



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

Well Name: Razor 33-2813H
Location: SWSW 33-T10N-R58W
License Number: 05-123-36579
Spud Date: 4/16/2013
Surface Coordinates: Lat.: 40.789200 Long.: -103.876422

Region: Redtail Field
Drilling Completed: 4/29/2013

Bottom Hole Coordinates:

Ground Elevation (ft): 4729
Logged Interval (ft): 5156 To: 12175
Formation: Pierre, Sharon Springs, Niobrara
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4746
Total Depth (ft): 12175

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: Todd Nakata, Craig Dreiling
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig 21


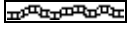
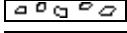
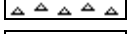
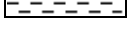
Gas Detection






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




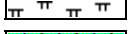

Comments

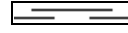
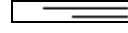

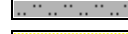
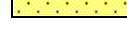
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.




ROCK TYPES

 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

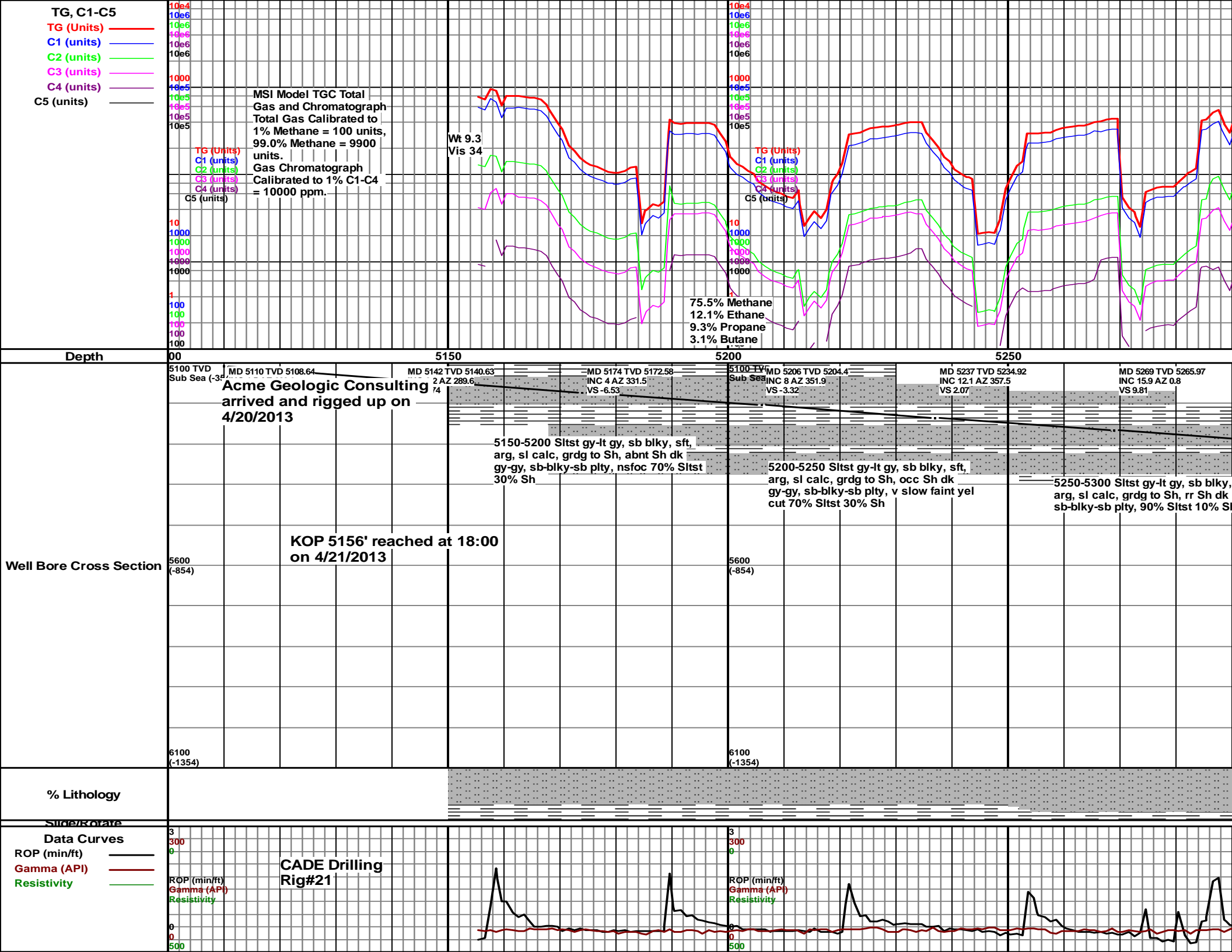
ROUNDING
 Rounded
 Subrnd
 Subang
 Angular

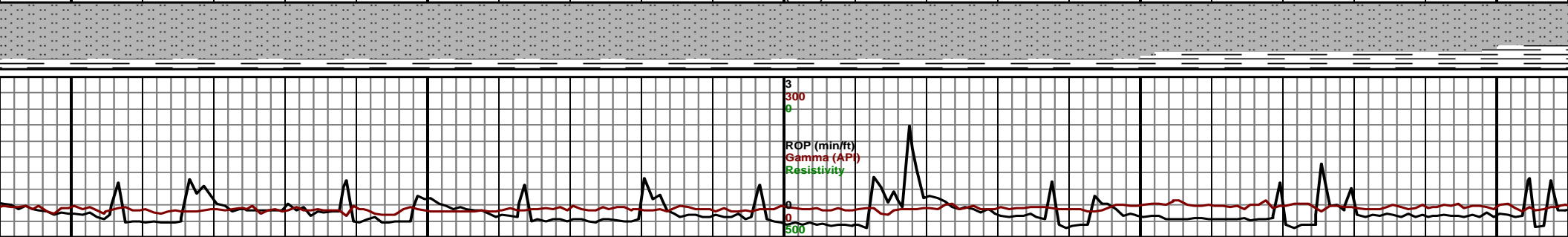
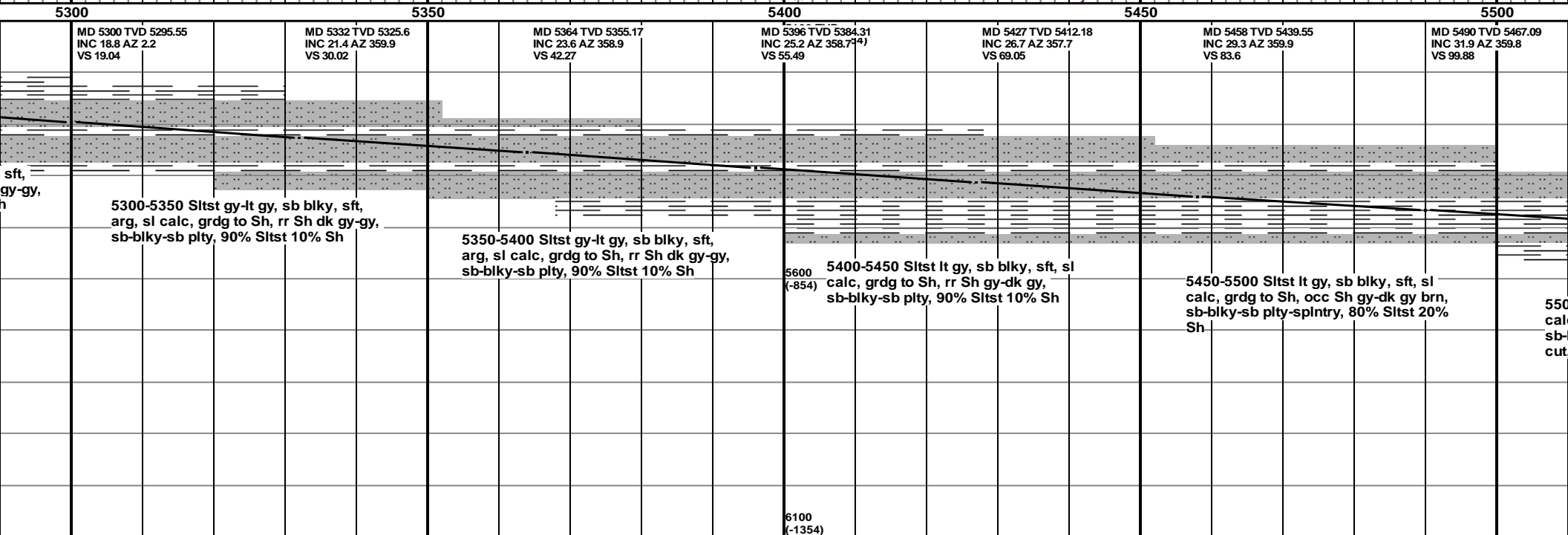
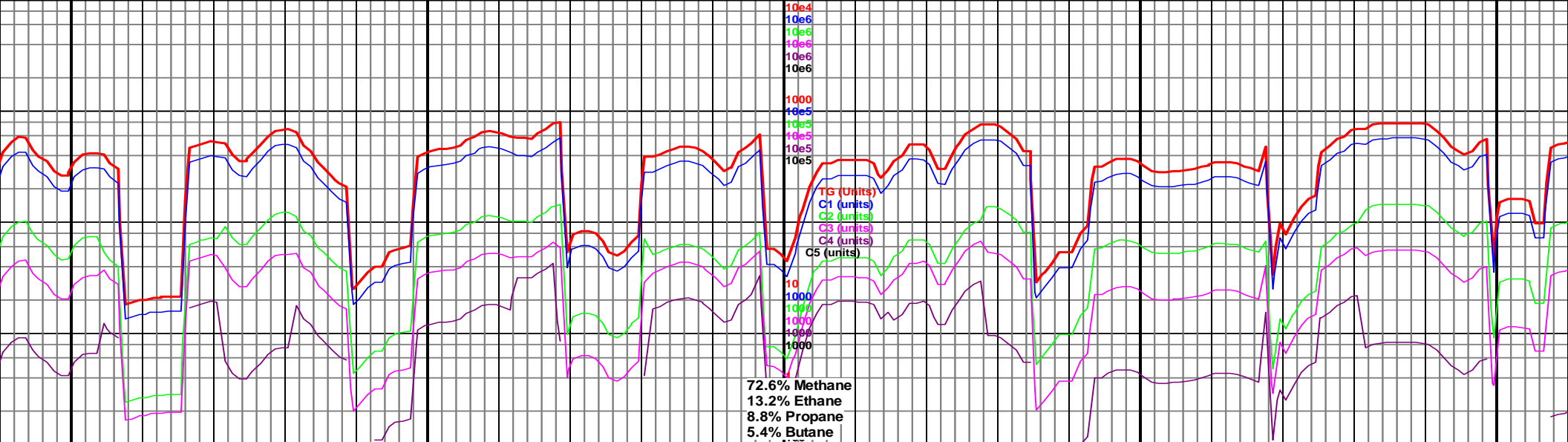
OIL SHOW
 Even

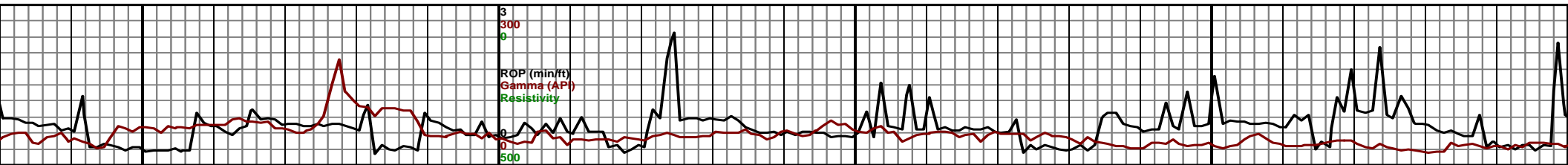
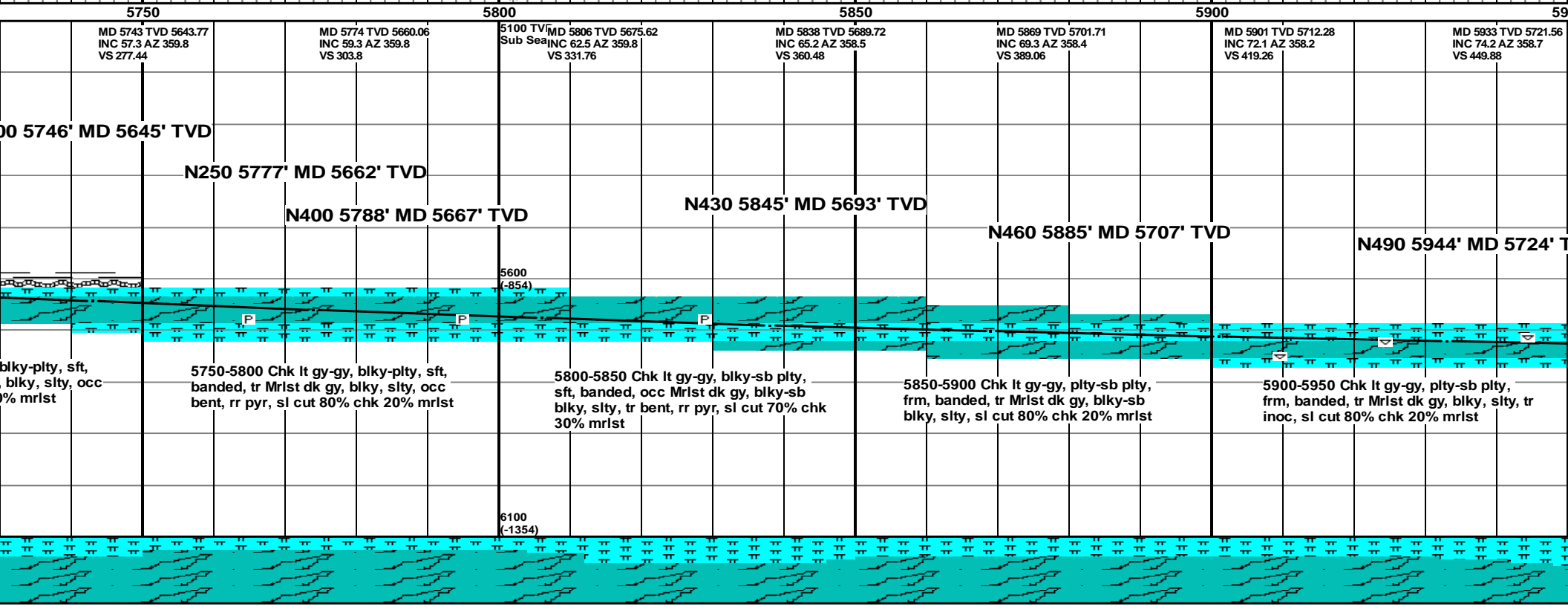
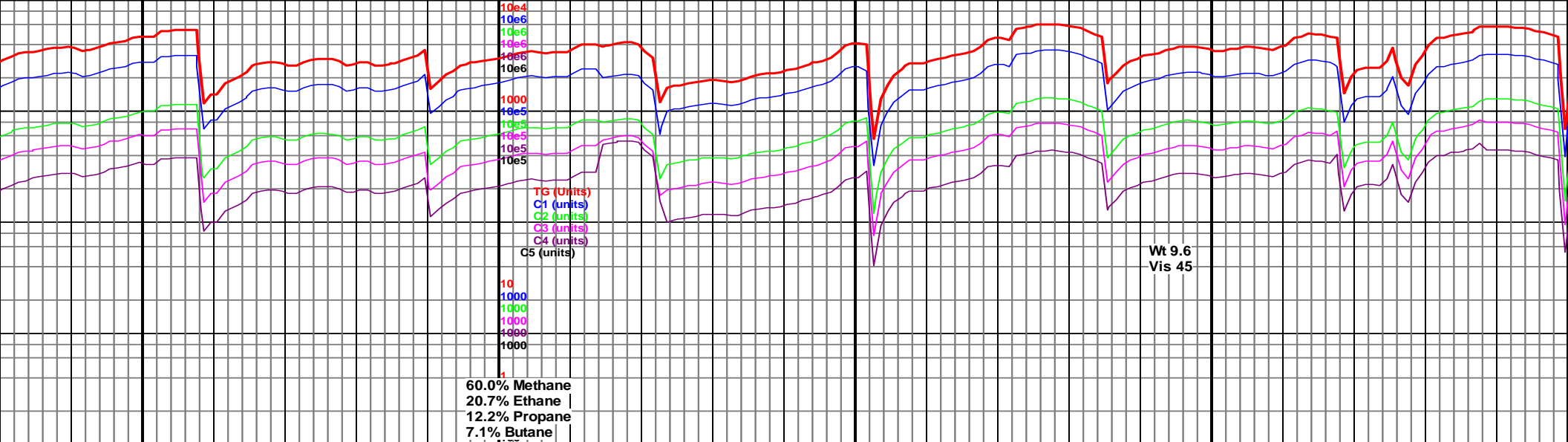
 Spotted
 Ques
 Dead

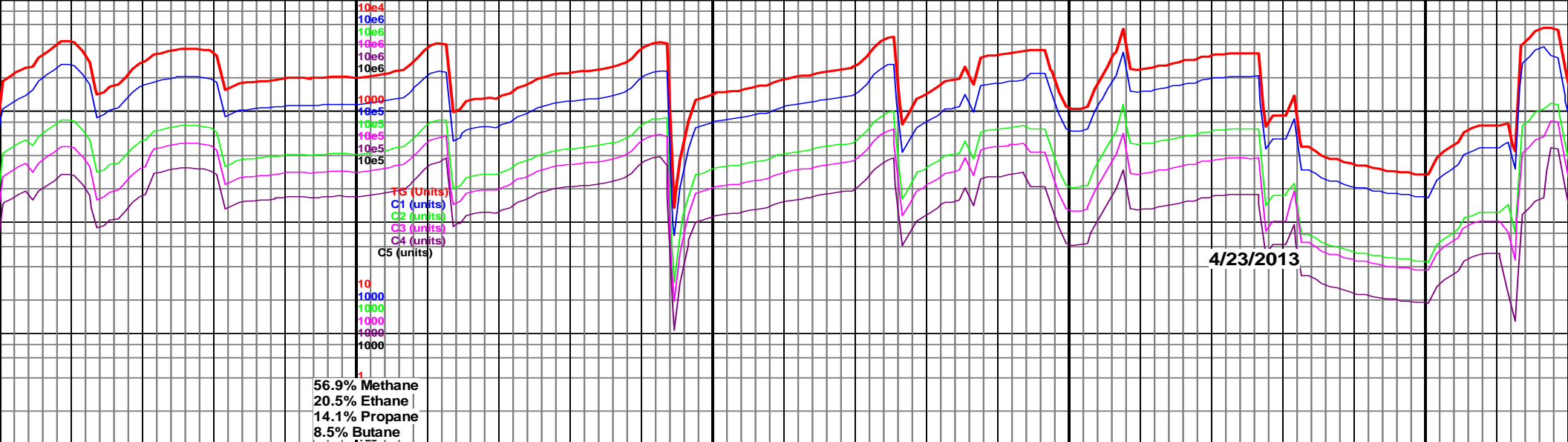
INTERVAL
 Core
 Dst

EVENT
 Rft
 Sidewall

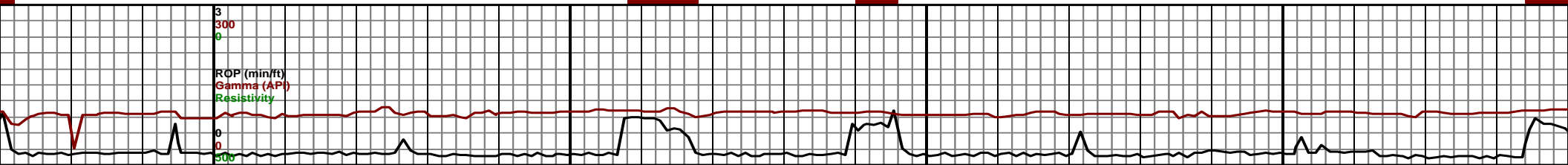
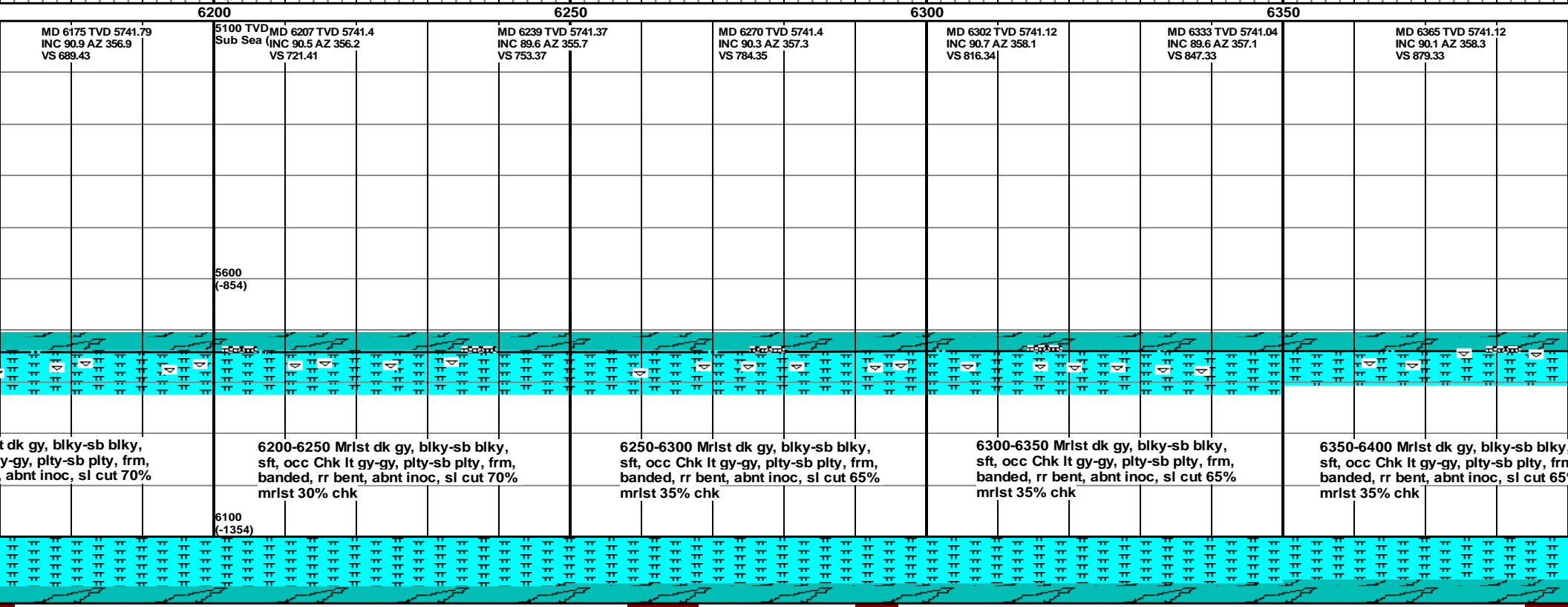
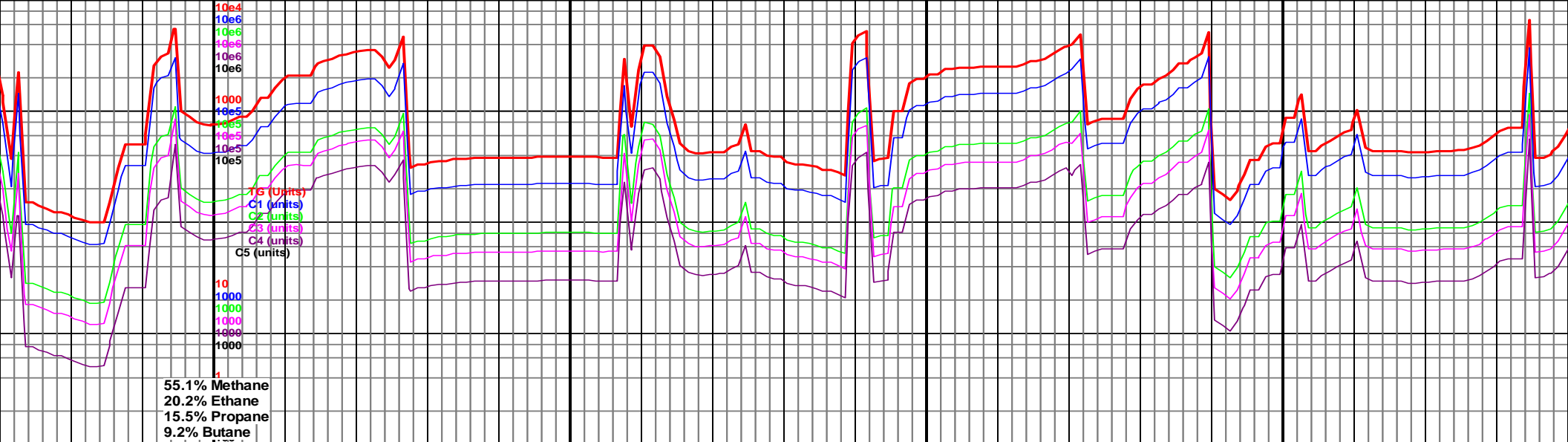


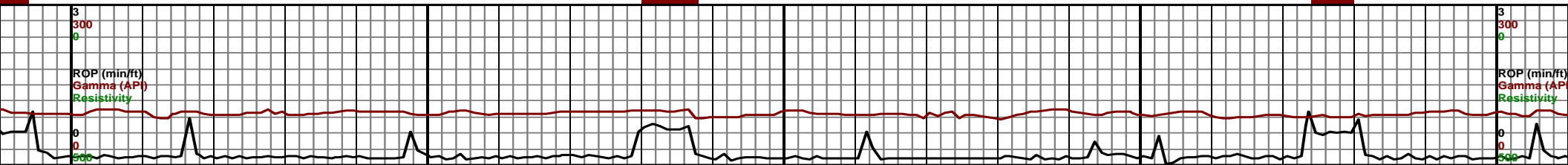
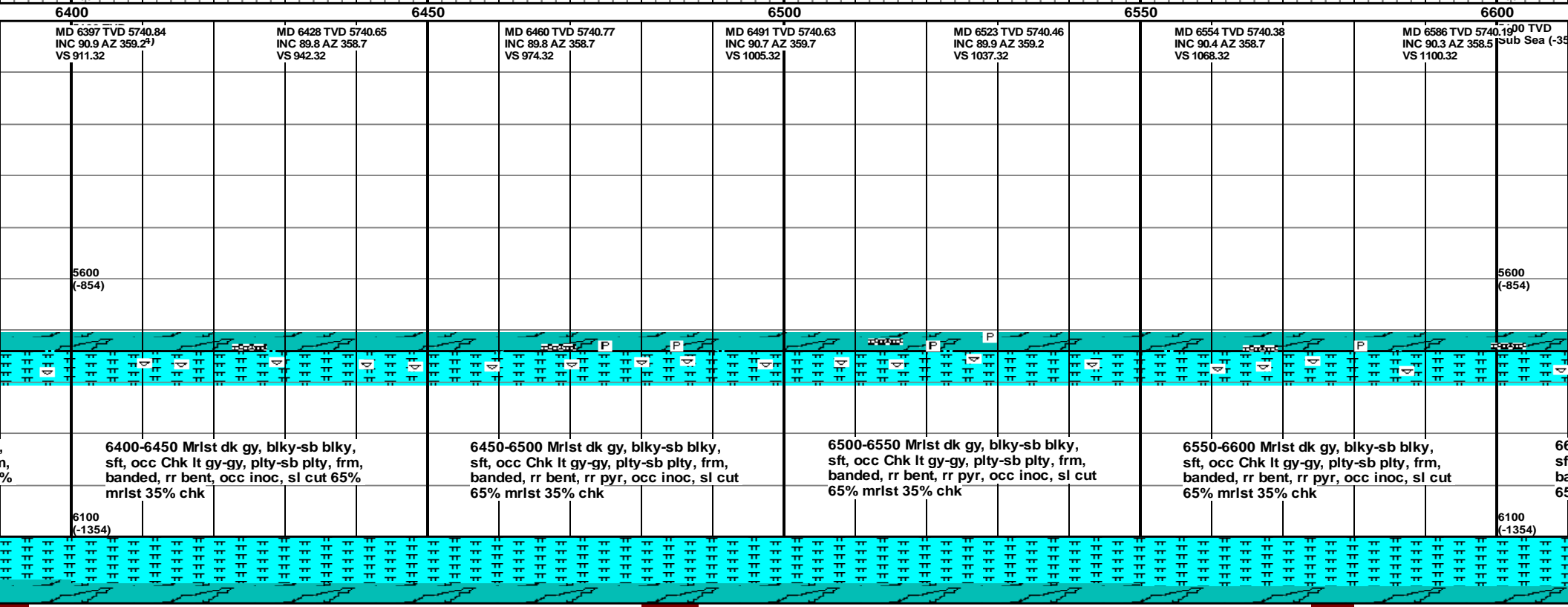
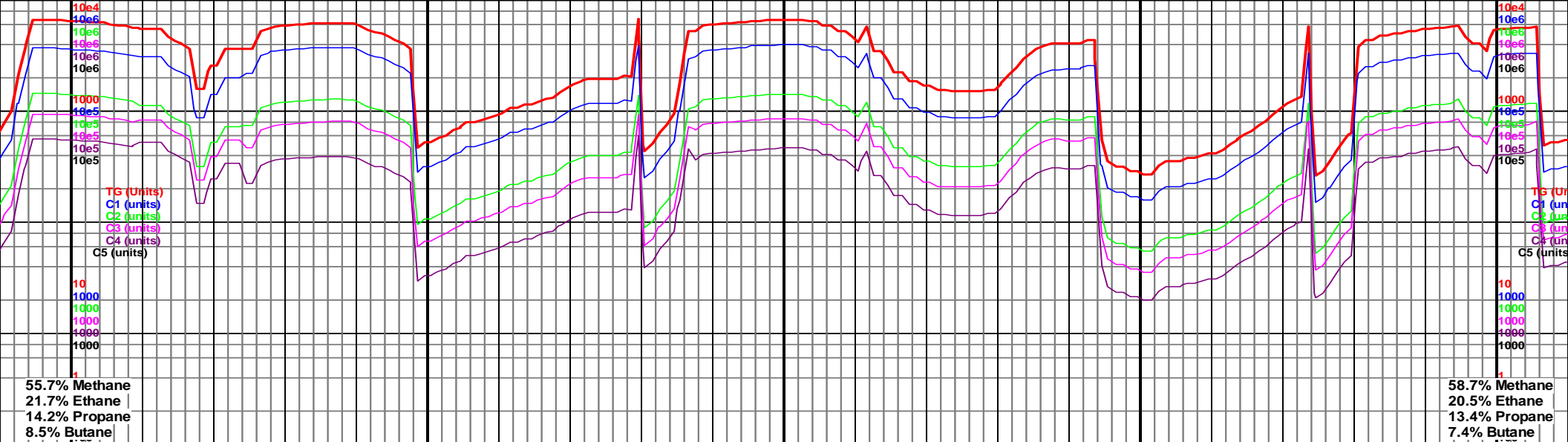


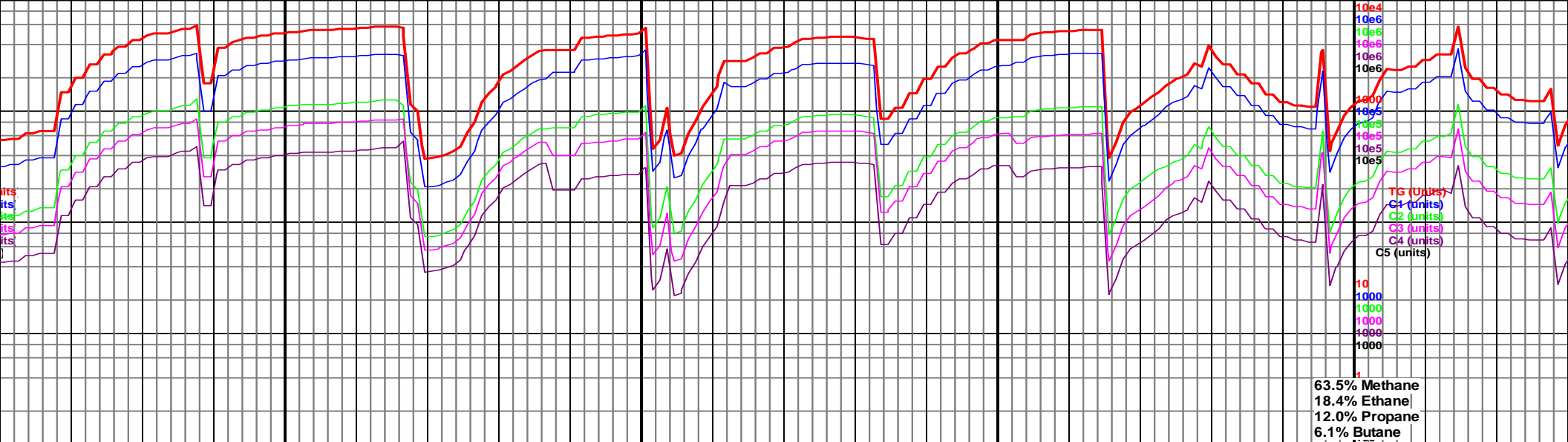




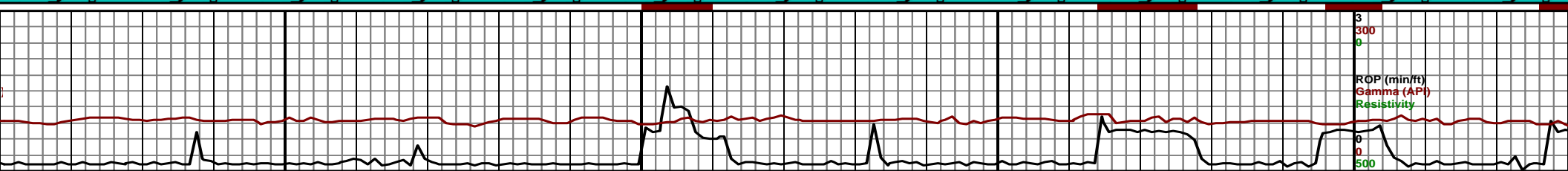
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MD 5964 TVD 5729.53 INC 76 AZ 0.3 VS 479.83										MD 5996 TVD 5736.45 INC 79 AZ 2.1 (-394) VS 511.04										MD 6028 TVD 5741.32 INC 83.5 AZ 1.9 VS 542.61										MD 6060 TVD 5743.69 INC 88 AZ 0.5 VS 574.48										MD 6091 TVD 5743.94 INC 91.1 AZ 358.7 VS 605.47										MD 6144 TVD 5742.55 INC 91.9 AZ 358 VS 658.45									

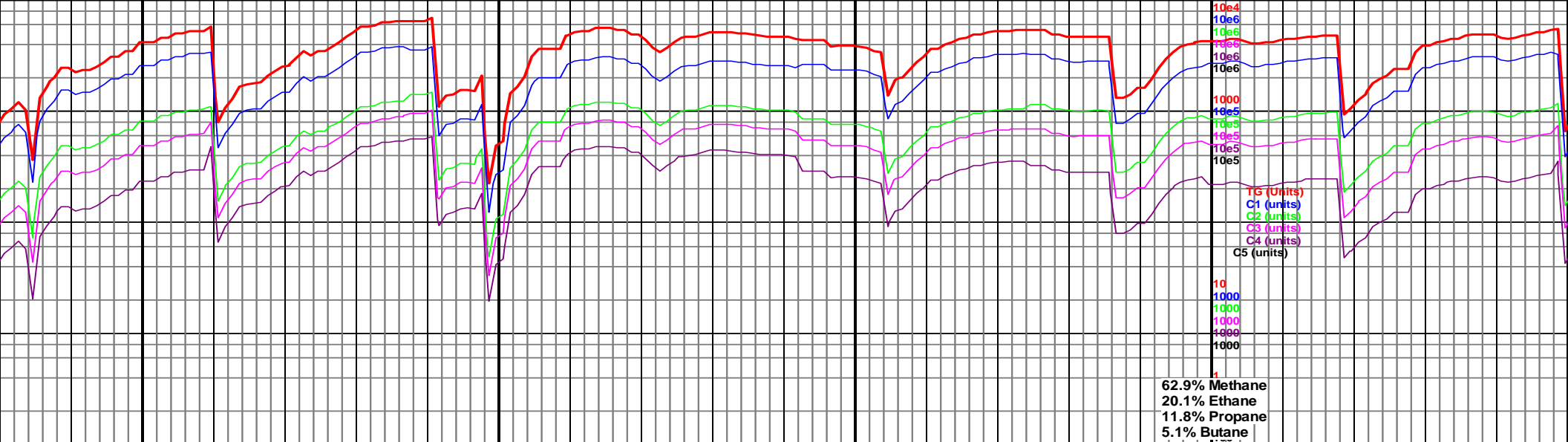




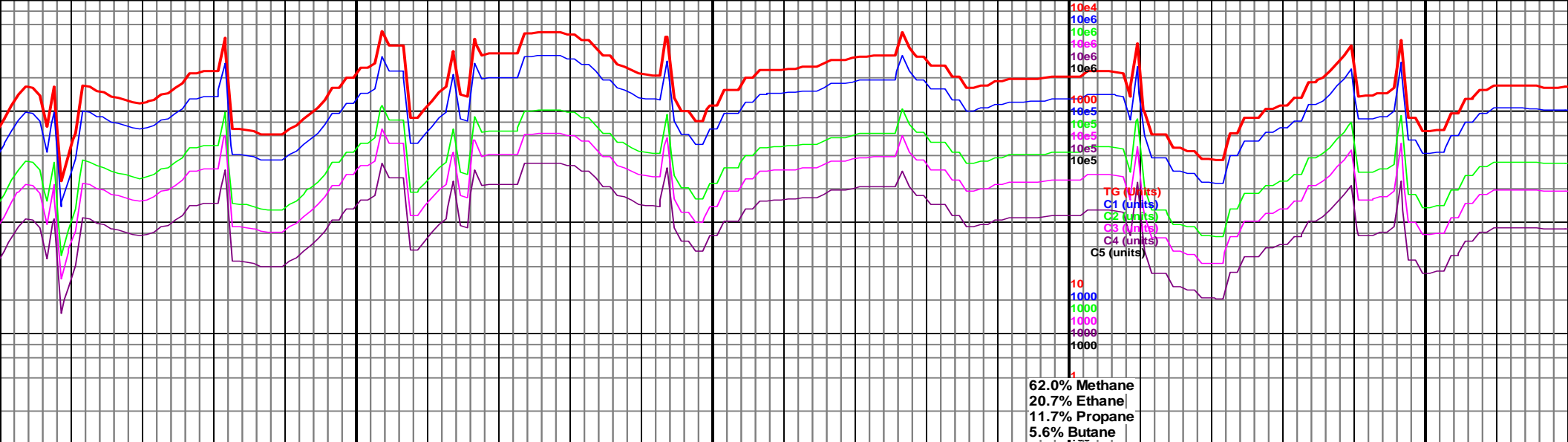


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MD 6618 TVD 5740.05 INC 90.2 AZ 357.6 VS 1132.31				MD 6649 TVD 5739.91 INC 90.3 AZ 356.9 VS 1163.3				MD 6681 TVD 5739.74 INC 90.3 AZ 356.2 VS 1195.28				MD 6712 TVD 5739.53 INC 90.5 AZ 356.2 VS 1226.25			
MD 6744 TVD 5739.33 INC 90.2 AZ 355.9 VS 1258.21				MD 6776 TVD 5739.19 INC 90.3 AZ 356.7 VS 1290.19				MD 6807 TVD 5739.03 Sub Sea (INC 90.3 AZ 356 VS 1321.16							
6600-6650 Mrlst dk gy, blkly-sb blkly, t, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6650-6700 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6700-6750 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6750-6800 Mrlst dk gy, blkly-sb blkly, sft, slty ip, tr Chk lt gy-gy, plty-sb plty, frm, banded, tr bent, rr pyr, occ inoc, sl cut 70% mrlst 30% chk			
6800-6850 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6850-6900 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6900-6950 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk				6950-7000 Mrlst dk gy, blkly-sb blkly, sft, occ Chk lt gy-gy, plty-sb plty, frm, banded, rr bent, rr pyr, occ inoc, sl cut 65% mrlst 35% chk			

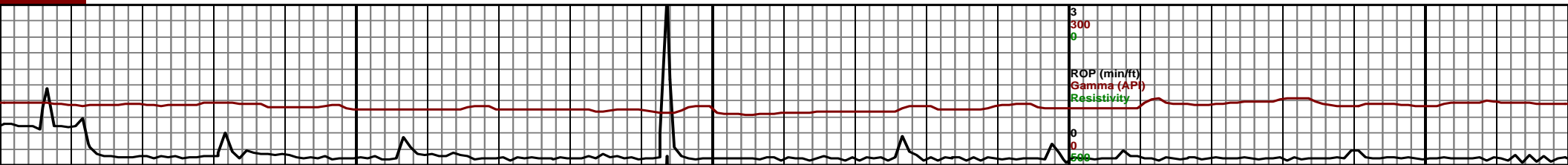


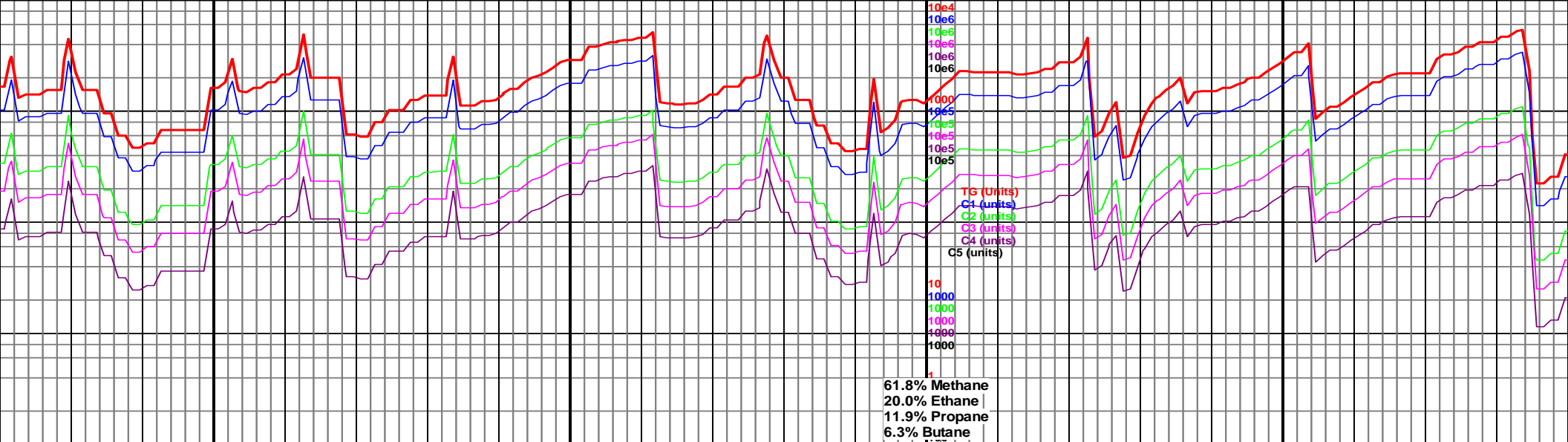


6850				6900				6950				7000				7050											
MD 6839 TVD 5738.95 INC 90 AZ 357.1 VS 1353.14				MD 6870 TVD 5738.57 INC 91.4 AZ 357.3 VS 1384.12				MD 6902 TVD 5737.48 INC 92.5 AZ 358 VS 1416.1				MD 6933 TVD 5736.1 INC 92.6 AZ 357.6 VS 1447.06				MD 6965 TVD 5734.68 INC 92.5 AZ 357.8 VS 1479.03				MD 6996 TVD 5733.38 INC 92.3 AZ 357.4 ⁴⁾ VS 1509.99				MD 7028 TVD 5732.23 INC 91.8 AZ 357.3 VS 1541.96			

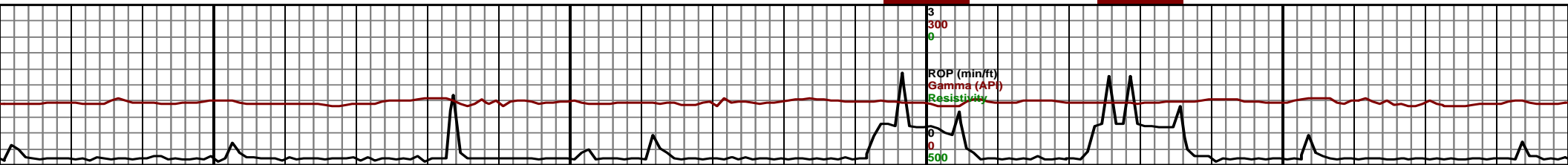


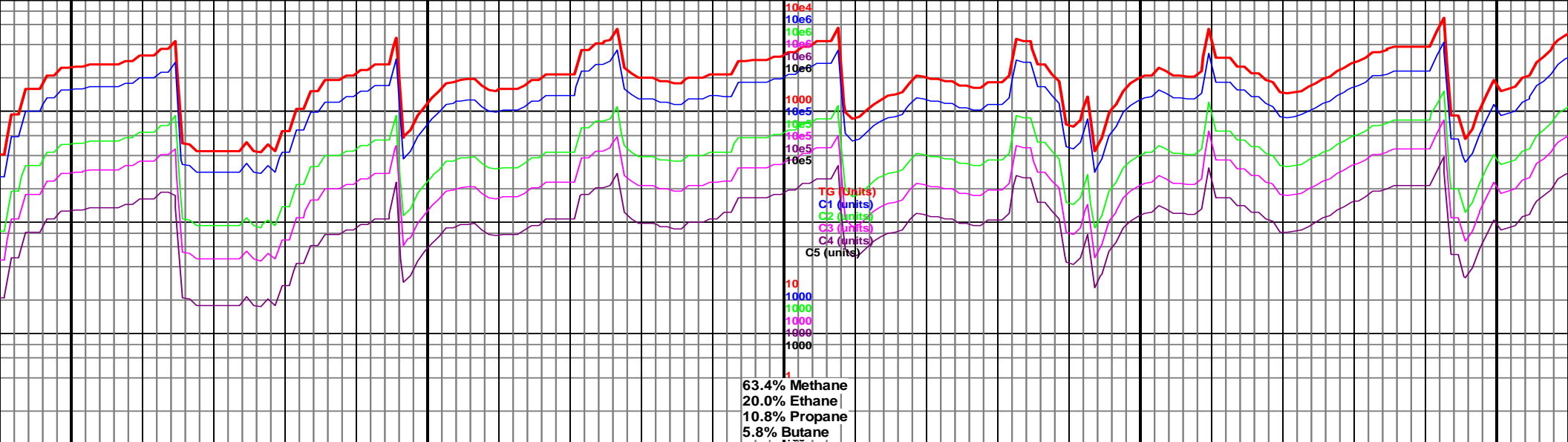
7100					7150					7200					7250				
MD 7060 TVD 5731.73 INC 90 AZ 357.8 VS 1573.95					MD 7091 TVD 5731.73 INC 90 AZ 357.8 VS 1604.95					MD 7123 TVD 5731.53 INC 90.7 AZ 358.7 VS 1636.95					MD 7155 TVD 5731.12 INC 90.8 AZ 0.2 VS 1668.94				
MD 7186 TVD 5730.66 INC 90.9 AZ 0.4 VS 1699.92					MD 7218 TVD 5730.15 INC 90.9 AZ 0.8 VS 1731.9					MD 7249 TVD 5729.8 INC 90.4 AZ 1.3 VS 1762.87									
7050-7100 Mrlst dk gy, sb blk, sft, slty, occ Chk lt gy-gy, sb blk, frm, banded, rr bent, rr inoc, sl cut 70% mrlst 30% chk					7100-7150 Mrlst dk gy, sb blk, sft, slty, occ Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, sl cut 60% mrlst 40% chk					7150-7200 Mrlst dk gy, sb blk, sft, slty, occ Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, sl cut 60% mrlst 40% chk					7200-7250 Mrlst dk gy, sb blk, sft, slty, tr Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, sl cut 70% mrlst 30% chk				



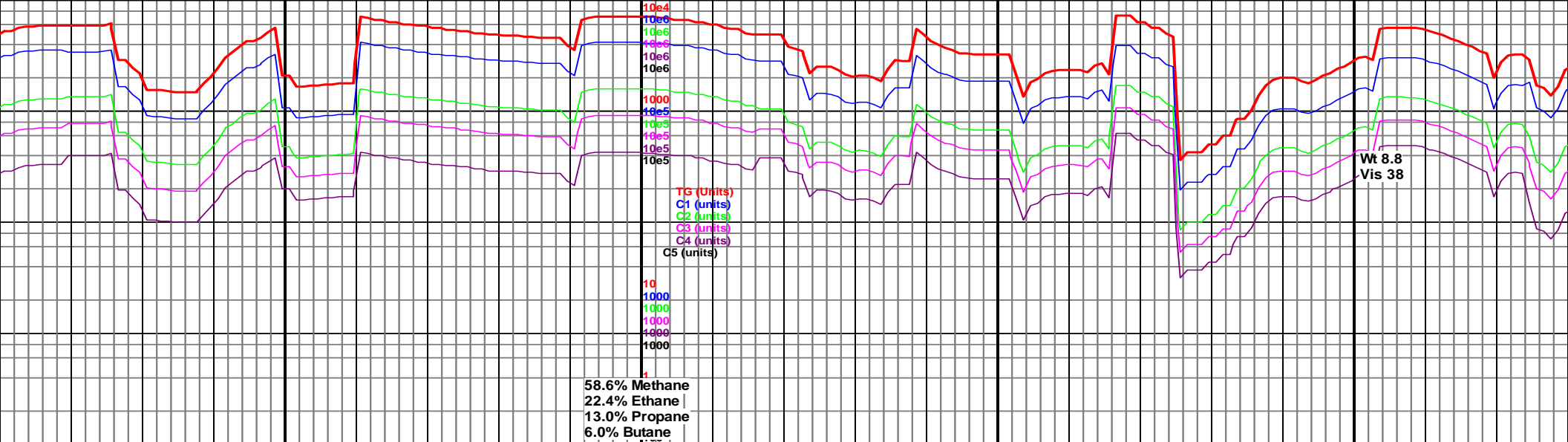


7300			7350			7400			7450		
MD 7280 TVD 5729.61 INC 90.3 AZ 1.5 VS 1793.84			MD 7310 TVD 5729.61 INC 89.7 AZ 1.8 VS 1823.8			MD 7341 TVD 5729.83 INC 89.5 AZ 2.7 VS 1854.74			MD 7372 TVD 5730.1 INC 89.5 AZ 3.2 VS 1885.65		
MD 7403 TVD 5730.23 Sub INC 90 AZ 2.7 VS 1916.57			MD 7434 TVD 5730.23 INC 90 AZ 1.7 VS 1947.51			MD 7464 TVD 5730.21 INC 90.1 AZ 1.8 VS 1977.47					
7300-7350 Mrlst dk gy, sb blk, sft, sly, tr Chk lt gy-gy, sb blk, frm, banded, rr bent, rr inoc, sl cut 80% mrlst 20% chk			7350-7400 Mrlst dk gy, sb blk, sft, sly, tr Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, sl cut 80% mrlst 20% chk			7400-7450 Mrlst dk gy, sb blk, sft, sly, tr Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, sl cut 80% mrlst 20% chk			7450-7500 Mrlst dk gy, sb blk, sft, sly, tr Chk lt gy-gy, sb blk, frm, banded, rr bent, tr inoc, rr pyr, sl 80% mrlst 20% chk		

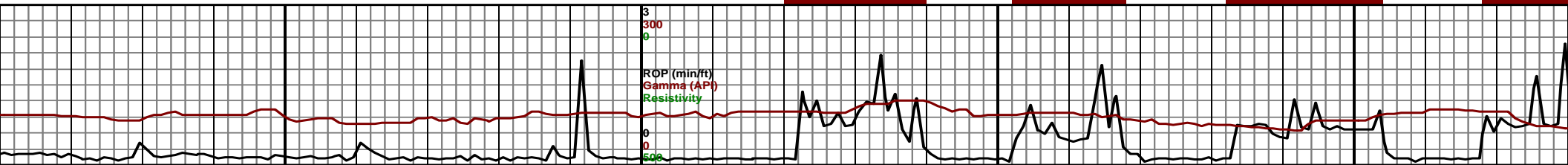


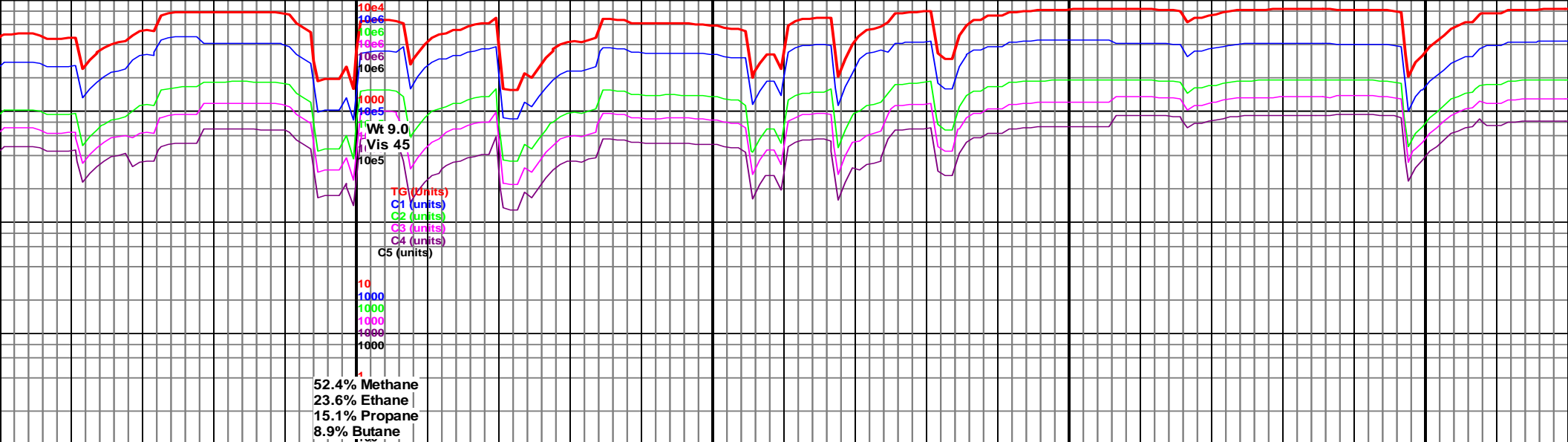


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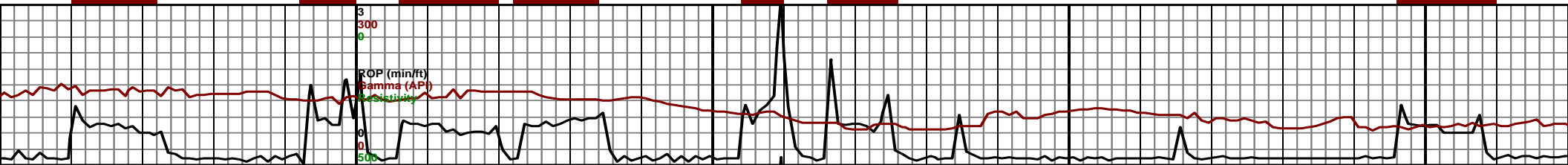


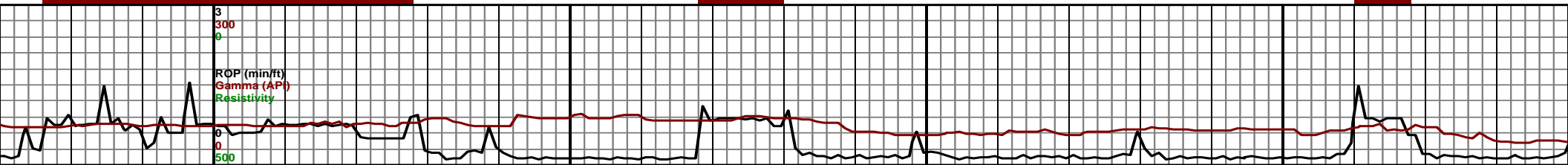
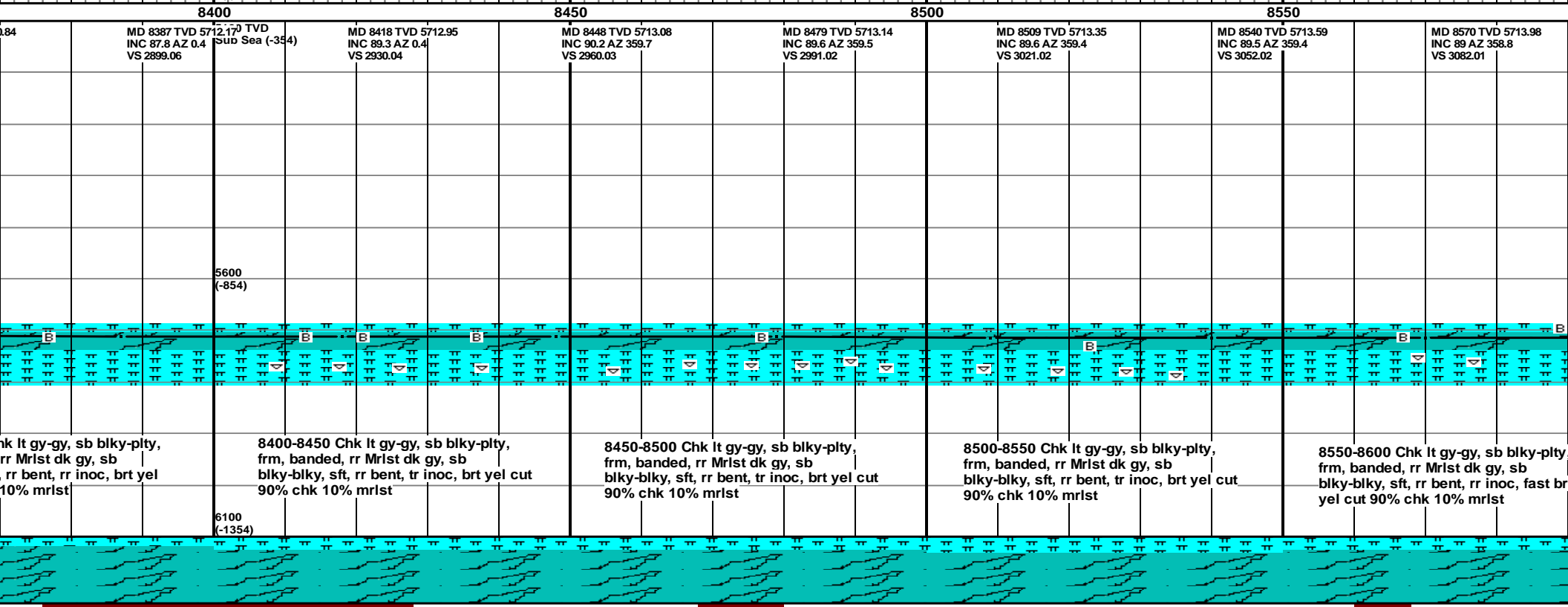
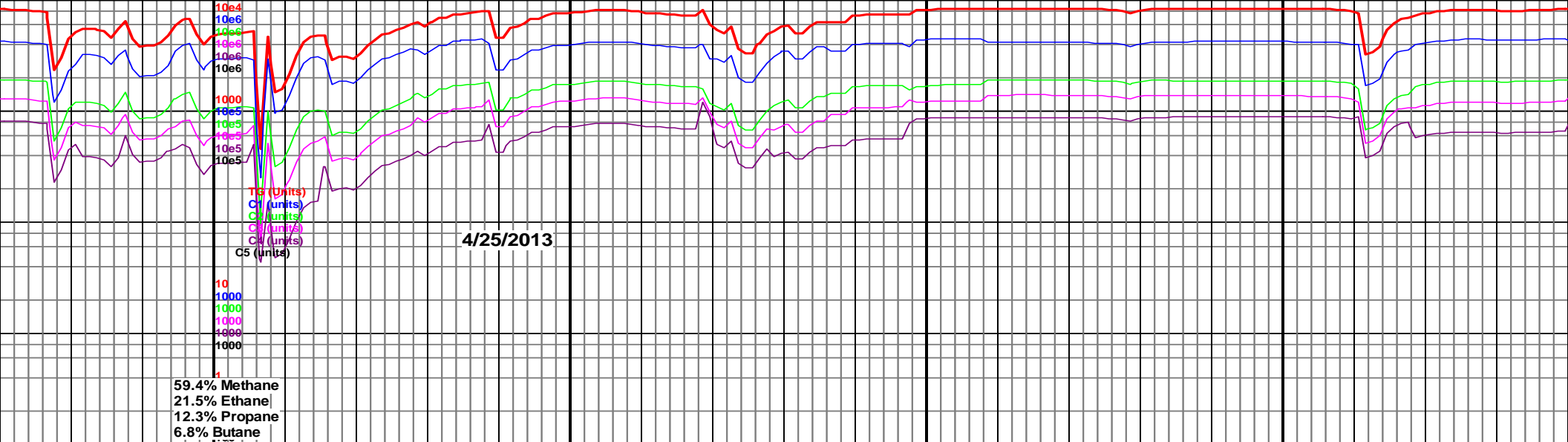
7750				7800				7850				7900																							
MD 7710 TVD 5728.68 INC 91.5 AZ 358.1 VS 2223.28				MD 7741 TVD 5727.98 INC 91.1 AZ 357.8 VS 2254.27				MD 7772 TVD 5727.76 INC 89.7 AZ 356.7 VS 2285.26				MD 7802 TVD 5728.08 INC 89.1 AZ 356.4 VS 2315.24				MD 7834 TVD 5728.13 INC 90.7 AZ 356.9 VS 2347.21				MD 7864 TVD 5727.61 INC 91.3 AZ 356.9 VS 2377.19				MD 7895 TVD 5726.53 INC 92.7 AZ 357.1 VS 2408.16				MD 7926 TVD 5726.08 INC 93.2 AZ 357.1 VS 2438.16							
								5600 (-854)																											
												5600 (-854)																							

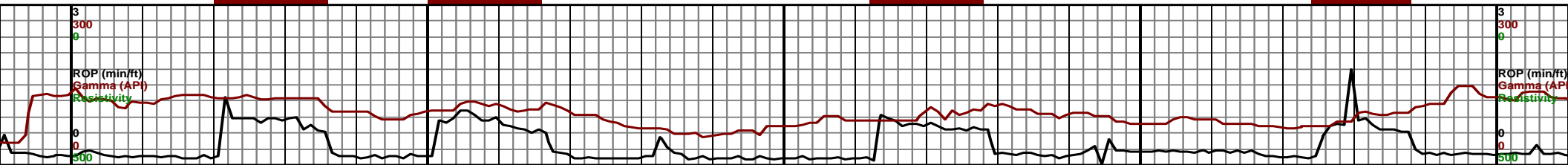
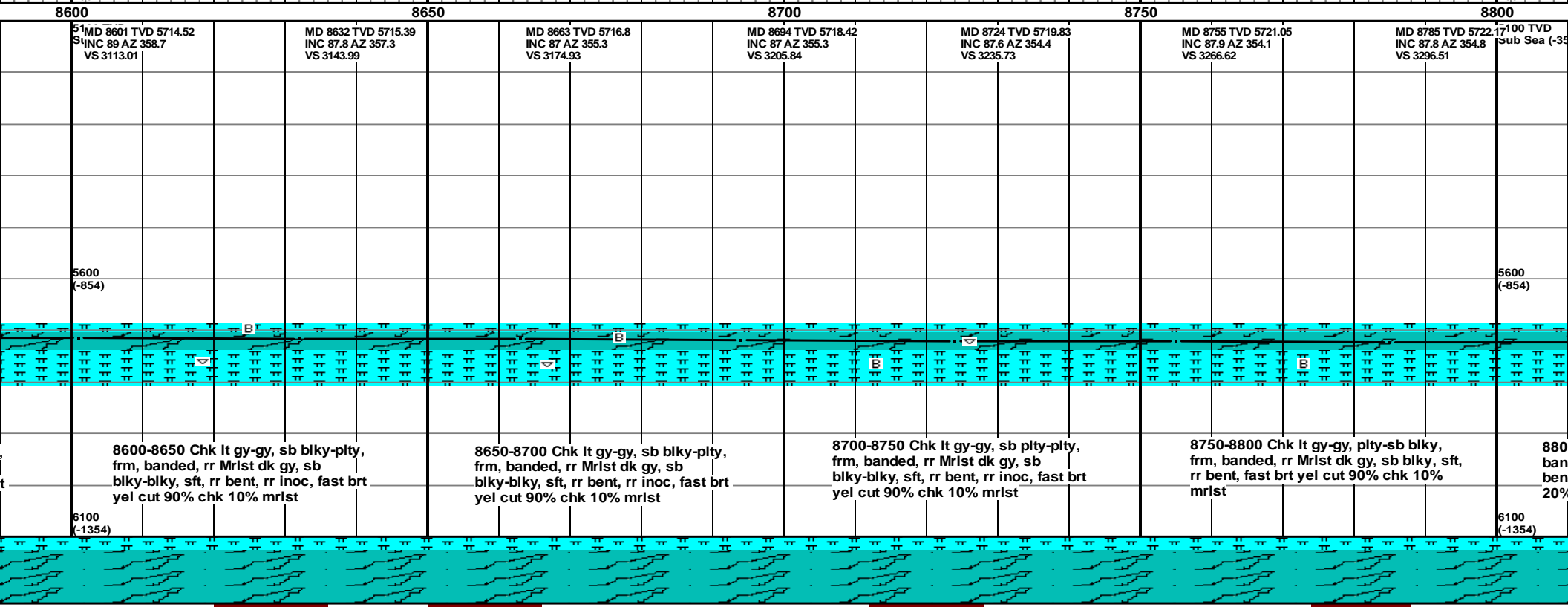
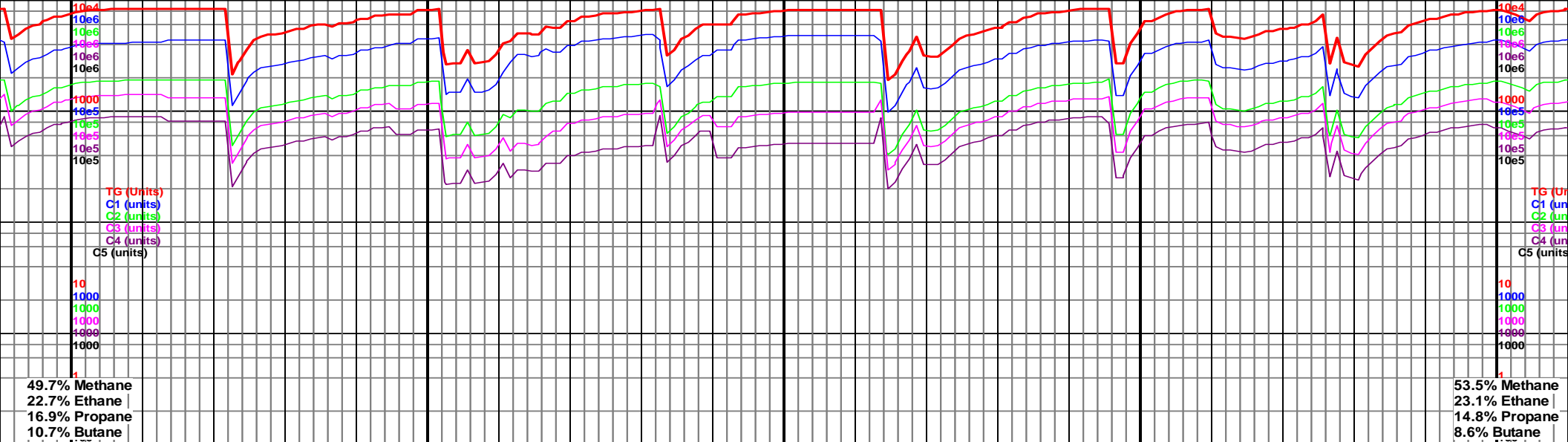


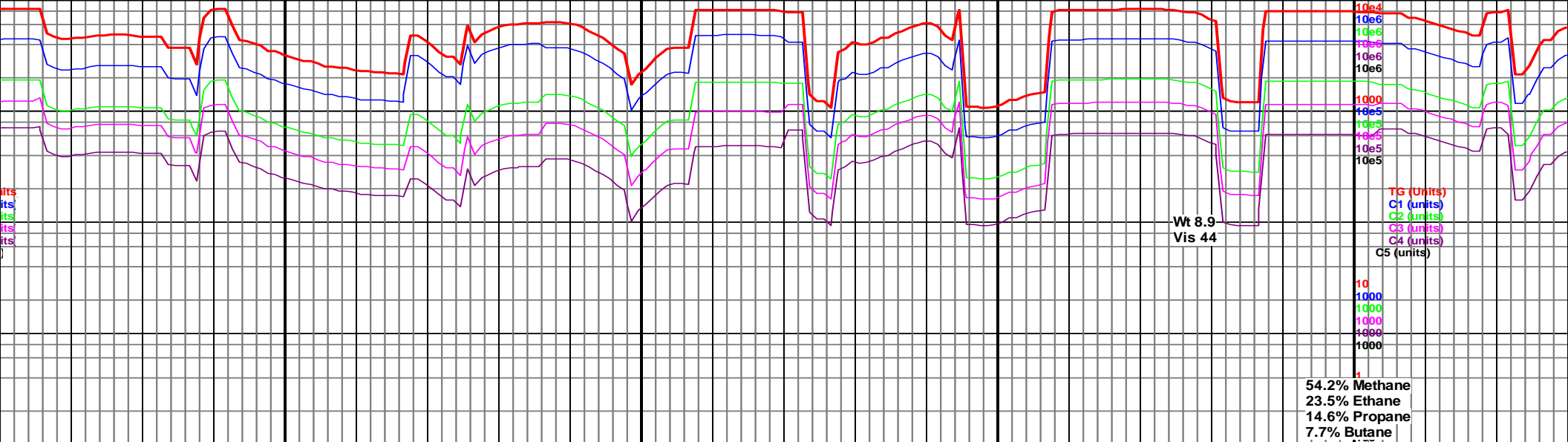


8200					8250					8300					8350				
TVD 5707.93 AZ 359.9					MD 8203 TVD 5705.97 Sub INC 91.1 AZ 1.3 VS 2715.36					MD 8264 TVD 5706.51 INC 88.3 AZ 1.5 VS 2776.28					MD 8295 TVD 5707.76 INC 87.1 AZ 1 VS 2807.23				
MD 8172 TVD 5706.72 INC 91.7 AZ 0.1 VS 2684.39					MD 8233 TVD 5705.86 INC 89.3 AZ 1.5 VS 2745.33					MD 8326 TVD 5709.35 INC 87 AZ 1.1 VS 2838.16					MD 8356 TVD 5710.00 INC 87.3 AZ 0.4 VS 2868.1				
8150-8200 Chk lt gy-gy, sb blk-pty, frm, banded, rr Mrlst dk gy, sb blk-pty, sft, rr bent, rr inoc, brt yel cut 80% chk 20% mrlst					8200-8250 Chk lt gy-gy, sb blk-pty, frm, banded, occ Mrlst dk gy, sb blk-pty, sft, rr bent, rr inoc, brt yel cut 70% chk 30% mrlst					8250-8300 Chk lt gy-gy, sb blk-pty, frm, banded, occ Mrlst dk gy, sb blk-pty, sft, rr bent, rr inoc, brt yel cut 75% chk 25% mrlst					8300-8350 Chk lt gy-gy, sb blk-pty, frm, banded, occ Mrlst dk gy, sb blk-pty, sft, rr bent, rr inoc, brt yel cut 80% chk 20% mrlst				
5600 (-854)					6100 (-1354)														

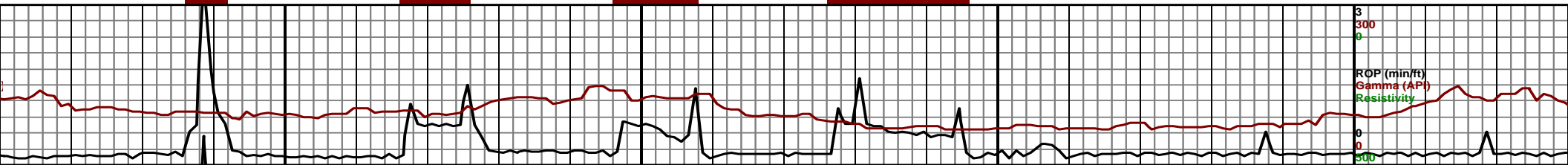


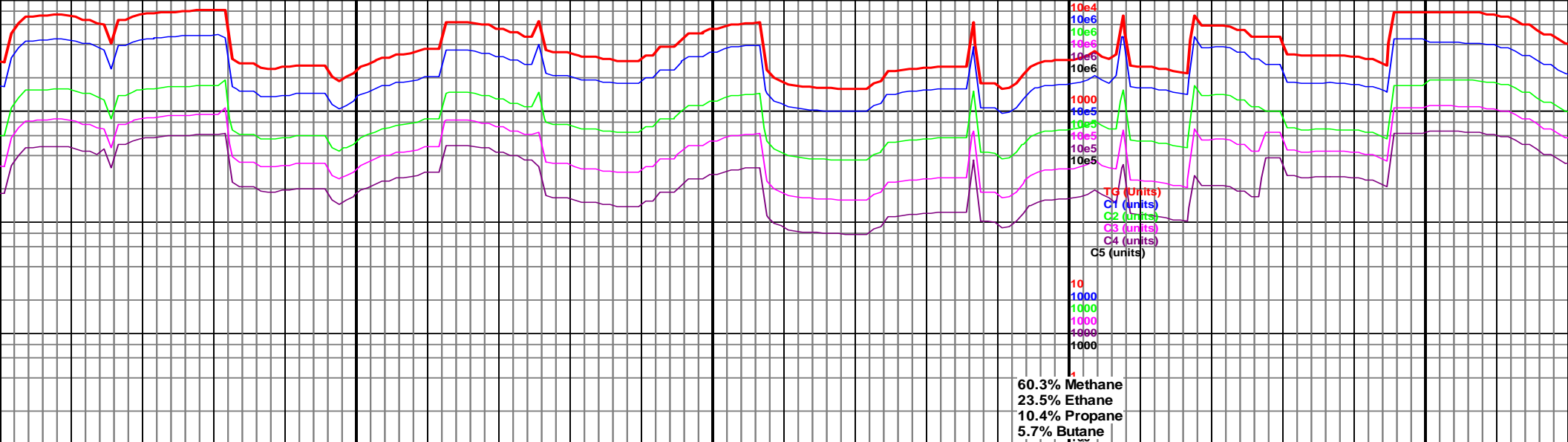




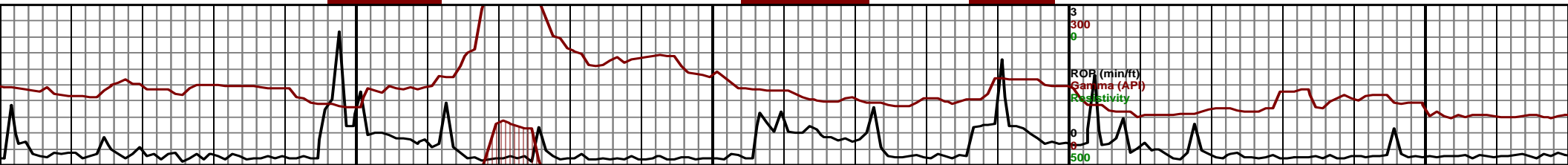


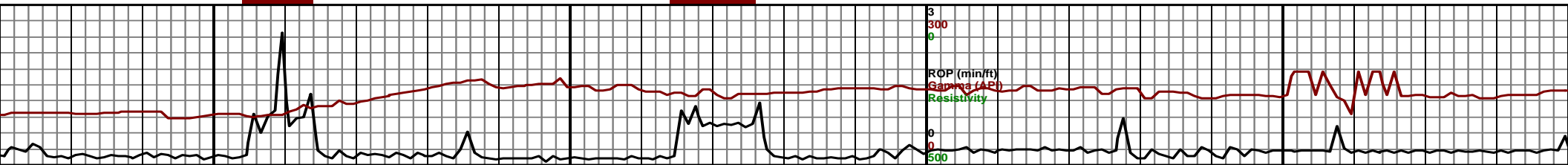
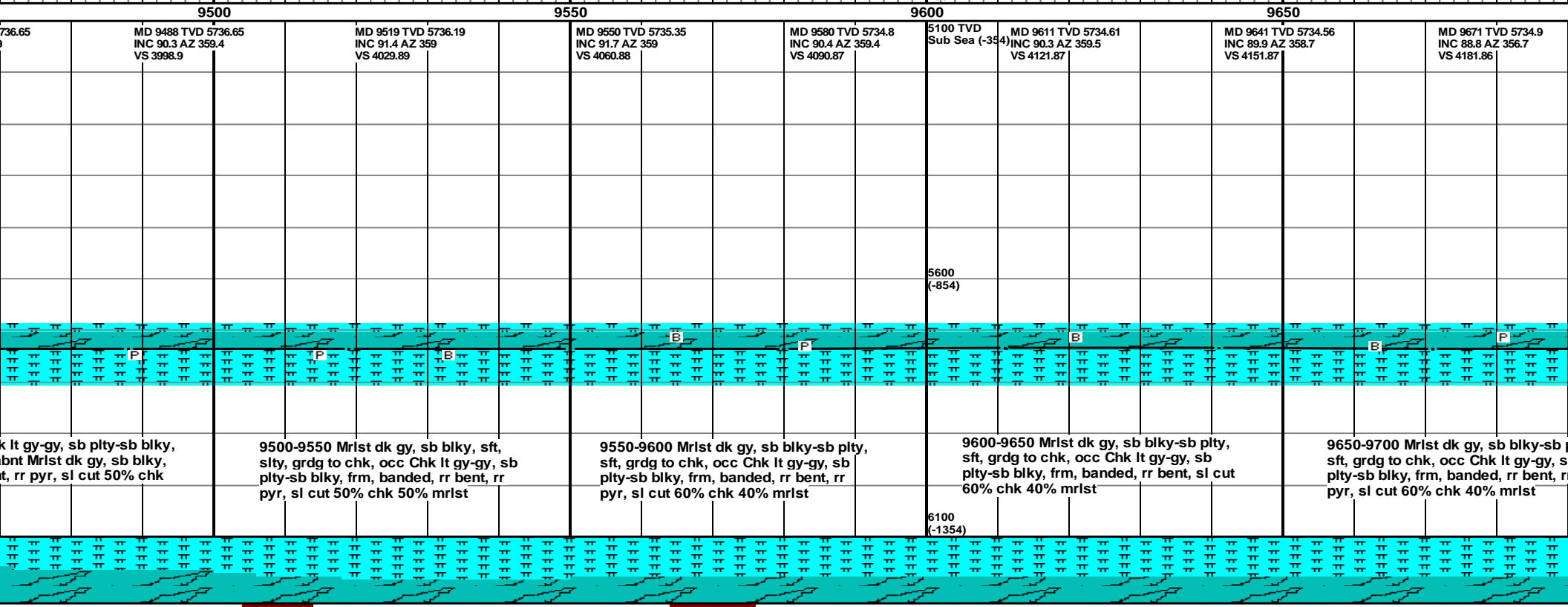
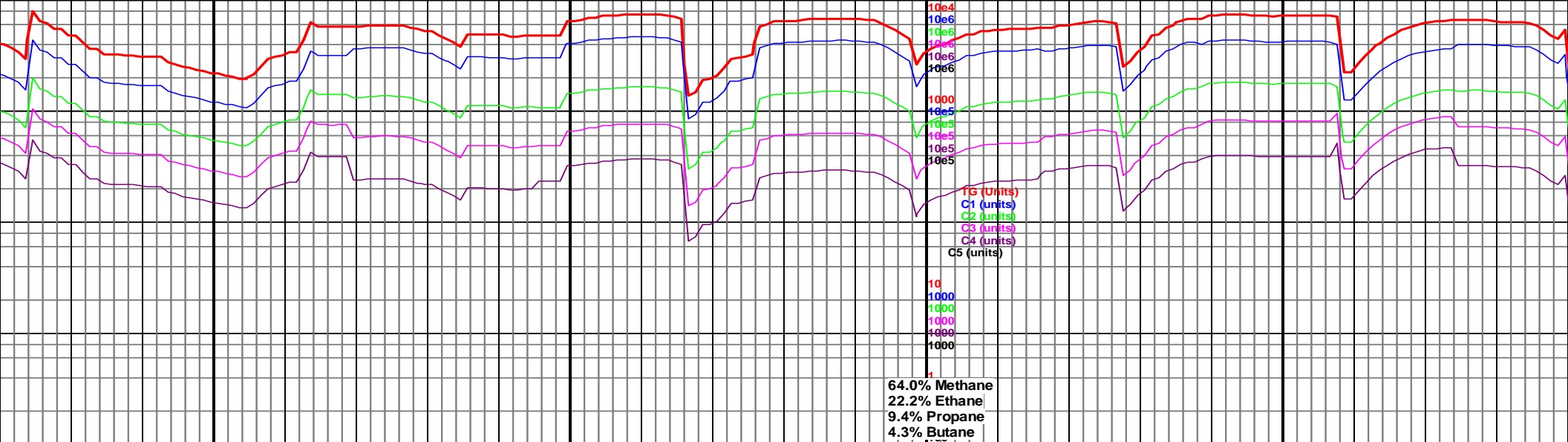
8850		8900		8950		9000	
MD 8816 TVD 5723.39 INC 87.7 AZ 355.2 VS 3327.42		MD 8847 TVD 5724.55 INC 88 AZ 354.4 VS 3358.33		MD 8877 TVD 5725.37 INC 88.9 AZ 354.8 VS 3388.24		MD 8908 TVD 5725.93 INC 89 AZ 355.5 VS 3419.18	
MD 8938 TVD 5726.38 INC 89.3 AZ 356.2 VS 3449.14		MD 8968 TVD 5726.64 INC 89.7 AZ 357.1 VS 3479.12		MD 8998 TVD 5726.77 INC 89.8 AZ 357.1 VS 3509.1			
0-8850 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy, sb blky, sft, rr t, rr inoc, fast brt yel cut 80% chk 0% mrlst		8850-8900 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy, sb blky, sft, rr bent, rr inoc, fast brt yel cut 80% chk 20% mrlst		8900-8950 Chk lt gy-gy, sb plty-sb blky, frm, banded, rr Mrlst dk gy, sb blky, sft, rr bent, fast brt yel cut 90% chk 10% mrlst		8950-9000 Chk lt gy-gy, sb plty-sb blky, frm, banded, rr Mrlst dk gy, blky-sb blky, sft, rr bent, fast brt yel cut 90% chk 10% mrlst	
						9000-9050 Chk lt gy-gy, s frm, banded, tr Mrlst dk g blky, sft, rr bent, fast brt yel cut 45% mrlst	

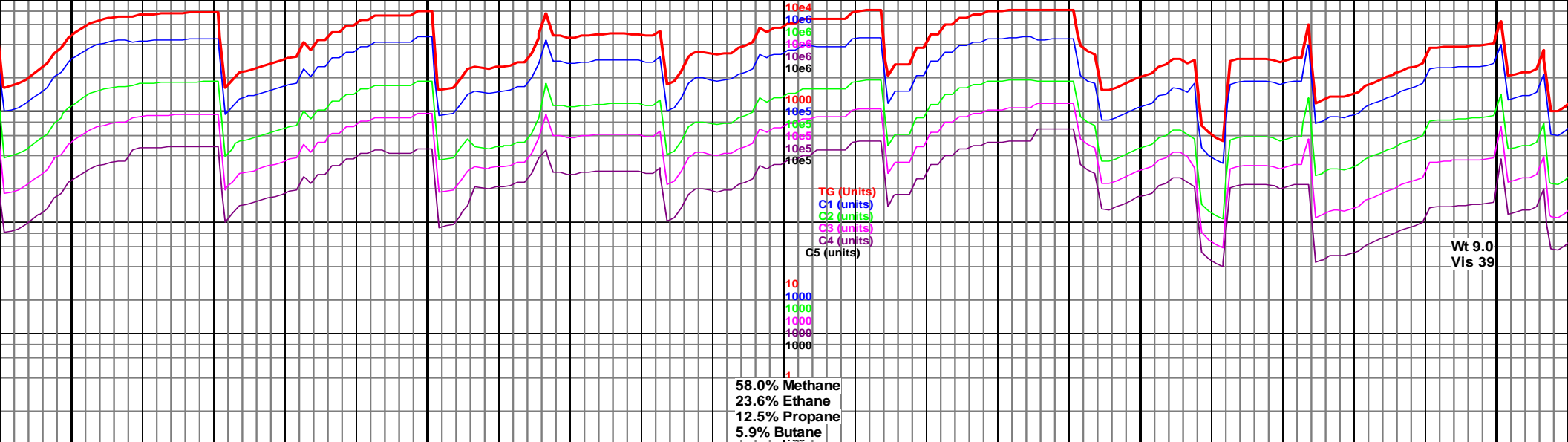




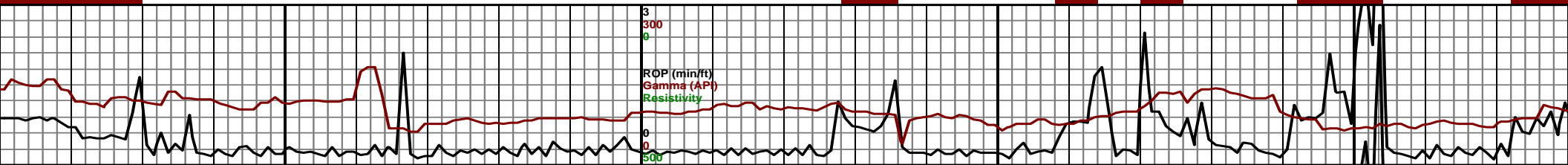
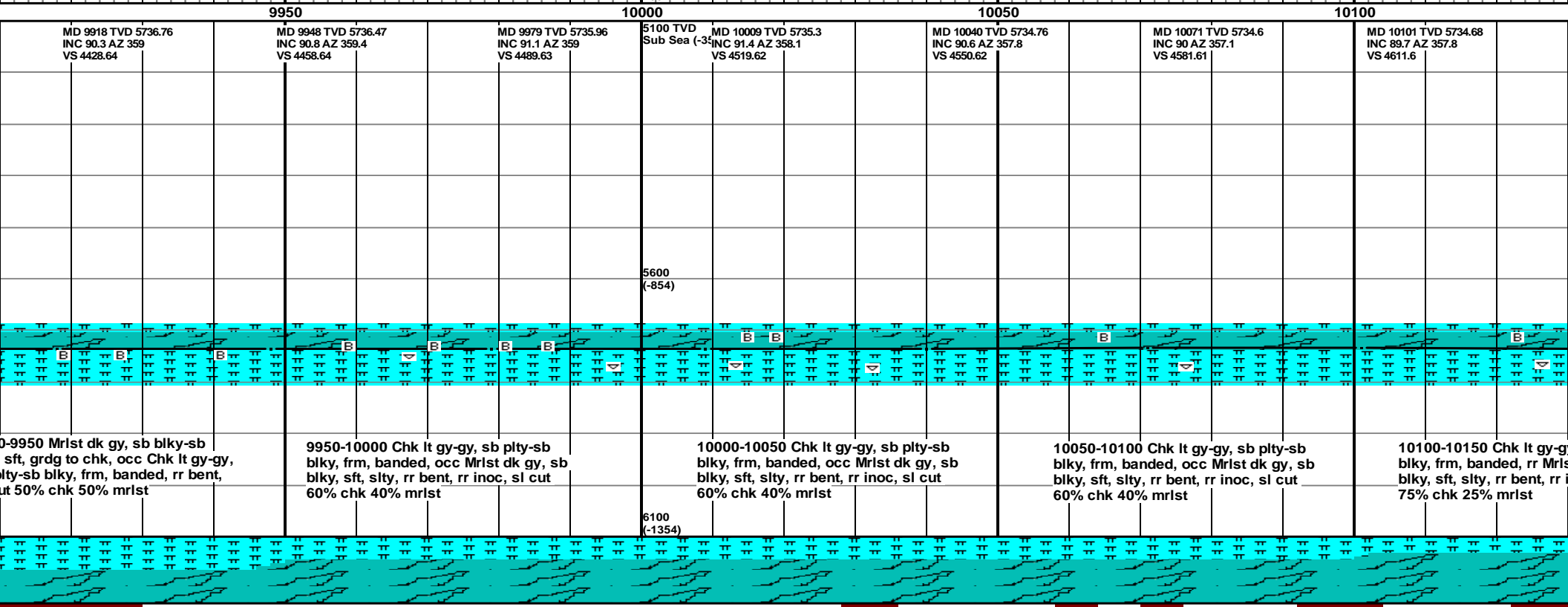
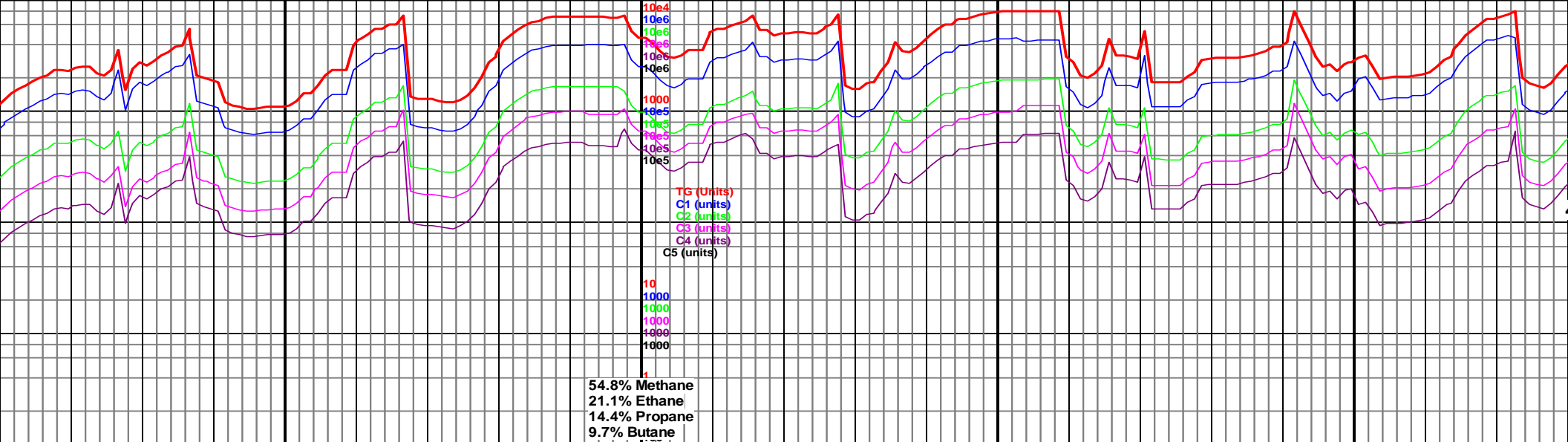
9300					9350					9400					9450				
MD 9275 TVD 5732.31 INC 87.6 AZ 357.8 VS 3785.97					MD 9306 TVD 5733.53 INC 87.9 AZ 358.1 VS 3816.95					MD 9336 TVD 5734.65 INC 87.8 AZ 358.5 VS 3846.93					MD 9366 TVD 5735.67 INC 88.3 AZ 358.8 VS 3876.91				
MD 9397 TVD 5736.32 INC 89.3 AZ 359.2 ² VS 3907.9					MD 9428 TVD 5736.54 INC 89.9 AZ 359.4 VS 3938.9					MD 9458 TVD 5736.54 INC 89.7 AZ 359.4 VS 3968.9									
9250-9300 Mrlst dk gy-gy, blkly-sb blkly, sft, grdg to chk ip, occ Chk lt gy-gy, sb plty-sb blkly, frm, banded, rr inoc, rr bent, sl cut 60% mrlst 40% chk					9300-9350 Mrlst dk gy, sb blkly, sft, rr Chk lt gy-gy, sb blkly, frm, banded, rr inoc, rr bent, sl cut 85% mrlst 15% chk					9350- 9400 Mrlst dk gy, sb blkly, sft, slty, abnt Chk lt gy-gy, sb blkly, frm, banded, rr bent, sl cut 50% mrlst 50% chk					9400-9450 Chk lt gy-gy, sb plty-sb blkly, frm, banded, occ Mrlst dk gy, sb blkly, sft, slty, rr bent, sl cut 60% chk 40% mrlst				

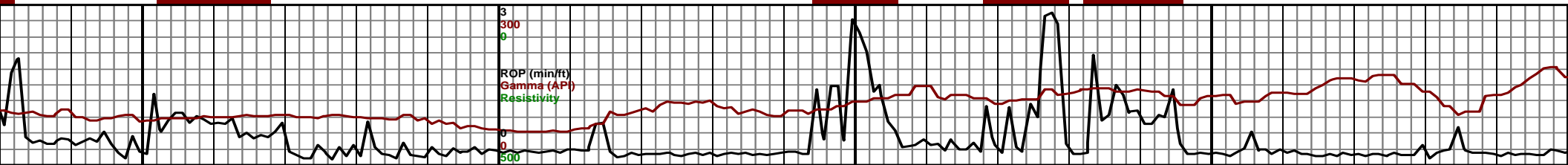
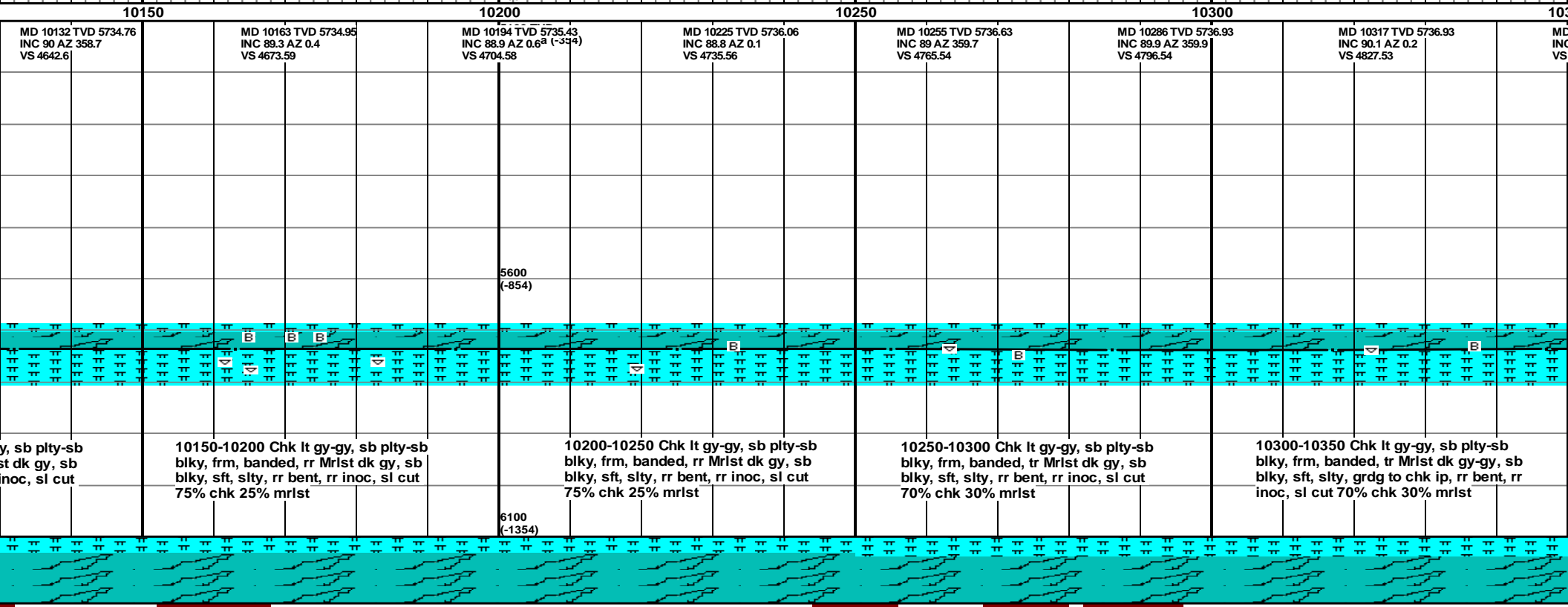
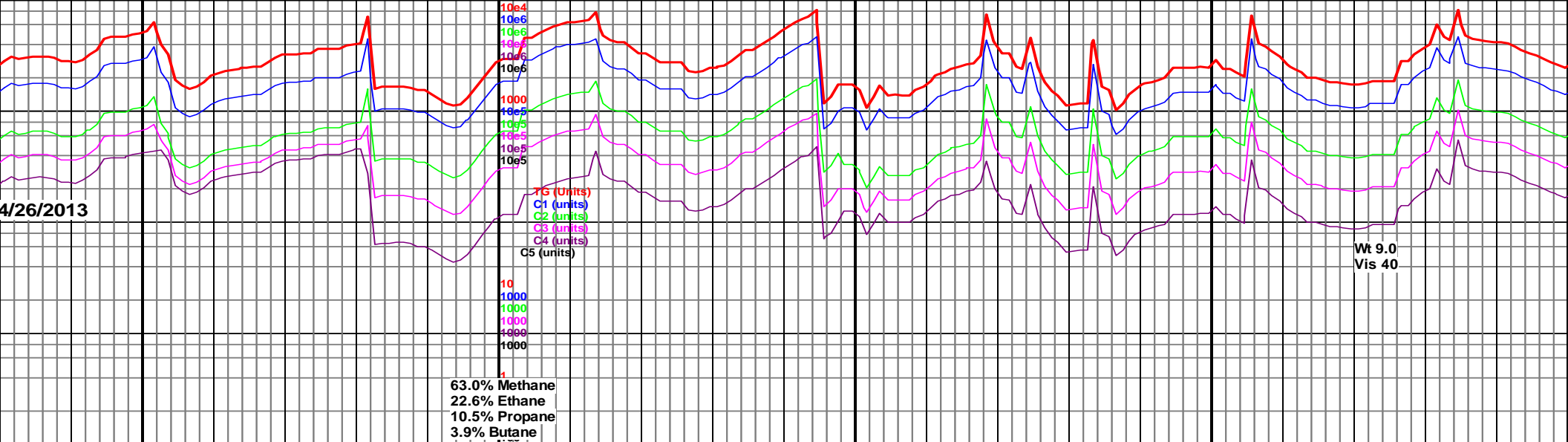


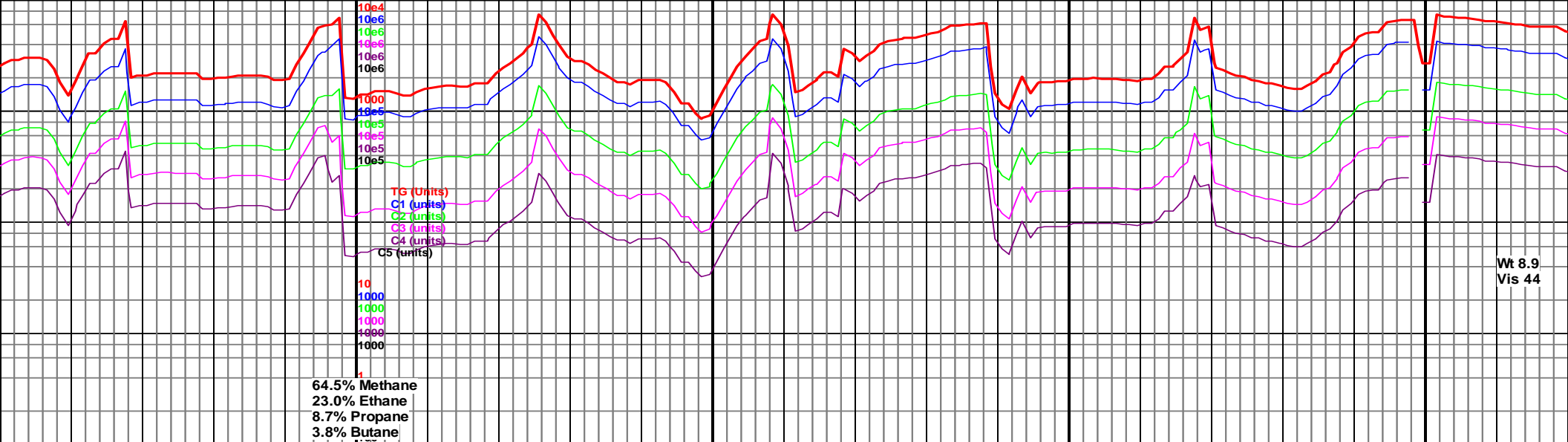




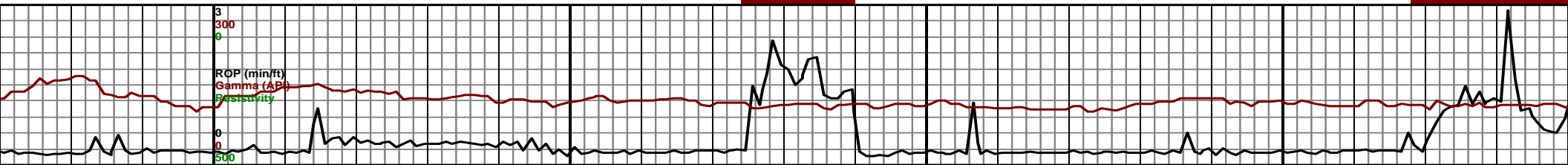
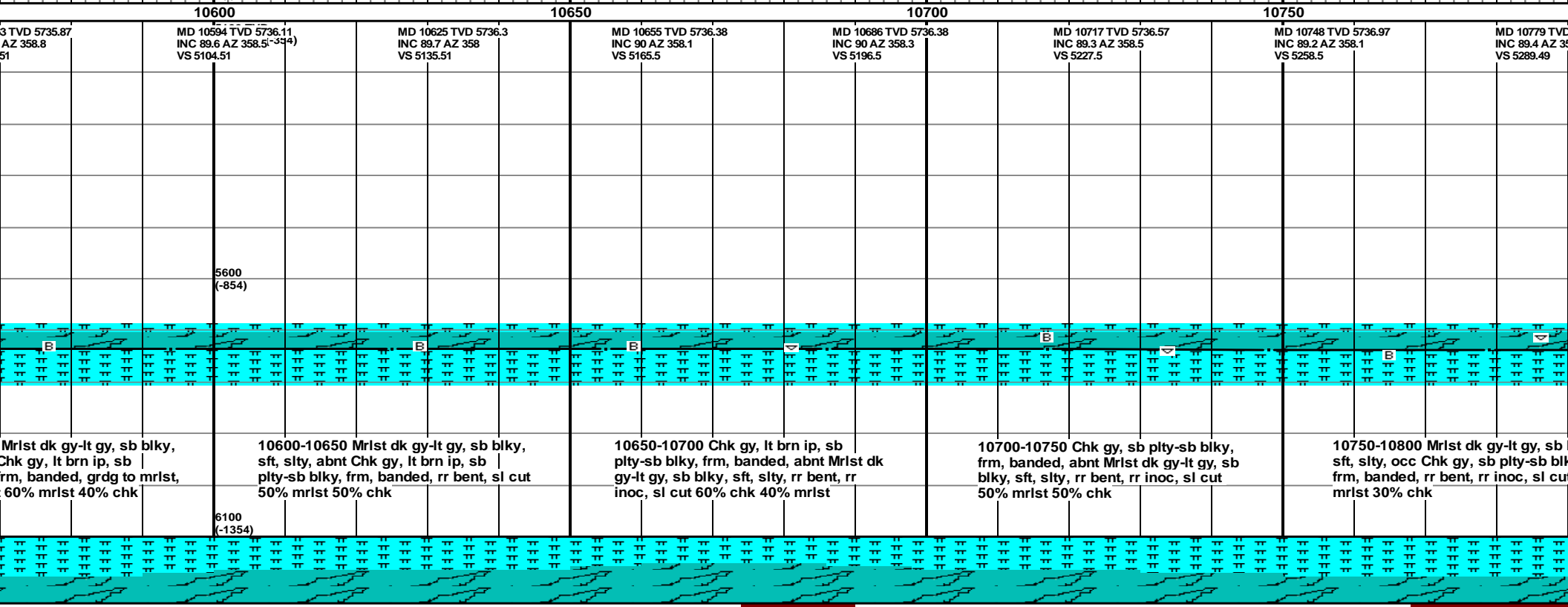
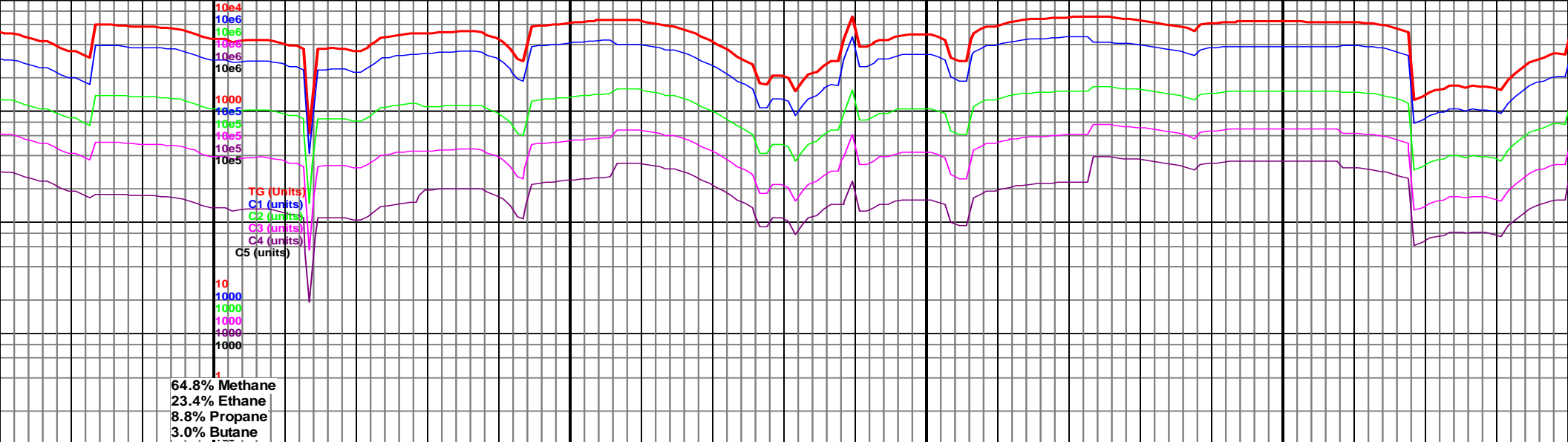
9700				9750				9800				9850				9900											
MD 9702 TVD 5735.63 INC 88.5 AZ 355.9 VS 4212.82				MD 9733 TVD 5736.36 INC 88.8 AZ 355.3 VS 4243.77				MD 9764 TVD 5736.79 INC 89.6 AZ 355.3 VS 4274.71				MD 9794 TVD 5736.95 INC 89.7 AZ 356.7 (-394) VS 4304.68				MD 9825 TVD 5737 INC 90 AZ 356.9 VS 4335.66				MD 9856 TVD 5736.89 INC 90.4 AZ 357.3 VS 4366.65				MD 9887 TVD 5736.81 INC 89.9 AZ 358 VS 4397.64			

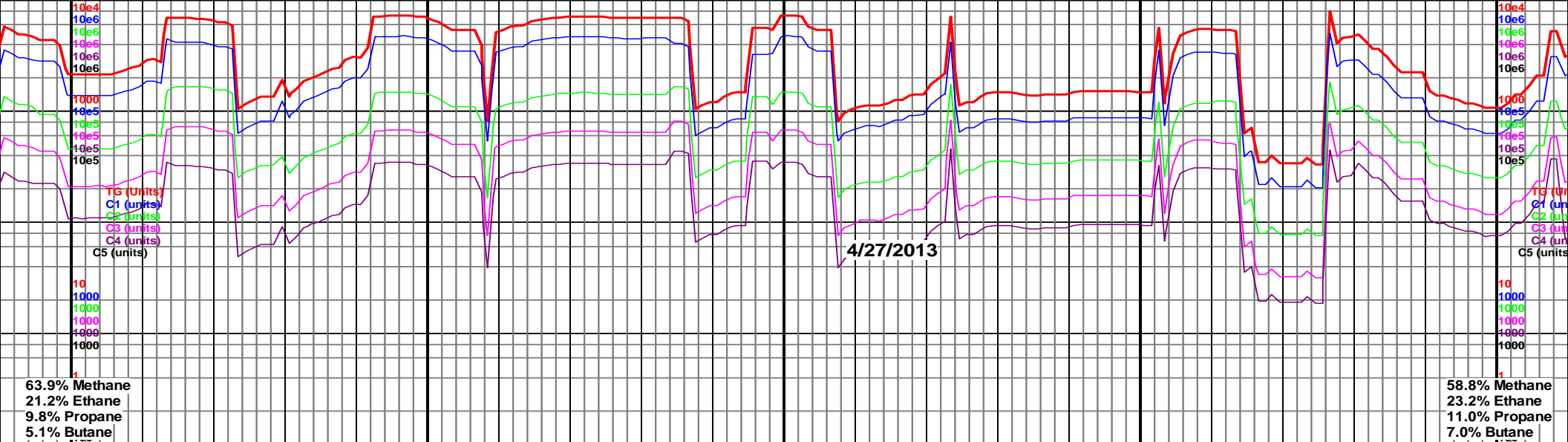




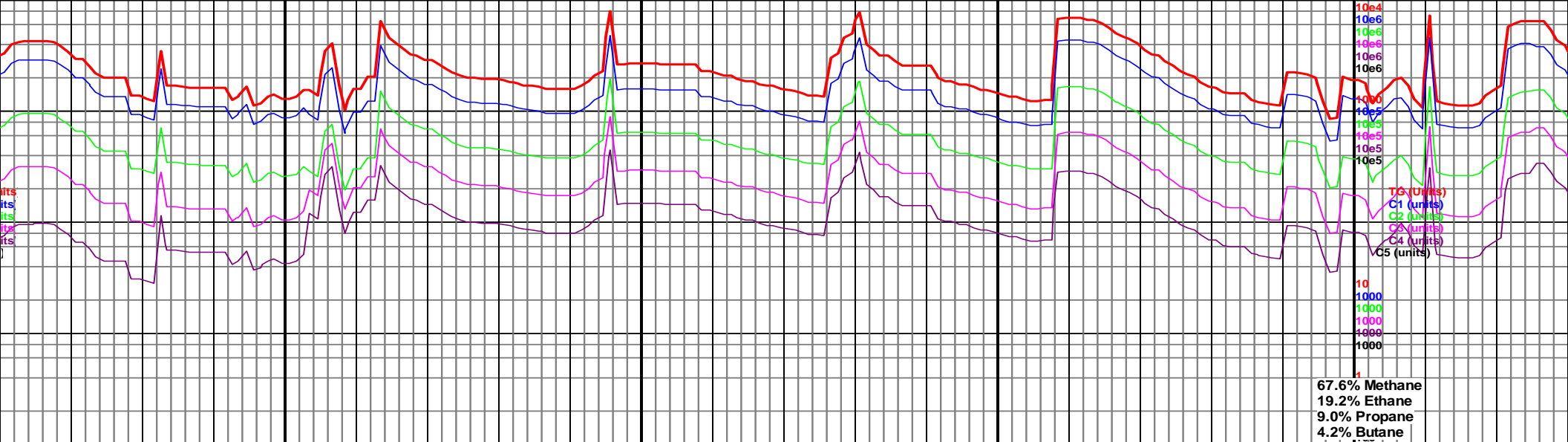


10350				10400				10450				10500				10550															
MD 10347 TVD 5736.82 INC 90.3 AZ 359.5 VS 4857.52				MD 10378 TVD 5736.63 INC 90.4 AZ 359.4 VS 4888.52				5100 TVD Sub Sea (-354) MD 10409 TVD 5736.34 INC 90.7 AZ 358.5 VS 4919.52				MD 10439 TVD 5735.89 INC 91 AZ 358.3 VS 4949.51				MD 10470 TVD 5735.54 INC 90.3 AZ 358.7 VS 4980.51				MD 10501 TVD 5735.51 INC 89.8 AZ 359 VS 5011.51				MD 10532 TVD 5735.65 INC 89.7 AZ 358.7 VS 5042.51				MD 10561 TVD 5735.75 INC 89.5 AZ 358.5 VS 5073.52			

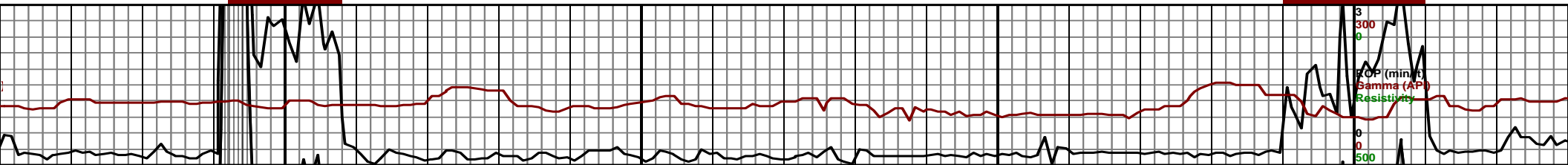


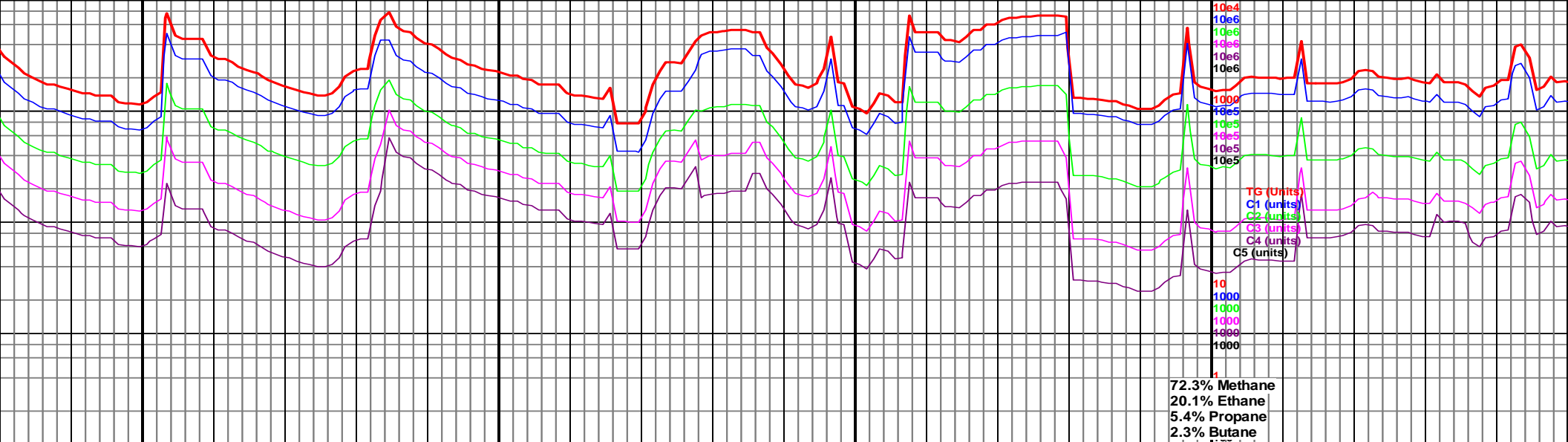


10800				10850				10900				10950				11000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
5737.35 58.1				5100 TVD Sub Sea (-358.1)				MD 10810 TVD 5737.35 INC 90.6 AZ 358.7 VS 5320.49								MD 10841 TVD 5736.7 INC 91.8 AZ 359 VS 5351.49								MD 10871 TVD 5735.63 INC 92.3 AZ 359.2 VS 5381.47								MD 10902 TVD 5734.38 INC 92.3 AZ 359 VS 5412.44				MD 10920 TVD 5733.65 INC 92.4 AZ 358.1 VS 5430.42								MD 10951 TVD 5732.46 INC 92 AZ 358 VS 5461.4								MD 10982 TVD 5731.51 INC 91.5 AZ 356.9 VS 5492.38				5100 TVD Sub Sea (-358.1)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											



11050		11100		11150		11200	
MD 11013 TVD 5730.59 INC 91.9 AZ 357.1 VS 5523.35		MD 11044 TVD 5729.43 INC 92.4 AZ 357.4 VS 5554.32		MD 11076 TVD 5727.97 INC 92.8 AZ 357.3 VS 5586.28		MD 11107 TVD 5726.35 INC 93.2 AZ 357.1 VS 5617.22	
MD 11139 TVD 5724.34 INC 94 AZ 357.1 VS 5649.15		MD 11171 TVD 5722 INC 94.4 AZ 356.9 VS 5681.05		MD 11202 TVD 5719.62 INC 94.4 AZ 357.1 VS 5711.94			
000-11050 Chk gy-lt gy, sb plty-blky, fr, banded, abnt Mrlst dk gy-gy, sb blky-sb plty, sft, slty, grdg to chk, rr bent, rr inoc, v sl cut 55% chk 45% mrlst		11050-11100 Chk gy-lt gy, sb plty-blky, fr, banded, abnt Mrlst dk gy, sb blky-sb plty, sft, slty, grdg to chk, rr bent, rr inoc, v sl cut 55% chk 45% mrlst		11100-11150 Chk gy-lt gy, sb blky-blky, fr, banded, occ Mrlst dk gy, sb blky-sb plty, sft, slty, grdg to chk, rr bent, rr inoc, v sl cut 60% chk 40% mrlst		11150-11200 Chk gy-lt gy, sb blky-blky, fr-mod fr, banded, occ Mrlst dk gy, blky-sb plty, sft, slty, grdg to chk, rr bent, rr inoc, rr pyr, v sl cut 60% chk 40% mrlst	
11200-11250 Chk gy-lt gy, fr-mod fr, banded, tr blky-sb plty, sft, slty, grdg to chk, rr bent, rr inoc, v sl cut 85% mrlst							





11250				11300				11350				11400				11450											
MD 11234 TVD 5717.25 INC 94.1 AZ 357.3 VS 5743.84				MD 11265 TVD 5714.95 INC 94.4 AZ 356.7 VS 5774.74				MD 11297 TVD 5712.5 INC 94.4 AZ 356.6 VS 5806.63				MD 11329 TVD 5710.18 INC 93.9 AZ 356.4 VS 5838.52				MD 11360 TVD 5708.37 INC 92.8 AZ 356.9 VS 5869.45				MD 11392 TVD 5707.03 INC 92 AZ 357.3 ^{ea} (-354) VS 5901.41				MD 11423 TVD 5705.84 INC 92.4 AZ 356.7 VS 5932.37			

