BAKER HUGHES

Baker Atlas

# RESERVOIR PERFORMANCE MONITOR

| | | | |
|---|---|---|---|
| File No: CH081545 | Company | WPX ENERGY | |
| API No: 05045220850000 | Well | WPX ENERGY RWF 422-4 | |
| | Field | RULISON | |
| | County | GARFIELD | State COLORADO |

4 7S 94W

RMV 108-4 PAD

NABORS 574

**Location**

SHL: 449' FNL X 1712' FEL

BHL: 2374' FNL X 1928' FWL (SWNW)

SEC 4 TWP 7S RGE 94W

**Other Services**

BOND LOG

| | | | |
|---|---|---|---|
| Permanent Datum | GL | Elevation | 5794 ft |
| Log Measured From | KB | 26 ft | Above P. D. |
| Drill Measured From | KELLY BUSHING | | |

**Elevations**

KB 5820 ft

DF

GL 5794 ft

| | | | |
|---|---|---|---|
| Date | | 14/JAN/14 | |
| Run | | ONE | |
| Service Order | | US625086 | |
| Depth Driller | | 8724 ft | |
| Depth Logger | | 8700 ft | |
| Bottom Logged Interval | | 8690 ft | |
| Top Logged Interval | | 4868 ft | |
| Time Started | | 1400 | |
| Time Finished | | 1930 | |
| Operator Rig Time | | 5.5 HRS | |
| Type of Fluid in Hole | | WATER | |
| Fluid Density | | NA | |
| Salinity | | NA | |
| Fluid Level | | 66 ft | |
| Logged Cement Top | | NA | |
| Wellhead Pressure | | 0 psi | |
| Maximum Hole Deviation | | NA | |
| Nominal Logging Speed | | 10 fpm | |
| Maximum Recorded Temperature | | 246 degF | |
| Reference Log | | BAKER HUGHES BOND LOG | |
| Reference Log Date | | 14/JAN/14 | |
| Equipment No. | Location | 4271 | GRAND JCT |
| Recorded By | | FLOYD RENEAU | |
| Witnessed By | | CHRIS TILLER | |

- FOLD HERE

In making interpretations of logs, our employees will give the customer the benefit of their best judgement. But since all interpretations are opinions based on inferences from electrical or other measurements, we cannot, and we do not guarantee the accuracy or correctness of any interpretation. We shall not be liable or responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by the customer resulting from any interpretation made by any of our employees.

**Borehole Record**

| Bit Size | From | To |
|---|---|---|
| 13.5 in | 0 ft | 2529 ft |
| 8.75 in | 2529 ft | 8724 ft |

**Casing Record**

| Size | Weight | Grade | From | To |
|---|---|---|---|---|
| 9.625 in | | | 0 ft | 2529 ft |
| 4.5 in | 11.6 lbm/ft | I-80 | 0 ft | 8724 ft |

**Remarks**

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 1/14/2014 at the client's request.

The amount of linear shift is 2 feet.

Logged in PNC-3D mode.

BHT = 246°F

SJ = 5199'-5223'

| Equipment Data | | | | | |
|---|---|---|---|---|---|
| Run | Trip | Tool | Series Number | Serial Number | Position |
| 1 | 1 | RPM | 8281FA | 10191667 | FREE |
| 1 | 1 | RPM | 8281PA | 10169251 | FREE |
| 1 | 1 | RPM | 8281EA | 10169250 | FREE |
| 1 | 1 | GR | 2812LA | 10274385 | FREE |
| 1 | 1 | TEL/CCL | 8248ED | 10590814 | FREE |
| 1 | 1 | PCM | 8250EA | 10408796 | FREE |

# *MAIN SECTION*
# *PNC 3-D MODE*

## SPL PROCESSING

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | TOP | BOTTOM |
|---|---|---|---|---|---|
| PNC Porosity | Borehole | Cased | | 4839.750 | 8712.593 |
| PNC Porosity | Borehole Size | 8.750 | inch | 4839.750 | 8712.593 |
| PNC Porosity | Casing Size | 4.500 | inch | 4839.750 | 8712.593 |
| PNC Porosity | Gas Filled | Non Gas Filled | | 4839.750 | 8712.593 |
| PNC Porosity | Matrix | Sandstone | | 4839.750 | 8712.593 |

## DEPTH OFFSETS

(for Acquired Curves)

| SERIES | DEPTH OFFSET | ACQUIRED CURVES |
|---|---|---|
| 8248ED | -14.478 | FLTM |
| 8248ED | -12.478 | CCL CHV |
| 2812LA | -9.928 | GR |
| 8281XA | -0.662 | HVC3Q0 SEQ3 AMA3 AML3 BKX CXS |
| | | CPT3Q0 CPT3Q2 CPT3Q3 CPT3Q4 ET3 IXS |
| | | MCS3 MCS3Q0 QCAL3 RGN3 RICX SDA3 |
| | | SDL3 SGA3 SGL3 STA3 XS ASPEC3 |
| | | AMB3 AMF3 CHF3 IXSC IXSN RATO23 |

| | | |
|---|---|---|
| | | RICXC RIN13C RIN23 RIN23C SD3D SG3D SGB3 SGF3 WDTH3 CXSR IXSR XSR RICXR |
| 8281XA | -0.250 | HVC2Q0 SEQ2 AMA2 AMB2 AMF2 AML2 BKL CHF2 CLS CPT2Q0 CPT2Q2 CPT2Q3 CPT2Q4 ET2 ILS LS MCS2 MCS2Q0 QCAL2 RGN2 RICL RONE23 RTWO23 SDA2 SDL2 SGA2 SGB2 SGF2 SGK2 SGL2 STA2 ASPEC2 ILSC ILSN WDTH2 RICLC CLSR ILSR LSR RICLR |
| 8281XA | 0.000 | CPRS HVC1Q0 MV SEQ SEQ1 AMA1 AMB1 AME1 AMF1 AML1 BKS CHF1 CSS CORB CORF CPT1Q0 CPT1Q2 CPT1Q2A CPT1Q2B CPT1Q2C CPT1Q3 CPT1Q4 CPT1Q5 ET1 G1 G2 GE1S GE2S ISS MCS1 MCS1Q0 QA1 QCAL1 QM1 RATO RATO13 RBOR RGN1 RICS RIN RONE RPOR RTWO RIN13 RONE13 RTWO13 SALB SC1 SDA1 SDL1 SGA1 SGB1 SGBC SGE1 SGF1 SGFC SGK1 SGL1 SS SS2 STA1 PD1S PD2S PD3S MD1S MD2S MD3S DG1S DG2S DG3S PD1M PD2M PD3M MD1M MD2M MD3M DG1M DG2M DG3M MVS MA MVM FILV IAM TA PVM PVS IAS SSTAT QPD1 QPD2 QPD3 QMD1 QMD2 QMD3 QDG1 QDG2 QDG3 QMA QTA QFILV QMV QPV QIA DERR DCNT QPK1 QSA1 PKS1 ASPEC1 H0C FE2XC ISSC RINC ISSN RDEN WDTH1 RICSC CSSR G1R G2R ISSR SSR SS2R RATOR RATO13R RBORR RICSR RINR RIN13R RONER RPORR RTWOR |
| SYSTEM | 0.000 | TEN TTEN |

Created by : RPM9, v5.3.1.0
Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY
Well : WPX ENERGY RWF 422-4
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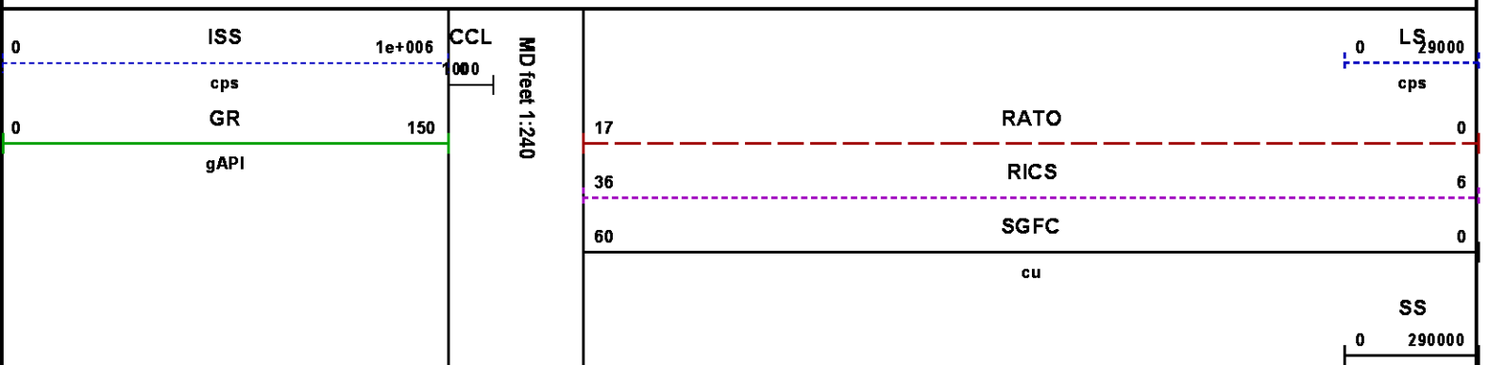

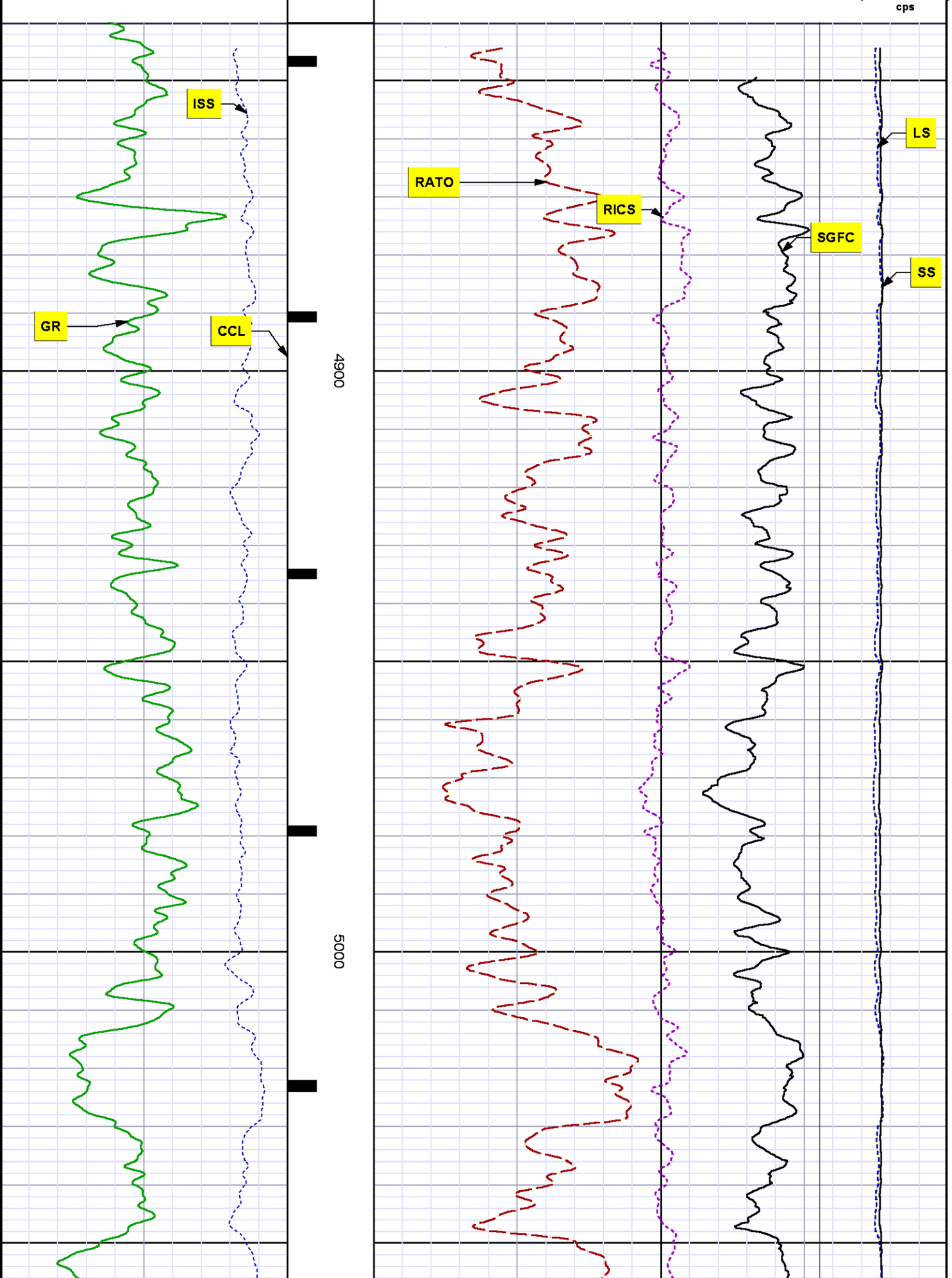
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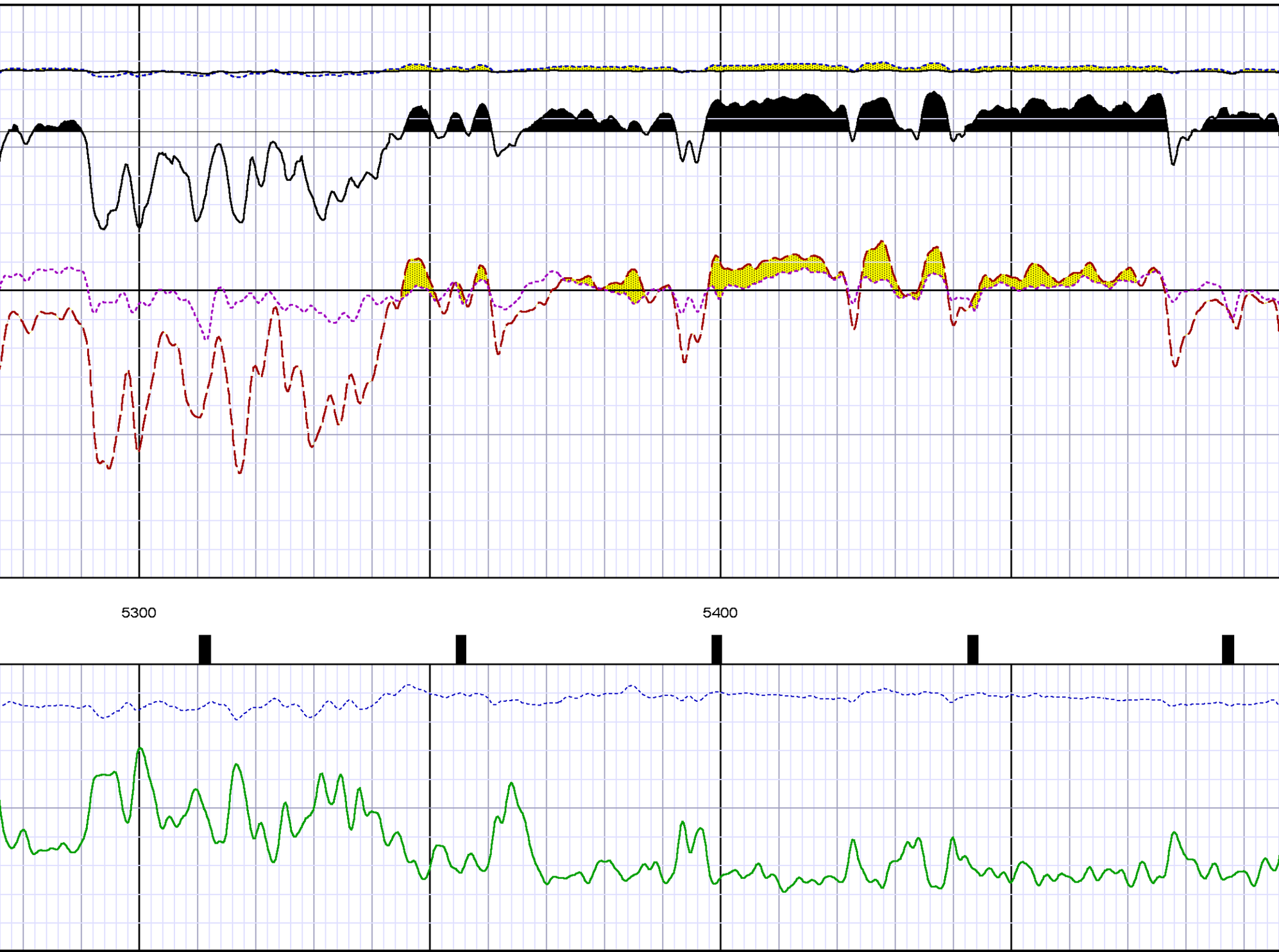
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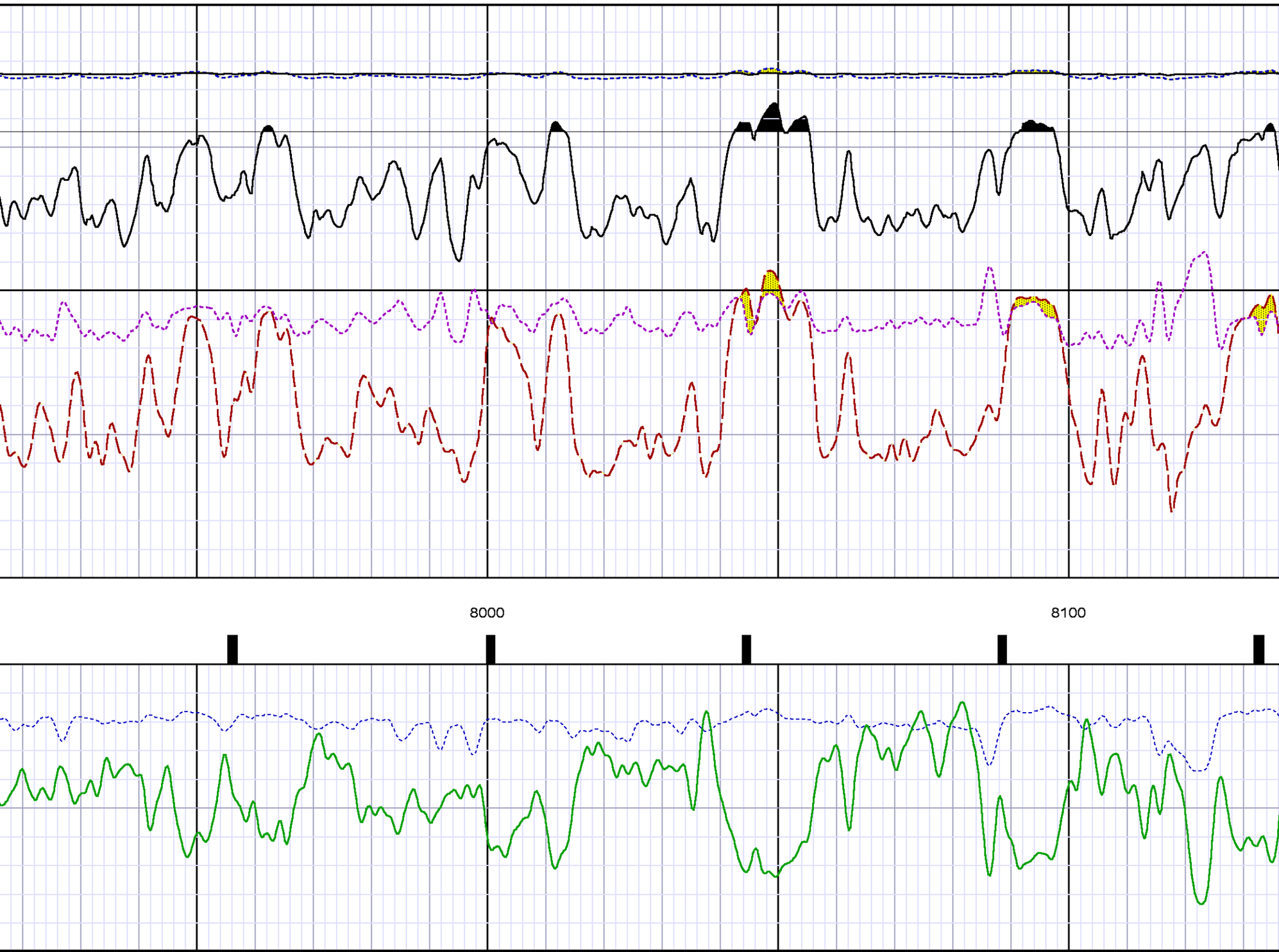
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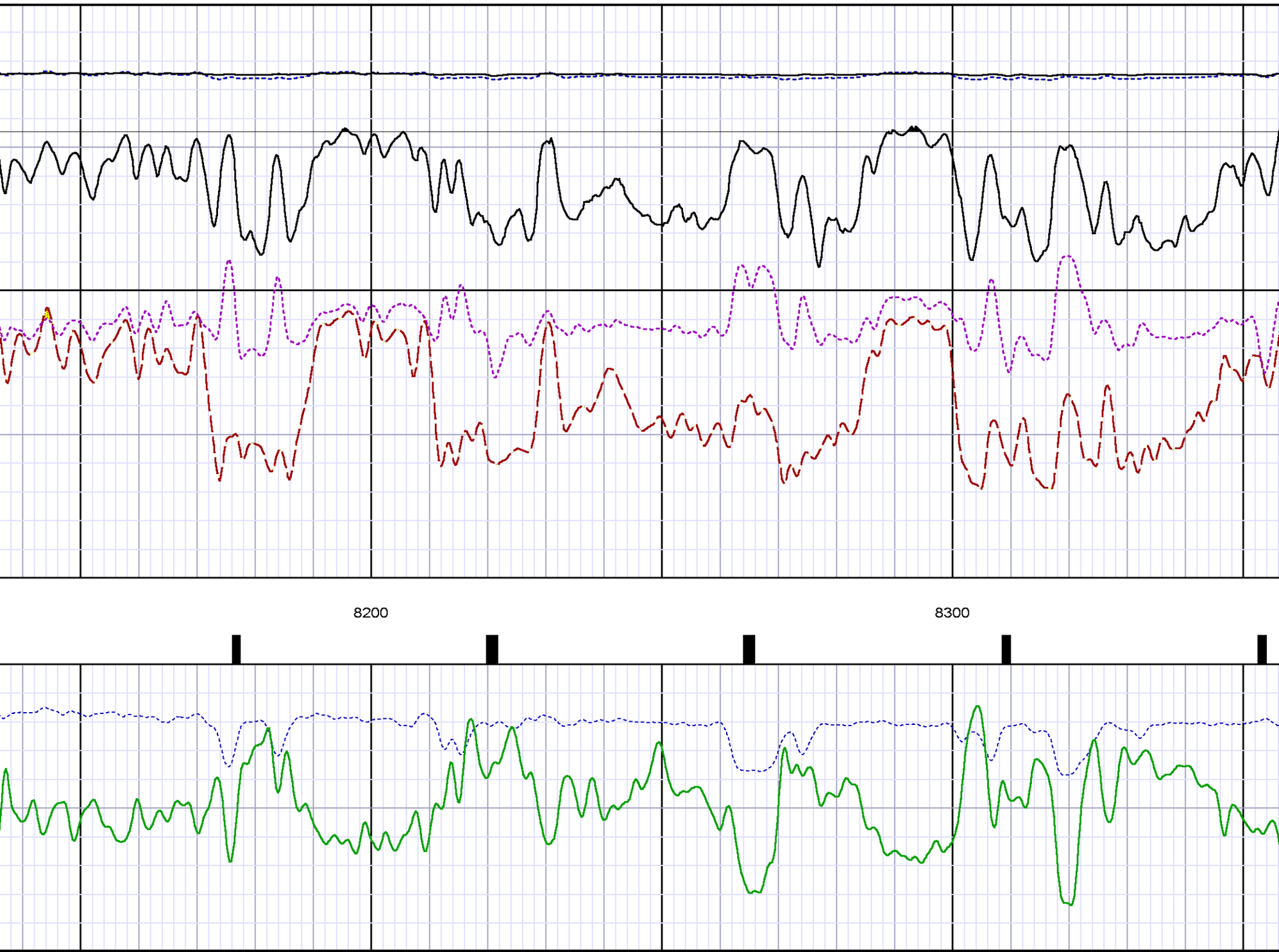
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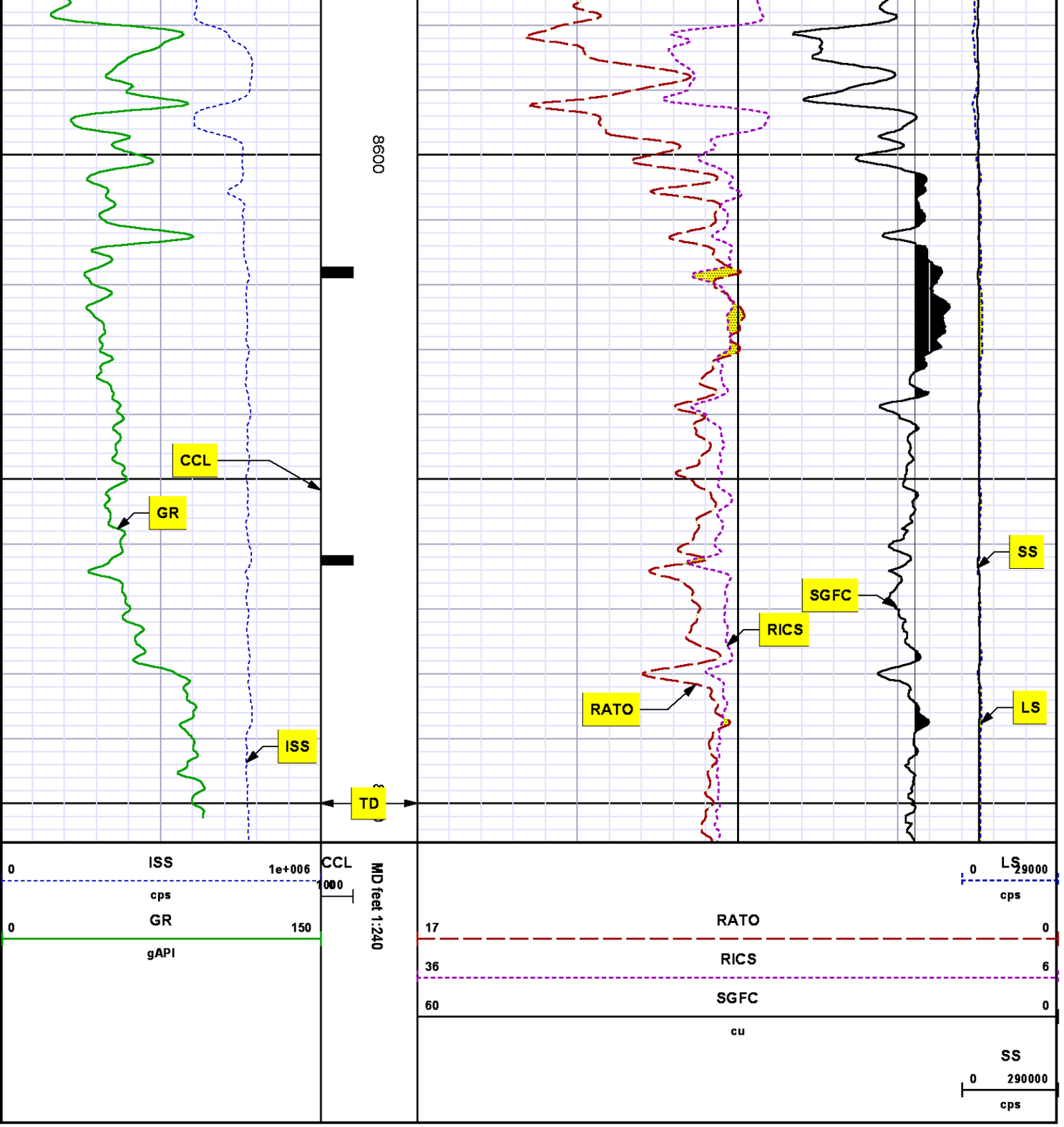


*REPEAT SECTION*
*PNC 3-D MODE*

## SPL PROCESSING

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | TOP | BOTTOM |
|---|---|---|---|---|---|
| PNC Porosity | Borehole | Cased | | 7849.750 | 8166.750 |
| PNC Porosity | Borehole Size | 8.750 | inch | 7849.750 | 8166.750 |
| PNC Porosity | Casing Size | 4.500 | inch | 7849.750 | 8166.750 |
| PNC Porosity | Gas Filled | Non Gas Filled | | 7849.750 | 8166.750 |
| PNC Porosity | Matrix | Sandstone | | 7849.750 | 8166.750 |

## DEPTH OFFSETS

(for Acquired Curves)

| SERIES | DEPTH OFFSET | ACQUIRED CURVES |
|---|---|---|
| 8248ED | -14.478 | FLTM |
| 8248ED | -12.478 | CCL CHV |
| 2812LA | -9.928 | GR |
| 8281XA | -0.662 | HVC3Q0 SEQ3 AMA3 AML3 BKX CXS CPT3Q0 CPT3Q2 CPT3Q3 CPT3Q4 ET3 IXS MCS3 MCS3Q0 QCAL3 RGN3 RICX SDA3 SDL3 SGA3 SGL3 STA3 XS ASPEC3 AMB3 AMF3 CHF3 IXSC IXSN RATO23 RICXC RIN13C RIN23 RIN23C SD3D SG3D SGB3 SGF3 WDTH3 CXSR IXSR XSR RICXR |
| 8281XA | -0.250 | HVC2Q0 SEQ2 AMA2 AMB2 AMF2 AML2 BKL CHF2 CLS CPT2Q0 CPT2Q2 CPT2Q3 CPT2Q4 ET2 ILS LS MCS2 MCS2Q0 QCAL2 RGN2 RICL RONE23 RTWO23 SDA2 SDL2 SGA2 SGB2 SGF2 SGK2 SGL2 STA2 ASPEC2 ILSC ILSN WDTH2 RICLC CLSR ILSR LSR RICLR |
| 8281XA | 0.000 | CPRS HVC1Q0 MV SEQ SEQ1 AMA1 AMB1 AME1 AMF1 AML1 BKS CHF1 CSS CORB CORF CPT1Q0 CPT1Q2 CPT1Q2A CPT1Q2B CPT1Q2C CPT1Q3 CPT1Q4 CPT1Q5 ET1 G1 G2 GE1S GE2S ISS MCS1 MCS1Q0 QA1 QCAL1 QM1 RATO RATO13 RBOR RGN1 RICS RIN RONE RPOR RTWO RIN13 RONE13 RTWO13 SALB SC1 SDA1 SDL1 SGA1 SGB1 SGBC SGE1 SGF1 SGFC SGK1 SGL1 SS SS2 STA1 PD1S PD2S PD3S MD1S MD2S MD3S DG1S DG2S DG3S PD1M PD2M PD3M MD1M MD2M MD3M DG1M DG2M DG3M MVS MA MVM FILV IAM TA PVM PVS IAS SSTAT QPD1 |

| | | |
|---|---|---|
| | | QPD2 QPD3 QMD1 QMD2 QMD3 QDG1 |
| | | QDG2 QDG3 QMA QTA QFILV QMV |
| | | QPV QIA DERR DCNT QPK1 QSA1 |
| | | PKS1 ASPEC1 H0C FE2XC ISSC RINC |
| | | ISSN RDEN WDTH1 RICSC CSSR G1R |
| | | G2R ISSR SSR SS2R RATOR RATO13R |
| | | RBORR RICSR RINR RIN13R RONER RPORR |
| | | RTWOR |
| SYSTEM | 0.000 | TEN TTEN |

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

Well : WPX ENERGY RWF 422-4

File Name : d:\welldata\wpx energy\rwf 422-4\422rp\repeat.xtf

Mode : PlotMgr 5.4.504

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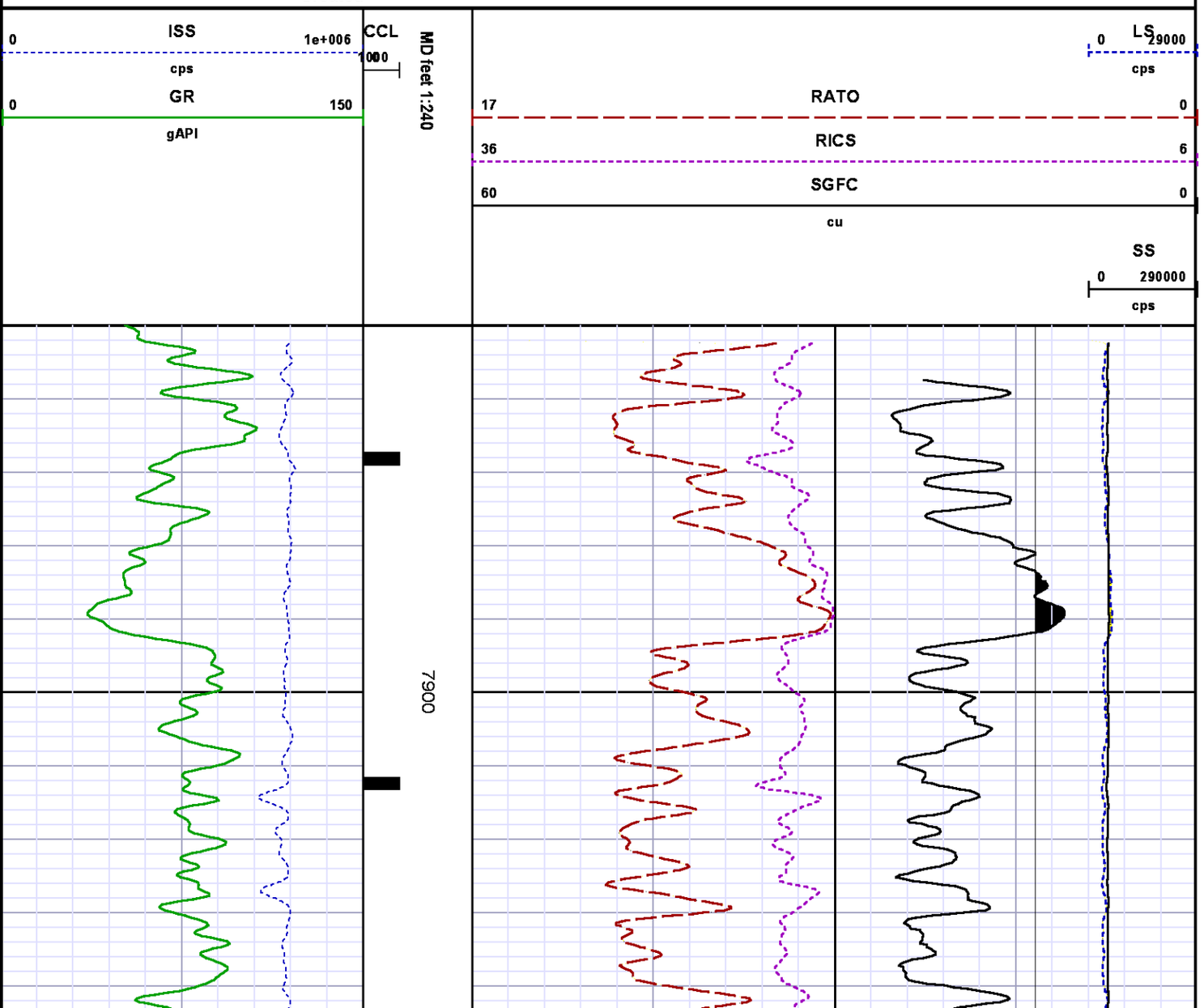

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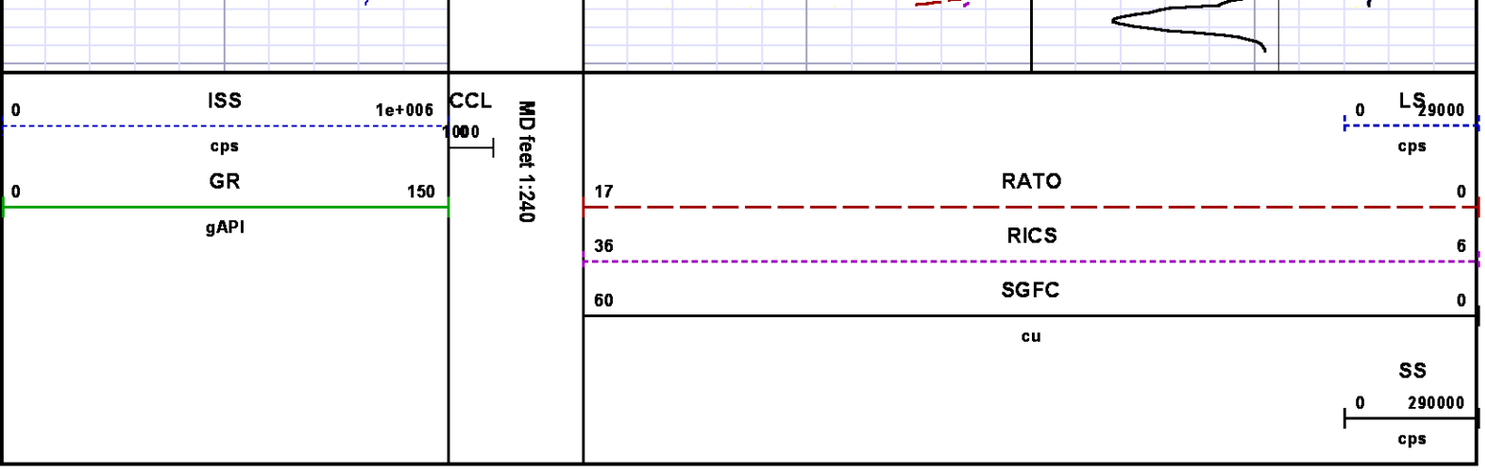



# CALIBRATION SUMMARY

## GAMMA RAY

Calibration File: C:\case\calver\GR\385J9.cal

CALIBRATION SUMMARY

**DATE/TIME PERFORMED:** Thu Jan 09 15:25:11 2014 **TOOL SERIES:** 2812LA **ASSET:** 385 **SEQ:** J9

| Calibrator # | Background [cps] | Calibrator On [cps] | Multiplicative | Background [api] | Calibrator On [api] | Differential [api] |
|---|---|---|---|---|---|---|
| S2K WA612 | 62.82 | 283.64 | 0.951 | 59.74 | 269.74 | 210.00 |

Verification File: C:\case\calver\GR\385J9.VP

PRIMARY VERIFICATION

**DATE/TIME PERFORMED:** Thu Jan 09 15:29:10 2014 **TOOL SERIES:** 2812LA **ASSET:** 385 **SEQ:** J9

| Calibrator # | Background [cps] | Calibrator On [cps] | Multiplicative | Background [api] | Calibrator On [api] | Differential [api] |
|---|---|---|---|---|---|---|
| S2K WA612 | 63.02 | 280.18 | 0.951 | 59.93 | 266.45 | 206.51 |

## PNC

Calibration File: C:\case\calver\PNC\25109.cal

PNC 3D CALIBRATION SUMMARY

**DATE/TIME PERFORMED:** Thu Jan 09 13:52:50 2014 **TOOL SERIES:** 8281XA **ASSET:** 251 **SEQ:** 09

| Calibrator # | Source # |
|---|---|
| 2437xa 112674 | 8281AA 11710723 |

| | ISS | Mtr Vlts (V) | SS Gain | LS Gain | XLS Gain | EA Temp (degF) | Sync Delay (usec) | RCAL |
|---|---|---|---|---|---|---|---|---|
| Raw Data | 819308 | 126.00 | 2318.00 | 2300.00 | 2316.00 | 105.85 | 7.00 | 0.9659 |
| Interpolated | 1300000 | 148.82 | 2295.49 | 2292.82 | 2311.15 | | | |

| | ISS | BKS | BKL | BKX | SGA1 | SDA1 | SGA2 | SDA2 |
|---|---|---|---|---|---|---|---|---|
| Raw Data | 819308 | 8728.78 | 1422.36 | 169.93 | 25.81 | 0.14 | 24.45 | 0.28 |
| | | | | | 25.35 26.40 | 0.00 0.20 | 23.60 24.80 | 0.00 0.40 |

| | ISS | ILS | IXS | SS | SS2 | LS | CSS | CLS |
|---|---|---|---|---|---|---|---|---|
| Raw Data | 819308 | 168603.72 | 26468.94 | 89281.43 | 31777.24 | 8171.71 | 54092.83 | 13092.07 |
| Fit Quality % | | 1.31 | 1.14 | 0.94 | 0.93 | 1.10 | 0.85 | 1.16 |

| | ISS | RBOR | RIN ISS/ILS | RIN13 ISS/IXS | RICS ISS/CSS | RATO SS/LS | RTWO SS2/LS | RONE CSS/CLS |
|---|---|---|---|---|---|---|---|---|
| Raw Data | 819308 | 1.43 | 4.86 | 30.96 | 15.15 | 10.93 | 3.89 | 4.13 |
| | | 1.42 1.45 | 3.55 5.52 | 22.20 32.70 | 10.99 16.34 | 10.06 11.10 | 3.57 3.95 | 3.76 4.22 |
| Fit Quality % | | 0.07 | 0.14 | 0.17 | 0.11 | 0.14 | 0.16 | 0.16 |
| Reduced | 1426897 | 1.43 | 4.87 | 31.02 | 15.21 | 10.91 | 3.88 | 4.13 |
| | | 1.42 1.45 | 4.33 5.52 | 27.60 32.70 | 13.70 16.34 | 10.06 11.10 | 3.57 3.95 | 3.76 4.22 |

# TOOL DIAGRAM

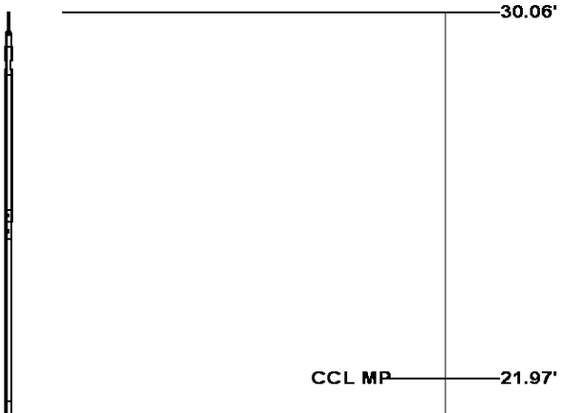
***OTA SHORT CABLE HEAD***

***PCM POWER SUPPLY***

| | |
|---|---|
| Series | 8250EA |
| Mnemonic | PCM |
| Diameter | 1.70" |
| Weight | 18.00 lb |
| Length | 3.86' |
| Temp Rating | 350.00 °F |

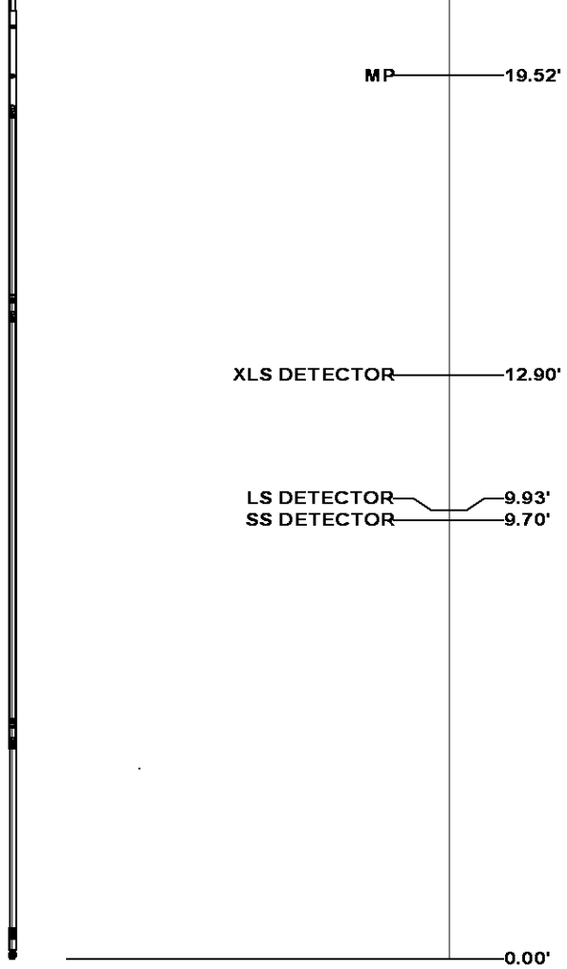
***TELEMETRY / CCL***

| | |
|---|---|
| Series | 8248EA |
| Mnemonic | PCM |
| Diameter | 1.70" |
| Weight | 20.00 lb |
| Length | 4.46' |
| Measure Point | 1.00' CCL MP |
| Temp Rating | 350.00 °F |
| Press Rating | 15000.00 PSI |



| SONDEX GAMMA RAY | |
|---|---|
| Series | 2812LA |
| Mnemonic | SNDX |
| Diameter | 1.69" |

| RESERVOIR PERFORMANCE MONITOR | |
|---|---|
| Series | 8281XA |
| Mnemonic | RPM |
| Diameter | 1.70" |
| Weight | 75.00 lb |
| Length | 18.58' |
| Measure Point | 9.49' SS DETECTOR |
| Measure Point | 9.72' LS DETECTOR |
| Measure Point | 12.69' XLS DETECTOR |
| Temp Rating | 350.00 °F |
| Press Rating | 20000.00 PSI |




***Total Length: 30.06'***
***Total Weight: Not Available***
***Max Diameter: 0' 1.70"***

BAKER HUGHES

Baker Atlas

CASE

| | | | |
|---|---|---|---|
| Company | WPX ENERGY | | File No: CH081545 |
| Well | WPX ENERGY RWF 422-4 | | |
| Field | RULISON | | API No: 05045220850000 |
| County | GARFIELD | State COLORADO | |

| Location | Elevations | |
|---|---|---|
| SHL: 449' FNL X 1712' FEL | KB 5820 ft | 4 7S 94W |
| BHL: 2374' FNL X 1928' FWL (SWNW) | DF | RMV 108-4 PAD |
| | GL 5794 ft | NABORS 574 |
| SEC 4 TWP 7S RGE 94W | | |