



**Scale 1:240 (5"=100') Imperial
Measured Depth Log**

Well Name: RAZOR 21B-2811A
Location: NWNE 21-T10N-R58W, Weld County, Colorado
License Number: 05-123-37765
Spud Date: 12/13/2013
Surface Coordinates: Lat.: 40.830203 Long.: -103.868331

Region: Redtail Field
Drilling Completed: 12/xx/2013

Bottom Hole Coordinates: Lat.: 40.809678 Long.: -103.869708

Ground Elevation (ft): 4837'
Logged Interval (ft): 5200' **To:** 12791'
Formation: Pierre, Sharon Springs, Niobrara
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4859'
Total Depth (ft): 12791'

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

OPERATOR

Company: Whiting Oil & Gas Corp.
Address: 1700 Broadway Suite 2300
Denver, CO 80290

GEOLOGIST

Name: Luke Schwantes and Mark Denler
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Frontier
Rig #26


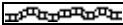
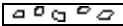


Gas Detection






Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #603




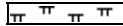

Comments






Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.




ROCK TYPES

 Anhy
 Bent
 Brec
 Cht
 Clyst
















 Coal
 Congl
 Dol
 Gyp
 Igne









 Lmst
 Meta
 Cyan mrlst
 Mrlst
 Salt
















 Shale
 Shcol
 Shgy
 Sltst
 Ss







 Till
 Cyan chk
 Chalk

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

POROSITY
[E] Earthy
[□] Fenest
[F] Fracture
[X] Inter
[⊗] Moldic
[⊙] Organic
[P] Pinpoint

[V] Vuggy

SORTING
[W] Well
[M] Moderate
[P] Poor

OTHER SYMBOLS

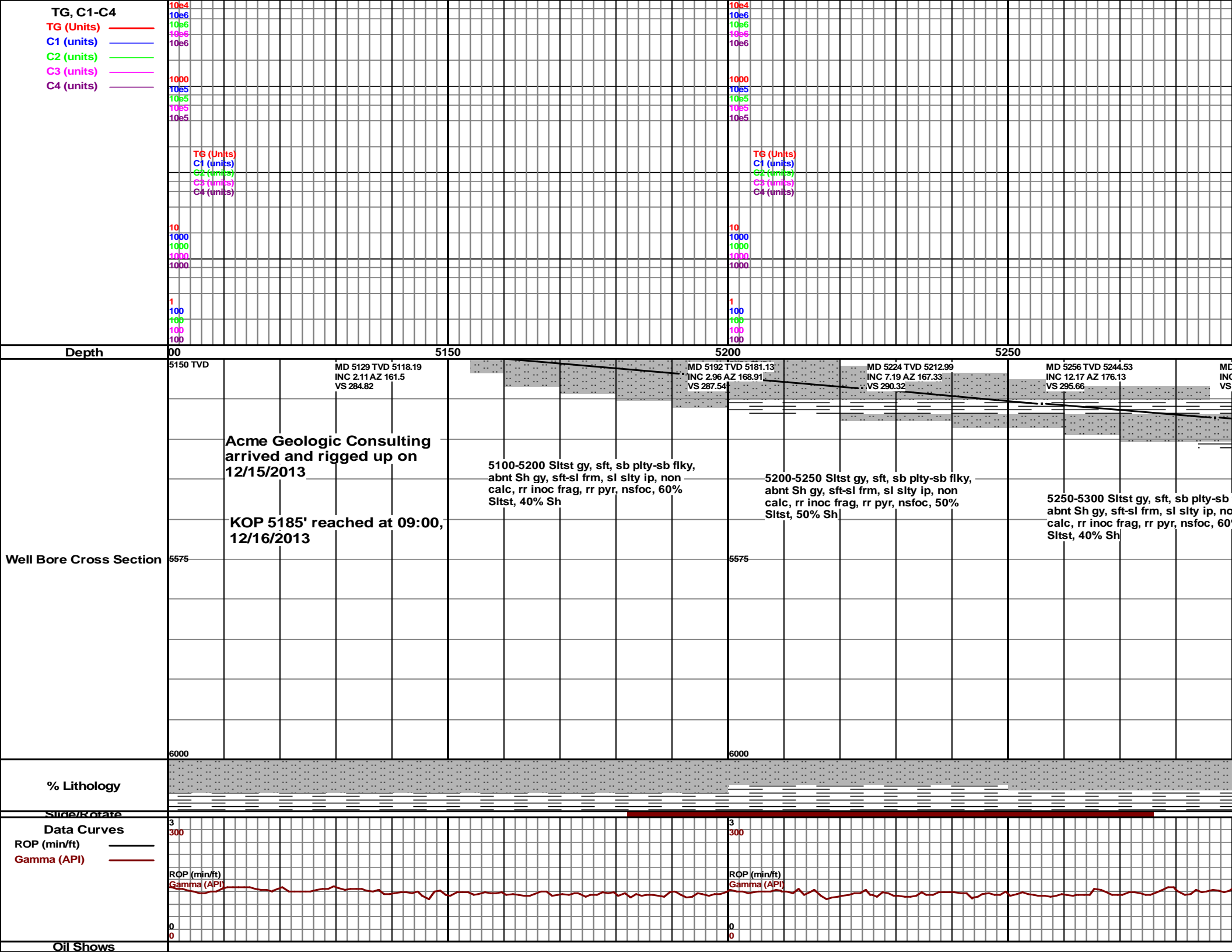
ROUNDING
[R] Rounded
[r] Subrnd
[a] Subang
[A] Angular

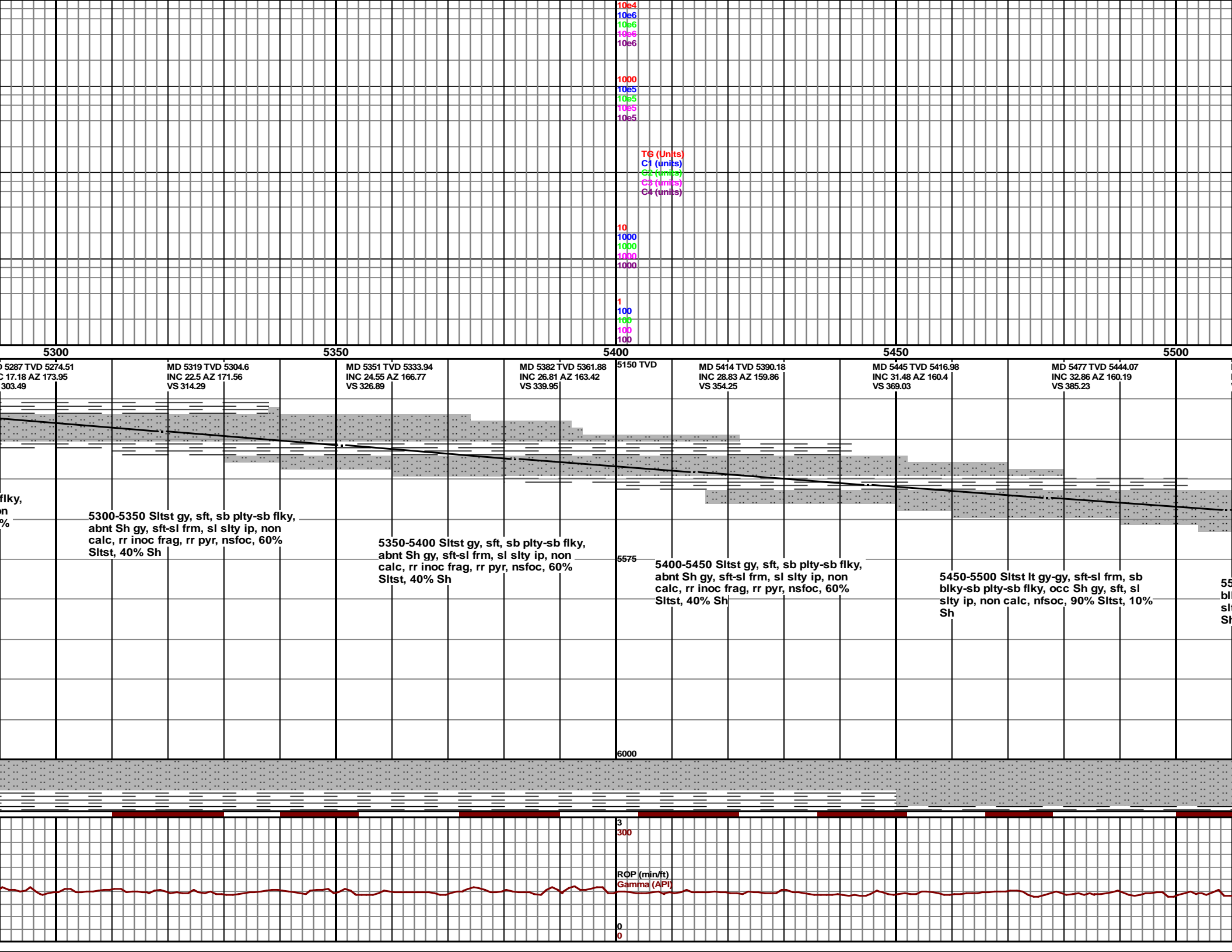
OIL SHOW
[●] Even

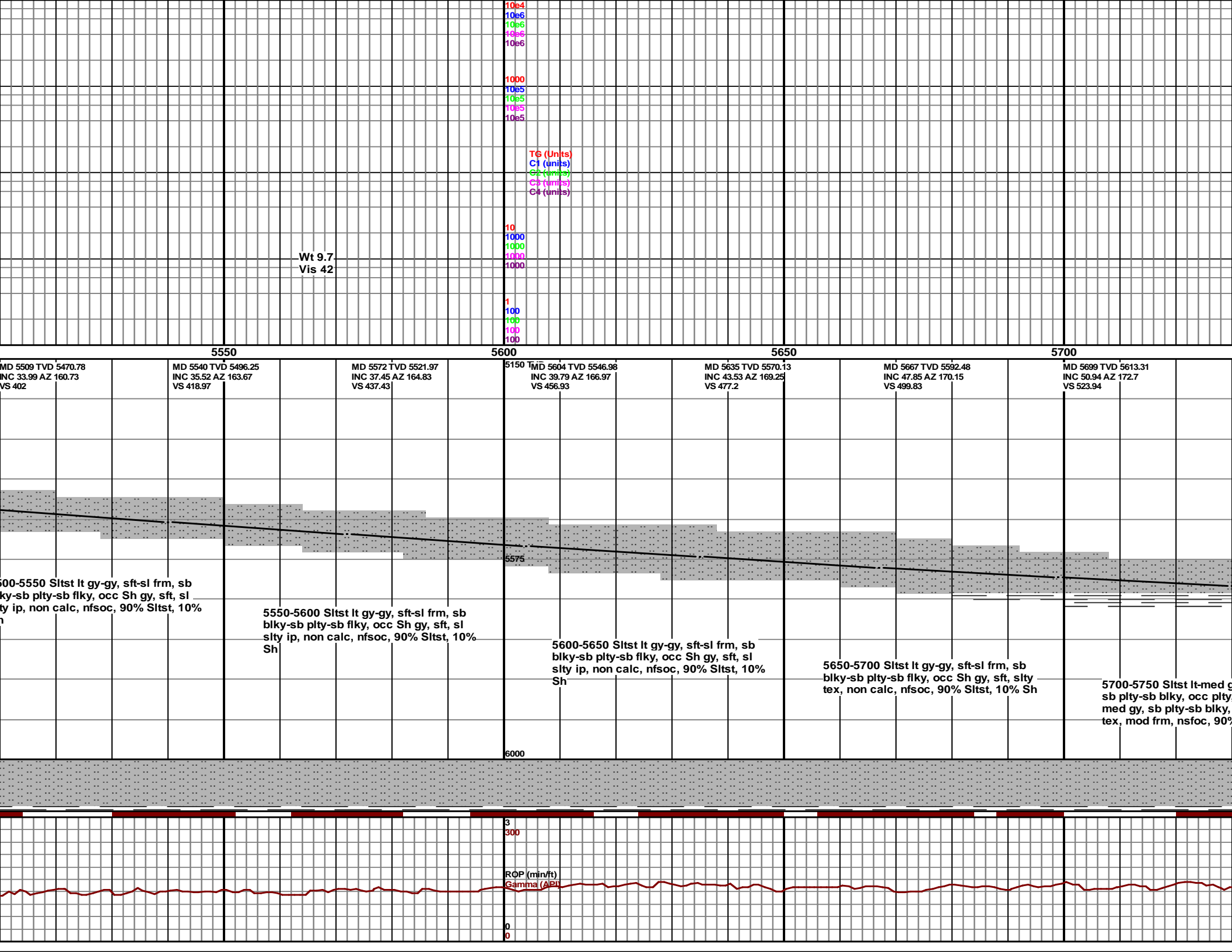
[⦿] Spotted
[○] Ques
[◻] Dead

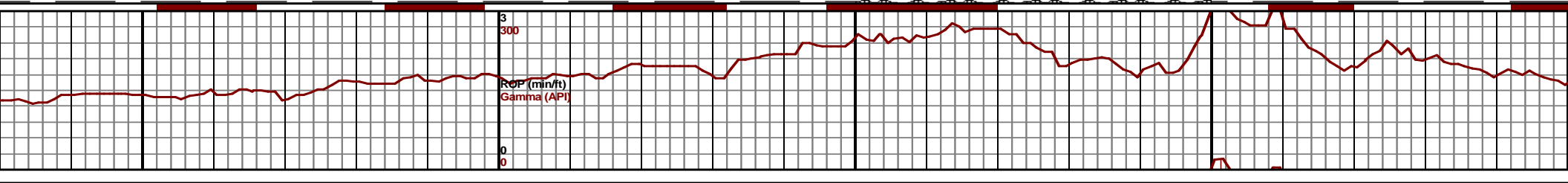
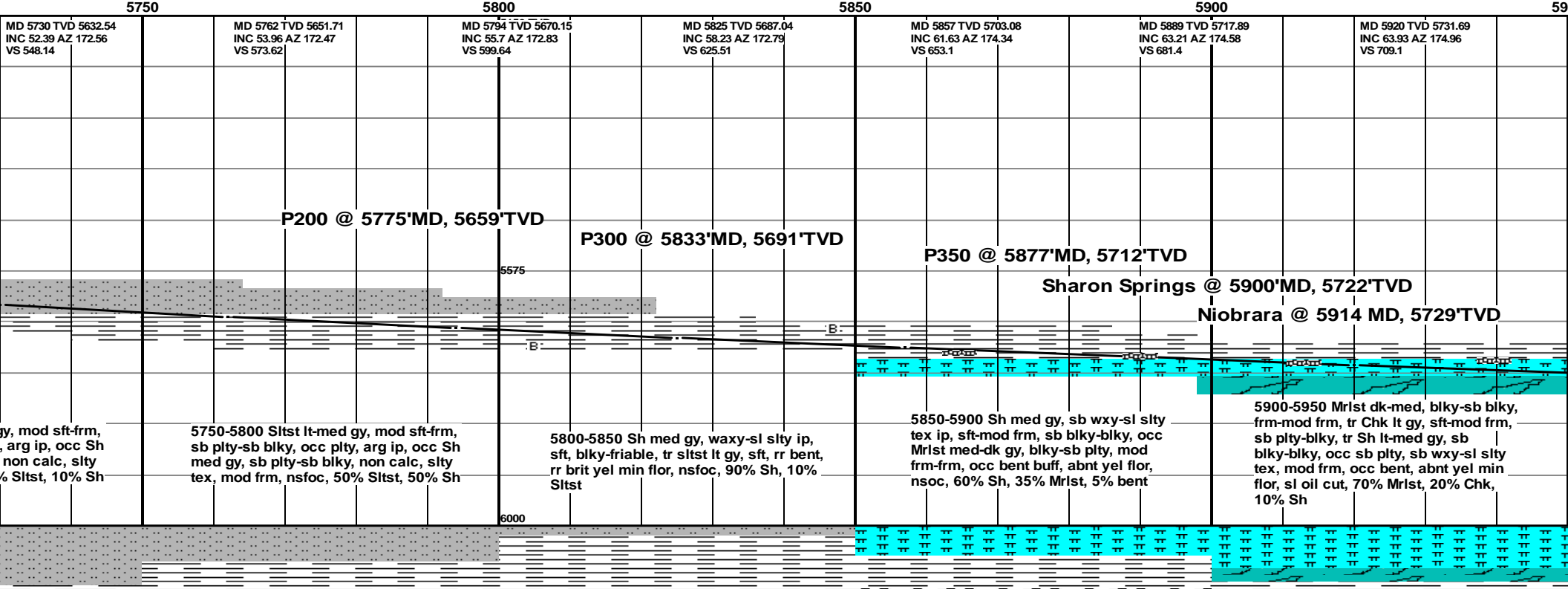
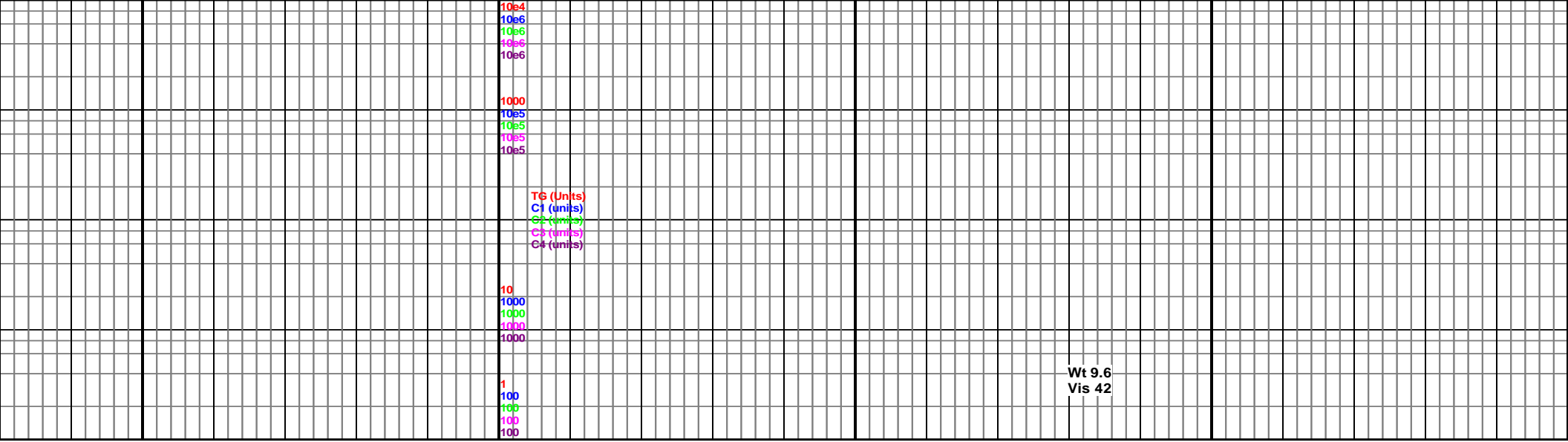
INTERVAL
[■] Core
[◻] Dst

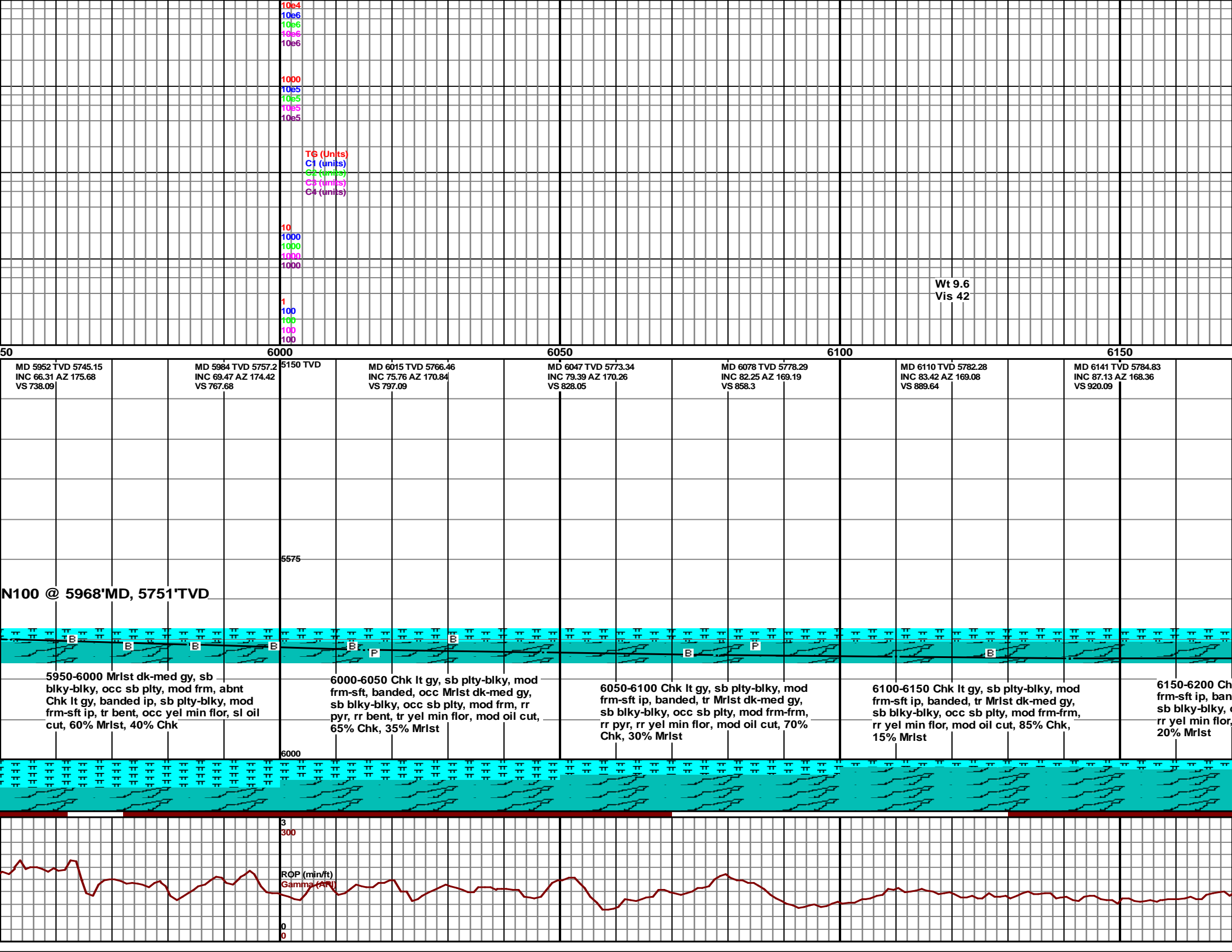
EVENT
[▽] Rft
[◼] Sidewall

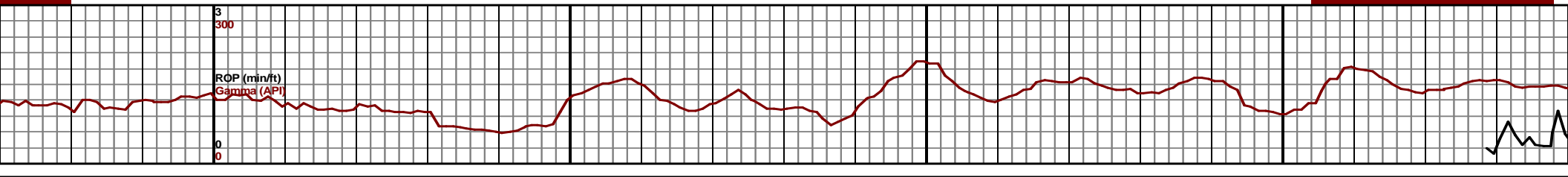
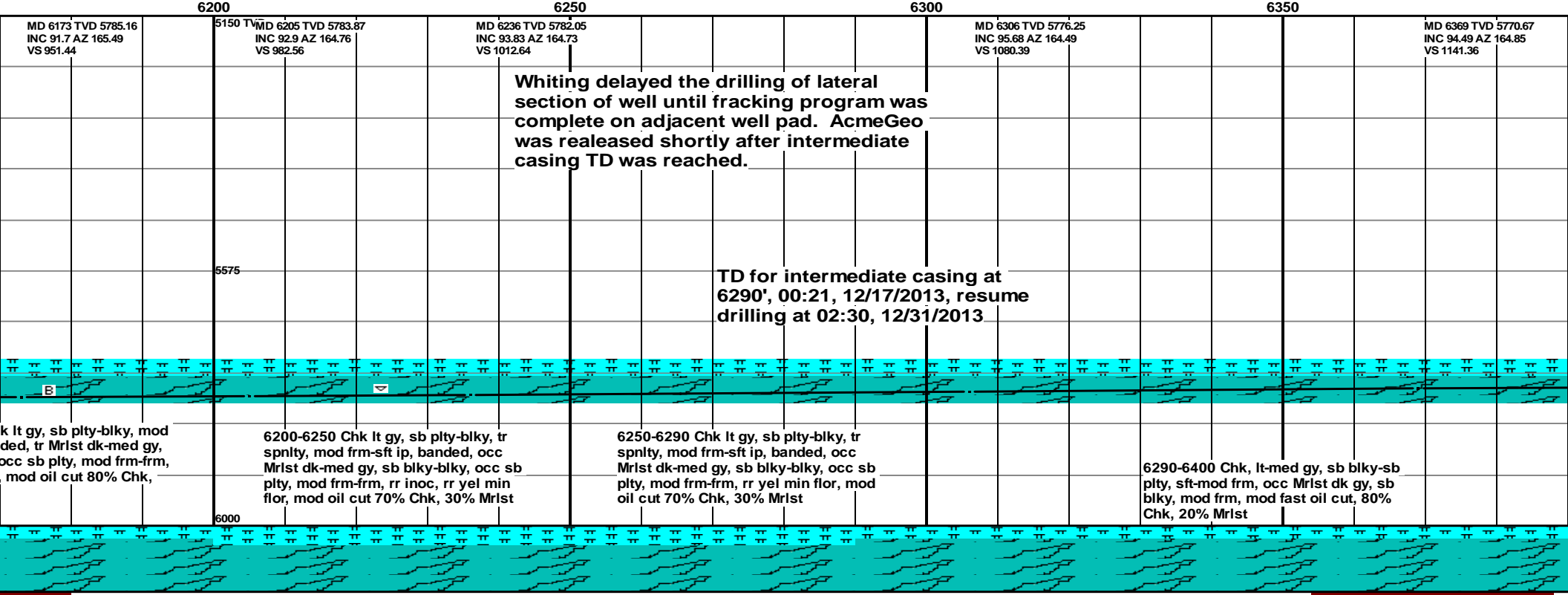
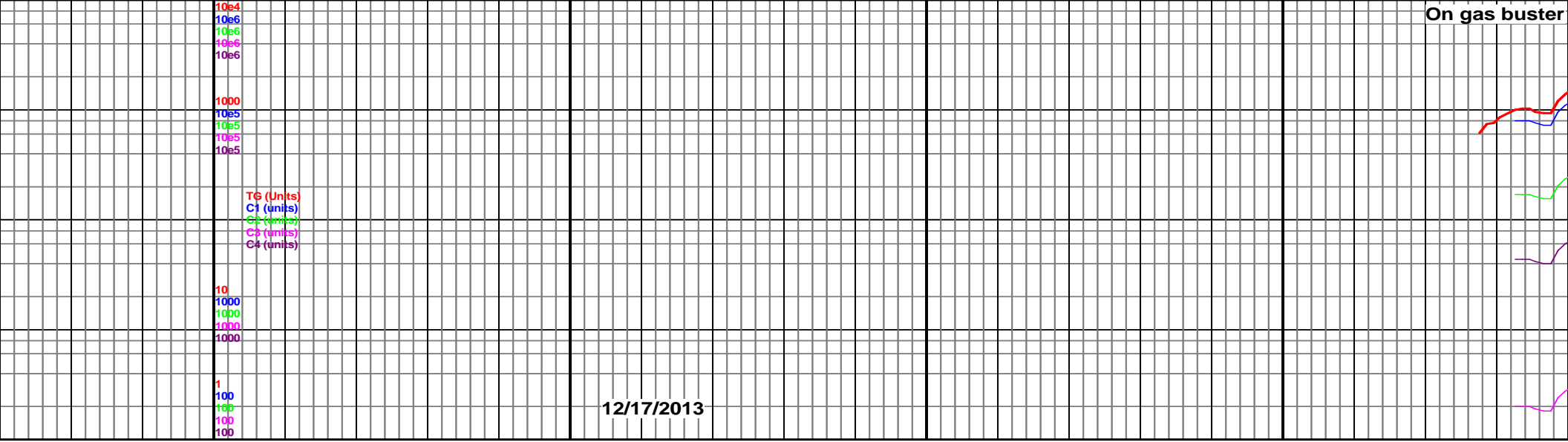


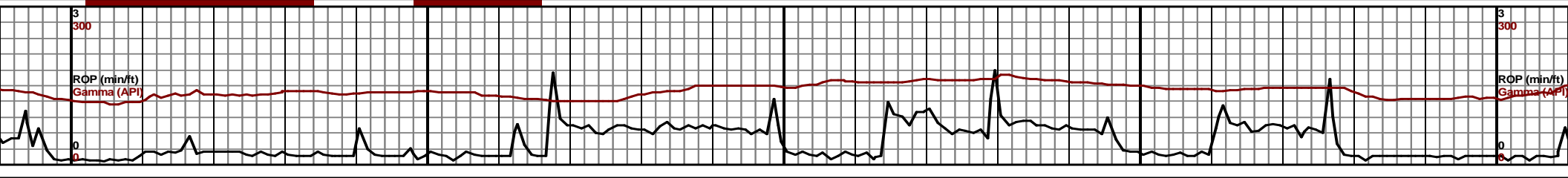
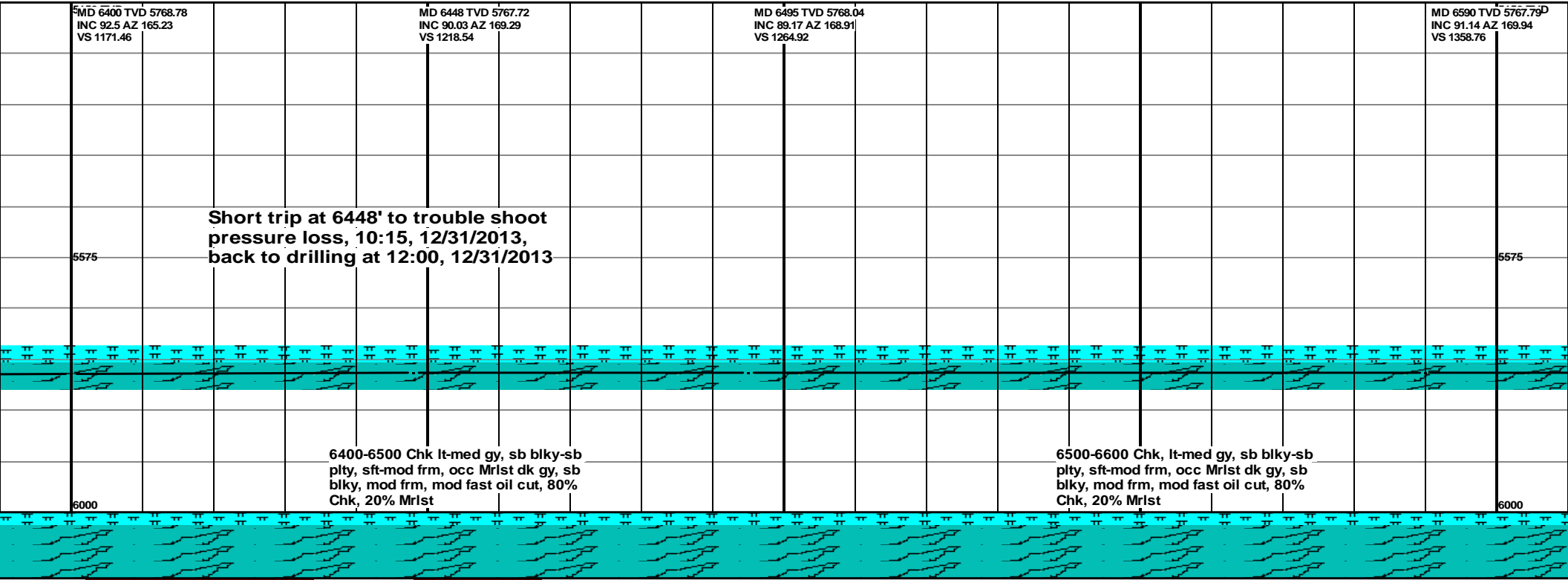
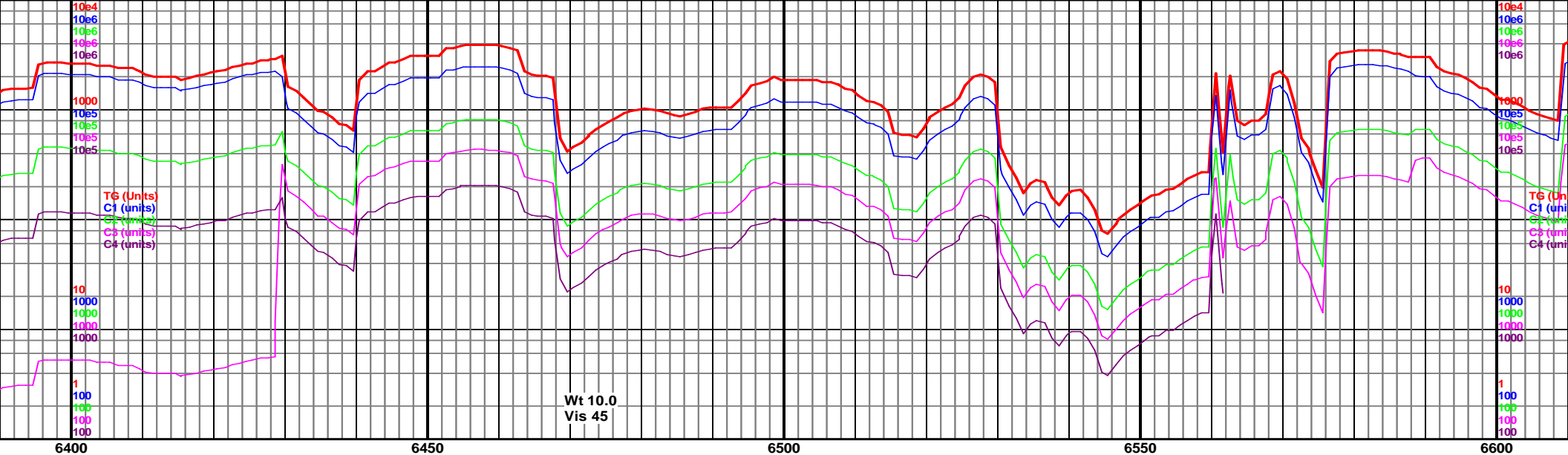


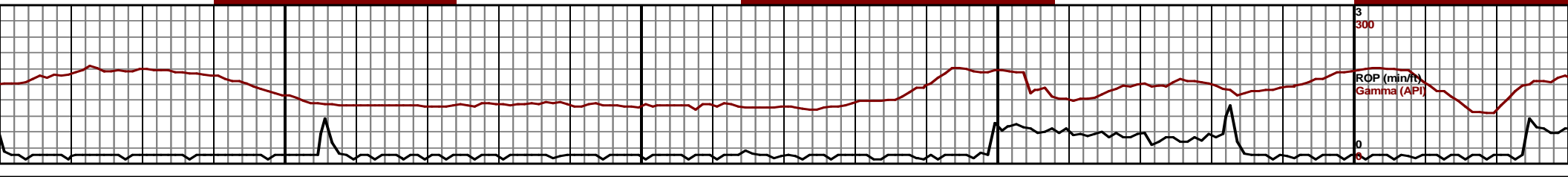
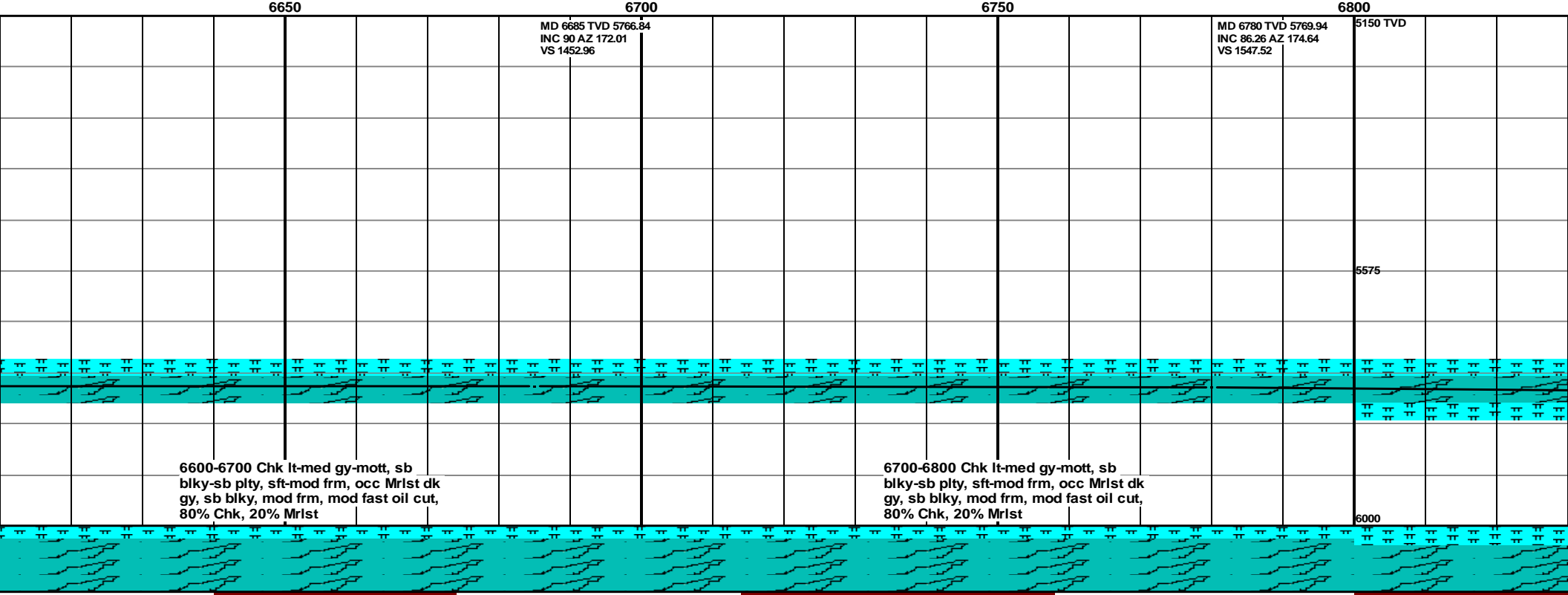
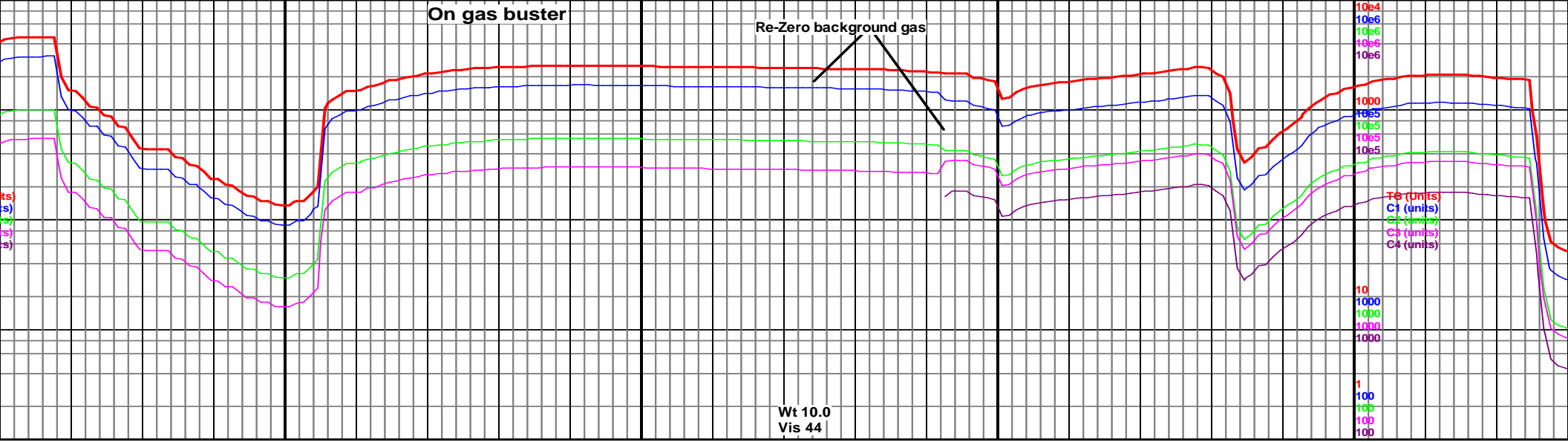




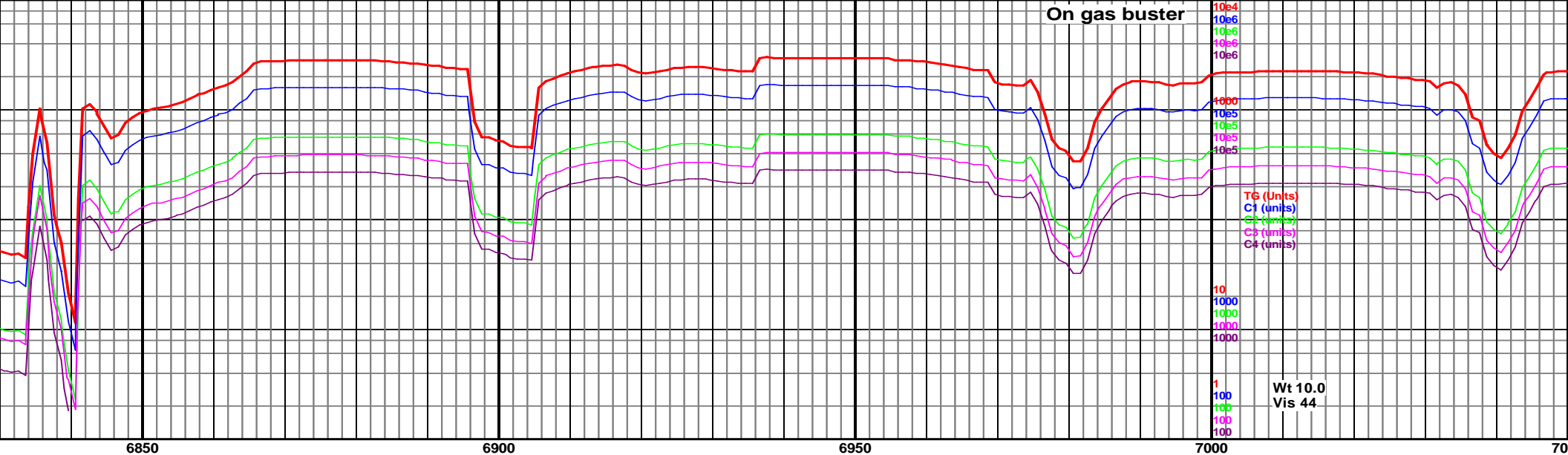








On gas buster



6850

6900

6950

7000

7050

MD 6875 TVD 5778
INC 84.01 AZ 179.15
VS 1642.11

MD 6970 TVD 5788.38
INC 83.45 AZ 182.11
VS 1736.46

5150 TVD

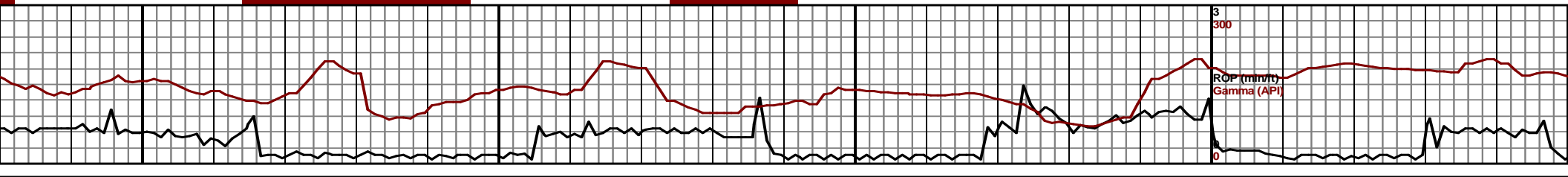
5575

6000

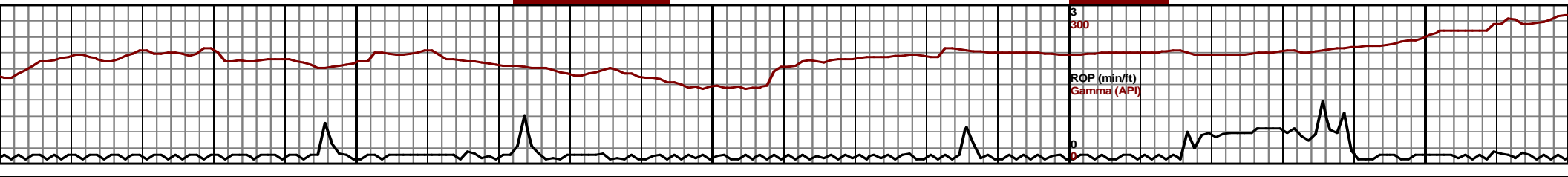
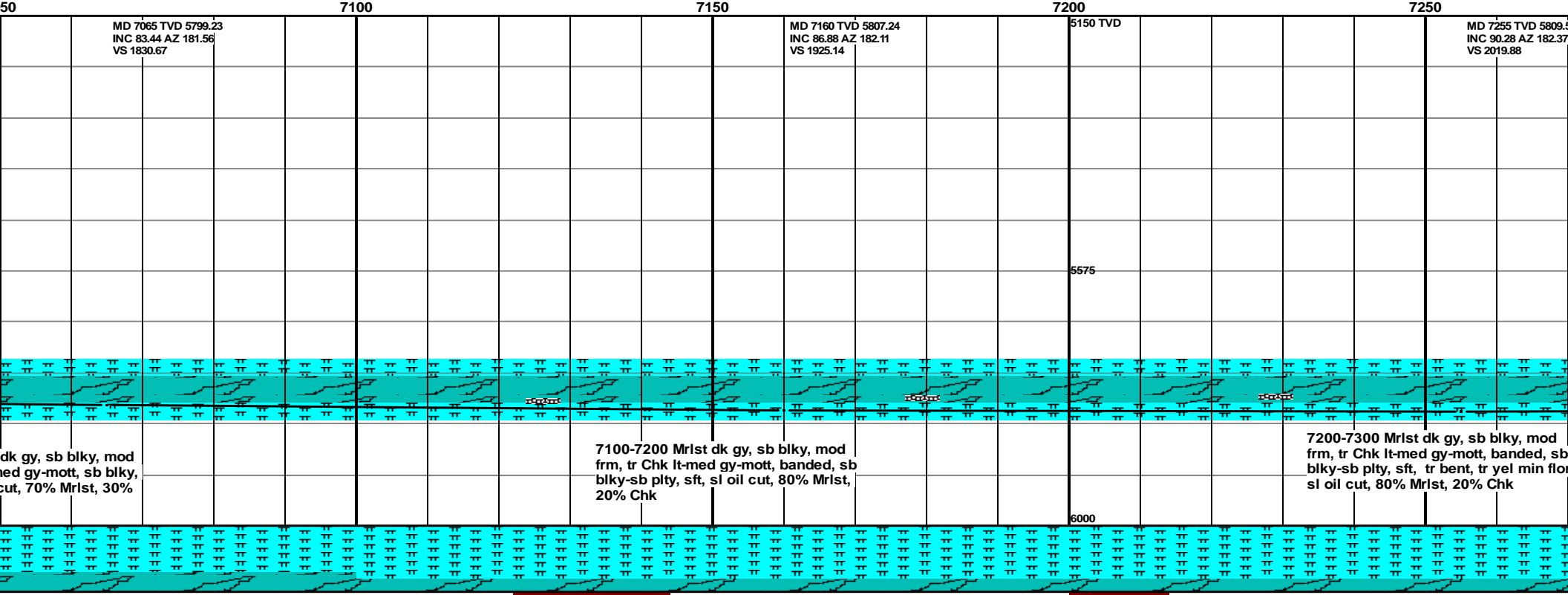
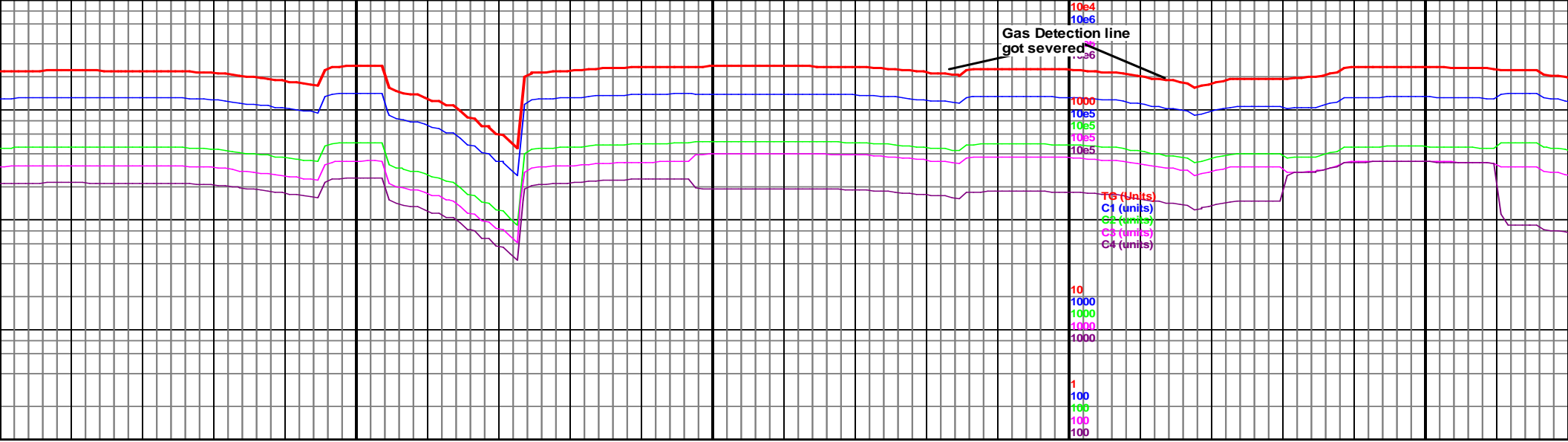
6800-6900 Chk lt-med gy-mott, sb
blky-sb plty, sft-mod frm, occ Mrlst dk
gy, sb blky, mod frm, mod fast oil cut,
70% Chk, 30% Mrlst

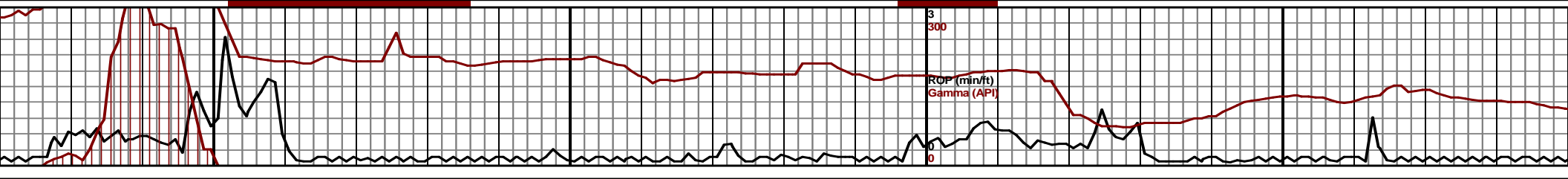
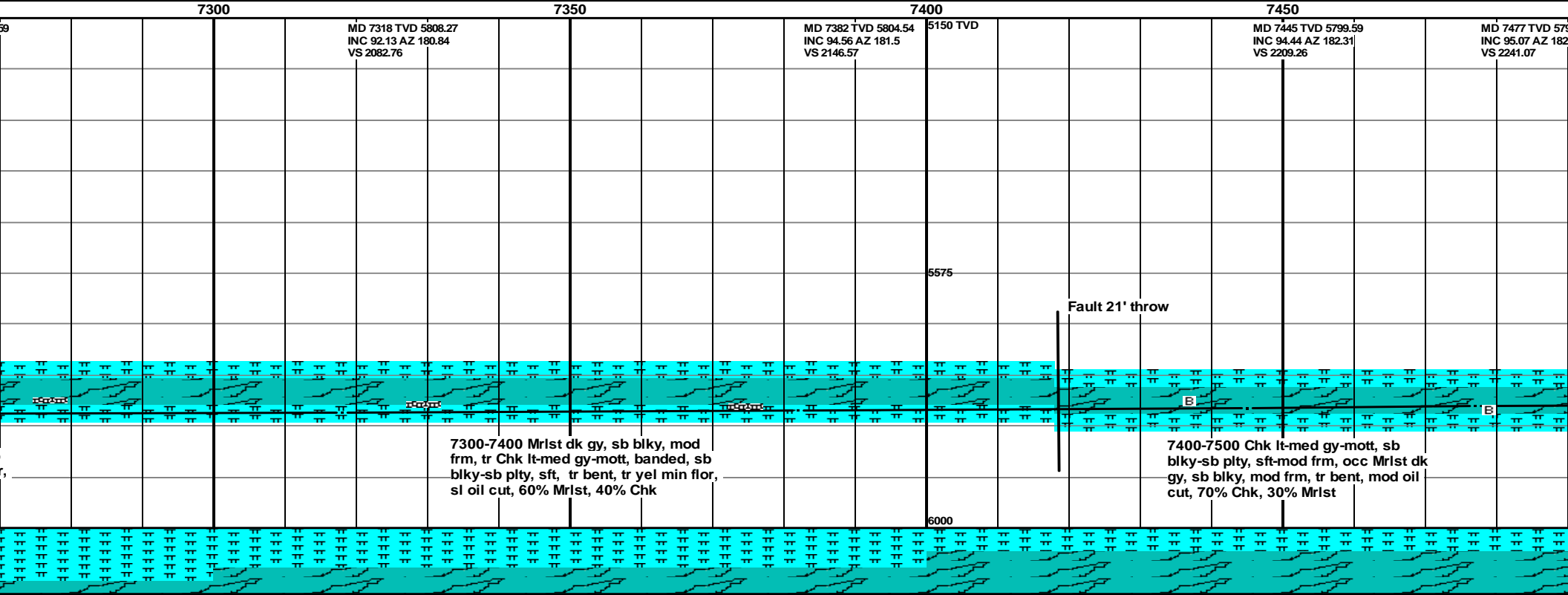
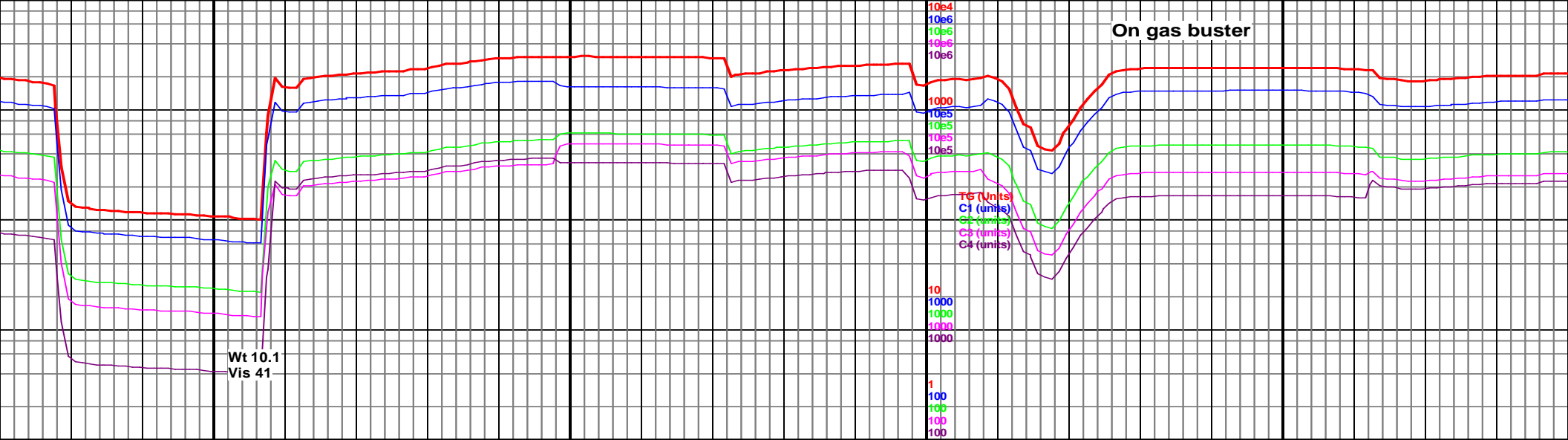
6900-7000 Chk lt-med gy-mott, sb
blky-sb plty, sft-mod frm, occ Mrlst dk
gy, sb blky, mod frm, mod fast oil cut,
70% Chk, 30% Mrlst

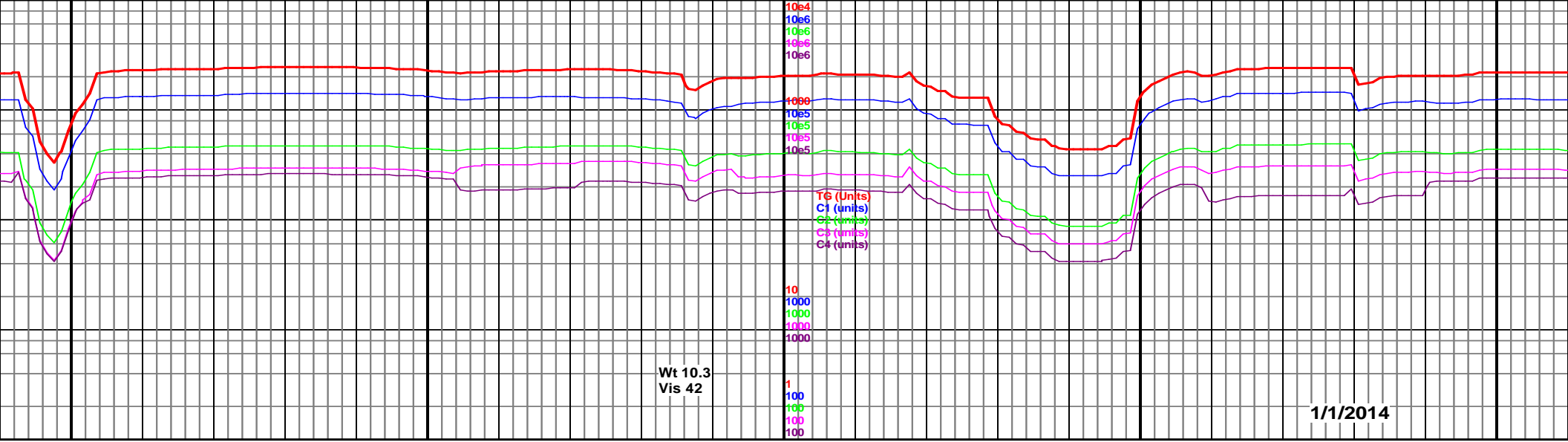
7000-7100 Mrlst
frm, occ Chk lt-m
sft, mod fast oil
Chk



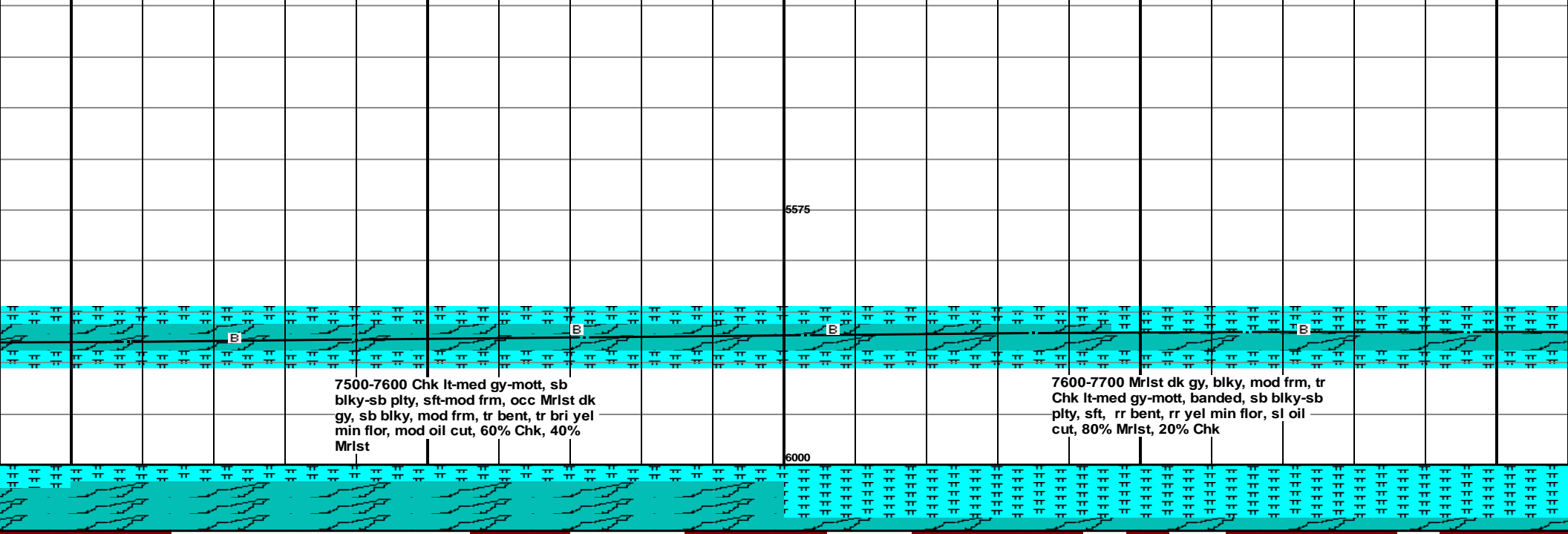
ROP (min/hr)
Gamma (API)





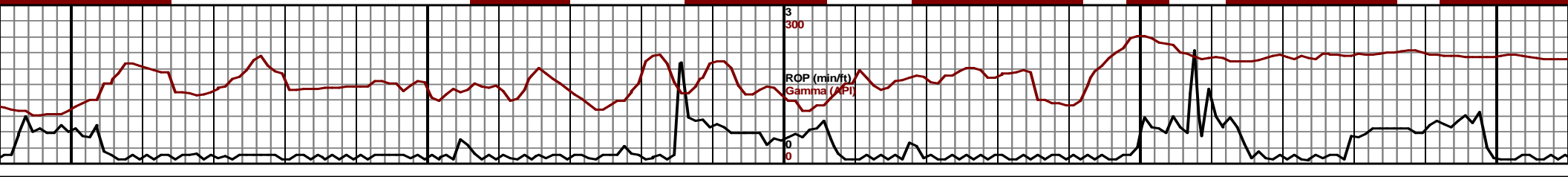


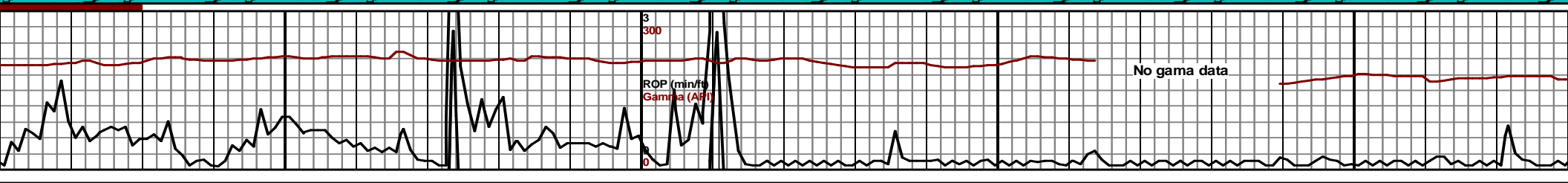
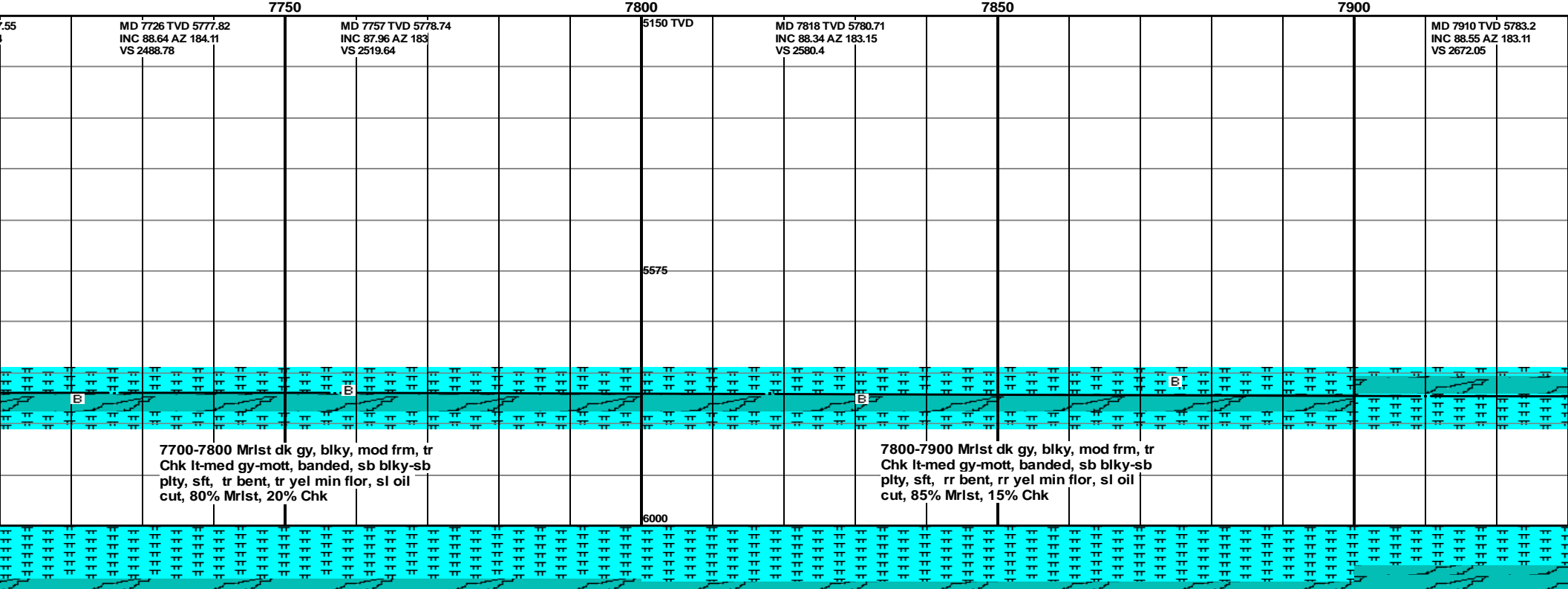
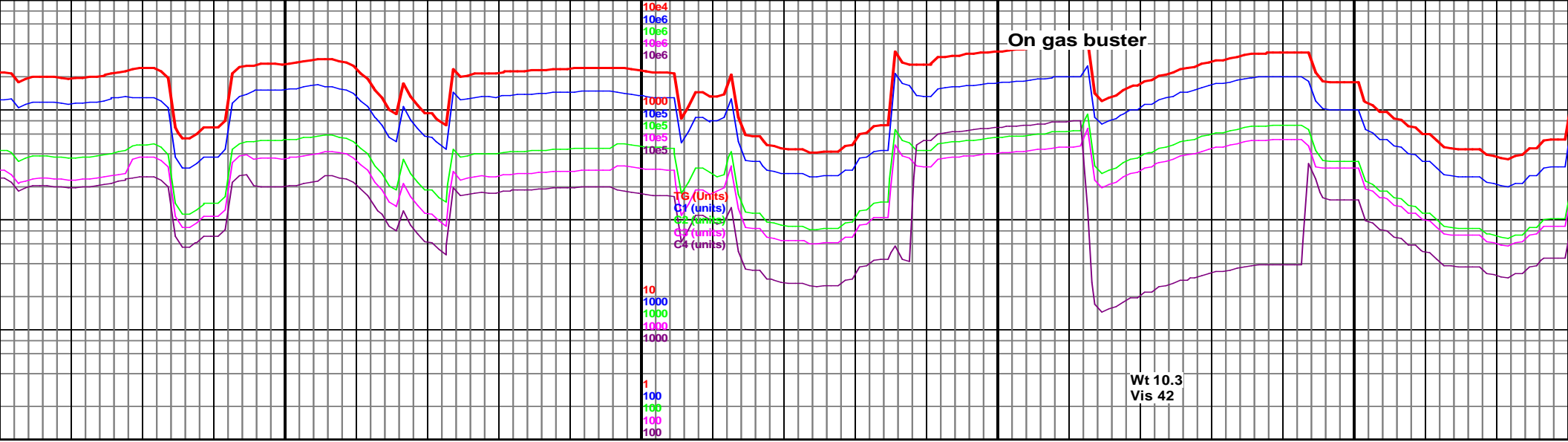
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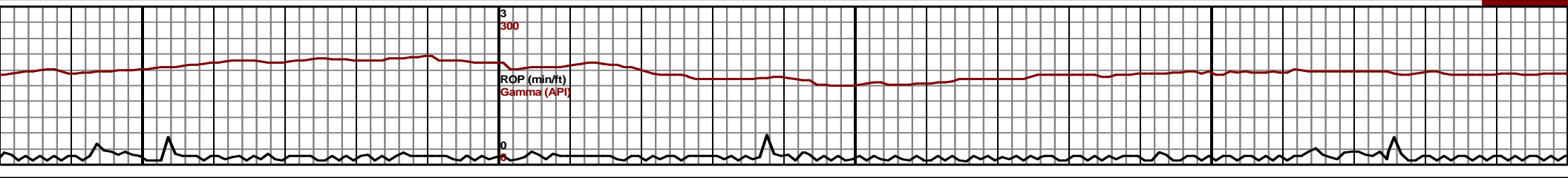
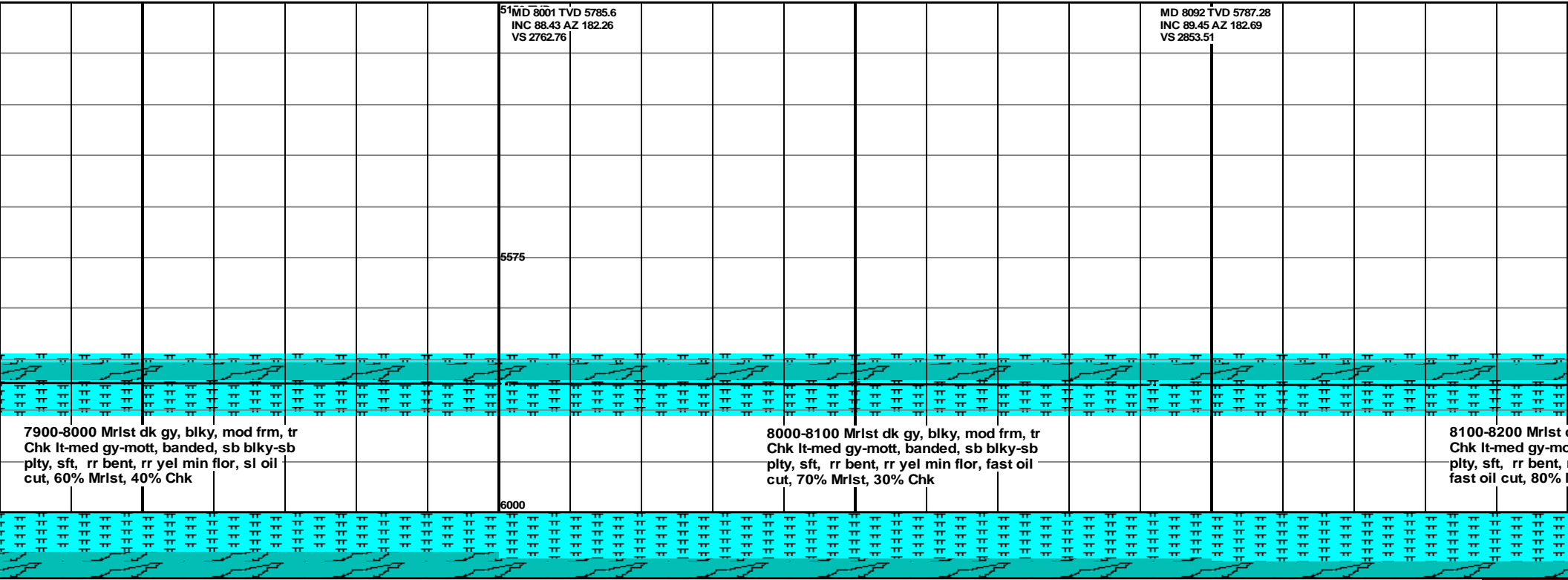
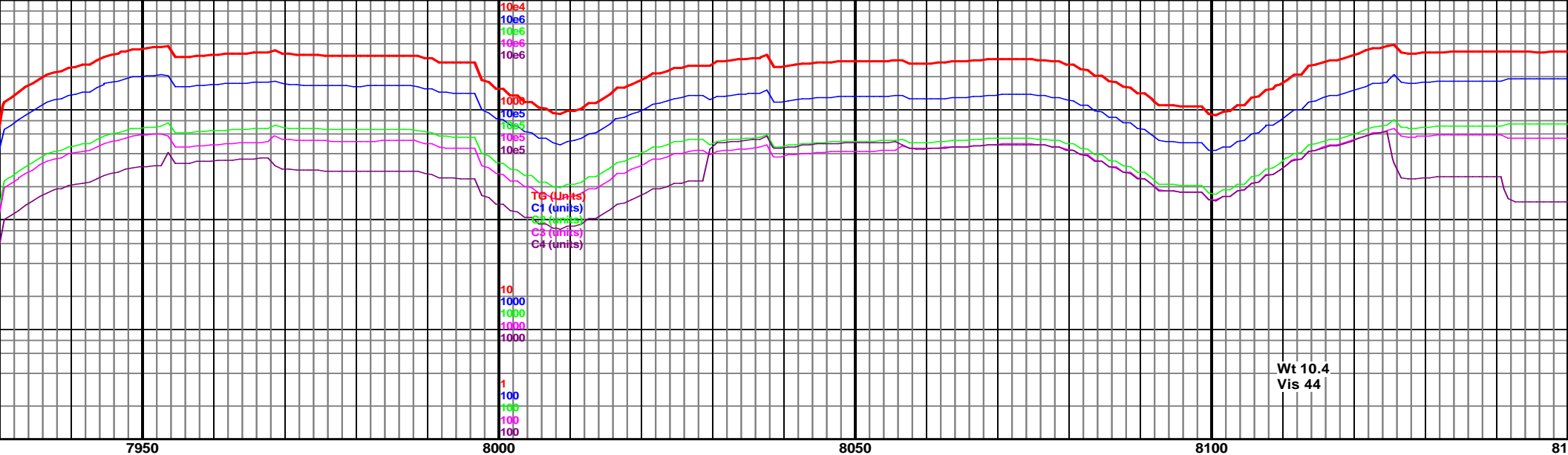


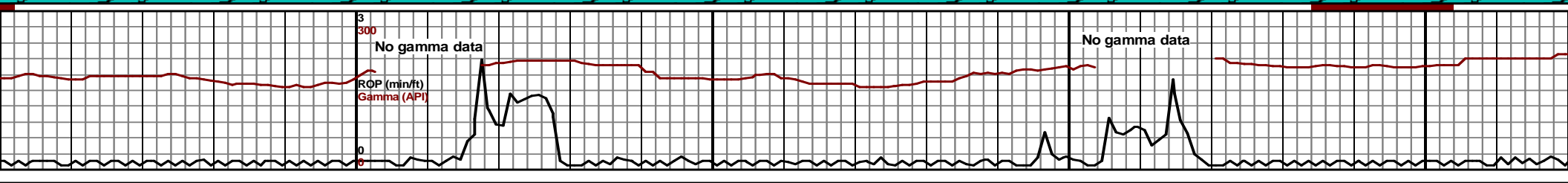
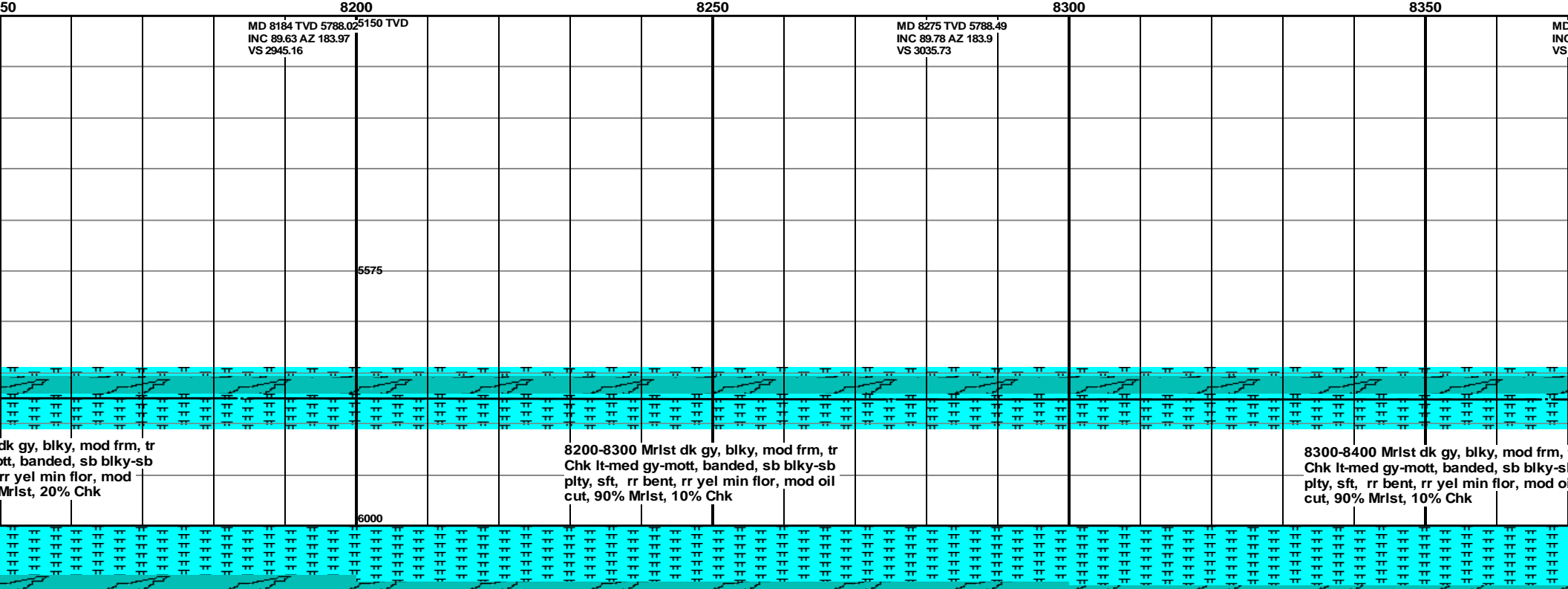
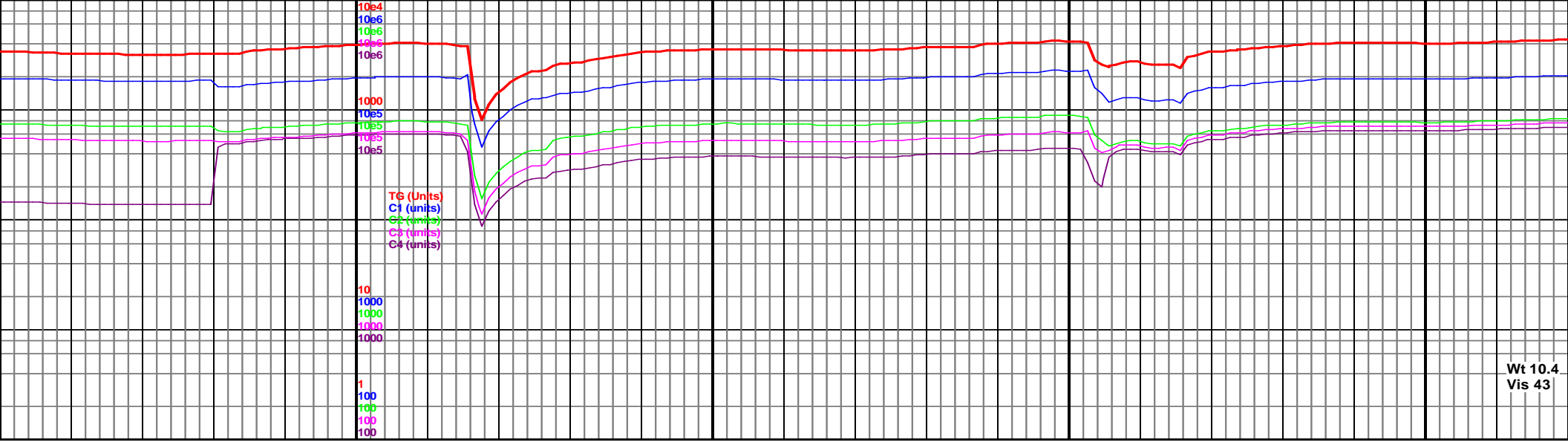
7500-7600 Chk lt-med gy-mott, sb
blky-sb pty, sft-mod frm, occ Mrlst dk
gy, sb blky, mod frm, tr bent, tr bri yel
min flr, mod oil cut, 60% Chk, 40%
Mrlst

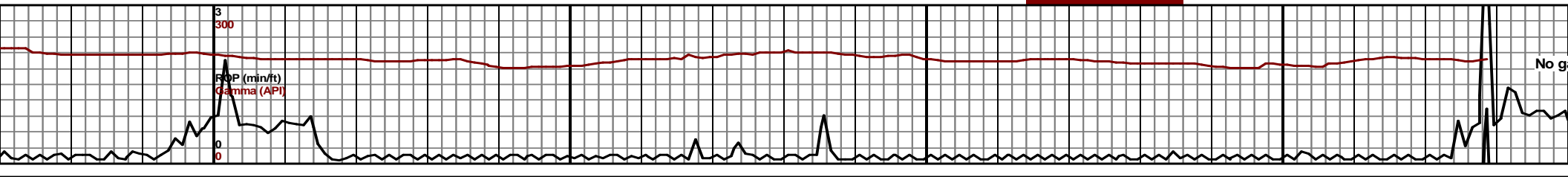
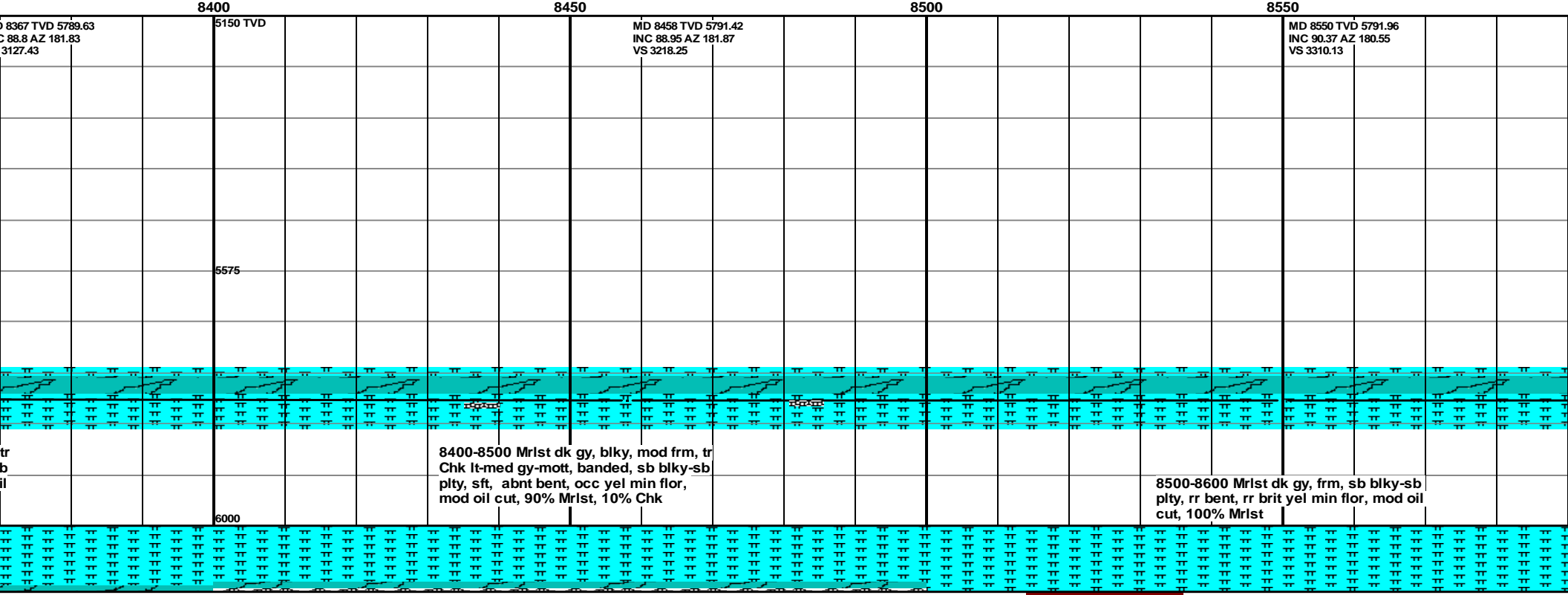
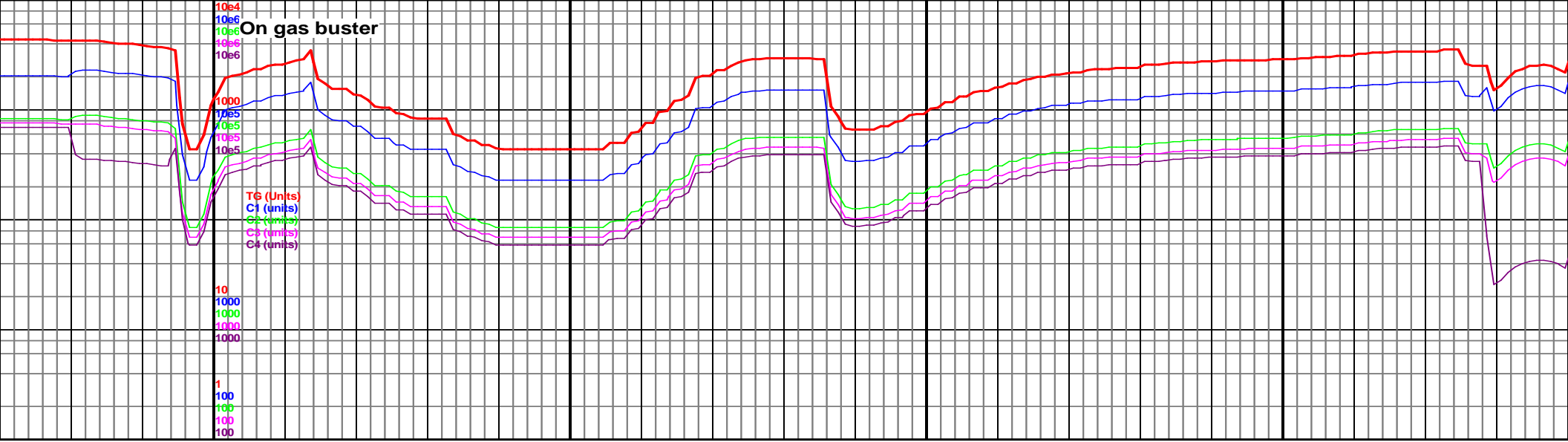
7600-7700 Mrlst dk gy, blky, mod frm, tr
Chk lt-med gy-mott, banded, sb blky-sb
pty, sft, rr bent, rr yel min flr, sl oil
cut, 80% Mrlst, 20% Chk

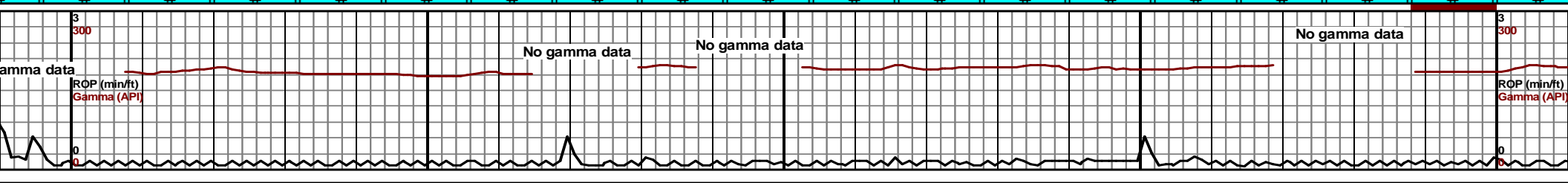
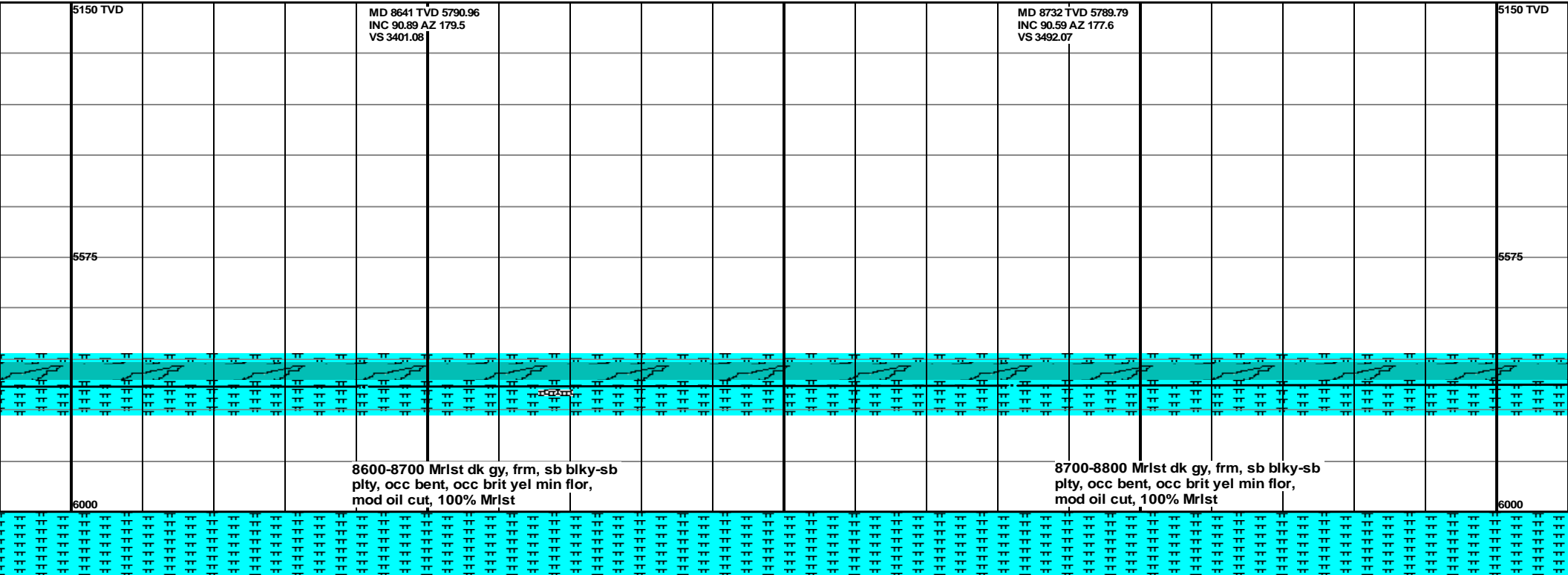
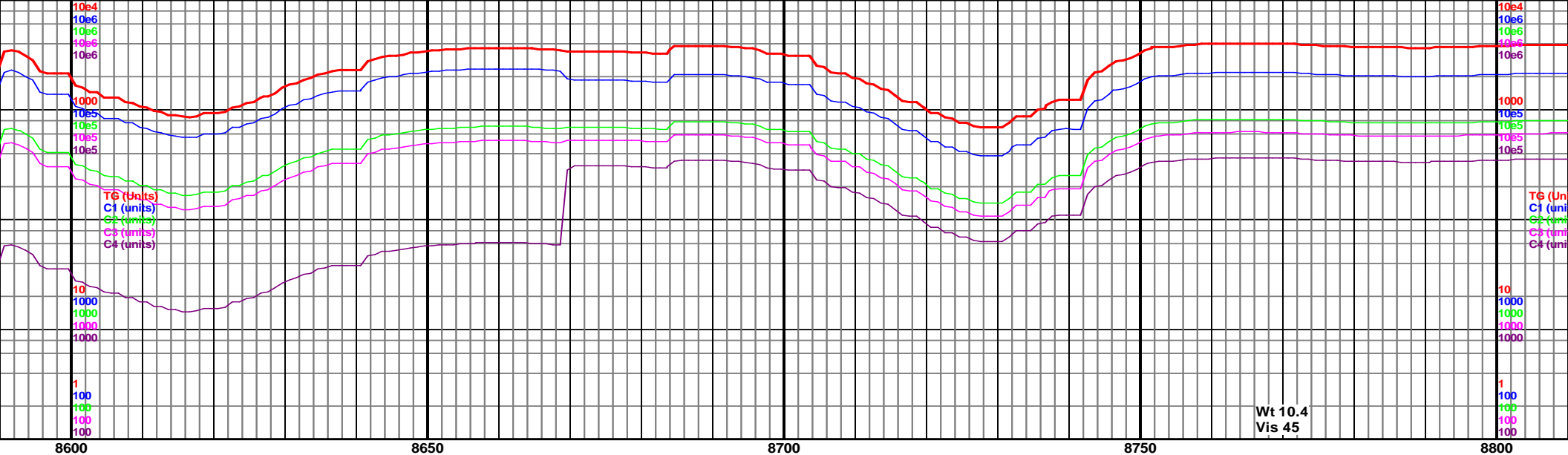




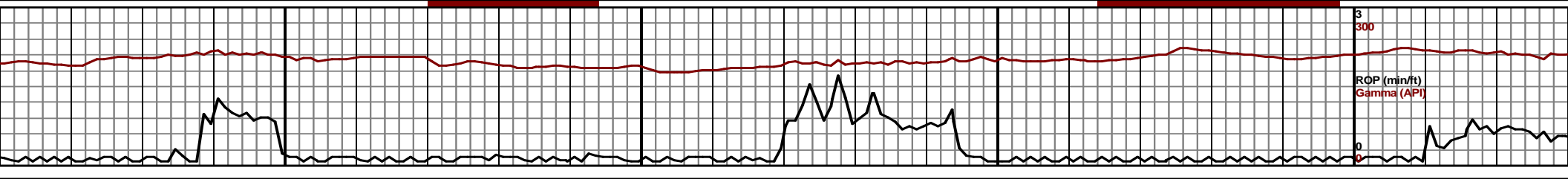
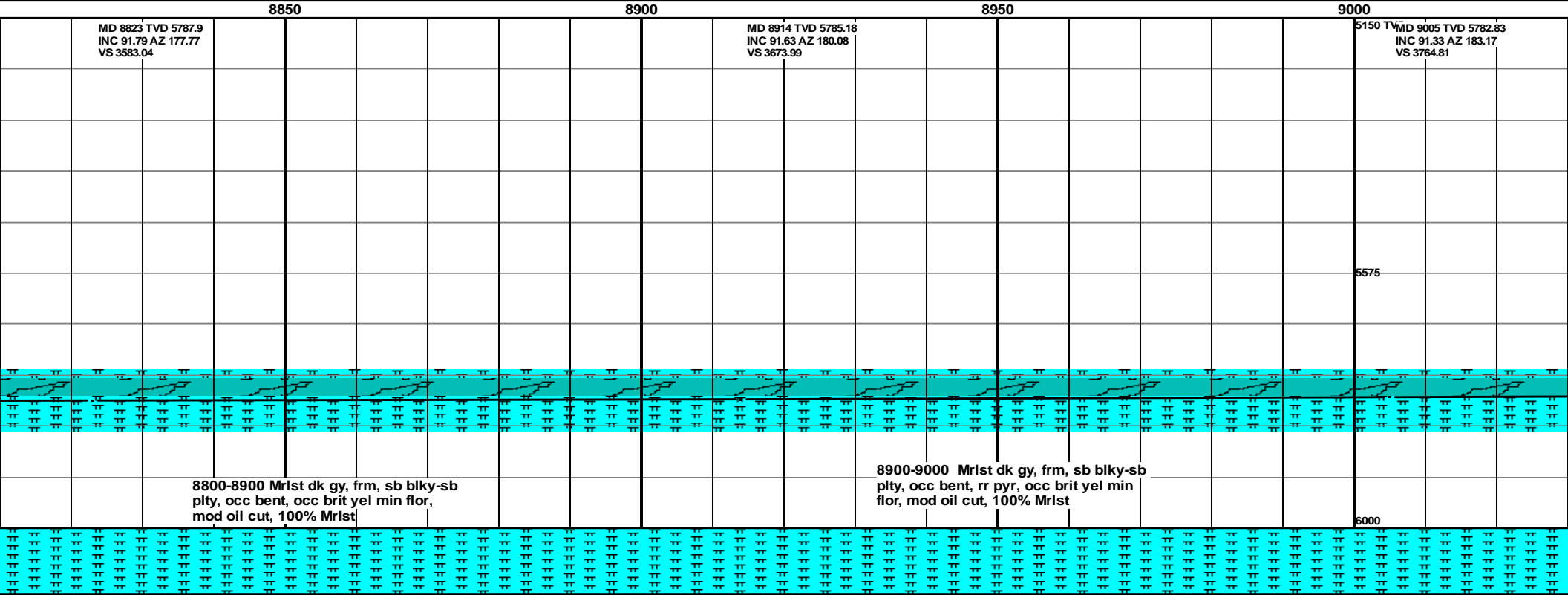
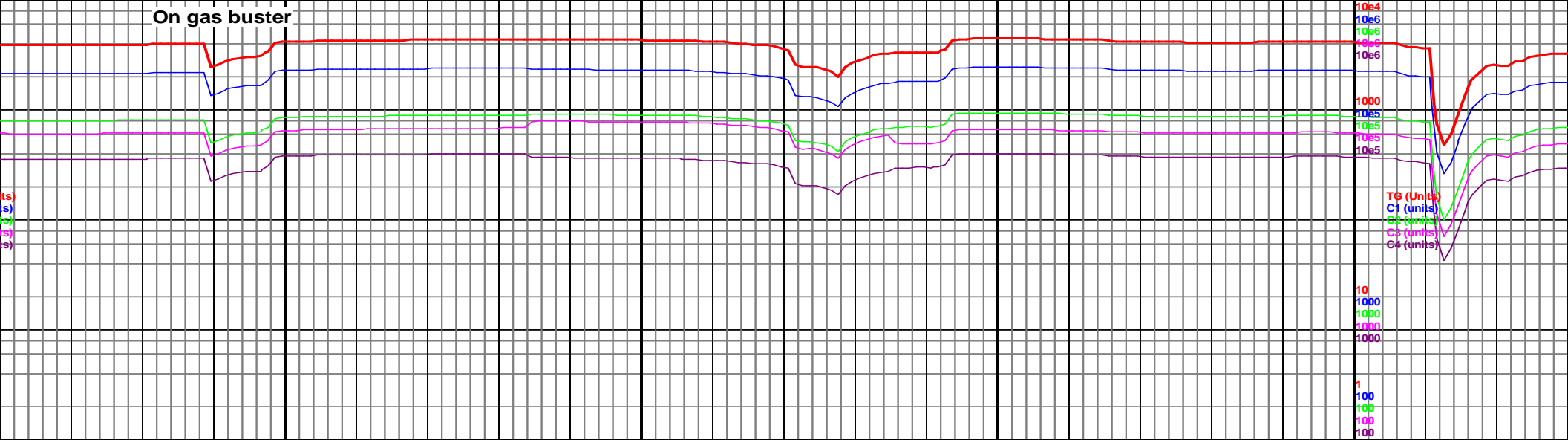


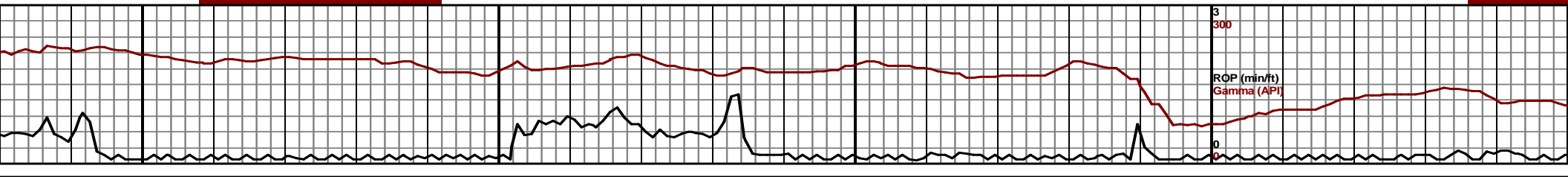
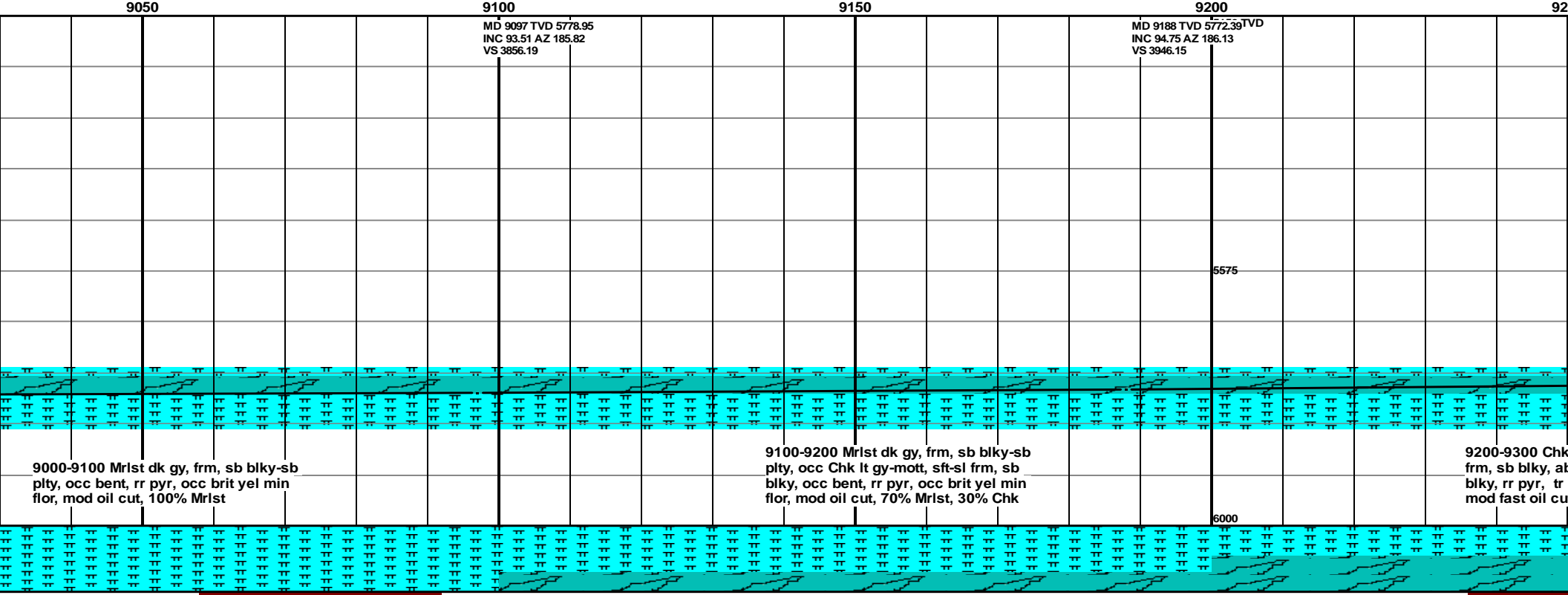
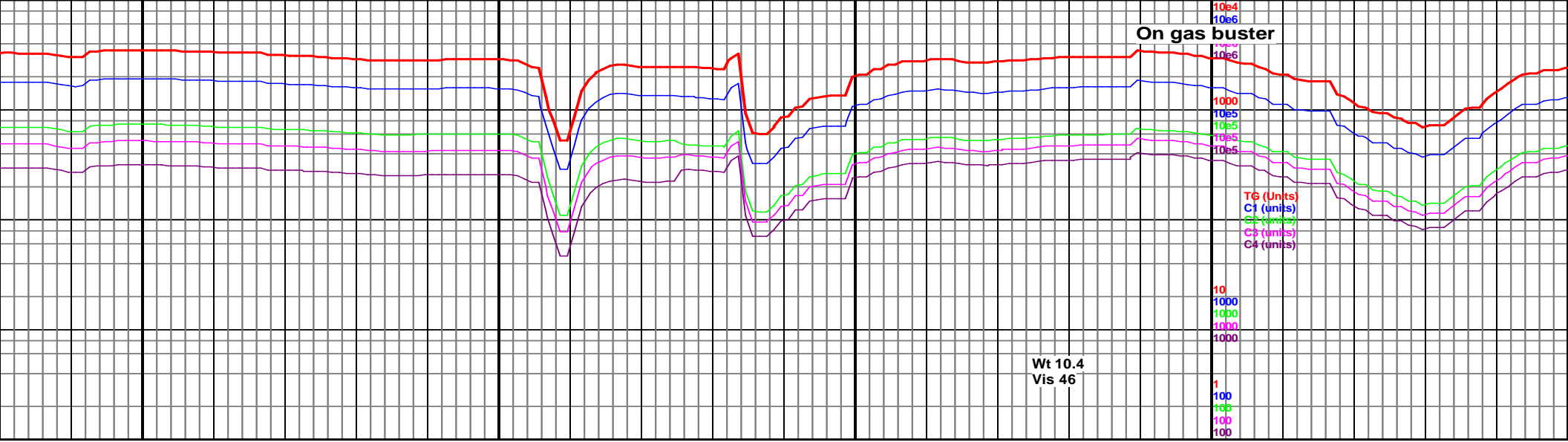


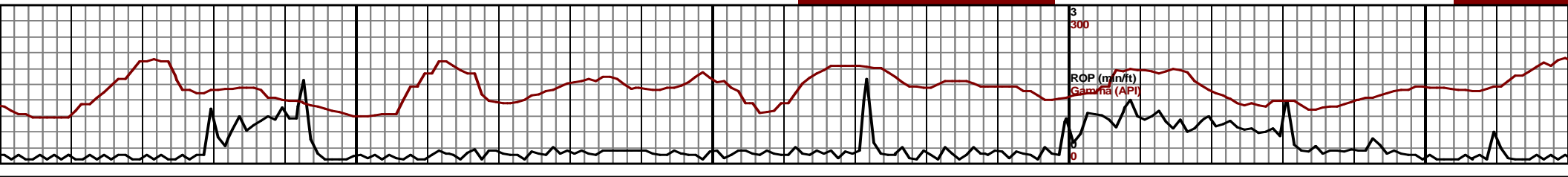
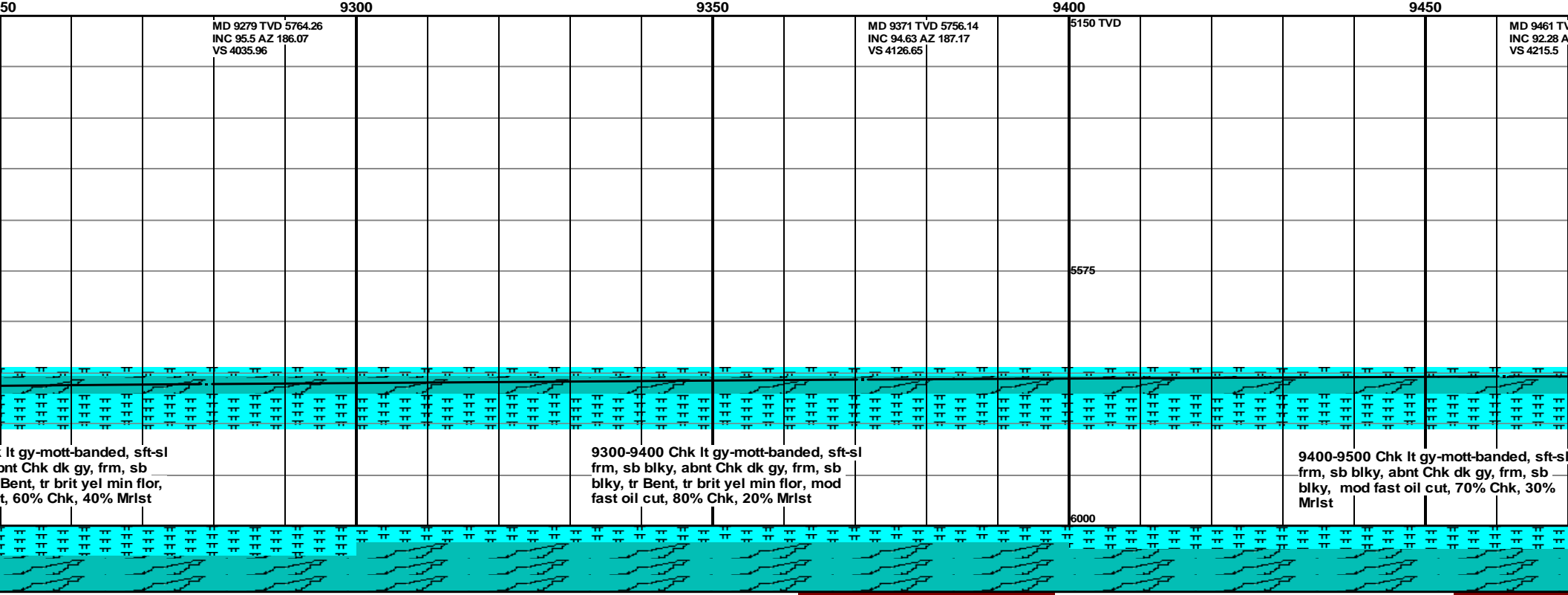
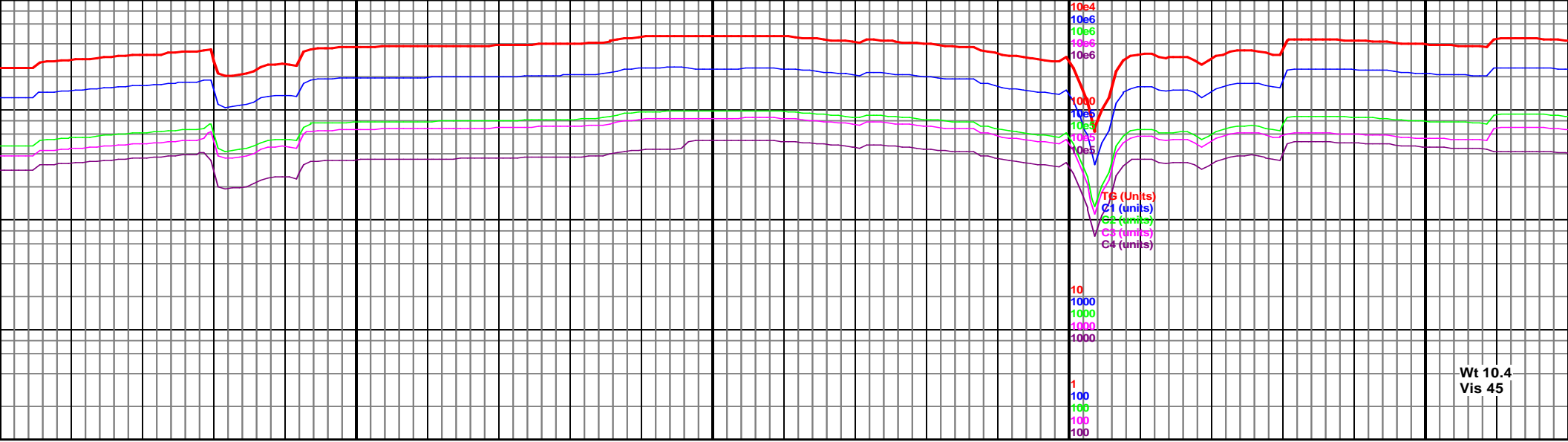


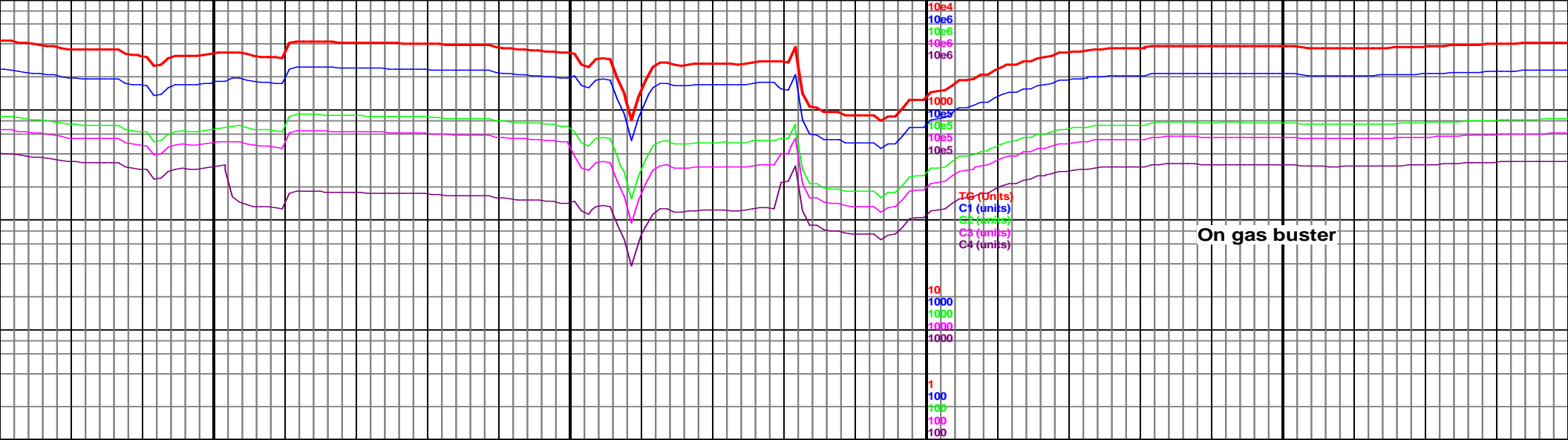


On gas buster







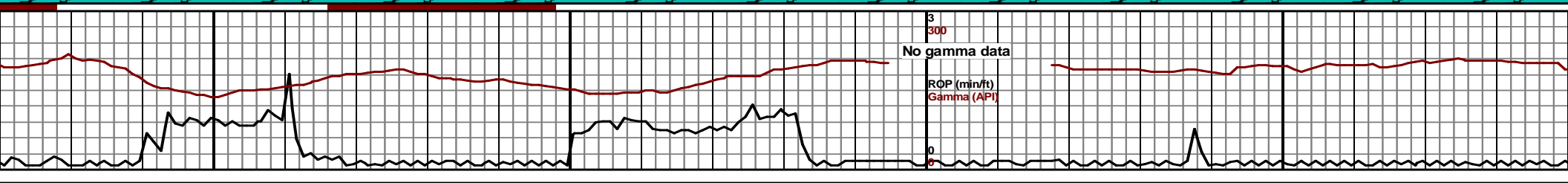
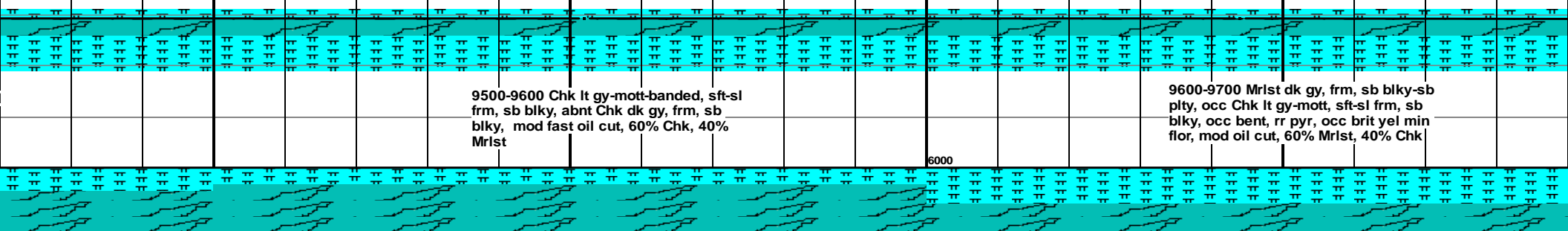


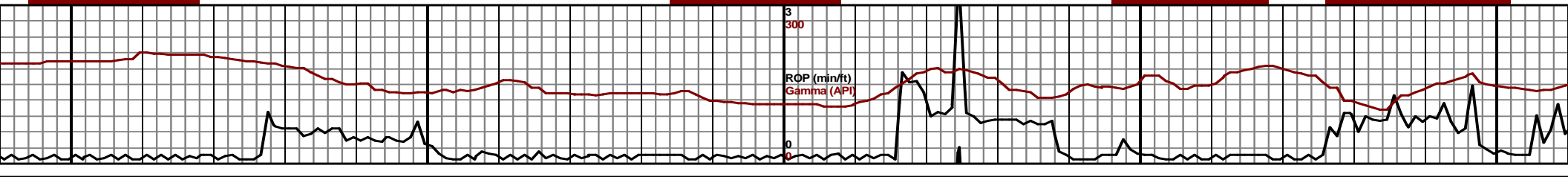
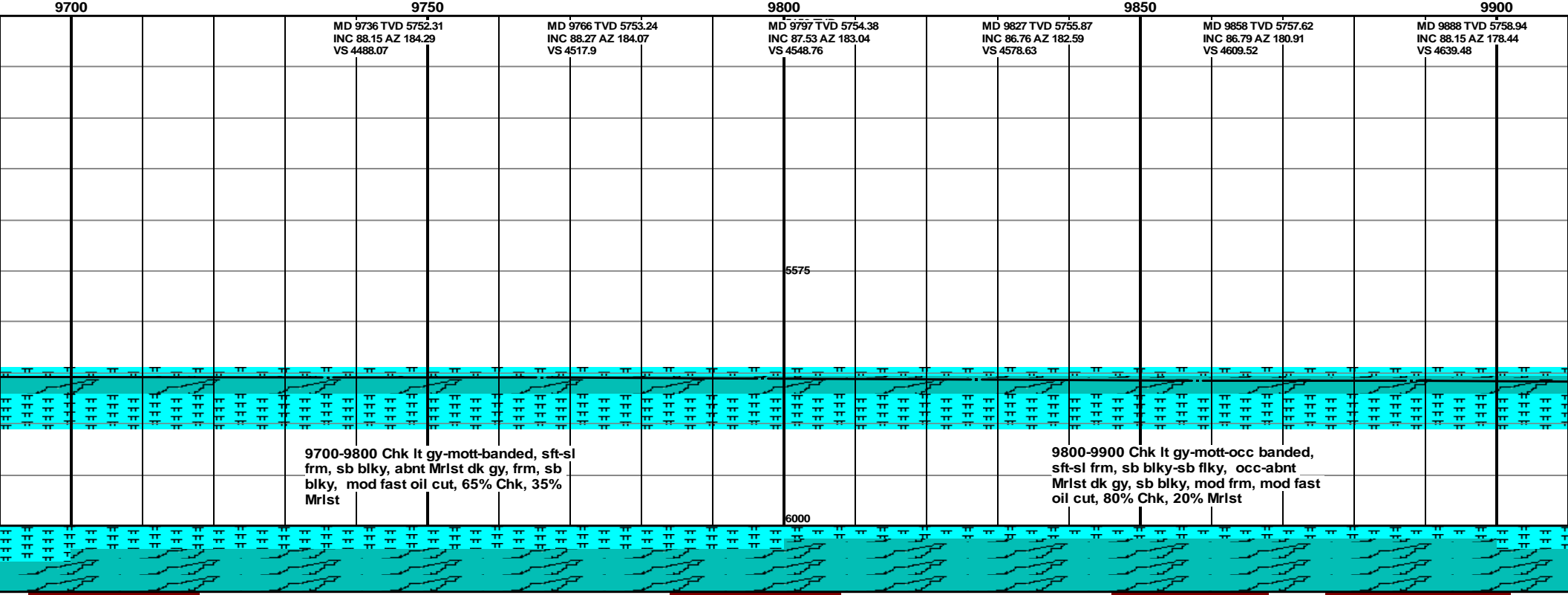
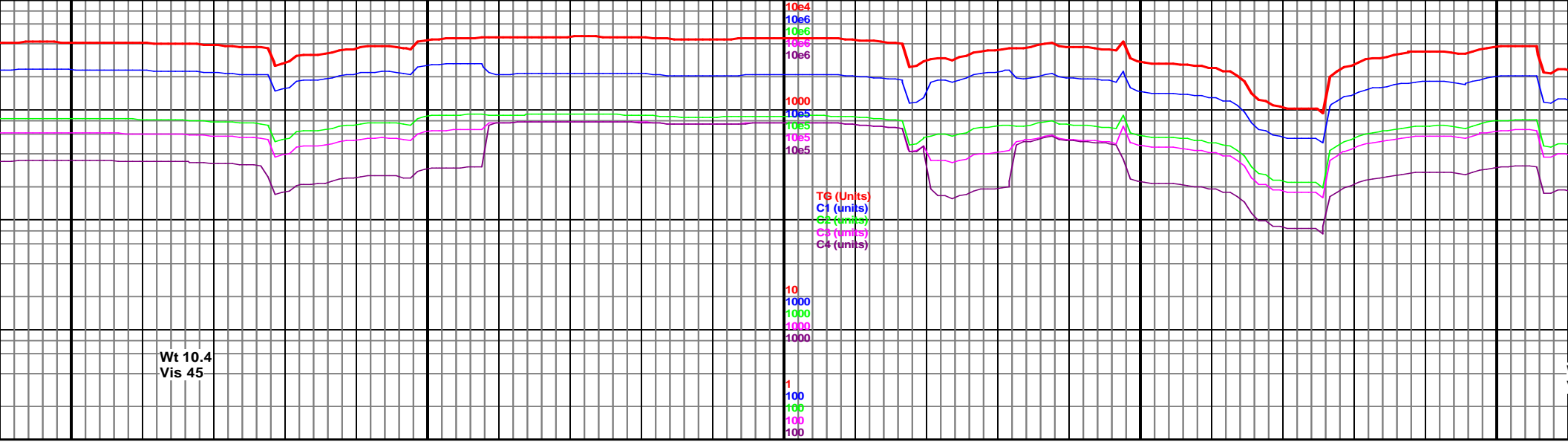
D 5750.72
Z 186.54

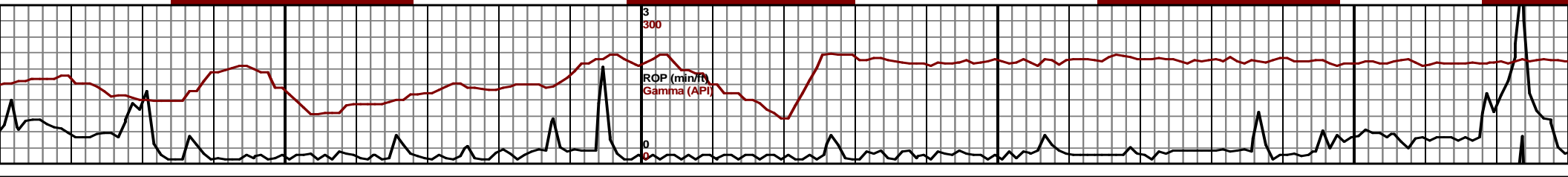
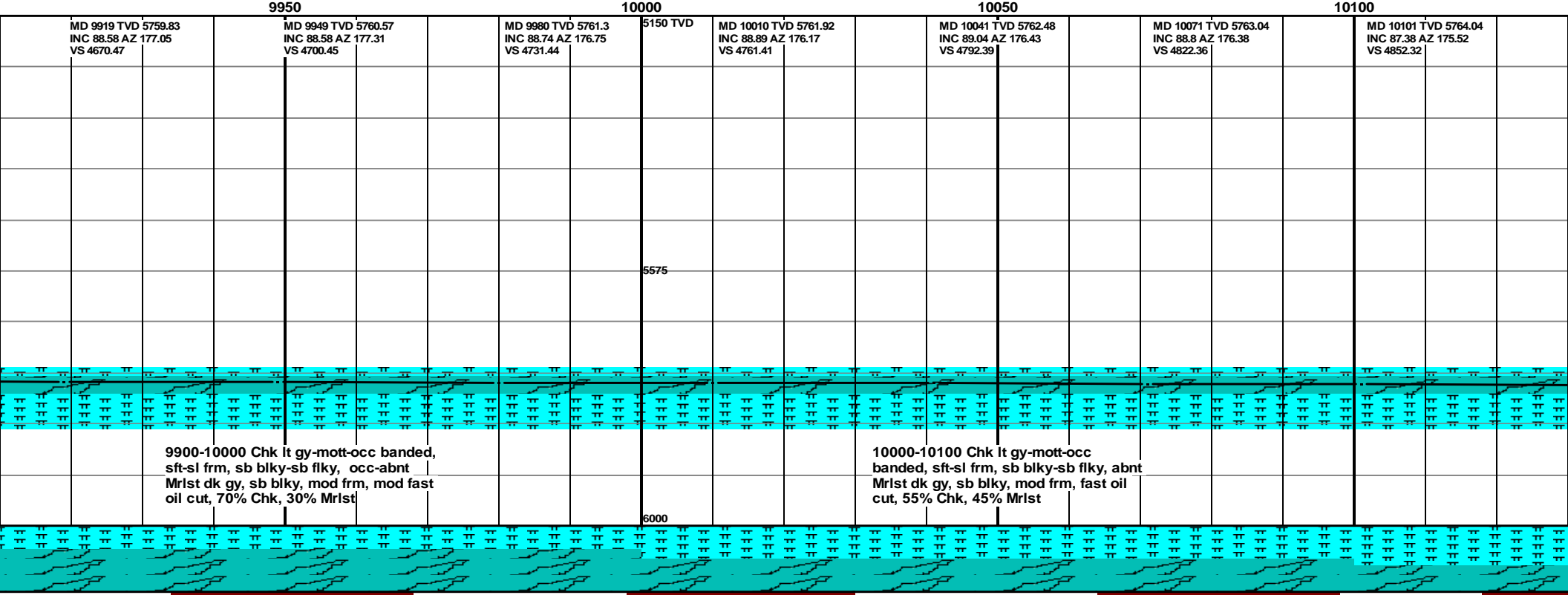
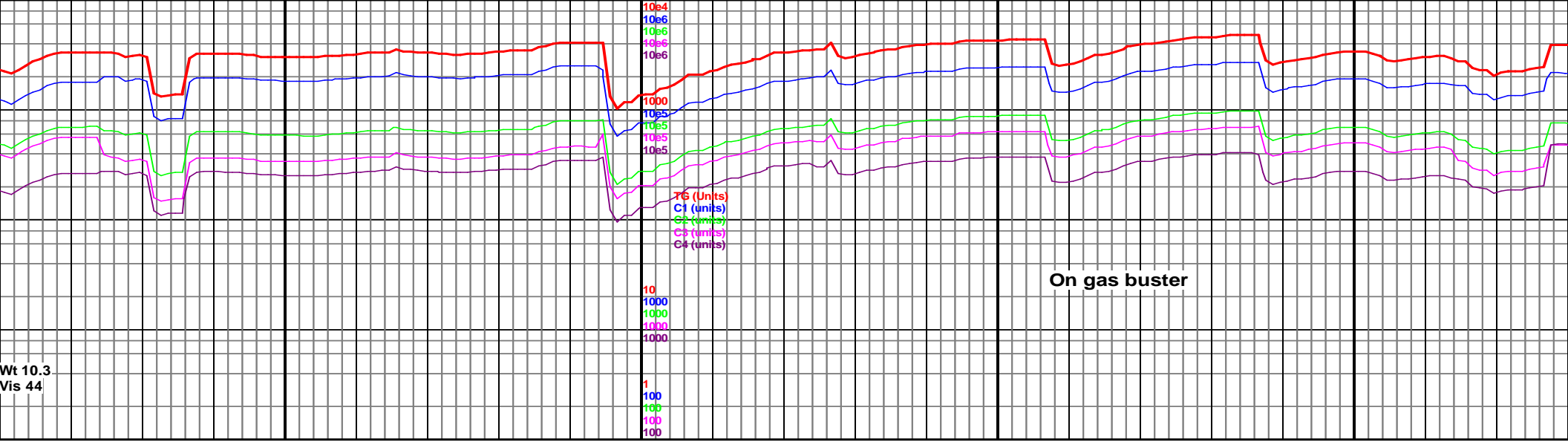
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INC 88.55 AZ 185.52
VS 4305.67

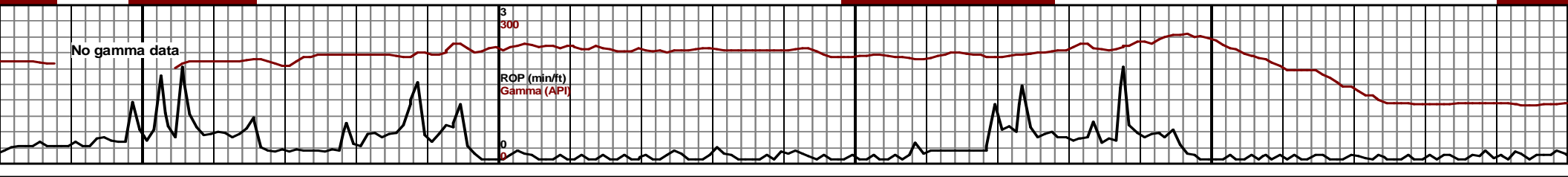
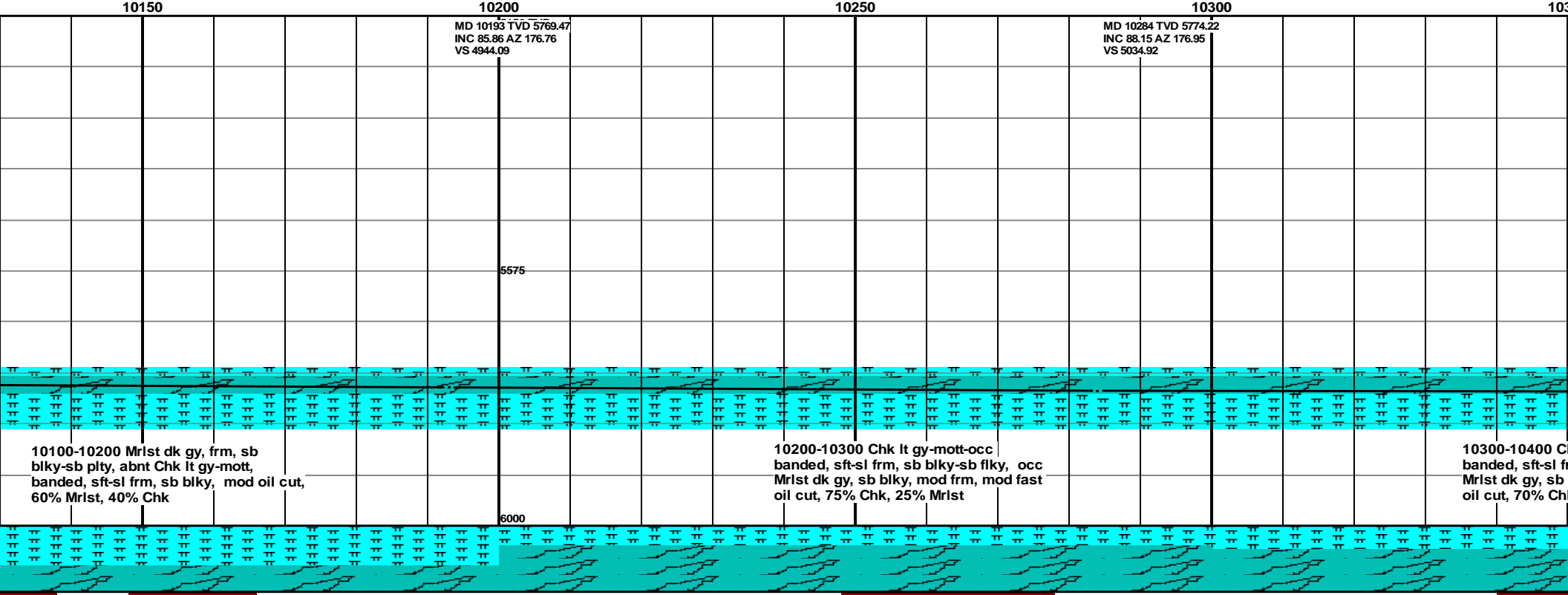
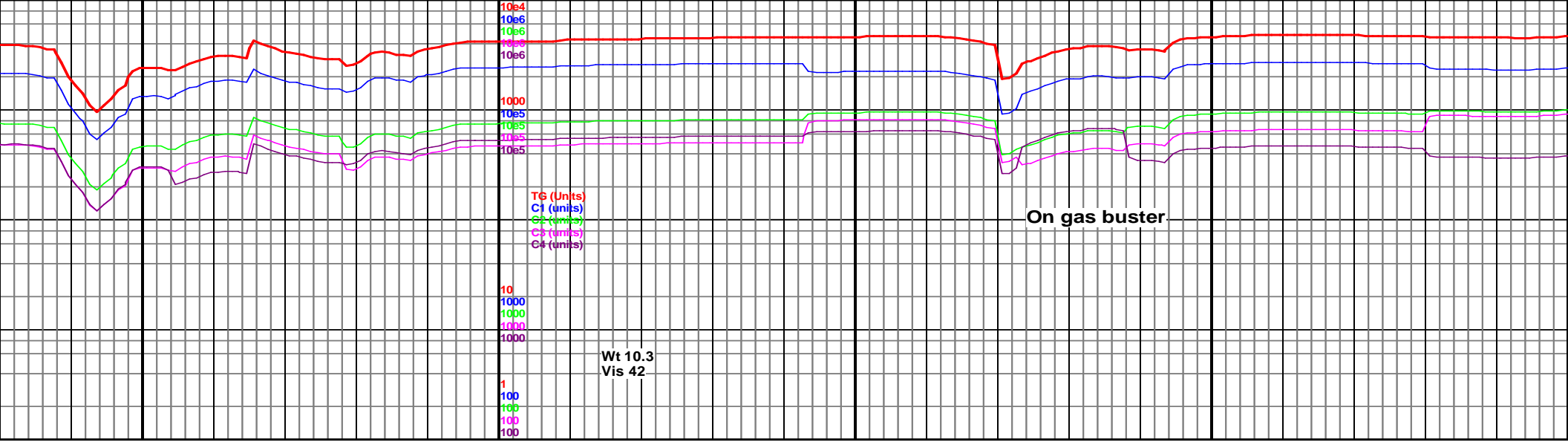
5150 TVD

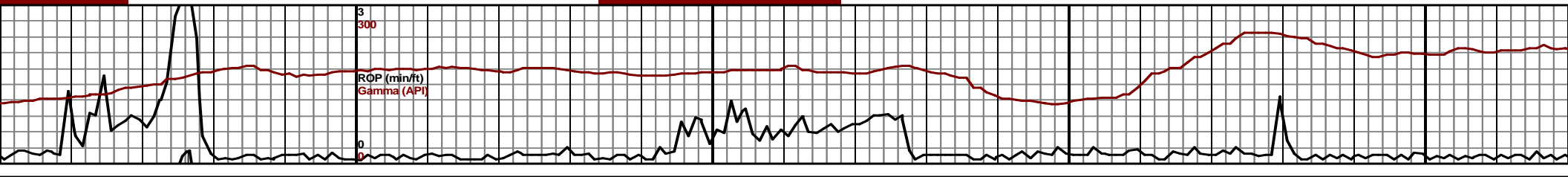
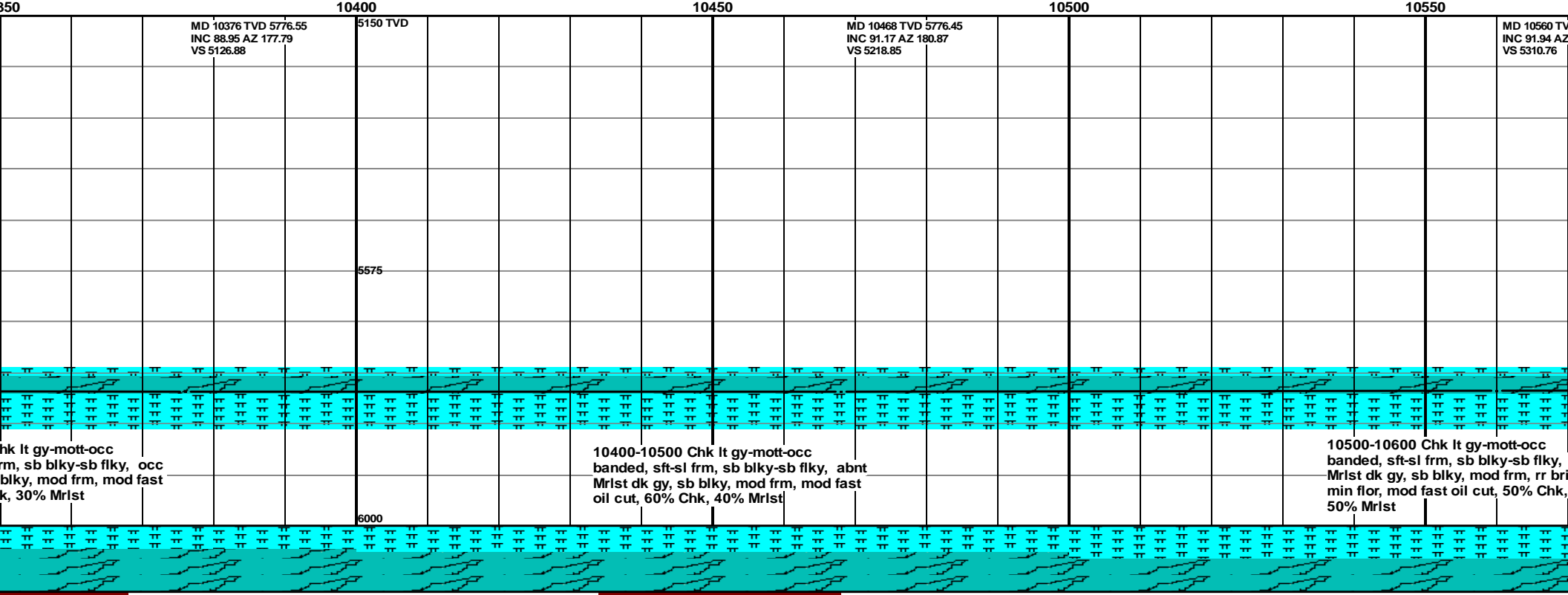
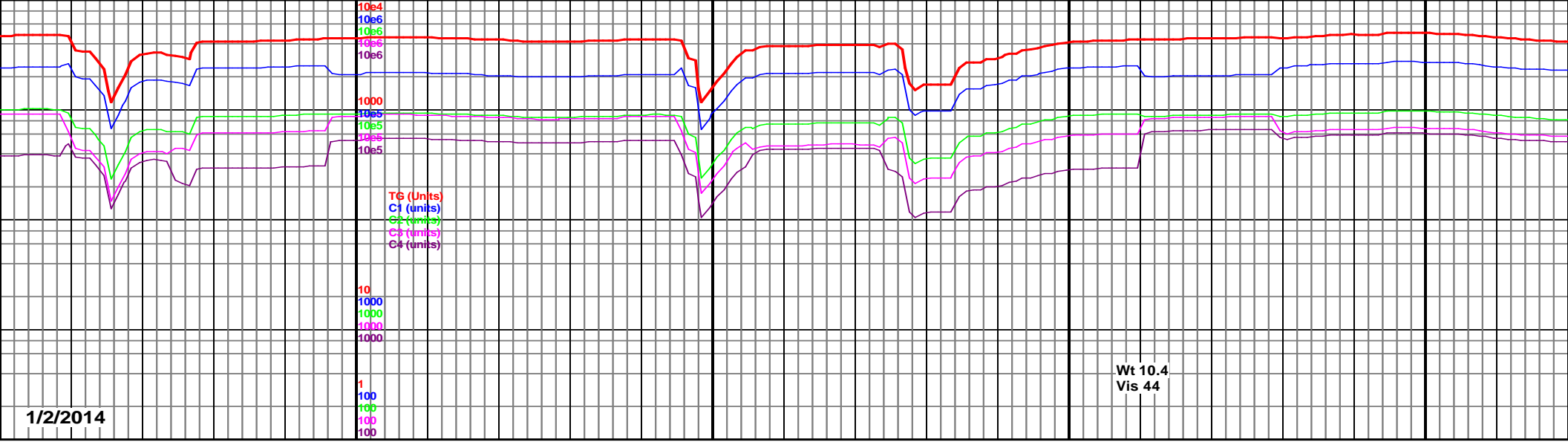
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INC 90.25 AZ 186.76
VS 4396.81

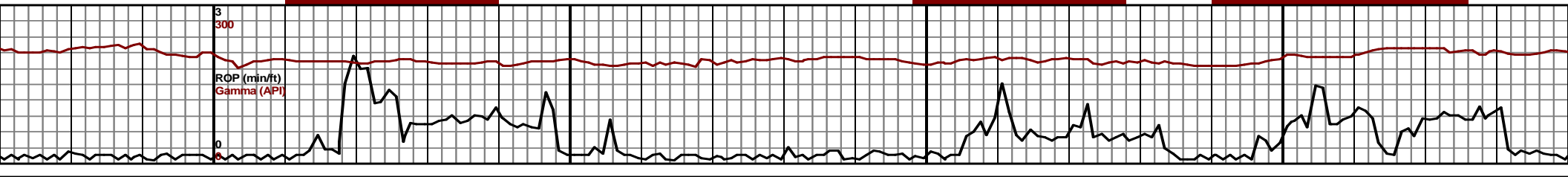
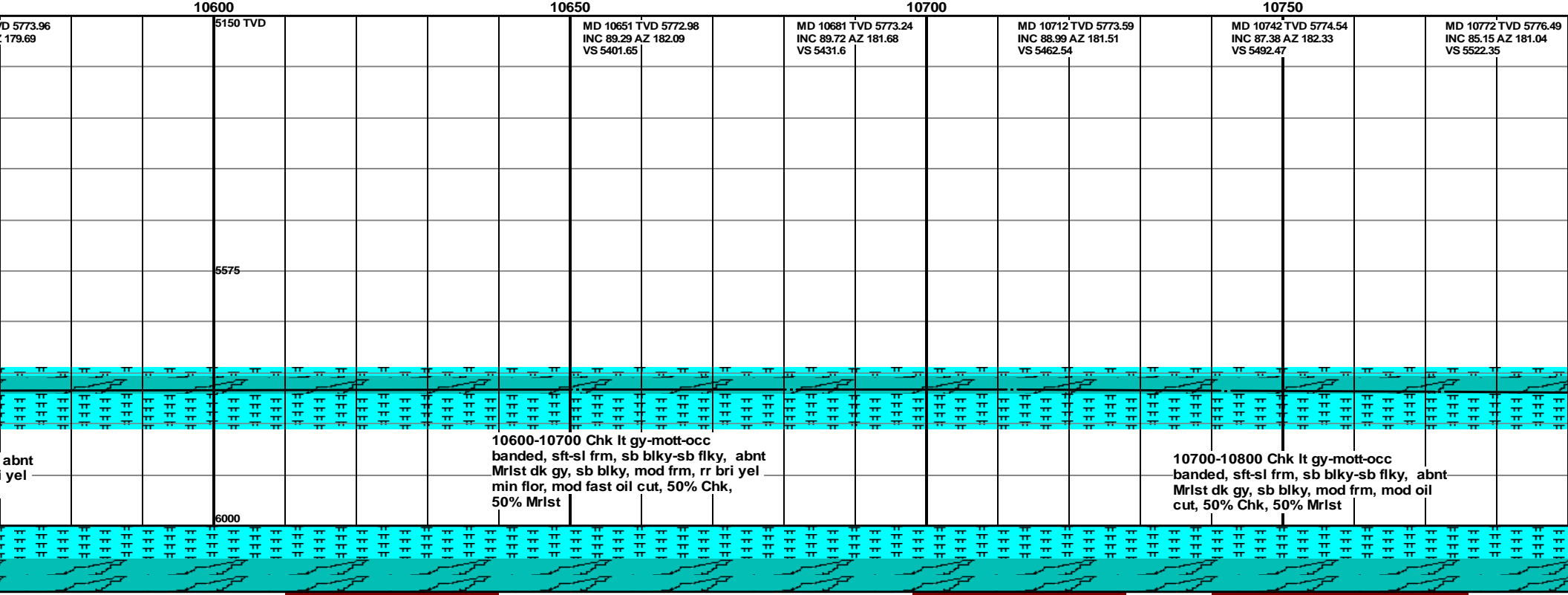
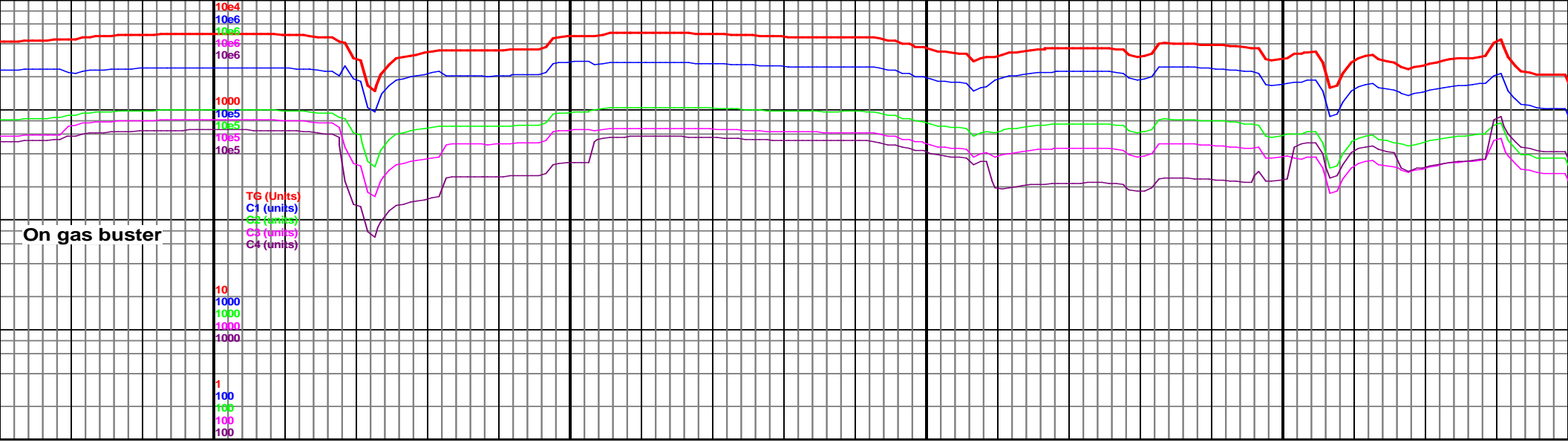


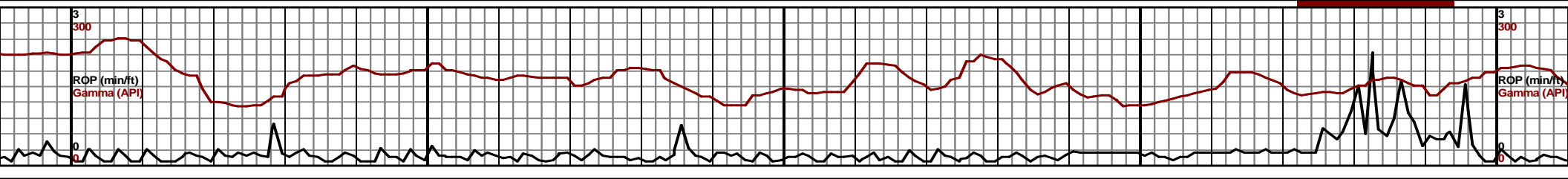
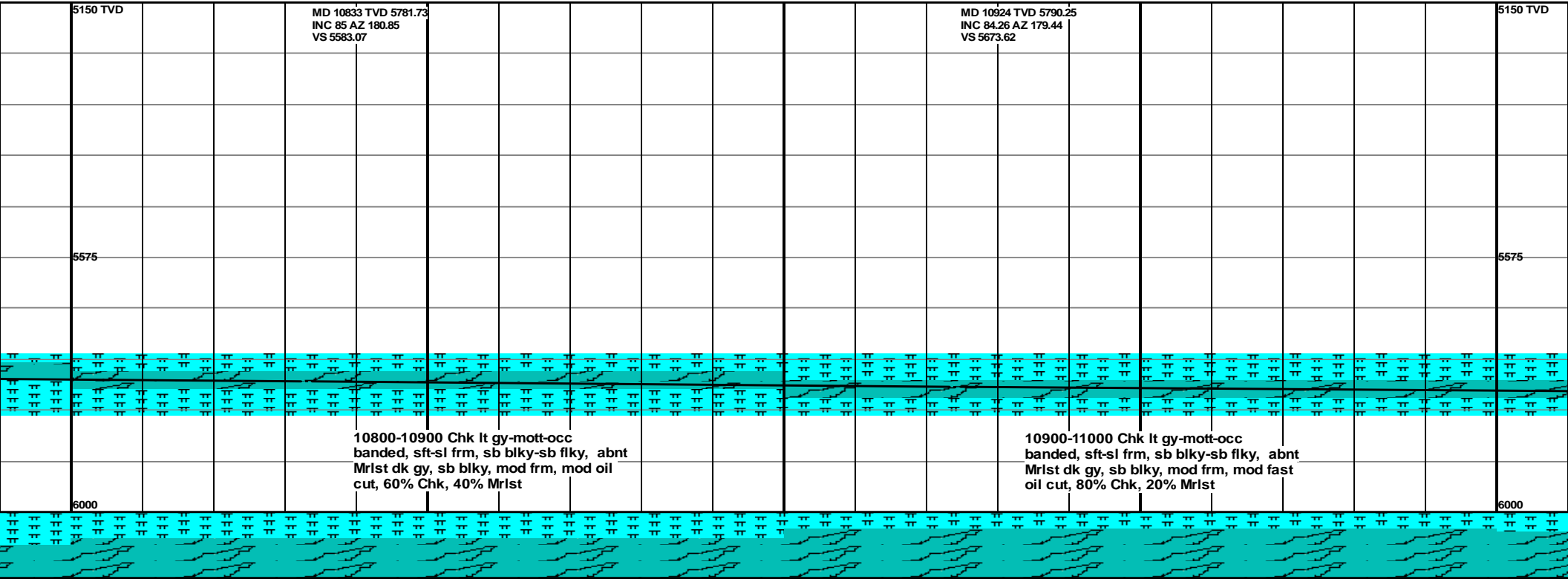
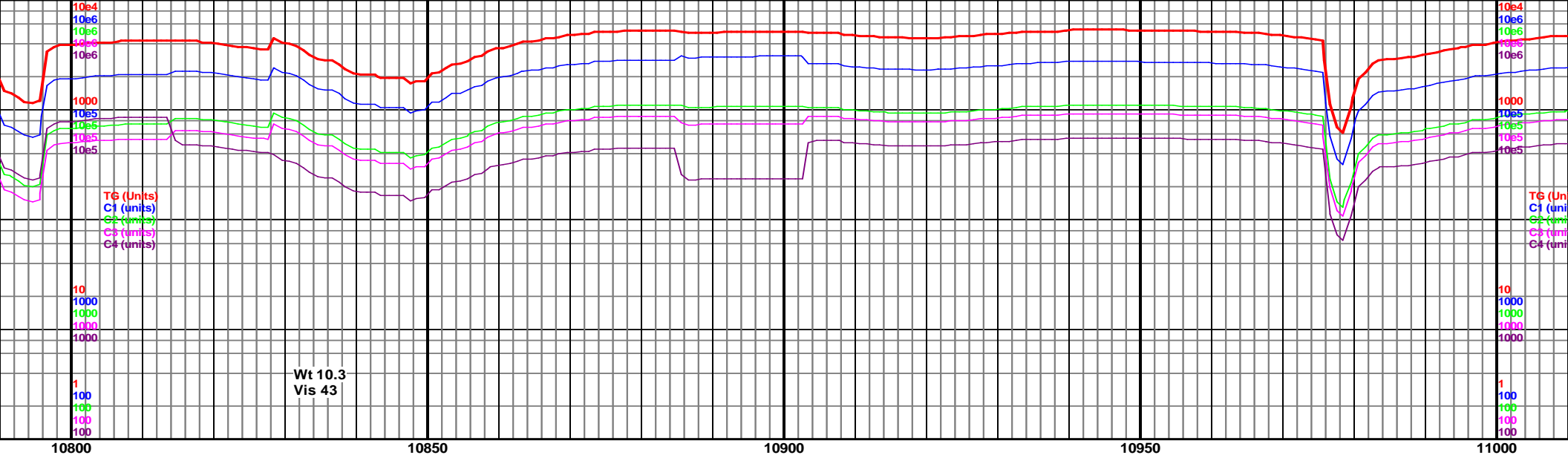


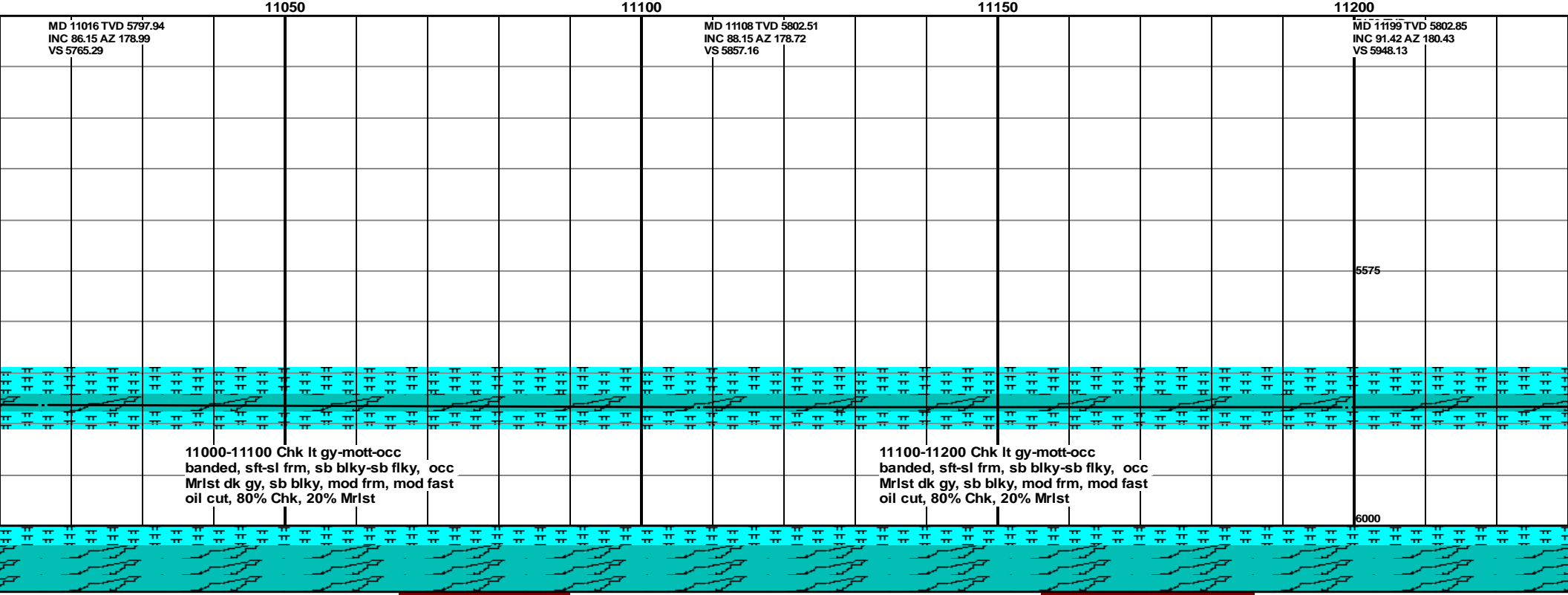
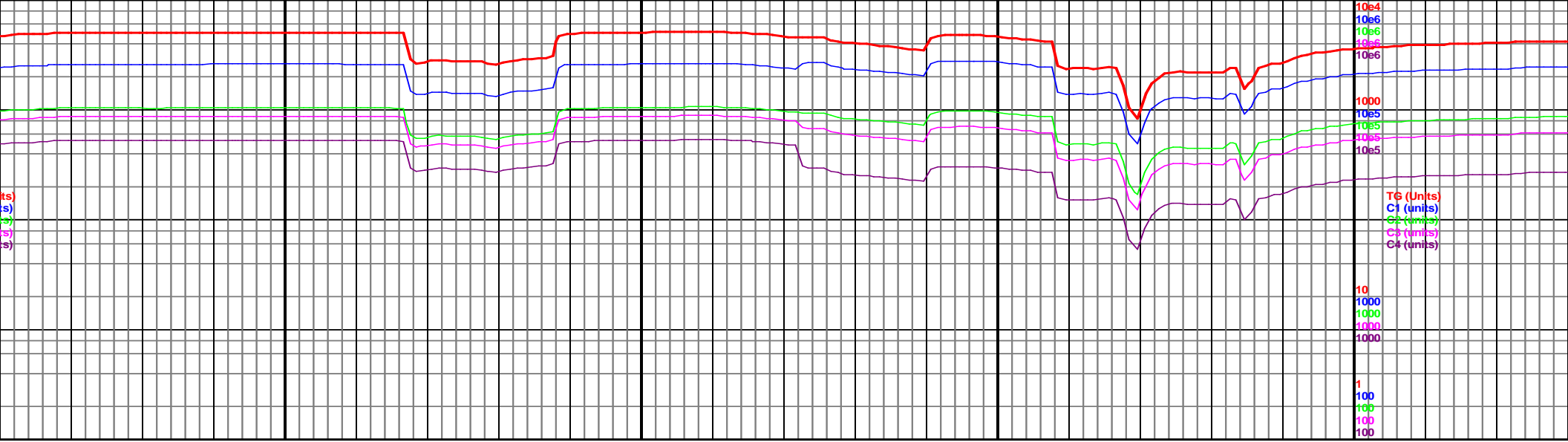






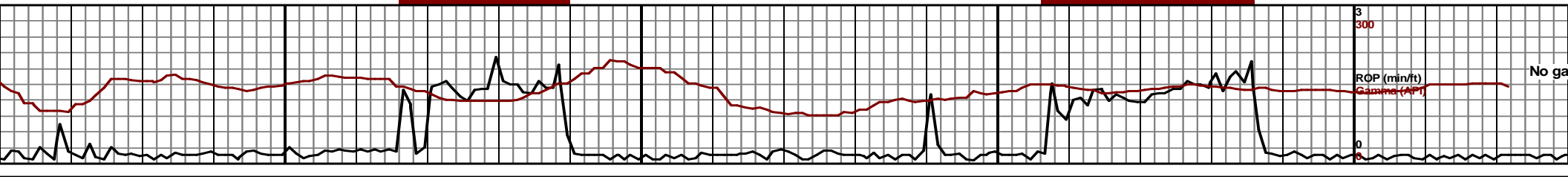


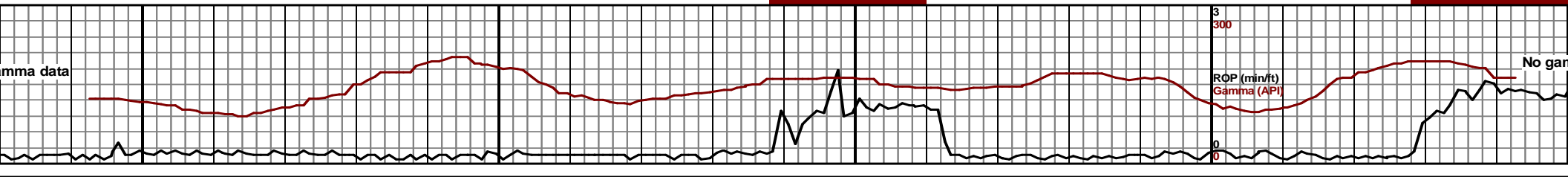
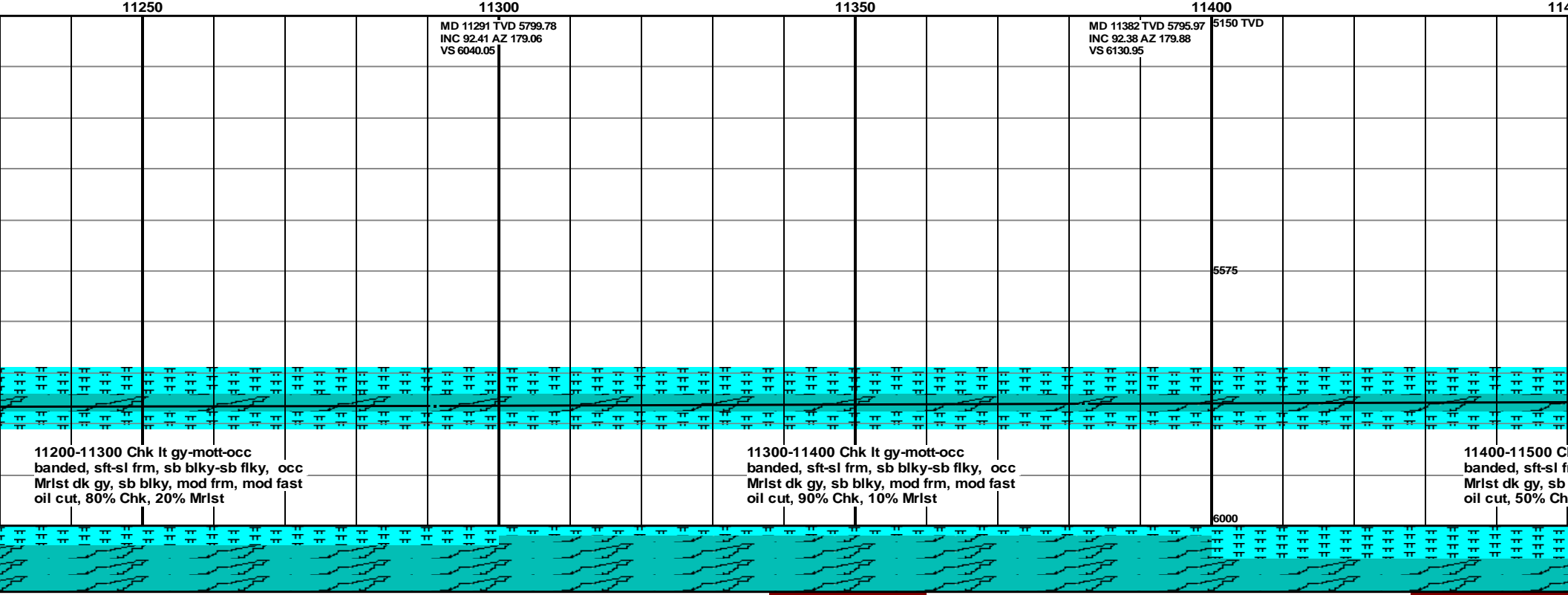
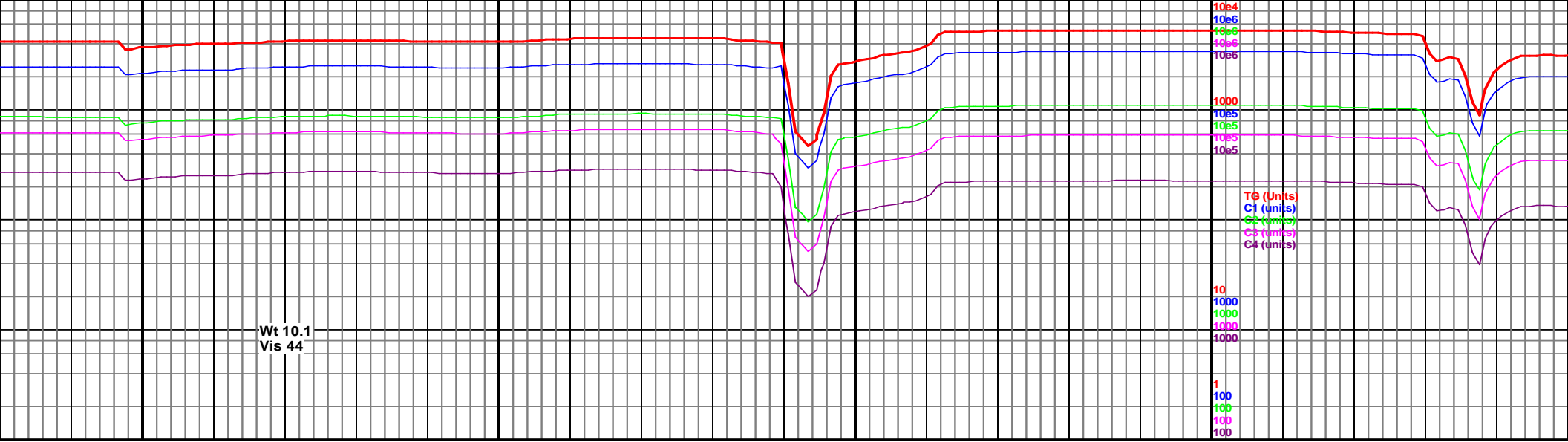


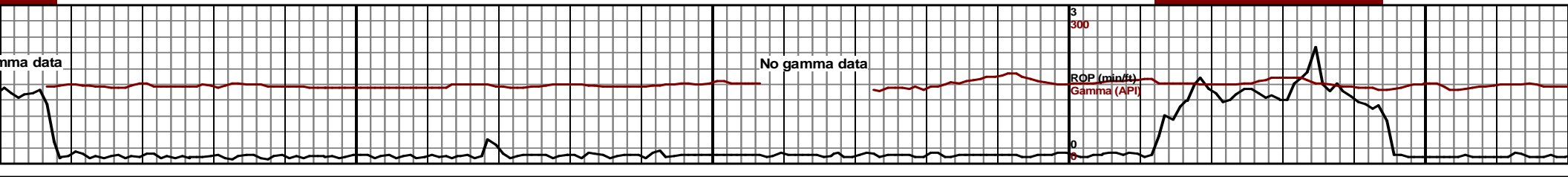
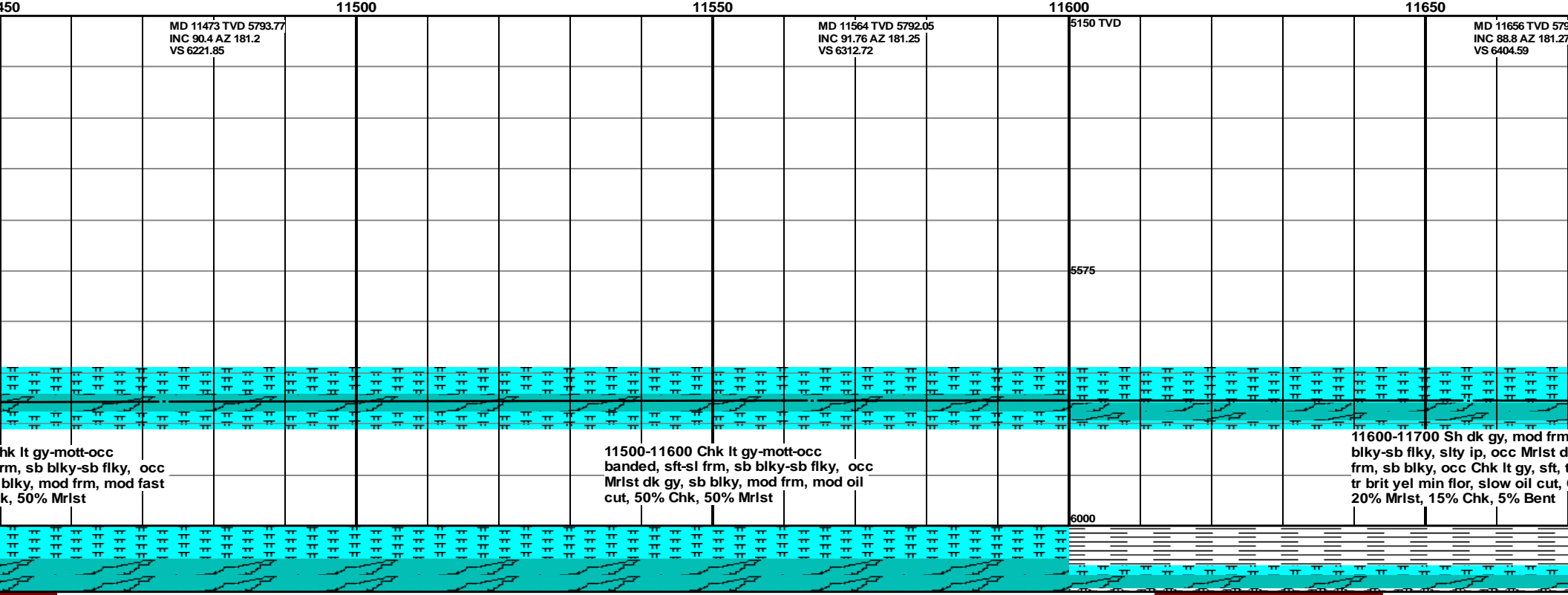
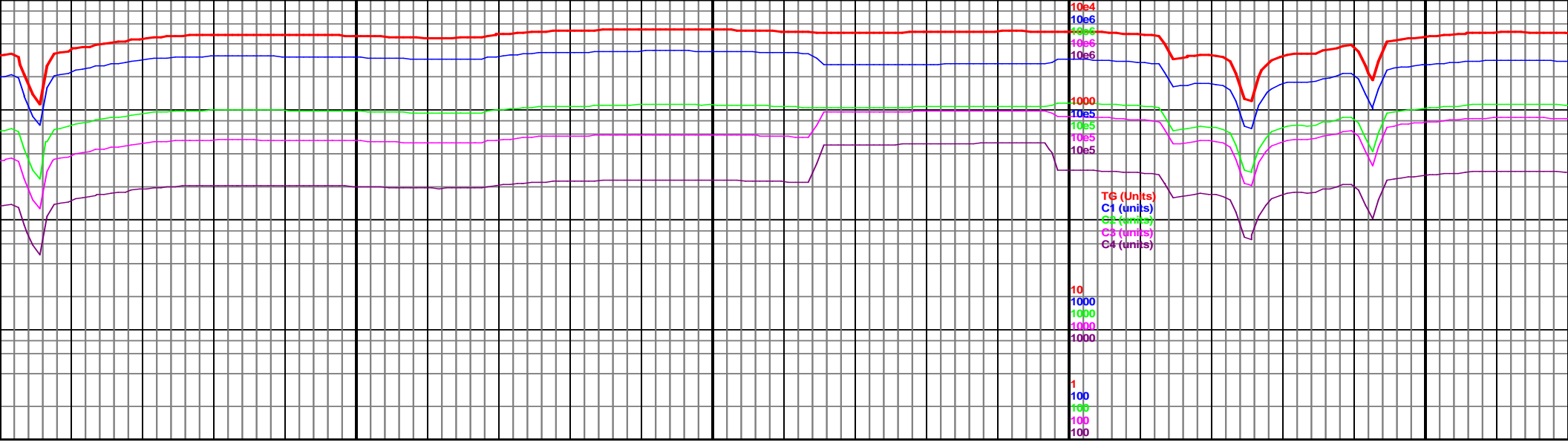


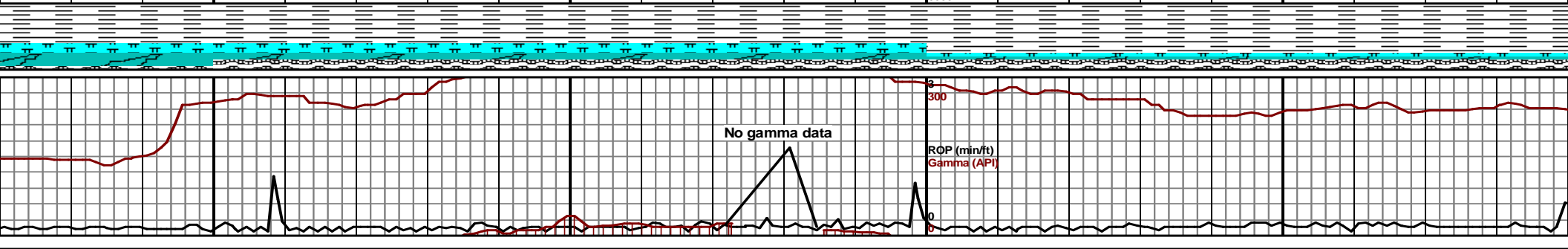
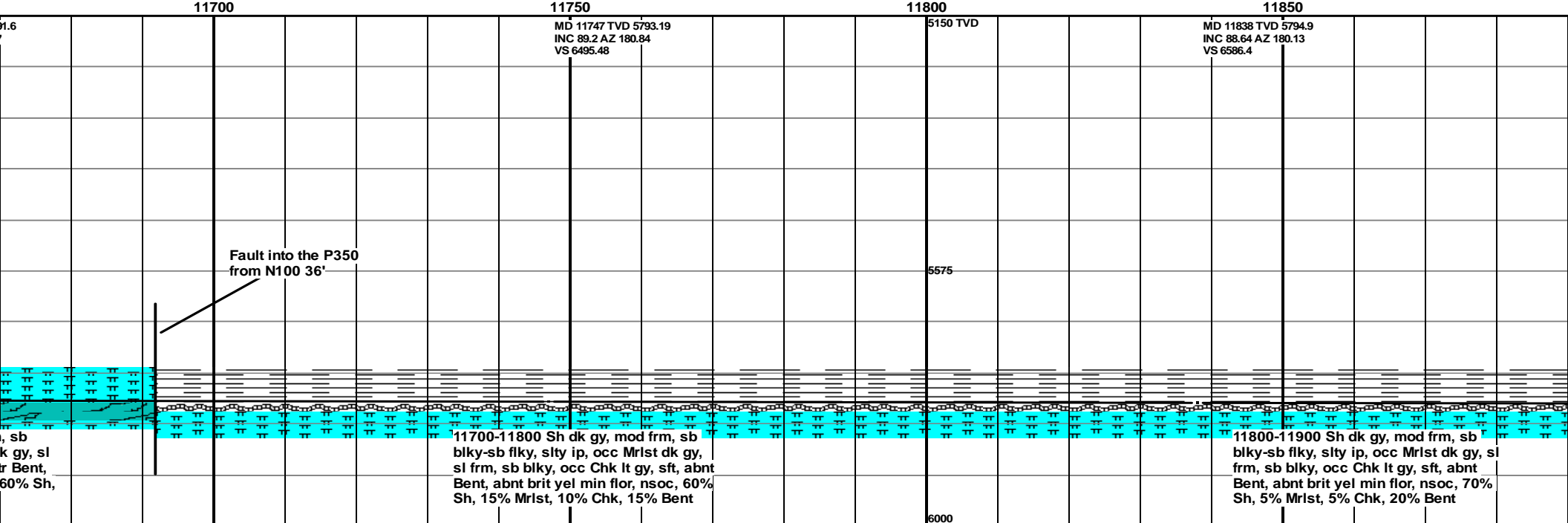
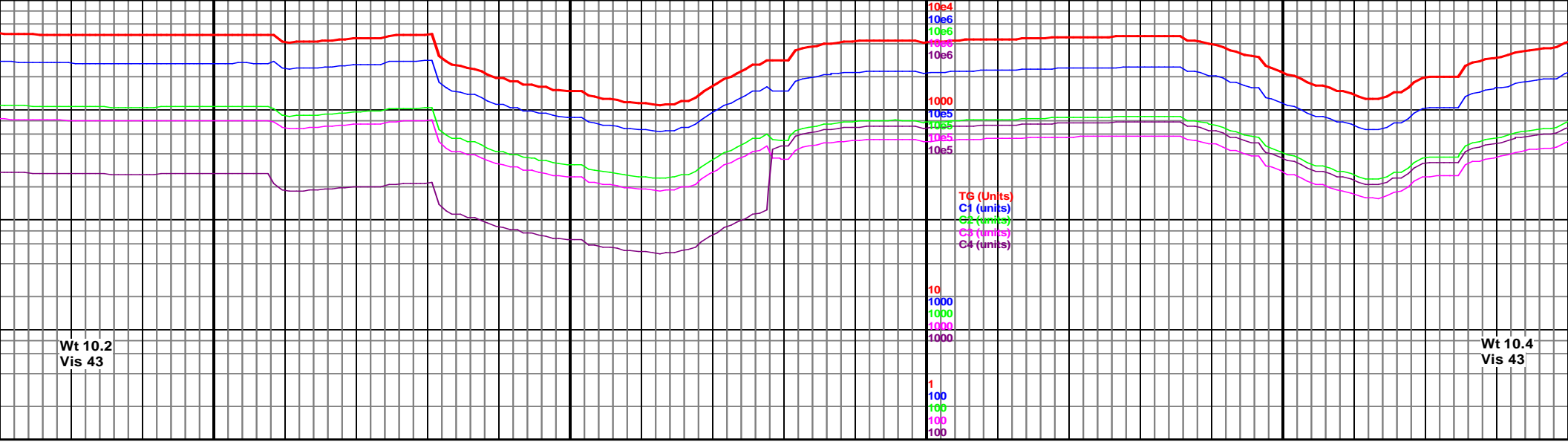
11000-11100 Chk lt gy-mott-occ
banded, sft-sl frm, sb blkly-sb flky, occ
Mrst dk gy, sb blkly, mod frm, mod fast
oil cut, 80% Chk, 20% Mrst

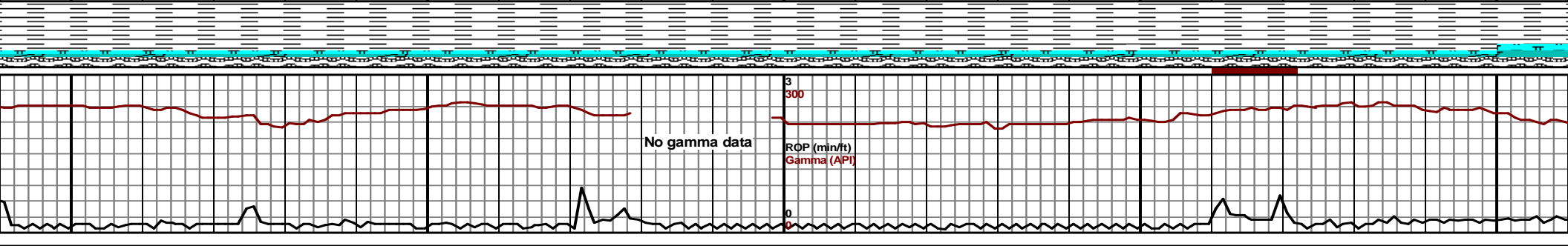
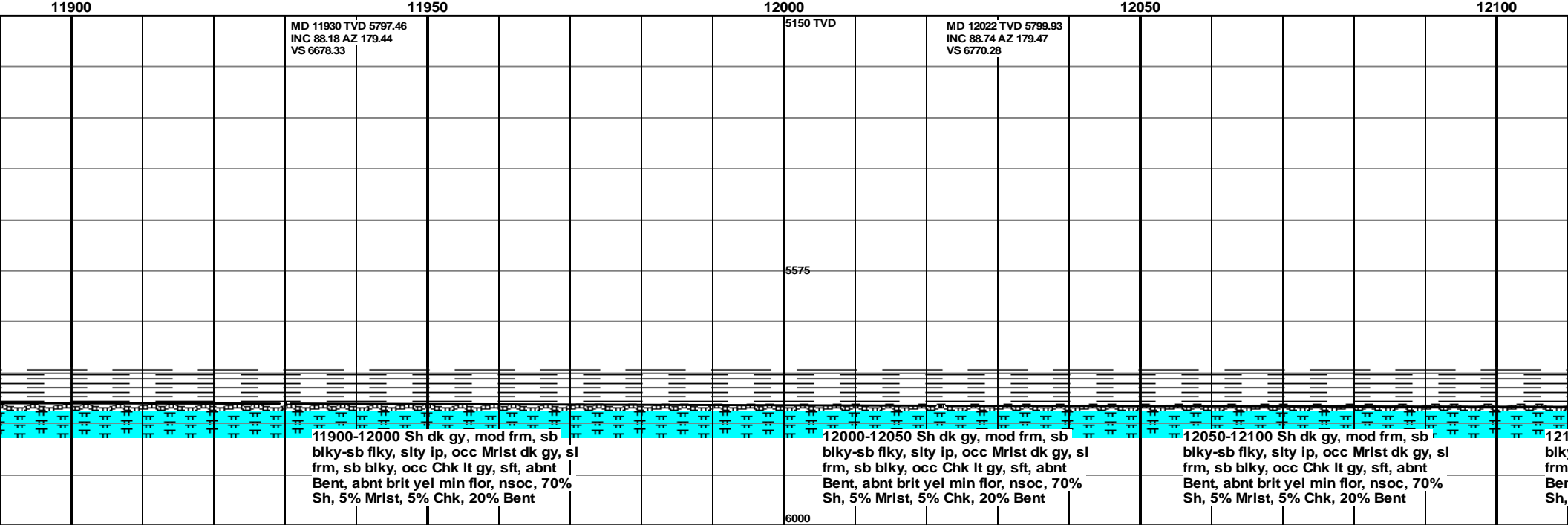
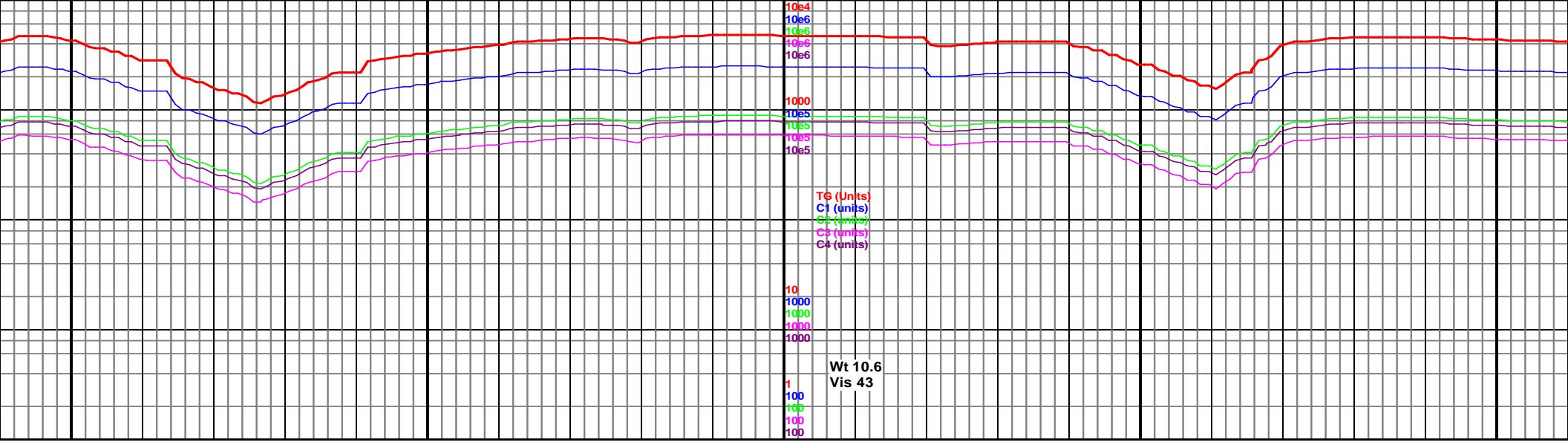
11100-11200 Chk lt gy-mott-occ
banded, sft-sl frm, sb blkly-sb flky, occ
Mrst dk gy, sb blkly, mod frm, mod fast
oil cut, 80% Chk, 20% Mrst

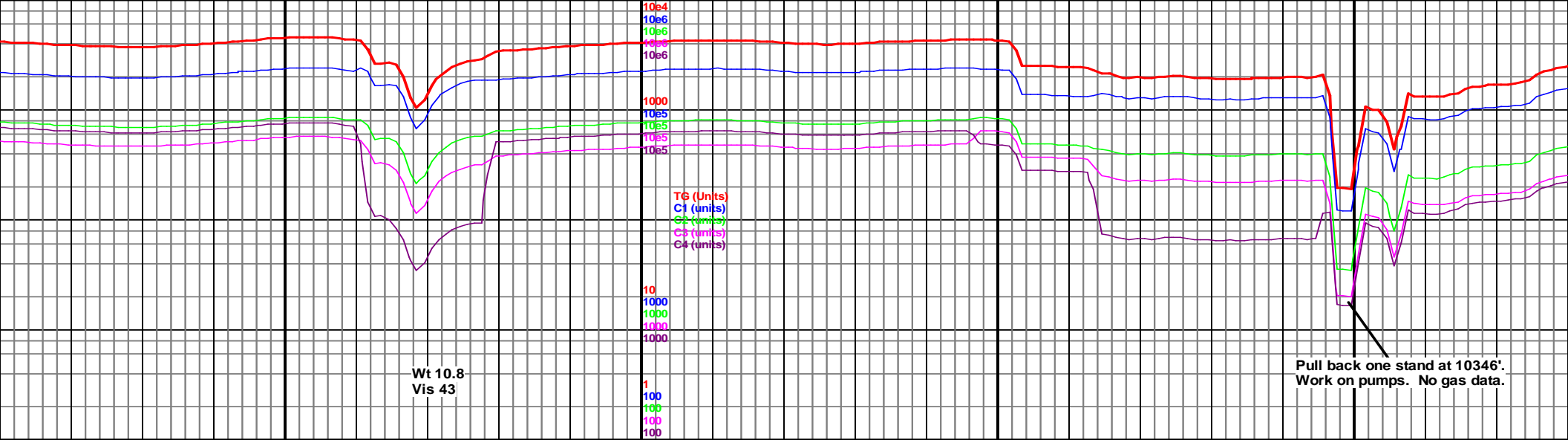




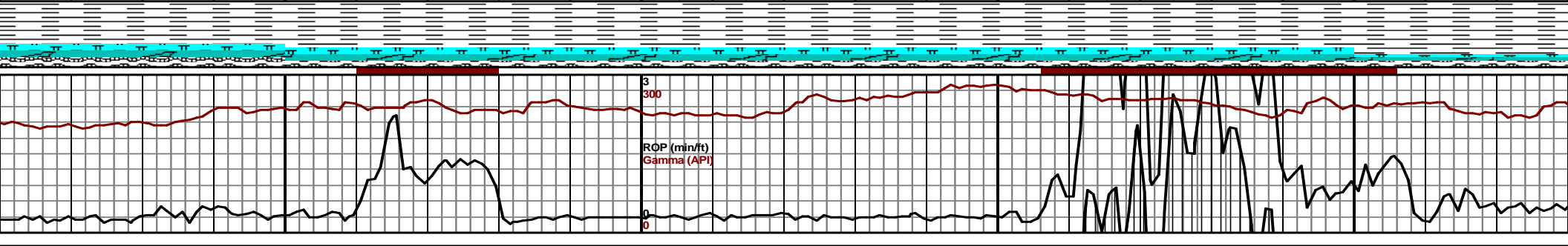


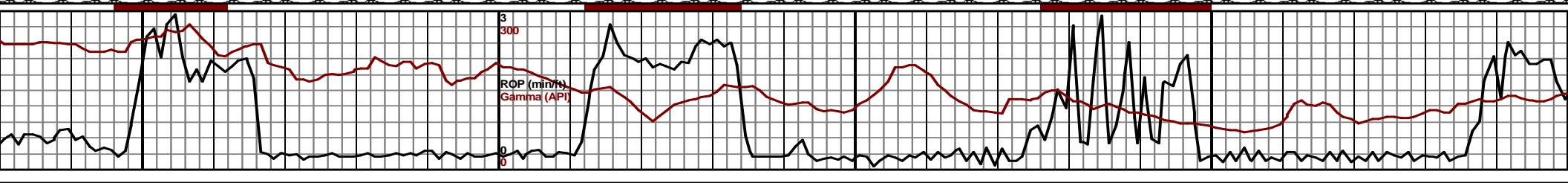
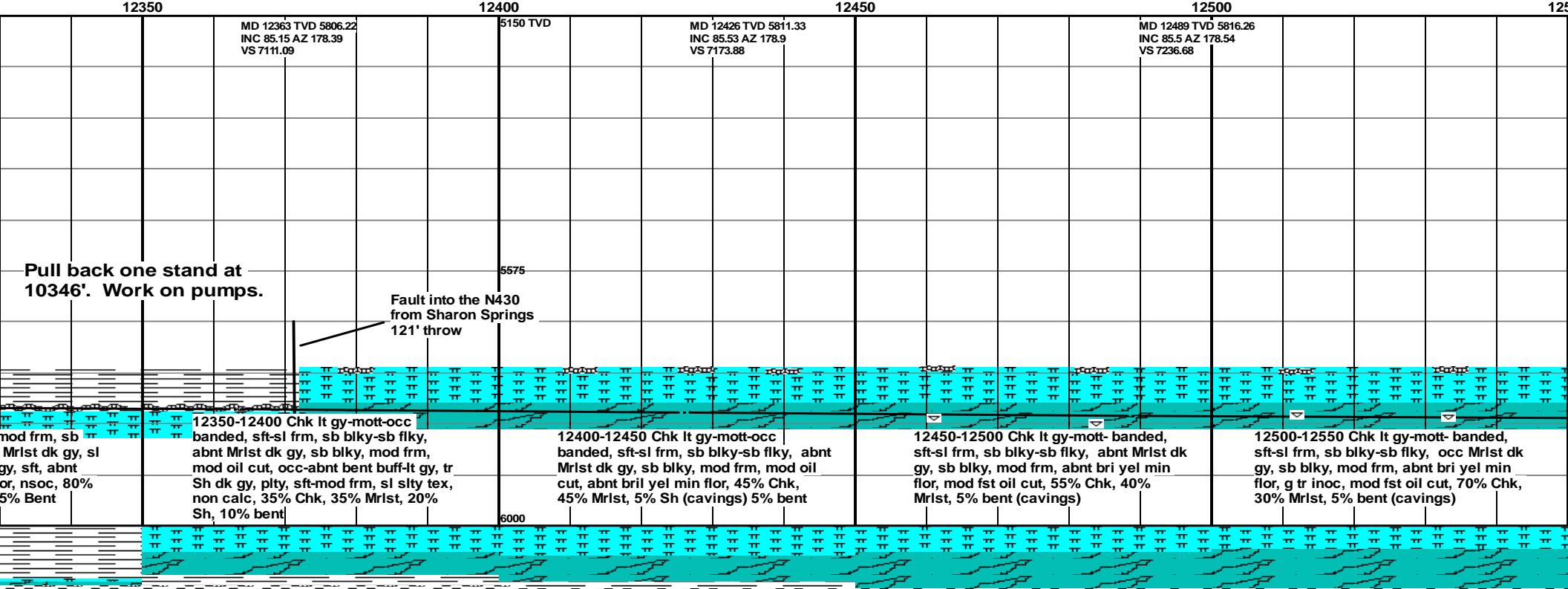
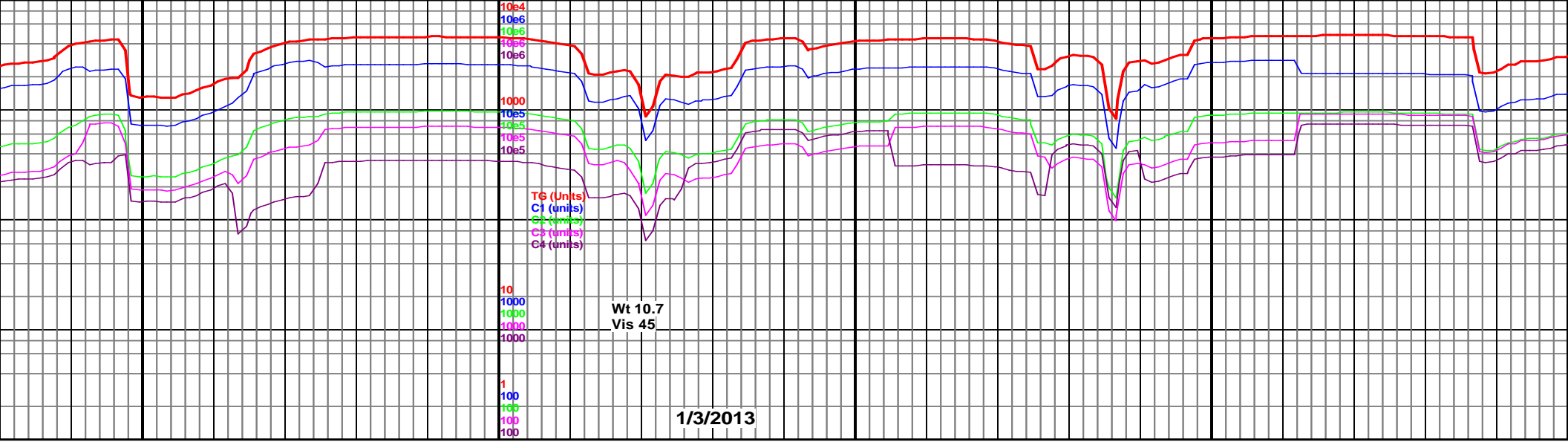


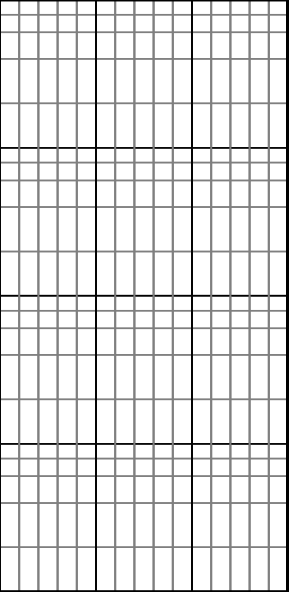




<p>MD 12114 TVD 5801.42 INC 89.41 AZ 179.19 VS 6862.26</p> <p>00-12150 Sh dk gy, mod frm, sb y-sb flky, slty ip, occ Mrlst dk gy, sl , sb blk, occ Chk lt gy, sft, abnt nt, abnt brit yel min flor, nsoc, 60% 10% Mrlst, 10% Chk, 20% Bent</p>	<p>MD 12205 TVD 5801.37 INC 90.65 AZ 180 VS 6953.23</p> <p>12150-12200 Sh dk gy, mod frm, sb blk-y-sb flky, slty ip, occ Mrlst dk gy, sl frm, sb blk, occ Chk lt gy, sft, abnt Bent, abnt brit yel min flor, nsoc, 70% Sh, 10% Mrlst, 5% Chk, 15% Bent</p>	<p>MD 12299 TVD 5802.43 INC 88.06 AZ 178.56 VS 7047.21</p> <p>12200-12250 Sh dk gy, mod frm, sb blk-y-sb flky, slty ip, occ Mrlst dk gy, sl frm, sb blk, occ Chk lt gy, sft, abnt Bent, abnt brit yel min flor, nsoc, 70% Sh, 10% Mrlst, 5% Chk, 15% Bent</p>	<p>12250-12300 Sh dk gy, mod frm, sb blk-y-sb flky, slty ip, occ Mrlst dk gy, sl frm, sb blk, occ Chk lt gy, sft, abnt Bent, abnt brit yel min flor, nsoc, 70% Sh, 10% Mrlst, 5% Chk, 15% Bent</p>	<p>12300-12350 Sh dk gy, mod frm, sb blk-y-sb flky, slty ip, occ Mrlst dk gy, sl frm, sb blk, occ Chk lt gy, sft, abnt Bent, abnt brit yel min flor, nsoc, 70% Sh, 5% Mrlst, 5% Chk, 15% Bent</p>	<p>12350-12400 Sh dk gy, mod frm, sb blk-y-sb flky, slty ip, occ Mrlst dk gy, sl frm, sb blk, occ Chk lt gy, sft, abnt Bent, abnt brit yel min flor, nsoc, 70% Sh, 5% Mrlst, 5% Chk, 15% Bent</p>
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