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### Customer Information

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

**Geologist:** Rob Koch  
Noble Energy Inc.

### Mud Logging Details

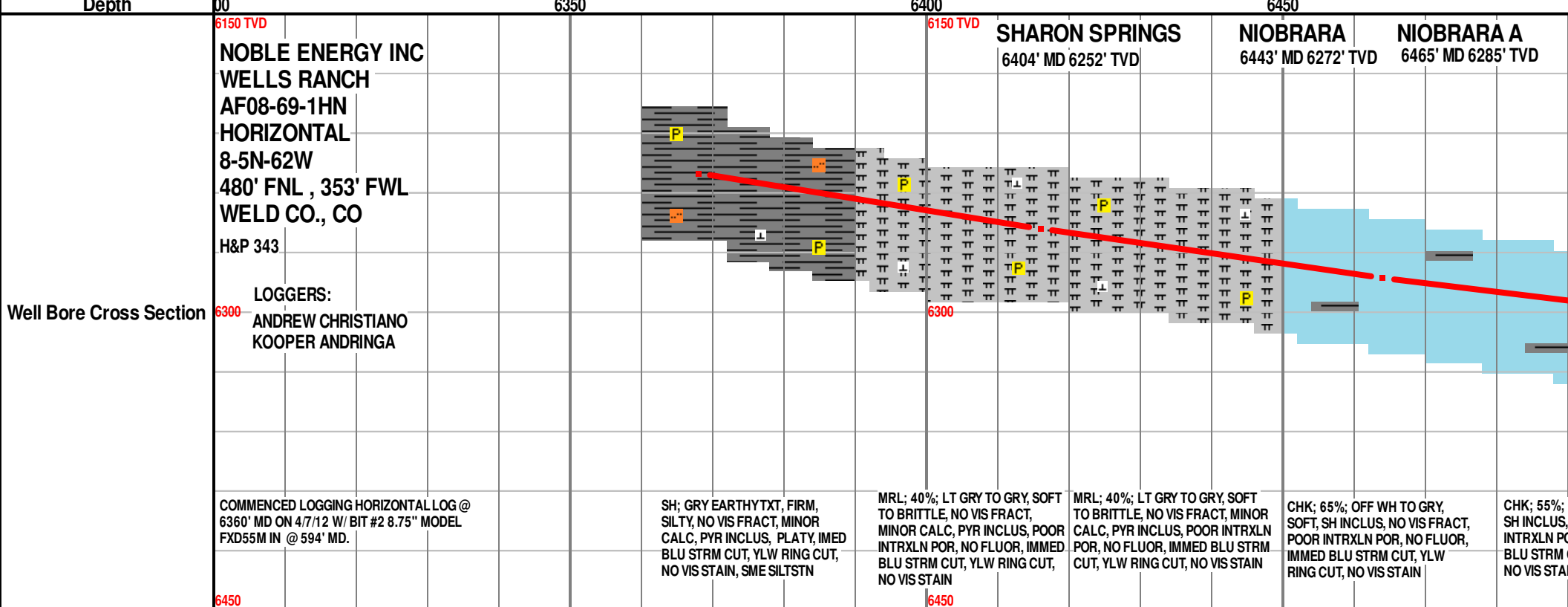
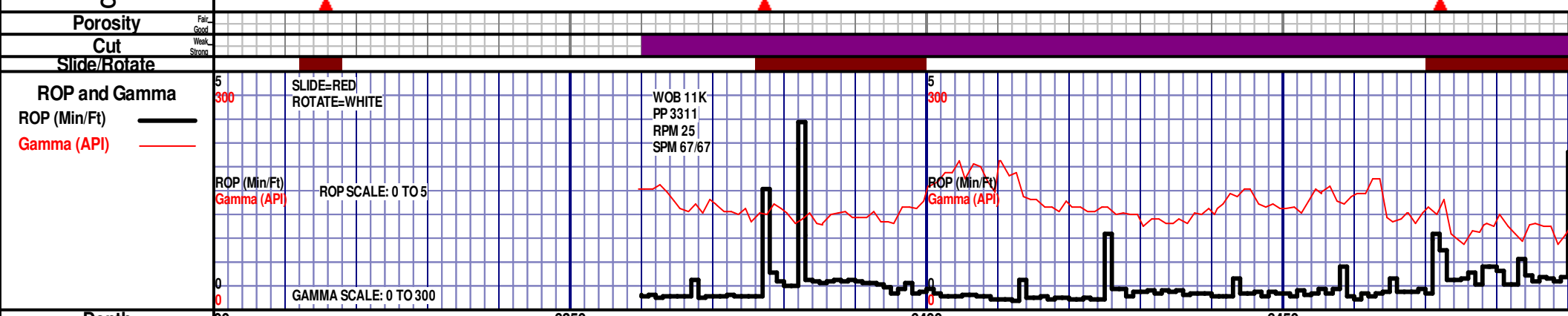
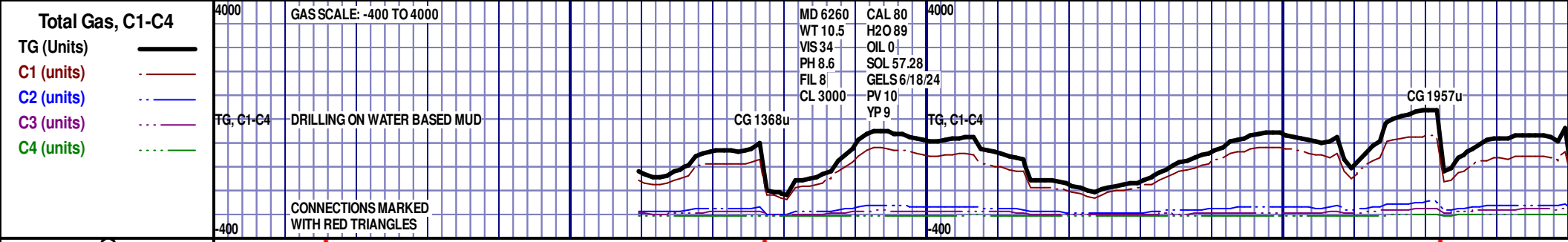
**Logger:** Andrew Christiano & Kooper  
Andringa  
**Log Interval:** 6360' to 15726'  
**Start Date:** April 7, 2012  
**Release Date:** April 14, 2012

### Well Information

**Well Name:** WELLS RANCH  
AF08-69-1HN HORIZONTAL  
**Location:** 8-5N-63W  
480' FNL, 353' FEL

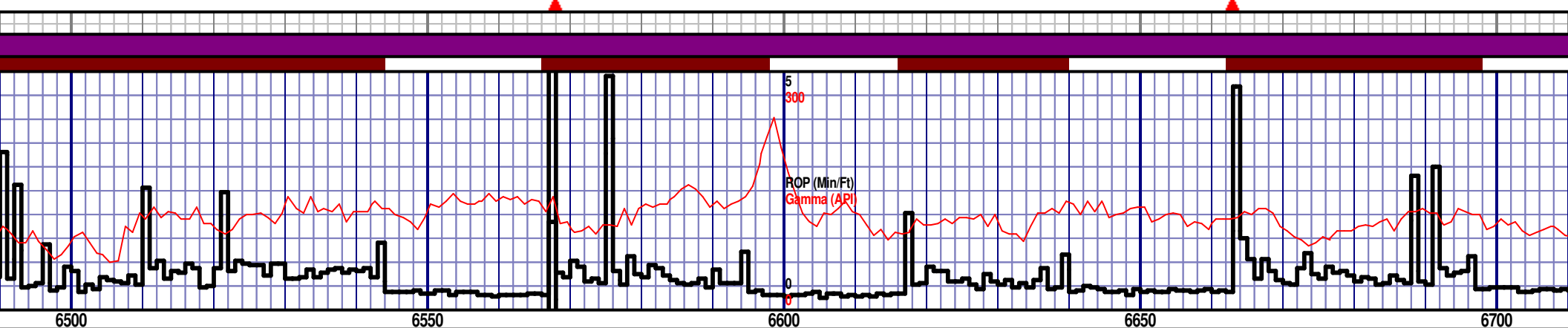
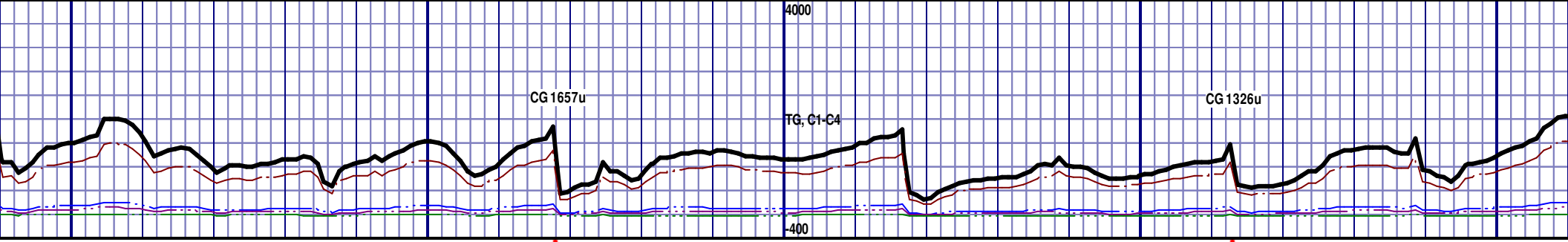
**County:** Weld  
**State:** Colorado

**Drilling Rig:** H&P 343  
**Total Depth:** 15726'  
**TD Date:** April 13, 2012  
**Formation:** Niobrara  
**KB Elevation:** 4688'  
**GR Elevation:** 4664'  
**API Number:** 05-123-34780



**Survey Data**

MD 6368 TVD 6230.49 Az 88.79° Inc 53.54° VS 310.54	MD 6416 TVD 6257.93 Az 89.85° Inc 56.71° VS 349.89	MD 6464 TVD 6282.7 Az 88.2° Inc 61.16° VS 390.97
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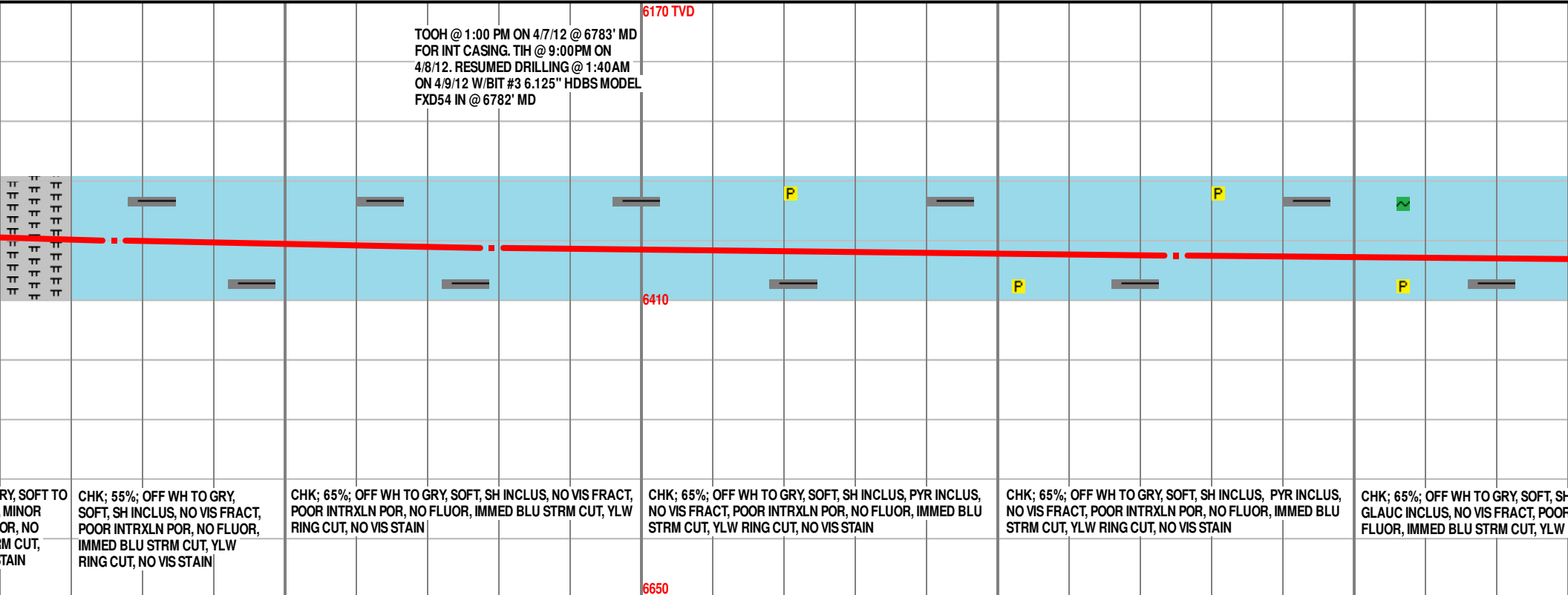
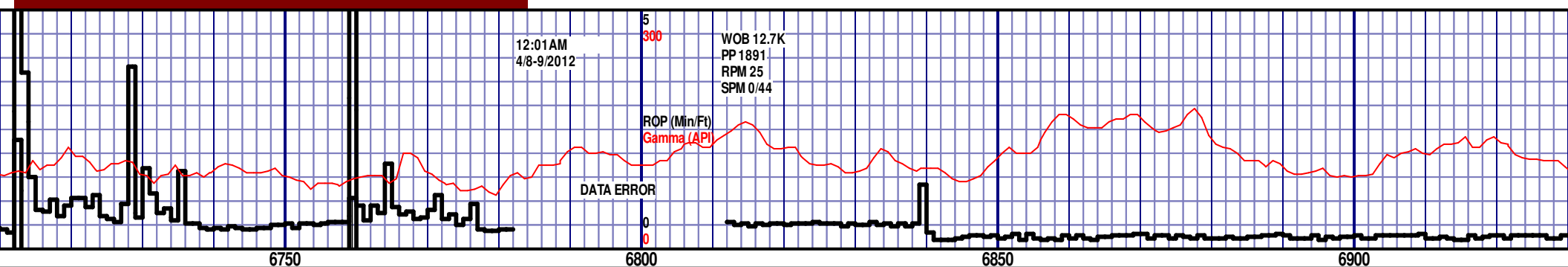
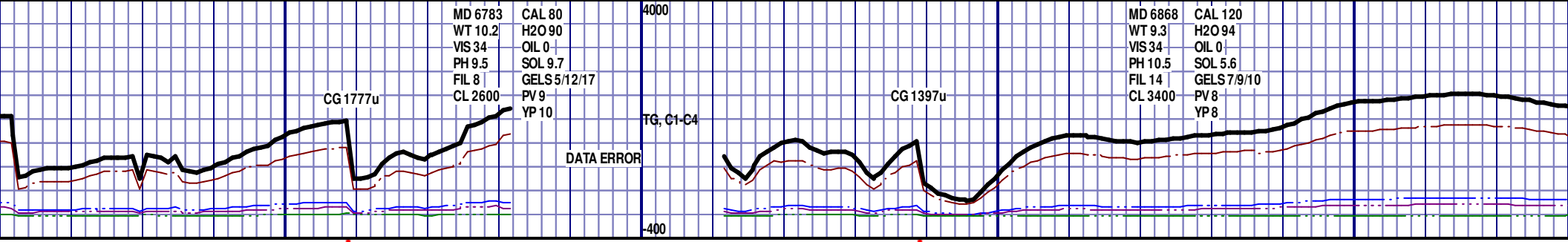
<b>NIOBRARA A MARL</b> 6512' MD 6314' TVD		6170 TVD	<b>NIOBRARA B</b> 6695' MD 6357' TVD				
OFF WH TO GRY, SOFT, NO VIS FRACT, POOR DR, NO FLUOR, IMMED CUT, YLW RING CUT, IN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 50%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 50%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 50%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 50%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 50%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, CALC, POOR INTRXLN P FLUOR, IMMED BLU STR YLW RING CUT, NO VIS S
MD 6512 TVD 6304.04 Az 86.94° Inc 66.02° VS 433.86		MD 6560 TVD 6322.05 Az 87.2° Inc 69.91° VS 478.23	MD 6607 TVD 6336.9 Az 87.85° Inc 73.23° VS 522.72		MD 6655 TVD 6349.47 Az 88.25° Inc 76.41° VS 568.97	MD 6702 Az 88.79	

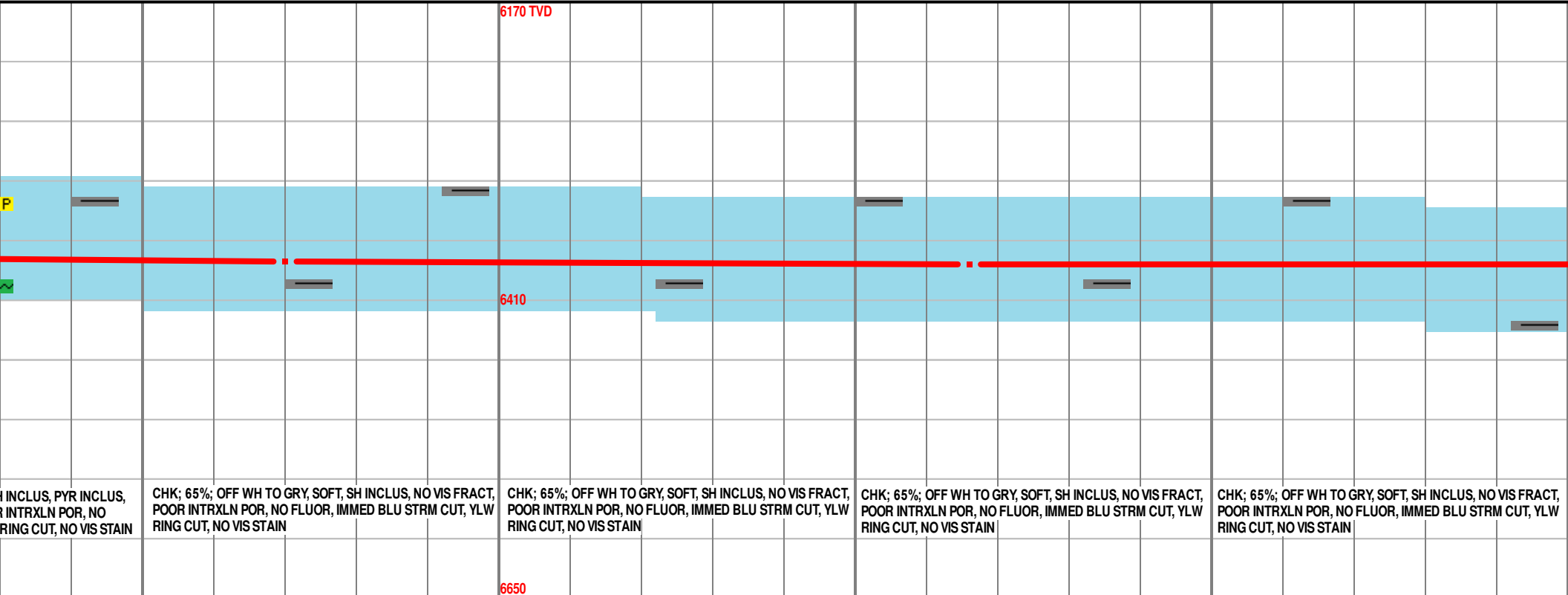
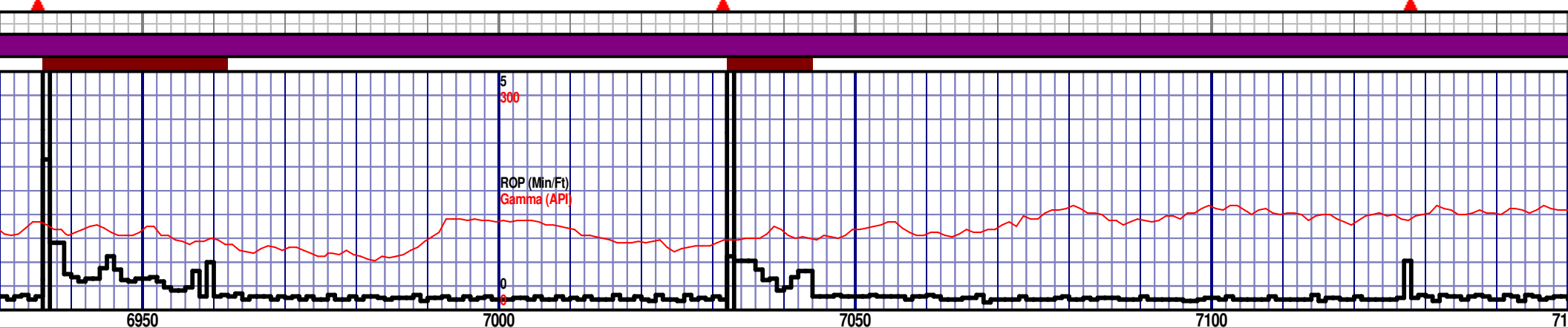
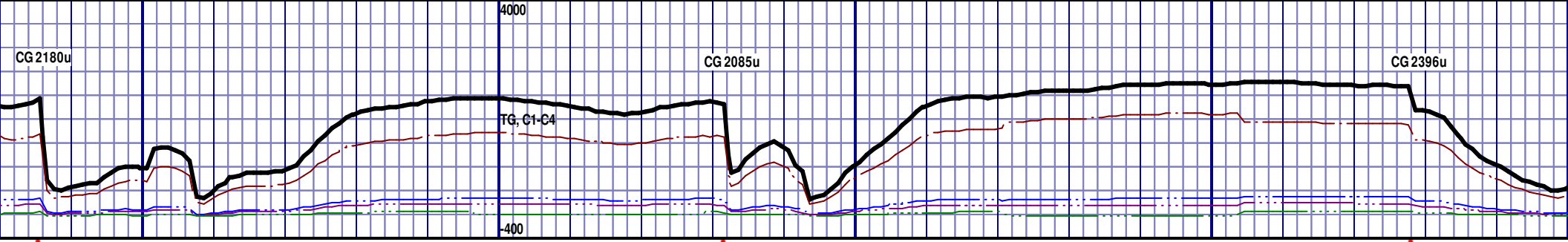
Scale Change  
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6410

6650

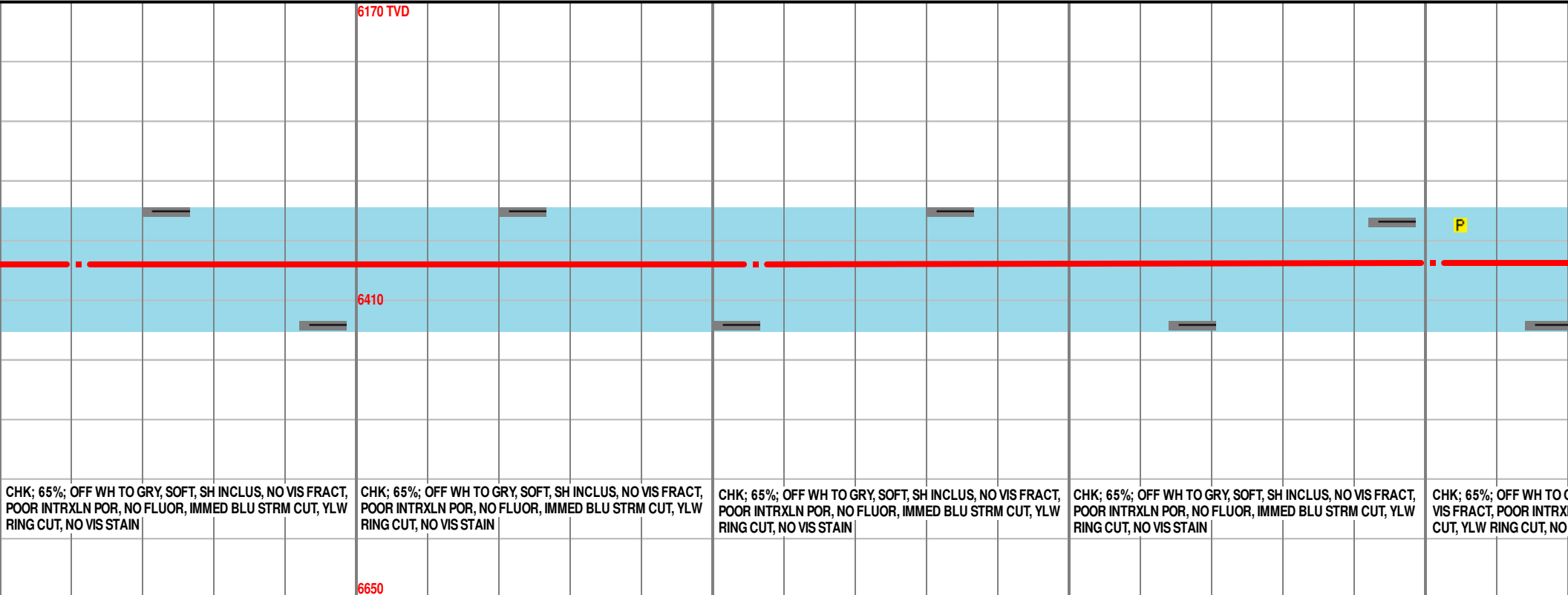
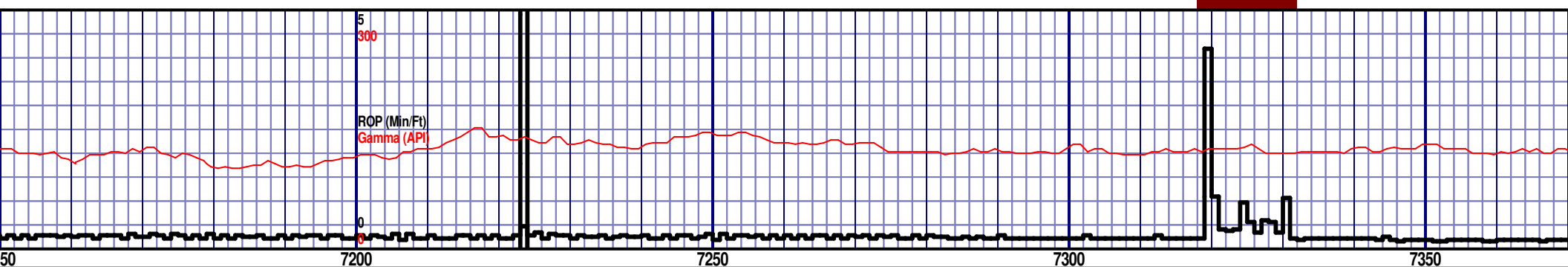
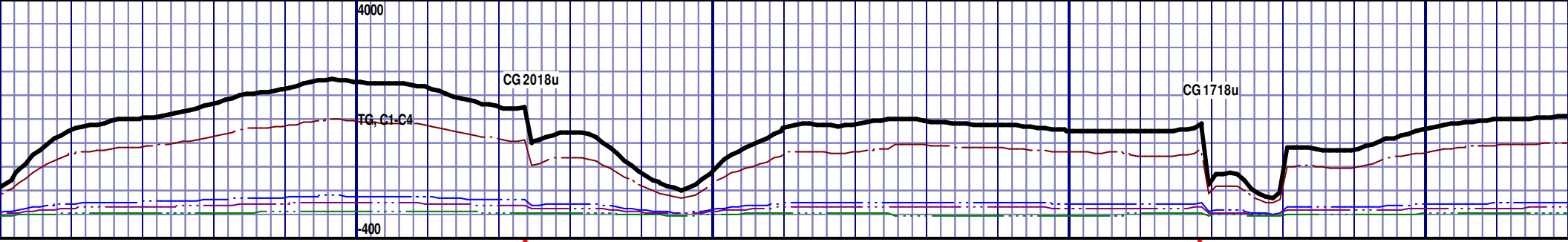
6650





MD 6970 TVD 6378.93  
Az 88.24° Inc 88.34° VS 881.96

MD 7066 TVD 6380.81  
Az 87.15° Inc 89.41° VS 977.77



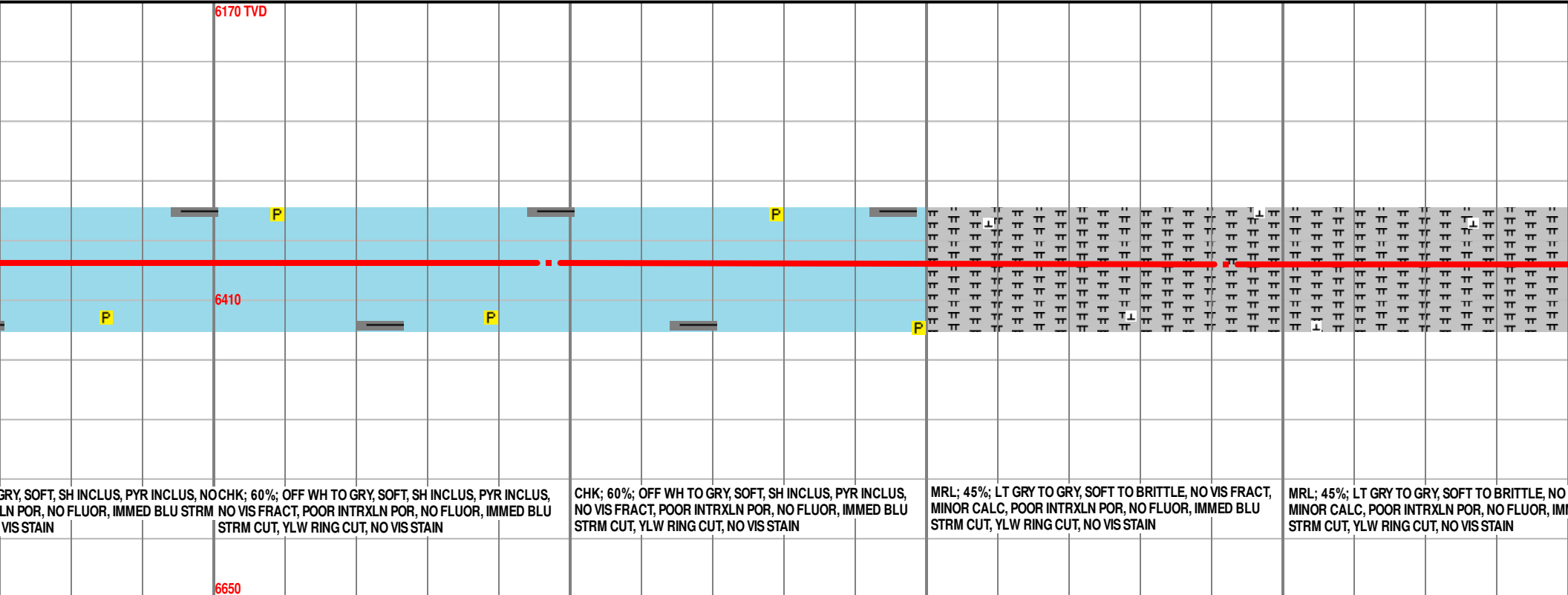
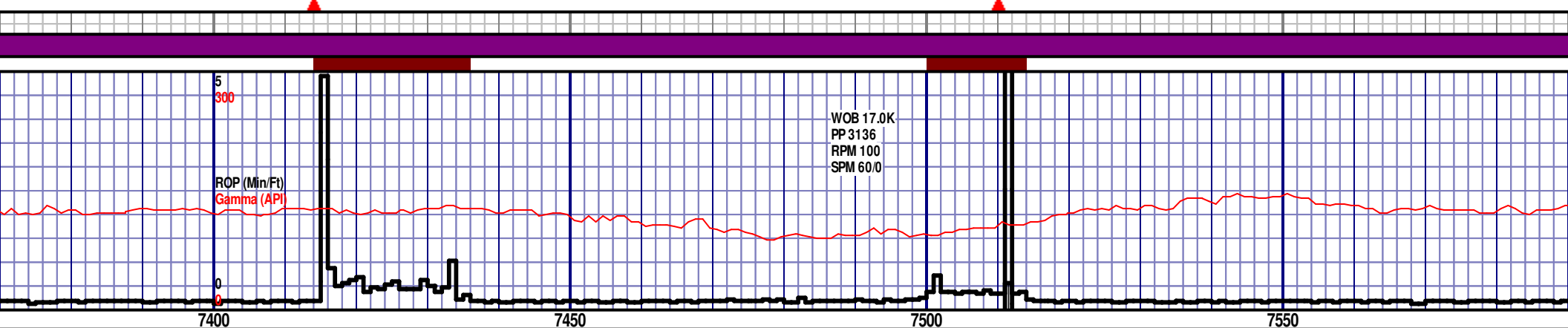
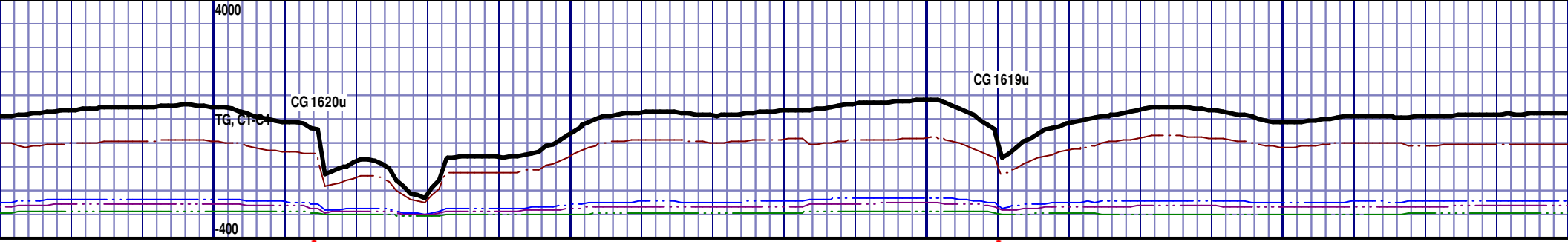
CHK; 65%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

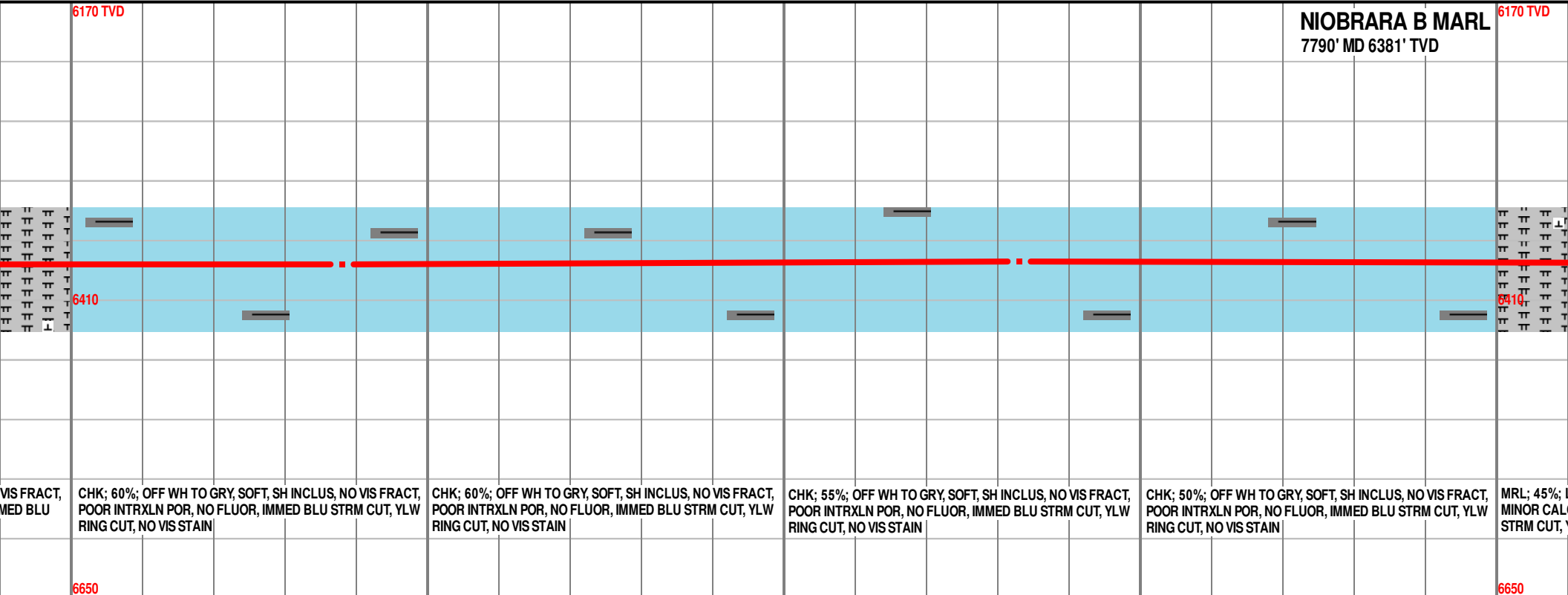
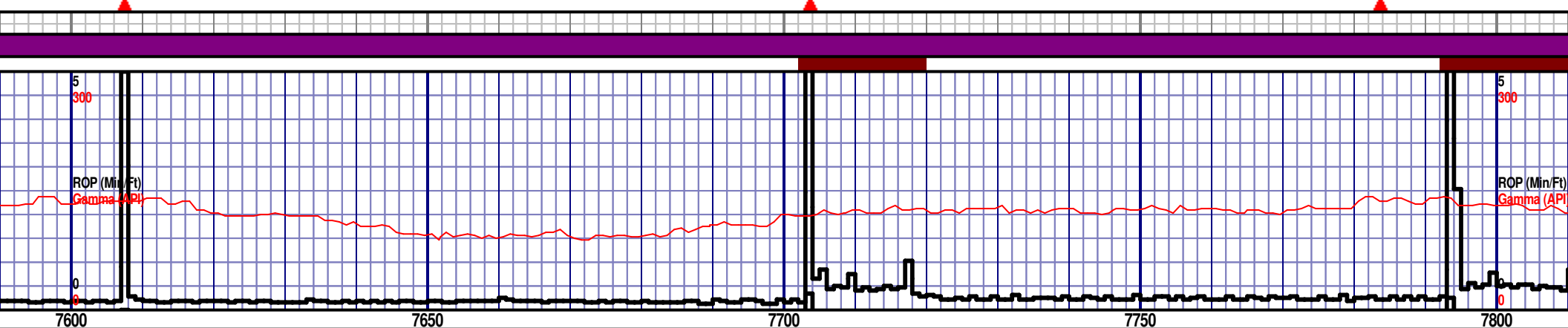
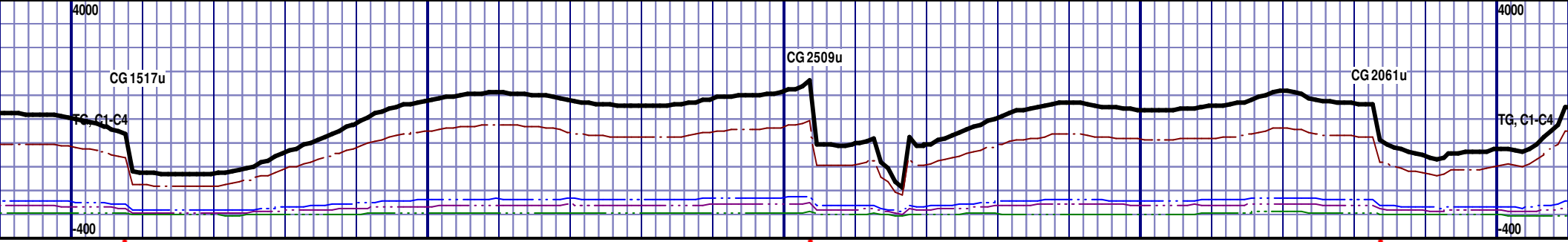
CHK; 65%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

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CHK; 65%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

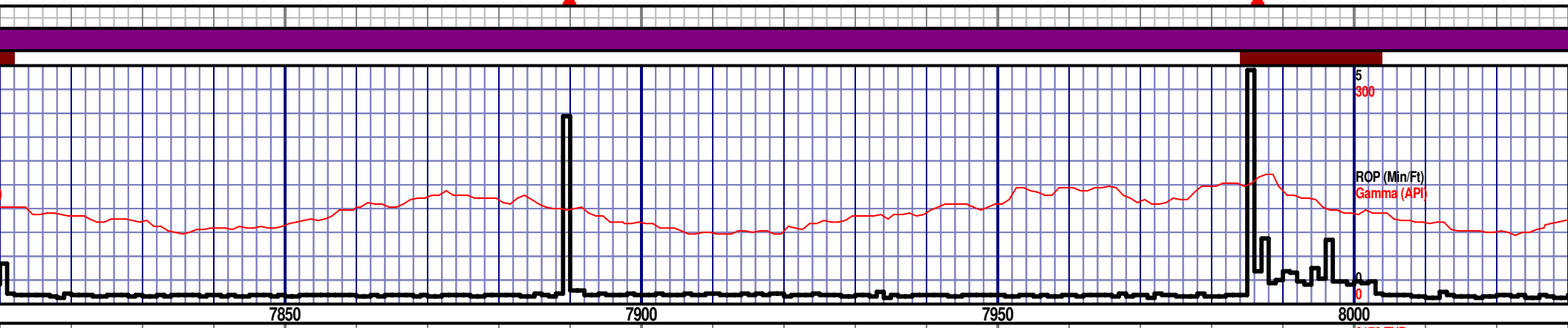
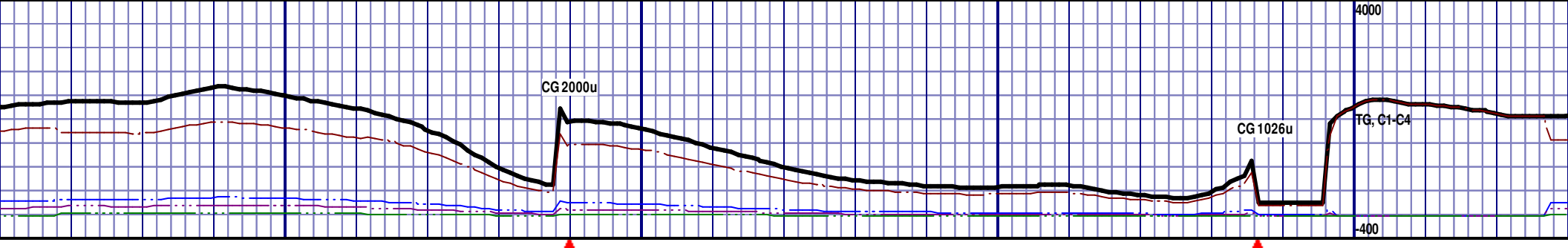




VIS FRACT, MED BLU	CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; MINOR CAL STRM CUT,
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MD 7638 TVD 6380.65  
Az 87.25° Inc 91.51° VS 1548.20

MD 7733 TVD 6378.99  
Az 87.69° Inc 90.49° VS 1642.98

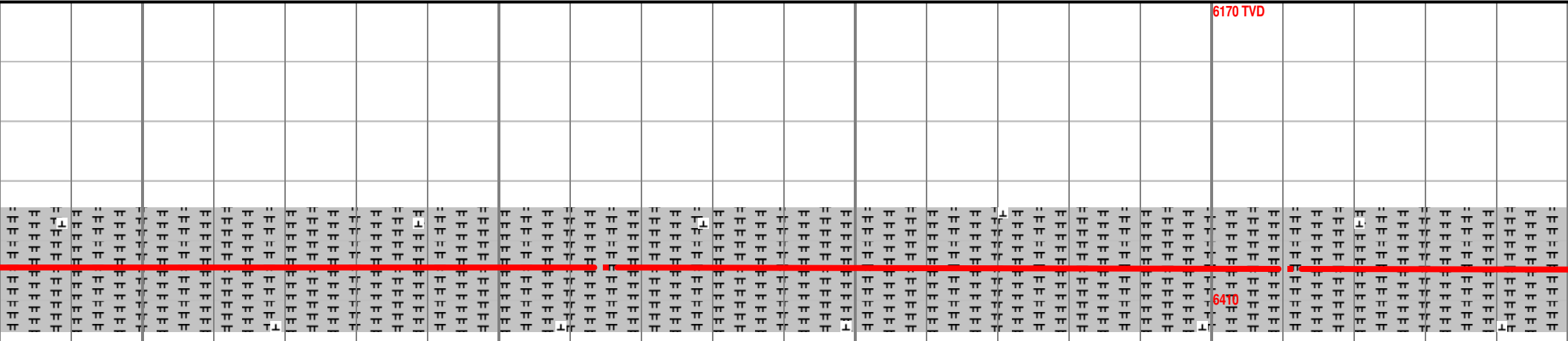
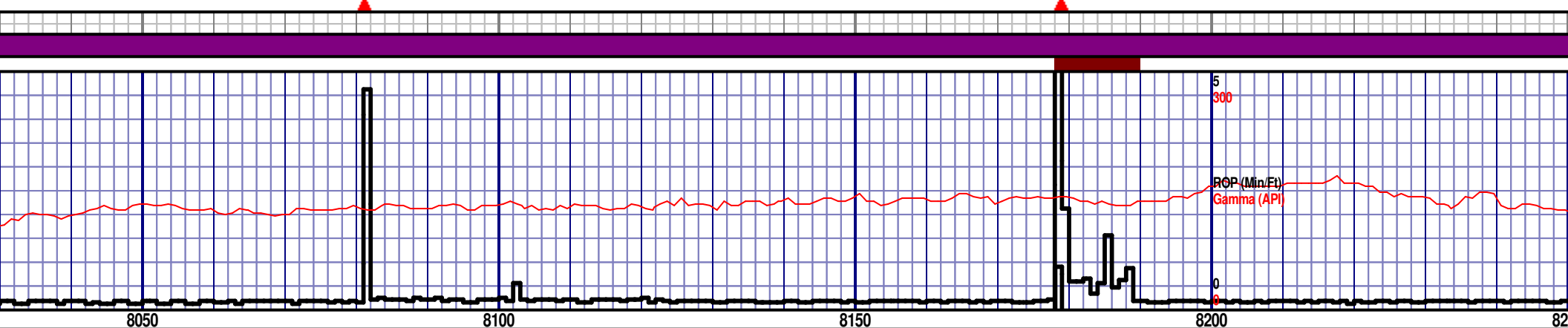
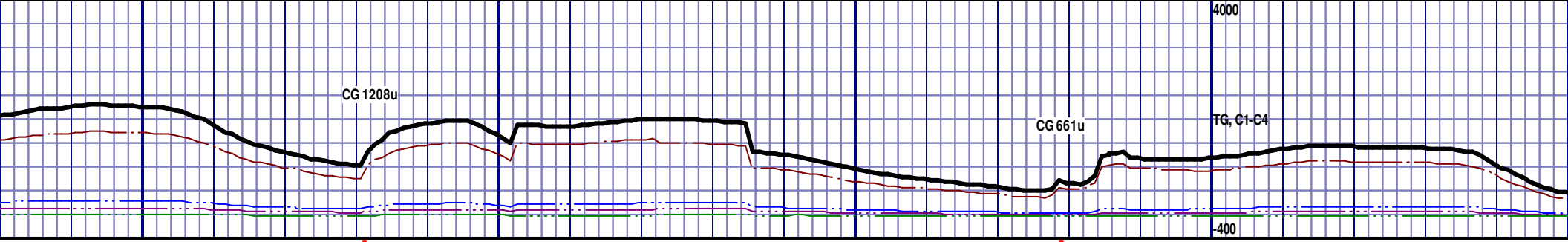


<p>LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, C, POOR INTRXLN POR, NO FLUOR, IMMED BLU YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>

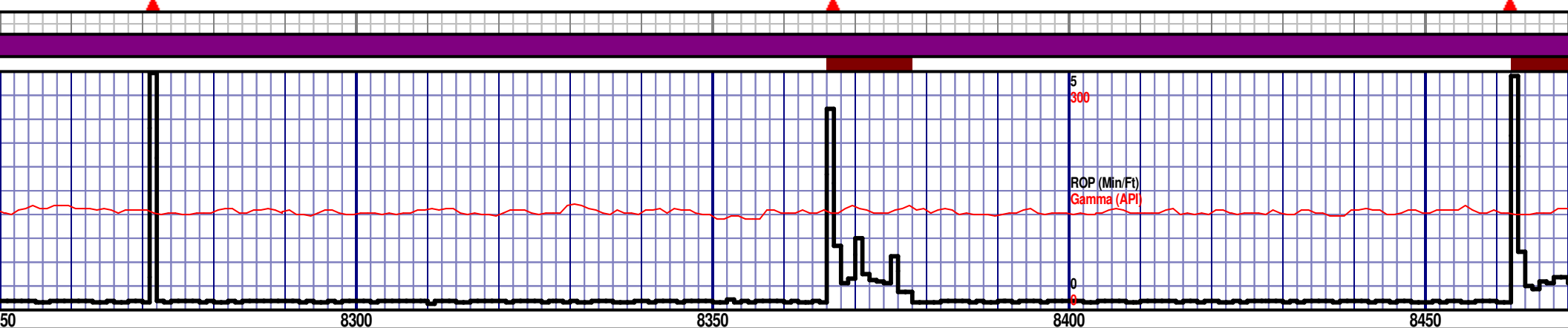
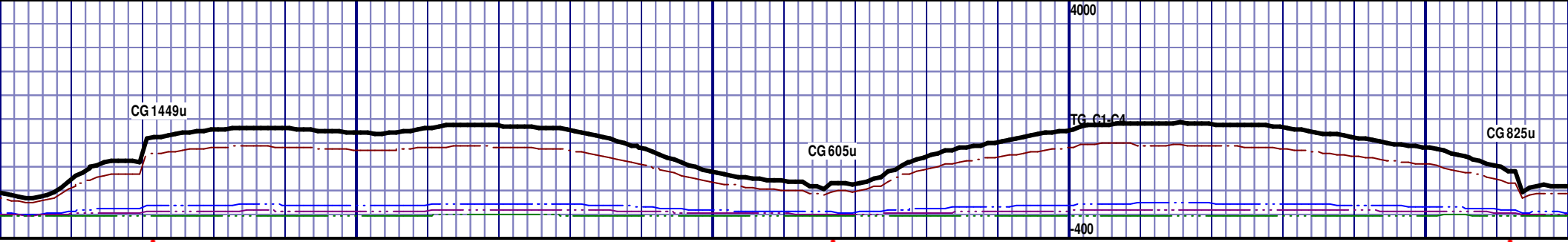
MD 7829 TVD 6379.94  
Az 88.45° Inc 88.37° VS 1738.83

MD 7924 TVD 6381.91  
Az 88.02° Inc 89.26° VS 1833.69

MD 8019 TVD  
Az 88.48° Inc

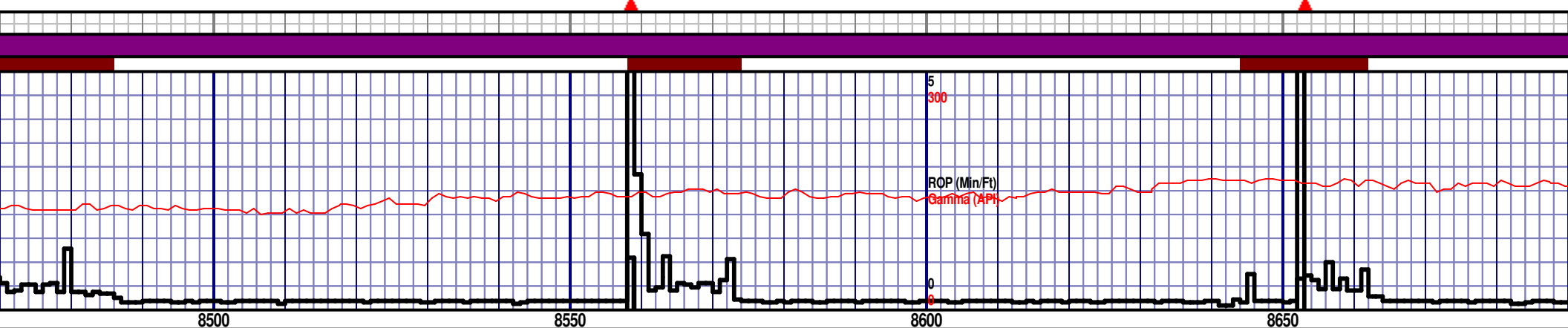
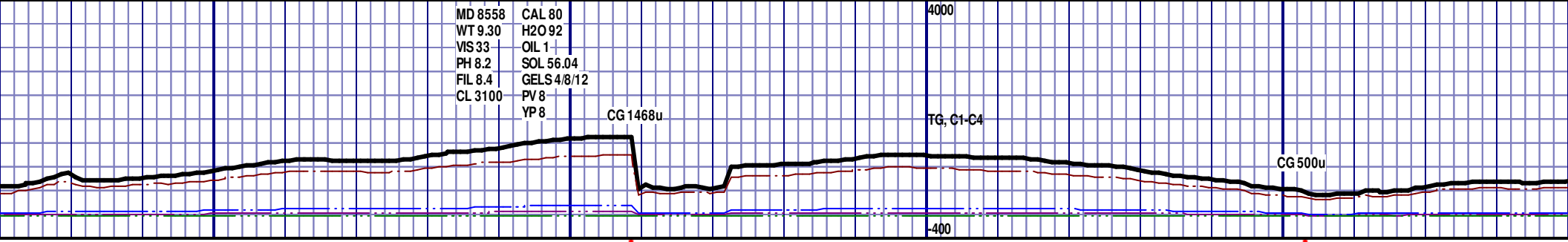


BRITTLE, NO VIS FRACT, NO FLUOR, IMMEDIATE STAIN	MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDIATE STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDIATE STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDIATE STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDIATE STRM CUT, YLW RING CUT, NO VIS STAIN
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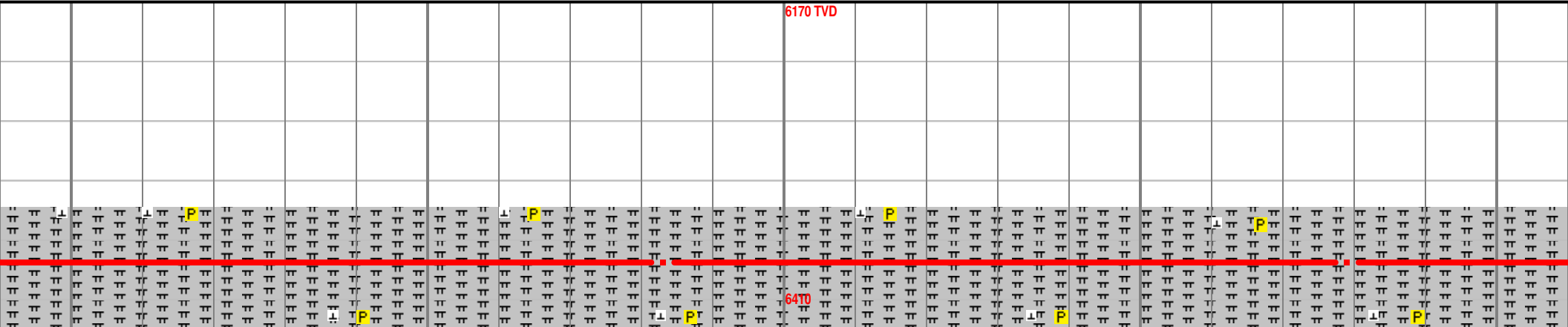
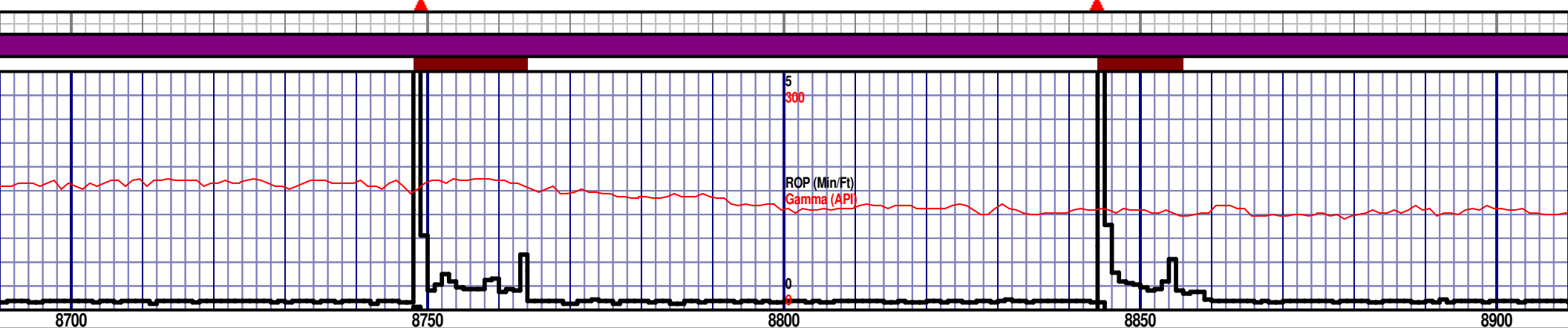
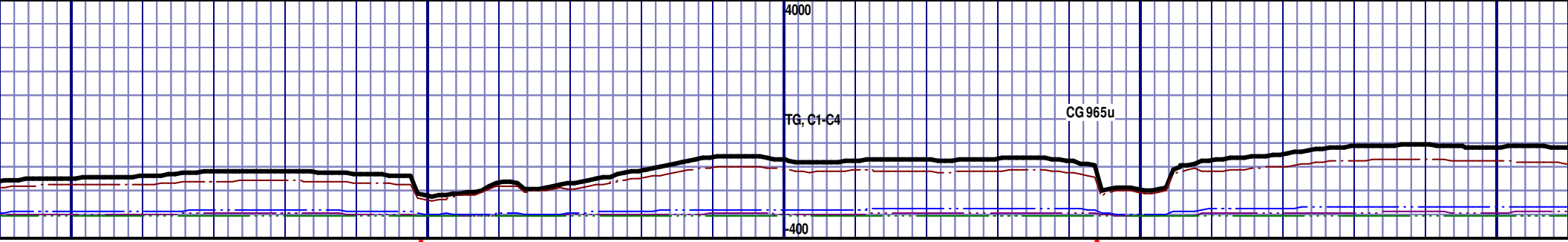


6170 TVD									
6810									
<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>									
6650									

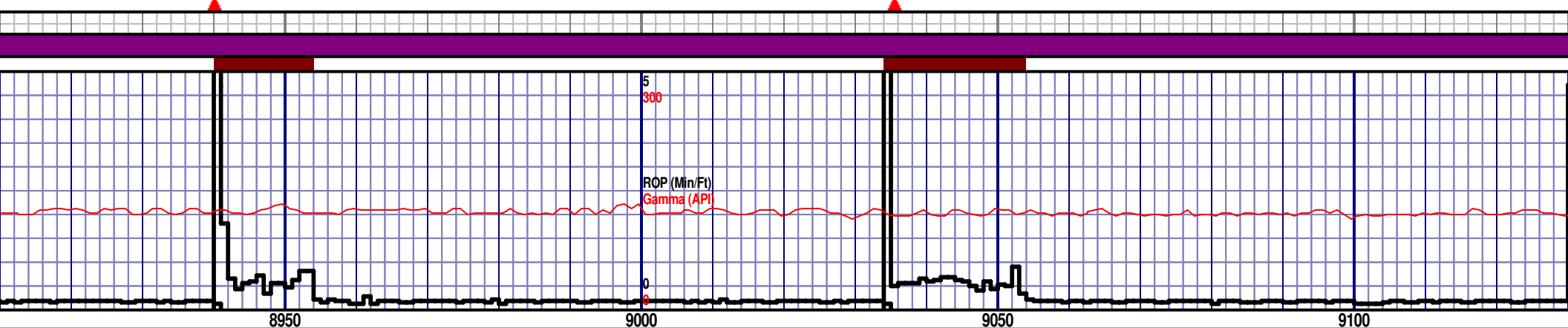
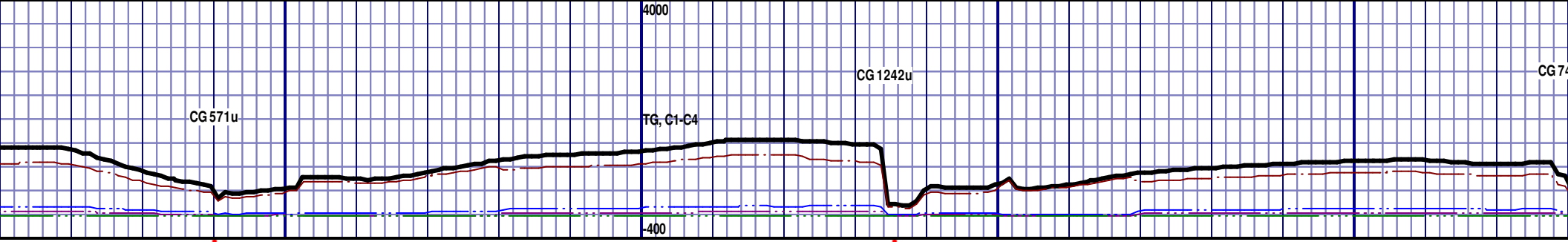
MD 8558 CAL 80  
 WT 9.30 H2O 92  
 VS 33 OIL 1  
 PH 8.2 SOL 56.04  
 FIL 8.4 GELS 4/8/12  
 CL 3100 PV 8  
 YP 8



6170 TVD				
6400				
<p>RY, SOFT TO BRITTLE, NO VIS FRACT, C. POOR INTRXLN POR, NO FLUOR, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>				
6650				

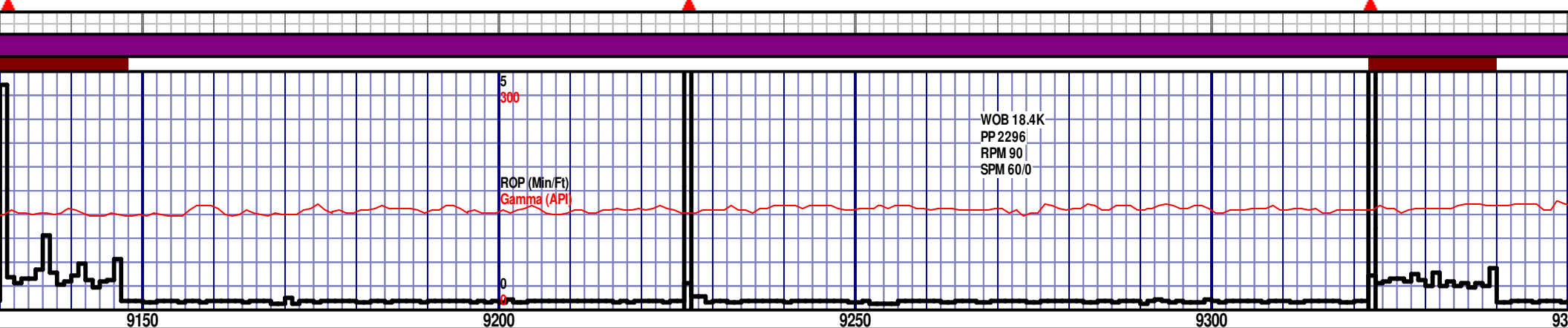
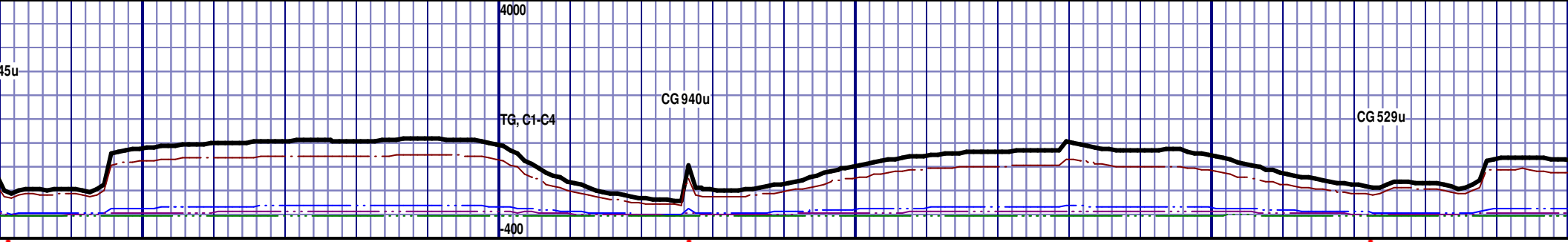


	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; PYR INCLUS, IMMED BLU</p>
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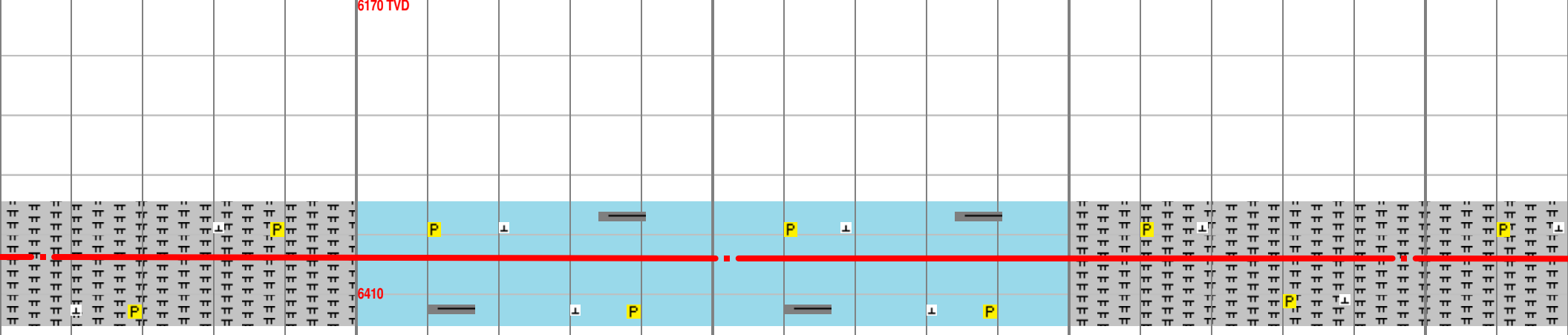
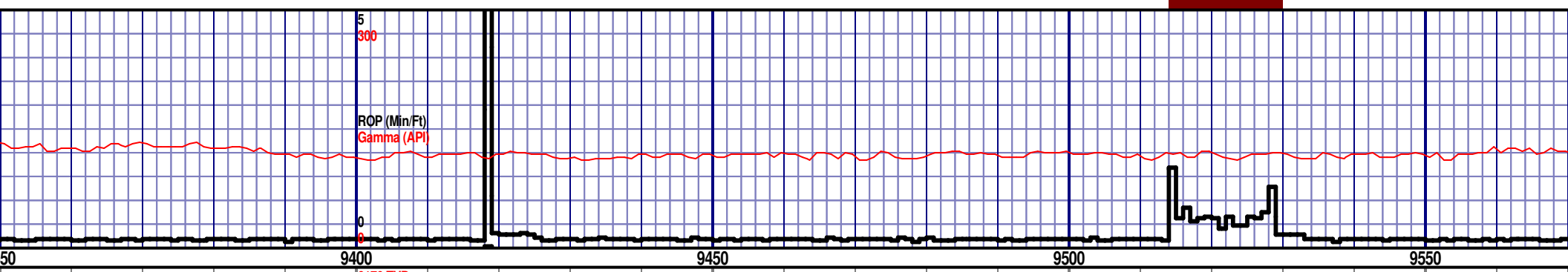
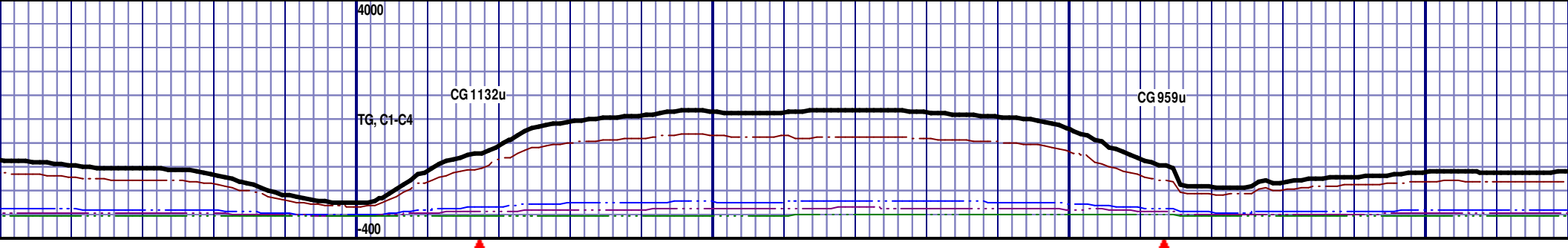


6170 TVD		6170 TVD		6170 TVD		6170 TVD		6170 TVD	
LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL: 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

6650



9150	9200	9250	9300	9350
	6170 TVD			
	6400			
	6650			
BRITTLE, NO VIS FRACT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



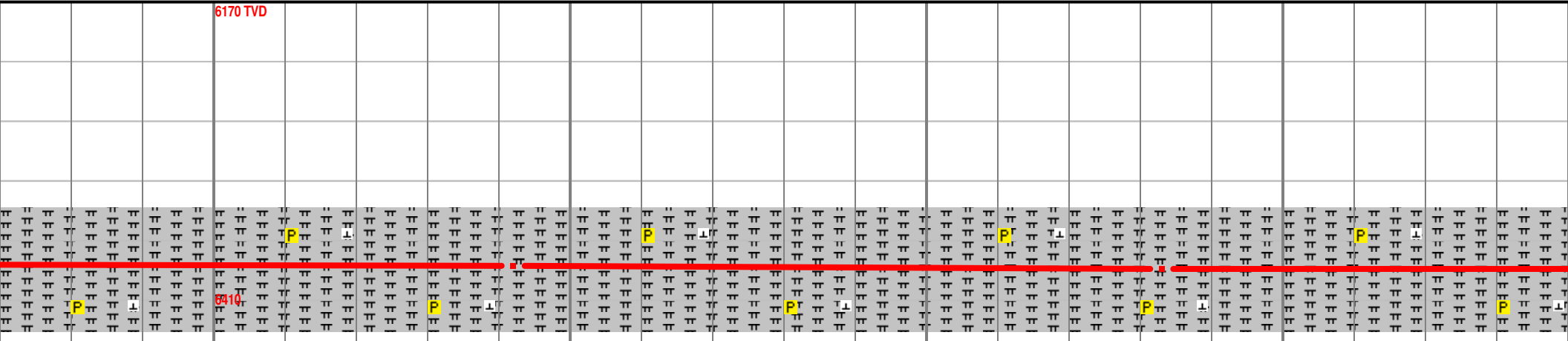
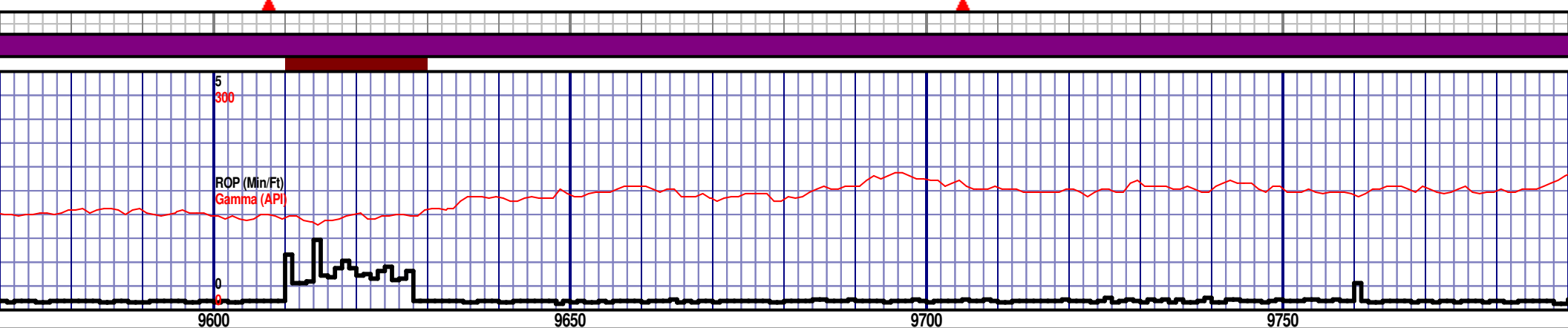
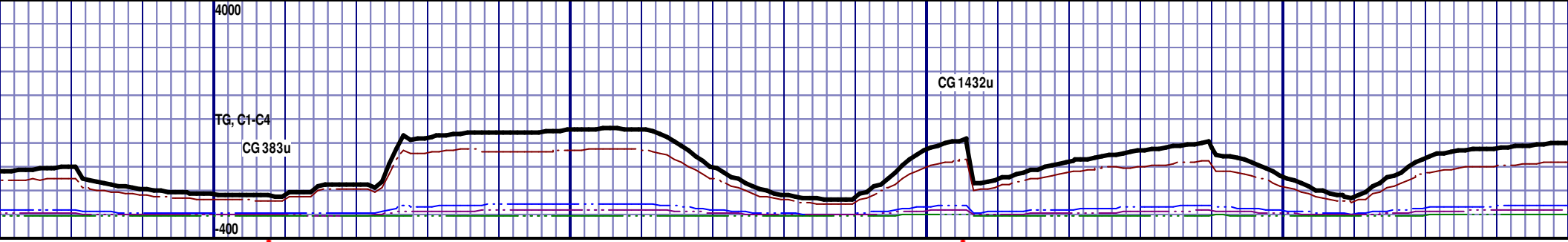
MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, PYR INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



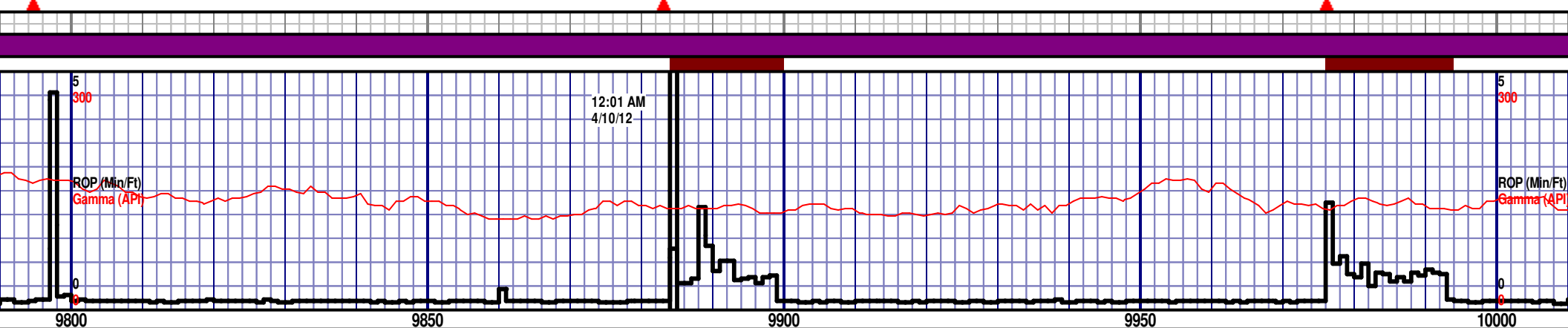
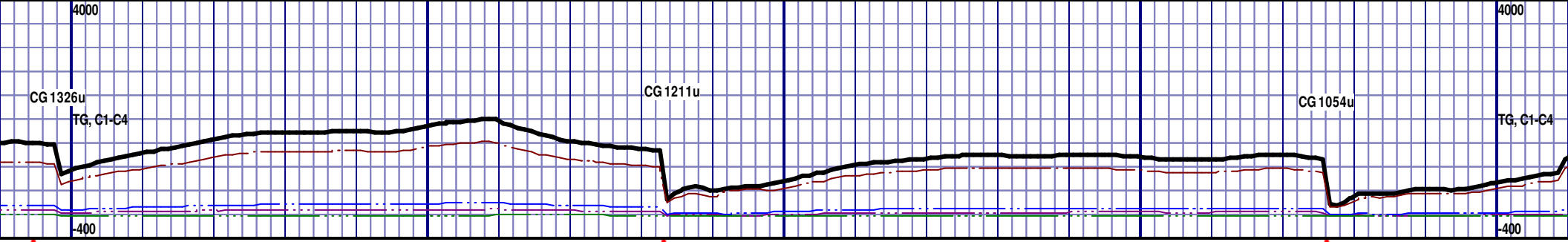
RY, SOFT TO BRITTLE, NO VIS FRACT, C, POOR INTRXLN POR, NO FLUOR, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

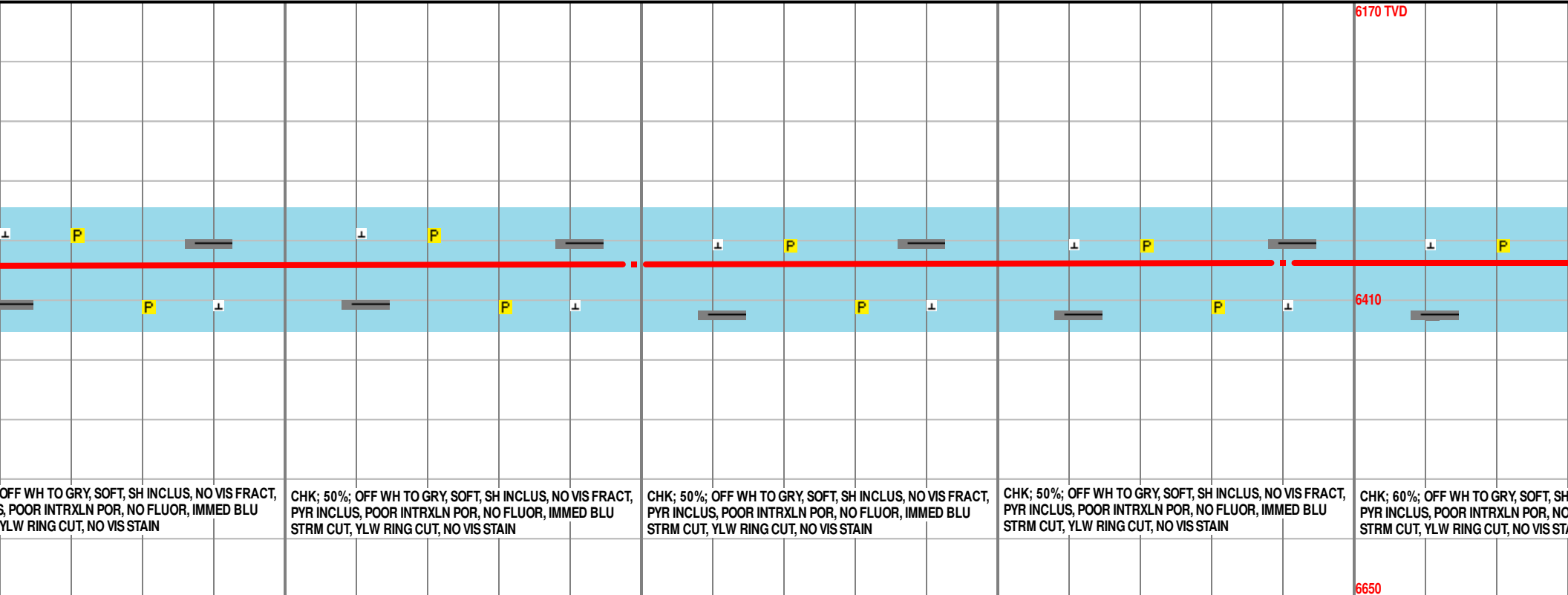
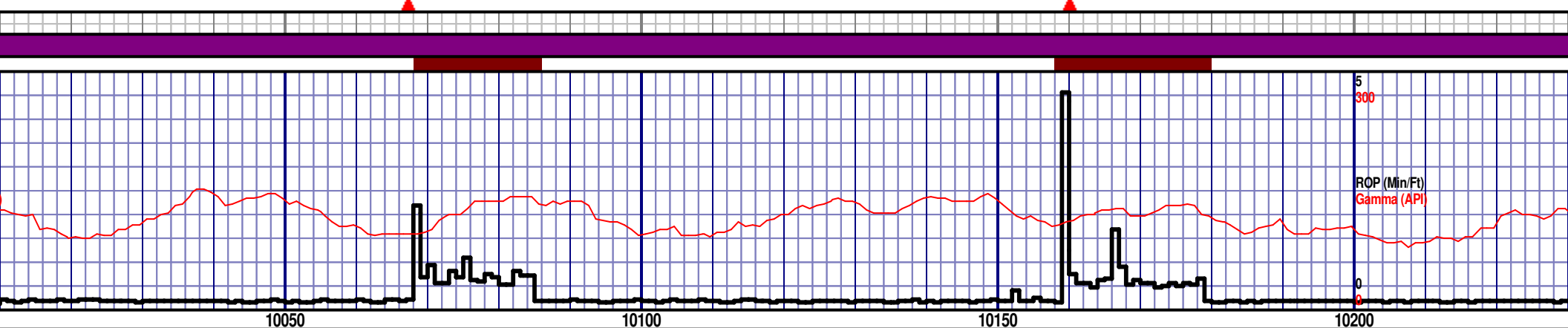
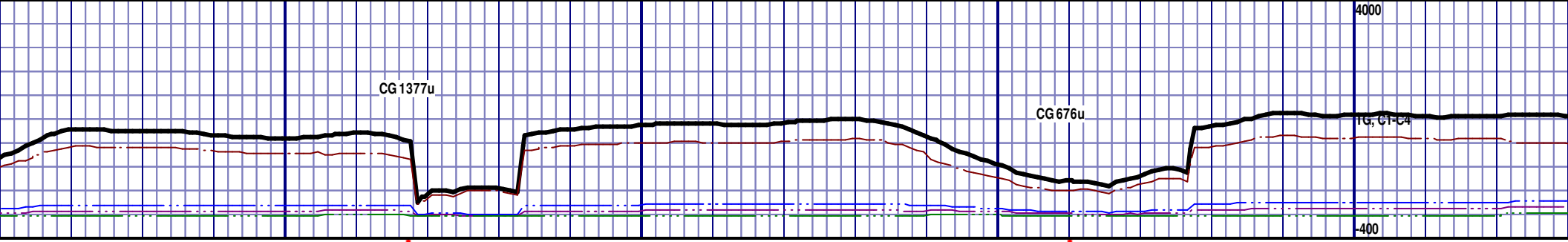


6170 TVD		<b>NIOBRARA B</b> 9975' MD 6382' TVD					6170 TVD
MS FRACT, O FLUOR, IN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; PYR INCLUS STRM CUT,	6410	
6650						6650	

MD 9825 TVD 6385.16  
Az 88.75° Inc 90.55° VS 3731.99

MD 9916 TVD 6383.69  
Az 87.74° Inc 91.29° VS 3822.86

MD  
Az



OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
S, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
STRM CUT, YLW RING CUT, NO VIS STAIN

MD 10250 CAL 60  
 WT 9.40 H2O 90  
 VIS 36 OIL 2  
 PH 9.0 SOL 66.65  
 FIL 7.8 GELS 3/7/10  
 CL 3200 PV 11  
 YP 9

CG 527u

CG 731u

TG, C1-C4

CG 620u

-400

WOB 35.9K  
 PP 2885  
 RPM 90  
 SPM 0/60

ROP (Min/Ft)  
 Gamma (API)

10250

10300

10350

10400

10450

6170 TVD

6410

6650

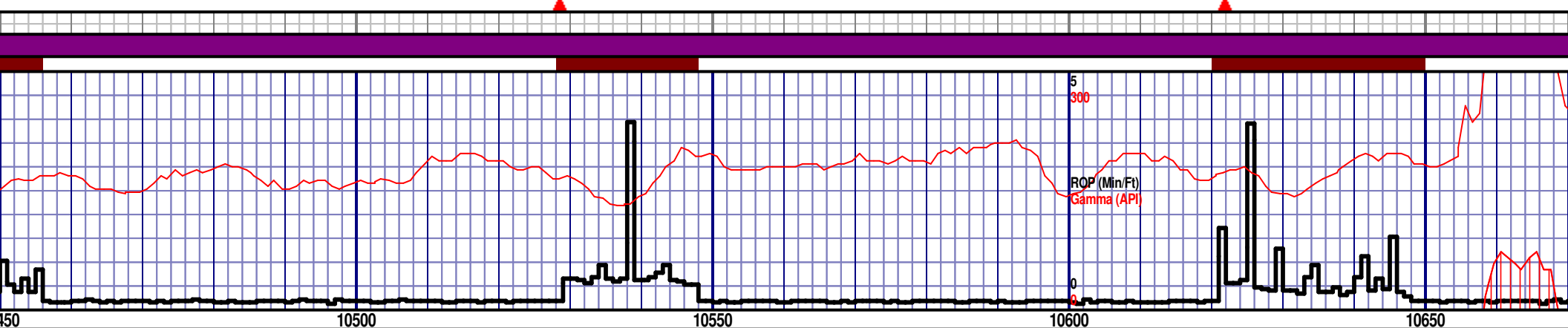
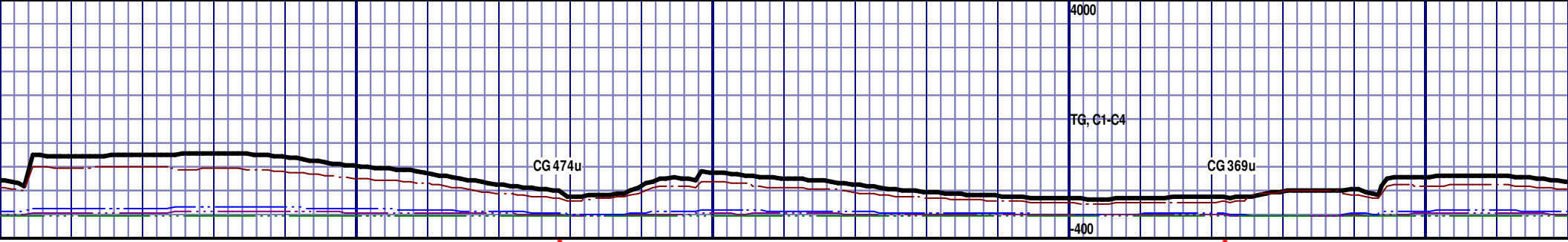
INCLUS, NO VIS FRACT,  
 FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

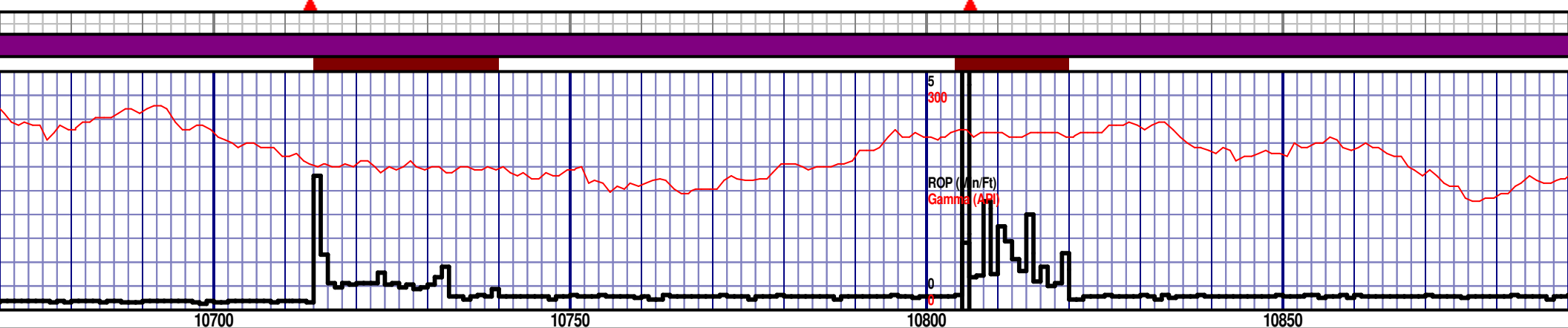
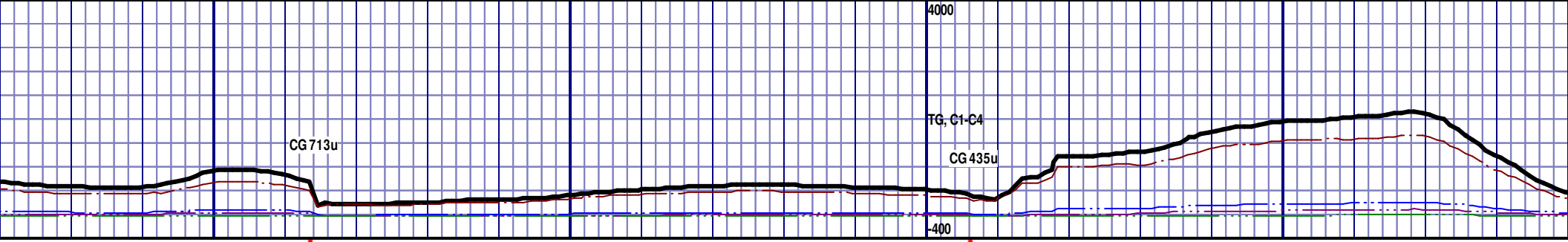
CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

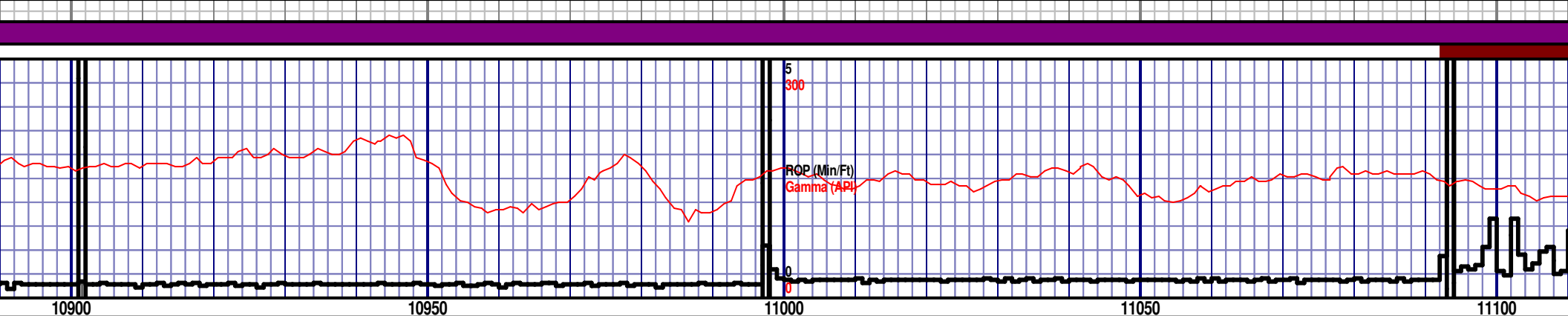
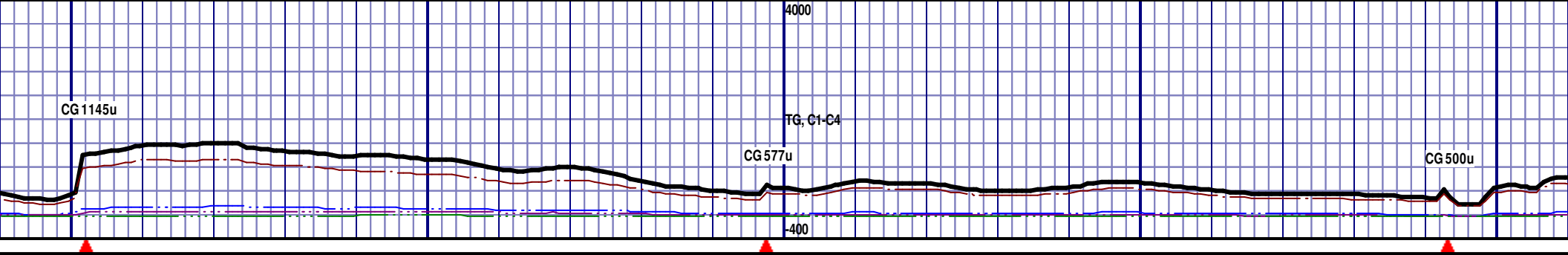


**NIOBARRA A MARL**  
10475' MD 6380' TVD

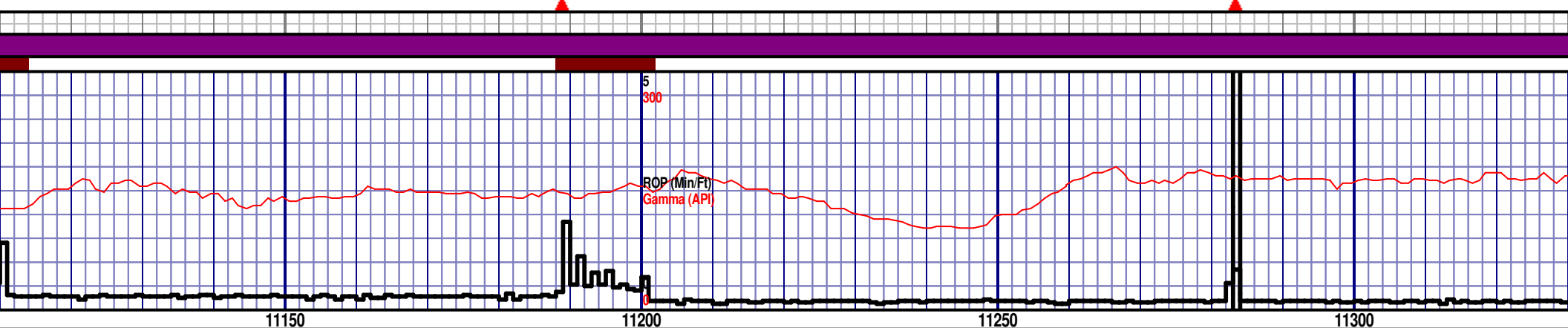
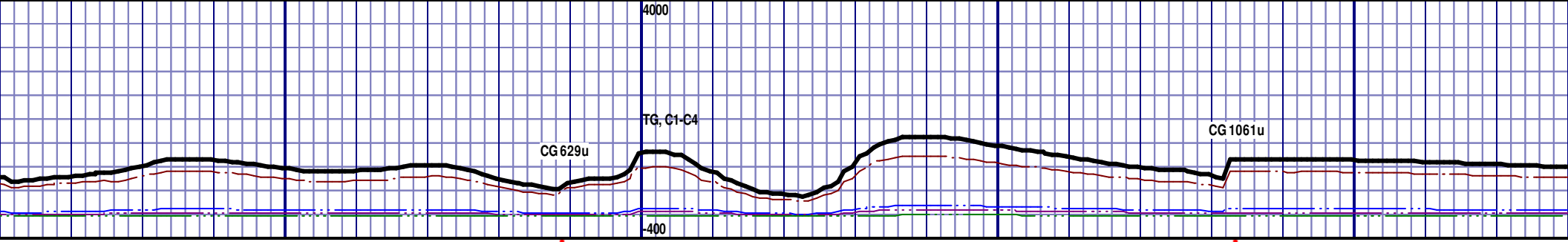
<p>CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>



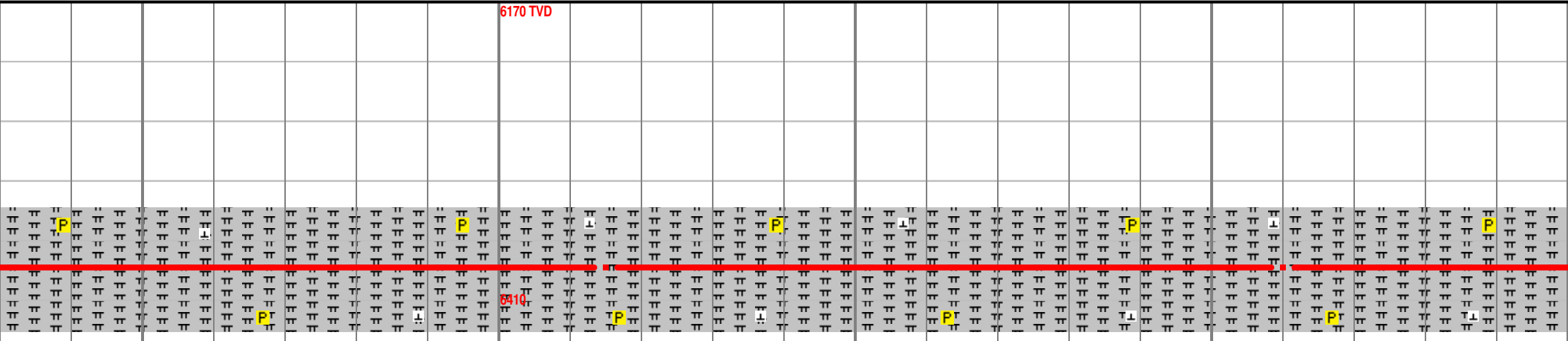
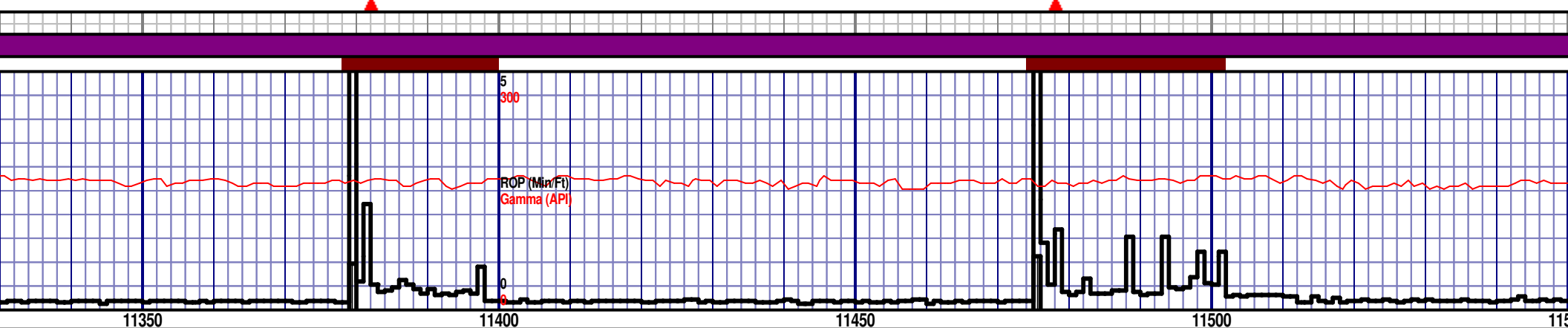
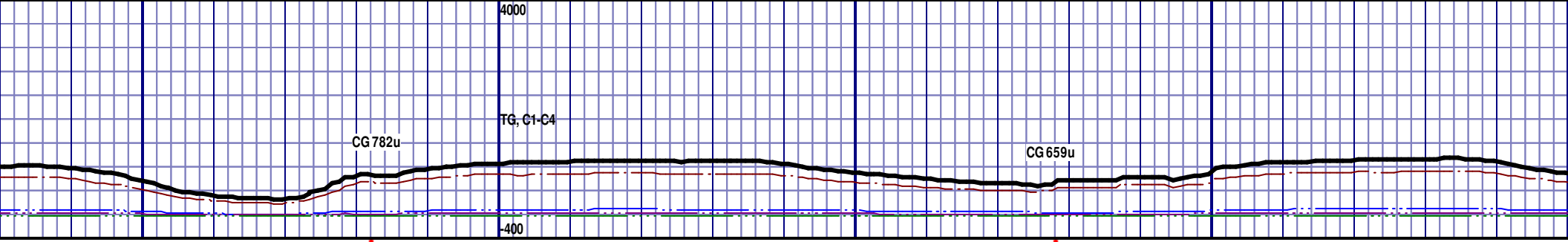
					6170 TVD	<b>NIобрARA B MARL</b>							
						10810' MD 6380' TVD							
RY, SOFT TO BRITTLE, NO VIS FRACT, C, POOR INTRXLN POR, NO FLUOR, FLW RING CUT, NO VIS STAIN			MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN			MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN			MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN			MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	



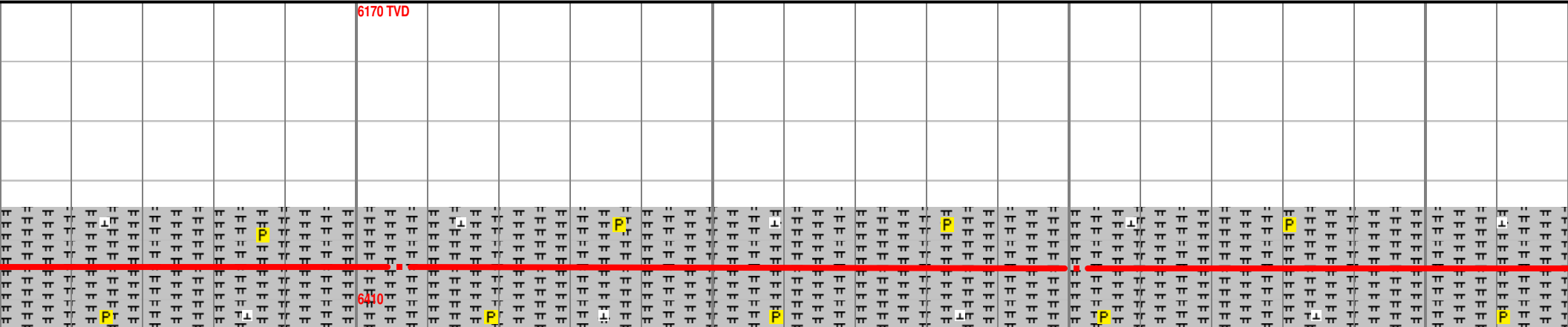
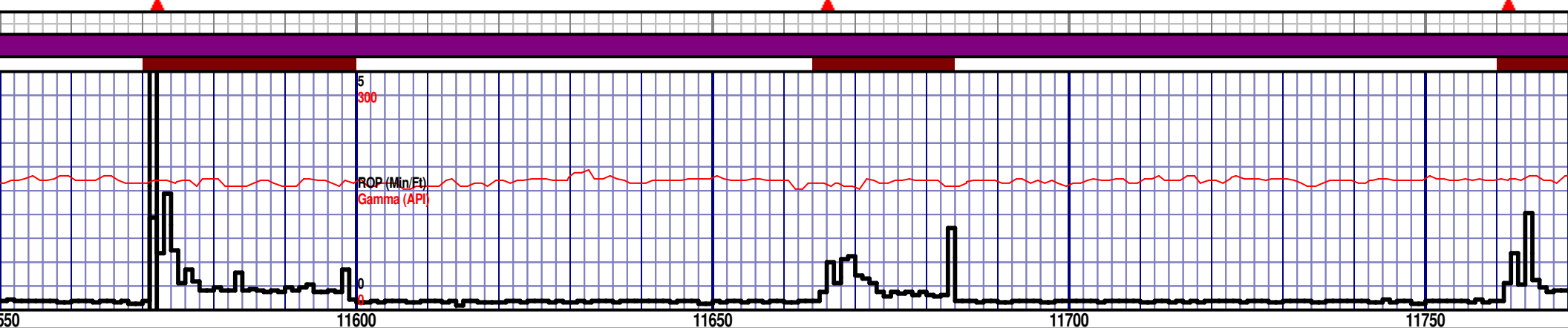
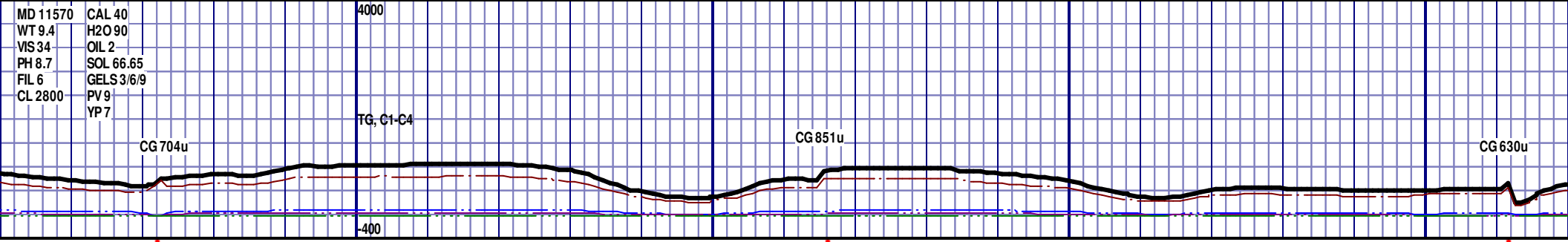
10900	10950	11000	11050	11100
		6170 TVD		
		6400		
		6650		
<p>VIS FRACT, NO FLUOR, MIN</p> <p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; PYR INCLUS, IMMED BLU</p>



<p>11150</p> <p>6170 TVD</p> <p>6410</p>	<p>11200</p> <p>6650</p>	<p>11250</p>	<p>11300</p>
<p>LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, POOR INTRXLN POR, NO FLUOR, STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>



<p>BRITTLE, NO VIS FRACT, INTRXLN POR, NO FLUOR, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>
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MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

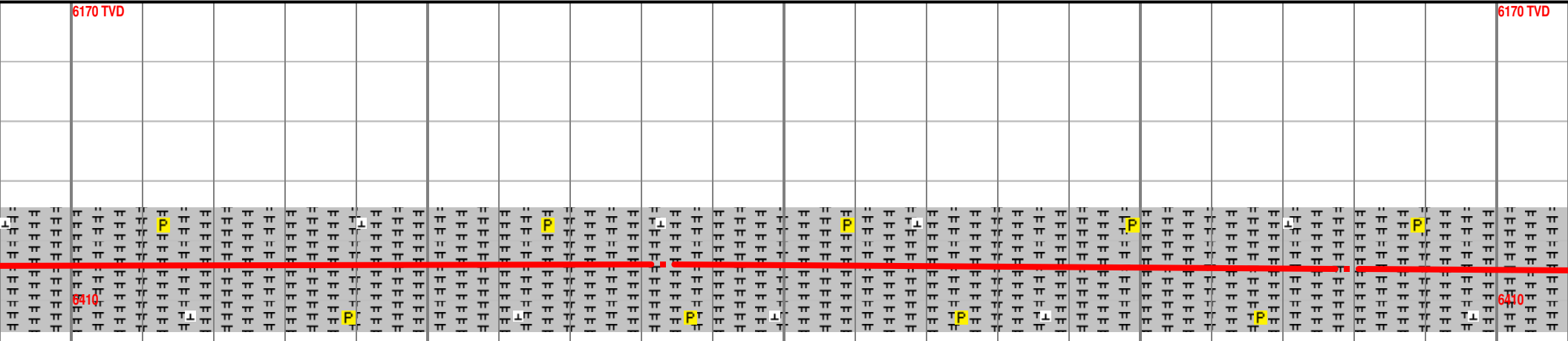
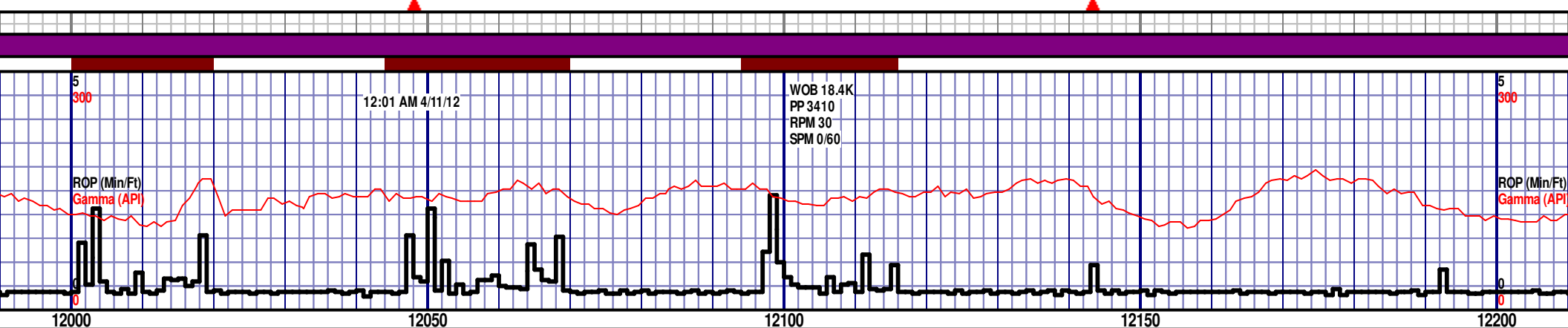
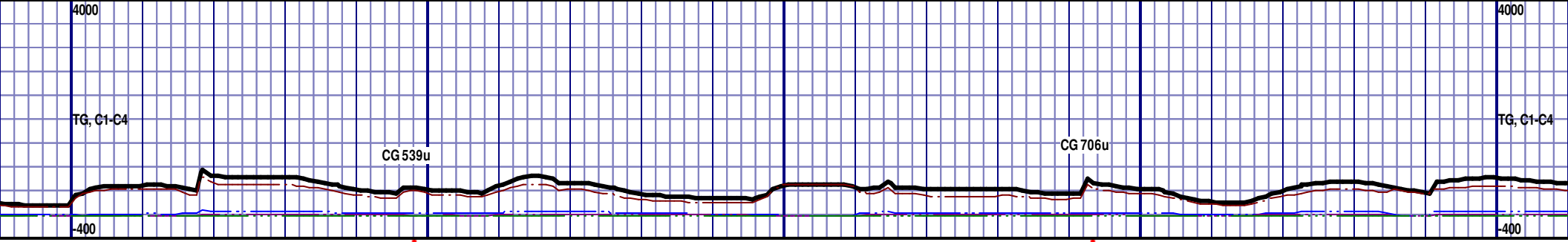
MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

6650

MD 11606 TVD 6383.83  
Az 89.57° Inc 89.66° VS 5510.42

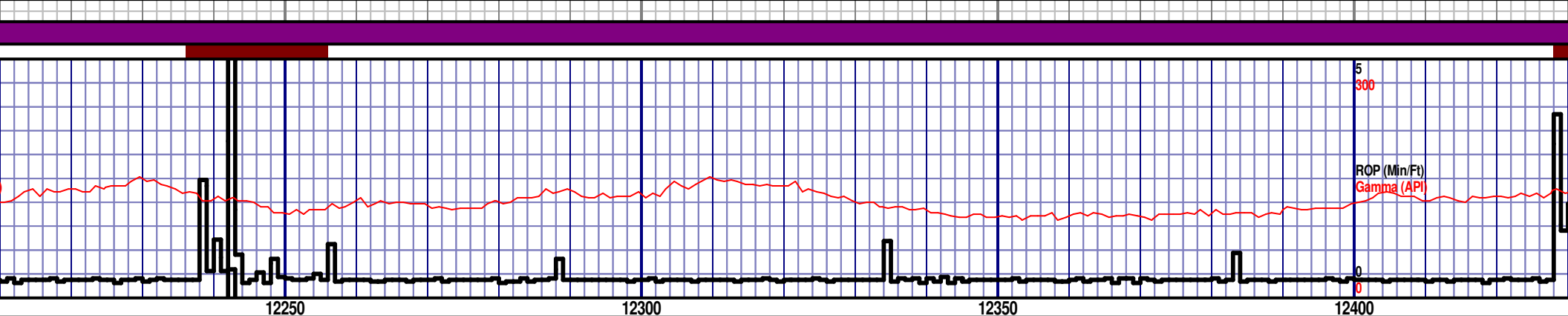
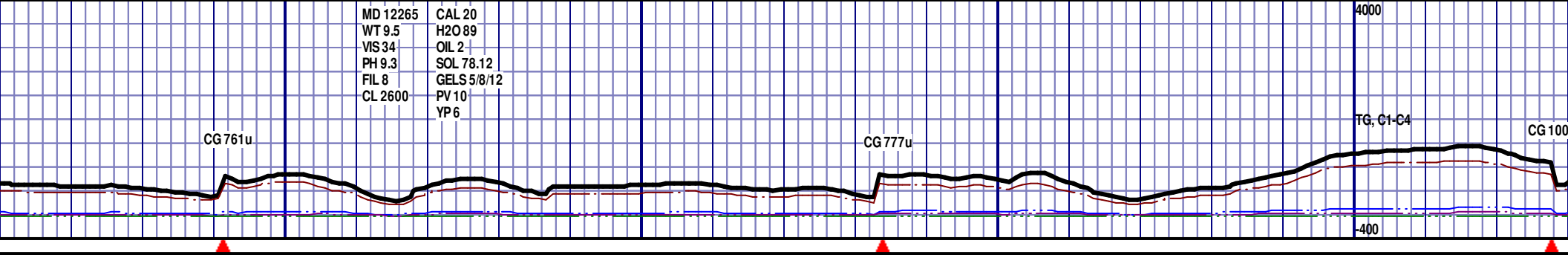
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Az 90.85° Inc 89.75° VS 5605.41





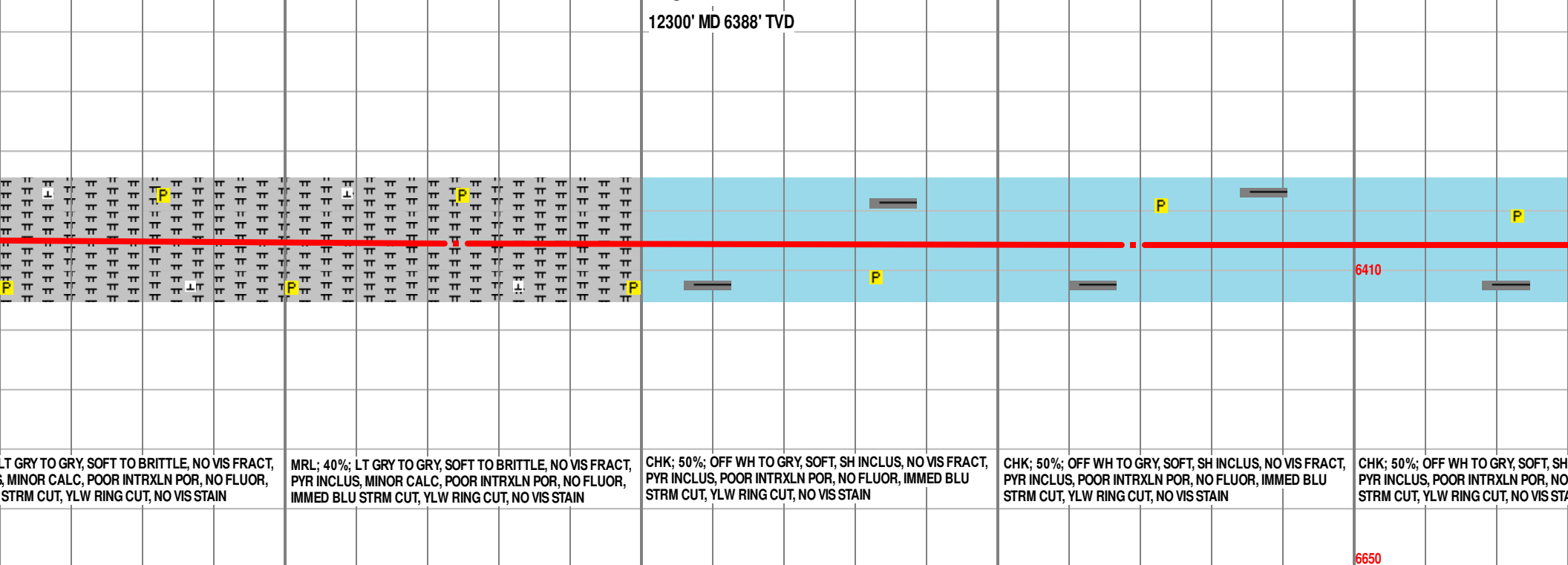
<p>VIS FRACT, NO FLUOR, AIN</p> <p>MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; PYR INCLUS IMMED BLU</p>
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MD 12265 CAL 20  
 WT 9.5 H2O 89  
 VS 34 OIL 2  
 PH 9.3 SOL 78.12  
 FIL 8 GELS 5/8/12  
 CL 2600 PV 10  
 YP 6



12250 12300 12350 12400

**NIORARA B**  
 12300' MD 6388' TVD



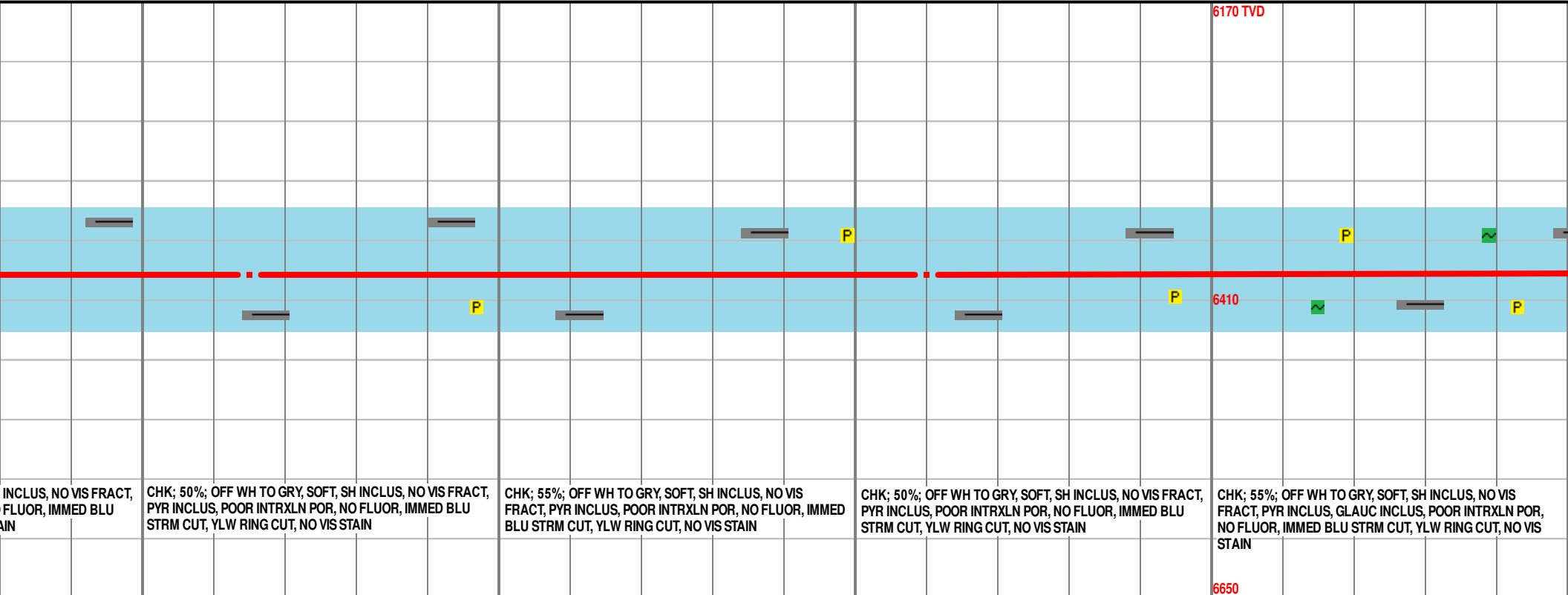
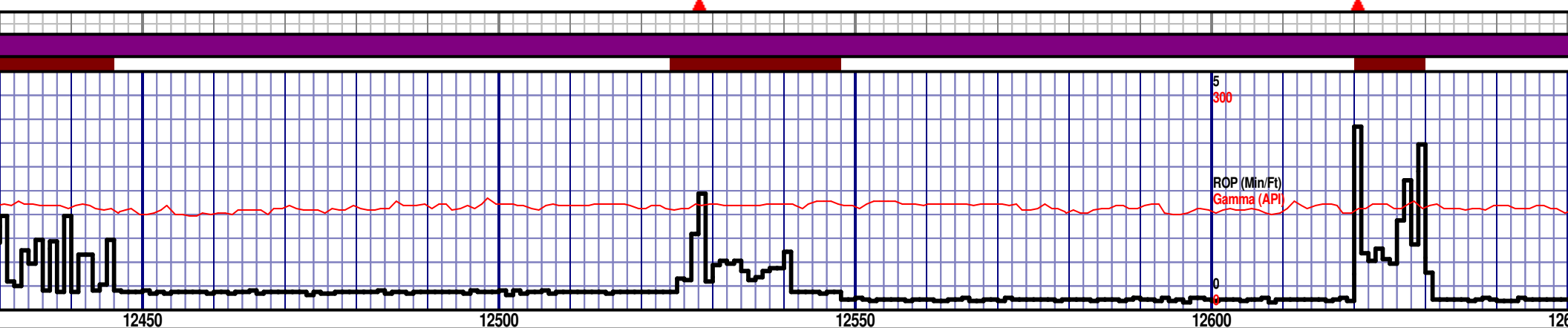
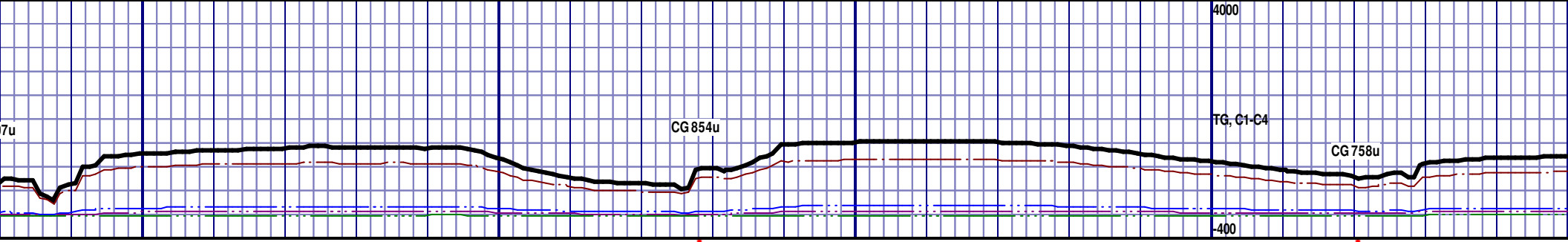
LT GRAY TO GRAY, SOFT TO BRITTLE, NO VIS FRACT,  
 MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 40%; LT GRAY TO GRAY, SOFT TO BRITTLE, NO VIS FRACT,  
 PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRAY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRAY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRAY, SOFT, SH INCLUS, NO VIS FRACT,  
 PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU  
 STRM CUT, YLW RING CUT, NO VIS STAIN

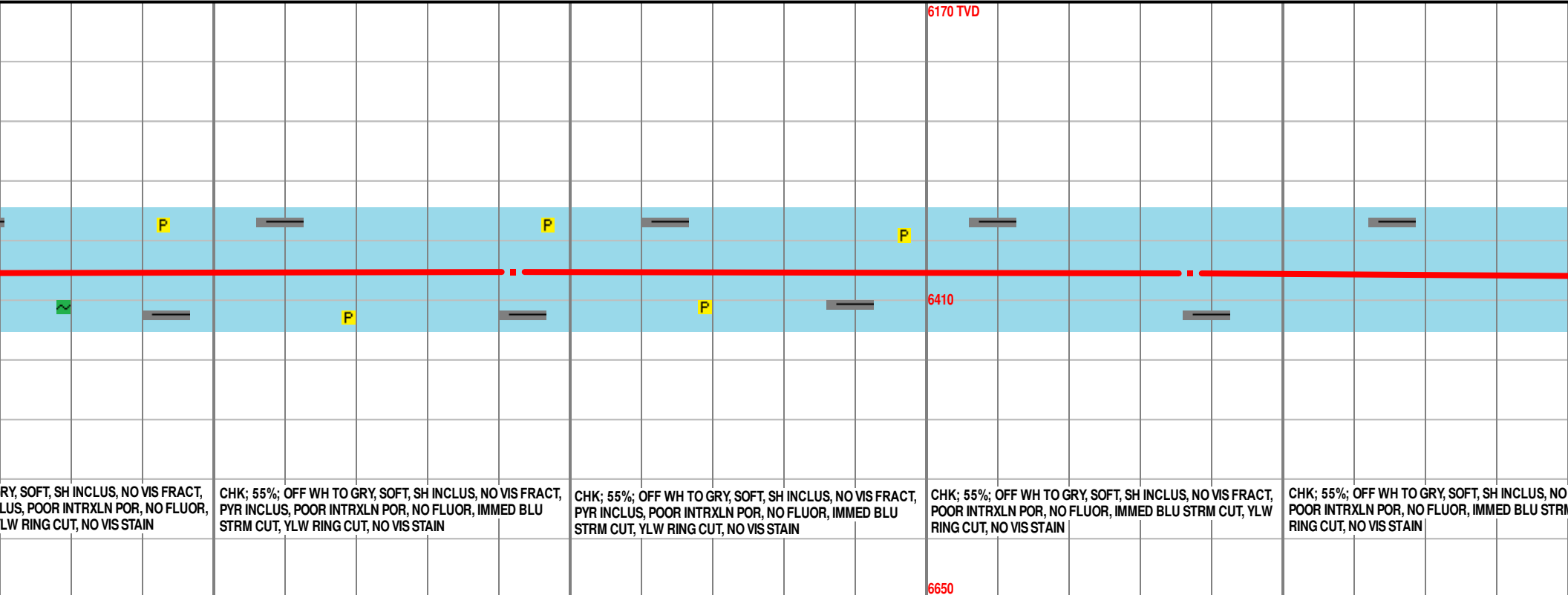
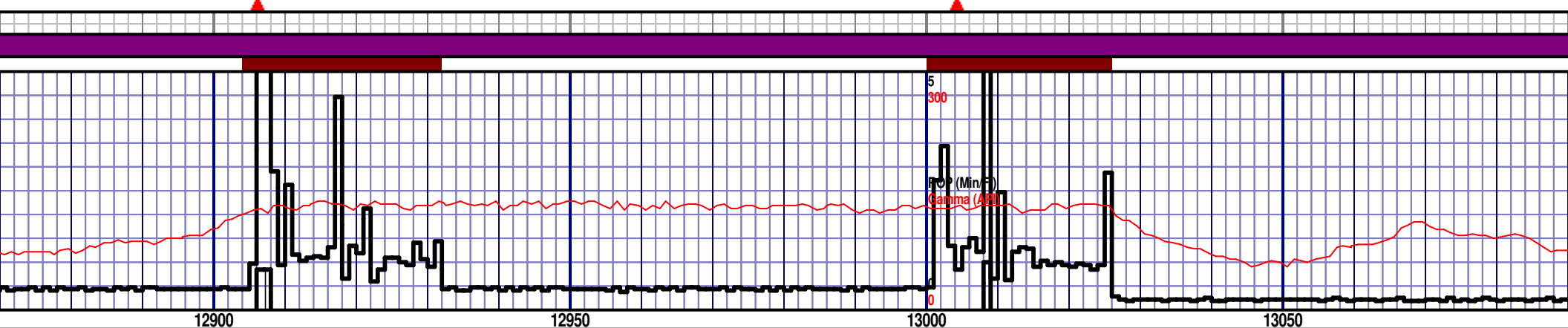
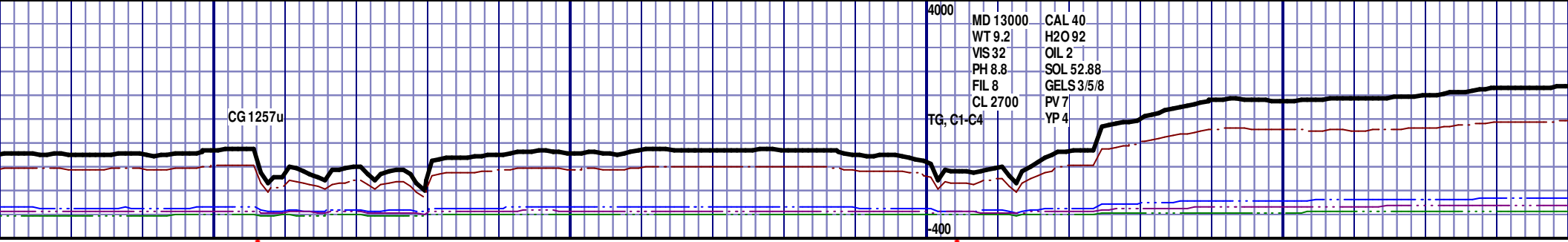


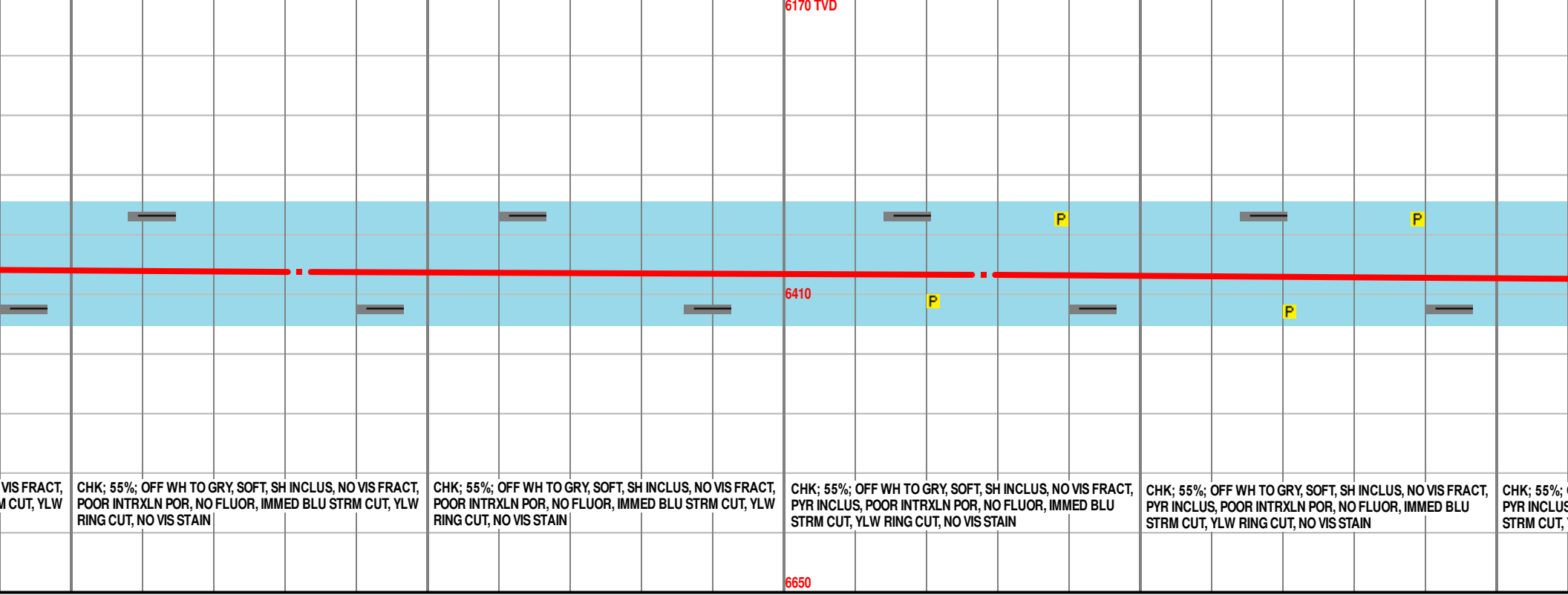
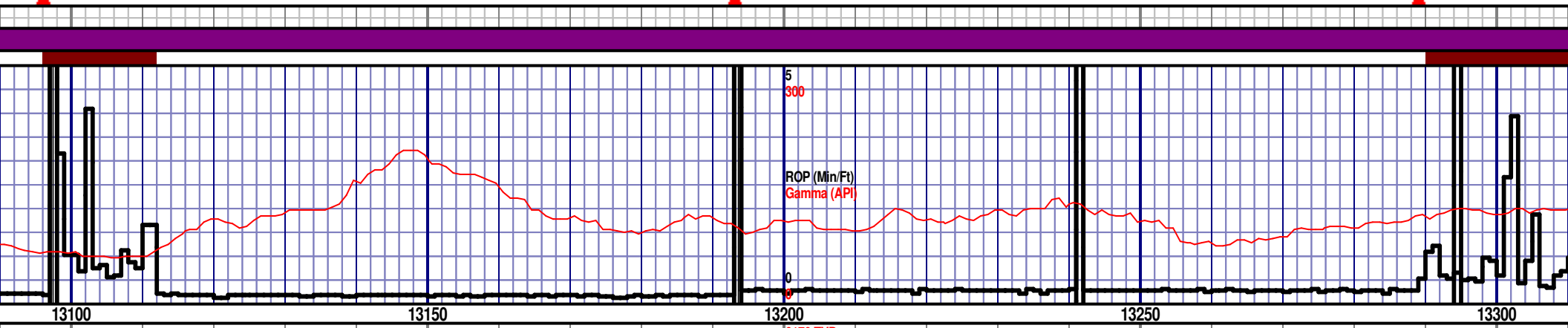
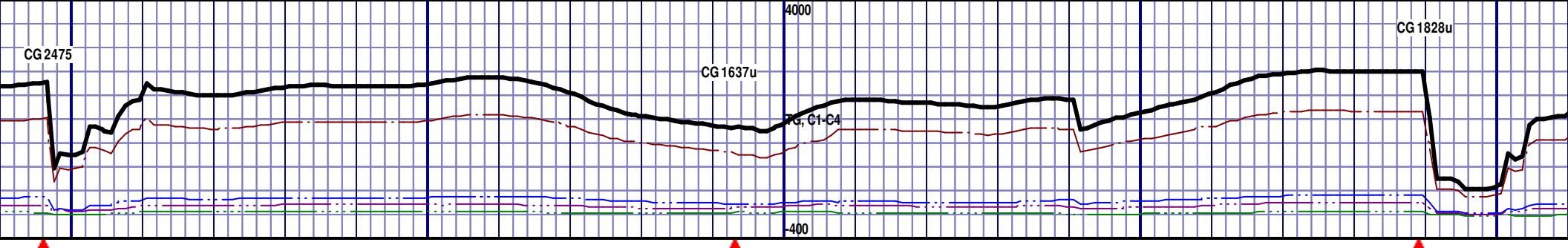
INCLUS, NO VIS FRACT, FLUOR, IMMED BLU STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, GLAUC INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN
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MD 12465 TVD 6389.78  
Az 86.05° Inc 89.97° VS 6367.92

MD 12560 TVD 6389.4  
Az 84.3° Inc 90.49° VS 6462.40



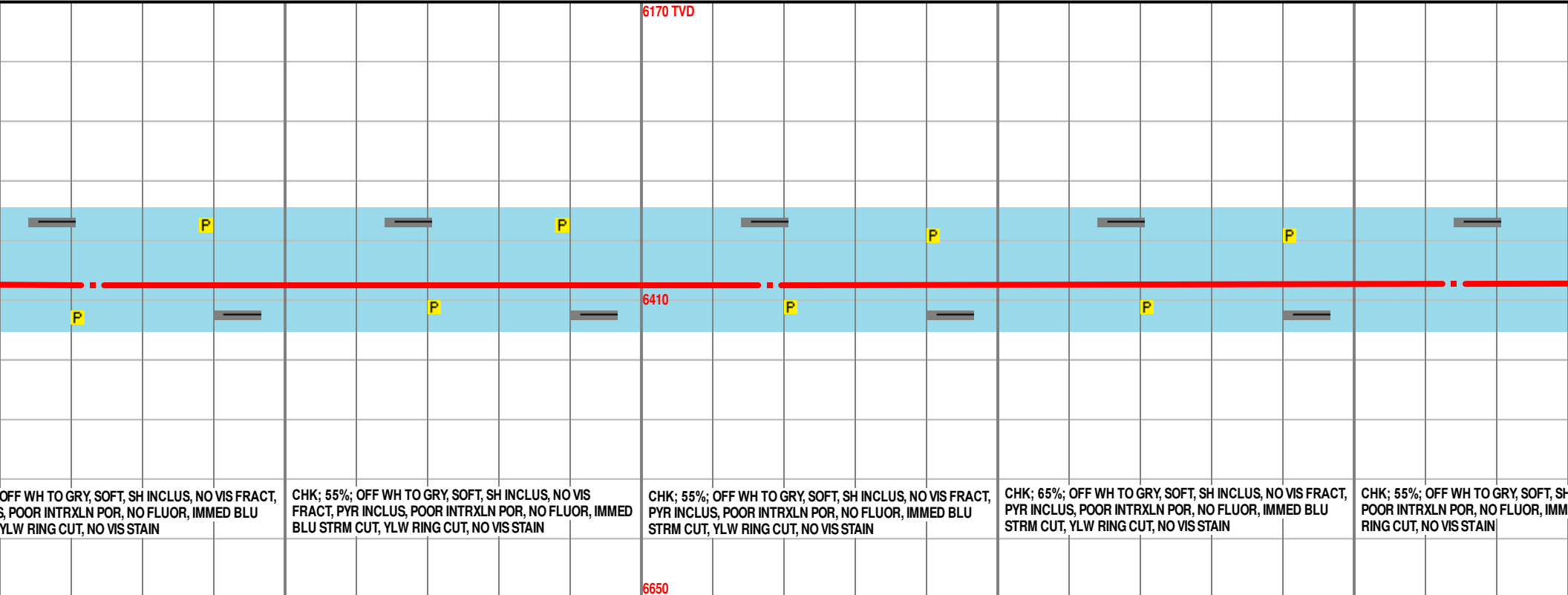
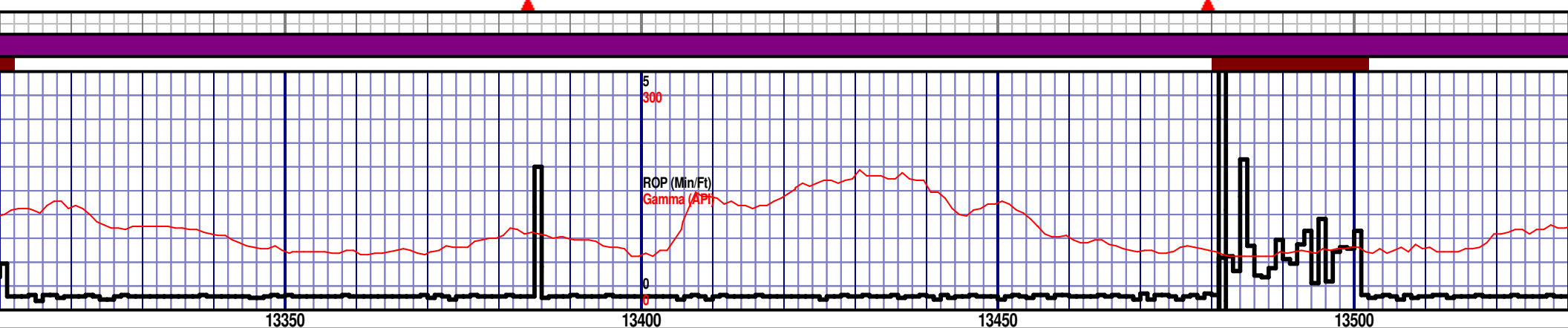
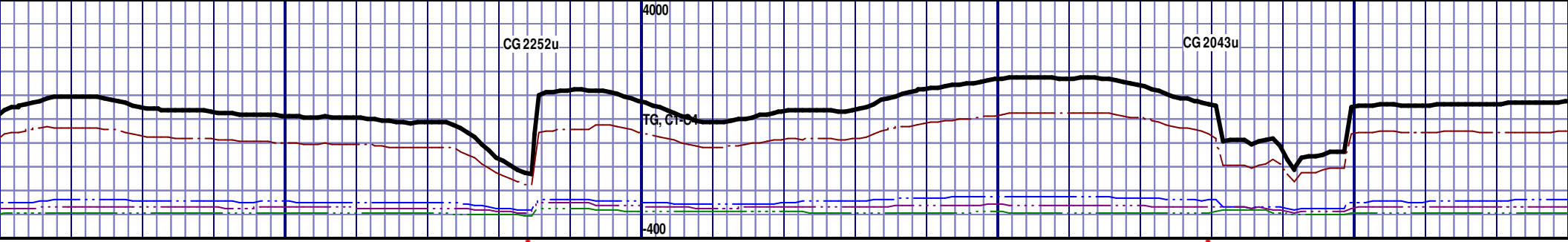




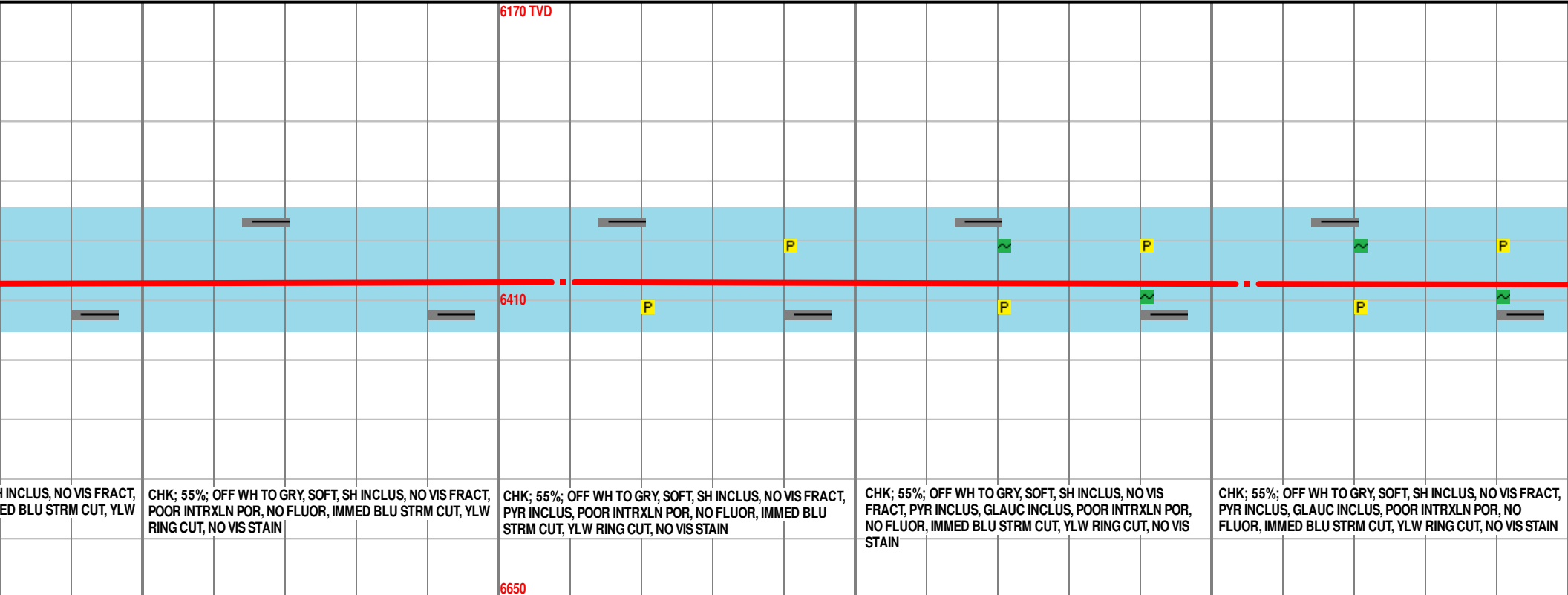
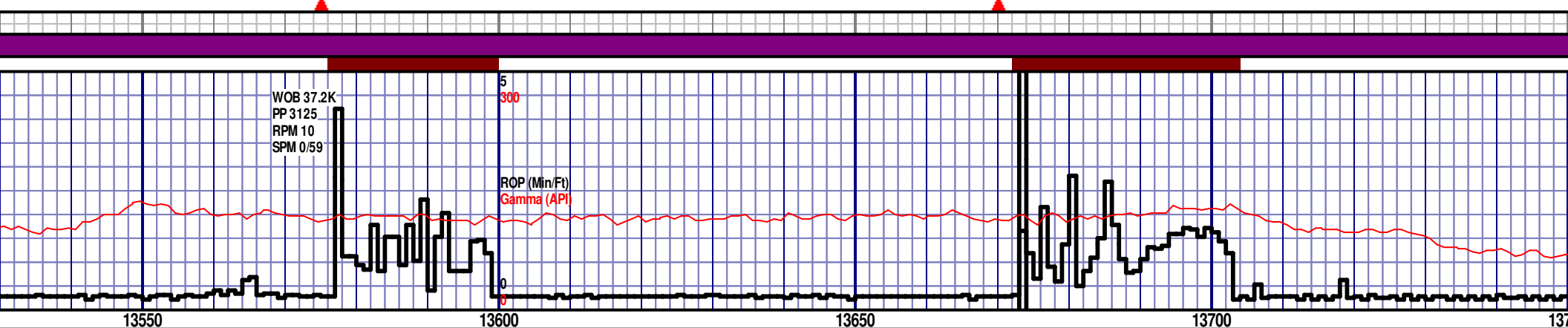
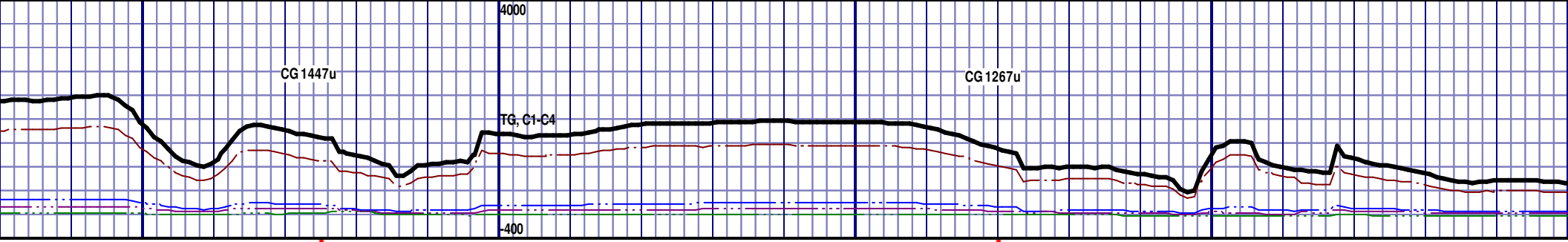
VIS FRACT, M CUT, YLW	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 55%; PYR INCLUS, STRM CUT,
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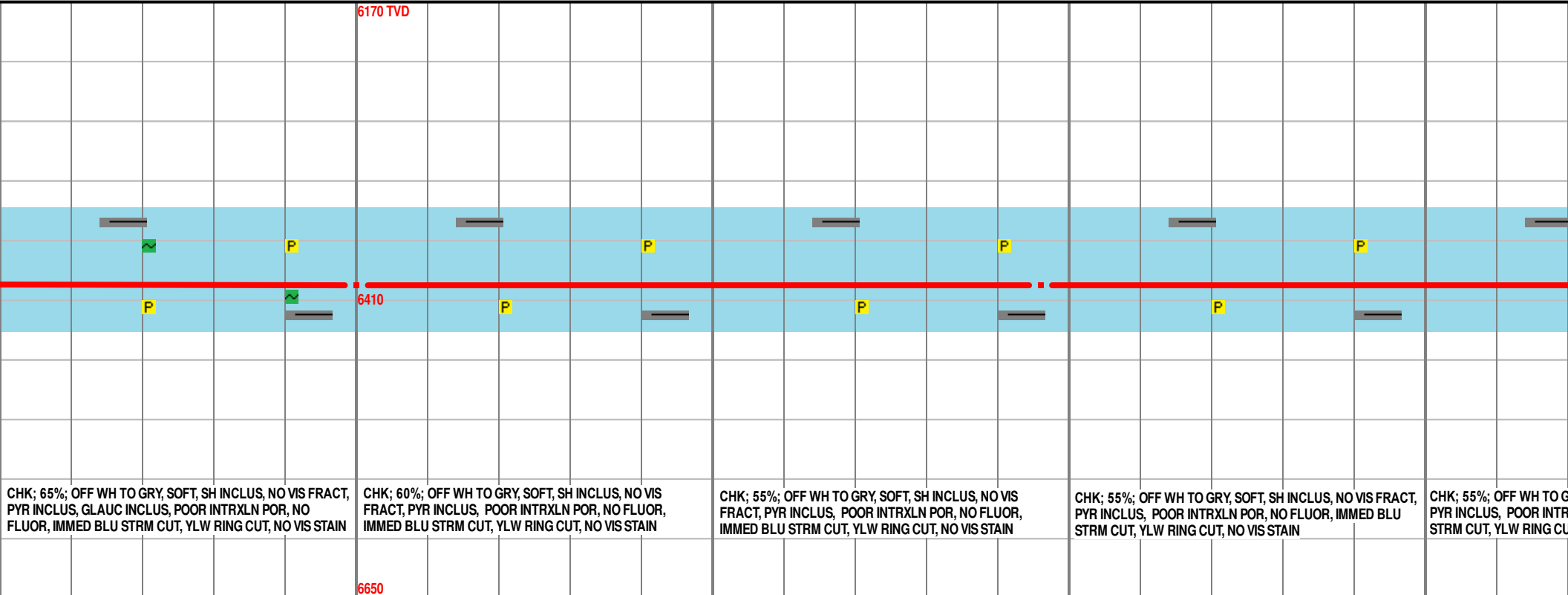
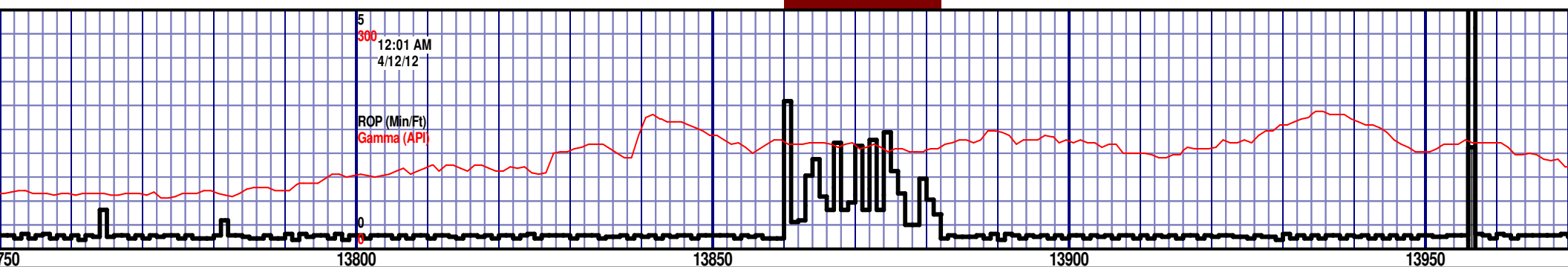
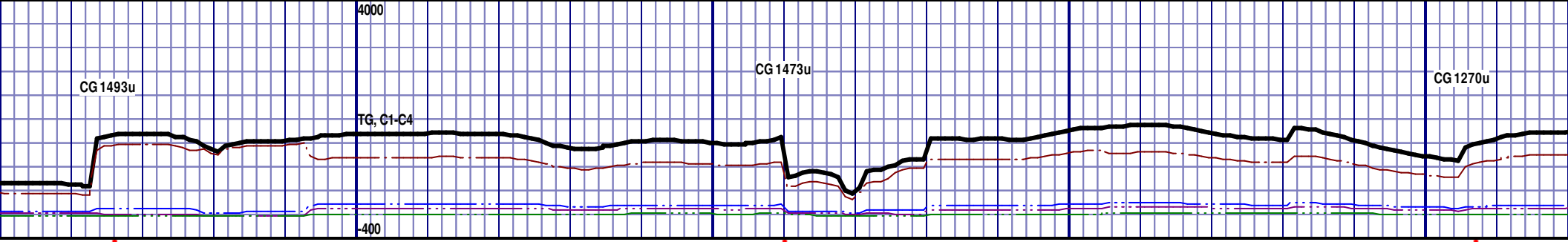
MD 13132 TVD 6391.54  
Az 87.36° Inc 87.75° VS 7027.38

MD 13228 TVD 6394.84  
Az 88.1° Inc 88.3° VS 7127.85



OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU YLW RING CUT, NO VIS STAIN  
 CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 CHK; 65%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN





CHK; 65%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, GLAUC INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 60%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

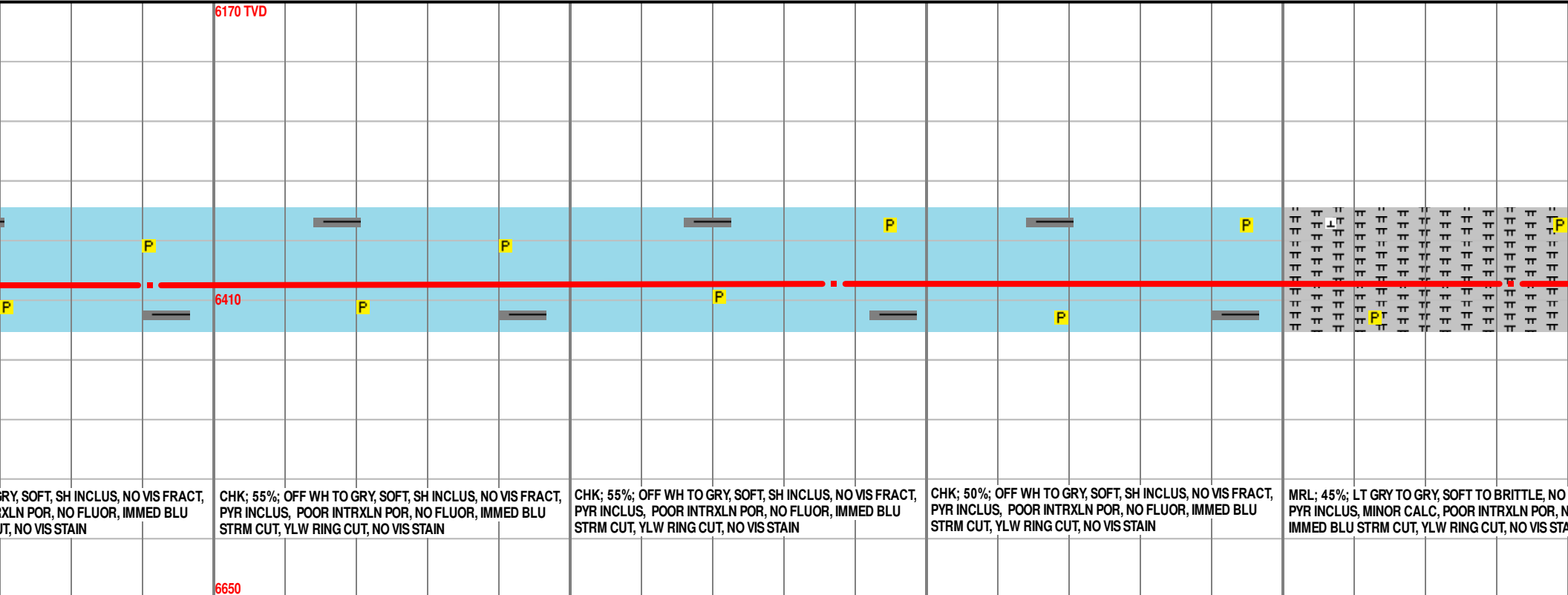
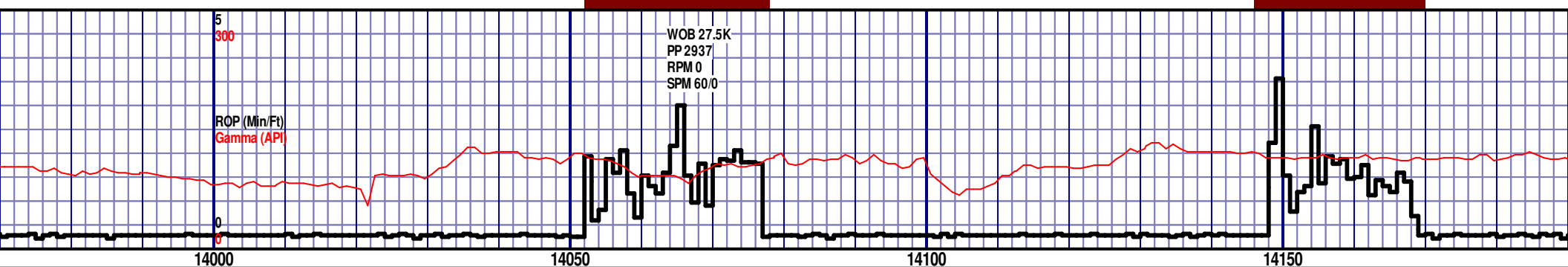
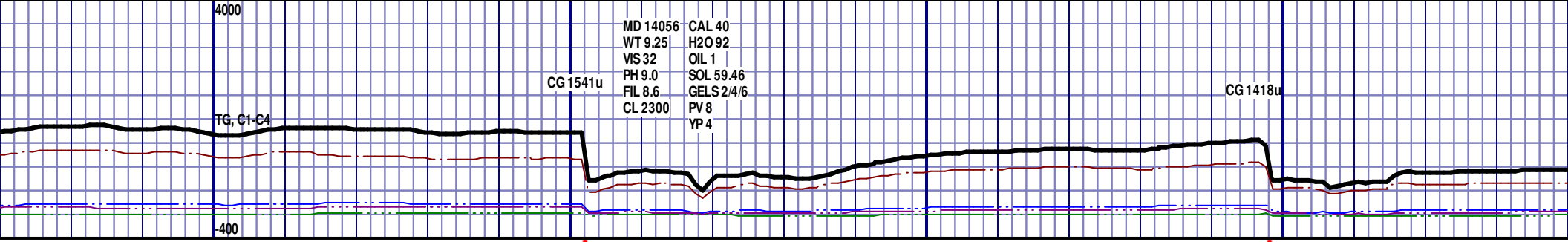
CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MD 13800 TVD 6398.06  
Az 86.47° Inc 90.34° VS 7697.81

MD 13896 TVD 6397.98  
Az 86.85° Inc 89.75° VS 7793.52



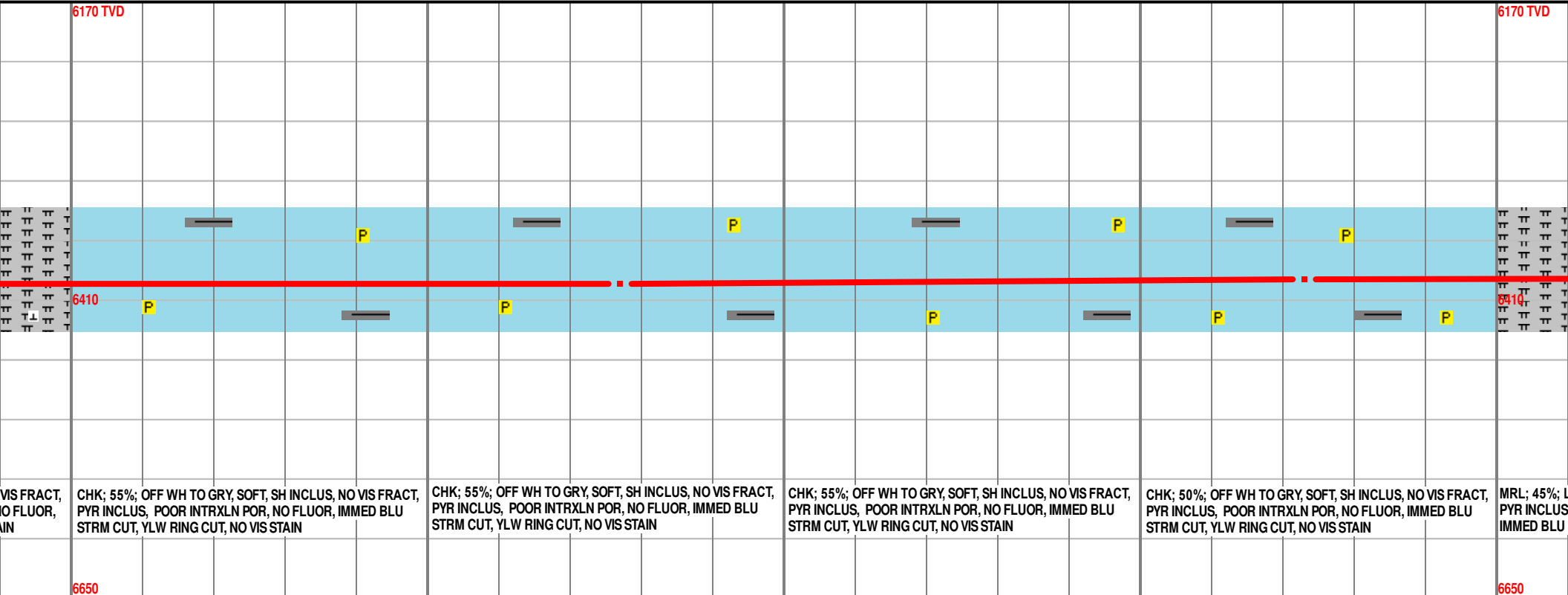
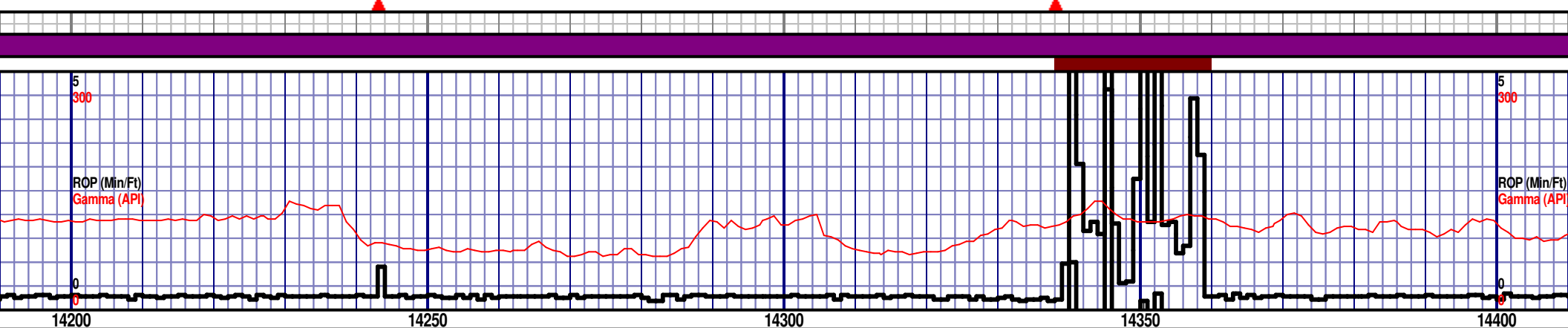
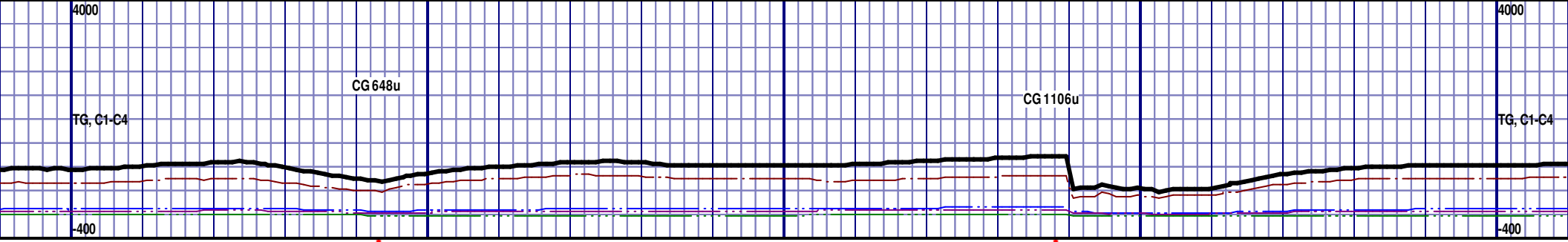
GRY, SOFT, SH INCLUS, NO VIS FRACT, NO INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, NO VIS STAIN

CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN

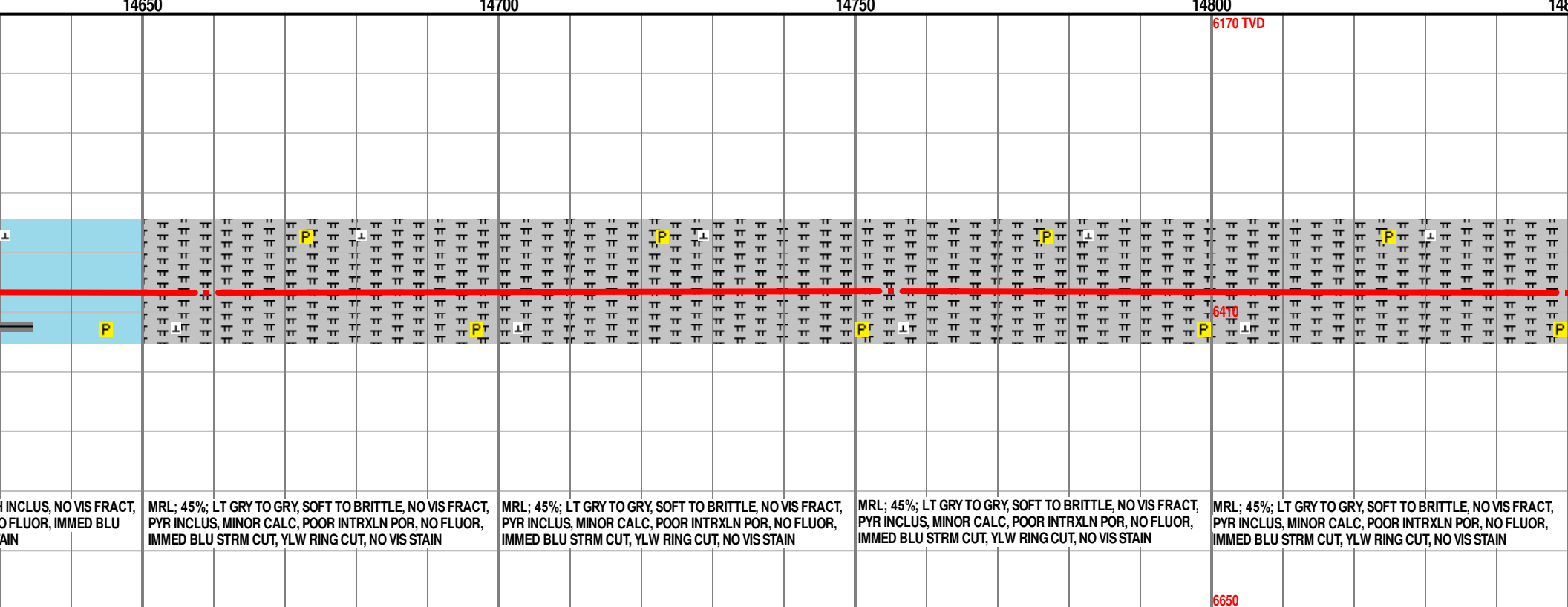
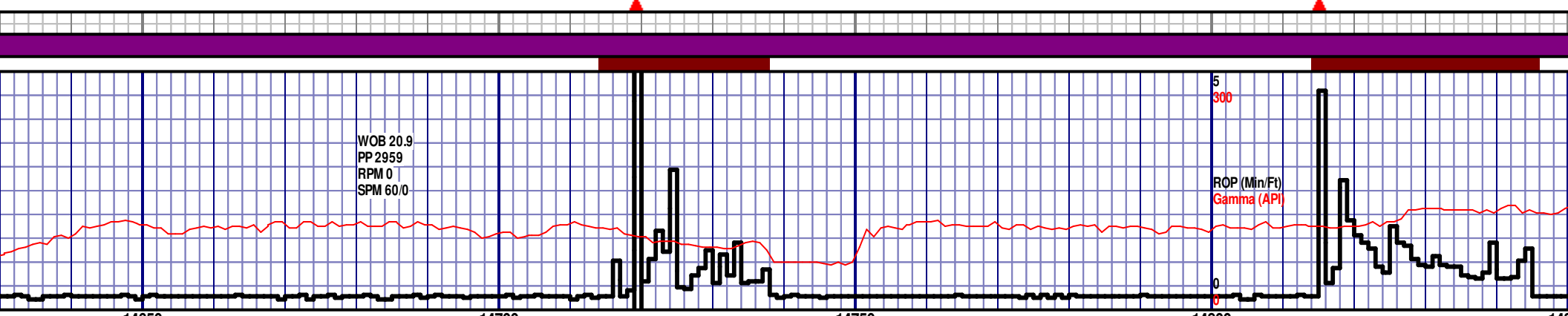
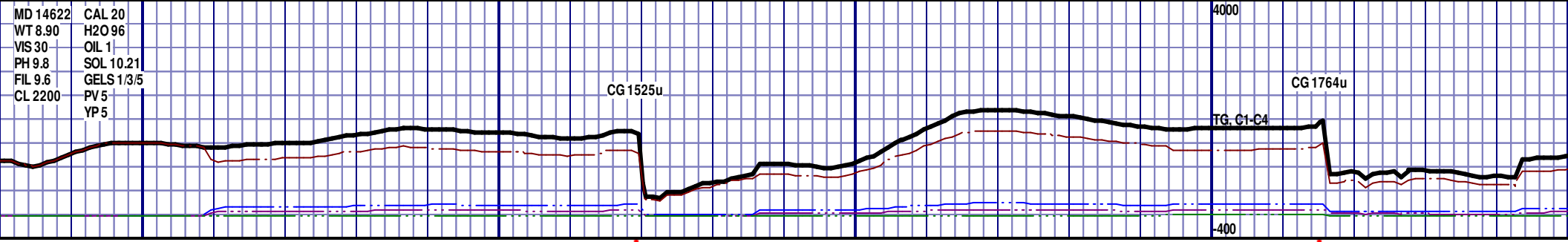
CHK; 55%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN

CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN





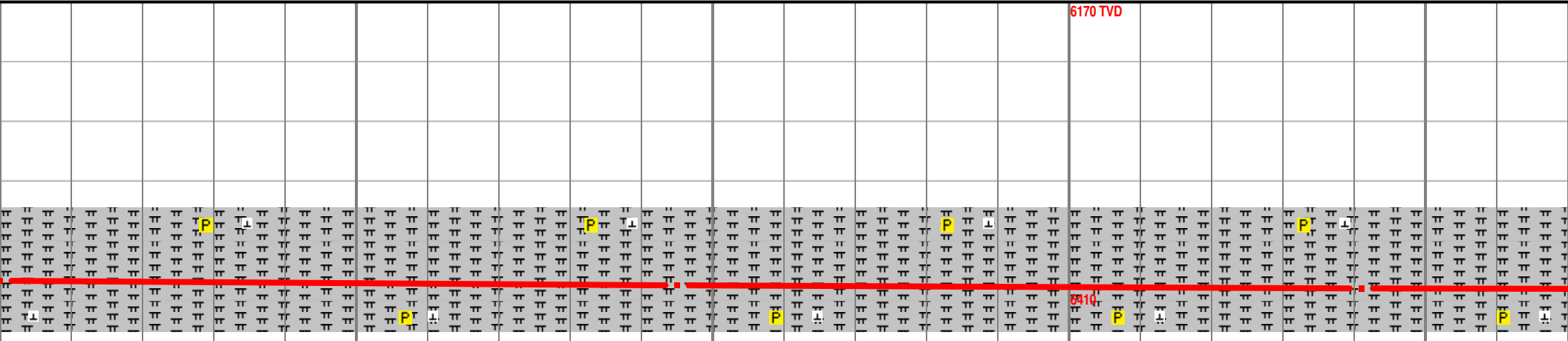
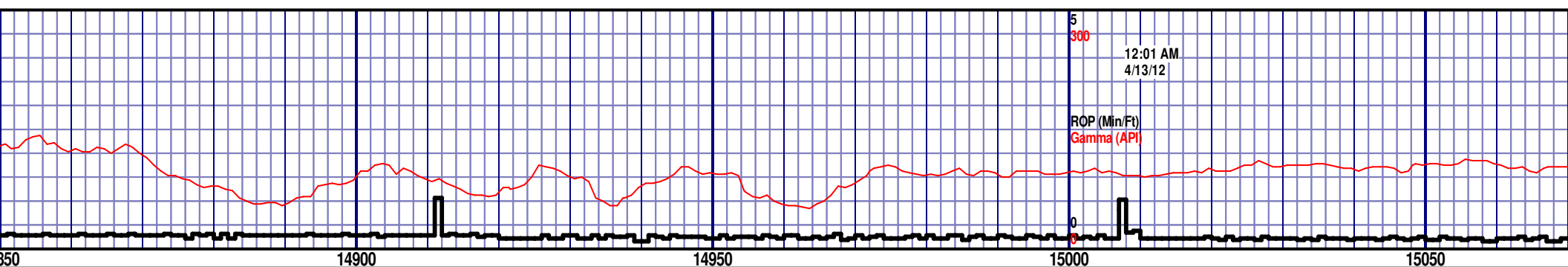
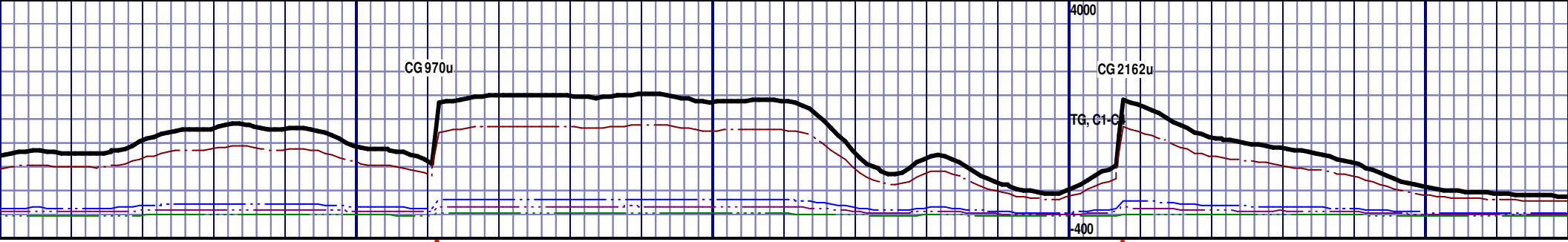


INCLUS, NO VIS FRACT, NO FLUOR, IMMEDI BLU STAIN  
 MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN  
 MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMEDI BLU STRM CUT, YLW RING CUT, NO VIS STAIN

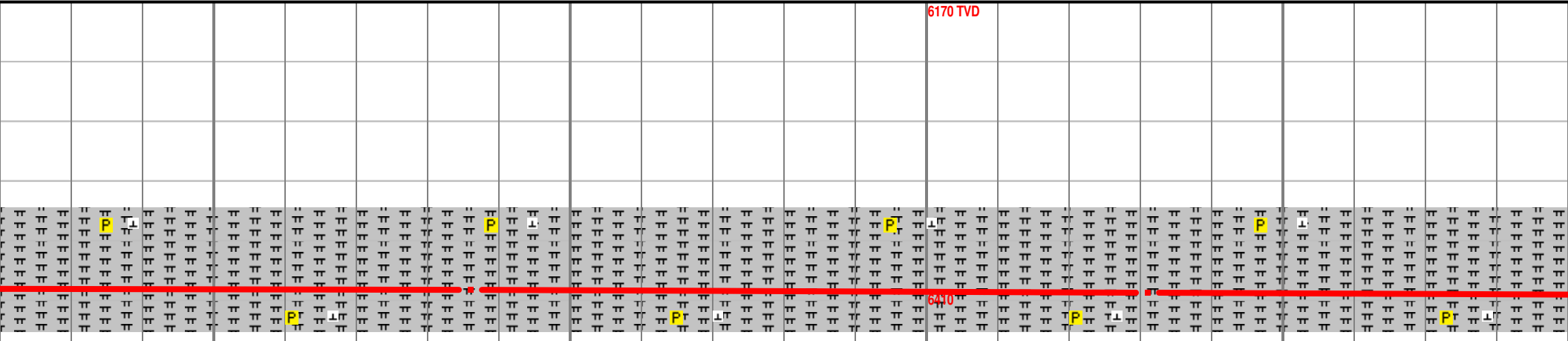
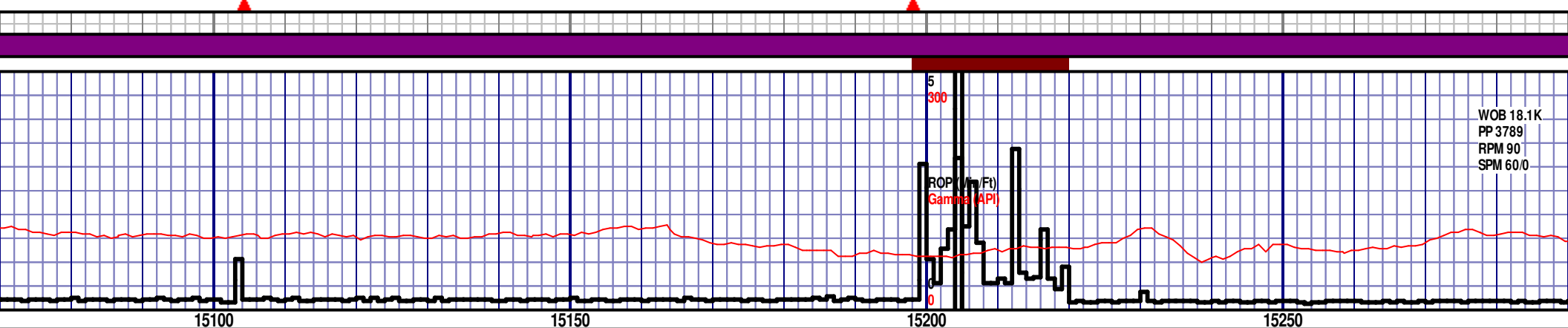
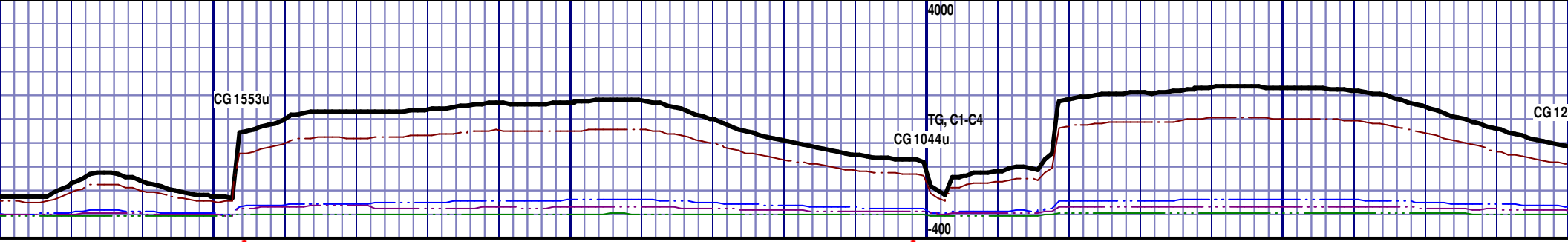
MD 14659 TVD 6394.35  
Az 88.9° Inc 89.66° VS 8554.93

MD 14755 TVD 6393.63  
Az 89.2° Inc 91.2° VS 8650.86

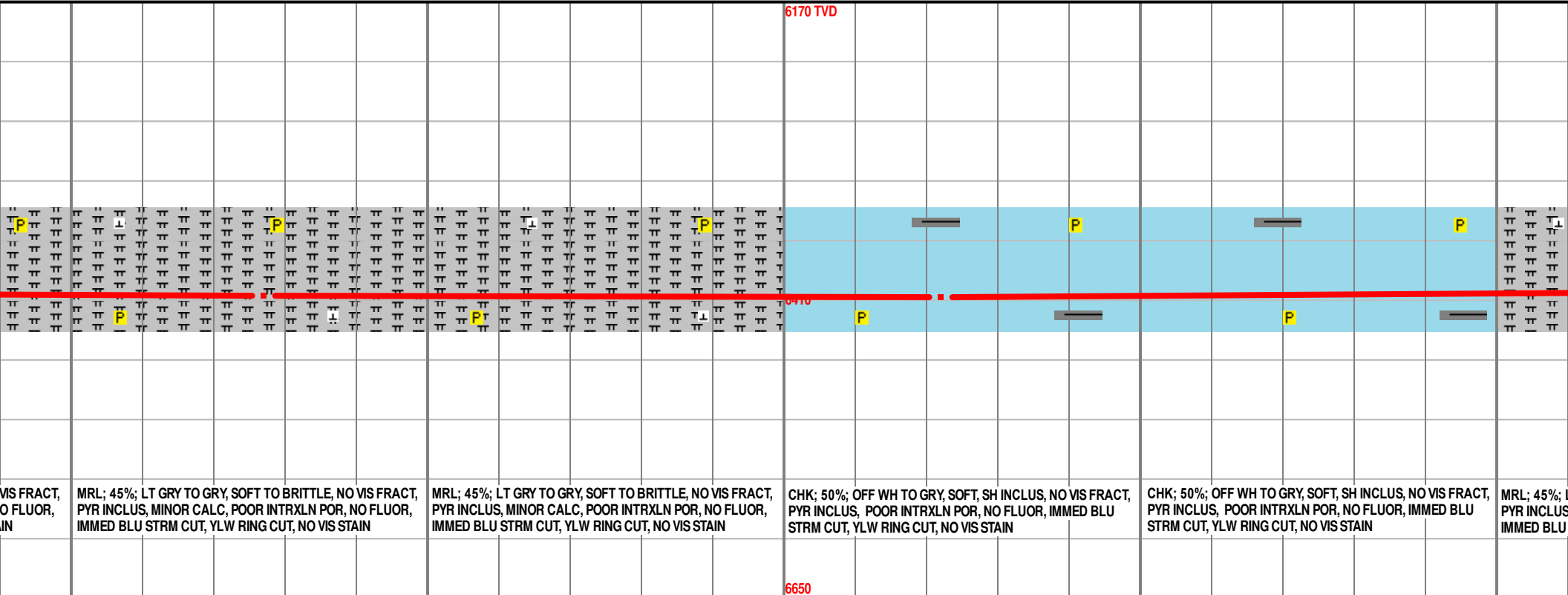
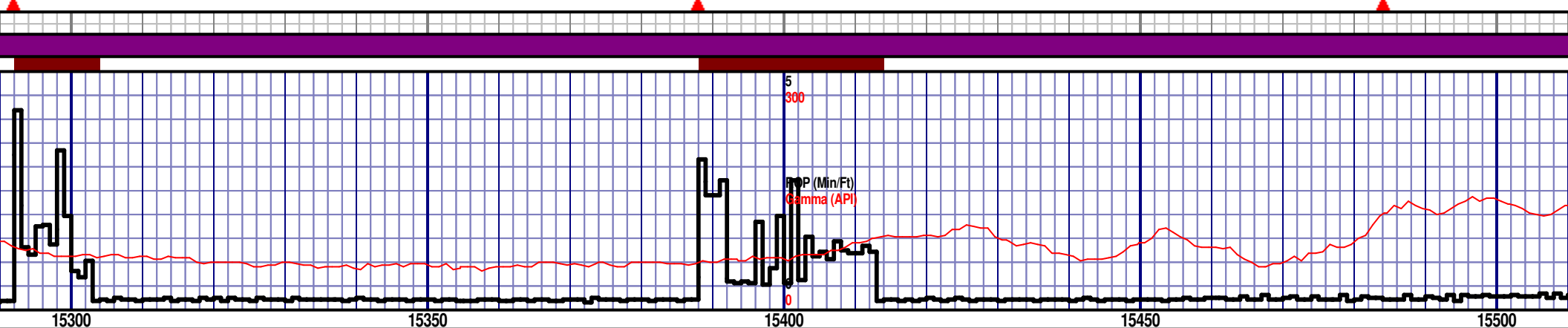
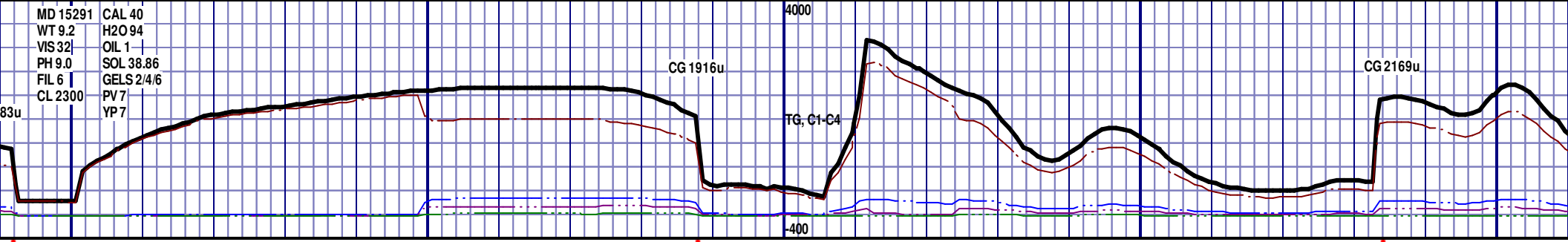
6650



MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN



<p>RY, SOFT TO BRITTLE, NO VIS FRACT, C, POOR INTRXLN POR, NO FLUOR, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>	<p>MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN</p>
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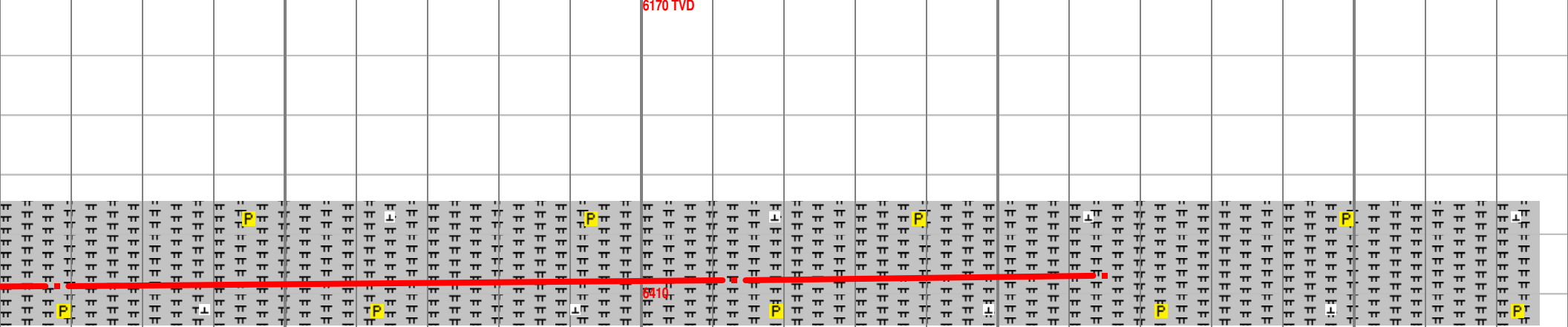
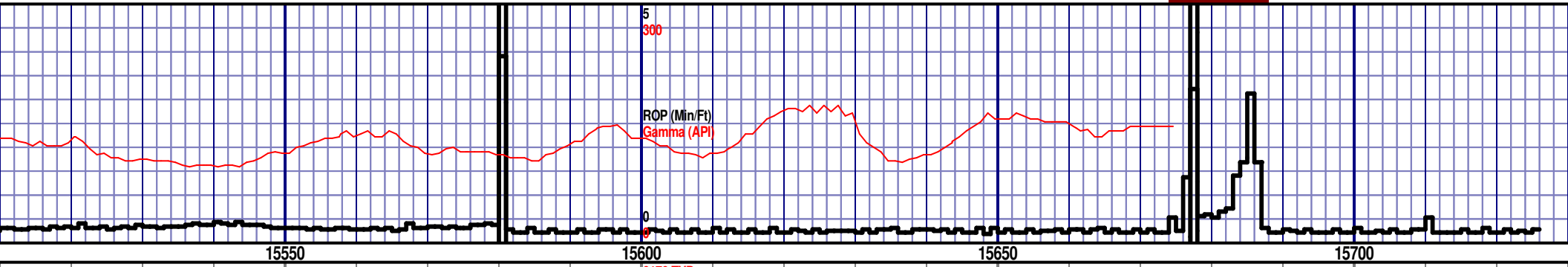
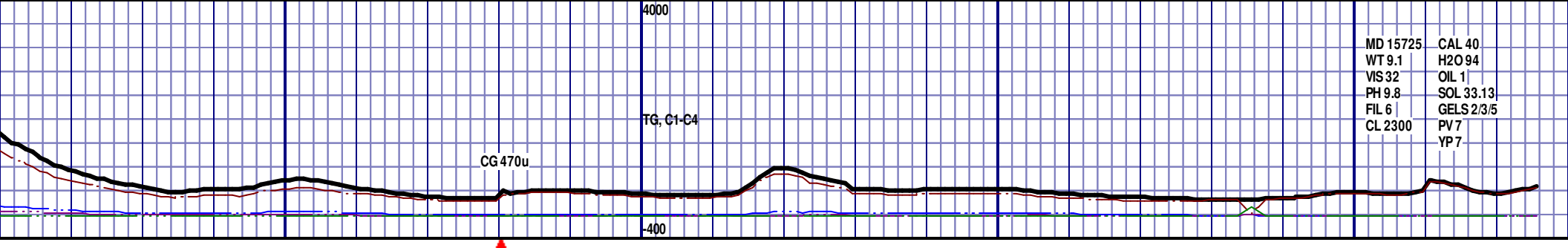


MVS FRACT, NO FLUOR, IN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	CHK; 50%; OFF WH TO GRY, SOFT, SH INCLUS, NO VIS FRACT, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN	MRL; 45%; PYR INCLUS IMMED BLU
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MD 15327 TVD 6406.83  
Az 86.72° Inc 88.3° VS 9221.97

MD 15422 TVD 6407.39  
Az 87.92° Inc 91.02° VS 9316.74

MD 15725 CAL 40  
 WT 9.1 H2O 94  
 VIS 32 OIL 1  
 PH 9.8 SOL 33.13  
 FIL 6 GELS 2/3/5  
 CL 2300 PV 7  
 YP 7



LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT,  
 MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT,  
 PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT,  
 PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

MRL; 45%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT,  
 PYR INCLUS, MINOR CALC, POOR INTRXLN POR, NO FLUOR,  
 IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN

BOTTOMS UP GAS 556u

12:01 AM  
4/14/12

DRILLER'S TD @ 15726' MD AT  
10:15 AM ON 4/13/12

15750

**TD @ 15726' MD**

**RELEASED 4/14/12**

**THANK YOU FROM  
ANDREW CHRISTIANO,  
KOOPER ANDRINGA AND  
HORIZON WELL  
LOGGING, LLC**