



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

Well Name: Horsetail 07G-0609  
Well Id: 05-123-42111-00  
Location: Sec 7-T10N-R57W  
License Number: 05-123-42111-00  
Spud Date: 3/23/2016  
Surface Coordinates: Lat.: 40.853506 Long.: -103.791783

Region: Redtail Field  
Drilling Completed: 3/26/2016

**Bottom Hole Coordinates:**

Ground Elevation (ft): 4892  
Logged Interval (ft): 5159 To: 12755  
Formation: Niobrara A Chalk  
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4913  
Total Depth (ft): 12755

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

**OPERATOR**

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

**GEOLOGIST**

Name: Brian Reddick and Eli DenBesten  
Company: Acme Geologic Consulting  
Address: 108 Berry Street  
Little Rock, AR 72205

## Drilling Company

Unit Drilling Company  
Rig 409

## Gas Detection






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

## 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**

-  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**

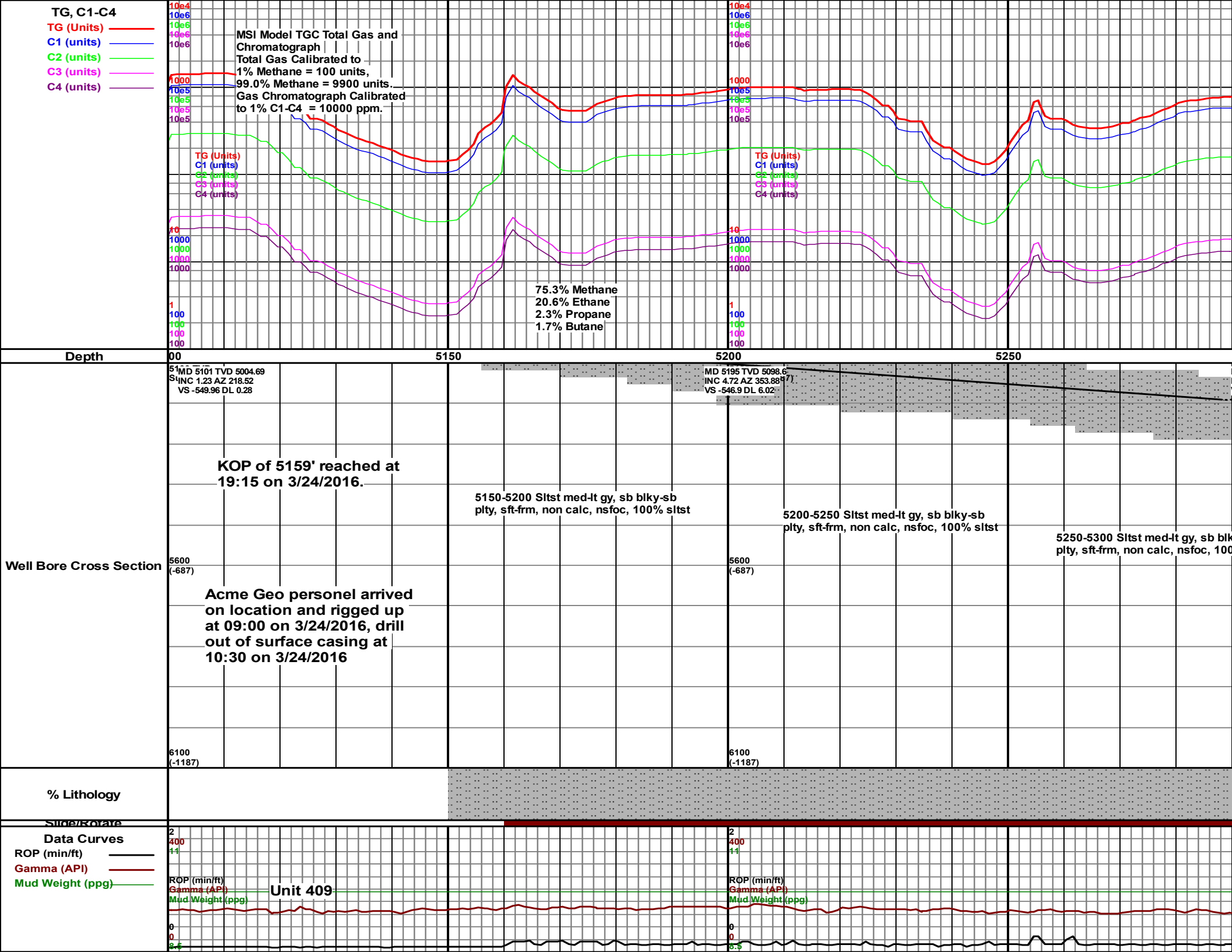
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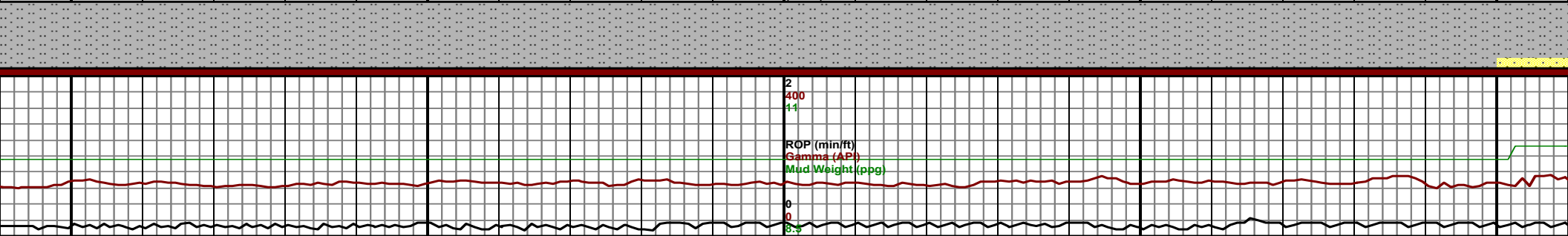
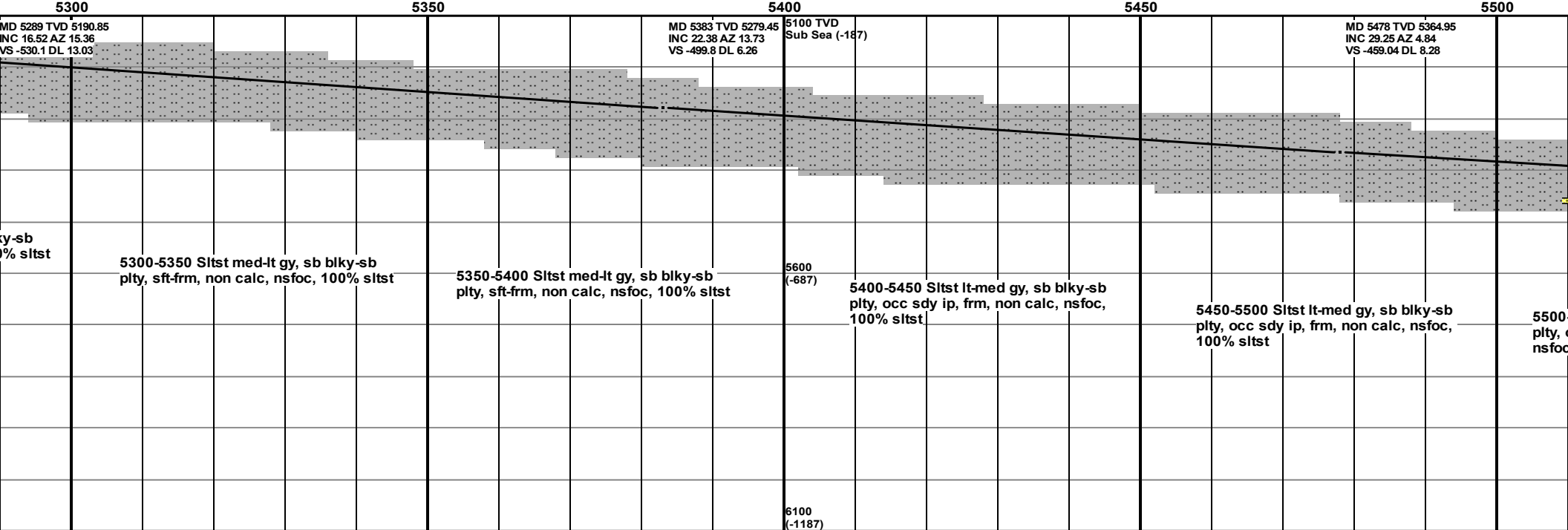
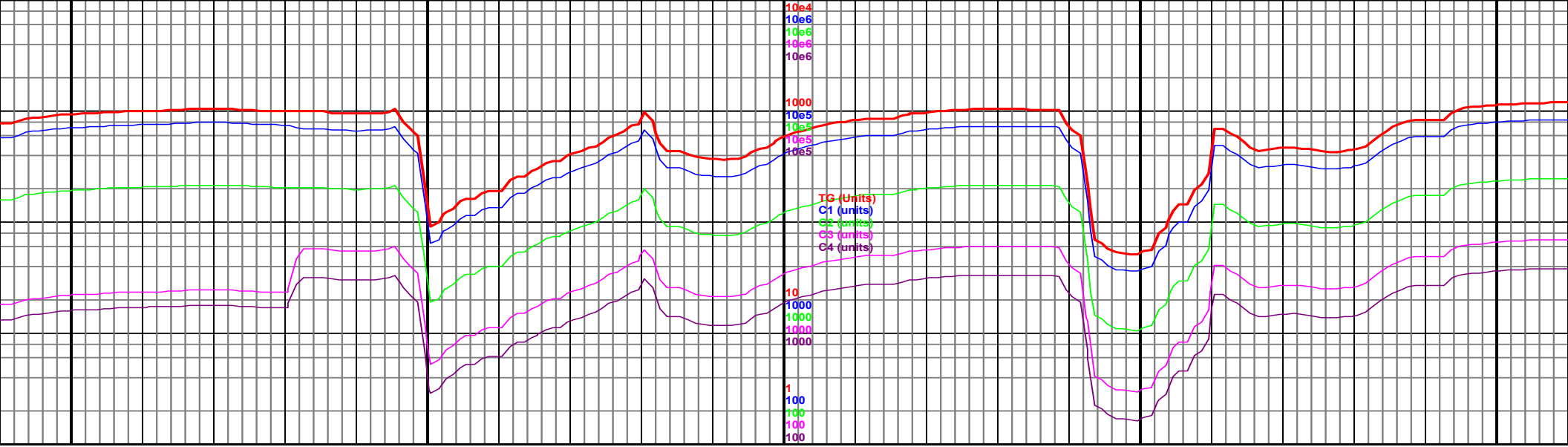


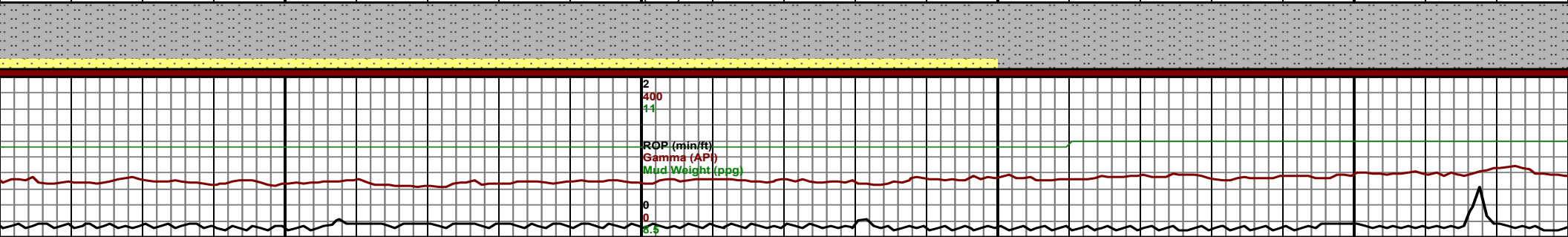
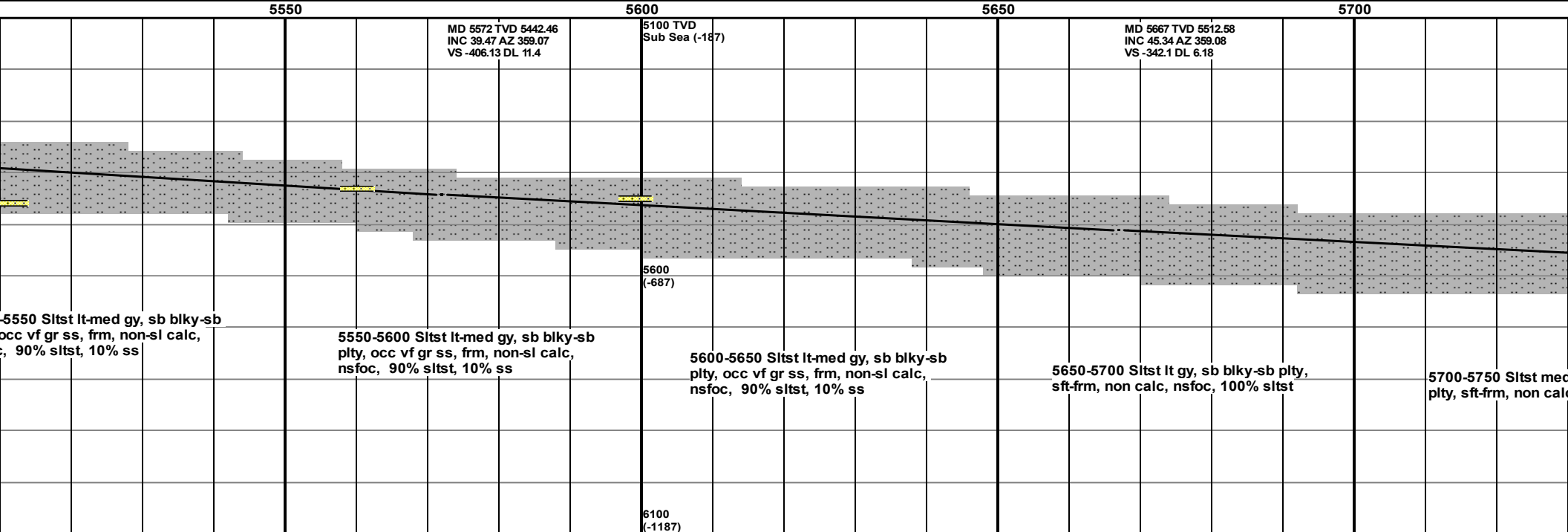
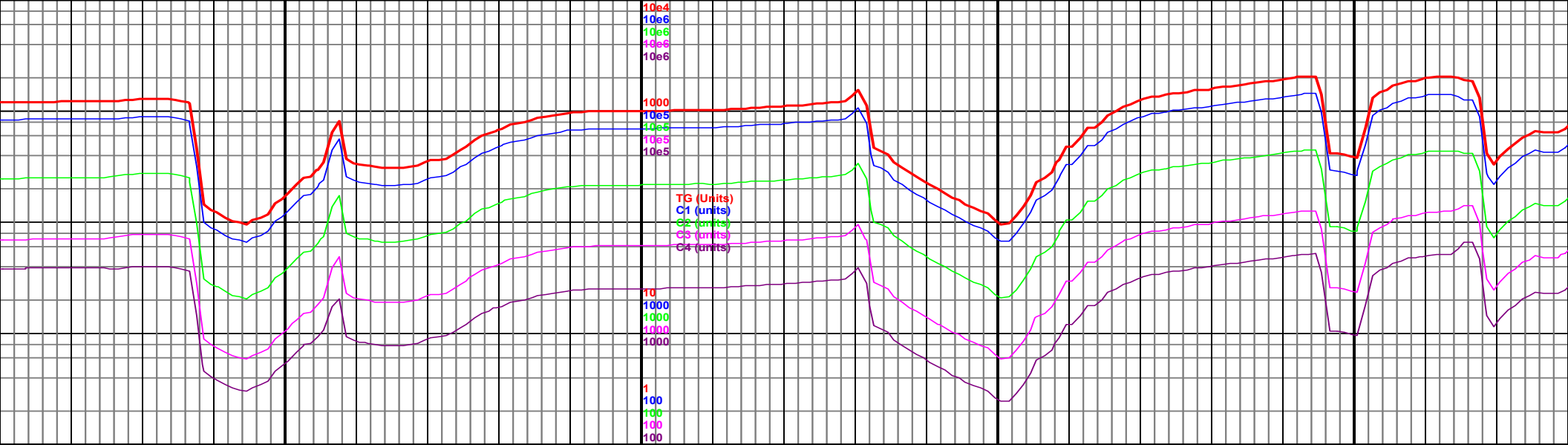
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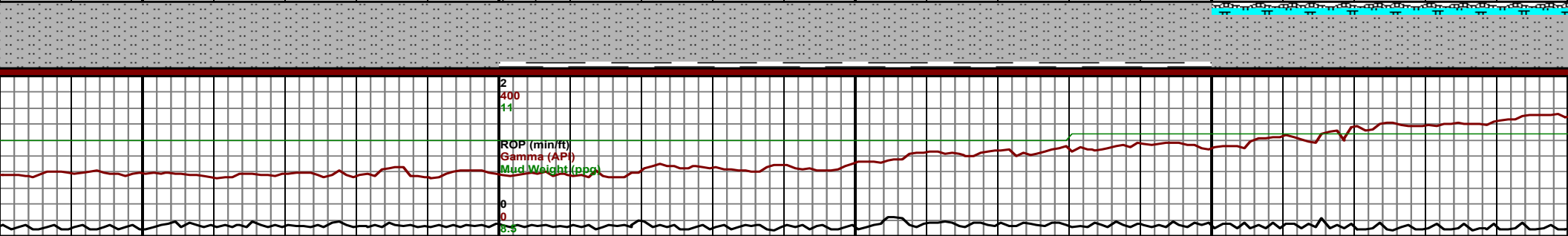
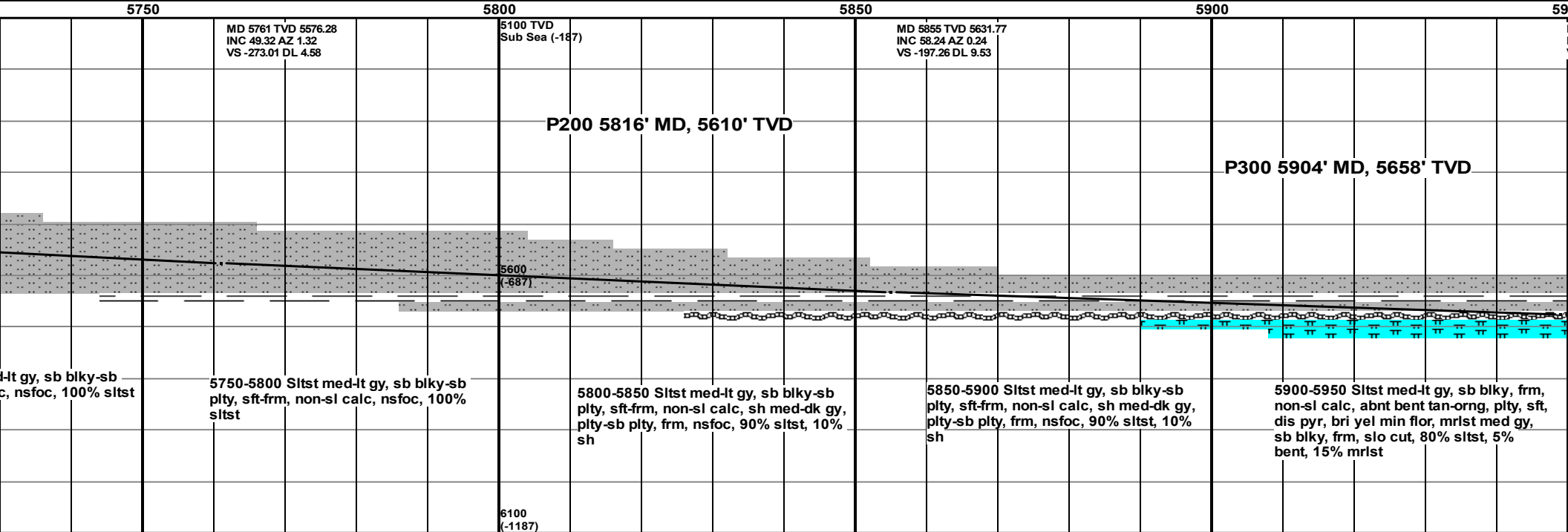
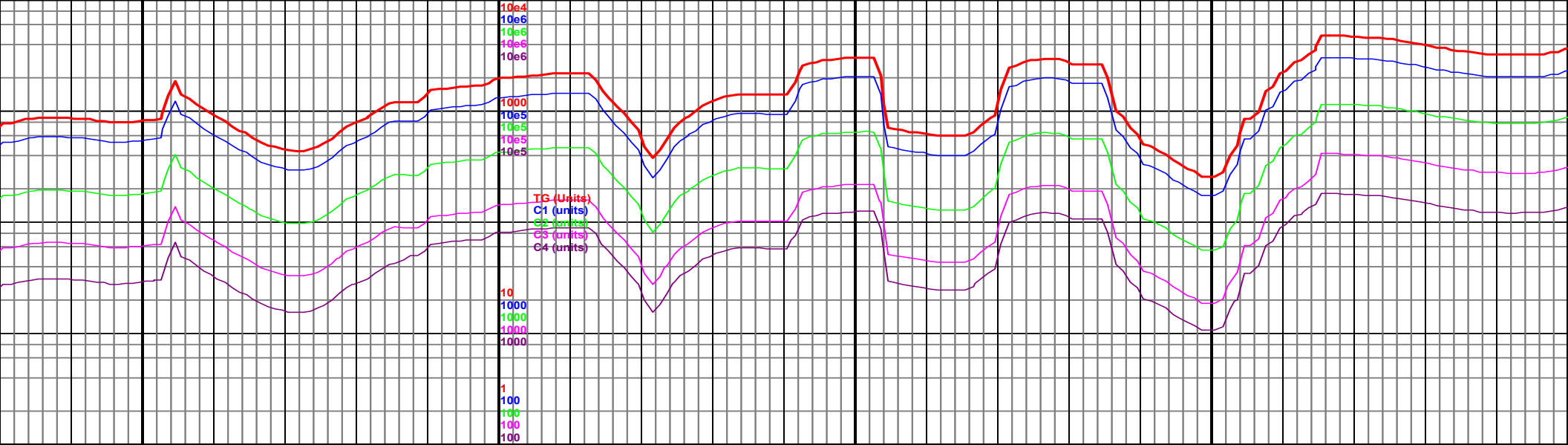


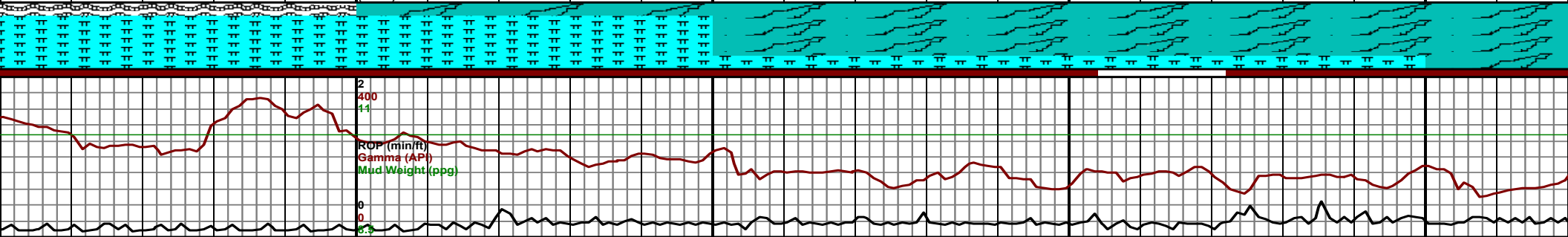
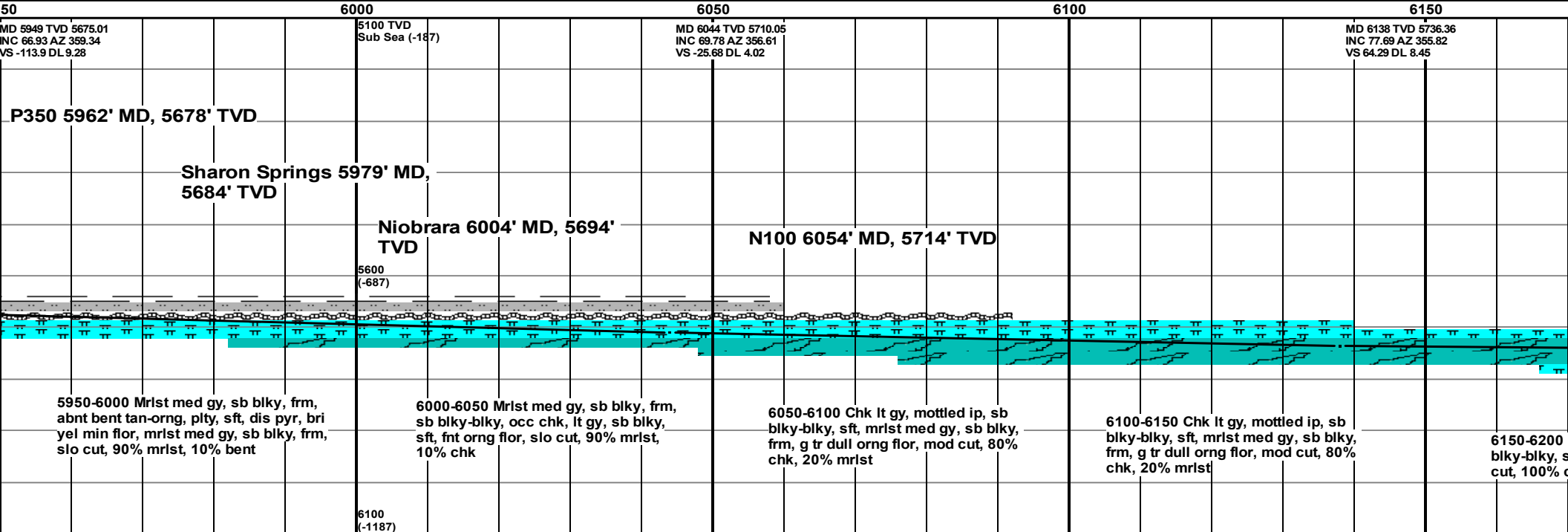
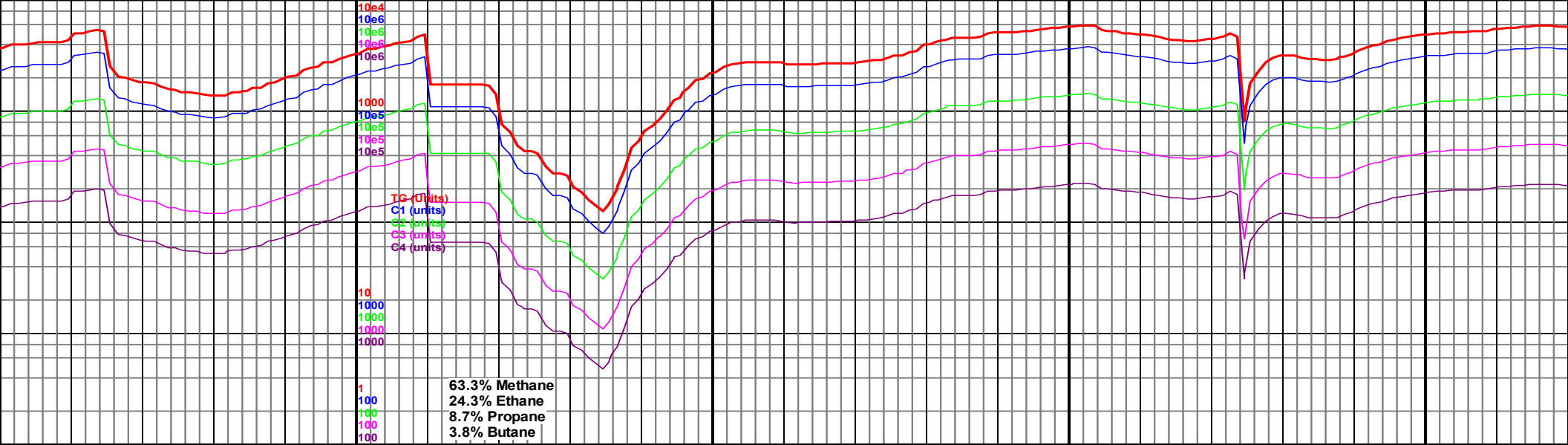
**Sidewall**



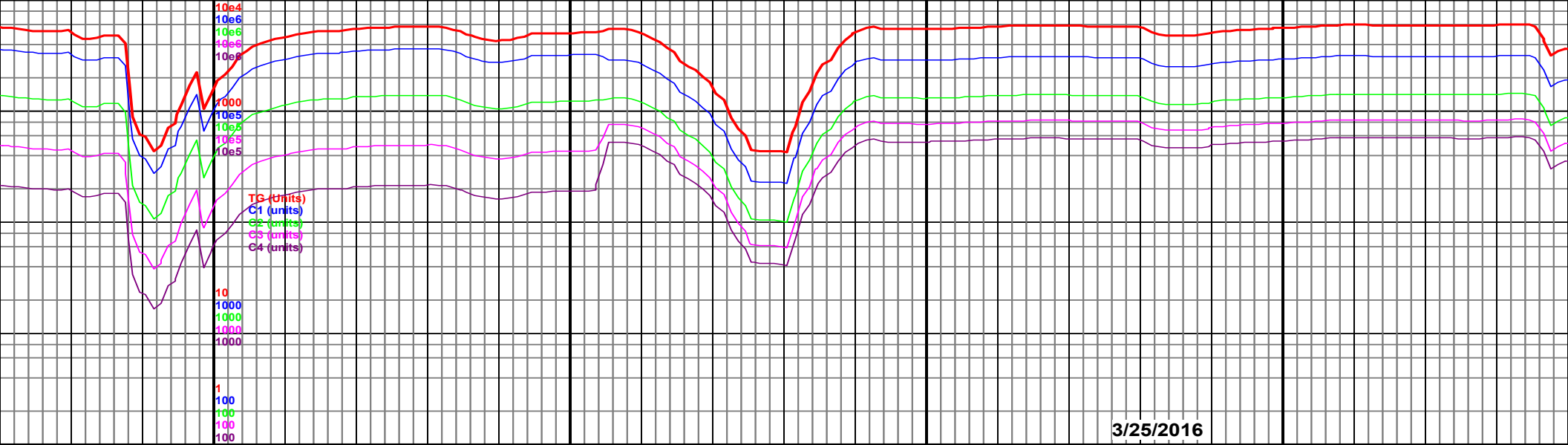


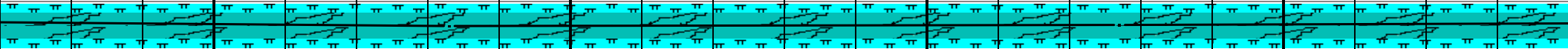


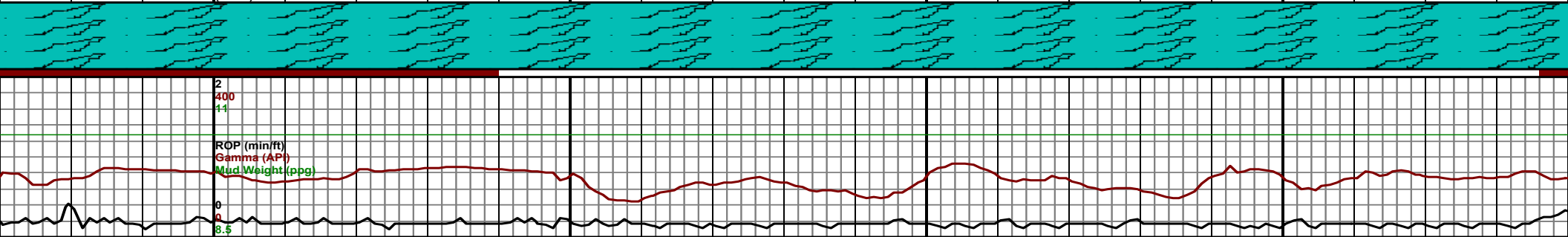


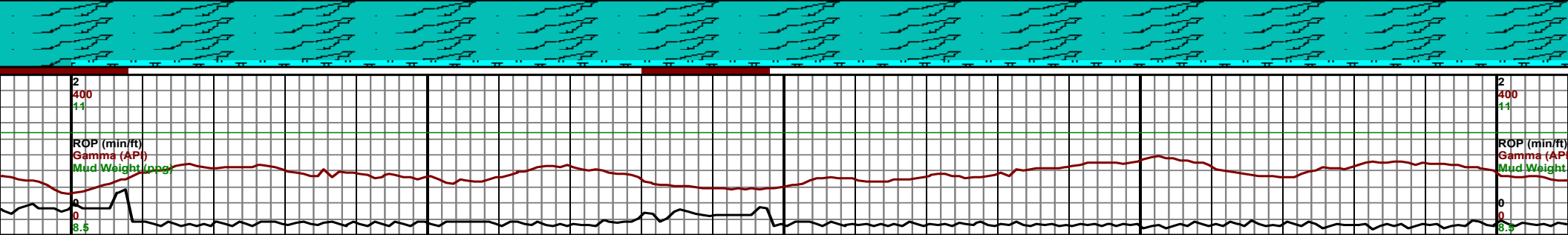
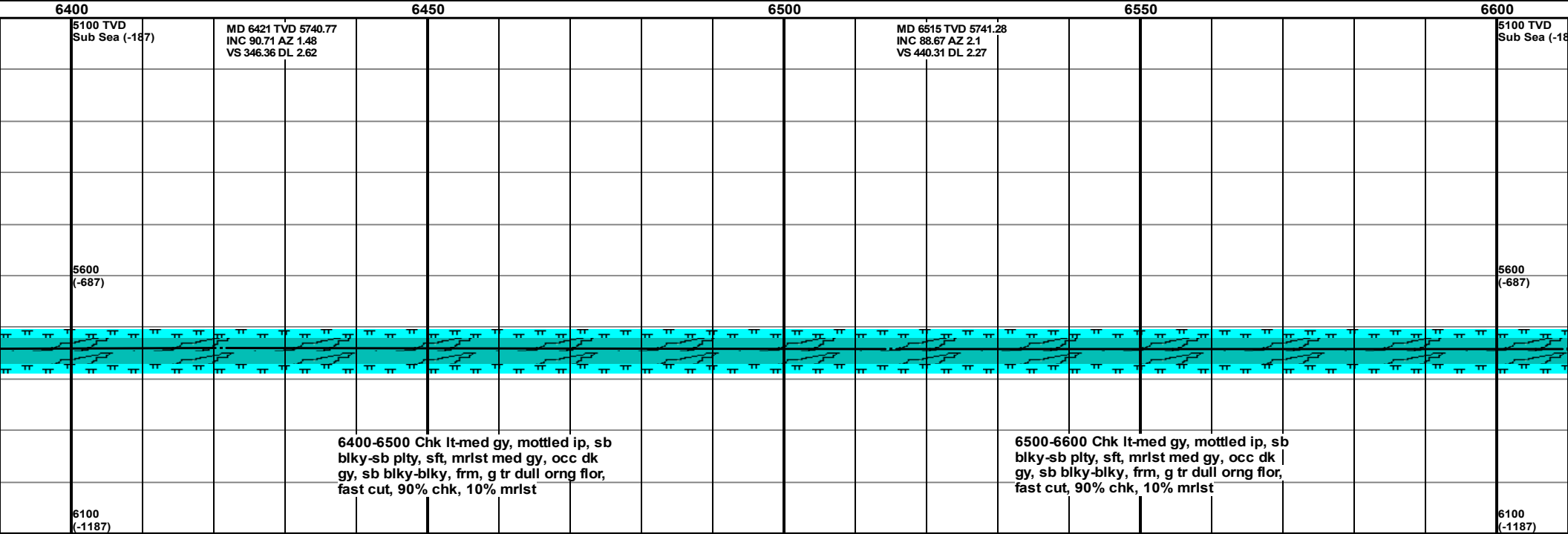
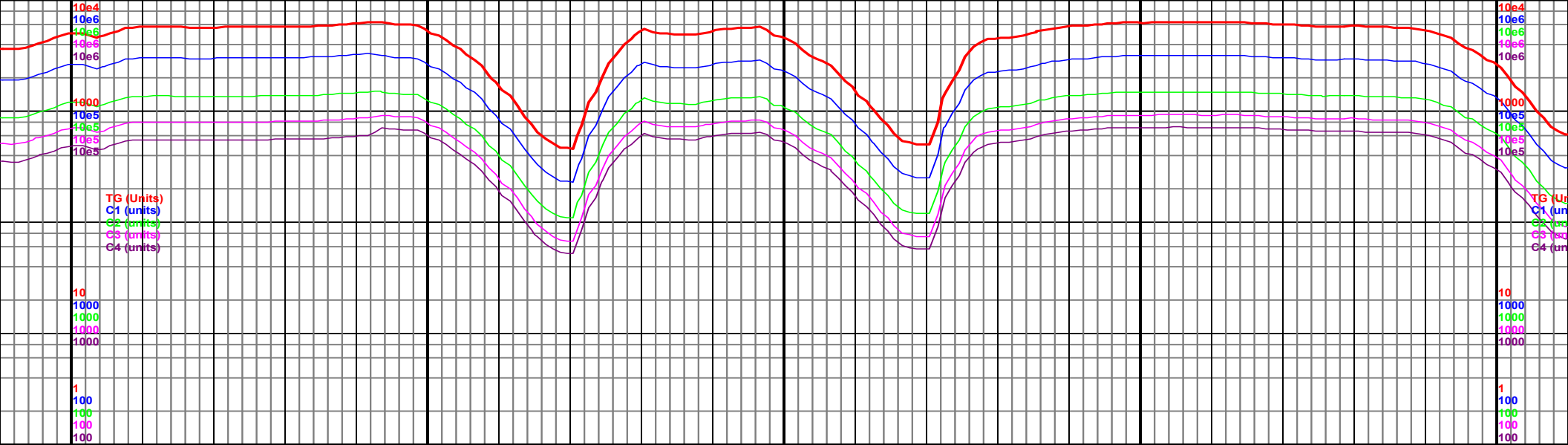


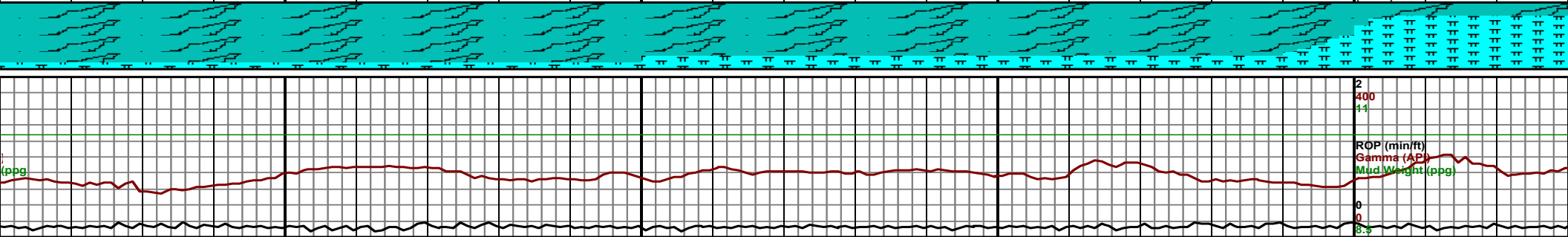
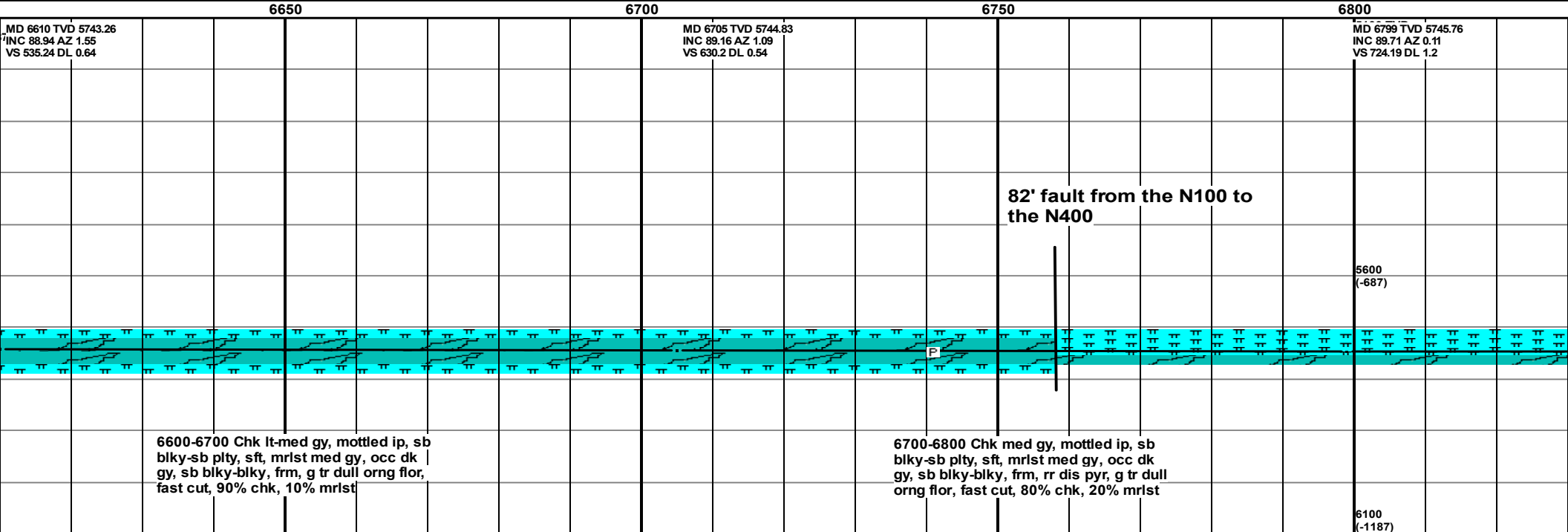
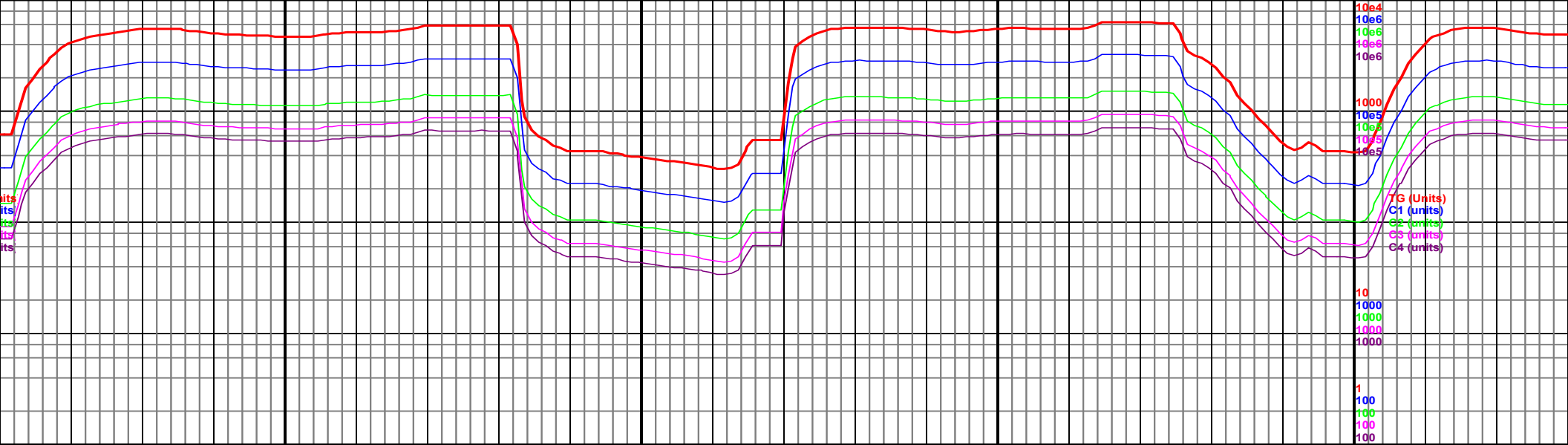


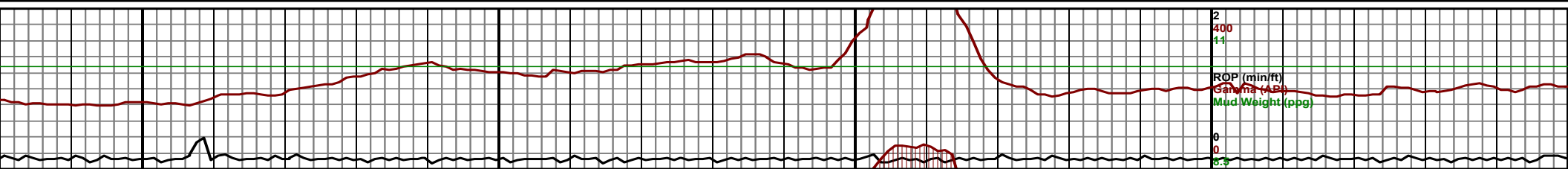
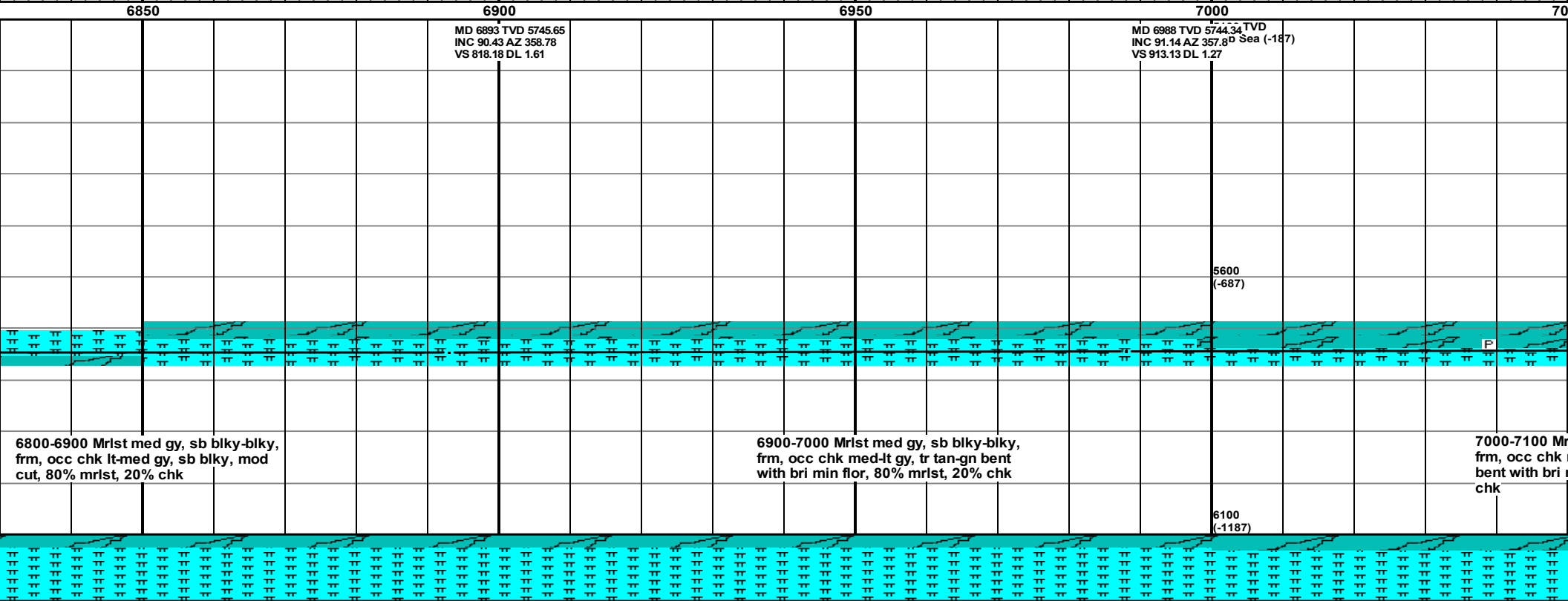
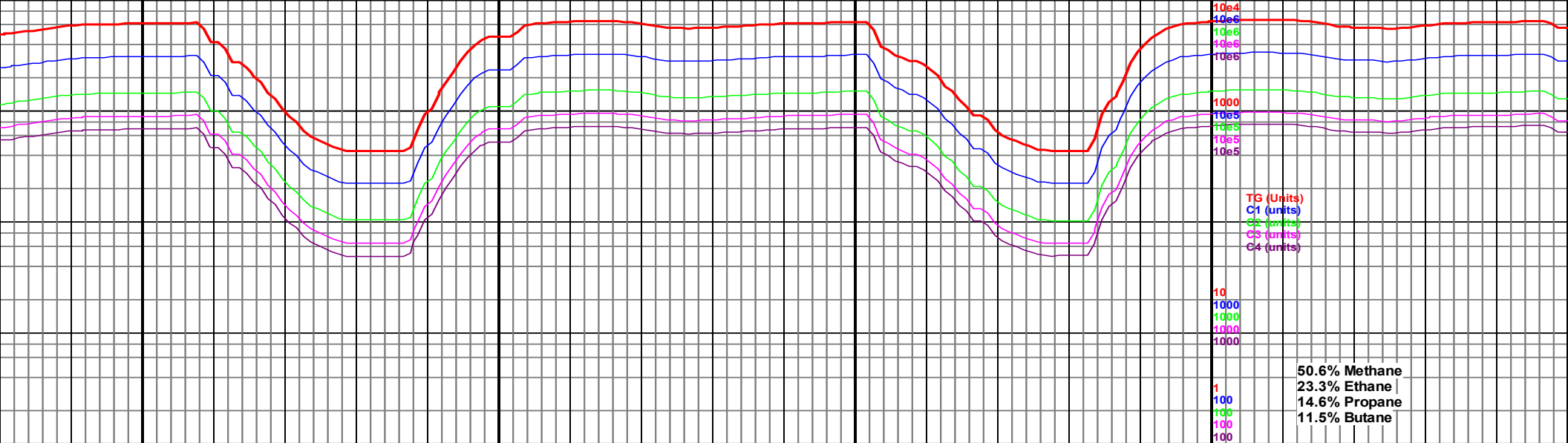


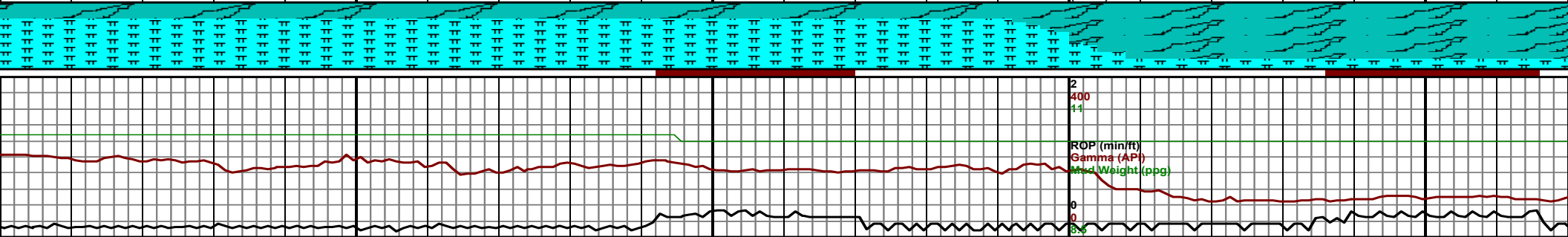
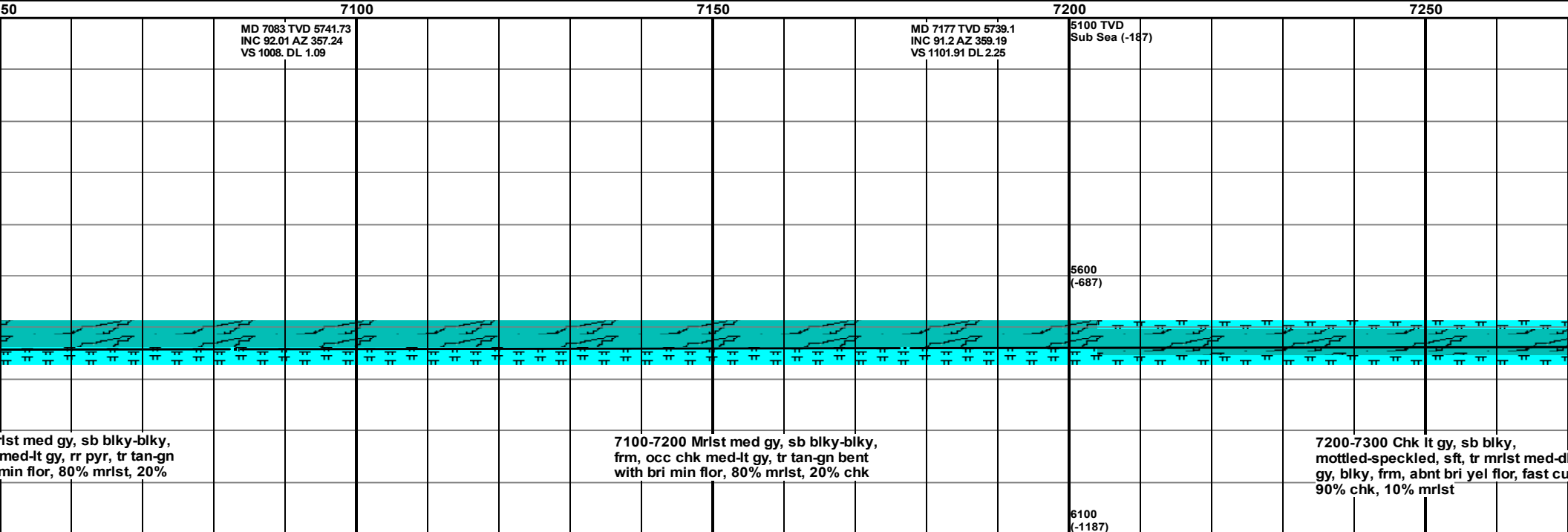
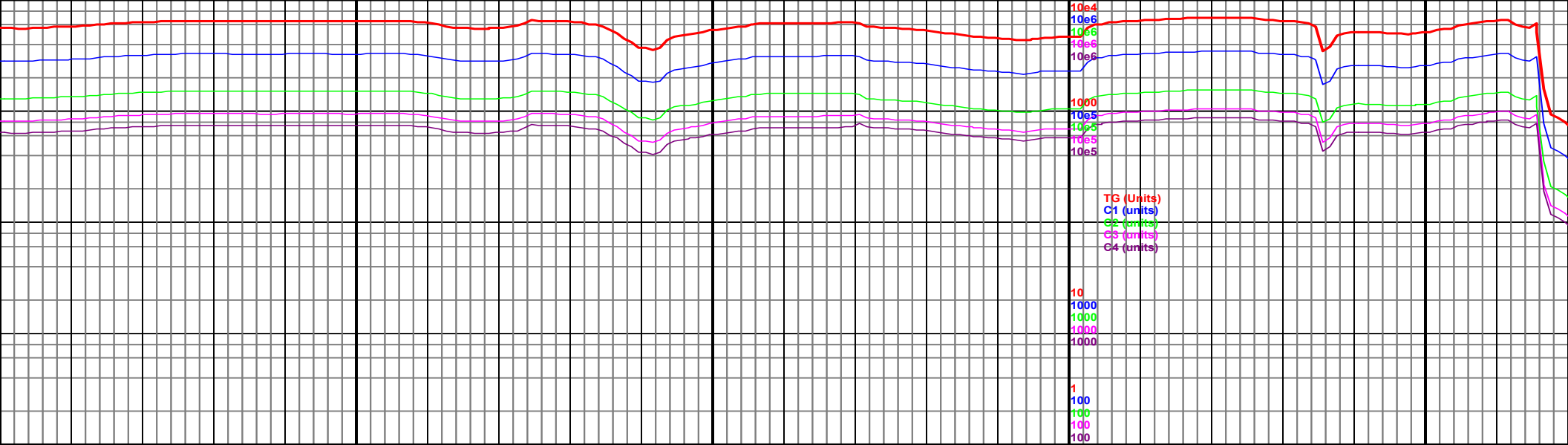
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5100 TVD Sub Sea (-187)				MD 6233 TVD 5746.49 INC 90.05 AZ 0.83 VS 158.5 DL 14.02								MD 6327 TVD 5743.9 INC 93.11 AZ 0.92 VS 252.44 DL 3.26			
6233' MD landing point															
5600 (-687)															
															
Chklt-med gy, mottled ip, sb ft, g tr dull orng flor, fast chk				6200-6250 Chk lt gy, mottled, sb blkly, sft, abnt dull orng flor, fast cut, 100% chk				6250-6300 Chk lt gy, mottled, sb blkly, sft, abnt dull orng flor, fast cut, 100% chk				6300-6400 Chk lt-med gy, mottled ip, sb blkly-plty, sft, abnt dull orng flor, fast cut, 100% chk			
6100 (-1187)															

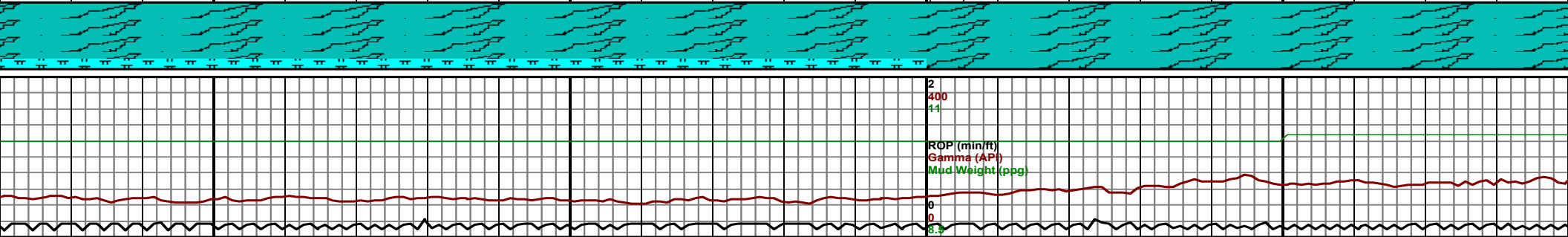
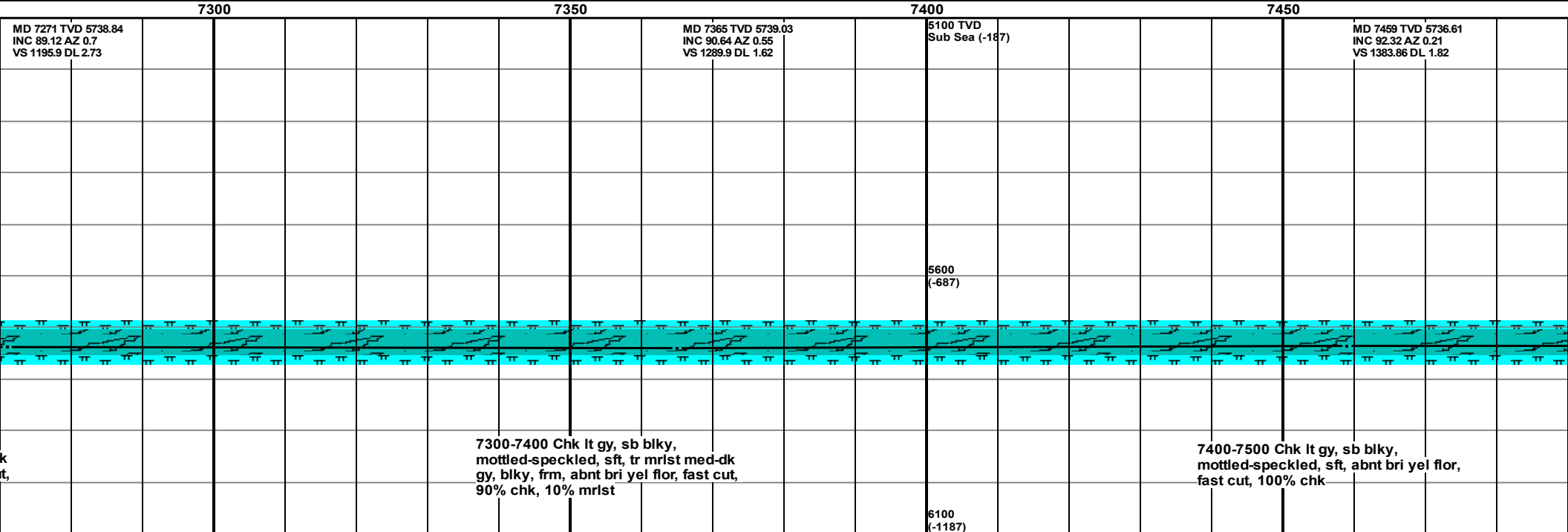
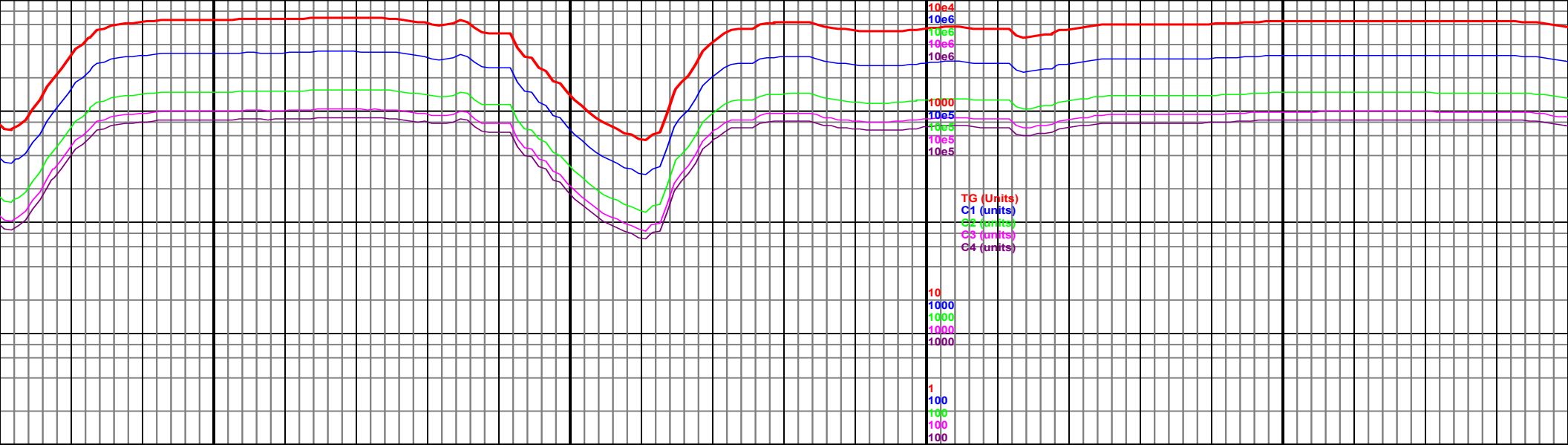


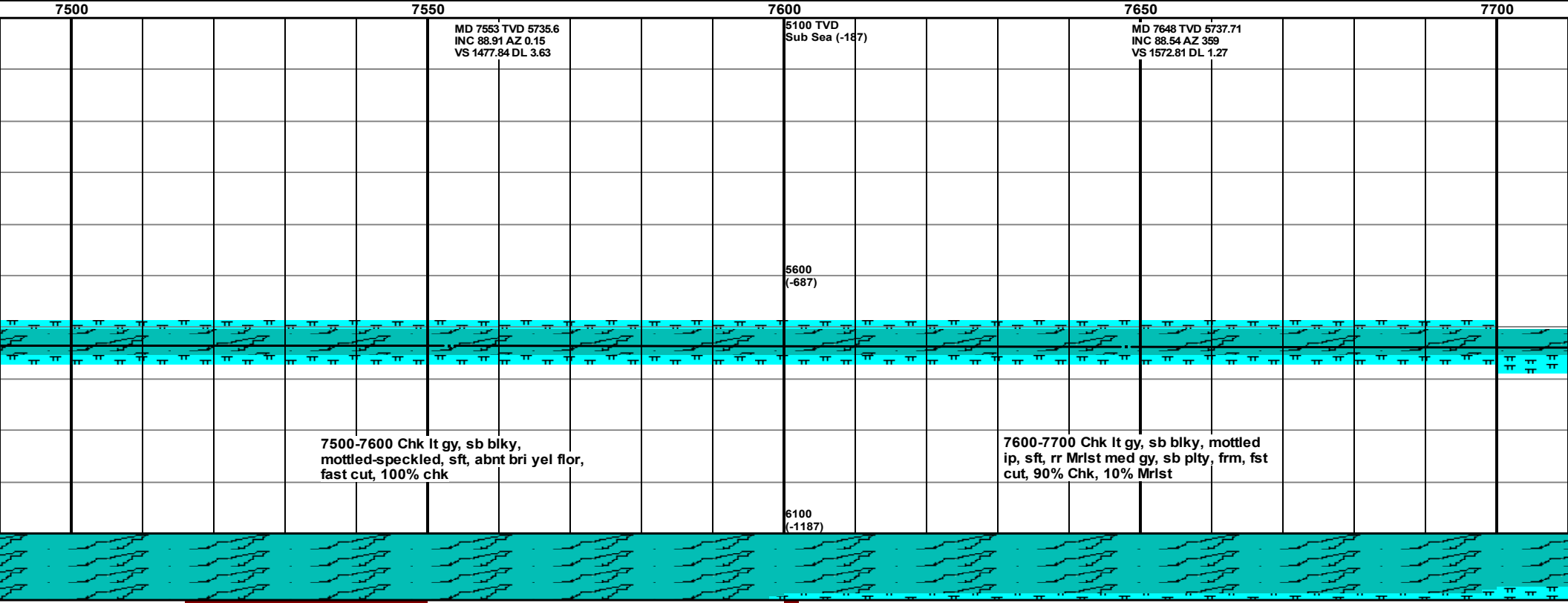
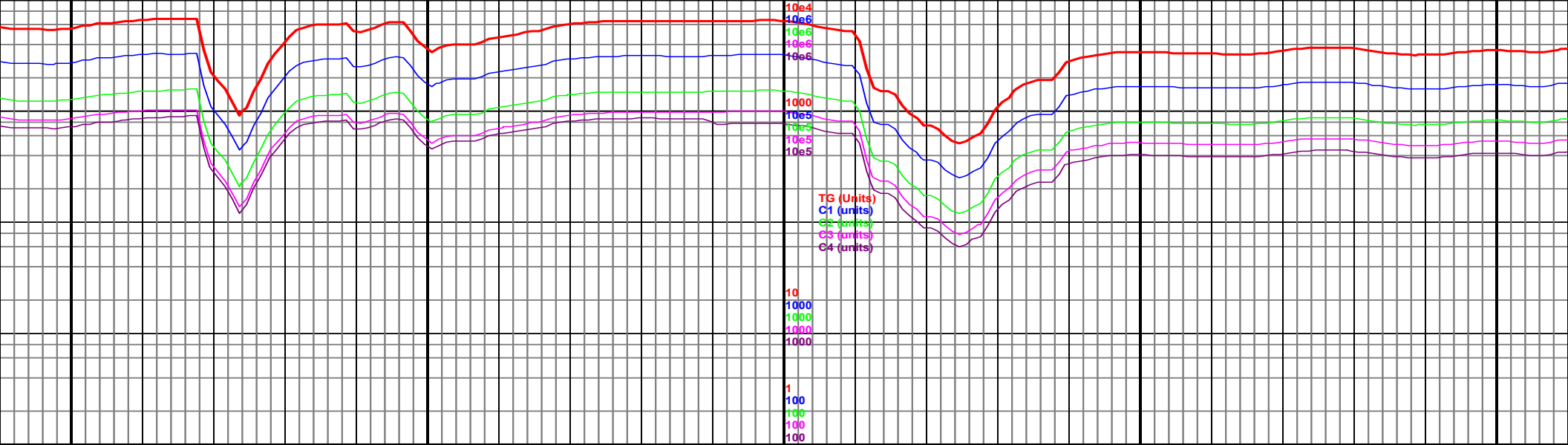






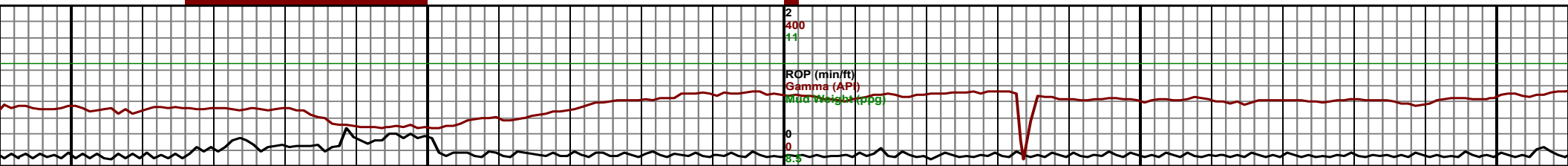


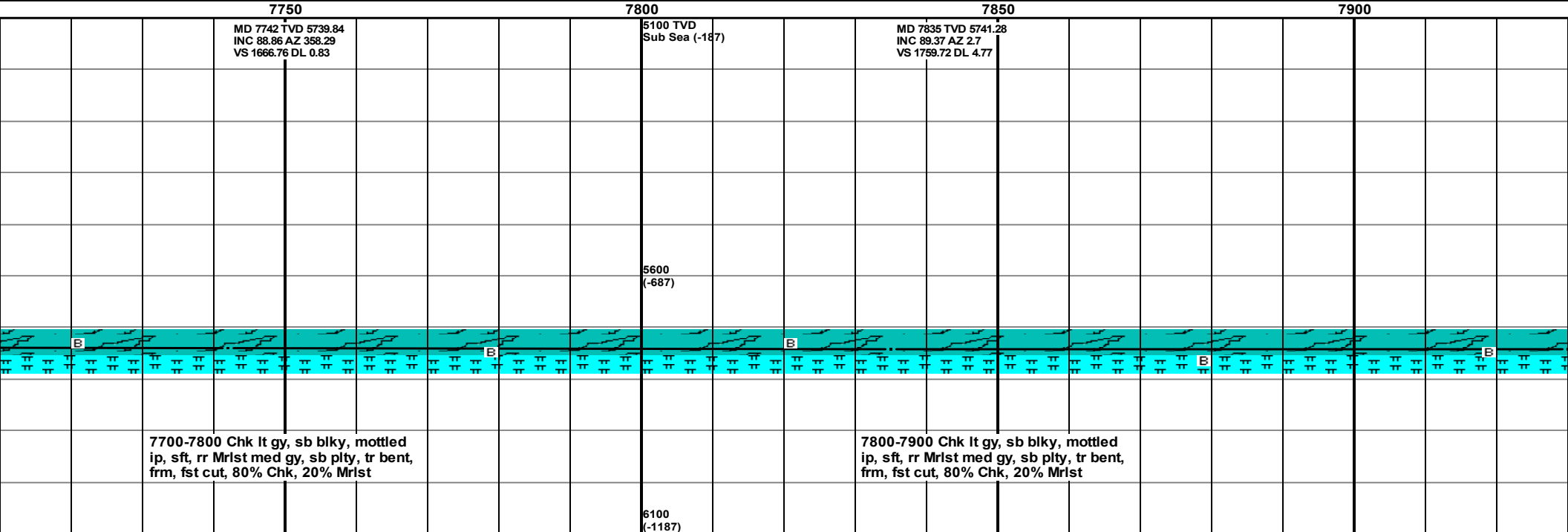




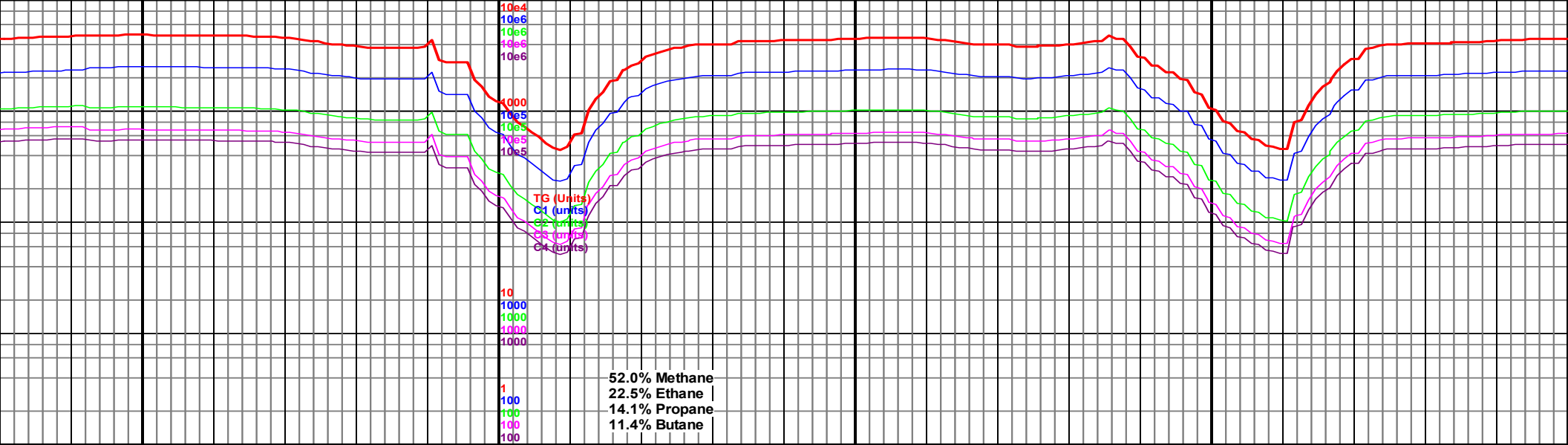
7500-7600 Chk lt gy, sb blk, mottled-speckled, sft, abnt bri yel flr, fast cut, 100% chk

7600-7700 Chk lt gy, sb blk, mottled ip, sft, rr Mrst med gy, sb plty, frm, fst cut, 90% Chk, 10% Mrst

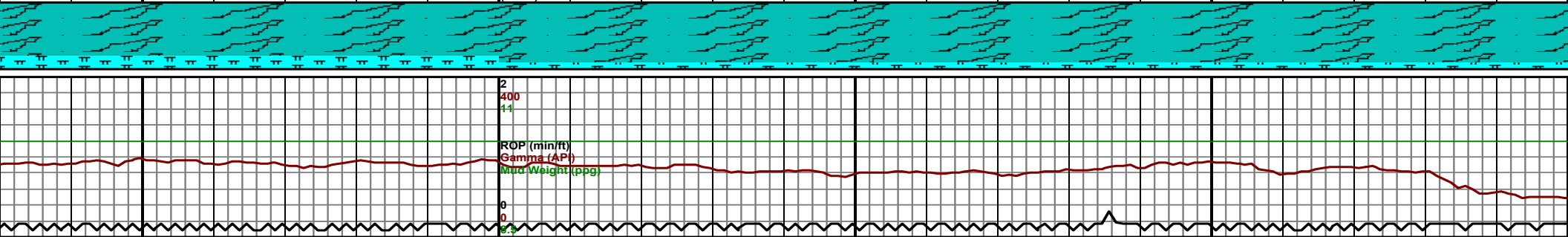


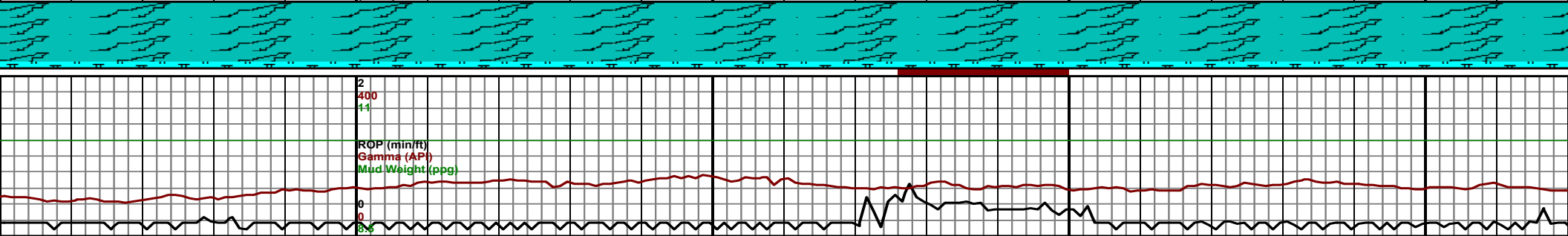
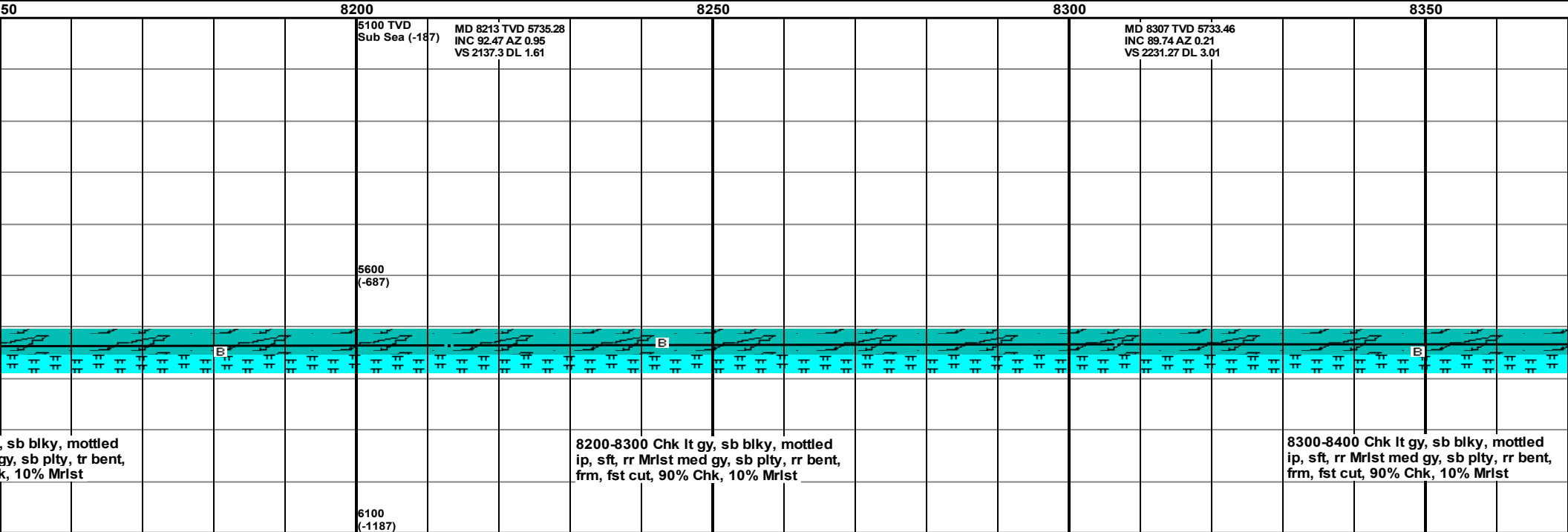
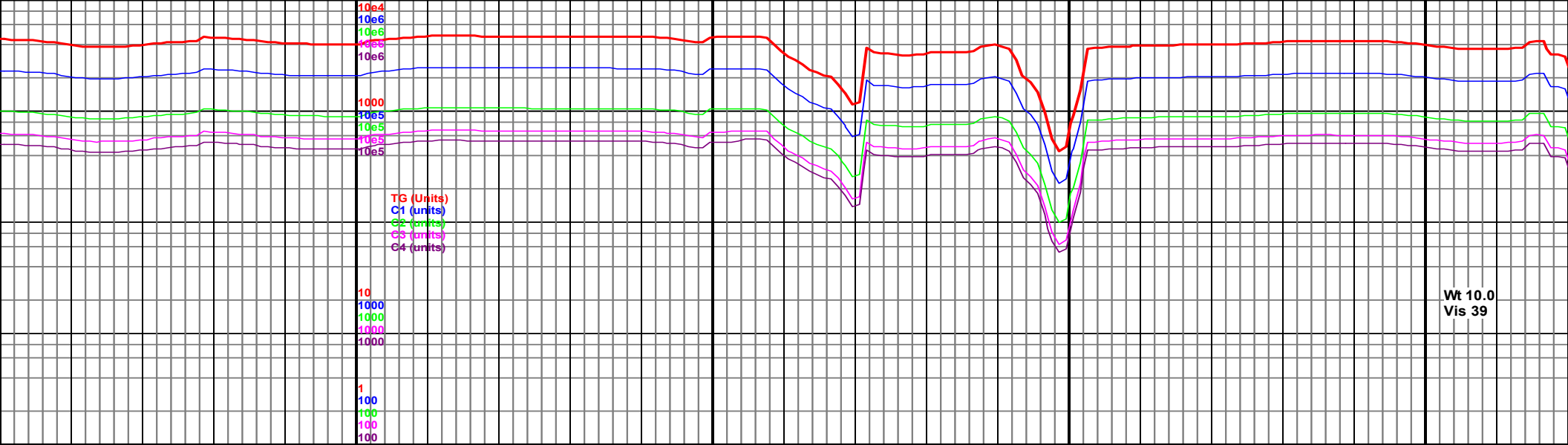


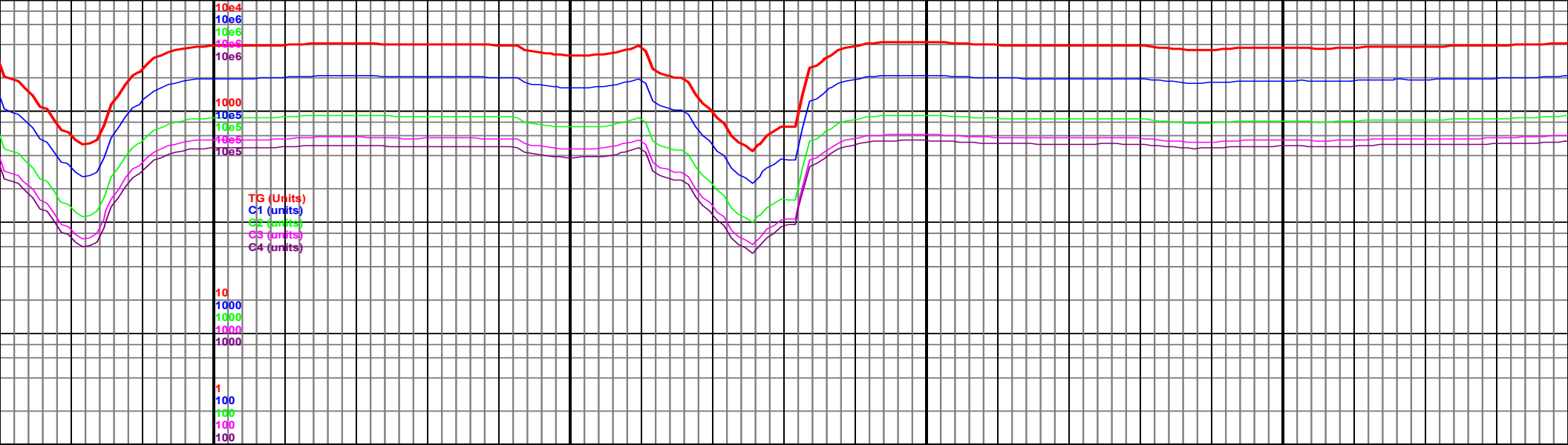




7950					8000					8050					8100					8150
MD 7930 TVD 5741.31 INC 90.59 AZ 3.08 VS 1854.6 DL 1.35					5100 TVD Sub Sea (-187)					MD 8024 TVD 5740.19 INC 90.78 AZ 2.6 VS 1948.48 DL 0.55					MD 8119 TVD 5738.42 INC 91.36 AZ 1.98 VS 2043.38 DL 0.89					
					5600 (-687)															
7900-8000 Chk It gy, sb blk, mottled ip, sft, rr Mrst med gy, sb plty, tr bent, frm, fst cut, 80% Chk, 20% Mrst					8000-8100 Chk It gy, sb blk, mottled ip, sft, rr Mrst med gy, sb plty, tr bent, frm, fst cut, 90% Chk, 10% Mrst					8100-8200 Chk It gy, sb blk, mottled ip, sft, rr Mrst med gy, sb plty, tr bent, frm, fst cut, 90% Chk, 10% Mrst										
					6100 (-1187)															







8400

8450

8500

8550

51MD 8401 TVD 5733.53  
SHNC 90.18 AZ 359.83  
VS 2325.27 DL 0.62

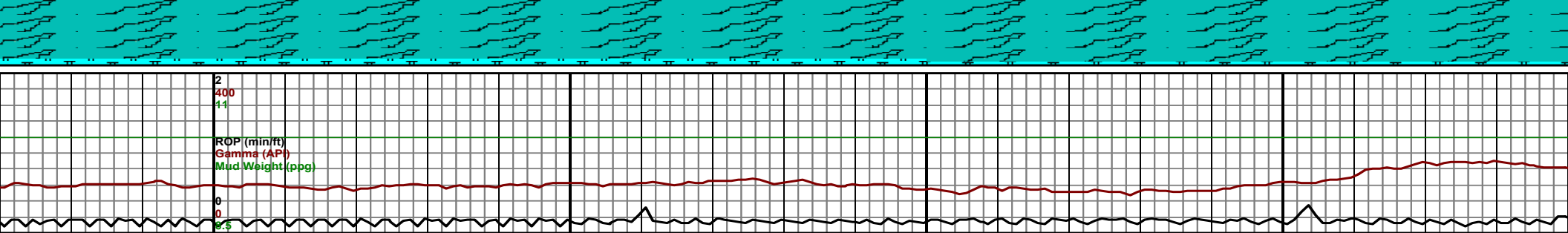
MD 8495 TVD 5732.45  
INC 91.13 AZ 358.41  
VS 2419.25 DL 1.82

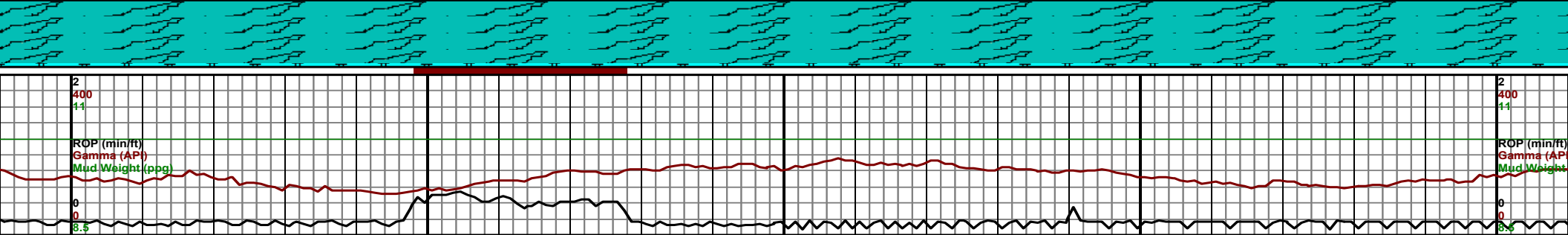
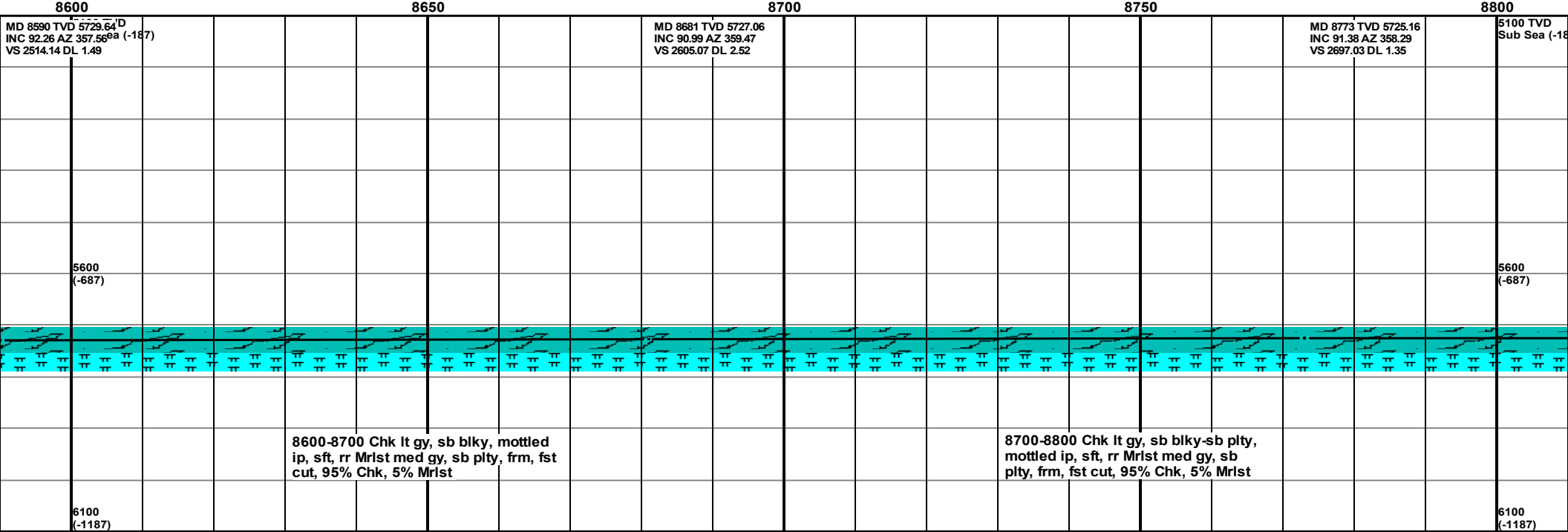
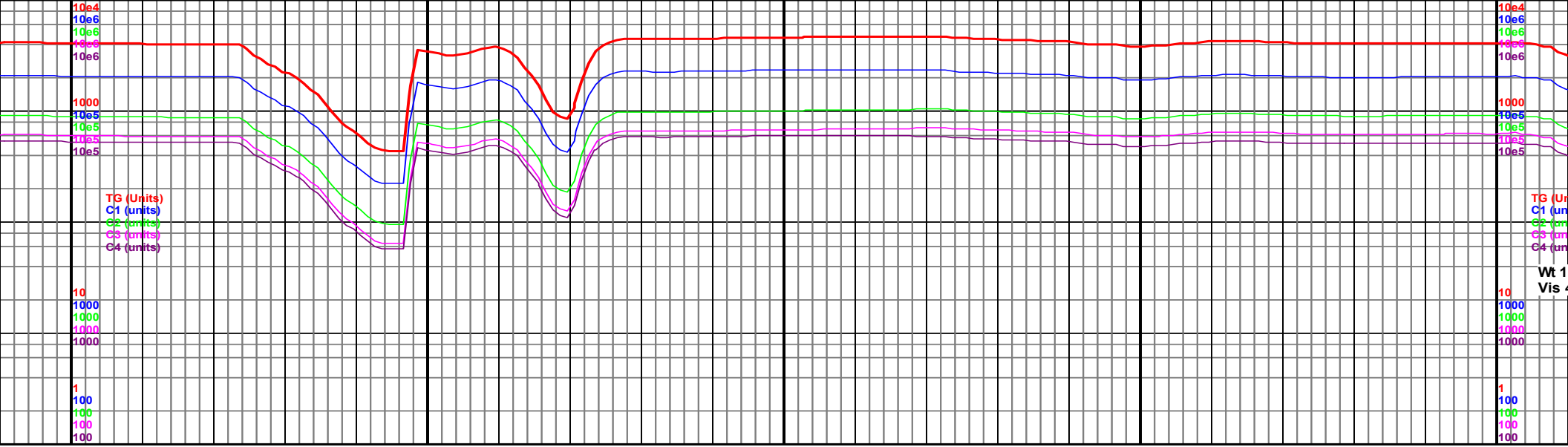
5600  
(-687)

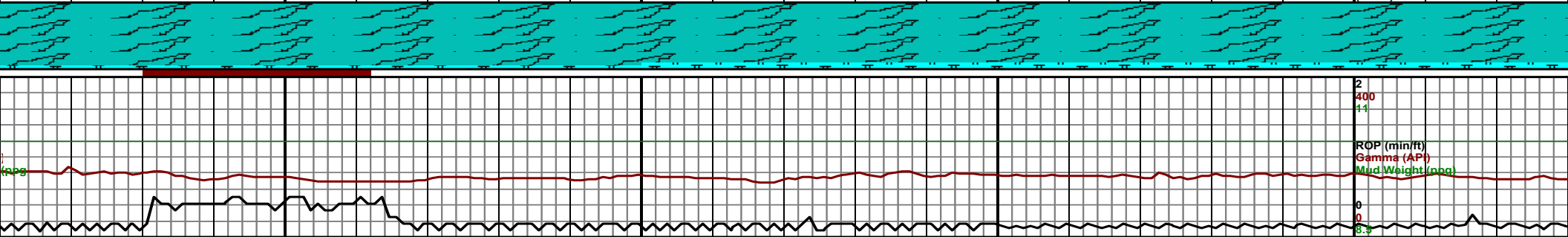
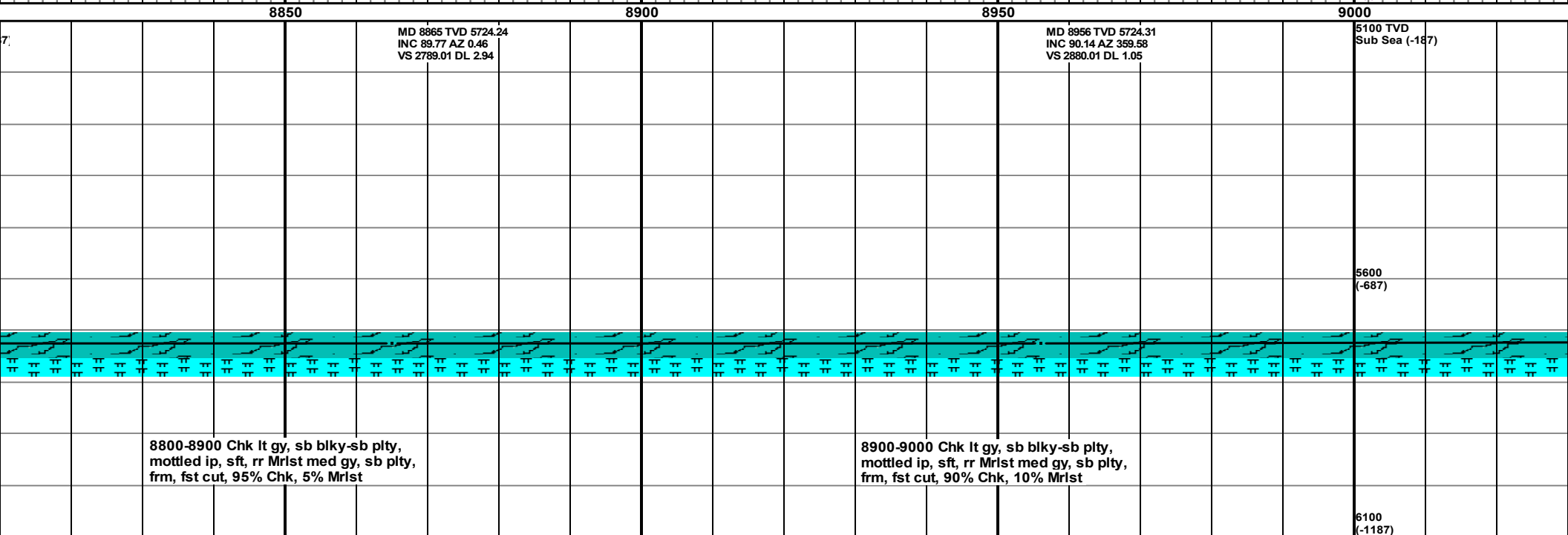
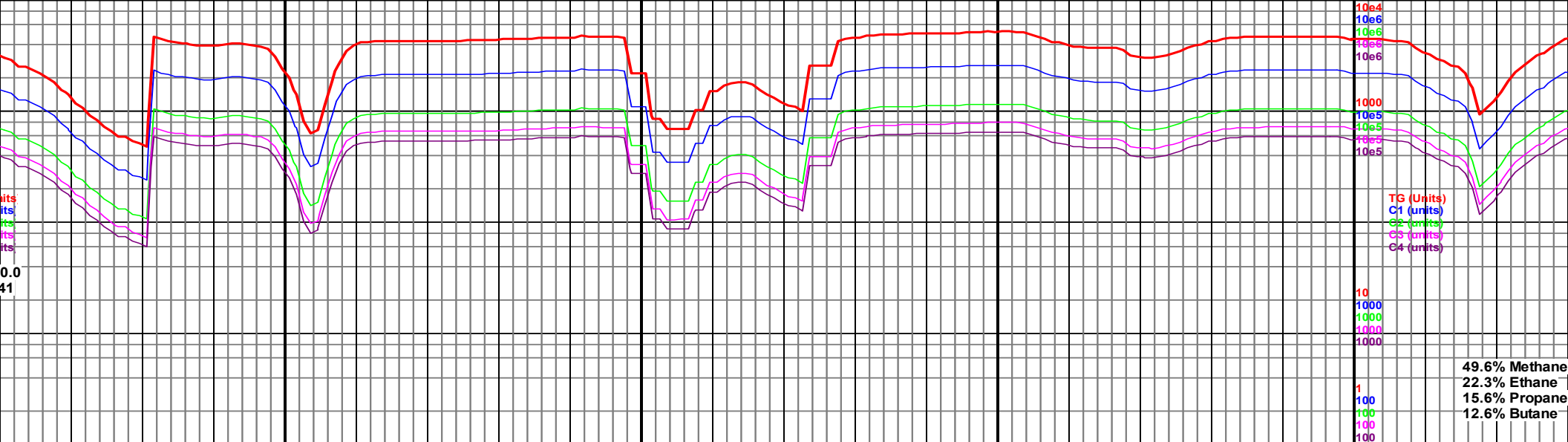
8400-8500 Chk lt gy, sb blk, mottled  
ip, sft, rr Mrst med gy, sb plty, rr bent,  
frm, fst cut, 90% Chk, 10% Mrst

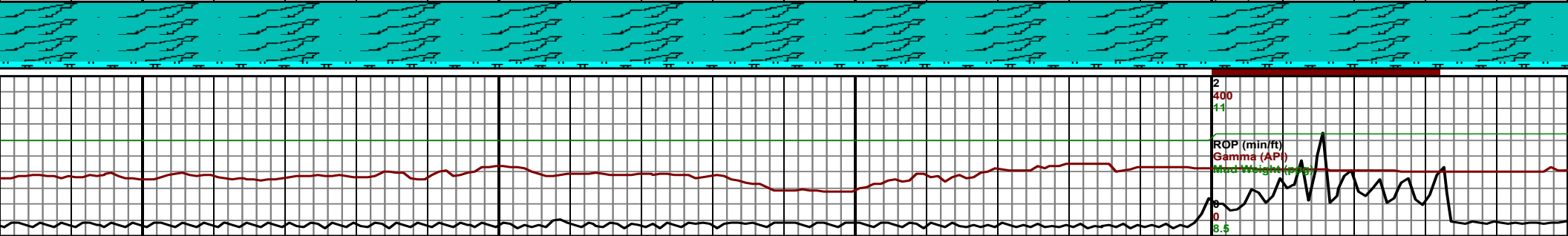
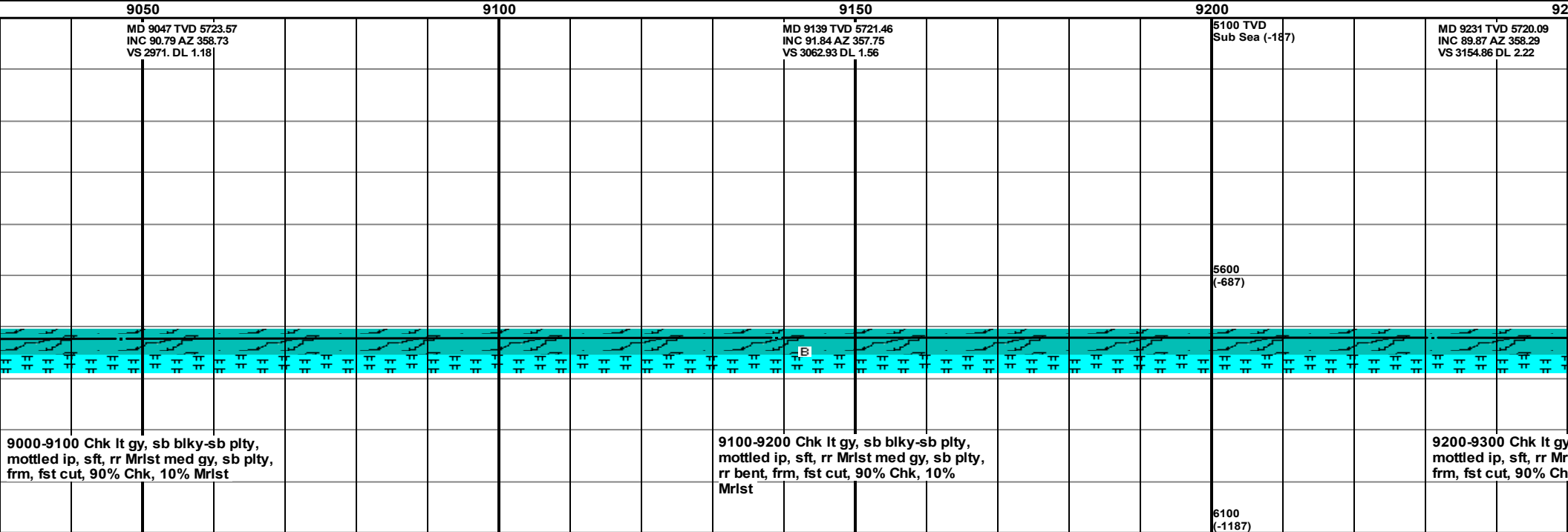
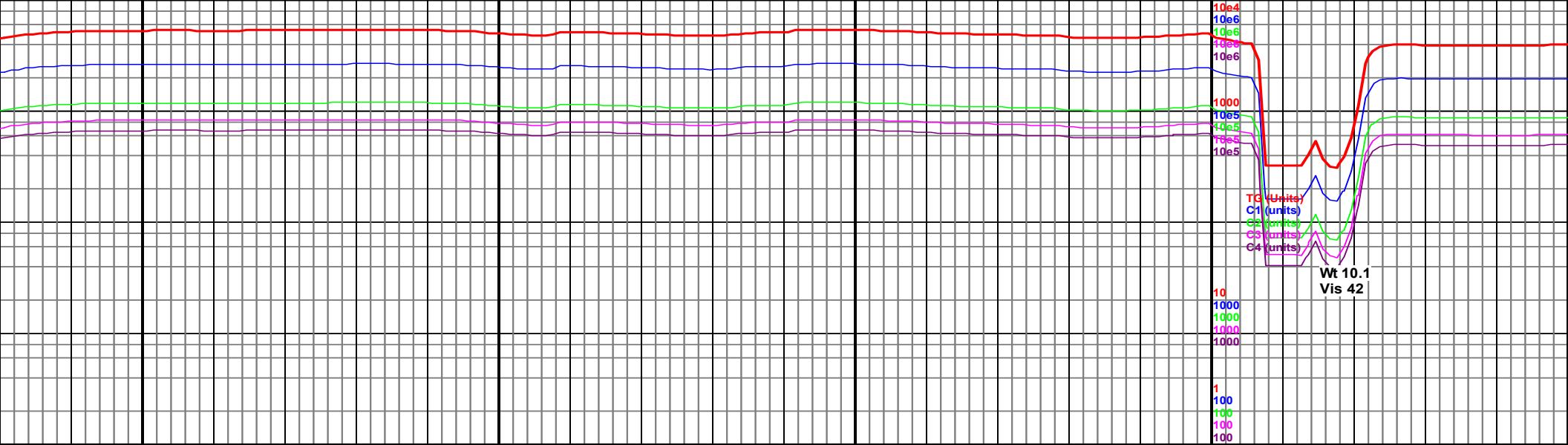
8500-8600 Chk lt gy, sb blk, mottled  
ip, sft, rr Mrst med gy, sb plty, frm, fst  
cut, 95% Chk, 5% Mrst

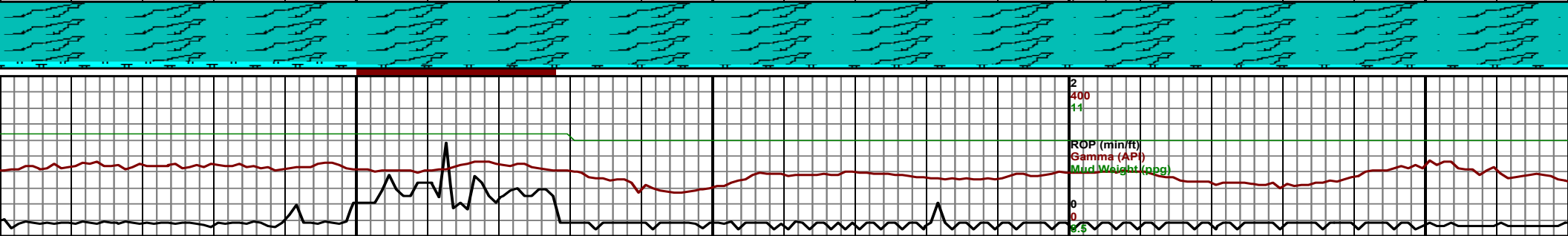
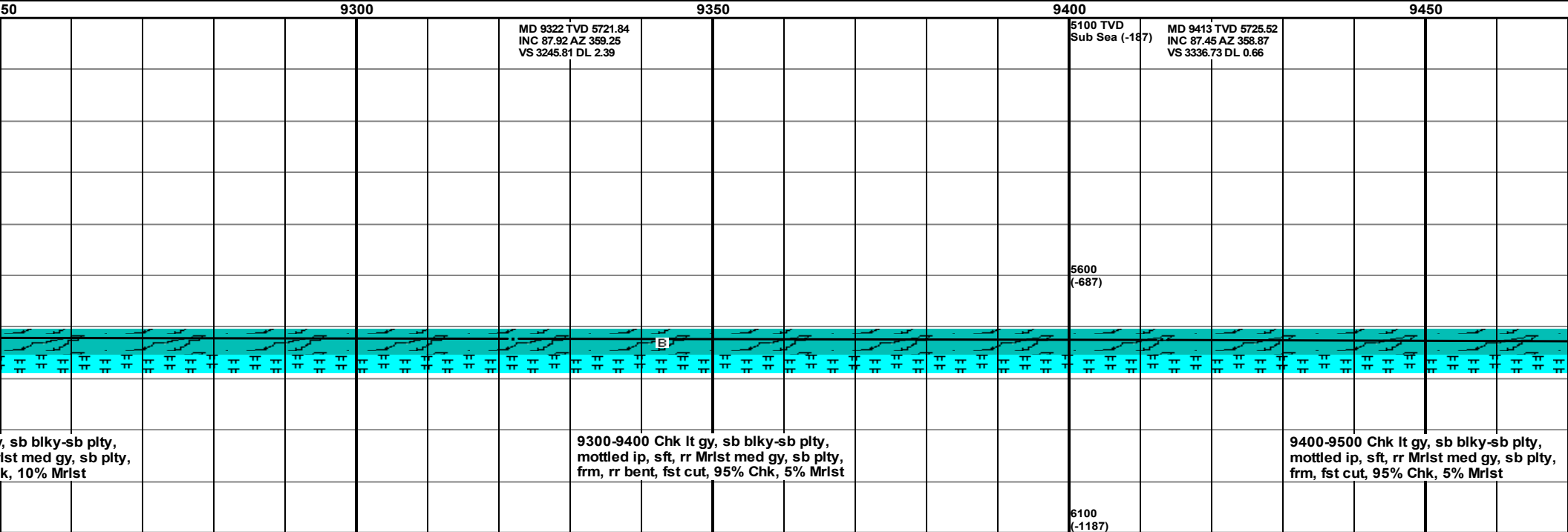
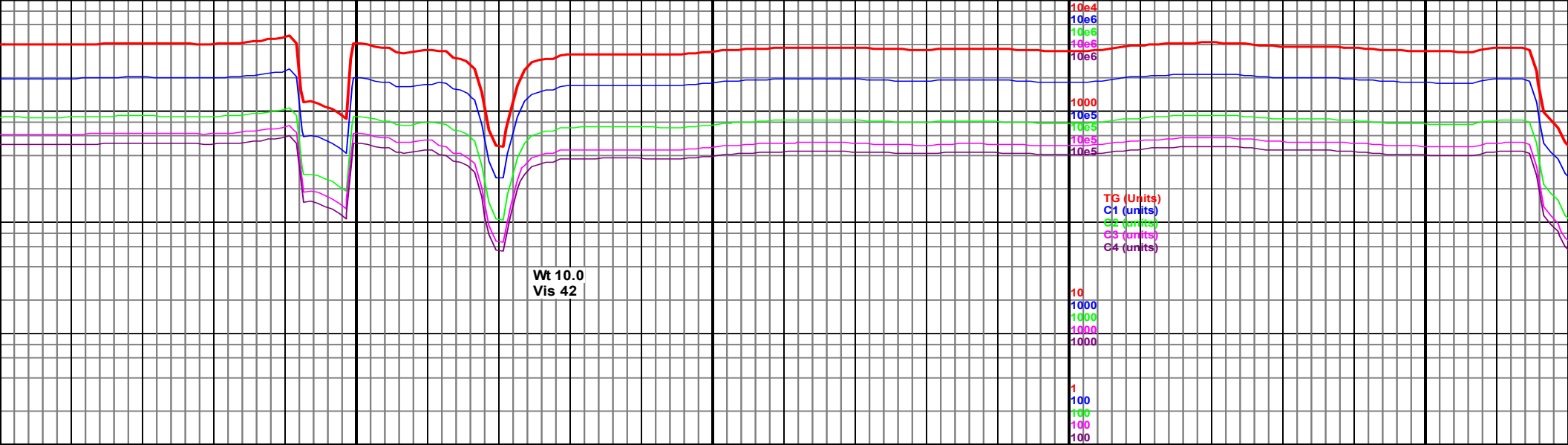
6100  
(-1187)

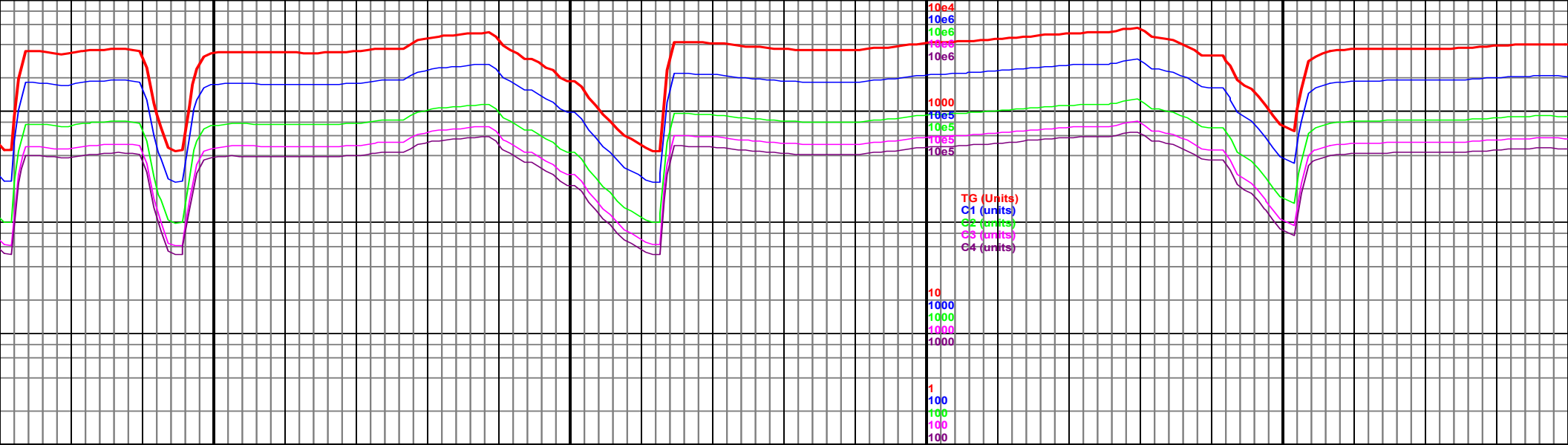












9500

MD 9505 TVD 5728.94  
INC 88.29 AZ 1.44  
VS 3428.65 DL 2.94

9550

9600

MD 9597 TVD 5731.38  
INC 88.66 AZ 0.77'  
VS 3520.6 DL 0.83

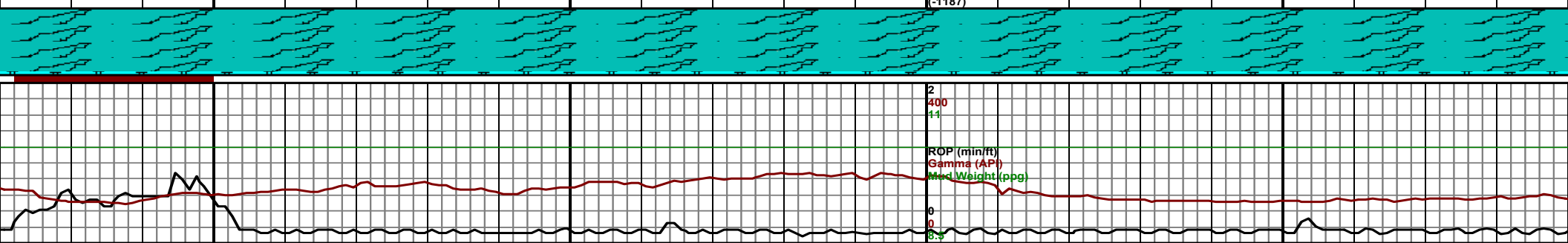
9650

9500-9600 Chk It gy, sb blkly-sb plty,  
sft, rr Mrlst med gy, sb plty, frm, rr  
bent, fst cut, 95% Chk, 5% Mrlst

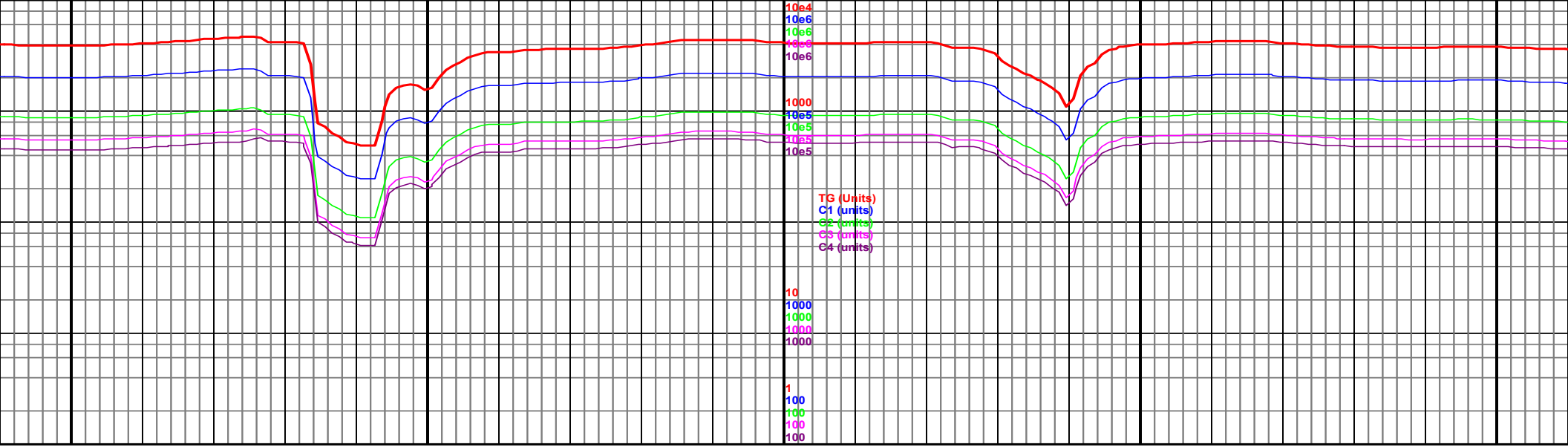
9600-9700 Chk It gy, sb blkly-sb plty,  
sft, rr Mrlst med gy, sb plty, frm, fst  
cut, 95% Chk, 5% Mrlst

5600  
(-687)

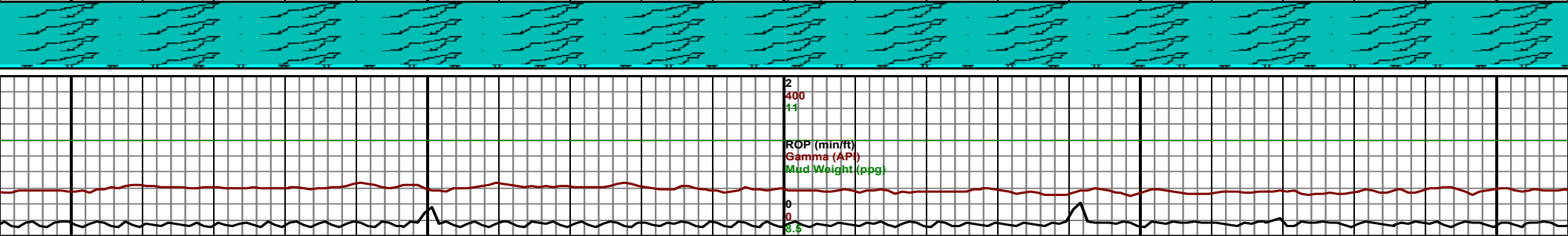
6100  
(-1187)

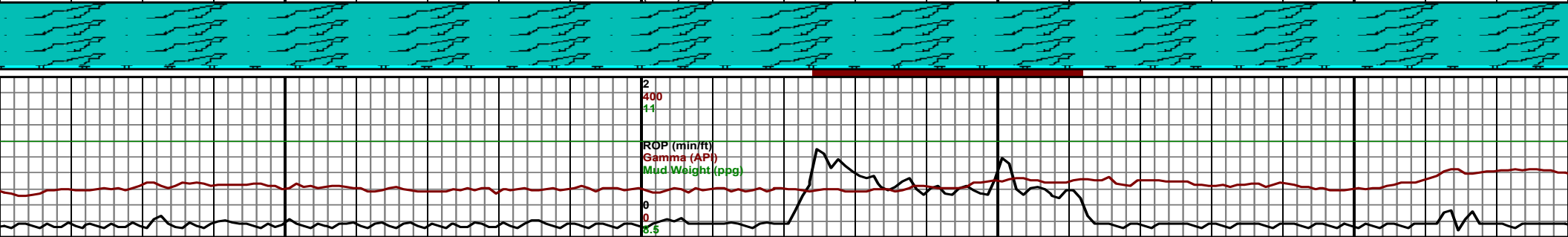
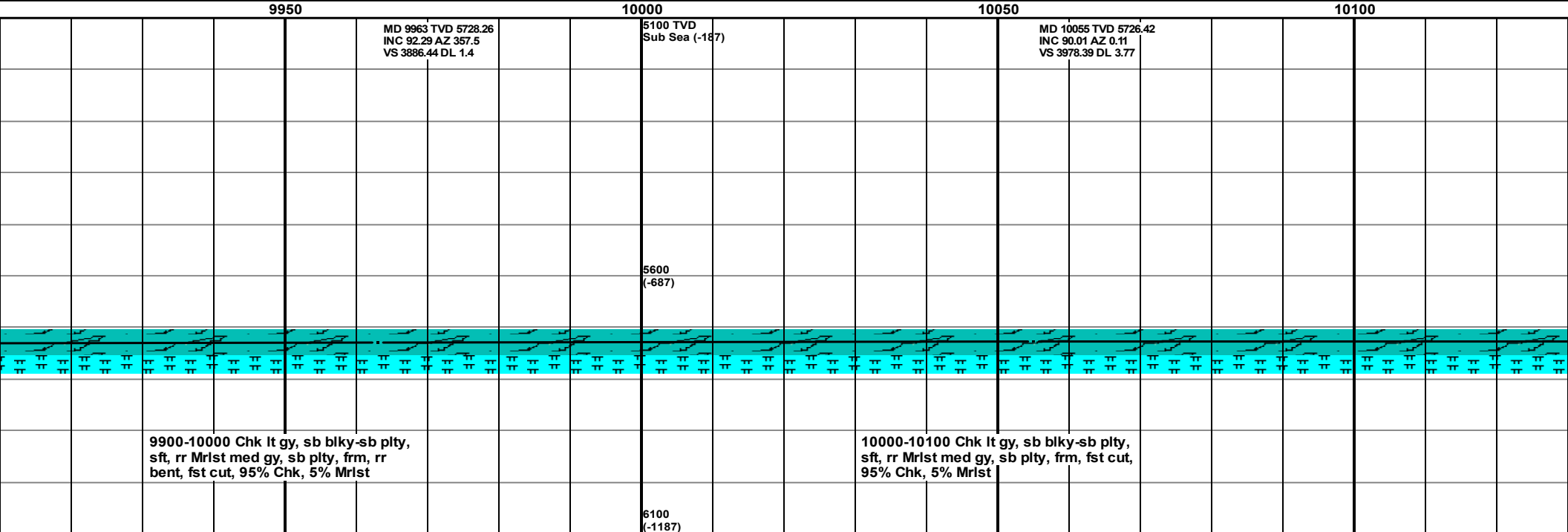
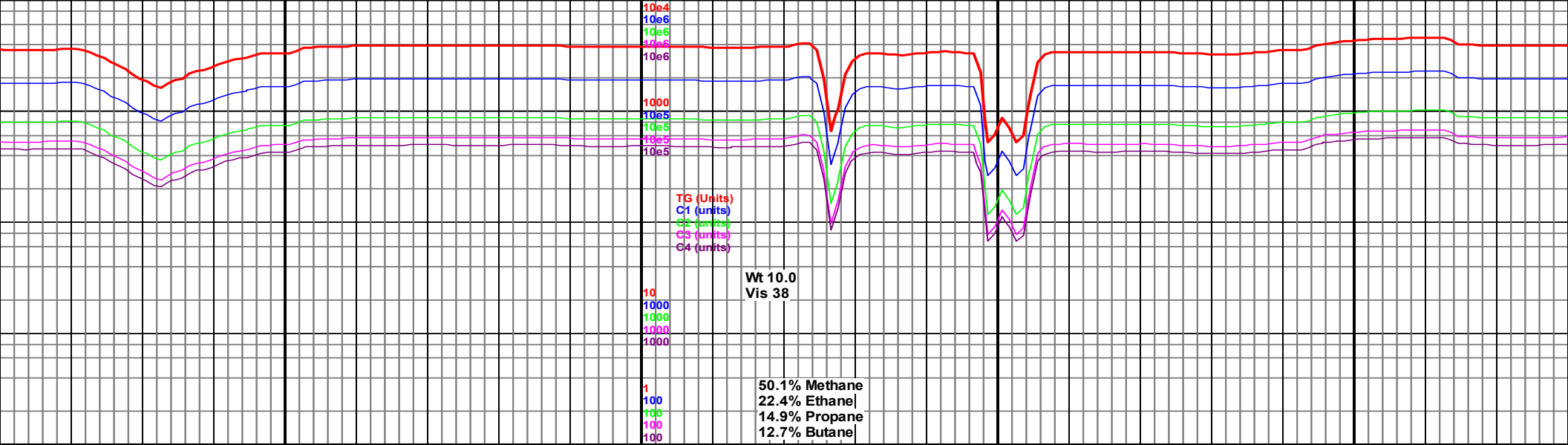


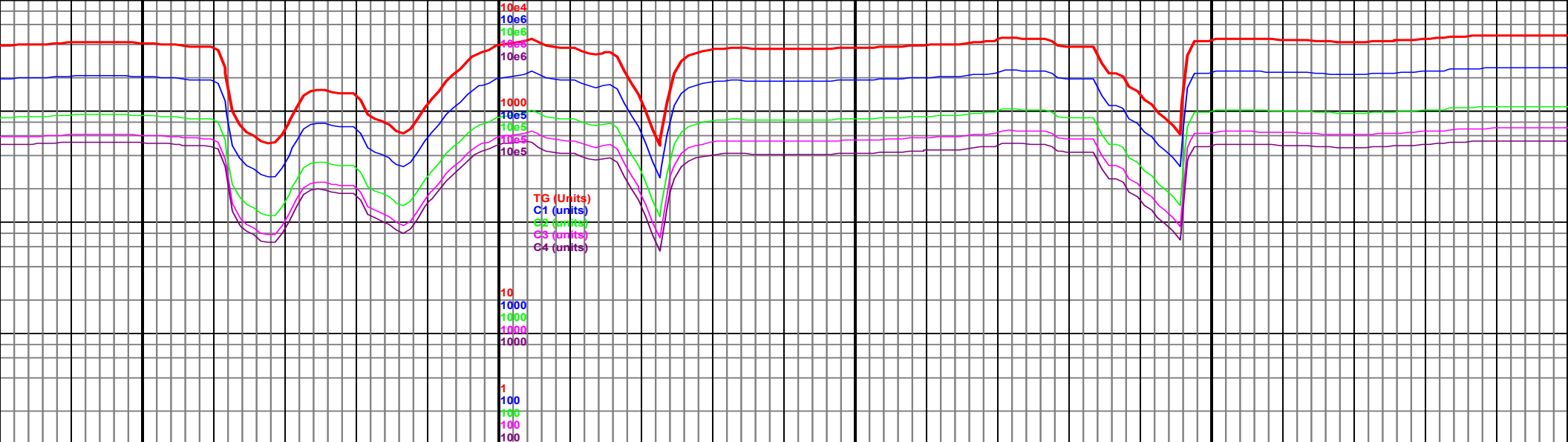




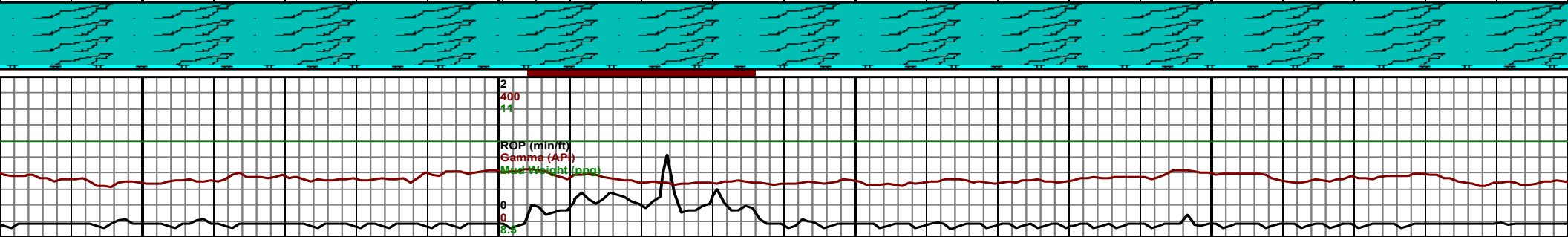
ID 9688 TVD 5732.93 INC 89.39 AZ 359.88 S 3611.59 DL 1.26	MD 9780 TVD 5733.01 INC 90.52 AZ 359.23 VS 3703.58 DL 1.42	5100 TVD Sub Sea (-187)	MD 9871 TVD 5731.35 INC 91.56 AZ 358.56 VS 3794.55 DL 1.36
9700-9800 Chk It gy, sb blkly-sb plty, sft, rr Mrlst med gy, sb plty, frm, rr bent, fst cut, 95% Chk, 5% Mrlst		9800-9900 Chk It gy, sb blkly-sb plty, sft, rr Mrlst med gy, sb plty, frm, rr bent, fst cut, 95% Chk, 5% Mrlst	

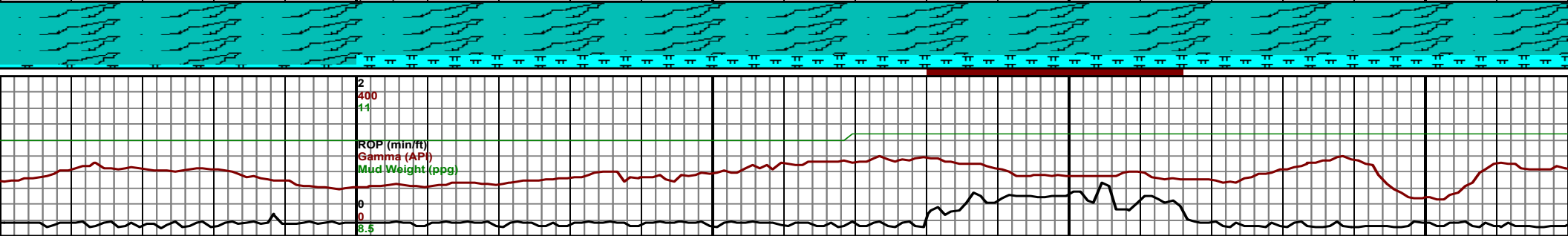
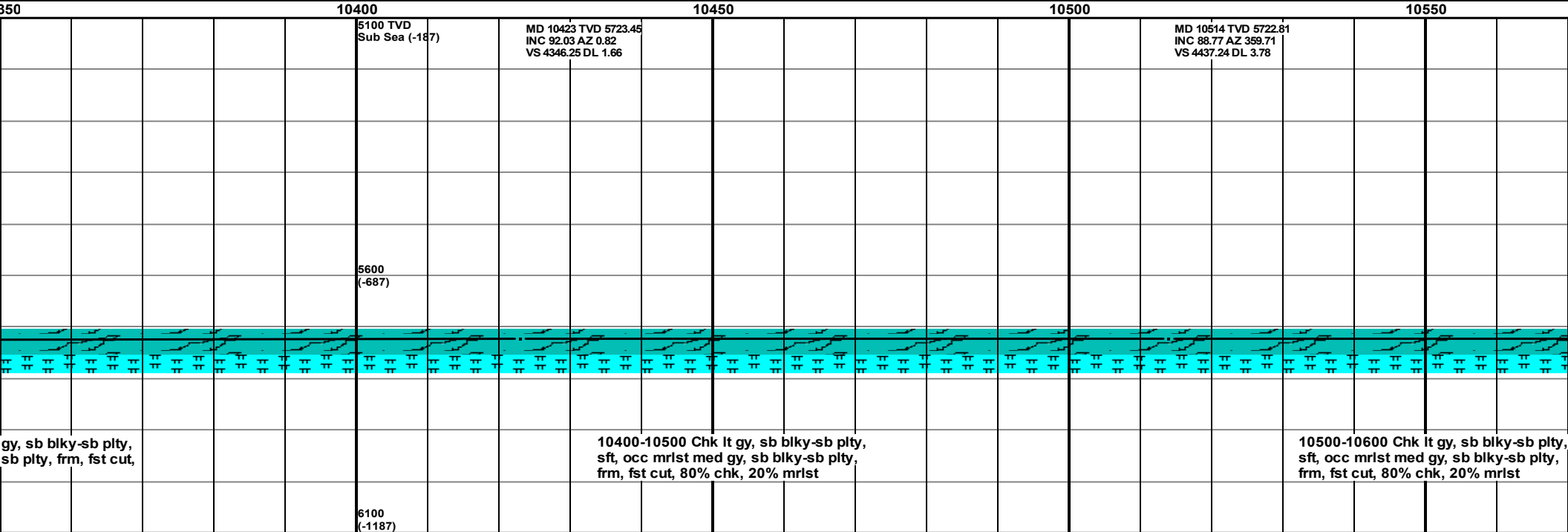
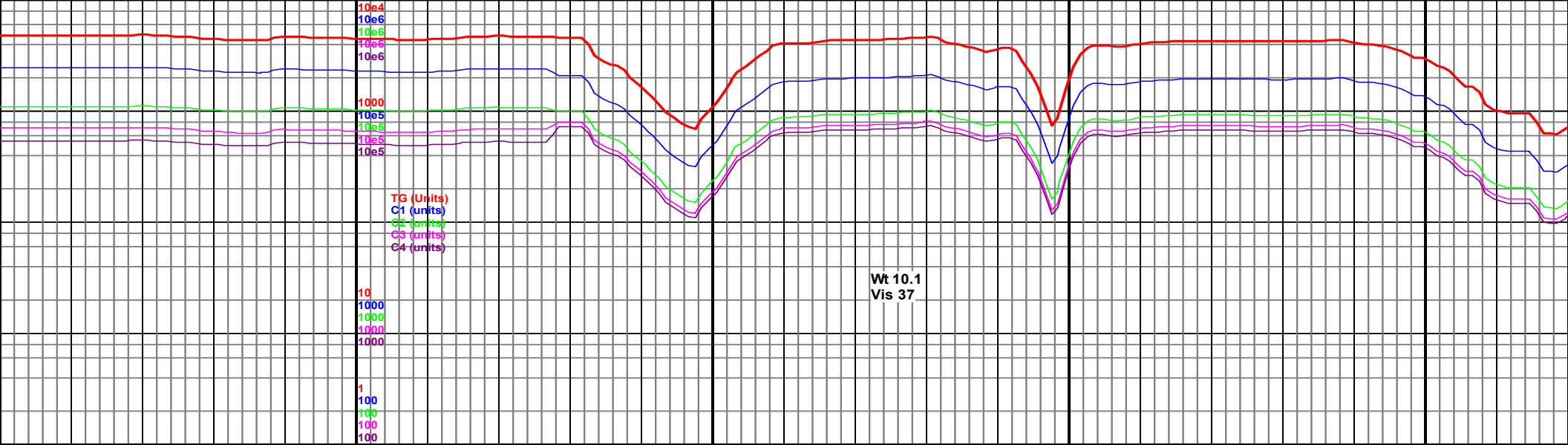


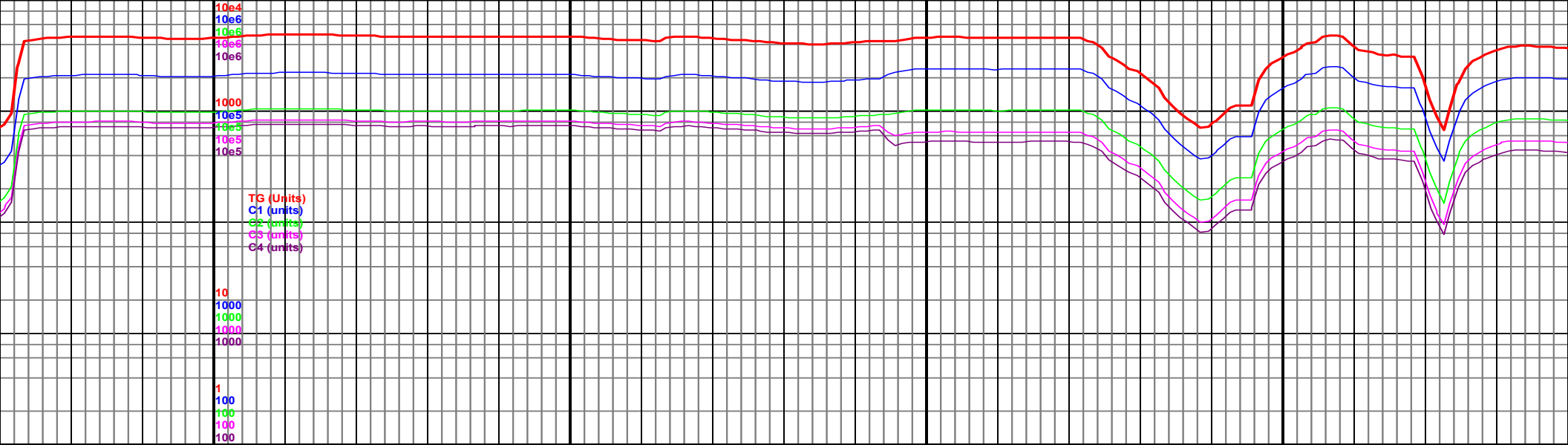




10150					10200					10250					10300					10350
MD 10147 TVD 5726.4 INC 90.01 AZ 359.94 VS 4070.39 DL 0.18					5100 TVD Sub Sea (-187)					MD 10239 TVD 5726.4 INC 89.99 AZ 2.21 VS 4162.37 DL 2.47					MD 10331 TVD 5725.74 INC 90.83 AZ 1.76 VS 4254.31 DL 1.04					
					5600 (-687)															
10100-10200 Chk It gy, sb blkysb plty, sft, rr Mrlst med gy, sb plty, frm, fst cut, 95% Chk, 5% Mrlst										10200-10300 Chk It gy, sb blkysb plty, sft, rr Mrlst med gy, sb plty, frm, fst cut, 95% Chk, 5% Mrlst										10300-10400 Chk It sft, rr Mrlst med gy, 95% Chk, 5% Mrlst
					6100 (-1187)															







10600

10650

10700

10750

5100 TVD MD 10606 TVD 5723.77  
Sub Sea INC 90.03 AZ 359.24  
VS 4529.22 DL 1.46

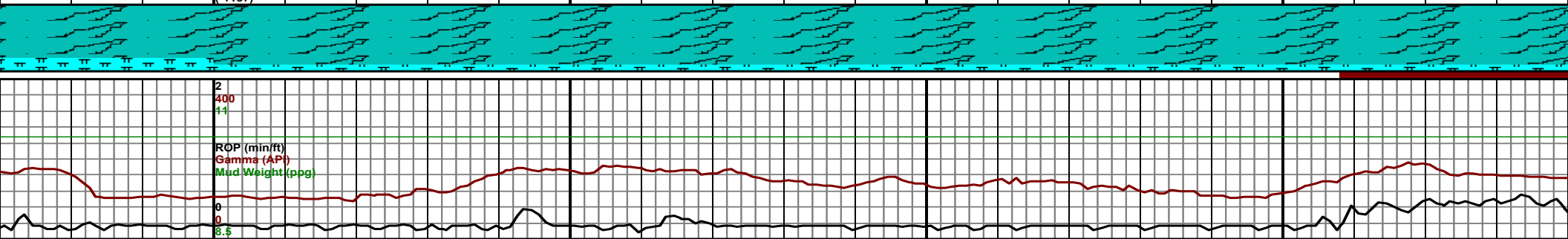
MD 10697 TVD 5722.75  
INC 91.26 AZ 359.16  
VS 4620.21 DL 1.35

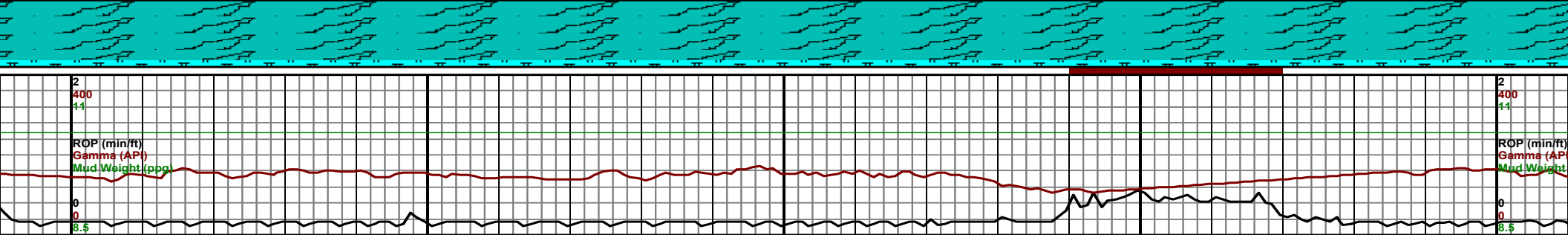
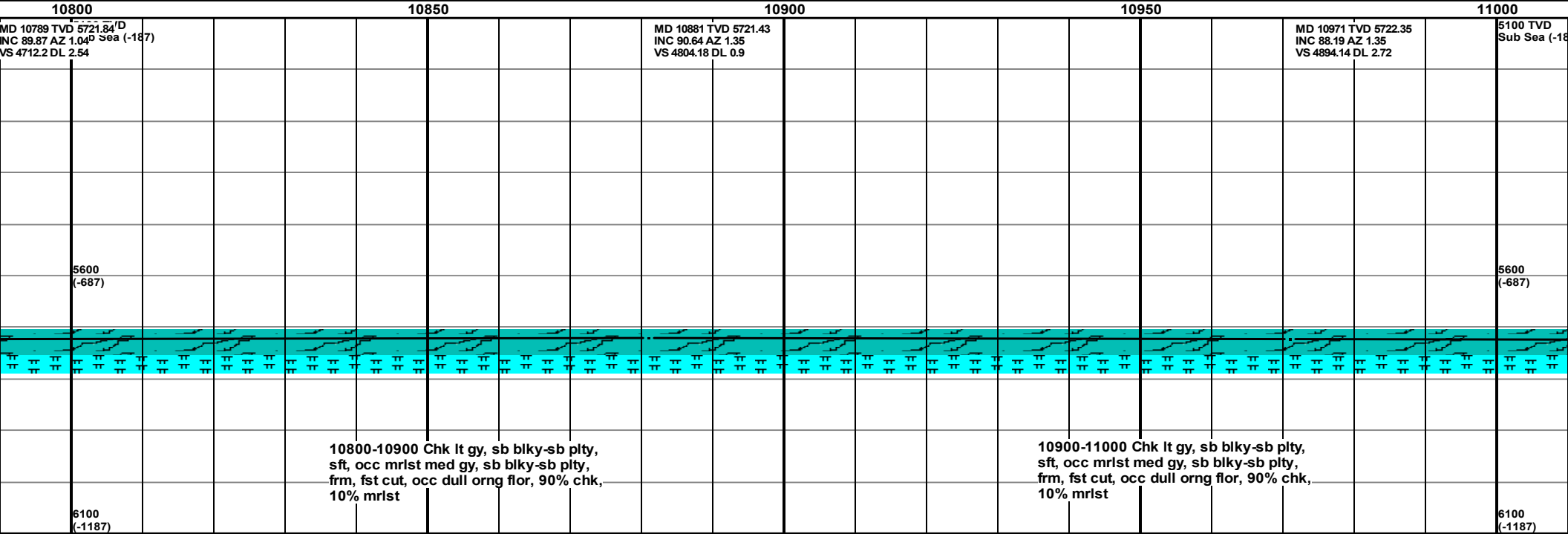
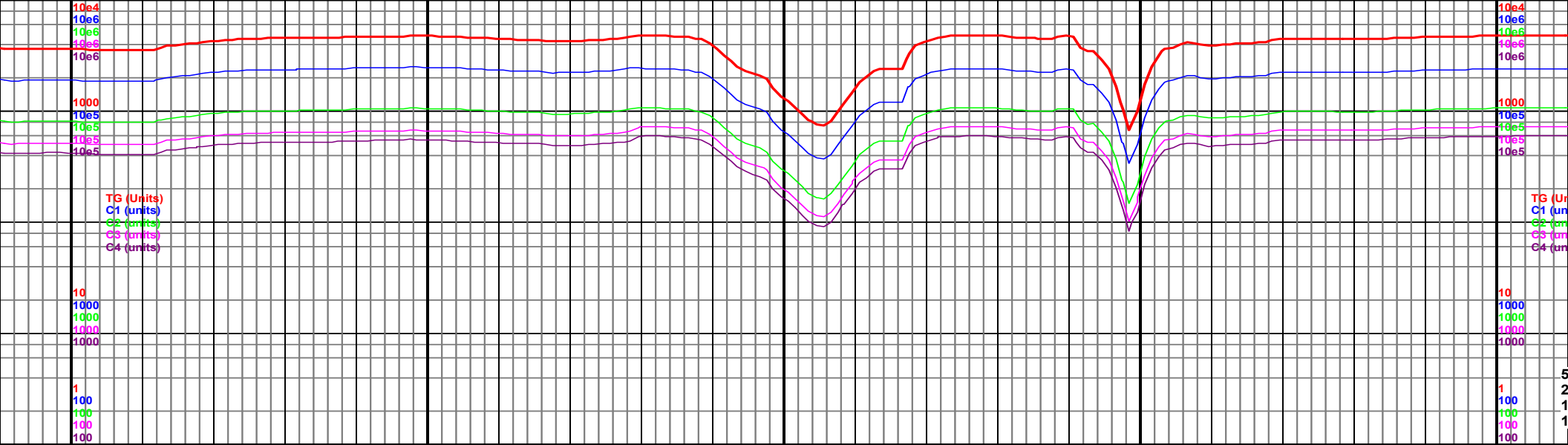
5600  
(-687)

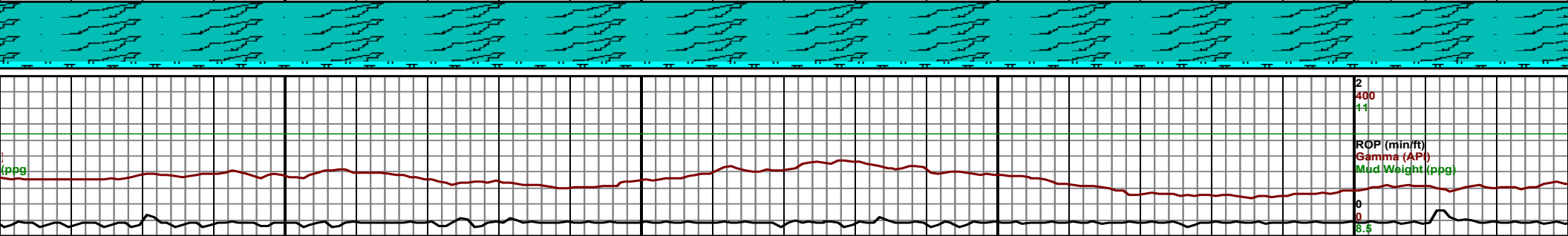
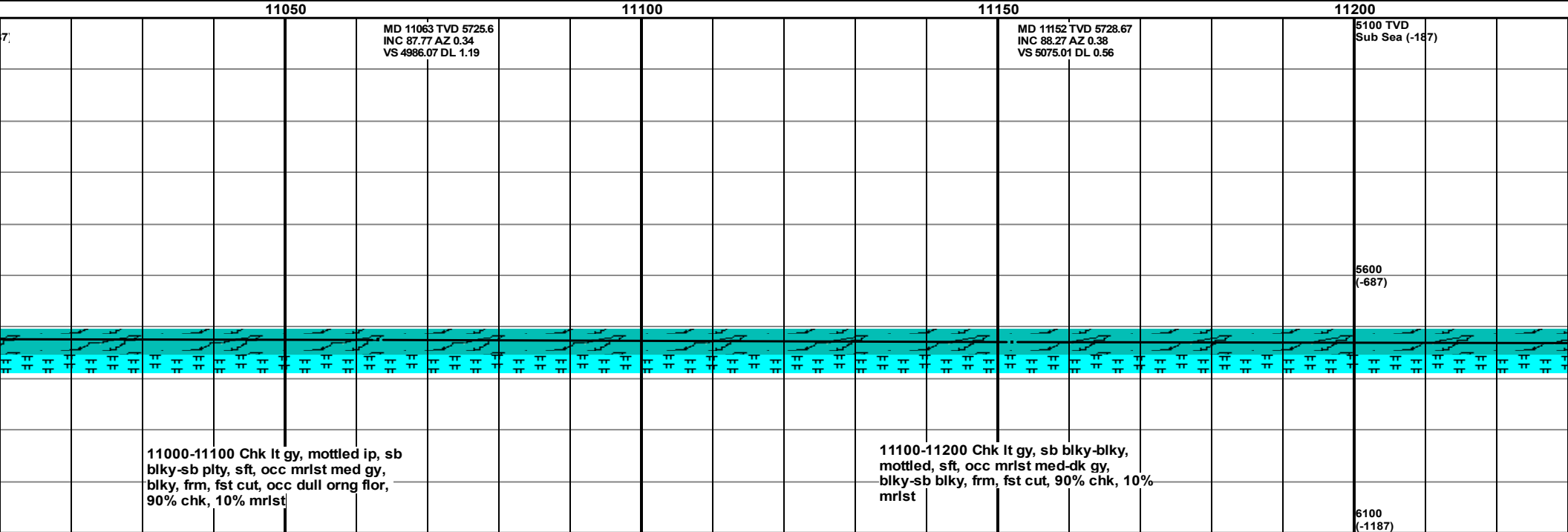
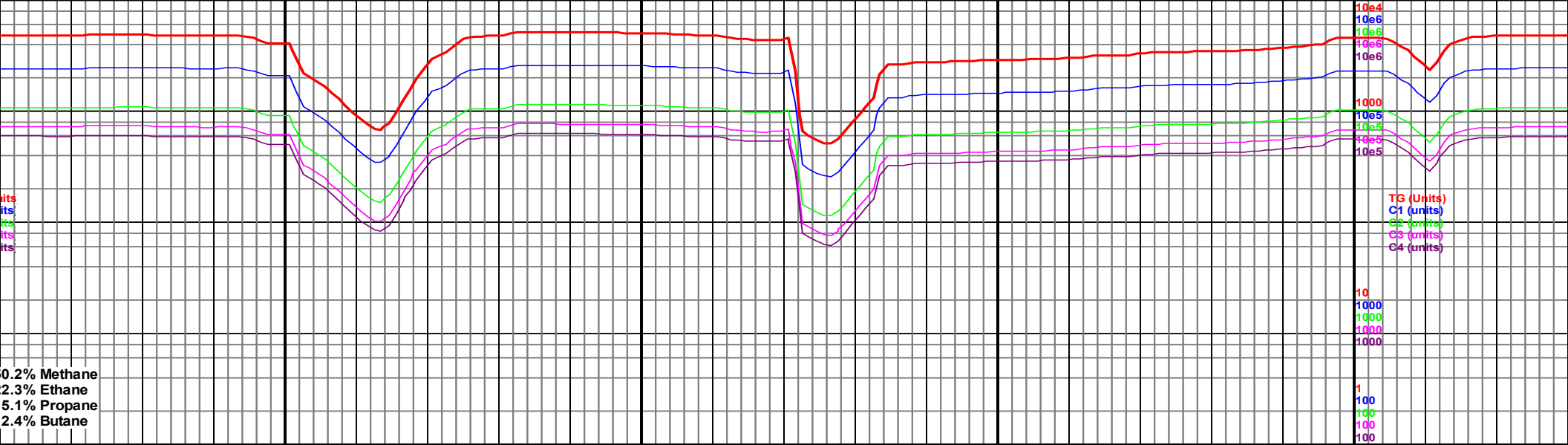
10600-10700 Chk lt gy, sb blkly-sb plty,  
sft, occ mrlst med gy, sb blkly-sb plty,  
frm, fst cut, occ dull orng flor, 90% chk,  
10% mrlst

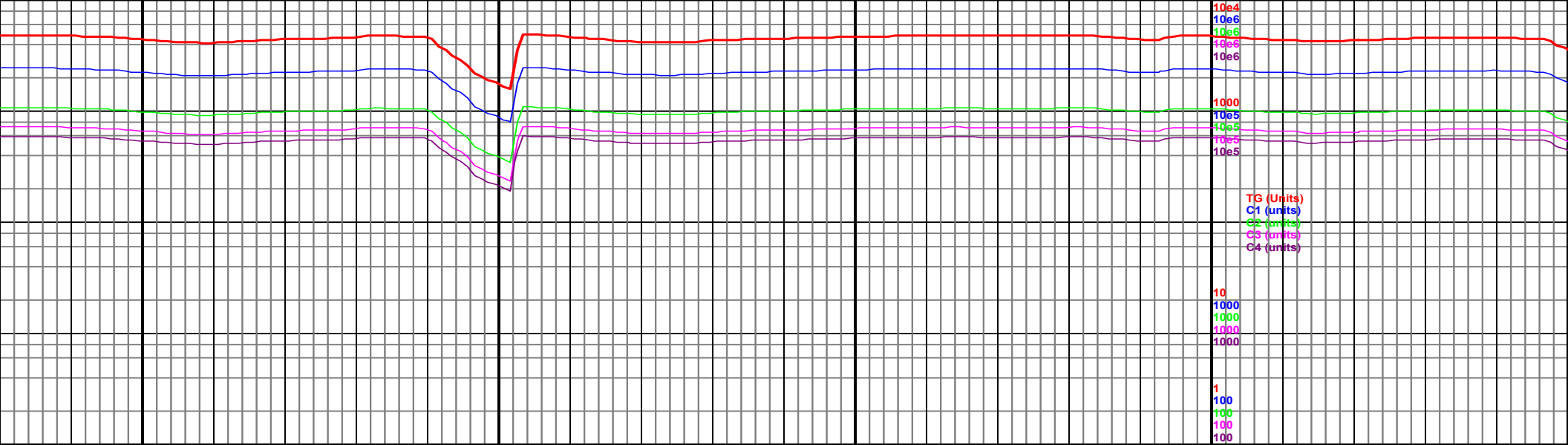
10700-10800 Chk lt gy, sb blkly-sb plty,  
sft, occ mrlst med gy, sb blkly-sb plty,  
frm, fst cut, occ dull orng flor, 90% chk,  
10% mrlst

6100  
(-1187)

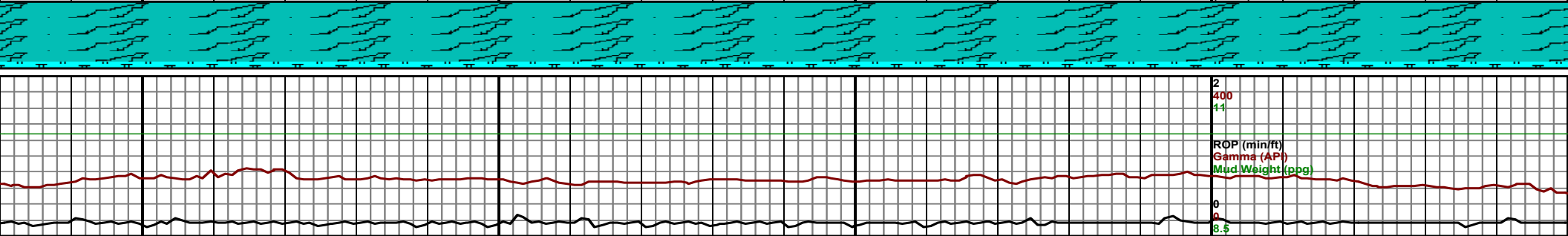




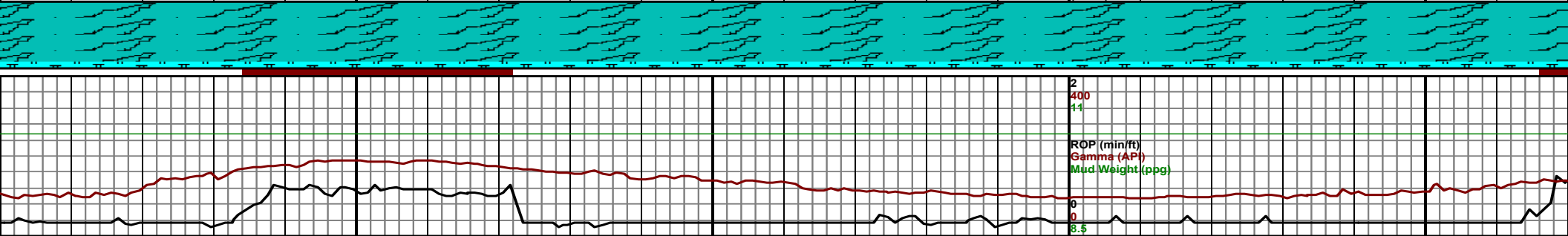
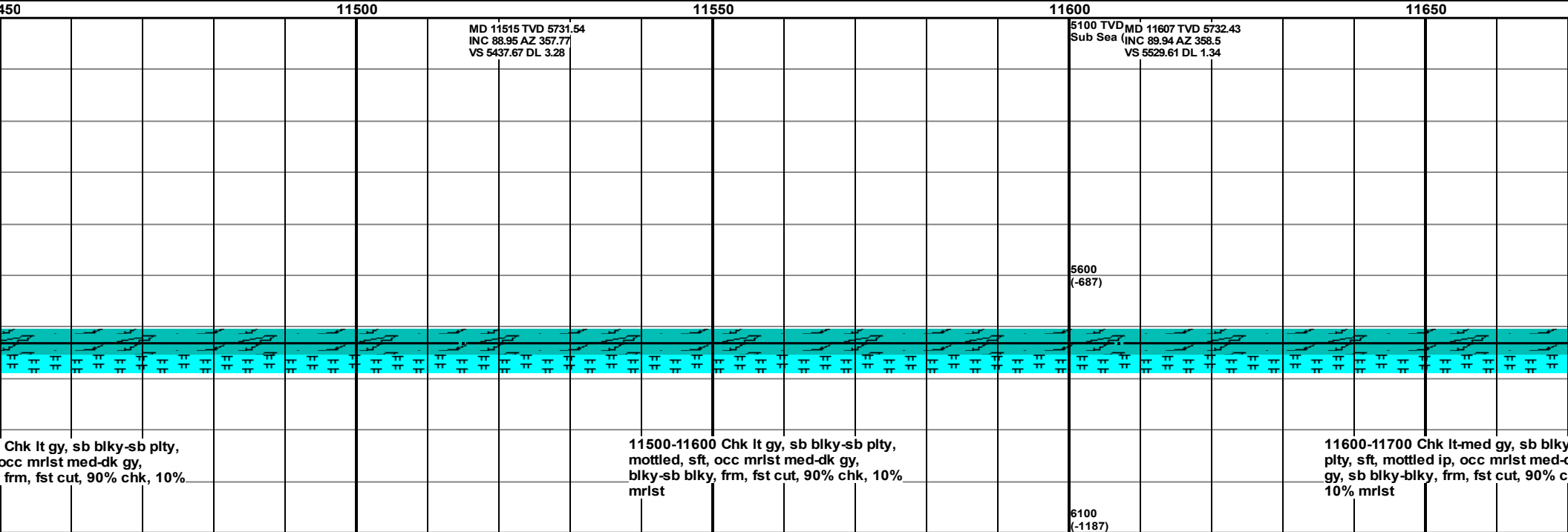
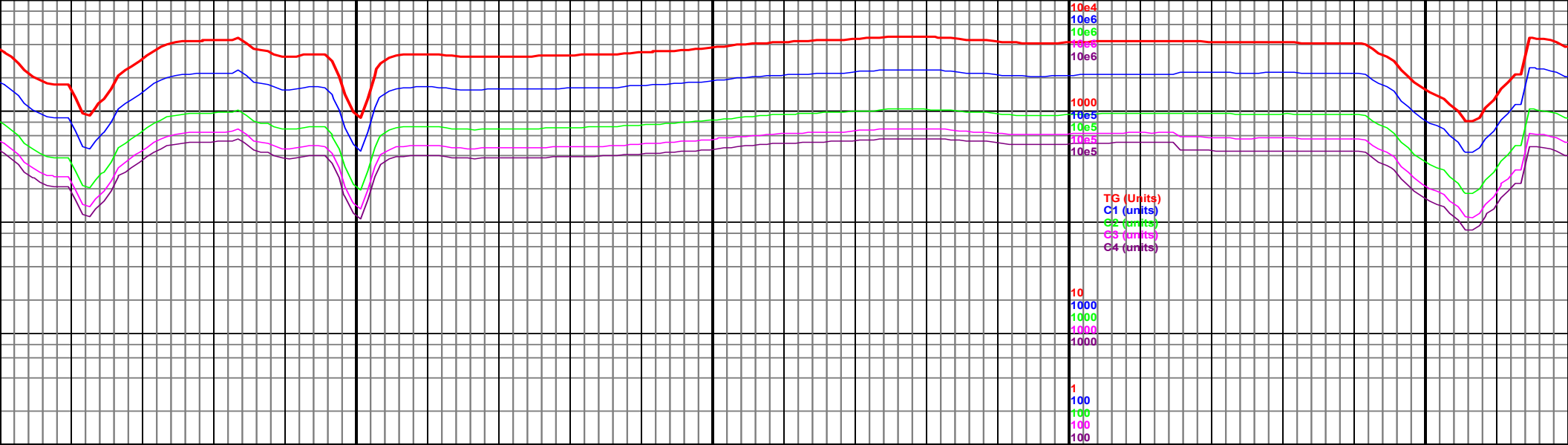


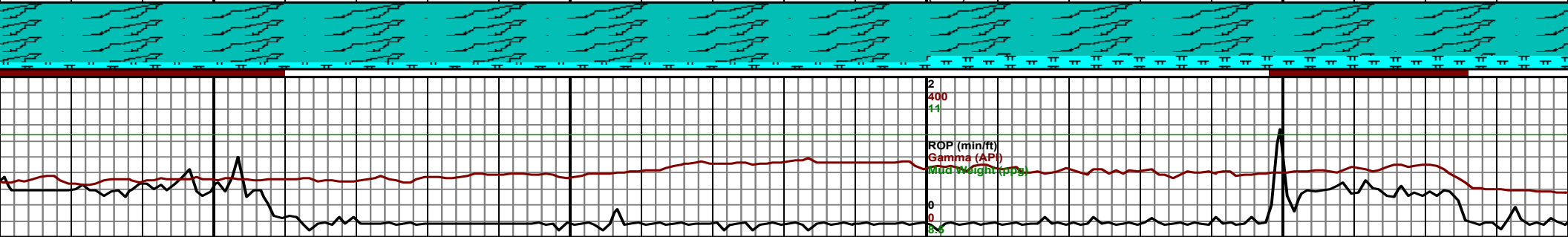
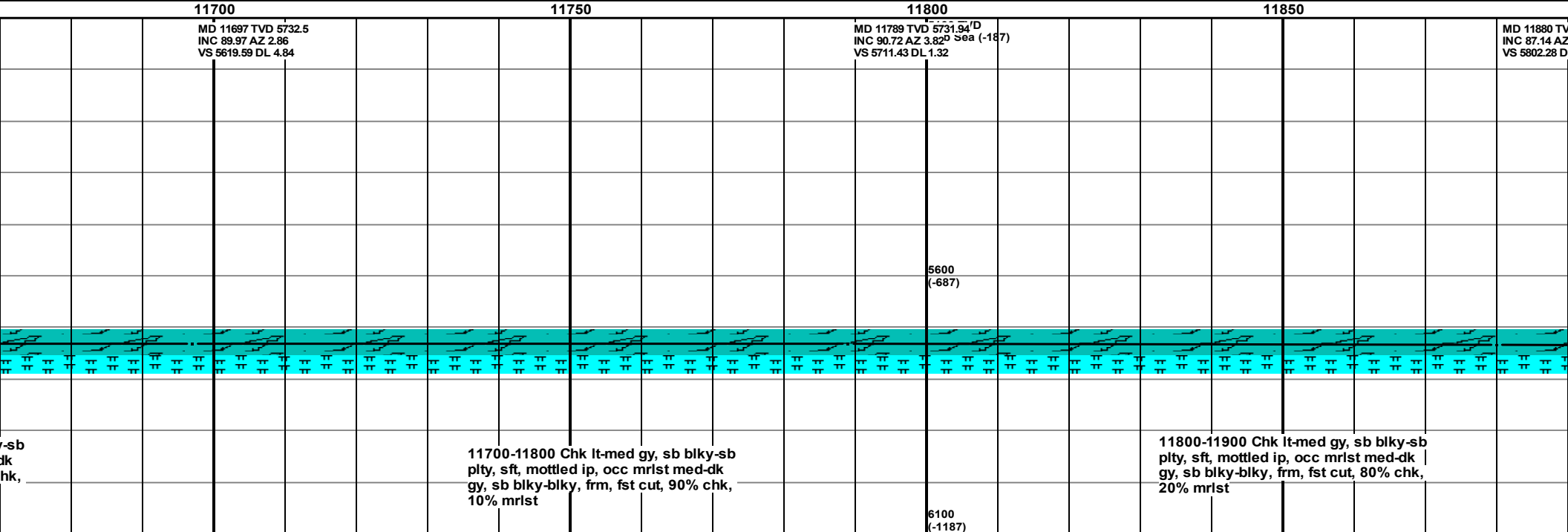
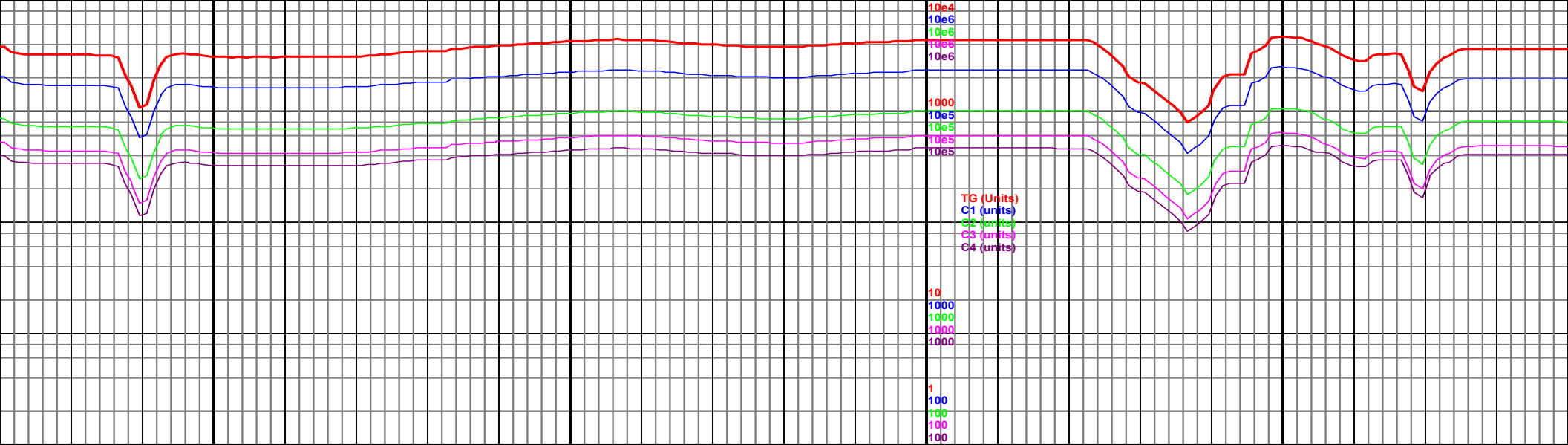


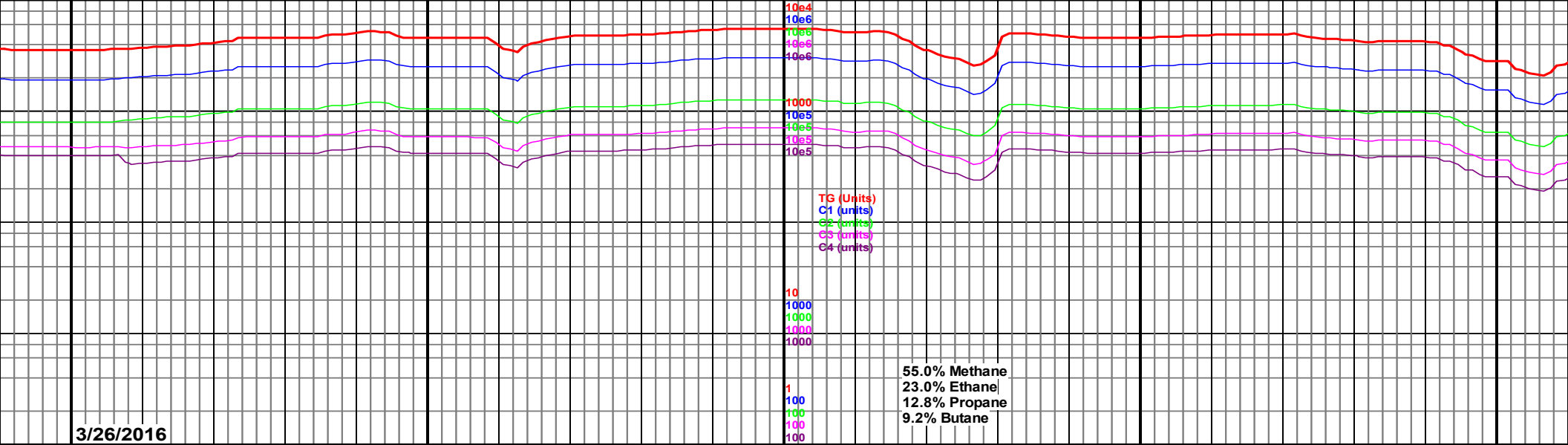
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MD 11243 TVD 5731.1 INC 88.67 AZ 359.81 VS 5165.98 DL 0.77					MD 11334 TVD 5732.35 INC 89.75 AZ 358.28 VS 5256.96 DL 2.06					MD 11424 TVD 5731.63 INC 91.17 AZ 355.78 VS 5346.82 DL 3.19					5100 TVD Sub Sea (-187)					
															5600 (-687)					
11200-11300 Chk lt gy, sb blkly-blky, mottled, sft, occ mrlst med-dk gy, blkly-sb blkly, frm, fst cut, 90% chk, 10% mrlst					11300-11400 Chk lt gy, sb blkly-sb plty, mottled, sft, occ mrlst med-dk gy, blkly-sb blkly, frm, fst cut, 90% chk, 10% mrlst										6100 (-1187)					11400-11500 mottled, sft, blkly-sb blkly, mrlst



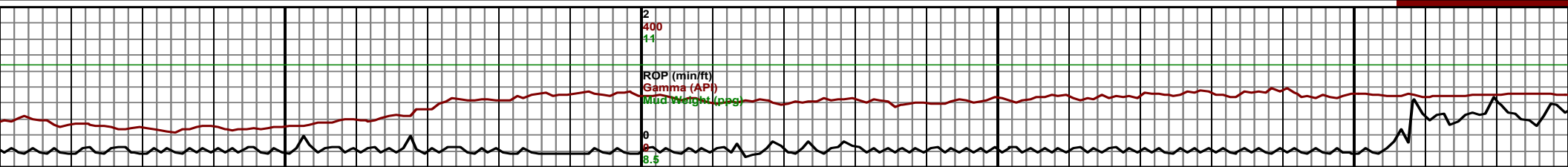
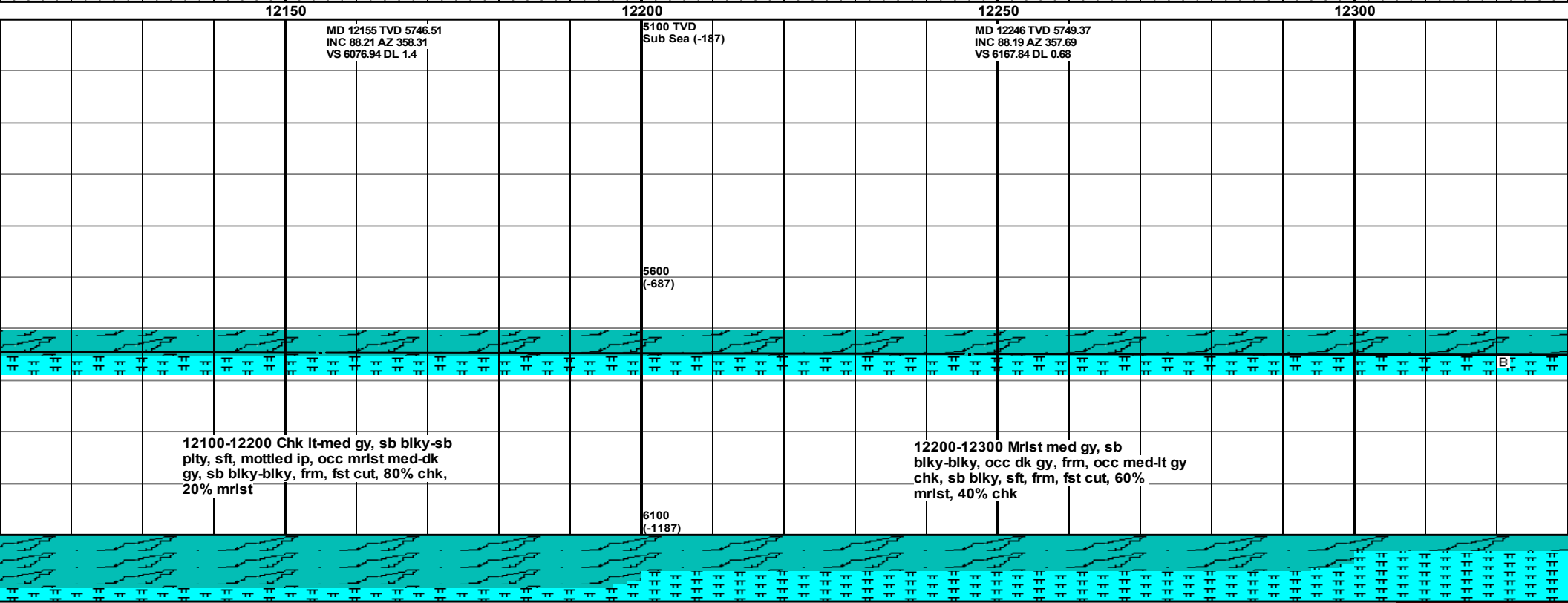
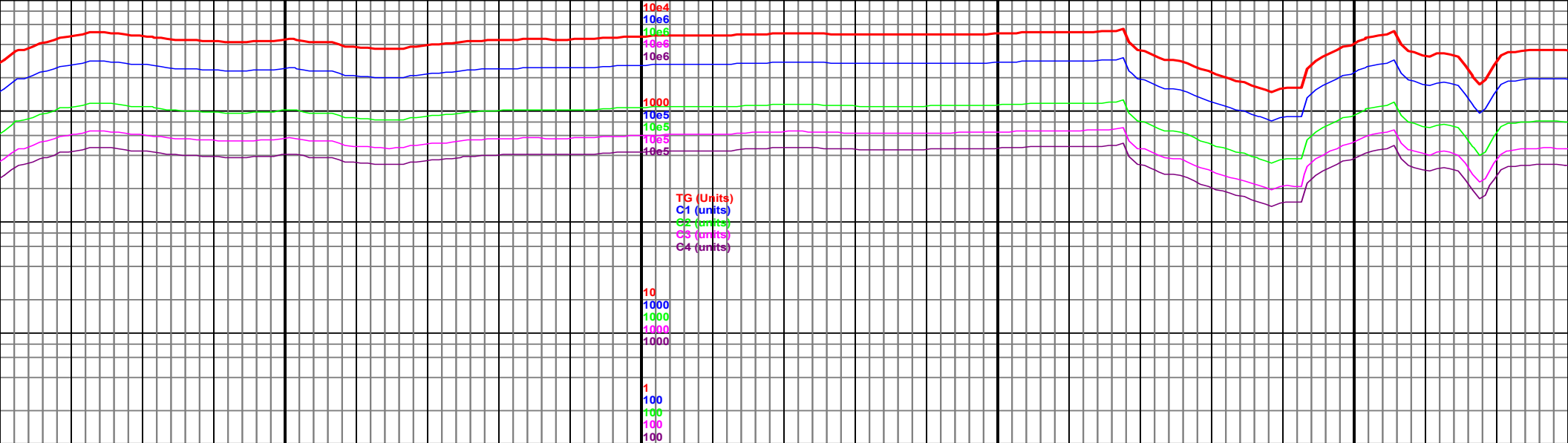


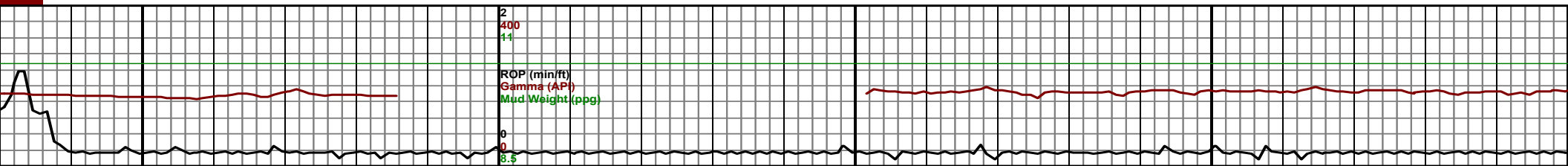
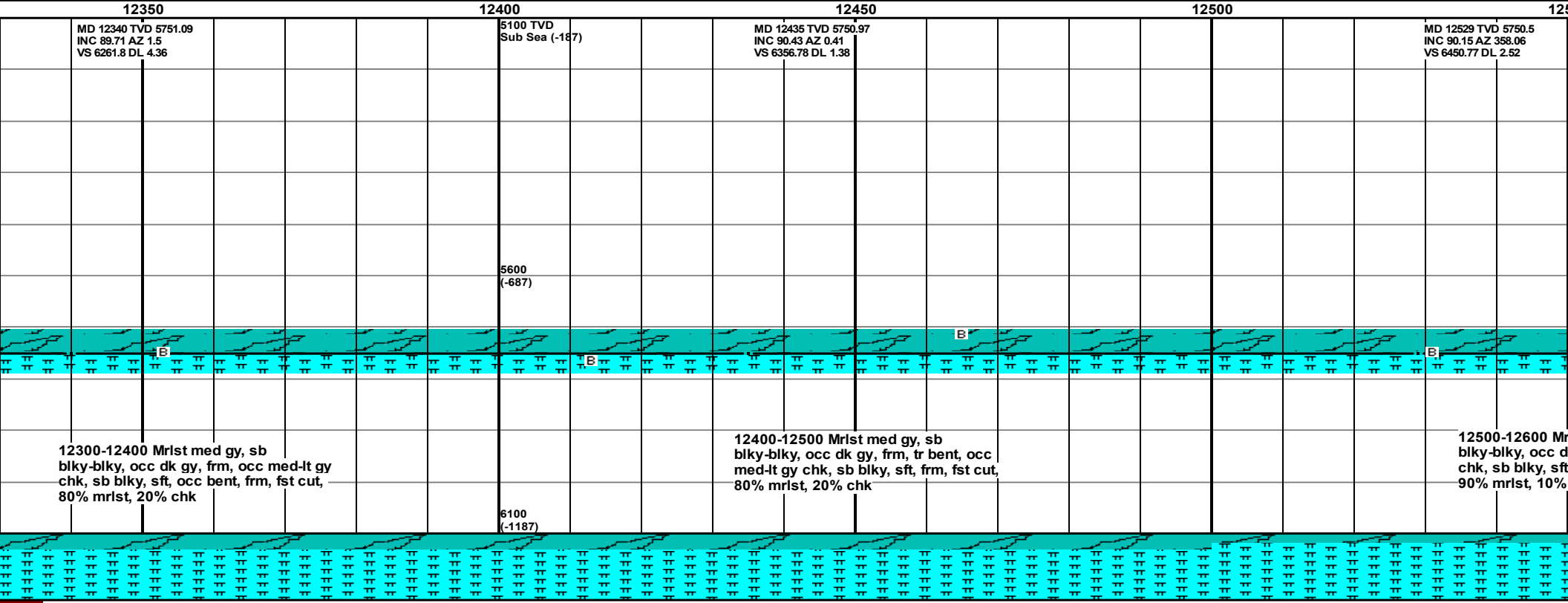
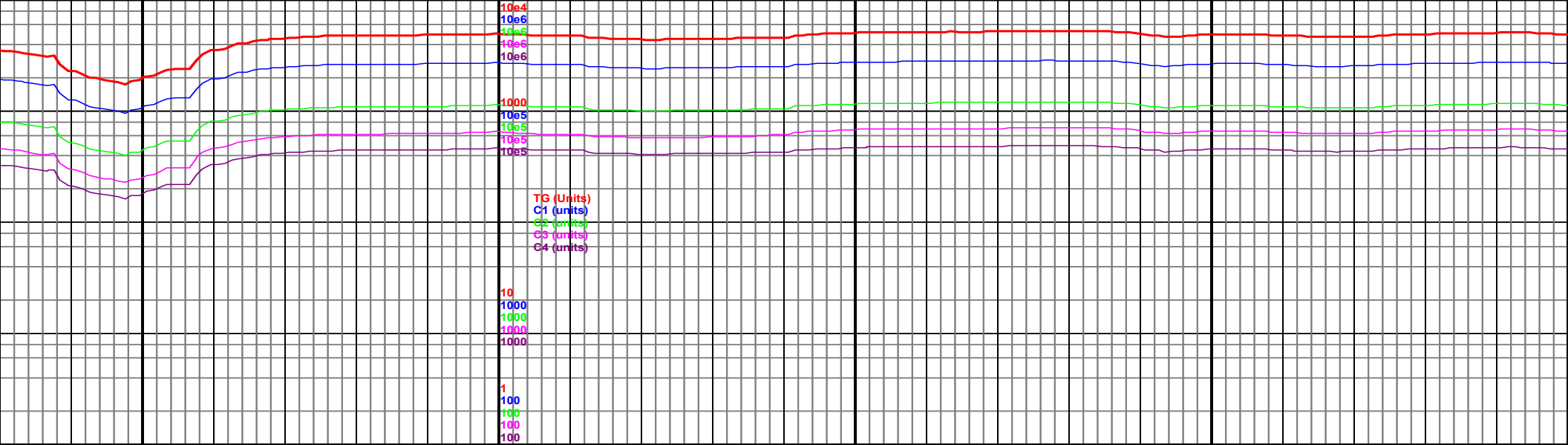


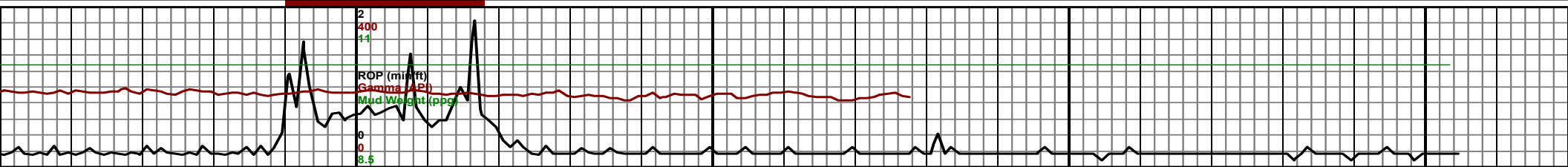
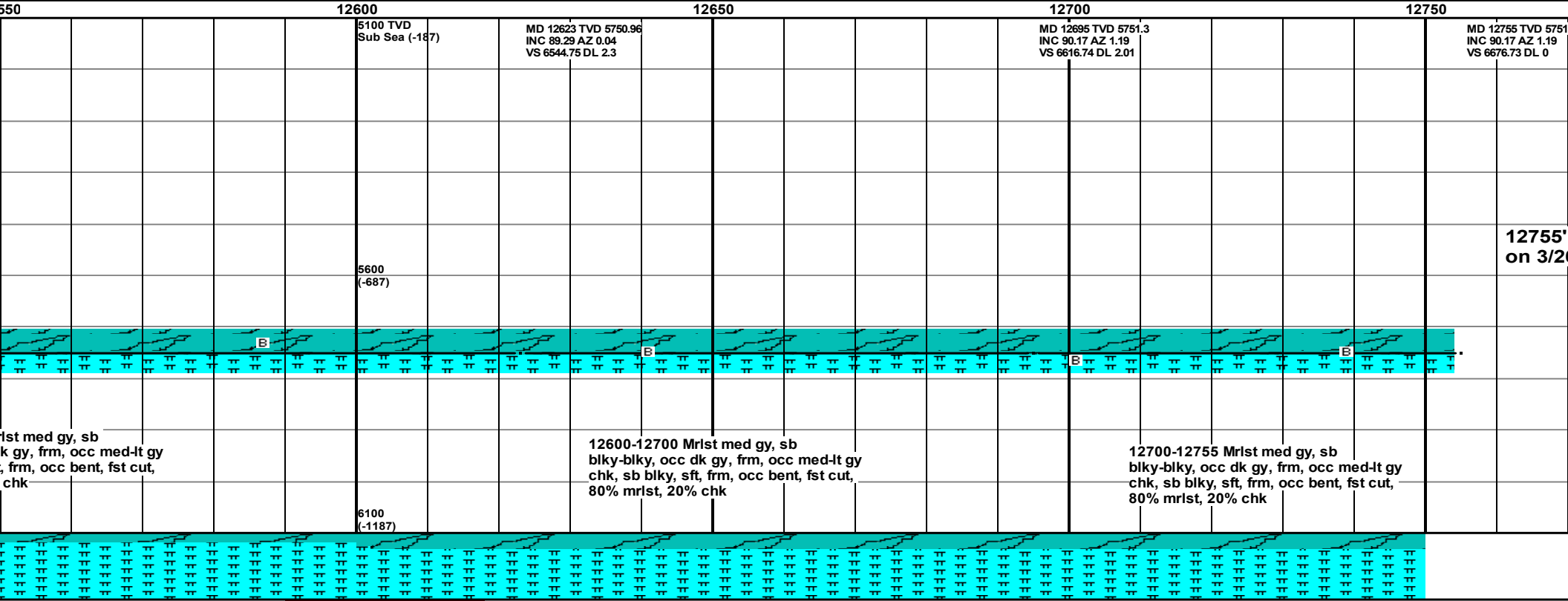
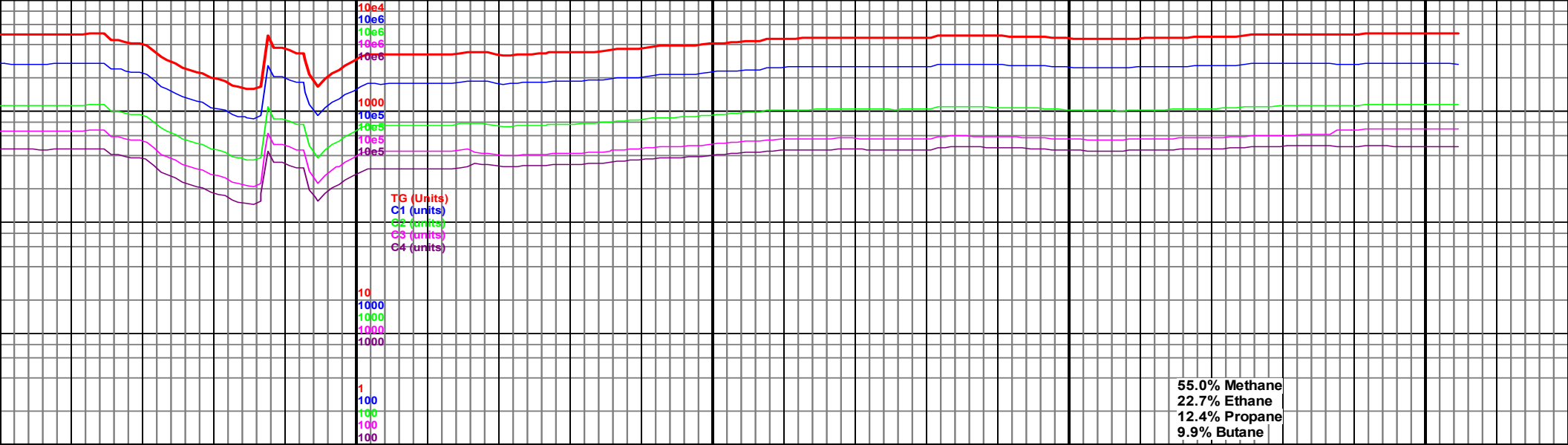


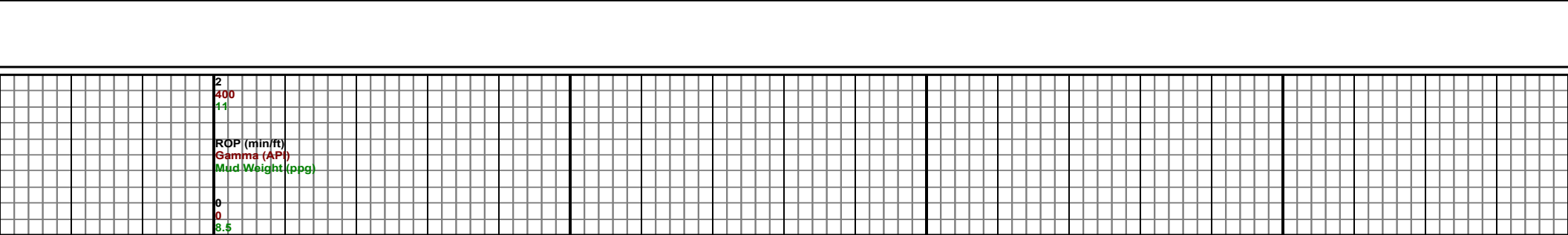
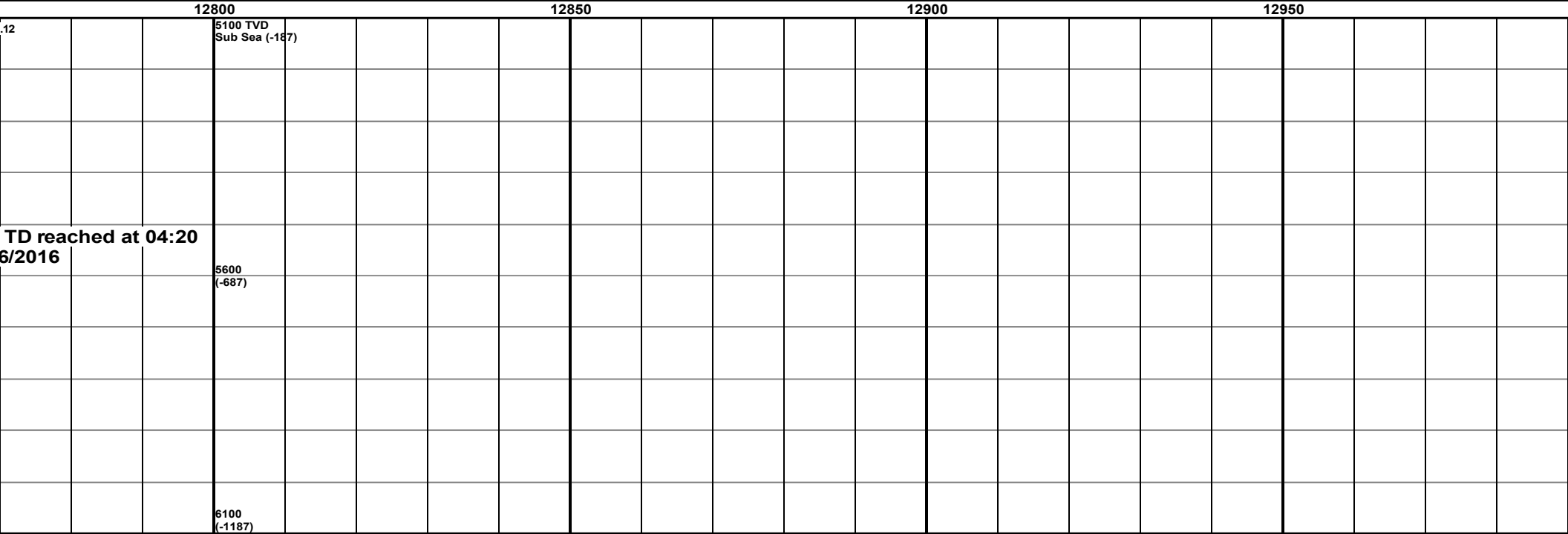
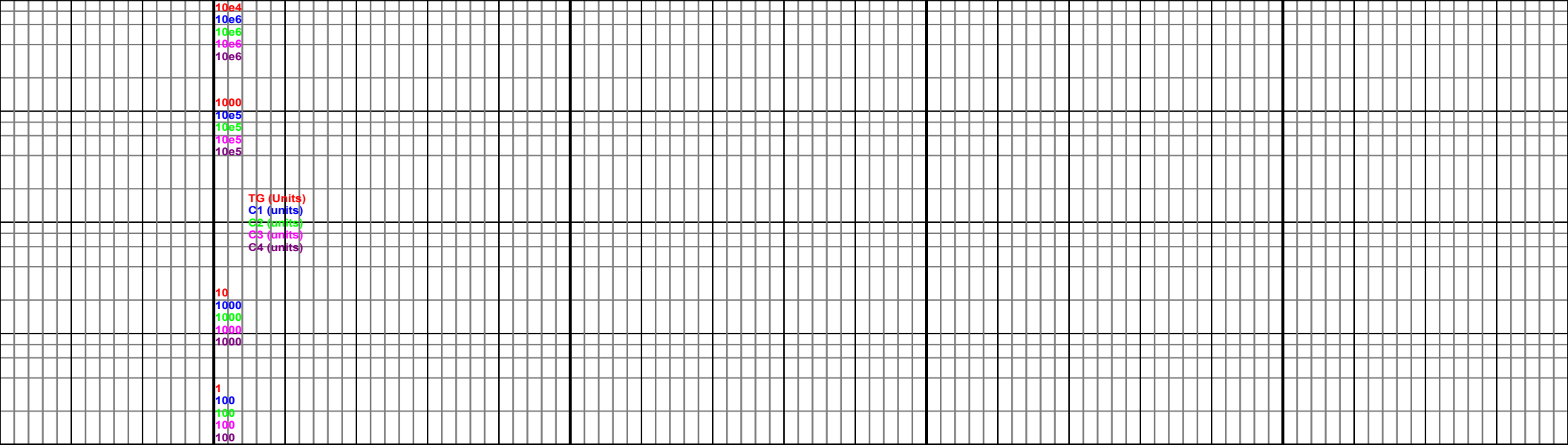


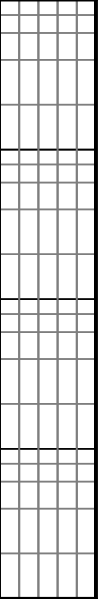
11900					11950					12000					12050					12100				
D 5733.64 L 1.73 L 4.56										MD 11972 TVD 5738.43 INC 86.9 AZ 0.35 VS 5894.14 DL 1.52					5100 TVD Sub Sea (-187)					MD 12063 TVD 5742.97 INC 87.38 AZ 359.29 VS 5985.03 DL 1.28				











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