



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

**Well Name:** Razor 21A-2815A  
**Location:** NENE 21-T10N-R58W Weld County, Colorado  
**License Number:** 05-123-37847  
**Spud Date:** 10/19/2013  
**Surface Coordinates:** 40.830067, -103.863442

**Region:** Redtail Field  
**Drilling Completed:**

**Bottom Hole Coordinates:** 40.809700, -103.862056

**Ground Elevation (ft):** 4832  
**Logged Interval (ft):** 5250      **To:**  
**Formation:** Pierre, Sharon Springs, Niobrara  
**Type of Drilling Fluid:** Water Based Mud

**K.B. Elevation (ft):** 4849  
**Total Depth (ft):**

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:** Mark Denler, Craig Dreiling  
**Company:** Acme Geologic Consulting  
**Address:** 108 Berry Street  
Little Rock, AR 72205

## Drilling Company

Cade Drilling, LLC  
Rig 21


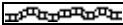
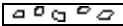


## Gas Detection






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




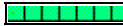

## Comments






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

 Anyh  
 Bent  
 Brec  
 Cht  
 Clyst
















 Coal  
 Congl  
 Dol  
 Gyp  
 Igne









 Lmst  
 Meta  
 Cyan mrlst  
 Salt  
 Shale
















 Shcol  
 Shgy  
 Sltst  
 Ss  
 Till







 Cyan chk

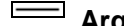
## ACCESSORIES

**MINERAL**  
 Anyh  
 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**  
 Anyh  
 Arg  
 Bent  
 Coal  
 Dol  
 Gyp  
 Ls  
 Mrst

 Sltstrg  
 Ssstrg

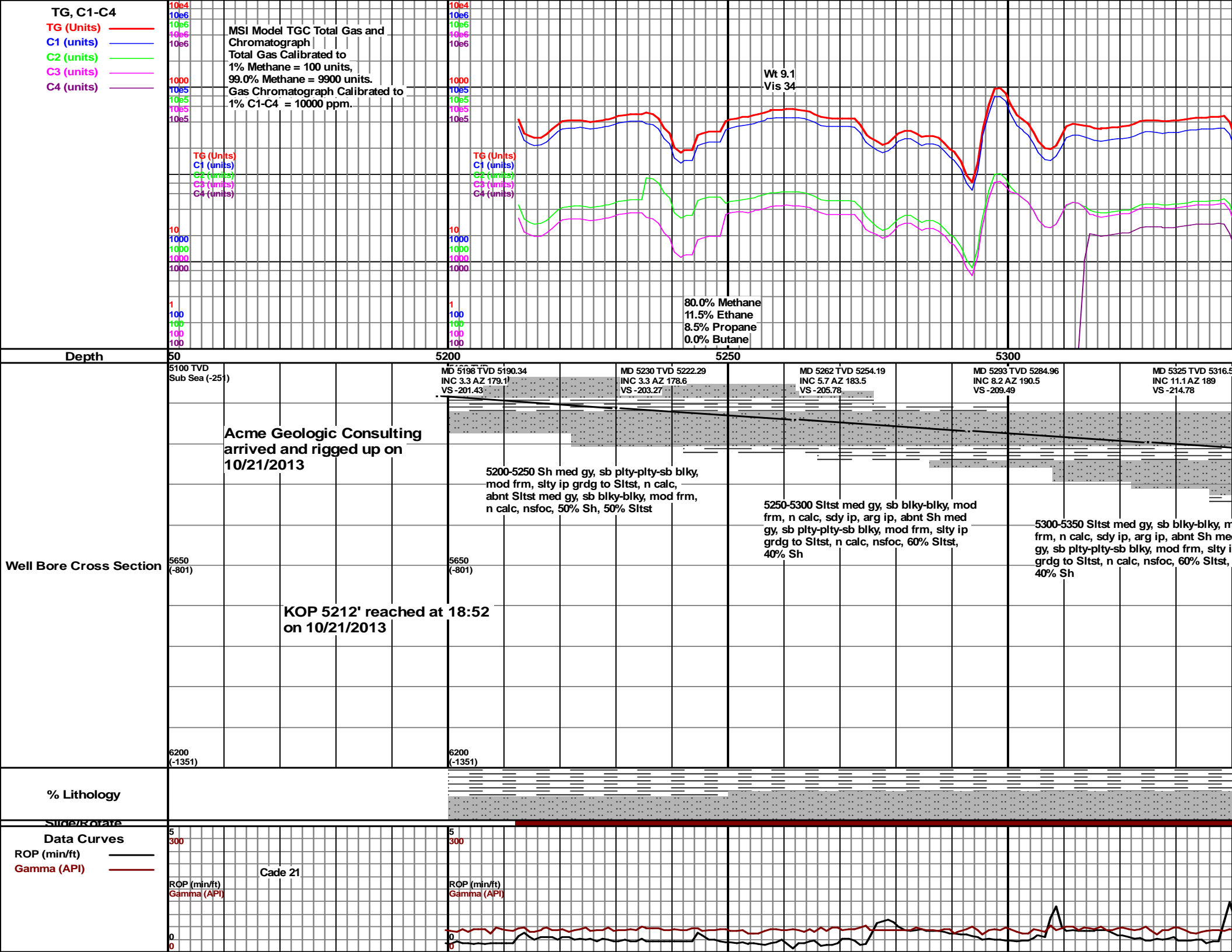
**TEXTURE**  
 Boundst  
 Chalky  
 Cryxln  
 Earthy  
 Finexln  
 Grainst  
 Lithogr  
 Microxln  
 Mudst  
 Packst  
 Wackest

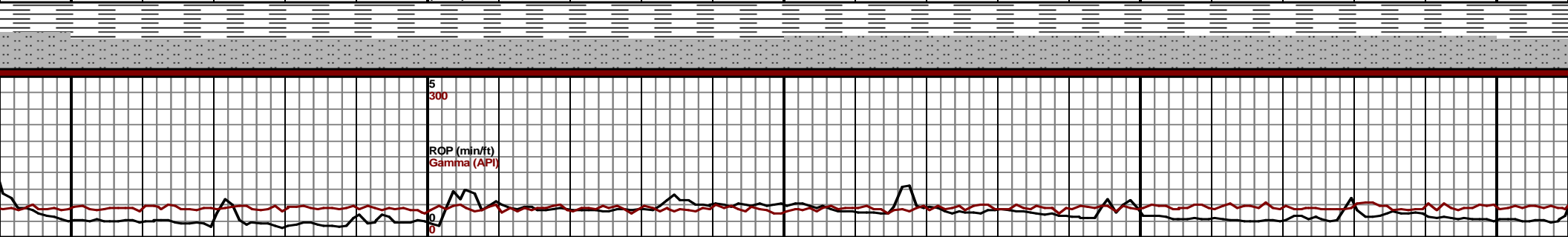
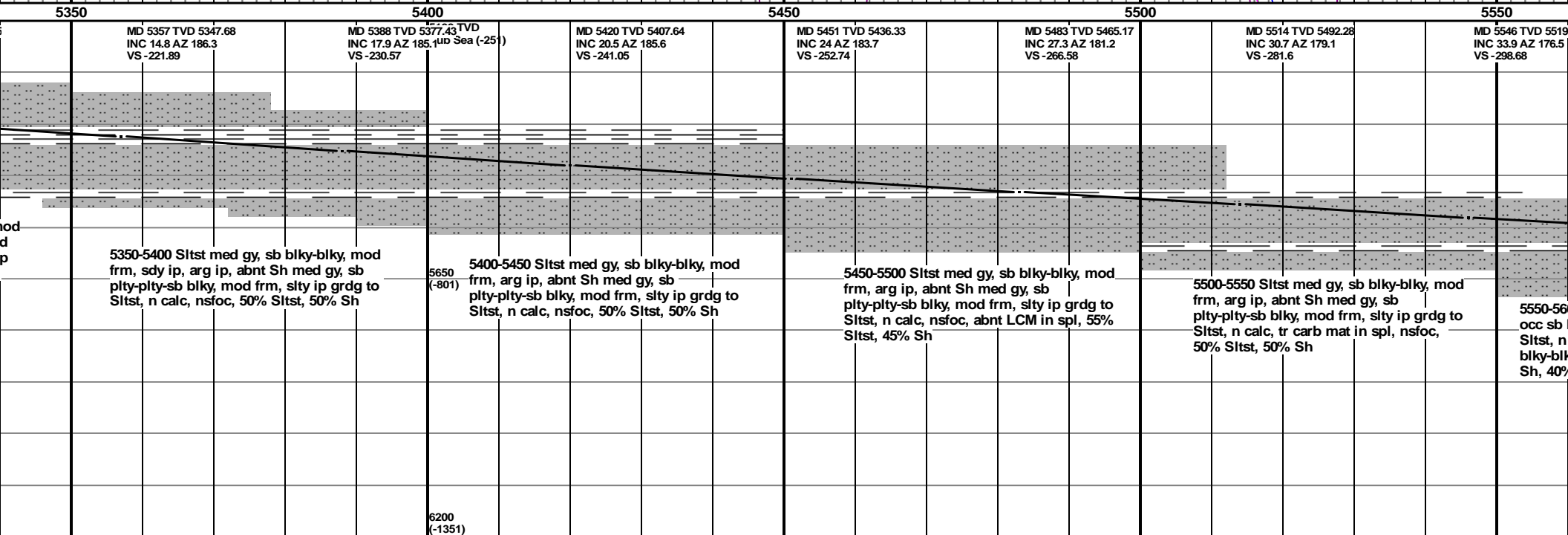
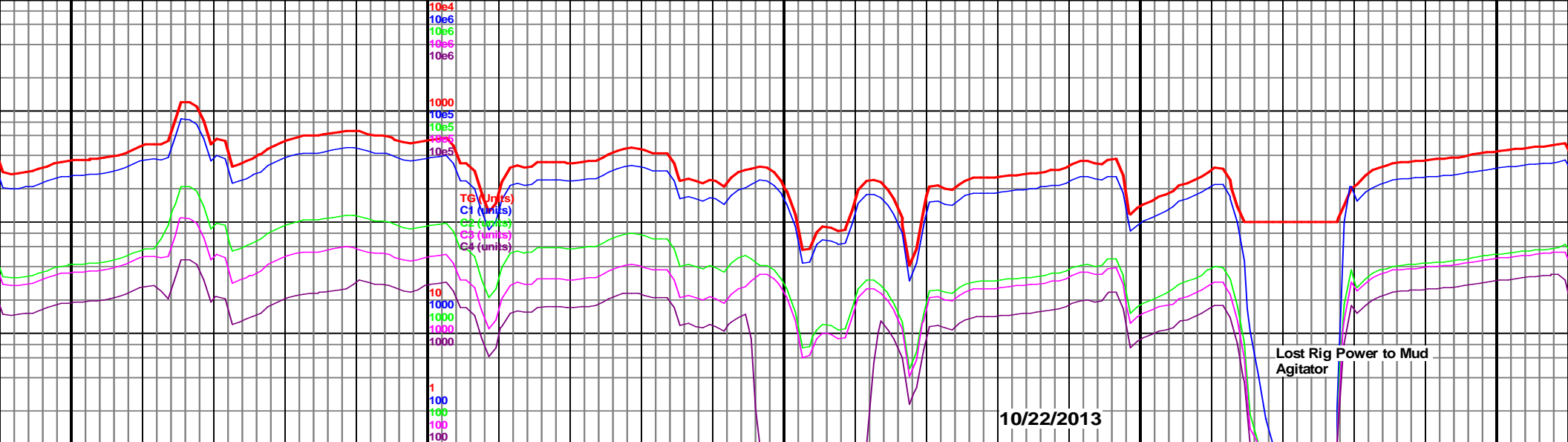
**POROSITY**  
 Earthy  
 Fenest  
 Fracture  
 Inter  
 Moldic  
 Organic  
 Pinpoint

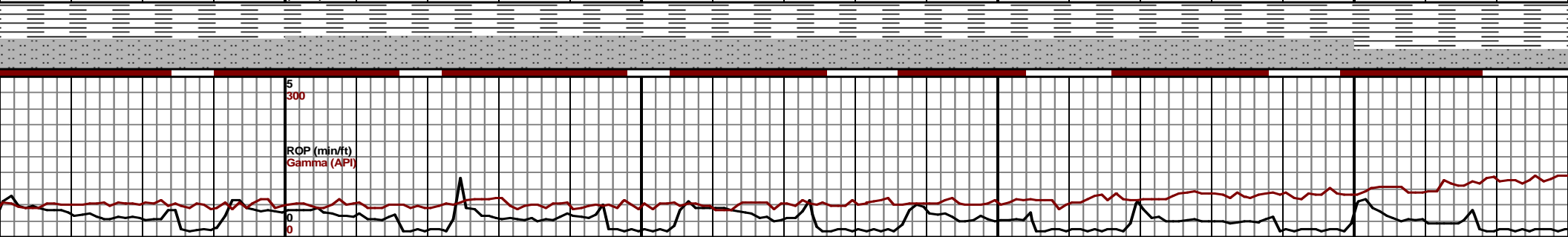
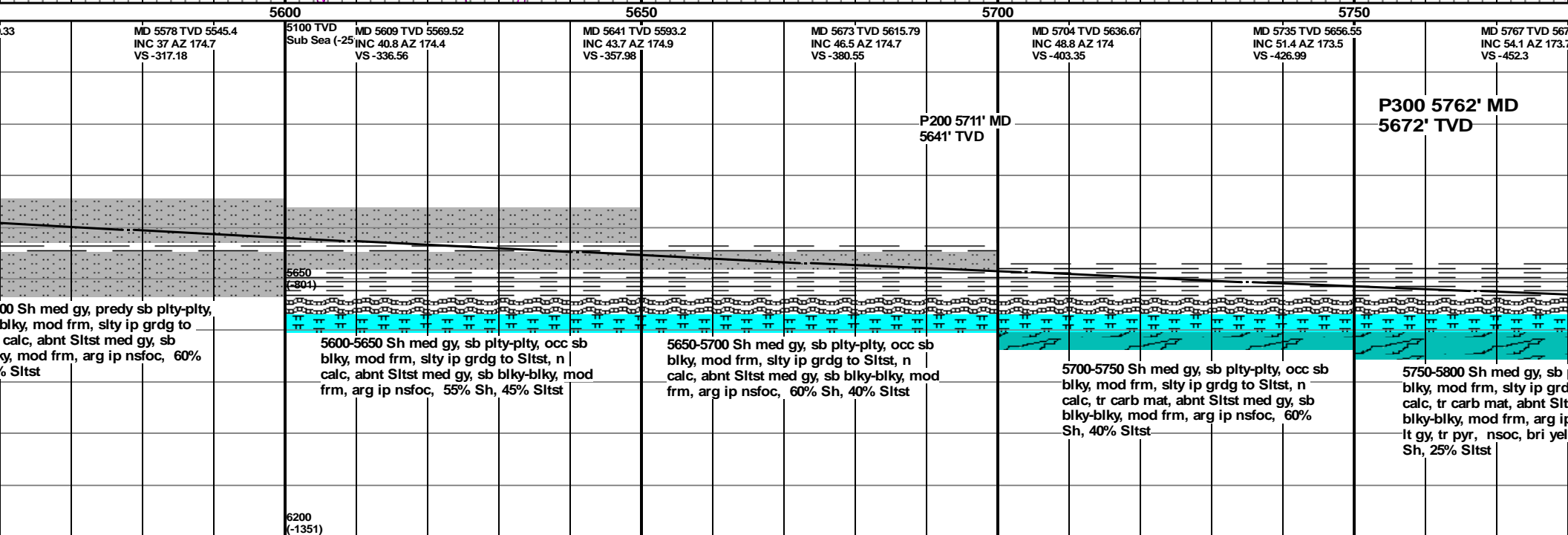
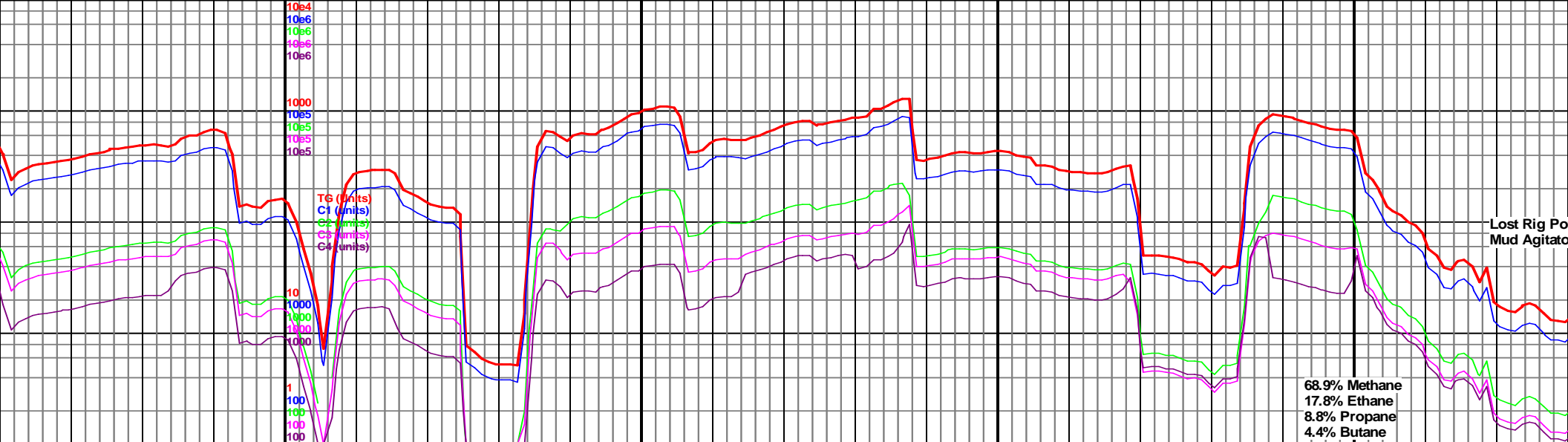
 Vuggy  
  
**SORTING**  
 Well  
 Moderate  
 Poor

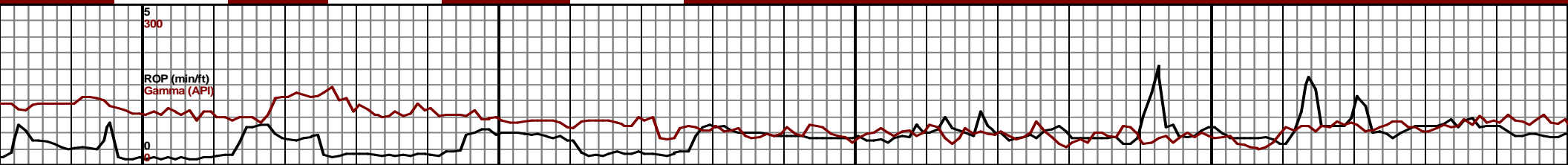
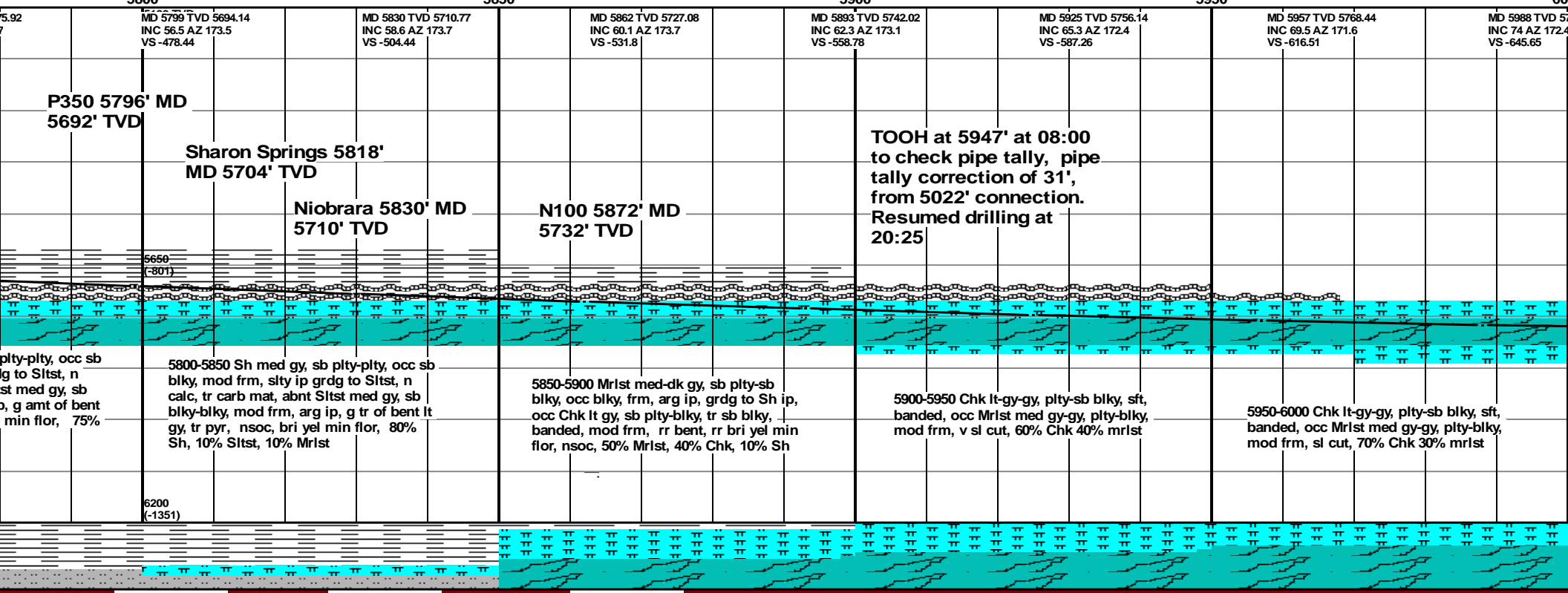
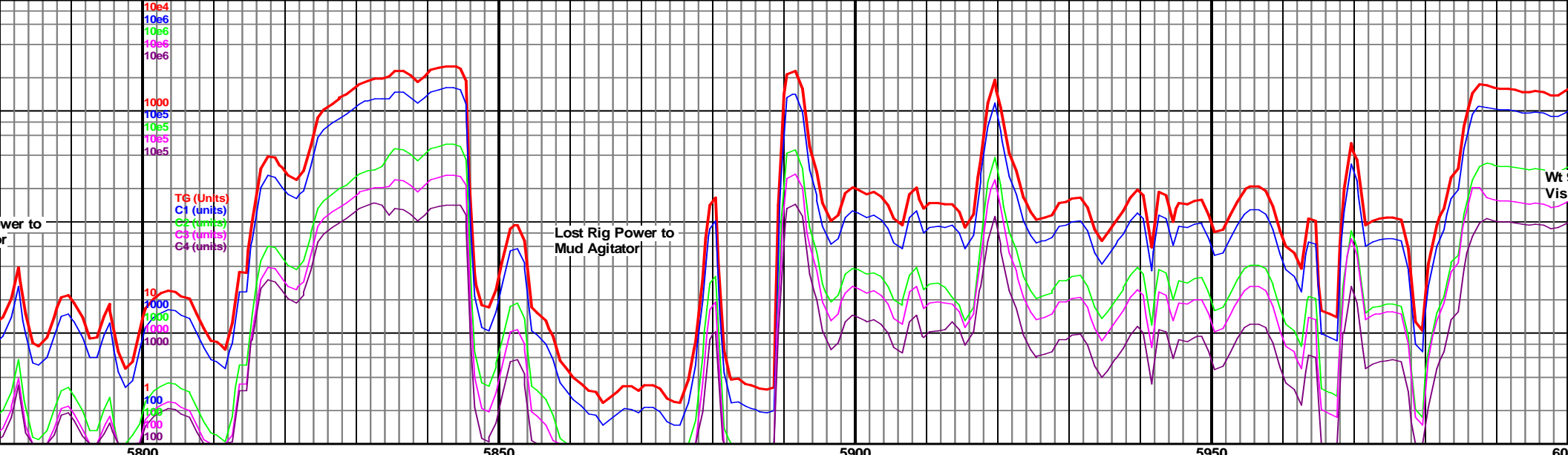
**OTHER SYMBOLS**  
  
**ROUNDING**  
 Rounded  
 Subrnd  
 Subang  
 Angular  
  
**OIL SHOW**  
 Even  
  
 Spotted  
 Ques  
 Dead  
  
**INTERVAL**  
 Core  
 Dst

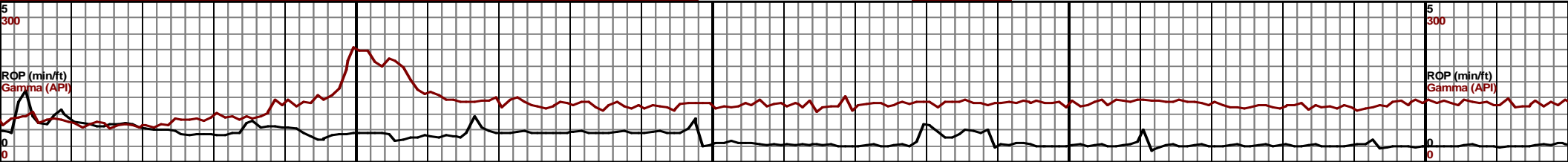
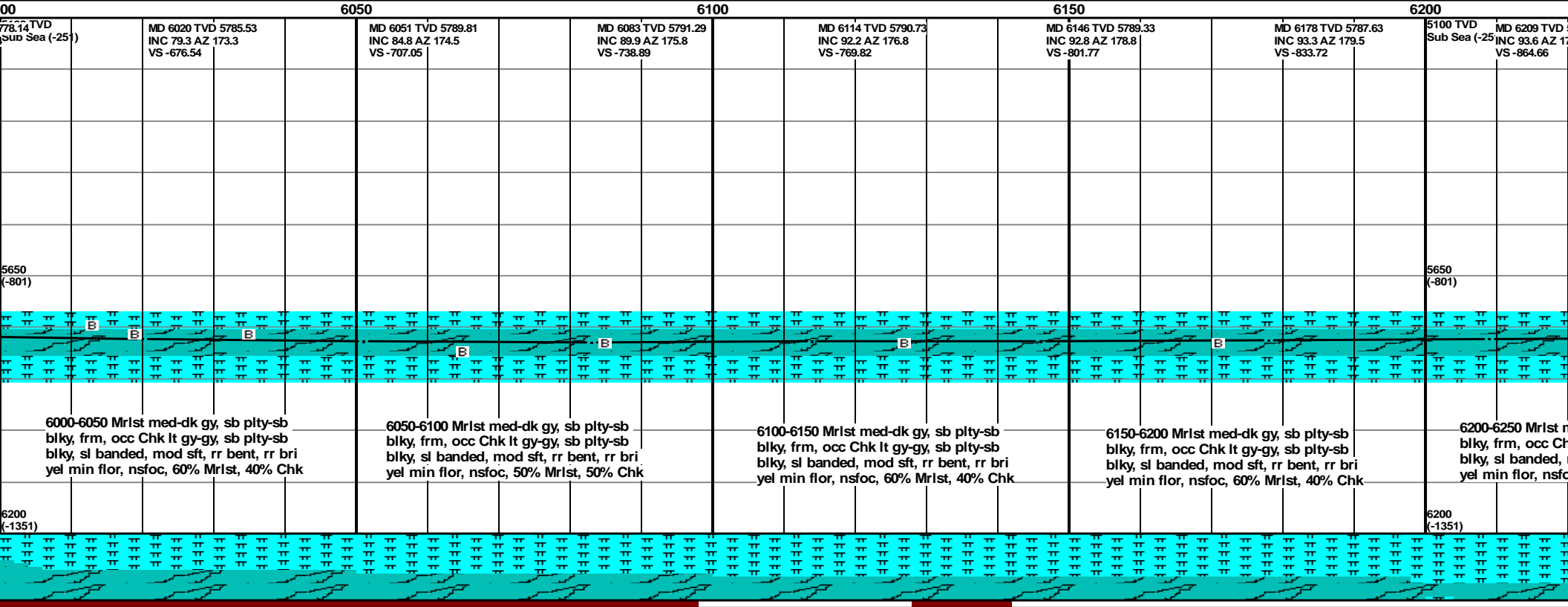
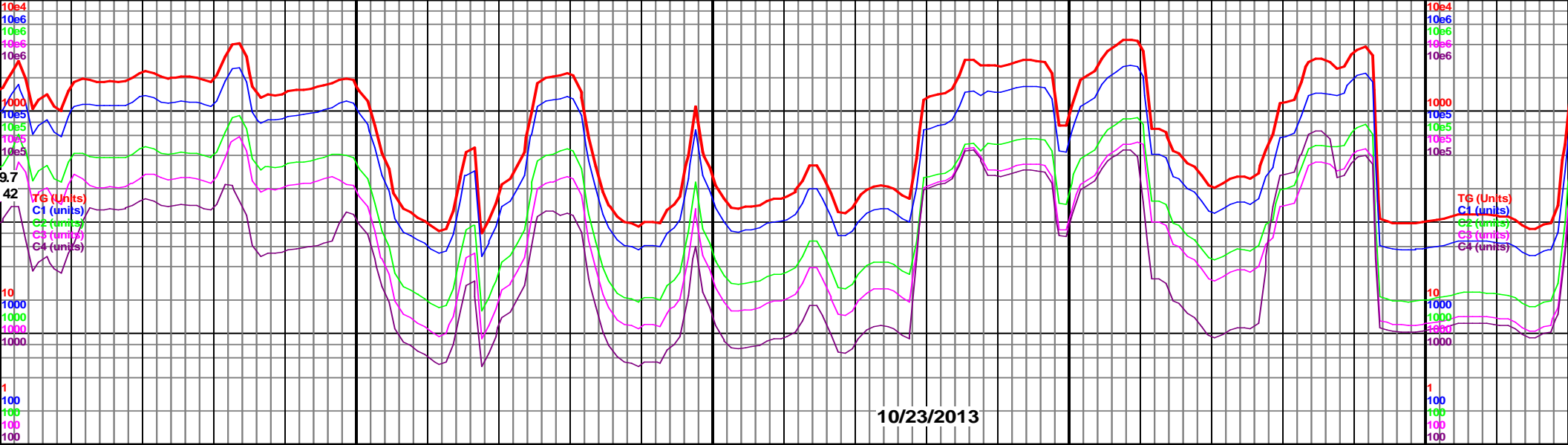
**EVENT**  
 Rft  
 Sidewall



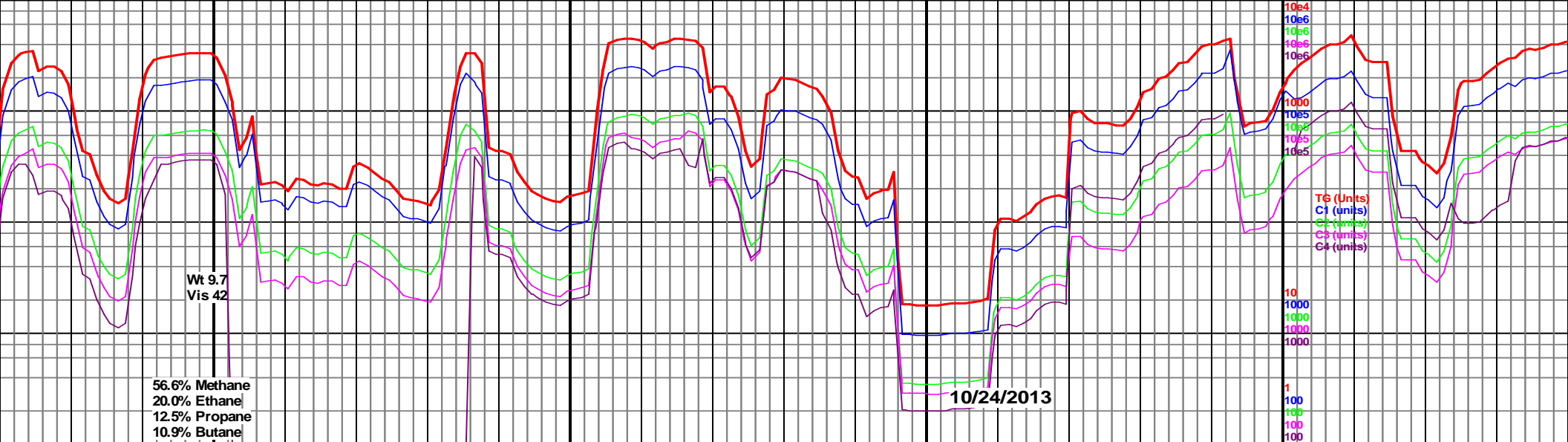






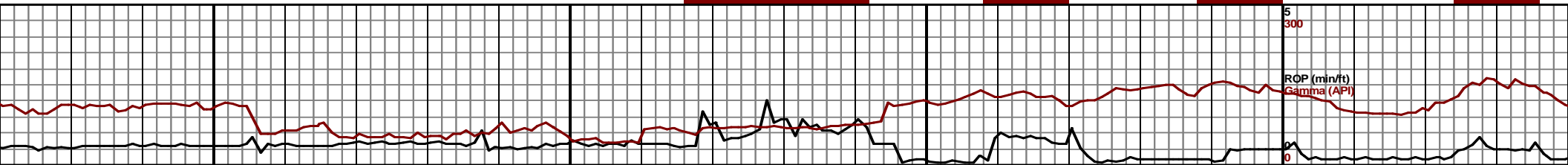


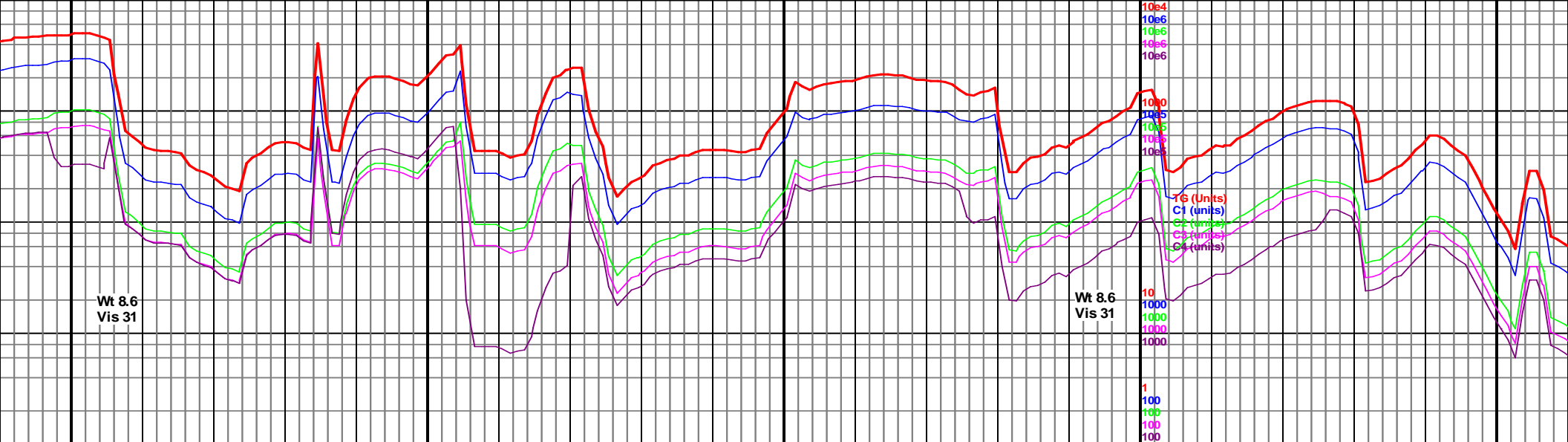




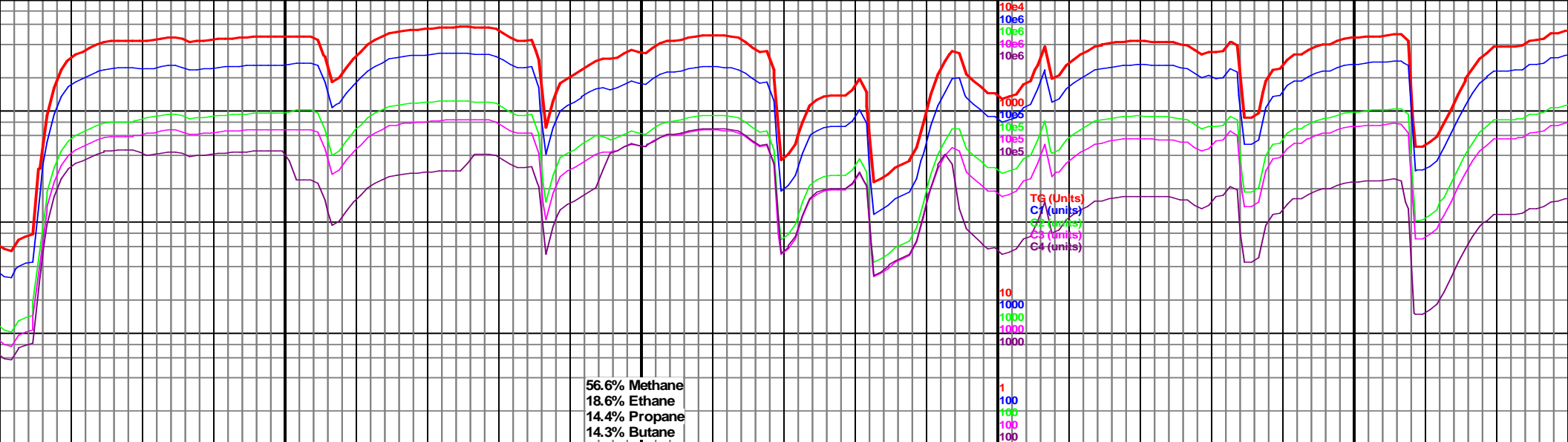
6250		6300		6350		6400	
MD 6241 TVD 5783.64 INC 94 AZ 178.9 VS -896.58	MD 6273 TVD 5781.3 INC 94.4 AZ 179.1 VS -928.49	MD 6304 TVD 5777.85 INC 95 AZ 178.2 VS -959.38	MD 6315 TVD 5777.85 INC 94.5 AZ 177.2 VS -970.33	MD 6360 TVD 5775.33 INC 91.9 AZ 175.8 VS -1015.17	MD 6392 TVD 5774.47 INC 91.2 AZ 175.4 <sup>a</sup> (-25) VS -1047.07	MD 6423 TVD 5774.06 INC 90.3 AZ 176 VS -1077.98	
6250-6300 Chk lt-gy-gy, plty-sb blkly, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm, sl cut, rr bri yel min flor, 70% Chk 30% mrlst		6300-6350 Chk lt-gy-gy, plty-sb blkly, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm, sl cut, 70% Chk 30% mrlst		6350-6400 Mrlst dk gy-blk ip, sb plty-sb blkly, frm, tr Chk lt gy- med gy, sb plty-sb blkly, sl banded, mod sft, rr cement, v sl oil cut, 75% Mrlst, 25% Chk		6400-6450 Mrlst dk gy-blk ip, sb plty-sb blkly, frm, tr Chk lt gy- med gy, sb plty-sb blkly, sl banded, mod sft, v s cut, 70% Mrlst, 30% Chk	

Intermediate Casing TD 6360',  
reached at 04:10; 10/24/2013  
resumed drilling at 08:20

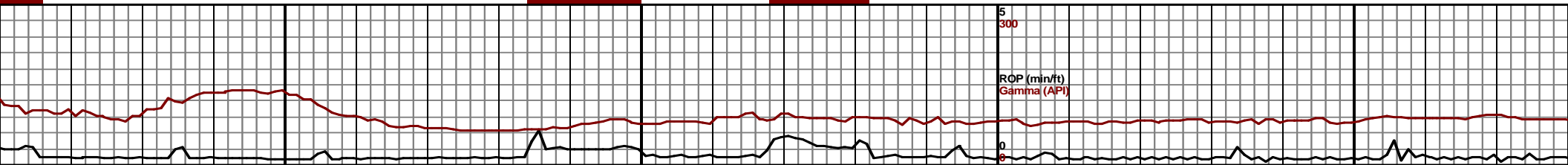


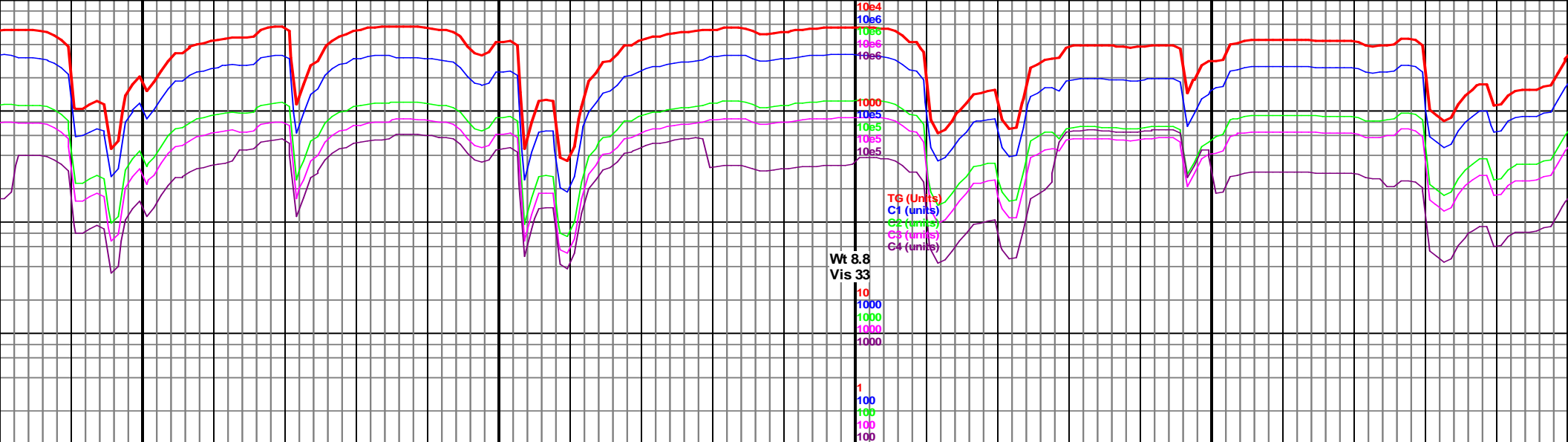


6450				6500				6550				6600				6650															
MD 6455 TVD 5774.12 INC 89.5 AZ 177 VS -1109.92				MD 6486 TVD 5774.47 INC 89.2 AZ 178.2 VS -1140.89				MD 6518 TVD 5775.06 INC 88.7 AZ 178.9 VS -1172.87				MD 6550 TVD 5775.81 INC 88.6 AZ 178.8 VS -1204.86				MD 6581 TVD 5776.3 INC 89.6 AZ 178.6 VS -1235.84				5100 TVD Sub Sea (-25')				MD 6613 TVD 5776.33 INC 90.3 AZ 179.6 VS -1267.84				MD 6645 TVD 5776.0 INC 90.6 AZ 180.7 VS -1299.84			

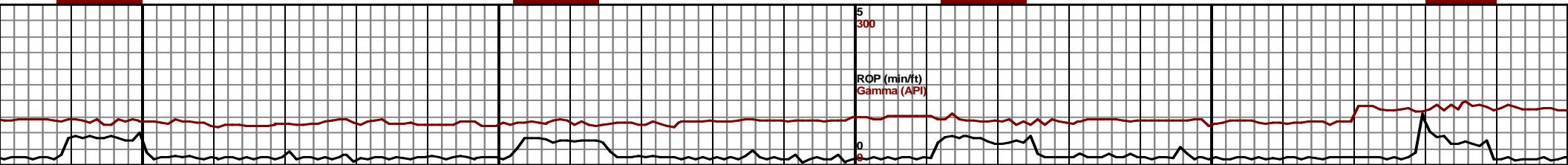


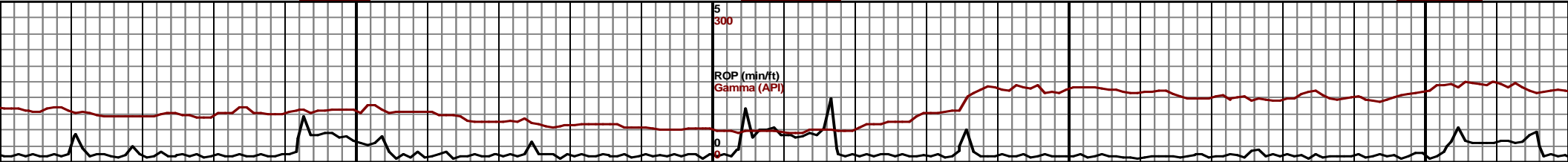
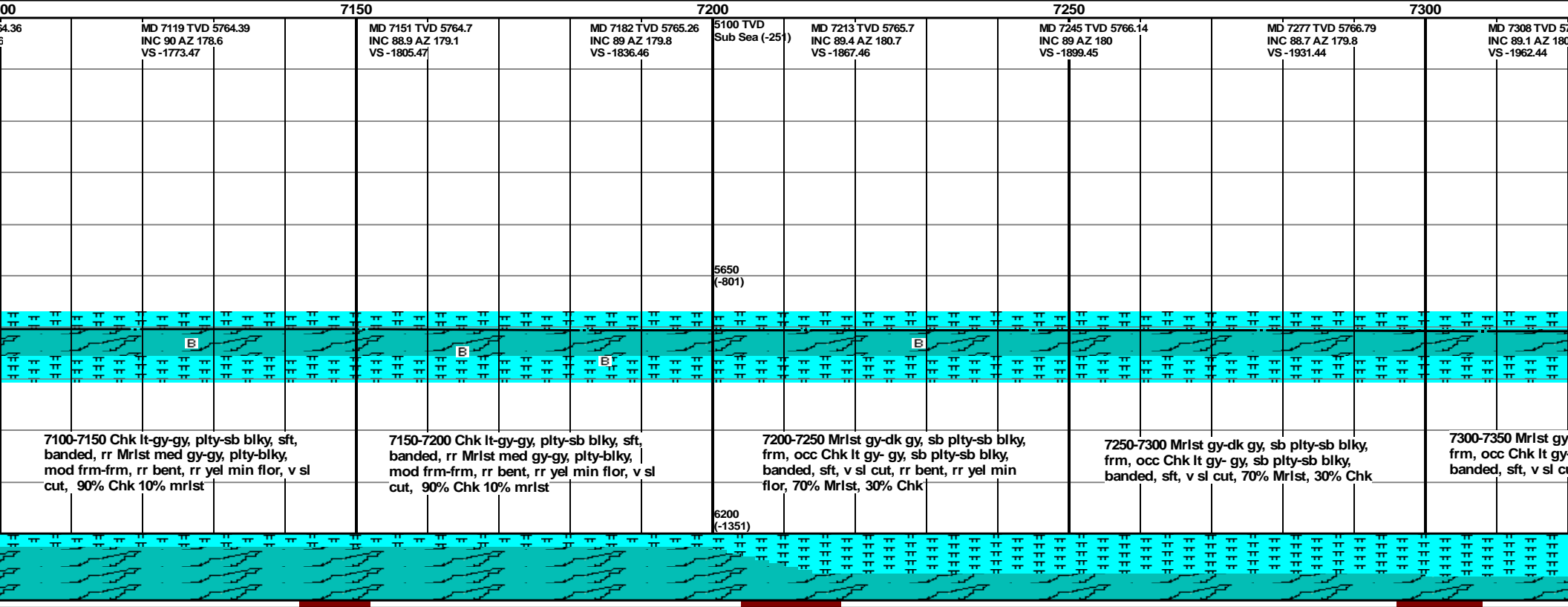
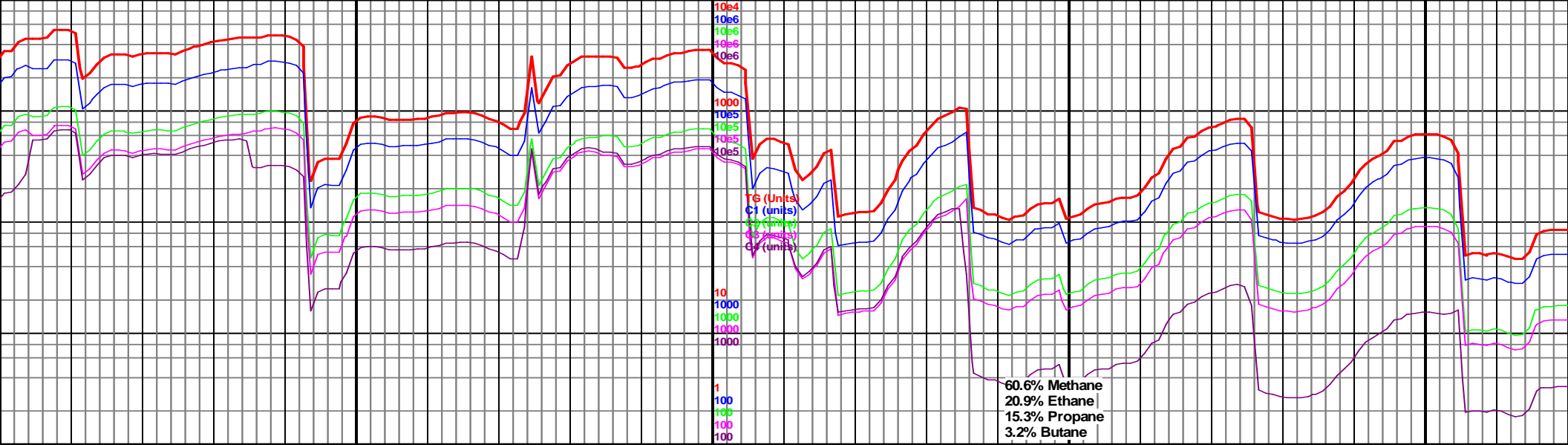
6700				6750				6800				6850			
MD 6676 TVD 5775.75 INC 90.6 AZ 180.9 VS -1330.83				MD 6708 TVD 5775.44 INC 90.5 AZ 180.3 VS -1362.83				MD 6739 TVD 5775.01 INC 91.1 AZ 180.5 VS -1393.83				MD 6771 TVD 5774.17 INC 91.9 AZ 180.9 VS -1425.81			
MD 6802 TVD 5773.04 Sub INC 92.3 AZ 180.9 VS -1456.79				MD 6834 TVD 5771.5 INC 93.2 AZ 181.4 VS -1488.74				MD 6866 TVD 5769 INC 93 AZ 180.5 VS -1520.69							
0-6700 Chk lt-gy-gy, plty-sb blk, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm, v sl cut, 75% Chk 25% mrlst				6700-6750 Chk lt-gy-gy, plty-sb blk, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm, v sl cut, 80% Chk 20% mrlst				6750-6800 Chk lt-gy-gy, plty-sb blk, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm, v sl cut, 80% Chk 20% mrlst				6800-6850 Chk lt-gy-gy, plty-sb blk, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm, v sl cut, 80% Chk 20% mrlst			
6850-6900 Chk lt-gy-gy, p banded, rr Mrlst med gy mod frm, v sl cut, 90%															

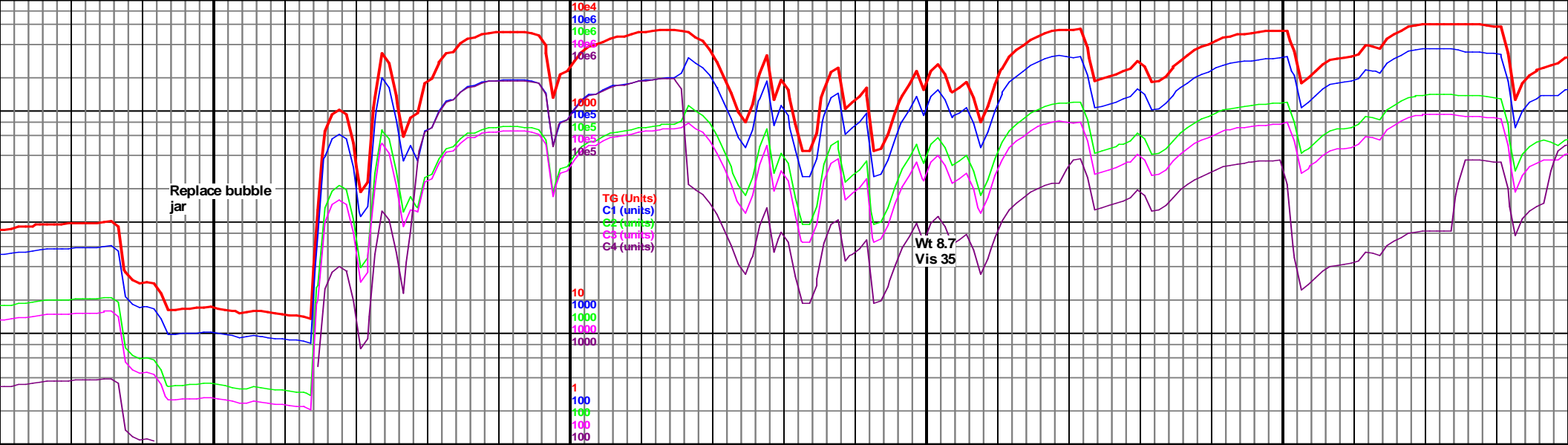




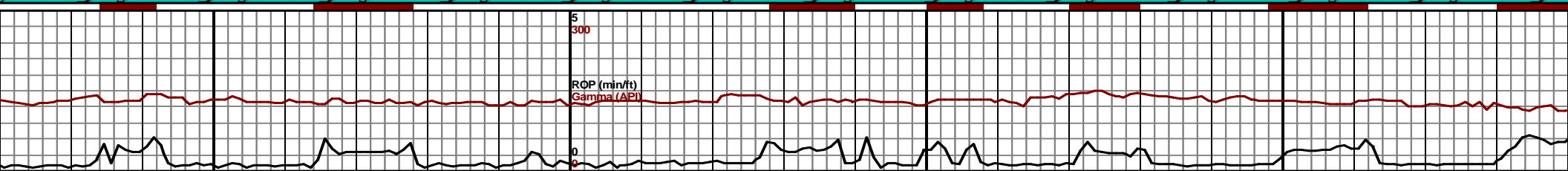
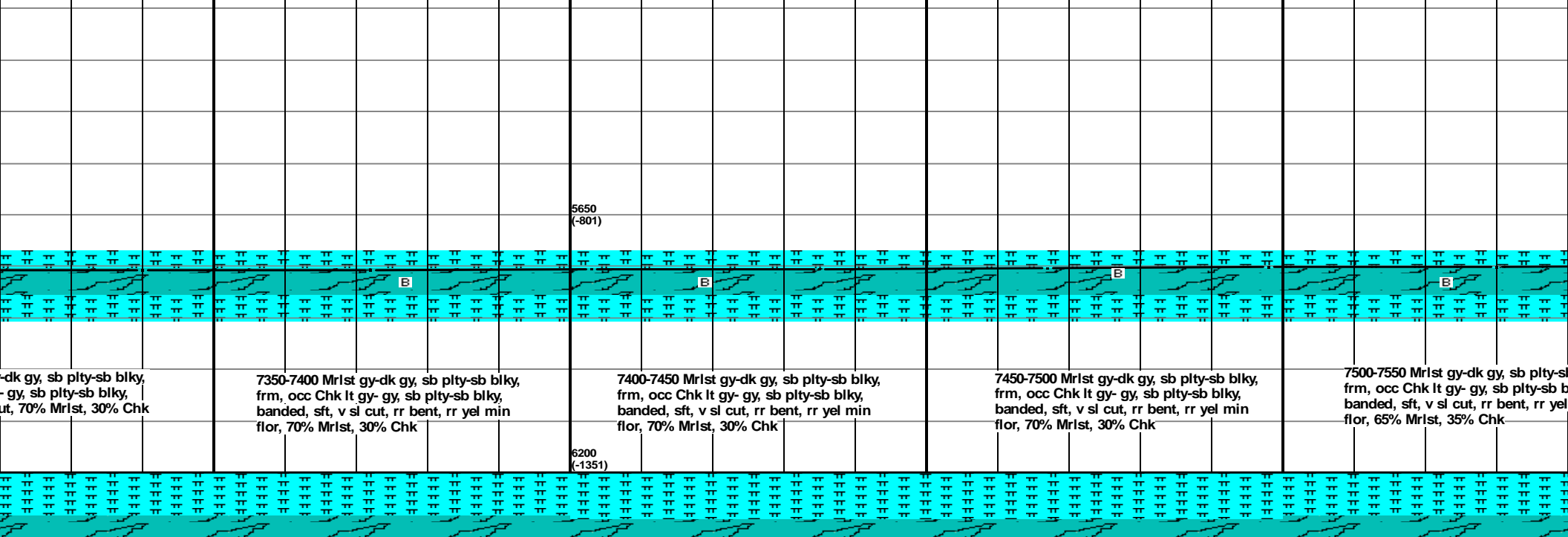
6900	6950	7000	7050	7100
MD 6897 TVD 5768.23 INC 92.7 AZ 179.6 VS -1551.65	MD 6929 TVD 5766.69 INC 92.8 AZ 178.6 VS -1583.61	MD 6960 TVD 5765.69 INC 90.9 AZ 177.5 VS -1614.58	MD 6992 TVD 5765.13 INC 91.1 AZ 177.4 <sup>a</sup> (-25) VS -1646.54	MD 7024 TVD 5764.8 INC 90.1 AZ 177.7 VS -1678.51
MD 7055 TVD 5764.56 INC 90.8 AZ 178.9 VS -1709.49	MD 7087 TVD 5764.56 INC 89.9 AZ 178.9 VS -1741.48			
6900-6950 Chk lt-gy-gy, plty-sb blk, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 90% Chk 10% mrlst				
6950-7000 Chk lt-gy-gy, plty-sb blk, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 90% Chk 10% mrlst				
7000-7050 Chk lt-gy-gy, plty-sb blk, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 90% Chk 10% mrlst				
7050-7100 Chk lt-gy-gy, plty-sb blk, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 90% Chk 10% mrlst				

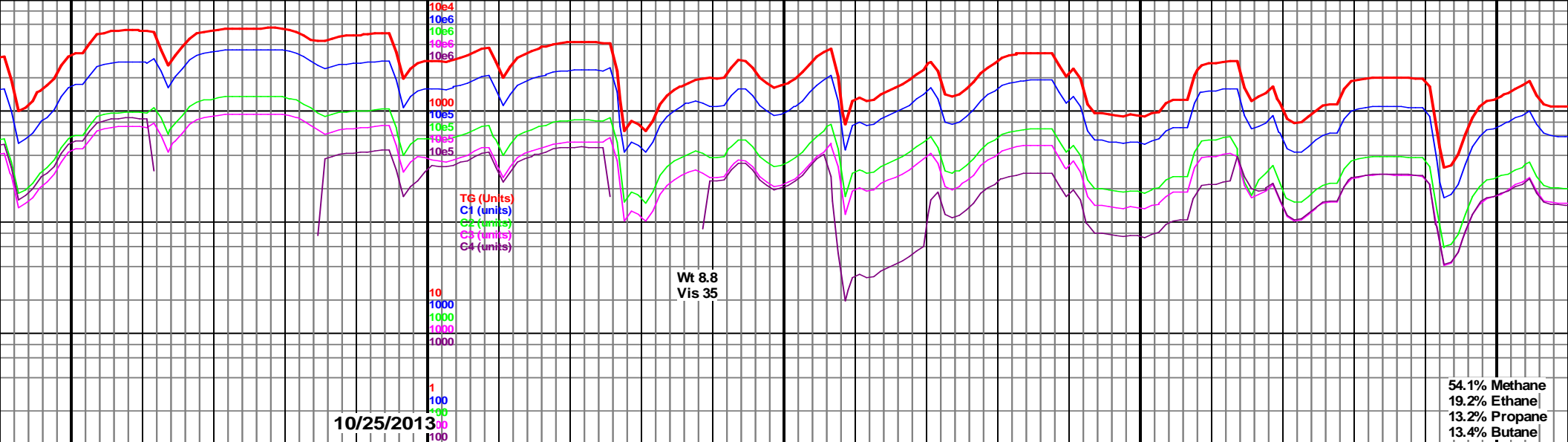




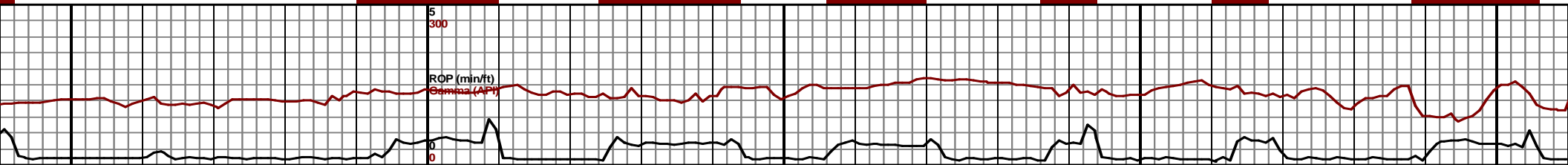


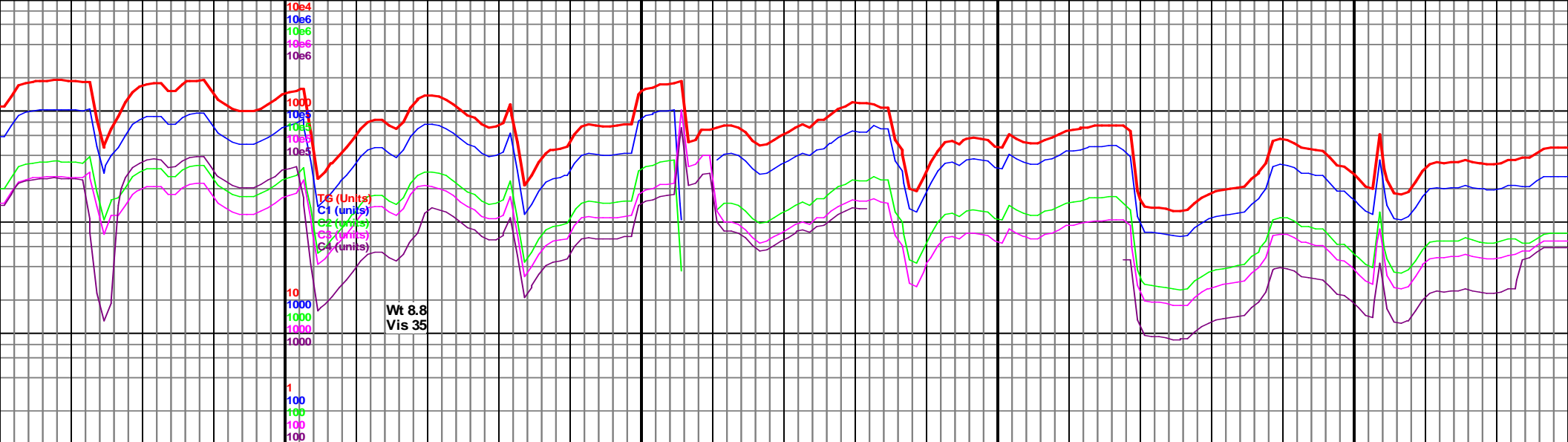
7350	7400	7450	7500
MD 7340 TVD 5767.63 INC 90 AZ 181.4 VS -1994.43	MD 7372 TVD 5767.44 INC 90.7 AZ 182.6 VS -2026.41	MD 7403 TVD 5766.87 Sub INC 91.4 AZ 183.9 VS -2057.36	MD 7435 TVD 5765.78 INC 92.5 AZ 183 VS -2089.28
MD 7467 TVD 5764.08 INC 93.6 AZ 182.1 VS -2121.2	MD 7498 TVD 5762.32 INC 92.9 AZ 180.7 VS -2152.14	MD 7530 TVD INC 92.7 AZ VS -2184.1	



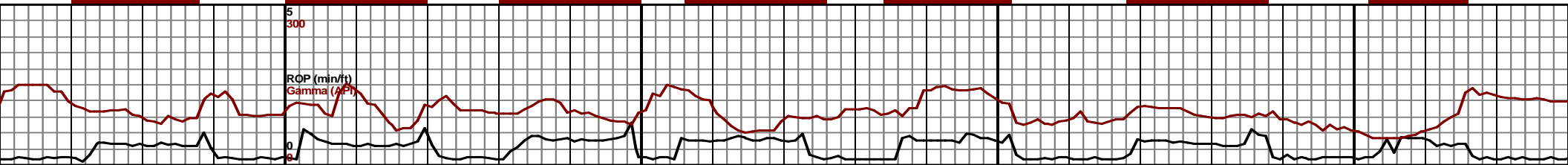


7550	7600	7650	7700	7750
MD 5760 TVD 5759.76 INC 178.8 VS -2215.05	MD 7561 TVD 5759.13 INC 93.3 AZ 179.1 VS -2215.05	MD 7593 TVD 5757.63 INC 92.1 AZ 177.7 (-25) VS -2247	MD 7624 TVD 5756.73 INC 91.2 AZ 176.3 VS -2277.95	MD 7656 TVD 5756.59 INC 89.3 AZ 175.1 VS -2309.86
MD 7687 TVD 5757.51 INC 87.3 AZ 174.5 VS -2340.71	MD 7719 TVD 5759.36 INC 86.1 AZ 175.4 VS -2372.53	MD 7750 TVD INC 84.6 AZ VS -2403.36		
7550-7600 Mrlst gy-dk gy, sb plty-sb blk, fr, occ Chk lt gy- gy, sb plty-sb blk, banded, sft, v sl cut, rr bent, rr yel min flr, 60% Mrlst, 40% Chk				
7600-7650 Mrlst gy-dk gy, sb plty-sb blk, fr, occ Chk lt gy- gy, sb plty-sb blk, banded, sft, v sl cut, tr bent, tr yel min flr, 70% Mrlst, 30% Chk				
7650-7700 Mrlst gy-dk gy, sb plty-sb blk, fr, occ Chk lt gy- gy, sb plty-sb blk, banded, sft, v sl cut, tr bent, tr yel min flr, 70% Mrlst, 30% Chk				
7700-7750 Mrlst gy-dk gy, sb plty-sb blk, fr, abnt Chk lt gy- gy, sb plty-sb blk, banded, sft, v sl cut, 55% Mrlst, 45% Chk				
7750-7800 Mrlst gy-dk gy, sb plty-sb blk, fr, abnt Chk lt gy- gy, sb plty-sb blk, banded, sft, v sl cut, 55% Mrlst, 45% Chk				

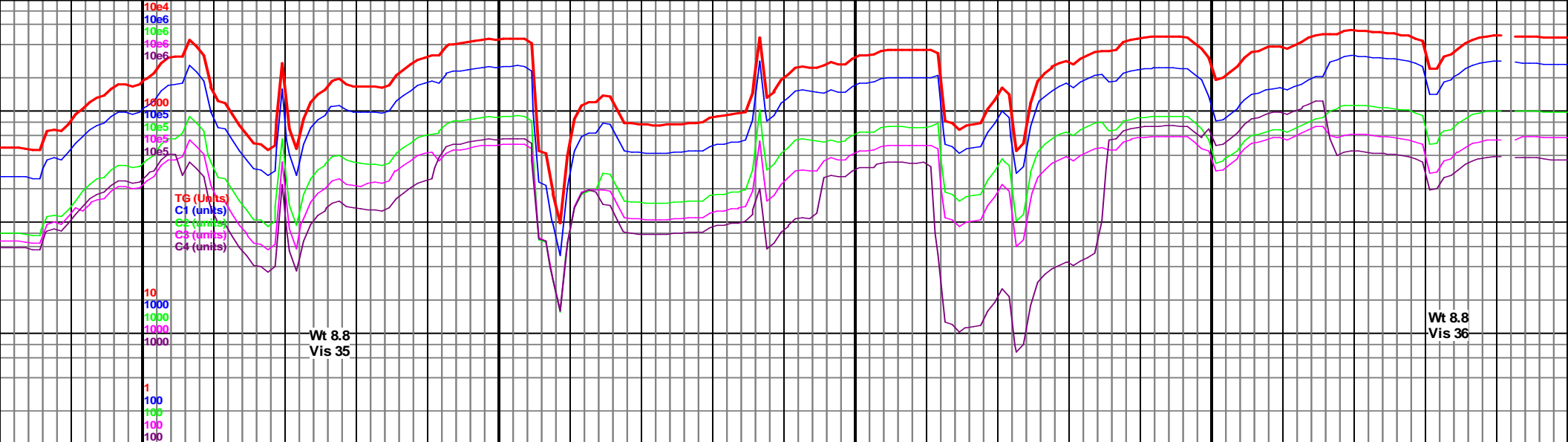




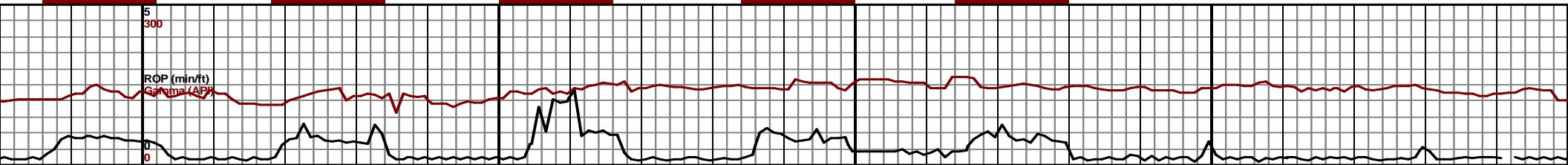
7800		7850		7900		7950	
MD 7782 TVD 5765.1 INC 83.8 AZ 178.2 VS -2435.16		MD 7845 TVD 5770.66 INC 86.5 AZ 179.8 VS -2497.9		MD 7877 TVD 5772.23 INC 87.9 AZ 180.2 VS -2529.86		MD 7908 TVD 5773.2 INC 88.5 AZ 181.2 VS -2560.84	
MD 7813 TVD 5768.21 INC 84.7 AZ 179.1 VS -2466		MD 7940 TVD 5774.04 INC 88.5 AZ 182.1 VS -2592.82		MD 7972 TVD 5775.04 INC 89.5 AZ 182.1 VS -2624.7			
7800-7850 Chk lt-gy-gy, plty-sb blk, sft, banded, occ-abnt Mrlst med gy-gy, blk, mod frm-frm, v sl cut, 65% Chk mrlst		7850-7900 Chk lt-gy-gy, plty-sb blk, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 75% Chk 25% mrlst		7900-7950 Chk lt-gy-gy, plty-sb blk, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, rr bri yel min flr, 75% Chk 25% mrlst		7950-8000 Chk lt-gy-gy, plty-sb blk, sft, banded, abnt Mrlst med gy-gy, blk, mod frm-frm, v sl cut, 75% Chk 25% mrlst	

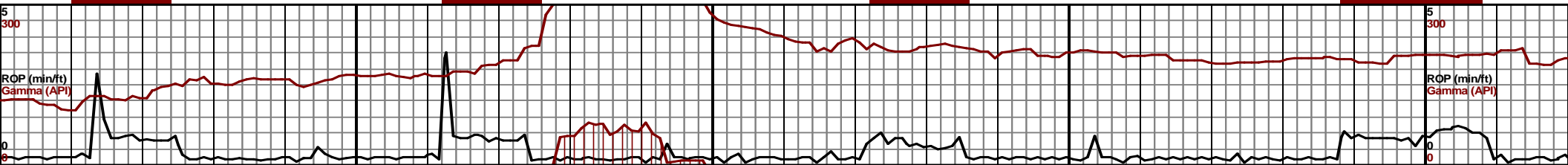
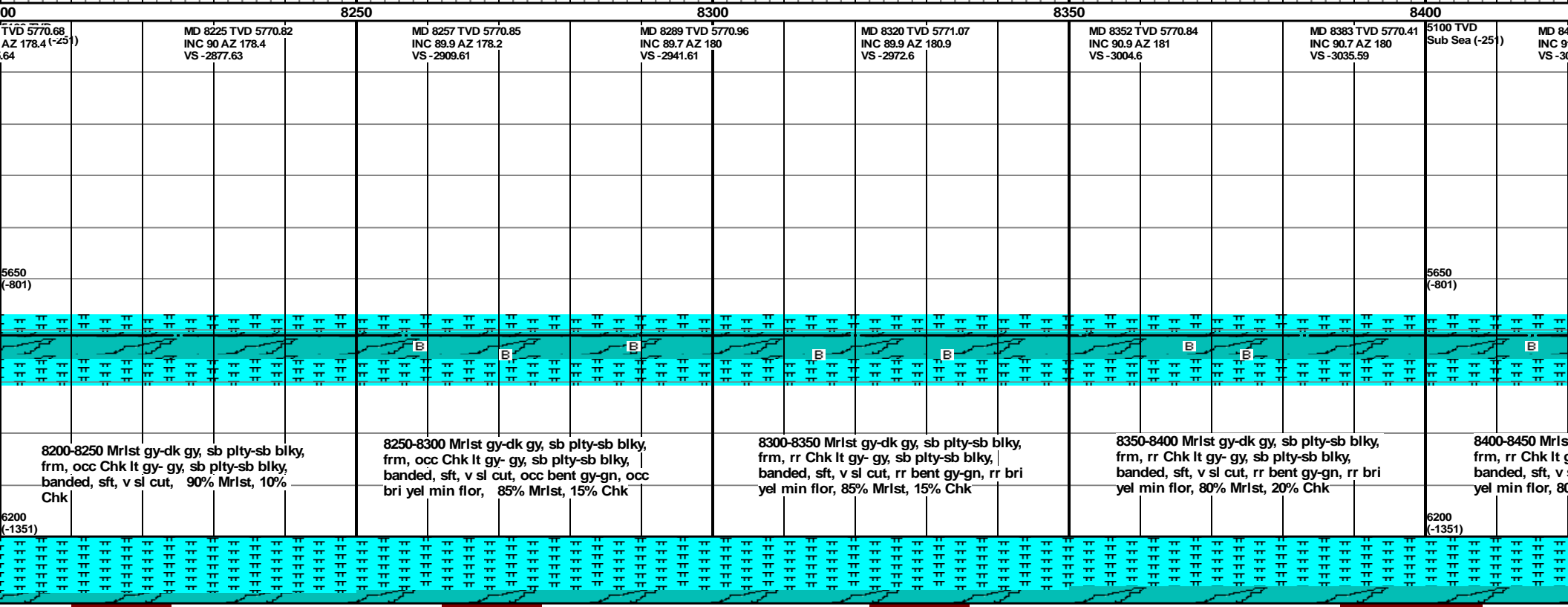
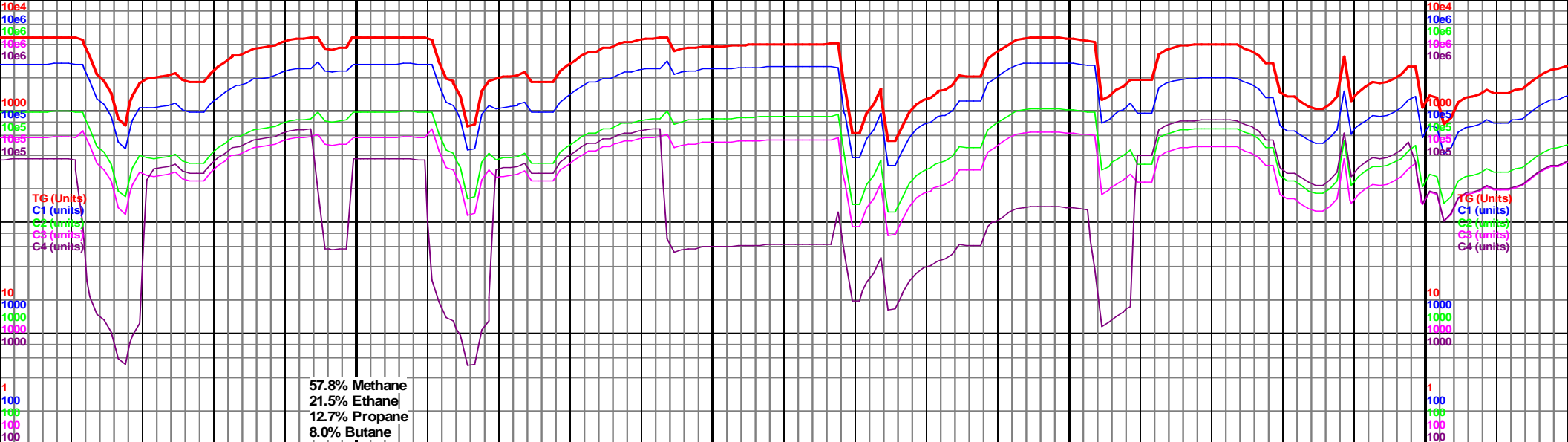


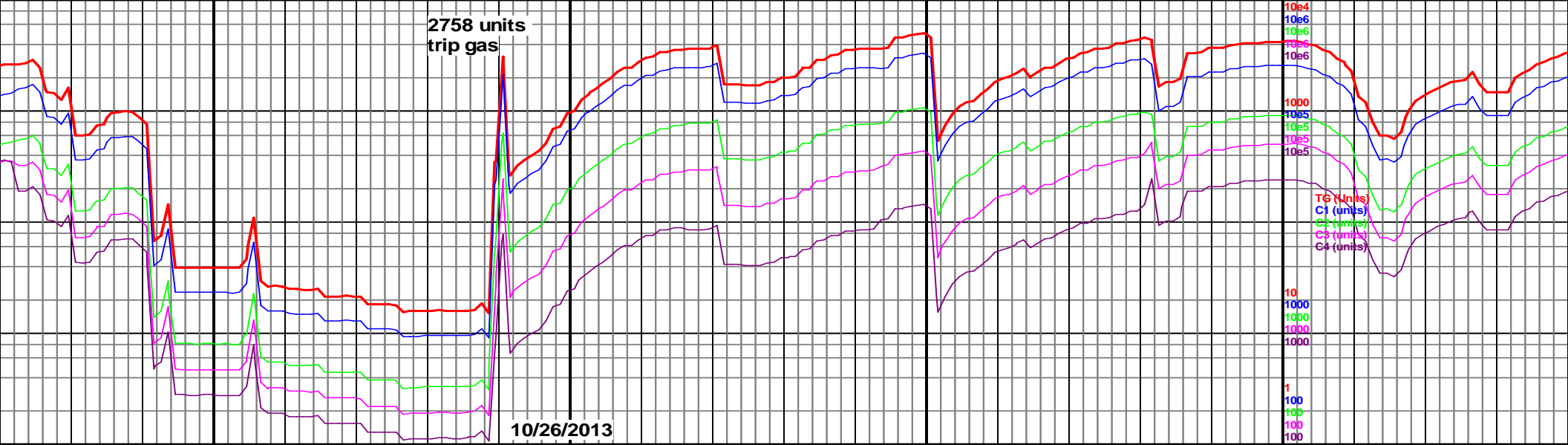




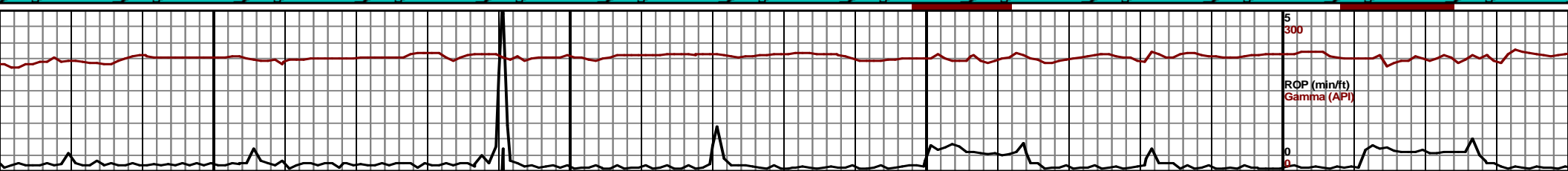
8000		8050		8100		8150		8200	
MD 8003 TVD 5774.46 Sub INC 91 AZ 182.1 VS -2655.77		MD 8035 TVD 5773.46 INC 92.6 AZ 181.9 VS -2687.74		MD 8066 TVD 5772.02 INC 92.7 AZ 180.3 VS -2718.7		MD 8098 TVD 5770.85 INC 91.5 AZ 179.1 VS -2750.67		MD 8130 TVD 5770.4 INC 90.1 AZ 178.6 VS -2782.66	
MD 8161 TVD 5770.46 INC 89.7 AZ 178.4 VS -2813.65		MD 8193 INC 89.5 VS -2845							
8000-8050 Mrlst gy-dk gy, sb plty-sb blkly, frm, occ Chk lt gy- gy, sb plty-sb blkly, banded, sft, v sl cut, rr bri yel min flor, 75% Mrlst, 25% Chk		8050-8100 Mrlst gy-dk gy, sb plty-sb blkly, frm, occ Chk lt gy- gy, sb plty-sb blkly, banded, sft, v sl cut, 85% Mrlst, 15% Chk		8100-8150 Mrlst gy-dk gy, sb plty-sb blkly, frm, occ Chk lt gy- gy, sb plty-sb blkly, banded, sft, v sl cut, rr bri yel min flor, 85% Mrlst, 15% Chk		8150-8200 Mrlst gy-dk gy, sb plty-sb blkly, frm, occ Chk lt gy- gy, sb plty-sb blkly, banded, sft, v sl cut, 90% Mrlst, 10% Chk			

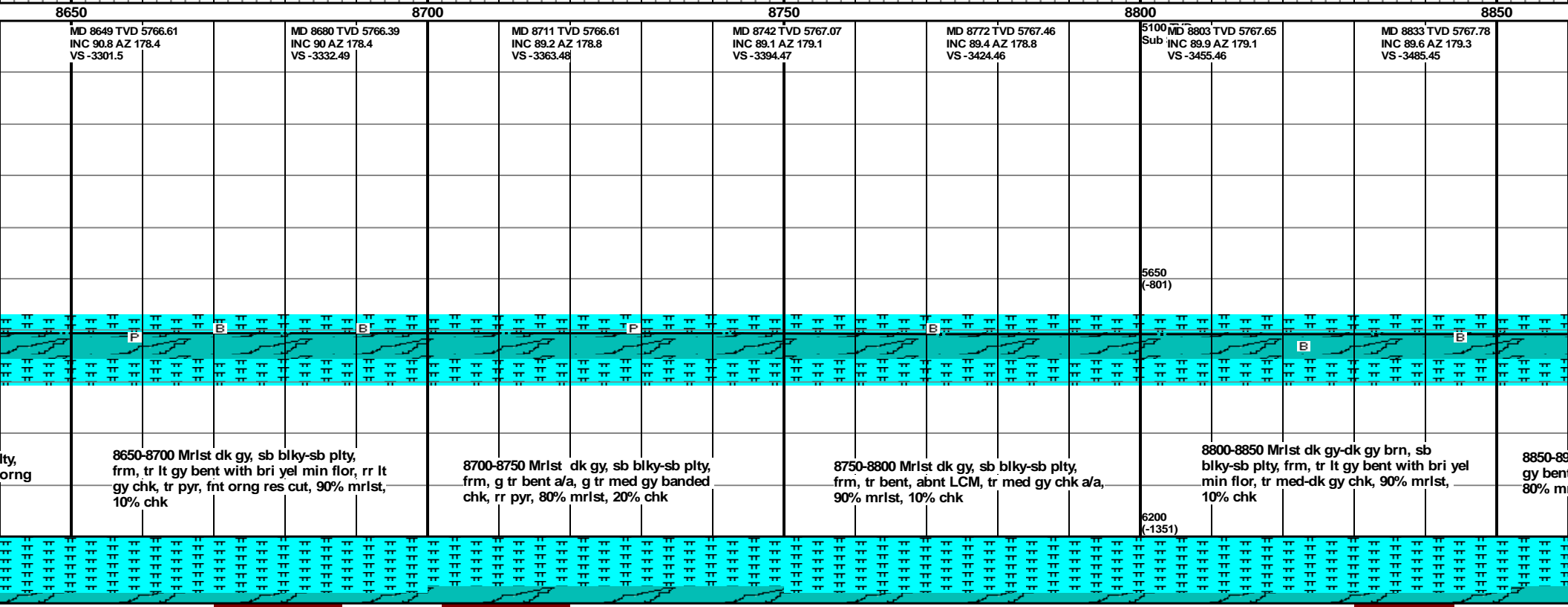
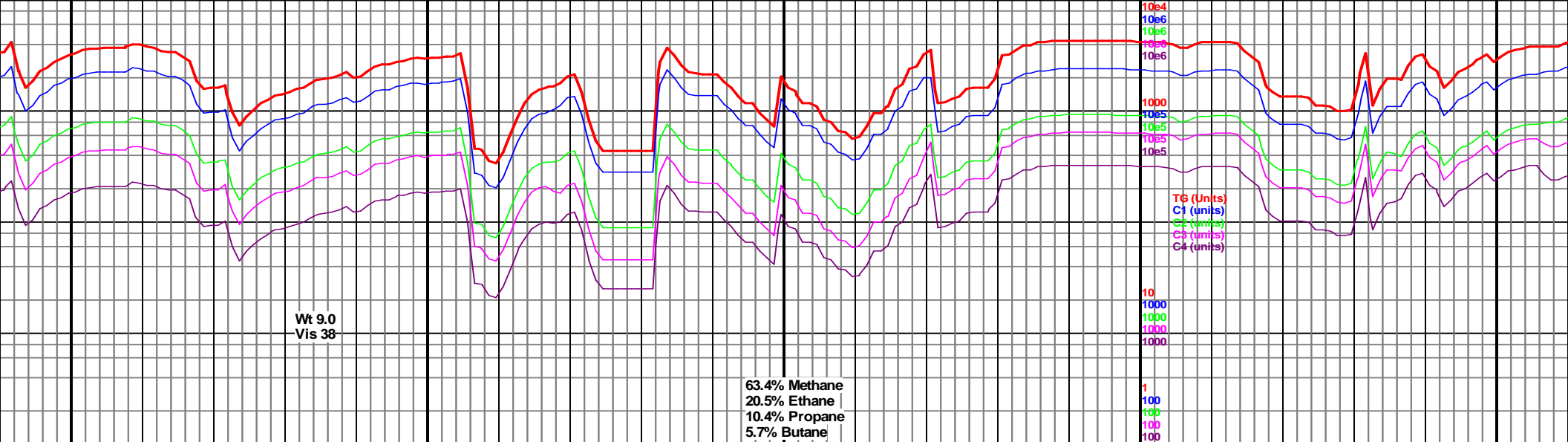


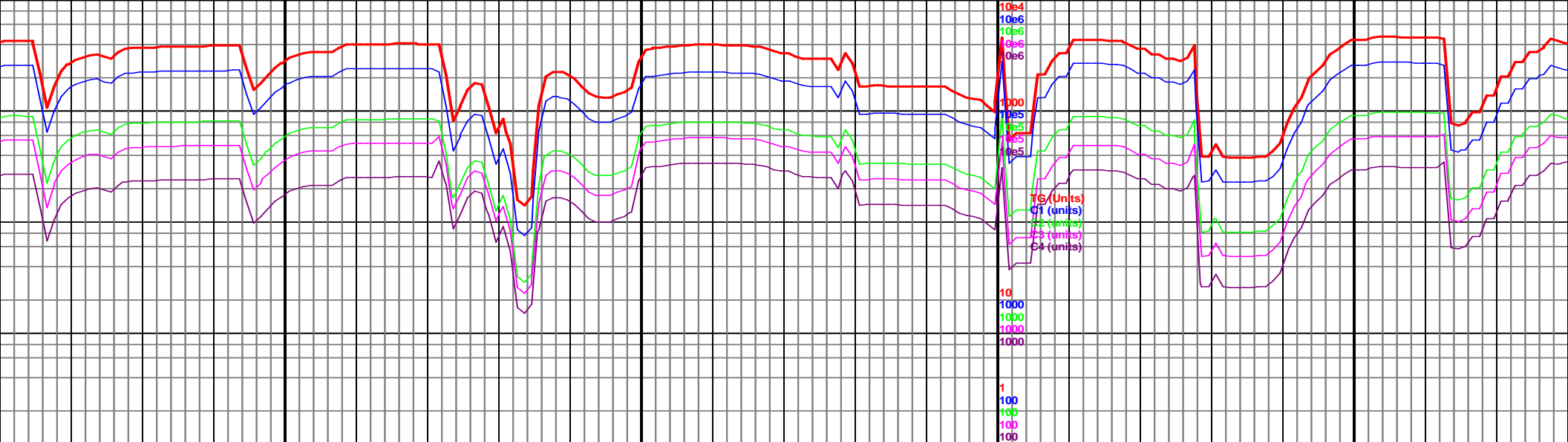




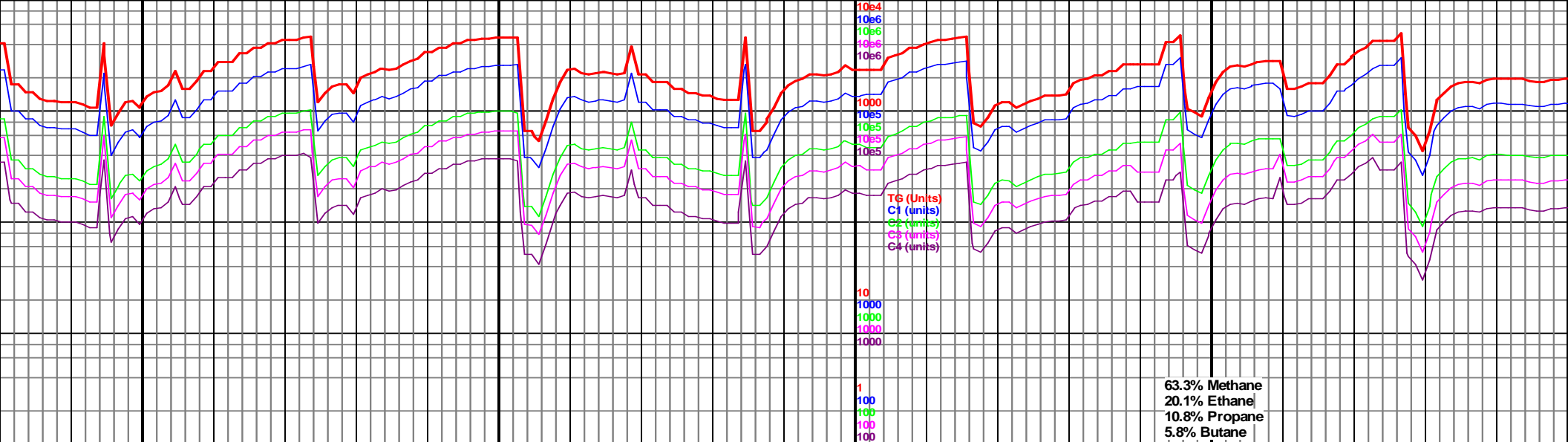
MD 8433 TVD 5769.91 INC 90.7 AZ 180.2 VS -3067.59	MD 8433 TVD 5769.6 INC 90.9 AZ 179.1 VS -3085.59	MD 8464 TVD 5769.16 INC 90.7 AZ 178.9 VS -3116.58	MD 8495 TVD 5768.78 INC 90.7 AZ 177.9 VS -3147.56	MD 8526 TVD 5768.35 INC 90.9 AZ 178.4 VS -3178.54	MD 8557 TVD 5767.92 INC 90.7 AZ 178.8 VS -3209.53	MD 8588 TVD 5767.46 INC 91 AZ 178.9 VS -3240.52	MD 8619 TVD 5767 INC 90.7 AZ 178.9 VS -3271.51
TOOH for mud motor at 13:00 and 8501', resume drilling at 02:30							
8450-8500 Mrlst dk gy-dk gy brn, sb blky-sb plty, frm, rr lt gy chk, g tr lt gy-tan bent with bri yel min flor, 95% mrlst, 5% chk		8500-8550 Mrlst dk gy-dk gy brn, sb blky-sb plty, frm, rr lt gy chk, g tr lt gy-tan bent with bri yel min flor, 95% mrlst, 5% chk		8550-8600 Mrlst dk gy, sb blky-sb plty, frm, rr lt gy chk, g tr lt gy bent with bri yel min flor, tr pyr, 90% mrlst, 10% chk		8600-8650 Mrlst dk gy, sb blky-sb plty, frm, tr lt gy bent, rr chk, tr pyr, fnt res cut, 90% mrlst, 10% chk	



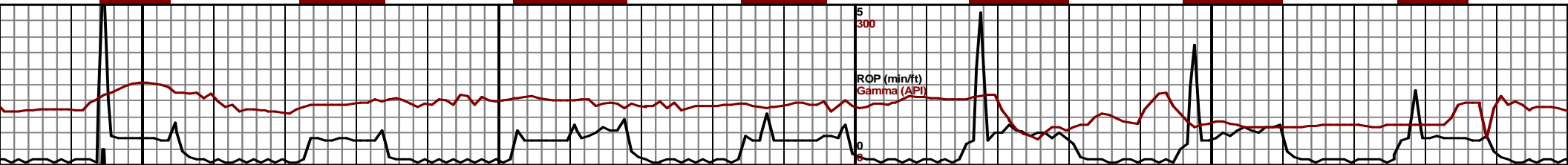


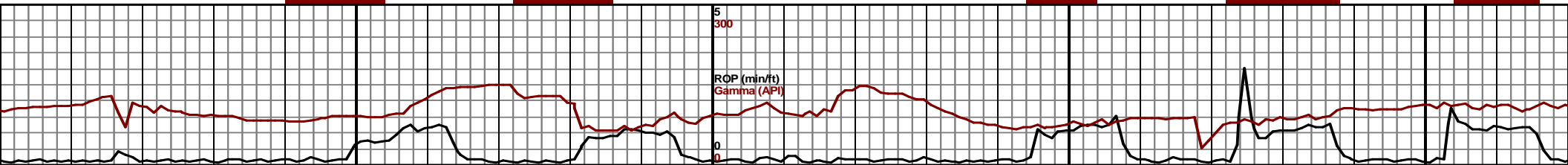
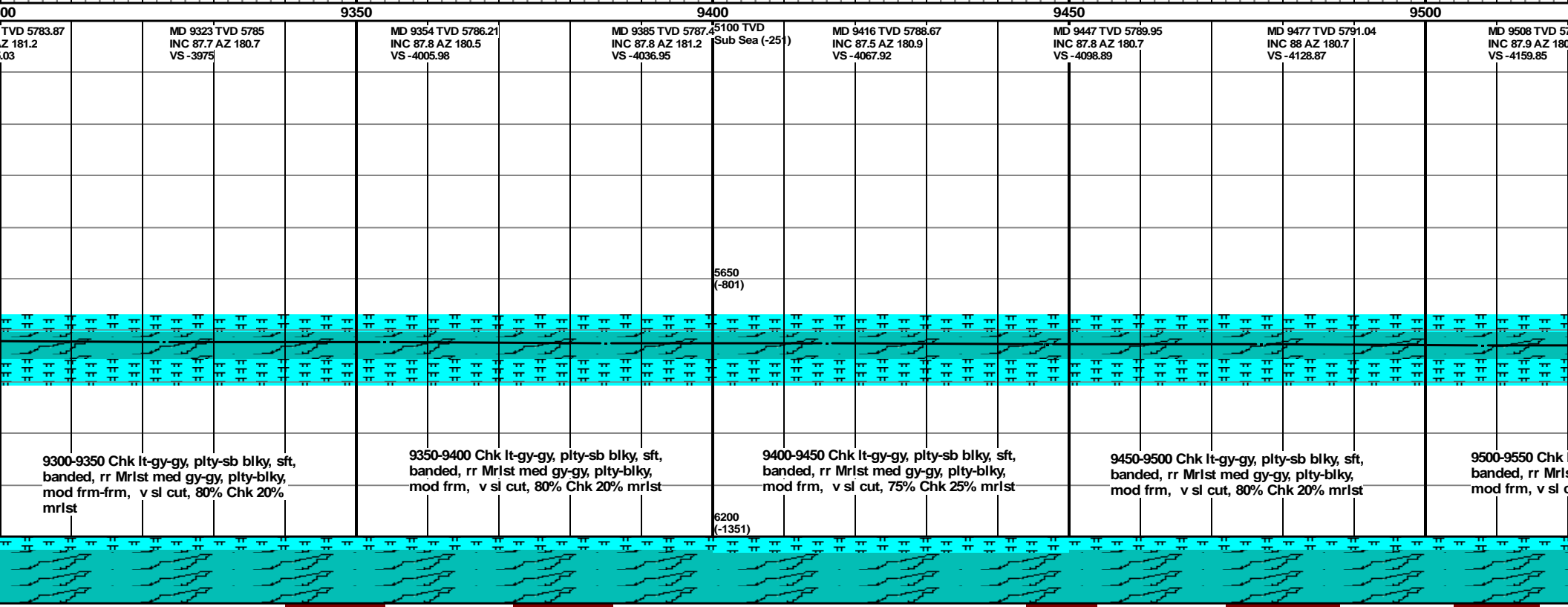
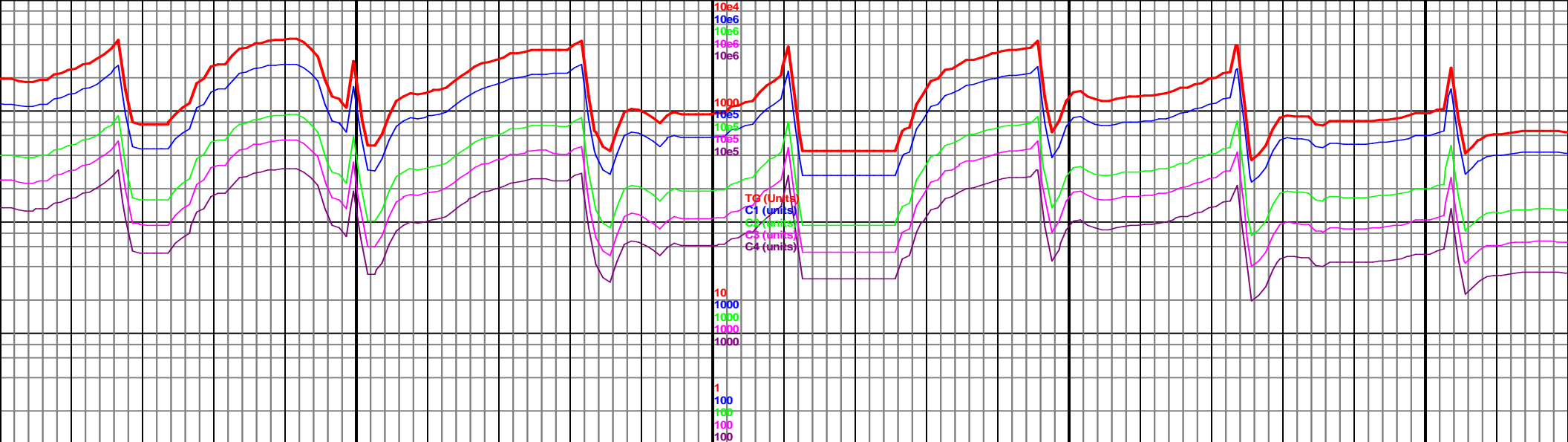


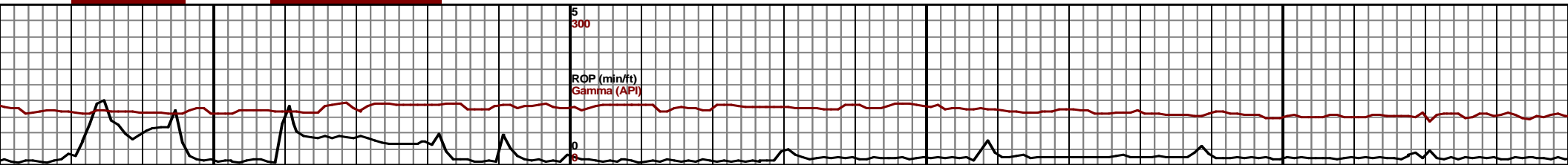
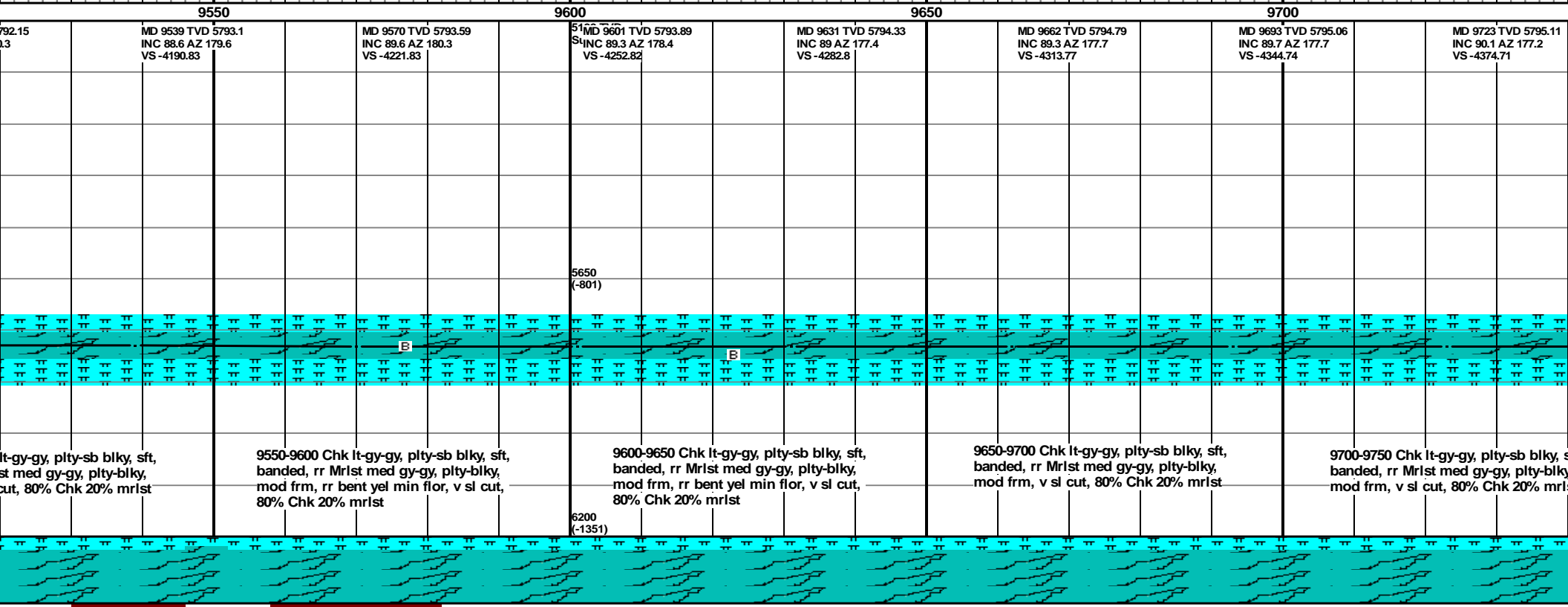
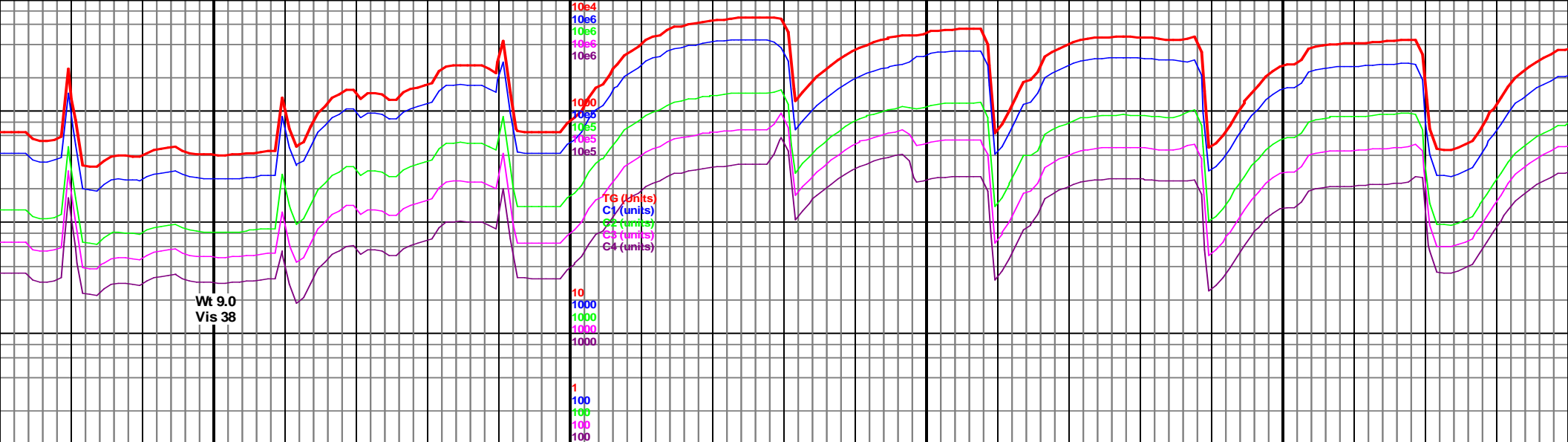
8900				8950				9000				9050			
MD 8864 TVD 5768.24 INC 88.7 AZ 179.3 VS -3516.45				MD 8895 TVD 5769 INC 88.5 AZ 179.5 VS -3547.44				MD 8925 TVD 5769.83 INC 88.3 AZ 179.6 VS -3577.42				MD 8956 TVD 5770.83 INC 88 AZ 179.6 VS -3608.41			
								MD 8986 TVD 5771.91 INC 87.9 AZ 178.9 VS -3638.39				MD 9017 TVD 5773.07 INC 87.8 AZ 178.6 VS -3669.36			
								MD 9047 TVD 5774.25 INC 87.7 AZ 178.1 VS -3699.32							
				</											



9100		9150		9200		9250		9300	
D 9078 TVD 5775.55 INC 87.5 AZ 177.4 S -3730.27		MD 9109 TVD 5776.98 INC 87.2 AZ 177.7 VS -3761.21		MD 9140 TVD 5778.52 INC 87.1 AZ 178.4 VS -3792.15		MD 9170 TVD 5779.91 INC 87.6 AZ 178.6 VS -3822.11		MD 9200 TVD 5781.11 INC 87.8 AZ 178.9 VS -3852.08	
						MD 9231 TVD 5782.11 INC 88.5 AZ 179.6 VS -3883.06		MD 9262 TVD 5782.92 INC 88.5 AZ 180.2 VS -3914.05	
								MD 9293 TVD 5783.92 INC 88.5 AZ 180.2 VS -3945.05	
blky-sb plty, % mrlst, 10% chk		9100-9150 Mrlst med-dk gy, sb blky, frm, rr med-lt gy banded chk, rr bent with bri yel min flor, no cut, 90% mrlst, 10% chk		9150-9200 Mrlst med-dk gy, sb blky, frm, tr med-lt gy banded chk, rr inoc, no cut, 85% mrlst, 15% chk		9200-9250 Chk lt-gy-gy, plty-sb blky, sft, banded, occ Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 75% Chk 25% mrlst		9250-9300 Chk lt-gy-gy, plty-sb blky, sft, banded, rr Mrlst med gy-gy, plty-blky, mod frm-frm, v sl cut, 80% Chk 20% mrlst	

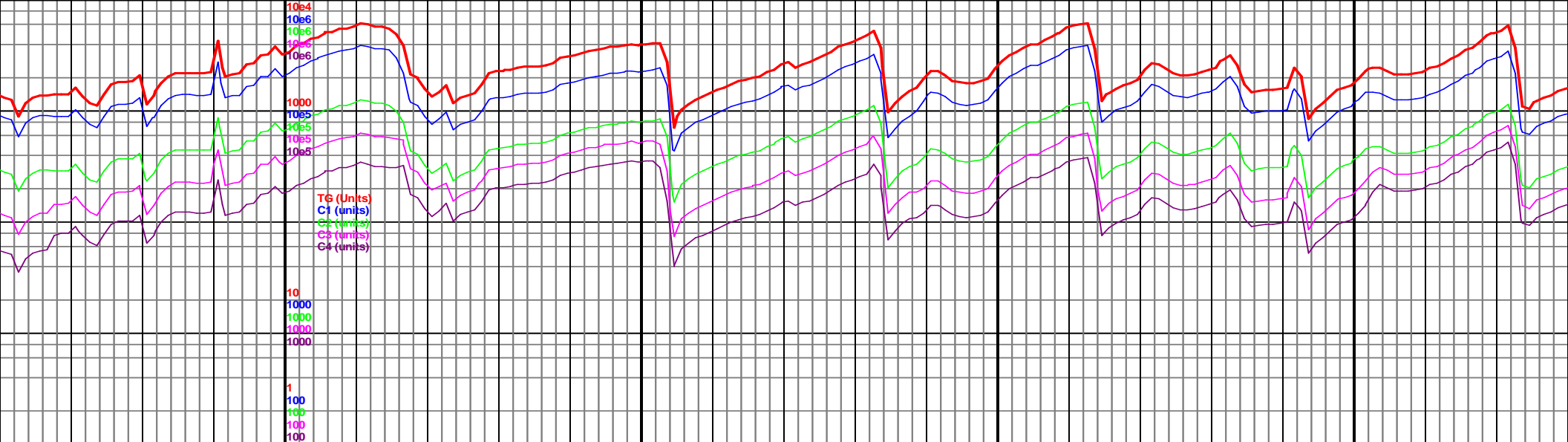




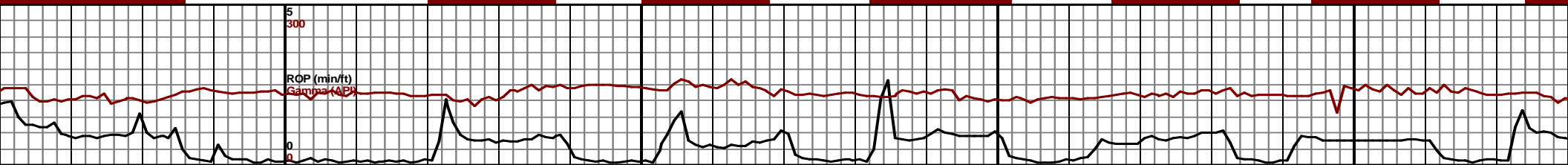


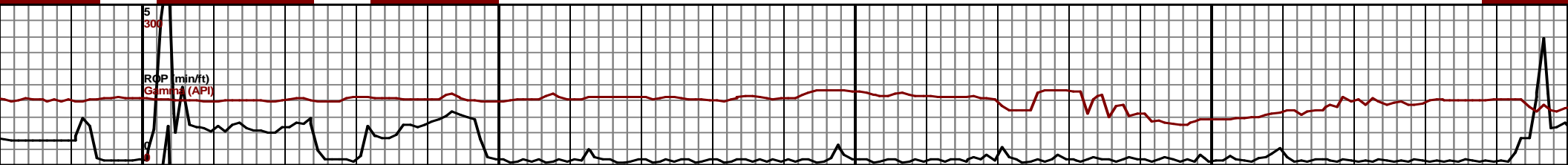
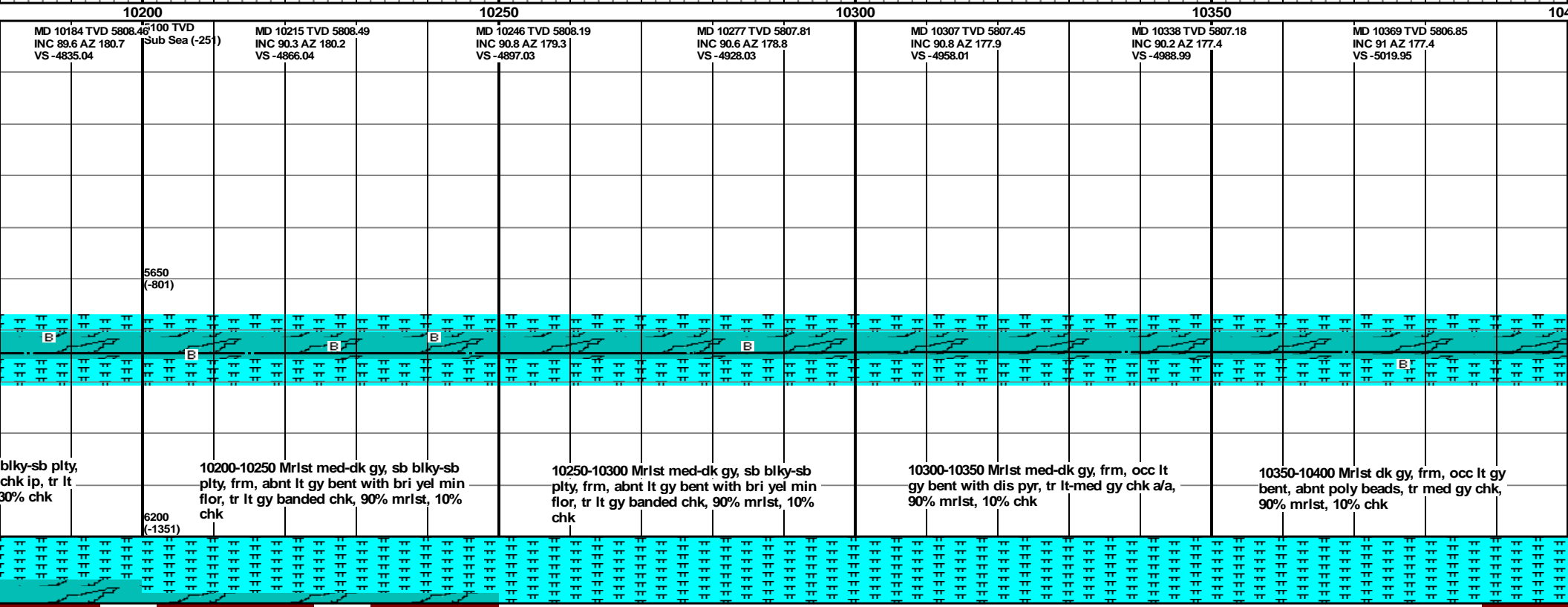
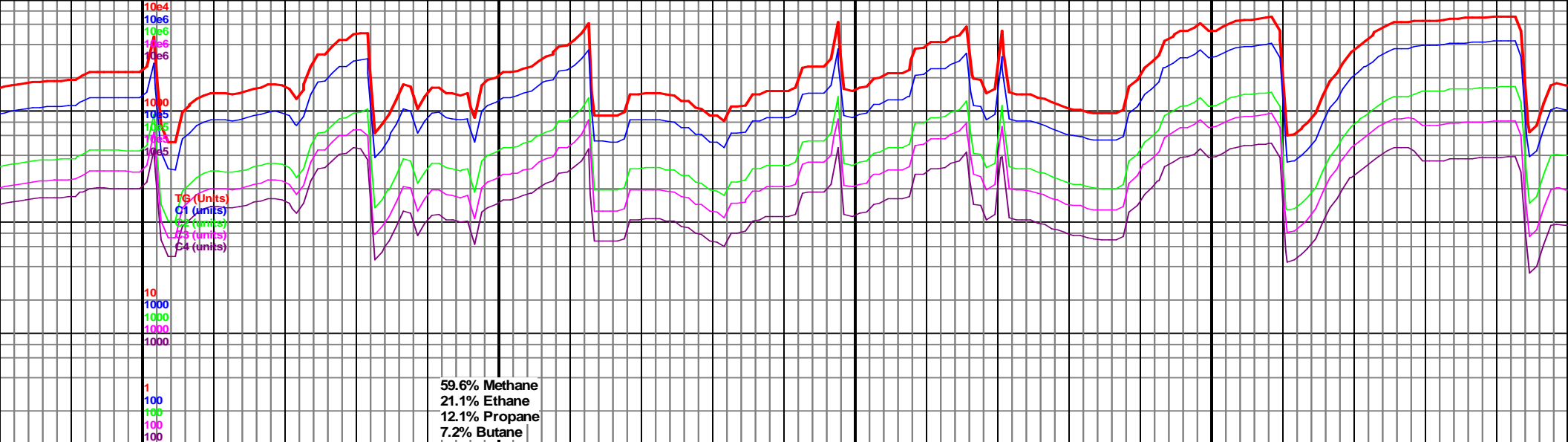


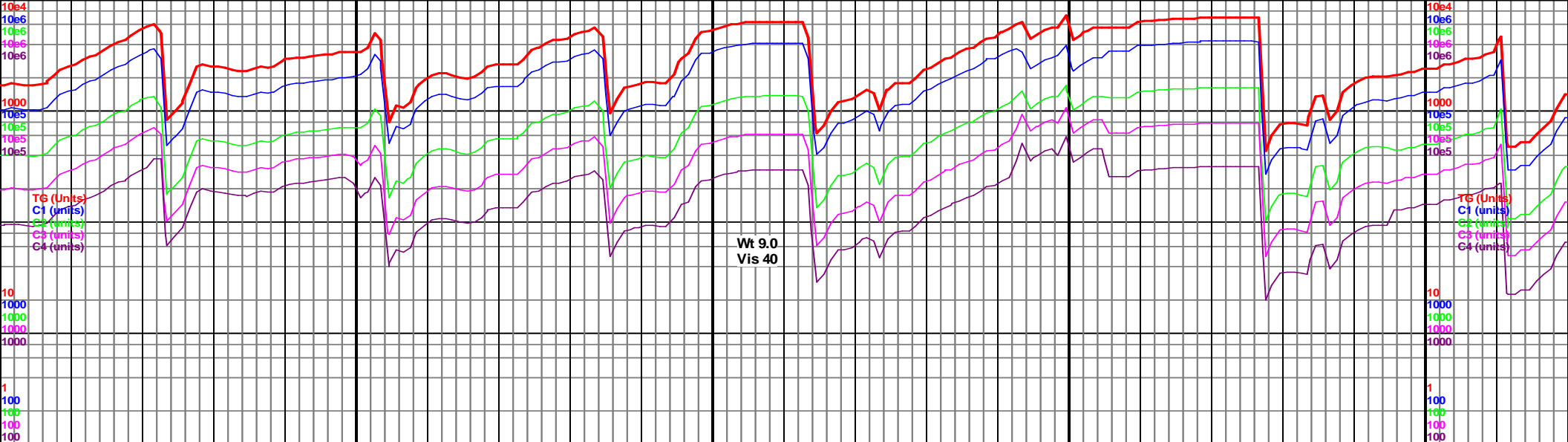




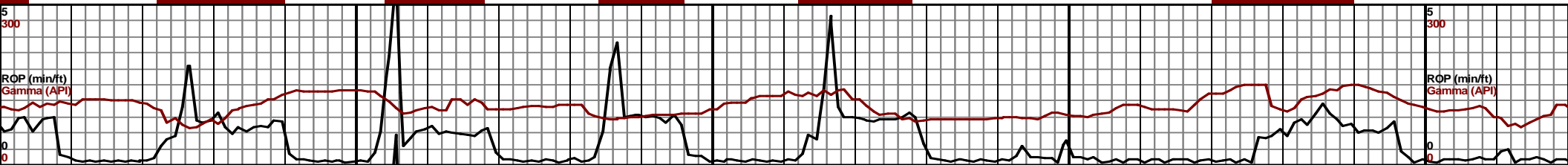
10000				10050				10100				10150															
MD 9969 TVD 5800.6 INC 87.1 AZ 182.3 VS -4620.41				MD 10000 TVD 5802.25 INC 86.8 AZ 182.5 VS -4651.34				MD 10030 TVD 5803.85 INC 87.1 AZ 182.6 VS -4681.26				MD 10061 TVD 5805.34 INC 87.4 AZ 182.6 VS -4712.2				MD 10092 TVD 5806.63 INC 87.8 AZ 182.6 VS -4743.14				MD 10123 TVD 5807.61 INC 88.6 AZ 183 VS -4774.09				MD 10154 TVD 5808.18 INC 89.3 AZ 182.1 VS -4805.05			
								</																			

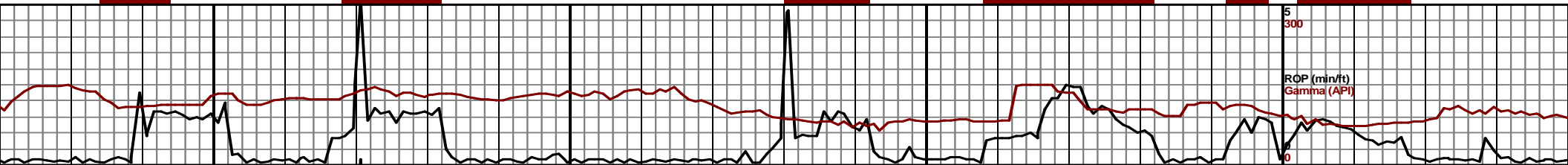
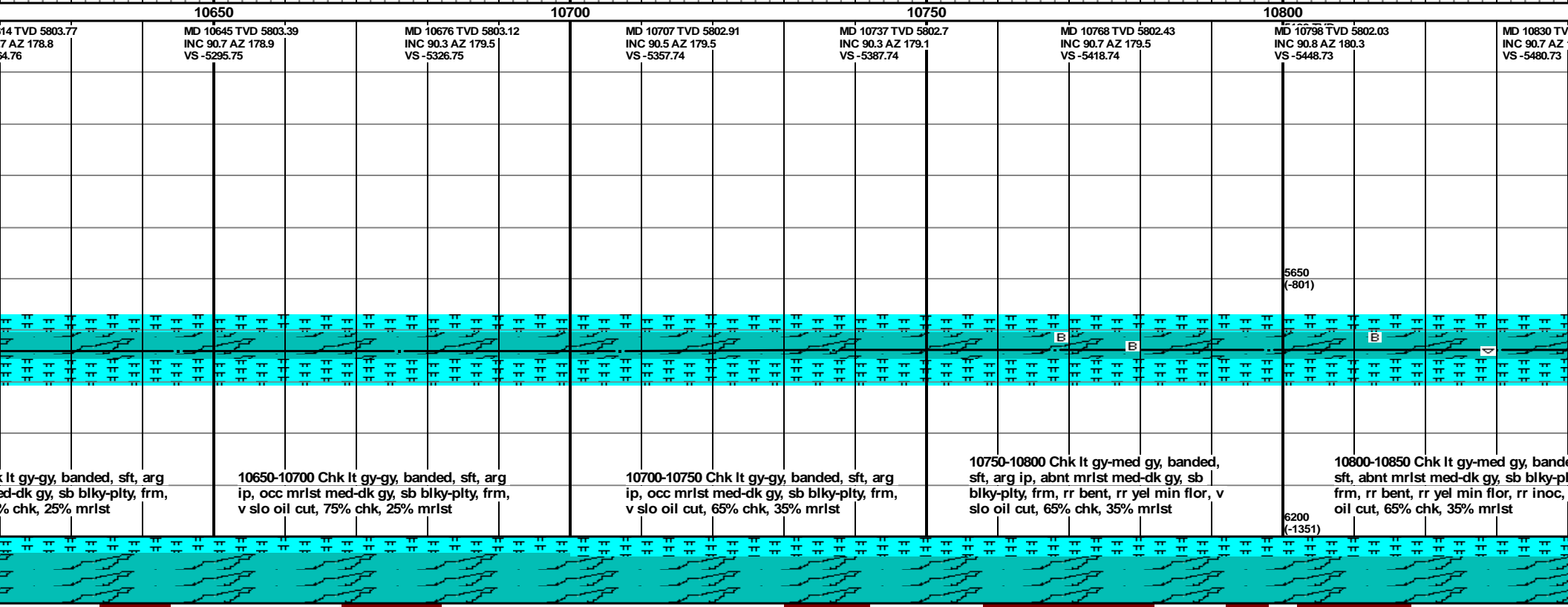
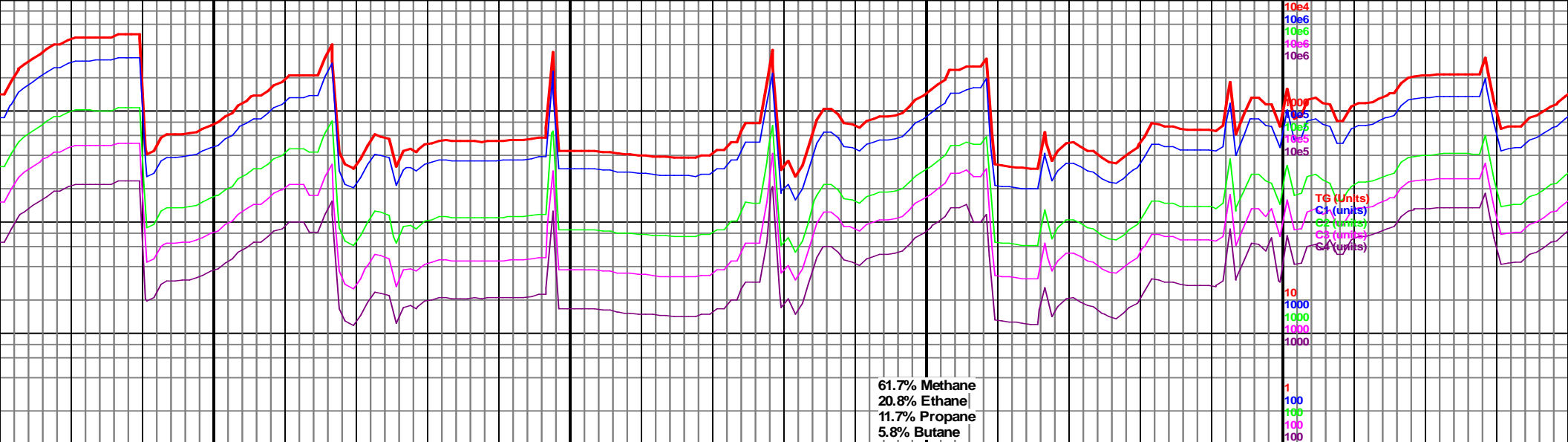




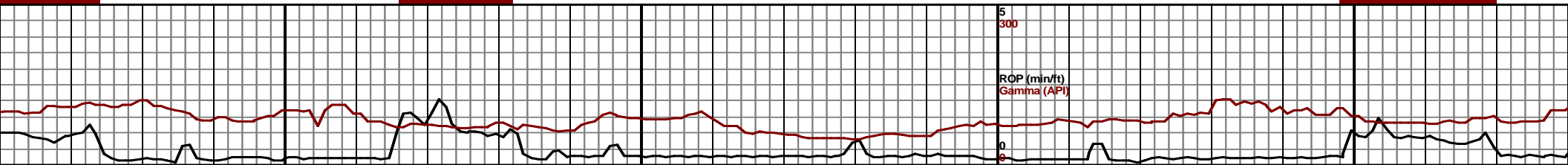
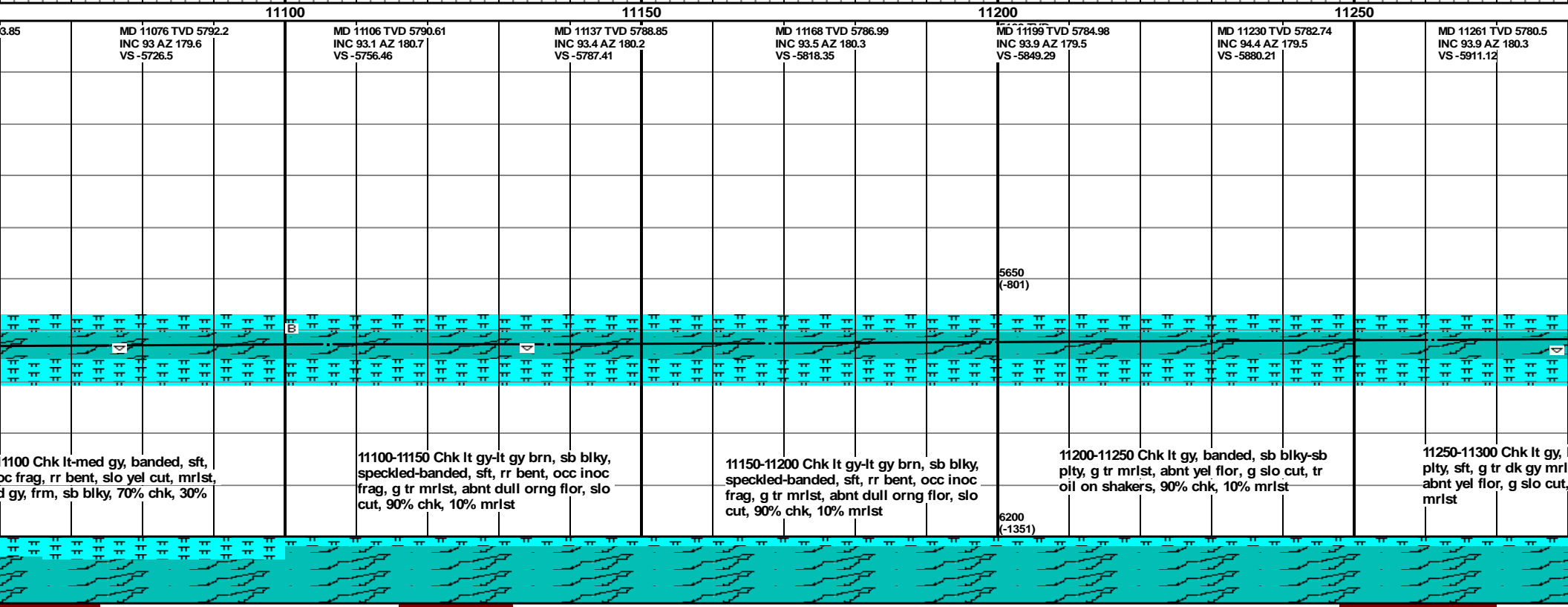
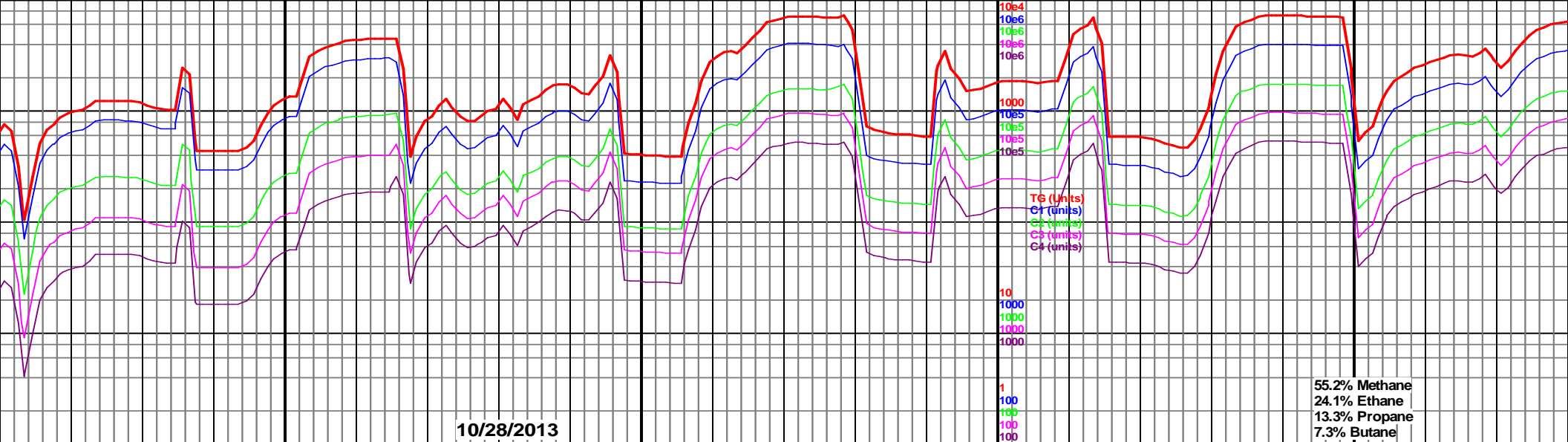


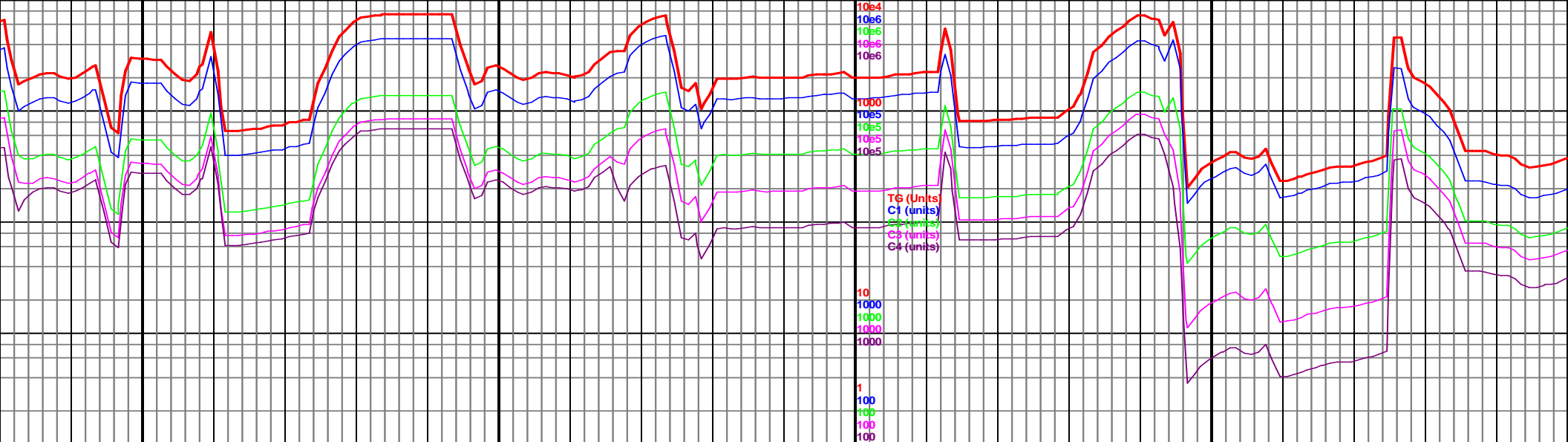
10400		10450		10500		10550		10600	
MD 10400 TVD 5806.18 INC 91.5 AZ 177 VS -5050.91		MD 10430 TVD 5805.31 INC 91.8 AZ 177.4 VS -5080.86		MD 10461 TVD 5804.47 INC 91.3 AZ 177.7 VS -5111.82		MD 10492 TVD 5804.12 INC 90 AZ 178.1 VS -5142.8		MD 10522 TVD 5804.12 INC 90 AZ 178.6 VS -5172.78	
								MD 10553 TVD 5804.12 INC 90 AZ 178.6 VS -5203.77	
								MD 10583 TVD 5804.04 INC 90.3 AZ 178.9 VS -5233.77	
								MD 10610 TVD 5804.04 INC 90.3 AZ 178.9 VS -5263.77	
5650 (-801)								5650 (-801)	
10400-10450 Mrlst dk-med gy, frm, sb blky-sb plty, occ lt gy banded chk, rr bent, 90% mrlst, 10% chk		10450-10500 Chk lt gy-gy, banded, sft, arg ip, abnt mrlst med-dk gy, sb blky-plty, frm, v slo yel cut, 60% chk, 40% mrlst		10500-10550 Chk lt gy-gy, banded, sft, arg ip, occ mrlst med-dk gy, sb blky-plty, frm, v slo yel cut, 75% chk, 25% mrlst		10550-10600 Chk lt gy-gy, banded, sft, arg ip, rr mrlst med-dk gy, sb blky-plty, frm, v slo oil cut, 80% chk, 20% mrlst		10600-10650 Chk lt gy-gy, banded, sft, arg ip, occ mrlst med-dk gy, sb blky-plty, frm, v slo oil cut, 75% chk, 25% mrlst	
6200 (-1351)								6200 (-1351)	



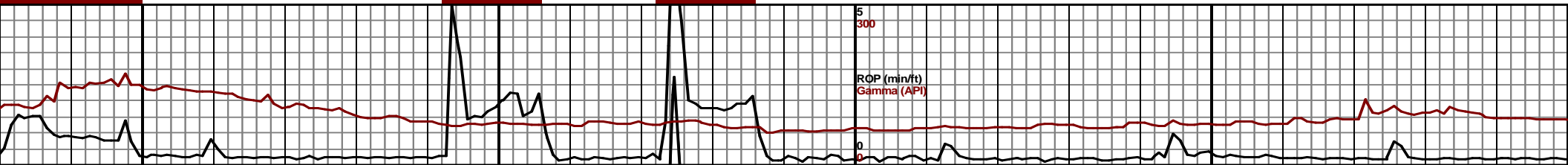




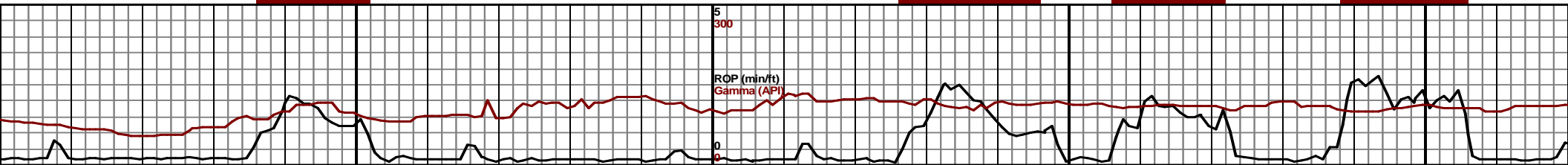
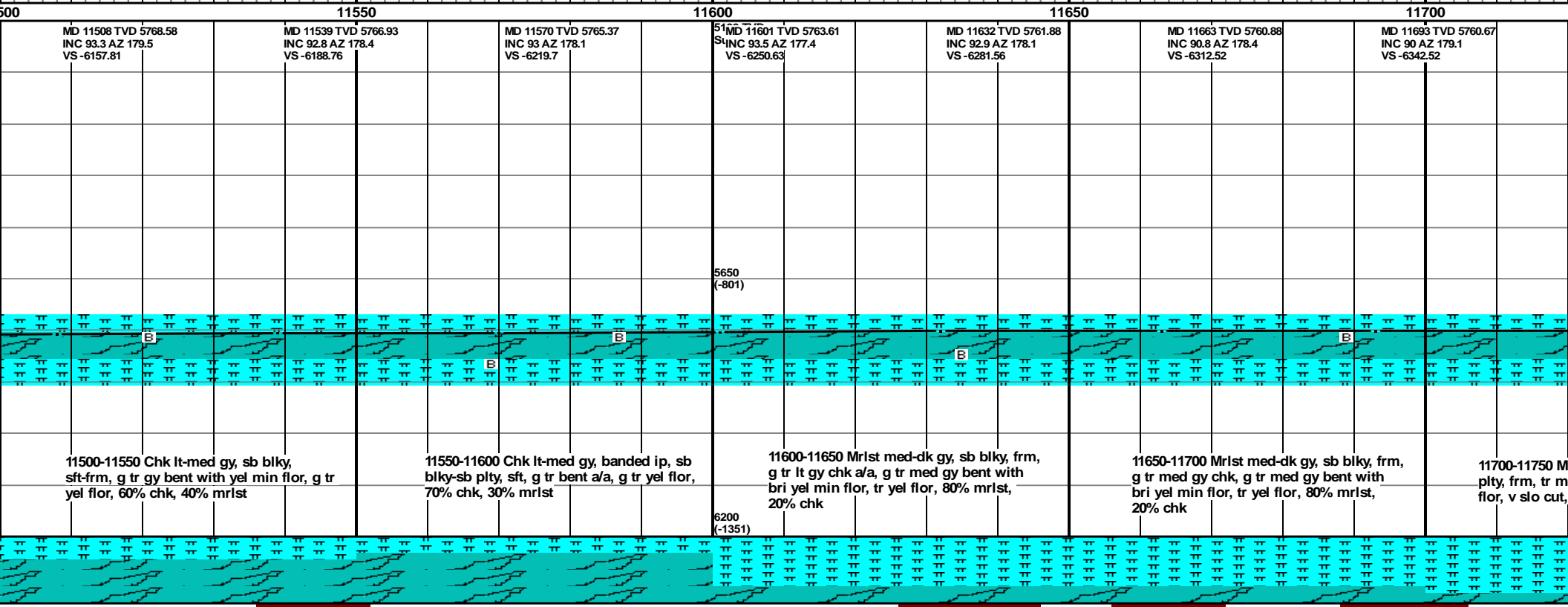
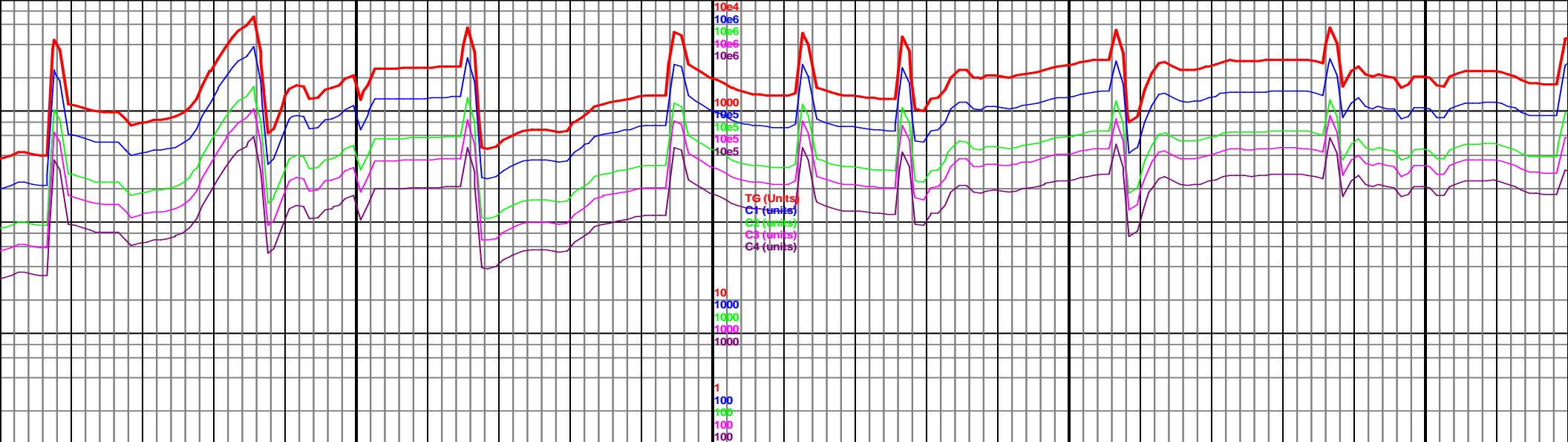


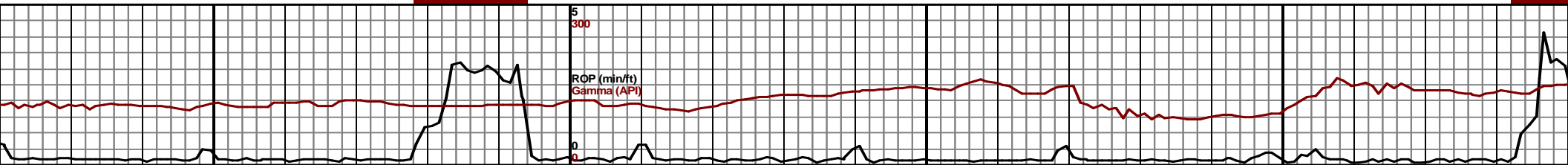
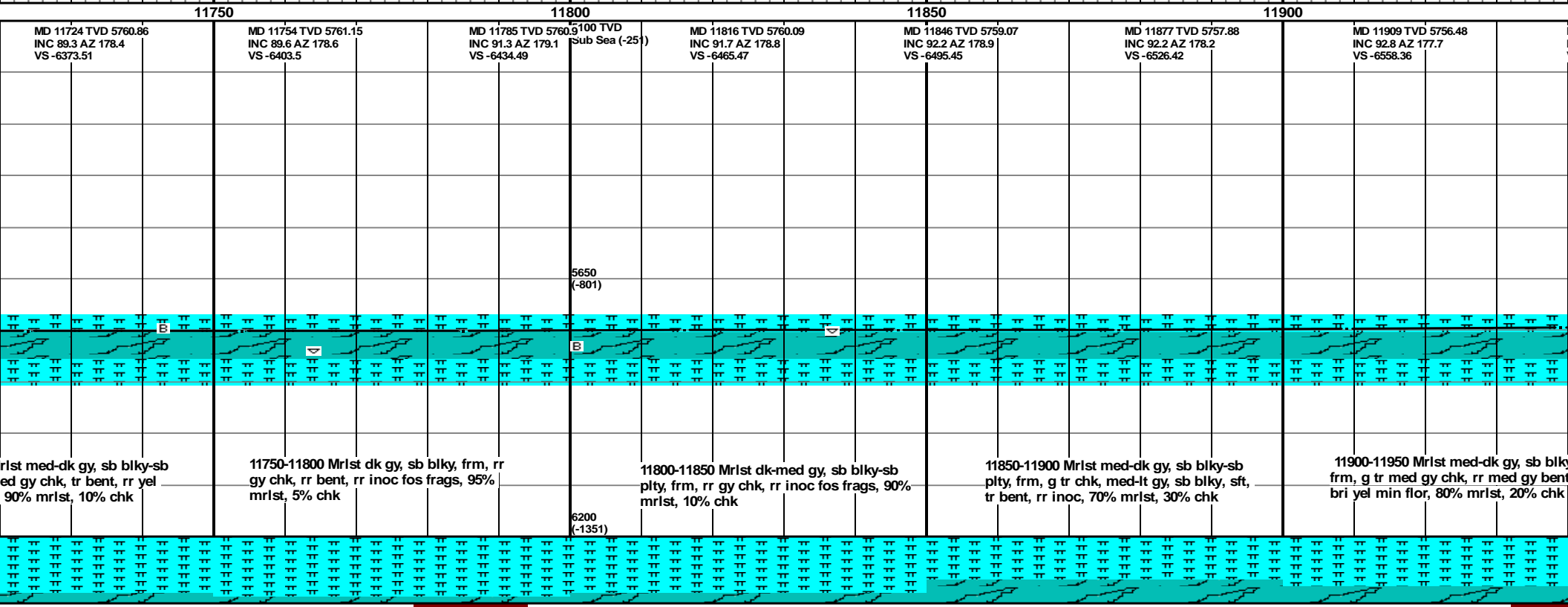
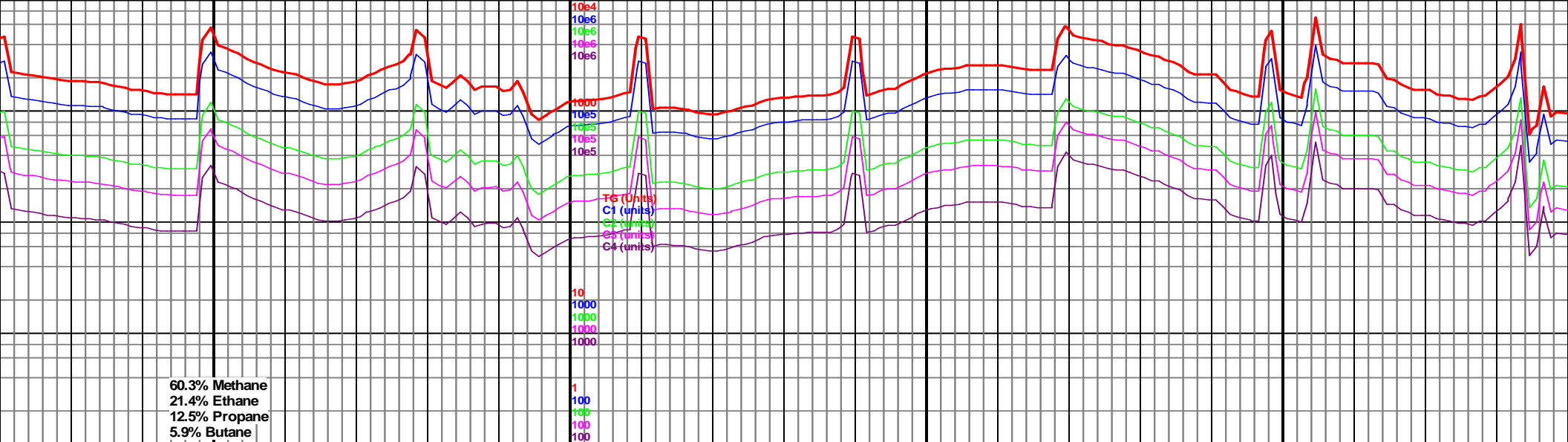


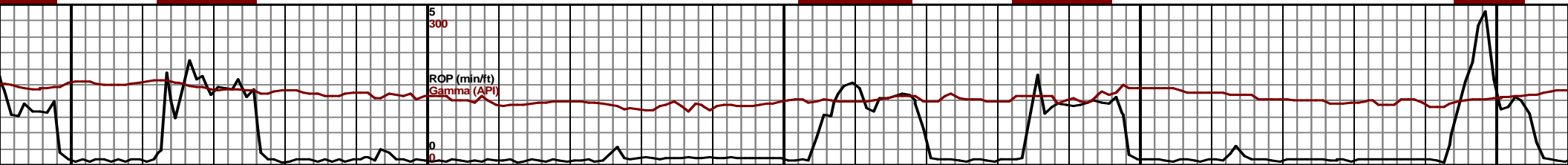
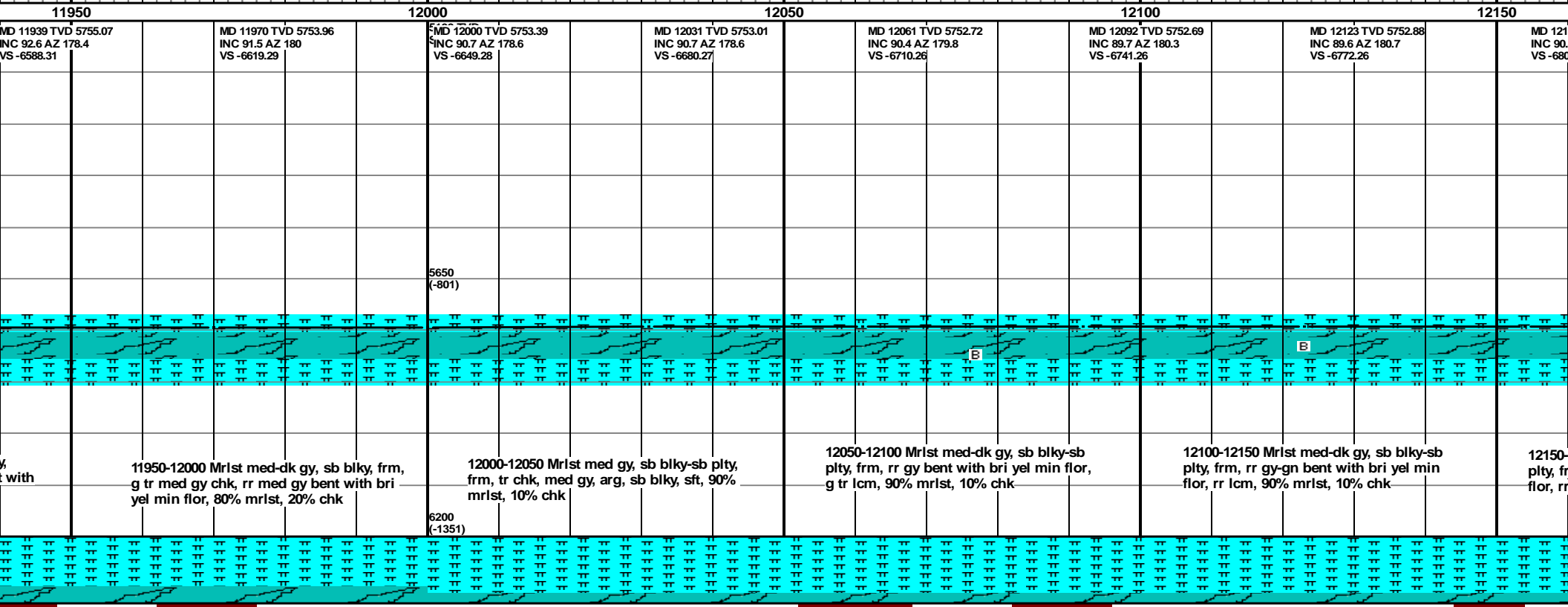
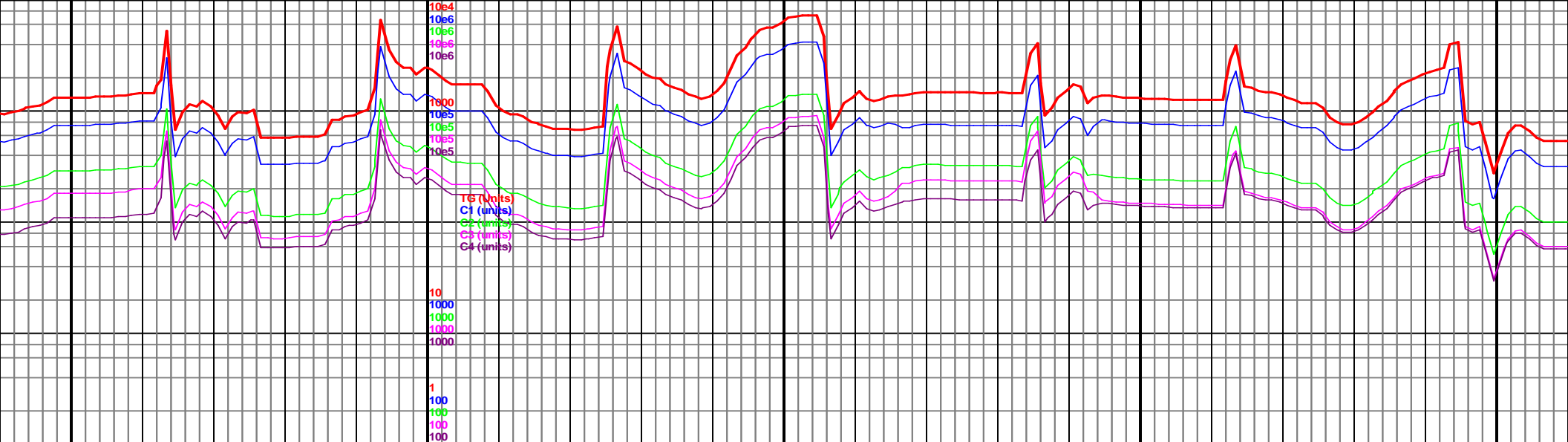
11300	MD 11291 TVD 5778.54 INC 93.6 AZ 180.5 VS -5941.06	MD 11322 TVD 5776.78 INC 92.9 AZ 181.4 VS -5972	MD 11352 TVD 5775.39 INC 92.4 AZ 181.2 VS -6001.96	MD 11385 TVD 5774.15 INC 91.9 AZ 180.3 VS -6034.94	MD 11416 TVD 5773.02 INC 92.3 AZ 180.3 VS -6065.92	MD 11447 TVD 5771.75 INC 92.4 AZ 180.2 VS -6096.89	MD 11478 TVD 5770.26 INC 93.1 AZ 180.3 VS -6127.85
TOOH at 09:45 on 10/28/2013 and 11436' for failed MWD tool. Resumed drilling at 22:30							
5650 (-801)							
banded, sb blkly-sb st, rr inoc frags, 90% chk, 10% mrlst							
11300-11350 Chk lt gy, mottled, sb blkly-sb plty, sft, g tr dk gy mrlst, rr cal fld micro fracs, abnt yel flor, 90% chk, 10% mrlst							
11350-11400 Chk lt gy, banded, sb blkly-sb plty, sft, g tr dk gy mrlst, rr inoc frags, abnt yel flor, g slo cut, 90% chk, 10% mrlst							
11400-11450 Chk lt gy, banded, sb blkly-sb plty, sft, g tr dk gy mrlst, rr inoc frags, occ bent cavings, abnt yel flor, g slo cut, 90% chk, 10% mrlst							
11450-11500 Mrlst dk-med gy, sb blkly-plty, frm, g tr gy bent with bri yel min flor, occ yel flor, slo cut, 50% chk, 50% mrlst							
5620 (-1351)							

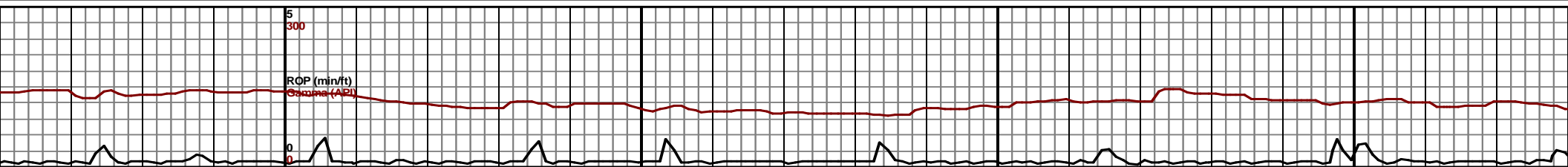
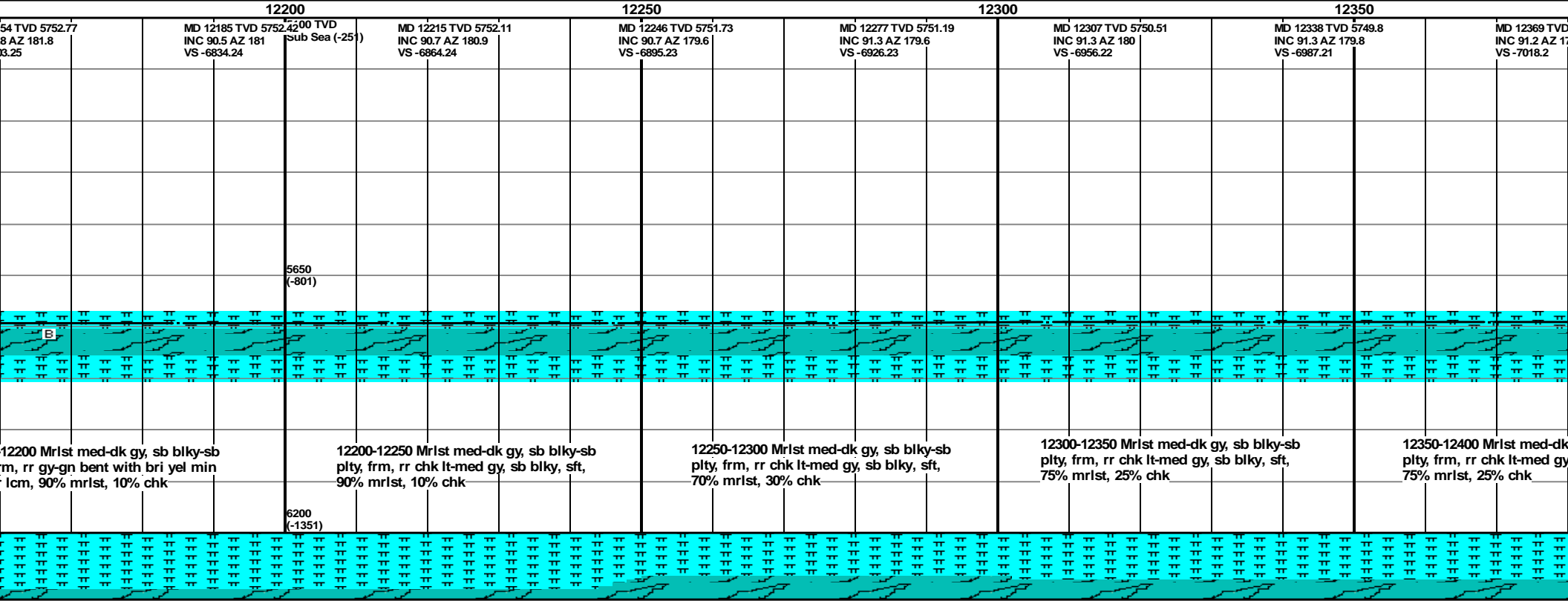
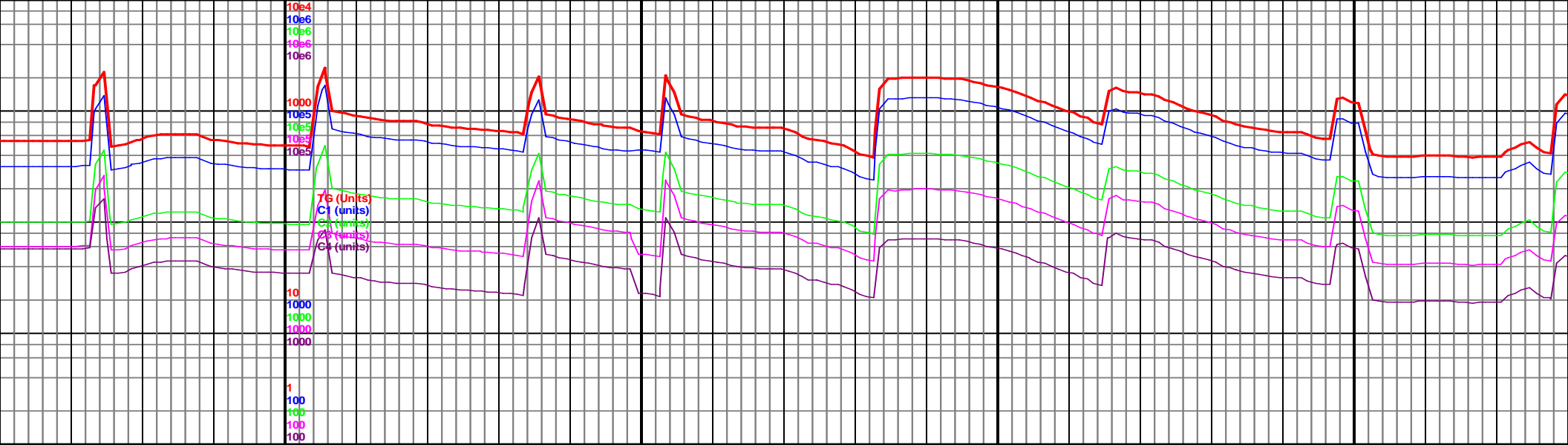


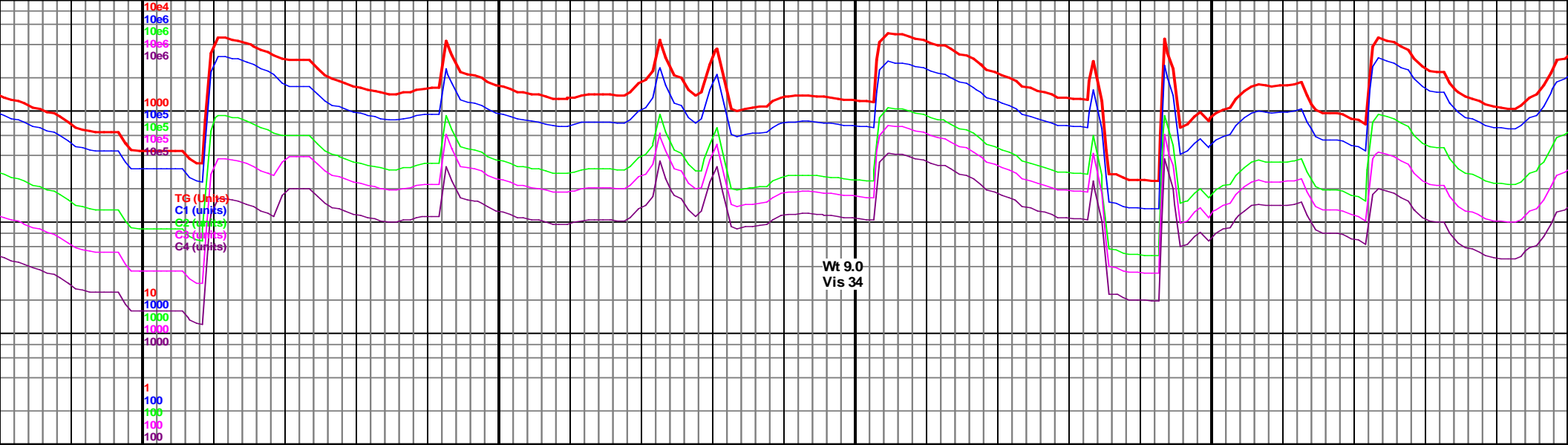












12400		12450		12500		12550		12600	
5749.13 VS-79.3	MD 12400 TVD 5748.45 INC 91.3 AZ 179.3 VS -7049.19	MD 12431 TVD 5747.69 INC 91.5 AZ 179.1 VS -7080.18	MD 12462 TVD 5746.77 INC 91.9 AZ 178.6 VS -7111.16	MD 12493 TVD 5745.72 INC 92 AZ 178.4 VS -7142.13	MD 12523 TVD 5744.62 INC 92.2 AZ 178.1 VS -7172.1	MD 12552 TVD 5743.76 INC 91.2 AZ 179.3 VS -7201.08	MD 12583 TVD 5743.22 INC 90.8 AZ 179.1 VS -7232.07		
5650 (-801)									
gy, sb blk-y-sb sb blk-y, sft,		12400-12450 Mrlst med-dk gy, sb blk-y-sb plty, frm, rr chk lt-med gy, sb blk-y, sft, 75% mrlst, 25% chk		12450-12500 Mrlst med-dk gy, sb blk-y-sb plty, frm, rr chk lt-med gy, sb blk-y, sft, rr gy-gn bent, rr inoc, 80% mrlst, 20% chk		12500-12550 Mrlst med-dk gy, sb blk-y-sb plty, frm, rr chk lt-med gy, sb blk-y, sft, rr gy-gn bent, 80% mrlst, 20% chk		12550-12600 Mrlst med-dk gy, sb blk-y-sb plty, frm, rr chk lt-med gy, sb blk-y, sft, rr gy-gn bent, 80% mrlst, 20% chk	
6200 (-1351)									

