Scale 1:200 Imperial
Measured Depth Log

Well Name:	**NRC 27C-4HZ**		
Location:	**Weld County, CO.**		
License Number:	**05123389970000**	**Region:**	**DJ Basin**
Spud Date:	**4/5/2014**	**Drilling Completed:**	**5/1/2014**
Surface Coordinates:	**295'FSL & 690'FEL, SEC 09, T1N-R67W**		
Bottom Hole Coordinates:	**460'FNL & 1040'FEL, SEC 04, T1N-R67W**		
Ground Elevation (ft):	**5046'**	**K.B. Elevation (ft):**	**5062'**
Logged Interval (ft):	**7650' To: 17383'**	**Total Depth (ft):**	**17383'**
Formation:	**Codell**		
Type of Drilling Fluid:	**Water Base Mud Vertical / Oil Base Mud Horizontal**		

OPERATOR

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

GEOLOGIST

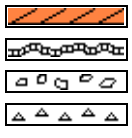
Name: Scott Crozier / Ben Thompson
Company: Great Divide Consulting, Inc.
Address: P.O. Box 630263
Highlands Ranch, CO 80163

Cores

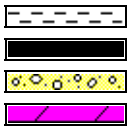
DSTs

Comments

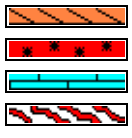
ROCK TYPES



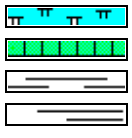
Anhy
Bent
Brec
Cht



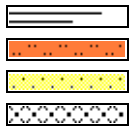
Clyst
Coal
Congl
Dol



Gyp
Igne
Lmst
Meta



Mrlst
Salt
Shale
Shcol



Shgy
Sltst
Ss
Till

ACCESSORIES

MINERAL

Anhy
Arggrn
Arg
Bent
Bit
Brecfrag
Calc
Carb
Chtdk
Chtlt
Dol
Feldspar
Ferrpel
Ferr
Glau

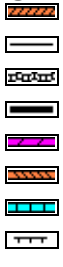
Gyp
Hvymin
Kaol
Marl
Minxl
Nodule
Phos
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff

FOSSIL

Algae
Amph
Belm
Bioclst
Brach
Bryozoa
Cephal
Coral
Crin
Echin
Fish
Foram
Fossil
Gastro
Oolite

Ostra
Pelec
Pellet
Pisolite
Plant
Strom

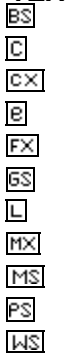
STRINGER



Anhy
Arg
Bent
Coal
Dol
Gyp
Ls
Mrst

Sltstrg
Ssstrg

TEXTURE



Boundst
Chalky
Cryxln
Earthy
Finexln
Grainst
Lithogr
Microxln
Mudst
Packst
Wackest

OTHER SYMBOLS

POROSITY
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

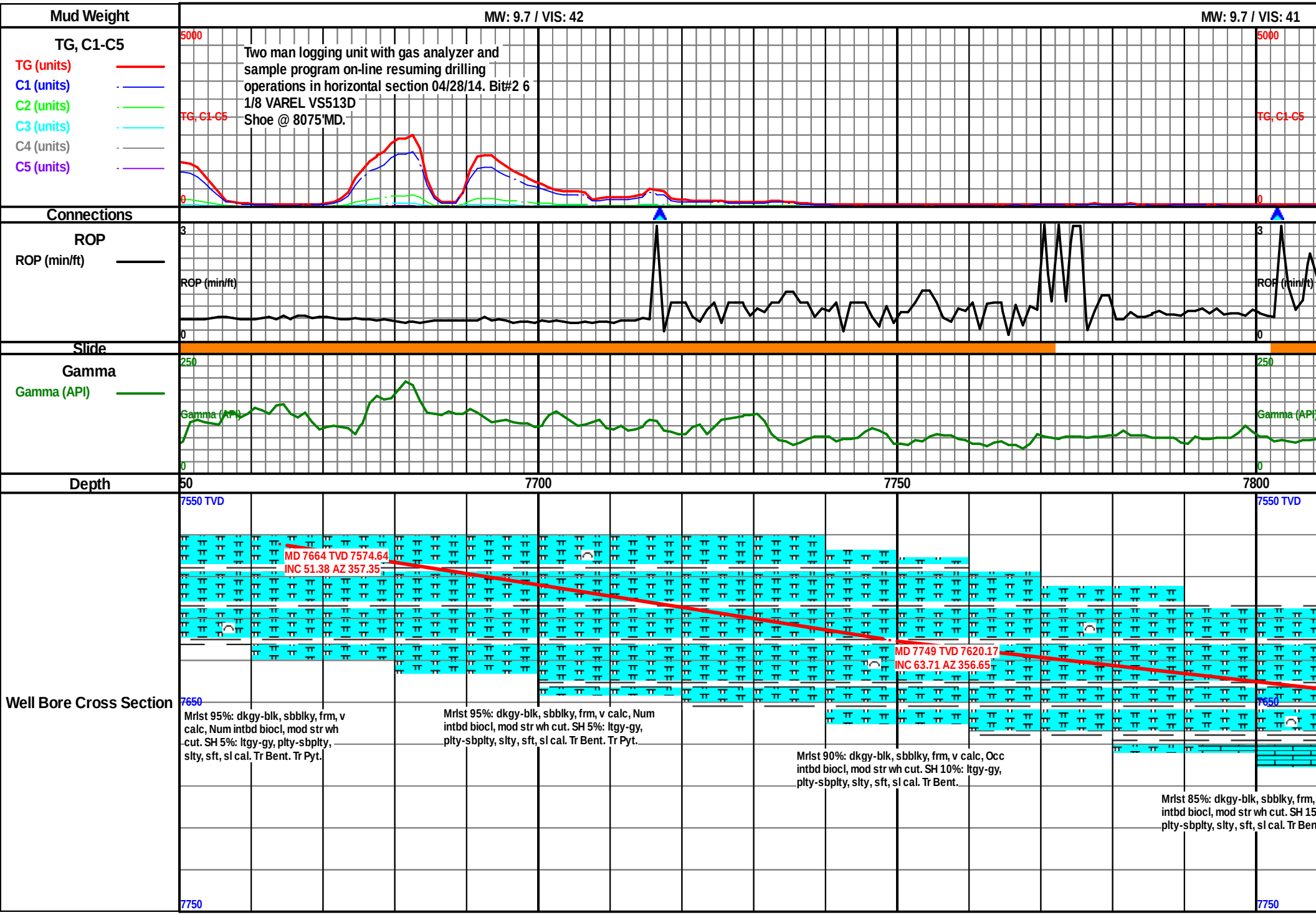
SORTING
- Well
- Moderate
- Poor

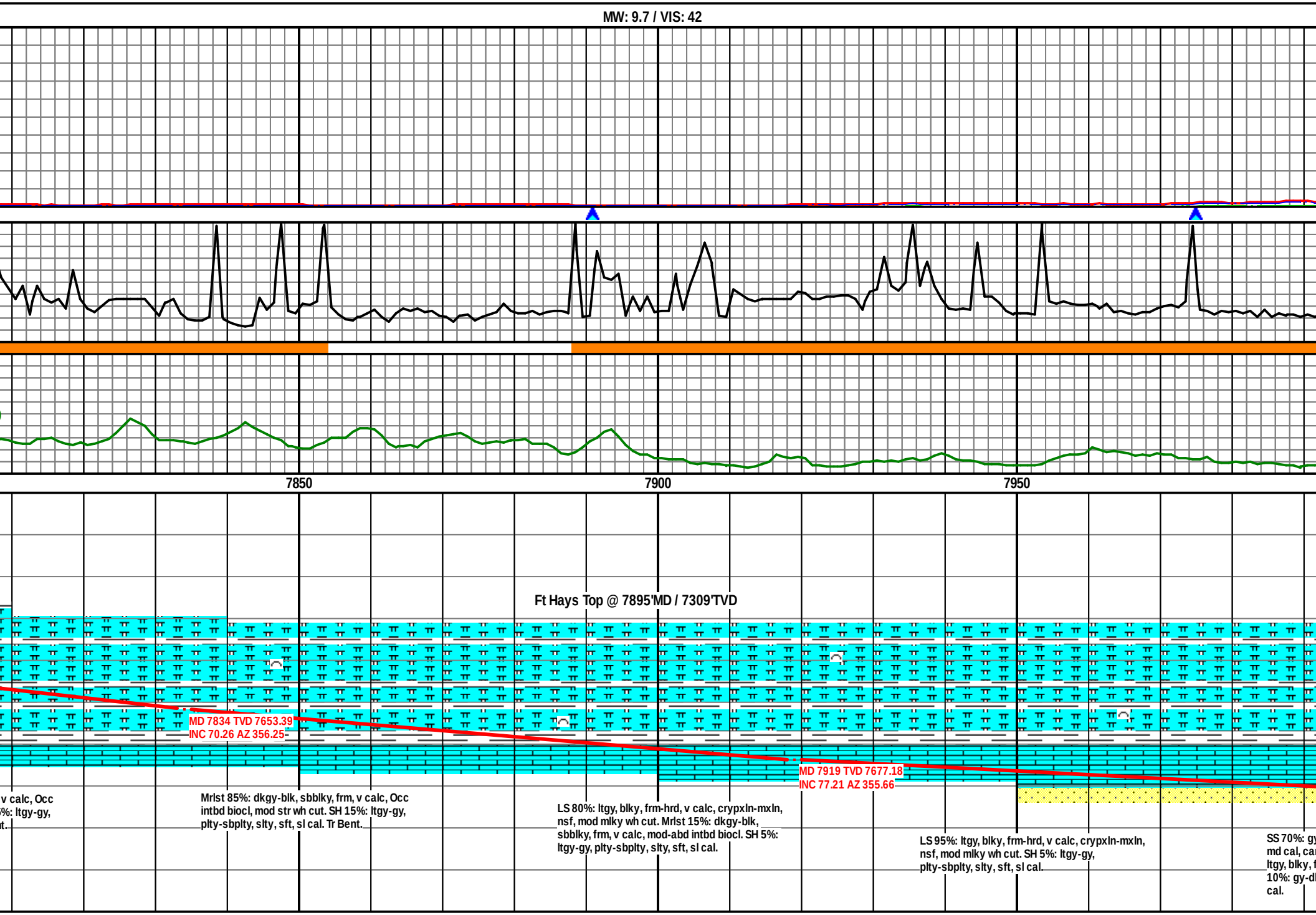
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

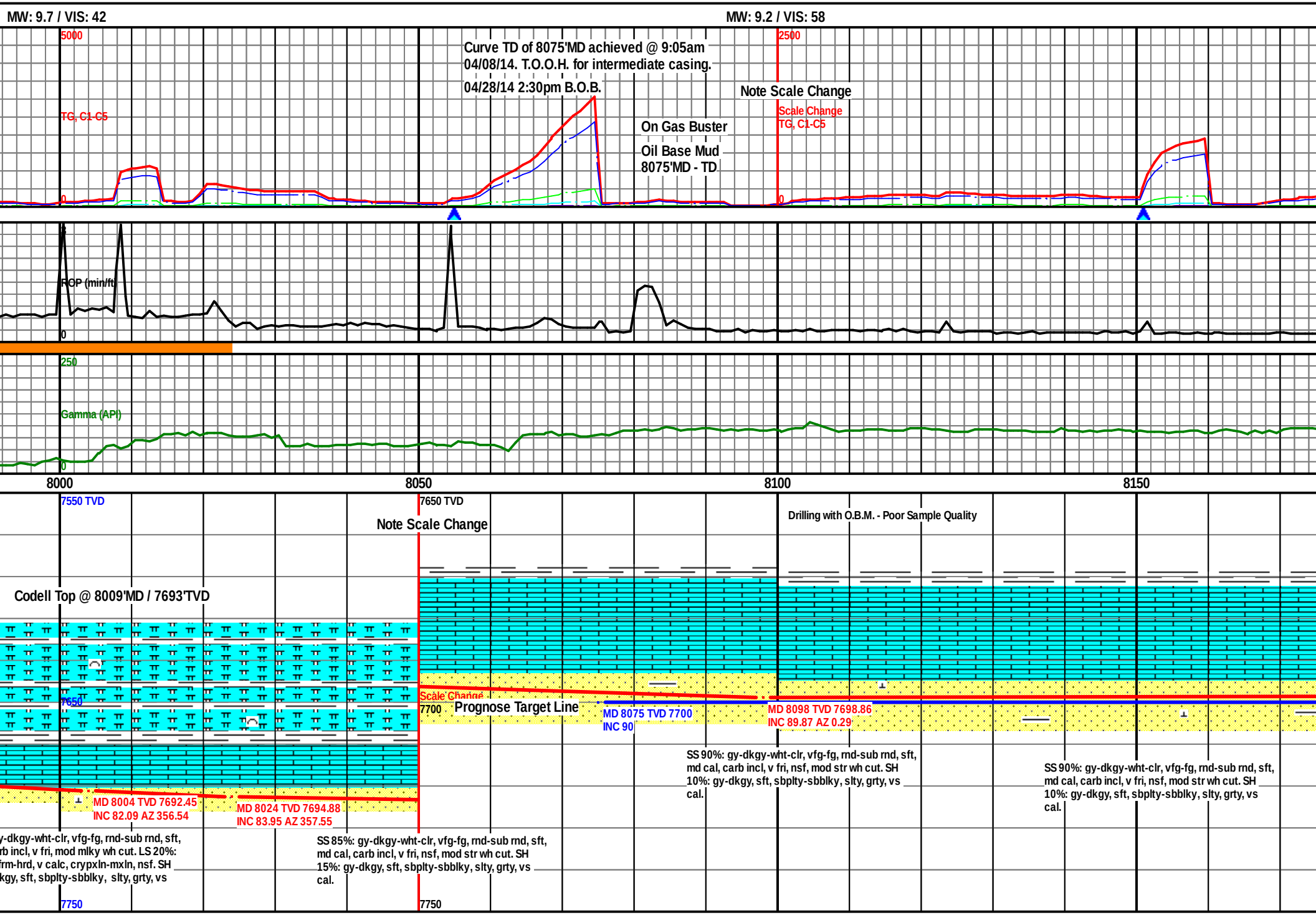
OIL SHOW
- Even
- Spotted
- Ques
- Dead

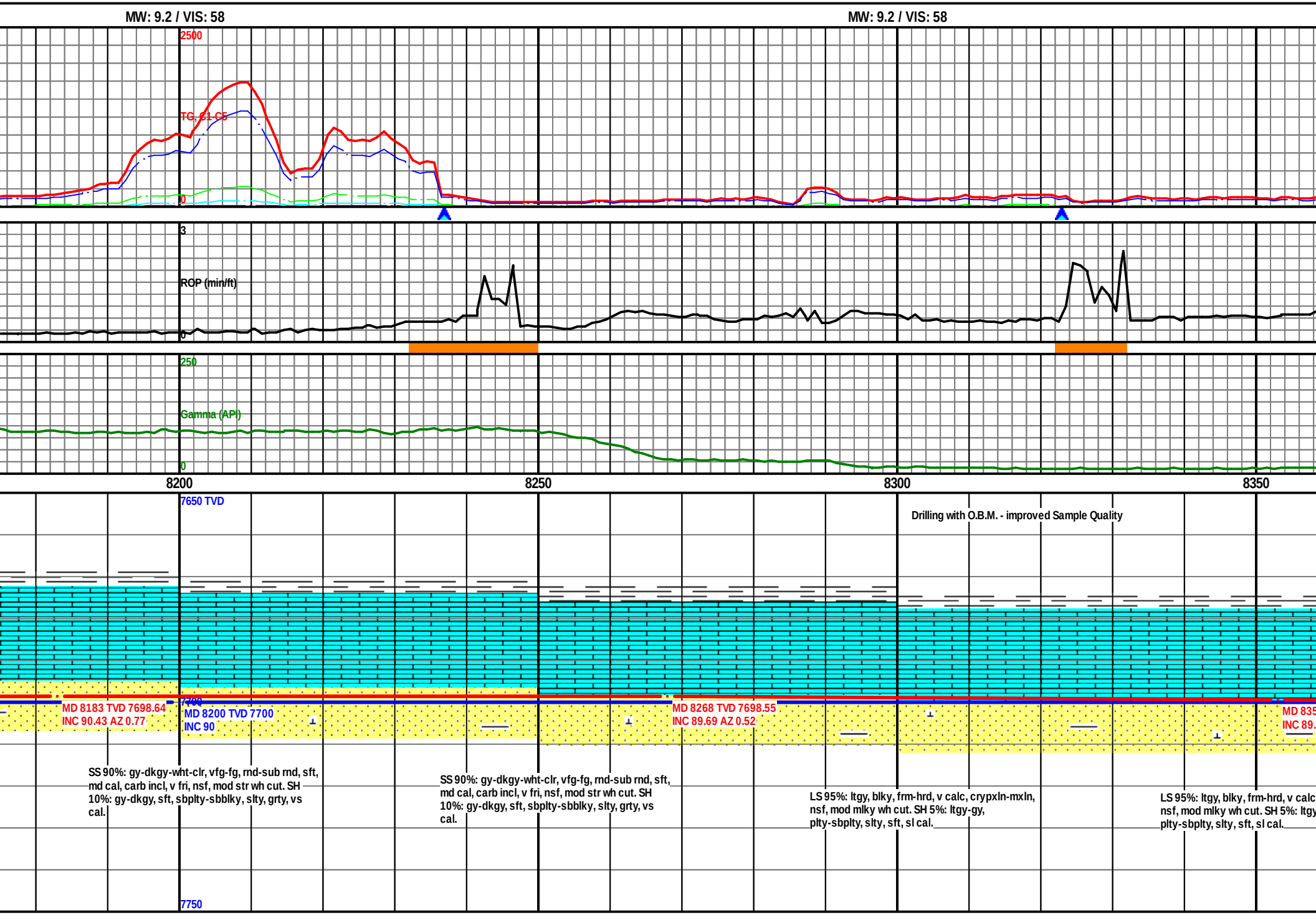
INTERVAL
- Core
- Dst

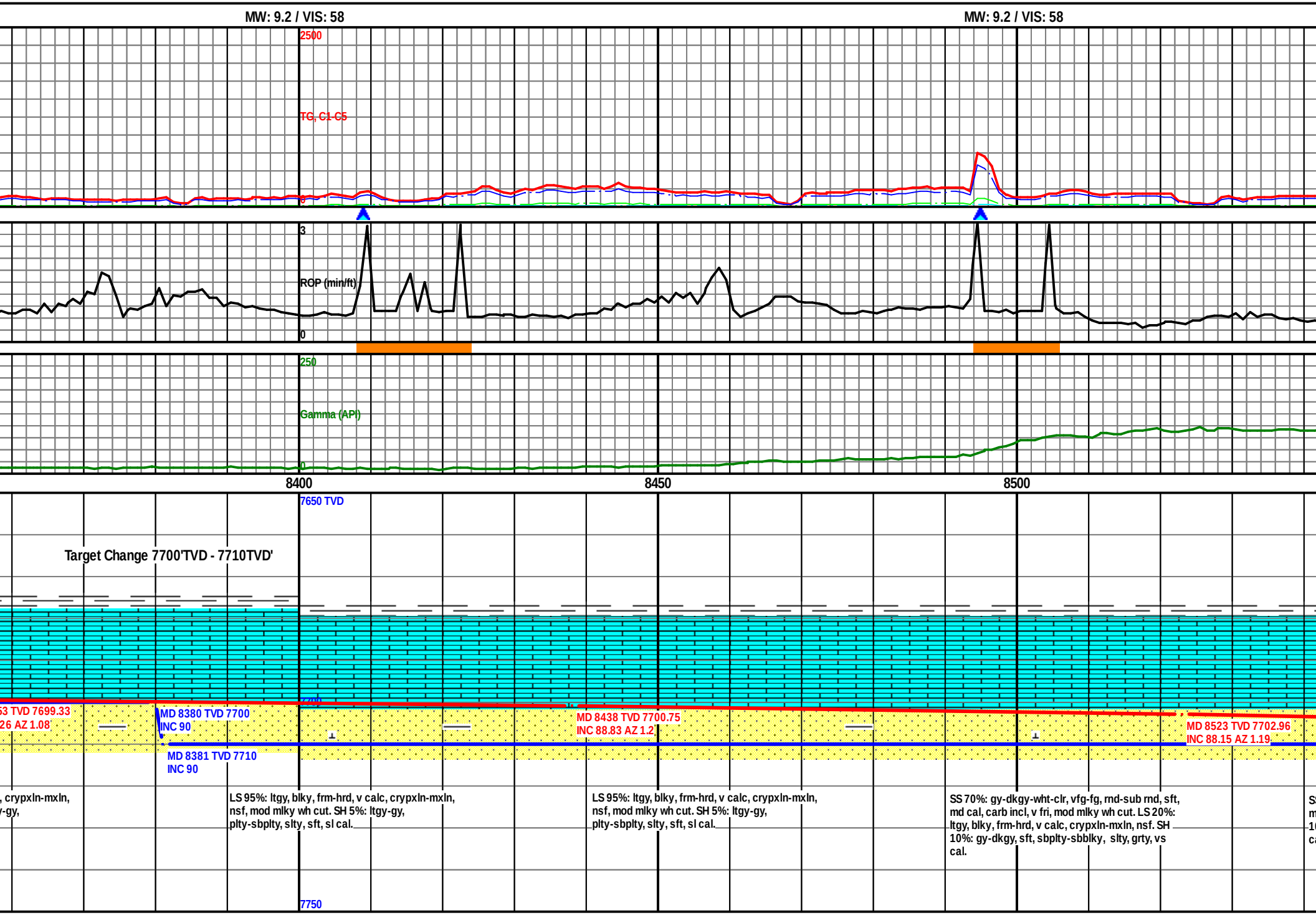
EVENT
- Rft
- Connection

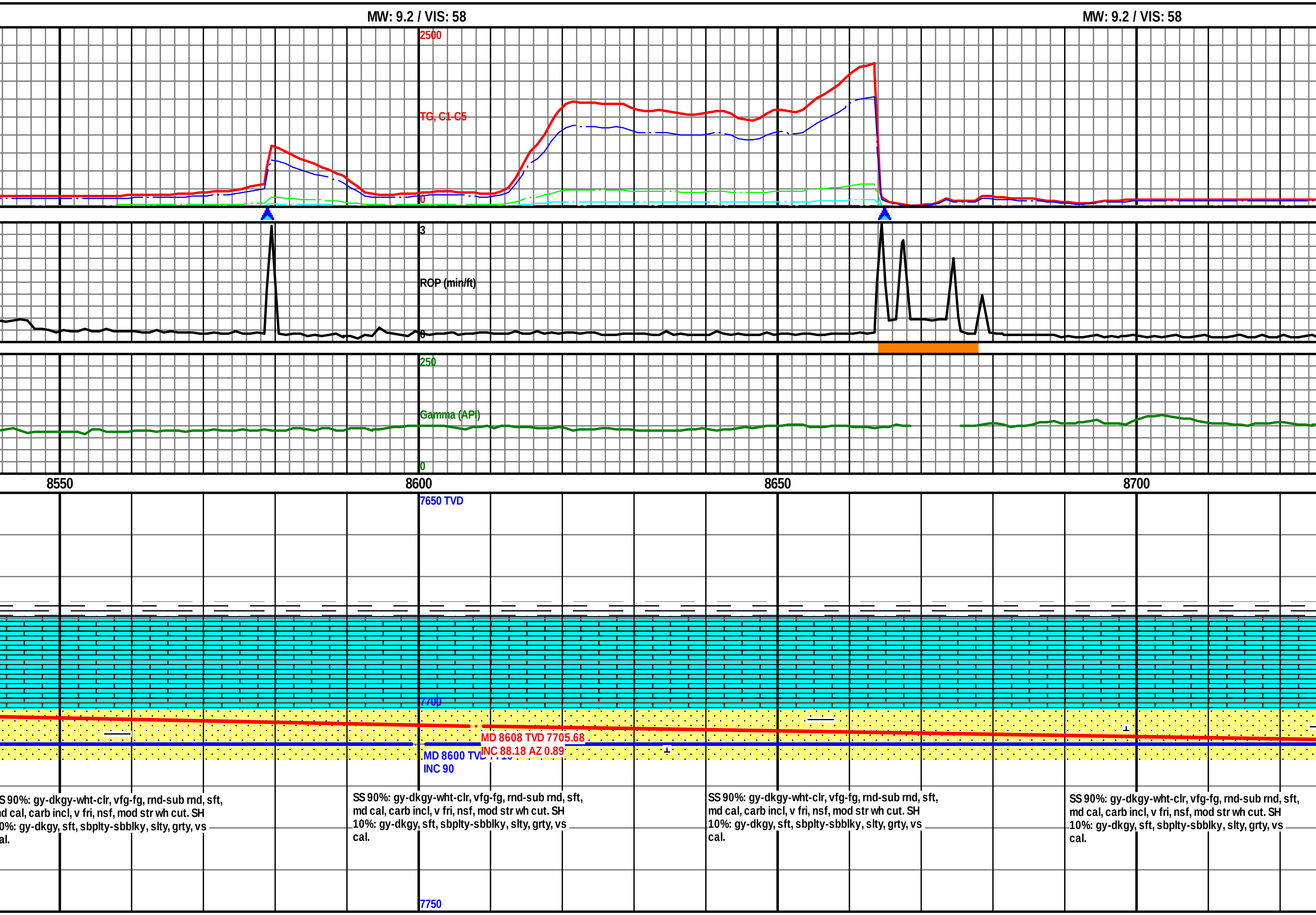

Mud Weight
MW: 9.7 / VIS: 42
MW: 9.7 / VIS: 41
TG, C1-C5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
5000
TG, C1-C5
0
Two man logging unit with gas analyzer and sample program on-line resuming drilling operations in horizontal section 04/28/14. Bit#2 6 1/8 VAREL VS513D Shoe @ 8075'MD.
Connections
ROP
ROP (min/ft)
3
0
Slide
Gamma
Gamma (API)
250
Depth
50
7700
7750
7800
Well Bore Cross Section
7550 TVD
7650
7750
MD 7664 TVD 7574.64
INC 51.38 AZ 357.35
MD 7749 TVD 7620.17
INC 63.71 AZ 356.65
Mrlst 95%: dkgy-blk, sbblky, frm, v calc, Num intbd biocl, mod str wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal. Tr Bent. Tr Pyt.
Mrlst 95%: dkgy-blk, sbblky, frm, v calc, Num intbd biocl, mod str wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal. Tr Bent. Tr Pyt.
Mrlst 90%: dkgy-blk, sbblky, frm, v calc, Occ intbd biocl, mod str wh cut. SH 10%: ltgy-gy, plty-sbplty, slty, sft, sl cal. Tr Bent.
Mrlst 85%: dkgy-blk, sbblky, frm, intbd biocl, mod str wh cut. SH 15 plty-sbplty, slty, sft, sl cal. Tr Ben

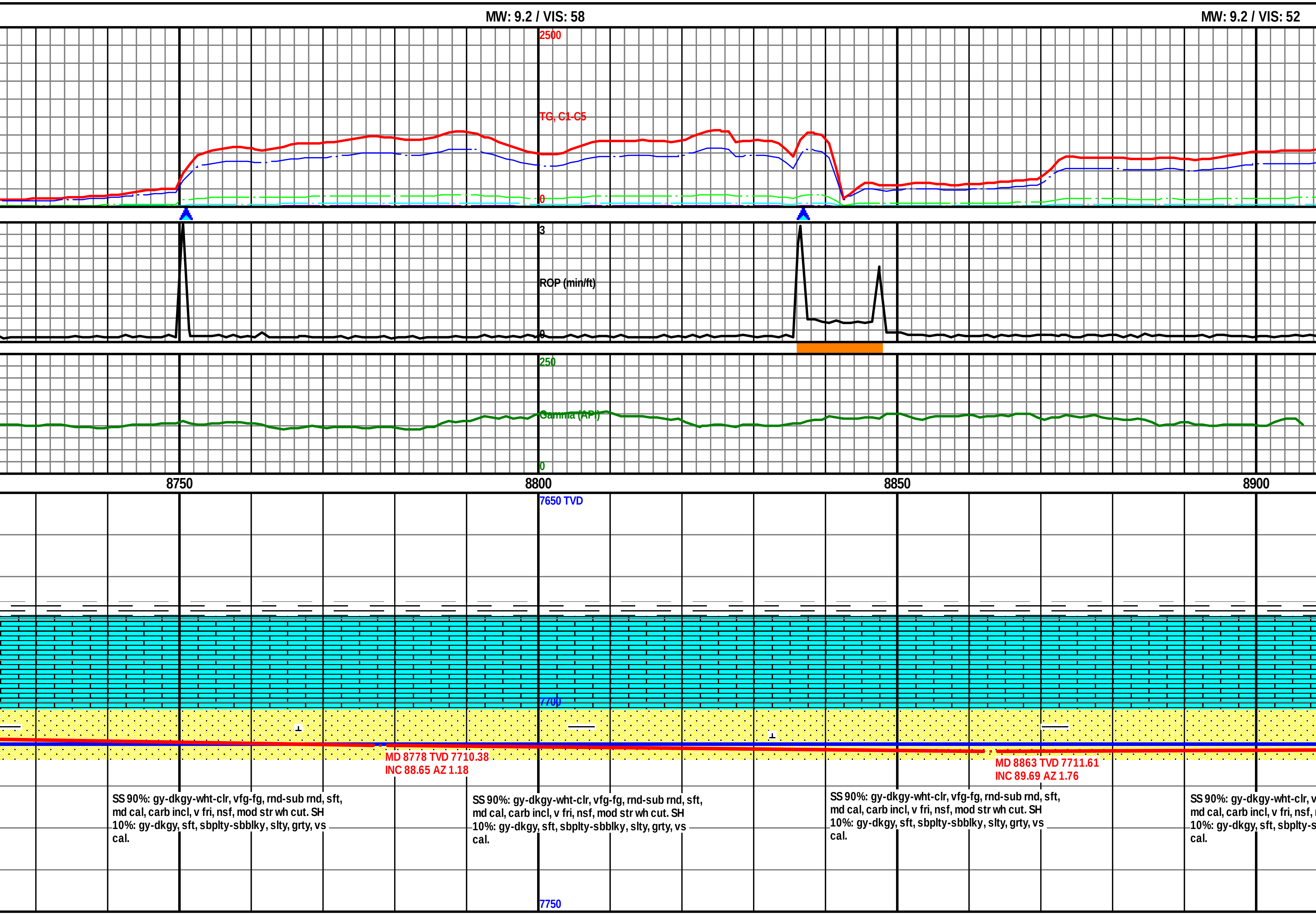

MW: 9.7 / VIS: 42
7850
7900
7950
Ft Hays Top @ 7895'MD / 7309'TVD
MD 7834 TVD 7653.39
INC 70.26 AZ 356.25
MD 7919 TVD 7677.18
INC 77.21 AZ 355.66
v calc, Occ
%: ltgy-gy,
t.
Mrlst 85%: dkgy-blk, sbblky, frm, v calc, Occ
intbd biocl, mod str wh cut. SH 15%: ltgy-gy,
plty-sbplty, slty, sft, sl cal. Tr Bent.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. Mrlst 15%: dkgy-blk,
sbblky, frm, v calc, mod-abd intbd biocl. SH 5%:
ltgy-gy, plty-sbplty, slty, sft, sl cal.
LS 95%: ltgy, blky, frm-hrd, v calc, crypxln-mxln,
nsf, mod mlky wh cut. SH 5%: ltgy-gy,
plty-sbplty, slty, sft, sl cal.
SS 70%: g
md cal, ca
ltgy, blky, f
10%: gy-d
cal.

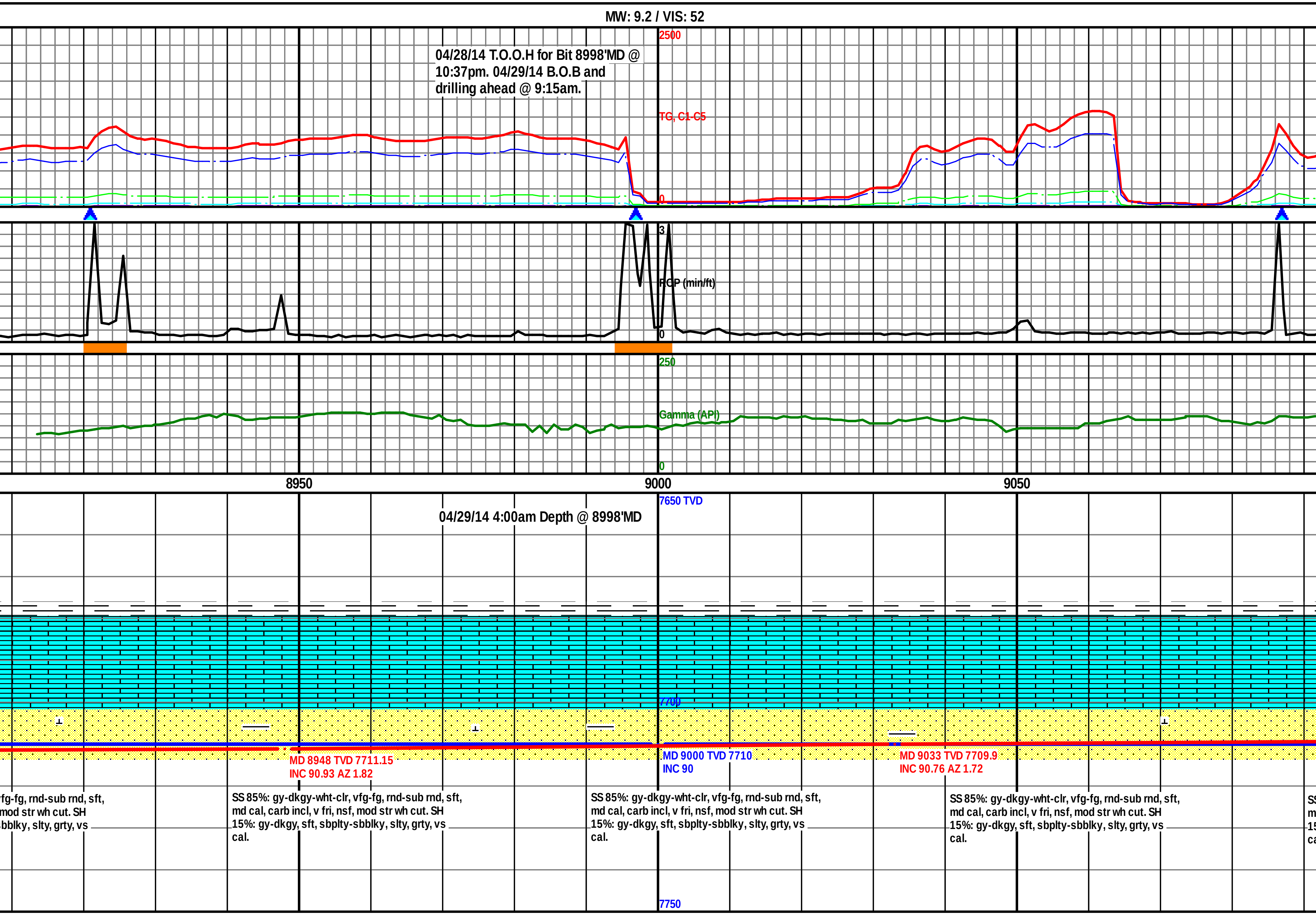

MW: 9.7 / VIS: 42
MW: 9.2 / VIS: 58
5000
TG, C1-C5
0
Curve TD of 8075'MD achieved @ 9:05am
04/08/14. T.O.O.H. for intermediate casing.
04/28/14 2:30pm B.O.B.
On Gas Buster
Oil Base Mud
8075'MD - TD
2500
Note Scale Change
Scale Change
TG, C1-C5
0
ROP (min/ft)
0
250
Gamma (API)
0
8000
8050
8100
8150
7550 TVD
7650 TVD
Note Scale Change
Drilling with O.B.M. - Poor Sample Quality
Codell Top @ 8009'MD / 7693'TVD
7650
Scale Change
7700
Prognose Target Line
MD 8075 TVD 7700
INC 90
MD 8098 TVD 7698.86
INC 89.87 AZ 0.29
MD 8004 TVD 7692.45
INC 82.09 AZ 356.54
MD 8024 TVD 7694.88
INC 83.95 AZ 357.55
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
y-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
rb incl, v fri, mod mlky wh cut. LS 20%:
frm-hrd, v calc, crypxln-mxln, nsf. SH
kgy, sft, sbplty-sbblky, slty, grty, vs
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750
7750

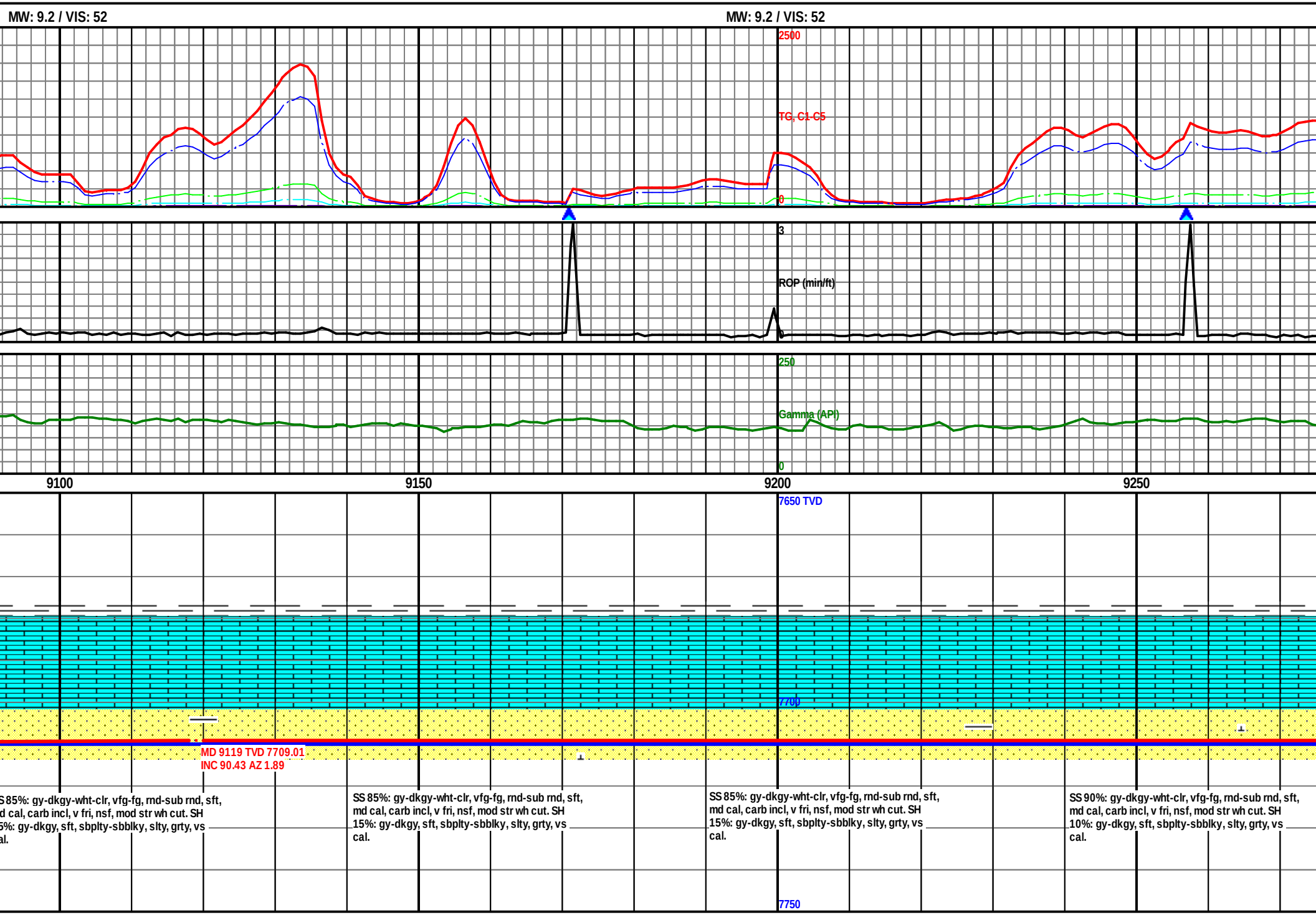

MW: 9.2 / VIS: 58
MW: 9.2 / VIS: 58
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8200
8250
8300
8350
7650 TVD
Drilling with O.B.M. - improved Sample Quality
MD 8183 TVD 7698.64
INC 90.43 AZ 0.77
MD 8200 TVD 7700
INC 90
MD 8268 TVD 7698.55
INC 89.69 AZ 0.52
MD 835
INC 89.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 95%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, mod mlky wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
LS 95%: ltgy, blky, frm-hrd, v calc
nsf, mod mlky wh cut. SH 5%: ltgy
plty-sbplty, slty, sft, sl cal.
7700
7750

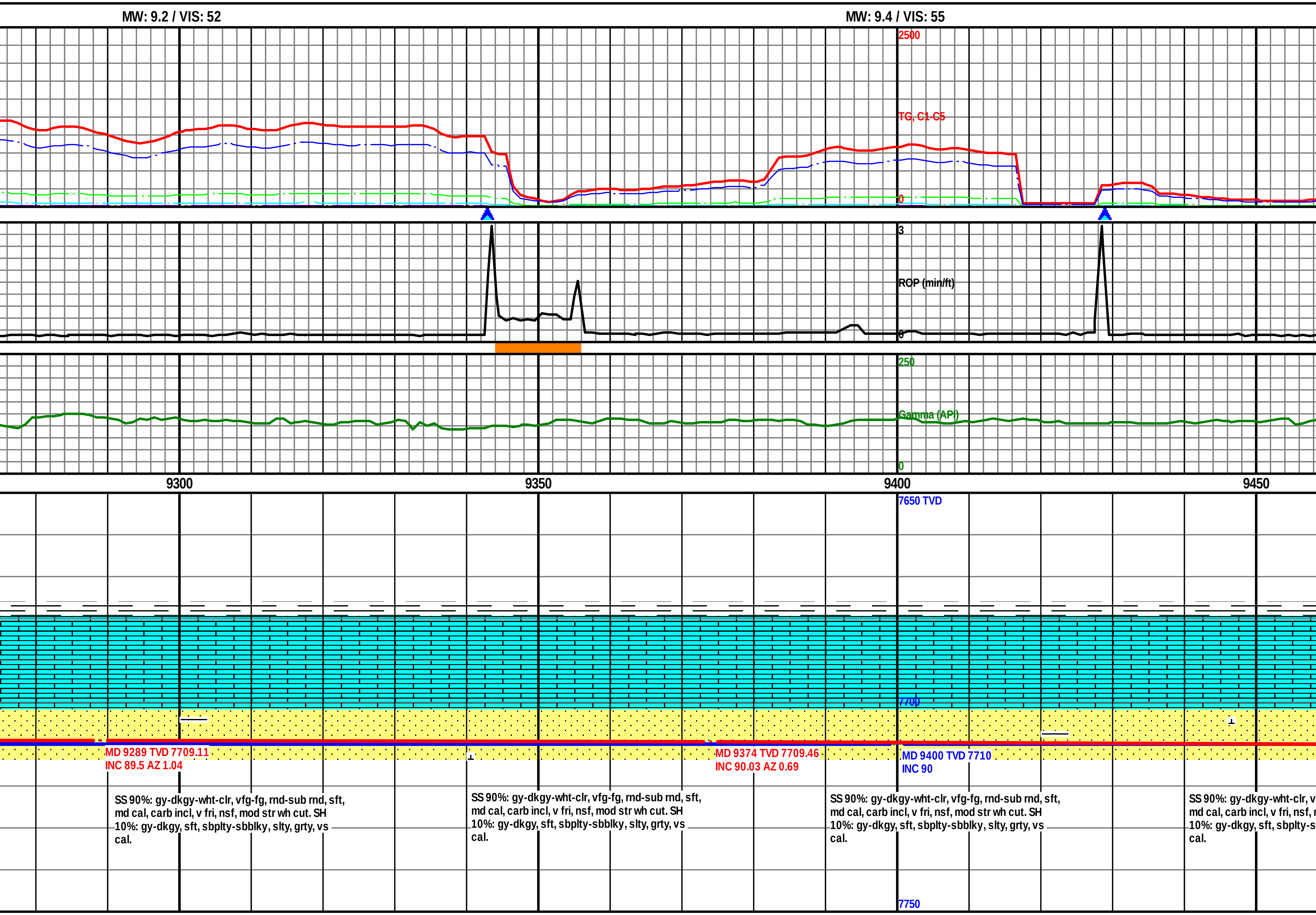

MW: 9.2 / VIS: 58
MW: 9.2 / VIS: 58
2500
TG, C1 C5
3
ROP (min/ft)
0
250
Gamma (API)
0
8400
8450
8500
7650 TVD
Target Change 7700'TVD - 7710TVD'
53 TVD 7699.33
26 AZ 1.08
MD 8380 TVD 7700
INC 90
MD 8381 TVD 7710
INC 90
MD 8438 TVD 7700.75
INC 88.83 AZ 1.2
MD 8523 TVD 7702.96
INC 88.15 AZ 1.19
, crypxln-mxln,
-gy,
LS 95%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, mod mlky wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
LS 95%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, mod mlky wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
SS 70%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, mod mlky wh cut. LS 20%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750


MW: 9.2 / VIS: 58
MW: 9.2 / VIS: 58
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8550
8600
8650
8700
7650 TVD
7700
MD 8608 TVD 7705.68
INC 88.18 AZ 0.89
MD 8600 TVD
INC 90
7750
S 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
d cal, carb incl, v fri, nsf, mod str wh cut. SH
0%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
al.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.2 / VIS: 58
MW: 9.2 / VIS: 52
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8750
8800
8850
8900
7650 TVD
7700
7750
MD 8778 TVD 7710.38
INC 88.65 AZ 1.18
MD 8863 TVD 7711.61
INC 89.69 AZ 1.76
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

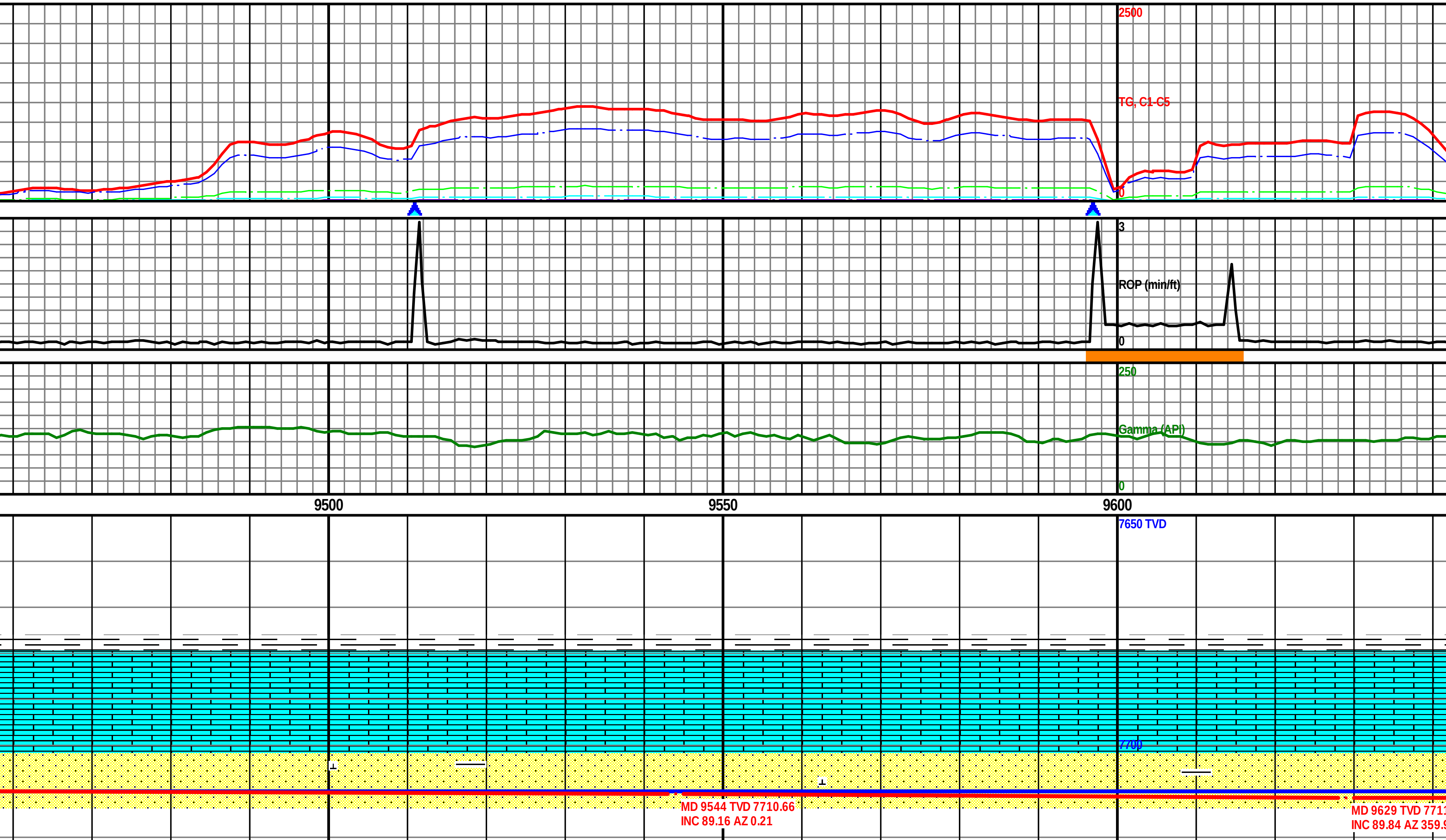

MW: 9.2 / VIS: 52
04/28/14 T.O.O.H for Bit 8998'MD @ 10:37pm. 04/29/14 B.O.B and drilling ahead @ 9:15am.
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8950
9000
9050
7650 TVD
04/29/14 4:00am Depth @ 8998'MD
7700
MD 8948 TVD 7711.15
INC 90.93 AZ 1.82
MD 9000 TVD 7710
INC 90
MD 9033 TVD 7709.9
INC 90.76 AZ 1.72
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750


MW: 9.2 / VIS: 52
MW: 9.2 / VIS: 52
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9100
9150
9200
9250
7650 TVD
7700
7750
MD 9119 TVD 7709.01
INC 90.43 AZ 1.89
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
d cal, carb incl, v fri, nsf, mod str wh cut. SH
5%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
al.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.2 / VIS: 52
MW: 9.4 / VIS: 55
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9300
9350
9400
9450
7650 TVD
7700
7750
MD 9289 TVD 7709.11
INC 89.5 AZ 1.04
MD 9374 TVD 7709.46
INC 90.03 AZ 0.69
MD 9400 TVD 7710
INC 90
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf, r
10%: gy-dkgy, sft, sbplty-s
cal.

MW: 9.4 / VIS: 55

MW: 9.4 / VIS: 55



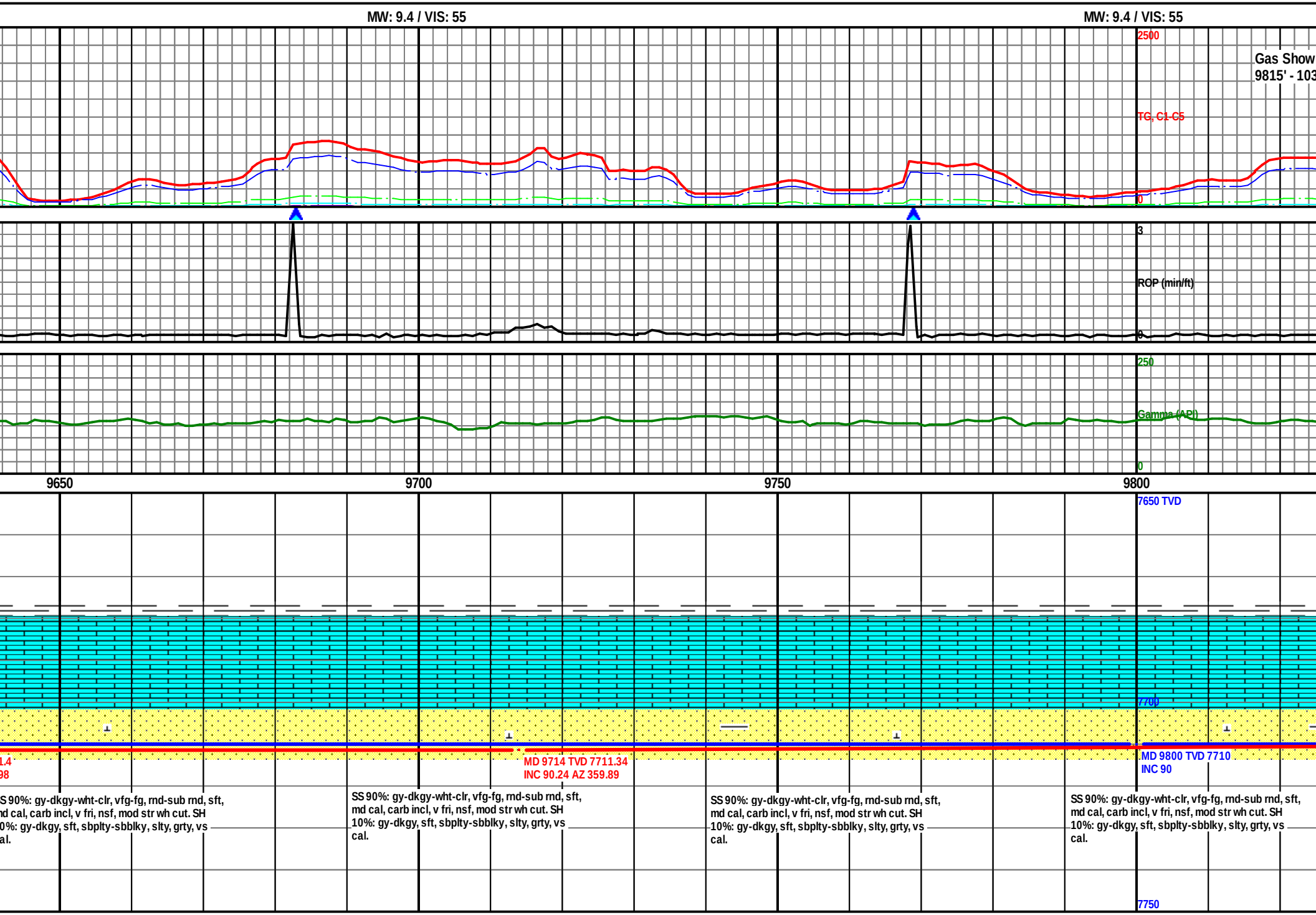
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs

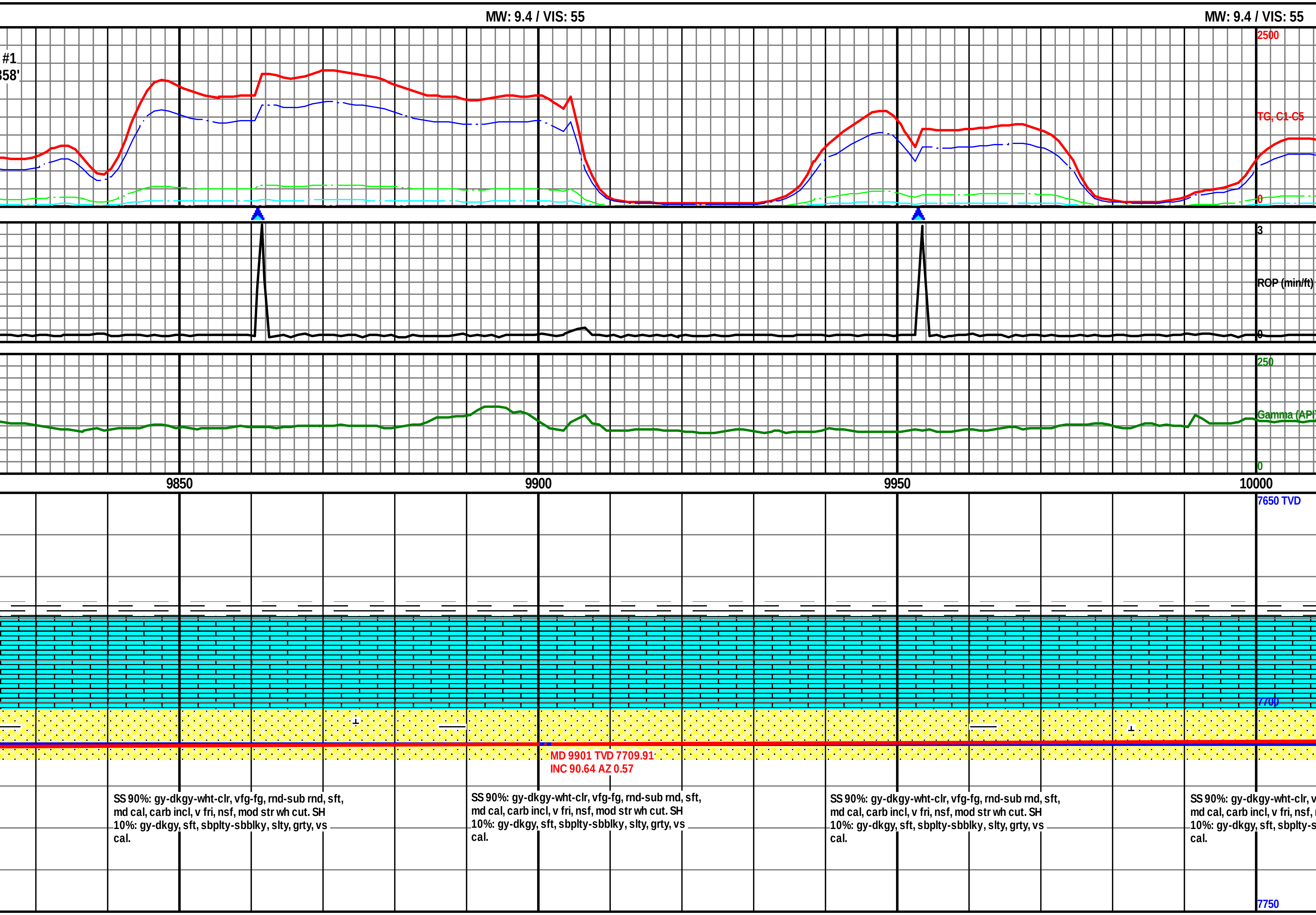
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

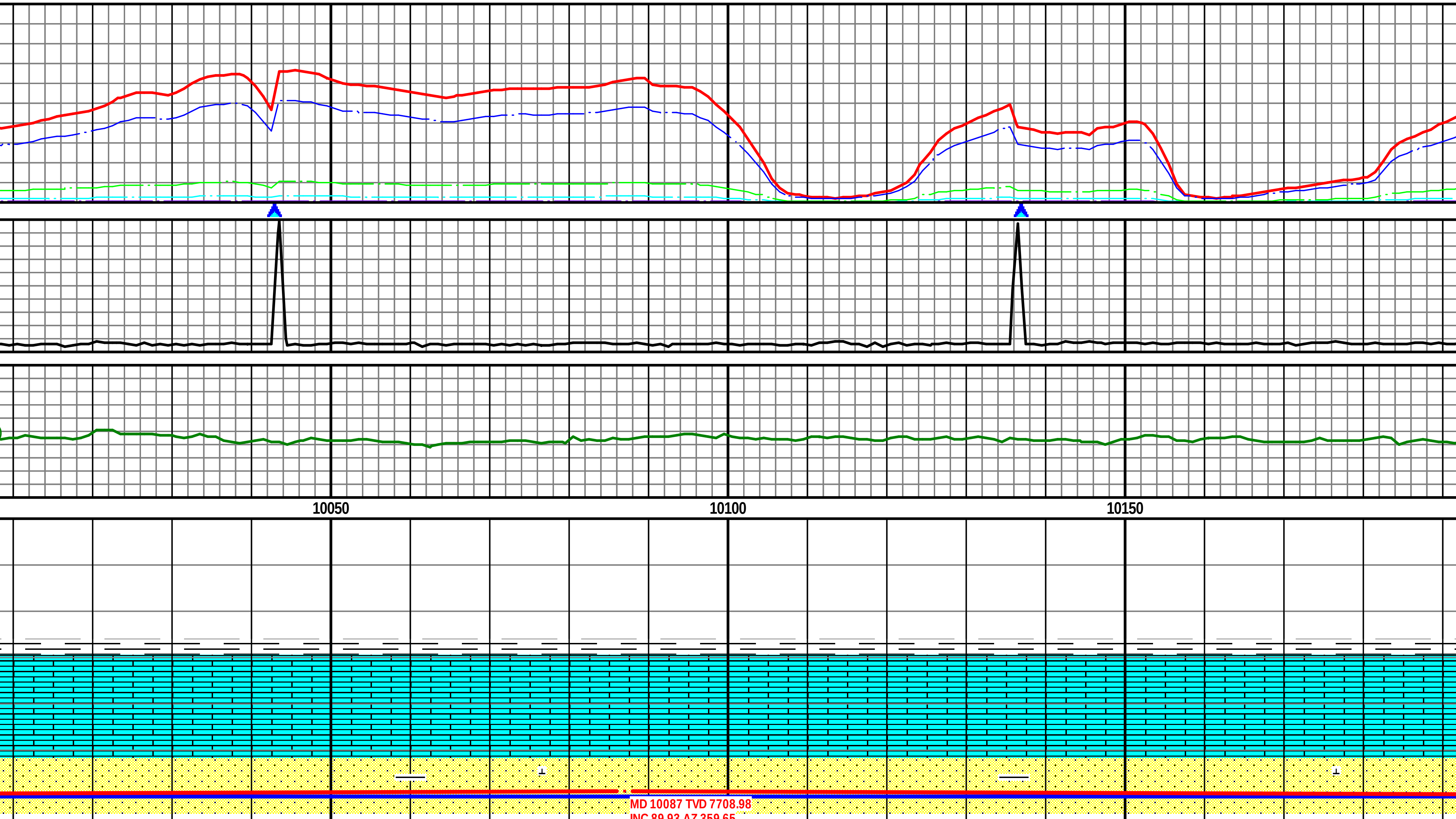
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

S
m
1
c


MW: 9.4 / VIS: 55
MW: 9.4 / VIS: 55
2500
Gas Show
9815' - 103
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9650
9700
9750
9800
7650 TVD
7700
MD 9714 TVD 7711.34
INC 90.24 AZ 359.89
MD 9800 TVD 7710
INC 90
7750
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.4 / VIS: 55
MW: 9.4 / VIS: 55
#1
358'
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9850
9900
9950
10000
7650 TVD
7700
7750
MD 9901 TVD 7709.91
INC 90.64 AZ 0.57
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.

MW: 9.4 / VIS: 51



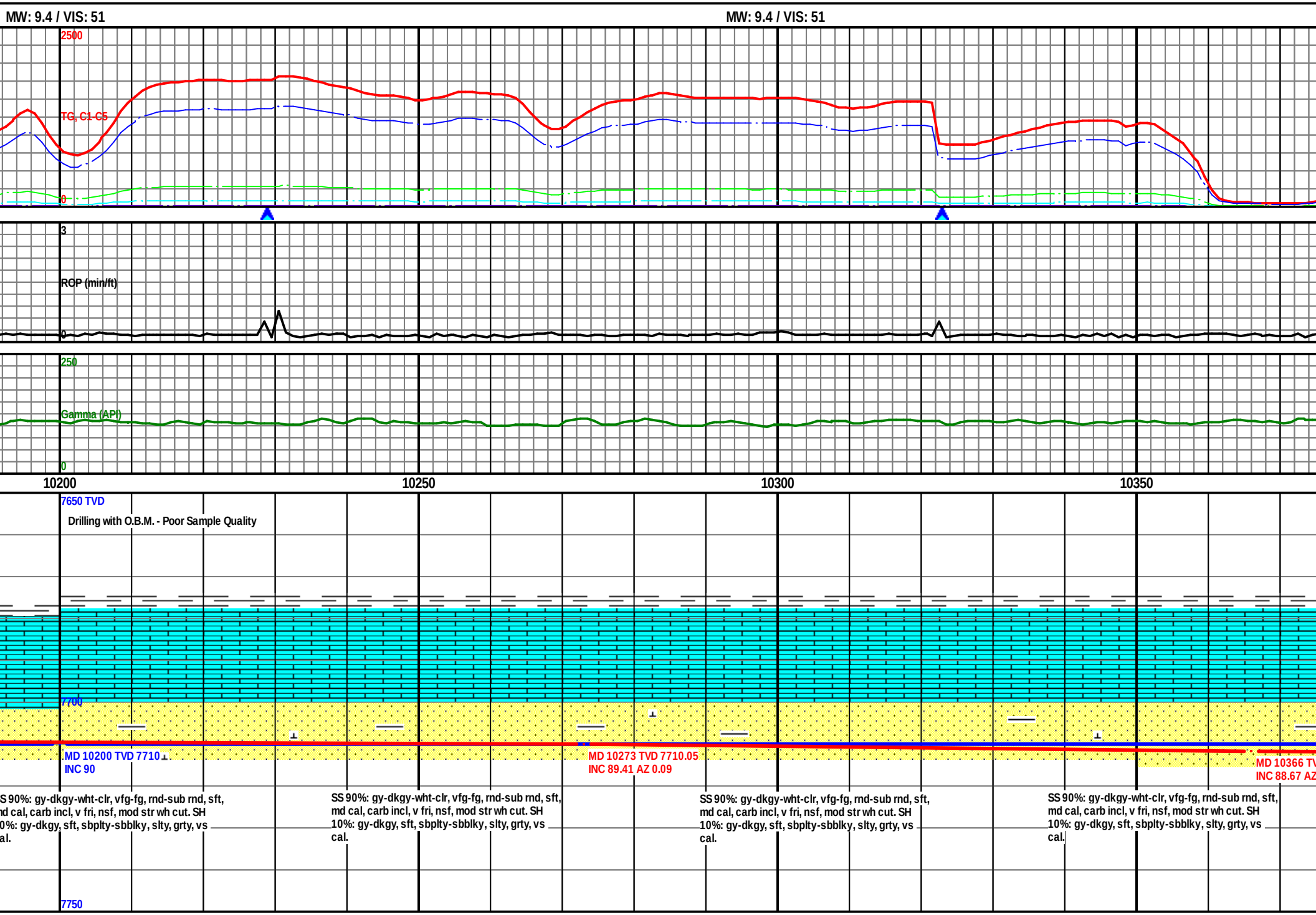
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs

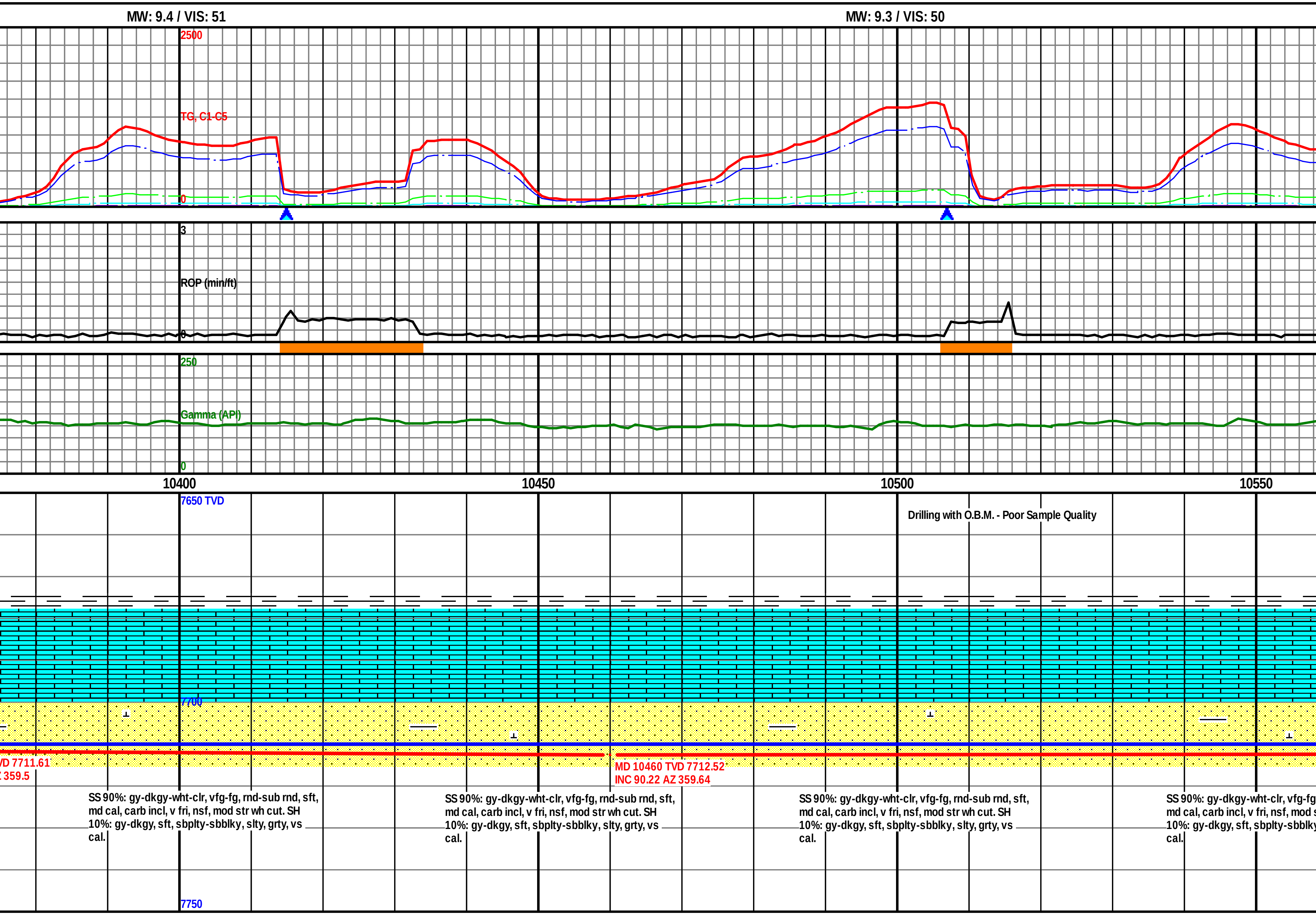
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

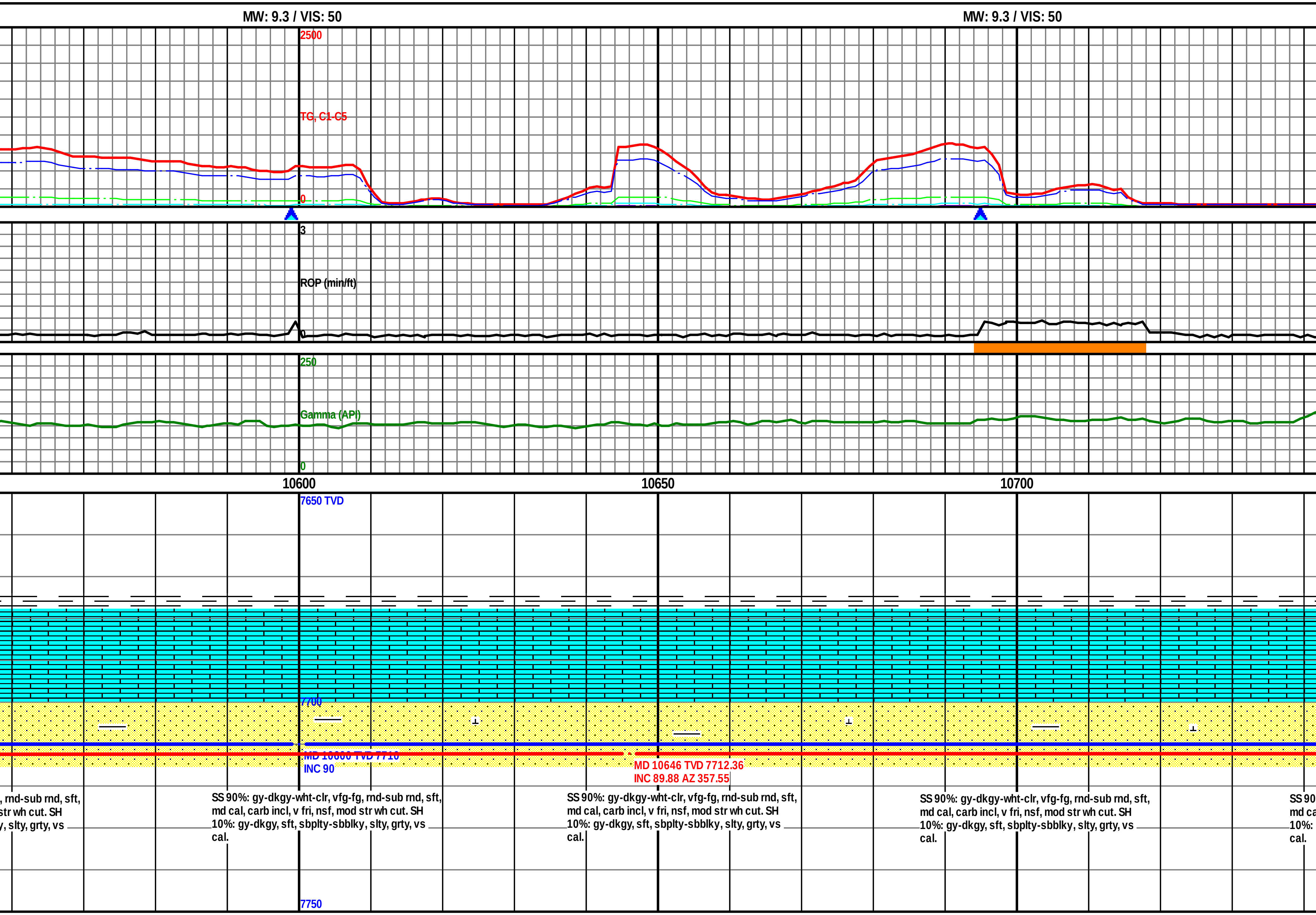
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

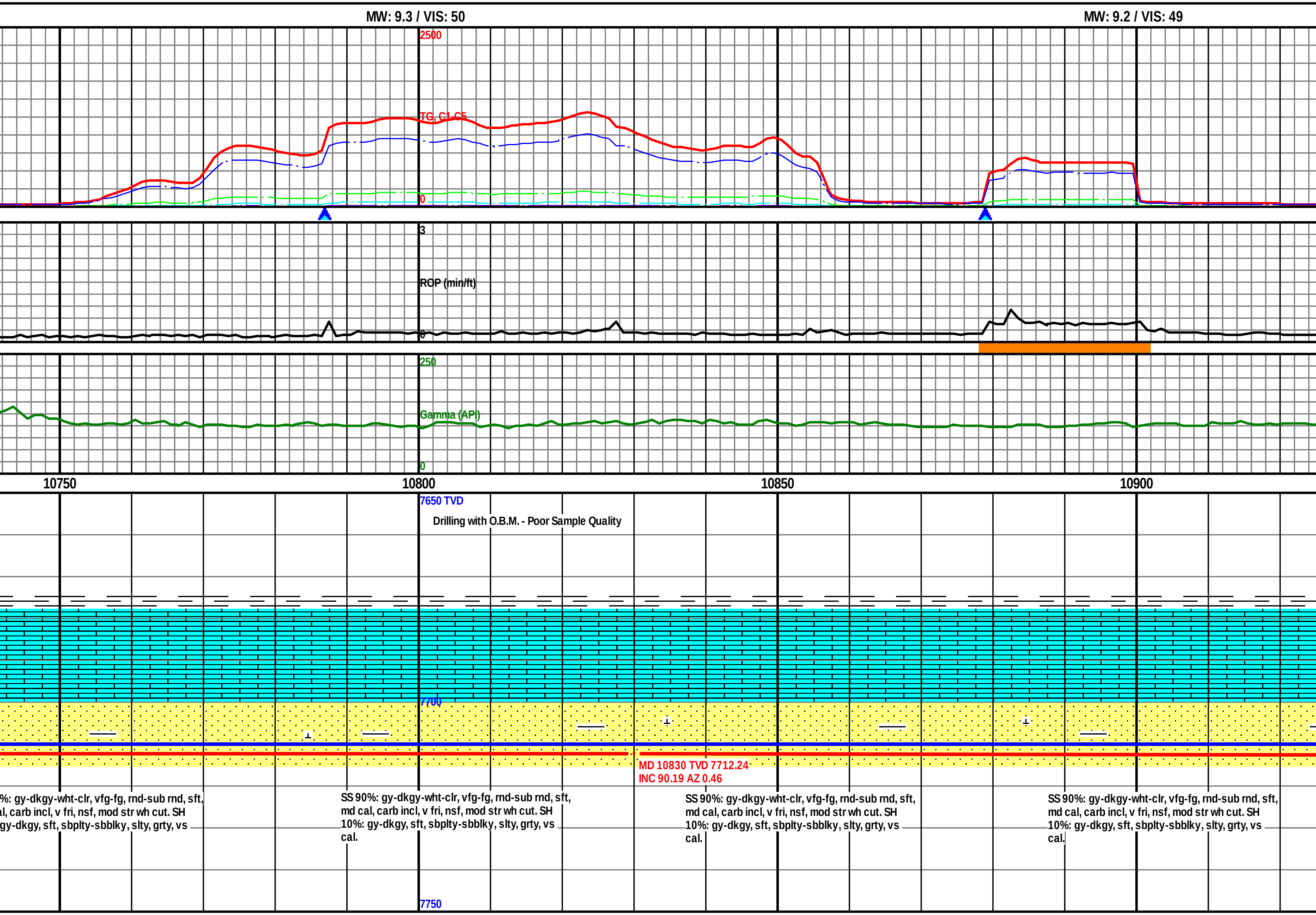
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

S
m
1
c


MW: 9.4 / VIS: 51
MW: 9.4 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
10200
10250
10300
10350
7650 TVD
Drilling with O.B.M. - Poor Sample Quality
7700
MD 10200 TVD 7710
INC 90
MD 10273 TVD 7710.05
INC 89.41 AZ 0.09
MD 10366 TV
INC 88.67 AZ
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750


MW: 9.4 / VIS: 51
MW: 9.3 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
10400
10450
10500
10550
7650 TVD
Drilling with O.B.M. - Poor Sample Quality
7700
VD 7711.61
Z 359.5
MD 10460 TVD 7712.52
INC 90.22 AZ 359.64
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg
md cal, carb incl, v fri, nsf, mod s
10%: gy-dkgy, sft, sbplty-sbblky
cal.
7750

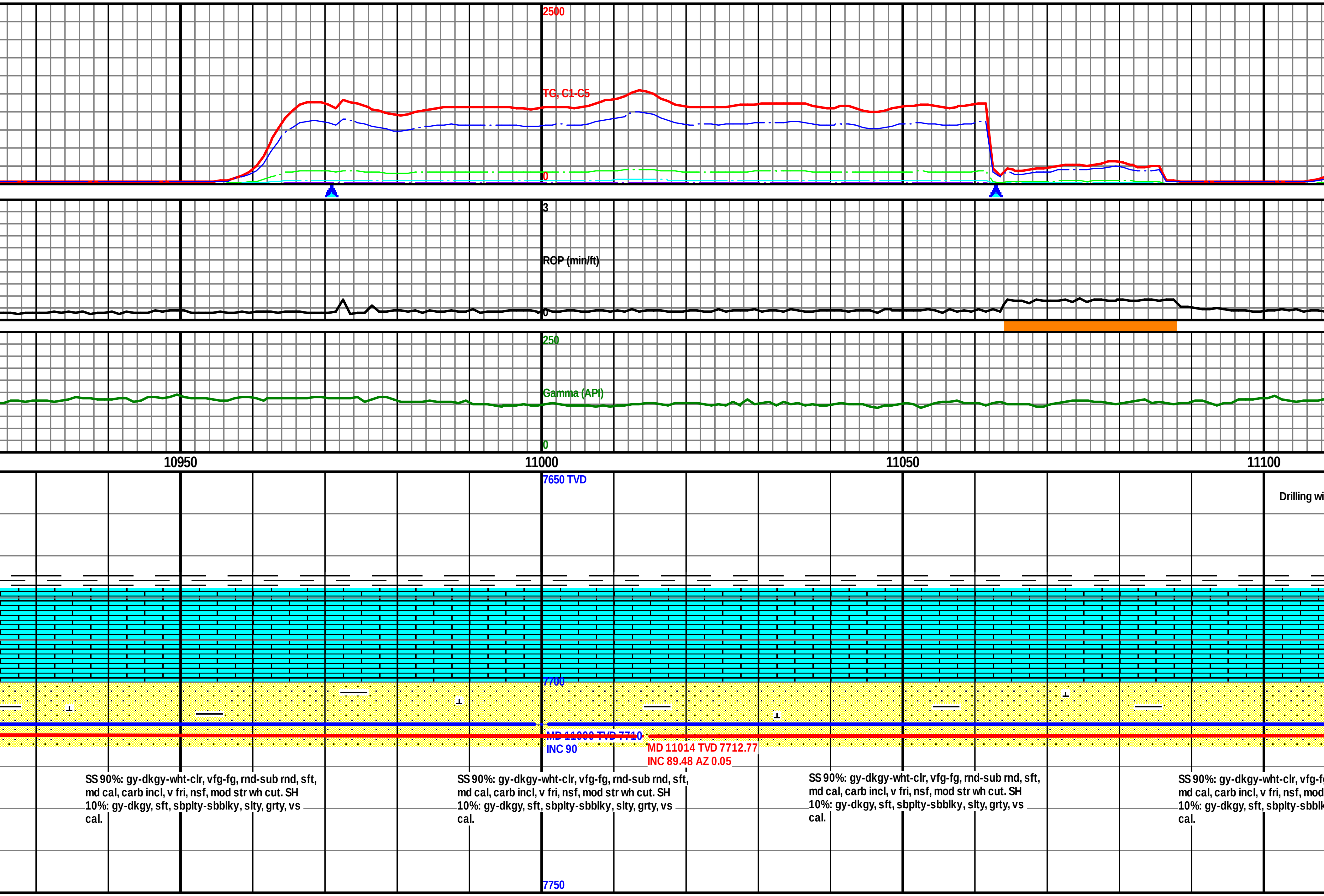

MW: 9.3 / VIS: 50
MW: 9.3 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
10600
10650
10700
7650 TVD
7700
MD 10600 TVD 7710
INC 90
MD 10646 TVD 7712.36
INC 89.88 AZ 357.55
7750
, rnd-sub rnd, sft,
str wh cut. SH
y, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90
md ca
10%:
cal.



MW: 9.3 / VIS: 50
MW: 9.2 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
10750
10800
10850
10900
7650 TVD
Drilling with O.B.M. - Poor Sample Quality
7700
MD 10830 TVD 7712.24
INC 90.19 AZ 0.46
%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
al, carb incl, v fri, nsf, mod str wh cut. SH
gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750

MW: 9.2 / VIS: 49

MW: 9.2 / VIS: 49

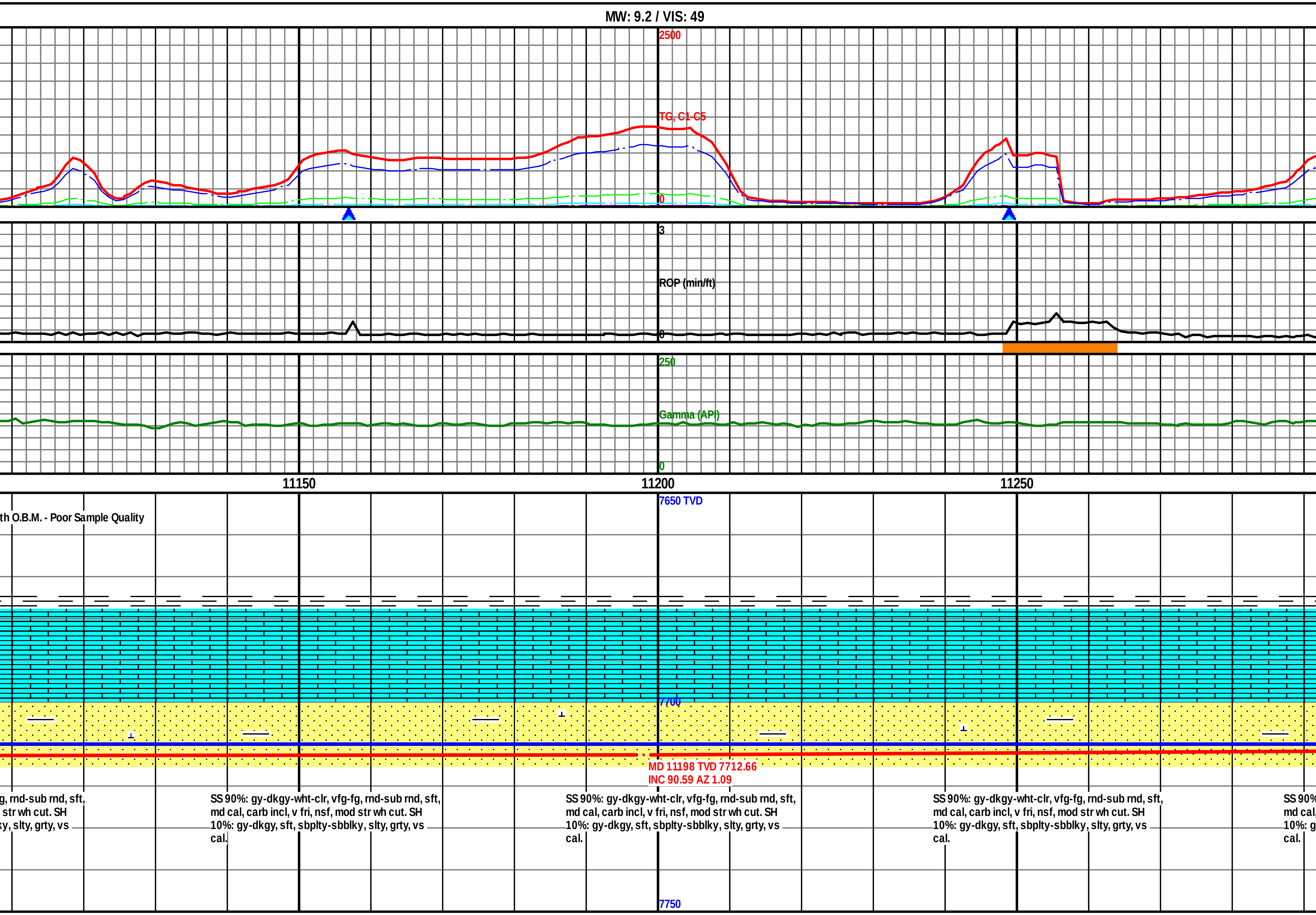


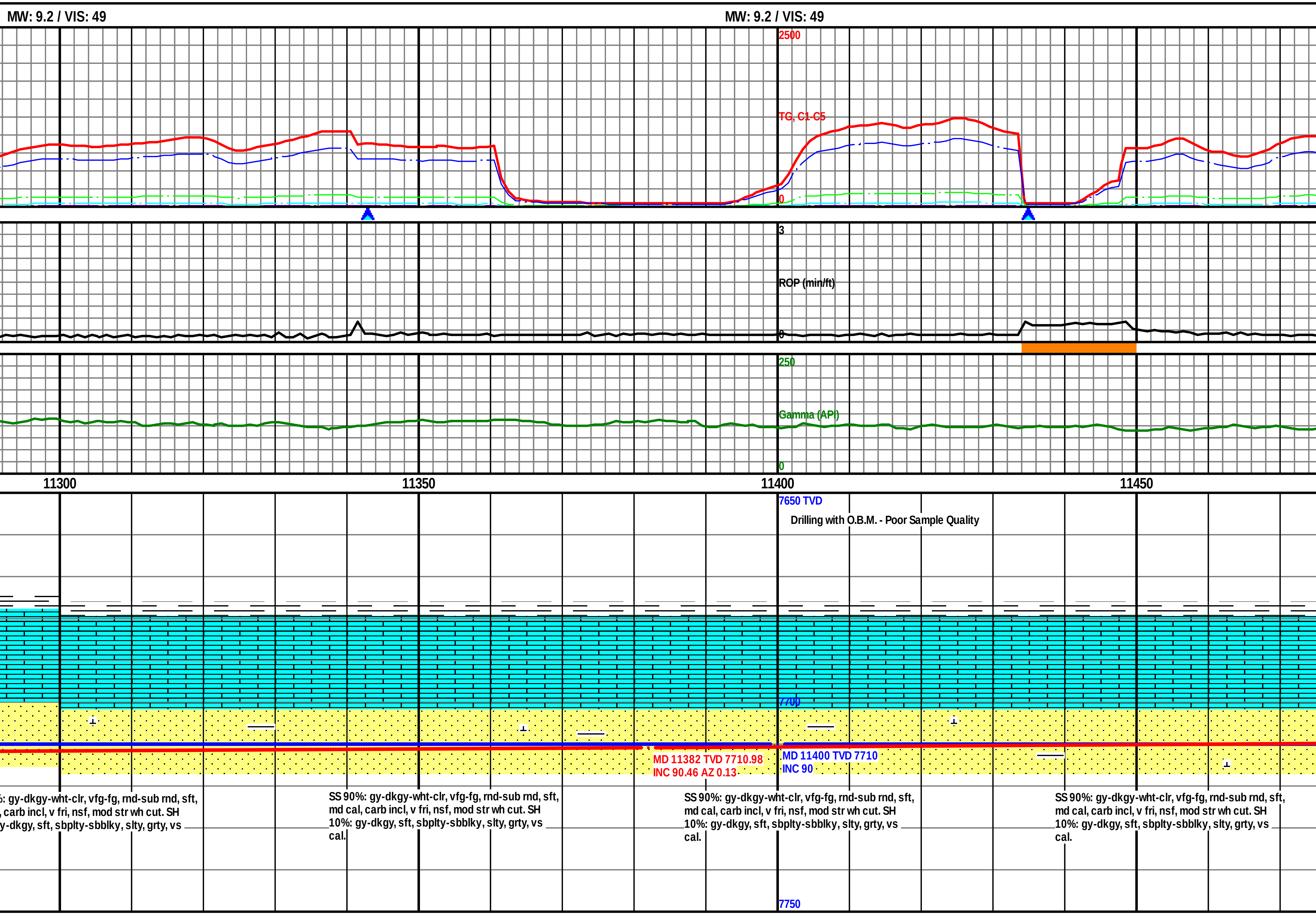
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

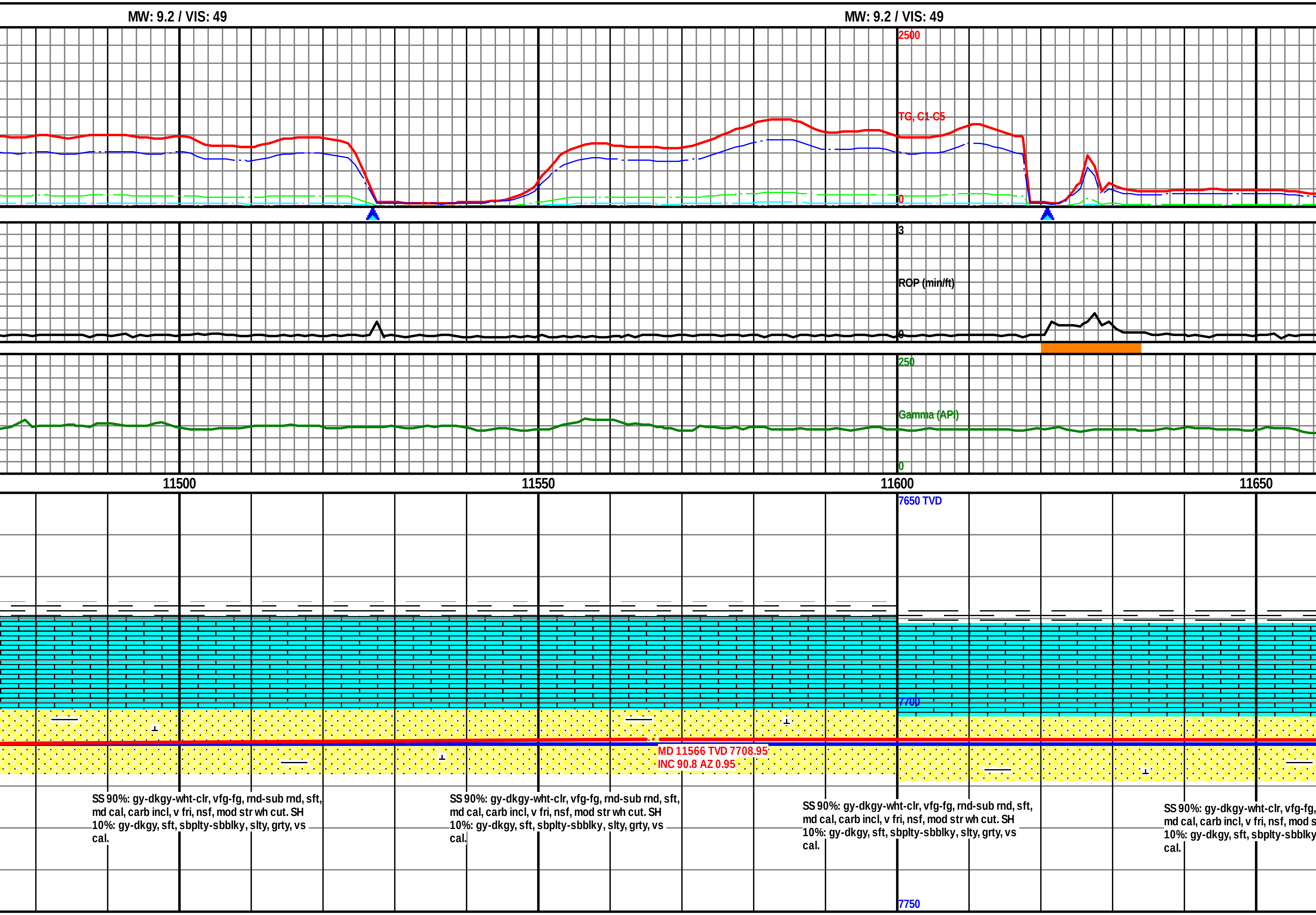
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-f
md cal, carb incl, v fri, nsf, mod
10%: gy-dkgy, sft, sbplty-sbblk
cal.

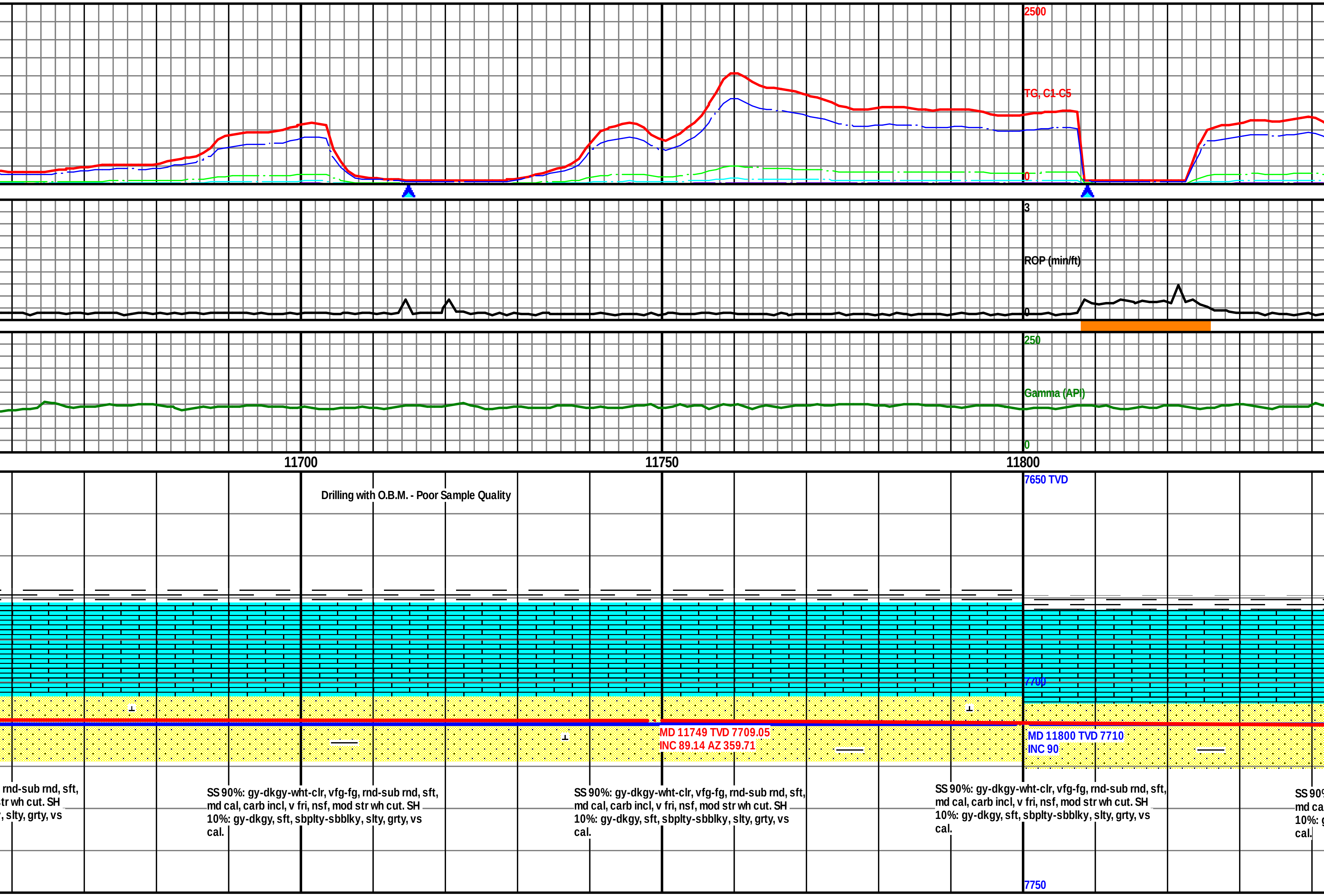

MW: 9.2 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11150
11200
11250
7650 TVD
th O.B.M. - Poor Sample Quality
7700
MD 11198 TVD 7712.66
INC 90.59 AZ 1.09
g, rnd-sub rnd, sft,
str wh cut. SH
ky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%
md cal.
10%: g
cal.
7750


MW: 9.2 / VIS: 49
MW: 9.2 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11300
11350
11400
11450
7650 TVD
Drilling with O.B.M. - Poor Sample Quality
7700
MD 11382 TVD 7710.98
INC 90.46 AZ 0.13
MD 11400 TVD 7710
INC 90
7750
: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
, carb incl, v fri, nsf, mod str wh cut. SH
y-dkgy, sft, sbplty-sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.2 / VIS: 49
MW: 9.2 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11500
11550
11600
11650
7650 TVD
7700
MD 11566 TVD 7708.95
INC 90.8 AZ 0.95
7750
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

MW: 9.2 / VIS: 49

MW: 9.2 / VIS: 49



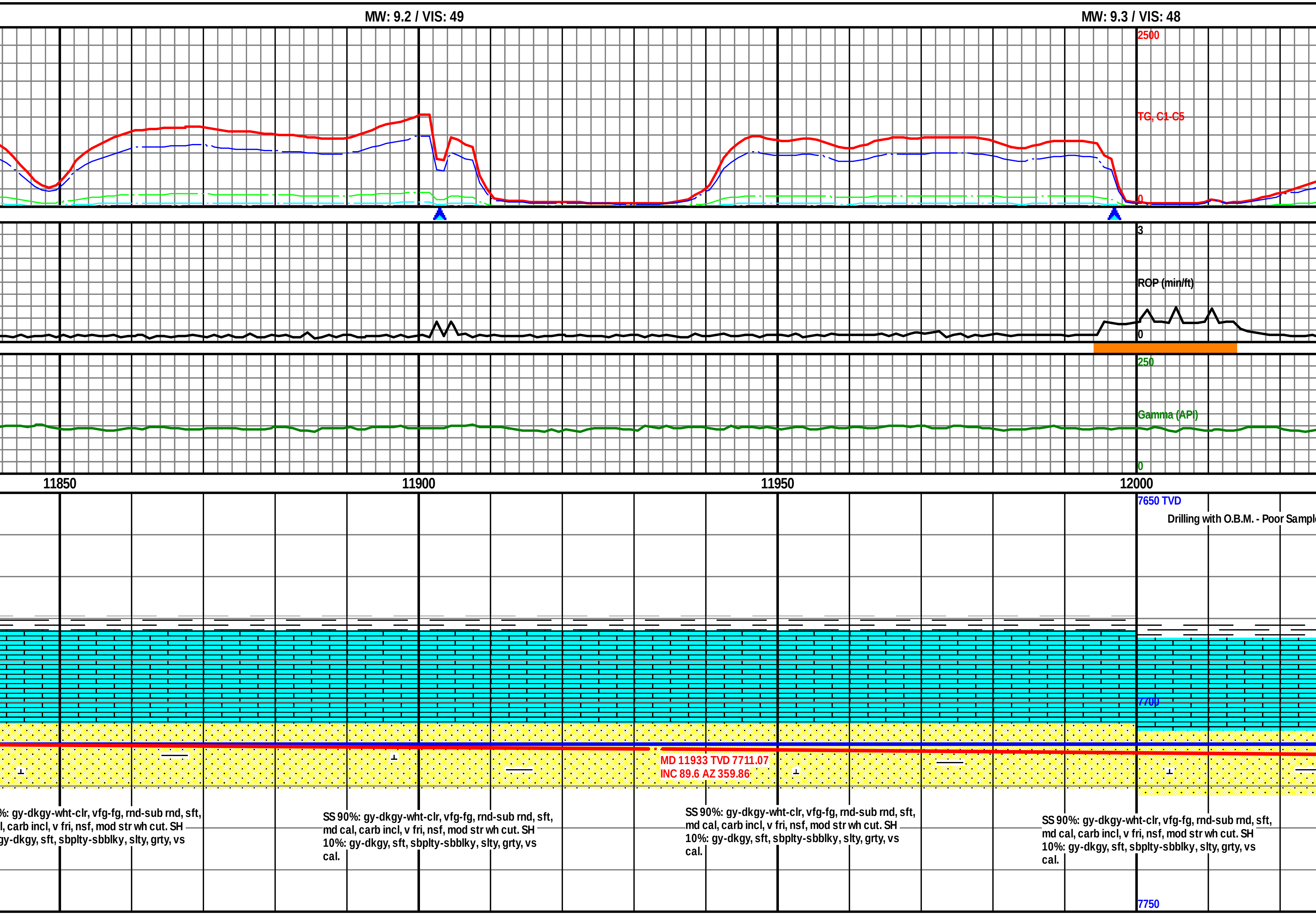
rnd-sub rnd, sft, str wh cut. SH , slty, grty, vs

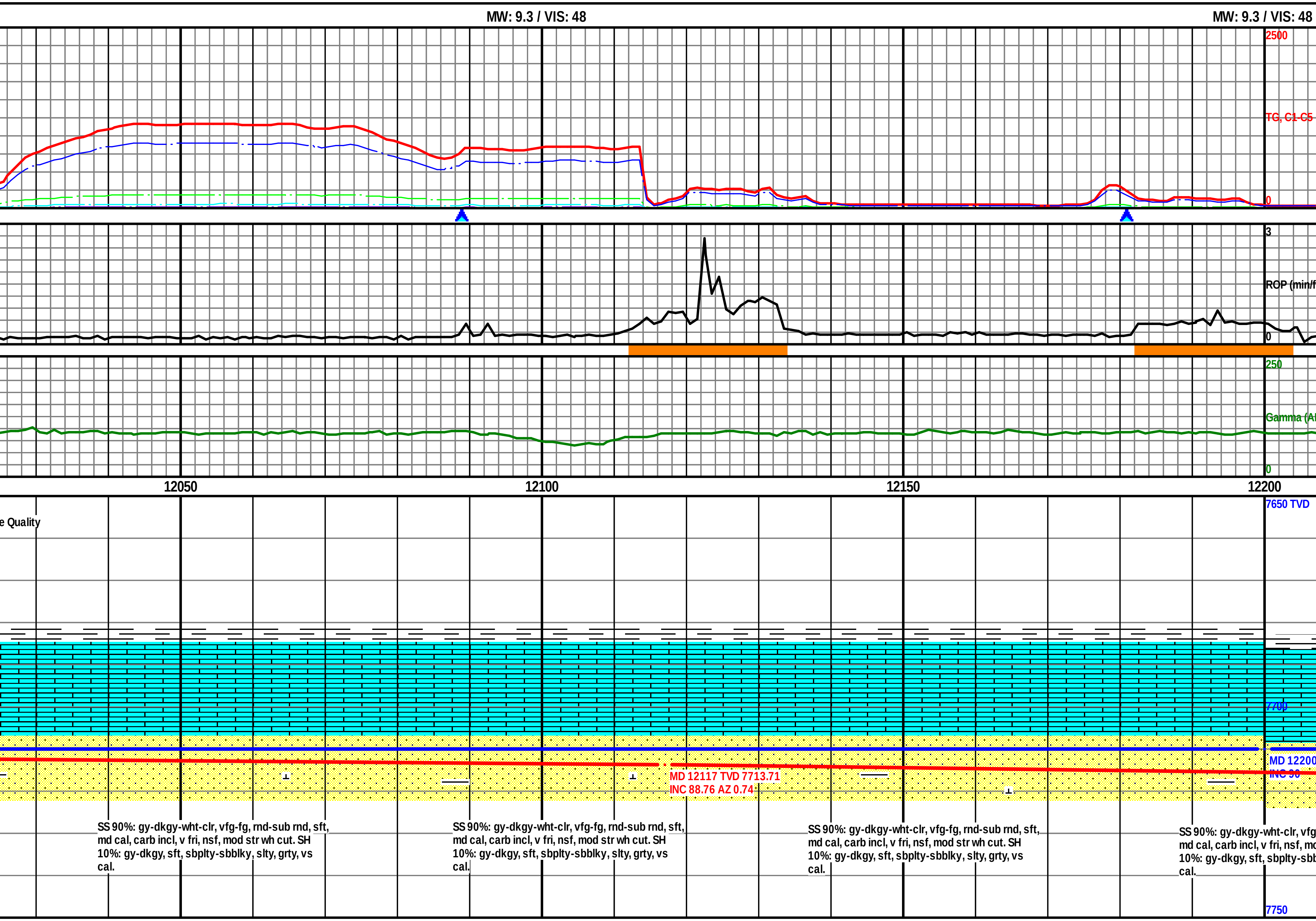
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90 md ca 10%: g cal.


MW: 9.2 / VIS: 49
MW: 9.3 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11850
11900
11950
12000
7650 TVD
Drilling with O.B.M. - Poor Sampl
7700
MD 11933 TVD 7711.07
INC 89.6 AZ 359.86
7750
%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
l, carb incl, v fri, nsf, mod str wh cut. SH
gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

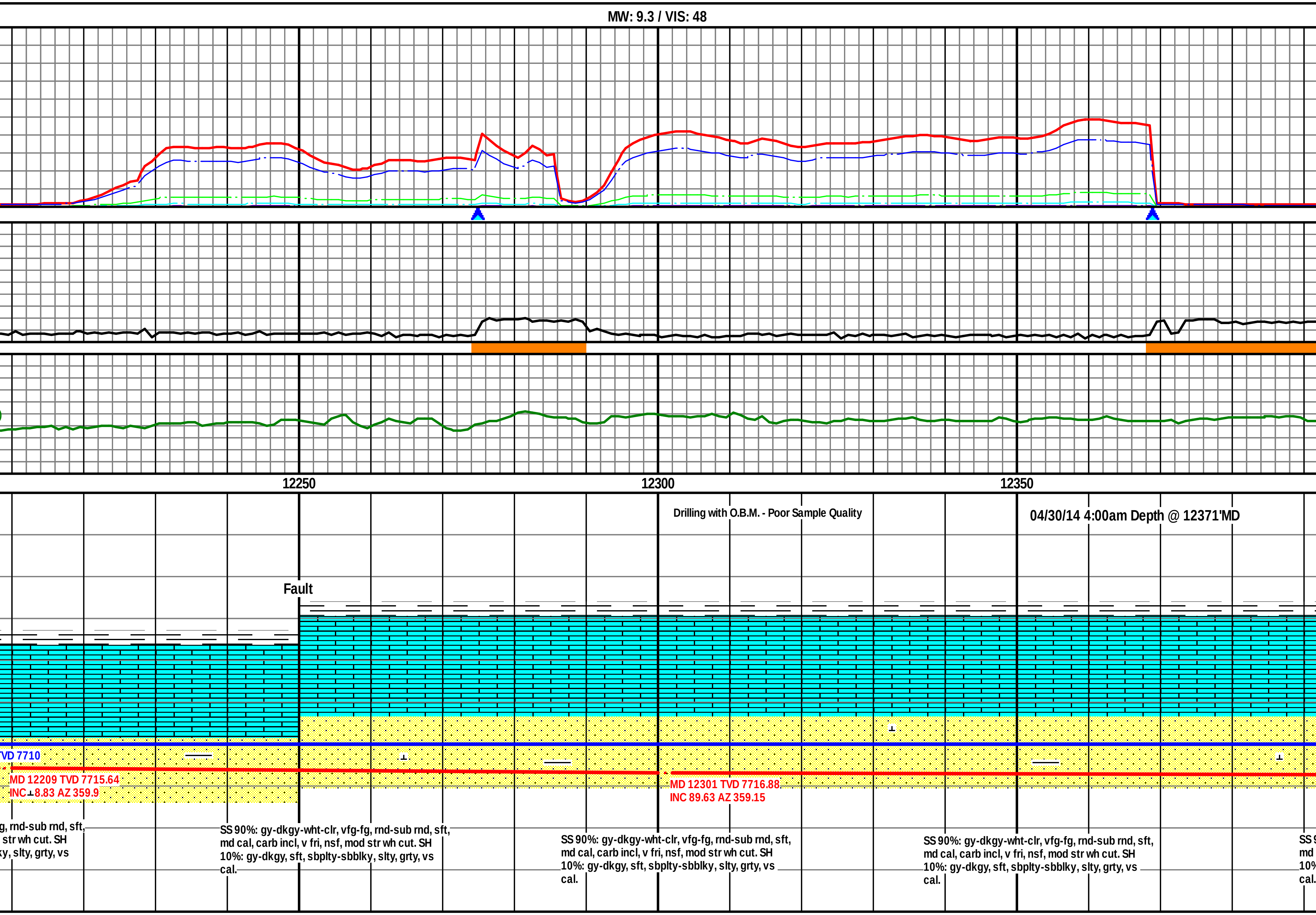


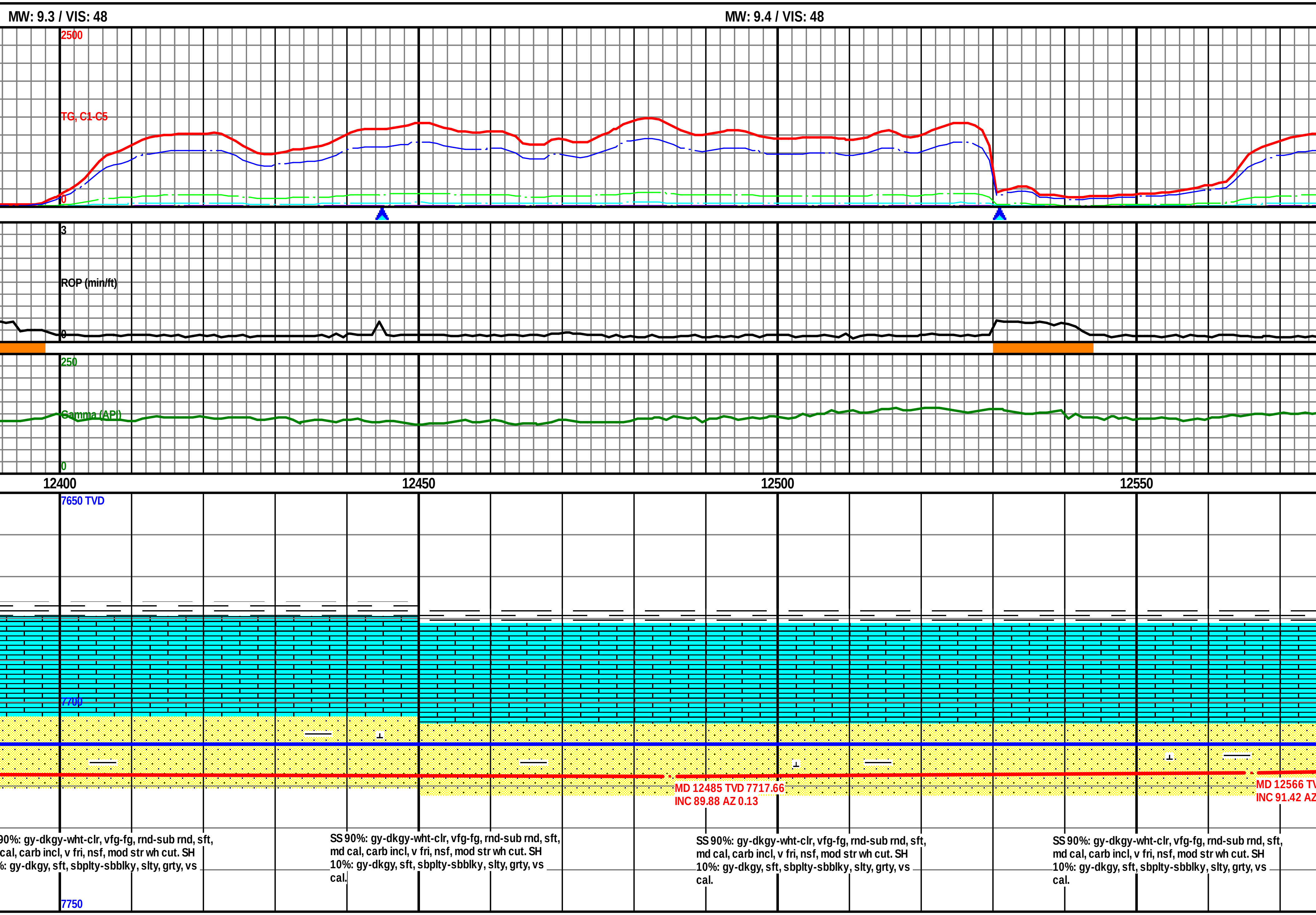
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

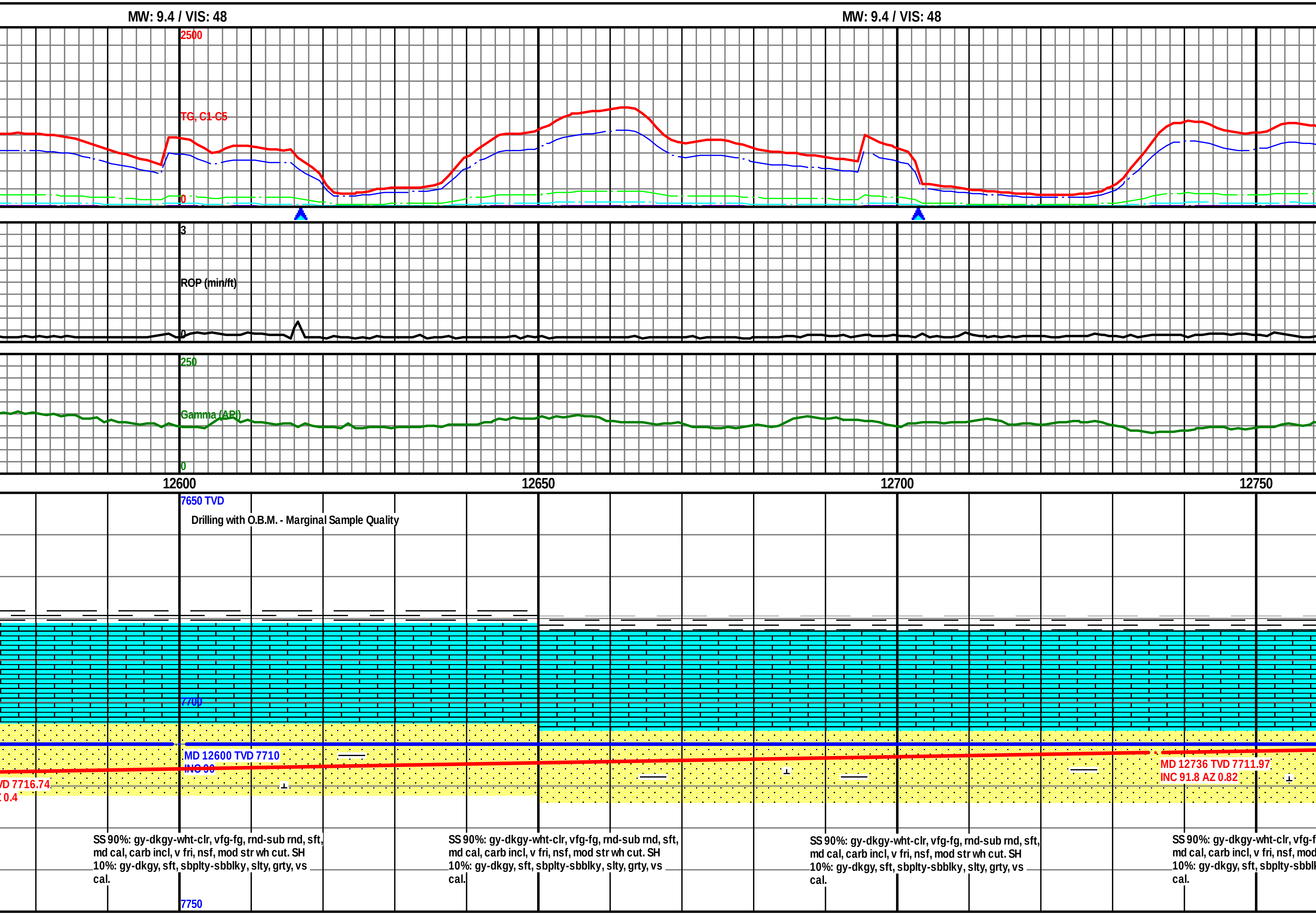
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

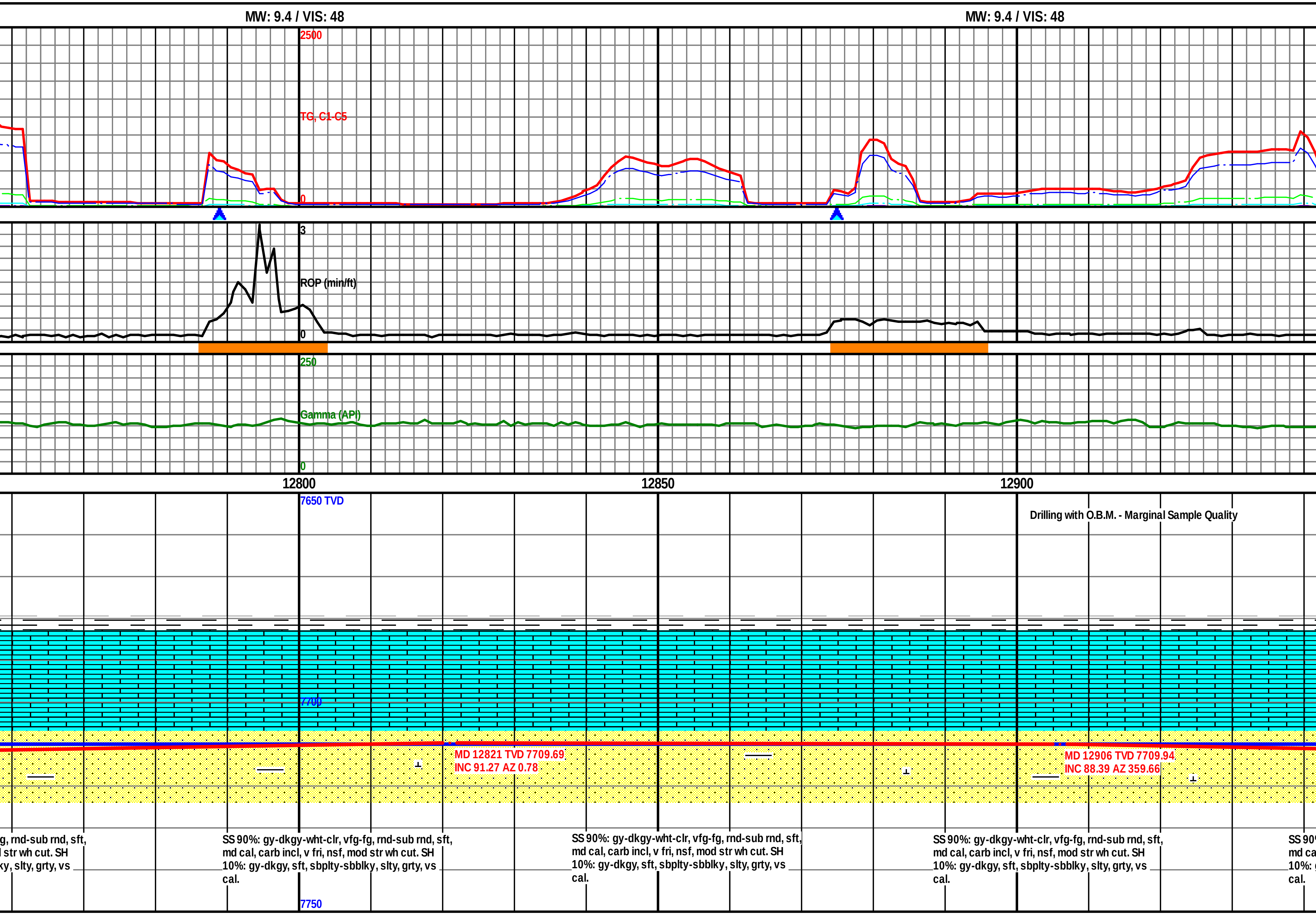
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

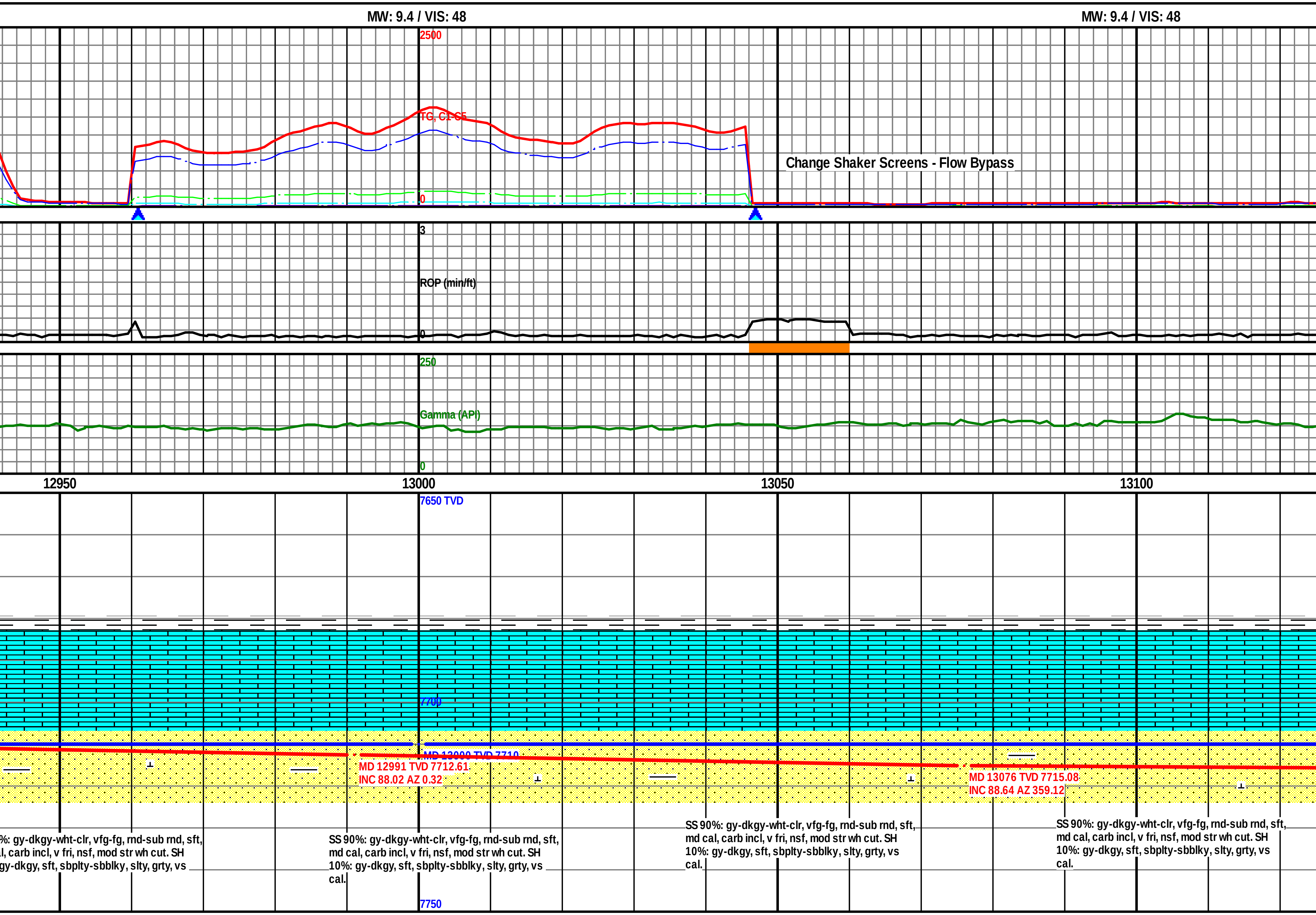
SS 90%: gy-dkgy-wht-clr, vfg-f md cal, carb incl, v fri, nsf, mod 10%: gy-dkgy, sft, sbplty-sbblk cal.


MW: 9.3 / VIS: 48
12250
12300
12350
Drilling with O.B.M. - Poor Sample Quality
04/30/14 4:00am Depth @ 12371'MD
Fault
VD 7710
MD 12209 TVD 7715.64
INC 88.83 AZ 359.9
MD 12301 TVD 7716.88
INC 89.63 AZ 359.15
g, rnd-sub rnd, sft,
str wh cut. SH
ky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS
md
10%
cal.

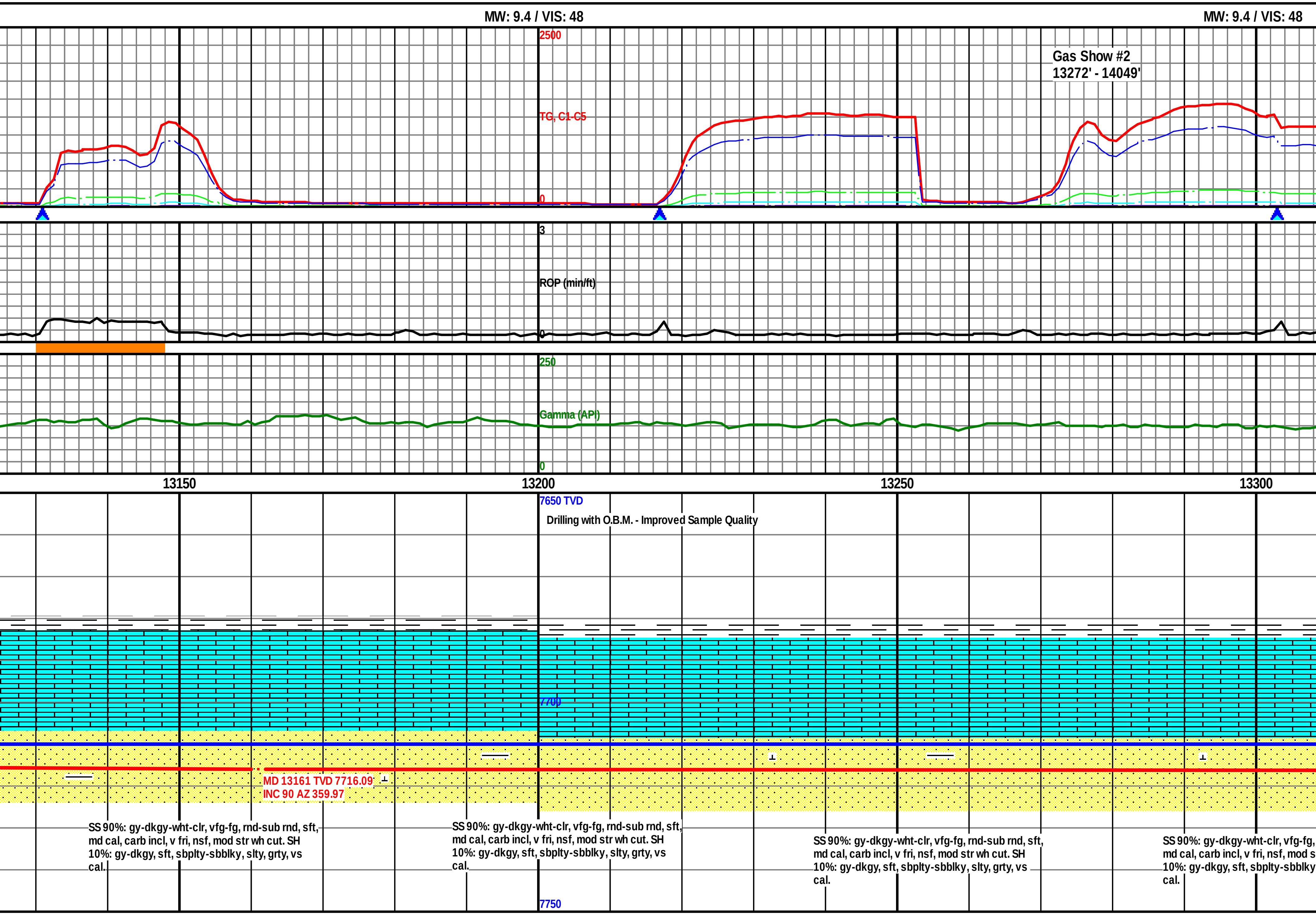

MW: 9.3 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12400
12450
12500
12550
7650 TVD
7700
7750
MD 12485 TVD 7717.66
INC 89.88 AZ 0.13
MD 12566 TV
INC 91.42 AZ
90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
cal, carb incl, v fri, nsf, mod str wh cut. SH
%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

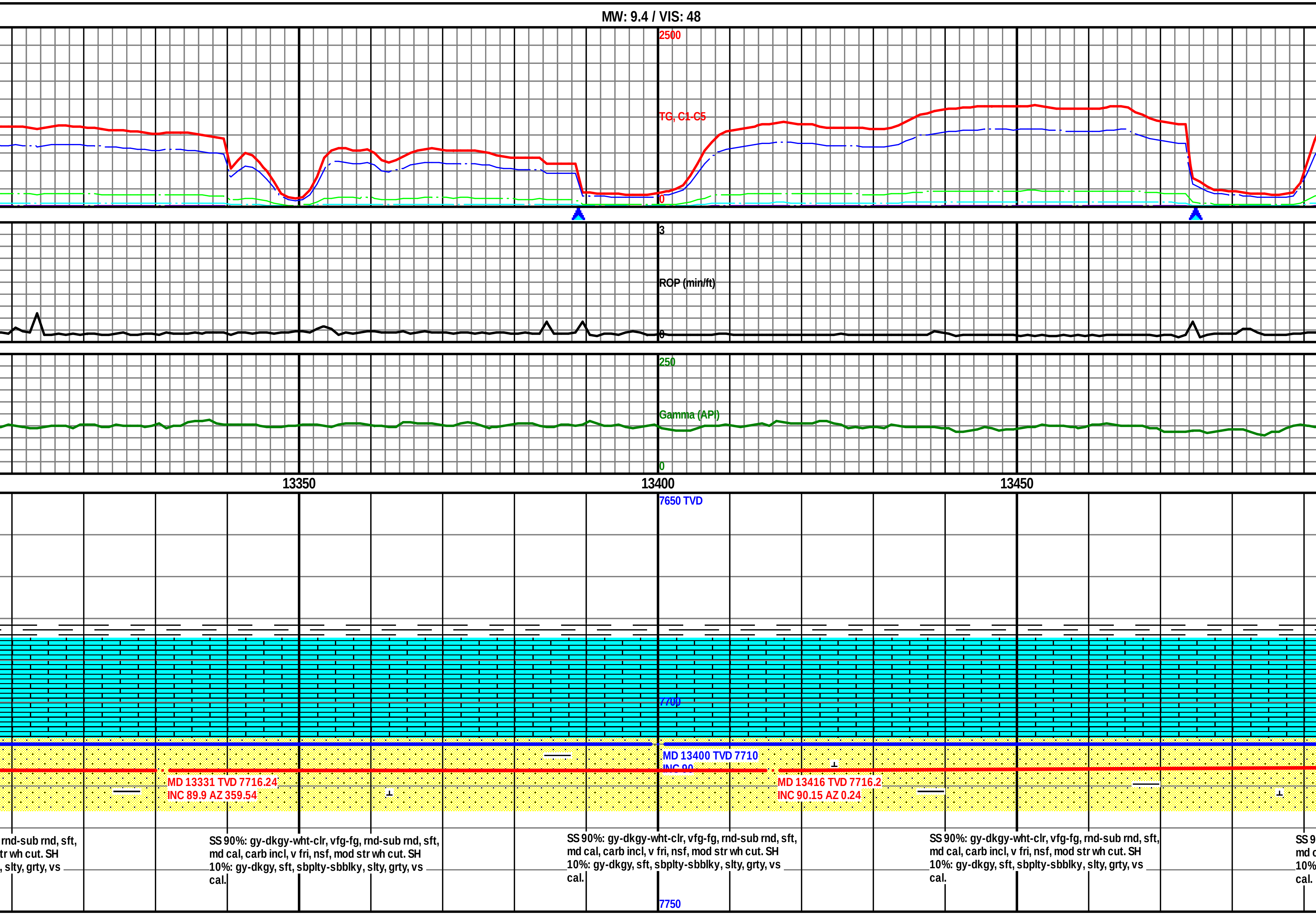

MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12600
12650
12700
12750
7650 TVD
Drilling with O.B.M. - Marginal Sample Quality
7700
MD 12600 TVD 7710
INC 90
VD 7716.74
Z 0.4
MD 12736 TVD 7711.97
INC 91.8 AZ 0.82
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-f
md cal, carb incl, v fri, nsf, mod
10%: gy-dkgy, sft, sbplty-sbbl
cal.
7750


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12800
12850
12900
7650 TVD
Drilling with O.B.M. - Marginal Sample Quality
7700
MD 12821 TVD 7709.69
INC 91.27 AZ 0.78
MD 12906 TVD 7709.94
INC 88.39 AZ 359.66
g, rnd-sub rnd, sft,
l str wh cut. SH
ky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90
md ca
10%:
cal.
7750

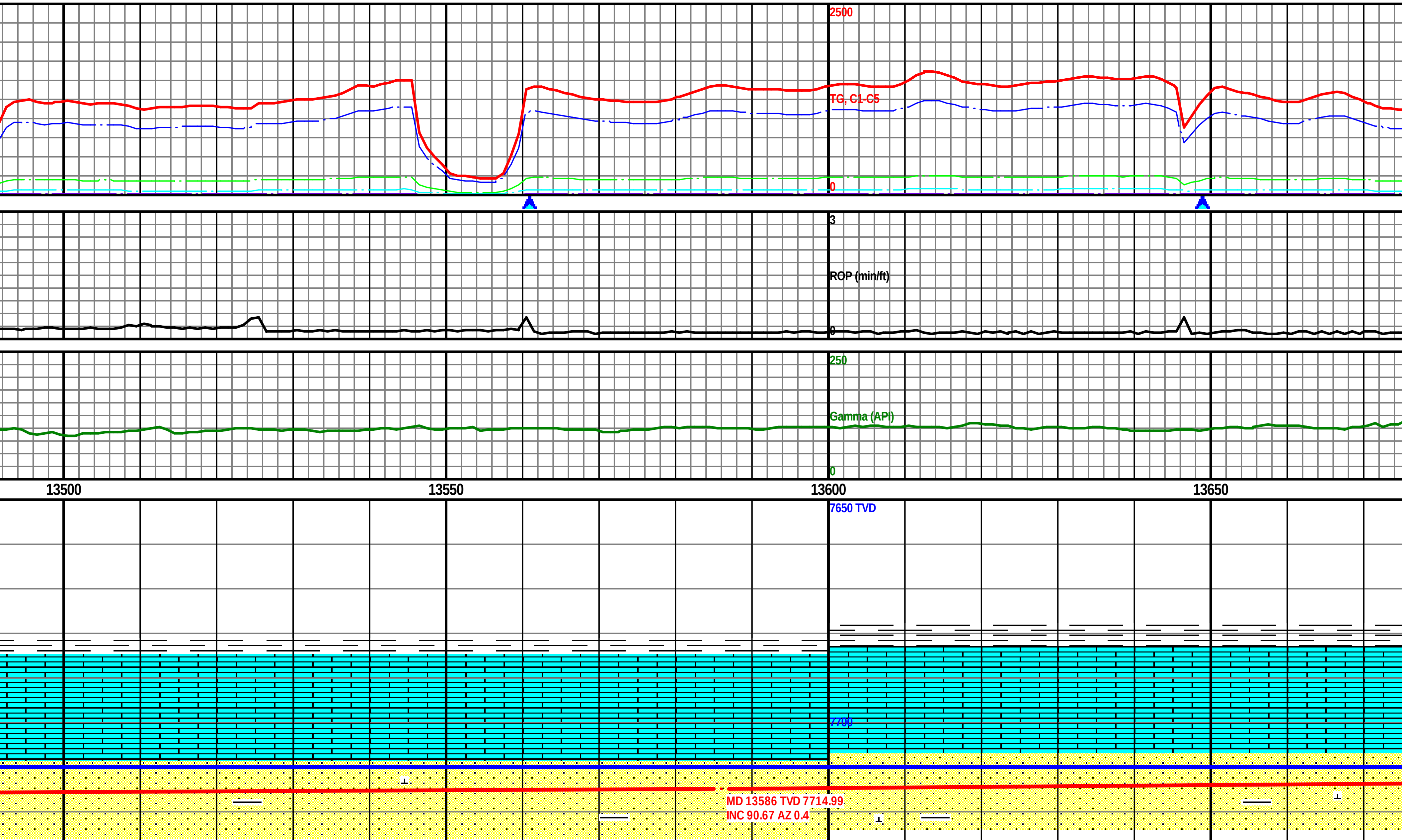


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
Change Shaker Screens - Flow Bypass
3
ROP (min/ft)
0
250
Gamma (API)
0
12950
13000
13050
13100
7650 TVD
7700
MD 13000 TVD 7710
MD 12991 TVD 7712.61
INC 88.02 AZ 0.32
MD 13076 TVD 7715.08
INC 88.64 AZ 359.12
7750
%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
l, carb incl, v fri, nsf, mod str wh cut. SH
gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
Gas Show #2
13272' - 14049'
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13150
13200
13250
13300
7650 TVD
Drilling with O.B.M. - Improved Sample Quality
7700
MD 13161 TVD 7716.09
INC 90 AZ 359.97
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, md cal, carb incl, v fri, nsf, mod s 10%: gy-dkgy, sft, sbplty-sbblky cal.
7750


MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13350
13400
13450
7650 TVD
7700
MD 13400 TVD 7710
INC 90
MD 13331 TVD 7716.24
INC 89.9 AZ 359.54
MD 13416 TVD 7716.2
INC 90.15 AZ 0.24
7750
rnd-sub rnd, sft,
tr wh cut. SH
, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 9
md c
10%
cal.

MW: 9.4 / VIS: 48 MW: 9.4 / VIS: 48

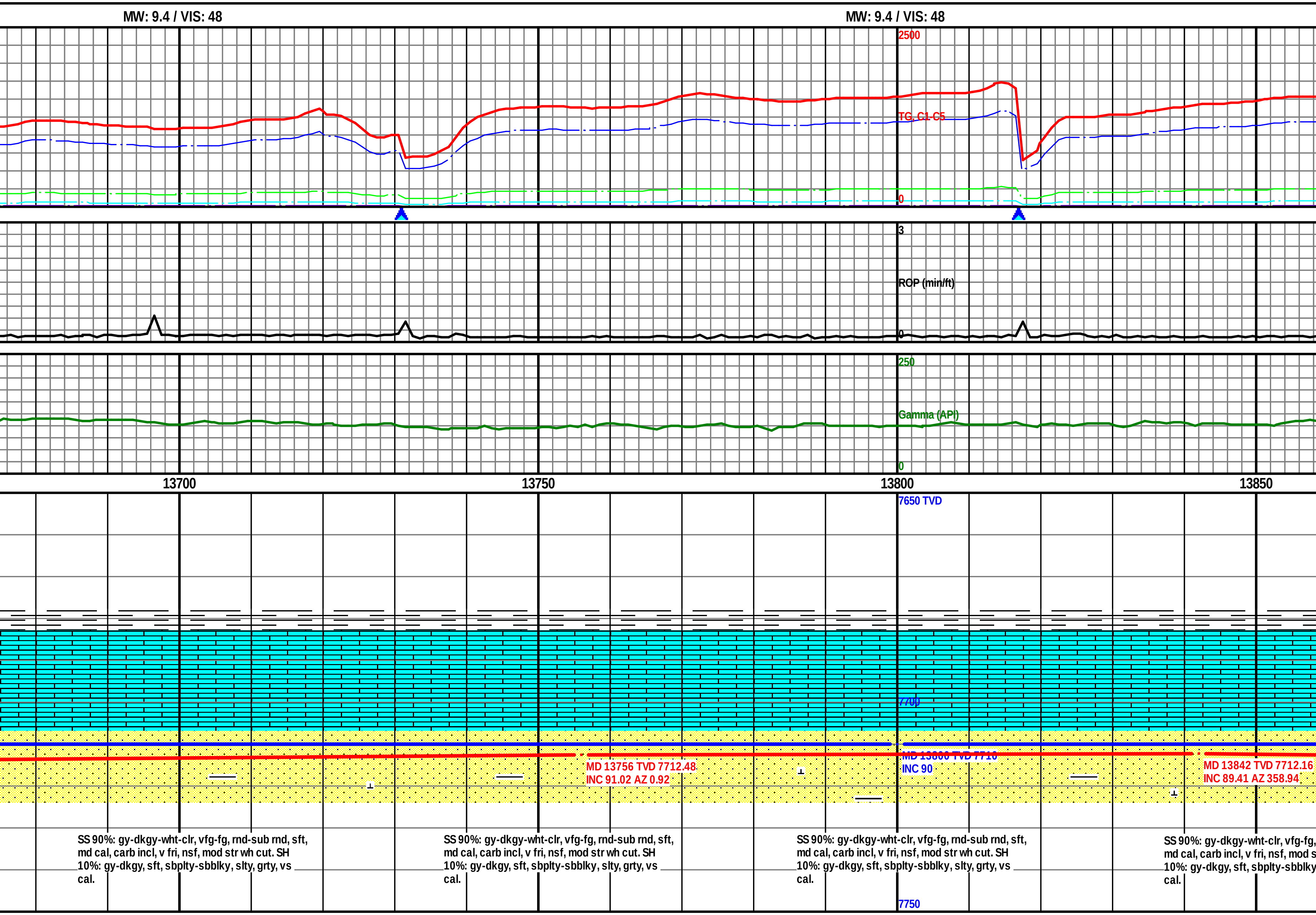


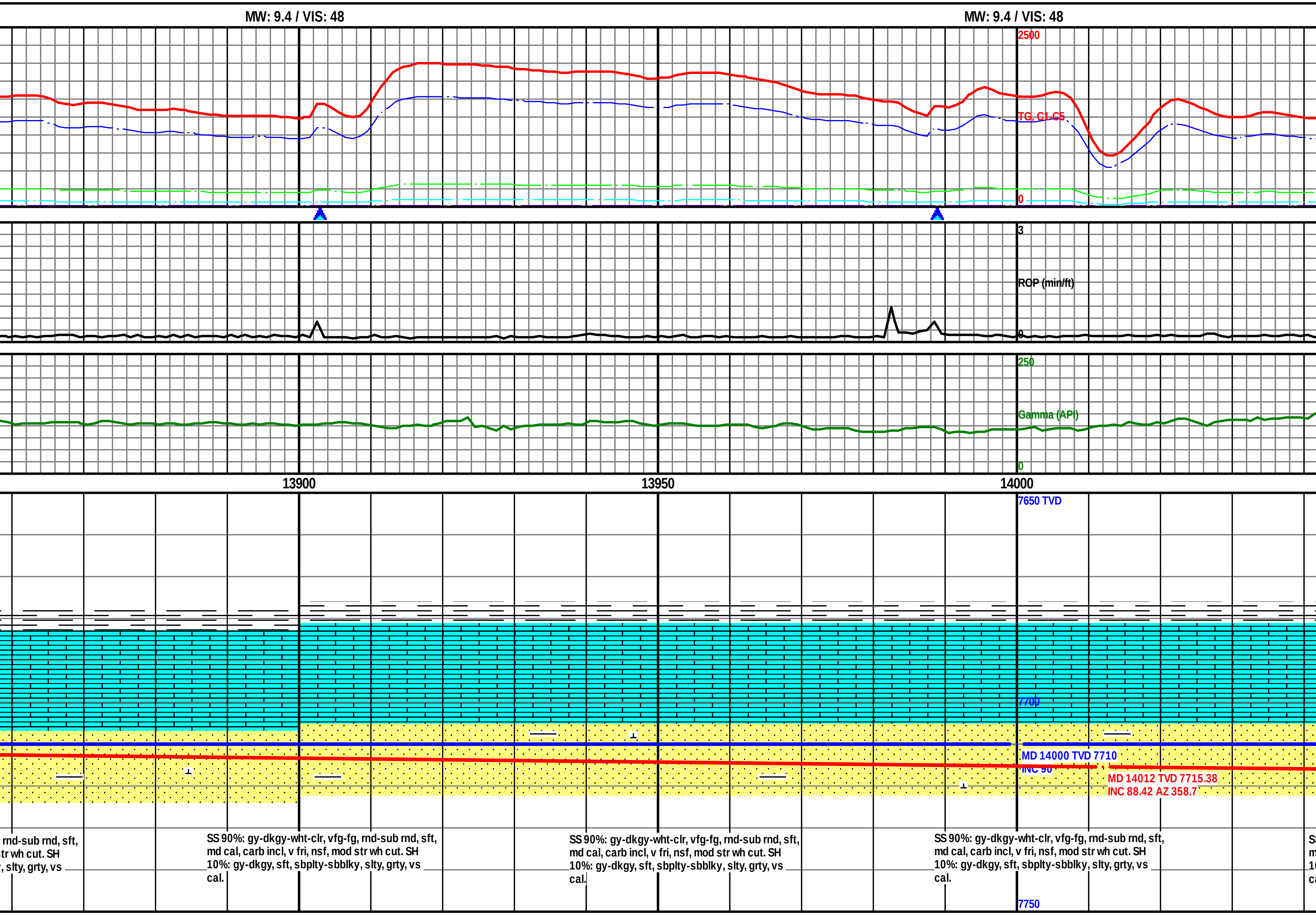
0%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, cal, carb incl, v fri, nsf, mod str wh cut. SH : gy-dkgy, sft, sbplty-sbblky, slty, grty, vs

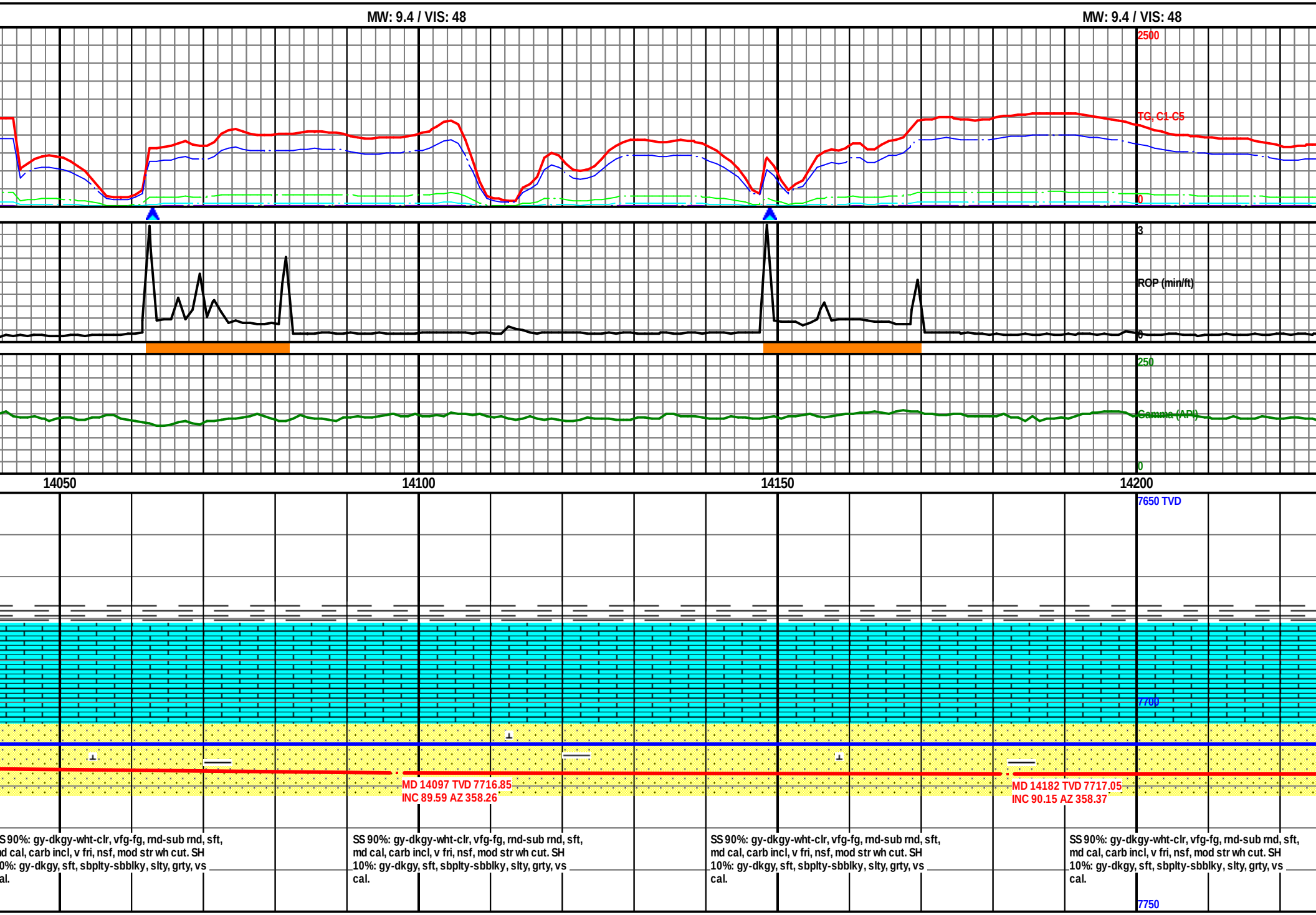
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

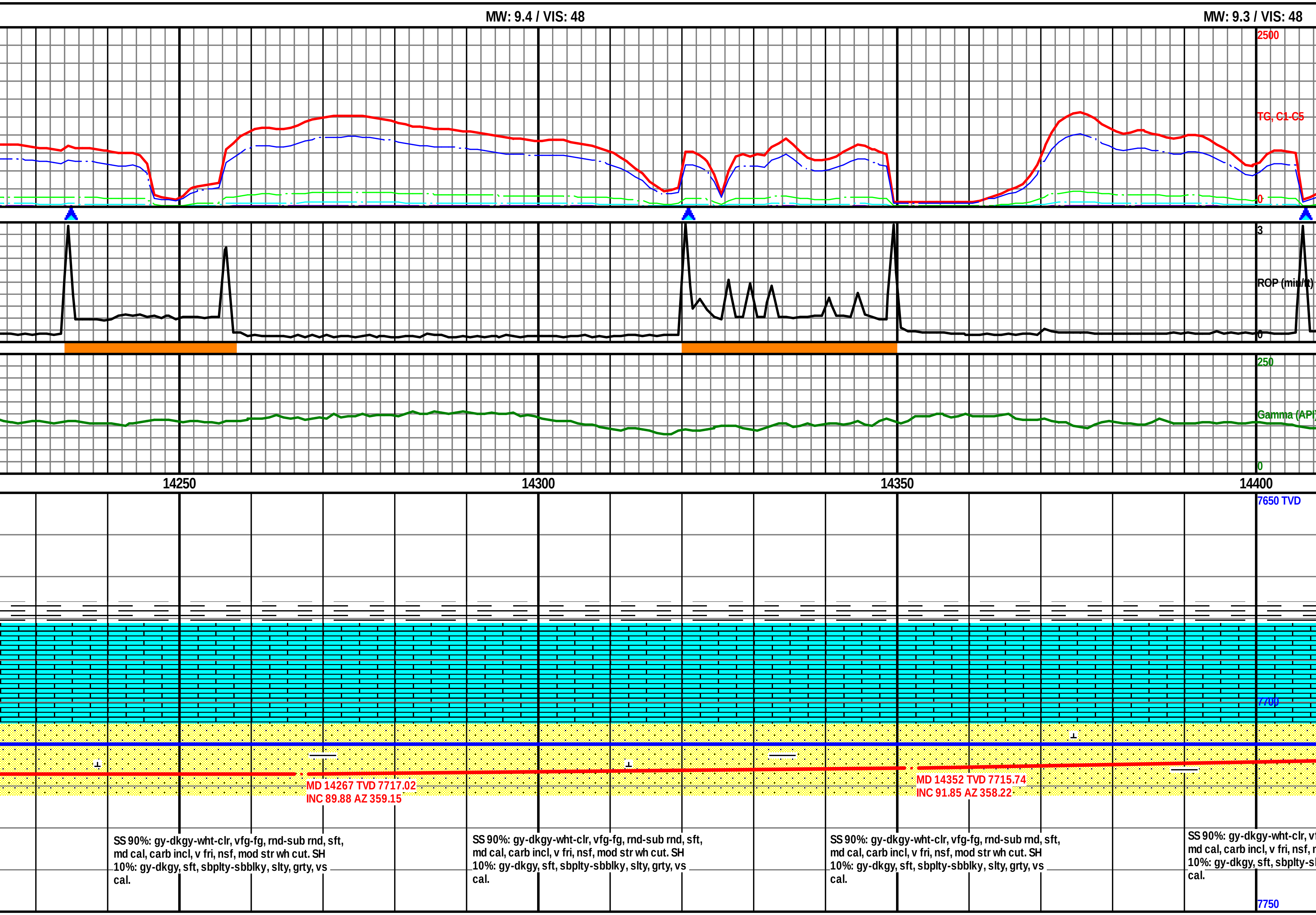
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13700
13750
13800
13850
7650 TVD
7700
MD 13756 TVD 7712.48
INC 91.02 AZ 0.92
MD 13800 TVD 7710
INC 90
MD 13842 TVD 7712.16
INC 89.41 AZ 358.94
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, md cal, carb incl, v fri, nsf, mod s 10%: gy-dkgy, sft, sbplty-sbblky cal.
7750

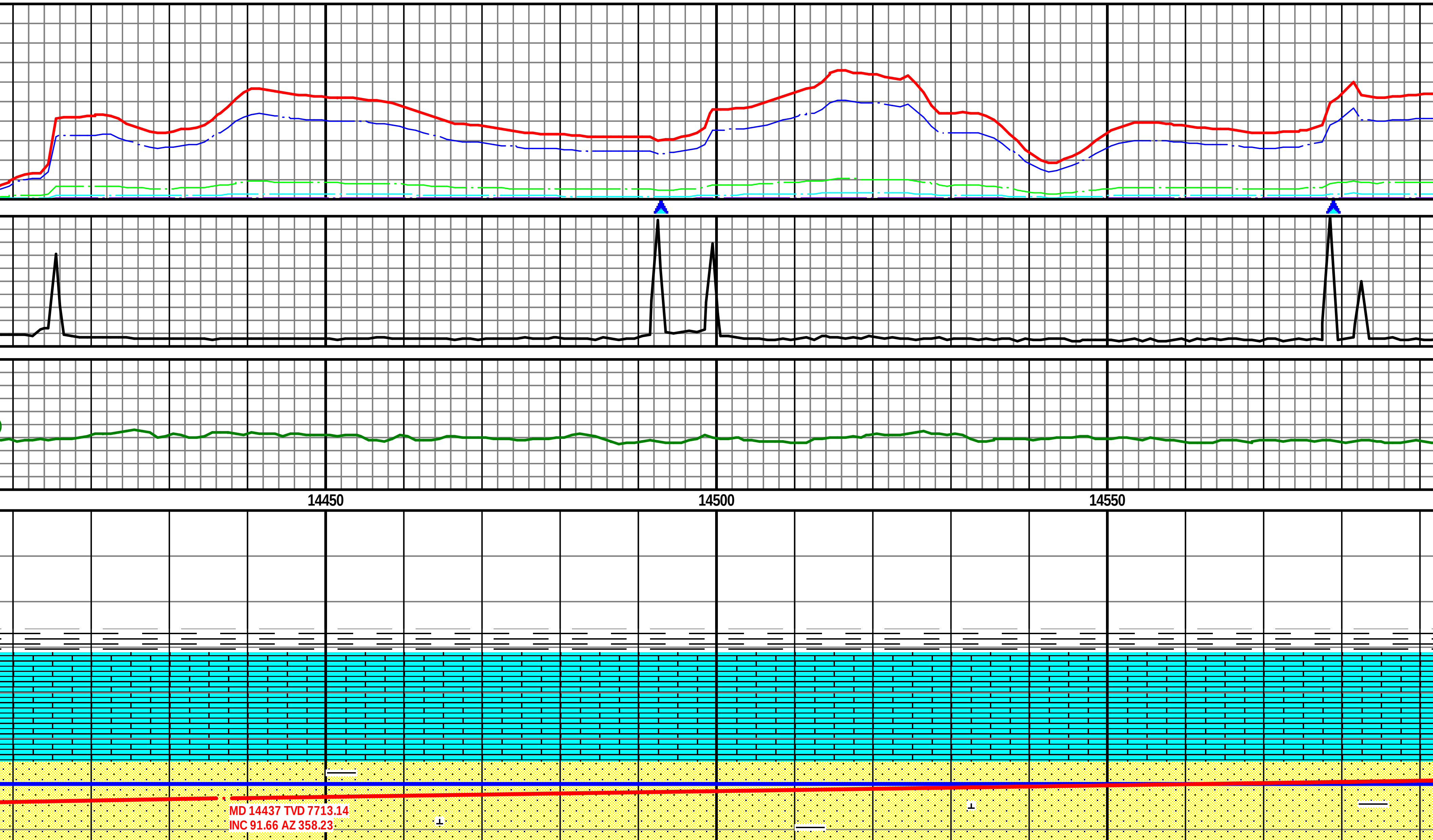

MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13900
13950
14000
7650 TVD
7700
MD 14000 TVD 7710
INC 90
MD 14012 TVD 7715.38
INC 88.42 AZ 358.7
7750
rnd-sub rnd, sft,
tr wh cut. SH
, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1 C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14050
14100
14150
14200
7650 TVD
7700
7750
MD 14097 TVD 7716.85
INC 89.59 AZ 358.26
MD 14182 TVD 7717.05
INC 90.15 AZ 358.37
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.



MW: 9.4 / VIS: 48
MW: 9.3 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14250
14300
14350
14400
7650 TVD
7700
7750
MD 14267 TVD 7717.02
INC 89.88 AZ 359.15
MD 14352 TVD 7715.74
INC 91.85 AZ 358.22
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.

MW: 9.3 / VIS: 48



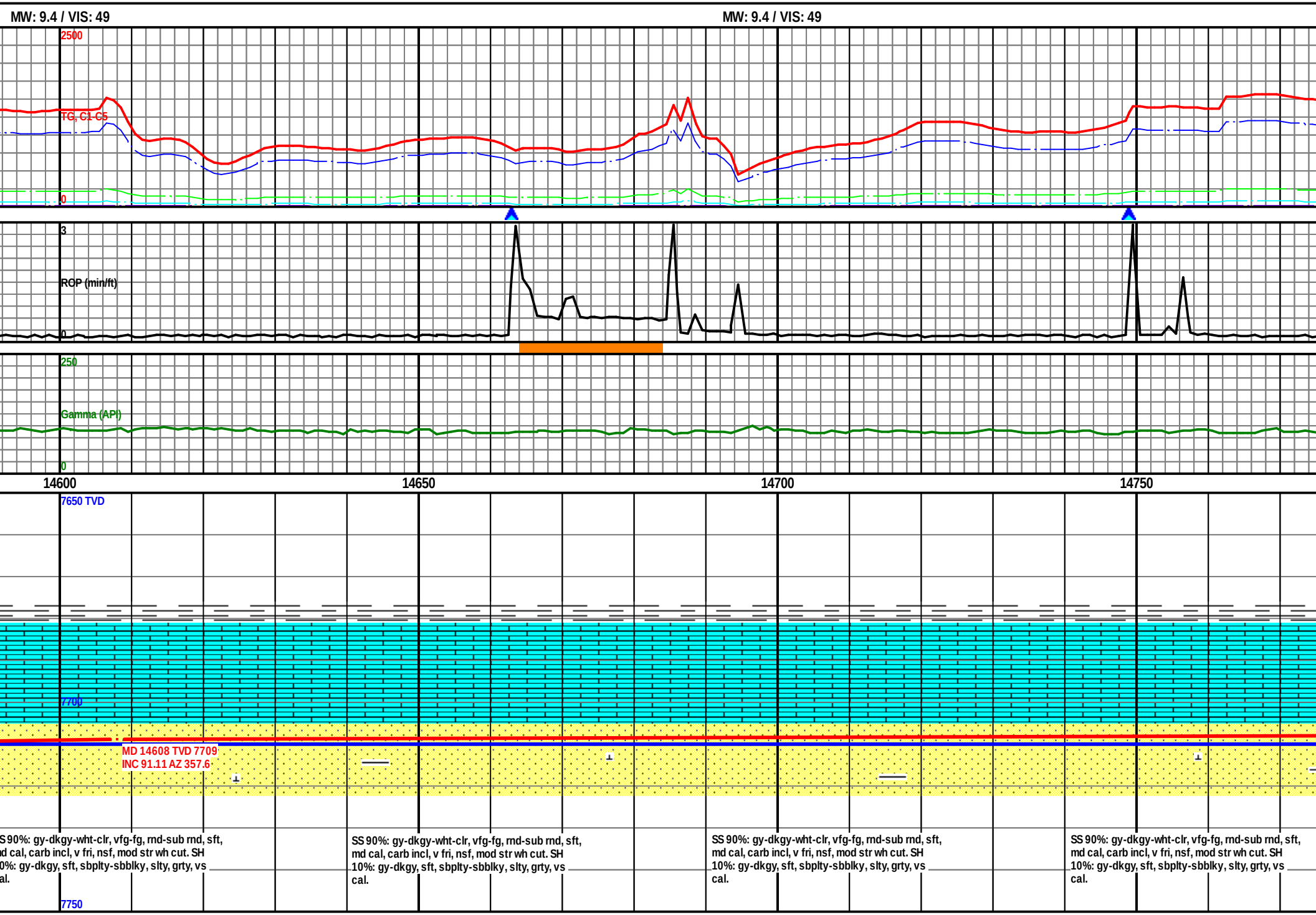
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs

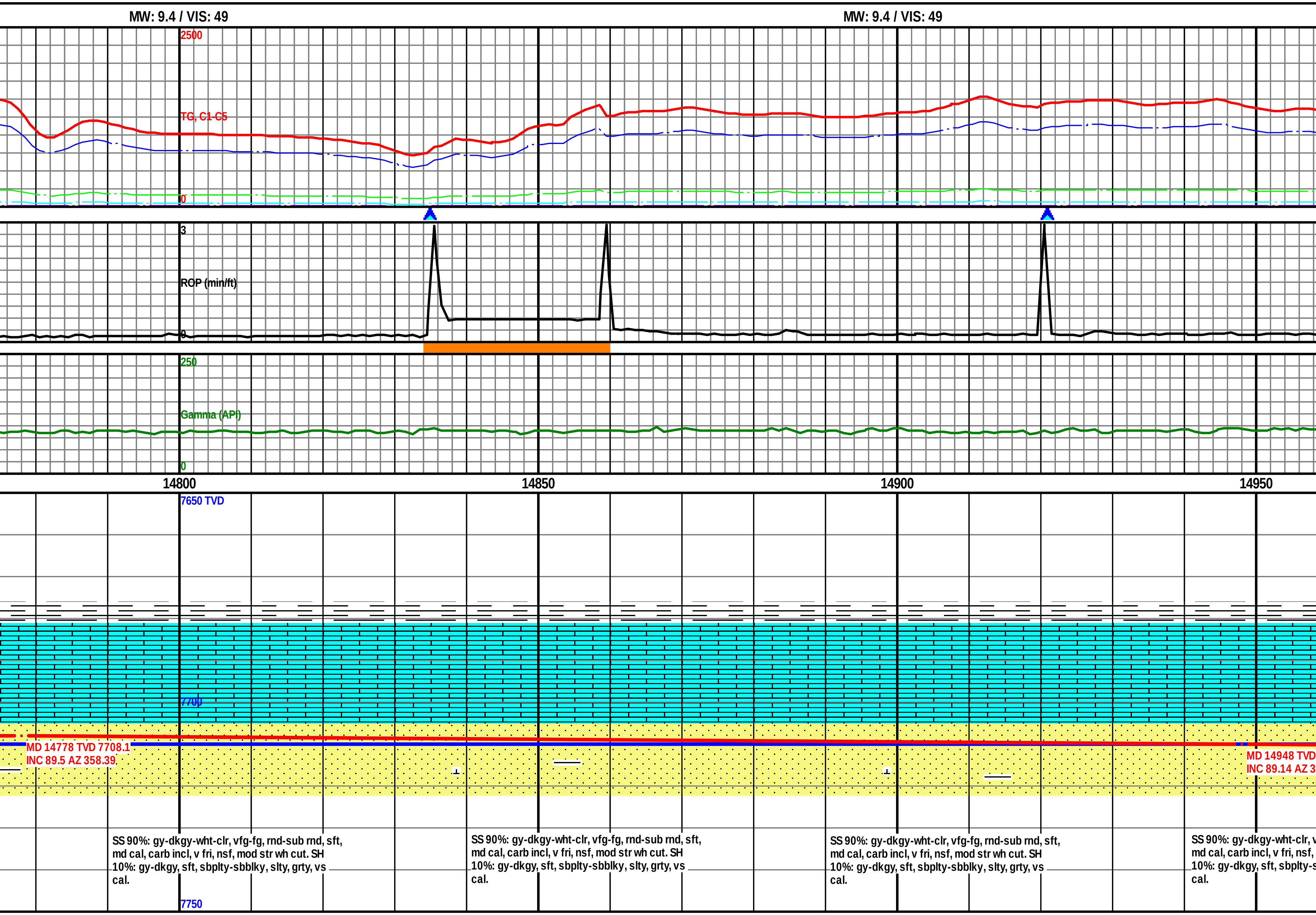
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

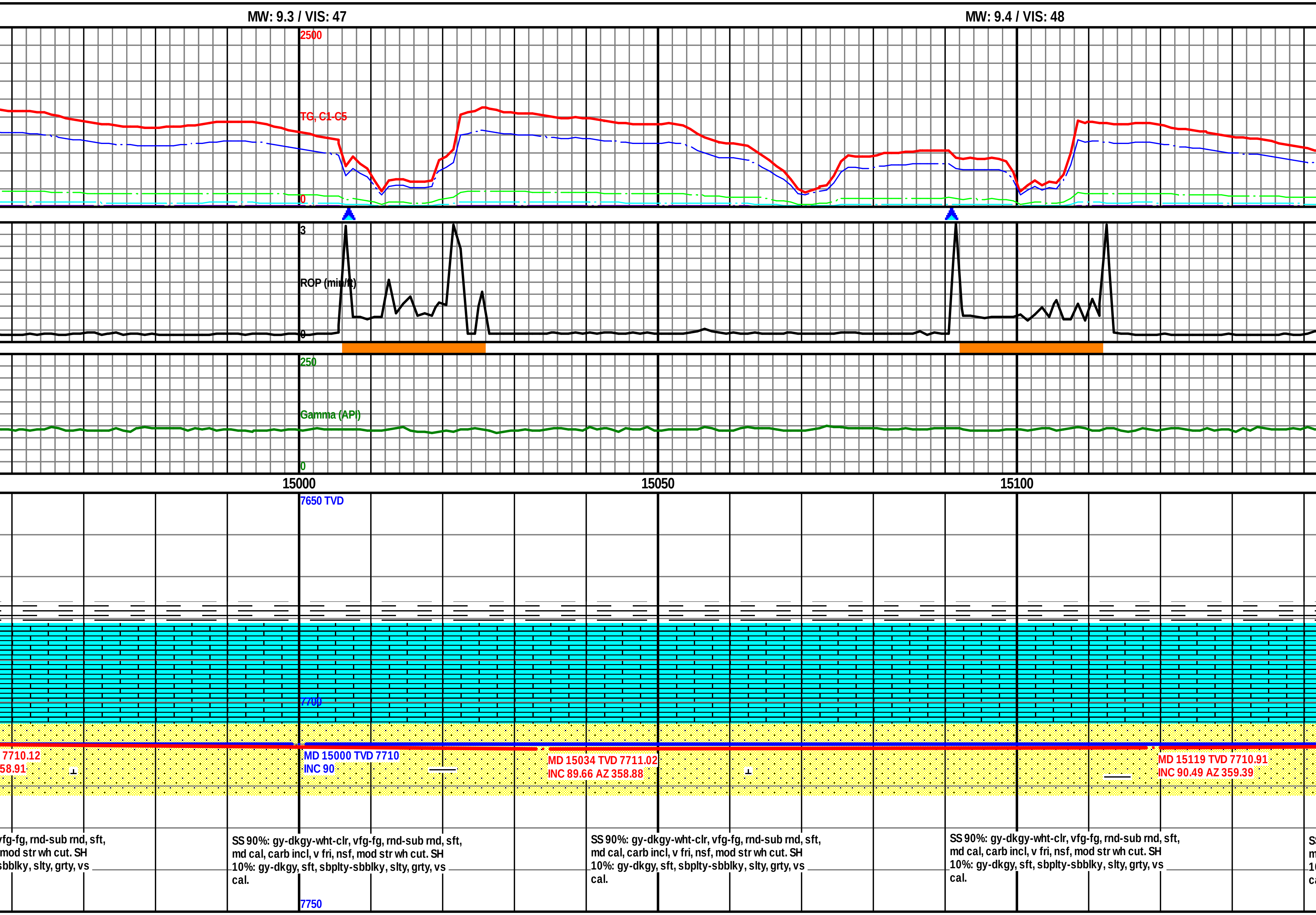
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

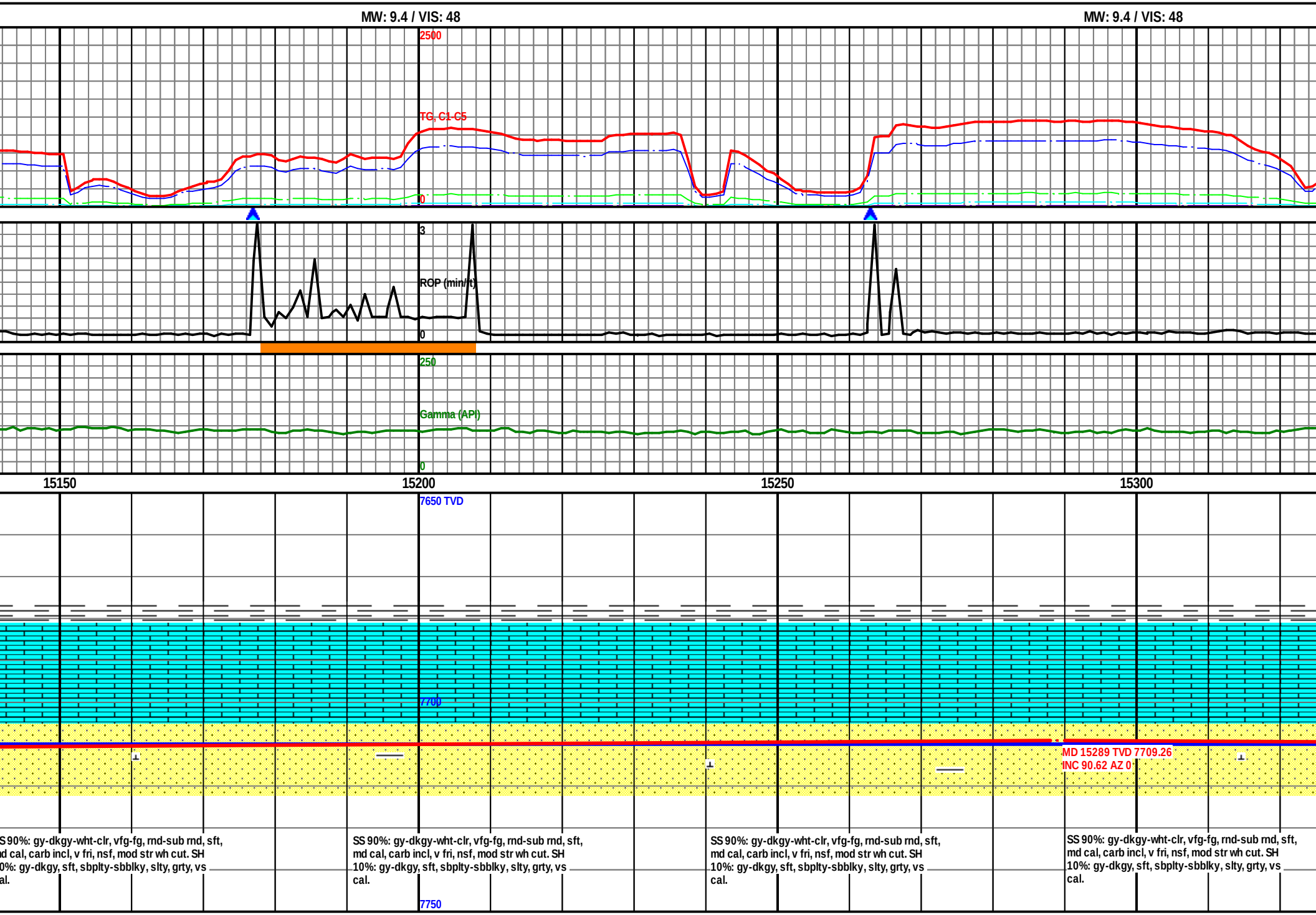
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

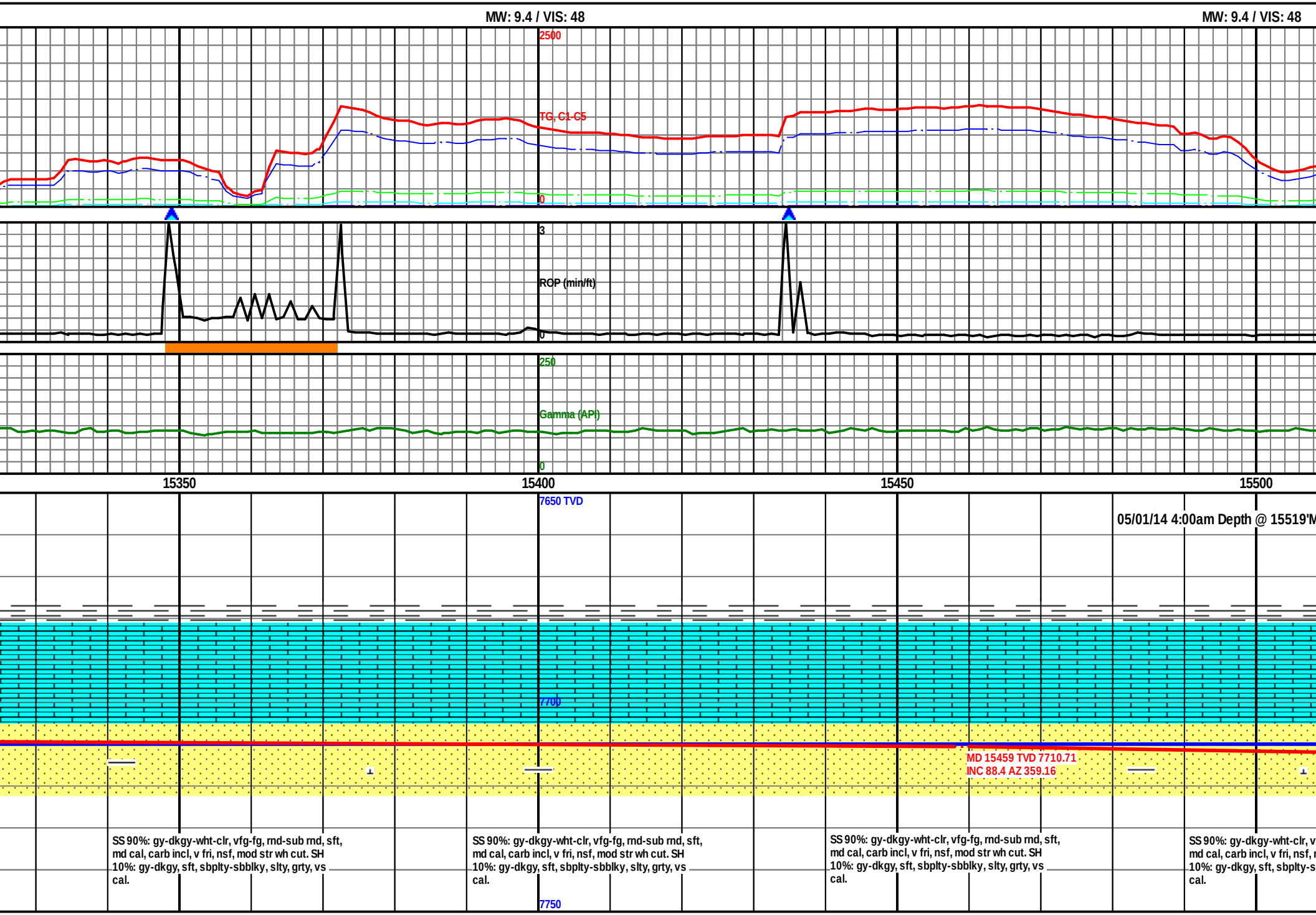
S
m
1
ca

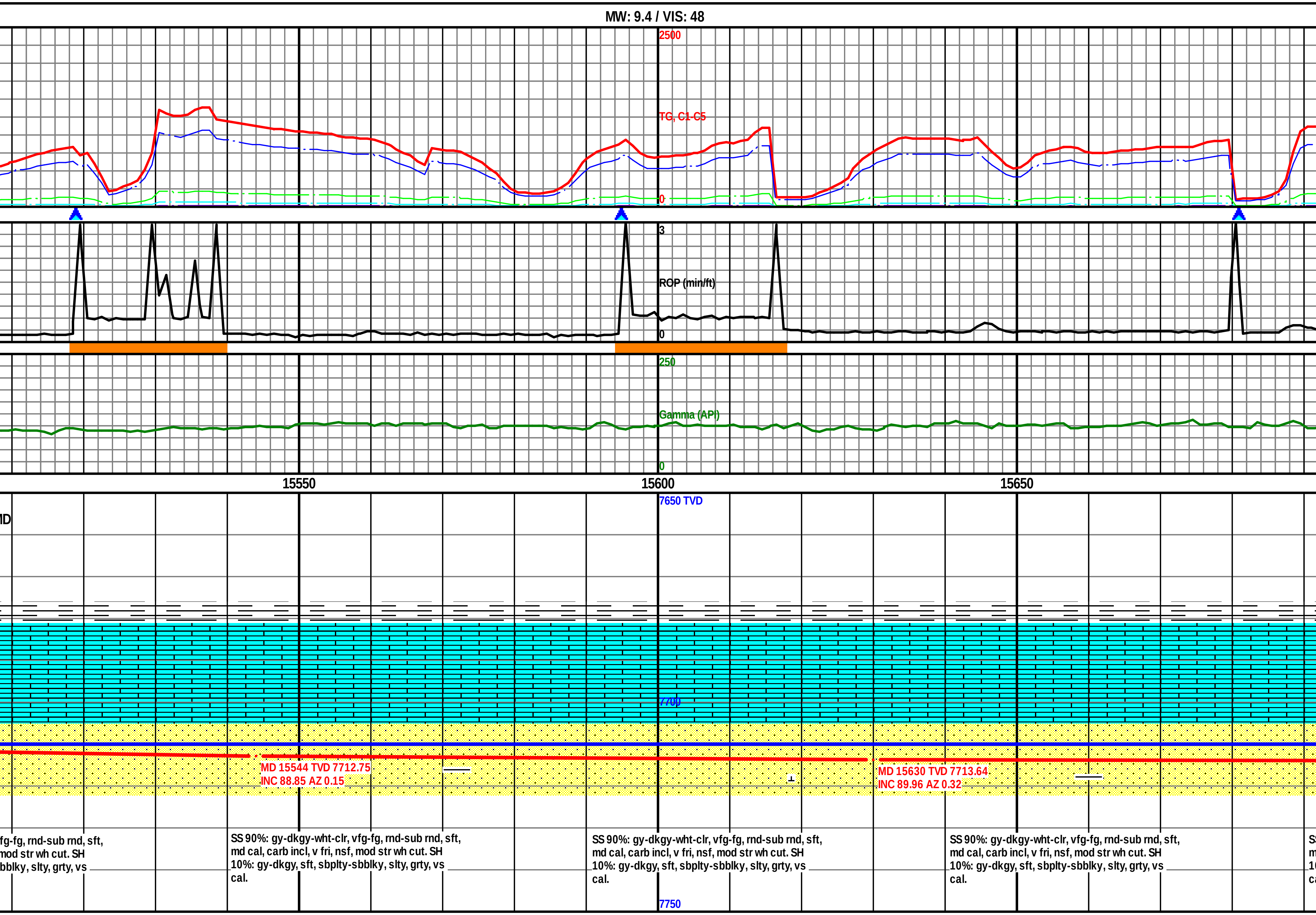

MW: 9.4 / VIS: 49
MW: 9.4 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14600
14650
14700
14750
7650 TVD
7700
MD 14608 TVD 7709
INC 91.11 AZ 357.6
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
7750

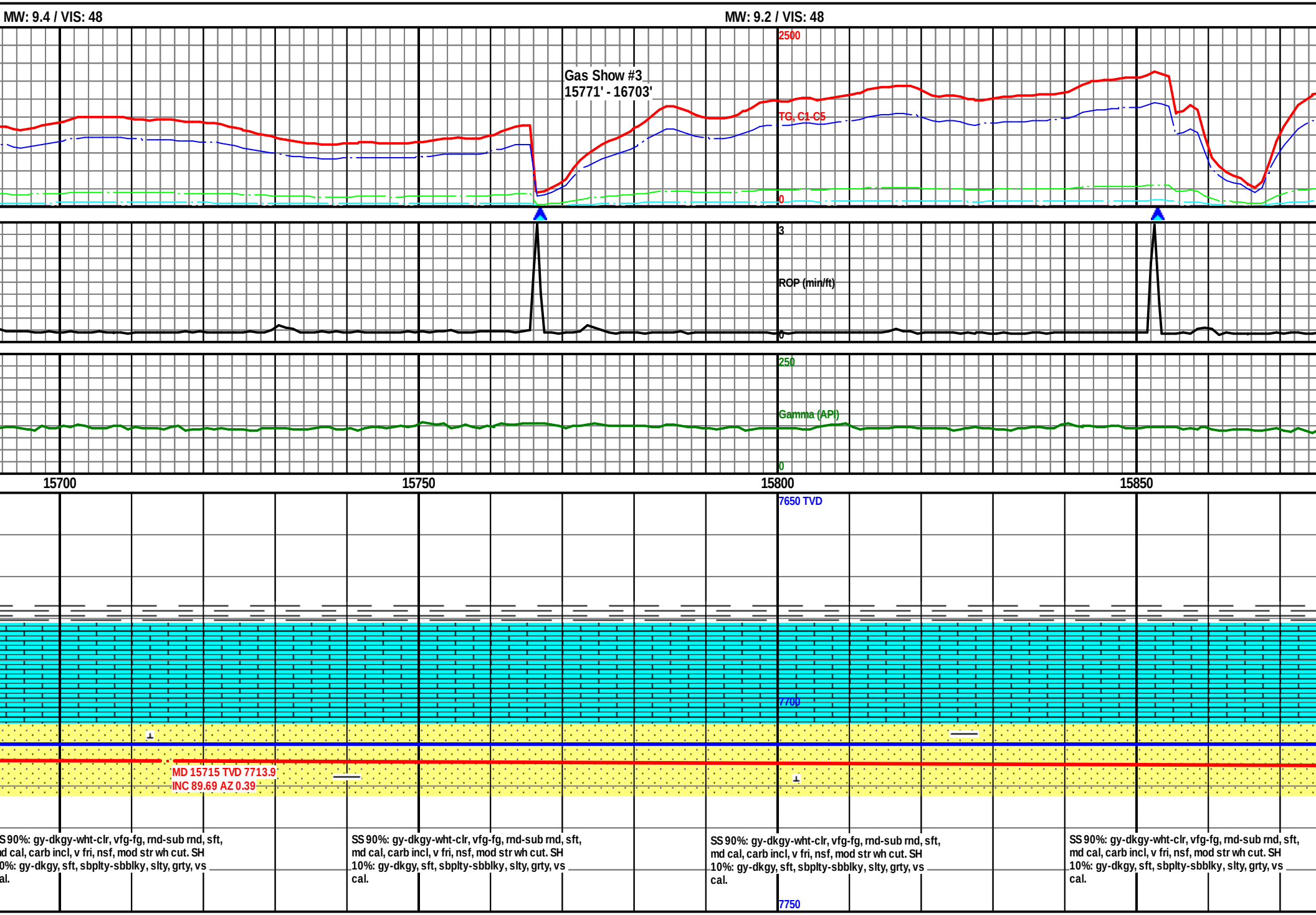

MW: 9.4 / VIS: 49
MW: 9.4 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14800
14850
14900
14950
7650 TVD
7700
7750
MD 14778 TVD 7708.1
INC 89.5 AZ 358.39
MD 14948 TVD
INC 89.14 AZ 3
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.

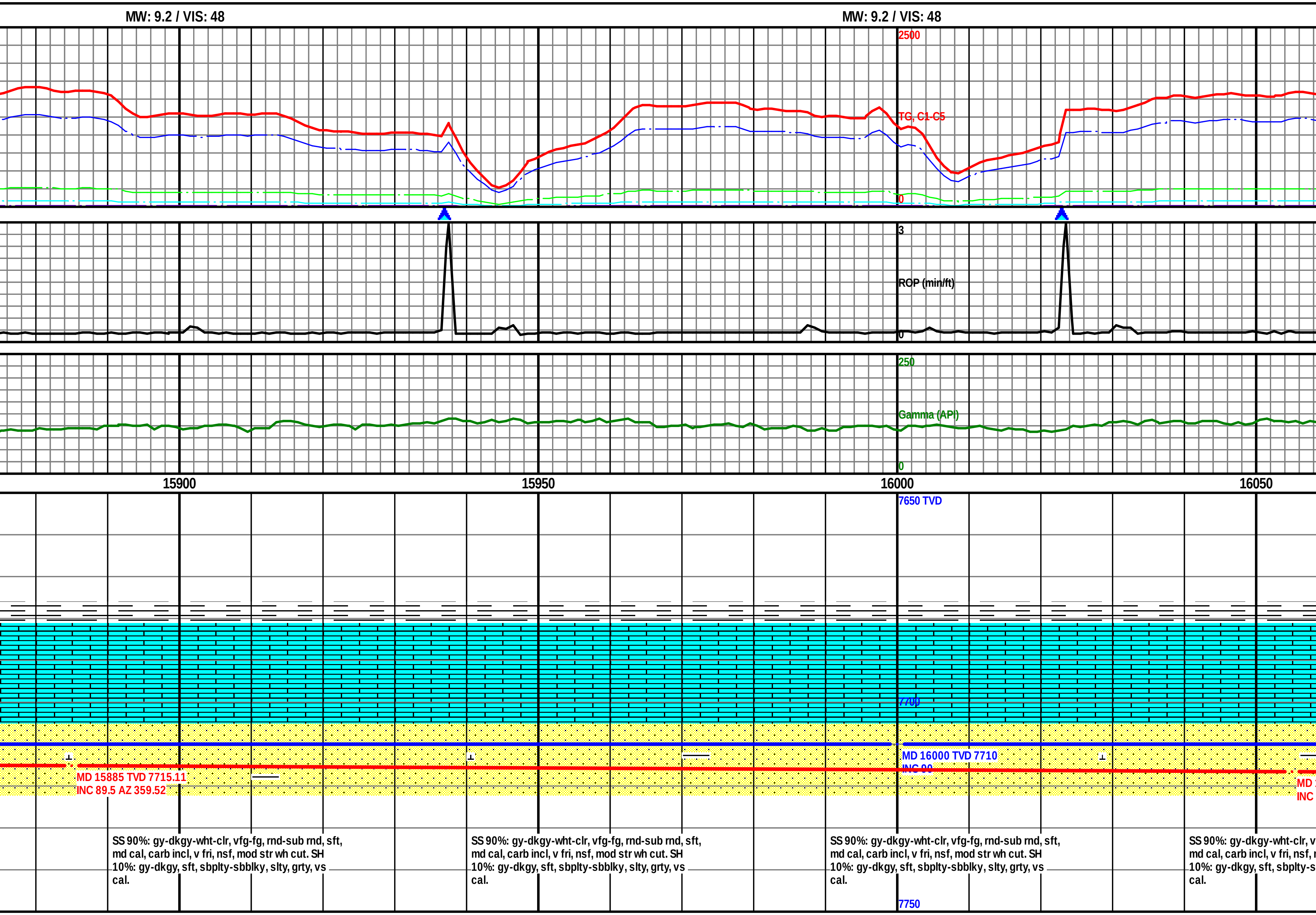

MW: 9.3 / VIS: 47
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15000
15050
15100
7650 TVD
7700
7750
7710.12
58.91
MD 15000 TVD 7710
INC 90
MD 15034 TVD 7711.02
INC 89.66 AZ 358.88
MD 15119 TVD 7710.91
INC 90.49 AZ 359.39
vfg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
sbblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

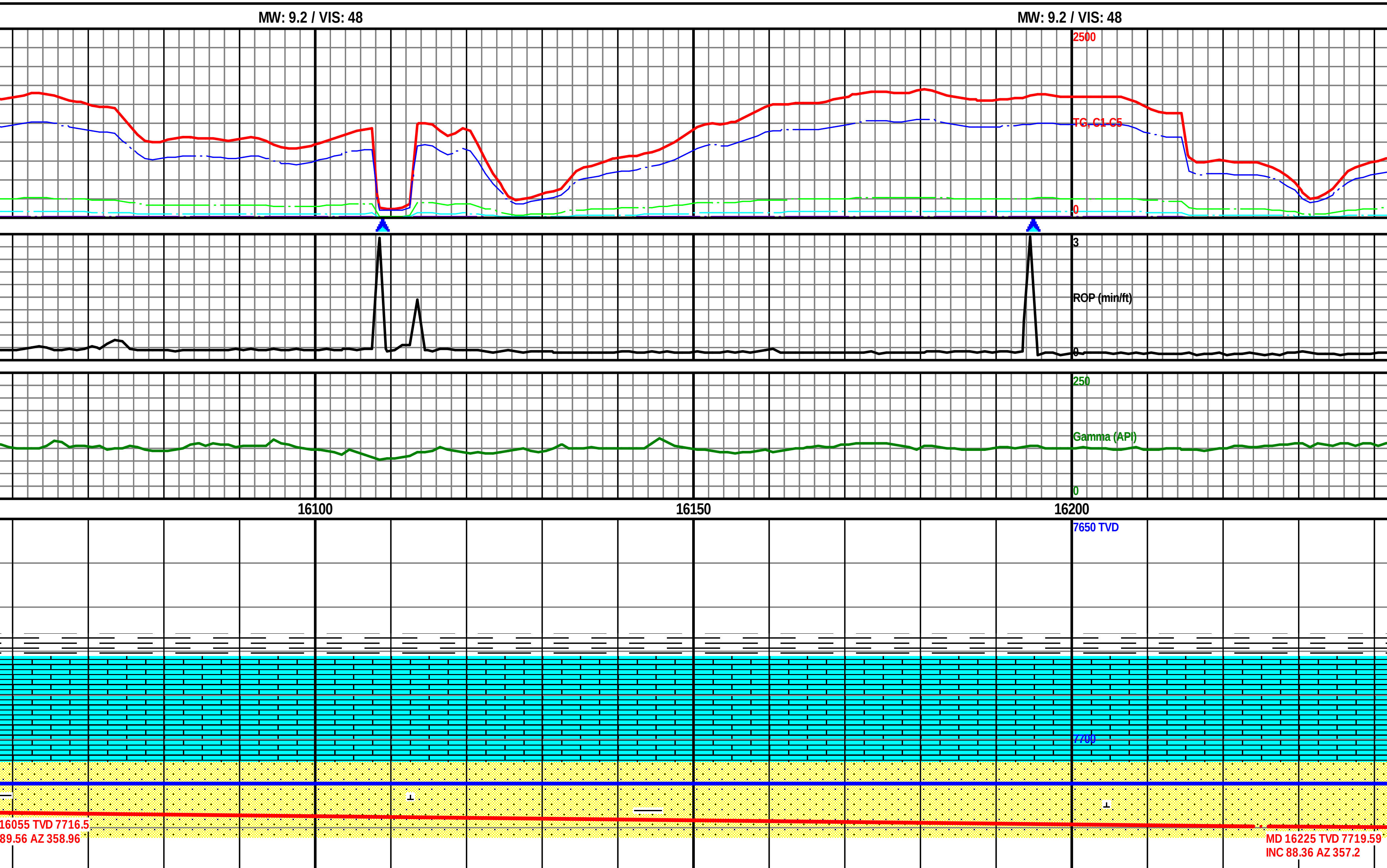

MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15150
15200
15250
15300
7650 TVD
7700
MD 15289 TVD 7709.26
INC 90.62 AZ 0
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
0%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
al.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
7750
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15350
15400
15450
15500
7650 TVD
05/01/14 4:00am Depth @ 15519'M
7700
MD 15459 TVD 7710.71
INC 88.4 AZ 359.16
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7750
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.


MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15550
15600
15650
7650 TVD
7700
7750
MD 15544 TVD 7712.75
INC 88.85 AZ 0.15
MD 15630 TVD 7713.64
INC 89.96 AZ 0.32
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.4 / VIS: 48
MW: 9.2 / VIS: 48
Gas Show #3
15771' - 16703'
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15700
15750
15800
15850
7650 TVD
7700
MD 15715 TVD 7713.9
INC 89.69 AZ 0.39
7750
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.


MW: 9.2 / VIS: 48
MW: 9.2 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15900
15950
16000
16050
7650 TVD
7700
7750
MD 15885 TVD 7715.11
INC 89.5 AZ 359.52
MD 16000 TVD 7710
INC 90
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.



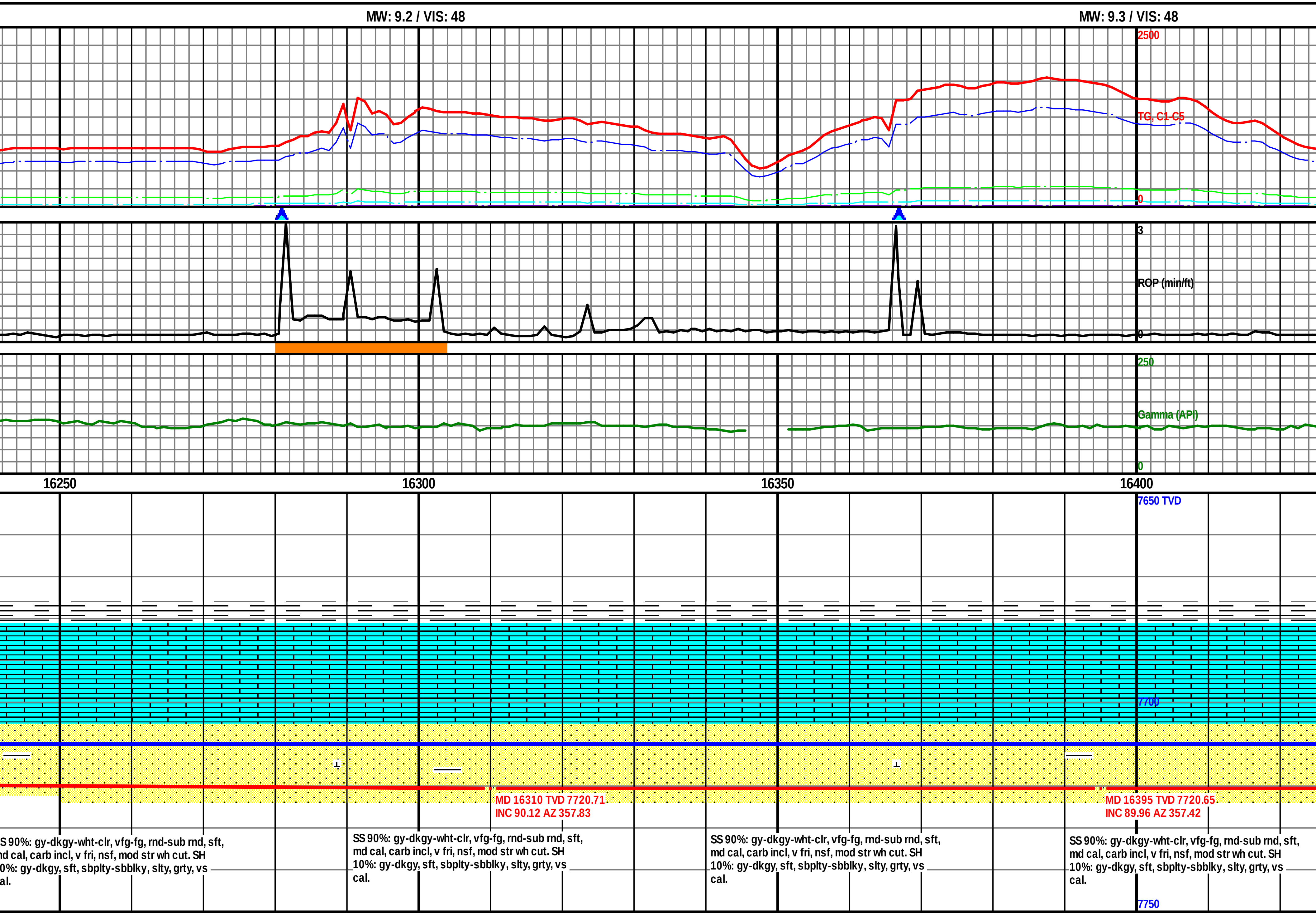
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs

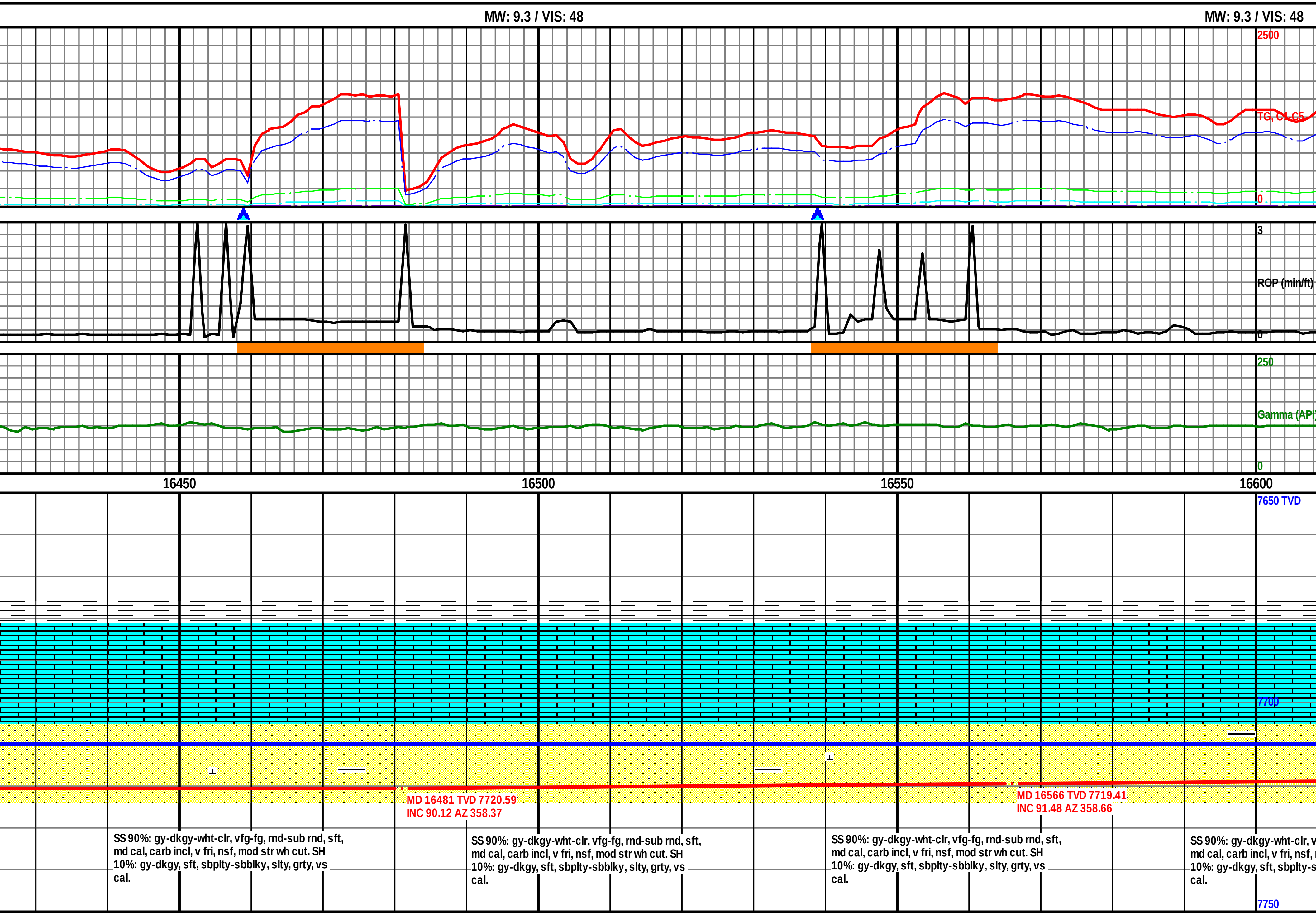
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

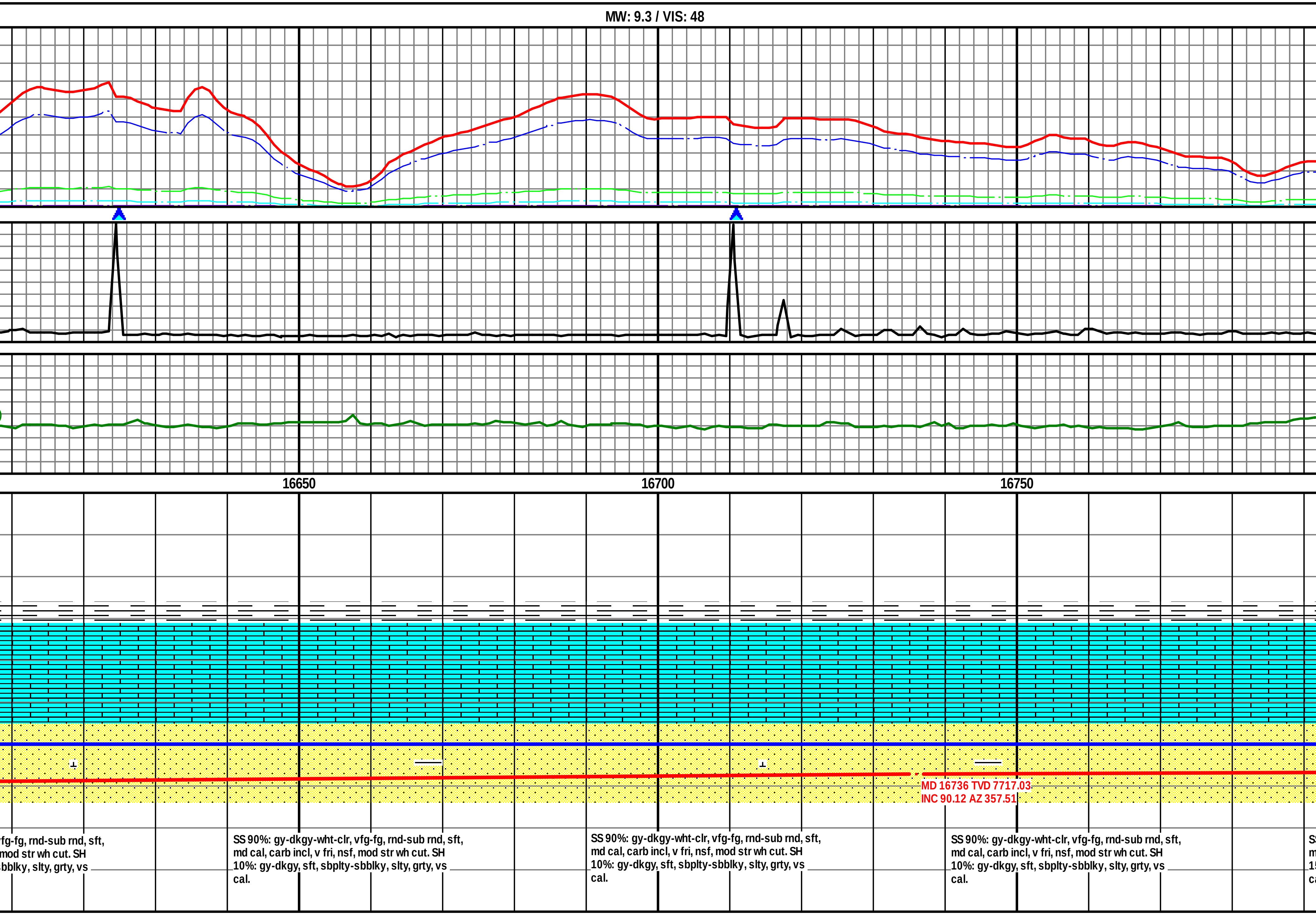
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

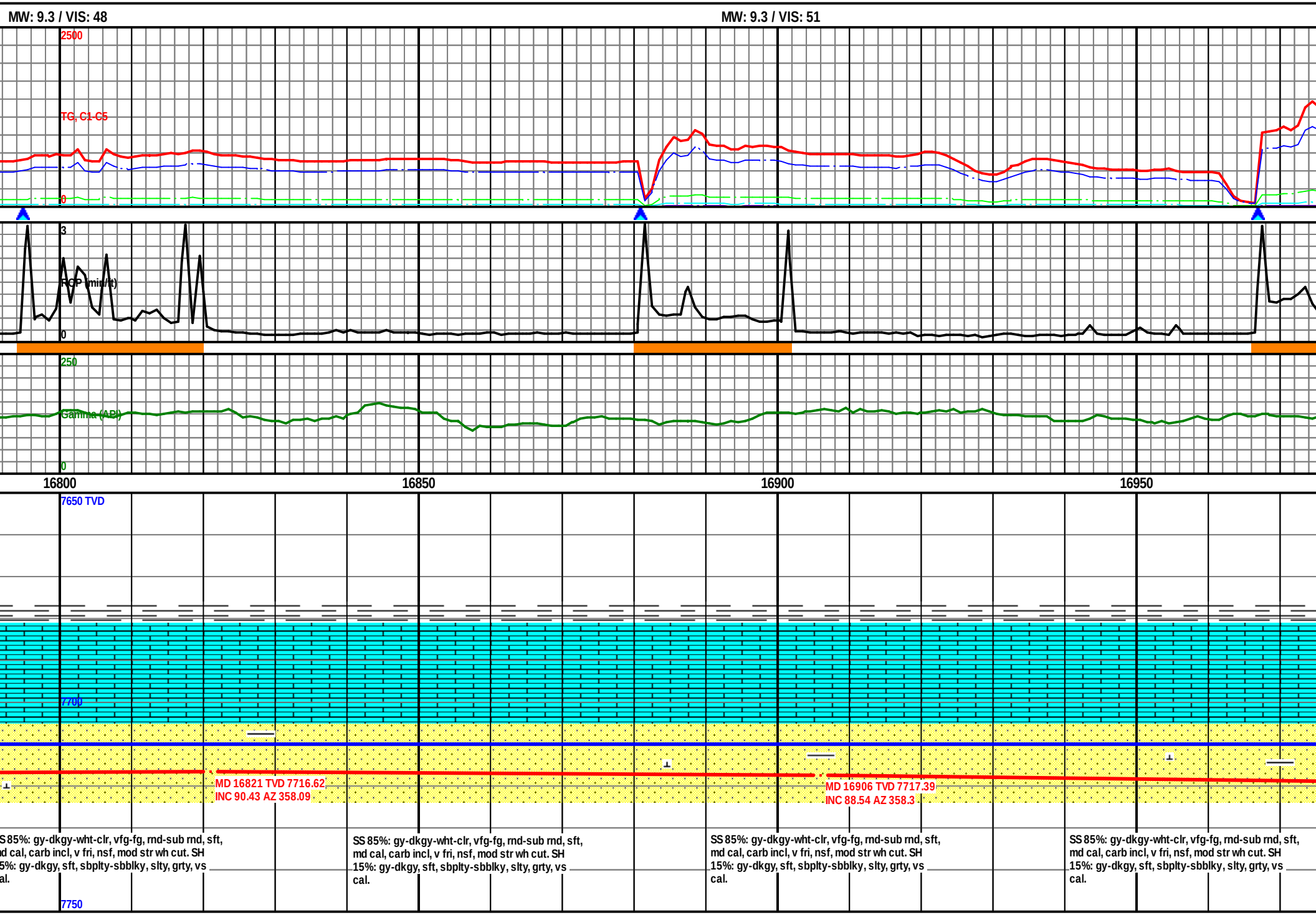
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

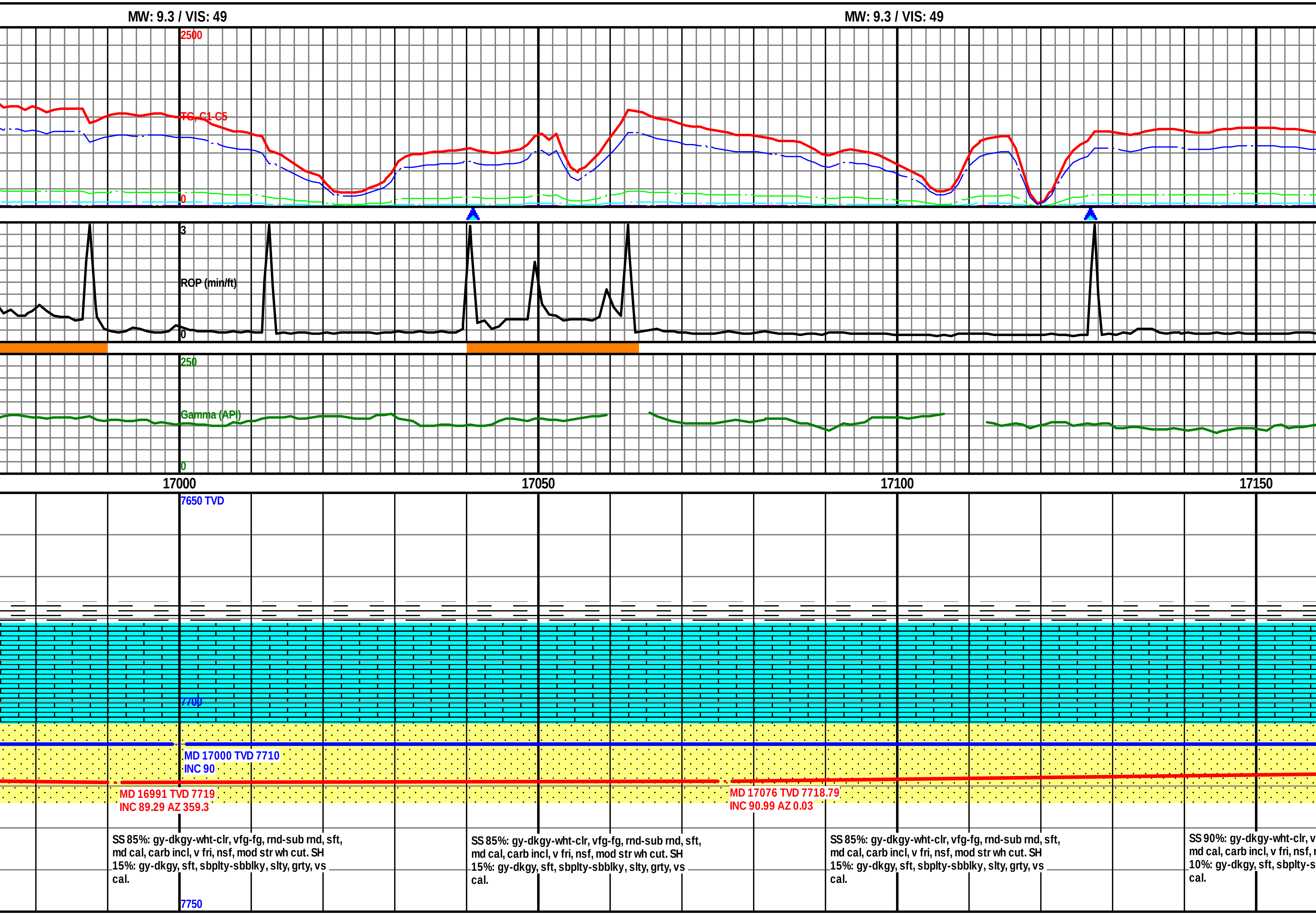
S
m
1
c

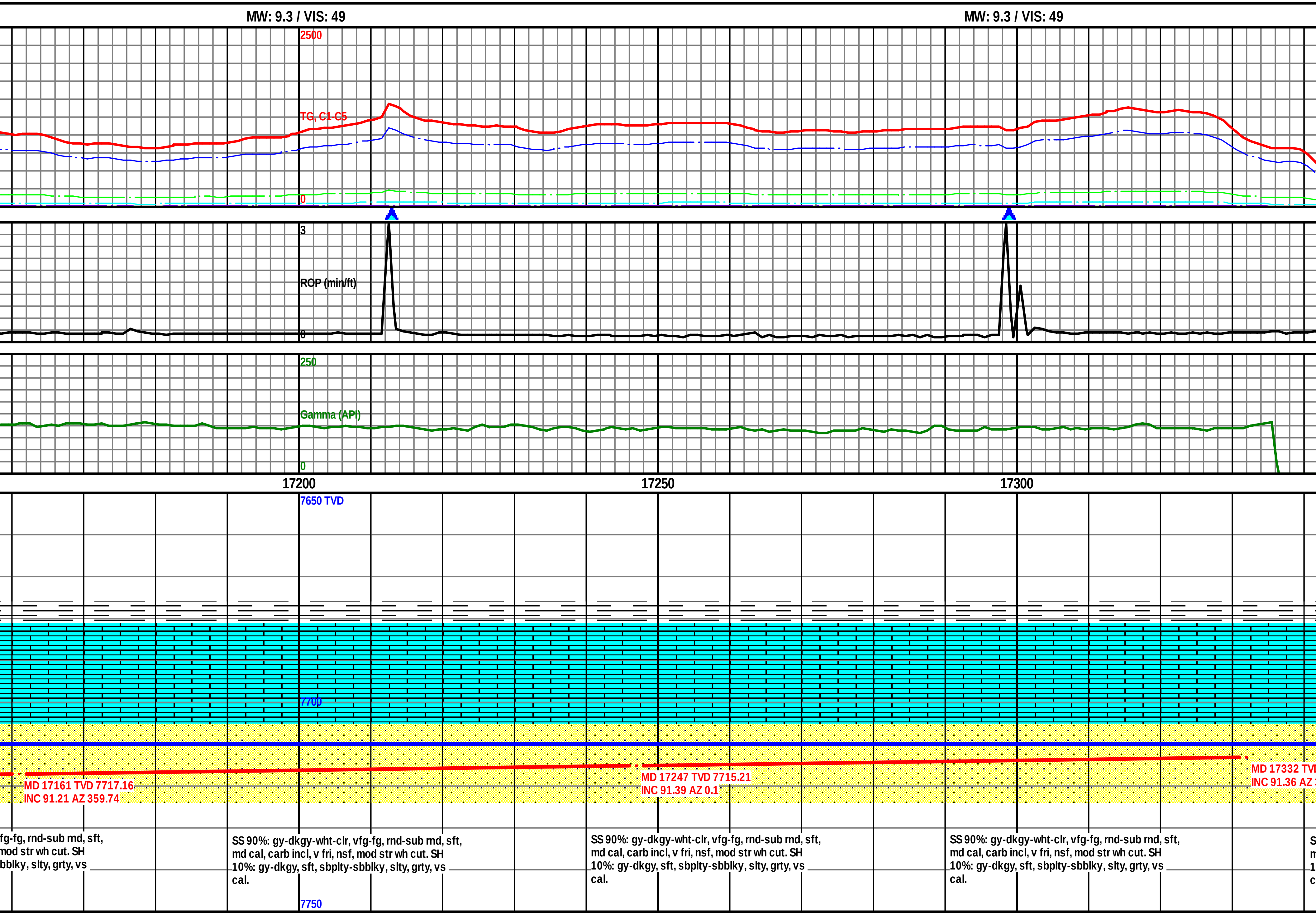

MW: 9.2 / VIS: 48
MW: 9.3 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16250
16300
16350
16400
7650 TVD
7700
7750
MD 16310 TVD 7720.71
INC 90.12 AZ 357.83
MD 16395 TVD 7720.65
INC 89.96 AZ 357.42
S 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
nd cal, carb incl, v fri, nsf, mod str wh cut. SH
0%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
al.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.

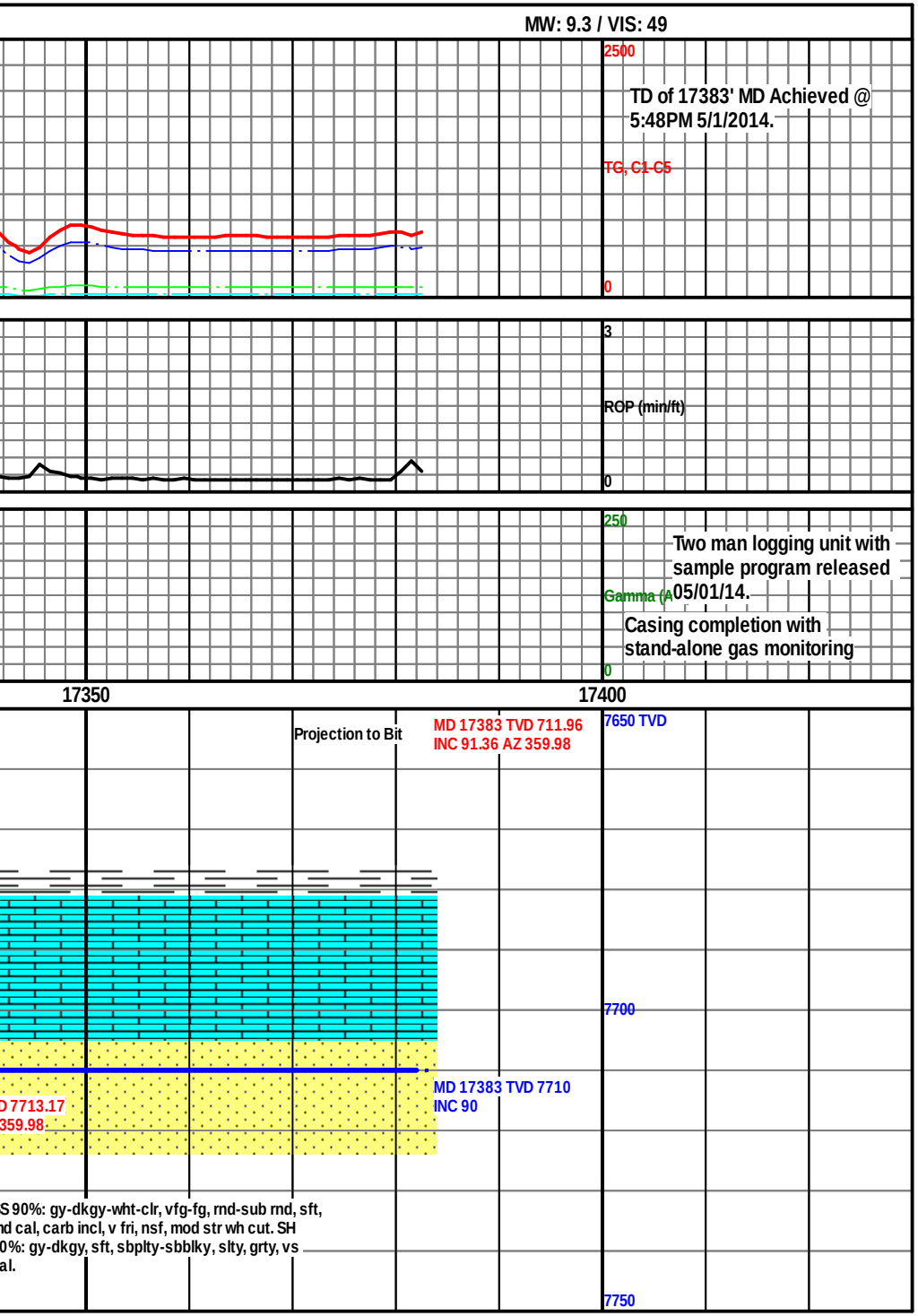

MW: 9.3 / VIS: 48
MW: 9.3 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16450
16500
16550
16600
7650 TVD
7700
7750
MD 16481 TVD 7720.59
INC 90.12 AZ 358.37
MD 16566 TVD 7719.41
INC 91.48 AZ 358.66
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.


MW: 9.3 / VIS: 48
16650
16700
16750
MD 16736 TVD 7717.03
INC 90.12 AZ 357.51
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.3 / VIS: 48
MW: 9.3 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16800
16850
16900
16950
7650 TVD
7700
MD 16821 TVD 7716.62
INC 90.43 AZ 358.09
MD 16906 TVD 7717.39
INC 88.54 AZ 358.3
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, mod str wh cut. SH
15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
cal.
7750


MW: 9.3 / VIS: 49
MW: 9.3 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
17000
17050
17100
17150
7650 TVD
7700
MD 17000 TVD 7710
INC 90
MD 16991 TVD 7719
INC 89.29 AZ 359.3
MD 17076 TVD 7718.79
INC 90.99 AZ 0.03
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, v
md cal, carb incl, v fri, nsf,
10%: gy-dkgy, sft, sbplty-s
cal.
7750


MW: 9.3 / VIS: 49
MW: 9.3 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
17200
17250
17300
7650 TVD
7700
7750
MD 17161 TVD 7717.16
INC 91.21 AZ 359.74
MD 17247 TVD 7715.21
INC 91.39 AZ 0.1
fg-fg, rnd-sub rnd, sft,
mod str wh cut. SH
bblky, slty, grty, vs
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, mod str wh cut. SH 10%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.3 / VIS: 49
2500
TD of 17383' MD Achieved @ 5:48PM 5/1/2014.
TG, C1-C5
0
3
ROP (min/ft)
0
250
Two man logging unit with sample program released 05/01/14.
Gamma (A
Casing completion with stand-alone gas monitoring
0
17350
17400
Projection to Bit
MD 17383 TVD 711.96
INC 91.36 AZ 359.98
7650 TVD
7700
MD 17383 TVD 7710
INC 90
D 7713.17
359.98
S 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
nd cal, carb incl, v fri, nsf, mod str wh cut. SH
0%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs
al.
7750