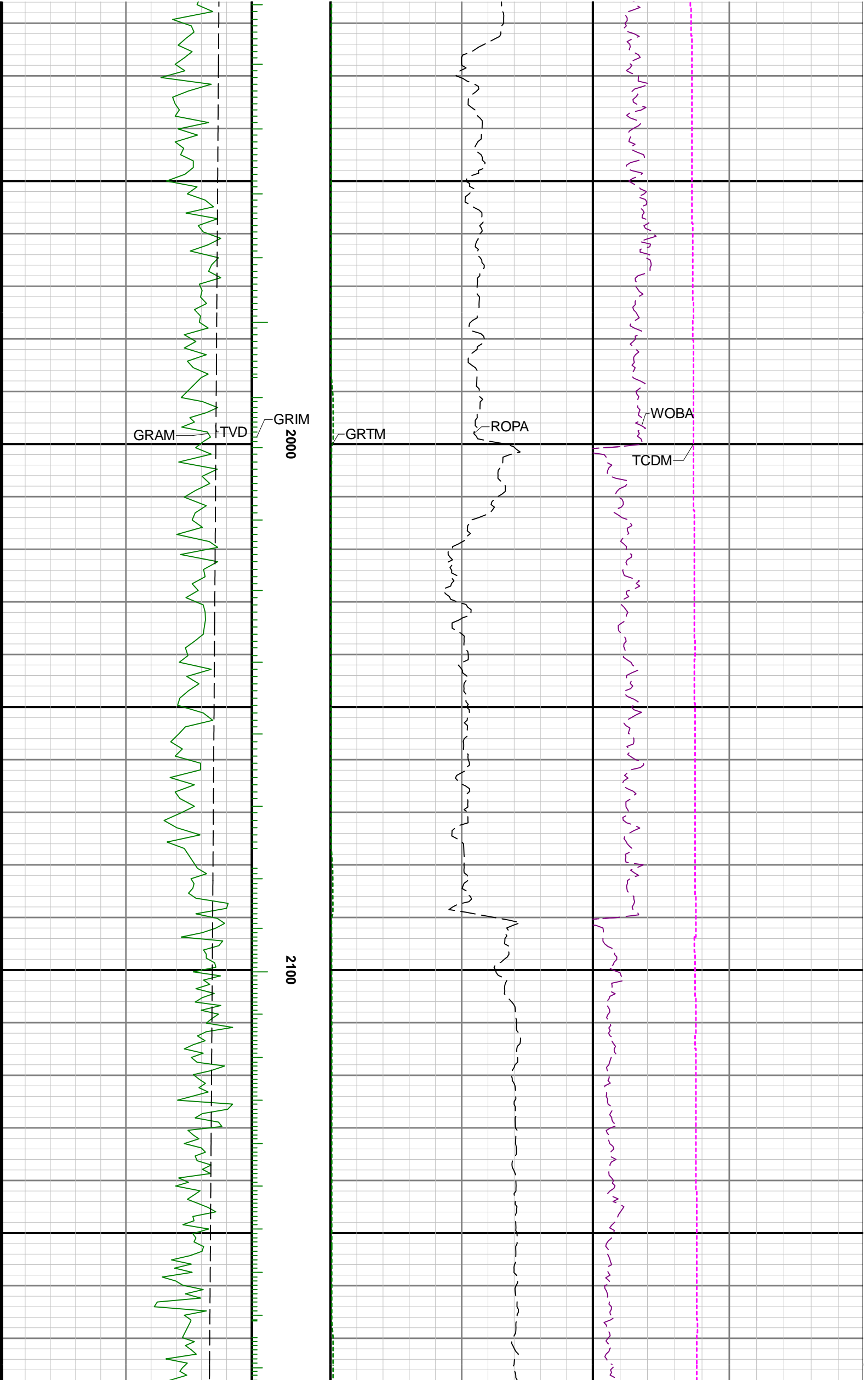
| Date / Time | Run No. | Depth (ft) | Mud Type | Density (ppg) | Viscosity (cP) | pH | Fluid Loss (cm3) | Oil / Water | Source | Total Chlorides (ppm) | K+ (%) |
|------------------|---------|---------------|---------------|------------------|-------------------|-----|---------------------|-------------|------------|--------------------------|-----------|
| 2019-08-17 22:00 | 1 | 1835.00 | Oil Based Mud | 10.5 | 22 | N/A | 10.2 | 62/38 | Active Pit | 23324 | 0.00 |
| 2019-08-18 15:00 | 1 | 5934.00 | Oil Based Mud | 10.5 | 19 | N/A | 10.0 | 62/38 | Active Pit | 24295 | 0.00 |
| 2019-08-19 02:00 | 1 | 7965.00 | Oil Based Mud | 10.5 | 21 | N/A | 10.0 | 62/38 | Active Pit | 24295 | 0.00 |
| 2019-08-20 02:00 | 1 | 12695.00 | Oil Based Mud | 10.5 | 20 | N/A | 10.0 | 62/38 | Active Pit | 24295 | 0.00 |

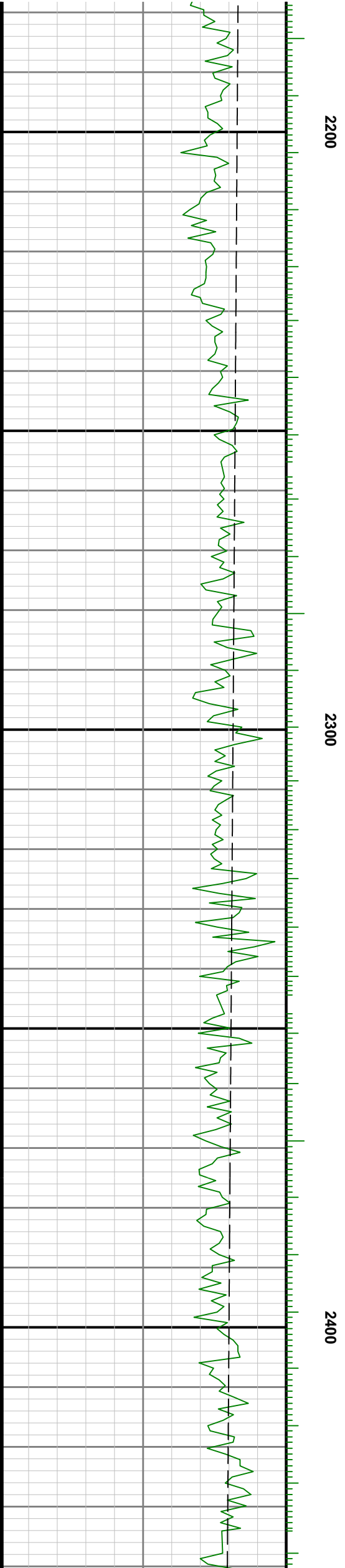
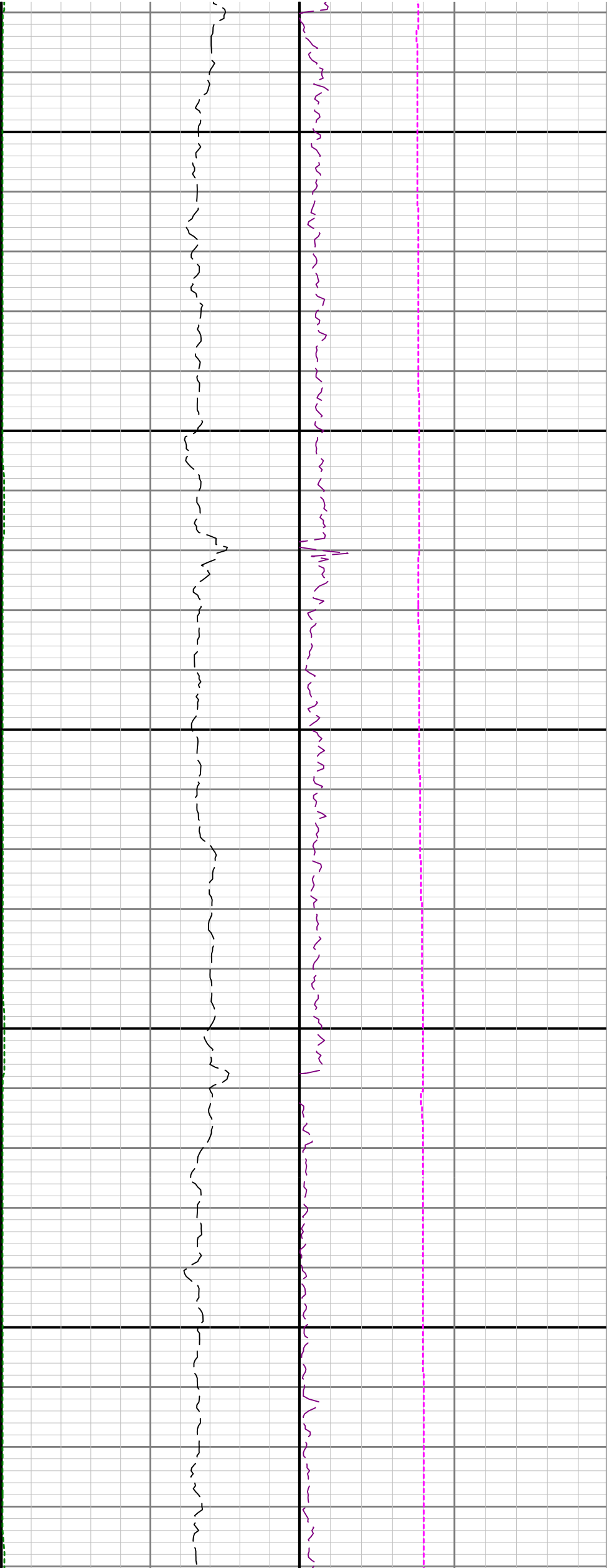
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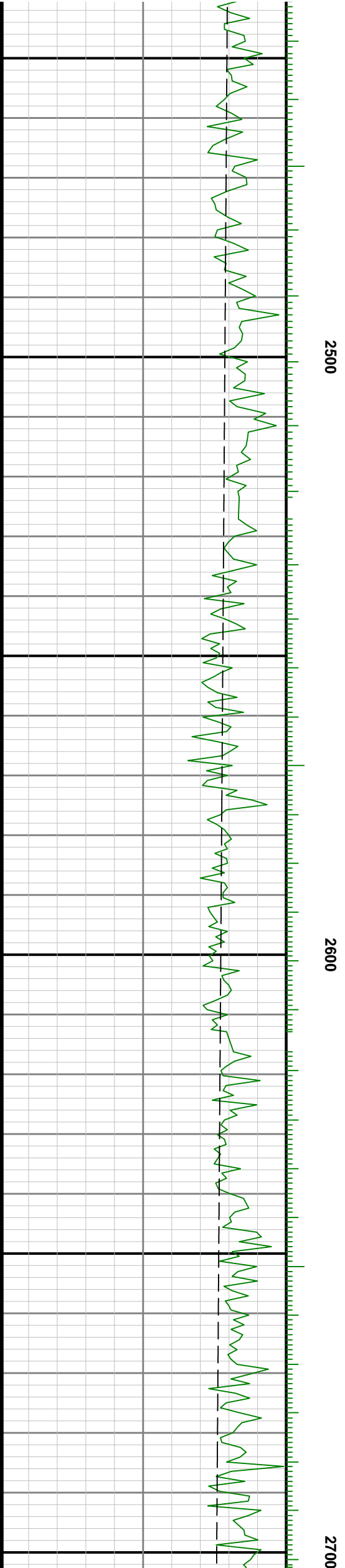
| Run No. | Tool | Serial Number | Measurement | Sensor Offset (ft) | Bit Offset (ft) | Max O.D. (in) | Min I.D. (in) |
|---------|------------------------------|---------------|----------------------|--------------------|-----------------|---------------|---------------|
| 1 | AutoTrak Curve Steering Unit | 14316020 | Near Bit VSS | 5.93 | 6.77 | 7.000 | 4.330 |
| 1 | AutoTrak Curve Steering Unit | 14316020 | Near Bit Inclination | 5.93 | 6.77 | 7.000 | 4.330 |
| 1 | AutoTrak Curve MWD | 14705204 | Gamma (single) | 2.75 | 12.94 | 7.000 | 3.250 |
| 1 | AutoTrak Curve MWD | 14705204 | Directional (mag) | 12.27 | 22.46 | 7.000 | 3.250 |

Service and Tool Mnemonics

| Mnemonic | Name | Description |
|-----------|----------------------|-------------------------------|
| ATC SU | AutoTrak Curve SU | Auto Trak Curve Steering Unit |
| ATC MWD | AutoTrak Curve MWD | Auto Trak Curve MWD |
| ATC CPM | AutoTrak Curve CPM | Auto Trak Curve CPM |



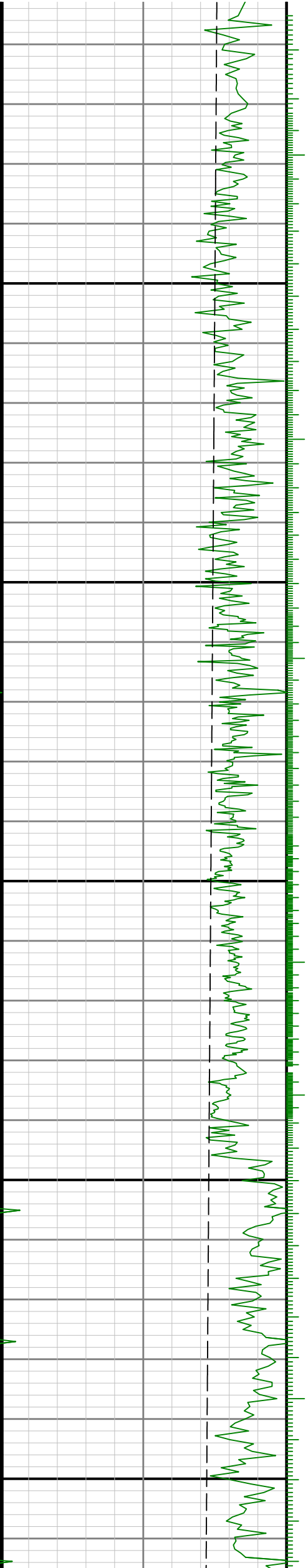


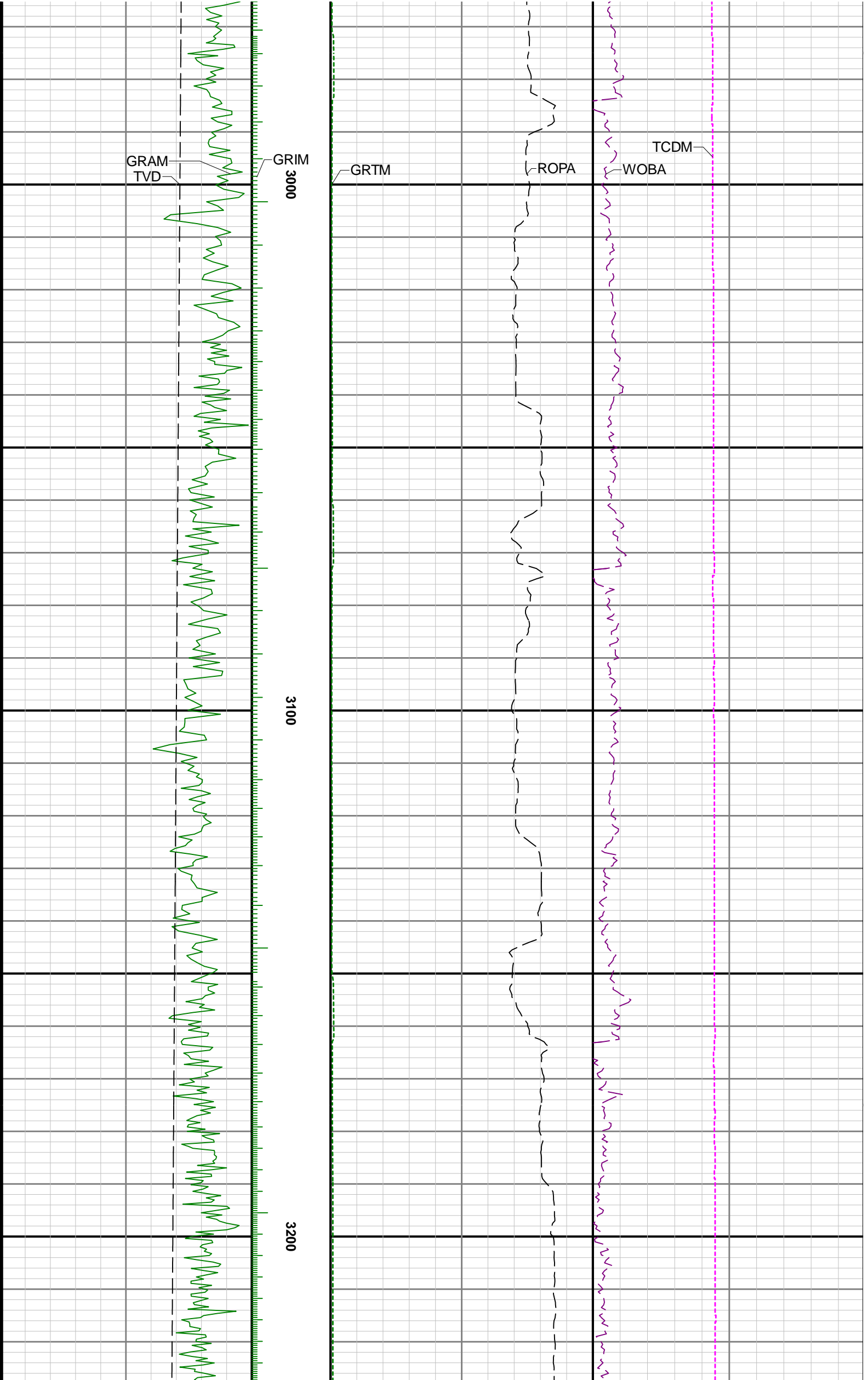


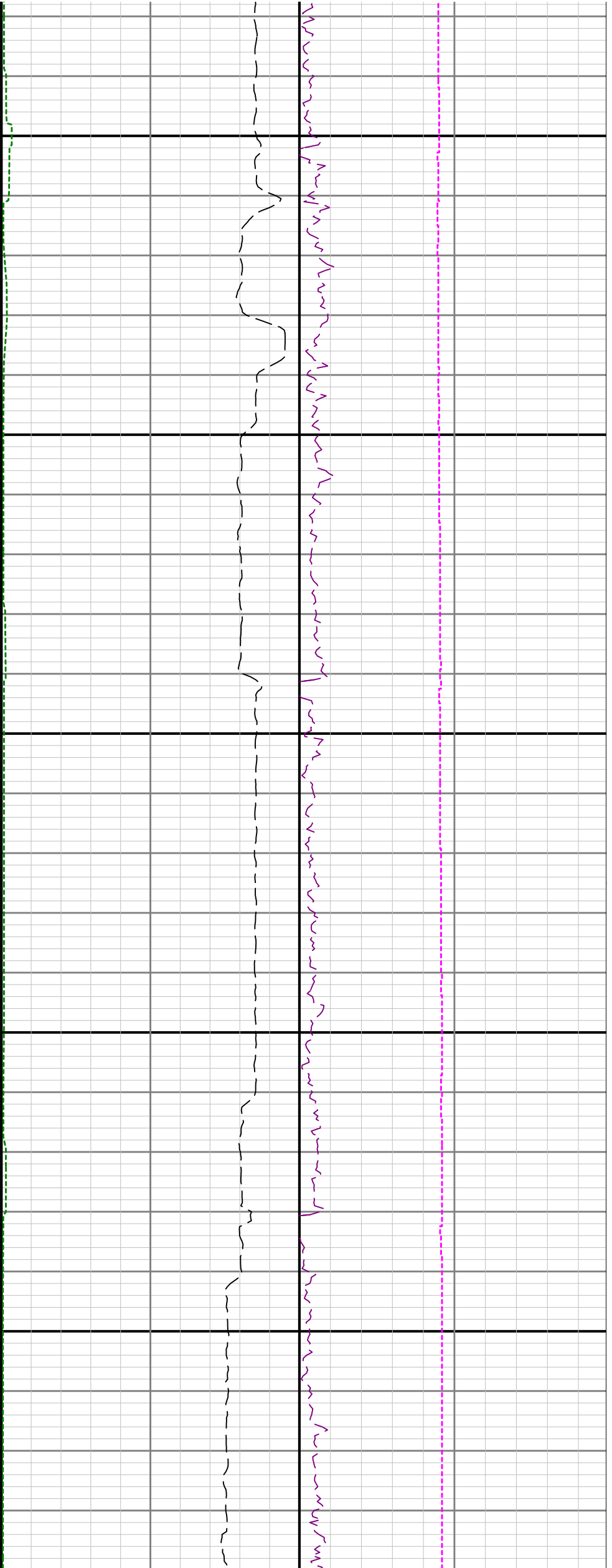


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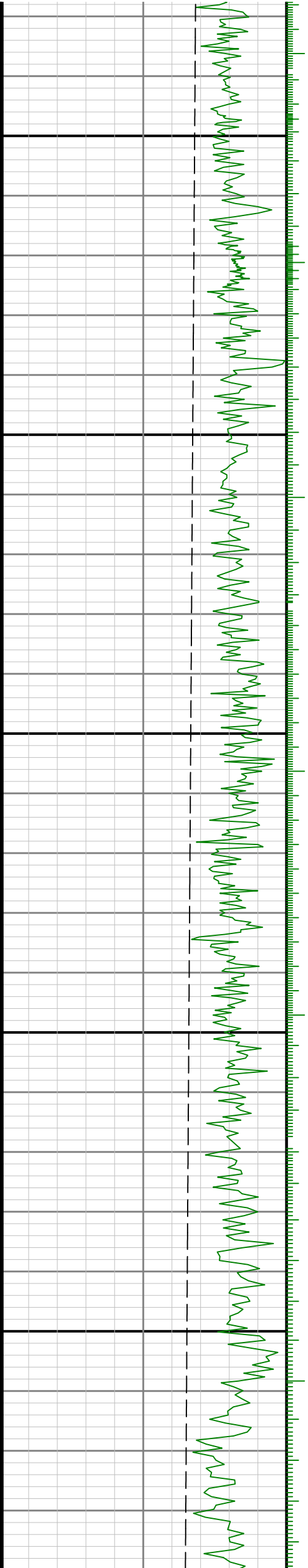


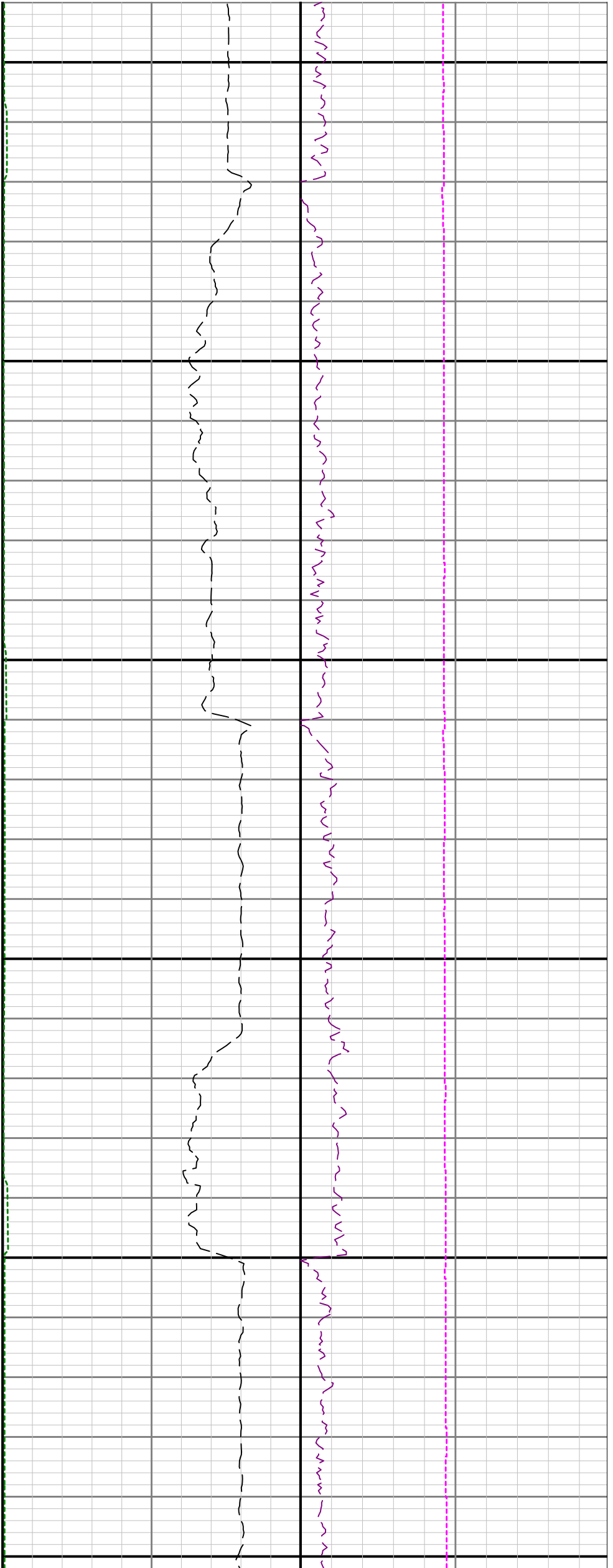




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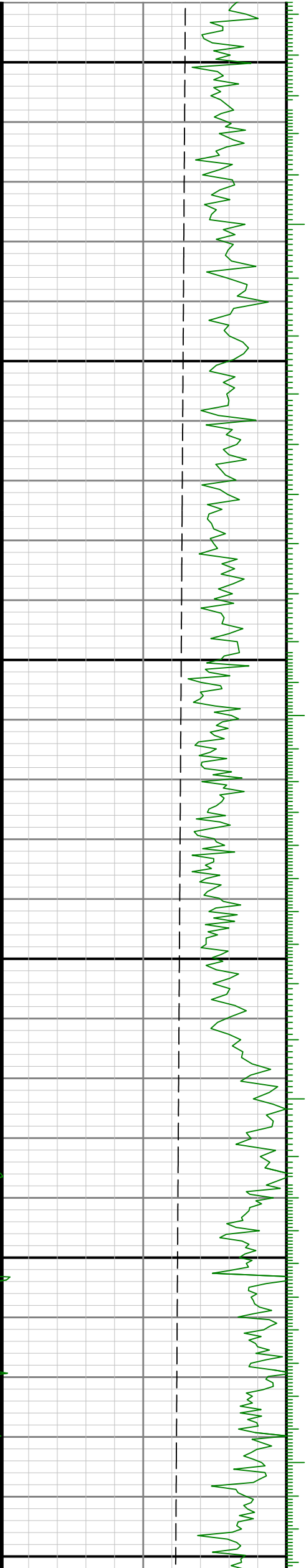


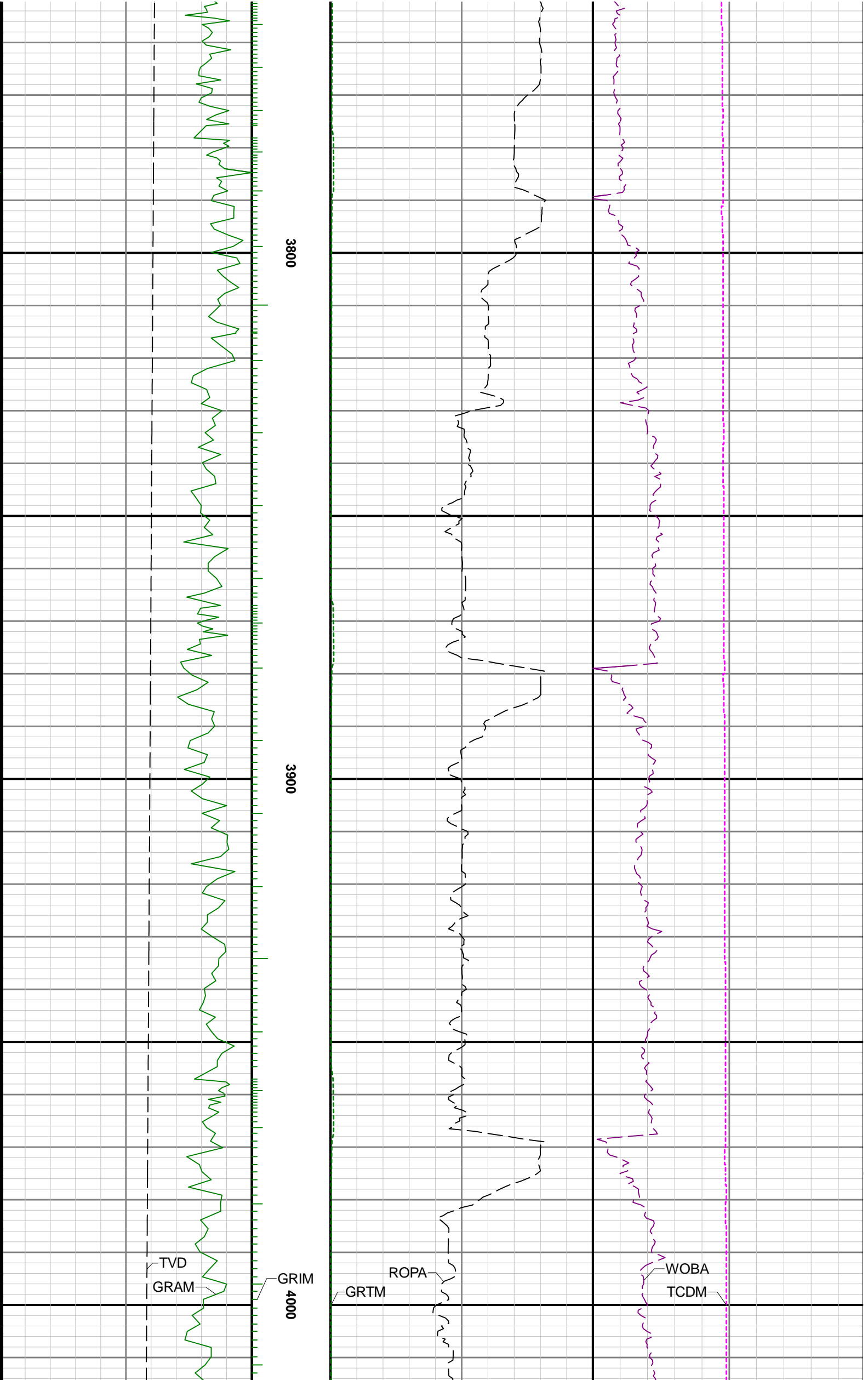


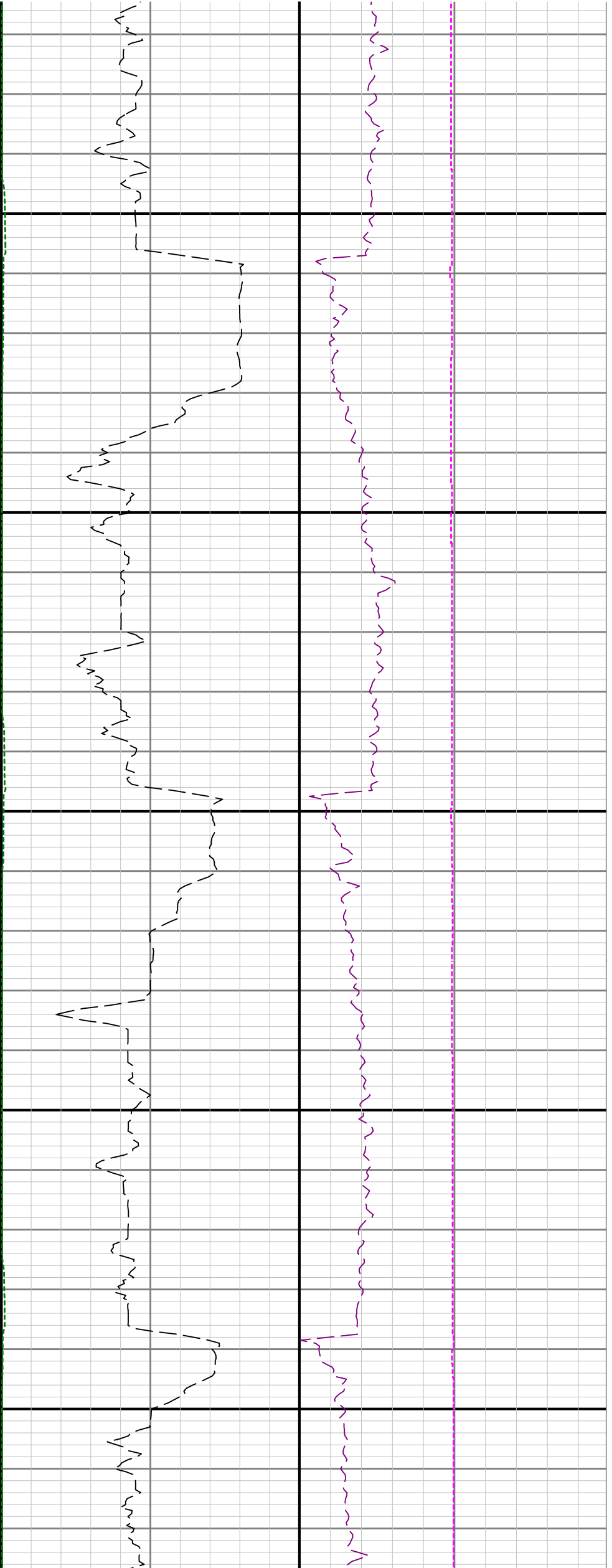
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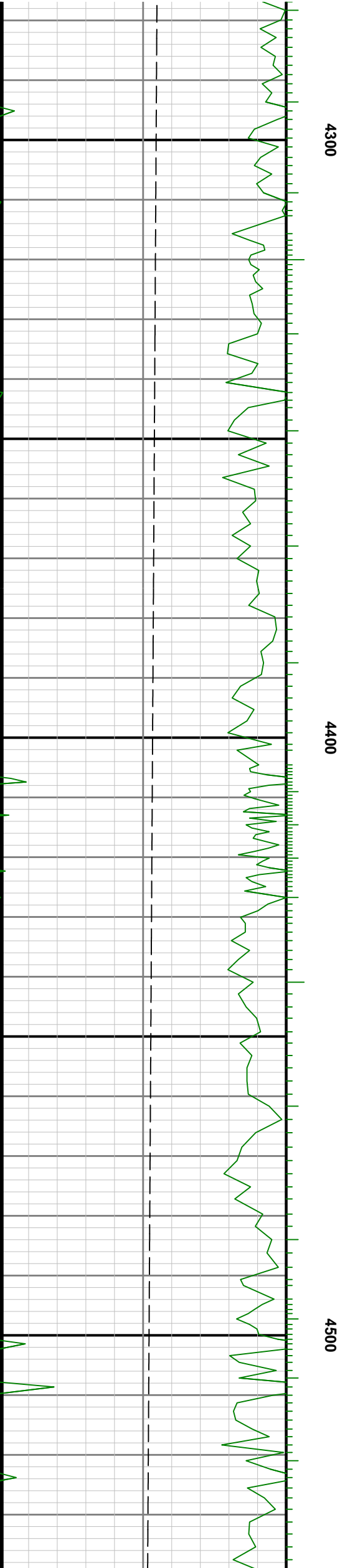
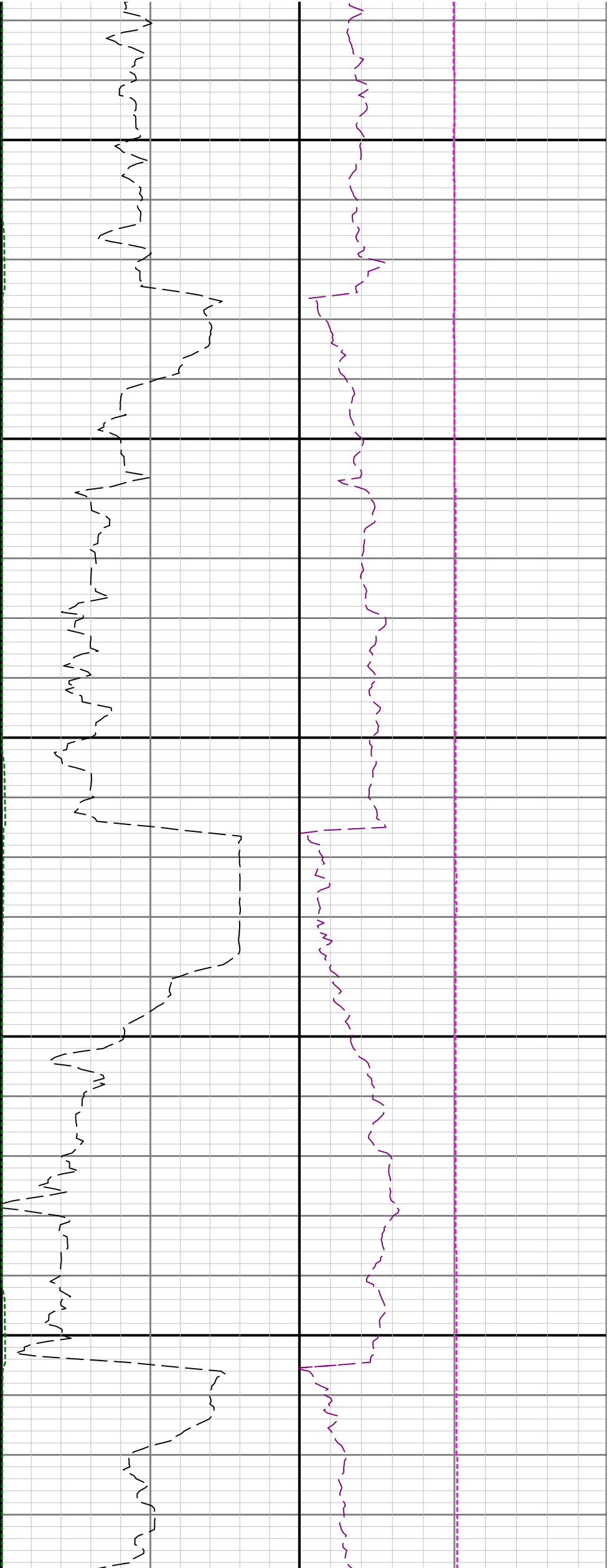


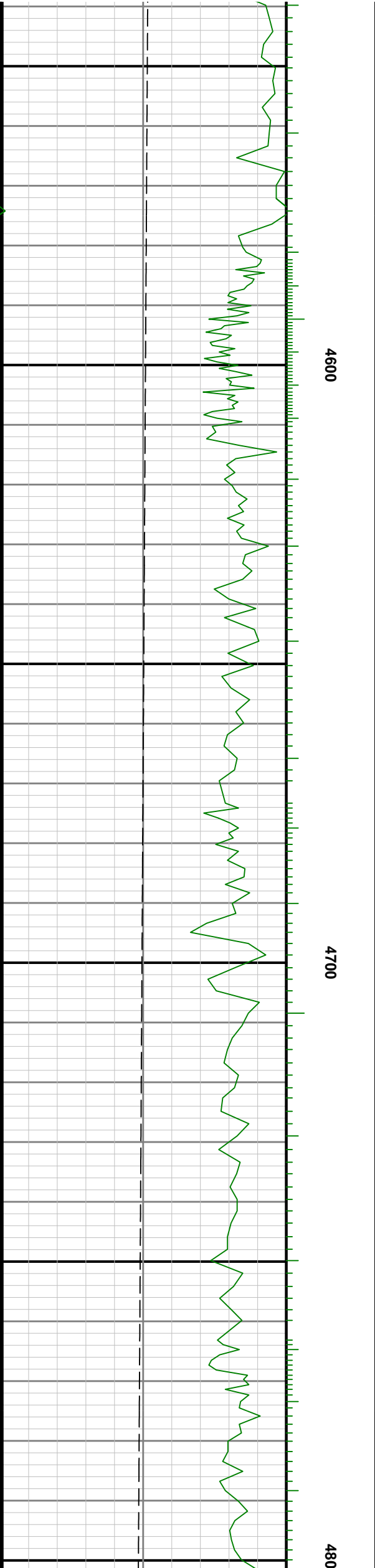
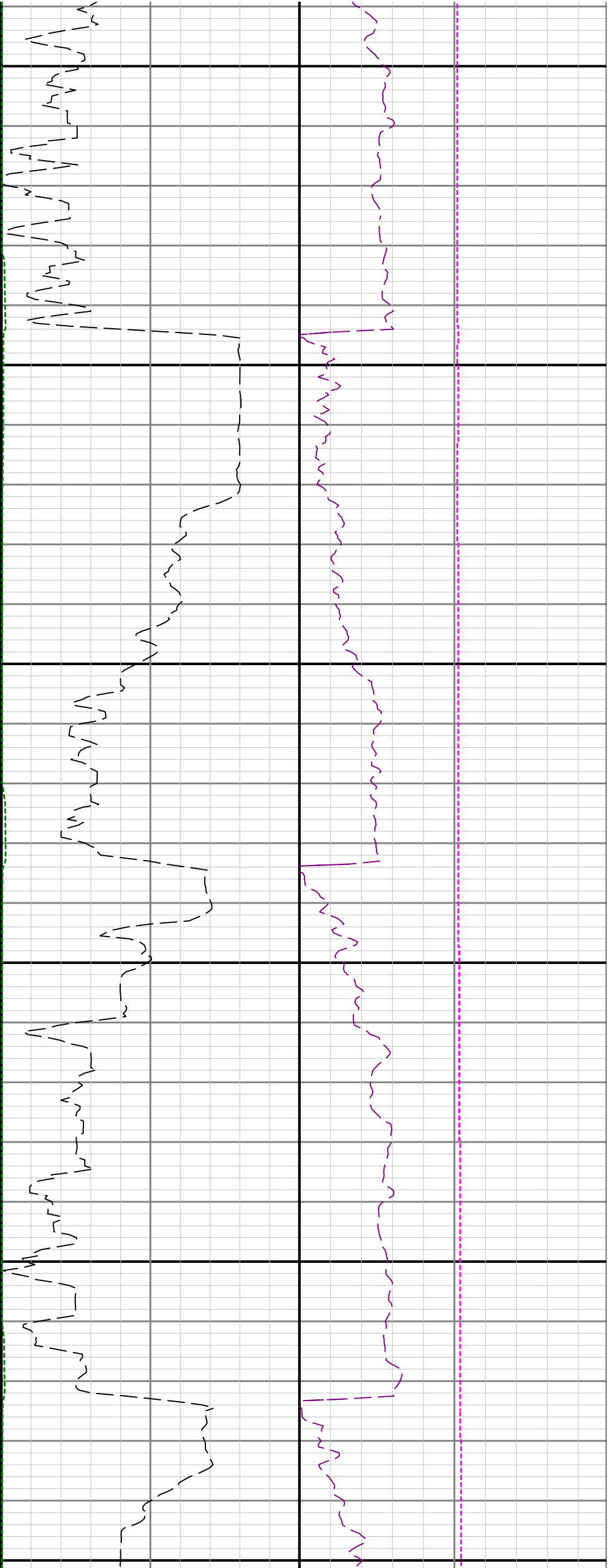


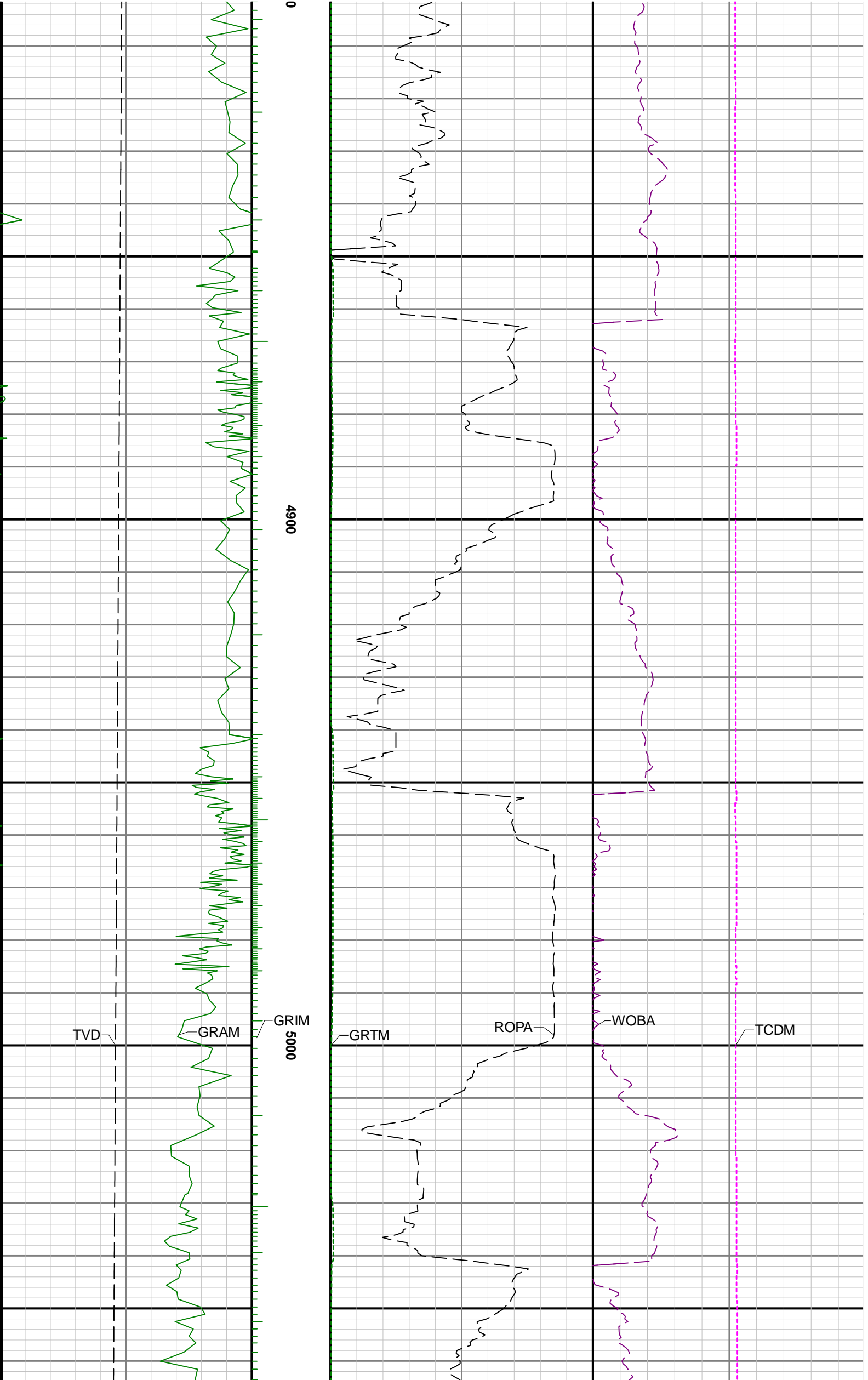


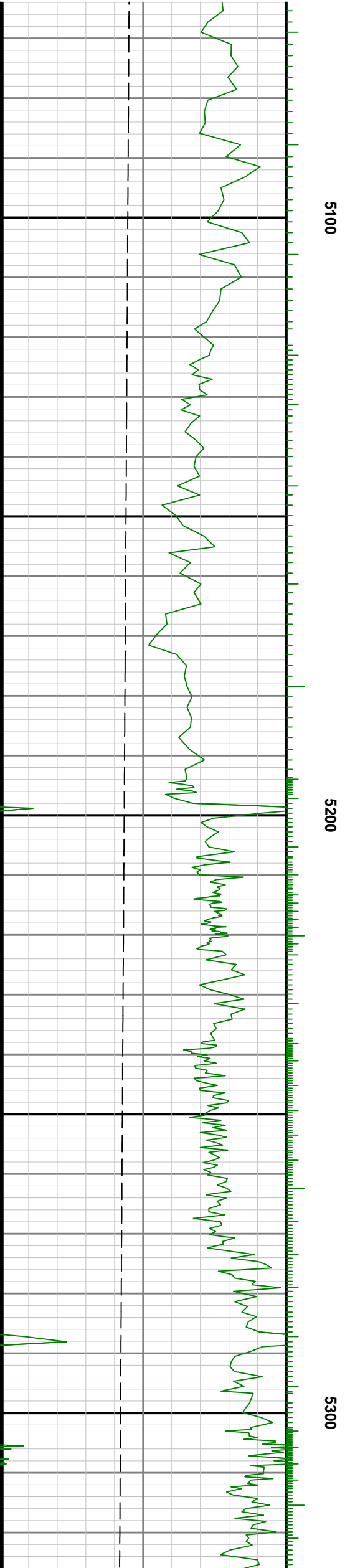
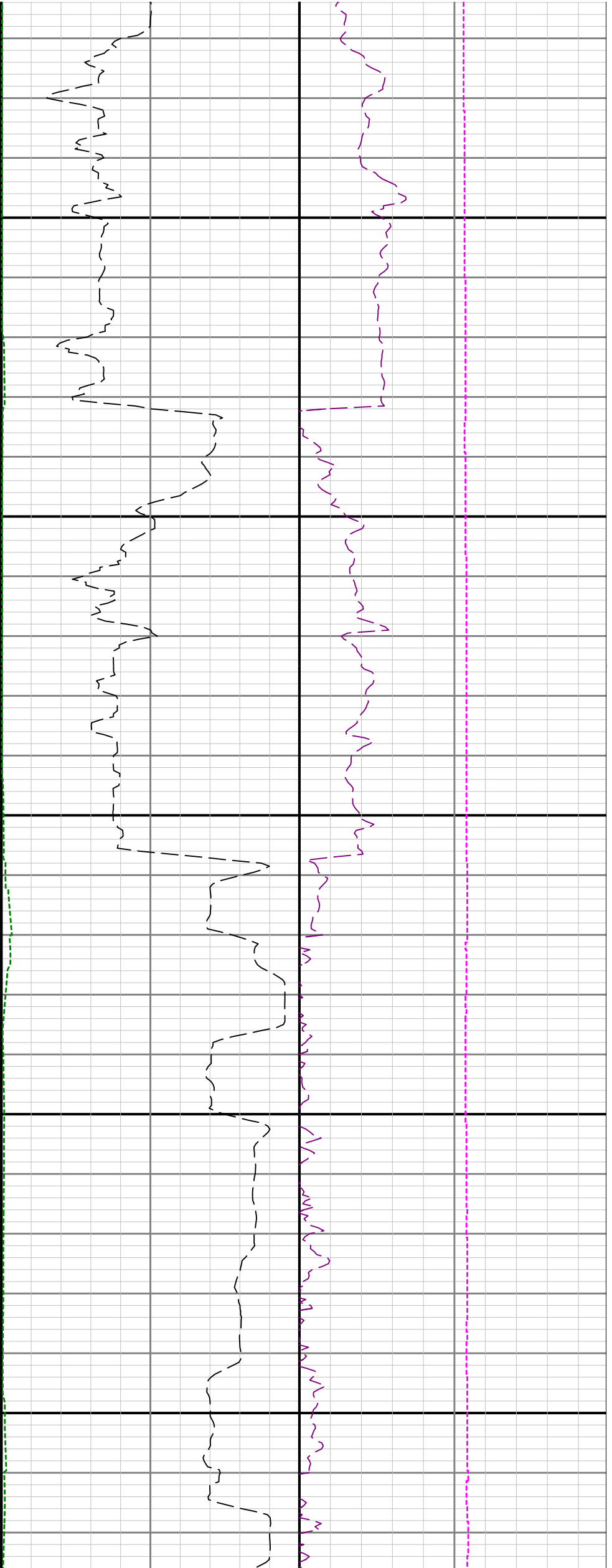
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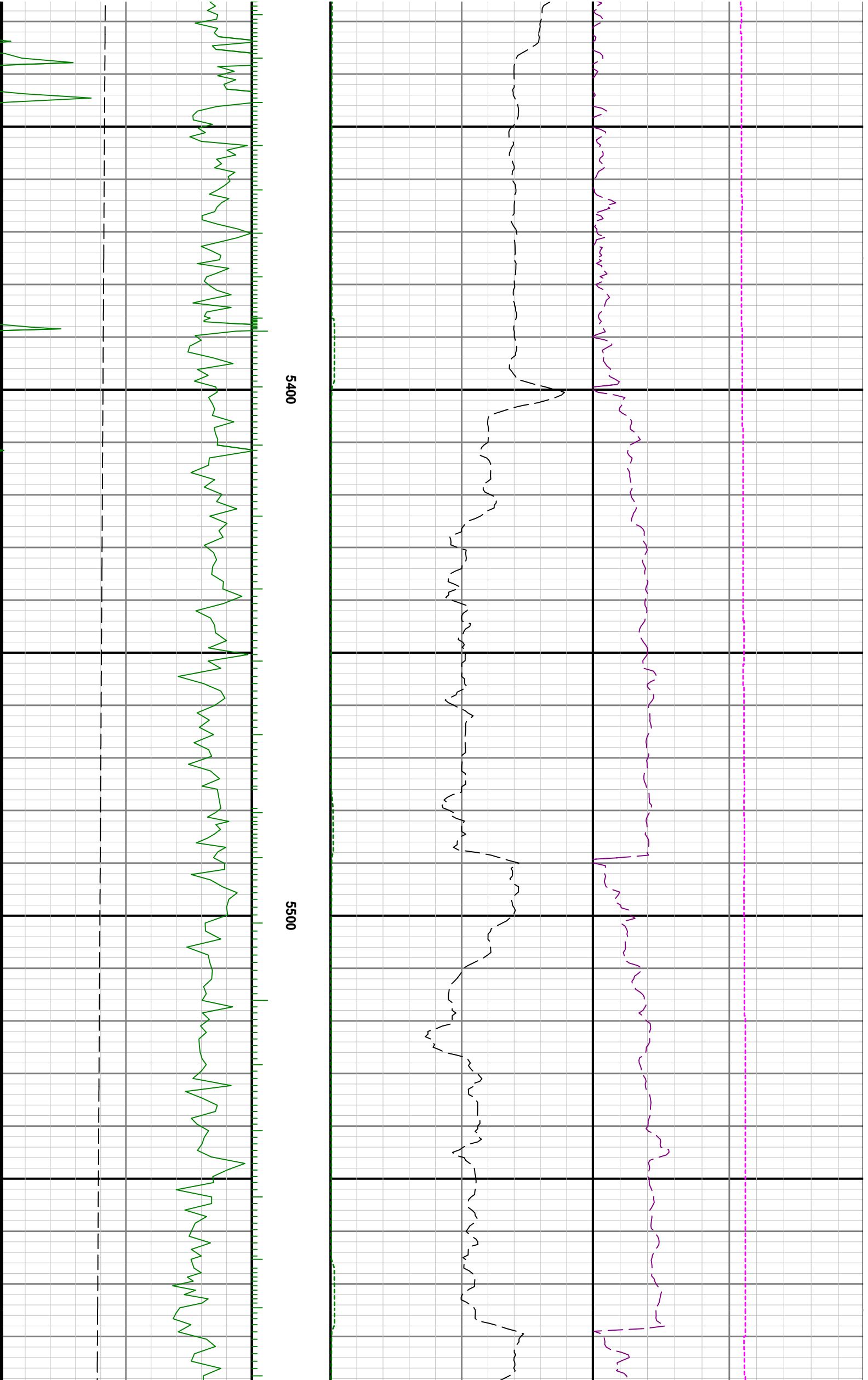
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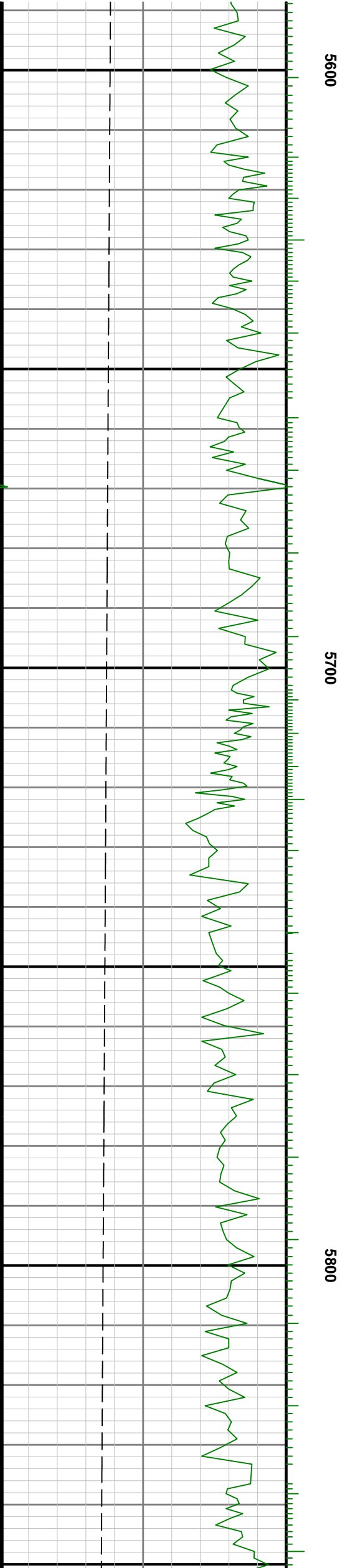
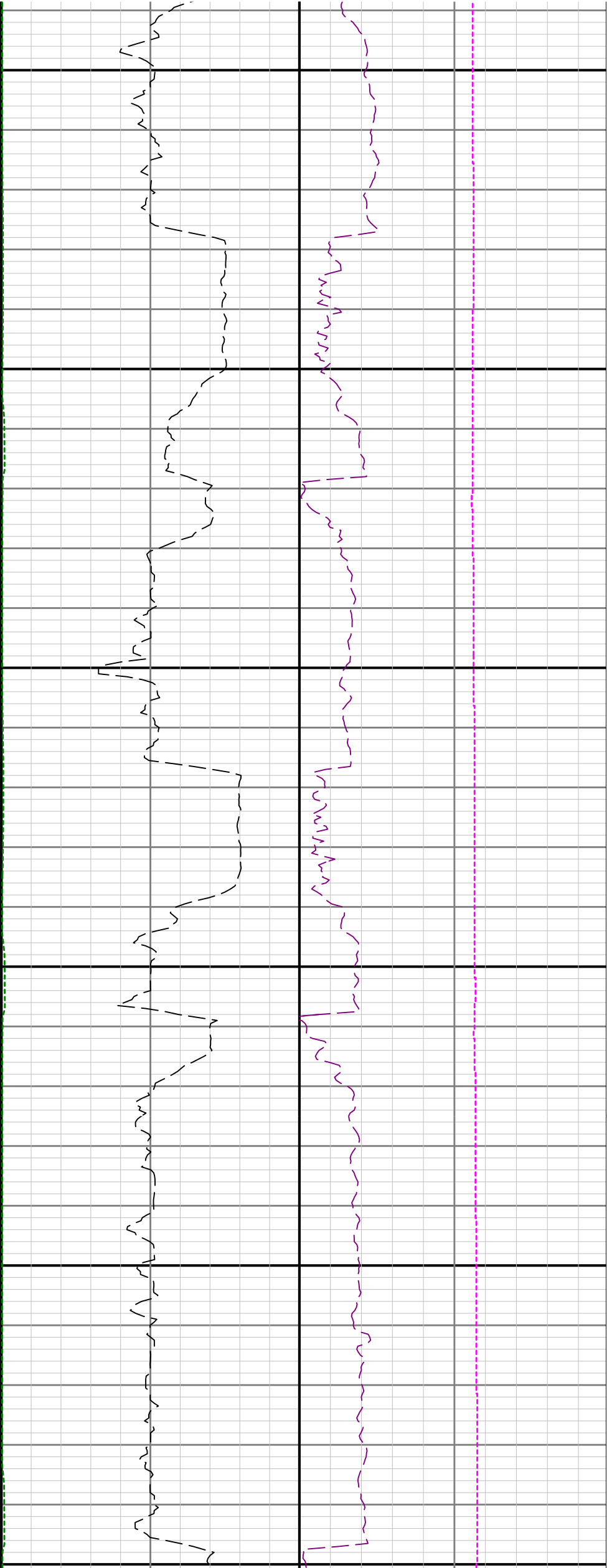


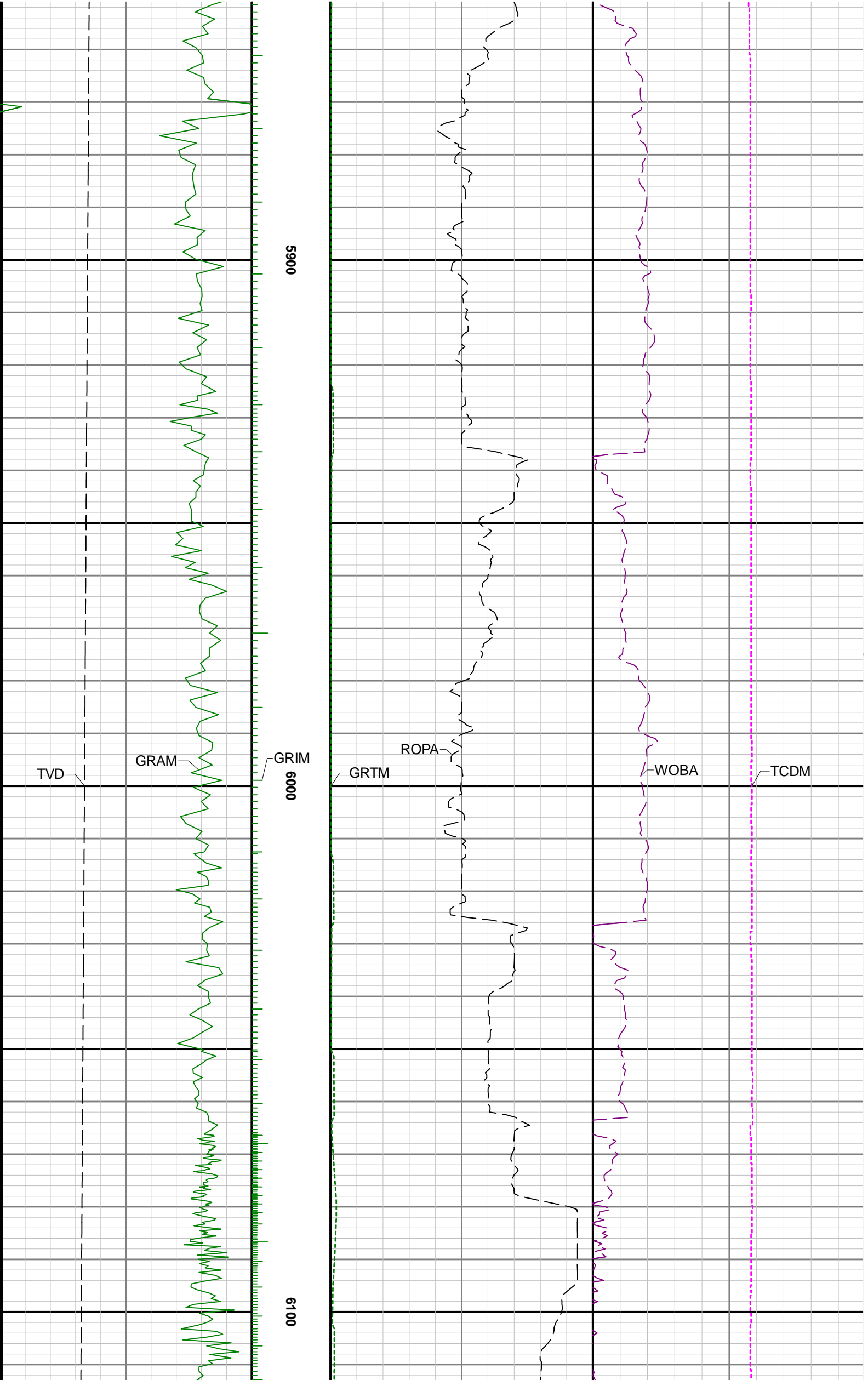


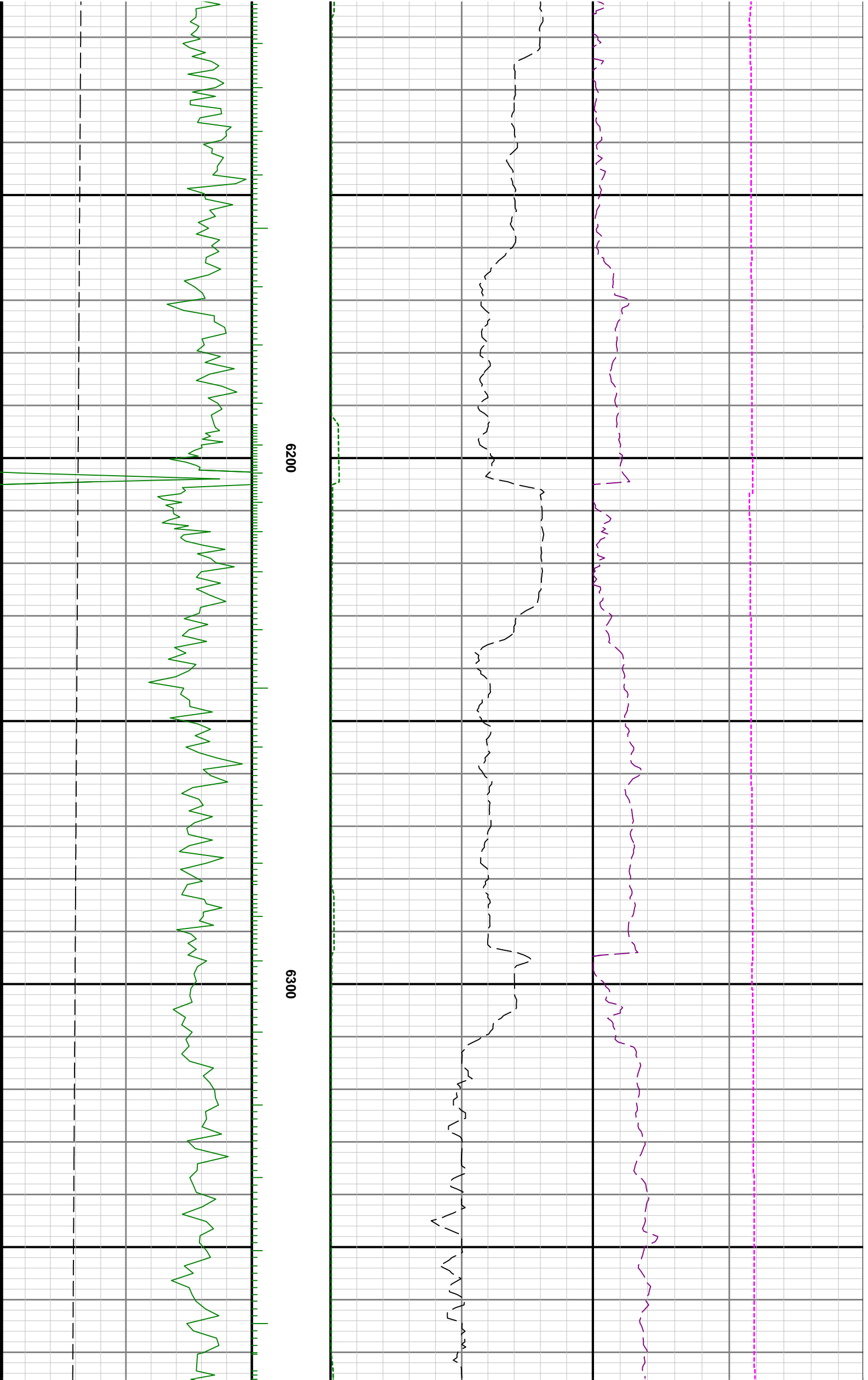


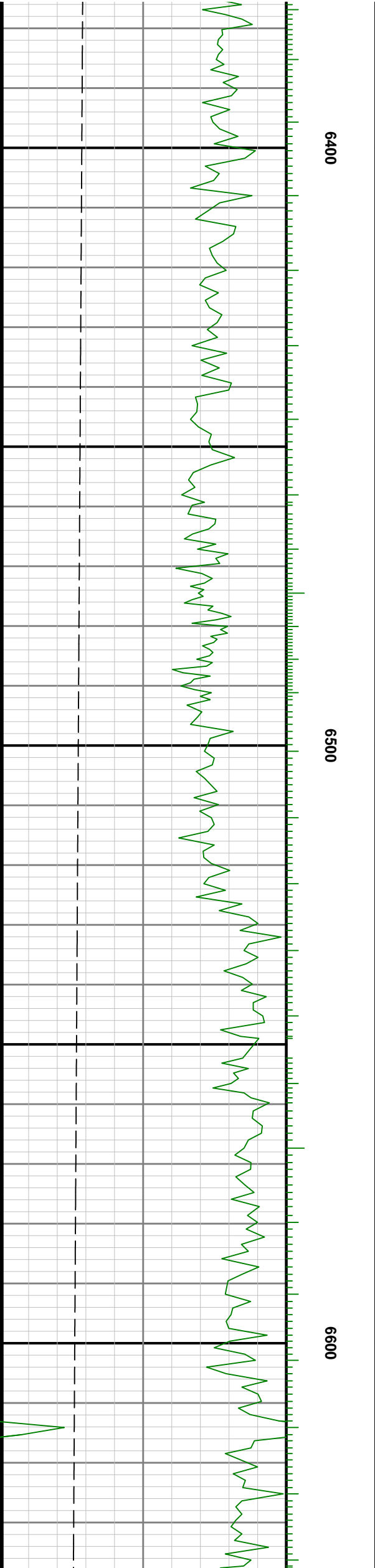
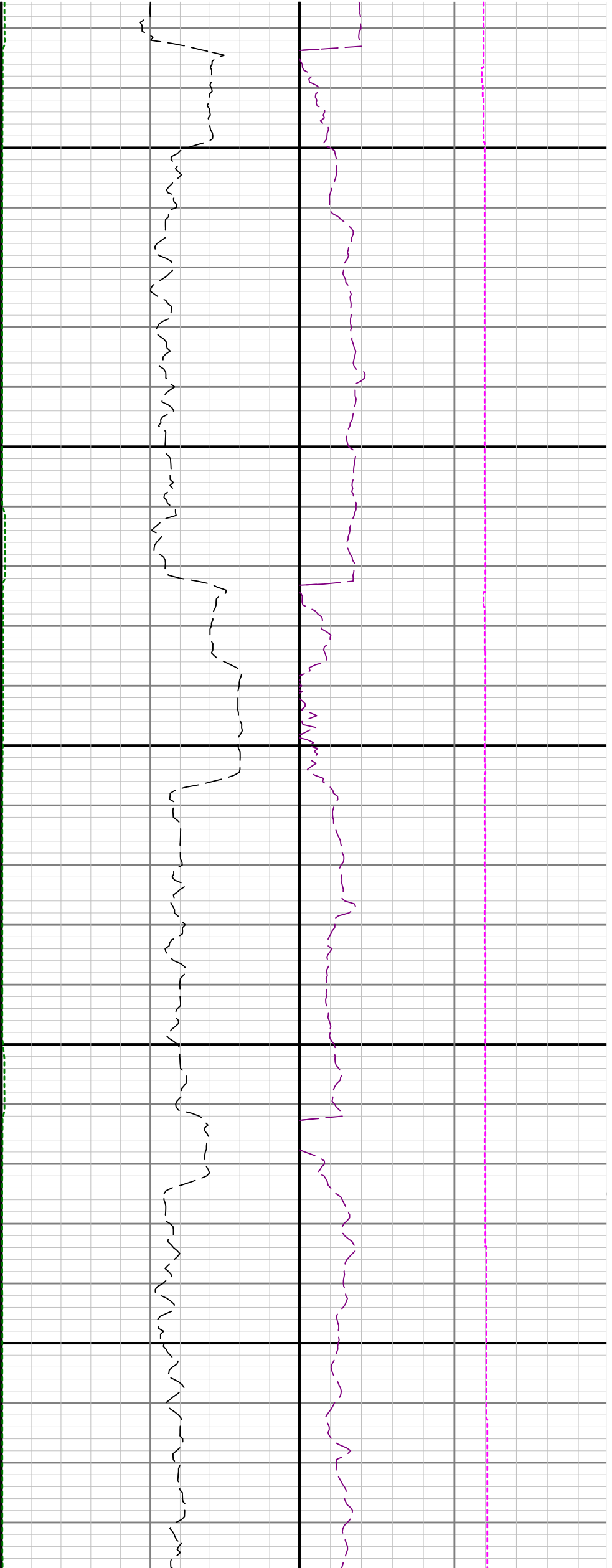


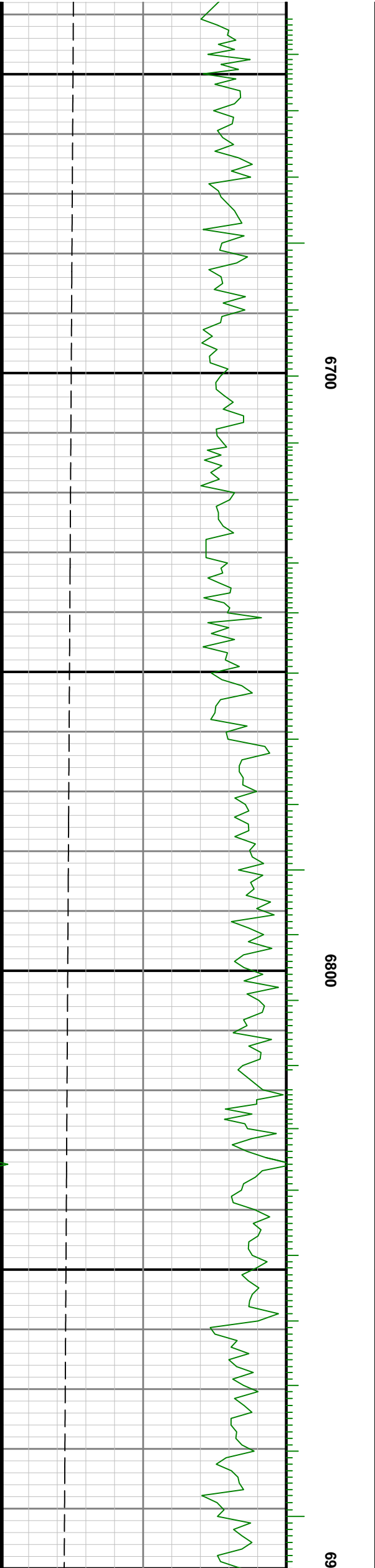
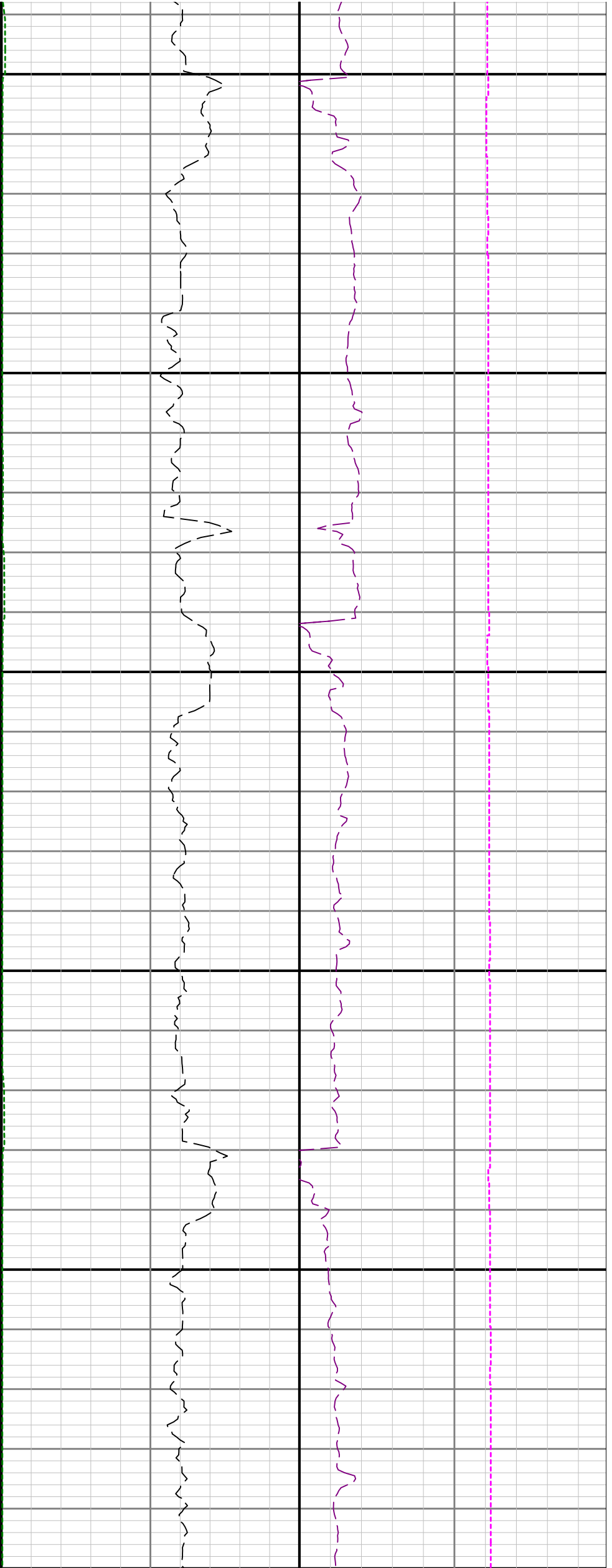


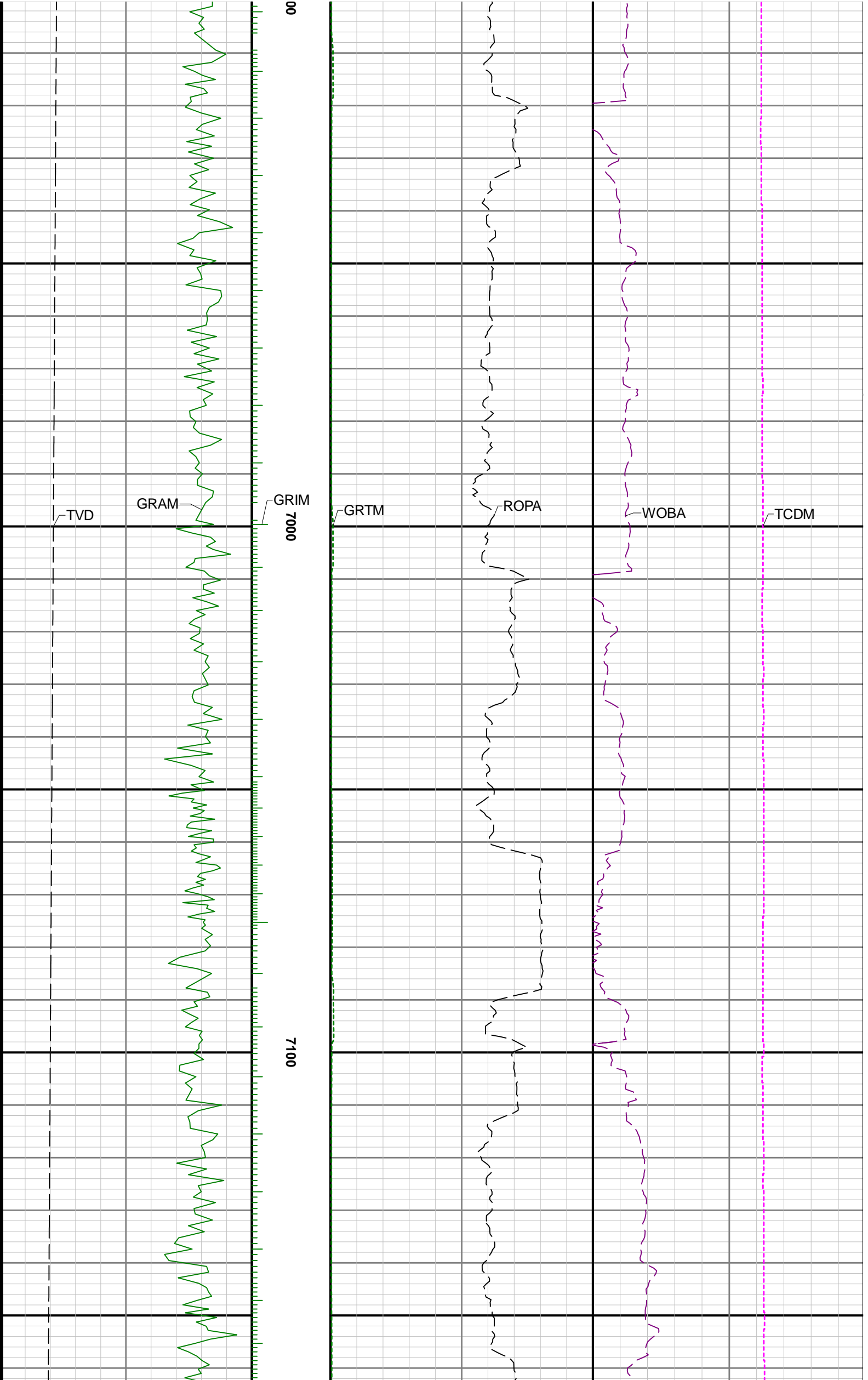


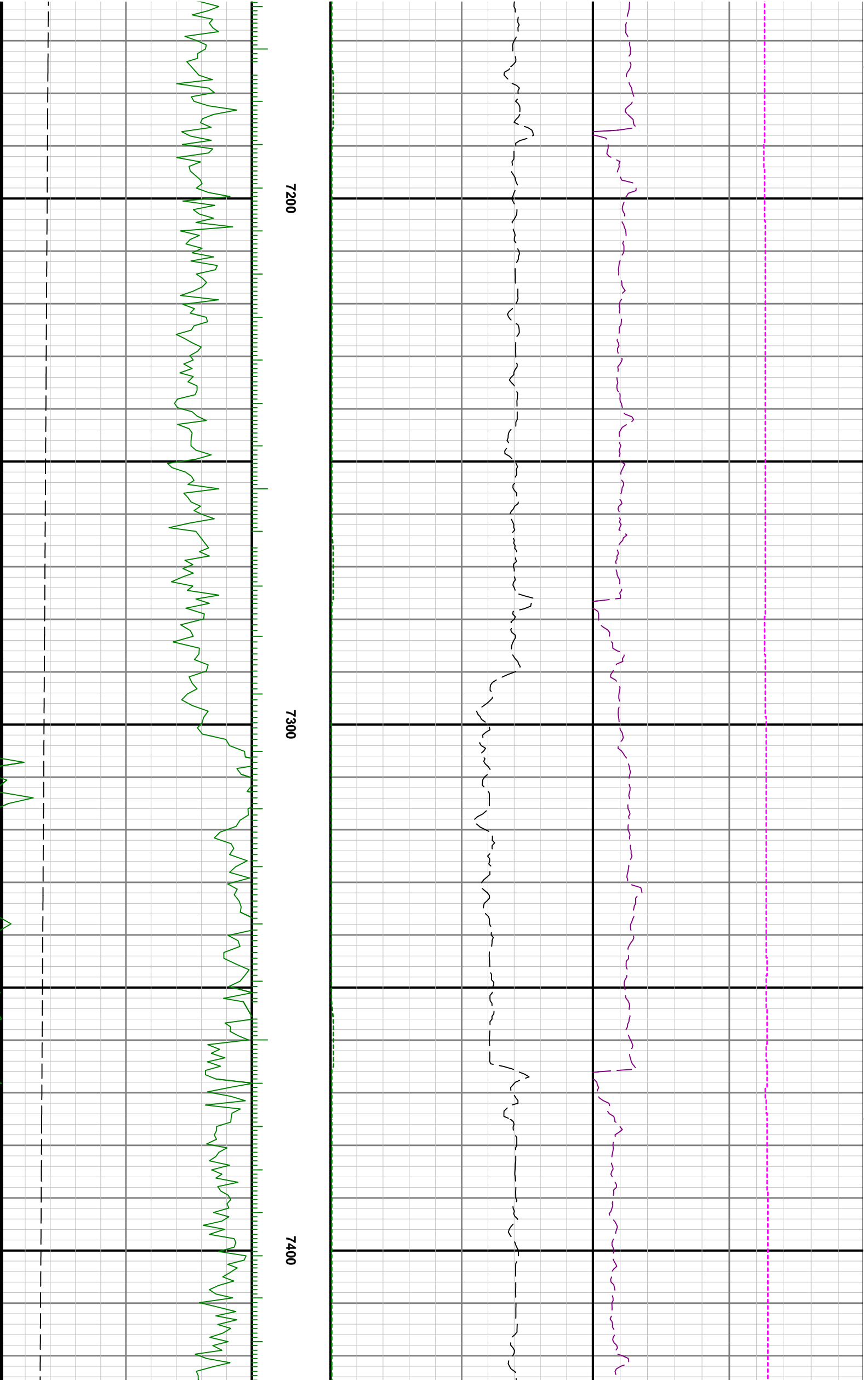


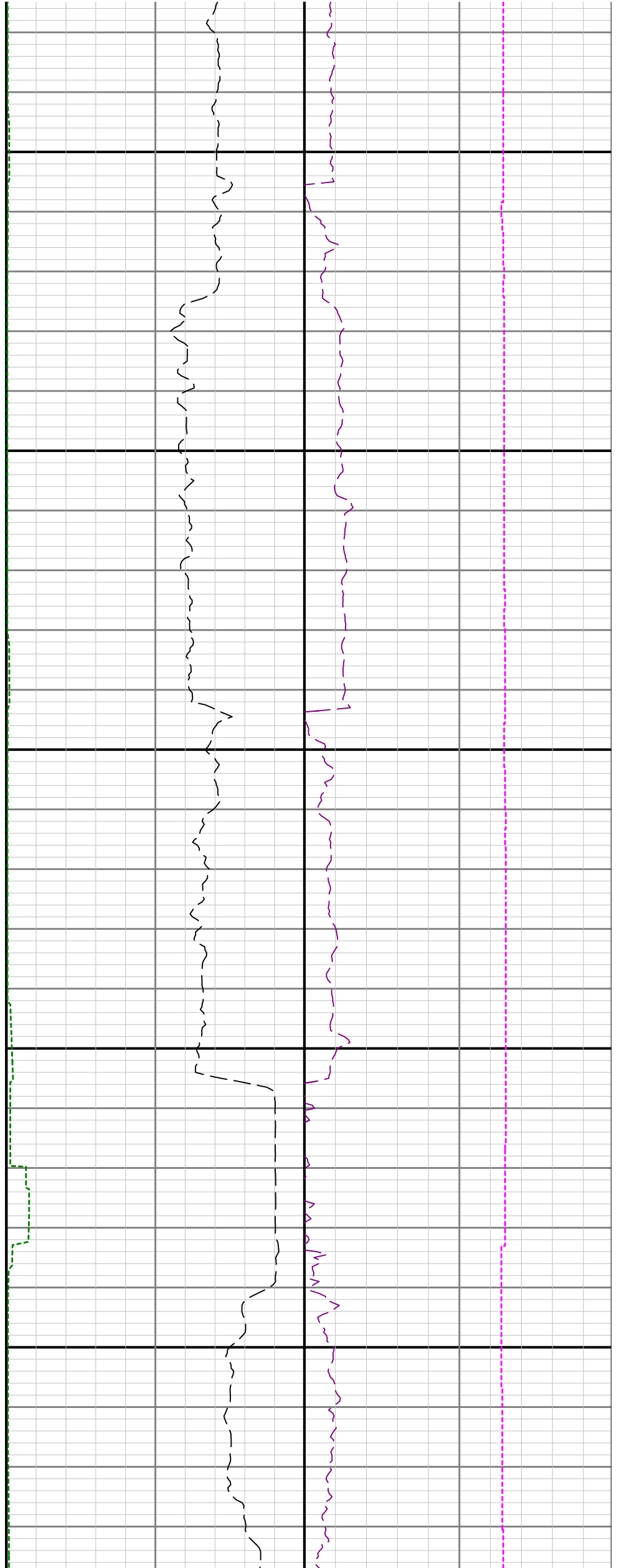






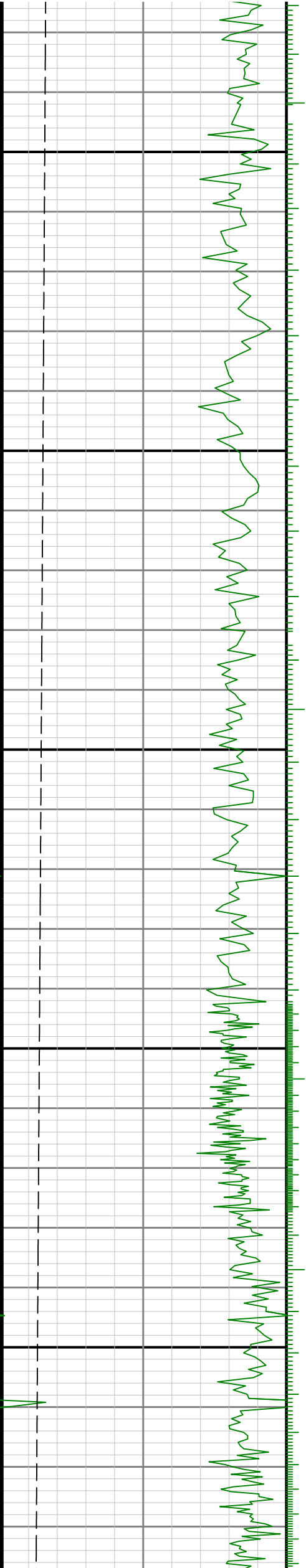


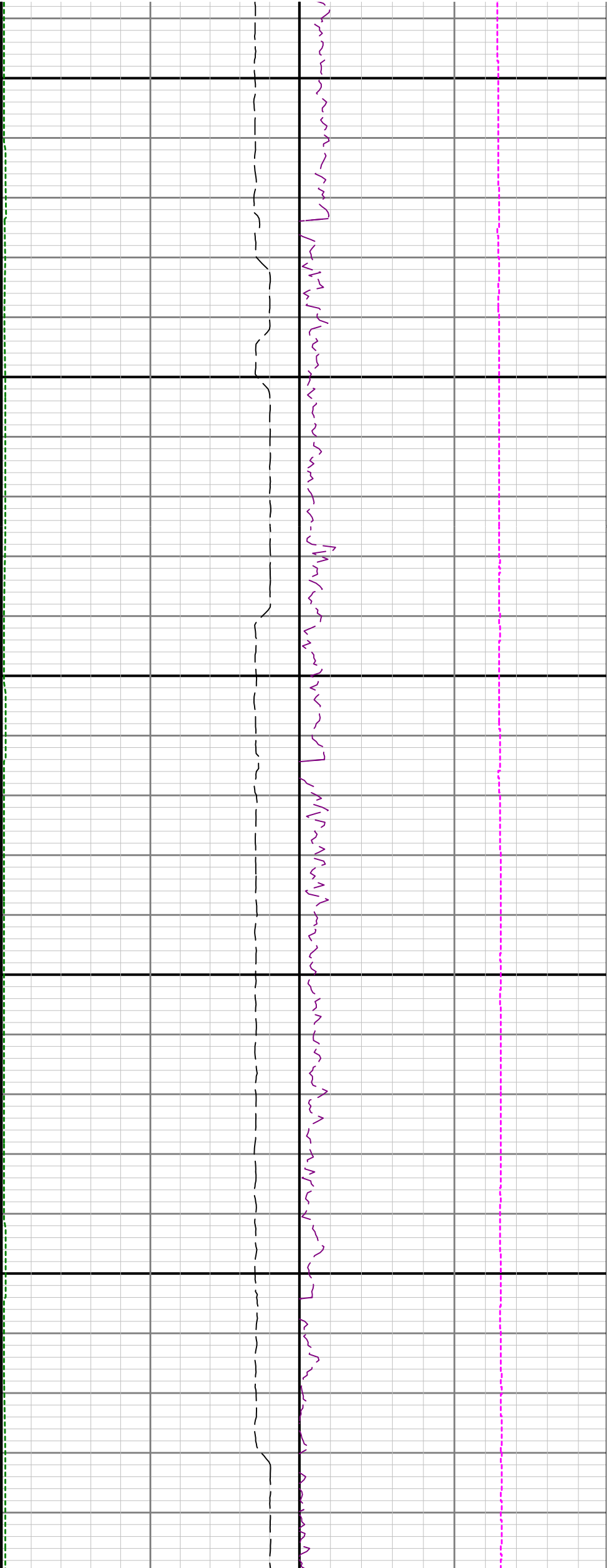




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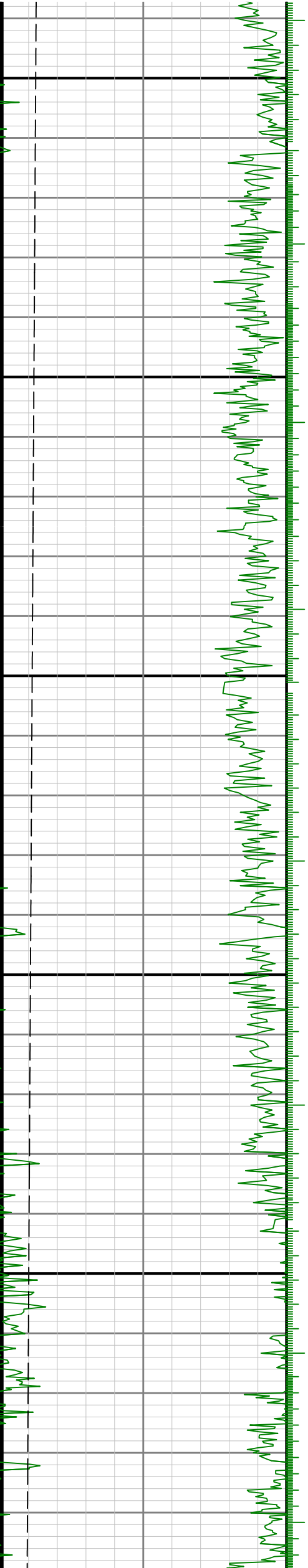


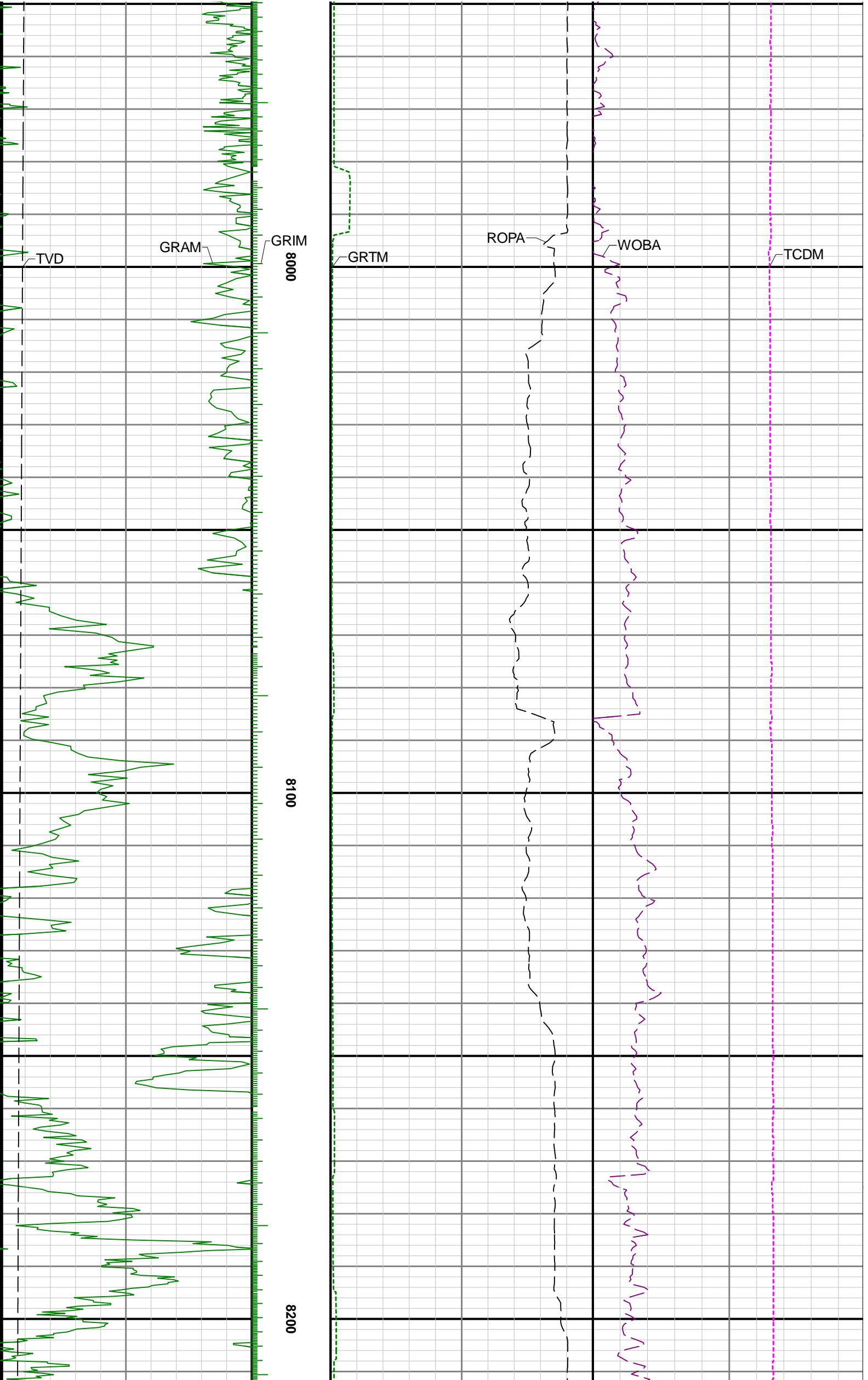


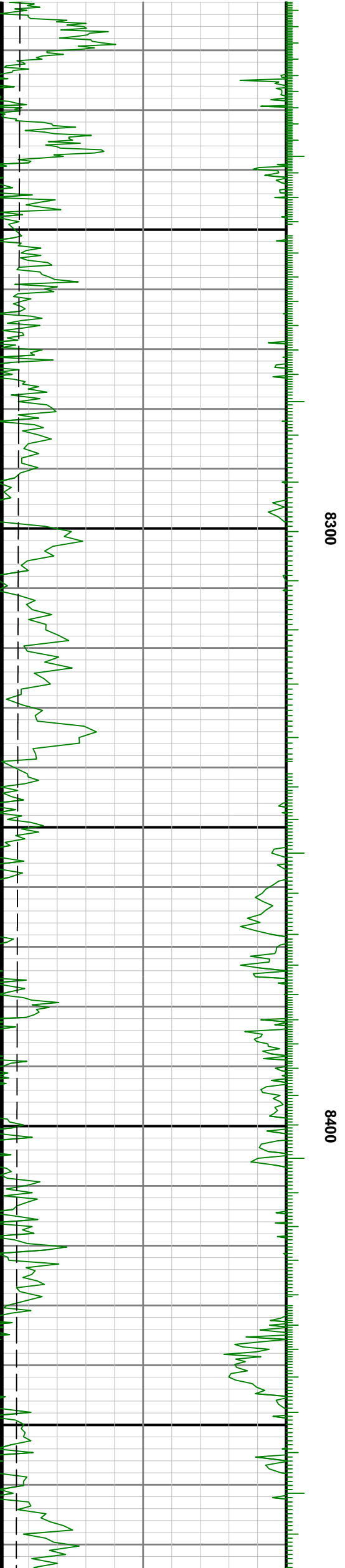
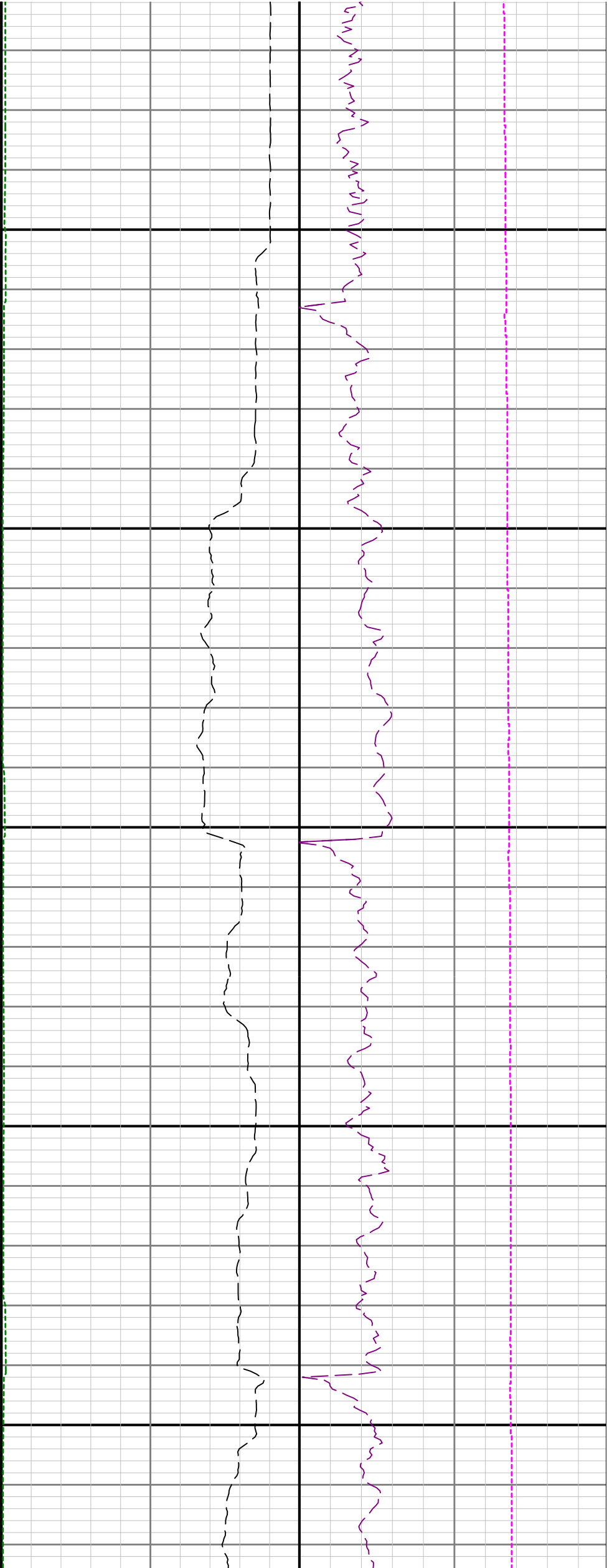
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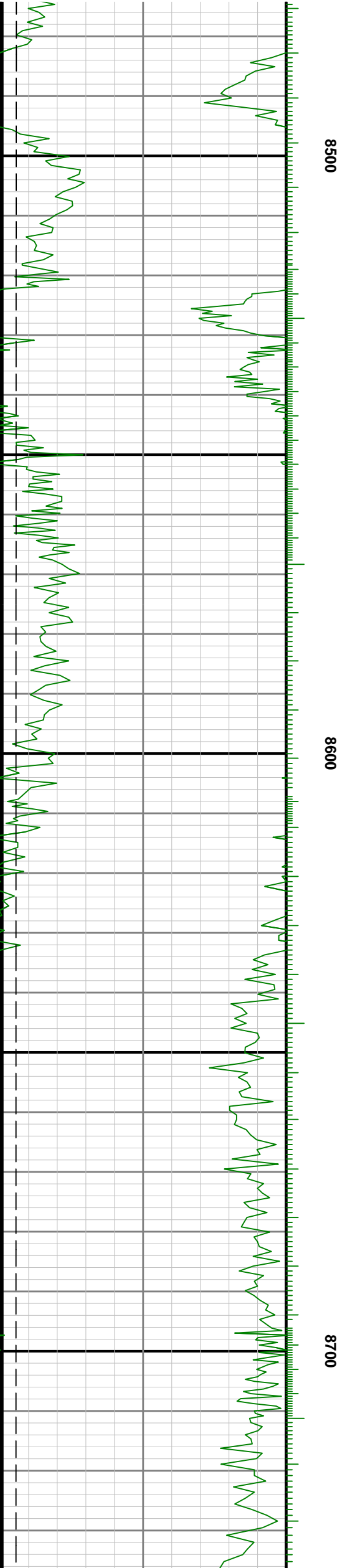
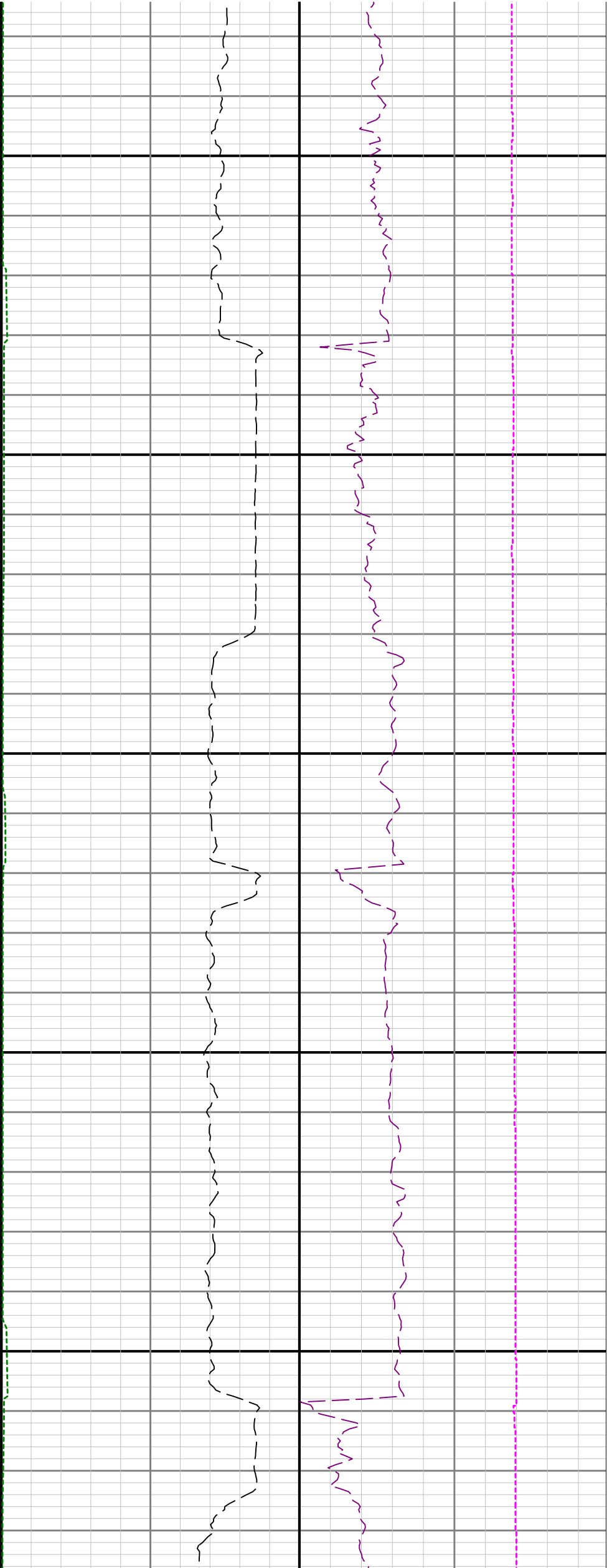
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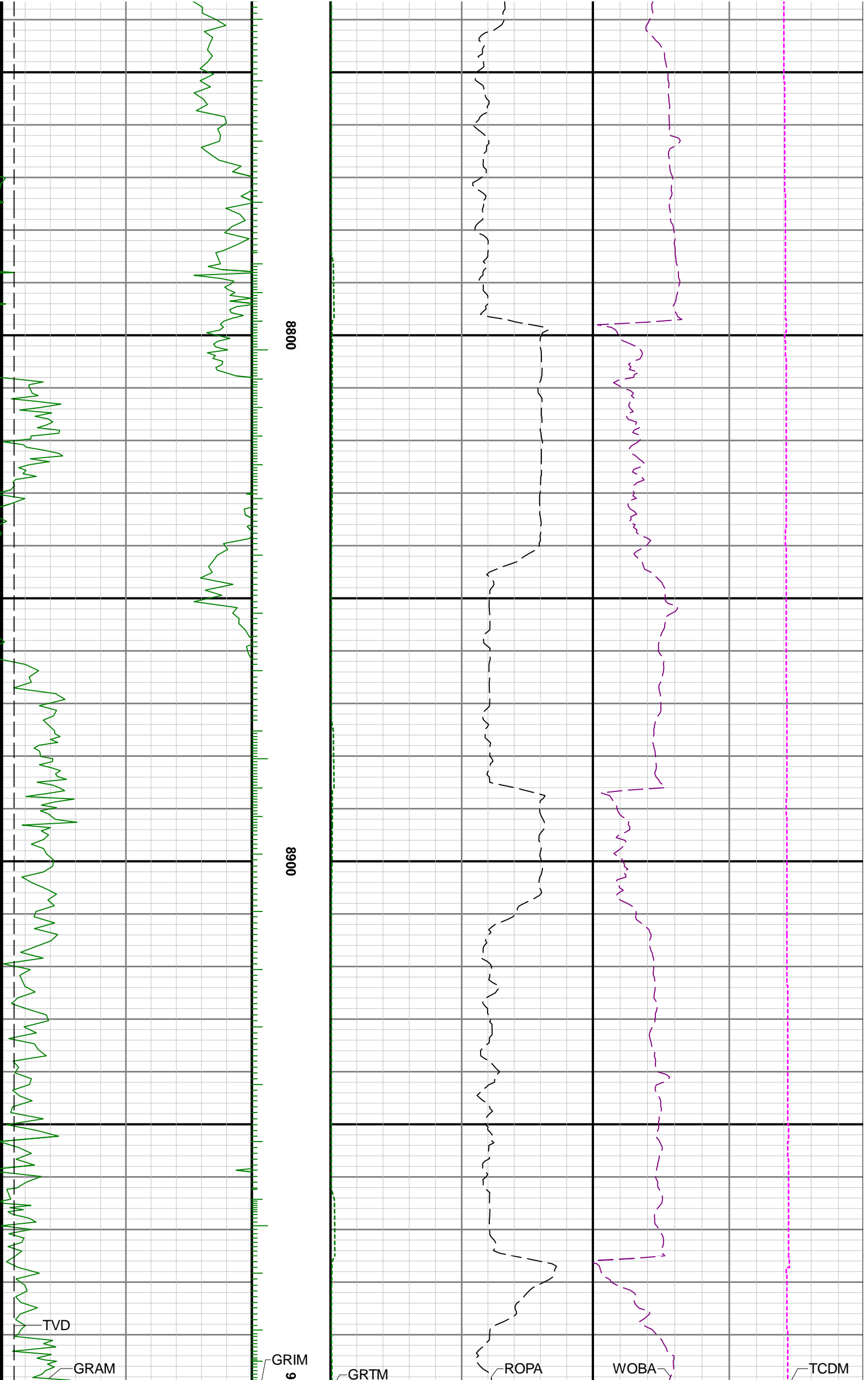
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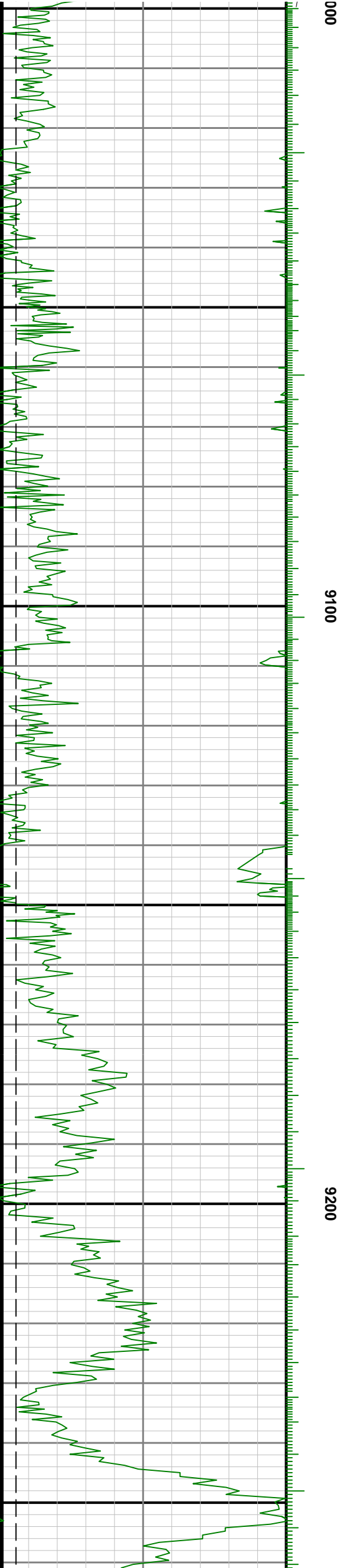
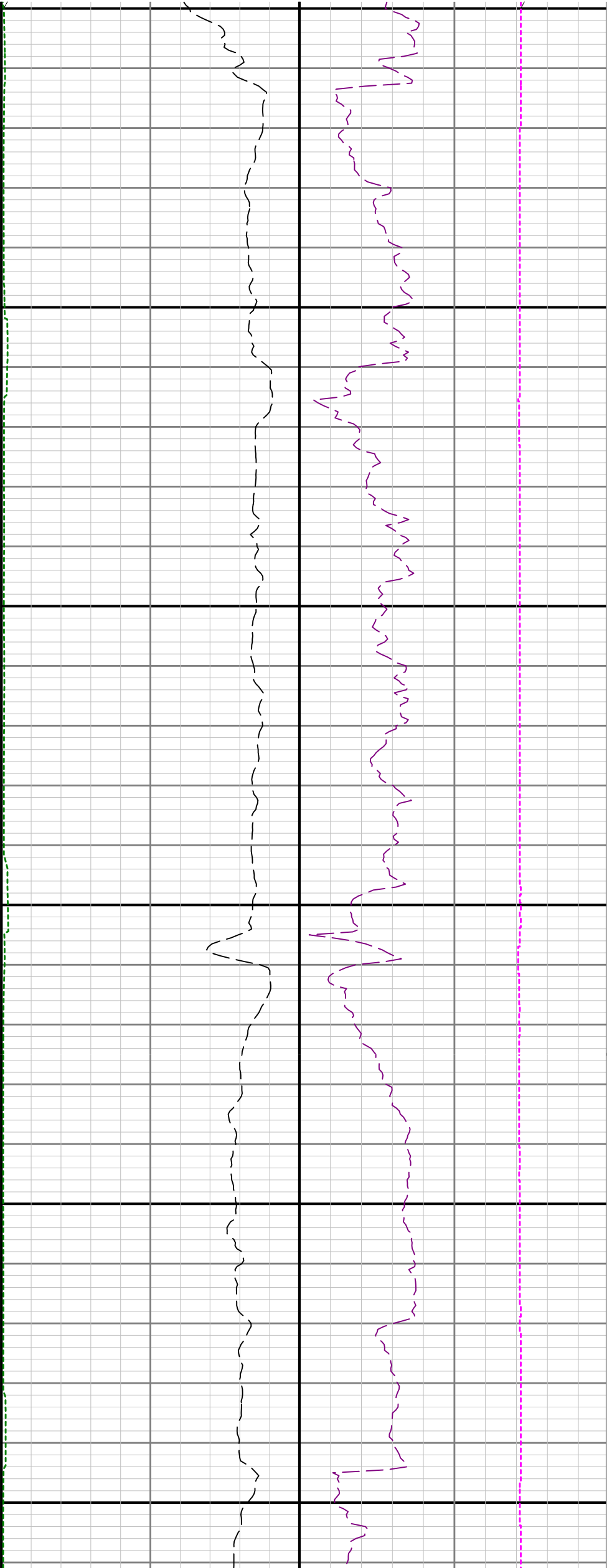


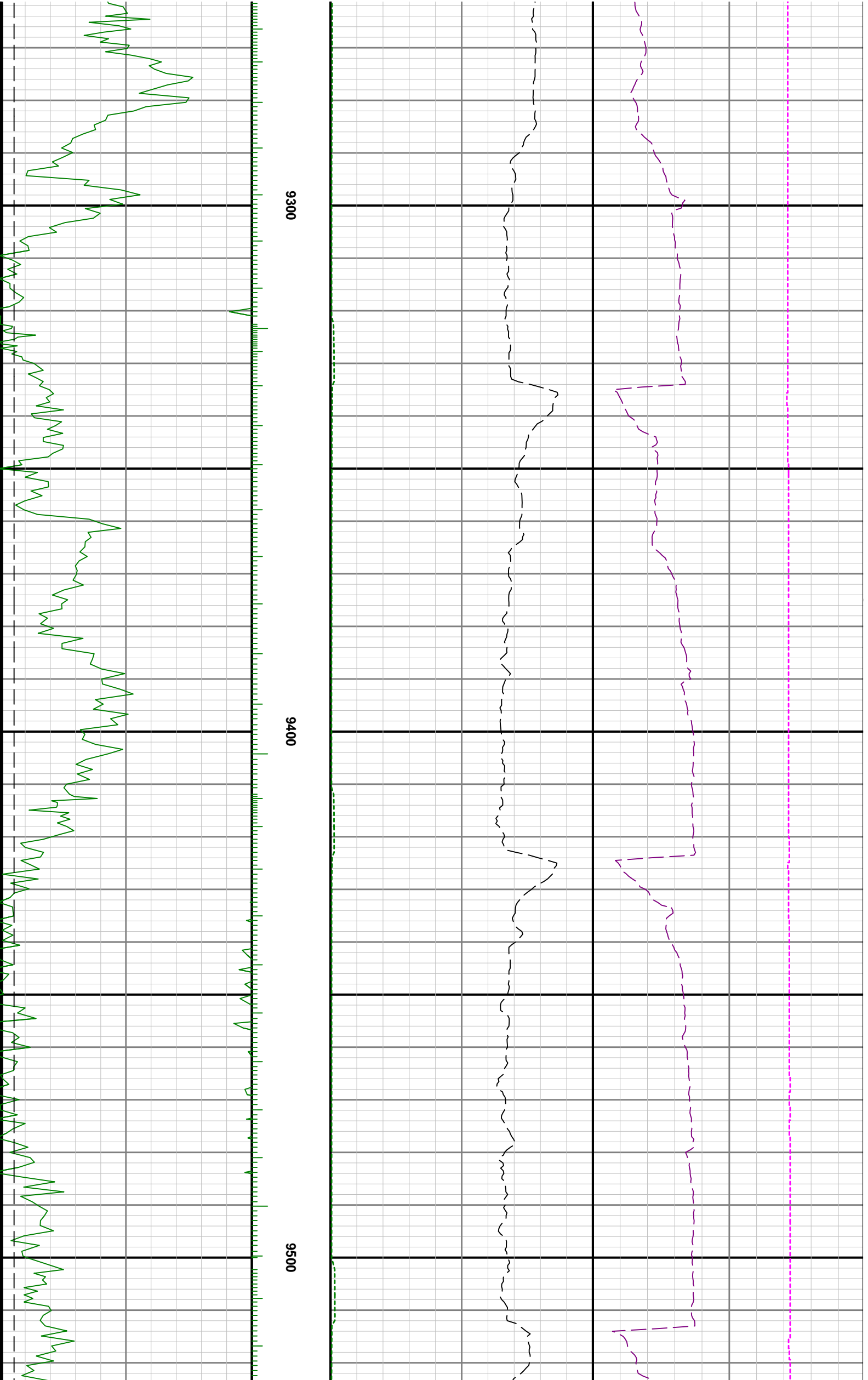


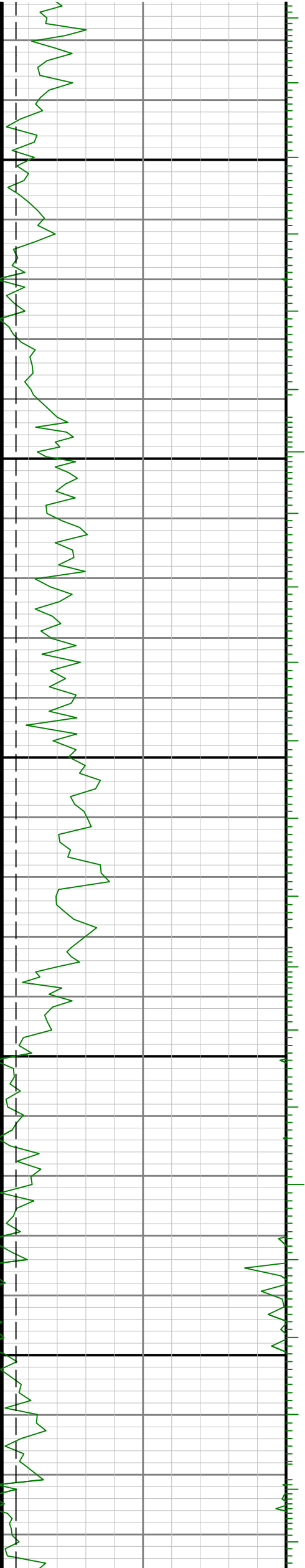






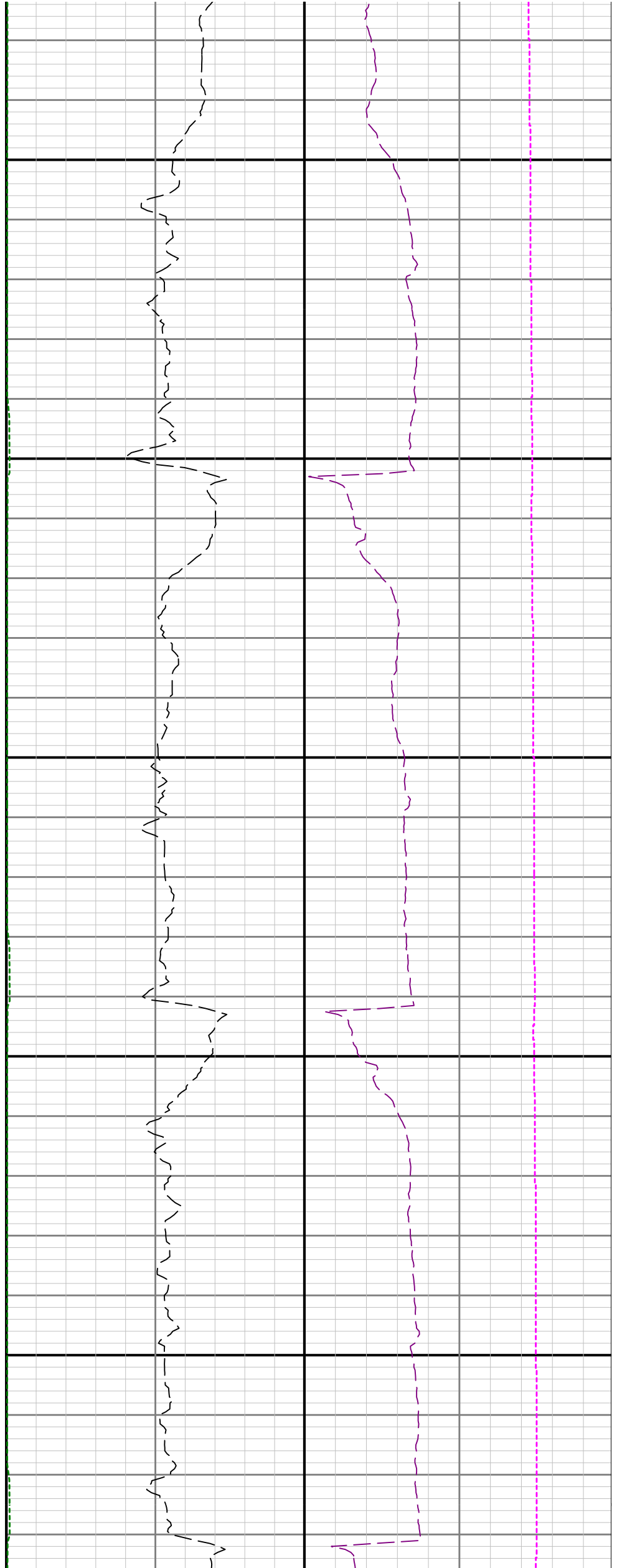


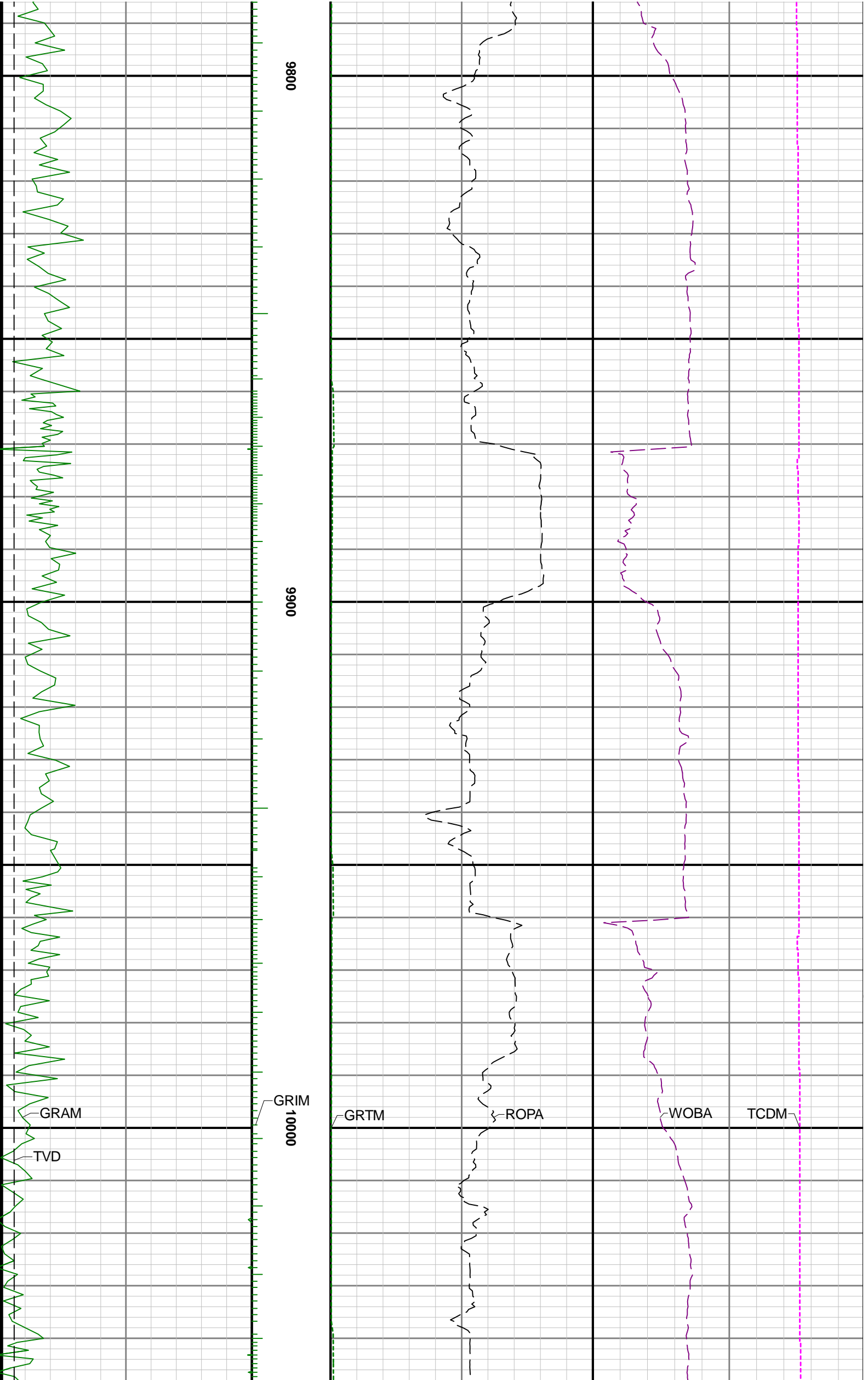


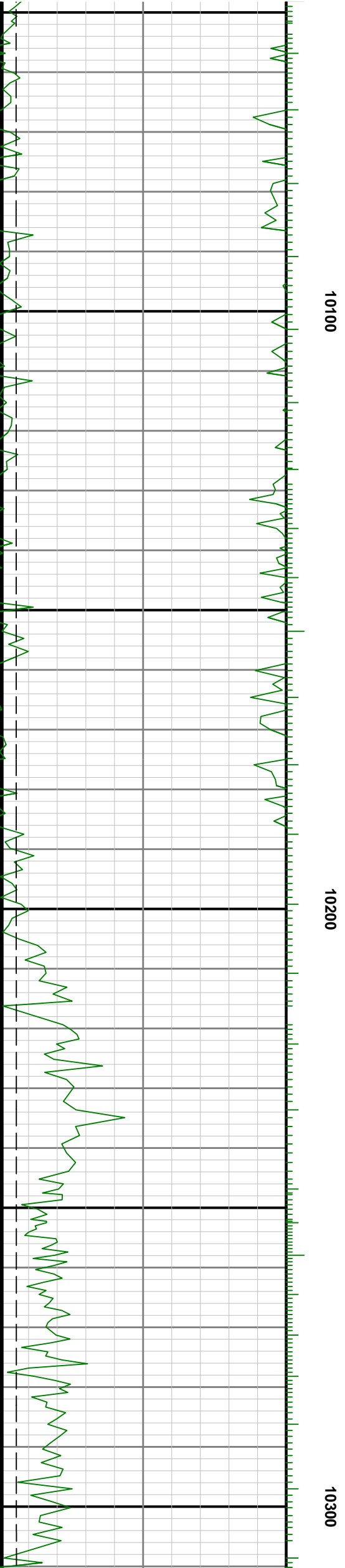
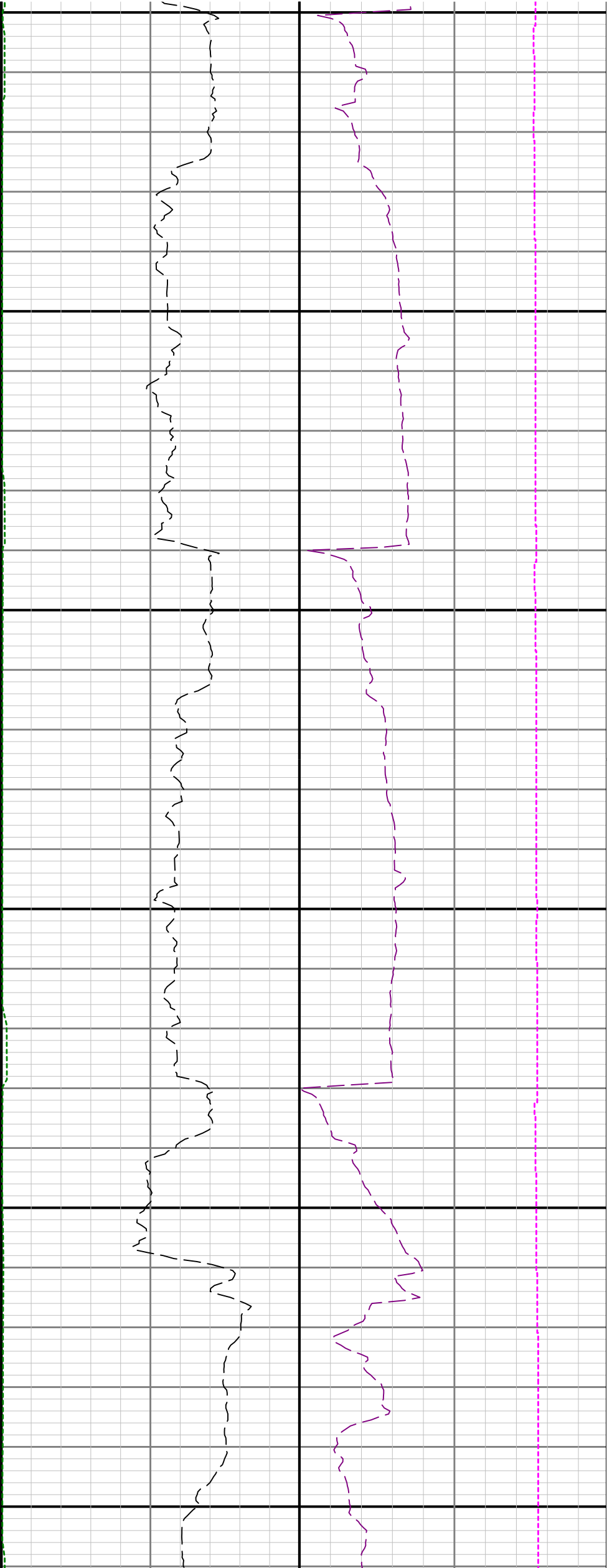


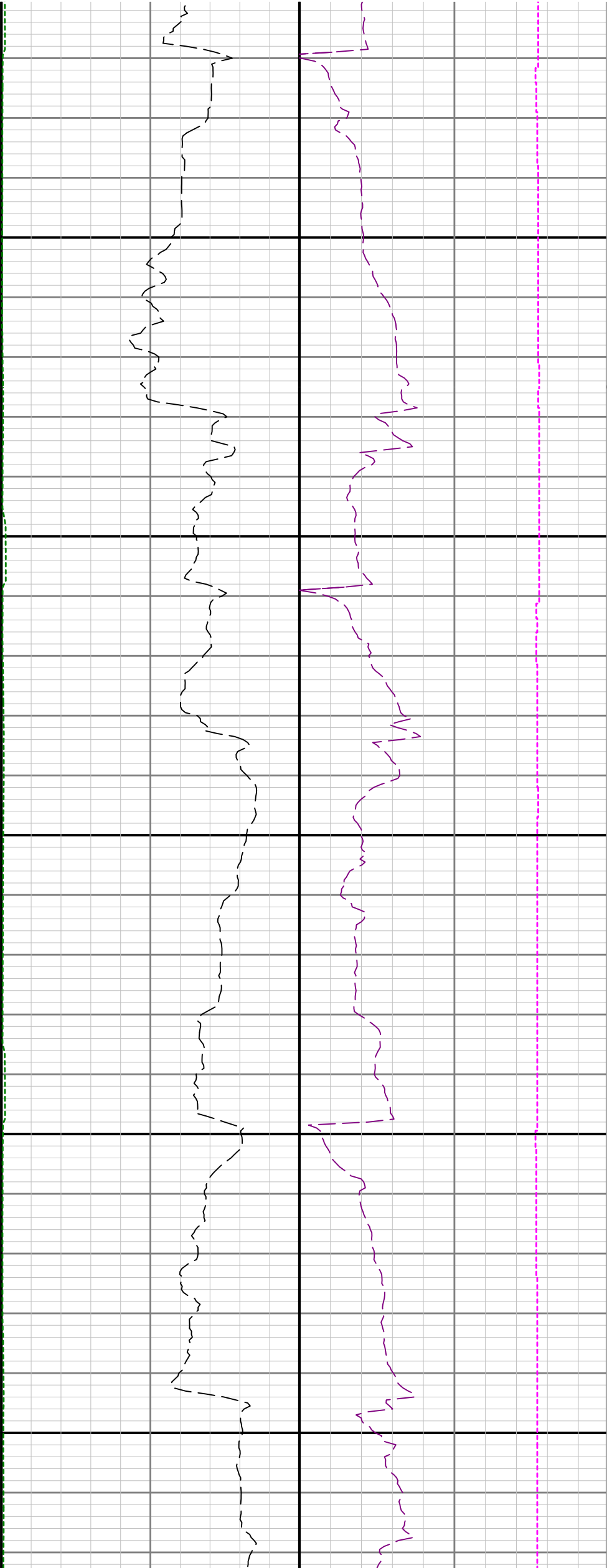
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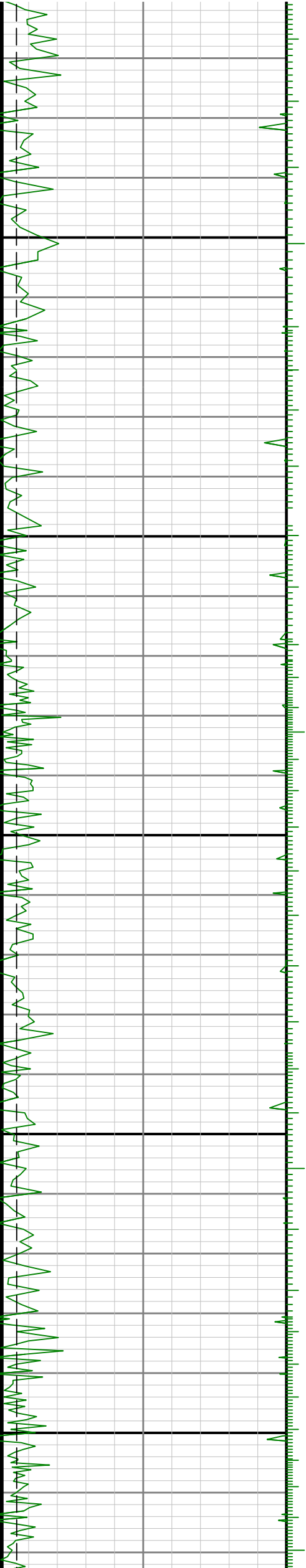


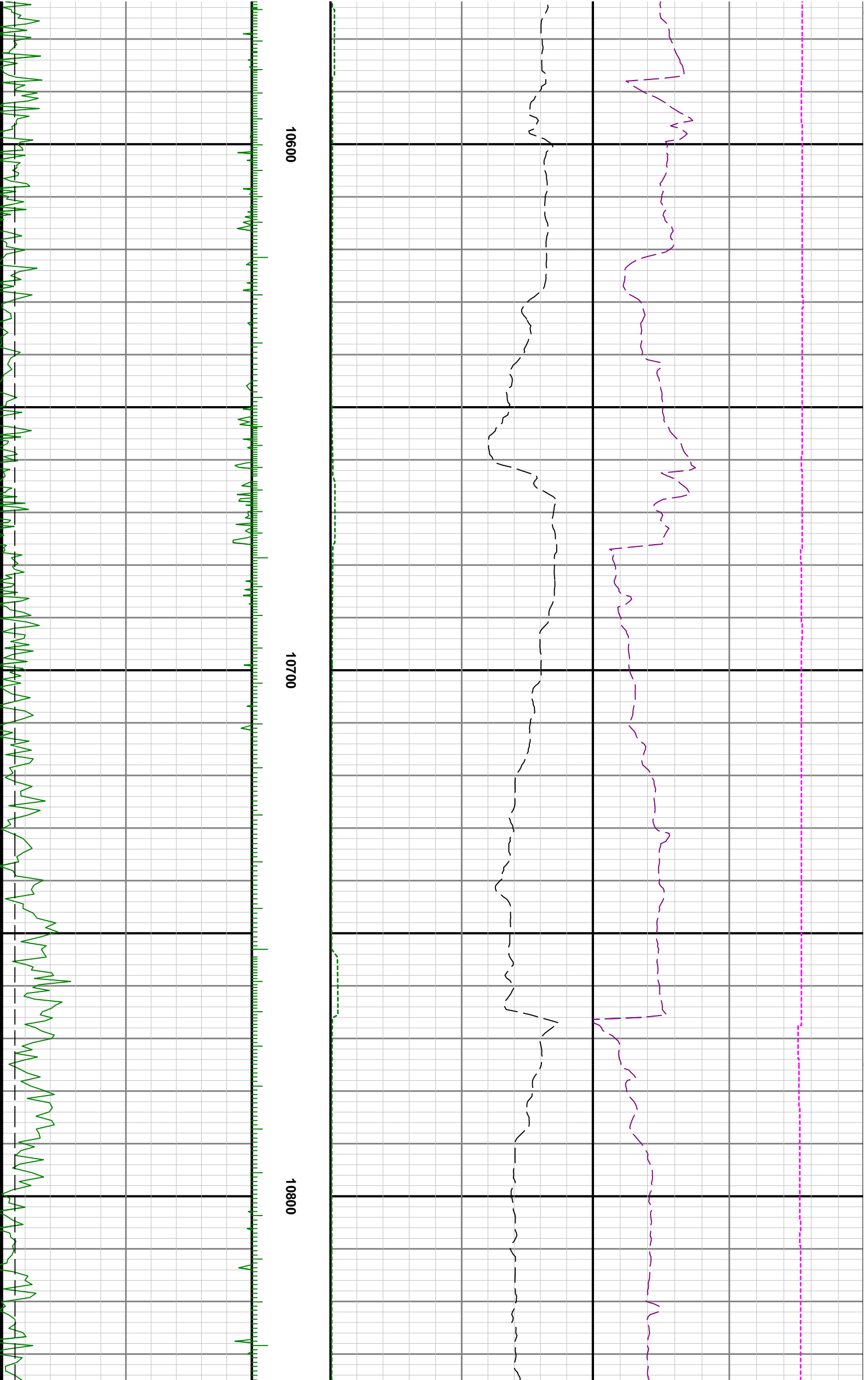


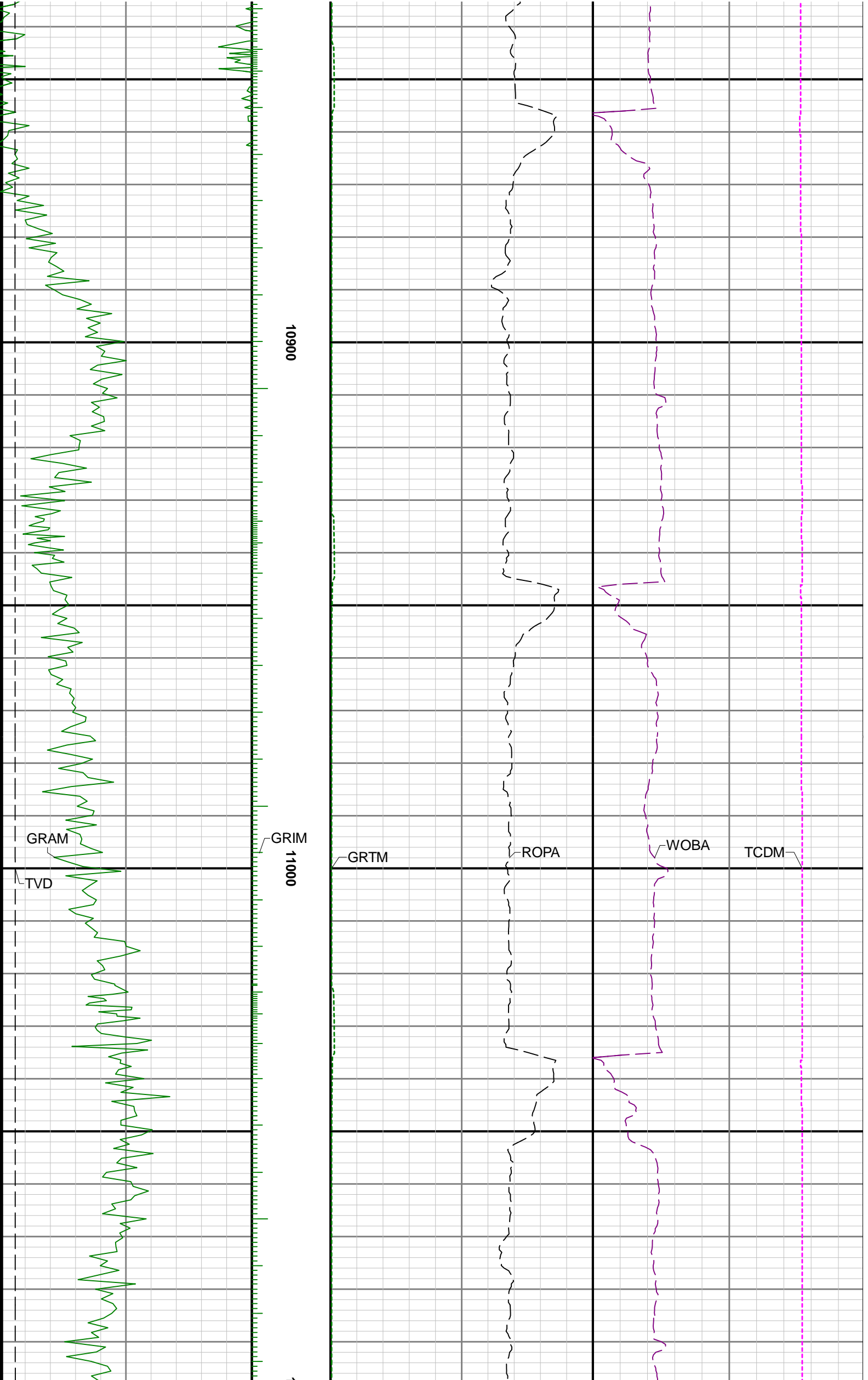


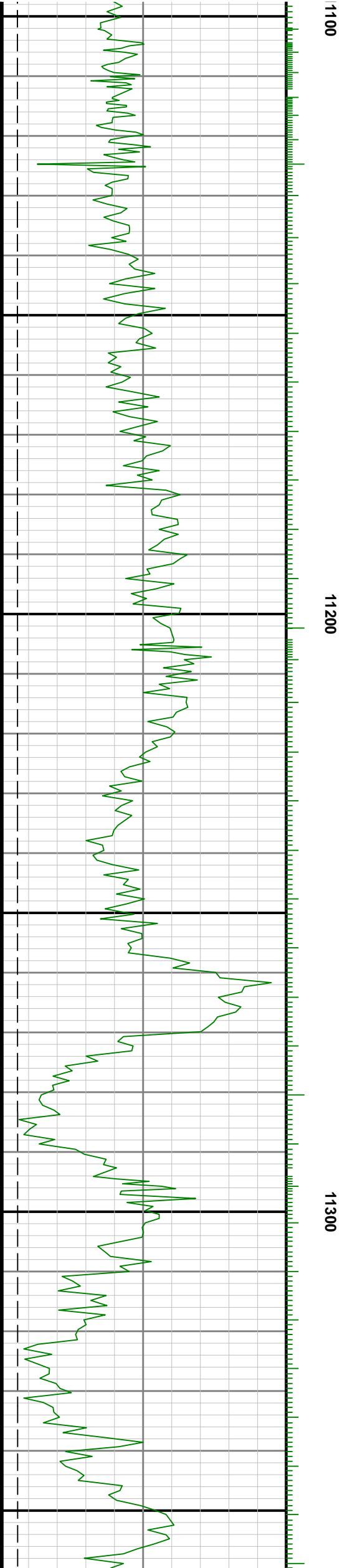
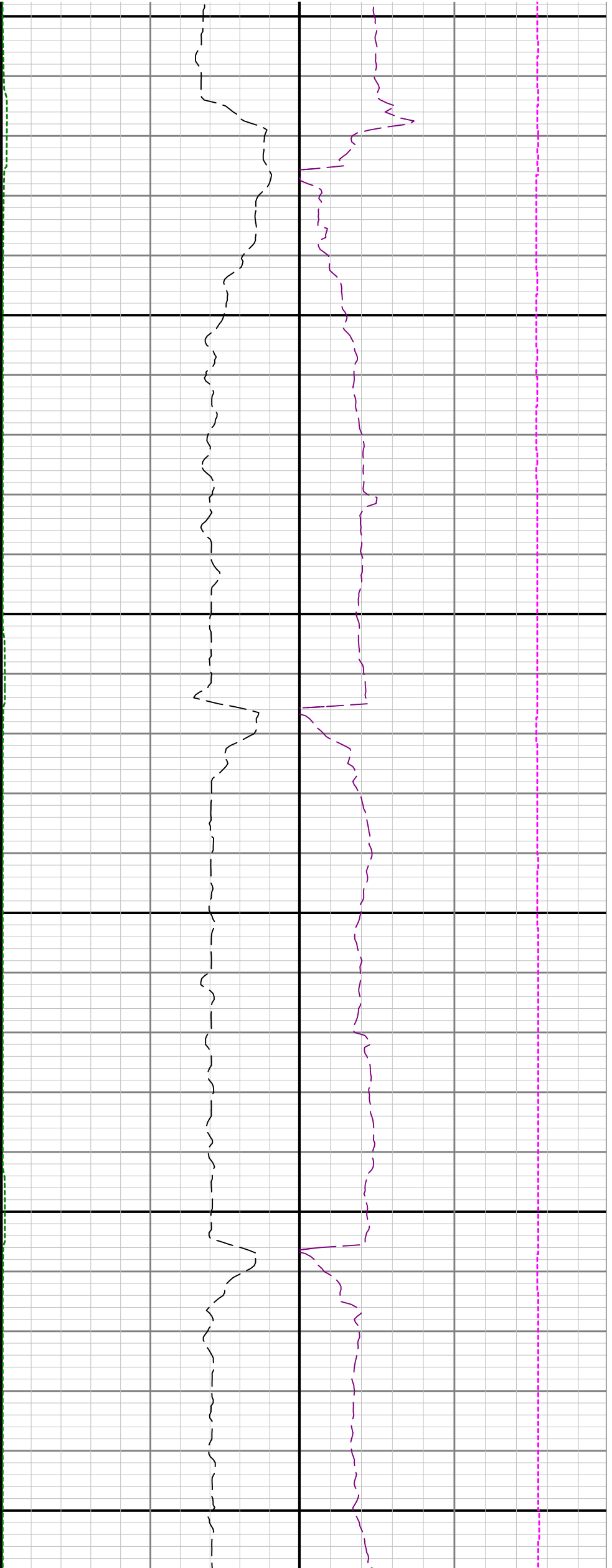
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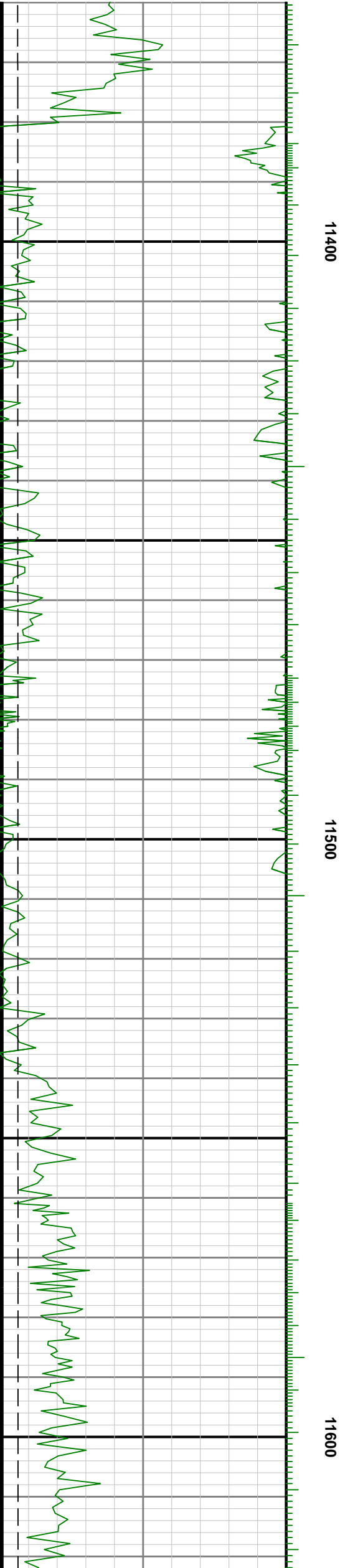
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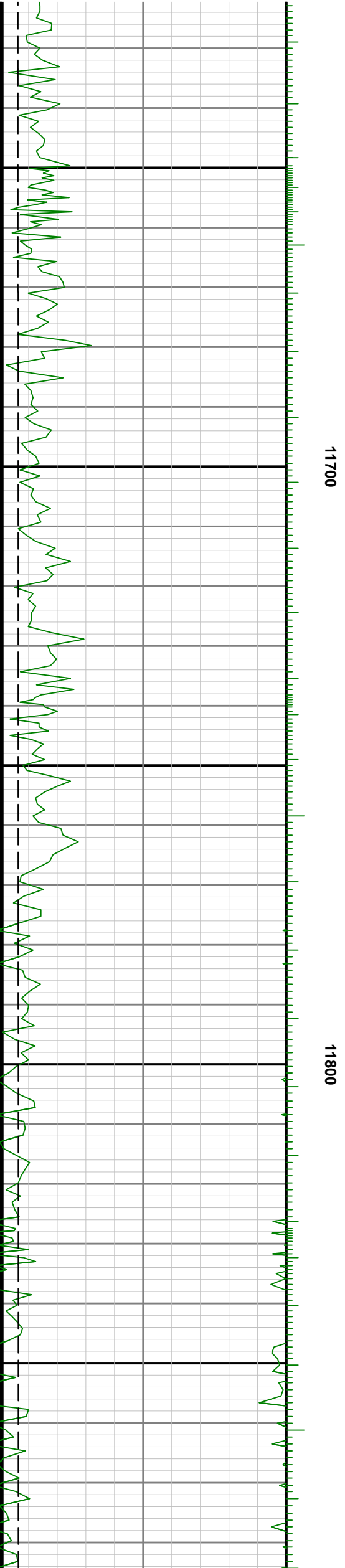
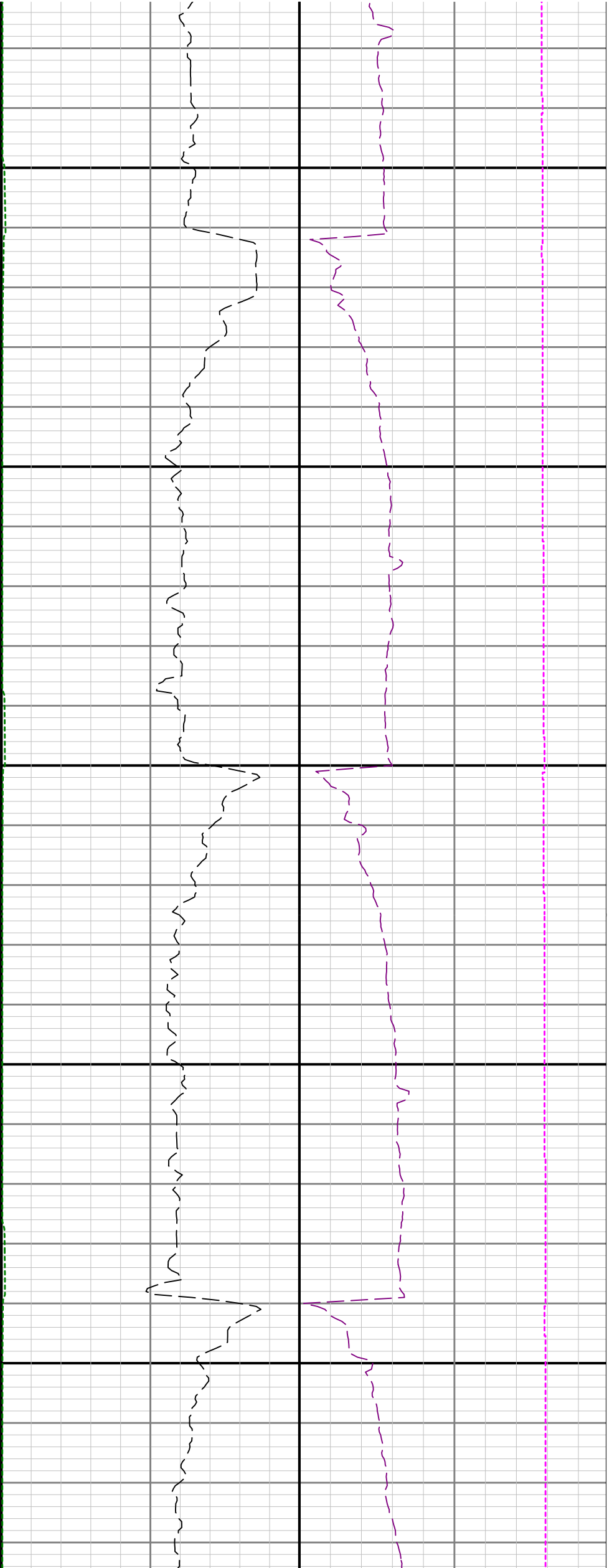


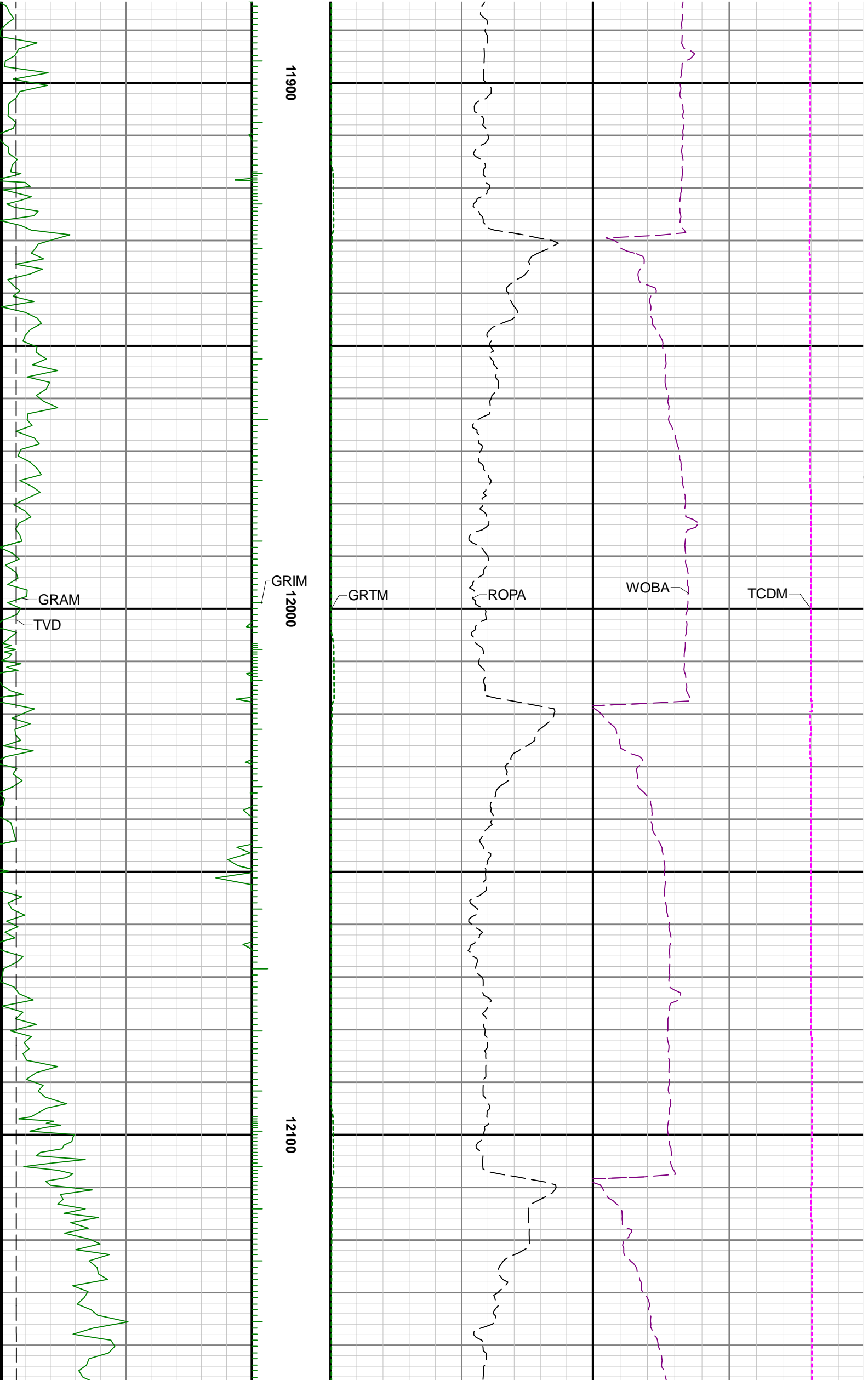


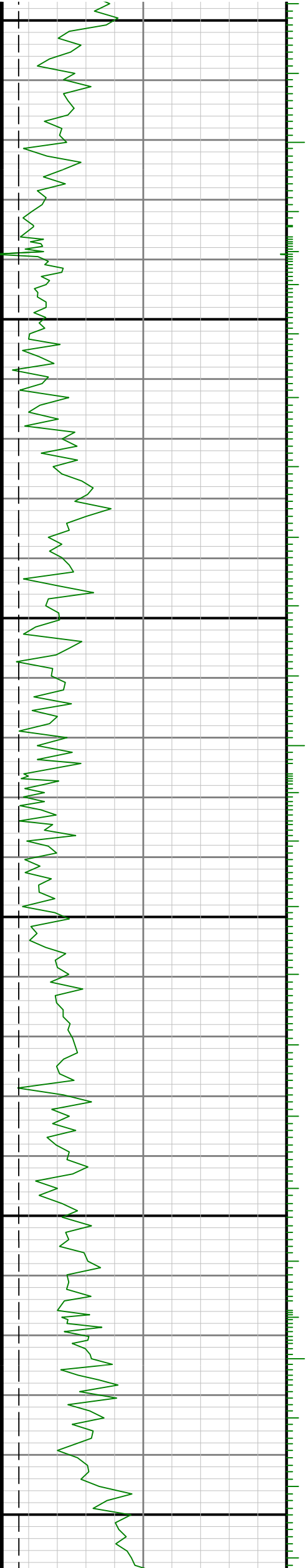


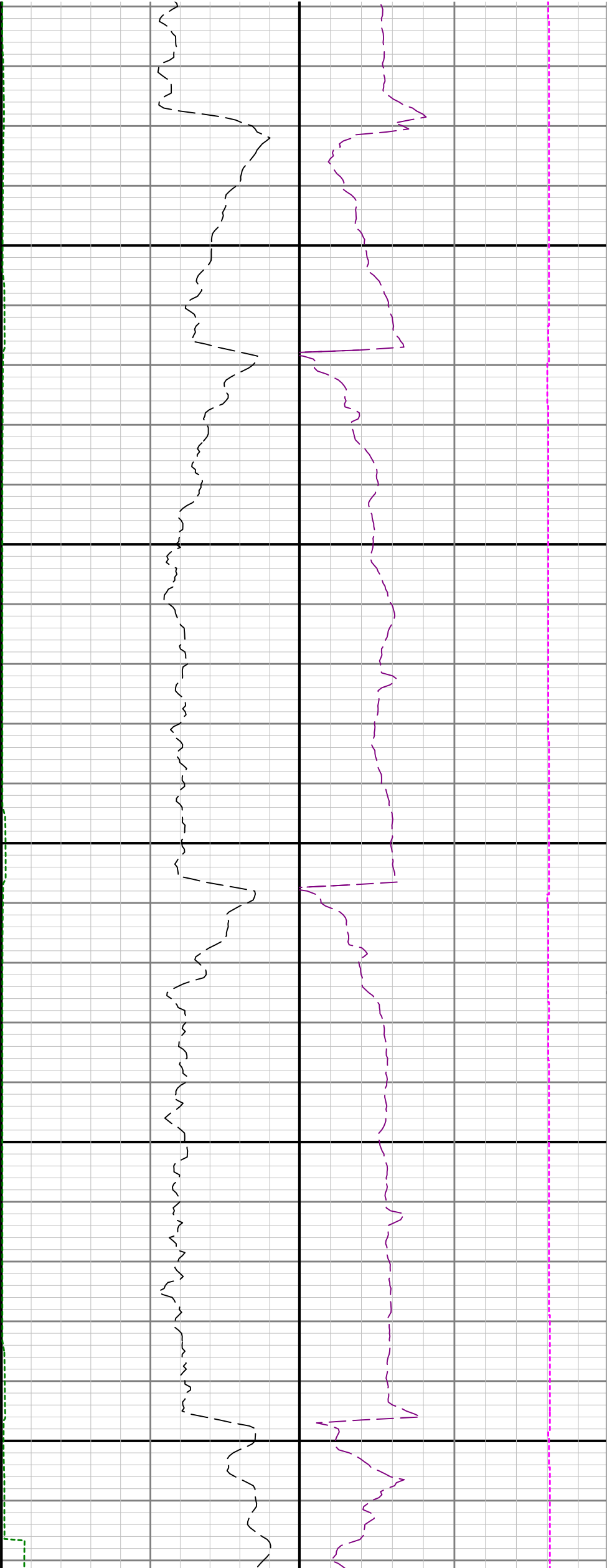






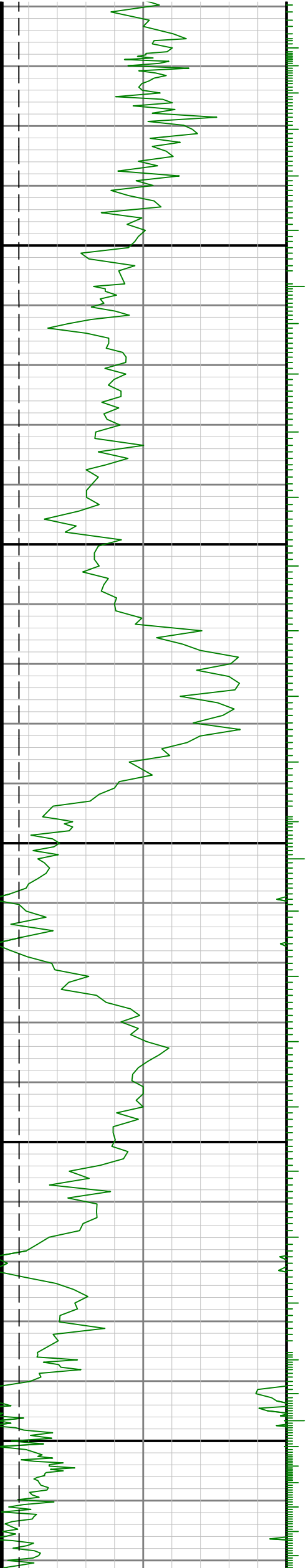


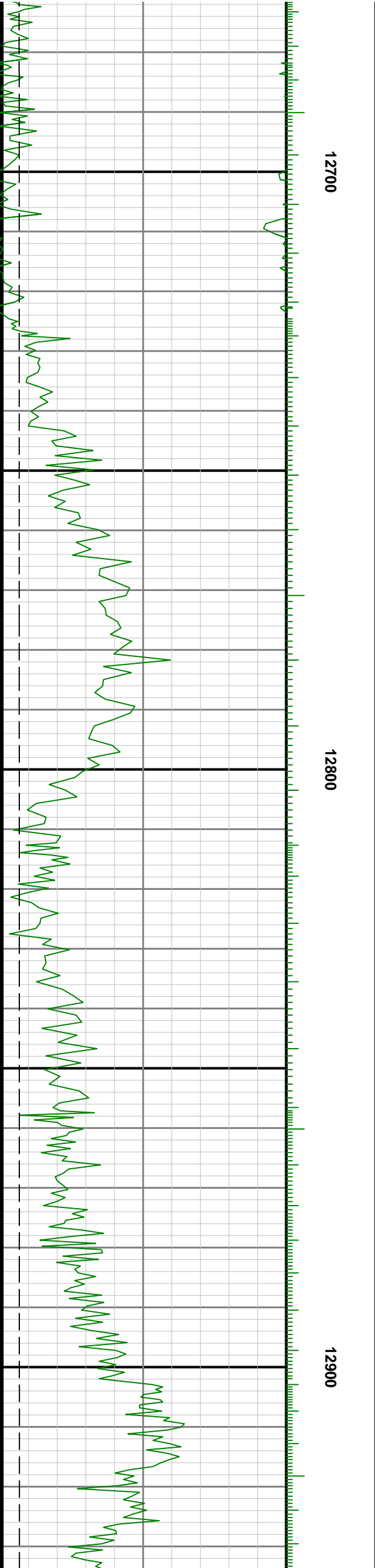
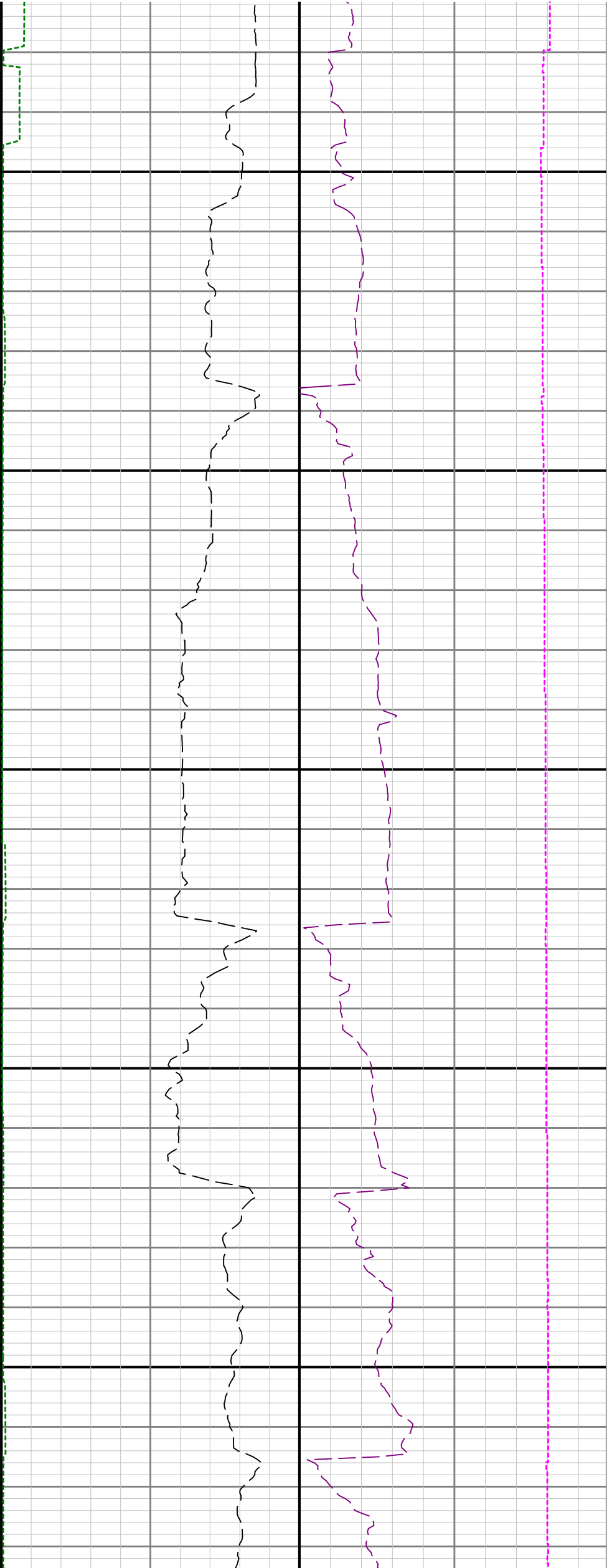


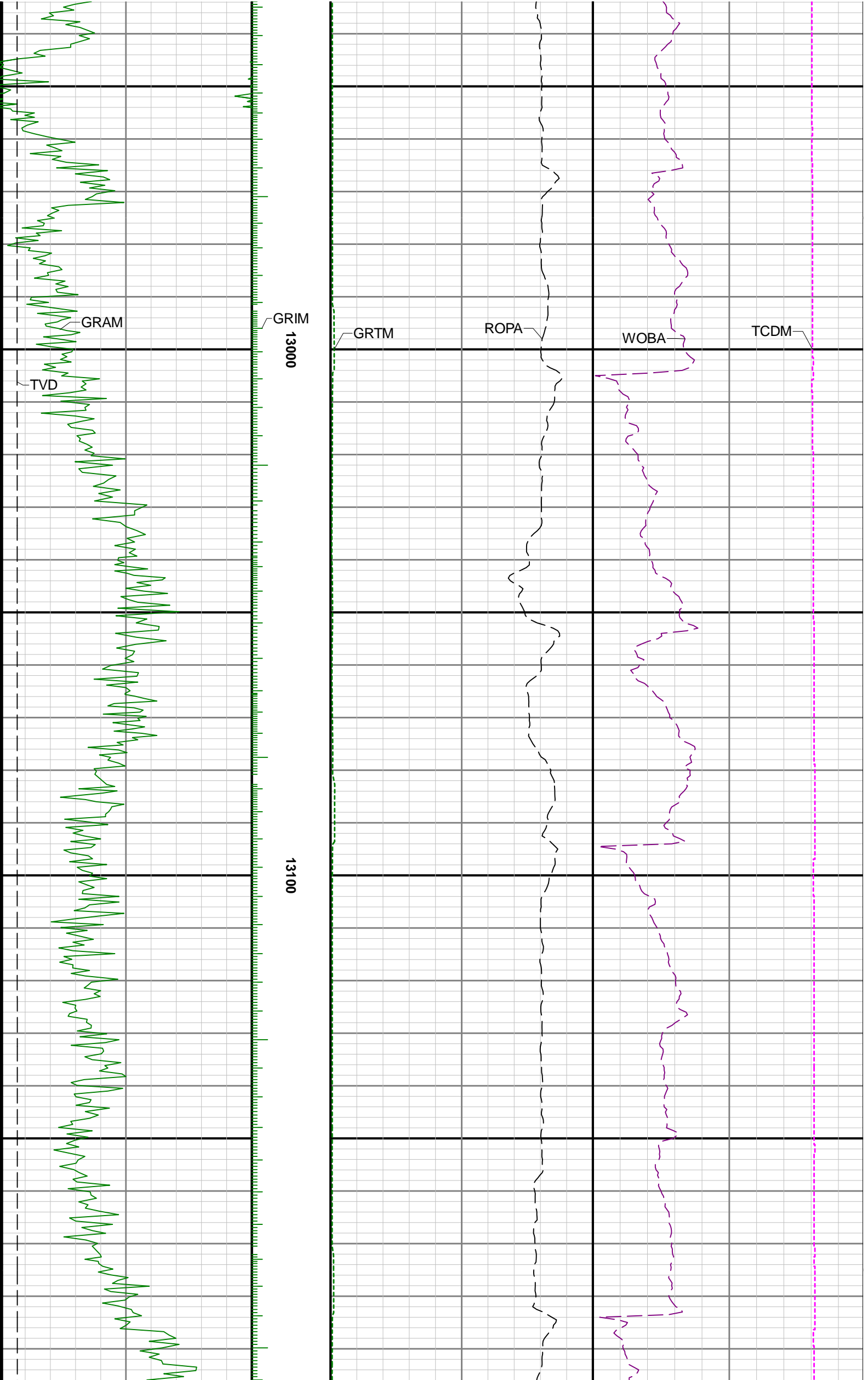


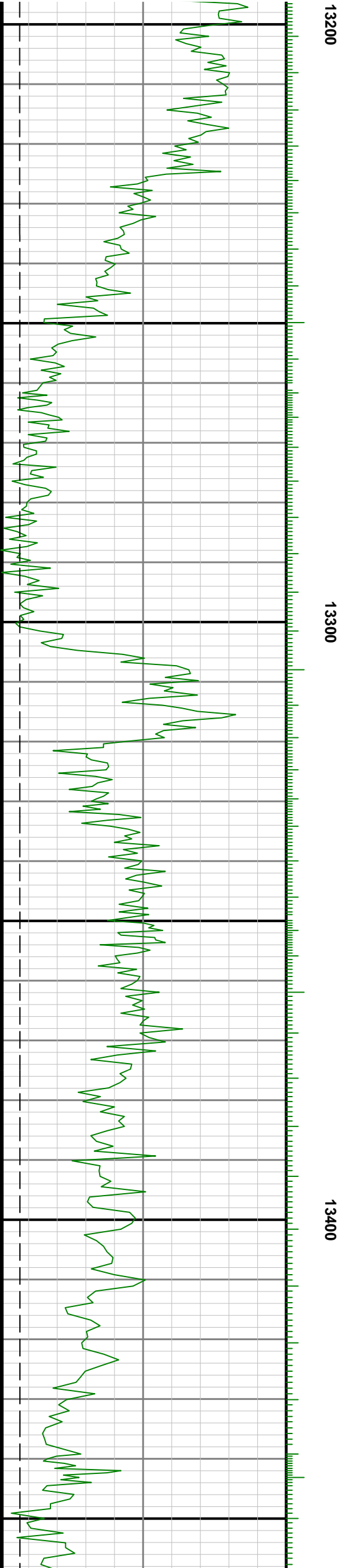
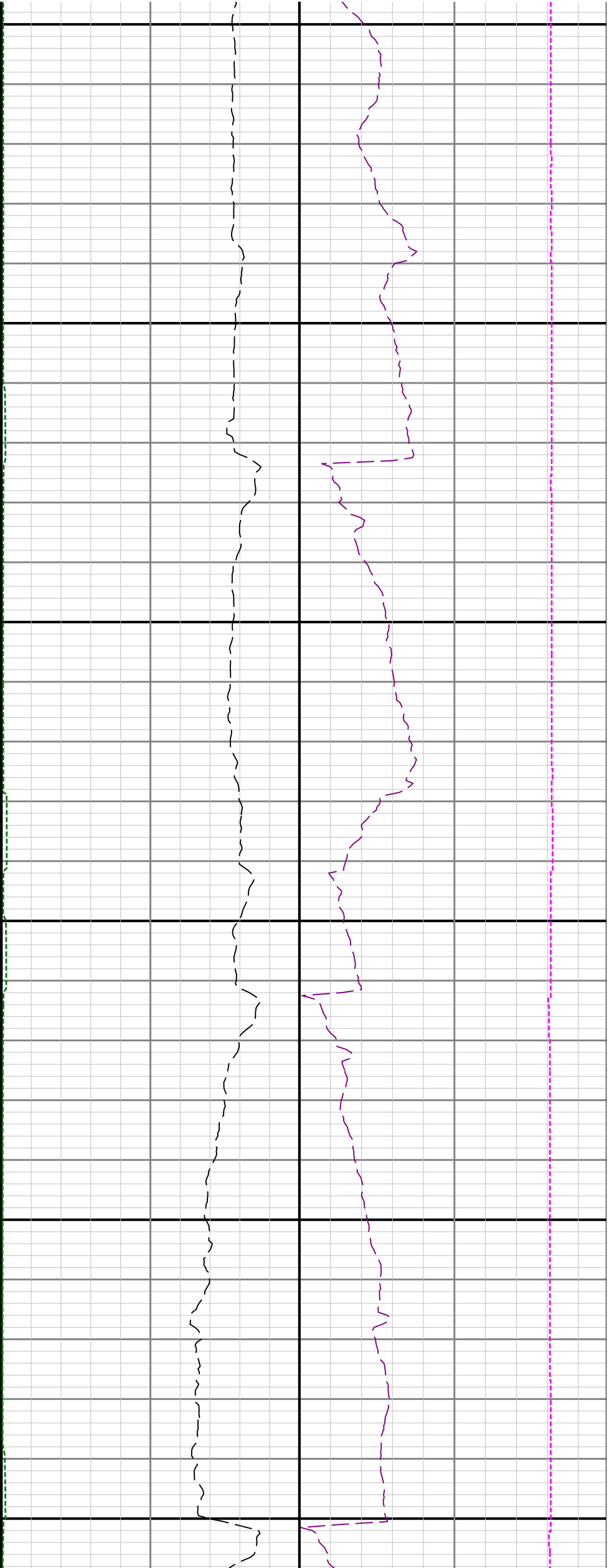
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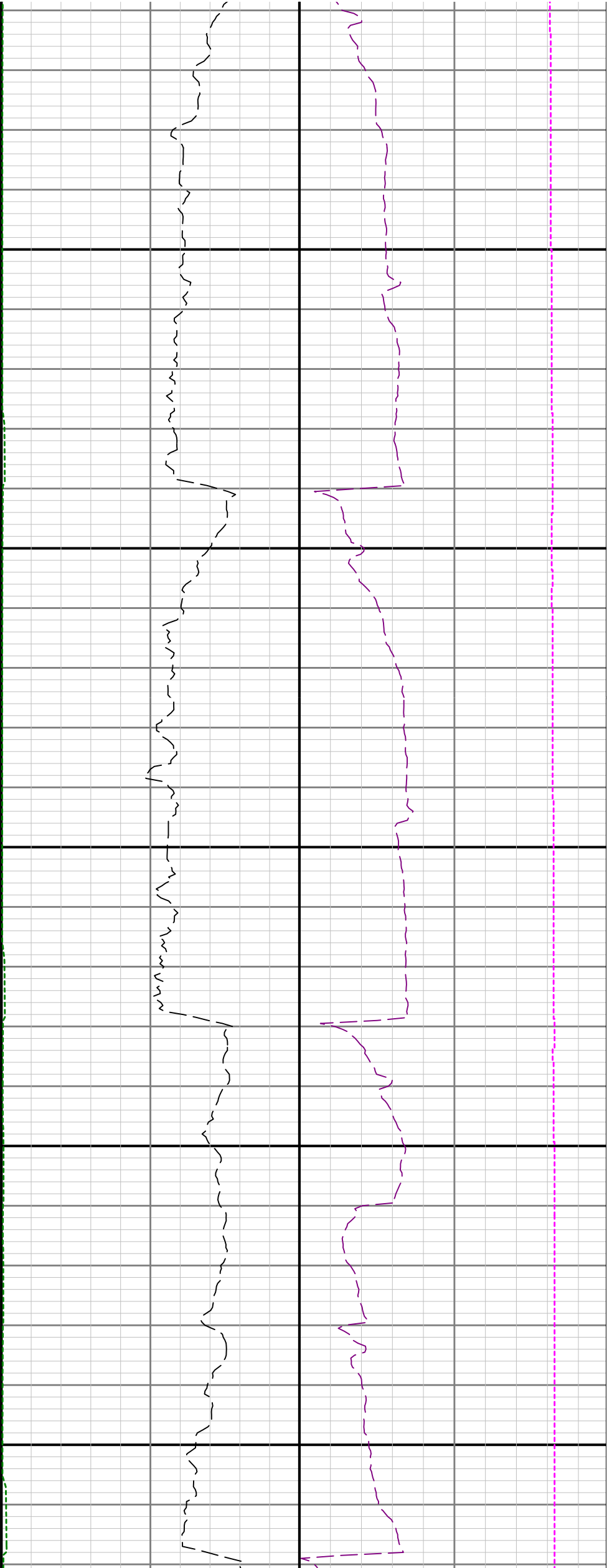
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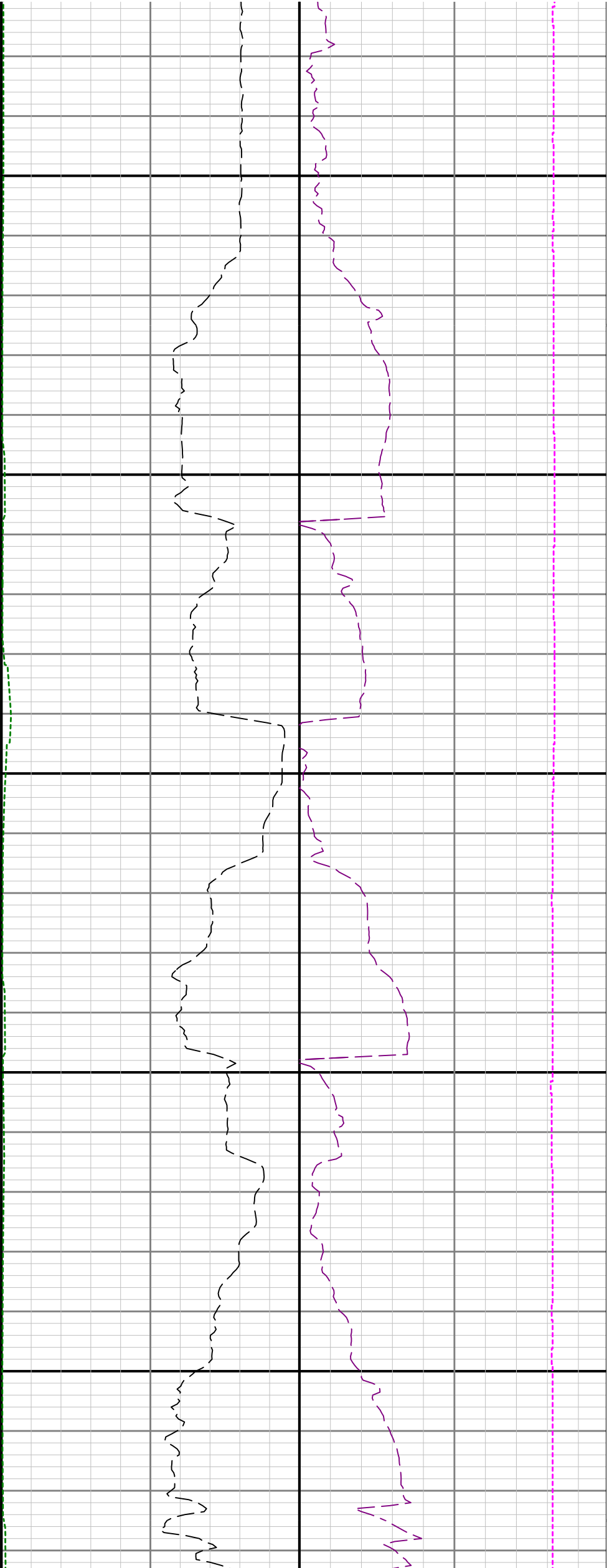




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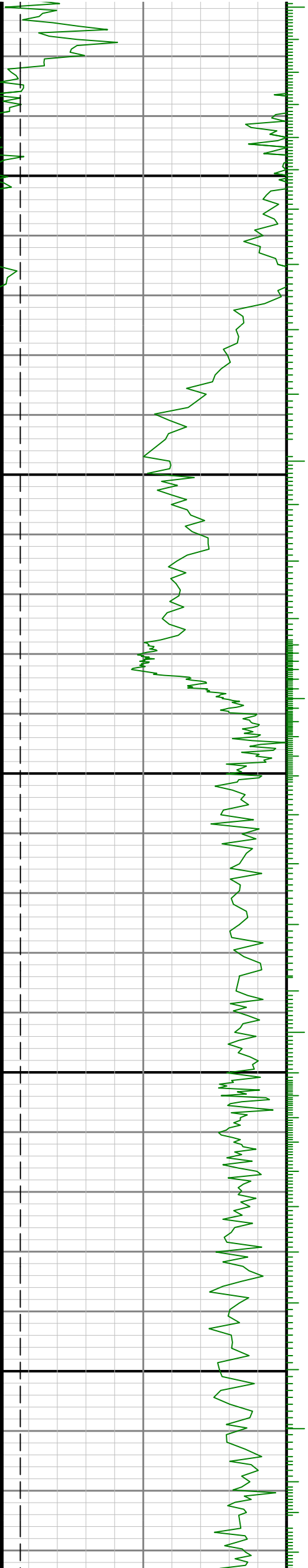
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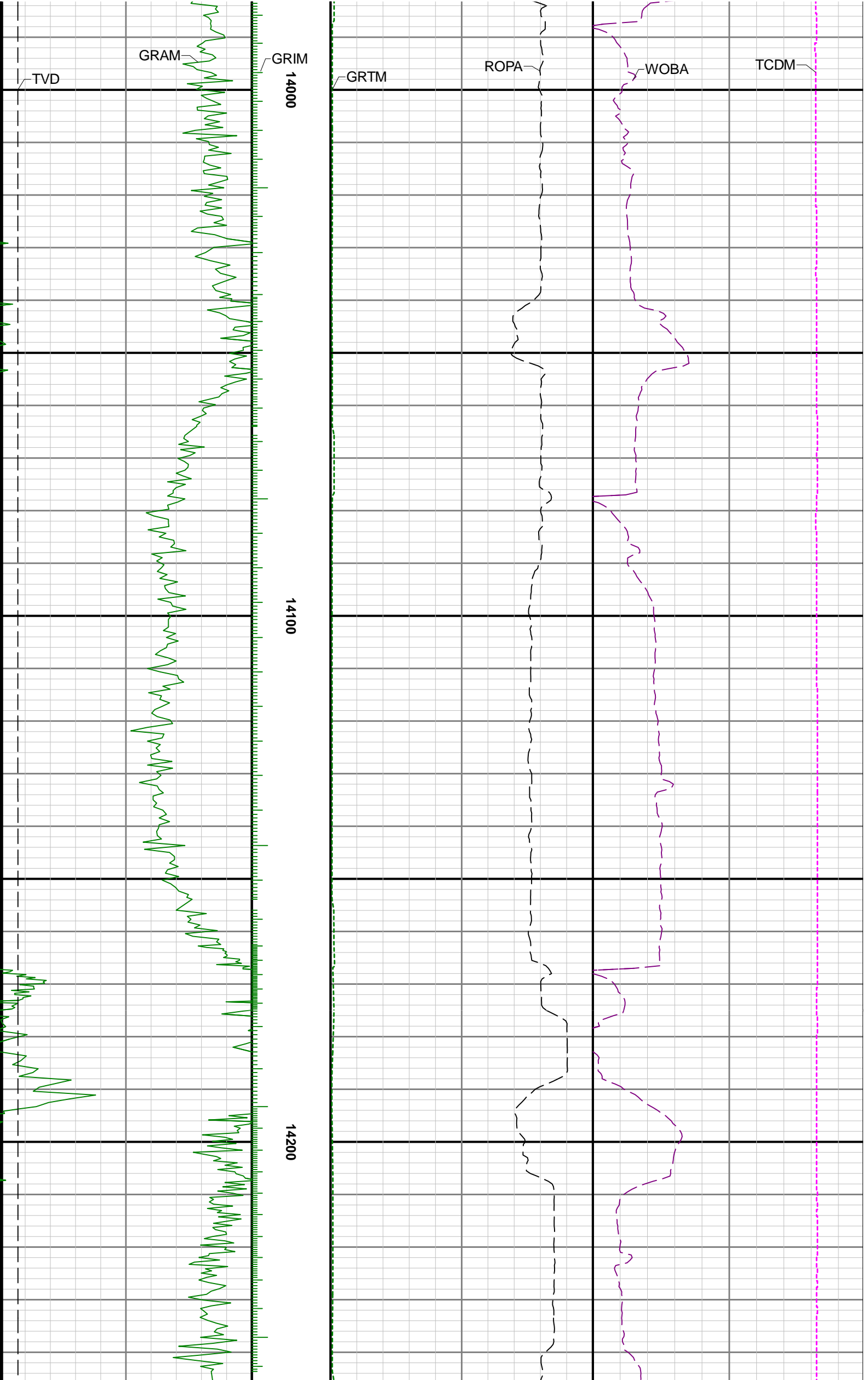
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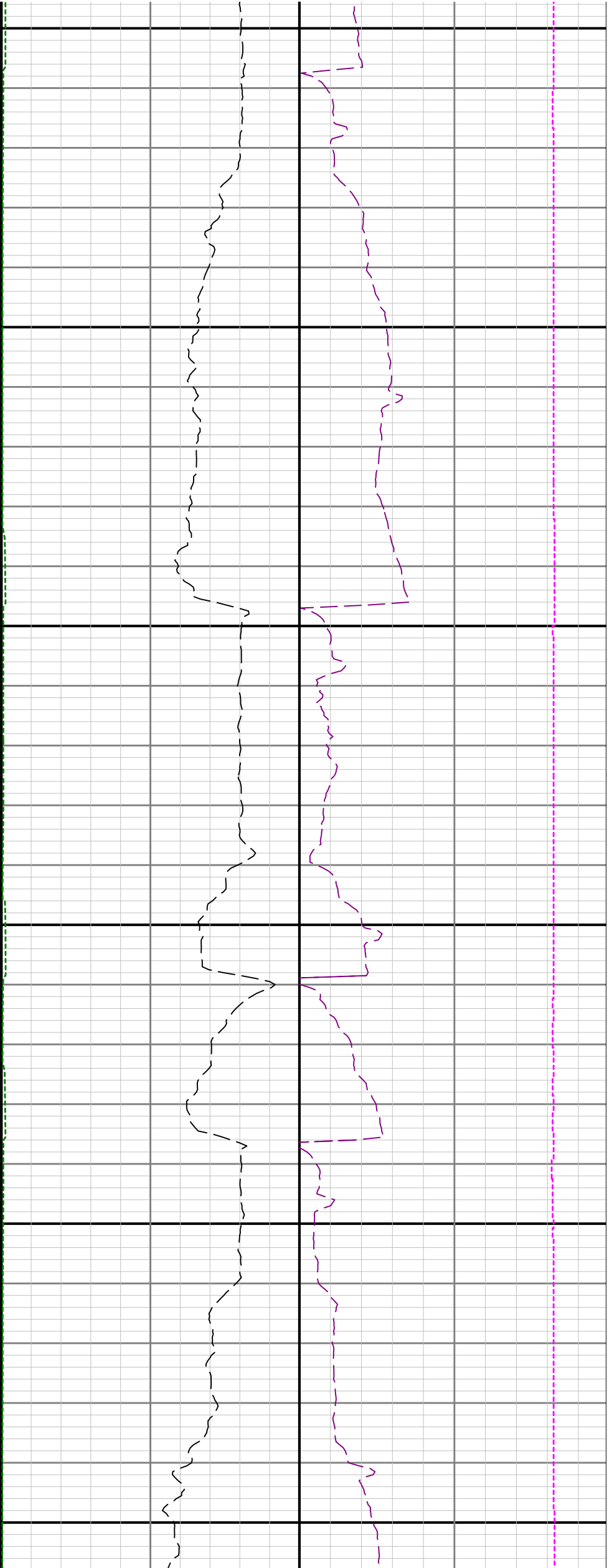


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13900



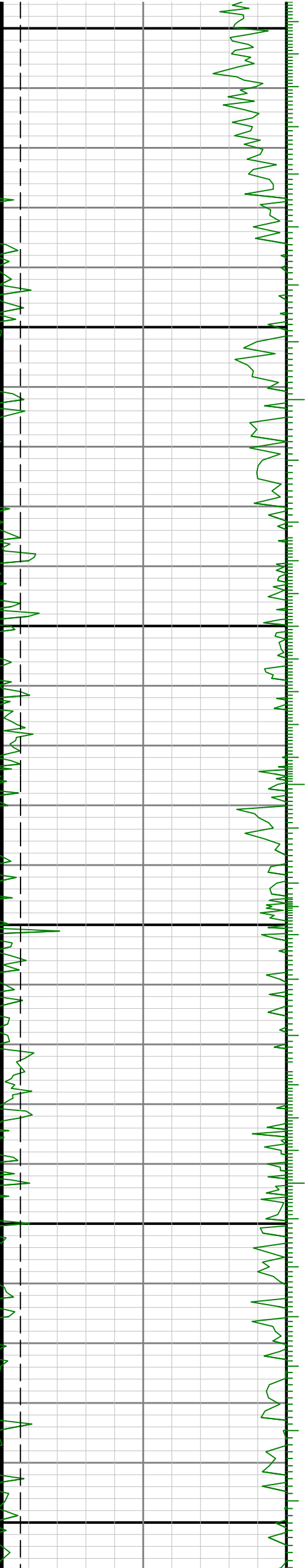


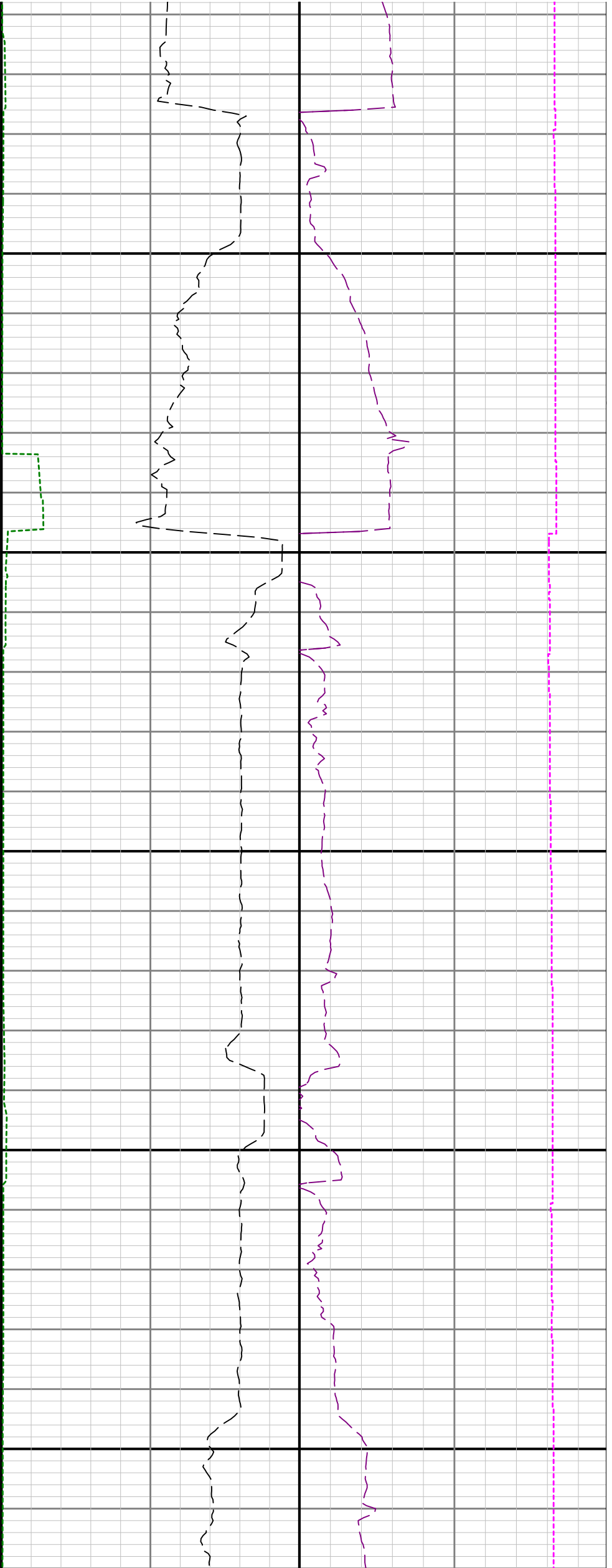


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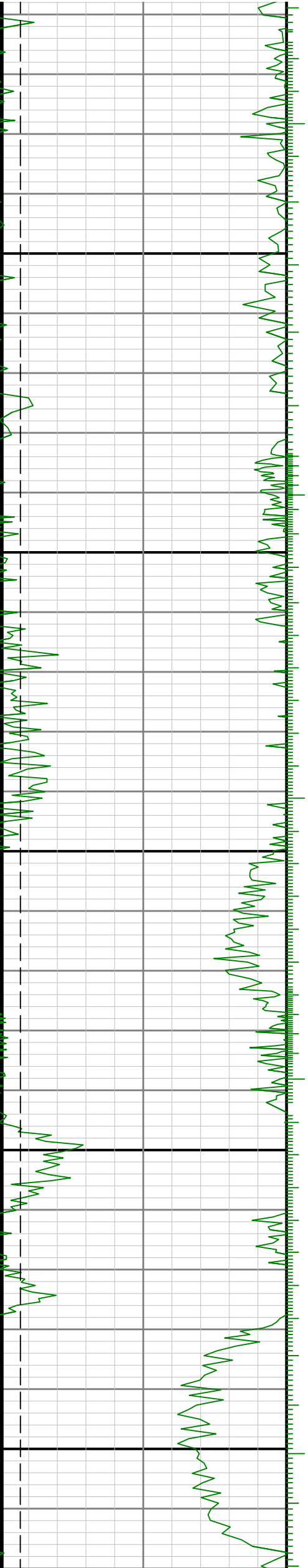
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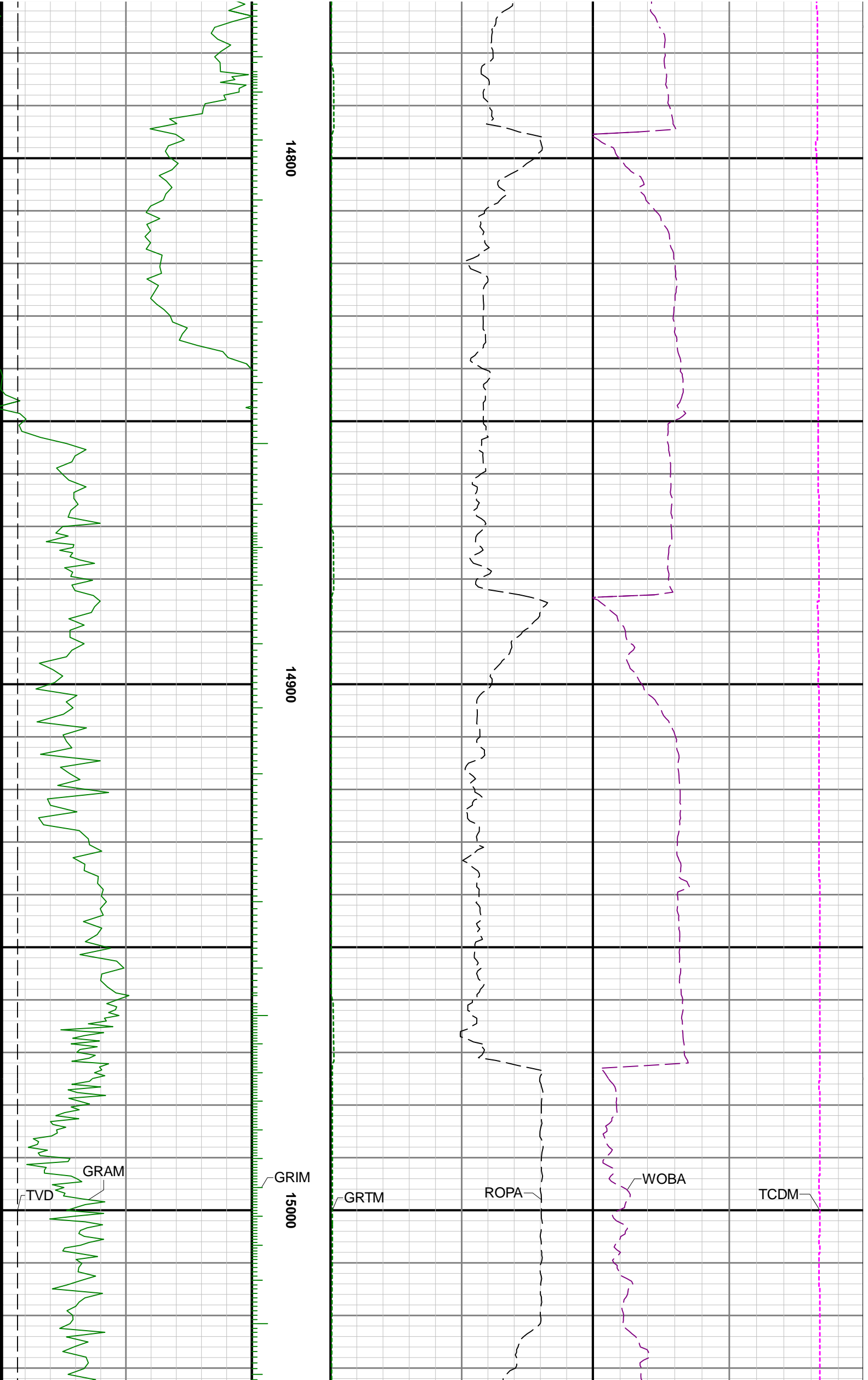




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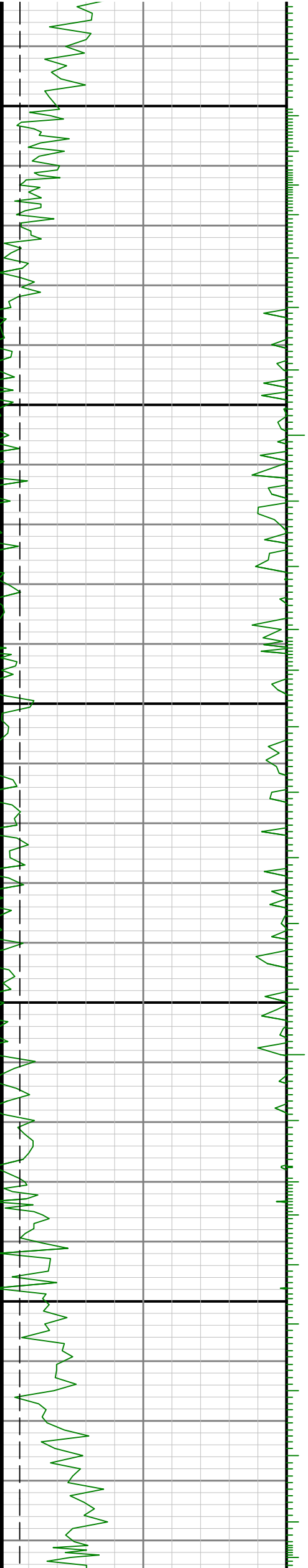


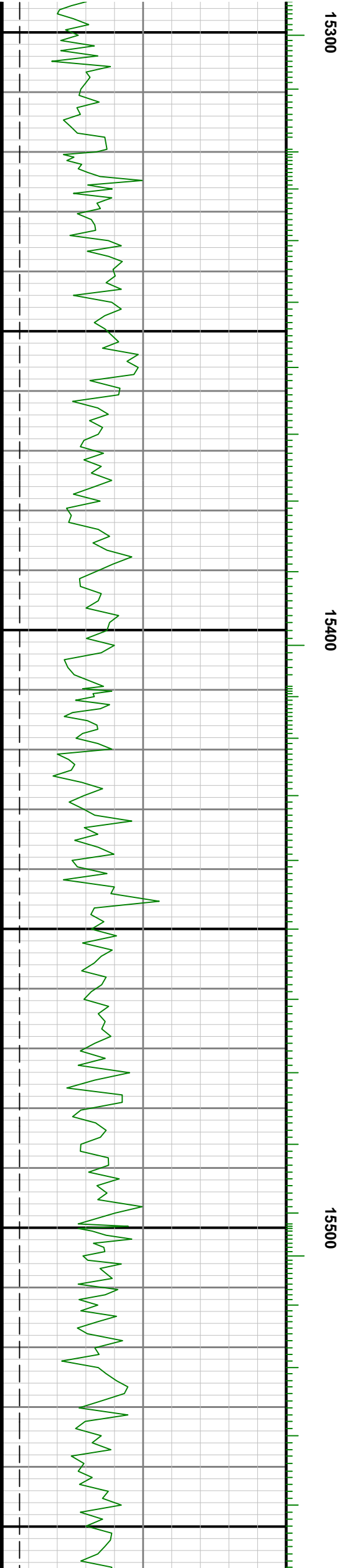
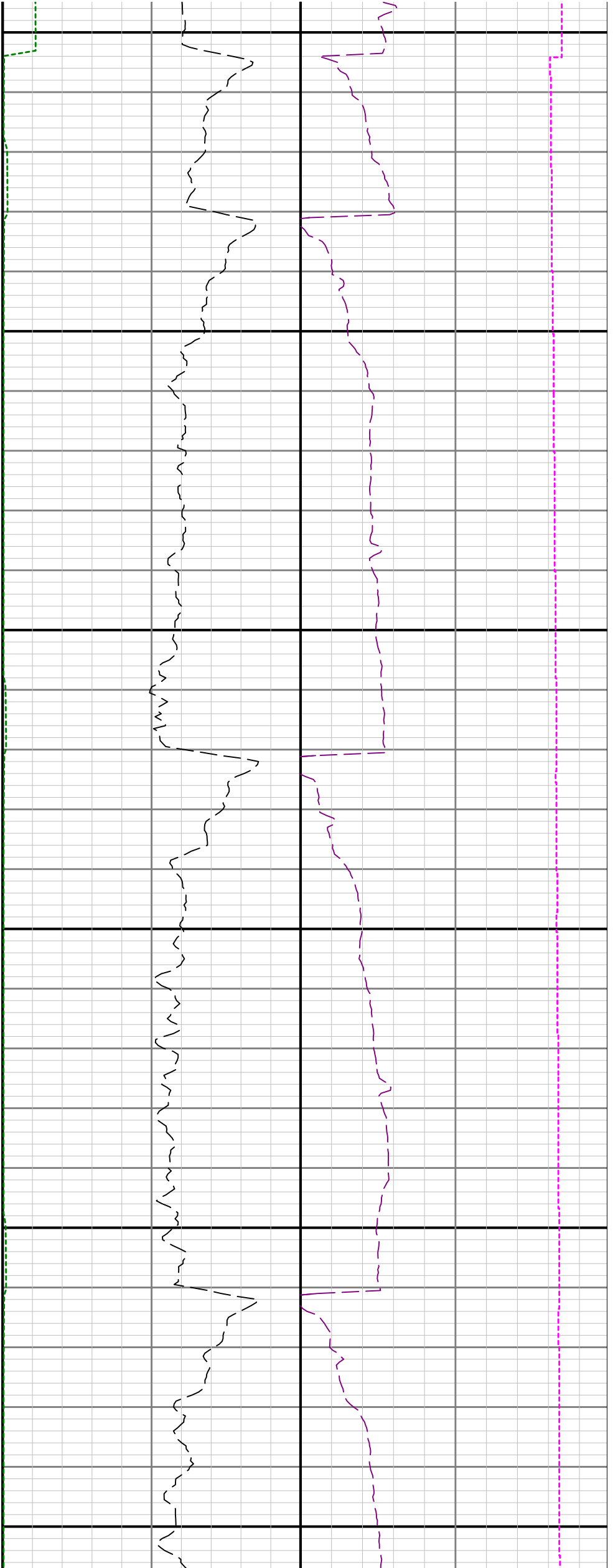


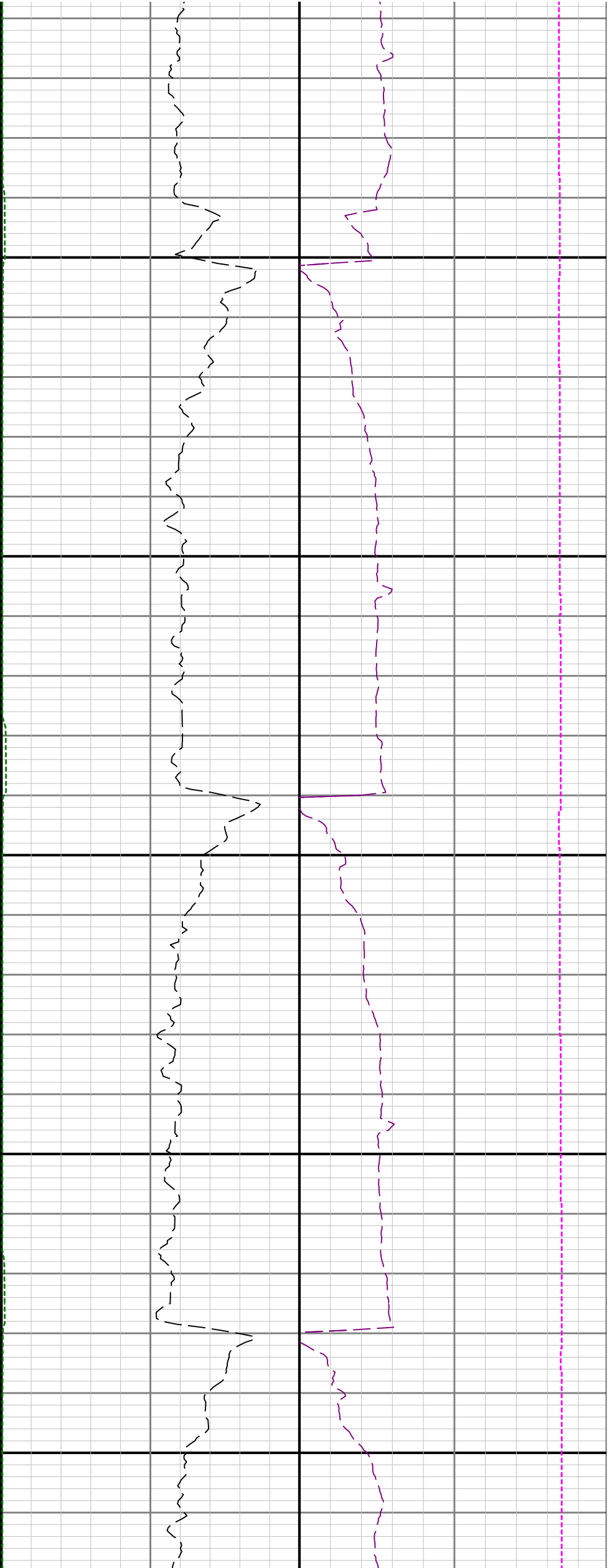


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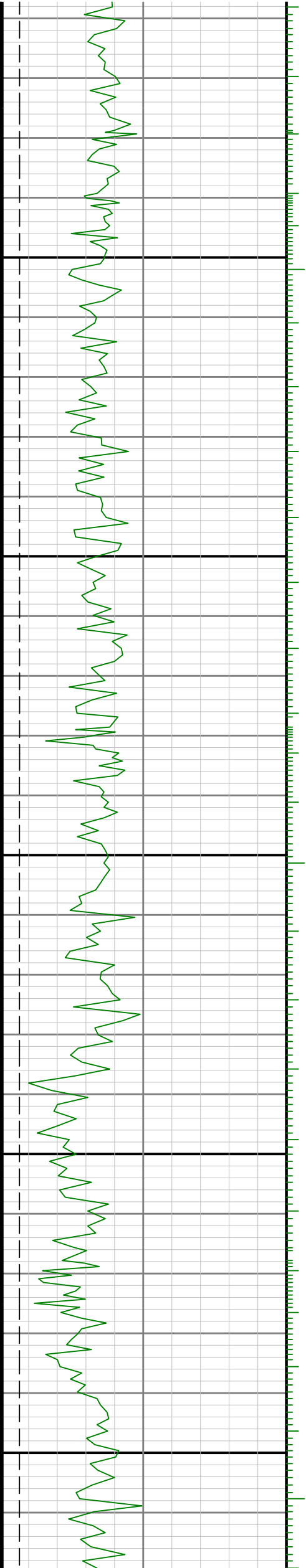


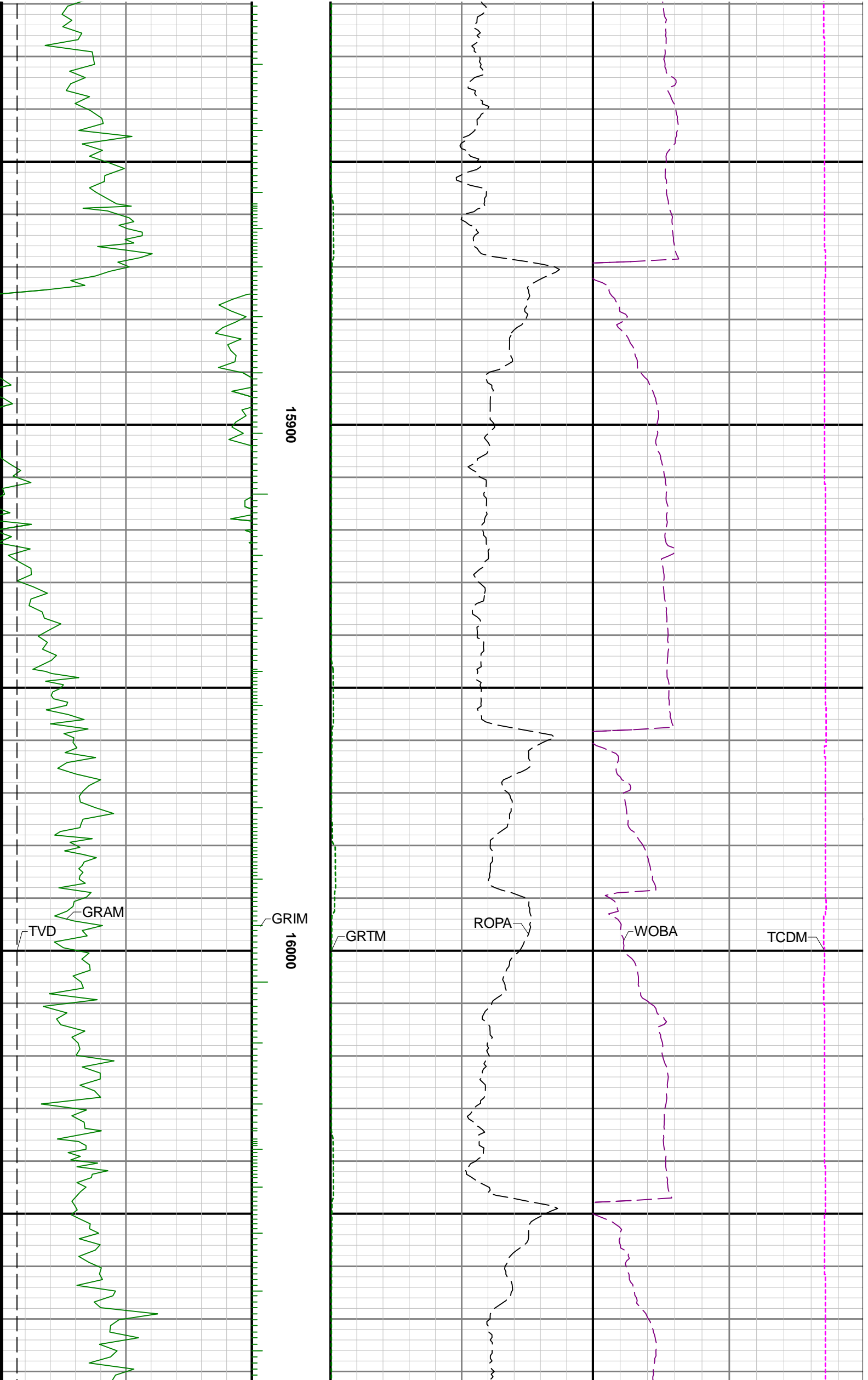


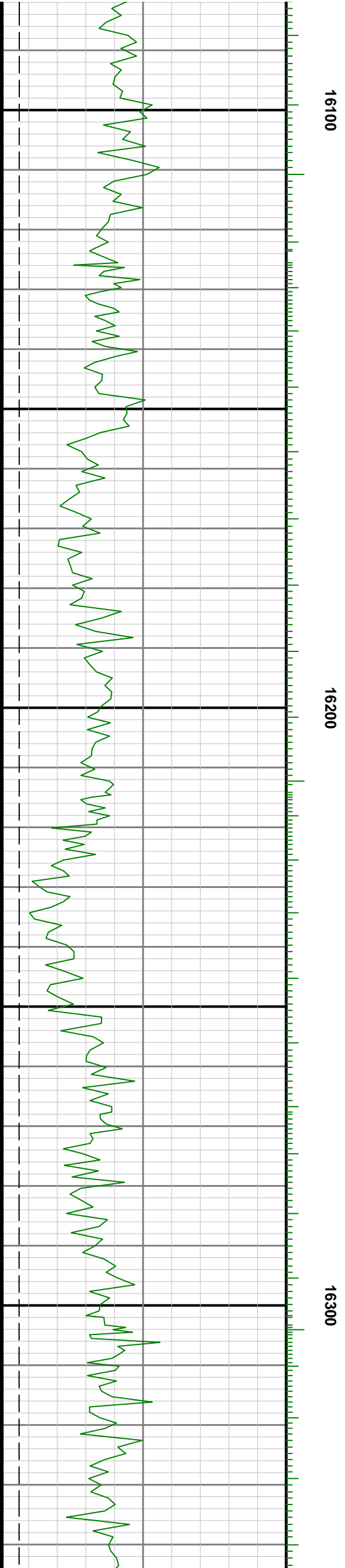
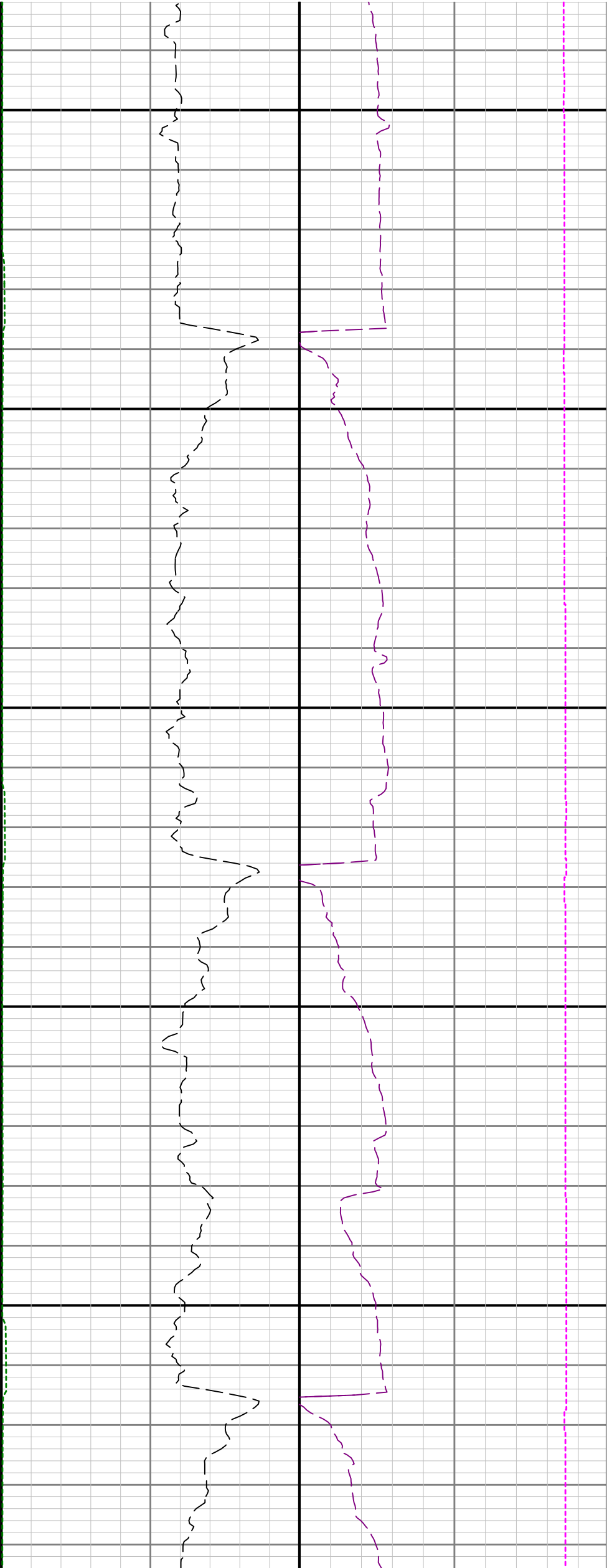
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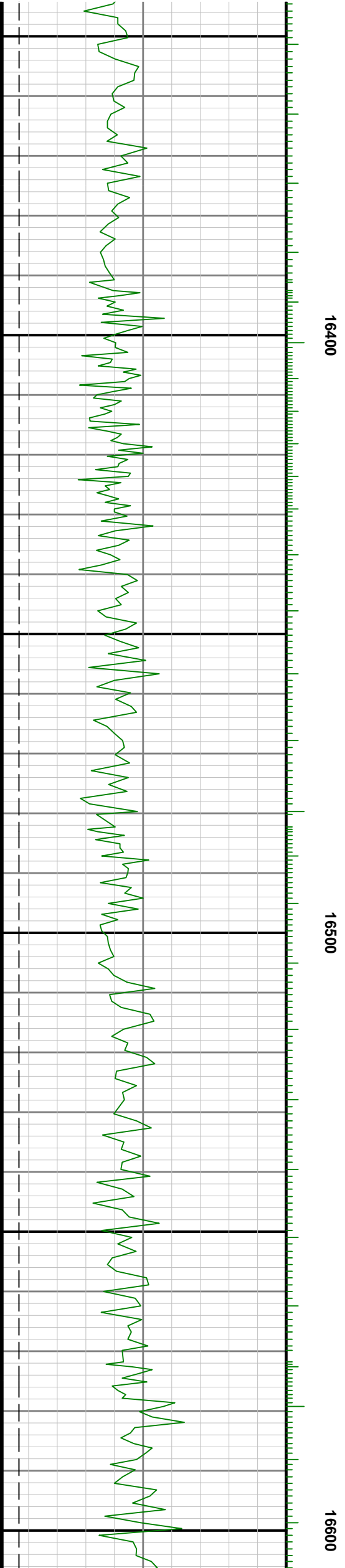
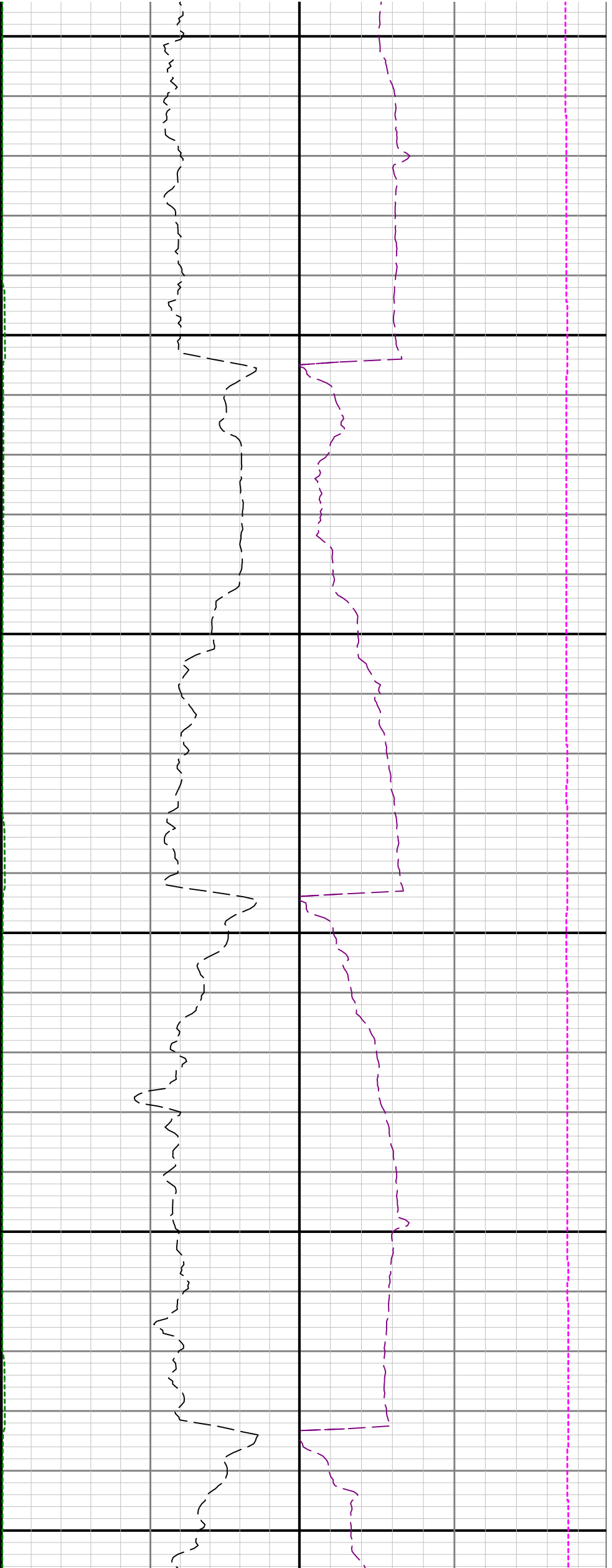
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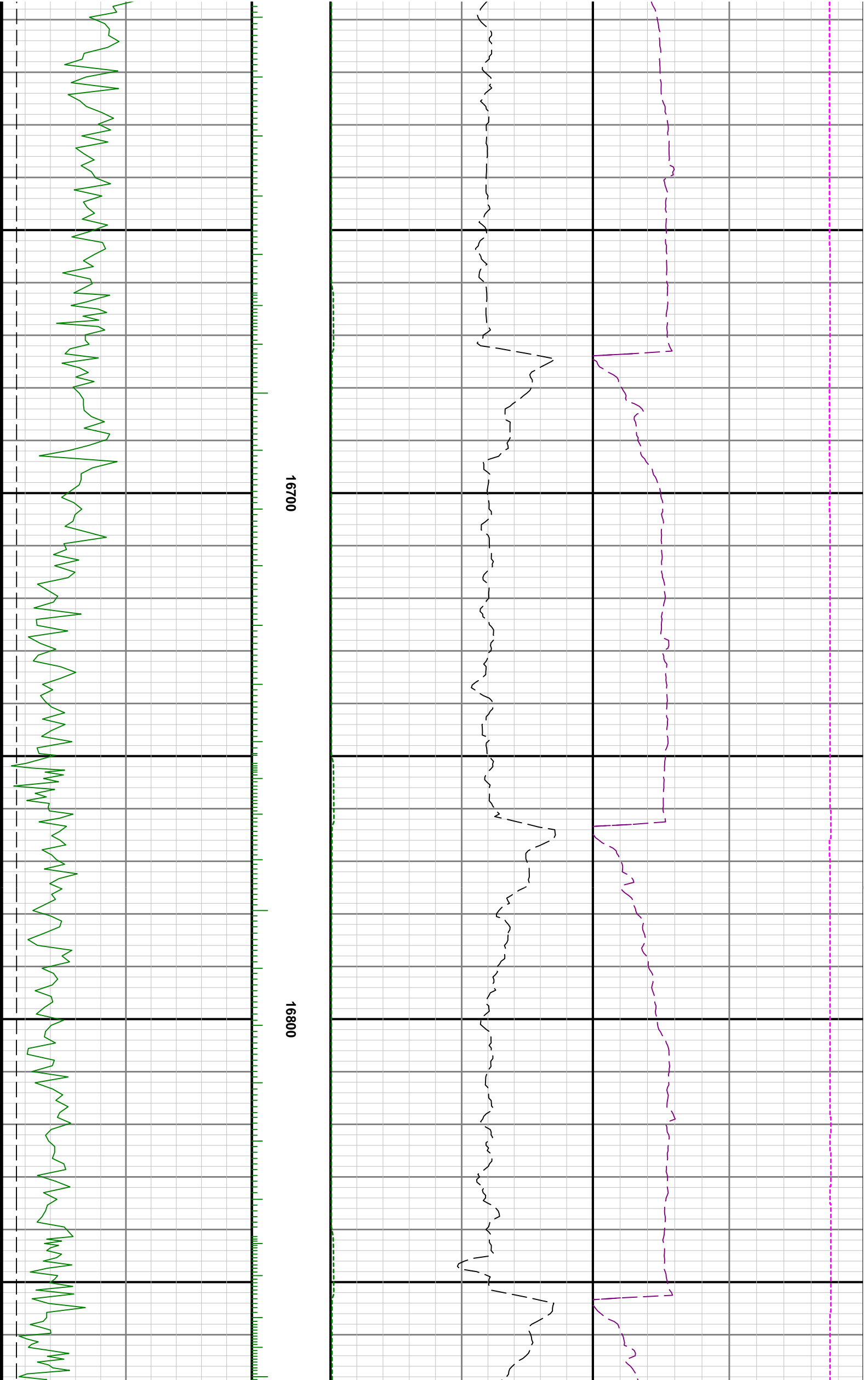
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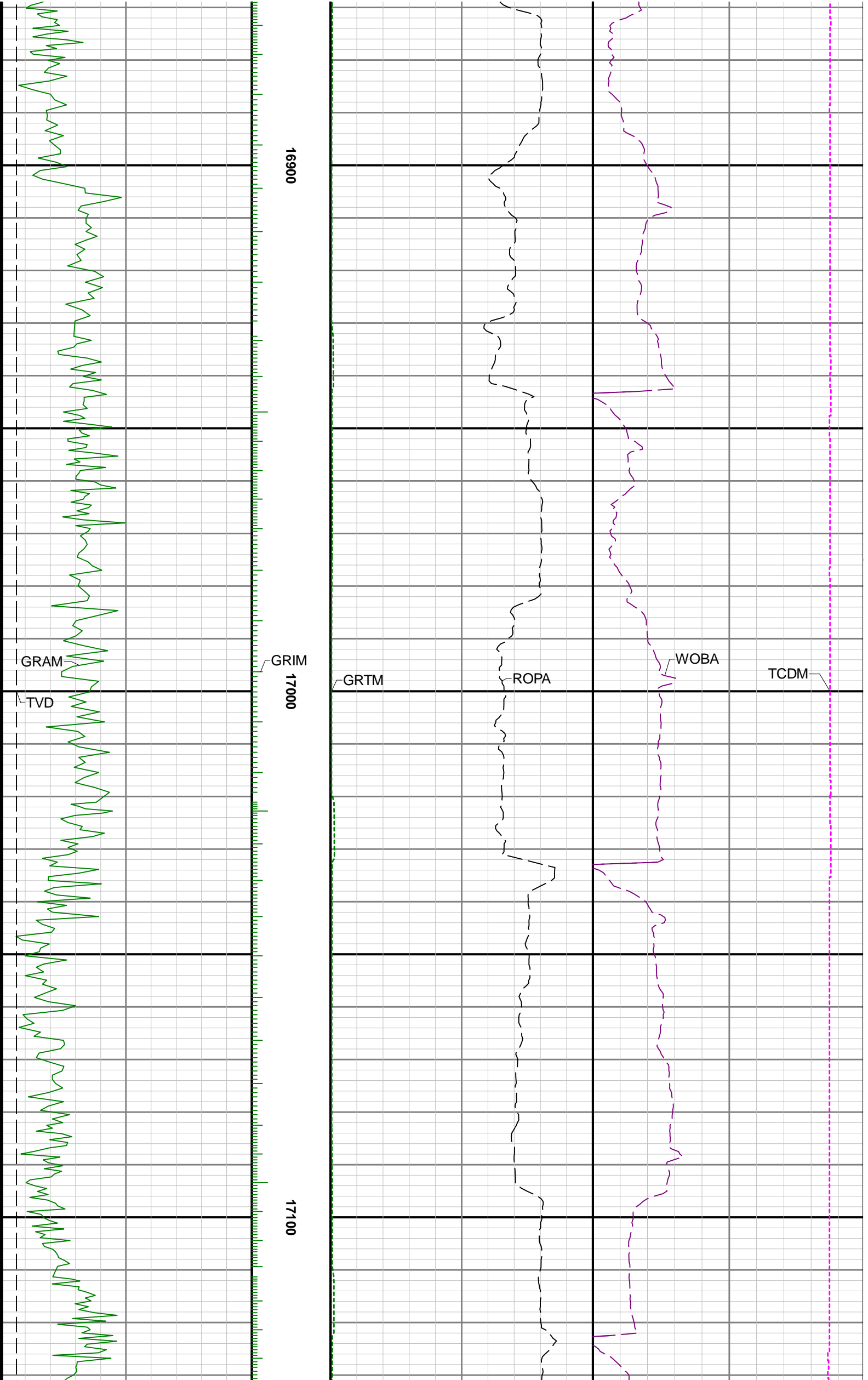


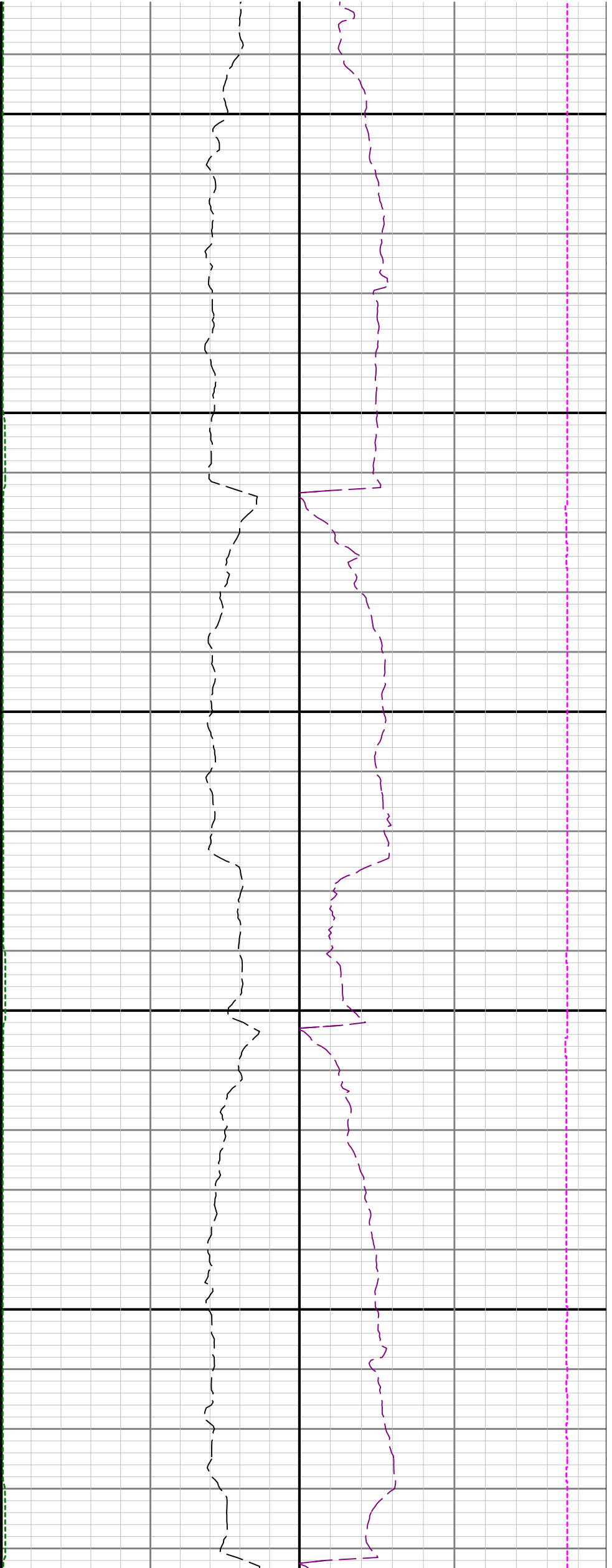












17200

17300

