Scale 1:200 Imperial
Measured Depth Log

Well Name:	**Benson Farms 32C-23HZ**		
Location:	**Weld County, CO.**		
License Number:	**05123393950000**	**Region:**	**DJ Basin**
Spud Date:	**07/18/14**	**Drilling Completed:**	**07/22/14**
Surface Coordinates:	**2135'FSL & 50'FWL, SEC.24, T3N-R68W**		
Bottom Hole Coordinates:	**2515'FSL & 50'FWL, SEC.23, T3N-R68W**		
Ground Elevation (ft):	**4957'**	**K.B. Elevation (ft):**	**4973'**
Logged Interval (ft):	**7300' To: 13292'**	**Total Depth (ft):**	**13292'**
Formation:	**Codell**		
Type of Drilling Fluid:	**Water Base Mud**		

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

OPERATOR

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

GEOLOGIST

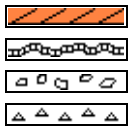
Name: Scott Crozier / Ben Thompson
Company: Great Divide Consulting, Inc.
Address: P.O. Box 630263
Highlands Ranch, CO 80163

Cores

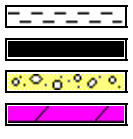
DSTs

Comments

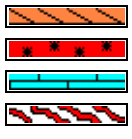
ROCK TYPES



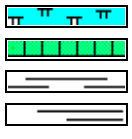
Anhy
Bent
Brec
Cht



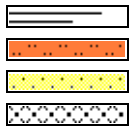
Clyst
Coal
Congl
Dol



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

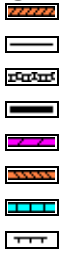
Gyp
Hvymin
Kaol
Marl
Minxl
Nodule
Phos
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff

FOSSIL

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

Ostra
Pelec
Pellet
Pisolite
Plant
Strom

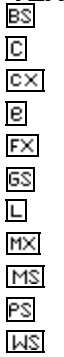
STRINGER



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

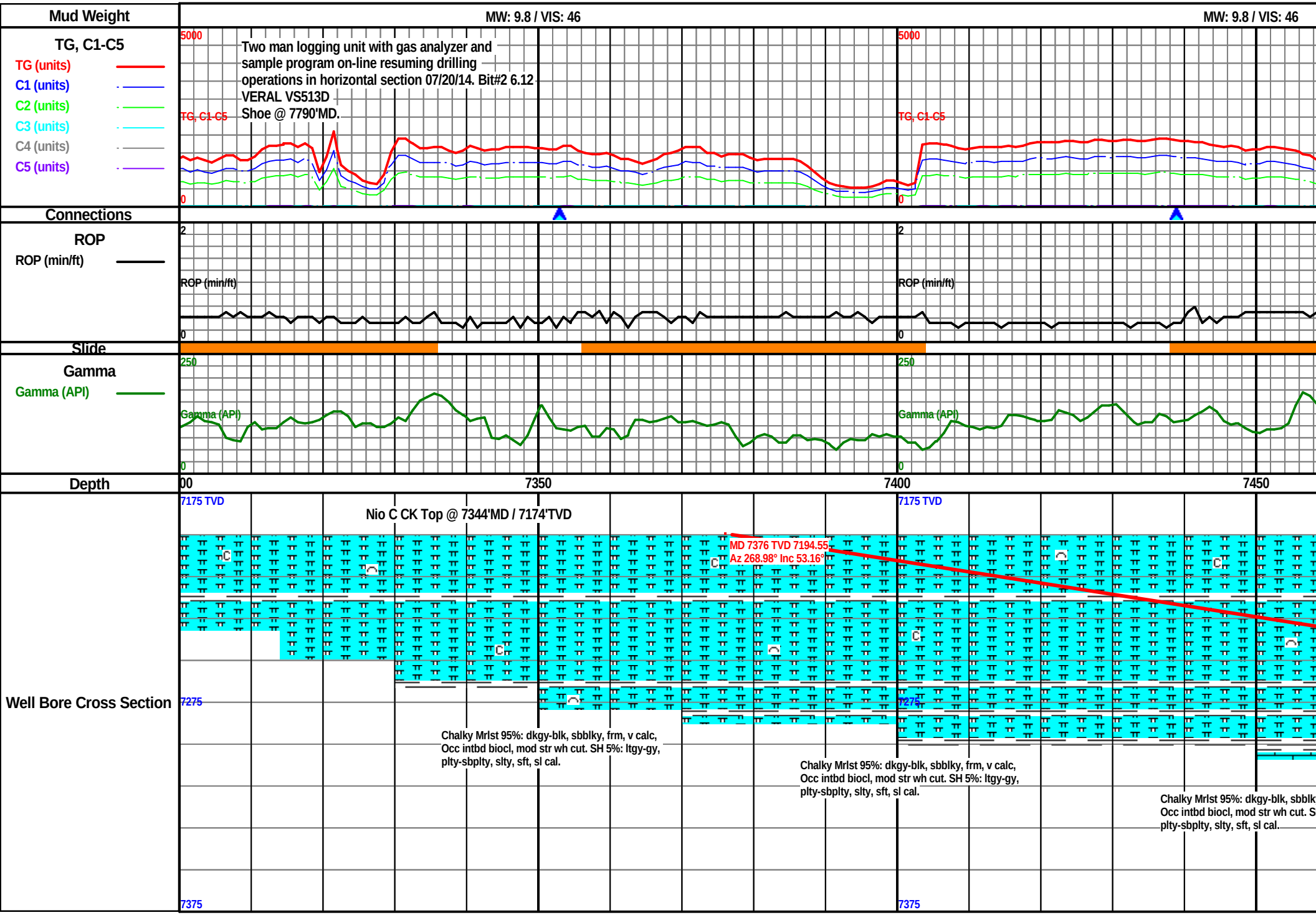
SORTING
- Well
- Moderate
- Poor

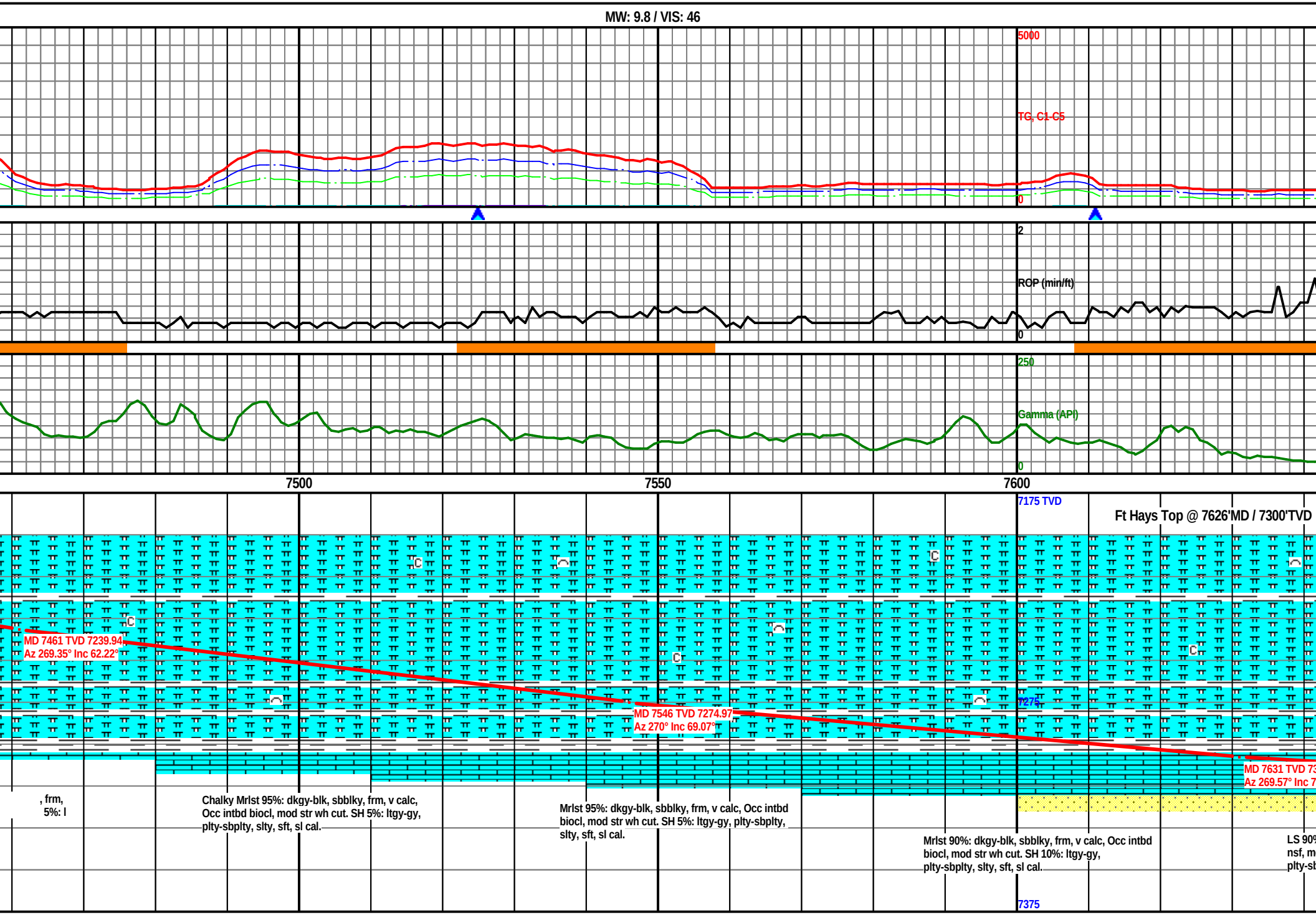
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

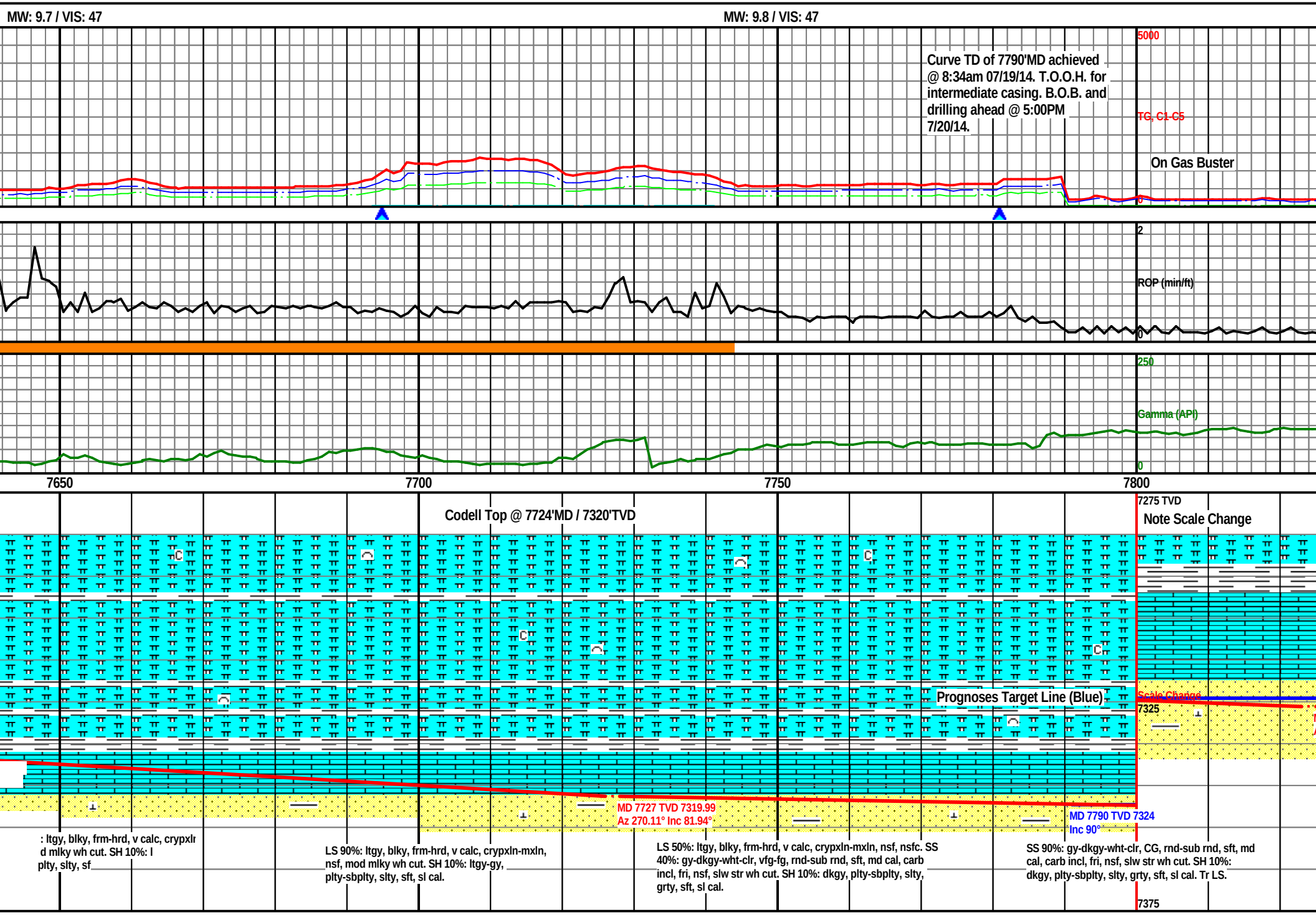
OIL SHOW
- Even
- Spotted
- Ques
- Dead

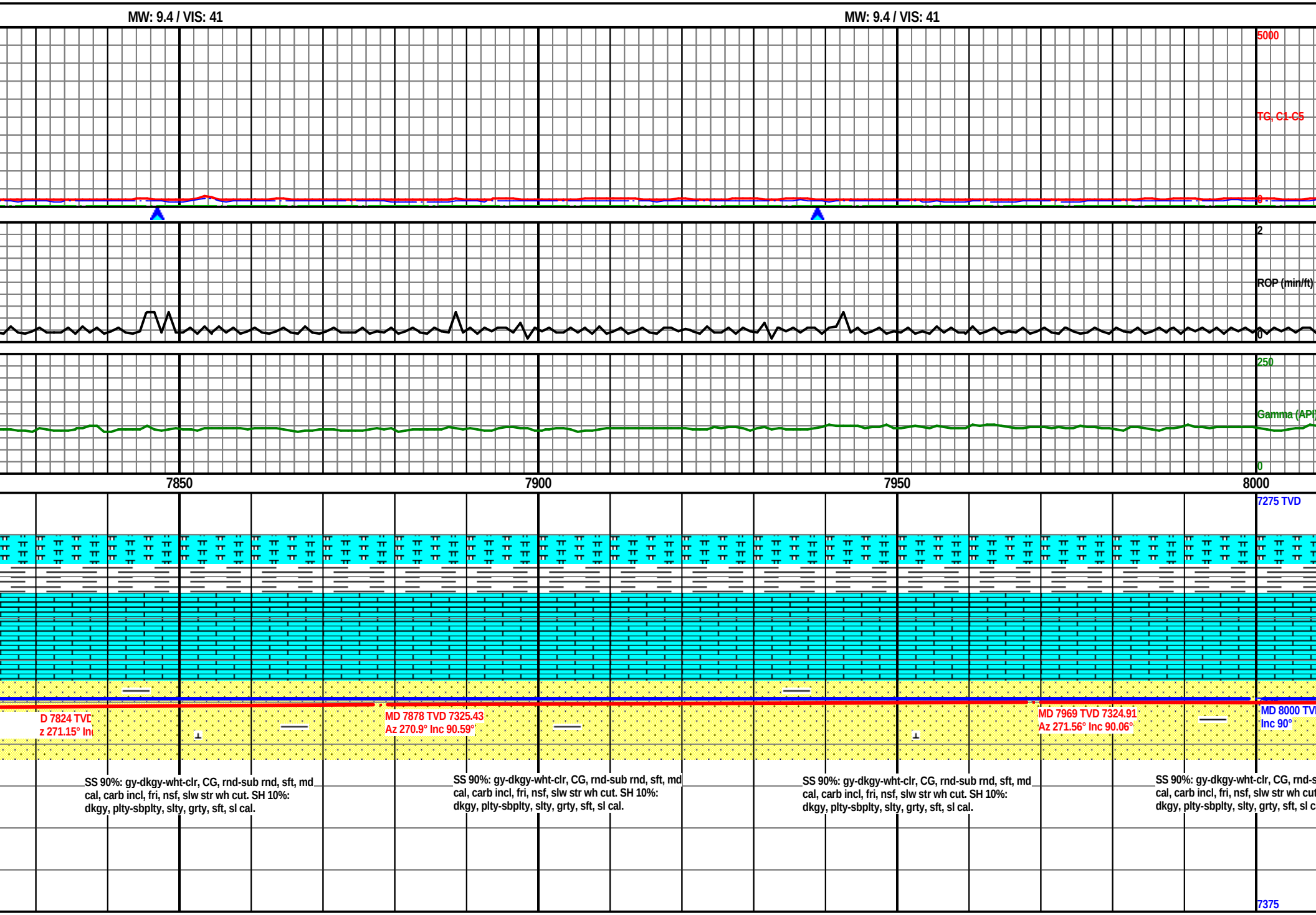
INTERVAL
- Core
- Dst

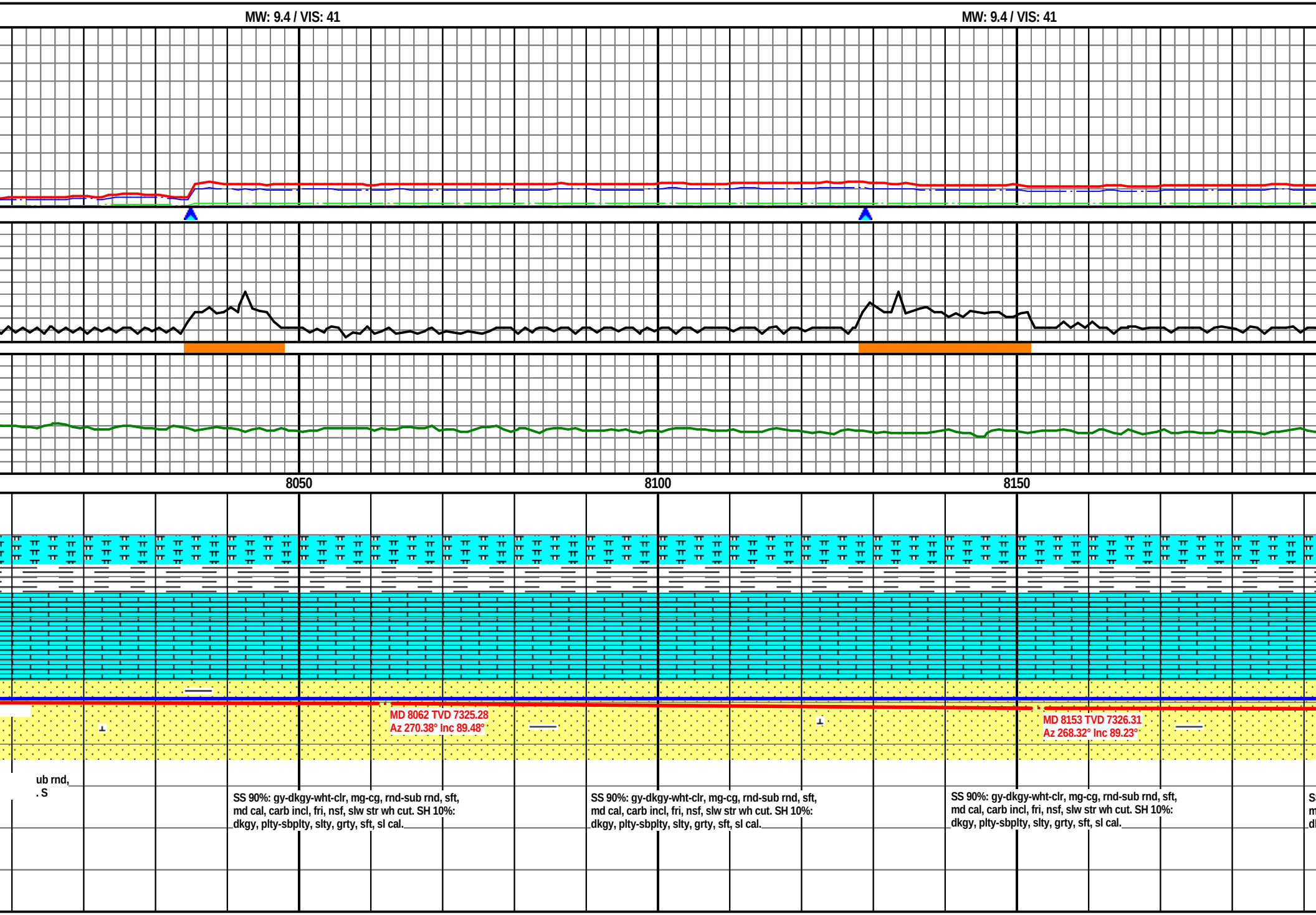
EVENT
- Rft
- Connection

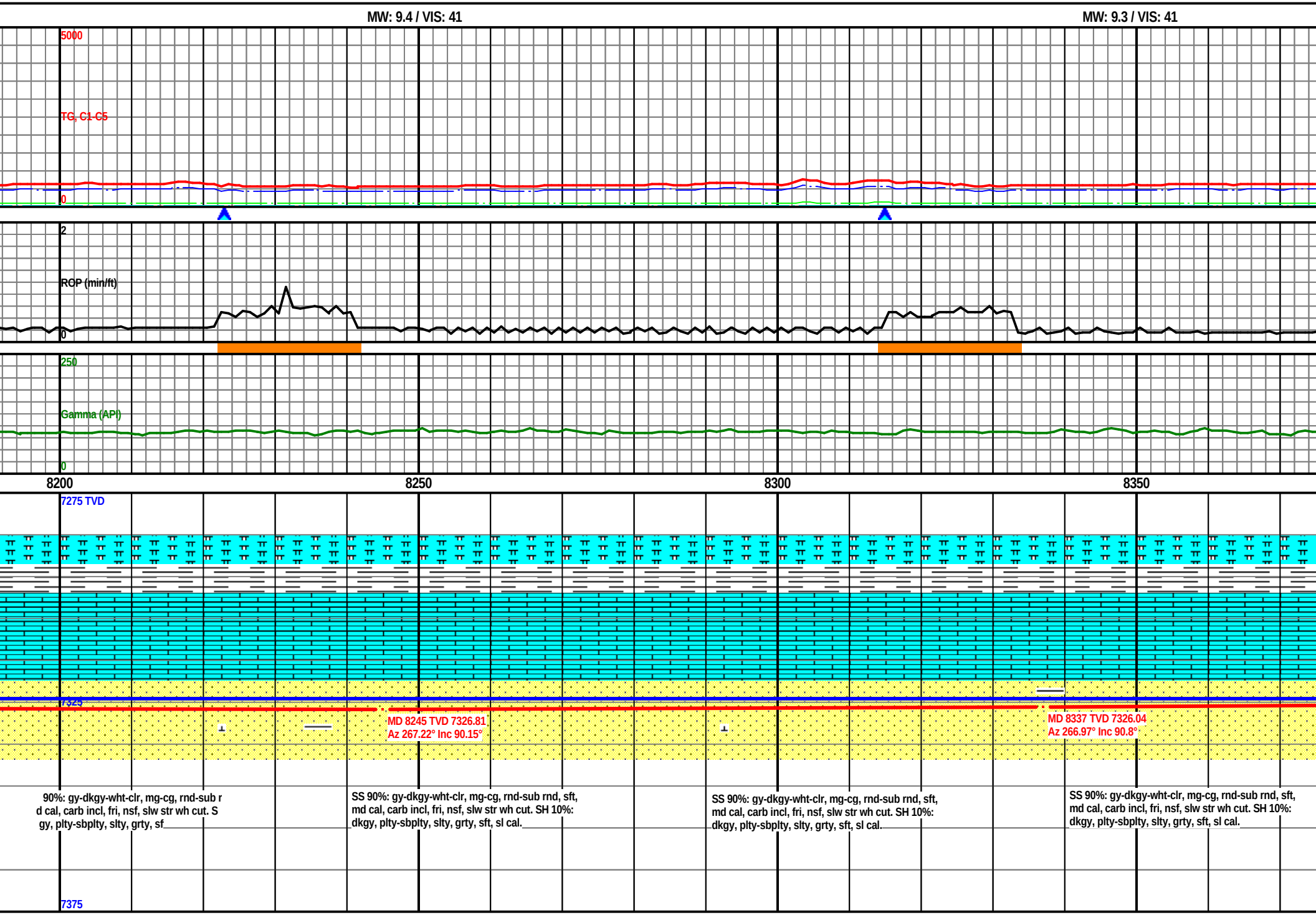

Mud Weight
MW: 9.8 / VIS: 46
MW: 9.8 / VIS: 46
TG, C1-C5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
5000
Two man logging unit with gas analyzer and
sample program on-line resuming drilling
operations in horizontal section 07/20/14. Bit#2 6.12
VERAL VS513D
Shoe @ 7790'MD.
TG, C1-C5
0
Connections
ROP
ROP (min/ft)
2
0
Slide
Gamma
Gamma (API)
250
0
Depth
7350
7400
7450
Well Bore Cross Section
7175 TVD
Nio C CK Top @ 7344'MD / 7174'TVD
MD 7376 TVD 7194.55
Az 268.98° Inc 53.16°
7275
7375
Chalky Mrlst 95%: dkgy-blk, sbblky, frm, v calc,
Occ intbd biocl, mod str wh cut. SH 5%: ltgy-gy,
plty-sbplty, slty, sft, sl cal.

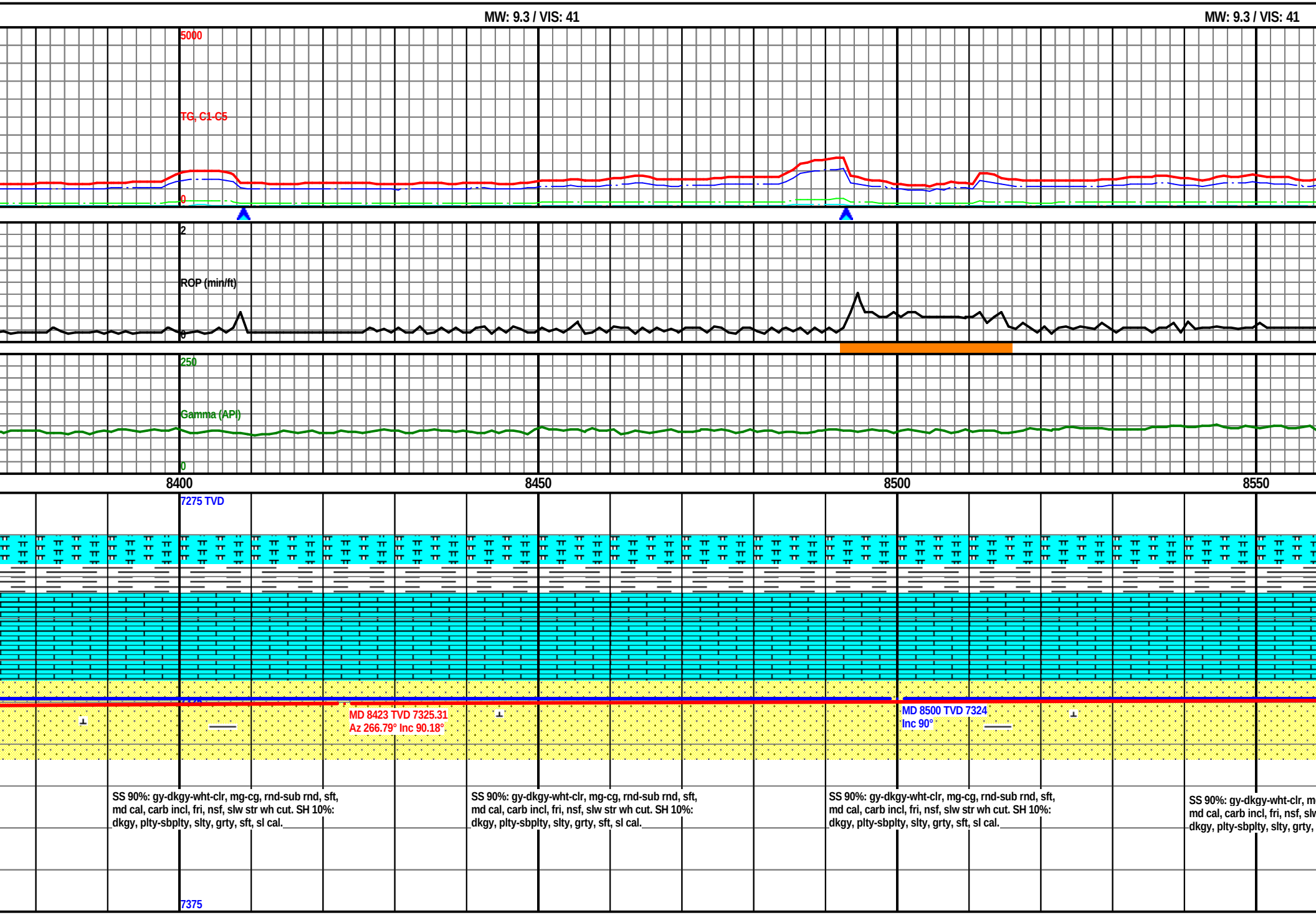

MW: 9.8 / VIS: 46
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
7500
7550
7600
7175 TVD
Ft Hays Top @ 7626'MD / 7300'TVD
MD 7461 TVD 7239.94
Az 269.35° Inc 62.22°
MD 7546 TVD 7274.97
Az 270° Inc 69.07°
MD 7631 TVD 73
Az 269.57° Inc 7
7275
7375
, frm,
5%: l
Chalky Mrlst 95%: dkgy-blk, sbblky, frm, v calc, Occ intbd biocl, mod str wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
Mrlst 95%: dkgy-blk, sbblky, frm, v calc, Occ intbd biocl, mod str wh cut. SH 5%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
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.
LS 90%
nsf, m
plty-sb

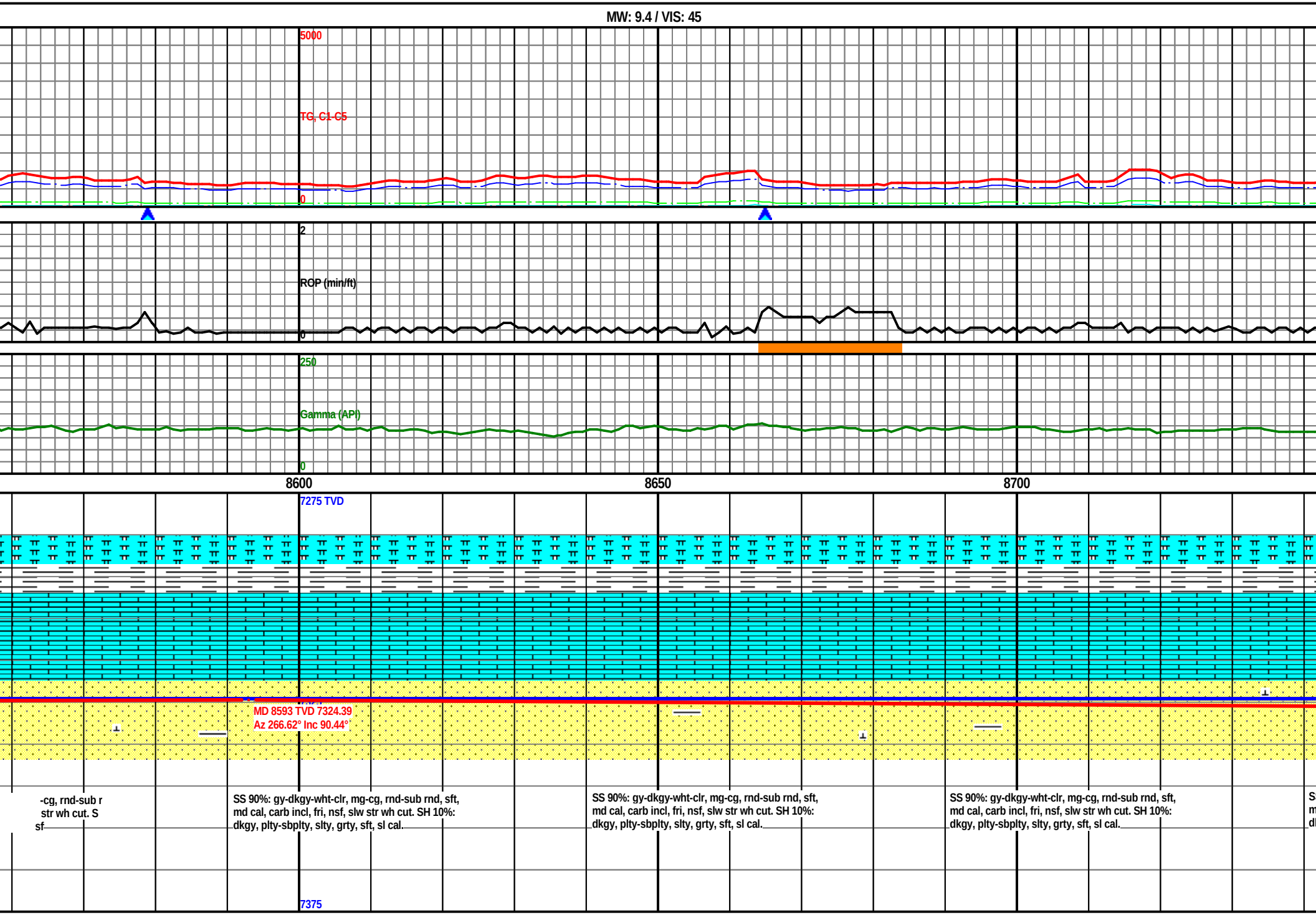

MW: 9.7 / VIS: 47
MW: 9.8 / VIS: 47
Curve TD of 7790'MD achieved @ 8:34am 07/19/14. T.O.O.H. for intermediate casing. B.O.B. and drilling ahead @ 5:00PM 7/20/14.
5000
TG, C1-C5
On Gas Buster
0
2
ROP (min/ft)
0
250
Gamma (API)
0
7650
7700
7750
7800
Codell Top @ 7724'MD / 7320'TVD
7275 TVD
Note Scale Change
Prognoses Target Line (Blue)
Scale Change
7325
MD 7727 TVD 7319.99
Az 270.11° Inc 81.94°
MD 7790 TVD 7324
Inc 90°
: ltgy, blky, frm-hrd, v calc, crypxln
d mlky wh cut. SH 10%: l
plty, slty, sf
LS 90%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, mod mlky wh cut. SH 10%: ltgy-gy, plty-sbplty, slty, sft, sl cal.
LS 50%: ltgy, blky, frm-hrd, v calc, crypxln-mxln, nsf, nsfc. SS 40%: gy-dkgy-wht-clr, vfg-fg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, CG, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal. Tr LS.
7375

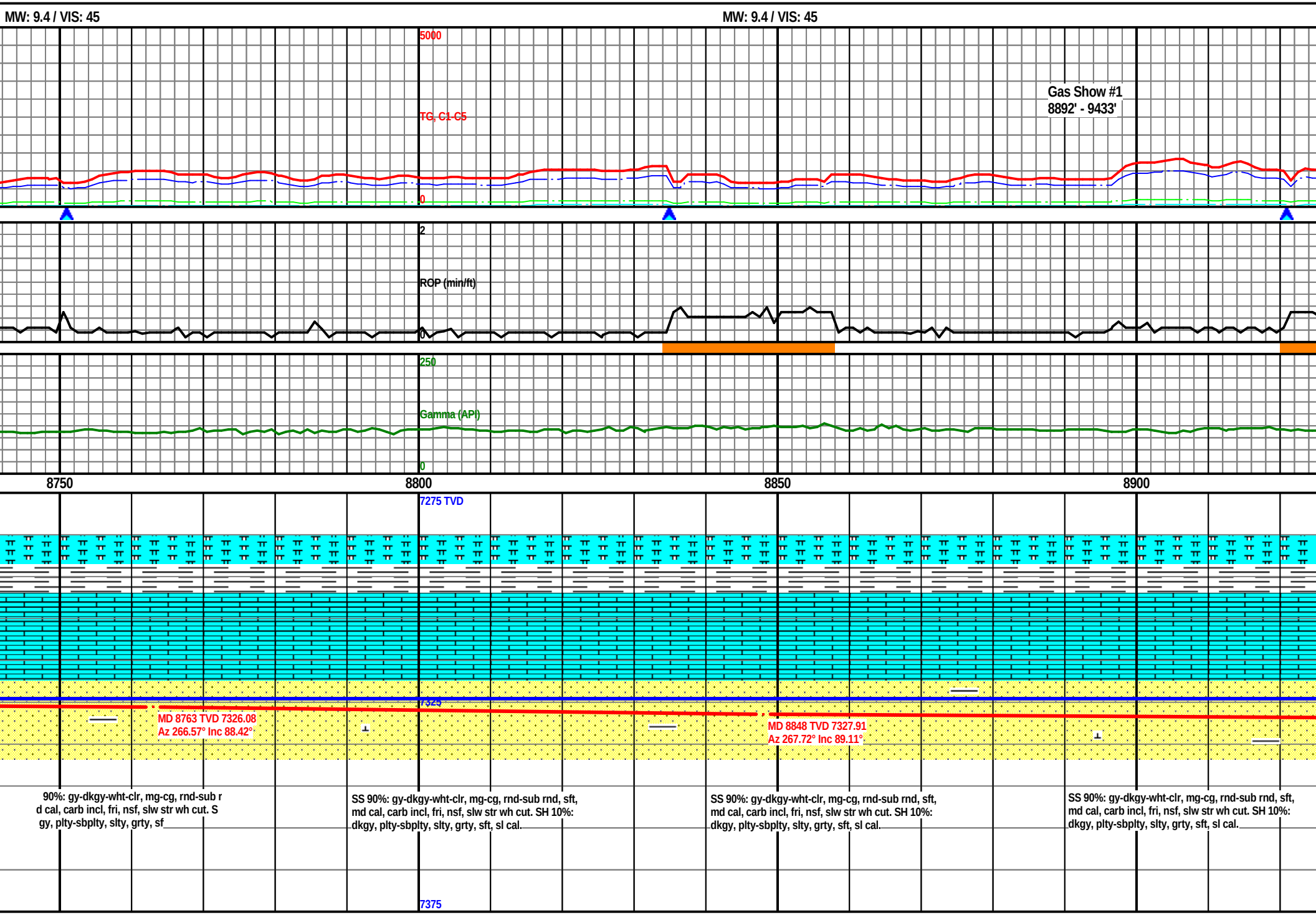

MW: 9.4 / VIS: 41
MW: 9.4 / VIS: 41
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
7850
7900
7950
8000
7275 TVD
D 7824 TVD
z 271.15° Inc
MD 7878 TVD 7325.43
Az 270.9° Inc 90.59°
MD 7969 TVD 7324.91
Az 271.56° Inc 90.06°
MD 8000 TVD
Inc 90°
SS 90%: gy-dkgy-wht-clr, CG, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, CG, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, CG, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, CG, rnd-s
cal, carb incl, fri, nsf, slw str wh cut
dkgy, plty-sbplty, slty, grty, sft, sl c
7375

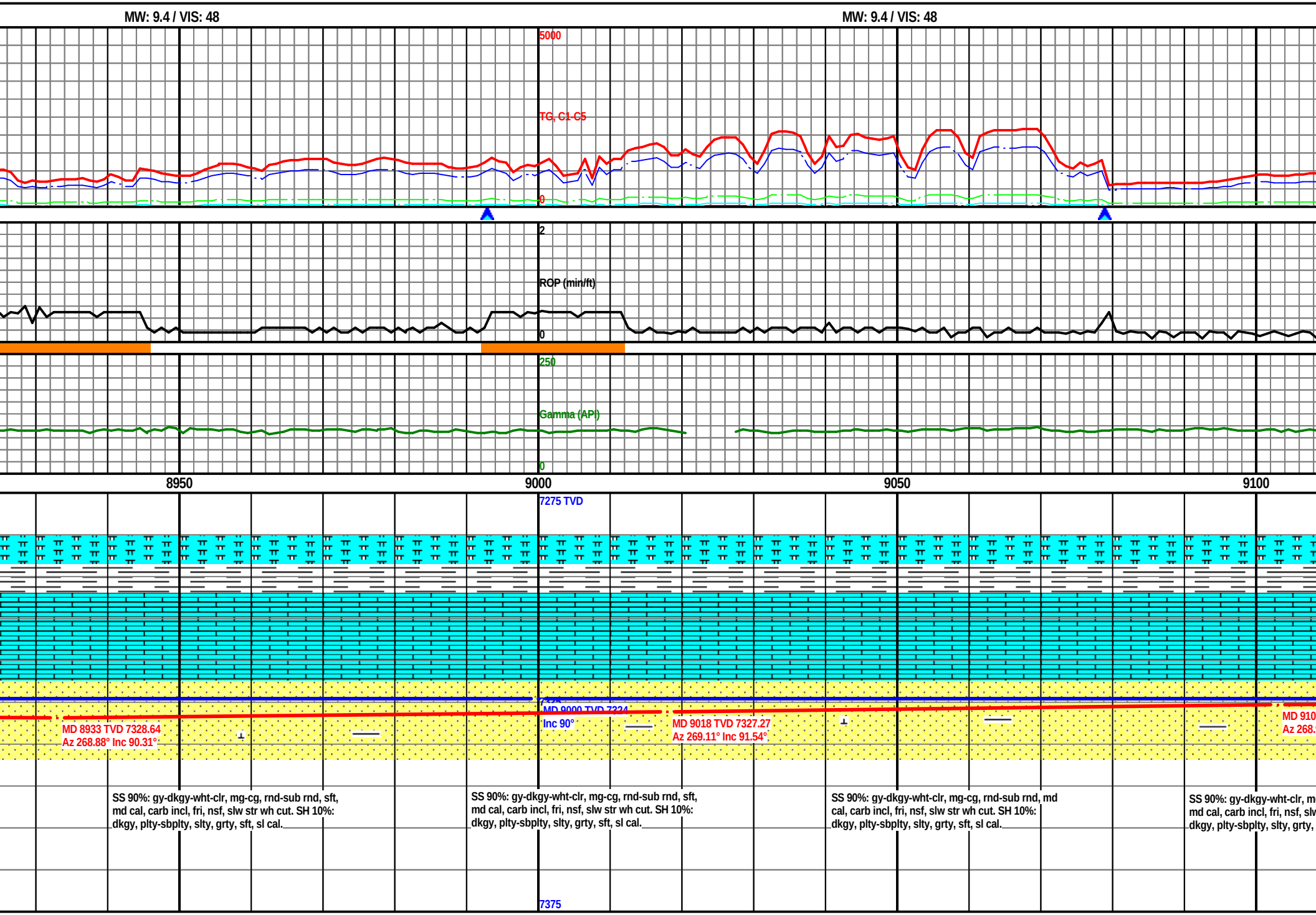

MW: 9.4 / VIS: 41
MW: 9.4 / VIS: 41
8050
8100
8150
MD 8062 TVD 7325.28
Az 270.38° Inc 89.48°
MD 8153 TVD 7326.31
Az 268.32° Inc 89.23°
ub rnd,
. S
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

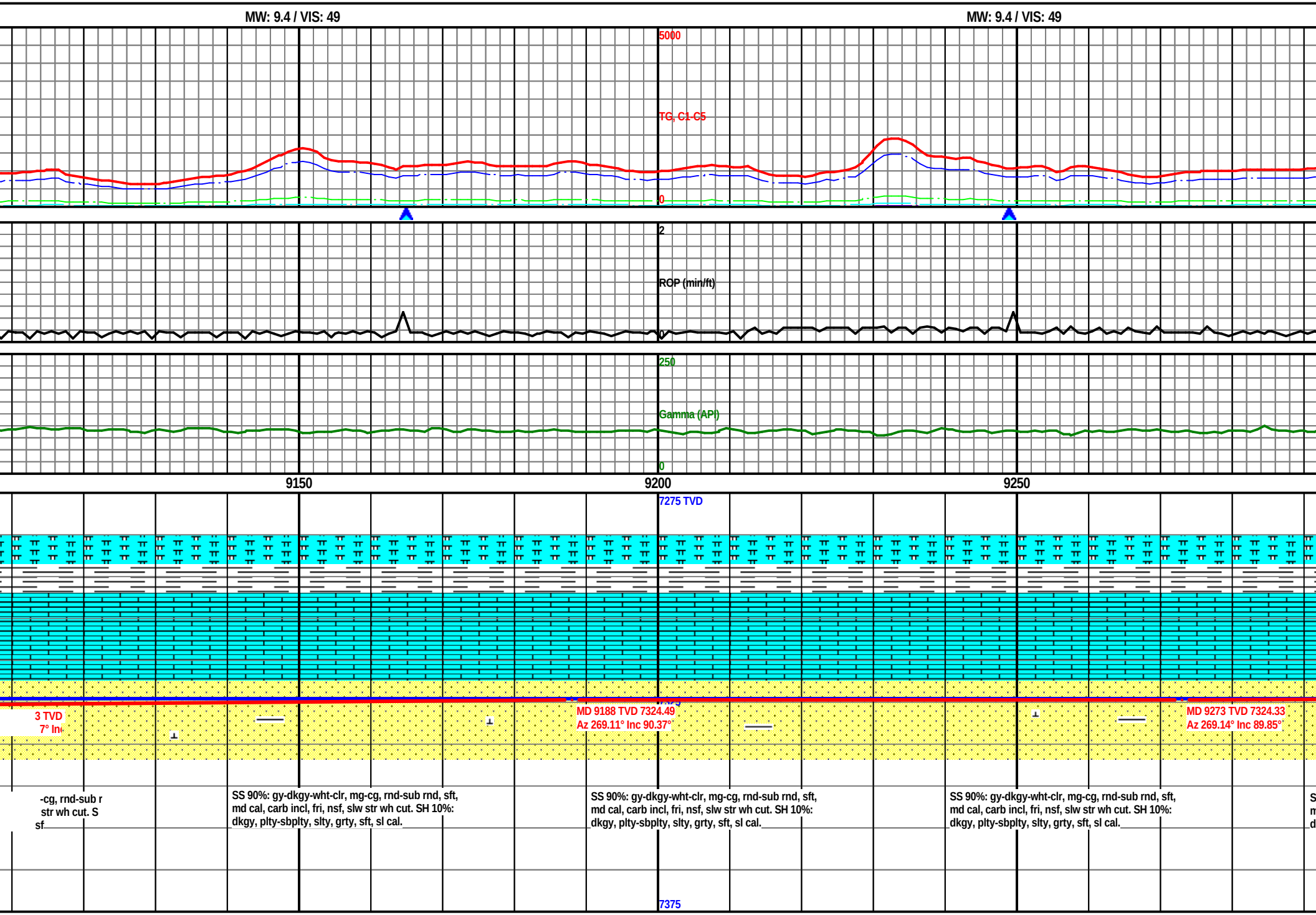

MW: 9.4 / VIS: 41
MW: 9.3 / VIS: 41
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
8200
8250
8300
8350
7275 TVD
7325
MD 8245 TVD 7326.81
Az 267.22° Inc 90.15°
MD 8337 TVD 7326.04
Az 266.97° Inc 90.8°
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

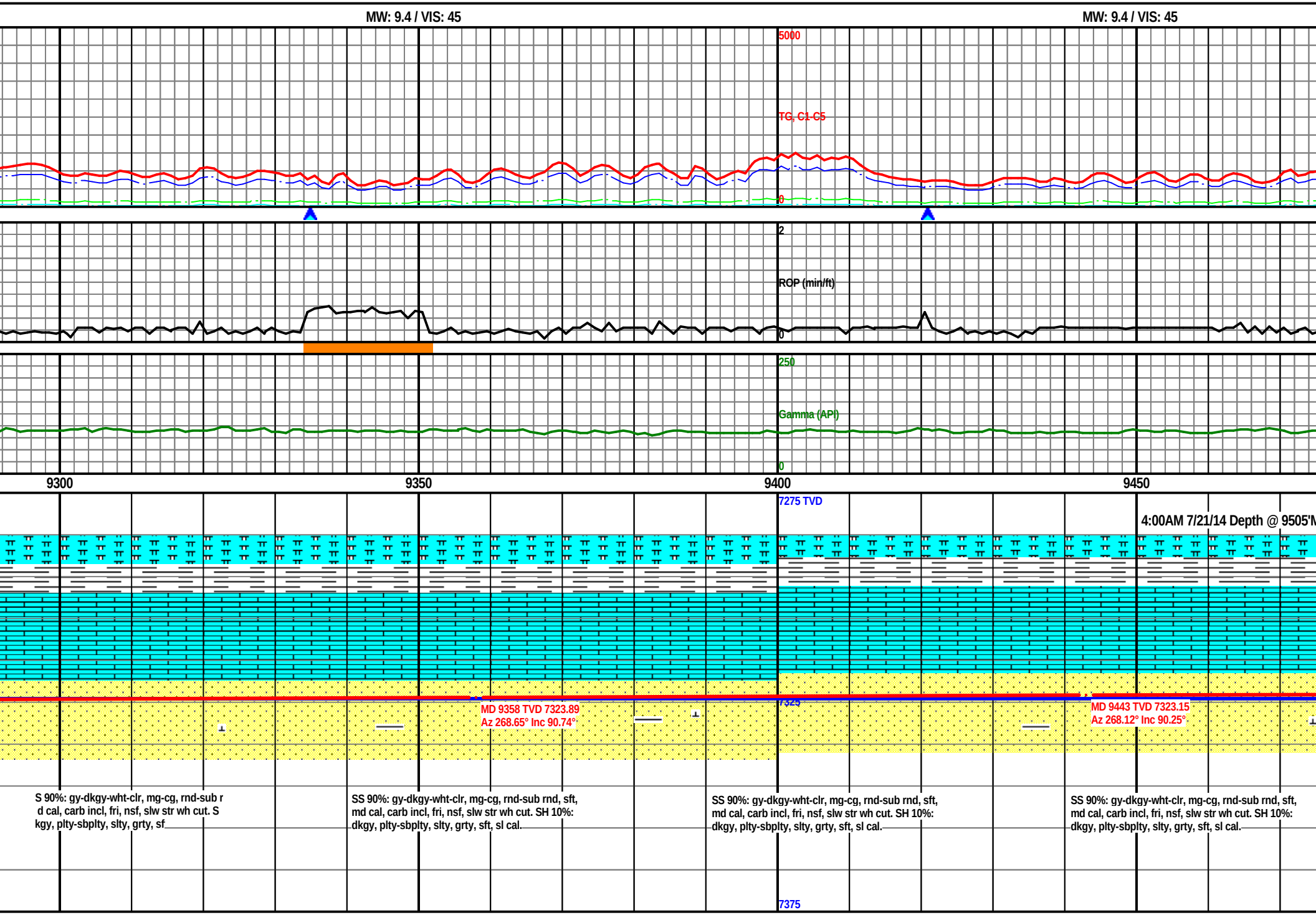

MW: 9.3 / VIS: 41
MW: 9.3 / VIS: 41
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
8400
8450
8500
8550
7275 TVD
MD 8423 TVD 7325.31
Az 266.79° Inc 90.18°
MD 8500 TVD 7324
Inc 90°
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

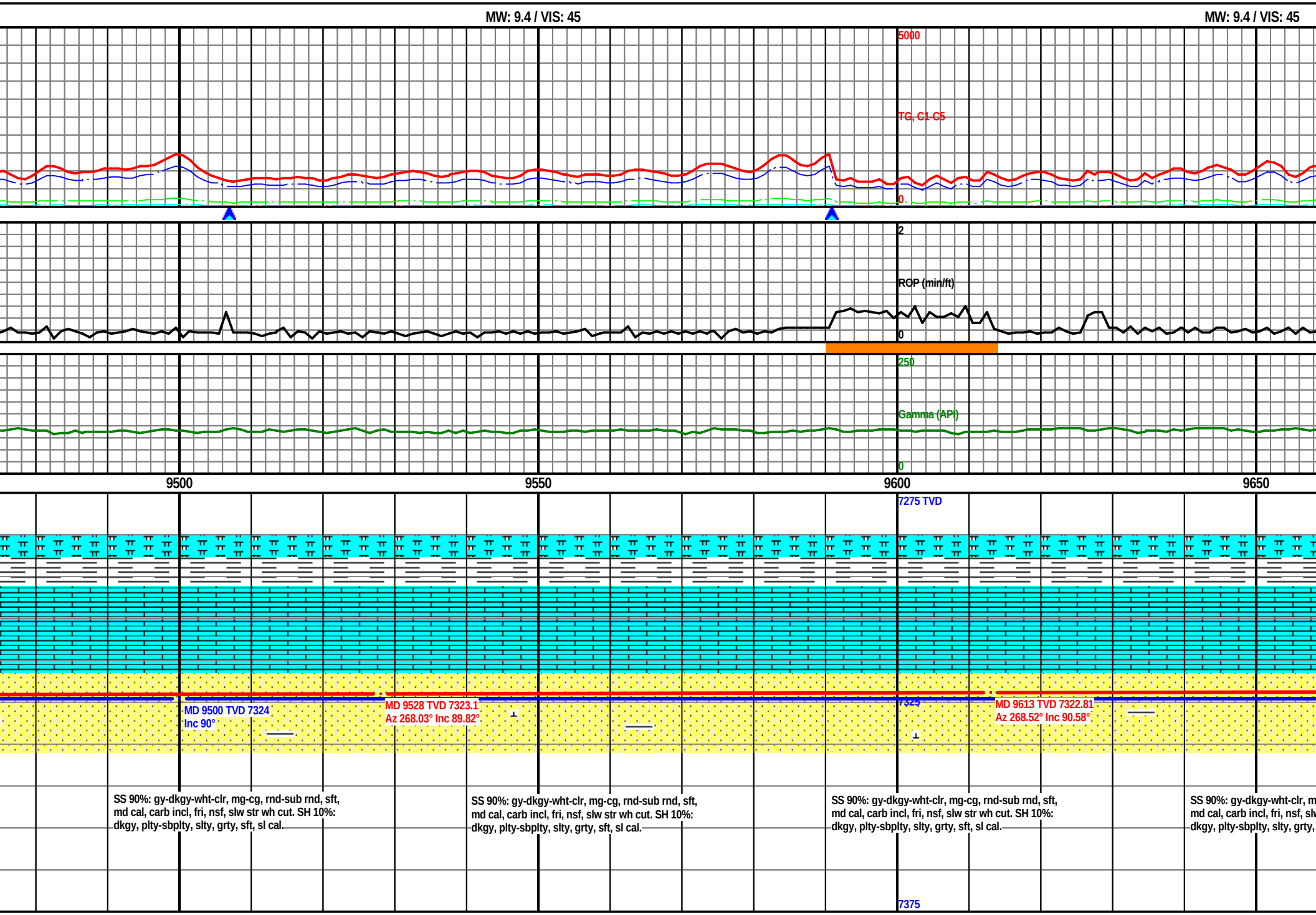

MW: 9.4 / VIS: 45
5000
TG, C1 C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
8600
8650
8700
7275 TVD
MD 8593 TVD 7324.39
Az 266.62° Inc 90.44°
-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

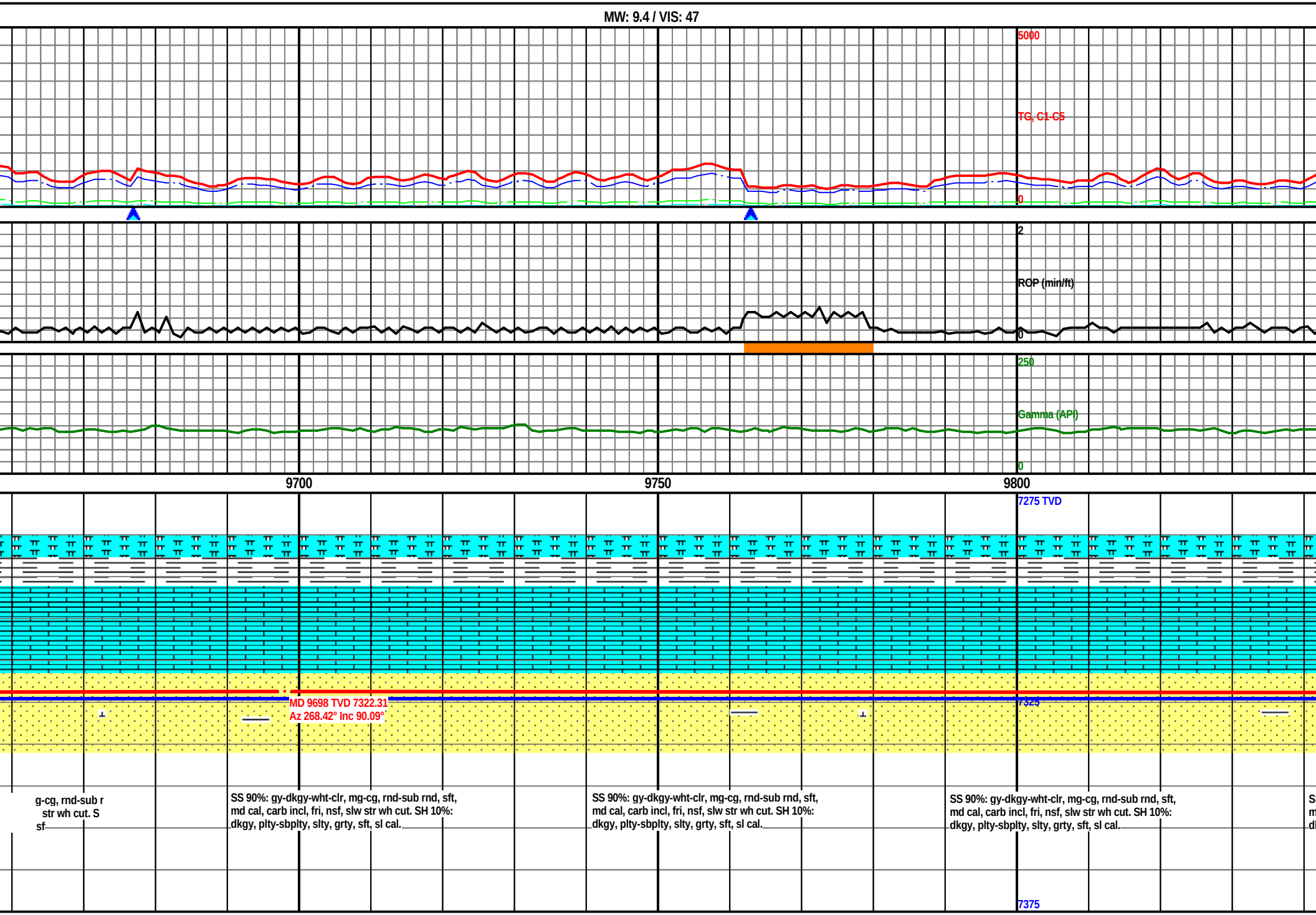

MW: 9.4 / VIS: 45
MW: 9.4 / VIS: 45
5000
TG, C1-C5
0
Gas Show #1
8892' - 9433'
2
ROP (min/ft)
0
250
Gamma (API)
0
8750
8800
8850
8900
7275 TVD
7325
MD 8763 TVD 7326.08
Az 266.57° Inc 88.42°
MD 8848 TVD 7327.91
Az 267.72° Inc 89.11°
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

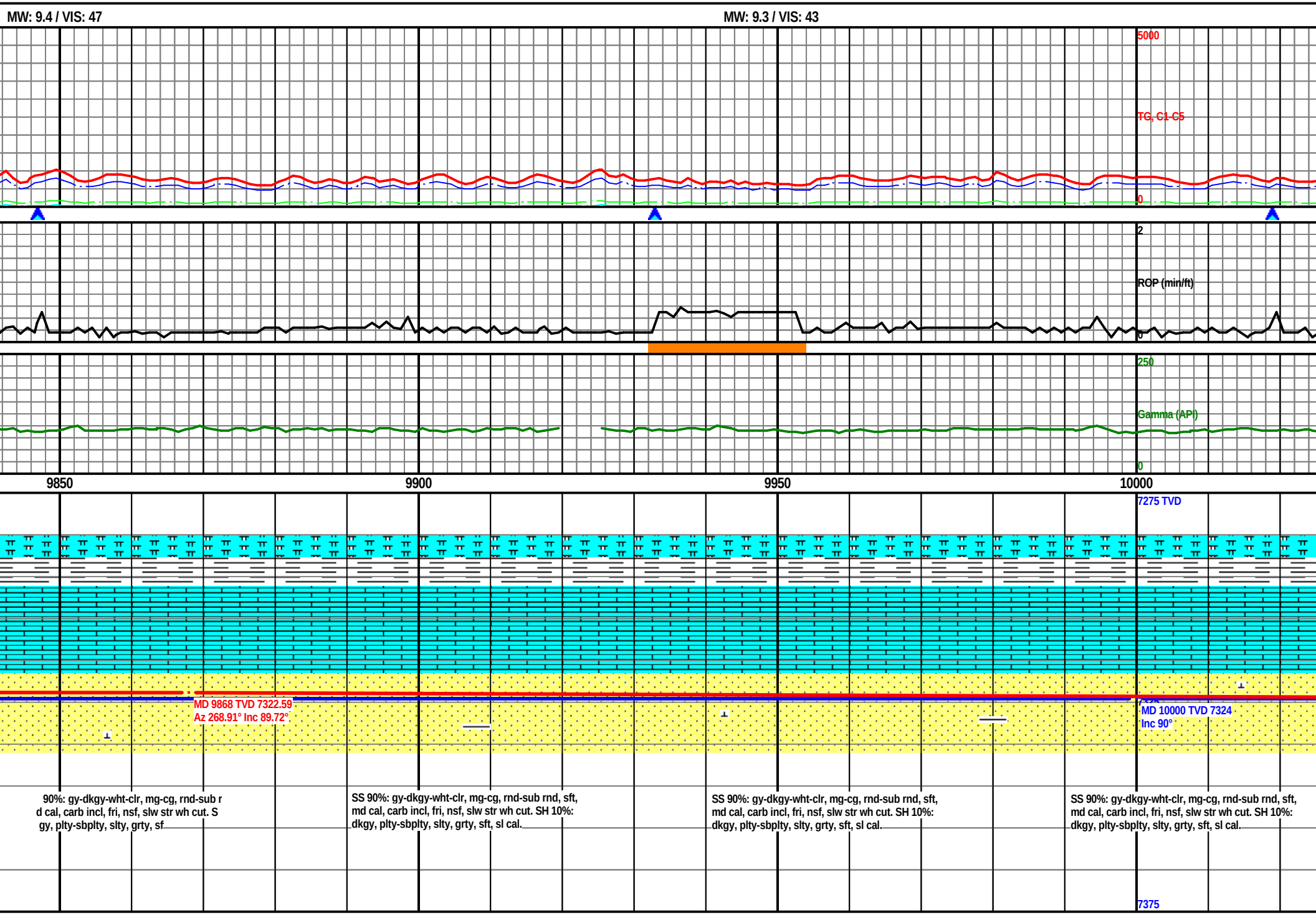

MW: 9.4 / VIS: 48
MW: 9.4 / VIS: 48
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
8950
9000
9050
9100
7275 TVD
MD 8933 TVD 7328.64
Az 268.88° Inc 90.31°
Inc 90°
MD 9018 TVD 7327.27
Az 269.11° Inc 91.54°
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

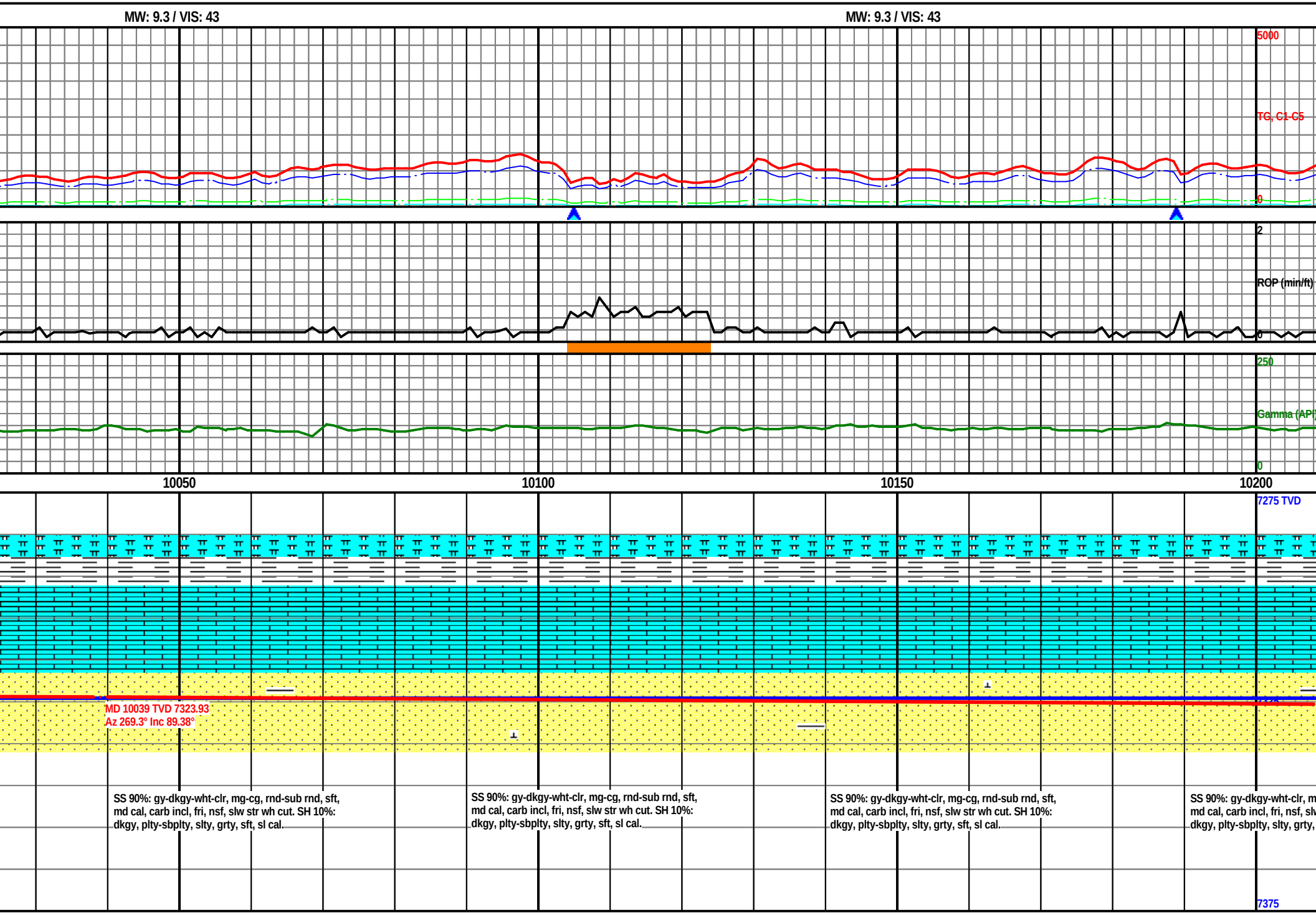

MW: 9.4 / VIS: 49
MW: 9.4 / VIS: 49
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
9150
9200
9250
7275 TVD
3 TVD
7° In
MD 9188 TVD 7324.49
Az 269.11° Inc 90.37°
MD 9273 TVD 7324.33
Az 269.14° Inc 89.85°
-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

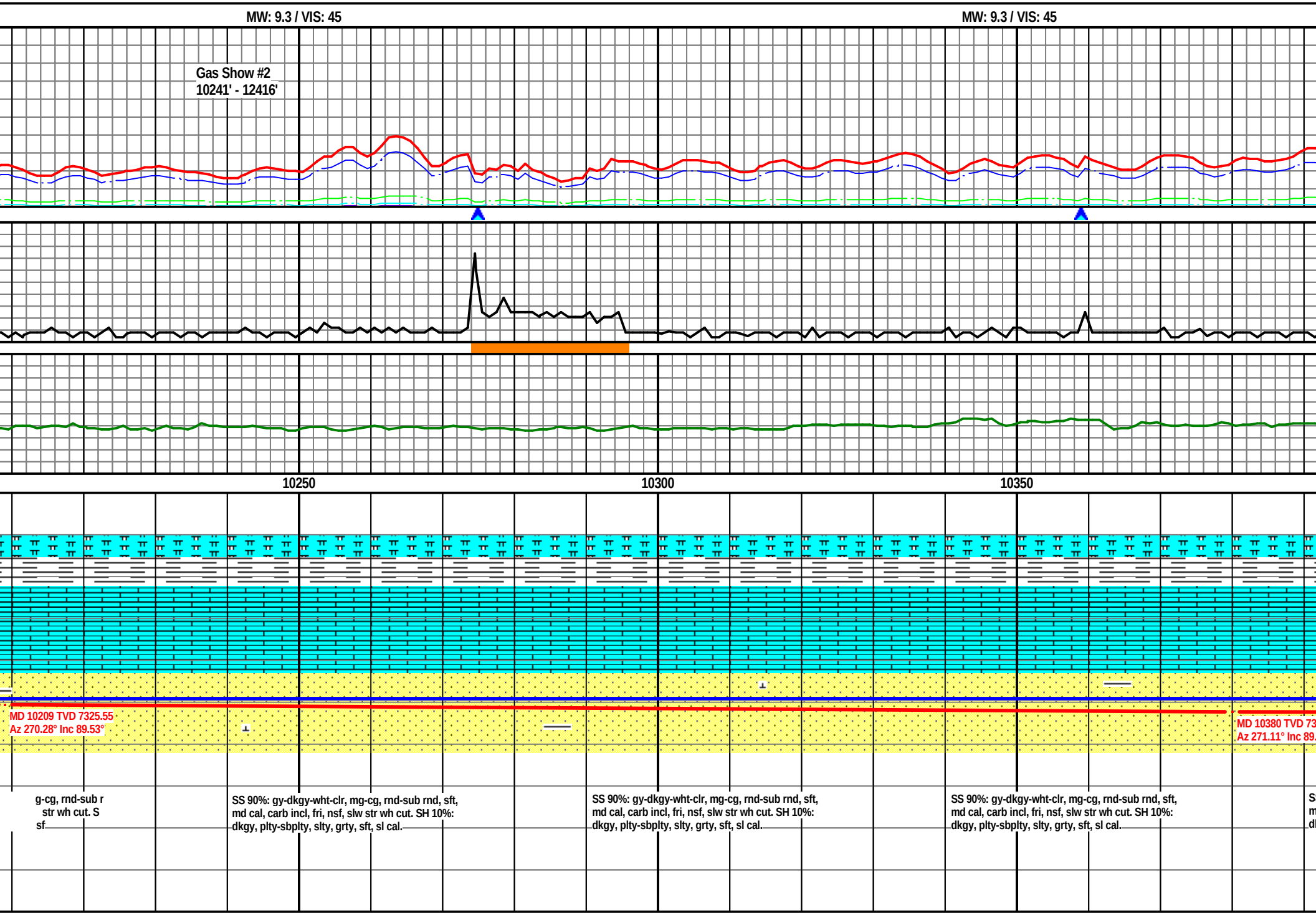

MW: 9.4 / VIS: 45
MW: 9.4 / VIS: 45
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
9300
9350
9400
9450
7275 TVD
4:00AM 7/21/14 Depth @ 9505'M
MD 9358 TVD 7323.89
Az 268.65° Inc 90.74°
MD 9443 TVD 7323.15
Az 268.12° Inc 90.25°
7325
7375
S 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
kgy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

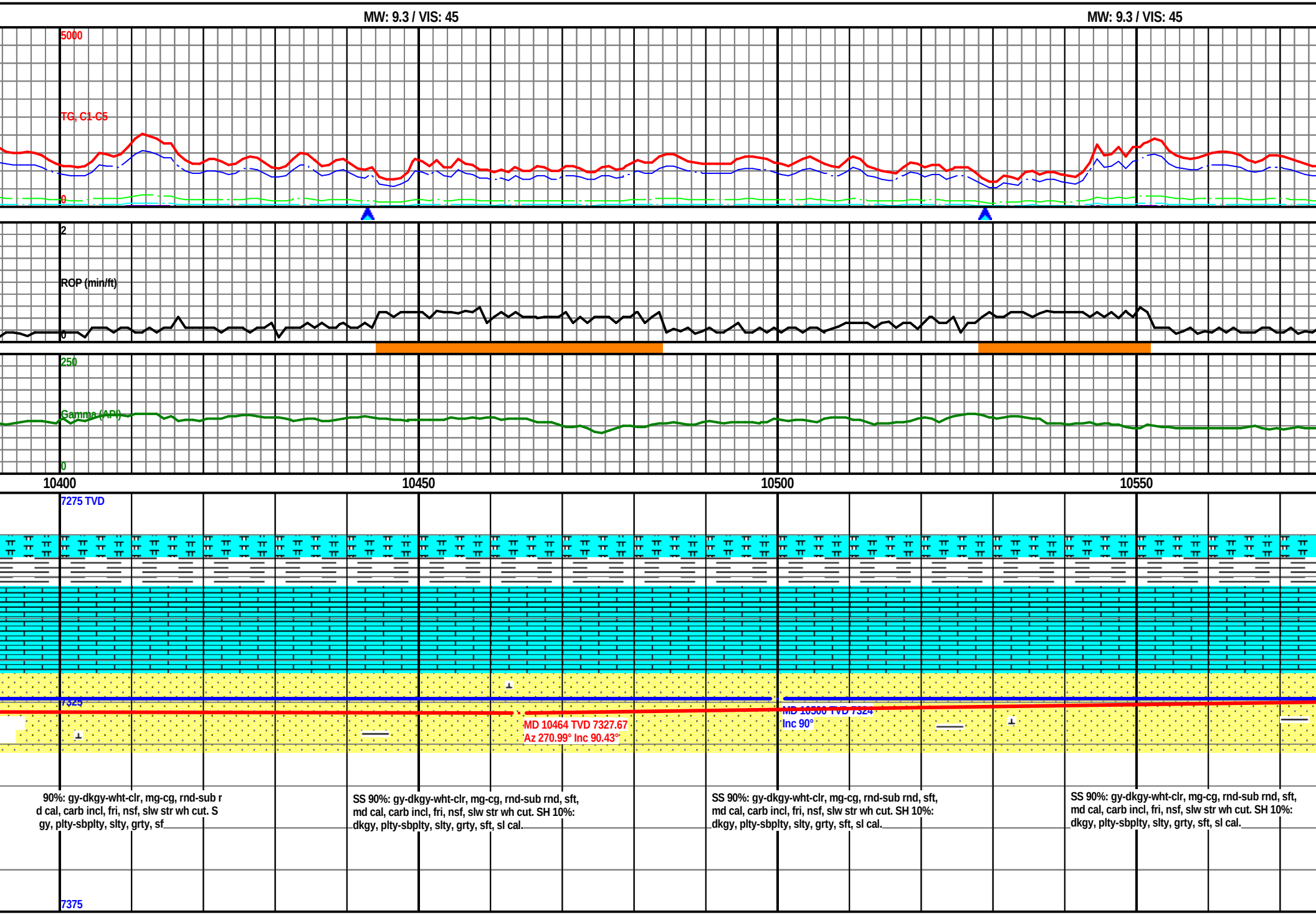

MW: 9.4 / VIS: 45
MW: 9.4 / VIS: 45
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
9500
9550
9600
9650
7275 TVD
MD 9500 TVD 7324
Inc 90°
MD 9528 TVD 7323.1
Az 268.03° Inc 89.82°
MD 9613 TVD 7322.81
Az 268.52° Inc 90.58°
7325
7375
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

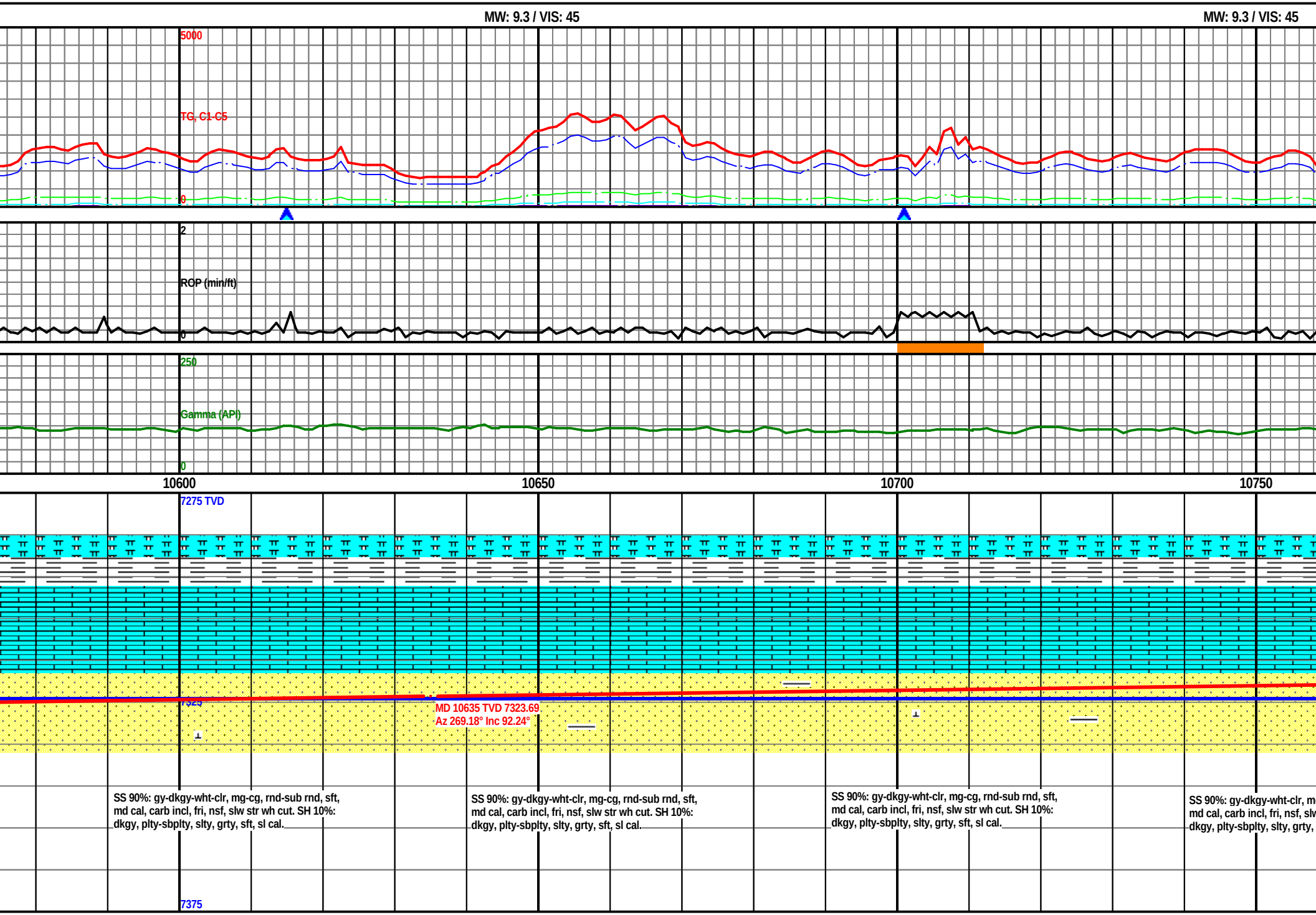

MW: 9.4 / VIS: 47
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
9700
9750
9800
7275 TVD
MD 9698 TVD 7322.31
Az 268.42° Inc 90.09°
7325
g-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

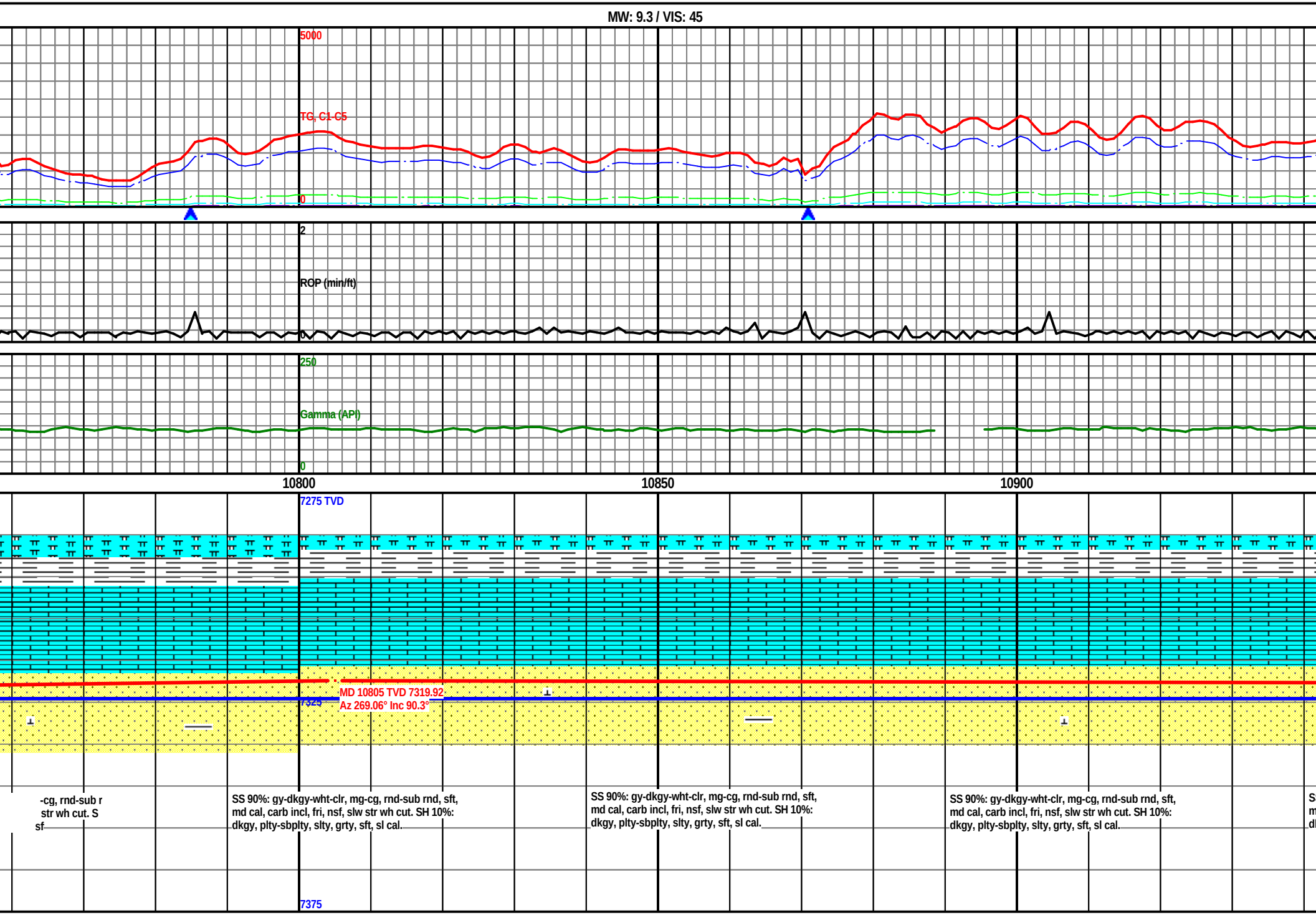

MW: 9.4 / VIS: 47
MW: 9.3 / VIS: 43
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
9850
9900
9950
10000
7275 TVD
MD 9868 TVD 7322.59
Az 268.91° Inc 89.72°
MD 10000 TVD 7324
Inc 90°
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

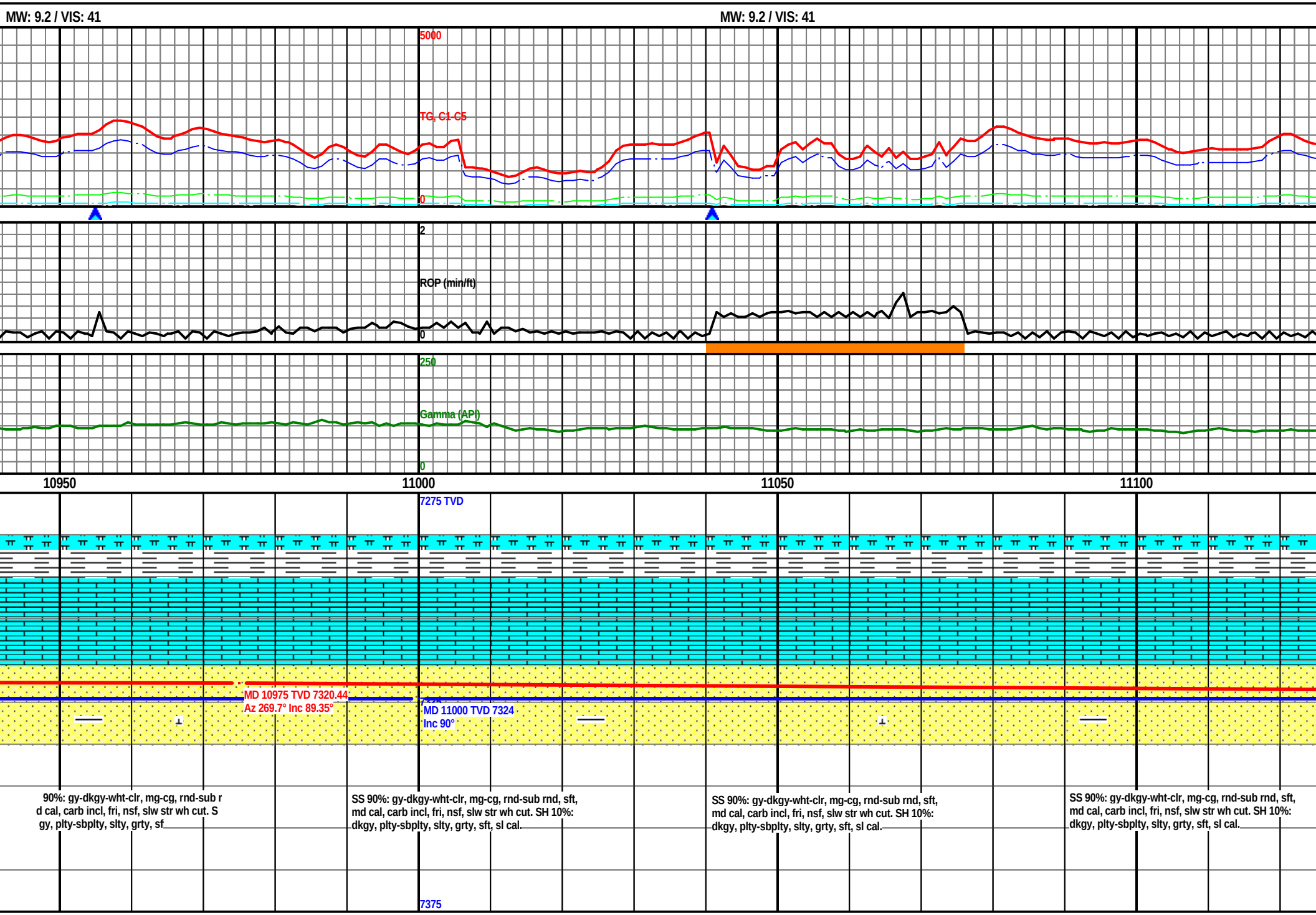

MW: 9.3 / VIS: 43
MW: 9.3 / VIS: 43
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
10050
10100
10150
10200
7275 TVD
MD 10039 TVD 7323.93
Az 269.3° Inc 89.38°
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, m
md cal, carb incl, fri, nsf, sl
dkgy, plty-sbplty, slty, grty,
7375

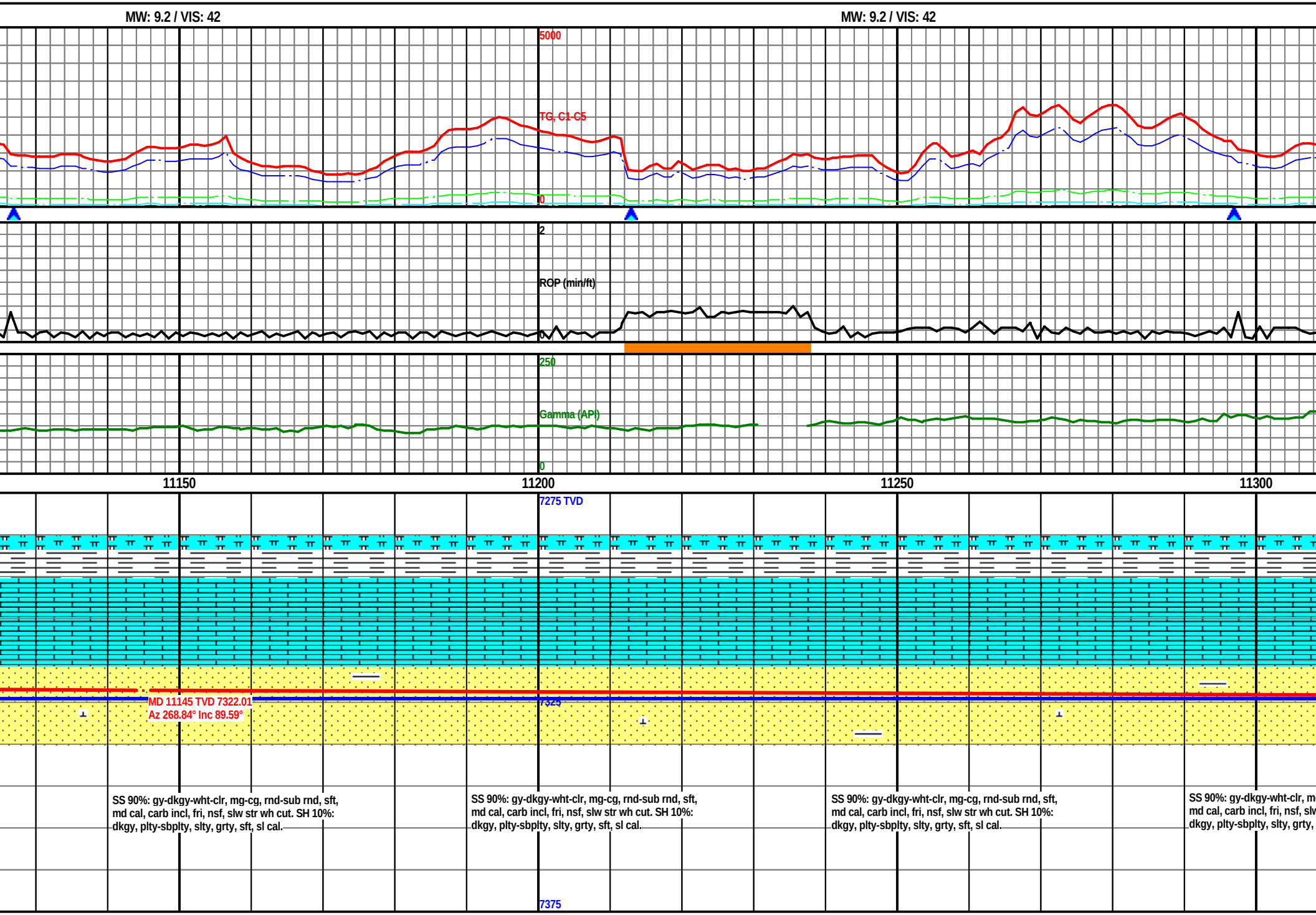

MW: 9.3 / VIS: 45
MW: 9.3 / VIS: 45
Gas Show #2
10241' - 12416'
10250
10300
10350
MD 10209 TVD 7325.55
Az 270.28° Inc 89.53°
MD 10380 TVD 73
Az 271.11° Inc 89.
g-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

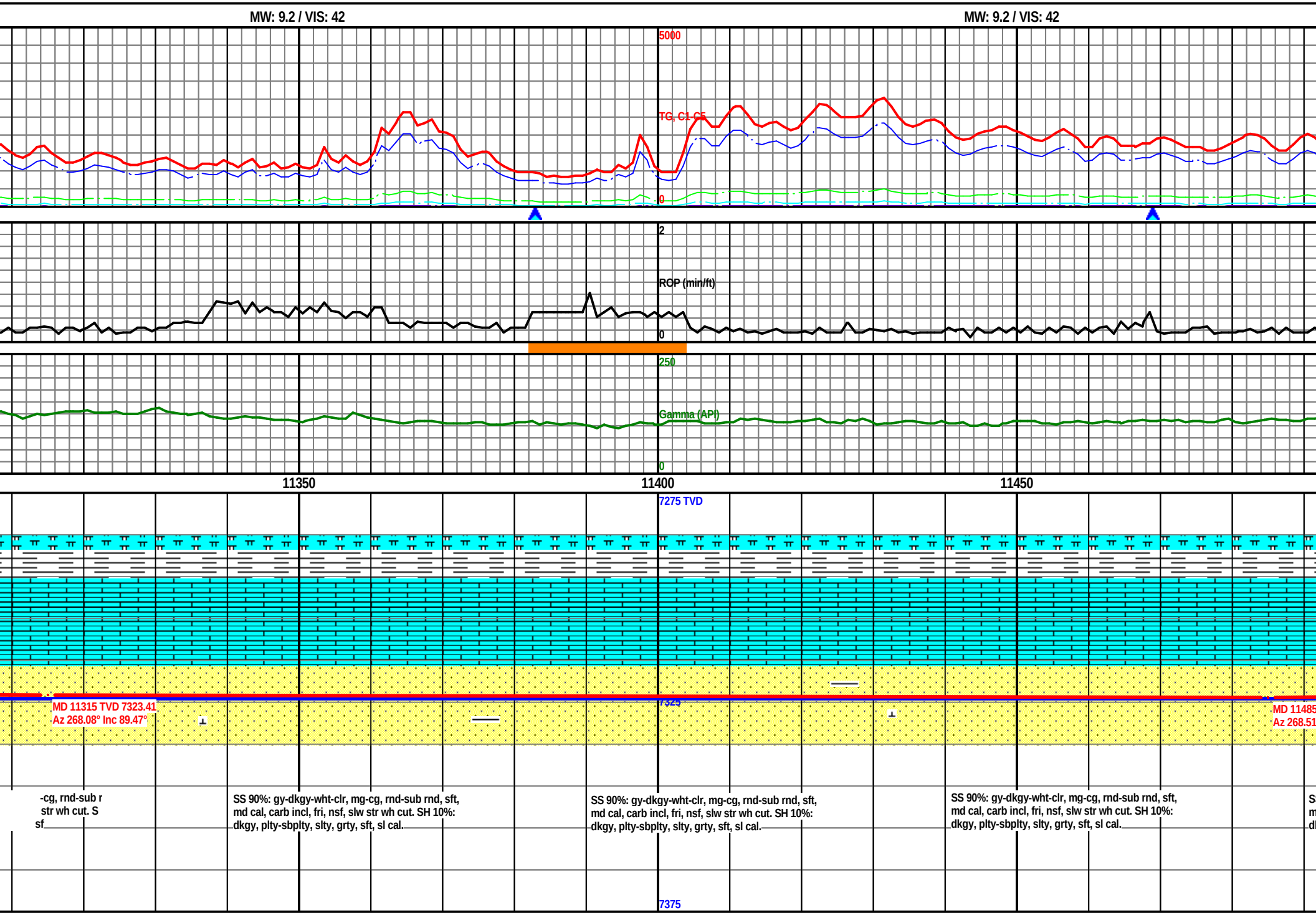

MW: 9.3 / VIS: 45
MW: 9.3 / VIS: 45
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
10400
10450
10500
10550
7275 TVD
7325
MD 10464 TVD 7327.67
Az 270.99° Inc 90.43°
MD 10500 TVD 7324
Inc 90°
7375
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

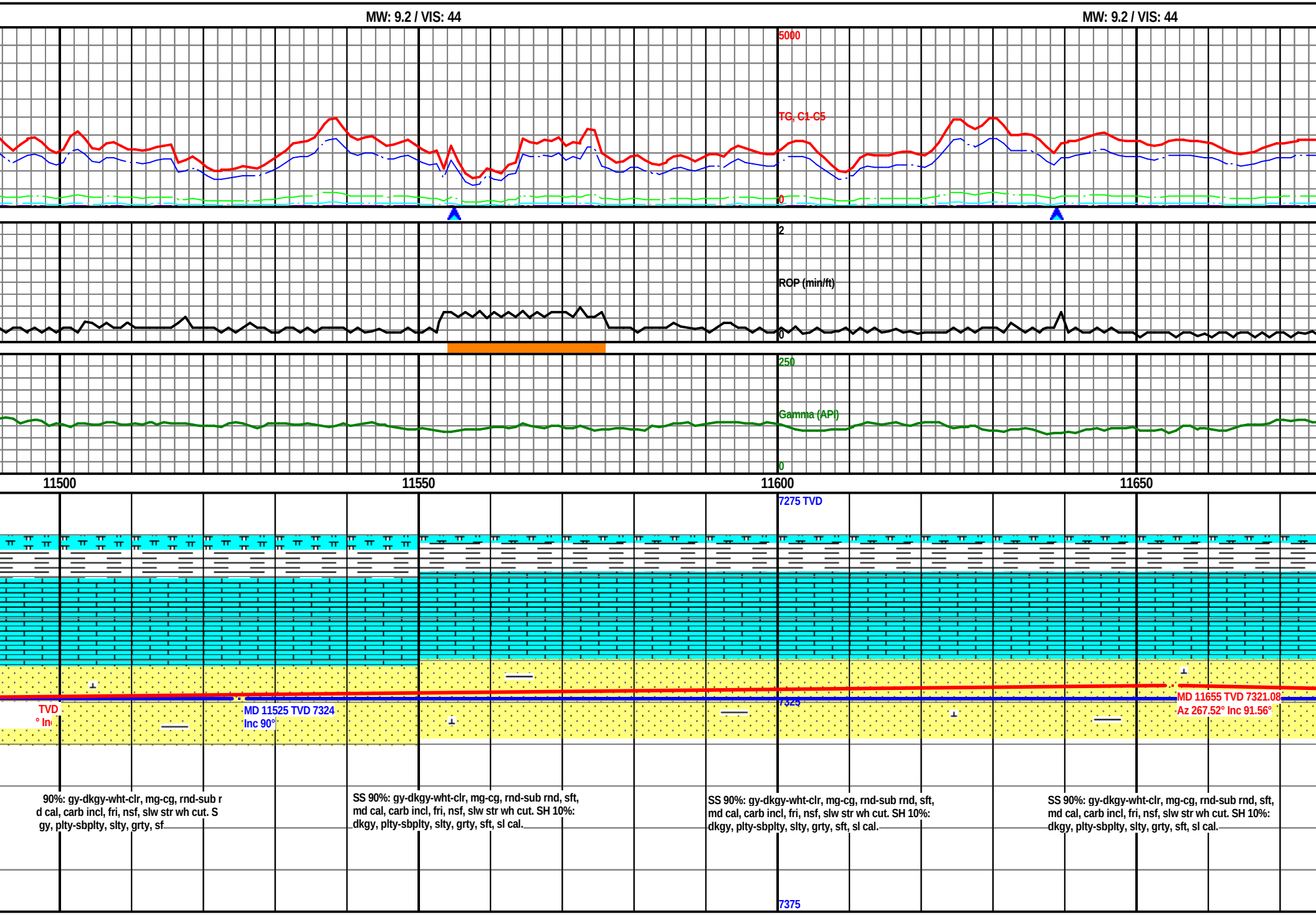

MW: 9.3 / VIS: 45
MW: 9.3 / VIS: 45
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
10600
10650
10700
10750
7275 TVD
MD 10635 TVD 7323.69
Az 269.18° Inc 92.24°
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, m
md cal, carb incl, fri, nsf, slv
dkgy, plty-sbplty, slty, grty,
7375

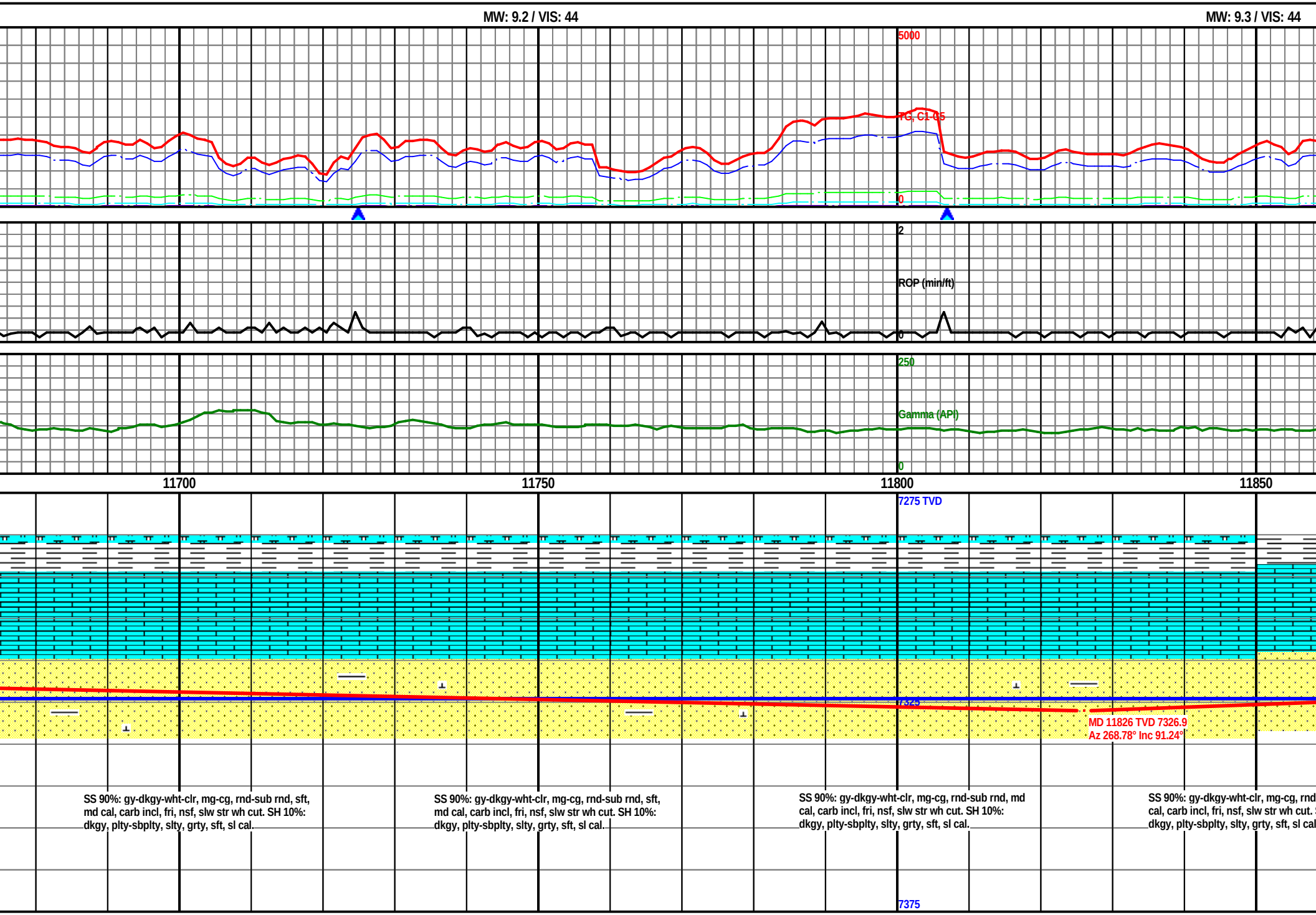

MW: 9.3 / VIS: 45
5000
TG, C1 C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
10800
10850
10900
7275 TVD
MD 10805 TVD 7319.92
Az 269.06° Inc 90.3°
7325
7375
-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.

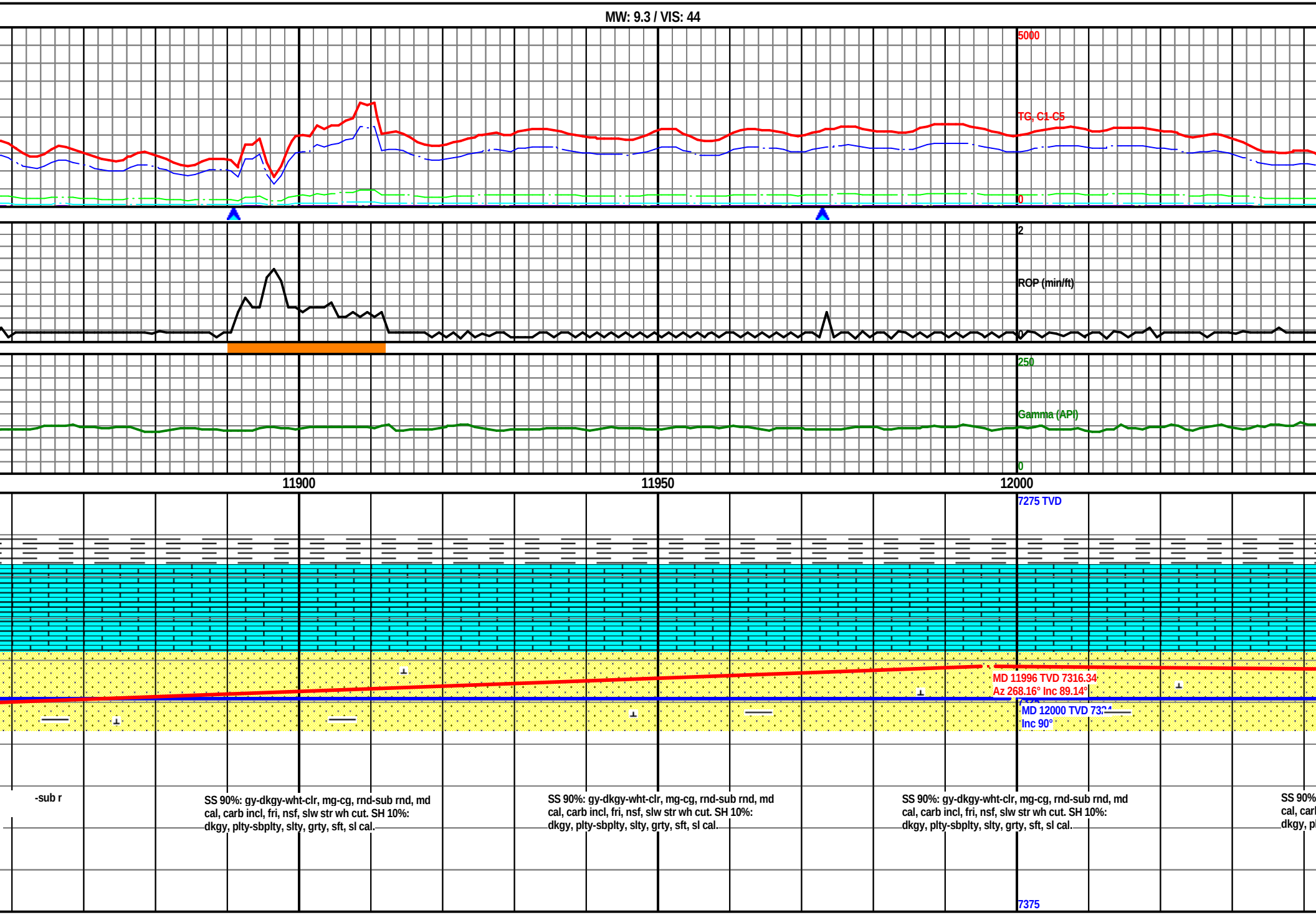

MW: 9.2 / VIS: 41
MW: 9.2 / VIS: 41
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
10950
11000
11050
11100
7275 TVD
MD 10975 TVD 7320.44
Az 269.7° Inc 89.35°
MD 11000 TVD 7324
Inc 90°
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

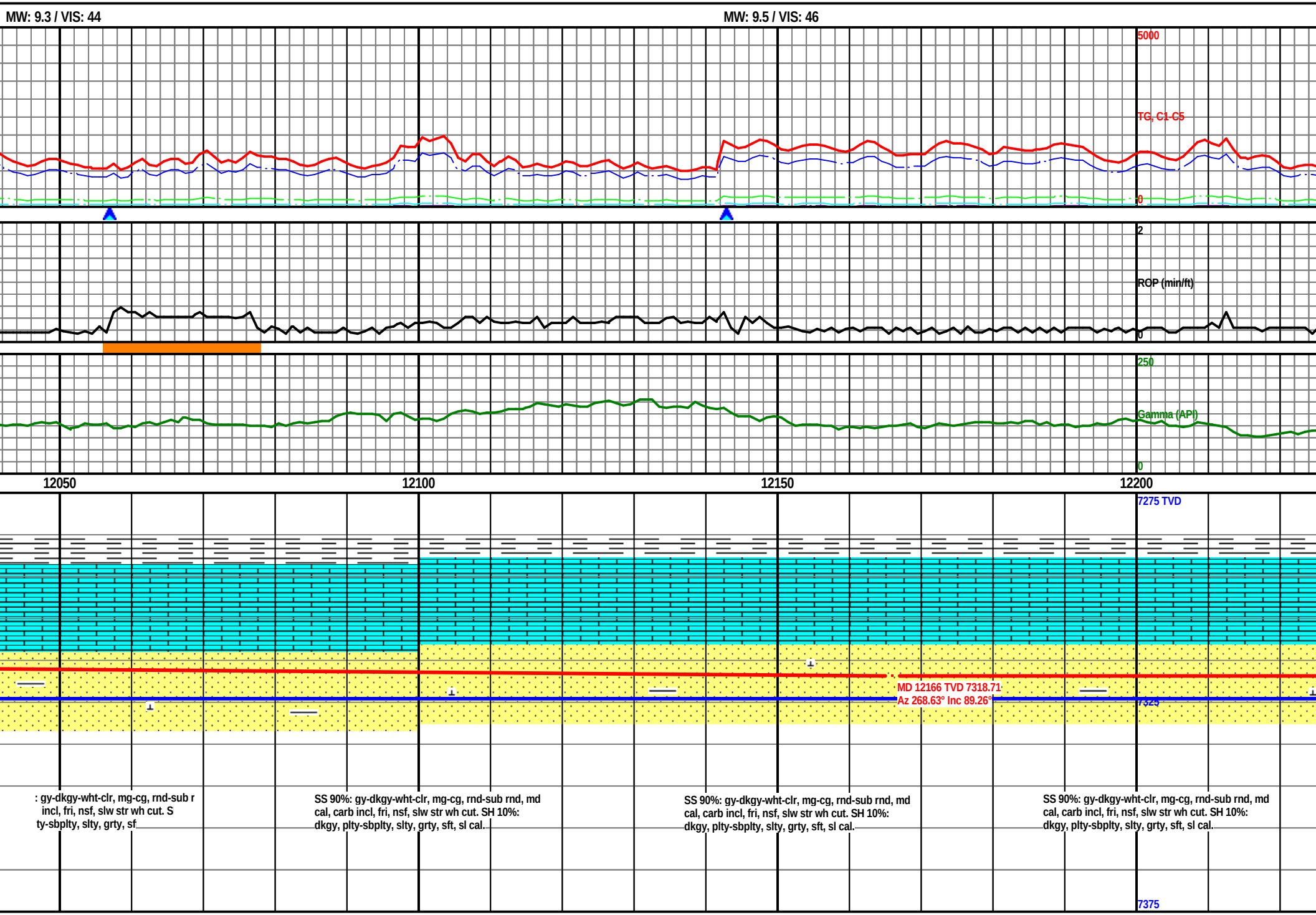

MW: 9.2 / VIS: 42
MW: 9.2 / VIS: 42
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
11150
11200
11250
11300
7275 TVD
MD 11145 TVD 7322.01
Az 268.84° Inc 89.59°
7325
7375
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, m
md cal, carb incl, fri, nsf, slw
dkgy, plty-sbplty, slty, grty,

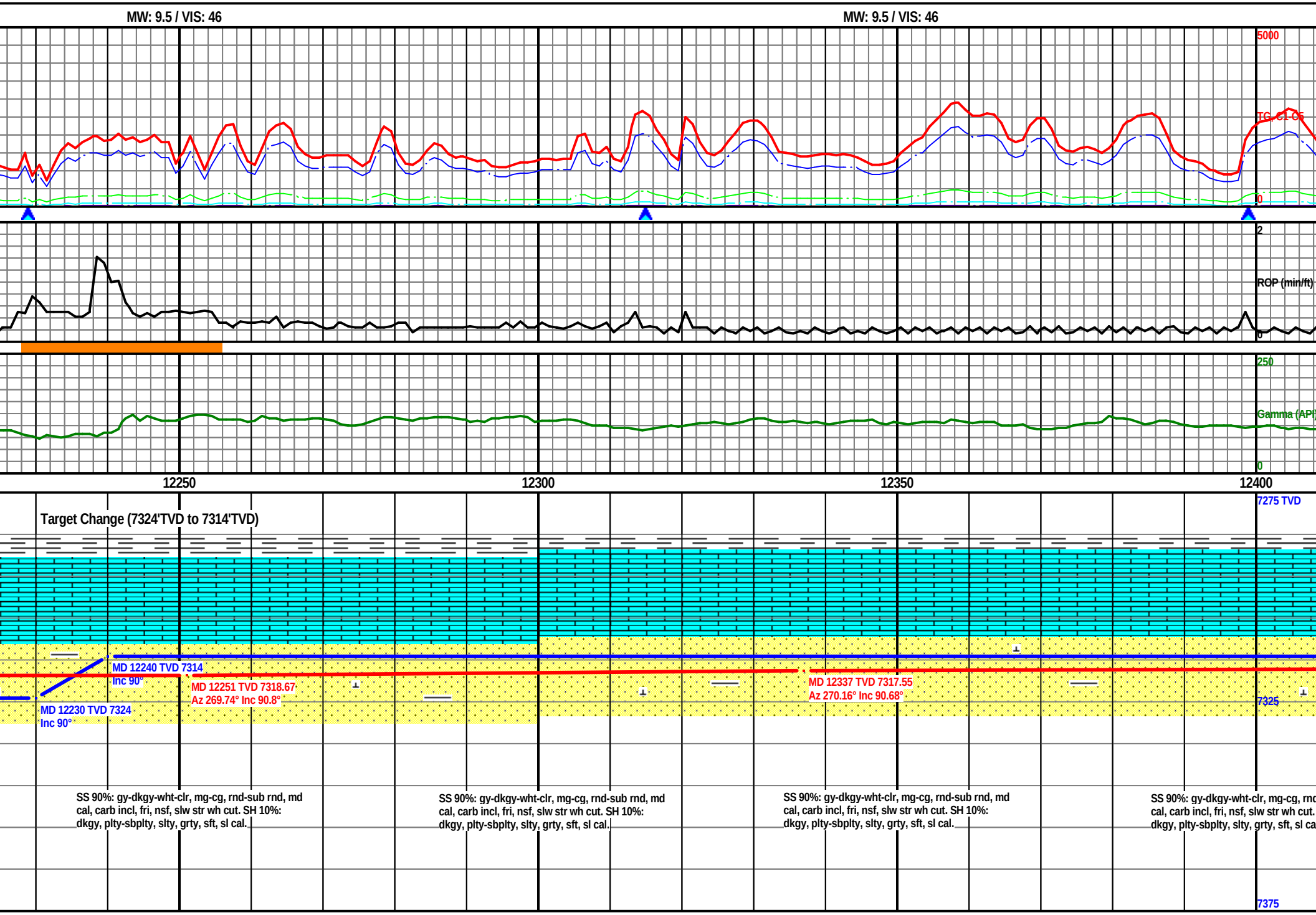

MW: 9.2 / VIS: 42
MW: 9.2 / VIS: 42
5000
TG, C1 C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
11350
11400
11450
7275 TVD
MD 11315 TVD 7323.41
Az 268.08° Inc 89.47°
7325
MD 11485
Az 268.51
-cg, rnd-sub r
str wh cut. S
sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

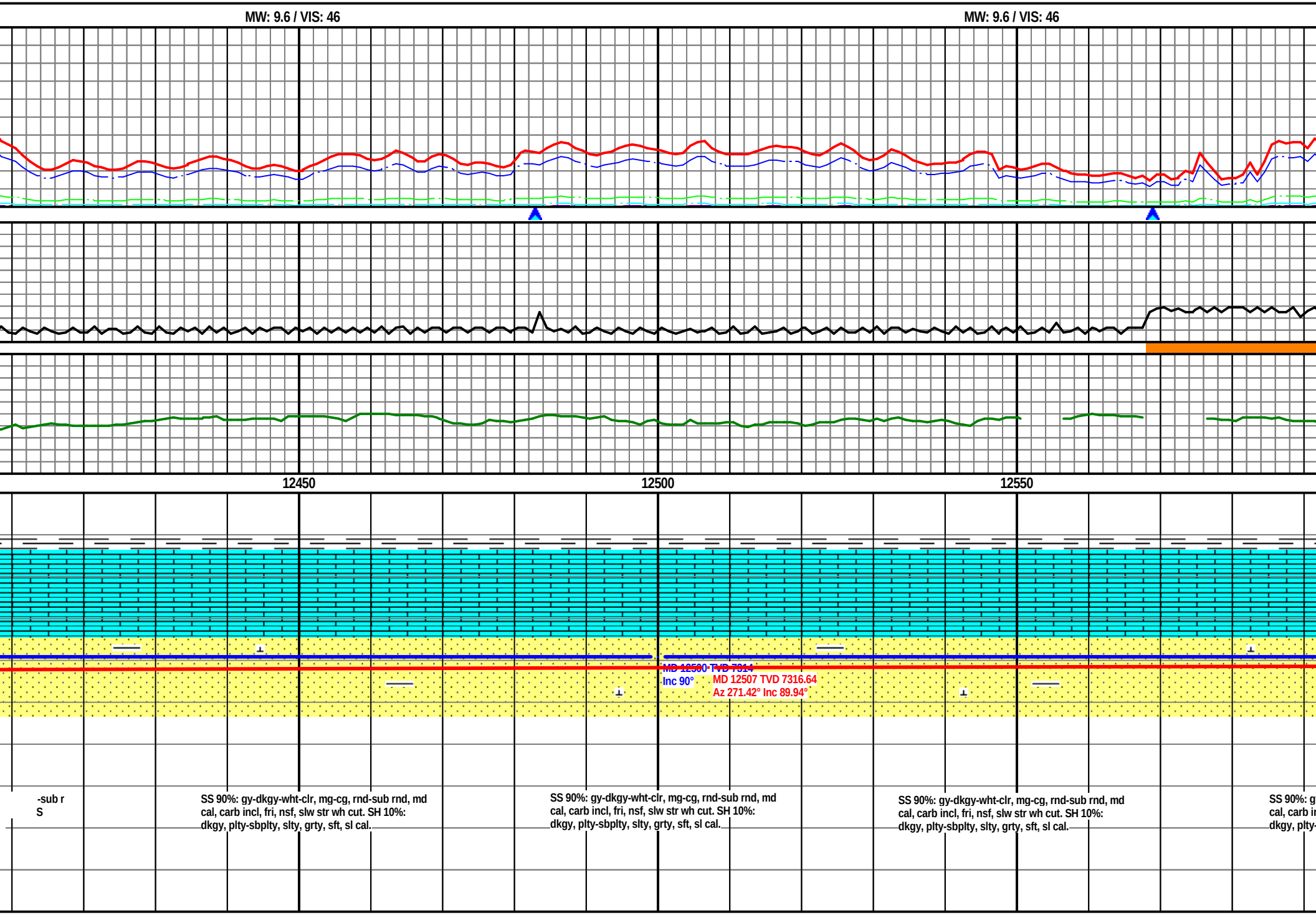

MW: 9.2 / VIS: 44
MW: 9.2 / VIS: 44
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
11500
11550
11600
11650
7275 TVD
TVD
° Inc
MD 11525 TVD 7324
Inc 90°
MD 11655 TVD 7321.08
Az 267.52° Inc 91.56°
7325
7375
90%: gy-dkgy-wht-clr, mg-cg, rnd-sub r
d cal, carb incl, fri, nsf, slw str wh cut. S
gy, plty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft,
md cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.

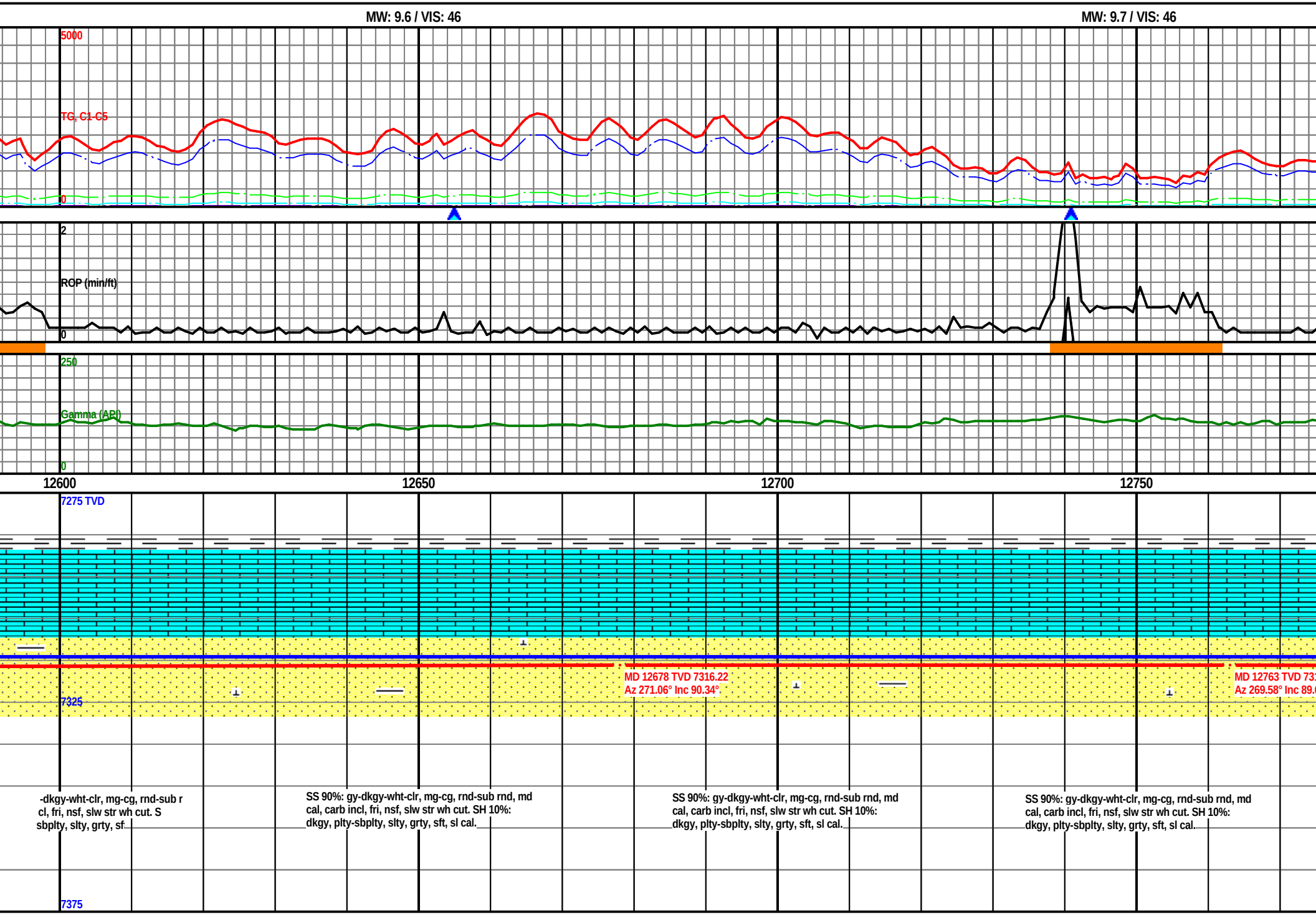

MW: 9.2 / VIS: 44
MW: 9.3 / VIS: 44
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
11700
11750
11800
11850
7275 TVD
7325
MD 11826 TVD 7326.9
Az 268.78° Inc 91.24°
7375
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, sft, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd
cal, carb incl, fri, nsf, slw str wh cut.
dkgy, plty-sbplty, slty, grty, sft, sl cal

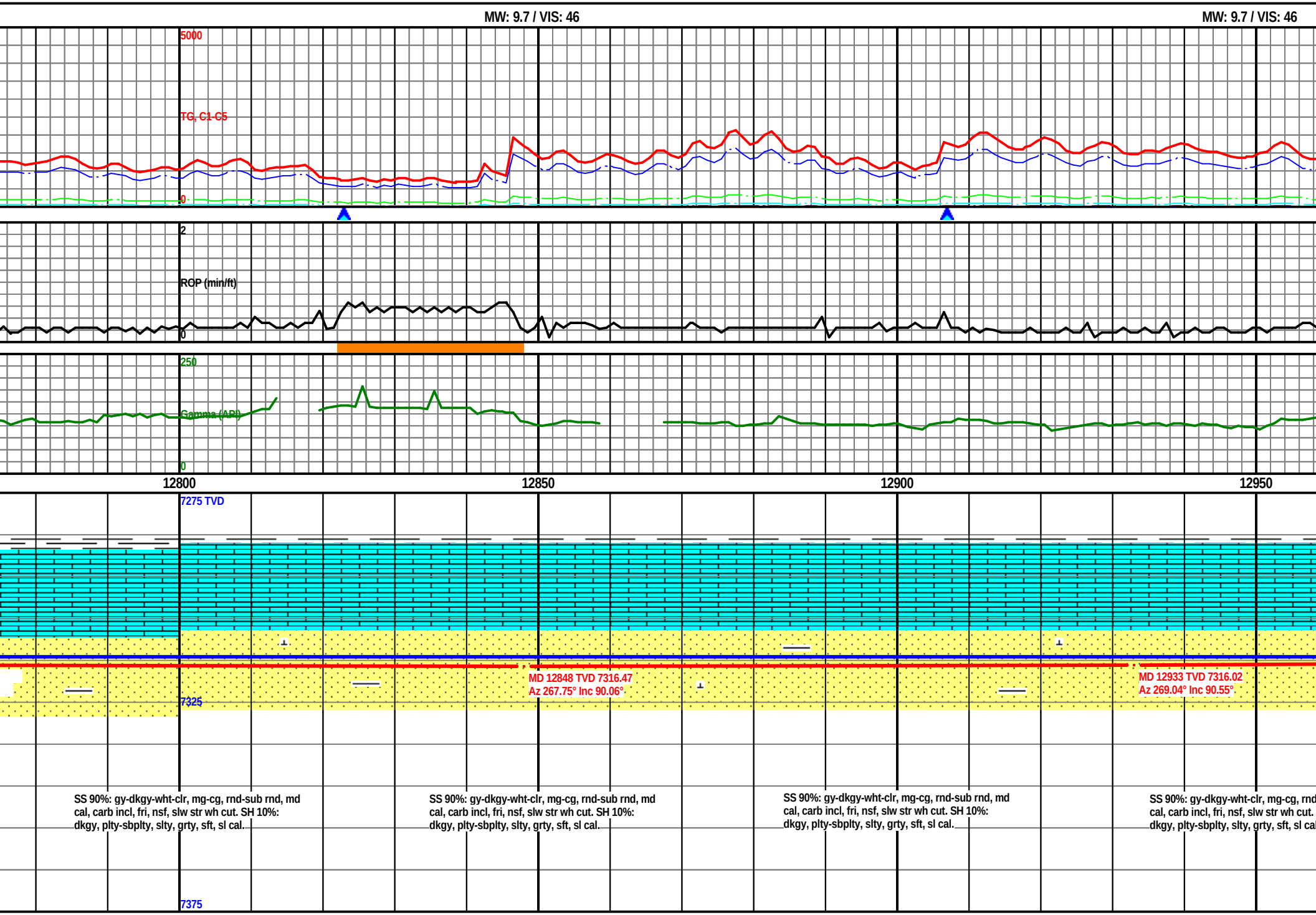

MW: 9.3 / VIS: 44
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
11900
11950
12000
7275 TVD
MD 11996 TVD 7316.34
Az 268.16° Inc 89.14°
MD 12000 TVD 7324
Inc 90°
-sub r
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

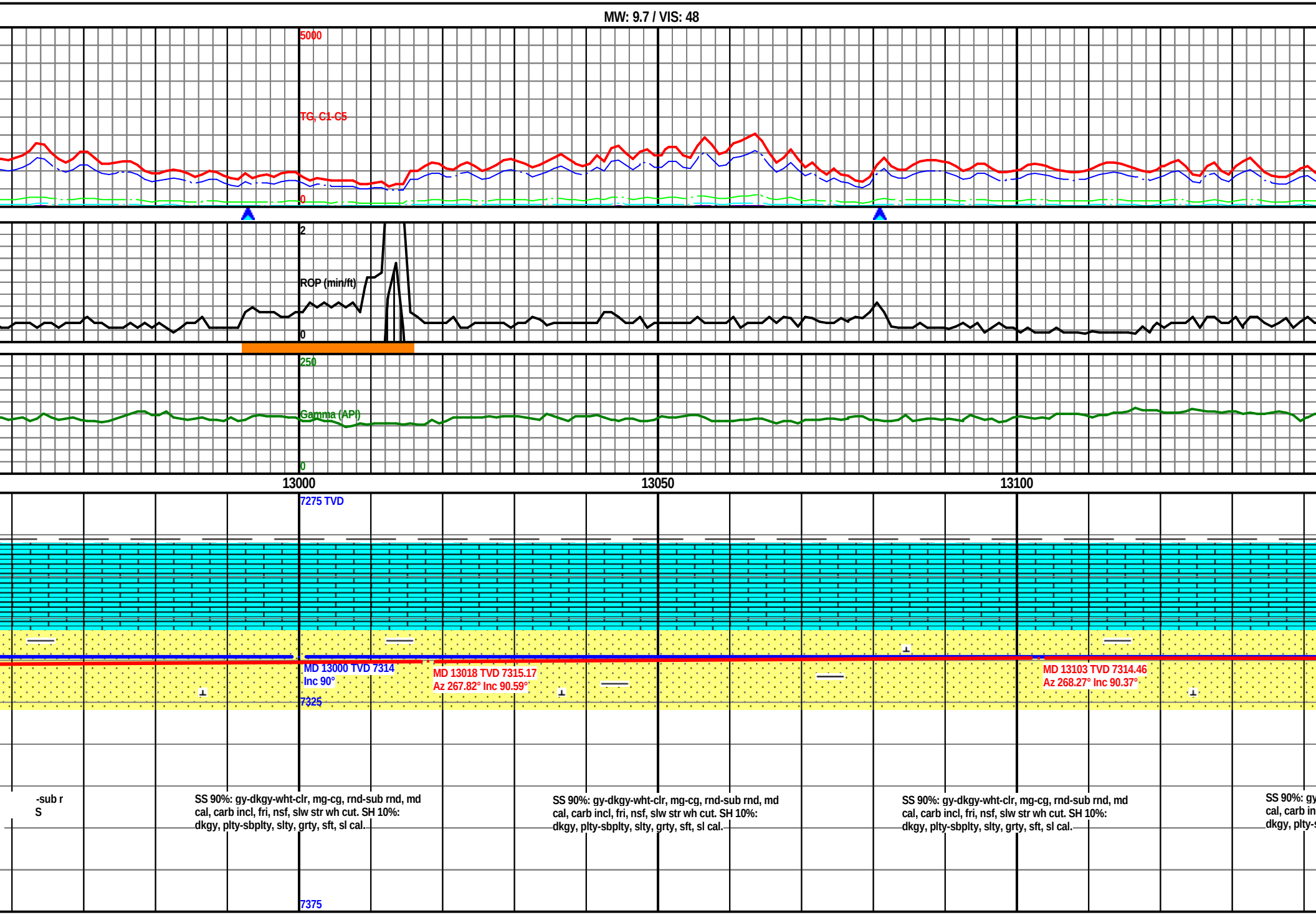

MW: 9.3 / VIS: 44
MW: 9.5 / VIS: 46
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
12050
12100
12150
12200
7275 TVD
MD 12166 TVD 7318.71
Az 268.63° Inc 89.26°
7325
: gy-dkgy-wht-clr, mg-cg, rnd-sub r
incl, fri, nsf, slw str wh cut. S
ty-sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375

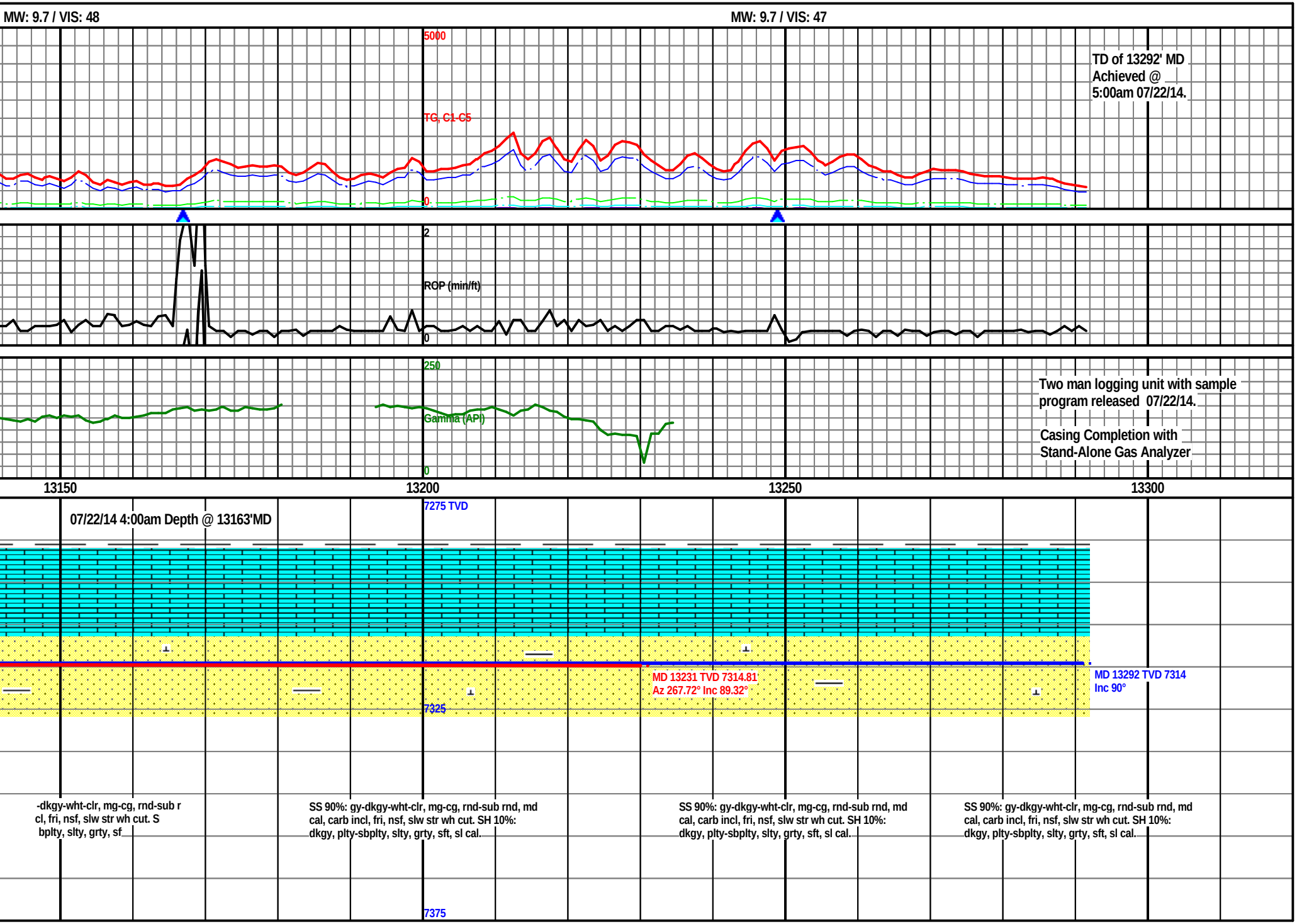

MW: 9.5 / VIS: 46
MW: 9.5 / VIS: 46
5000
TG: C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
12250
12300
12350
12400
Target Change (7324'TVD to 7314'TVD)
7275 TVD
MD 12240 TVD 7314
Inc 90°
MD 12251 TVD 7318.67
Az 269.74° Inc 90.8°
MD 12337 TVD 7317.55
Az 270.16° Inc 90.68°
MD 12230 TVD 7324
Inc 90°
7325
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd
cal, carb incl, fri, nsf, slw str wh cut.
dkgy, plty-sbplty, slty, grty, sft, sl ca
7375


MW: 9.6 / VIS: 46
MW: 9.6 / VIS: 46
12450
12500
12550
MD 12500 TVD 7314
Inc 90°
MD 12507 TVD 7316.64
Az 271.42° Inc 89.94°
-sub r
S
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.


MW: 9.6 / VIS: 46
MW: 9.7 / VIS: 46
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
12600
12650
12700
12750
7275 TVD
7325
7375
MD 12678 TVD 7316.22
Az 271.06° Inc 90.34°
MD 12763 TVD 731
Az 269.58° Inc 89.
-dkgy-wht-clr, mg-cg, rnd-sub r
cl, fri, nsf, slw str wh cut. S
sbplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.


MW: 9.7 / VIS: 46
MW: 9.7 / VIS: 46
5000
TG, C1-C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
12800
12850
12900
12950
7275 TVD
7325
7375
MD 12848 TVD 7316.47
Az 267.75° Inc 90.06°
MD 12933 TVD 7316.02
Az 269.04° Inc 90.55°
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd
cal, carb incl, fri, nsf, slw str wh cut.
dkgy, plty-sbplty, slty, grty, sft, sl ca


MW: 9.7 / VIS: 48
5000
TG, C1 C5
0
2
ROP (min/ft)
0
250
Gamma (API)
0
13000
13050
13100
7275 TVD
MD 13000 TVD 7314
Inc 90°
MD 13018 TVD 7315.17
Az 267.82° Inc 90.59°
MD 13103 TVD 7314.46
Az 268.27° Inc 90.37°
7325
-sub r
S
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md cal, carb incl, fri, nsf, slw str wh cut. SH 10%: dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375


MW: 9.7 / VIS: 48
MW: 9.7 / VIS: 47
5000
TG, C1-C5
0
TD of 13292' MD
Achieved @
5:00am 07/22/14.
2
ROP (min/ft)
0
250
Gamma (API)
0
Two man logging unit with sample
program released 07/22/14.
Casing Completion with
Stand-Alone Gas Analyzer
13150
13200
13250
13300
07/22/14 4:00am Depth @ 13163'MD
7275 TVD
MD 13231 TVD 7314.81
Az 267.72° Inc 89.32°
MD 13292 TVD 7314
Inc 90°
7325
-dkgy-wht-clr, mg-cg, rnd-sub r
cl, fri, nsf, slw str wh cut. S
bplty, slty, grty, sf
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
SS 90%: gy-dkgy-wht-clr, mg-cg, rnd-sub rnd, md
cal, carb incl, fri, nsf, slw str wh cut. SH 10%:
dkgy, plty-sbplty, slty, grty, sft, sl cal.
7375