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#### Customer Information

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

Geologist: **Holly Sell**  
Noble Energy Inc.

#### Mud Logging Details

Logger: **Alec Walker**  
**Marina Lee**  
Log Interval: 6800' MD to 14955' MD  
Start Date: January 12, 2013  
Release Date: January 19, 2013

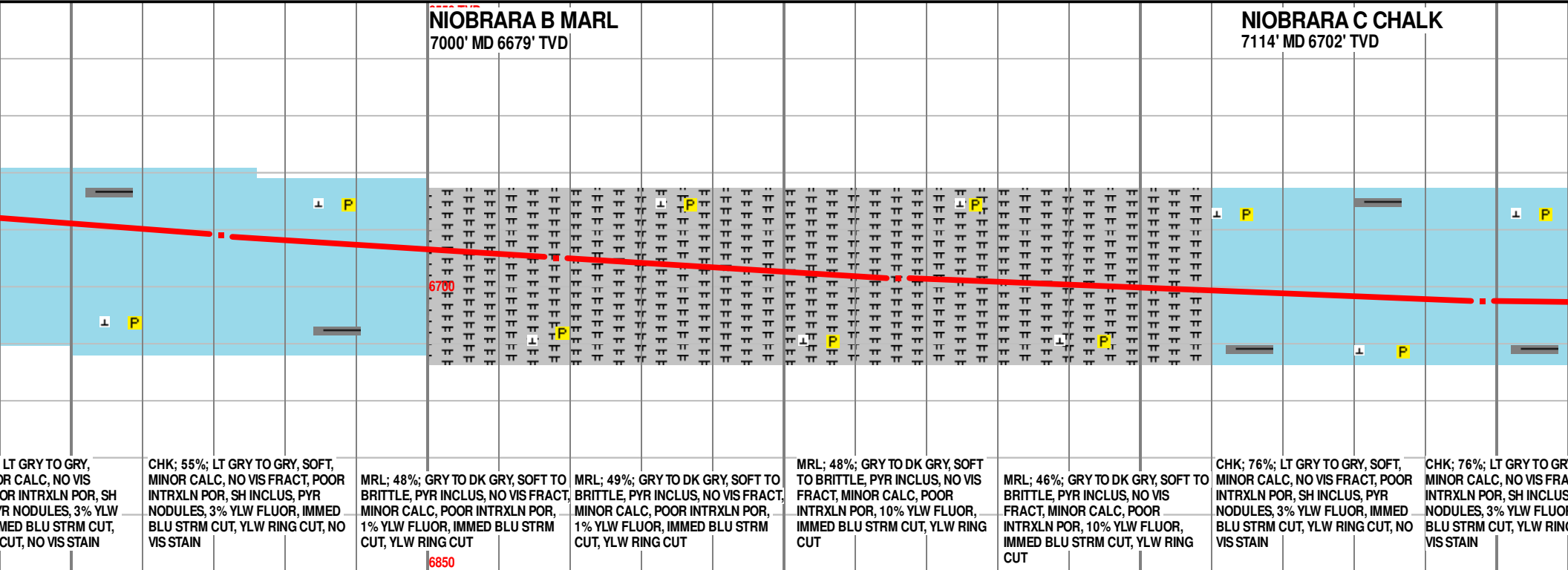
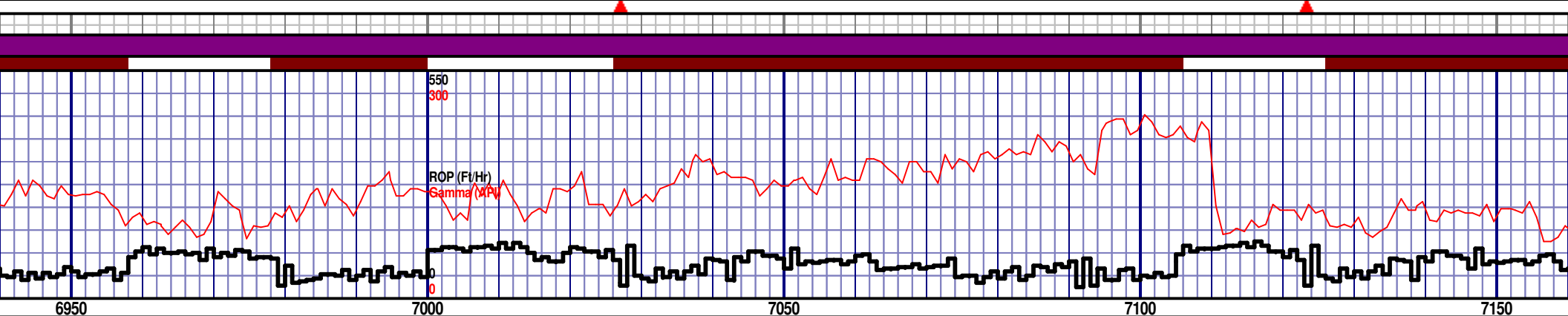
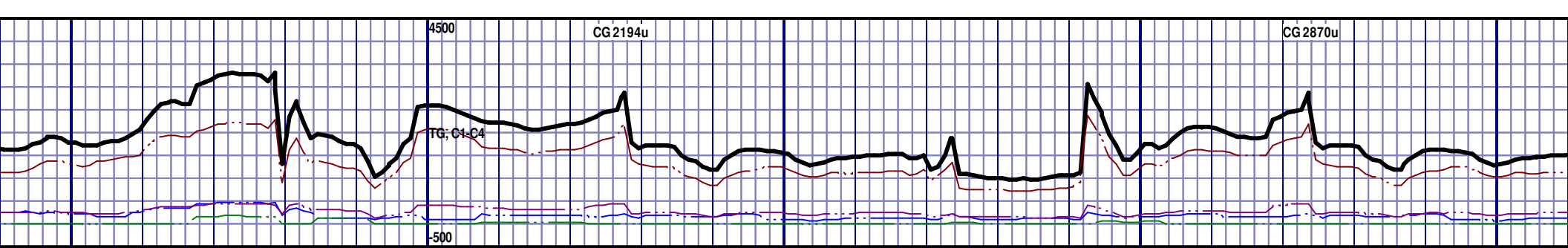
#### Well Information

Well Name: **Wells Ranch State USX**  
**AA16-68-1HNL Horizontal**  
Location: **16-6N-63W**  
577' FNL, 240' FWL

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

Drilling Rig: **H&P 343**  
Total Depth: **14955' MD**  
TD Date: **January 18, 2013**  
Formation: **Niobrara C Chalk**  
KB Elevation: **4803'**  
GR Elevation: **4779'**  
API Number: **05-123-36183**





LT GRY TO GRY, OR CALC, NO VIS INTRXLN POR, SH NODULES, 3% YLW MED BLU STRM CUT, NO VIS STAIN

CHK; 55%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 3% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 48%; GRY TO DK GRY, SOFT TO BRITTLE, PYR INCLUS, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT

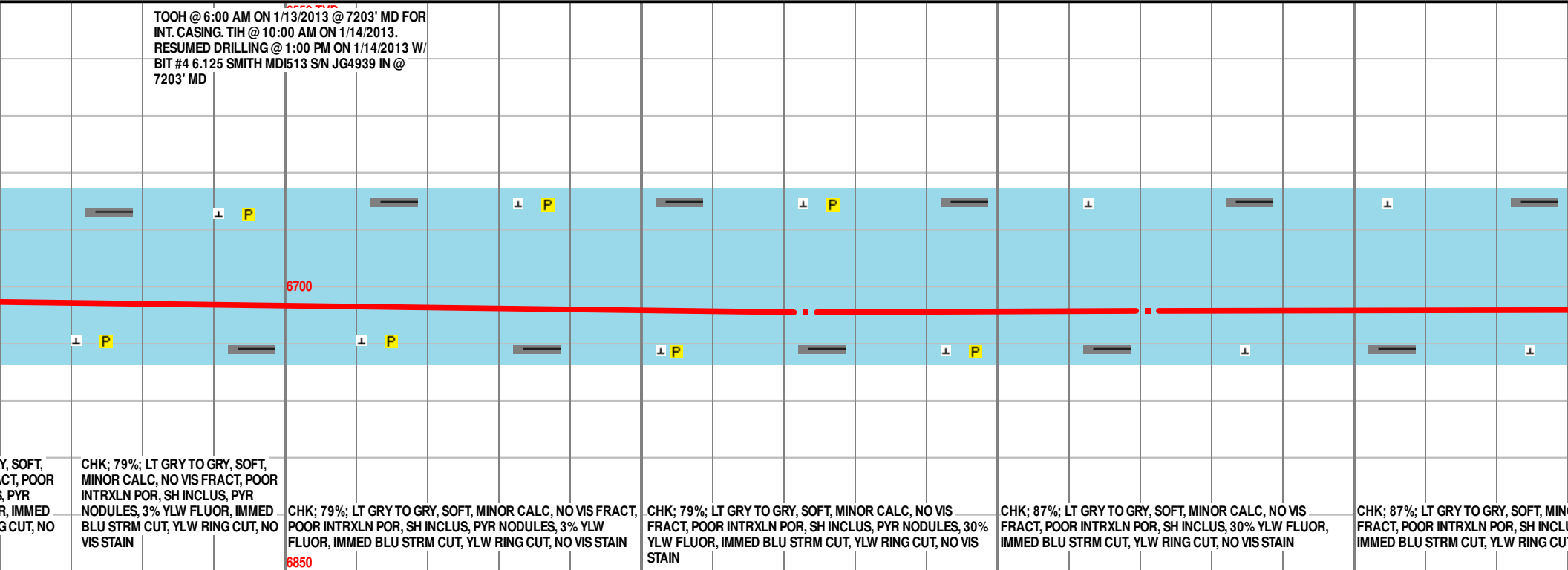
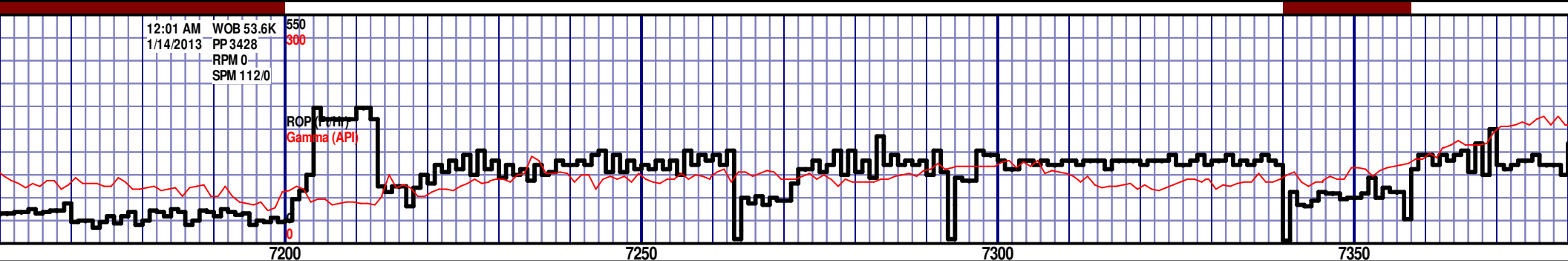
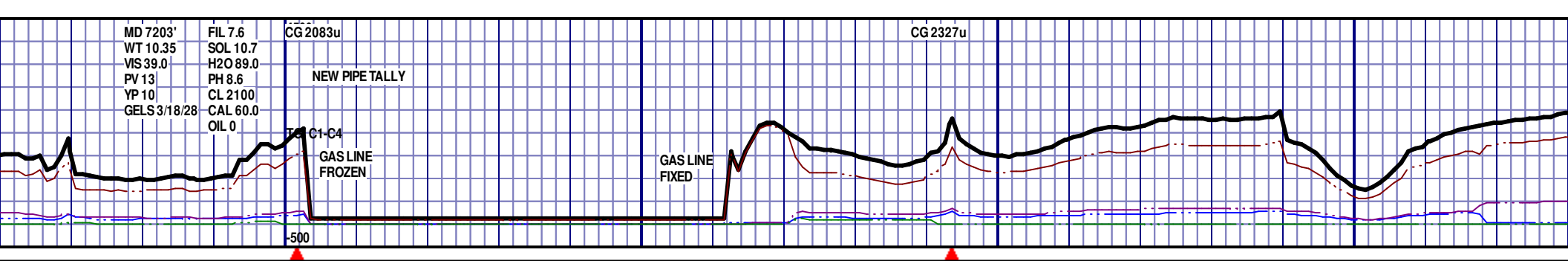
MRL; 49%; GRY TO DK GRY, SOFT TO BRITTLE, PYR INCLUS, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT

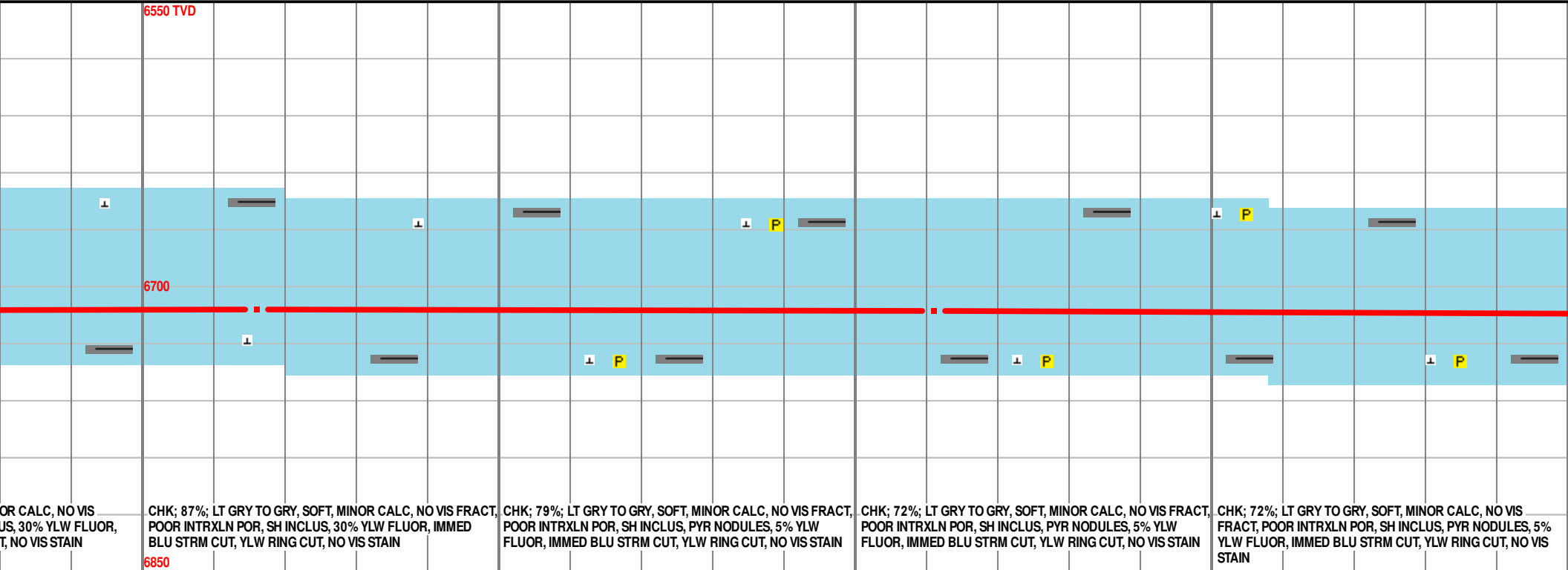
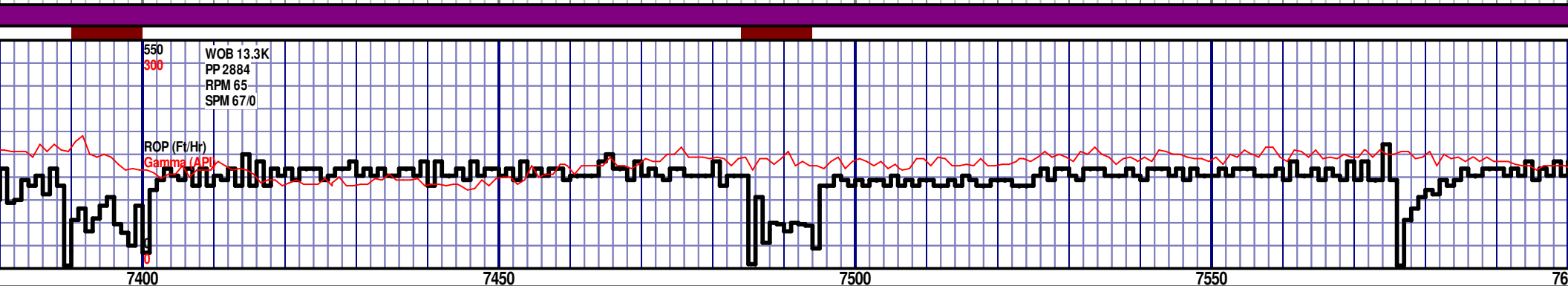
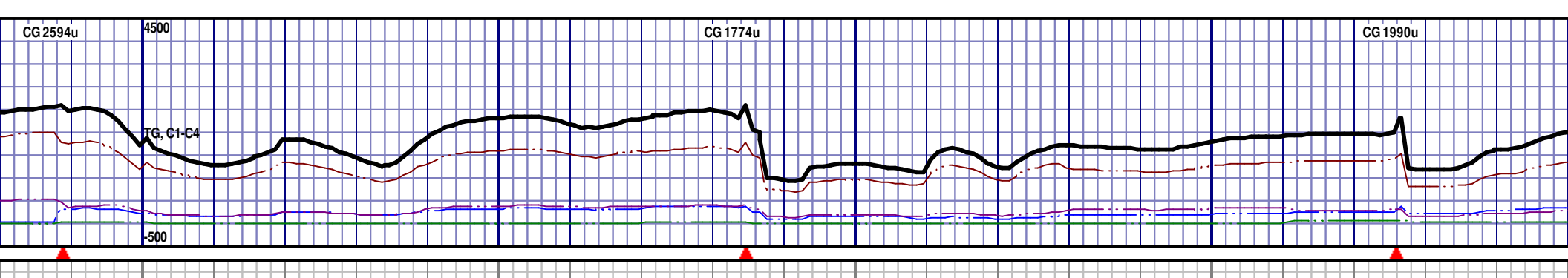
MRL; 48%; GRY TO DK GRY, SOFT TO BRITTLE, PYR INCLUS, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT

MRL; 46%; GRY TO DK GRY, SOFT TO BRITTLE, PYR INCLUS, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 3% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 3% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN





OR CALC, NO VIS  
US, 30% YLW FLUOR,  
T, NO VIS STAIN

CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

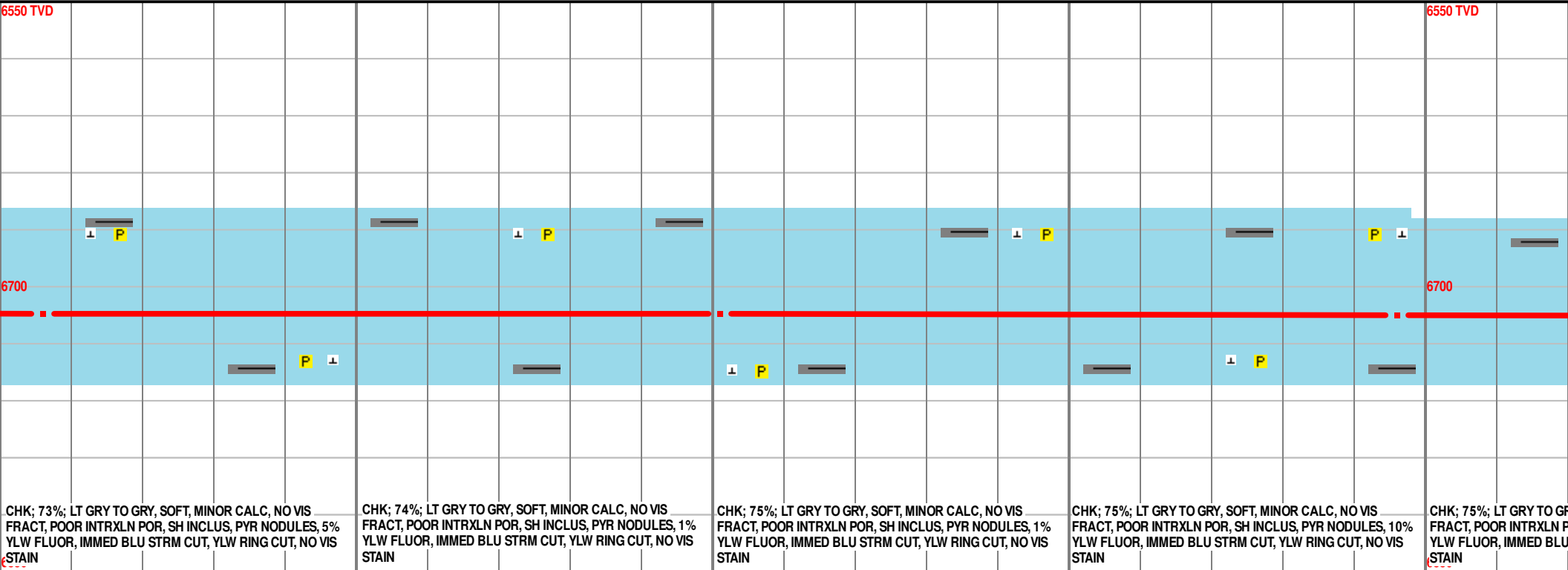
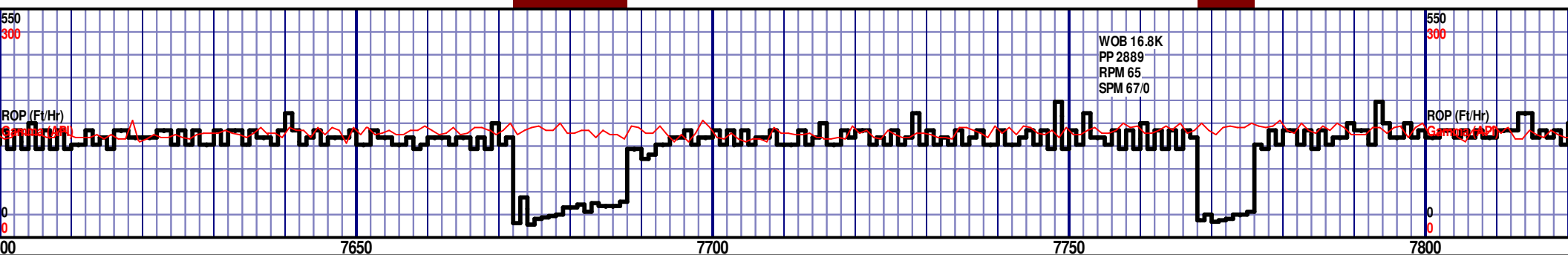
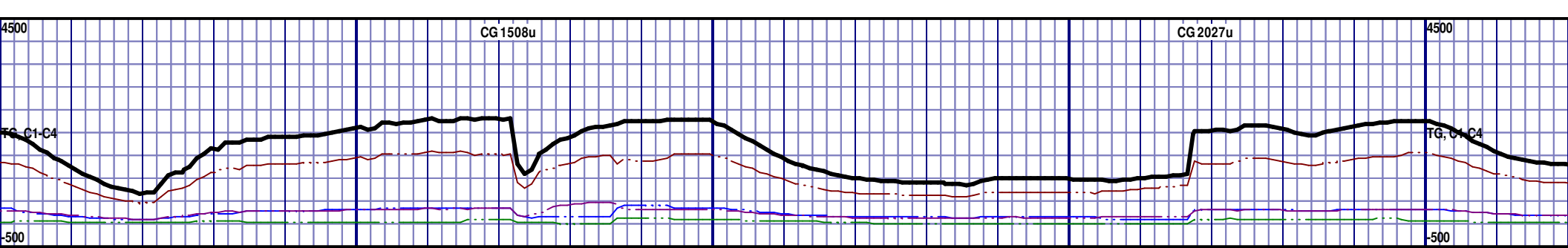
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 5% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 72%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 5% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 72%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 5%  
YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS  
STAIN

MD 7416 TVD 6711.66  
INC 89.54 AZ 268.36  
VS 1268.06

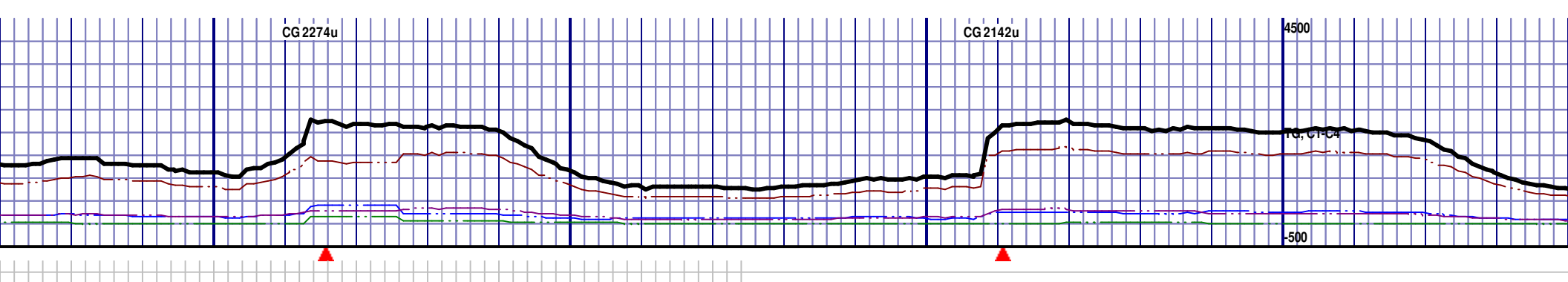
MD 7511 TVD 6712.81  
INC 89.07 AZ 268.93  
VS 1362.96



MD 7606 TVD 6713.93  
INC 89.57 AZ 267.93  
VS 1457.88

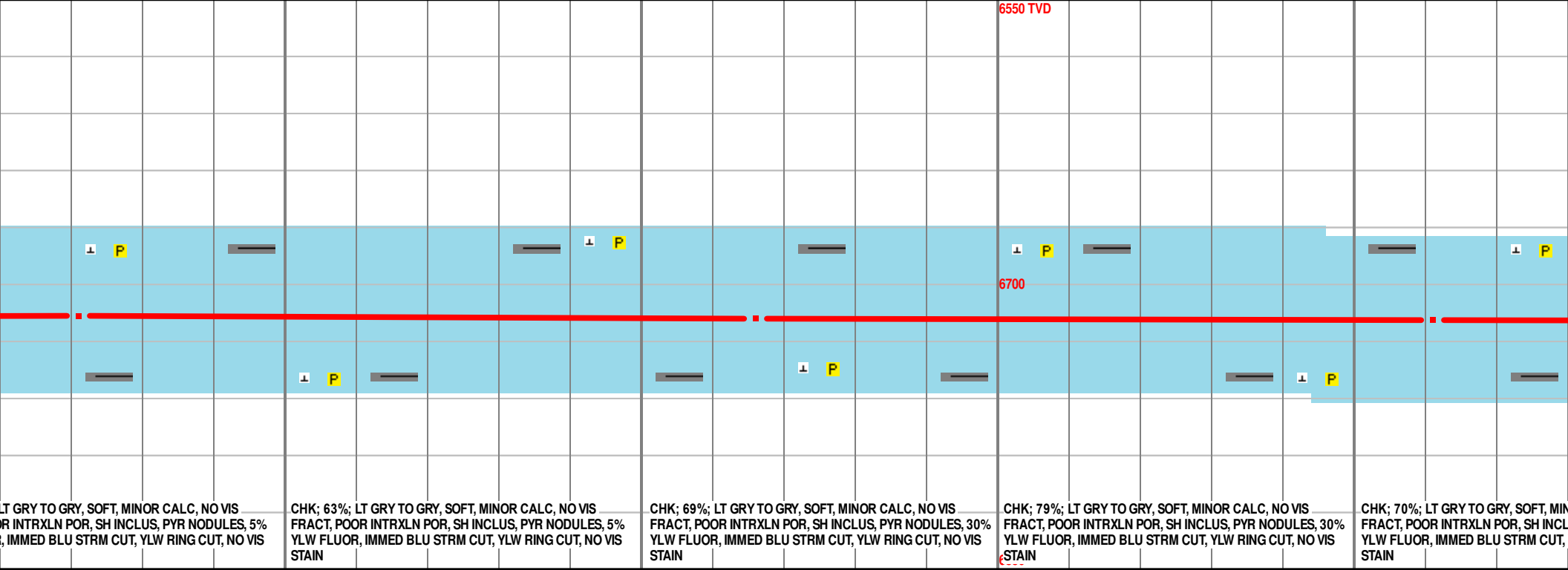
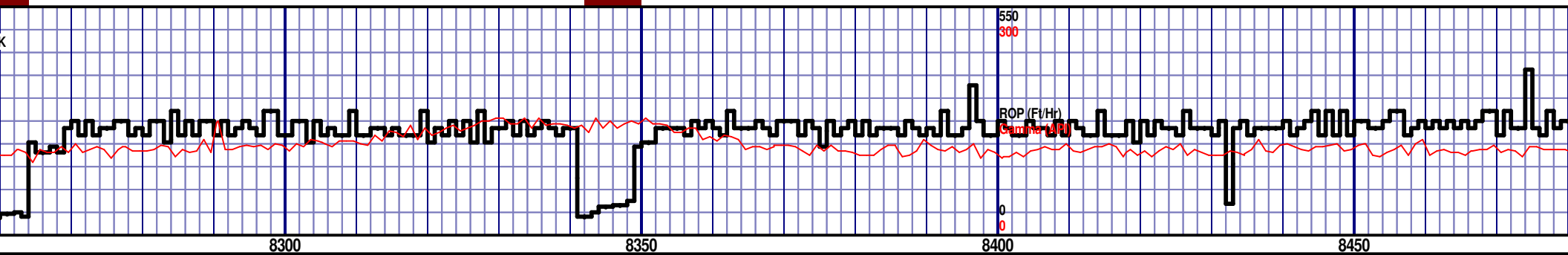
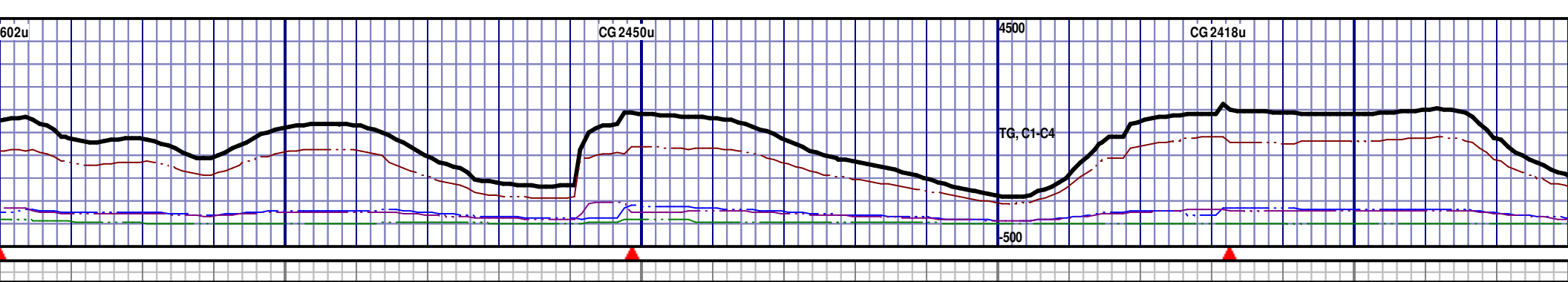
MD 7701 TVD 6714.55  
INC 89.69 AZ 269.56  
VS 1552.77

MD 7796 TVD 6715.19  
INC 89.54 AZ 270.59  
VS 1647.55





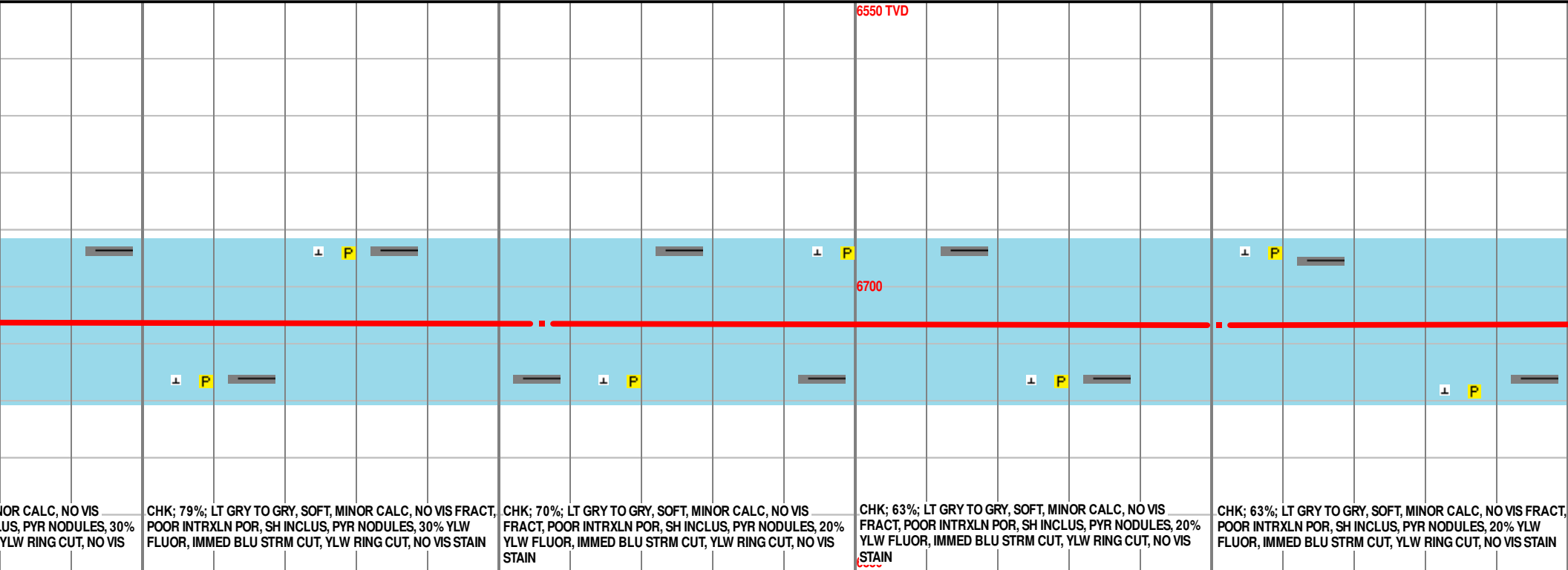
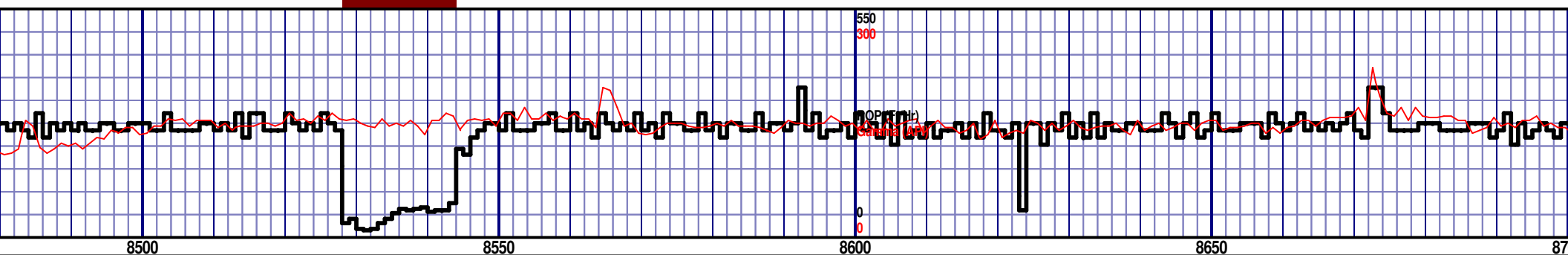
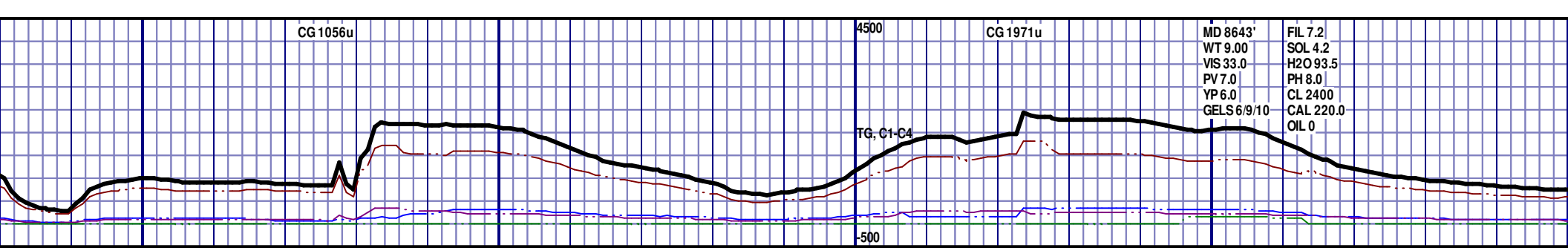




MD 8271 TVD 6716.66  
INC 89.85 AZ 269.41  
VS 2121.26

MD 8366 TVD 6717.66  
INC 88.95 AZ 269.21  
VS 2216.11

MD 8461 TVD 6718.48  
INC 90.06 AZ 269.22  
VS 2310.97



OR CALC, NO VIS  
US, PYR NODULES, 30%  
YLW RING CUT, NO VIS

CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

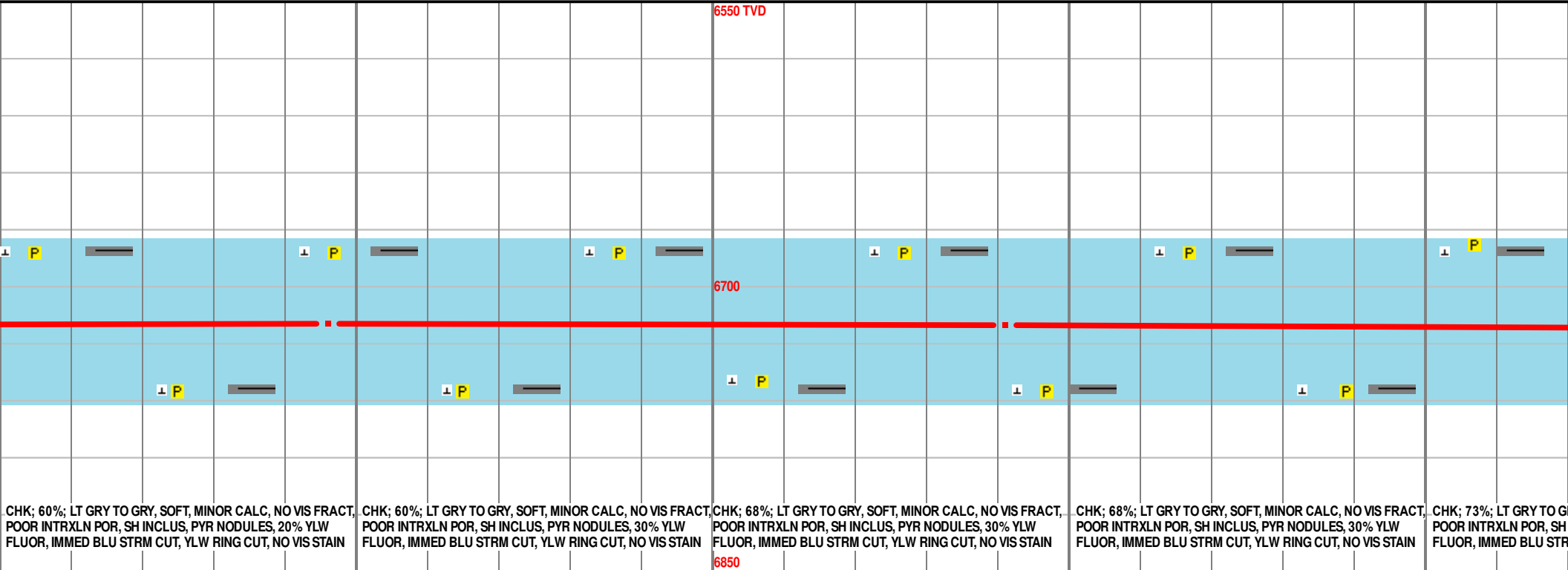
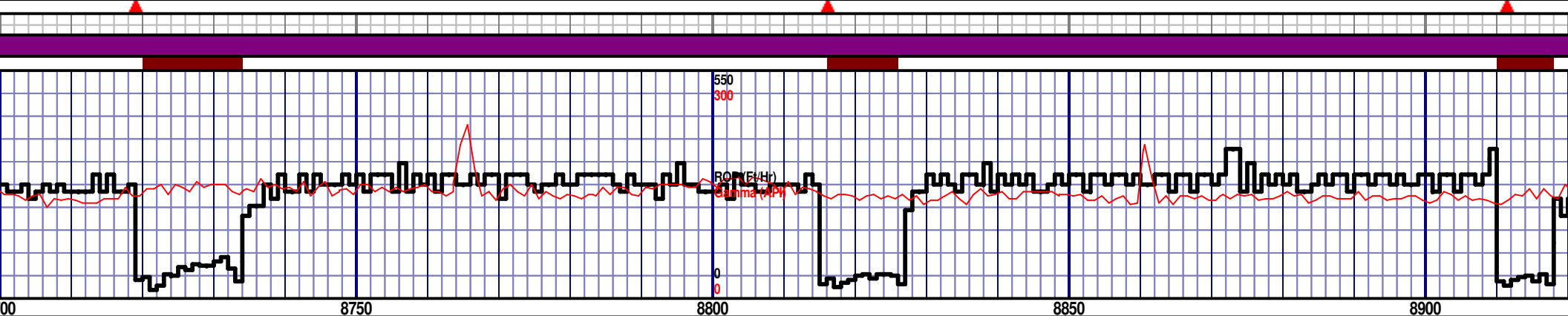
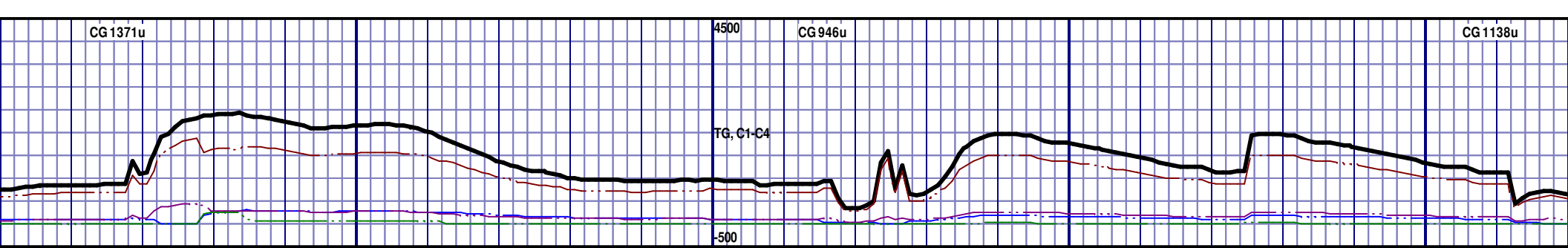
CHK; 70%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20%  
YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS  
STAIN

CHK; 63%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20%  
YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS  
STAIN

CHK; 63%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 8556 TVD 6719.38  
INC 88.86 AZ 269.88  
VS 2405.8

MD 8651 TVD 6719.89  
INC 90.52 AZ 270.59  
VS 2500.55



CHK; 60%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 60%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

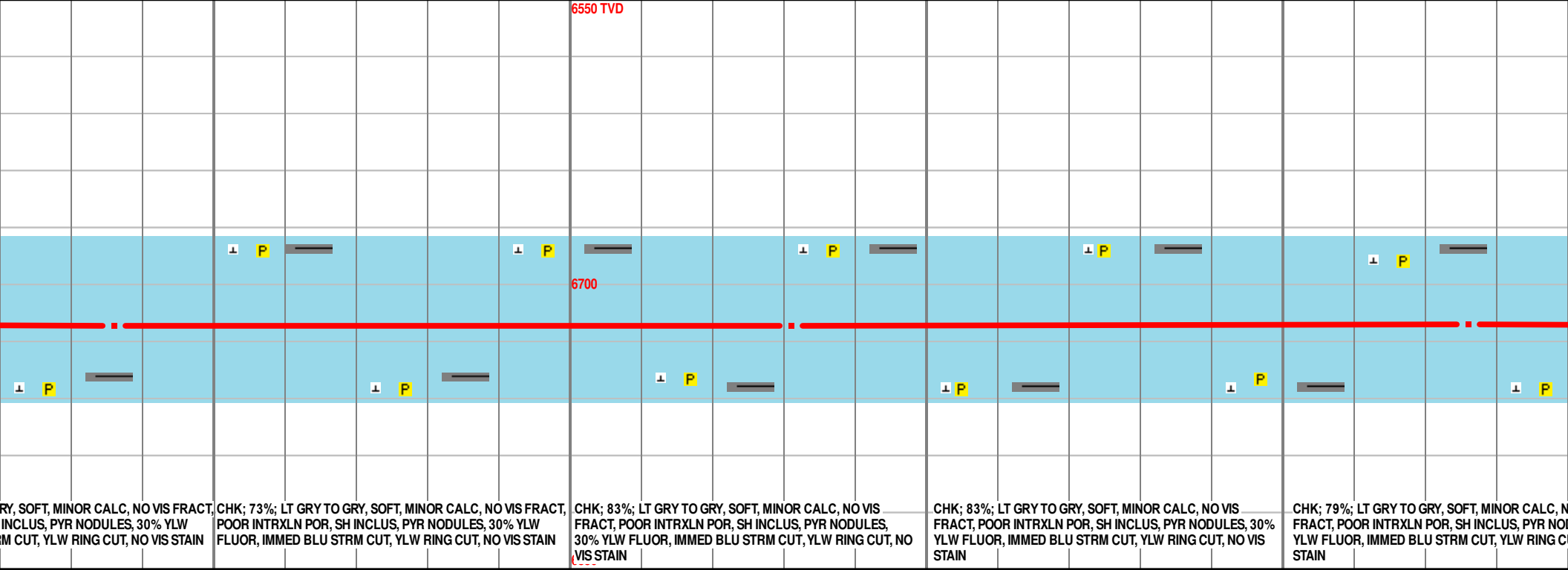
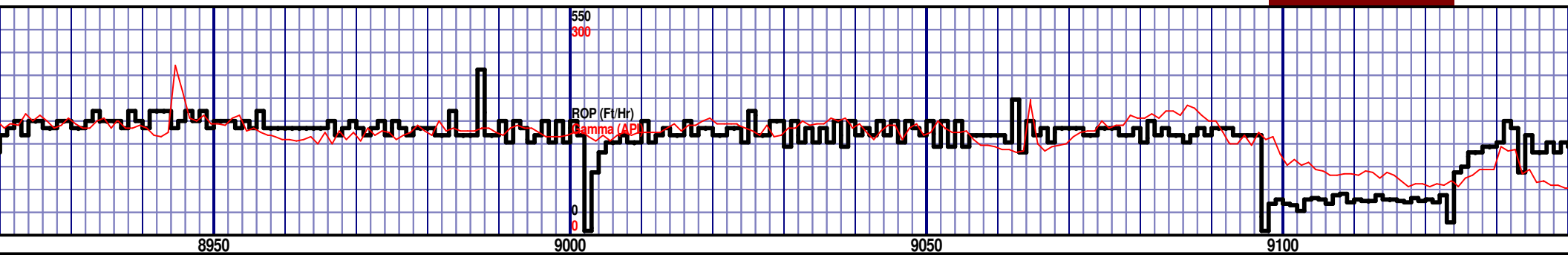
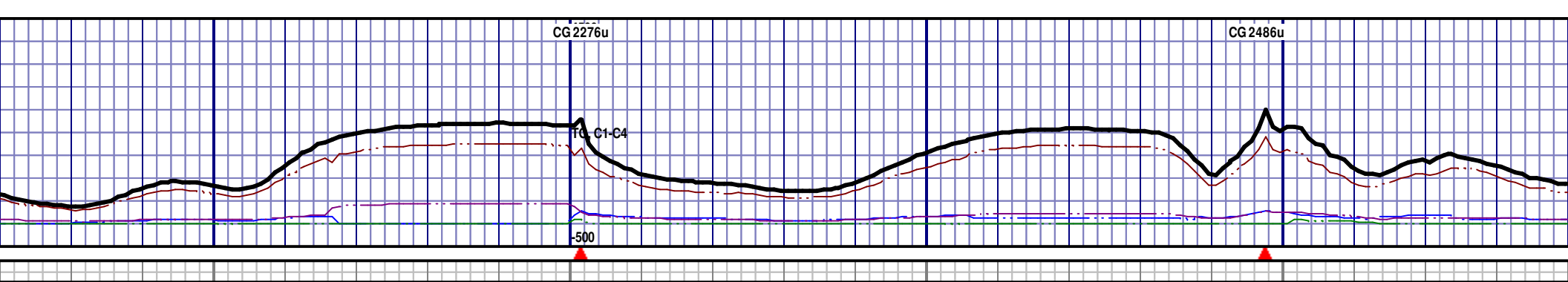
CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 8746 TVD 6719.59  
INC 89.85 AZ 270.21  
VS 2595.29

MD 8841 TVD 6720.12  
INC 89.51 AZ 269.74  
VS 2690.07



RY, SOFT, MINOR CALC, NO VIS FRACT, INCLUS, PYR NODULES, 30% YLW  
IM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

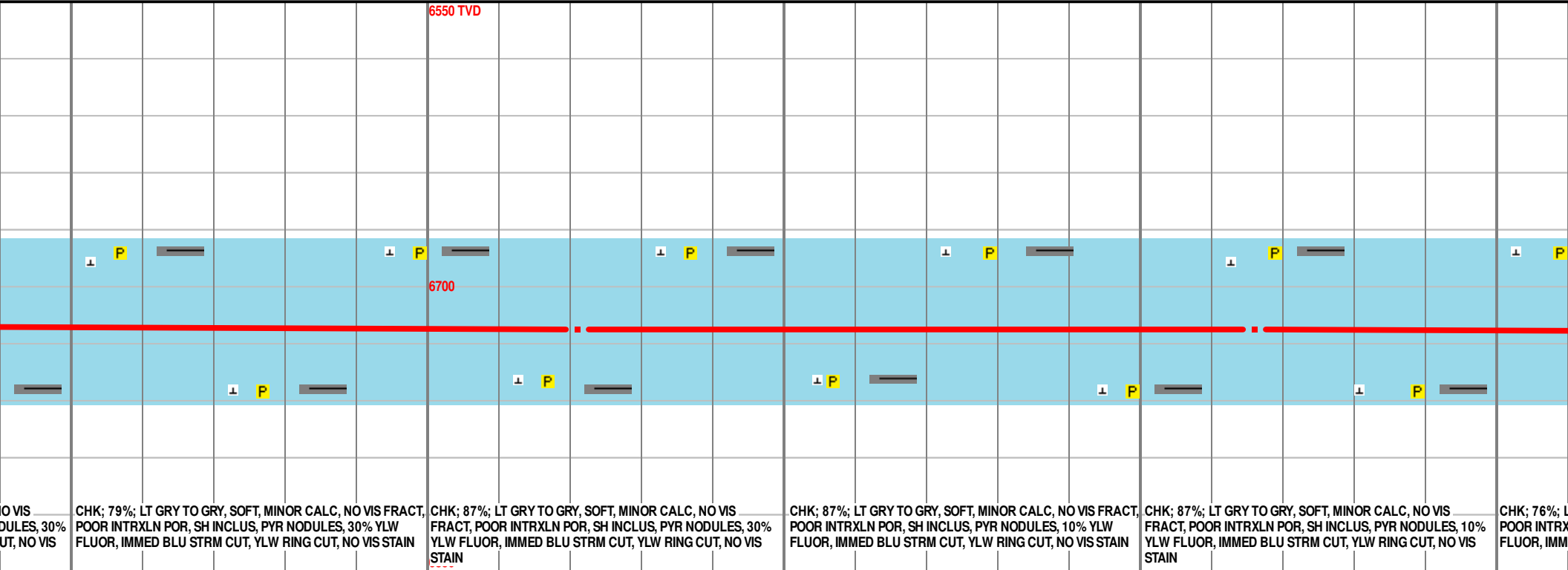
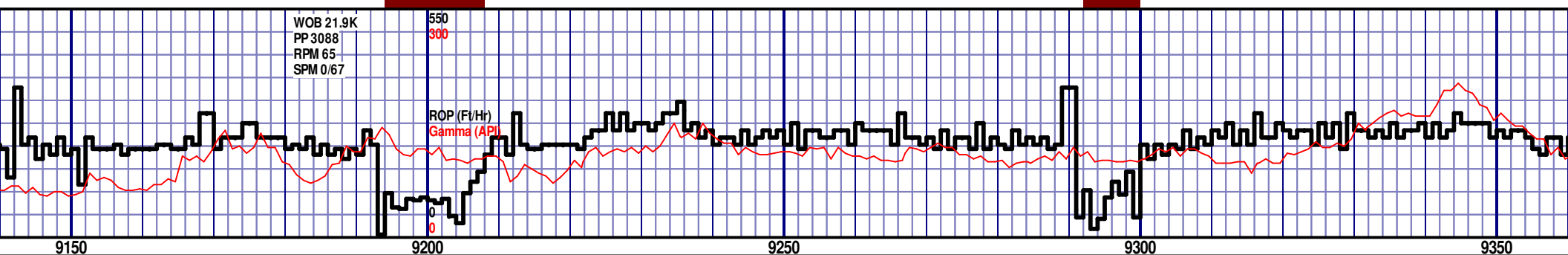
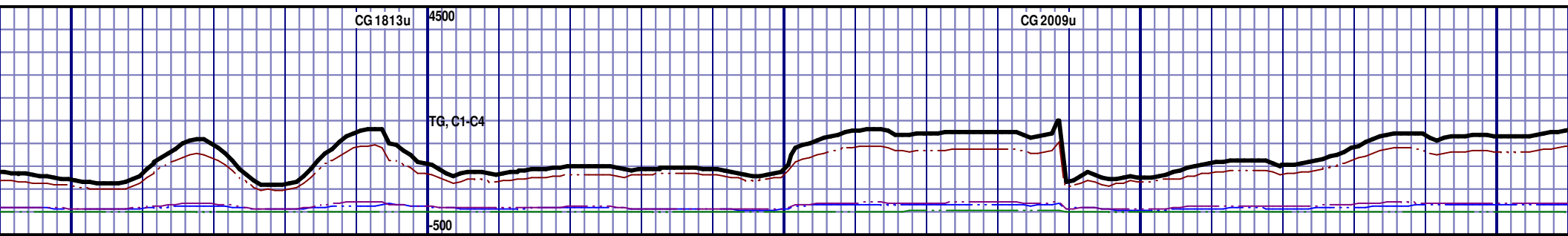
CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

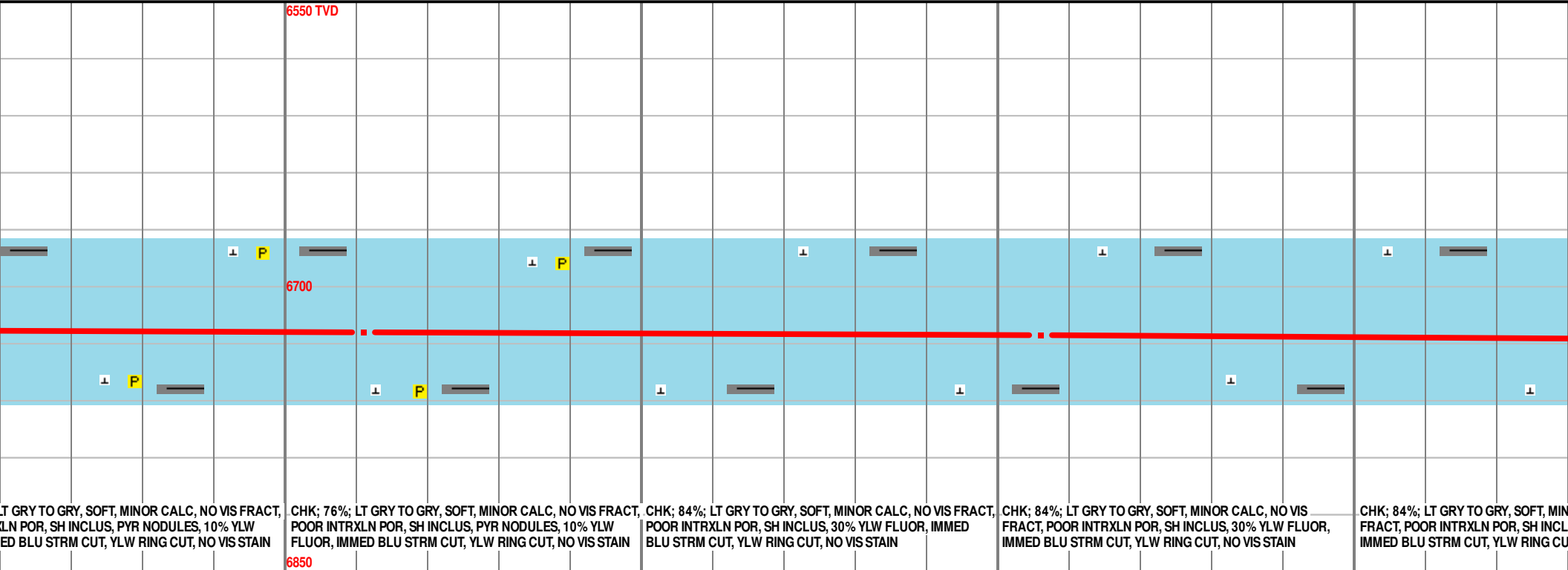
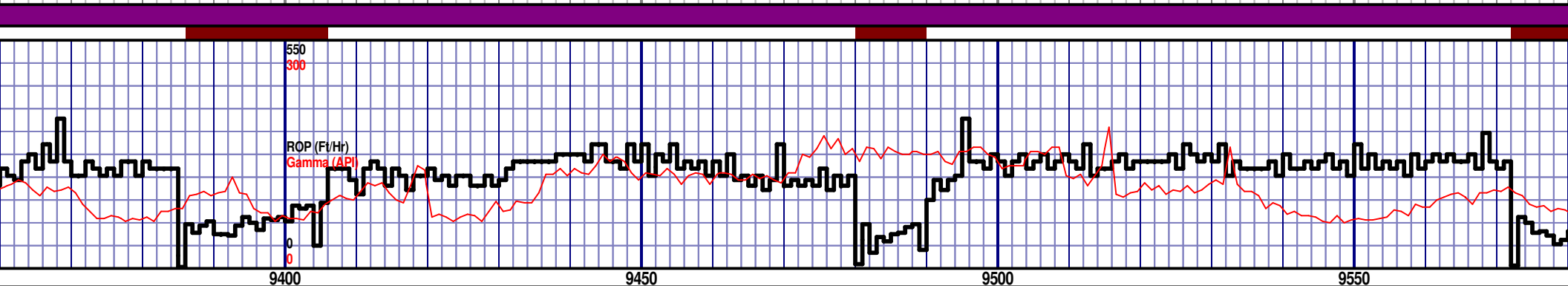
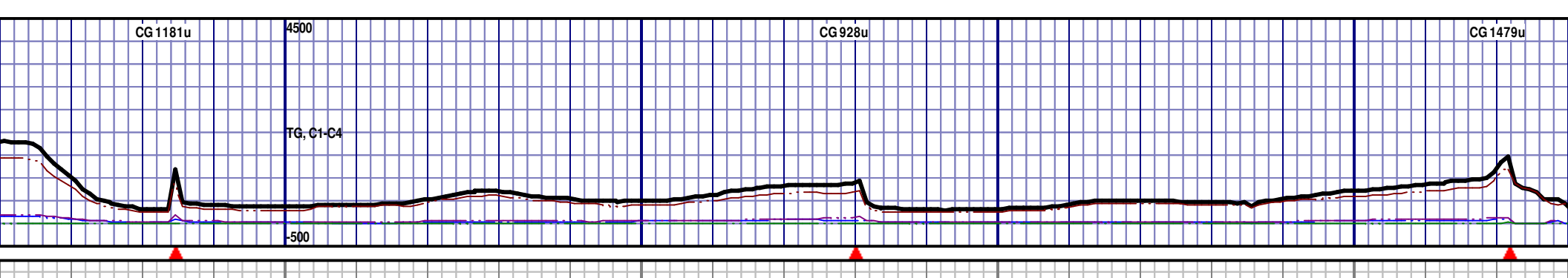
MD 8936 TVD 6721.83  
INC 88.43 AZ 270.18  
VS 2784.85

MD 9031 TVD 6722.01  
INC 91.36 AZ 271.53  
VS 2879.51

MD 9126 TVD 6722.01  
INC 89.54 AZ 268.18  
VS 2974.27



NO VIS ODULES, 30% UT, NO VIS	CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 76%; L POOR INTRXLN FLUOR, IMM
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LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
LN POR, SH INCLUS, PYR NODULES, 10% YLW  
ED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

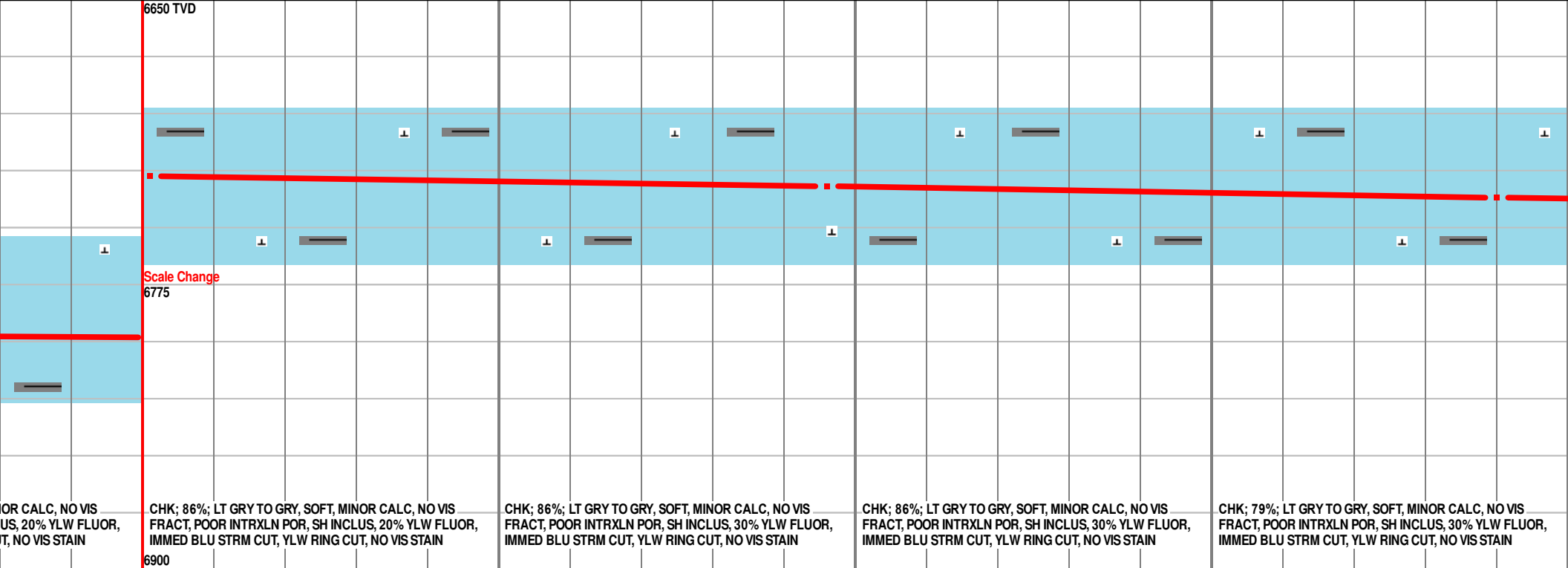
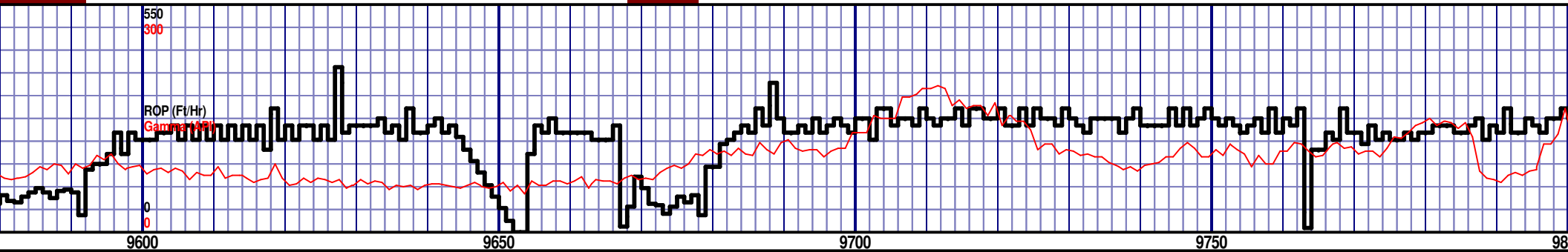
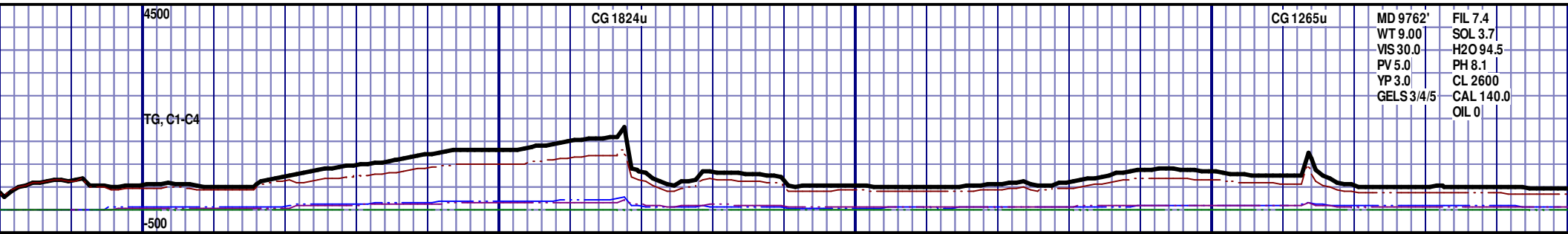
CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 9411 TVD 6723.78  
INC 88.8 AZ 267.78  
VS 3259.03

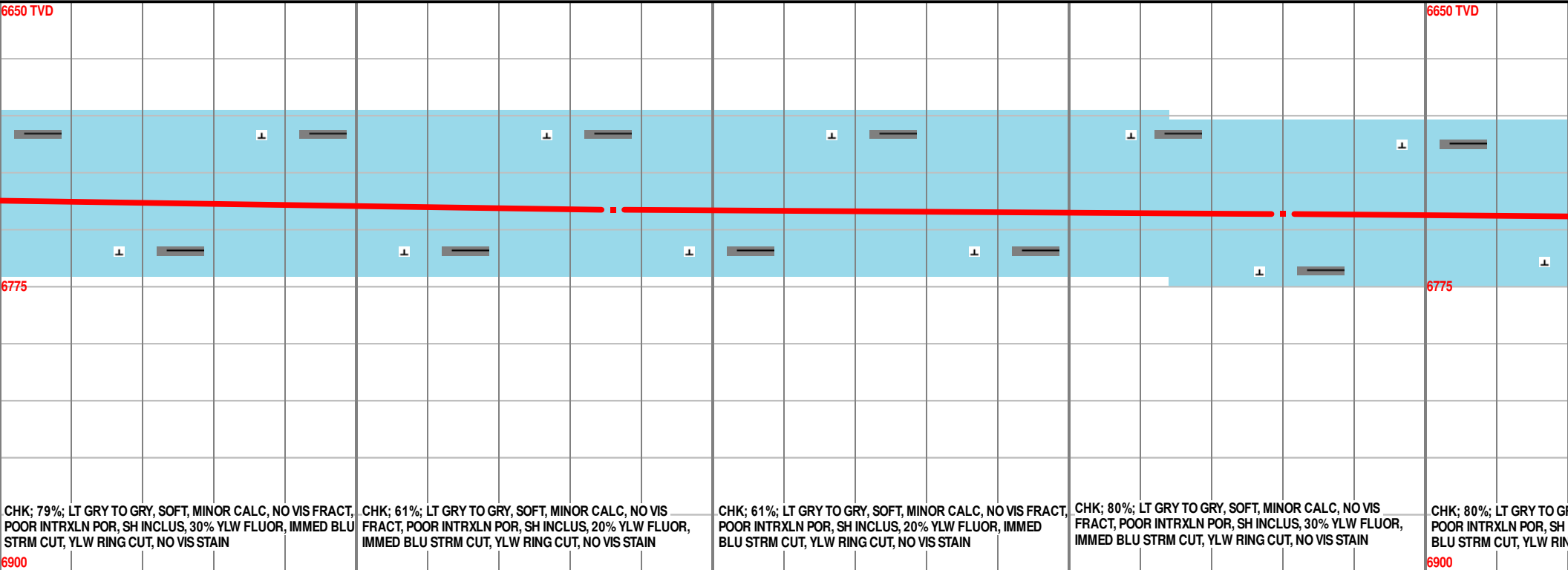
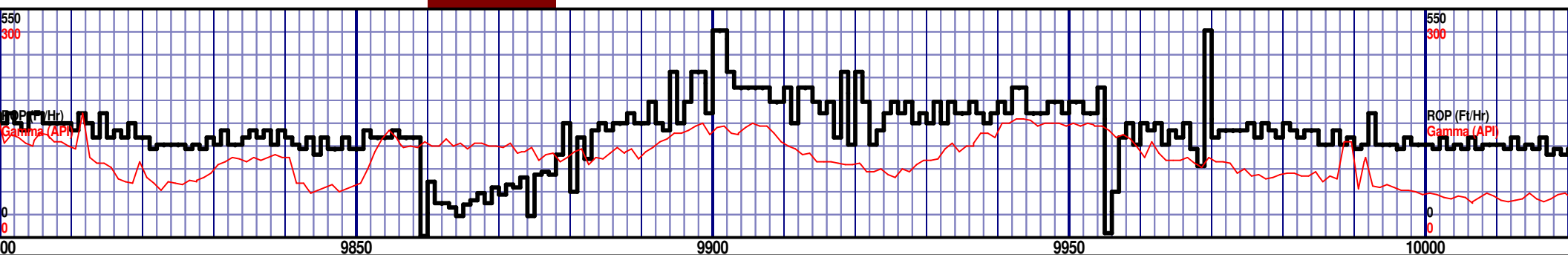
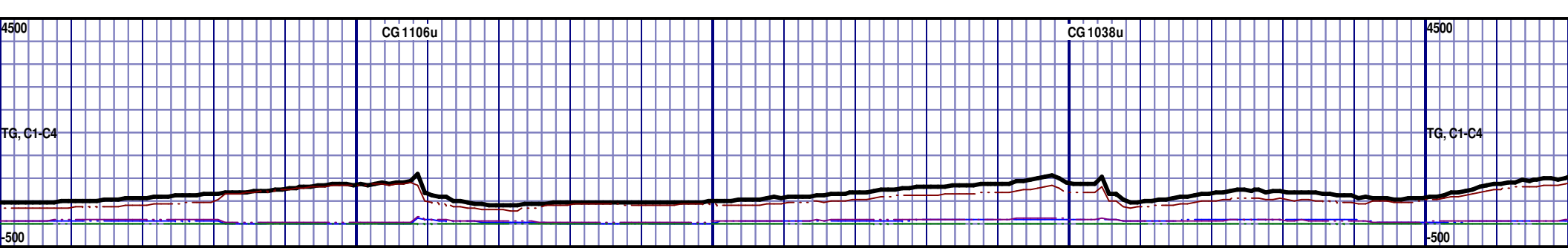
MD 9506 TVD 6725.44  
INC 89.2 AZ 268.31  
VS 3353.96



MD 9601 TVD 6727.74  
INC 88.03 AZ 268.64  
VS 3448.85

MD 9696 TVD 6731.81  
INC 87.07 AZ 269.06  
VS 3543.66

MD 9790 TVD  
INC 86.45 AZ  
VS 3637.39



CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

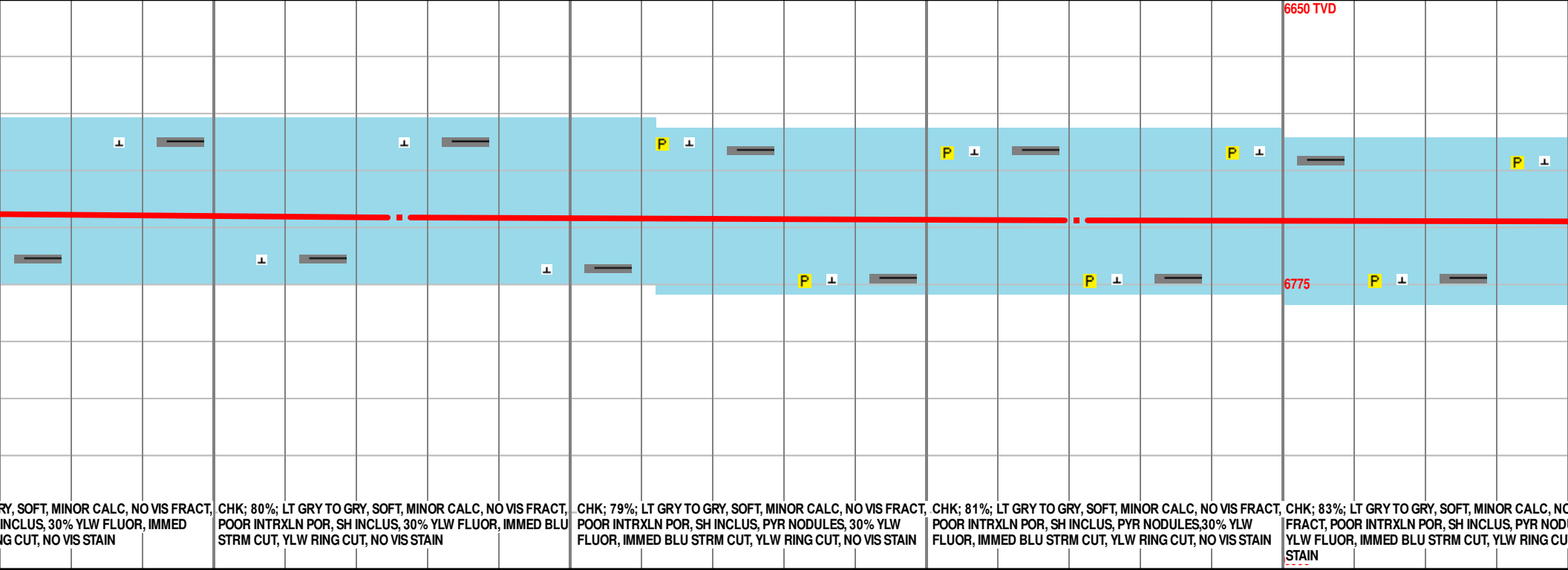
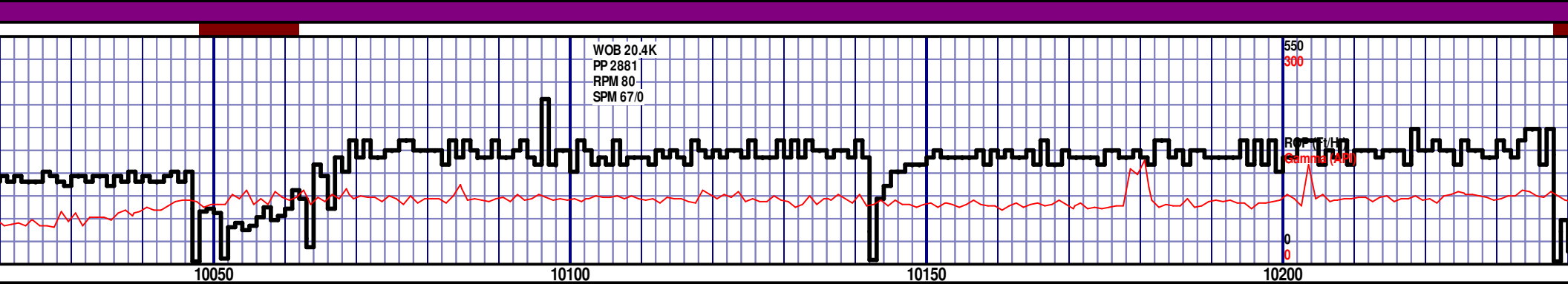
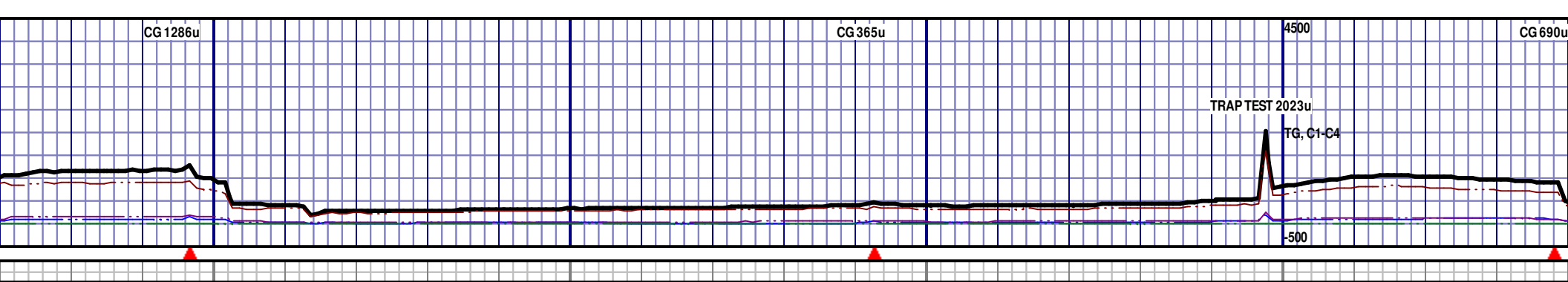
CHK; 61%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 61%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 80%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

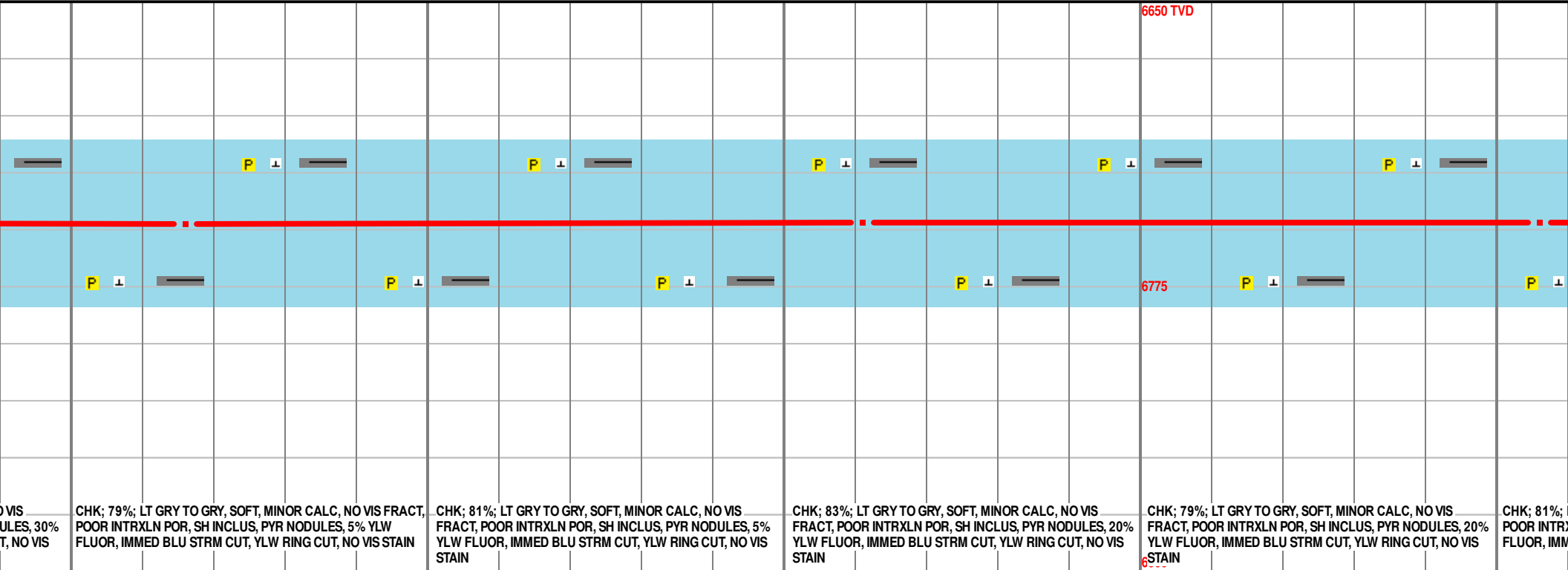
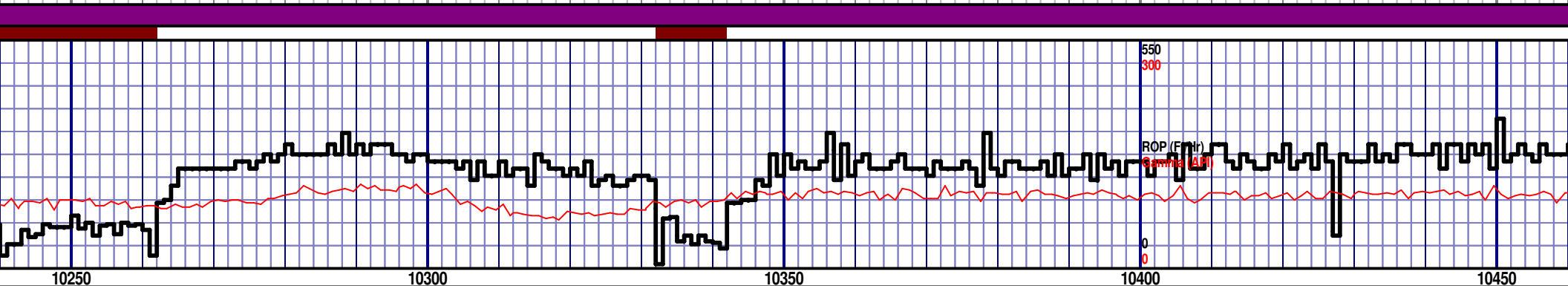
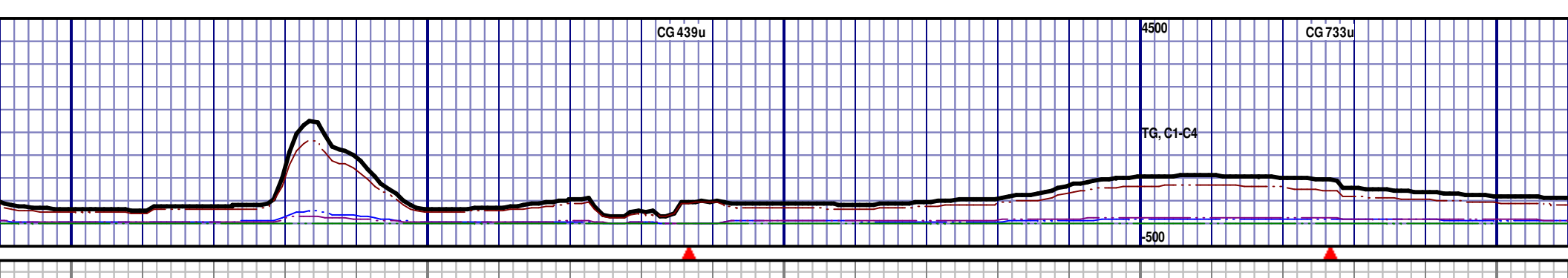
CHK; 80%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



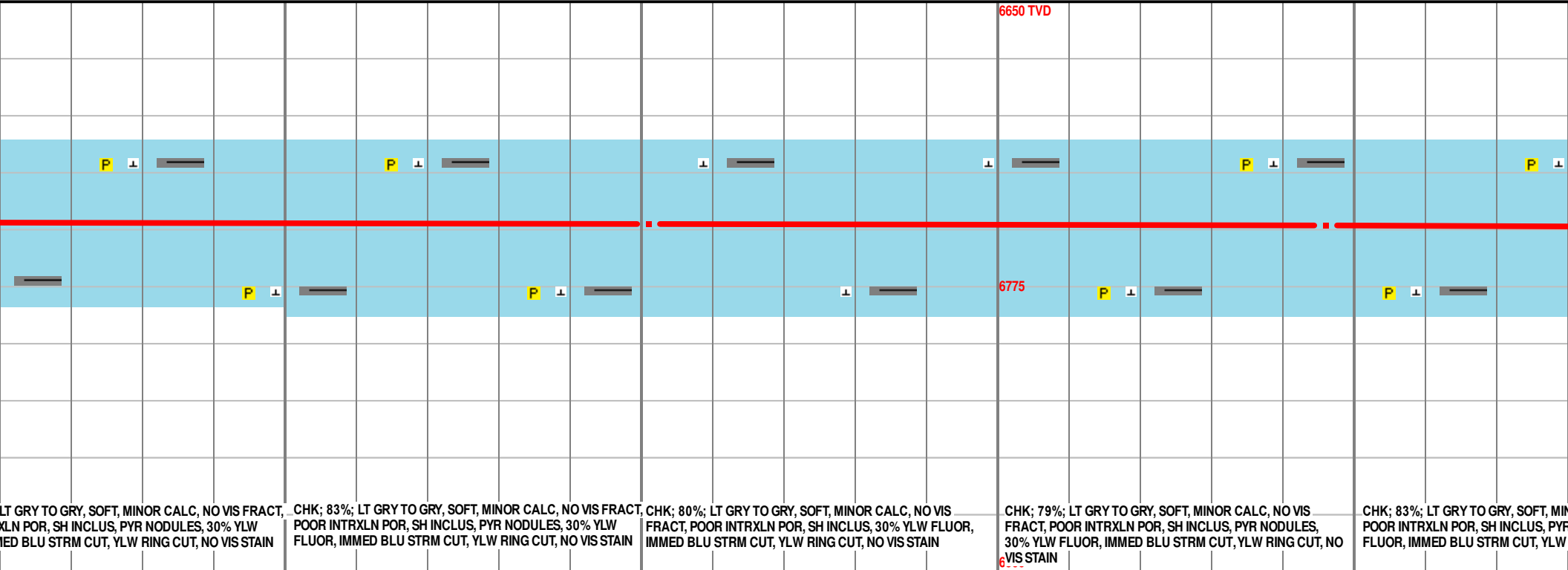
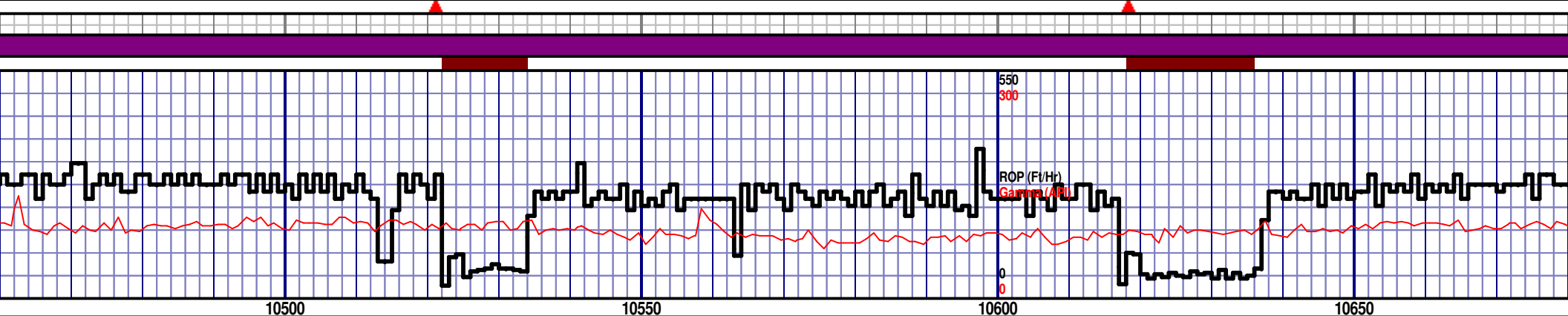
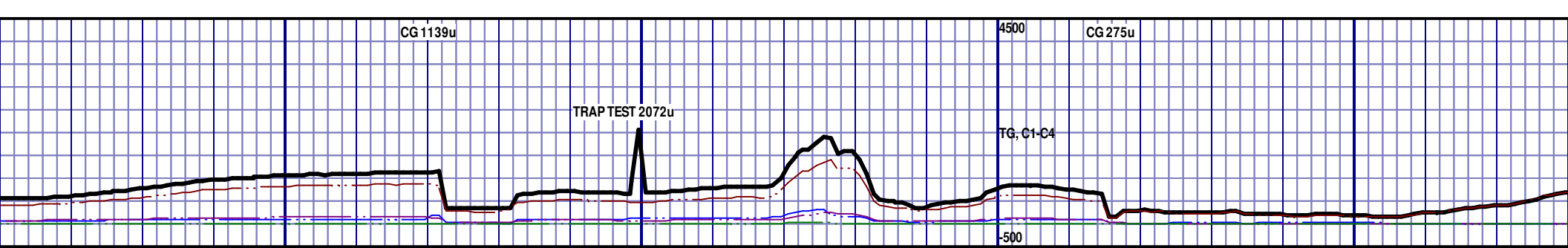


MD 10076 TVD 6745.41  
INC 88.89 AZ 268.22  
VS 3923.08

MD 10171 TVD 6747.02  
INC 89.17 AZ 267.78  
VS 4018.02



MD 10266 TVD 6747.43 INC 90.34 AZ 270.14 VS 4112.89	MD 10361 TVD 6747 INC 90.18 AZ 270.48 VS 4207.64	MD 10361 TVD 6747 INC 90.18 AZ 270.48 VS 4207.64	MD 10361 TVD 6747 INC 90.18 AZ 270.48 VS 4207.64	MD 10361 TVD 6747 INC 90.18 AZ 270.48 VS 4207.64
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 5% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 81%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 5% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 81%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
KLN POR, SH INCLUS, PYR NODULES, 30% YLW  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 80%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

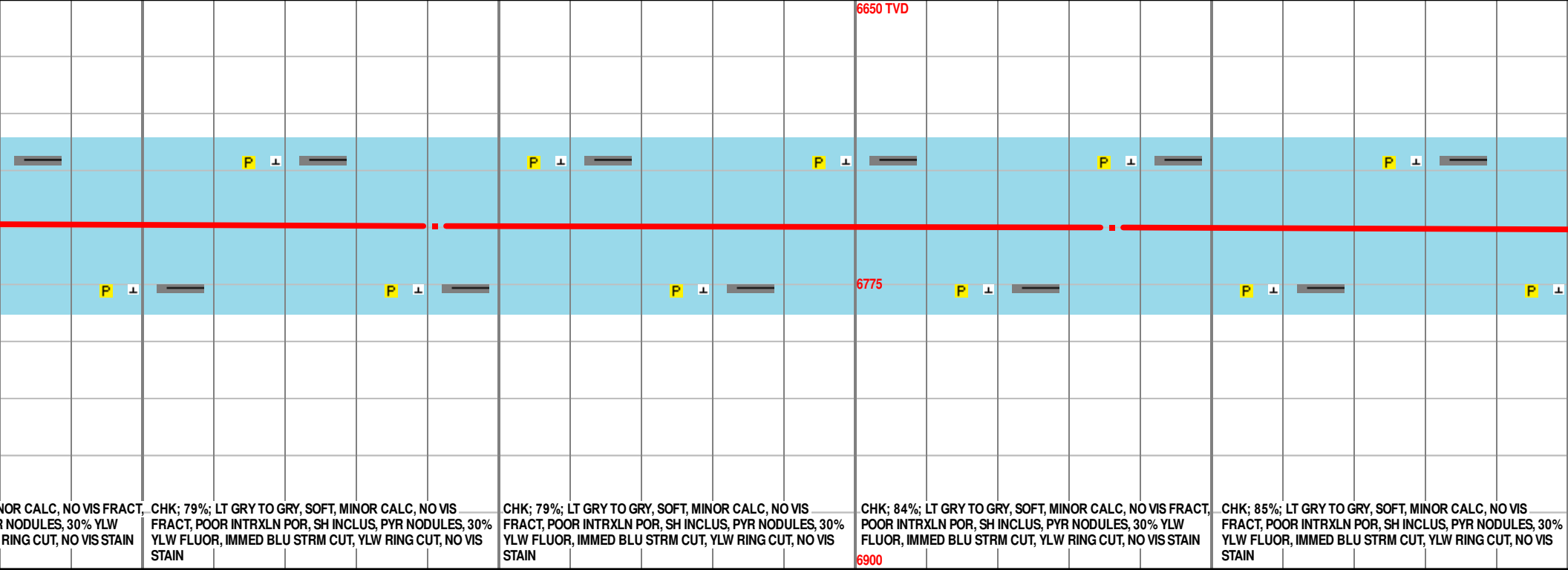
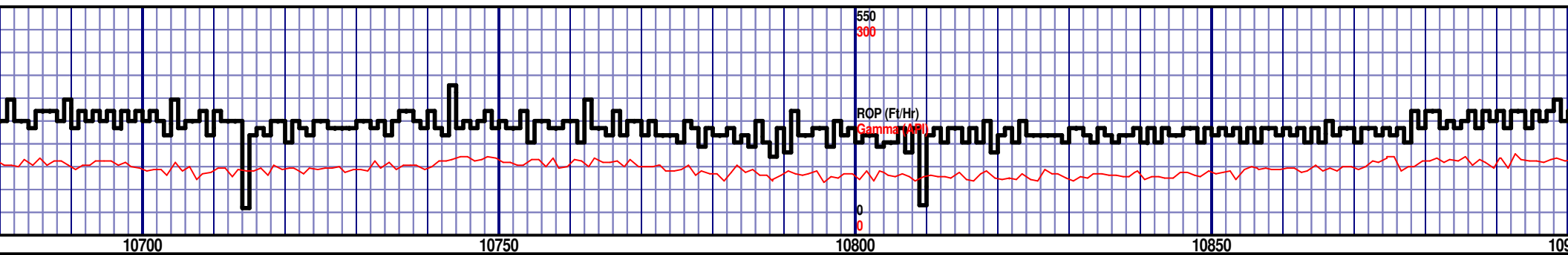
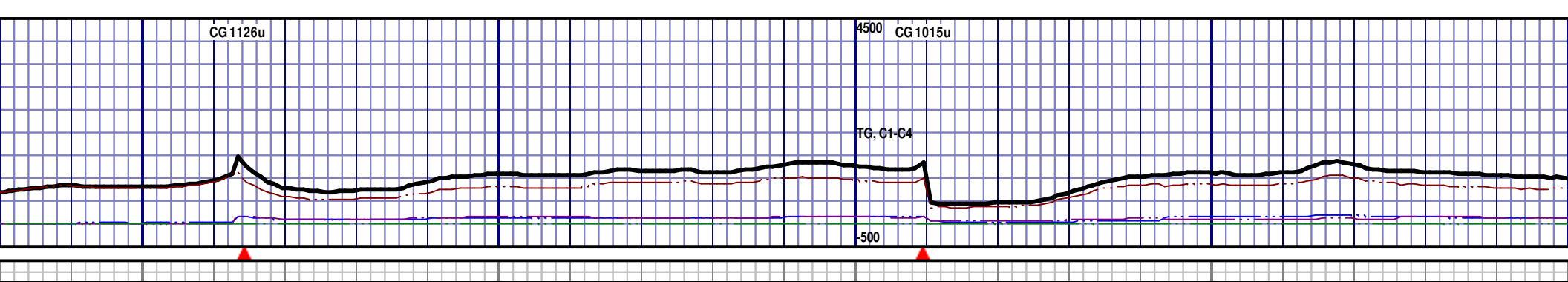
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES,  
30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO  
VIS STAIN

CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES,  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

10456 TVD 6747.12  
89.66 AZ 268.99  
302.45

MD 10551 TVD 6747.38  
INC 90.03 AZ 269.05  
VS 4397.33

MD 10646 TVD 6748.4  
INC 88.74 AZ 270.52  
VS 4492.13



MD 10741 TVD 6749.3  
INC 90.18 AZ 270.12  
VS 4586.87

MD 10836 TVD 6749.96  
INC 89.01 AZ 269.27  
VS 4681.69

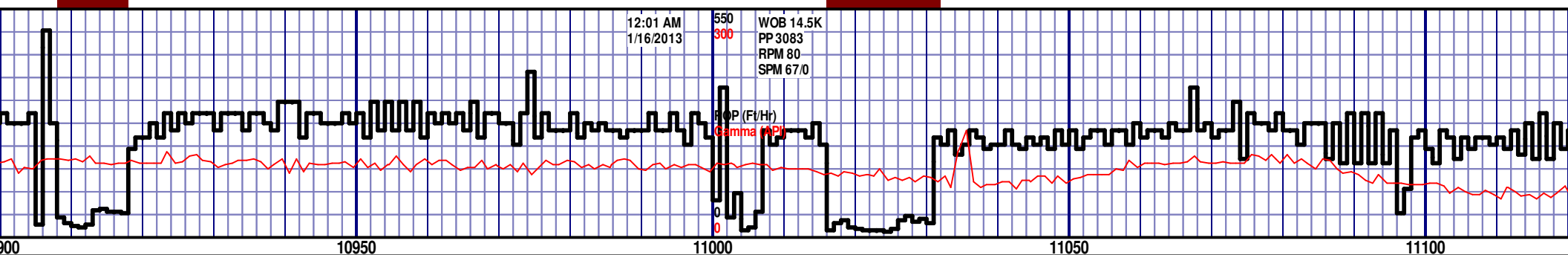
CG 728u

4500  
CG 801u

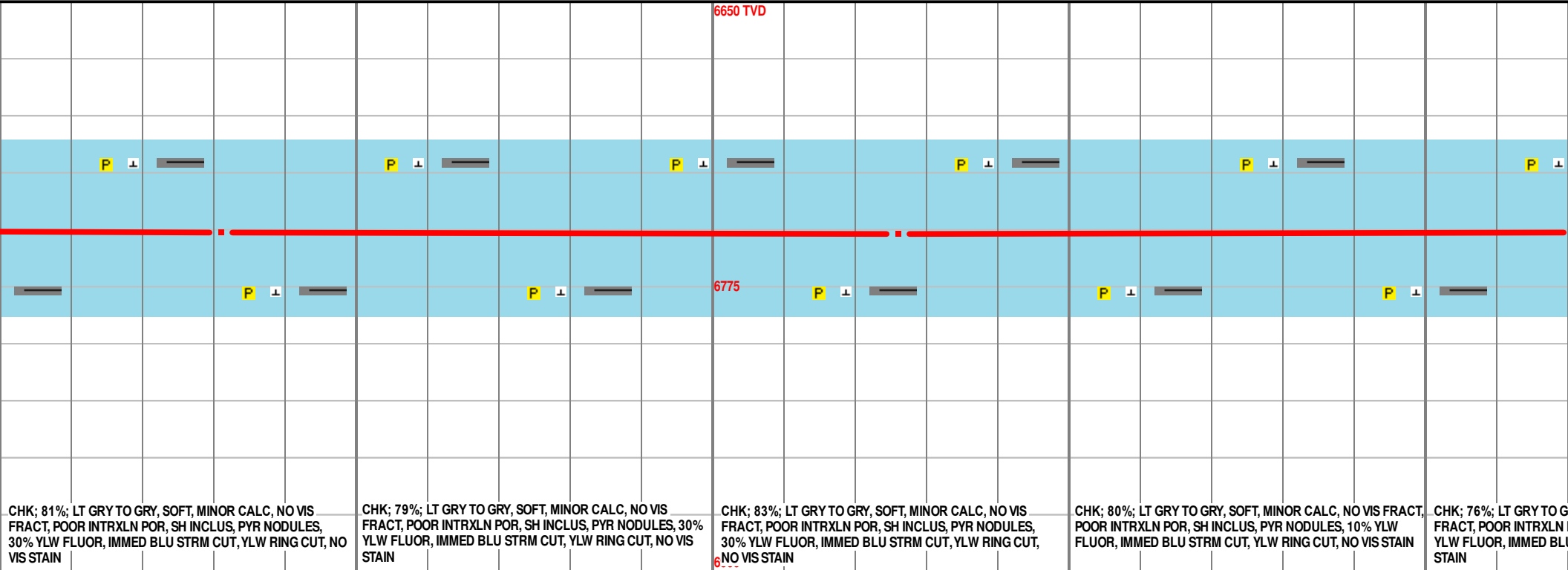
CG 902u

TG, C1-C4

-500



6650 TVD



6775

CHK; 81%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

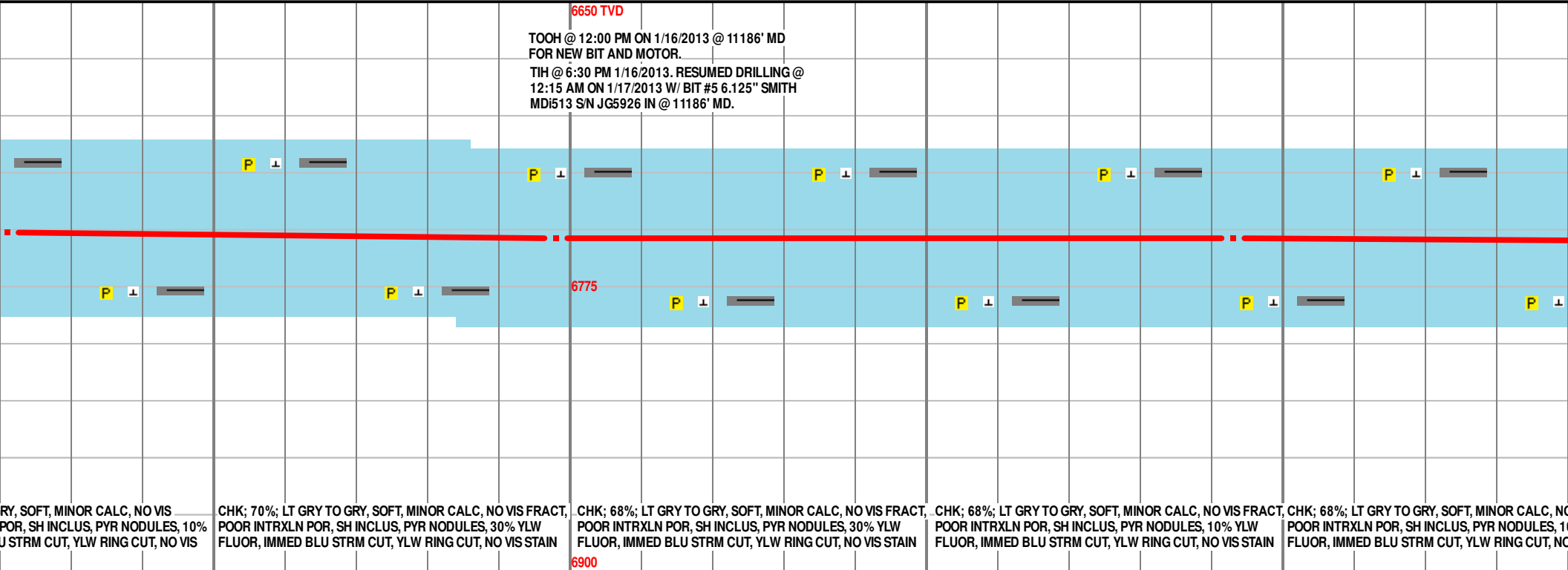
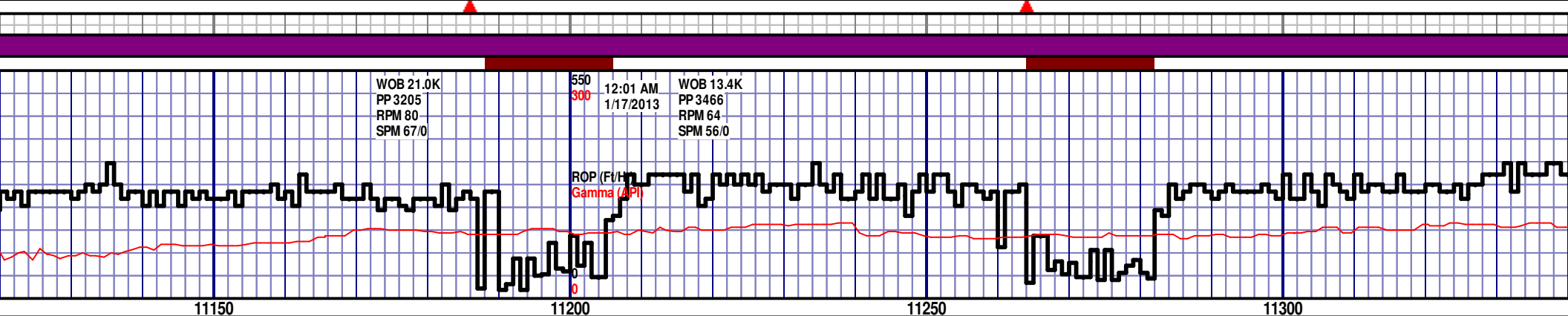
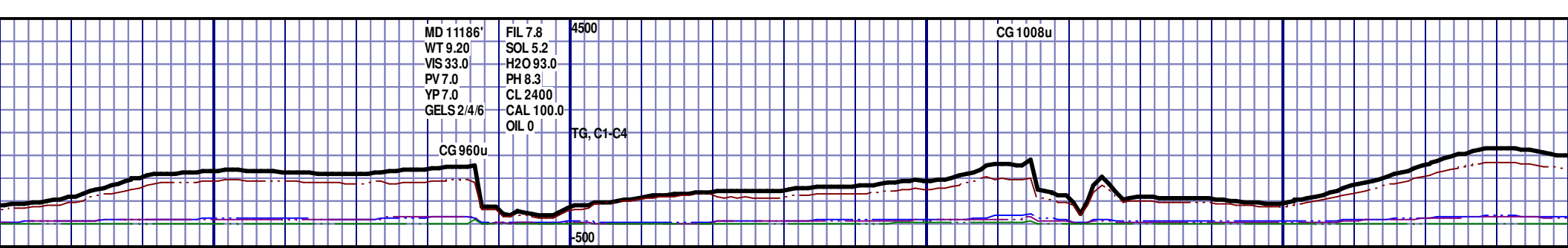
CHK; 83%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 80%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 10931 TVD 6751.41  
INC 89.23 AZ 269.71  
VS 4776.51

MD 11026 TVD 6752.1  
INC 89.94 AZ 269.24  
VS 4871.35



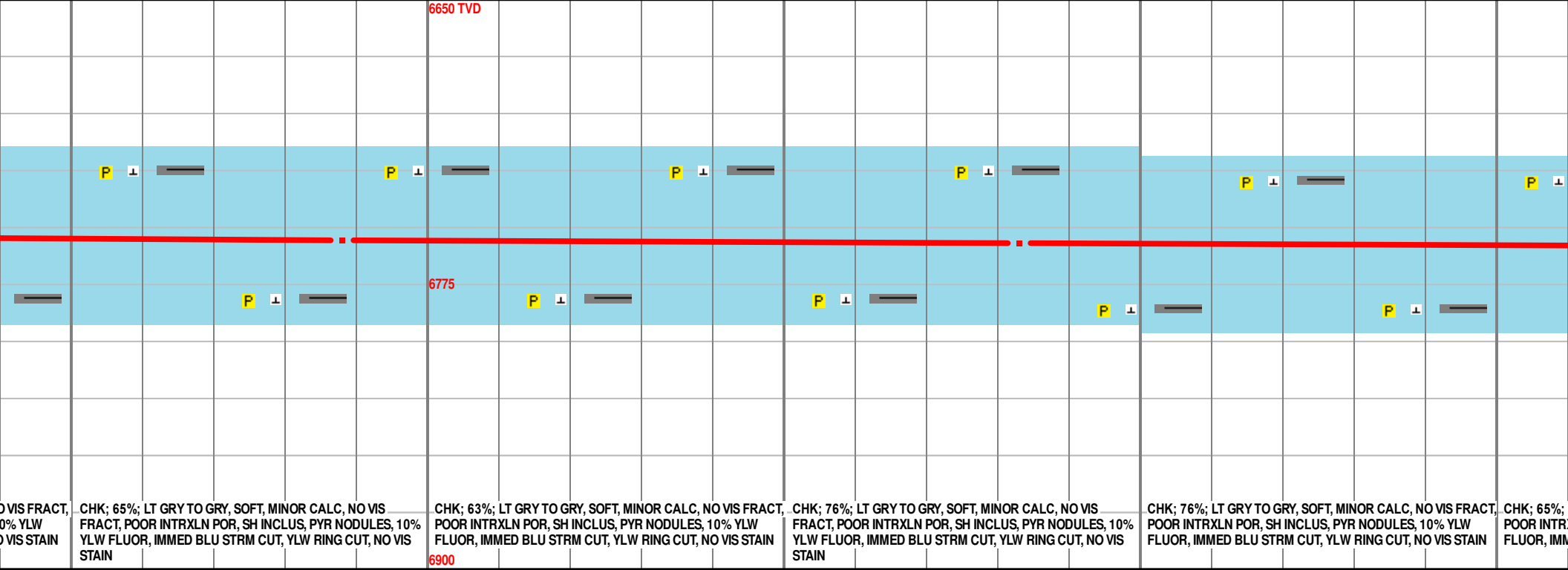
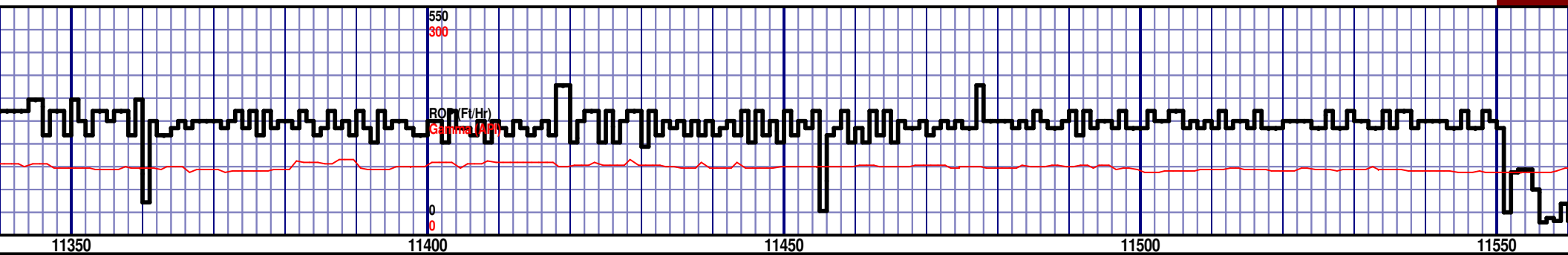
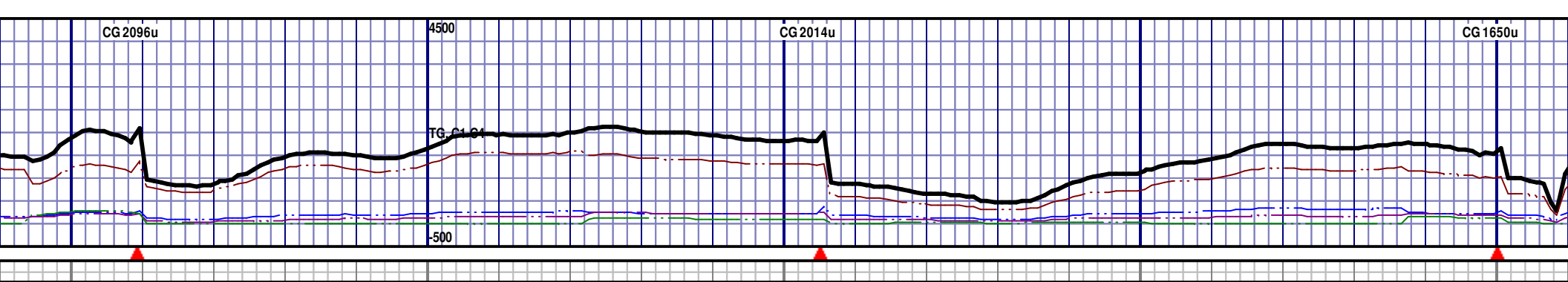
RY, SOFT, MINOR CALC, NO VIS  
POR, SH INCLUS, PYR NODULES, 10%  
U STRM CUT, YLW RING CUT, NO VIS

CHK; 70%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW  
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



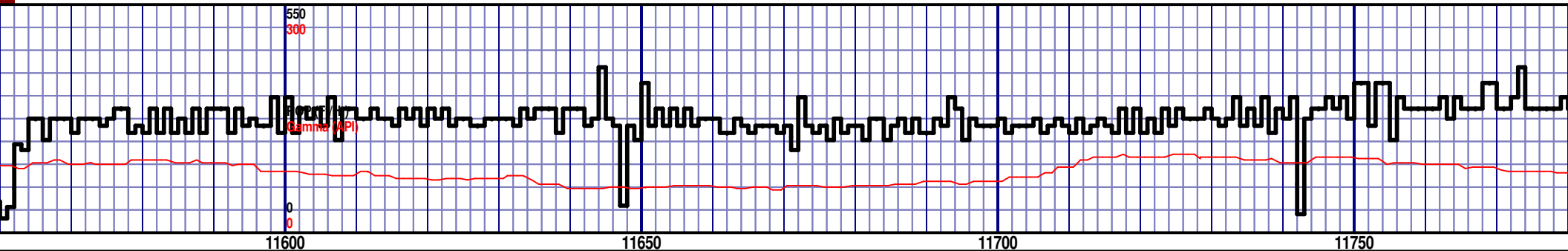
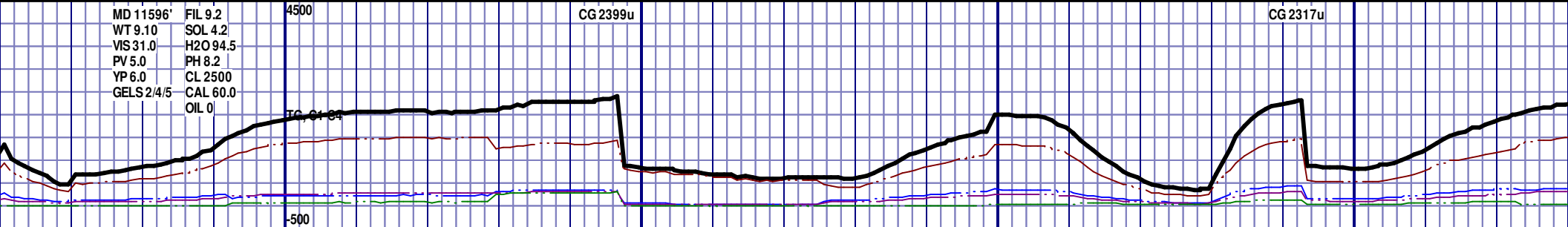
<p>0 VIS FRACT, 0% YLW VIS STAIN</p> <p>CHK; 65%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 63%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 65%; POOR INTRXLN POR, SH INCLUS, PYR NODULES, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>
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MD 11388 TVD 6755.45  
INC 88.8 AZ 269.8  
VS 5236.94

MD 11483 TVD 6756.7  
INC 89.69 AZ 269.4  
VS 5331.76

Day	TC (black)	C (red)	S (green)
0	0	0	0
20	100	50	0
40	200	100	0
60	300	150	0
80	400	200	0
100	500	250	0

CG 2317u



11600

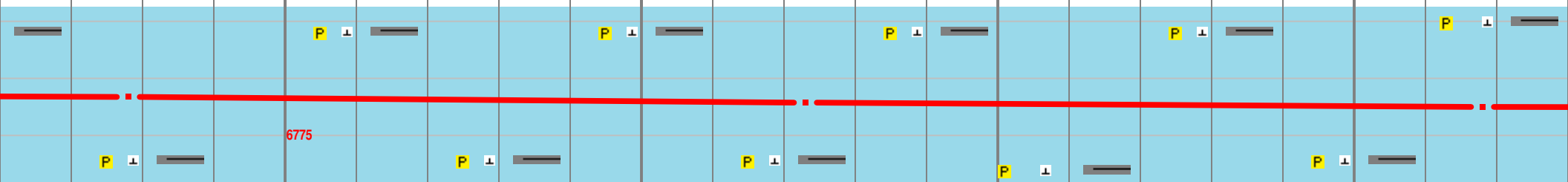
11650

11700

11750

6650 TVD

6775



CHK; 65%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES,  
30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO  
VIS STAIN

CHK; 72%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30%  
YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS  
STAIN

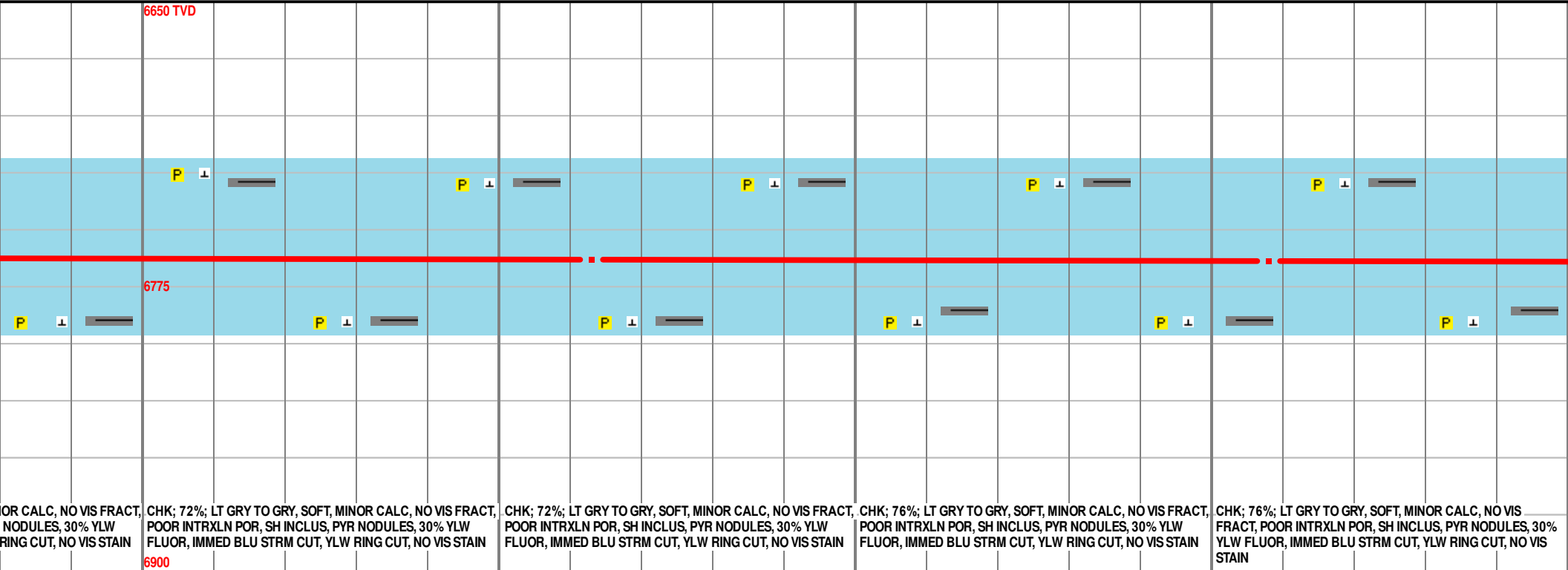
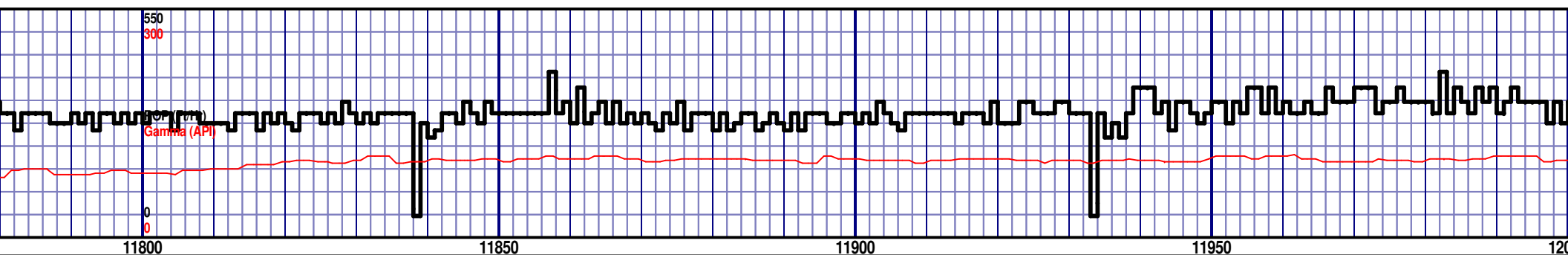
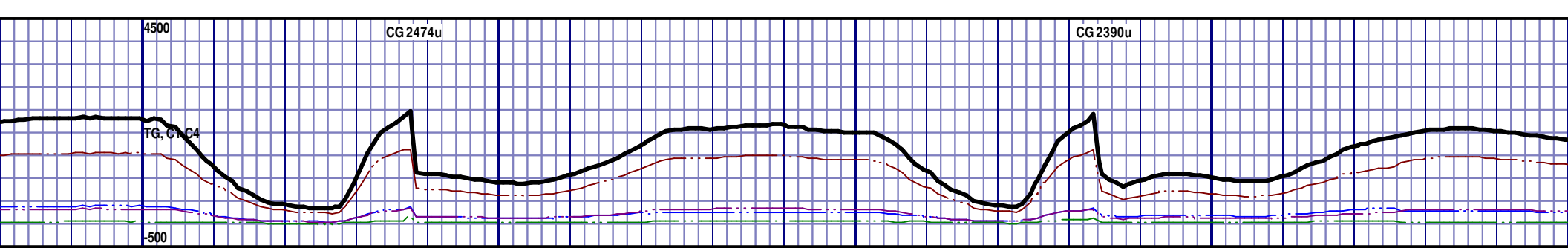
CHK; 74%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30%  
YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS  
STAIN

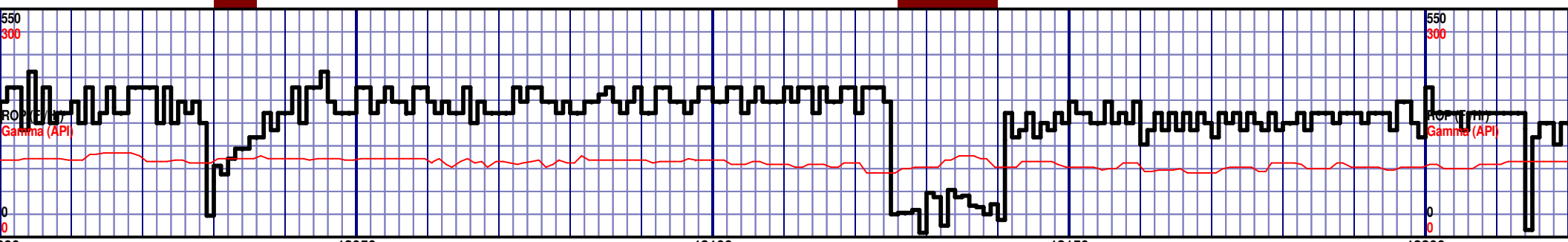
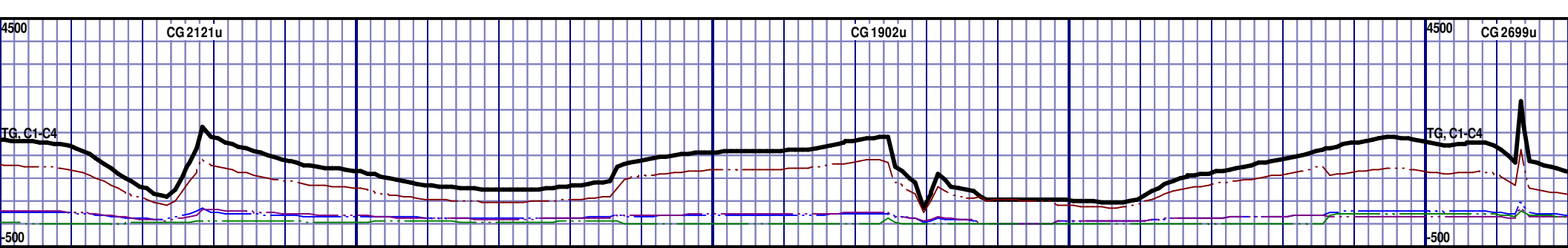
CHK; 74%; LT GRY TO GRY, SOFT, MIN  
POOR INTRXLN POR, SH INCLUS, PYR  
FLUOR, IMMED BLU STRM CUT, YLW

MD 11673 TVD 6760.71  
INC 88.74 AZ 270.57  
VS5521.25

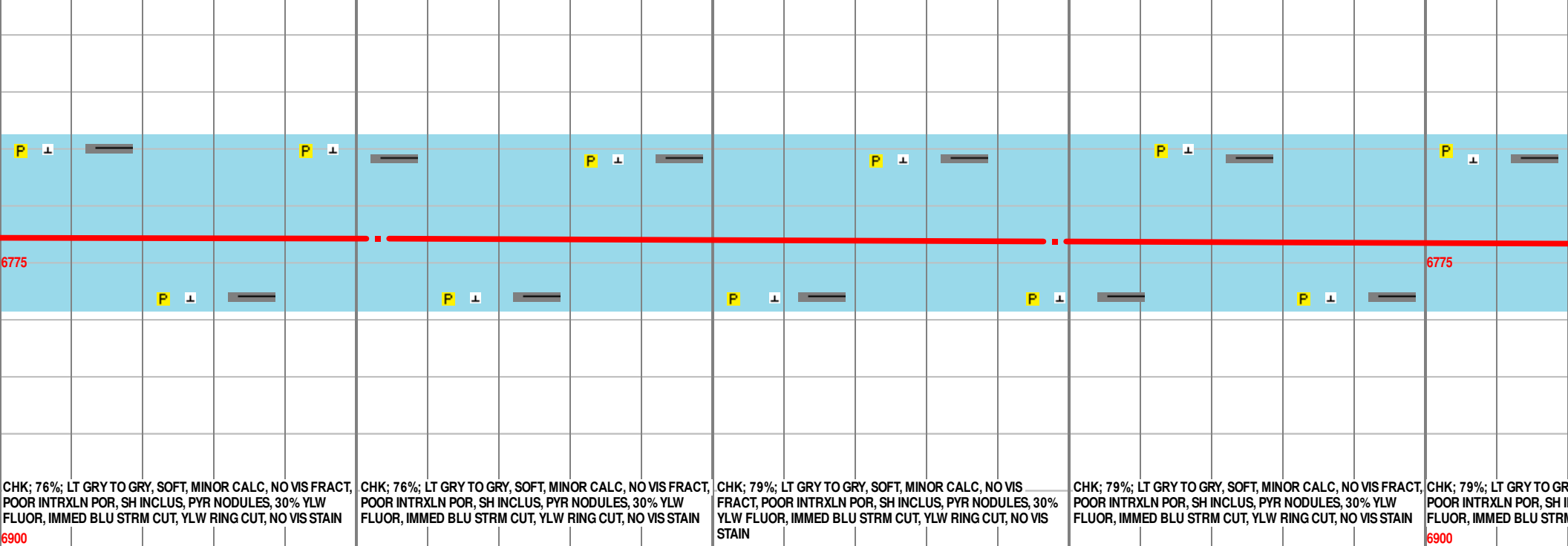
MD 11768 TVD  
INC 89.14 AZ 2  
VS5615.99







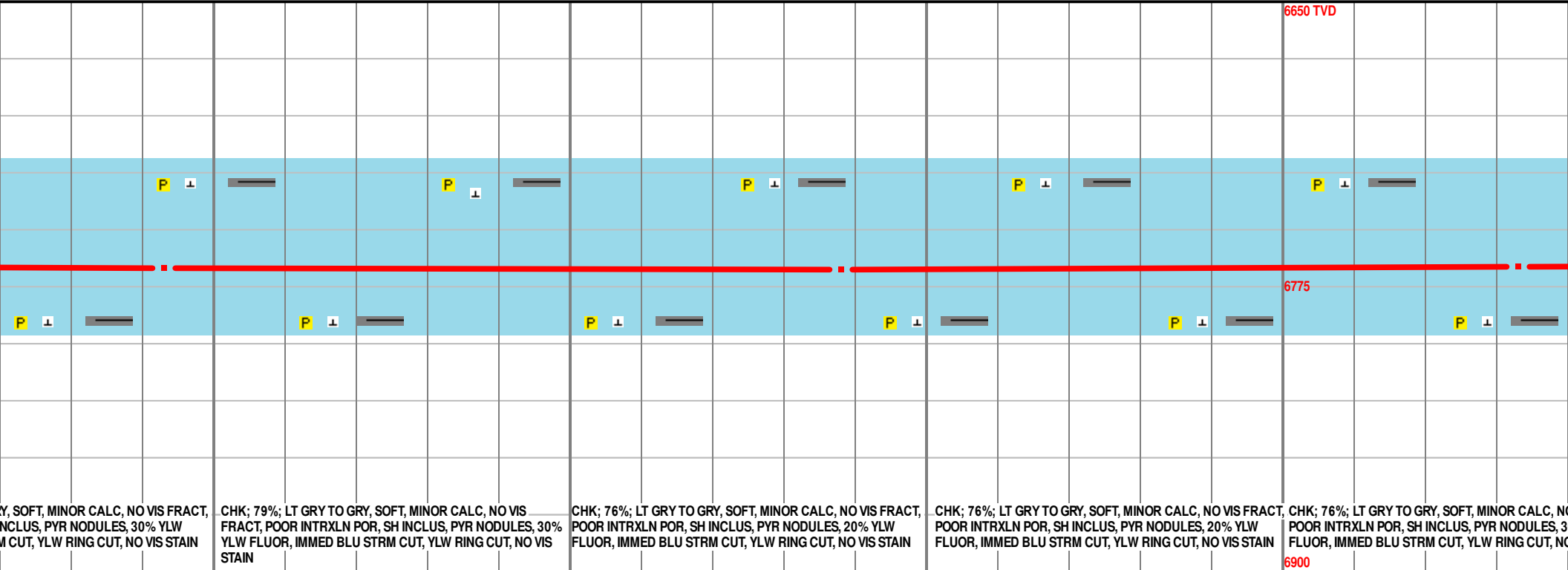
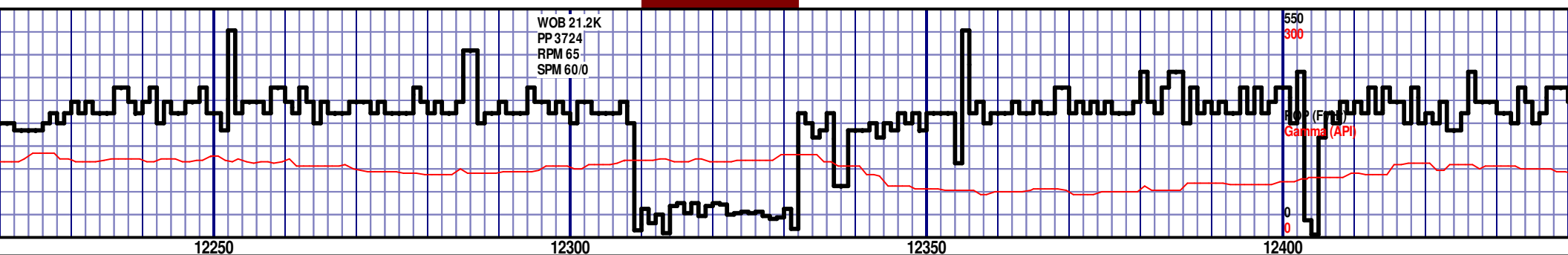
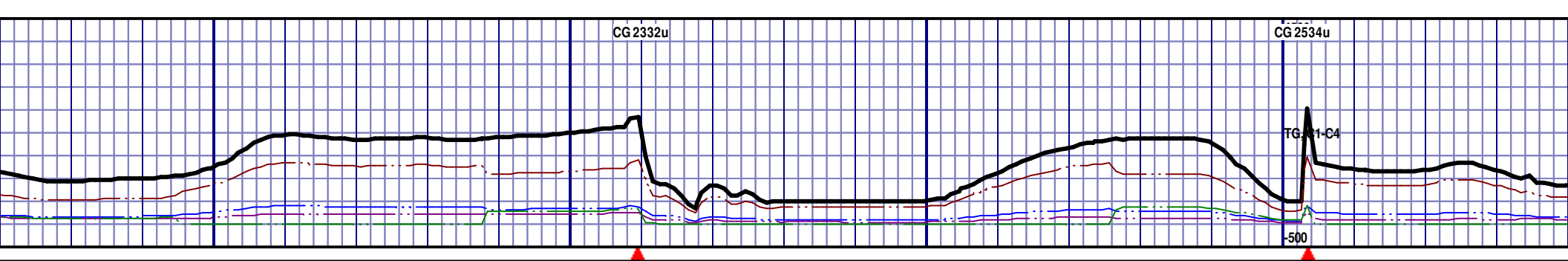
000 12050 12100 12150 12200 6650 TVD 6650 TVD



CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 12053 TVD 6764.47  
INC 88.95 AZ 266.64  
VS 5900.5

MD 12148 TVD 6765.67  
INC 89.6 AZ 267.92  
VS 5995.48



Y, SOFT, MINOR CALC, NO VIS FRACT, INCLUS, PYR NODULES, 30% YLW M CUT, YLW RING CUT, NO VIS STAIN

CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

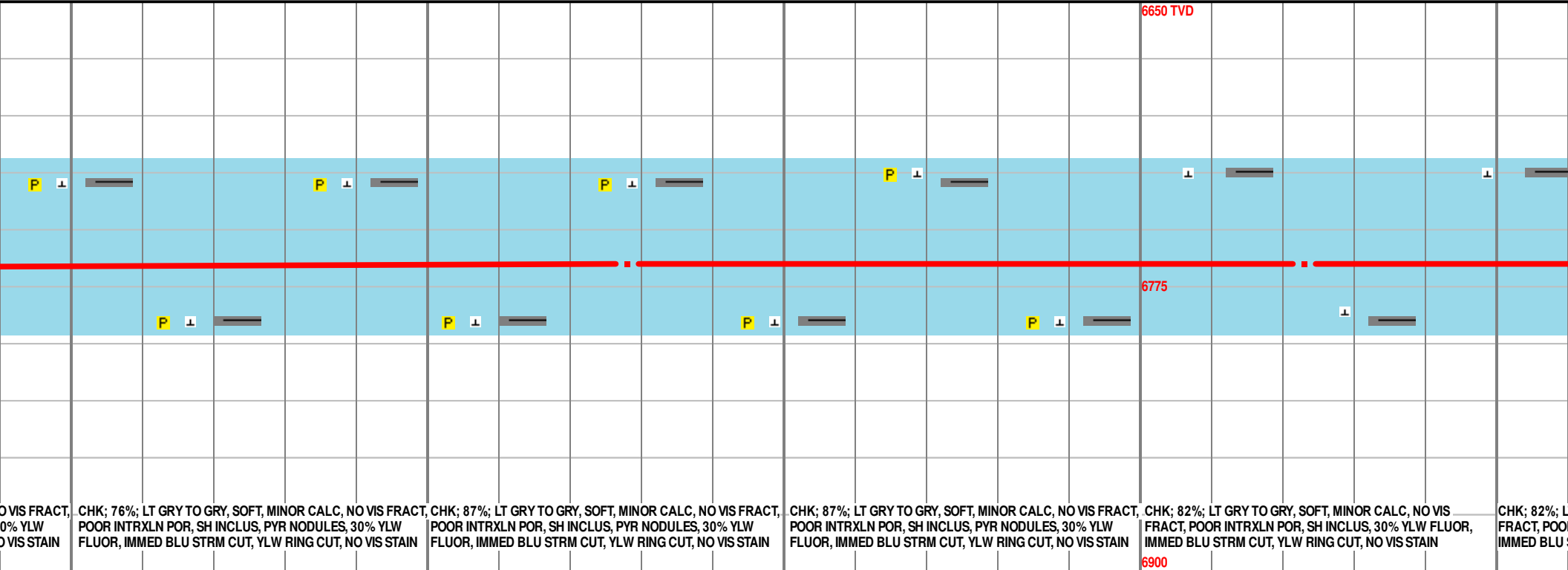
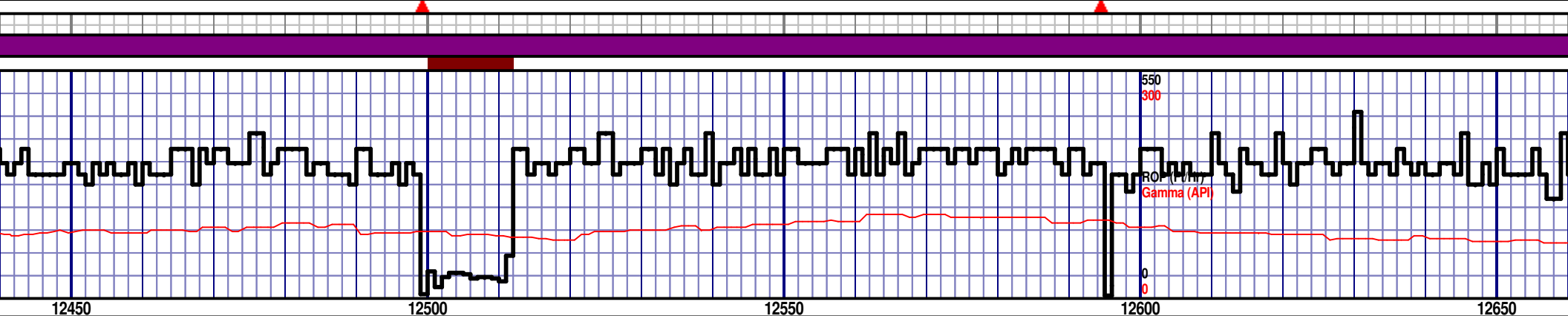
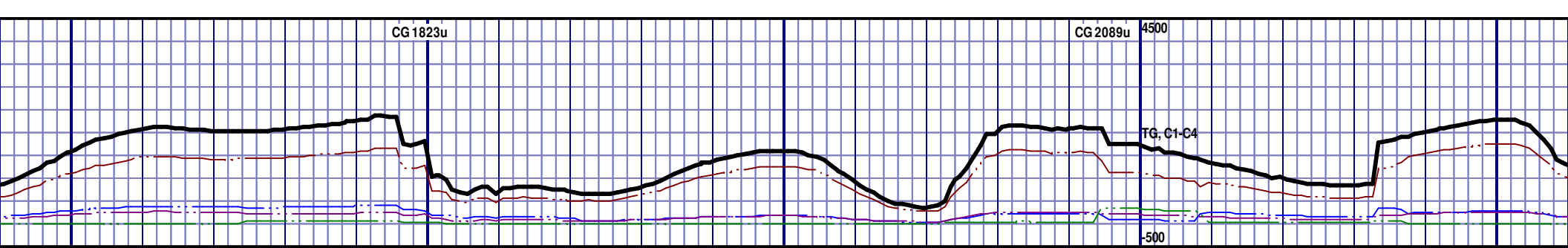
CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 20% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

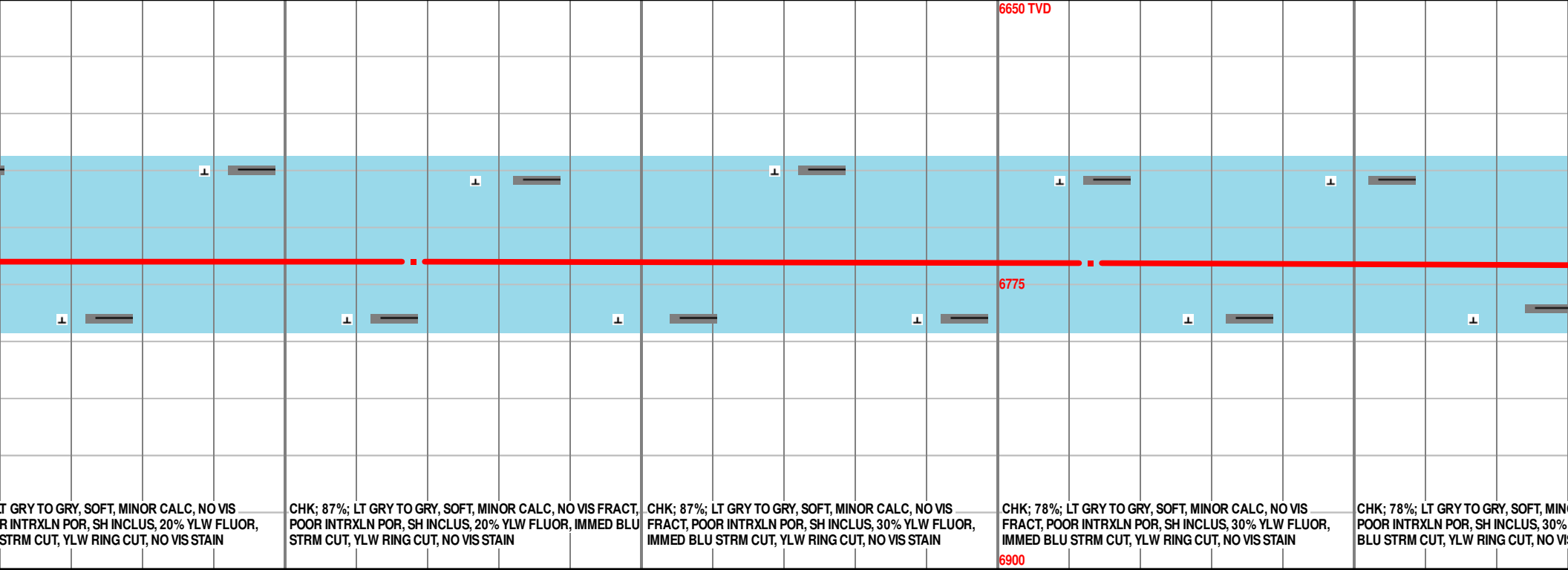
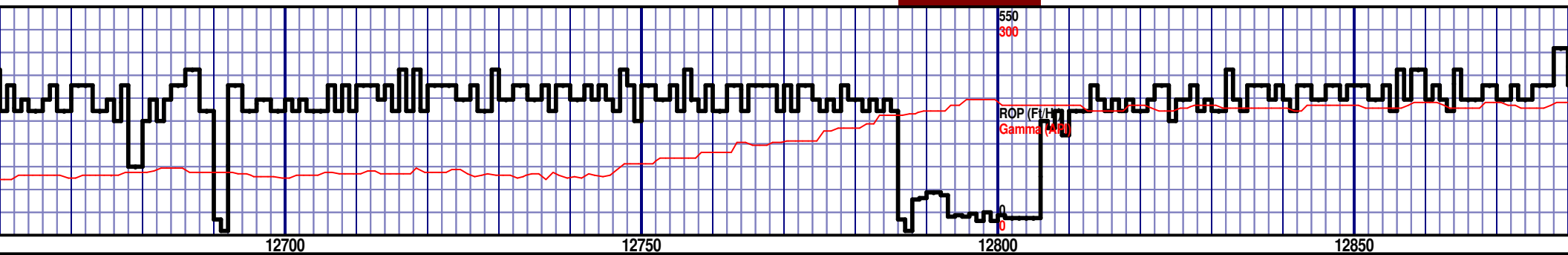
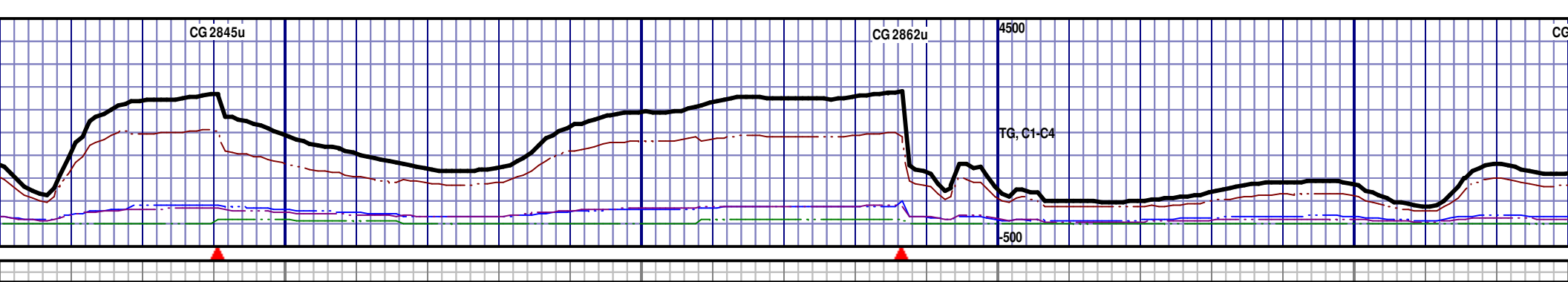
MD 12243 TVD 6767  
INC 88.8 AZ 267.09  
VS 6090.44

MD 12338 TVD 6767.57  
INC 90.52 AZ 269.45  
VS 6185.36

MD 12413 TVD 6767.57  
INC 91.1 AZ 269.45  
VS 6280.44



0% VIS FRACT, 0% YLW VIS STAIN	CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, PYR NODULES, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 82%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 82%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN
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T GRY TO GRY, SOFT, MINOR CALC, NO VIS  
R INTRXLN POR, SH INCLUS, 20% YLW FLUOR,  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

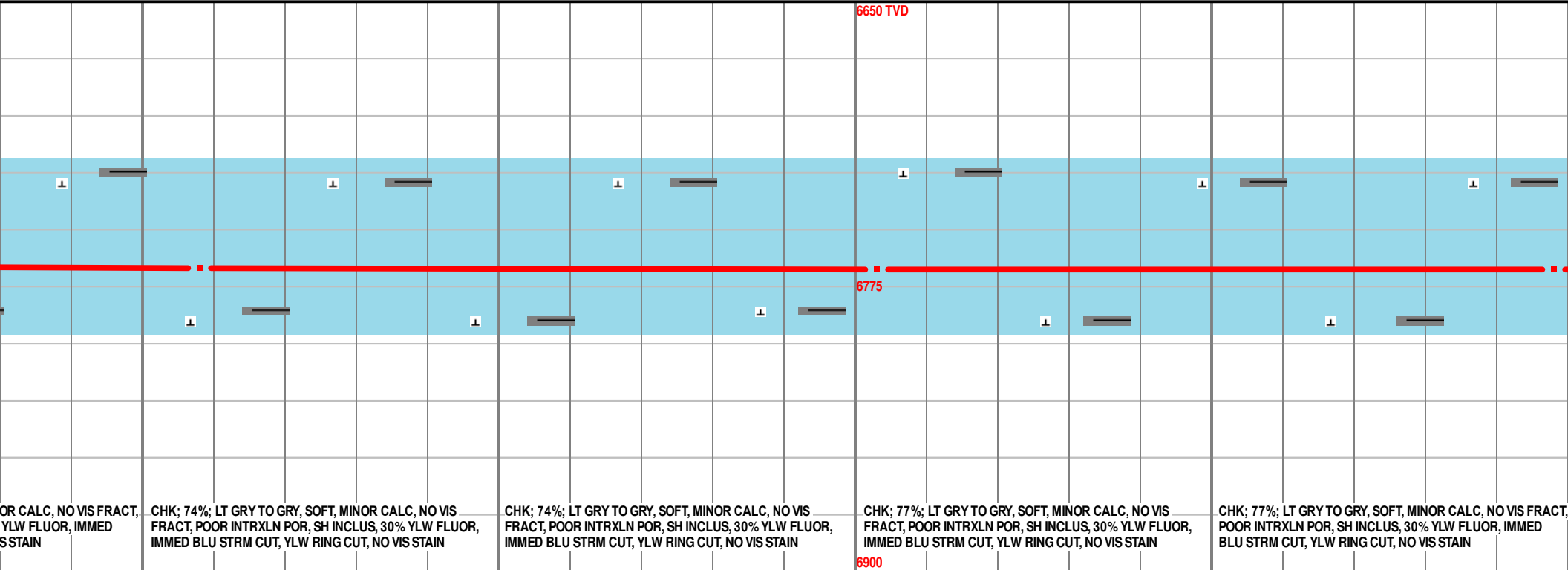
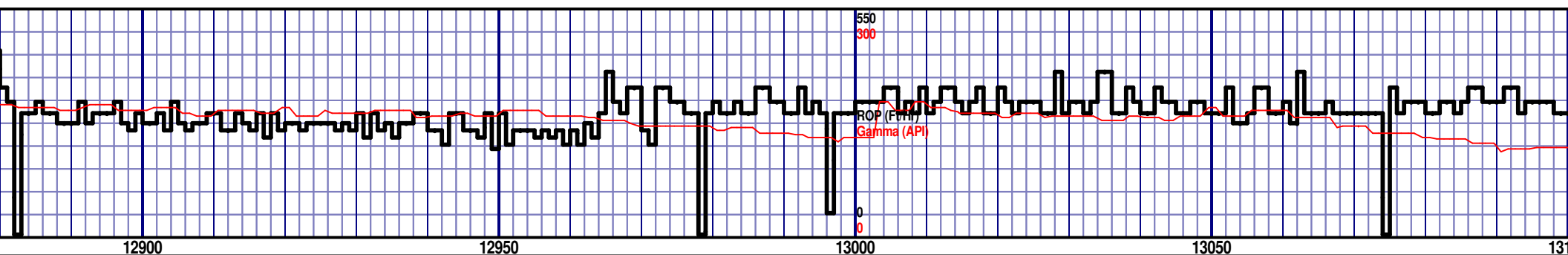
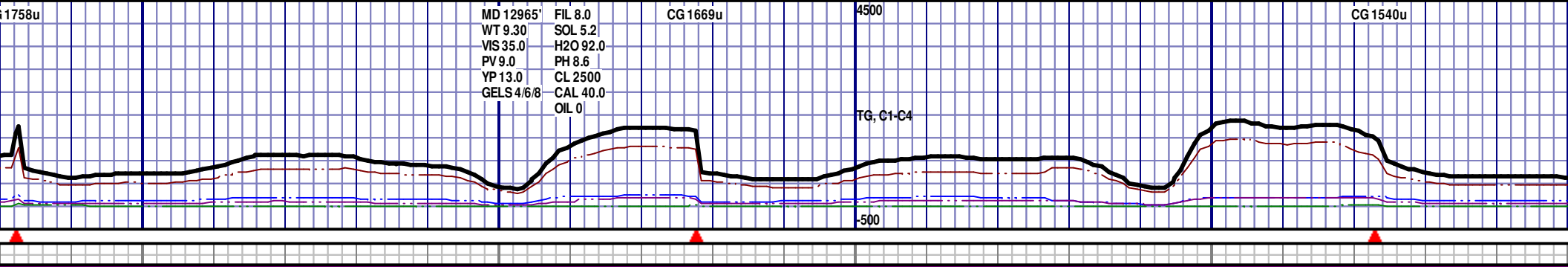
CHK; 87%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 78%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 78%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 12718 TVD 6765.11  
INC 90.09 AZ 268.58  
VS 6564.87

MD 12813 TVD 6765.57  
INC 89.35 AZ 270.65  
VS 6659.69



OR CALC, NO VIS FRACT, YLW FLUOR, IMMEDIATE STAIN

CHK; 74%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO VIS STAIN

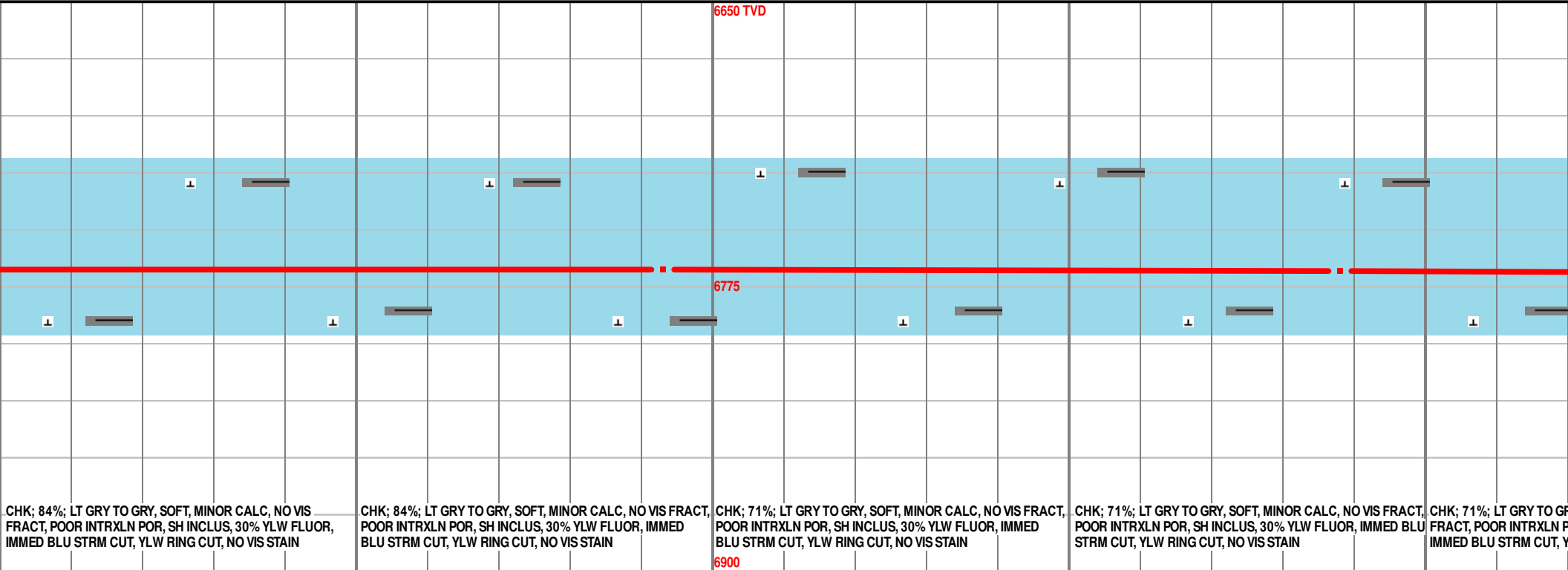
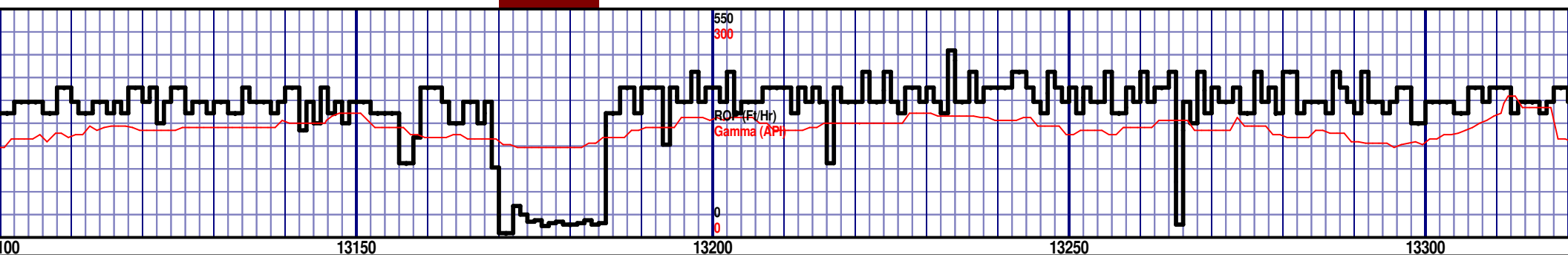
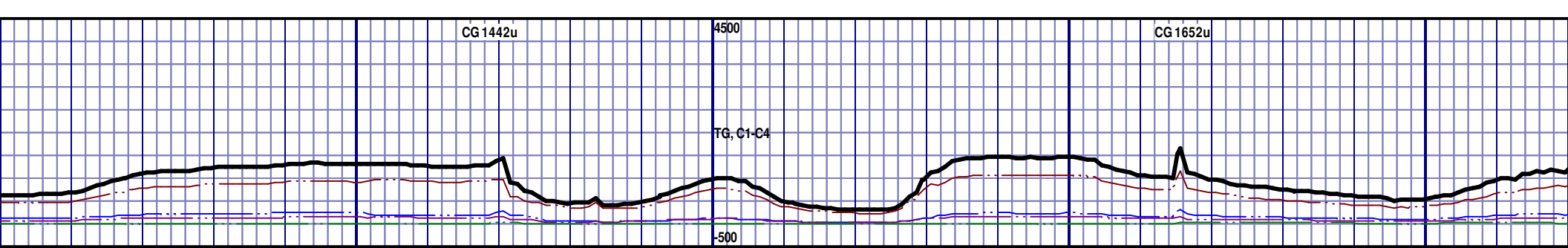
CHK; 74%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 77%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 77%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMEDIATE BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 12908 TVD 6766.7  
INC 89.29 AZ 271.64  
VS 6754.32

MD 13003 TVD 6767.44  
INC 89.82 AZ 271.14  
VS 6848.92



CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

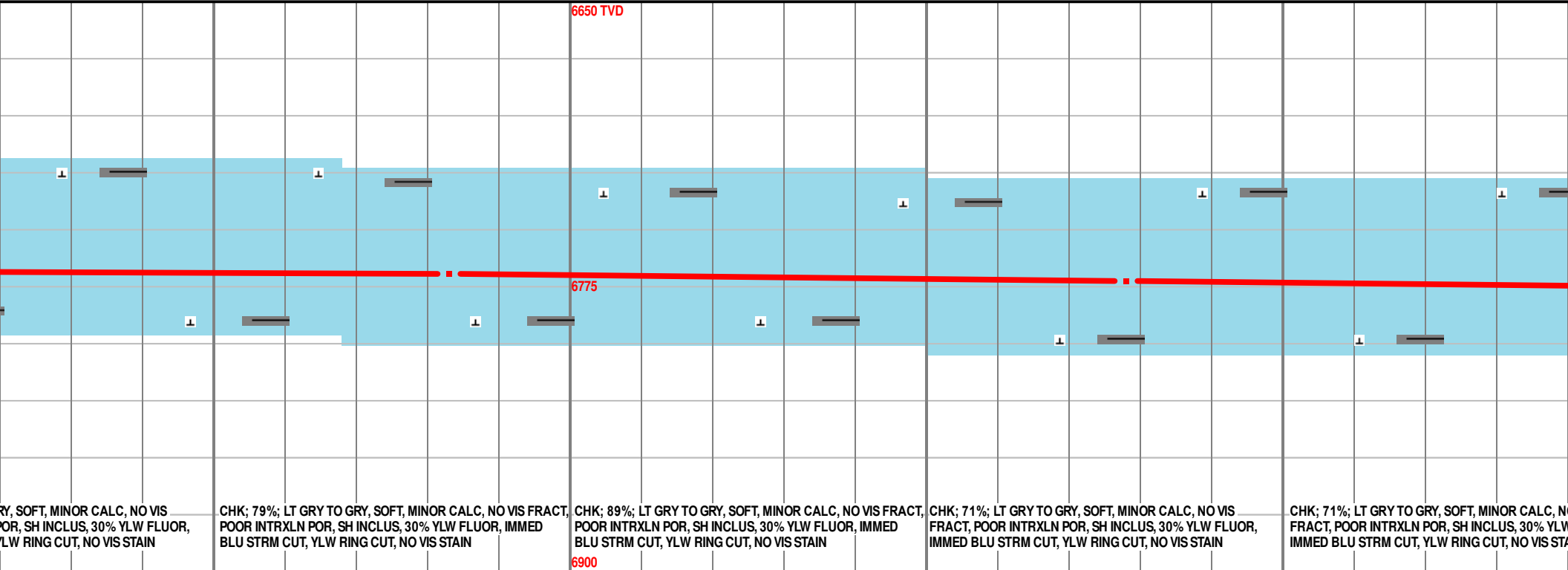
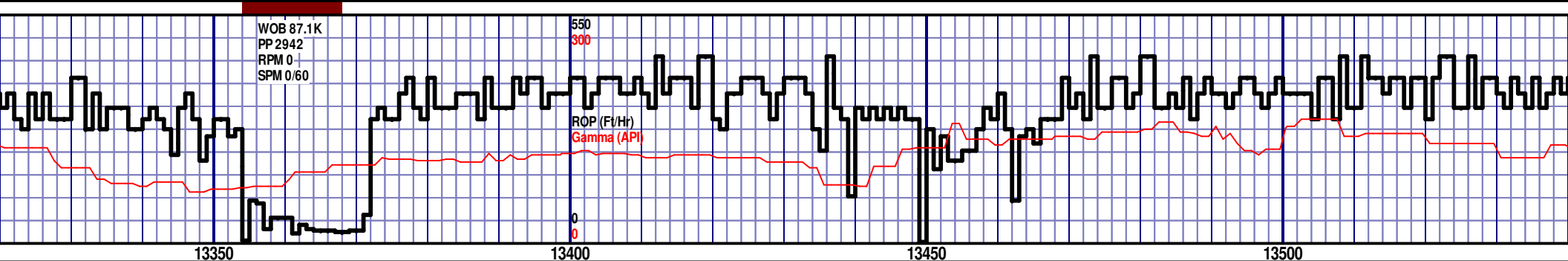
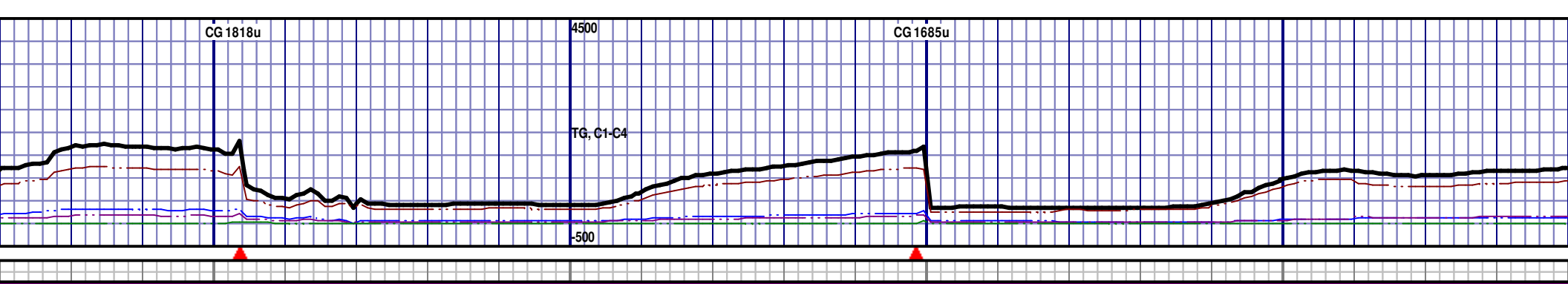
CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 13098 TVD 6767.42  
INC 90.22 AZ 270.74  
S6943.59

MD 13193 TVD 6767.72  
INC 89.41 AZ 271.59  
VS 7038.22

MD 13288 TVD 6768.21  
INC 90 AZ 271.29  
VS 7132.81



RY, SOFT, MINOR CALC, NO VIS  
POR, SH INCLUS, 30% YLW FLUOR,  
YLW RING CUT, NO VIS STAIN

CHK; 79%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 89%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

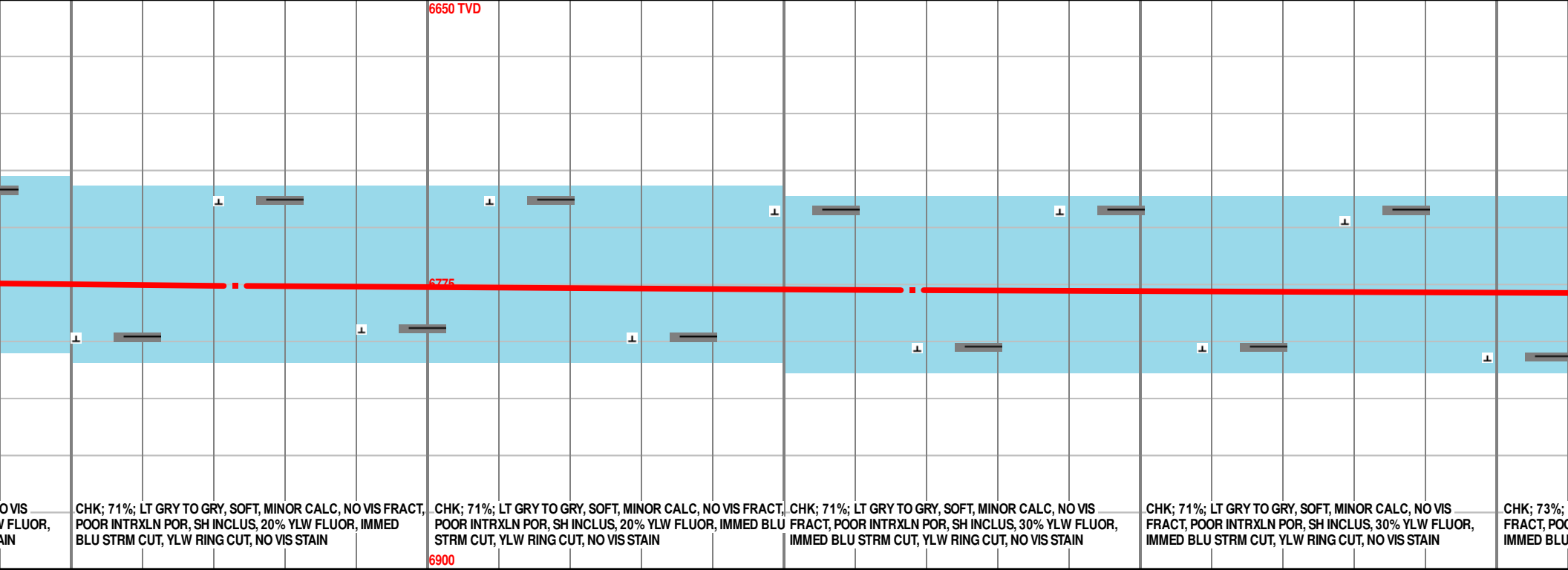
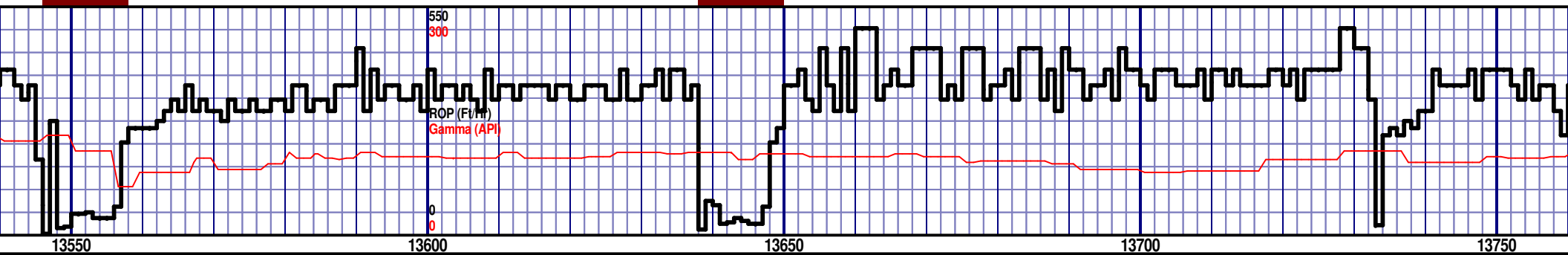
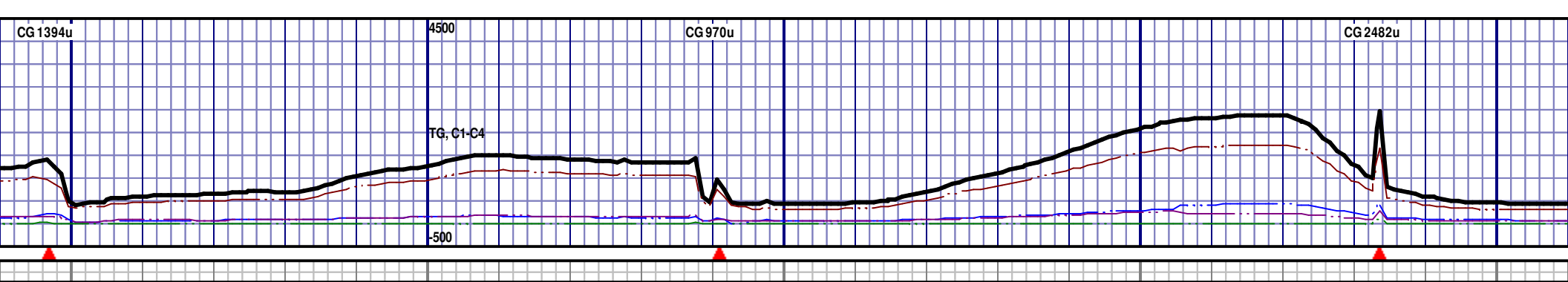
CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 13383 TVD 6769.44  
INC 88.52 AZ 269.76  
VS 7227.52

MD 13478 TVD 6772.3  
INC 88.02 AZ 268.13  
VS 7322.36





O VIS  
 V FLUOR,  
 AN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
 POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED  
 BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
 POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

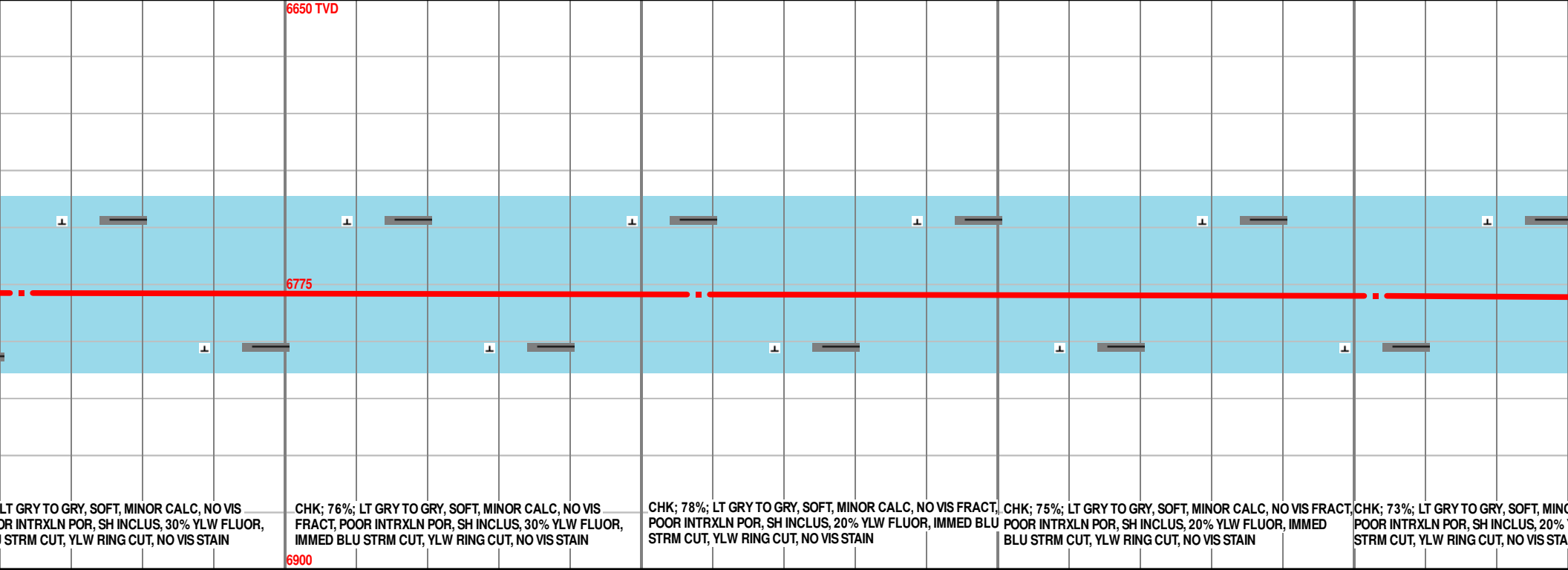
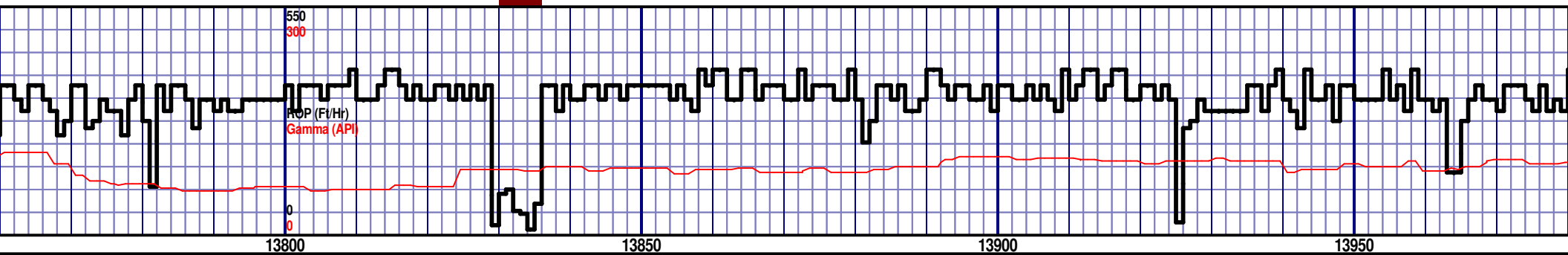
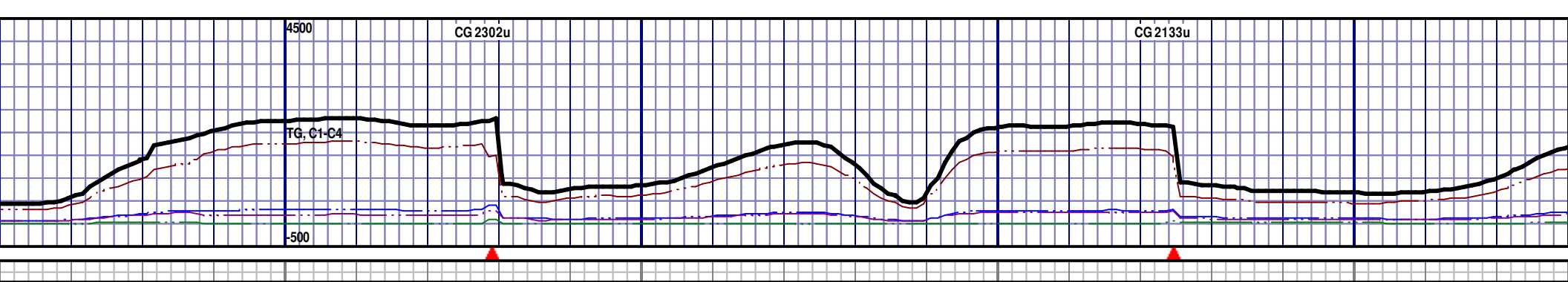
CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
 FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 71%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
 FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%;  
 FRACT, POOR  
 IMMED BLU

MD 13573 TVD 6775.45  
 INC 88.18 AZ 268.9  
 VS 7417.23

MD 13668 TVD 6777.77  
 INC 89.01 AZ 271.64  
 VS 7511.95



LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
OR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 76%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 78%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

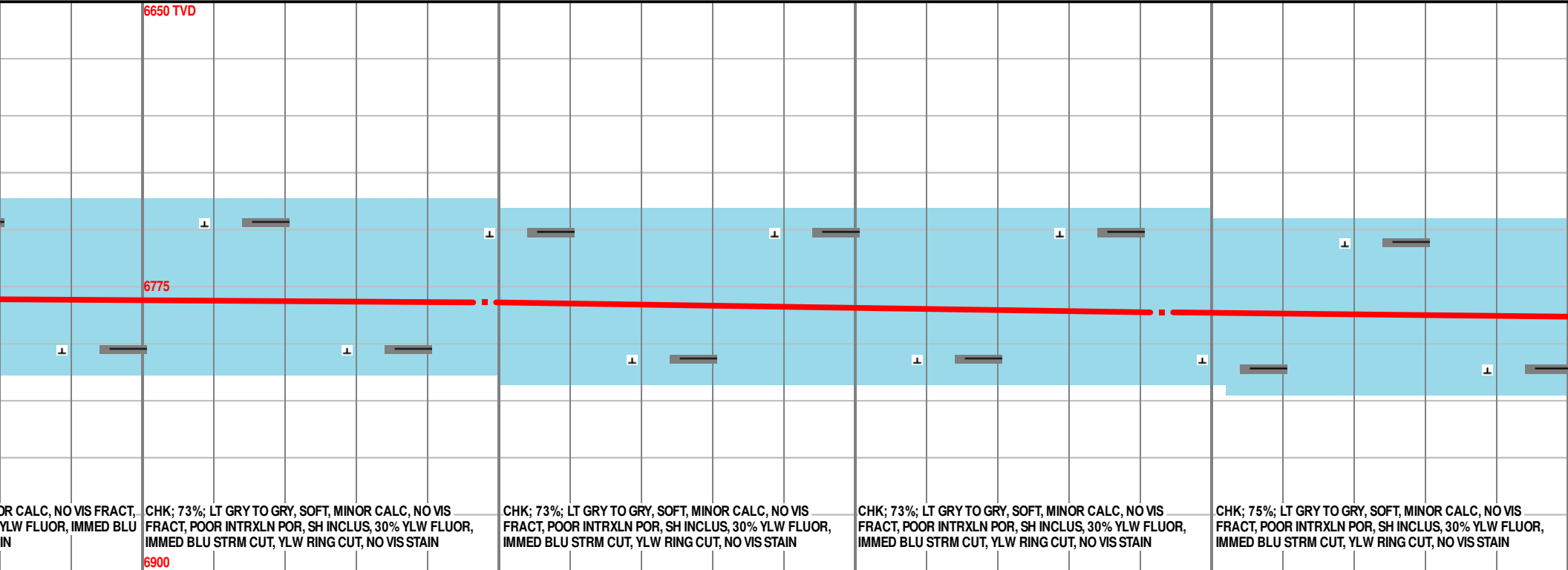
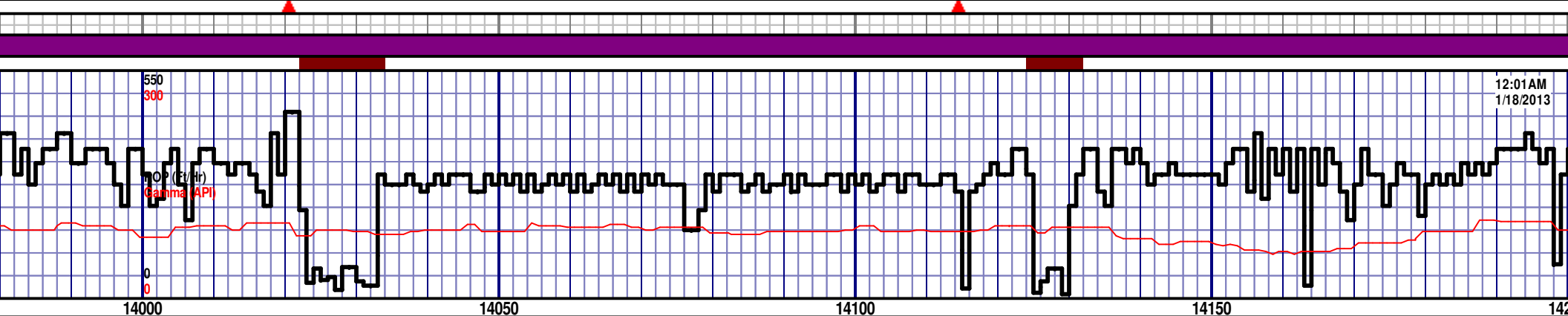
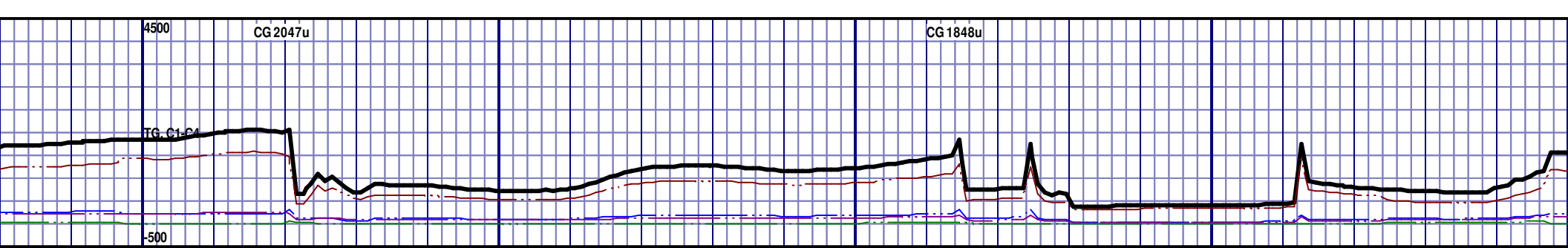
CHK; 75%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 20% YLW FLUOR, IMMED  
BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 13763 TVD 6778.85  
INC 89.69 AZ 271.66  
VS 7606.5

MD 13858 TVD 6779.51  
INC 89.51 AZ 270.31  
VS 7701.16

MD 13953 TVD 6779.97  
INC 89.94 AZ 271.63  
VS 7795.82



OR CALC, NO VIS FRACT, YLW FLUOR, IMMED BLU IN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

6900

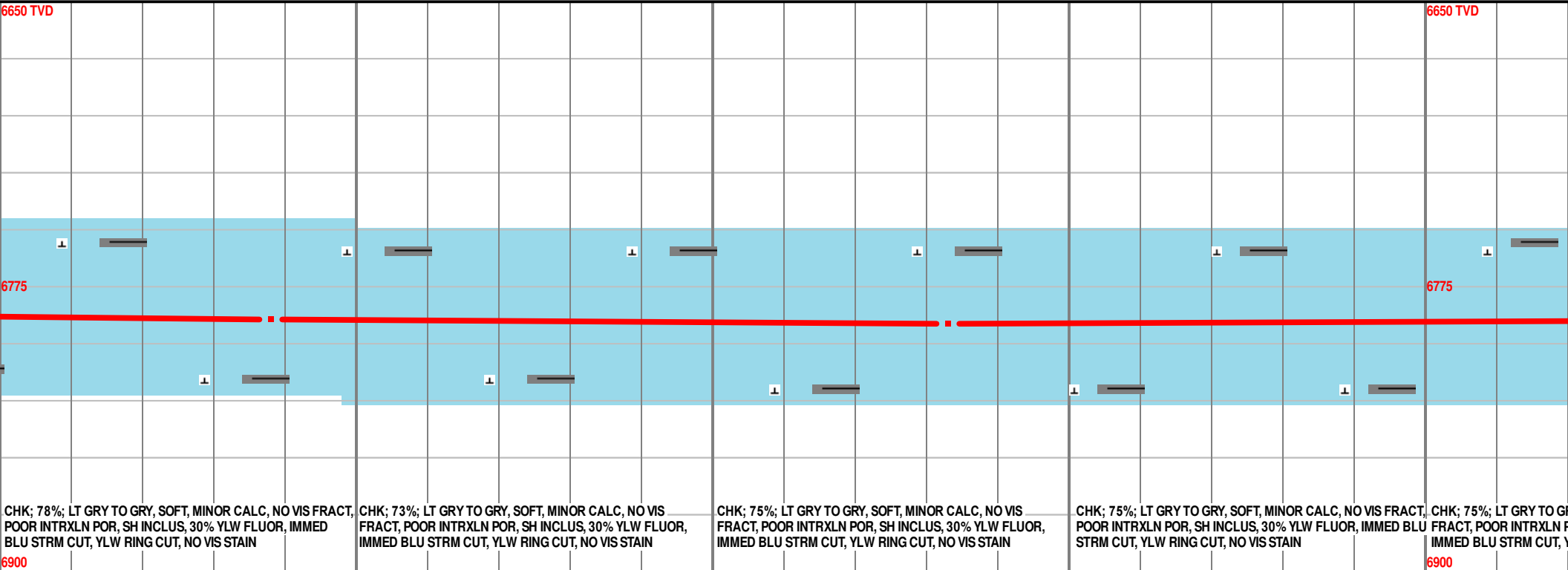
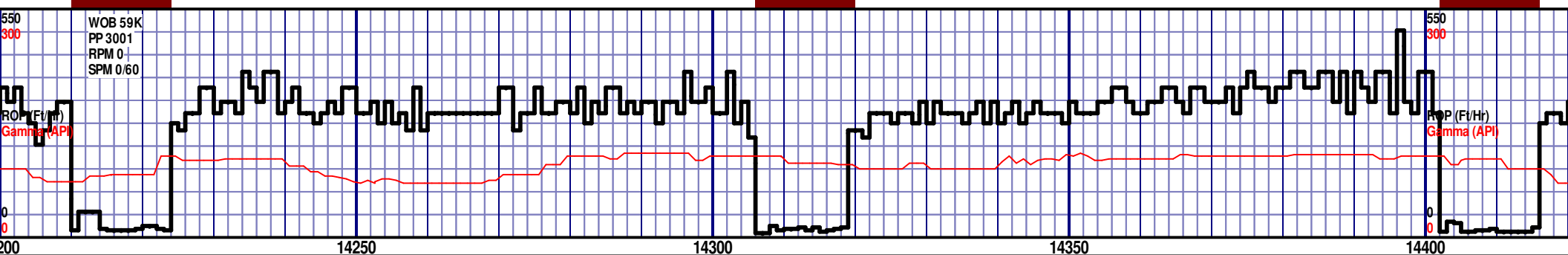
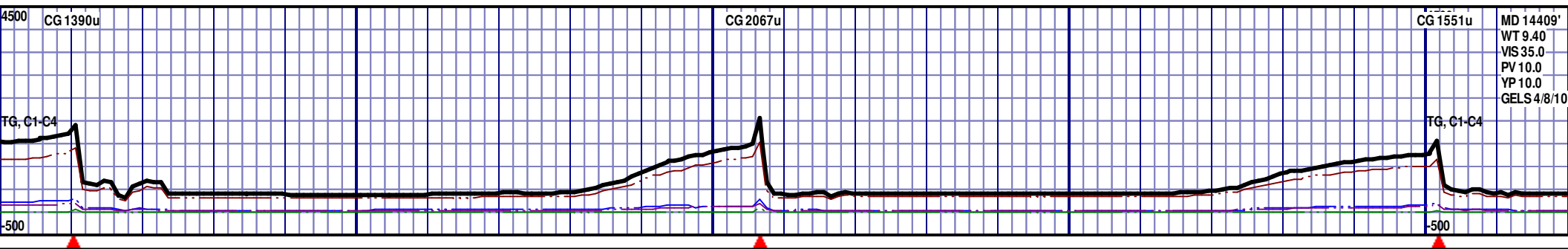
CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 75%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 14048 TVD 6781.91  
INC 87.72 AZ 269.49  
VS 7890.51

MD 14143 TVD 6785.95  
INC 87.4 AZ 270.19  
VS 7985.22



CHK; 78%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 73%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

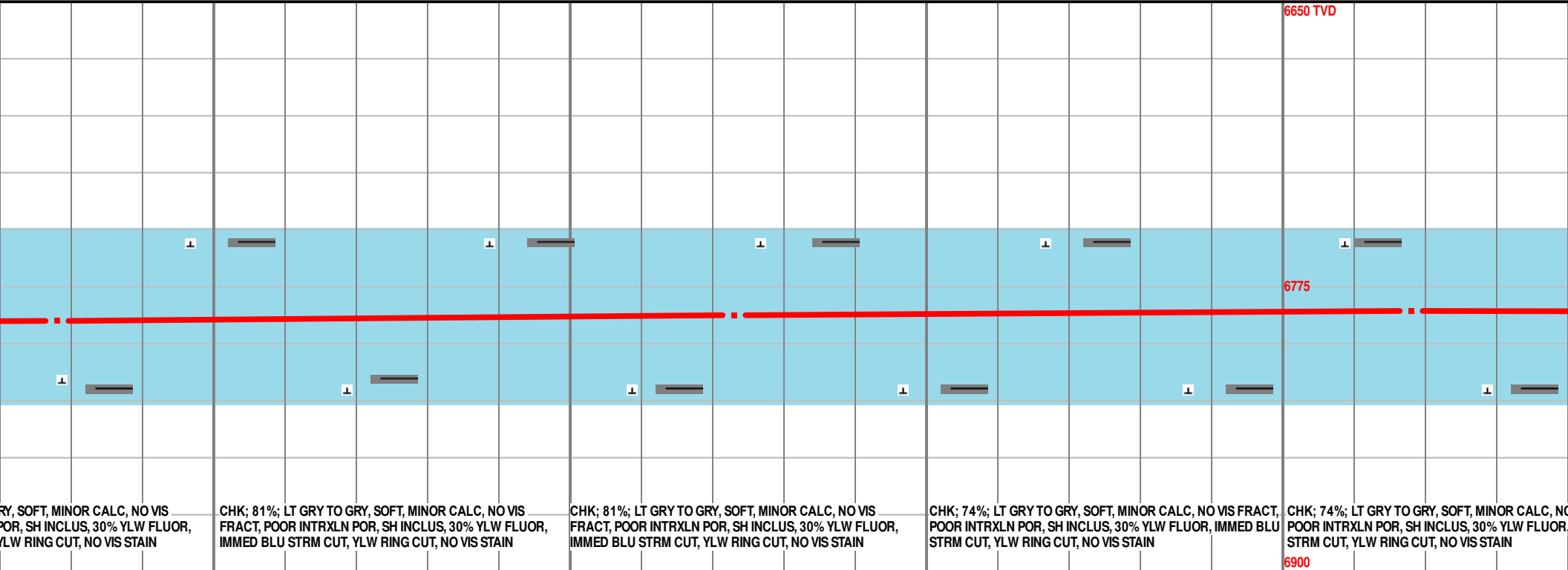
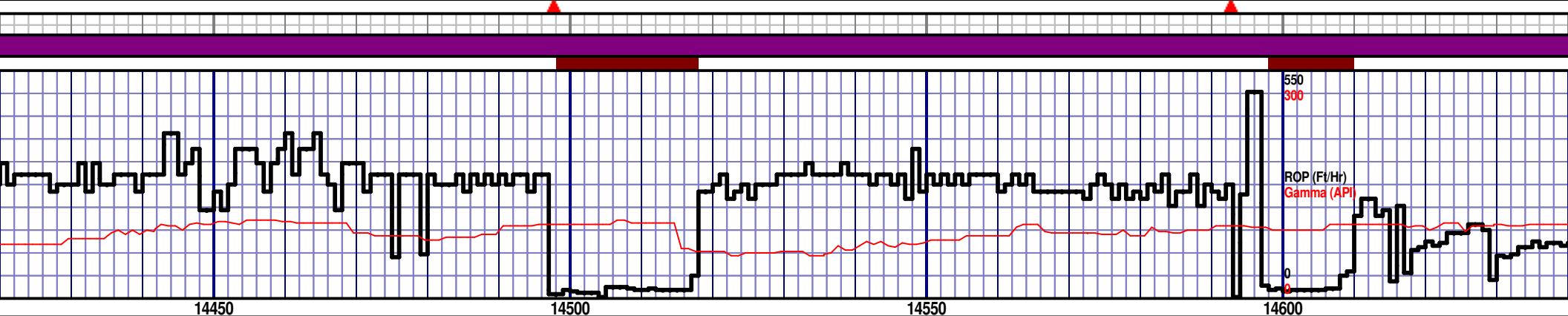
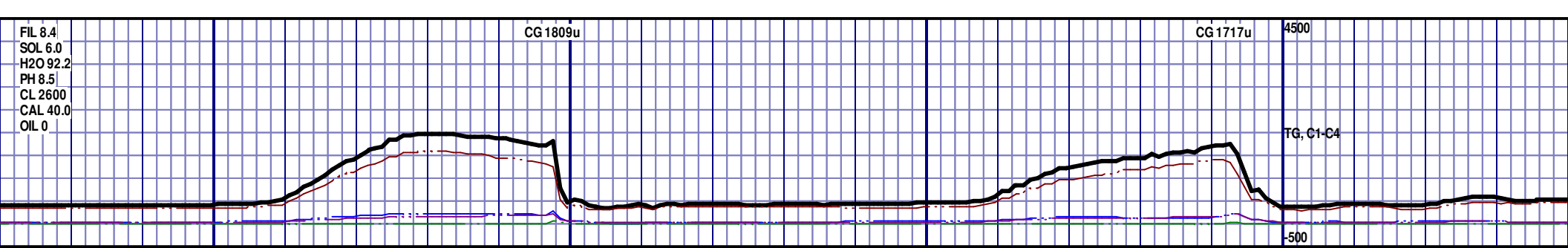
CHK; 75%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 75%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 75%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 14238 TVD 6789.63  
INC 88.15 AZ 269  
VS 8079.98

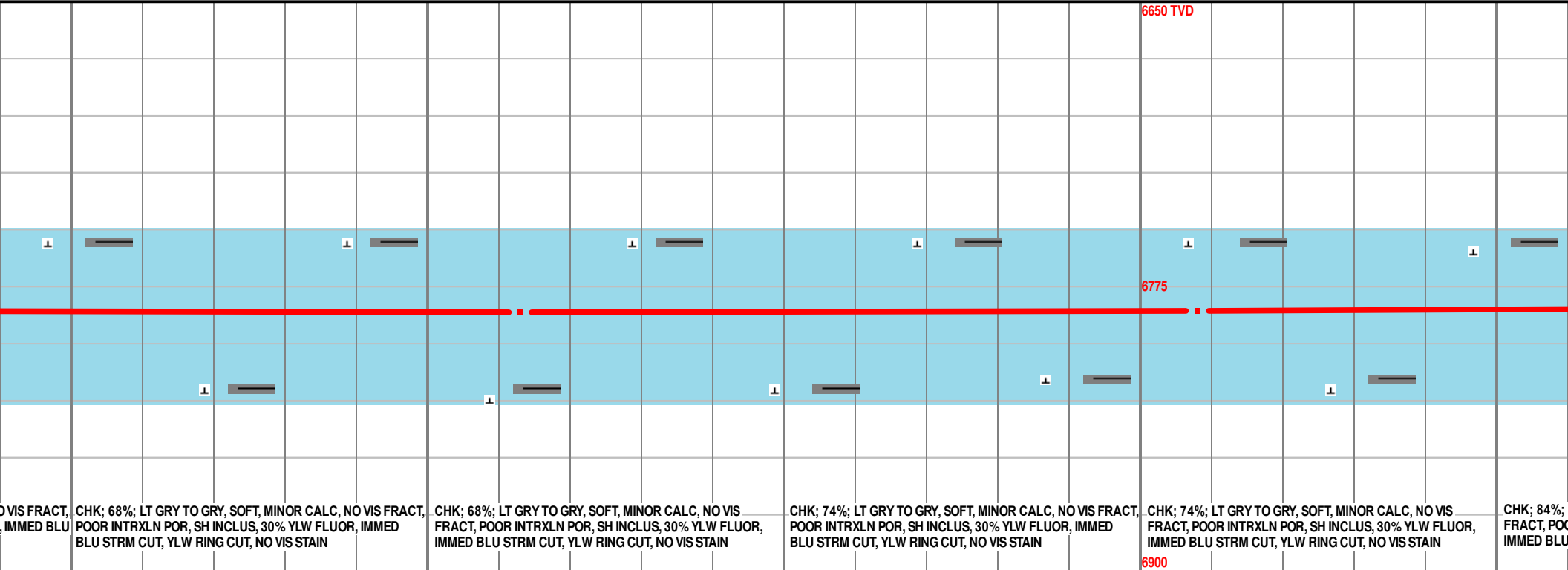
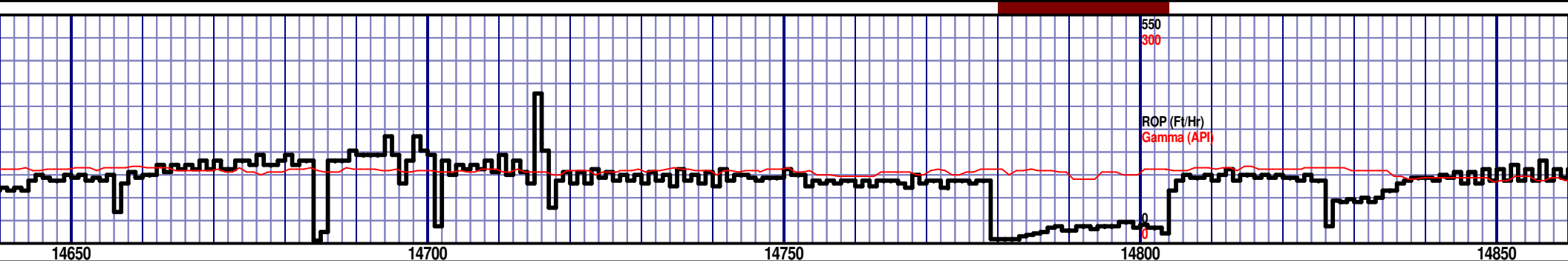
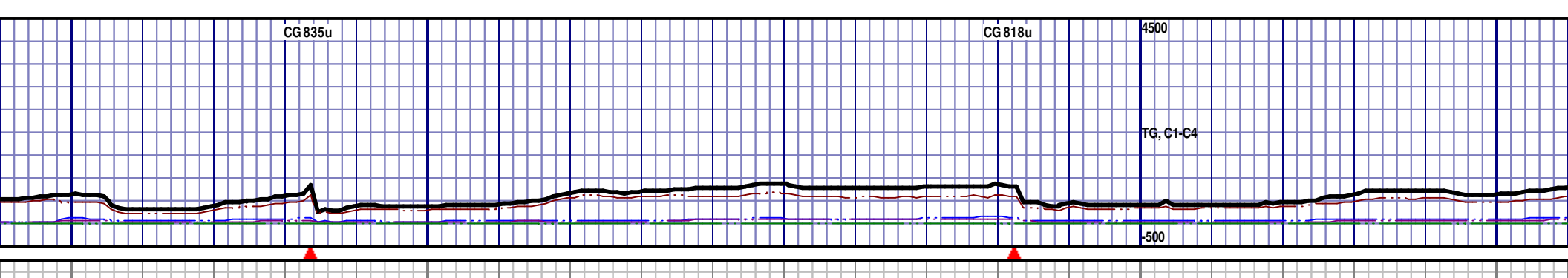
MD 14333 TVD 6791.11  
INC 90.06 AZ 270.12  
VS 8174.79



MD 14428 TVD 6790.07  
INC 91.2 AZ 269.05  
VS 8269.61

MD 14523 TVD 6787.35  
INC 92.07 AZ 266.66  
VS 8364.53

MD 14618 TVD 6785.64  
INC 90 AZ 267.06  
VS 8459.5



NO VIS FRACT, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 68%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 74%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 74%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT, POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 14713 TVD 6786.02  
INC 89.54 AZ 265.39  
VS 8554.49

MD 14808 TVD 6785.87  
INC 90.65 AZ 267.93  
VS 8649.48

CG 1217u

MD 14955'  
WT 9.40  
VIS 34.0  
PV 9.0  
YP 10.0  
GELS 4/7/8  
FIL 9.6  
SOL 5.7  
H2O 92.0  
PH 8.0  
CL 2600  
CAL 80.0  
OIL 0

4500

BOTTOMS UP GAS 1218u

TG, C1-

-500

WOB 20.3K  
PP 3625  
RPM 80  
SPM 60/0

550

300

DRILLER'S TD @ 14955' MD @  
12:00 PM ON 1/18/2013

ROP (F

Gamma

12:01 AM  
1/19/2013

0

0

14900

14950

15000

6650 TV

TD @ 14955' MD

RELEASED ON 1/19/2013

6775

THANK YOU FROM ALEC  
WALKER, MARINA LEE,  
AND HORIZON WELL  
LOGGING, LLC

LT GRY TO GRY, SOFT, MINOR CALC, NO VIS  
OR INTRXLN POR, SH INCLUS, 30% YLW FLUOR,  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 84%; LT GRY TO GRY, SOFT, MINOR CALC, NO VIS FRACT,  
POOR INTRXLN POR, SH INCLUS, 30% YLW FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

6900

MD 14889 TVD 6784.42  
INC 91.42 AZ 267.16  
VS 8730.44

PTB: MD 14955 TVD 6782.79  
INC 91.42 AZ 267.16  
VS 8796.41