



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

Well Name: Razor Federal 12F-1304B
Well Id: 05-123-38716-00
Location: SENW Sec 12-T10N-58W
License Number: 05-123-38716-00
Spud Date: 4/13/2015
Surface Coordinates: Lat.: 40.854456

Region: Redtail Field
Drilling Completed: 4/25/2015
Long.: -103.818039

Bottom Hole
Coordinates:
Ground Elevation (ft): 4937
Logged Interval (ft): 5485 To: 14175
Formation: Pierre, Sharon Springs, Niobrara B
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4954
Total Depth (ft): 14175

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: Kyle Newman, Craig Dreiling, Mitch Schneider
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Xtreme 18


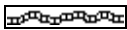
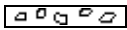

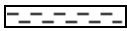
Gas Detection






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



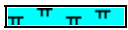
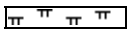

Comments

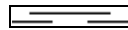
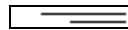
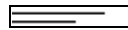


Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.




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

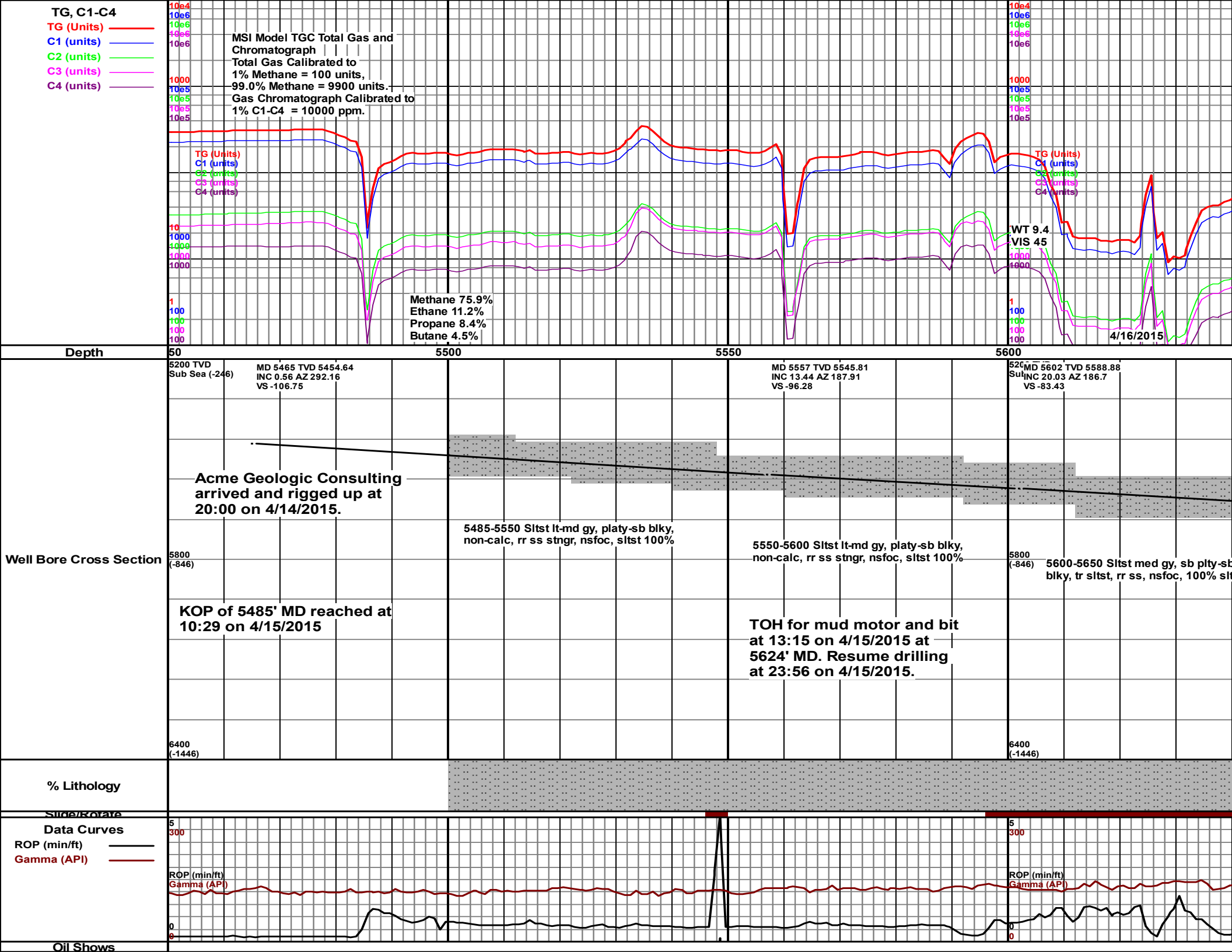
ROUNDING
 Rounded
 Subrnd
 Subang
 Angular

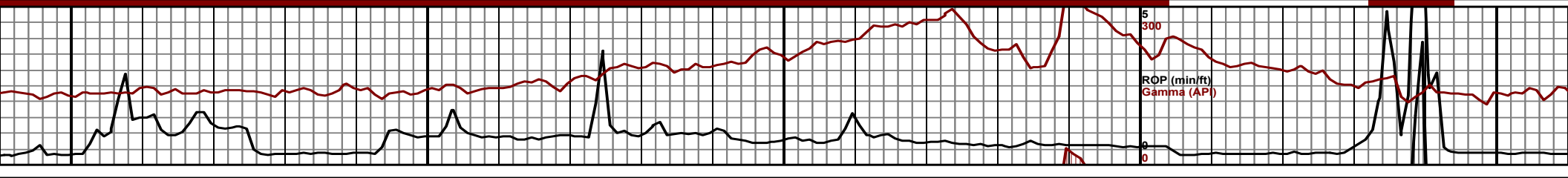
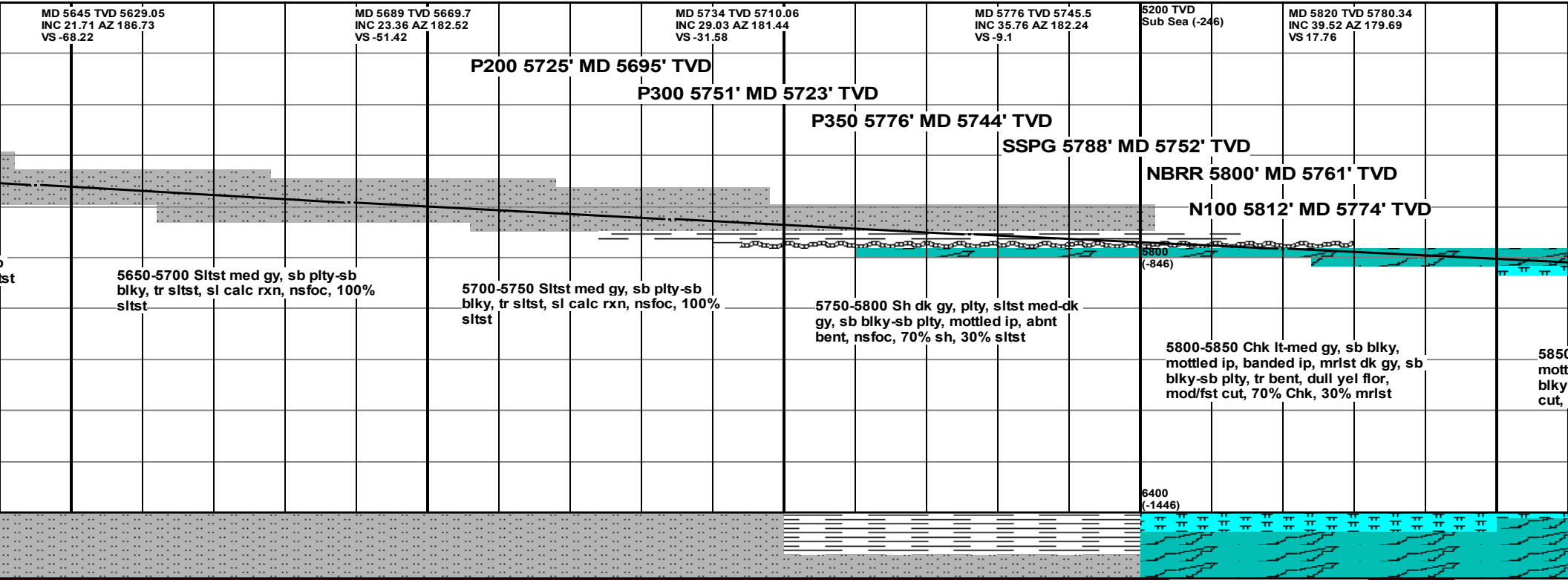
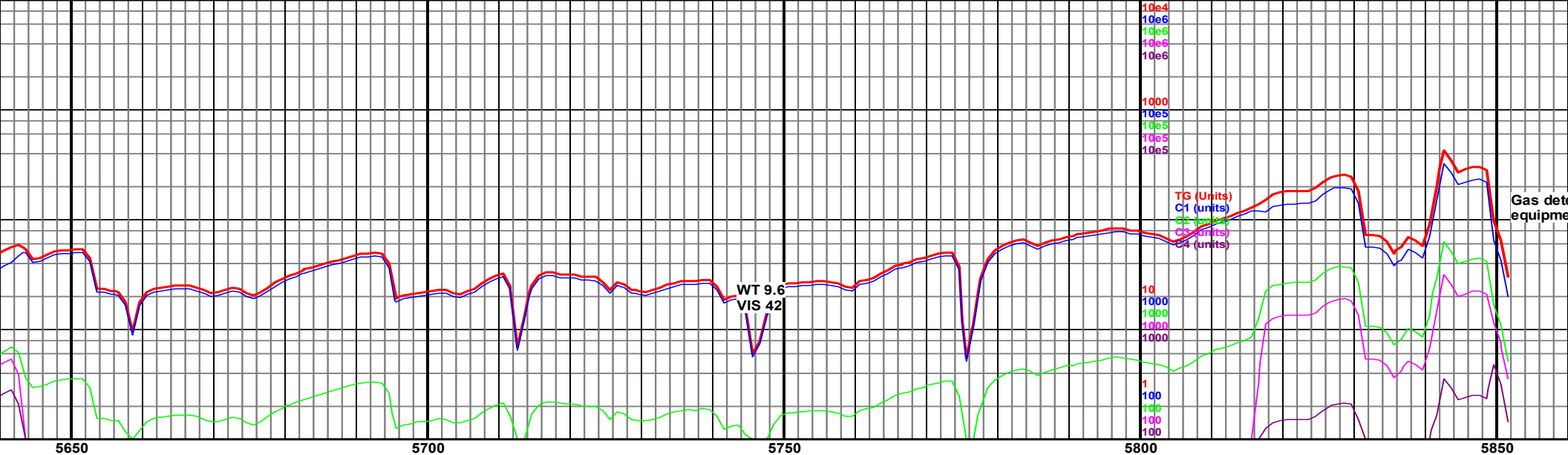
OIL SHOW
 Even

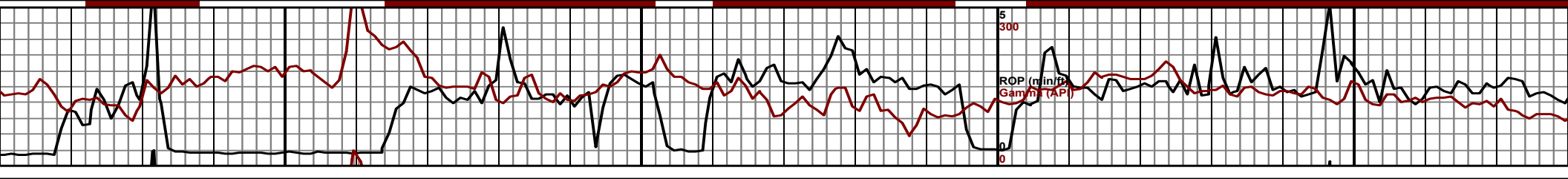
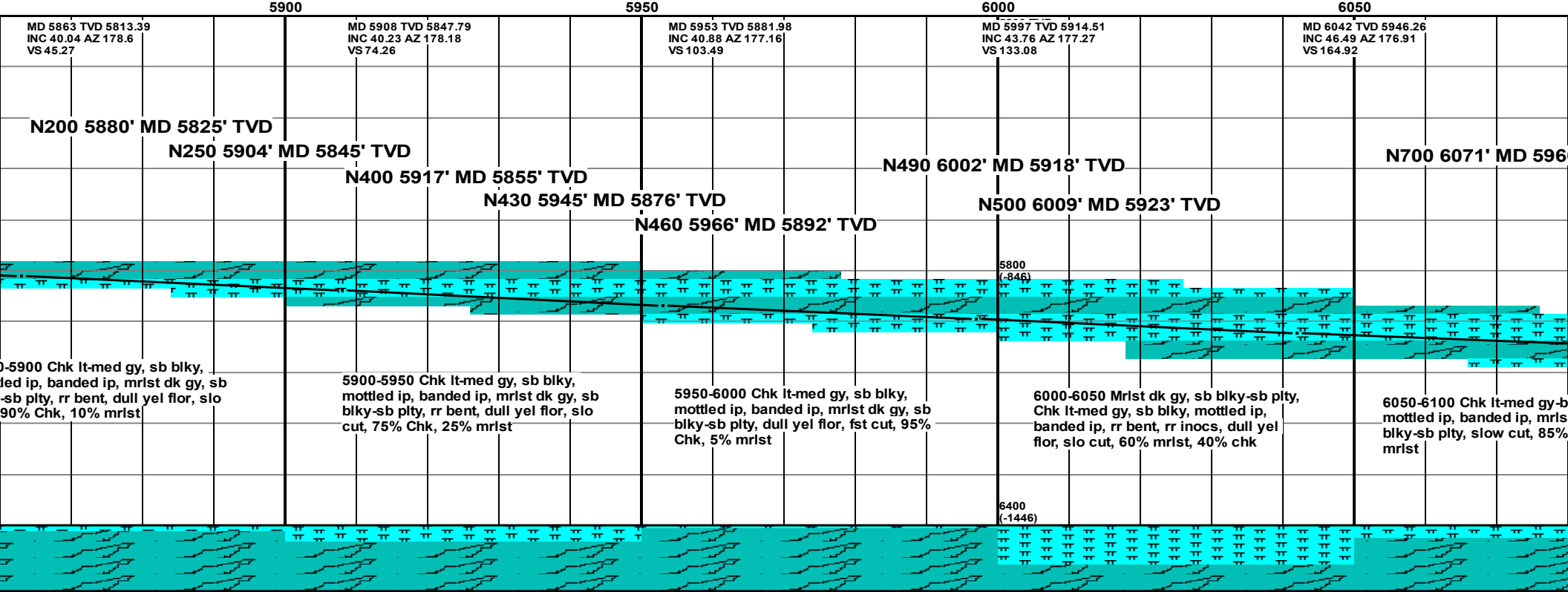
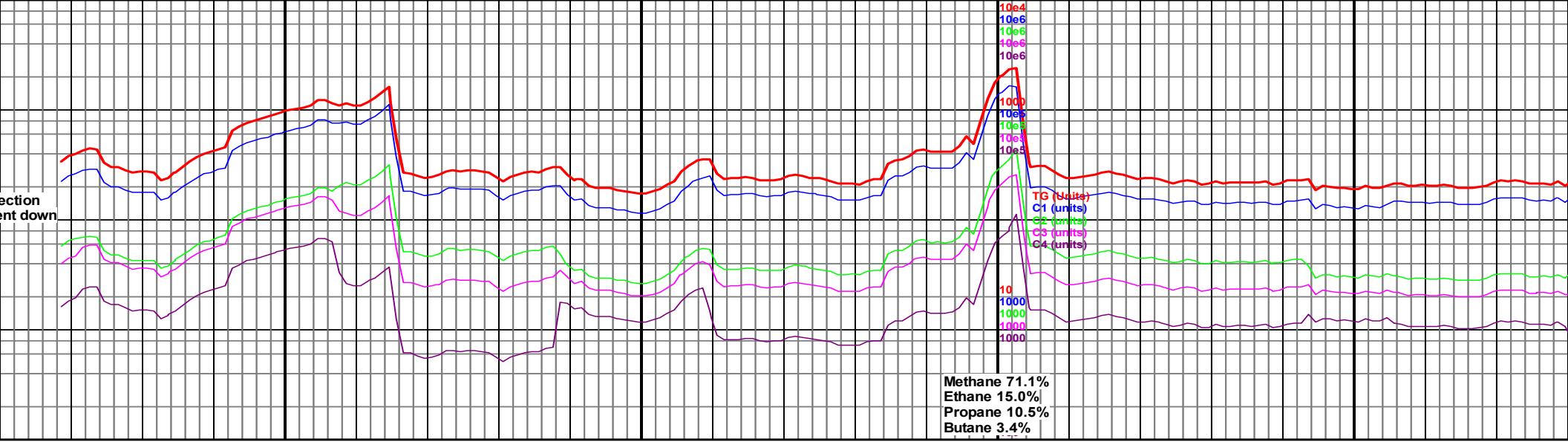
 Spotted
 Ques
 Dead

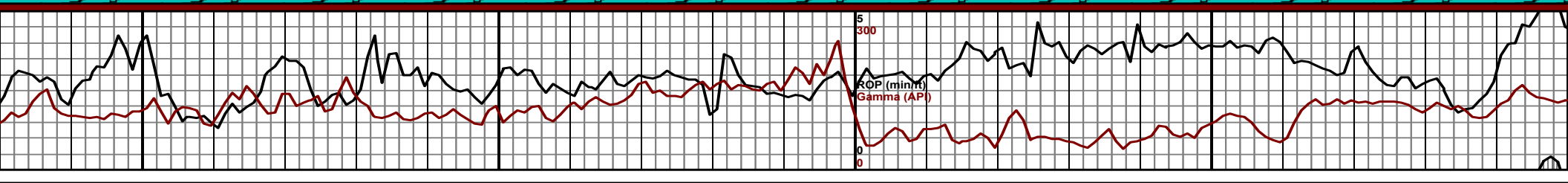
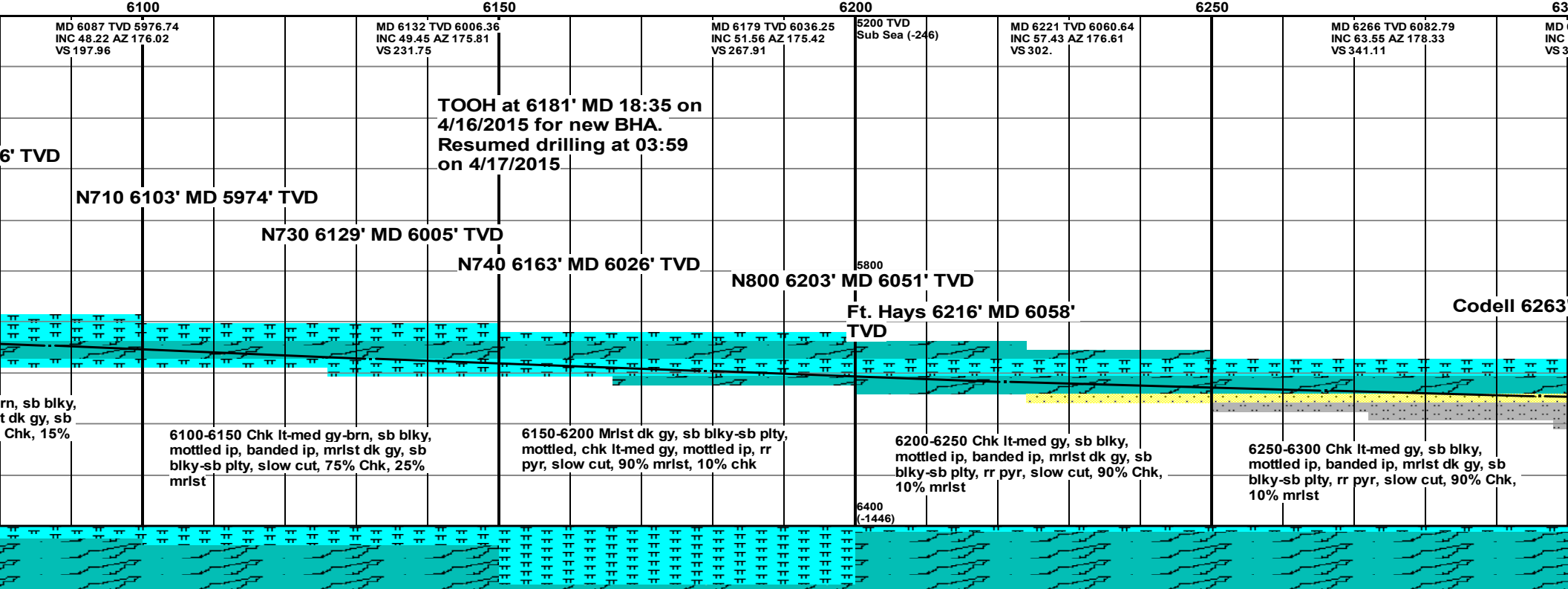
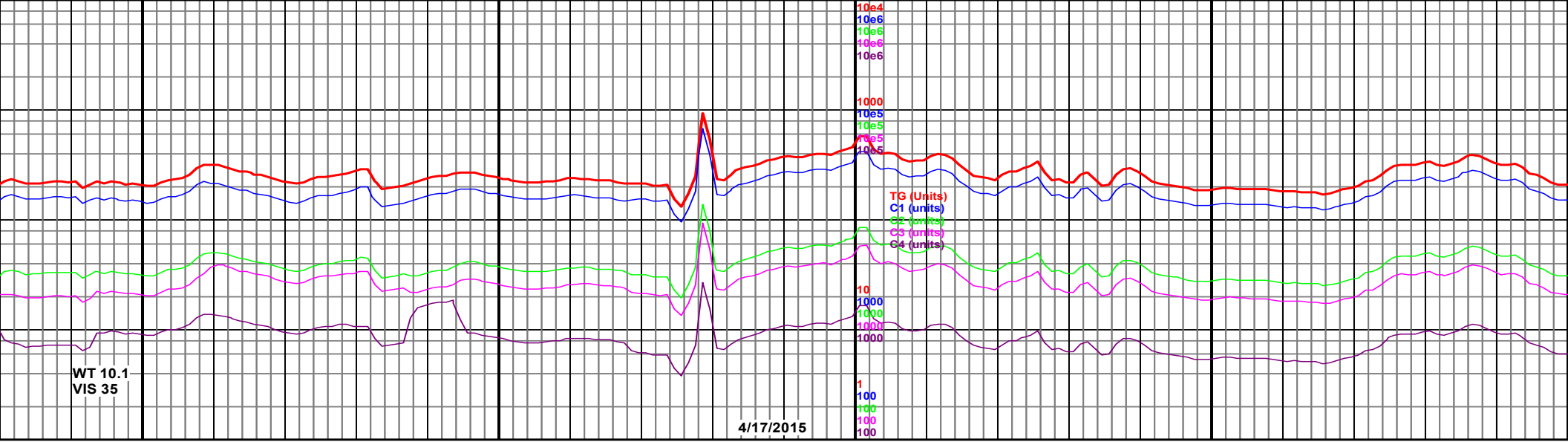
INTERVAL
 Core
 Dst

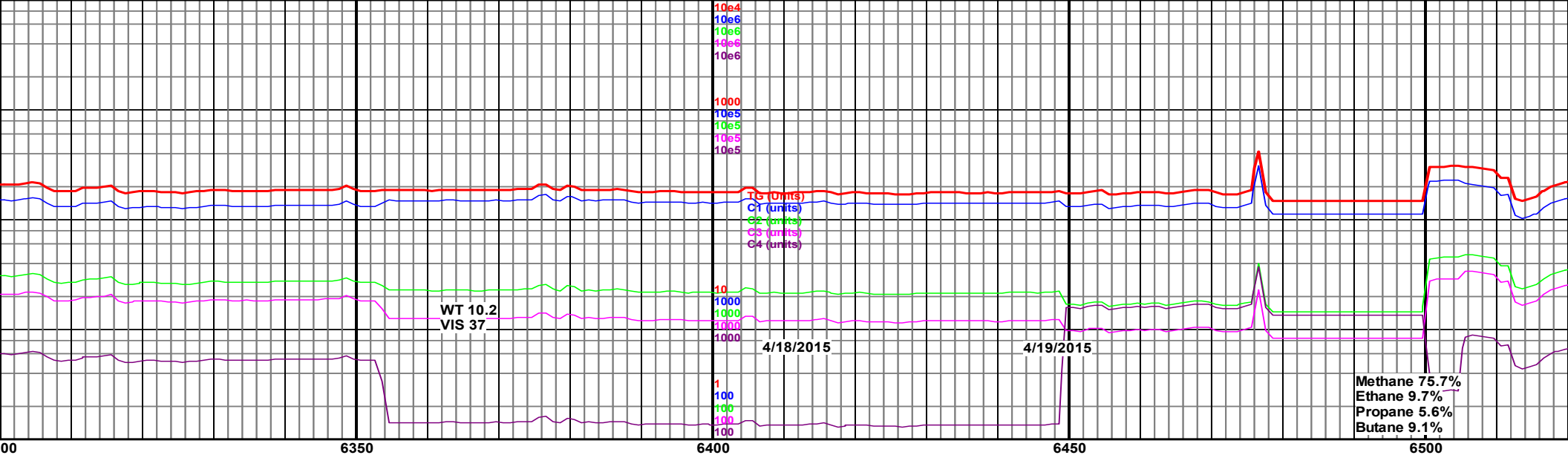
EVENT
 Rft
 Sidewall











MD 6296 TVD 6095.05 INC 68.22 AZ 178.6 VS 168.47	MD 6326 TVD 6105.08 INC 72.7 AZ 178.7 VS 396.73	MD 6356 TVD 6113.06 INC 76.42 AZ 178.9 VS 425.63	MD 6386 TVD 6119.17 TVD INC 80.09 AZ 179.39 Sea (-24) VS 455.	MD 6410 TVD 6122 MD 6425 TVD 6124.17 INC 83.13 AZ 179.6 INC 85.41 AZ 180.06 VS 478.74 VS 493.66	MD 6445 TVD 6125.35 INC 87.79 AZ 180.43 VS 513.62
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6400-6420 Siltst med gy sb blkly, mottled ip, chk wh-lt gy, blkly, mrlst dk gy, sb blkly-sb plty, mottled, tr sndst, rr bent, slow cut, 80% siltst, 10% chk, 10% mrlst

6420-6440 Siltst med gy, sb blkly, mottled, sndst wh-clr, sb blkly, f gr, sb ang, tr chk wh-lt gy, blkly, tr mrlst dk gy, sb blkly-sb plty, mottled, rr pyr, slow cut, 90% siltst, 10% sndst

6450-6460 Siltst med gy, sb blkly, mottled, tr sndst wh-clr, blkly, f gr, sb ang, rr pyr, slow cut, 95% siltst, 5% sndst

Landed curve 6500' MD at 11:02 on 4/18/2015. Resumed drilling at 16:40 on 4/19/2015

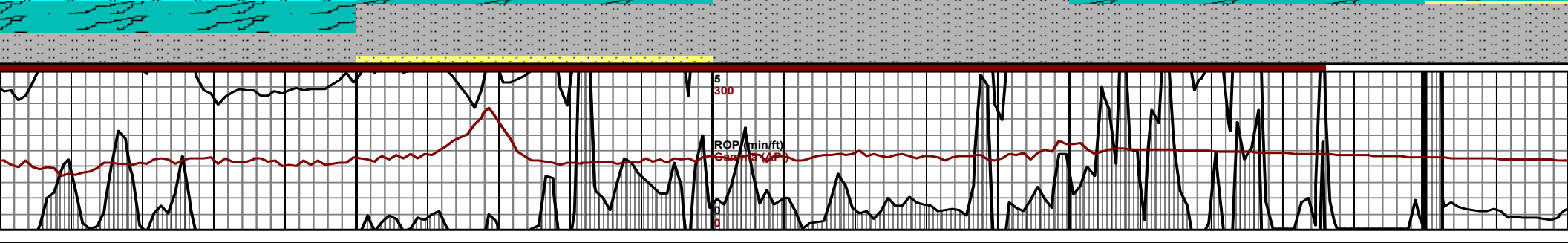
MD 6081' TVD

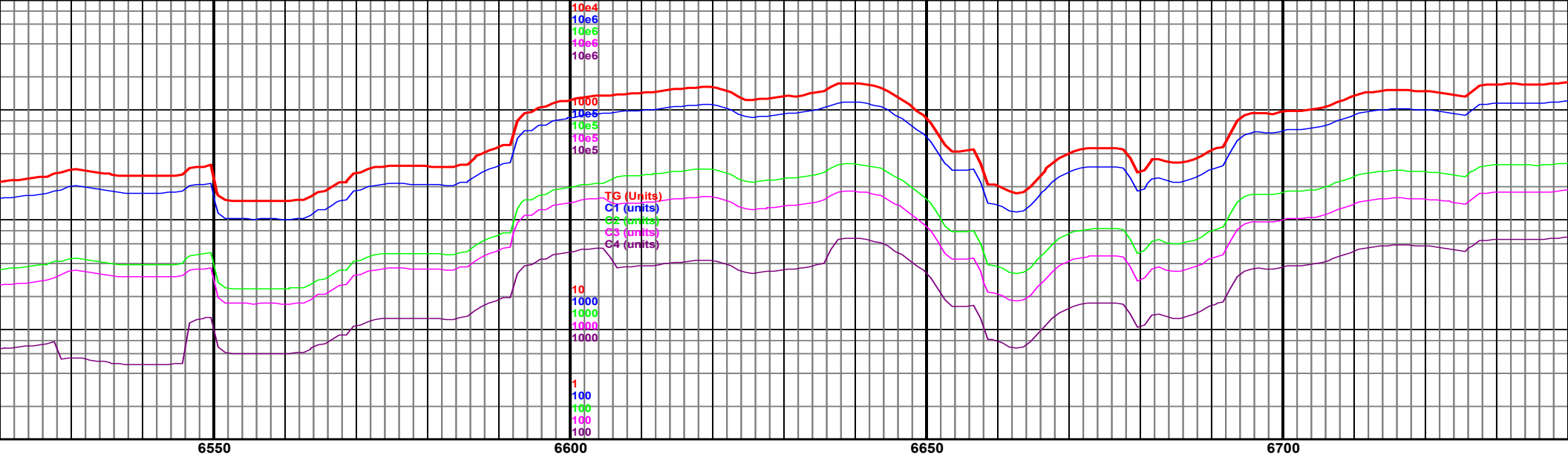
6300-6350 Chk wt-lt gy, sb blkly, mottled ip, banded ip, mrlst dk gy, sb blkly-sb plty, abnt siltst, med gt, sb plty, sft, slow cut, 50% Chk, 50% siltst

6350-6400 Siltst lt-med gy, sb blkly, mottled ip, chk wt-lt gy, sb blkly, sb plty, sndst wh-clr, sb blkly, f gr, sb ang, slow cut, 80% siltst, 10% chk, 10% sndst

6440-6450 Siltst med-dk gy, sb blkly, mottled, tr sndst wh-clr, sb blkly, f gr, sb ang, tr chk, rr mrlst, slow cut, 100% siltst

6460-6480 Siltst med gy, sb blkly, mottled ip, tr Chk, wht-lt gy, sb blkly, yell fluor, 80% siltst, 20% chk





MD 6588 TVD 6125.77'D
INC 91.88 AZ 180.08^{ea} (-246)
VS 656.59

MD 6678 TVD 6123.34
INC 91.21 AZ 179.71
VS 746.56

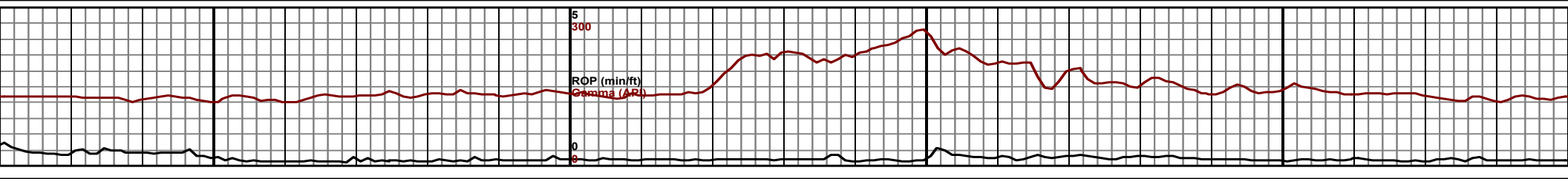
5800
(-846)

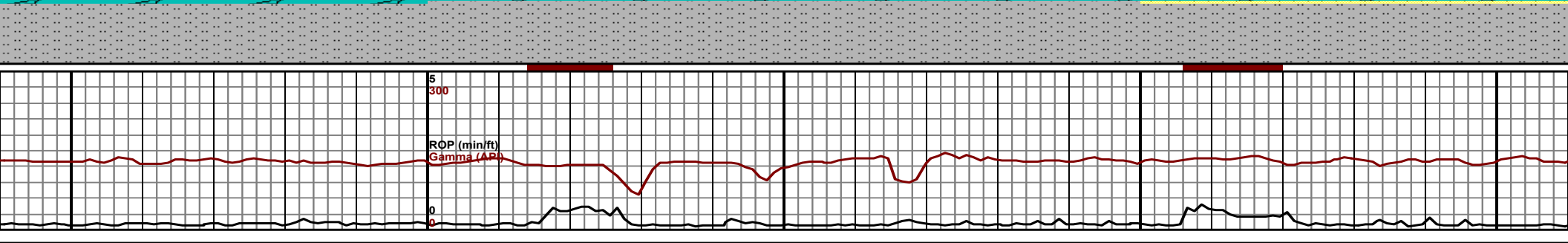
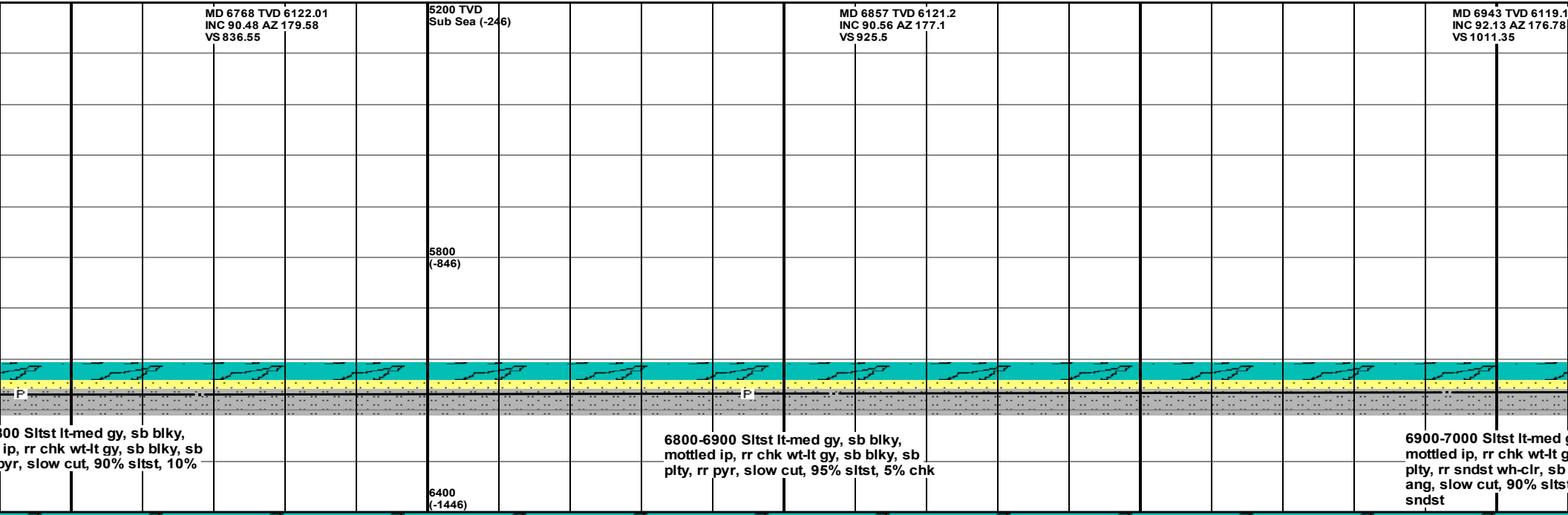
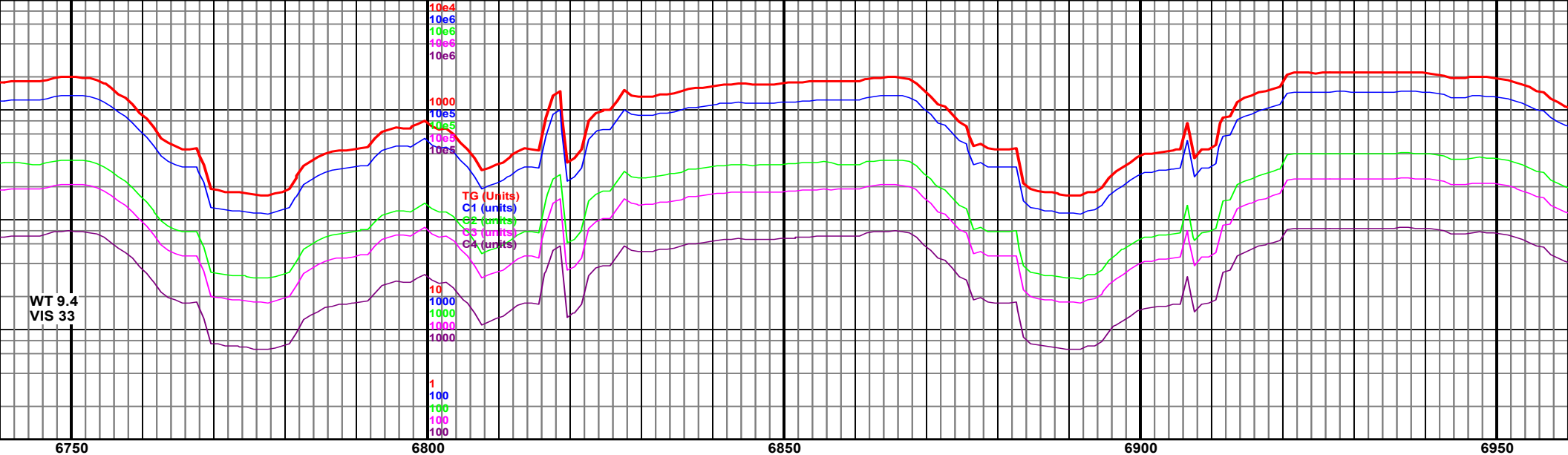
6500-6600 Slst lt-med gy, sb blk, mottled ip, rr chk wt-lt gy, sb blk, sb plty, rr sndst wh-clr, sb blk, f gr, sb ang, slow cut, 90% slst, 5% chk, 5% sndst

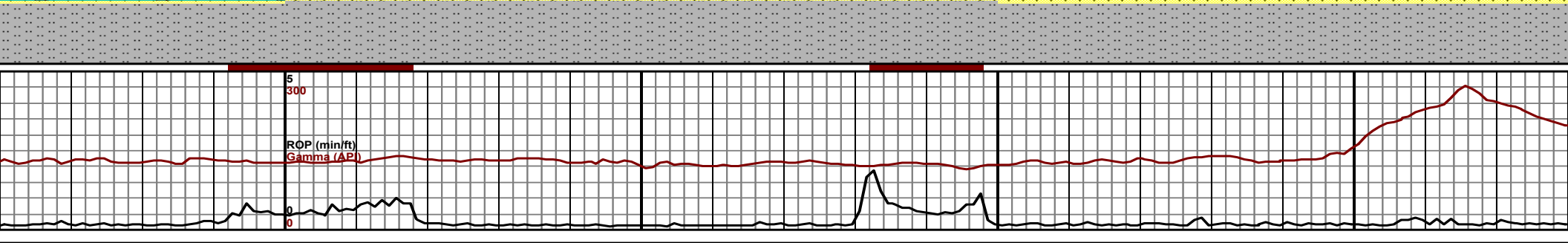
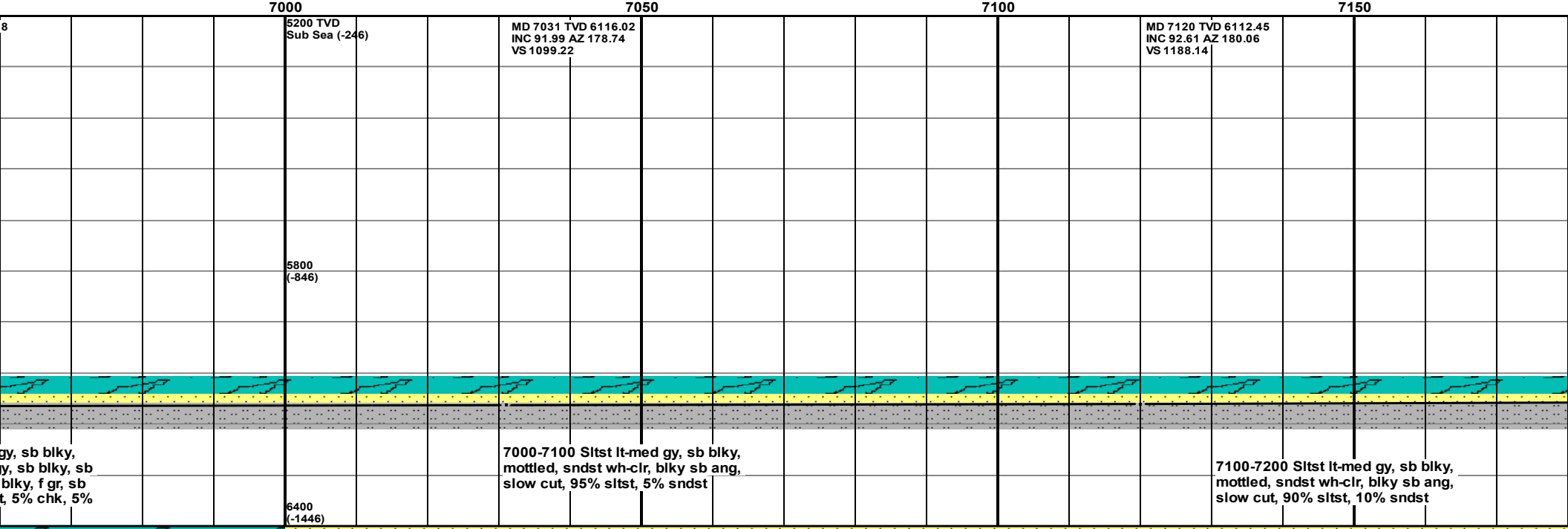
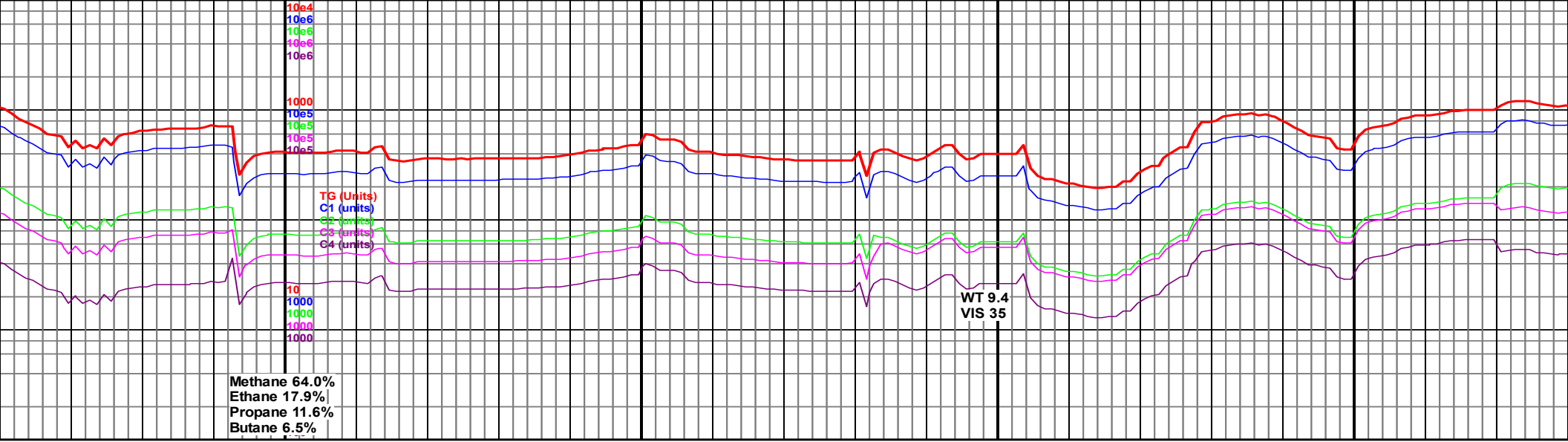
6600-6700 Slst lt-med gy, sb blk, mottled ip, rr chk wt-lt gy, sb blk, sb plty, rr pyr slow cut, 90% slst, 10% chk

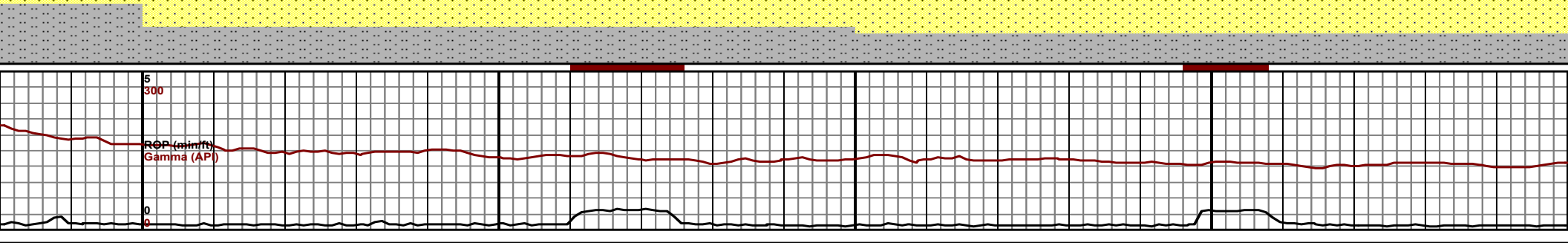
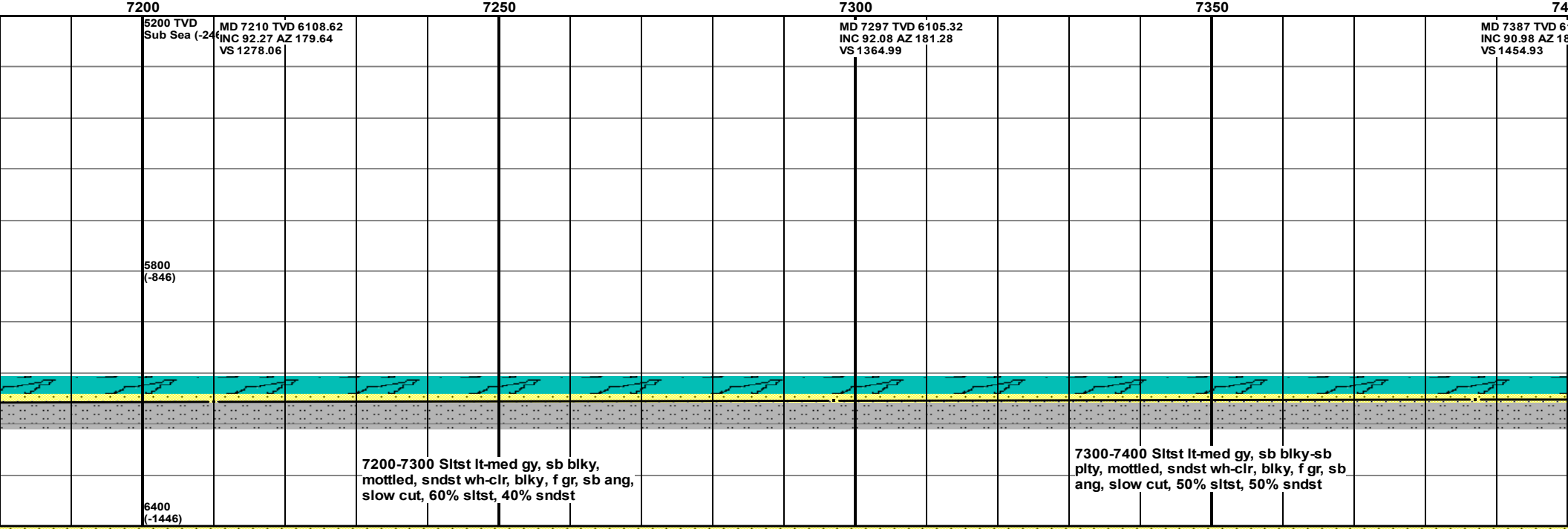
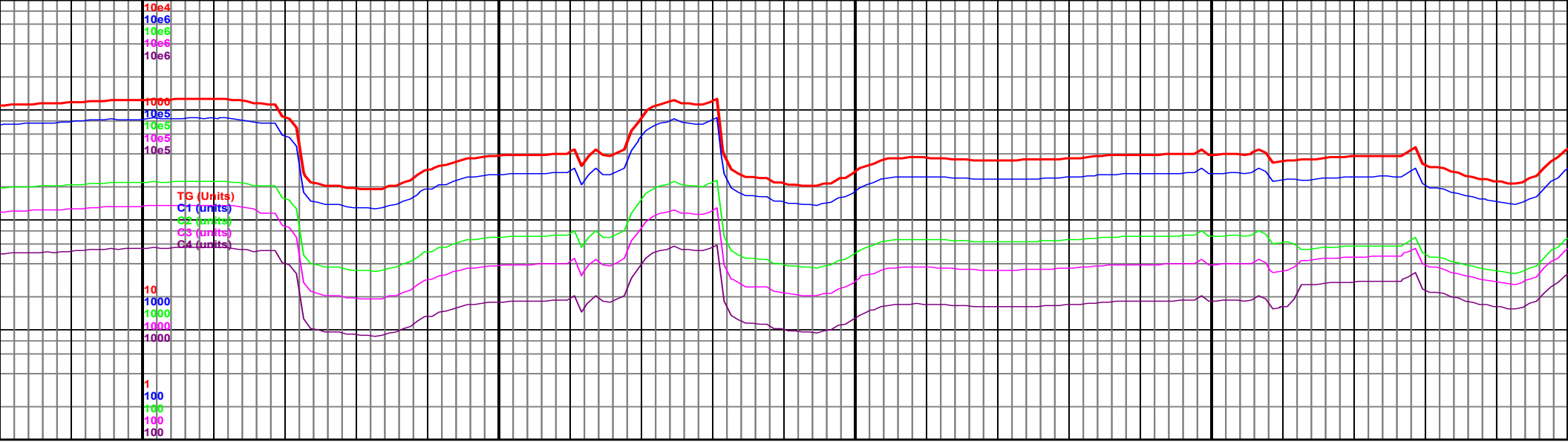
6700-6800 mottled plty, rr chk

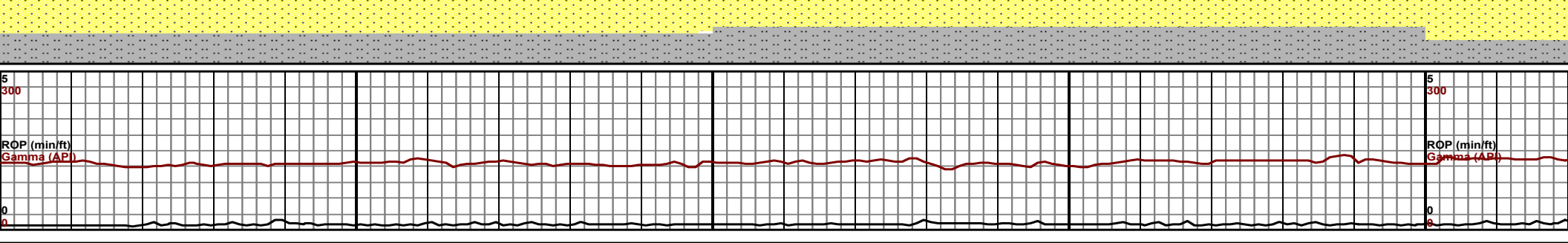
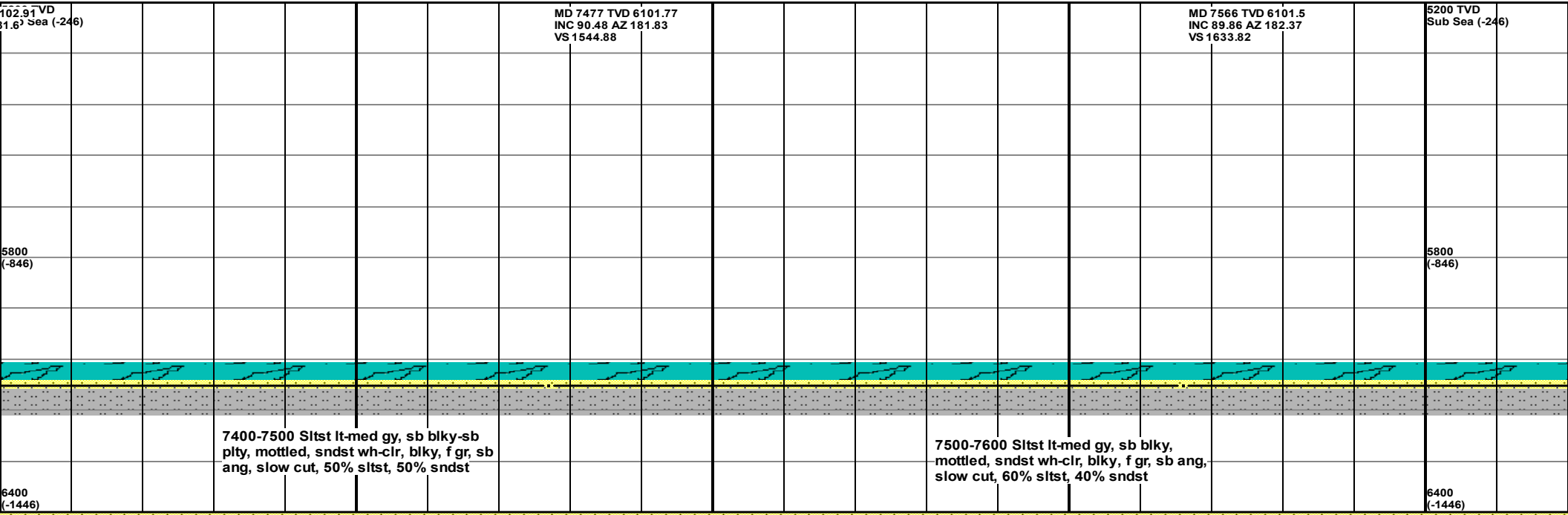
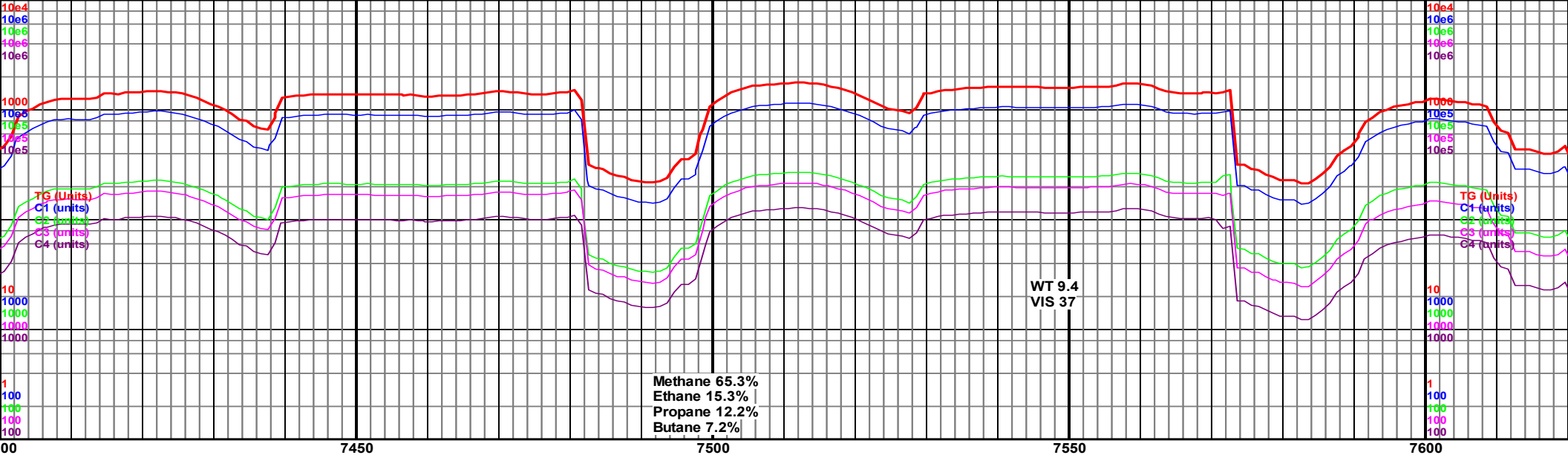
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(-1446)

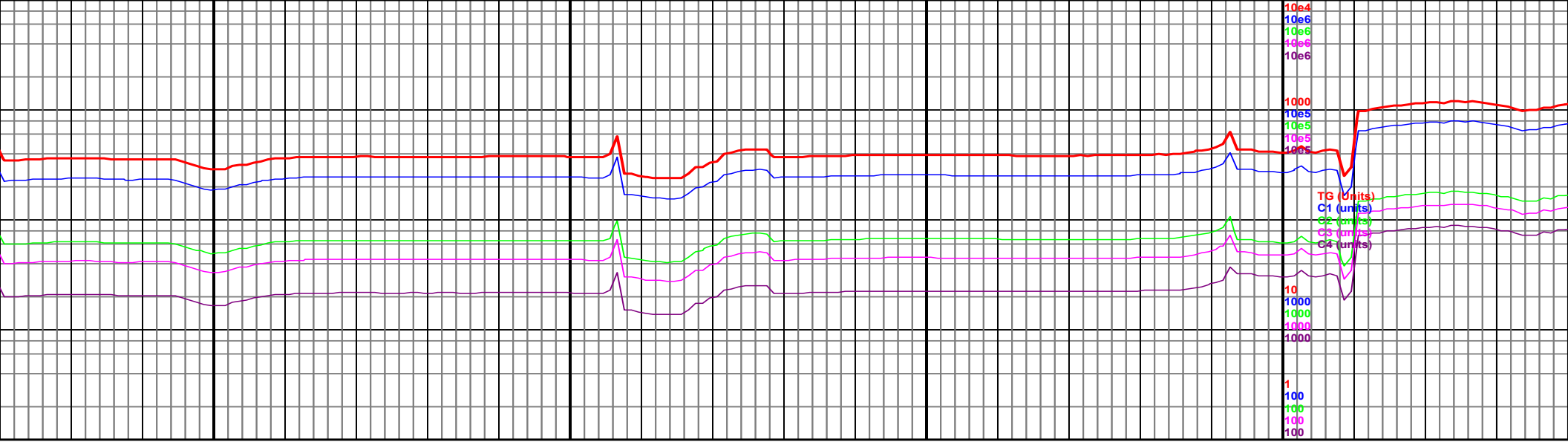












7650

7700

7750

7800

MD 7656 TVD 6101.55
INC 90.08 AZ 182.91
VS 1723.72

MD 7745 TVD 6102.57
INC 88.6 AZ 180.8
VS 1812.66

5200 TVD
Sub Sea (-246)

MD 7800 TVD 6103.57
INC 88.6 AZ 180.8
VS 1812.66

7600-7700 Sndst wh-clr, blk, f gr, sb
ang, sltst, lt-med gy, sb blk, mottled,
slow cut, 60% sndst, 40% sltst

7700-7800 Sndst wh-clr, blk, f gr, sb
ang, sltst, lt-med gy, sb blk, mottled,
slow cut, 50% sndst, 50% sltst

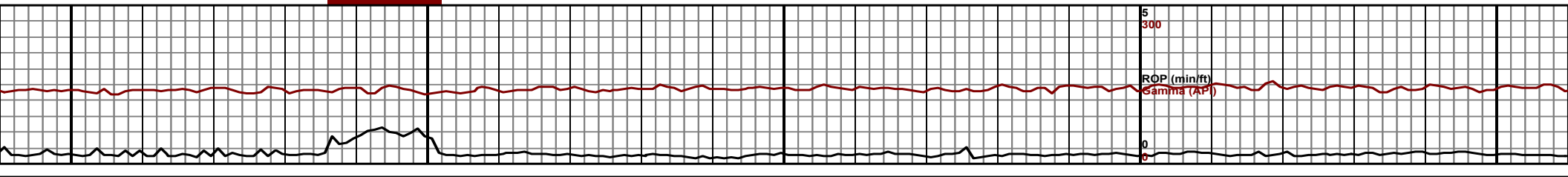
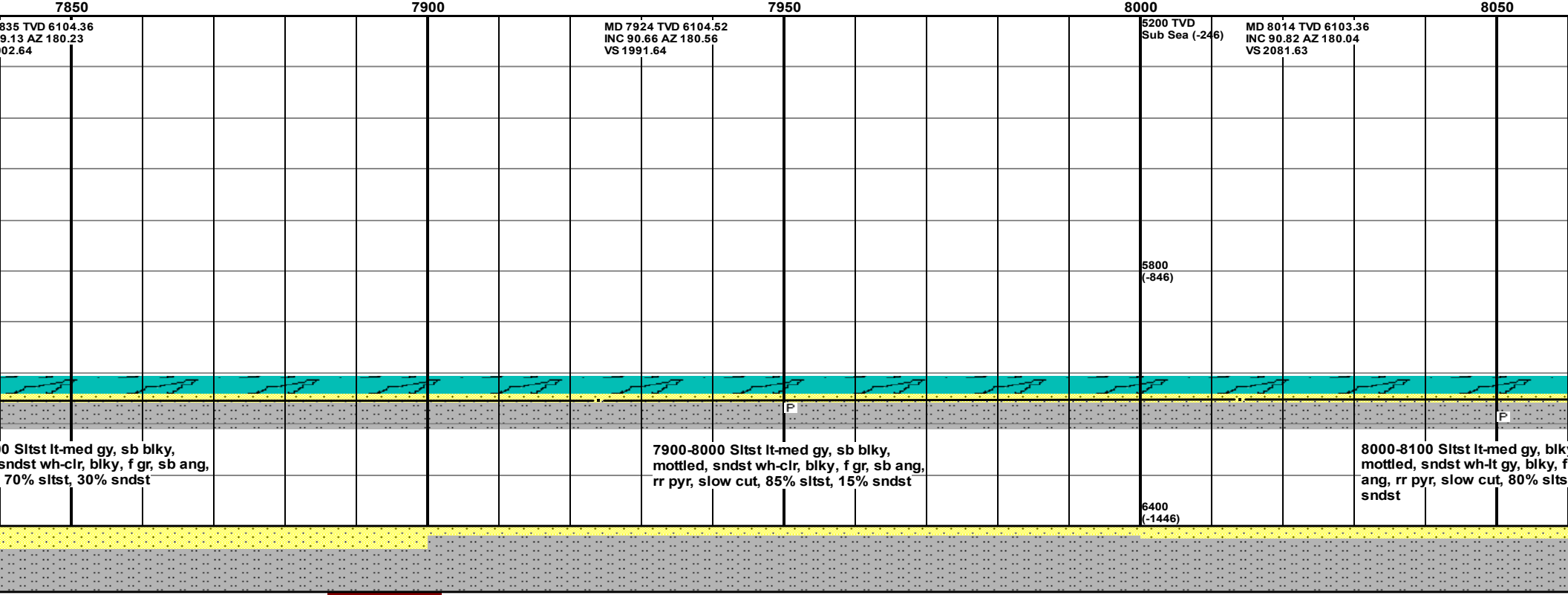
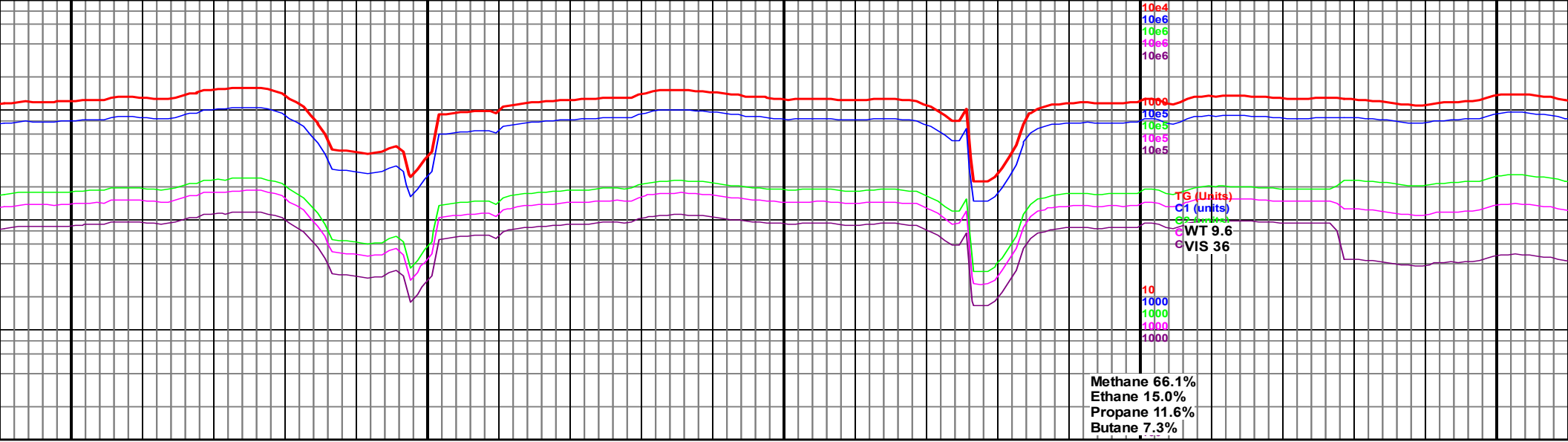
7800-7900 Sndst wh-clr, blk, f gr, sb
ang, sltst, lt-med gy, sb blk, mottled,
slow cut, 50% sndst, 50% sltst

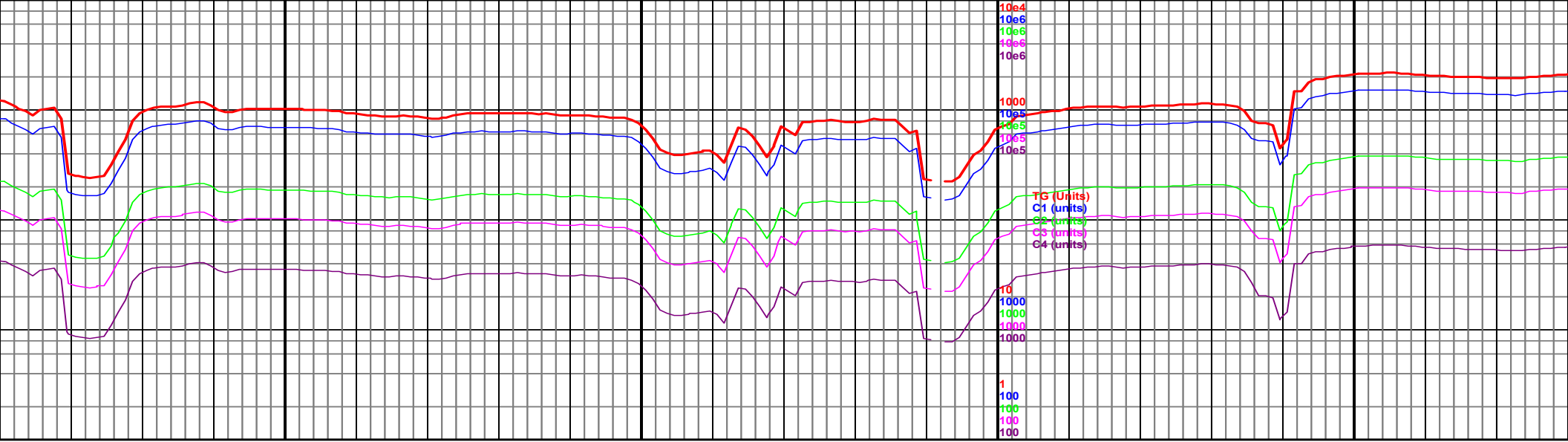
5800
(-846)

6400
(-1446)

5
300

ROP (min/ft)
Gamma (API)





8100

8150

8200

8250

MD 8104 TVD 6102.27
INC 90.56 AZ 179.9
VS 2171.62

MD 8190 TVD 6100.5
INC 91.81 AZ 181.29 (-246)
VS 2257.59

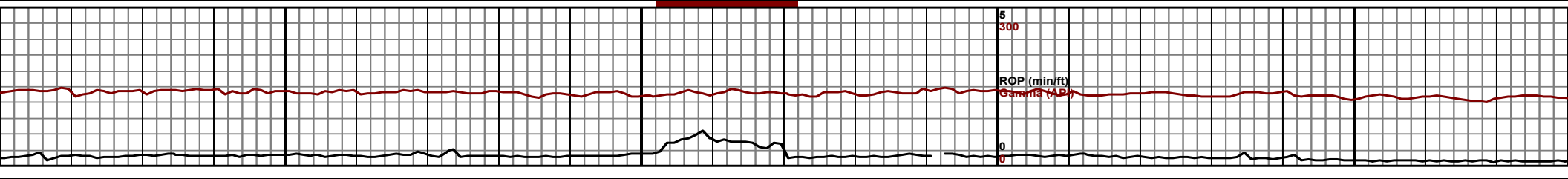
5800
(-846)

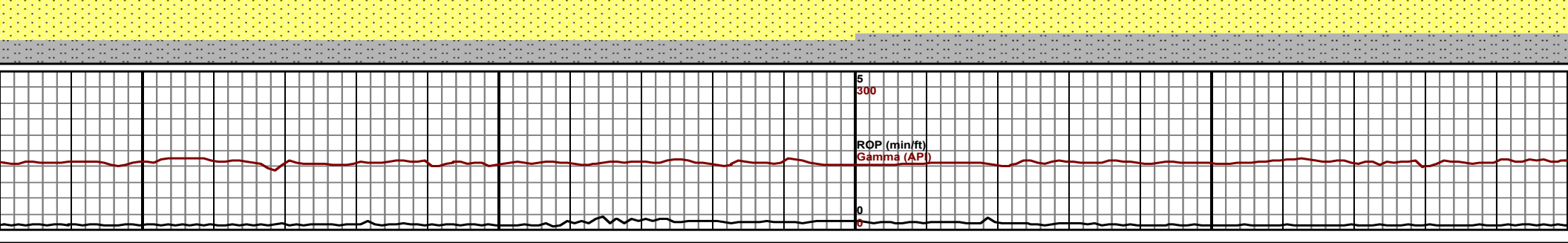
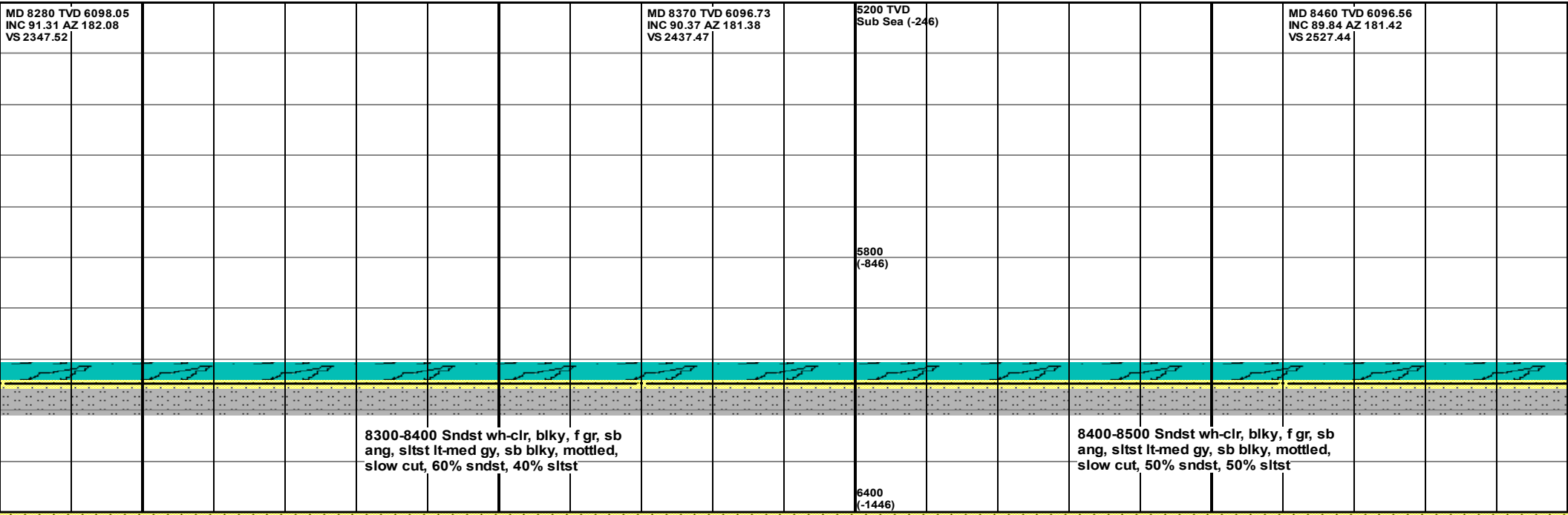
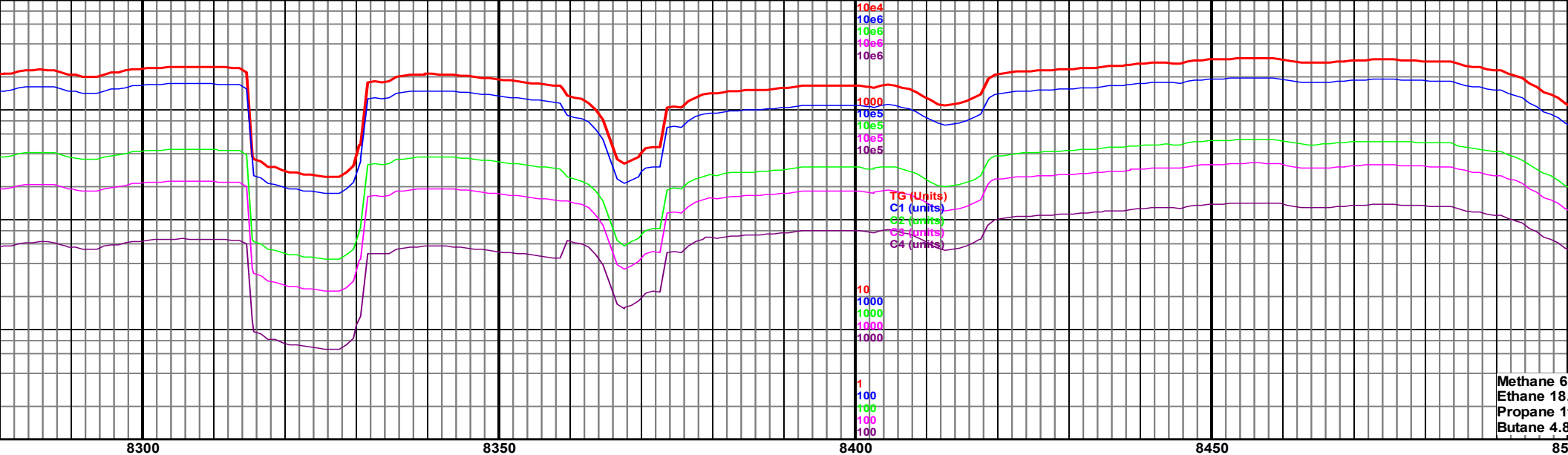
6400
(-1446)

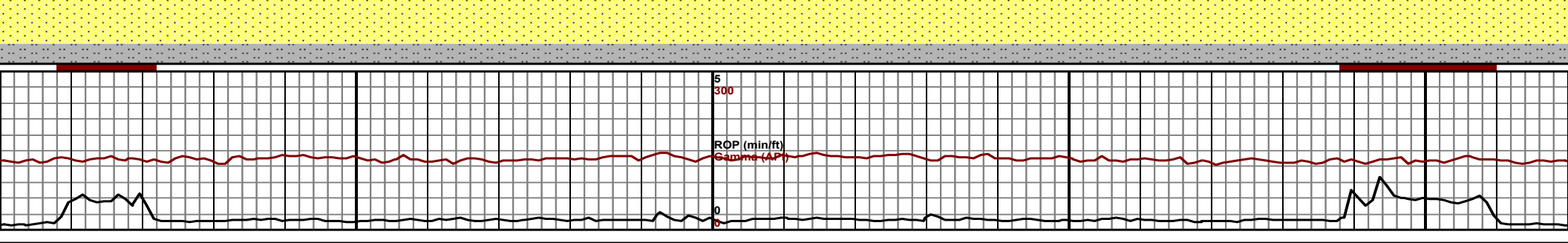
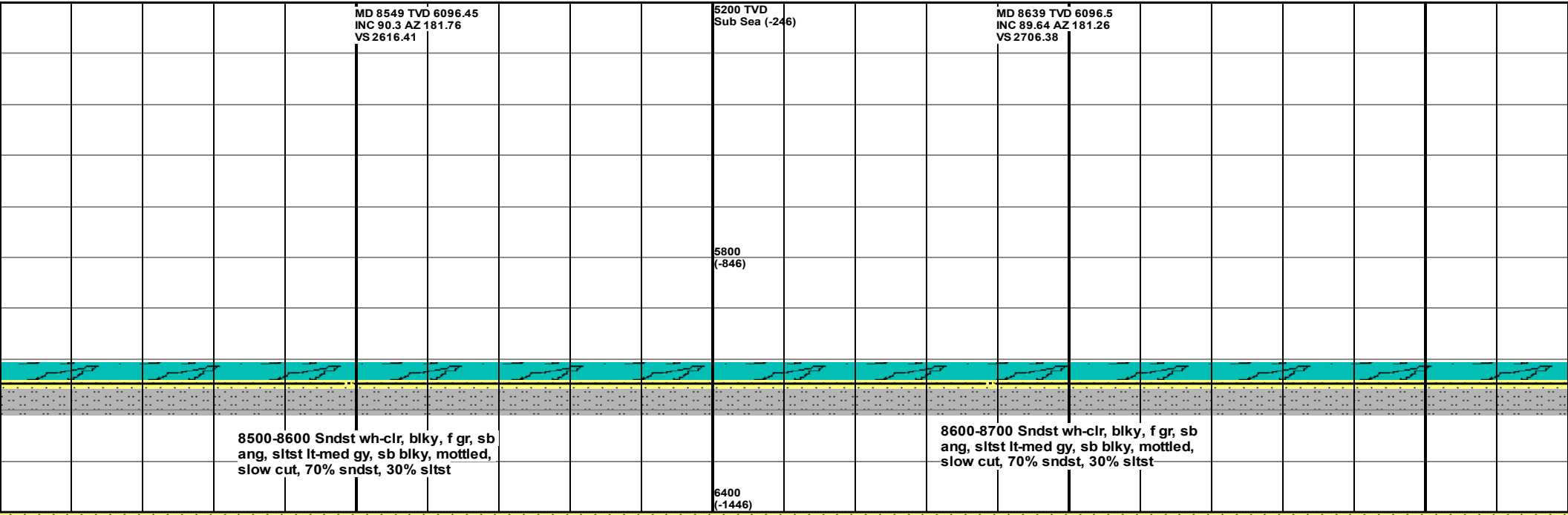
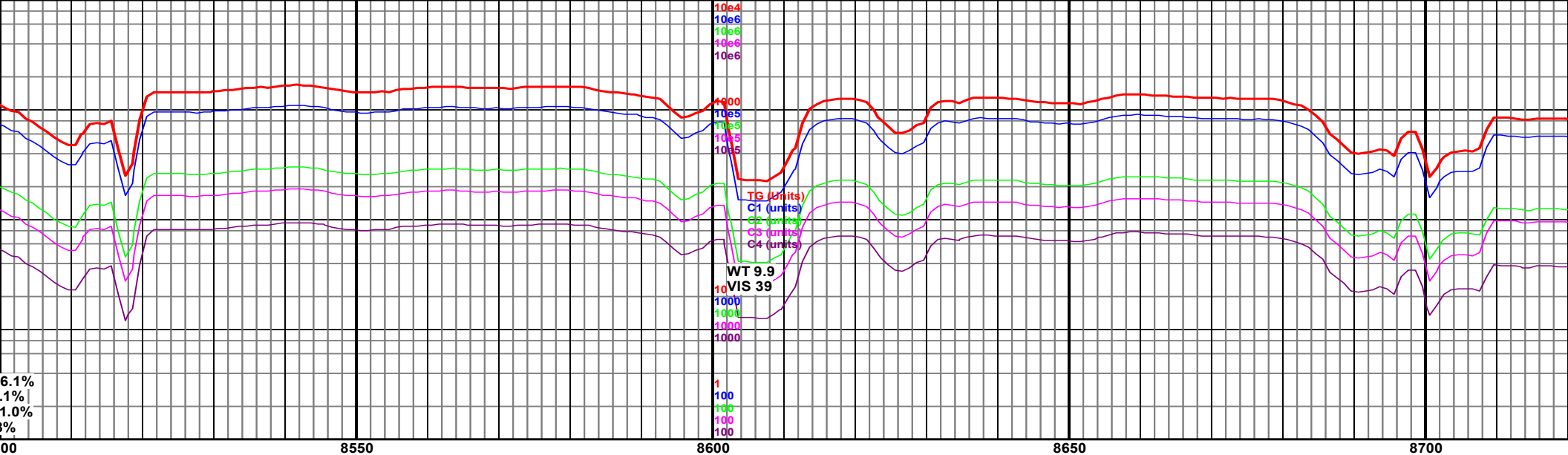
y,
gr, sb
t, 20%

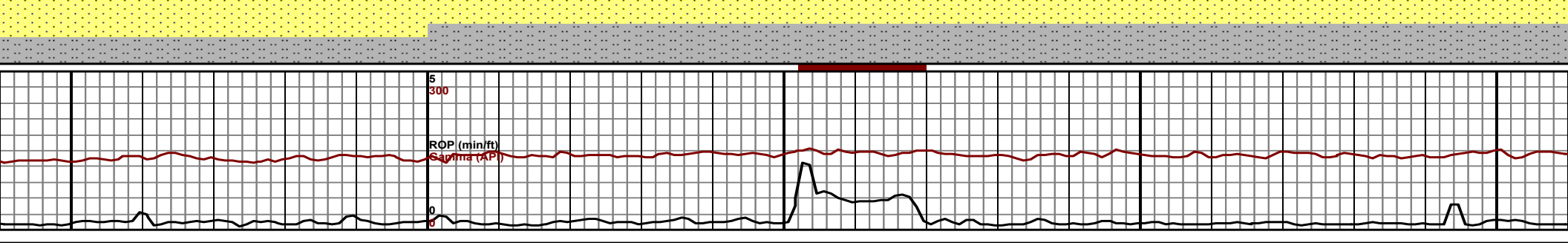
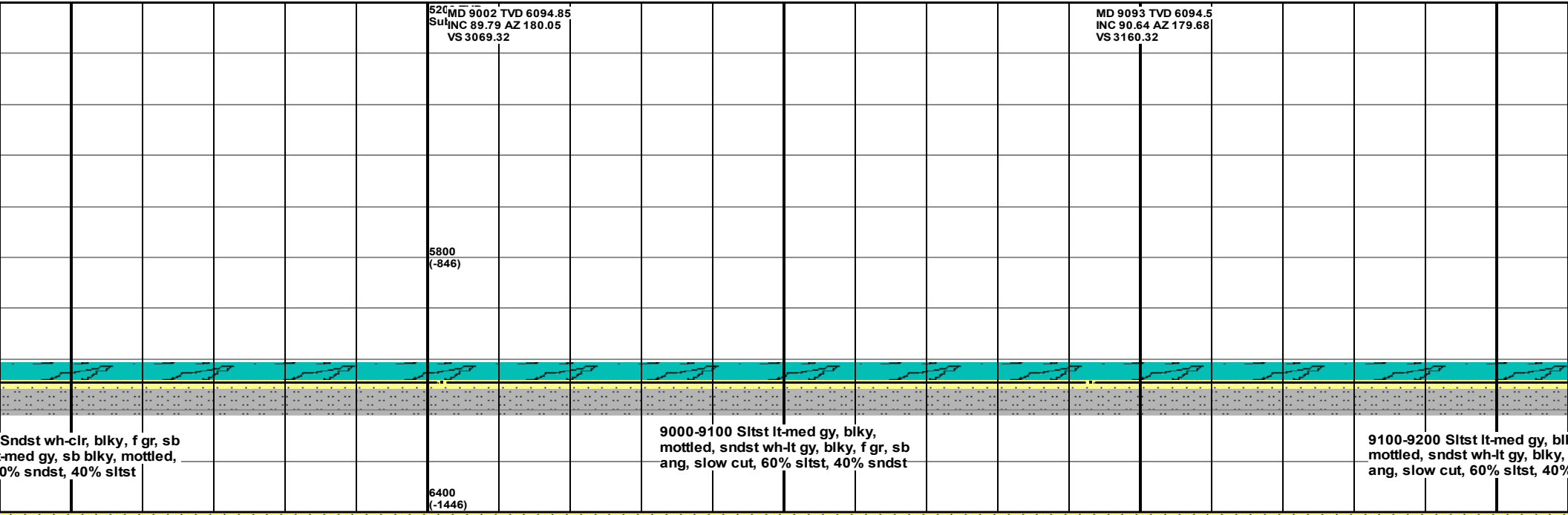
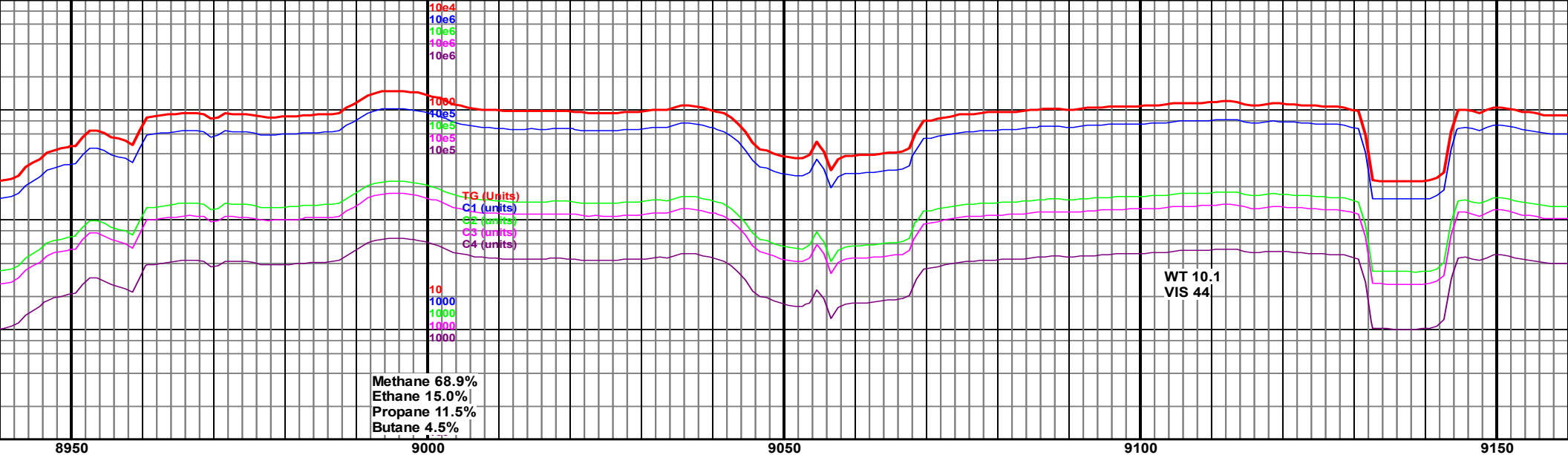
8100-8200 Siltst lt-med gy, blk, mottled, sndst wh-lt gy, blk, f gr, sb ang, rr pyr, slow cut, 70% siltst, 30% sndst

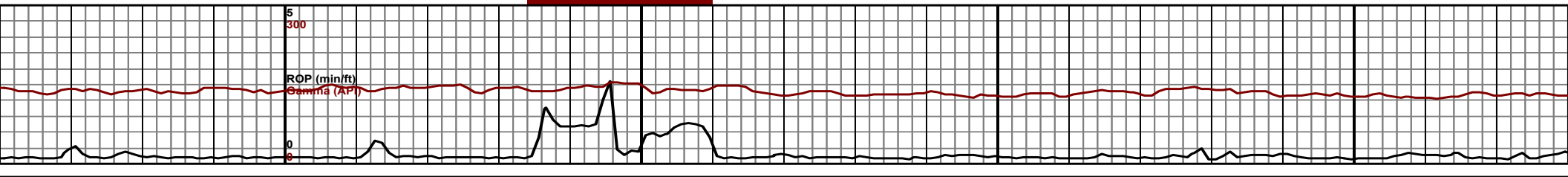
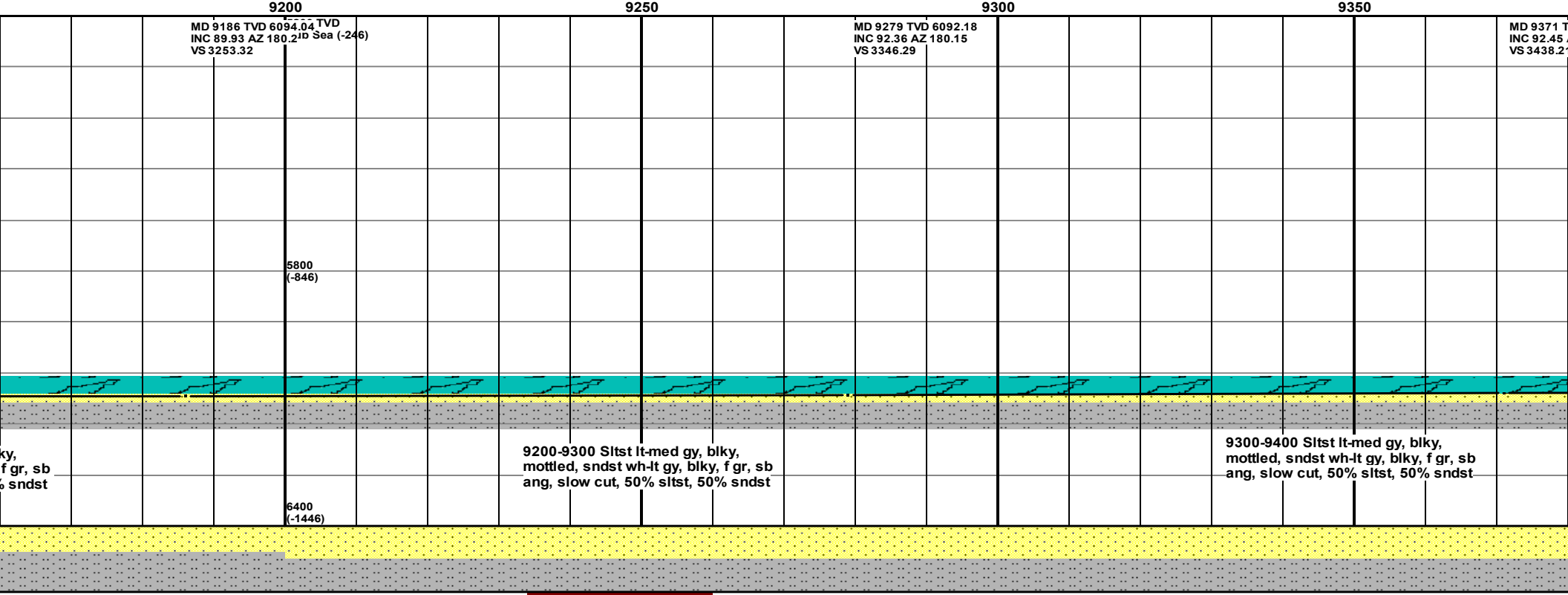
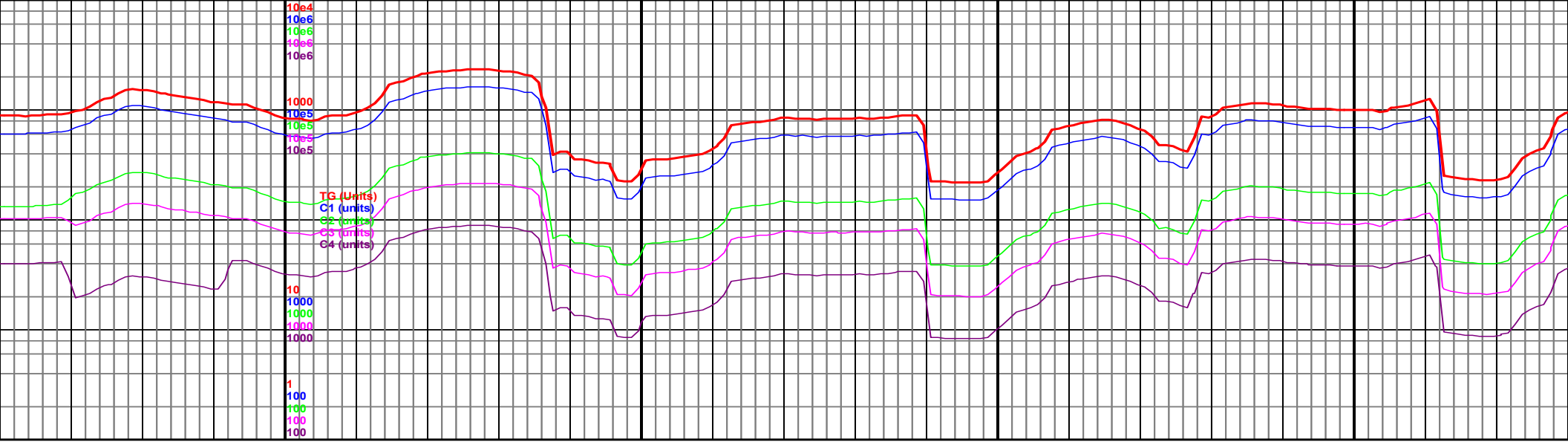
8200-8300 Sndst wh-clr, blk, f gr, sb ang, siltst lt-med gy, sb blk, mottled, rr pyr, slow cut, 60% sndst, 40% siltst

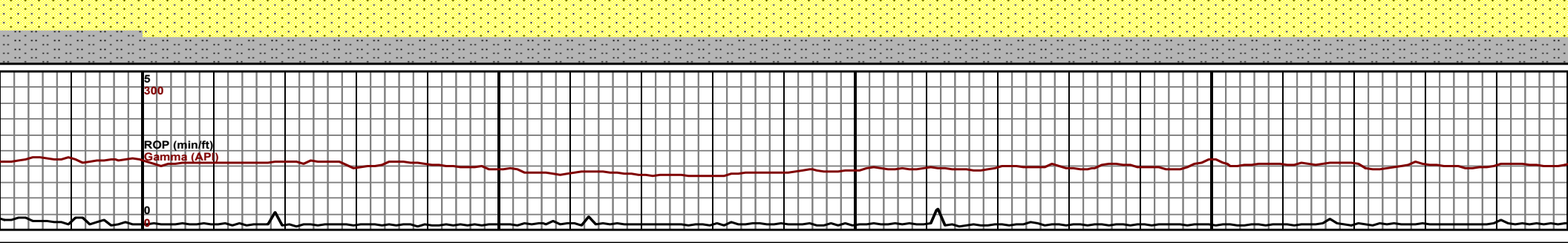
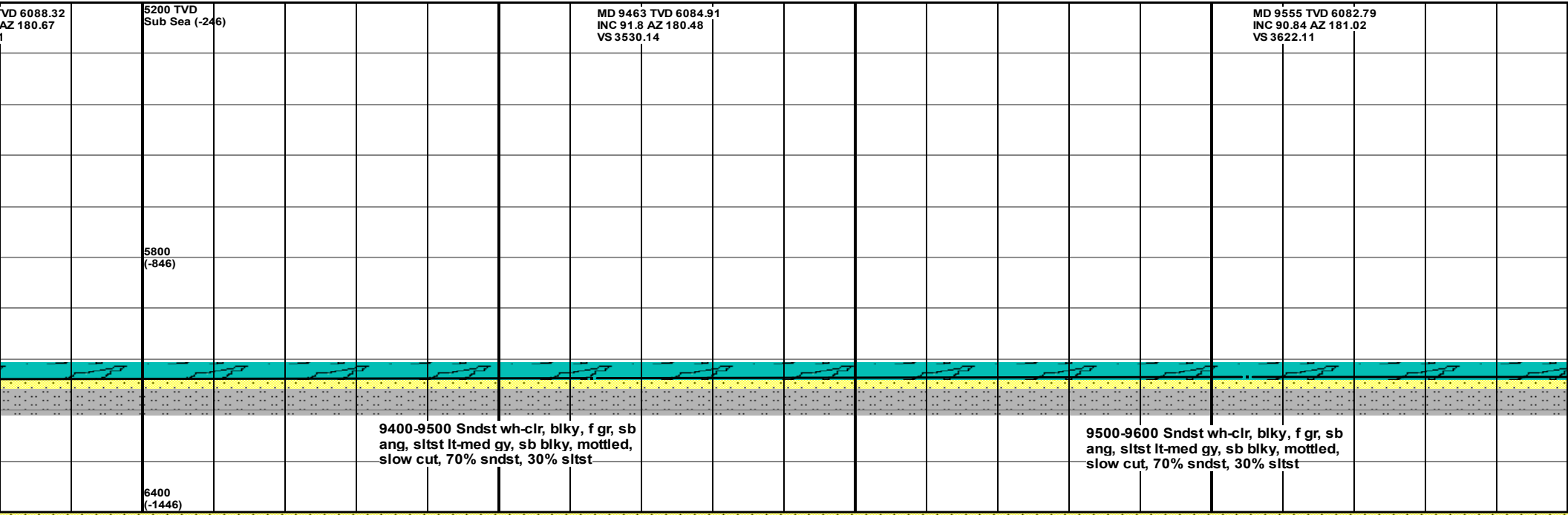
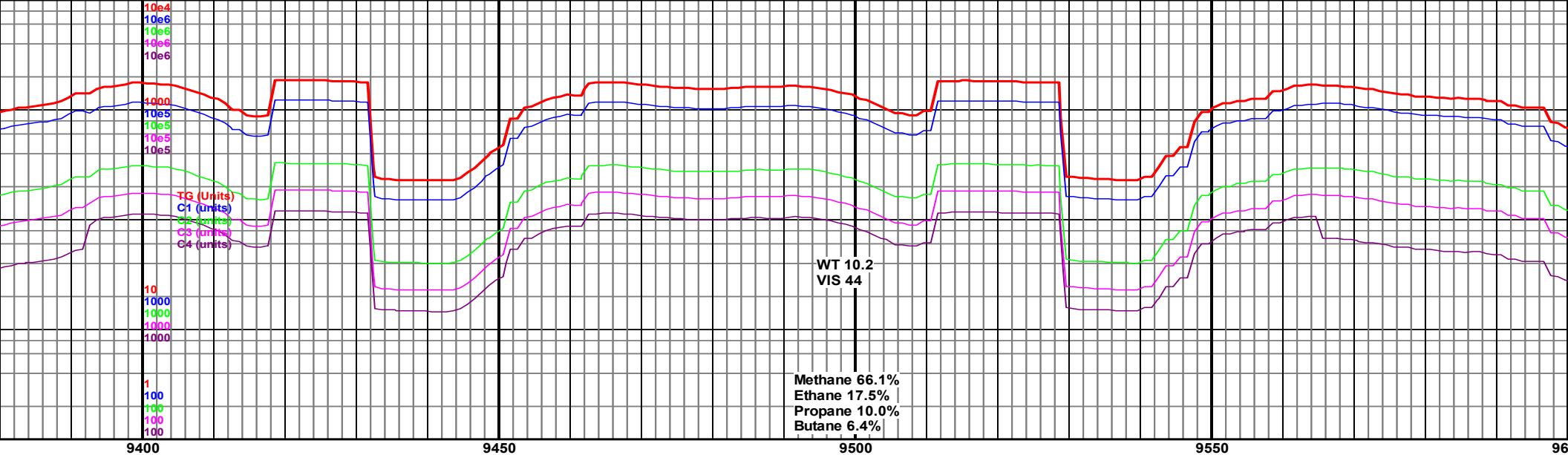


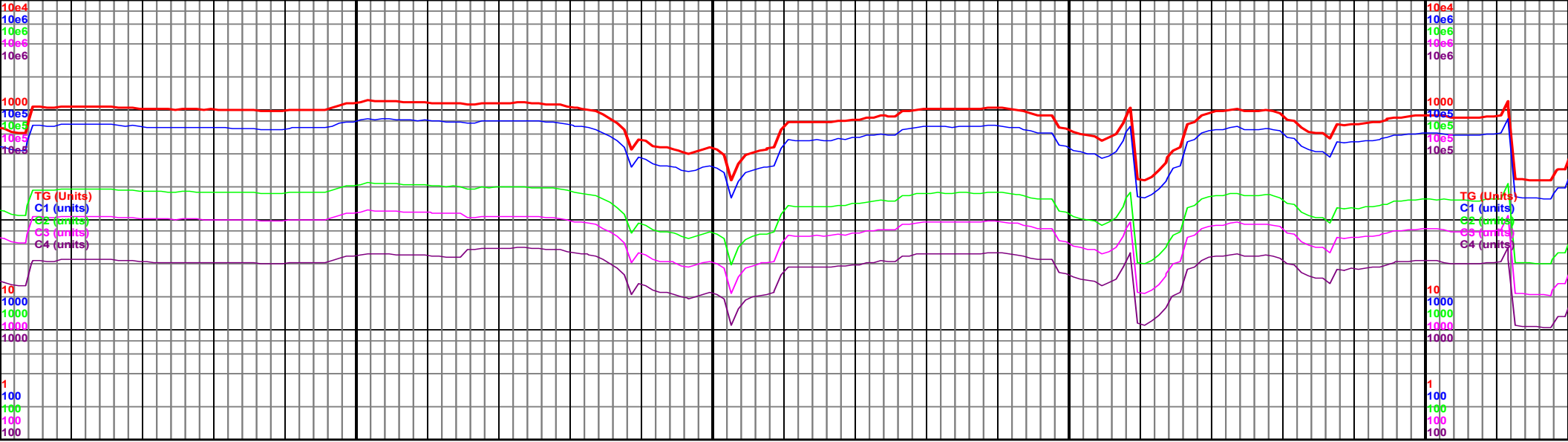




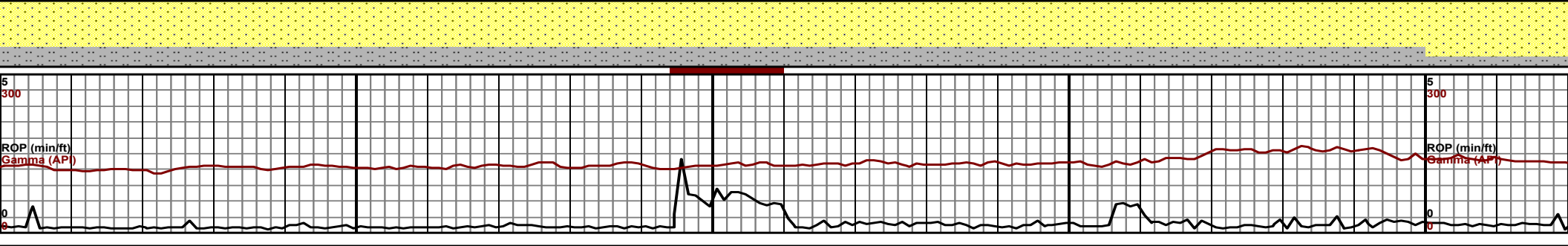
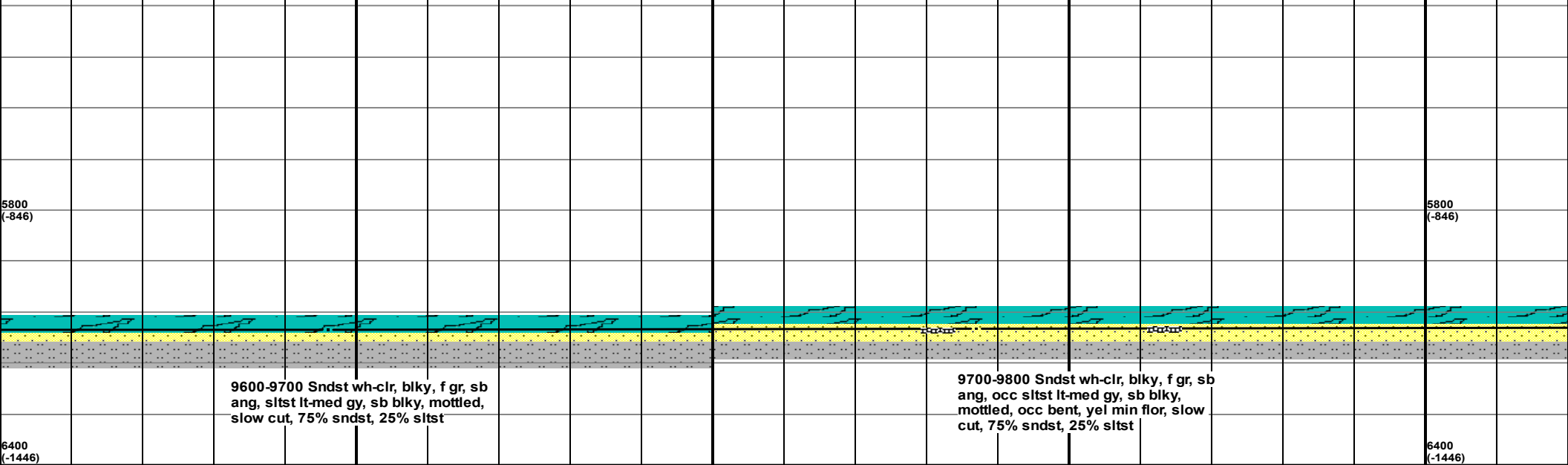


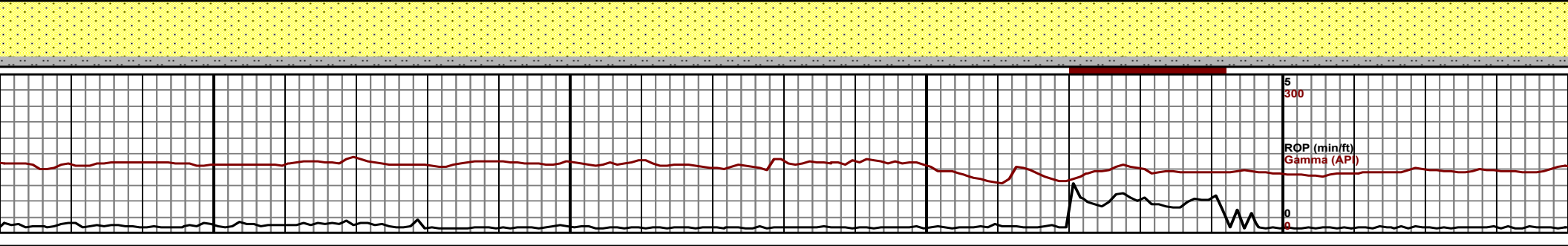
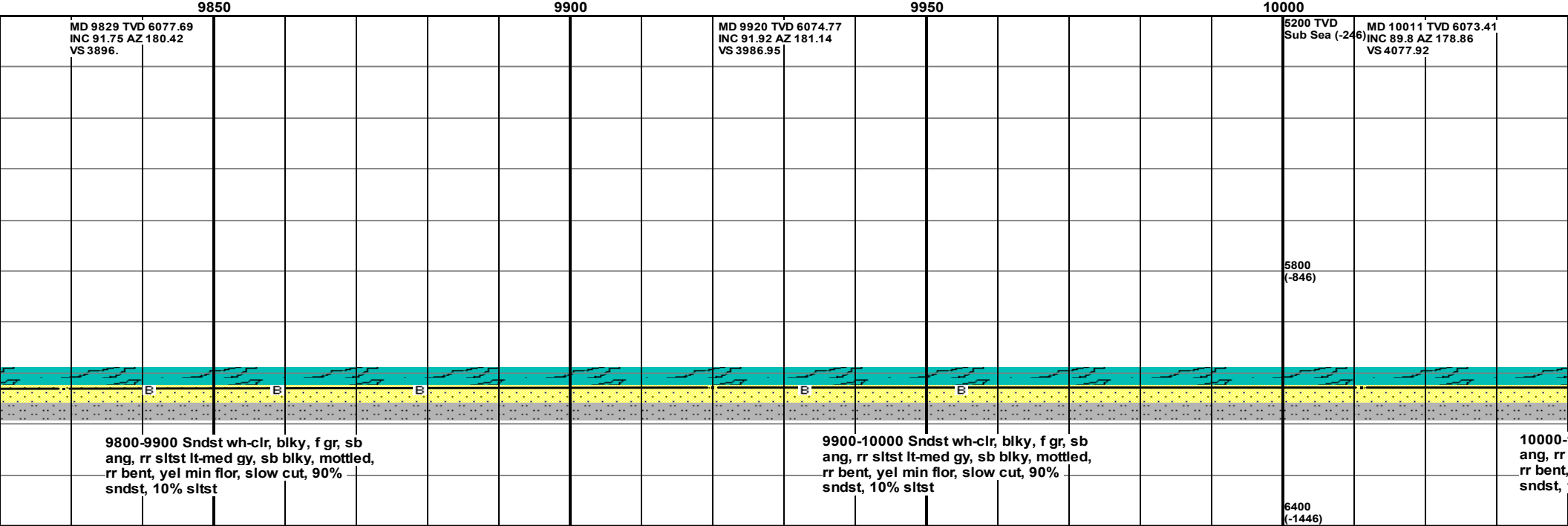
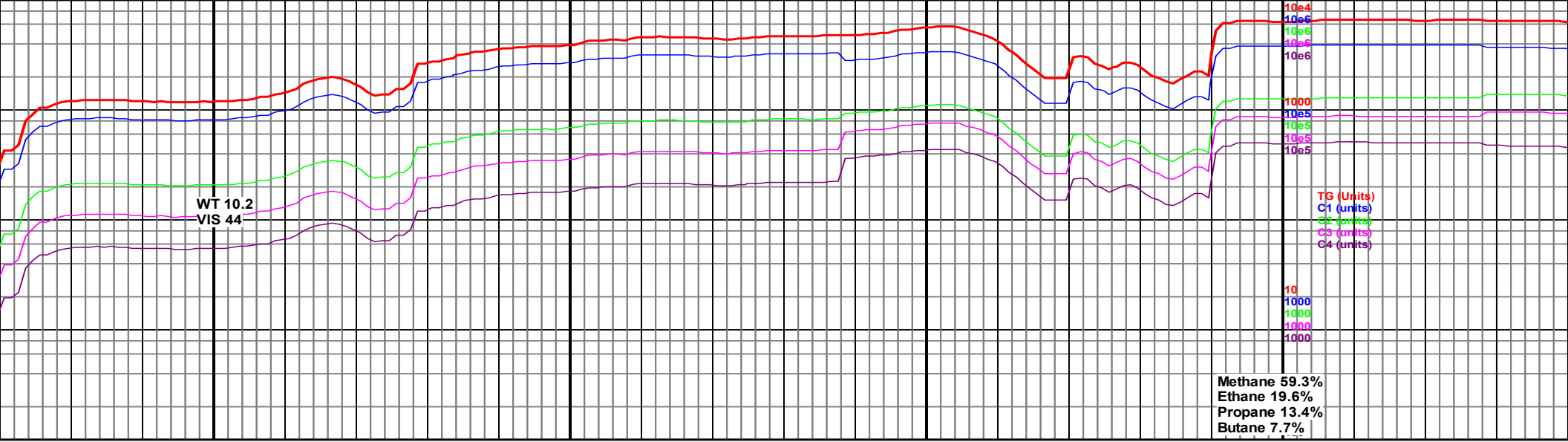


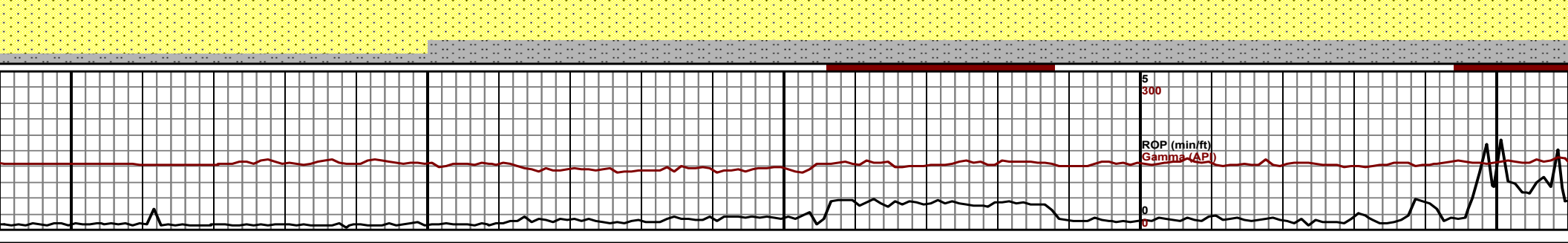
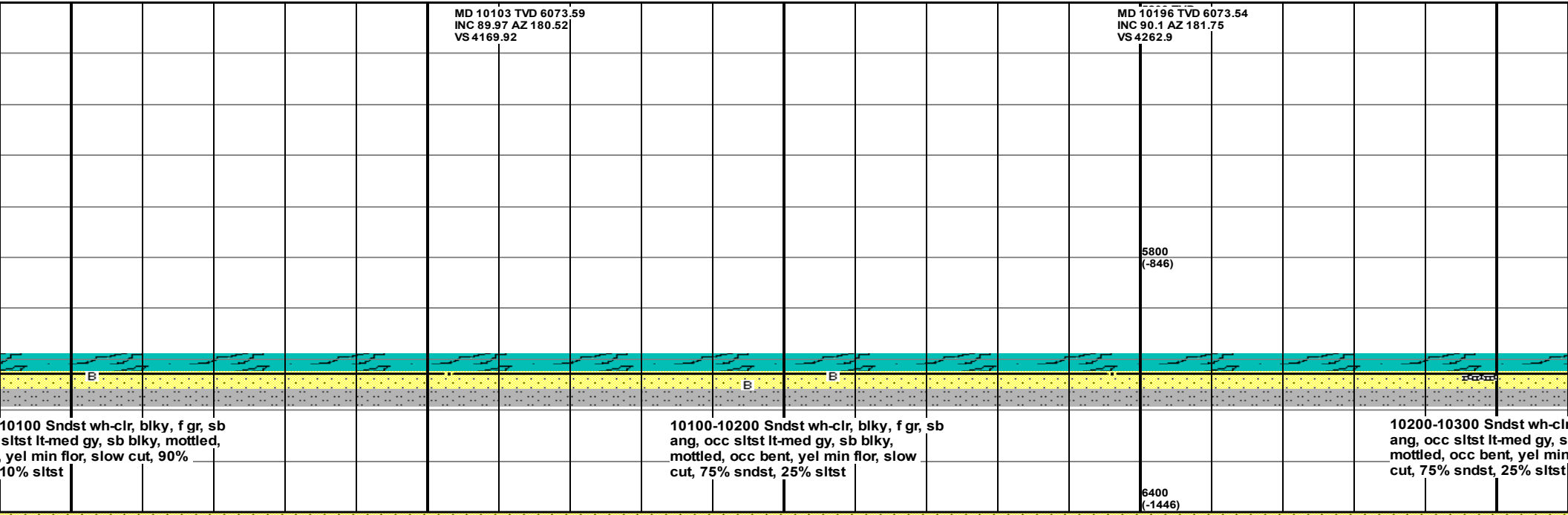
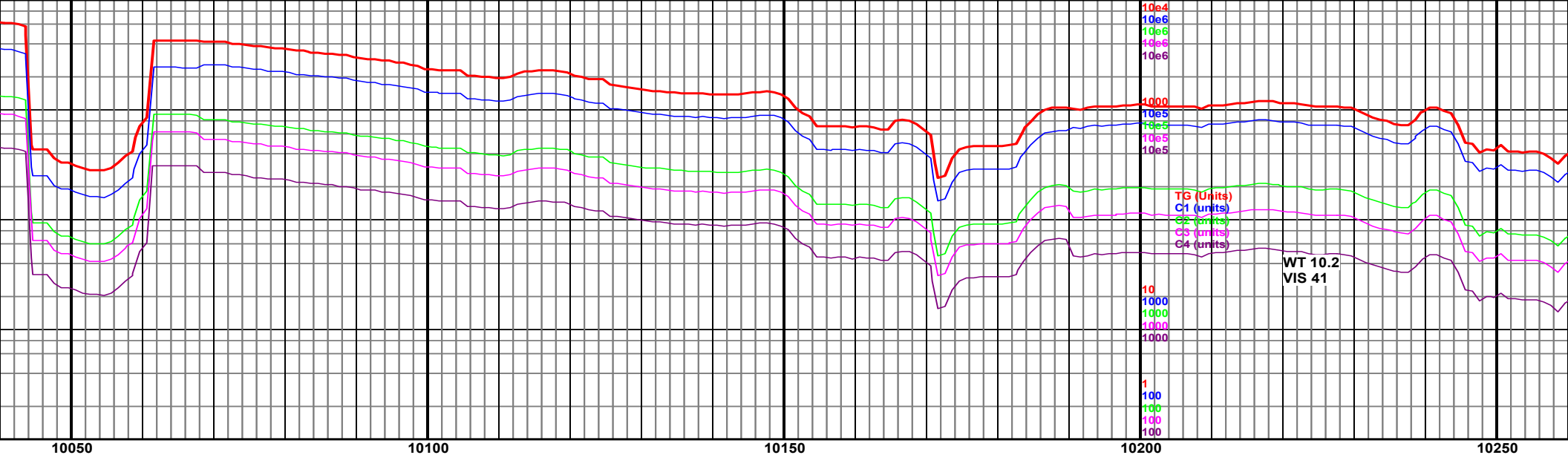


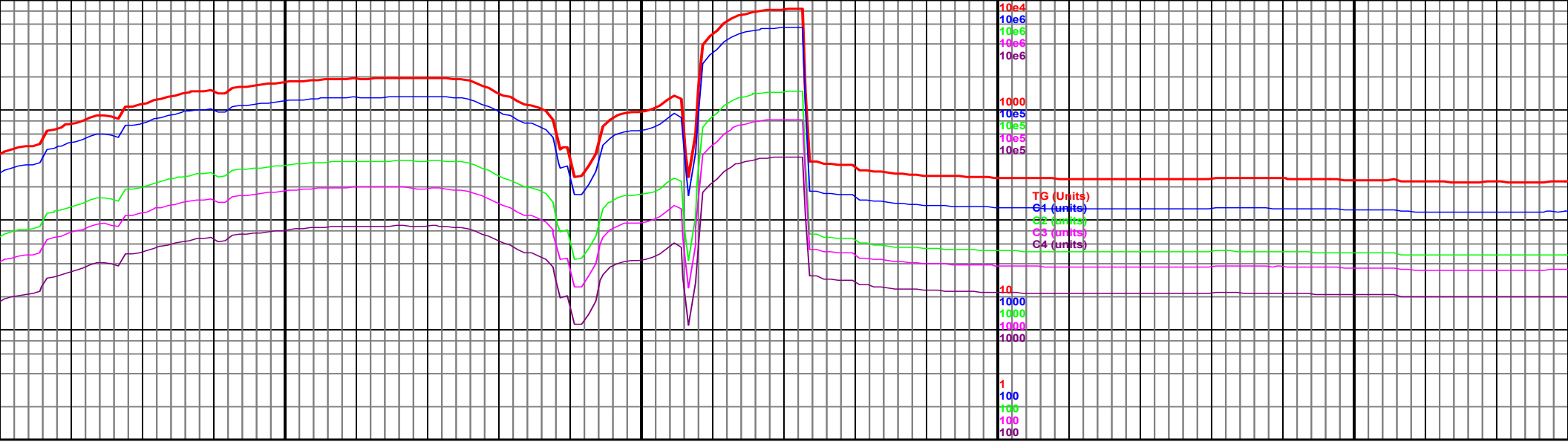


5200 TVD Sub Sea (-246)	MD 9646 TVD 6081.89 INC 90.3 AZ 181.76 VS 3713.07	MD 9737 TVD 6080.38 INC 91.6 AZ 180.31 VS 3804.04	5200 TVD Sub Sea (-246)
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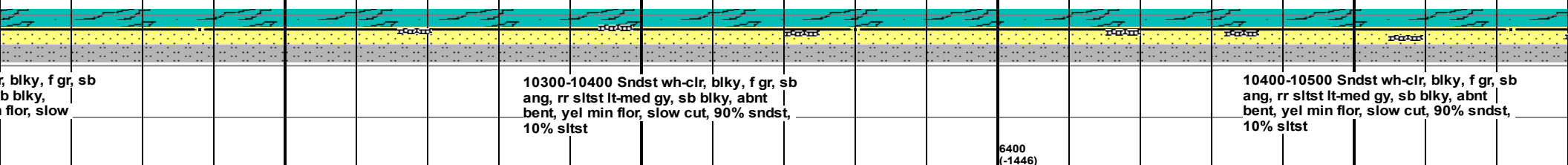


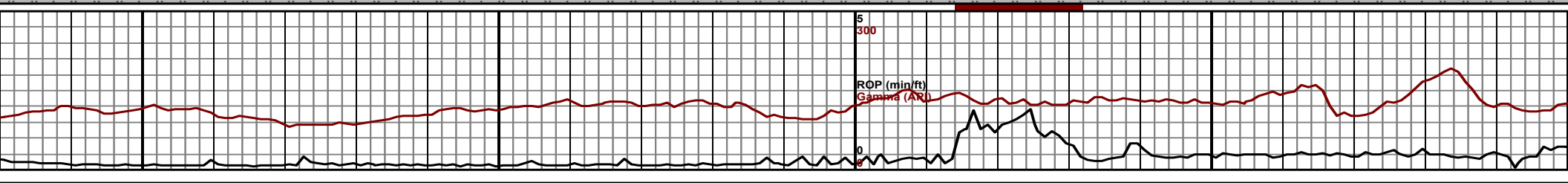
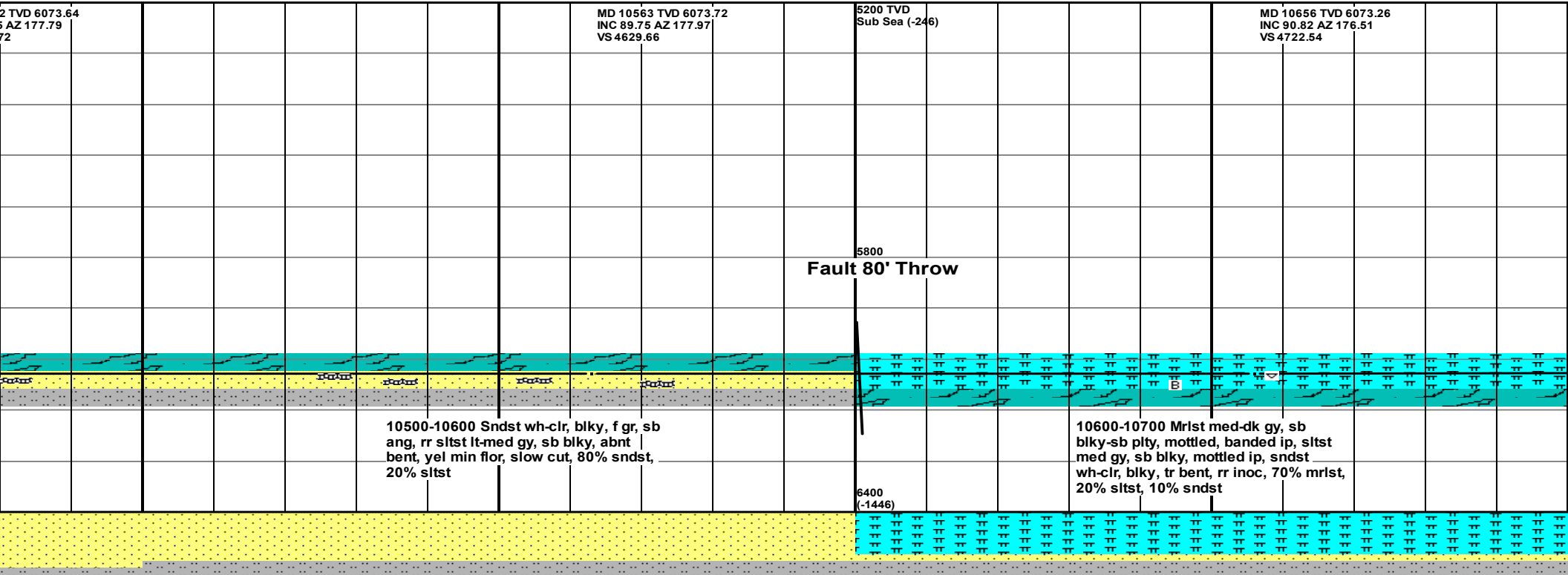
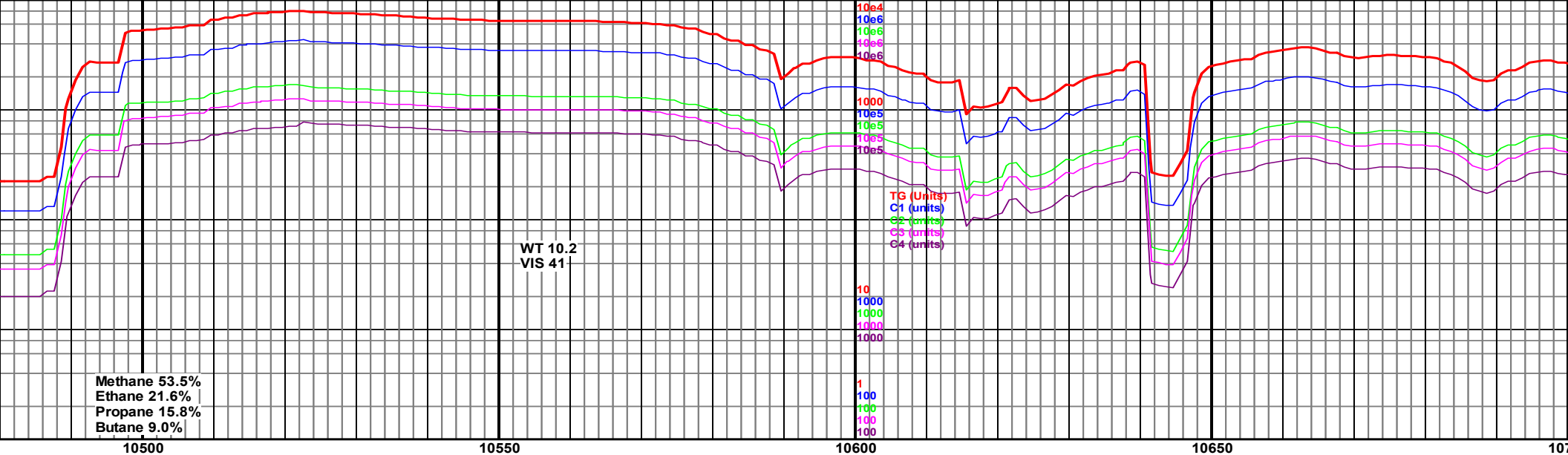
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INC 89.41 AZ 177.93
VS 4354.88

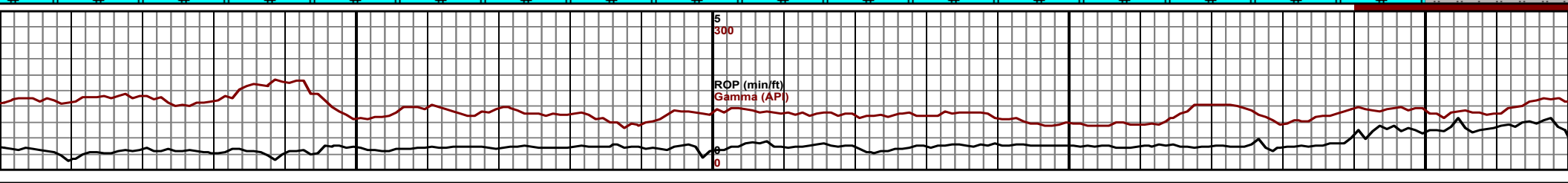
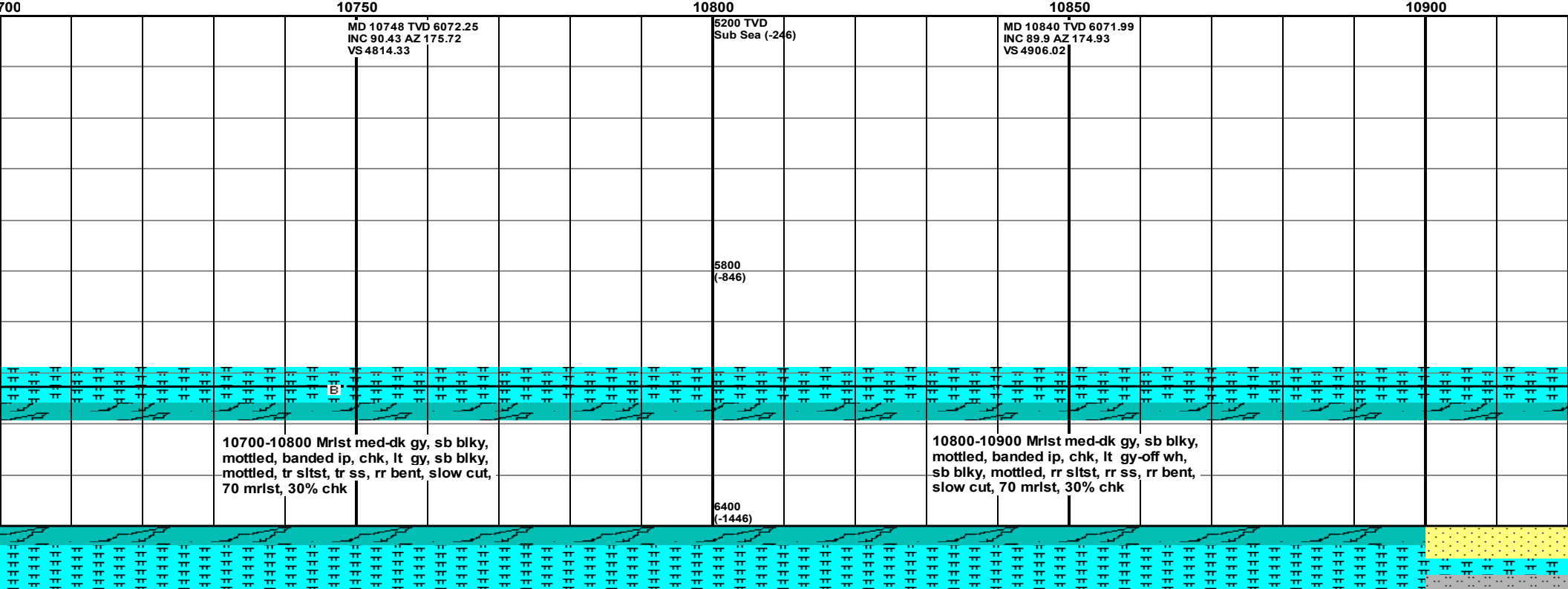
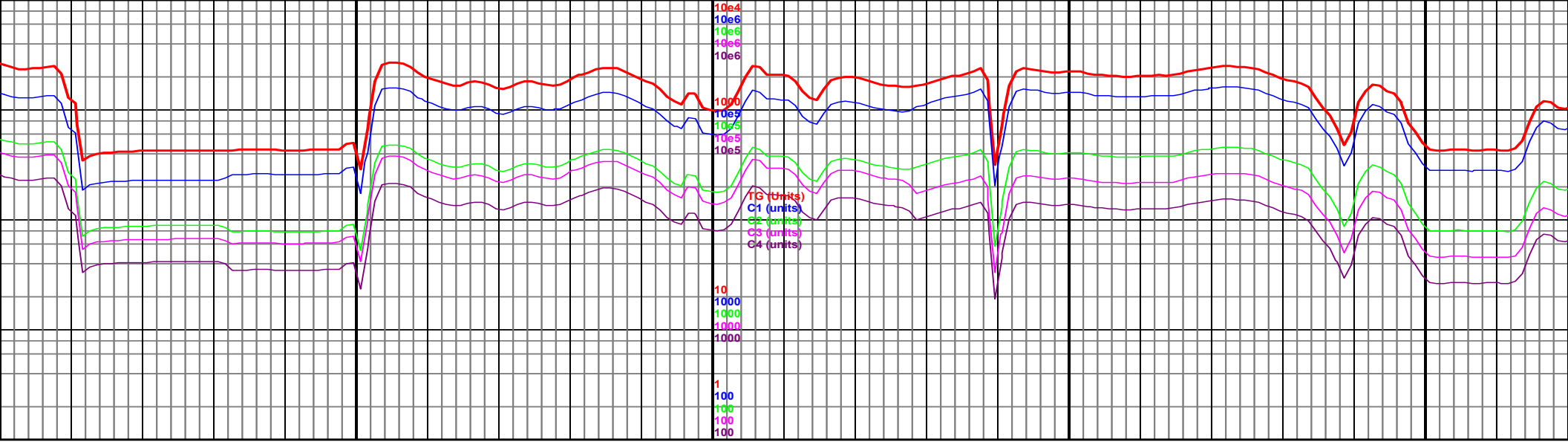
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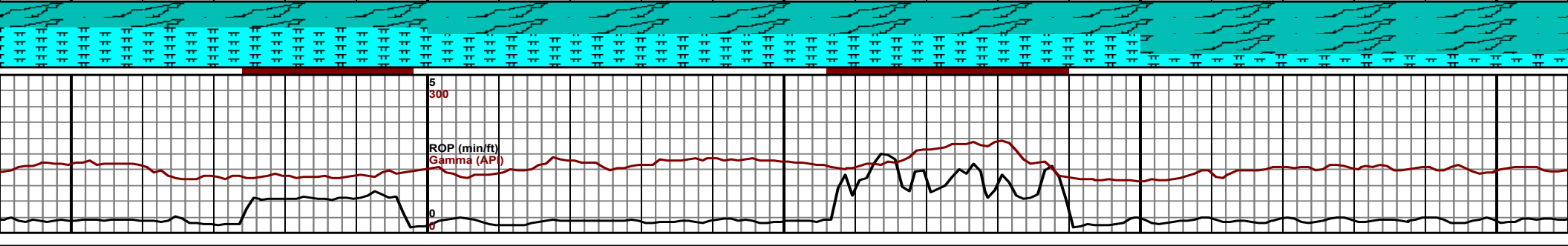
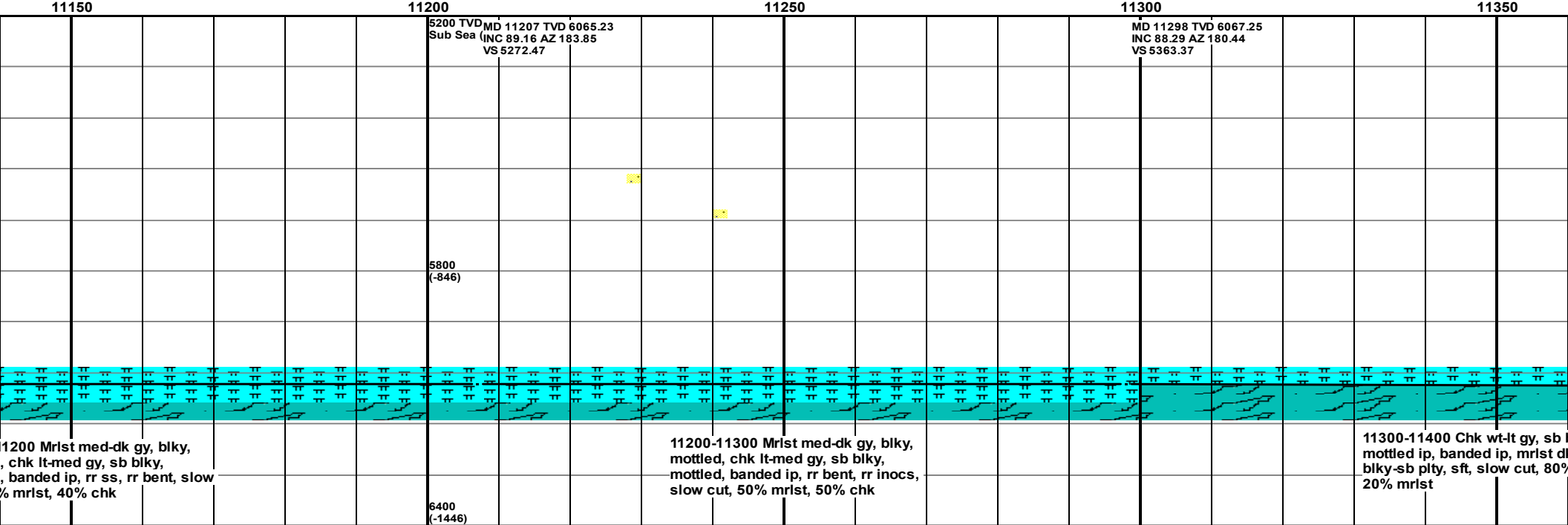
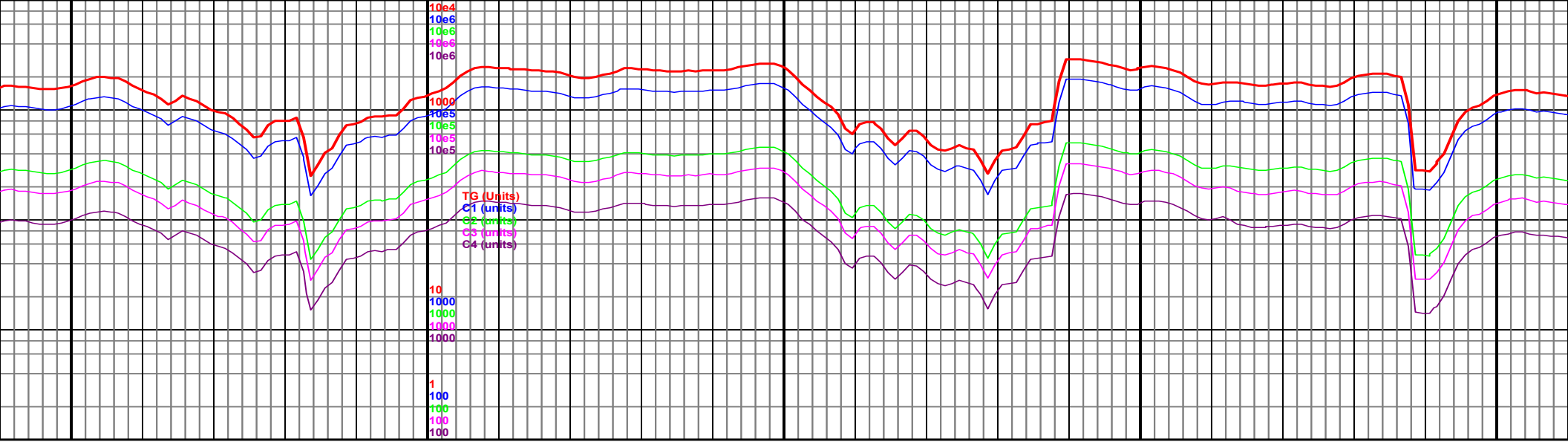
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5200 TVD
Sub Sea (-246)

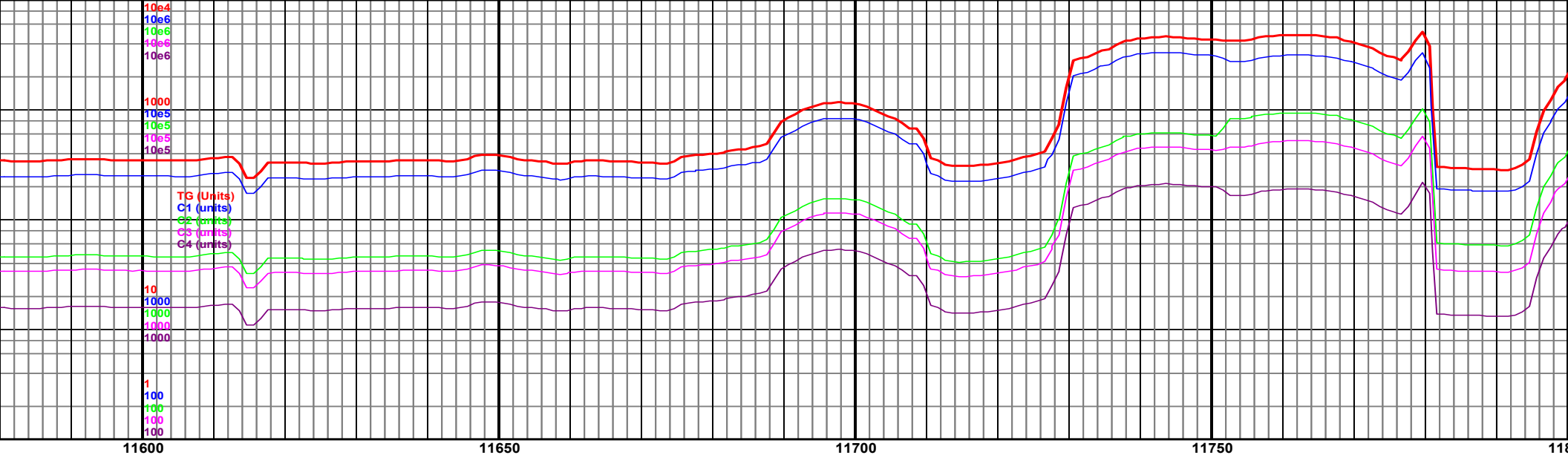
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VS 4538.7



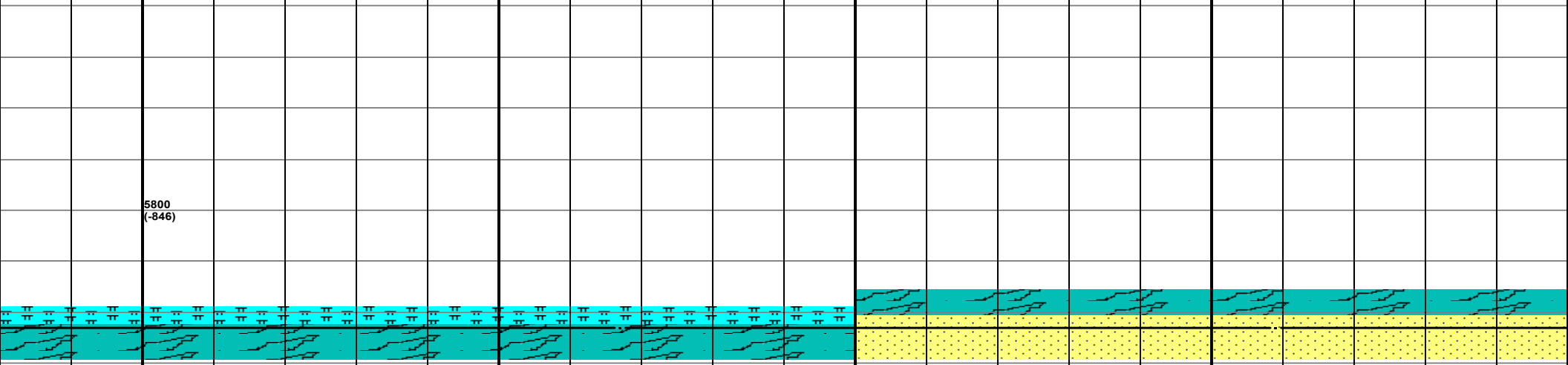








11600	11650	11700	11750	11800
MD 11667 TVD 6076.31 INC 88.88 AZ 180.31 VS 5732.22				



11600-11650	11650-11700	11700-11750	11750-11800
Chk wt-lt gy, sb blk, mottled ip, banded ip, mrlst dk gy, sb blk-sb plty, sft, slow cut, 90% Chk, 10% mrlst	Chk wt-lt gy, sb blk, mottled ip, banded ip, mrlst dk gy, sb blk-sb plty, sft, slow cut, 90% Chk, 10% mrlst	Sndst off wh-lt gy, blk, mottled, occ chk wt-lt gy, sb blk, mottled ip, banded ip, occ sltst gy-dk gy, sb plty, frm, 70% sndst, 15% chk, 15% sltst	Sndst off wh-lt gy, blk, mottled, occ sltst gy-dk gy, sb plty, frm, rr chk wt-lt gy, sb blk, mottled ip, banded ip, 80% sndst, 15% sltst, 5% chk

