



Scale 1:200 Imperial
Measured Depth Log

Well Name: Benson Farms 23C-19HZ
Location: Weld County, CO.
License Number: 05123393940000
Spud Date: 06/22/14
Surface Coordinates: 2045'FSL & 50'FWL, SEC.24, T3N-R68W
Region: DJ Basin
Drilling Completed: 6/28/14
Bottom Hole Coordinates: 1730'FSL & 2071'FWL, SEC.19, T3N-R68W
Ground Elevation (ft): 4973' K.B. Elevation (ft): 4989'
Logged Interval (ft): 7250' To: 14517' Total Depth (ft): 14517'
Formation: Codell
Type of Drilling Fluid: Water Base Mud

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

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

GEOLOGIST

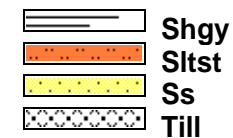
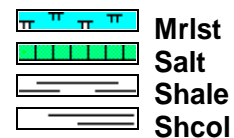
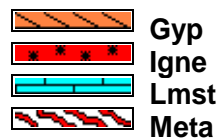
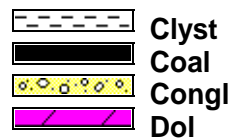
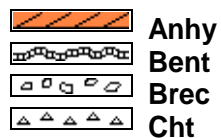
Name: Scott Crozier / Ben Thompson
Company: Great Divide Consulting, Inc.
Address: P.O. Box 630263
Highlands Ranch, CO 80163

Cores

DSTs

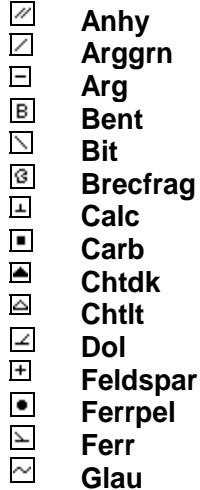
Comments

ROCK TYPES

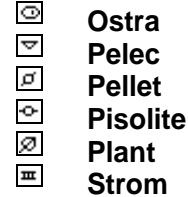
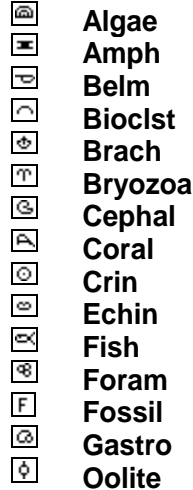


ACCESSORIES

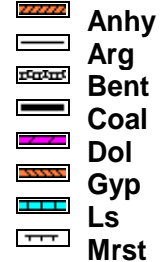
MINERAL



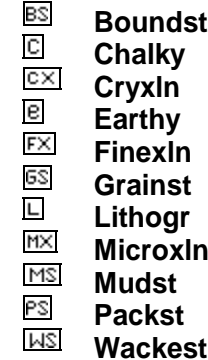
FOSSIL










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**

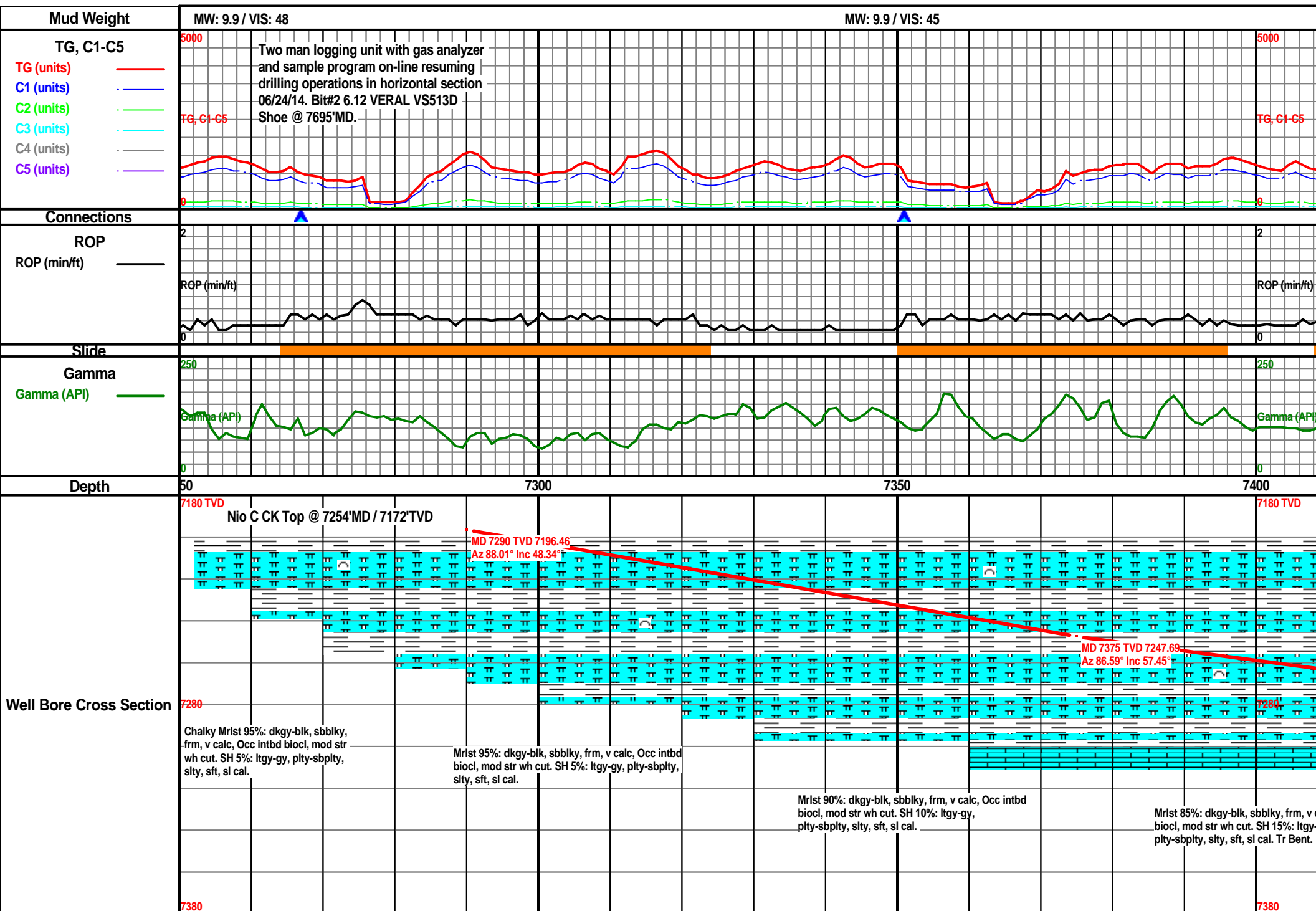
 Ques
 Dead

INTERVAL

 Core
 Dst

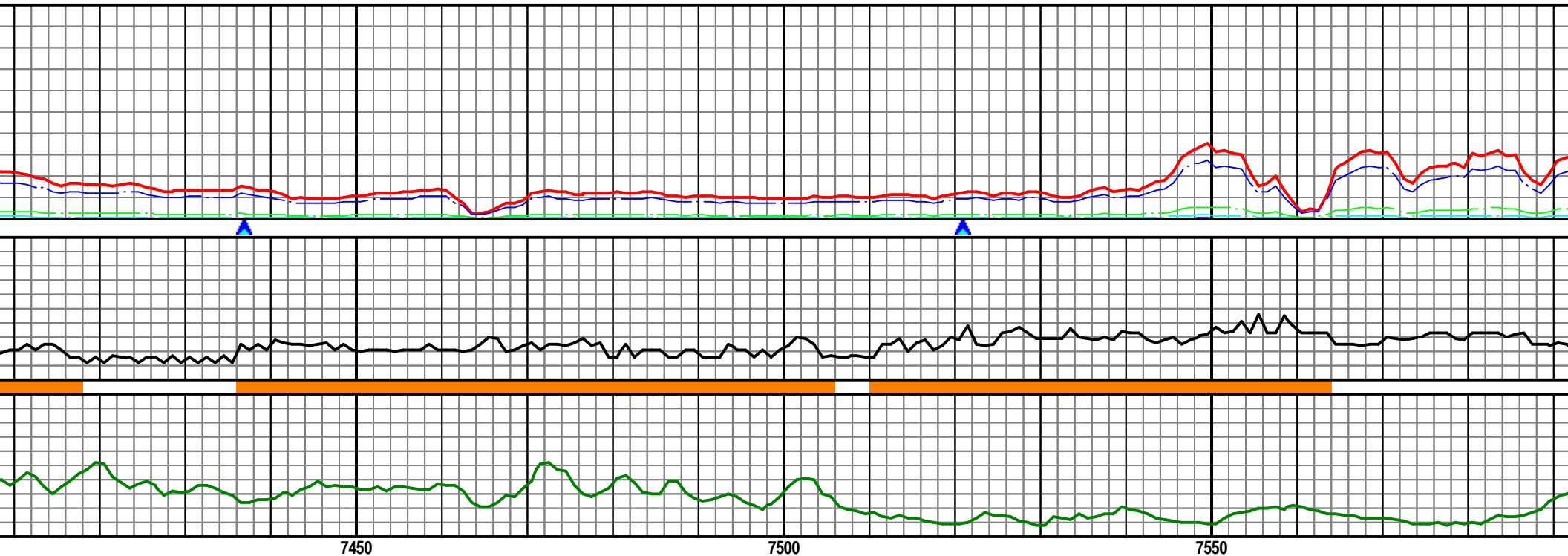
EVENT

 Rft
 Connection



MW: 9.9 / VIS: 48

MW: 9.9 / VIS: 48

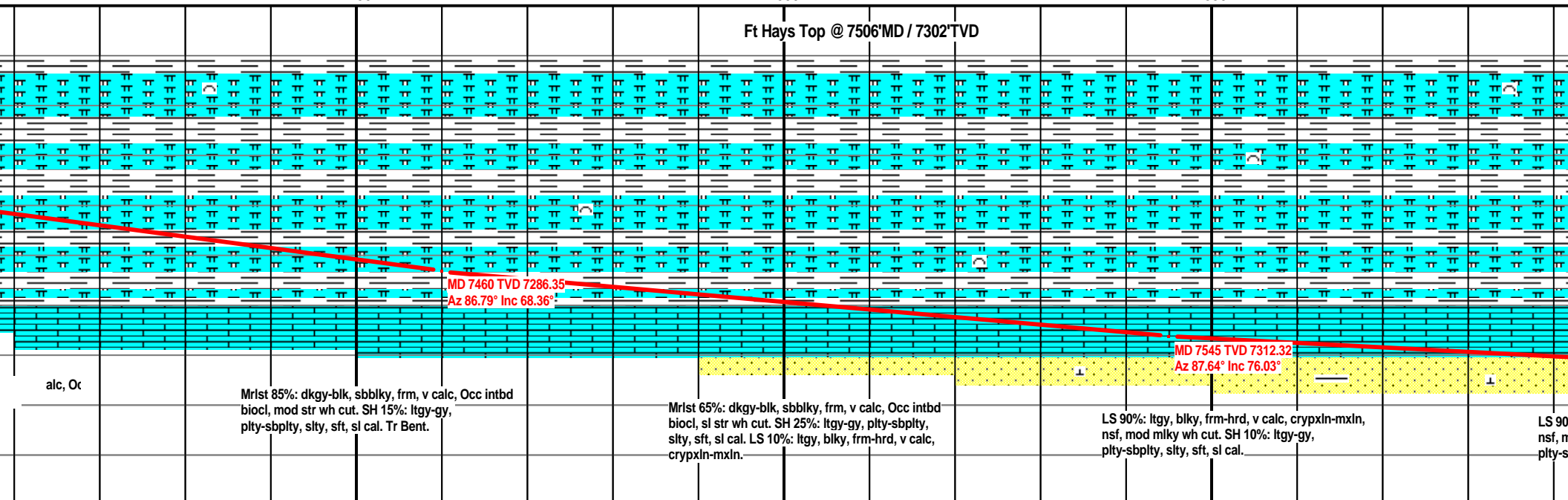


7450

7500

7550

Ft Hays Top @ 7506'MD / 7302'TVD

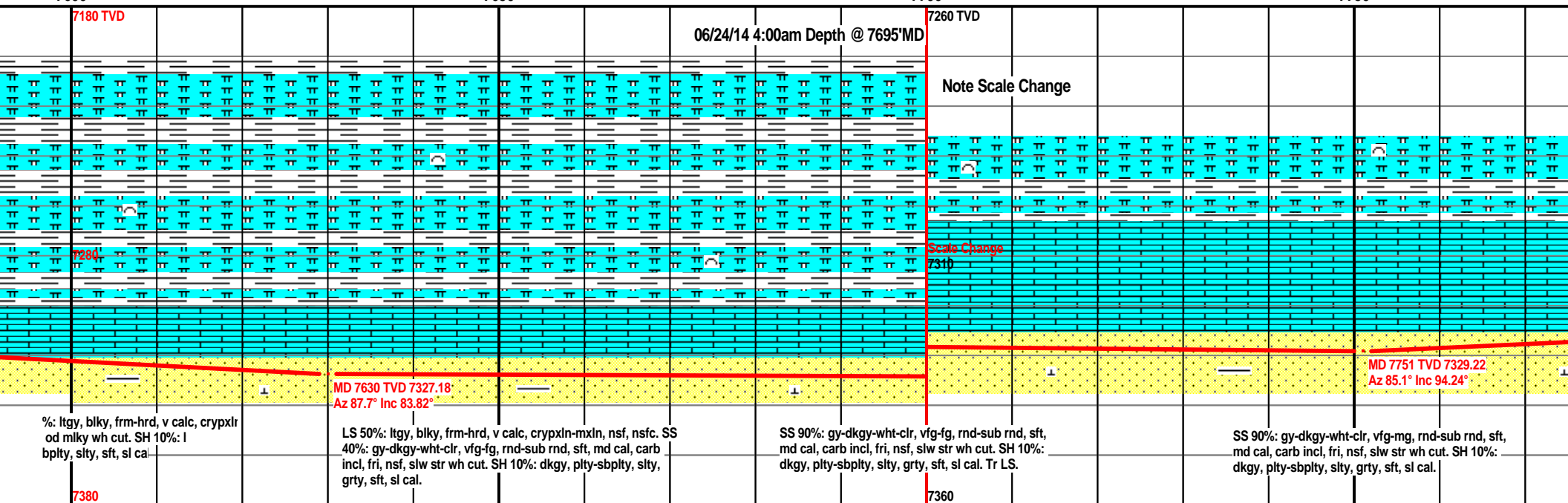
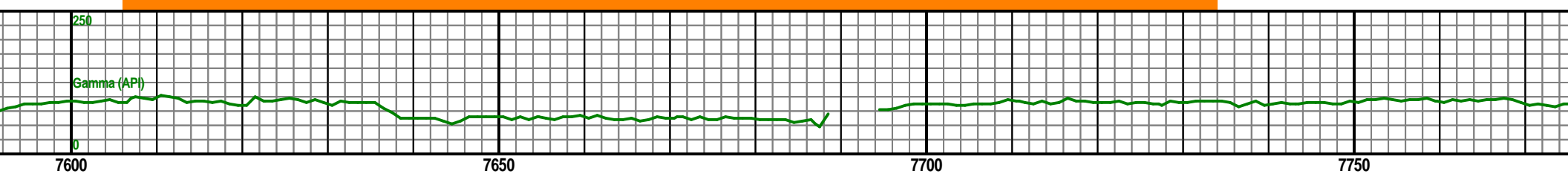
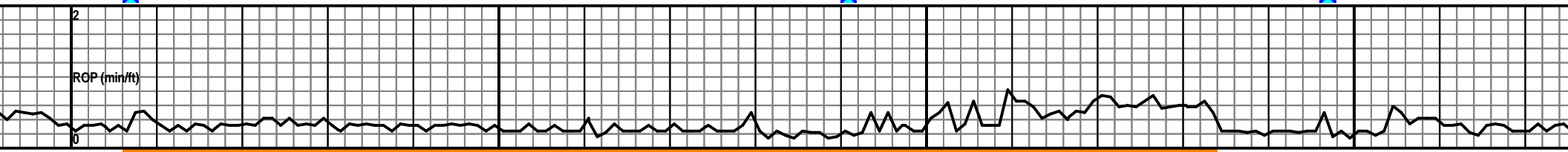
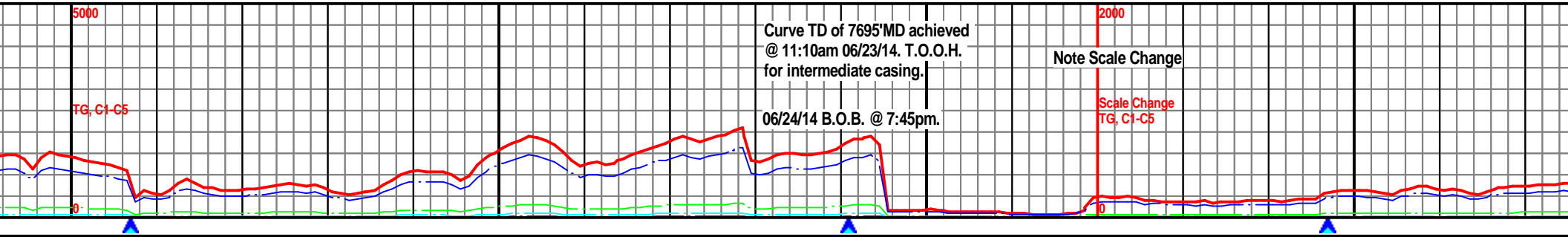
MD 7460 TVD 7286.35'
Az 86.79° Inc 68.36°MD 7545 TVD 7312.32'
Az 87.64° Inc 76.03°

alc, Oc

Mrlst 85%: dkgy-blk, sbblky, frm, v calc, Occ intbd
biocl, mod str wh cut. SH 15%: ltgy-gy,
pty-sbply, slty, sft, sl cal. Tr Bent.Mrlst 65%: dkgy-blk, sbblky, frm, v calc, Occ intbd
biocl, sl str wh cut. SH 25%: ltgy-gy, pty-sbply,
slty, sft, sl cal. LS 10%: ltgy, blk, frm-hrd, v calc,
crypxln-mxln.LS 90%: ltgy, blk, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
pty-sbply, slty, sft, sl cal.LS 90%
nsf, m
pty-s

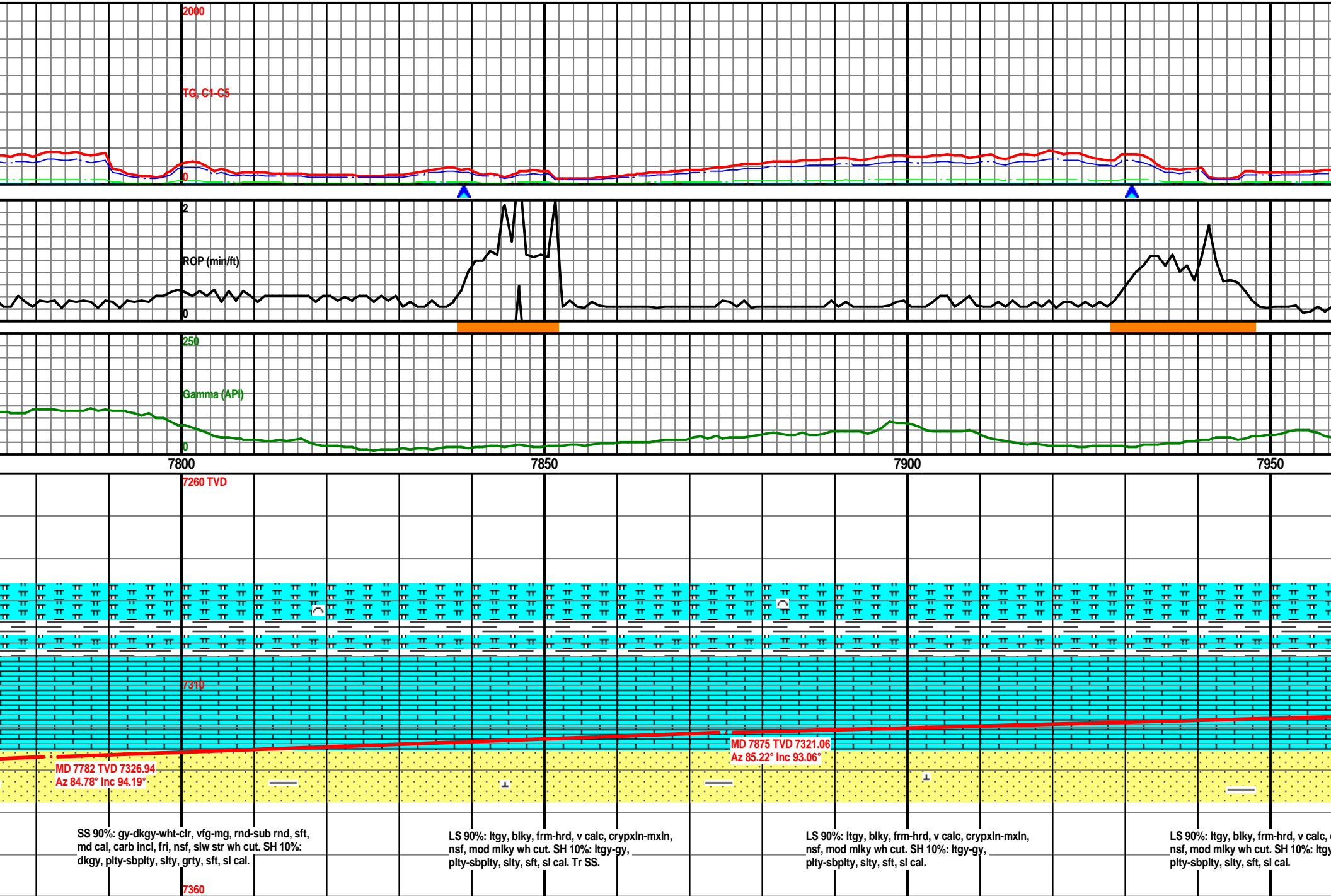
MW: 9.9 / VIS: 48

MW: 9.1 / VIS: 47

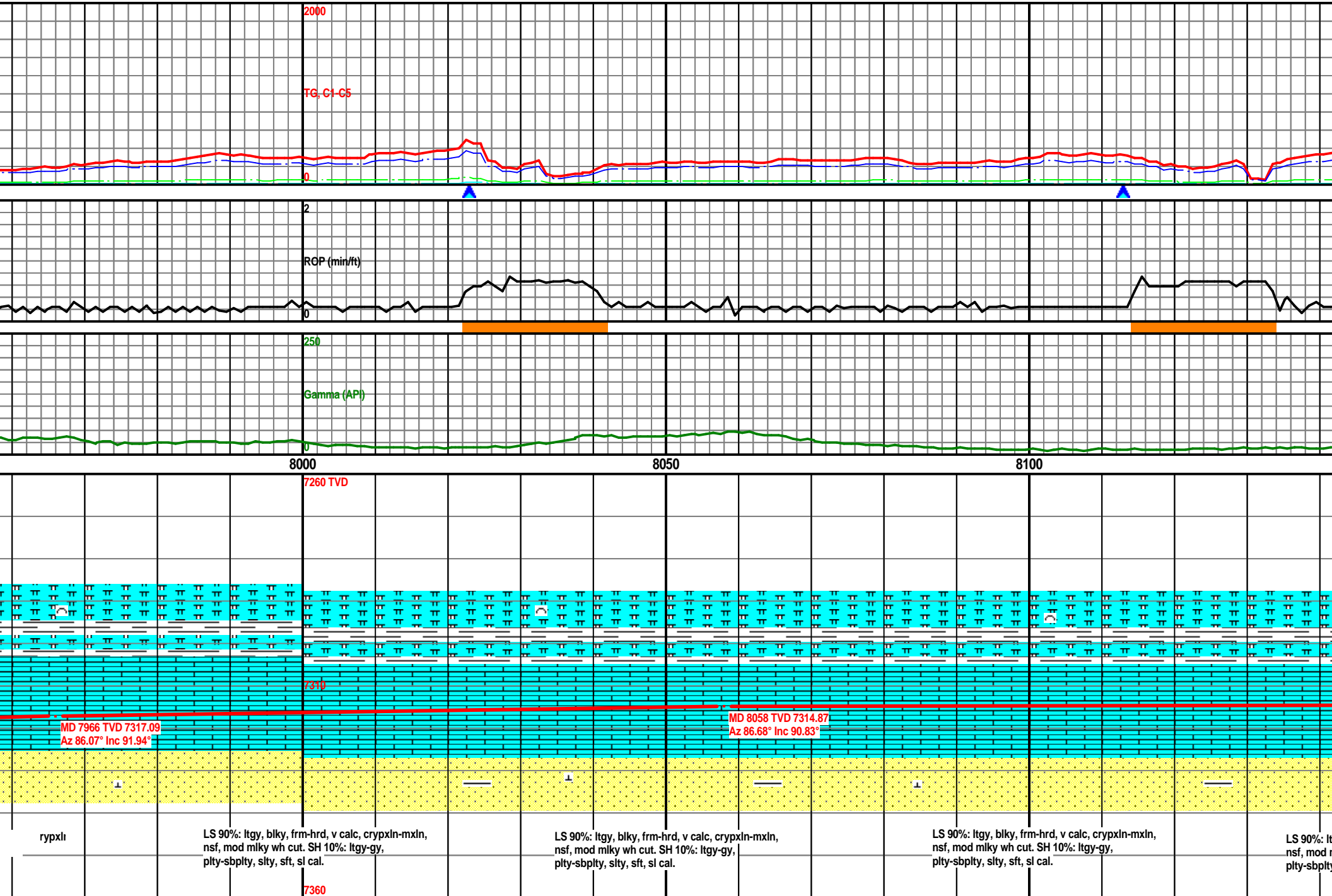


MW: 9.1 / VIS: 47

MW: 9.1 / VIS: 47

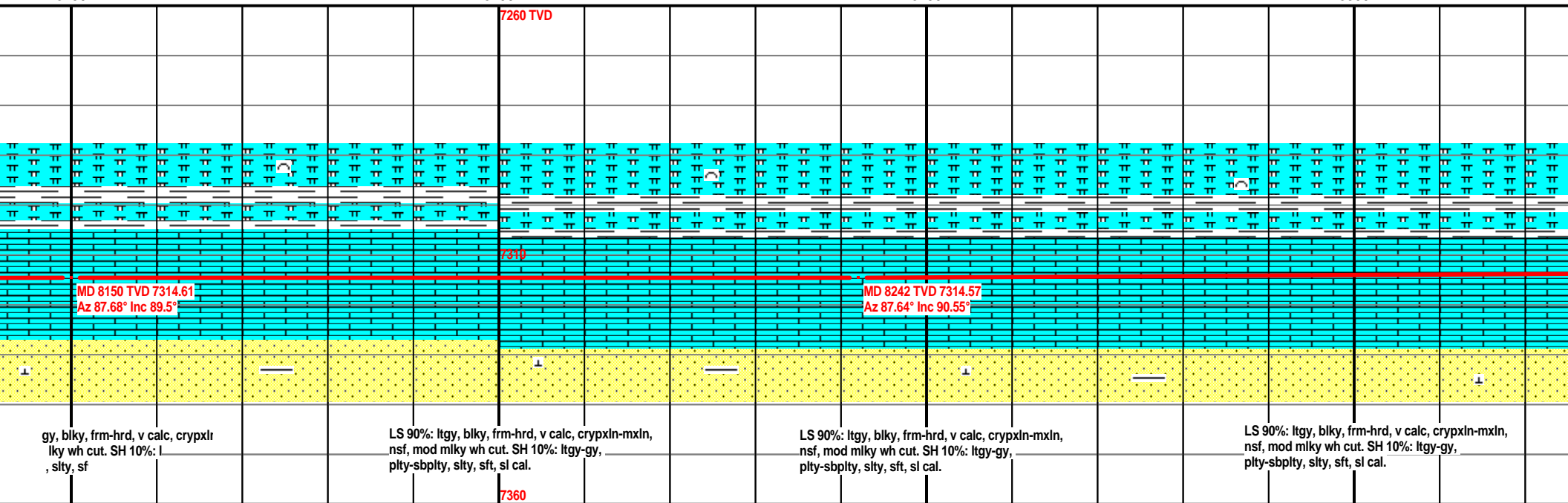
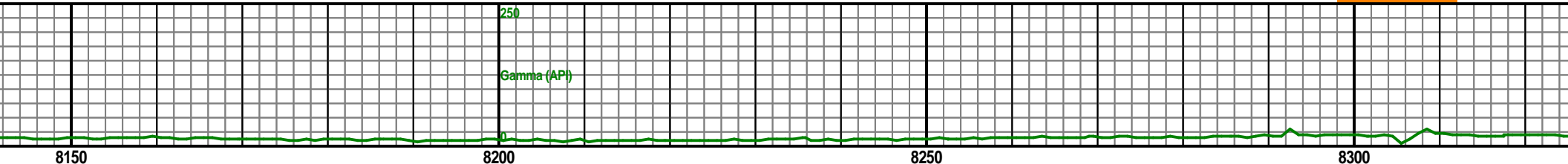
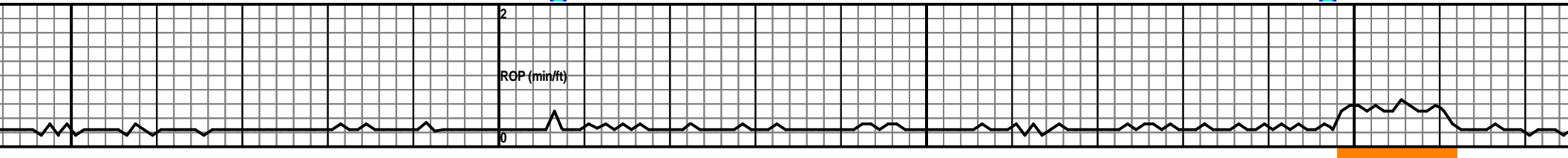
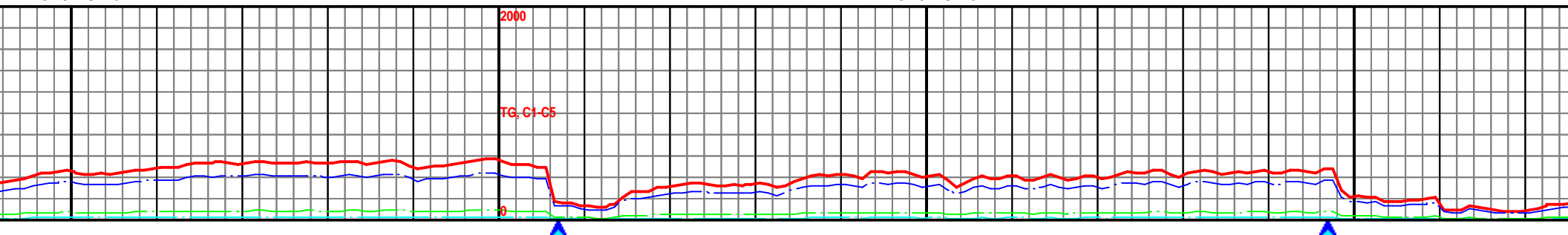


MW: 9.1 / VIS: 47



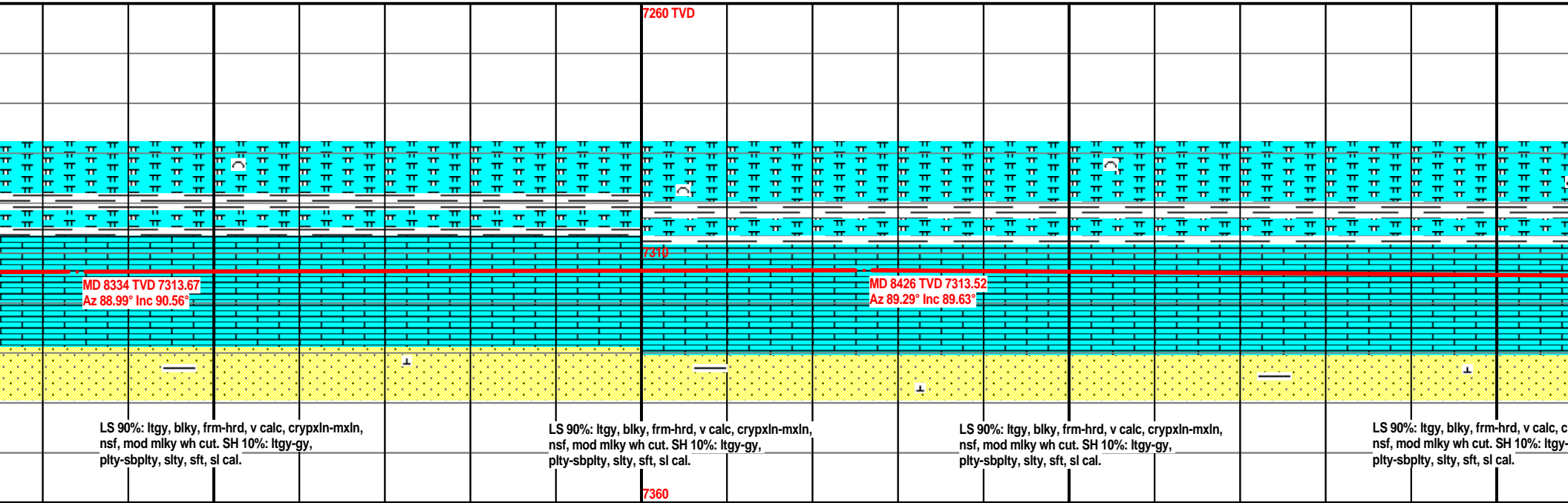
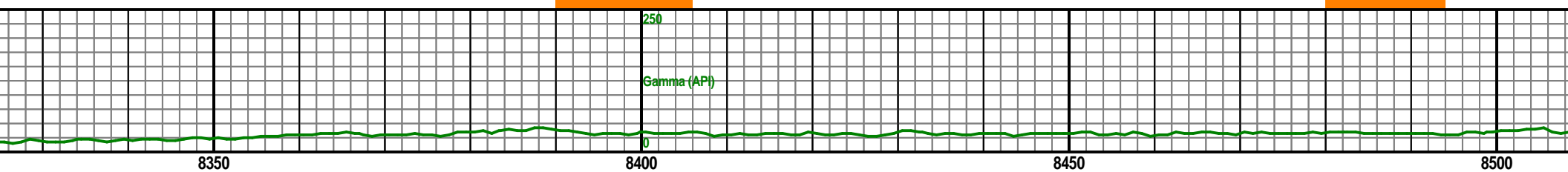
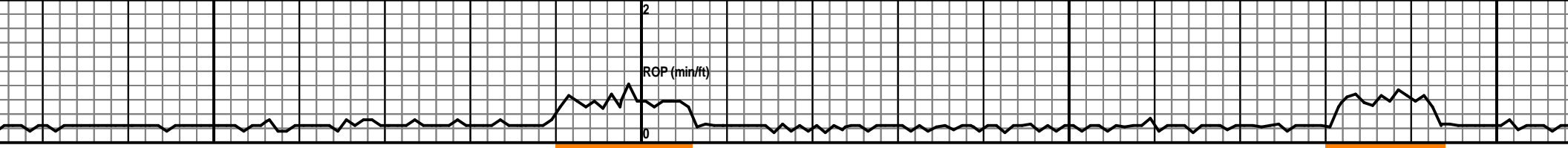
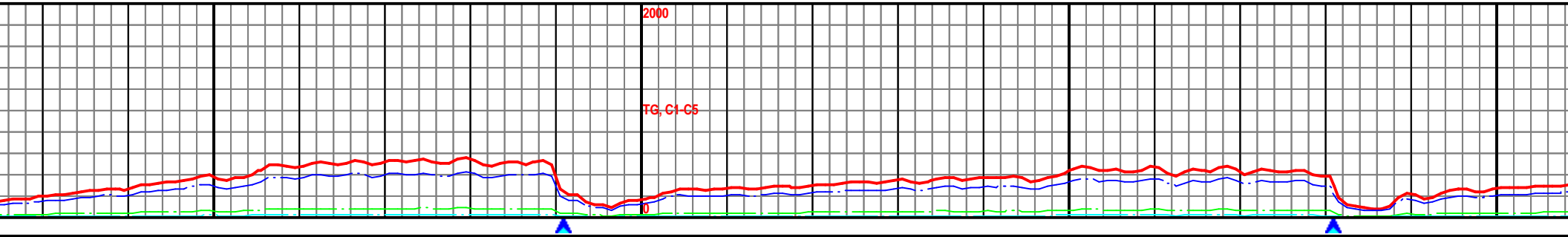
MW: 9.1 / VIS: 46

MW: 9.1 / VIS: 46



MW: 9.0 / VIS: 42

MW: 9.2 / VIS: 40



MW: 9.2 / VIS: 40

MW: 9.2 / VIS: 40

Gas Show #1
8544' - 9342'

2000

TG C1-C5

0

2

RGP (min/ft)

0

250

Gamma (API)

0

8550

8600

8650

7260 TVD

06/25/14 4:00am Depth @ 8777' MD

MD 8518 TVD 7314.44
Az 90.46° Inc 89.23°MD 8610 TVD 7314.73
Az 90.45° Inc 90.4°

7310

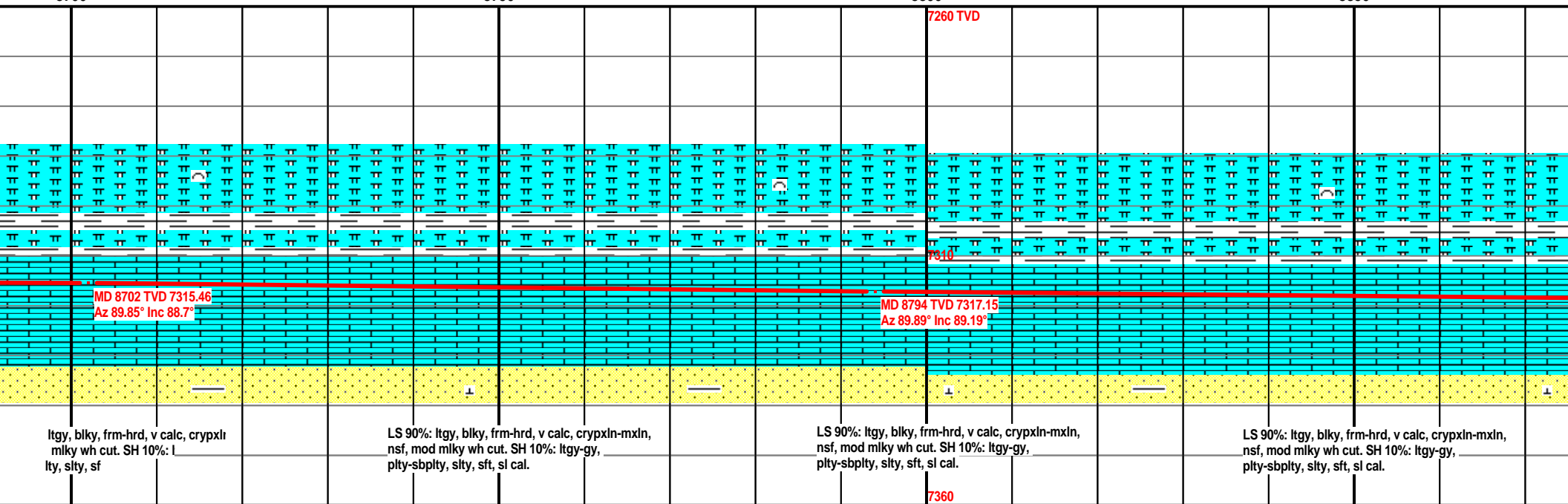
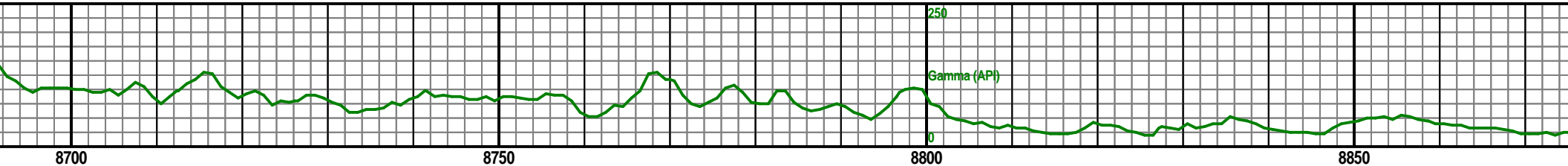
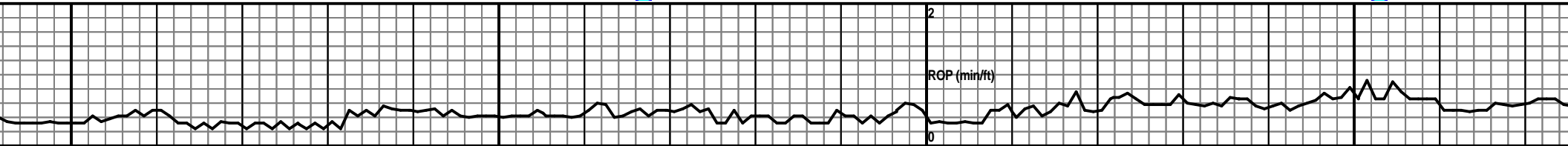
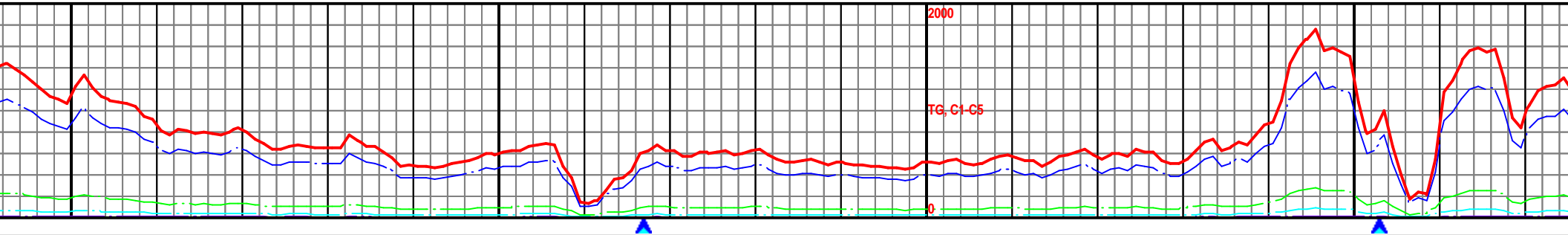
7360

rypxlr

LS 90%: ltgy, blkly, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
pty-sbply, slty, sft, sl cal.LS 90%: ltgy, blkly, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
pty-sbply, slty, sft, sl cal.LS 90%: ltgy, blkly, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
pty-sbply, slty, sft, sl cal.LS 90%:
nsf, mo
pty-sb

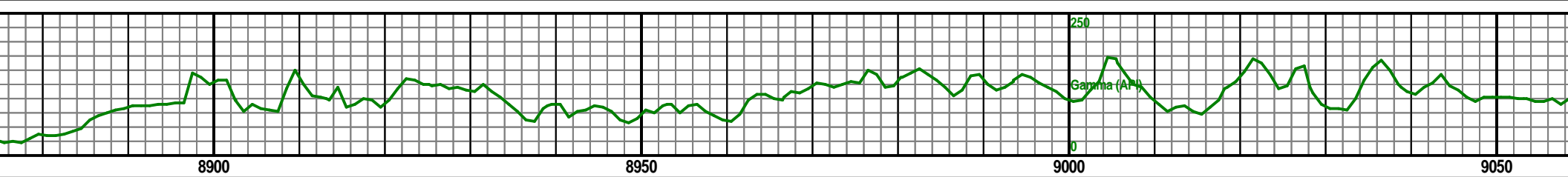
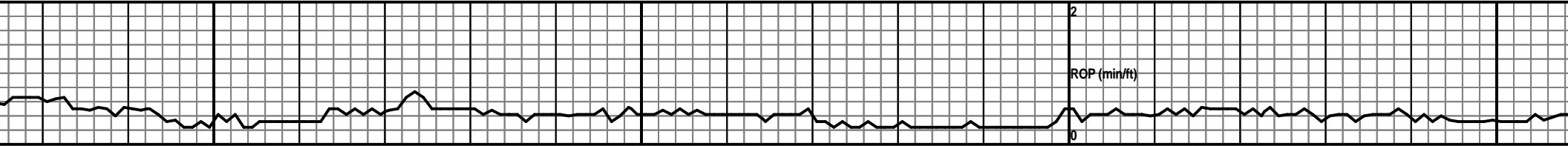
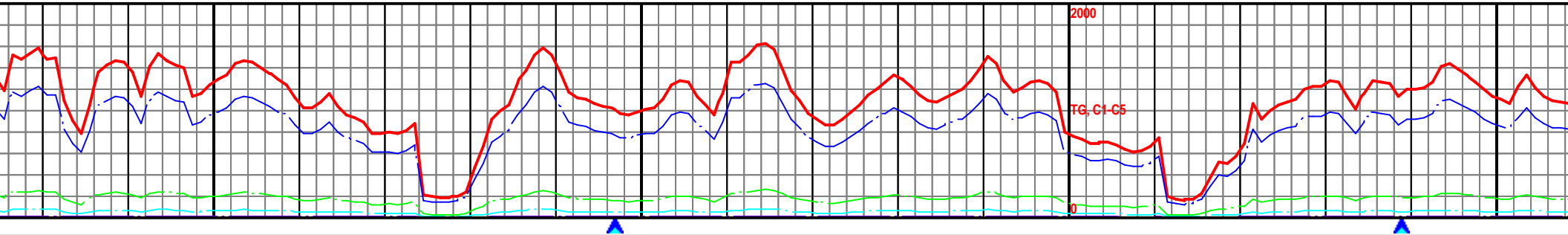
MW: 9.1 / VIS: 41

MW: 9.1 / VIS: 41



MW: 9.1 / VIS: 41

MW: 9.1 / VIS: 41

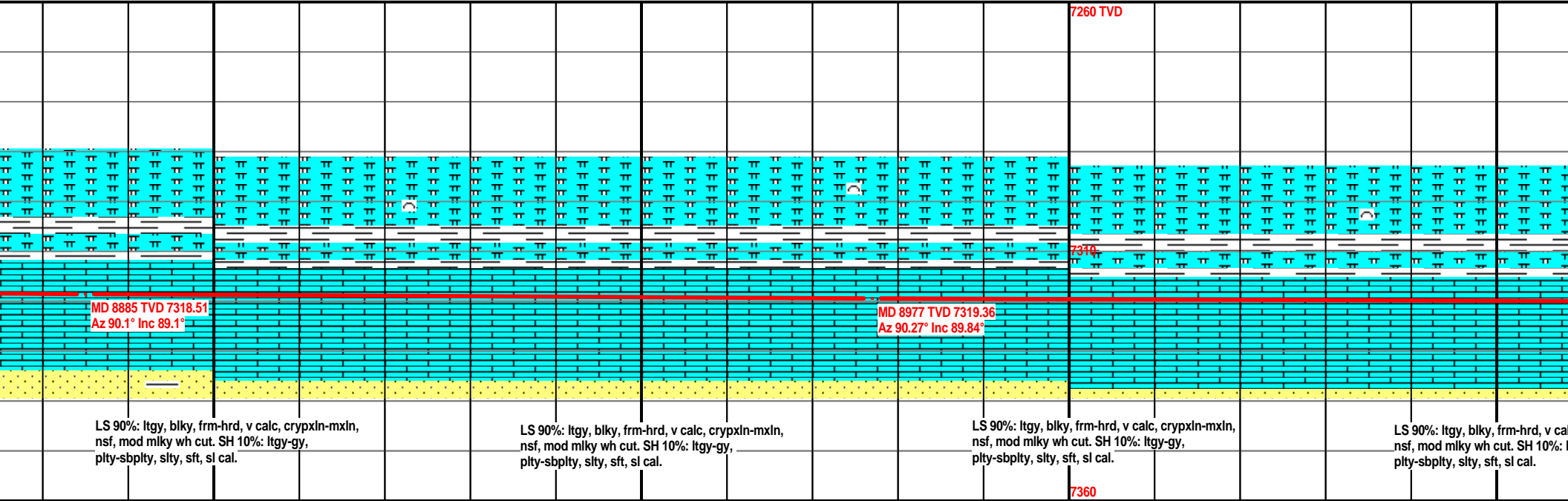


8900

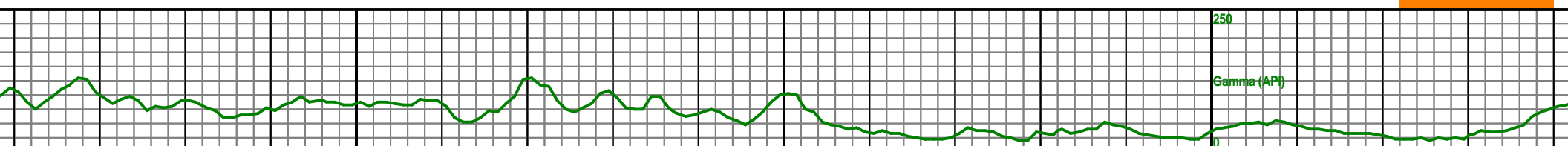
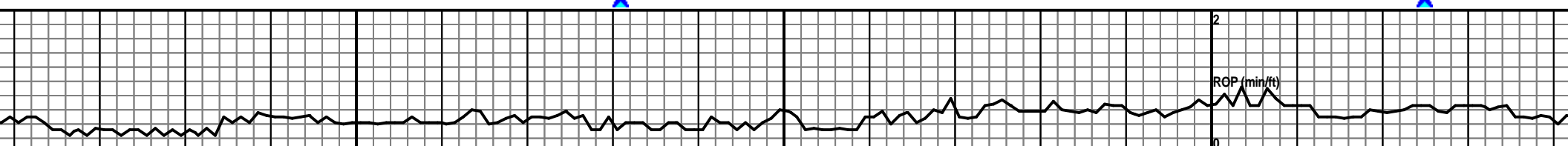
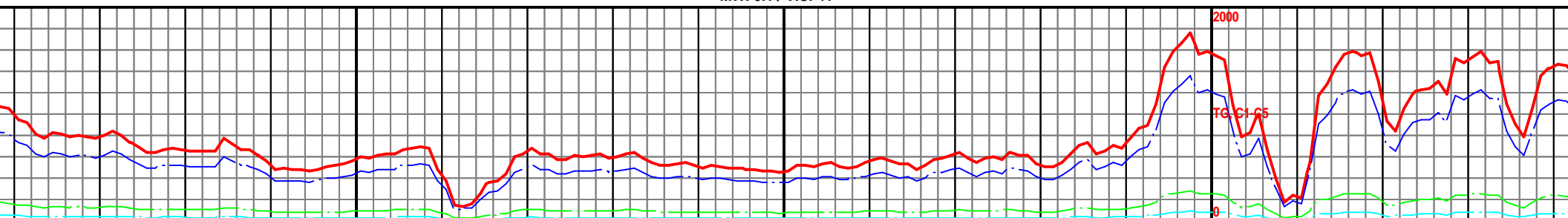
8950

9000

9050



MW: 9.1 / VIS: 41

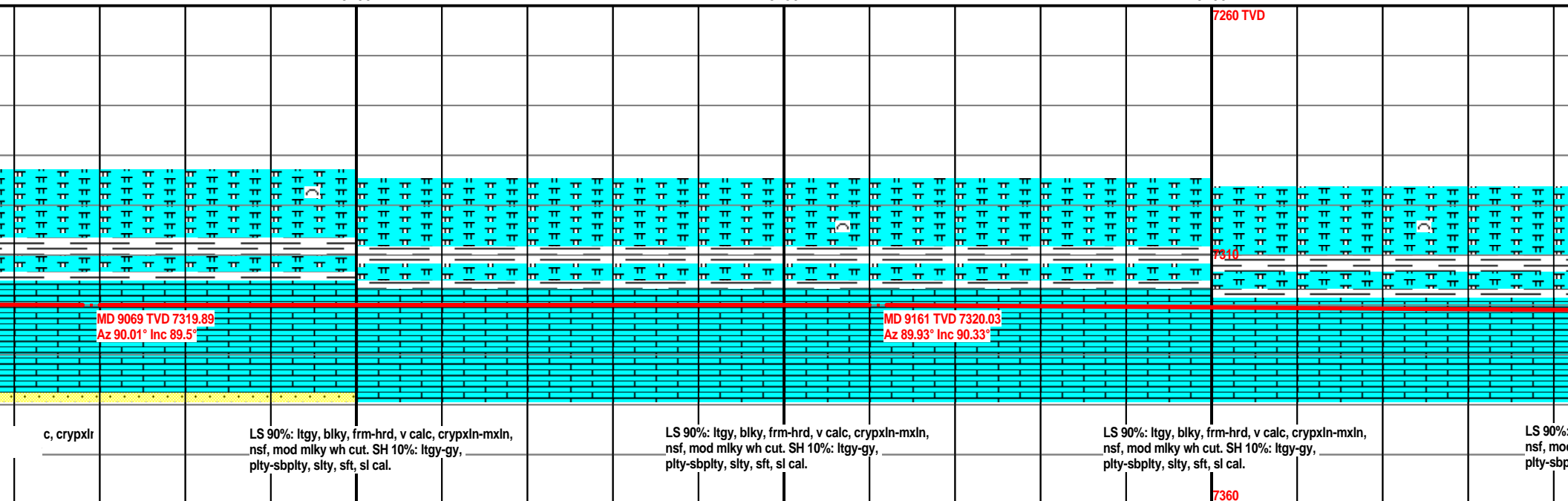


9100

9150

9200

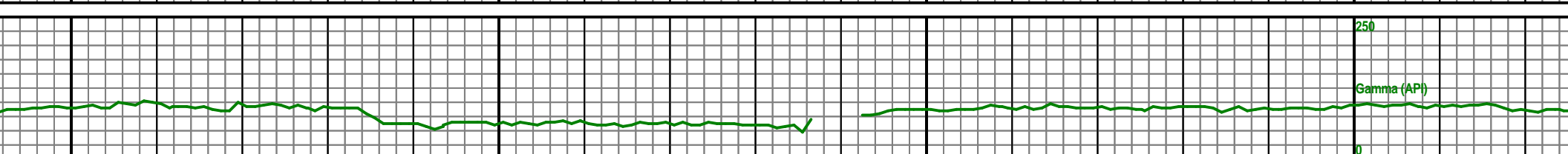
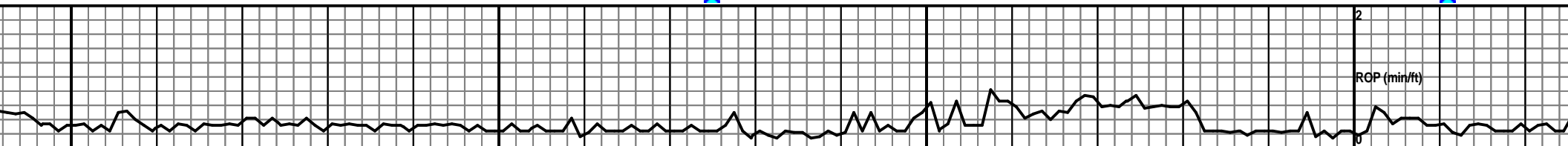
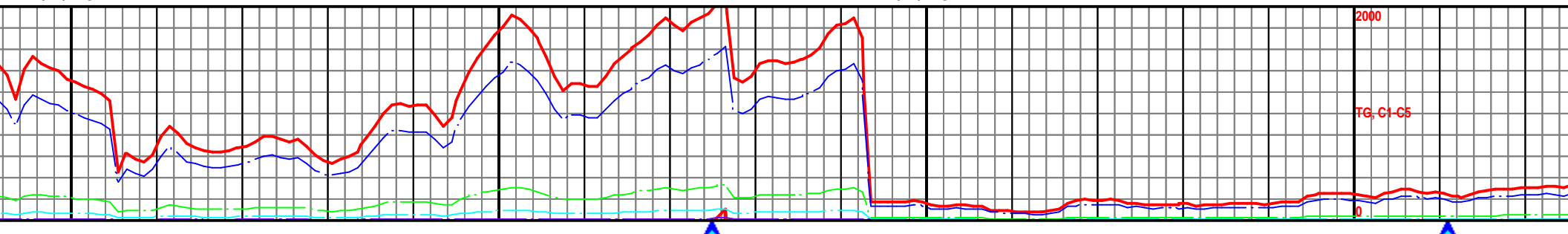
7260 TVD



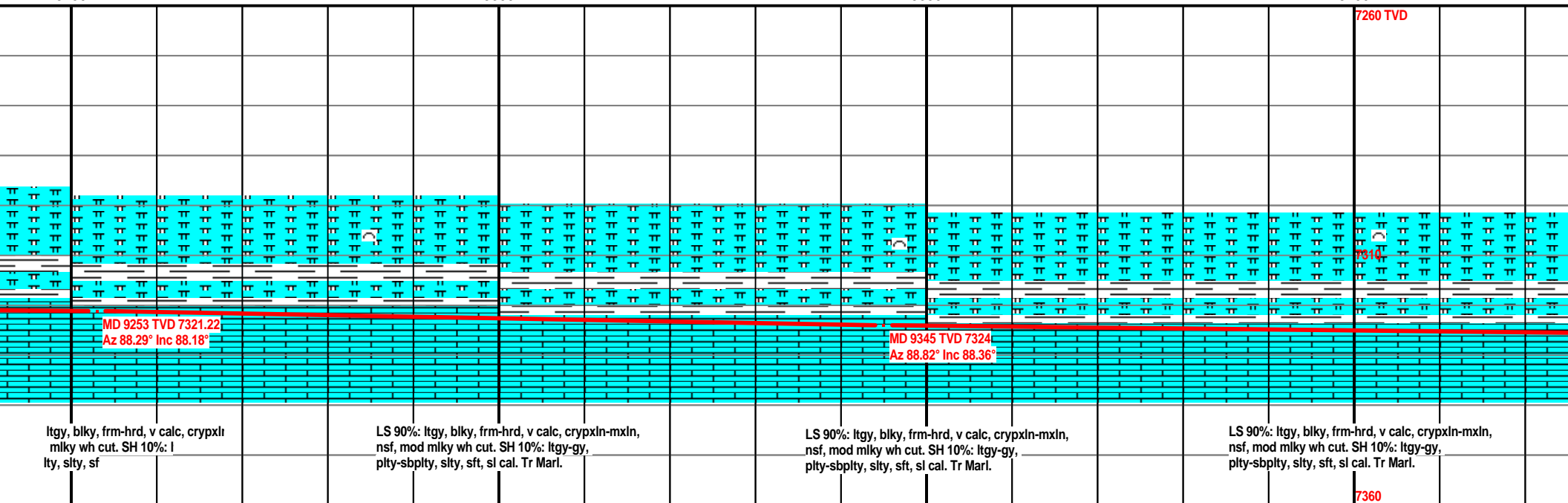
7360

MW: 9.1 / VIS: 41

MW: 9.1 / VIS: 41



9250 9300 9350 9400



MW: 9.4 / VIS: 45

MW: 9.4 / VIS: 45

2000

TG, C1-C5

RGP (min/ft)

Gamma (API)

7260 TVD

7310

7360

9450

9500

9550

9600

MD 9437 TVD 7325.79
Az 90.14° Inc 89.41°

MD 9529 TVD 7325.16
Az 90.22° Inc 91.38°

LS 90%: ltgy, blkly, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
plty-sbplty, slty, sft, sl cal. Tr Marl.

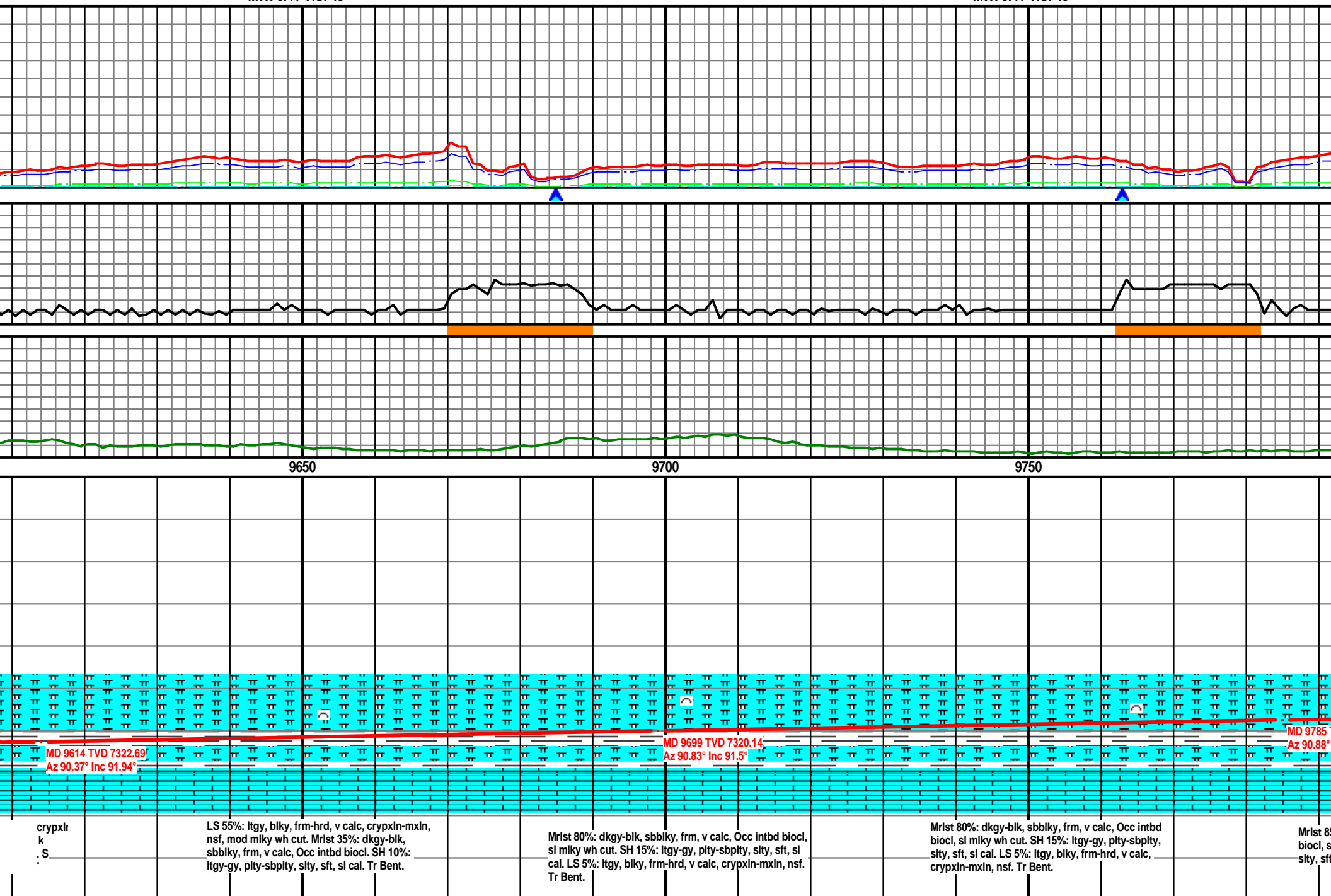
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nsf, mod mlky wh cut. SH 10%: ltgy-gy,
plty-sbplty, slty, sft, sl cal. Tr Marl.

LS 90%: ltgy, blkly, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 10%: ltgy-gy,
plty-sbplty, slty, sft, sl cal. Tr Marl.

LS 75%: ltgy, blkly, frm-hrd, v calc,
nsf, mod mlky wh cut. Mrlst 15%:
sbbkly, frm, v calc, Occ intbd bioc
ltgy-gy, plty-sbplty, slty, sft, sl cal.

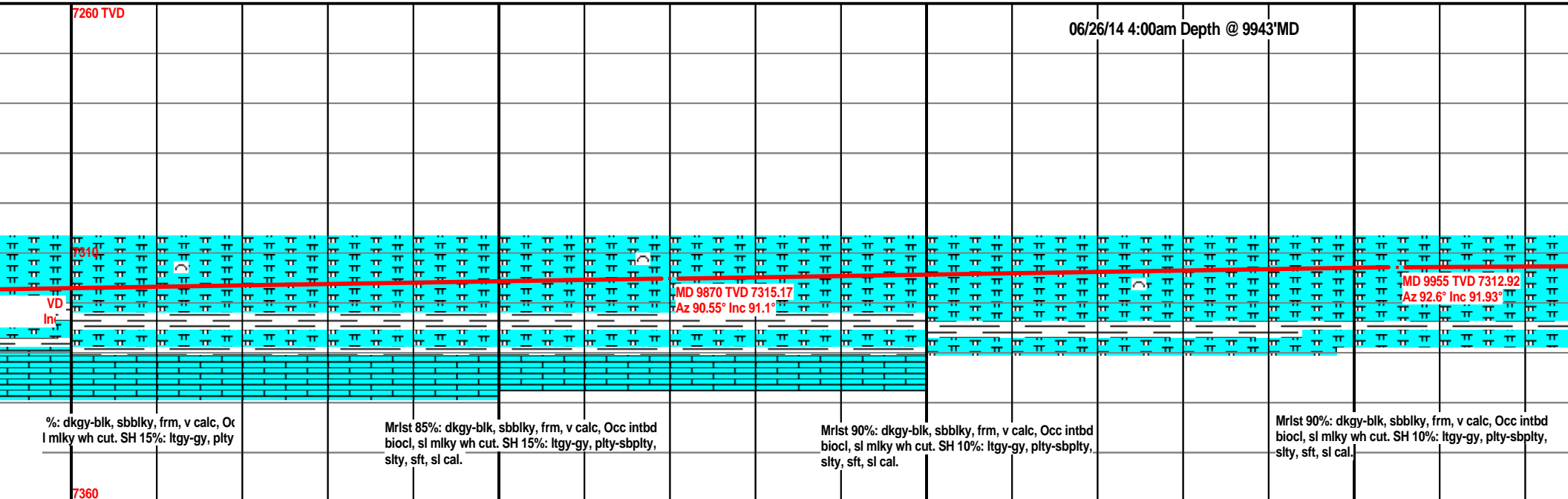
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MW: 9.4 / VIS: 45



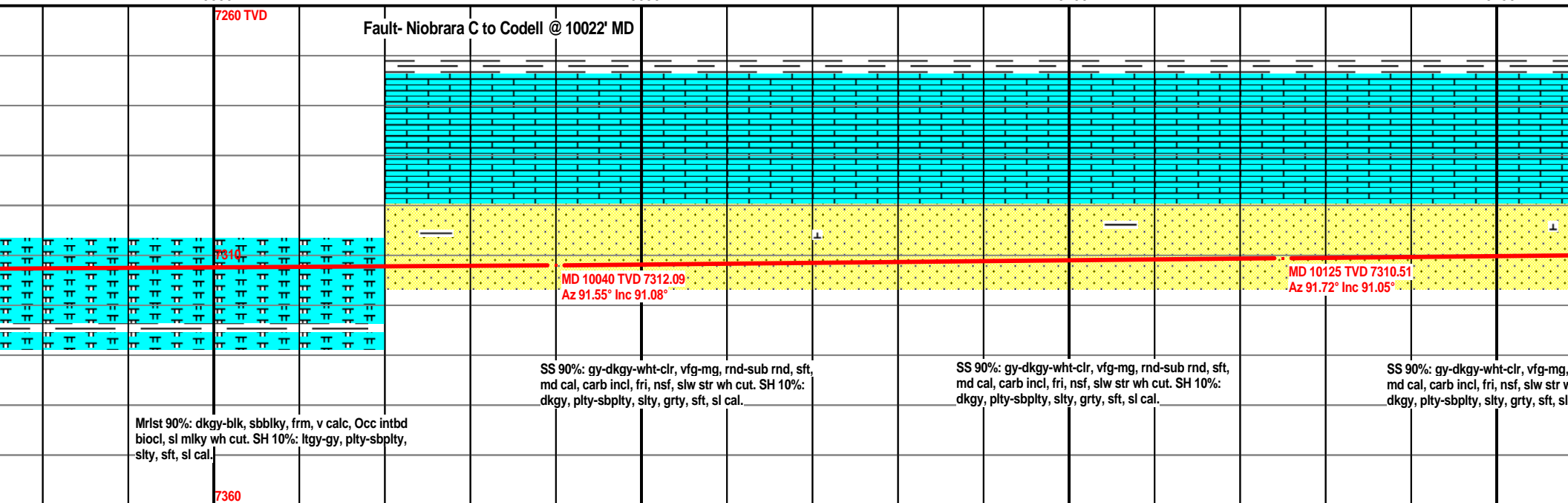
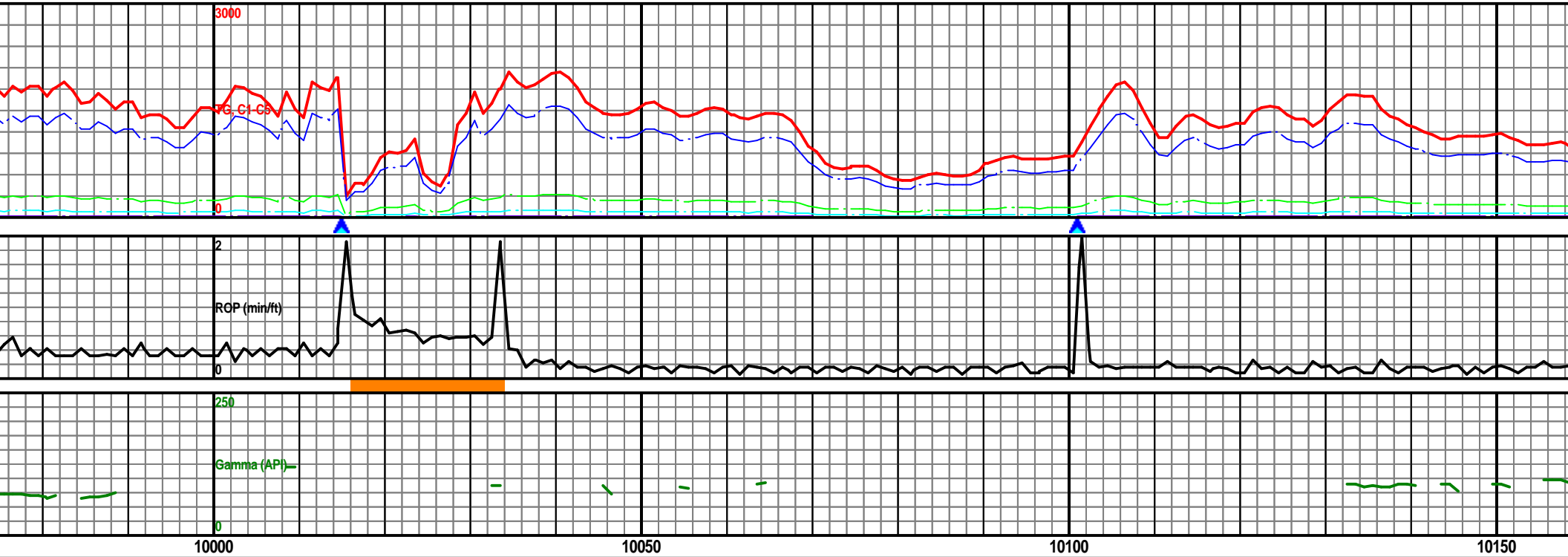
MW: 9.4 / VIS: 45

MW: 9.4 / VIS: 46

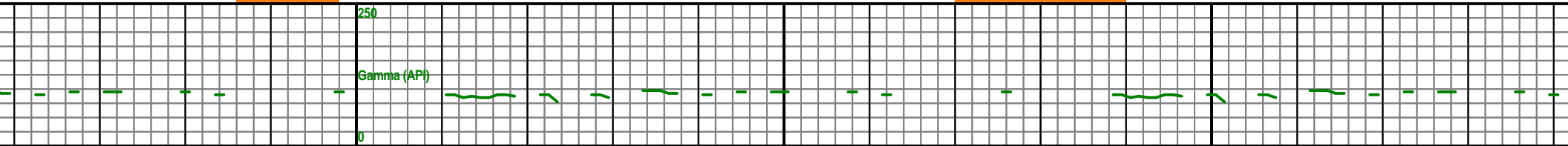
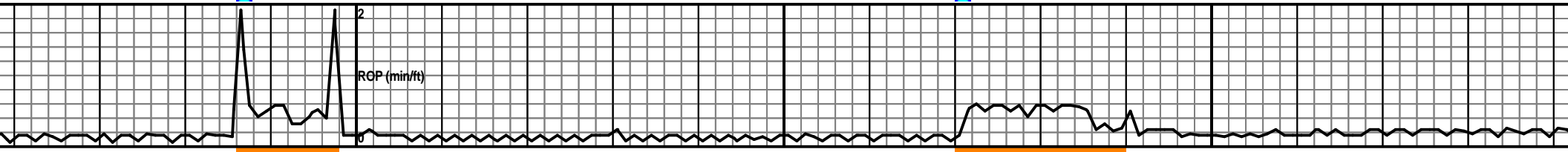
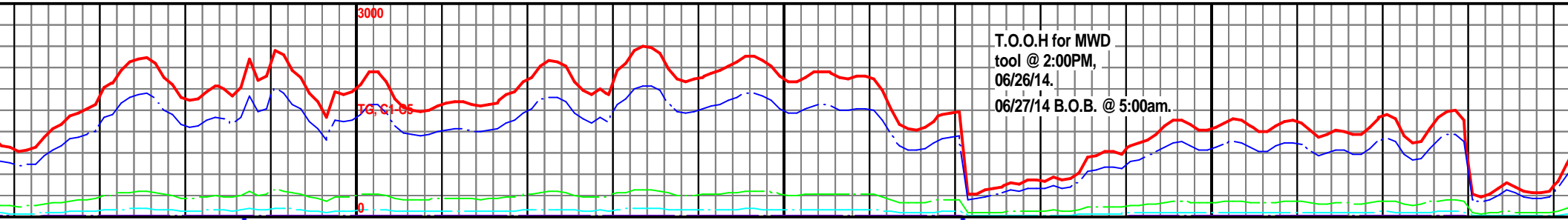


MW: 9.4 / VIS: 44

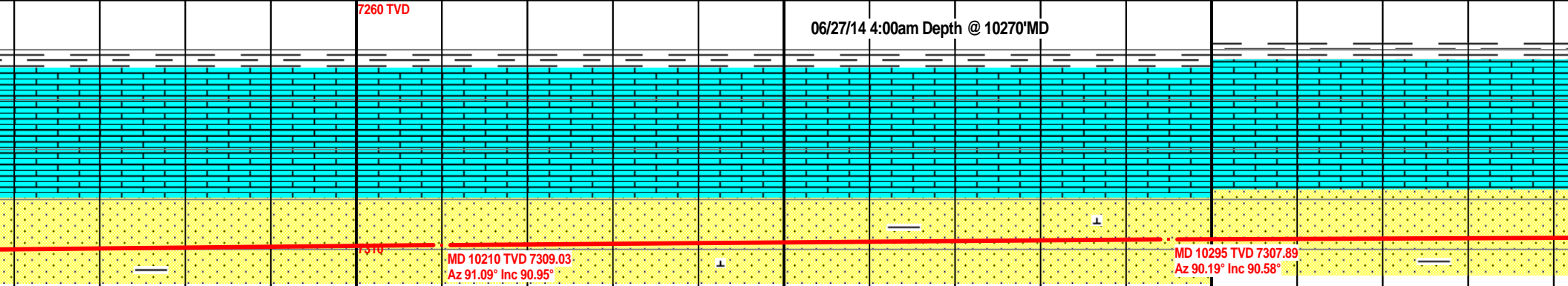
MW: 9.4 / VIS: 42



MW: 9.4 / VIS: 46



10200 10250 10300



rnd-sub
h cut. S

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbply, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbply, slty, grty, sft, sl cal.

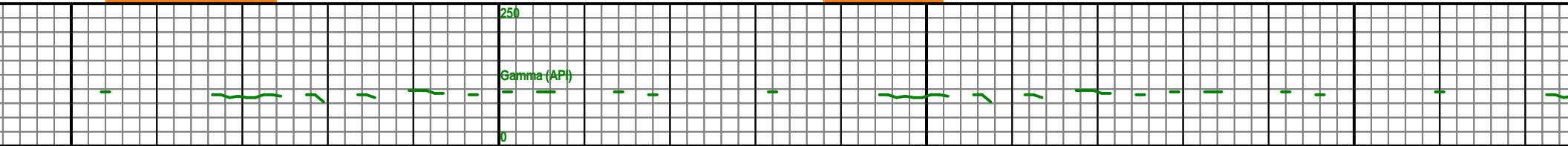
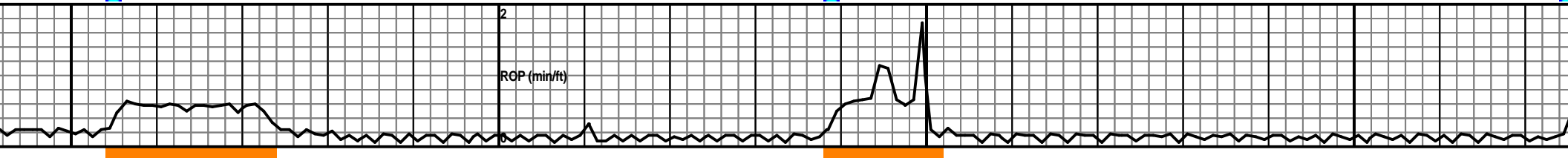
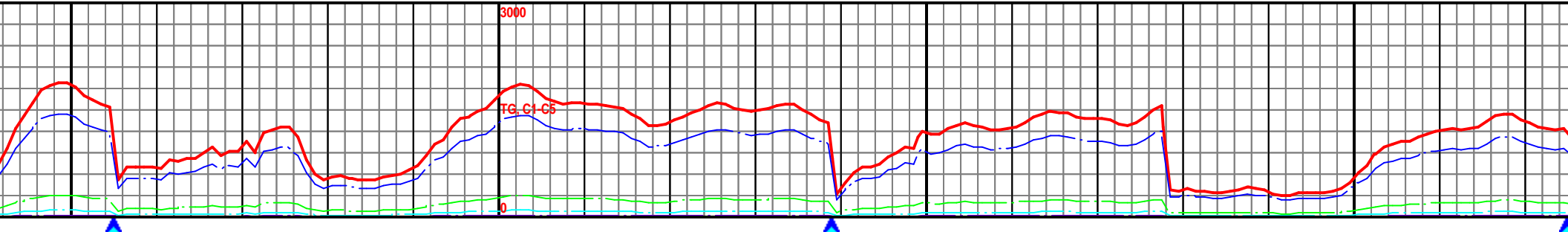
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbply, slty, grty, sft, sl cal.

SS 90%:
md c
dkgy

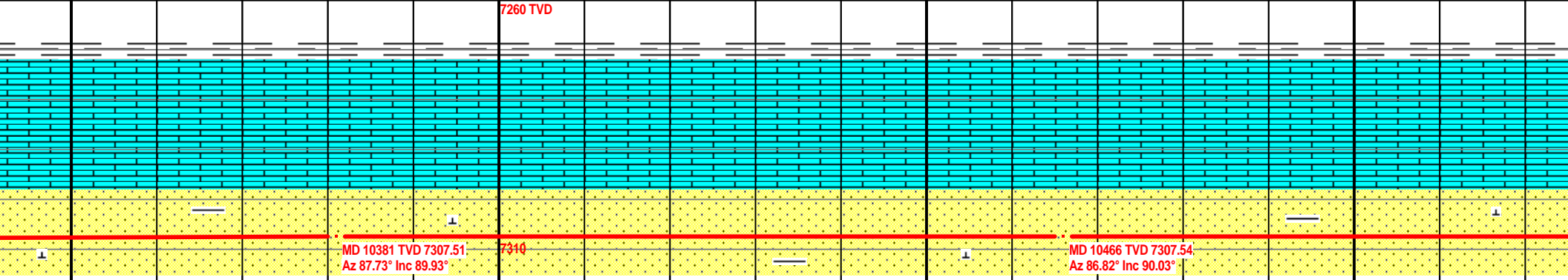
7360

MW: 9.4 / VIS: 40

MW: 9.4 / VIS: 40



10350 10400 10450 10500



%: gy-dkgy-wht-clr, vfg-mg, rnd-sub
al, carb incl, fri, nsf, slw str wh cut. S
, plty-sbplty, slty, grty, sf

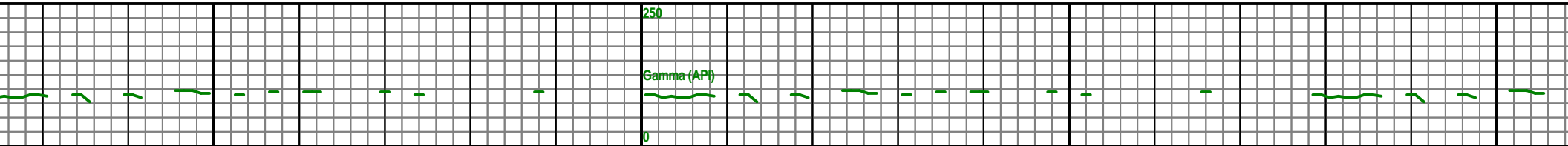
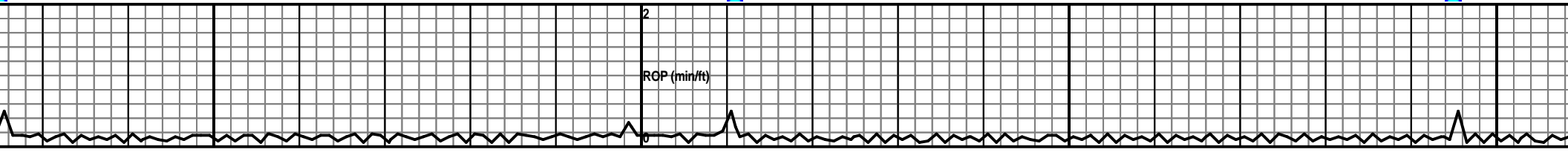
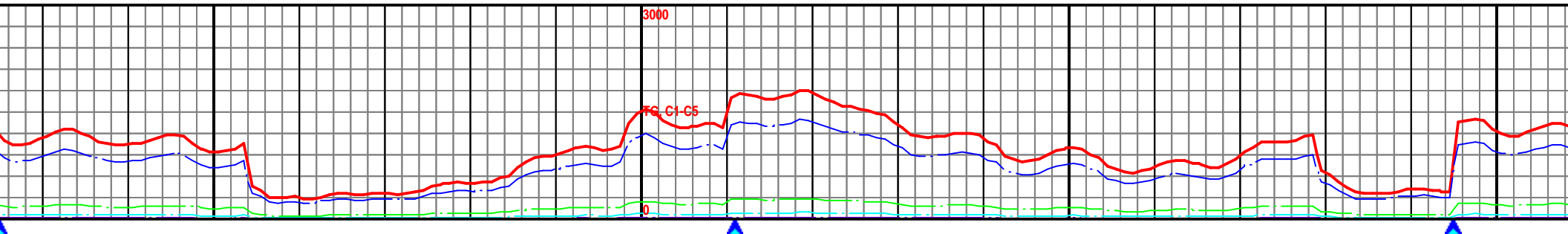
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

MW: 9.4 / VIS: 40

MW: 9.4 / VIS: 40

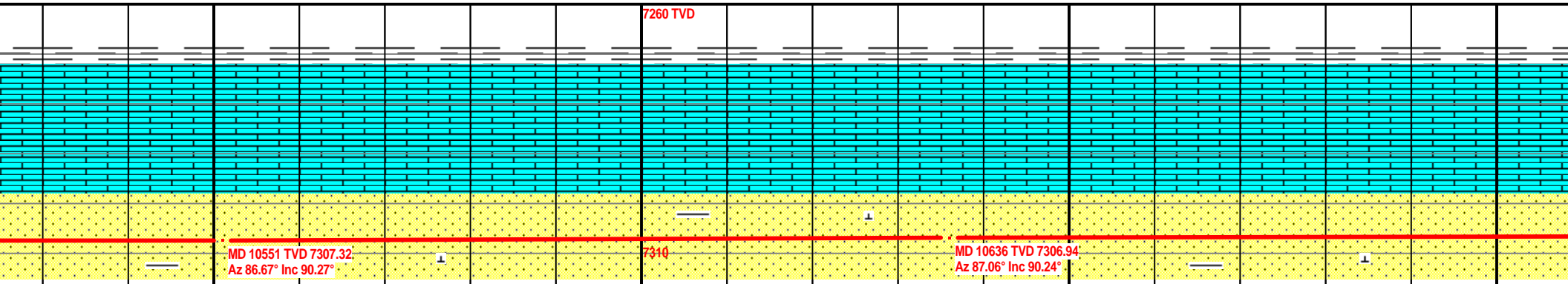


10550

10600

10650

10700



SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbply, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbply, slty, grty, sft, sl cal.

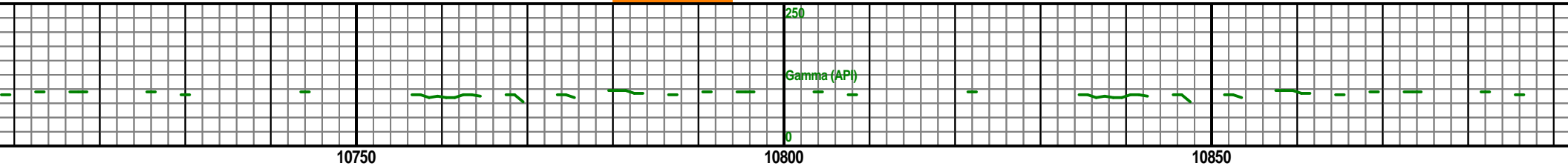
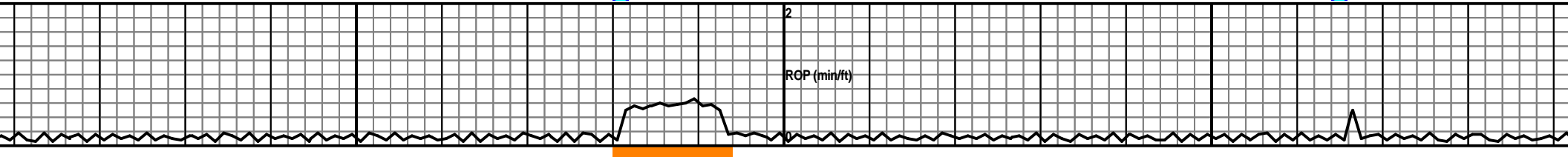
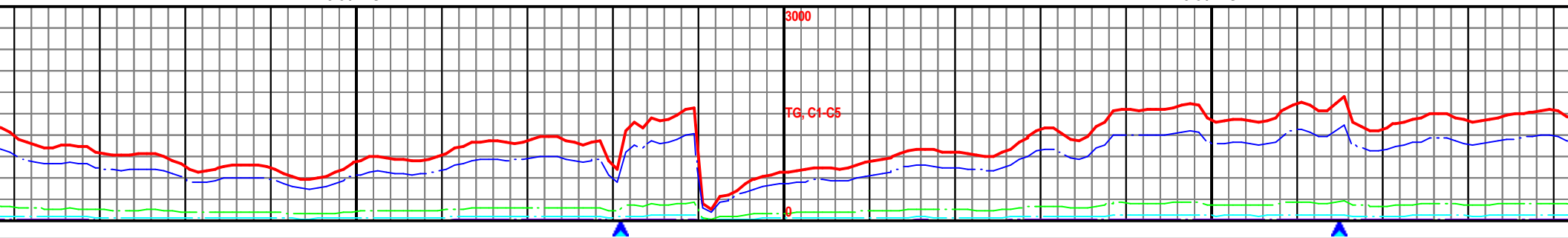
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbply, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbply, slty, grty, sft, sl cal.

7360

MW: 9.5 / VIS: 44

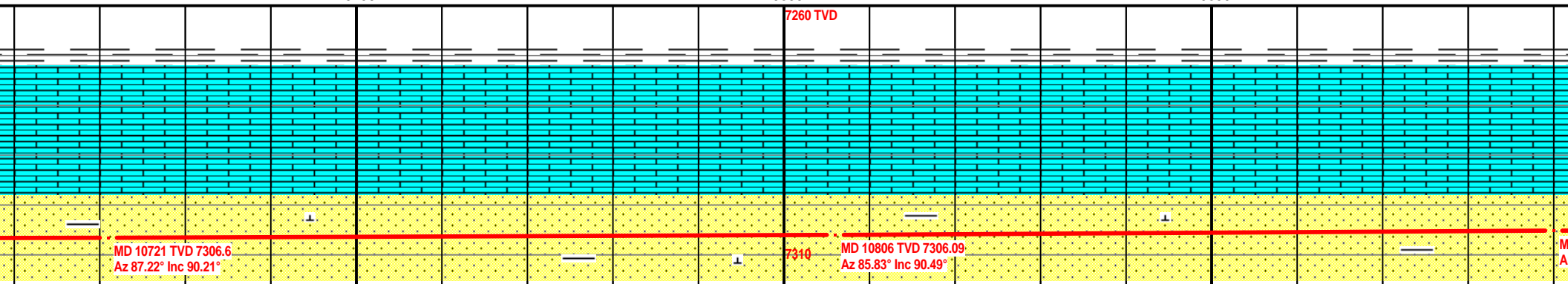
MW: 9.5 / VIS: 44



10750

10800

10850



-mg, rnd-sub
str wh cut. S
f

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

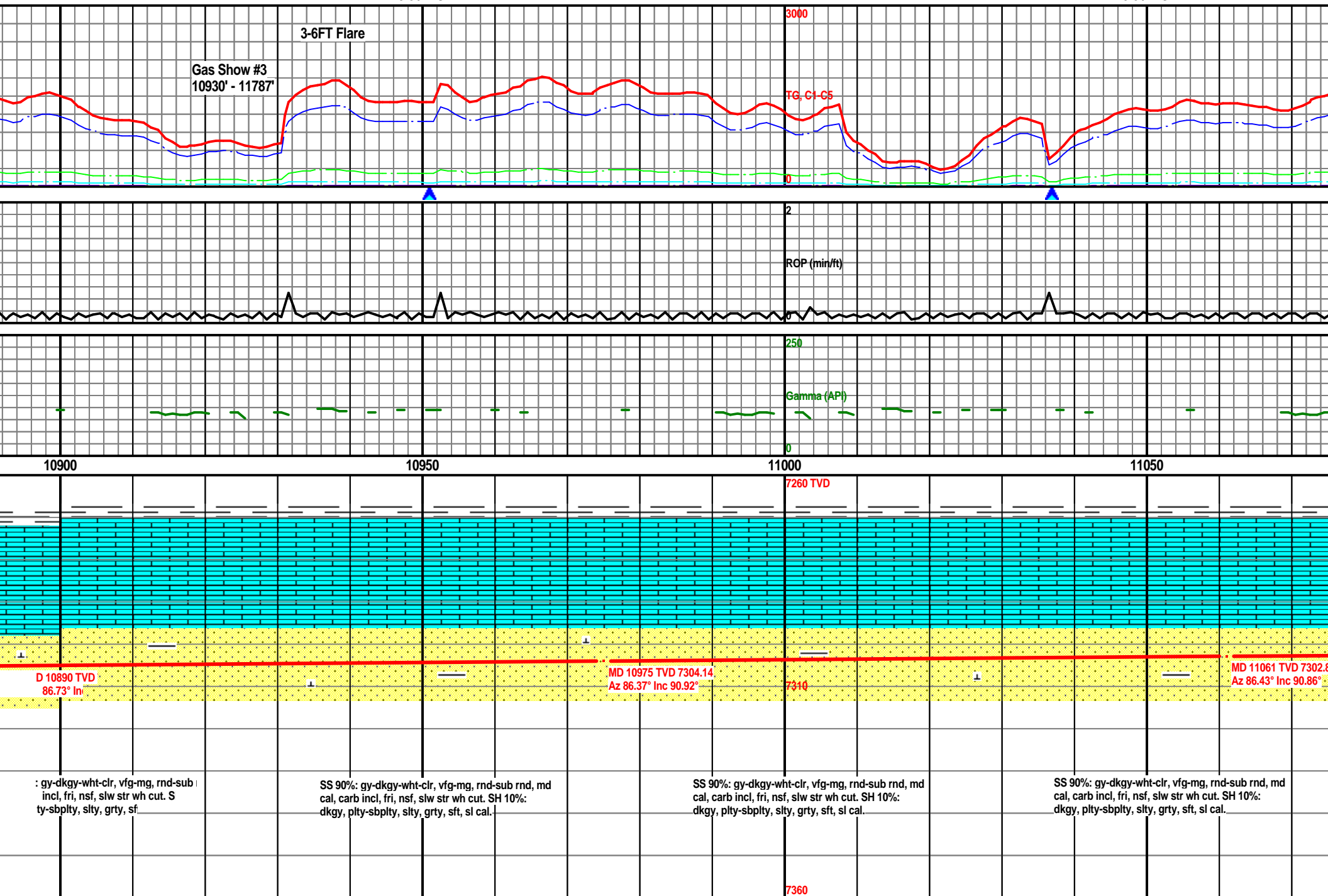
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%:
cal, carb
dkgy, p

7360

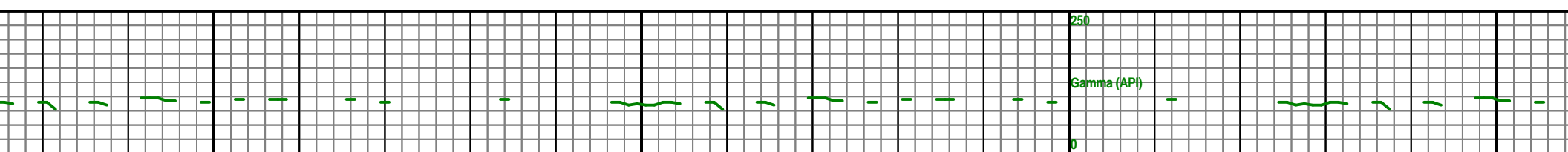
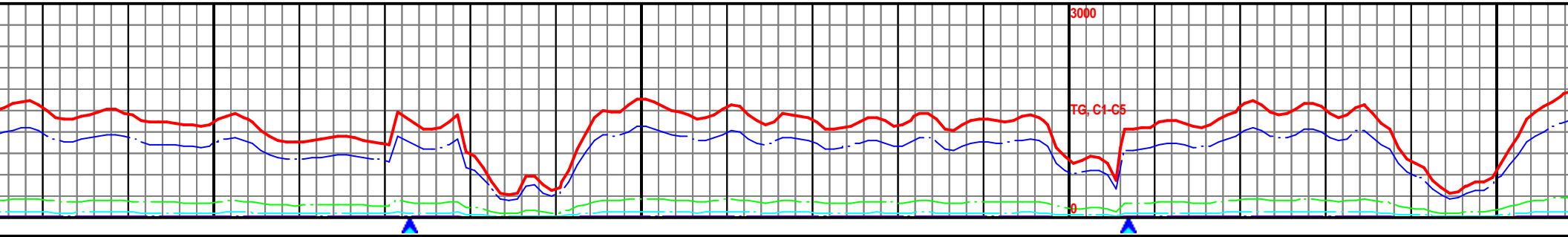
MW: 9.5 / VIS: 44

MW: 9.5 / VIS: 44



MW: 9.5 / VIS: 44

MW: 9.5 / VIS: 44



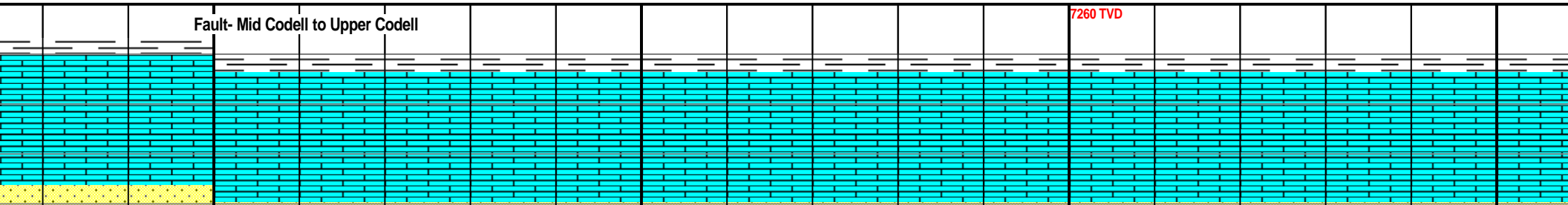
11100

11150

11200

11250

Fault- Mid Codell to Upper Codell



7260 TVD

MD 11146 TVD 7301.97
Az 85.71° Inc 90.27°

7310

MD 11231 TVD 7302.16
Az 85.19° Inc 89.47°

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

7360

MW: 9.5 / VIS: 44

3-6FT Flare

3-6FT Flare

3000

TG, C1-C5

2

RGP (min/ft)

250

Gamma (API)

0

11300

11350

11400

7260 TVD

MD 11316 TVD 7302.97
Az 85.21° Inc 89.44°

MD 11402 TVD 7303.72
7311 Az 84.57° Inc 89.56°

g, rnd-s
ri, nsf, slw
silty, grty

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

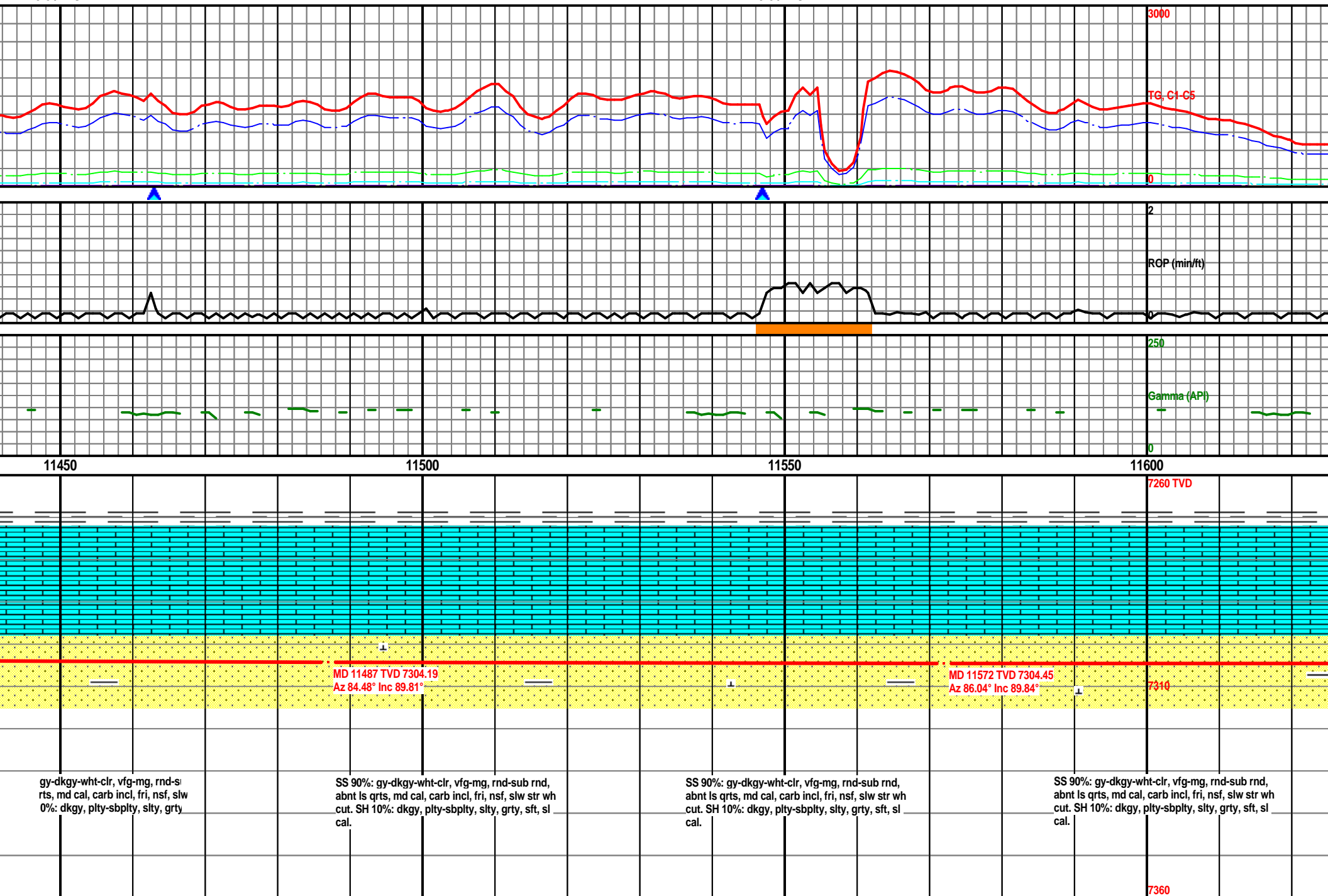
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%:
abnt ls
cut. SH
cal.

7360

MW: 9.5 / VIS: 44

MW: 9.5 / VIS: 44



MW: 9.5 / VIS: 44

MW: 9.6 / VIS: 48

3-6FT Flare

3000

TG, C1-C5

RGP (mV/ft)

Gamma (API)

11650

11700

11750

11800

7260 TVD

MD 11657 TVD 7304.69
Az 85.88° Inc 89.84°

MD 11742 TVD 7304.99
Az 86.04° Inc 89.75°

7310

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

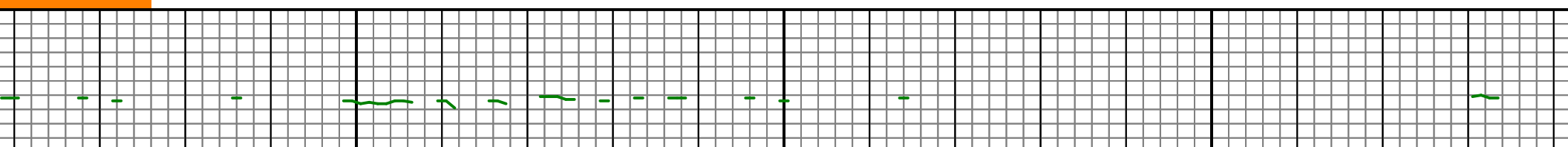
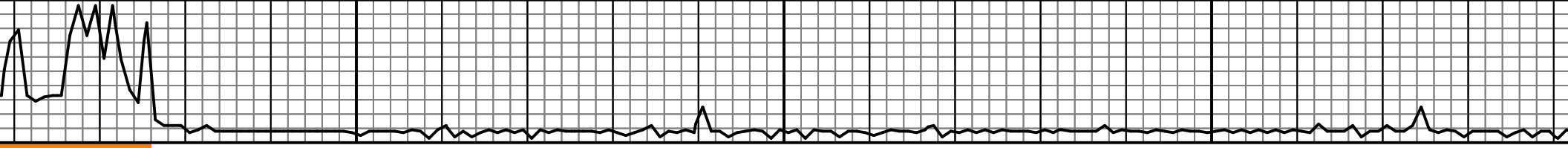
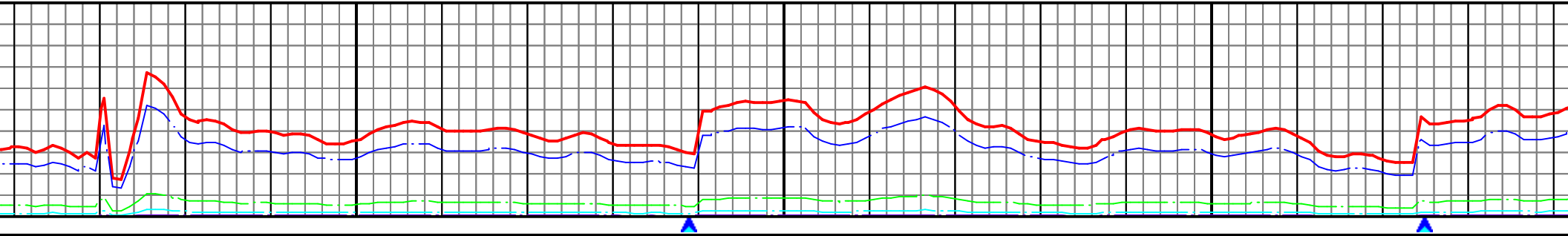
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg,
abnt ls qrts, md cal, carb incl, fri,
cut. SH 10%: dkgy, plty-sbplty, sl
cal.

7360

MW: 9.6 / VIS: 48

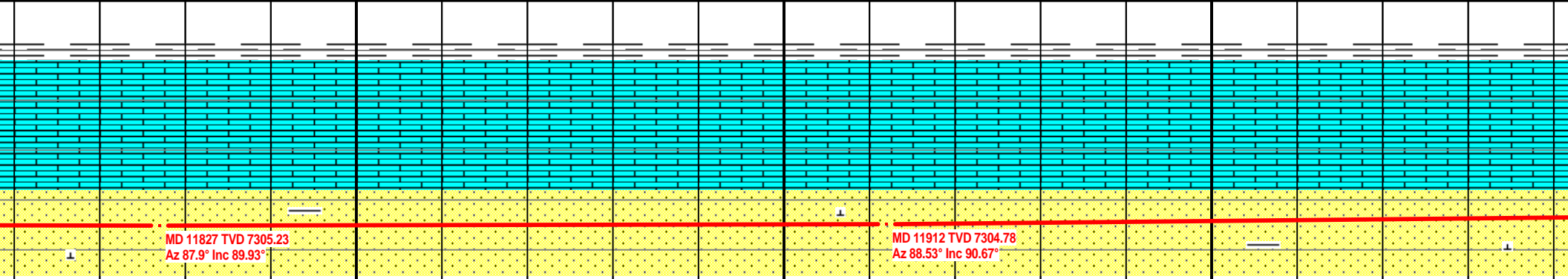
MW: 9.6 / VIS: 48



11850

11900

11950



MD 11827 TVD 7305.23
Az 87.9° Inc 89.93°

MD 11912 TVD 7304.78
Az 88.53° Inc 90.67°

, rnd-si
nsf, slw
ty, grty

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

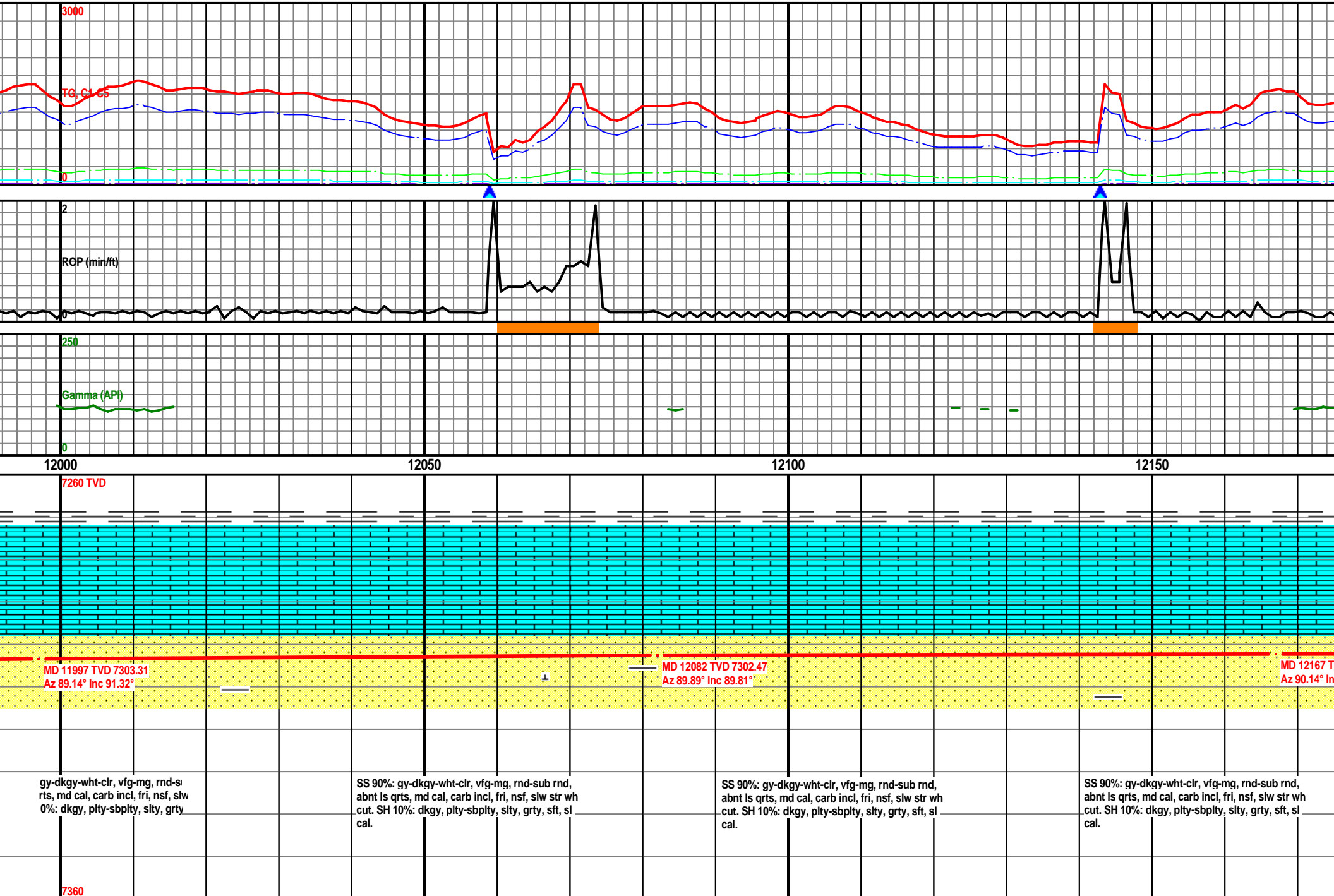
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%:
abnt ls
cut. SH
cal.

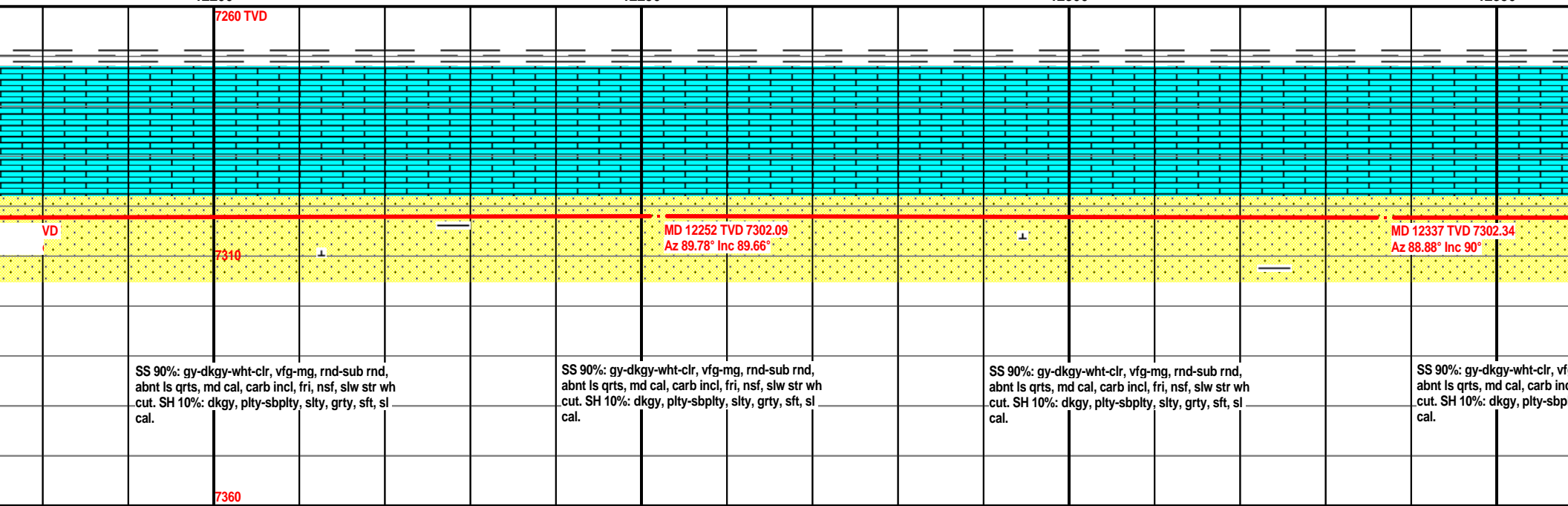
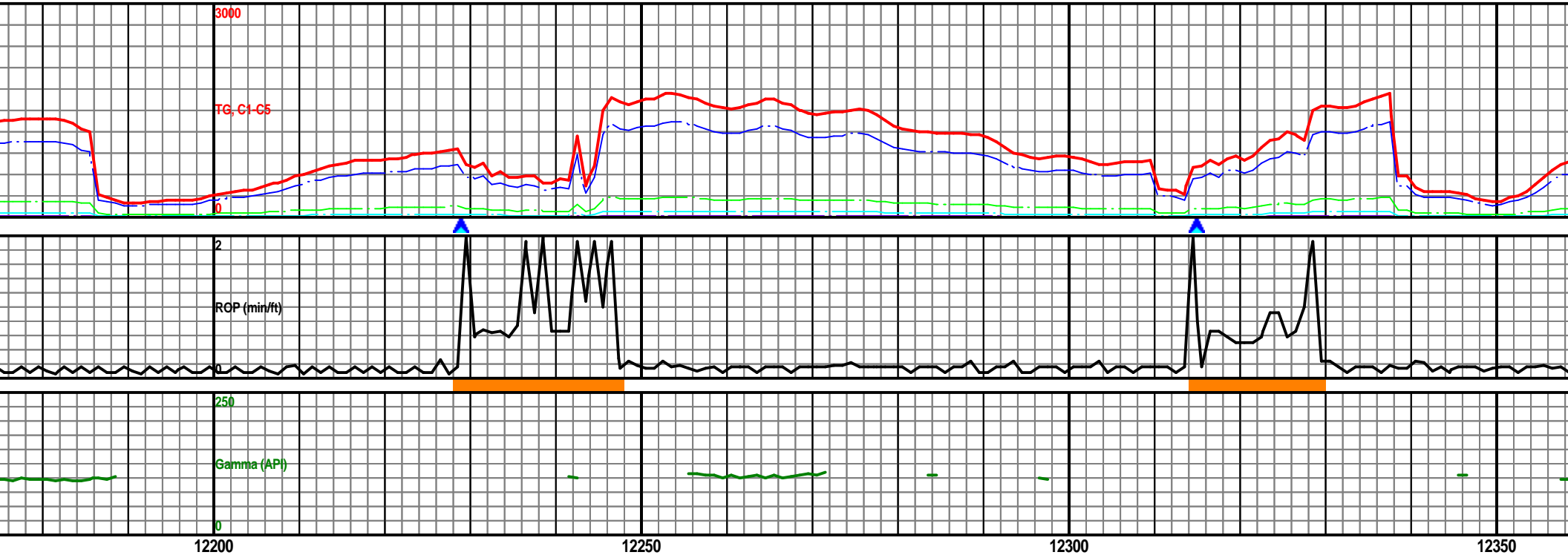
MW: 9.6 / VIS: 48

MW: 9.5 / VIS: 45

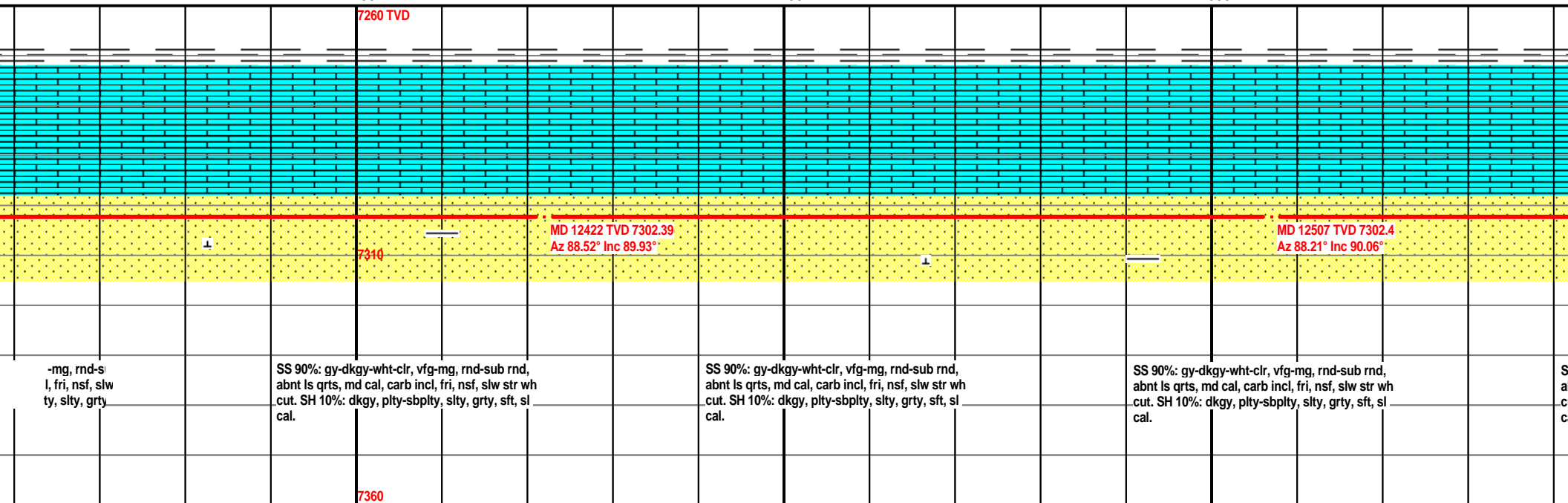
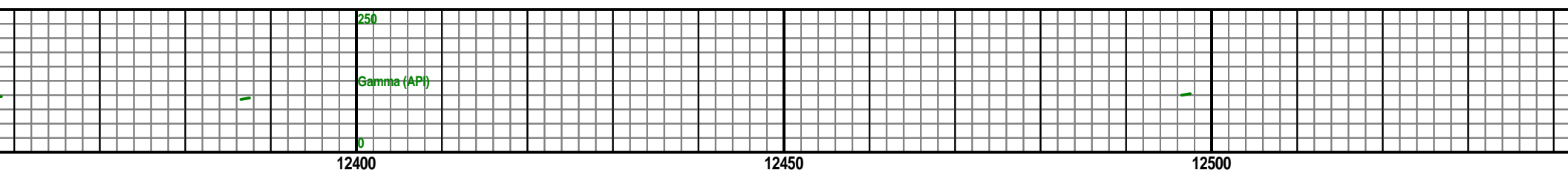
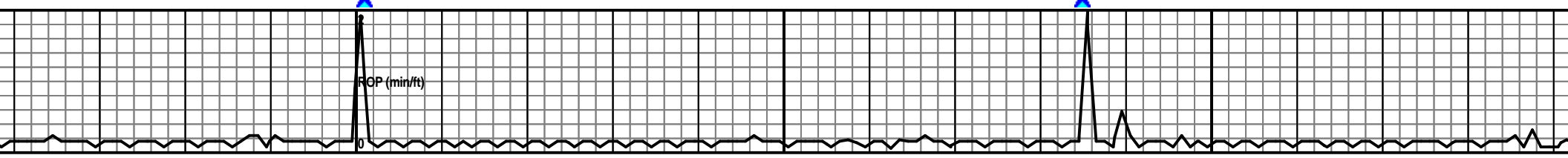
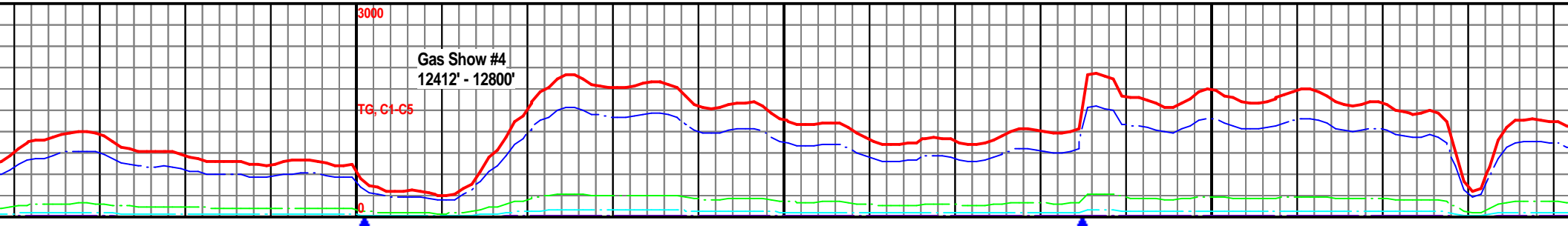


MW: 9.5 / VIS: 45

MW: 9.7 / VIS: 44

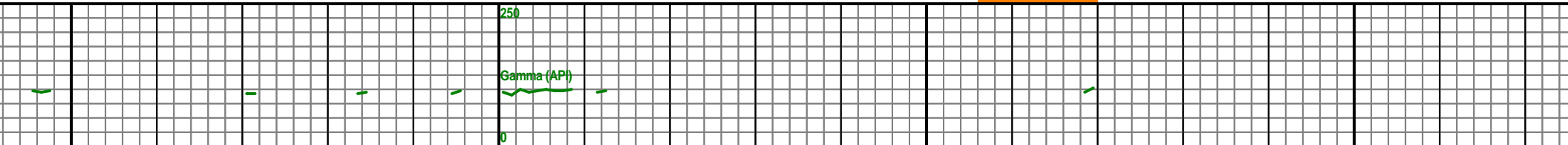
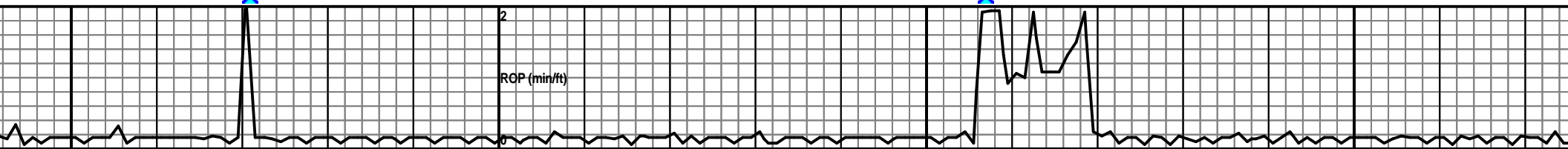
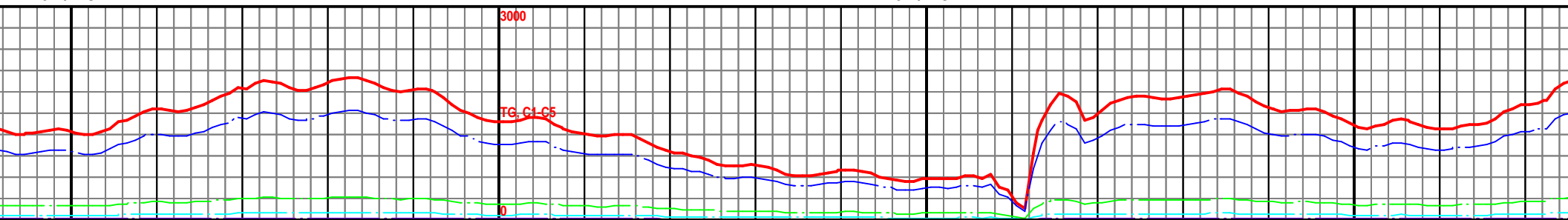


MW: 9.7 / VIS: 44



MW: 9.7 / VIS: 44

MW: 9.7 / VIS: 44

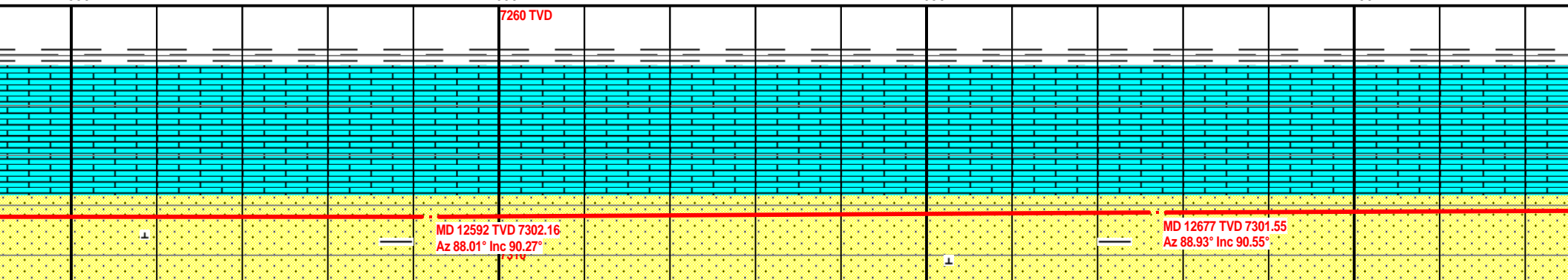


12550

12600

12650

12700



S 90%: gy-dkgy-wht-clr, vfg-mg, rnd-si
nt ls qrts, md cal, carb incl, fri, nsf, slw
t. SH 10%: dkgy, plty-sbplty, slty, grty

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

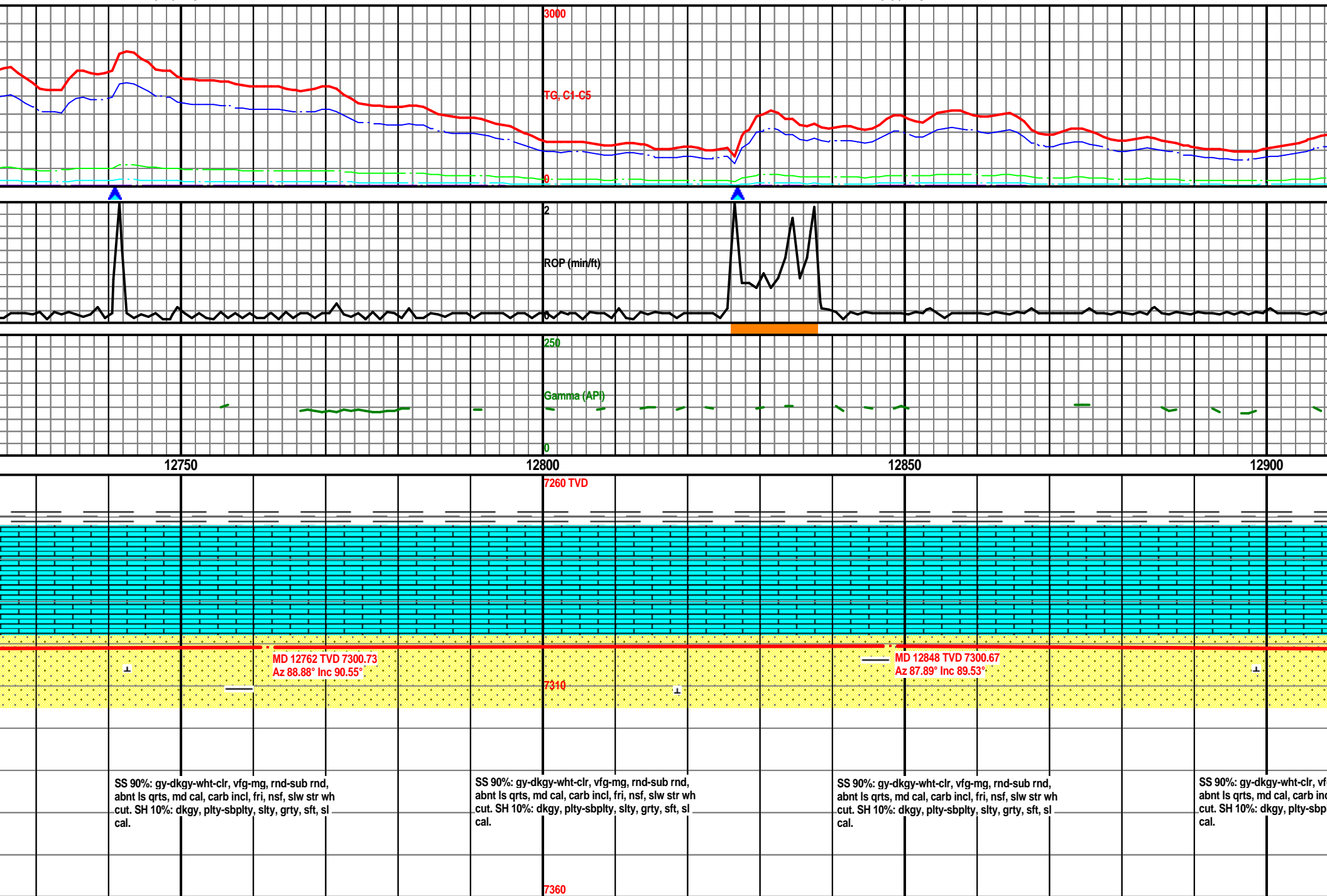
SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

SS 90%: gy-dkgy-wht-clr, vfg-mg, rnd-sub rnd,
abnt ls qrts, md cal, carb incl, fri, nsf, slw str wh
cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl
cal.

7360

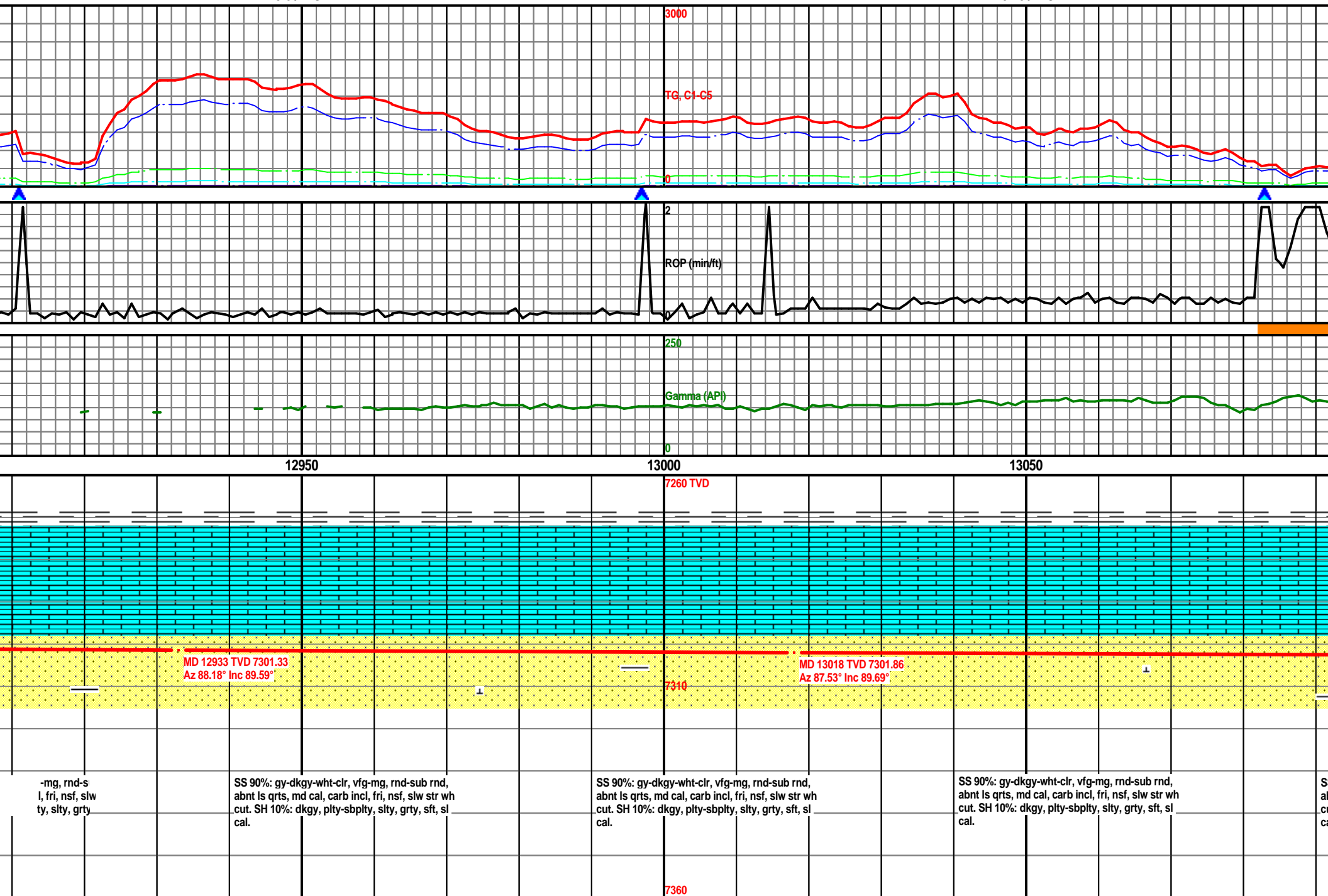
MW: 9.7 / VIS: 44

MW: 9.8 / VIS: 47



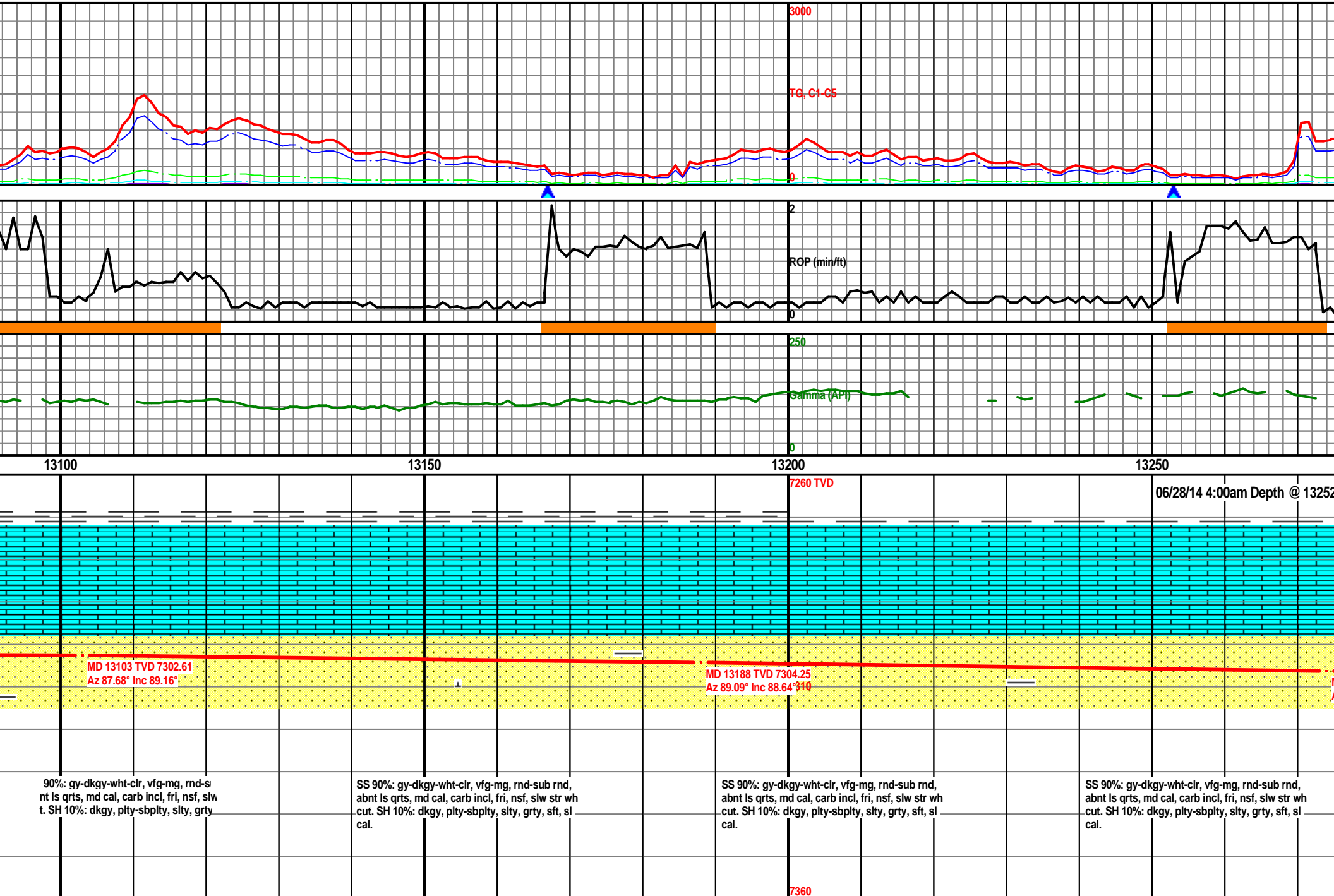
MW: 9.8 / VIS: 47

MW: 9.75 / VIS: 47



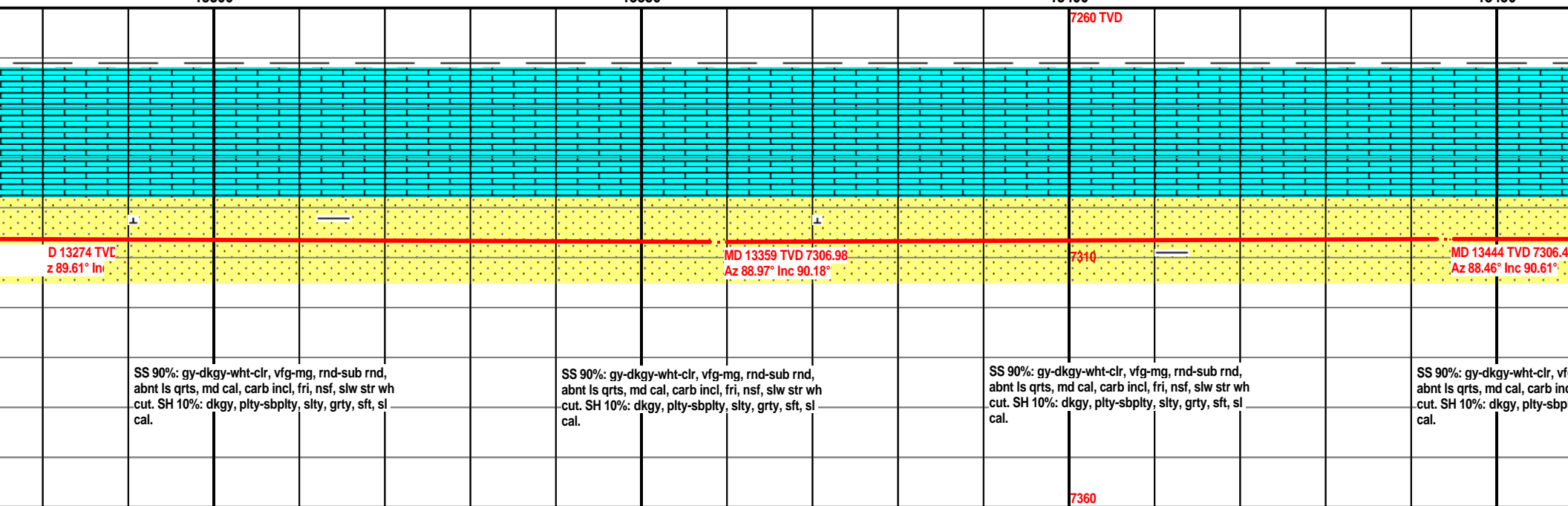
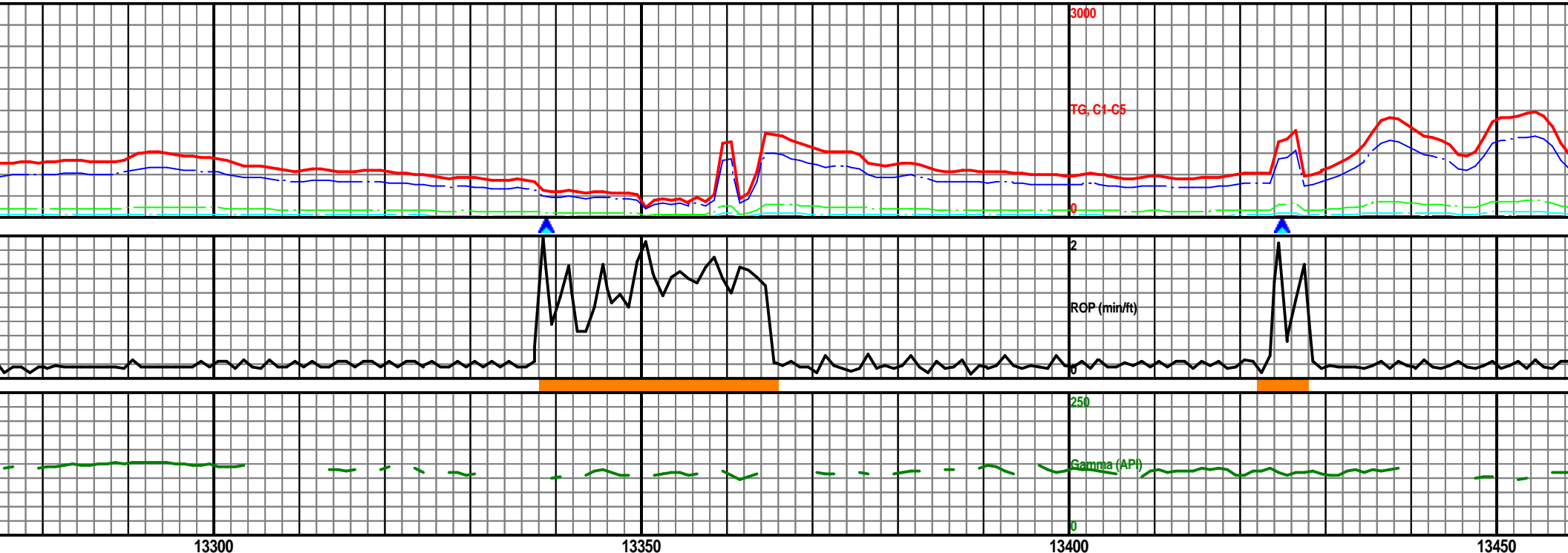
MW: 9.9 / VIS: 47

MW: 9.8 / VIS: 45

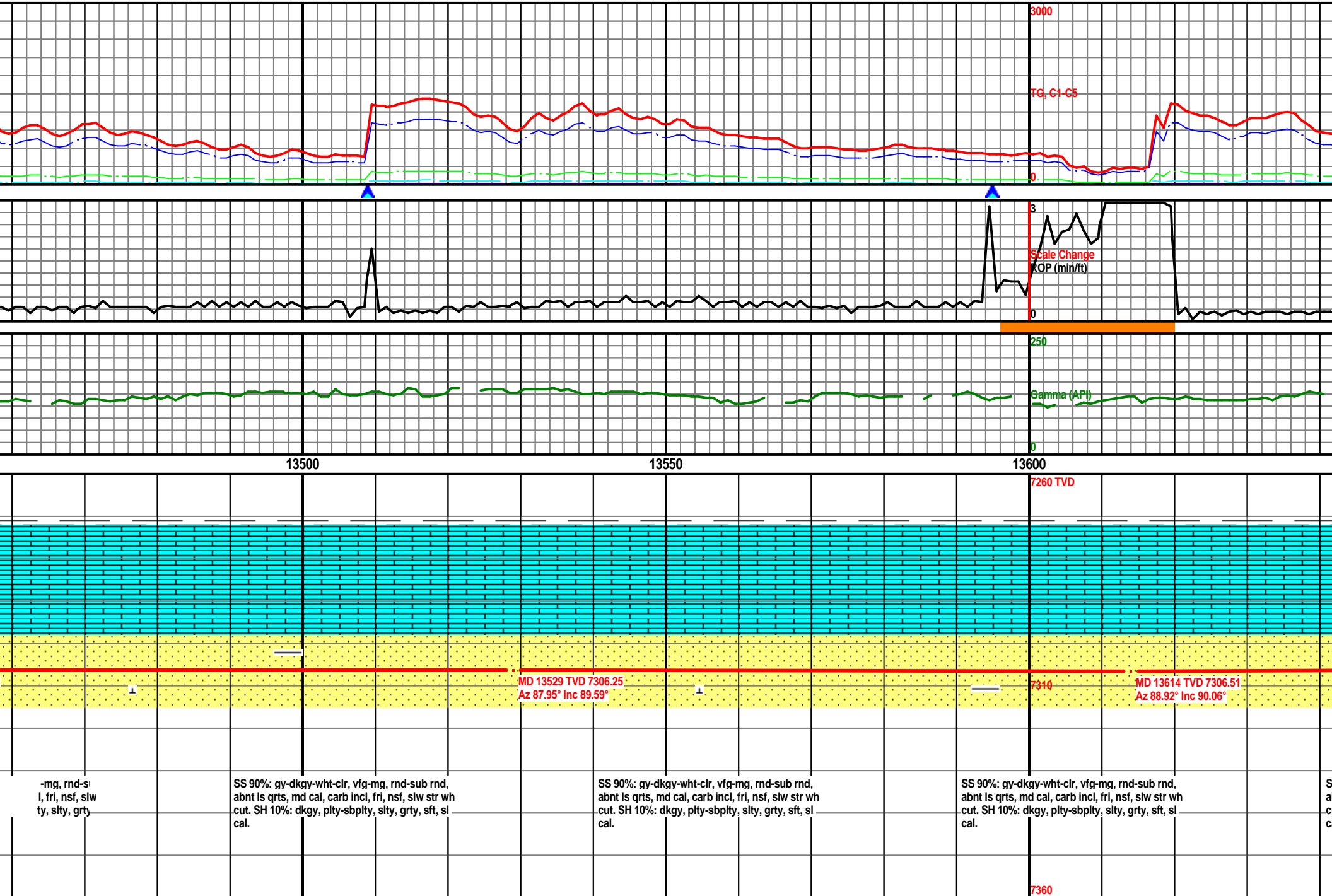


MW: 9.8 / VIS: 48

MW: 9.8 / VIS: 48

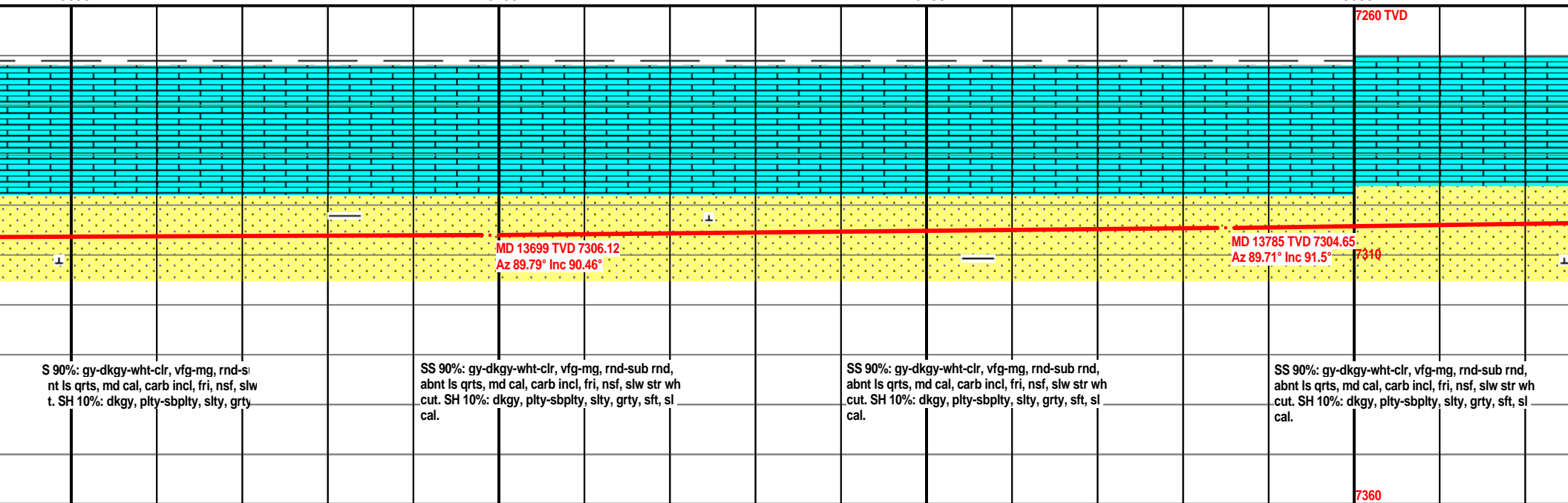
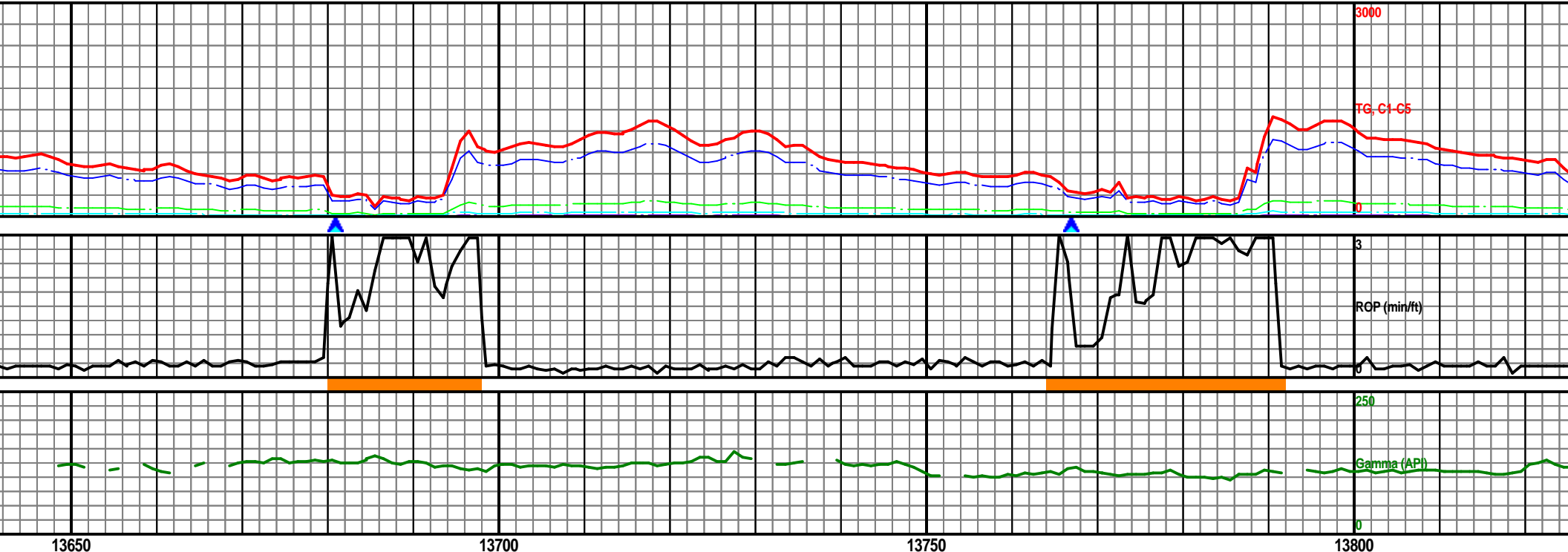


MW: 9.7 / VIS: 46



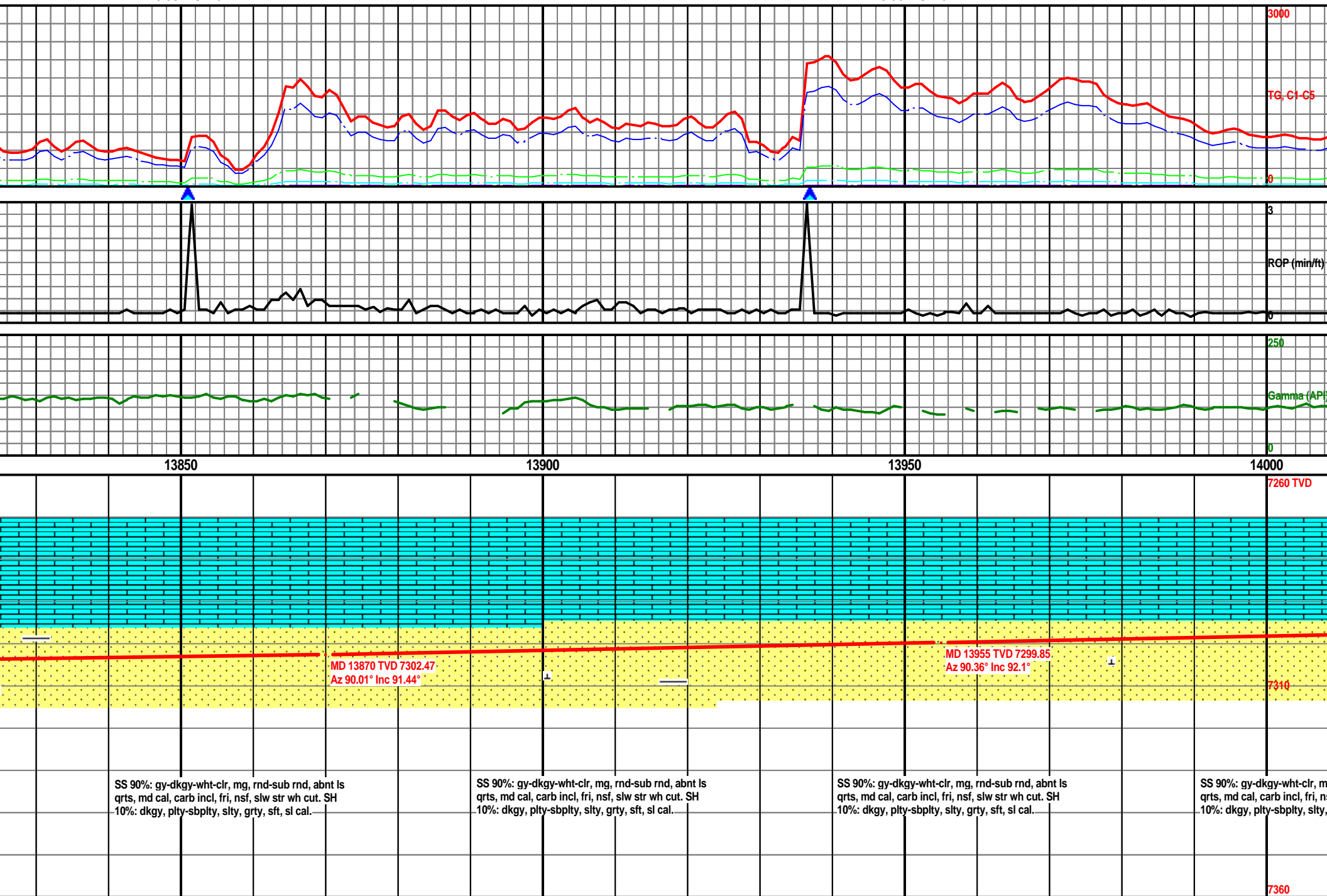
MW: 9.8 / VIS: 48

MW: 9.8 / VIS: 48



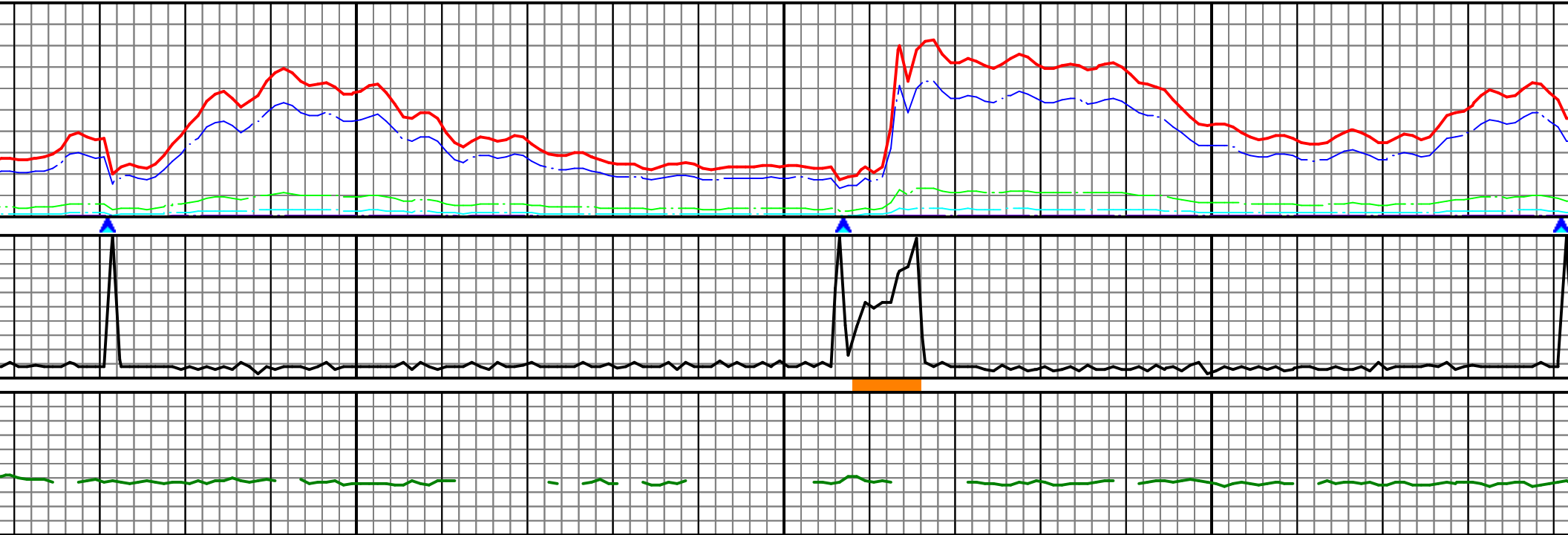
MW: 9.8 / VIS: 48

MW: 9.8 / VIS: 48



MW: 9.8 / VIS: 46

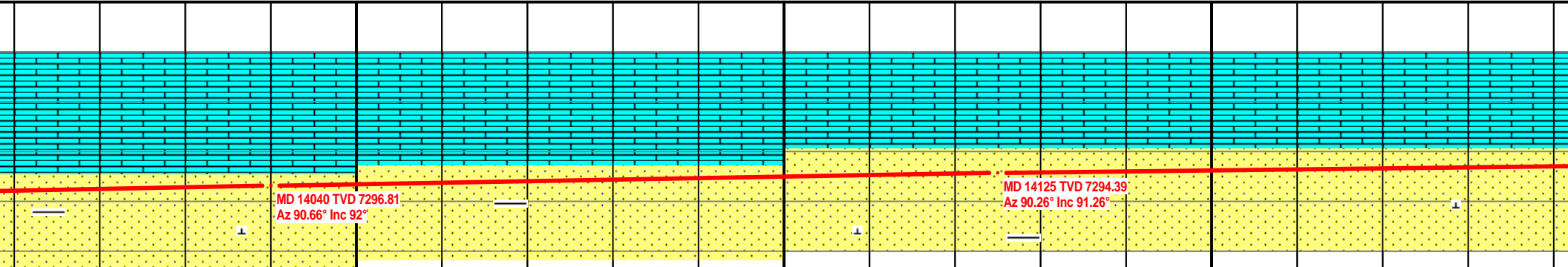
MW: 9.8 / VIS: 46



14050

14100

14150



MD 14040 TVD 7296.81
Az 90.66° Inc 92°

MD 14125 TVD 7294.39
Az 90.26° Inc 91.26°

g, rnd-sub rnd,
f, slw str wh i
grty, sf

SS 90%: gy-dkgy-wht-clr, mg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, pity-sbply, slty, grty, sft, sl cal.

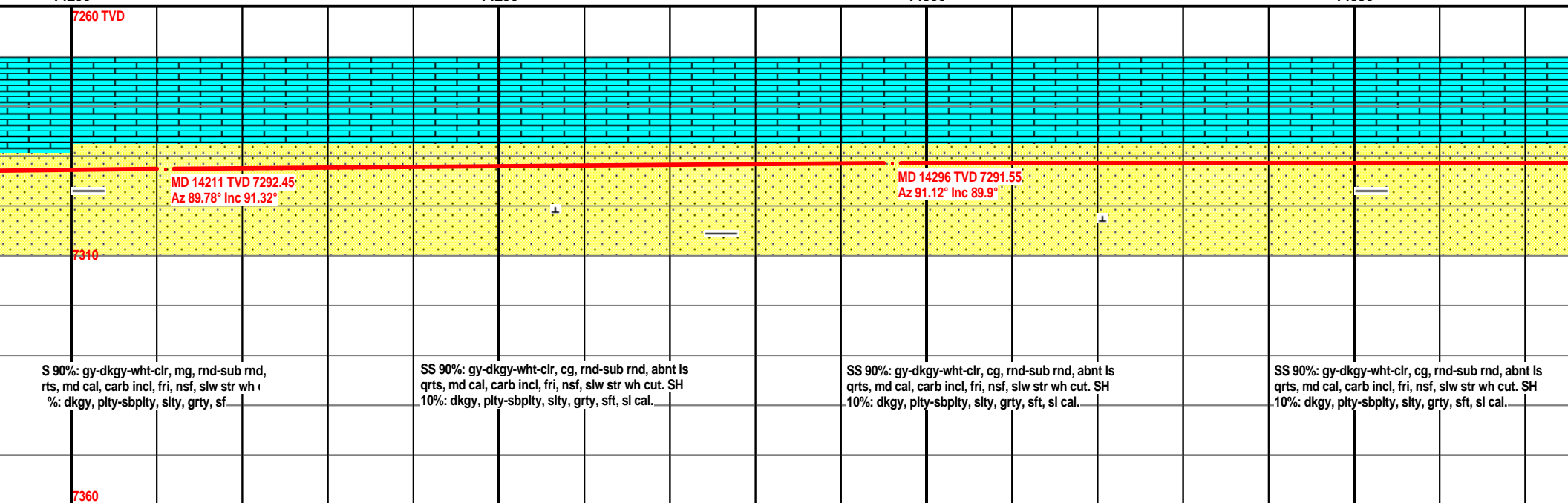
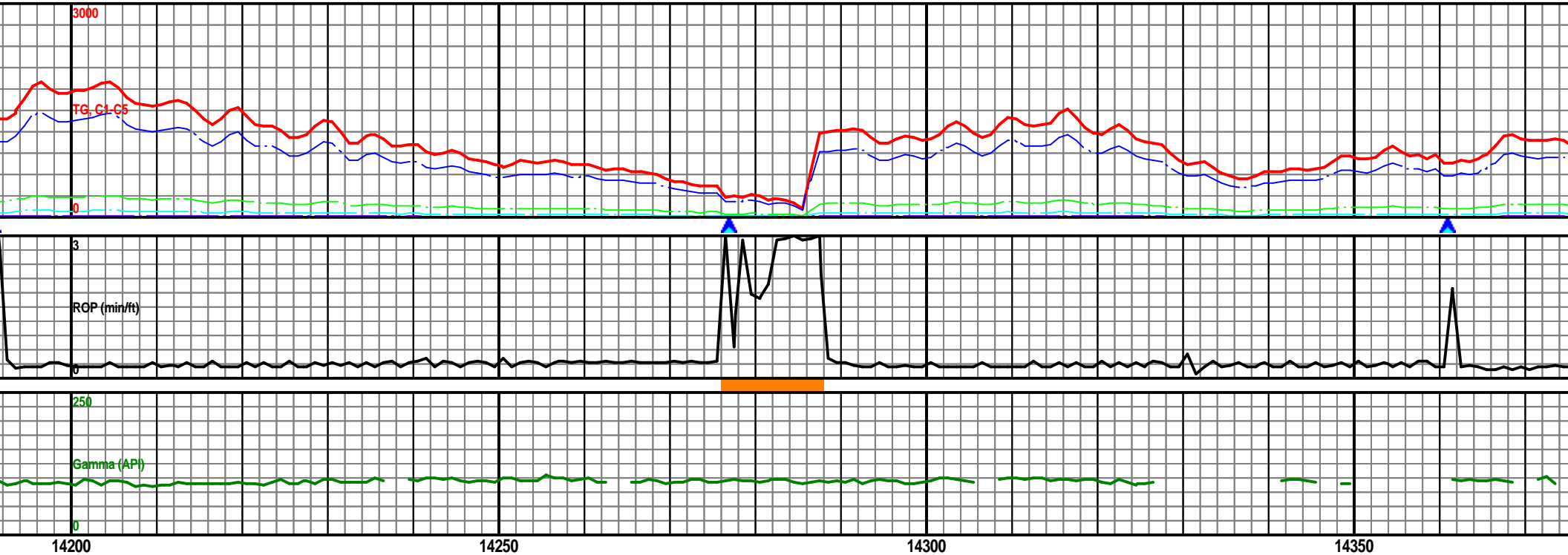
SS 90%: gy-dkgy-wht-clr, mg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, pity-sbply, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, mg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, pity-sbply, slty, grty, sft, sl cal.

S
q
1

MW: 9.8 / VIS: 48

MW: 9.8 / VIS: 48



MW: 9.8 / VIS: 48

TD of 14517' MD
Achieved @ 8:07
PM 6/28/14

3000

TG, C1-C5

0

3

RGP (min/ft)

250

Gamma (API)

0

Two man logging unit with sample program and
gas analyzer released 06/28/14.

Casing Completion with Stand-Alone
Gas Analyzer

14400

14450

14500

145

7260 TVD

MD 14381 TVD 7291.38
Az 90.72° Inc 90.33°

MD 14456 TVD 7291.1
Az 90.48° Inc 90.09°

7310

SS 90%: gy-dkgy-wht-clr, cg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, cg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 90%: gy-dkgy-wht-clr, cg, rnd-sub rnd, abnt ls
qrts, md cal, carb incl, fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

7360