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[WWW.HZMUD.COM/25](http://WWW.HZMUD.COM/25)

### Customer Information

**Operator:** Noble Energy Inc  
1625 Broadway  
Suite 2200  
Denver, Colorado 80202

**Geologist:** Renee Clackler  
Noble Energy Inc.

### Mud Logging Details

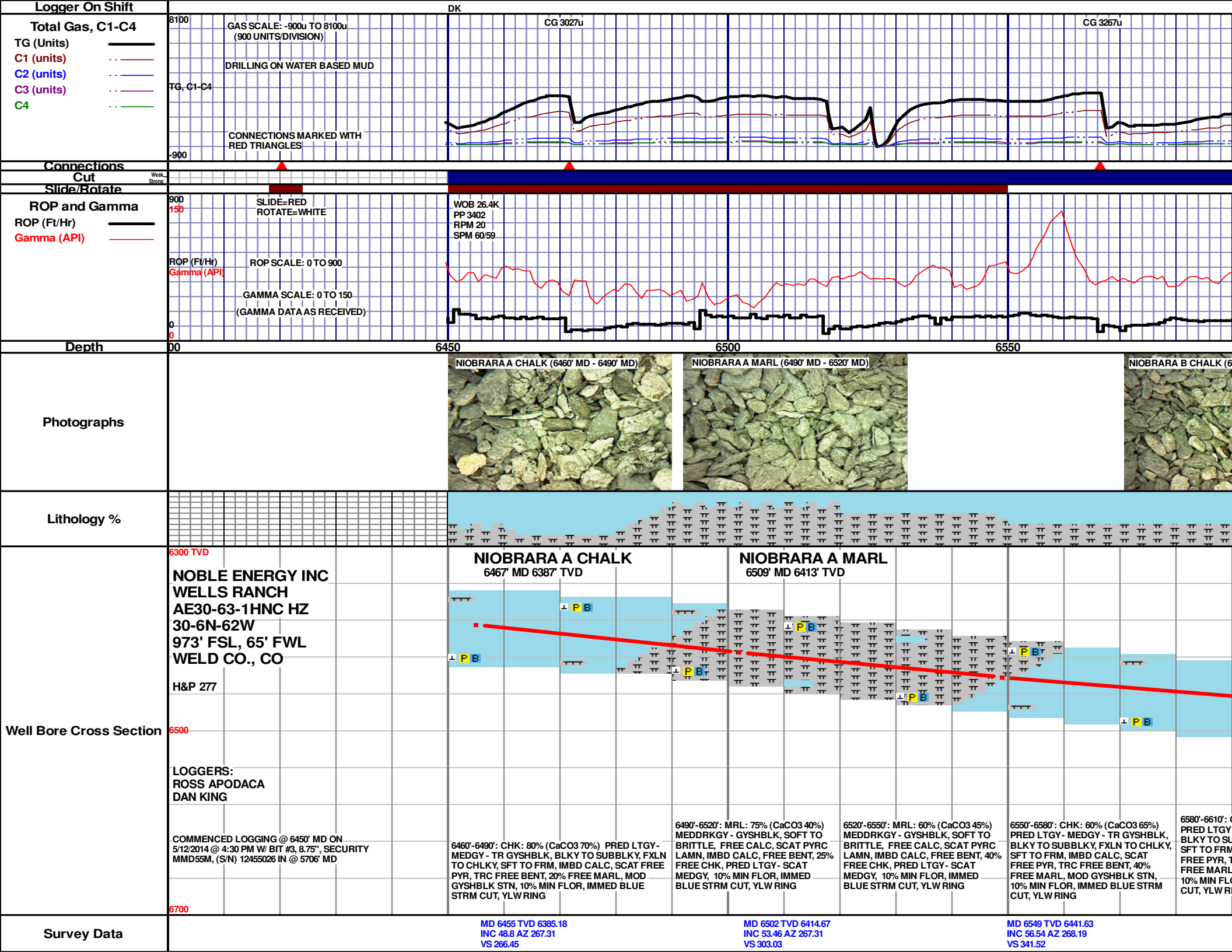
**Logger:** Ross Apodaca &  
Dan King  
**Log Interval:** 6450' MD to 12033' MD  
**Start Date:** May 12, 2014  
**Release Date:** May 16, 2014

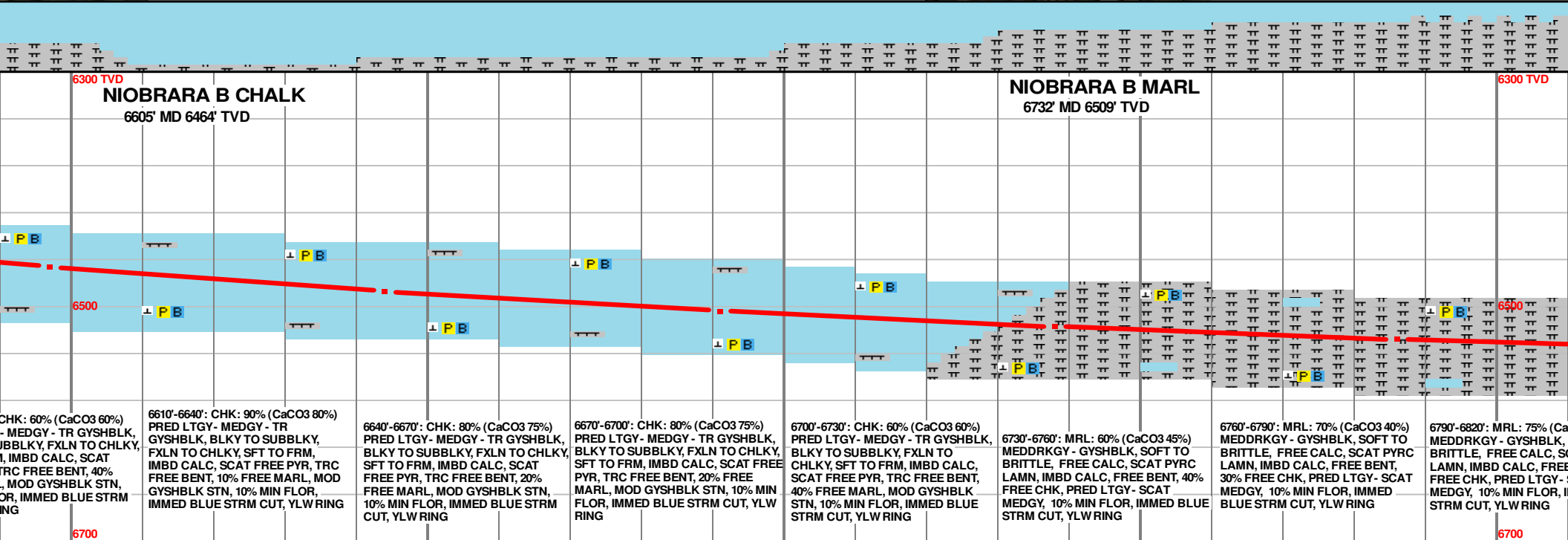
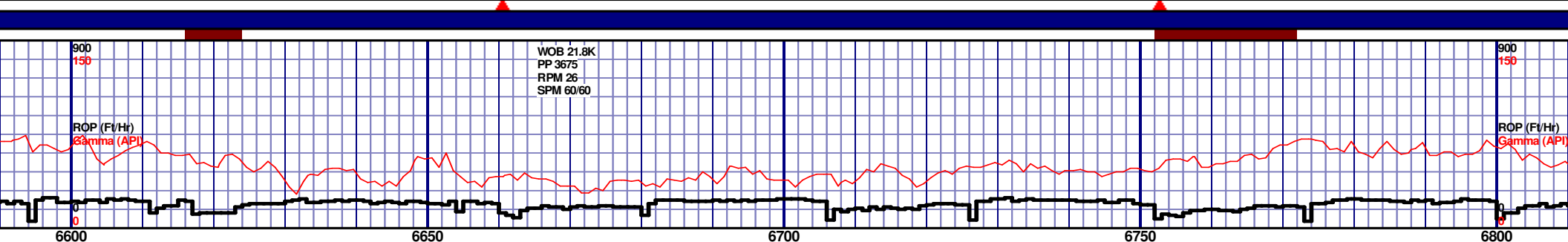
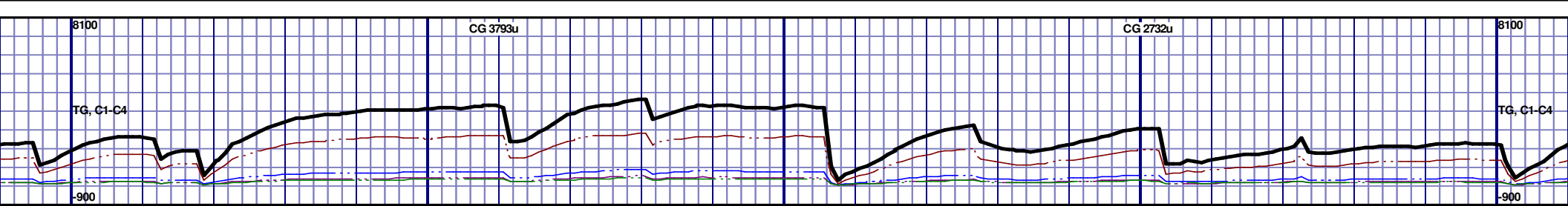
### Well Information

**Well Name:** Wells Ranch  
AE30-63-1HNC HZ  
**Location:** 30-6N-62W  
973' FSL, 65' FWL

**County:** Weld  
**State:** Colorado

**Drilling Rig:** H&P 277  
**Total Depth:** 12033' MD  
**TD Date:** May 16, 2014  
**Formation:** Niobrara C Chalk  
**KB Elevation:** 4776'  
**GR Elevation:** 4752'  
**API Number:** 05-123-38692-0000





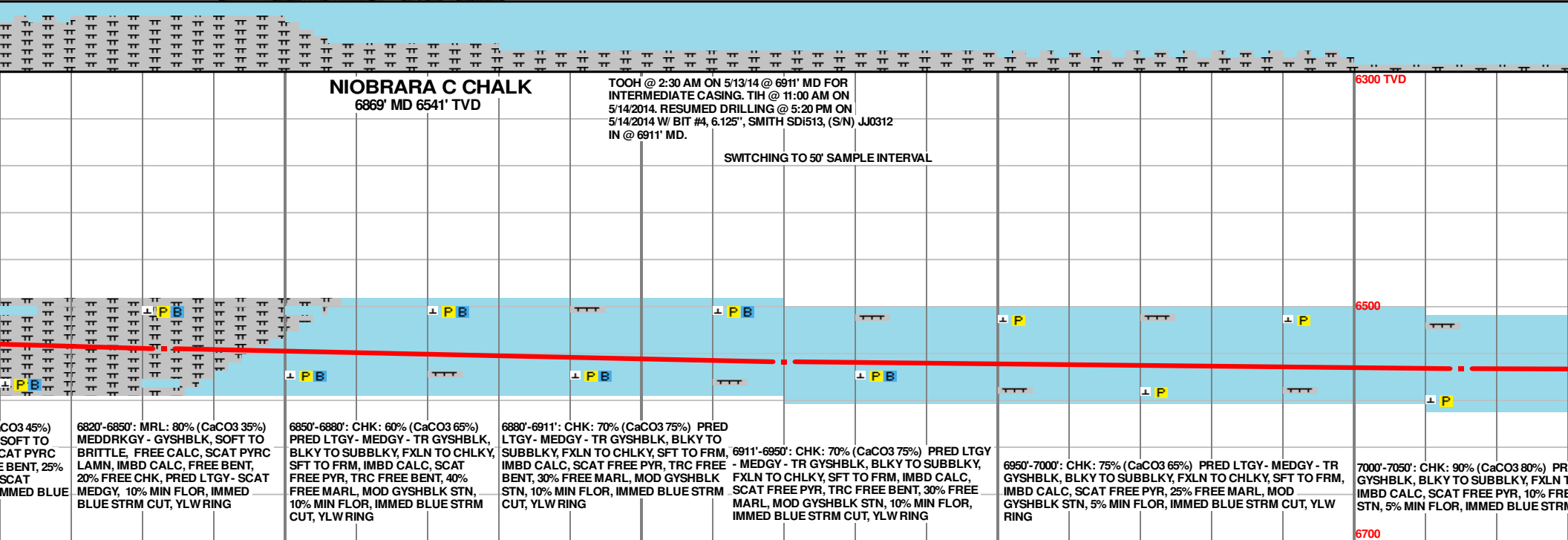
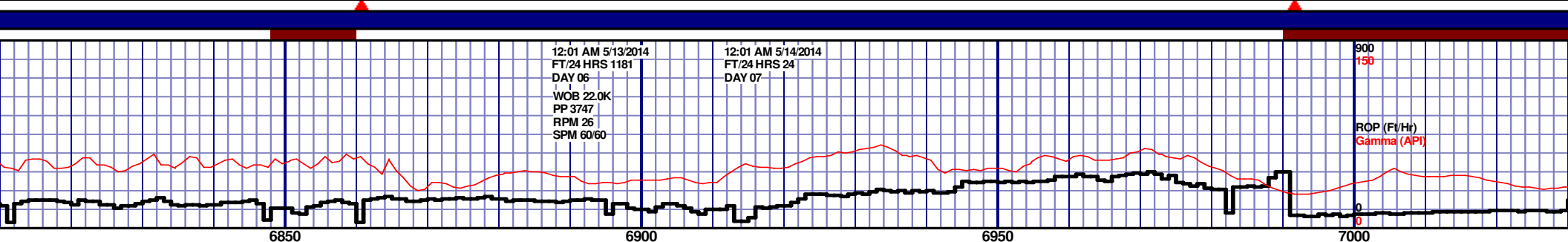
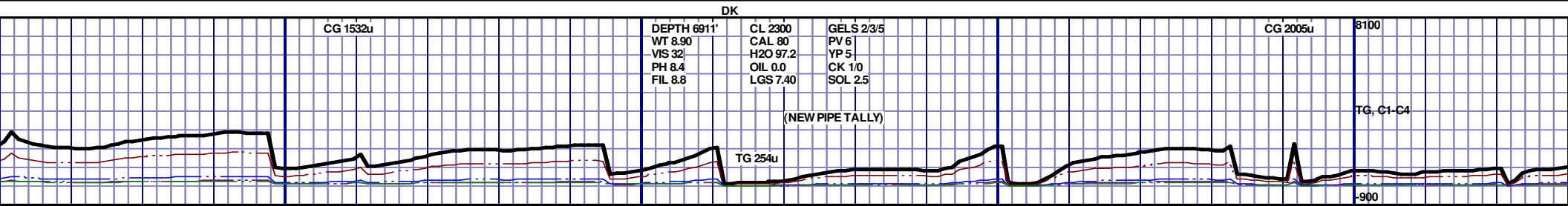
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INC 61.47 AZ 268.72  
VS 382.65

MD 6644 TVD 6486.72  
INC 67.09 AZ 268.63  
VS 424.98

MD 6691 TVD 6503.58  
INC 70.87 AZ 268.37  
VS 468.84

MD 6738 TVD 6517.37  
INC 75.01 AZ 268.1  
VS 513.76

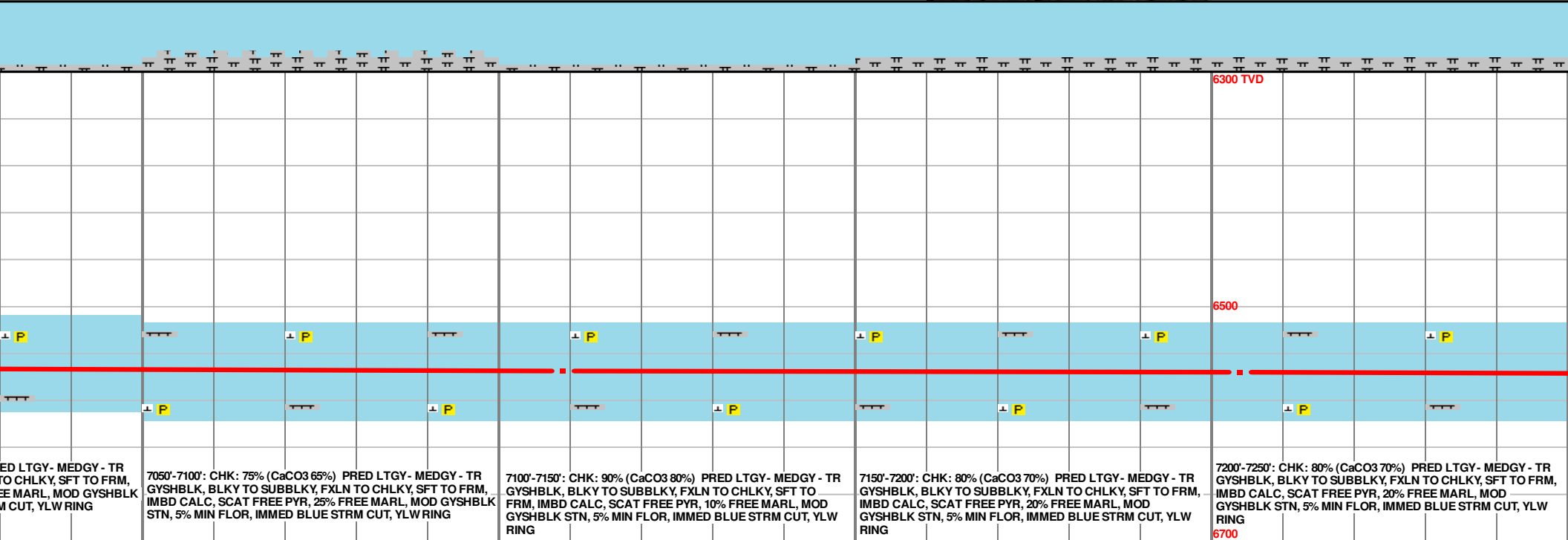
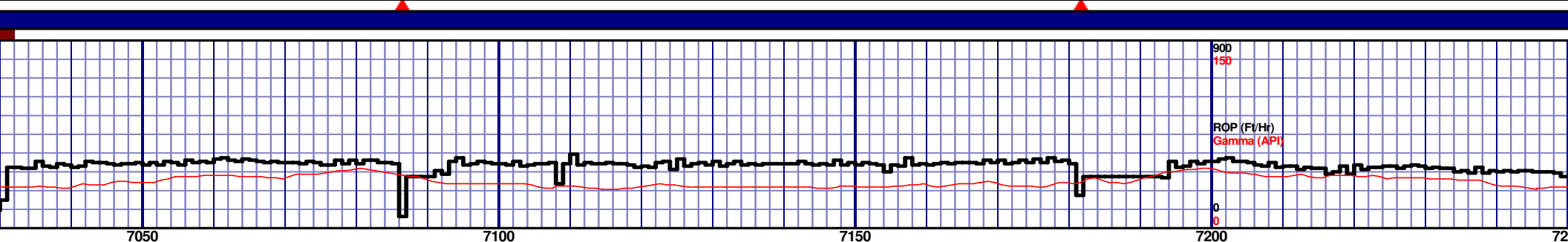
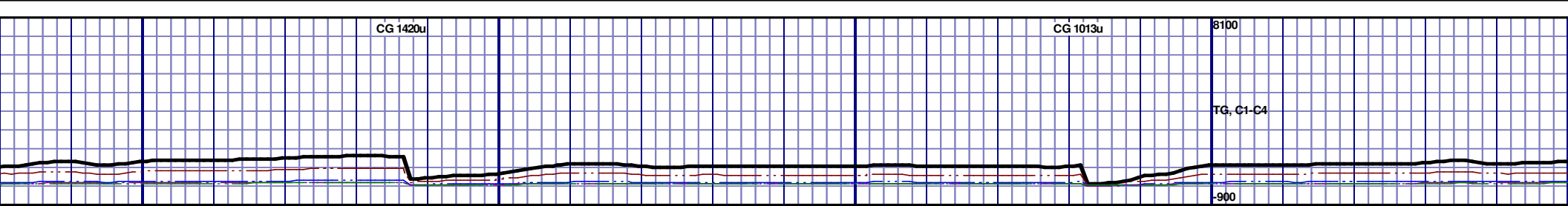
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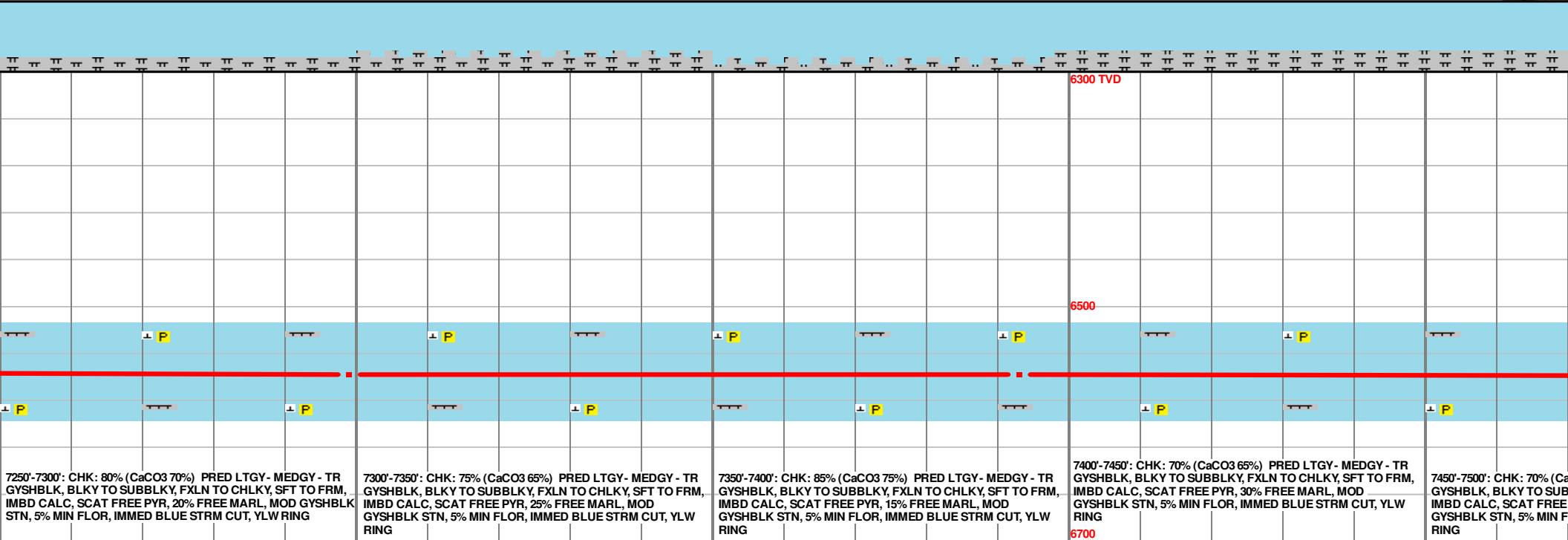
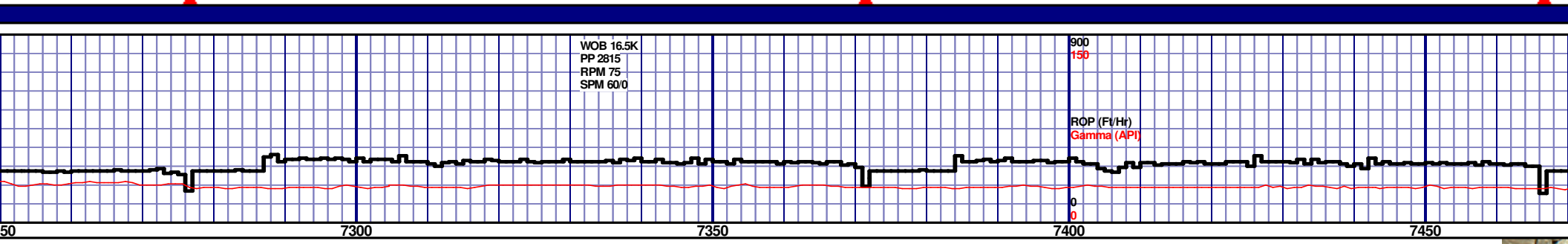
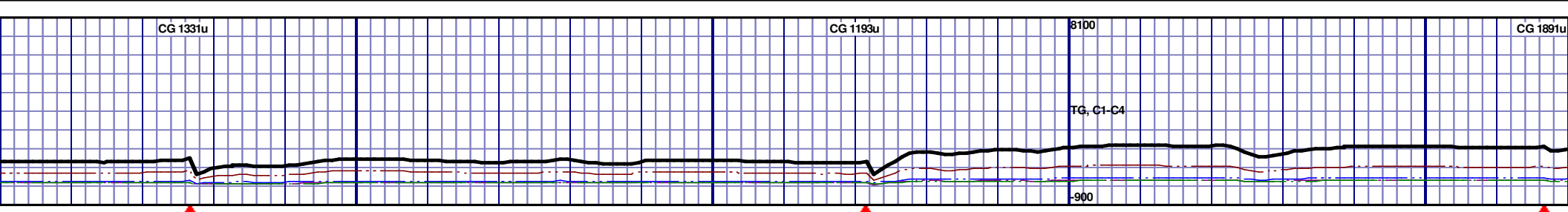


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INC 81.07 AZ 270.21  
VS 606.85

MD 6920 TVD 6547.26  
INC 84.1 AZ 269.35  
VS 693.09

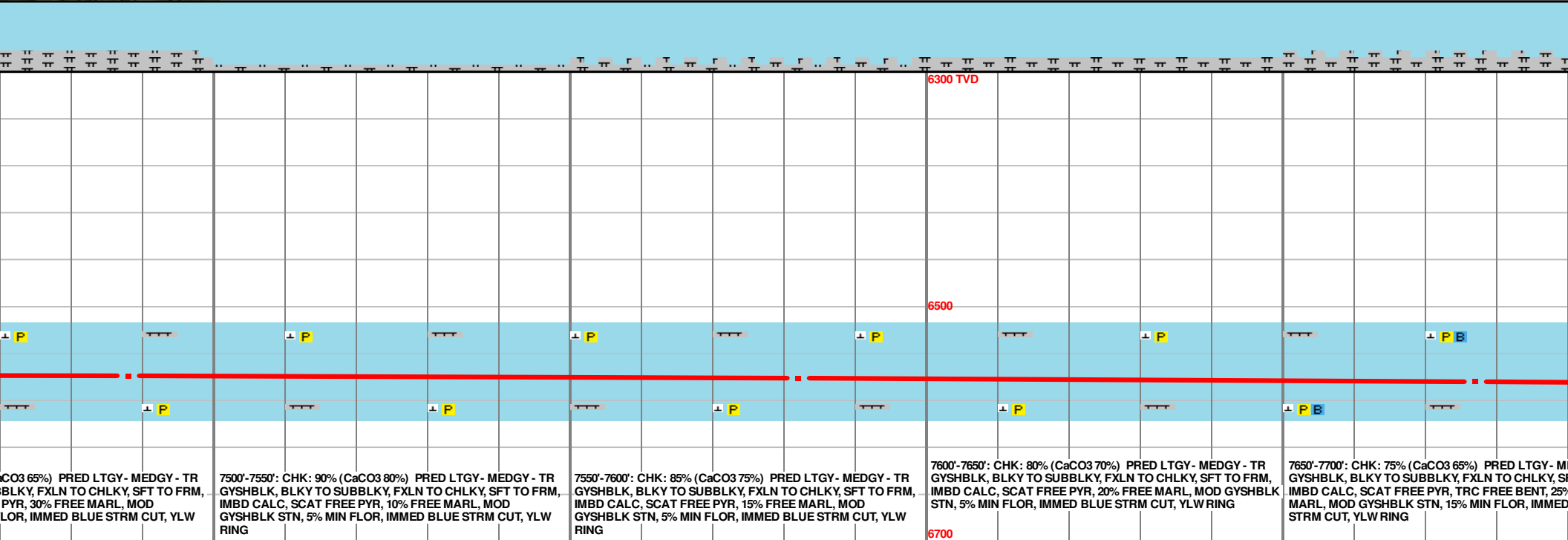
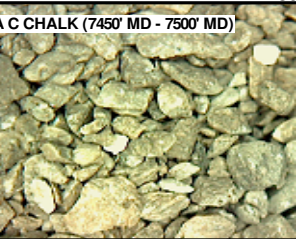
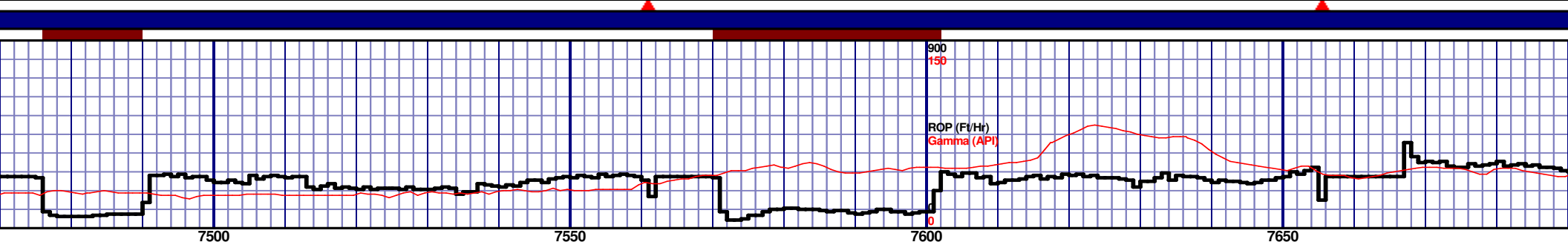
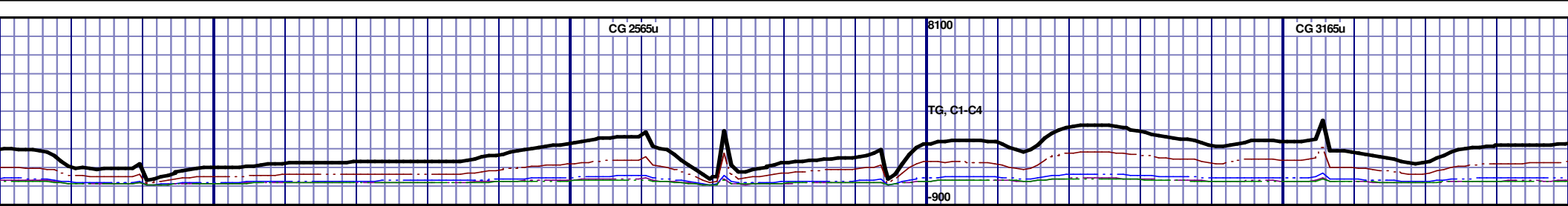
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VS 787.87

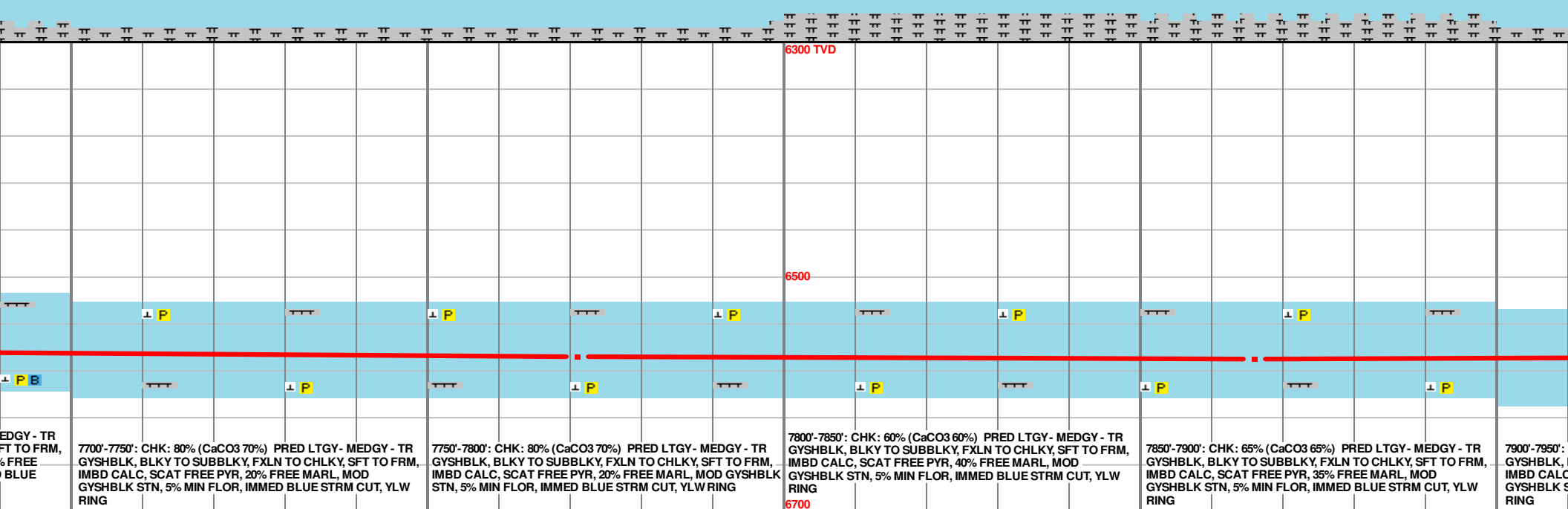
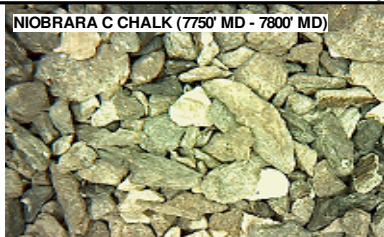
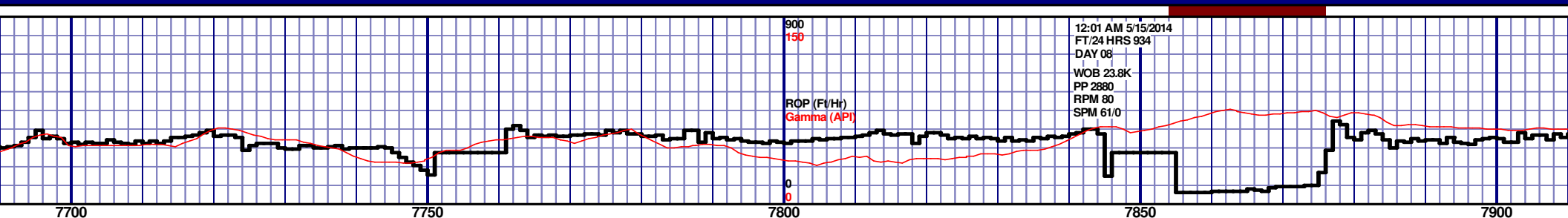
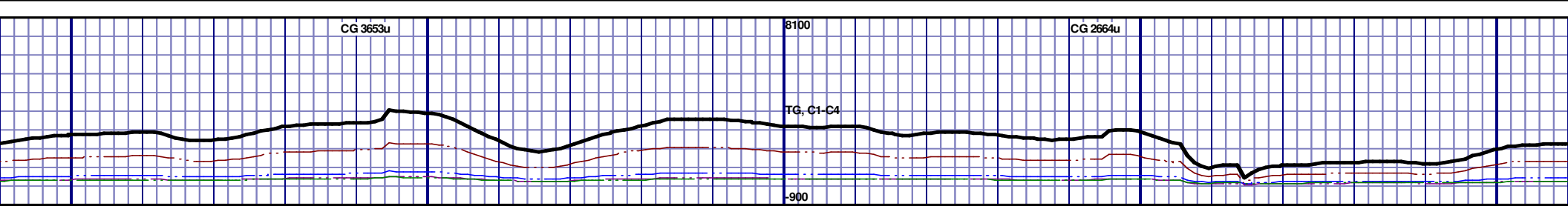


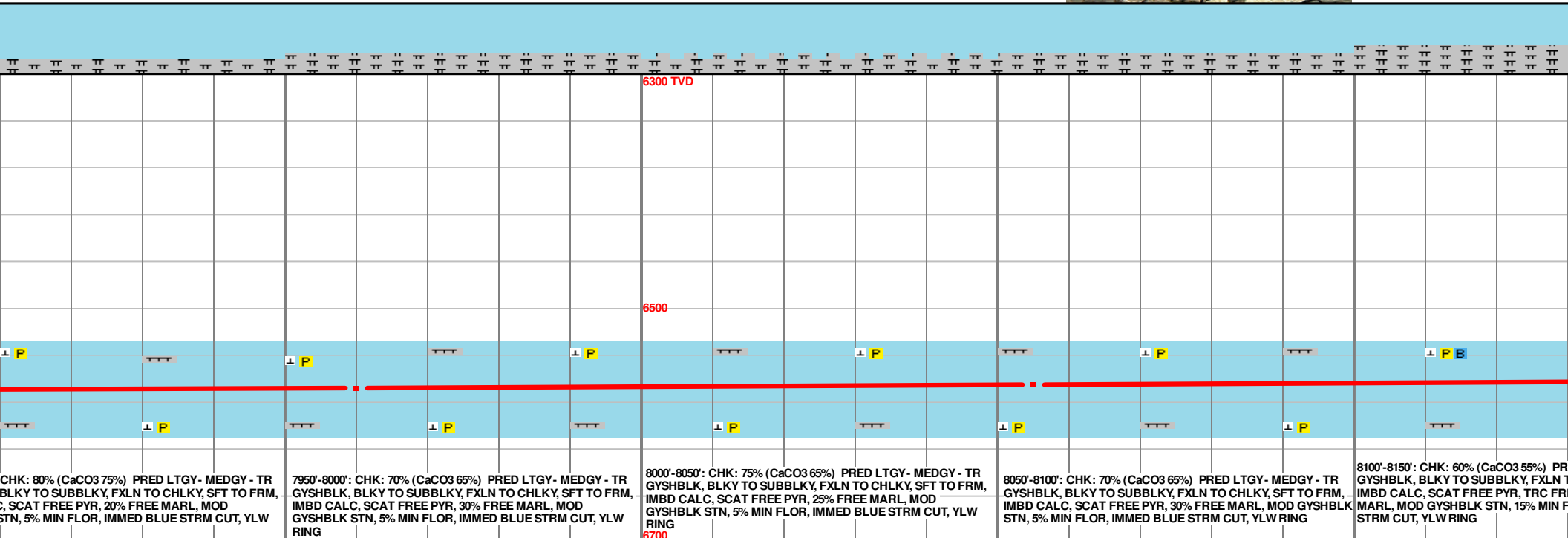
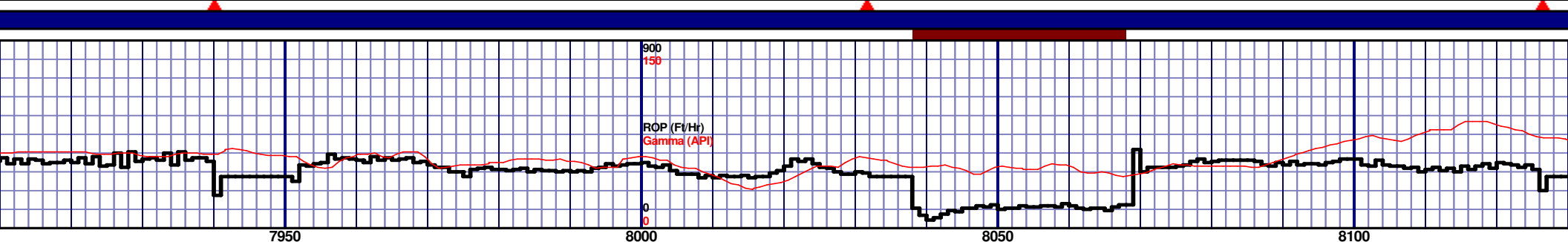
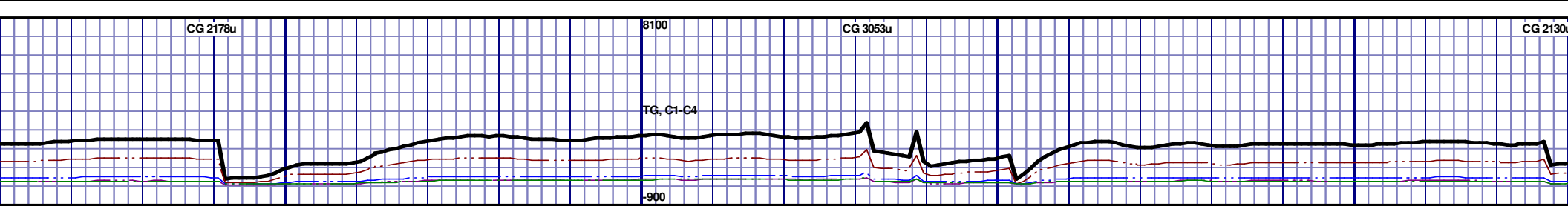


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VS 1071.8

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VS 1165.76

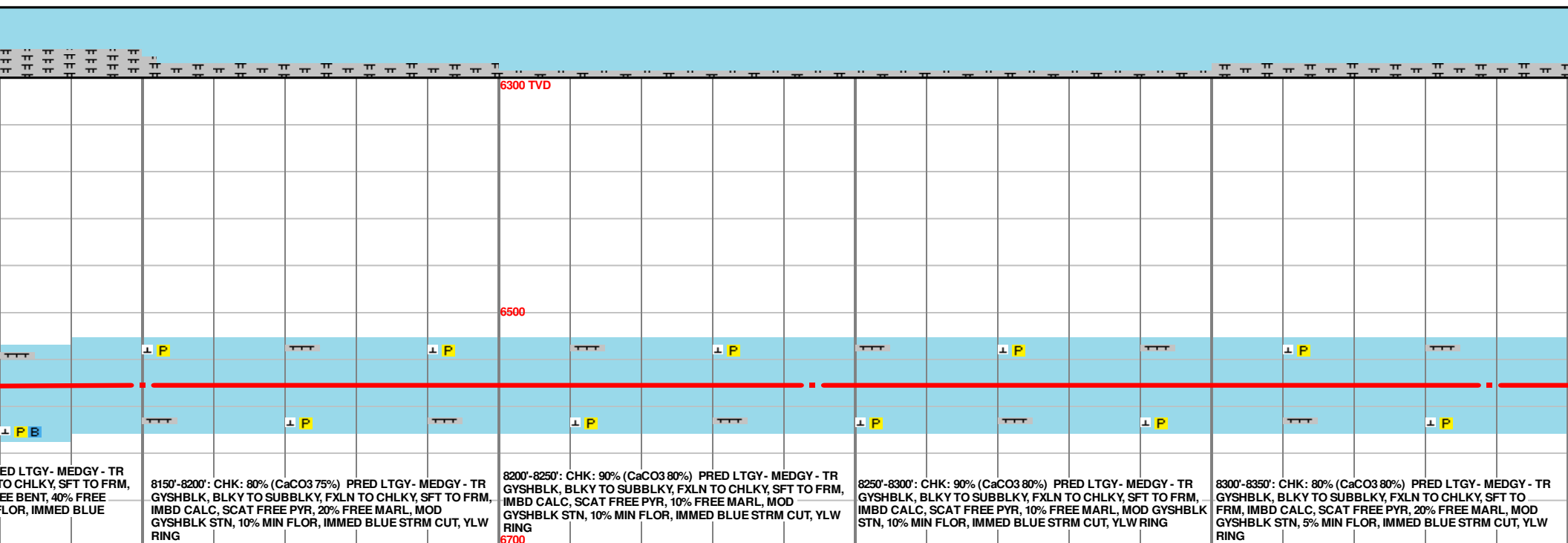
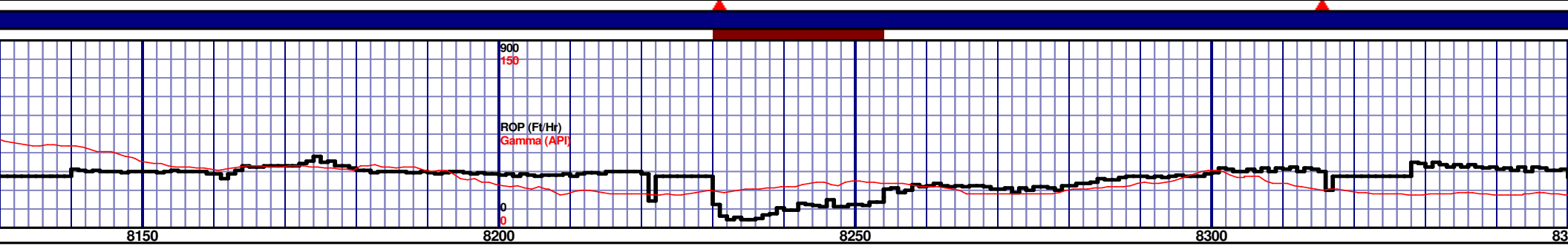
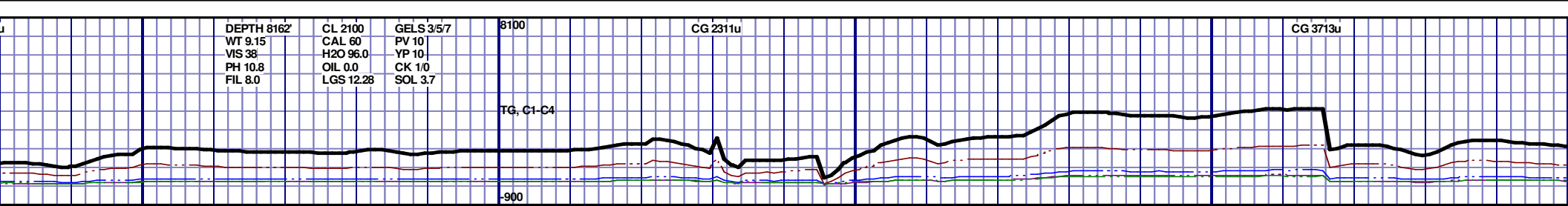


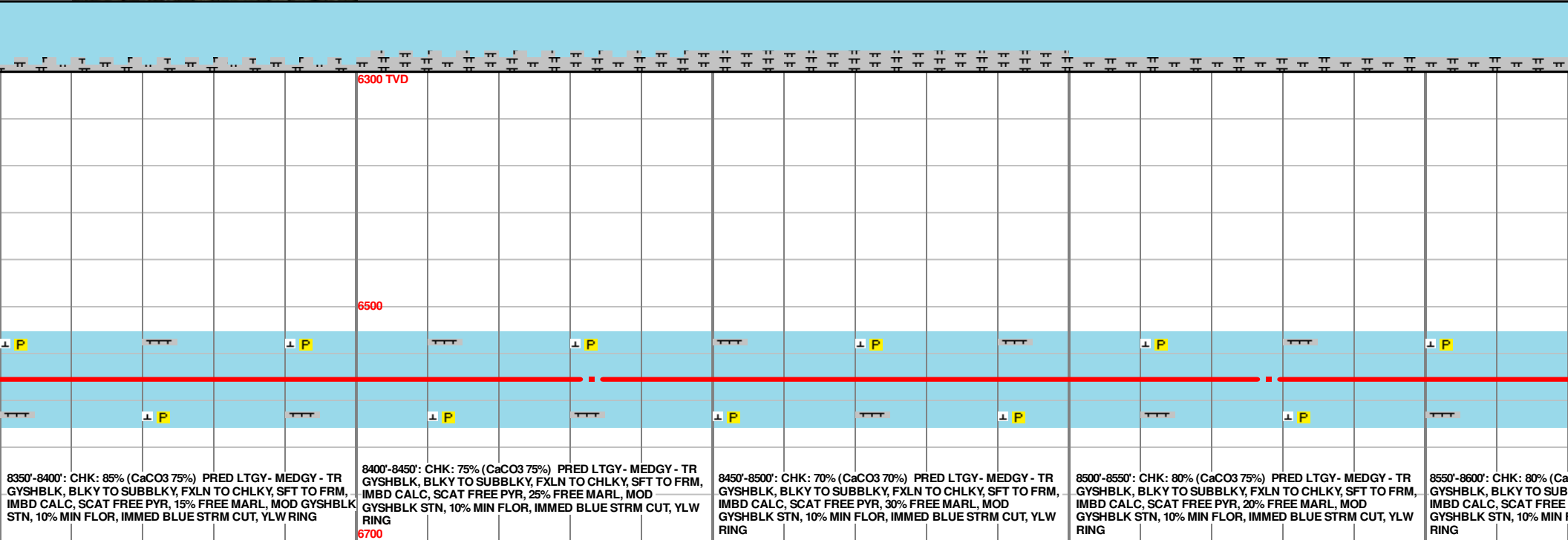
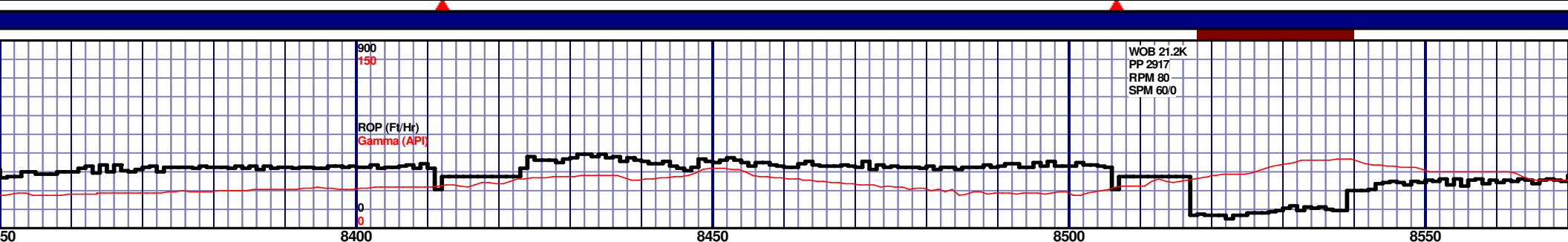
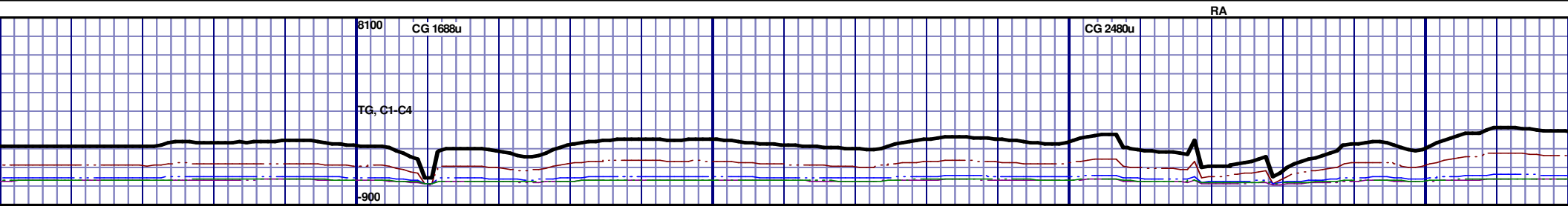


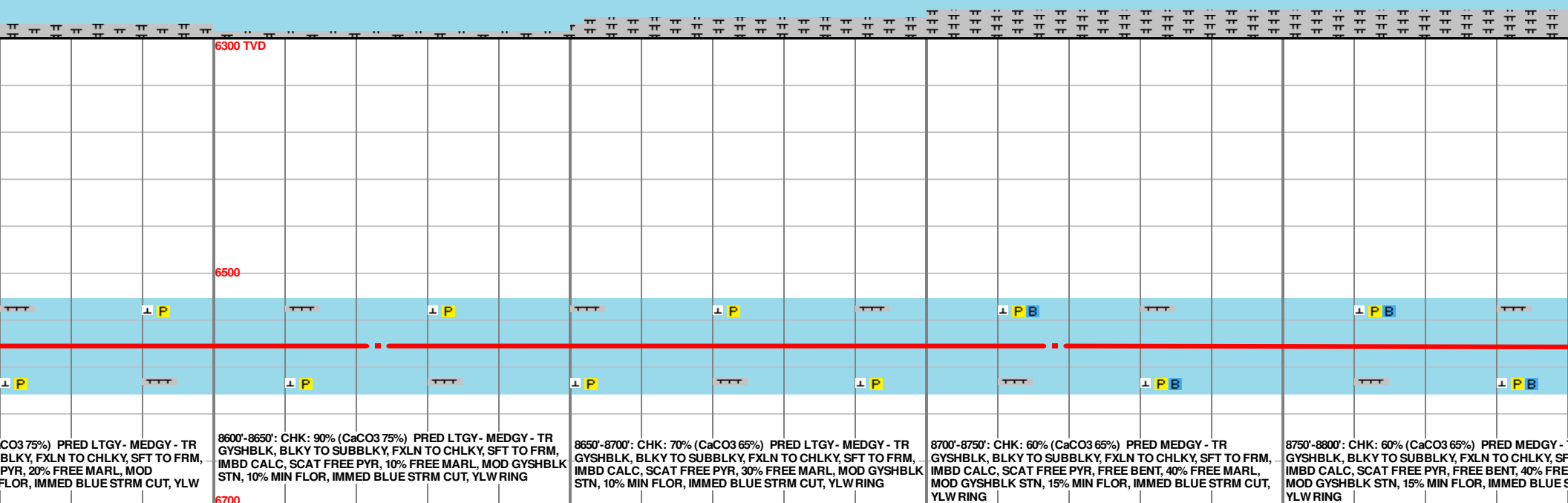
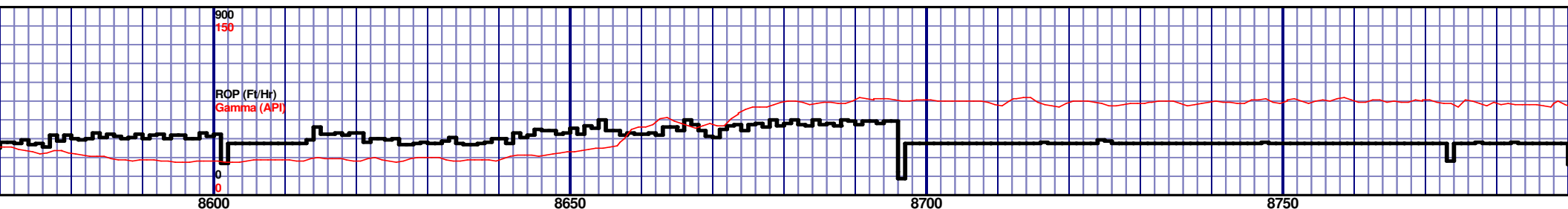
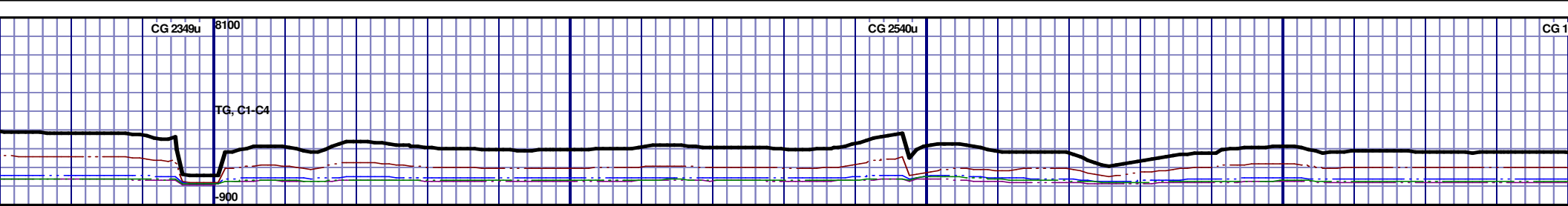


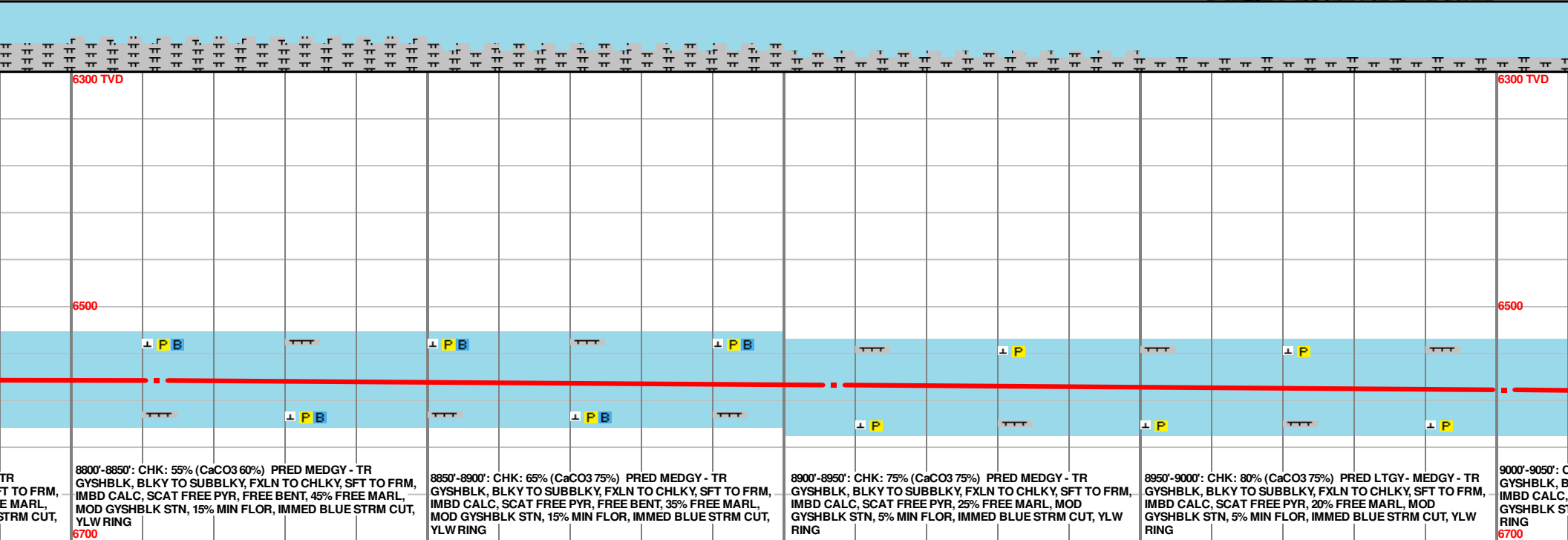
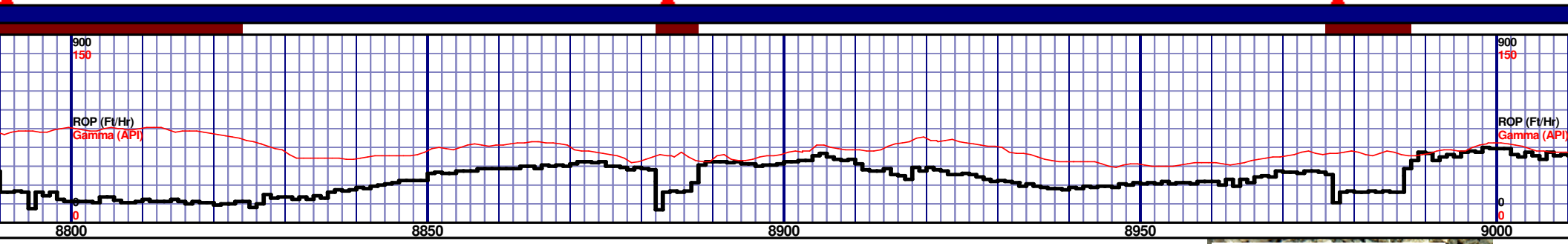
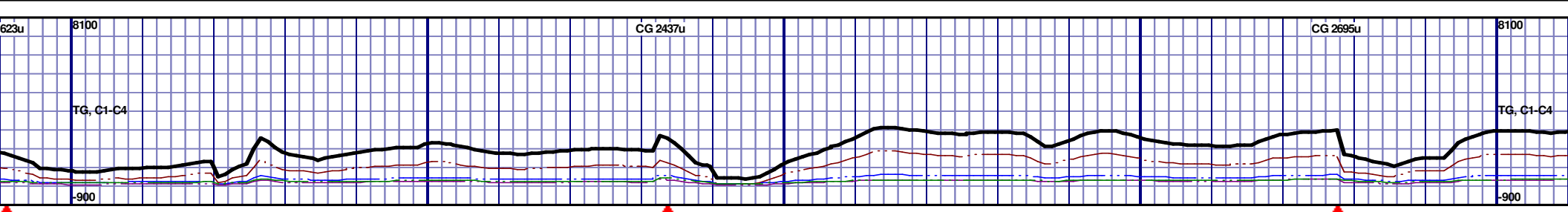
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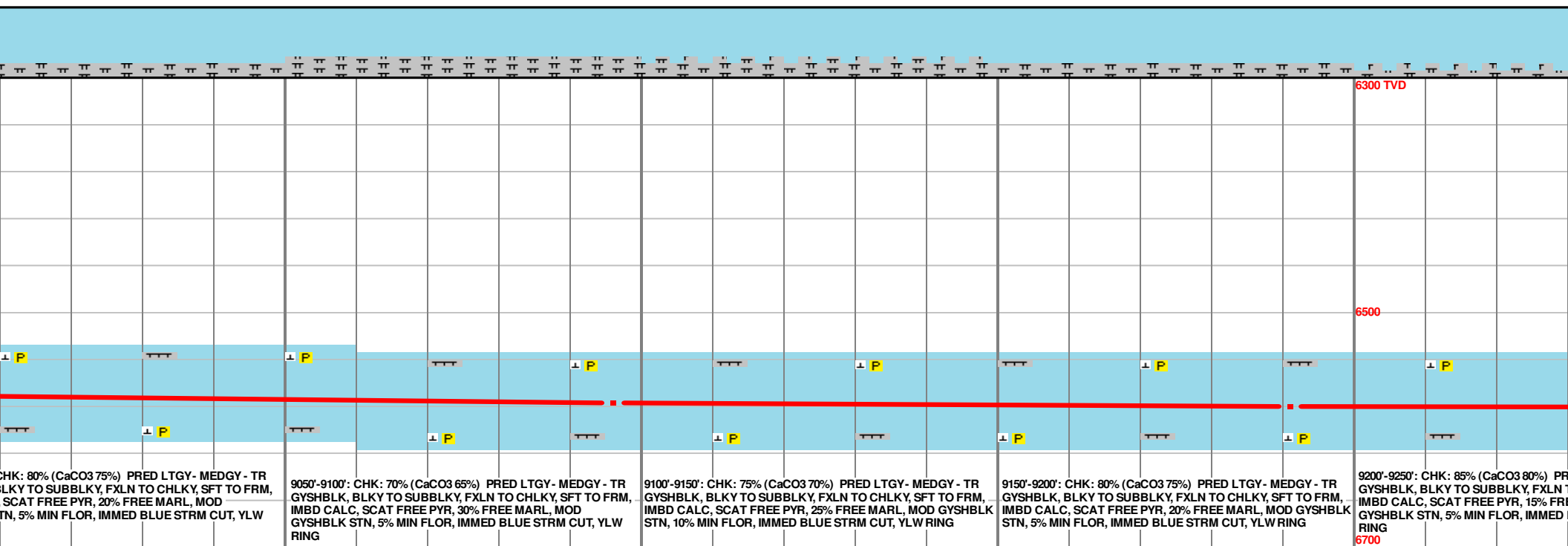
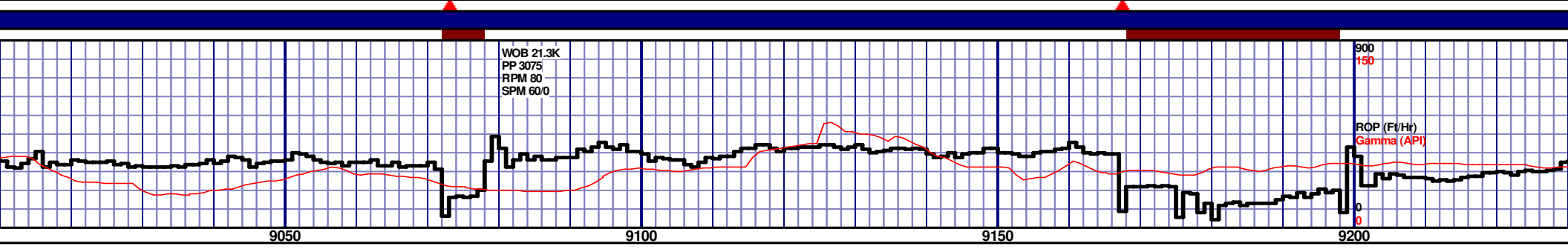
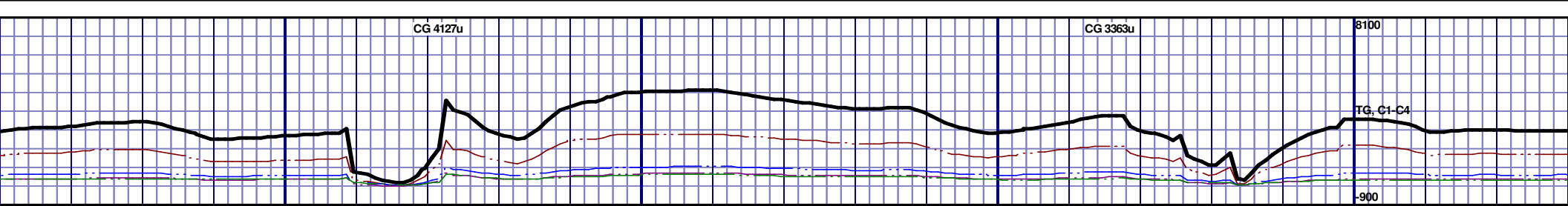
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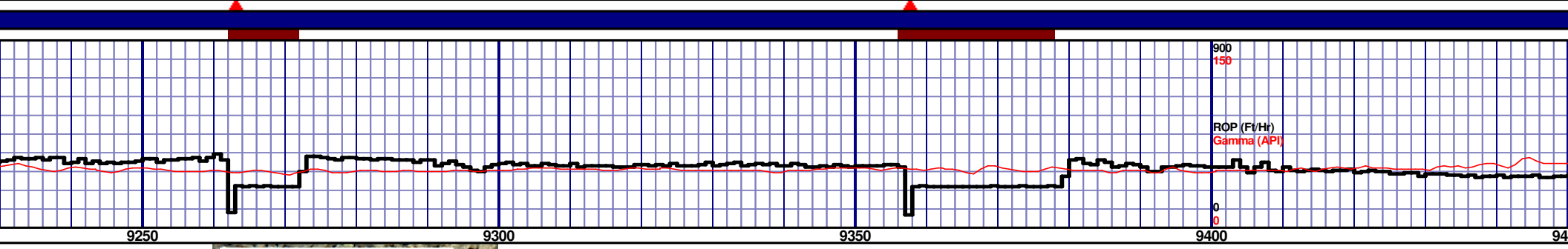
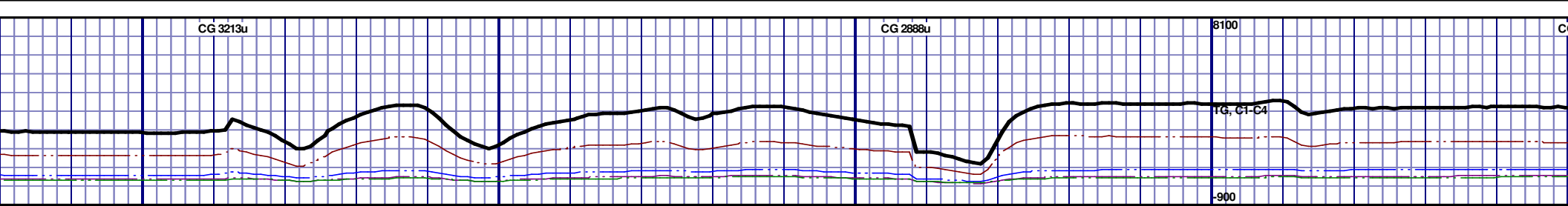




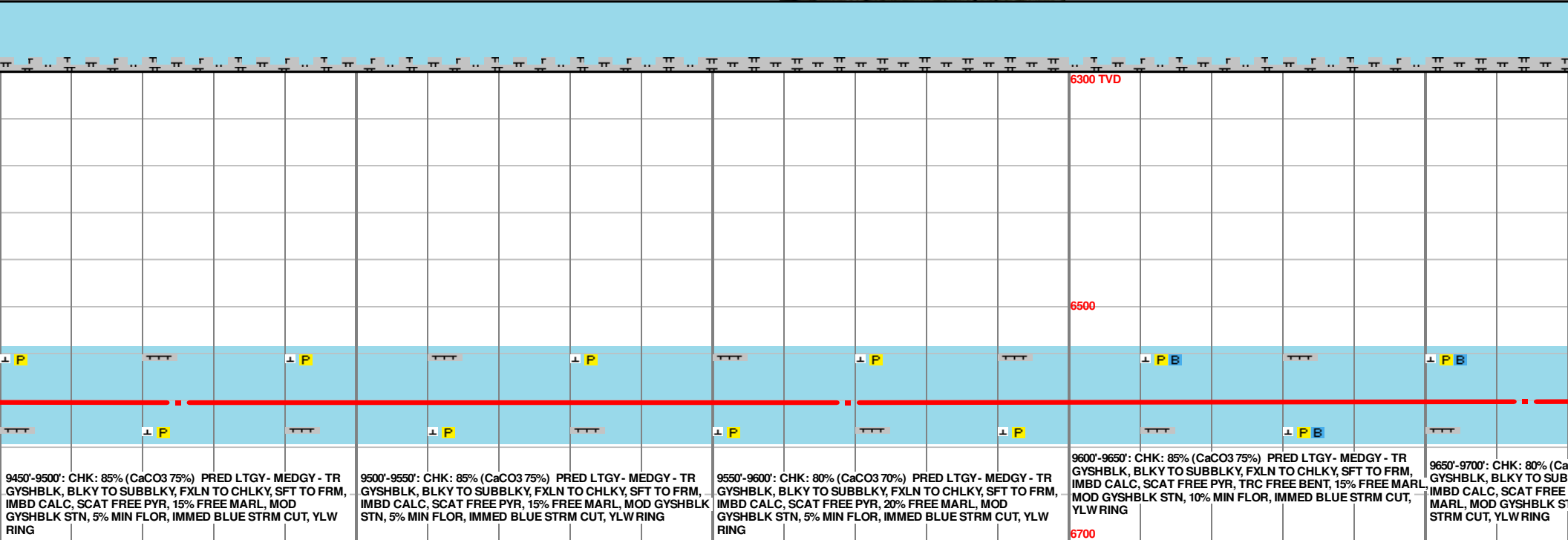
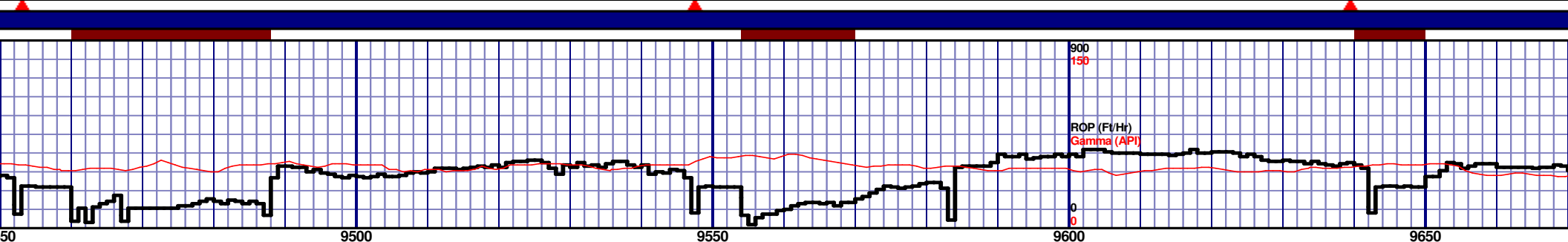
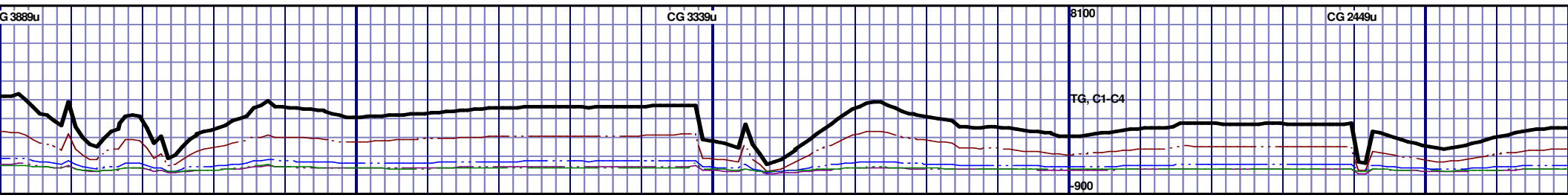


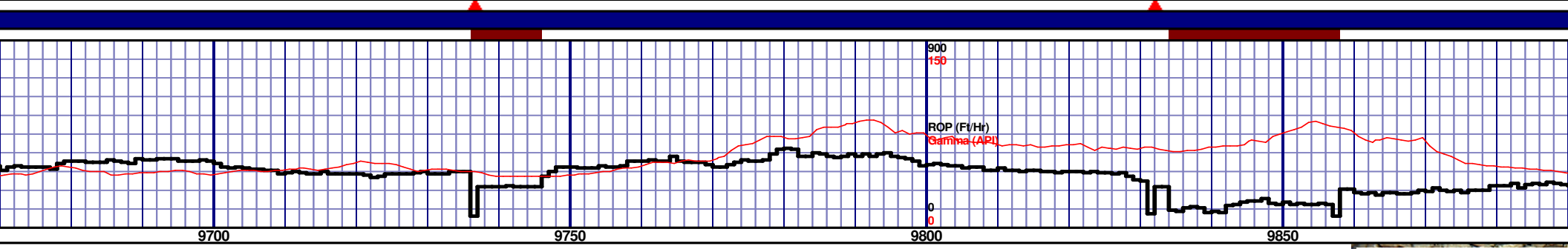
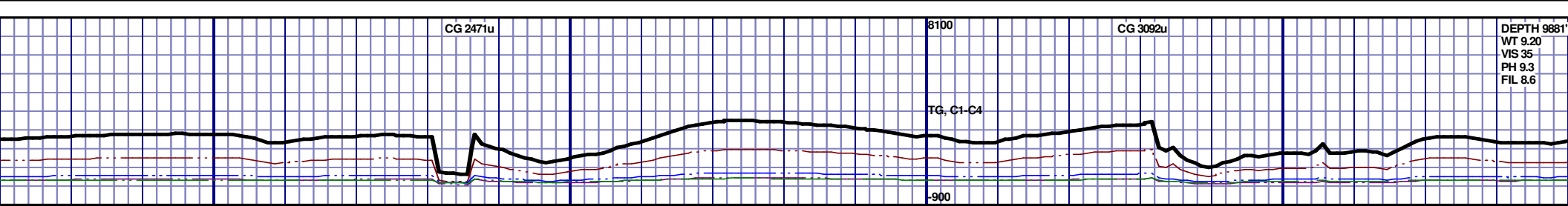




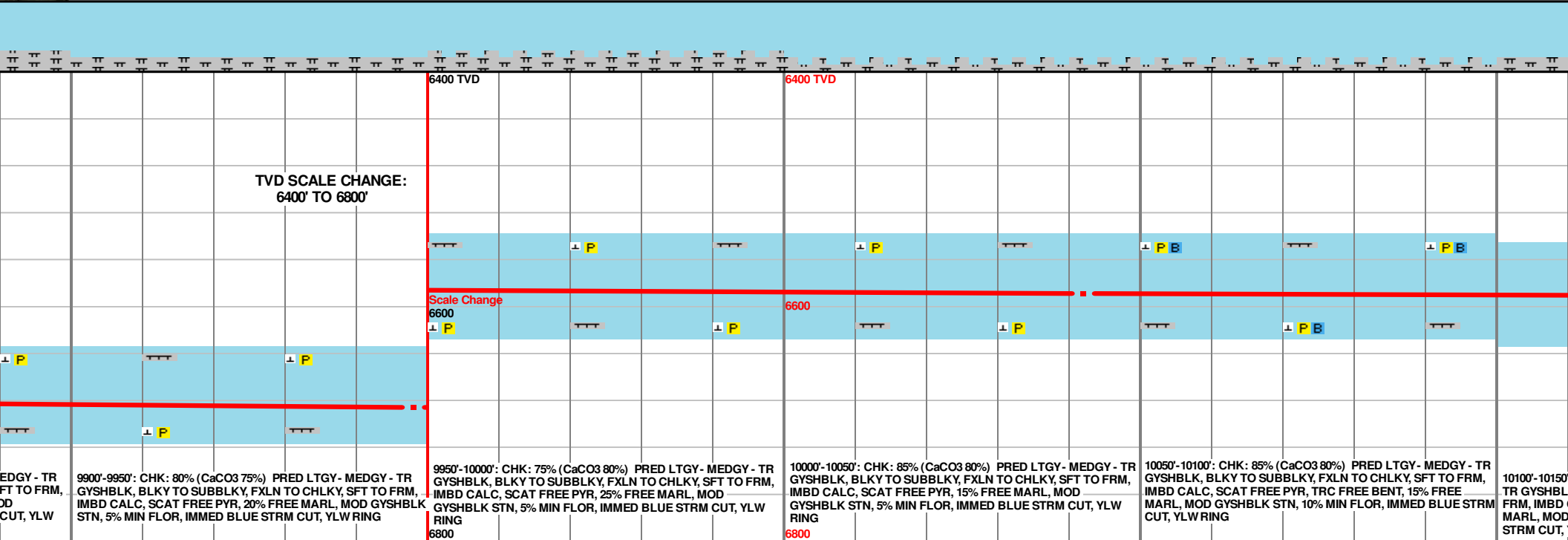
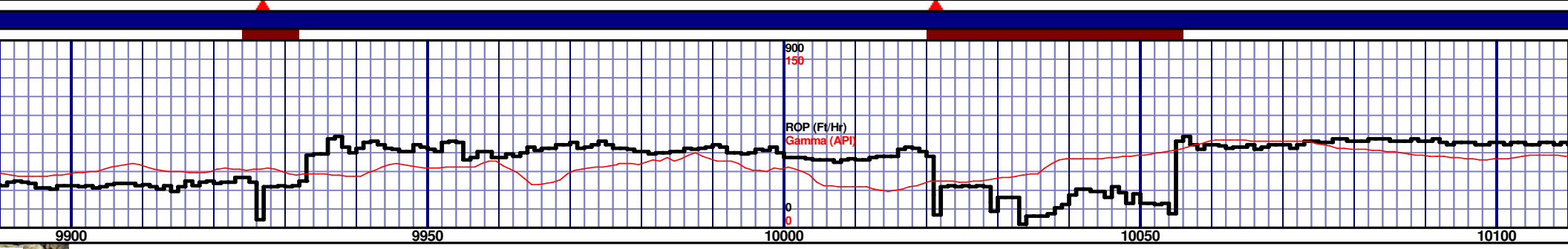
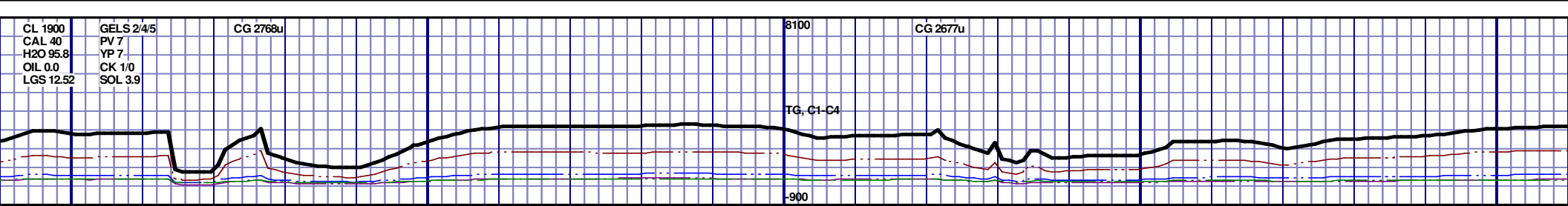


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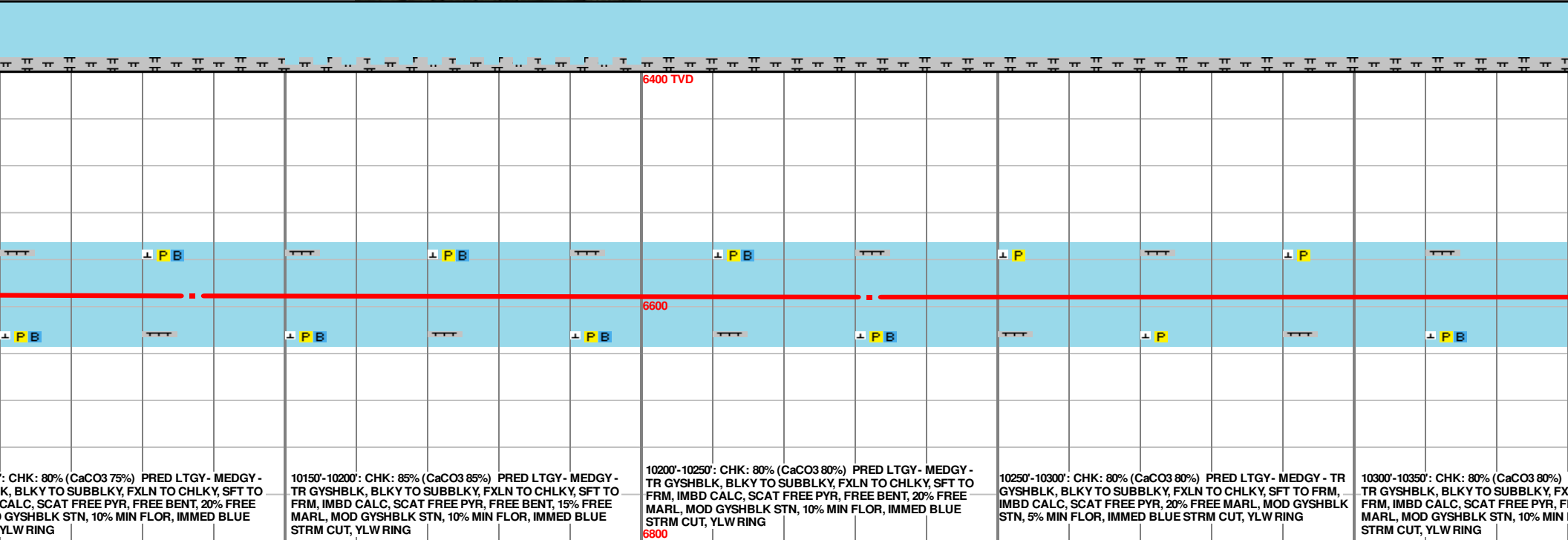
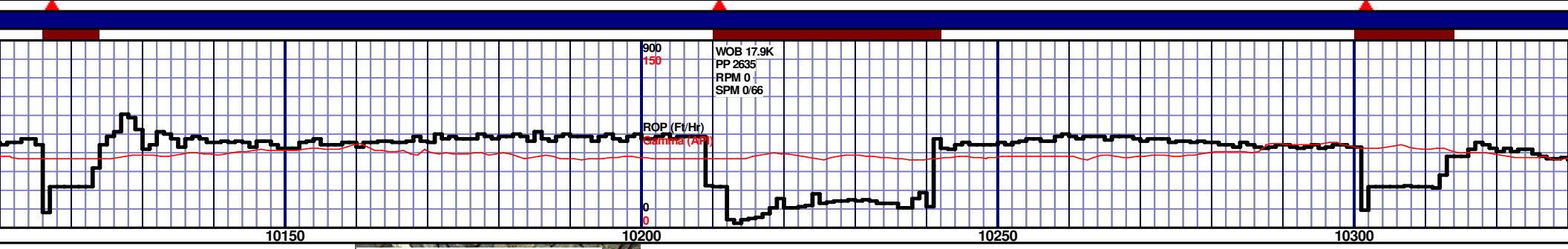
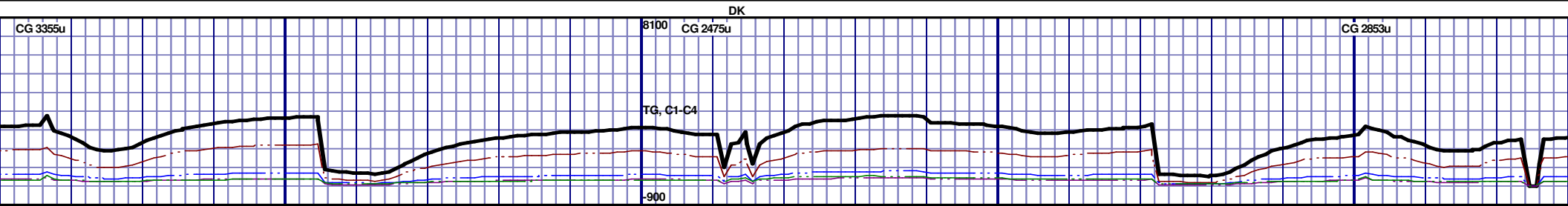


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| 6300 TVD   |  |  |  |  | 6500   |  |  |  |  |
| CO3 75%) PRED LTGY - MEDGY - TR<br>BLKY, FXLN TO CHLKY, SFT TO FRM,<br>PYR, TRC FREE BENT, 20% FREE<br>TN, 10% MIN FLOR, IMMED BLUE  |  |  |  |  | 9700'-9750': CHK: 75% (CaCO3 70%) PRED LTGY - MEDGY - TR<br>GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM,<br>IMBD CALC, SCAT FREE PYR, 25% FREE MARL, MOD<br>GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW<br>RING |  |  |  |  |
| 9750'-9800': CHK: 75% (CaCO3 70%) PRED LTGY - MEDGY - TR<br>GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM,<br>IMBD CALC, SCAT FREE PYR, 25% FREE MARL, MOD<br>GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW<br>RING |  |  |  |  | 9800'-9850': CHK: 70% (CaCO3 75%) PRED LTGY - MEDGY - TR<br>GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM,<br>IMBD CALC, SCAT FREE PYR, 30% FREE MARL, MOD<br>GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW<br>RING |  |  |  |  |
| 9850'-9900': CHK: 70% (CaCO3 75%) PRED LTGY - M<br>GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, S<br>IMBD CALC, SCAT FREE PYR, 30% FREE MARL, M<br>GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM<br>RING                               |  |  |  |  | 9850'-9900': CHK: 70% (CaCO3 75%) PRED LTGY - M<br>GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, S<br>IMBD CALC, SCAT FREE PYR, 30% FREE MARL, M<br>GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM<br>RING                               |  |  |  |  |



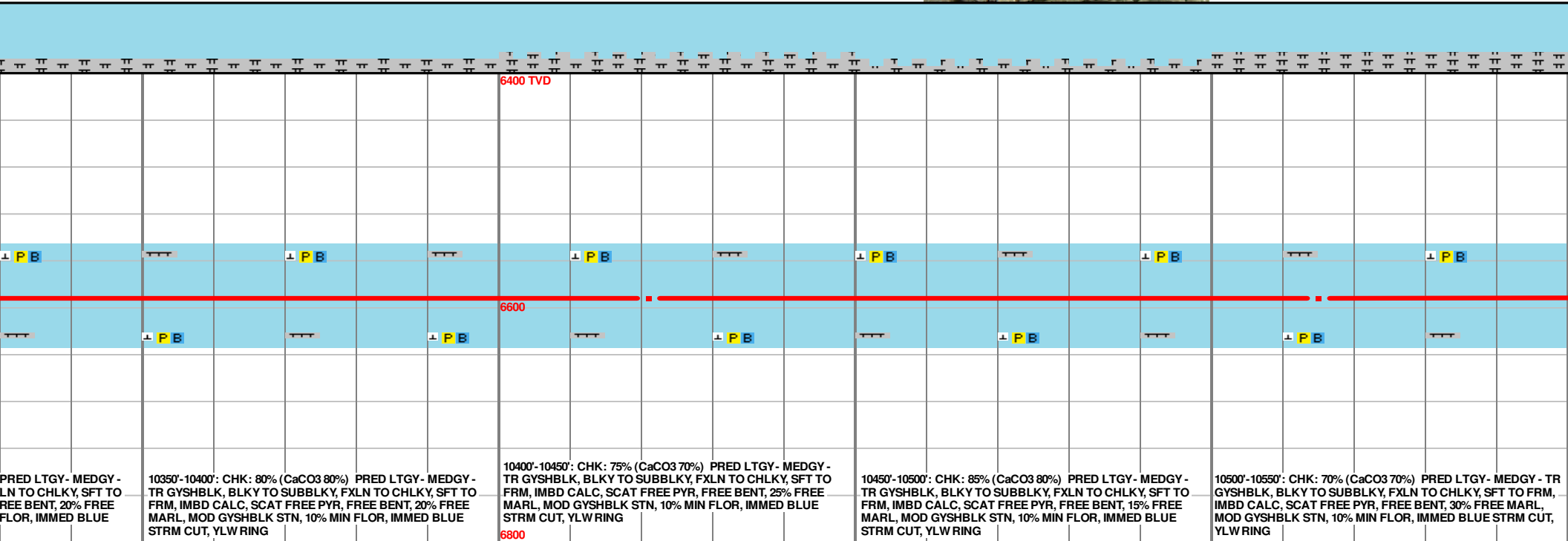
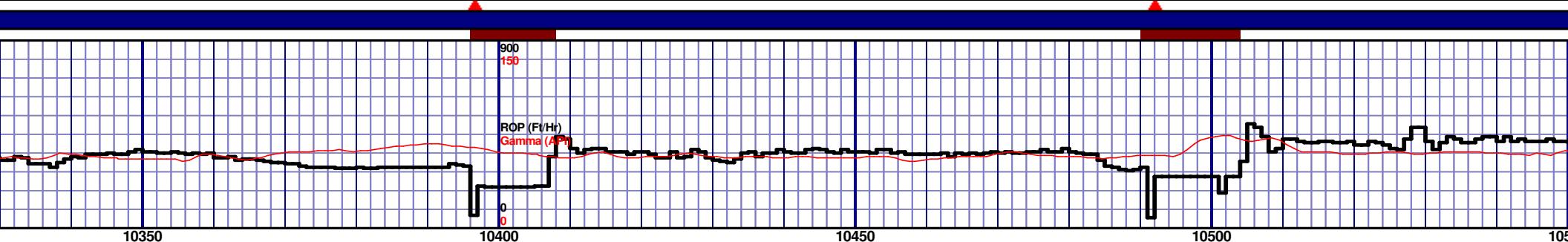
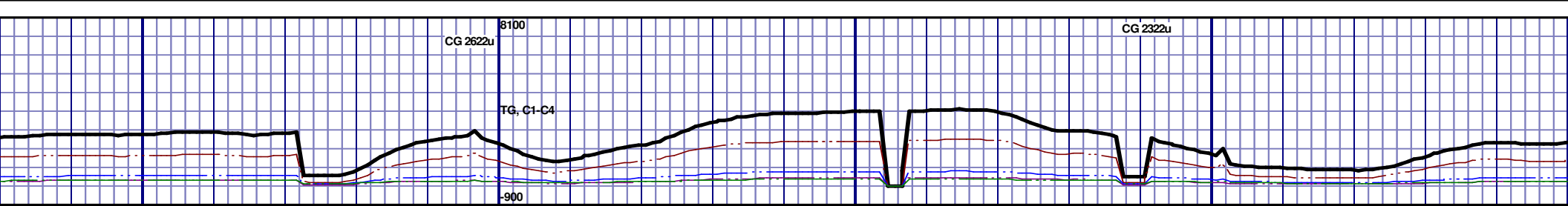
MD 9948 TVD 6585.64  
INC 86.91 AZ 267.43  
VS 3719.07

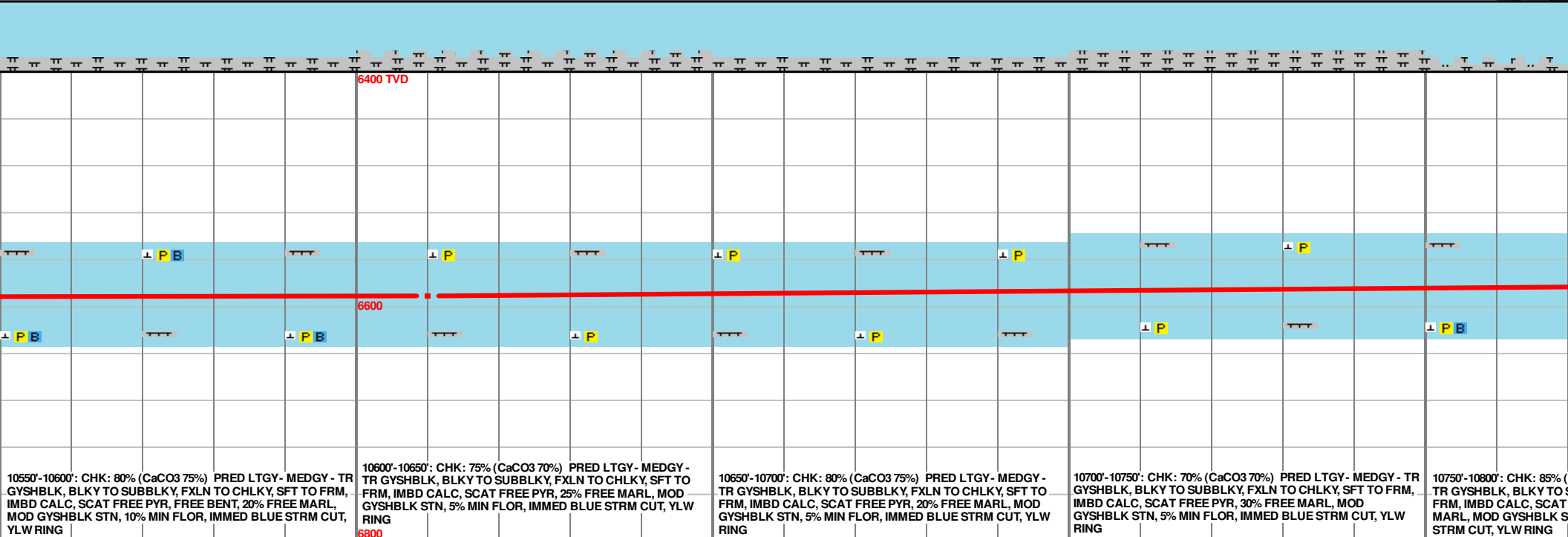
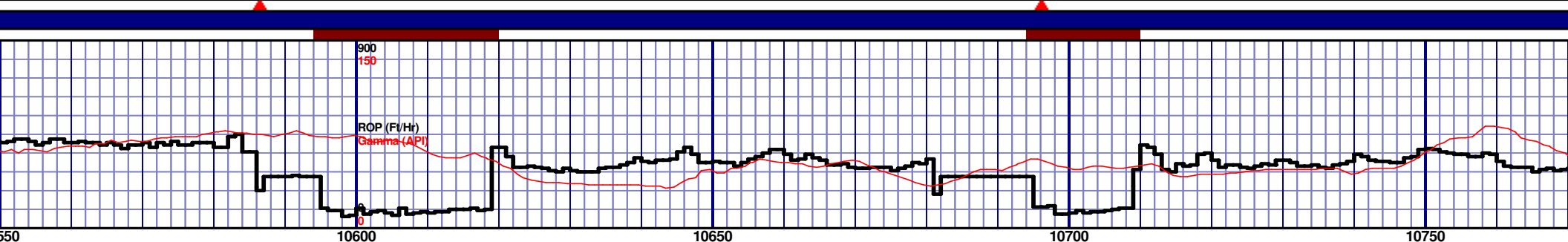
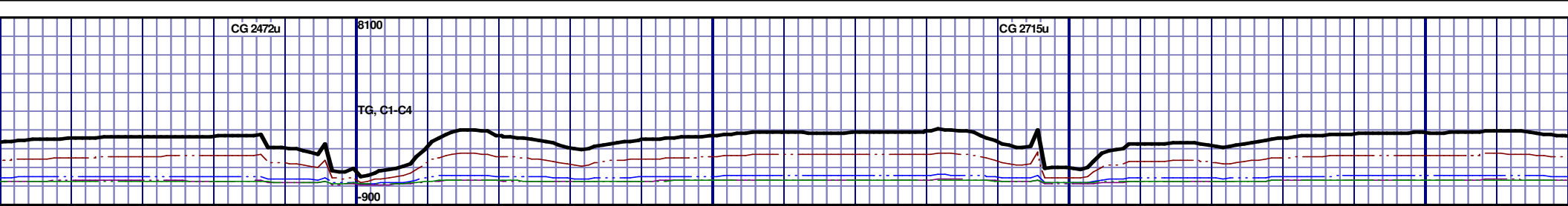
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INC 88.66 AZ 267.58  
VS 3812.99



MD 10137 TVD 6591.01  
INC 89.24 AZ 267.31  
VS 3907.96

MD 10232 TVD 6591.62  
INC 90.03 AZ 271.31  
VS 4002.92





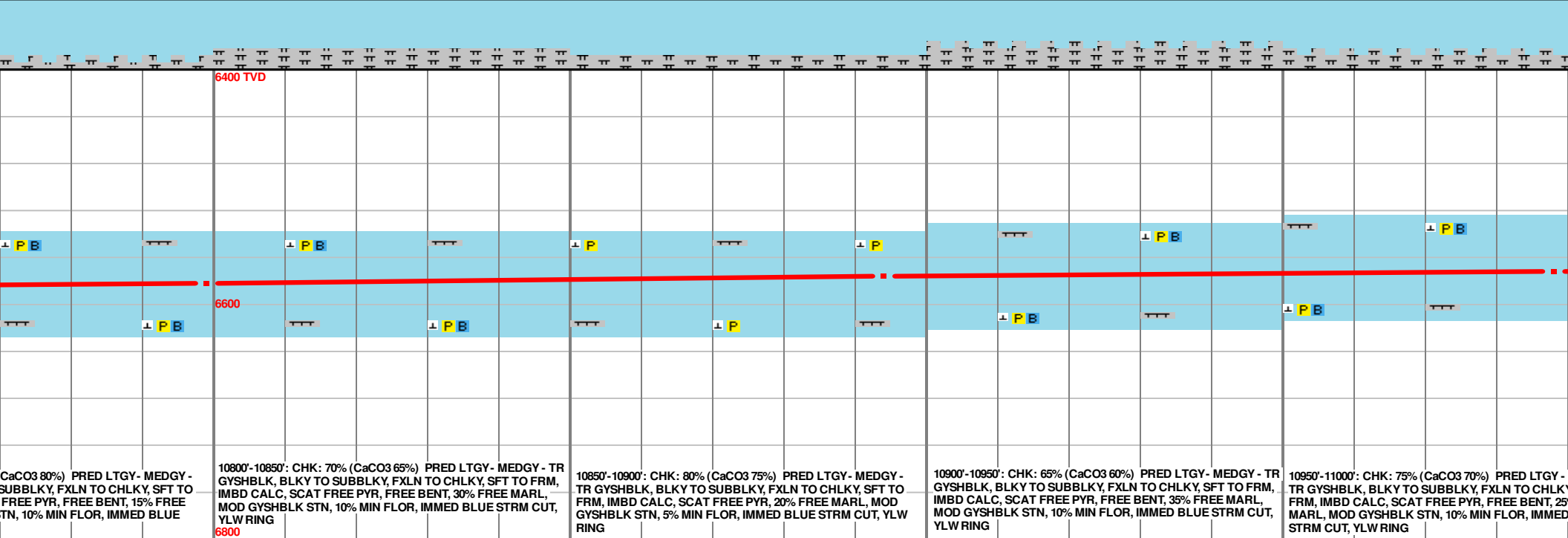
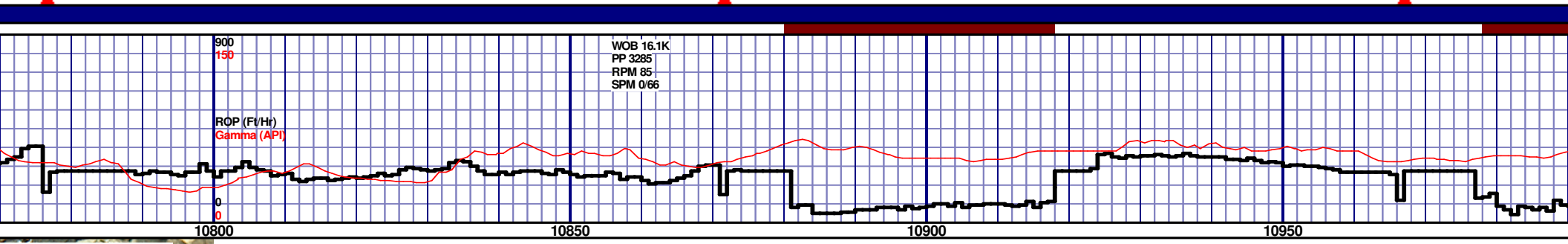
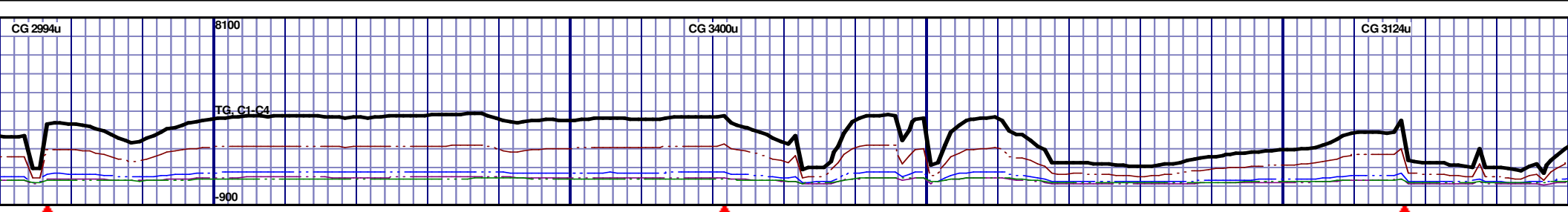
10550'-10600': CHK: 80% (CaCO<sub>3</sub> 75%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 20% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

10600'-10650': CHK: 75% (CaCO<sub>3</sub> 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 25% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

10650'-10700': CHK: 80% (CaCO<sub>3</sub> 75%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 20% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

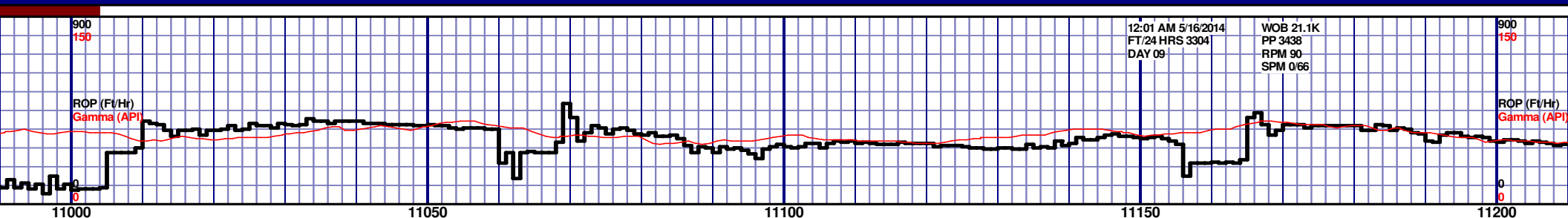
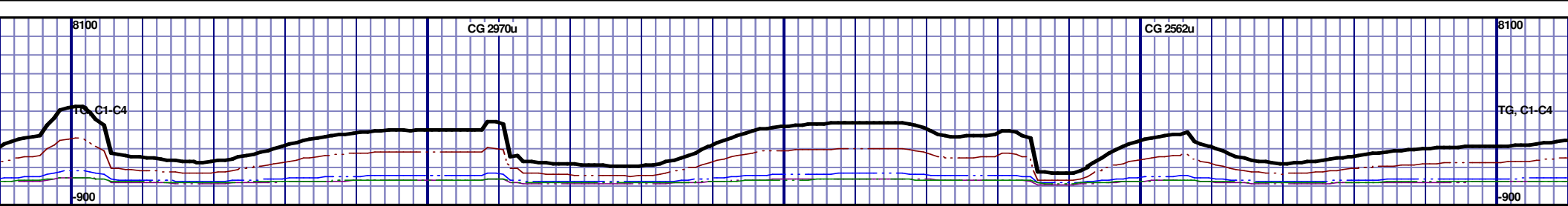
10700'-10750': CHK: 70% (CaCO<sub>3</sub> 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 30% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

10750'-10800': CHK: 85% (CaCO<sub>3</sub> 75%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 20% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

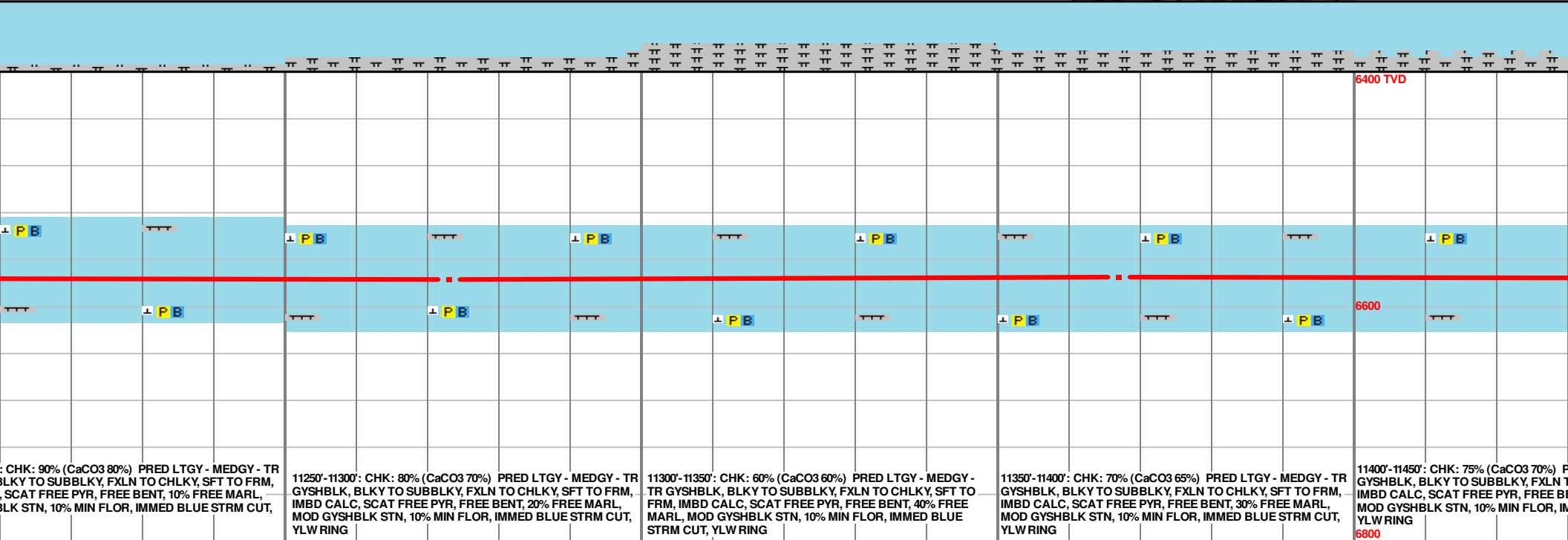
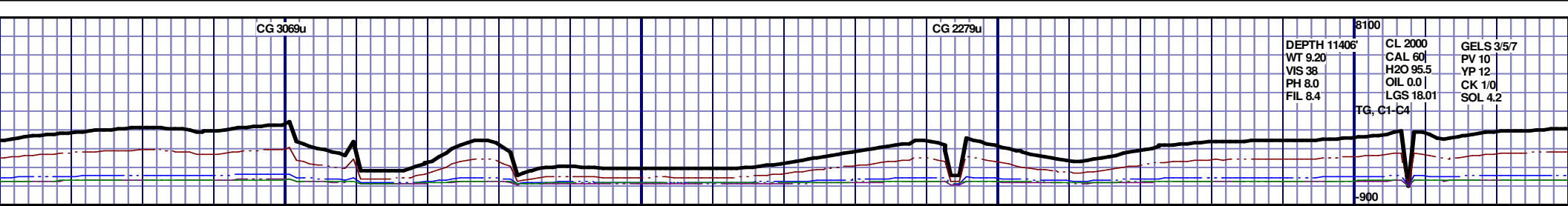


MD 10799 TVD 6582  
INC 94.04 AZ 265.76  
VS 4569.32

MD 10894 TVD 6576.05  
INC 93.13 AZ 267.73  
VS 4664.08

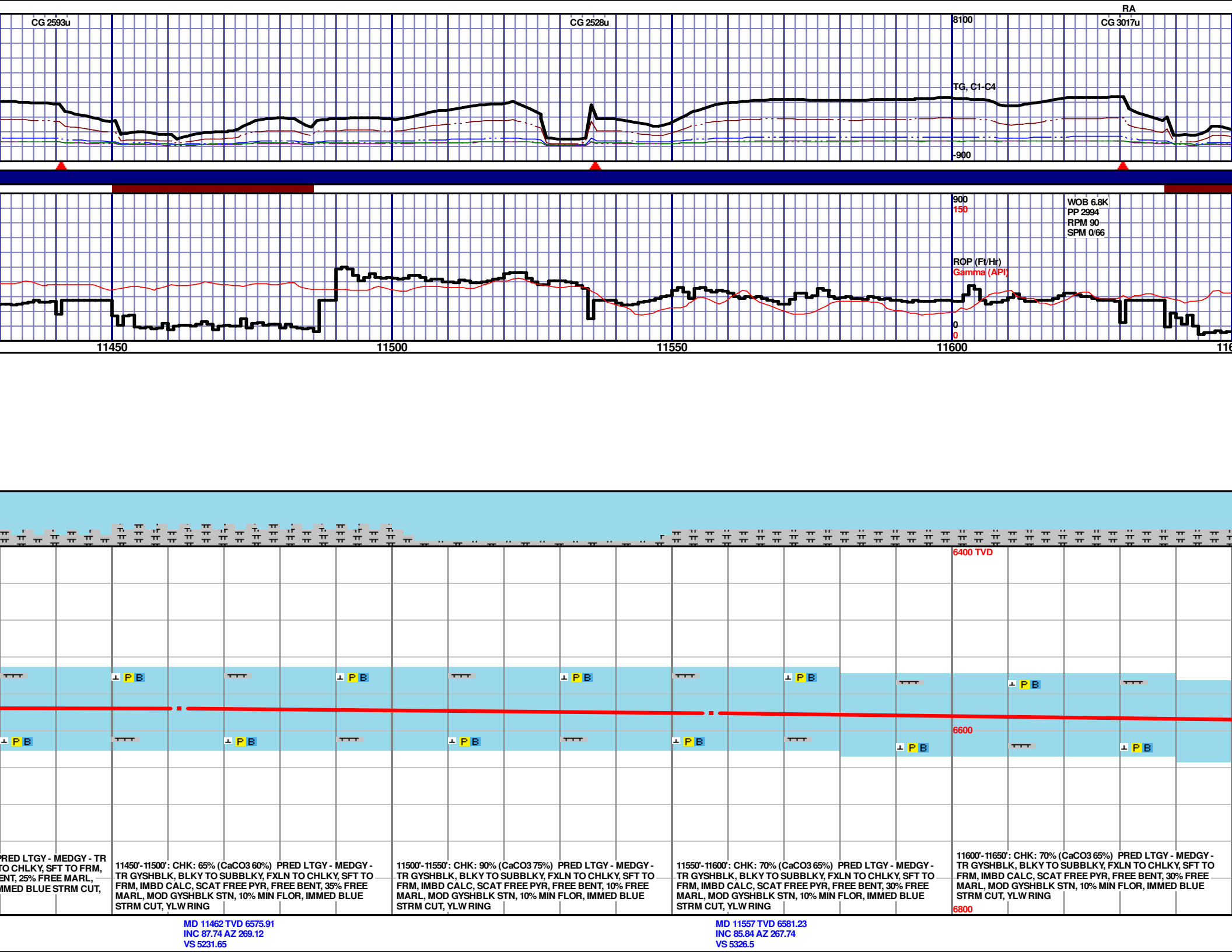


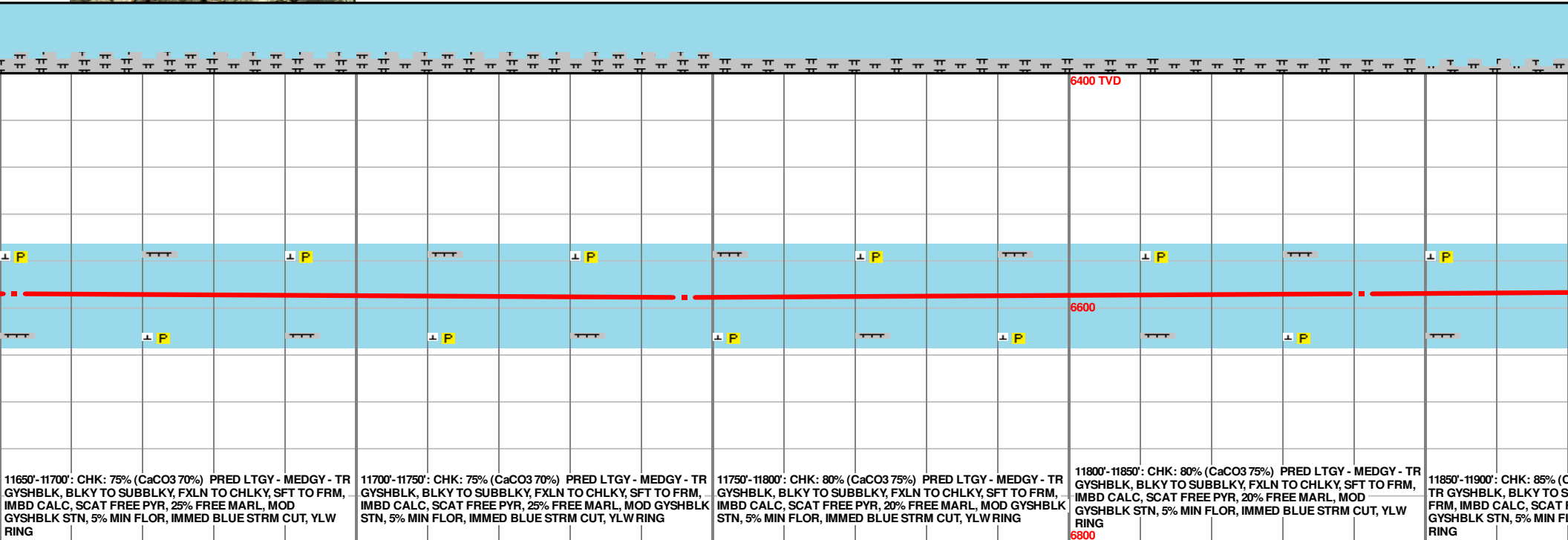
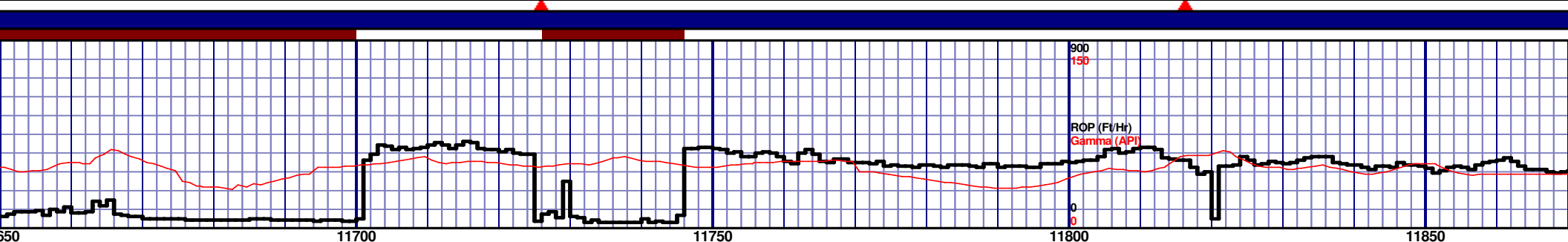
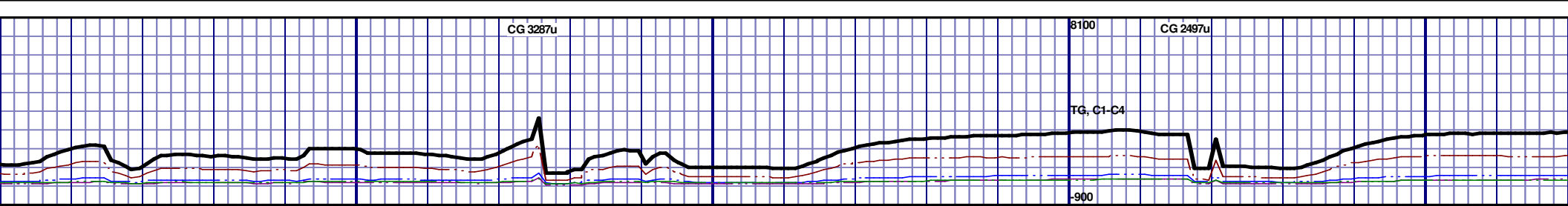
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| 6400 TVD  |  |  |  |  | 6400 TVD  |  |  |  |  |
| 11000'-11050': CHK: 70% (CaCO3 65%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 30% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLWRING |  |  |  |  | 11050'-11100': CHK: 80% (CaCO3 75%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 20% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLWRING |  |  |  |  |
| 11100'-11150': CHK: 90% (CaCO3 80%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 10% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLWRING |  |  |  |  | 11150'-11200': CHK: 85% (CaCO3 75%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLWRING |  |  |  |  |
| 11200'-11250': GYSHBLK, E IMBD CALC, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLWRING  |  |  |  |  | 6800  |  |  |  |  |



MD 11273 TVD 6576.81  
INC 90.8 AZ 269.95  
VS 5042.81

MD 11367 TVD 6575.1  
INC 91.28 AZ 271.43  
VS 5136.72





MD 11652 TVD 6588.47  
INC 85.42 AZ 268.24  
VS 5421.22

MD 11746 TVD 6590.9  
INC 91.62 AZ 271.21  
VS 5515.11

MD 11841 TVD 6587.63  
INC 92.33 AZ 269.9  
VS 5609.99

