



**Scale 1:200 Imperial  
Measured Depth Log**

**Well Name:** Pettinger 4C-18HZ  
**Location:** Weld County, CO.  
**License Number:** 05123388020000  
**Spud Date:** 2/17/2014  
**Surface Coordinates:** 283'FSL & 1036'FWL, SEC 18, T1N-R65W  
**Region:** Weld County  
**Drilling Completed:** 2/20/2014  
**Bottom Hole Coordinates:** 1'FNL & 1650'FWL, SEC 18, T1N-R65W  
**Ground Elevation (ft):** 5007' **K.B. Elevation (ft):** 5020'  
**Logged Interval (ft):** 6903' **To:** 12467' **Total Depth (ft):** 12467'  
**Formation:** Codell  
**Type of Drilling Fluid:** Water Based Mud

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

**OPERATOR**

**Company:** Anadarko Petroleum Corporation  
**Address:** Granite Tower  
1099 18th St., Suite 1800  
Denver, CO 80202

## GEOLOGIST

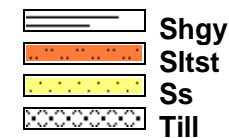
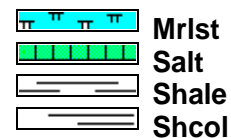
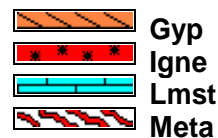
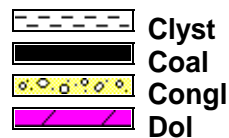
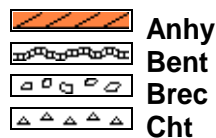
Name: Aaron Wiggins / Kyle Pickard  
Company: Great Divide Consulting, Inc.  
Address: P.O. Box 630263  
Highlands Ranch, CO 80163

## Cores

## DSTs

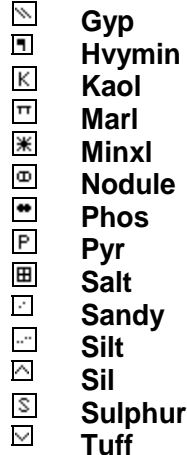
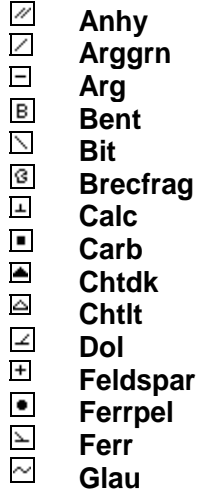
## Comments

## ROCK TYPES

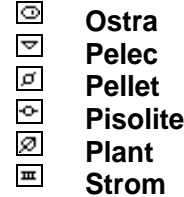
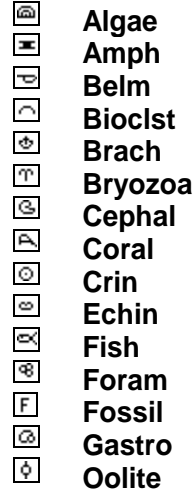


## ACCESSORIES

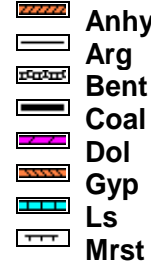
### MINERAL



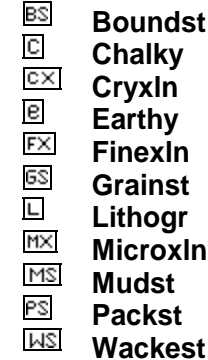
### FOSSIL










### STRINGER



### TEXTURE



**POROSITY**

 Earthy  
 Fenest  
 Fracture  
 Inter  
 Moldic  
 Organic  
 Pinpoint







**Vuggy**

**SORTING**

 Well  
 Moderate  
 Poor

**OTHER SYMBOLS**

**ROUNDING**



 Rounded  
 Subrnd  
 Subang  
 Angular

**OIL SHOW**



 Even



**Spotted**

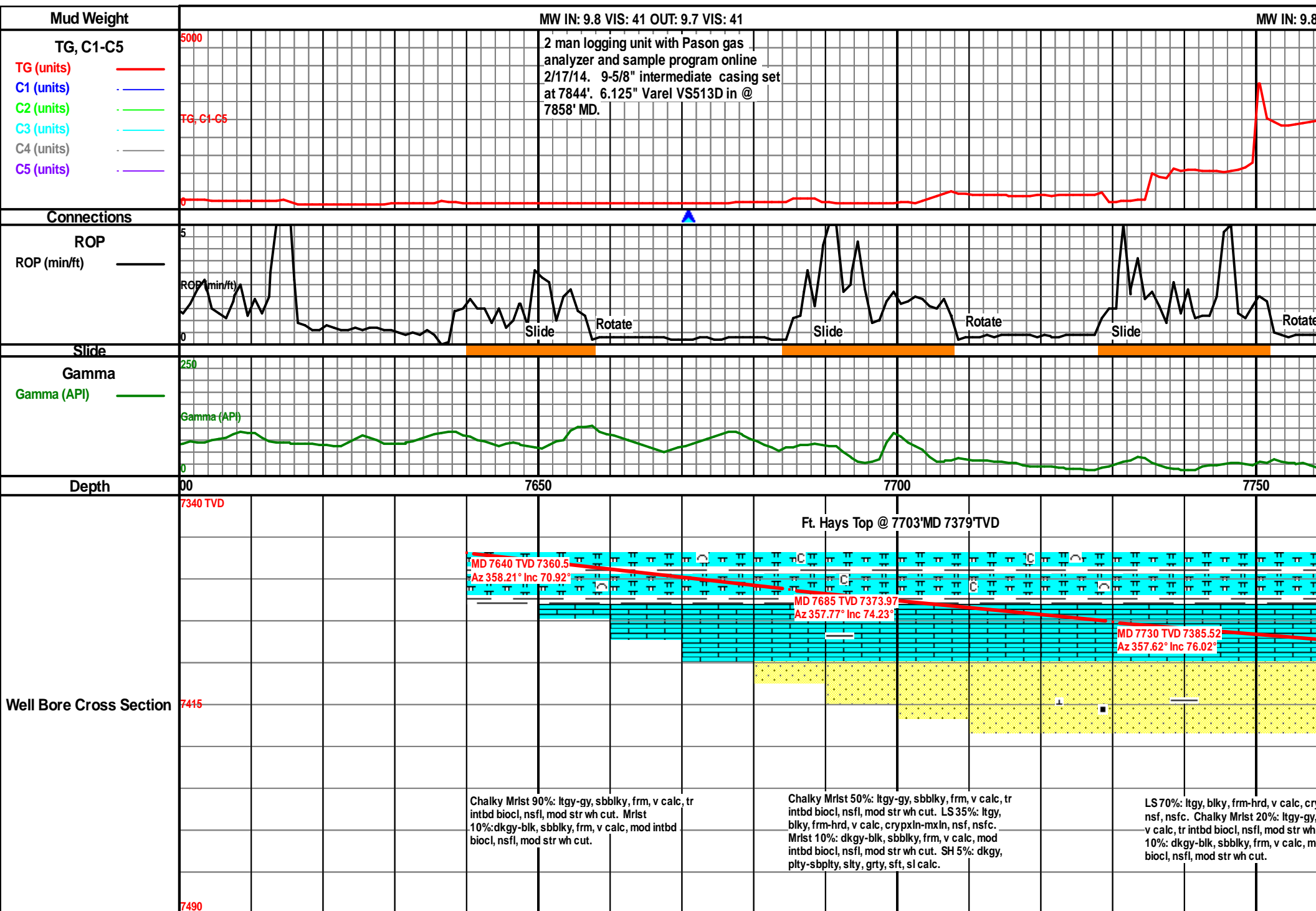
 Ques  
 Dead

**INTERVAL**

 Core  
 Dst

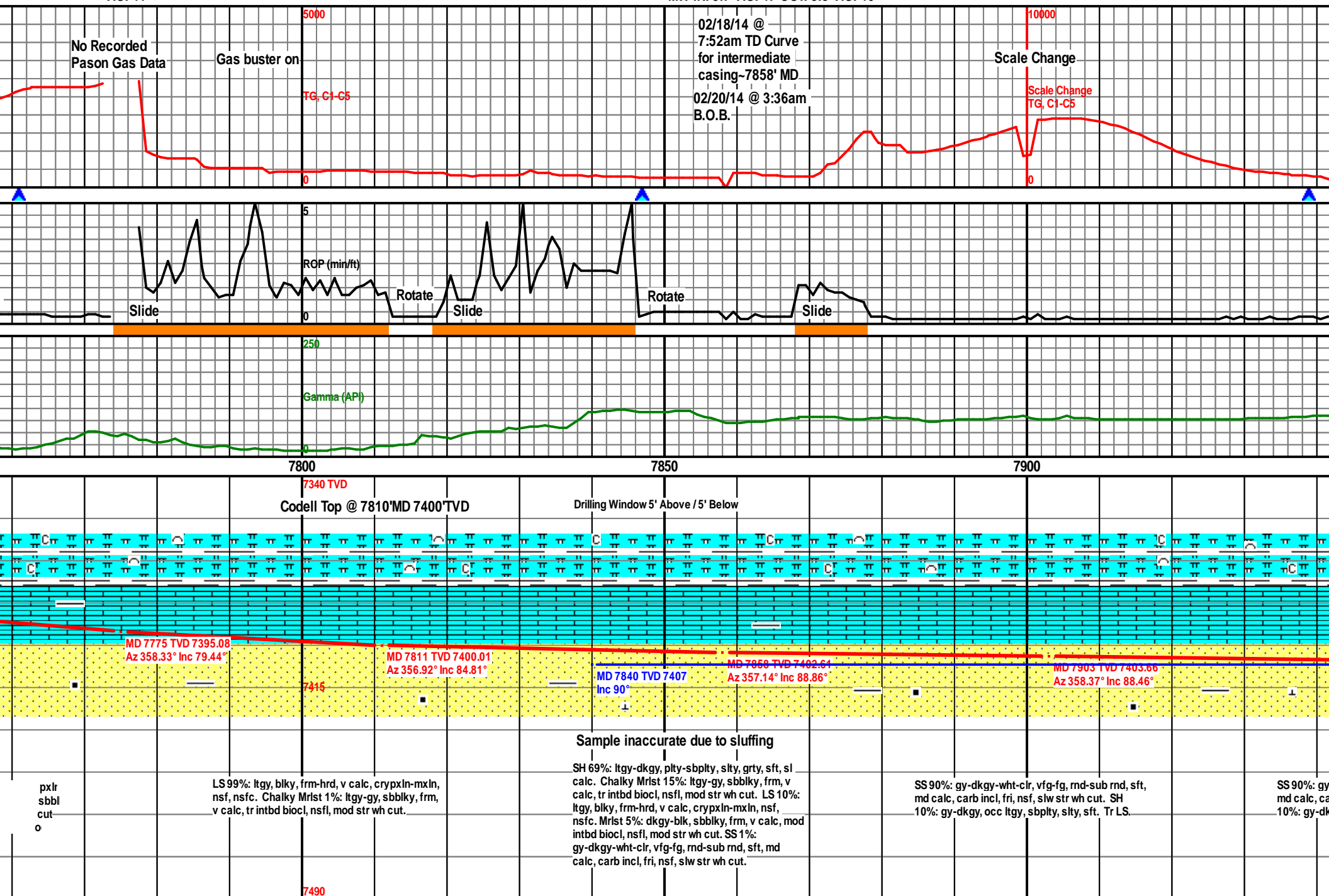
**EVENT**

 Rft  
 Connection



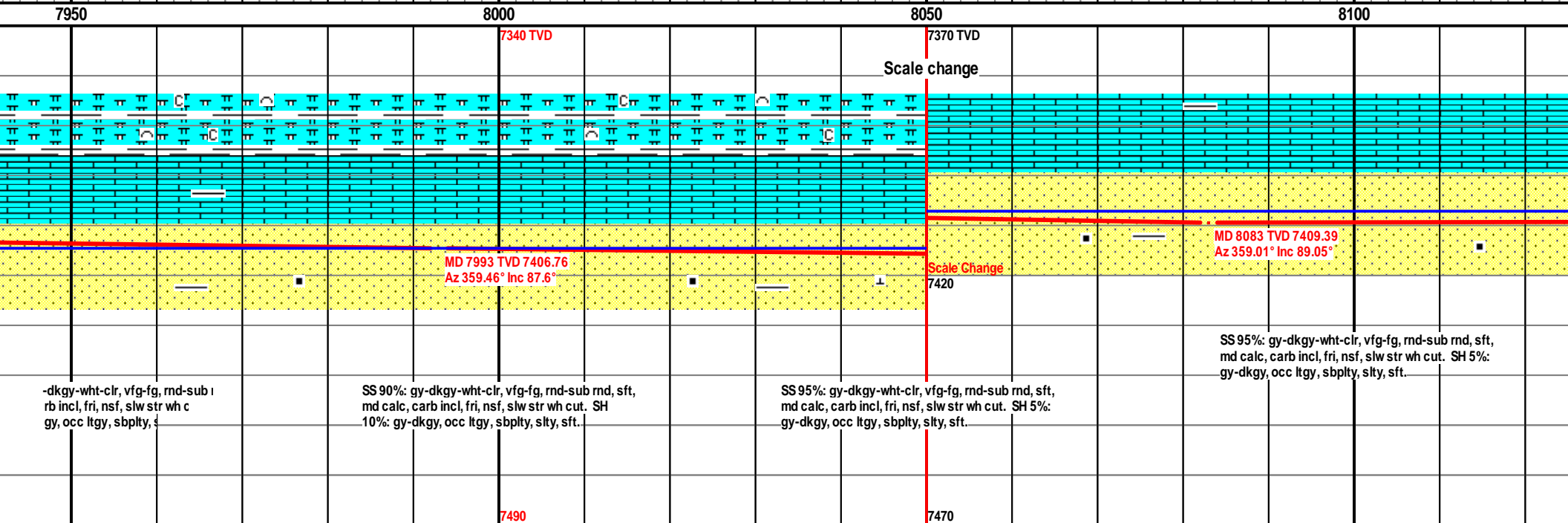
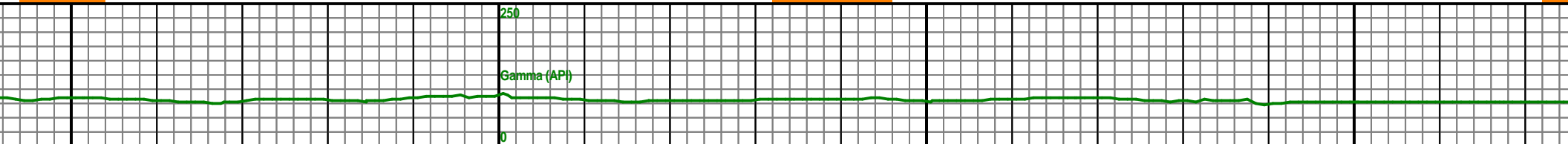
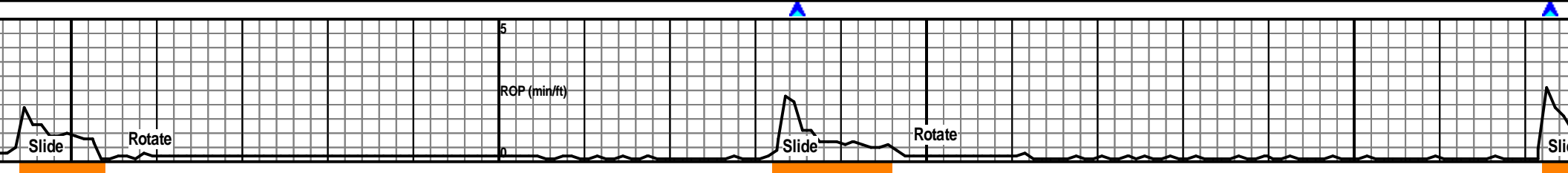
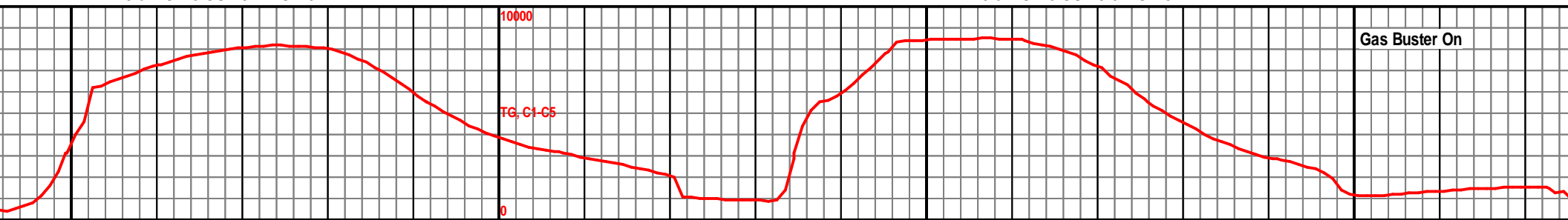
VIS: 41

MW IN: 9.7 VIS: 47 OUT: 9.8 VIS: 46



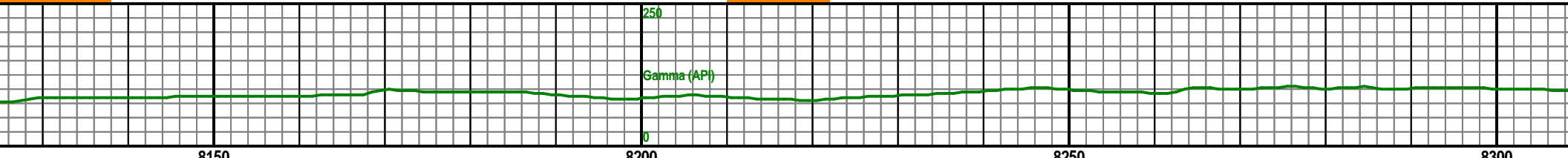
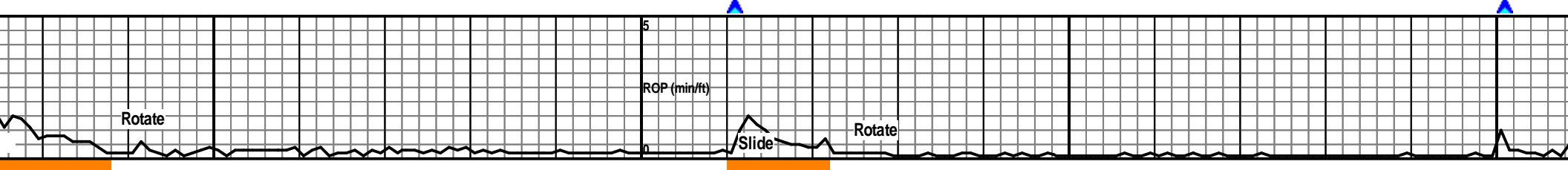
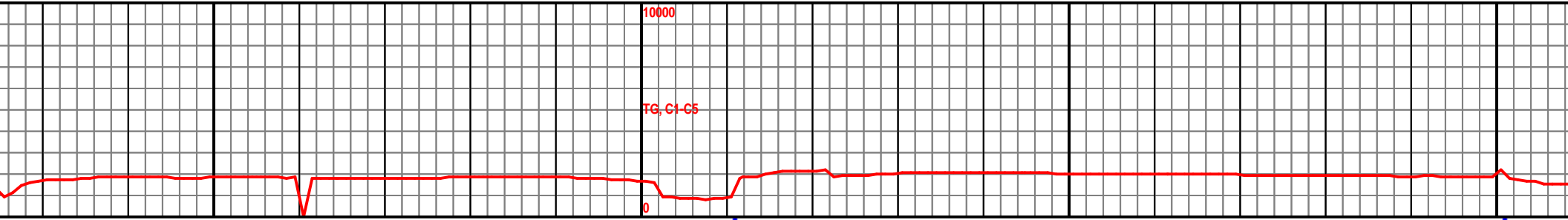
MW IN: 9.8 VIS: 45 OUT: 9.7 VIS: 43

MW IN: 9.8 VIS: 45 OUT: 9.6 VIS: 49



MW IN: 9.8 VIS: 44 OUT: 9.7 VIS: 41

MW IN: 9.8 VIS: 44 OUT: 9.7 VIS: 41

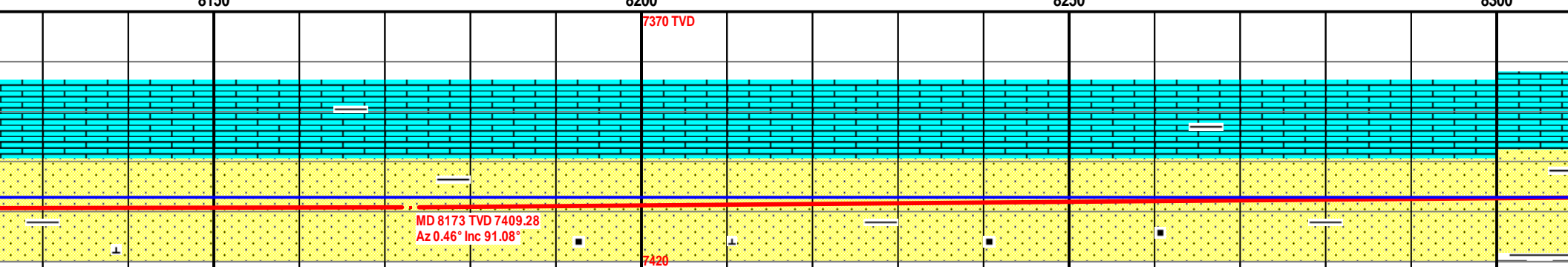


8150

8200

8250

8300



SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
10%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 10%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 95%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 5%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 95%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 5%: gy-dkgy, occ ltgy, sbply, slty, sft.

7470

MW IN: 9.8 VIS: 44 OUT: 9.7 VIS: 41

MW IN: 9.7 VIS: 45 OUT: 9.8 VIS: 43

10000

TG, C1-C5

0

5

RGP (min/ft)

0

250

Gamma (API)

0

8350

8400

8450

7370 TVD

MD 8353 TVD 7406.47  
Az 1.76° Inc 90.71°

MD 8443 TVD 7405.51  
Az 1.11° Inc 90.52°

7420

-sub  
tr v

SS 98%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 2%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 98%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 2%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 1%: gy-dkgy, occ ltgy, sbply, slty, sft.

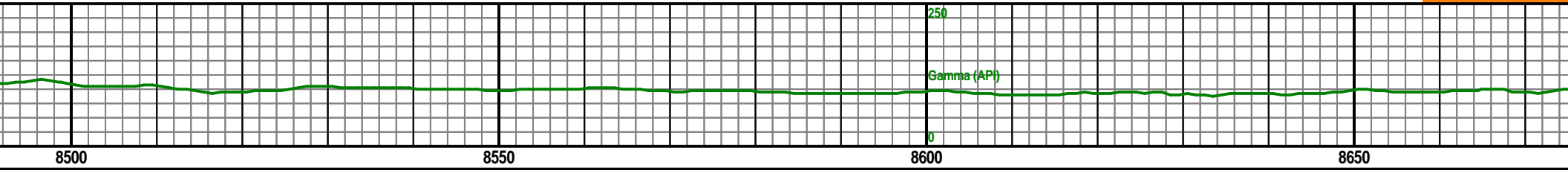
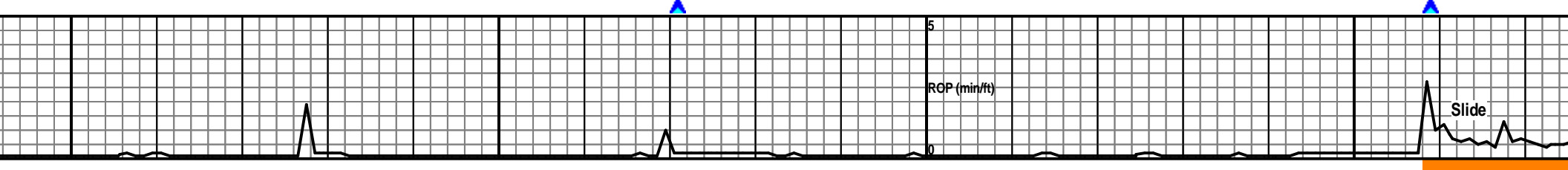
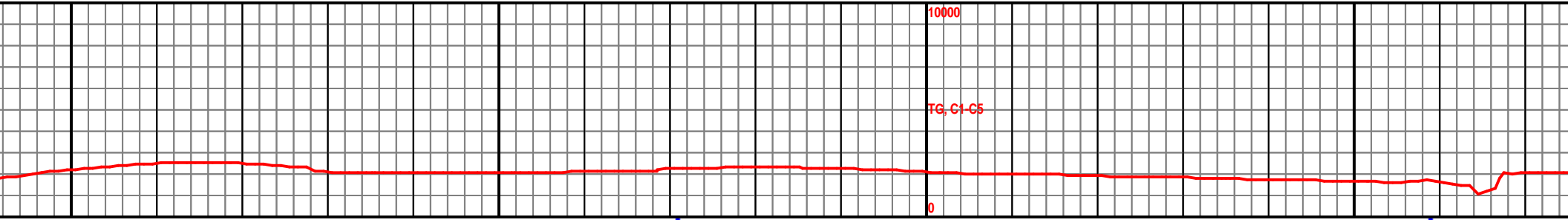
SS 99%: gy-  
md calc, carb  
SH 1%: gy-d

7470



MW IN: 9.7 VIS: 45 OUT: 9.8 VIS: 43

MW IN: 9.7 VIS: 46 OUT: 9.7 VIS: 43

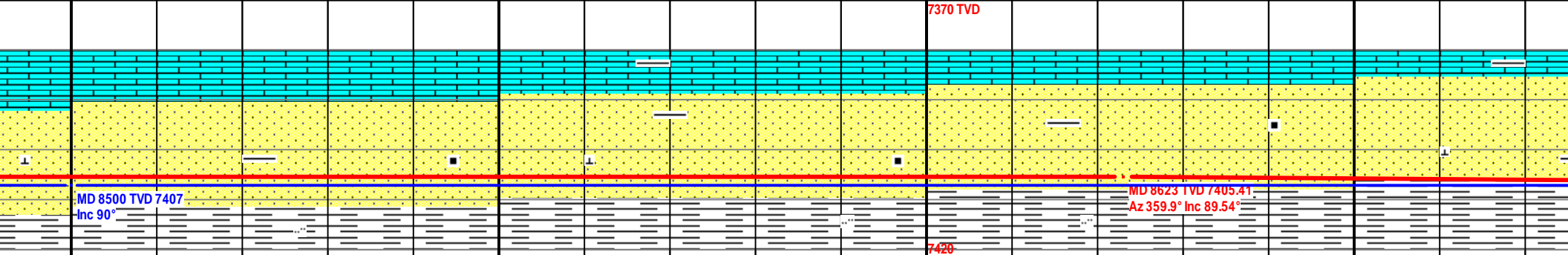


8500

8550

8600

8650



MD 8500 TVD 7407  
Inc 90°

MD 8623 TVD 7405.41  
Az 359.9° Inc 89.54°

dkgy-wht-clr, vfg-fg, rnd-sub  
b incl, fri, nsf, slw-mod str v  
kgy, occ ltgy, sbply, s

SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH 1%:  
gy-dkgy, occ ltgy, sbply, slty, sft.

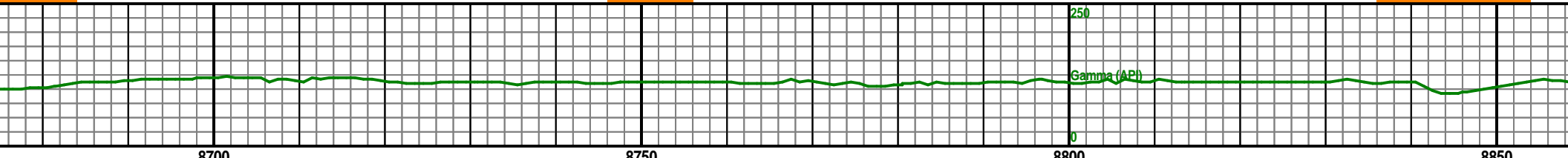
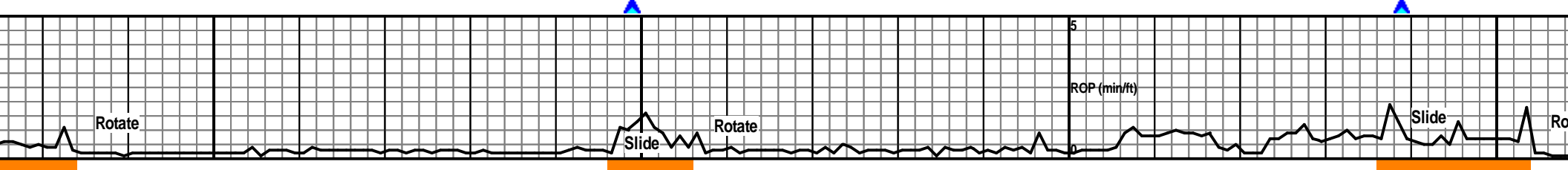
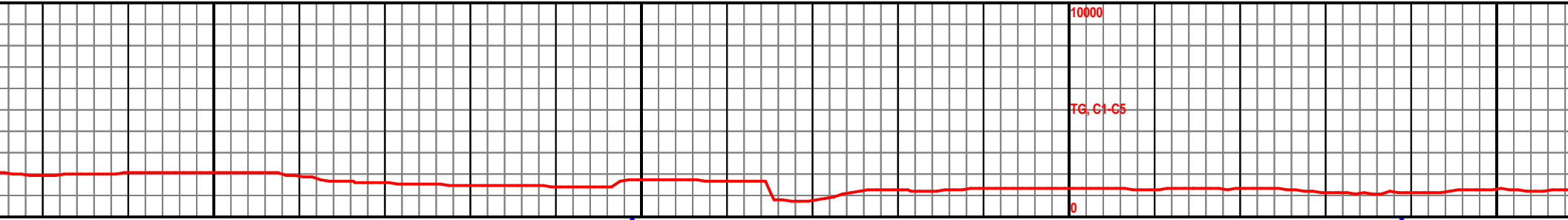
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH 1%:  
gy-dkgy, occ ltgy, sbply, slty, sft.

SH 60%: gy-dkgy, occ ltgy, sbply, slty, sft. SS  
40%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.

7470

MW IN: 9.6 VIS: 42 OUT: 9.6 VIS: 42

MW IN: 9.6

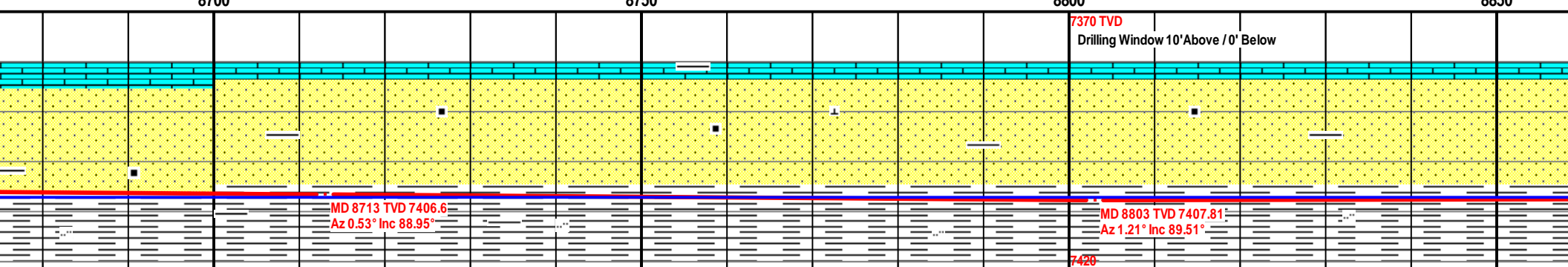


8700

8750

8800

8850



SH 60%: gy-dkgy, occ ltgy, sbply, slty, sft. SS  
40%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.

SH 70%: gy-dkgy, occ ltgy, sbply, slty, sft. SS  
30%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.

SH 70%: gy-dkgy, occ ltgy, sbply, slty, sft. SS  
30%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.

SH 90%: gy-dkgy, occ ltgy, sbply, s  
10%: gy-dkgy-wht-clr, vfg-fg, rnd-s  
md calc, carb incl, fri, nsf, slw str wh

7470

VIS: 42

MW IN: 9.6 VIS: 43 OUT: 9.6 VIS: 43

10000

TG, C1-C5

0

5

RGP (min/ft)

250

Gamma (API)

0

8900

8950

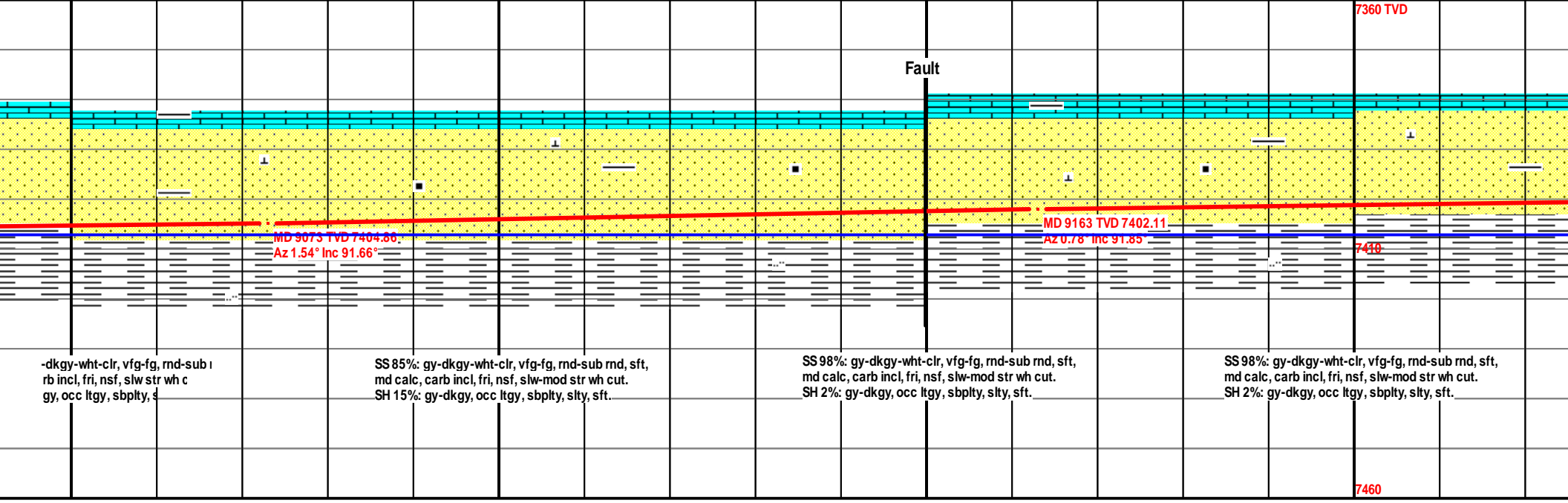
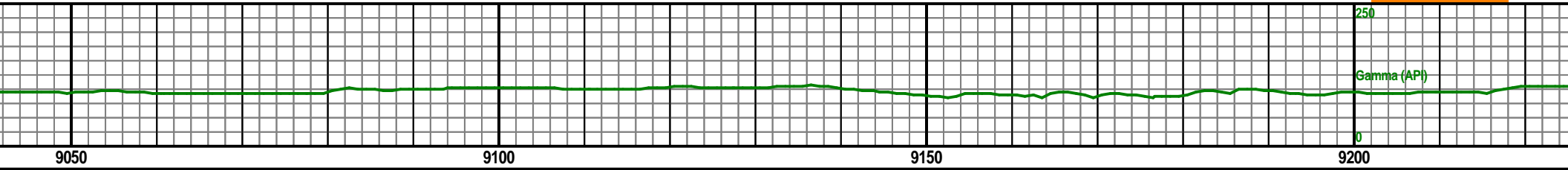
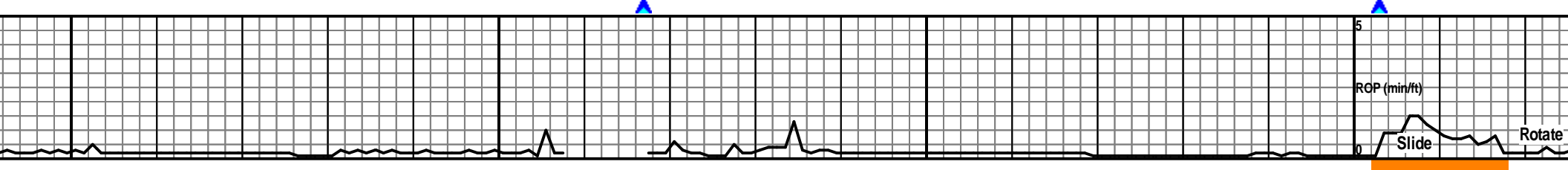
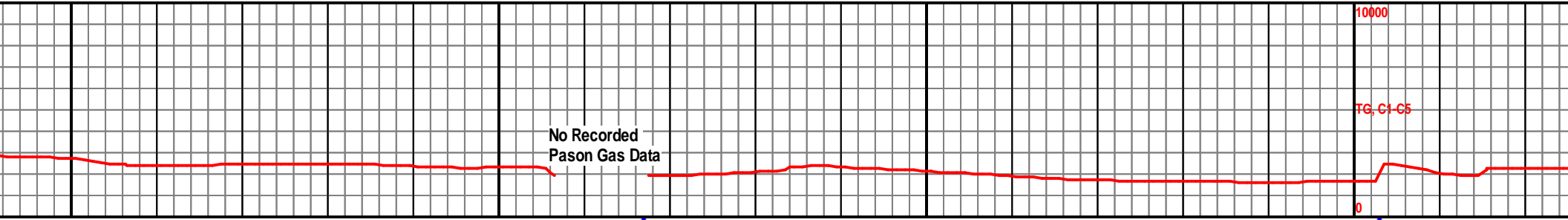
9000

7360 TVD  
Scale ChangeMD 8893 TVD 7407.54°  
Az 2.6° Inc 90.83°MD 8983 TVD 7406.53°  
Az 1.8° Inc 90.46°MD 9000 TVD 7407°  
Inc 90°lty,  
brSH 90%: gy-dkgy, occ ltgy, sbplty, slty, sft. SS  
10%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.SH 99%: gy-dkgy, occ ltgy, sbplty, slty, sft. SS  
1%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md  
calc, carb incl, fri, nsf, slw str wh cut.SH 99%: gy-dkgy, occ ltgy, sbplty, slty, sft. SS  
1%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md  
calc, carb incl, fri, nsf, slw str wh cut.SS 85%: gy-  
md calc, ca  
15%: gy-dk

7460

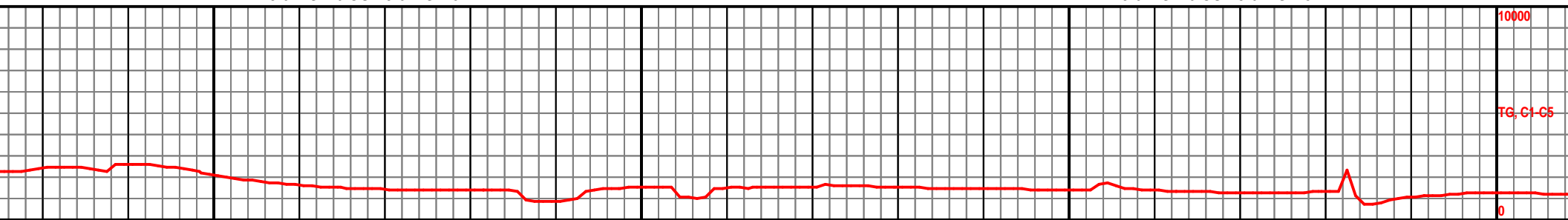
MW IN: 9.6 VIS: 45 OUT: 9.55 VIS: 43

MW IN: 9.6 VIS: 45 OUT: 9.55 VIS: 43



MW IN: 9.6 VIS: 46 OUT: 9.6 VIS: 45

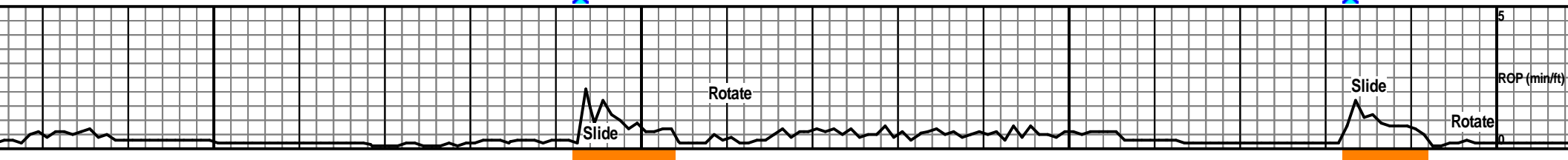
MW IN: 9.6 VIS: 46 OUT: 9.6 VIS: 45



10000

TG, C1-C5

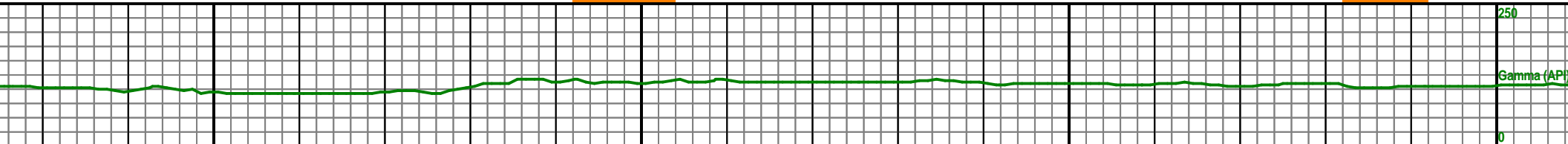
0



5

RGP (min/ft)

0



Gamma (API)

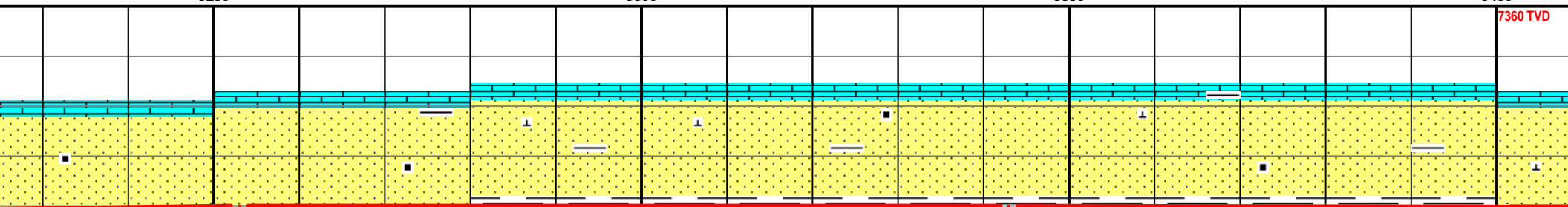
0

9250

9300

9350

9400



7360 TVD

MD 9253 TVD 7400.07°  
Az 1.29° Inc 90.74°

MD 9343 TVD 7400.07°  
Az 0.77° Inc 89.26°

7410

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 10%: gy-dkgy, occ ltgy, sbpity, slty, sft.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw-mod str wh cut.  
SH 10%: gy-dkgy, occ ltgy, sbpity, slty, sft.

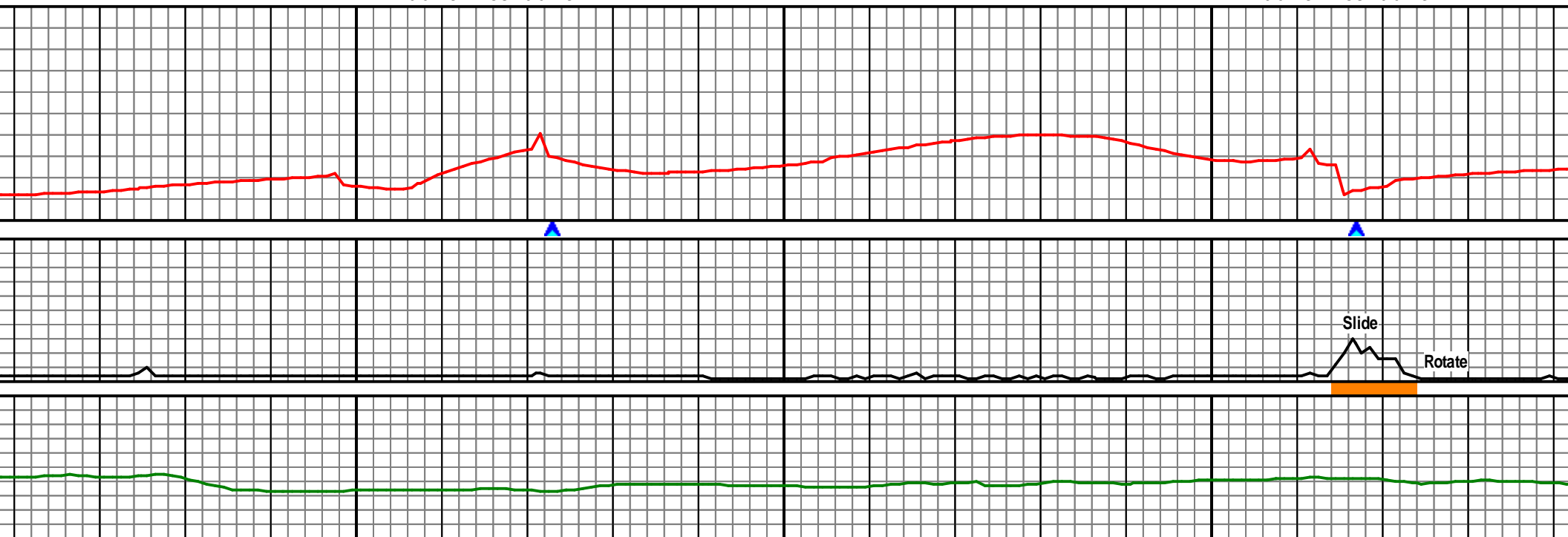
SH 90%: gy-dkgy, occ ltgy, sbpity, slty, sft. SS  
10%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut.

SH 90%: gy-dkgy, occ ltgy, sbpity, s  
10%: gy-dkgy-wht-clr, vfg-fg, rnd-s  
md calc, carb incl, fri, nsf, slw str wh

7460

MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 47

MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 47



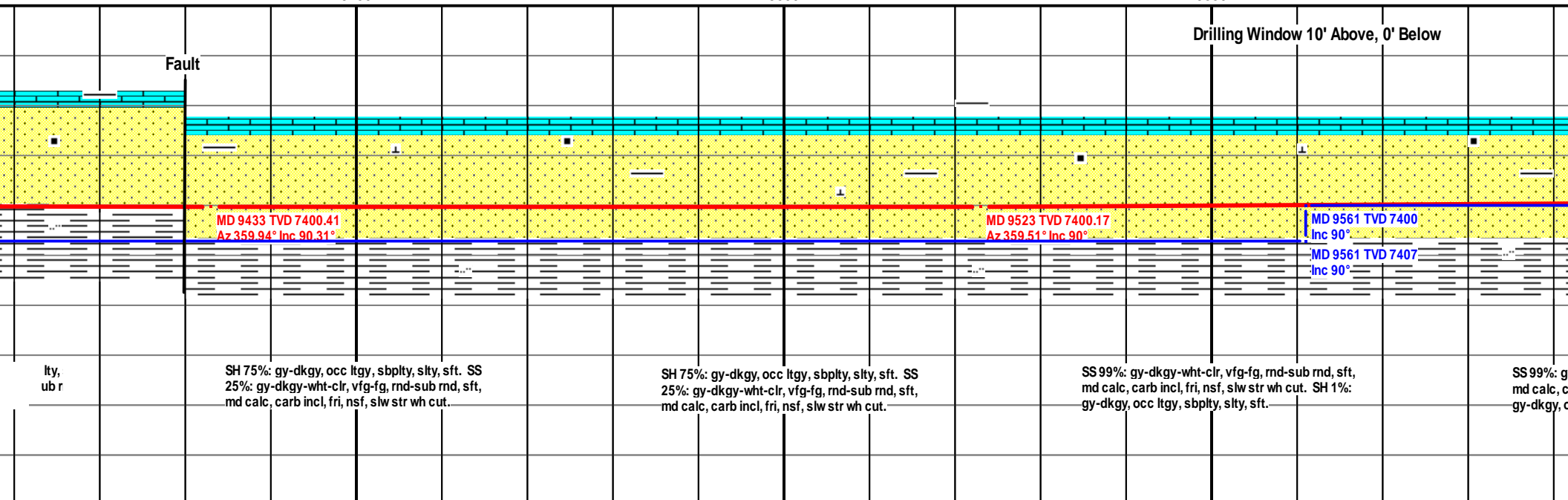
9450

9500

9550

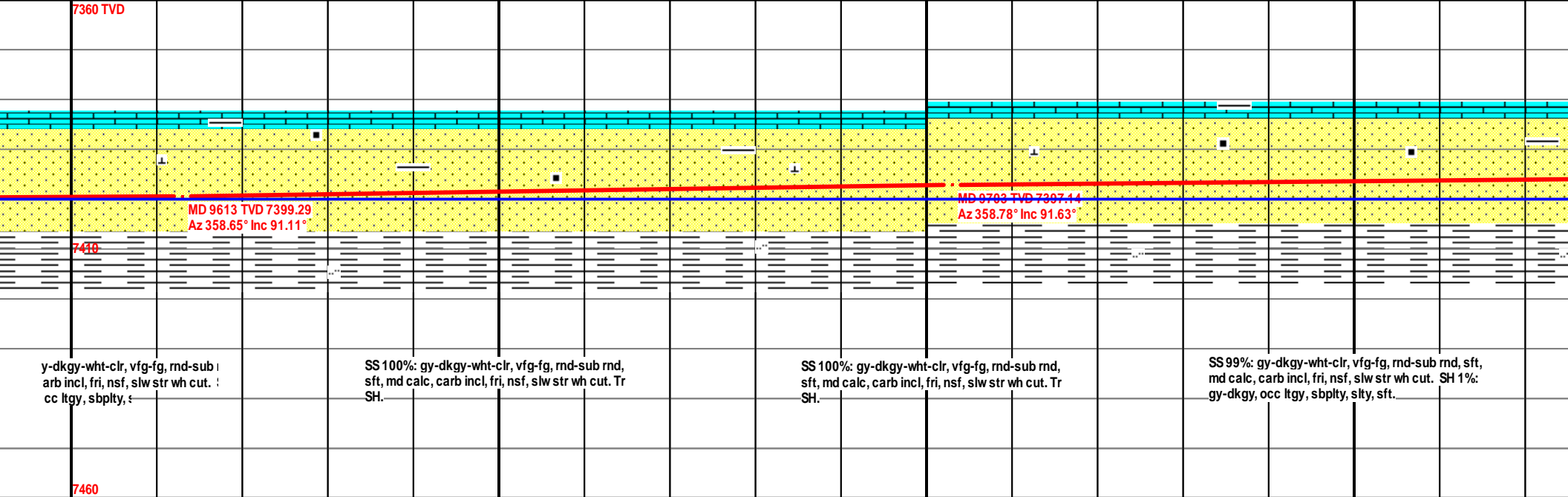
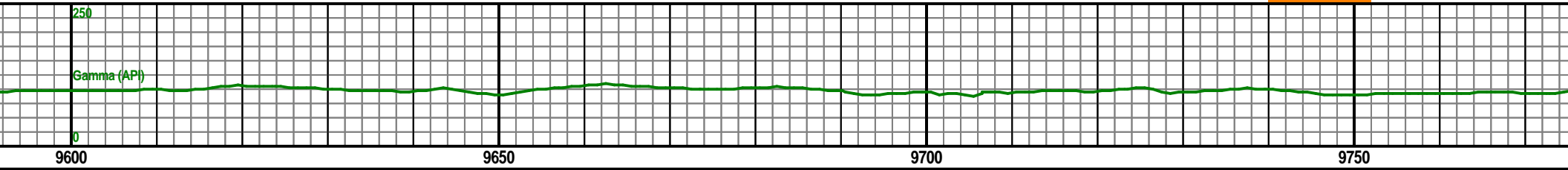
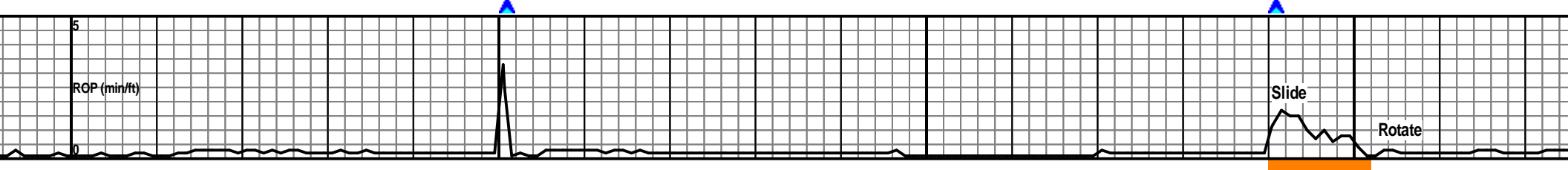
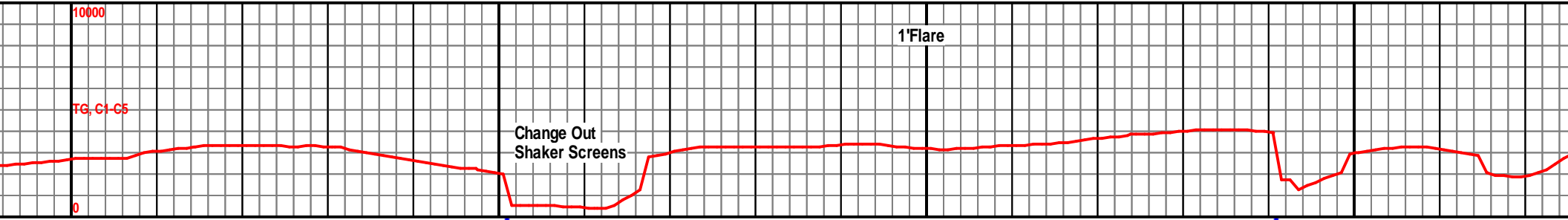
Drilling Window 10' Above, 0' Below

Fault



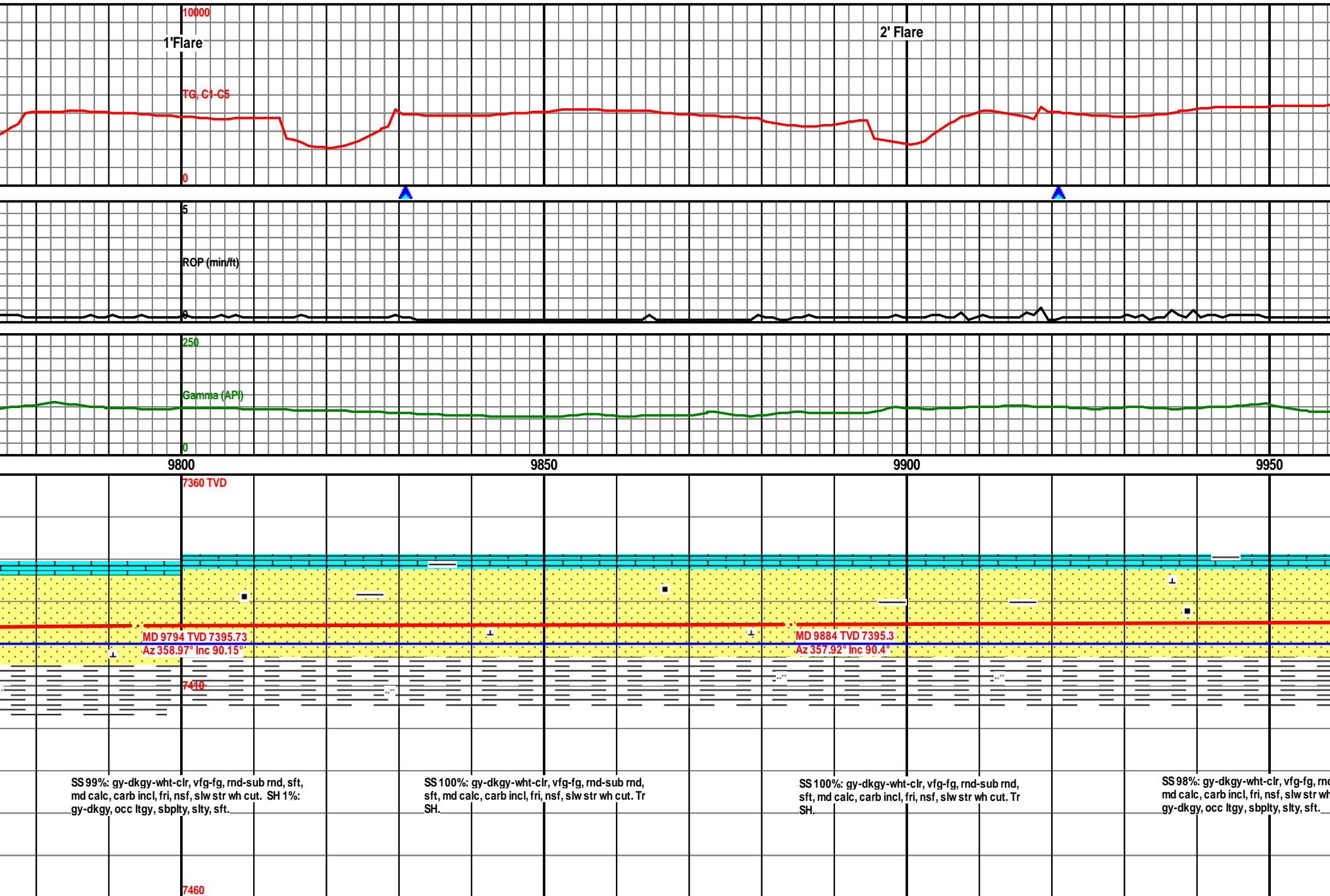
MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 47

MW IN: 9.5 VIS: 48 OUT: 9.5 VIS: 48



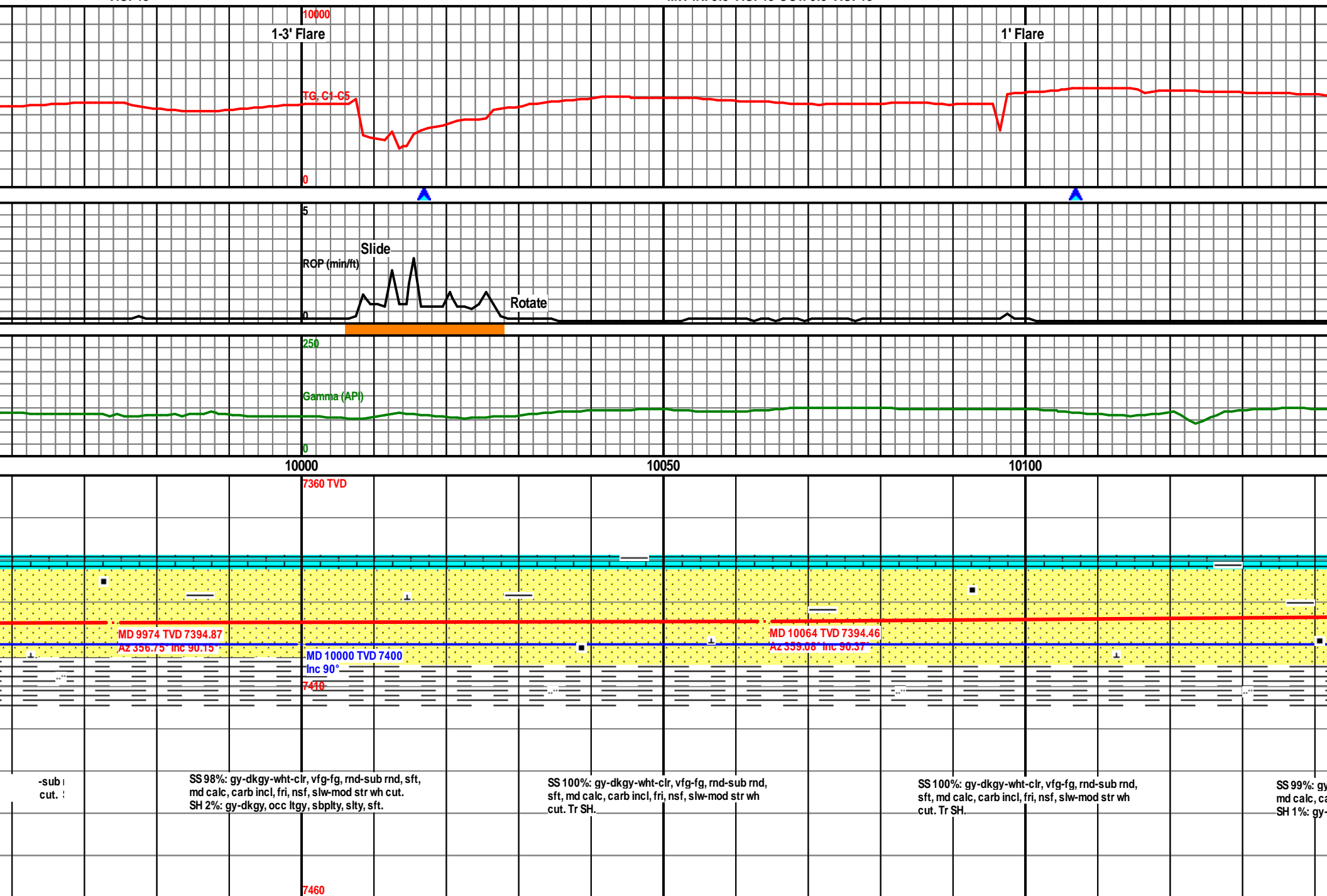
MW IN: 9.5 VIS: 48 OUT: 9.5 VIS: 48

MW IN: 9.5



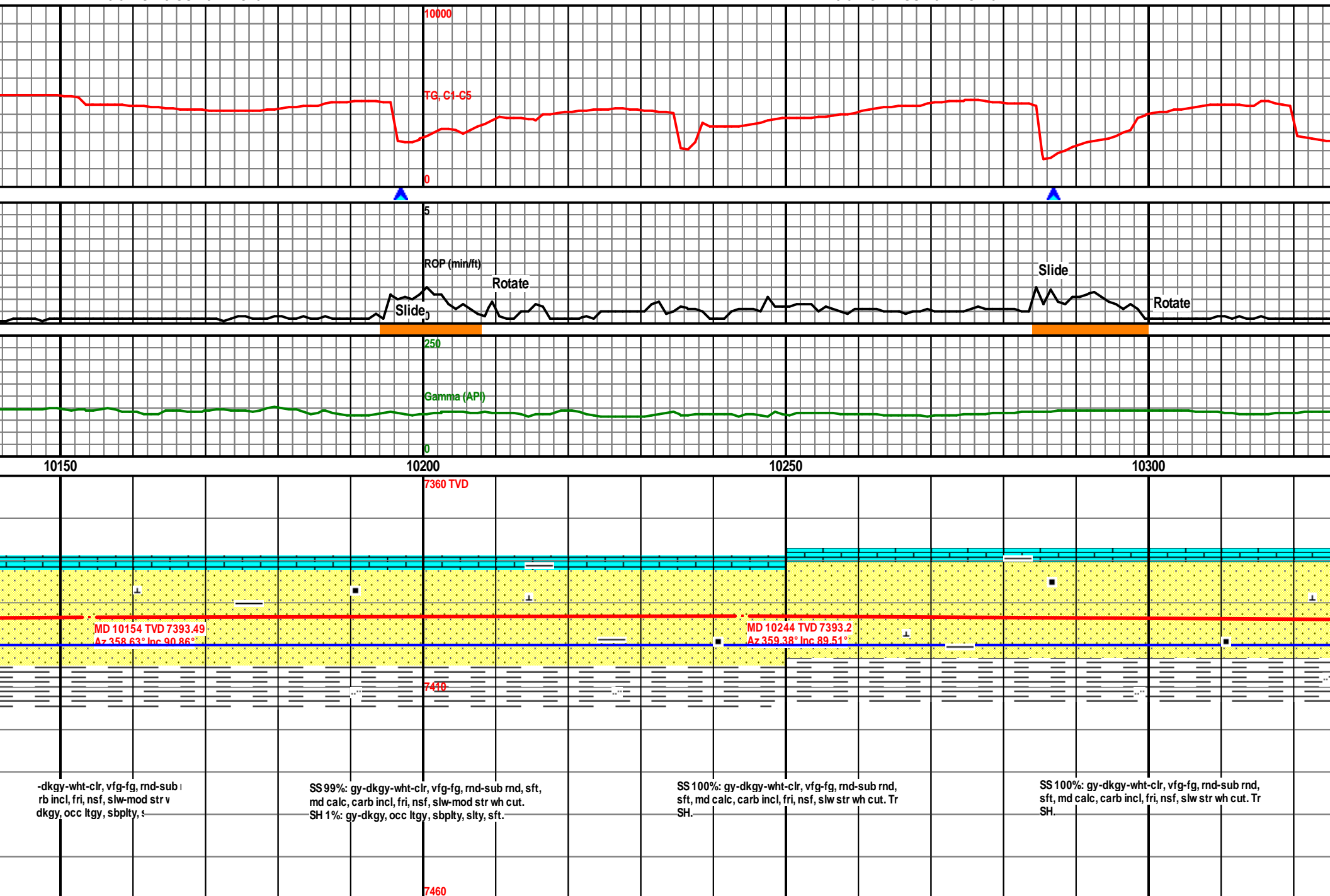


MW IN: 9.5 VIS: 48 OUT: 9.5 VIS: 48



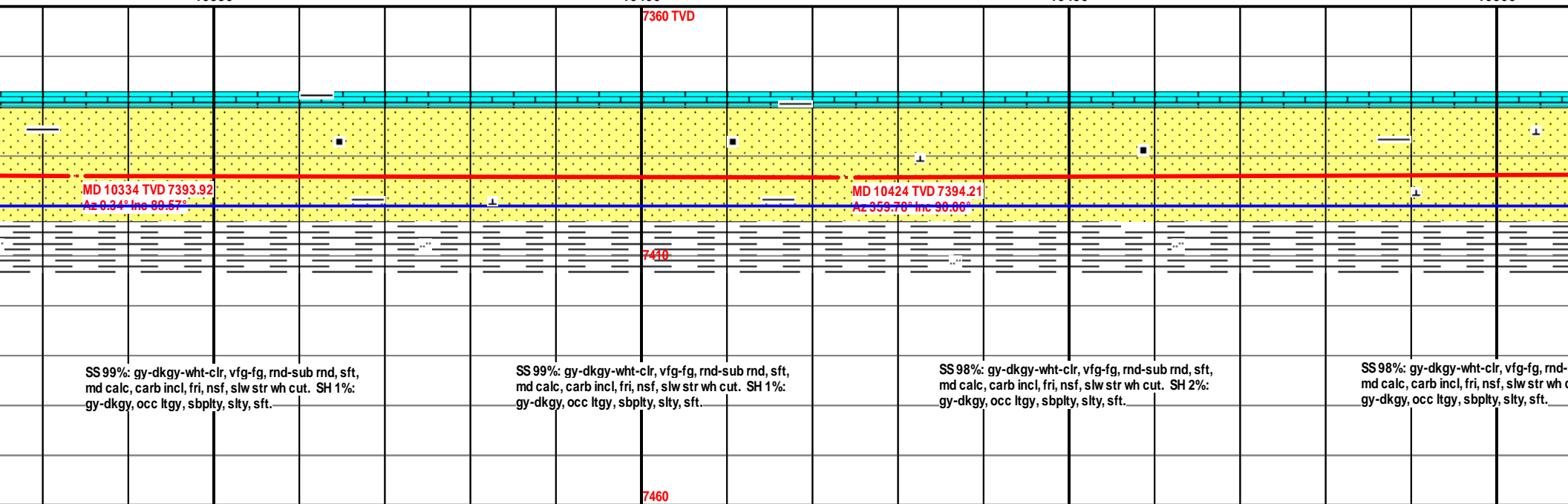
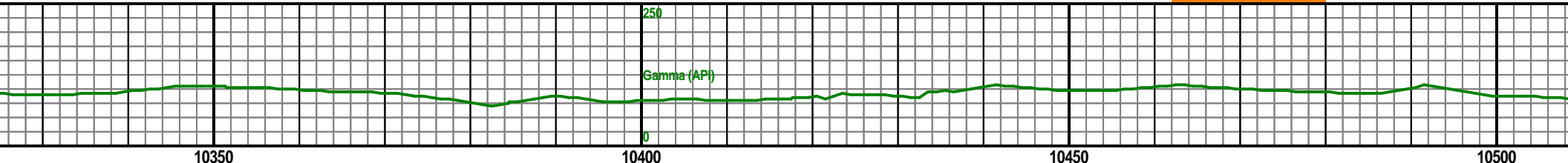
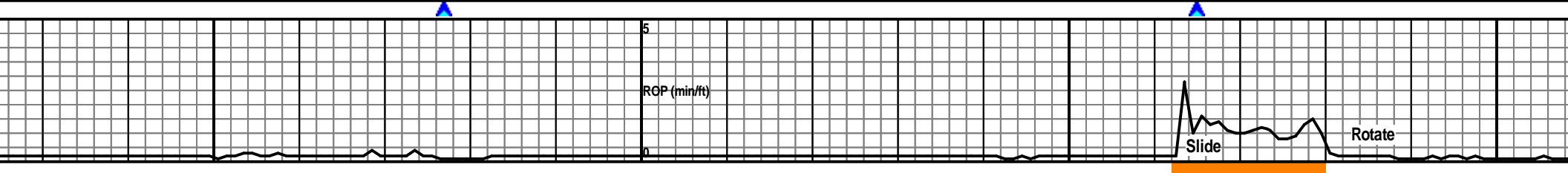
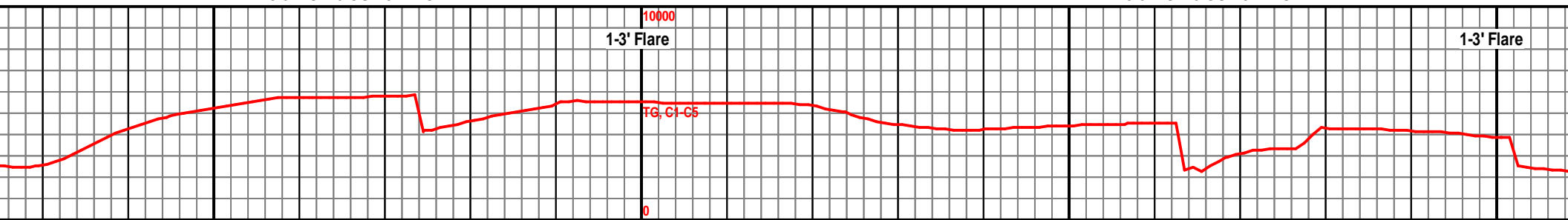
MW IN: 9.5 VIS: 49 OUT: 9.7 VIS: 51

MW IN: 9.5 VIS: 47 OUT: 9.7 VIS: 45



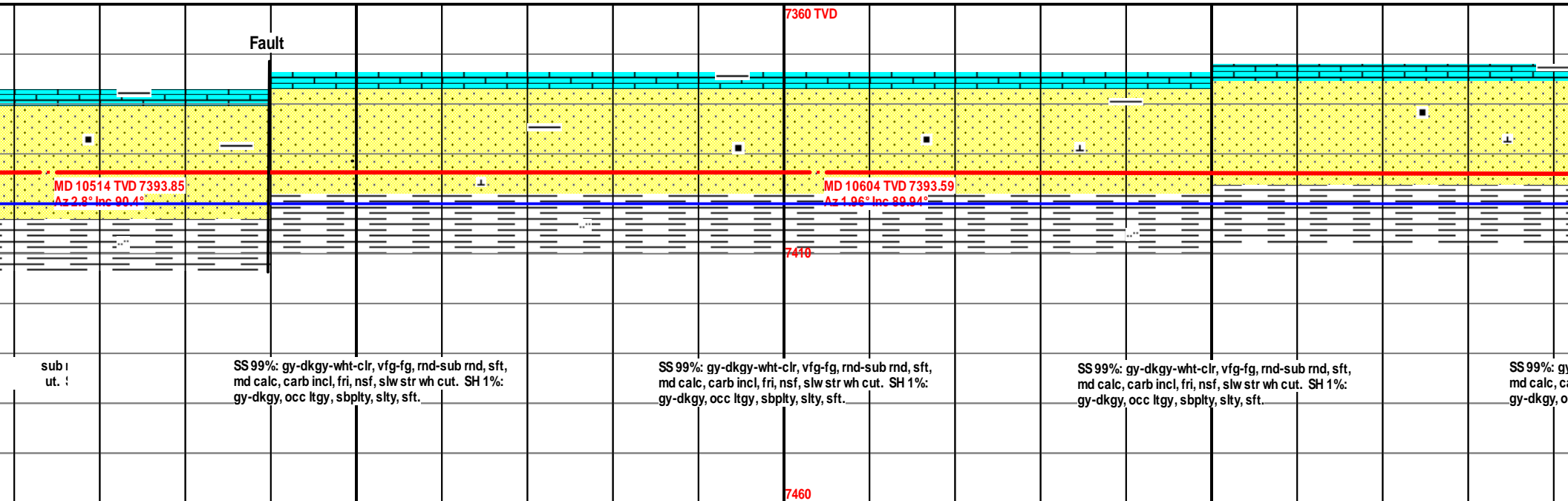
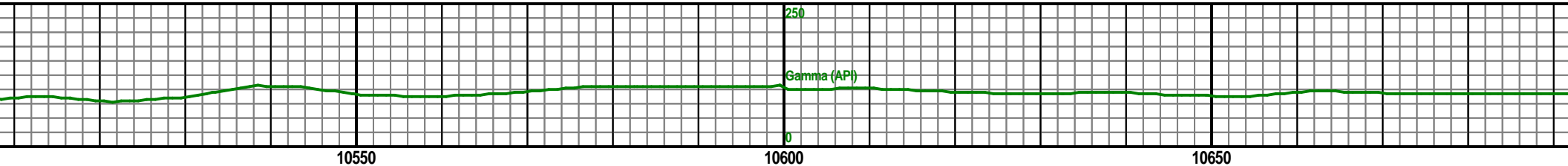
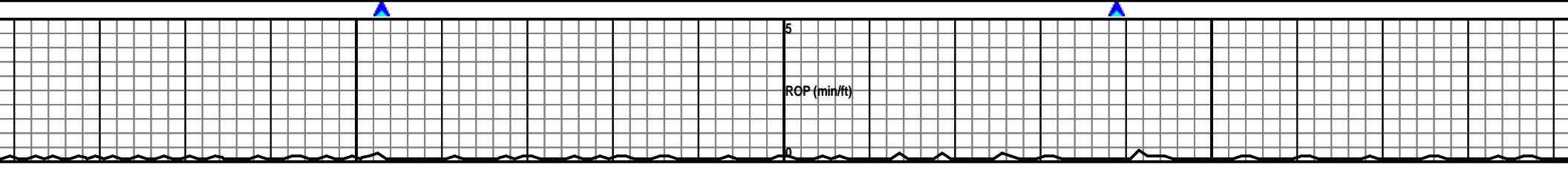
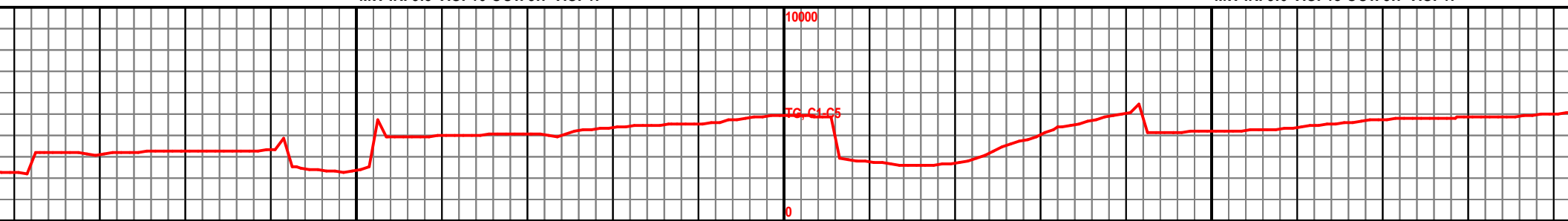
MW IN: 9.5 VIS: 46 OUT: 9.7 VIS: 47

MW IN: 9.5 VIS: 46 OUT: 9.7 VIS: 47



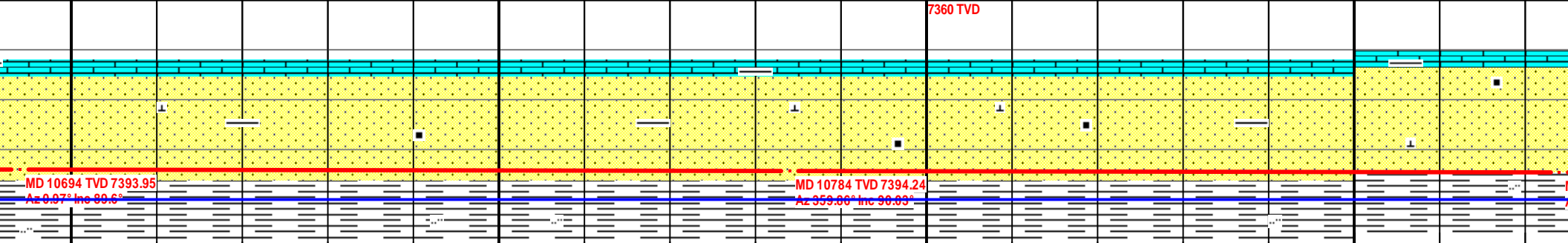
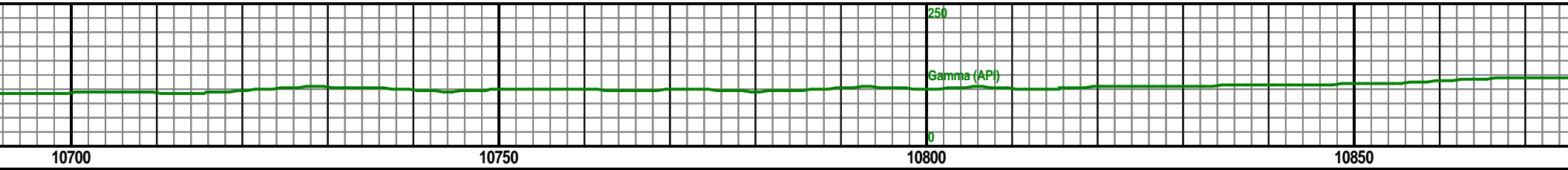
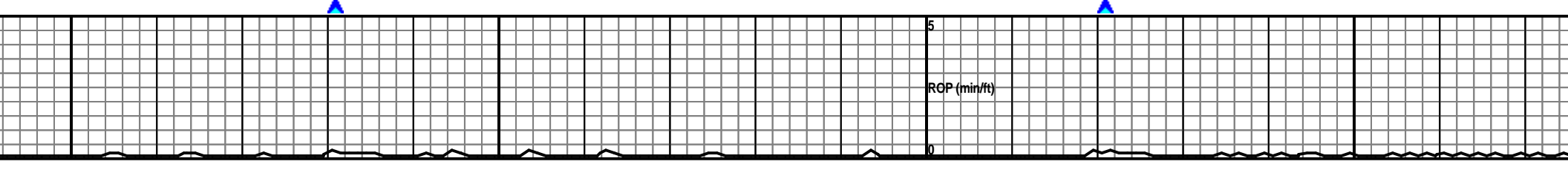
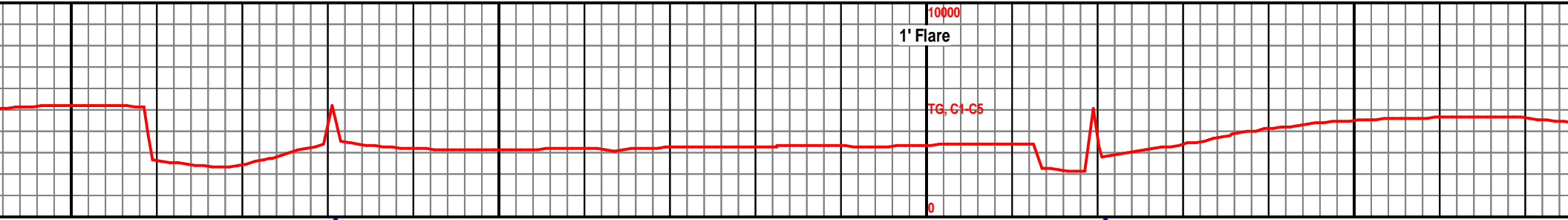
MW IN: 9.5 VIS: 46 OUT: 9.7 VIS: 47

MW IN: 9.6 VIS: 48 OUT: 9.7 VIS: 47



MW IN: 9.6 VIS: 48 OUT: 9.7 VIS: 47

MW IN: 9.6 VIS: 48 OUT: 9.7 VIS: 47



-dkgy-wht-clr, vfg-fg, rnd-sub  
rb incl, fri, nsf, slw str wh cut. :  
cc ltgy, sbpity, t

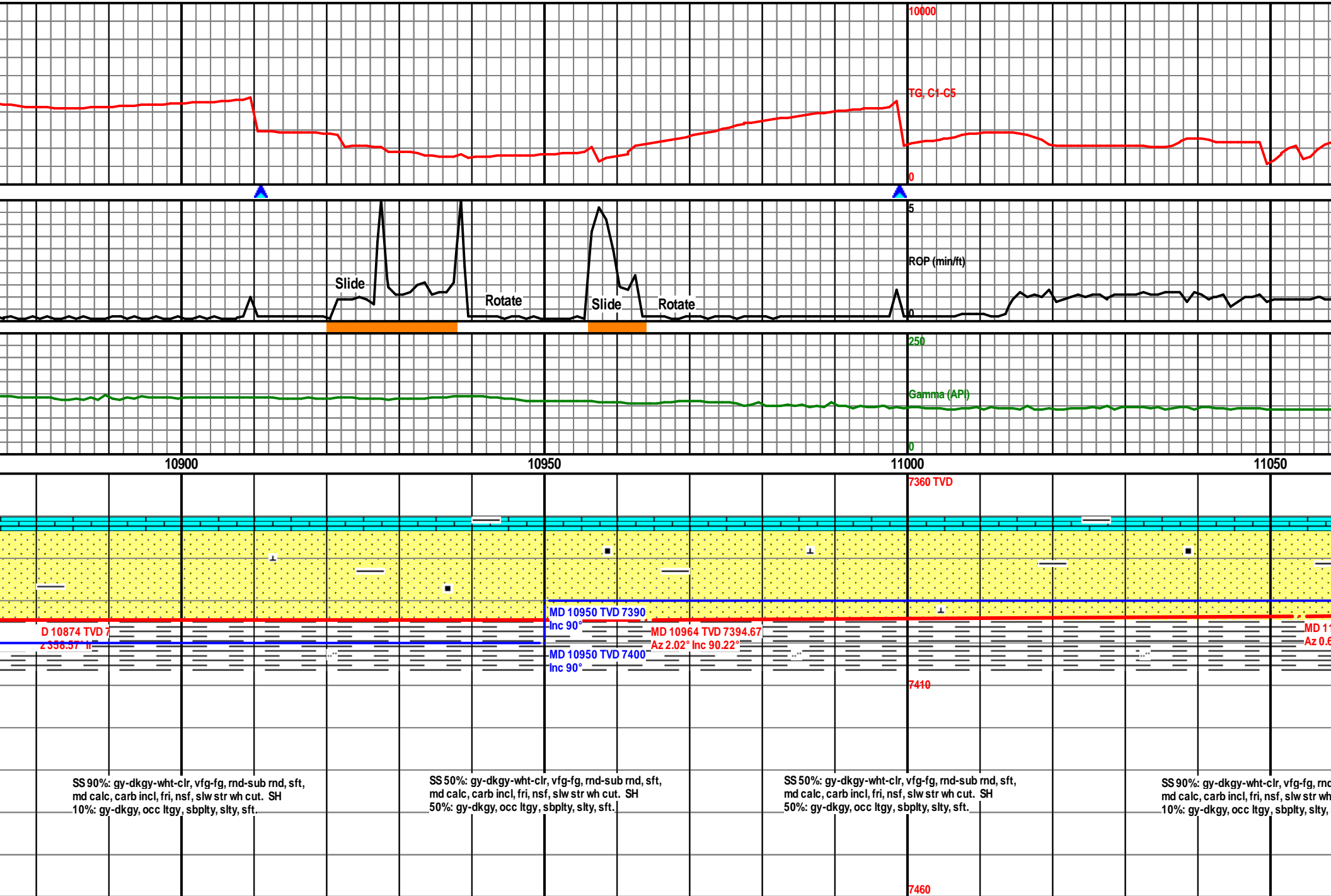
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd,  
sft, md calc, carb incl, fri, nsf, slw str wh cut. Tr  
SH.

SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd,  
sft, md calc, carb incl, fri, nsf, slw str wh cut. Tr  
SH.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
10%: gy-dkgy, occ ltgy, sbpity, slty, sft.

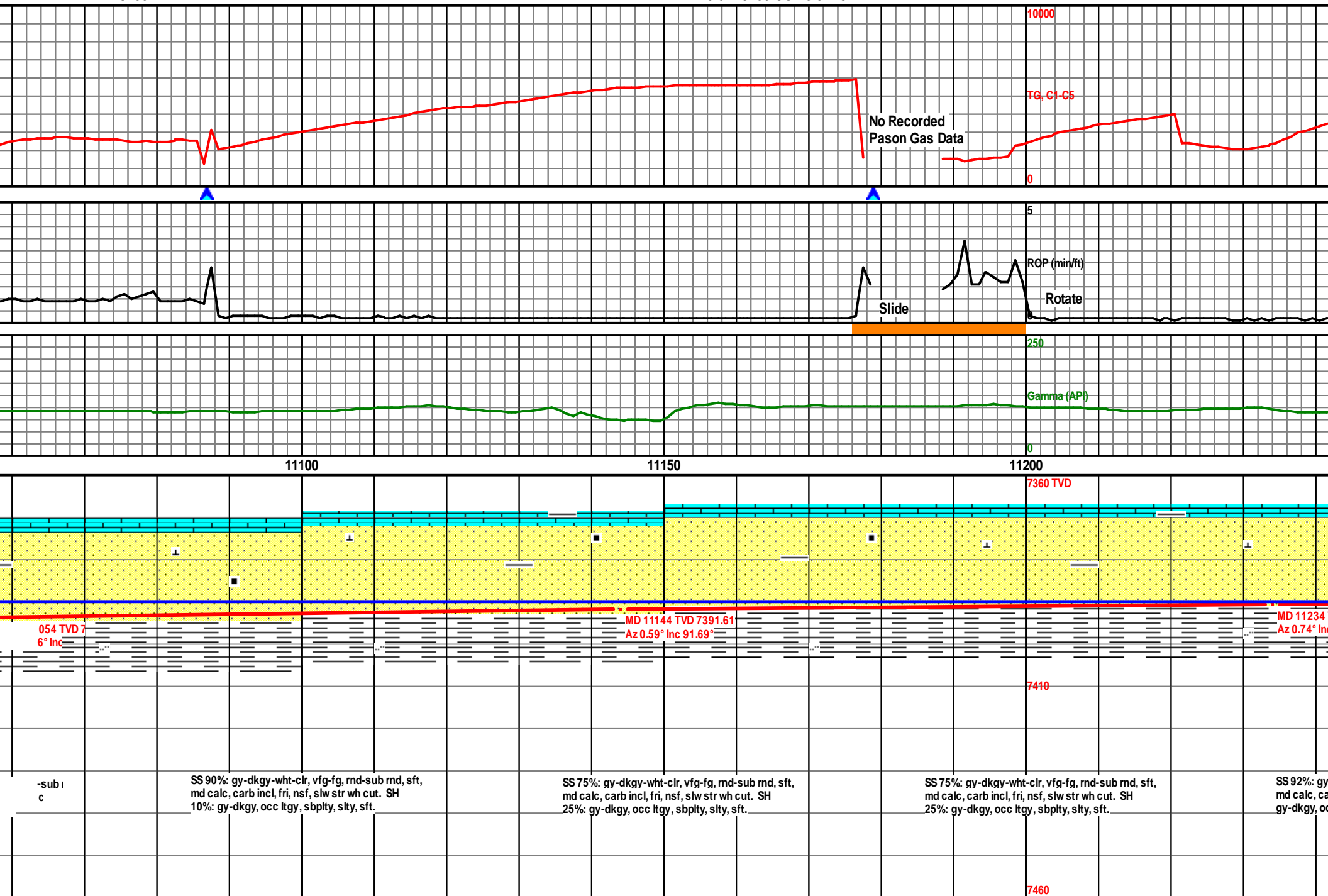
MW IN: 9.55 VIS: 50 OUT: 9.6 VIS: 51

MW IN: 9.5



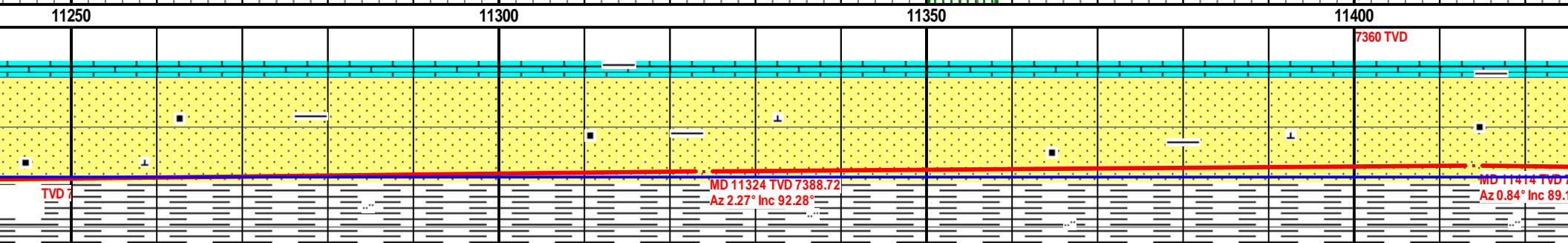
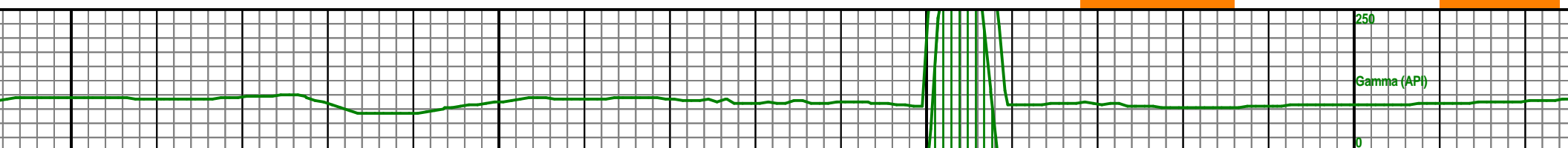
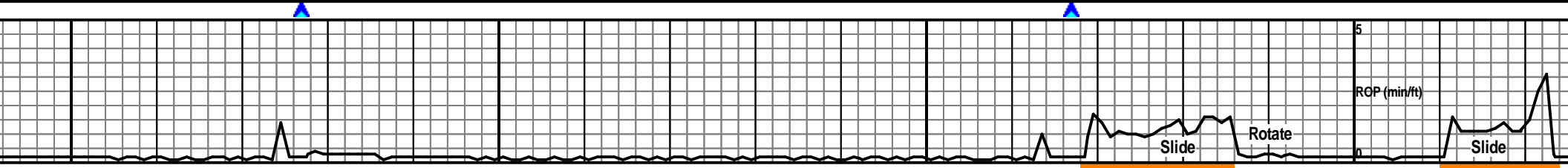
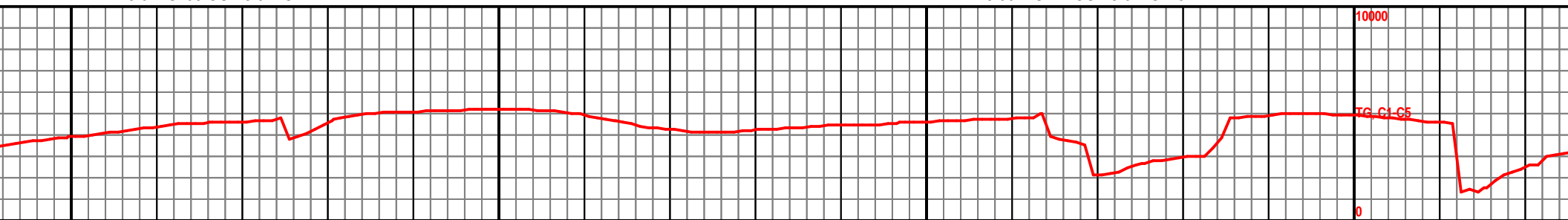
VIS: 50

MW IN: 9.5 VIS: 50 OUT: 9.5 VIS: 47



MW IN: 9.5 VIS: 50 OUT: 9.5 VIS: 47

MW IN: 9.55 VIS: 47 OUT: 9.6 VIS: 45



-dkgy-wht-clr, vfg-fg, rnd-sub  
rb incl, fri, nsf, slw str wh cut. SH  
c ltgy, sbply, sft.

SS 92%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH 8%:  
gy-dkgy, occ ltgy, sbply, slty, sft.

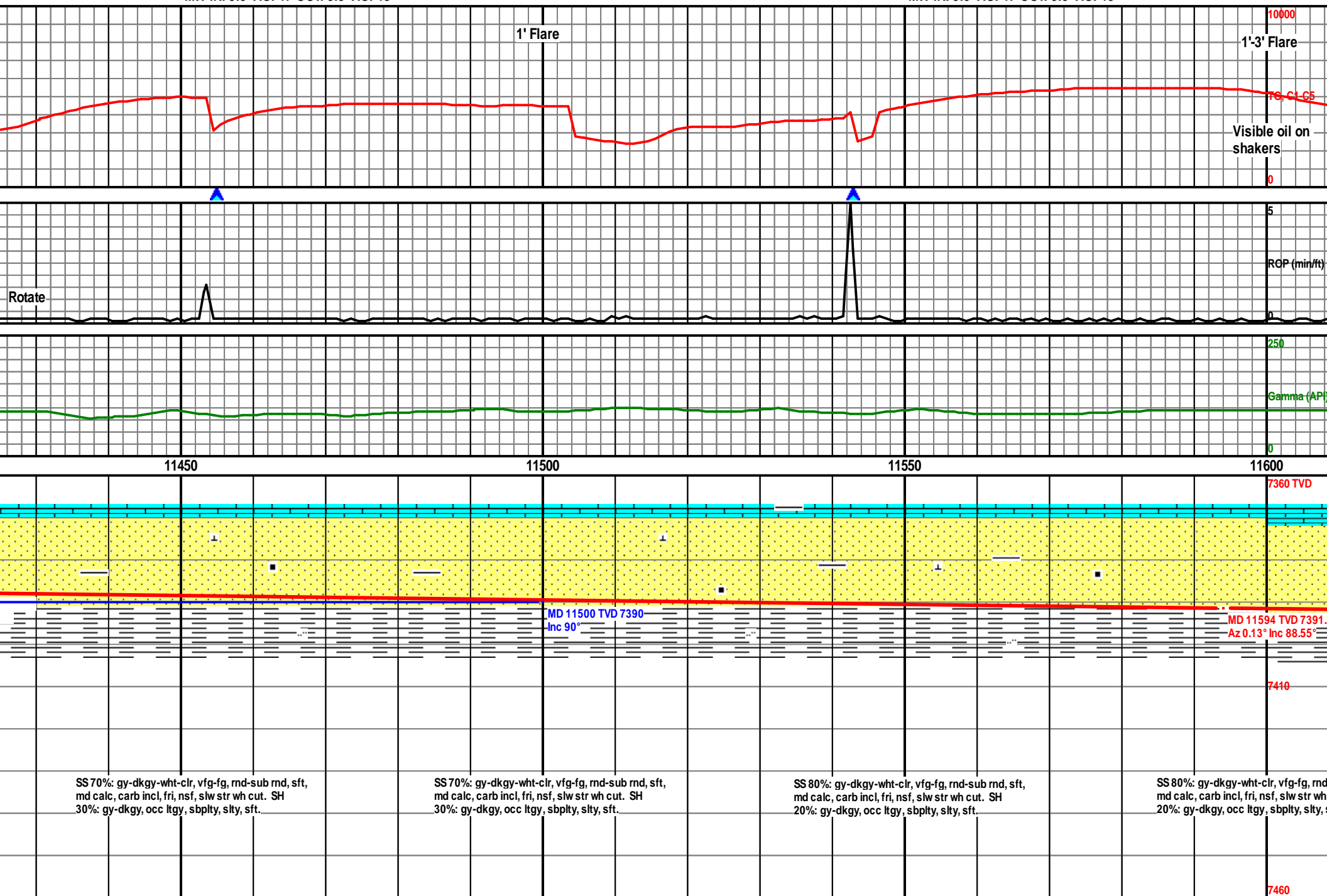
SS 80%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
20%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 80%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
20%: gy-dkgy, occ ltgy, sbply, slty, sft.



MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 48

MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 48



MW IN: 9.6 VIS: 49 OUT: 9.5 VIS:

MW IN: 9.6 VIS: 49 OUT: 9.5 VIS: 50

1'-3' Flare

11650

11700

11750

MD 11684 TVD 7393.1  
Az 359.88° Inc 89.17°

MD 11774 TVD 7394.57  
Az 359.42° Inc 88.53°

-sub  
c

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
10%: gy-dkgy, occ ltgy, sbply, slty, sft.

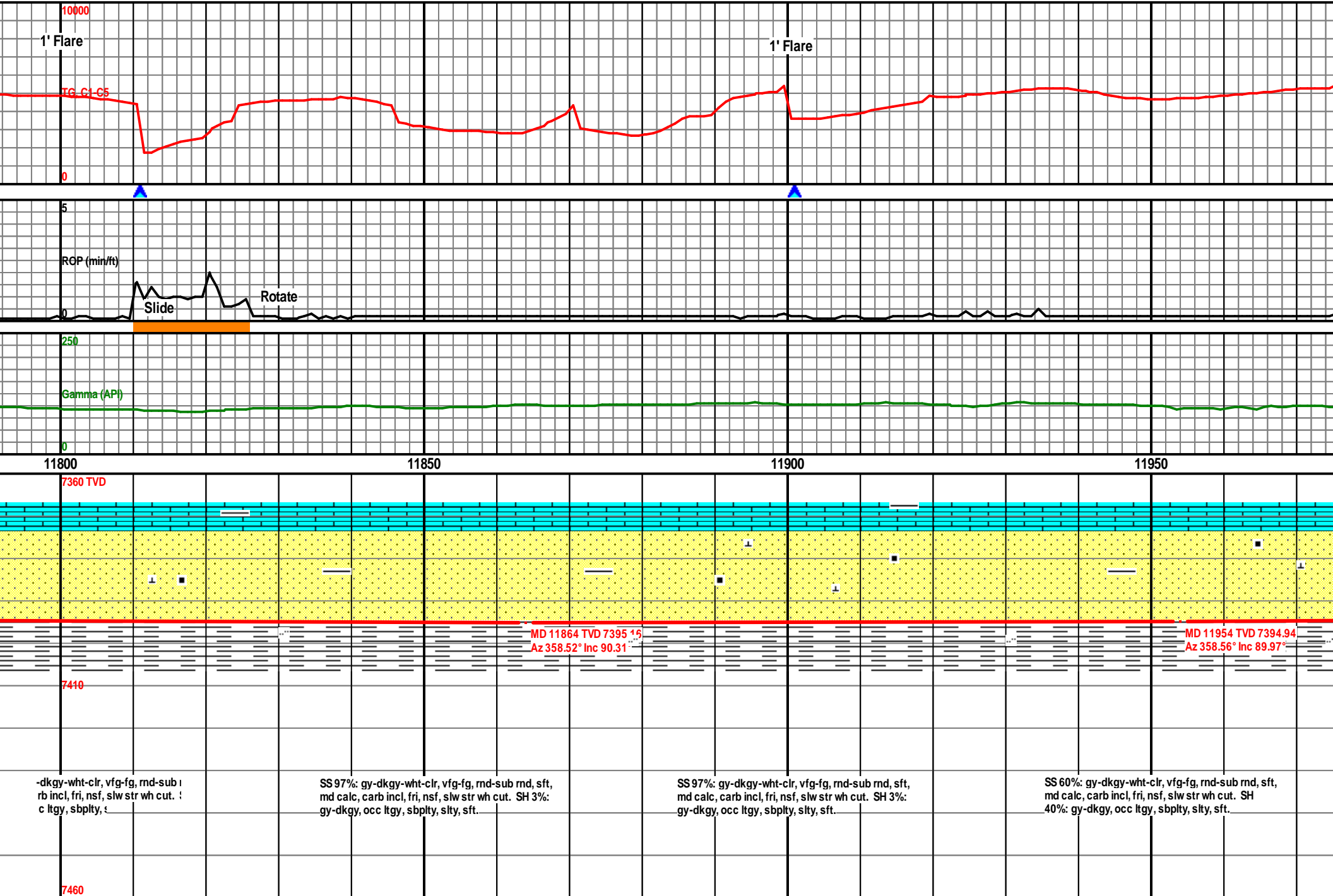
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
10%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 95%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH 5%:  
gy-dkgy, occ ltgy, sbply, slty, sft.

SS 95%: gy-  
md calc, ca  
gy-dkgy, oc

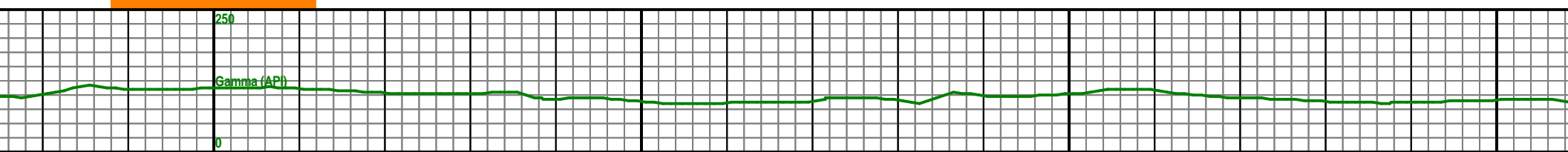
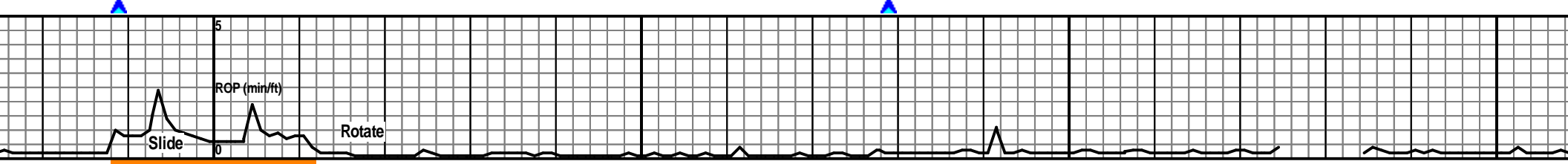
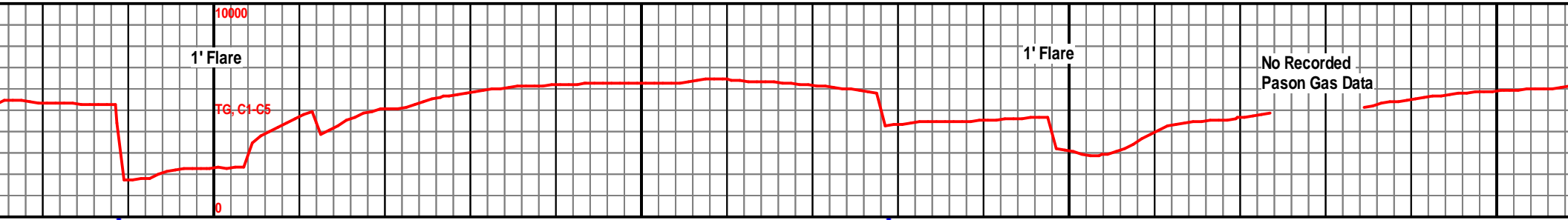
MW IN: 9.7 VIS: 47 OUT: 9.7 VIS: 50

MW IN: 9.7 VIS: 48 OUT: 9.8 VIS: 50



MW IN: 9.7 VIS: 47 OUT: 9.6 VIS: 46

MW IN: 9.7

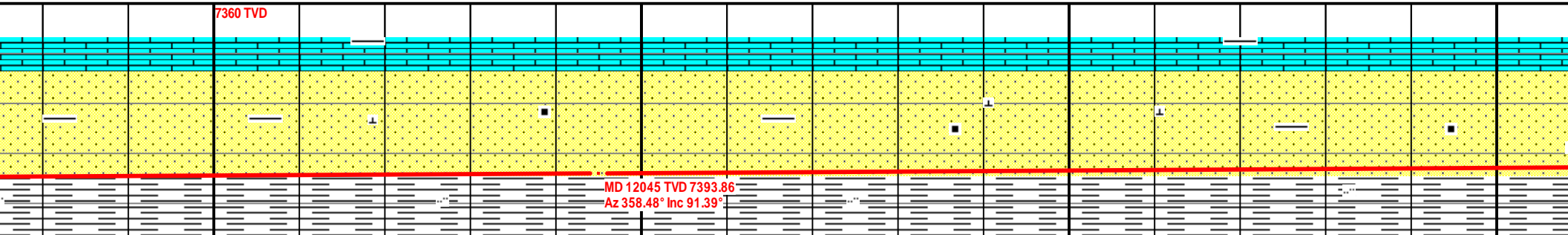


12000

12050

12100

12150



7410

SS 60%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
40%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 60%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
40%: gy-dkgy, occ ltgy, sbply, slty, sft.

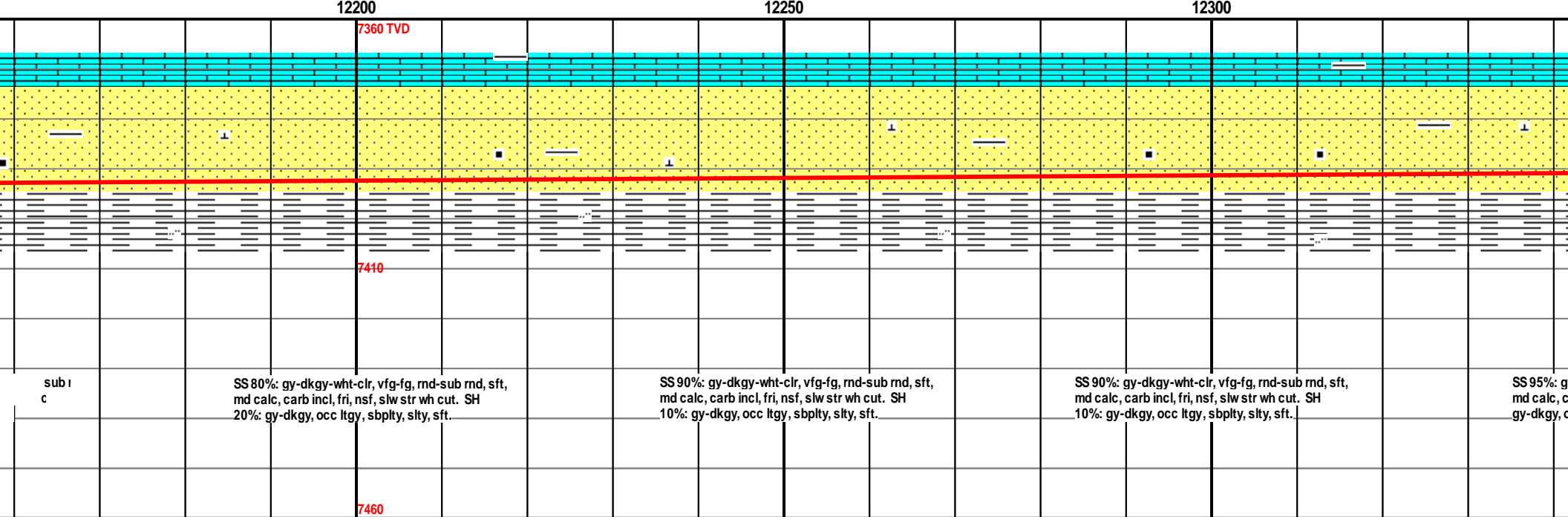
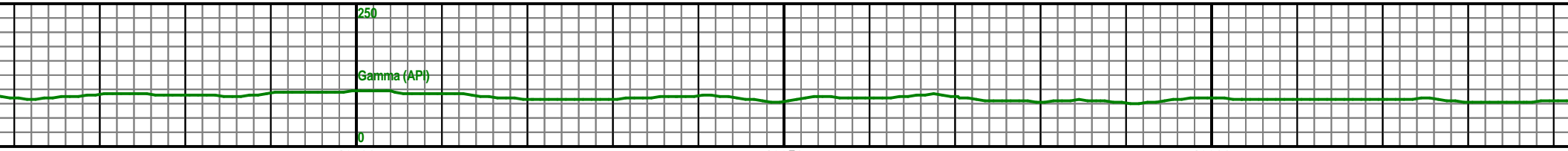
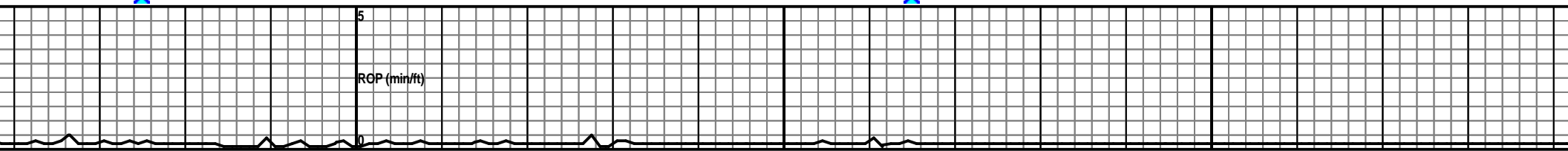
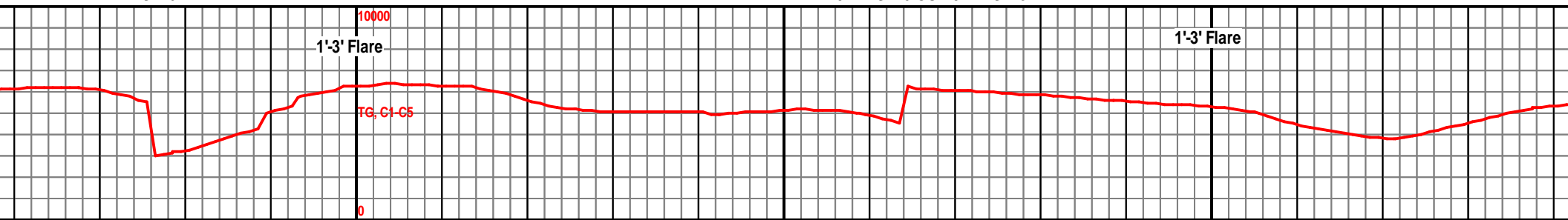
SS 60%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
40%: gy-dkgy, occ ltgy, sbply, slty, sft.

SS 80%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,  
md calc, carb incl, fri, nsf, slw str wh cut. SH  
20%: gy-dkgy, occ ltgy, sbply, slty, sft.

7460

VIS: 46

MW IN: 9.7 VIS: 46 OUT: 9.7 VIS: 48



MW IN: 9.7 VIS: 46 OUT: 9.7 VIS: 48

MW IN: 9.7 VIS: 48 OUT: 9.6 VIS: 50

