



Realtime and Memory Log

Natural Formation Evaluation
Multiple Propagation Resistivity
Gamma Ray

| | | | | | |
|--------------------------------------|-----------------------|-------------------------------|--------|------------------|--|
| Scale: | Company: Anadarko E&P | | | | |
| 1:240 MEASURED DEPTH | Well: | RAYMOND 38C-29HZ | | | |
| | Field: | WELD COUNTY (KERR MCGEE) | | | |
| | County: | Weld | State: | Colorado | |
| Status: | Surface Location: | | | Other Services: | |
| FINAL PRINT | | Latitude: 40° 12' 8.672" N | | Directional | |
| API Number: 05-123-35848 | | Longitude: 104° 47' 46.043" W | | | |
| SEC: 29 | | TWP: 3N | | RNG: 66E | |
| Permanent Datum (P.D.): Ground Level | | Elevation: | | Elevations: | |
| Log Measured From: Kelly Bushing | | 17.00 ft. | | 17.00 ft. N/A | |
| Depth Reference: Driller's Depth | | Above P.D. | | 4925.00 ft. | |

| Interval Logged | | Dates | | Magnetic Field Reference | |
|-----------------|-----------|------------|-------------|--------------------------|------------------------------|
| Top: | 7838 ft. | Date From: | 11/Oct/2012 | Dip Angle: | 66.81° Azi Reference North: |
| Bottom: | 11944 ft. | Date To: | 19/Dec/2012 | Total | Mag to Reference |
| | | Spud Date: | 11/Oct/2012 | Field Strength: | 52781.0 nT North Correction: |

| Borehole Record | | | Casing Record | | |
|-----------------|----------|-----------|---------------|-------------|------------------|
| Hole Size | From | To | Size | Weight | From To |
| 13.500 in. | Surface | 906 ft. | 9.600 in. | 36.00 lb/ft | Surface 906 ft. |
| 8.500 in. | 902 ft. | 7837 ft. | 7.000 in. | 26.00 lb/ft | Surface 7828 ft. |
| 6.125 in. | 7837 ft. | 11944 ft. | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Mud Record | | | Deviation Record | | |
|-------------|----------|-----------|------------------|----------|---------------------------------|
| Type | From | To | Hole Size | Interval | Inc / Az (Start) Inc / Az (End) |
| Water Based | Surface | 906 ft. | 13.500 in. | Surface | 0.0° / 0.0° 0.5° / 207.5° |
| Water Based | 906 ft. | 6832 ft. | 8.500 in. | Vertical | 0.5° / 207.5° 0.8 / 135.6° |
| Water Based | 6832 ft. | 7838 ft. | 8.500 in. | Curve | 0.8 / 135.6° 86.9° / 180.7° |
| Water Based | 7838 ft. | 11944 ft. | 6.125 in. | Lateral | 86.9° / 180.7° 90.7° / 180.3° |
| | | | | | / / |
| | | | | | / / |

| Acquisition System | | Software Version | | Other | |
|--------------------|----------|------------------|-----------------|--------------------|--|
| Advantage | 2.20U3 | Rig: | Xtreme 8 | / Advance Drilling | |
| PLATS | 6.4.1.34 | Job No: | 4985930 | | |
| | | District: | Rocky Mountains | | |

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| Log Run Summary | | | | | | | | | | | | | | | |
|-----------------|------------|------------|-------------------|------|----------------------------------|----------------------|------------------|---------------------|--------------------|-----------------|-------------------|-------------------|------|--|---------------------------------|
| LWD | BHA | Bit | Bit | Bit | Bit | Assembly Type | Logged Interval | | Bit Depth Interval | | Date / Time | | | | Circ. Time (hrs.) |
| Run No. | Run No. | Run No. | Size (in.) | Type | Gauge Length (in.) | | Top (ft.) | Bottom (ft.) | From (ft.) | To (ft.) | Start | | End | | |
| 2 | 2 | 3 | 8.750 | PDC | | Rotary Steerable | 6794 | 7800 | 6832 | 7838 | 14/Oct/2012 18:04 | 14/Oct/2012 18:04 | 24.6 | | |
| 3 | 3 | 4 | 6.125 | PDC | | Rotary Steerable | 7800 | 11900 | 7838 | 11944 | 15/Dec/2012 15:11 | 16/Oct/2013 15:11 | 70 | | |

| Crew | | | | | | | | |
|-------------|--|--|-------------|-------------|-------------|--|--|----------------|
| Name | | | Arrive | Depart | Name | | | Arrive |
| | | | Wellsite | Wellsite | | | | Wellsite |
| Merek Roman | | | 14/Dec/2012 | 18/Dec/2012 | Nick Roosen | | | 14/Dec/2012 |
| | | | | | | | | 19/Dec/2012 |
| | | | | | | | | Kevin Sheridan |
| | | | | | | | | 18/Dec/2012 |
| | | | | | | | | 19/Dec/2012 |

Mud Properties Record

| Date / Time | LWD | Measured | Mud | Density | Viscosity | pH | Fluid | Oil / | Source | Total | K+ |
|-------------------|---------|----------------|-------------|---------|-----------|-----|--------------|--------|--------|--------------------|-----|
| | Run No. | Depth (ft.) | Type | (ppg) | (cp) | | Loss (cc) | Water | | Chlorides (ppm) | (%) |
| 18/Dec/2012 09:30 | 3 | 7800 | Water Based | 9.4 | 36 | 8.0 | N/A | 0/92.5 | Pit | 800 | N/A |

| Mud Resistivity Record | | | | | Surface | | | | Downhole | | |
|------------------------|-------|---------|----------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | | | Rm | Rmf | Rmc | | Rm | Rmf | Rmc |
| Date / Time | | LWD | Measured | Surface | Rm | Rmf | Rmc | BHCT | Rm | Rmf | Rmc |
| | | Run No. | Depth | Temp | | | | | @ BHCT | @ BHCT | @ BHCT |
| | | | (ft.) | (deg F) | (ohm.m) | (ohm.m) | (ohm.m) | (deg F) | (ohm.m) | (ohm.m) | (ohm.m) |
| 16/Dec/2012 | 20:54 | 3 | 0 | 65 | 1.48 | N/A | N/A | 58 | N/A | N/A | N/A |
| 17/Dec/2012 | 11:55 | 3 | 7917 | 75 | 8.64 | N/A | N/A | 201 | 3.29 | N/A | N/A |
| 18/Dec/2012 | 17:01 | 3 | 10433 | 70 | 1.25 | N/A | N/A | 226 | 0.40 | N/A | N/A |
| 19/Dec/2012 | 07:35 | 3 | 11446 | 68 | 1.36 | N/A | N/A | 237 | 0.40 | N/A | N/A |

| Mnemonics | | |
|-----------|--|----------|
| Curve | Description | Units |
| CACHM | Conductivity (AT) (LS) 2 MHZ – Compensated Borehole Corrected | mho/o |
| GRAX | Gamma Ray Apparent, 0.5 ft. Avg | API |
| GRIX | Gamma Ray Data Density | points |
| GRAM | Gamma Ray Apparent, 0.5 ft. Avg | API |
| GRIM | Gamma Ray Data Density | points |
| GRTX | Gamma Time Since Drilled | min |
| RACHM | Resistivity (AT) (LS) 2 MHZ – Compensated Borehole Corrected | ohm.m |
| RACLM | Resistivity (AT) (LS) 400 KHZ – Compensated Borehole Corrected | ohm.m |
| ROP_AVG | Rate of Penetration, 3.0 ft. Avg | ft/hr |
| RPCHM | Resistivity (PD) (LS) 2 MHZ – Compensated Borehole Corrected | ohm.m |
| RPCLM | Resistivity (PD) (LS) 400 KHZ – Compensated Borehole Corrected | ohm.m |
| RPSIHM | Resistivity Slide Indicator | unitless |
| RPTHM | Time Since Drilled (RPCHM) | min |
| TCDM | Downhole Temperature | degF |
| TCDX | Downhole Temperature | degF |

| Equipment and Service Data | | | | | | |
|----------------------------|------|---------------|-------------|-----------------|----------------|----------------|
| LWD Run No. | Tool | Serial Number | Measurement | Bit Offset (ft) | Max O.D. (in.) | Min I.D. (in.) |
| 2 | DIR | 12479870 | Directional | 40.80 | 6.750 | 2.250 |
| 2 | SRIG | 10594918 | Gamma | 37.42 | 6.750 | 2.250 |
| 3 | CS | 10160235 | - | 74.47 | 5.070 | 1.750 |
| 3 | BCPM | 11705962 | Telemetry | 63.38 | 5.070 | 1.750 |
| 3 | STAB | 11853041 | - | 60.25 | 5.625 | 1.750 |
| 3 | OTK | 11711769 | Directional | 56.00 | 5.070 | 1.750 |
| 3 | OTK | 11711769 | Resistivity | 50.03 | 5.070 | 1.750 |
| 3 | APR | 11711769 | Resistivity | 50.03 | 5.070 | 1.750 |
| 3 | OTK | 11711769 | Gamma | 42.84 | 5.070 | 1.750 |

| | | | | | | |
|---|-----|----------|----------|-------|-------|-------|
| 3 | OTK | 11711769 | Gamma | 42.84 | 5.070 | 1.750 |
| 3 | OTK | 11711769 | Pressure | 45.47 | 5.070 | 1.750 |
| 3 | CS | 12202688 | - | 37.86 | 5.070 | 1.750 |

Service and Tool Mnemonics

| Mnemonic | Name | Description |
|----------|-----------------------|--|
| APR | Resistivity | Azimuthal propagation resistivity, azimuthal propagation resistivity image |
| BCPM | BCPM | Mud pulse telemetry and downhole tool power module |
| DIR | Directional | Wellbore directional survey |
| OTK | OnTrak | Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS |
| SRIG | Inclination and Gamma | Probe based gamma ray and inclination module |
| STAB | Stabilizer | Stabilizer assembly |
| CS | Closure Sub | BHA power ring isolator allowing insertion of inert sub into electrically powered BHA |

Comments

- (1) Baker Hughes INTEQ run 2 utilized 6 1/2 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 6832 to 7838 feet MD (6748 to 7394 feet TVD)
- (2) Baker Hughes INTEQ run 3 utilized 4 3/4 inch OnTrak services (Multiple Propagation Resistivity, Gamma Ray, Directional) behind a 6 1/8 inch bit and steerable assembly from 7838 to 11944 feet MD (7394 to 7400 feet TVD)
- (3) A sliding indicator is shown to the right edge of track 2 as a heavy line. The indicator has been depth-shifted to resistivity sensor offset to correspond with resistivity data acquired while sliding.

Remarks

| Number | Measured Depth (ft) | Hole Section (in.) | LWD Run No. | Remark |
|--------|---------------------------|--------------------------|----------------|--|
| 1 | 6794 | 8.750 | 2 | The interval from surface to 6794 feet MD (6710 feet TVD) was not logged since logging began at the curve section of the well. |
| 2 | 6794 | 8.750 | 2 | The interval from 6794 to 6832 feet MD (6710 to 6748 feet TVD) was logged up to 20 hours after being drilled due to a trip out of the hole for curve assembly. |
| 3 | 7794 | 8.750 | 3 | The interval from 7794 to 7838 feet MD (7392 to 7394 feet TVD) was logged up to 2 months after being drilled due to batch drilling. |
| 4 | 7794 | 6.125 | 3 | The interval from 7794 to 7838 feet MD (7392 to 7394 feet TVD) has attenuated data due to logging behind casing. |
| 5 | 11900 | 6.125 | 3 | The interval from 11900 to 11944 feet MD (7401 to 7400 feet TVD) was not logged due to sensor offsets to bit at TD. |



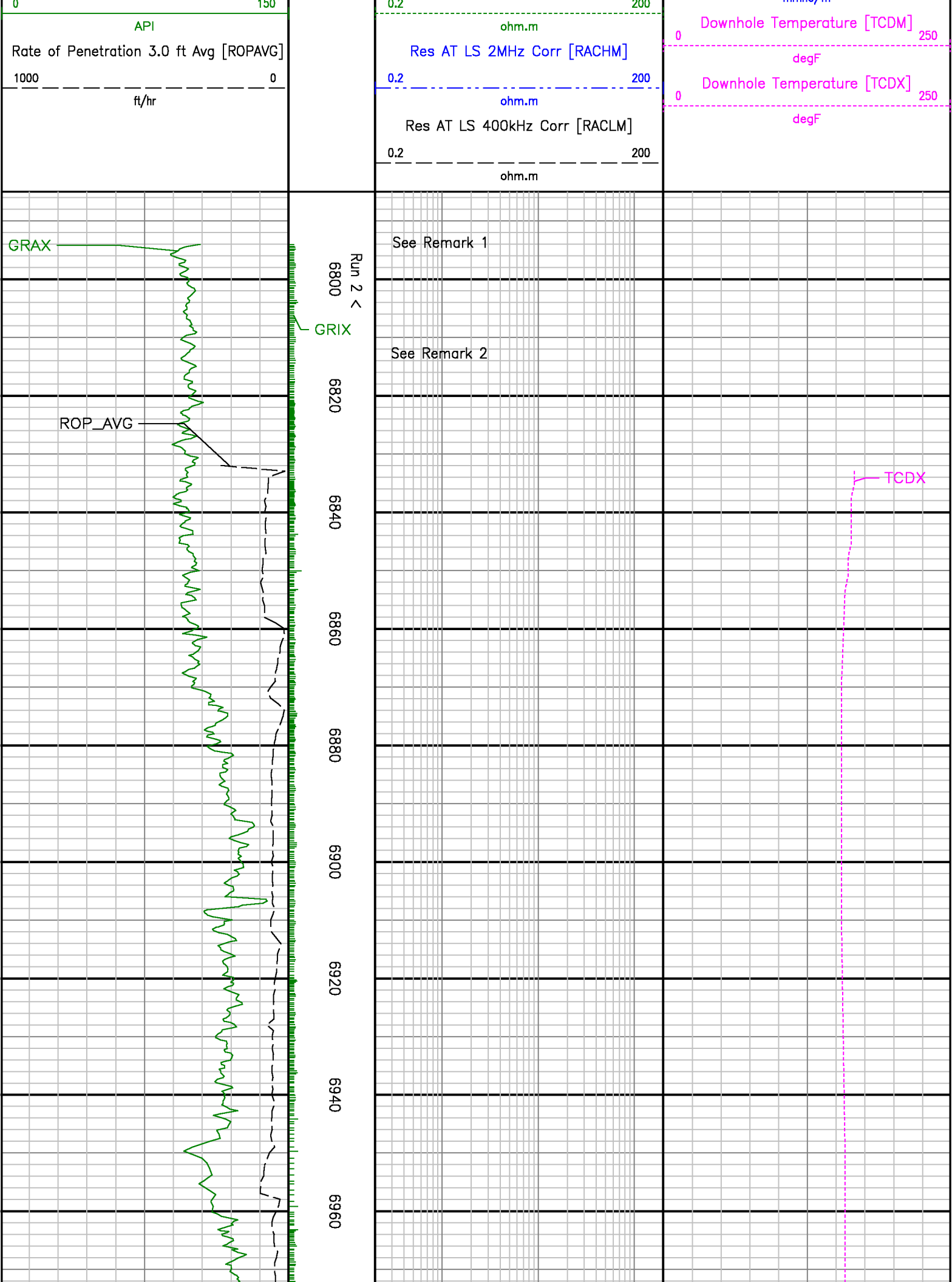
Company : Anadarko

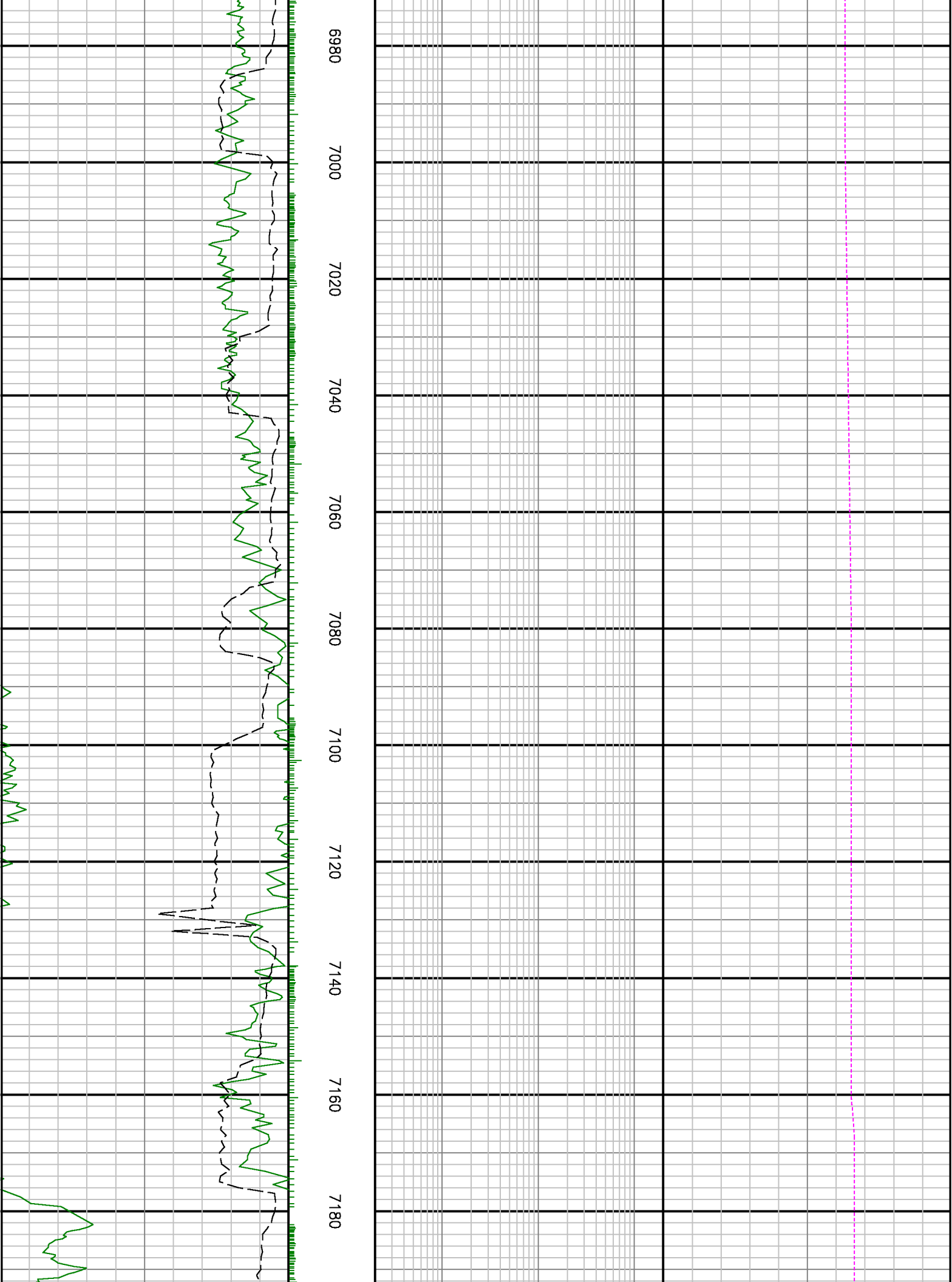
Well : RAYMOND 38C-29HZ

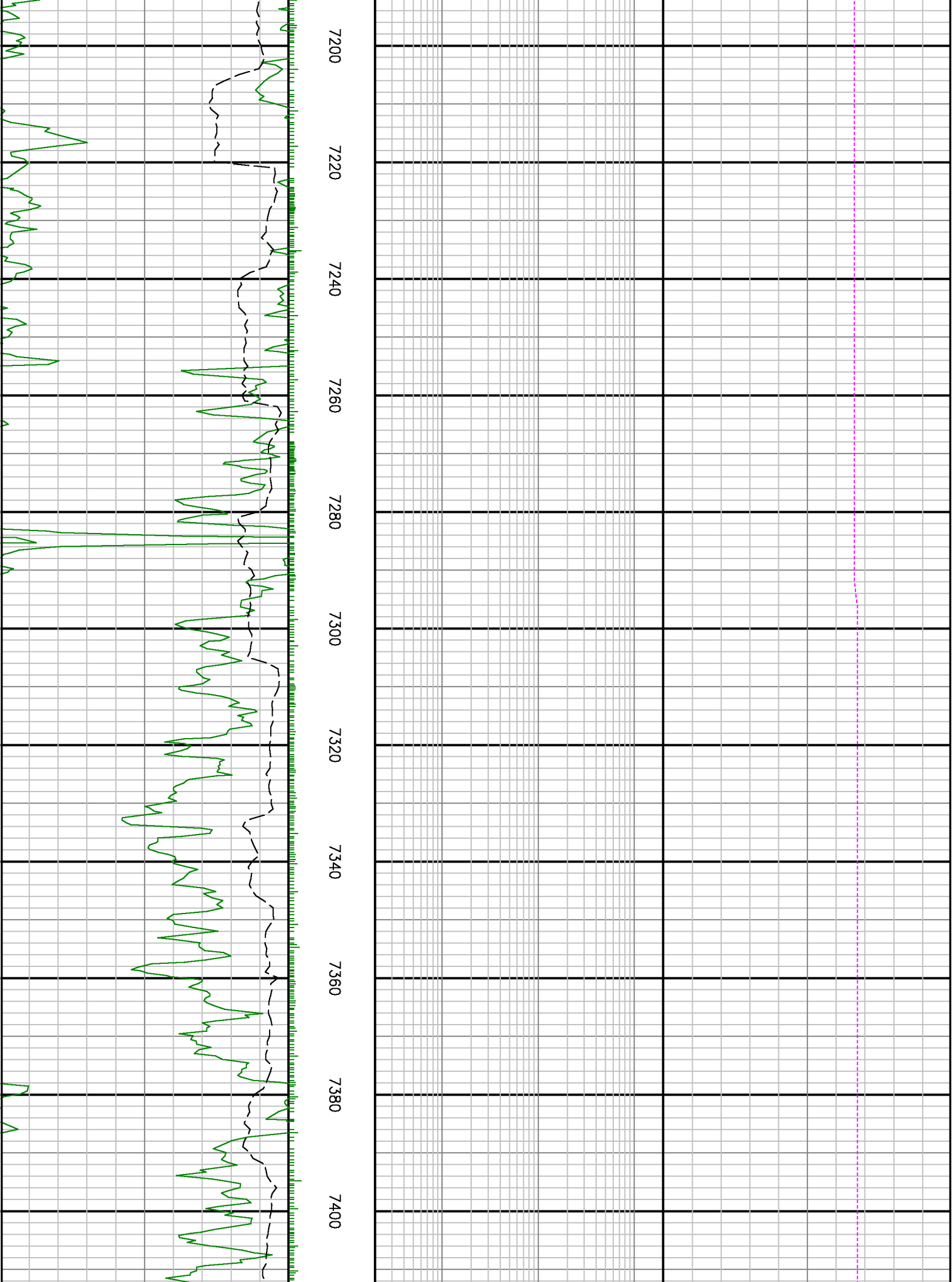
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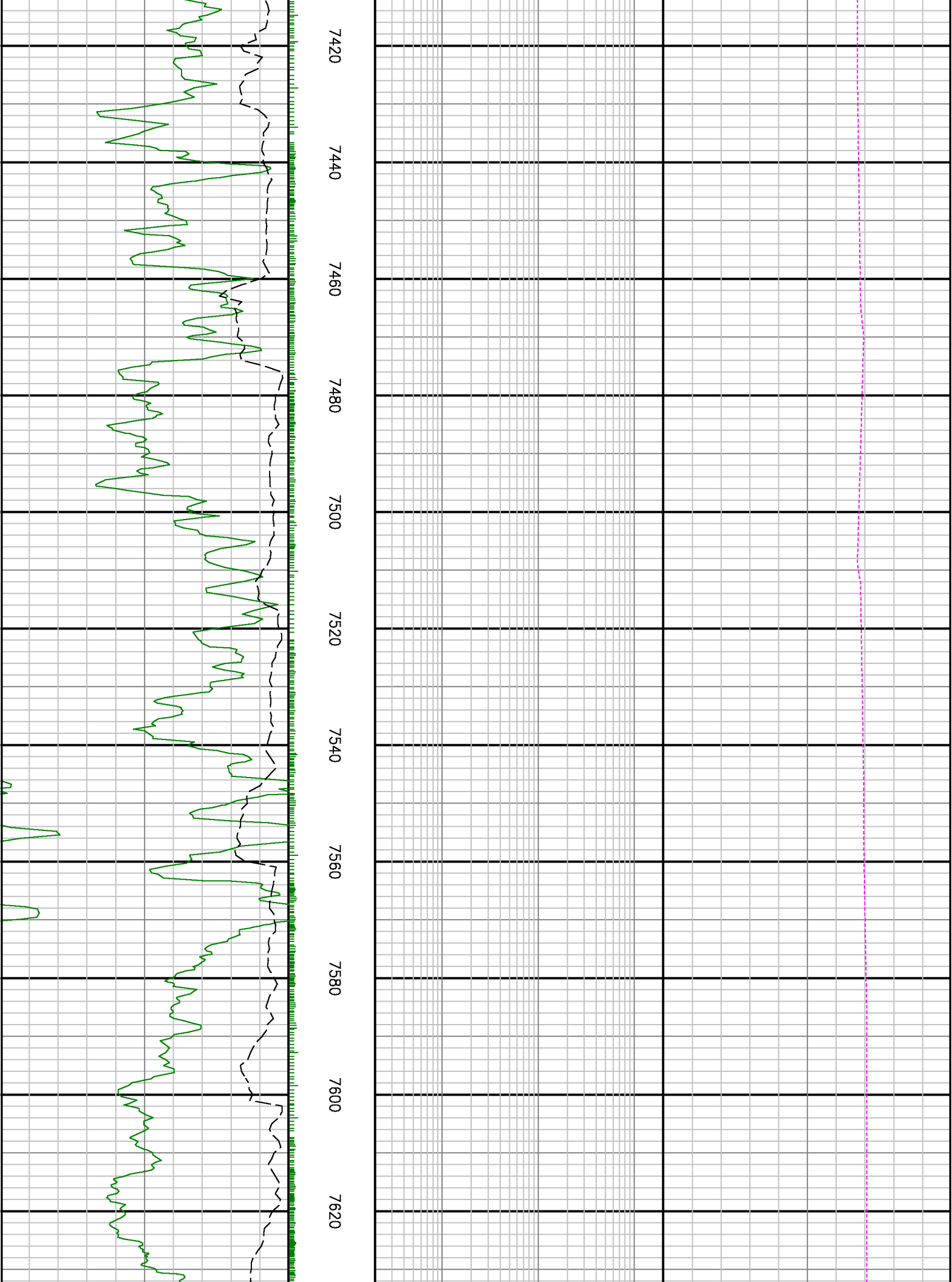
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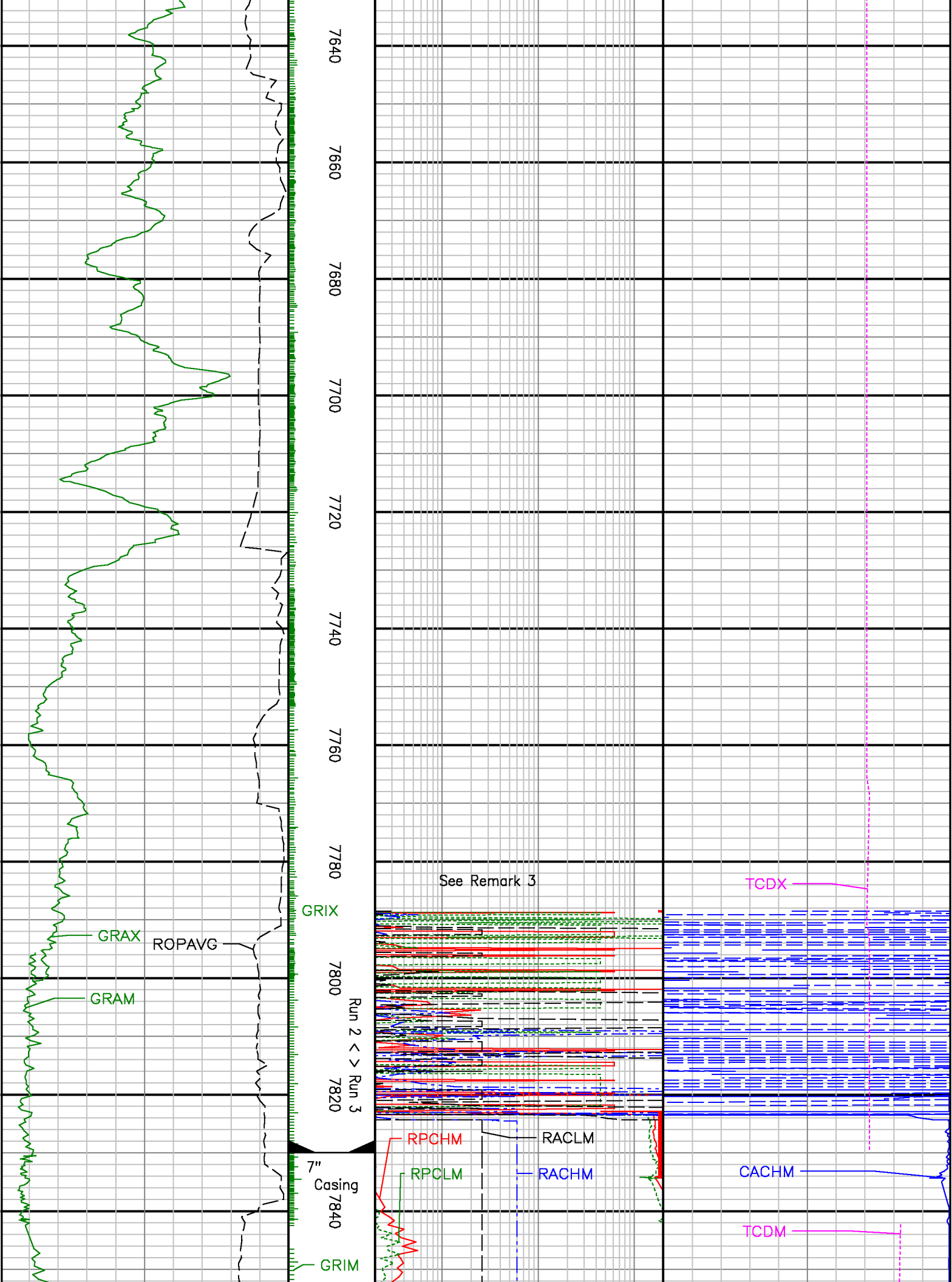
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|--------------------------------------|---------------|-------------------------------|----------------------------|
| Gamma Ray Apparent 0.5 ft Avg [GRAX] | MD feet 1:240 | Res PD LS 2MHz Corr [RPCHM] | Time Since Drilled [RPTHM] |
| 0150 | | 0.2200 | 0600 |
| API | | ohm.m | min |
| Gamma Ray Apparent 0.5 ft Avg [GRAM] | | Res PD LS 400kHz Corr [RPCLM] | Con AT LS 2MHz Corr CACHM |
| 6455 | | 2.2000 | 400 |
| | | | mmho/m |







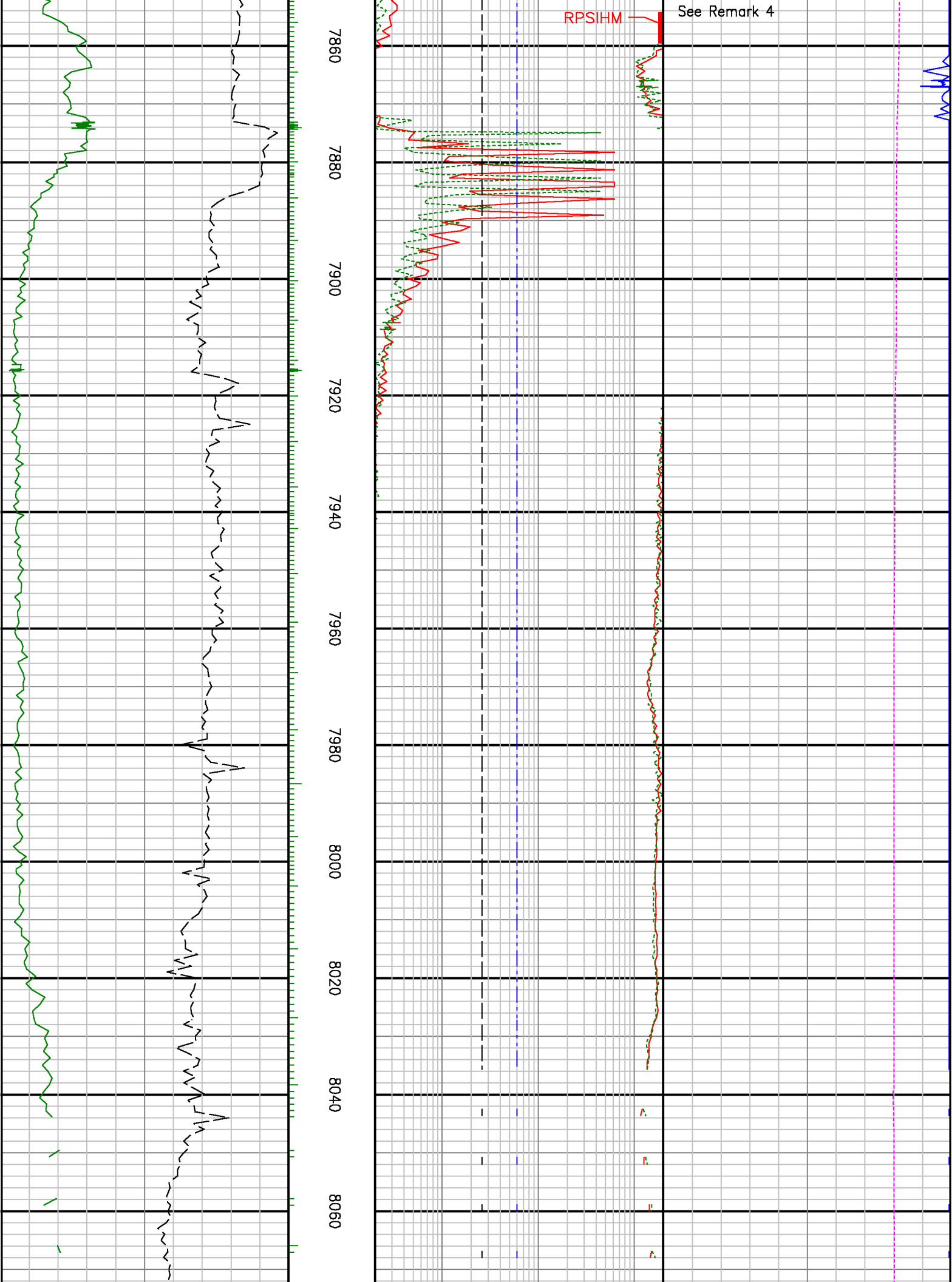


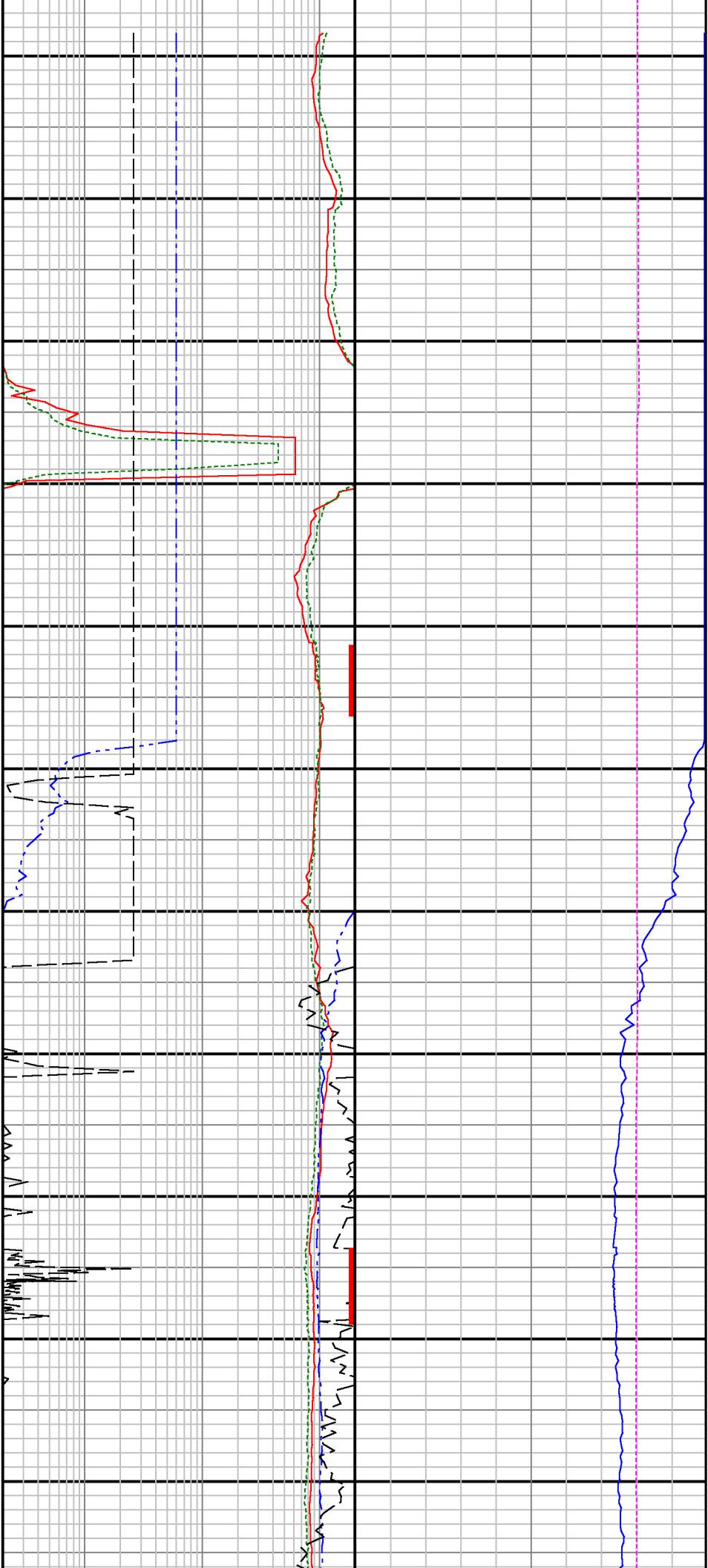


See Remark 4

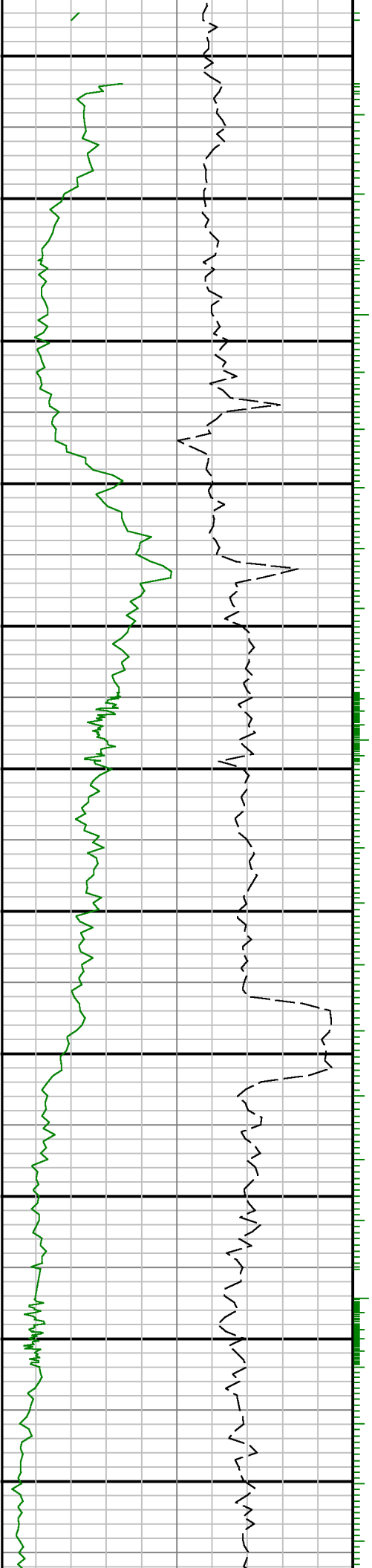
RPSIHM

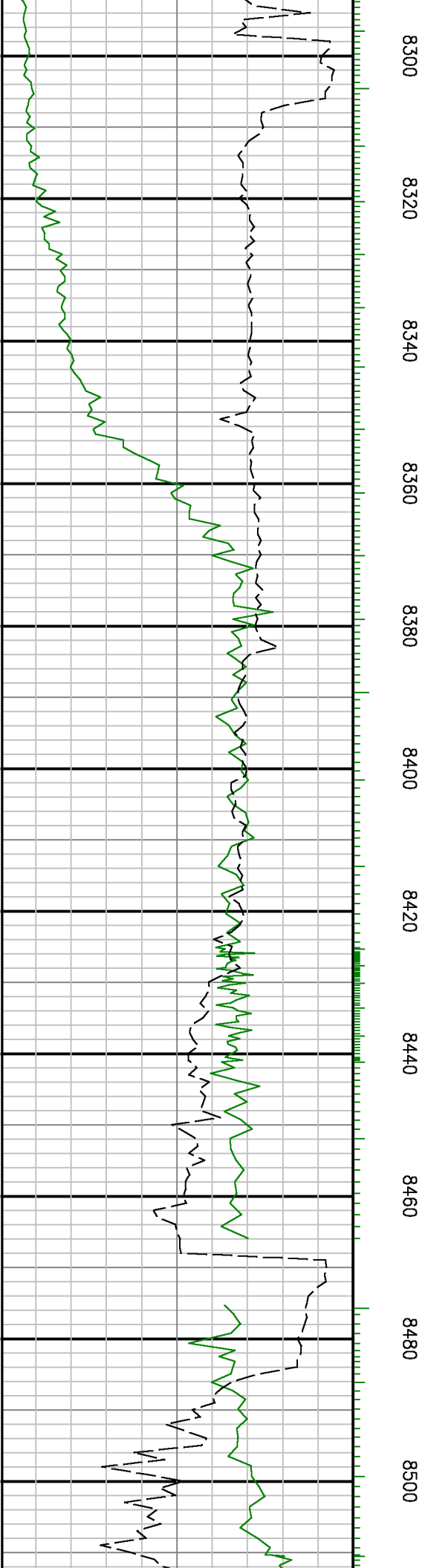
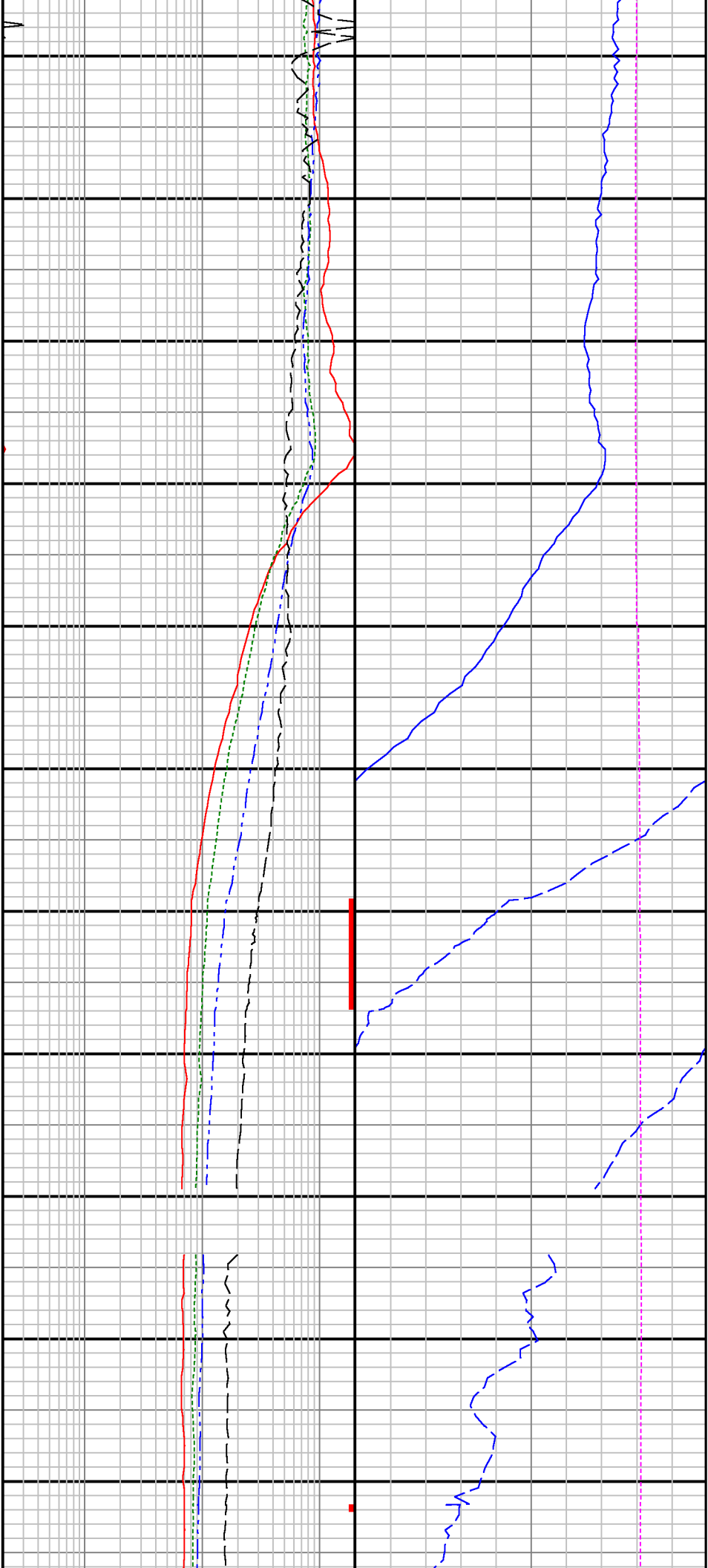
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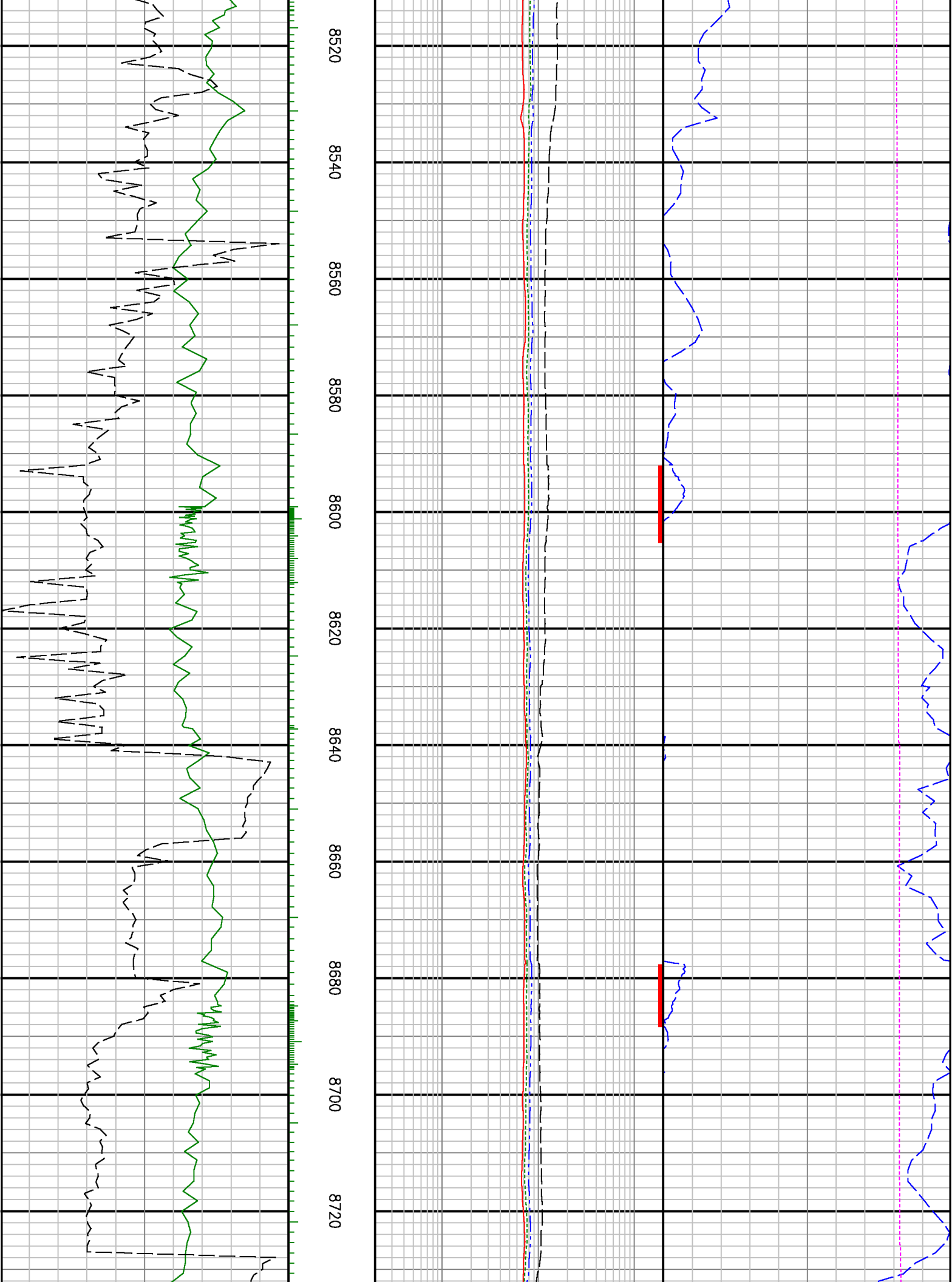


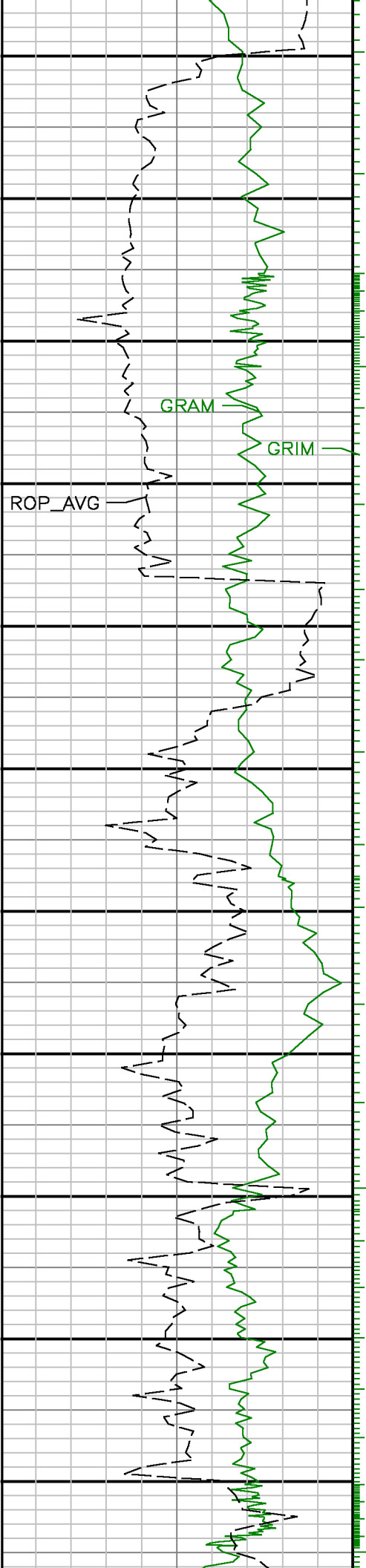


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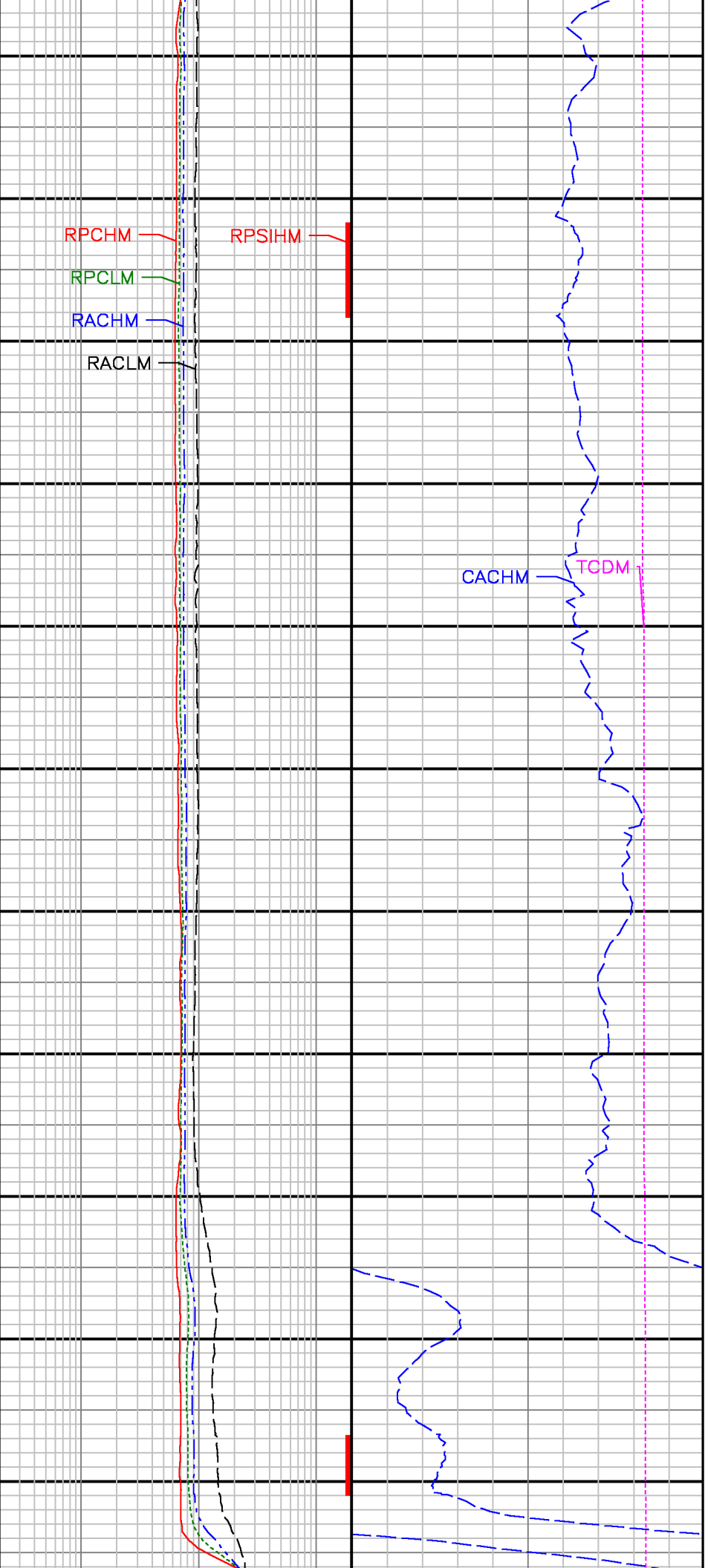


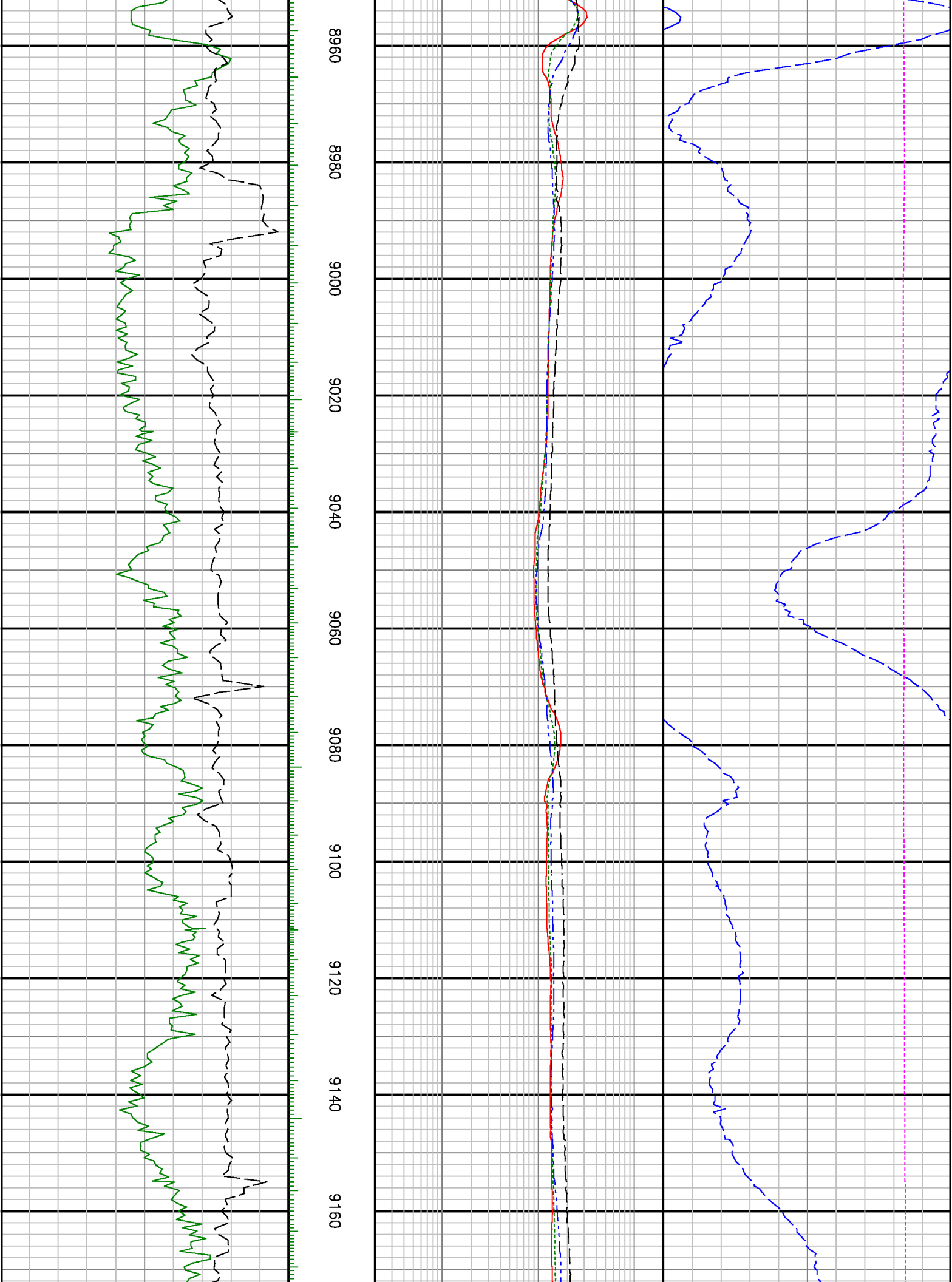


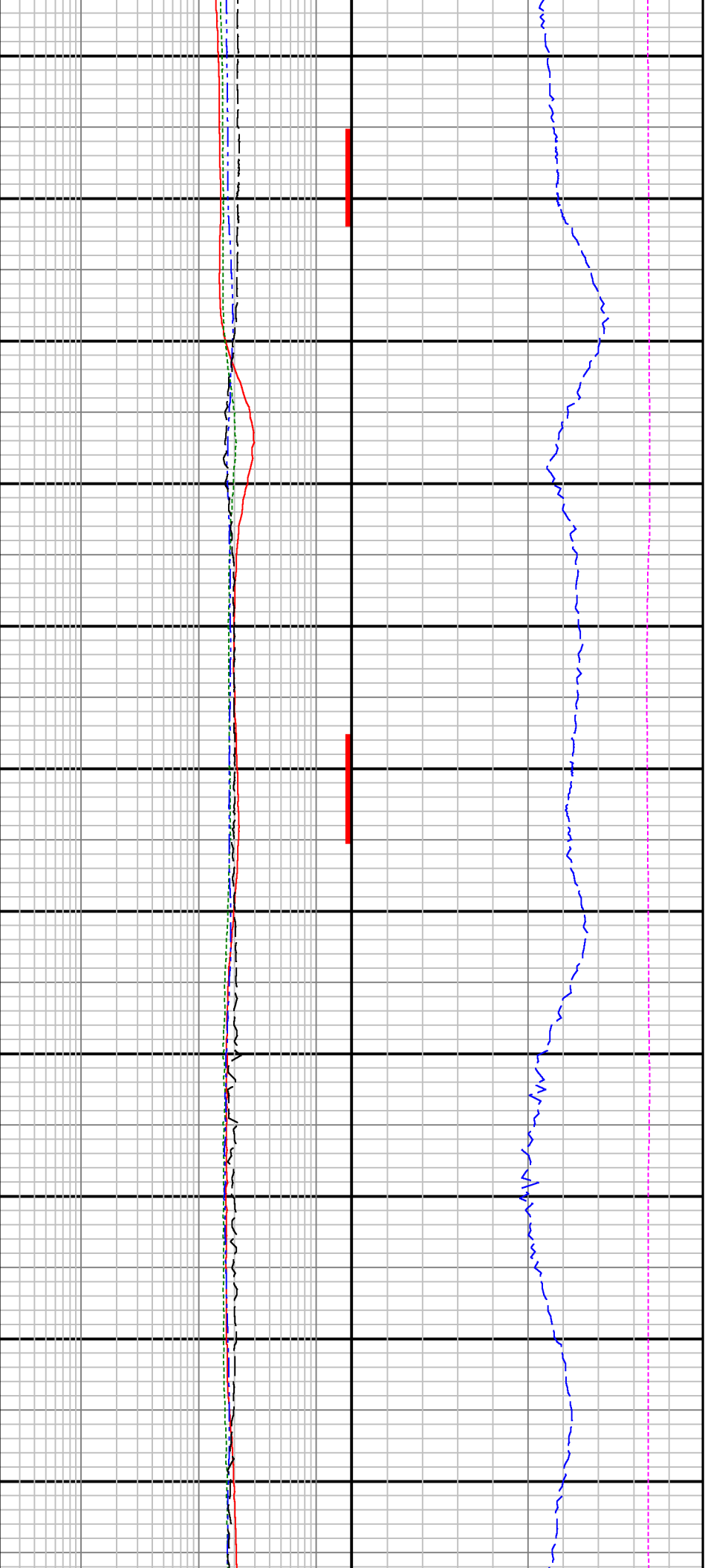




8740 8760 8780 8800 8820 8840 8860 8880 8900 8920 8940







9180 9200 9220 9240 9260 9280 9300 9320 9340 9360 9380

