

Company: WPX ENERGY ROCKY MOUNTAIN, LLC

Well: SG 44-1-22

Field: GRAND VALLEY

County: GARFIELD State: COLORADO

PLATFORM EXPRESS

COMPENSATED NEUTRON, LITHO

INDUCTION RESISTIVITY, GR, SP

| | | | |
|---------------------------------|---------------|-----------|------------------|
| SHL: 1488 FNL & 283 FEL | Elev.: | K.B. | 5242.00 ft |
| BHL: 1078 FNL &1328 FEL | | G.L. | 5221.00 ft |
| LAT: 39.426189 LONG:-108.087964 | | D.F. | |
| Permanent Datum: | Ground Level | Elev.: | 5221.00 f |
| Log Measured From: | Kelly Bushing | 21.00 ft | above Perm.Datum |
| Drilling Measured From: | Kelly Bushing | | |
| API Serial No. | Section: | Township: | Range: |
| 05-045-21754 | 22 | 7S | 96W |

County: GARFIELD

Field: GRAND VALLEY

Location: SHL: 1488 FNL & 283 FEL

Well: SG 441-22

Company: WPX ENERGY ROCKY MOUNTAIN, LLC

| | | | |
|-----------------------------|-----------------------|---------------|---------|
| Logging Date | 09-Aug-2013 | | |
| Run Number | 1 | | |
| Depth Driller | 5720.00 ft | | |
| Schlumberger Depth | 5717.00 ft | | |
| Bottom Log Interval | 5717.00 ft | | |
| Top Log Interval | 300.00 ft | | |
| Casing Driller Size @ Depth | 9.625 in @ 1079.00 ft | | |
| Casing Schlumberger | 1074 ft | | |
| Bit Size | 8.75 in | | |
| Type Fluid In Hole | Water | | |
| Density | Viscosity | | |
| Fluid Loss | PH | 9.7 | |
| MUD | | | |
| Source of Sample | Active Tank | | |
| RM @ Meas Temp | 1455 ohm.m | @ | 75 degF |
| RMF @ Meas Temp | 1.09 ohm.m | @ | 75 degF |
| RMC @ Meas Temp | 1.82 ohm.m | @ | 75 degF |
| Source RMF | Calculated | Calculated | |
| RM @ BHT | 710.64 @ 160.6 | 0.53 @ 160.65 | |
| Max Recorded Temperatures | 164.18 degF | | |
| Circulation Stopped | 09-Aug-2013 18:30:00 | | |
| Logger on Bottom | 09-Aug-2013 22:25:47 | | |
| Unit Number | Location: | Time | |
| Recorded By | Wanida Pongtepupathum | | |
| Witnessed By | Mike Breink | | |

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.

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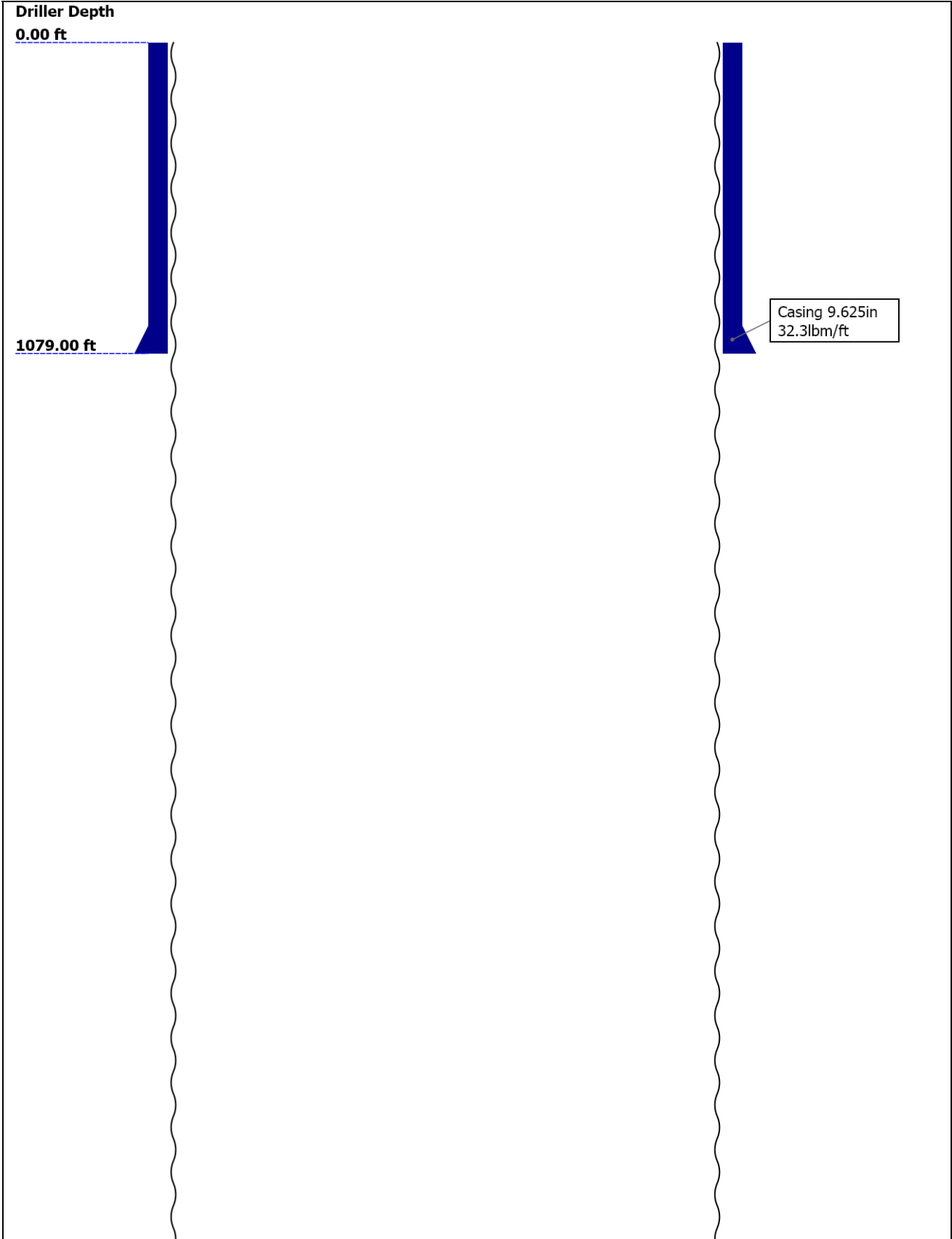
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Well Sketch



5720.00 ft

Open Hole 8.75in

Borehole Size/Casing/Tubing Record

| | | | | | | |
|-----------------------|-------|--|--|--|--|--|
| Bit | | | | | | |
| Bit Size (in) | 8.75 | | | | | |
| Top Driller (ft) | 0 | | | | | |
| Top Logger (ft) | 0 | | | | | |
| Bottom Driller (ft) | 5720 | | | | | |
| Bottom Logger (ft) | 5717 | | | | | |
| Casing | | | | | | |
| Size (in) | 9.625 | | | | | |
| Weight (lbm/ft) | 32.3 | | | | | |
| Inner Diameter (in) | 8.99 | | | | | |
| Grade | H40 | | | | | |
| Top Driller (ft) | 0 | | | | | |
| Top Logger (ft) | 0 | | | | | |
| Bottom Driller (ft) | 1079 | | | | | |
| Bottom Logger (ft) | 1074 | | | | | |

Operational Run Summary

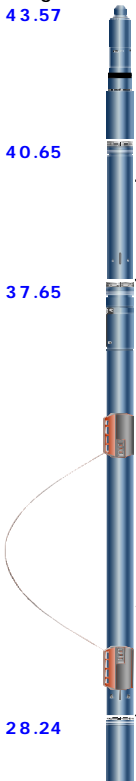
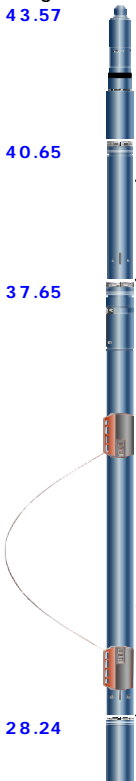
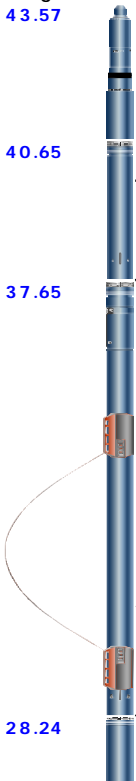
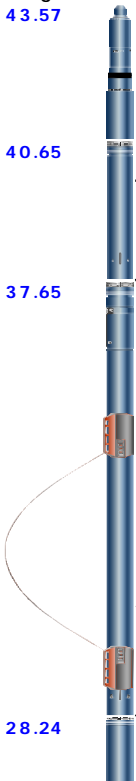
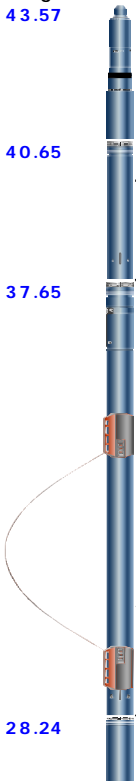
| | | | | | | |
|----------------------------------|-----------------------|--|--|--|--|--|
| Parameter (unit) | 1 | | | | | |
| Date Log Started | 09-Aug-2013 | | | | | |
| Time Log Started | 18:24:55 | | | | | |
| Date Log Finished | 10-Aug-2013 | | | | | |
| Time Log Finished | 00:35:43 | | | | | |
| | | | | | | |
| Top Log Interval (ft) | 300.00 | | | | | |
| Bottom Log Interval (ft) | 5717.00 | | | | | |
| | | | | | | |
| Total Depth (ft) | 5717.00 | | | | | |
| Max Hole Deviation (deg) | NaN | | | | | |
| Azimuth of Max Deviation (deg) | NaN | | | | | |
| Bit Size (in) | 8.750 | | | | | |
| | | | | | | |
| Logging Unit Number | 2276 | | | | | |
| Logging Unit Location | VERNAL | | | | | |
| Recorded By | Wanida Pongtepupathum | | | | | |
| Witnessed By | Mike Brenk | | | | | |

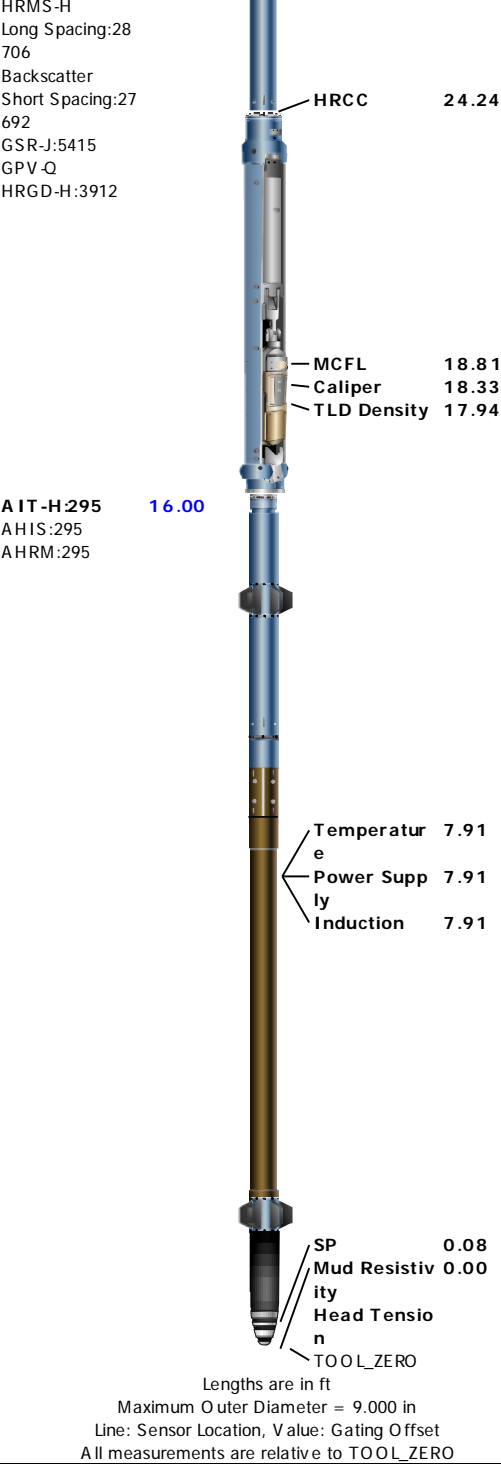
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|----------------------|------------|--|--|--|--|--|
| Service Order Number | C25X-00074 | | | | | |
|----------------------|------------|--|--|--|--|--|

Borehole Fluids

| | | | | | | |
|------------------------------------|----------------------|--|--|--|--|--|
| Parameter(unit) | 1 | | | | | |
| Fluid Type | Water | | | | | |
| Max Recorded Temperatures (degF) | 164.18 | | | | | |
| Source of Sample | Active Tank | | | | | |
| Salinity (ppm) | 3.31 | | | | | |
| Density (lbm/gal) | 10 | | | | | |
| Funnel Viscosity (s) | | | | | | |
| Fluid Loss (cm3) | 4.2 | | | | | |
| PH | 9.7 | | | | | |
| Date/Time Circulation Stopped | 09-Aug-2013 18:30:00 | | | | | |
| Date Logger on Bottom | 09-Aug-2013 | | | | | |
| Time Logger on Bottom | 22:25:47 | | | | | |
| Source RMF | Calculated | | | | | |
| RMC | Calculated | | | | | |
| RM @ Meas Temp (ohm.m@degF) | 1455 @ 75 | | | | | |
| RMF @ Meas Temp (ohm.m@degF) | 1.09 @ 75 | | | | | |
| RMC @ Meas Temp (ohm.m@degF) | 1.82 @ 75 | | | | | |
| RM @ BHT (ohm.m@degF) | 710.64 @ 160.65 | | | | | |
| RMF @ BHT (ohm.m@degF) | 0.53 @ 160.65 | | | | | |
| RMC @ BHT (ohm.m@degF) | 0.89 @ 160.65 | | | | | |
| Total Solid (%) | 8 | | | | | |
| High Gravity Solids (%) | 4 | | | | | |

Remarks and Equipment Summary

| 1: Toolstring | | | | 1: Remarks | | |
|---|---|---|--|---------------------------------------|--|--|
| <div> <div>Equip name</div> <div>LEH-QT</div> <div>LEH-QT</div> </div> | <div> <div>Length</div> <div>43.57</div> </div> |  | <div> <div>MP name</div> <div>Offset</div> </div> | FIRST RUN IN HOLE | | |
| | | | | TOOL RUN PER TOOL SKETCH | | |
| | | | | BOW SPRING RUN TO ECCENTER HGNS | | |
| | | | | MATRIX: SANDSTONE. DENSITY: 2.68 G/CC | | |
| <div> <div>DTC-H</div> <div>ECH-KC</div> <div>DTC-H</div> </div> | <div> <div>40.65</div> </div> |  | <div> <div>CTEM</div> <div>HV</div> </div> | 39.75 | MAXIMUM HOLE DEVIATION RECORDED BY HGNS SENSOR IS 26.91 DEG. | |
| | | | | 0.00 | MAXIMUM TEMPERATURE RECORDED BY HGNS IS 164.18 DEG F. | |
| | | | | | CEMENT HOLE VOLUME CALCULATED ASSUMING FUTURE CASING DIAMETER OF 4.5 IN. | |
| <div> <div>HGNS-H</div> <div>HGNH</div> <div>NPV-N</div> <div>NSR-F:1260</div> <div>HACCZ-H:4665</div> <div>HGNS-H</div> <div>HMCA-H</div> </div> | <div> <div>37.65</div> </div> |  | <div> <div>ToolStatus</div> <div>TelStatus</div> <div>Temperature</div> </div> | 37.65 | | |
| | | | | 37.65 | | |
| | | | | 37.62 | | |
| <div> <div>HDRS-H</div> <div>ECH-MEB</div> <div>HRCC-H</div> </div> | <div> <div>28.24</div> </div> |  | <div> <div>GR</div> </div> | 36.91 | | |
| | | | | | | |
| | | | | | | |
| <div> <div>CNL Porosit</div> <div>y</div> <div>HGNS</div> <div>HMCA</div> <div>Accelerometer</div> </div> | <div> <div>30.57</div> <div>28.24</div> <div>28.24</div> <div>0.00</div> </div> |  | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



| | | | |
|-----------------------------|----------|--|--|
| Calibration Points | 0 | | |
| Calibration RMS | 18 | | |
| Calibration Peak Error | 35 | | |
| Logging Cable | 1 | | |
| Type | 7-46A-XS | | |
| Logging Cable Length (ft) | 24000.00 | | |

1

MAIN PASS

Integration Summary

| Output Channel(s) | Output Description | Input Parameter | Output Value | Unit |
|-------------------|--------------------------|-------------------|--------------|------|
| IHV | Integrated Hole Volume | GCSE_UP_PASS | 1986.44 | ft3 |
| ICV | Integrated Cement Volume | GCSE_UP_PASS, FCD | 1472.13 | ft3 |

Software Version

| Acquisition System | | | Version | |
|--------------------|---|--|---------------------------|------------------|
| MaxWell | | | 3.1.9755.0 | |
| Application Patch | | | SP-20130325-3.1.9755.1799 | |
| Computation | Description | | | Version |
| Borehole | Borehole Ensemble provides common Borehole Parameters and Channels | | | 3.1.9755.1799 |
| HENVIR | Computation Ensemble for the HGNS Neutron environmental corrections | | | 3.1.9755.0 |
| Tool Elements | Description | | Software Version | Firmware Version |
| HRCC-H | HILT High-Resolution Control Cartridge, 150 degC | | 3.1.9755.0 | 2.0 |
| HGNS-H | HILT Gamma-Ray and Neutron Sonde, 150 degC | | 3.1.9755.0 | 2.0 |
| AHIS | Array Induction Sonde - H | | 3.1.9755.1799 | |
| HRGD-H | HILT Resistivity Gamma-Ray Density Device, 150 degC | | 3.1.9755.0 | 3.0 |

Pass Summary

| Run Name | Pass Objective | Direction | Top | Bottom | Start | Stop | Depth Shift | Include Parallel Data |
|----------|----------------|-----------|-----------|------------|-------------------------|-------------------------|-------------|-----------------------|
| 1 | Log[3]:Up | Up | 285.33 ft | 5731.36 ft | 09-Aug-2013 11:00:00 PM | 10-Aug-2013 12:32:04 AM | 0.00 ft | |

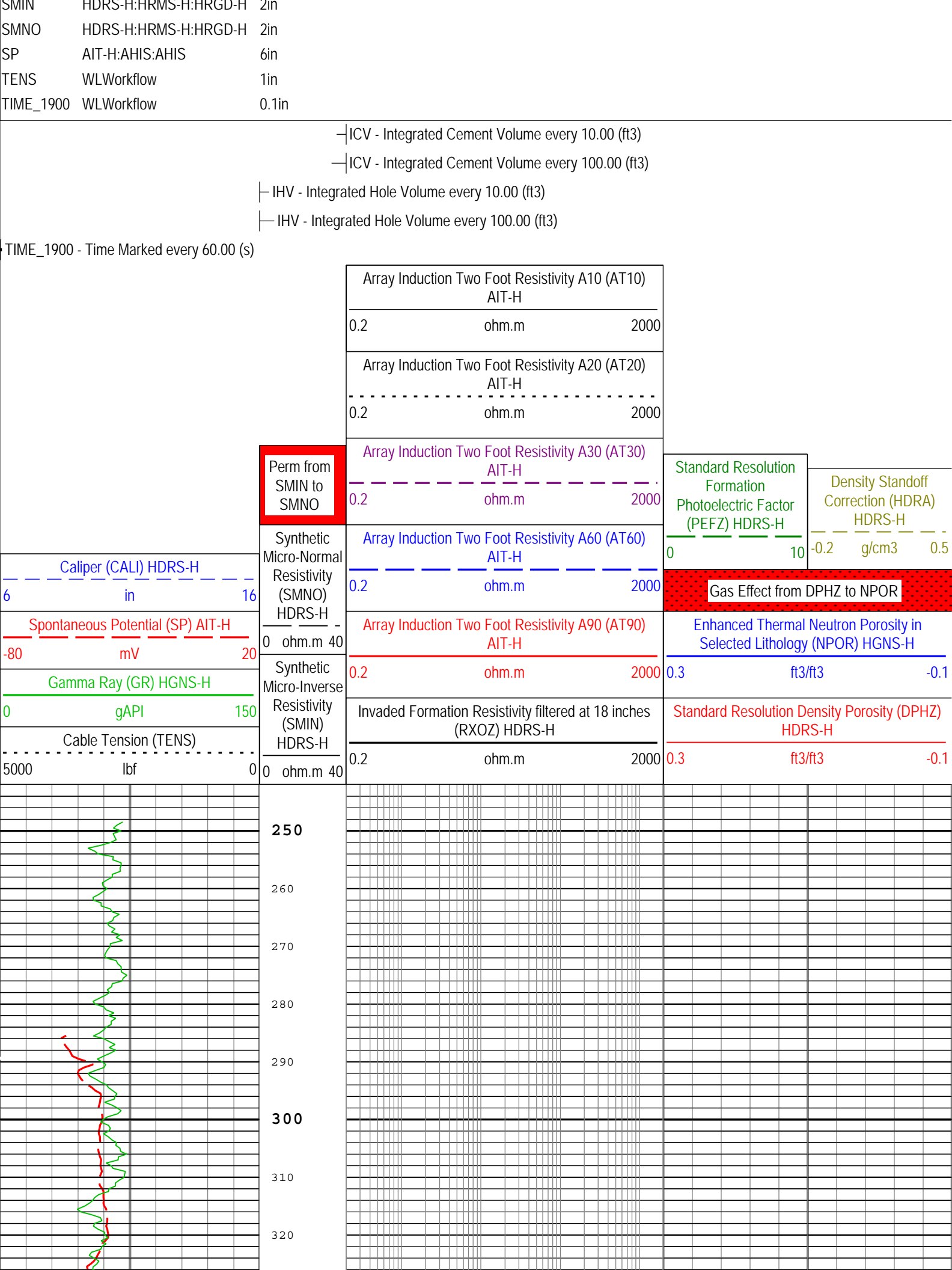
All depths are referenced to toolstring zero

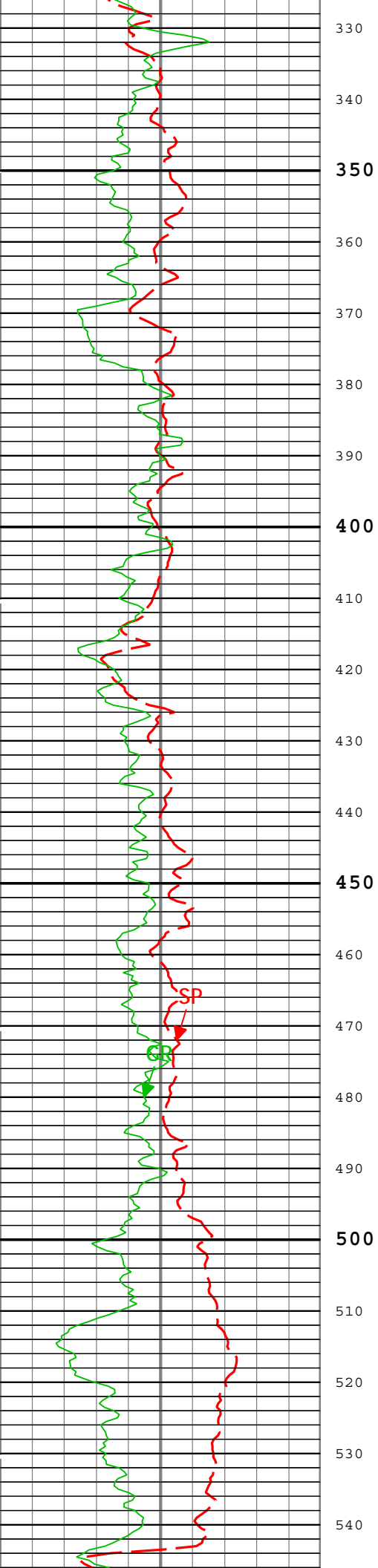
Log

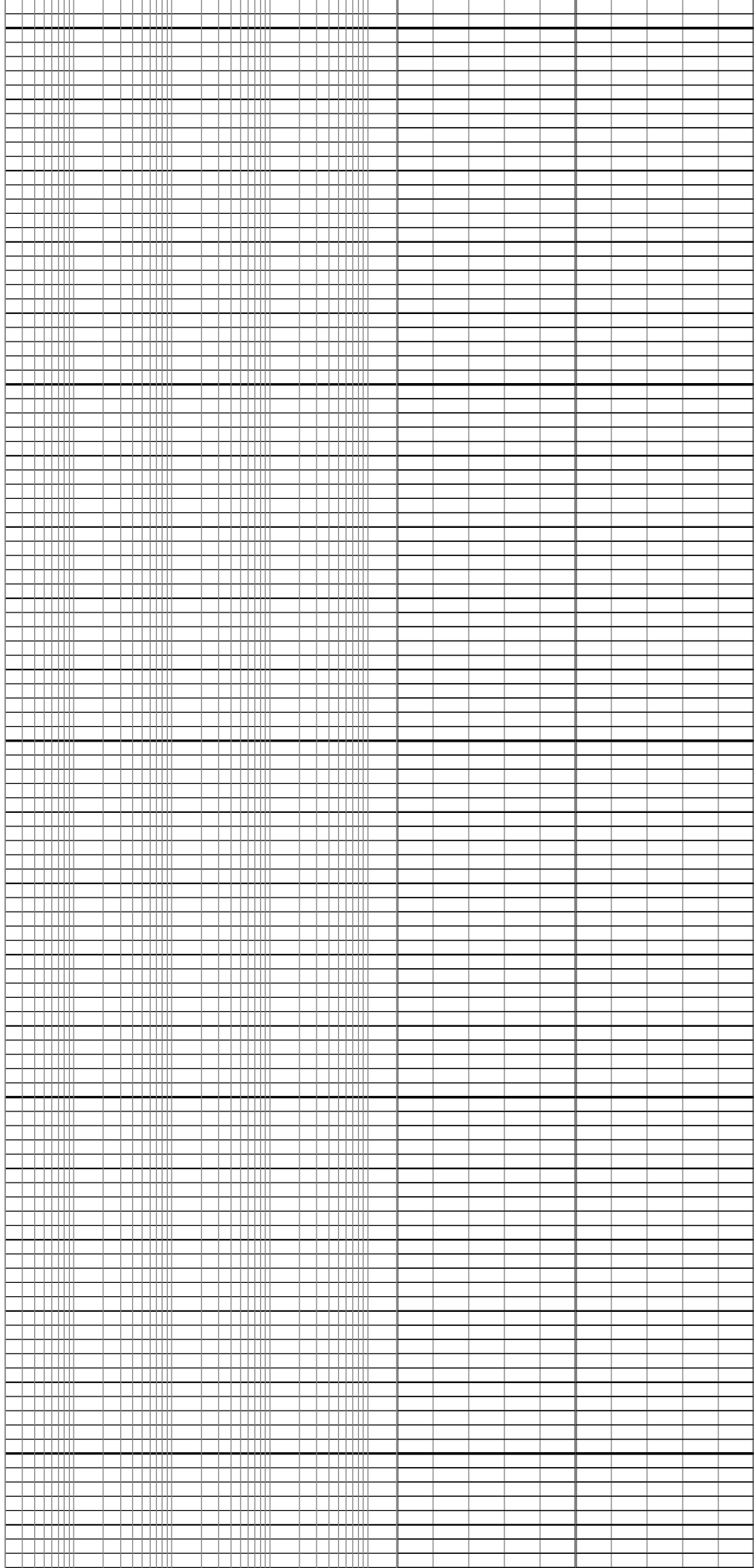
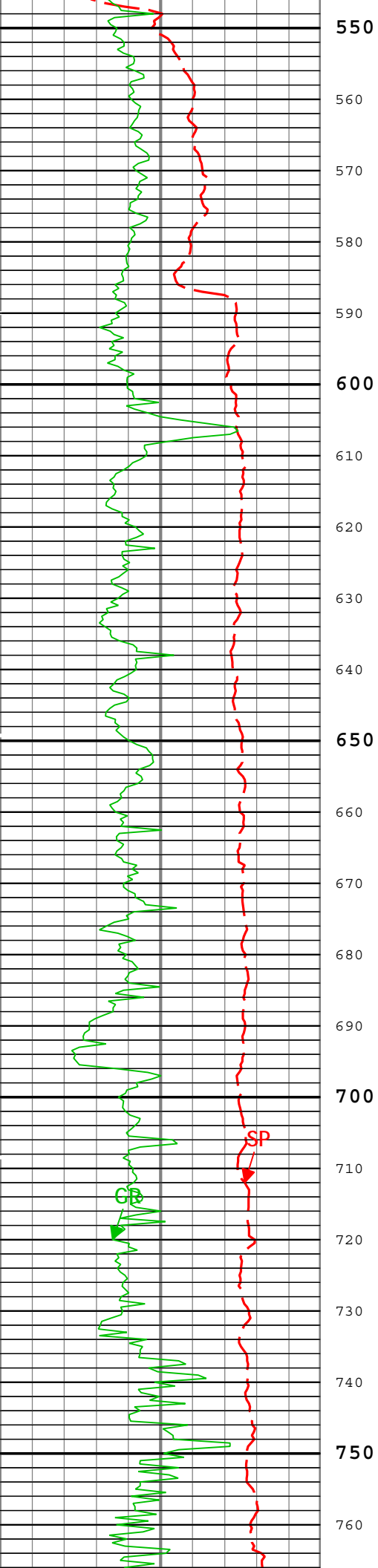
1: Log[3]:Up

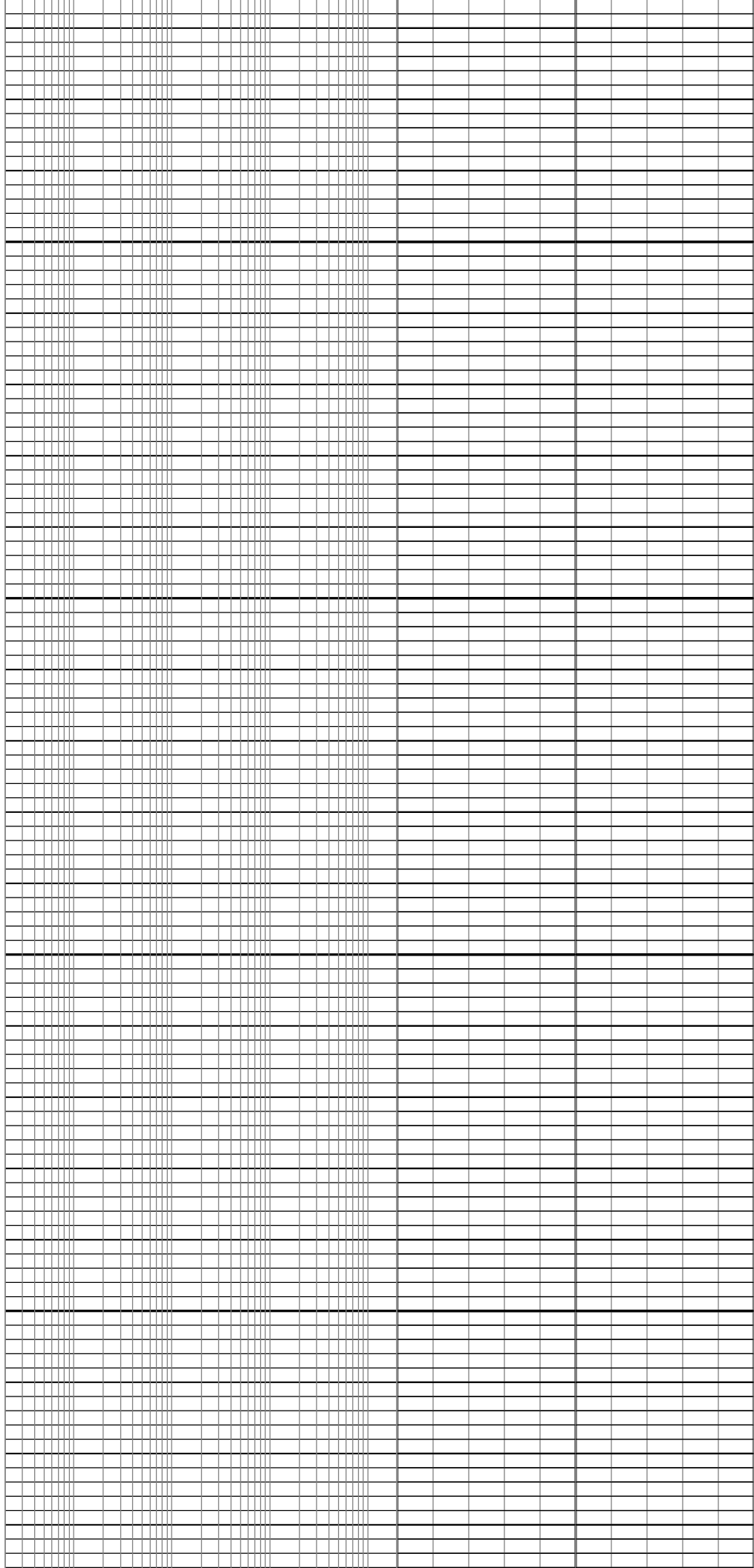
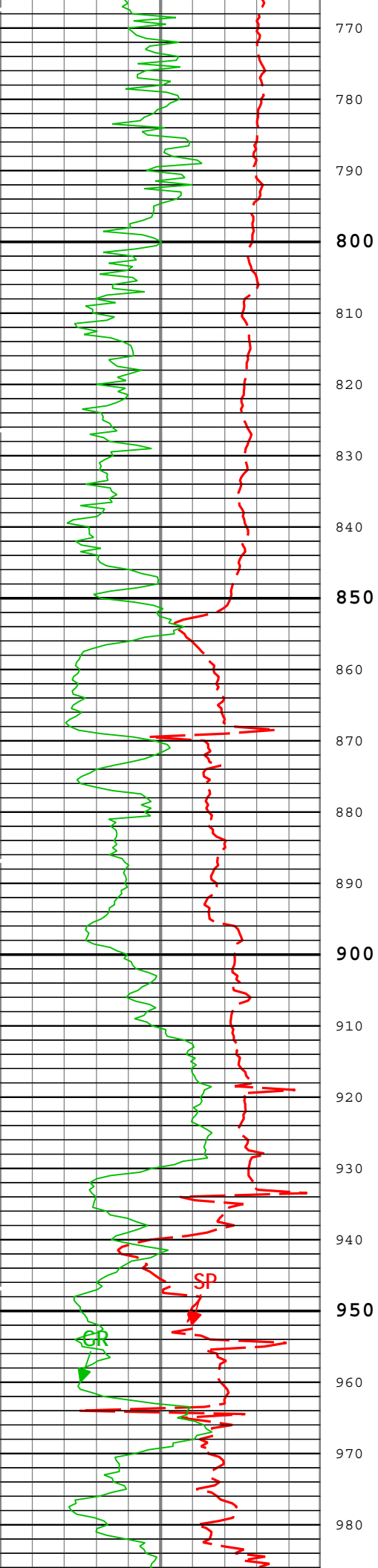
Description: Triple Combo standard resolution template for Platform Express Format: Log (PEX Triple Combo StdRes) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Aug-2013 04:05:24

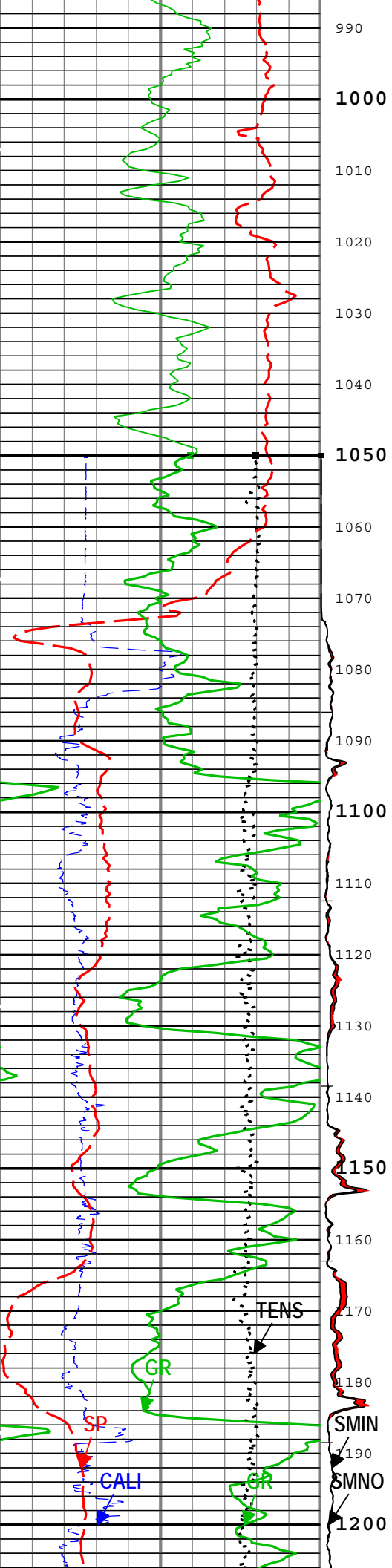
| Channel | Source | Sampling |
|---------|----------------------|----------|
| AT10 | AIT-H:AHIS:AHIS | 3in |
| AT20 | AIT-H:AHIS:AHIS | 3in |
| AT30 | AIT-H:AHIS:AHIS | 3in |
| AT60 | AIT-H:AHIS:AHIS | 3in |
| AT90 | AIT-H:AHIS:AHIS | 3in |
| CALI | HDRS-H:HRCC-H:HRCC-H | 1in |
| DPHZ | HDRS-H:HRMS-H:HRGD-H | 2in |
| GR | HGNS-H:HGNS-H:HGNS-H | 6in |
| HDRA | HDRS-H:HRMS-H:HRGD-H | 2in |
| ICV | Borehole | 6in |
| IHV | Borehole | 6in |
| NPOR | HGNS-H:HGNS-H:HGNS-H | 6in |
| PEFZ | HDRS-H:HRMS-H:HRGD-H | 2in |
| RXOZ | HDRS-H:HRMS-H:HRGD-H | 2in |
| GMN | HDRS-H:HRMS-H:HRGD-H | 6in |



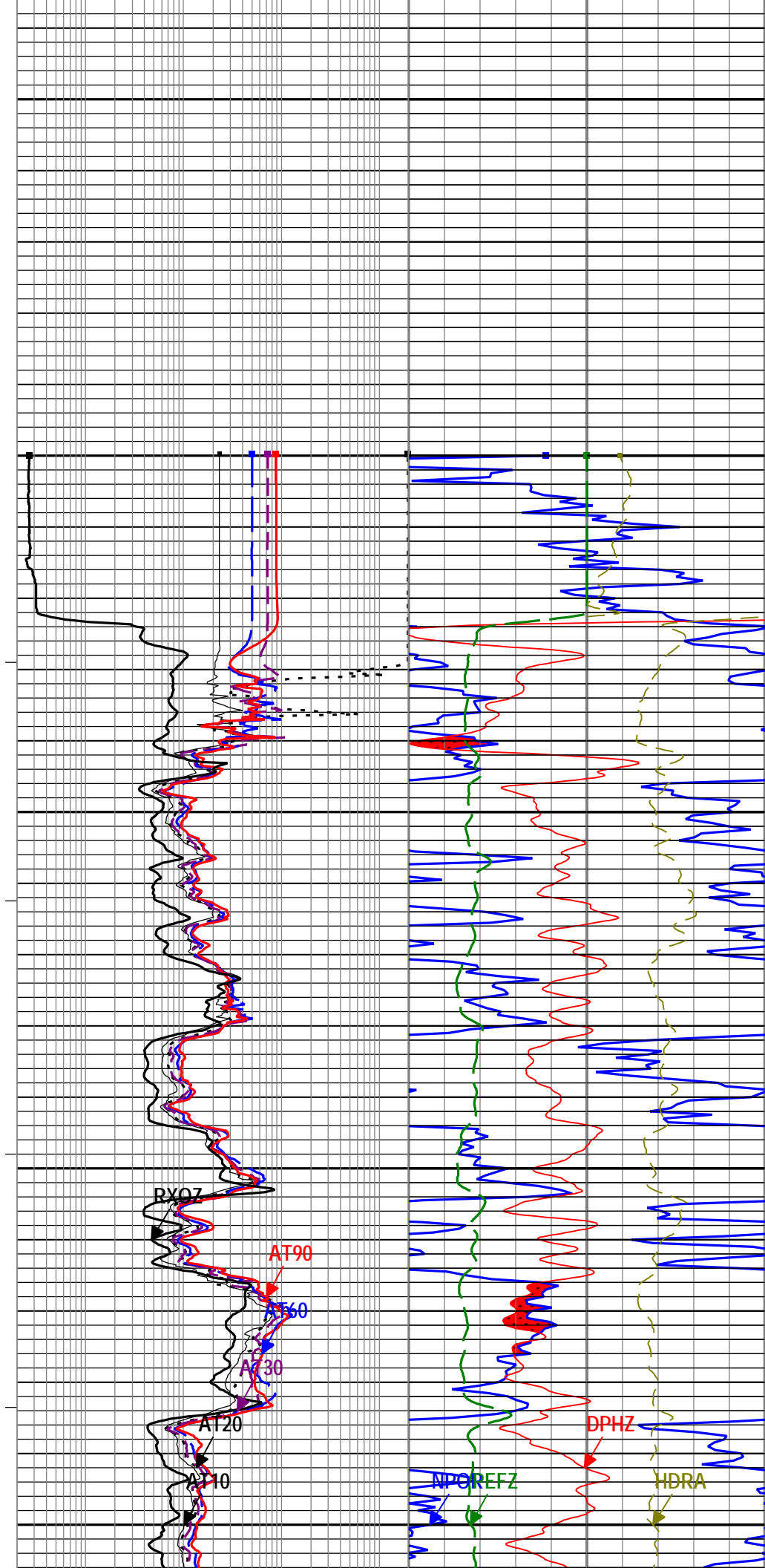




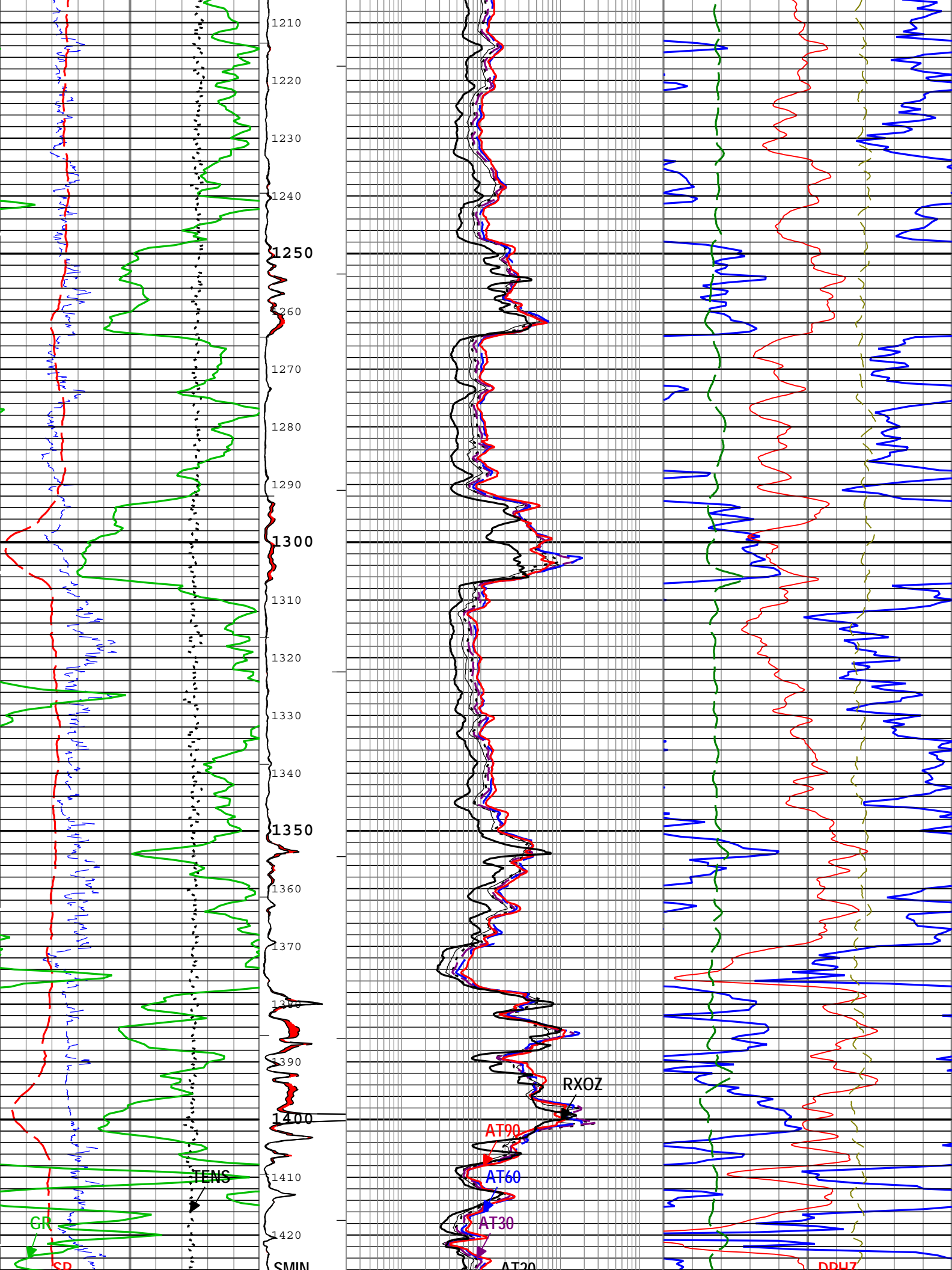


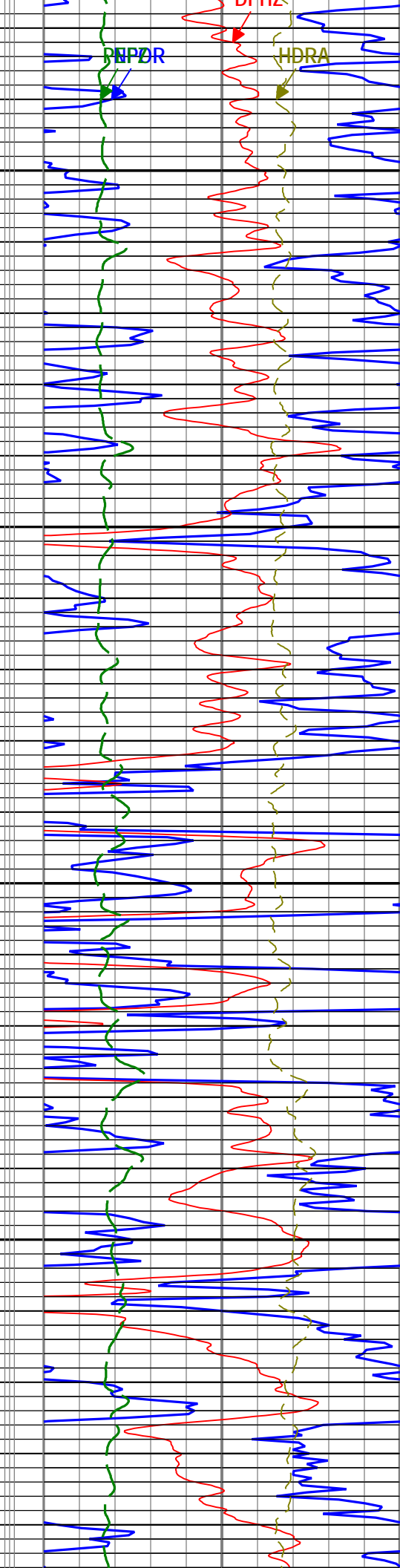
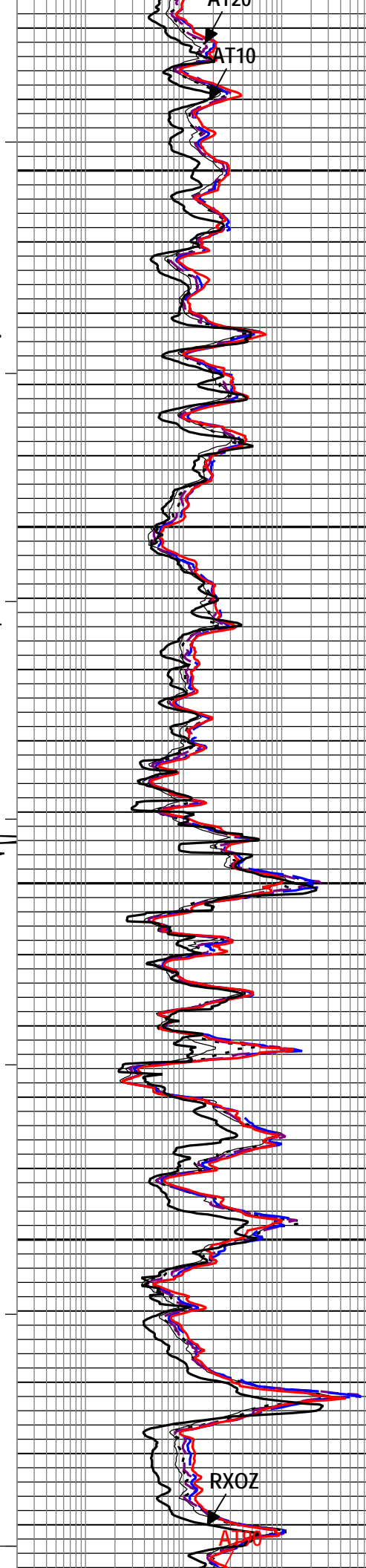
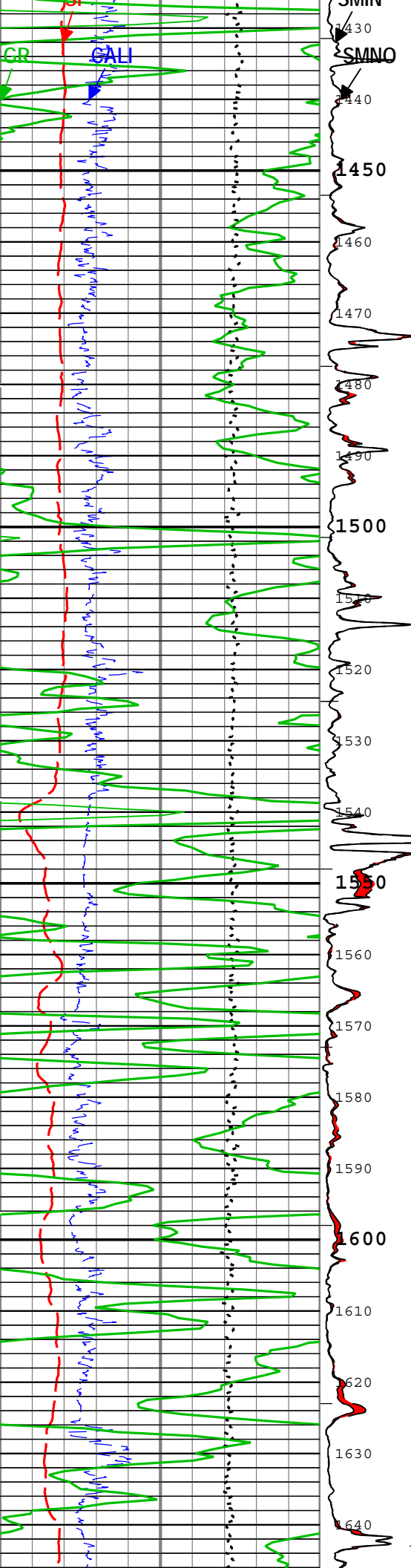


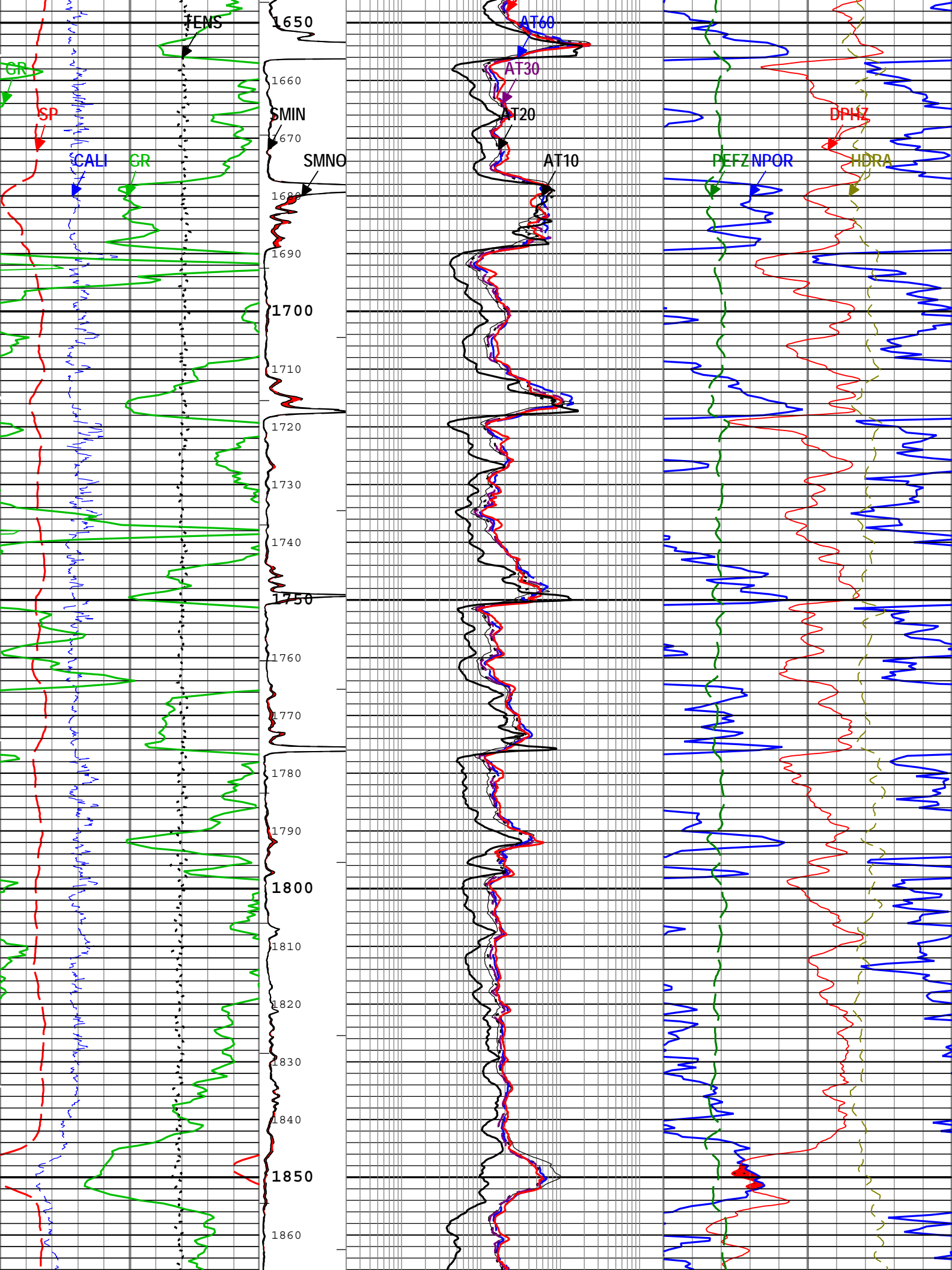
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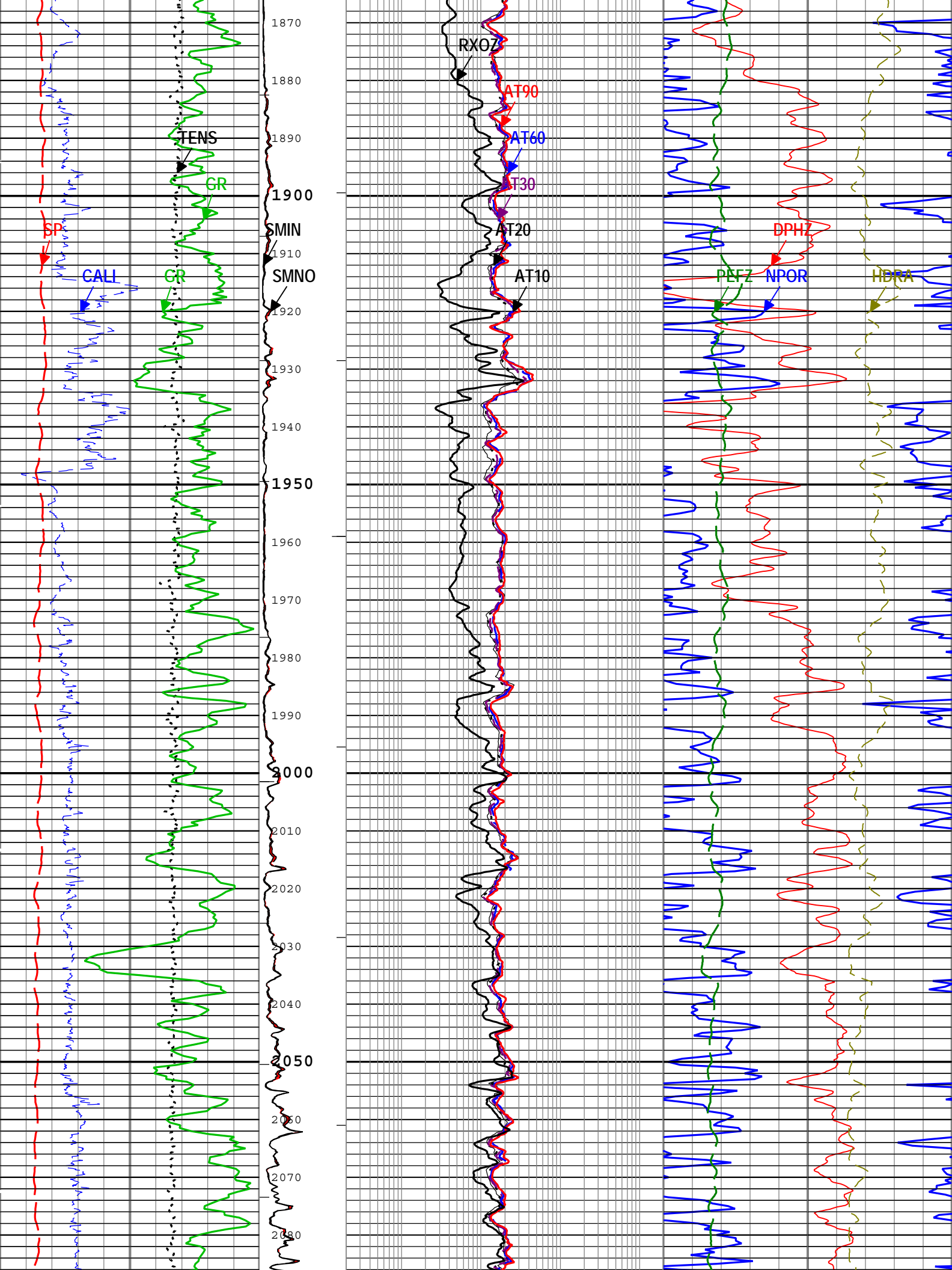


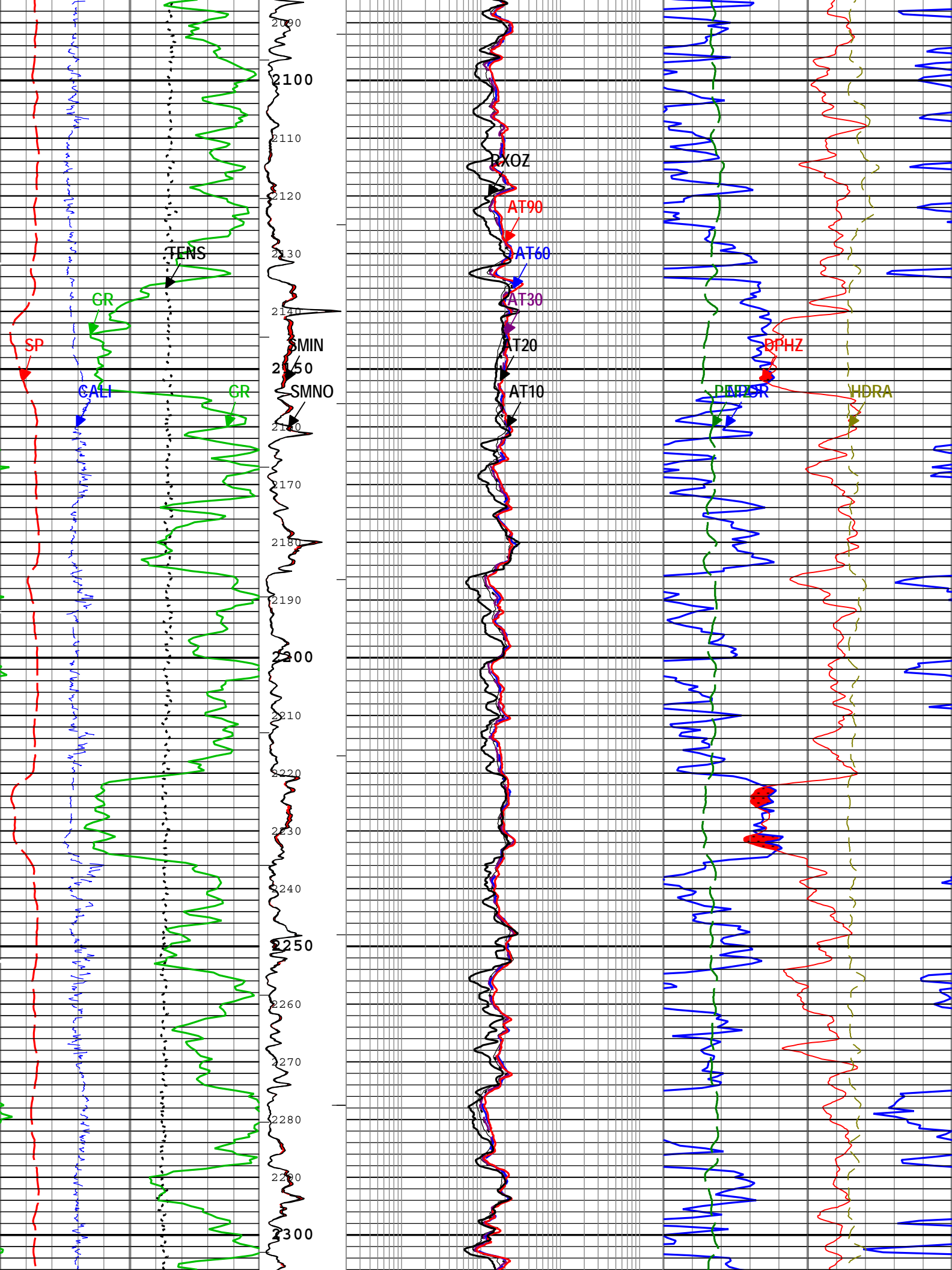
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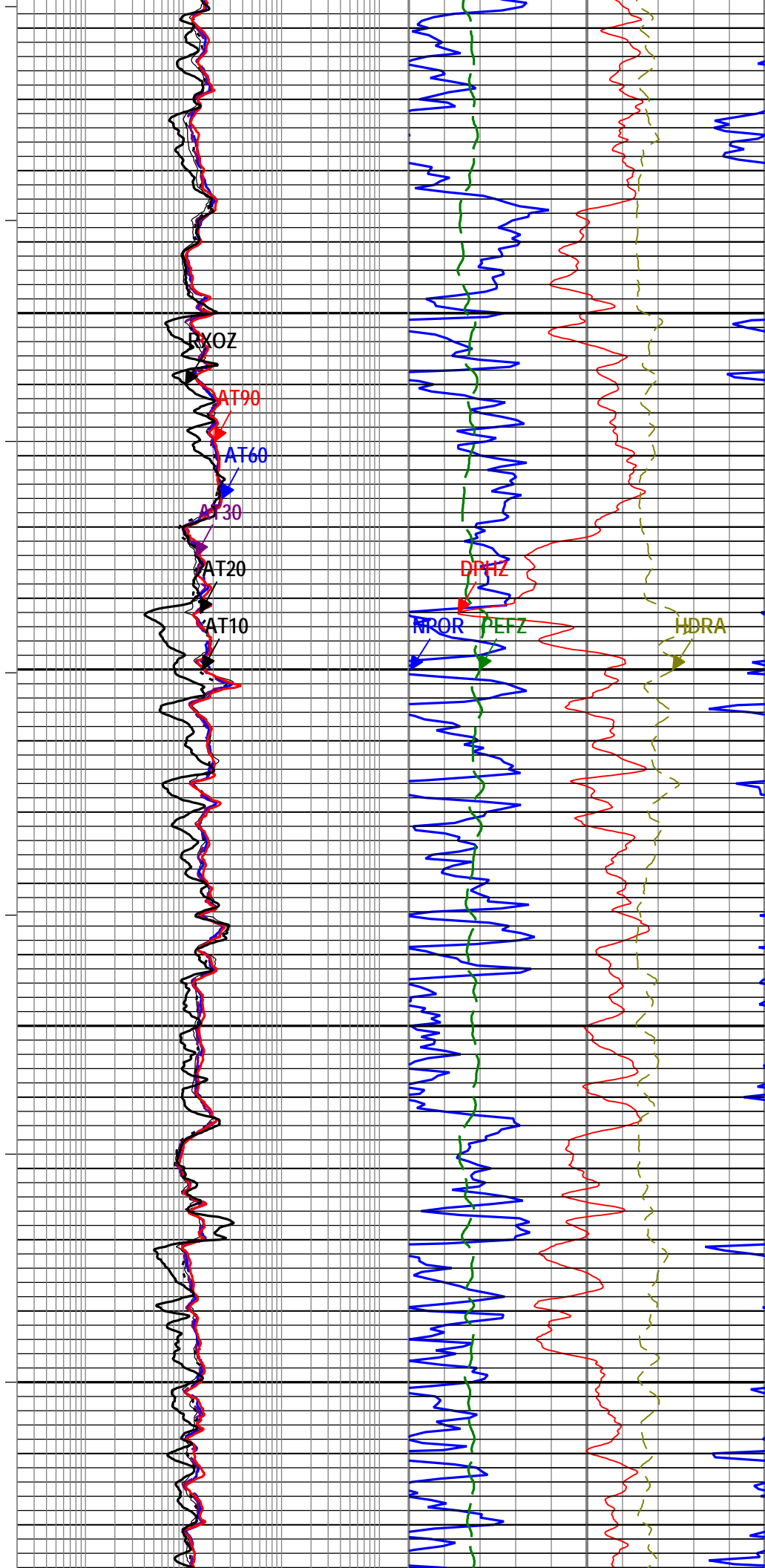
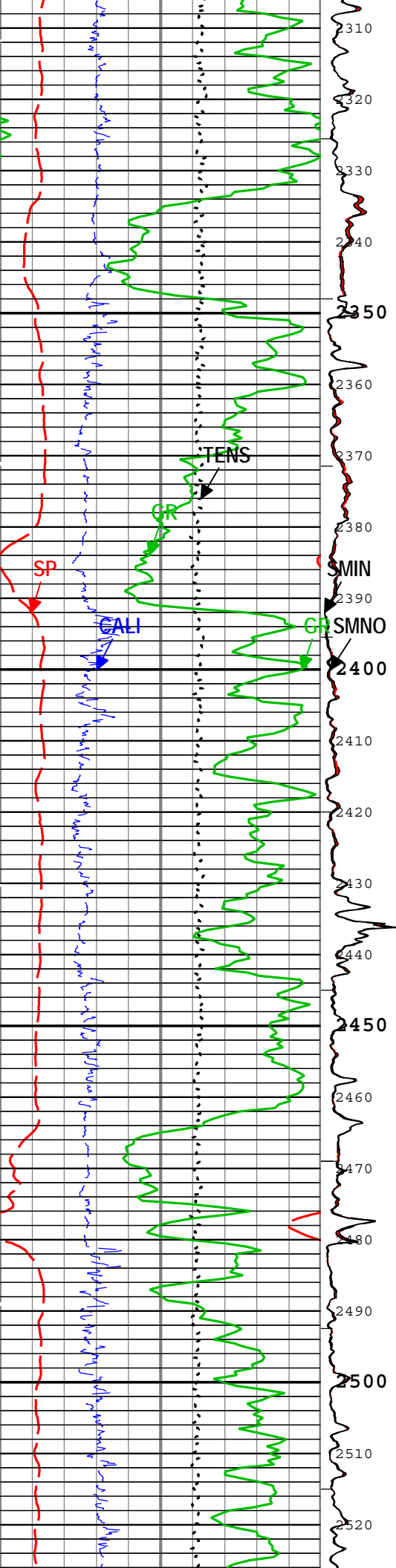


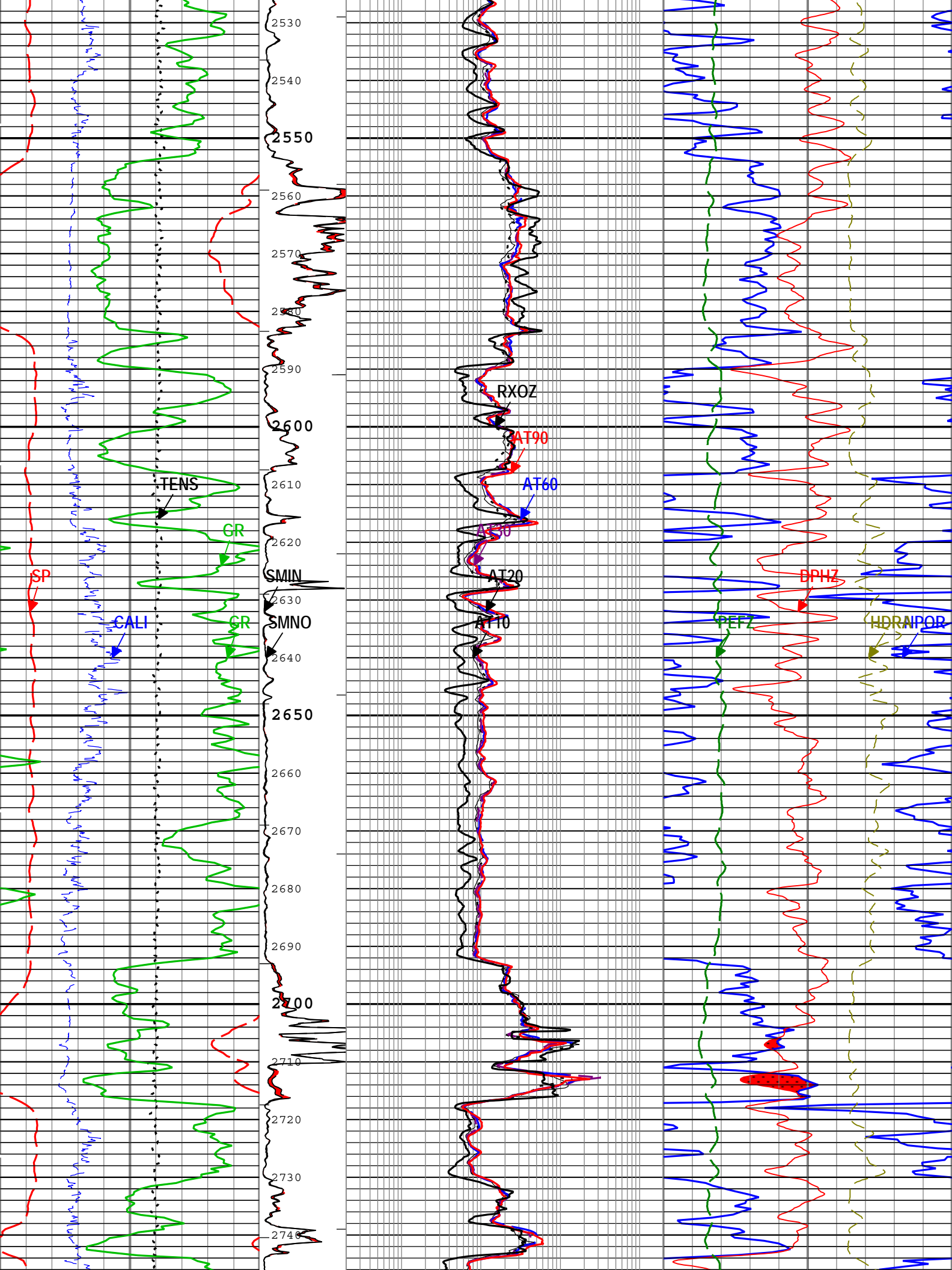


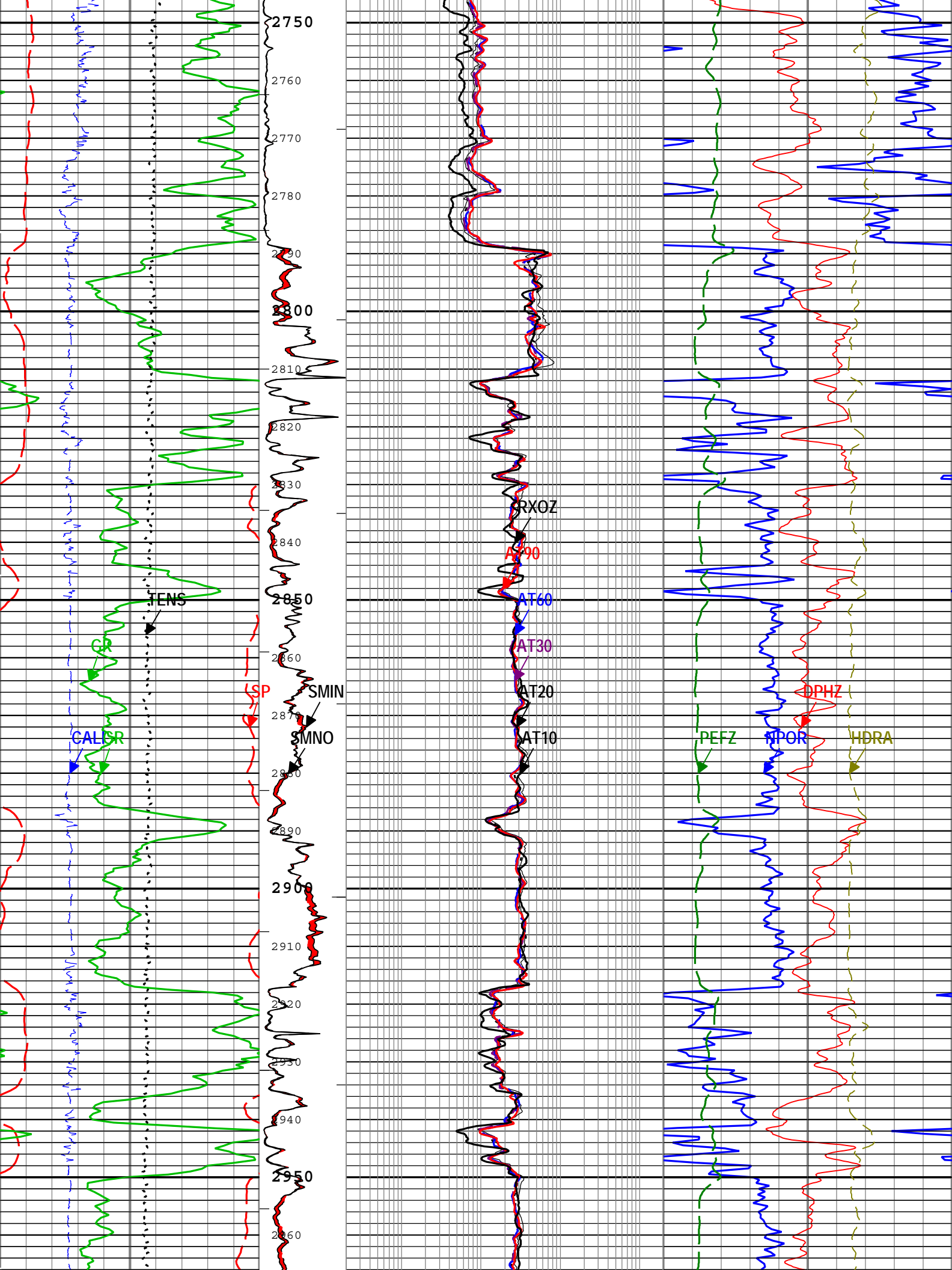


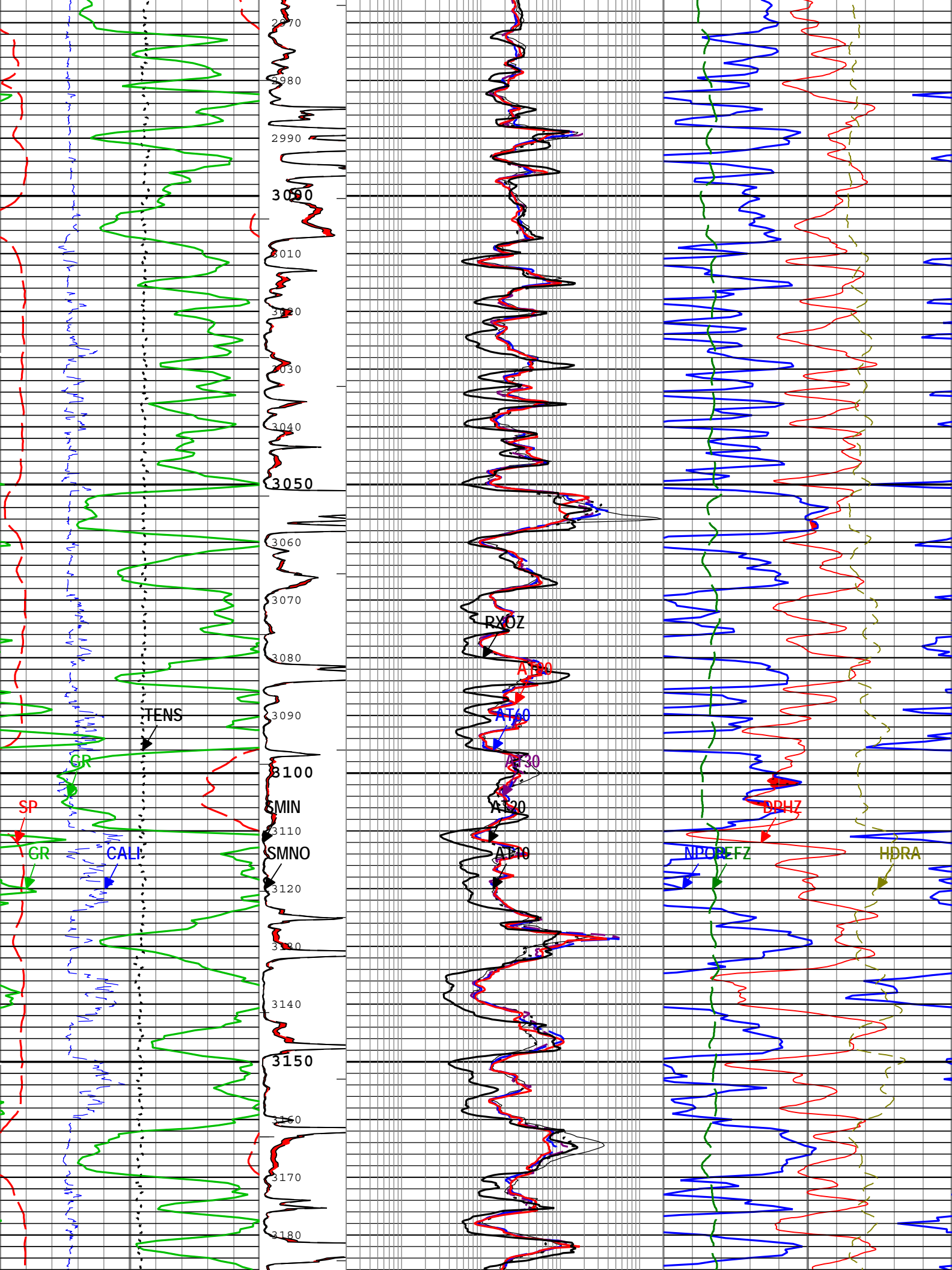


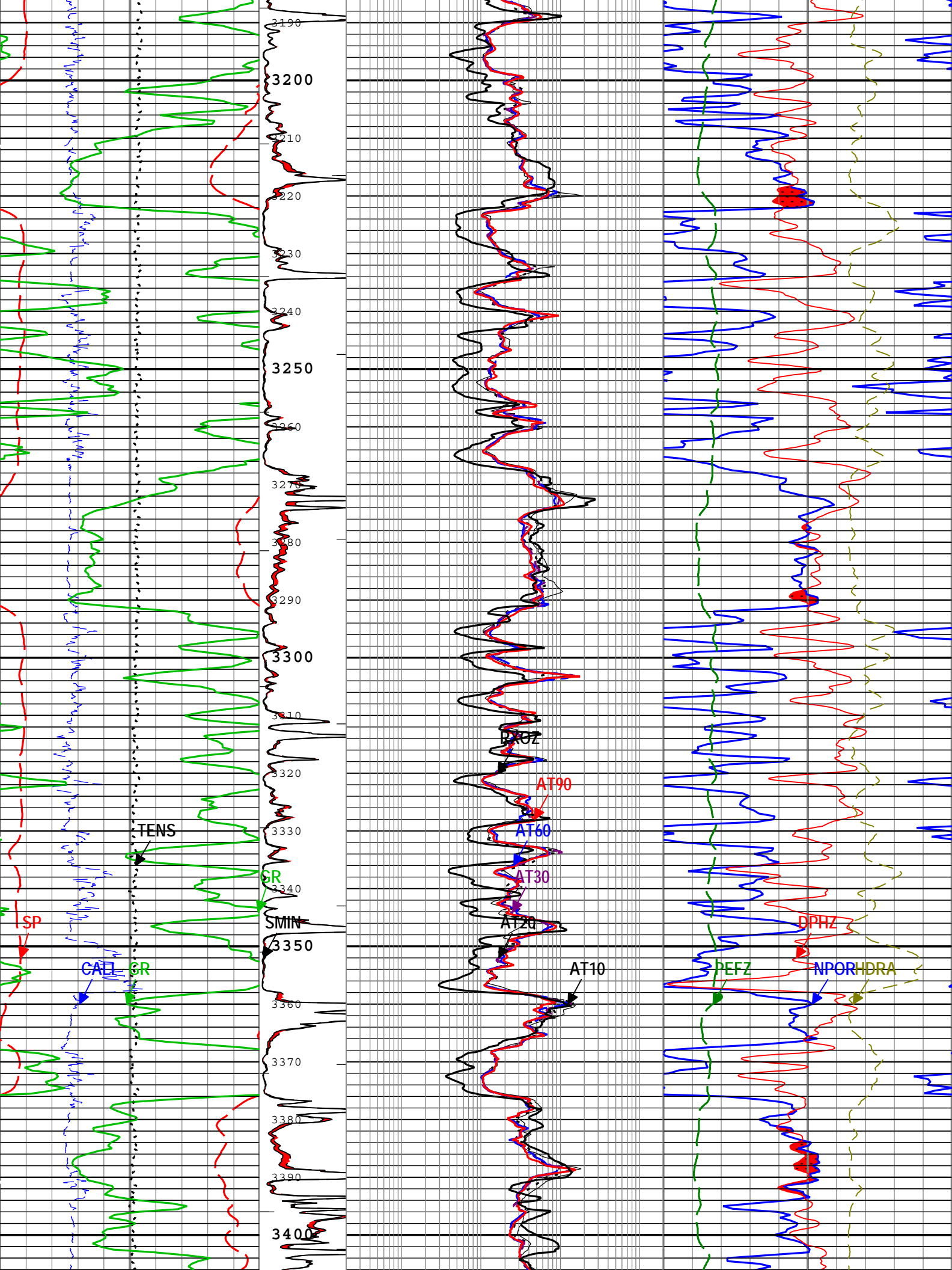


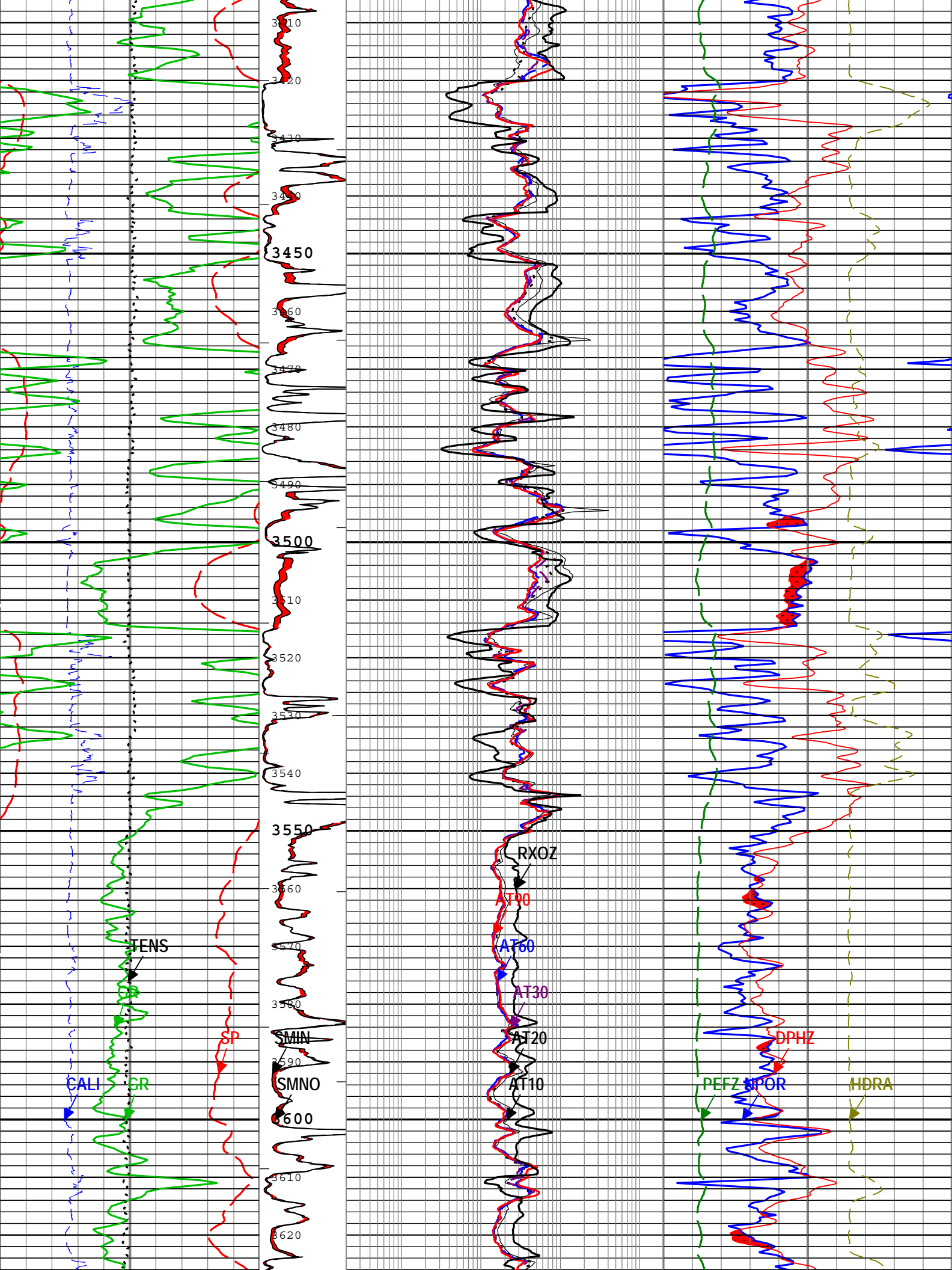


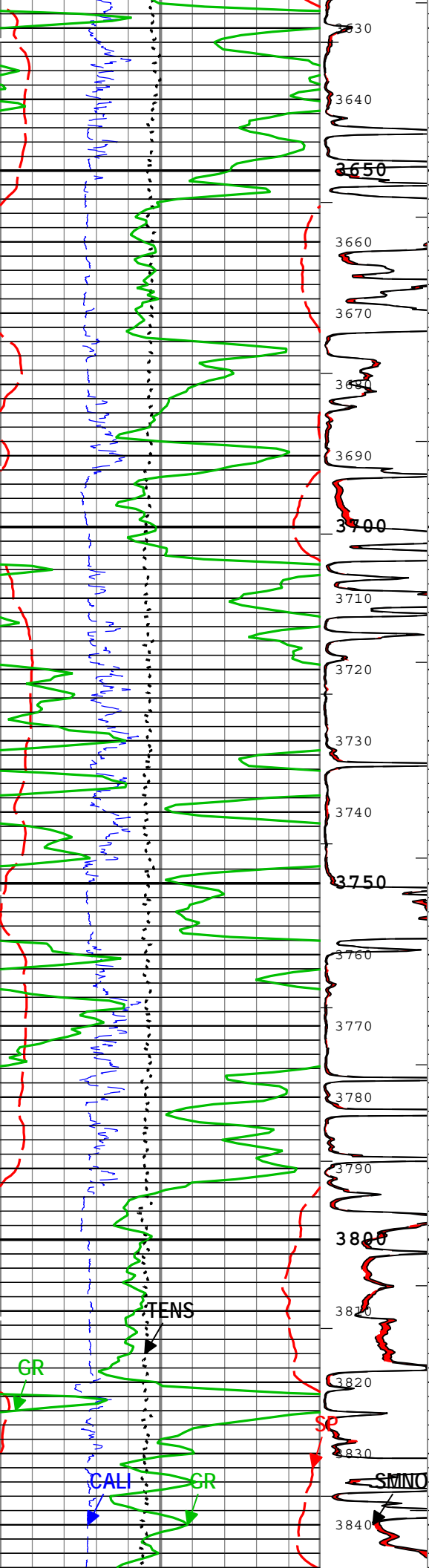




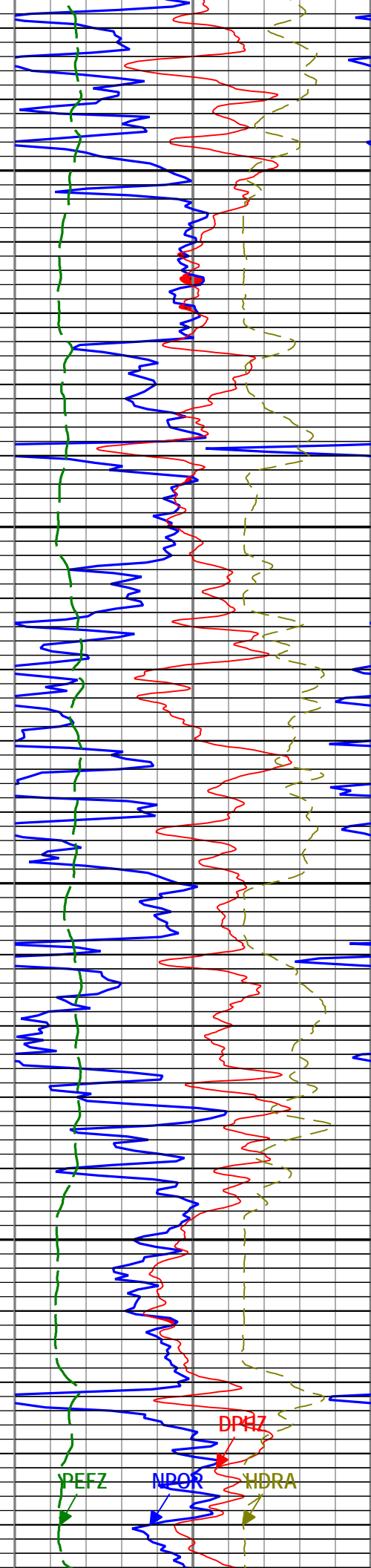
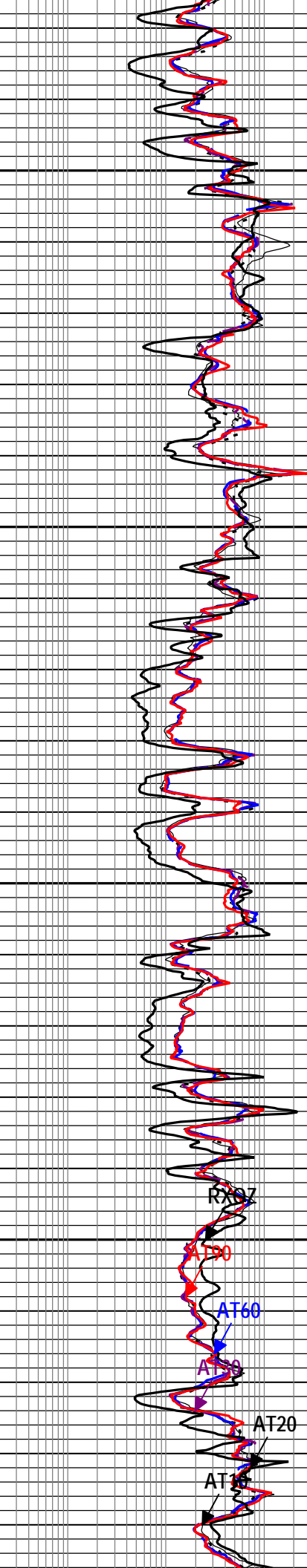


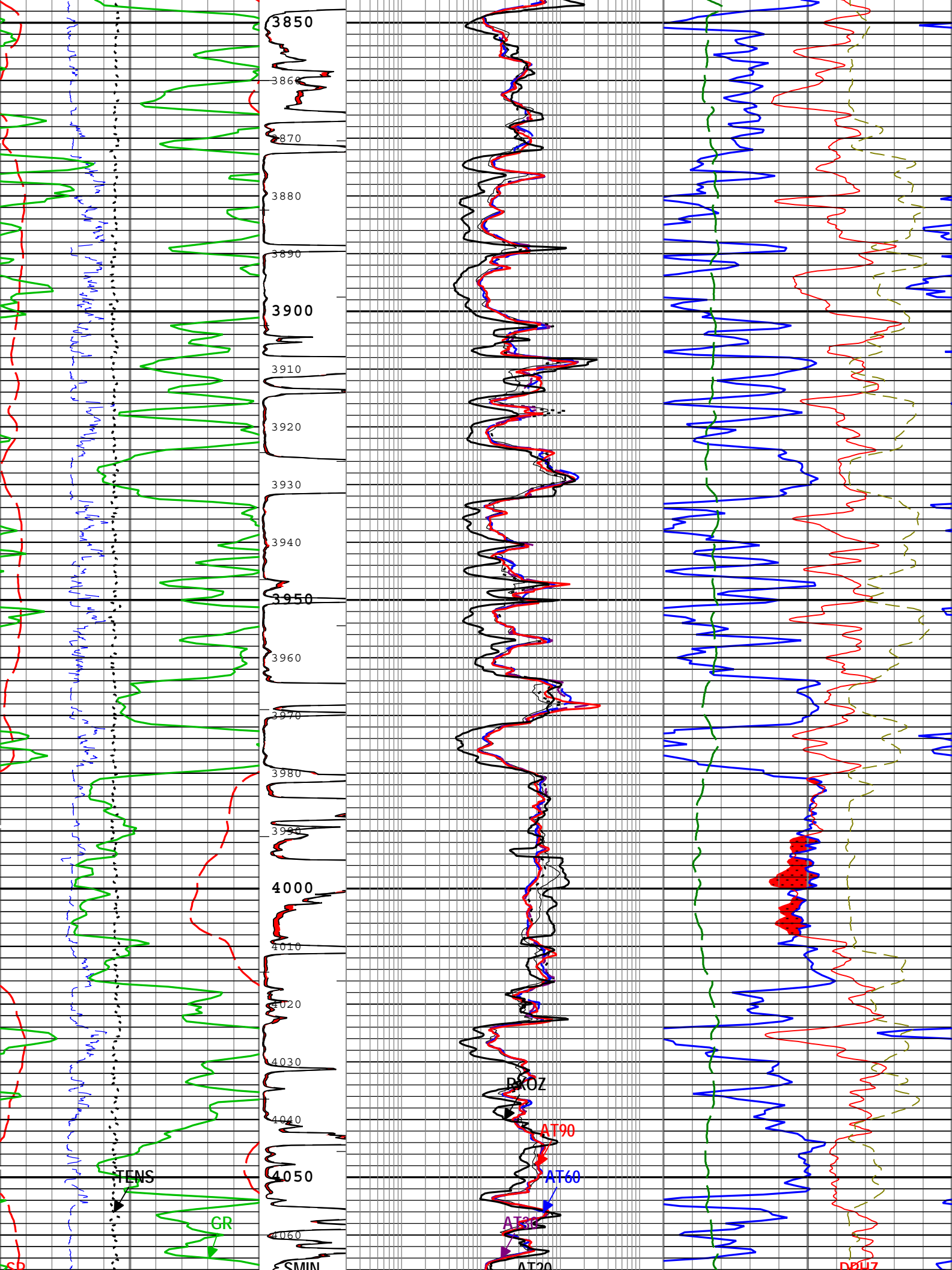


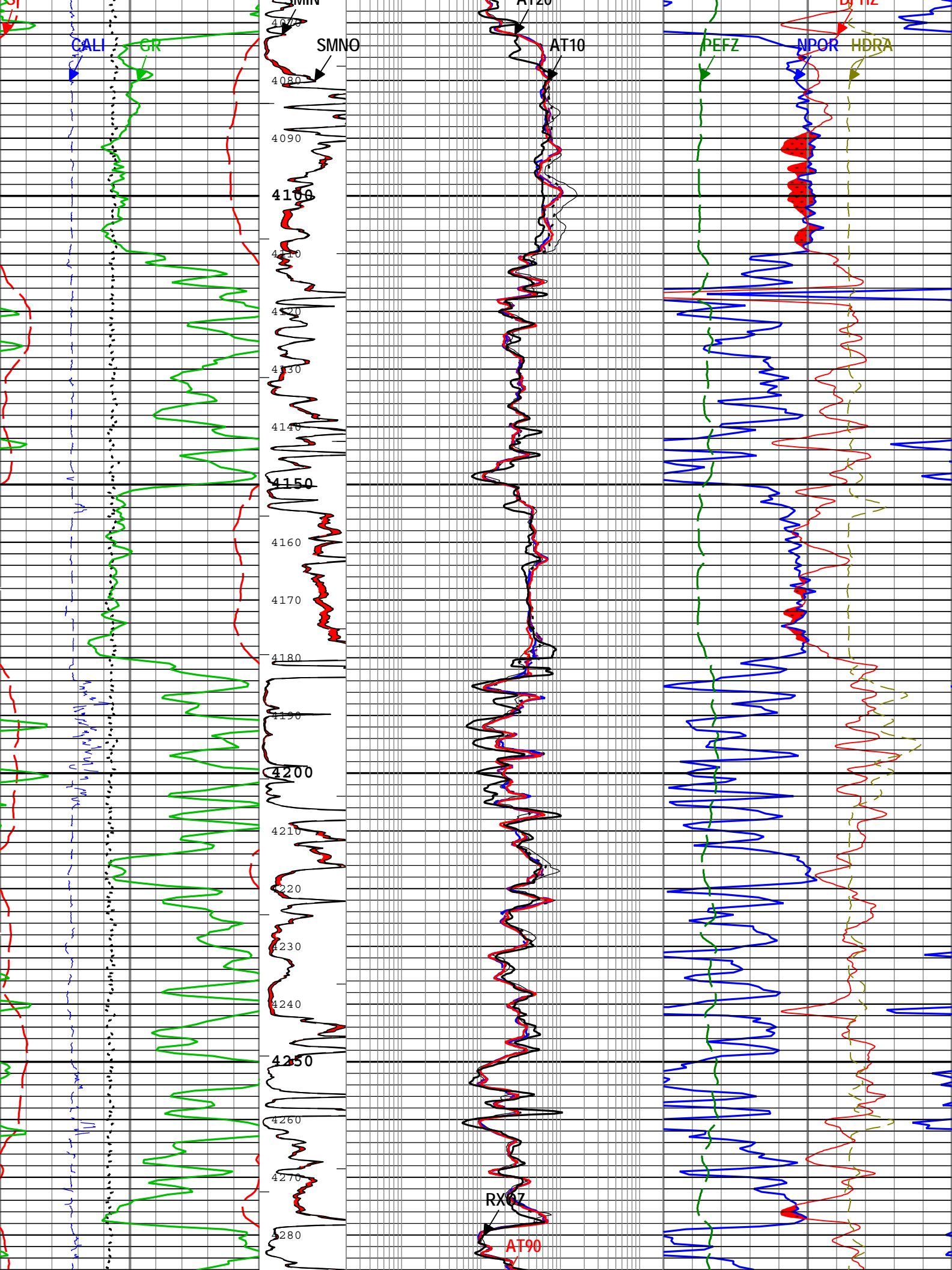


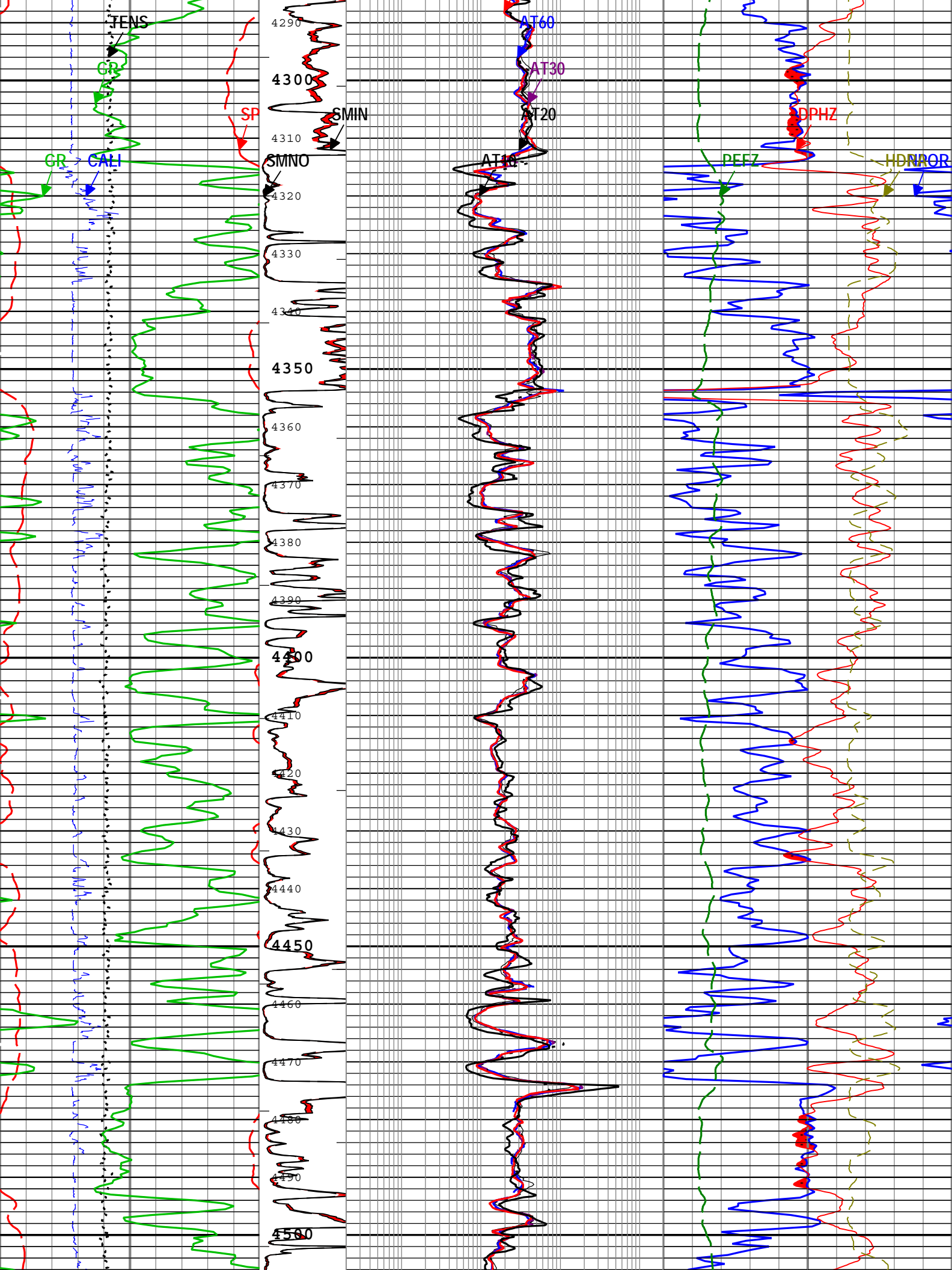


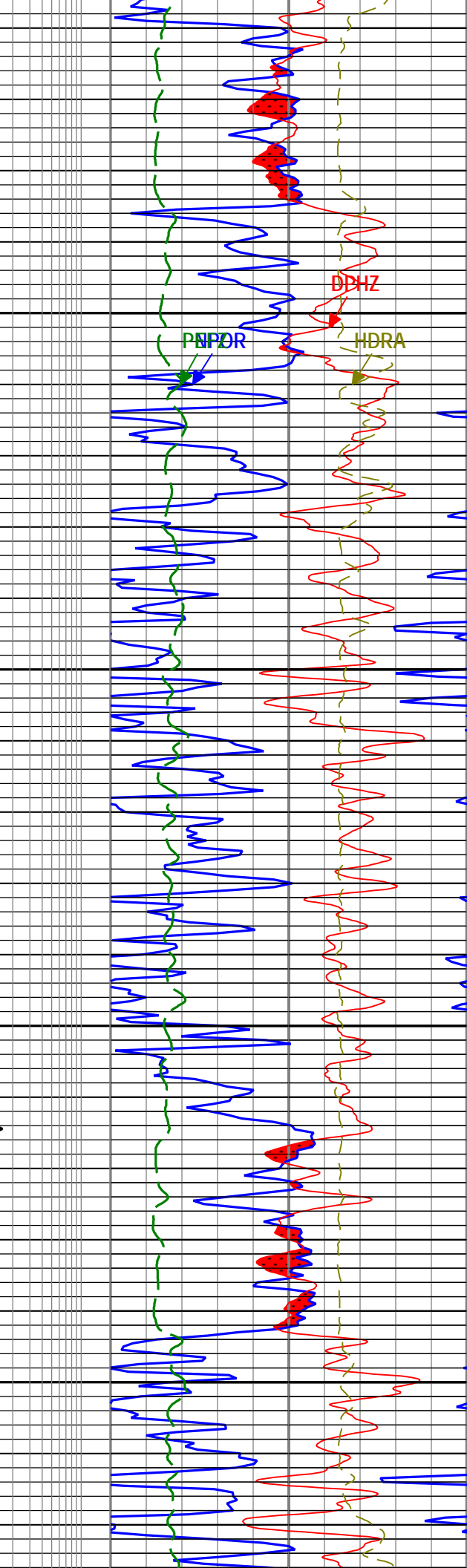
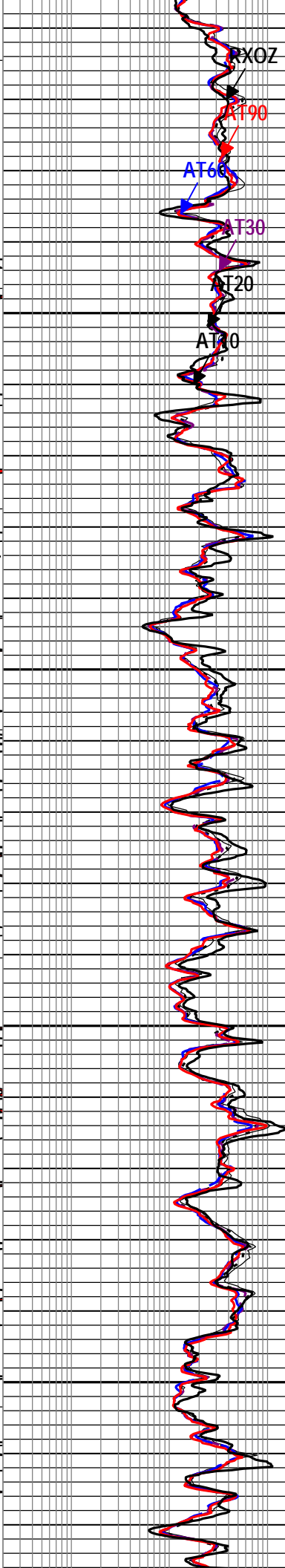
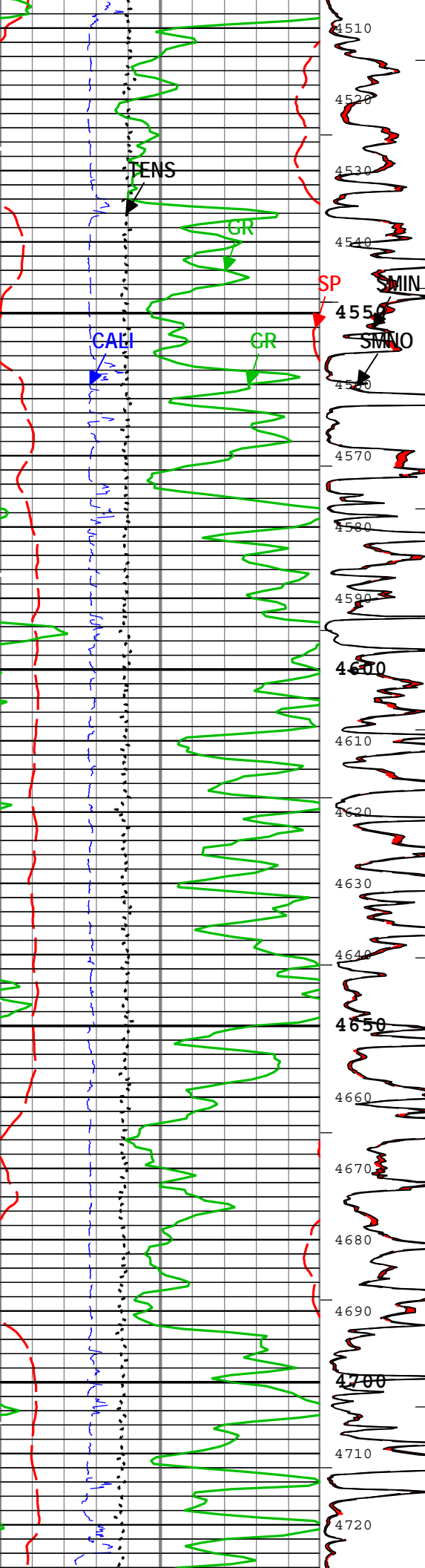
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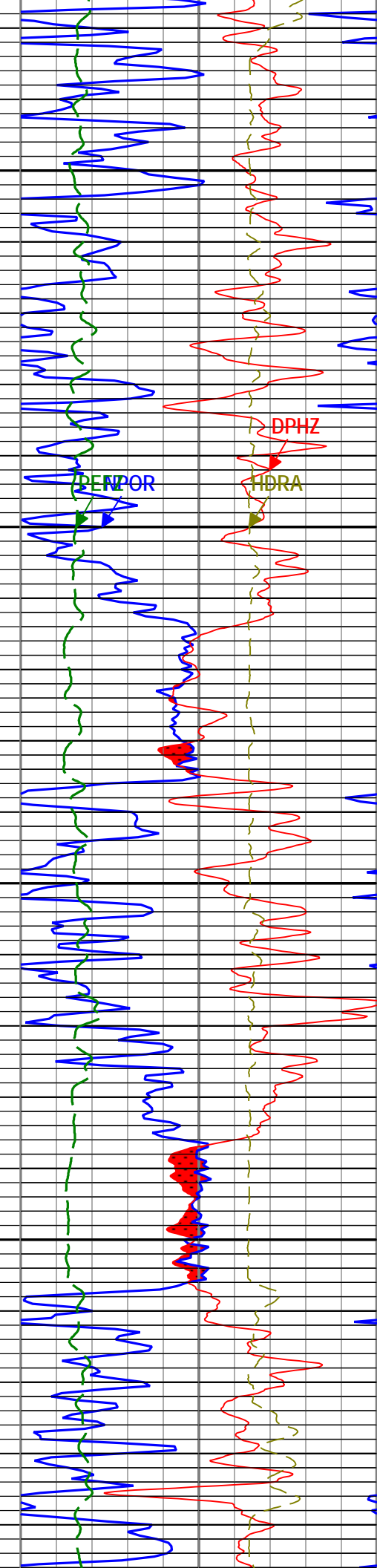
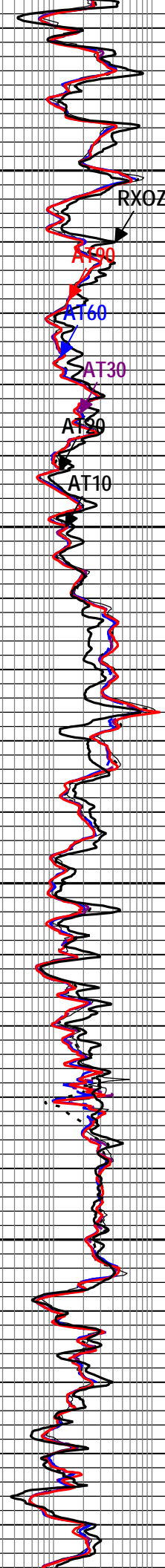
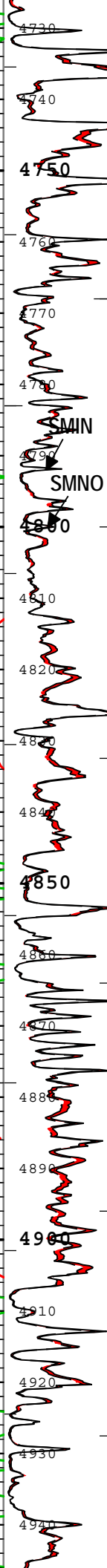
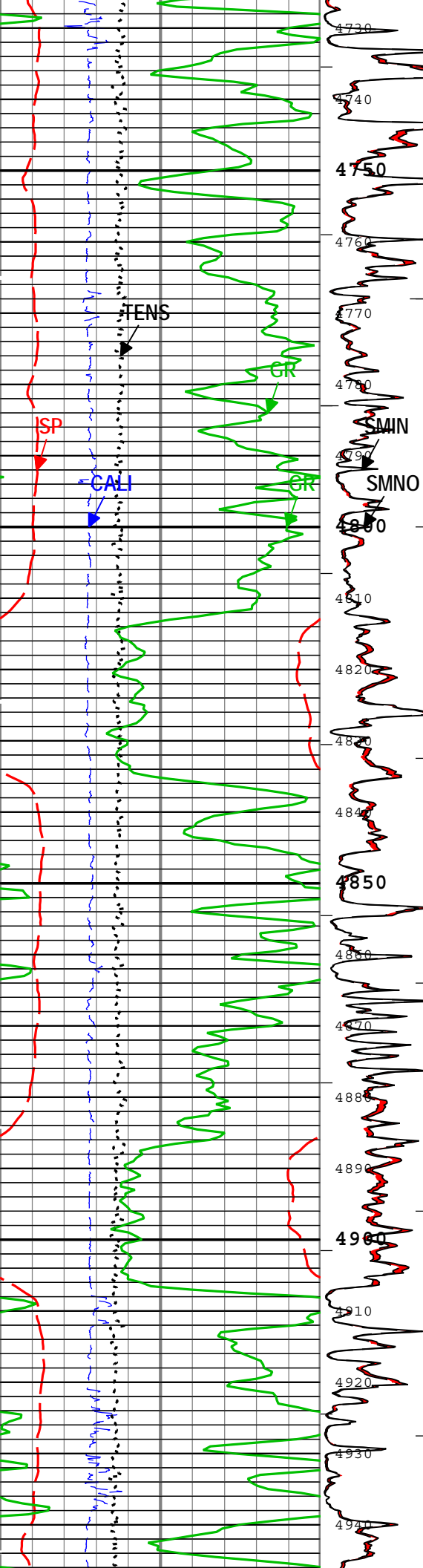


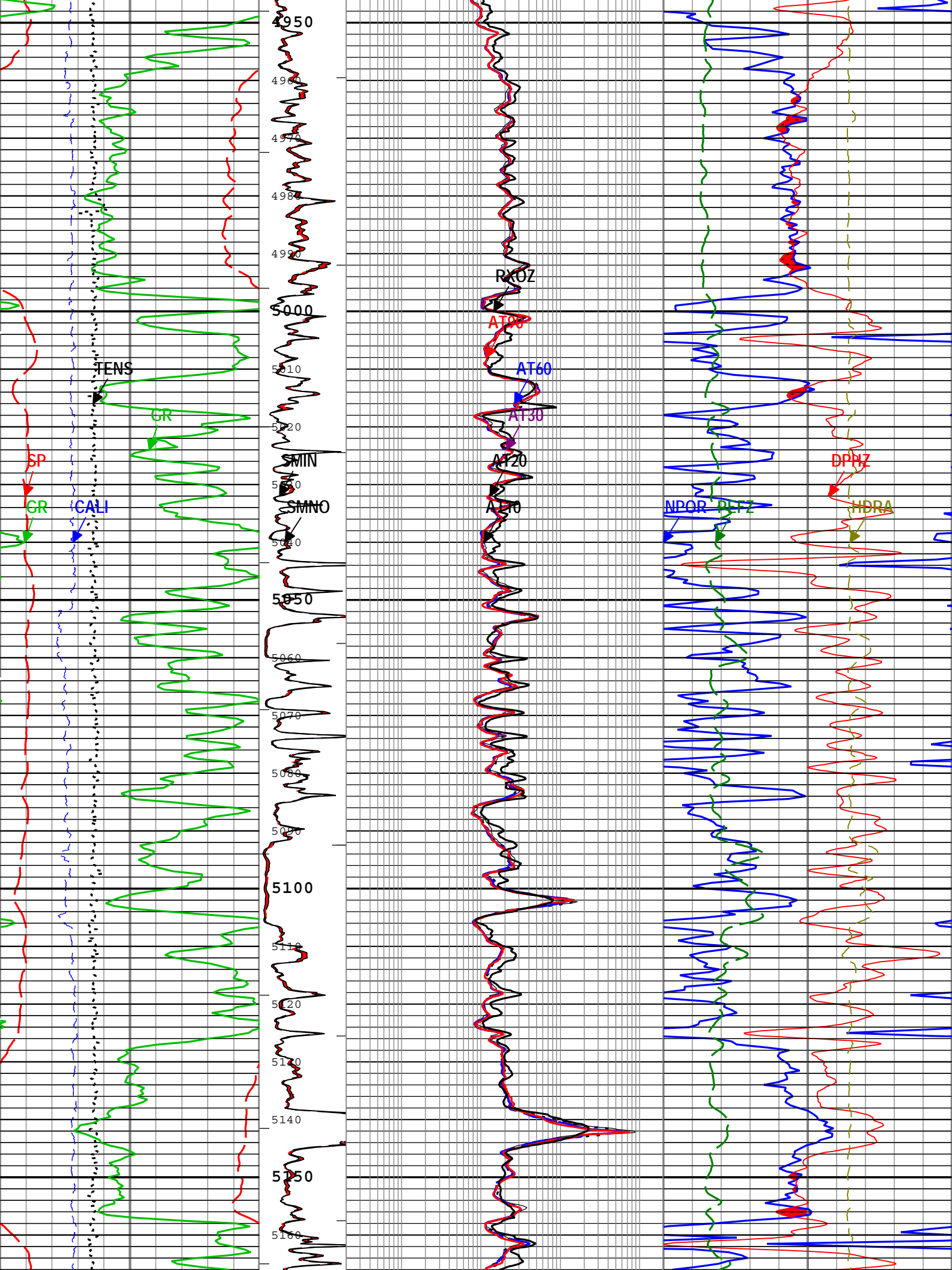


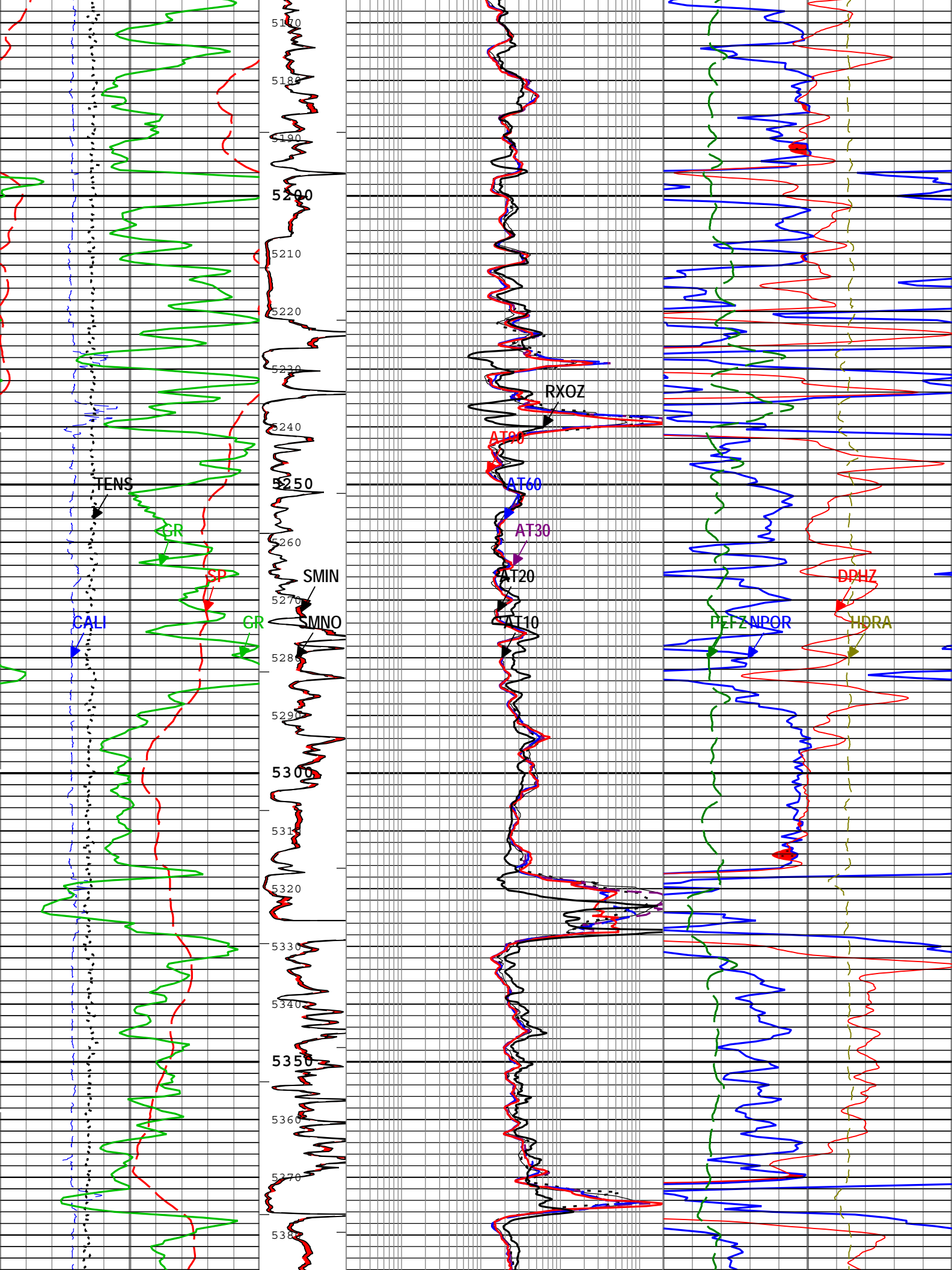


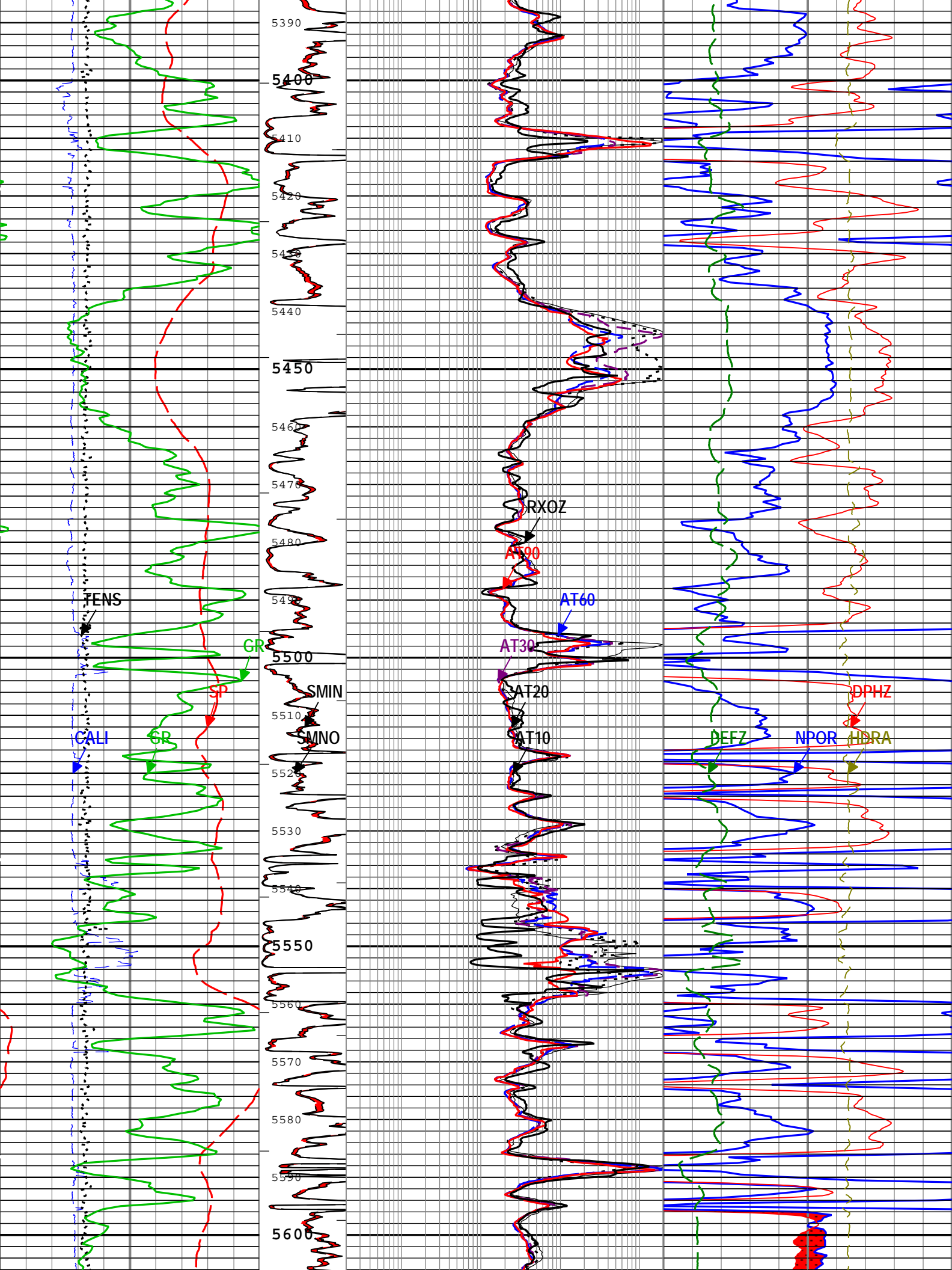


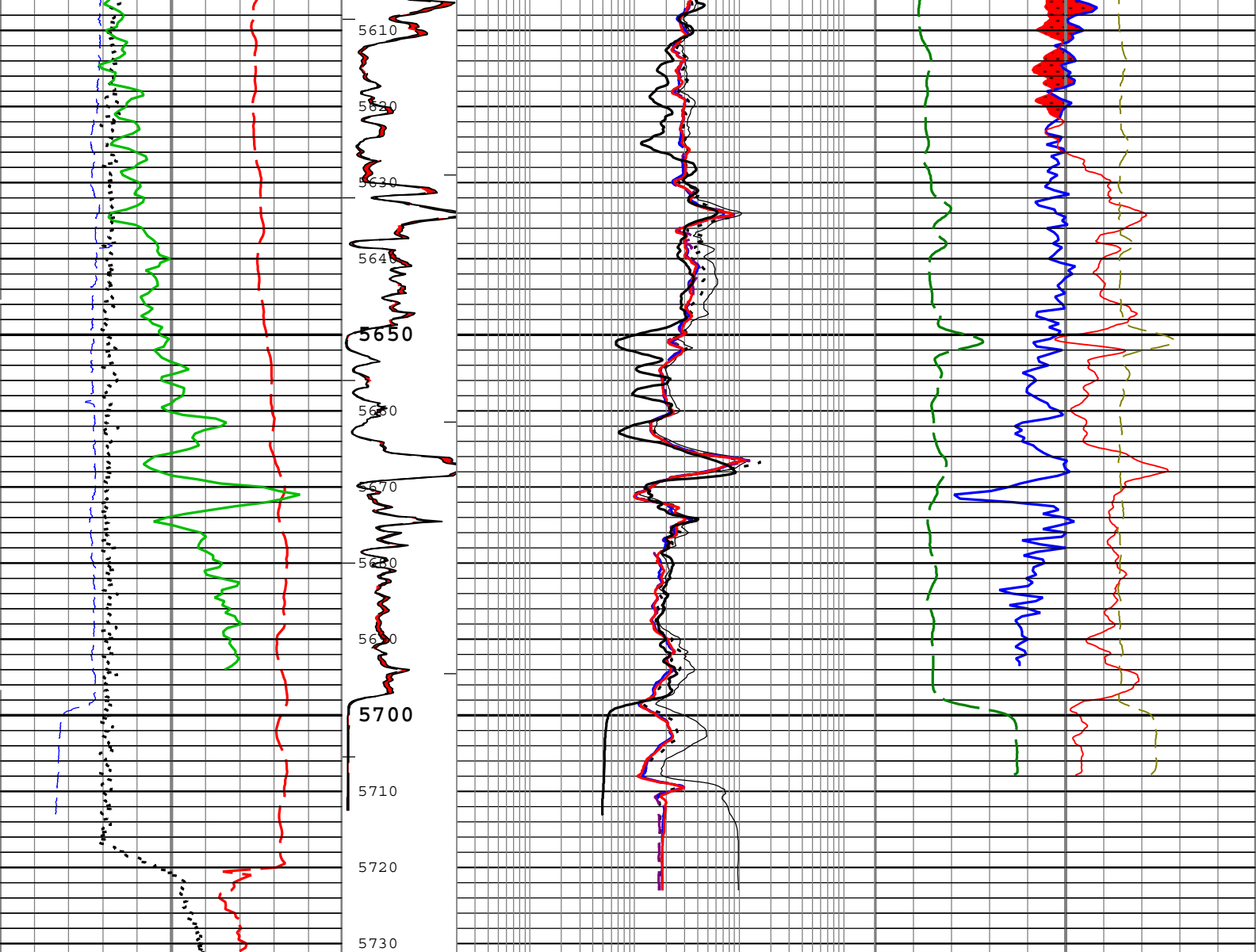












| | | | | | | | | | |
|----------------------------------|------|-----|---|--|-------|------|---|--|---|
| Caliper (CALI) HDRS-H | | | Perm from SMIN to SMNO | Array Induction Two Foot Resistivity A10 (AT10) AIT-H | | | Gas Effect from DPHZ to NPOR | | |
| 6 | in | 16 | | 0.2 | ohm.m | 2000 | Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H | | |
| Spontaneous Potential (SP) AIT-H | | | Synthetic Micro-Normal Resistivity (SMNO) HDRS-H | Array Induction Two Foot Resistivity A20 (AT20) AIT-H | | | 0.3ft3/ft3-0.1 | | |
| -80 | mV | 20 | | 0.2 | ohm.m | 2000 | Standard Resolution Density Porosity (DPHZ) HDRS-H | | |
| Gamma Ray (GR) HGNS-H | | | 0 ohm.m 40 | Array Induction Two Foot Resistivity A30 (AT30) AIT-H | | | 0.3ft3/ft3-0.1 | | |
| 0 | gAPI | 150 | | 0.2 | ohm.m | 2000 | Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H | | |
| Cable Tension (TENS) | | | Synthetic Micro-Inverse Resistivity (SMIN) HDRS-H | Array Induction Two Foot Resistivity A60 (AT60) AIT-H | | | 010 | | Density Standoff Correction (HDRA) HDRS-H |
| 5000 | lbf | 0 | | 0.2 | ohm.m | 2000 | -0.2g/cm30.5 | | |
| | | | 0 ohm.m 40 | Array Induction Two Foot Resistivity A90 (AT90) AIT-H | | | | | |
| | | | | 0.2 | ohm.m | 2000 | | | |
| | | | | Invaded Formation Resistivity filtered at 18 inches (RXOZ) HDRS-H | | | | | |
| | | | 0.2 | ohm.m | 2000 | | | | |

TIME_1900 - Time Marked every 60.00 (s)

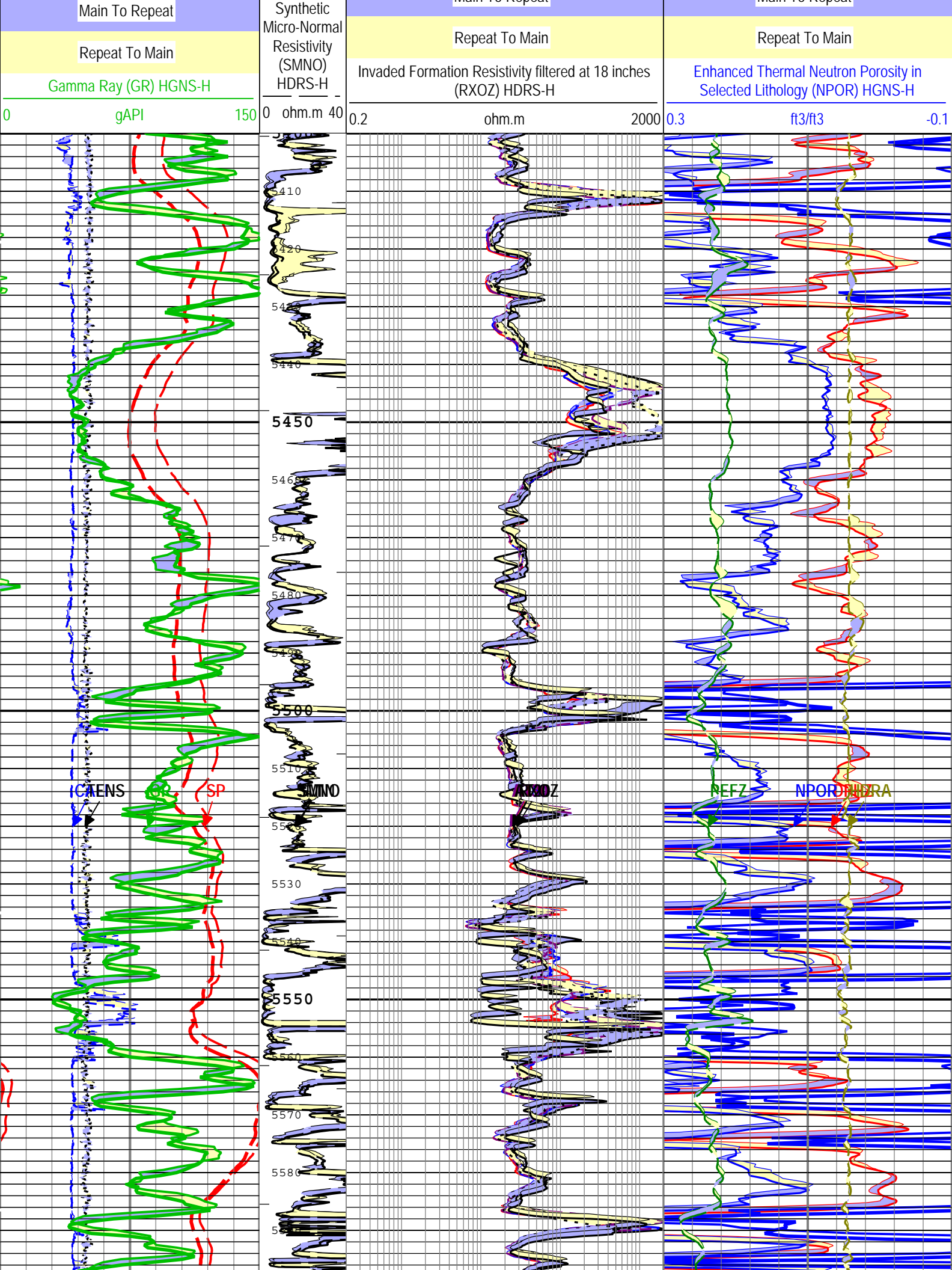
| Channel Processing Parameters | | | | |
|-------------------------------|--|-----------------|------------------|---------|
| Parameter | Description | Tool | Value | Unit |
| ABHM | Array Induction Borehole Correction Mode | AIT-H | Compute Standoff | |
| ABLM | Array Induction Basic Logs Mode | AIT-H | Normal | |
| ACDE | Array Induction Casing Detection Enable | AIT-H | Yes | |
| ASTA | Array Induction Tool Standoff | AIT-H | 0.6 | in |
| AZ_SELECT | Z-Axis Acceleration Channel Selection for Real-Time Depth Correction | DepthCorrection | AZ | |
| BARI | Barite Mud Presence Flag | Borehole | No | |
| BHS | Borehole Status (Open or Cased Hole) | Borehole | Open | |
| BS | Bit Size | WLSESSION | 8.75 | in |
| BSAL | Borehole Salinity | Borehole | 3.31 | ppm |
| CALI_SHIFT | CALI Supplementary Offset | HDRS-H | 0 | in |
| CBLO | Casing Bottom (Logger) | WLSESSION | 1074 | ft |
| CDEN | Cement Density | HGNS-H | 2 | g/cm3 |
| CSODDRL | Casing Outer Diameter - Zoned along driller depths | WLSESSION | 9.625 | in |
| DC_MODE | Depth Correction Mode | DepthCorrection | Real-time | |
| DFD | Drilling Fluid Density | Borehole | 10 | lbm/gal |
| DFT | Drilling Fluid Type | Borehole | Water | |
| DHC | Density Hole Correction | HDRS-H | Bit Size | |
| FCD | Future Casing (Outer) Diameter | WLSESSION | 4.5 | in |
| FD | Fluid Density | Borehole | 1 | g/cm3 |
| FSAL | Formation Salinity | Borehole | 0 | ppm |
| GCSE_DOWN_PASS | Generalized Caliper Selection for WL Log Down Passes | Borehole | BS | |
| GCSE_UP_PASS | Generalized Caliper Selection for WL Log Up Passes | Borehole | CALI | |
| GRSE | Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity | Borehole | AMF | |
| GTSE | Generalized Temperature Selection, from Measured or Computed Temperature | Borehole | CTEM | |
| HSCO | Hole Size Correction Option | HGNS-H | Yes | |
| MATR | Rock Matrix for Neutron Porosity Corrections | Borehole | SANDSTONE | |
| MDEN | Matrix Density for Density Porosity | Borehole | 2.68 | g/cm3 |
| MFST | Mud Filtrate Sample Temperature | Borehole | 75 | degF |
| RMFS | Resistivity of Mud Filtrate Sample | Borehole | 1.09 | ohm.m |
| SPDR | SP Drift Per Foot | AIT-H | 0 | mV/ft |

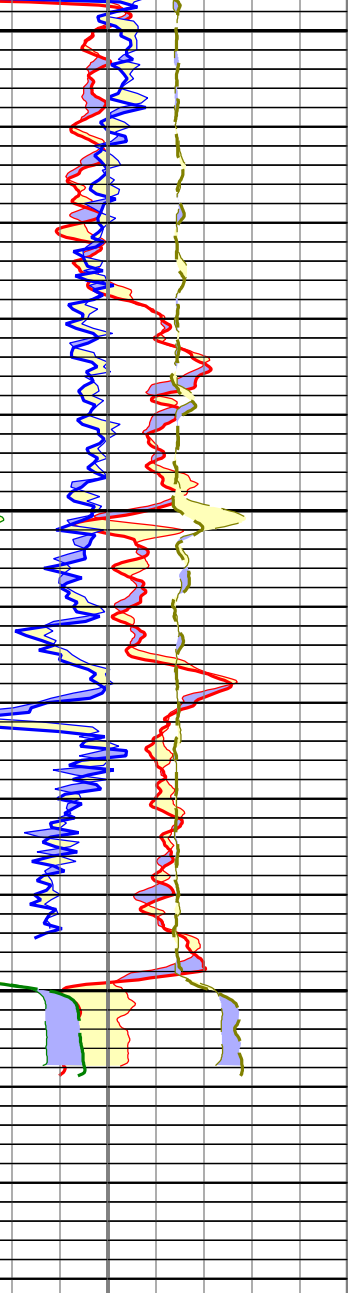
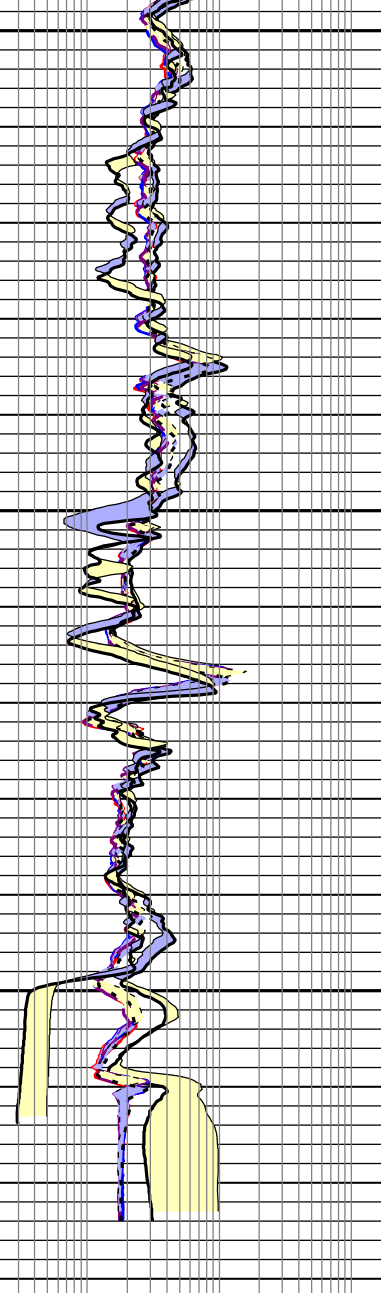
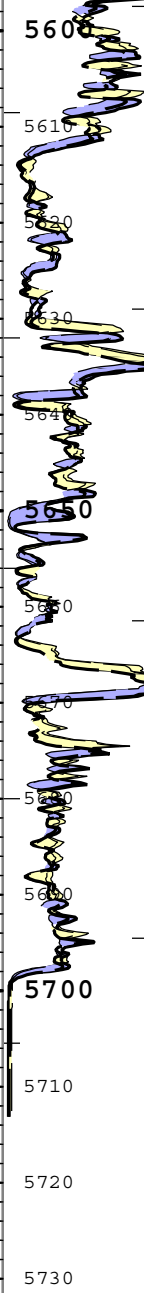
| Tool Control Parameters | | | | |
|-------------------------|----------------------------------|-----------|----------|------|
| Parameter | Description | Tool | Value | Unit |
| HMCA_BRD_TYPE | HMCA Board Type | HGNS-H | 1 | |
| HRGD_BRD_TYPE | HRGD Board Type | HDRS-H | WITH_HET | |
| MAX_LOG_SPEED | Toolstring Maximum Logging Speed | WLSESSION | 3600 | ft/h |

REPEAT ANALYSIS

| Pass Summary | | | | |
|--------------|----------------|-----------|---------|--------|
| Run | Pass Objective | Direction | Top | Bottom |
| Start | Stop | Depth | Include | |

| | | | | | | | | | | | |
|---|------|-----|--|-------|------|---|---------|------|--|-----|--|
| <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | |
| <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | |
| <div>Gamma Ray (GR) HGNS-H</div> | | | <div>Array Induction Two Foot Resistivity A90 (AT90) AIT-H</div> | | | <div>Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H</div> | | | <div>Density Standoff Correction (HDRA) HDRS-H</div> | | |
| 150 | gAPI | 300 | 0.2 | ohm.m | 2000 | 0 | 10 | -0.2 | g/cm3 | 0.5 | |
| <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | |
| <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | |
| <div>Caliper (CALI) HDRS-H</div> | | | <div>Array Induction Two Foot Resistivity A60 (AT60) AIT-H</div> | | | <div>Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H</div> | | | <div>Density Standoff Correction (HDRA) HDRS-H</div> | | |
| 6 | in | 16 | 0.2 | ohm.m | 2000 | 0 | 10 | -0.2 | g/cm3 | 0.5 | |
| <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | |
| <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | |
| <div>Spontaneous Potential (SP) AIT-H</div> | | | <div>Array Induction Two Foot Resistivity A30 (AT30) AIT-H</div> | | | <div>Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H</div> | | | <div>Density Standoff Correction (HDRA) HDRS-H</div> | | |
| -80 | mV | 20 | 0.2 | ohm.m | 2000 | 0 | 10 | -0.2 | g/cm3 | 0.5 | |
| <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | |
| <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | |
| <div>Cable Tension (TENS)</div> | | | <div>Array Induction Two Foot Resistivity A20 (AT20) AIT-H</div> | | | <div>Standard Resolution Density Porosity (DPHZ) HDRS-H</div> | | | <div>Density Standoff Correction (HDRA) HDRS-H</div> | | |
| 5000 | lbf | 0 | 0.2 | ohm.m | 2000 | 0.3 | ft3/ft3 | -0.1 | | | |
| <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | | <div>Main To Repeat</div> | | |
| <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | | <div>Repeat To Main</div> | | |





| | | | | | | |
|---|--|---|---|--|---|---|
| Main To Repeat | | Main To Repeat | Main To Repeat | | Main To Repeat | |
| Repeat To Main | | | Repeat To Main | | Repeat To Main | |
| Caliper (CALI) HDRS-H 6 in 16 | | | Array Induction Two Foot Resistivity A90 (AT90) AIT-H 0.2 ohm.m 2000 | | Standard Resolution Density Porosity (DPHZ) HDRS-H 0.3 ft3/ft3 -0.1 | |
| Main To Repeat | | Synthetic Micro-Inverse Resistivity (SMIN) HDRS-H 0 ohm.m 40 | Main To Repeat | | Main To Repeat | |
| Repeat To Main | | | Repeat To Main | | Repeat To Main | |
| Spontaneous Potential (SP) AIT-H -80 mV 20 | | | Array Induction Two Foot Resistivity A10 (AT10) AIT-H 0.2 ohm.m 2000 | | Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H 0.3 ft3/ft3 -0.1 | |
| Main To Repeat | | Main To Repeat | Main To Repeat | | Main To Repeat | Main To Repeat |
| Repeat To Main | | | Repeat To Main | | Repeat To Main | Repeat To Main |
| Cable Tension (TENS) 5000 lbf 0 | | | Array Induction Two Foot Resistivity A60 (AT60) AIT-H 0.2 ohm.m 2000 | | Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H -0.2 g/cm3 0.5 | Density Standoff Correction (HDRA) HDRS-H -0.2 g/cm3 0.5 |
| Main To Repeat | | Synthetic Micro-Normal Resistivity (SMNO) HDRS-H | Main To Repeat | | Main To Repeat | |
| Repeat To Main | | | Repeat To Main | | Repeat To Main | |
| Main To Repeat | | | Repeat To Main | | Repeat To Main | |

| | | | | | | | |
|---------------------------------|------|--------|-------|-----------|----------|----------|--|
| Sonde Error Correction Real - 0 | mS/m | Master | ----- | -231.000 | -135.246 | 119.000 | |
| Sonde Error Correction Quad - 0 | | Master | ----- | -2250.000 | -768.965 | 2250.000 | |
| Sonde Error Correction Real - 1 | mS/m | Master | ----- | 114.000 | 178.467 | 204.000 | |
| Sonde Error Correction Quad - 1 | | Master | ----- | -625.000 | -222.881 | 625.000 | |
| Sonde Error Correction Real - 2 | mS/m | Master | ----- | 66.000 | 109.238 | 156.000 | |
| Sonde Error Correction Quad - 2 | | Master | ----- | -350.000 | -141.703 | 350.000 | |
| Sonde Error Correction Real - 3 | mS/m | Master | ----- | 39.000 | 53.526 | 89.000 | |
| Sonde Error Correction Quad - 3 | | Master | ----- | -250.000 | 18.948 | 250.000 | |
| Sonde Error Correction Real - 4 | mS/m | Master | ----- | 15.000 | 24.674 | 35.000 | |
| Sonde Error Correction Quad - 4 | | Master | ----- | -63.000 | -5.715 | 63.000 | |
| Sonde Error Correction Real - 5 | mS/m | Master | ----- | 4.000 | 12.863 | 24.000 | |
| Sonde Error Correction Quad - 5 | | Master | ----- | -50.000 | -6.963 | 50.000 | |
| Sonde Error Correction Real - 6 | mS/m | Master | ----- | 5.000 | 7.793 | 15.000 | |
| Sonde Error Correction Quad - 6 | | Master | ----- | -30.000 | -11.996 | 30.000 | |
| Sonde Error Correction Real - 7 | mS/m | Master | ----- | -5.000 | -3.822 | 5.000 | |
| Sonde Error Correction Quad - 7 | | Master | ----- | -30.000 | -9.897 | 30.000 | |

AIT Mud Calibration - Mud Calibration Gain

| Master (EEPROM): 16:25:05 02-Aug-2013 | | | | | | | |
|---------------------------------------|------|--------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Coarse Gain | | Master | 1.000 | 0.800 | 0.828 | 1.200 | |
| Fine Gain | | Master | 1.000 | 0.800 | 0.827 | 1.200 | |

AIT Electronics Check - Thru Calibration Check

| Master (EEPROM): 16:25:05 02-Aug-2013 Before (Measured): 18:08:22 07-Oct-2013 After: | | | | | | | |
|--|------|---------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Thru Cal Mag - 0 | V | Master | ----- | 0.363 | 0.626 | 0.847 | |
| | | Before | ----- | 0.363 | 0.624 | 0.847 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | -0.002 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Phase - 0 | deg | Master | ----- | 11.000 | 65.813 | 131.000 | |
| | | Before | ----- | 11.000 | 66.758 | 131.000 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | 0.945 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Mag - 1 | V | Master | ----- | 0.762 | 1.285 | 1.778 | |
| | | Before | ----- | 0.762 | 1.281 | 1.778 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | -0.004 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Phase - 1 | deg | Master | ----- | 10.000 | 64.766 | 130.000 | |
| | | Before | ----- | 10.000 | 65.729 | 130.000 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | 0.963 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Mag - 2 | V | Master | ----- | 0.374 | 0.638 | 0.872 | |
| | | Before | ----- | 0.374 | 0.636 | 0.872 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | -0.002 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Phase - 2 | deg | Master | ----- | 6.000 | 60.939 | 126.000 | |
| | | Before | ----- | 6.000 | 61.949 | 126.000 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | 1.010 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Mag - 3 | V | Master | ----- | 0.422 | 0.719 | 0.986 | |
| | | Before | ----- | 0.422 | 0.717 | 0.986 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | -0.002 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Phase - 3 | deg | Master | ----- | 5.000 | 60.162 | 125.000 | |
| | | Before | ----- | 5.000 | 61.177 | 125.000 | |
| | | After | ----- | ----- | ----- | ----- | |
| | | Before-Master | ----- | ----- | 1.015 | ----- | |
| | | After-Before | ----- | ----- | ----- | ----- | |
| Thru Cal Mag - 4 | V | Master | ----- | 0.802 | 1.350 | 1.872 | |
| | | Before | ----- | 0.802 | 1.344 | 1.872 | |

| | | | | | | | |
|--------------------|-----|--|---|---|---|---|--|
| | | After Before-Master After-Before | ----- ----- ----- | ----- ----- ----- | ----- -0.006 ----- | ----- ----- ----- | |
| Thru Cal Phase - 4 | deg | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -1.000 -1.000 ----- ----- ----- | 53.671 54.771 ----- 1.100 ----- | 119.000 119.000 ----- ----- ----- | |
| Thru Cal Mag - 5 | V | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 1.173 1.173 ----- ----- ----- | 1.956 1.952 ----- -0.004 ----- | 2.737 2.737 ----- ----- ----- | |
| Thru Cal Phase - 5 | deg | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -3.000 -3.000 ----- ----- ----- | 51.730 52.875 ----- 1.145 ----- | 117.000 117.000 ----- ----- ----- | |
| Thru Cal Mag - 6 | V | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 1.173 1.173 ----- ----- ----- | 1.956 1.951 ----- -0.005 ----- | 2.737 2.737 ----- ----- ----- | |
| Thru Cal Phase - 6 | deg | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -3.000 -3.000 ----- ----- ----- | 51.733 52.881 ----- 1.148 ----- | 117.000 117.000 ----- ----- ----- | |
| Thru Cal Mag - 7 | V | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 0.849 0.849 ----- ----- ----- | 1.387 1.389 ----- 0.002 ----- | 1.981 1.981 ----- ----- ----- | |
| Thru Cal Phase - 7 | deg | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -7.000 -7.000 ----- ----- ----- | 47.508 49.139 ----- 1.631 ----- | 113.000 113.000 ----- ----- ----- | |
| SPA Zero | mV | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -50.000 -50.000 ----- ----- ----- | -0.176 -0.211 ----- -0.035 ----- | 50.000 50.000 ----- ----- ----- | |
| SPA Plus | mV | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 941.000 941.000 ----- ----- ----- | 990.266 991.133 ----- 0.867 ----- | 1040.000 1040.000 ----- ----- ----- | |
| Temperature Zero | V | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | -0.050 -0.050 ----- ----- ----- | 0.000 0.000 ----- 0.000 ----- | 0.050 0.050 ----- ----- ----- | |
| Temperature Plus | V | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 0.870 0.870 ----- ----- ----- | 0.917 0.917 ----- 0.000 ----- | 0.960 0.960 ----- ----- ----- | |

| HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1 | | | |
|---|--|-------------|------|
| Primary Equipment : | | | |
| HILT High-Resolution Control Cartridge, 150 degC | | HRCC-H | |
| HILT Resistivity Gamma-Ray Density Device, 150 degC | | HRGD-H | 3912 |
| Auxiliary Equipment : | | | |
| HRDD Backscatter Detector | | Backscatter | |

| | | |
|--|---------------|-------|
| HRDD Long Spacing Detector | Long Spacing | 28706 |
| HRDD Short Spacing Detector | Short Spacing | 27692 |
| Cesium 137 Gamma-Ray Logging Source | GSR-J | 5415 |
| HILT High-Resolution Control Cartridge, 150 degC | HRCC-H | |
| HILT High-Resolution Mechanical Sonde, 150 degC | HRMS-H | |

Calibration Parameter :

| | |
|--|-------|
| Small Ring Size (Caliper Calibration Small Ring) | 8.00 |
| Large Ring Size (Caliper Calibration Large Ring) | 12.00 |

HDRS Caliper Calibration - Caliper Accumulations

| Before (Measured): | | 10:10:35 09-Aug-2013 | | | | | |
|--------------------|------|----------------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Small Ring | in | Before | 8.00 | 6.00 | 8.39 | 10.00 | |
| Large Ring | in | Before | 12.00 | 9.00 | 12.55 | 15.00 | |

HDRS Density Calibration - Inversion Results

| Master (EEPROM): | | 13:45:24 14-Jul-2013 | | | | | |
|------------------|-------|----------------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Rho Aluminum | g/cm3 | Master | 2.596 | 2.586 | 2.593 | 2.606 | |
| Rho Magnesium | g/cm3 | Master | 1.686 | 1.676 | 1.691 | 1.696 | |
| Pe Aluminum | | Master | 2.570 | 2.470 | 2.569 | 2.670 | |
| Pe Magnesium | | Master | 2.650 | 2.550 | 2.607 | 2.750 | |

HDRS Density Calibration - Deviation Summary

| Master (EEPROM): | | 13:45:24 14-Jul-2013 | | | | | |
|----------------------|------|----------------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| BS Average Deviation | % | Master | 0 | -0.6000 | 0.2098 | 0.6000 | |
| BS Max Deviation | % | Master | 0 | -1.6000 | 0.6320 | 1.6000 | |
| SS Average Deviation | % | Master | 0 | -1.0000 | 0.3349 | 1.0000 | |
| SS Max Deviation | % | Master | 0 | -2.5000 | 0.7393 | 2.5000 | |
| LS Average Deviation | % | Master | 0 | -1.5000 | 0.8555 | 1.5000 | |
| LS Max Deviation | % | Master | 0 | -3.5000 | 1.8271 | 3.5000 | |

HDRS Density Calibration - Background Summary

| Master (EEPROM): | | 13:45:24 14-Jul-2013 | | Before (Measured): | | 10:11:37 09-Aug-2013 | |
|------------------|------|----------------------|---------|--------------------|--------|----------------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| BS Window Ratio | | Master | 1.0000 | | 0.7470 | | |
| | | Before | 0.7470 | 0.7096 | 0.7486 | 0.7843 | |
| | | Before-Master | ----- | ----- | 0.0016 | ----- | |
| BS Window Sum | 1/s | Master | 1 | | 23814 | | |
| | | Before | 23814 | 22623 | 24048 | 25005 | |
| | | Before-Master | ----- | ----- | 234 | ----- | |
| SS Window Ratio | | Master | 1.0000 | | 0.4783 | | |
| | | Before | 0.4783 | 0.4543 | 0.4794 | 0.5022 | |
| | | Before-Master | ----- | ----- | 0.0011 | ----- | |
| SS Window Sum | 1/s | Master | 1 | | 11267 | | |
| | | Before | 11267 | 10704 | 11246 | 11831 | |
| | | Before-Master | ----- | ----- | -21 | ----- | |
| LS Window Ratio | | Master | 1.0000 | | 0.3007 | | |
| | | Before | 0.3007 | 0.2857 | 0.3056 | 0.3158 | |
| | | Before-Master | ----- | ----- | 0.0049 | ----- | |
| LS Window Sum | 1/s | Master | 1 | | 1217 | | |
| | | Before | 1217 | 1156 | 1214 | 1278 | |
| | | Before-Master | ----- | ----- | -3 | ----- | |

HDRS Density Calibration - Photo-multiplier High Voltages

| Master (EEPROM): | | 13:45:24 14-Jul-2013 | | Before (Measured): | | 10:11:37 09-Aug-2013 | |
|--------------------|------|----------------------|---------|--------------------|--------|----------------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| BS PM High Voltage | V | Master | | 1000 | 1960 | 2400 | |
| | | Before | | 1000 | 1960 | 2400 | |
| | | Before-Master | ----- | -100 | 0 | 100 | |
| SS PM High Voltage | V | Master | | 1000 | 1855 | 2400 | |
| | | Before | | 1000 | 1852 | 2400 | |
| | | Before-Master | ----- | -100 | -3 | 100 | |
| LS PM High Voltage | V | Master | | 1000 | 1588 | 2400 | |
| | | Before | | 1000 | 1588 | 2400 | |

| | | | | | | | |
|--|--|---------------|-------|------|---|-----|--|
| | | Before-Master | ----- | -100 | 0 | 100 | |
|--|--|---------------|-------|------|---|-----|--|

HDRS Density Calibration - Crystal Quality Resolutions

| Master (EEPROM): | | 13:45:24 14-Jul-2013 | | Before (Measured): | | 10:11:37 09-Aug-2013 | |
|-----------------------|------|----------------------|---------|--------------------|--------|----------------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| BS Crystal Resolution | % | Master | | 5.00 | 11.32 | 25.00 | |
| | | Before | | 5.00 | 11.33 | 25.00 | |
| | | Before-Master | ----- | -1.00 | 0.01 | 1.00 | |
| SS Crystal Resolution | % | Master | | 5.00 | 9.76 | 20.00 | |
| | | Before | | 5.00 | 9.54 | 20.00 | |
| | | Before-Master | ----- | -1.00 | -0.22 | 1.00 | |
| LS Crystal Resolution | % | Master | | 5.00 | 8.92 | 20.00 | |
| | | Before | | 5.00 | 9.63 | 20.00 | |
| | | Before-Master | ----- | -1.00 | 0.71 | 1.00 | |

HDRS MCFL Calibration - MCFL Accumulations

| Before (Measured): | | 10:13:03 09-Aug-2013 | | | | | |
|---------------------|-------|----------------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Main Resistivity | ohm.m | Before | 3875 | 3565 | 3862 | 4185 | |
| Deep Resistivity | ohm.m | Before | 3830 | 3524 | 3770 | 4136 | |
| Shallow Resistivity | ohm.m | Before | 3830 | 3524 | 3770 | 4136 | |

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

| | | | |
|--|--|---------|------|
| Primary Equipment : | | | |
| HILT Gamma-Ray and Neutron Sonde, 150 degC | | HGNS-H | |
| Auxiliary Equipment : | | | |
| HGNS Accelerometer, 150 degC | | HACCZ-H | 4665 |
| AmBe Neutron Logging Source | | NSR-F | 1260 |
| Calibration Parameter : | | | |
| Water Temperature | | | |
| Housing Size | | | |
| JIG-BKG (Jig minus background reference) | | 165 | |

HGNS Accelerometer Calibration - Accelerometer Accumulations

| Before (Measured): | | 21:51:01 09-Aug-2013 | | | | | |
|-------------------------|-------|----------------------|---------|-----------|--------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| AZ Vertical Measurement | ft/s2 | Before | 32.2 | 31.5 | 32.2 | 32.8 | |

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

| Master (EEPROM): | | 00:00:00 15-Jan-2009 | | | | | |
|-------------------------------------|------|----------------------|---------|-----------|----------|------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| Accelerometer Manufacturer | | Master | | | QAT_160 | | |
| Accelerometer Reference Temperature | degF | Master | | 30.2 | 77.0 | 122.0 | |
| Accelerometer Coefficients - 0 | | Master | ----- | ----- | 3418.000 | ----- | |
| Accelerometer Coefficients - 1 | | Master | ----- | ----- | 11.746 | ----- | |
| Accelerometer Coefficients - 2 | | Master | ----- | ----- | -0.011 | ----- | |
| Accelerometer Coefficients - 3 | | Master | ----- | ----- | 0.000 | ----- | |
| Accelerometer Coefficients - 4 | | Master | ----- | ----- | 2.742 | ----- | |
| Accelerometer Coefficients - 5 | | Master | ----- | ----- | 0.000 | ----- | |
| Accelerometer Coefficients - 6 | | Master | ----- | ----- | 0.000 | ----- | |
| Accelerometer Coefficients - 7 | | Master | ----- | ----- | 0.000 | ----- | |
| Accelerometer Coefficients - 8 | | Master | ----- | ----- | 298.700 | ----- | |
| Accelerometer Coefficients - 9 | | Master | ----- | ----- | 0.996 | ----- | |

HGNS Neutron Calibration - HGNS Neutron Accumulations

| Master (EEPROM): | | 11:43:32 17-Jul-2013 | | Before (Measured): | | 10:05:12 09-Aug-2013 | | After: | |
|-----------------------|------|----------------------|---------|--------------------|--------|----------------------|--|--------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | | | |
| Near Zero Measurement | 1/s | Master | 0 | 5.0 | 26.1 | 40.0 | | | |
| | | Before | 0 | 5.0 | 28.4 | 40.0 | | | |
| | | After | ----- | ----- | ----- | ----- | | | |
| | | Before-Master | ----- | -3.9 | 2.3 | 3.9 | | | |
| | | After-Before | ----- | ----- | ----- | ----- | | | |
| Far Zero Measurement | 1/s | Master | 0 | 5.0 | 28.2 | 40.0 | | | |

| | | | | | | | |
|-------------------------------------|-----|--|--|--|--|--|--|
| RGR Zero Measurement | 1/s | Master Before After Before-Master After-Before | 0 ----- ----- ----- ----- | 5.0 ----- ----- -4.2 ----- | 29.6 ----- ----- 1.4 ----- | 40.0 ----- ----- 4.2 ----- | |
| Near Plus Measurement - 0 | 1/s | Master Before After Before-Master After-Before | 6031.0 ----- ----- ----- ----- | 4700.0 ----- ----- ----- ----- | 5328.0 ----- ----- ----- ----- | 6900.0 ----- ----- ----- ----- | |
| Far Plus Measurement - 0 | 1/s | Master Before After Before-Master After-Before | 2793.0 ----- ----- ----- ----- | 1900.0 ----- ----- ----- ----- | 2294.0 ----- ----- ----- ----- | 2900.0 ----- ----- ----- ----- | |
| Near Corrected Plus Measurement - 0 | 1/s | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 4700.0 ----- ----- ----- ----- | 5296.0 ----- ----- ----- ----- | 6900.0 ----- ----- ----- ----- | |
| Far Corrected Plus Measurement - 0 | 1/s | Master Before After Before-Master After-Before | ----- ----- ----- ----- ----- | 1900.0 ----- ----- ----- ----- | 2262.0 ----- ----- ----- ----- | 2900.0 ----- ----- ----- ----- | |

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

| Before (Measured): | | 10:13:56 09-Aug-2013 | | After: | | | |
|----------------------|------|---------------------------------|-------------------------|-------------------------|----------------------------|-------------------------|--|
| Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit | |
| RGR Zero Measurement | gAPI | Before After After-Before | 30.0 ----- ----- | 0 ----- ----- | 50.2 ----- ----- | 120.0 ----- ----- | |
| RGR Plus Measurement | gAPI | Before After After-Before | 185.4 ----- ----- | 157.1 ----- ----- | 171.7 NOT DONE ----- | 206.3 ----- ----- | |
| GR Calibration Gain | | Before After After-Before | 0.89 ----- ----- | 0.80 ----- ----- | 0.96 ----- ----- | 1.05 ----- ----- | |

| | | |
|----------|--------------------------------|--------------|
| Company: | WPX ENERGY ROCKY MOUNTAIN, LLC | Schlumberger |
| Well: | SG 441-22 | |
| Field: | GRAND VALLEY | |
| County: | GARFIELD | |
| State: | COLORADO | |

****PLATFORM EXPRESS****

COMPENSATED NEUTRON, LITHO
INDUCTION RESISTIVITY, GR, SP