

|  |  |                       |  |                       |  |              |  |                 |  |              |  |
|--|--|-----------------------|--|-----------------------|--|--------------|--|-----------------|--|--------------|--|
| Company: Noble Energy  |  | Well: Remora LC34-725 |  | Field: Wildcat        |  | County: Weld |  | State: Colorado |  | Country: USA |  |
| <div><div>SlimPulse - Gamma Ray</div><div>1 in. / 100 ft., Measured Depth</div><div>Composite Log, Recorded Mode</div></div> <div>Schlumberger</div> |  |                       |  |                       |  |              |  |                 |  |              |  |
| Company: Noble Energy  |  |                       |  | Well: Remora LC34-725 |  |              |  |                 |  |              |  |
| Field: Wildcat   |  |                       |  |                       |  |              |  |                 |  |              |  |
| County: Weld   |  |                       |  |                       |  |              |  |                 |  |              |  |
| State: Colorado  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Country: USA   |  |                       |  |                       |  |              |  |                 |  |              |  |
| Section: 34  |  | APIN: 05-123-40602    |  |                       |  |              |  |                 |  |              |  |
| Township: 09N  |  | Rig Name: H&P 273     |  |                       |  |              |  |                 |  |              |  |
| Range: 59W   |  | Rig Type: Top Drive   |  |                       |  |              |  |                 |  |              |  |
| FL: NAD83 Colorado State Plane, Northern Zone, US Feet   |  |                       |  |                       |  |              |  |                 |  |              |  |
| FL1: Latitude: 40° 42' 43.42" N Northing: 1505968.52 ftUS  |  |                       |  |                       |  |              |  |                 |  |              |  |
| FL2: Longitude: 103° 57' 25.49" W Easting 3427719.49 ftUS  |  |                       |  |                       |  |              |  |                 |  |              |  |
| <div>Log Measured From: - Drill Floor: 4838.00 ft</div> <div>Ground Level: 4814.00 ft</div> <div></div>  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Permanent Datum: - Mean Sea Level  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Acquisition Dates: 18-Jan-2016 -- 22-Jan-2016  |  | Other Services:       |  |                       |  |              |  |                 |  |              |  |
| Log Interval: 580.00(ft) -- 10288.58(ft)   |  | Directional Drilling  |  |                       |  |              |  |                 |  |              |  |
| Index Types: Measured Depth  |  | Downhole Shocks       |  |                       |  |              |  |                 |  |              |  |
| Index Scales: 1:1200 1" / 100'   |  | Downhole Temperature  |  |                       |  |              |  |                 |  |              |  |
| Depth Source: Driller's Depth  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Depth Sensor: PASON  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Print Type: Final  |  |                       |  |                       |  |              |  |                 |  |              |  |
| Spud Date: 17-JAN-2016   |  |                       |  |                       |  |              |  |                 |  |              |  |

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

Contents

|                                       |  |
|---------------------------------------|--|
| 1. Header                             |  |
| 2. Disclaimer                         |  |
| 3. Contents                           |  |
| 4. Borehole Size/Casing/Tubing Record |  |
| 5. Operational Run Summary            |  |
| 6. Borehole Fluids                    |  |
| 7. Remarks and Equipment Summary      |  |
| 8. Well Composite                     |  |
| 8.1 Integration Summary               |  |
| 8.2 Software Version                  |  |
| 8.3 Composite Summary                 |  |
| 8.4 Log ( MD EOW )                    |  |
| 8.5 Parameter Listing                 |  |
| 9. Calibration Report                 |  |
| 10. Tail                              |  |

Borehole Size/Casing Record

|                       |       |      |          |  |  |  |
|-----------------------|-------|------|----------|--|--|--|
| Bit                   |       |      |          |  |  |  |
| Bit Size ( in )       | 12.25 | 8.75 | 6.125    |  |  |  |
| Top Driller ( ft )    | 0     | 642  | 6400     |  |  |  |
| Bottom Driller ( ft ) | 642   | 6400 | 10288.58 |  |  |  |
| Casing                |       |      |          |  |  |  |
| Size ( in )           | 9.625 |      |          |  |  |  |
| Weight ( lbm/ft )     | 32    |      |          |  |  |  |
| Inner Diameter ( in ) | 9.001 |      |          |  |  |  |
| Grade                 | J55   |      |          |  |  |  |
| Top Driller ( ft )    | 0     |      |          |  |  |  |
| Bottom Driller ( ft ) | 633   |      |          |  |  |  |

Operational Run Summary

|                                  |                |                |                |  |  |  |
|----------------------------------|----------------|----------------|----------------|--|--|--|
| Parameter ( unit )               | Run001         | Run002         | Run003         |  |  |  |
| Date Log Started                 | 18-Jan-2016    | 20-Jan-2016    | 21-Jan-2016    |  |  |  |
| Time Log Started                 | 15:44:31       | 20:03:44       | 18:12:19       |  |  |  |
| Date Log Finished                | 20-Jan-2016    | 21-Jan-2016    | 22-Jan-2016    |  |  |  |
| Time Log Finished                | 06:09:12       | 13:41:19       | 16:08:27       |  |  |  |
|                                  |                |                |                |  |  |  |
| Bit Size ( in )                  | 8.750          | 6.125          | 6.125          |  |  |  |
| Bit Start Depth ( ft )           | 642.00         | 6400.00        | 7081.00        |  |  |  |
| Bit Stop Depth ( ft )            | 6400.00        | 7081.00        | 10288.00       |  |  |  |
| Top Log Interval ( ft )          | 593.00         | 6351.00        | 7005.00        |  |  |  |
| Bottom Log Interval ( ft )       | 6351.00        | 7005.00        | 10212.00       |  |  |  |
|                                  |                |                |                |  |  |  |
| Max Hole Deviation ( deg )       | 83.35          | 92.17          | 91.00          |  |  |  |
| Azimuth of Max Deviation ( deg ) | 177.08         | 178.53         | 182.79         |  |  |  |
|                                  |                |                |                |  |  |  |
| Logging Unit Number              | Command Center | Command Center | Command Center |  |  |  |
| Logging Unit Location            | Zone 3         | Zone 3         | Zone 3         |  |  |  |
| Recorded By                      | E. Sloyer      | E. Sloyer      | S. Kingrey     |  |  |  |
| Witnessed By                     | S. Kingrey     | S. Kingrey     | E. Sloyer      |  |  |  |
| Service Order Number             | 15CCO0859      | 15CCO0859      | 15CCO0859      |  |  |  |

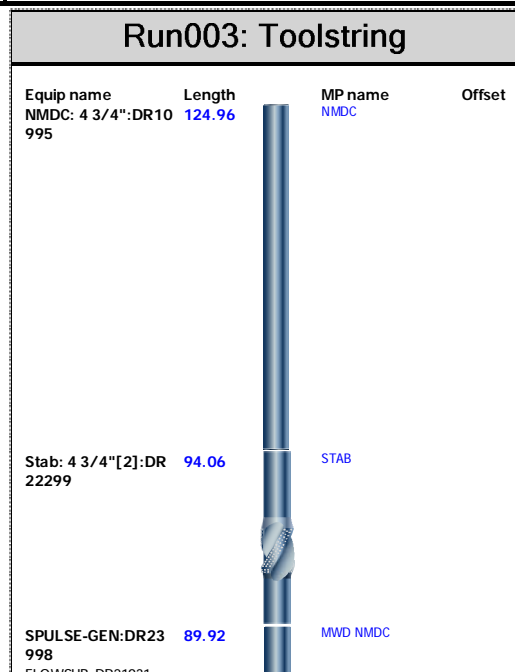
Borehole Fluids

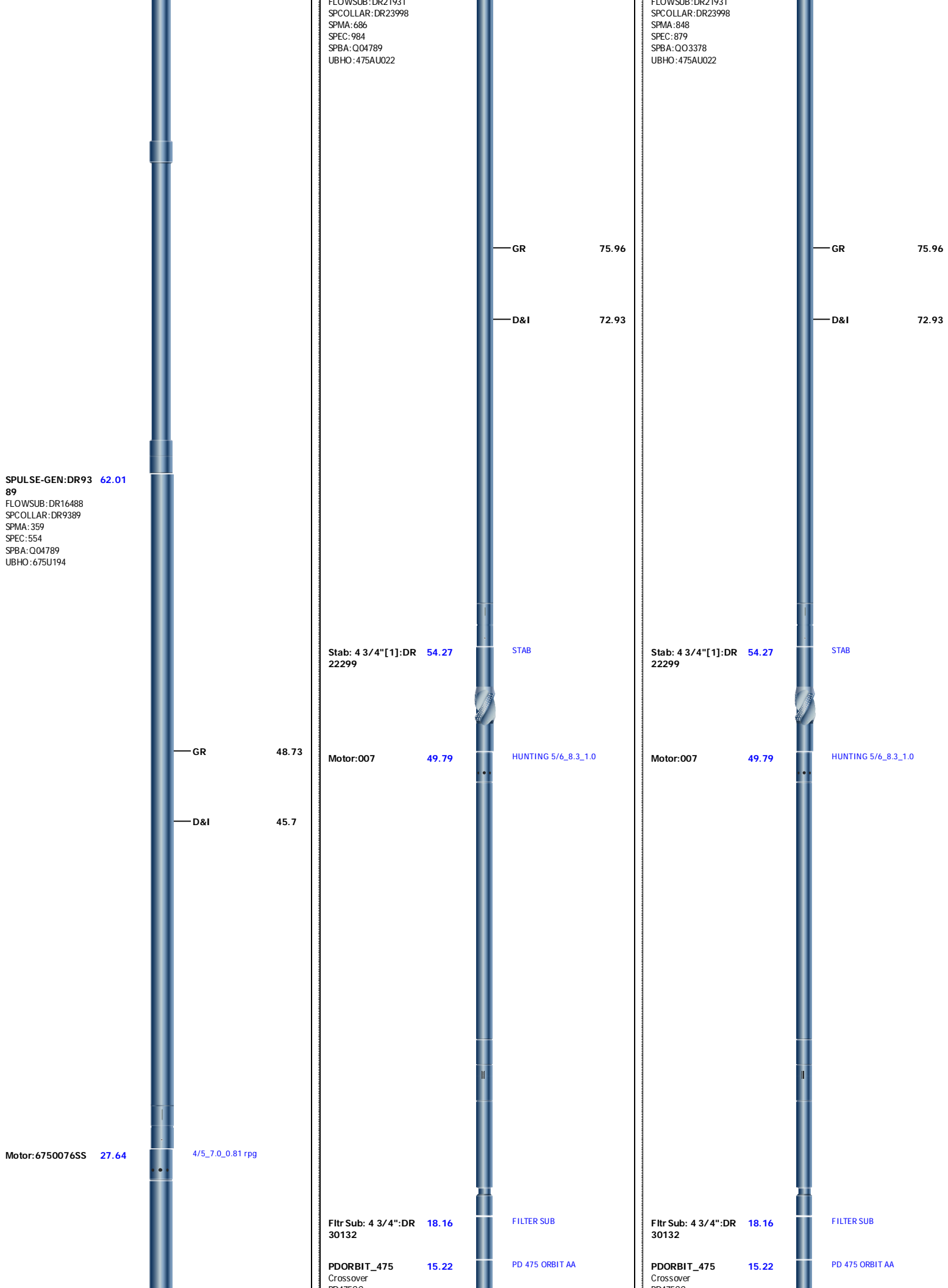
|                                    |        |        |        |  |  |  |
|------------------------------------|--------|--------|--------|--|--|--|
| Parameter( unit )                  | Run001 | Run002 | Run003 |  |  |  |
| Fluid Type                         | Water  | Water  | Water  |  |  |  |
| Max Recorded Temperatures ( degF ) | 177.8  | 212    | 226    |  |  |  |
|                                    |        |        |        |  |  |  |

## Remarks and Equipment Summary

Depth Reference: Driller's Depth

| Run001: Remarks   | Run002: Remarks  | Run003: Remarks   |
|---|--|---|
| Run Objective: Drill vertical and curve section.  | Run Objective: Drill lateral section.  | Run Objective: Drill Lateral section.   |
| Bit to GR: 48.73 ft<br>Bit to D&I: 45.70 ft   | Bit to GR: 75.96 ft<br>Bit to D&I: 72.96 ft  | Bit to GR: 75.96 ft<br>Bit to DNI: 72.96 ft   |
| Drilled from: 642 ft to 6400 ft<br>Logged from: 593 ft to 6351 ft   | Drilled from: 6400 ft to 7081 ft<br>Logged from: 6351 ft to 7005 ft  | Drilled from: 7081 ft to 10288 ft<br>Logged from: 6145 ft to 10212 ft   |
| SlimPulse Software Version 11<br>SlimPulse UDI Calibrated: Jan. 15, 2016<br>SlimPulse UGR Calibrated: Dec. 10, 2014 | SlimPulse Software Version 11<br>SlimPulse UDI Calibrated: Jan. 6, 2016<br>SlimPulse UGR Calibrated: Mar. 23, 2015 | SlimPulse Software Version 11<br>SlimPulse UDI Calibrated: Jul. 23, 2015<br>SlimPulse UGR Calibrated: Oct. 30, 2015 |
| Schlumberger Personnel:<br>DD: Charles Mitchell, Chris Sisseck<br>MWD: Scott Kingrey, Eric Sloyer                   | Schlumberger Personnel:<br>DD: Charles Mitchell, Chris Sisseck<br>MWD: Scott Kingrey, Eric Sloyer                  | Schlumberger Personnel:<br>DD: Charles Mitchell, Chris Sisseck<br>MWD: Scott Kingrey, Eric Sloyer                   |
| Reason for POOH: Section TD   | Reason for POOH: Plugged Jets  | Reason for POOH: Well TD  |





PD475CC  
PDSC Sleeve  
PDCU  
Impeller Set  
Gamma Set:87007  
PDORB475BU

Generic PDC Bit:12 0.72  
694342

TOOL\_ZERO  
Lengths are in ft  
Maximum Outer Diameter = 8.750 in  
Line: Sensor Location, Value: Gating Offset  
All measurements are relative to TOOL\_ZERO

PD475CC  
PDSC Sleeve  
PDCU  
Impeller Set  
Gamma Set:87007  
PDORB475BU

Bit: 6":12749644 0.75

TOOL\_ZERO  
Lengths are in ft  
Maximum Outer Diameter = 6.125 in  
Line: Sensor Location, Value: Gating Offset  
All measurements are relative to TOOL\_ZERO

|             |      |
|-------------|------|
| Azimuth     | 9.78 |
| D&I         | 7.68 |
| GR          | 6.78 |
| Anchor Bolt | 4.28 |

PD475CC  
Gamma Set:87007  
PDCU  
PDSC Sleeve  
Impeller Set  
PDORB475BU

Bit: 6":12749644 0.75

TOOL\_ZERO  
Lengths are in ft  
Maximum Outer Diameter = 6.125 in  
Line: Sensor Location, Value: Gating Offset  
All measurements are relative to TOOL\_ZERO

|             |      |
|-------------|------|
| Azimuth     | 9.78 |
| D&I         | 7.68 |
| GR          | 6.78 |
| Anchor Bolt | 4.28 |

# Well Composite

Software Version

Acquisition System

Version

|                  |                |
|------------------|----------------|
| Maxwell 2014 SP3 | 5.3.47551.3100 |
|------------------|----------------|

| Composite Summary |                |           |            |             |                           |                           |                       |
|-------------------|----------------|-----------|------------|-------------|---------------------------|---------------------------|-----------------------|
| Run Name          | Pass Objective | Direction | Top        | Bottom      | Start                     | Stop                      | Include Parallel Data |
| Run001            | Drilling       | Down      | 642.00 ft  | 6400.00 ft  | 18-Jan-2016<br>4:18:35 PM | 20-Jan-2016<br>6:09:12 AM | Yes                   |
| Run002            | Drilling       | Down      | 6399.17 ft | 7077.33 ft  | 21-Jan-2016<br>2:18:18 AM | 21-Jan-2016<br>1:41:19 PM | Yes                   |
| Run003            | Drilling       | Down      | 7080.00 ft | 10288.58 ft | 21-Jan-2016<br>6:12:19 PM | 22-Jan-2016<br>4:08:27 PM | Yes                   |

All depths are referenced to toolstring zero

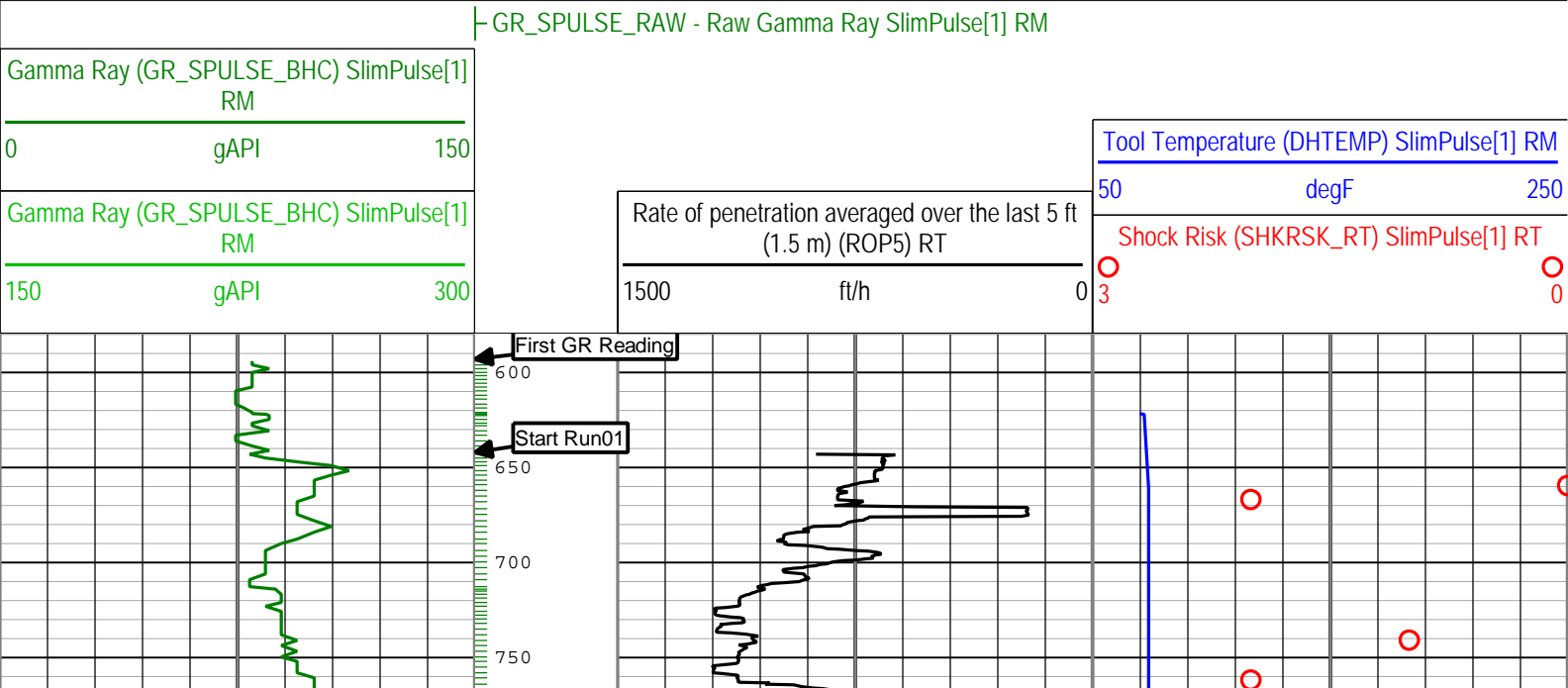
Log

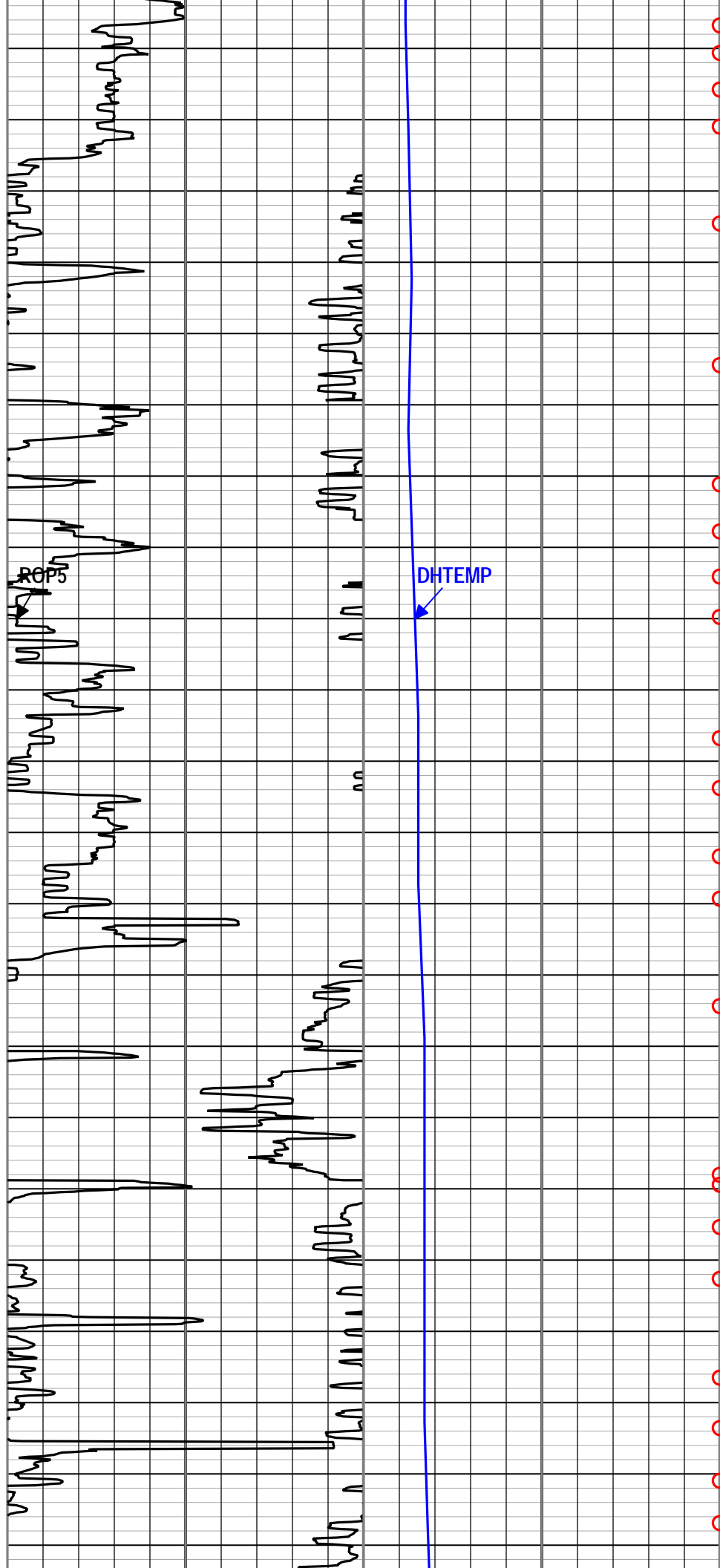
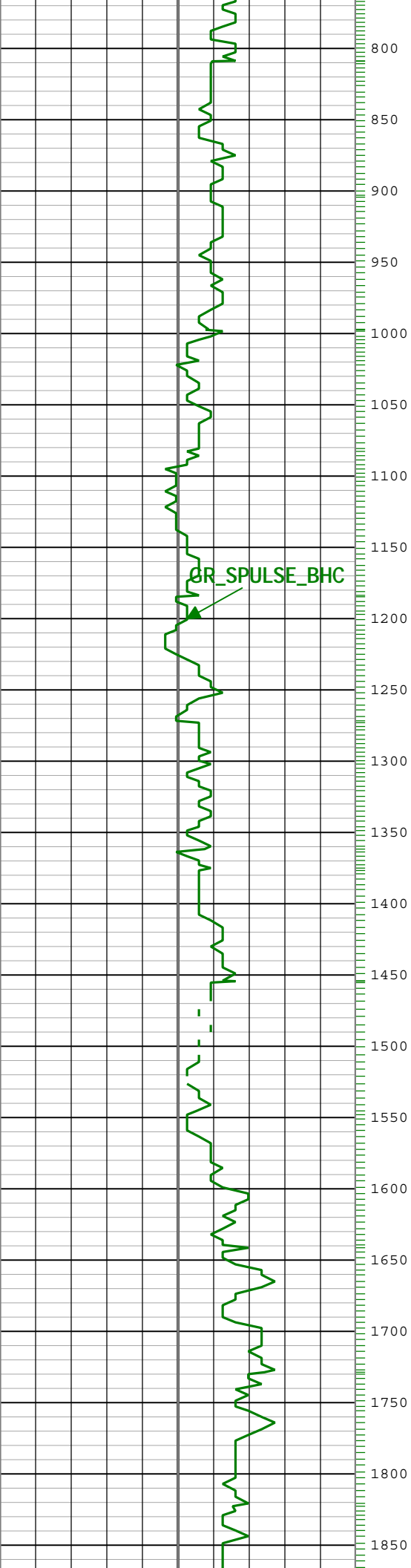
Company:Noble Energy

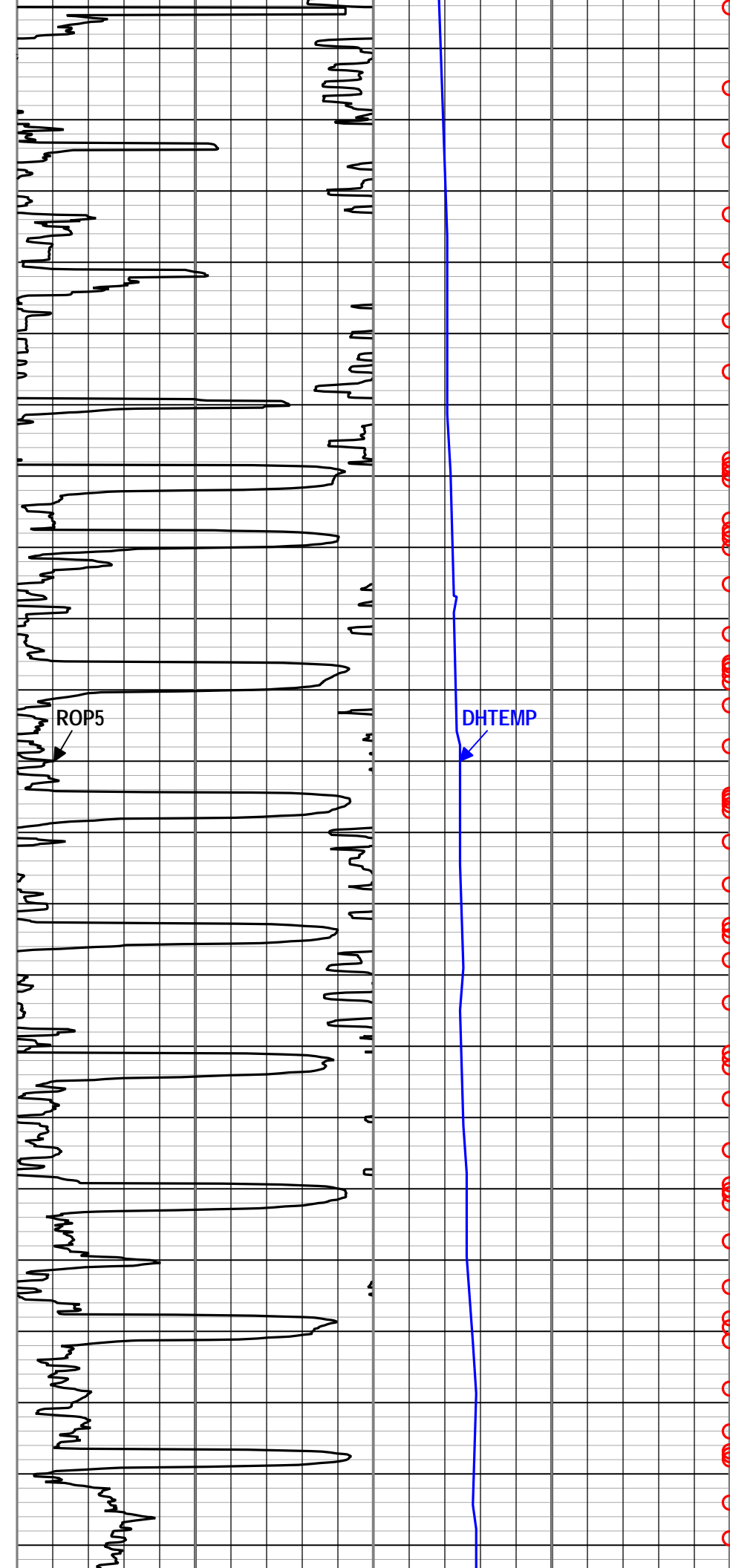
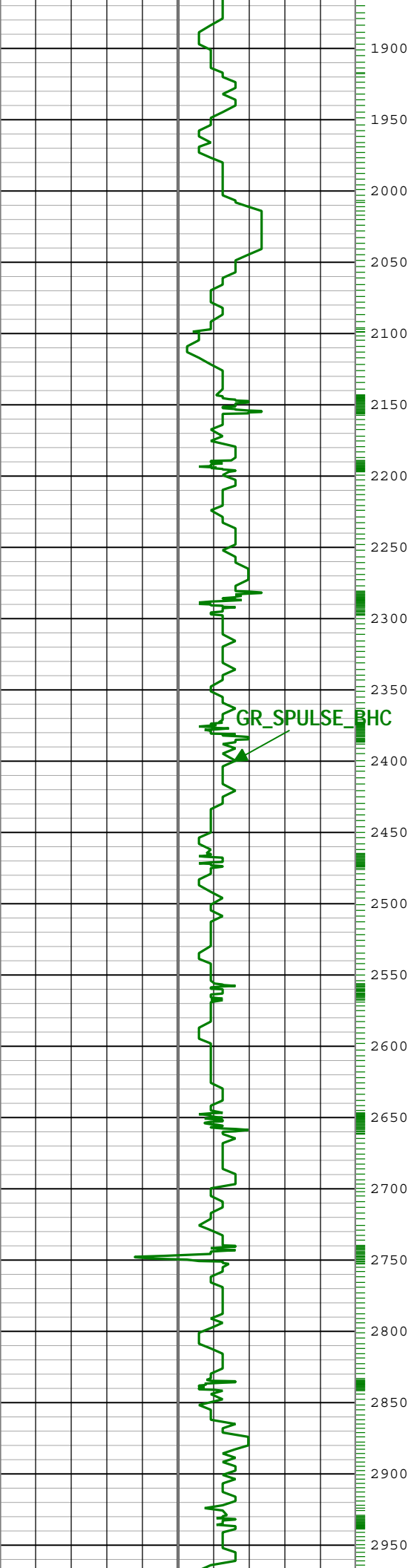
Well:Remora LC34-725

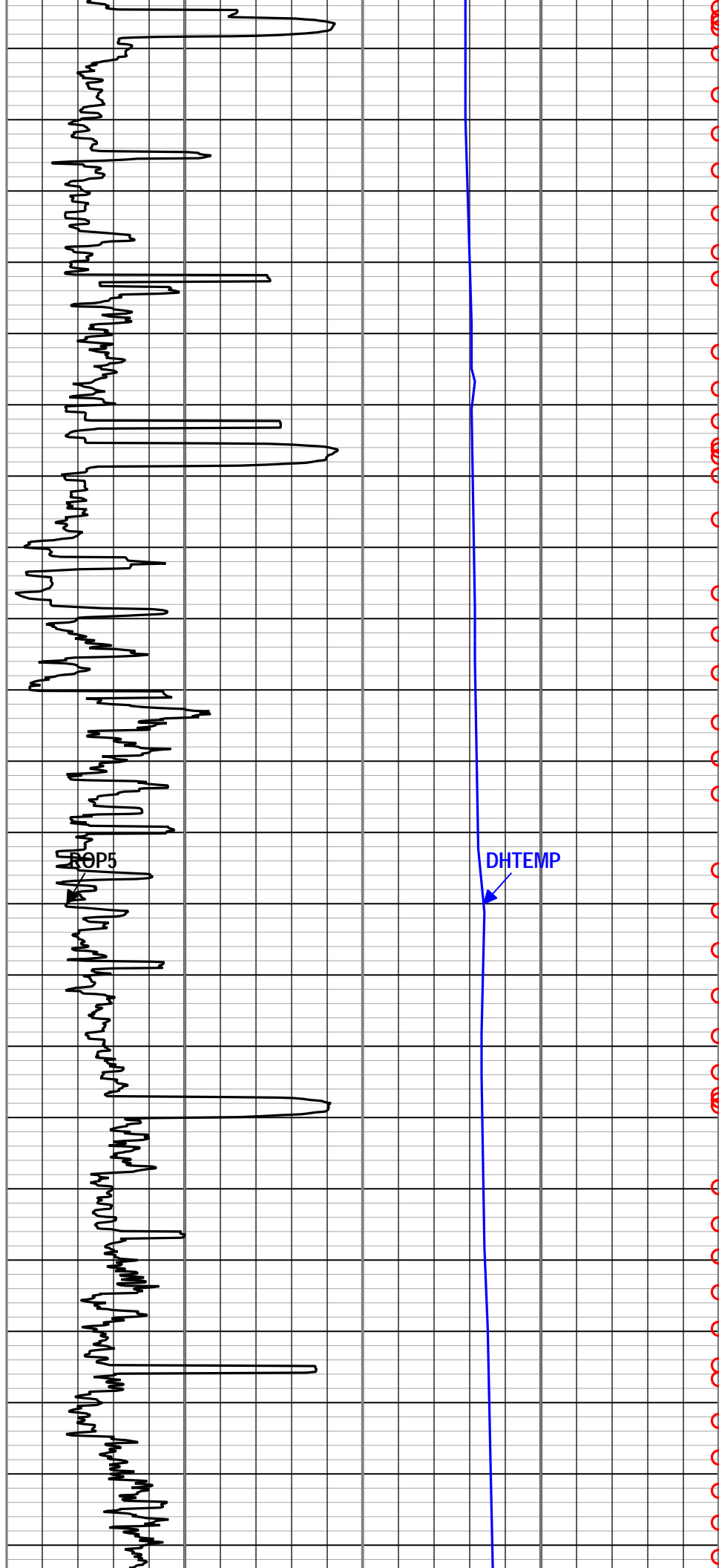
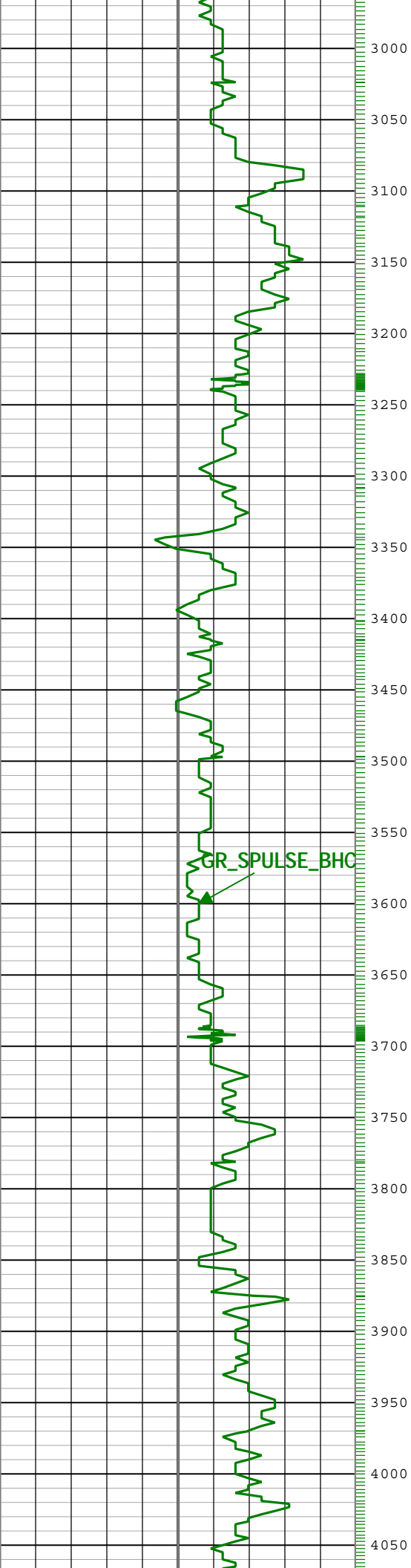
Well Composite:S109

Description: Format: Log ( MD EOW ) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Jan-2016 14:29:18

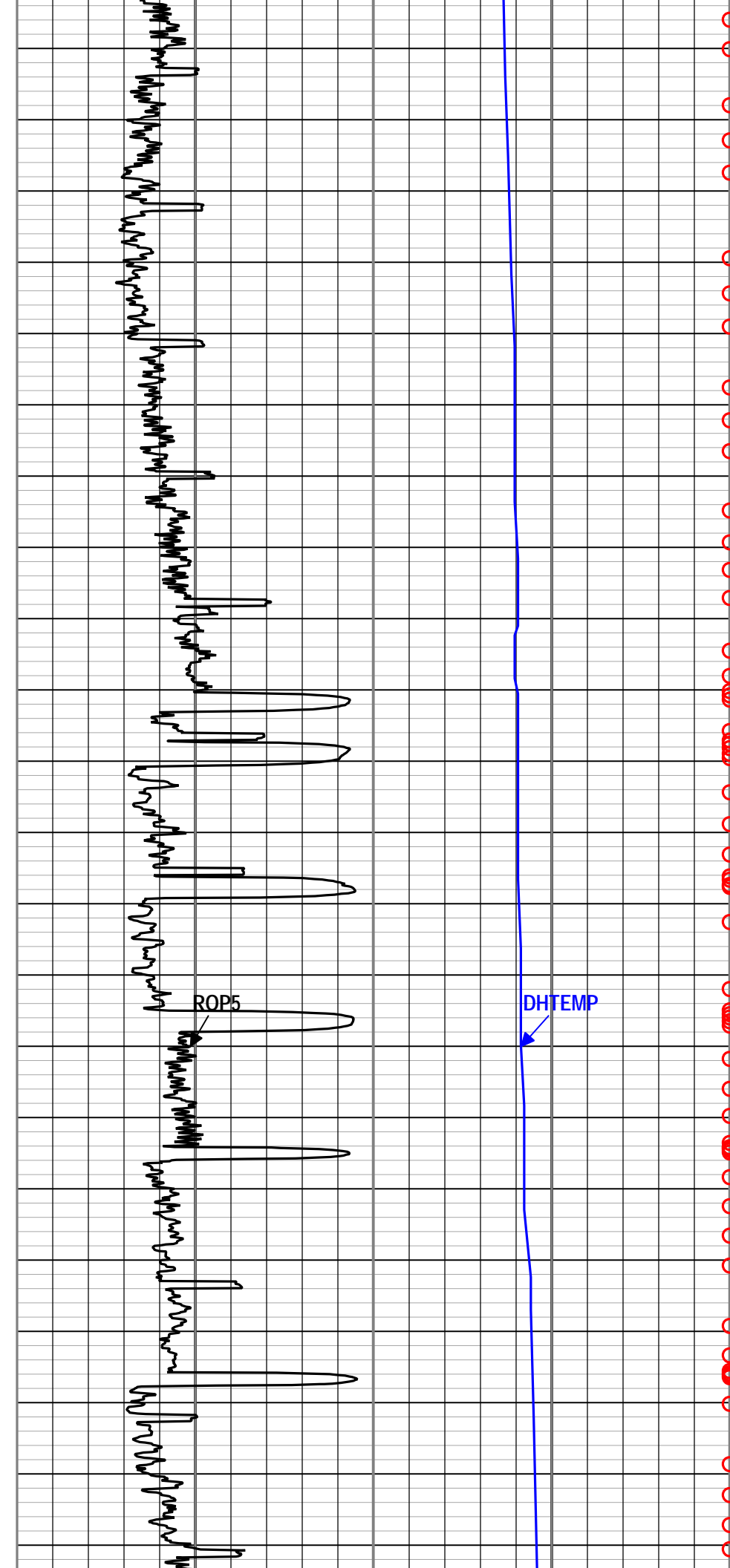
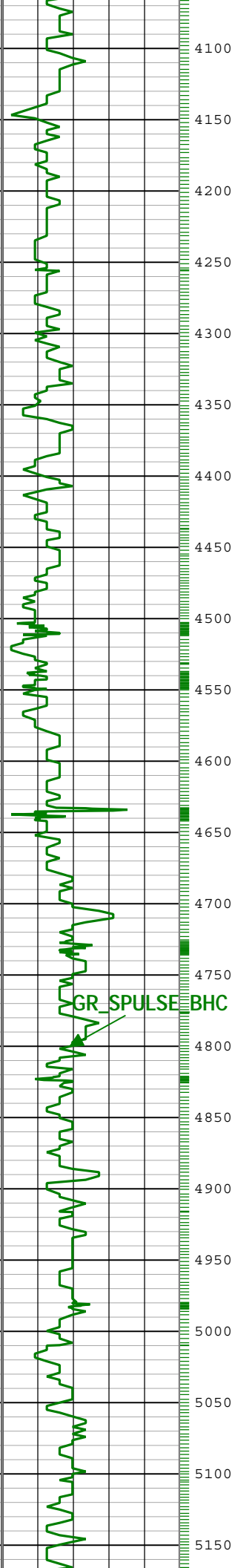


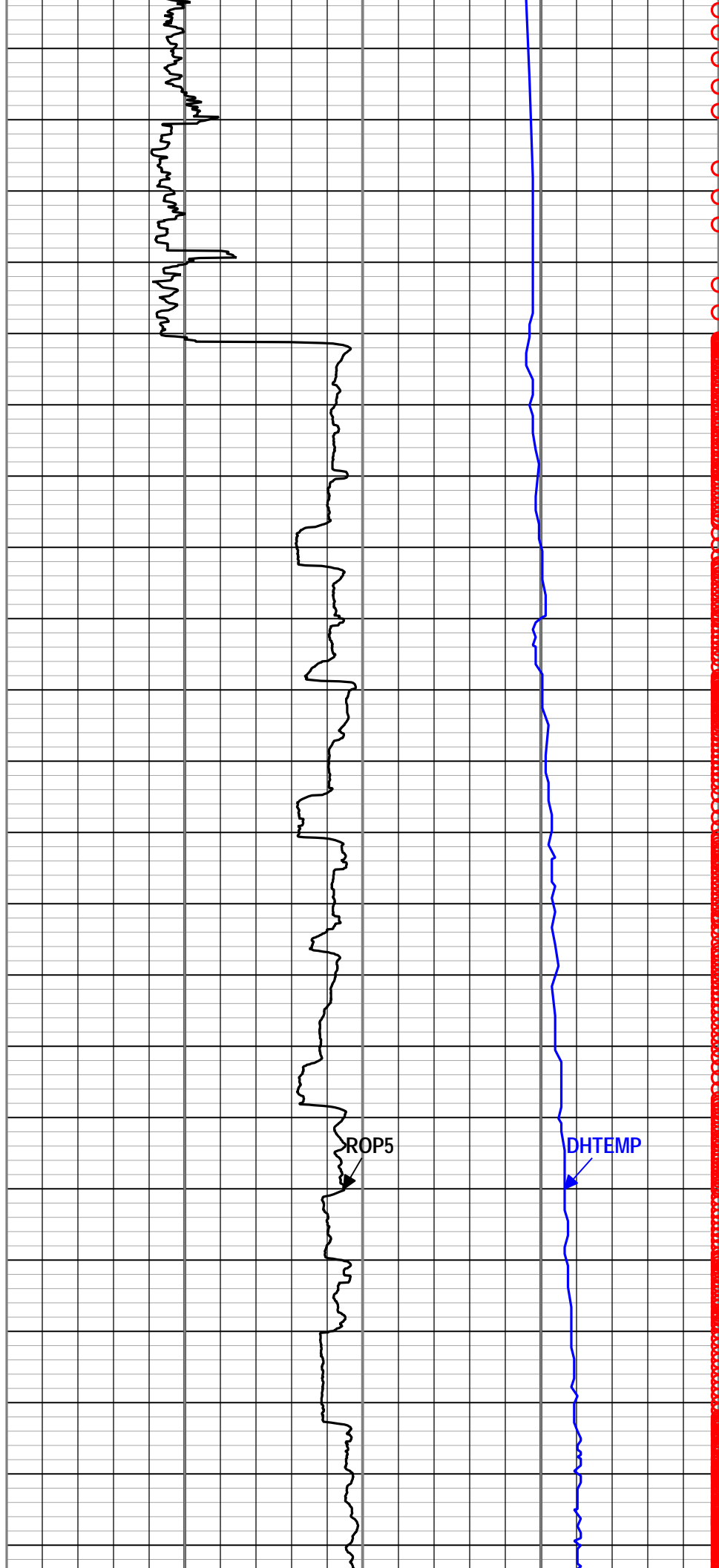
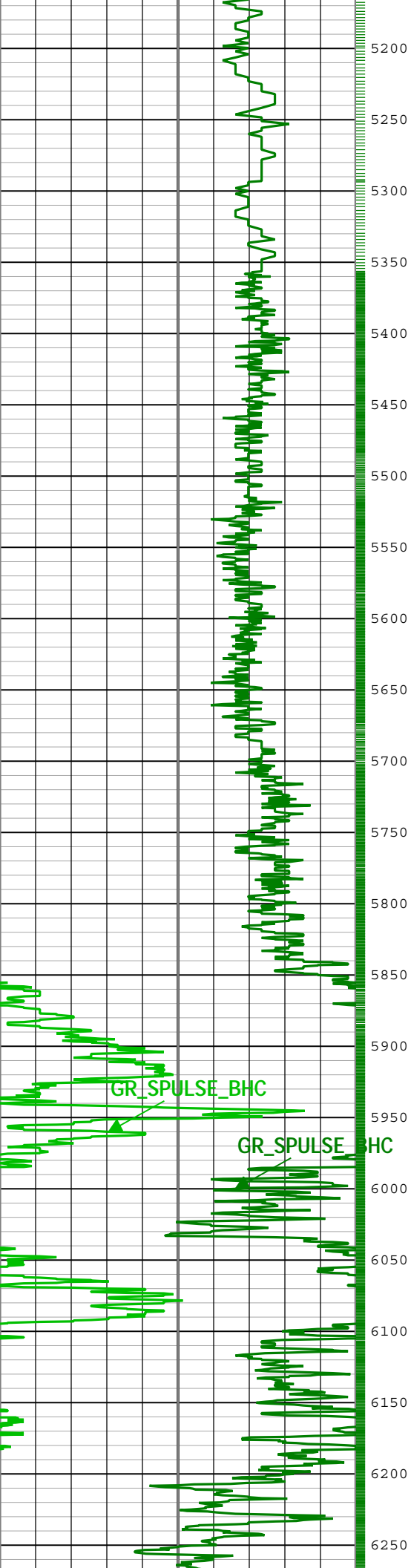


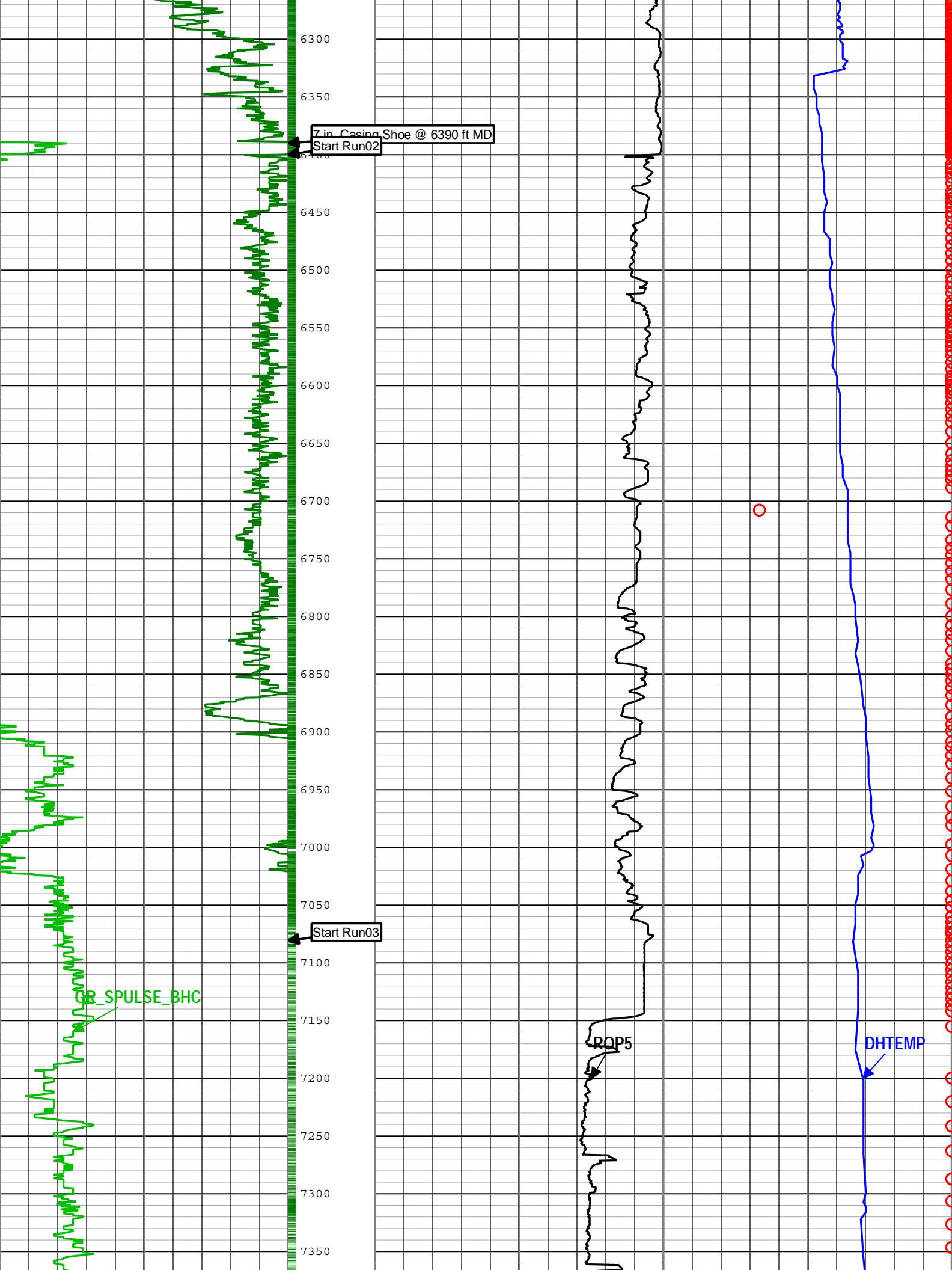


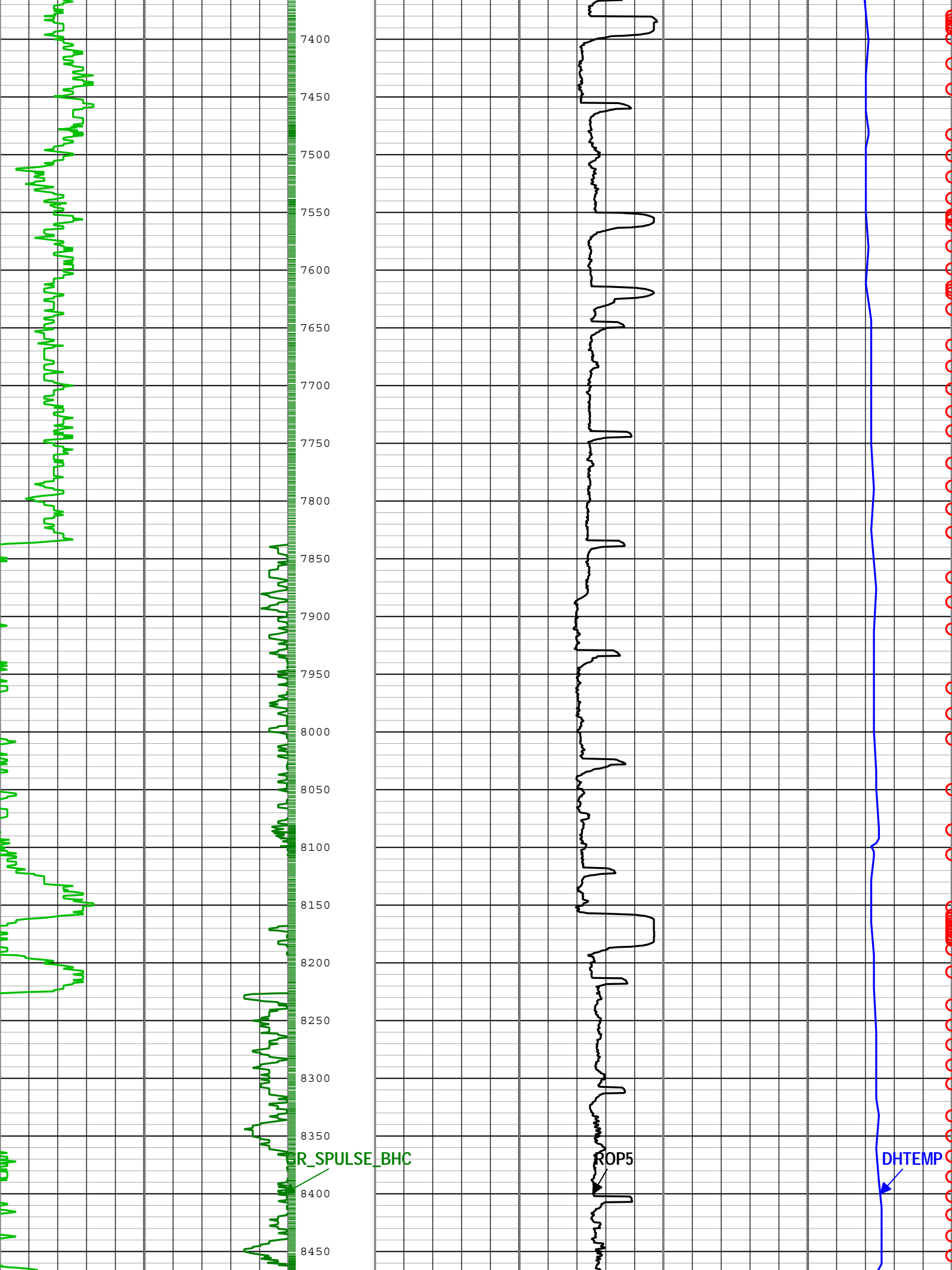


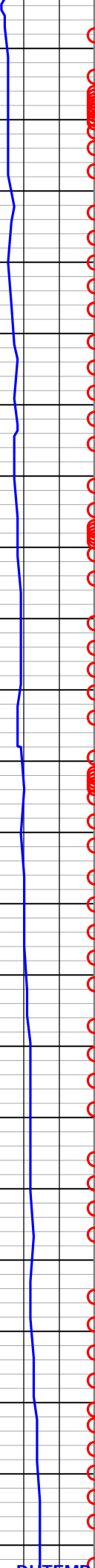
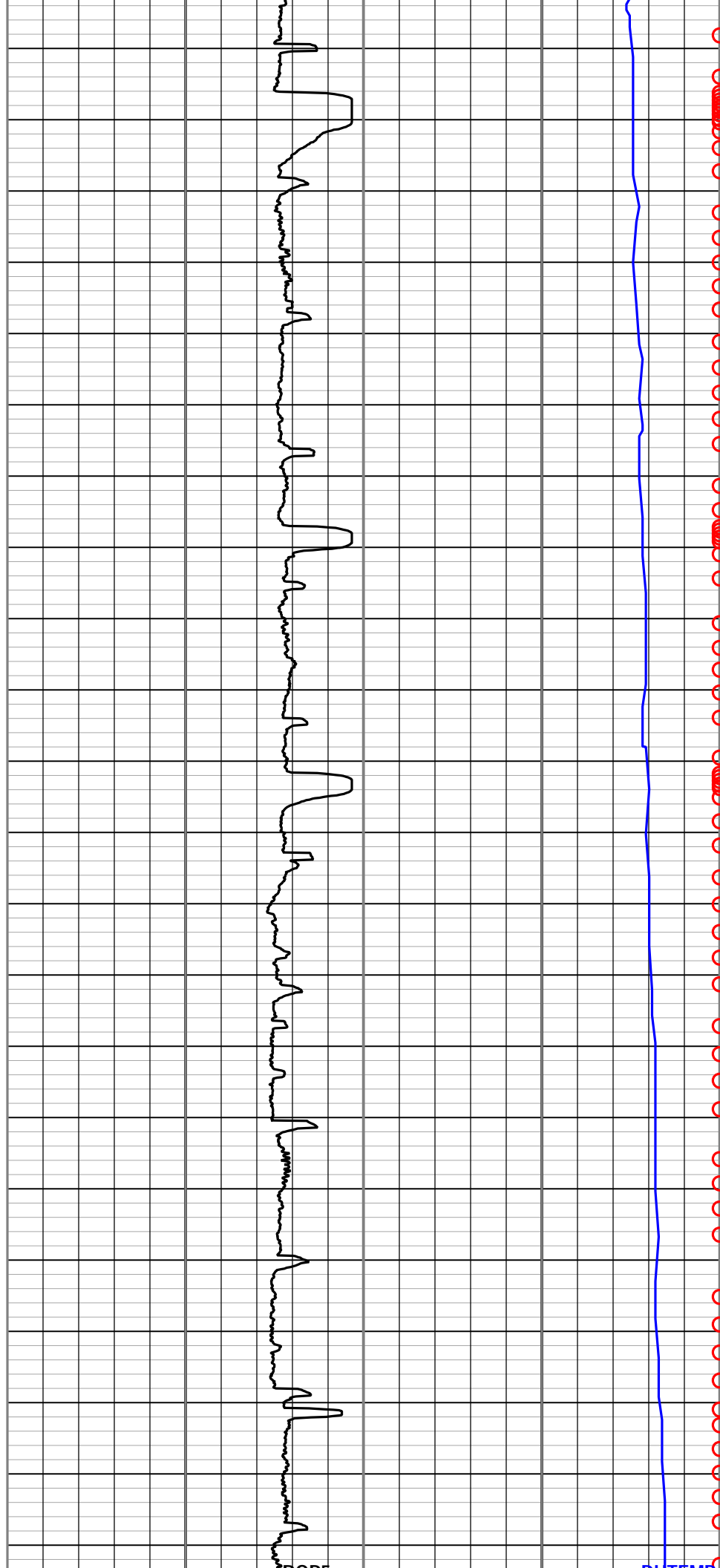
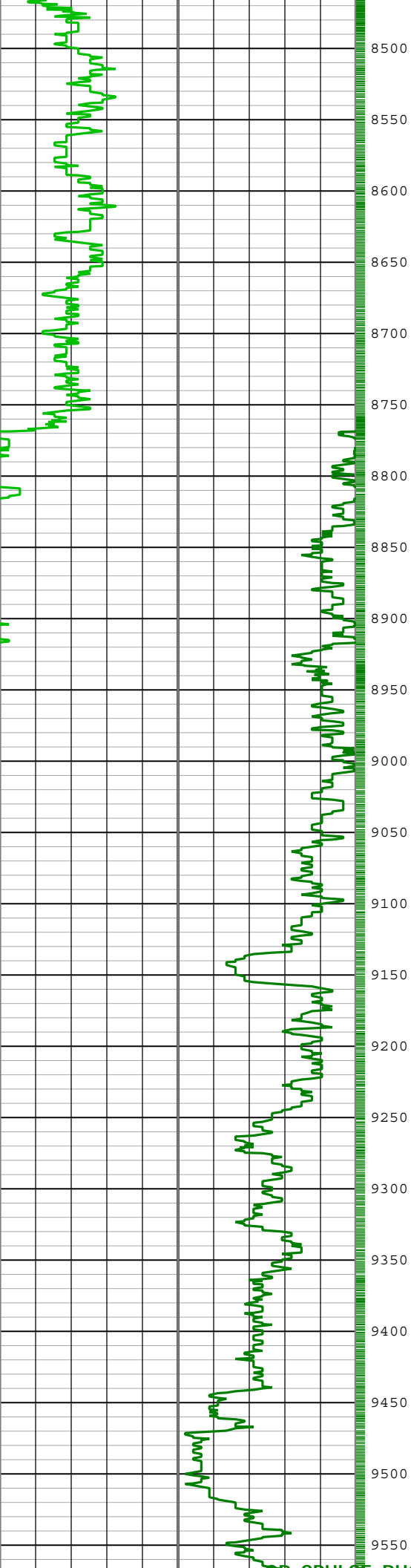


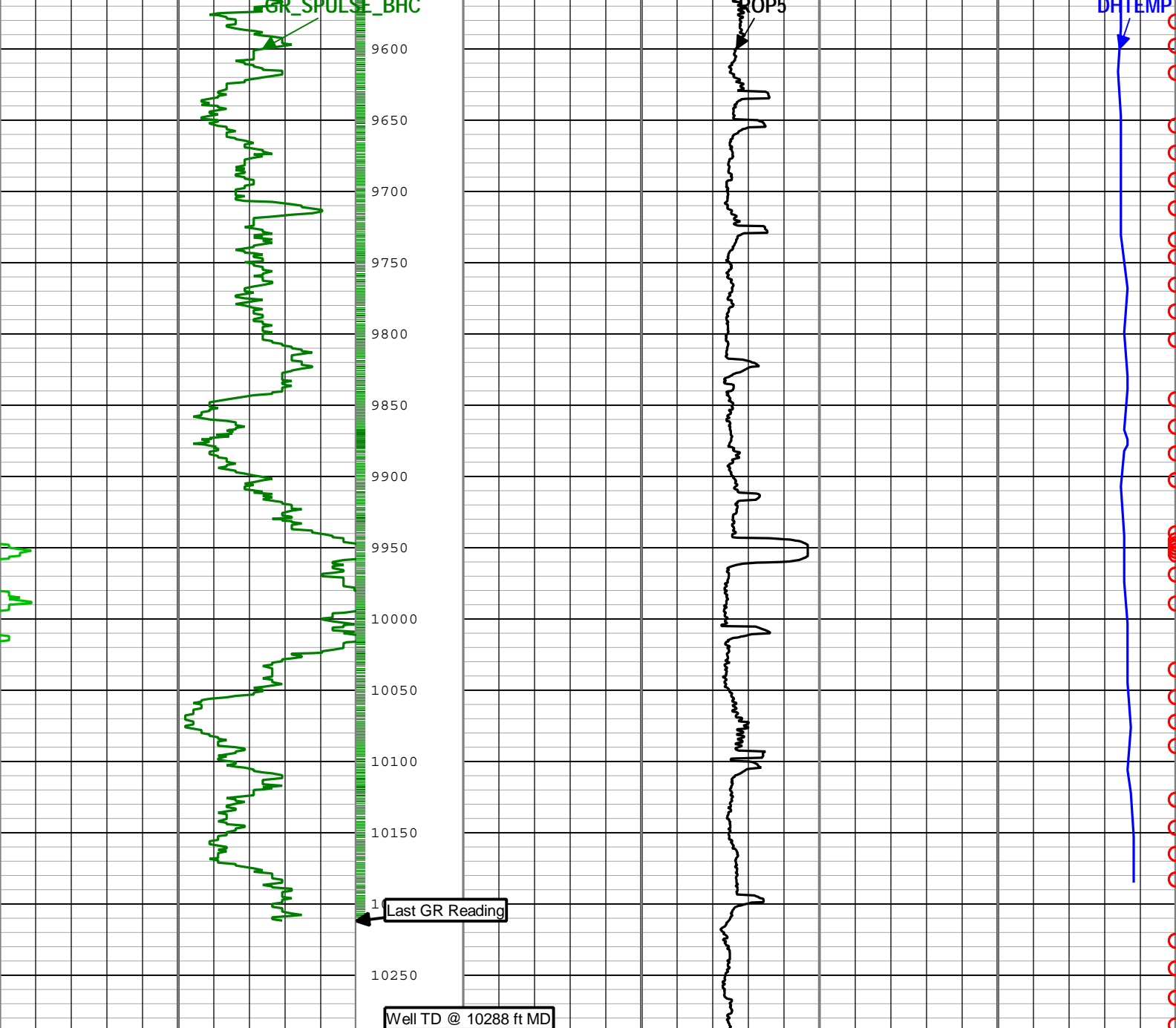












|   |      |     |
|---|------|-----|
| Gamma Ray (GR_SPULSE_BHC) SlimPulse[1] RM |      |     |
| 0   | gAPI | 150 |
| Gamma Ray (GR_SPULSE_BHC) SlimPulse[1] RM |      |     |
| 150                                       | gAPI | 300 |

|   |      |
|---|------|
| Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT |      |
| 1500  | ft/h |
| 0   |      |

|   |      |     |
|---|------|-----|
| Tool Temperature (DHTEMP) SlimPulse[1] RM |      |     |
| 50  | degF | 250 |
| Shock Risk (SHKRSK_RT) SlimPulse[1] RT    |      |     |
| 3   |      | 0   |

GR\_SPULSE\_RAW - Raw Gamma Ray SlimPulse[1] RM

Description: Format: Log ( MD EOW ) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Jan-2016 14:29:18

| Channel Processing Parameters |                        |            |             |         |
|-------------------------------|------------------------|------------|-------------|---------|
| Run001: Parameters            |                        |            |             |         |
| Parameter                     | Description            | Tool       | Value       | Unit    |
| BS                            | Bit Size               | DNMSESSION | Depth Zoned | in      |
| DFD                           | Drilling Fluid Density | Borehole   | 8.5         | lbm/gal |
| GR_SRC                        | GR Source Selection    | SPULSE-GEN | GAMMA_EXT   |         |

## Run001Depth Zoned Parameters

| Parameter | Value | Start ( ft ) | Stop ( ft ) |
|-----------|-------|--------------|-------------|
| BS        | 12.25 | 580          | 642         |
| BS        | 8.75  | 642          | 6400        |

All depth are actual.

## Run002: Parameters

| Parameter | Description            | Tool       | Value       | Unit    |
|-----------|------------------------|------------|-------------|---------|
| BS        | Bit Size               | DNMSESSION | Depth Zoned | in      |
| DFD       | Drilling Fluid Density | Borehole   | 10.3        | lbm/gal |
| GR_SRC    | GR Source Selection    | SPULSE-GEN | GAMMA_EXT   |         |

## Run002Depth Zoned Parameters

| Parameter | Value | Start ( ft ) | Stop ( ft ) |
|-----------|-------|--------------|-------------|
| BS        | 8.75  | 6274.21      | 6400        |
| BS        | 6.125 | 6400         | 7077.33     |

All depth are actual.

## Run003: Parameters

| Parameter | Description            | Tool       | Value     | Unit    |
|-----------|------------------------|------------|-----------|---------|
| BS        | Bit Size               | DNMSESSION | 6.125     | in      |
| DFD       | Drilling Fluid Density | Borehole   | 10.3      | lbm/gal |
| GR_SRC    | GR Source Selection    | SPULSE-GEN | GAMMA_EXT |         |

## Tool Control Parameters

## Calibration Report

### SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run001

|                                   |      |     |  |
|-----------------------------------|------|-----|--|
| Primary Equipment :               |      |     |  |
| Elec. cartridge, 150C max with GR | SPEC | 554 |  |

### GRGain - Gamma Ray: Blanket

| Master (Time Frame File):  |      | 12:00:00 15-Jan-2016 |         |           |        |            |  |
|----------------------------|------|----------------------|---------|-----------|--------|------------|--|
| Measurement                | Unit | Phase                | Nominal | Low Limit | Actual | High Limit |  |
| Gamma Ray Calibration Gain |      | Master               | 1.0000  | 0.9000    | 1.0536 | 1.1000     |  |

### SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run002

|                                   |      |     |  |
|-----------------------------------|------|-----|--|
| Primary Equipment :               |      |     |  |
| Elec. cartridge, 150C max with GR | SPEC | 984 |  |

### GRGain - Gamma Ray: Blanket

| Master (Time Frame File):  |      | 12:00:00 06-Jan-2016 |         |           |        |            |  |
|----------------------------|------|----------------------|---------|-----------|--------|------------|--|
| Measurement                | Unit | Phase                | Nominal | Low Limit | Actual | High Limit |  |
| Gamma Ray Calibration Gain |      | Master               | 1.0000  | 0.9000    | 1.0849 | 1.1000     |  |

### SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run003

|                                   |      |     |  |
|-----------------------------------|------|-----|--|
| Primary Equipment :               |      |     |  |
| Elec. cartridge, 150C max with GR | SPEC | 879 |  |

### GRGain - Gamma Ray: Blanket

| Master (Time Frame File):  |      | 12:00:00 30-Oct-2015 |         |           |        |            |  |
|----------------------------|------|----------------------|---------|-----------|--------|------------|--|
| Measurement                | Unit | Phase                | Nominal | Low Limit | Actual | High Limit |  |
| Gamma Ray Calibration Gain |      | Master               | 1.0000  | 0.9000    | 1.0983 | 1.1000     |  |

**Company:** Noble Energy

**Well:** Remora LC34-725

**Field:** Wildcat

**County:** Weld

**State:** Colorado

**Country:** USA



SlimPulse - Gamma Ray

1 in. / 100 ft., Measured Depth

Composite Log, Recorded Mode