



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

Well Name: Horsetail 30E-1903
API: 051234287000
Location: 30-T10N-R57W
License Number:
Spud Date: 10/11/2016
Surface Coordinates: 40.810703
40.810703

Region: Wildcat Field
Drilling Completed: 10/14/2016

Bottom Hole
Coordinates:
Ground Elevation (ft): 4806
Logged Interval (ft): 4904 To: 13840
Formation: Niobrara
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4827
Total Depth (ft): 13840

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

Drilling Company

Unit Drilling Company
Rig 406

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

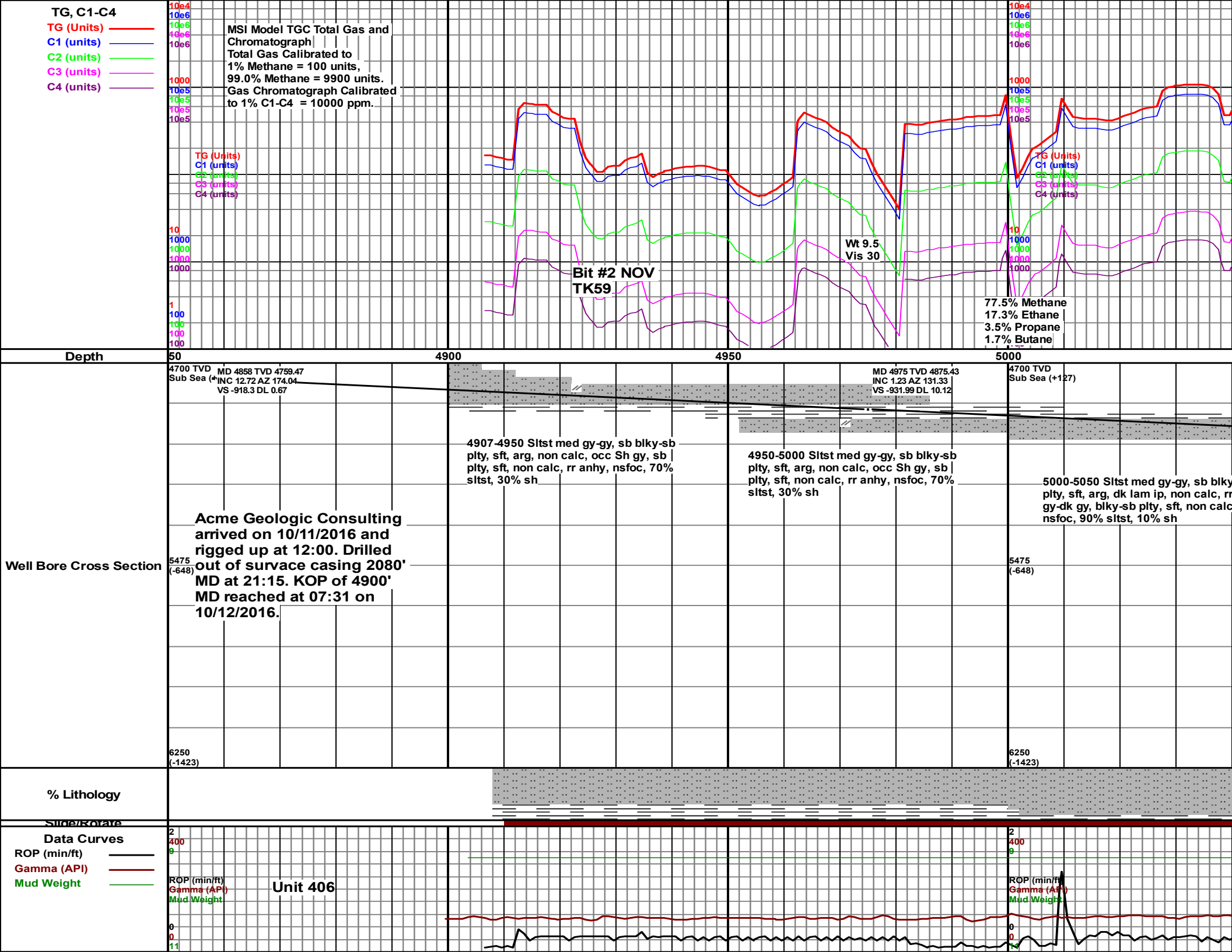
ROUNDING
 Rounded
 Subrnd
 Subang
 Angular

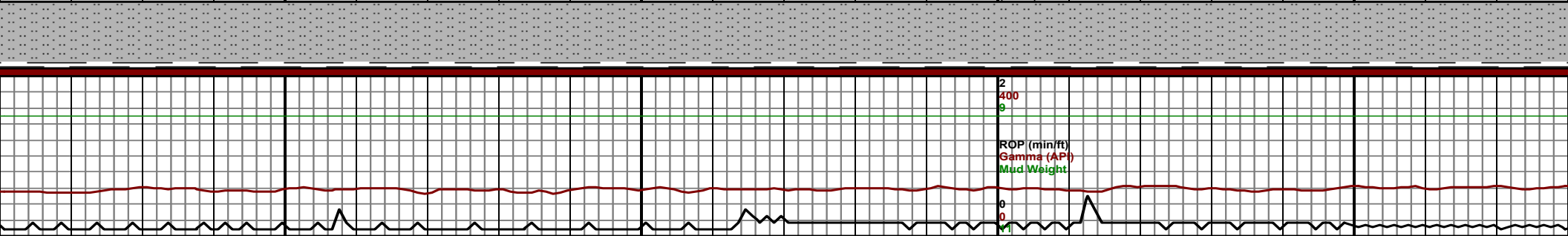
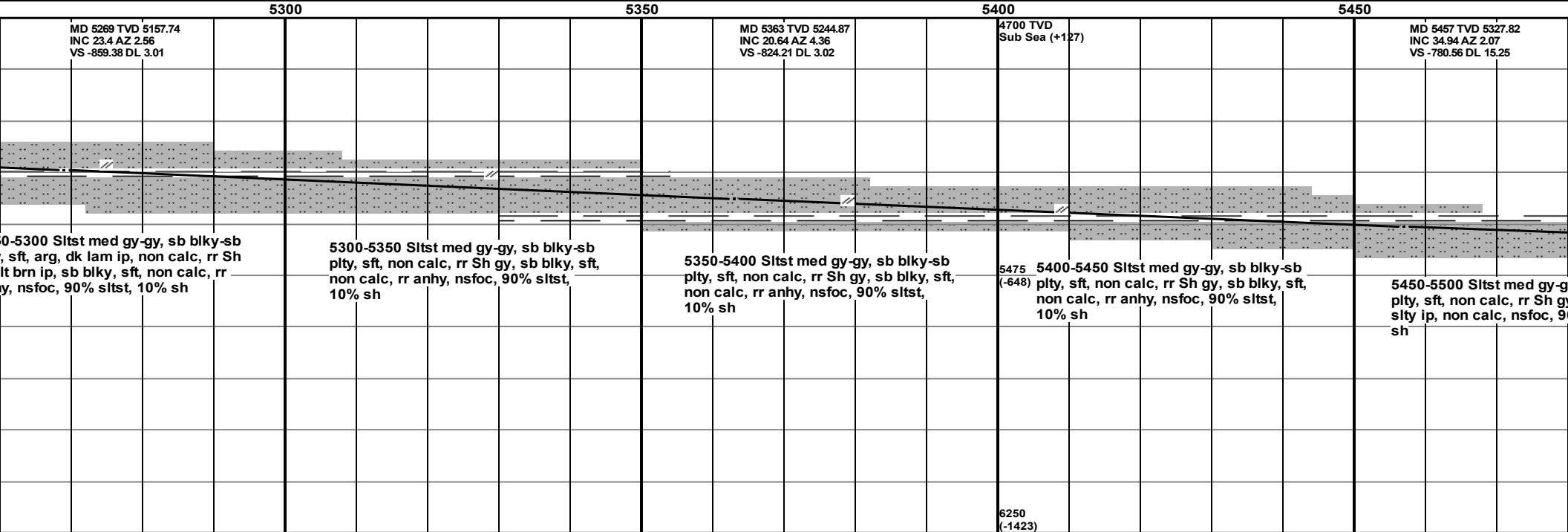
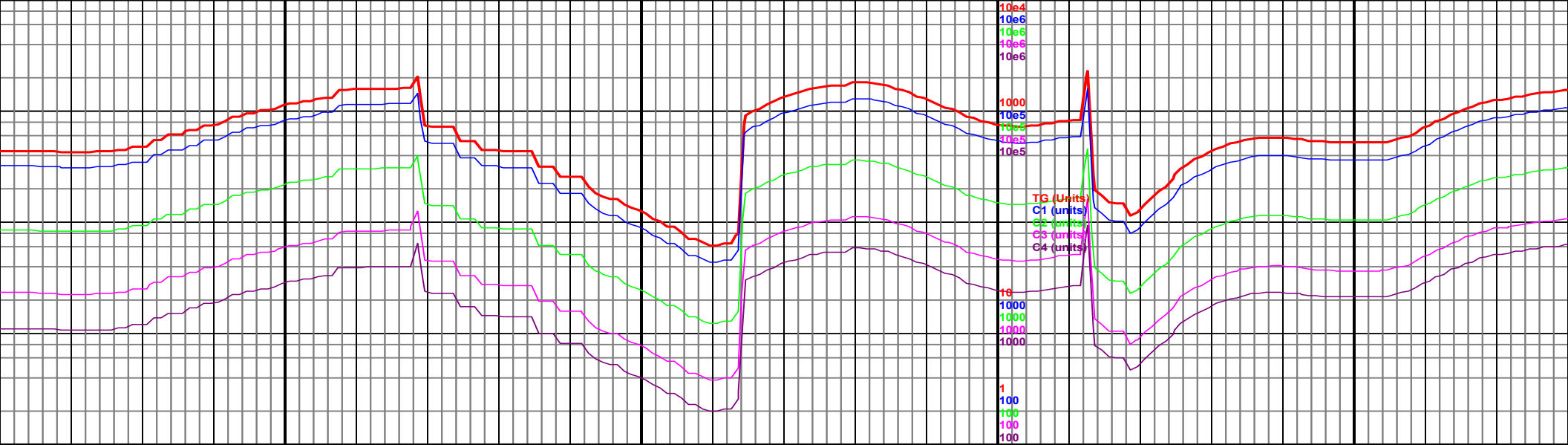
OIL SHOW
 Even

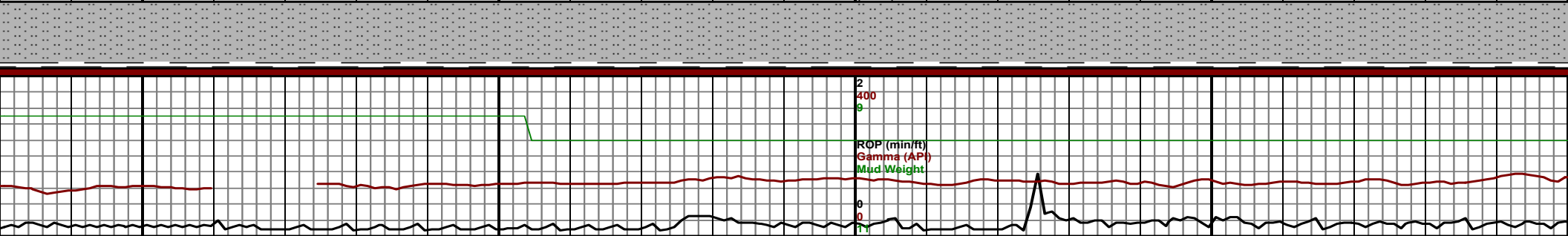
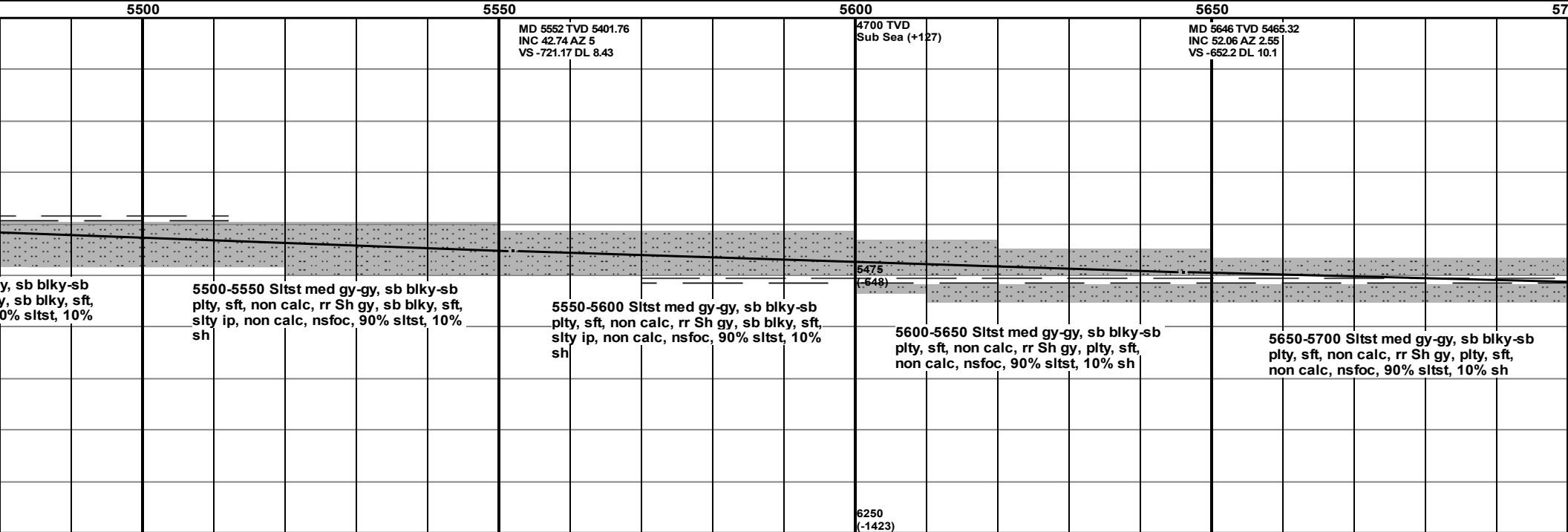
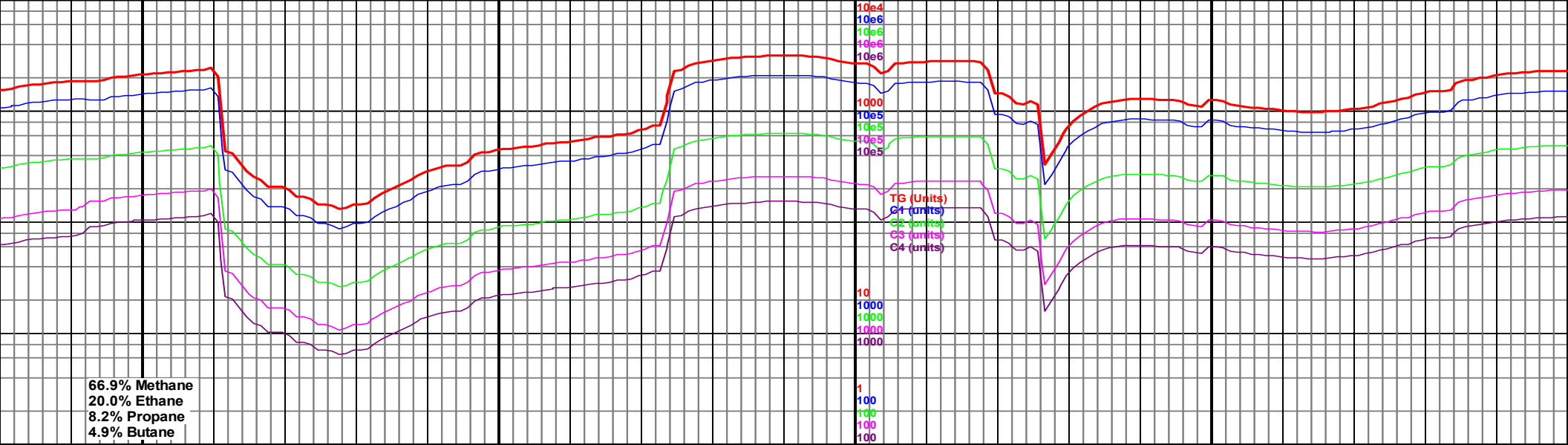
 Spotted
 Ques
 Dead

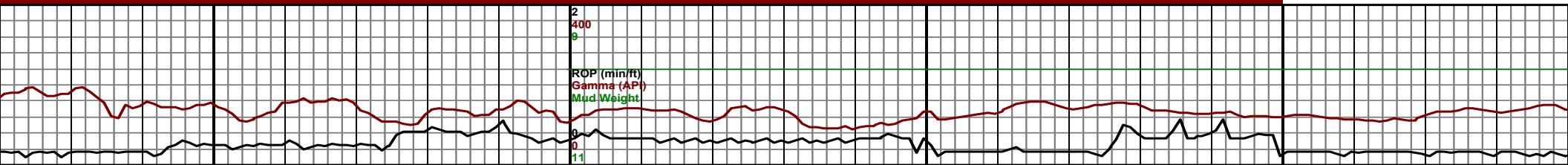
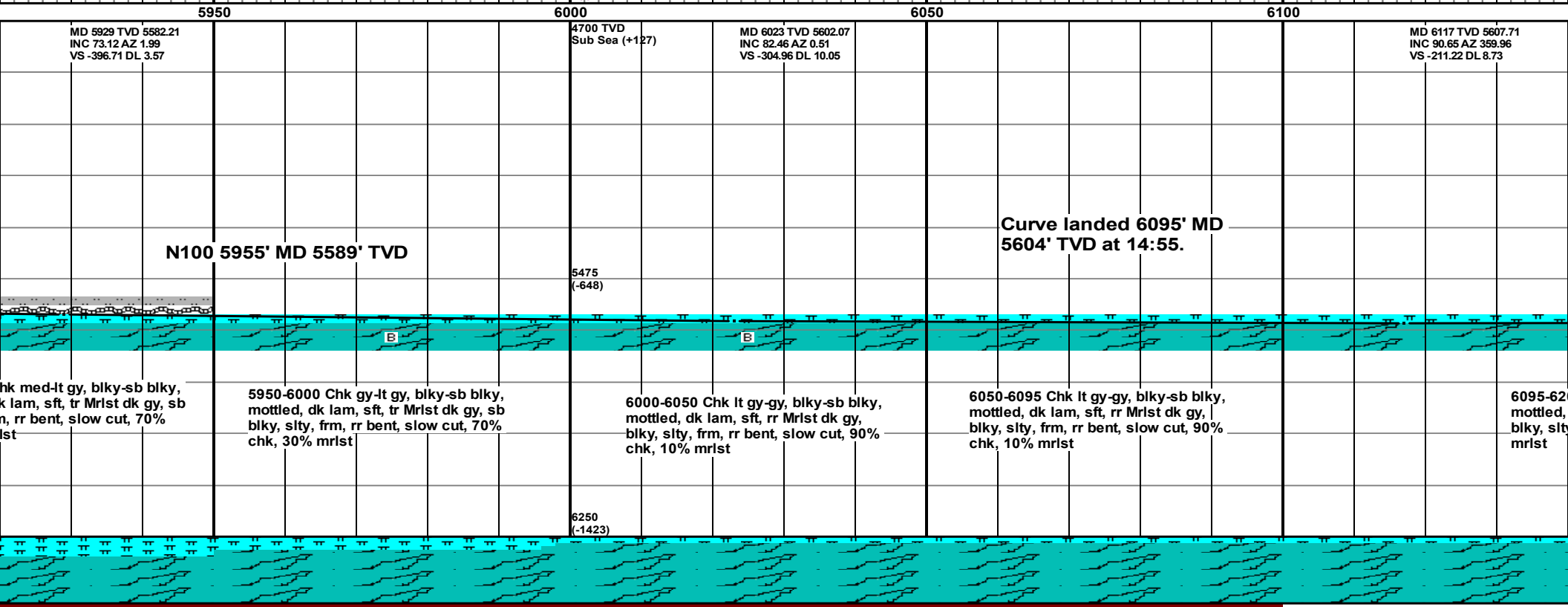
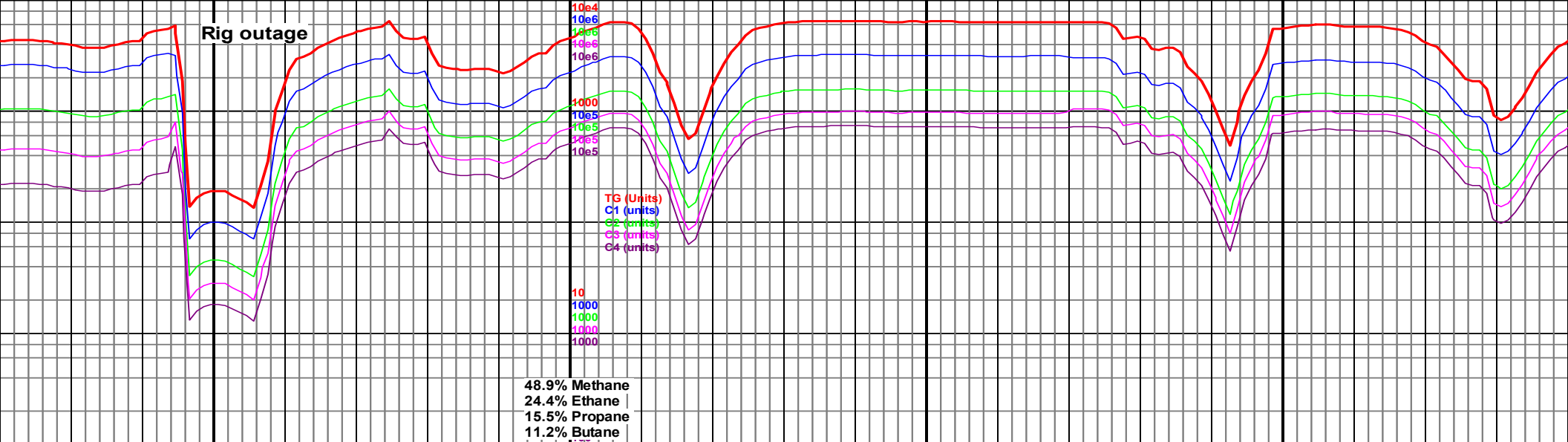
INTERVAL
 Core
 Dst

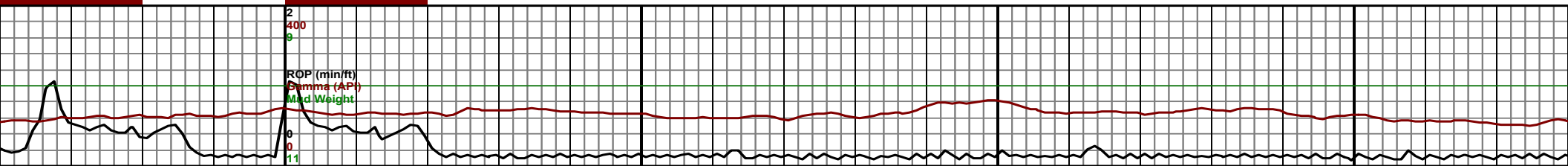
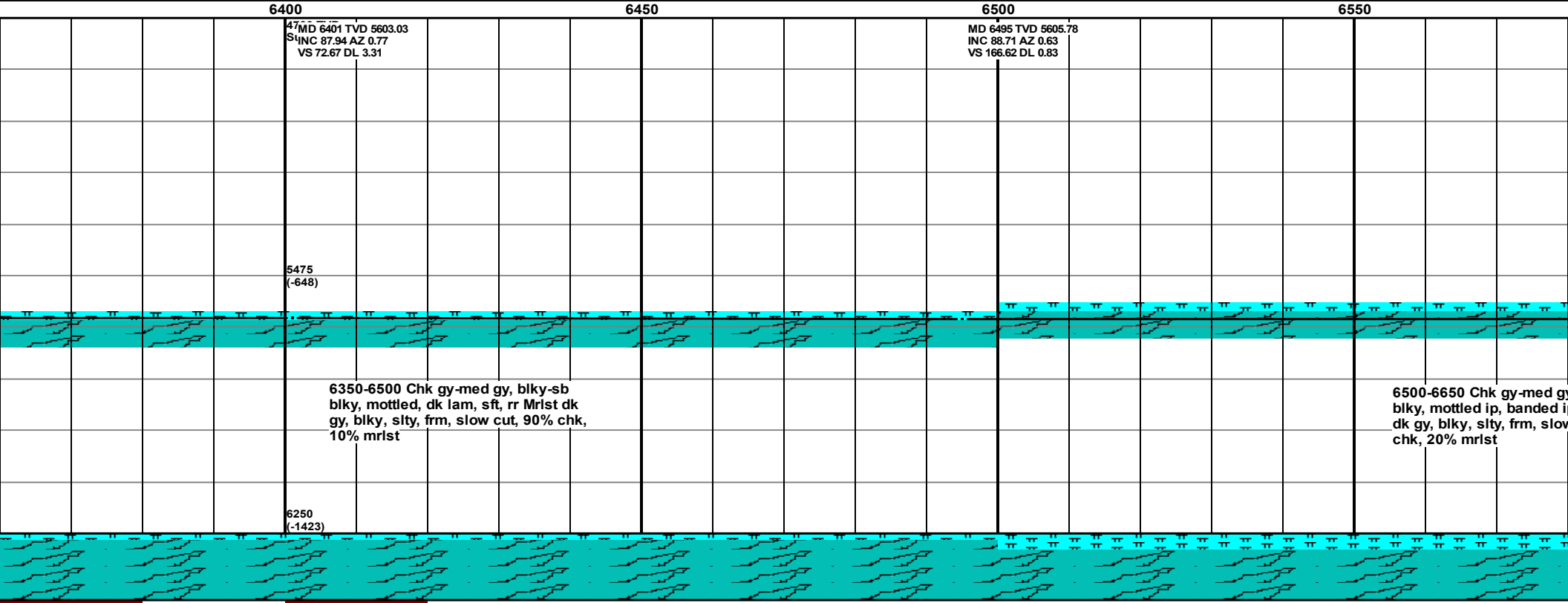
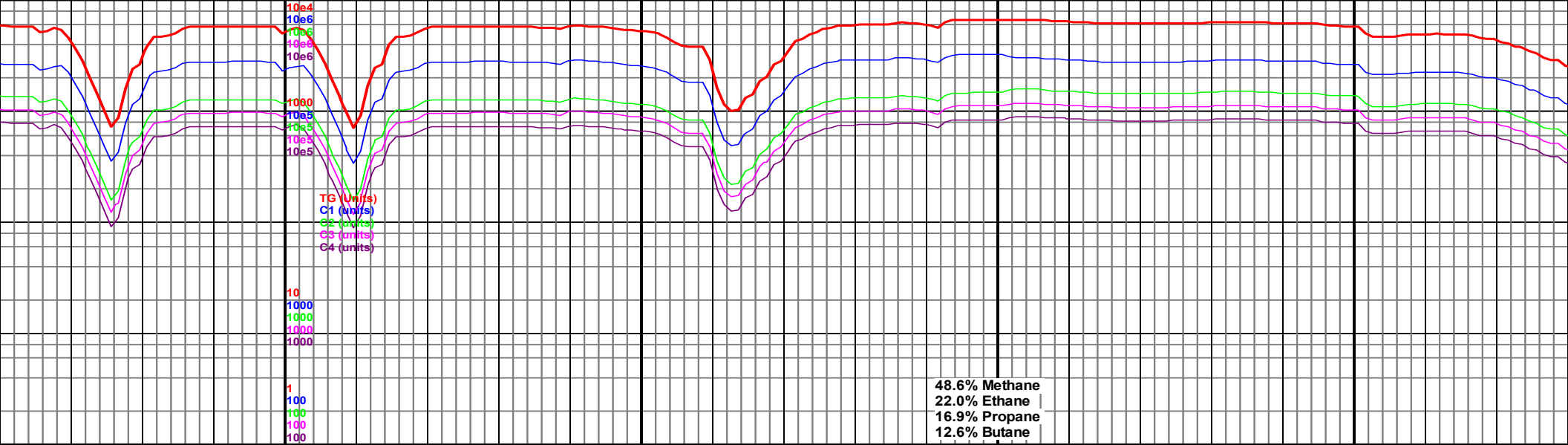
EVENT
 Rft
 Sidewall

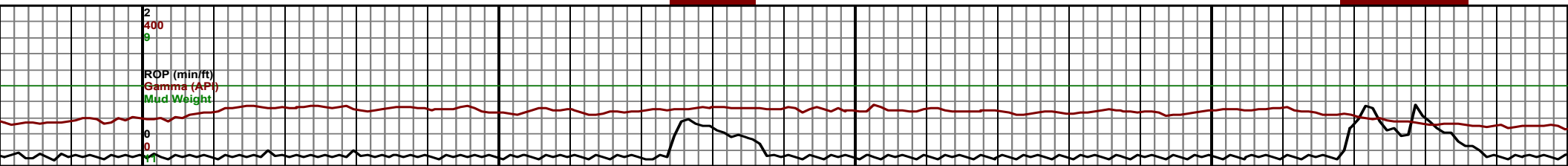
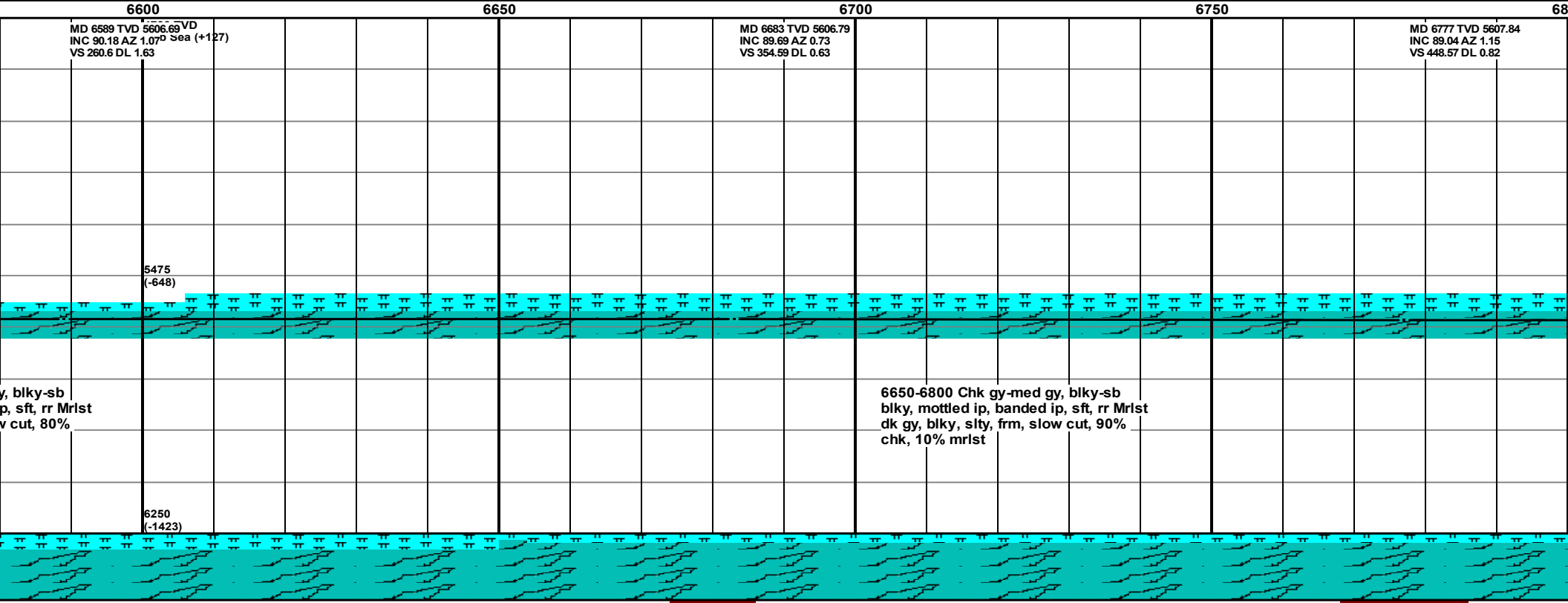
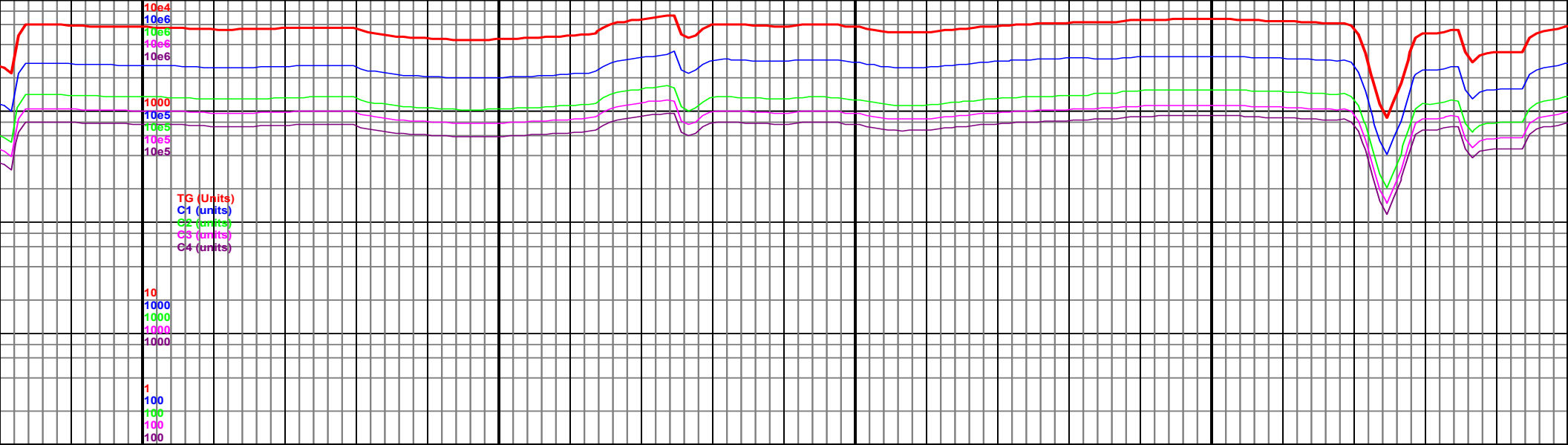


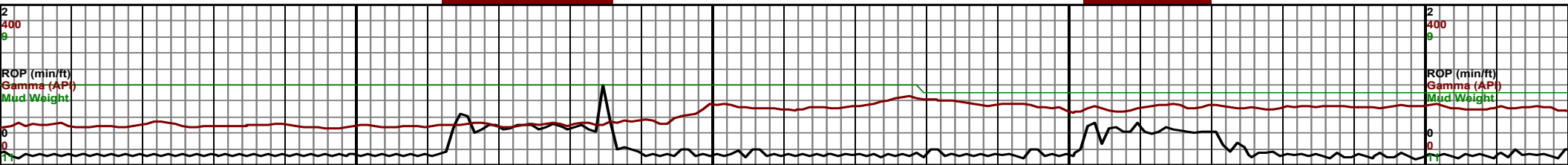
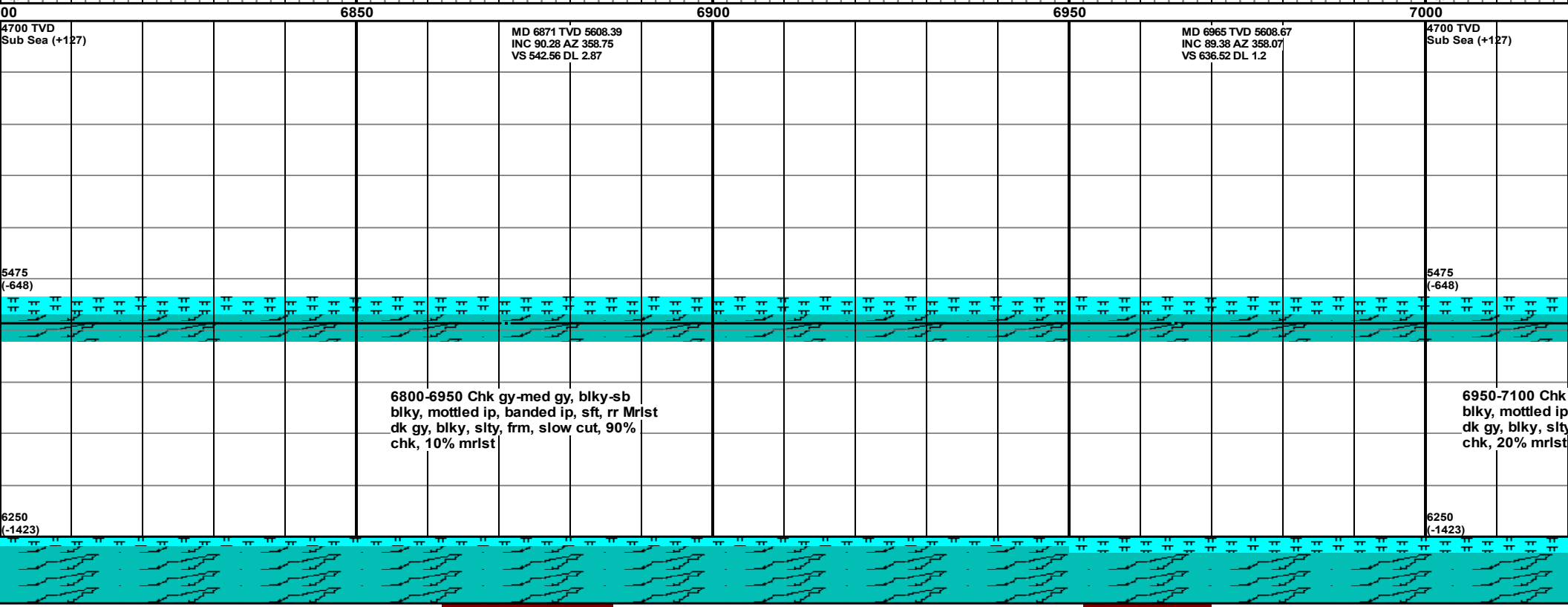
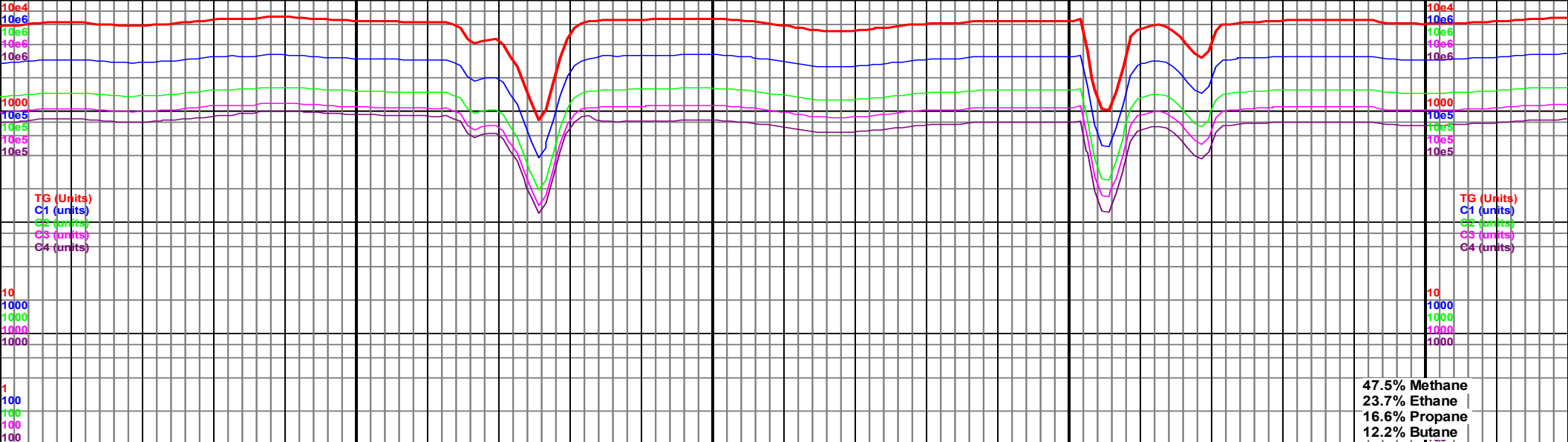


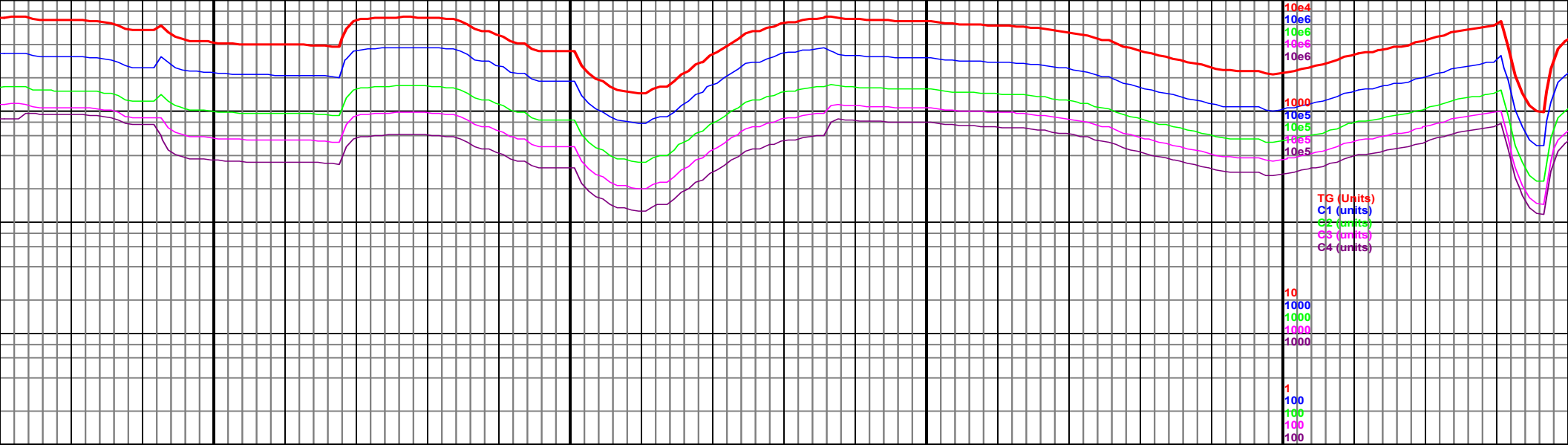












7050

7100

7150

7200

MD 7059 TVD 5609.51
INC 89.6 AZ 358.19
VS 730.47 DL 0.27

MD 7153 TVD 5609.74
INC 90.12 AZ 0.39
VS 824.45 DL 2.4

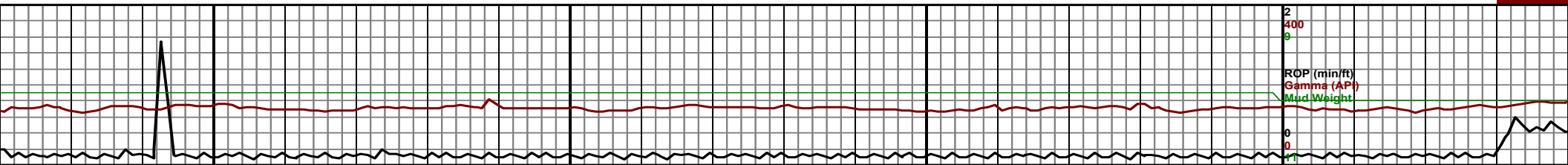
4700 TVD
Sub Sea (+127)

gy-med gy, blk-sb
, banded ip, sft, rr Mrst
, frm, slow cut, 80%

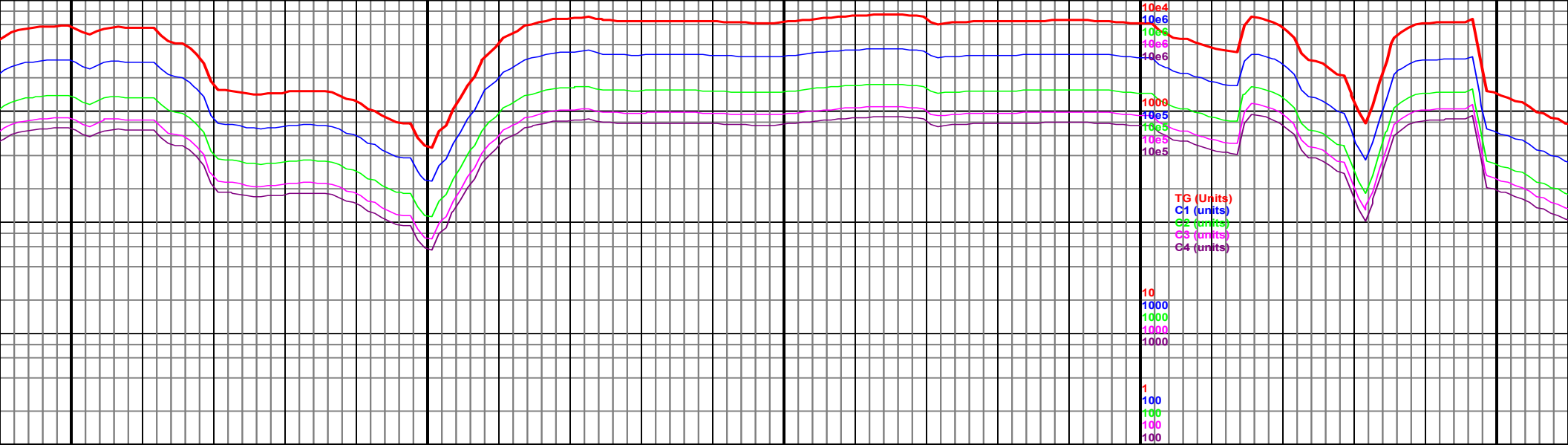
7100-7250 Chk gy-med gy, blk-sb
blk, mottled ip, banded ip, sft, rr Mrst
dk gy, blk, silty, frm, slow cut, 80%
chk, 20% mrst

5475
(-648)

6250
(-1423)



2
400
9
ROP (min/ft)
Gamma (API)
Mud Weight



7250

7300

7350

7400

7450

MD 7248 TVD 5610.
INC 89.57 AZ 356.69
VS 919.41 DL 3.94

MD 7342 TVD 5609.23
INC 91.36 AZ 357.53
VS 1013.28 DL 2.1

4700 TVD
Sub Sea (+127)

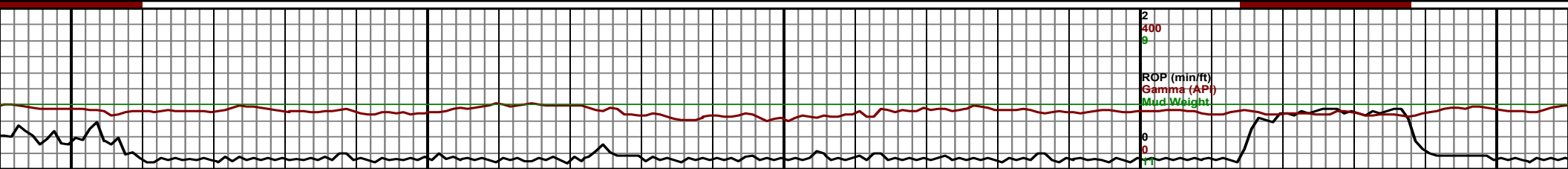
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INC 89.32 AZ 358.5
VS 1107.21 DL 2.4

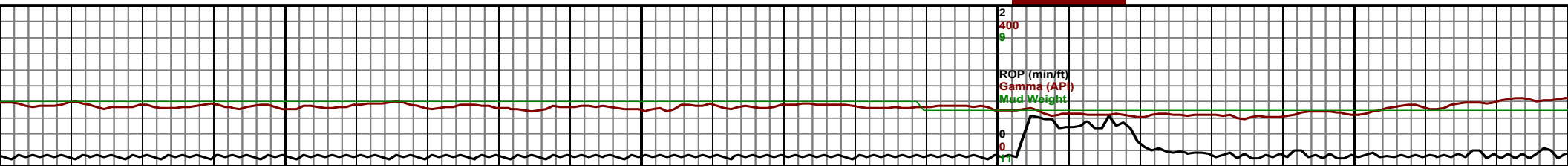
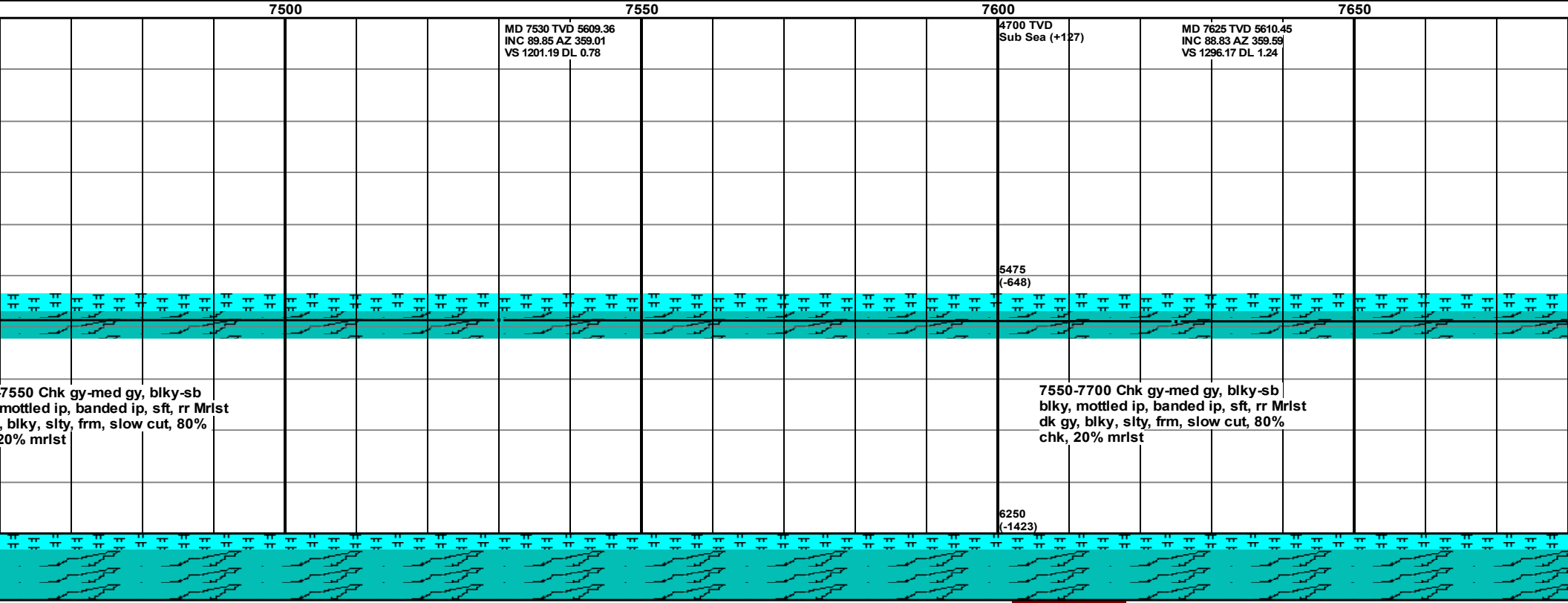
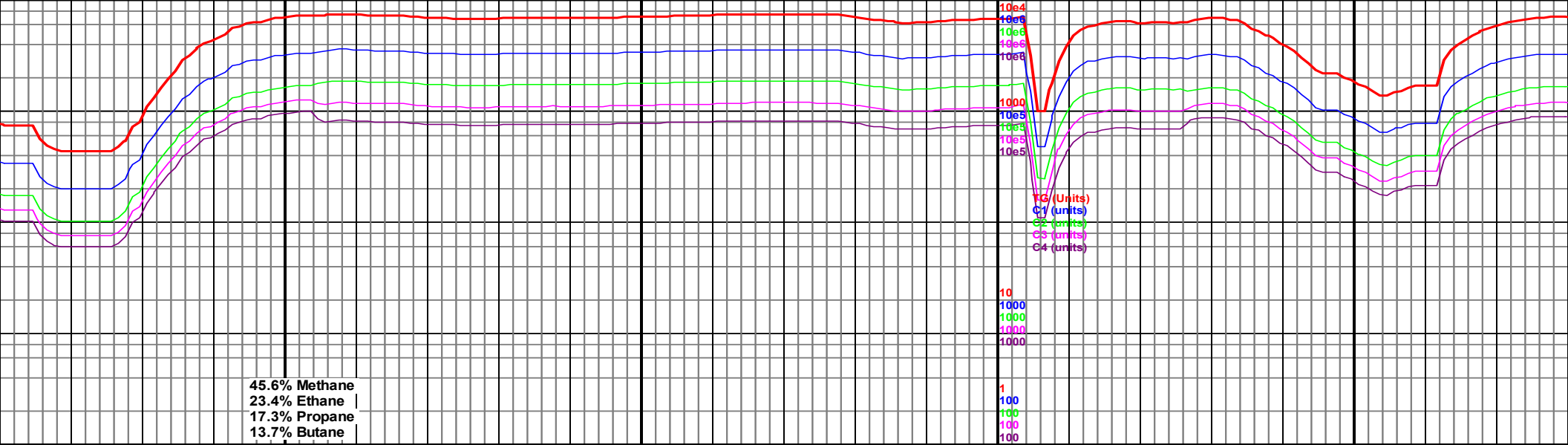
7250-7400 Chk gy-med gy, blk-y-sb
blk-y, mottled ip, banded ip, sft, rr Mrst
dk gy, blk-y, slty, frm, slow cut, 80%
chk, 20% mrst

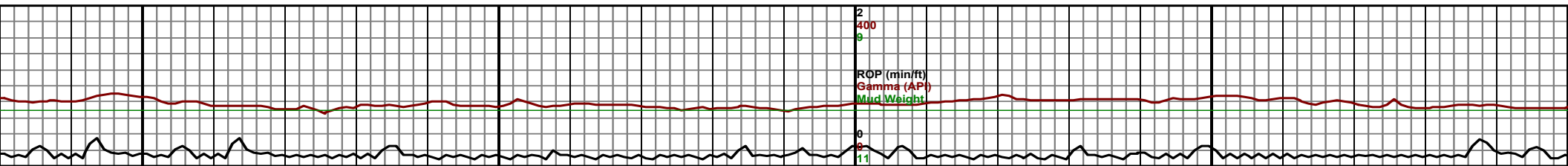
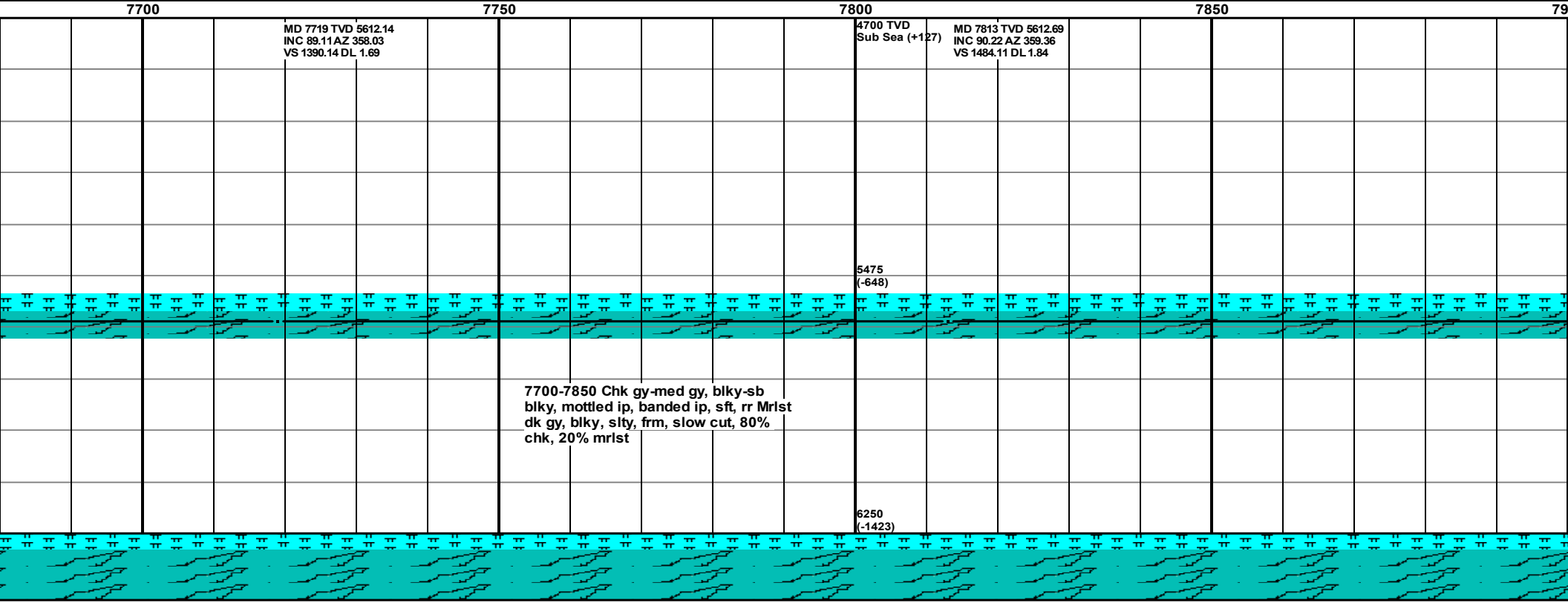
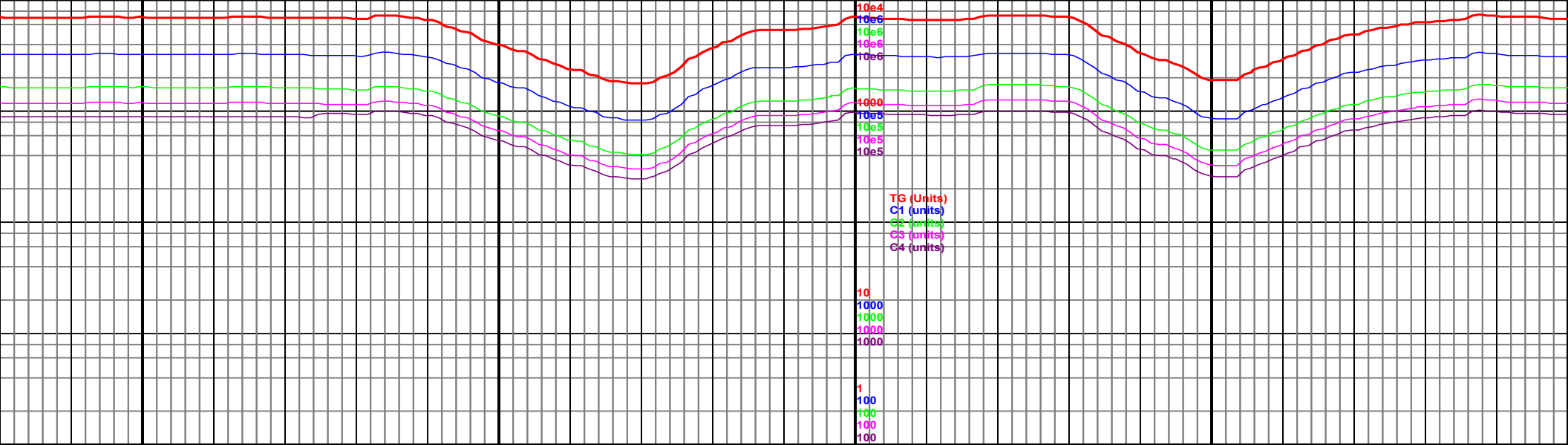
7400-
blk-y,
dk gy,
chk, 2

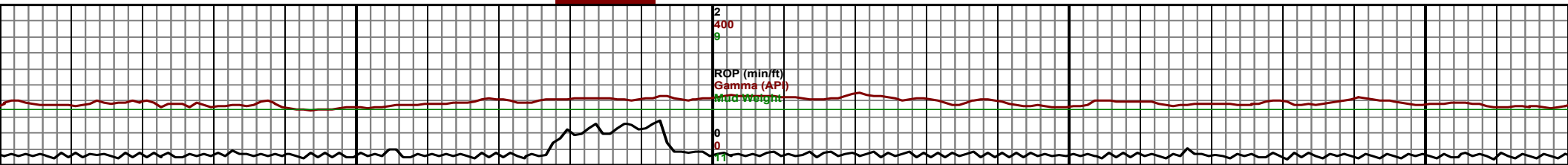
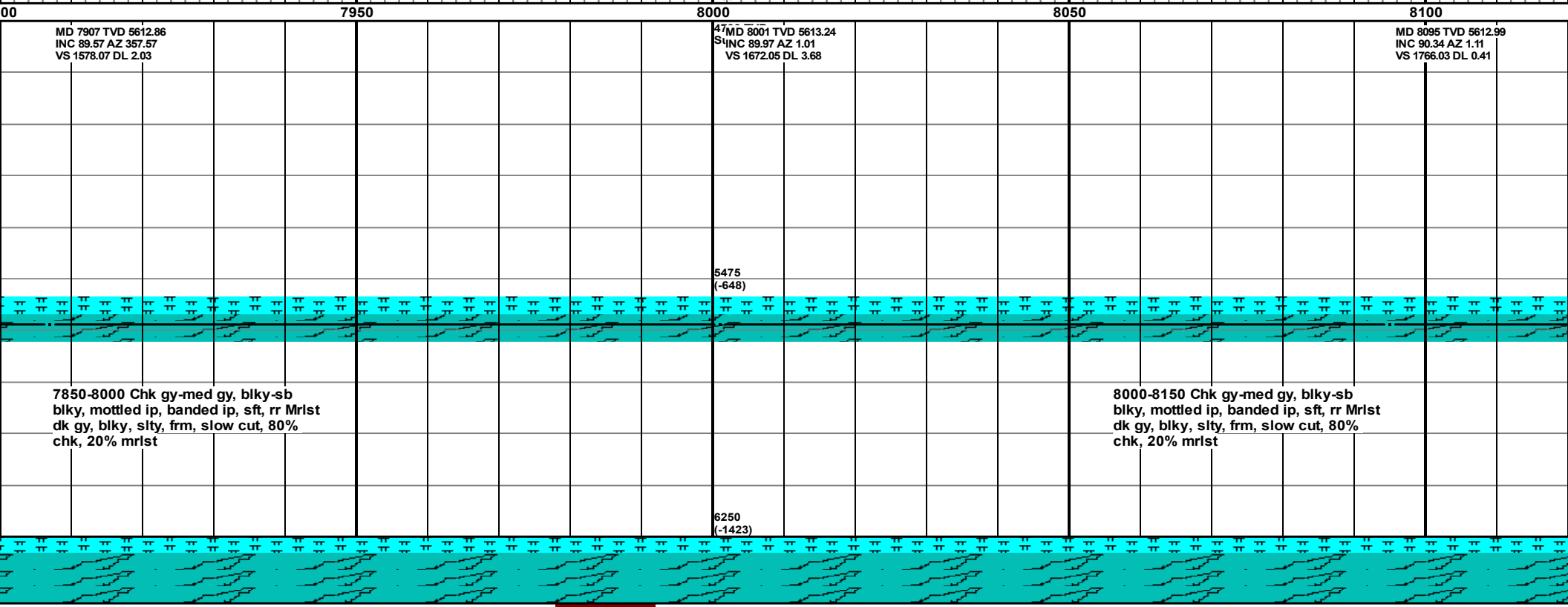
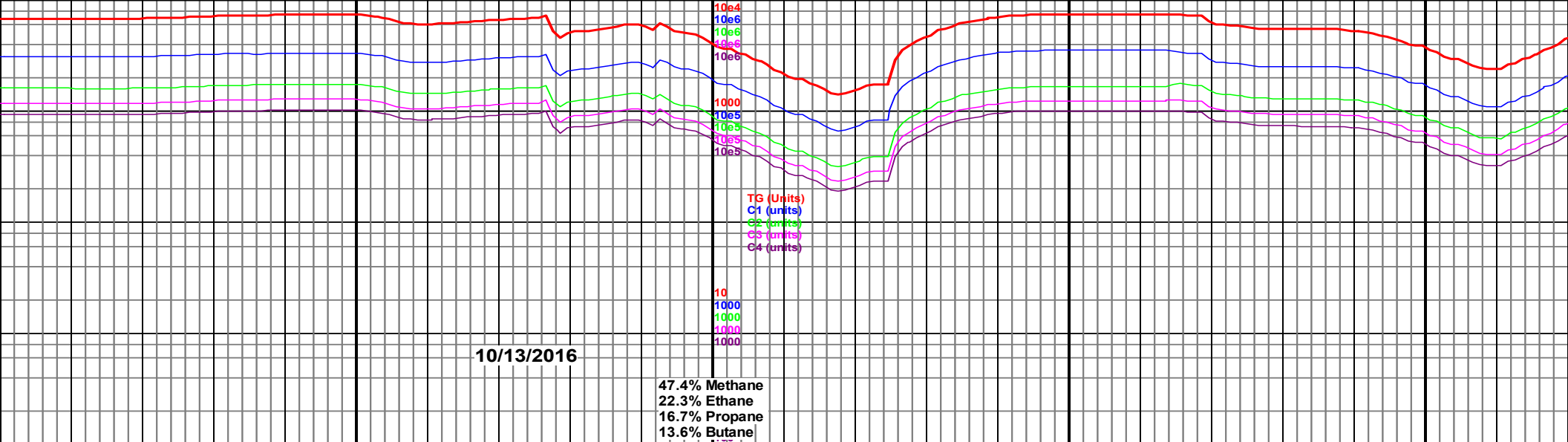
5475
(-648)

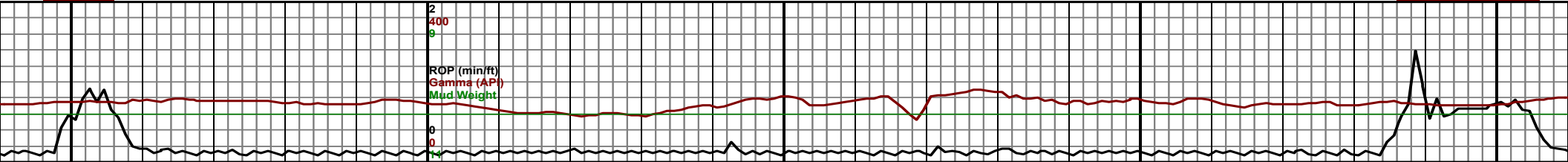
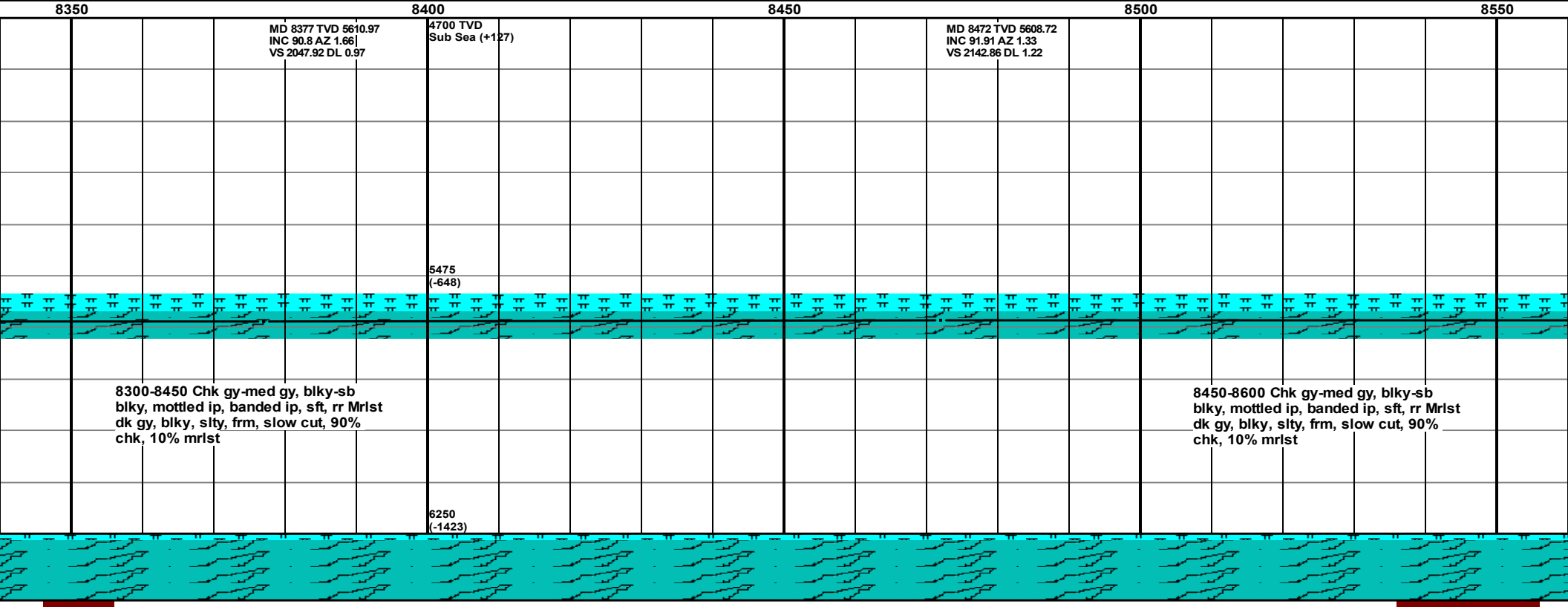
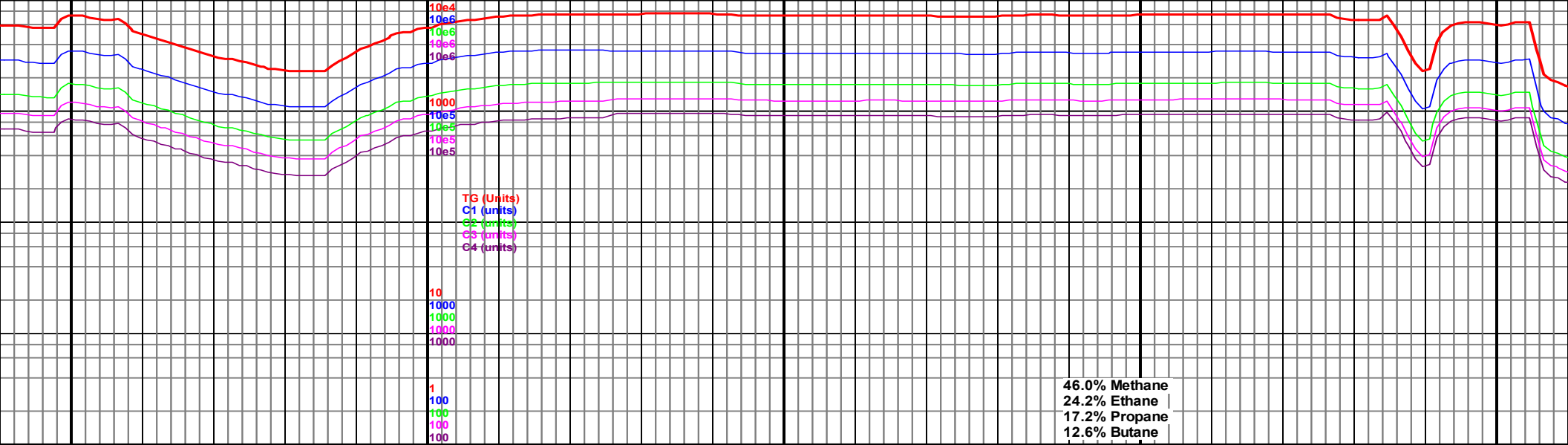
6250
(-1423)

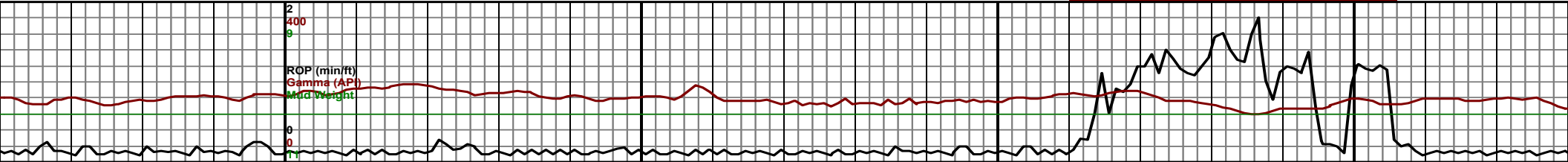
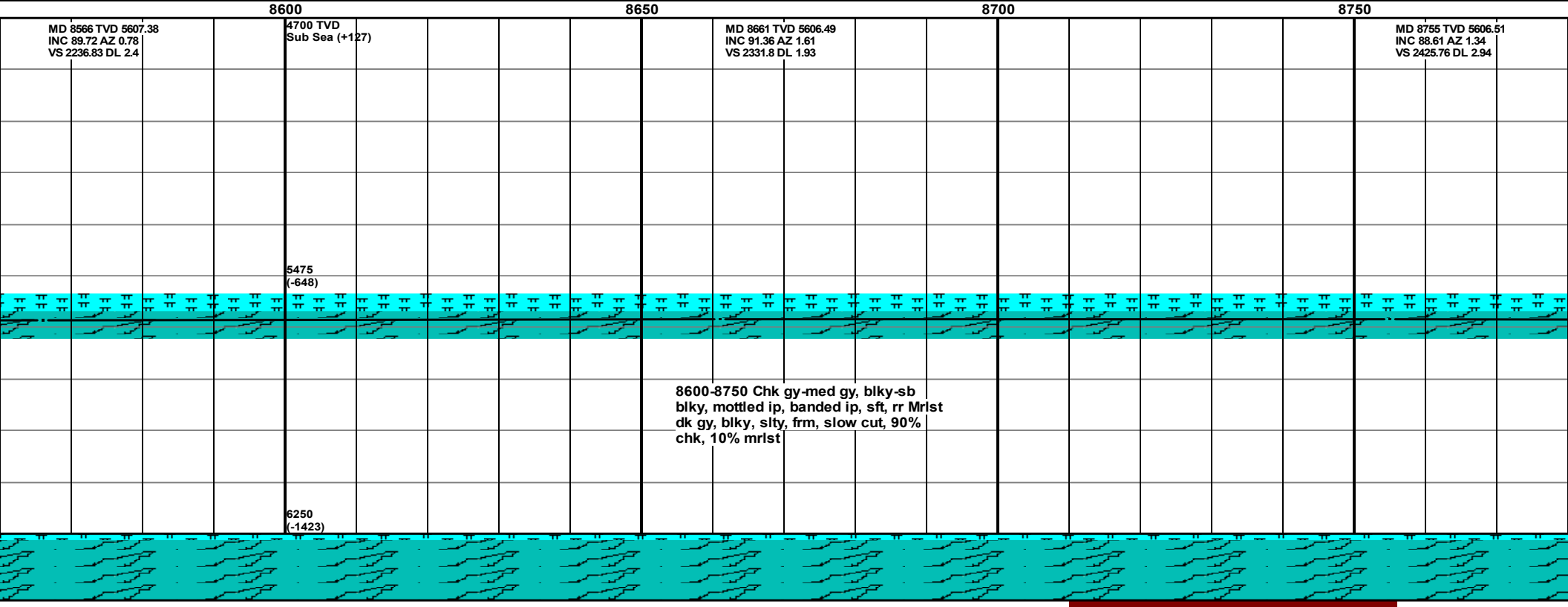
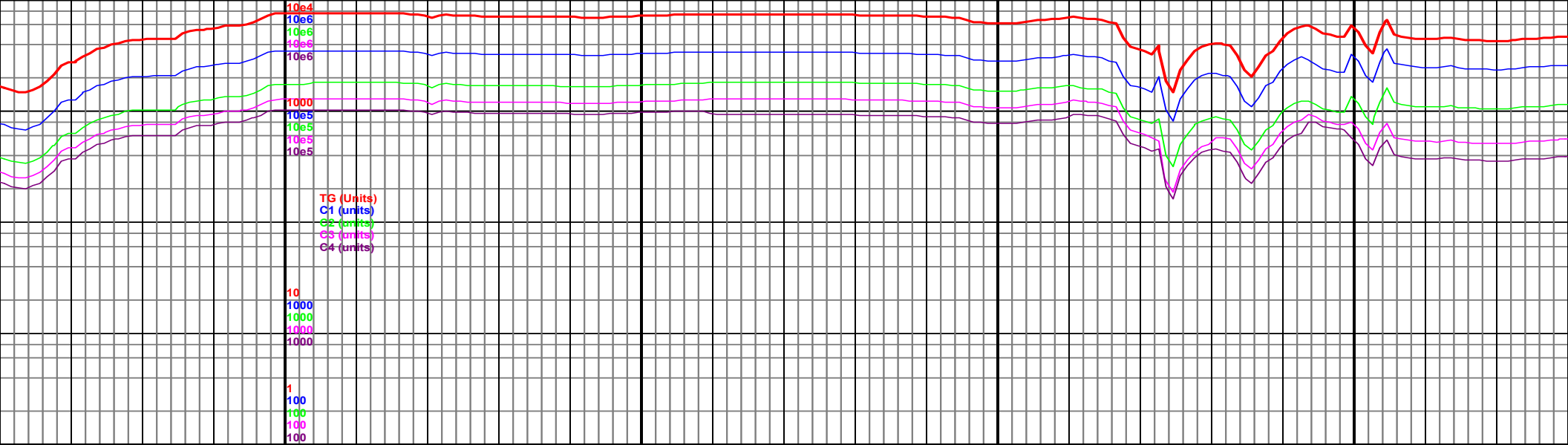


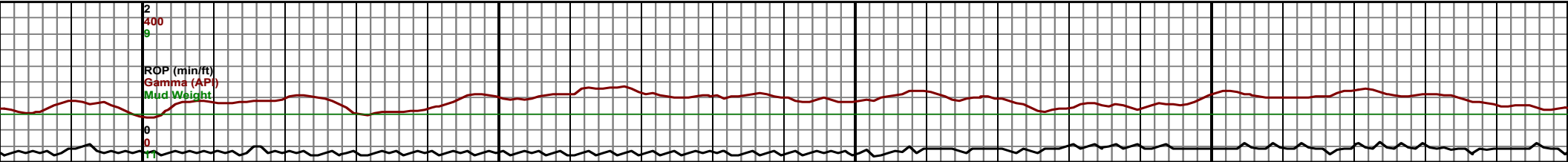
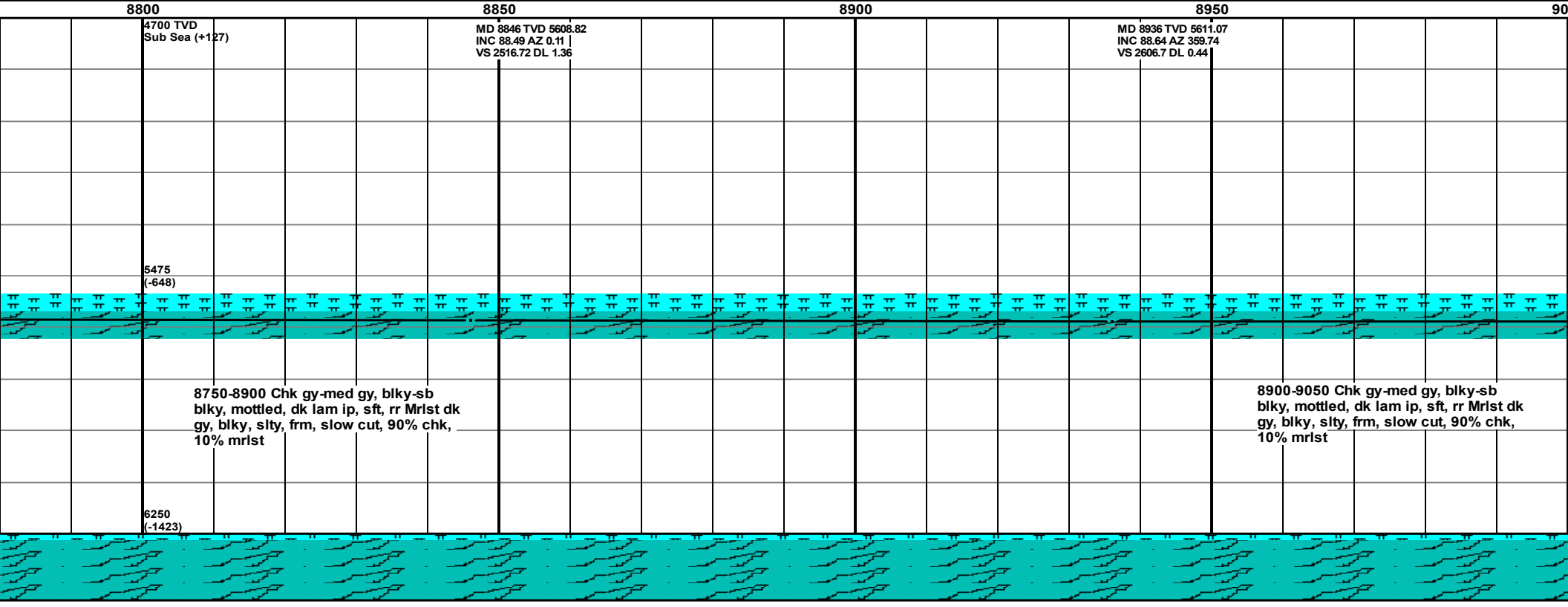
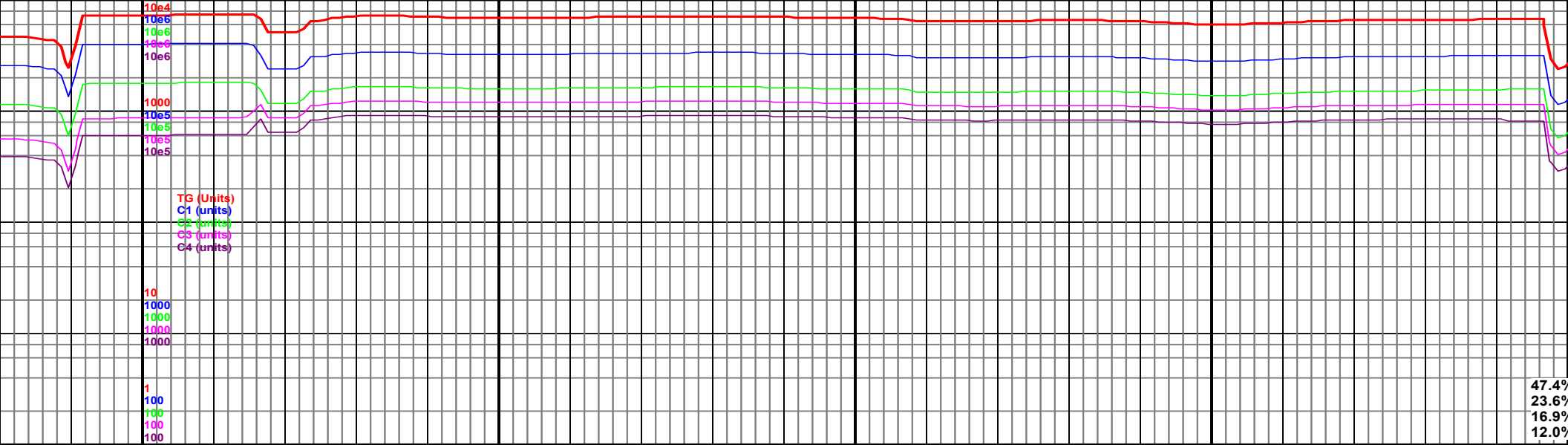


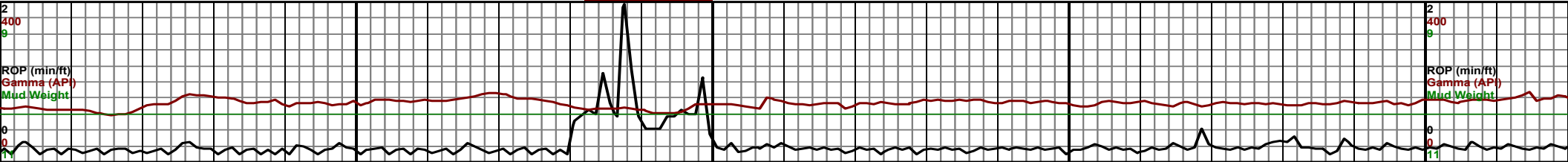
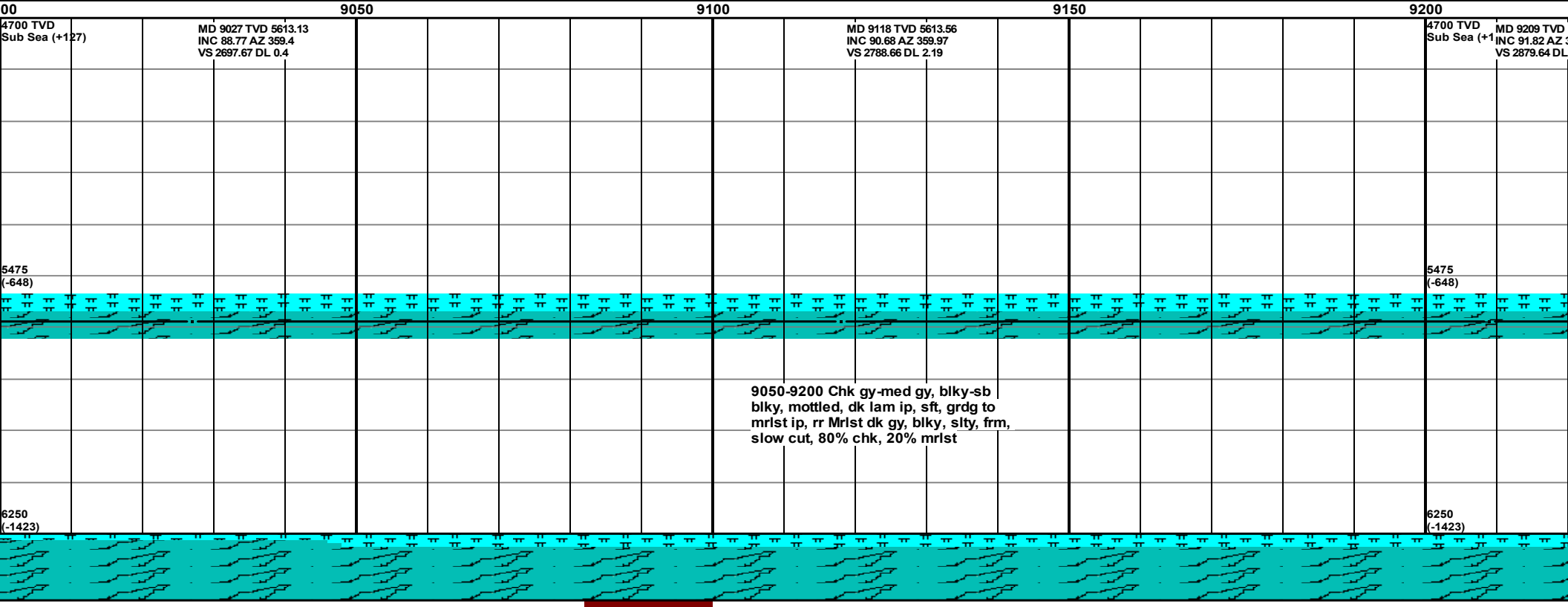
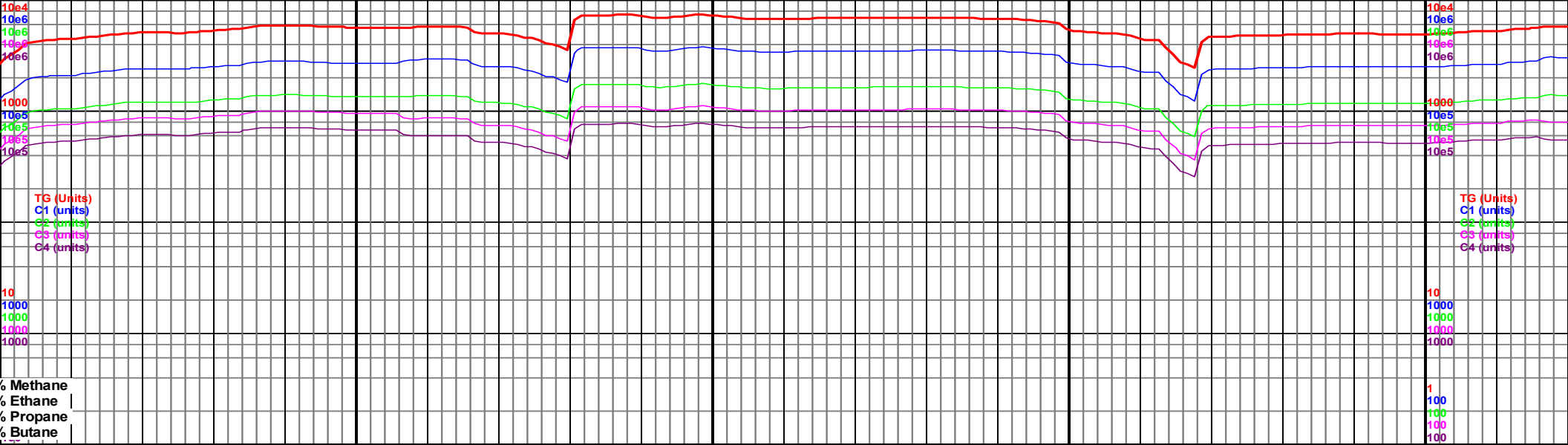


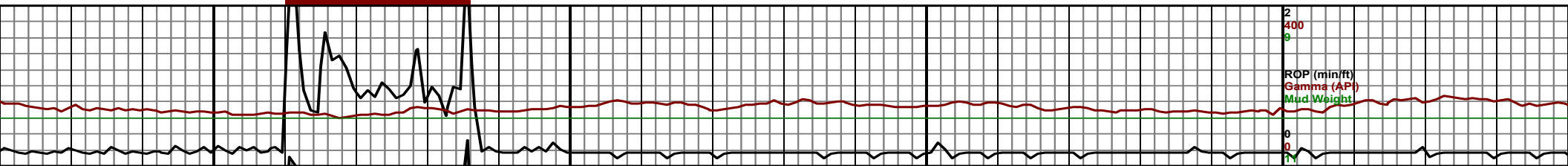
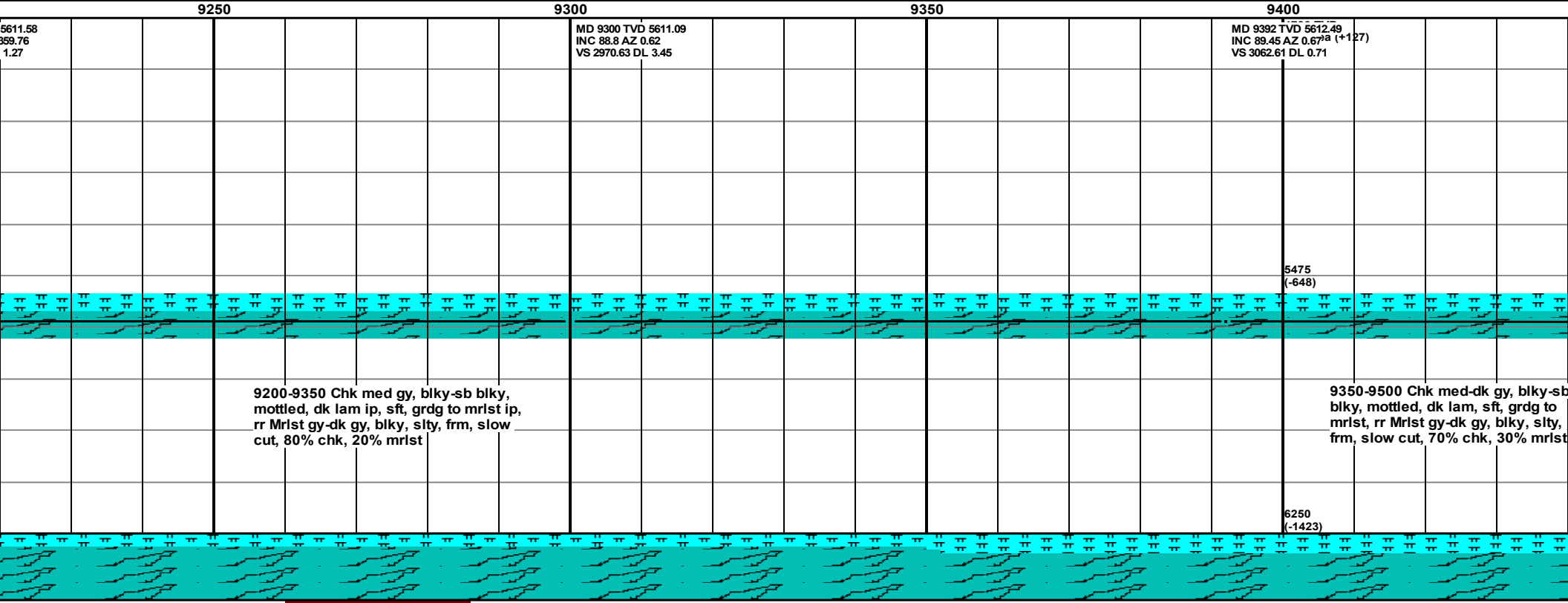
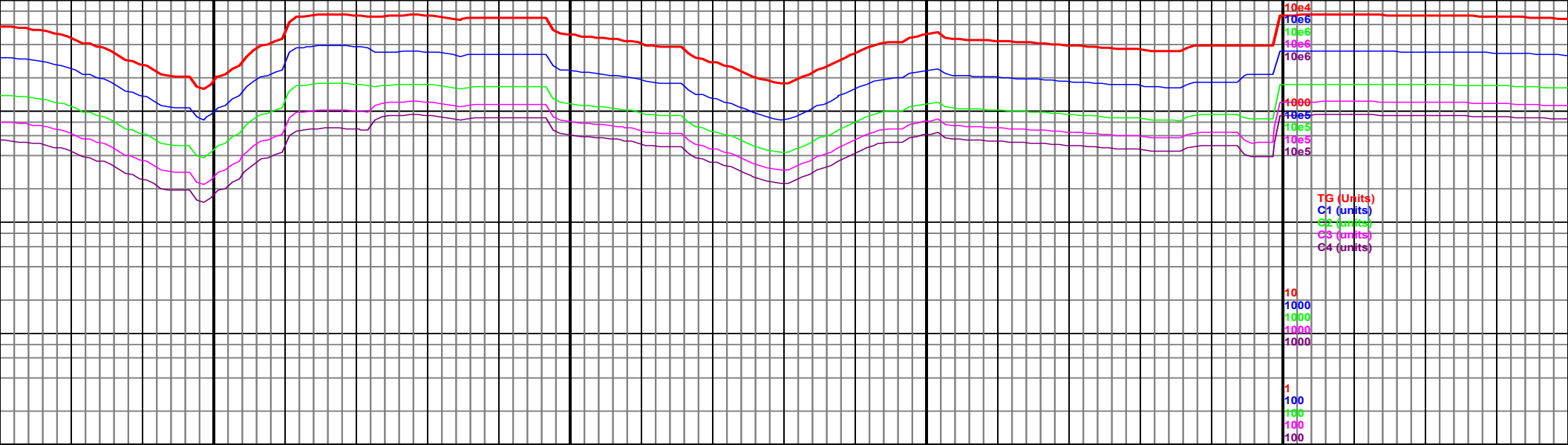


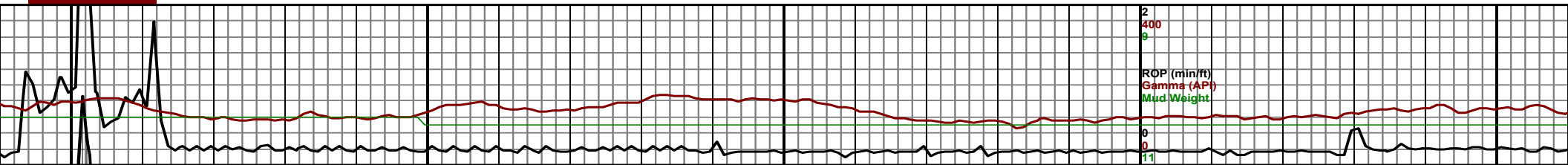
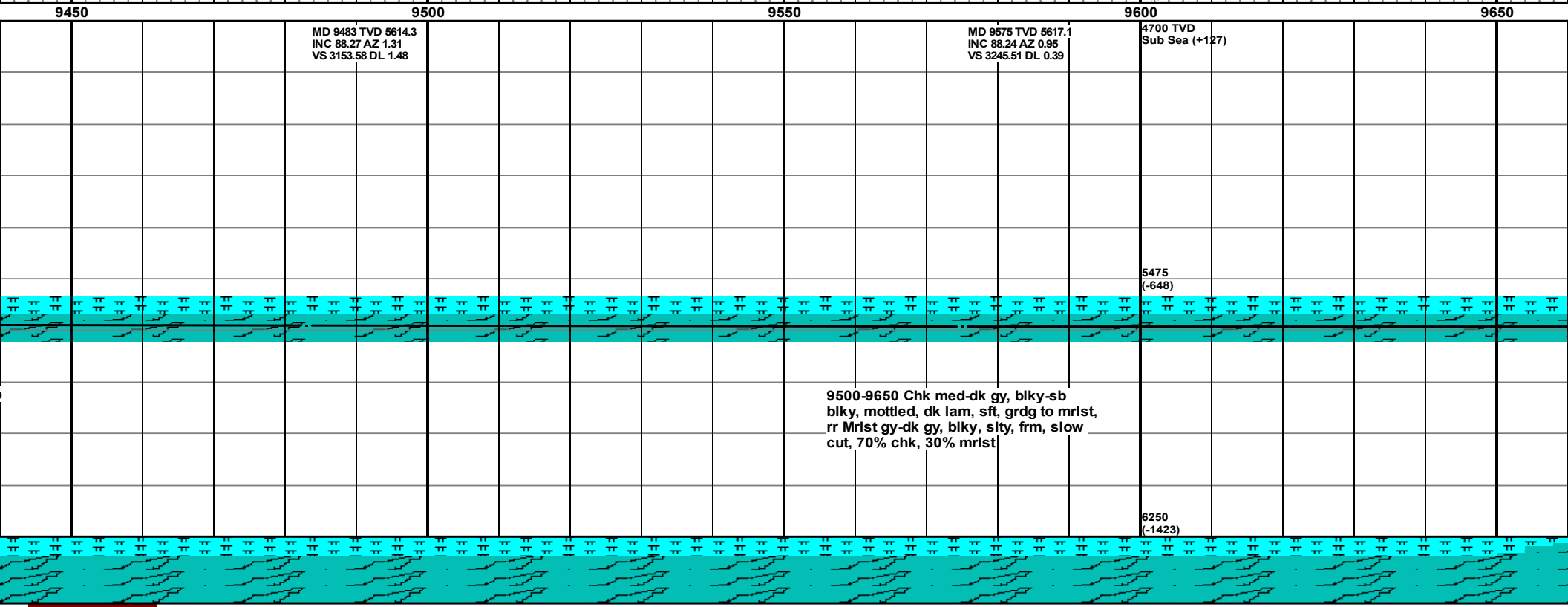
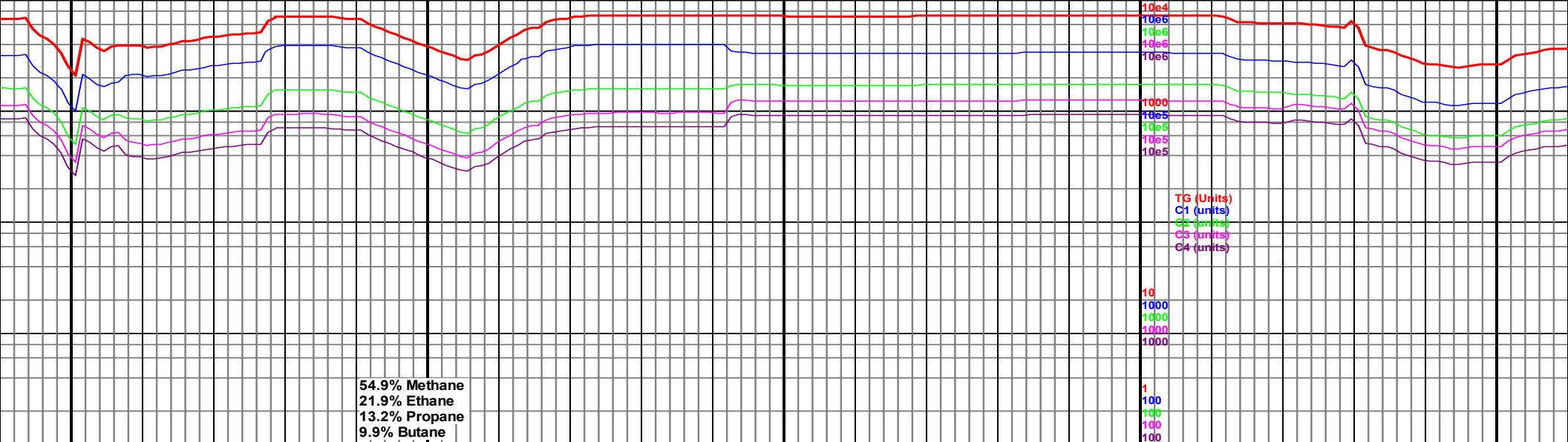


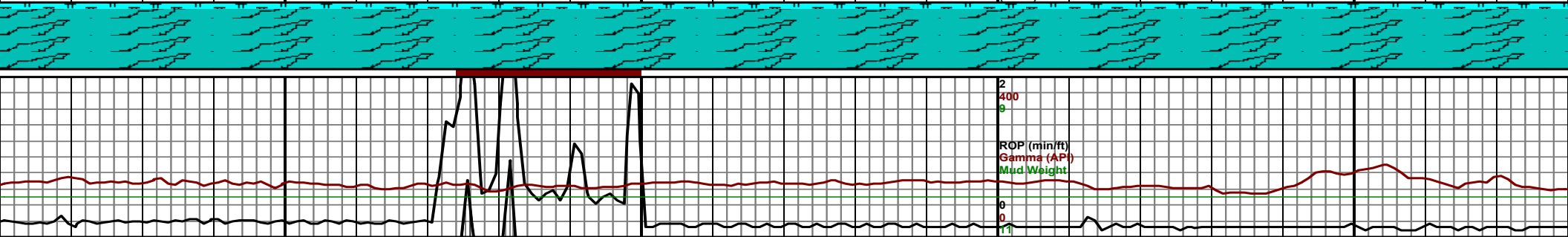
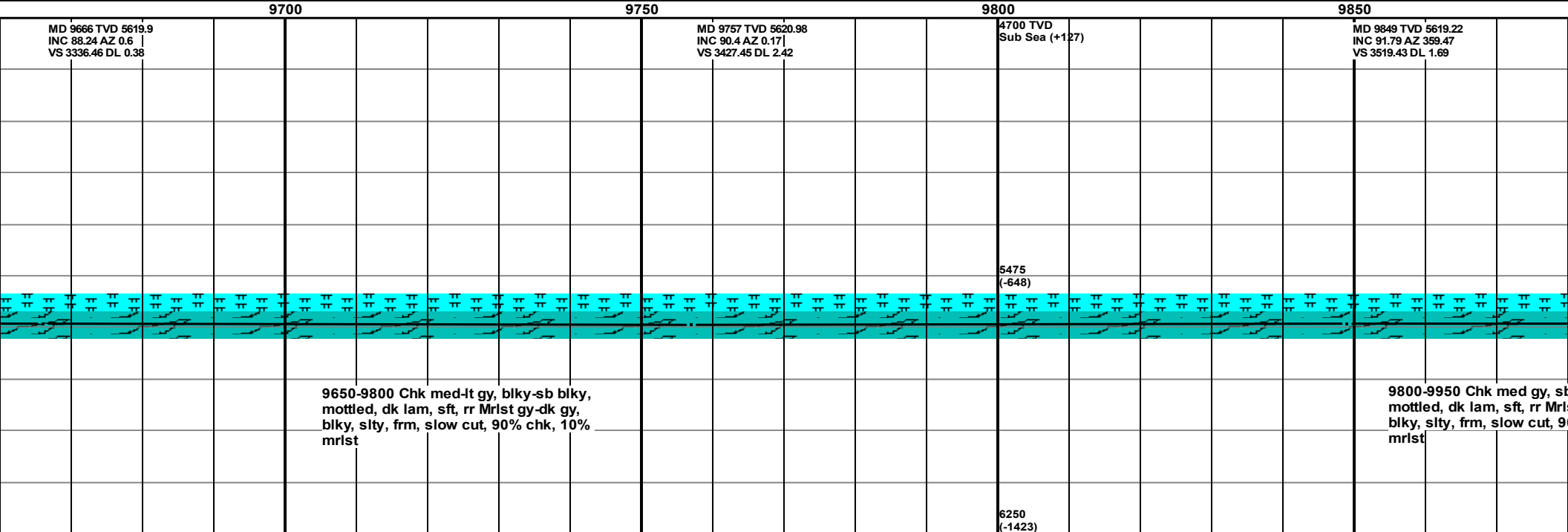
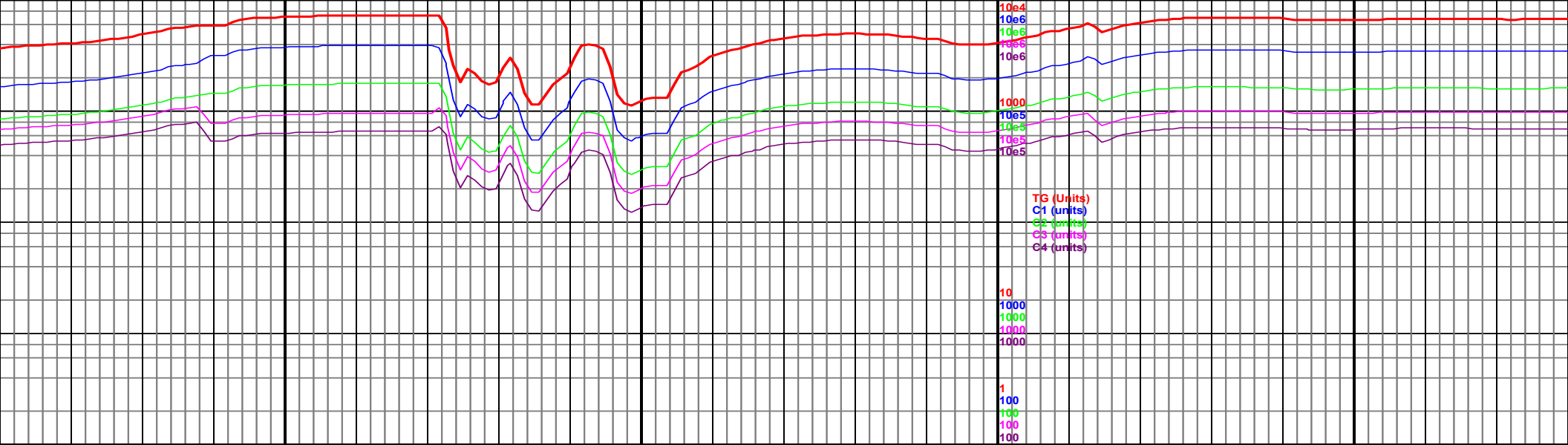


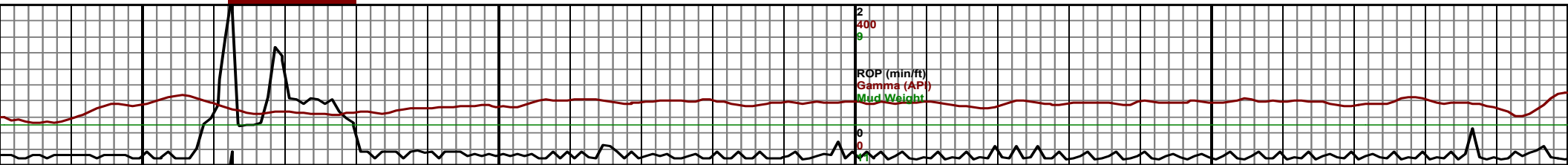
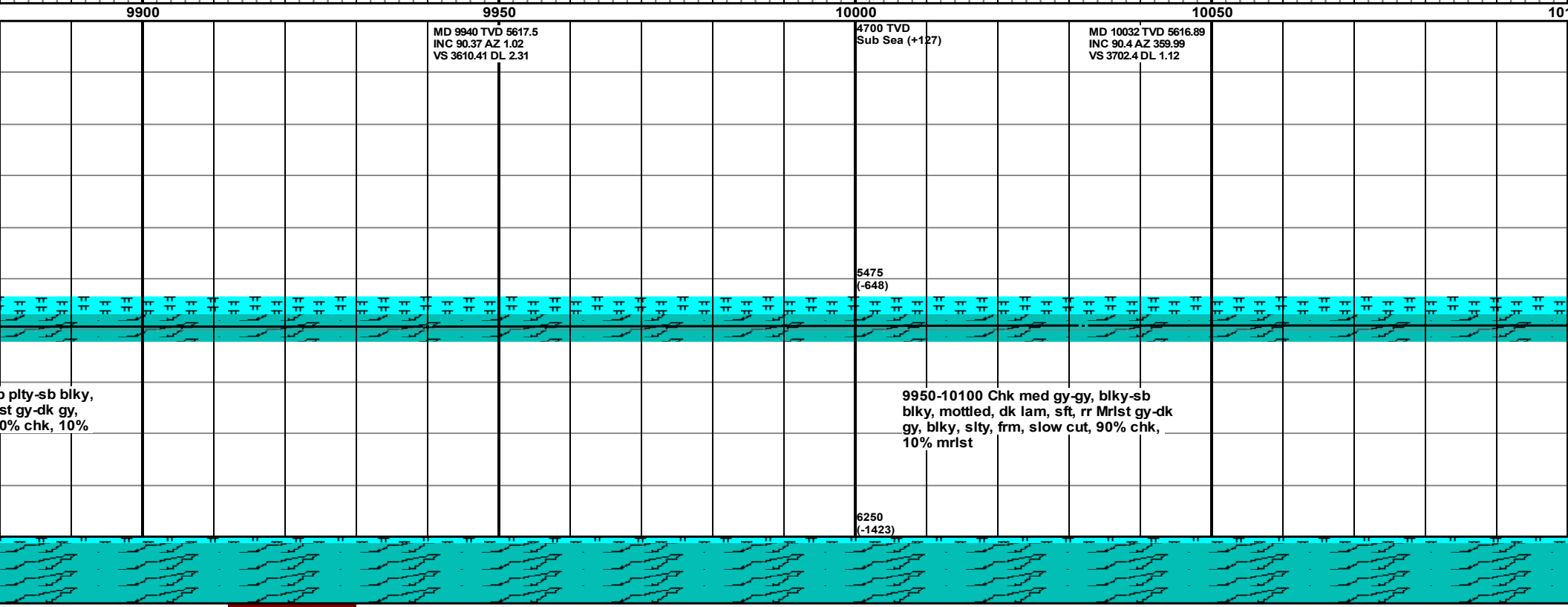
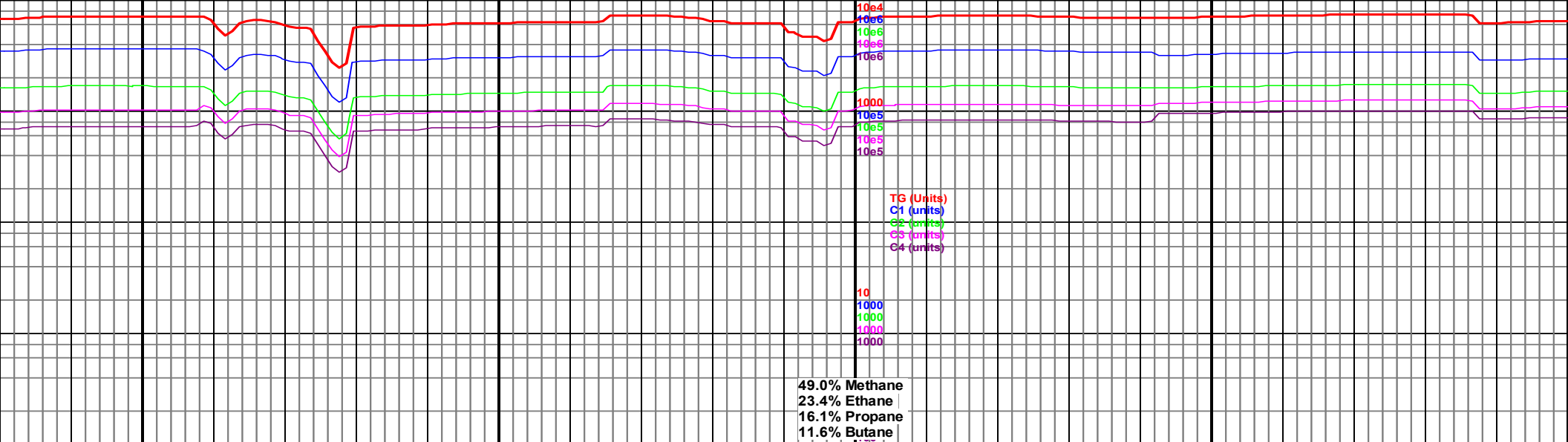


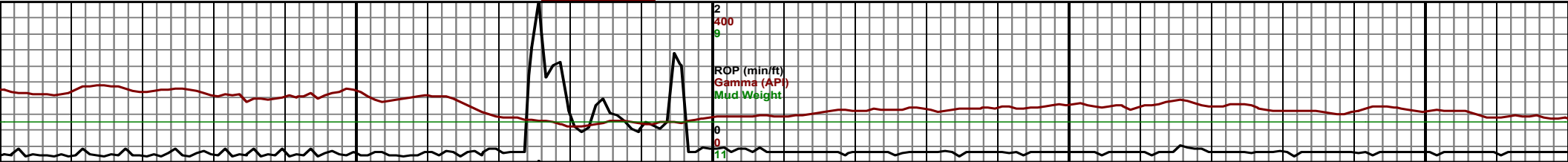
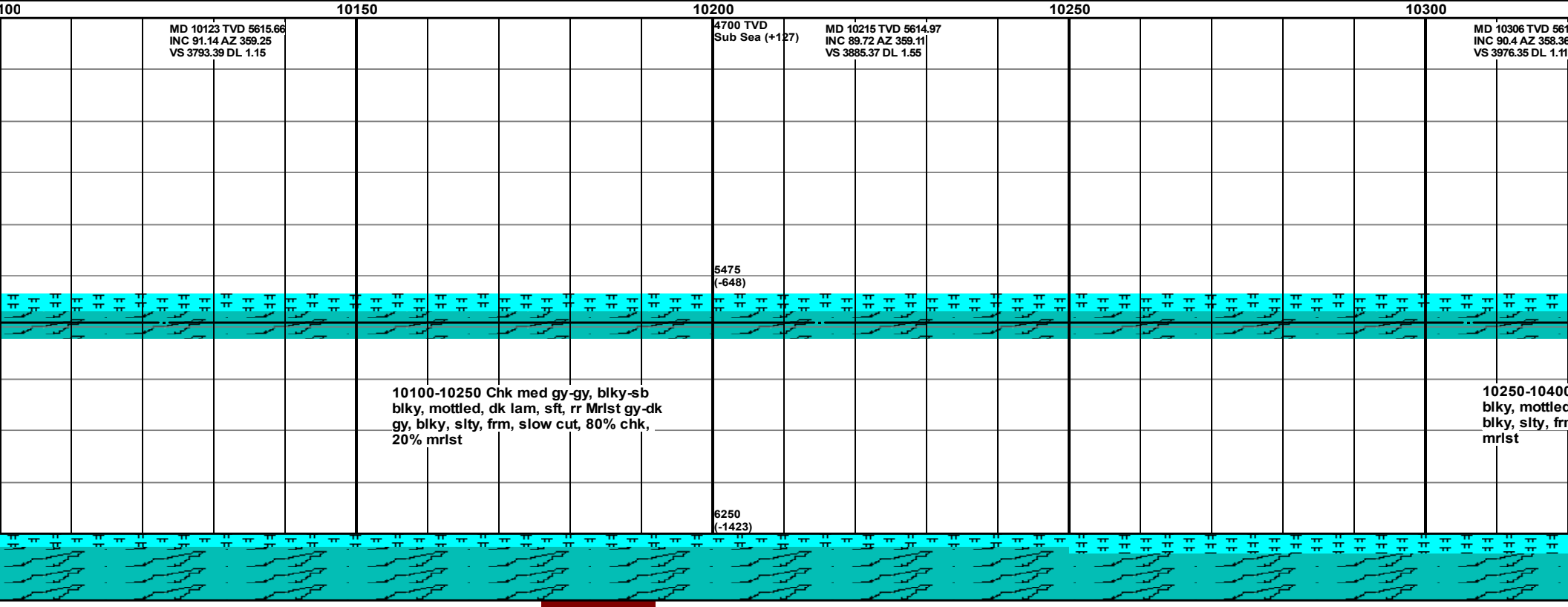
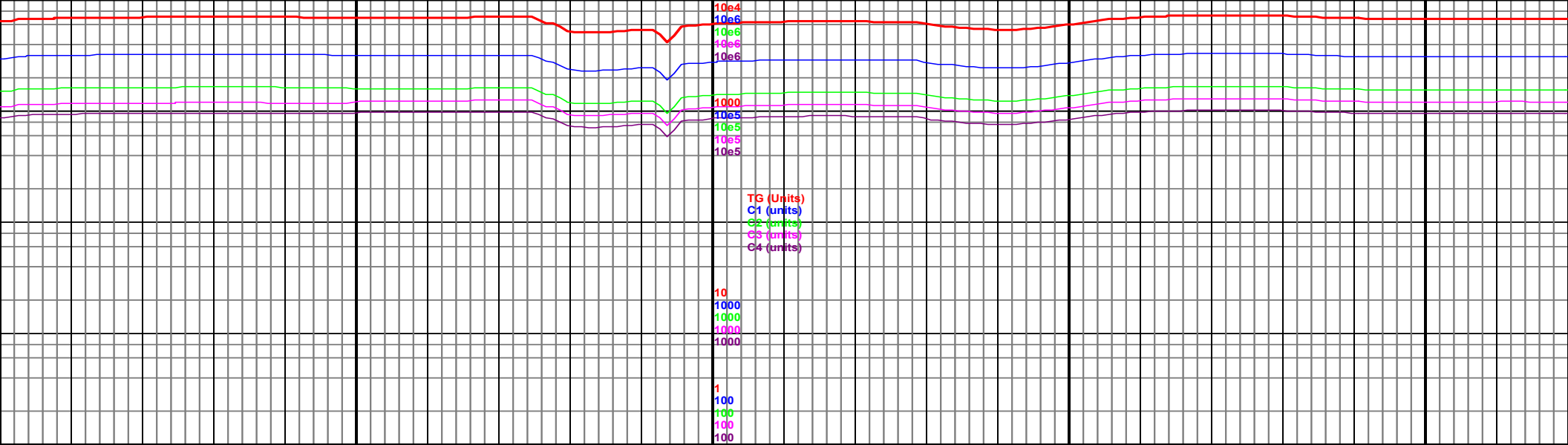


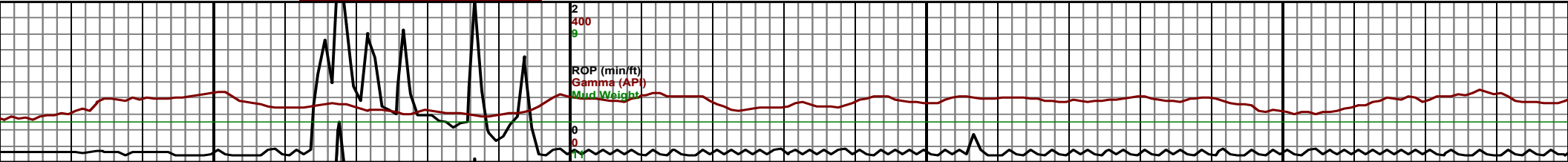
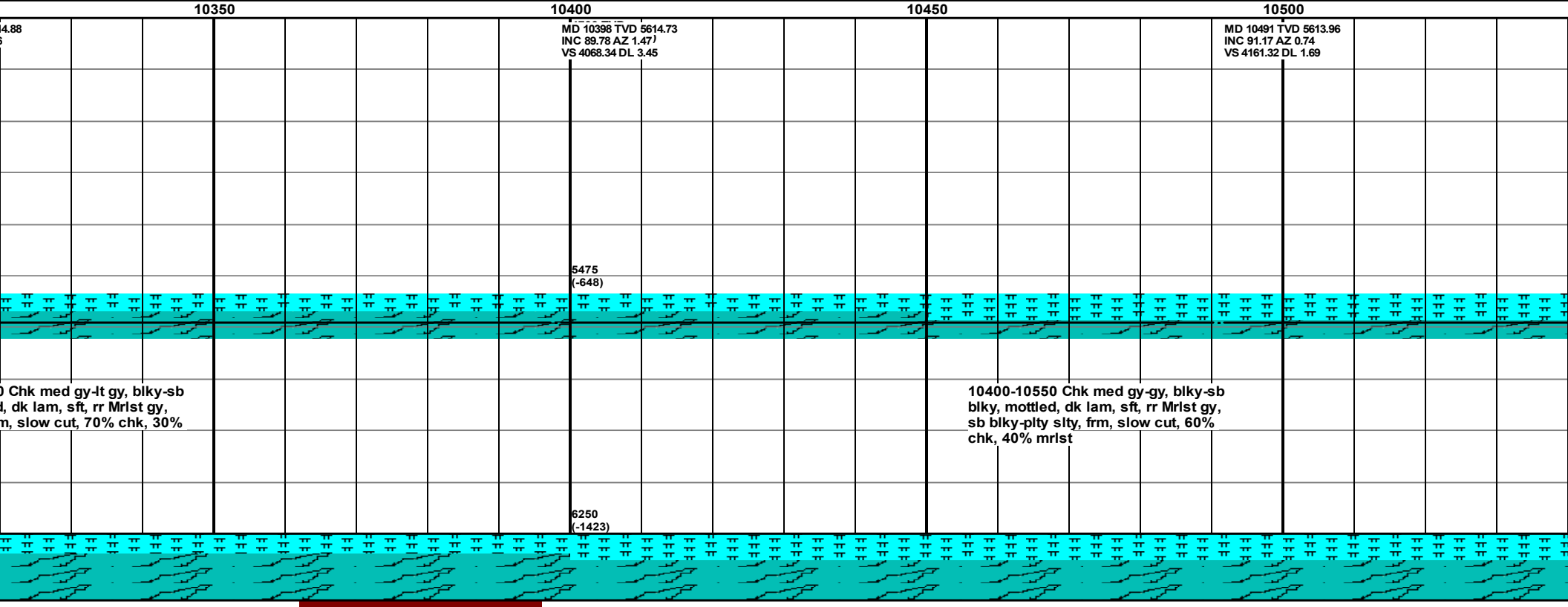
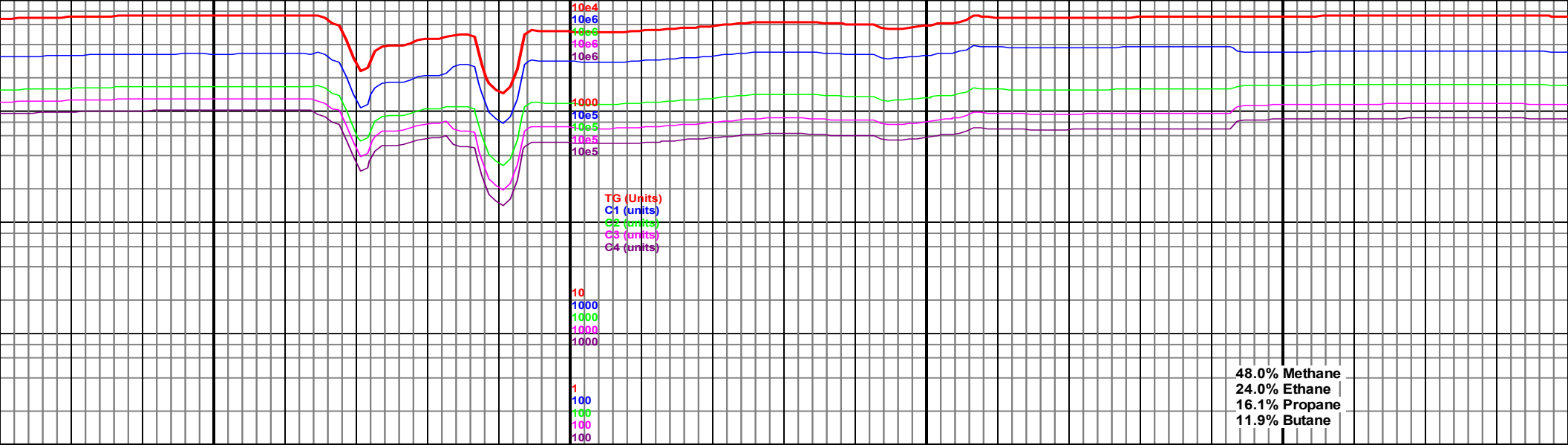












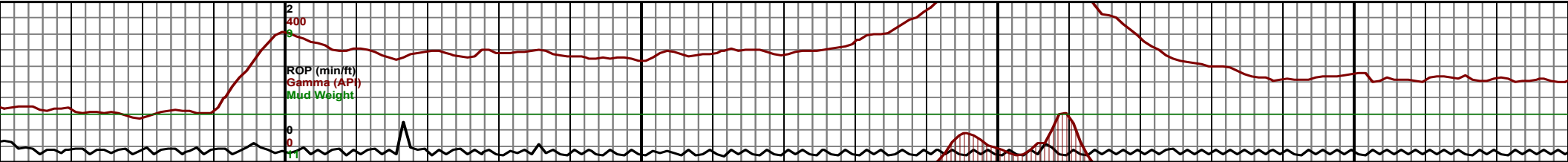
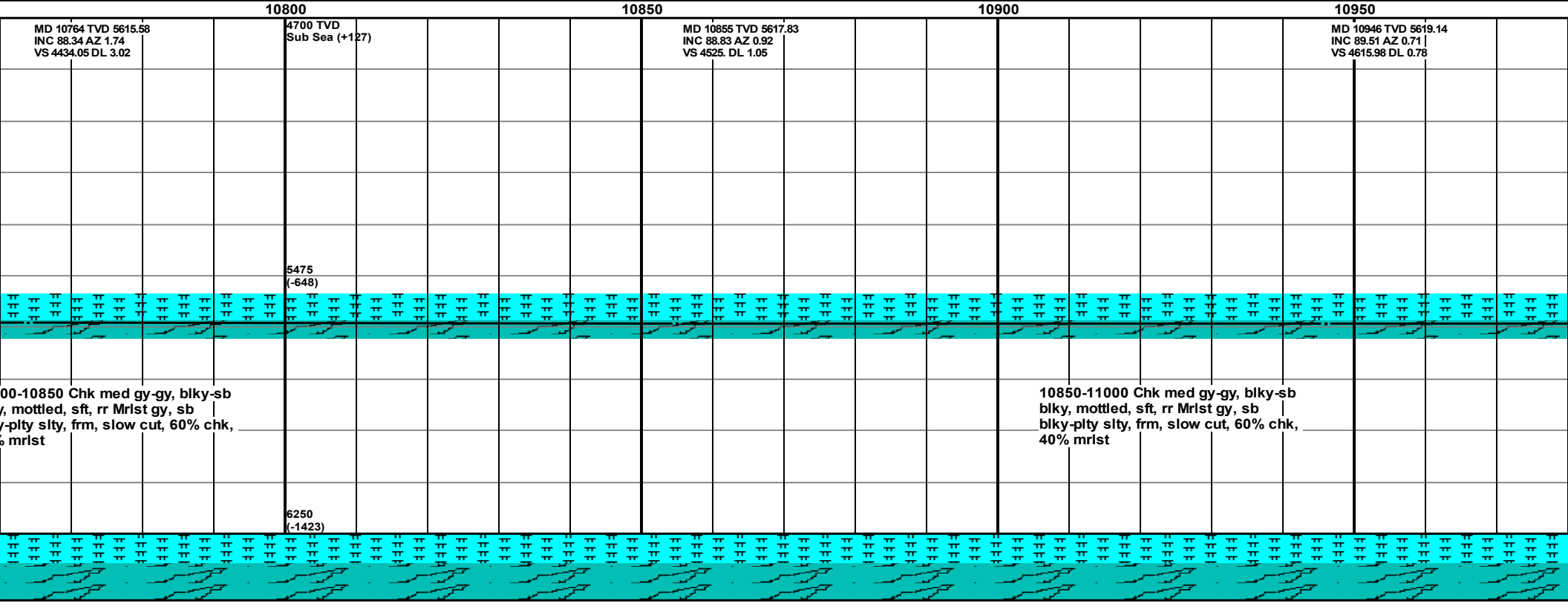
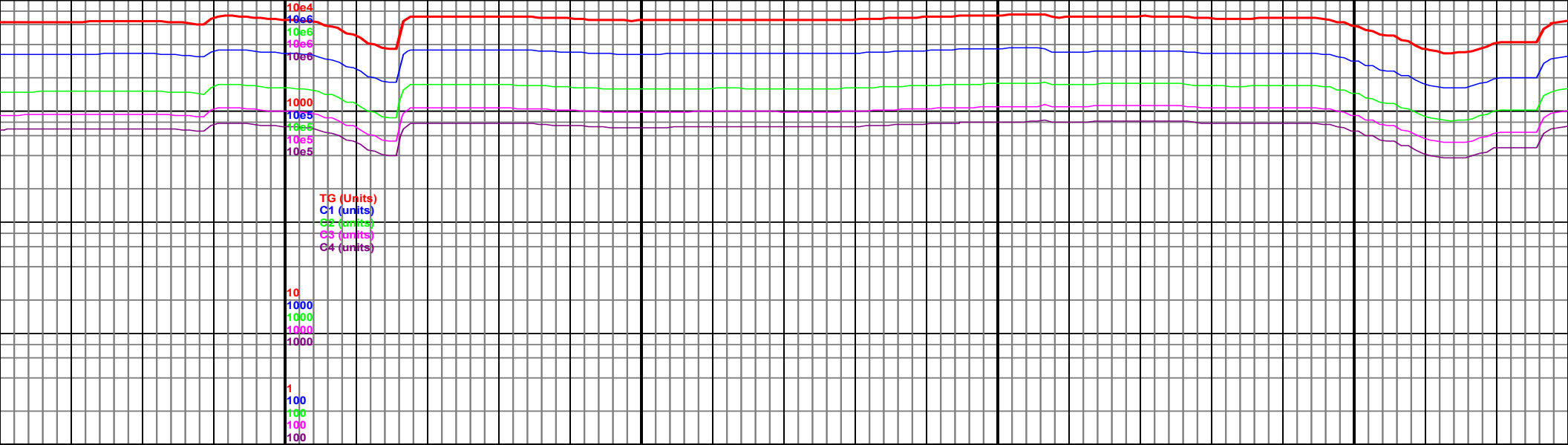


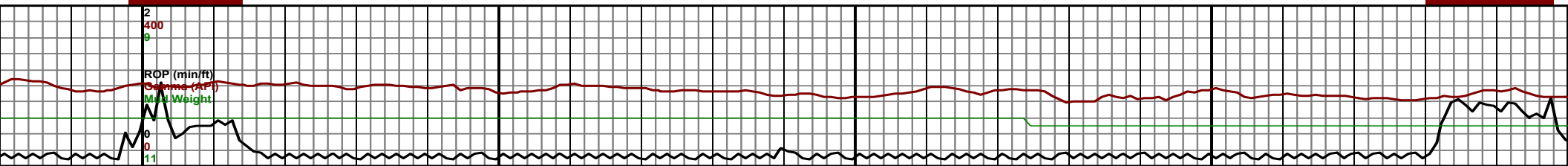
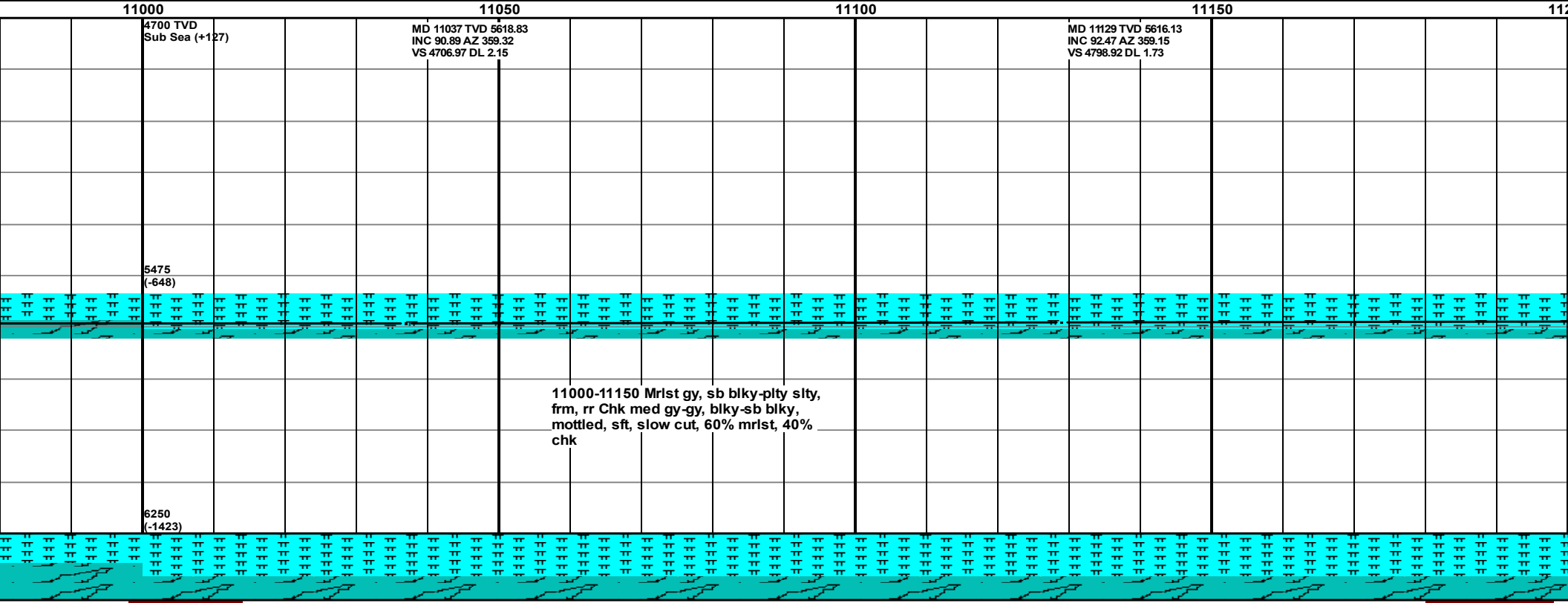
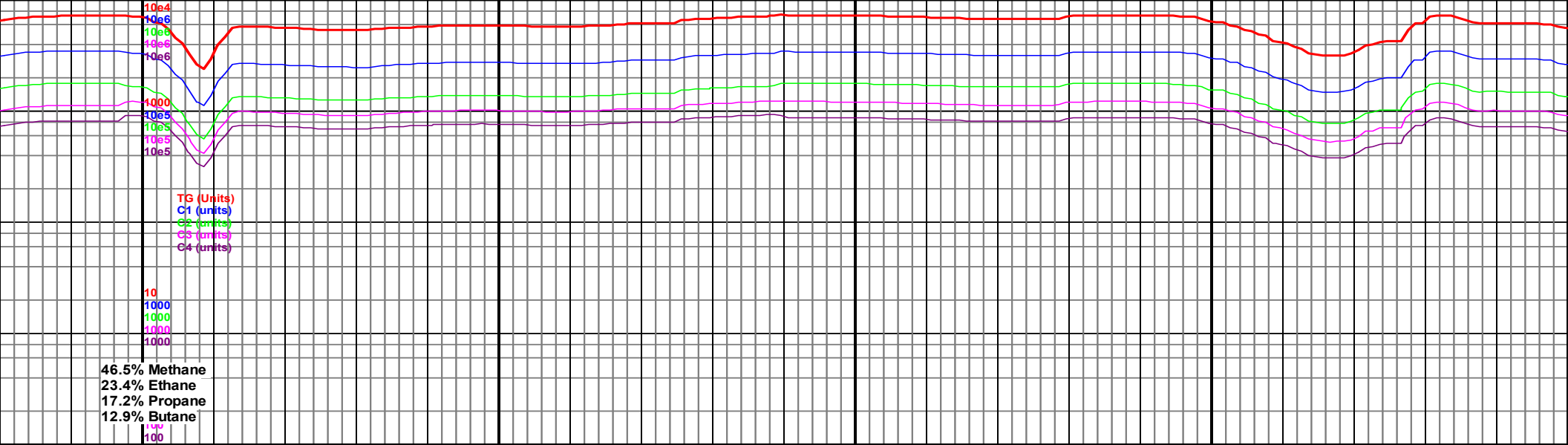
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INC 90.4 AZ 3.6
VS 4342.17 DL 2.5

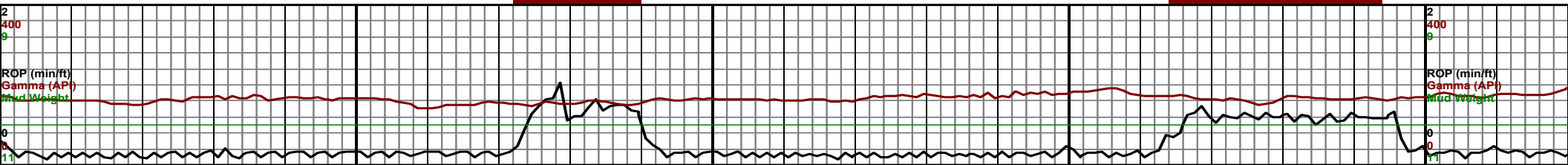
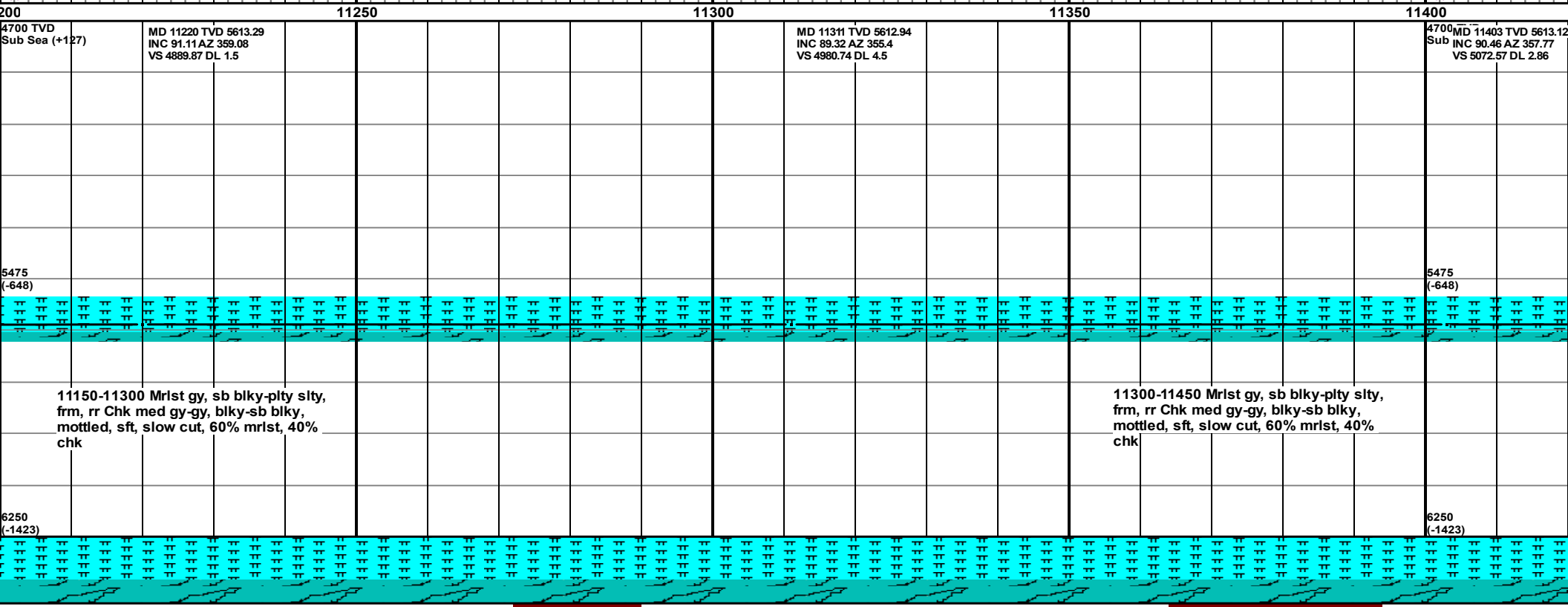
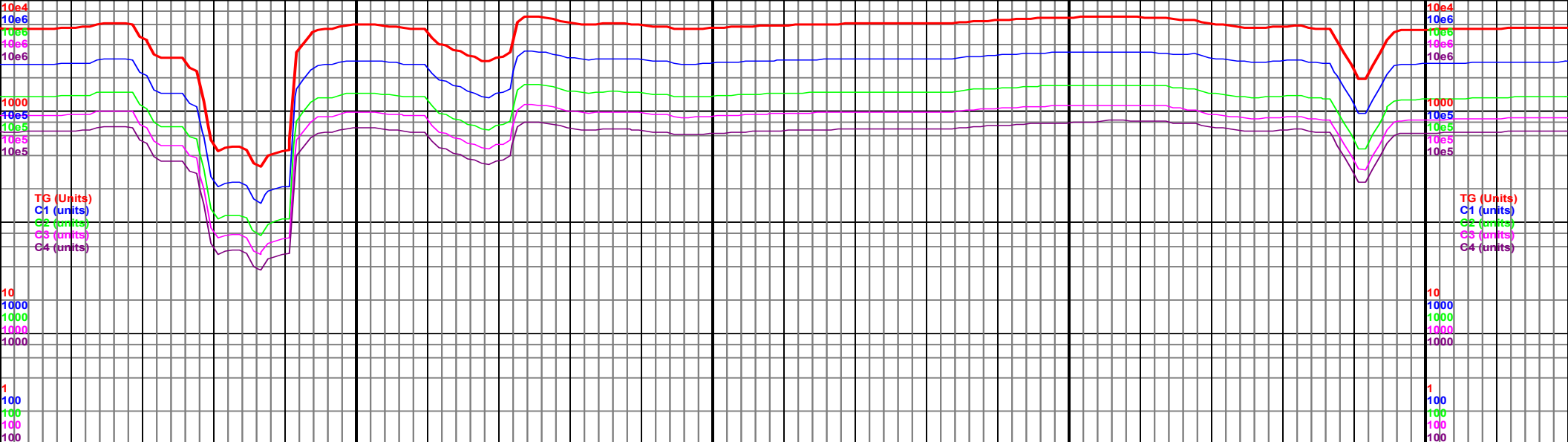
10550-10700	Chk med gy-gy, blk-y-sb blk-y, mottled, sft, rr Mrlst gy, sb blk-y-plty slty, frm, slow cut, 70% chk, 30% mrlst		
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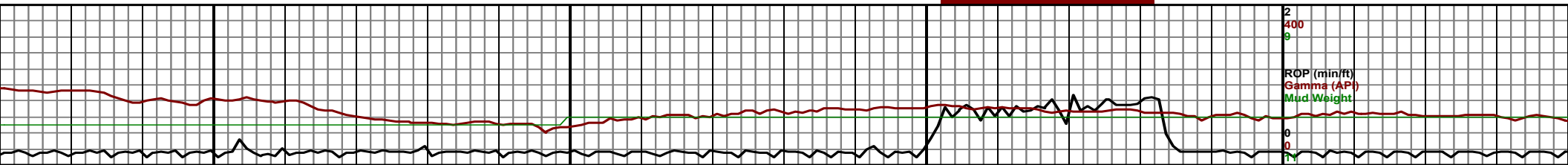
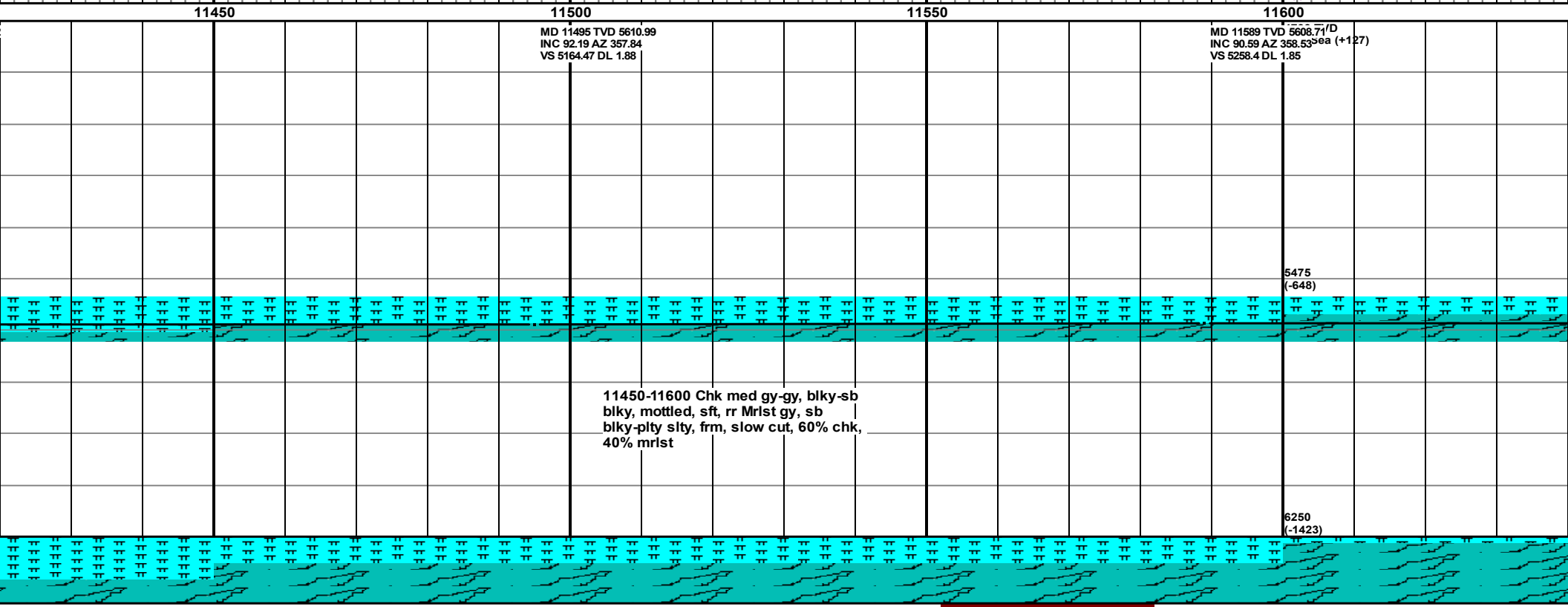
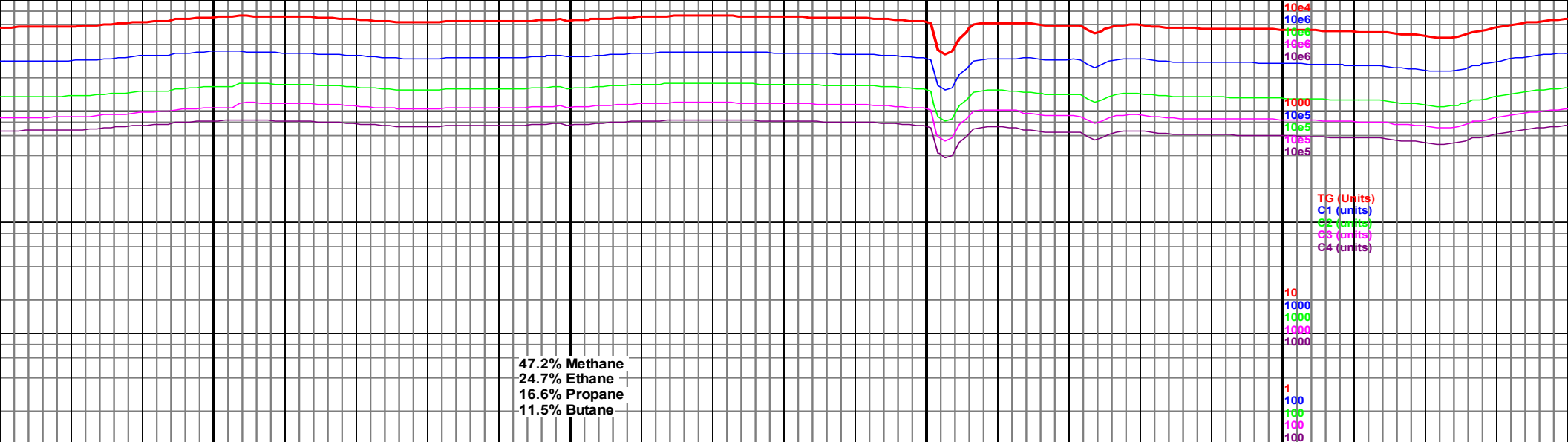
107
blky
blky
40%

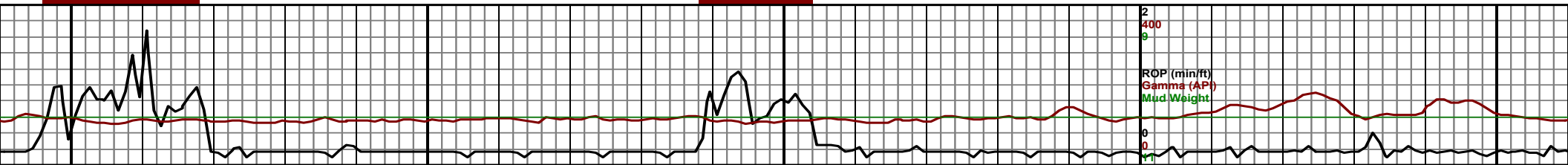
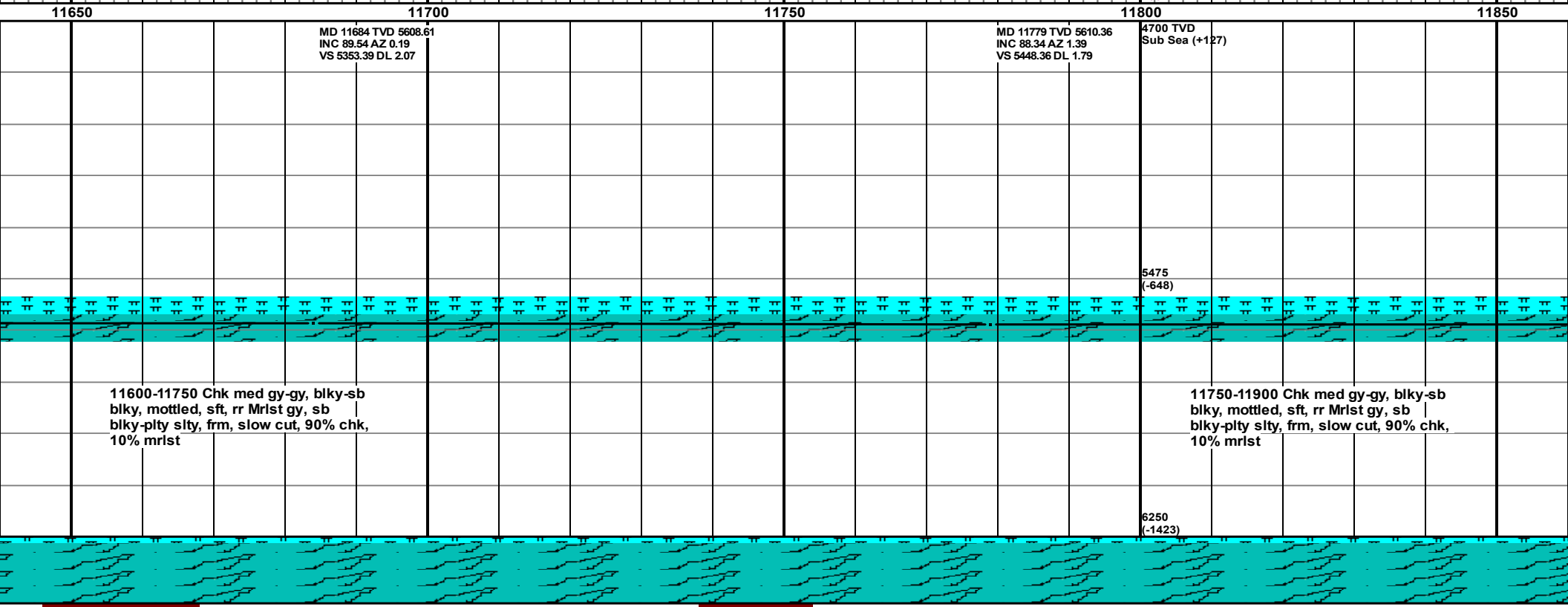
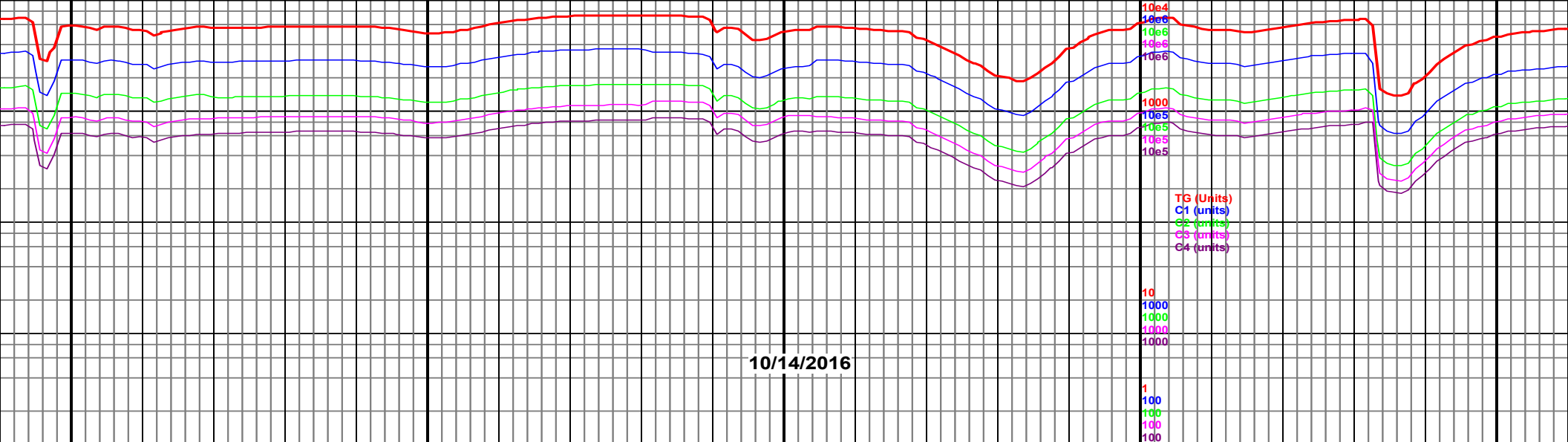


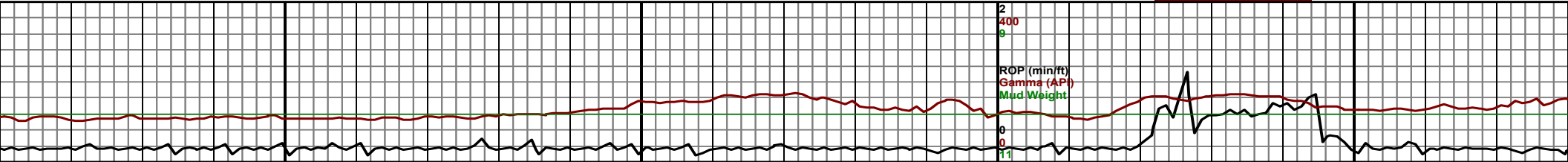
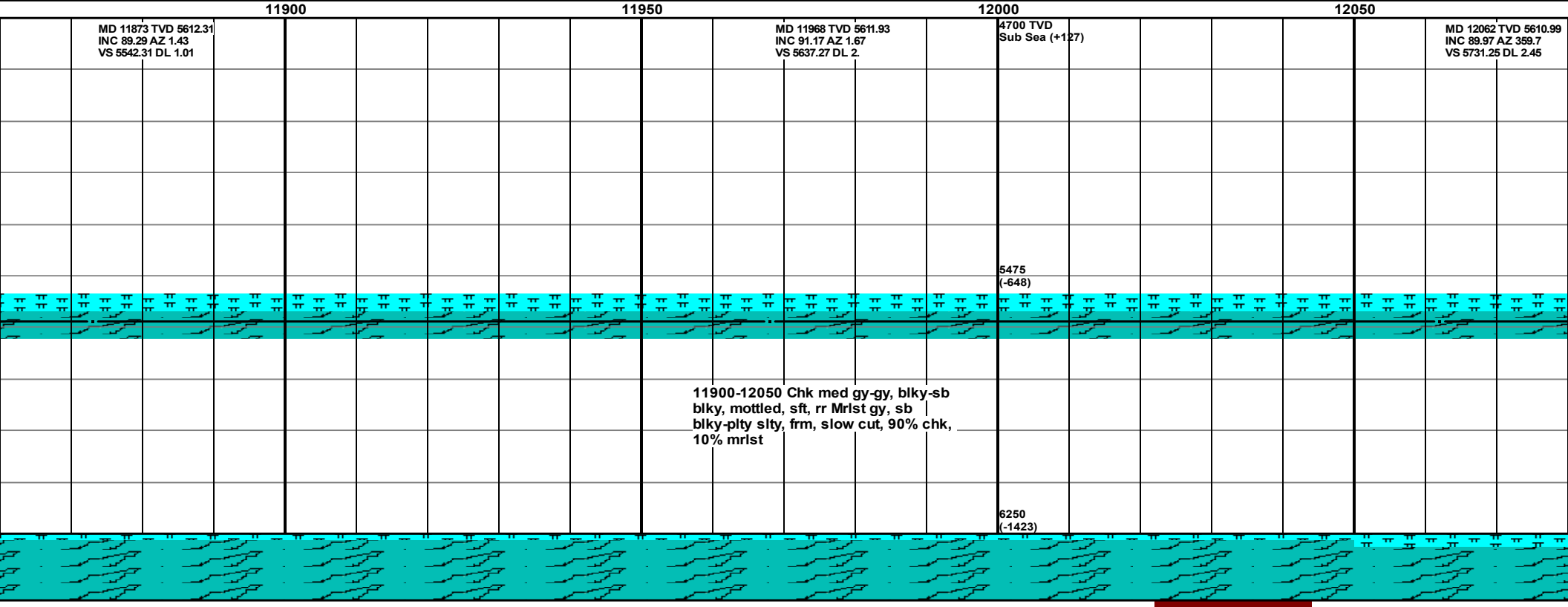
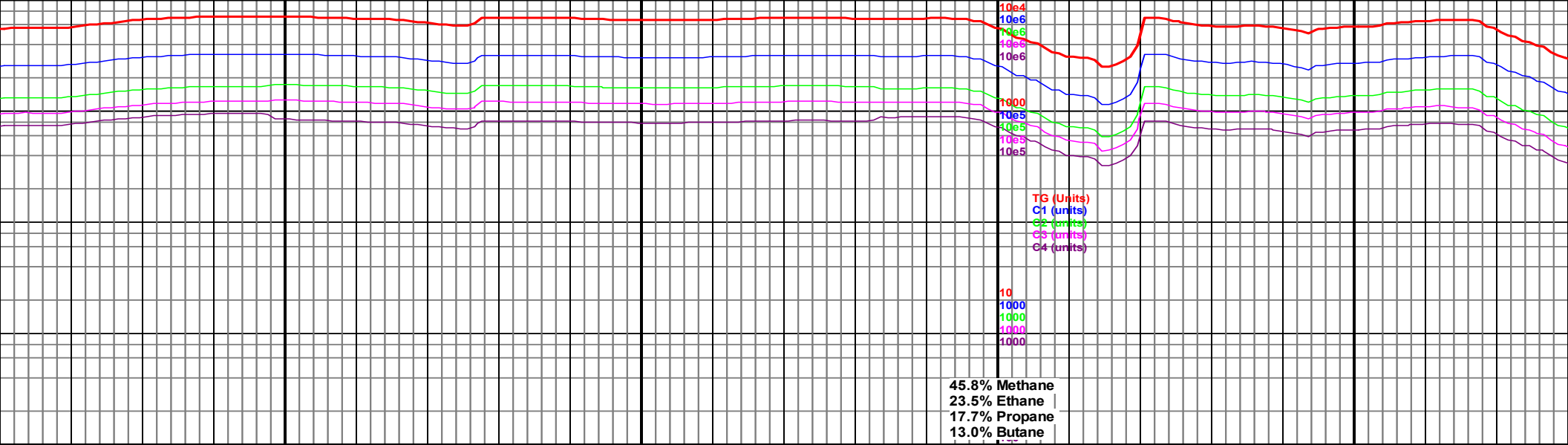


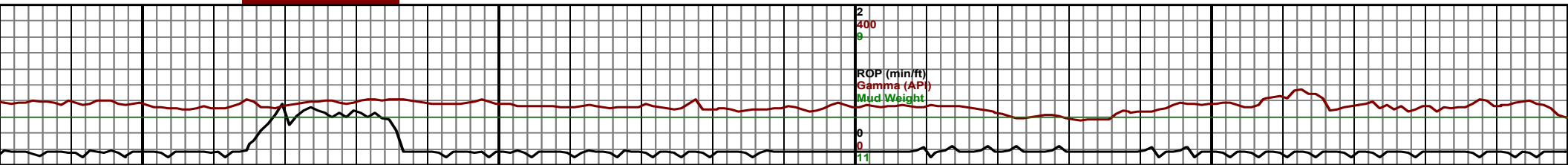
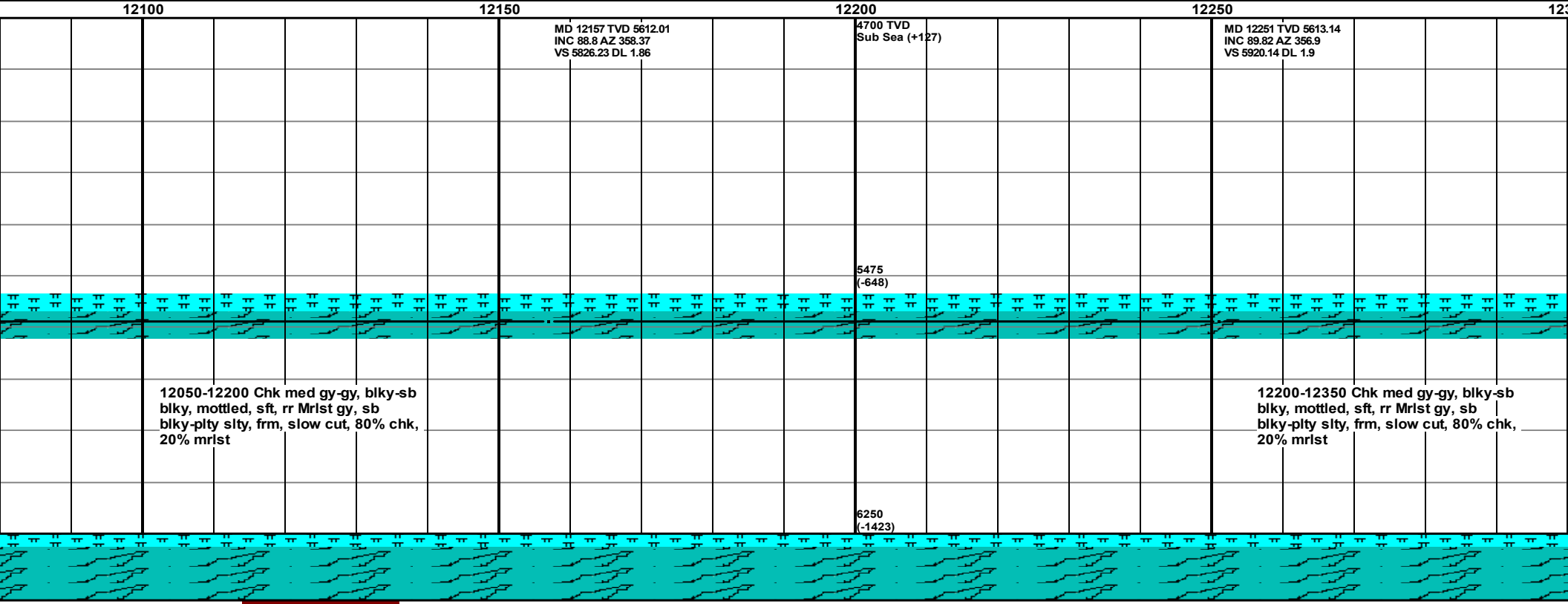
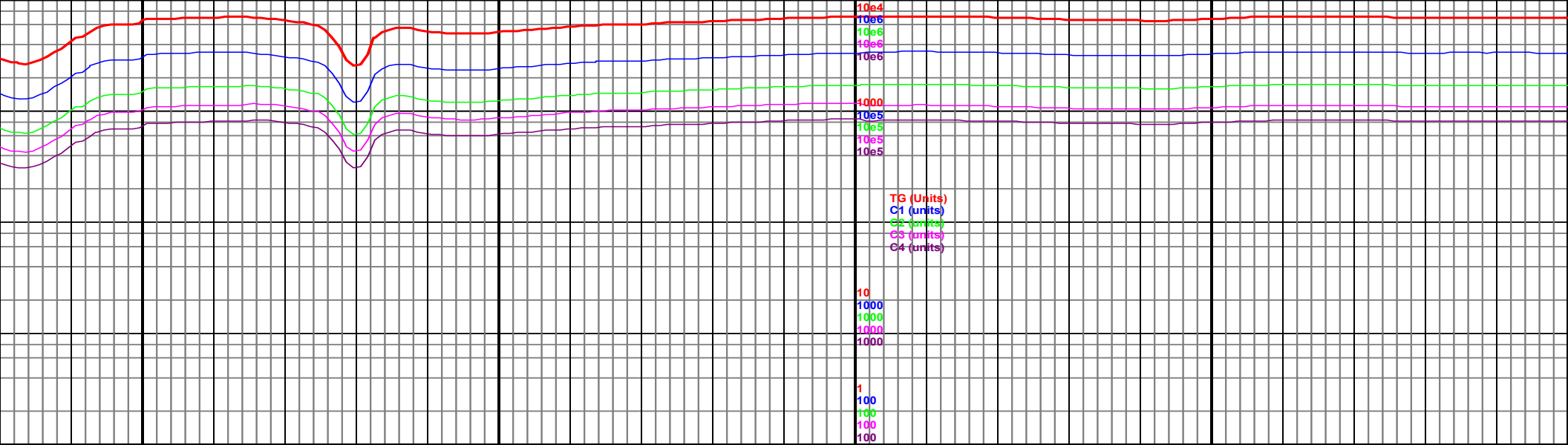














12950

MD 12816 TVD 5614.42
INC 91.39 AZ 2.19 |
VS 6484.89 DL 4.23

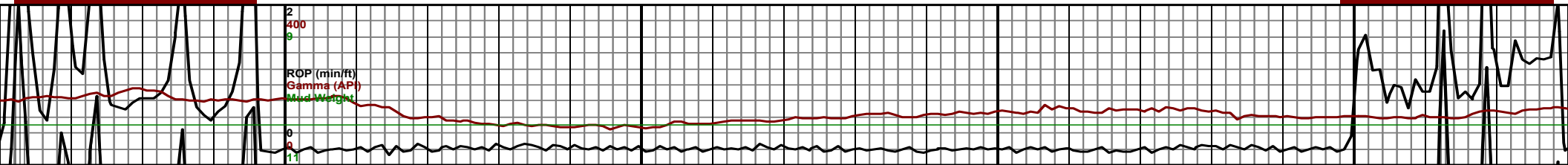
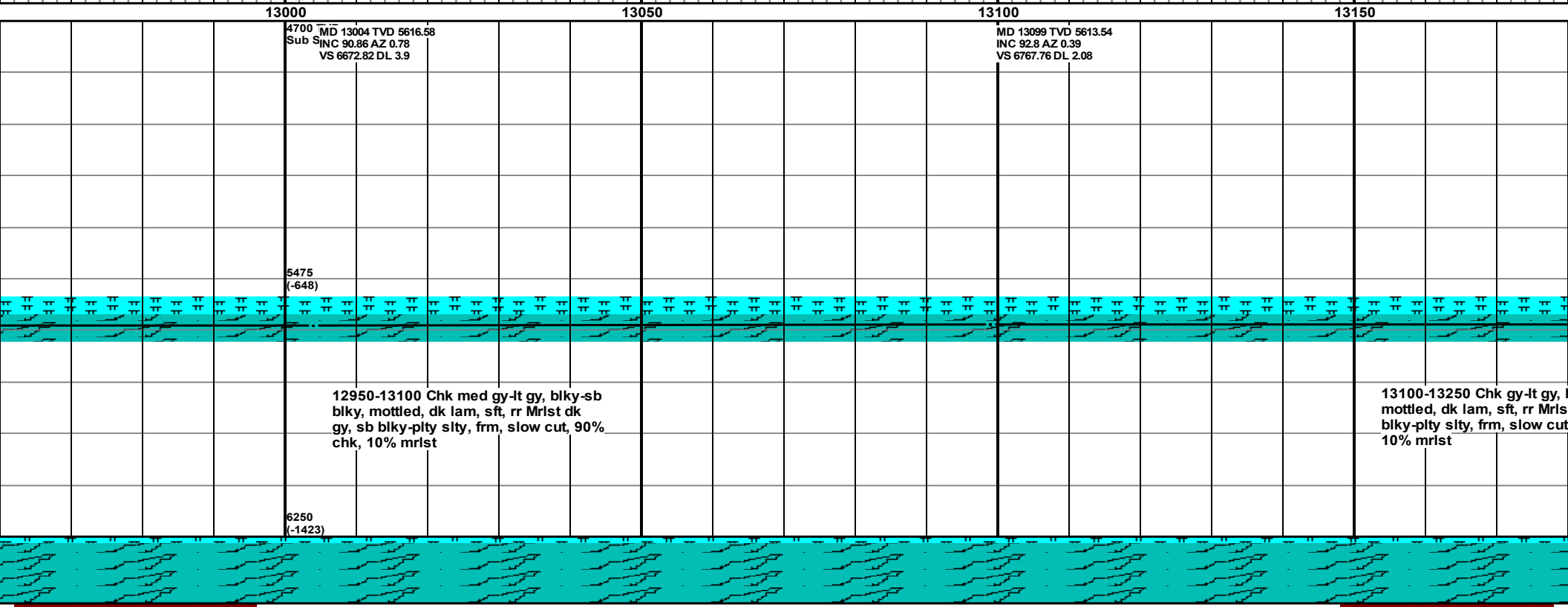
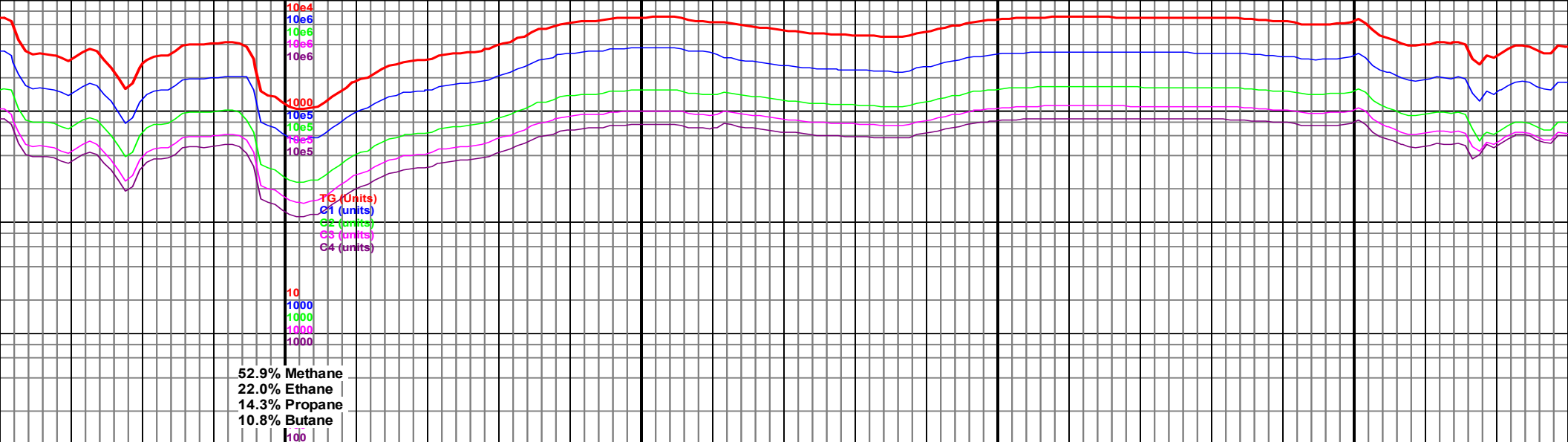
MD 12910 TVD 5615.28
INC 87.56 AZ 359.18
VS 6578.85 DL 5.18

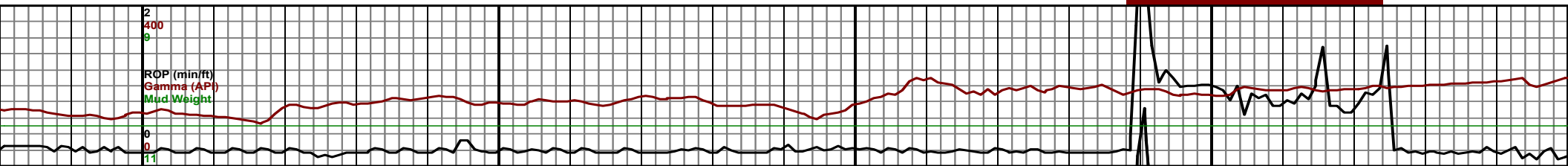
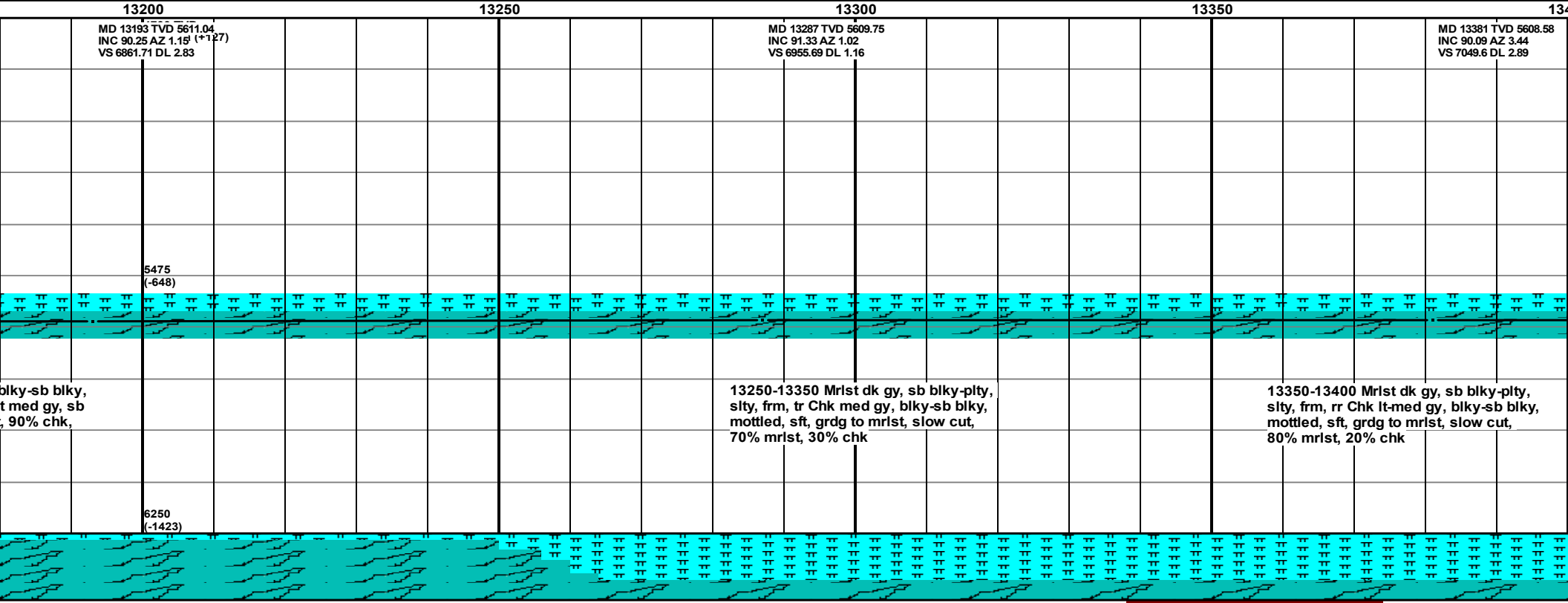
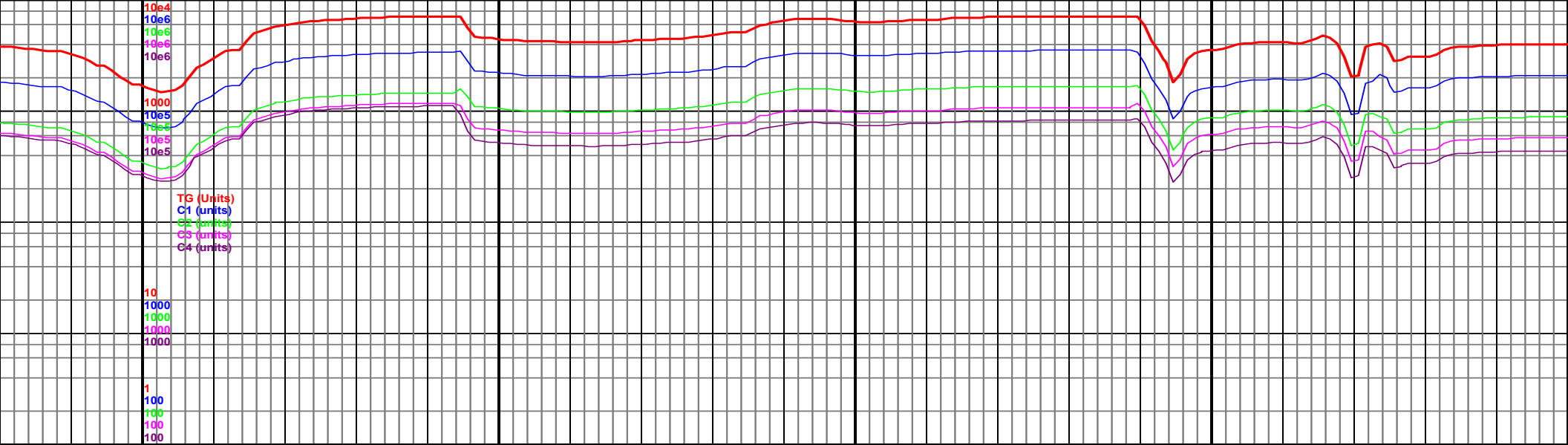
olky-plty,
ky-sb
t, slow _

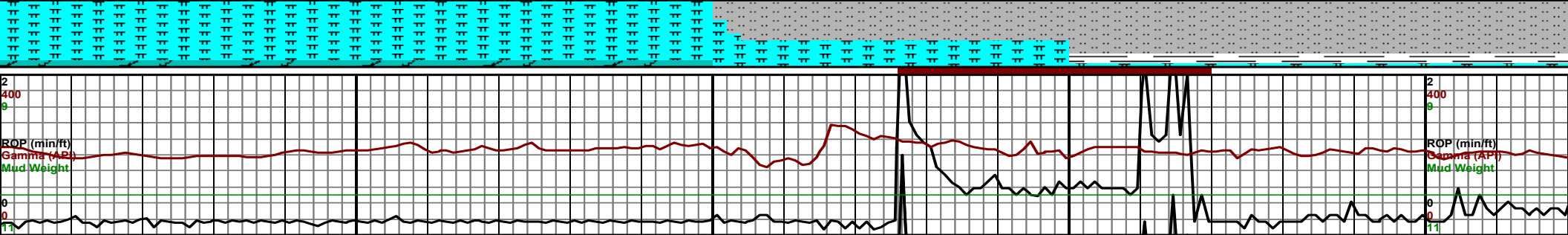
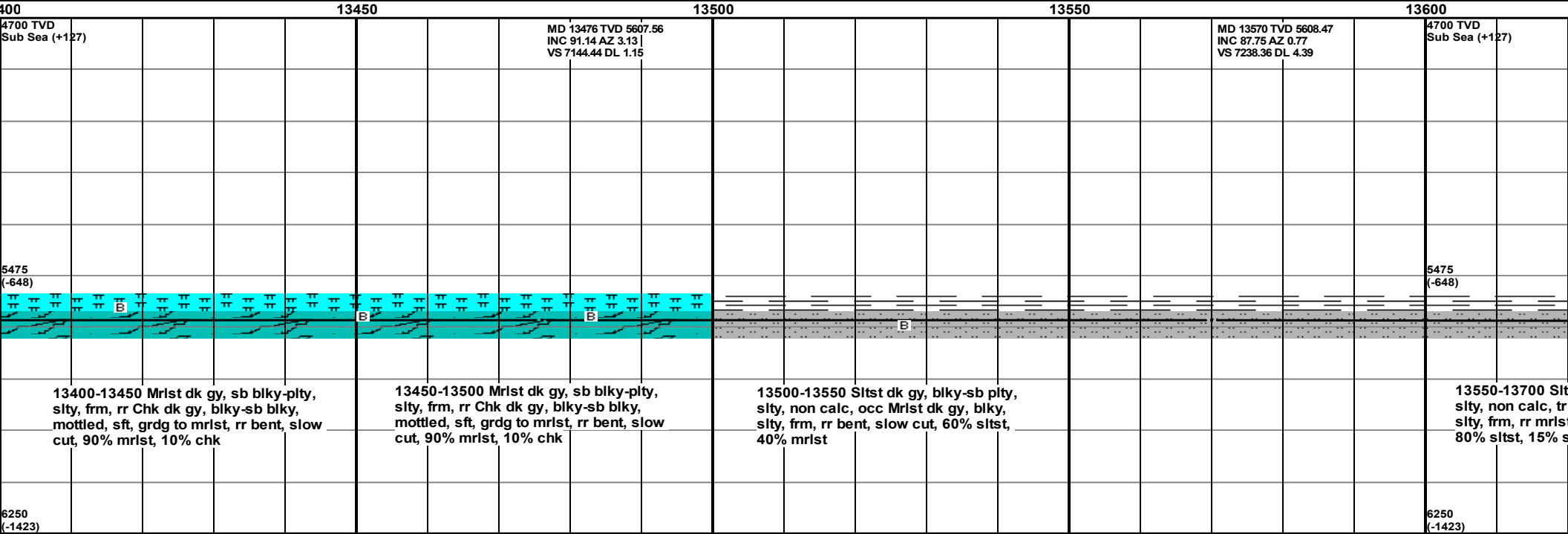
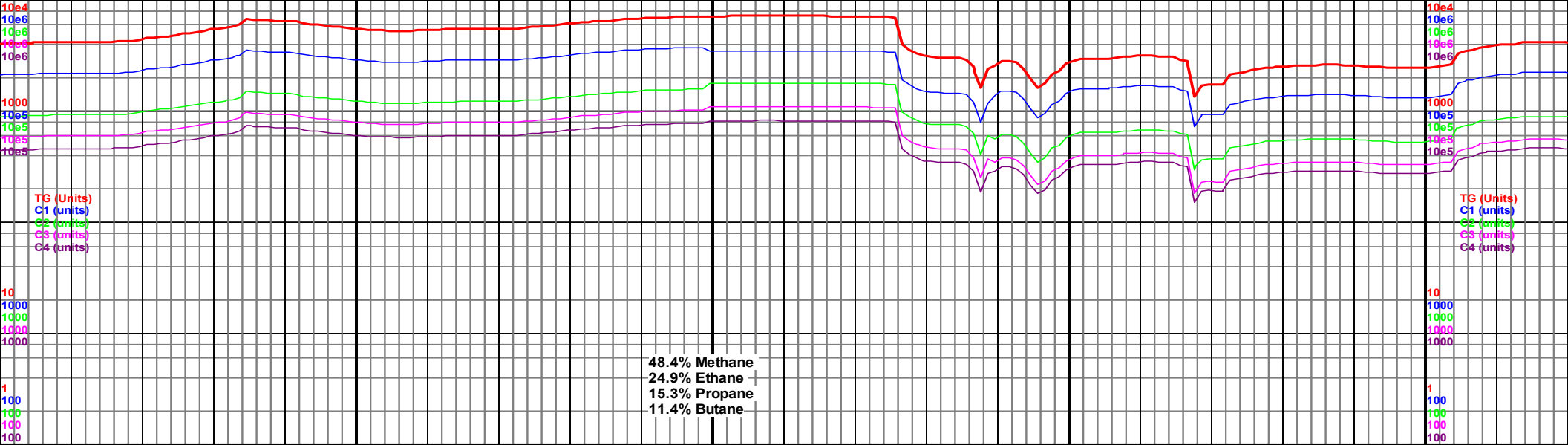
12800-12950	Mrlst dk-med gy, sb blky-plty, slty, frm, tr Chk med gy-lt gy, sb blky, mottled, sft, grdg to mrlst, slow cut, 70% mrlst, 30% chk		
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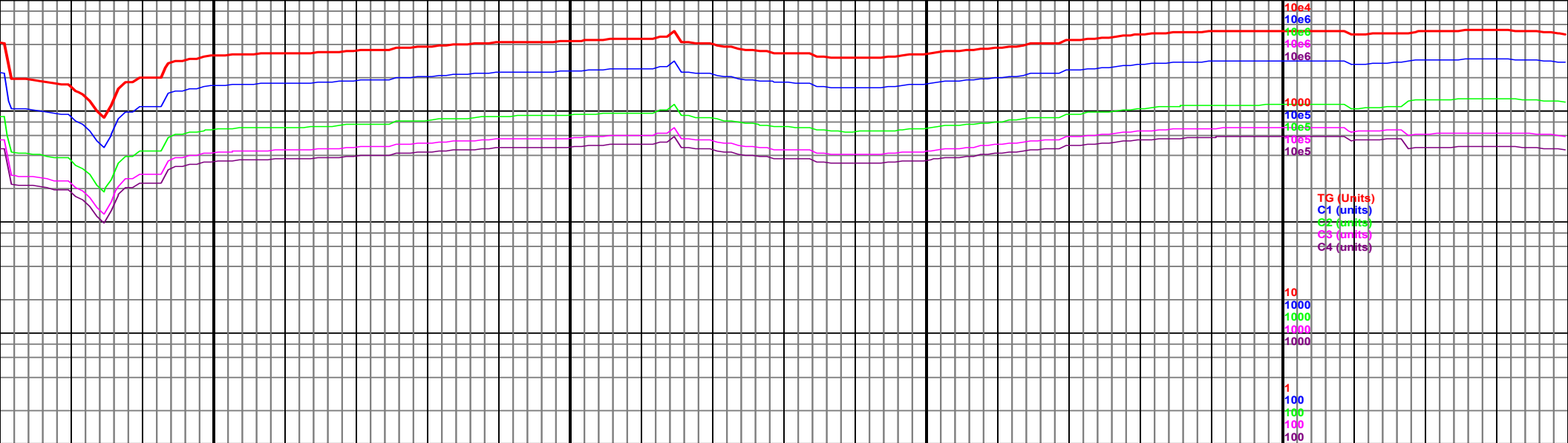
6250
(-1423)











13650

13700

13750

13800

MD 13664 TVD 5611.81
INC 88.18 AZ 359.92
VS 7332.3 DL 1.01

MD 13790 TVD 5615.31
INC 88.64 AZ 359.89^{ea} (+127)
VS 7458.25 DL 0.37

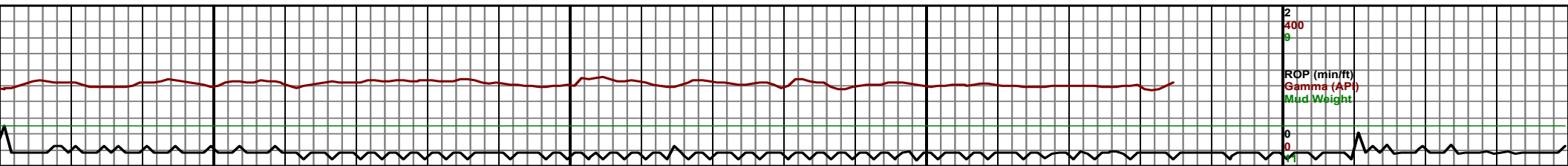
**TD 13840' MD reached at
15:00 on 10/14/2016**

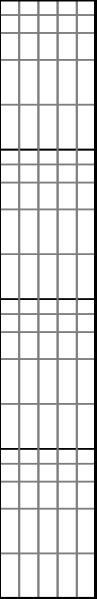
st dk gy, blkyl-sb plty,
Sh gy-dk gy, plty-blky,
t dk gy, blkyl, slow cut,
sh, 5% mrlst

13700-13840 Slst dk gy, blkyl-sb plty,
sity, non calc, tr Sh gy-dk gy, plty-blky,
sity, frm, rr mrlst dk gy, blkyl, slow cut,
80% slst, 20% sh,

5475
(-648)

6250
(-1423)





13

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