



BAKER
HUGHES

LWD REALTIME LOG COMPOSITE

Propagation Resistivity

Scale:

1:1200 MD

Depth Reference:

Driller's Depth

Company: Verdad Oil & Gas Corporation

Well: Jackson 33-7H

Field: Weld County

County: Weld County Country: United States

State: Colorado Block: 1

Status:

Final Print

Surface Location:
Latitude:
Longitude:

Other Services:
Directional

API No: 05-123-46494

Job ID: 9084236

SEC: 33 TWN: 2N RGE: 64W

Permanent Datum (P.D.): Mean Sea Level

Log Measured From: Rig Floor

Elevation: 0.00 ft Elev. KB: 5032.00 ft
Above P.D. 5032.00 ft Elev. GL: 5016.00 ft

Dates

Interval Logged

Magnetic Field Reference

Date From: 2018-04-04 Top: (ft) 1825.00

Date To: 2018-04-06 Bottom: (ft) 13010.00

Spud Date: 2018-03-27

Azi Reference North: True Dip Angle: (deg) 66.63

Total Magnetic Field Strength: (nT) 52208

Mag to Reference North Correction: (deg) 8.19 E

Borehole Record

Casing Record

| Hole Size (in) | From (ft) | To (ft) | Size (in) | Weight (lb/ft) | From (ft) | To (ft) |
|----------------|-----------|---------|-----------|----------------|-----------|---------|
|----------------|-----------|---------|-----------|----------------|-----------|---------|

| | | | | | | |
|-------|---------|----------|-------|-------|-------|---------|
| 8.500 | 1718.00 | 13010.00 | 9.625 | 32.00 | 16.00 | 1718.00 |
|-------|---------|----------|-------|-------|-------|---------|

Mud Record

Deviation Record

| Type | From (ft) | To (ft) | Hole Size (in) | Interval (ft) | Inc Az (Start) | Inc Az (End) |
|-----------------|-----------|----------|----------------|---------------|------------------|----------------|
| Water Based Mud | 0.00 | 1731.08 | 13.500 | 1731.00 | 0.85 282.74 | 15.01 46.95 |
| Oil Based Mud | 1731.00 | 13010.00 | 8.500 | 11279.00 | 15.01 46.95 | 89.97 175.66 |
| | | | | | | |
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| | | | | | | |
| | | | | | | |

Acquisition System

Software Version

Other

Baker Hughes Cadence

RT4.1

Xtreme 24

Plot Studio

4.1.7763.3

Rig: Contractor: District:

Xtreme D&E

Unit: RMA

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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 |
|--------|-------------|---------------|----------|-----------------------|----------------|-----------------|----------|--------------------|----------|------------------|------------------|-------------|
| | | | | | | Top | Bottom | From | To | Start Logging | End Logging | |
| | | | | | | (ft) | (ft) | (ft) | (ft) | | | |
| 1 | 1 | 13.500 | PDC | 4.00 | Steerable | 0.00 | 1731.01 | 0.00 | 1731.01 | 2018-03-28 00:42 | 2018-03-28 14:28 | 0.52 |
| 2 | 2 | 8.500 | PDC | 3.00 | AutoTrak Curve | 1718.19 | 12997.11 | 1731.08 | 13010.00 | 2018-04-04 05:29 | 2018-04-06 14:44 | 52.79 |

Crew

| Name | | Arrive Wellsite | Depart Wellsite | Name | | Arrive Wellsite | Depart Wellsite | Name | | Arrive Wellsite | Depart Wellsite |
|----------------|--|-----------------|-----------------|------|--|-----------------|-----------------|------|--|-----------------|-----------------|
| Andrew Chersin | | 2018-03-26 | N/A | | | | | | | | |

Mud Properties Record

| Date / Time | Run No. | Measured Depth (ft) | Mud Type | Density (ppg) | Viscosity (cP) | pH | Fluid Loss (cm3) | Oil / Water | Source | Total Chlorides (ppm) | K+ (%) |
|------------------|---------|---------------------|-----------------|---------------|----------------|-----|------------------|-------------|------------|-----------------------|--------|
| 2018-03-27 16:46 | 1 | 200.00 | Water Based Mud | 8.8 | 17 | N/A | N/A | 3/97 | Active Pit | 31000 | 0.00 |
| 2018-04-03 17:59 | 2 | 1731.00 | Oil Based Mud | 9.4 | 21 | N/A | N/A | 67/33 | Active Pit | 32000 | 0.00 |
| 2018-04-05 09:08 | 2 | 7824.00 | Oil Based Mud | 9.8 | 17 | N/A | N/A | 62/38 | Active Pit | 44000 | 0.00 |
| 2018-04-06 17:36 | 2 | 13010.00 | Oil Based Mud | 9.8 | 17 | N/A | N/A | 62/38 | Active Pit | 47000 | 0.00 |

Mud Resistivity Record

| Date / Time | Run No. | Measured Depth (ft) | Surface Temp (degF) | Rm (ohm.m) | Rmf (ohm.m) | Rmc (ohm.m) | BHCT (degF) | Rm @ BHCT (ohm.m) | Rmf @ BHCT (ohm.m) | Rmc @ BHCT (ohm.m) |
|------------------|---------|---------------------|---------------------|------------|-------------|-------------|-------------|-------------------|--------------------|--------------------|
| 2018-04-06 05:22 | 2 | 11136.50 | 55.0 | 100.000 | N/A | N/A | 220.0 | 100.000 | N/A | N/A |
| 2018-04-06 17:37 | 2 | 13010.00 | 21.0 | 100.000 | N/A | N/A | 223.0 | 100.000 | N/A | N/A |

Equipment and Service Data

| Run No. | Tool | Serial Number | Measurement | Sensor Offset (ft) | Bit Offset (ft) | Max O.D. (in) | Min I.D. (in) |
|---------|----------|---------------|----------------------|--------------------|-----------------|---------------|---------------|
| 1 | NaviTrak | 12813115 | VSS | 15.51 | 58.60 | 8.000 | 3.250 |
| 1 | NaviTrak | 12813115 | Directional (mag) | 15.51 | 58.60 | 8.000 | 3.250 |
| 2 | ATC_SU | 11747241 | Near Bit Inclination | 5.93 | 6.72 | 7.000 | 4.330 |
| 2 | ATC_SU | 11747241 | Near Bit VSS | 5.93 | 6.72 | 7.000 | 4.330 |
| 2 | ATC_MWD | 12141354 | Gamma (single) | 2.75 | 12.89 | 7.000 | 3.250 |
| 2 | ATC_MWD | 12141354 | Directional (mag) | 12.27 | 22.41 | 7.000 | 3.250 |

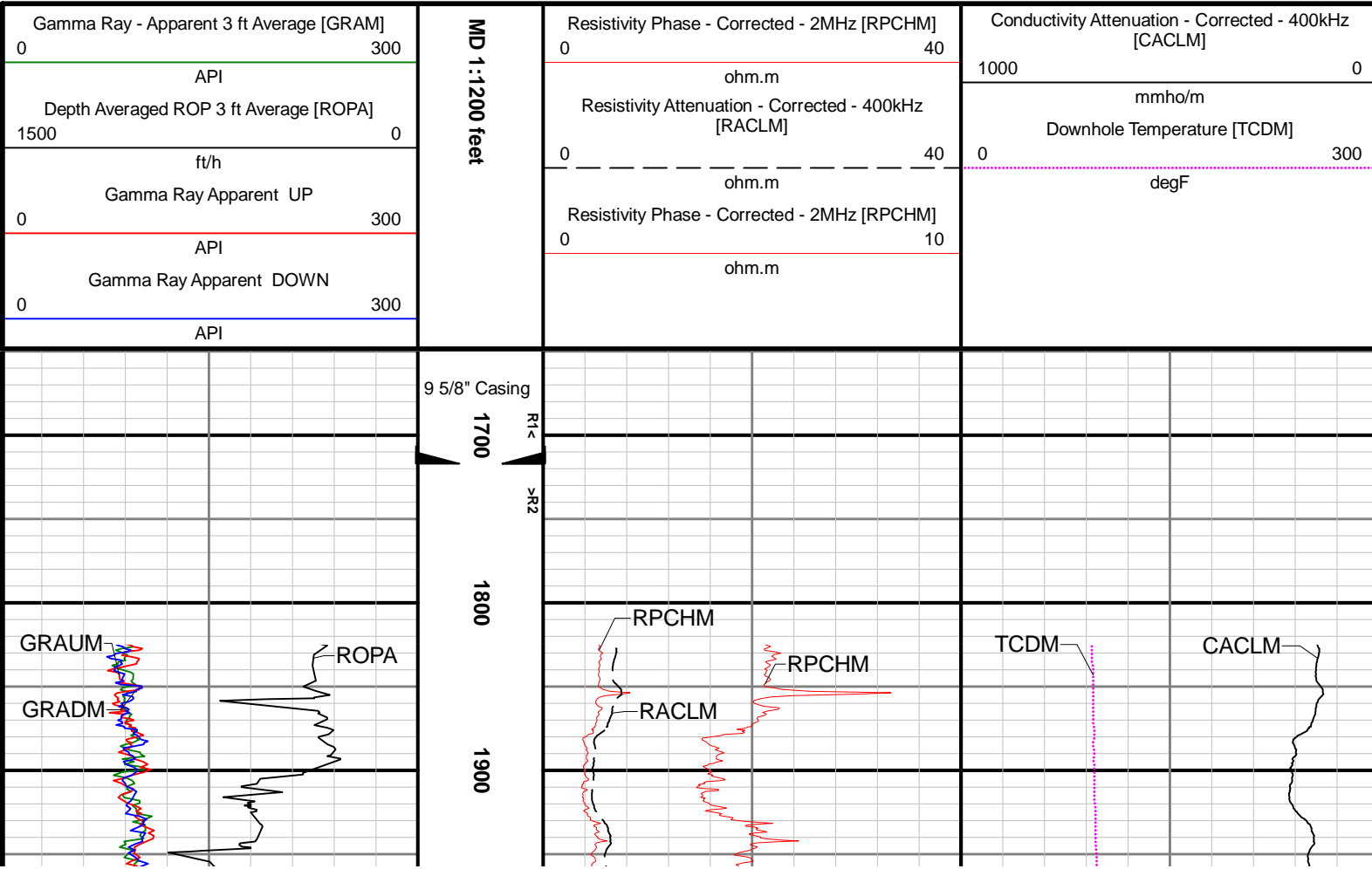
Service and Tool Mnemonics

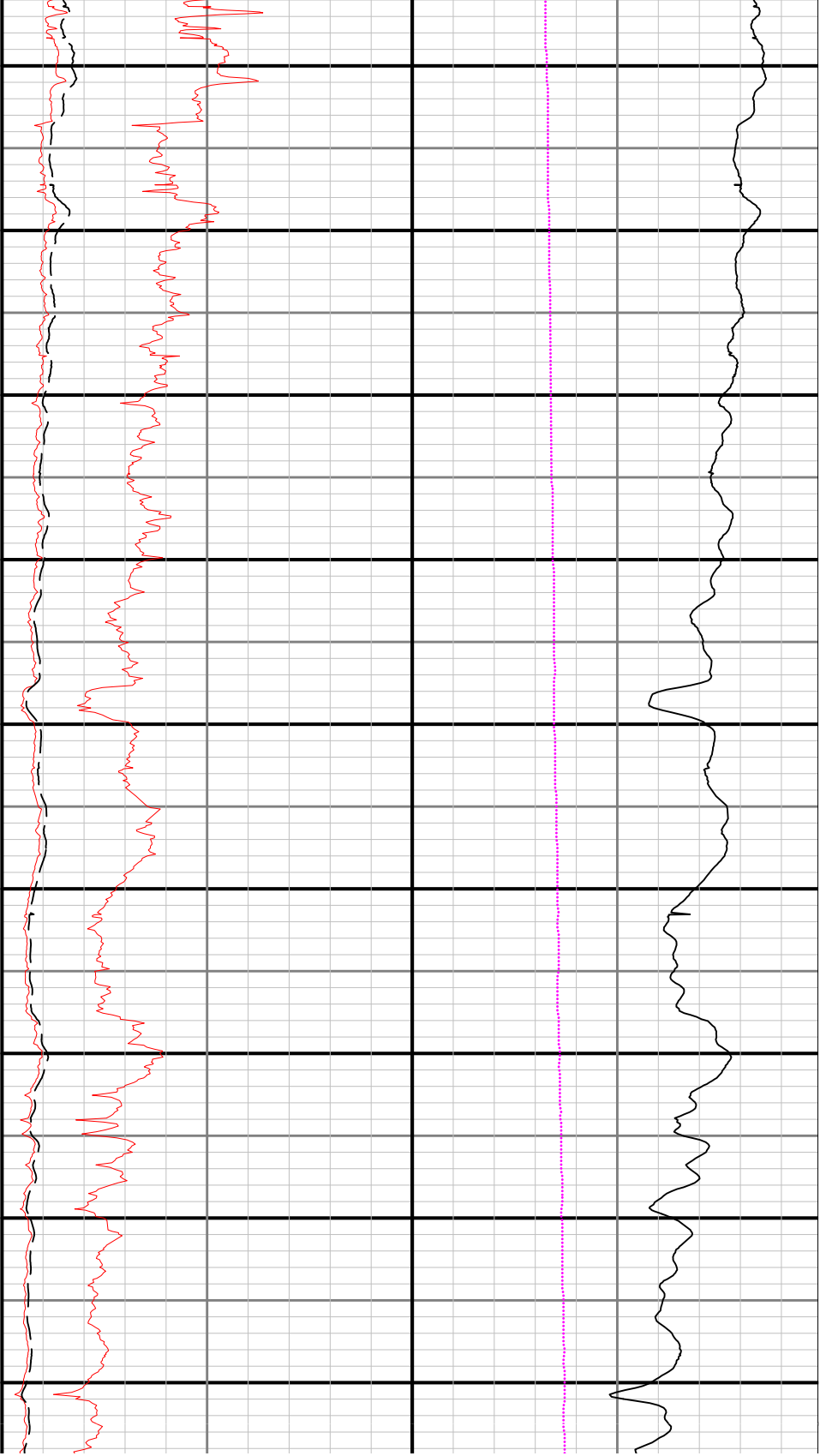
| Mnemonic | Name | Description |
|----------|----------|---|
| NTK | NaviTrak | Probe Based Directional Module, NaviTrak Platform |
| ATC_SU | ATC_SU | Auto Trak Curve Steering Unit |

| | | |
|----------|----------|--|
| ATC_MWD | ATC_MWD | Auto Trak Curve MWD |
| ATC_LCPM | ATC_LCPM | Auto Trak Curve LCPM |
| BCPM | BCPM | Bi-Directional Communication and Power Module, OnTrak Platform |

| Comments |
|---|
| <div>1</div> <div>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.</div> <div>2</div> <div>Baker Hughes drilling services run 1 utilized an 8 inch Navitrak service (Directional only) behind a 13 1/2 inch bit and steerable assembly from 80 to 1731 feet MD (80 to 1693 feet TVD)</div> <div>3</div> <div>Baker Hughes drilling services run 2 utilized a 6 3/4 inch Navigamma service (Directional and Gamma Ray) behind an 8 1/2 inch bit and rotary steerable assembly from 1731 to 13010 feet MD (1693 to 7213 feet TVD)</div> |

| Remarks | | | | |
|---------|---------------------------|-------------------------|------------|--|
| Number | Measured Depth (ft) | Hole Section (in) | Run No. | Remark |
| 1 | 2170.00 | 8.500 | 2 | A gap is present in all curves from 2153 to 2248 feet measured depth (2100 to 2196 feet TVD) due to an error in the surface accusation system. |





2000

2100

2200

2300

2400

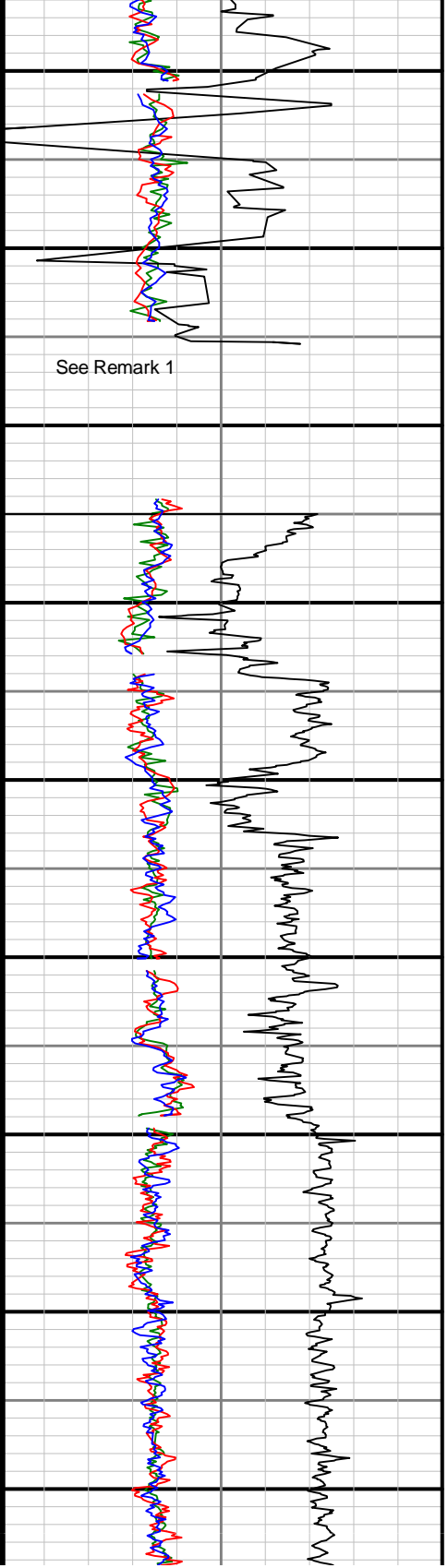
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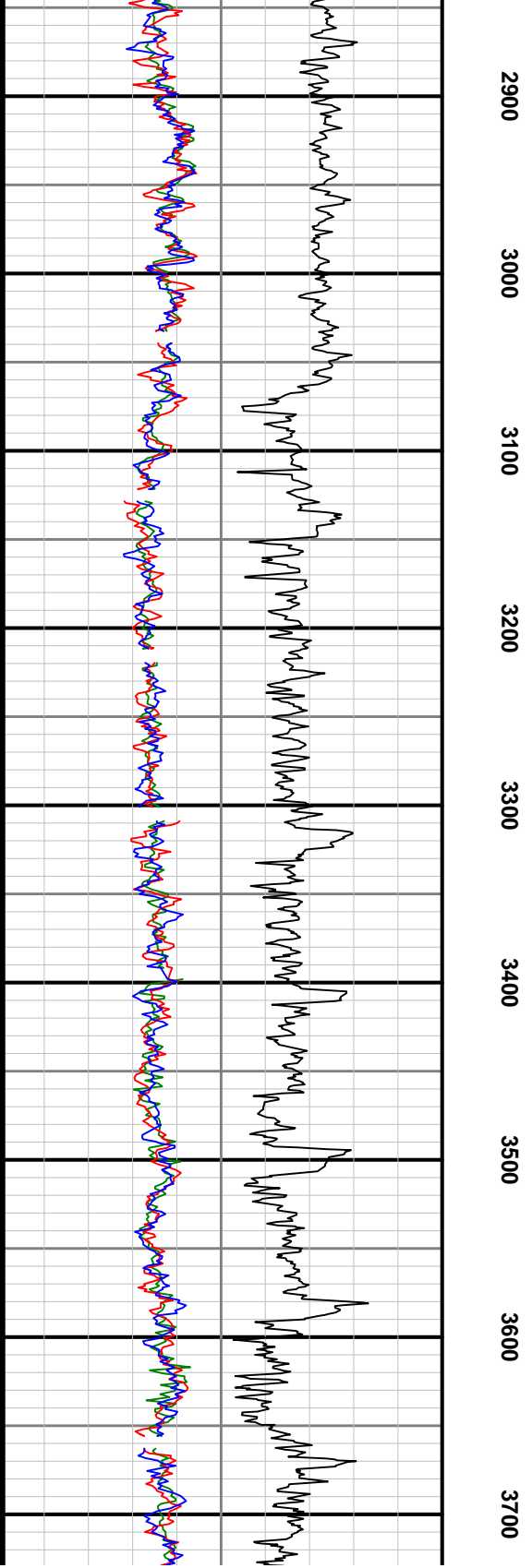
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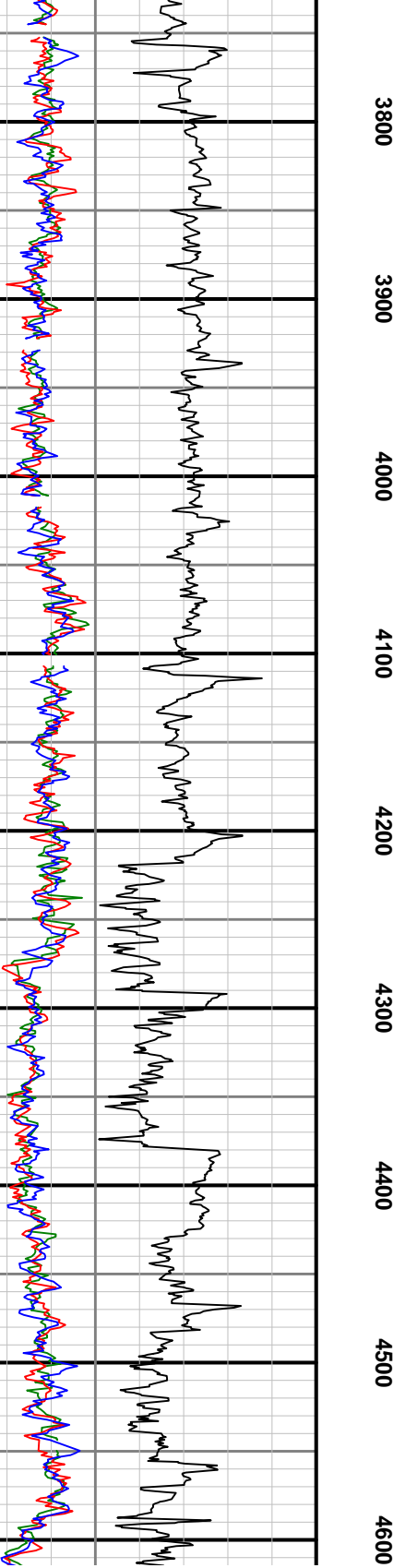
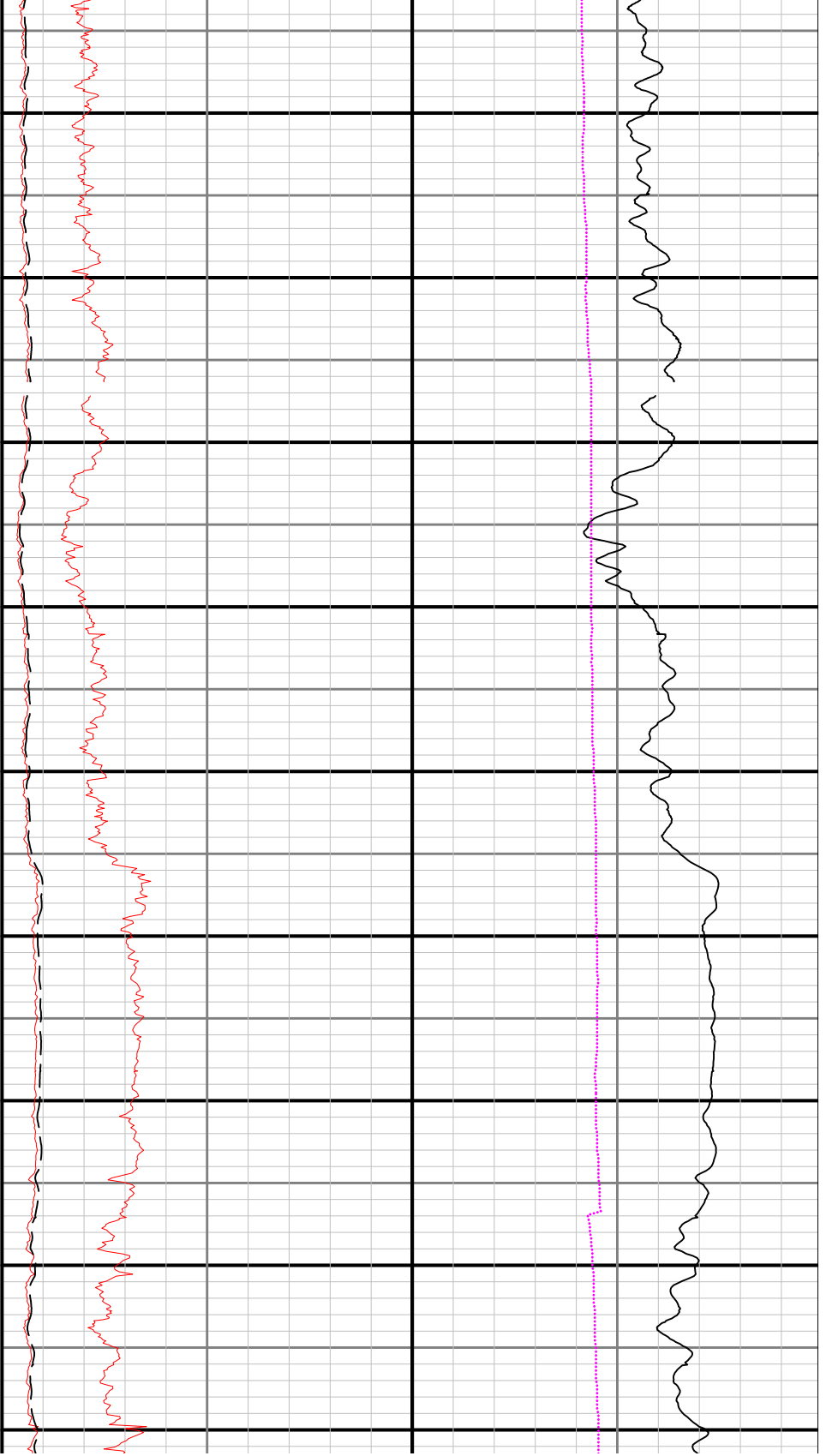
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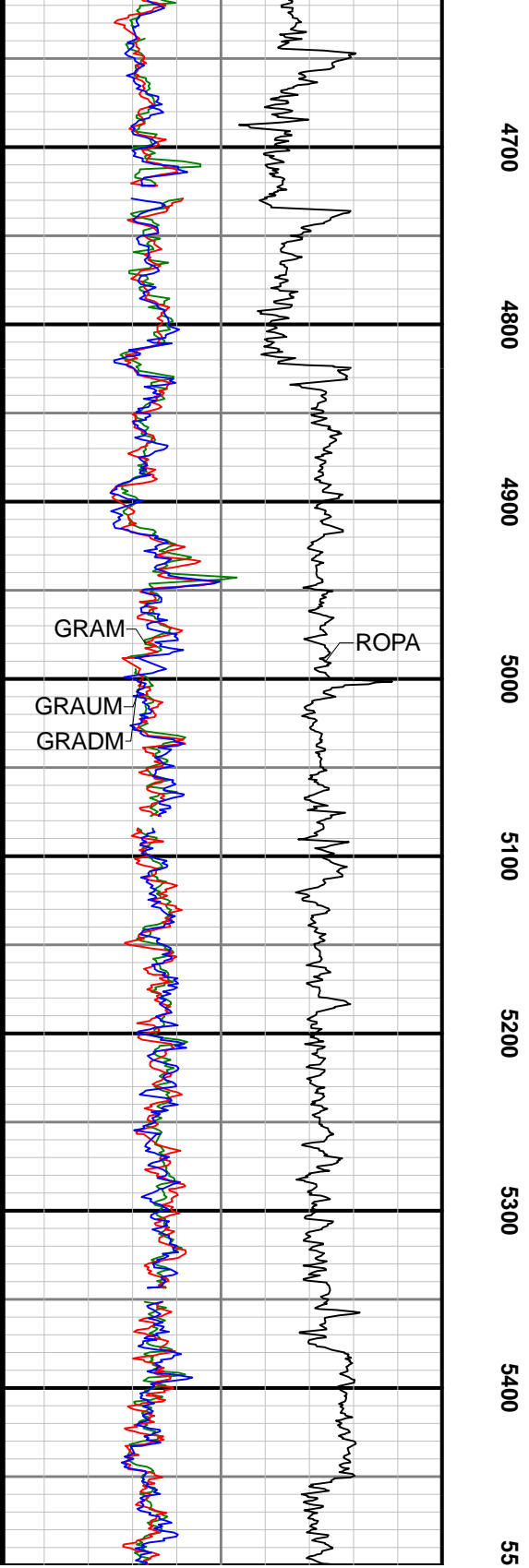
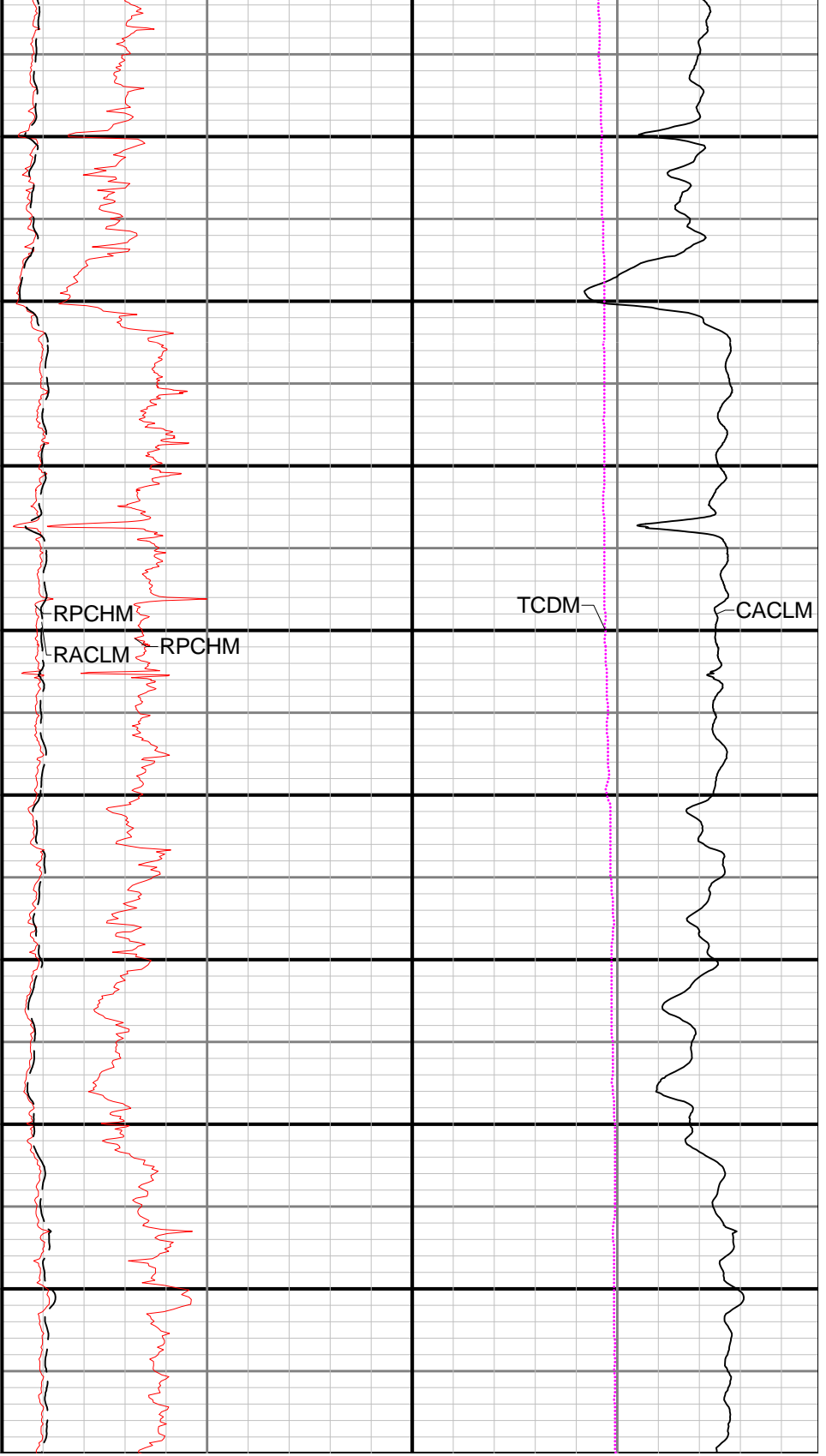
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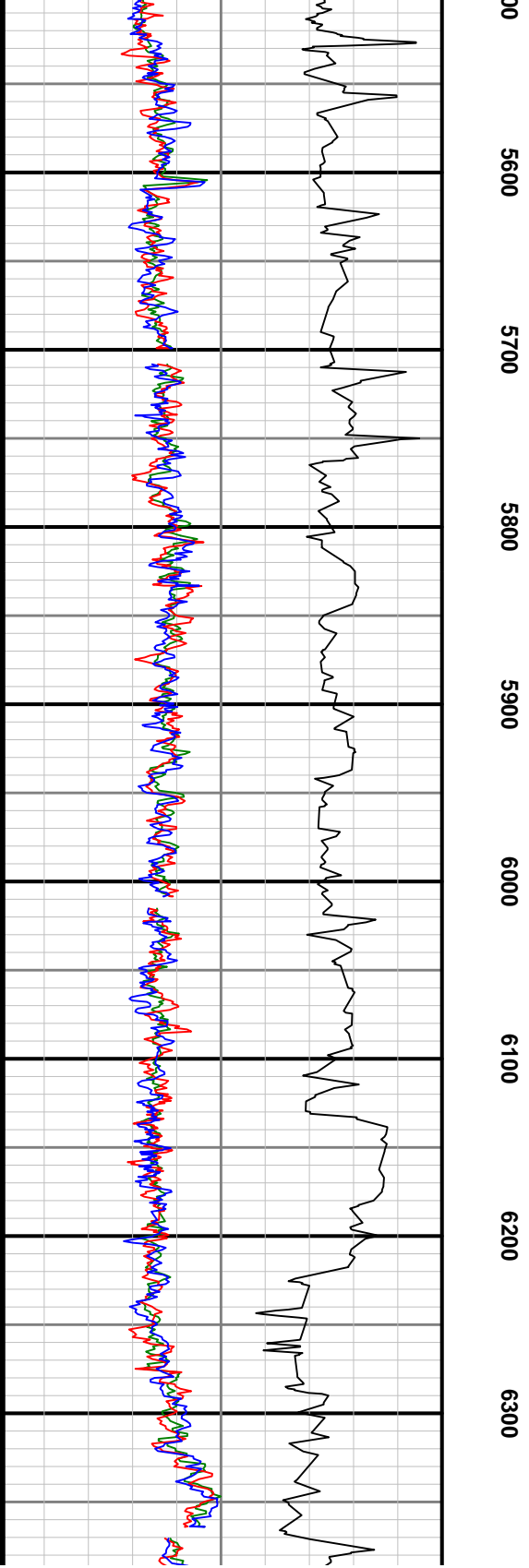
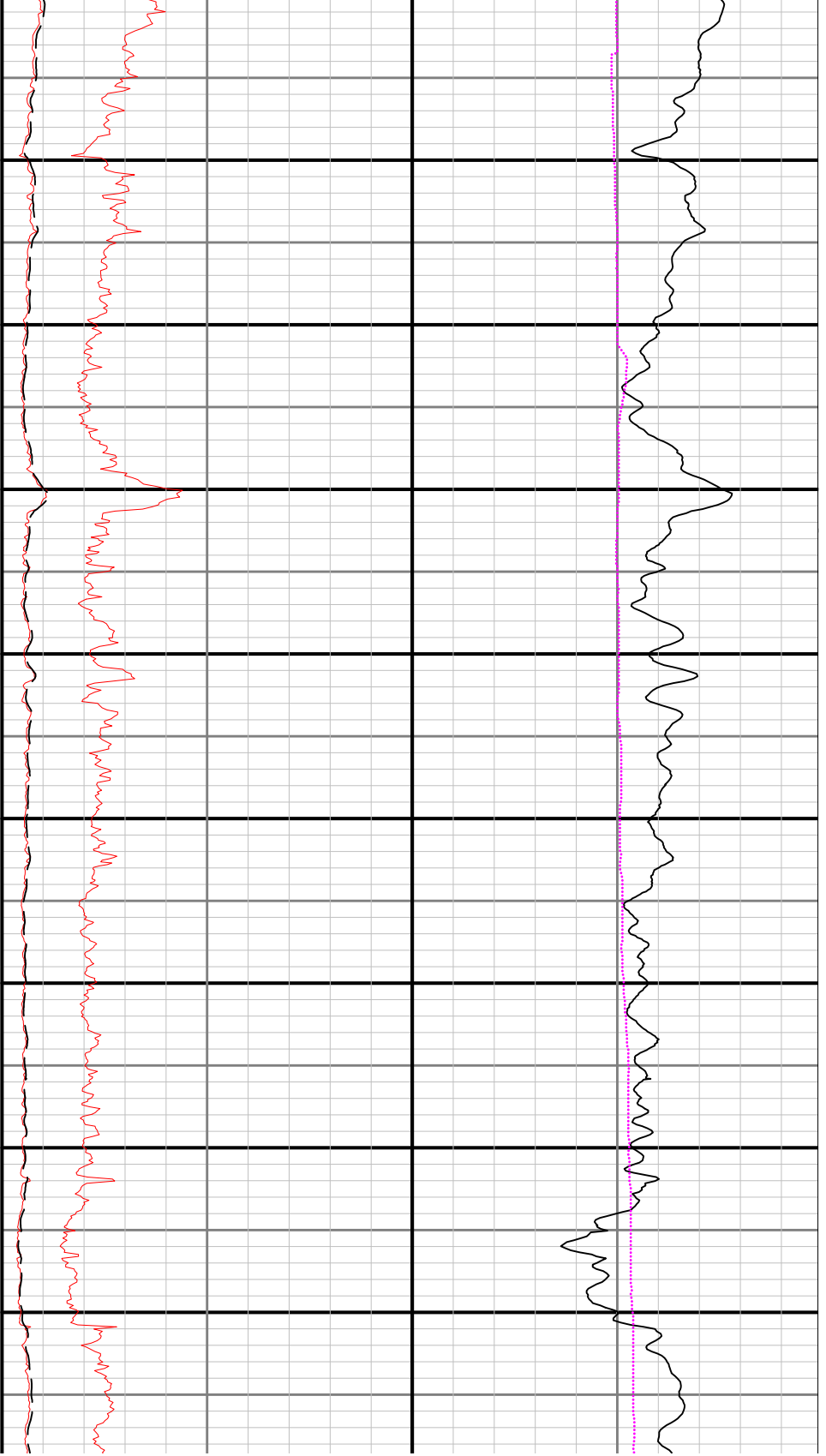
See Remark 1

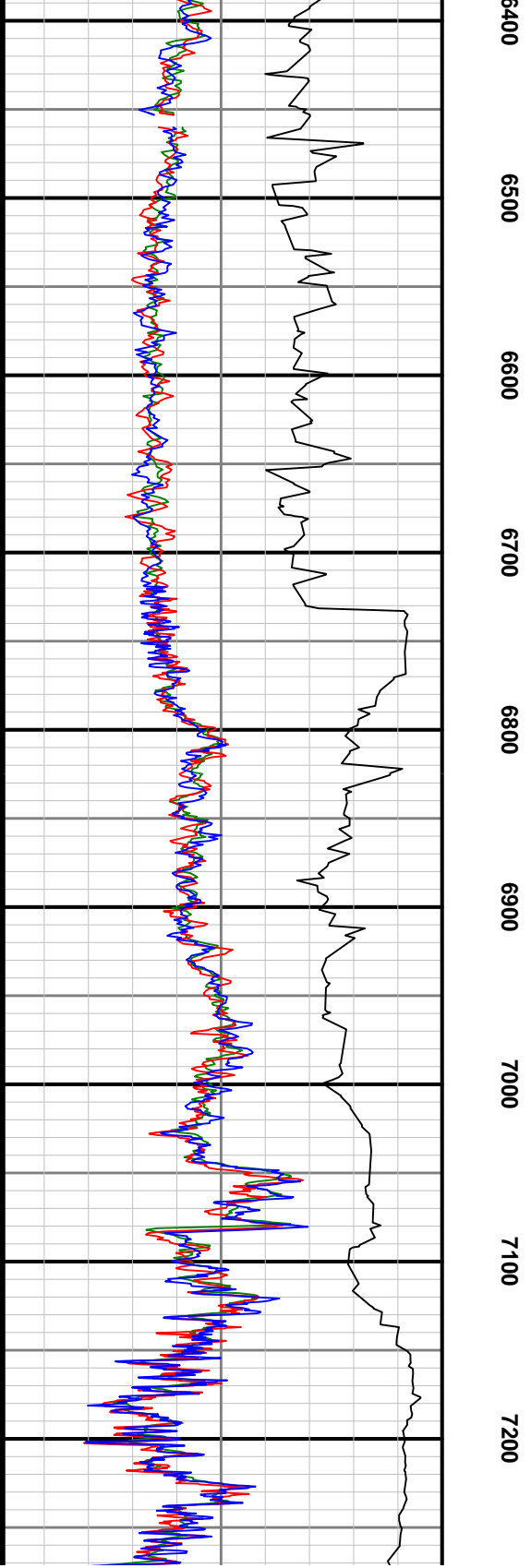
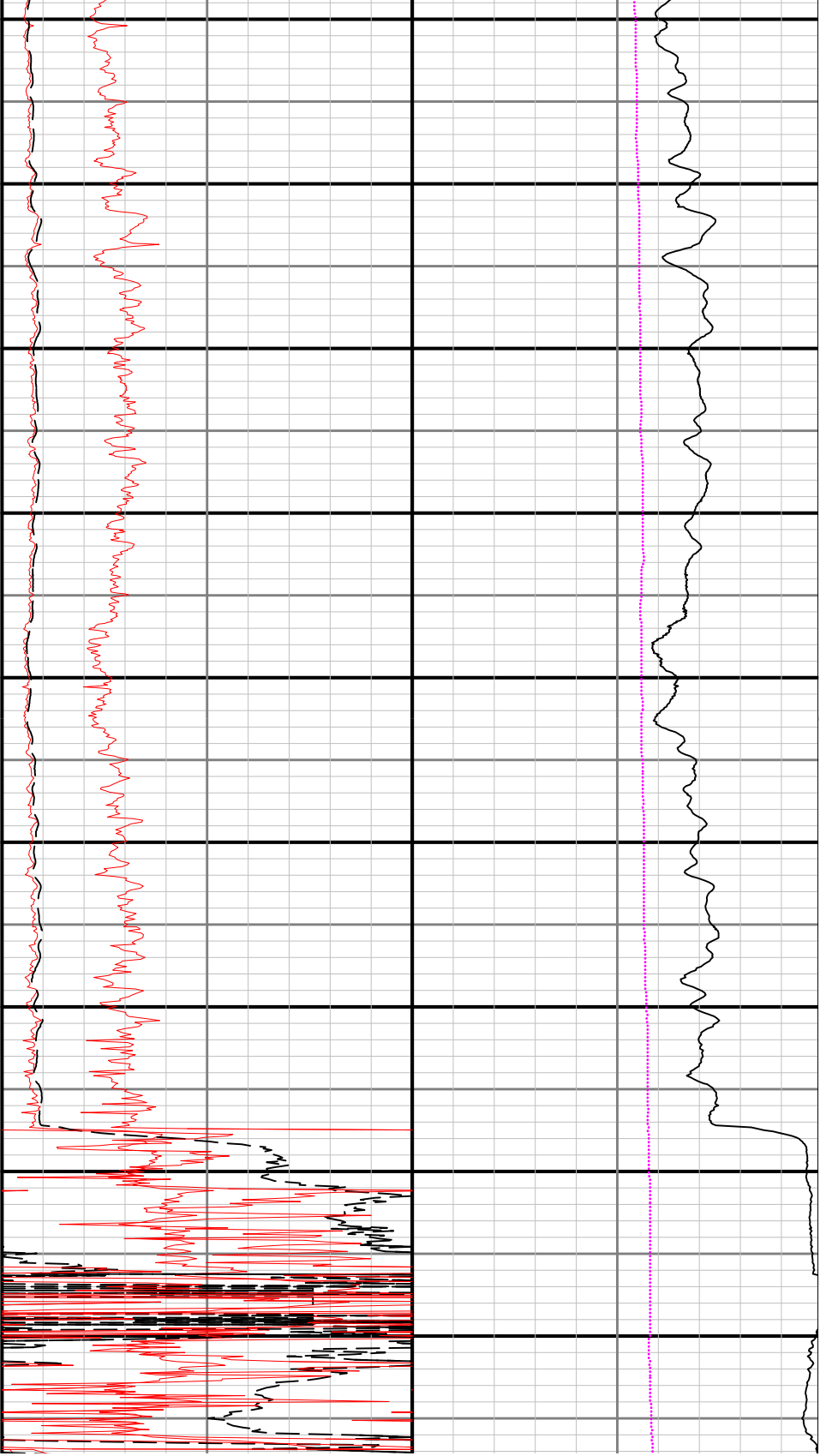


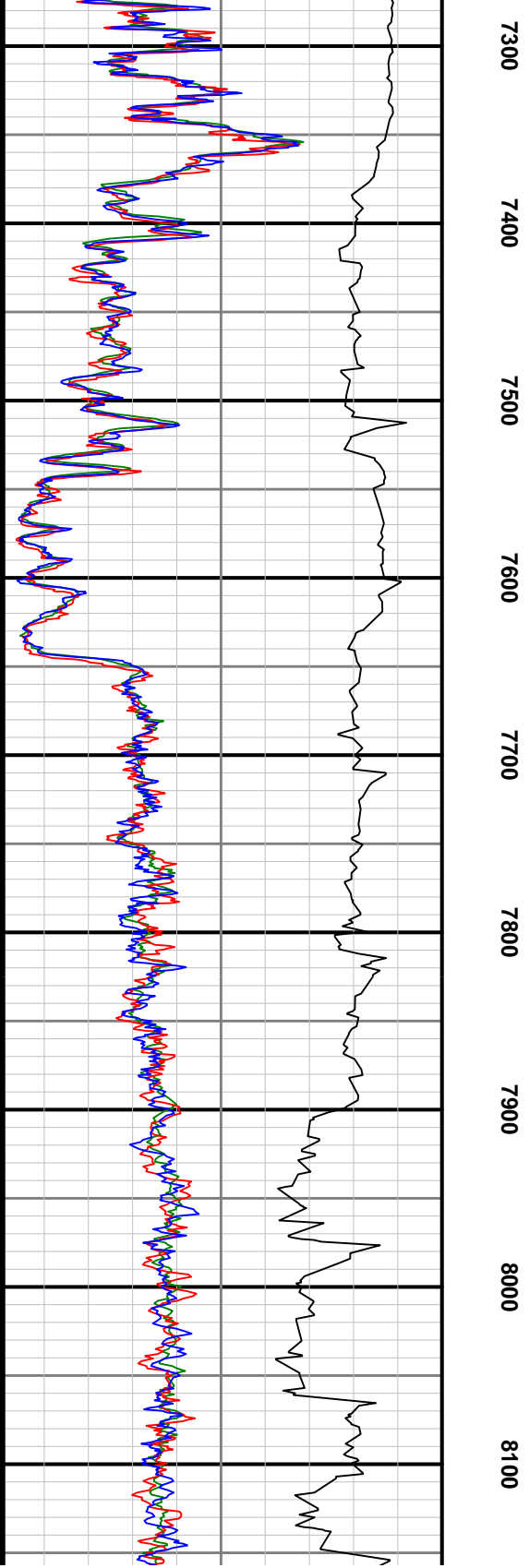
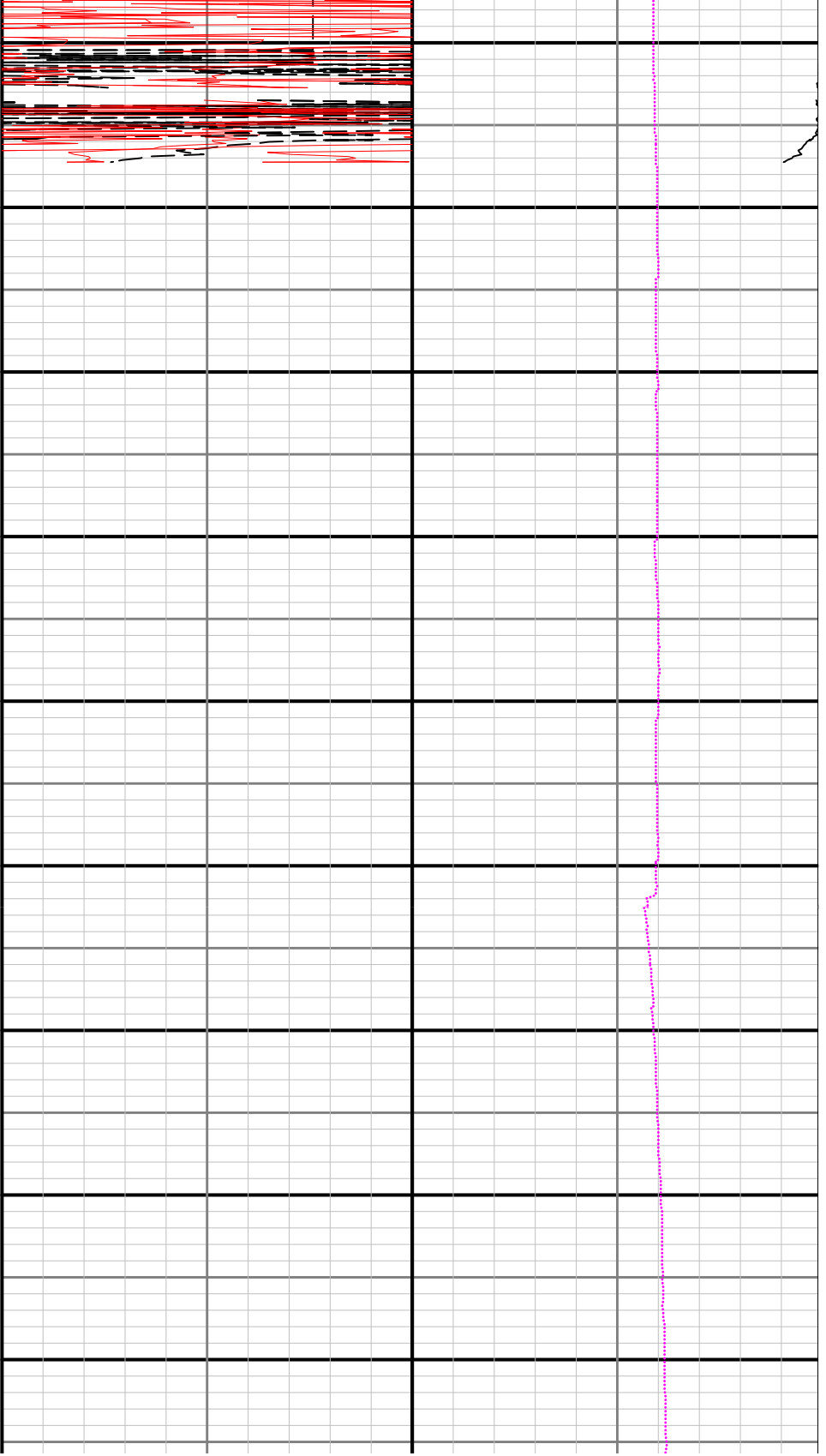


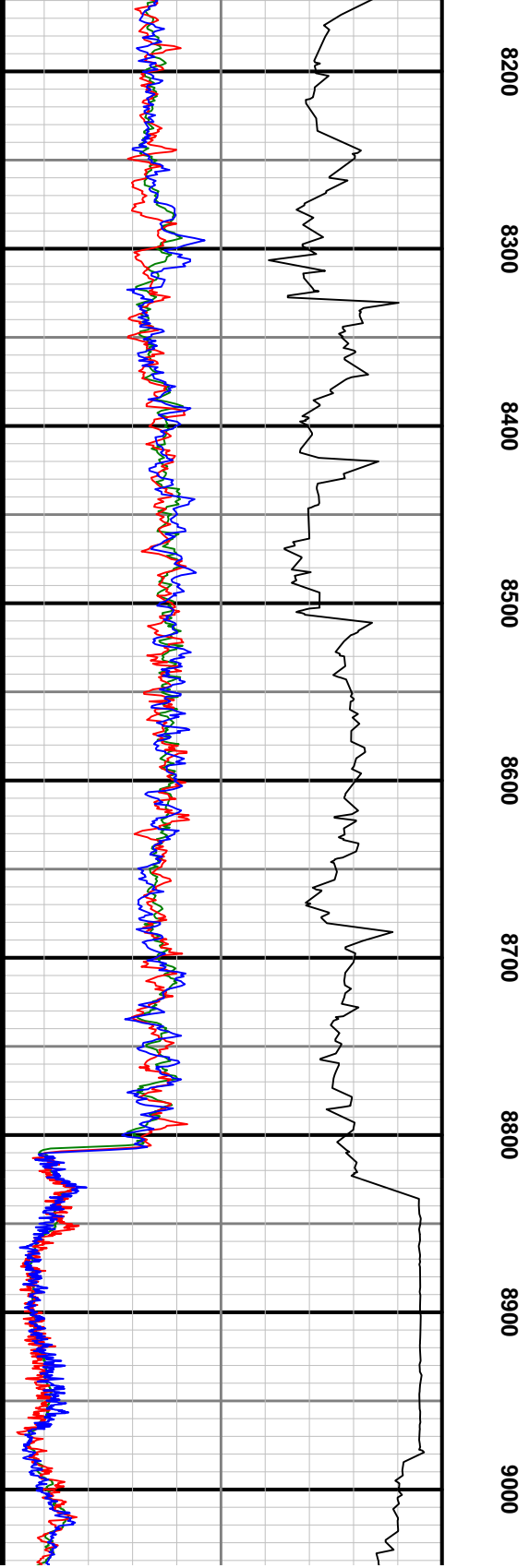
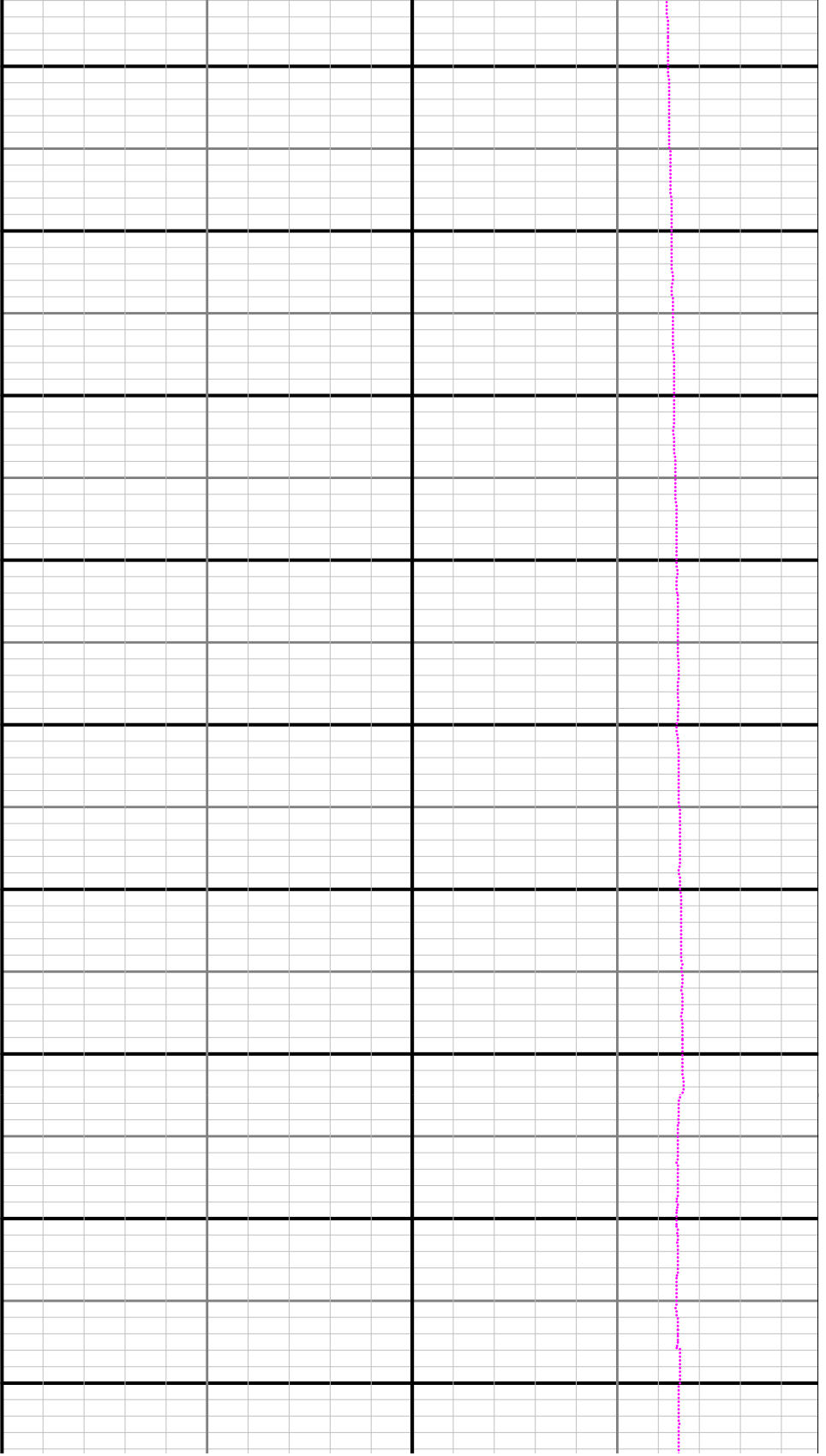


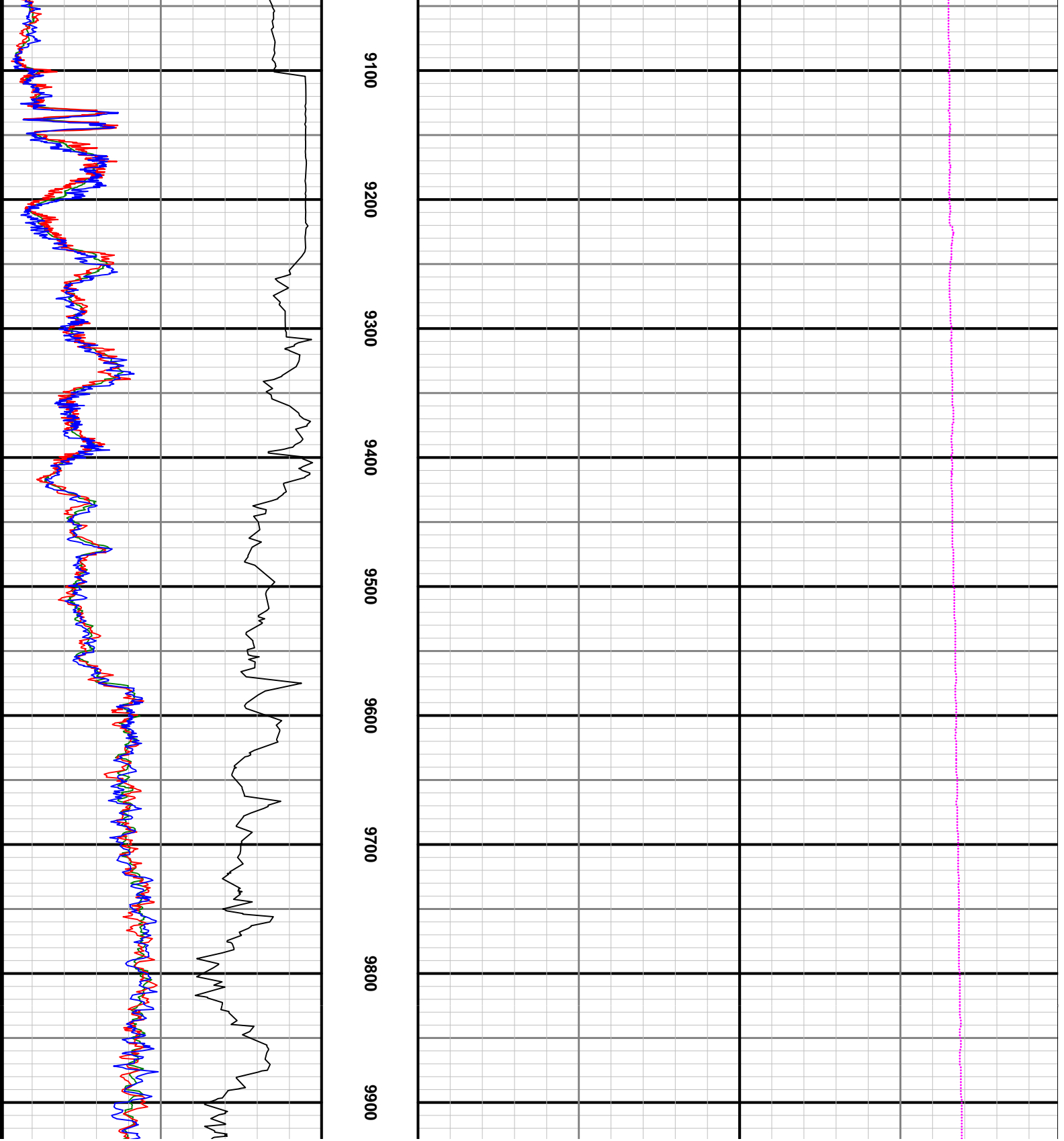


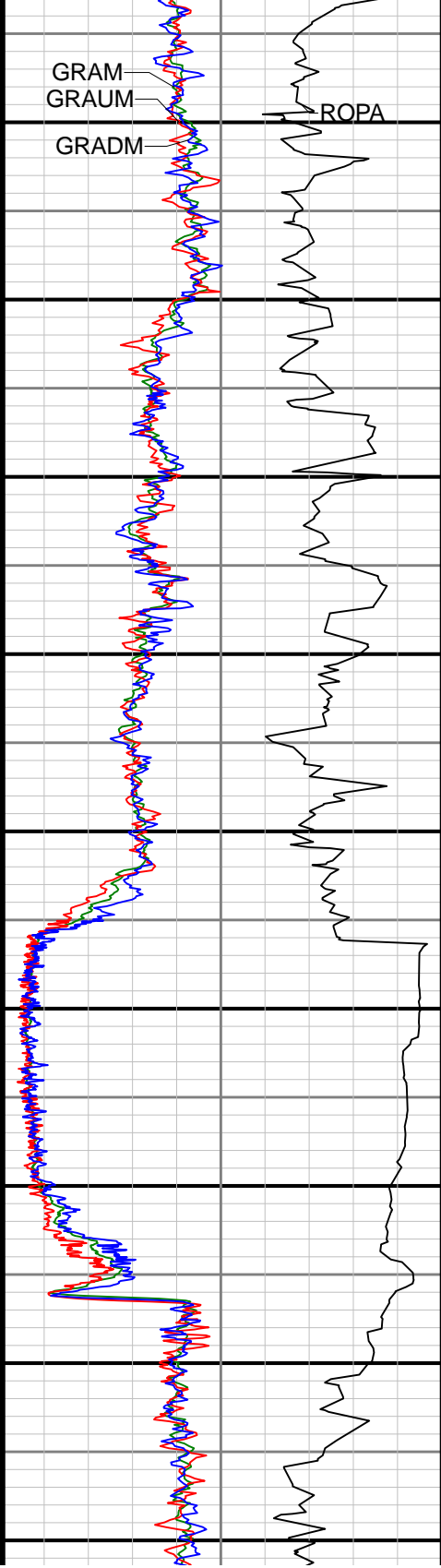




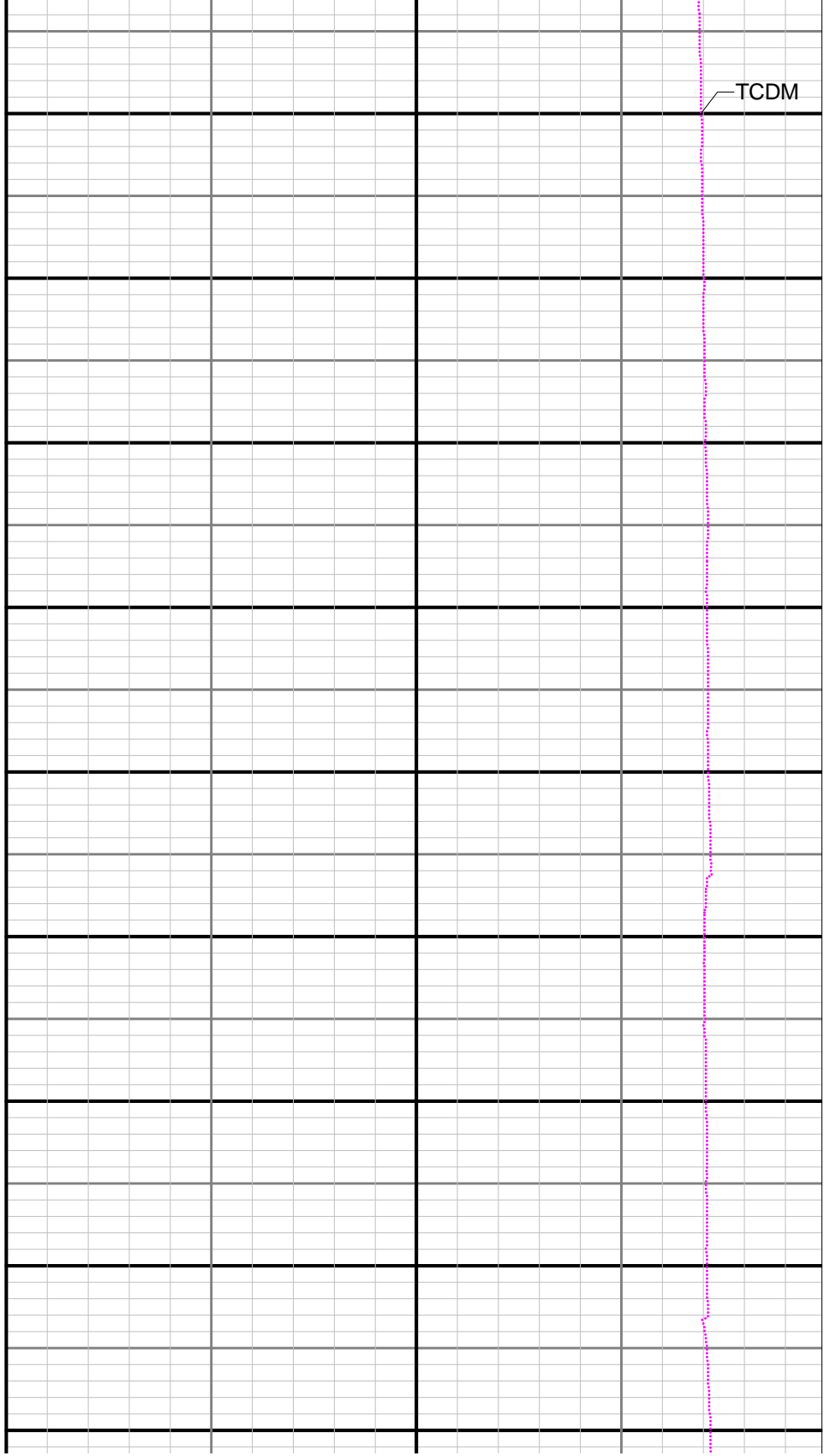








10000 10100 10200 10300 10400 10500 10600 10700 10800



TCDM

