



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

Well Name: Razor 11H-1415A
Well Id:
Location: SENE 11-T10N-R58W
License Number: 05-123-38601-00
Spud Date: 3/23/2015
Surface Coordinates: 40.854697, -103.824656

Region: Redtail Field
Drilling Completed: 3/30/2015

Bottom Hole 2165' FNL, 395' FEL
Coordinates:
Ground Elevation (ft): 4954
Logged Interval (ft): 5300 To: 13825
Formation: Pierre, Sharon Springs, Niobrara A,
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4976
Total Depth (ft): 13825

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

Drilling Company

Frontier Drilling
Rig #26

Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #128

Comments

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

ROCK TYPES

 Anhy
 Bent
 Brec
 Cht
 Clyst

 Coal
 Congl
 Dol
 Gyp
 Igne

 Lmst
 Meta
 Cyan mrlst
 Mrlst
 Salt
















 Shale
 Shcol
 Shgy
 Sltst
 Ss







 Till
 Cyan chk
 Chalk

ACCESSORIES

MINERAL
 Anhy
 Arggrn
 Arg
 Bent
 Bit
 Brecfrag
 Calc
 Carb
 Chtdk
 Chtlt
 Dol
 Feldspar
 Ferrpel
 Ferr
 Glau

 Gyp
 Hvymin
 Kaol
 Marl
 Minxl
 Nodule
 Phos
 Pyr
 Salt
 Sandy
 Silt
 Sil
 Sulphur
 Tuff

FOSSIL
 Algae
 Amph
 Belm
 Bioclst
 Brach
 Bryozoa
 Cephal
 Coral
 Crin
 Echin
 Fish
 Foram
 Fossil
 Gastro
 Oolite

 Ostra
 Pelec
 Pellet
 Pisolite
 Plant
 Strom

STRINGER
 Anhy
 Arg
 Bent
 Coal
 Dol
 Gyp
 Ls
 Mrst

 Sltstrg
 Ssstrg

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

POROSITY
[E] Earthy
[B] Fenest
[F] Fracture
[X] Inter
[Z] Moldic
[O] Organic
[P] Pinpoint

[V] Vuggy

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

OTHER SYMBOLS

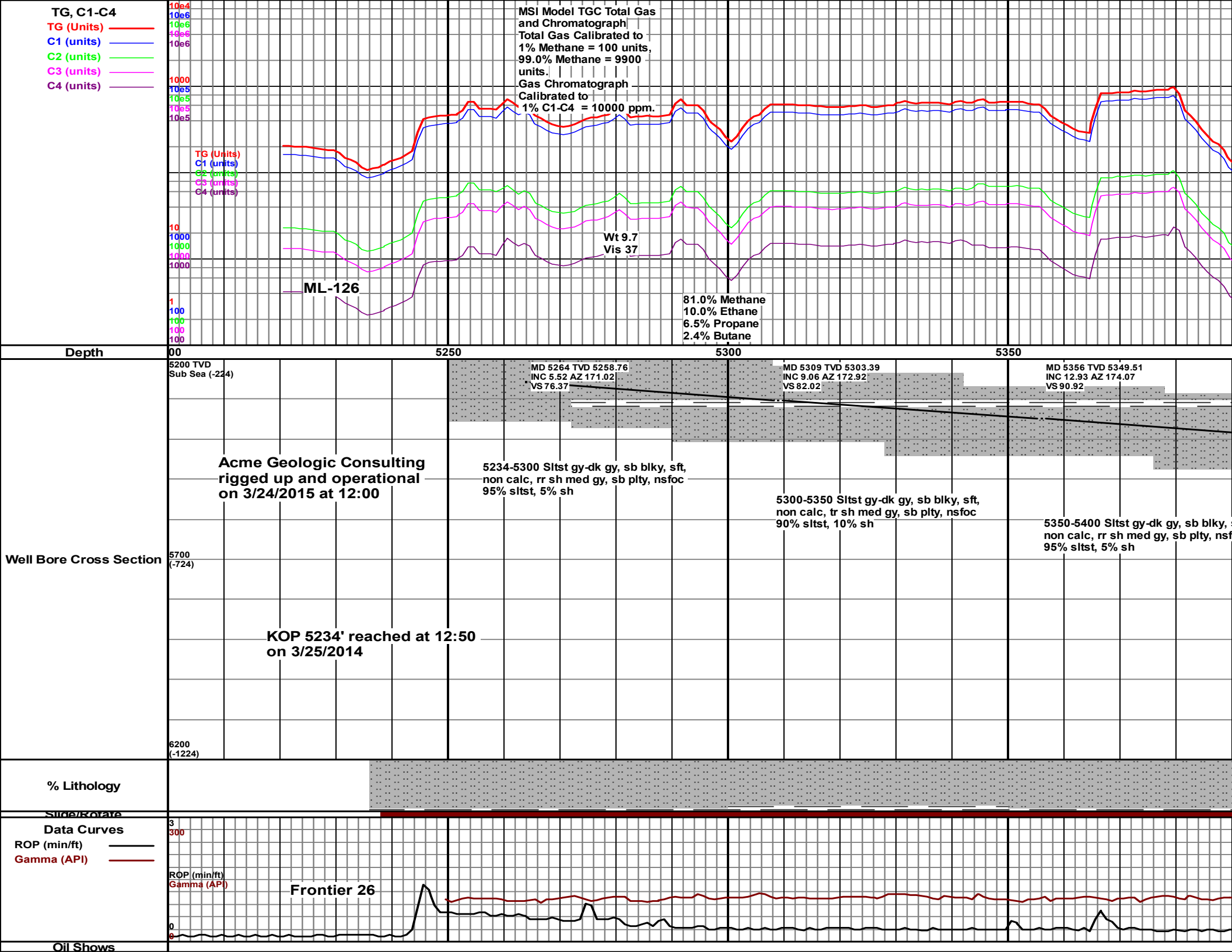
ROUNDING
[R] Rounded
[r] Subrnd
[a] Subang
[A] Angular

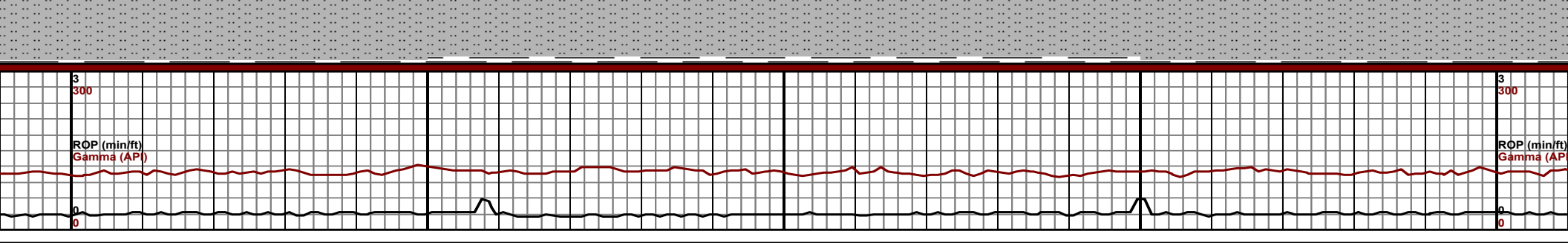
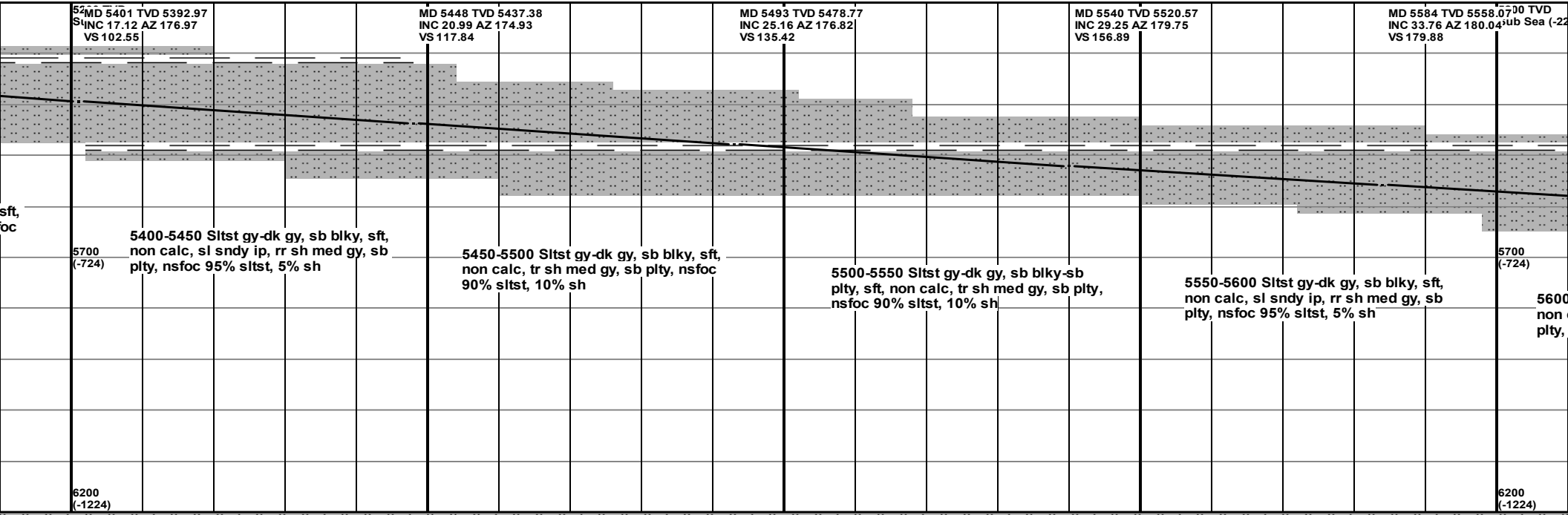
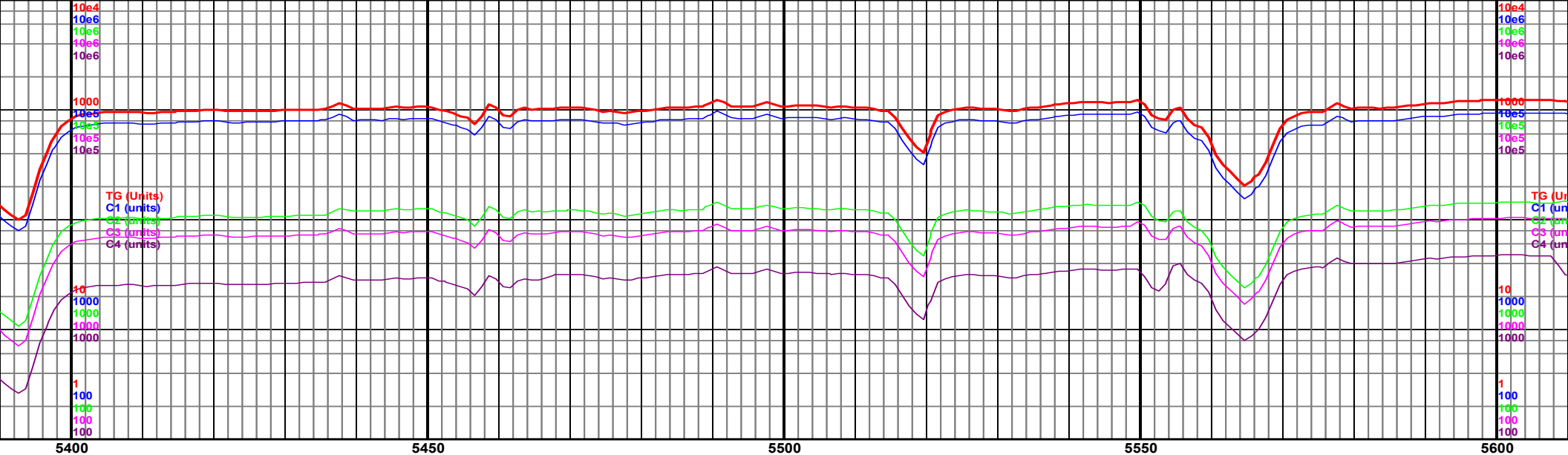
OIL SHOW
[●] Even

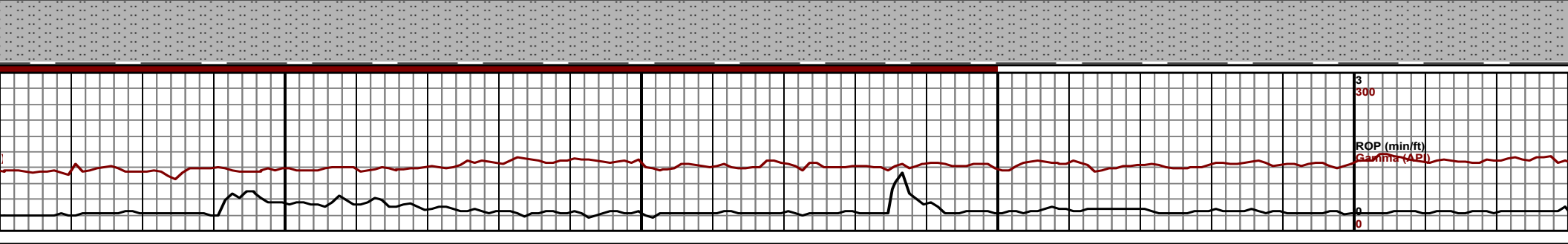
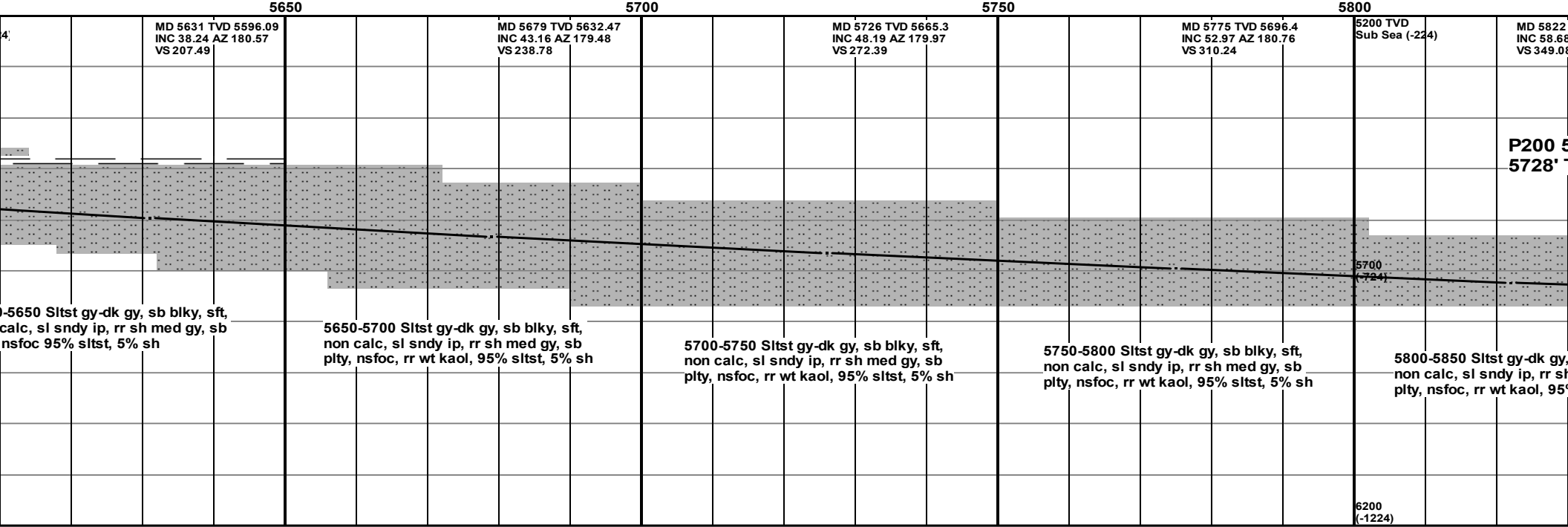
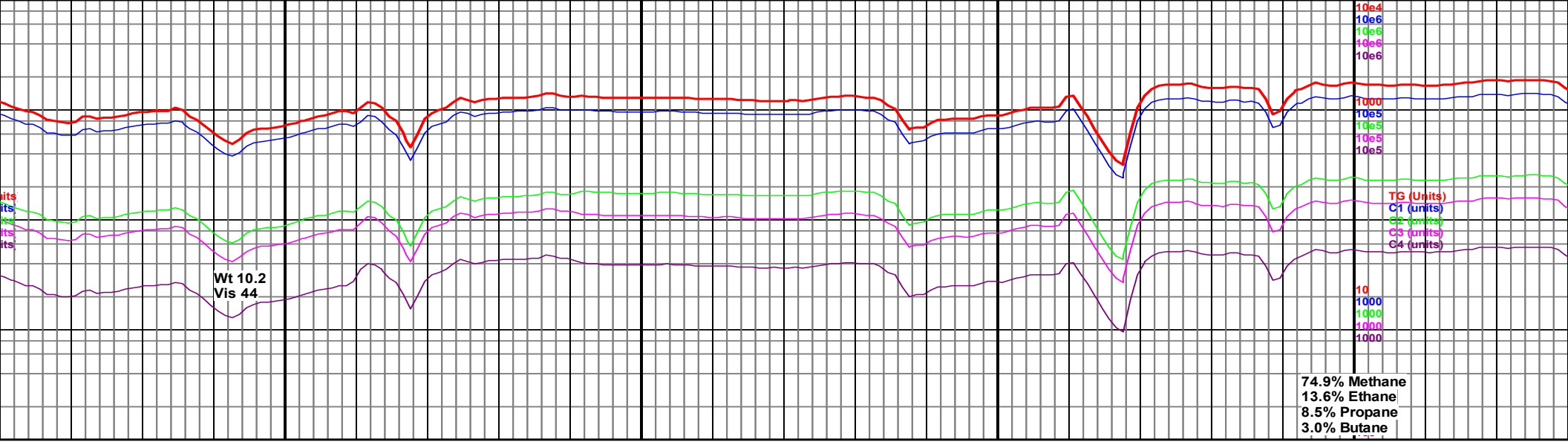
[●] Spotted
[○] Ques
[D] Dead

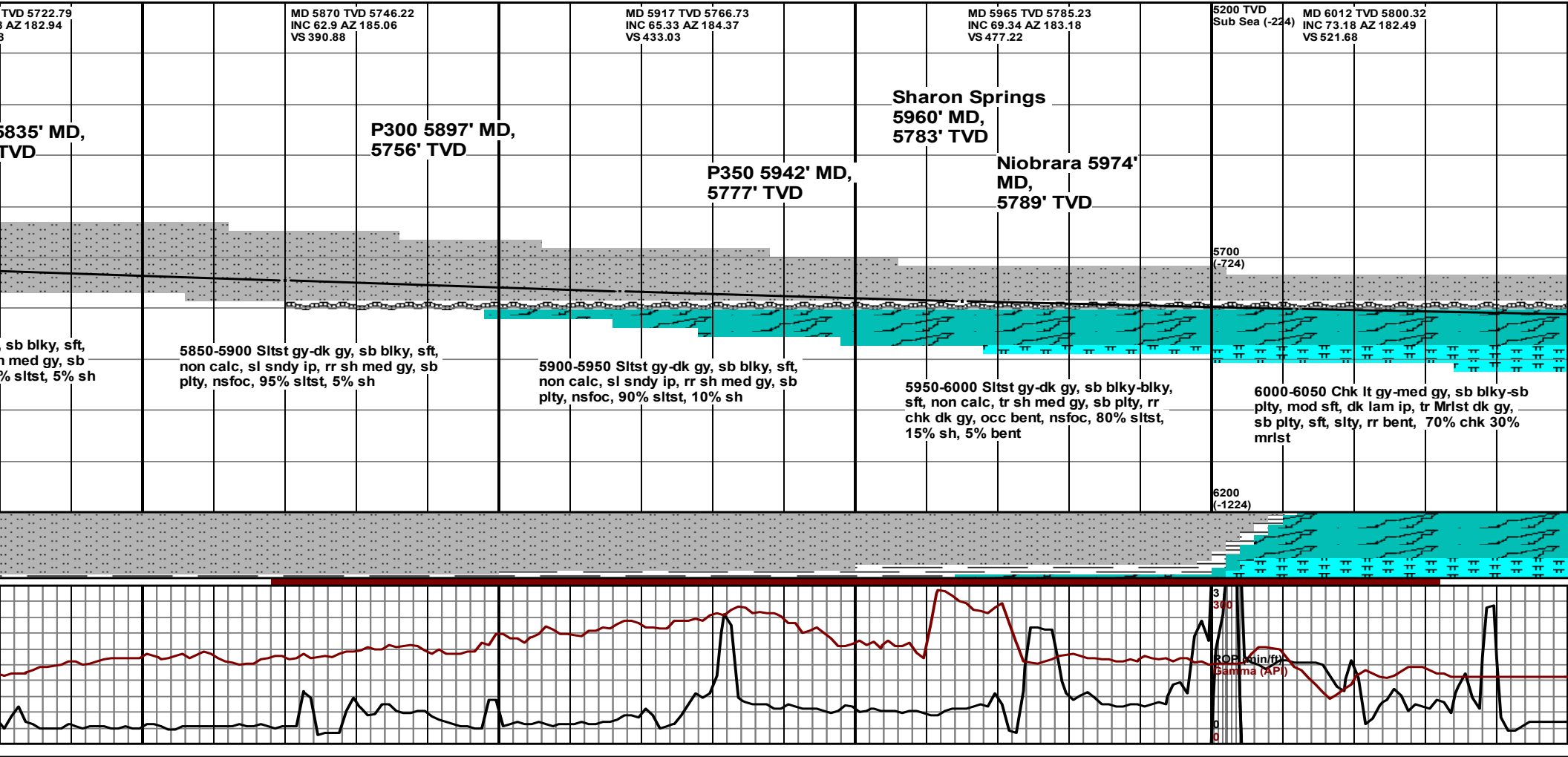
INTERVAL
[■] Core
[◻] Dst

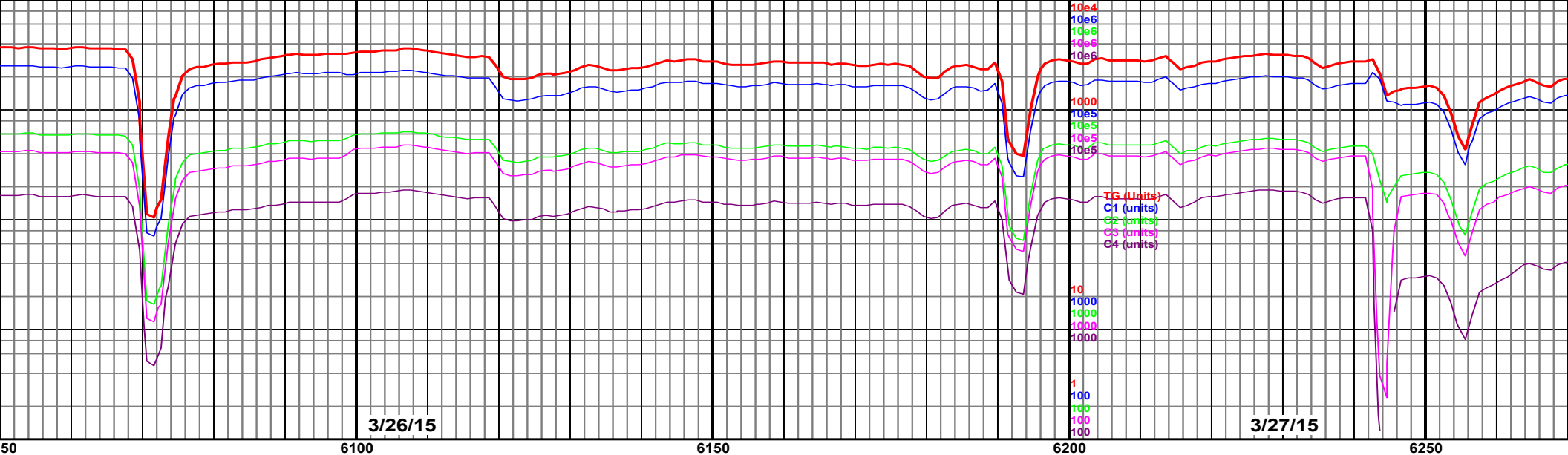
EVENT
[▽] Rft
[▶] Sidewall



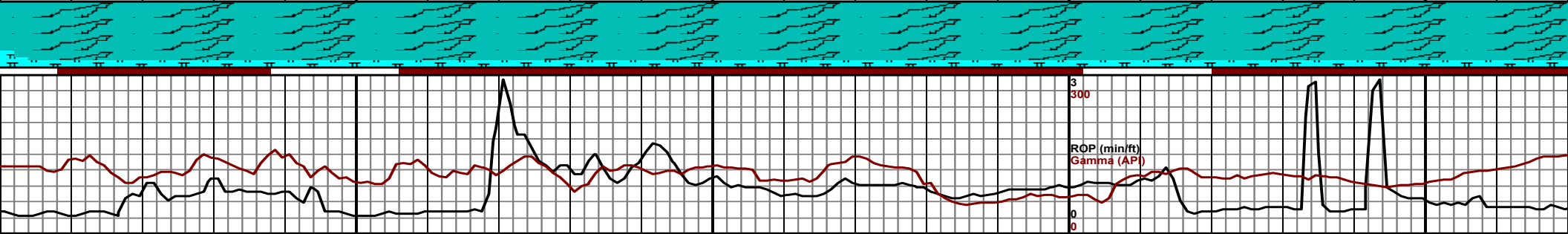


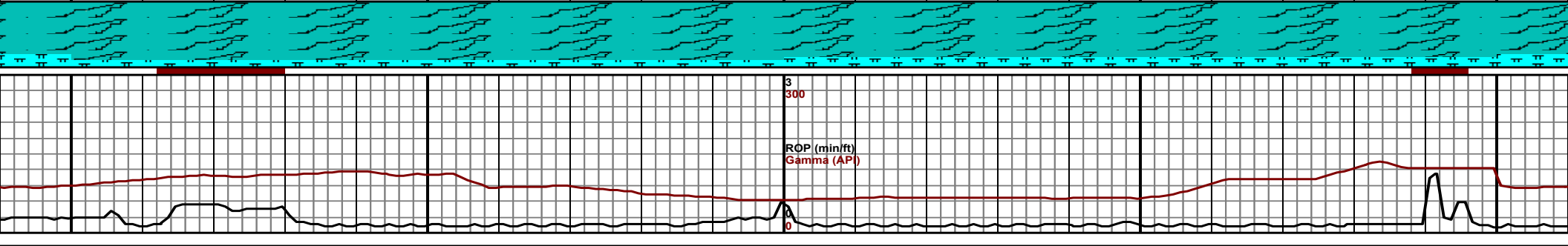
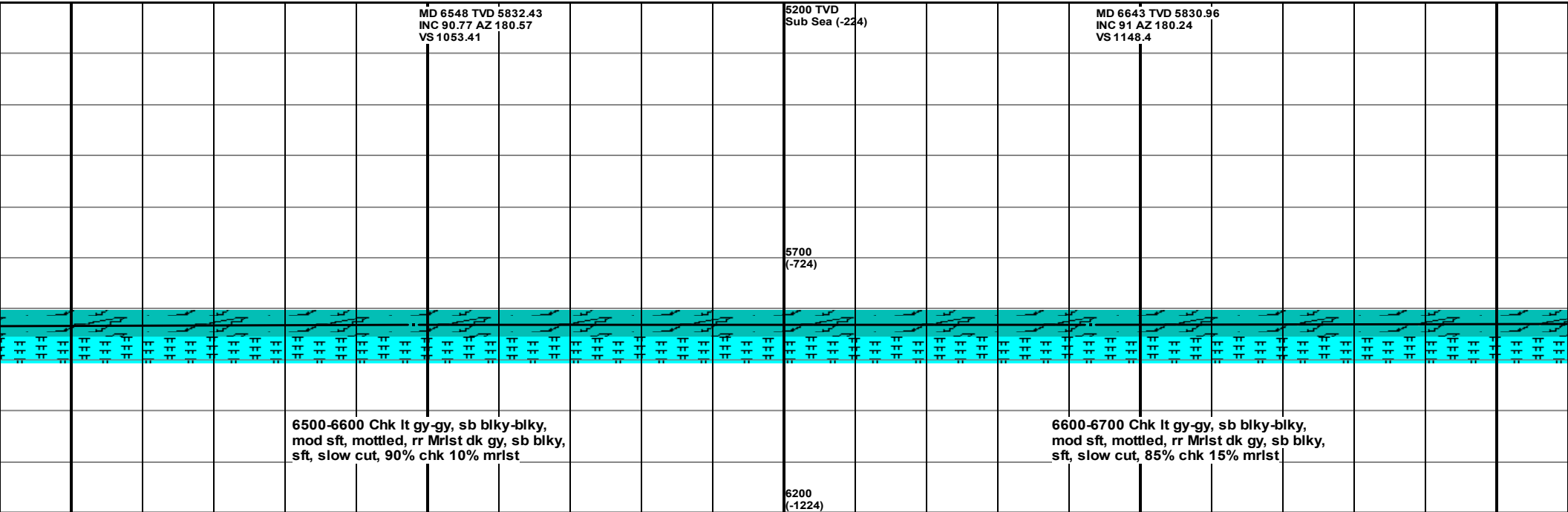
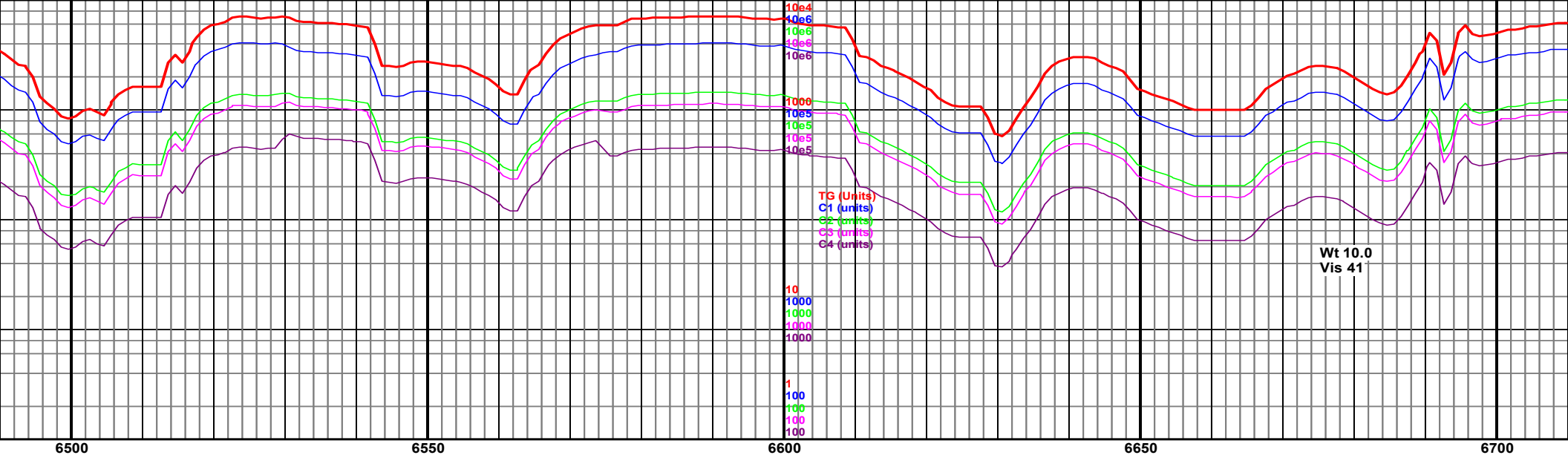


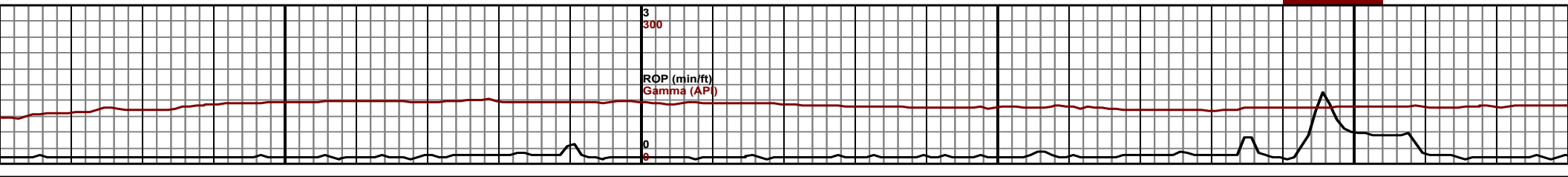
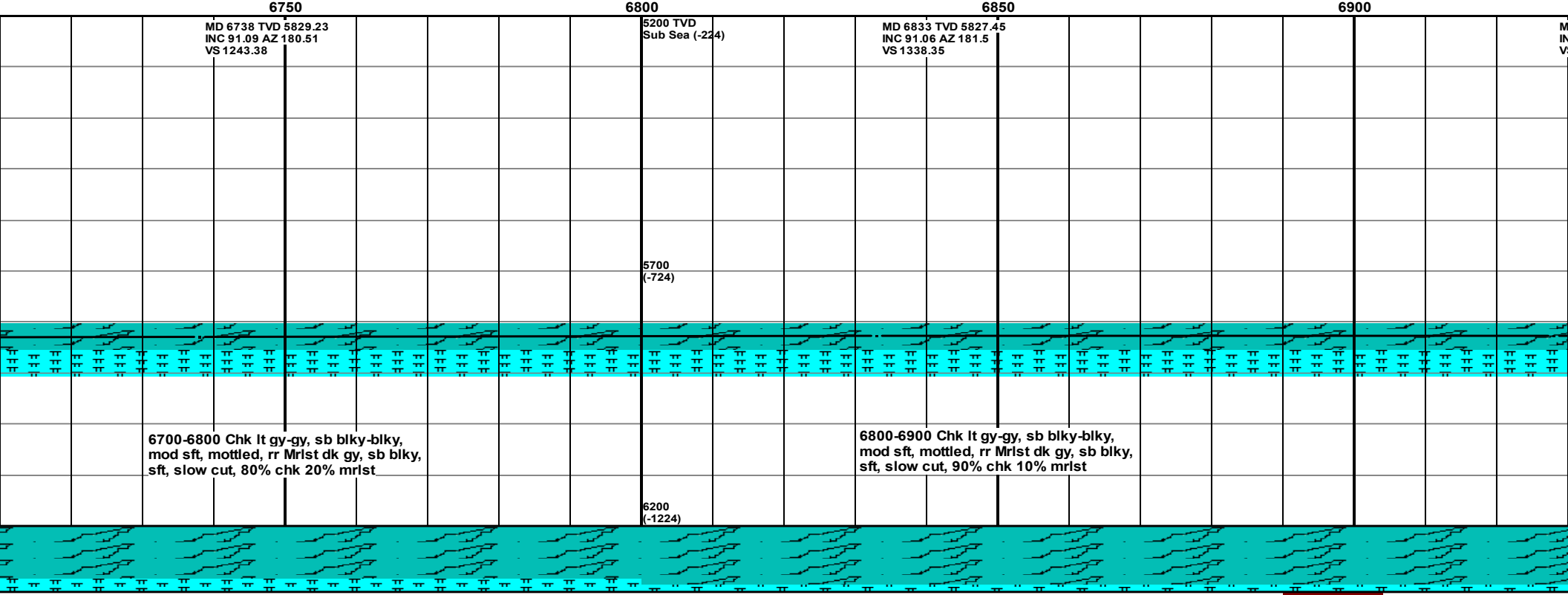
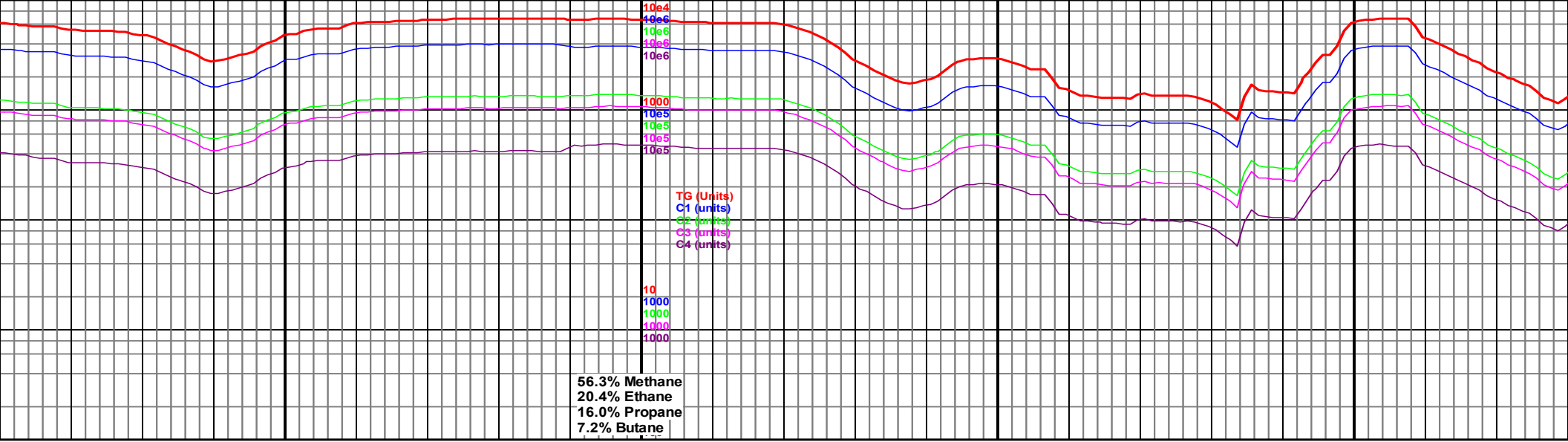


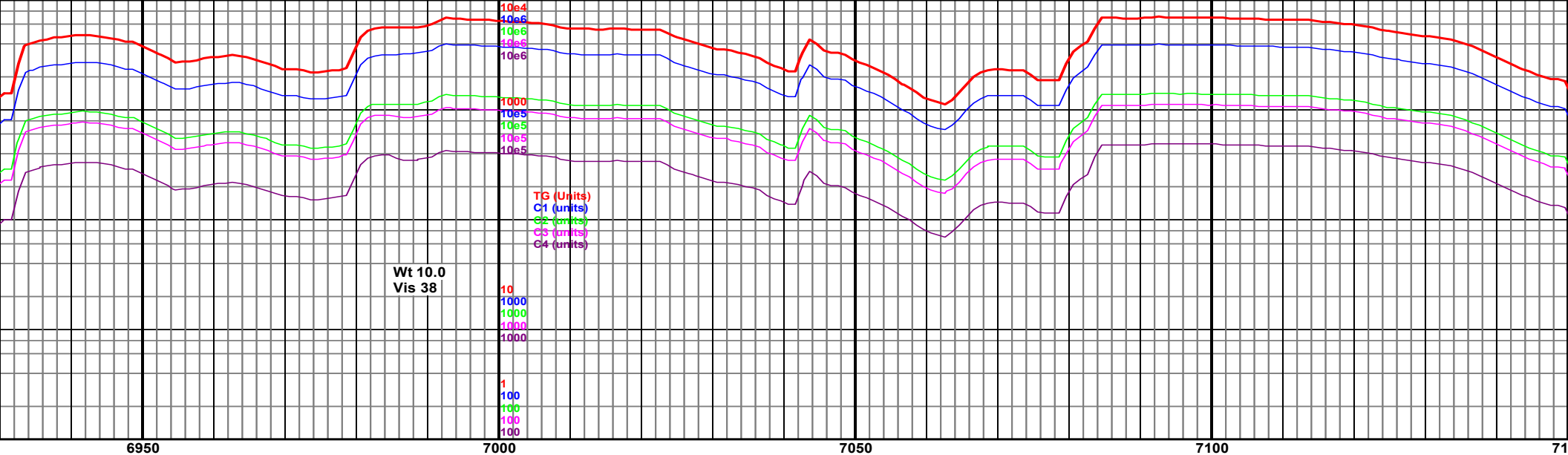


<p>MD 6060 TVD 5813.33 INC 75.38 AZ 182.5 VS 567.84</p> <p>N100 6070' MD, 5815' TVD</p> <p>6050-6100 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, rr bent, v slo cut, 90% chk 10% mrlst</p>	<p>MD 6107 TVD 5824.37 INC 77.44 AZ 182.79 VS 613.48</p> <p>6100-6150 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, rr bent, v slo cut, 90% chk 10% mrlst</p>	<p>MD 6155 TVD 5832.6 INC 82.81 AZ 181.1 VS 660.73</p> <p>6150-6200 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, v slo cut, 90% chk 10% mrlst</p>	<p>MD 6183 TVD 5835.1 INC 86.89 AZ 180.4 VS 688.61</p> <p>6200-6250 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, v slo cut, 90% chk 10% mrlst</p>	<p>MD 6200 TVD Sub Sea (-224)</p> <p>Intermediate casing of 6230' MD reached at 02:14 on 3/26/2015. Back to drilling at 10:42 on 3/27/2015.</p> <p>6250-6300 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, v slo cut, 90% chk 10% mrlst</p>	<p>MD 6300 TVD Sub Sea (-224)</p> <p>6300-6350 Chk lt gy-gy, sb blkly-blky, mod sft, mottled, dk lam, rr Mrlst dk gy, sb blkly, sft, v slo cut, 90% chk 10% mrlst</p>
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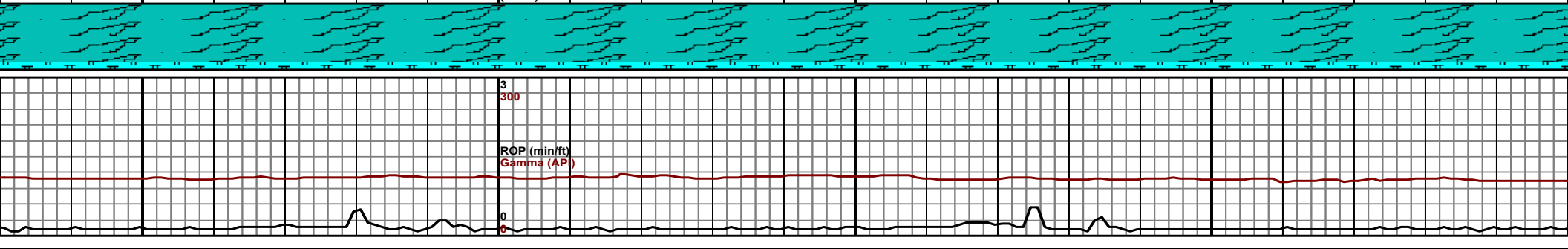
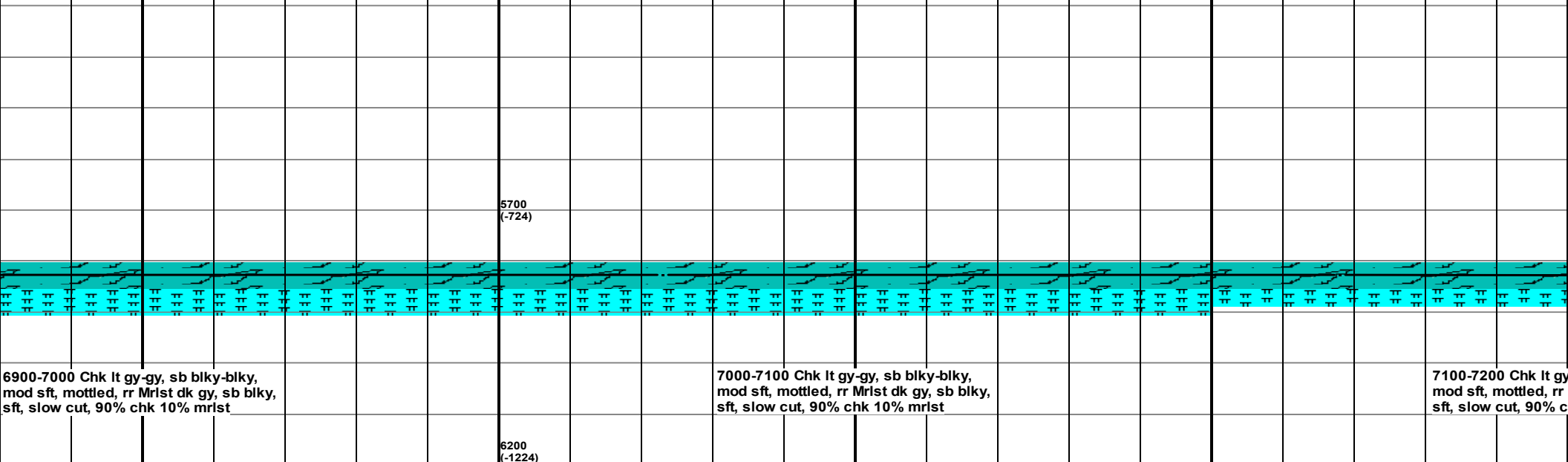


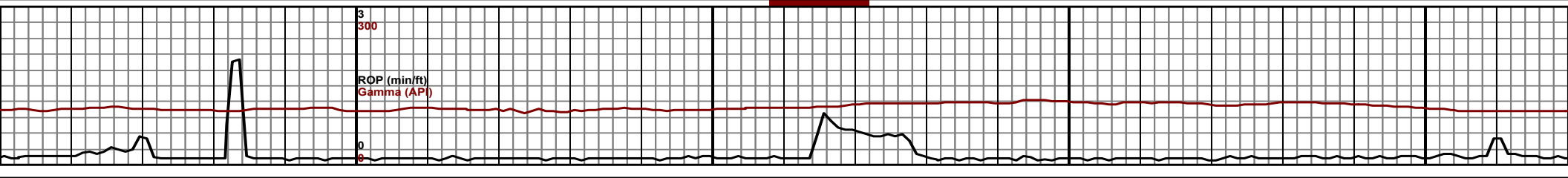
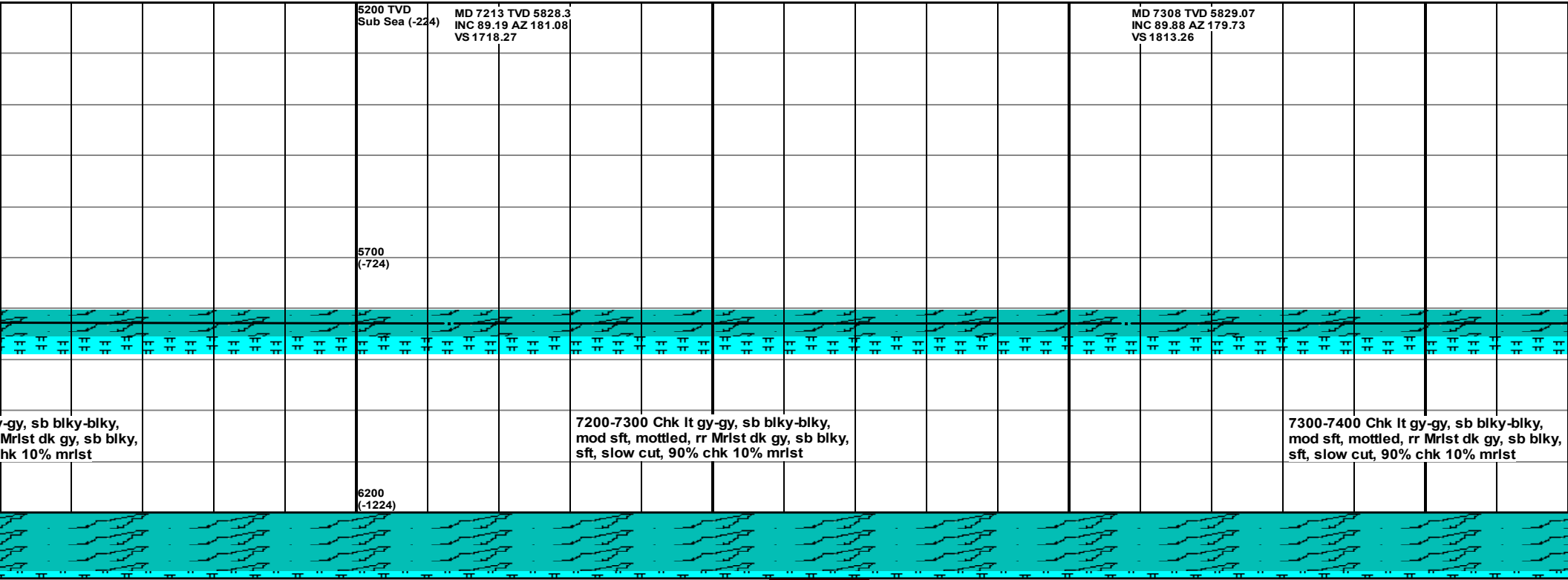
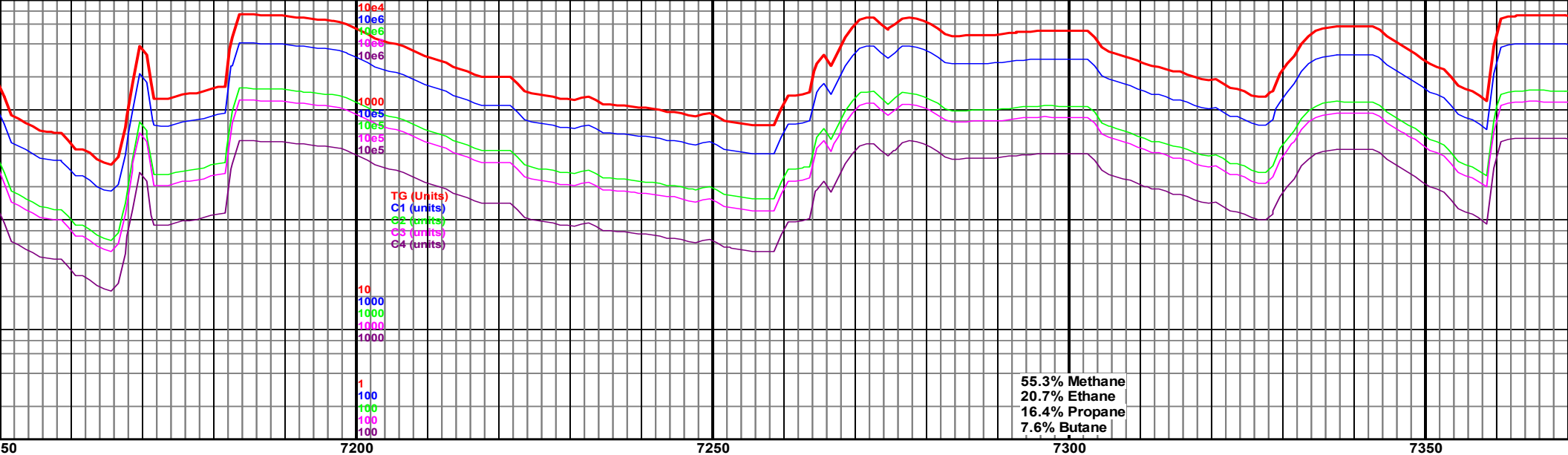


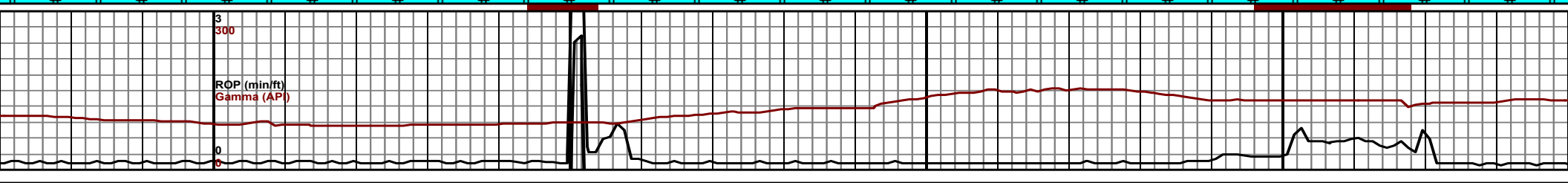
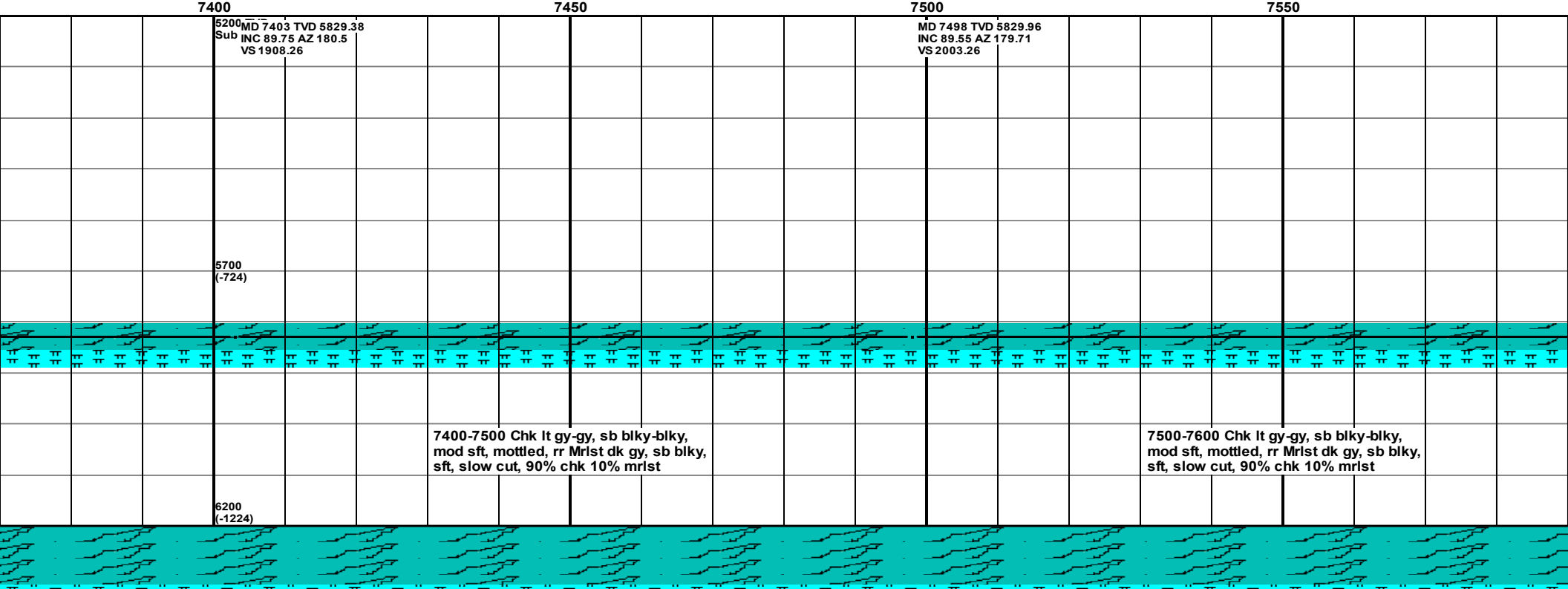
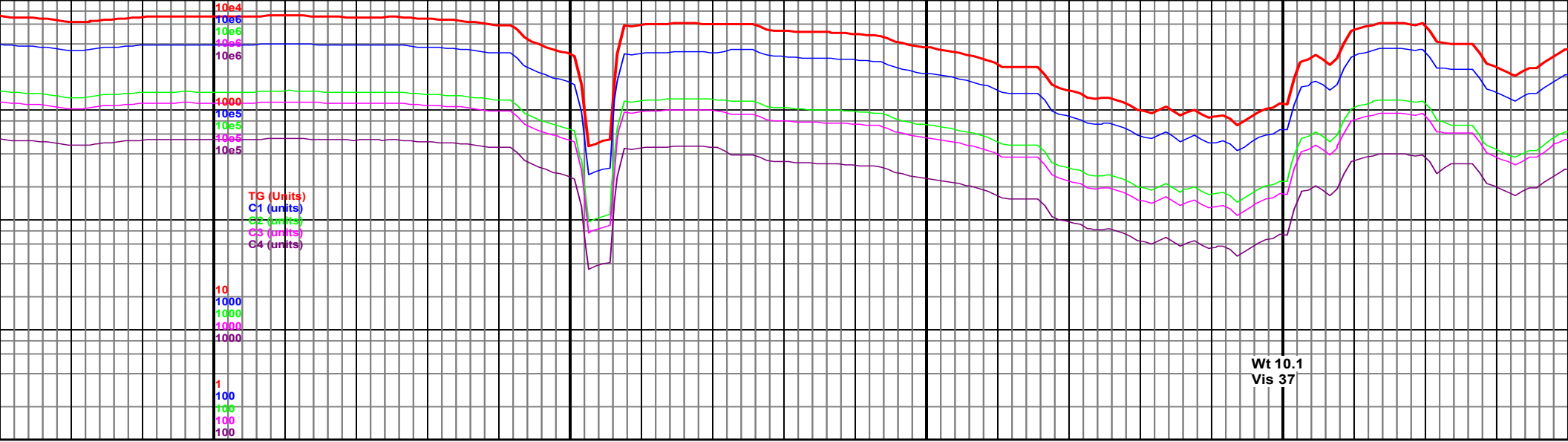
ID 6928 TVD 5826.4
INC 90.21 AZ 180.95
S 1433.33

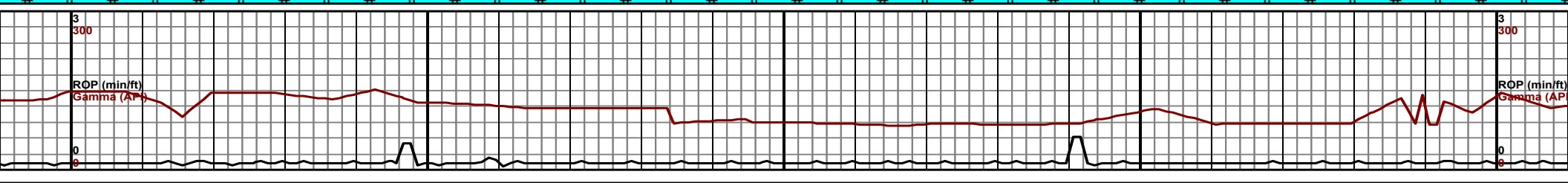
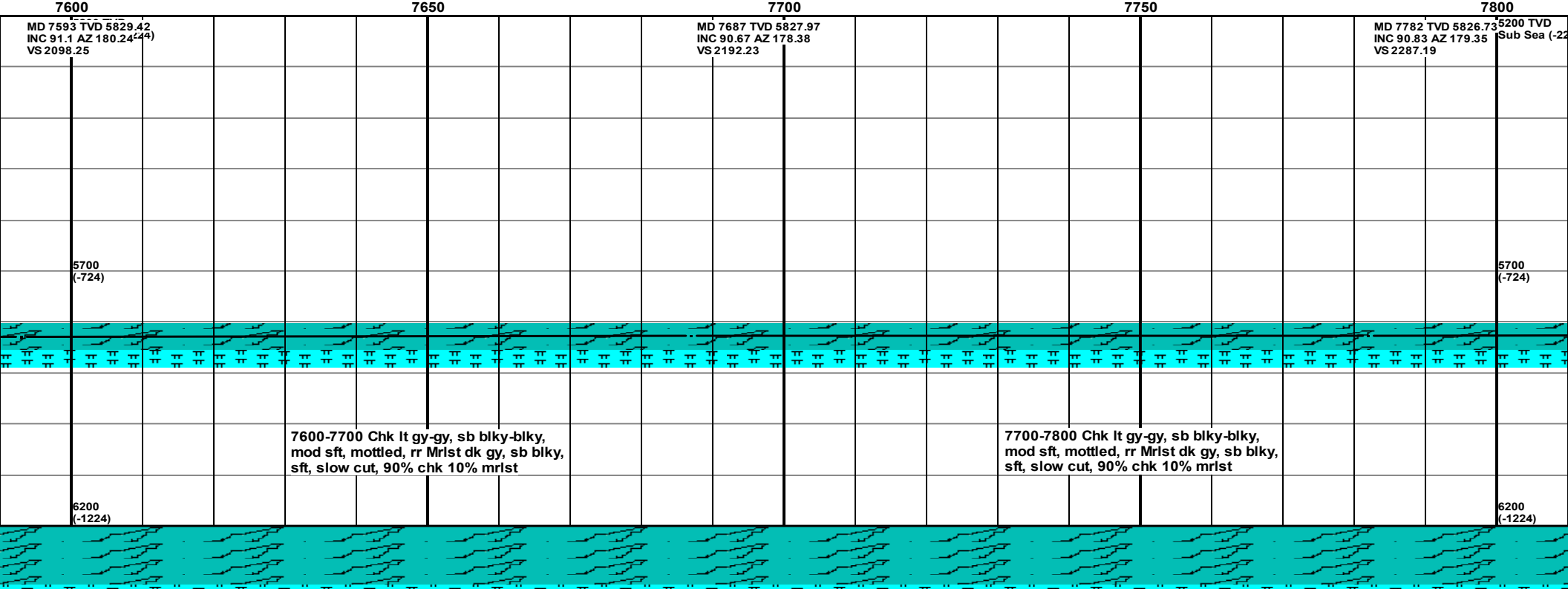
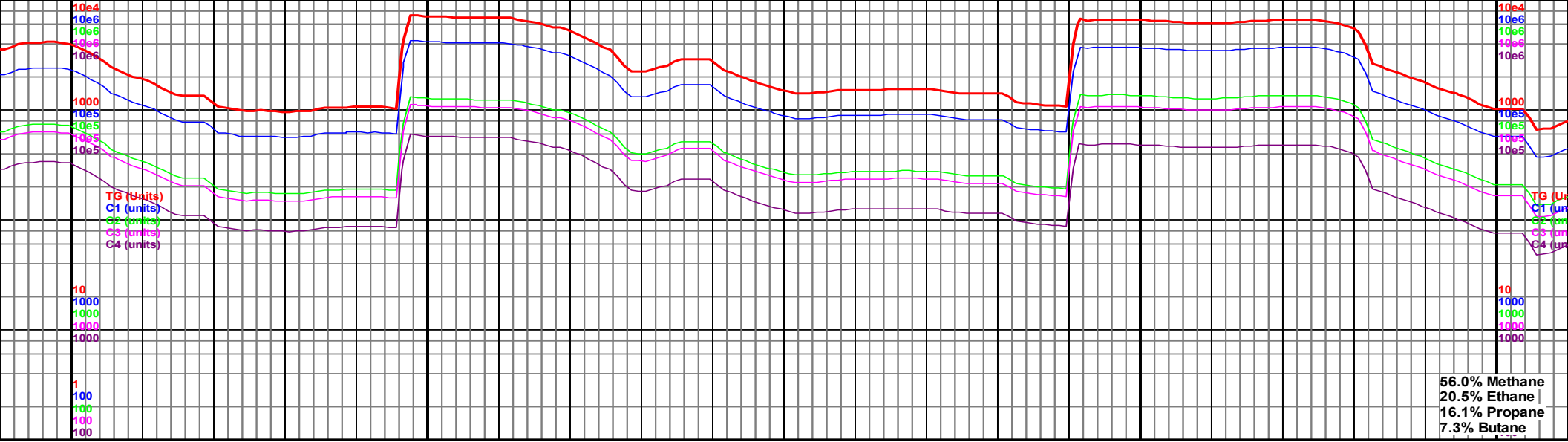
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INC 89.75 AZ 181.51
VS 1528.31

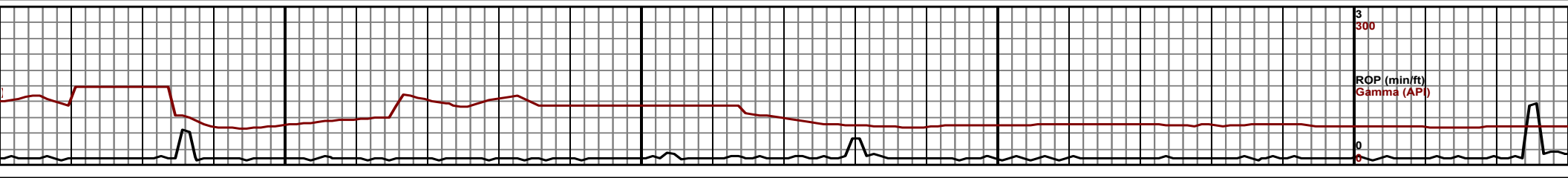
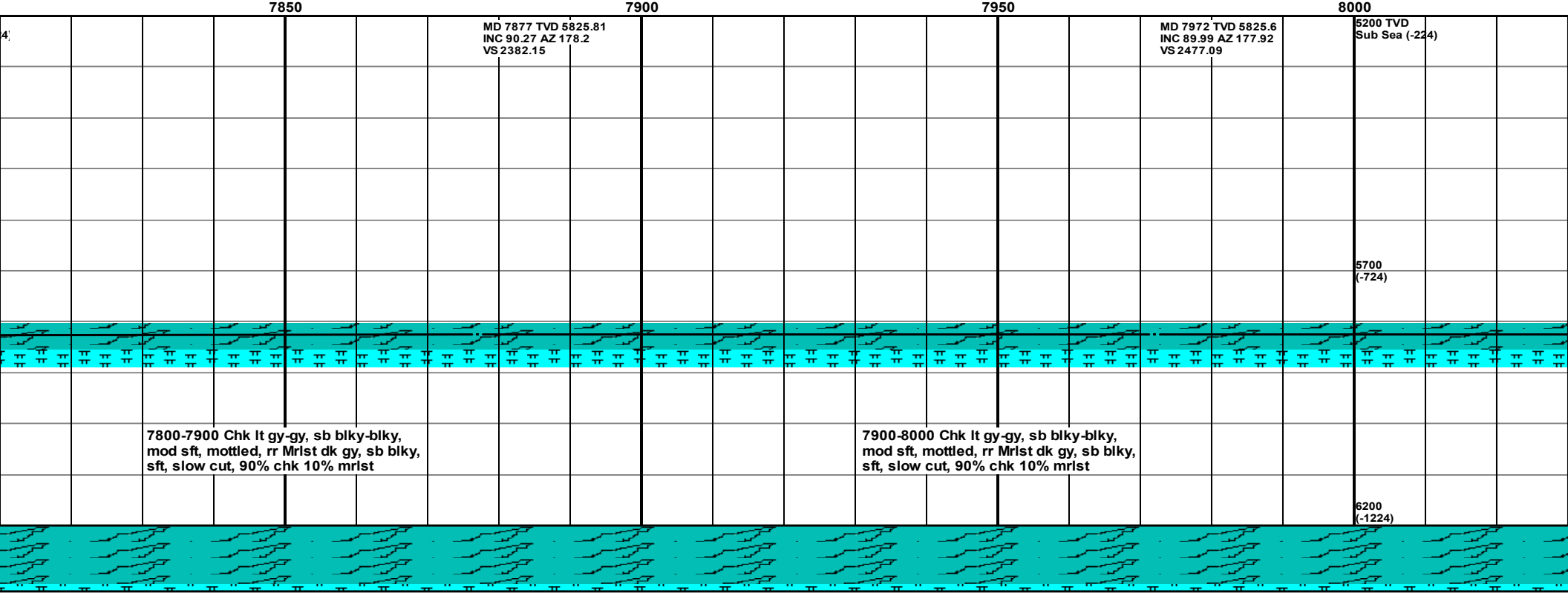
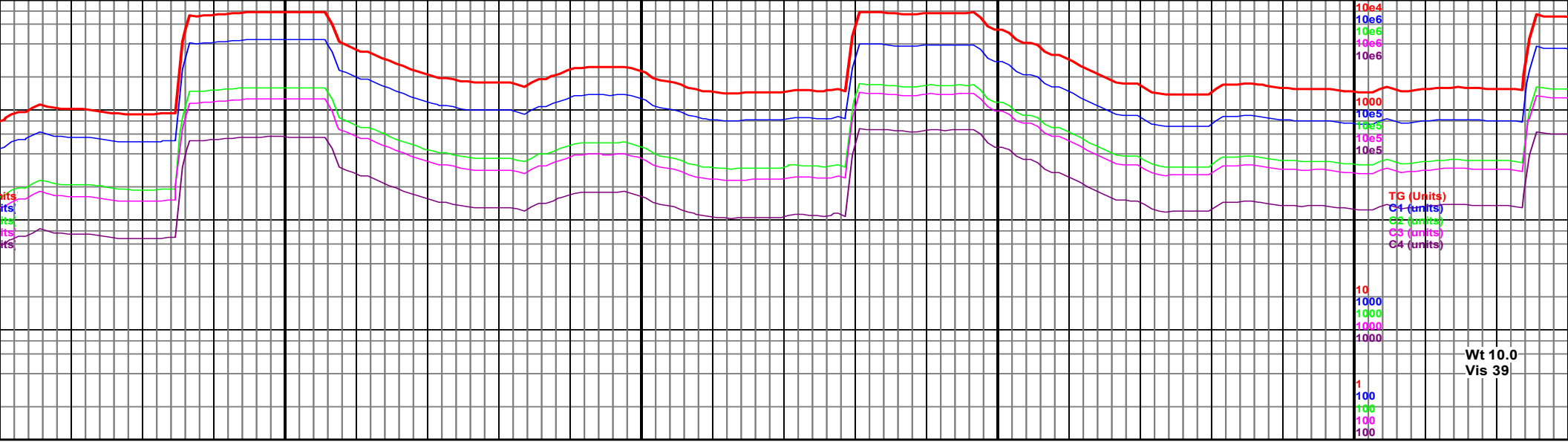
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VS 1623.29

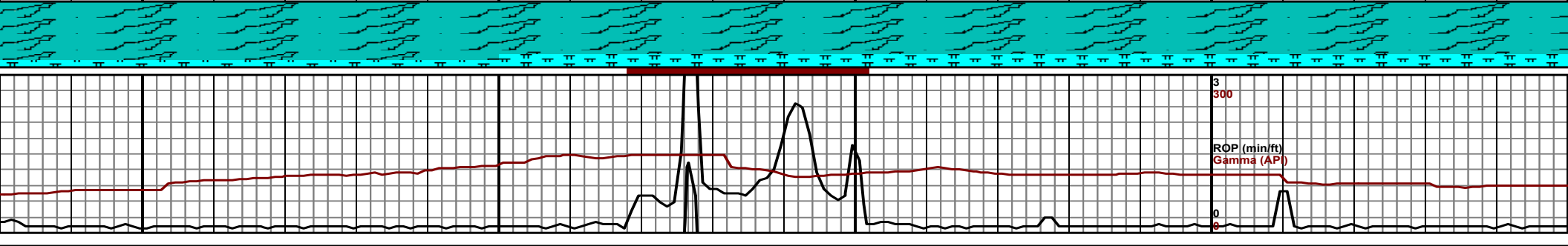
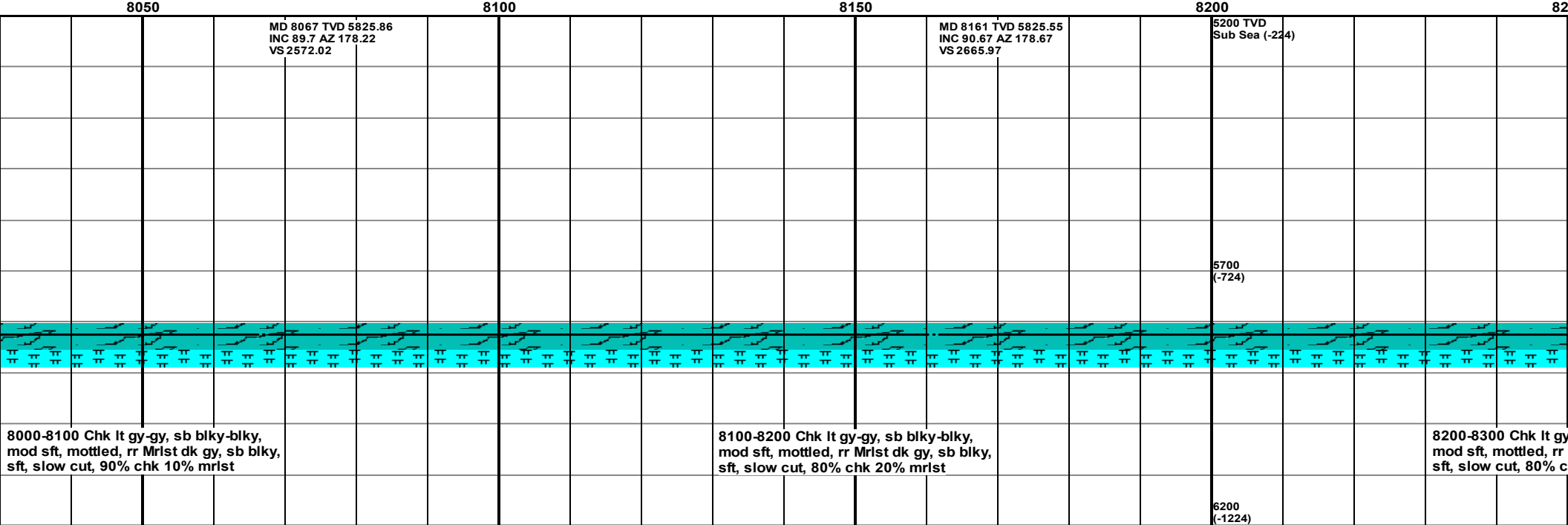
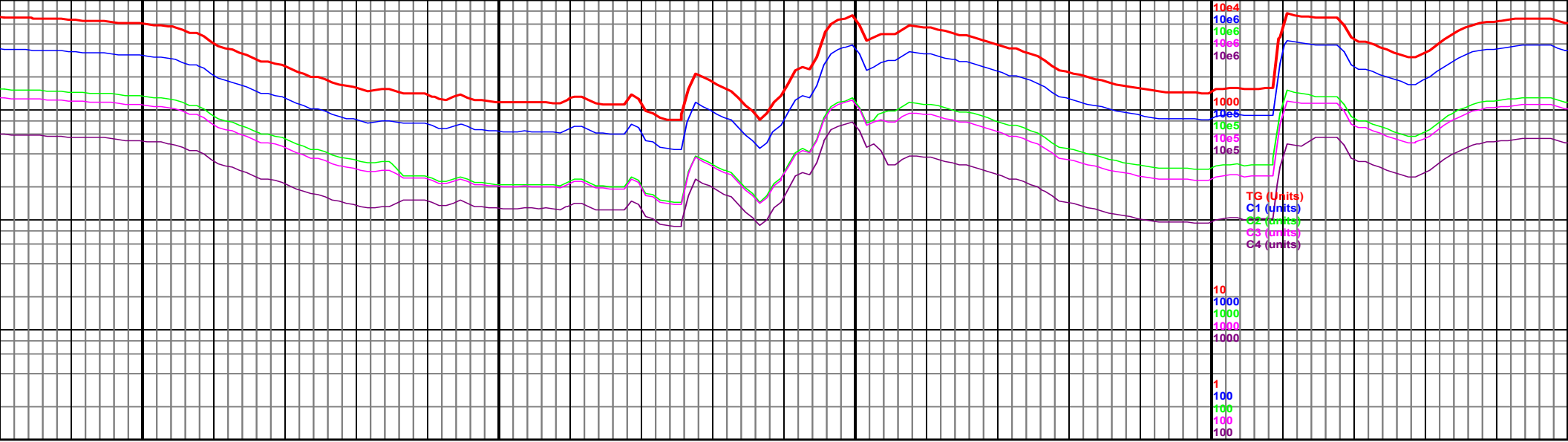


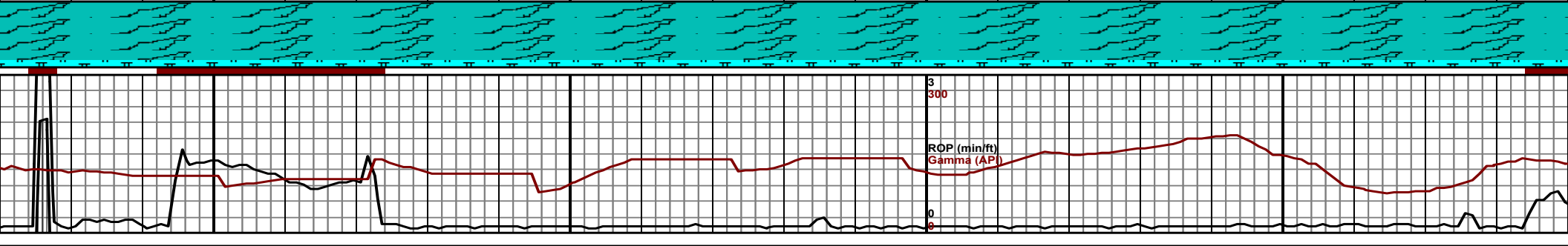
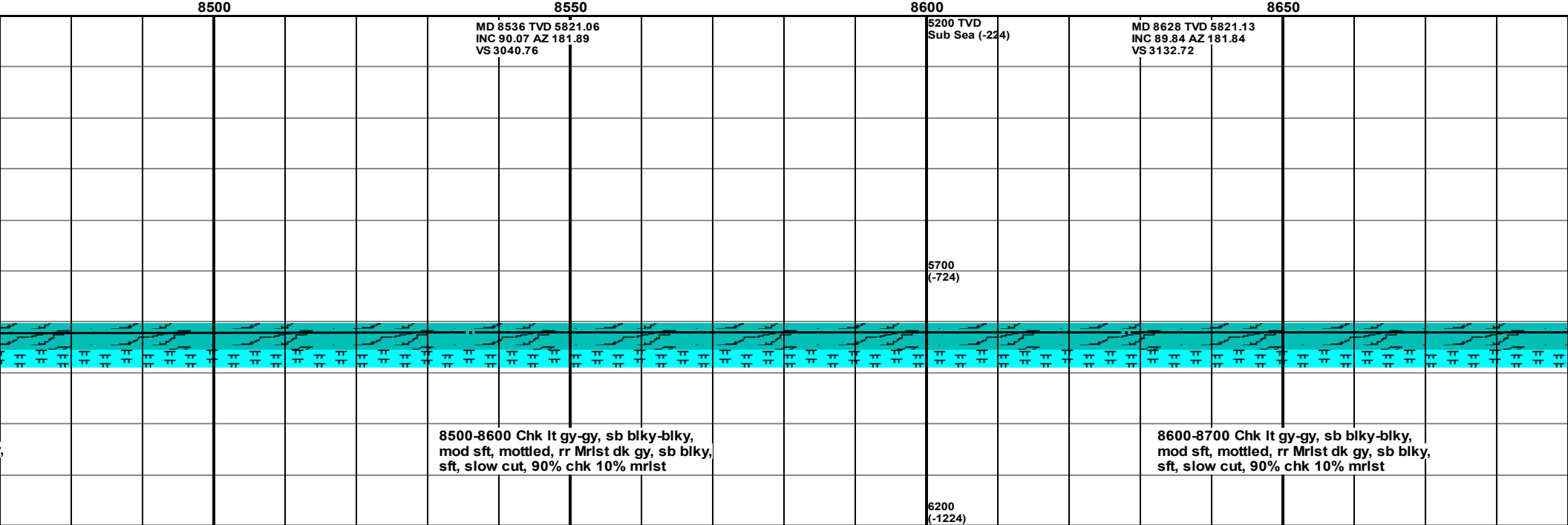
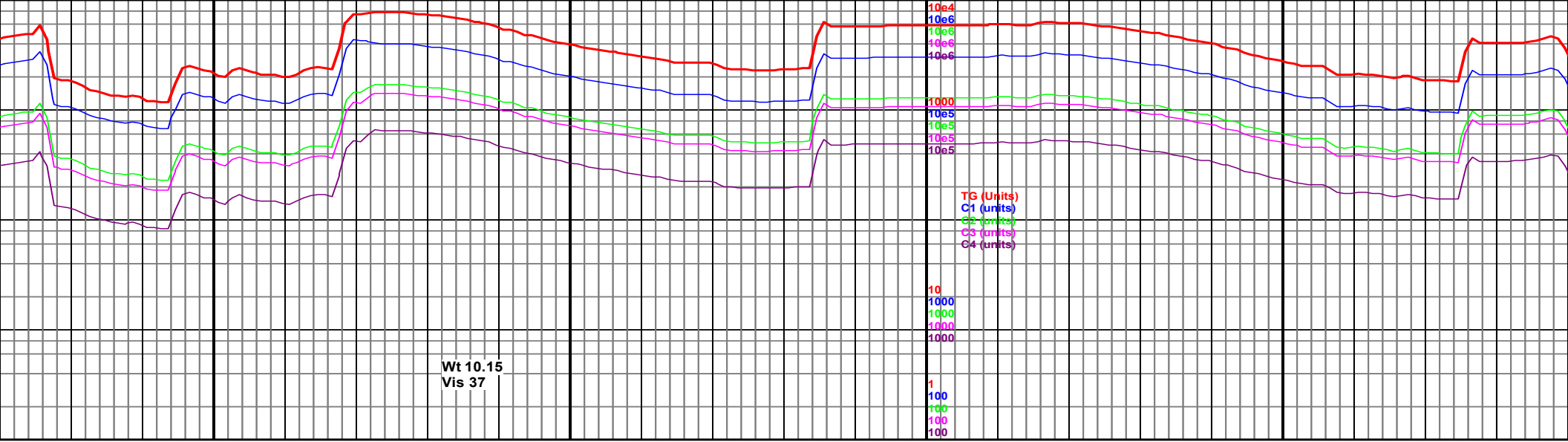


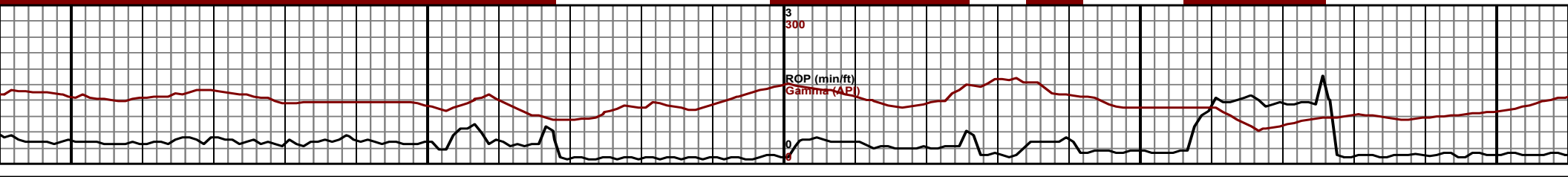
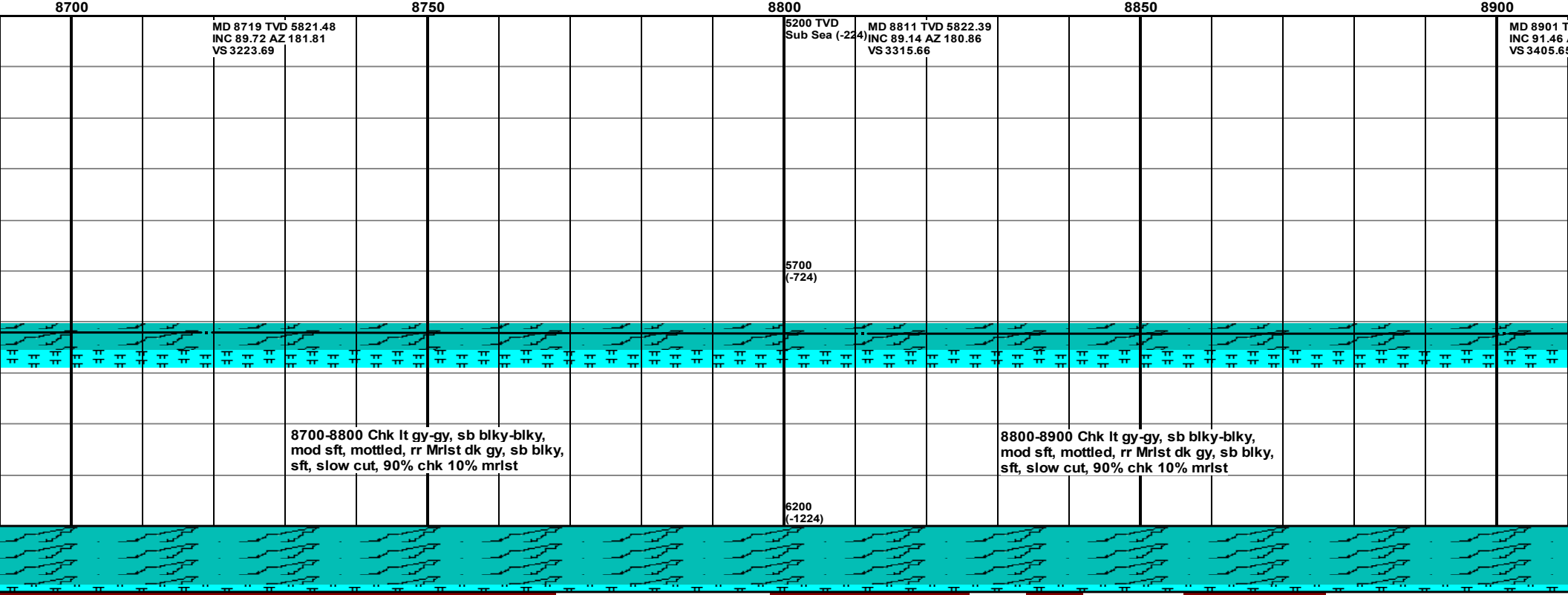
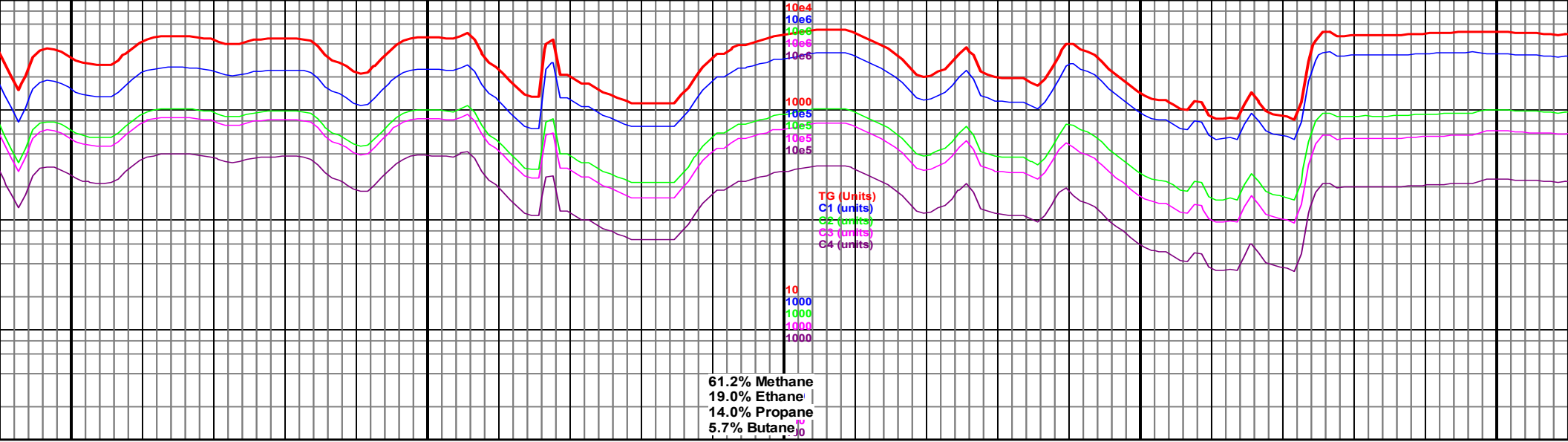


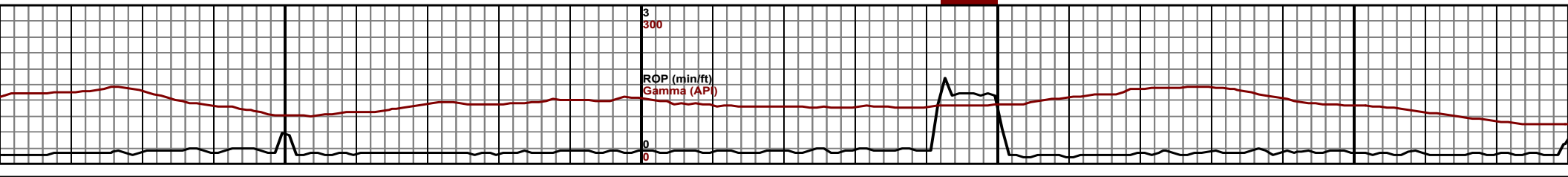
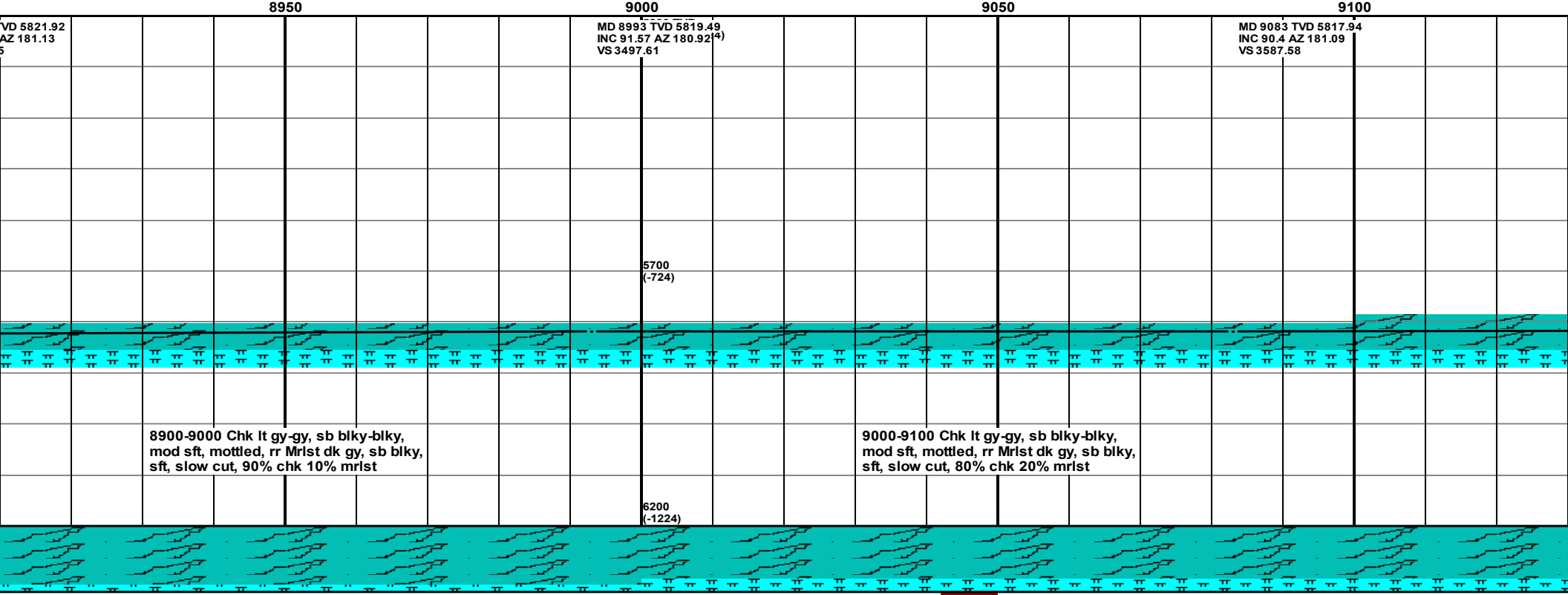
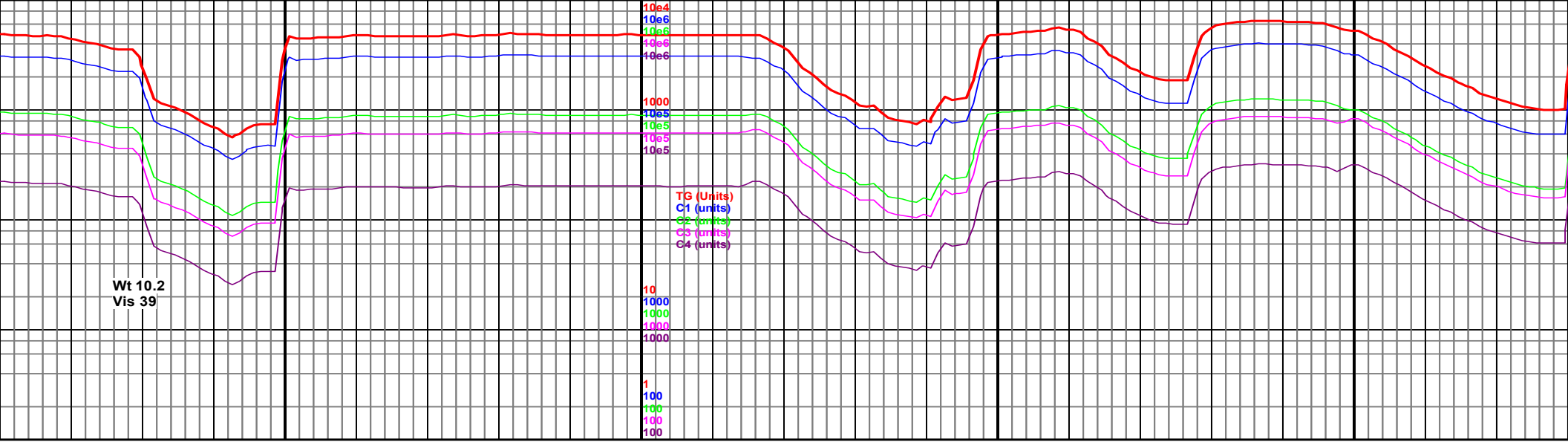


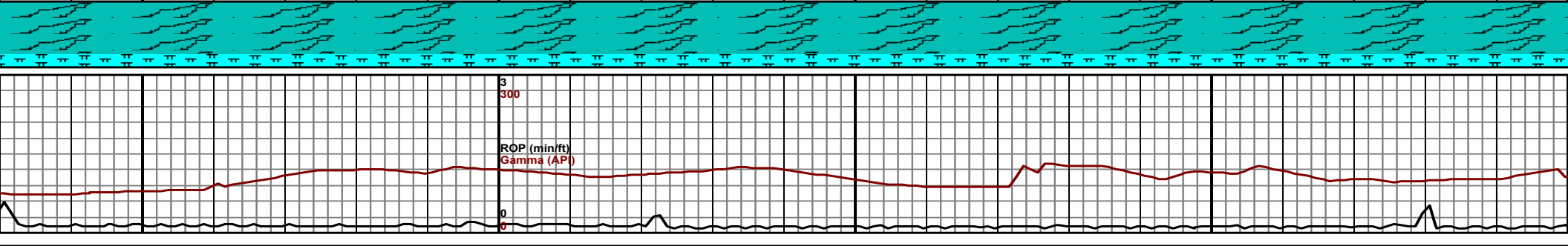
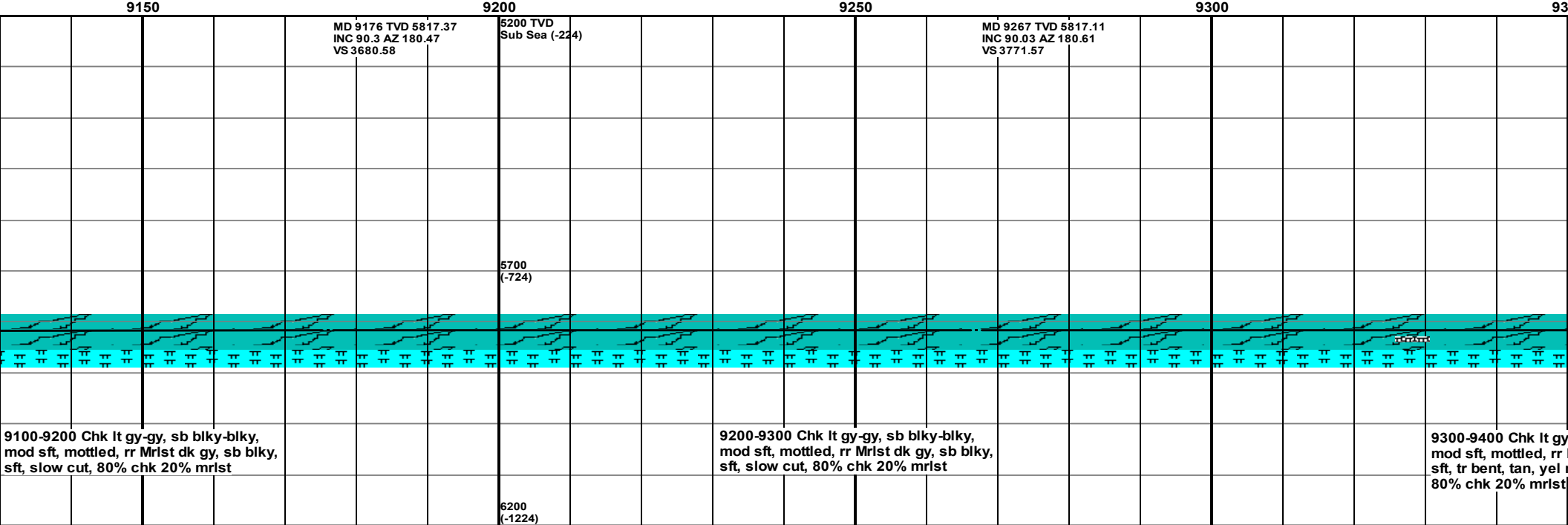
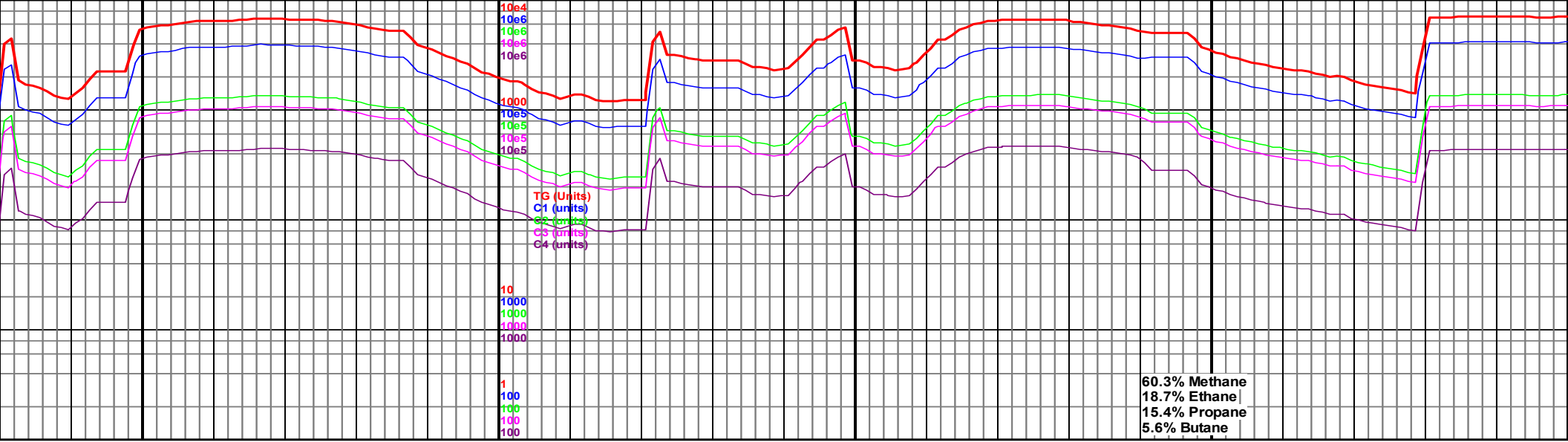


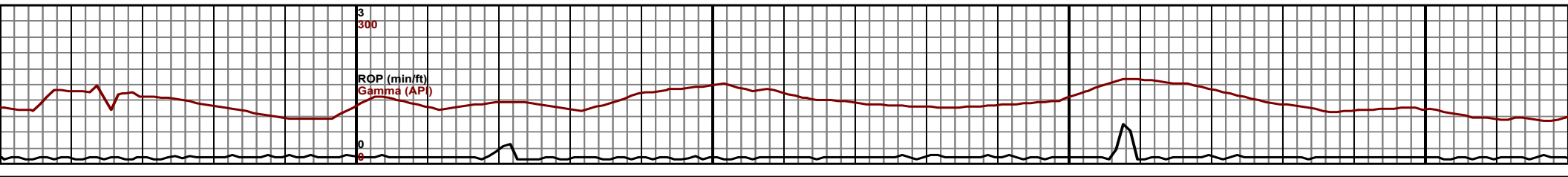
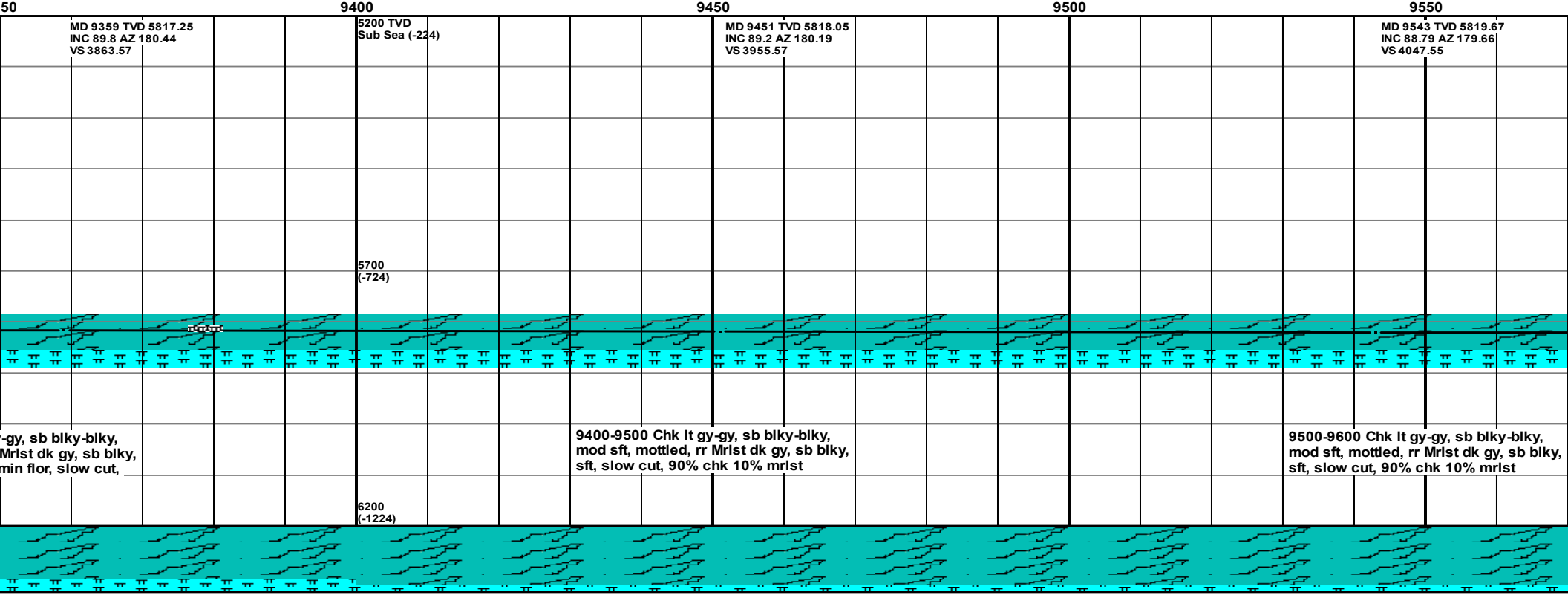
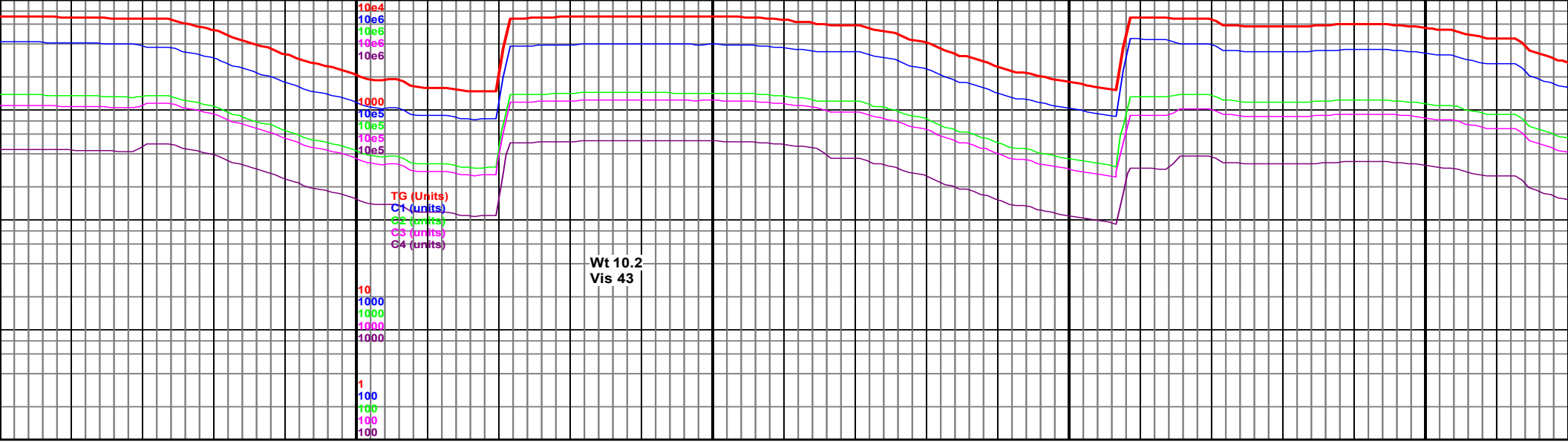


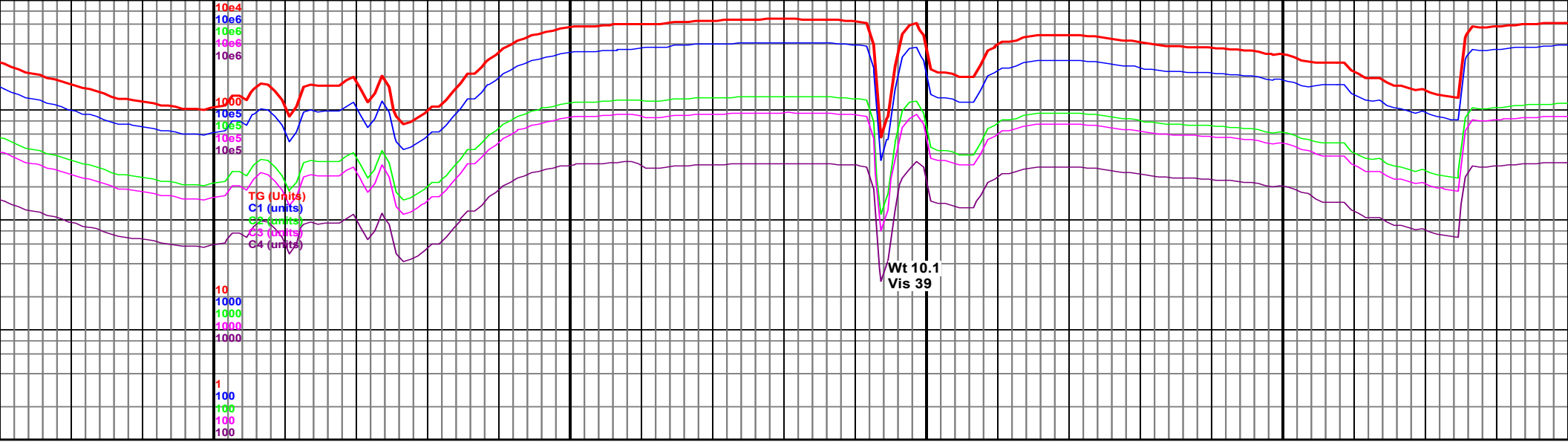












9600

9650

9700

9750

5200 TVD
Sub Sea (-224)

MD 9634 TVD 5821.25
INC 89.22 AZ 179.51
VS 4138.53

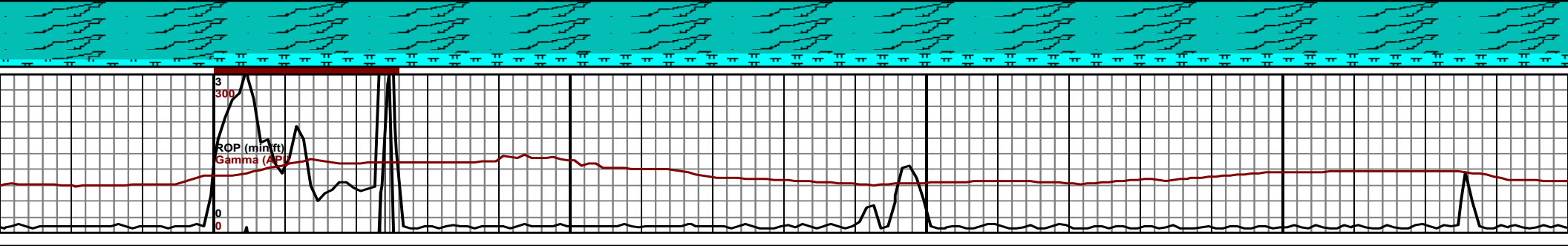
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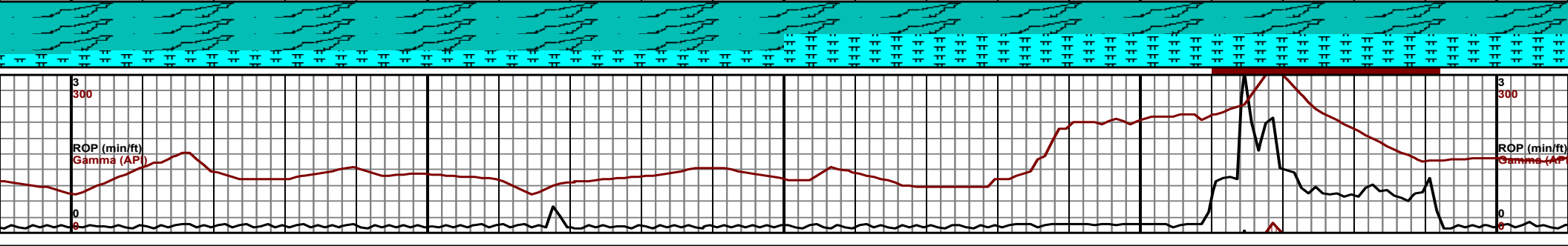
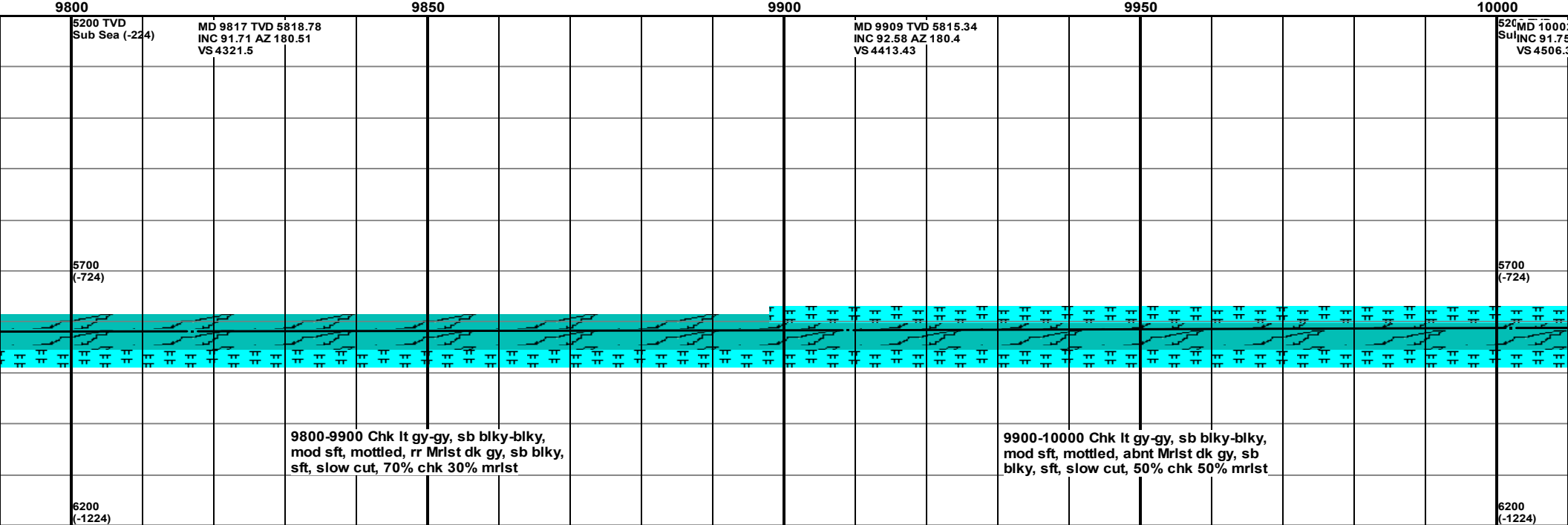
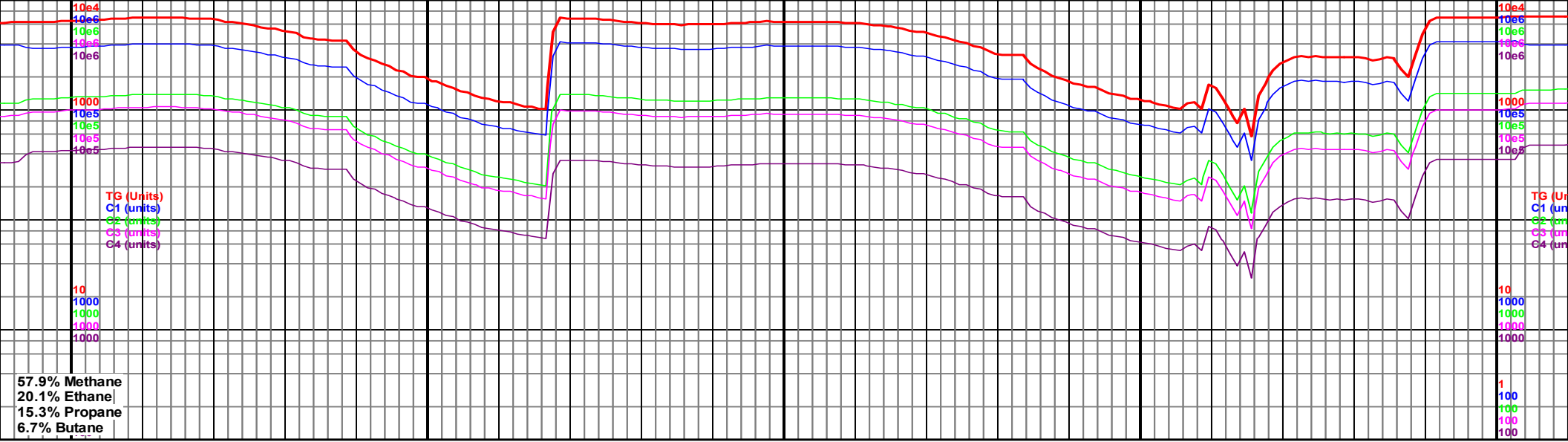
5700
(-724)

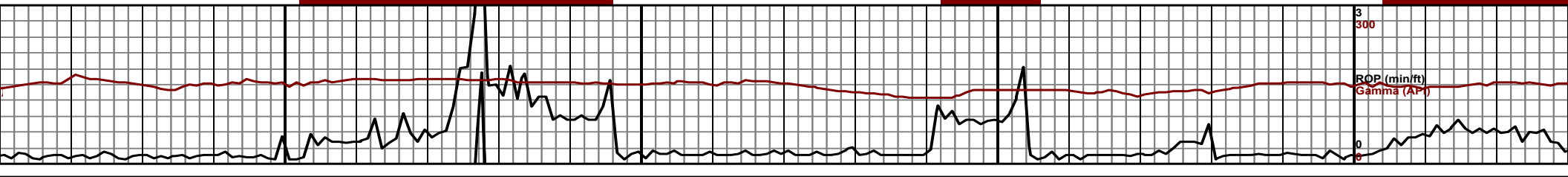
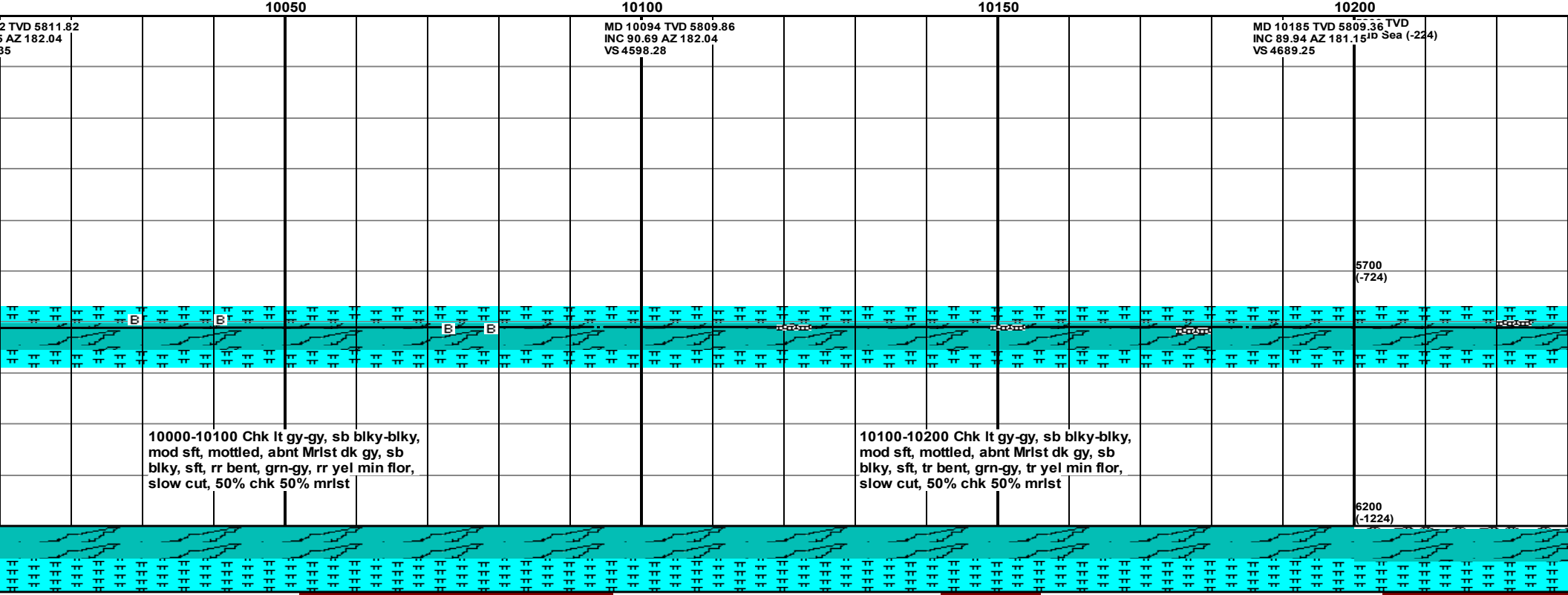
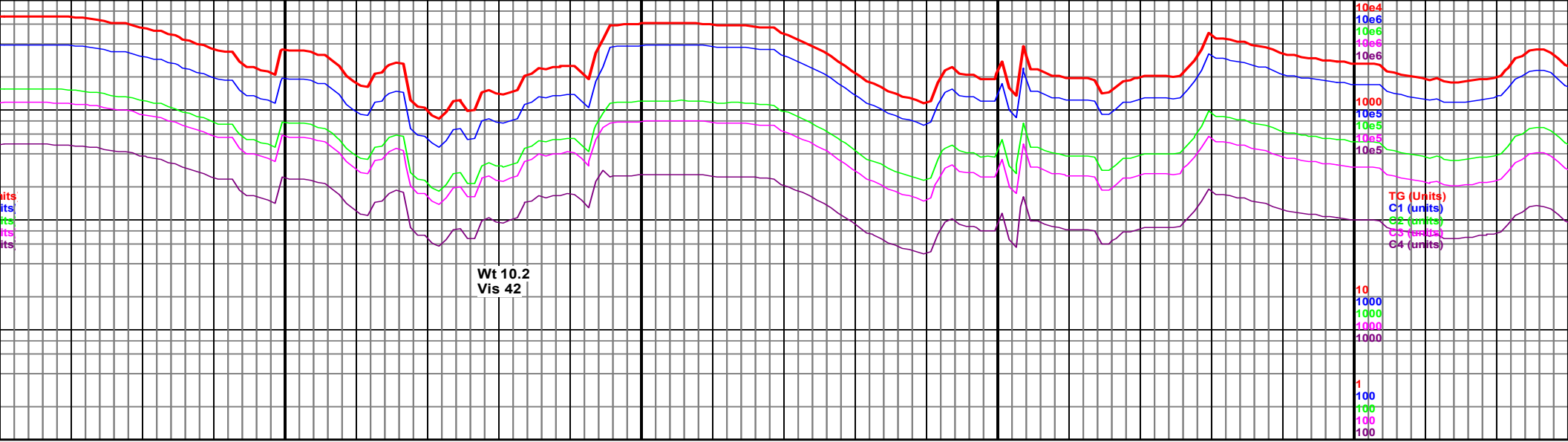
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sft, slow cut, 80% chk 20% mrst

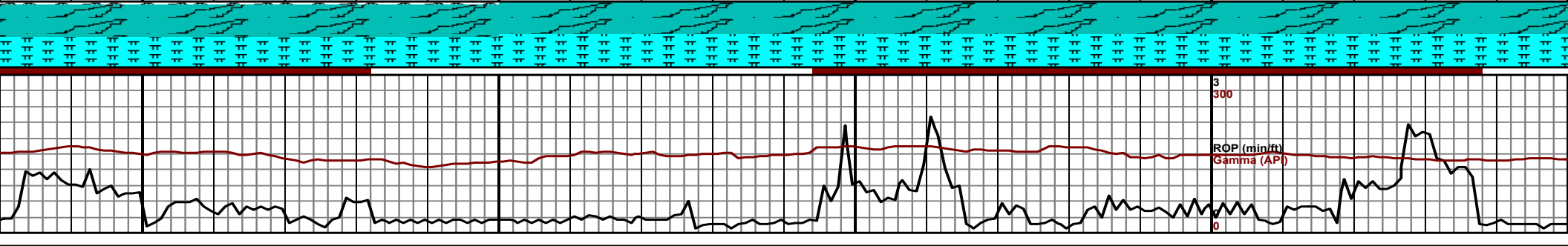
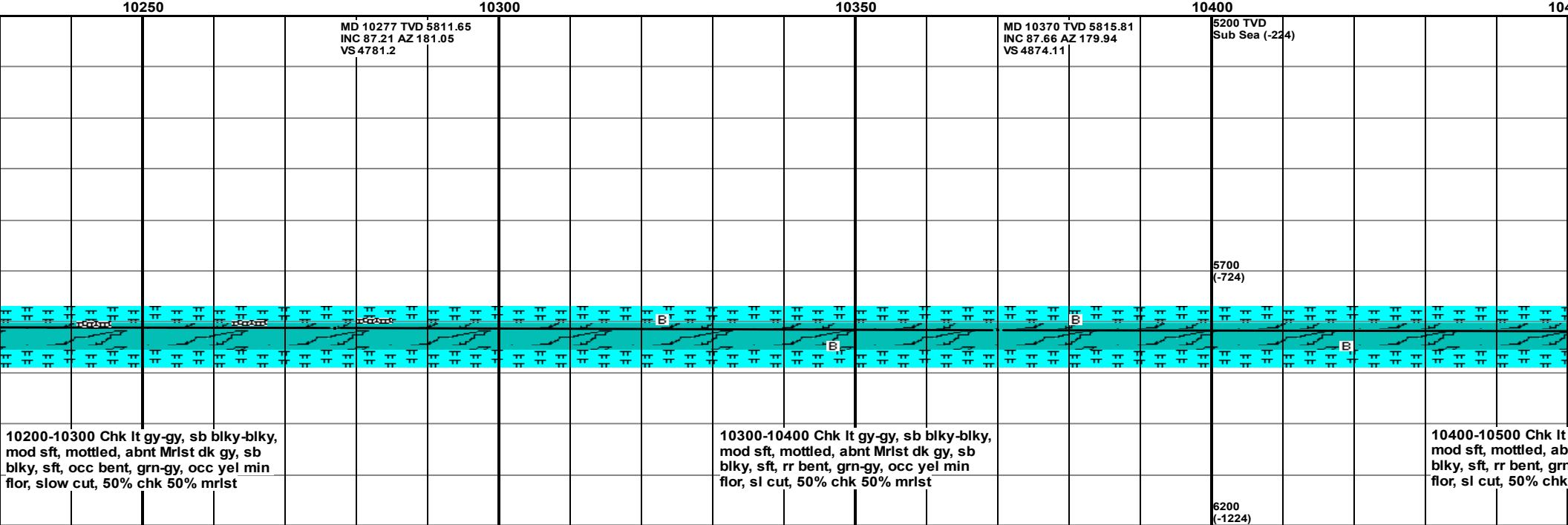
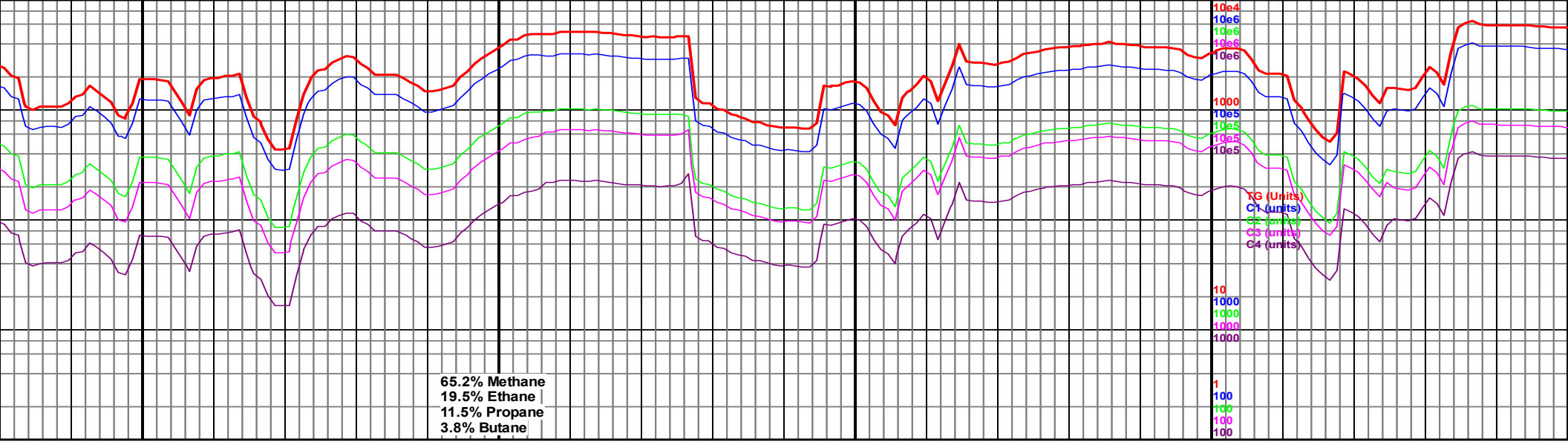
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sft, slow cut, 80% chk 20% mrst

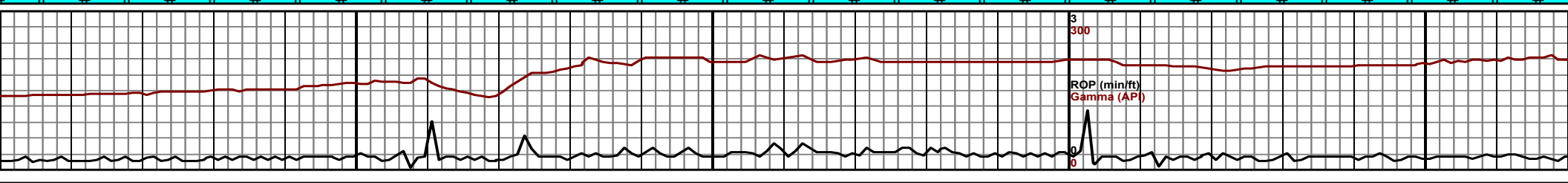
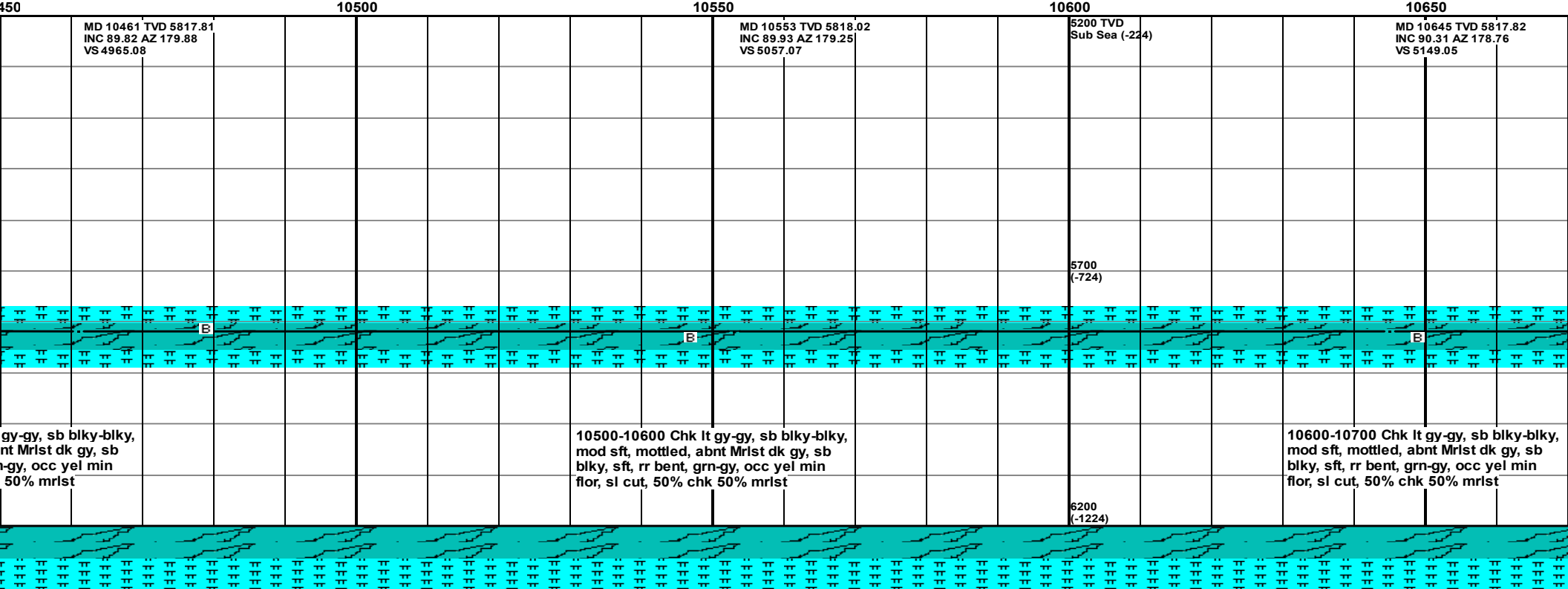
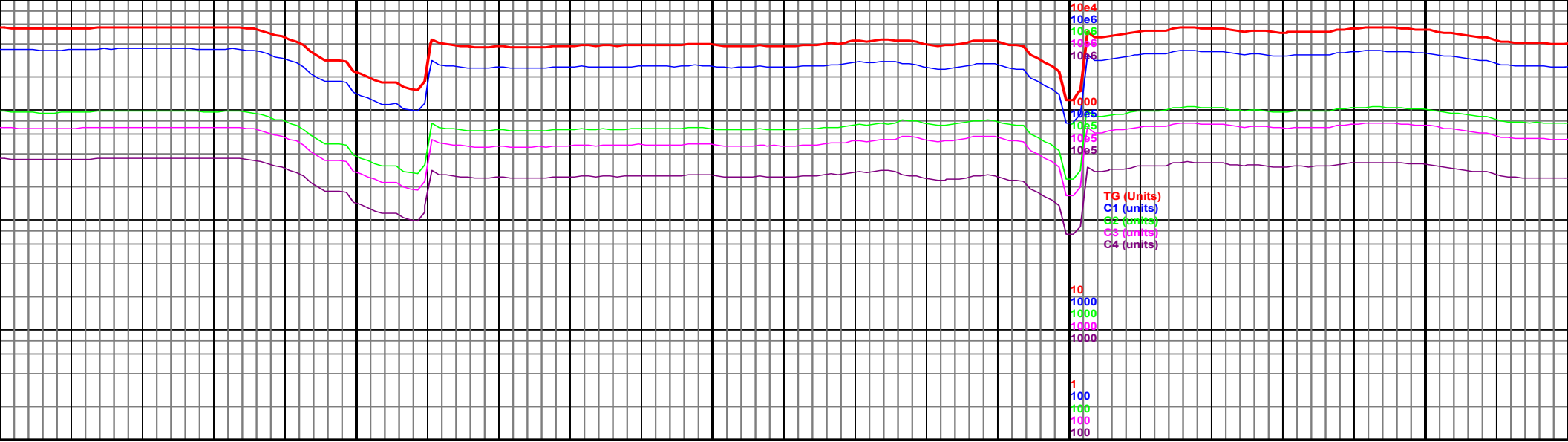
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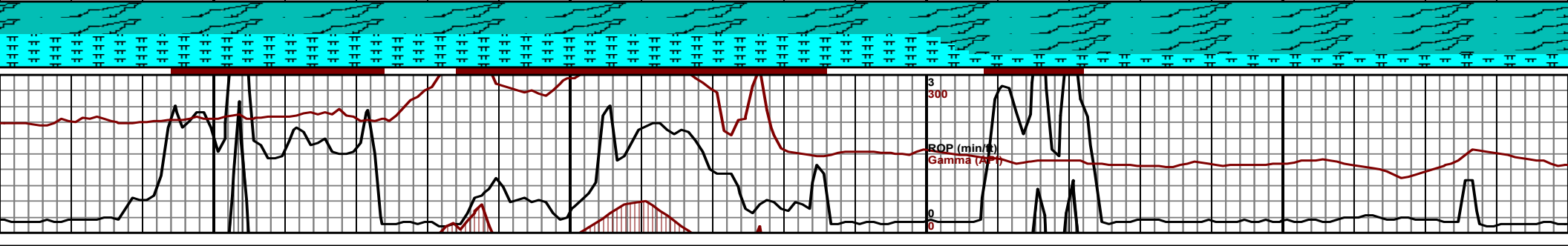
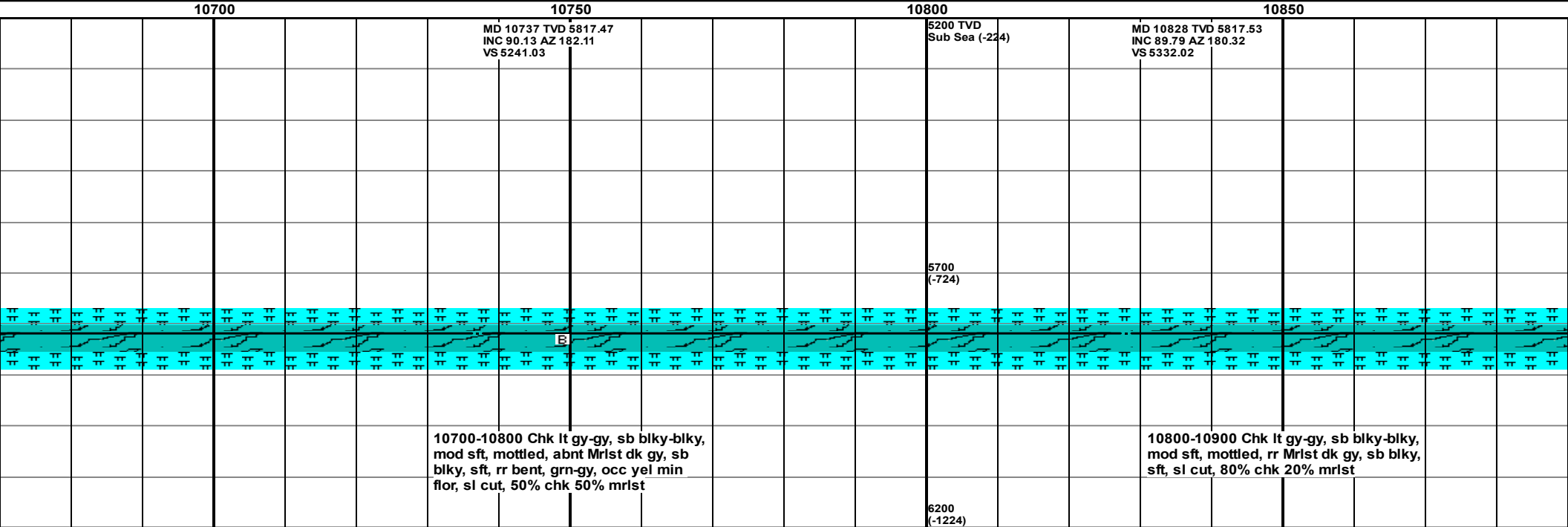
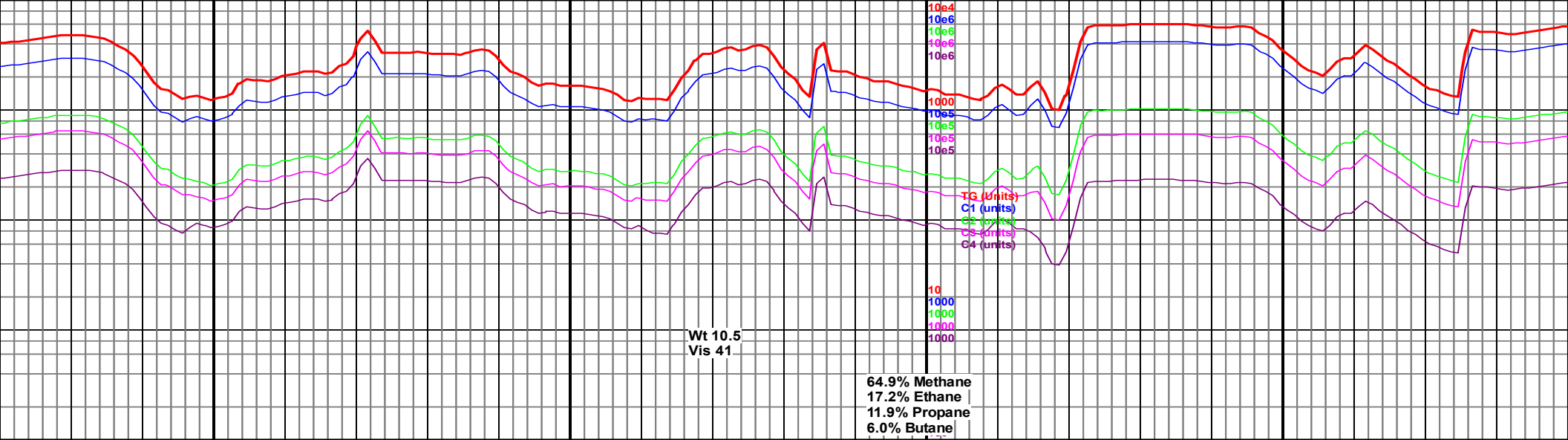


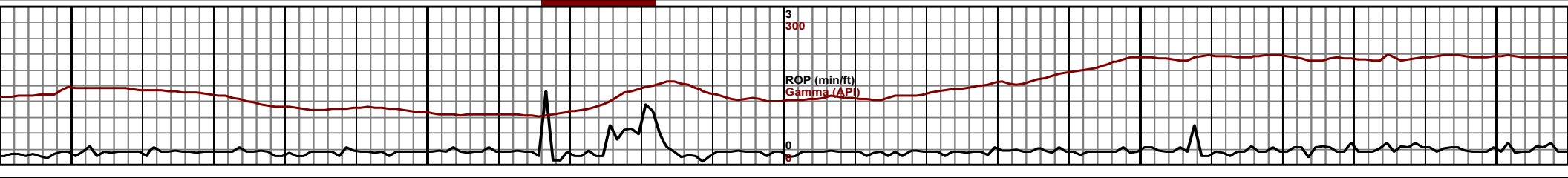
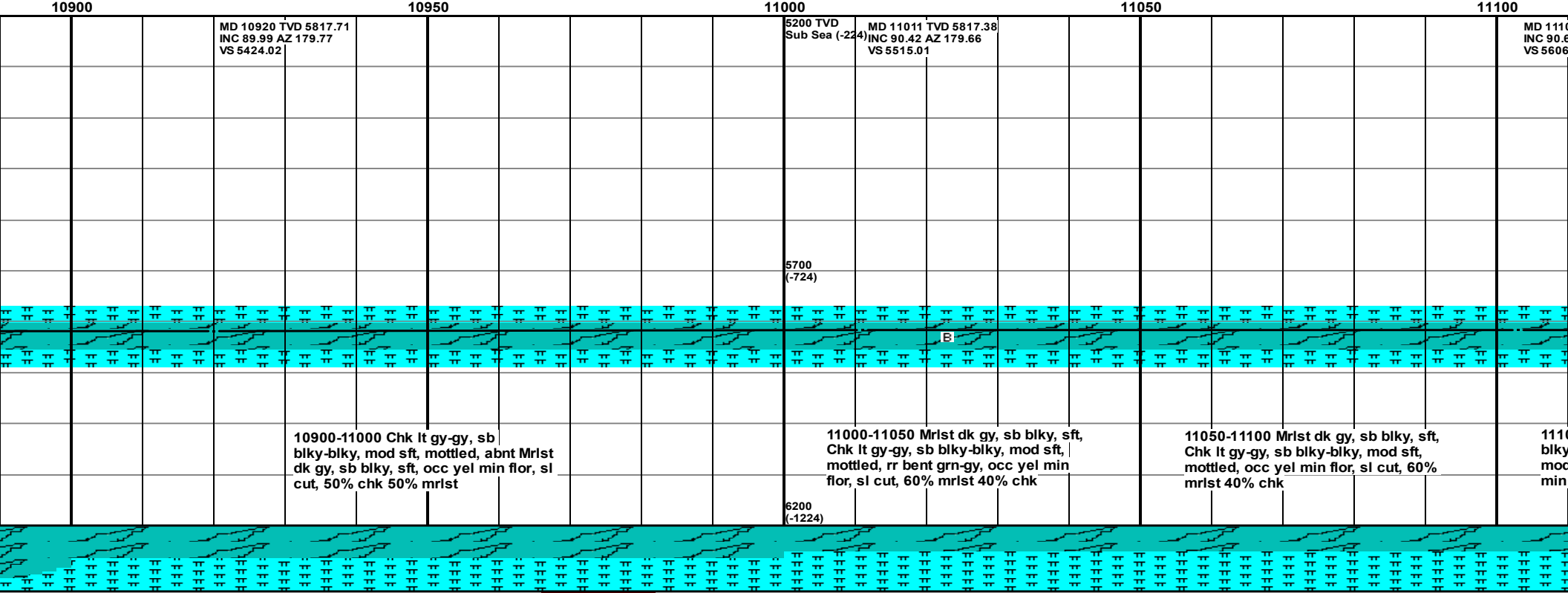
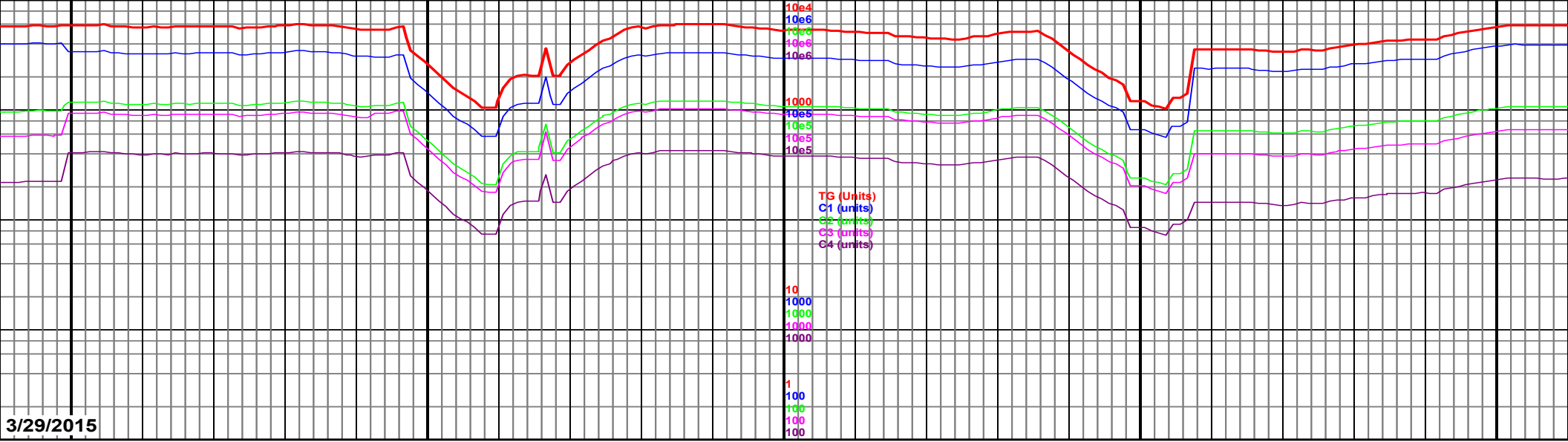


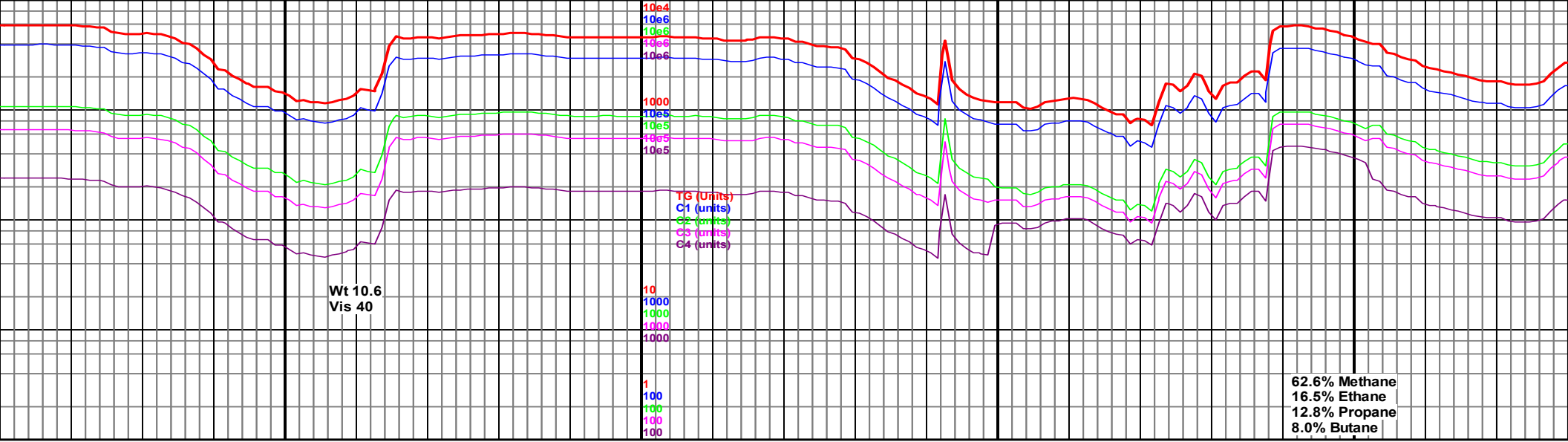







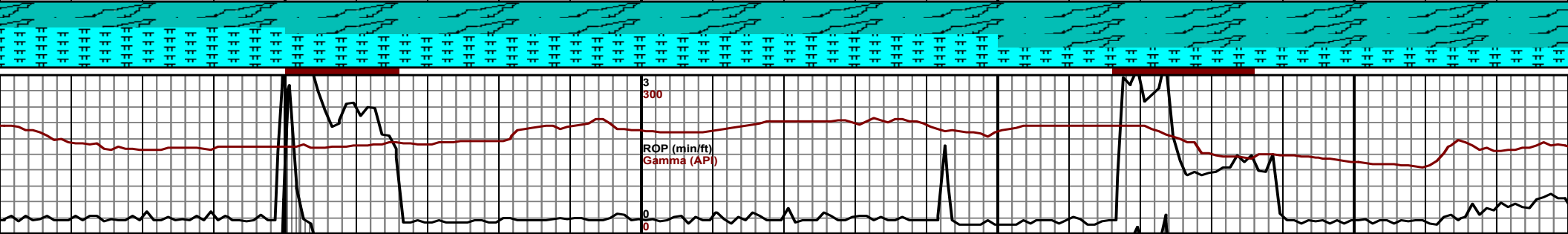


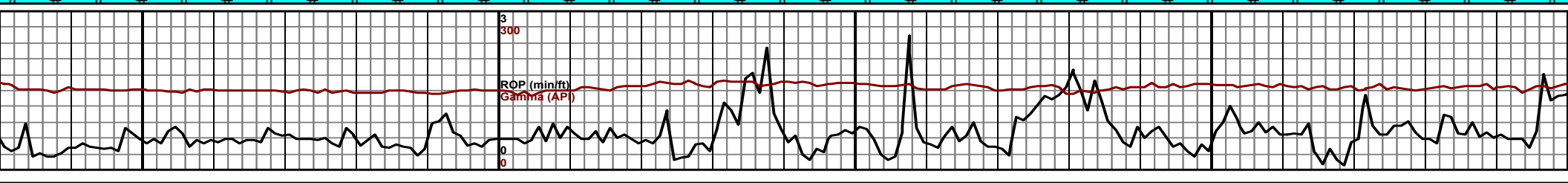
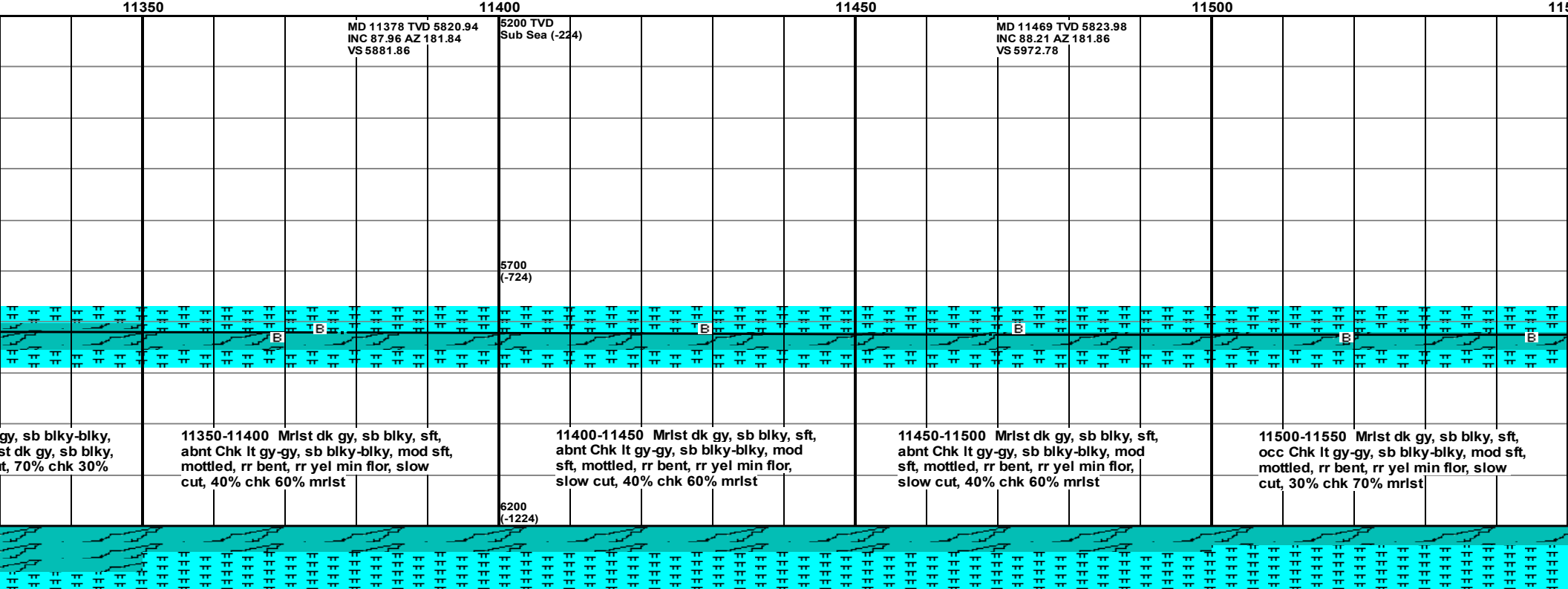
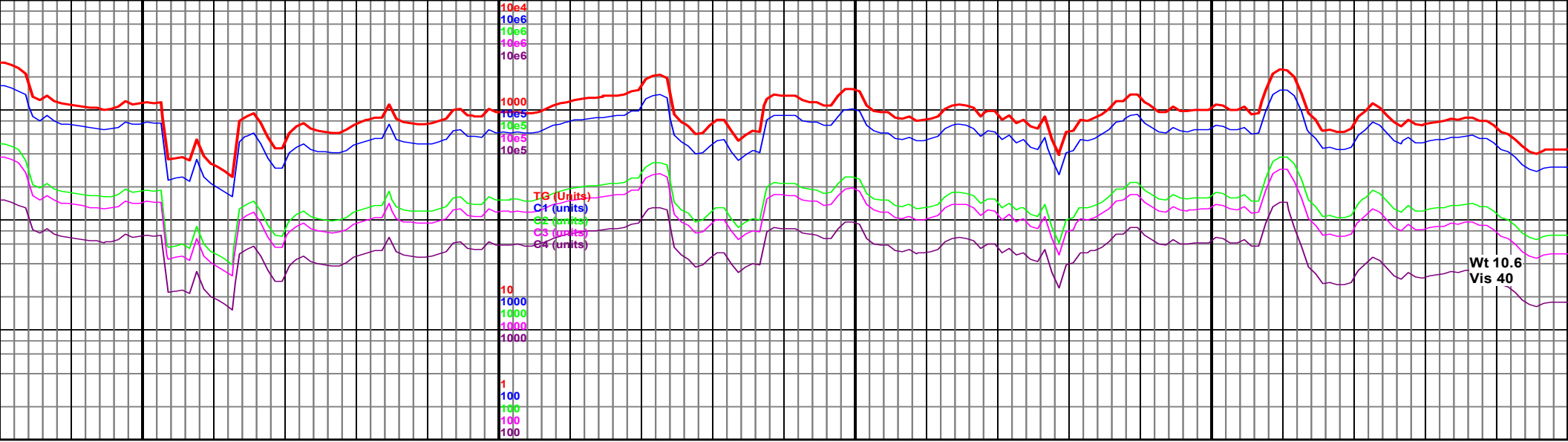


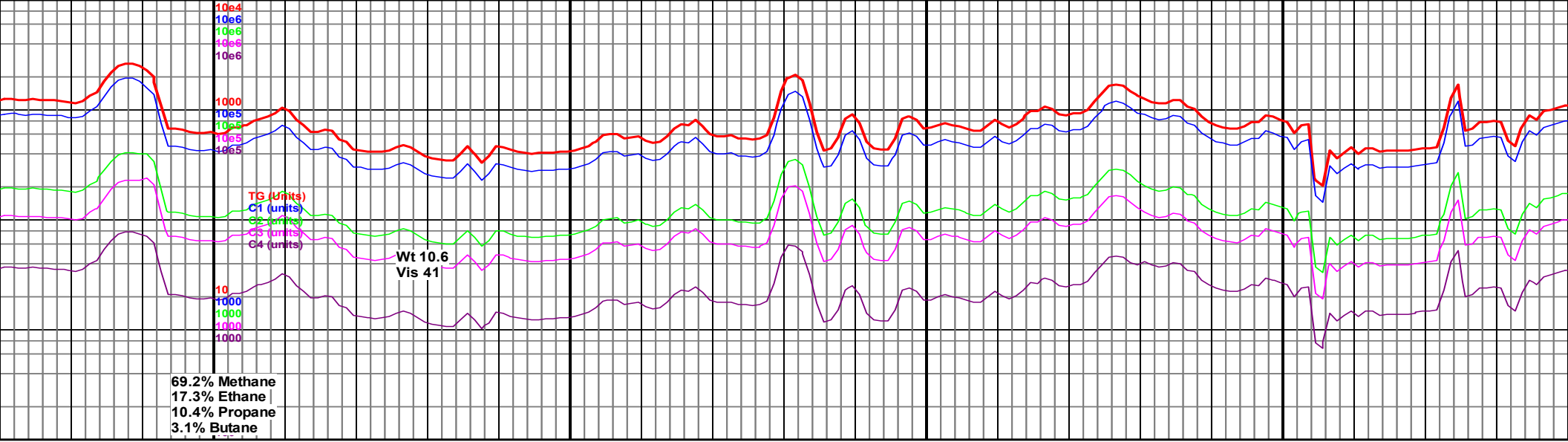




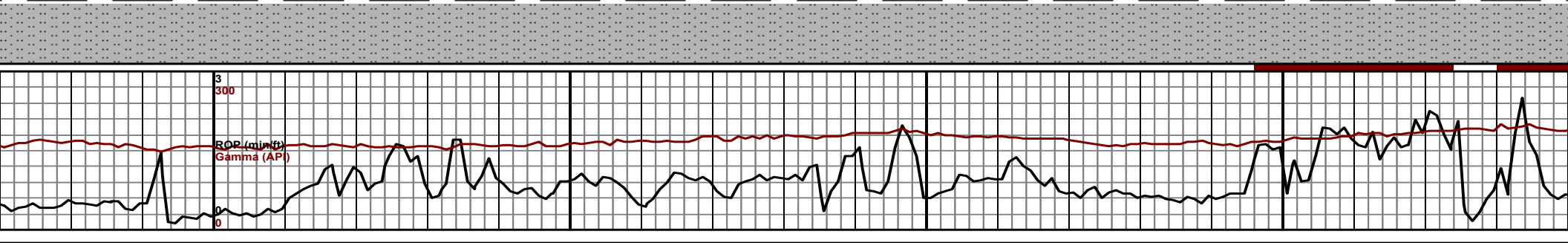
11150				11200				11250				11300							
MD 11194 TVD 5816.1 INC 89.99 AZ 180.07 ¹⁾ VS 5697.98				MD 11286 TVD 5817.7 INC 88.01 AZ 181.72 VS 5789.96															
				5700 (-724)															
																			
00-11150 Abnt LCM, Mrlst dk gy, sb gy, sft, Chk lt gy-gy, sb blkyl-blky, d sft, mottled, rr bent grn-gy, occ yel flor, sl cut, 60% mrlst 40% chk				11150-11200 Chk lt gy-gy, sb blkyl-blky, mod sft, mottled, abnt Mrlst dk gy, sb blkyl, sft, occ yel min flor, sl cut, 50% chk 50% mrlst				11200-11250 Chk lt gy-gy, sb blkyl-blky, mod sft, mottled, abnt Mrlst dk gy, sb blkyl, sft, occ yel min flor, sl cut, 50% chk 50% mrlst				11250-11300 Chk lt gy-gy, sb blkyl-blky, mod sft, mottled, rr Mrlst dk gy, sb blkyl, sft, rr bent grn-gy, sl cut, 70% chk 30% mrlst				11300-11350 Chk lt gy-gy, mod sft, mottled, rr Mrlst sft, rr bent grn-gy, sl cu mrlst			
				6200 (-1224)															

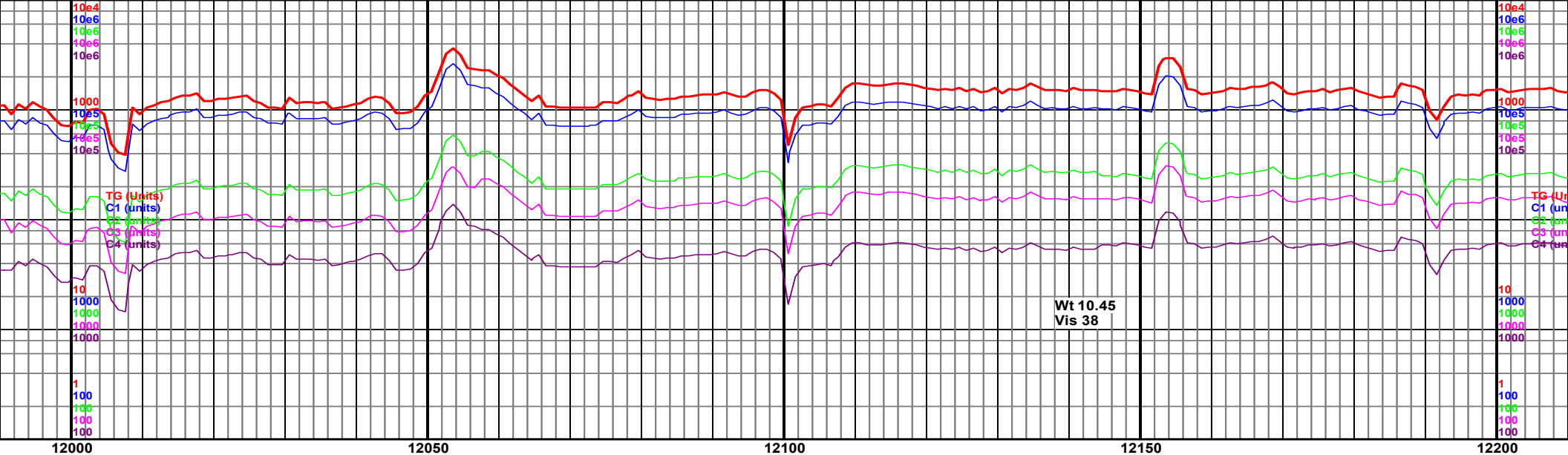




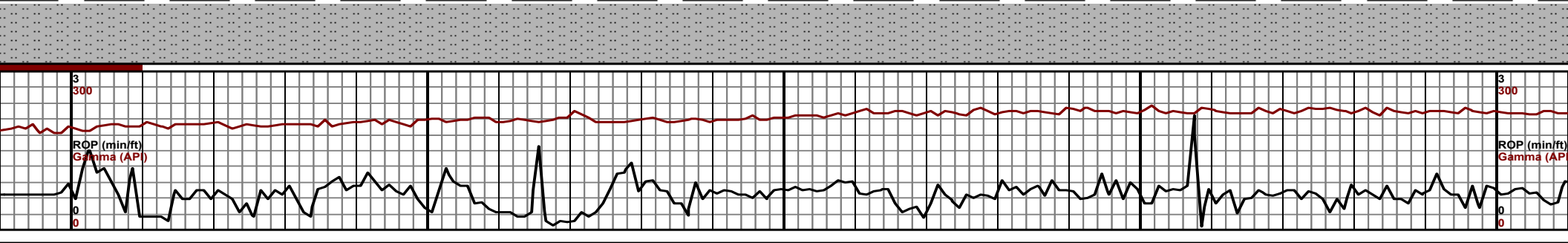


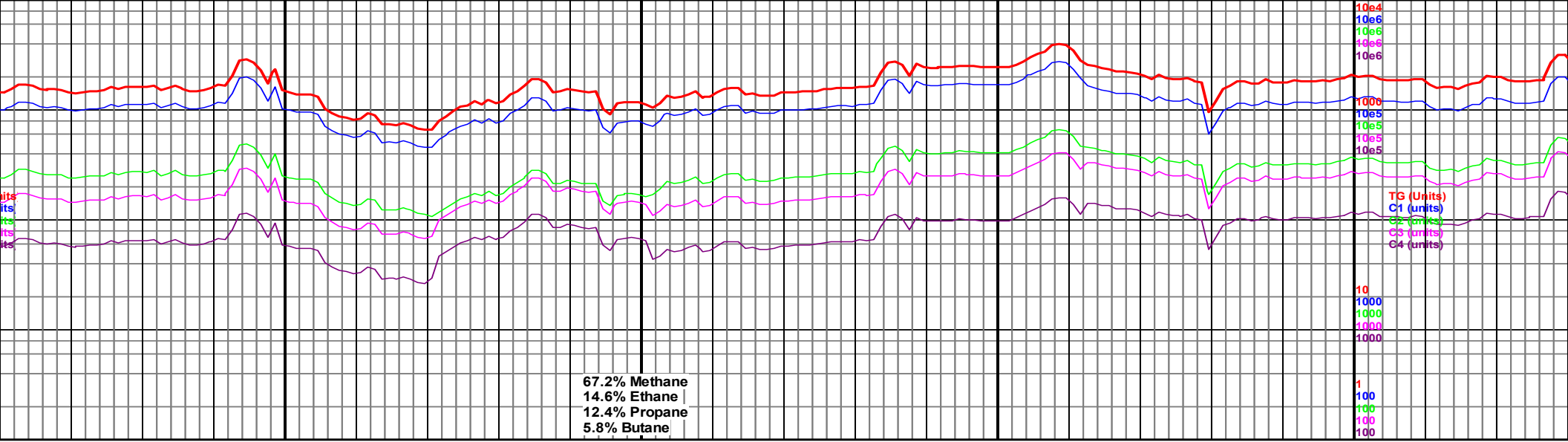
11800					11850					11900					11950				
5200 TVD Sub Sea (-224)					MD 11836 TVD 5826.25 INC 90.42 AZ 179.56 VS 6339.68										MD 11927 TVD 5825.22 INC 90.87 AZ 179.76 VS 6430.67				
5700 (-724)																			
B					B														
Sltst gy-dk gy, sb non calc, rr sh med gy, 90% sltst, 10% sh					11800-11850 Sltst gy-dk gy, sb blky-blky, sft, non calc, rr sh med gy, sb plty, rr bent, 90% sltst, 10% sh					11800-11900 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, rr bent, 90% sltst, 10% sh					11900-11950 Poor sample abnt lcn, Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, 90% sltst, 10% sh				
6200 (-1224)																			





5200 TVD Sub Sea (-224)	MD 12019 TVD 5824.13 INC 90.49 AZ 179.29 VS 6522.66		MD 12110 TVD 5823.15 INC 90.74 AZ 179.4 VS 6613.64		MD 12201 TVD 5824.13 INC 90.83 AZ 179.4 VS 6705.64
5700 (-724)					5700 (-724)
12000-12050 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, rr bent, 90% sltst, 10% sh		12050-12100 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, 90% sltst, 10% sh	12100-12150 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, 90% sltst, 10% sh	12150-12200 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, 90% sltst, 10% sh	12200-12250 Sltst gy-dk gy, sb blky-blky, sft, slty ip, non calc, rr sh med gy, sb plty, 90% sltst, 10% sh
6200 (-1224)					6200 (-1224)





MD 12294 TVD 5821.38
INC 89.81 AZ 179.65
VS 6797.61

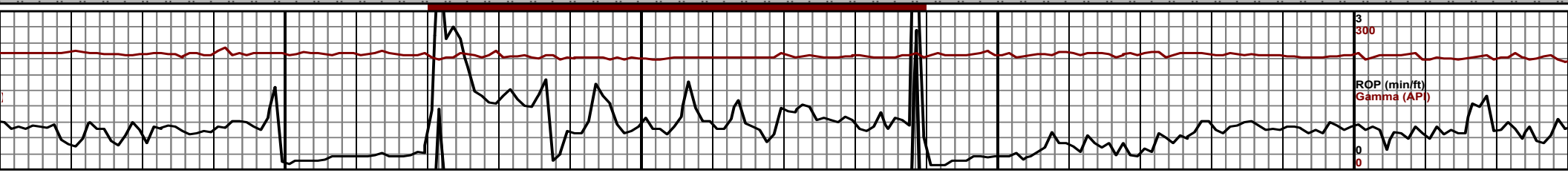
MD 12386 TVD 5821.56 VD
INC 89.97 AZ 179.32² Sea (-224)
VS 6889.6

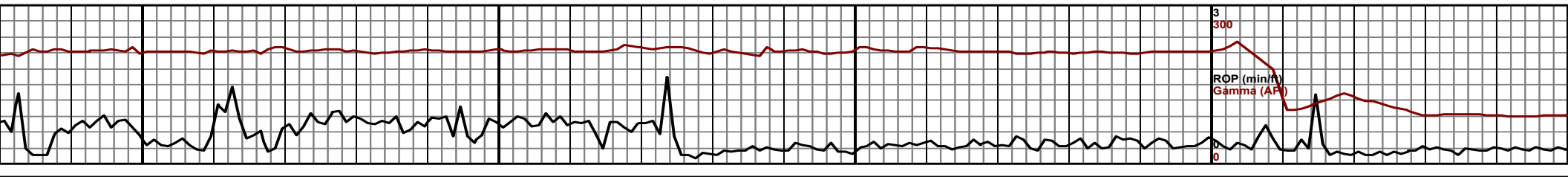
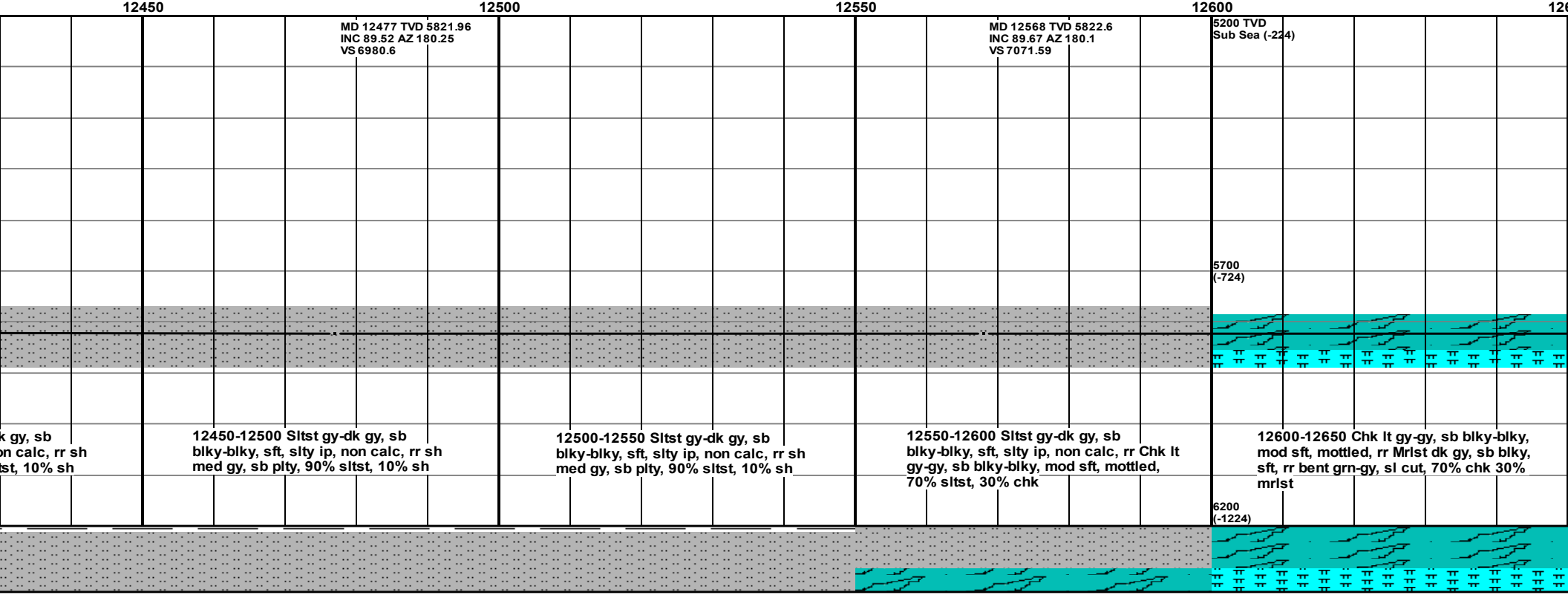
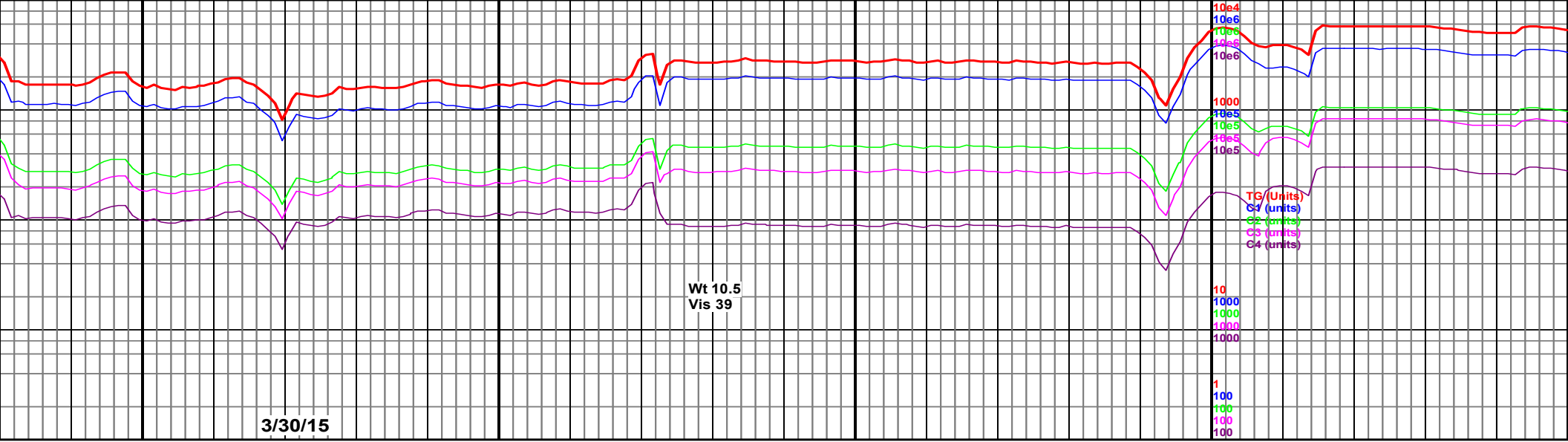
12250-12300 Slitst gy-dk gy, sb
blky-blky, sft, slty ip, non calc, rr sh
med gy, sb plty, 90% slitst, 10% sh

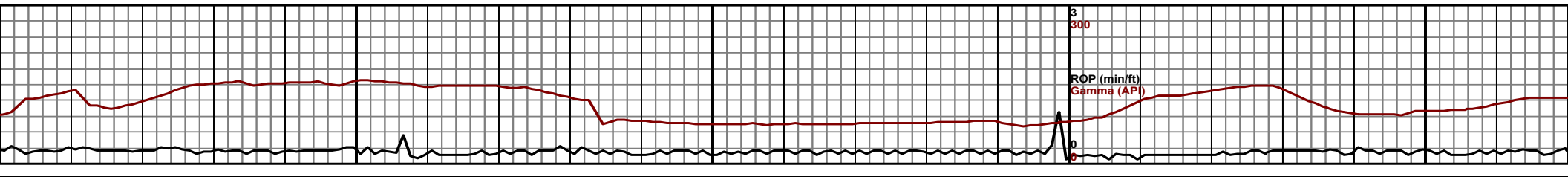
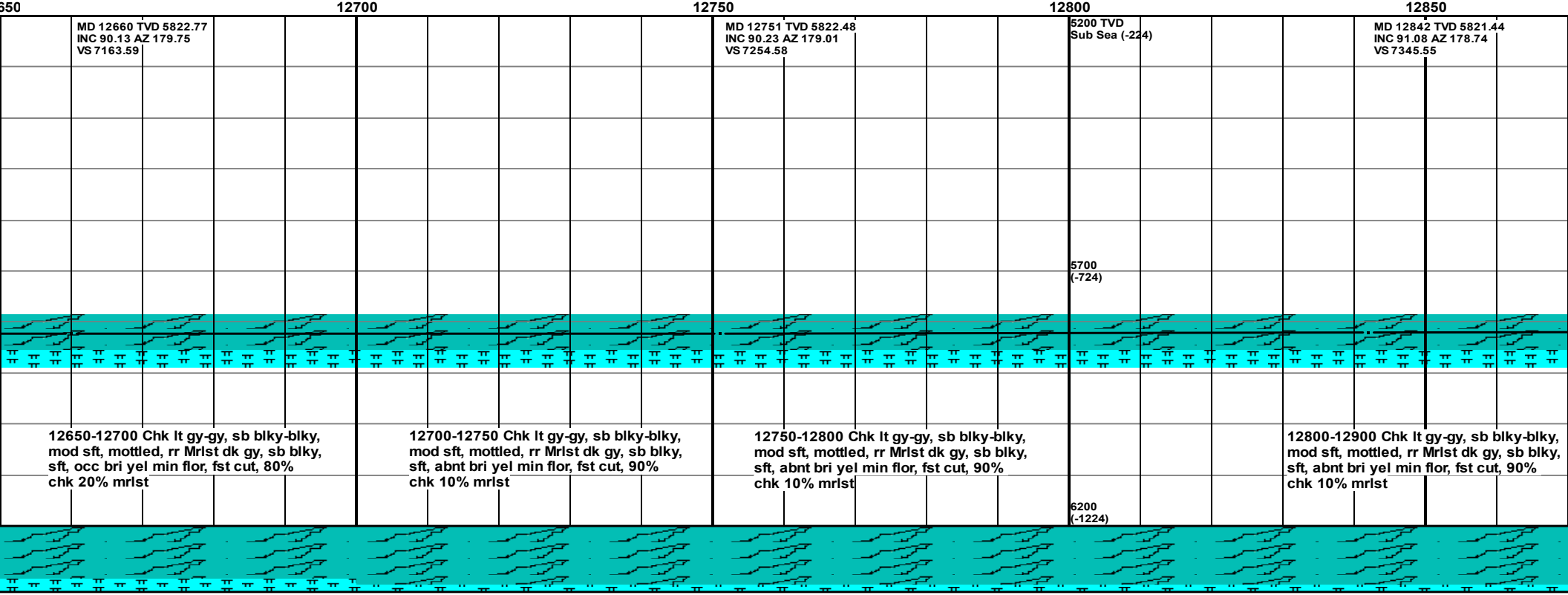
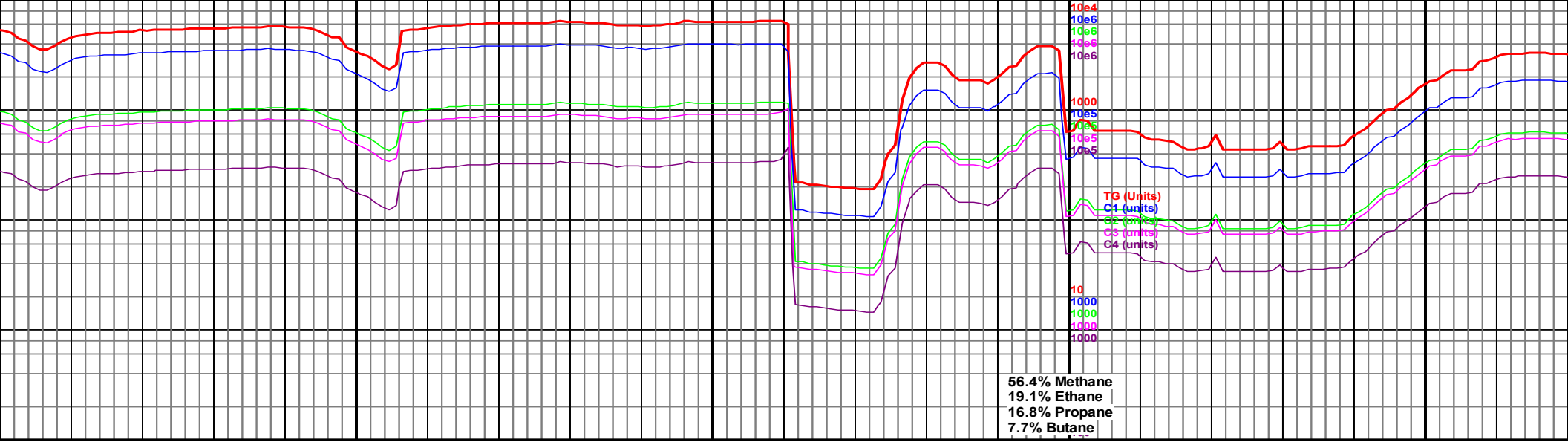
12300-12350 Slitst gy-dk gy, sb
blky-blky, sft, slty ip, non calc, rr sh
med gy, sb plty, 90% slitst, 10% sh

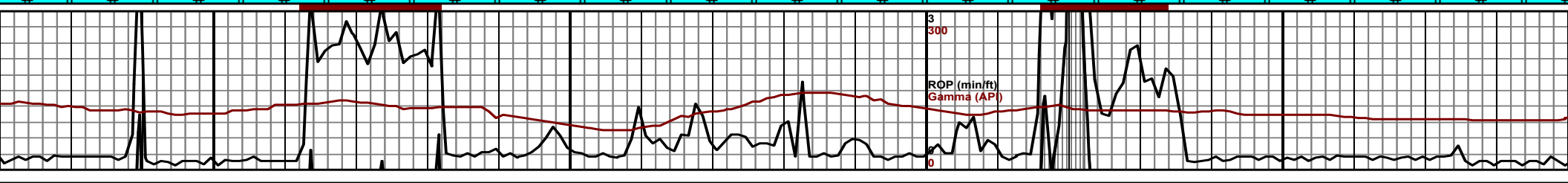
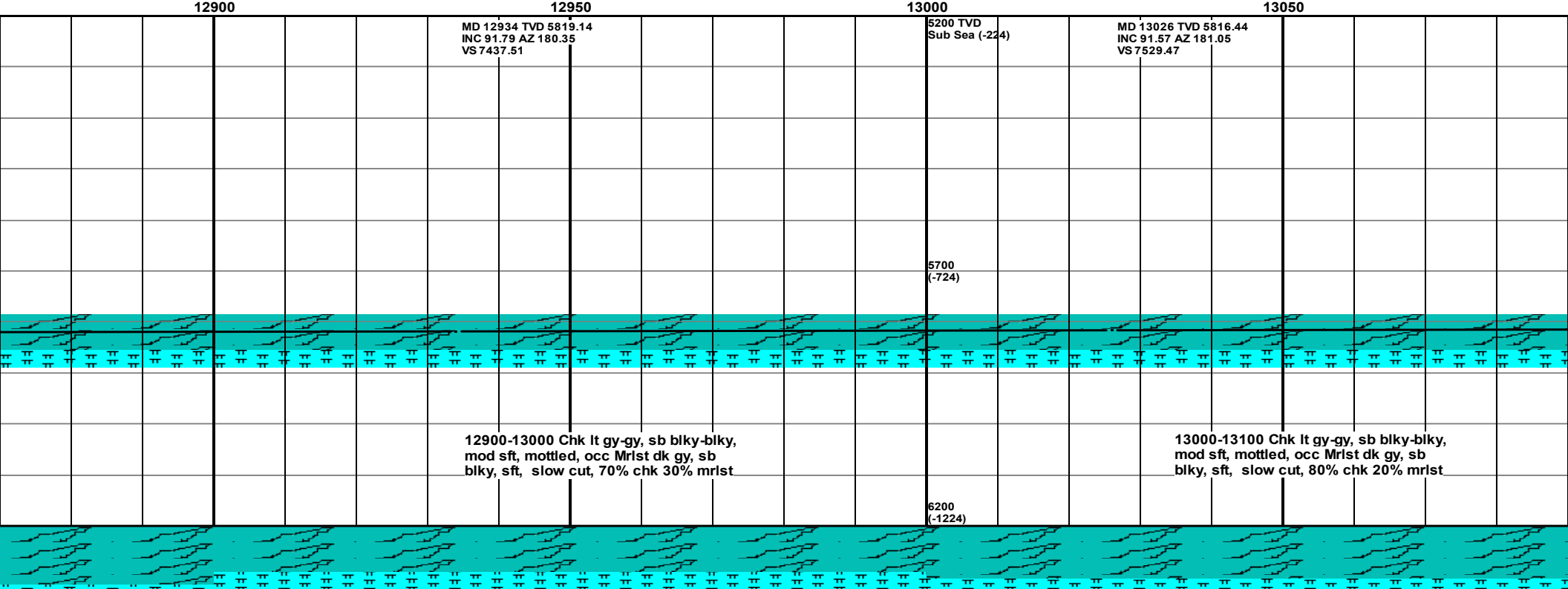
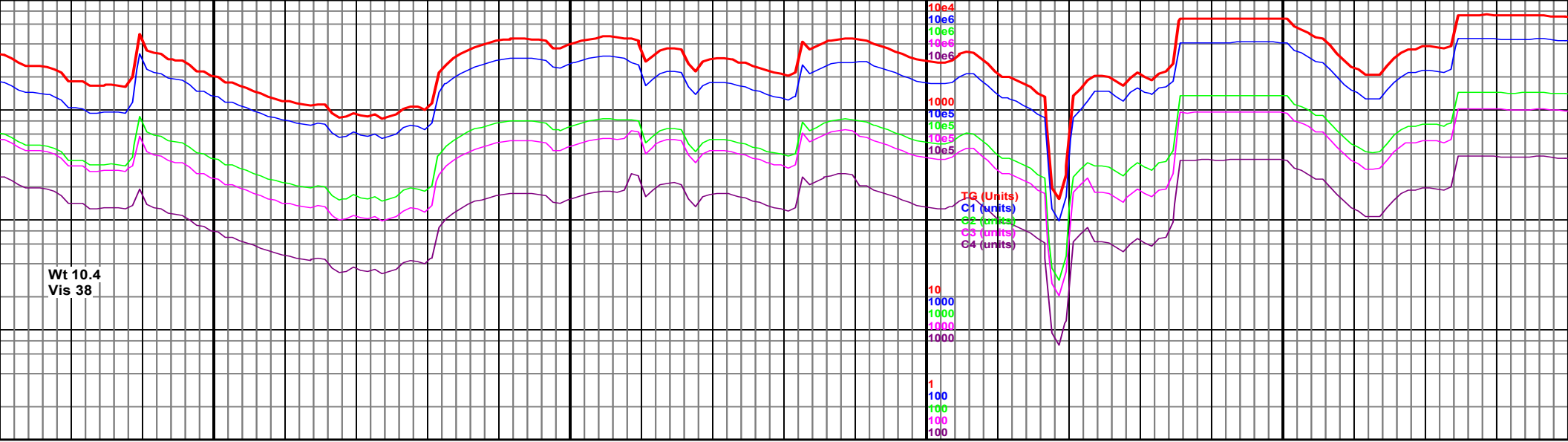
12350-12400 Slitst gy-dk gy, sb
blky-blky, sft, slty ip, non calc, rr sh
med gy, sb plty, 90% slitst, 10% sh

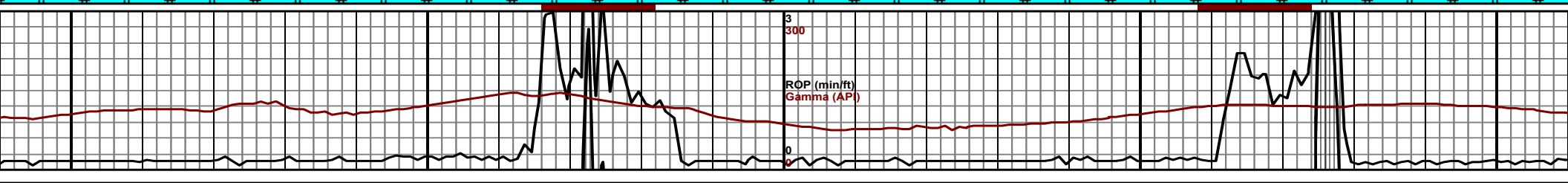
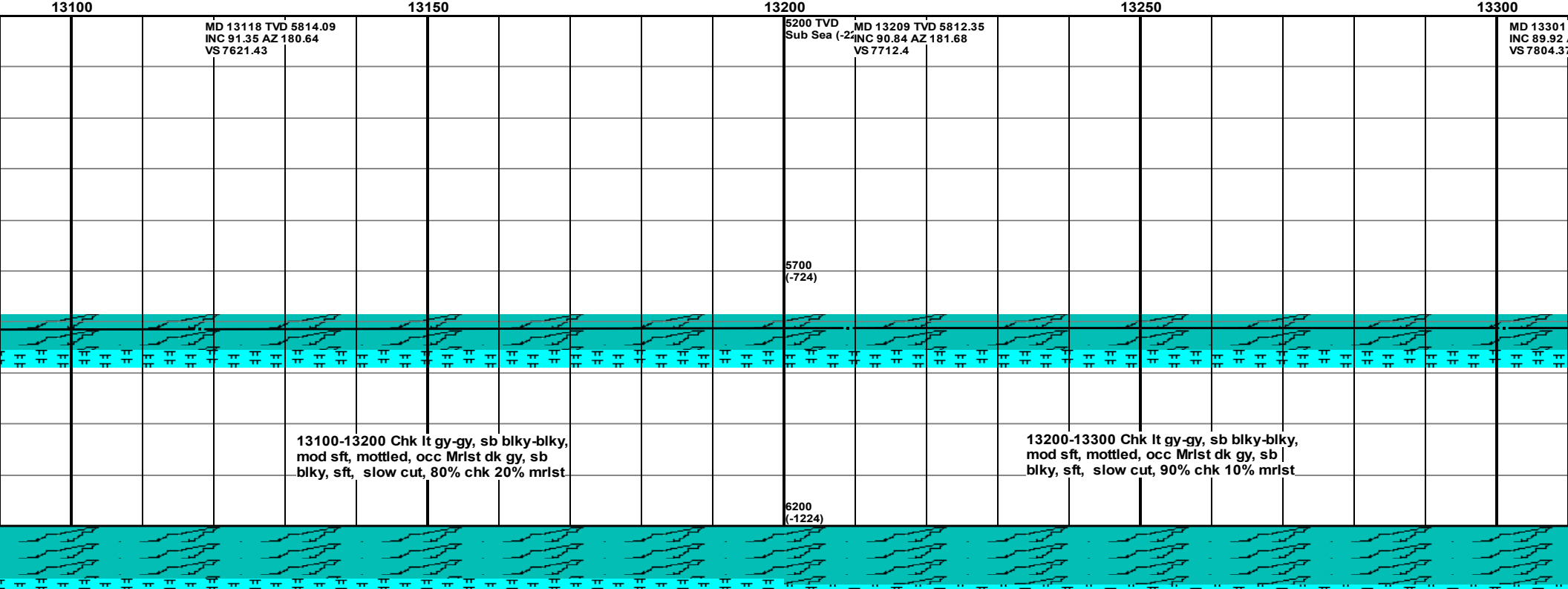
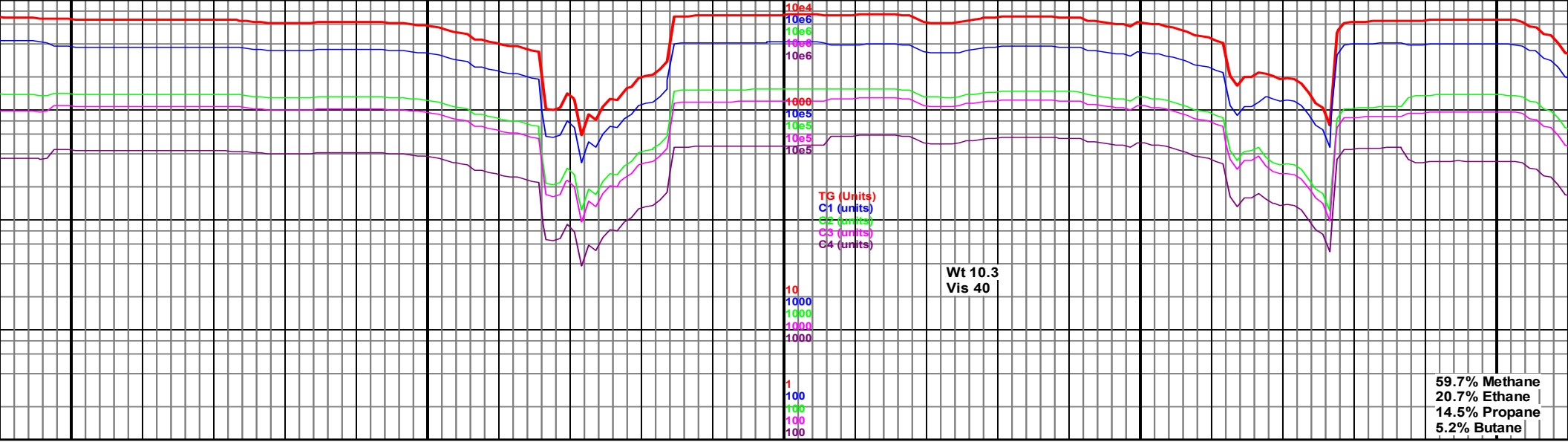
12400-12450 Slitst gy-dk gy, sb
blky-blky, sft, slty ip, non calc, rr sh
med gy, sb plty, 90% slitst, 10% sh

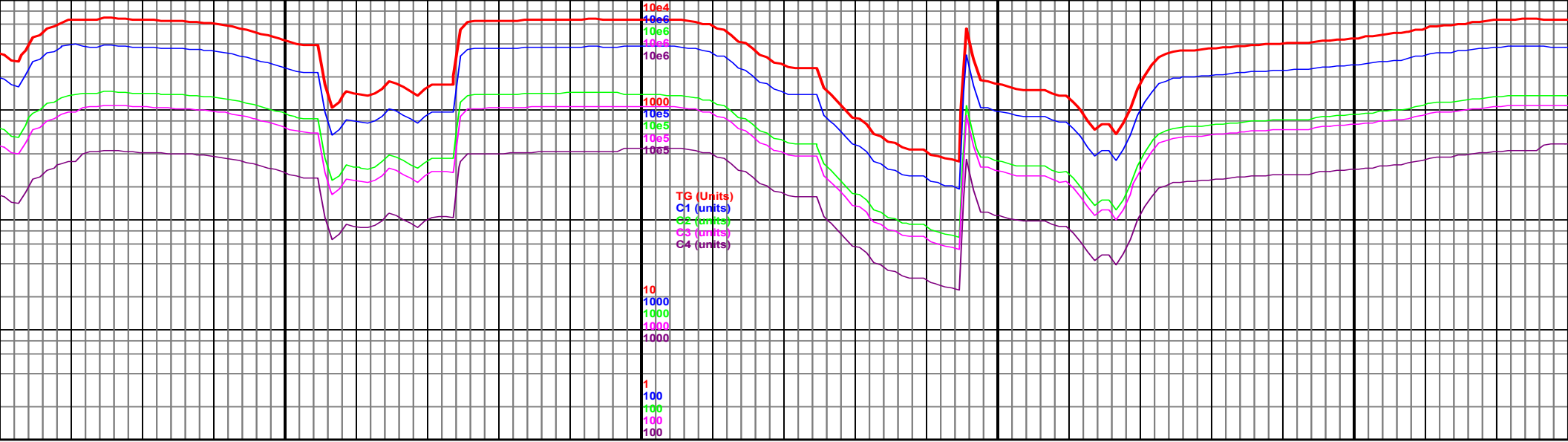




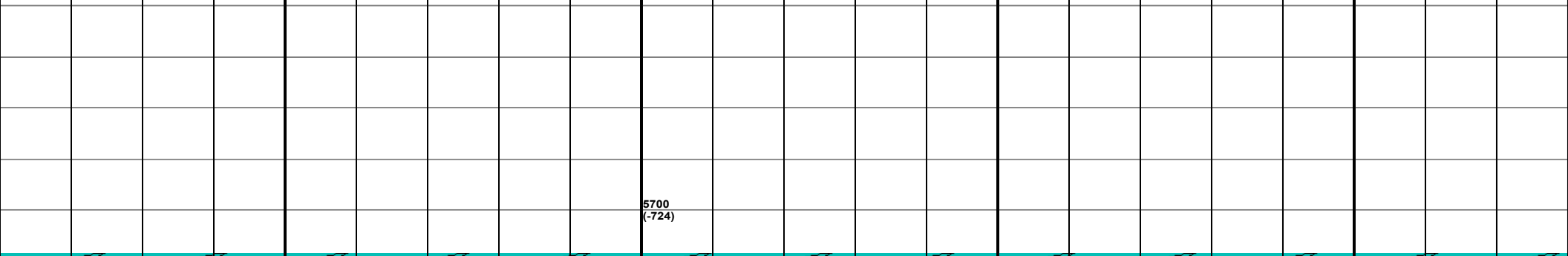








TVD 5811.74 AZ 181.63 7	MD 13392 TVD 5813.01 INC 88.49 AZ 182.36 ⁽⁴⁴⁾ VS 7895.31	MD 13484 TVD 5815.23 INC 88.74 AZ 182.38 VS 7987.22
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13300-13400 Chk lt gy-gy, sb blkyl-blky,
mod sft, mottled, occ Mrlst dk gy, sb
blkyl, sft, slow cut, 90% chk 10% mrlst

13400-13500 Chk lt gy-gy, sb blkyl-blky,
mod sft, mottled, occ Mrlst dk gy, sb
blkyl, sft, slow cut, 90% chk 10% mrlst

