Scale 1:200 Imperial
Measured Depth Log

Well Name:	Grenemyer 14C-3HZ		
Location:	Weld County, CO.		
License Number:	05123384160000	Region:	DJ Basin
Spud Date:	12/21/13	Drilling Completed:	01/12/14
Surface Coordinates:	636'FNL, 2605'FEL, Sec 27, T1N-R67W		
Bottom Hole Coordinates:	460'FSL, 2104'FWL, Sec 3, T1S-R67W		
Ground Elevation (ft):	5049'	K.B. Elevation (ft):	5069'
Logged Interval (ft):	7900' To: 16697'	Total Depth (ft):	16697'
Formation:	Codell / Ft Hays		
Type of Drilling Fluid:	Water Based Mud Vertical / Oil Based Mud Lateral		

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

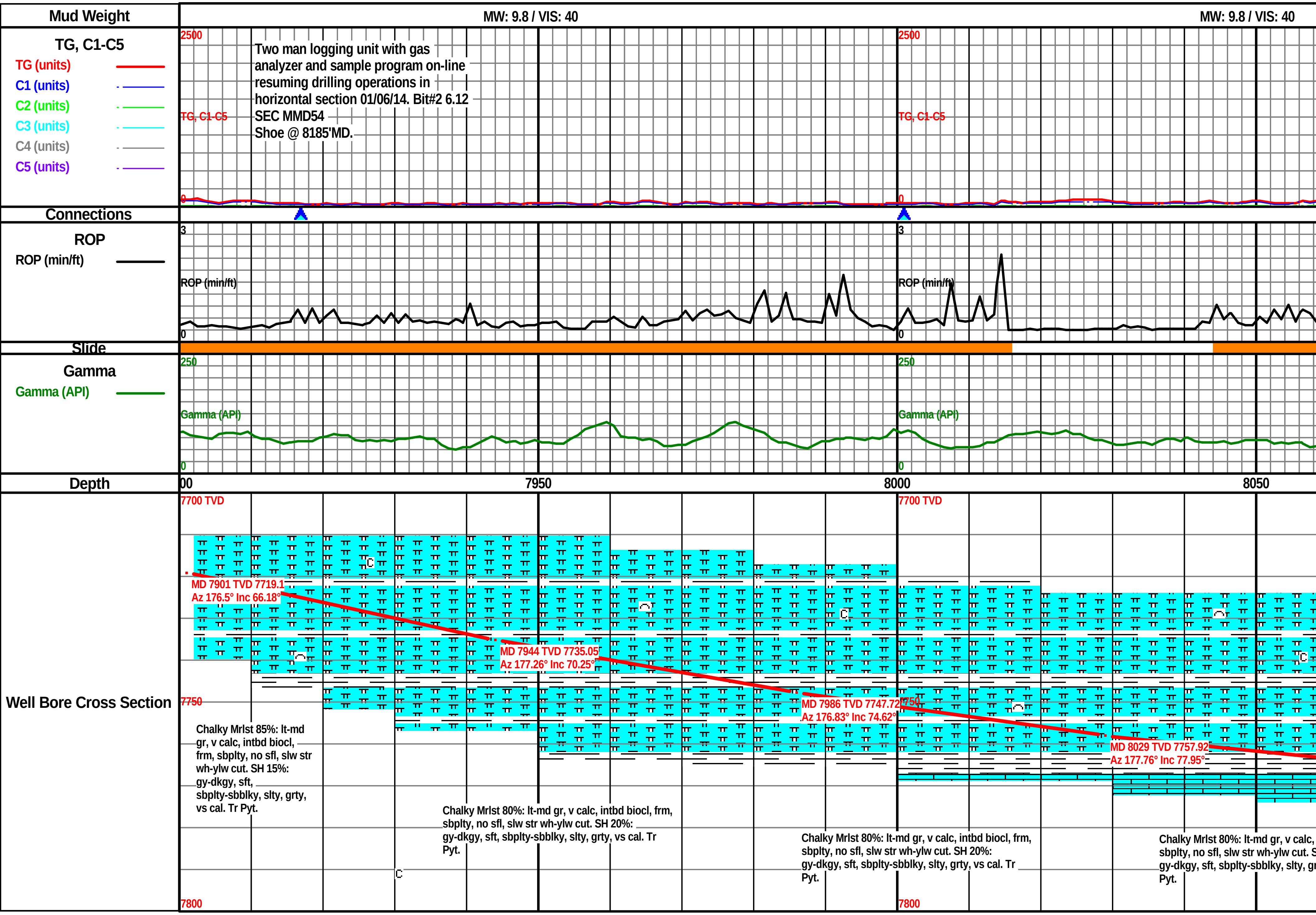
SORTING
- Well
- Moderate
- Poor

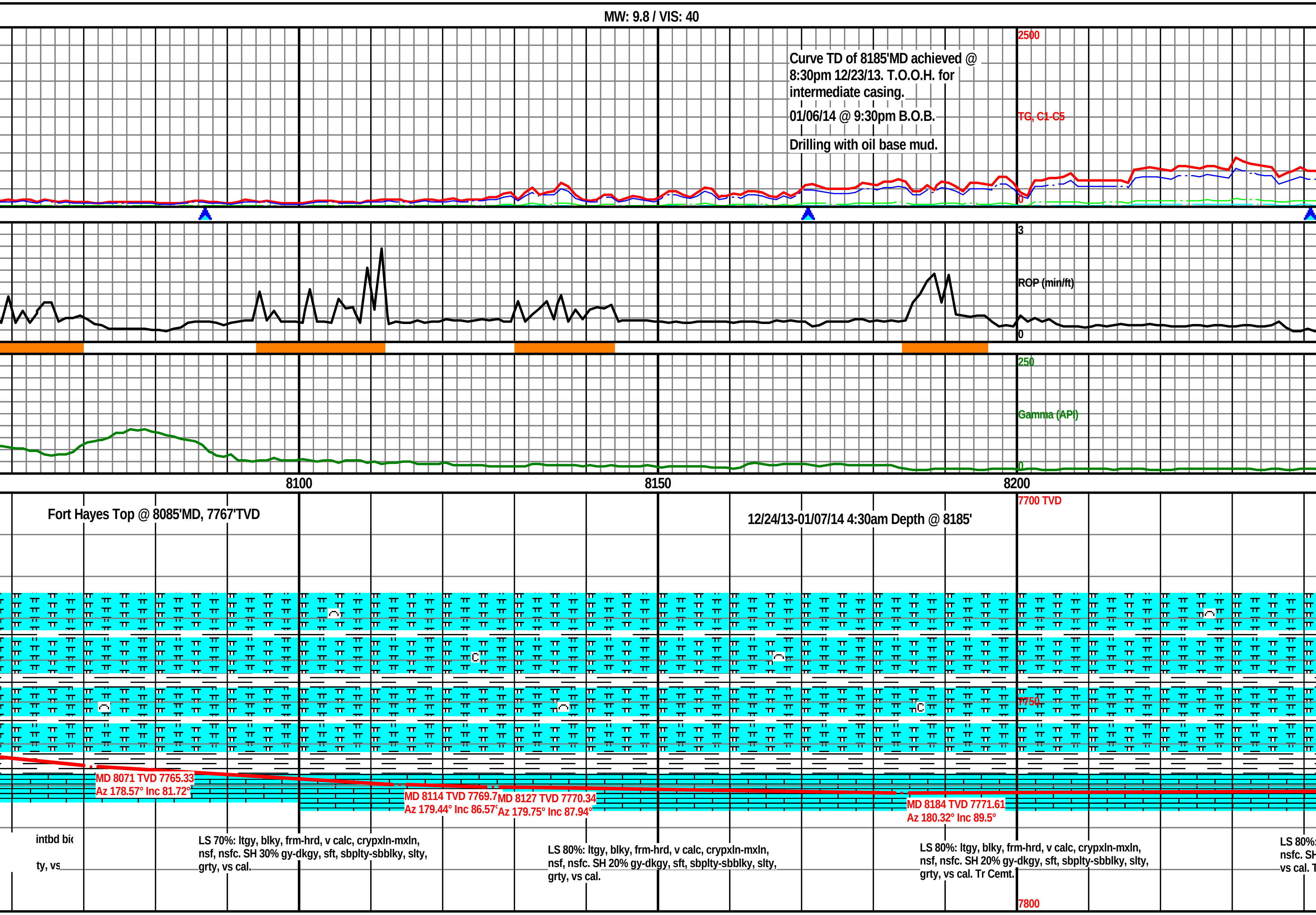
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

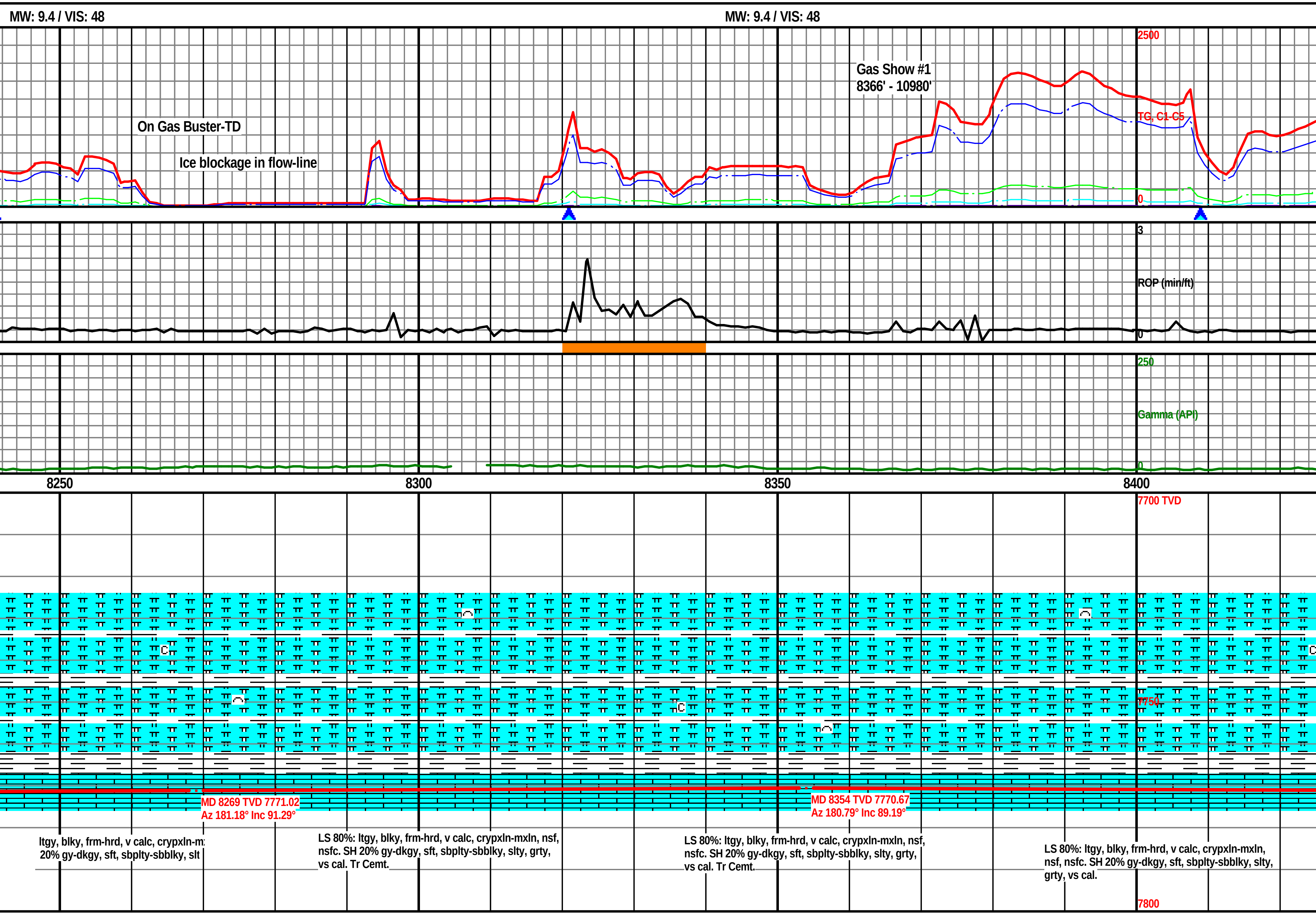
OIL SHOW
- Even
- Spotted
- Ques
- Dead

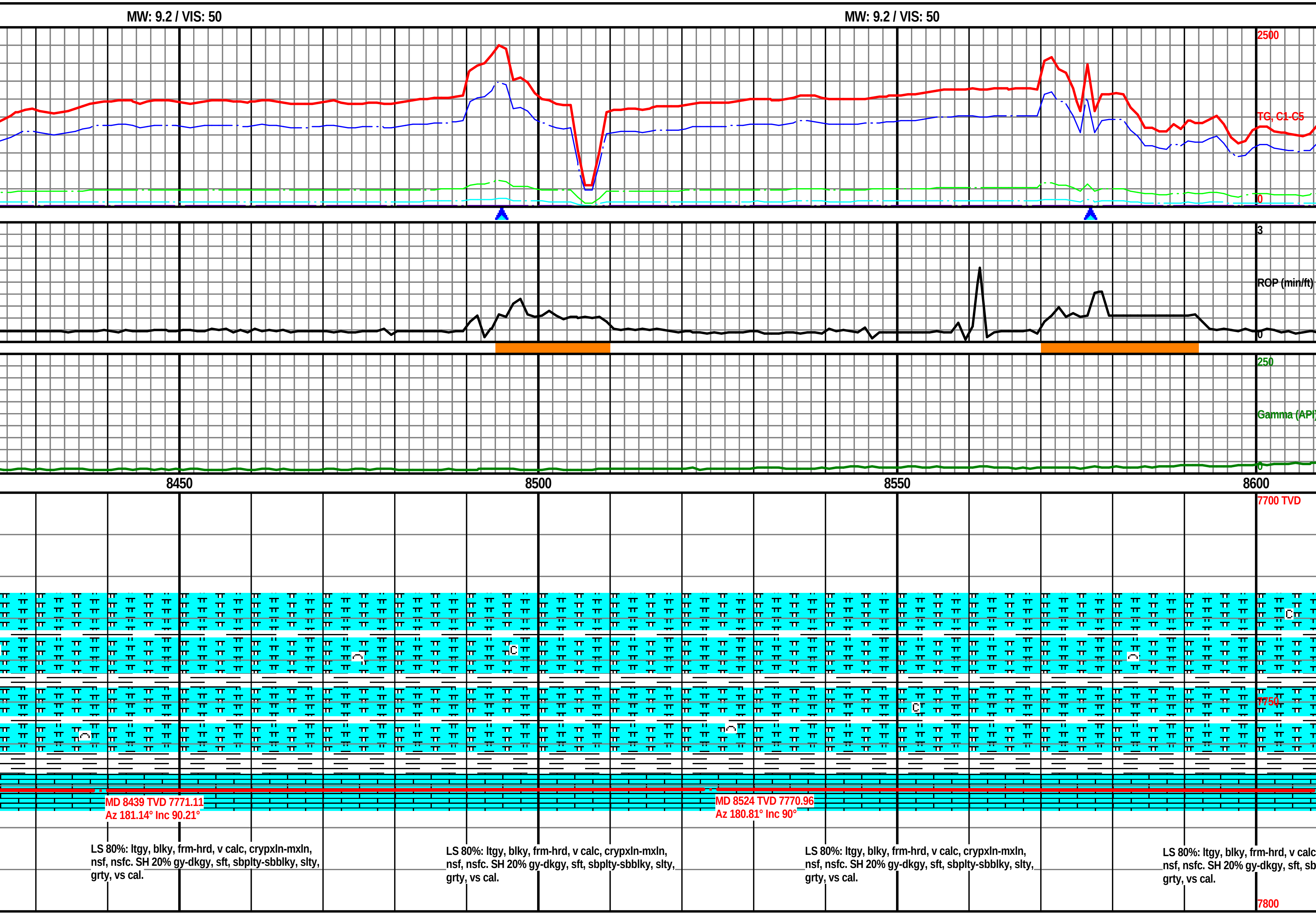
INTERVAL
- Core
- Dst

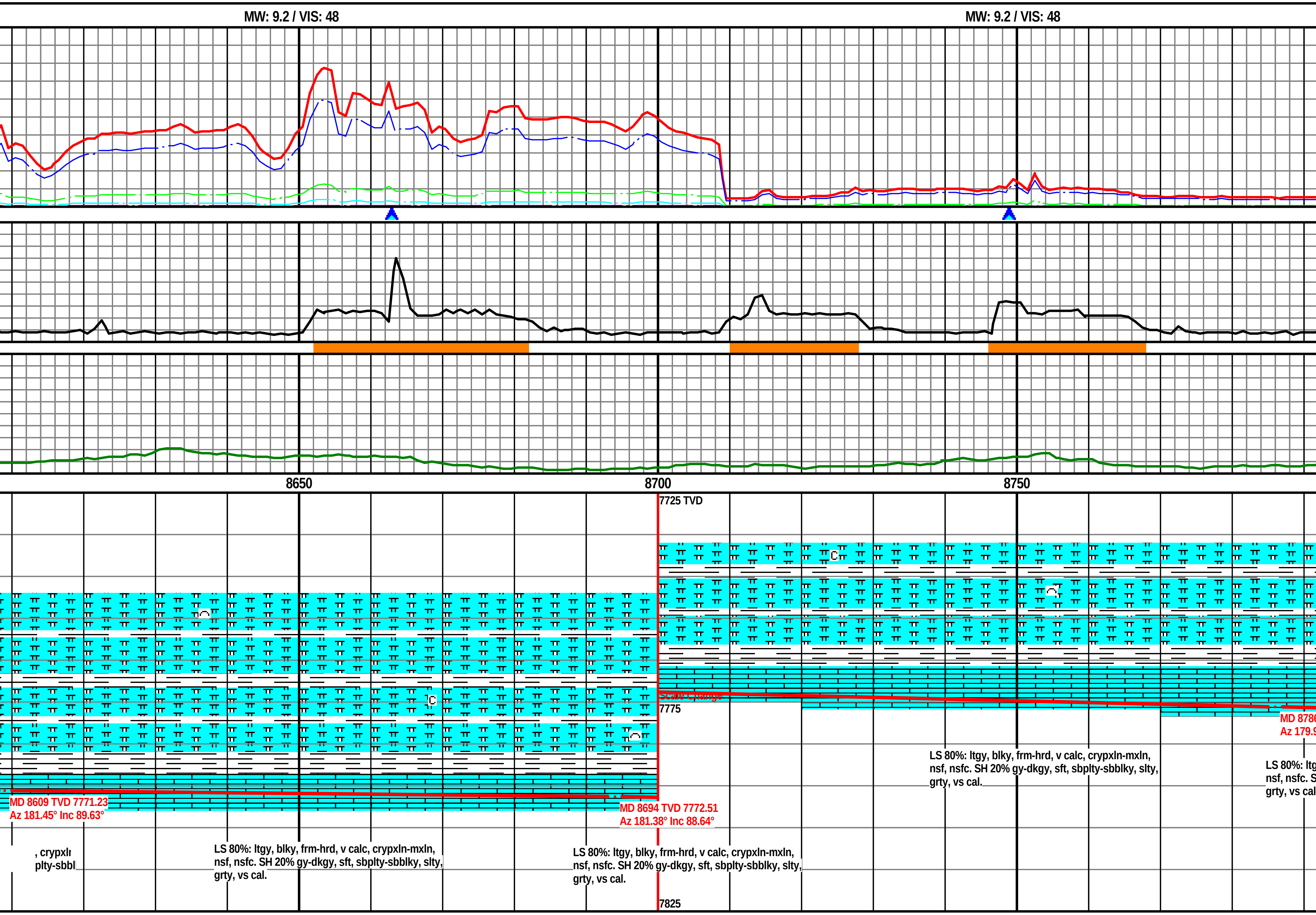
EVENT
- Rft
- Connection

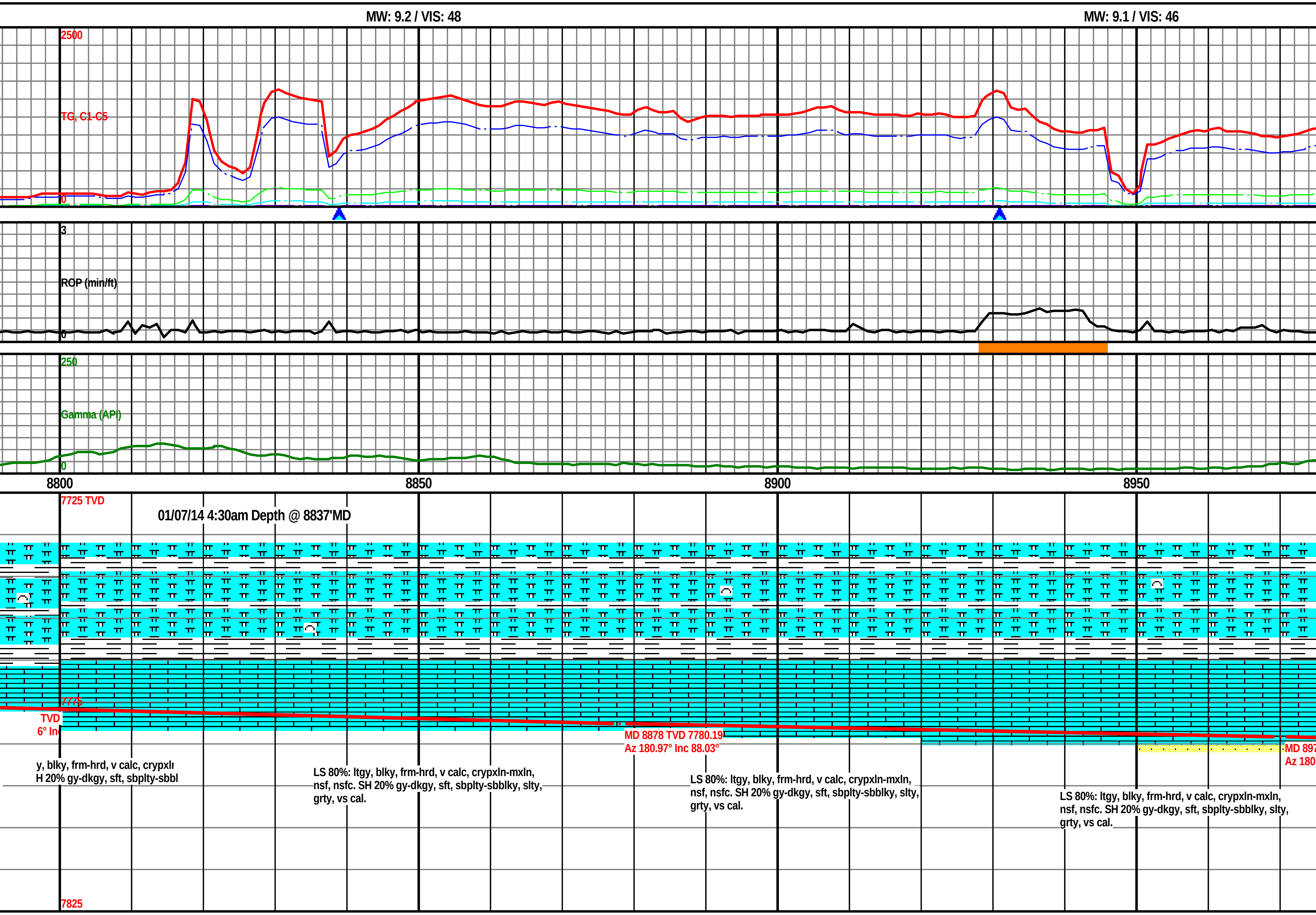

Mud Weight
MW: 9.8 / VIS: 40
MW: 9.8 / VIS: 40
TG, C1-C5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
2500
TG, C1-C5
0
Two man logging unit with gas analyzer and sample program on-line resuming drilling operations in horizontal section 01/06/14. Bit#2 6.12 SEC MMD54 Shoe @ 8185'MD.
Connections
ROP
ROP (min/ft)
3
0
Slide
Gamma
Gamma (API)
250
0
Depth
00
7950
8000
8050
Well Bore Cross Section
7700 TVD
7750
7800
MD 7901 TVD 7719.1
Az 176.5° Inc 66.18°
MD 7944 TVD 7735.05
Az 177.26° Inc 70.25°
MD 7986 TVD 7747.72
Az 176.83° Inc 74.62°
MD 8029 TVD 7757.92
Az 177.76° Inc 77.95°
Chalky Mrlst 85%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 15%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Pyt.
Chalky Mrlst 80%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 20%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Pyt.
Chalky Mrlst 80%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 20%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Pyt.
Chalky Mrlst 80%: lt-md gr, v calc,
sbplty, no sfl, slw str wh-ylw cut. S
gy-dkgy, sft, sbplty-sbblky, slty, gr
Pyt.


MW: 9.8 / VIS: 40
2500
Curve TD of 8185'MD achieved @ 8:30pm 12/23/13. T.O.O.H. for intermediate casing.
01/06/14 @ 9:30pm B.O.B.
Drilling with oil base mud.
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8100
8150
8200
7700 TVD
Fort Hayes Top @ 8085'MD, 7767'TVD
12/24/13-01/07/14 4:30am Depth @ 8185'
7750
MD 8071 TVD 7765.33
Az 178.57° Inc 81.72°
MD 8114 TVD 7769.7
Az 179.44° Inc 86.57°
MD 8127 TVD 7770.34
Az 179.75° Inc 87.94°
MD 8184 TVD 7771.61
Az 180.32° Inc 89.5°
intbd bi
ty, vs
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Cemt.
LS 80%
nsfc. SH
vs cal. T
7800

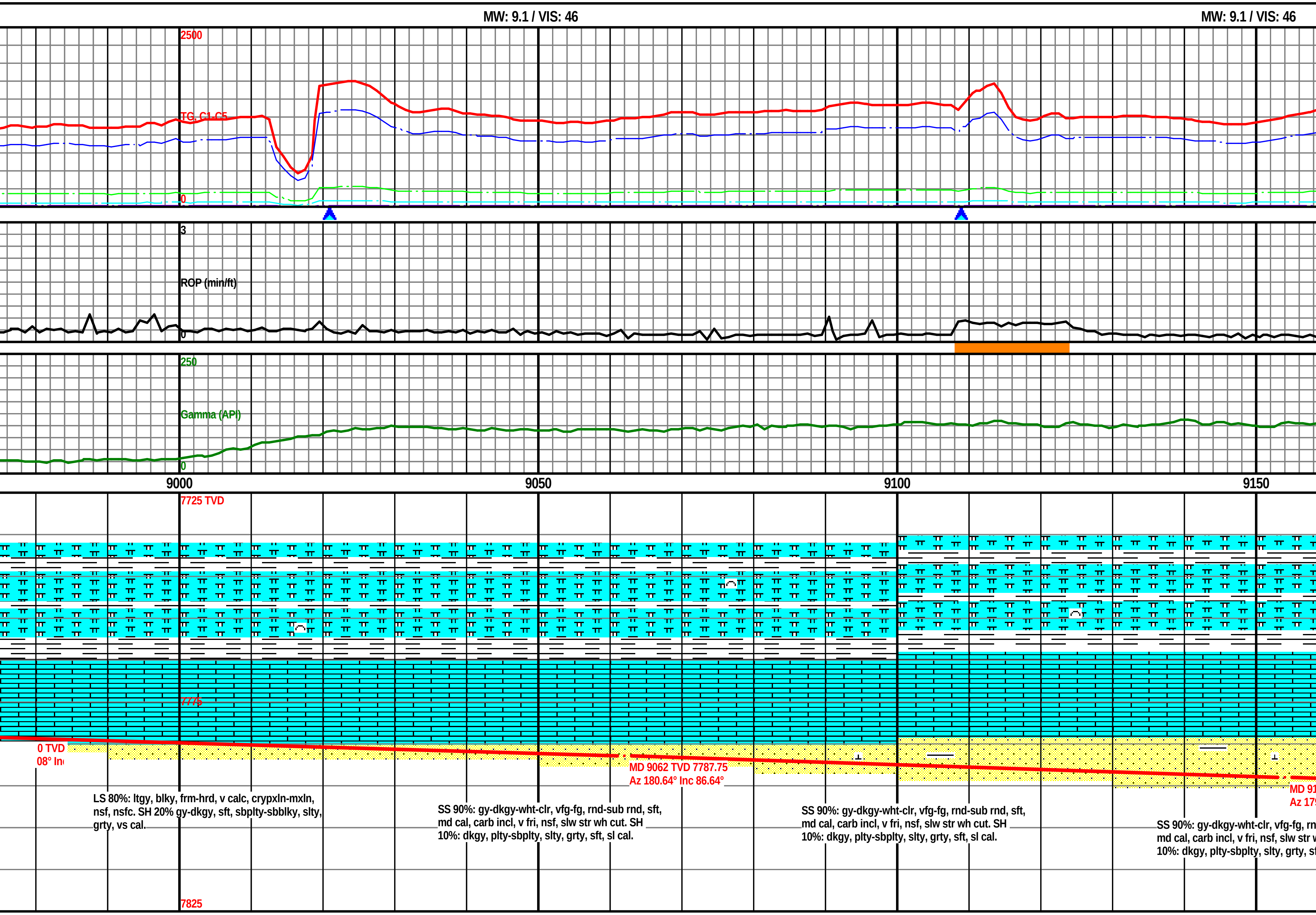

MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
Gas Show #1
8366' - 10980'
On Gas Buster-TD
Ice blockage in flow-line
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8250
8300
8350
8400
7700 TVD
7750
7800
MD 8269 TVD 7771.02
Az 181.18° Inc 91.29°
MD 8354 TVD 7770.67
Az 180.79° Inc 89.19°
ltgy, blky, frm-hrd, v calc, crypxln-m
20% gy-dkgy, sft, sbplty-sbblky, slt
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Cemt.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr Cemt.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.2 / VIS: 50
MW: 9.2 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8450
8500
8550
8600
7700 TVD
7750
7800
MD 8439 TVD 7771.11
Az 181.14° Inc 90.21°
MD 8524 TVD 7770.96
Az 180.81° Inc 90°
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc
nsf, nsfc. SH 20% gy-dkgy, sft, sb
grty, vs cal.

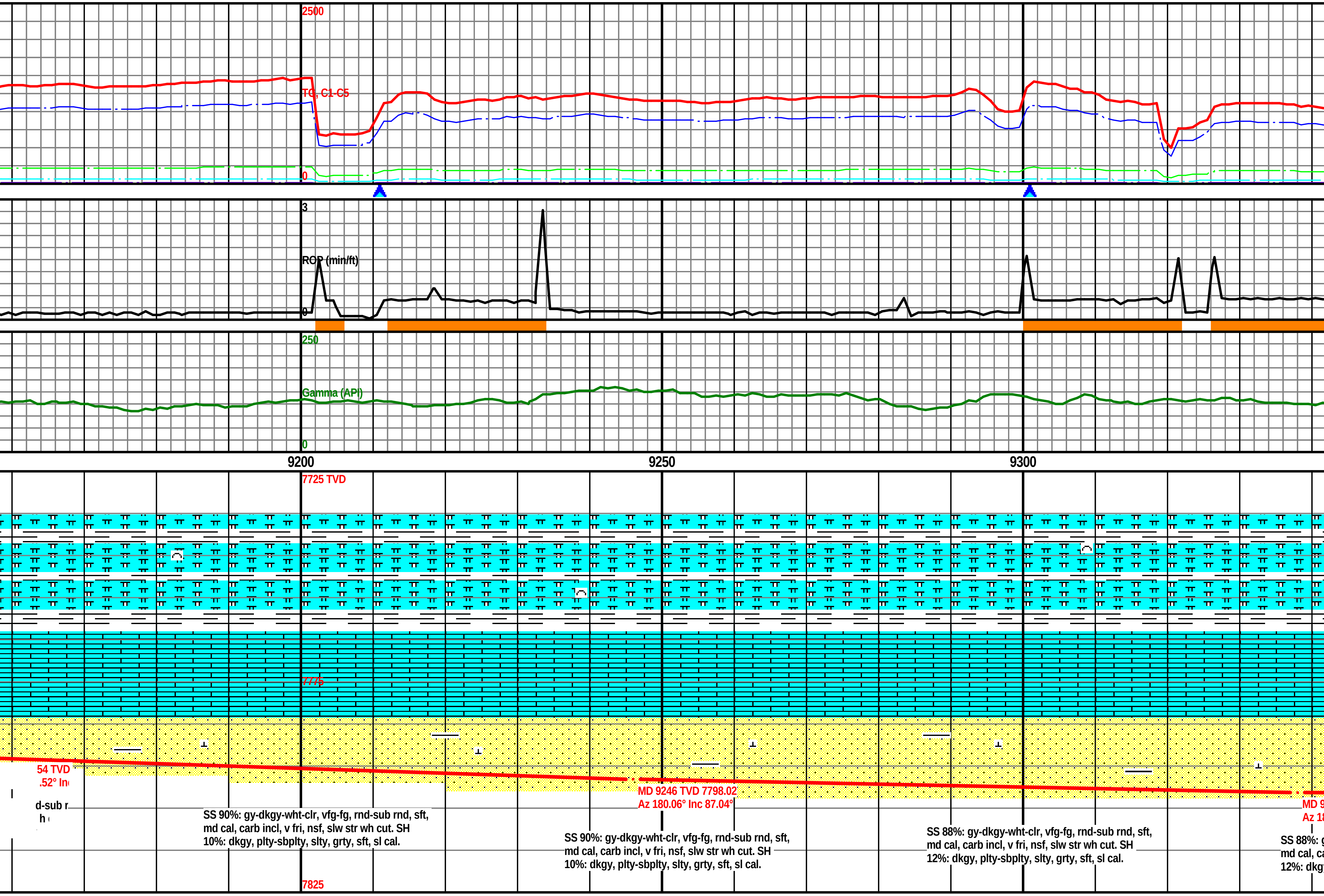

MW: 9.2 / VIS: 48
MW: 9.2 / VIS: 48
8650
8700
8750
7725 TVD
Scale Change
7775
7825
MD 8609 TVD 7771.23
Az 181.45° Inc 89.63°
MD 8694 TVD 7772.51
Az 181.38° Inc 88.64°
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

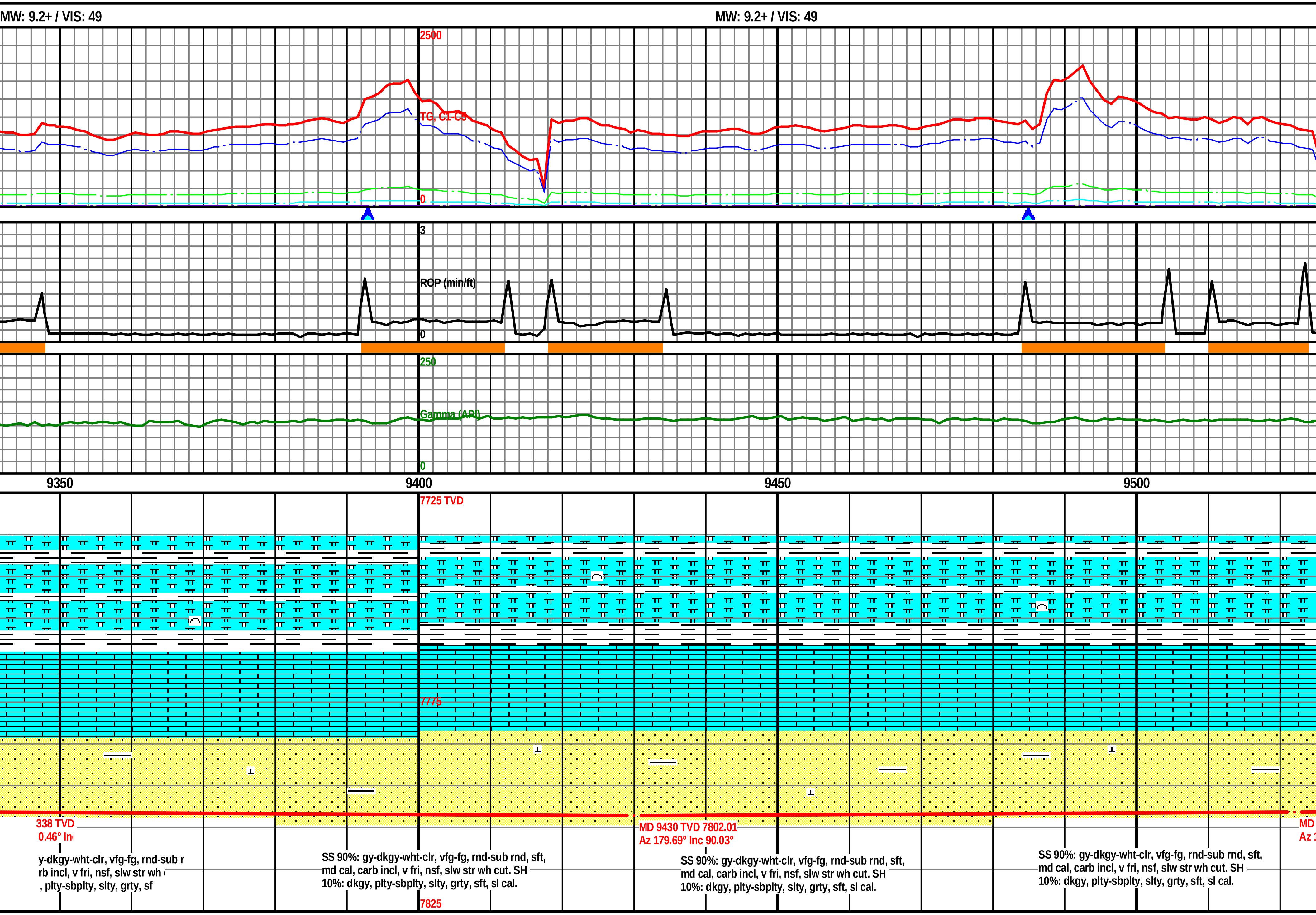


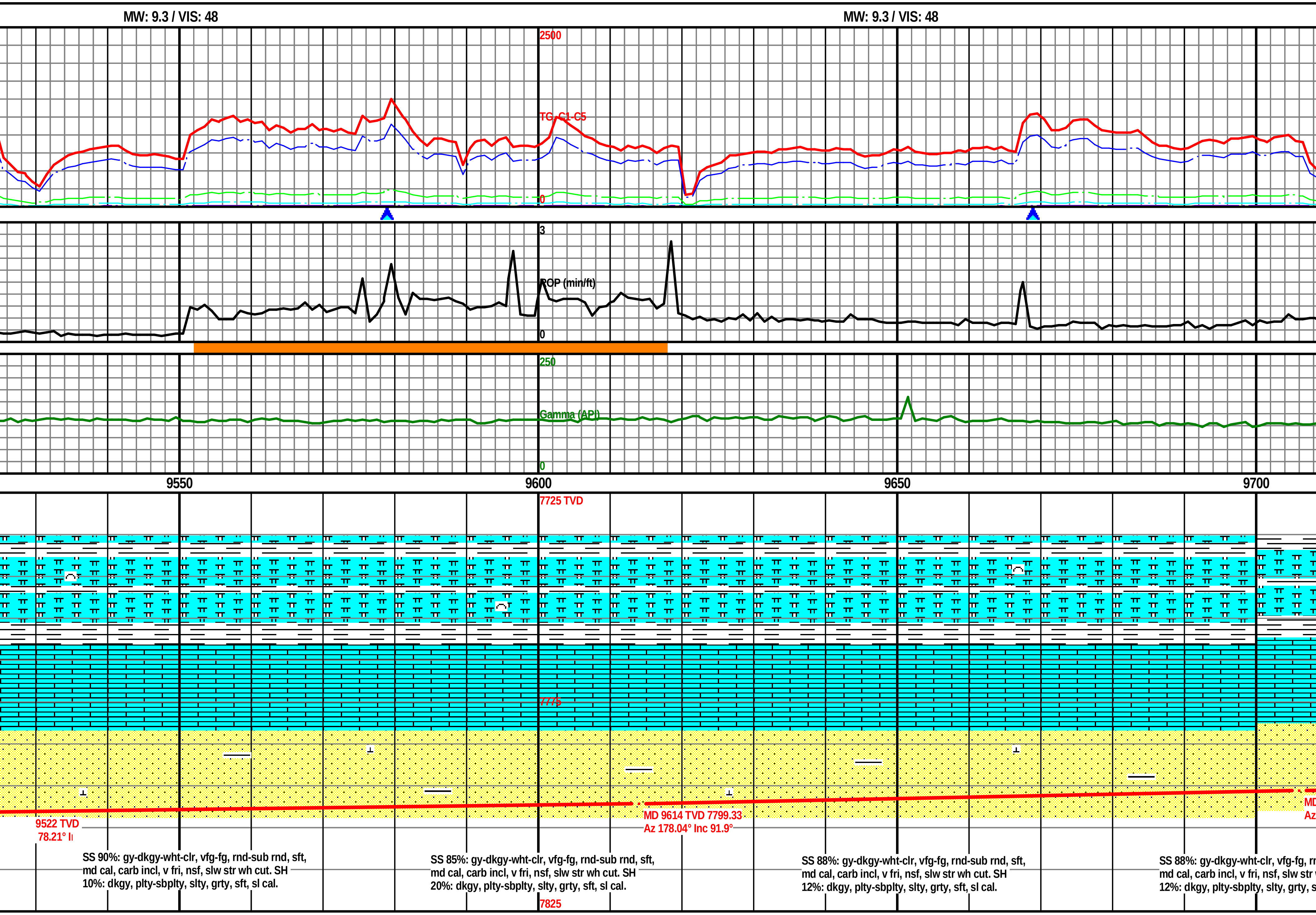
MW: 9.2 / VIS: 48
MW: 9.1 / VIS: 46
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
8800
8850
8900
8950
7725 TVD
01/07/14 4:30am Depth @ 8837'MD
7775
TVD
6° In
MD 8878 TVD 7780.19
Az 180.97° Inc 88.03°
MD 897
Az 180
y, blky, frm-hrd, v calc, crypxl
H 20% gy-dkgy, sft, sbplty-sbbl
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7825

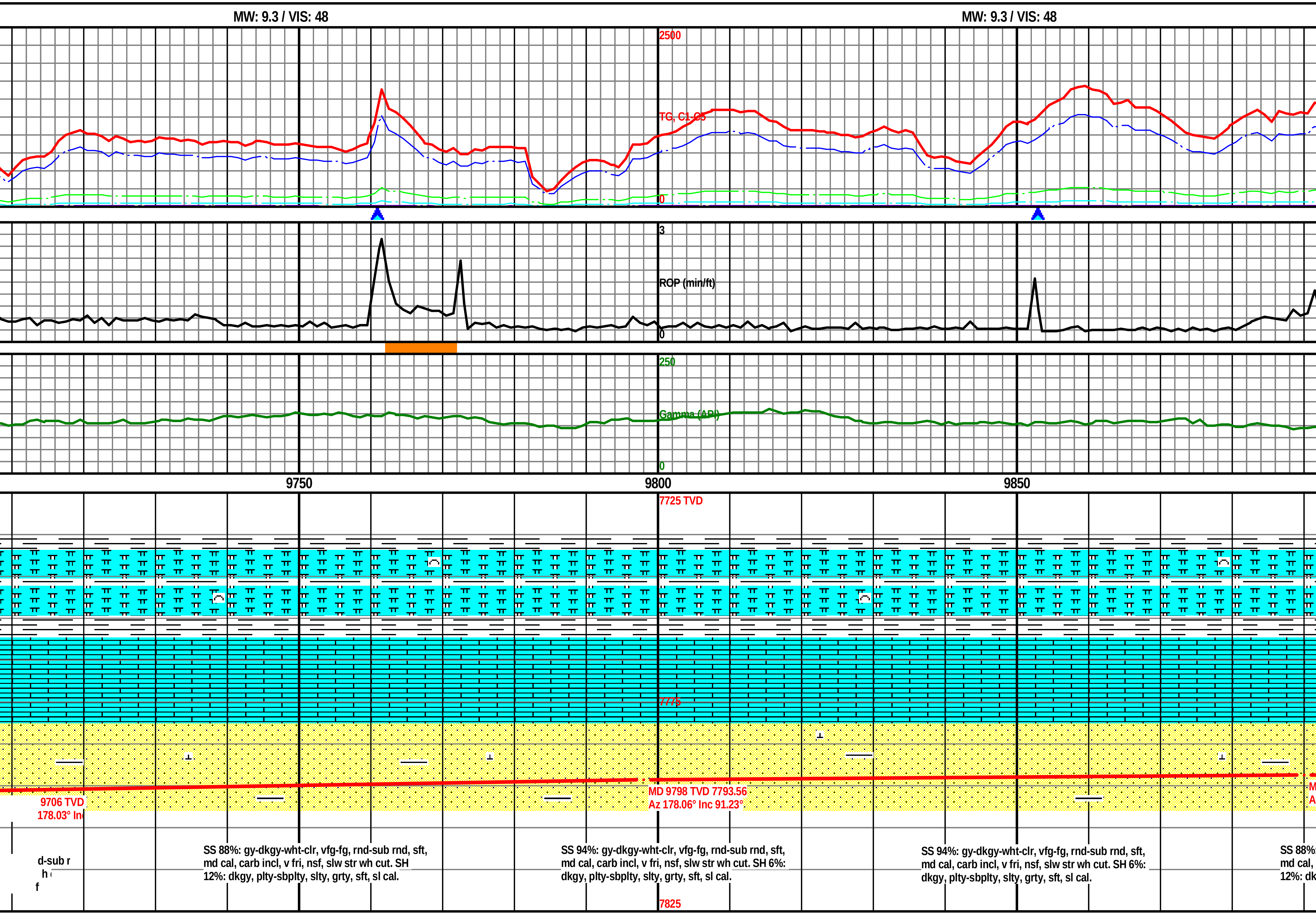

MW: 9.1 / VIS: 46
MW: 9.1 / VIS: 46
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9000
9050
9100
9150
7725 TVD
7775
7825
0 TVD
08° In
MD 9062 TVD 7787.75
Az 180.64° Inc 86.64°
MD 91
Az 17
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rn
md cal, carb incl, v fri, nsf, slw str w
10%: dkgy, plty-sbplty, slty, grty, s

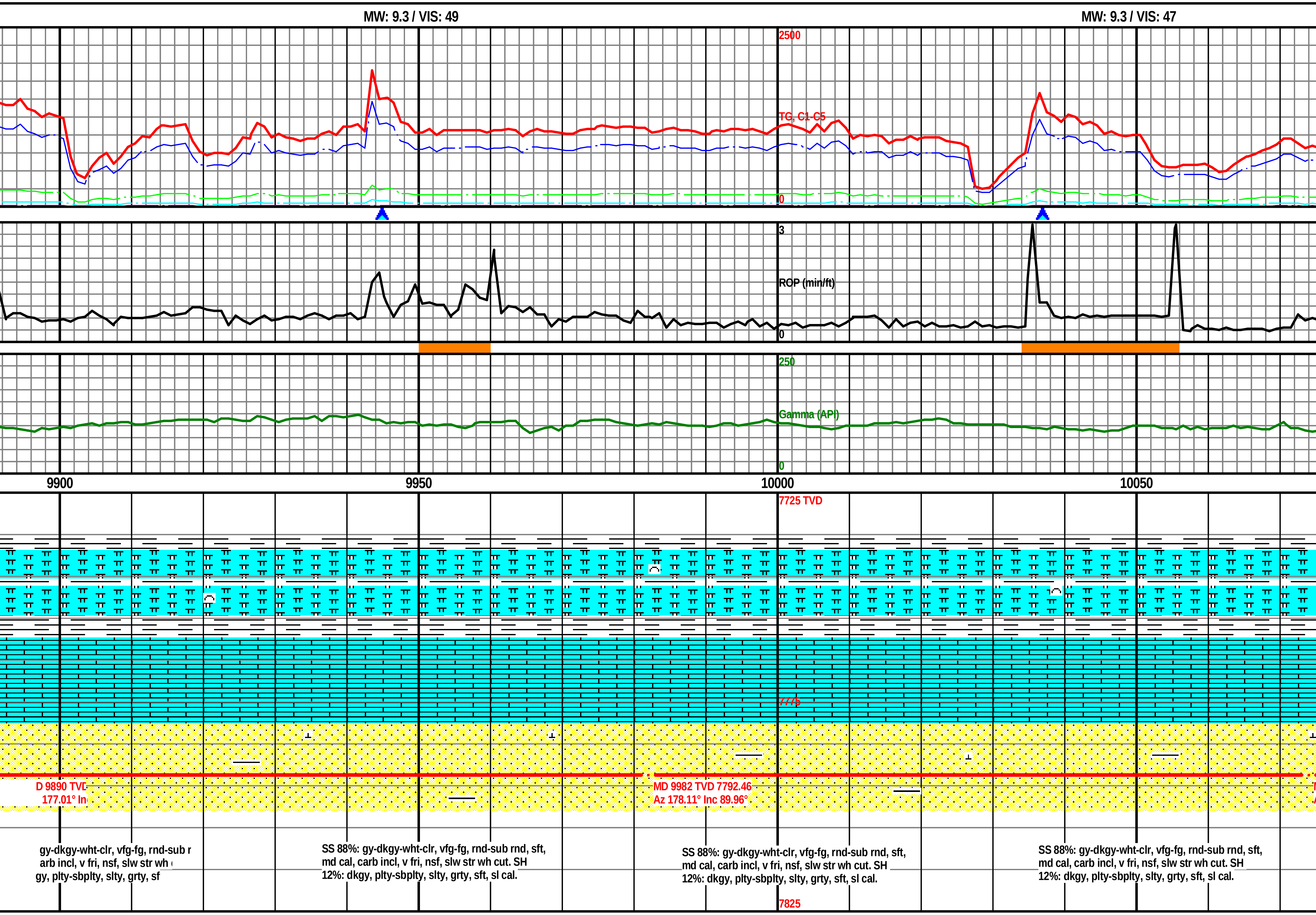
MW: 9.2+ / VIS: 49


2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9200
9250
9300
7725 TVD
7775
7825
54 TVD
.52° Inc
d-sub r
MD 9246 TVD 7798.02
Az 180.06° Inc 87.04°
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
MD 9
Az 18
SS 88%: g
md cal, ca
12%: dkg

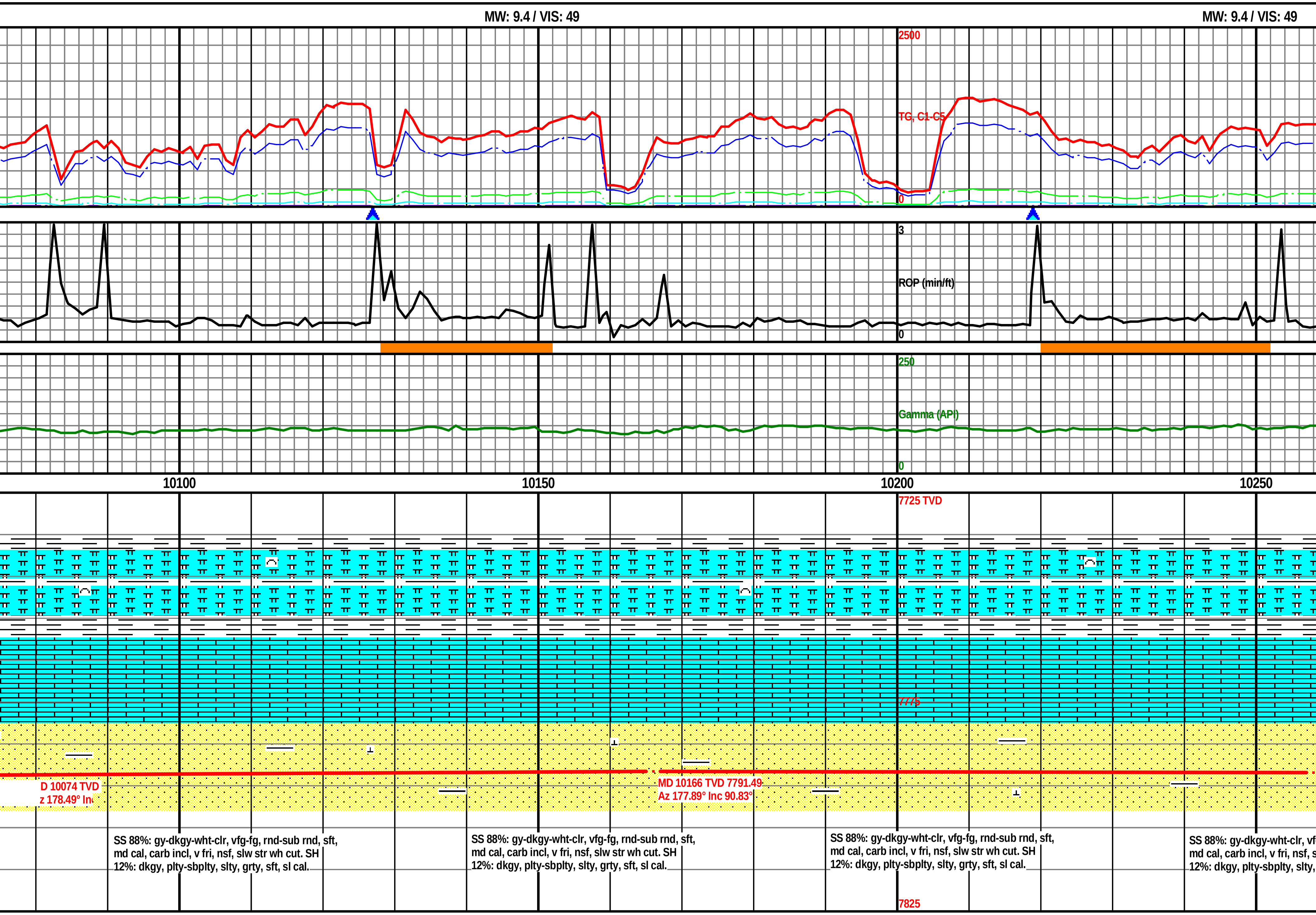

MW: 9.2+ / VIS: 49
MW: 9.2+ / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9350
9400
9450
9500
7725 TVD
7775
7825
338 TVD
0.46° Inc
MD 9430 TVD 7802.01
Az 179.69° Inc 90.03°
MD
Az
y-dkgy-wht-clr, vfg-fg, rnd-sub r
rb incl, v fri, nsf, slw str wh
, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
10%: dkgy, plty-sbplty, slty, grty, sft, sl 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
9550
9600
9650
9700
7725 TVD
7775
9522 TVD
78.21° I
MD 9614 TVD 7799.33
Az 178.04° Inc 91.9°
SS 90%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 85%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 20%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7825

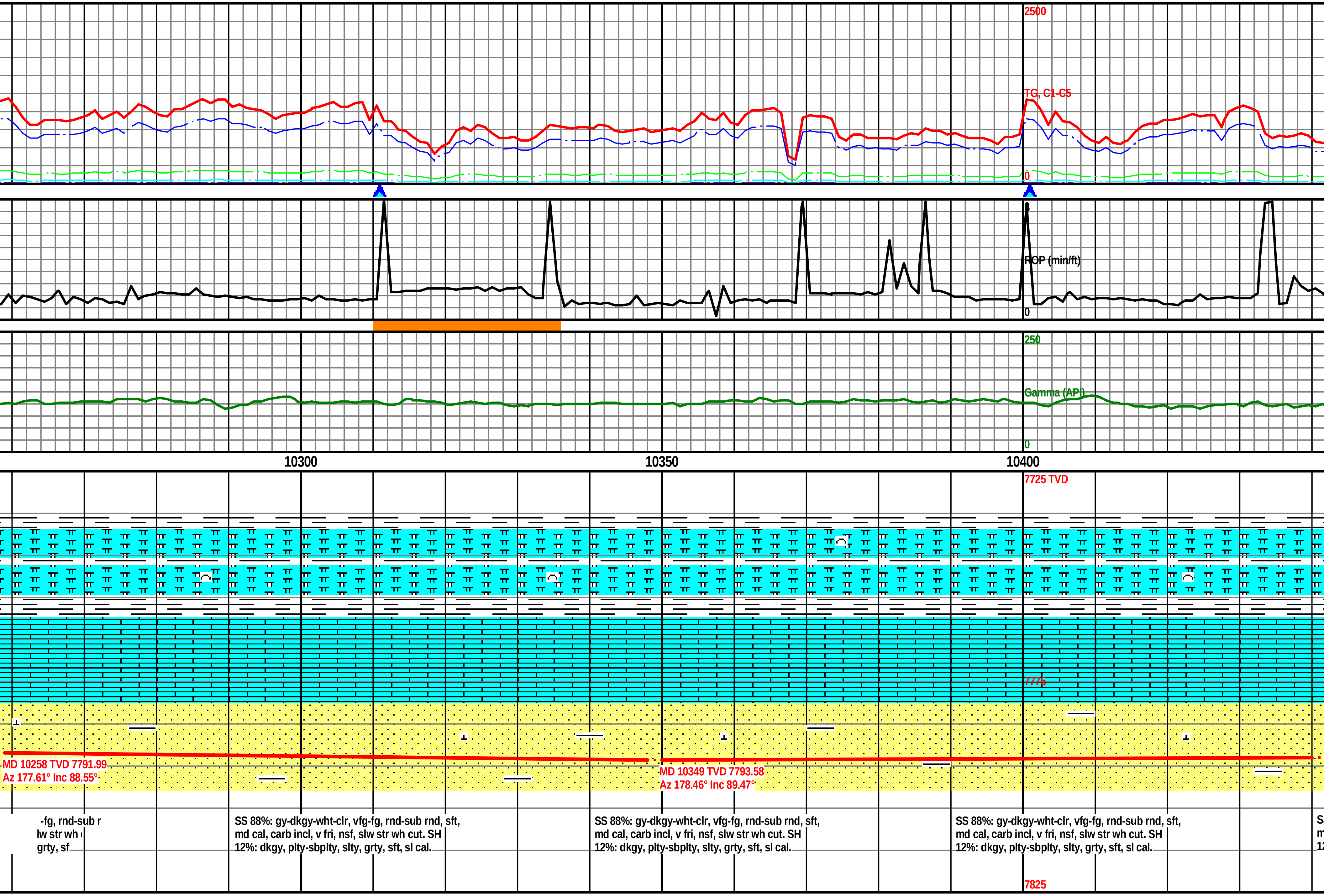

MW: 9.3 / VIS: 48
MW: 9.3 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9750
9800
9850
7725 TVD
7775
9706 TVD
178.03° Inc
MD 9798 TVD 7793.56
Az 178.06° Inc 91.23°
d-sub r
h
f
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 94%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 6%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 94%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 6%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7825
SS 88%
md cal,
12%: dk



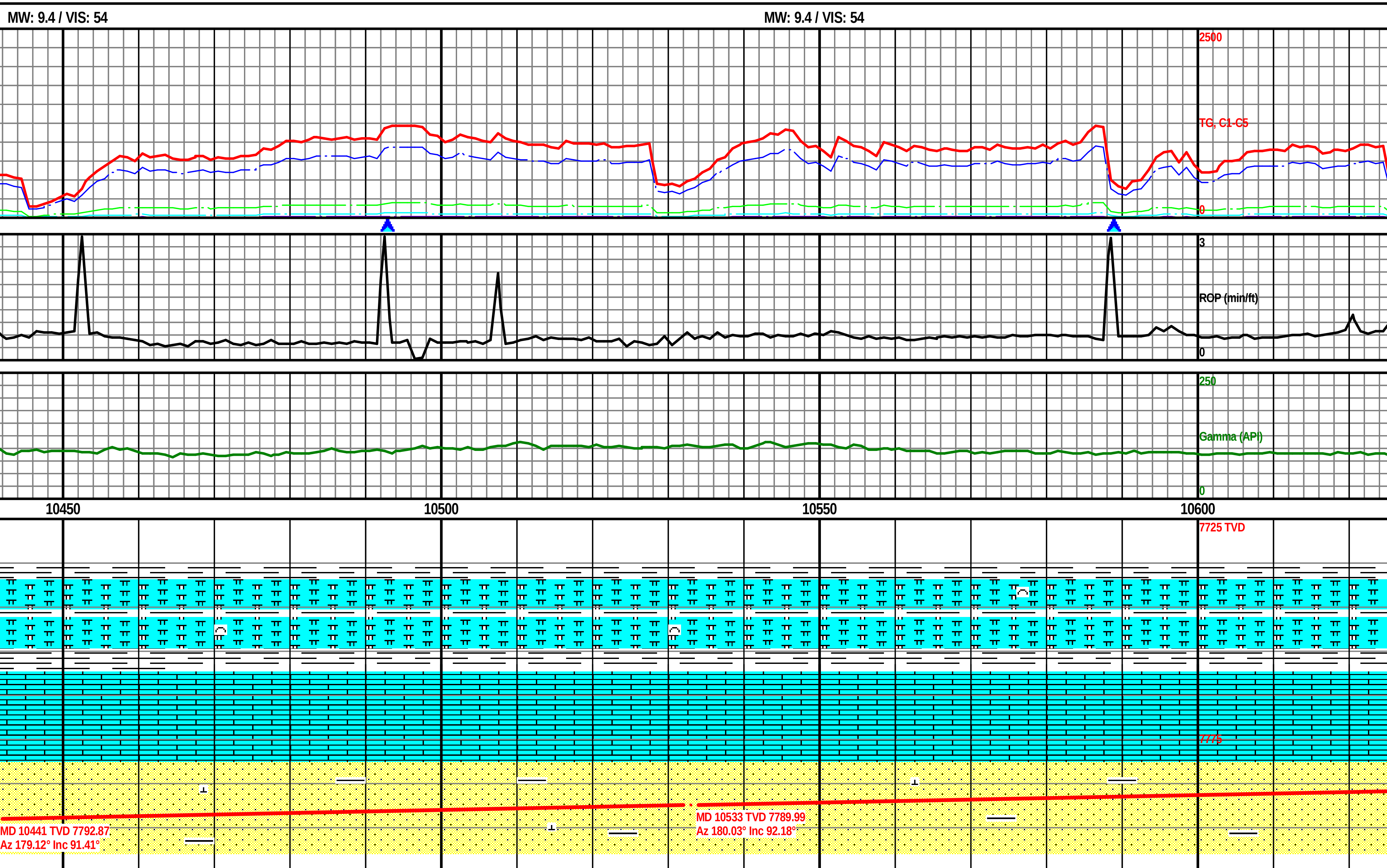
MW: 9.3 / VIS: 49
MW: 9.3 / VIS: 47
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
9900
9950
10000
10050
7725 TVD
7775
7825
D 9890 TVD
177.01° In
MD 9982 TVD 7792.46
Az 178.11° Inc 89.96°
gy-dkgy-wht-clr, vfg-fg, rnd-sub r
arb incl, v fri, nsf, slw str wh
gy, plty-sbplty, slty, grty, sf
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.


MW: 9.4 / VIS: 49
MW: 9.4 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
10100
10150
10200
10250
7725 TVD
7775
7825
D 10074 TVD
z 178.49° In
MD 10166 TVD 7791.49
Az 177.89° Inc 90.83°
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vf md cal, carb incl, v fri, nsf, s 12%: dkgy, plty-sbplty, slty,

MW: 9.4 / VIS: 49



2500
TG, C1-C5
0
ROP (min/ft)
0
250
Gamma (API)
0
10300
10350
10400
7725 TVD
7775
7825
MD 10258 TVD 7791.99
Az 177.61° Inc 88.55°
MD 10349 TVD 7793.58
Az 178.46° Inc 89.47°
-fg, rnd-sub r
lw str wh
grty, sf
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH
12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

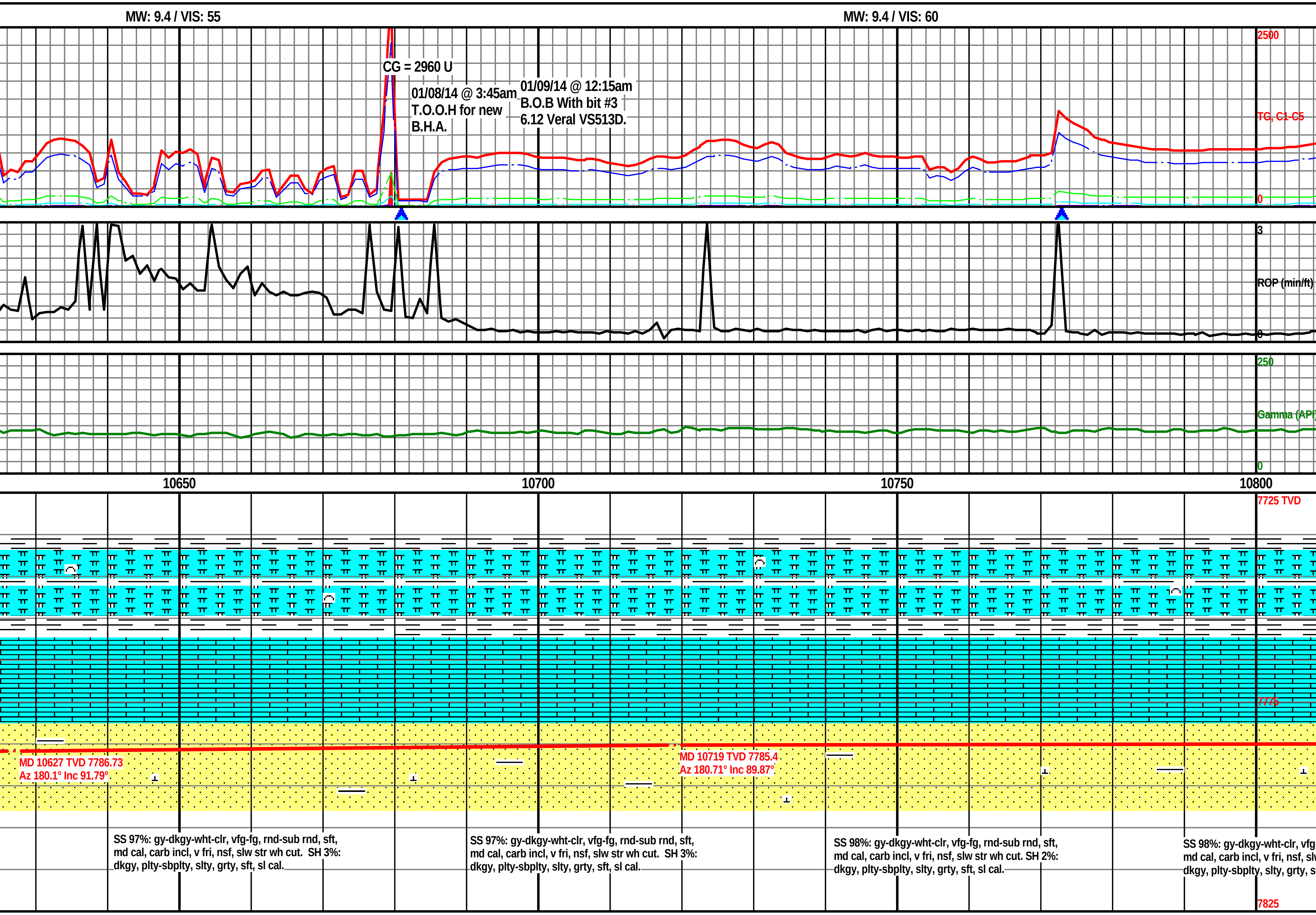


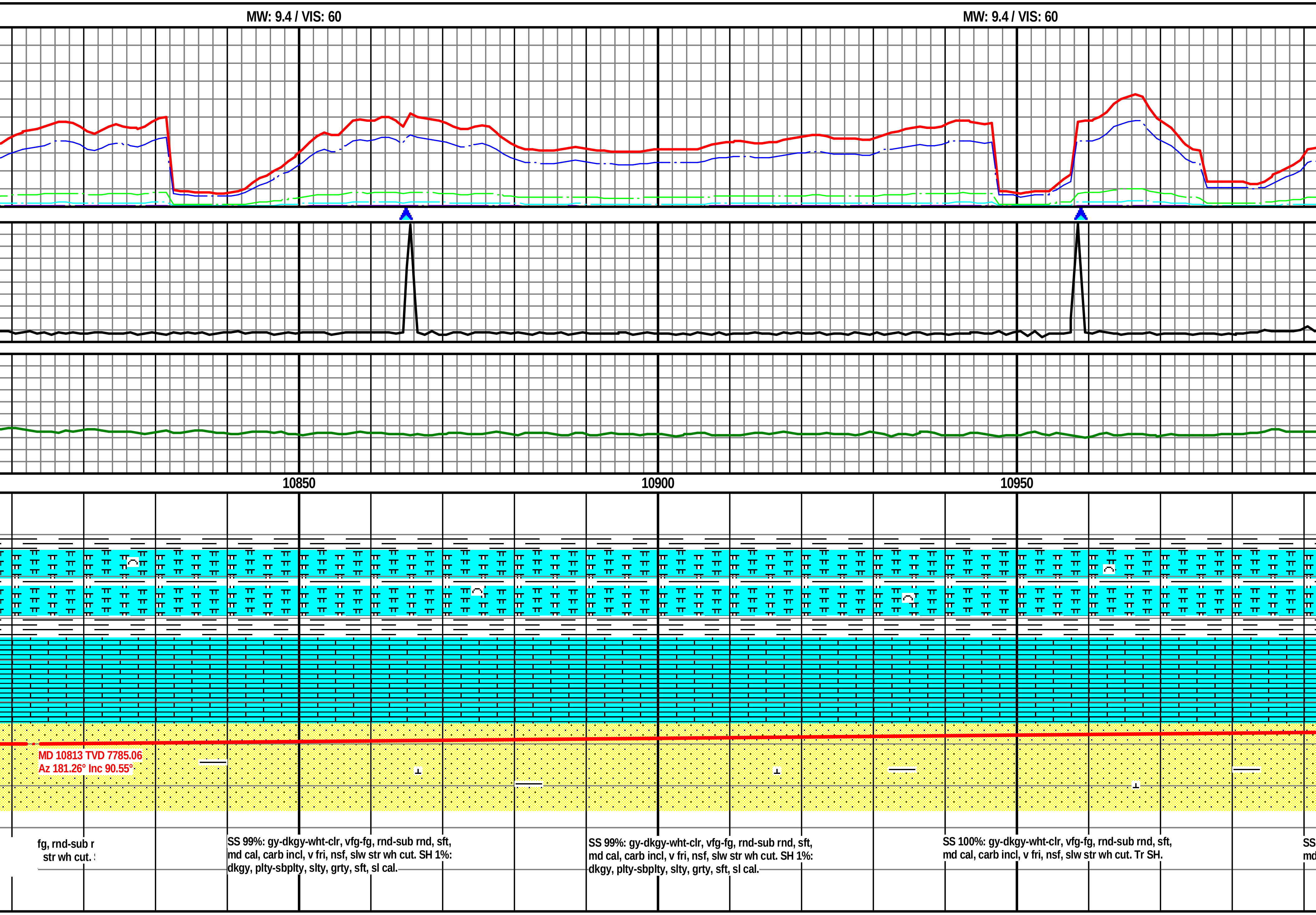
88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub r
d cal, carb incl, v fri, nsf, slw str wh
%: dkgy, plty-sbplty, slty, grty, sf

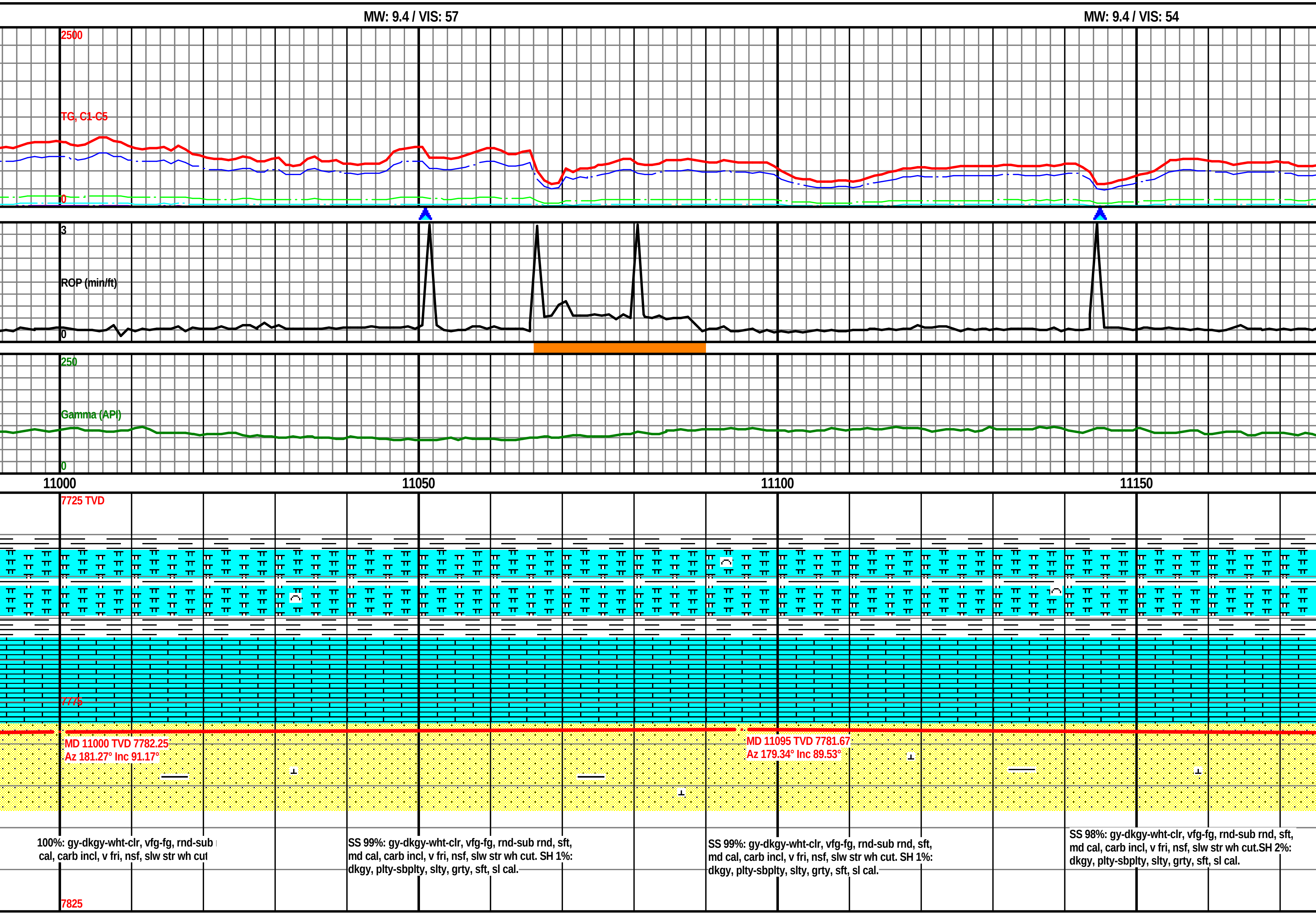
SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 88%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 12%: dkgy, plty-sbplty, slty, grty, sft, sl cal.


MW: 9.4 / VIS: 55
MW: 9.4 / VIS: 60
2500
TG, C1-C5
0
CG = 2960 U
01/08/14 @ 3:45am
T.O.O.H for new
B.H.A.
01/09/14 @ 12:15am
B.O.B With bit #3
6.12 Veral VS513D.
3
ROP (min/ft)
0
250
Gamma (API)
0
10650
10700
10750
10800
7725 TVD
7775
7825
MD 10627 TVD 7786.73
Az 180.1° Inc 91.79°
MD 10719 TVD 7785.4
Az 180.71° Inc 89.87°
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 98%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 2%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 98%: gy-dkgy-wht-clr, vfg
md cal, carb incl, v fri, nsf, sl
dkgy, plty-sbplty, slty, grty, s


MW: 9.4 / VIS: 60
MW: 9.4 / VIS: 60
10850
10900
10950
MD 10813 TVD 7785.06
Az 181.26° Inc 90.55°
fg, rnd-sub r
str wh cut.
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. Tr SH.

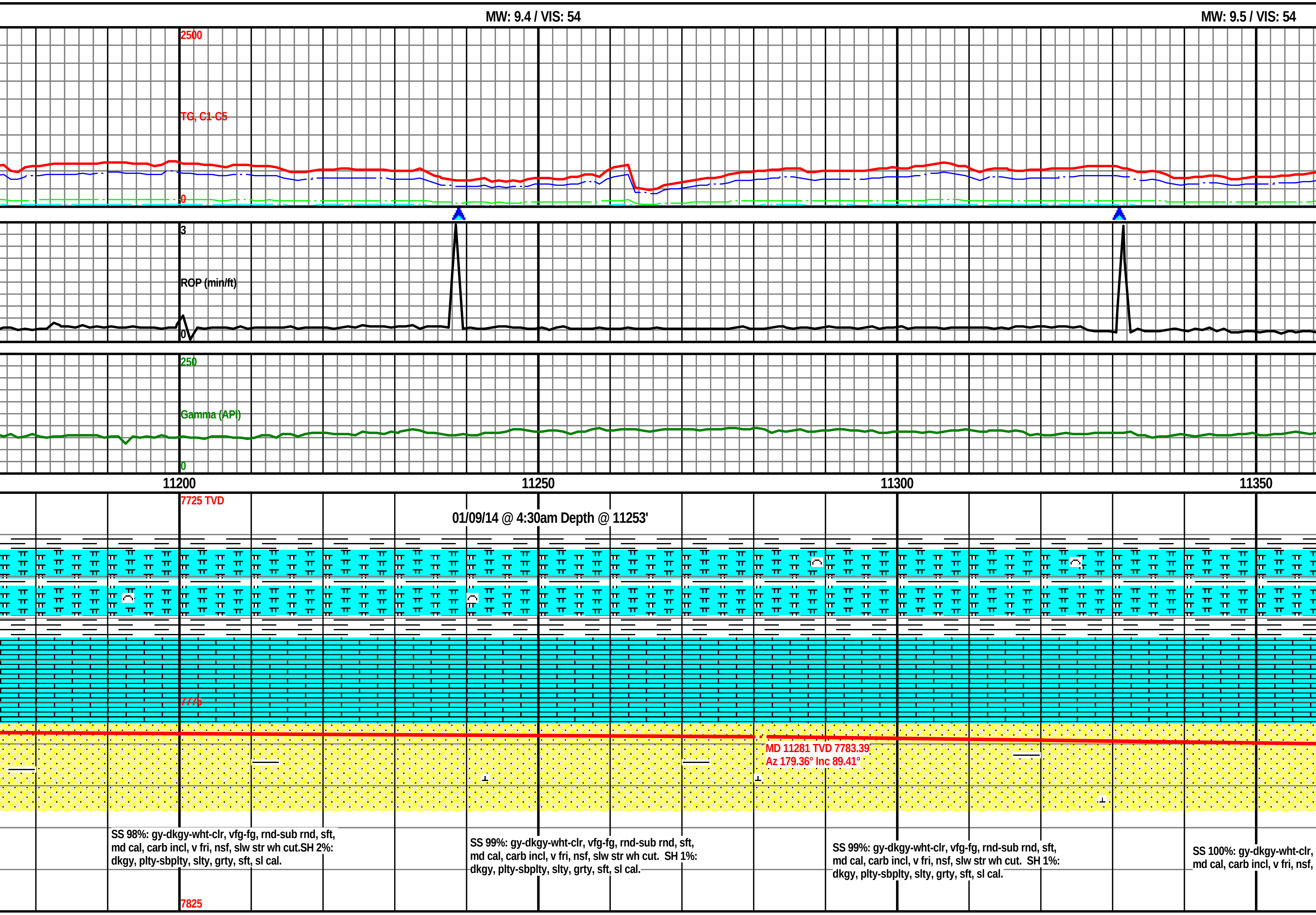


100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub r
cal, carb incl, v fri, nsf, slw str wh cut

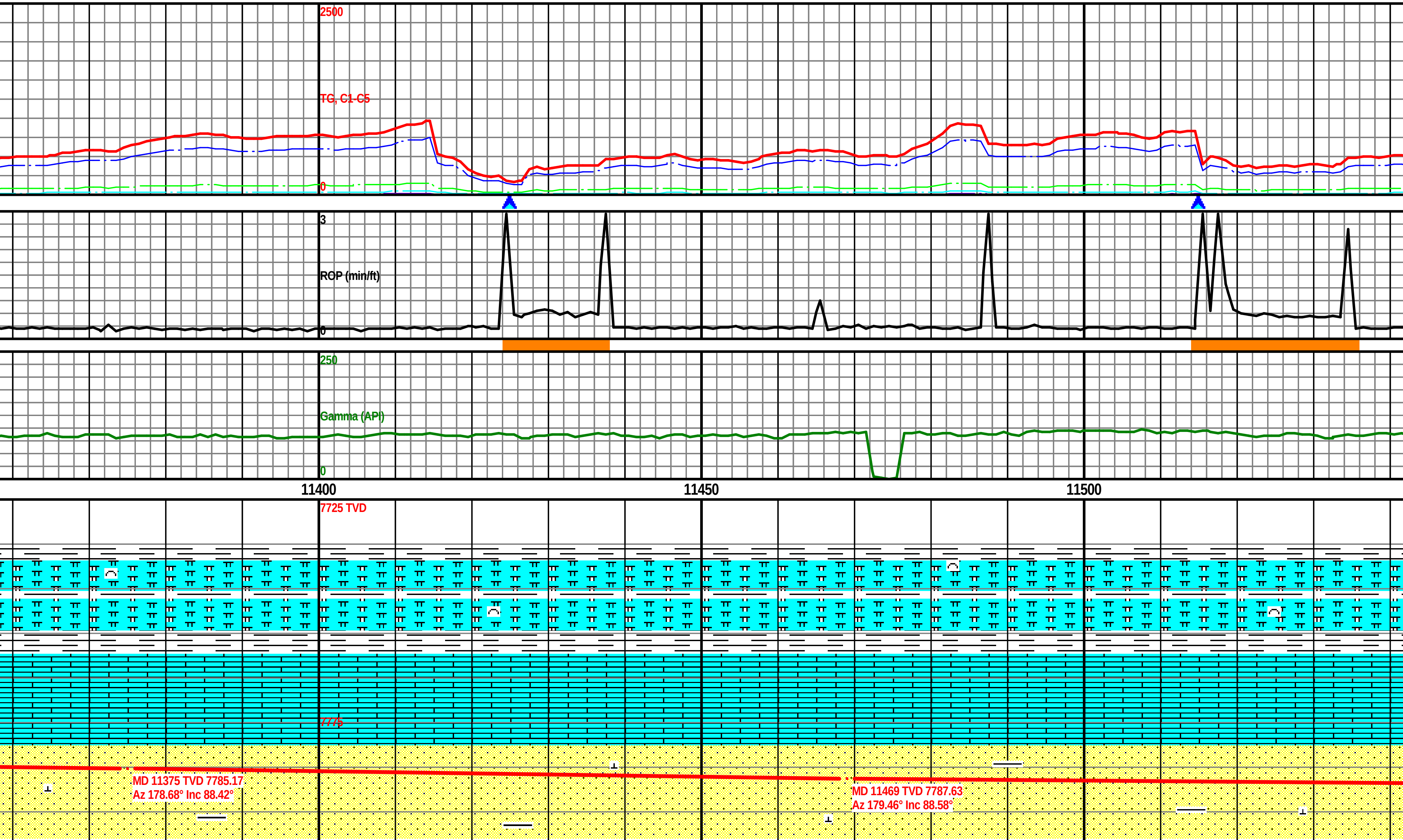
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 98%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut.SH 2%: dkgy, plty-sbplty, slty, grty, sft, sl cal.


MW: 9.4 / VIS: 54
MW: 9.5 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11200
11250
11300
11350
7725 TVD
01/09/14 @ 4:30am Depth @ 11253'
7775
MD 11281 TVD 7783.39
Az 179.36° Inc 89.41°
SS 98%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut.SH 2%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 100%: gy-dkgy-wht-clr, md cal, carb incl, v fri, nsf,
7825

MW: 9.5 / VIS: 54

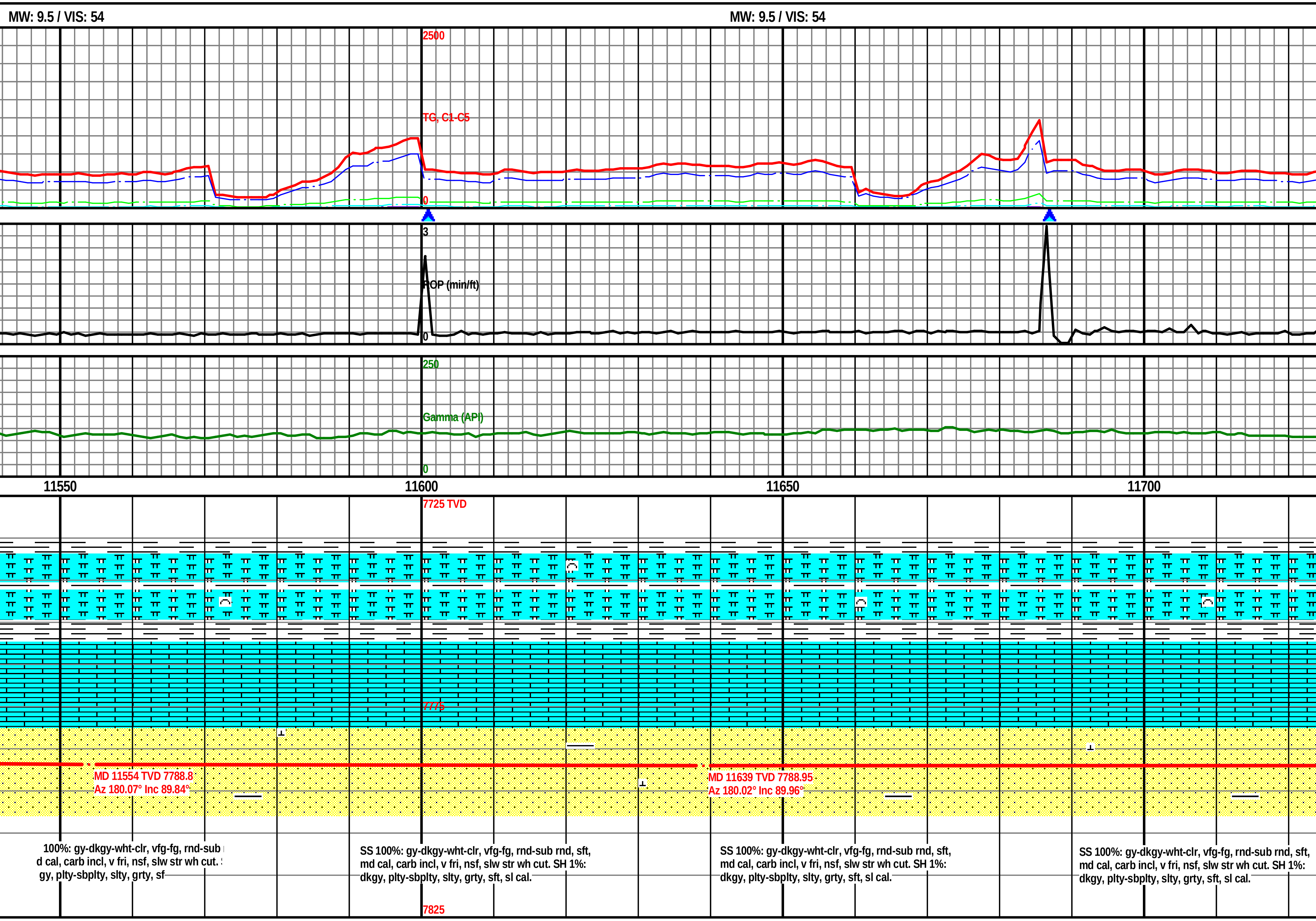


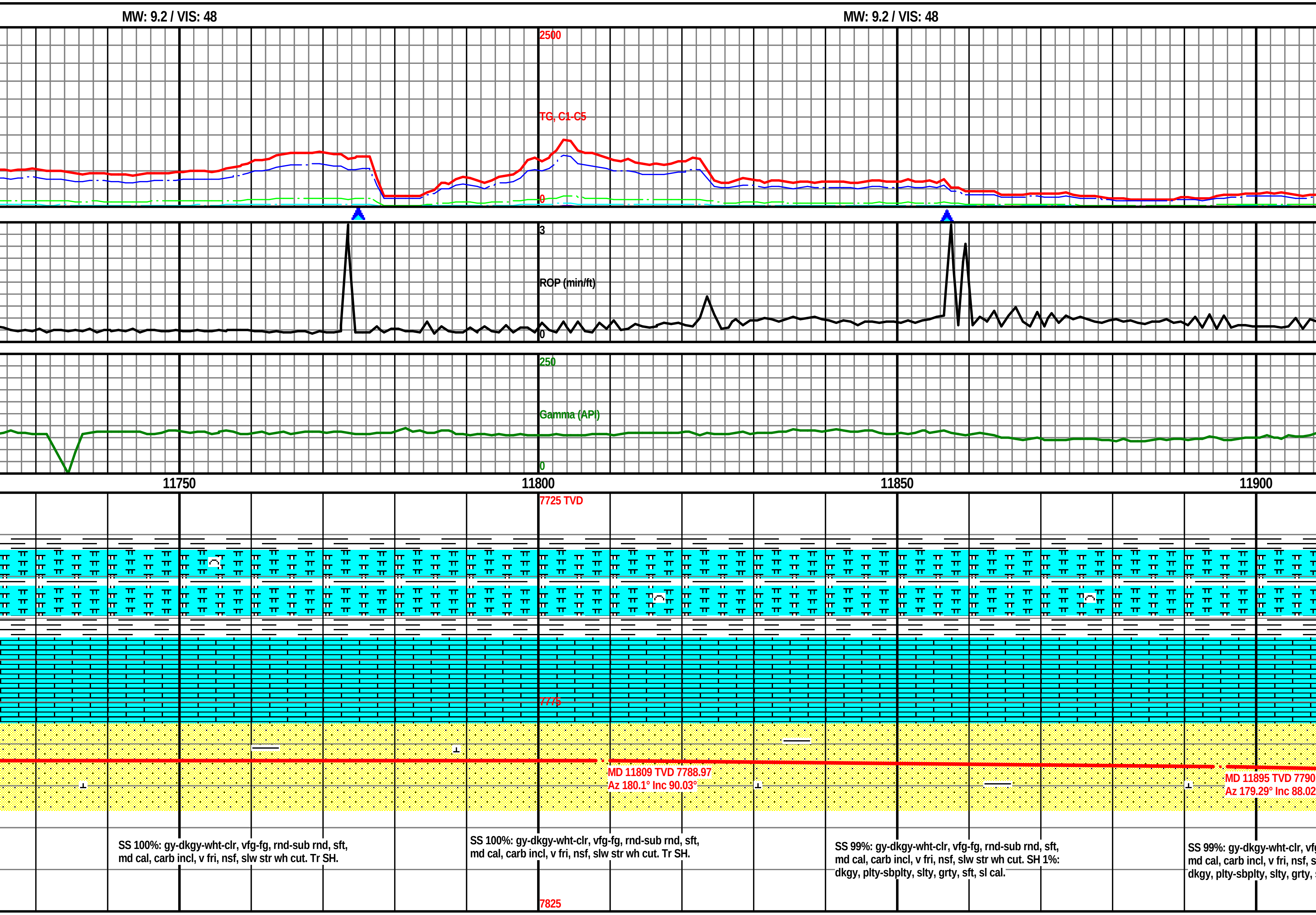
vfg-fg, rnd-sub
lw str wh cut

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

SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

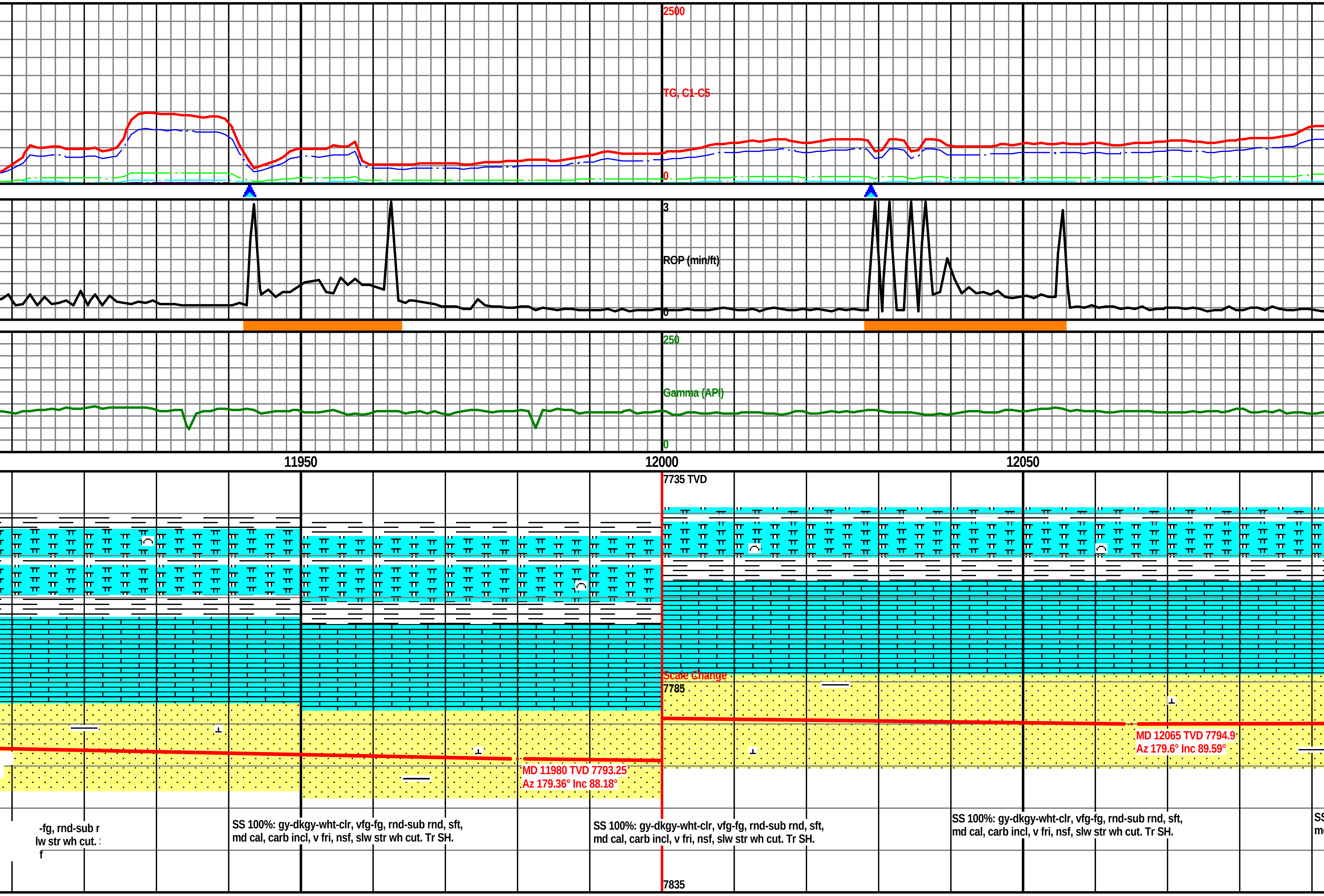

MW: 9.5 / VIS: 54
MW: 9.5 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11550
11600
11650
11700
7725 TVD
7775
MD 11554 TVD 7788.8
Az 180.07° Inc 89.84°
MD 11639 TVD 7788.95
Az 180.02° Inc 89.96°
100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub
d cal, carb incl, v fri, nsf, slw str wh cut.
gy, plty-sbplty, slty, grty, sf
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7825



MW: 9.2 / VIS: 48
MW: 9.2 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
11750
11800
11850
11900
7725 TVD
7775
MD 11809 TVD 7788.97
Az 180.1° Inc 90.03°
MD 11895 TVD 7790
Az 179.29° Inc 88.02
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. Tr SH.
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. Tr SH.
SS 99%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 1%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 99%: gy-dkgy-wht-clr, vfg
md cal, carb incl, v fri, nsf, s
dkgy, plty-sbplty, slty, grty,
7825

MW: 9.55 / VIS: 50

MW: 9.55 / VIS: 50



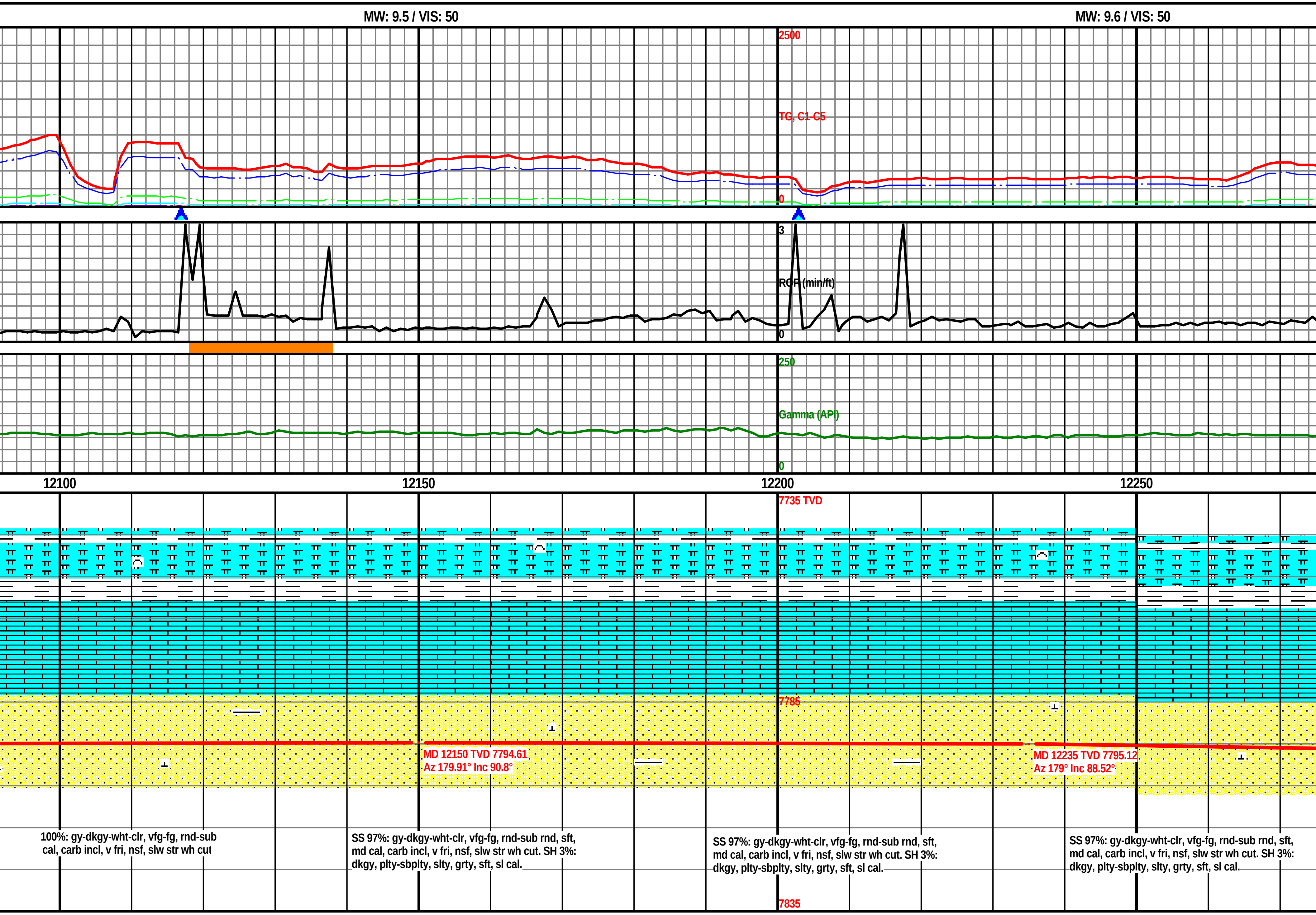
-fg, rnd-sub r
lw str wh cut.
f

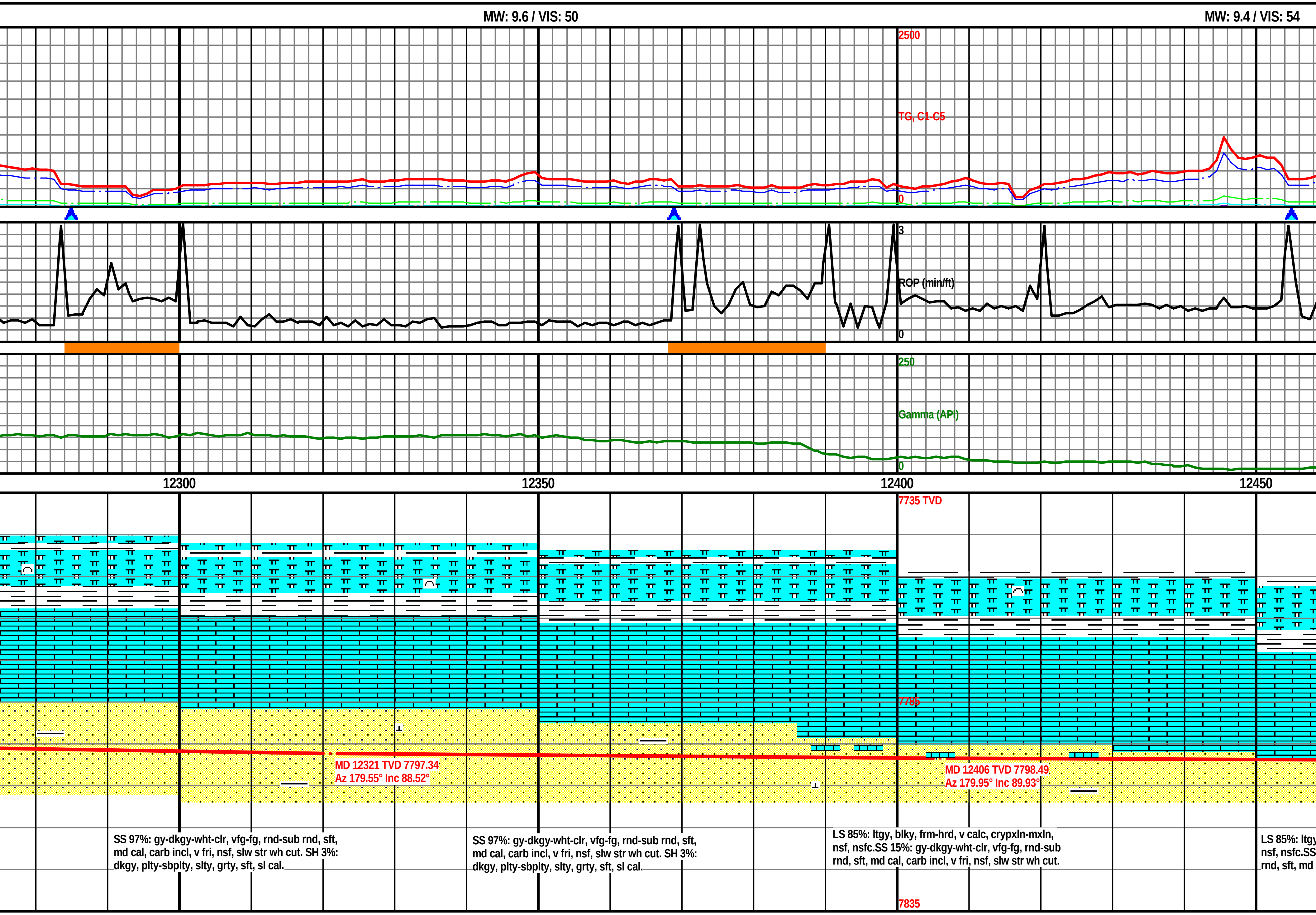
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. Tr SH.

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

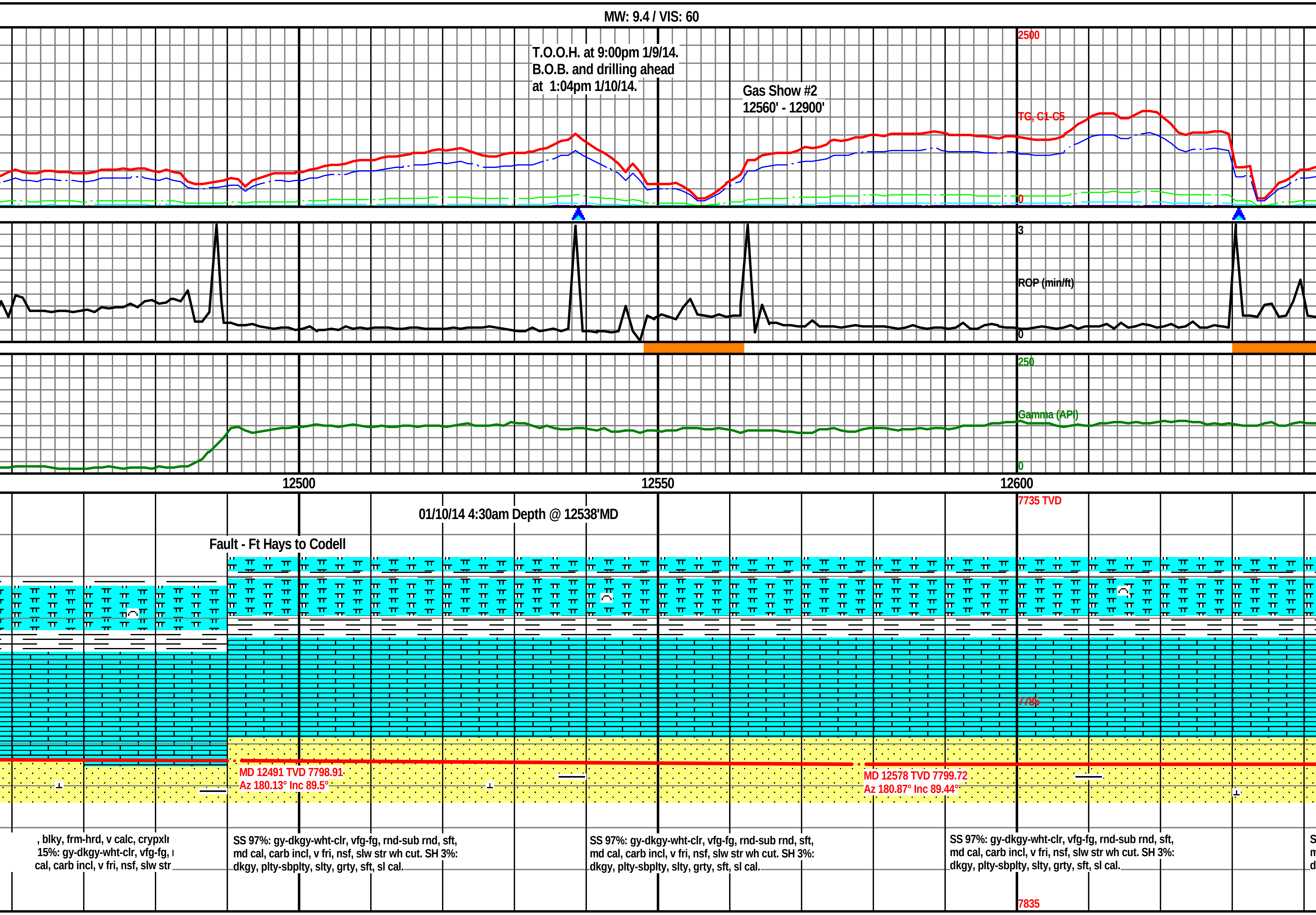
SS 100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. Tr SH.

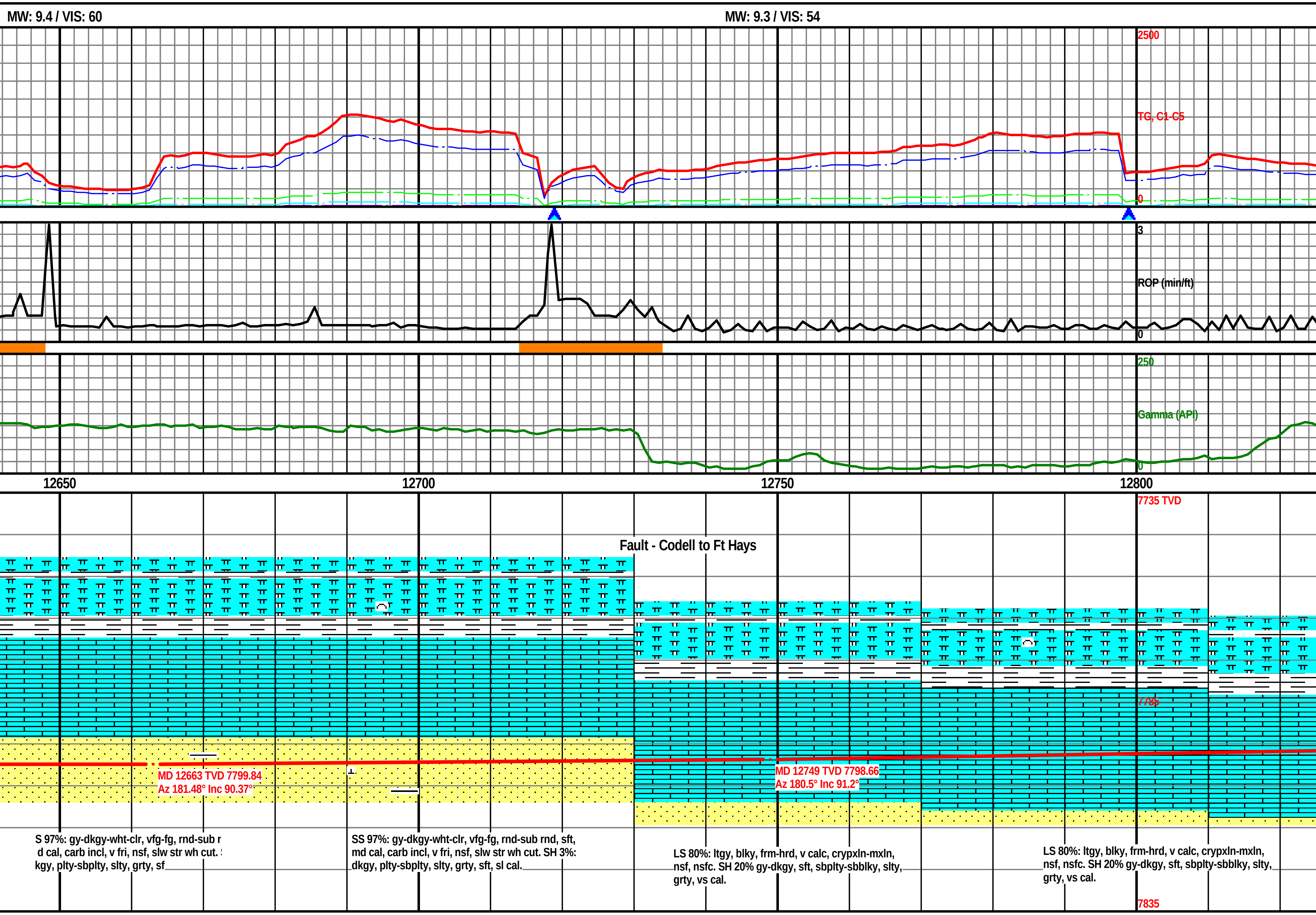
SS
m


MW: 9.5 / VIS: 50
MW: 9.6 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12100
12150
12200
12250
7735 TVD
7785
MD 12150 TVD 7794.61
Az 179.91° Inc 90.8°
MD 12235 TVD 7795.12
Az 179° Inc 88.52°
100%: gy-dkgy-wht-clr, vfg-fg, rnd-sub cal, carb incl, v fri, nsf, slw str wh cut
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7835

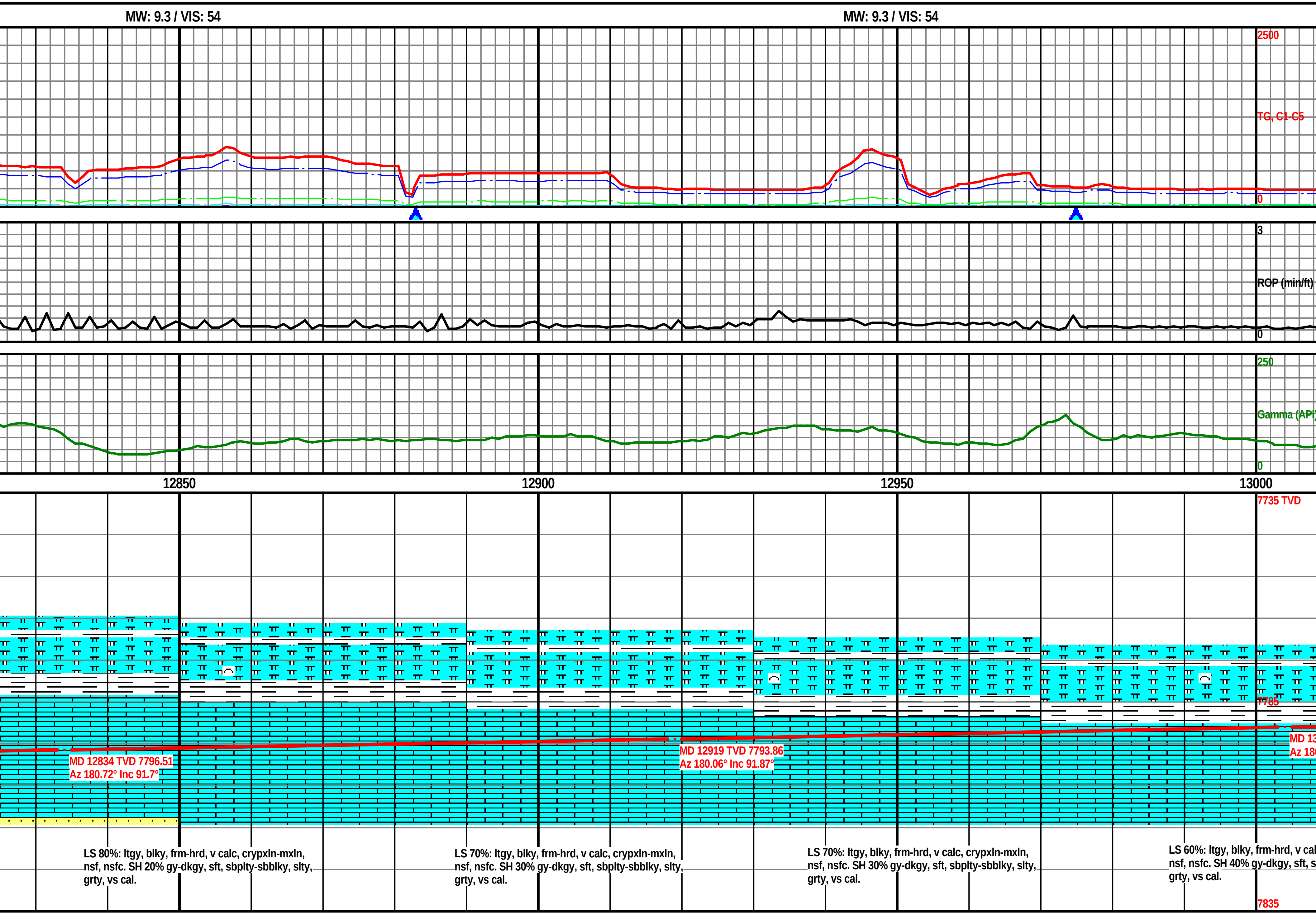


MW: 9.6 / VIS: 50
MW: 9.4 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12300
12350
12400
12450
7735 TVD
7785
7835
MD 12321 TVD 7797.34
Az 179.55° Inc 88.52°
MD 12406 TVD 7798.49
Az 179.95° Inc 89.93°
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc.SS 15%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut.
LS 85%: ltgy
nsf, nsfc.SS
rnd, sft, md


MW: 9.4 / VIS: 60
T.O.O.H. at 9:00pm 1/9/14.
B.O.B. and drilling ahead
at 1:04pm 1/10/14.
Gas Show #2
12560' - 12900'
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12500
12550
12600
7735 TVD
01/10/14 4:30am Depth @ 12538'MD
Fault - Ft Hays to Codell
7785
MD 12491 TVD 7798.91
Az 180.13° Inc 89.5°
MD 12578 TVD 7799.72
Az 180.87° Inc 89.44°
, blky, frm-hrd, v calc, crypxln
15%: gy-dkgy-wht-clr, vfg-fg,
cal, carb incl, v fri, nsf, slw str
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft,
md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7835

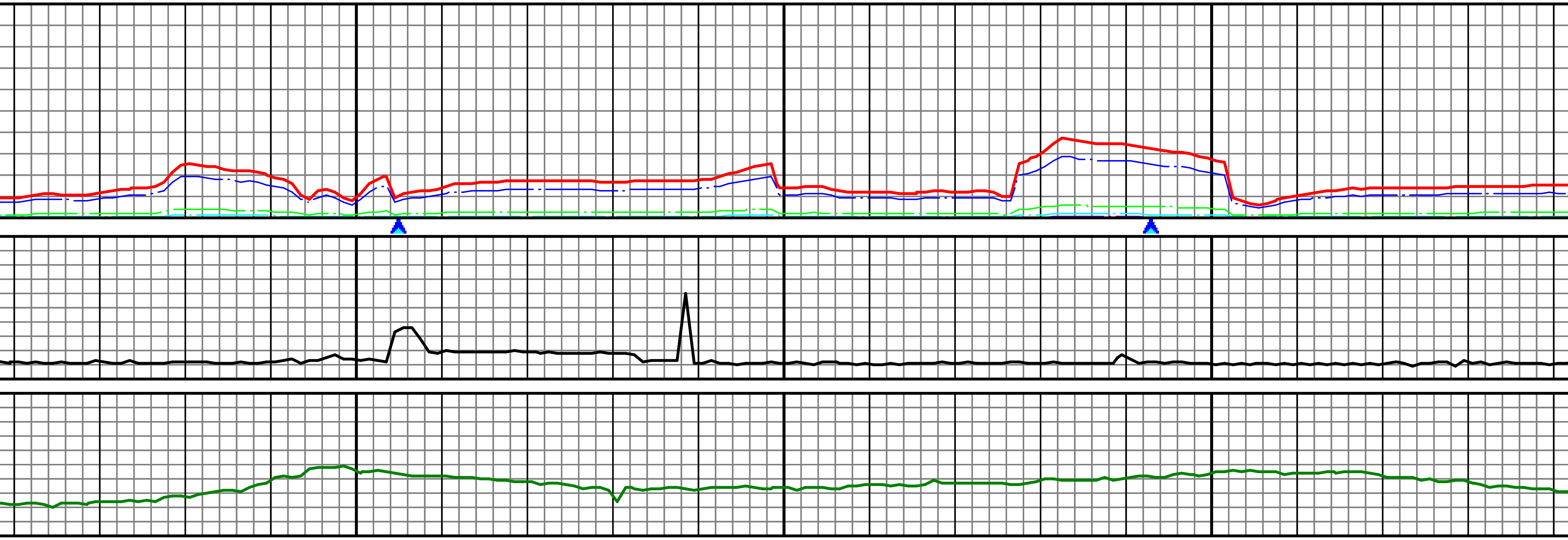


MW: 9.4 / VIS: 60
MW: 9.3 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12650
12700
12750
12800
7735 TVD
Fault - Codell to Ft Hays
7785
MD 12663 TVD 7799.84
Az 181.48° Inc 90.37°
MD 12749 TVD 7798.66
Az 180.5° Inc 91.2°
S 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub r
d cal, carb incl, v fri, nsf, slw str wh cut.
kgy, plty-sbplty, slty, grty, sf
SS 97%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, v fri, nsf, slw str wh cut. SH 3%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7835


MW: 9.3 / VIS: 54
MW: 9.3 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
12850
12900
12950
13000
7735 TVD
7785
7835
MD 12834 TVD 7796.51
Az 180.72° Inc 91.7°
MD 12919 TVD 7793.86
Az 180.06° Inc 91.87°
MD 13
Az 18
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 60%: ltgy, blky, frm-hrd, v cal
nsf, nsfc. SH 40% gy-dkgy, sft, s
grty, vs cal.

MW: 9.3 / VIS: 54

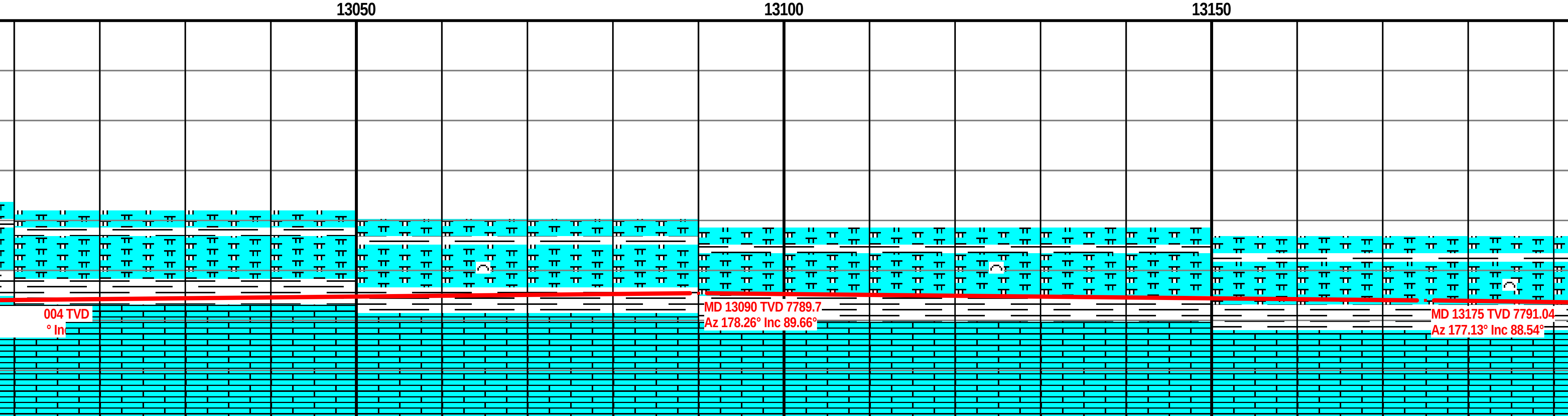
MW: 9.3 / VIS: 54



13050

13100

13150



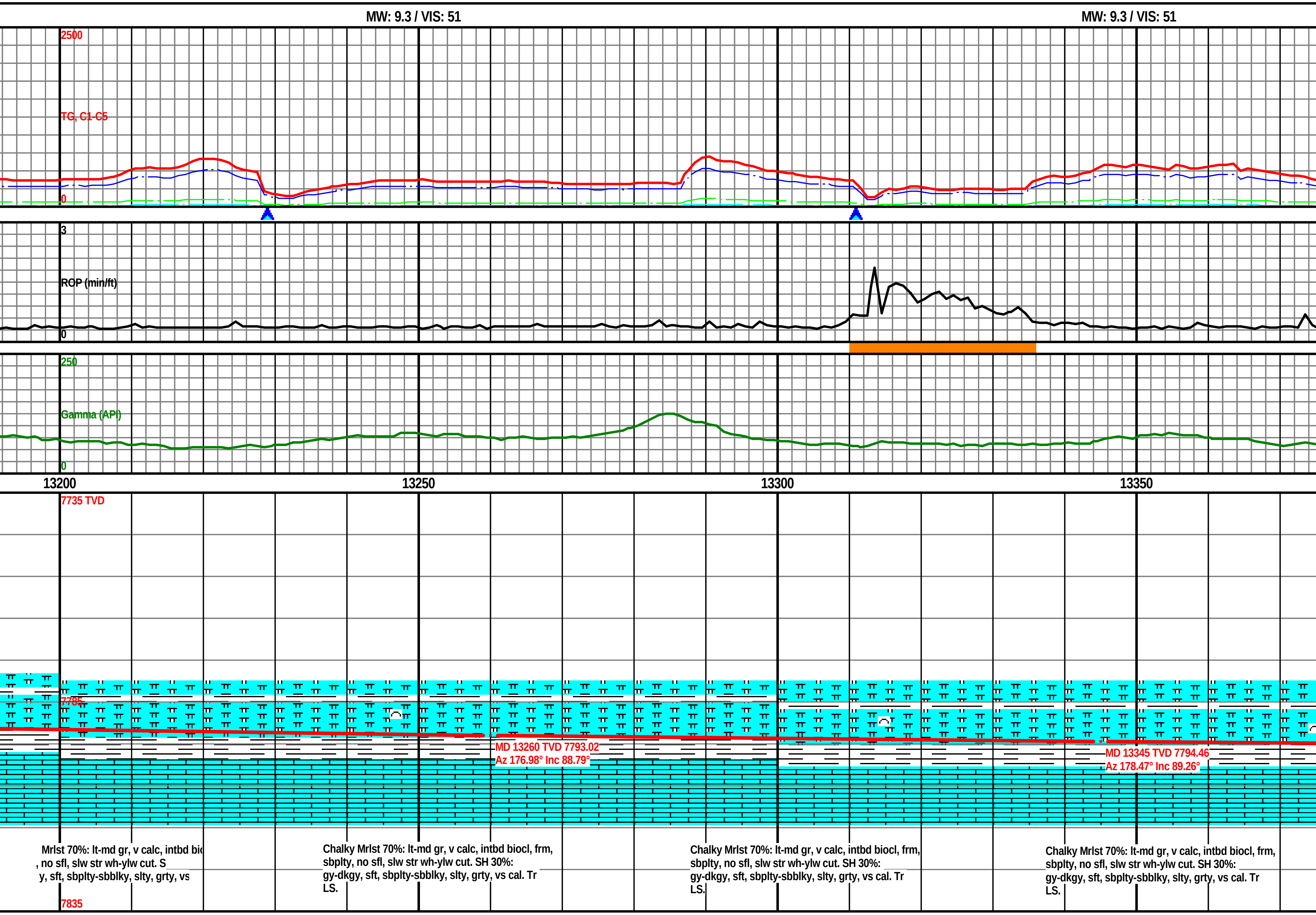
c, crypxlı
bplty-sbbl

LS 60%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 40% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

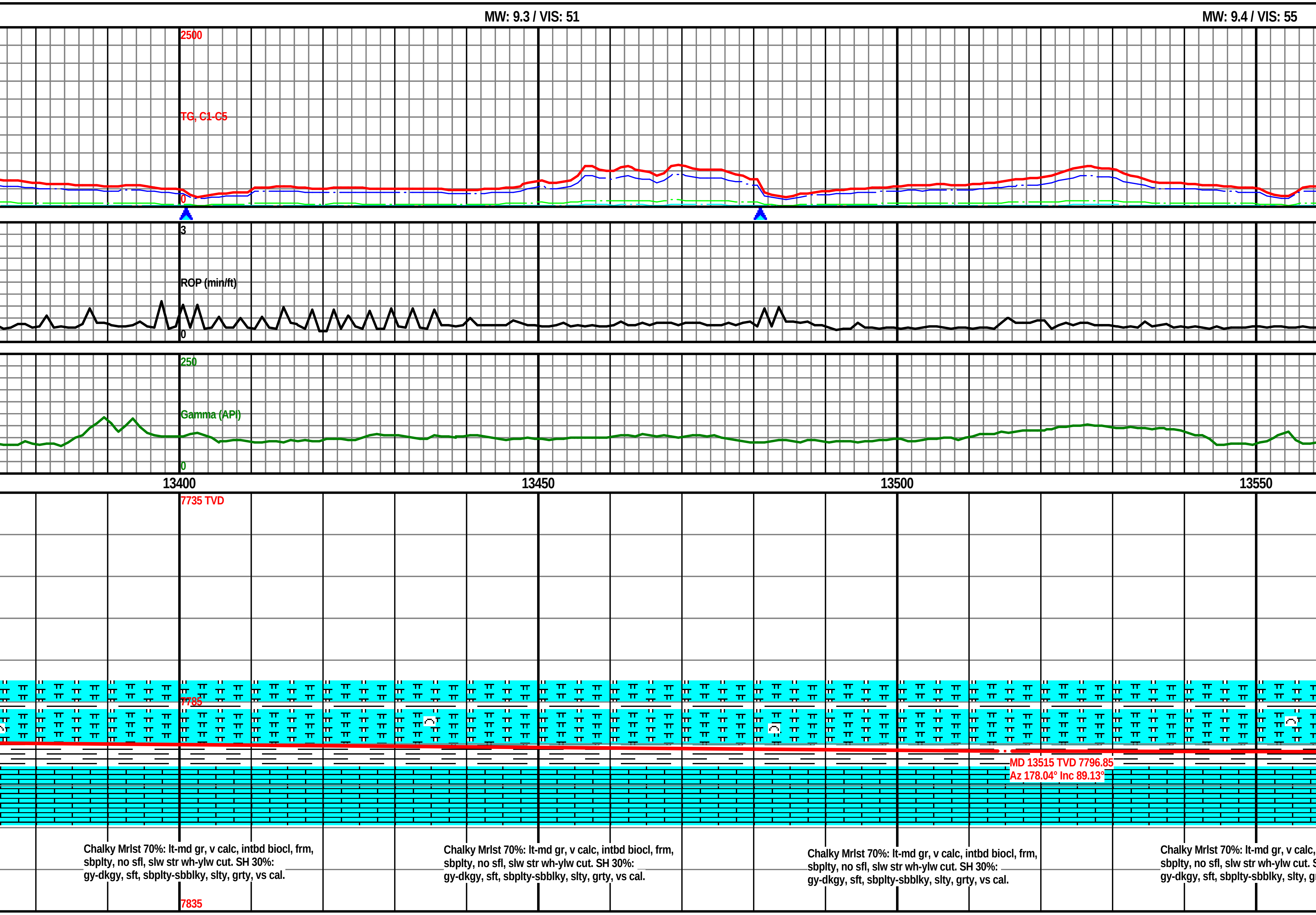
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.

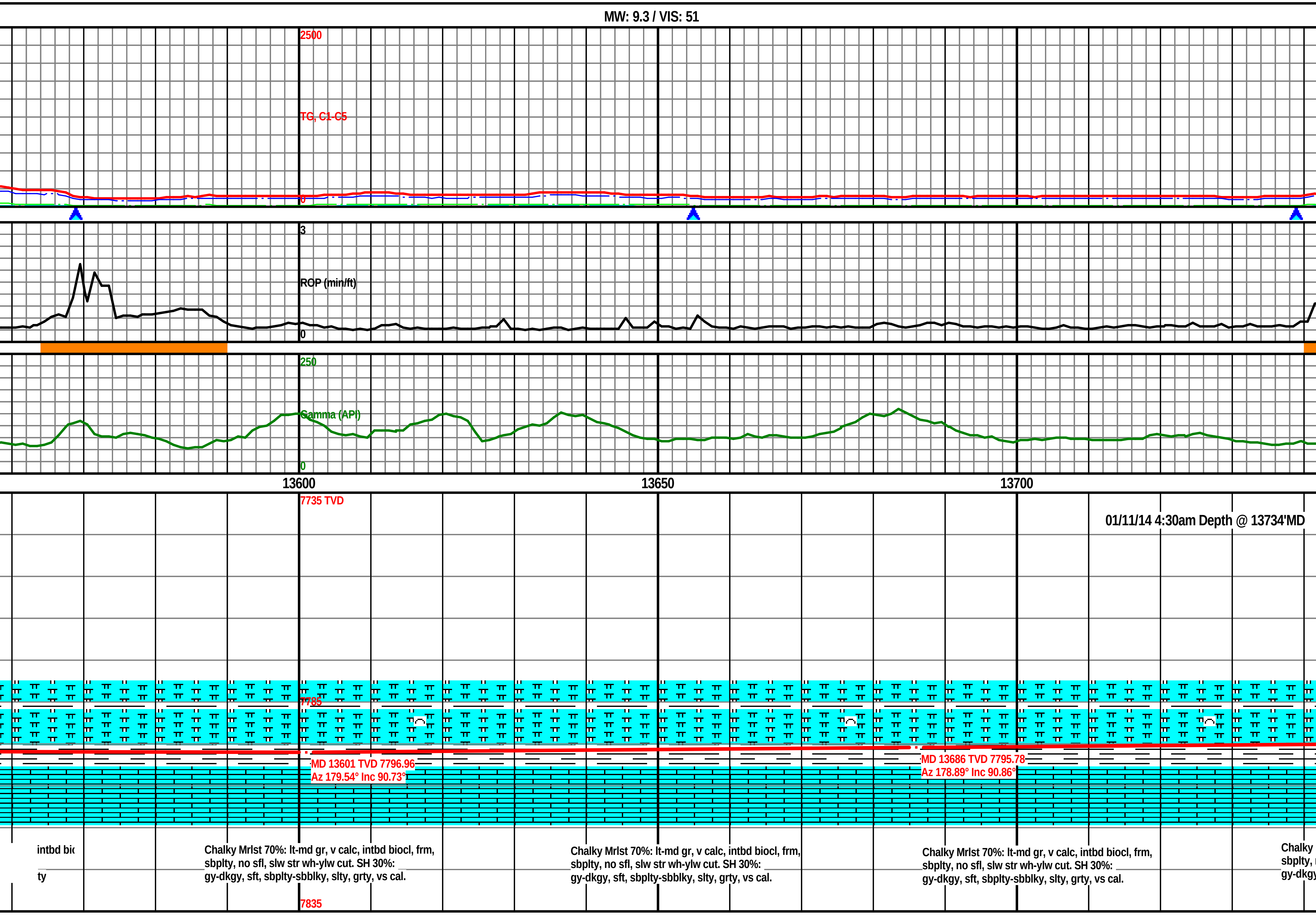
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.

Chalky
sbplty
gy-dkg
LS.



MW: 9.3 / VIS: 51
MW: 9.3 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13200
13250
13300
13350
7735 TVD
7785
MD 13260 TVD 7793.02
Az 176.98° Inc 88.79°
MD 13345 TVD 7794.46
Az 178.47° Inc 89.26°
Mrlst 70%: lt-md gr, v calc, intbd bi
, no sfl, slw str wh-ylw cut. S
y, sft, sbplty-sbblky, slty, grty, vs
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.
7835


MW: 9.3 / VIS: 51
MW: 9.4 / VIS: 55
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13400
13450
13500
13550
7735 TVD
7785
MD 13515 TVD 7796.85
Az 178.04° Inc 89.13°
7835
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.



MW: 9.3 / VIS: 51
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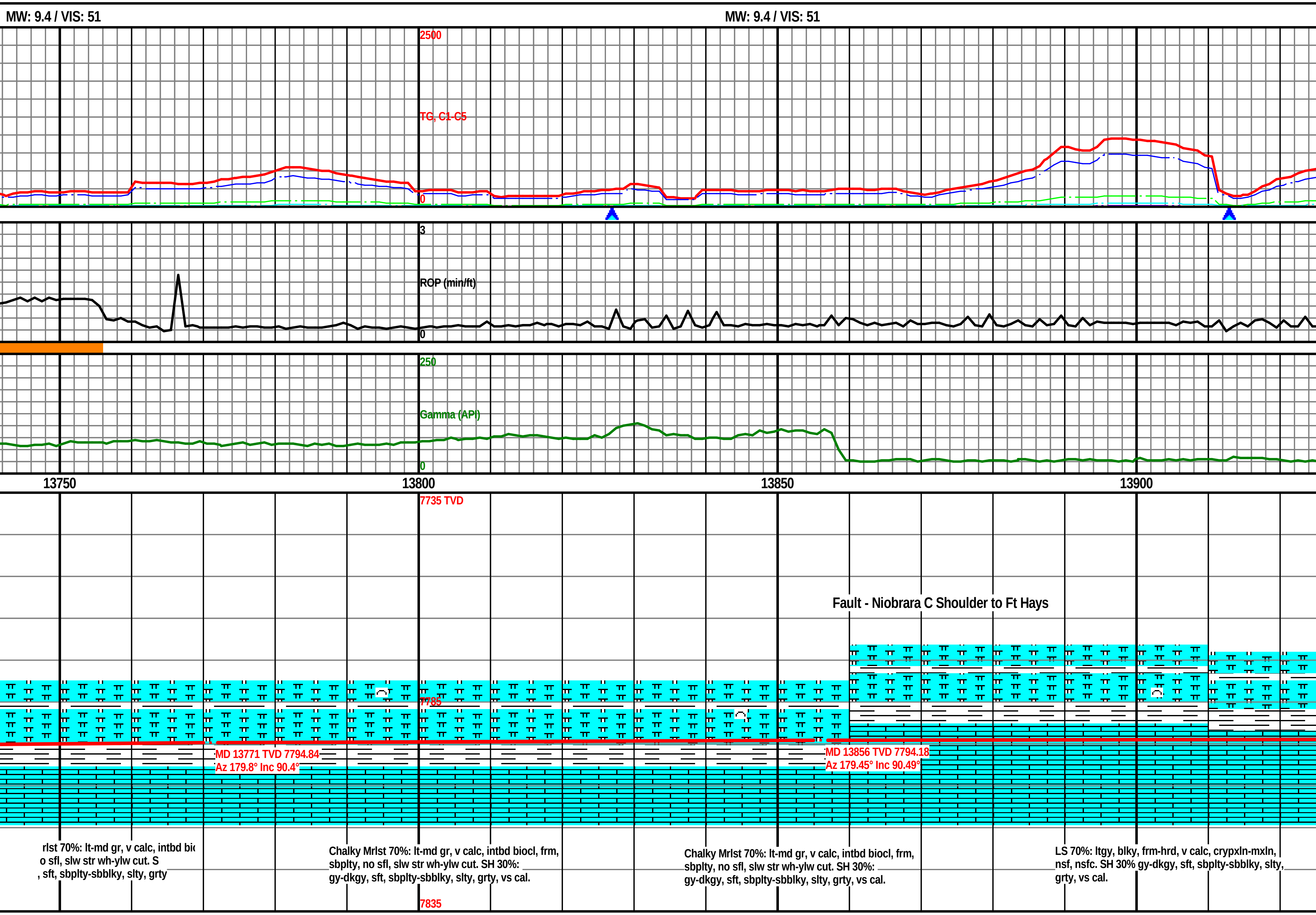
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13600
13650
13700
7735 TVD
01/11/14 4:30am Depth @ 13734'MD
7785
MD 13601 TVD 7796.96
Az 179.54° Inc 90.73°
MD 13686 TVD 7795.78
Az 178.89° Inc 90.86°
intbd bio
ty
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky
sbplty,
gy-dkgy
7835



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MW: 9.4 / VIS: 51
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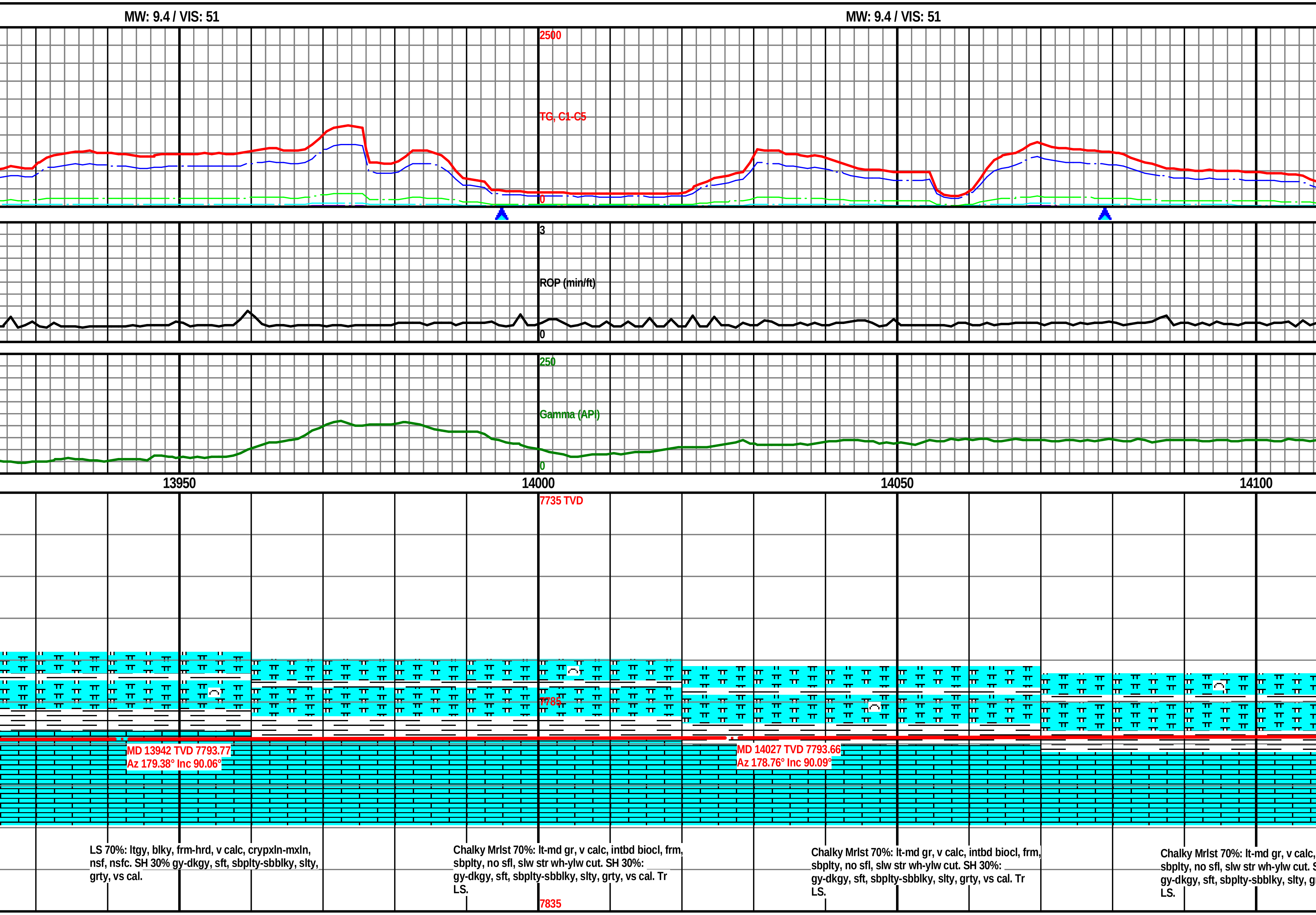
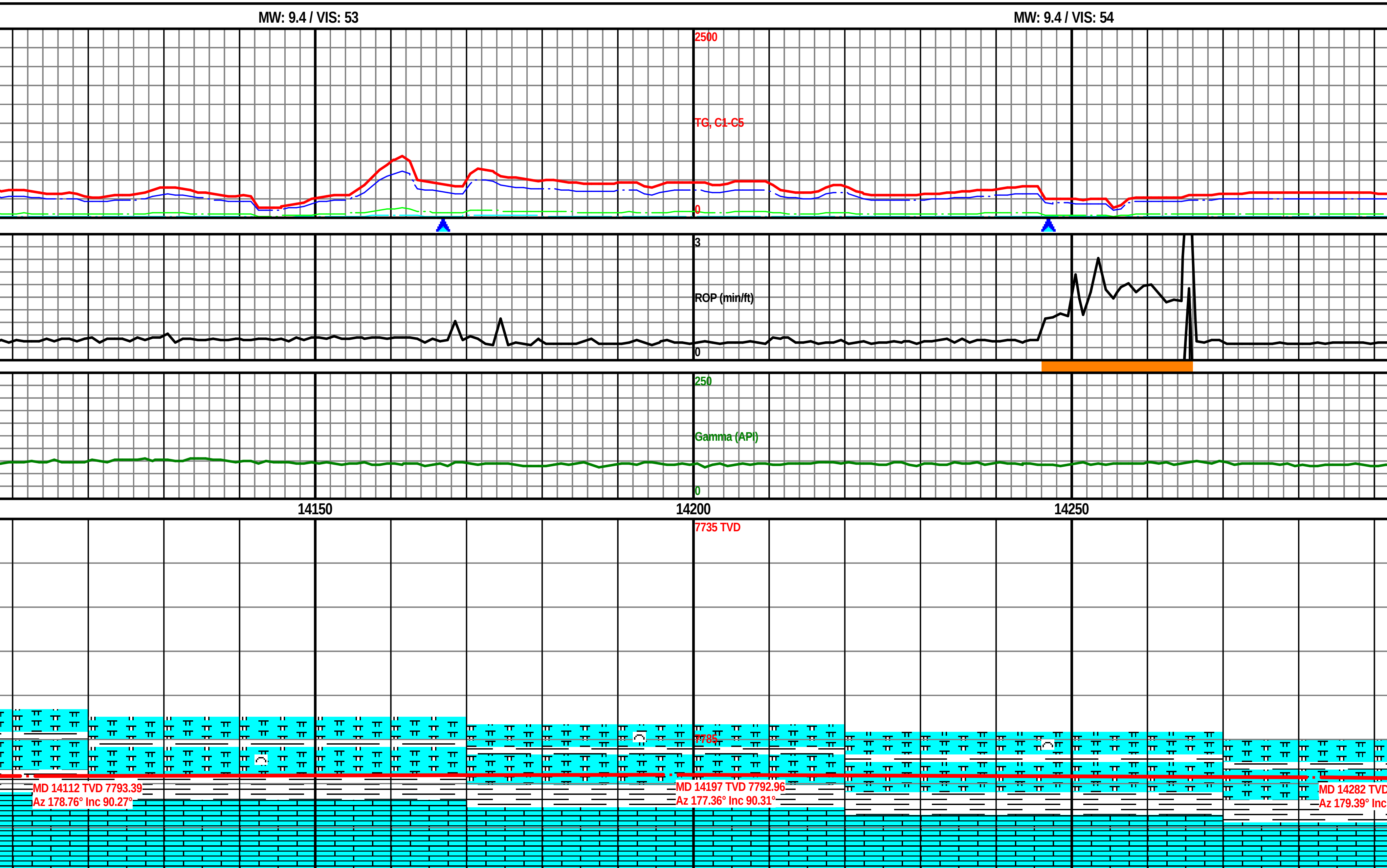
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13750
13800
13850
13900
7735 TVD
Fault - Niobrara C Shoulder to Ft Hays
7785
MD 13771 TVD 7794.84
Az 179.8° Inc 90.4°
MD 13856 TVD 7794.18
Az 179.45° Inc 90.49°
rlst 70%: lt-md gr, v calc, intbd bi
o sfl, slw str wh-ylw cut. S
, sft, sbplty-sbblky, slty, grty
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7835



MW: 9.4 / VIS: 51
MW: 9.4 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
13950
14000
14050
14100
7735 TVD
7785
7835
MD 13942 TVD 7793.77
Az 179.38° Inc 90.06°
MD 14027 TVD 7793.66
Az 178.76° Inc 90.09°
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.
LS.



intbd bio

ty, vs

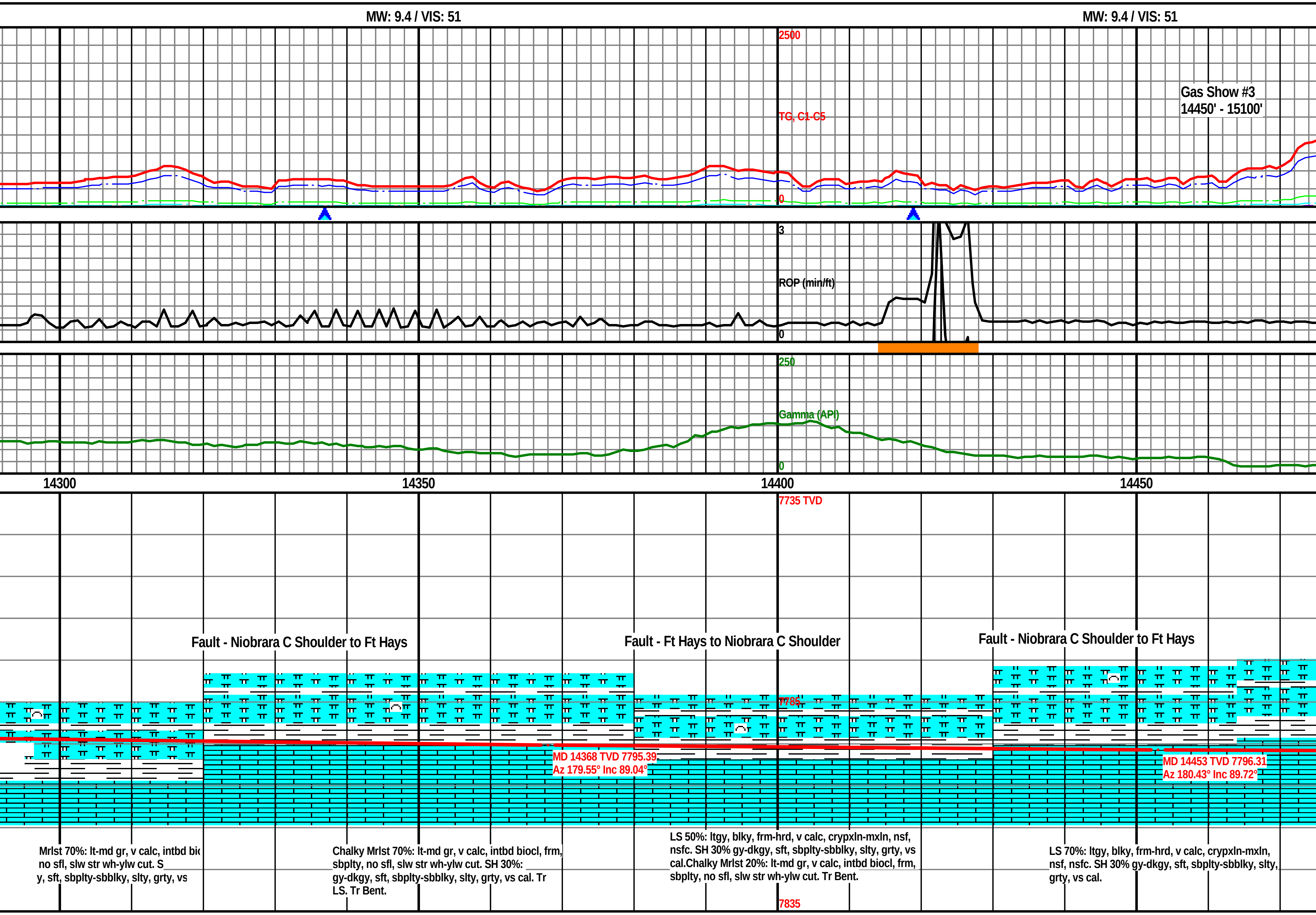
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.

Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.

7835

Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS.

Chalky
sbplty,
gy-dkg
LS. Tr

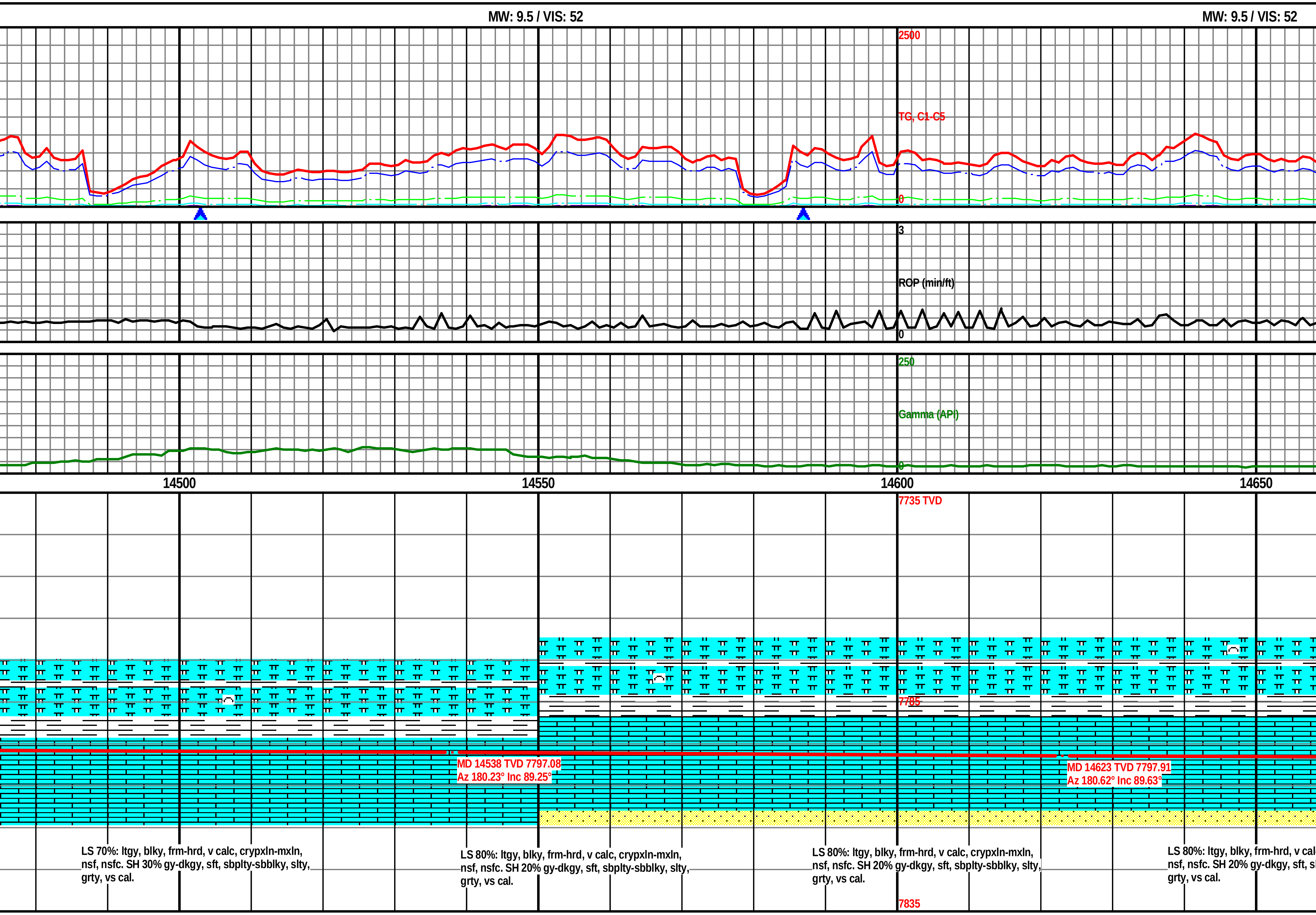


Mrlst 70%: lt-md gr, v calc, intbd bi
no sfl, slw str wh-ylw cut. S
y, sft, sbplty-sbblky, slty, grty, vs

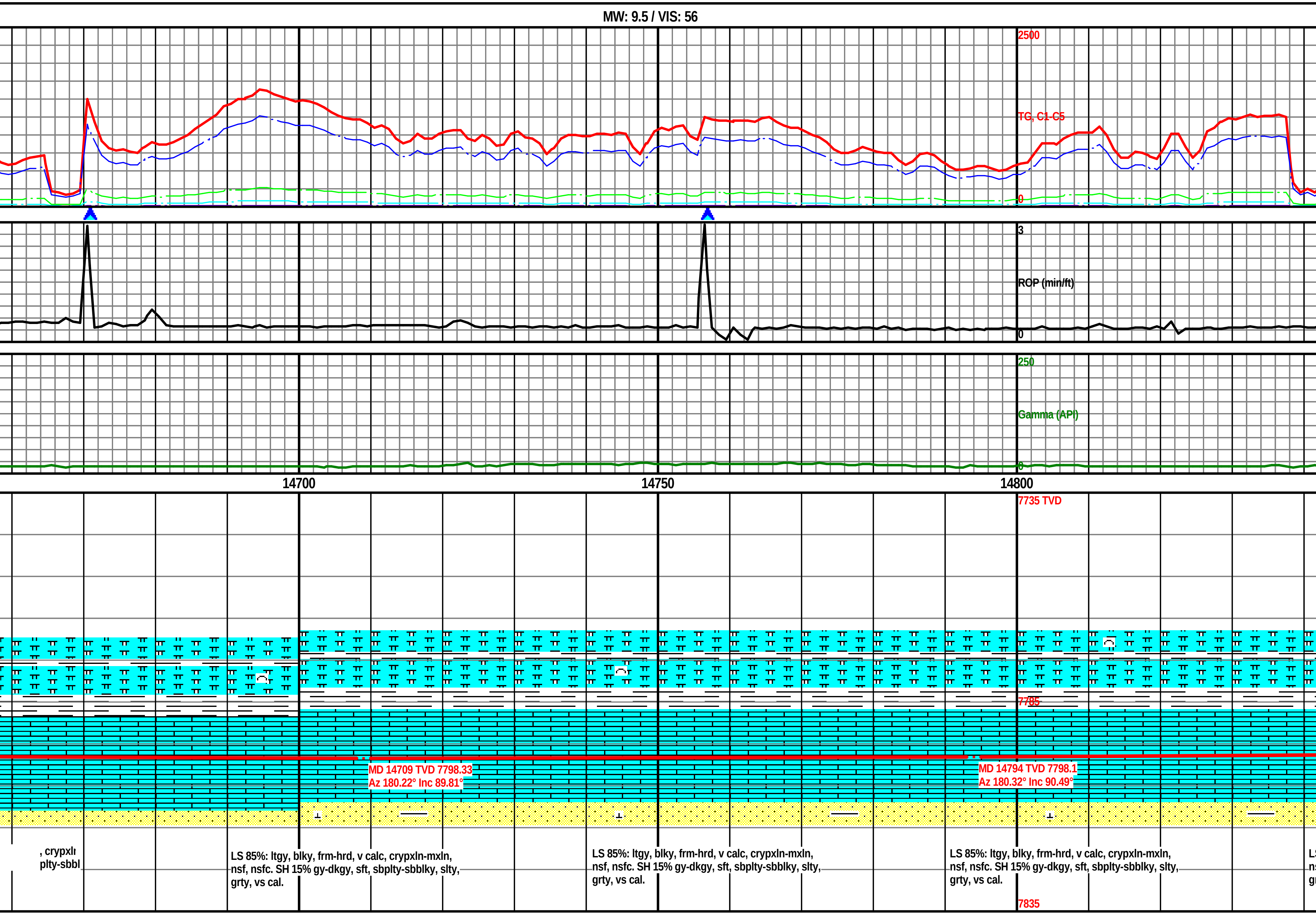
Chalky Mrlst 70%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. SH 30%: gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal. Tr LS. Tr Bent.

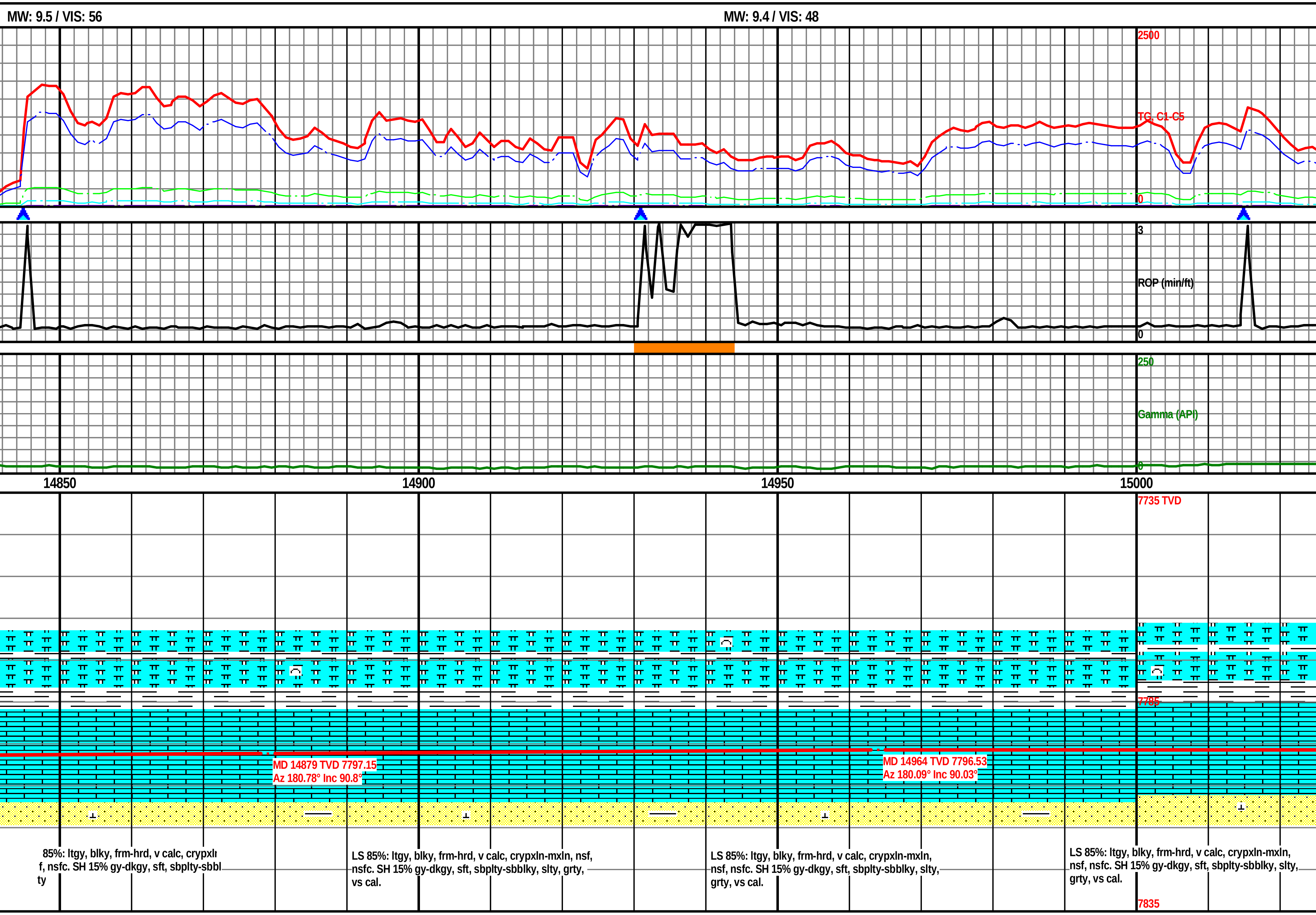
LS 50%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.Chalky Mrlst 20%: lt-md gr, v calc, intbd biocl, frm, sbplty, no sfl, slw str wh-ylw cut. Tr Bent.

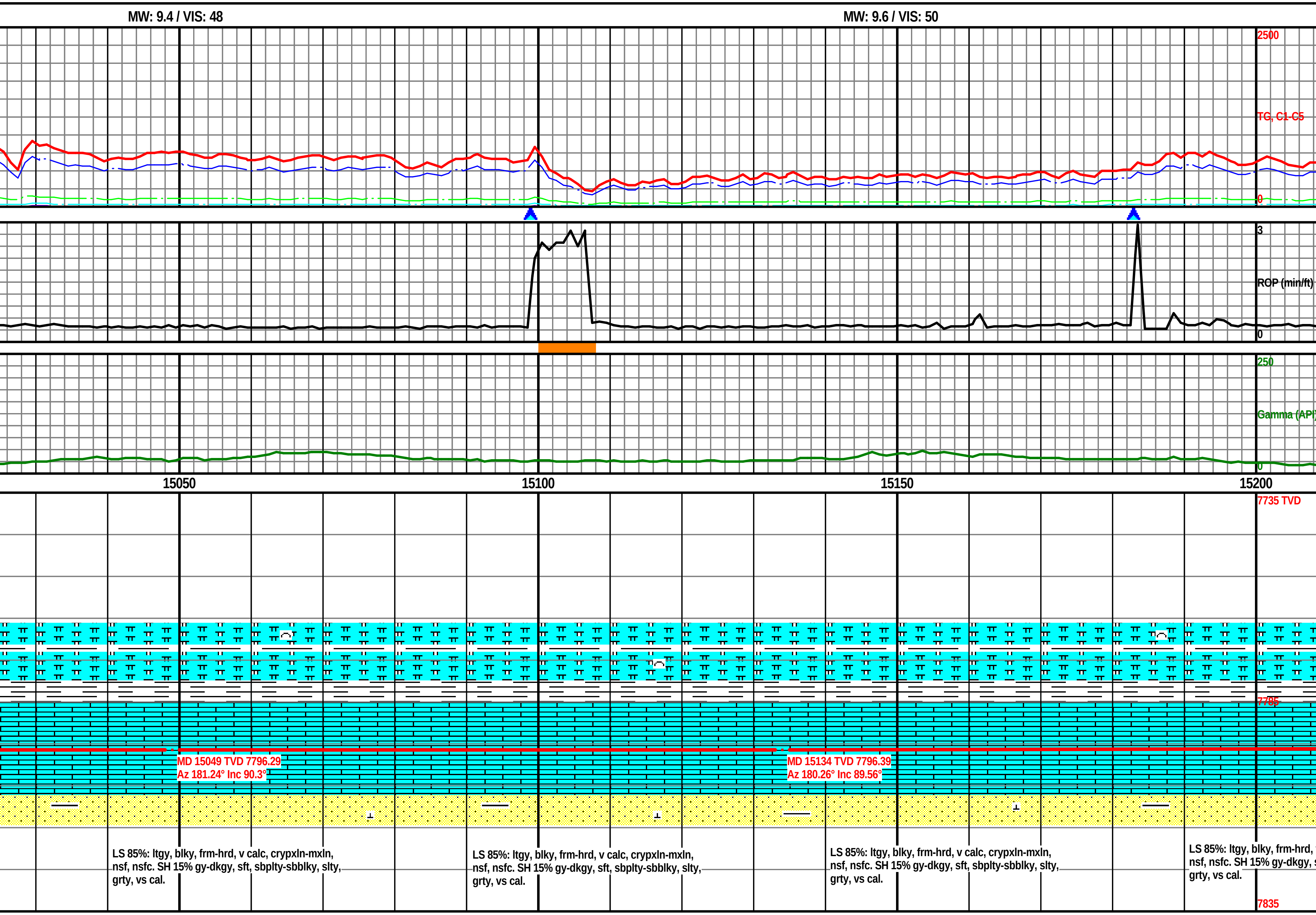
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.



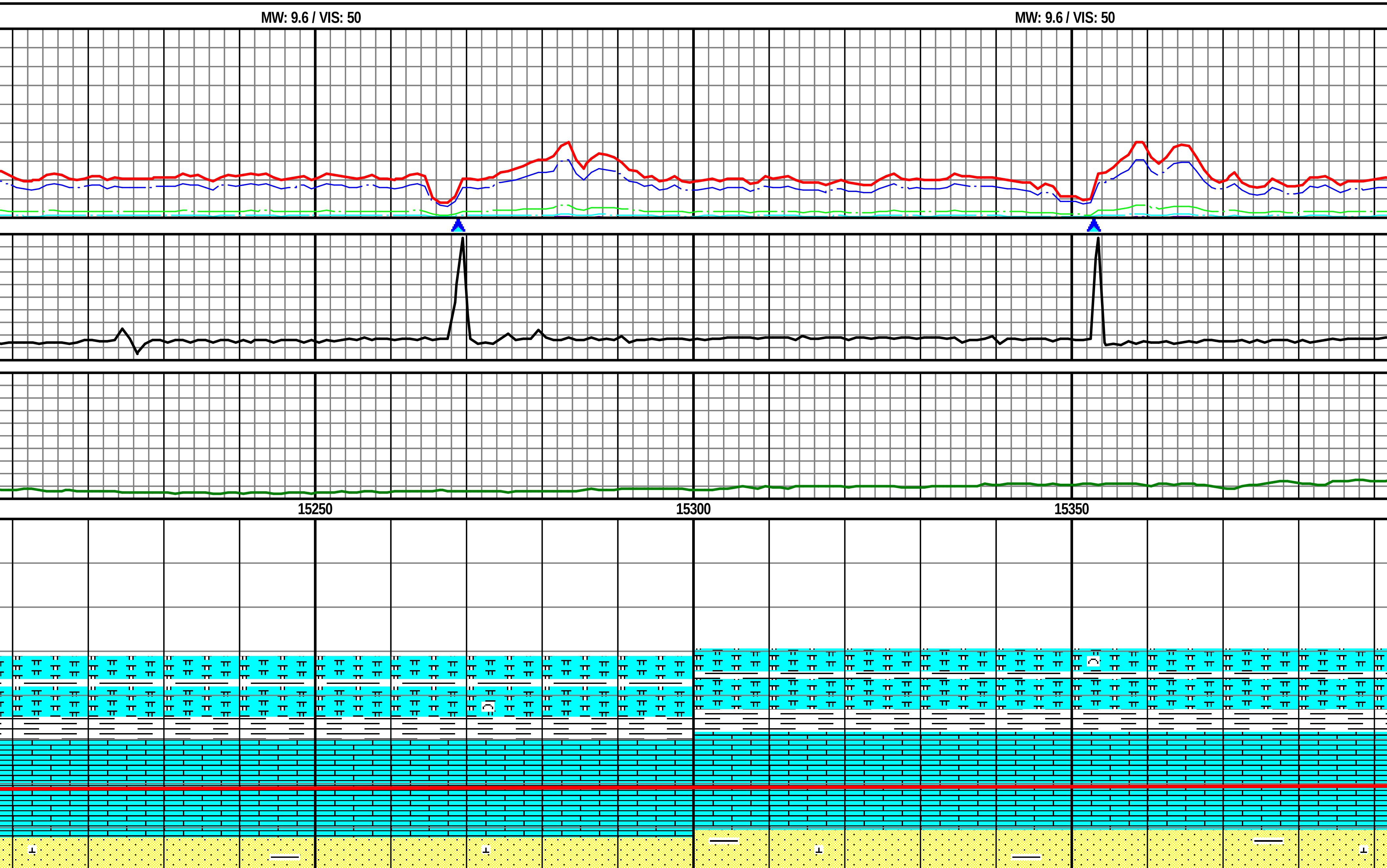
MW: 9.5 / VIS: 52
MW: 9.5 / VIS: 52
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14500
14550
14600
14650
7735 TVD
7785
7835
MD 14538 TVD 7797.08
Az 180.23° Inc 89.25°
MD 14623 TVD 7797.91
Az 180.62° Inc 89.63°
LS 70%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 30% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.5 / VIS: 56
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14700
14750
14800
7735 TVD
7785
MD 14709 TVD 7798.33
Az 180.22° Inc 89.81°
MD 14794 TVD 7798.1
Az 180.32° Inc 90.49°
, crypxln
plty-sbbl
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7835


MW: 9.5 / VIS: 56
MW: 9.4 / VIS: 48
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
14850
14900
14950
15000
7735 TVD
7785
7835
MD 14879 TVD 7797.15
Az 180.78° Inc 90.8°
MD 14964 TVD 7796.53
Az 180.09° Inc 90.03°
85%: ltgy, blky, frm-hrd, v calc, crypxl
f, nsfc. SH 15% gy-dkgy, sft, sbplty-sbbl
ty
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf,
nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty,
vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln,
nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty,
grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln,
nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty,
grty, vs cal.



MW: 9.4 / VIS: 48
MW: 9.6 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15050
15100
15150
15200
7735 TVD
7785
MD 15049 TVD 7796.29
Az 181.24° Inc 90.3°
MD 15134 TVD 7796.39
Az 180.26° Inc 89.56°
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd,
nsf, nsfc. SH 15% gy-dkgy, s
grty, vs cal.
7835

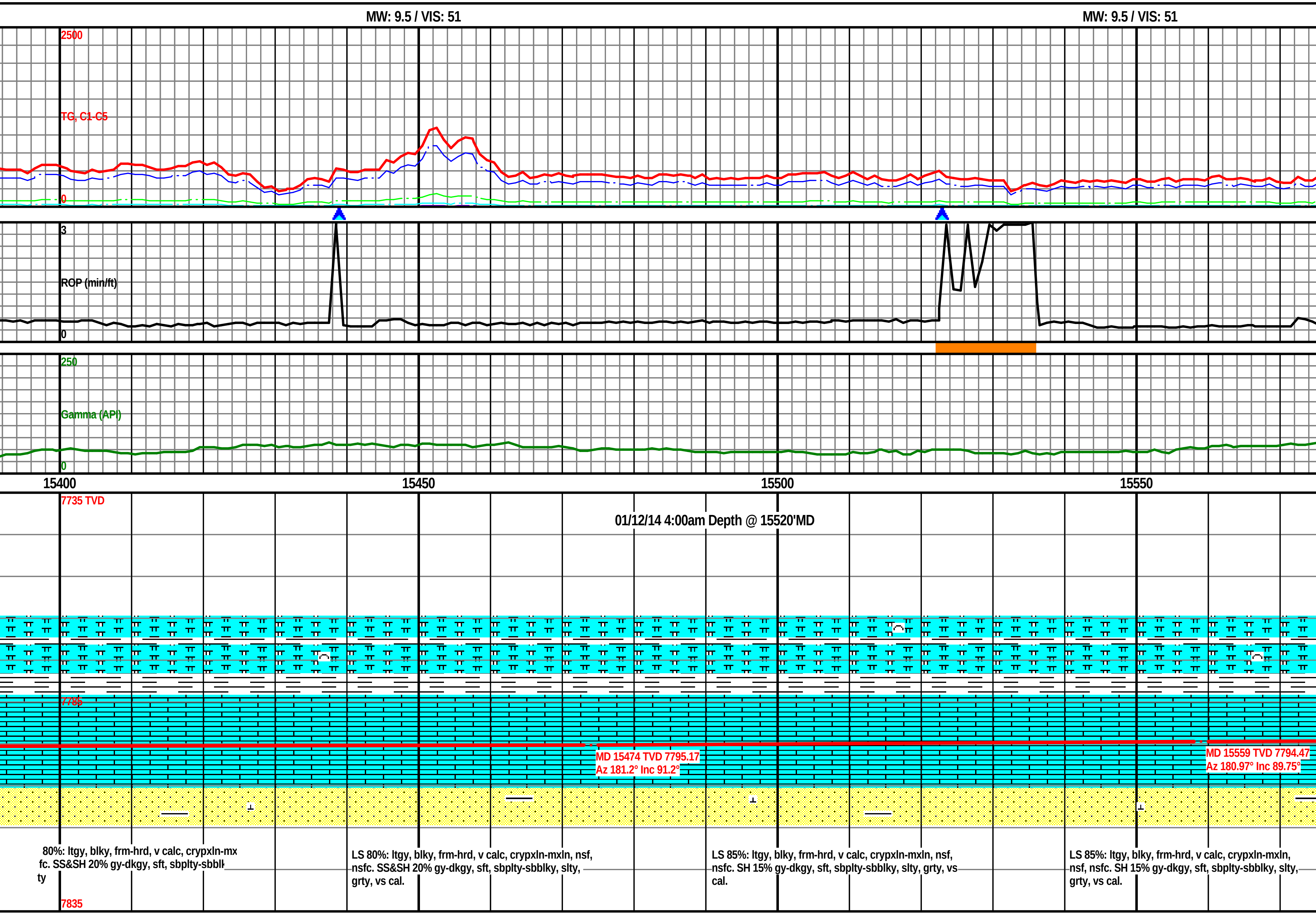


calc, crypxln
ft, sbplty-sbbl

LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.

LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.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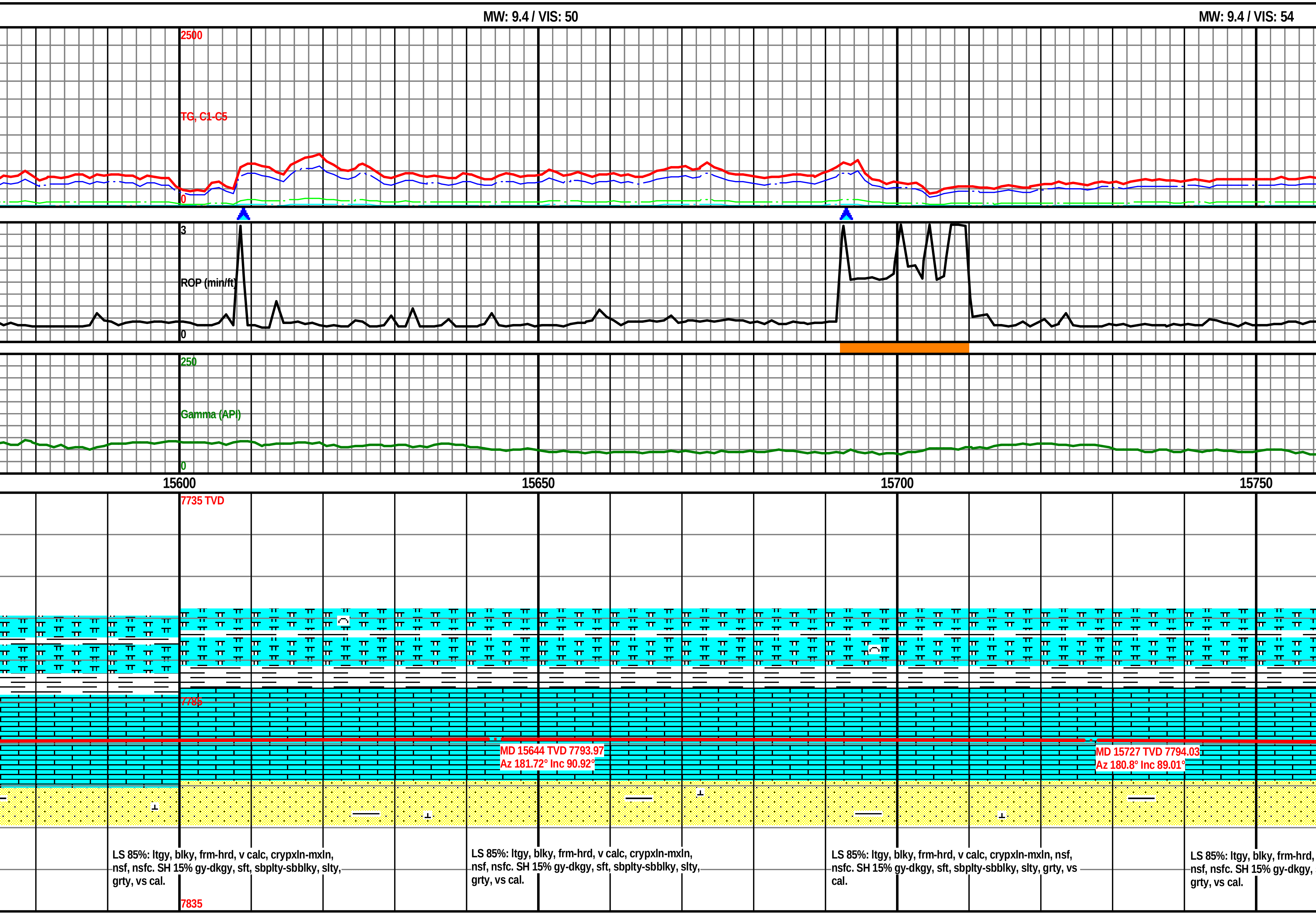
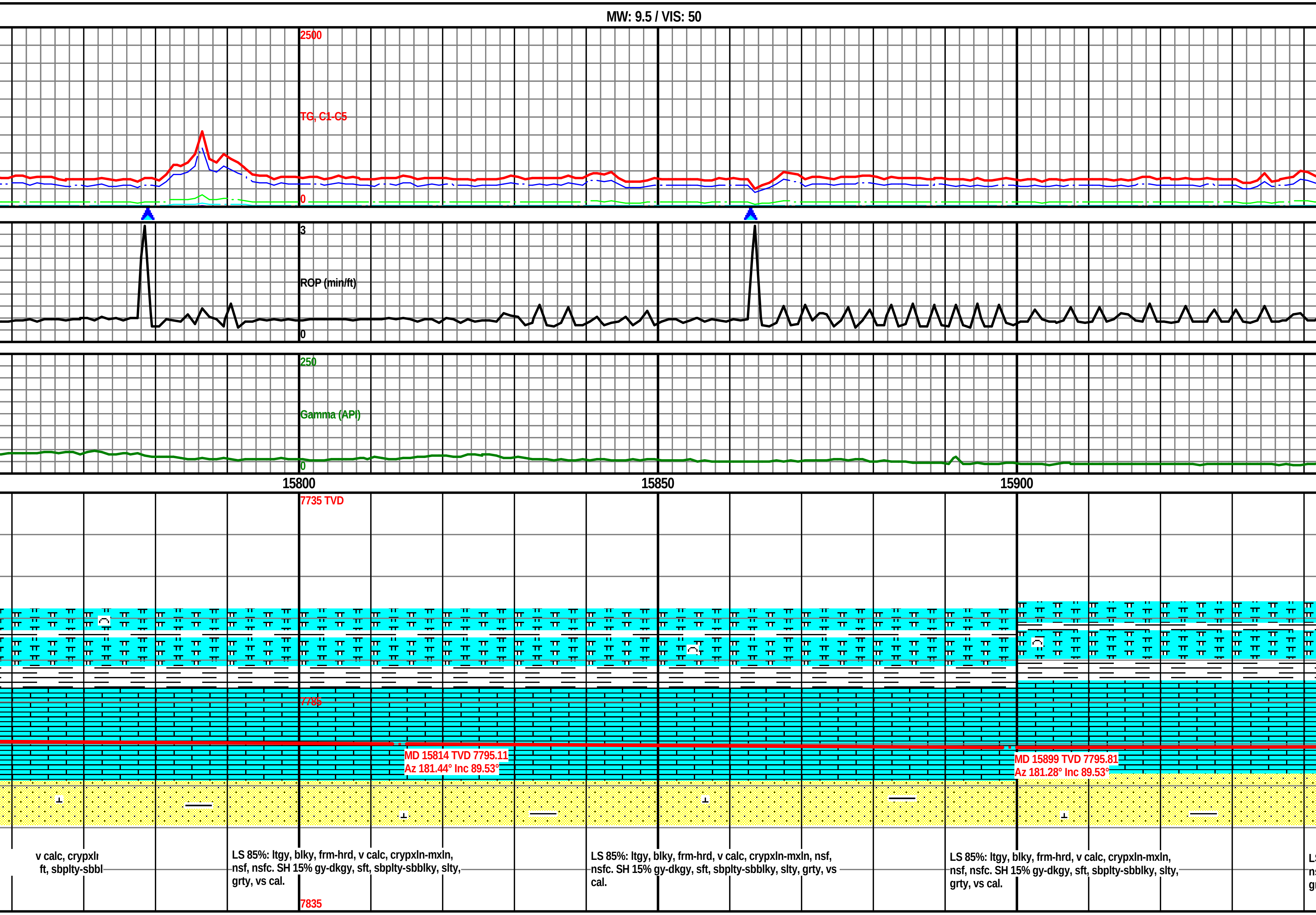
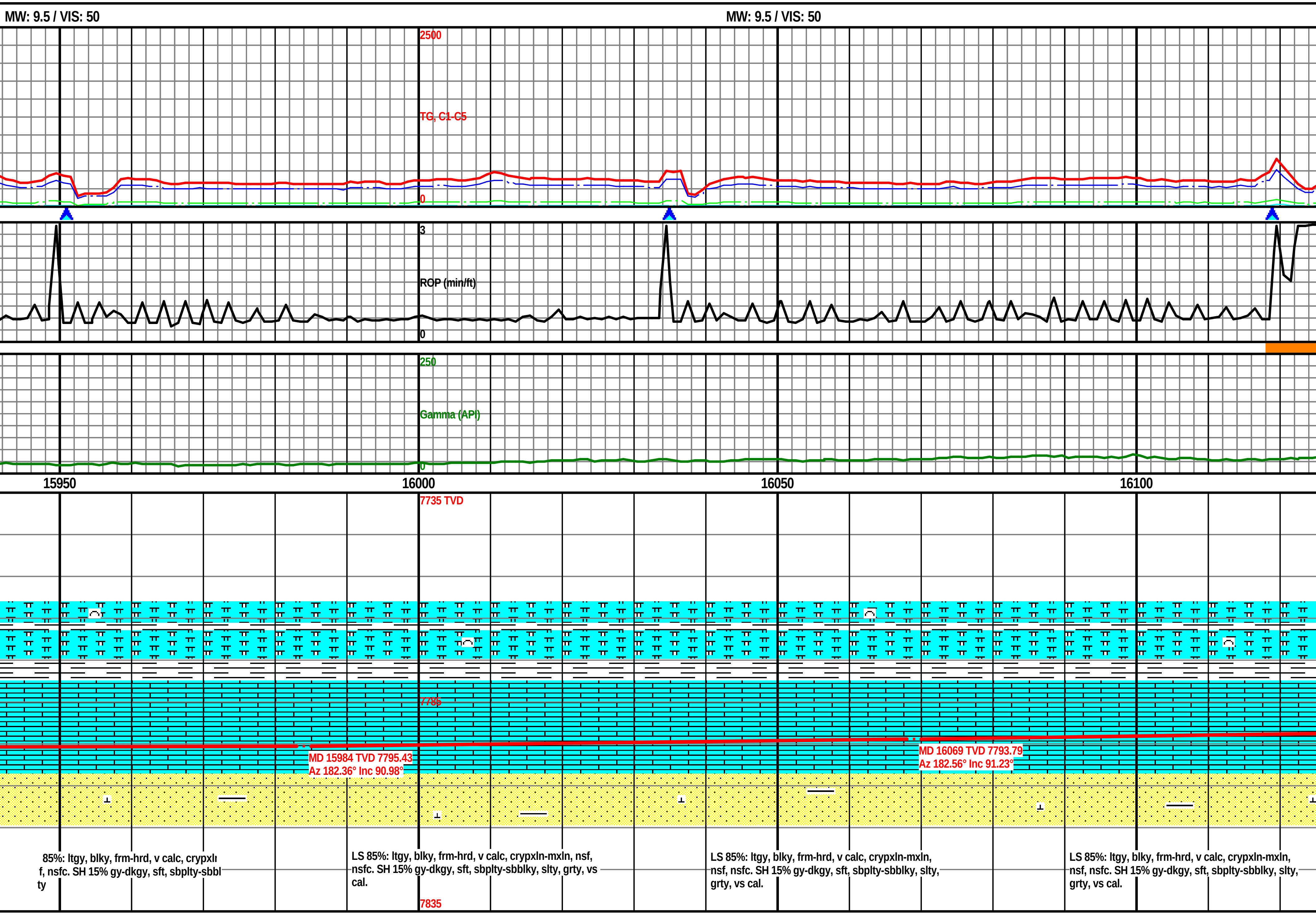
MW: 9.5 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15400
15450
15500
15550
7735 TVD
01/12/14 4:00am Depth @ 15520'MD
7785
MD 15474 TVD 7795.17
Az 181.2° Inc 91.2°
MD 15559 TVD 7794.47
Az 180.97° Inc 89.75°
80%: ltgy, blky, frm-hrd, v calc, crypxln-mx
fc. SS&SH 20% gy-dkgy, sft, sbplty-sbblk
ty
LS 80%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SS&SH 20% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7835

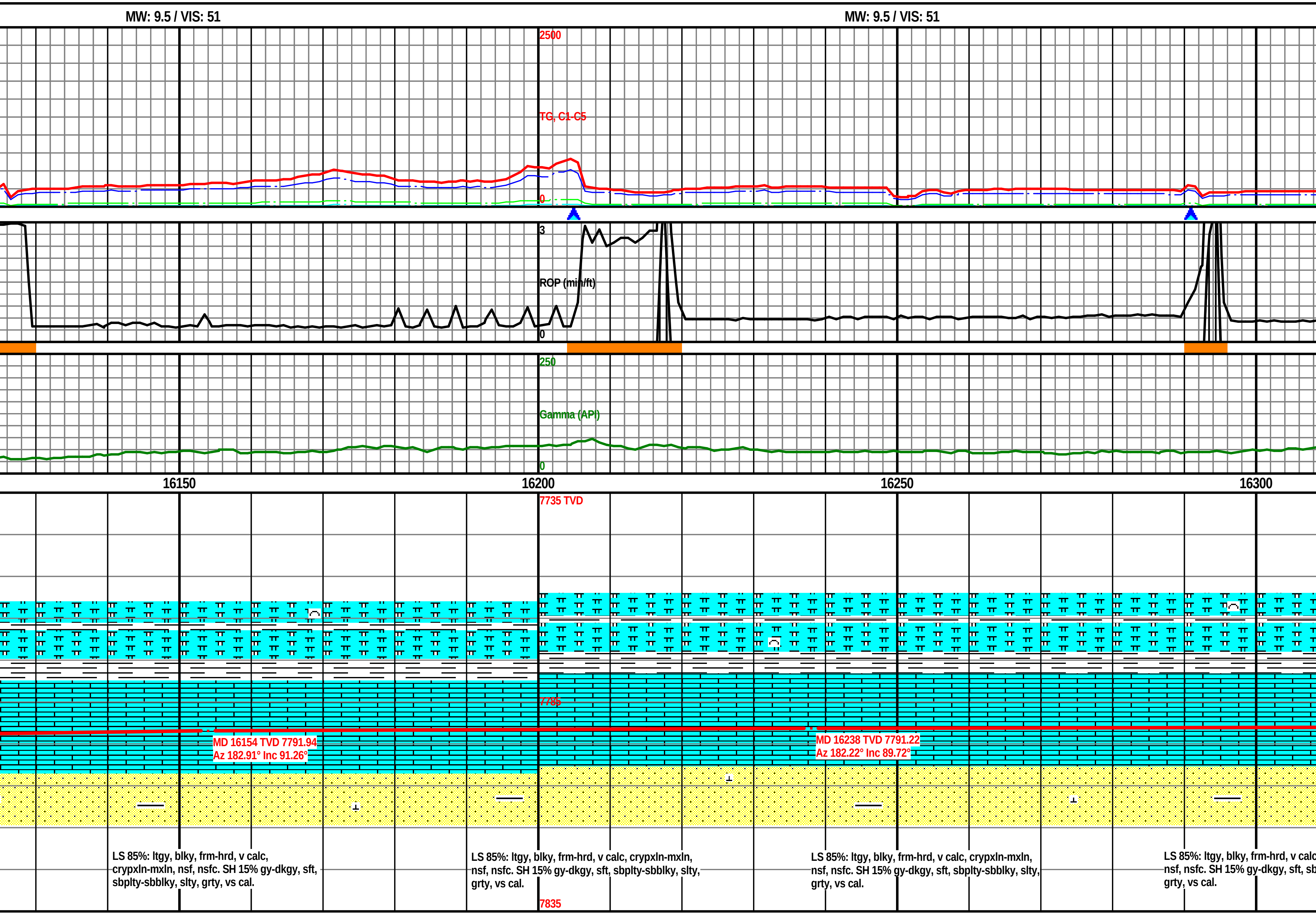


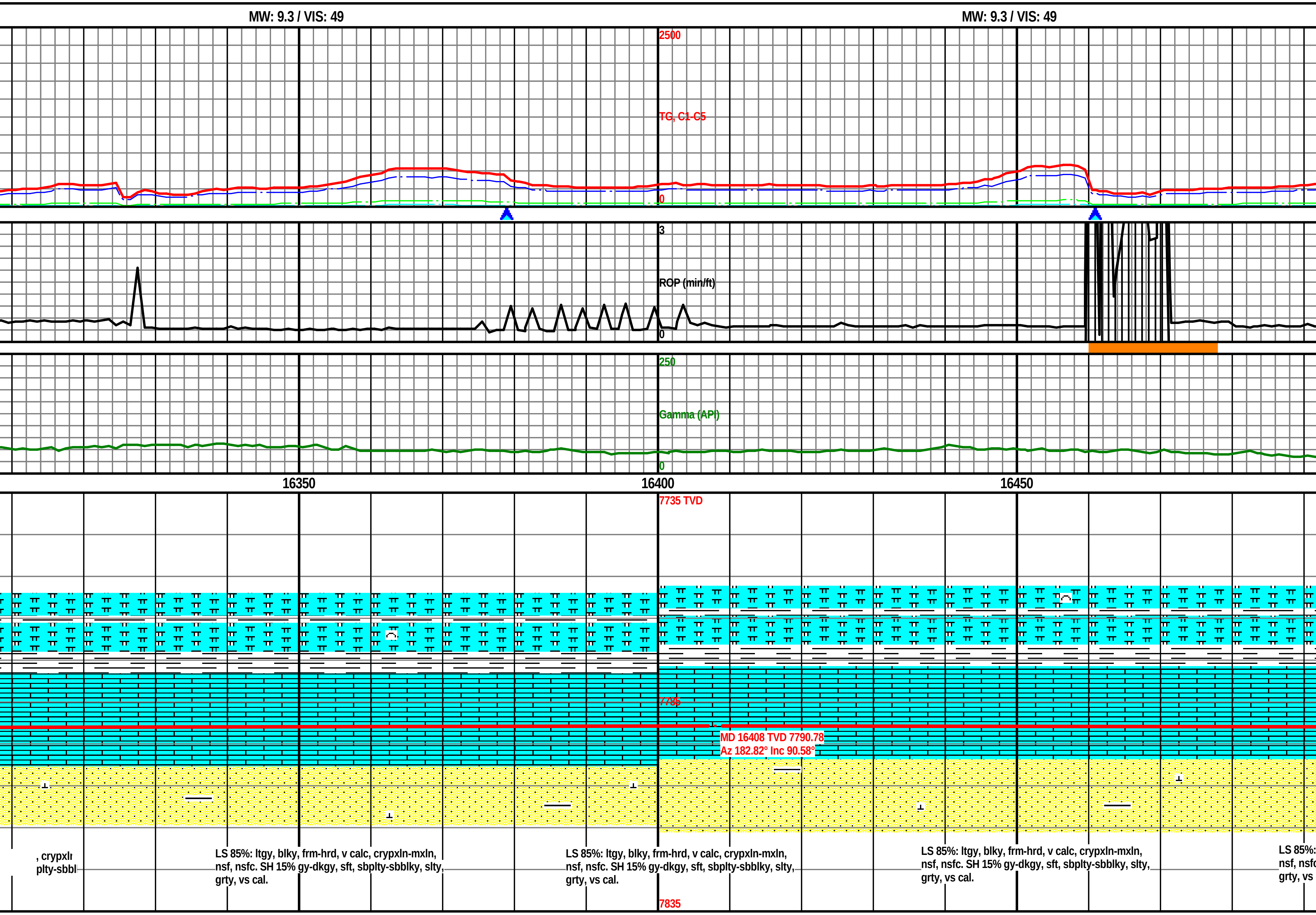
MW: 9.4 / VIS: 50
MW: 9.4 / VIS: 54
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15600
15650
15700
15750
7735 TVD
7785
7835
MD 15644 TVD 7793.97
Az 181.72° Inc 90.92°
MD 15727 TVD 7794.03
Az 180.8° Inc 89.01°
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, nsf, nsfc. SH 15% gy-dkgy, grty, vs cal.

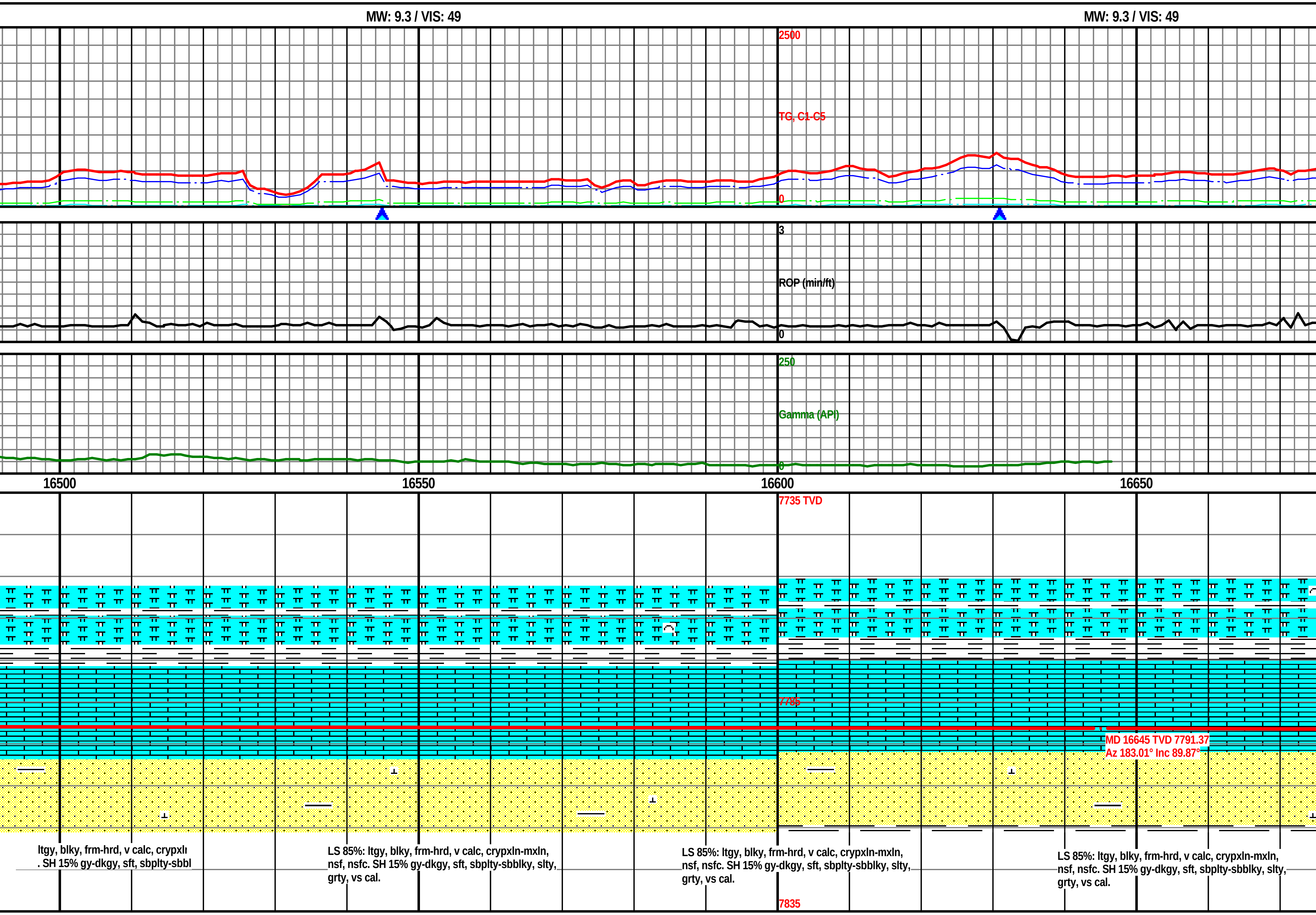


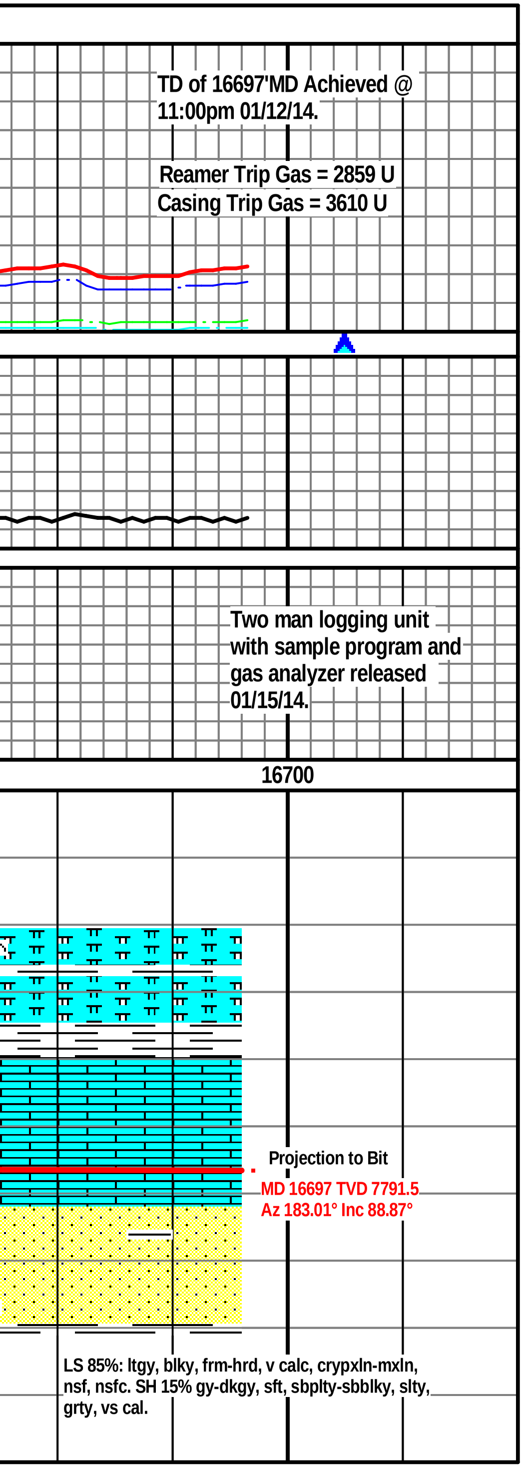
MW: 9.5 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15800
15850
15900
7735 TVD
7785
MD 15814 TVD 7795.11
Az 181.44° Inc 89.53°
MD 15899 TVD 7795.81
Az 181.28° Inc 89.53°
7835
v calc, crypxln
ft, sbplty-sbbl
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


MW: 9.5 / VIS: 50
MW: 9.5 / VIS: 50
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
15950
16000
16050
16100
7735 TVD
7785
MD 15984 TVD 7795.43
Az 182.36° Inc 90.98°
MD 16069 TVD 7793.79
Az 182.56° Inc 91.23°
85%: ltgy, blky, frm-hrd, v calc, crypxl
f, nsfc. SH 15% gy-dkgy, sft, sbplty-sbbl
ty
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
7835


MW: 9.5 / VIS: 51
MW: 9.5 / VIS: 51
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16150
16200
16250
16300
7735 TVD
7785
7835
MD 16154 TVD 7791.94
Az 182.91° Inc 91.26°
MD 16238 TVD 7791.22
Az 182.22° Inc 89.72°
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sb
grty, vs cal.


MW: 9.3 / VIS: 49
MW: 9.3 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16350
16400
16450
7735 TVD
7785
MD 16408 TVD 7790.78
Az 182.82° Inc 90.58°
, crypxln
plty-sbbl
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%:
nsf, nsfc
grty, vs
7835


MW: 9.3 / VIS: 49
MW: 9.3 / VIS: 49
2500
TG, C1-C5
0
3
ROP (min/ft)
0
250
Gamma (API)
0
16500
16550
16600
16650
7735 TVD
7785
MD 16645 TVD 7791.37
Az 183.01° Inc 89.87°
7835
ltgy, blky, frm-hrd, v calc, crypxl
. SH 15% gy-dkgy, sft, sbplty-sbbl
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.


TD of 16697'MD Achieved @ 11:00pm 01/12/14.
Reamer Trip Gas = 2859 U
Casing Trip Gas = 3610 U
Two man logging unit with sample program and gas analyzer released 01/15/14.
16700
Projection to Bit
MD 16697 TVD 7791.5
Az 183.01° Inc 88.87°
LS 85%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SH 15% gy-dkgy, sft, sbplty-sbblky, slty, grty, vs cal.