



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

Well Name: Razor 33O-2811
Well Id: 05-123-39308
Location: SWSE 33-T10N-R57W, Weld County, Colorado
License Number: 05-123-39308
Spud Date: 12/13/2014
Surface Coordinates: Lat. 40.788564, Long. -103.867275

Region: Horsetail
Drilling Completed: 12/21/2014

Bottom Hole
Coordinates:
Ground Elevation (ft): 4715
Logged Interval (ft): 5038 To: 13152
Formation: Pierre, Sharon Springs, Niobrara A
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4732
Total Depth (ft): 13152

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: Eli Denbesten, Demond Taylor and Todd Nakata
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Frontier #9


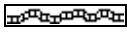
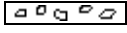
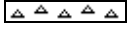
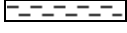
Gas Detection






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



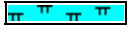

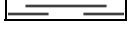
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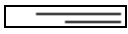
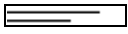



Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

 Anhy
 Bent
 Brec
 Cht
 Clyst
















 Coal
 Congl
 Dol
 Gyp
 Igne













 Lmst
 Meta
 Cyan mrlst
 Salt
 Shale
















 Shcol
 Shgy
 Sltst
 Ss
 Till







 Cyan chk

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

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







Vuggy

SORTING

-  Well
-  Moderate
-  Poor

OTHER SYMBOLS

ROUNDING

-  Rounded
-  Subrnd
-  Subang
-  Angular

OIL SHOW

-  Even



Spotted



Ques



Dead

INTERVAL



Core



Dst

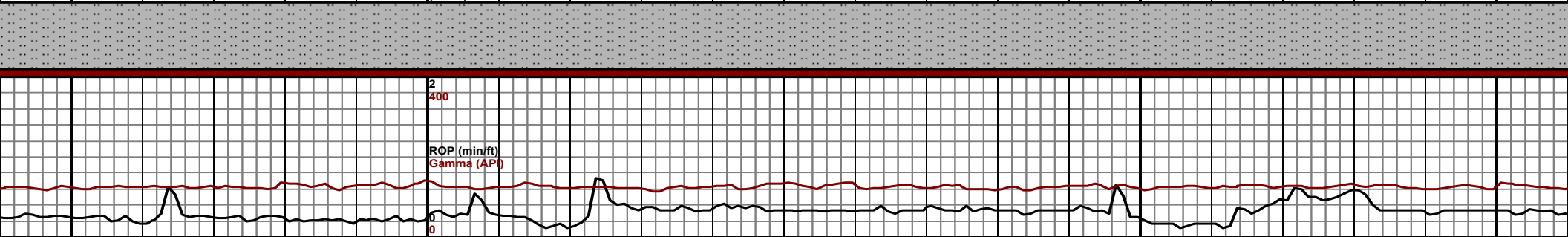
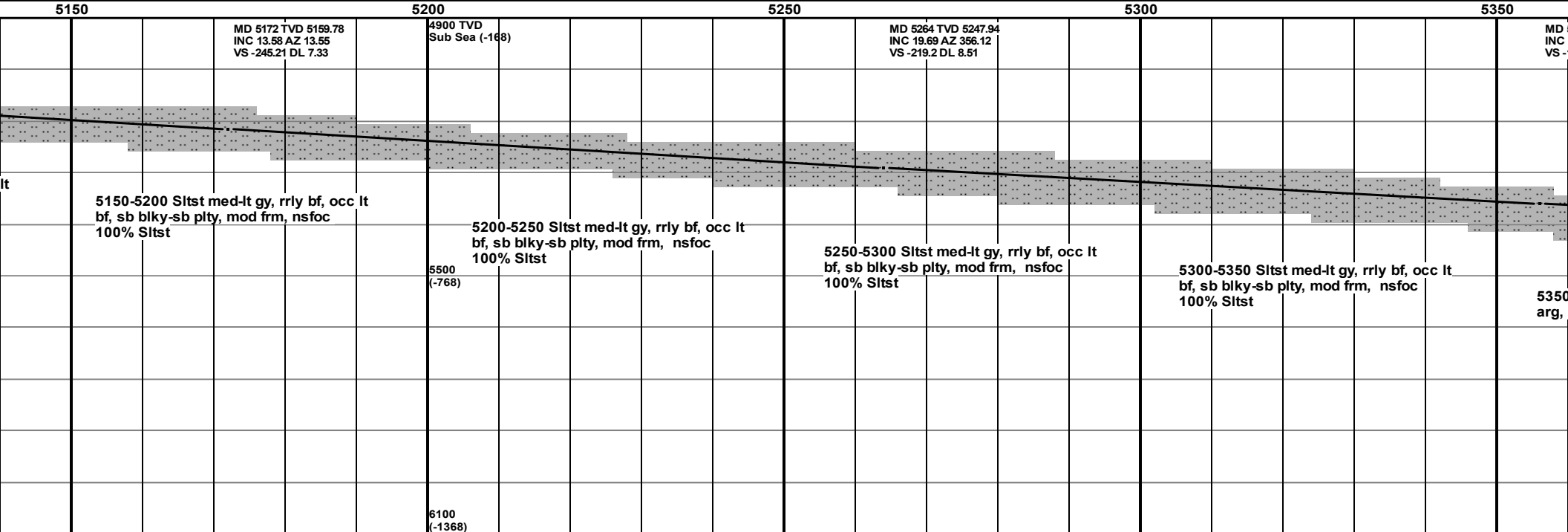
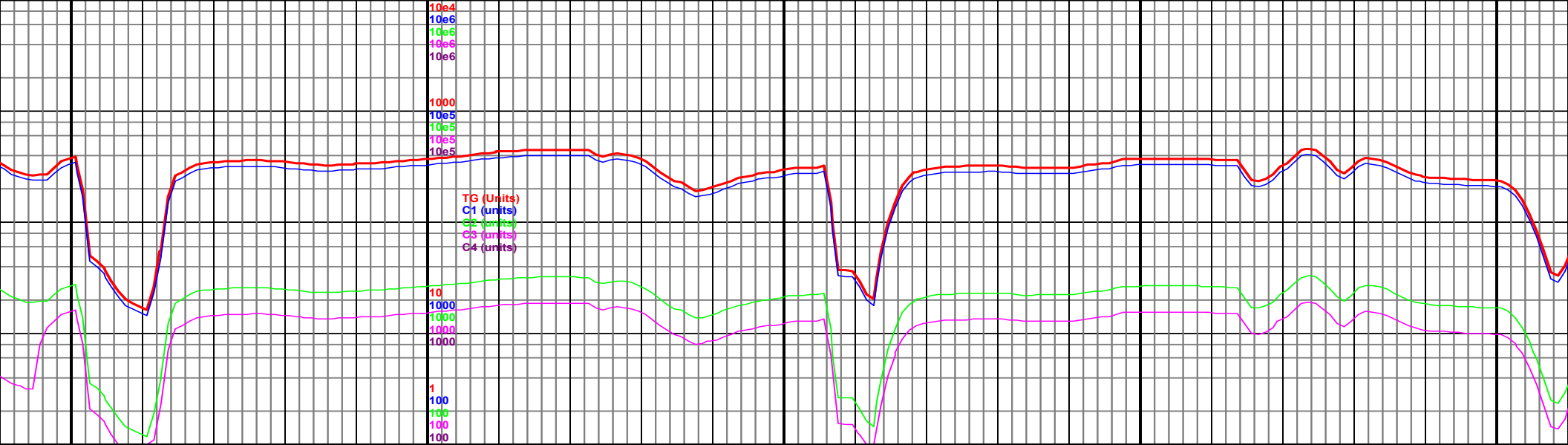
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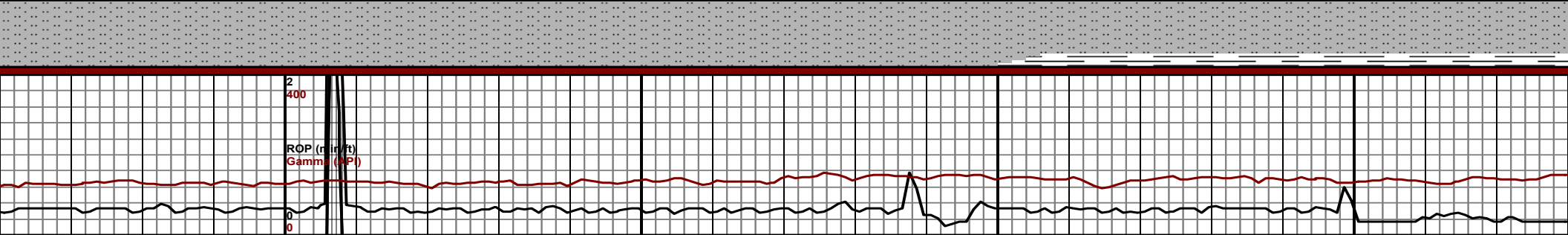
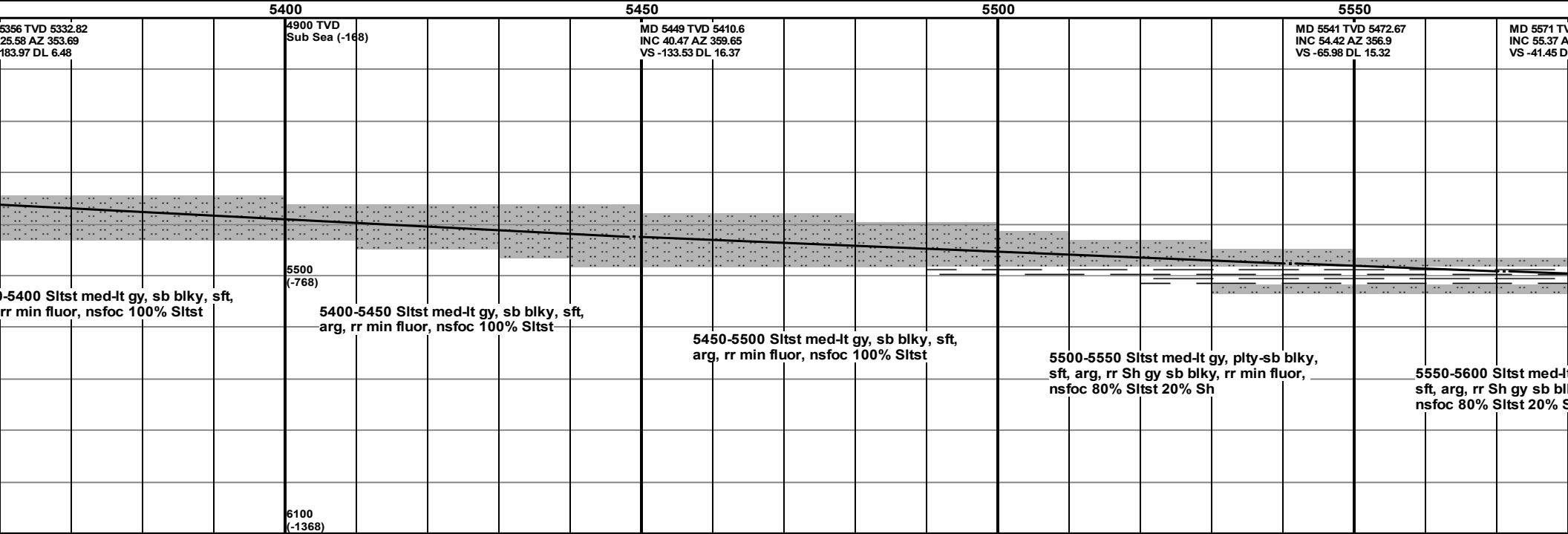
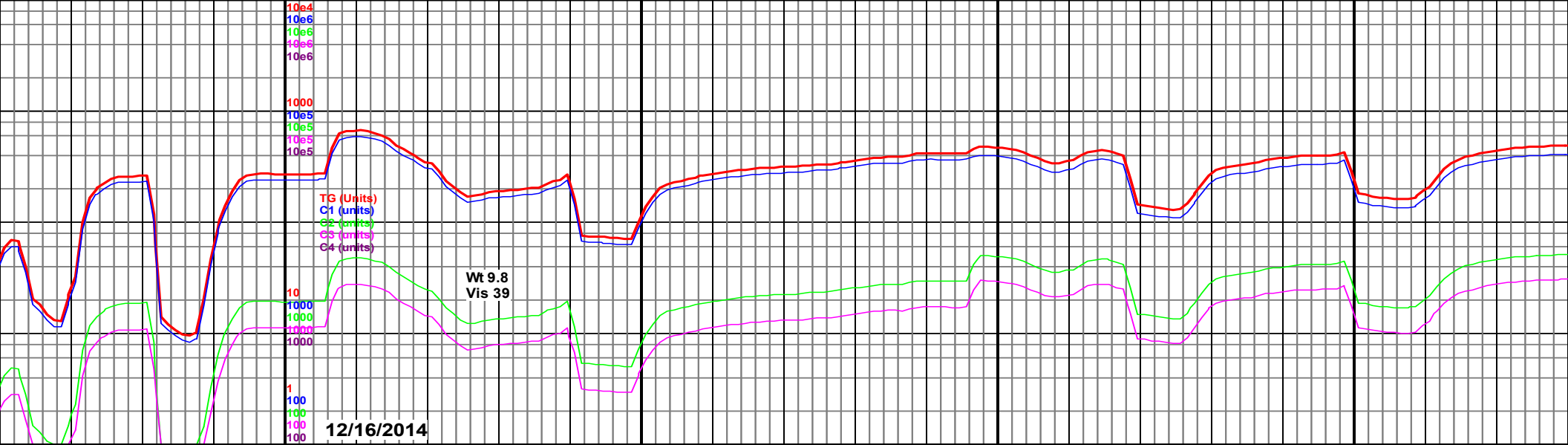


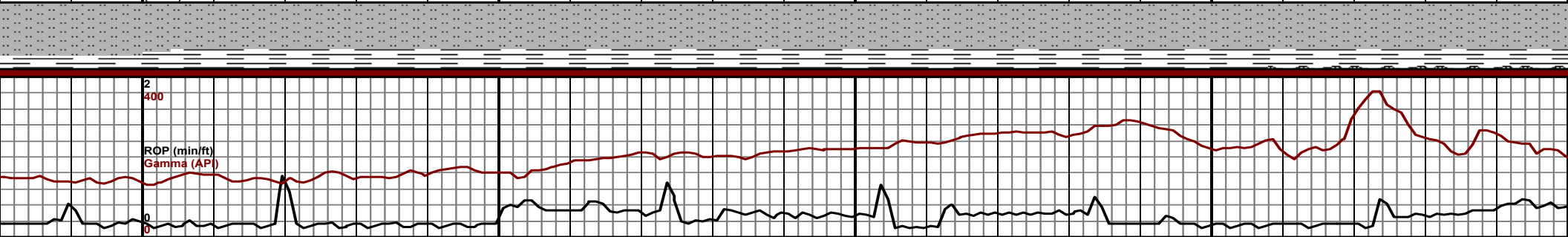
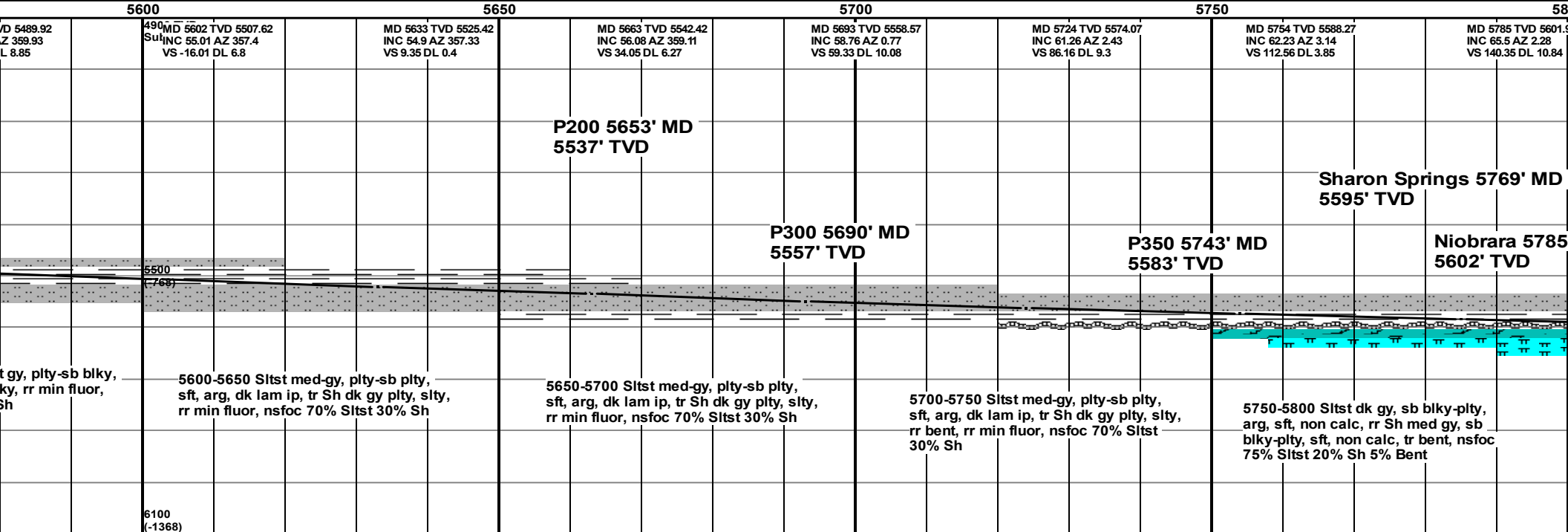
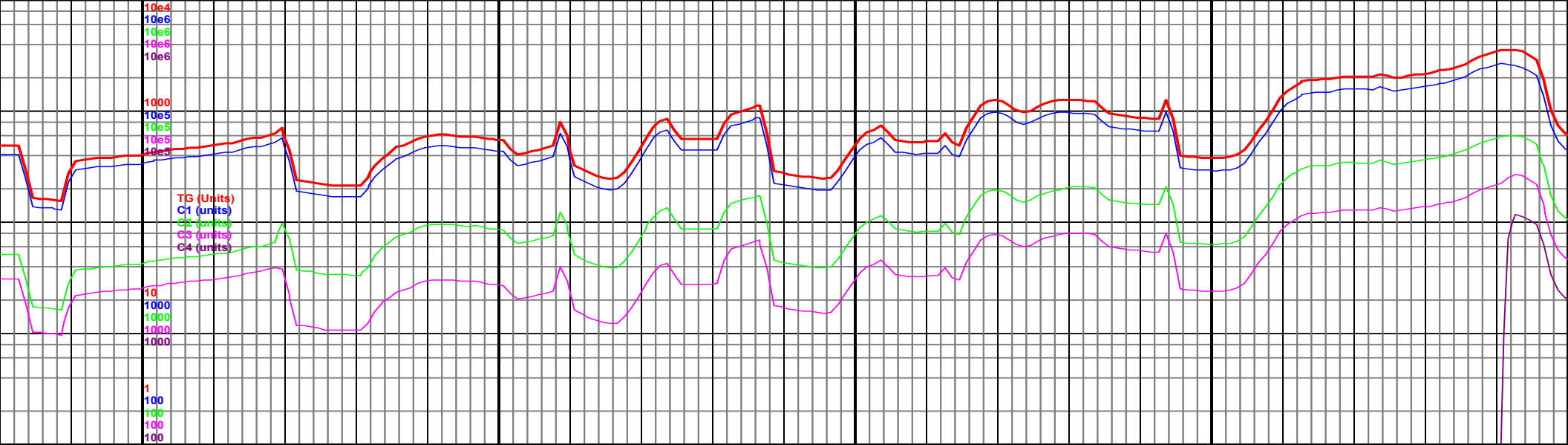
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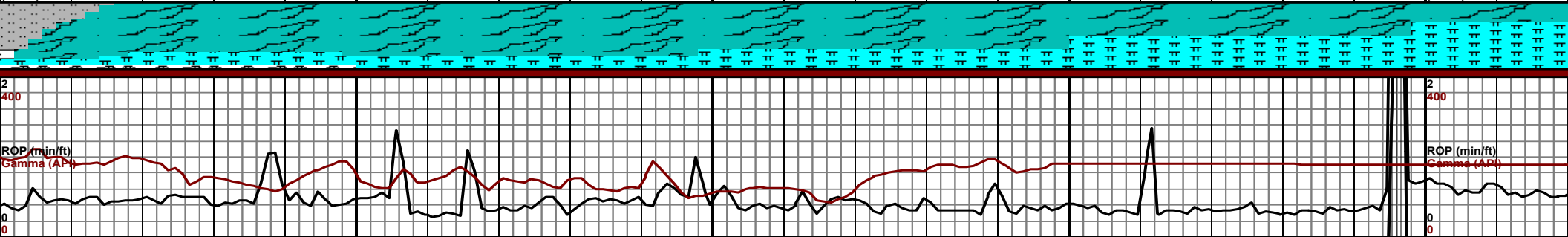
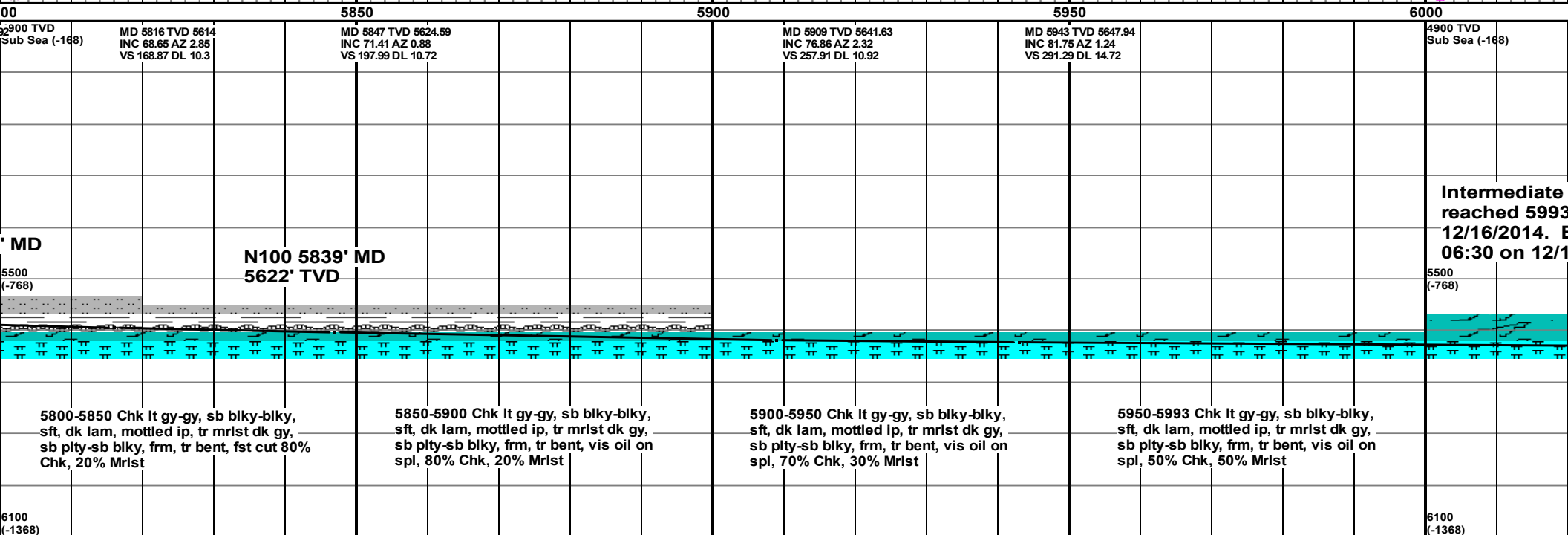
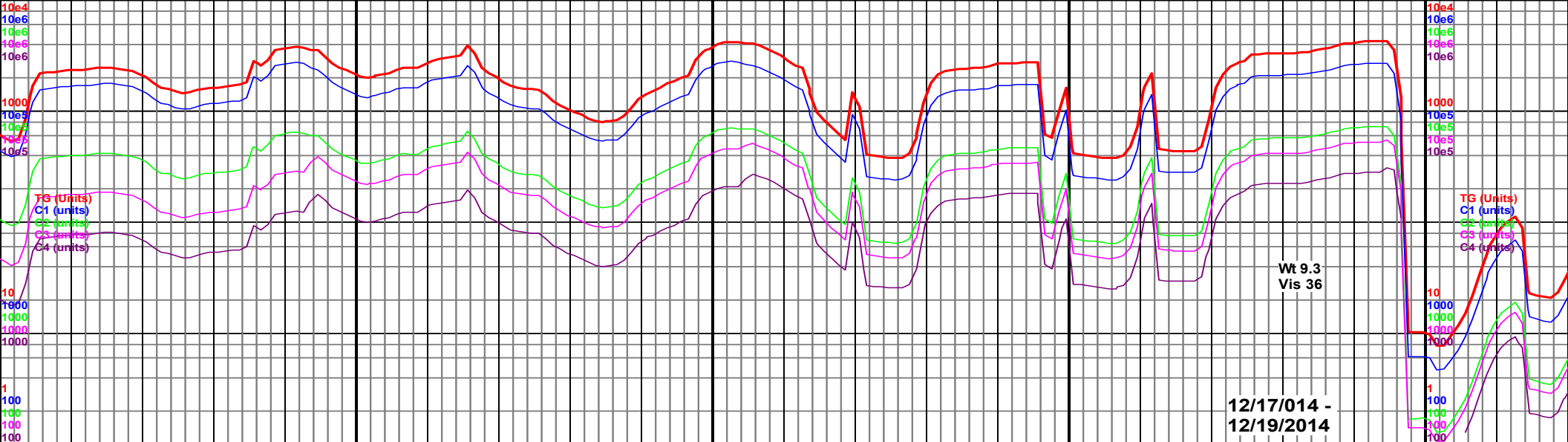


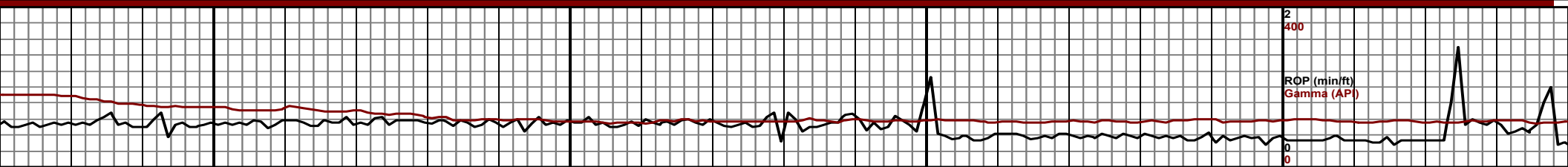
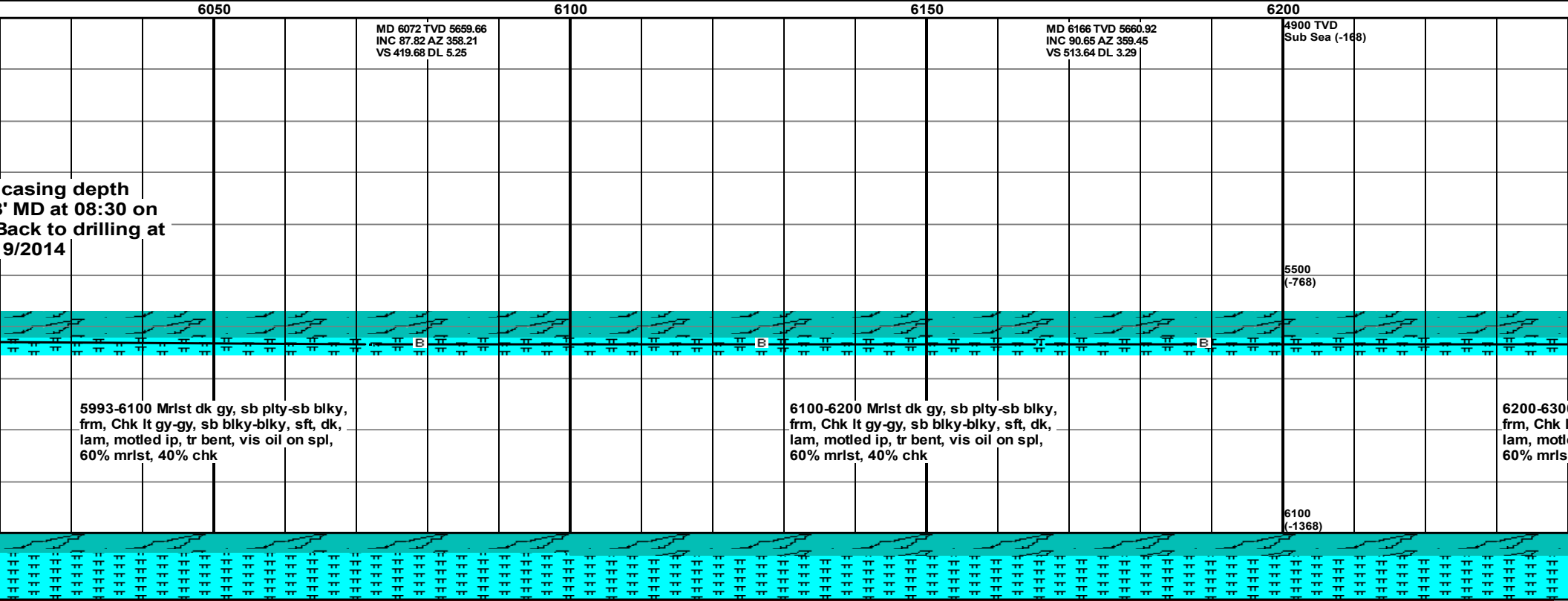
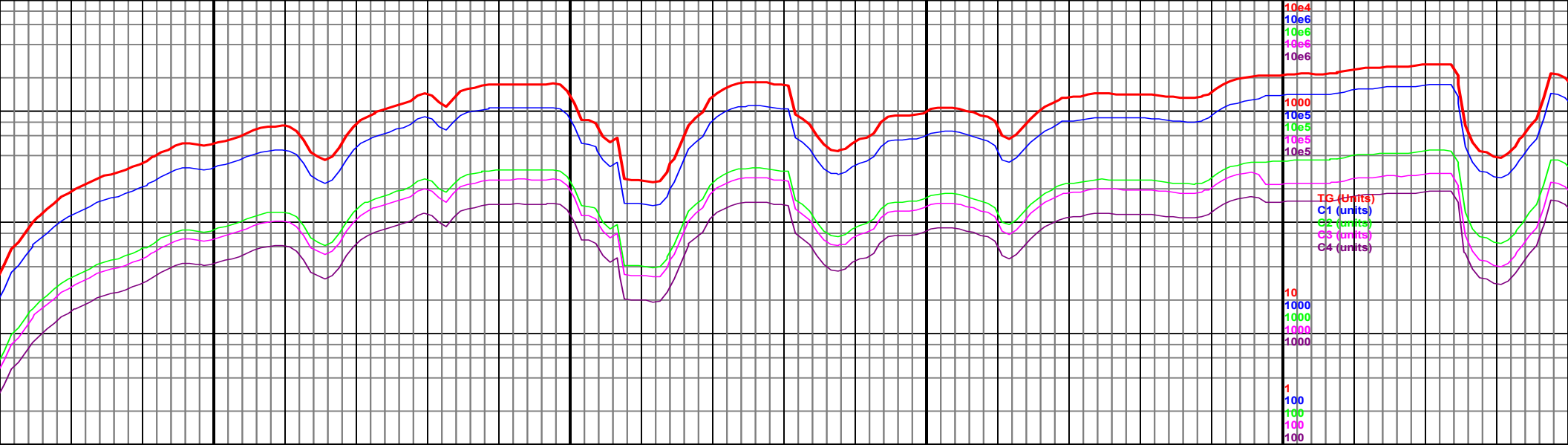
Sidewall

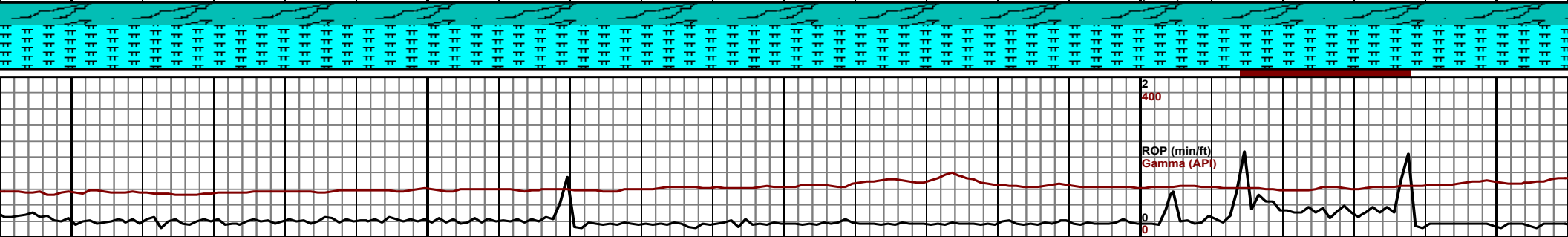
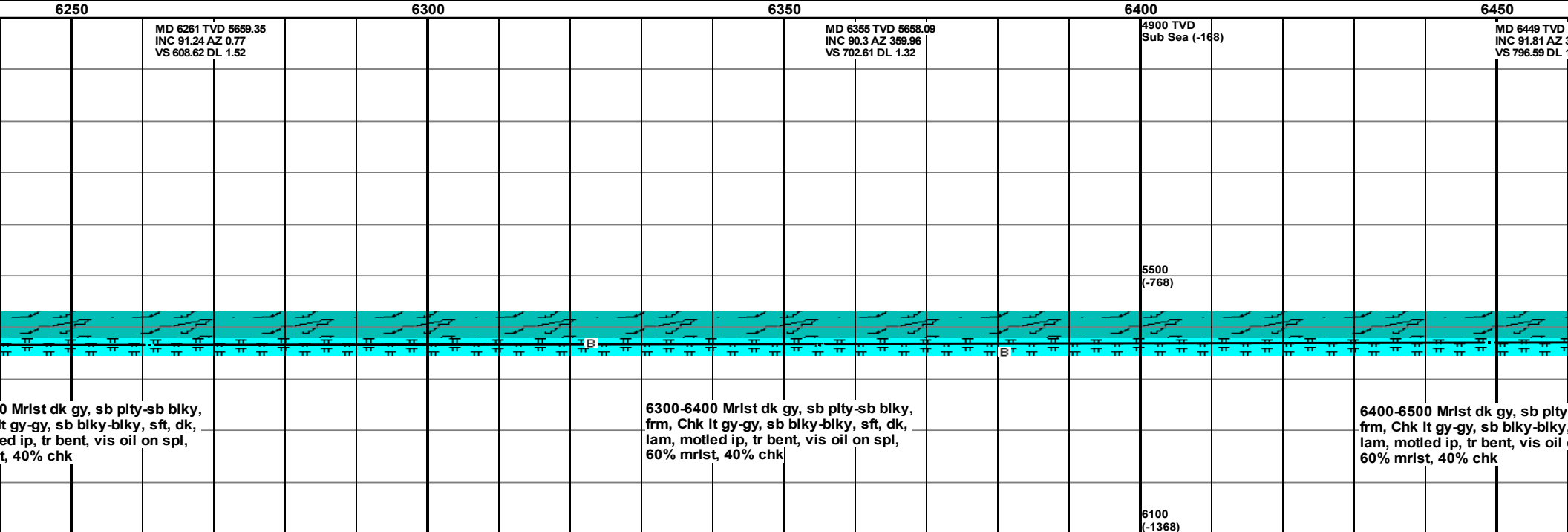
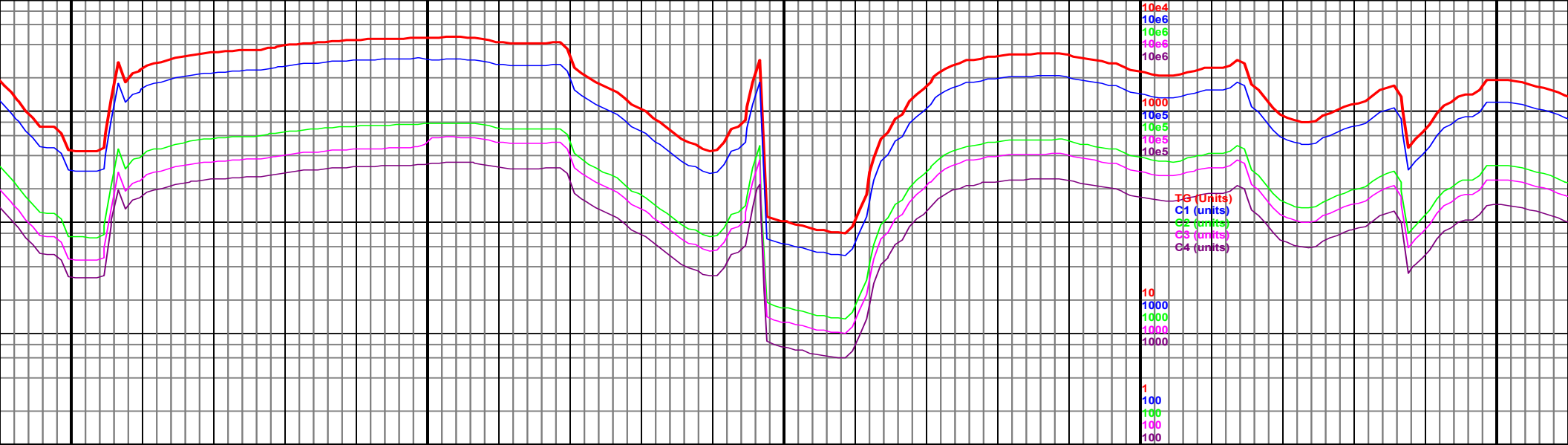


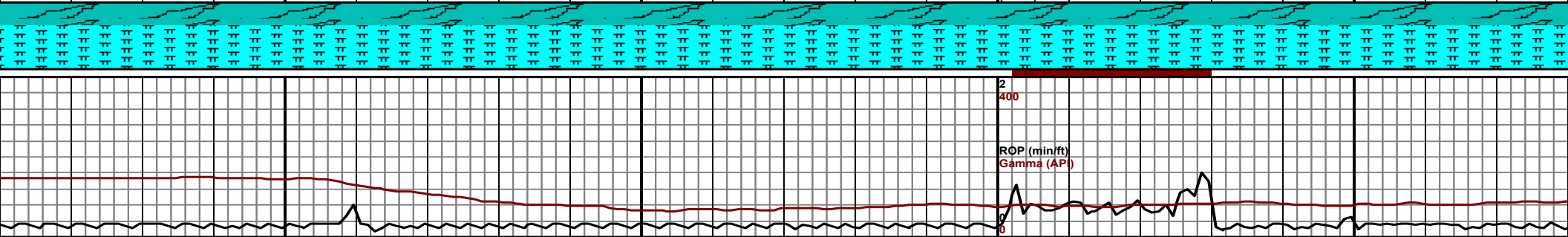
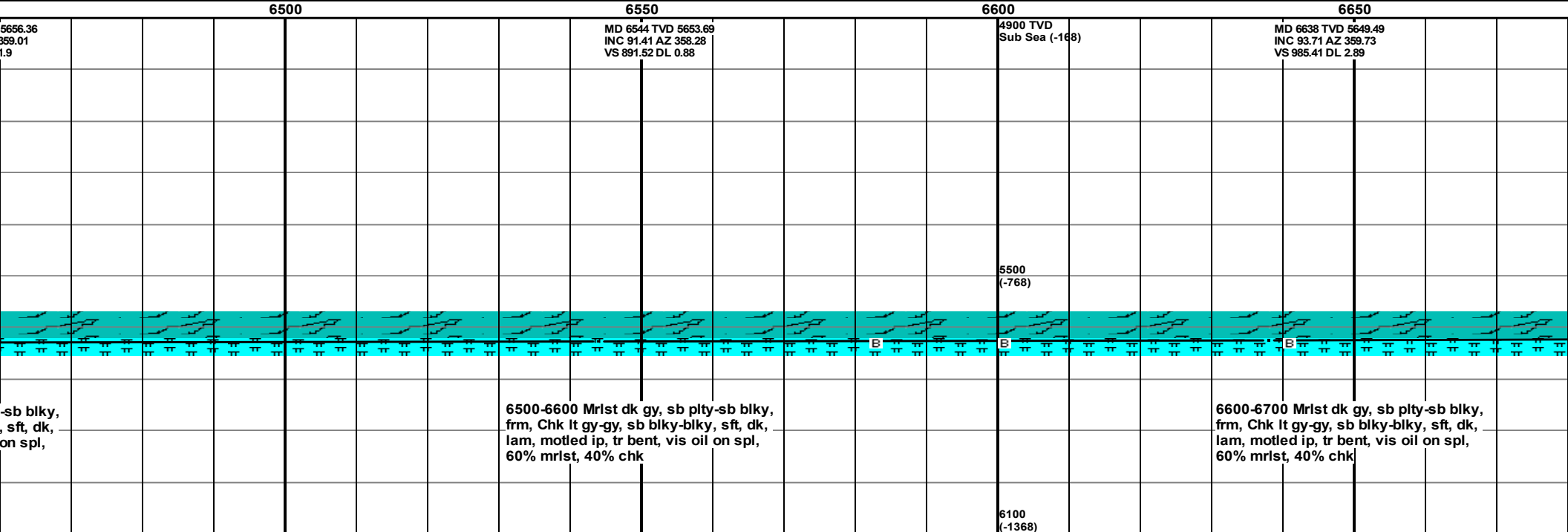
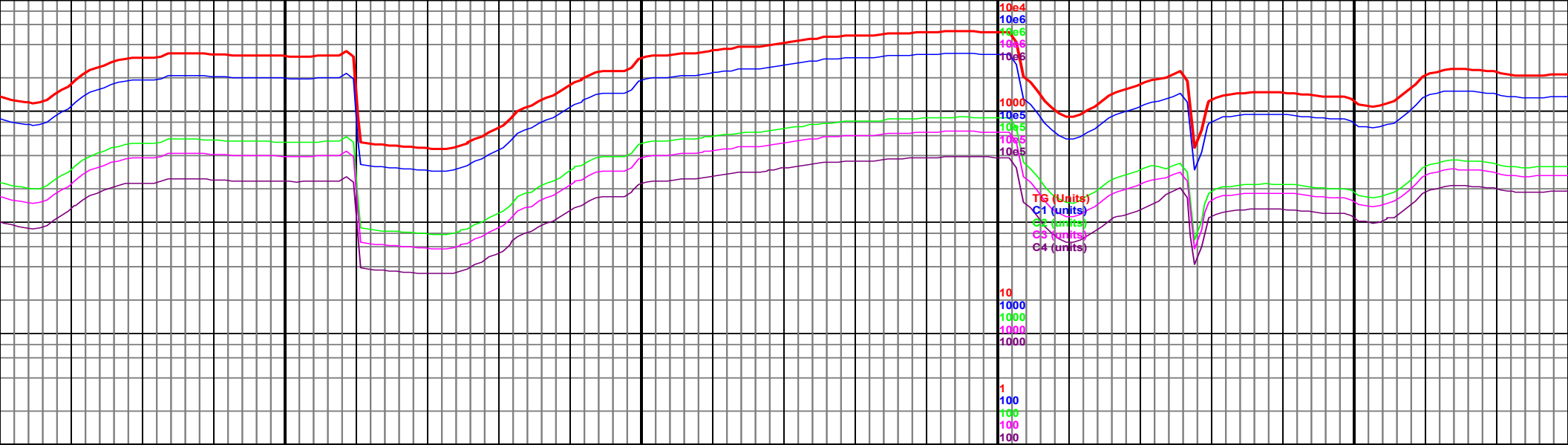


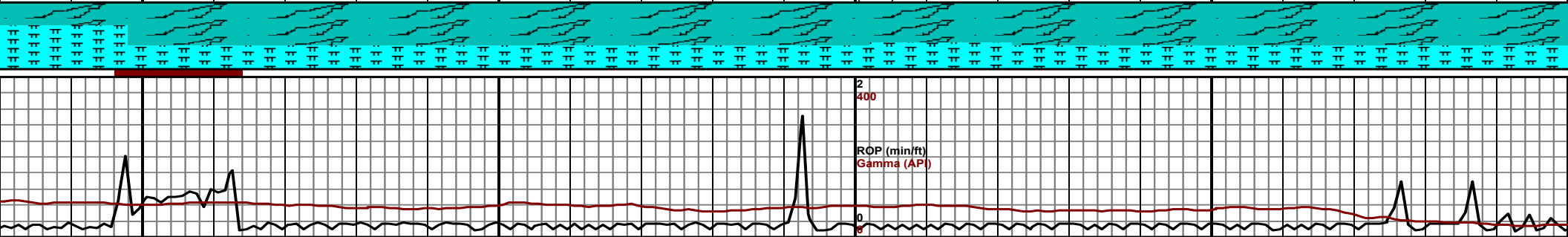
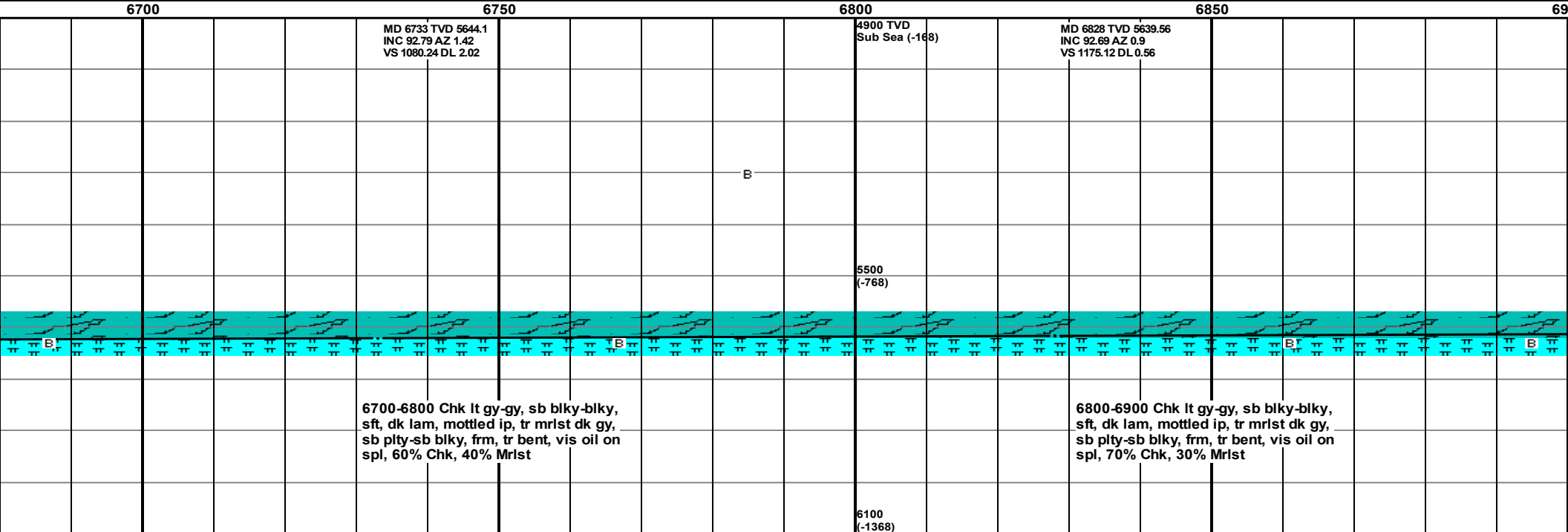
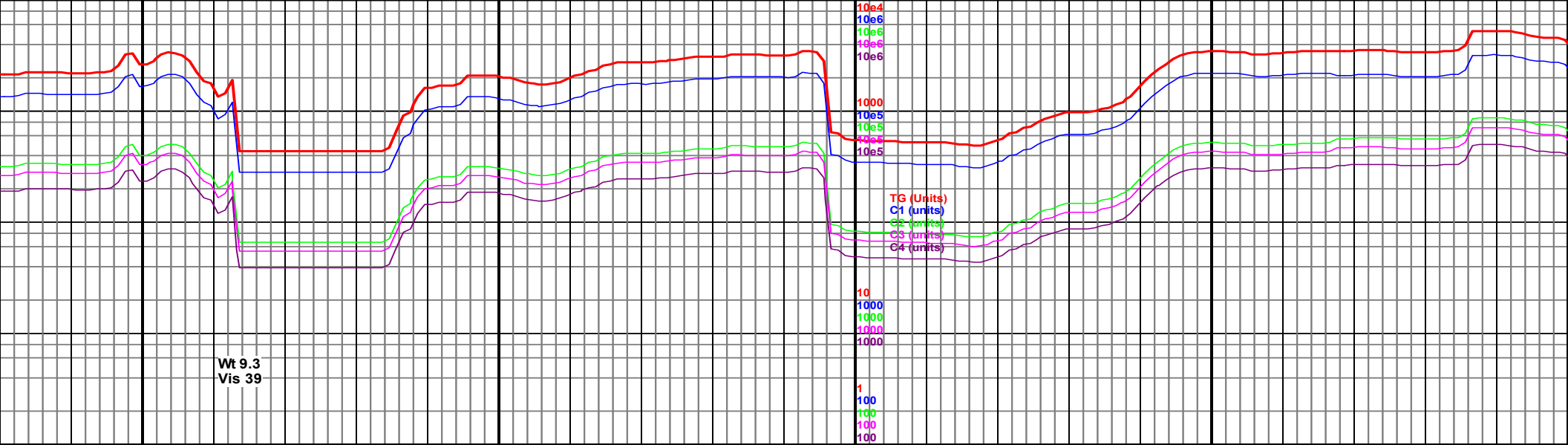


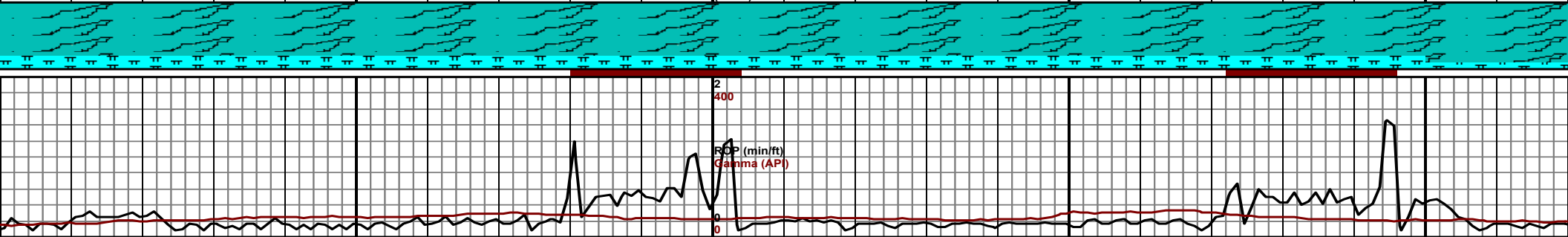
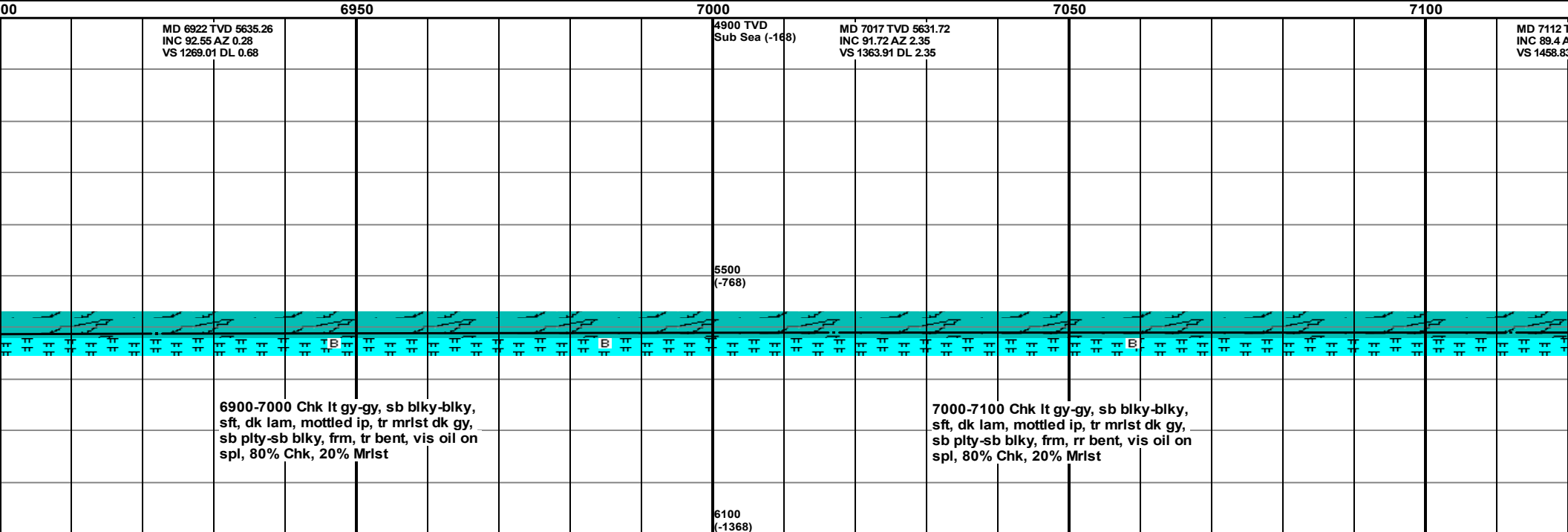
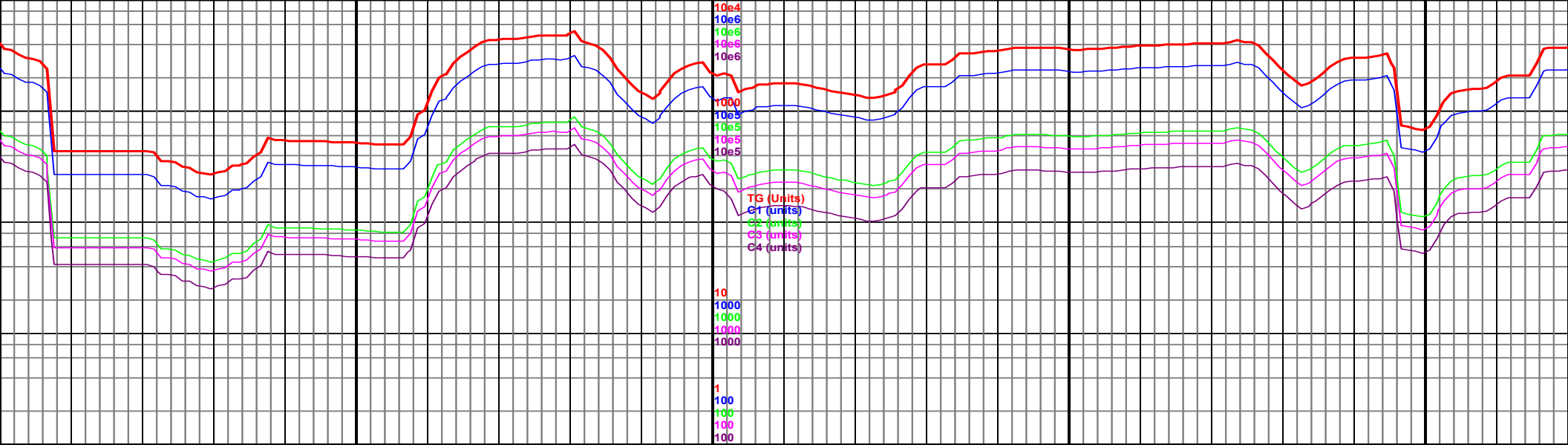


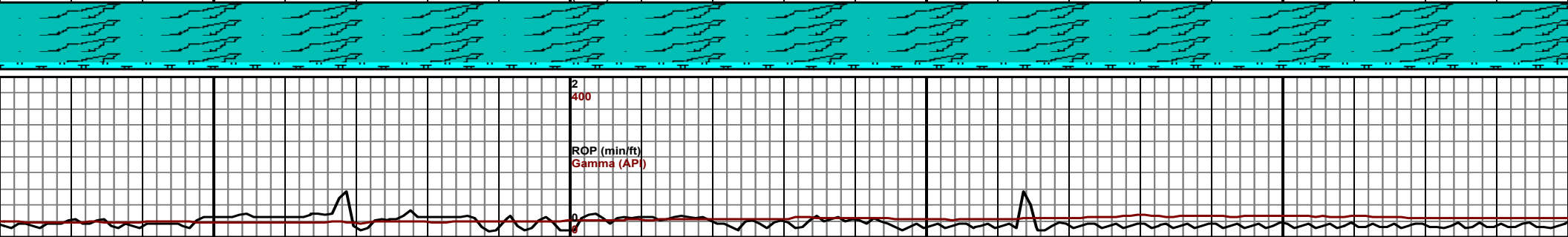
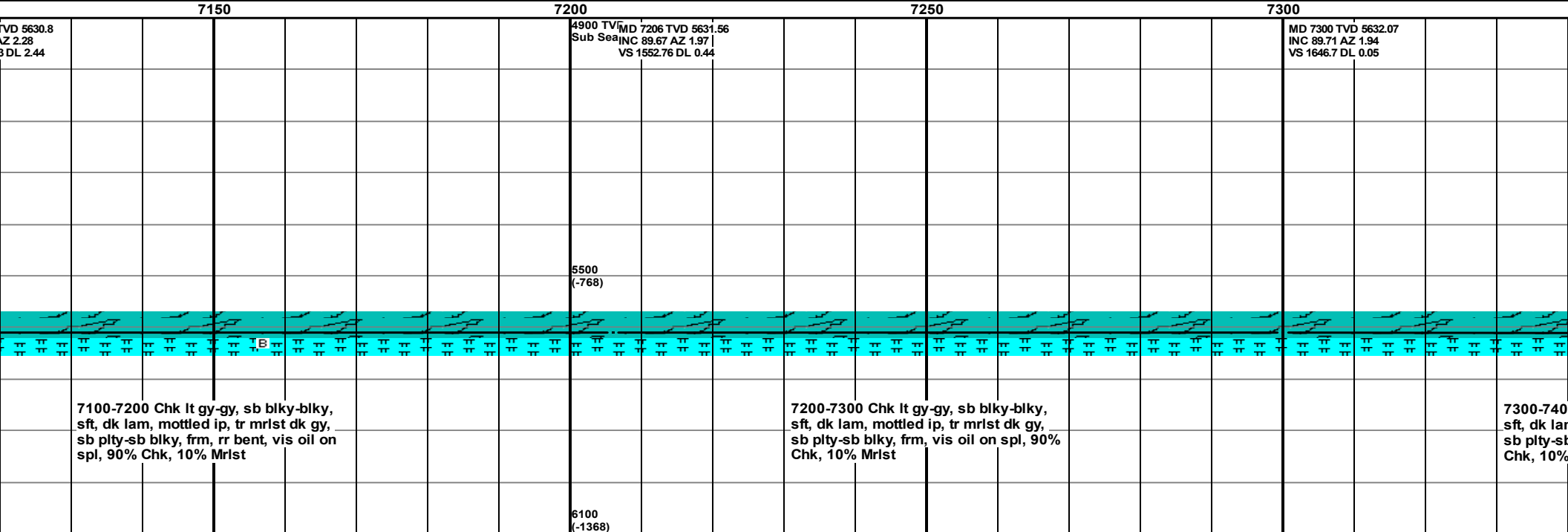
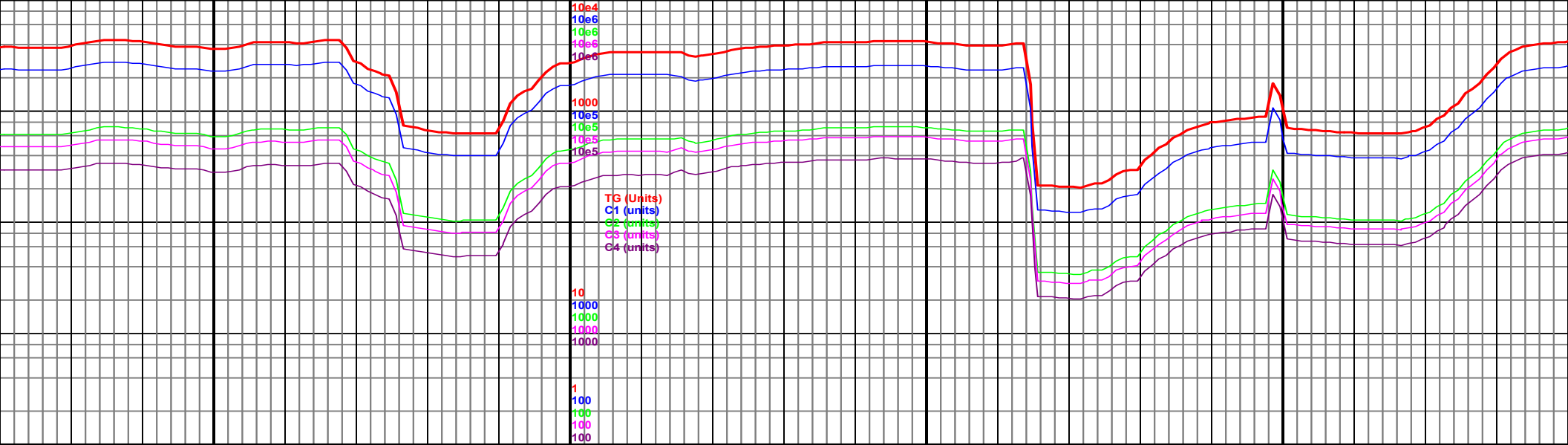


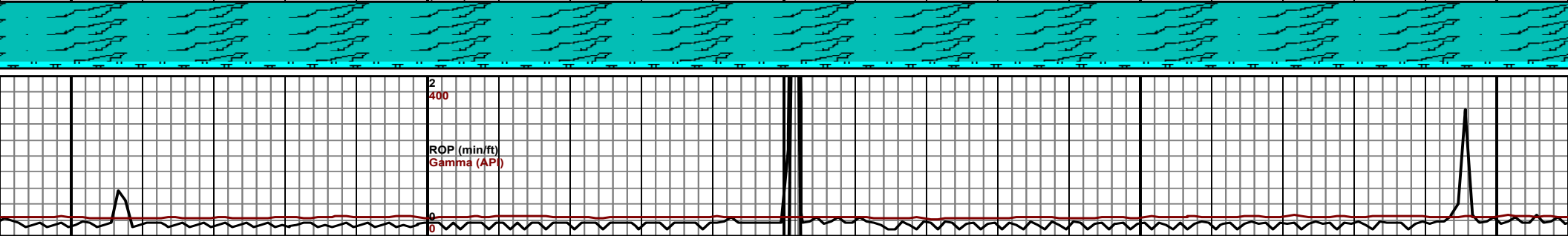
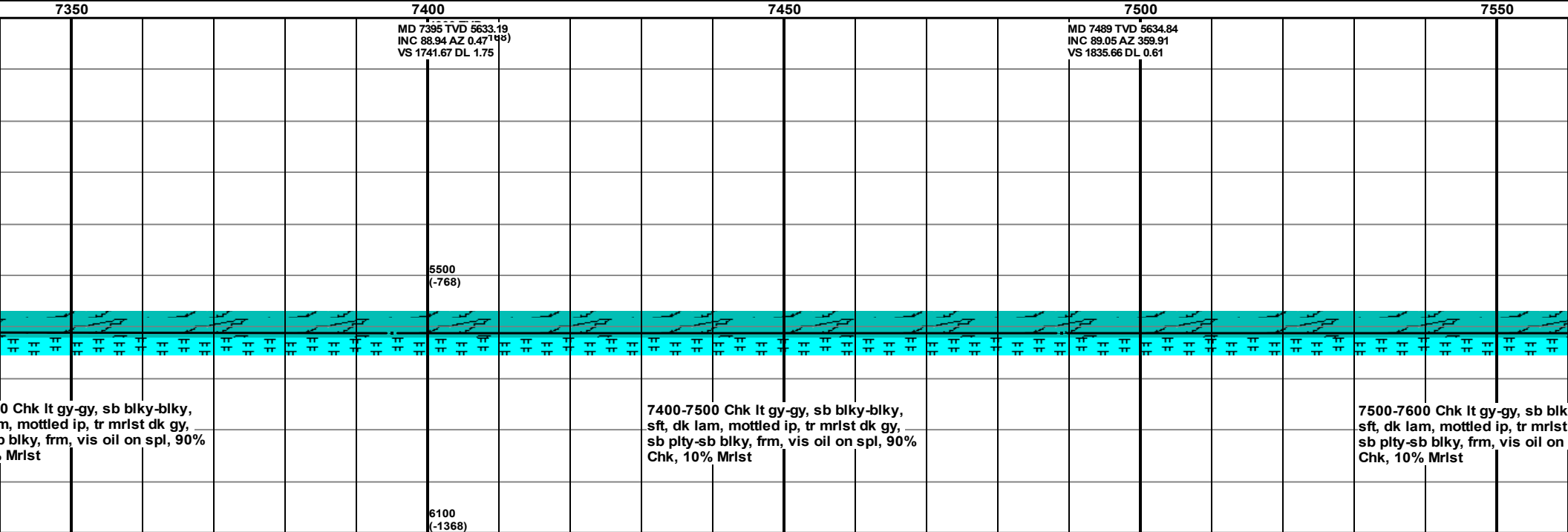
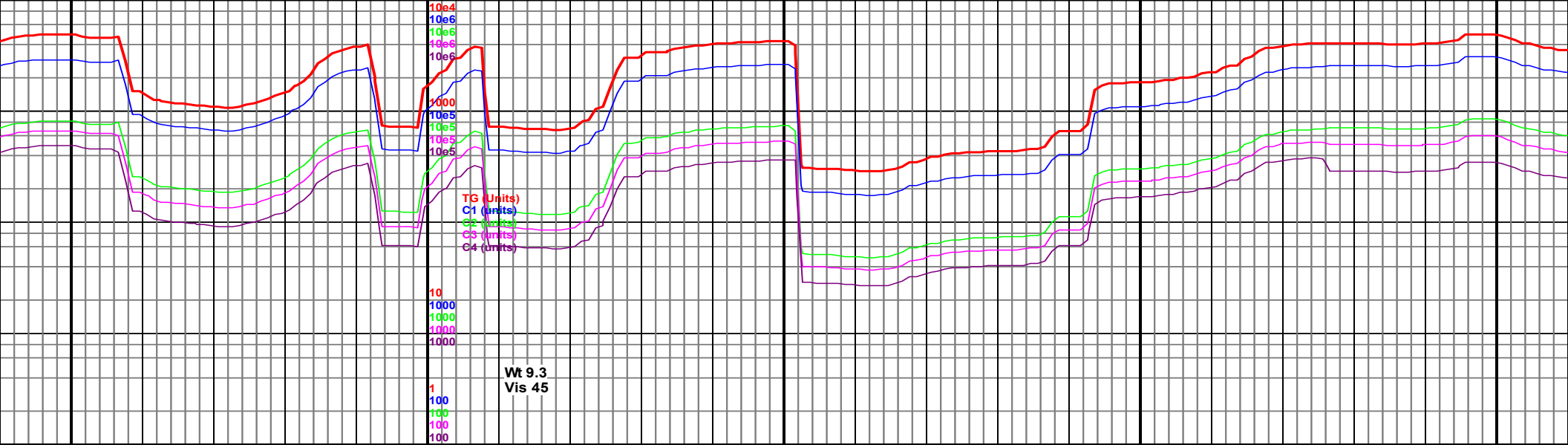


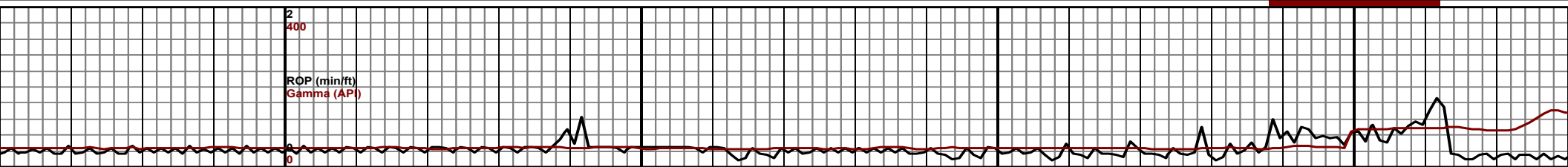
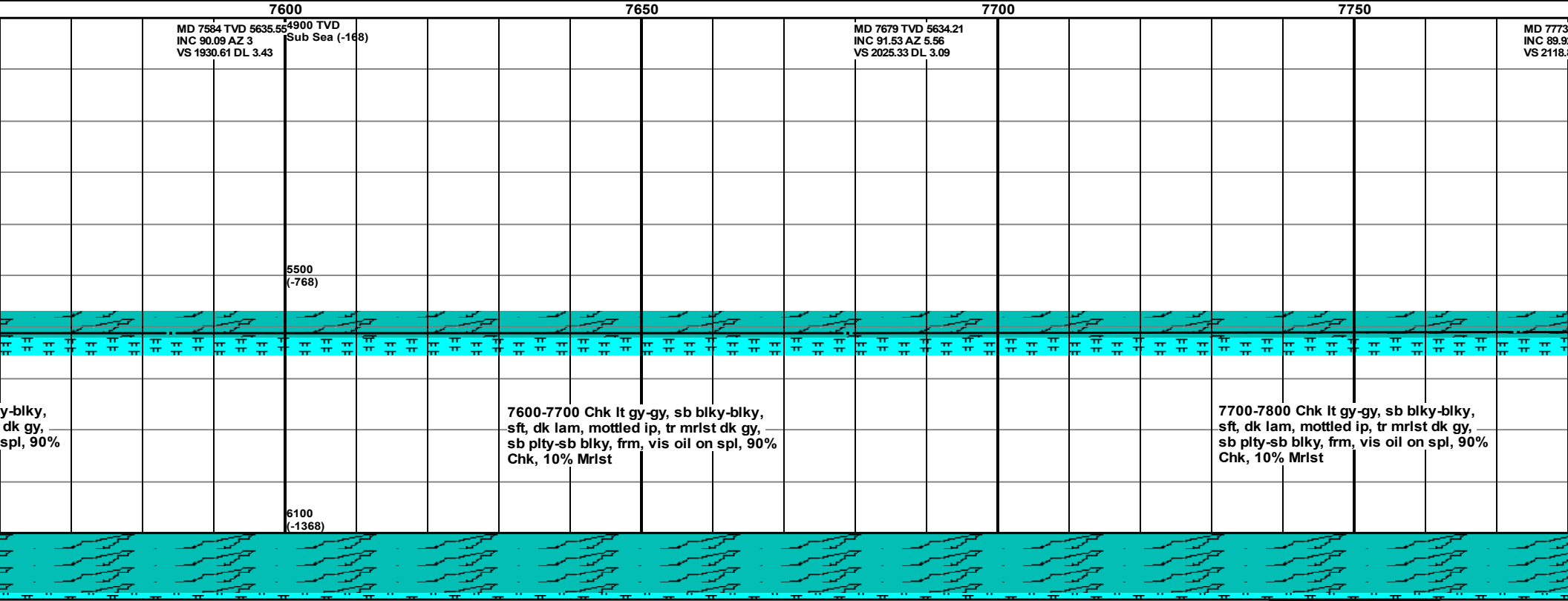
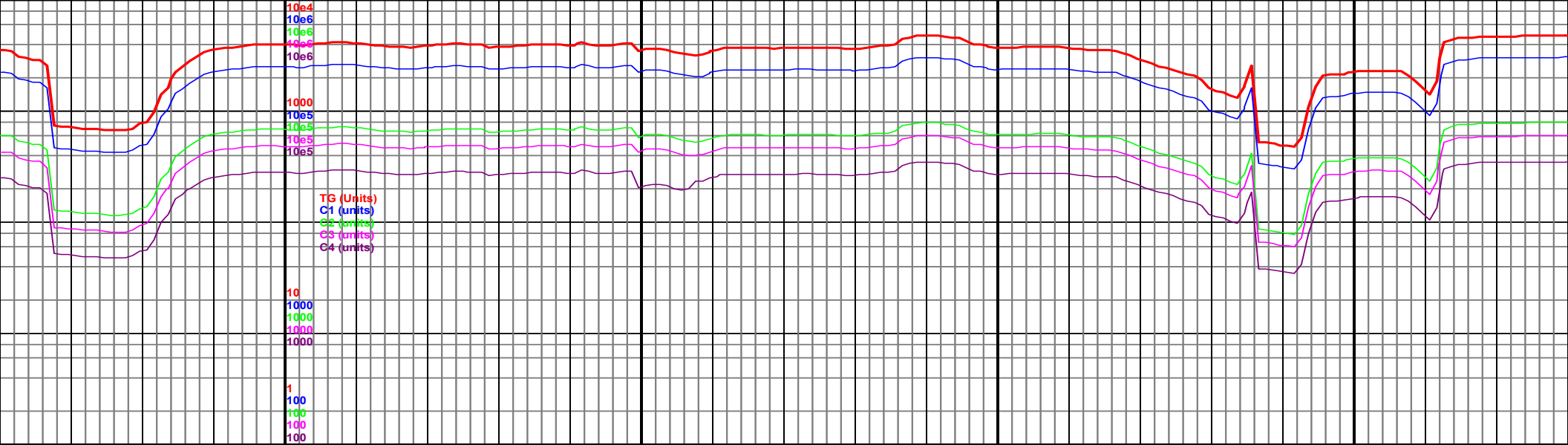


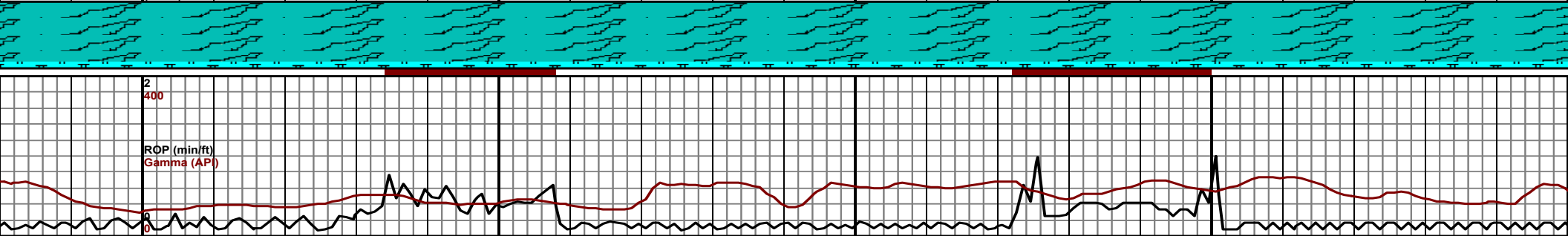
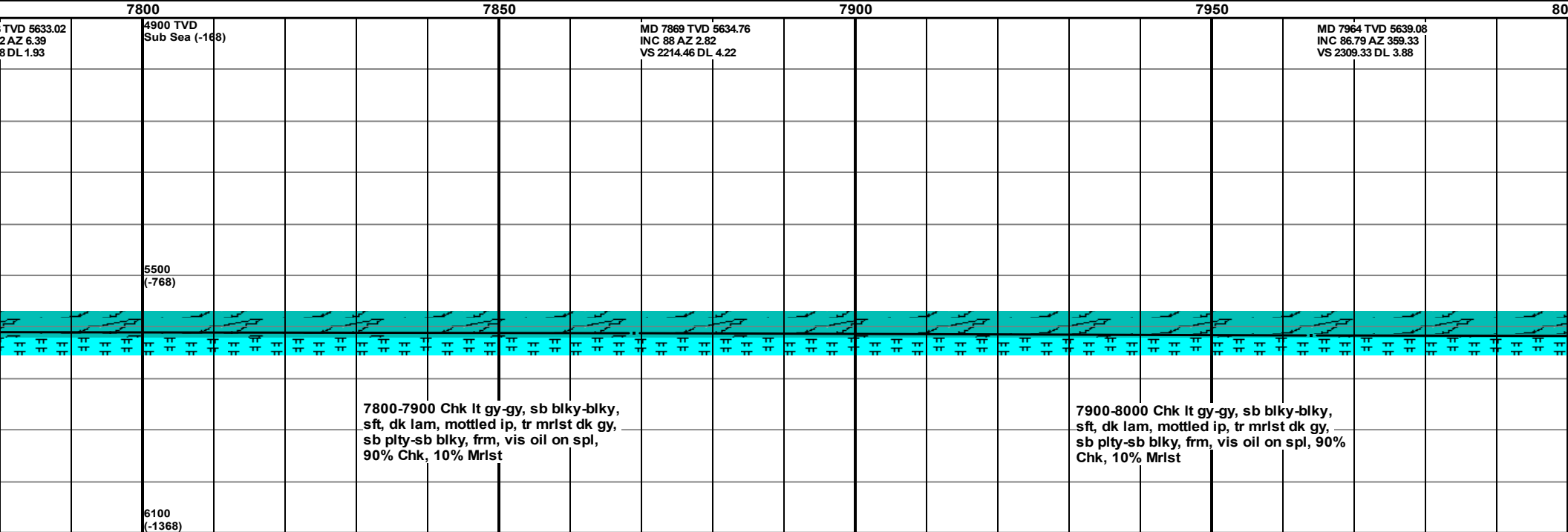
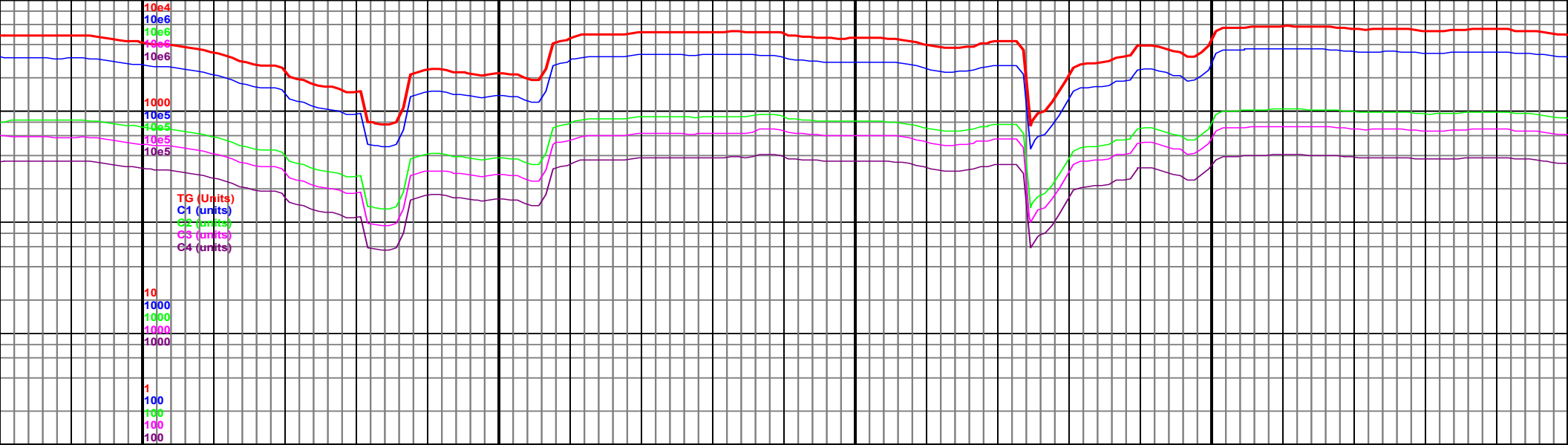


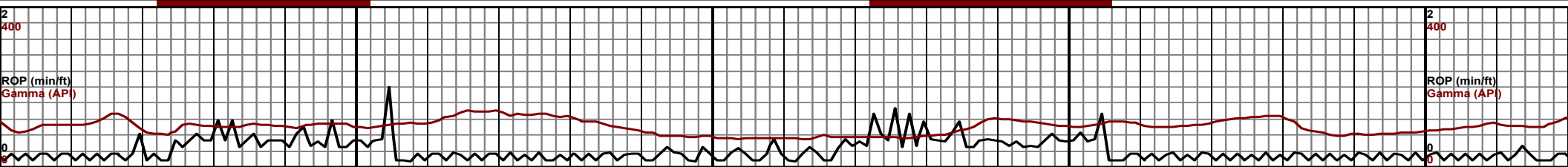
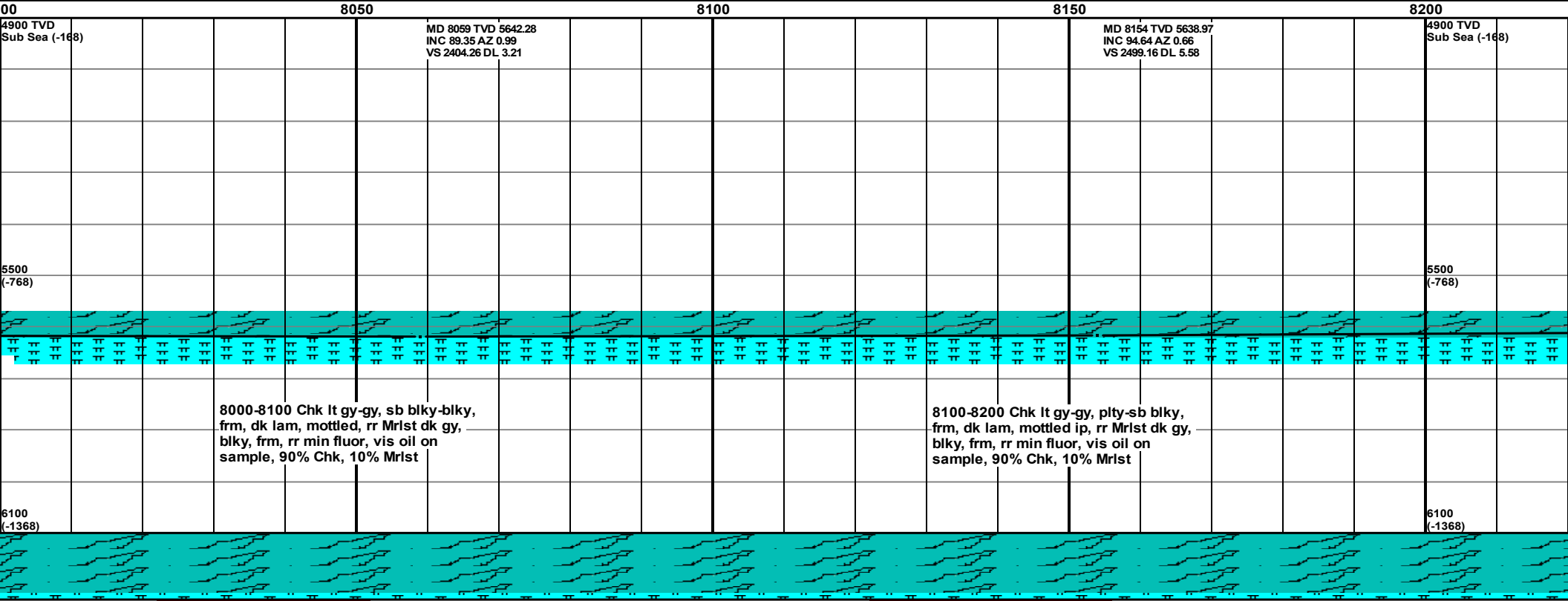
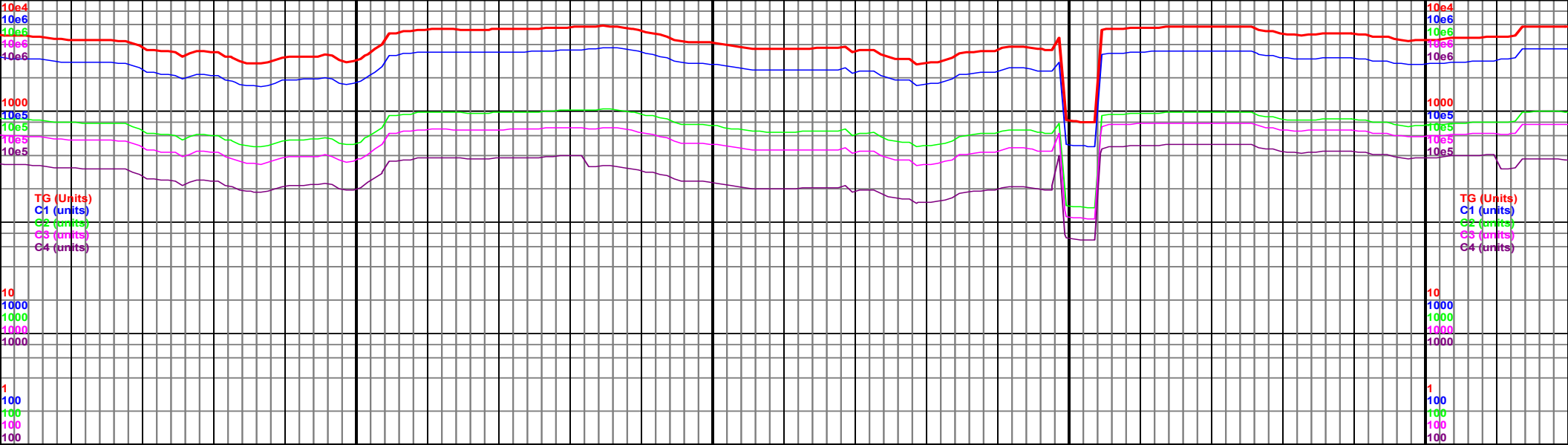


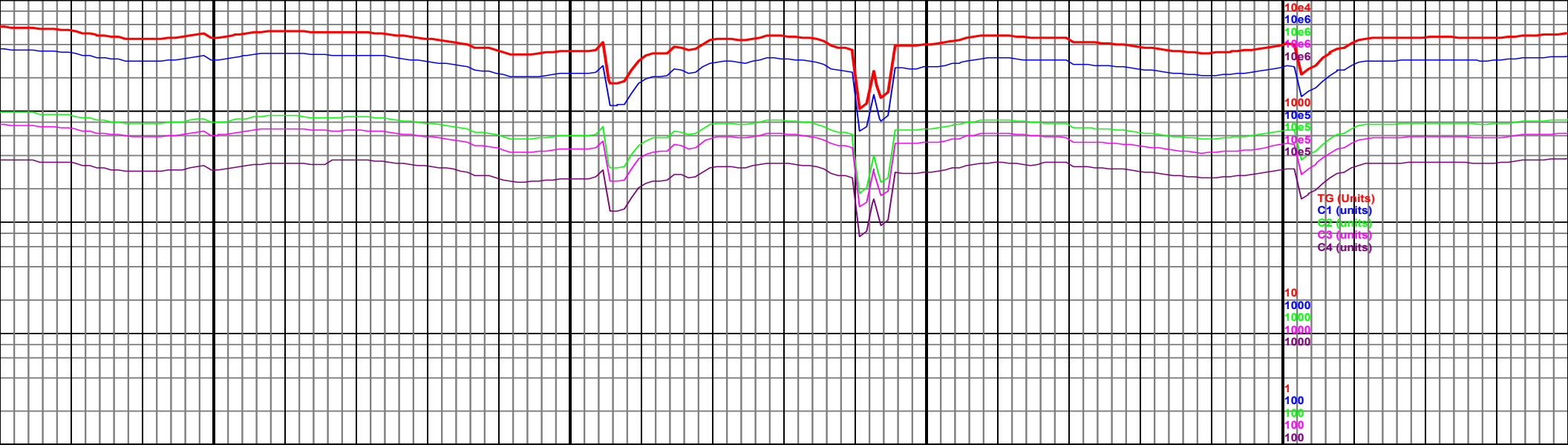




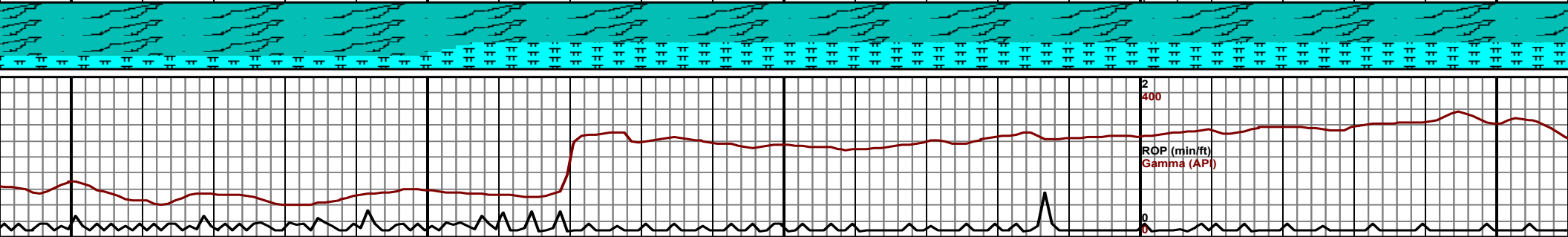
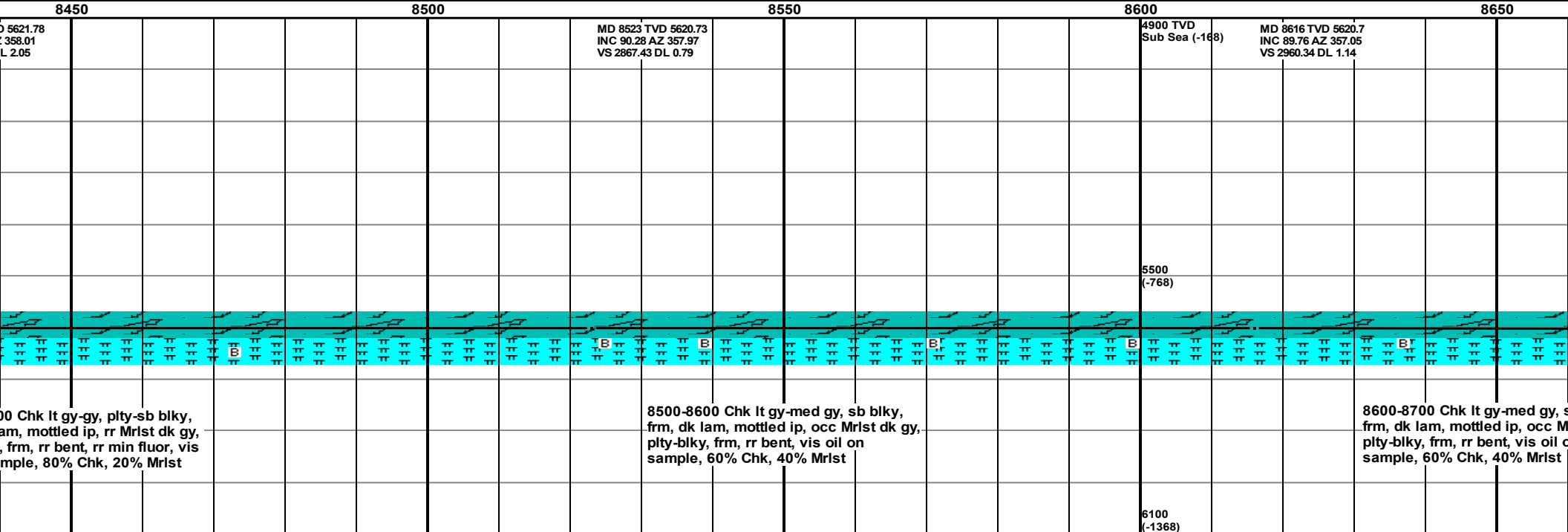
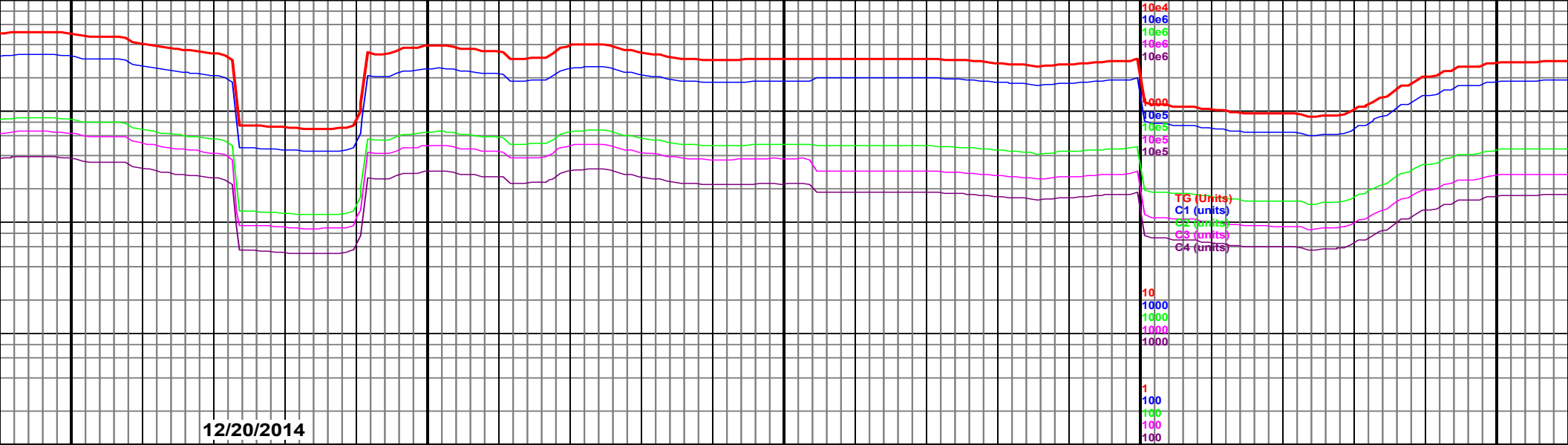


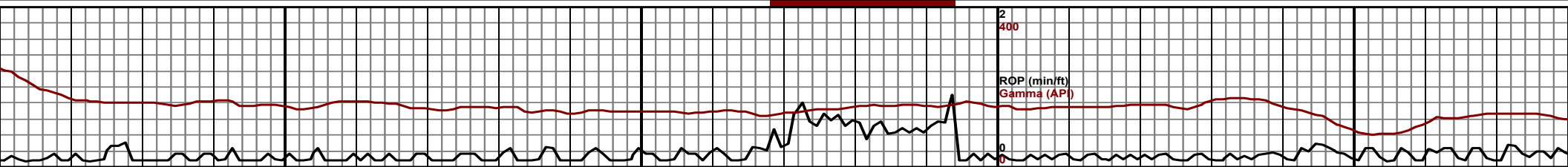
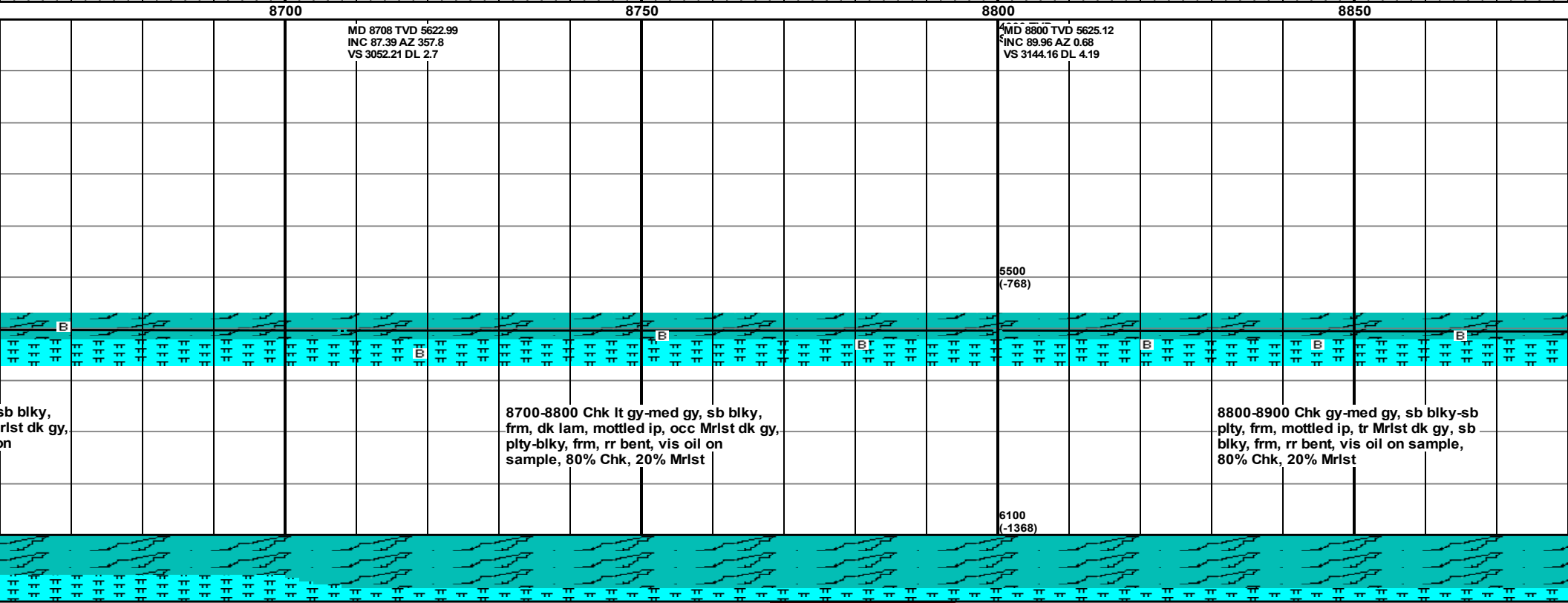
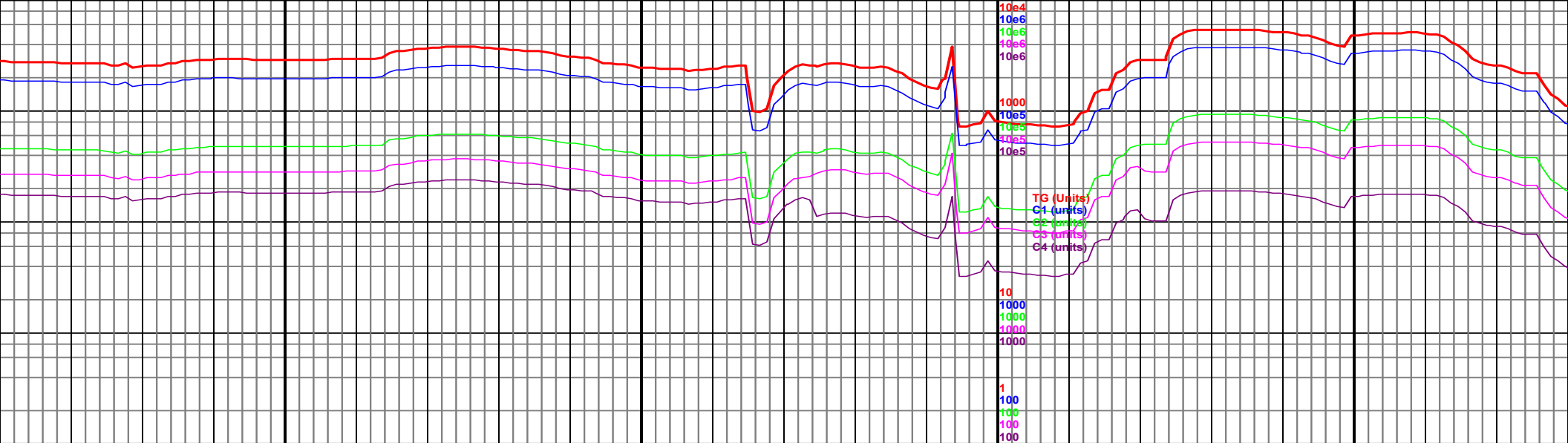


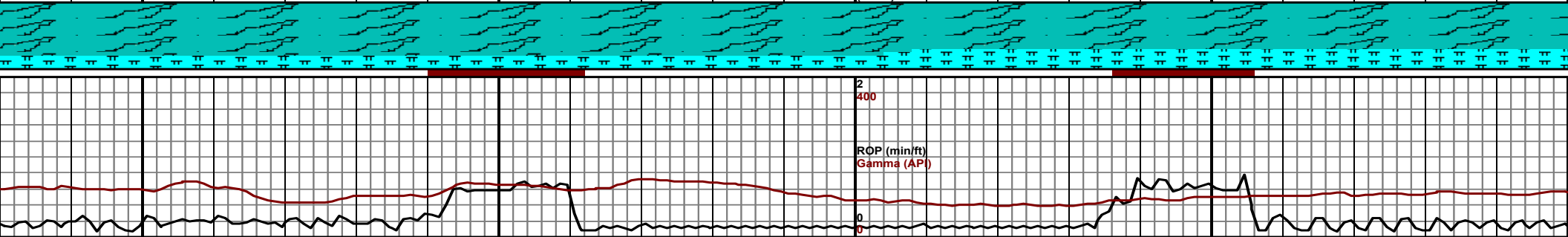
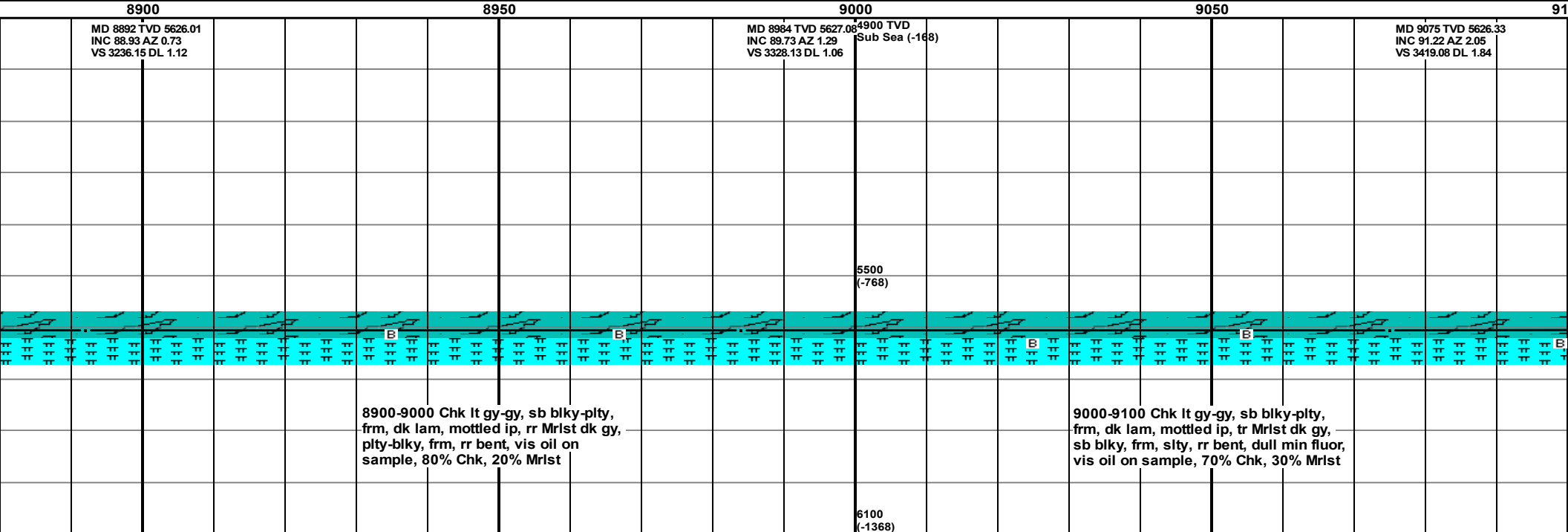
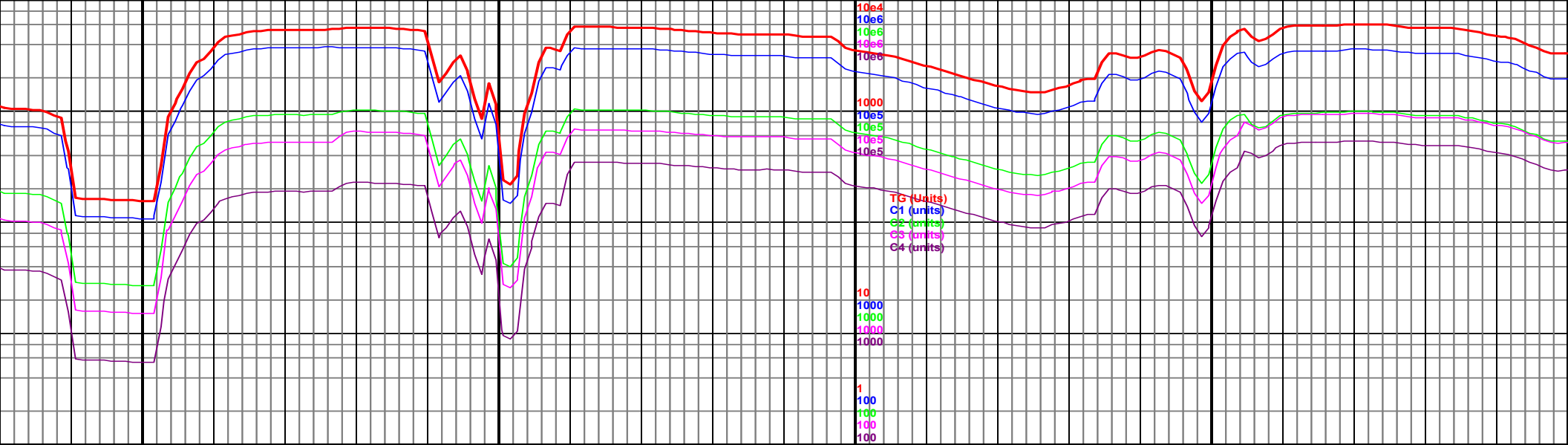


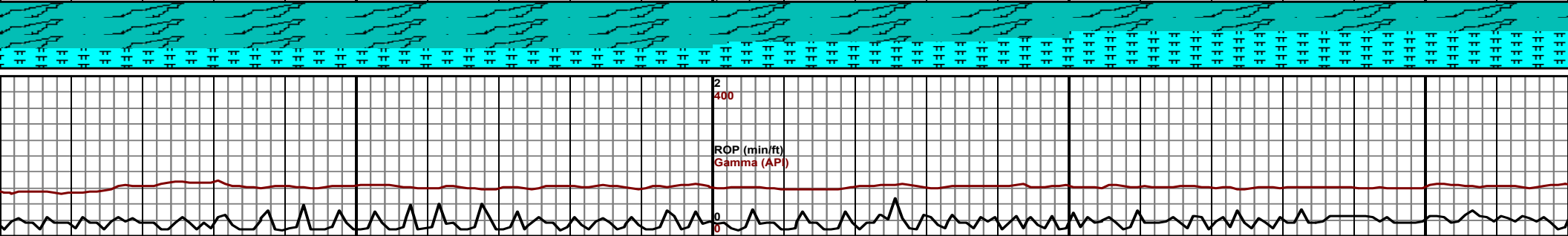
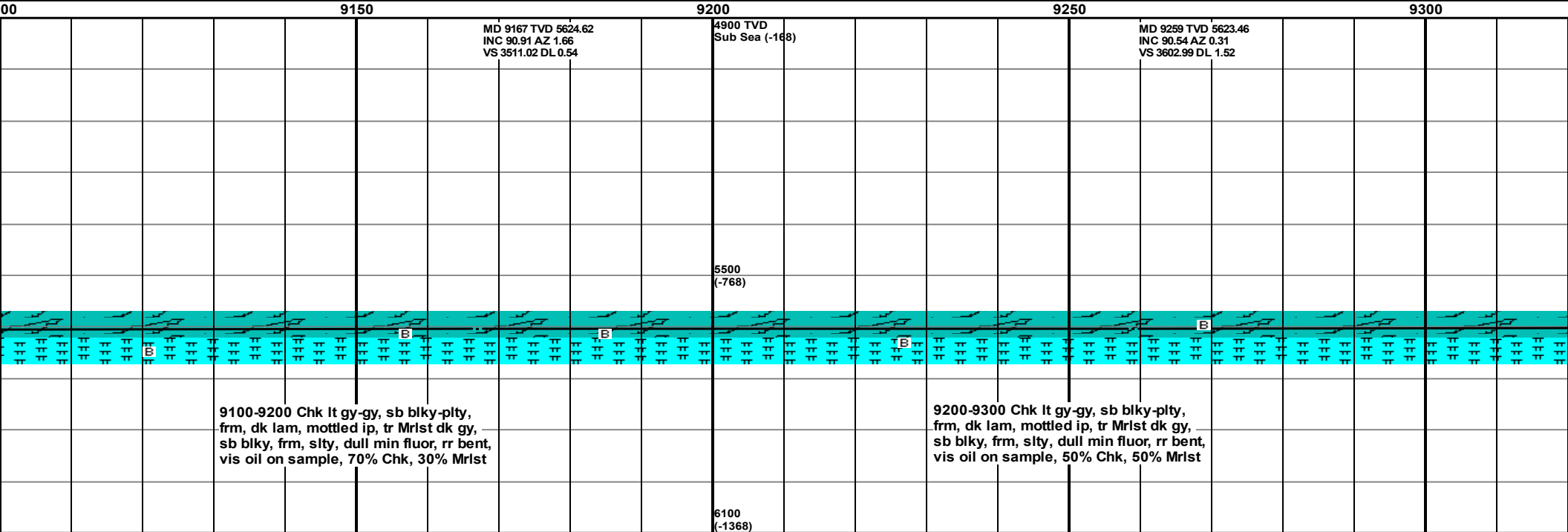
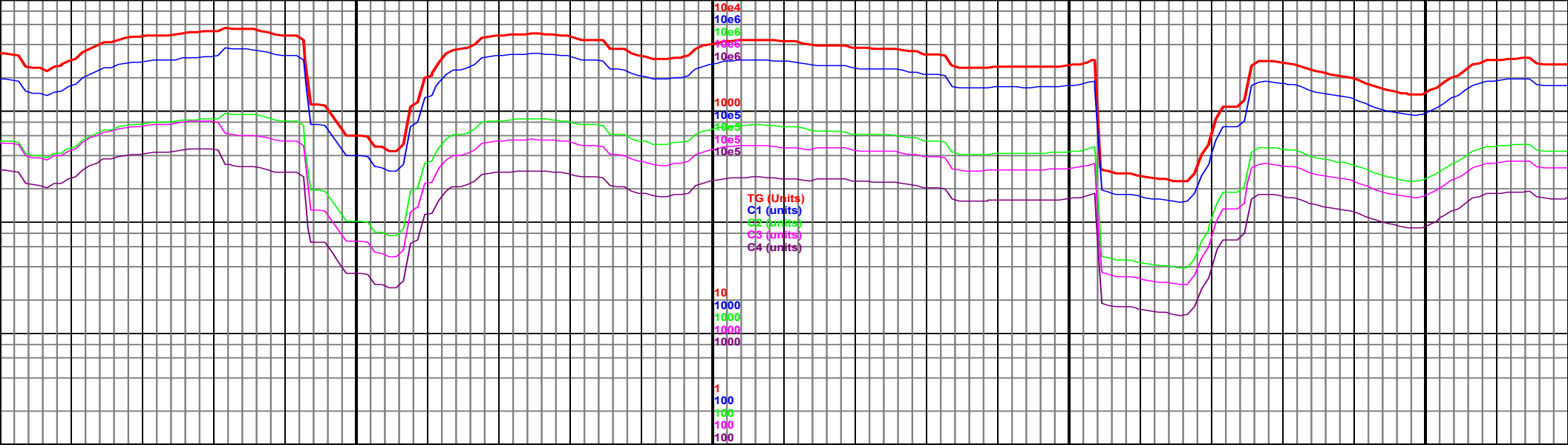


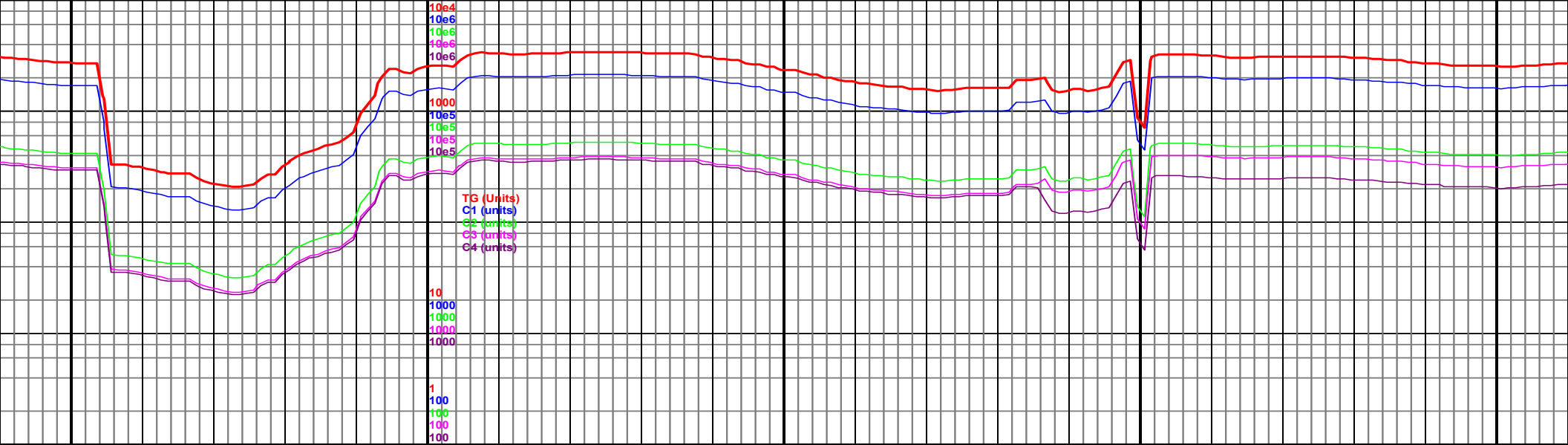
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										</																																							



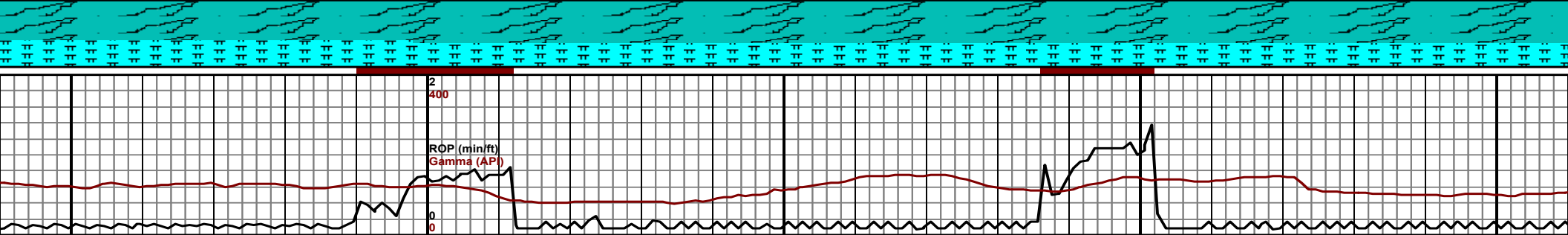


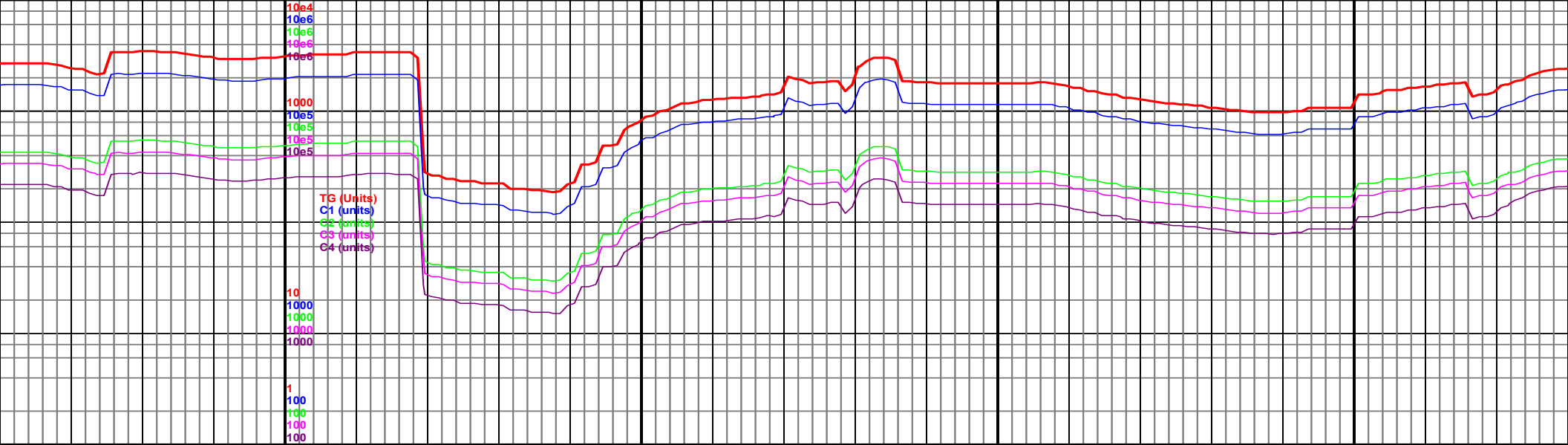




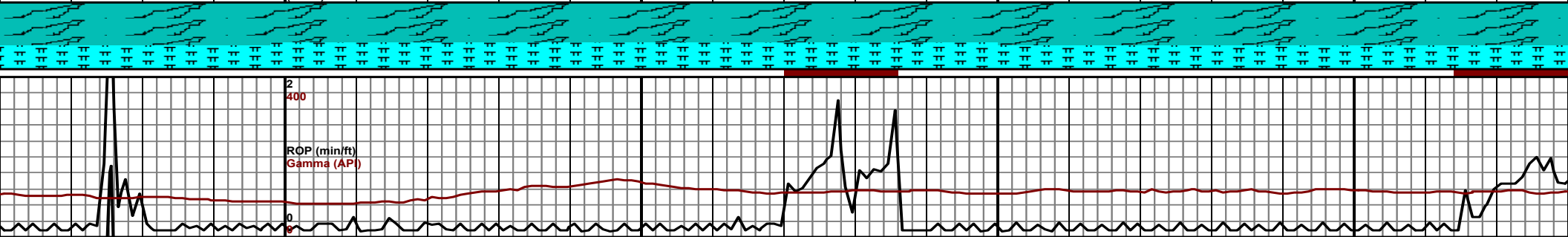


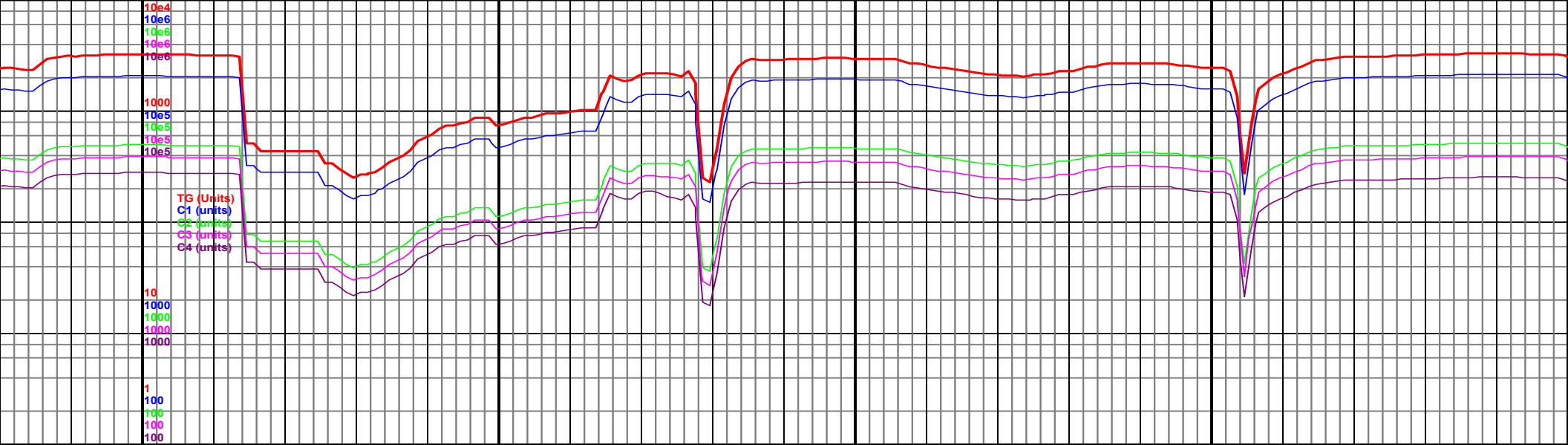
9550	9600	9650	9700	9750
9536 TVD 5621.75 90.07 AZ 359.6 879.95 DL 2.53	4900 TVD Sub Sea (-168)	MD 9629 TVD 5619.25 INC 93.01 AZ 1.15 VS 3972.9 DL 3.57	MD 9722 TVD 5615.65 INC 91.43 AZ 359.08 VS 4065.82 DL 2.8	





9800										9850										9900										9950									
4900 TVD Sub Sea (-168)										MD 9814 TVD 5613.17 INC 91.66 AZ 358.5 VS 4157.76 DL 0.68										MD 9906 TVD 5610.99 INC 91.05 AZ 359.89 VS 4249.73 DL 1.65																			
5500 (-768)																																							
y-pty, t dk gy, min fluor, 0% Mrlst										9800-9900 Chk lt gy-gy, sb blk-y-pty, frm, dk lam, mottled ip, tr Mrlst dk gy, sb blk-y, frm, slty, rr bent, dull min fluor, vis oil on sample, 60% Chk, 40% Mrlst										9900-10000 Chk lt gy-gy, sb blk-y-pty, frm, dk lam, mottled ip, tr Mrlst dk gy, sb blk-y, frm, slty, rr bent, dull min fluor, vis oil on sample, 70% Chk, 30% Mrlst																			
6100 (-1368)																																							





10000 10050 10100 10150 10200

MD 9999 TVD 5612.02
INC 87.69 AZ 358.91
VS 4342.7 DL 3.76

MD 10091 TVD 5613.29
INC 90.72 AZ 0.47
VS 4434.68 DL 3.7

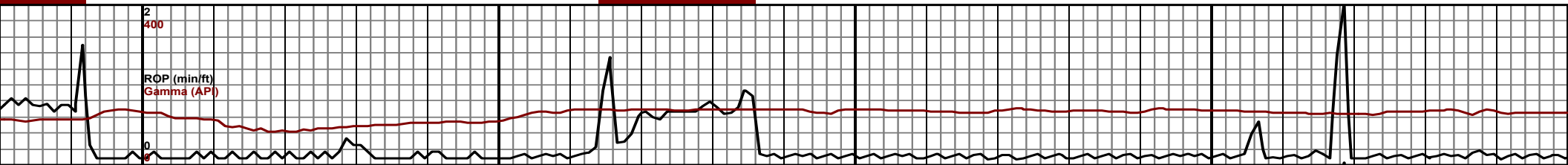
MD 10182 TVD 5612.32
INC 90.51 AZ 359.78
VS 4525.67 DL 0.79

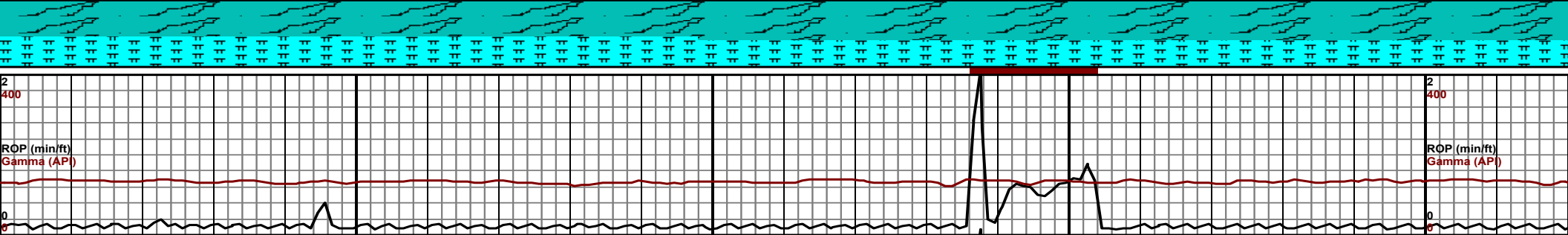
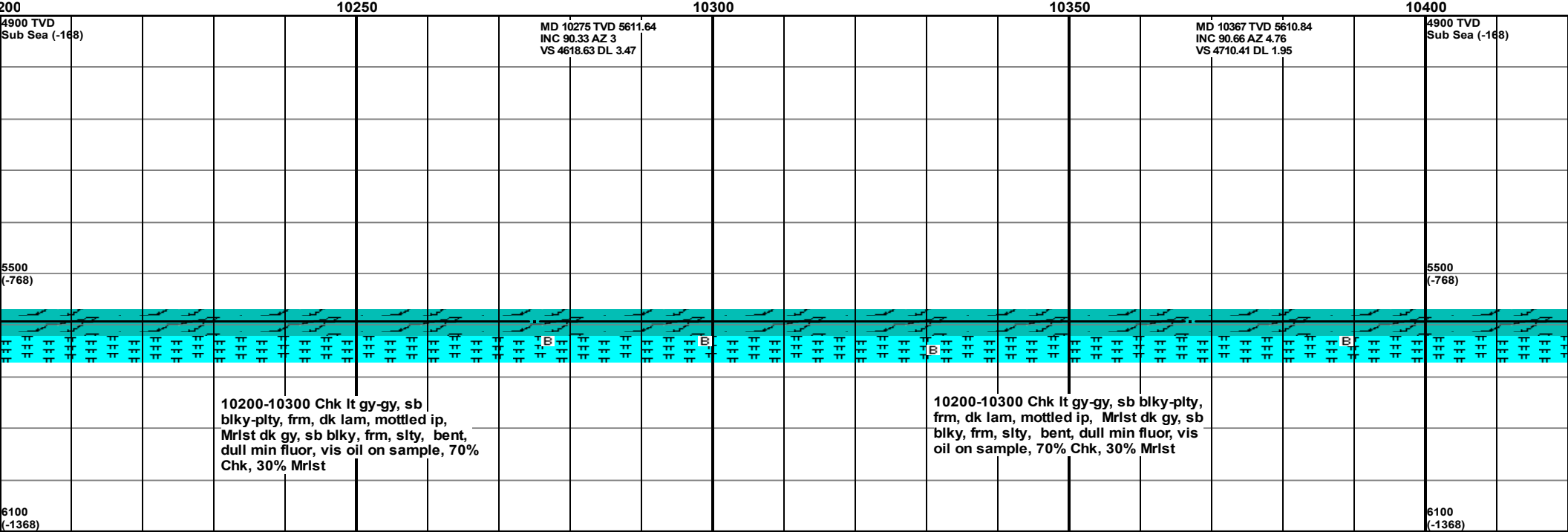
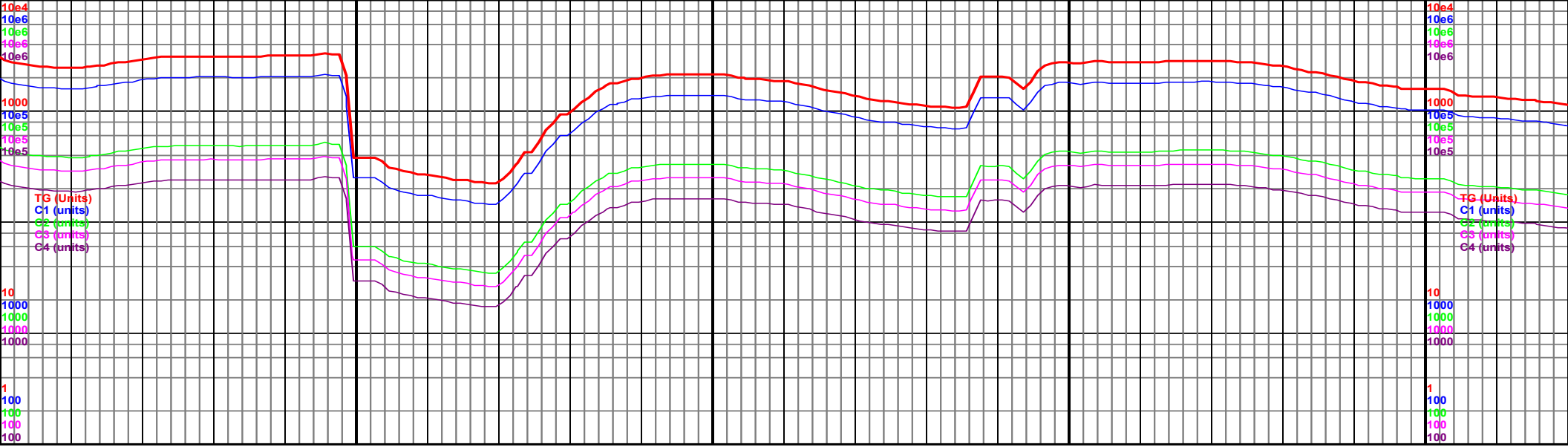
5500
(-768)

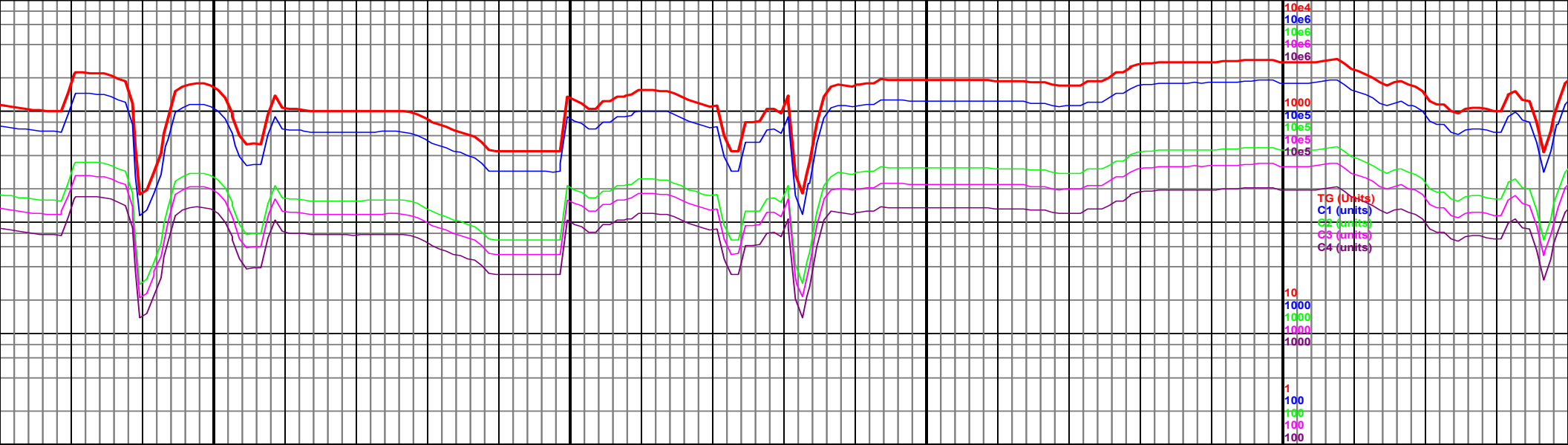
6100
(-1368)

10000-10100 Chk lt gy-gy, sb blk-y-plty,
frm, dk lam, mottled ip, tr Mrst dk gy,
sb blk-y, frm, slty, rr bent, dull min fluor,
vis oil on sample, 70% Chk, 30% Mrst

10100-10200 Chk lt gy-gy, sb
blk-y-plty, frm, dk lam, mottled ip,
Mrst dk gy, sb blk-y, frm, slty, bent,
dull min fluor, vis oil on sample, 70%
Chk, 30% Mrst







10450

10500

10550

10600

MD 10459 TVD 5611.17
INC 88.93 AZ 3.04
VS 4802.19 DL 2.65

MD 10551 TVD 5613.75
INC 87.85 AZ 0.24
VS 4894.11 DL 3.26

4900 TVD
Sub Sea (-168)

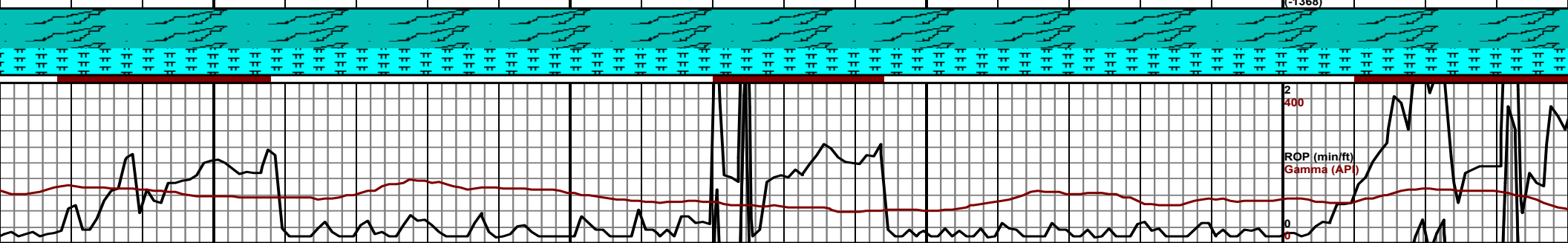
10300-10400 Chk lt gy-gy, sb blk-y-plty,
frm, dk lam, mottled ip, Mrst dk gy, sb
blk-y, frm, slty, bent, dull min fluor, vis
oil on sample, 60% Chk, 40% Mrst

10500-10600 Chk lt gy-gy, sb blk-y-plty,
frm, dk lam, mottled ip, Mrst dk gy, sb
blk-y, frm, slty, tr bent, dull min fluor,
vis oil on sample, 60% Chk, 40% Mrst

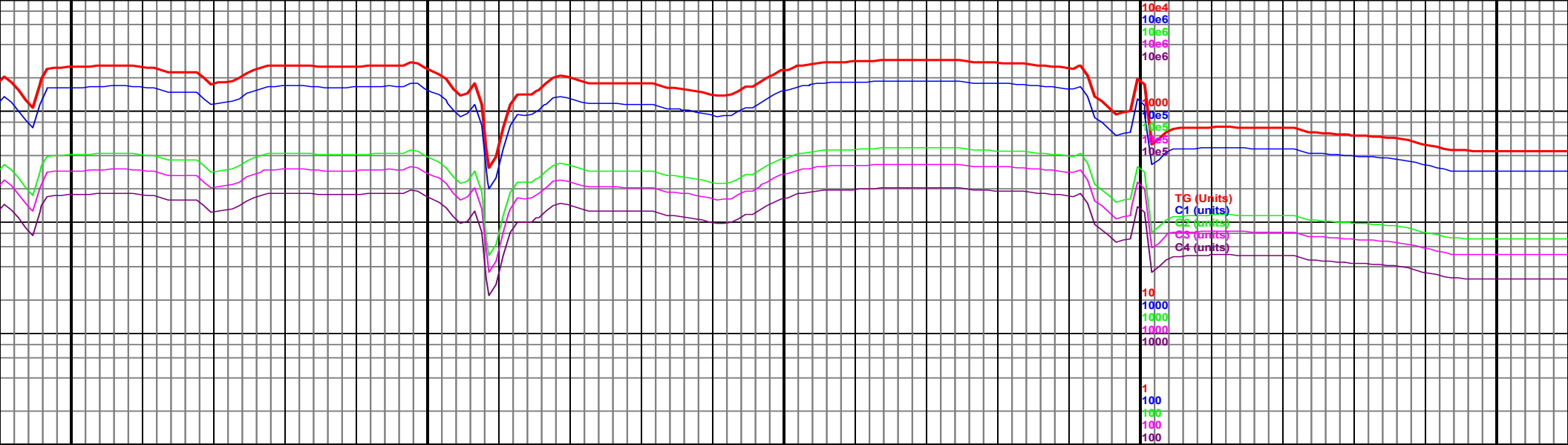
10600-10700 Chk lt gy-gy, sb blk-y-plty,
frm, dk lam, mottled ip, Mrst dk gy, sb
blk-y, frm, slty, bent, dull min fluor, vis
oil on sample, 60% Chk, 40% Mrst

5500
(-768)

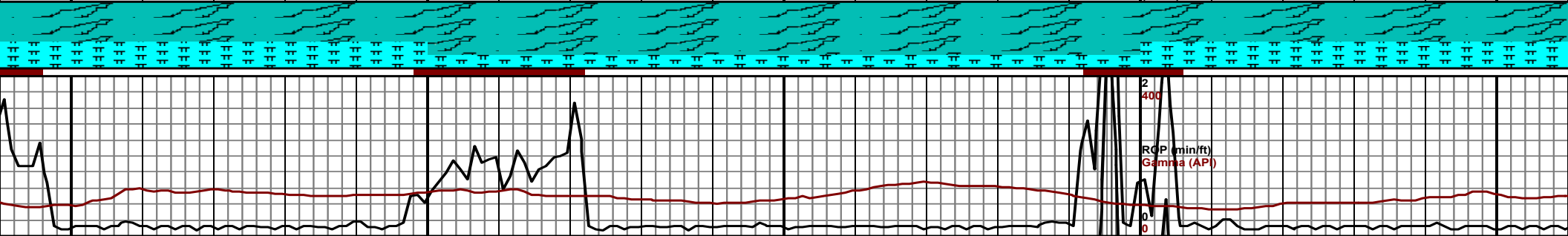
6100
(-1368)

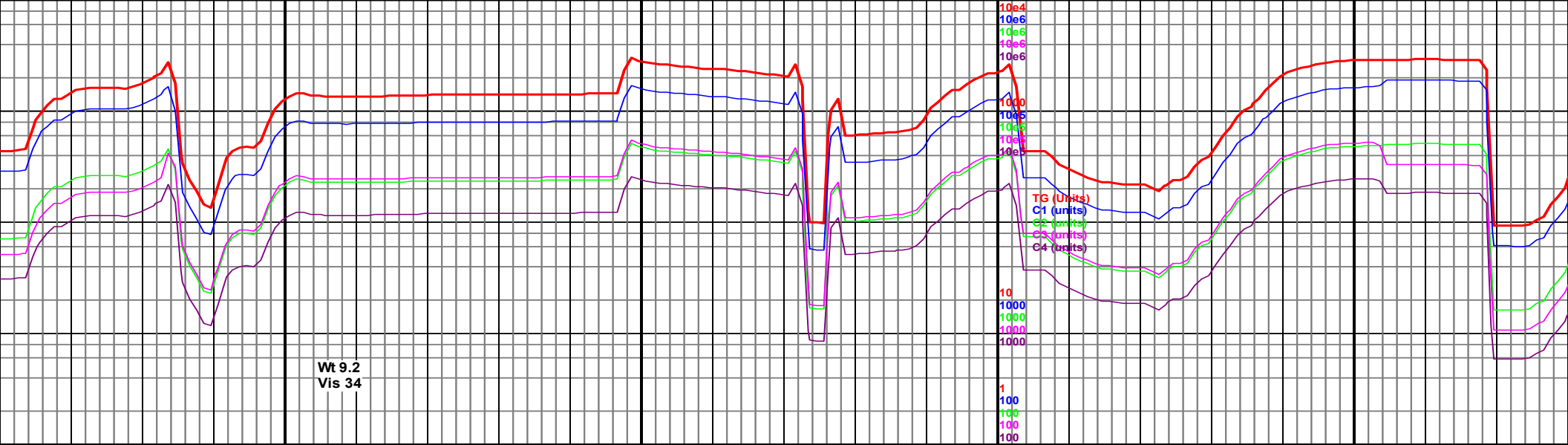


2
400
ROP (min/ft)
Gamma (API)

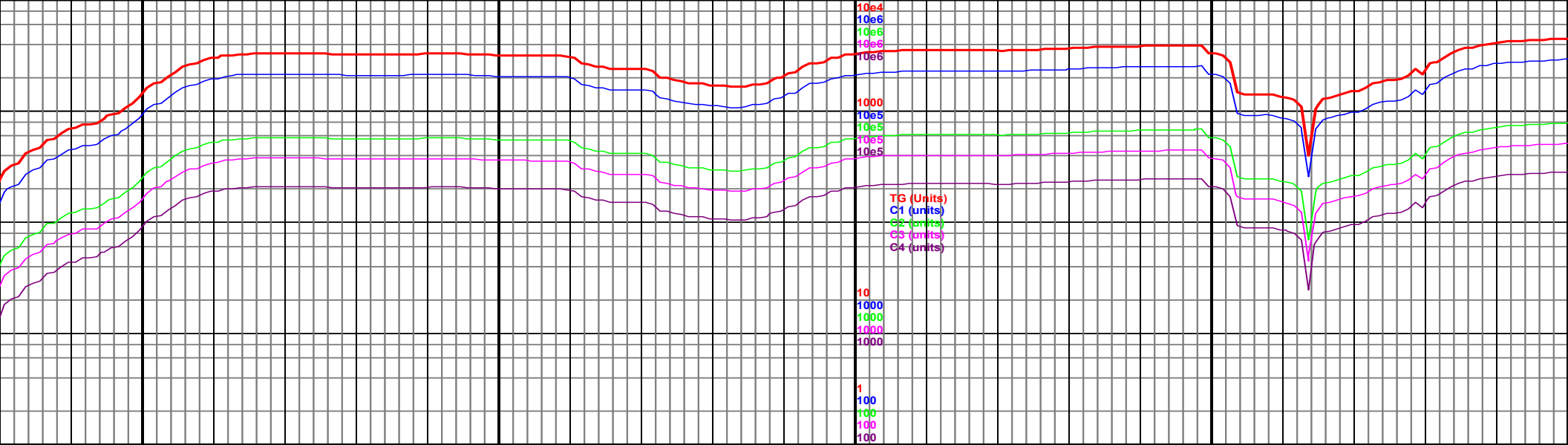


<p>10650</p> <p>MD 10644 TVD 5617.16 INC 87.95 AZ 0.55 VS 4987.04 DL 0.35</p> <p>700 Chk lt gy-gy, sb blkly-plty, m, mottled ip, Mrlist dk gy, sb slty, bri yel min fluor, tr bent, sample, slo mlky cut, 60% Mrlist</p>	<p>10700</p>	<p>10750</p> <p>MD 10737 TVD 5619.68 INC 88.95 AZ 358.21 VS 5079.99 DL 2.74</p> <p>10700-10800 Chk lt gy-gy, sb blkly-plty, frm, dk lam, mottled ip, Mrlist dk gy, sb blkly, frm, slty, bri yel min fluor, abnt bent, vis oil on sample, fst cut, 80% Chk, 20% Mrlist</p>	<p>10800</p> <p>4900 TVD Sub Sea (-168)</p> <p>5500 (-768)</p> <p>6100 (-1368)</p>	<p>10850</p> <p>MD 10829 TVD 5621.86 INC 88.33 AZ 357.78 VS 5171.91 DL 0.82</p> <p>10800-10900 Chk lt gy-gy, sb frm, dk lam, mottled ip, Mrlist blkly, frm, slty, bri yel min fluor bent, vis oil on sample, fst ml 60% Chk, 40% Mrlist</p>
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10900					10950					11000					11050				
					MD 10921 TVD 5622.51 INC 90.86 AZ 357.58 VS 5263.83 DL 2.76										MD 11013 TVD 5621.58 INC 90.3 AZ 356.82 VS 5355.71 DL 1.03				



11100

MD 11106 TVD 5621
INC 90.42 AZ 357.56
VS 5448.6 DL 0.81

11150

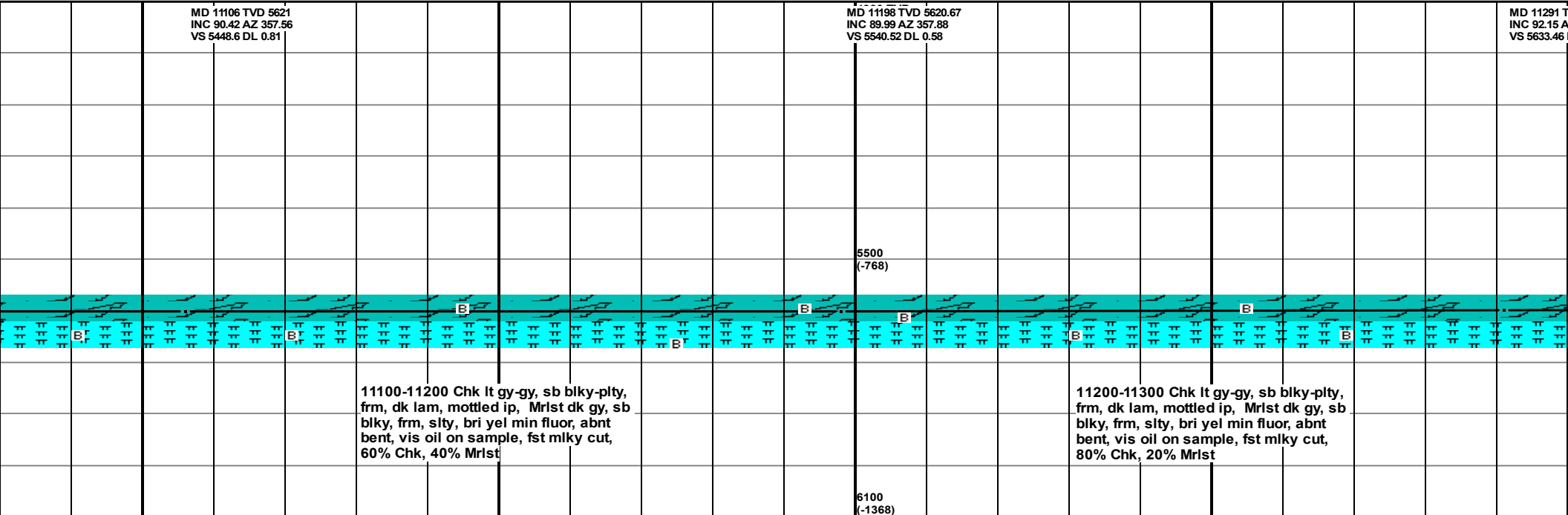
11200

MD 11198 TVD 5620.67
INC 89.99 AZ 357.88
VS 5540.52 DL 0.58

11250

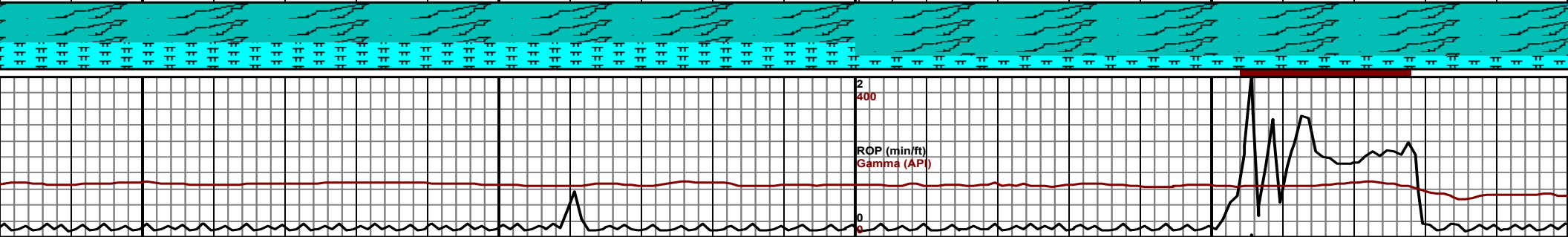
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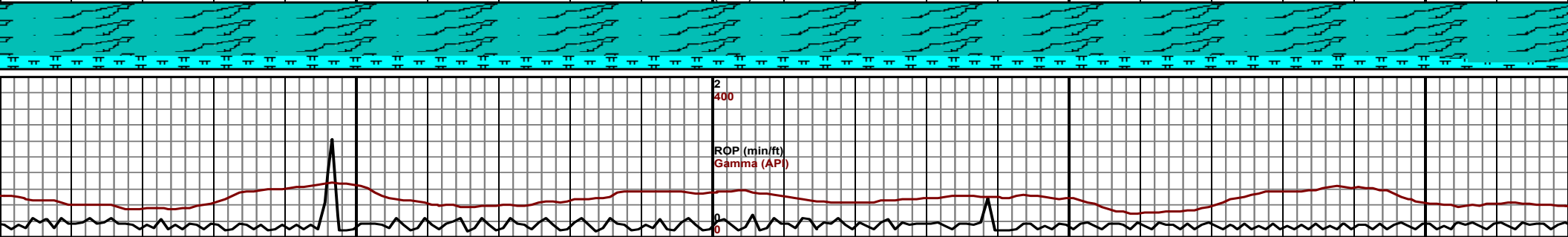
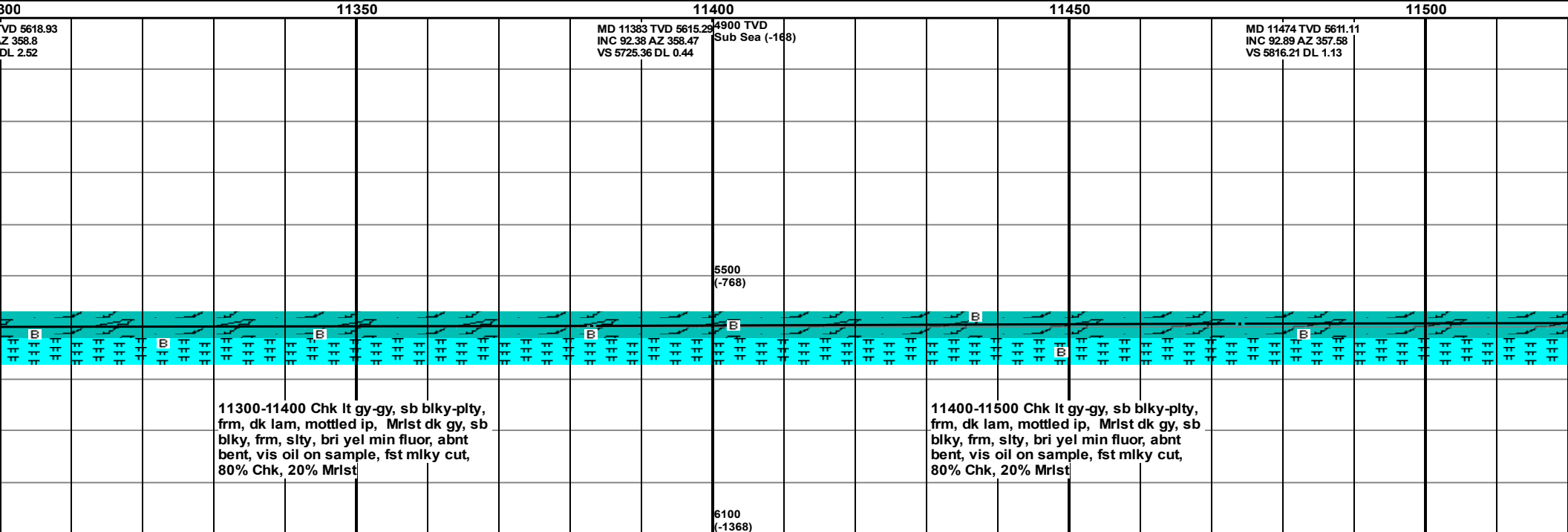
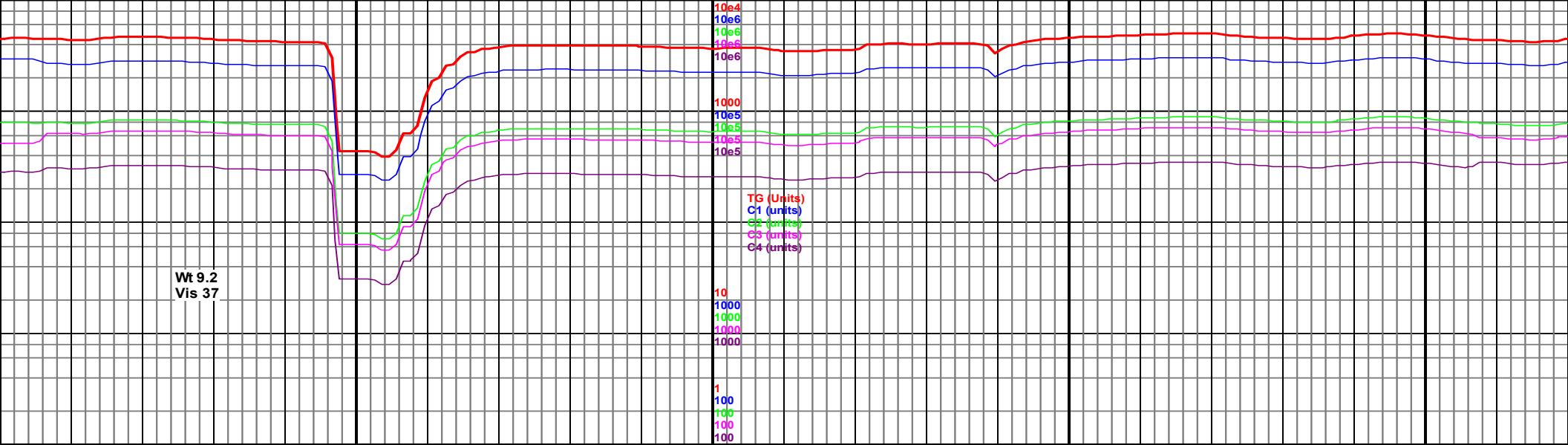
MD 11291 T
INC 92.15 A
VS 5633.46

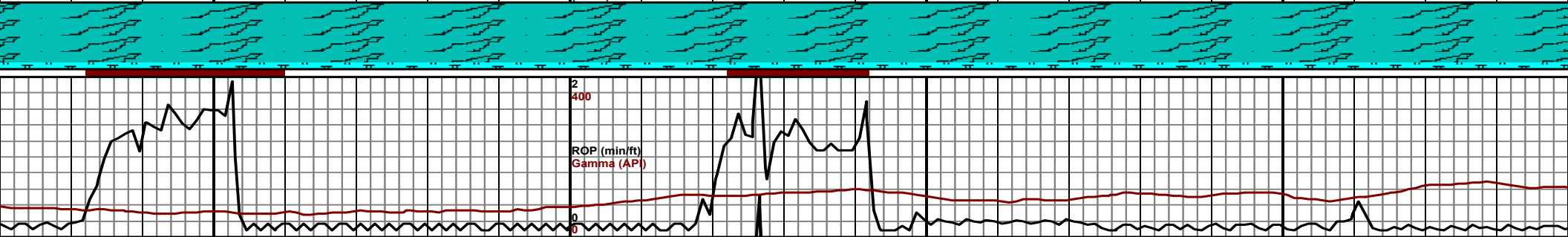
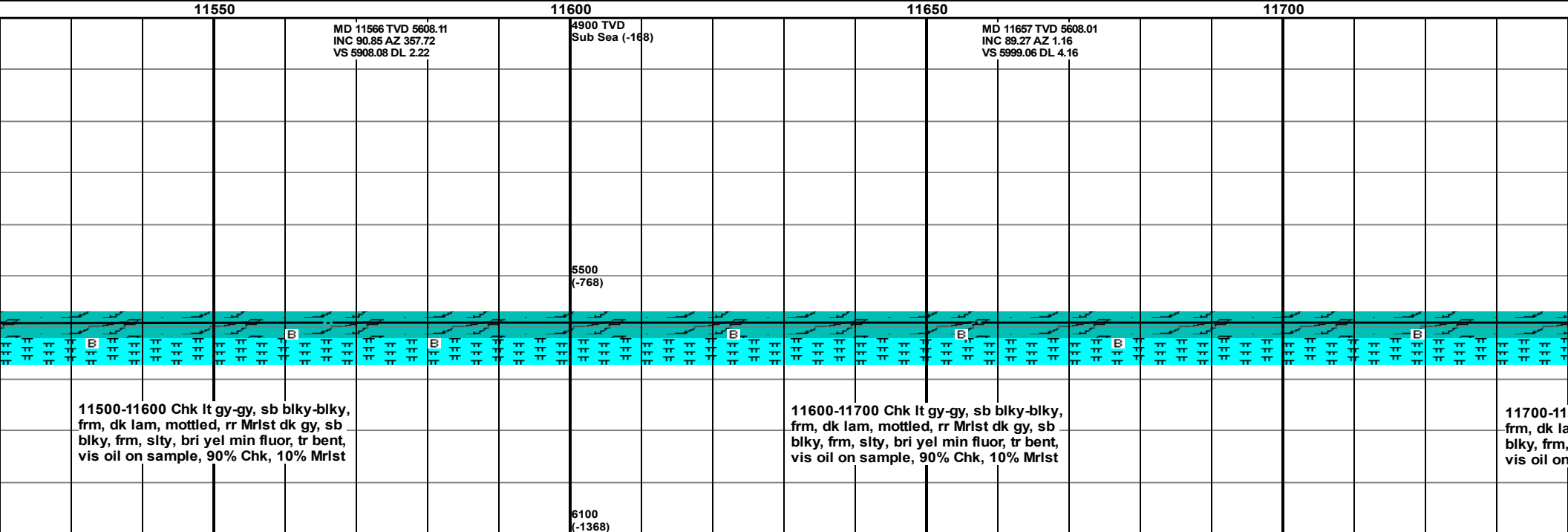
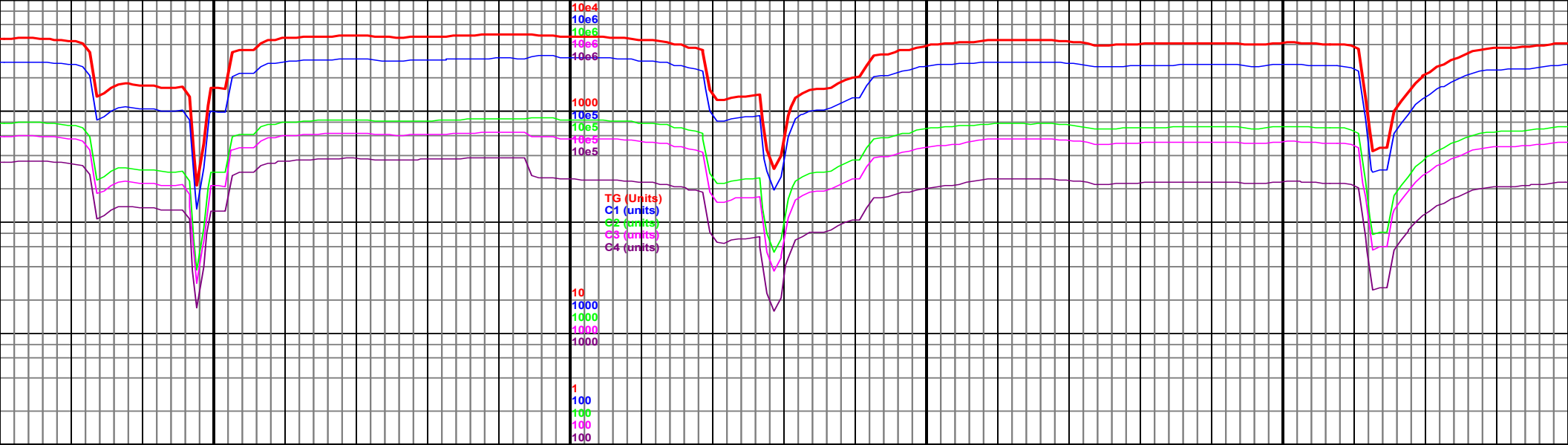


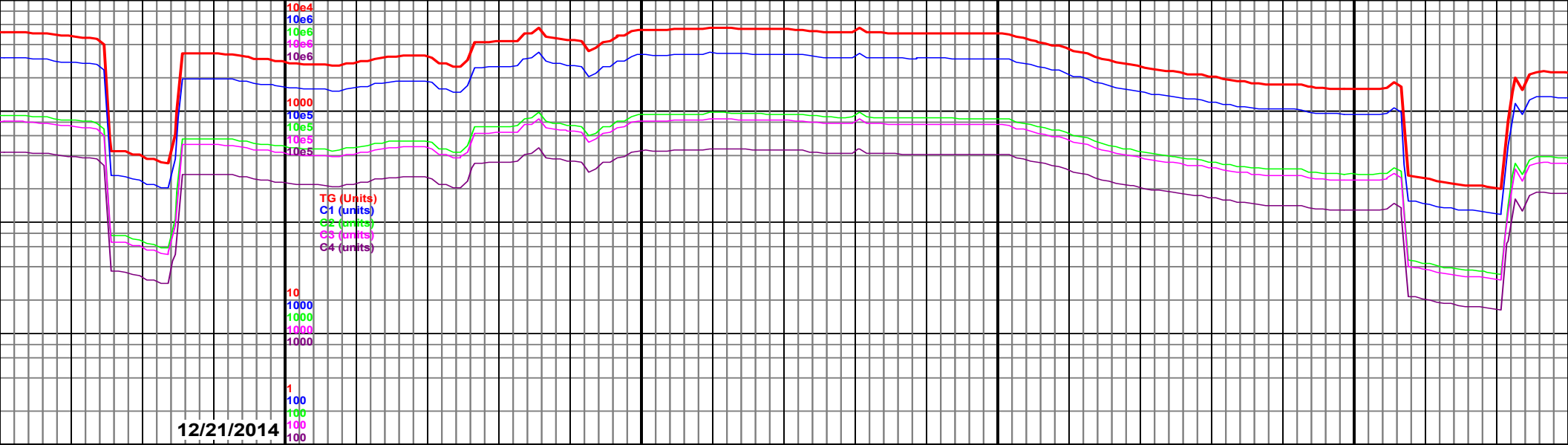
11100-11200 Chk lt gy-gy, sb blkly-plty,
frm, dk lam, mottled ip, Mrlst dk gy, sb
blkly, frm, slty, bri yel min fluor, abnt
bent, vis oil on sample, fst mlky cut,
60% Chk, 40% Mrlst

11200-11300 Chk lt gy-gy, sb blkly-plty,
frm, dk lam, mottled ip, Mrlst dk gy, sb
blkly, frm, slty, bri yel min fluor, abnt
bent, vis oil on sample, fst mlky cut,
80% Chk, 20% Mrlst

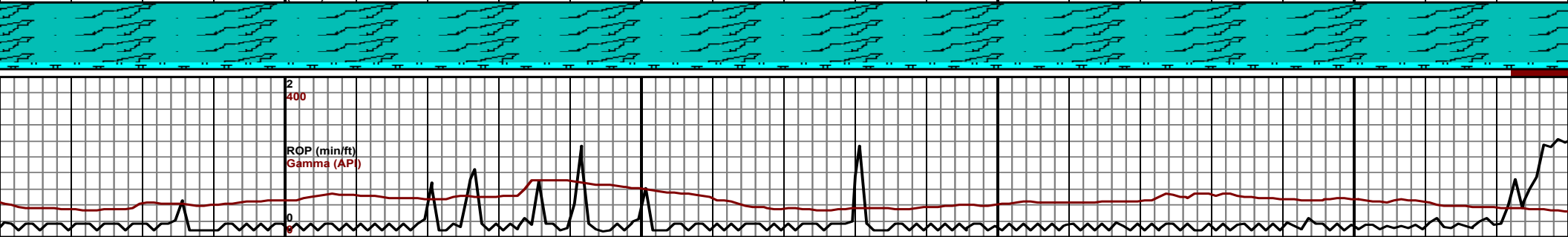


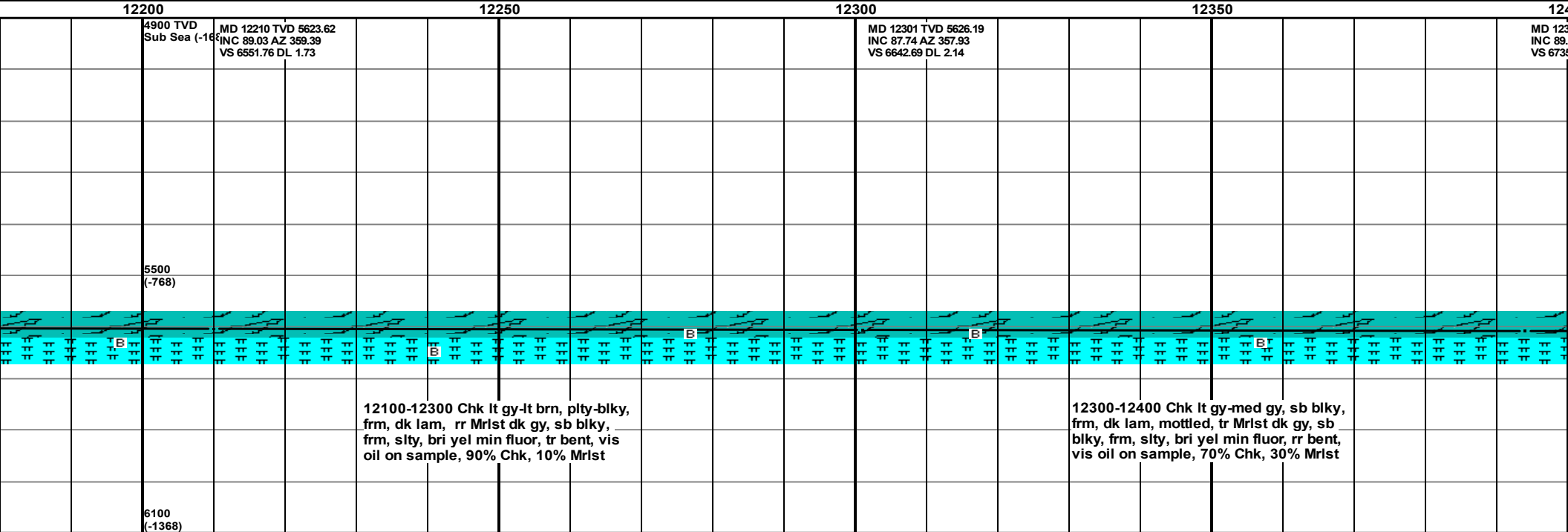
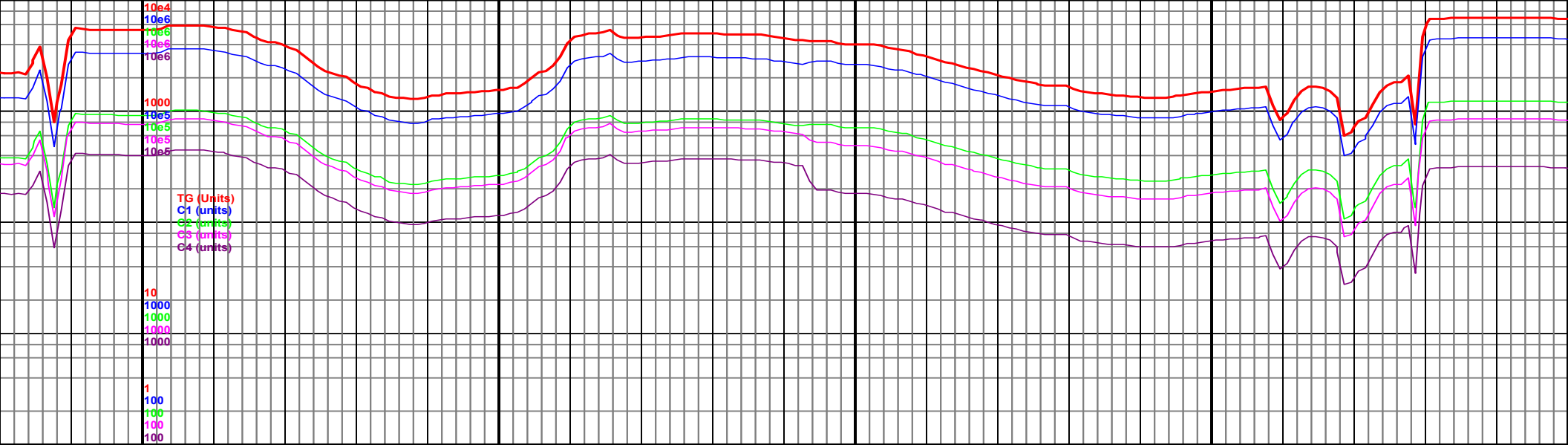






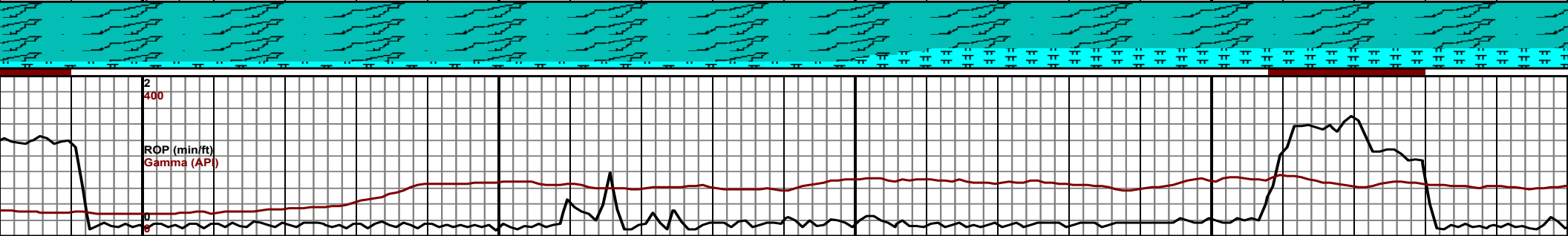
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4900 TVD Sub Sea (-168)					MD 12026 TVD 5617.15 INC 87.81 AZ 359.38 VS 6367.9 DL 0.61					MD 12118 TVD 5620.88 INC 87.55 AZ 358.8 VS 6459.81 DL 0.69									
5500 (-768)																			
y-blky, dk gy, sb r, tr bent, 0% Mrlst					12000-12100 Chk lt gy-gy, plty-blky, frm, dk lam, mottled, rr Mrlst dk gy, sb blky, frm, slty, bri yel min fluor, tr bent, vis oil on sample, 90% Chk, 10% Mrlst					12100-12200 Chk lt gy-gy-lt brn, plty-blky, frm, dk lam, rr Mrlst dk gy, sb blky, frm, slty, bri yel min fluor, tr bent, vis oil on sample, 90% Chk, 10% Mrlst									
6100 (-1368)																			

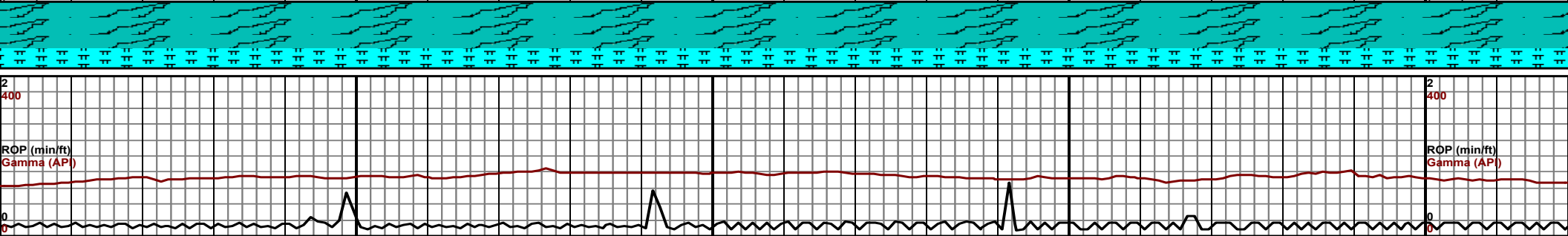
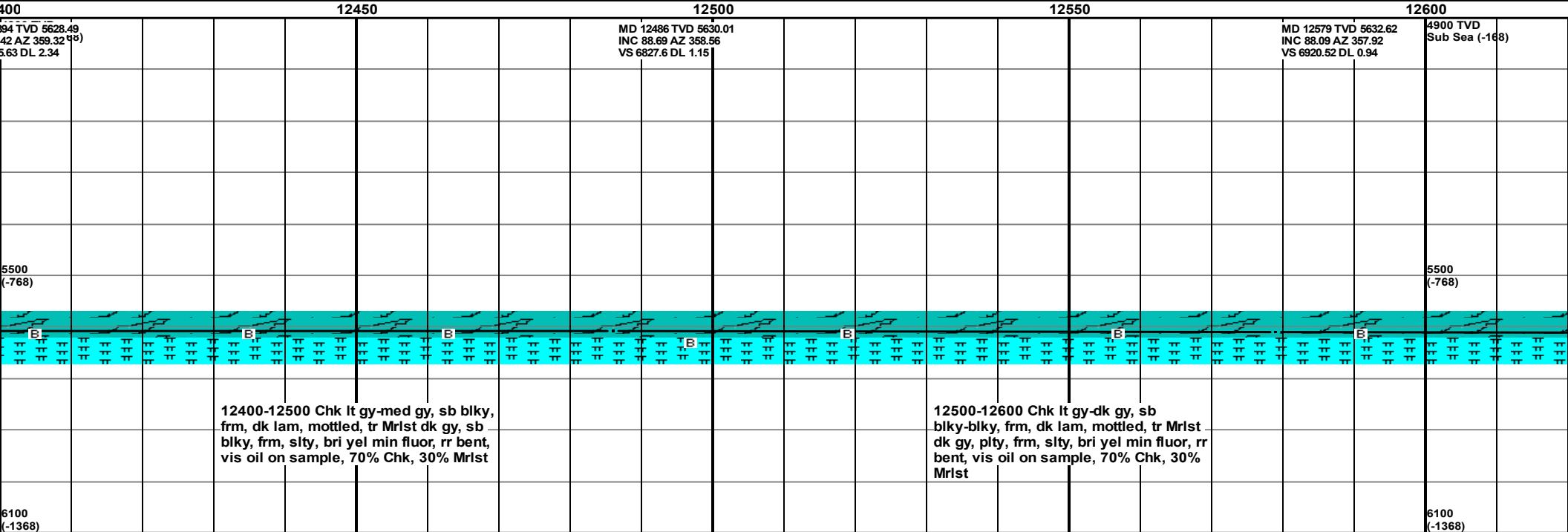
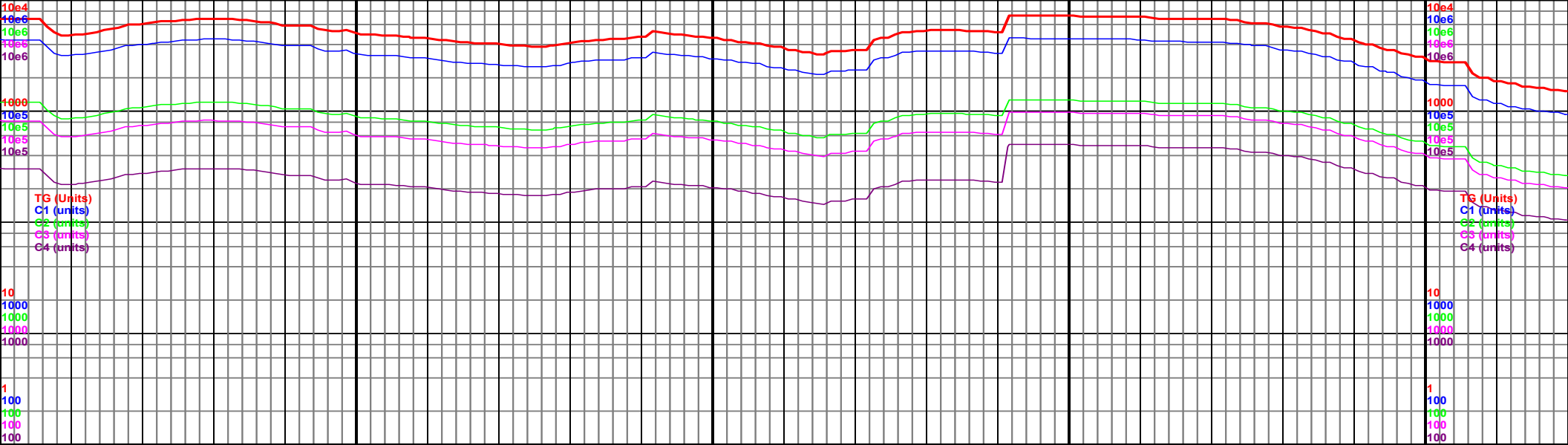


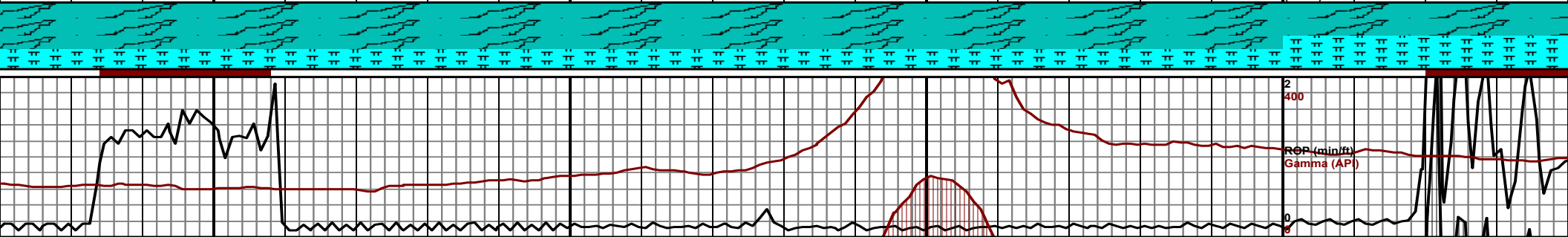
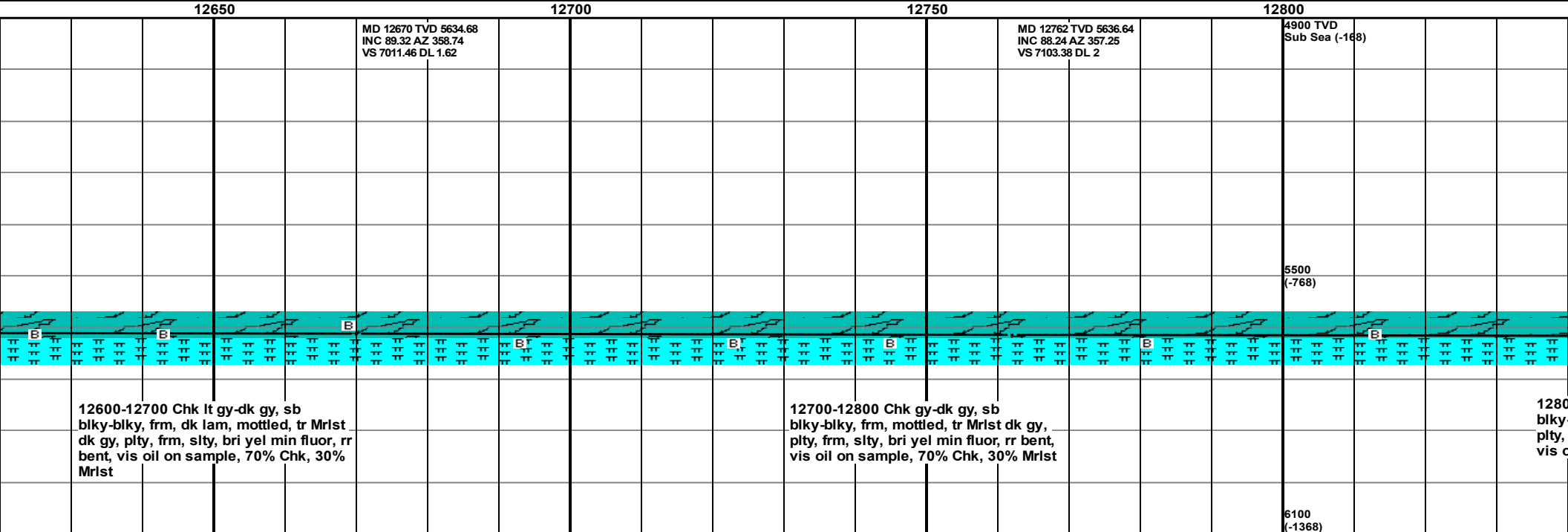
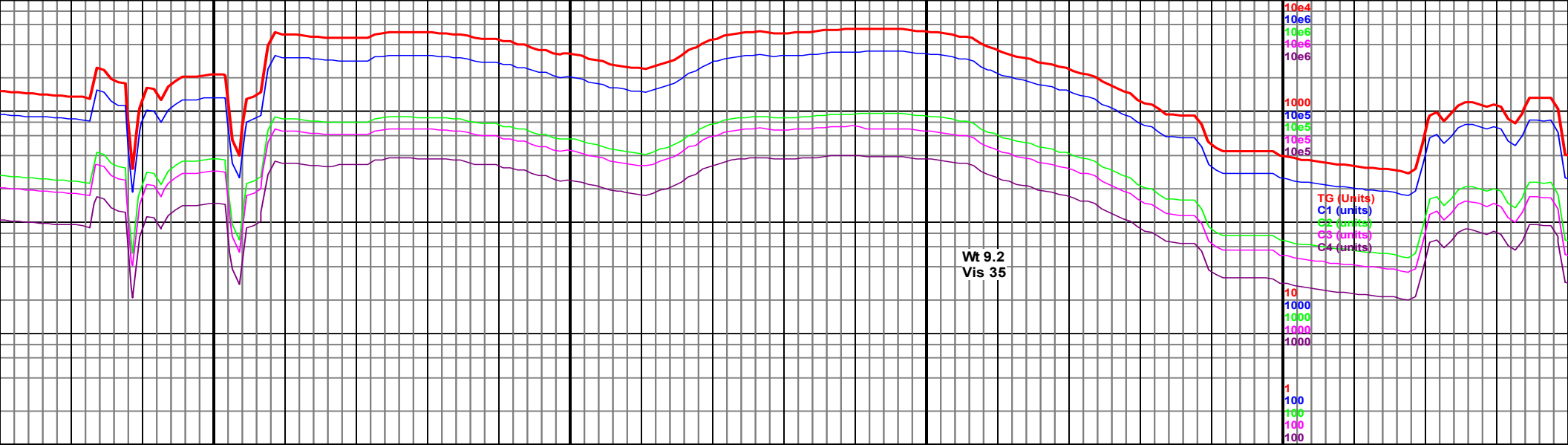


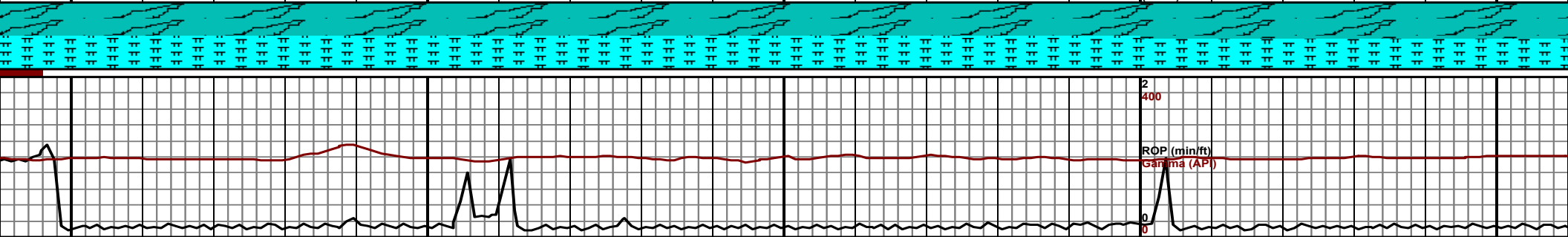
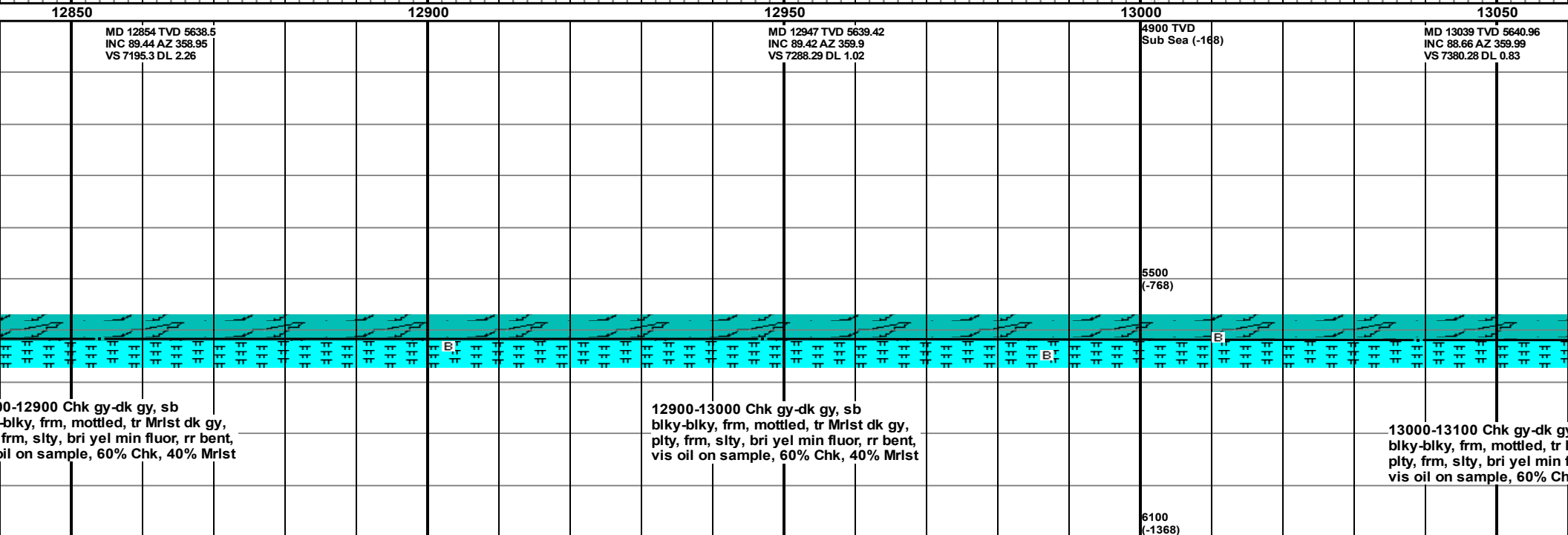
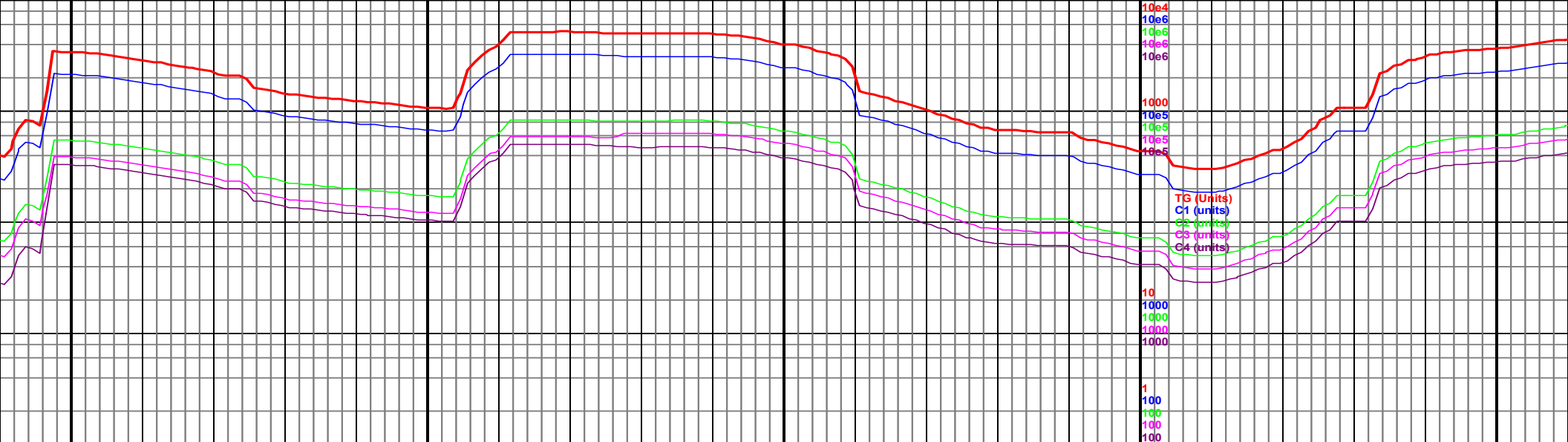
12100-12300 Chk lt gy-lt brn, plty-blky,
frm, dk lam, rr Mrst dk gy, sb blky,
frm, slty, bri yel min fluor, tr bent, vis
oil on sample, 90% Chk, 10% Mrst

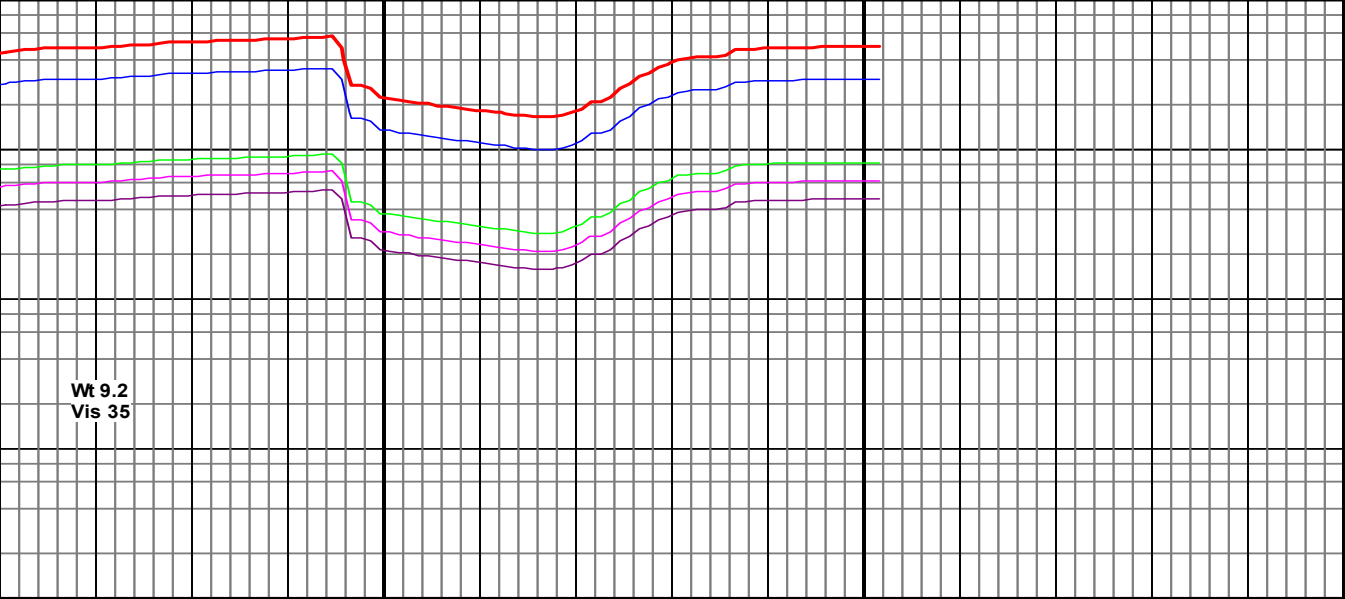
12300-12400 Chk lt gy-med gy, sb blky,
frm, dk lam, mottled, tr Mrst dk gy, sb
blky, frm, slty, bri yel min fluor, rr bent,
vis oil on sample, 70% Chk, 30% Mrst











Wt 9.2
Vis 35

13100

13150

13

MD 13097 TVD 5642.43
INC 88.44 AZ 0.15
VS 7438.26 DL 0.47

MD 13152 TVD 5640
INC 88.44 AZ 0.15
VS 7493.29 DL 0

B

TD 13152' reached at
08:10 on 12/21/2014 .



y, sb
Mrlst dk gy,
fluor, rr bent,
k, 40% Mrlst

13100-13152 Chk gy-dk gy, sb
blky-blky, frm, mottled, tr Mrlst dk gy,
pty, frm, slty, bri yel min fluor, rr bent,
vis oil on sample, 70% Chk, 30% Mrlst

