



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

Well Name: Pettinger 3N-18HZ
Location: Weld County, CO.
License Number: 05123380230000
Spud Date: 2/26/2014
Surface Coordinates: 283'FSL & 1062'FWL, SEC 18, T1N-R65W
Region: Weld County
Drilling Completed: 3/2/2014
Bottom Hole Coordinates: 1'FNL & 2250'FWL, SEC 18, T1N-R65W
Ground Elevation (ft): 5007' **K.B. Elevation (ft):** 5020'
Logged Interval (ft): 6805' **To:** 12363' **Total Depth (ft):** 12363'
Formation: Niobrara B
Type of Drilling Fluid: Water Based 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

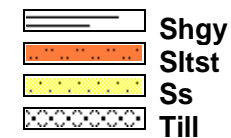
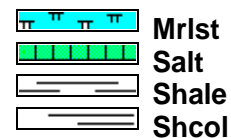
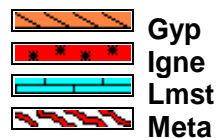
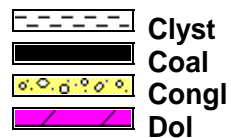
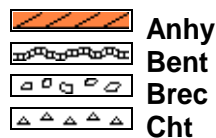
Name: Aaron Wiggins / Kyle Pickard
Company: Great Divide Consulting, Inc.
Address: P.O. Box 630263
Highlands Ranch, CO 80163

Cores

DSTs

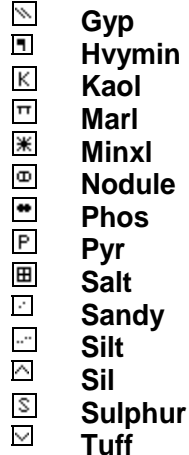
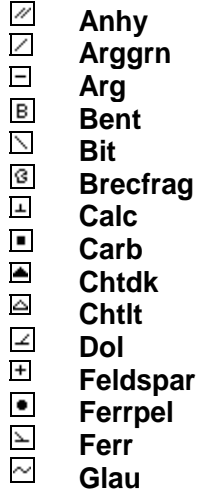
Comments

ROCK TYPES

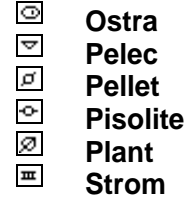
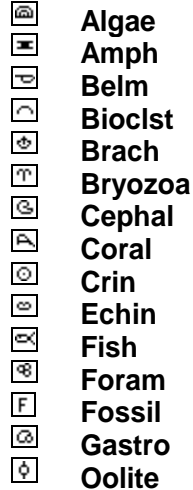


ACCESSORIES

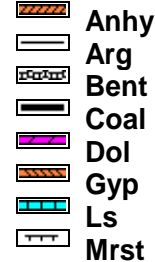
MINERAL



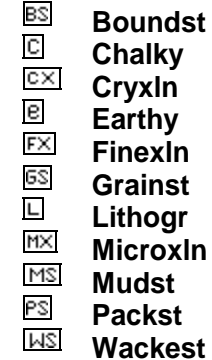
FOSSIL










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

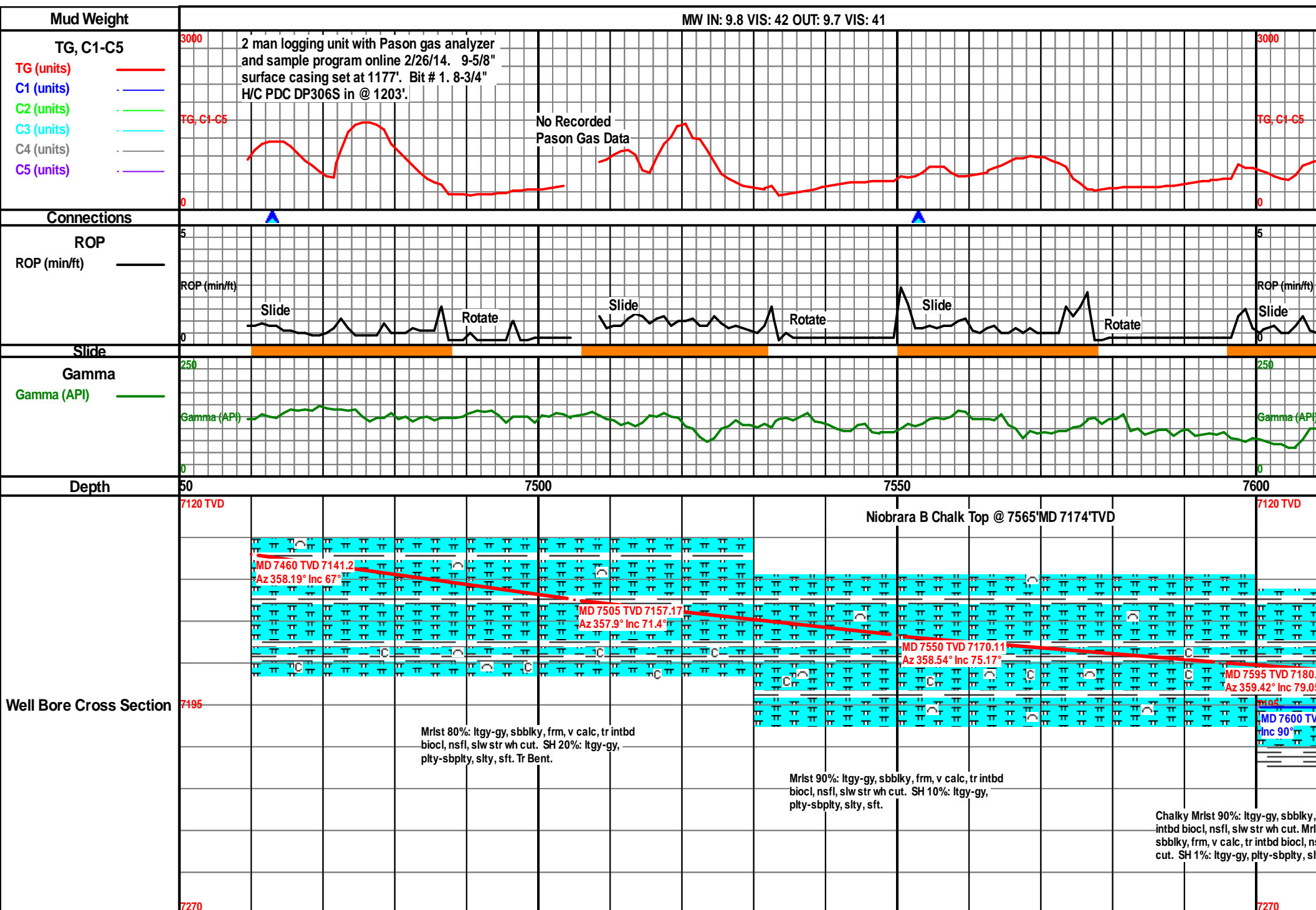
 Ques
 Dead

INTERVAL

 Core
 Dst

EVENT

 Rft
 Connection



MW IN: 9.7 VIS: 43 OUT: 9.8 VIS: 41

MW IN: 9.8 VIS: 43 OUT: 9.8 VIS: 43

2/26/14 @ 8:10pm TD Curve for
intermediate casing~7753' MD
2/28/14 @ 5:05pm B.O.B. 7"
intermediate casing set at 7730'. Bit #
2. 6-1/8" Ulterra U513S in @ 7753'.

No Recorded
Pason Gas Data

Rotate

Slide

Rotate

Slide

Rotate

7650

7700

7750

MD 7640 TVD 7187.56

Az 359.31° Inc 82°

MD 7685 TVD 7193.01
Az 358.65° Inc 84.07°

MD 7705 TVD 7194.62
Az 358.37° Inc 86.7°

MD 7768 TVD 7196.69
Az 358.28° Inc 89.54°

frm, v
st 9%: l
fl, slw

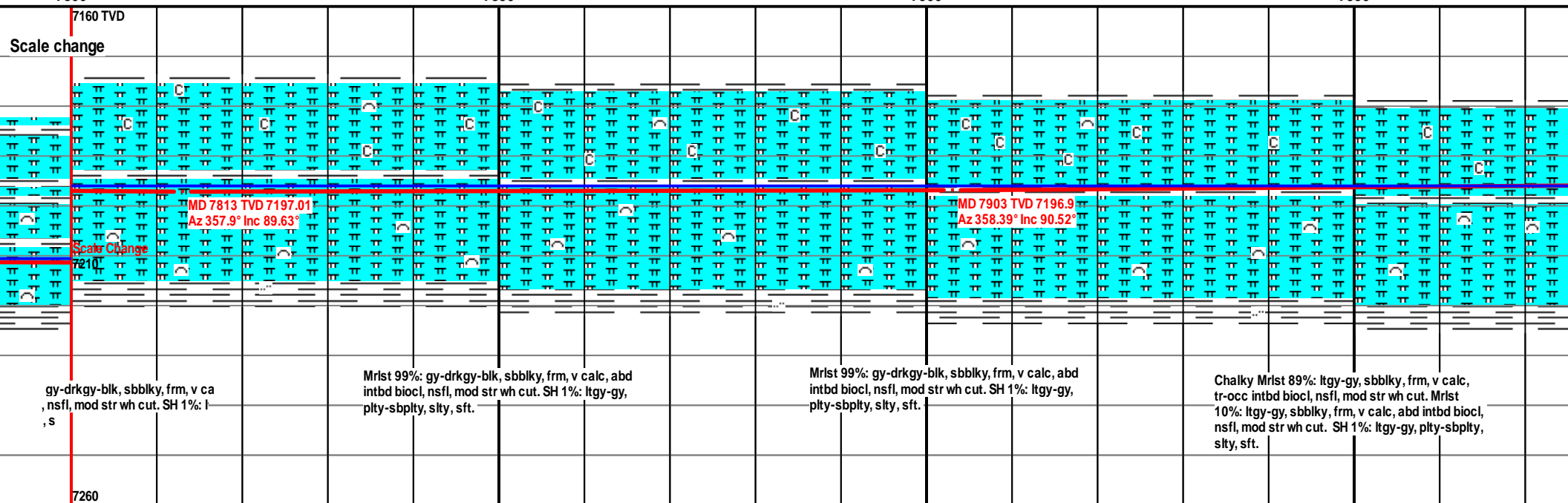
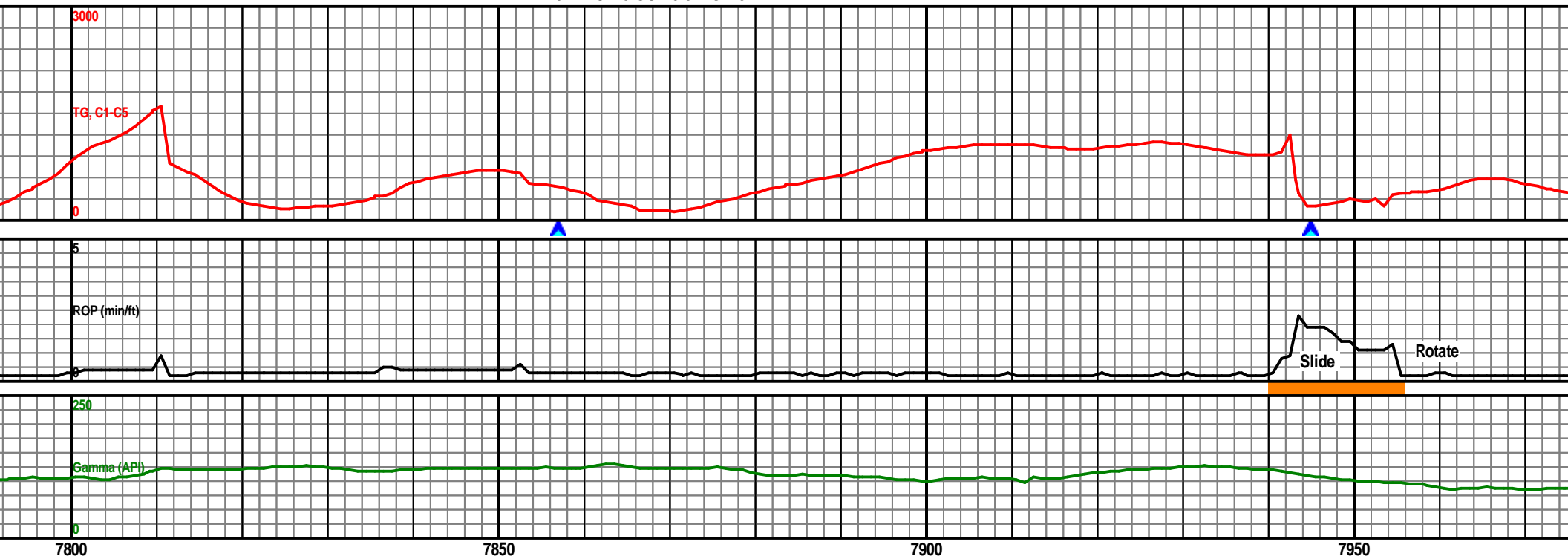
Chalky Mrst 75%: ltgy-gy, sbbiky, frm, v calc,
tr-occ intbd biocl, nsfl, slw str wh cut. Mrst 24%:
ltgy-gy, sbbiky, frm, v calc, tr-occ intbd biocl,
nsfl, slw str wh cut. SH 1%: ltgy-gy, plty-sbply,
slty, sft.

Mrst 98%: gy-drkggy-blk, sbbiky, frm, v calc, abd
intbd biocl, nsfl, slw str wh cut. Chalky Mrst 1%:
ltgy-gy, sbbiky, frm, v calc, tr-occ intbd biocl,
nsfl, slw str wh cut. SH 1%: ltgy-gy, plty-sbply,
slty, sft.

Mrst 99%: gy-drkggy-blk, sbbiky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. SH 1%: ltgy-gy,
plty-sbply, slty, sft. Tr Chalky Mrst.

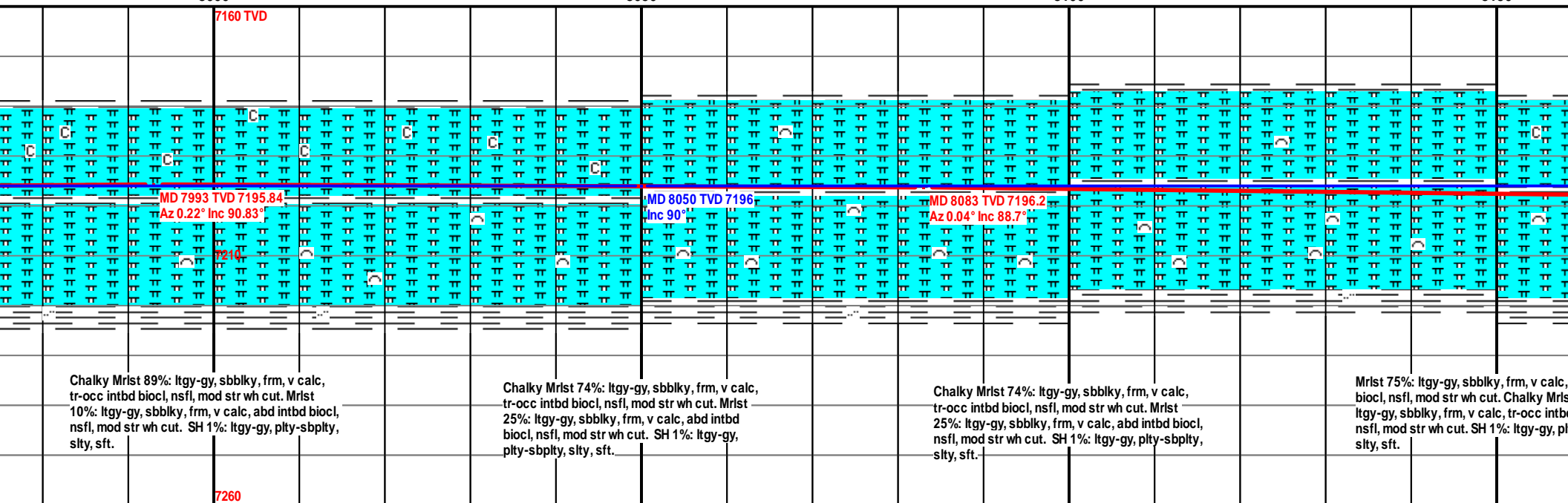
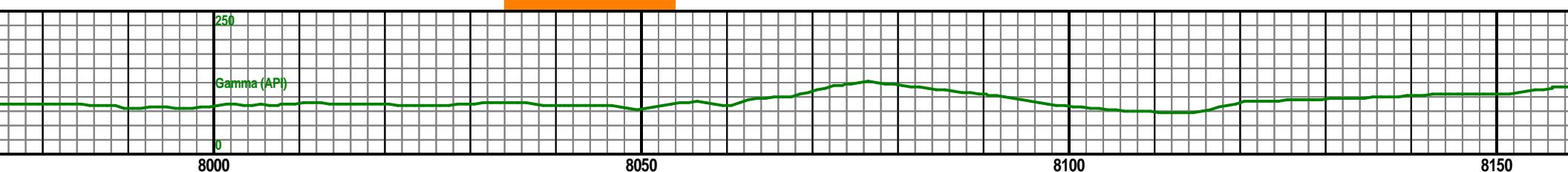
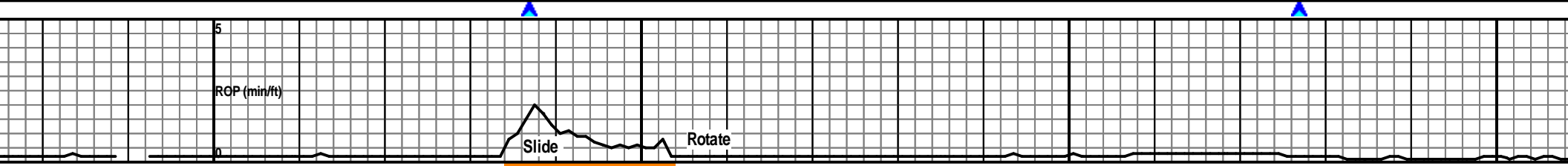
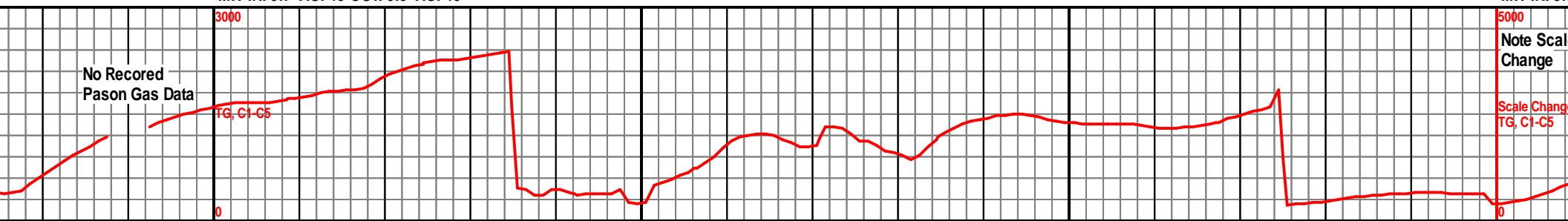
Mrst 99%:
intbd biocl
plty-sbply

MW IN: 9.7 VIS: 45 OUT: 9.5 VIS: 49



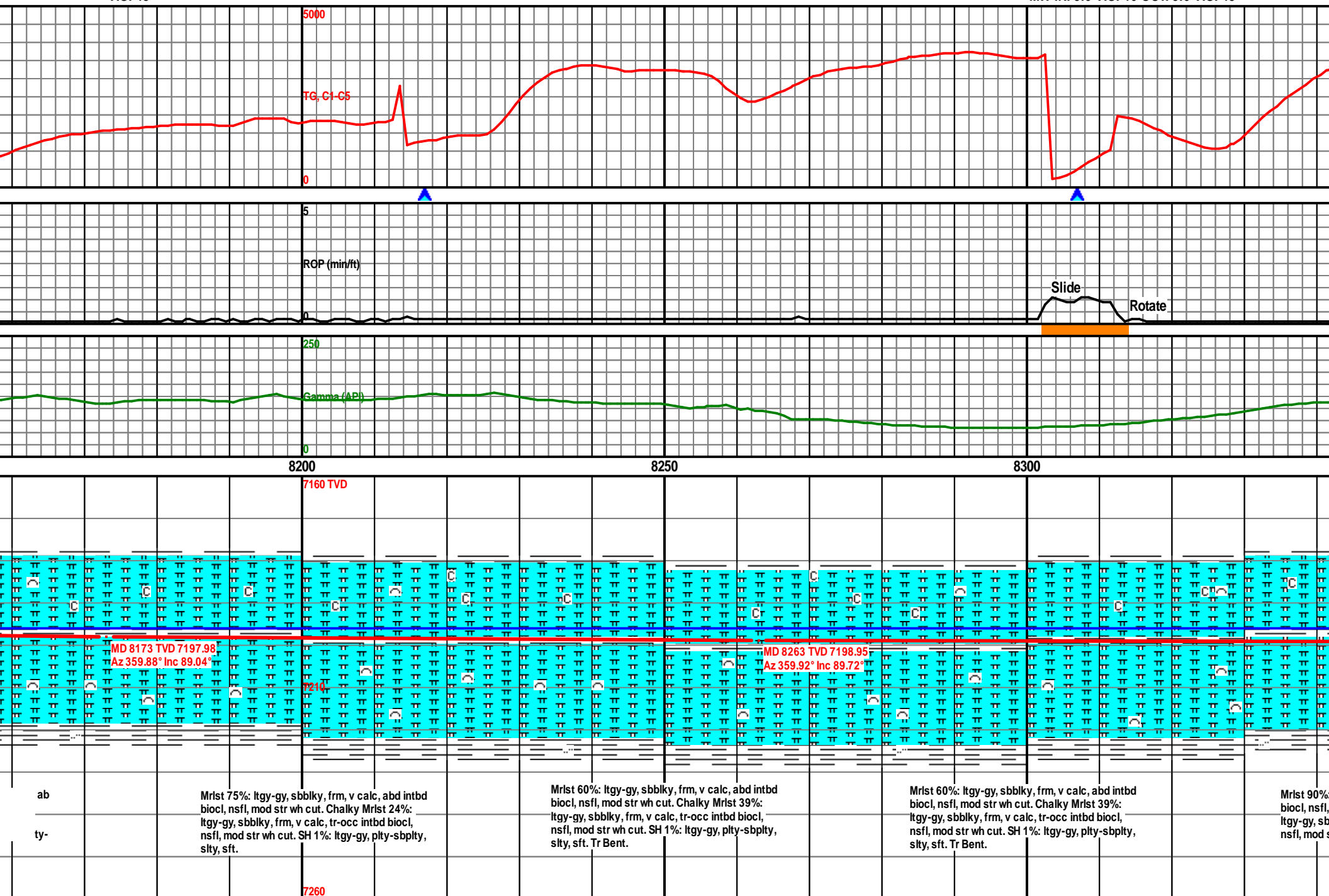
MW IN: 9.7 VIS: 45 OUT: 9.5 VIS: 49

MW IN: 9.7

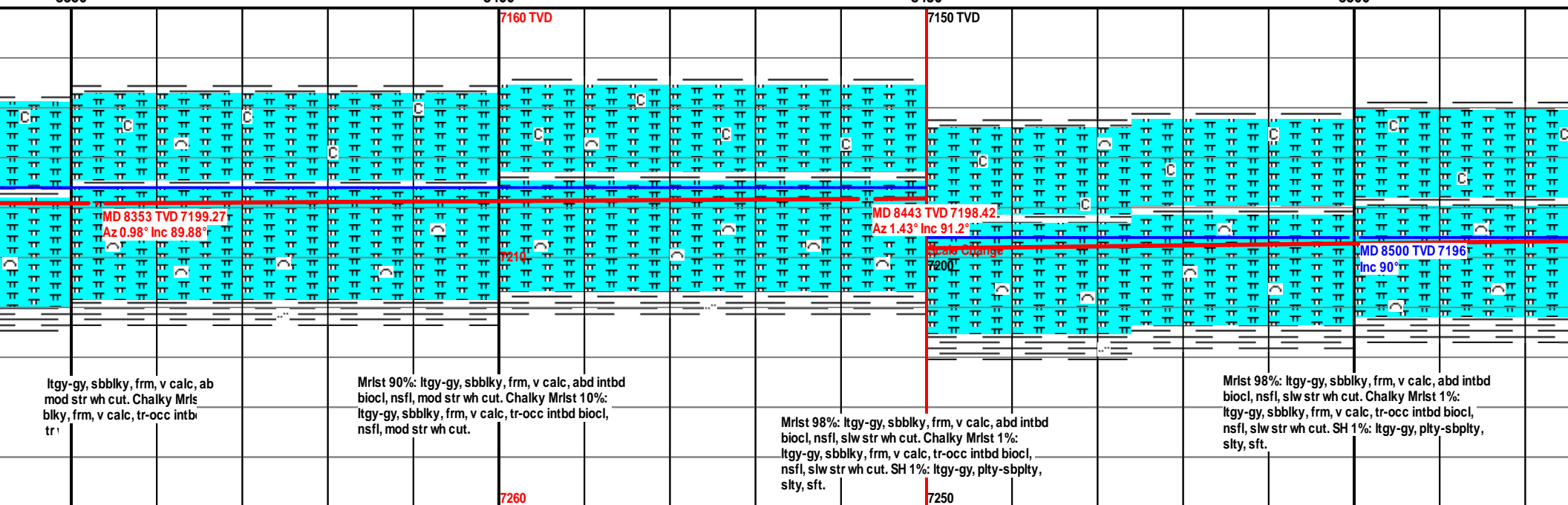
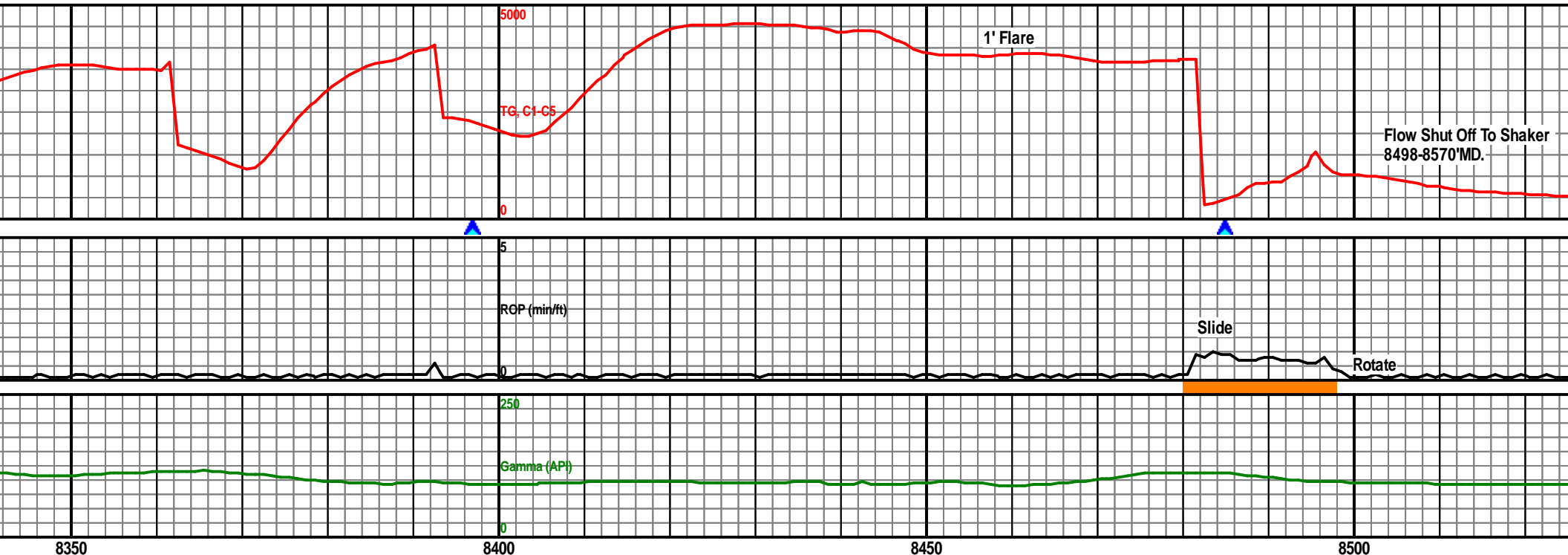


VIS: 45

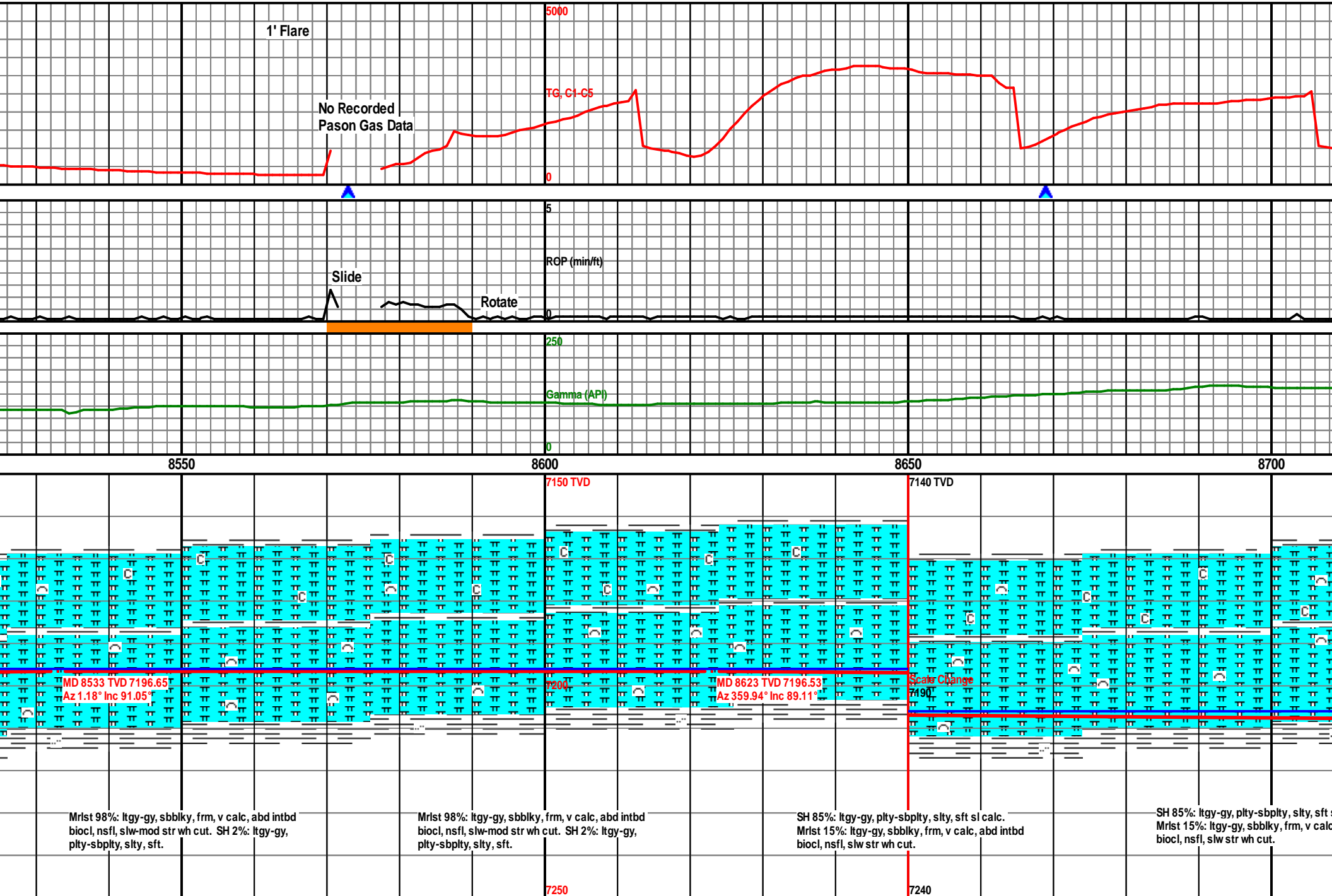
MW IN: 9.6 VIS: 46 OUT: 9.6 VIS: 45



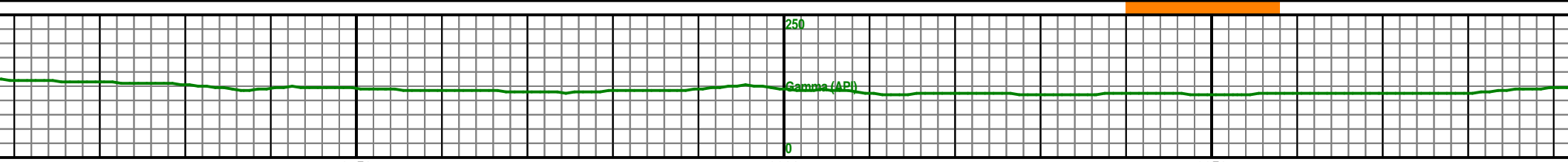
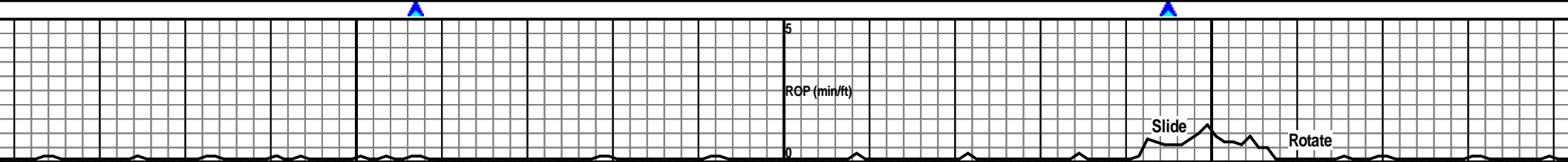
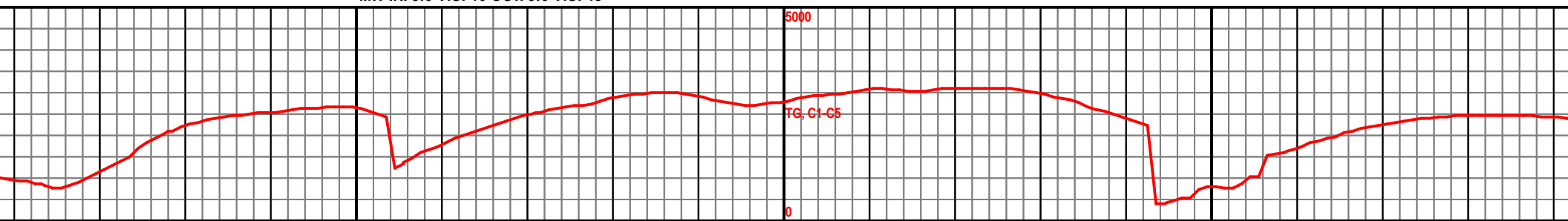
MW IN: 9.6 VIS: 46 OUT: 9.6 VIS: 45



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



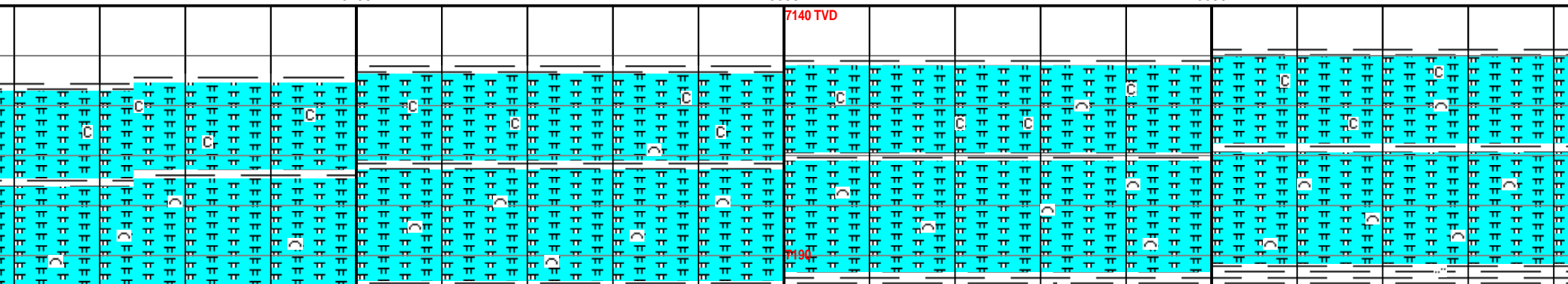
MW IN: 9.6 VIS: 46 OUT: 9.6 VIS: 43



8750

8800

8850



MD 8713 TVD 7197.85
Az 359.31° Inc 89.2°

MD 8803 TVD 7199.21
Az 357.93° Inc 89.08°

SH 97%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 2%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl.

SH 97%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 2%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl.

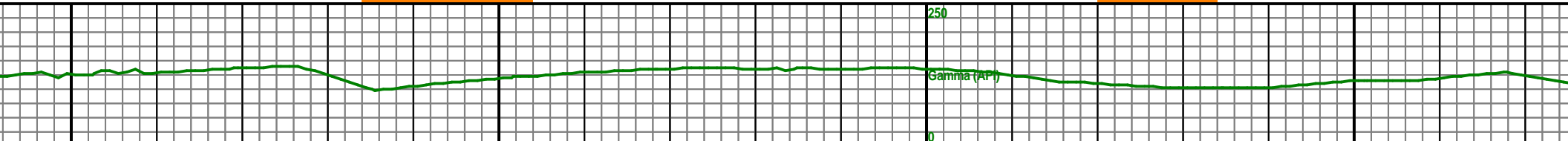
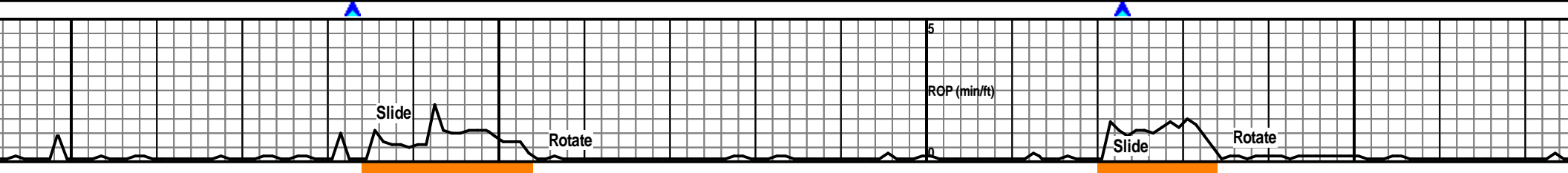
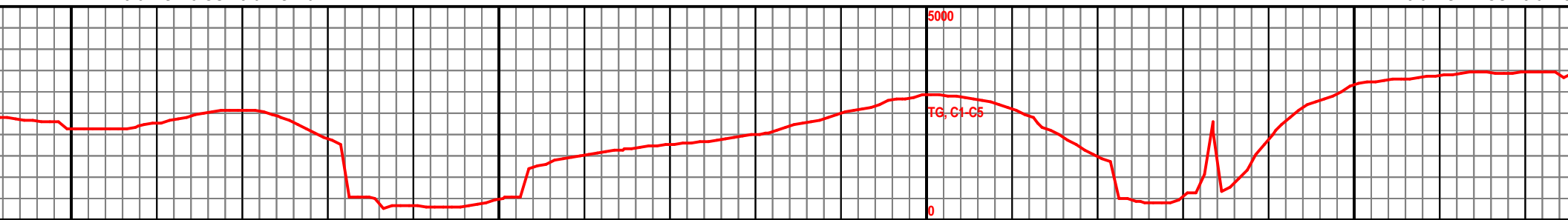
SH 94%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl.

SH 94%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl.

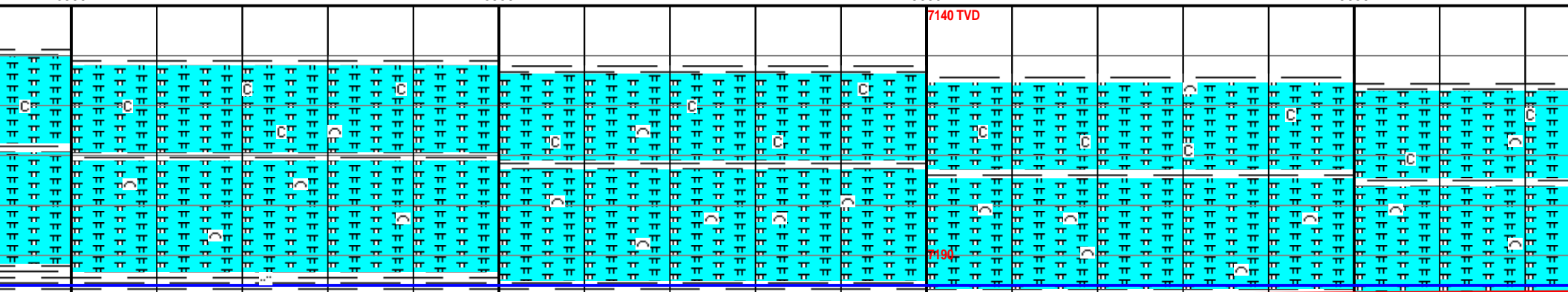
7240

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

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



8900 8950 9000 9050



MD 8893 TVD 7199.42
Az 358.66° Inc 90.65°

y-gy, pty-sbpty, slty, sft :
gy-gy, sbblky, frm, v calc, ab
slw str wh cut. Bent 1%: crm-b
cal,

SH 94%: ltgy-gy, pty-sbpty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl. Tr py.

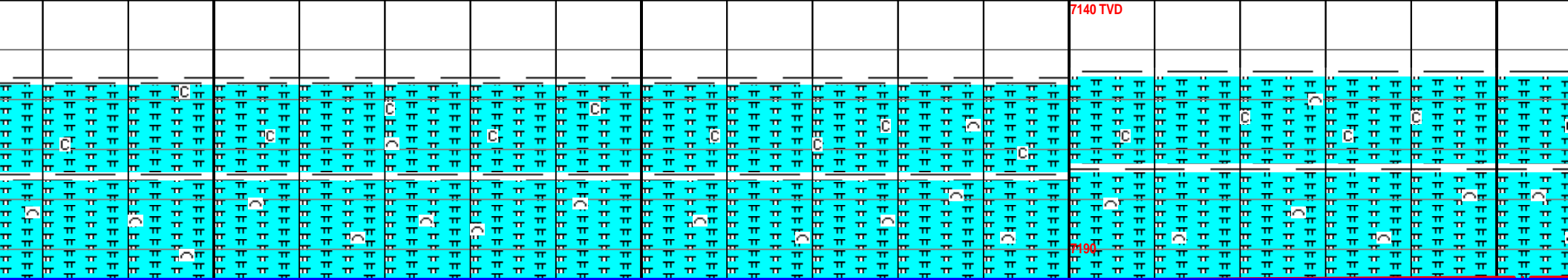
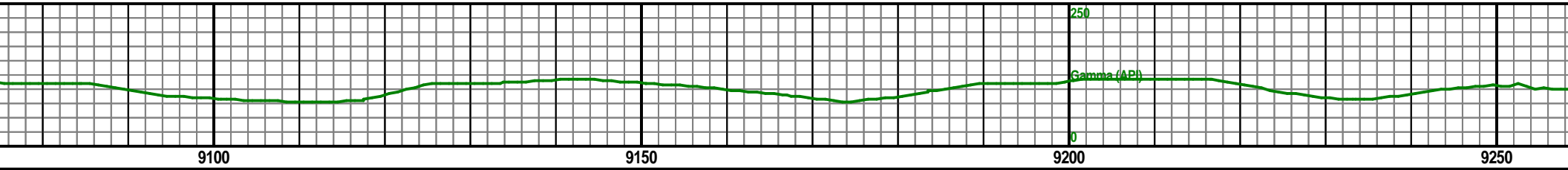
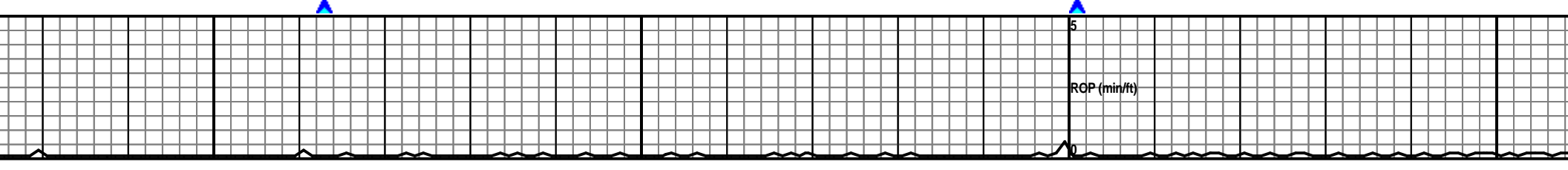
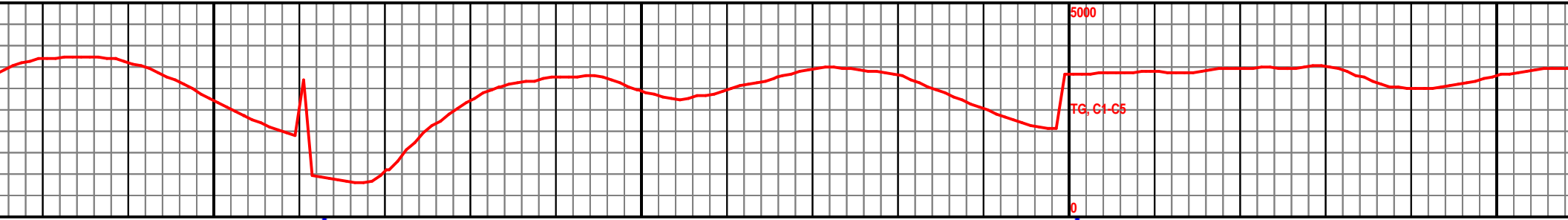
MD 8983 TVD 7198.18
Az 0.39° Inc 90.93°

SH 94%: ltgy-gy, pty-sbpty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. Bent 1%: crm-brn, vfg,
frm-hrd, sl cal, org fl. Tr py.

Mrlst 75%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut. SH 25%: ltgy-gy,
pty-sbpty, slty, sft sl calc. Tr Bent. Tr py.

7240

MW IN: 9.5 VIS: 47 OUT: 9.5 VIS: 43



MD 9163 TVD 7196.48
Az 0.43° Inc 90.15°

MD 9253
Az 359°

Mrist 75%: Itgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut.SH 25%: Itgy-gy,
ptly-sbply, slty, sft sl calc. Tr Bent. Tr py.

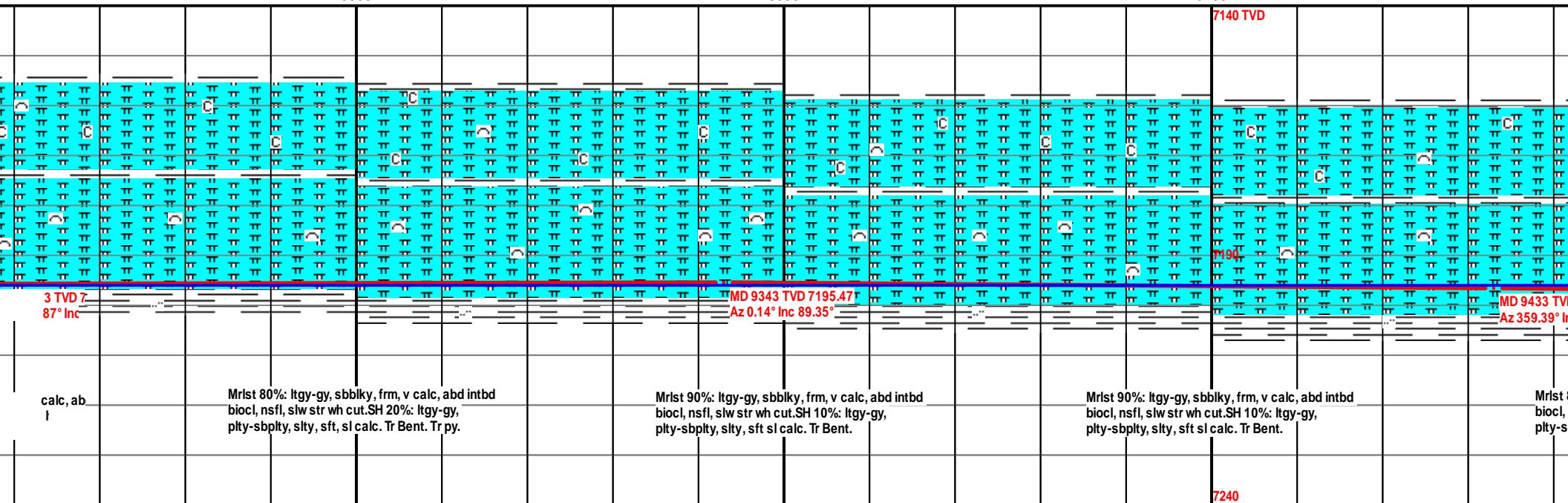
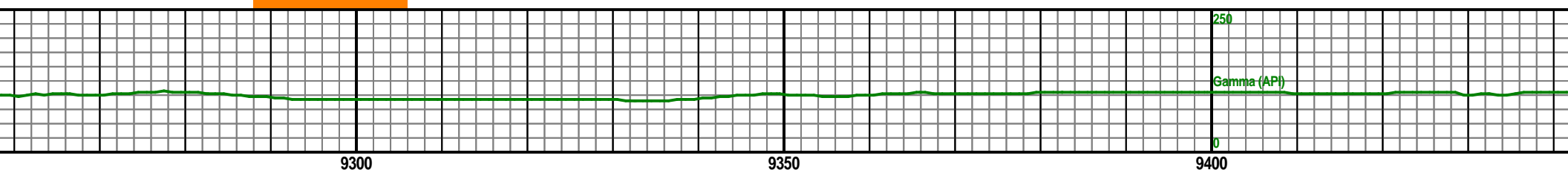
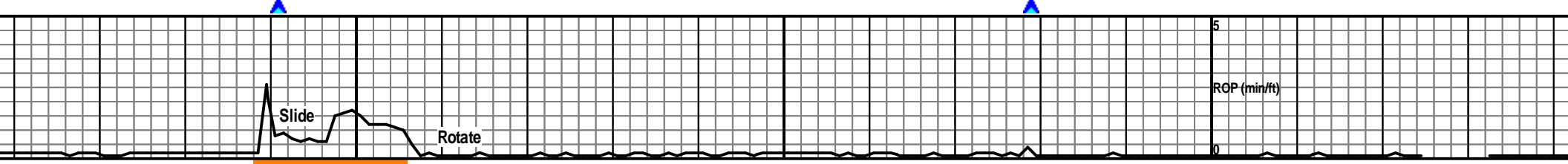
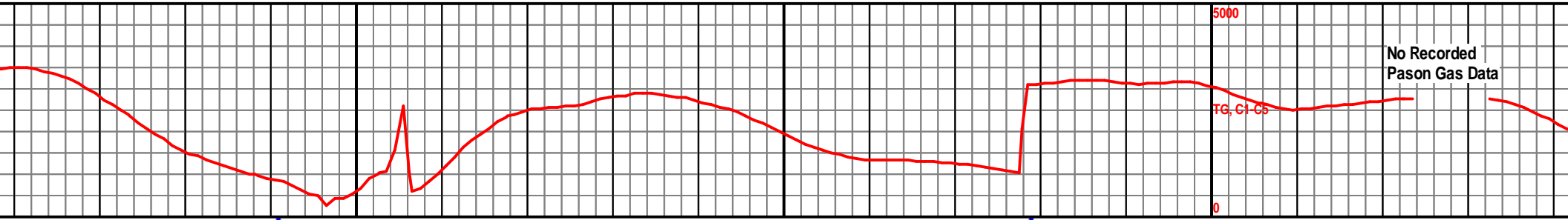
Mrist 90%: Itgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut.SH 10%: Itgy-gy,
ptly-sbply, slty, sft sl calc. Tr Bent.

Mrist 90%: Itgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, slw str wh cut.SH 10%: Itgy-gy,
ptly-sbply, slty, sft sl calc. Tr Bent.

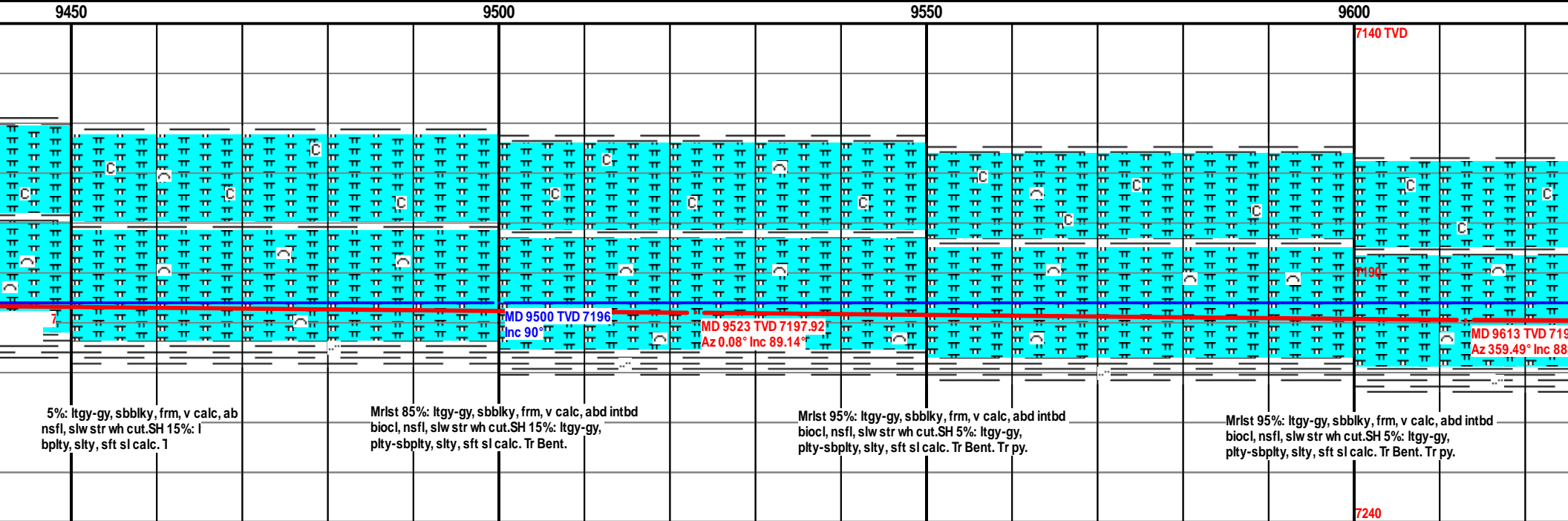
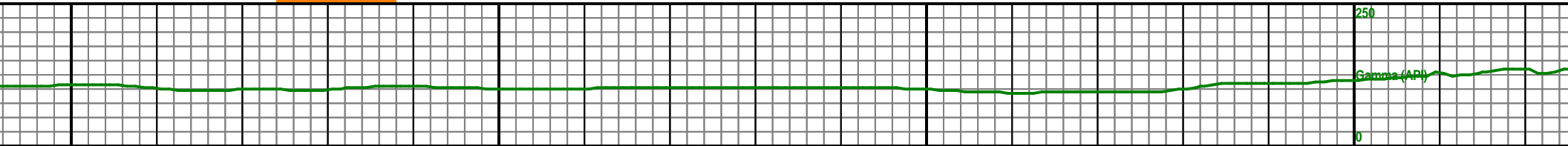
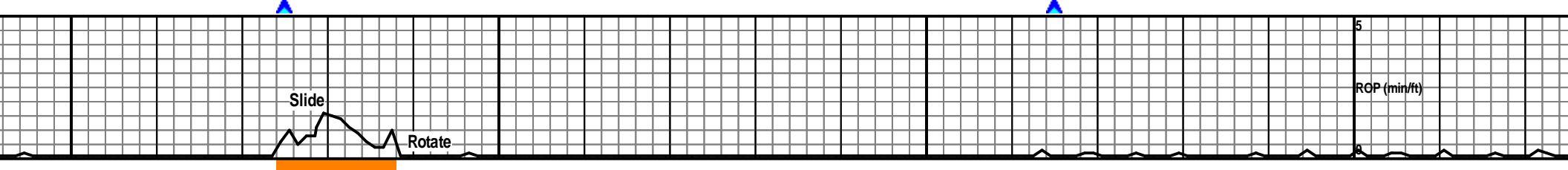
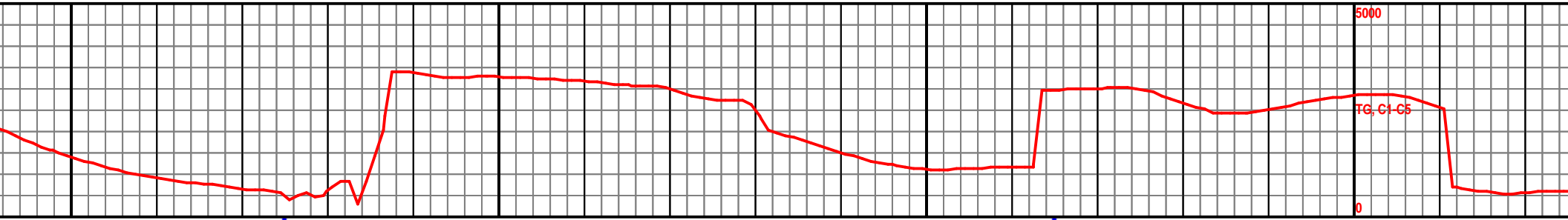
Mrist 80%: Itgy-gy, sbblky, frm, v
biocl, nsfl, slw str wh cut.SH 20%:
ptly-sbply, slty, sft sl calc. Tr Bent.

7240

MW IN: 9.5 VIS: 46 OUT: 9.6 VIS: 46

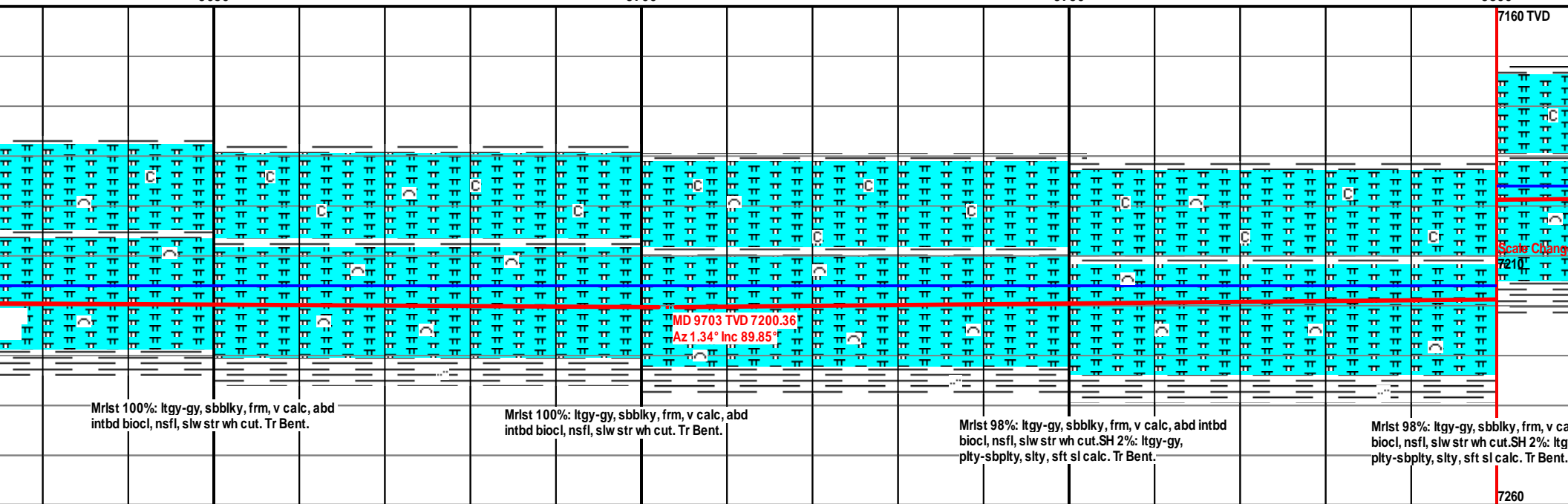
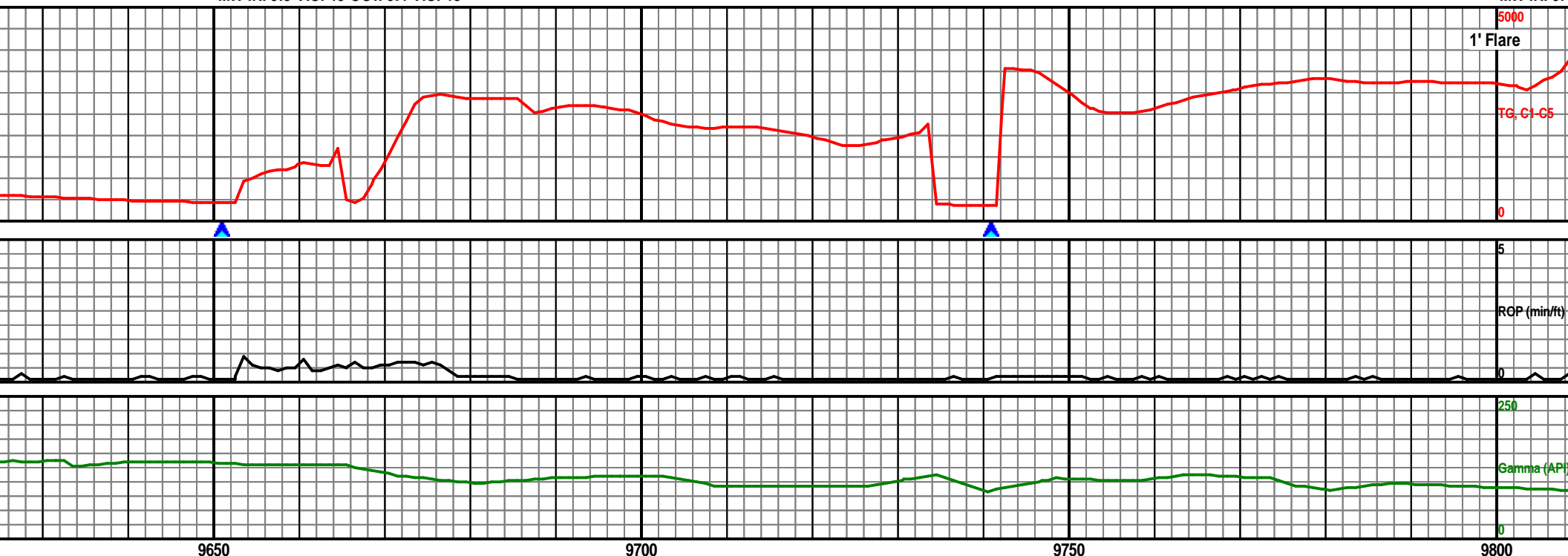


MW IN: 9.5 VIS: 46 OUT: 9.6 VIS: 46



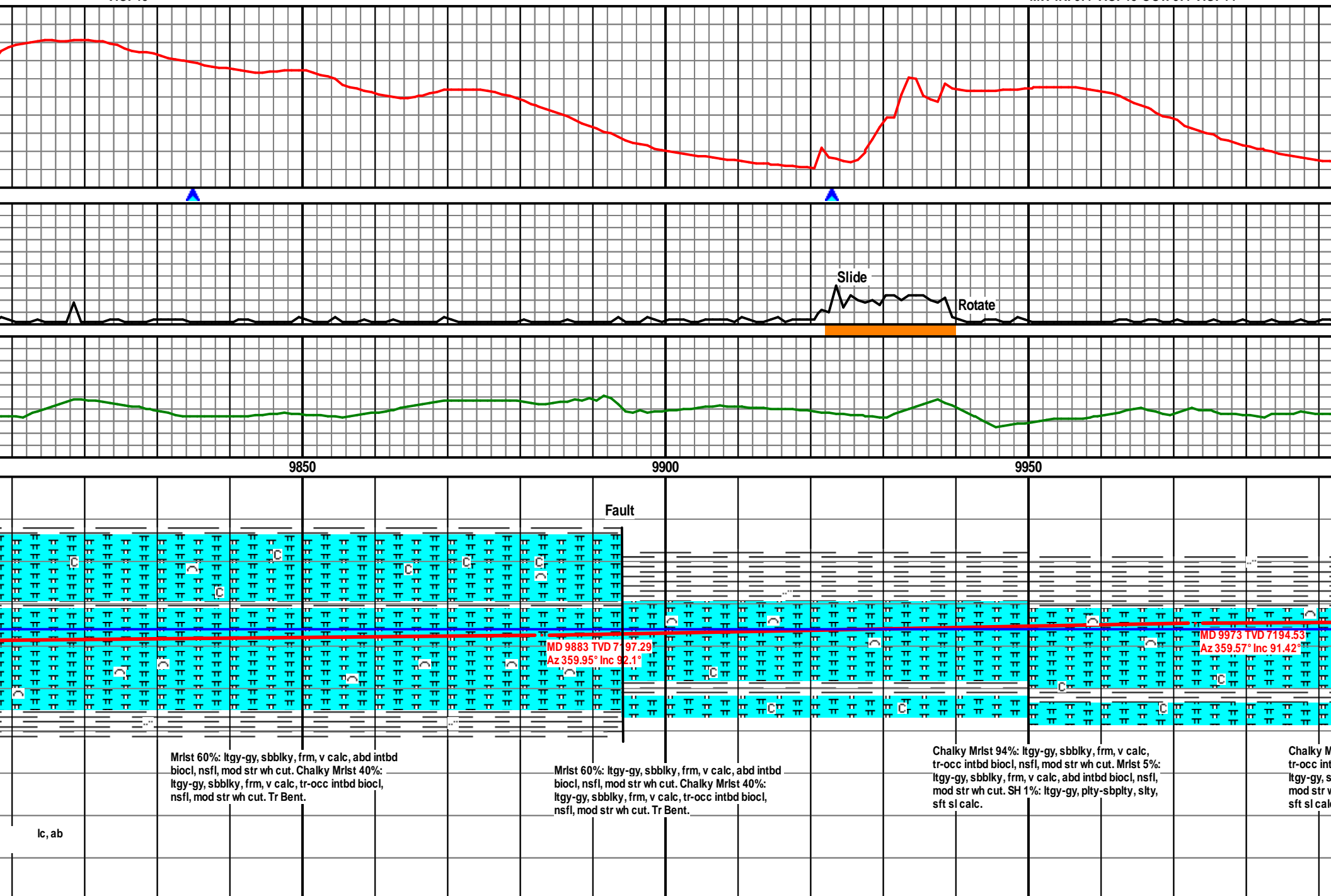
MW IN: 9.5 VIS: 43 OUT: 9.4 VIS: 43

MW IN: 9.4

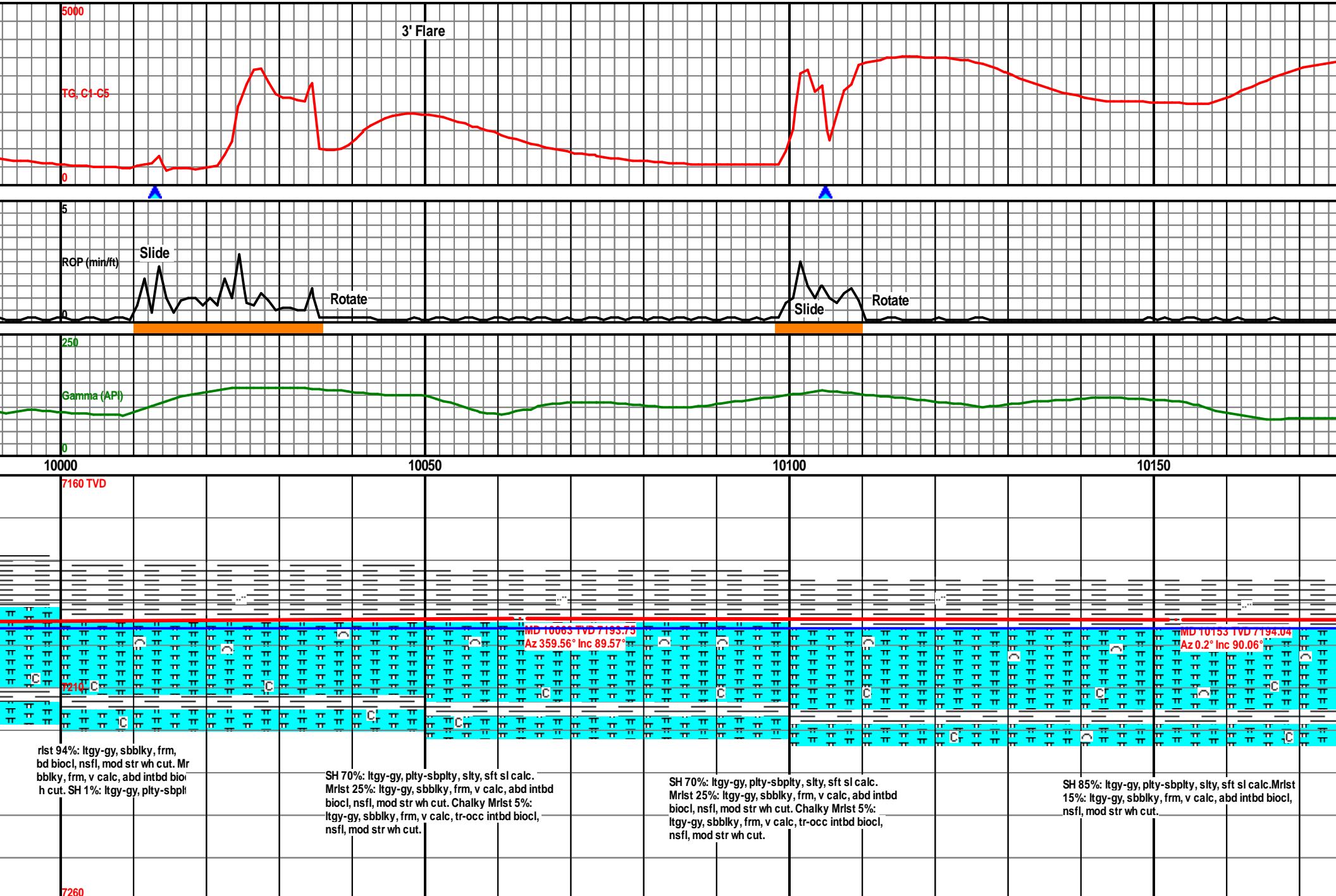


VIS: 45

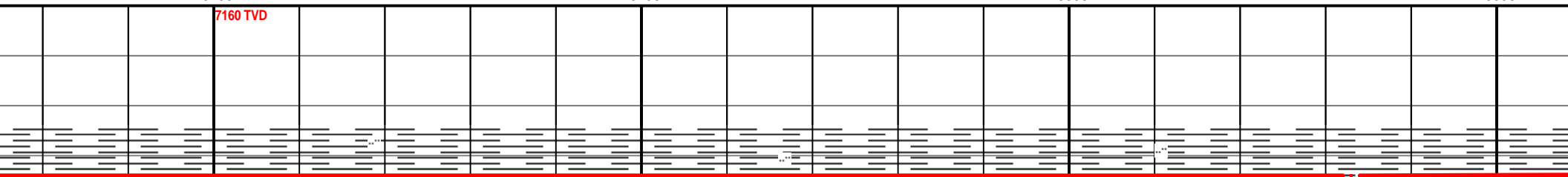
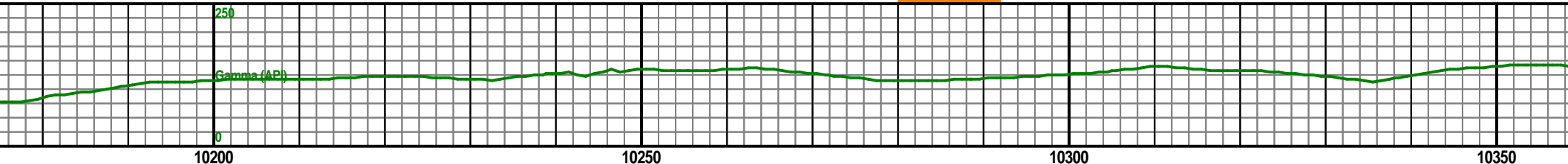
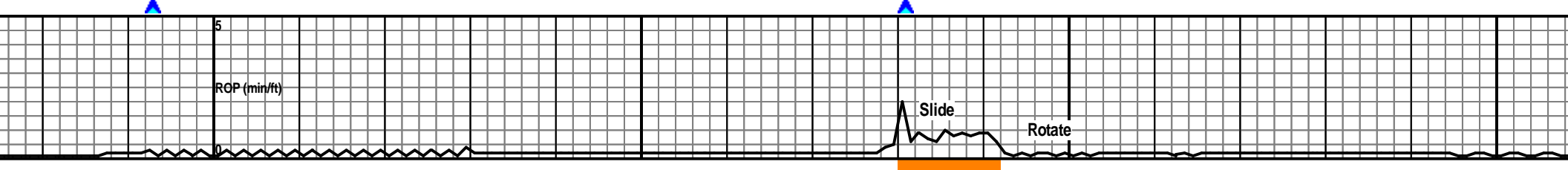
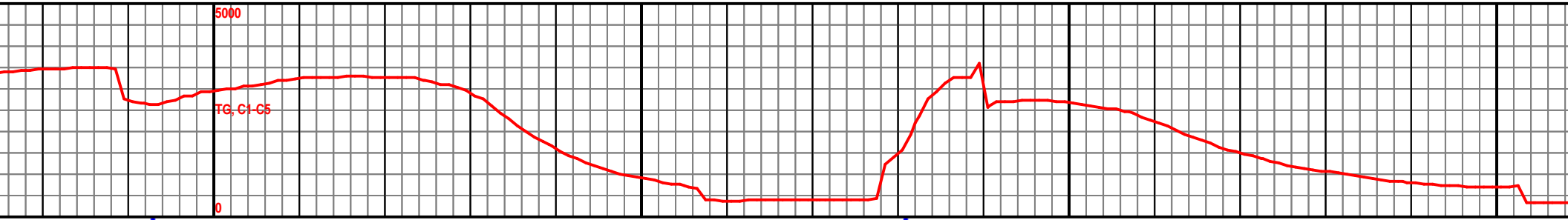
MW IN: 9.4 VIS: 45 OUT: 9.4 VIS: 44



MW IN: 9.4 VIS: 45 OUT: 9.4 VIS: 45



MW IN: 9.4 VIS: 46 OUT: 9.4 VIS: 45



SH 85%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 15%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut.

SH 95%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut.

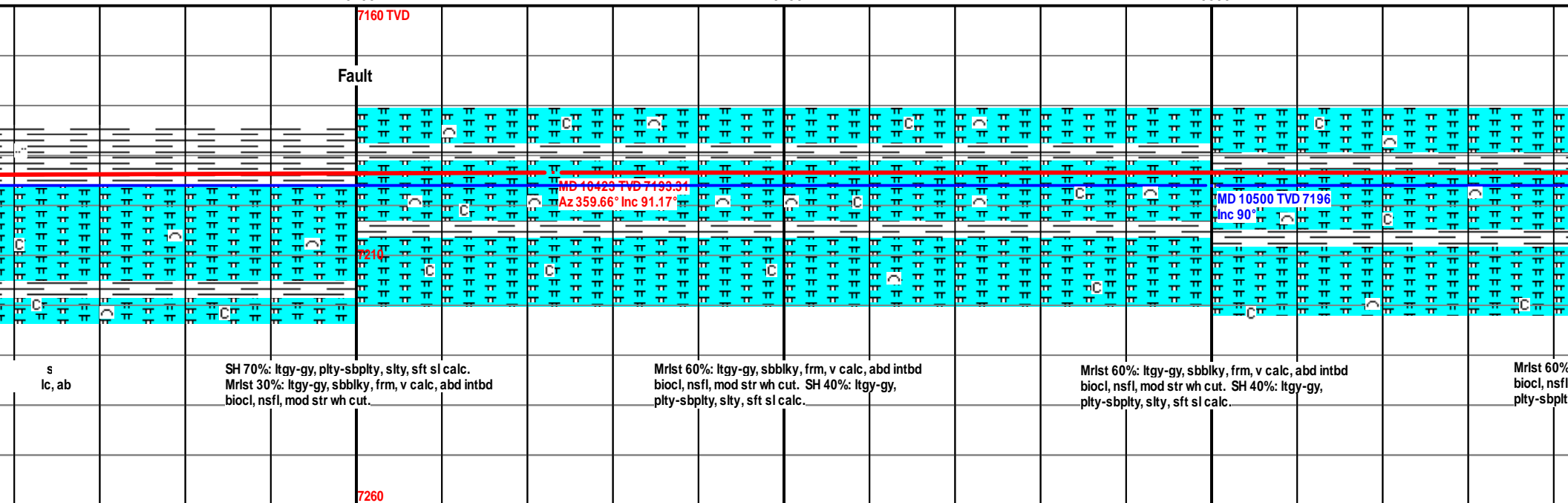
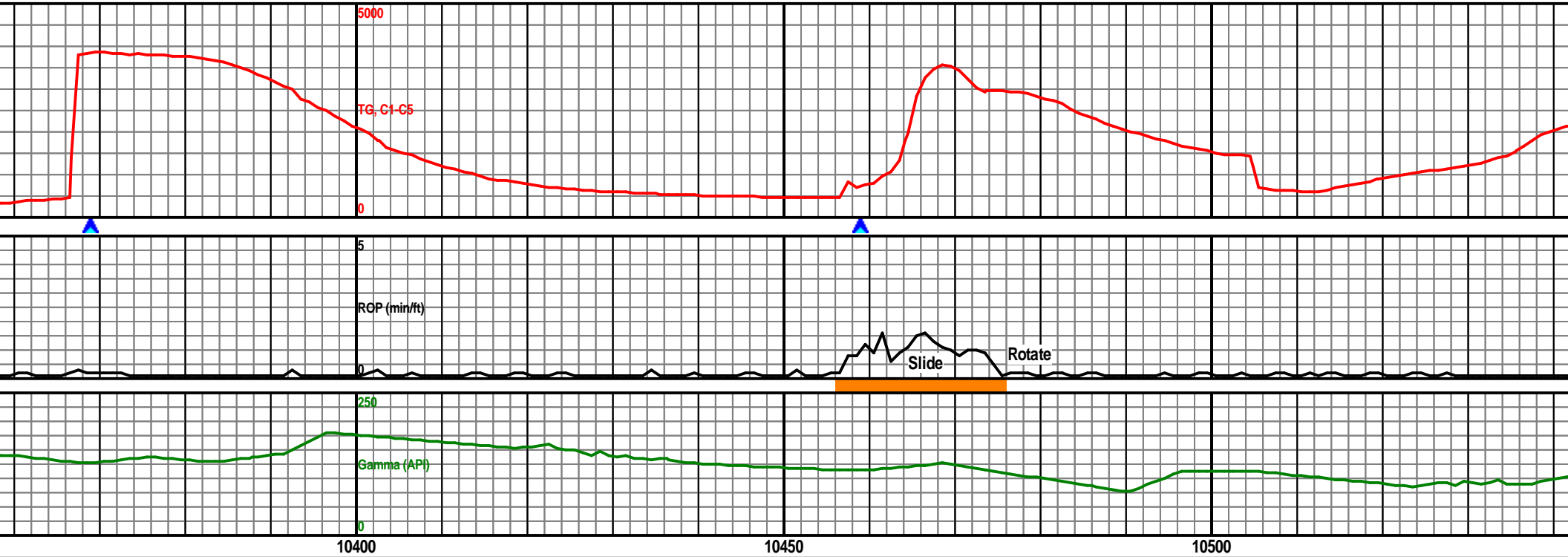
SH 95%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 5%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut.

SH 70%: ltgy-gy, plty-sbplty, slty, sft sl calc.
Mrlst 30%: ltgy-gy, sbblky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut.

MD 10333 TVD 7194.14
Az 359.9° Inc 89.88°

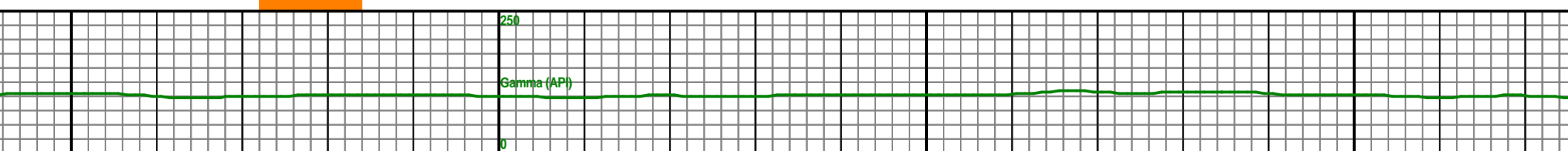
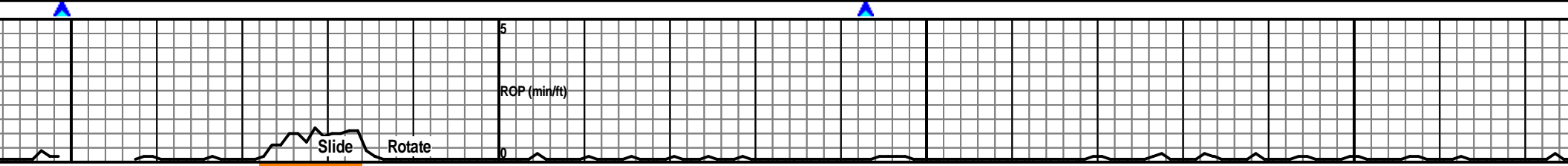
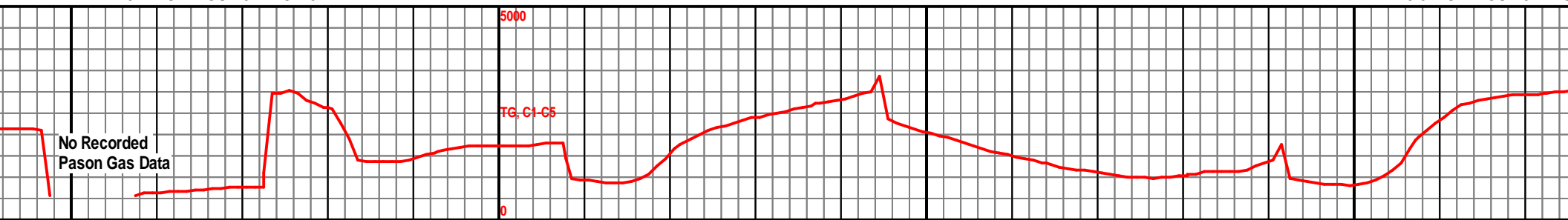
7260

MW IN: 9.4 VIS: 45 OUT: 9.4 VIS: 46



MW IN: 9.4 VIS: 47 OUT: 9.4 VIS: 45

MW IN: 9.3 VIS: 47 OUT: 9.4 VIS: 45

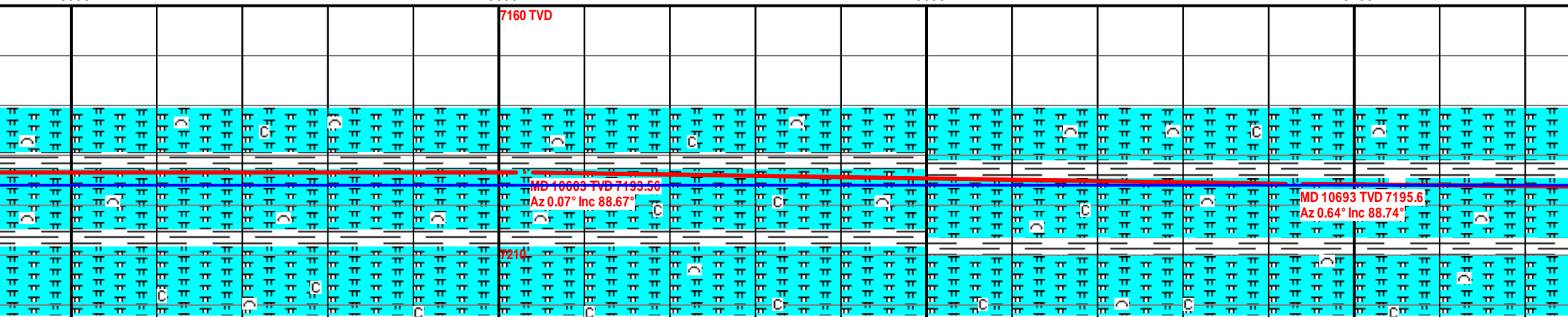


10550

10600

10650

10700



: ltgy-gy, sbbiky, frm, v calc, ab
, mod str wh cut. SH 40%: l
y, slty, sft

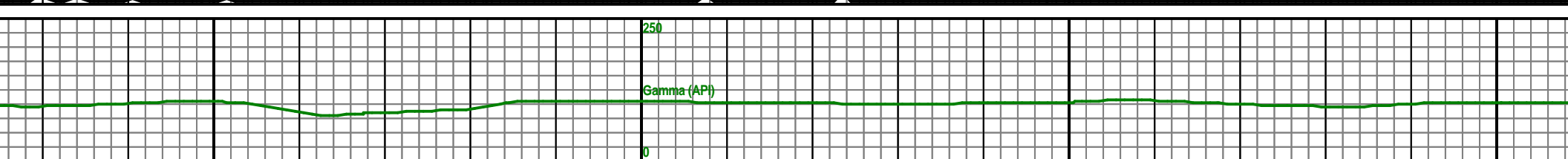
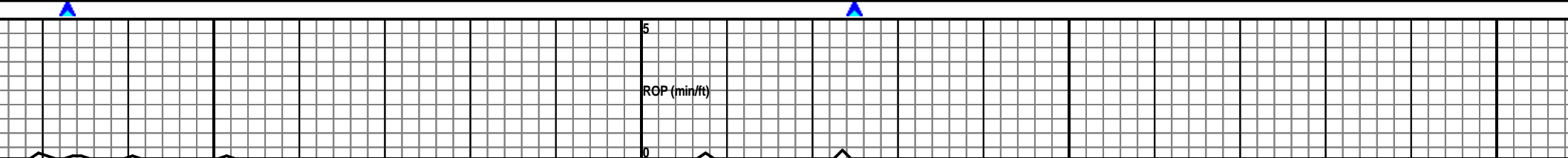
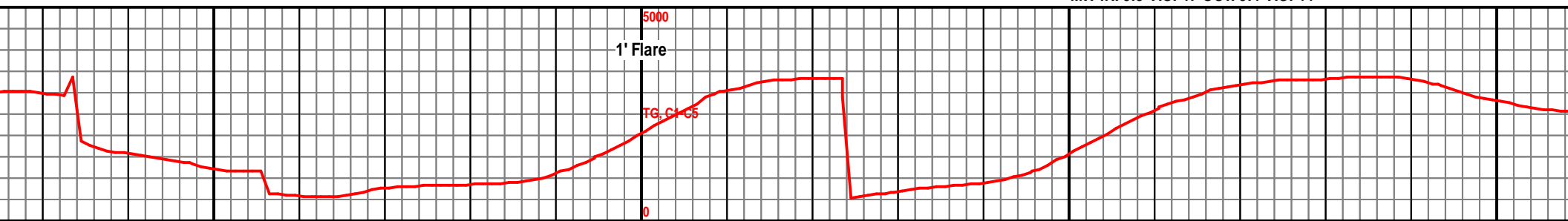
Mrst 60%: ltgy-gy, sbbiky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut. SH 40%: ltgy-gy,
pty-sbply, slty, sft sl calc.

Mrst 95%: ltgy-gy, sbbiky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut. SH 5%: ltgy-gy,
pty-sbply, slty, sft sl calc.

Mrst 95%: ltgy-gy, sbbiky, frm, v calc, abd intbd
biocl, nsfl, mod str wh cut. SH 5%: ltgy-gy,
pty-sbply, slty, sft sl calc.

7260

MW IN: 9.3 VIS: 47 OUT: 9.4 VIS: 44

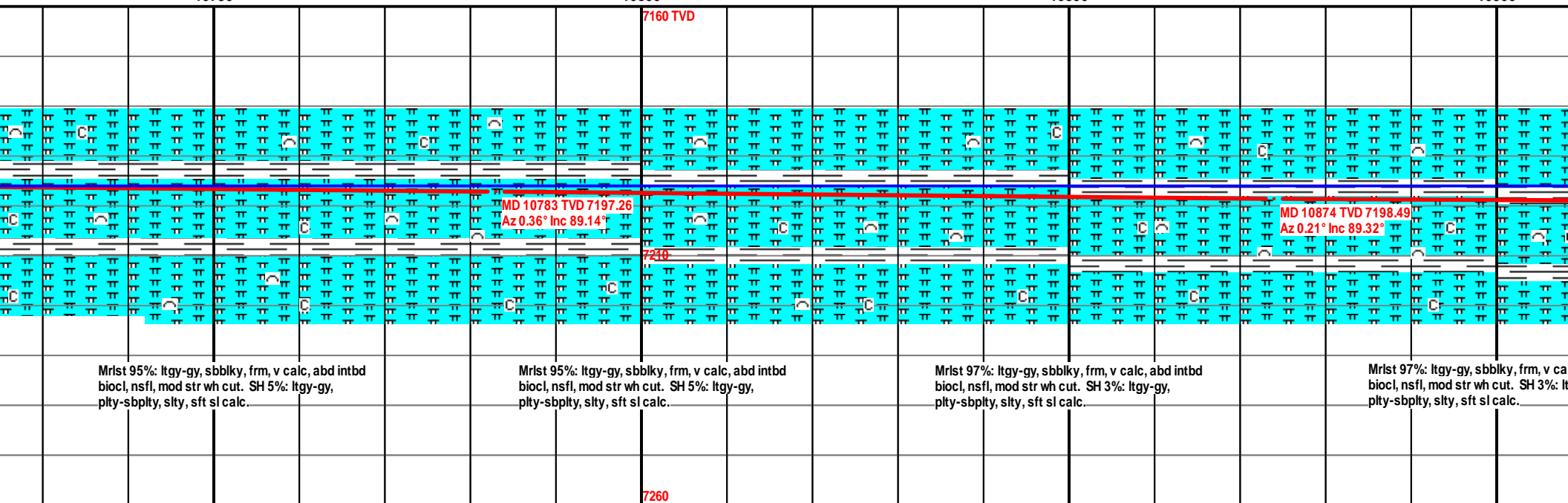


10750

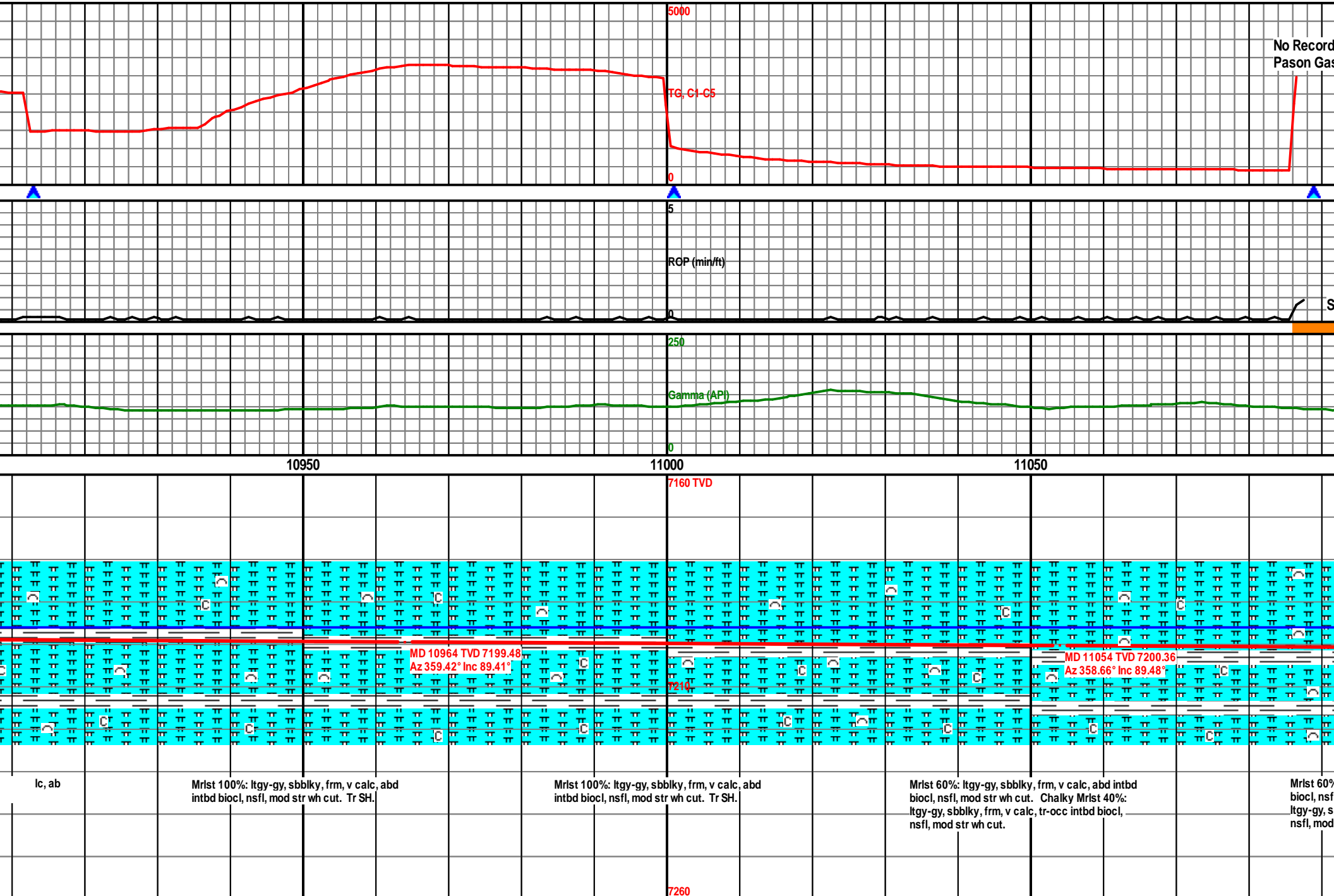
10800

10850

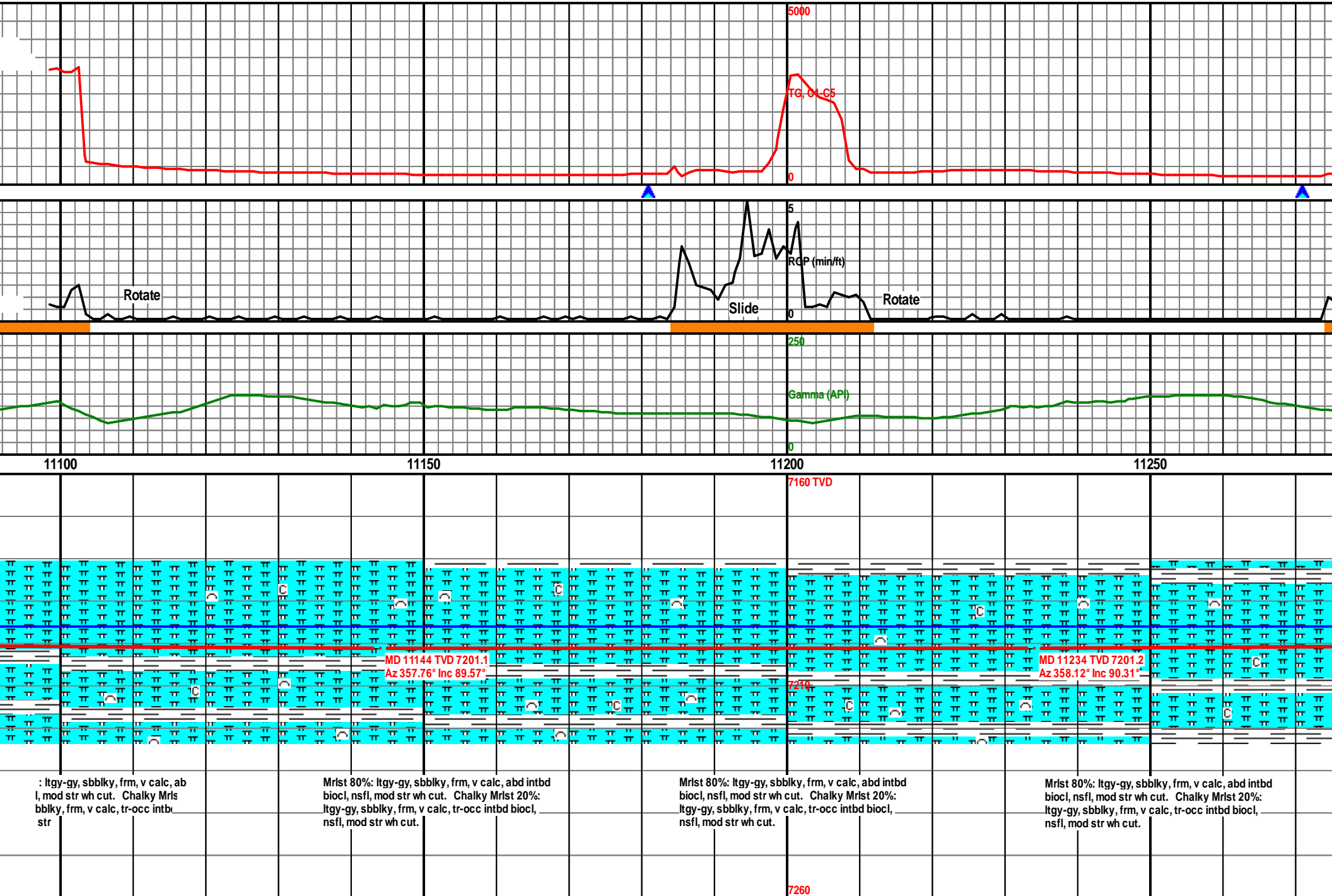
10900



MW IN: 9.5 VIS: 45 OUT: 9.3 VIS: 45

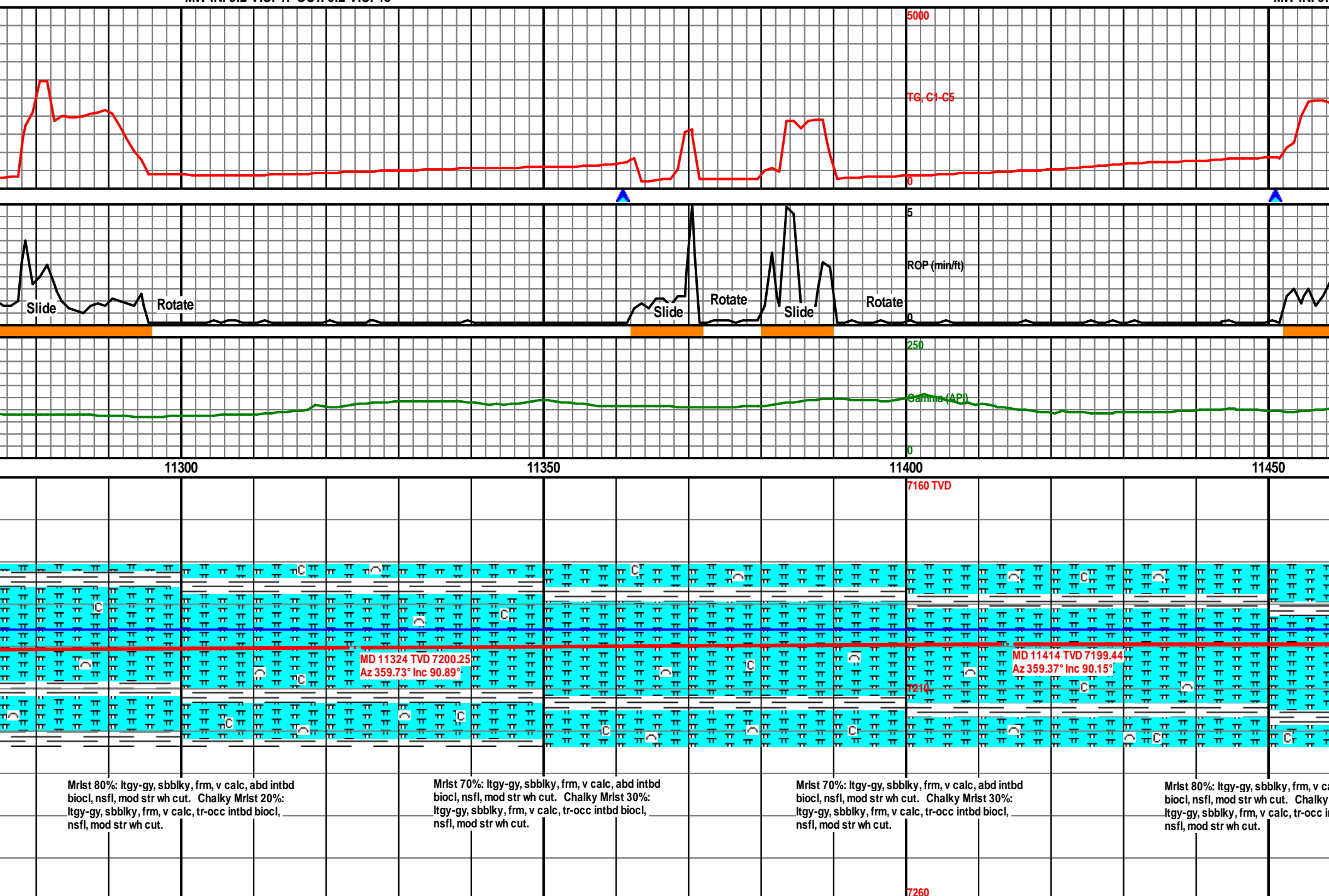


MW IN: 9.5 VIS: 45 OUT: 9.3 VIS: 45



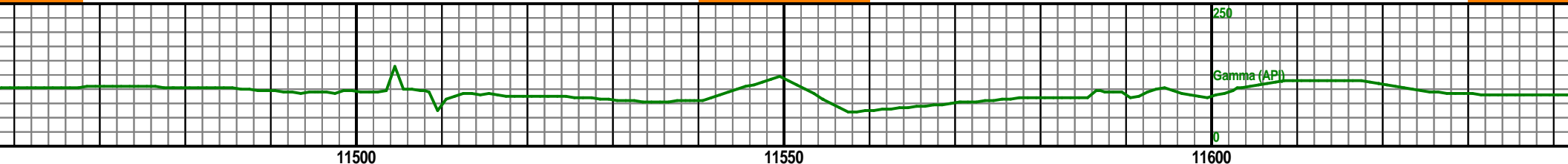
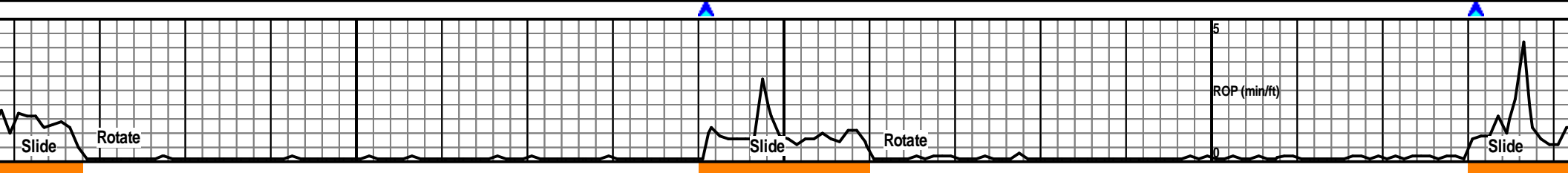
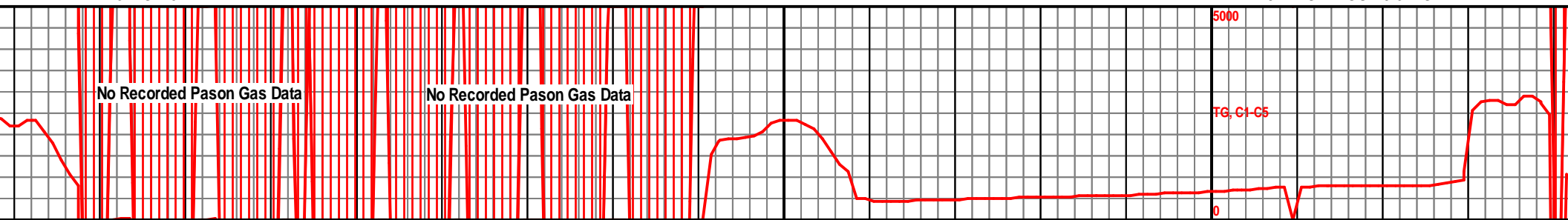
MW IN: 9.2 VIS: 47 OUT: 9.2 VIS: 43

MW IN: 9.2 VIS: 43



3 VIS: 45

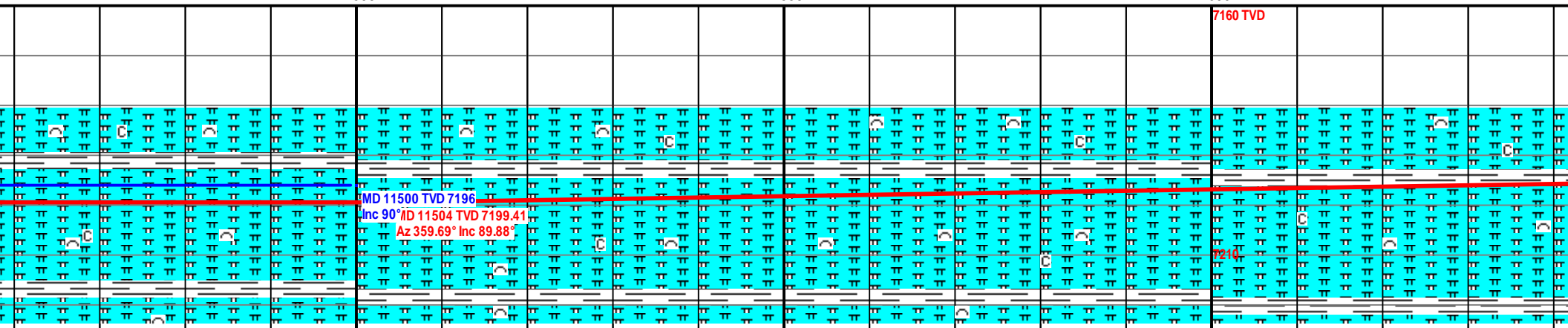
MW IN: 9.2 VIS: 44 OUT: 9.3 VIS: 44



11500

11550

11600



lc, ab
Mrst
tbl

Mrst 80%: ltgy-gy, sbbiky, frm, v calc, abd intbd biocl, nsfl, mod str wh cut. Chalky Mrst 20%: ltgy-gy, sbbiky, frm, v calc, tr-occ intbd biocl, nsfl, mod str wh cut.

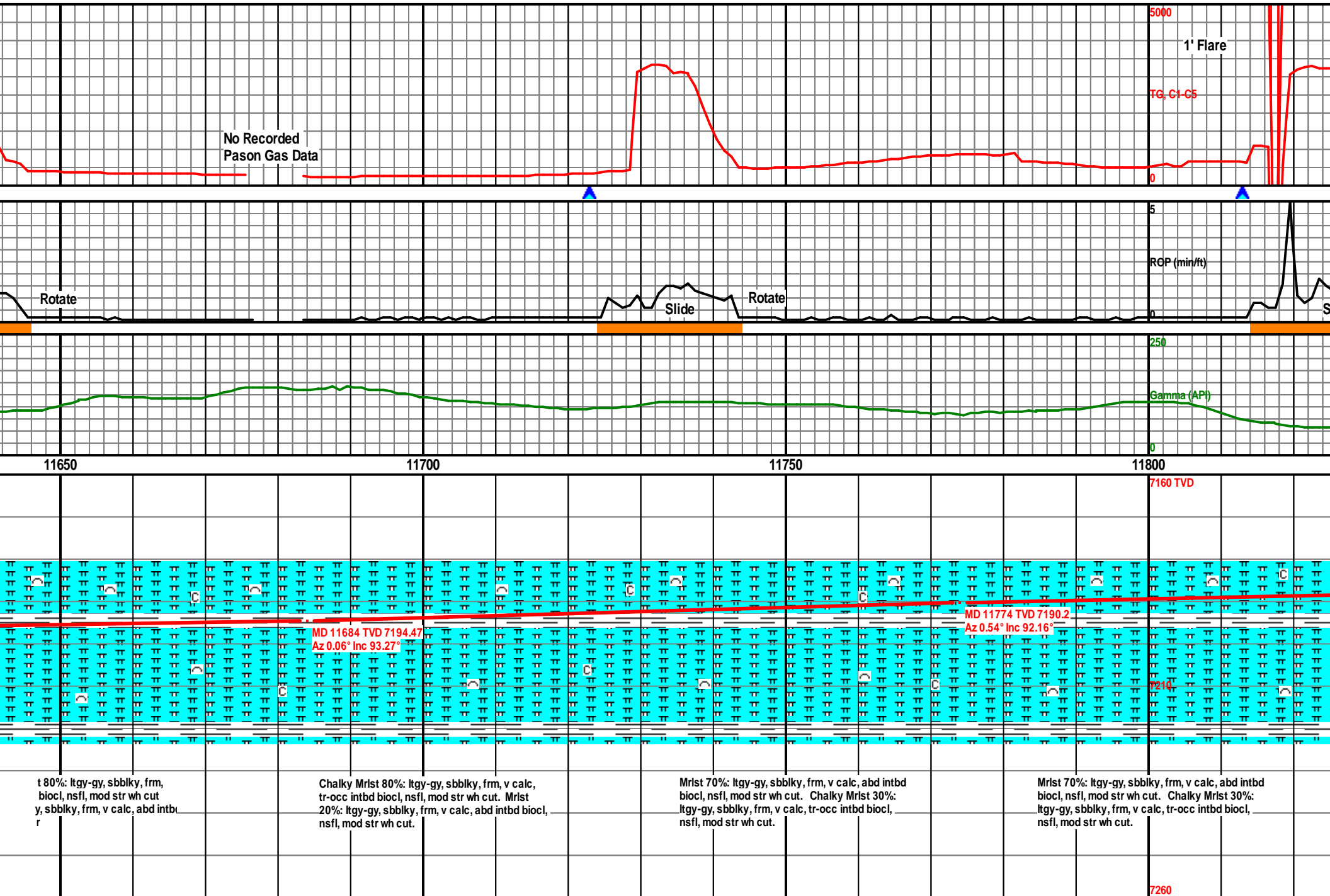
Mrst 70%: ltgy-gy, sbbiky, frm, v calc, abd intbd biocl, nsfl, mod str wh cut. Chalky Mrst 30%: ltgy-gy, sbbiky, frm, v calc, tr-occ intbd biocl, nsfl, mod str wh cut.

Mrst 70%: ltgy-gy, sbbiky, frm, v calc, abd intbd biocl, nsfl, mod str wh cut. Chalky Mrst 30%: ltgy-gy, sbbiky, frm, v calc, tr-occ intbd biocl, nsfl, mod str wh cut.

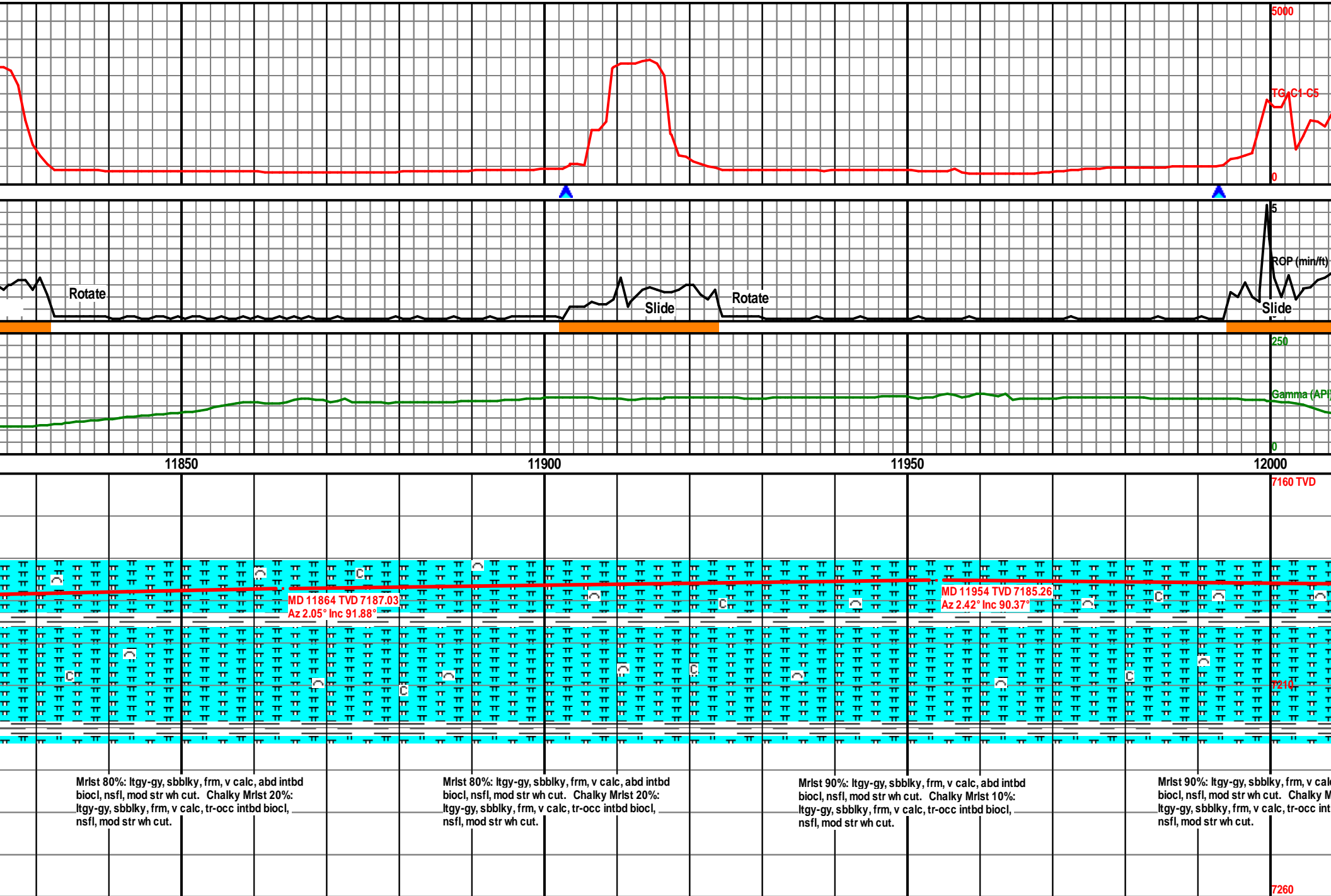
Chalky Mrst tr-occ intbd 20%: ltgy-gy, nsfl, mod str wh cut.

7260

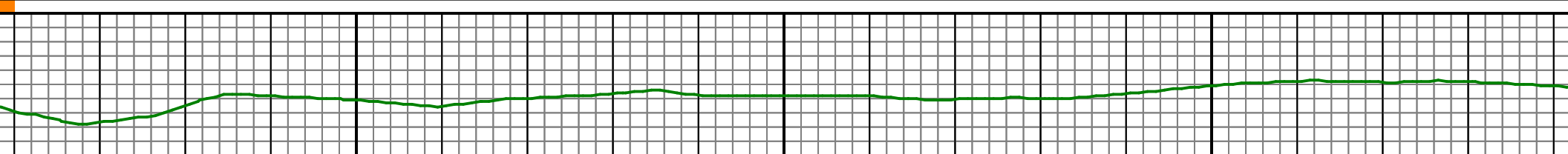
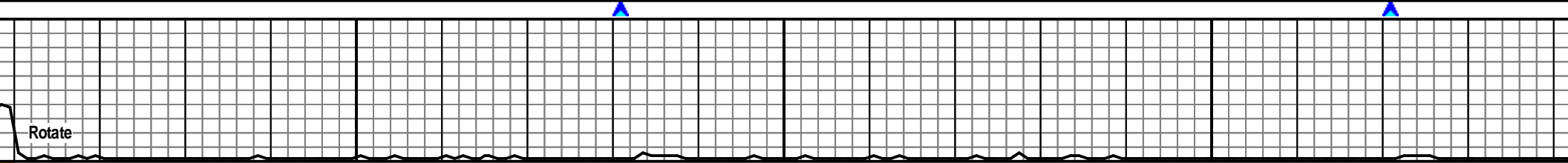
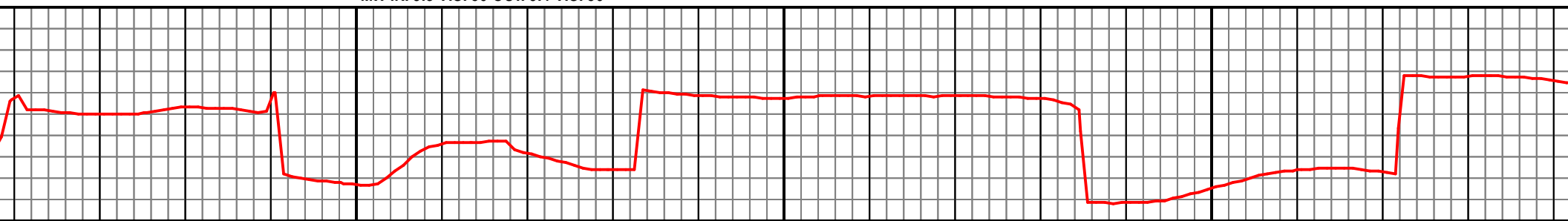
MW IN: 9.5 VIS: 47 OUT: 9.4 VIS: 44



MW IN: 9.3 VIS: 48 OUT: 9.3 VIS: 45



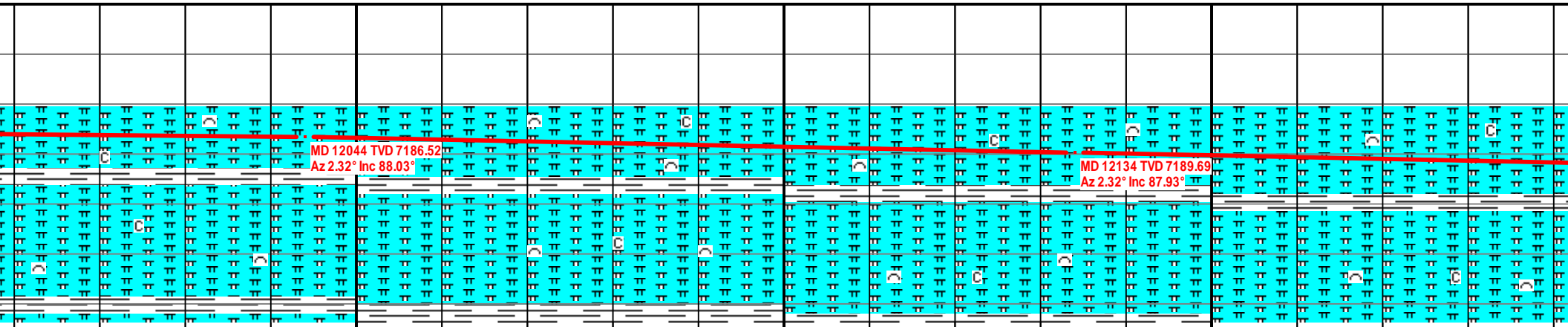
MW IN: 9.3 VIS: 50 OUT: 9.4 VIS: 50



12050

12100

12150



, ab
rls
bl

Mrlst 100%: ltgy-gy, sbblky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

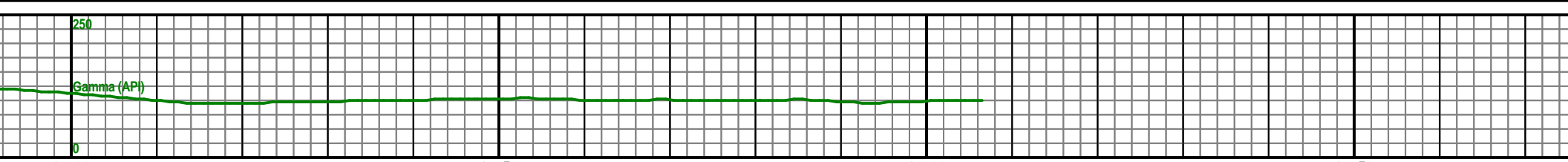
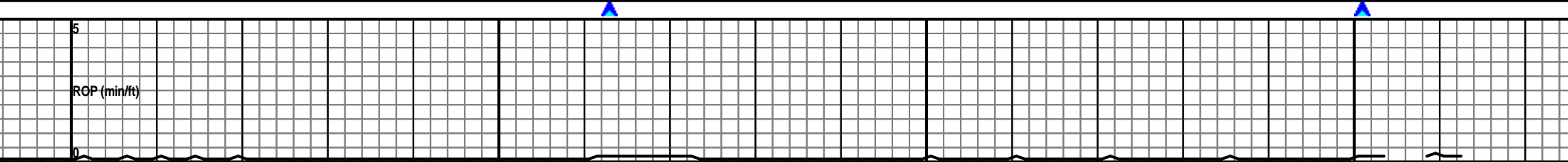
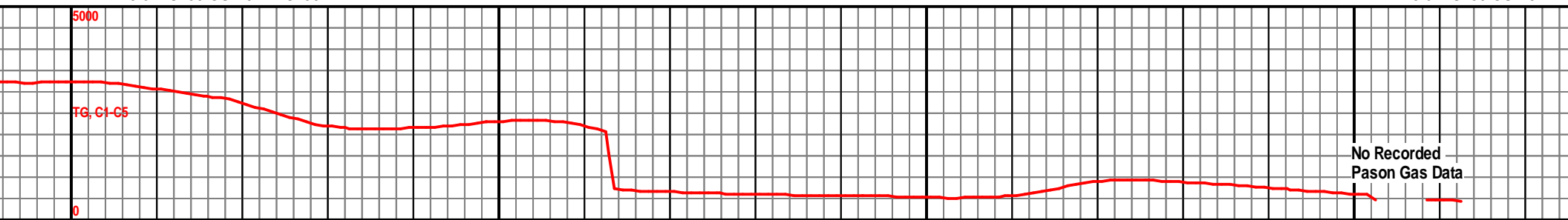
Mrlst 100%: ltgy-gy, sbblky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

Mrlst 100%: ltgy-gy, sbblky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

Mrlst 100%
intbd biocl

MW IN: 9.3 VIS: 50 OUT: 9.4 VIS: 50

MW IN: 9.3 VIS: 50 OUT: 9.4 VIS: 50



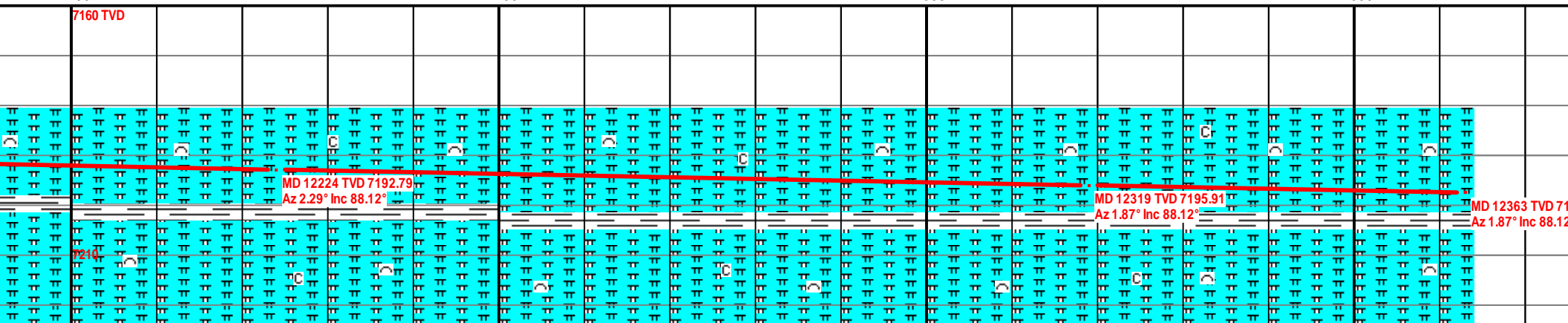
12200

12250

12300

12350

7160 TVD



: ltgy-gy, sbbiky, frm, v ca
l, nsfl, mod str wh cut. Tr Chalk

Mrlst 100%: ltgy-gy, sbbiky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

Mrlst 100%: ltgy-gy, sbbiky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

Mrlst 100%: ltgy-gy, sbbiky, frm, v calc, abd
intbd biocl, nsfl, mod str wh cut. Tr Chalky Mrlst.

7260

[illegible][illegible]