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

### Customer Information

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

**Geologist:** Cassidy Miller  
Noble Energy Inc.

### Mud Logging Details

**Logger:** Nikki Graber & Peter Brown

**Log Interval:** 6850' MD to 10086' MD

**Start Date:** May 28, 2013

**Release Date:** May 31, 2013

### Well Information

**Well Name:** Wells Ranch USX  
AA23-63HN HZ

**Location:** 24-6N-63W  
856' FSL, 89' FWL

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

**Drilling Rig:** H&P 343

**Total Depth:** 10086' MD

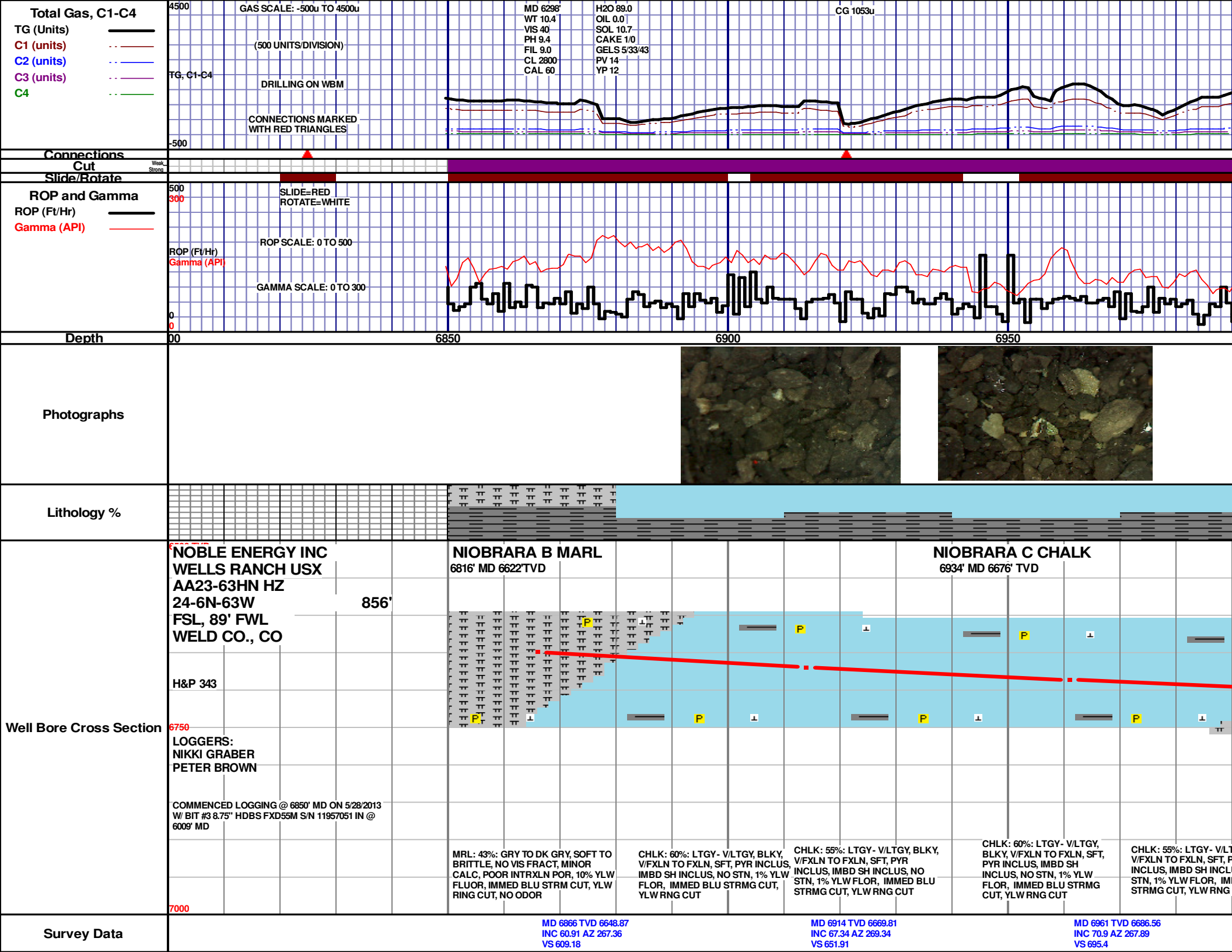
**TD Date:** May 31, 2013

**Formation:** Niobrara C Chalk

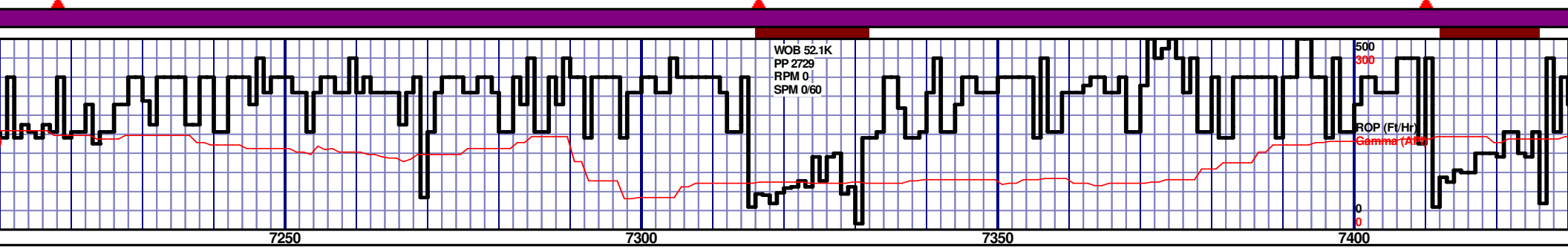
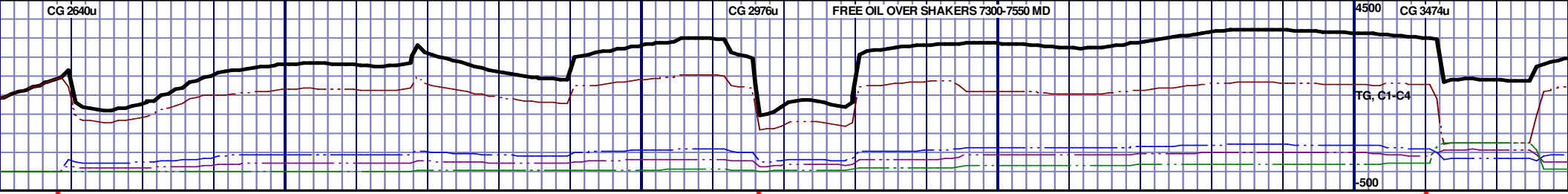
**KB Elevation:** 4860'

**GR Elevation:** 4836'

**API Number:** 05-123-36884







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|----------|--|--|--|--|--|--|--|--|--|
| 6500 TVD |  |  |  |  |  |  |  |  |  |
| 6750     |  |  |  |  |  |  |  |  |  |
| 7000     |  |  |  |  |  |  |  |  |  |

GRY TO DK GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 1% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO ODOR

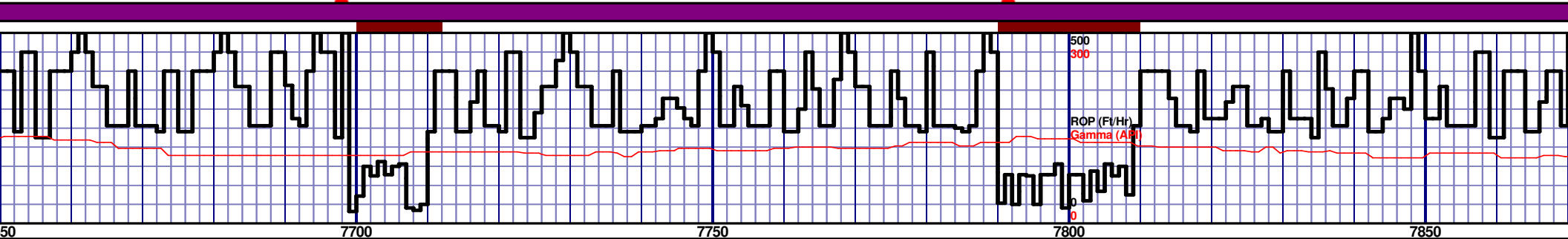
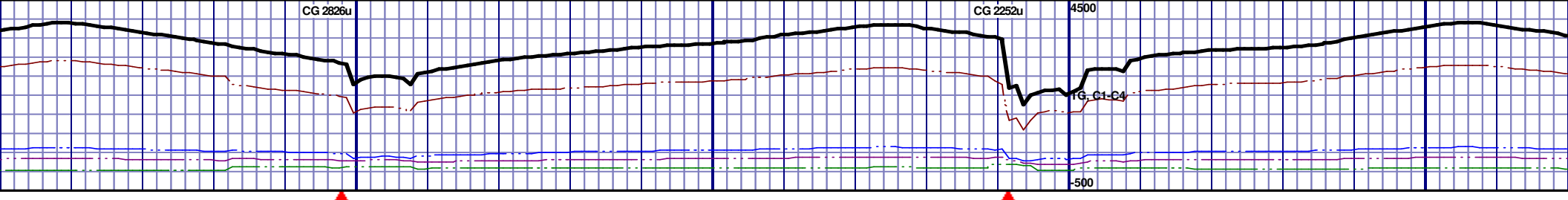
MRL: 32%: GRY TO DK GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 5% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO ODOR

MRL: 39%: GRY TO DK GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT FREE PYRC NODULES, POOR INTRXLN POR, 1% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, STR ODOR, FREE OIL OVER SHAKERS

MRL: 43%: GRY TO DK GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT FREE PYRC NODULES, POOR INTRXLN POR, 1% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, STR ODOR, FREE OIL OVER SHAKERS

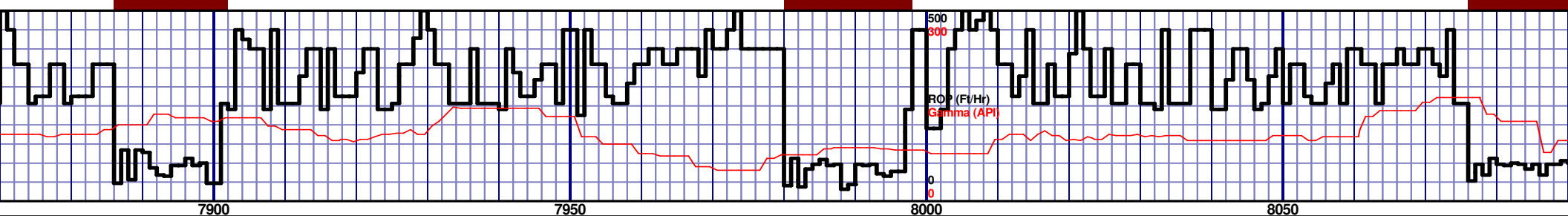
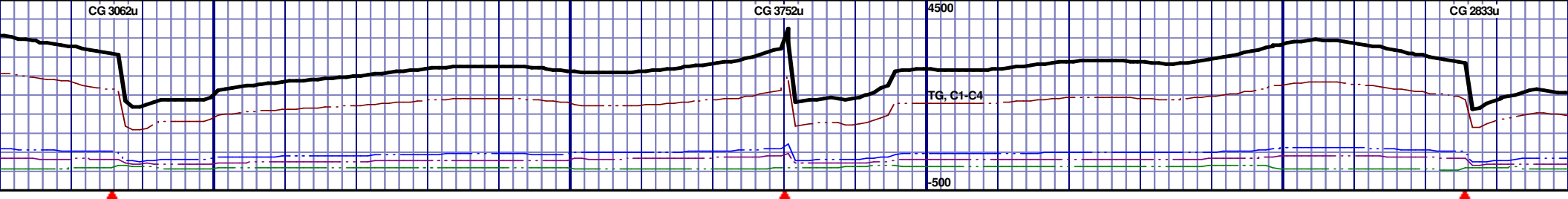
CHLK: 55%: LTGY - V/LTGY, BLKY, V/FX INCLUS, IMBD SH INCLUS, NO STN, 1% BLU STRMG CUT, YLW RING CUT, STR SHAKERS

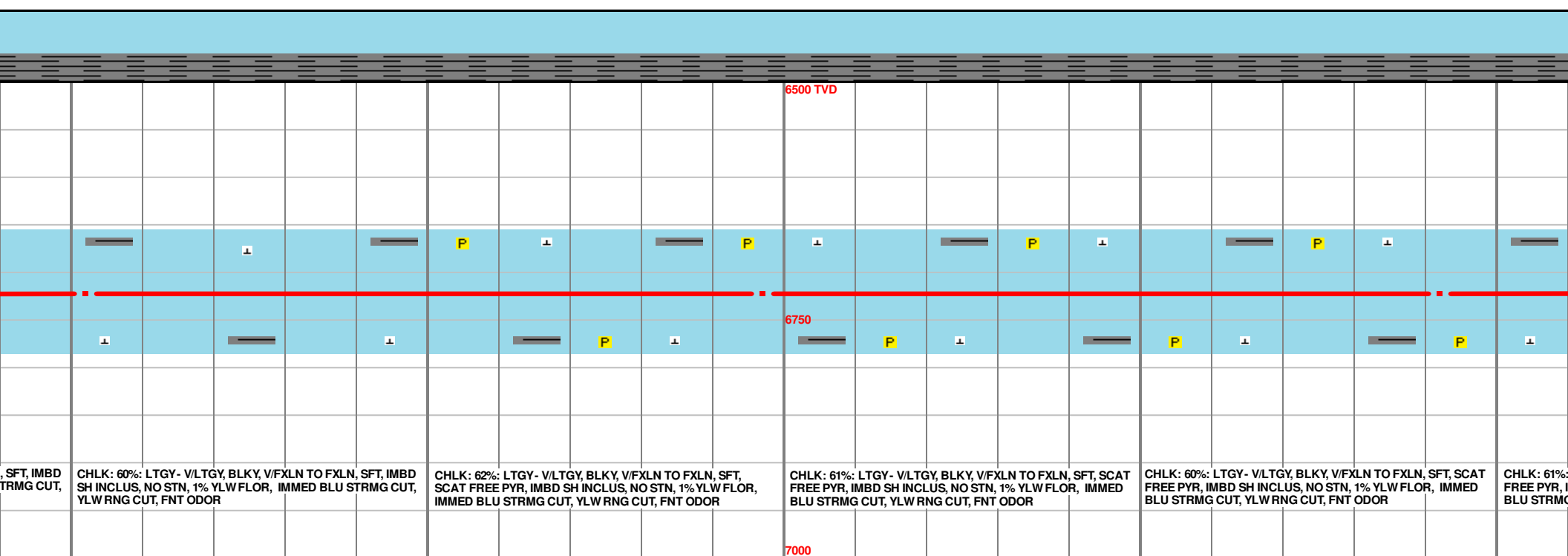
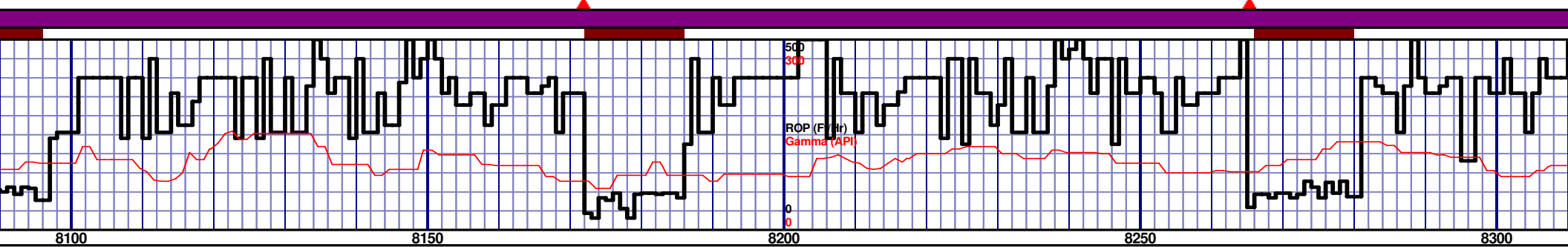
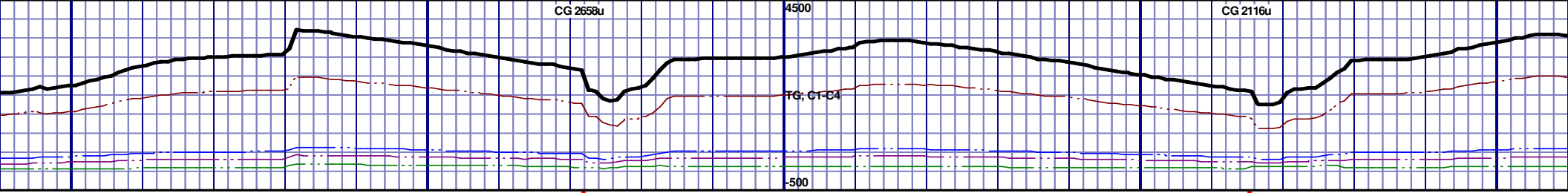


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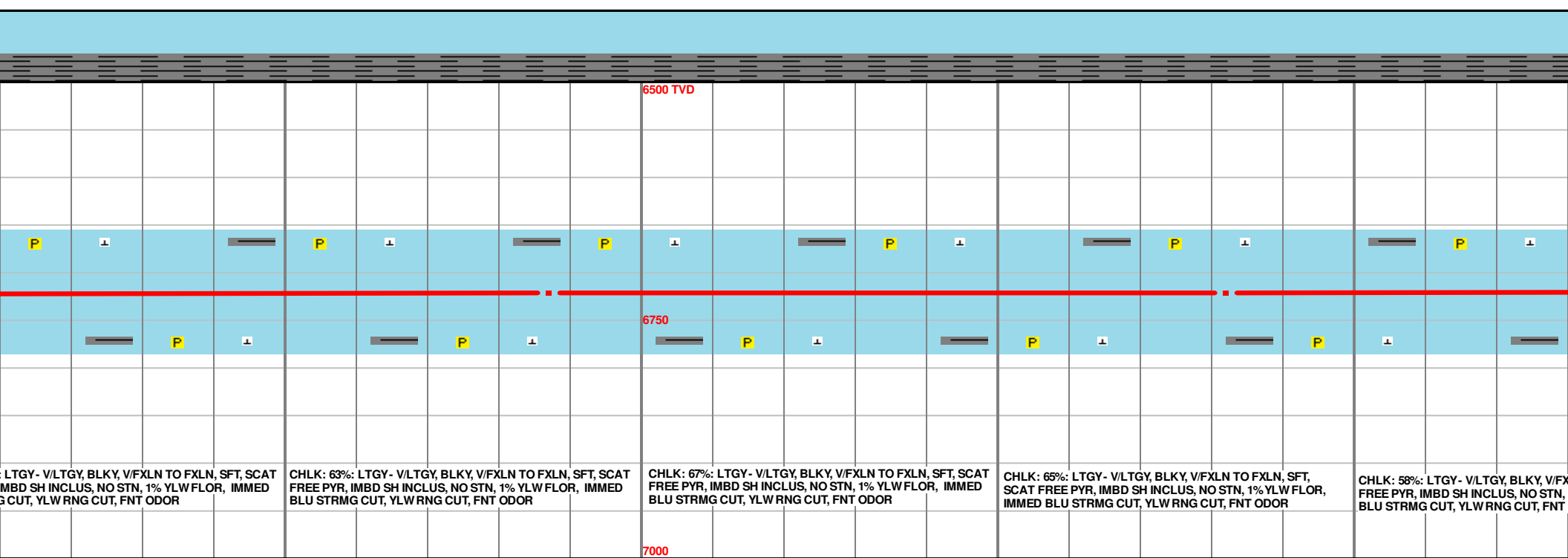
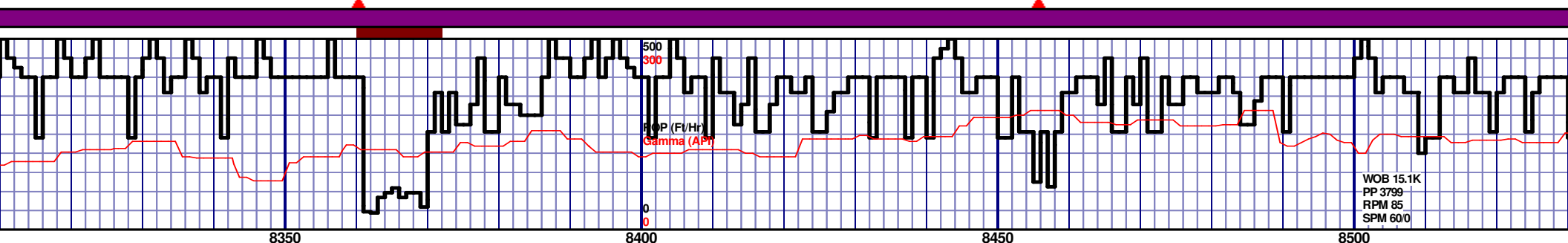
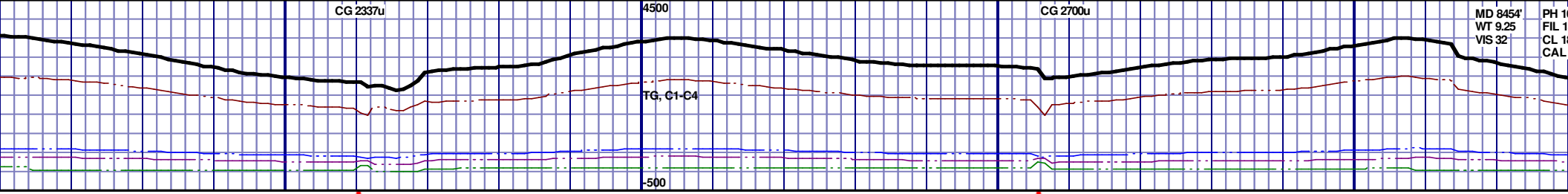
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INC 90.68 AZ 267.79  
VS 1440.47

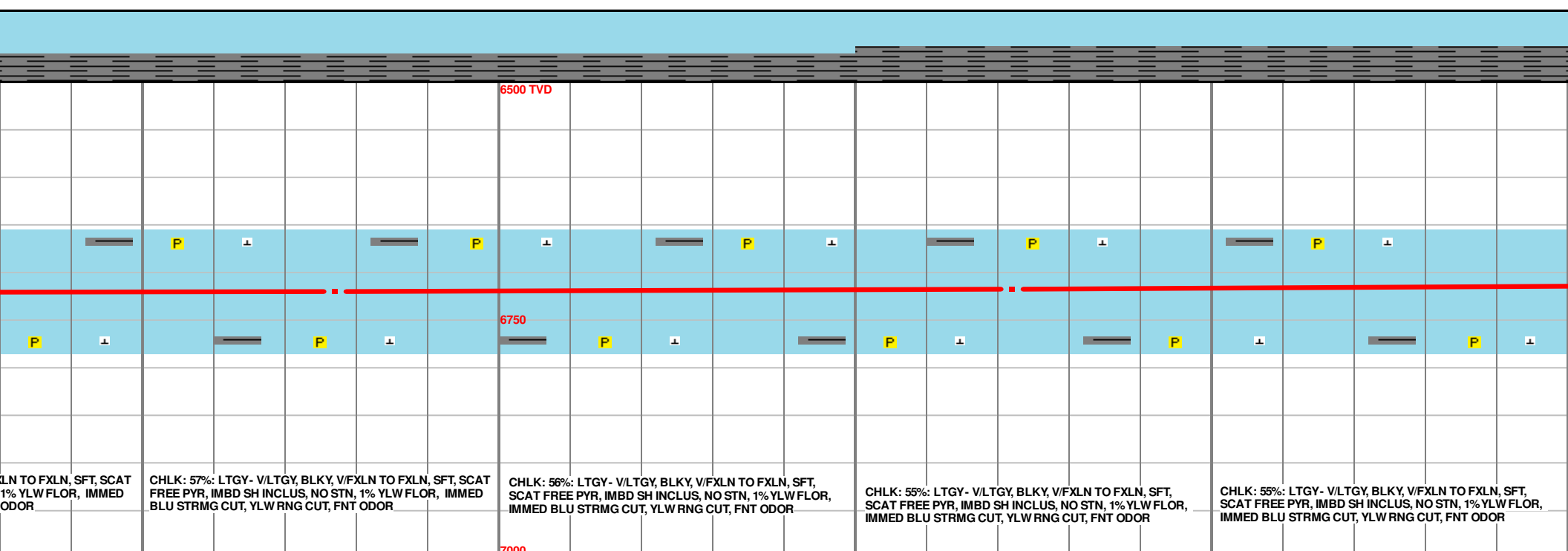
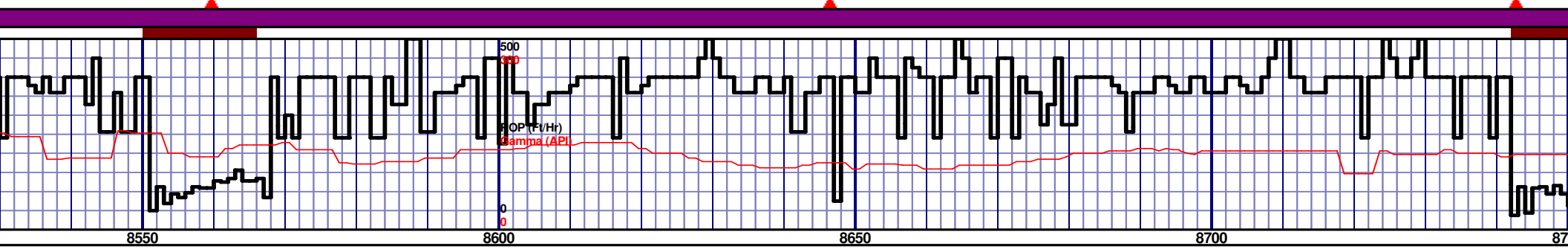
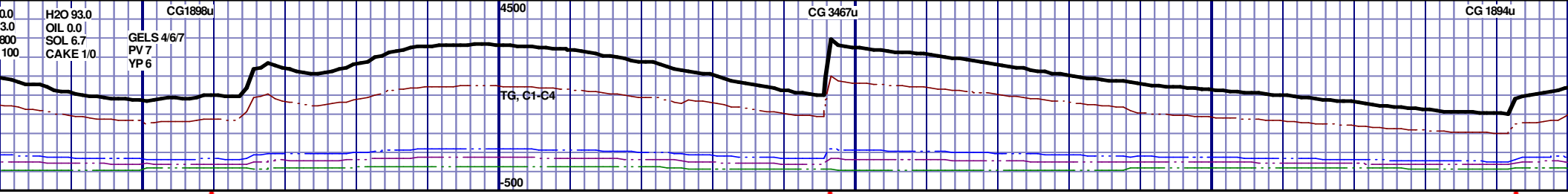
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INC 92.99 AZ 268.71  
VS 1534.43

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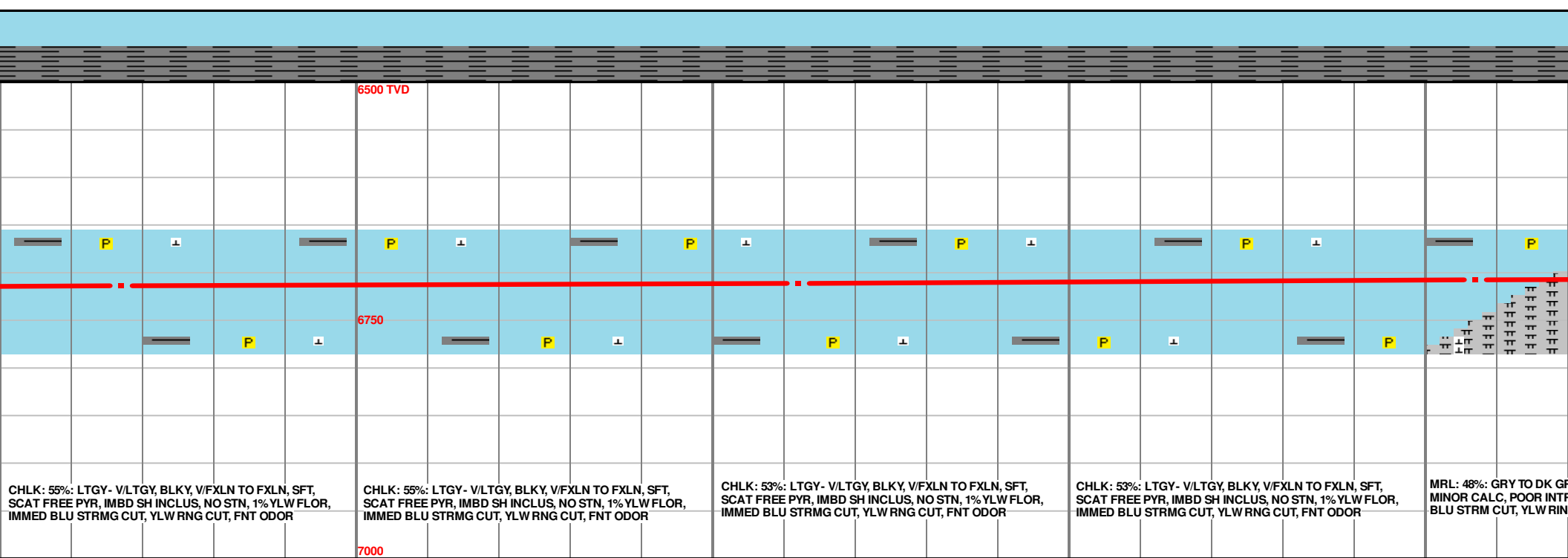
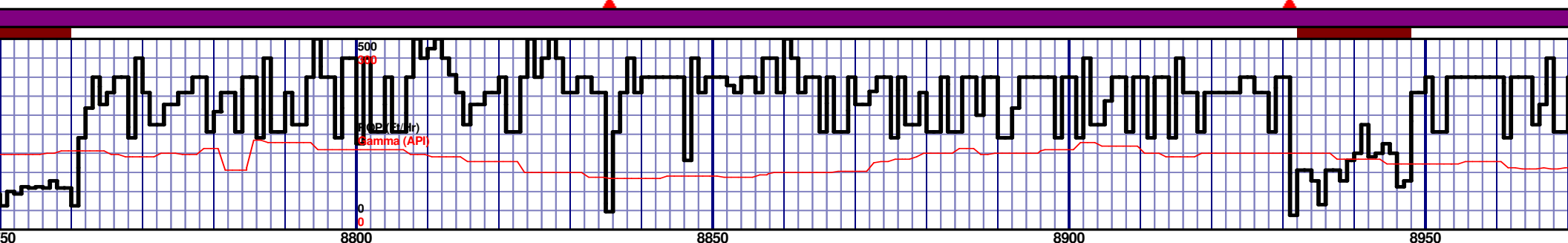
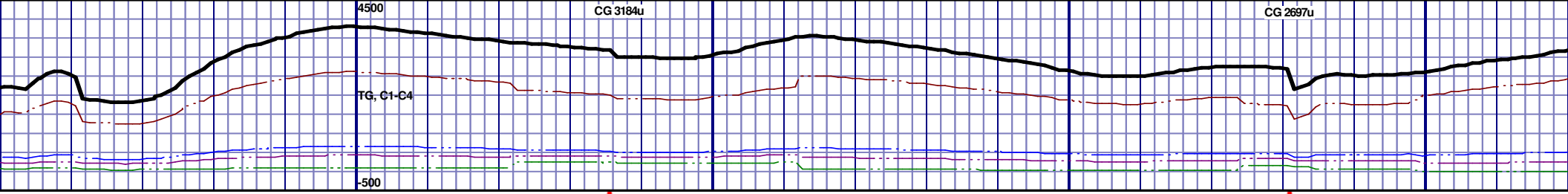






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INC 91.57 AZ 270.85  
VS 2289.62

MD 8672 TVD 6717  
INC 92.74 AZ 270.21  
VS 2384.04



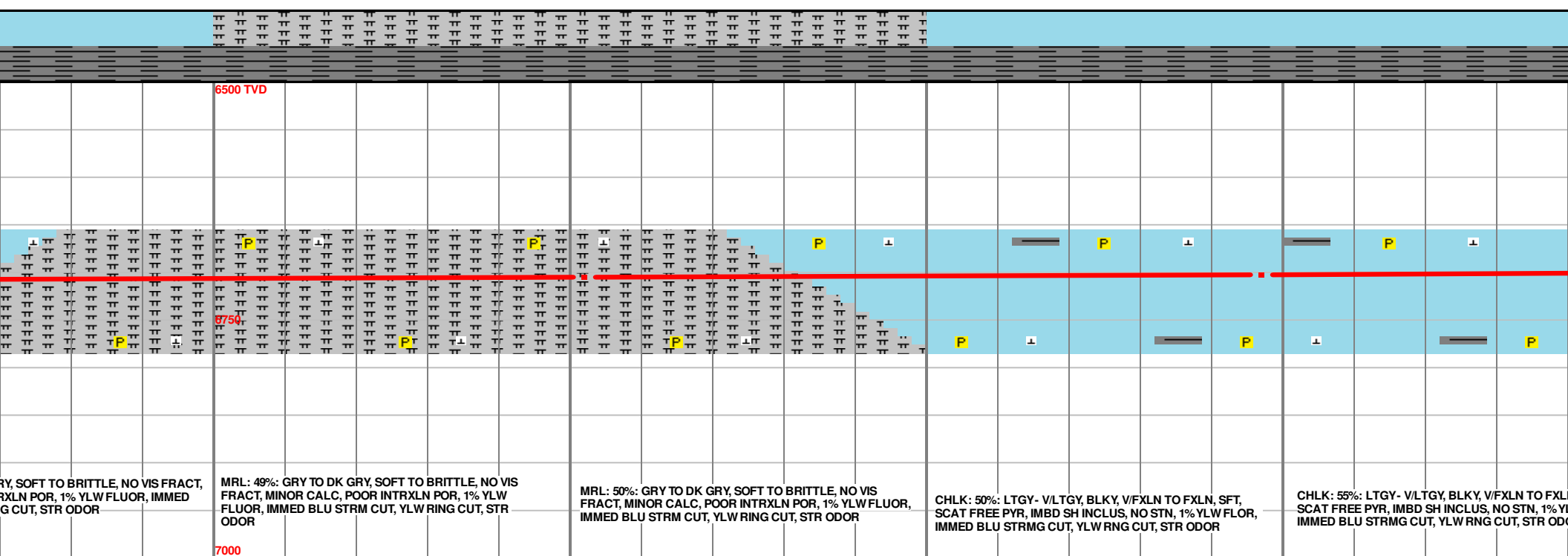
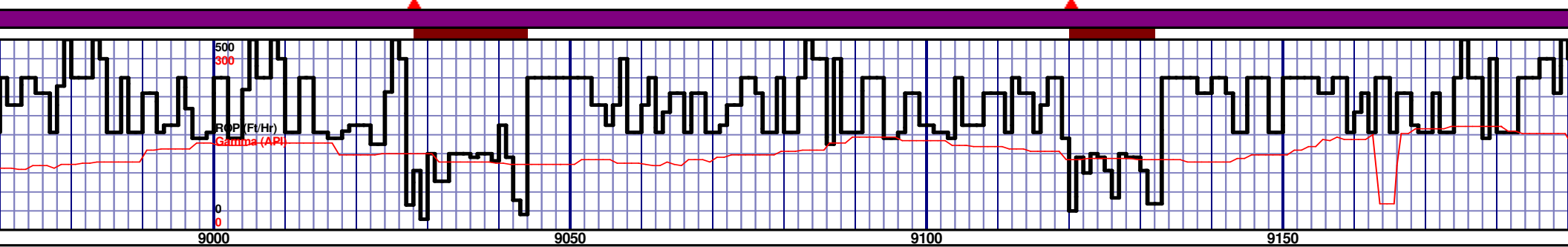
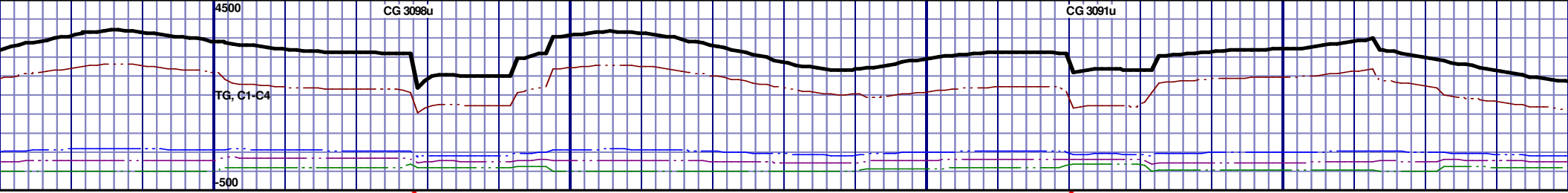
CHLK: 55%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT, SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR, IMMED BLU STRMG CUT, YLW RNG CUT, FNT ODOR

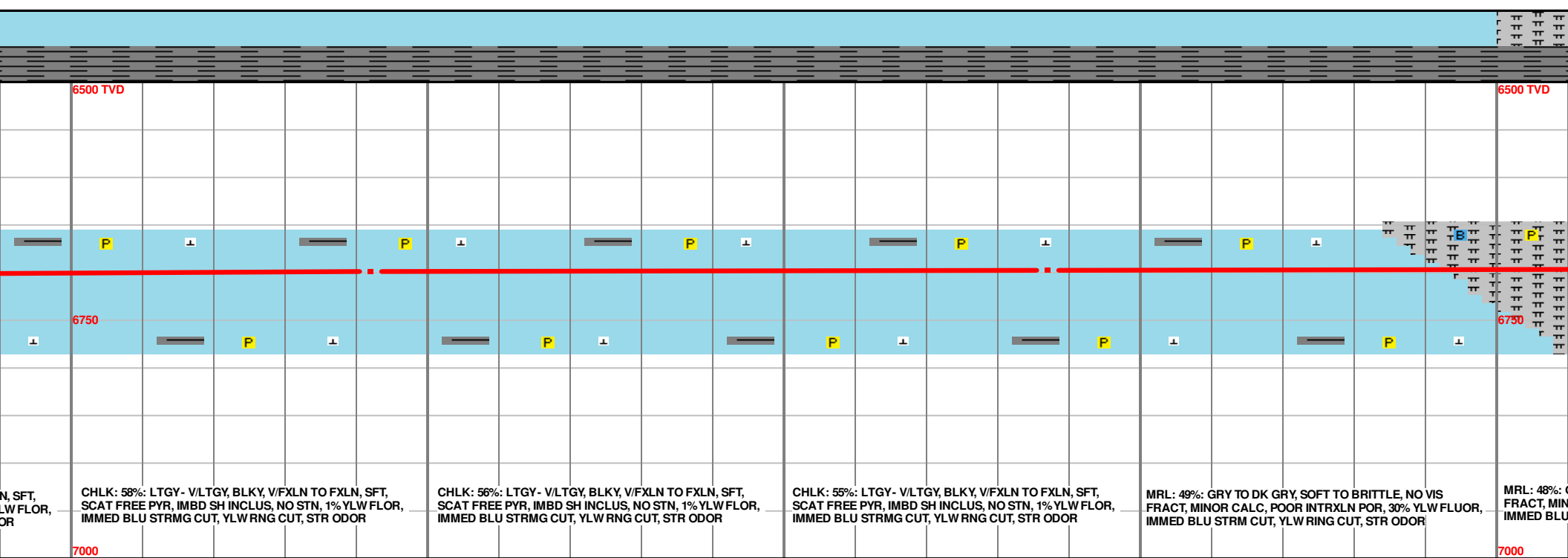
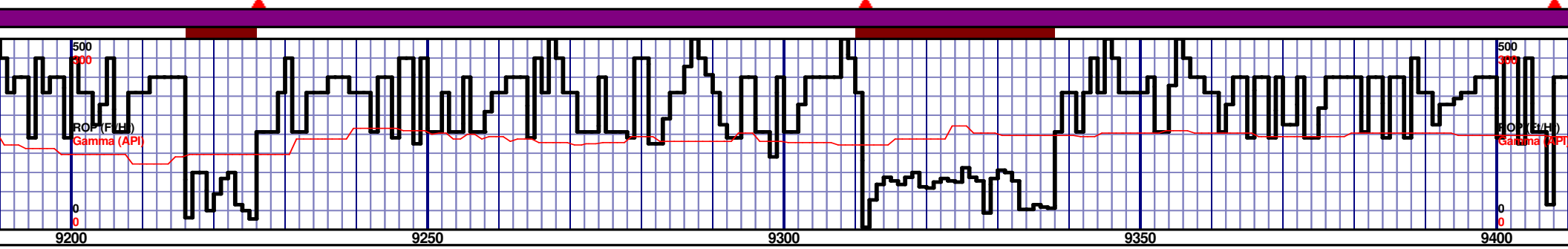
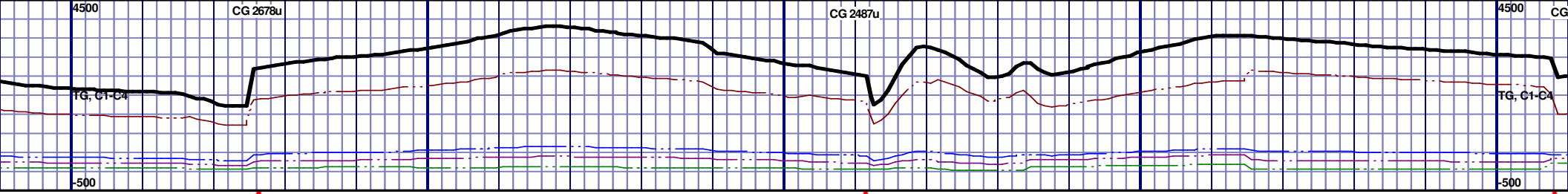
CHLK: 55%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT, SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR, IMMED BLU STRMG CUT, YLW RNG CUT, FNT ODOR

CHLK: 53%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT, SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR, IMMED BLU STRMG CUT, YLW RNG CUT, FNT ODOR

CHLK: 53%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT, SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR, IMMED BLU STRMG CUT, YLW RNG CUT, FNT ODOR

MRL: 48%: GRY TO DK GR, MINOR CALC, POOR INT, BLU STRMG CUT, YLW RNG





N, SFT,  
LW FLOR,  
OR

CHLK: 58%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT,  
SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR,  
IMMED BLU STRMG CUT, YLW RNG CUT, STR ODOR

CHLK: 56%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT,  
SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR,  
IMMED BLU STRMG CUT, YLW RNG CUT, STR ODOR

CHLK: 55%: LTGY - V/LTGY, BLKY, V/FXLN TO FXLN, SFT,  
SCAT FREE PYR, IMBD SH INCLUS, NO STN, 1% YLW FLOR,  
IMMED BLU STRMG CUT, YLW RNG CUT, STR ODOR

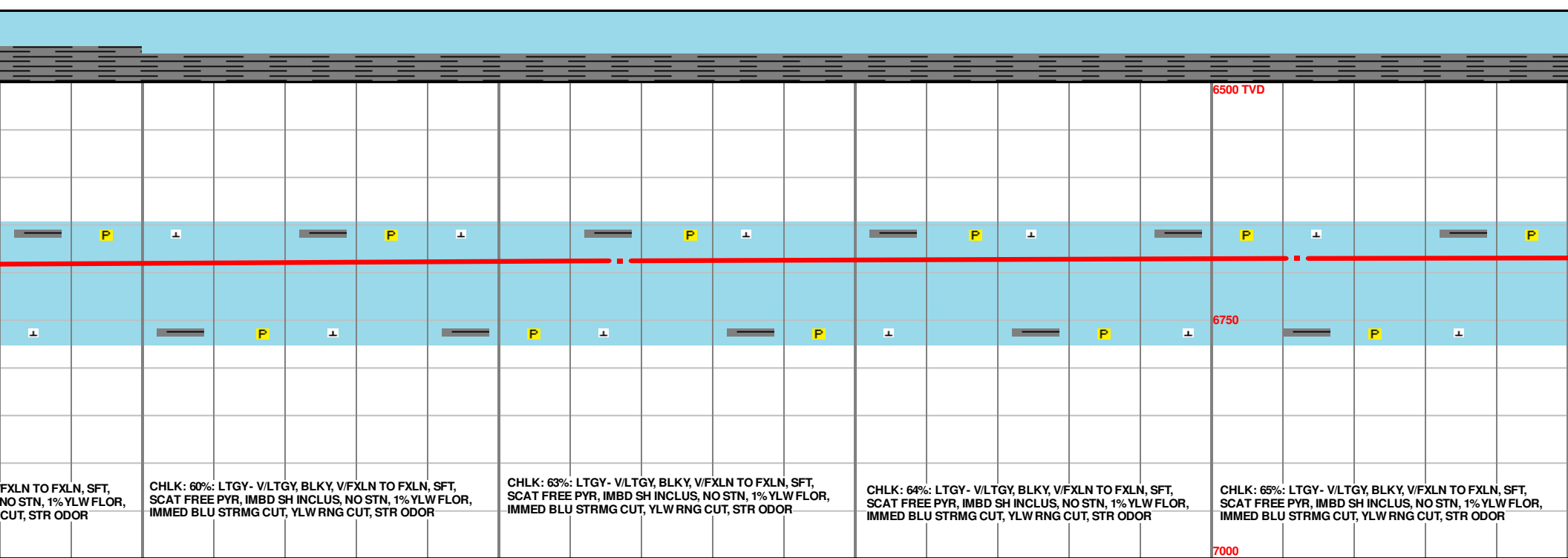
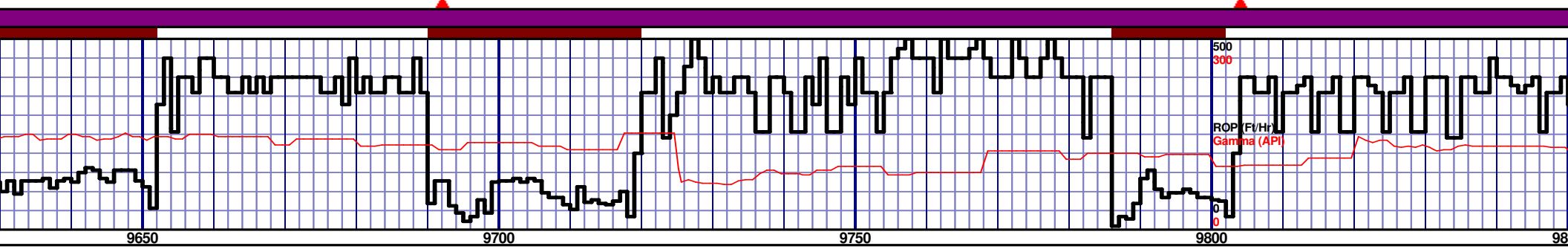
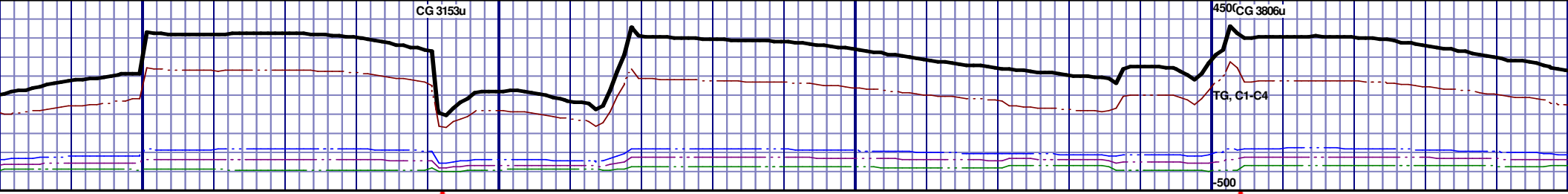
MRL: 49%: GRY TO DK GRY, SOFT TO BRITTLE, NO VIS  
FRACT, MINOR CALC, POOR INTRXLN POR, 30% YLW FLUOR,  
IMMED BLU STRMG CUT, YLW RING CUT, STR ODOR

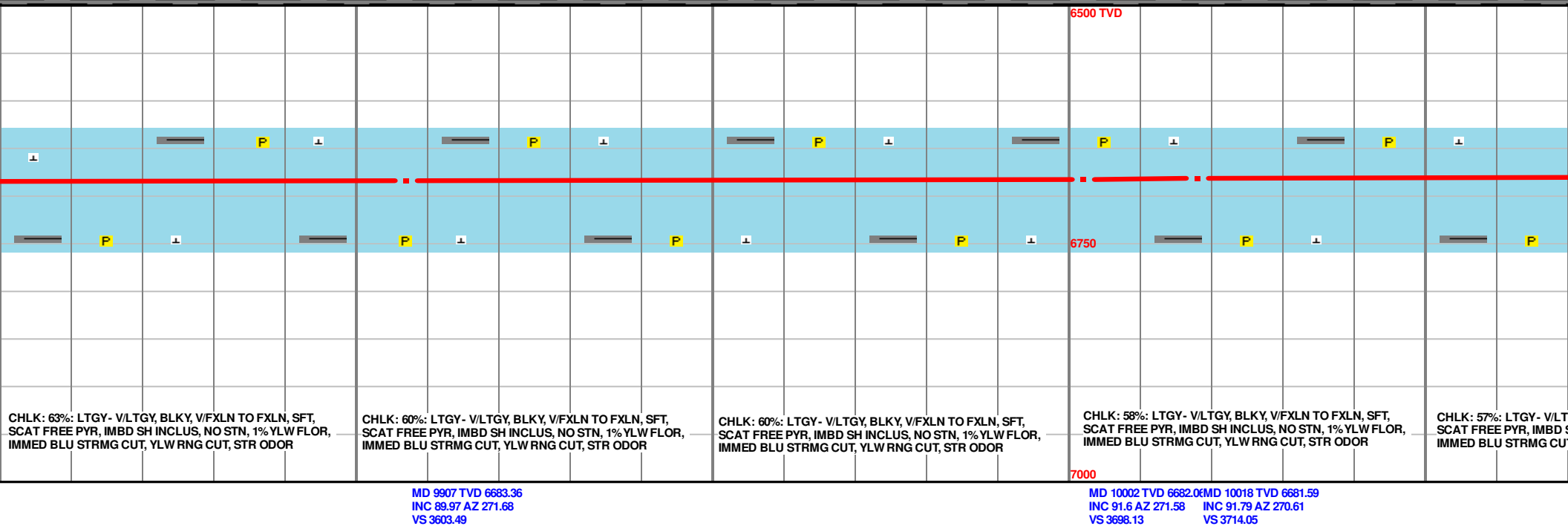
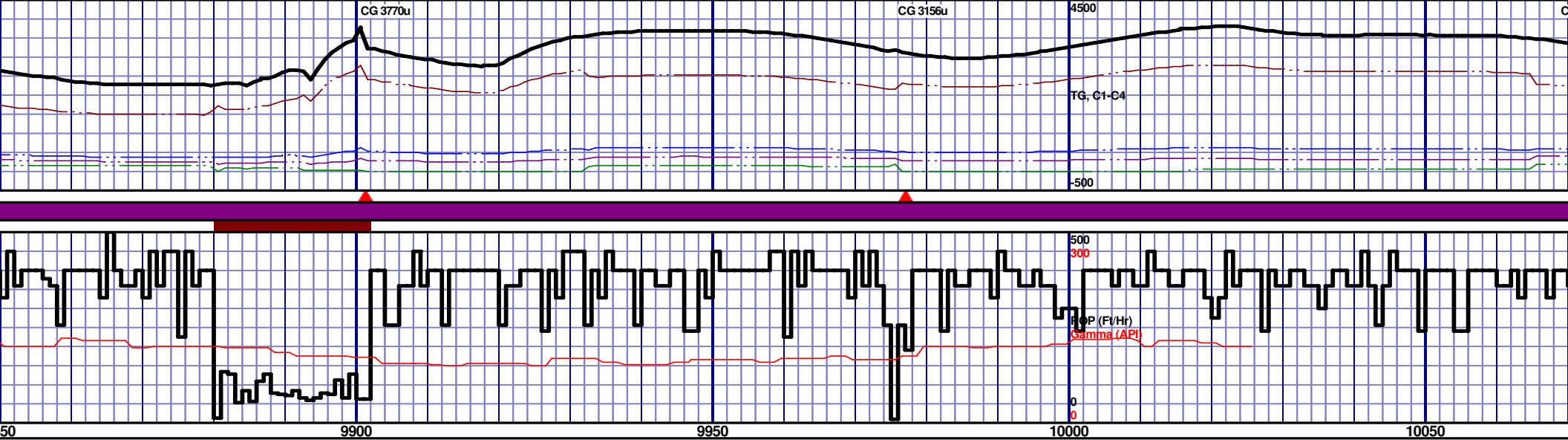
MRL: 48%: GRY TO DK GRY, SOFT TO BRITTLE, NO VIS  
FRACT, MINOR CALC, POOR INTRXLN POR, 30% YLW FLUOR,  
IMMED BLU STRMG CUT, YLW RING CUT, STR ODOR

MD 9242 TVD 6699.12  
INC 91.94 AZ 269.8  
VS 2950.38

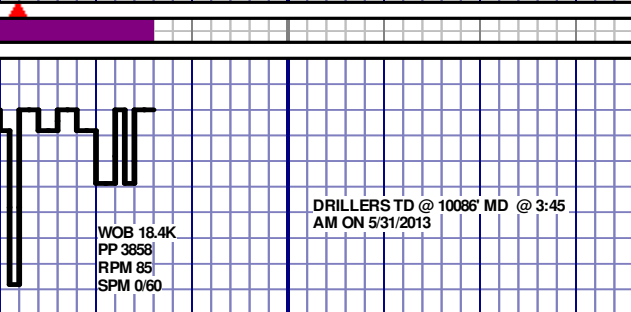
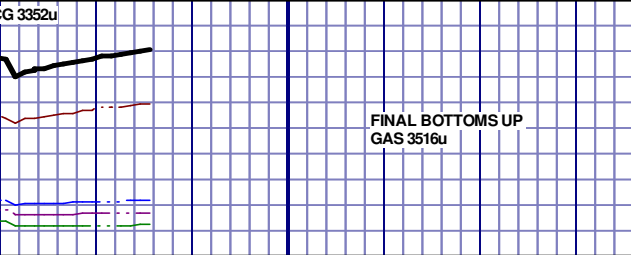
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INC 90.68 AZ 267.64  
VS 3044.46



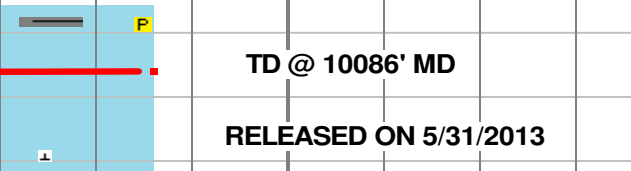








10100



TD @ 10086' MD

RELEASED ON 5/31/2013

THANK YOU FROM  
NIKKI GRABER, PETER  
BROWN, AND  
HORIZON WELL  
LOGGING, LLC

GY, BLKY, V/FXLN TO FXLN, SFT,  
SH INCLUS, NO STN, 1% YLW FLOR,  
T, YLW RNG CUT, STR ODOR