



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

Well Name: Horsetail 30E-1934

API: 051234287800

Location: Sec 30-T10N-R57W

License Number:

Spud Date: 10/27/2016

Surface Coordinates: Lat.: 40.810703

Long.: -103.801339

Bottom Hole Coordinates:

Ground Elevation (ft): 4806

Logged Interval (ft): 5188

Formation: Niobrara

Type of Drilling Fluid: Water Based Mud

To: 13965

K.B. Elevation (ft): 4827

Total Depth (ft): 13965

Region: Wildcat Field

Drilling Completed: 10/31/2016

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

Unit Drilling Company
Rig 406

Gas Detection

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

Comments

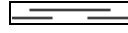
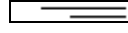

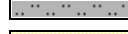
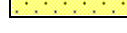
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.




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

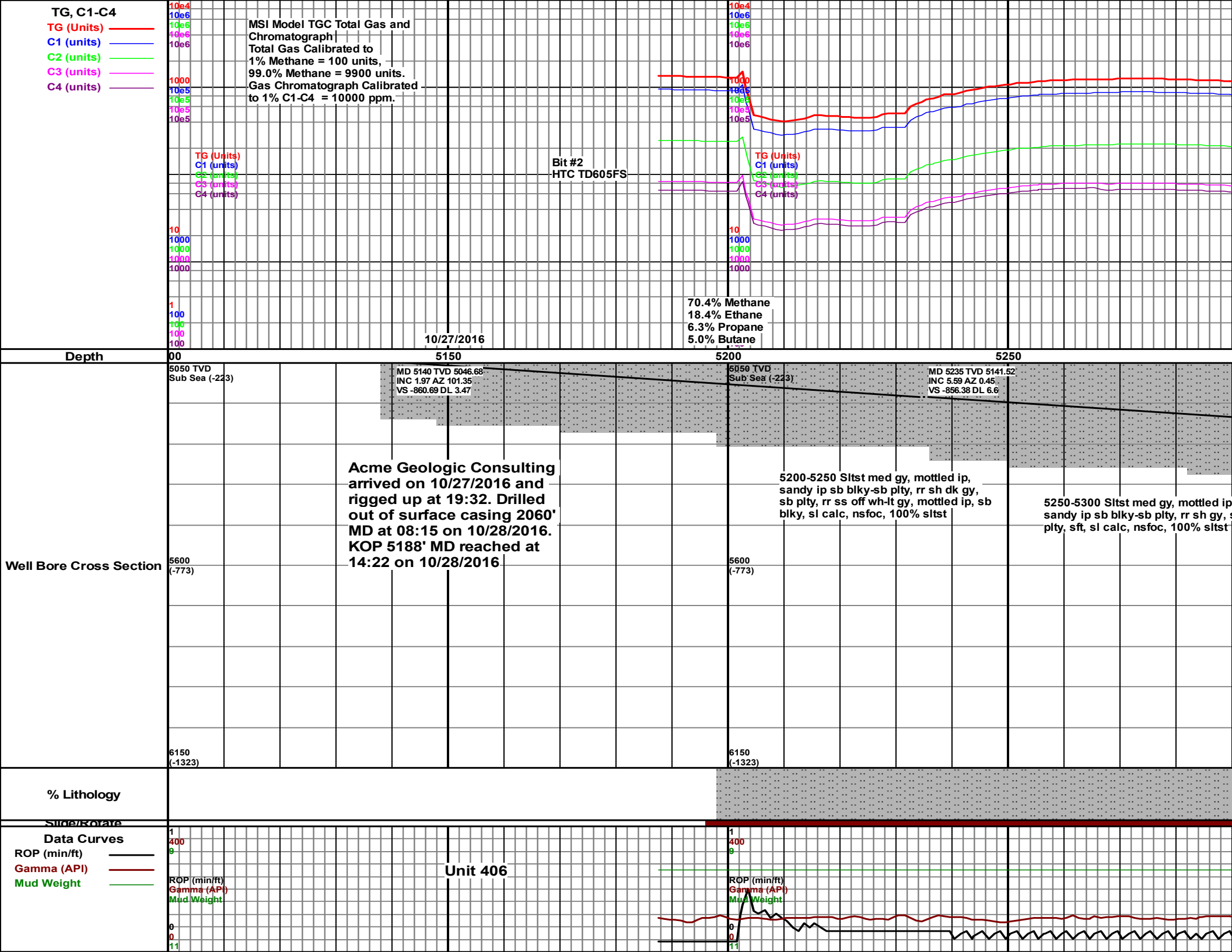
ROUNDING
 Rounded
 Subrnd
 Subang
 Angular

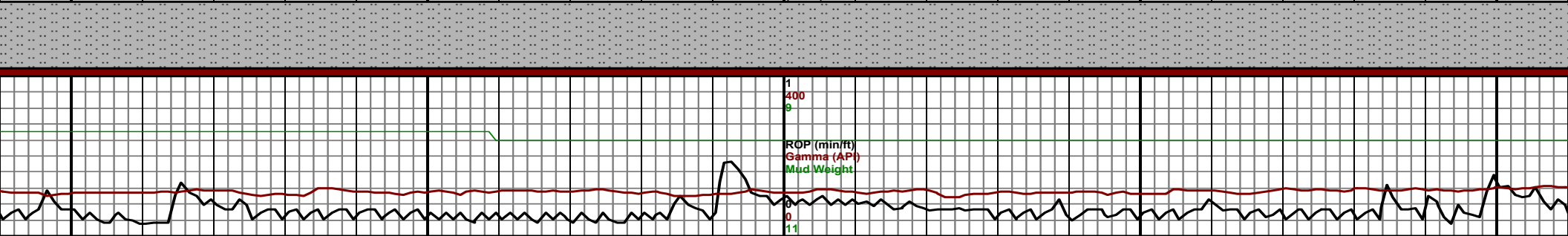
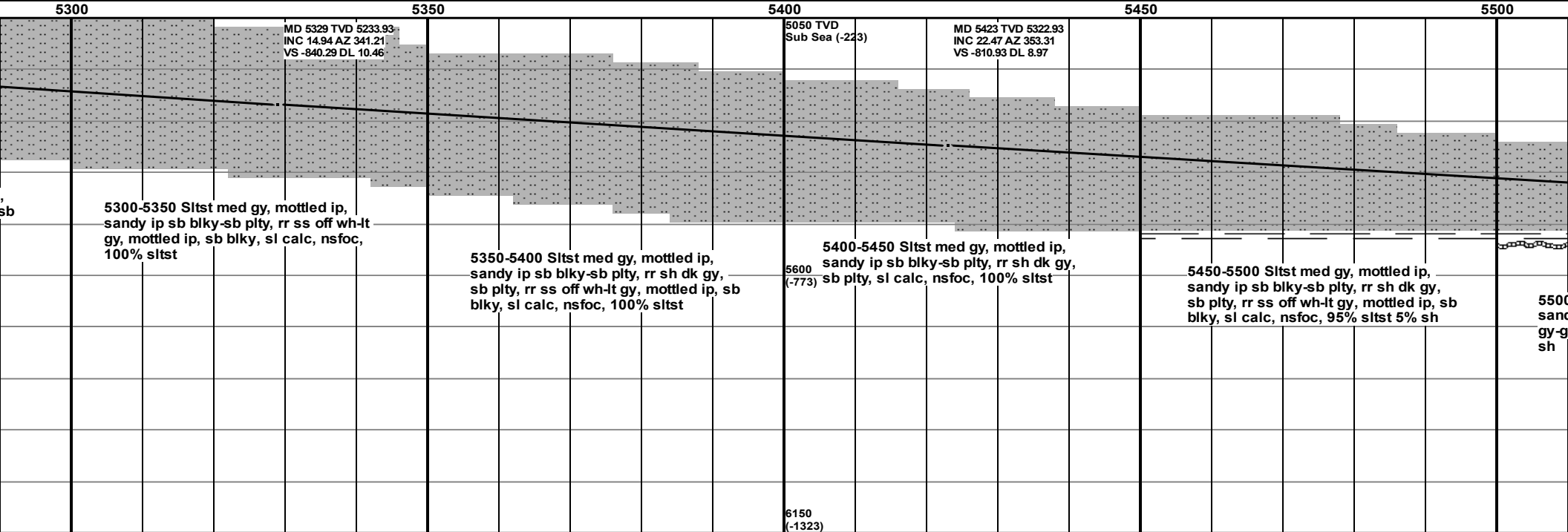
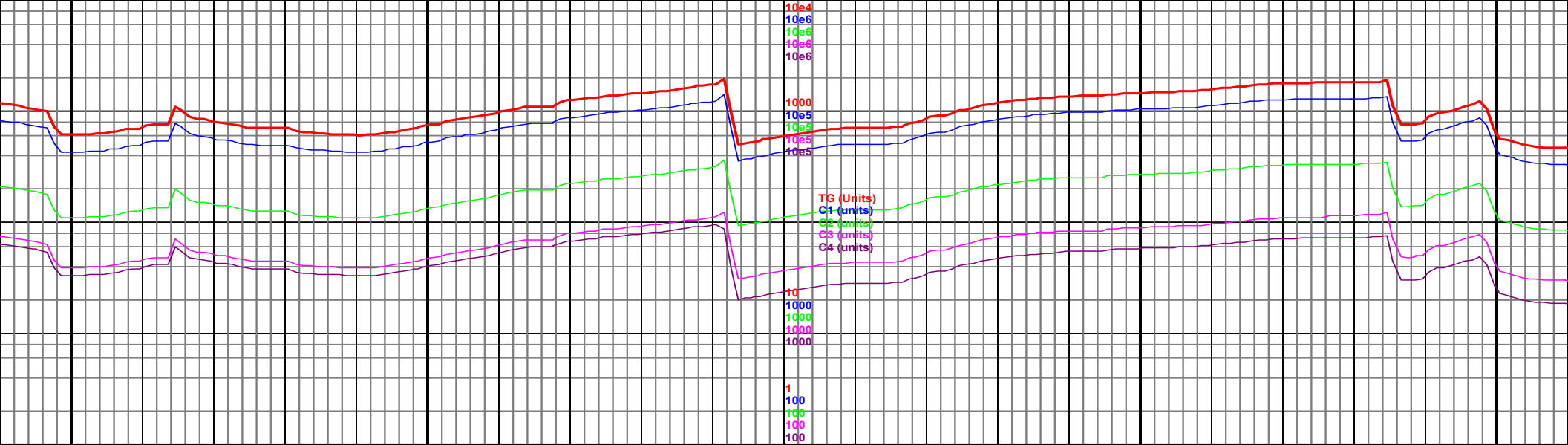
OIL SHOW
 Even

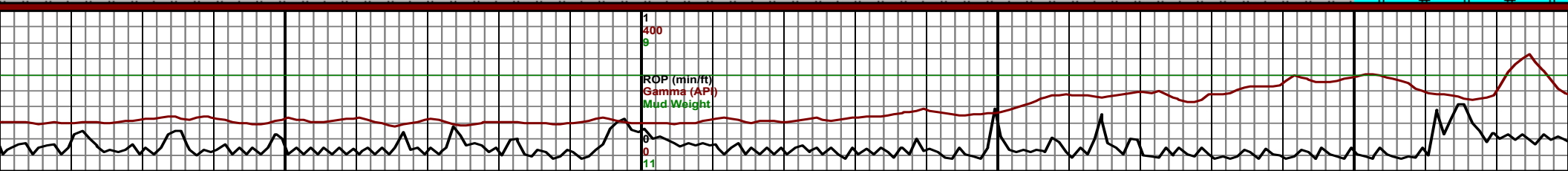
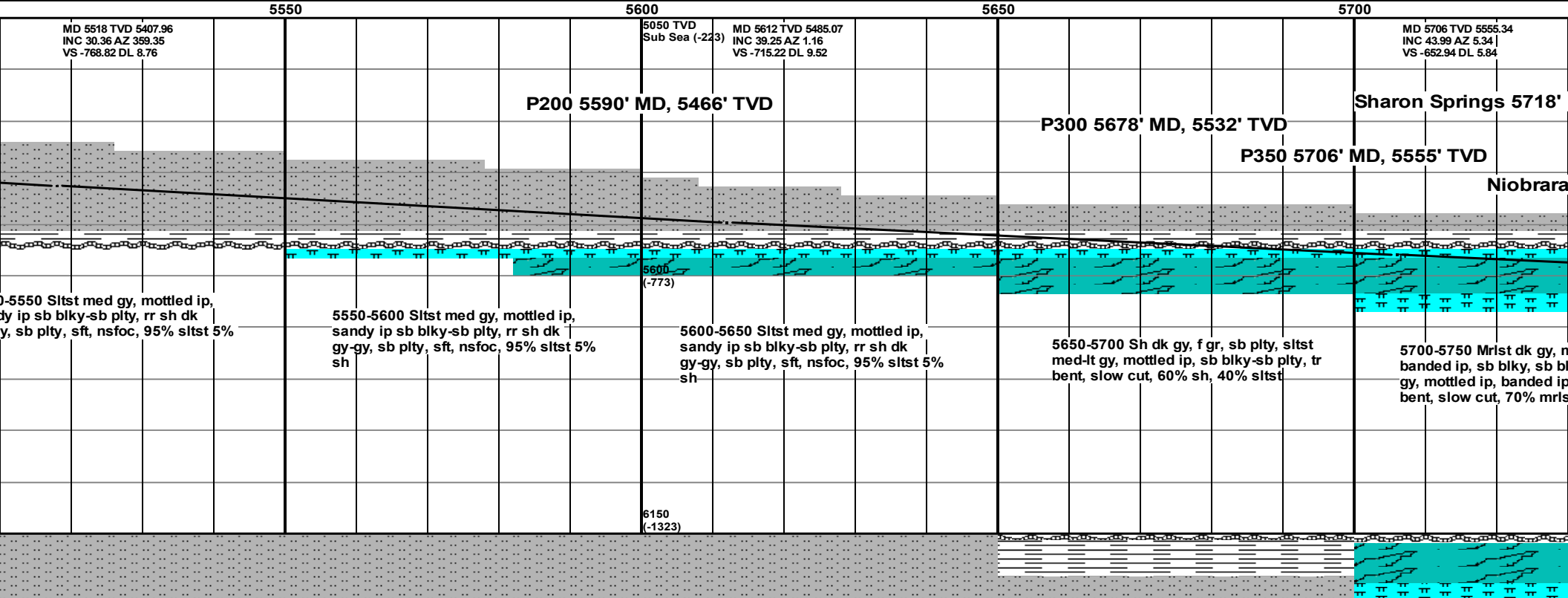
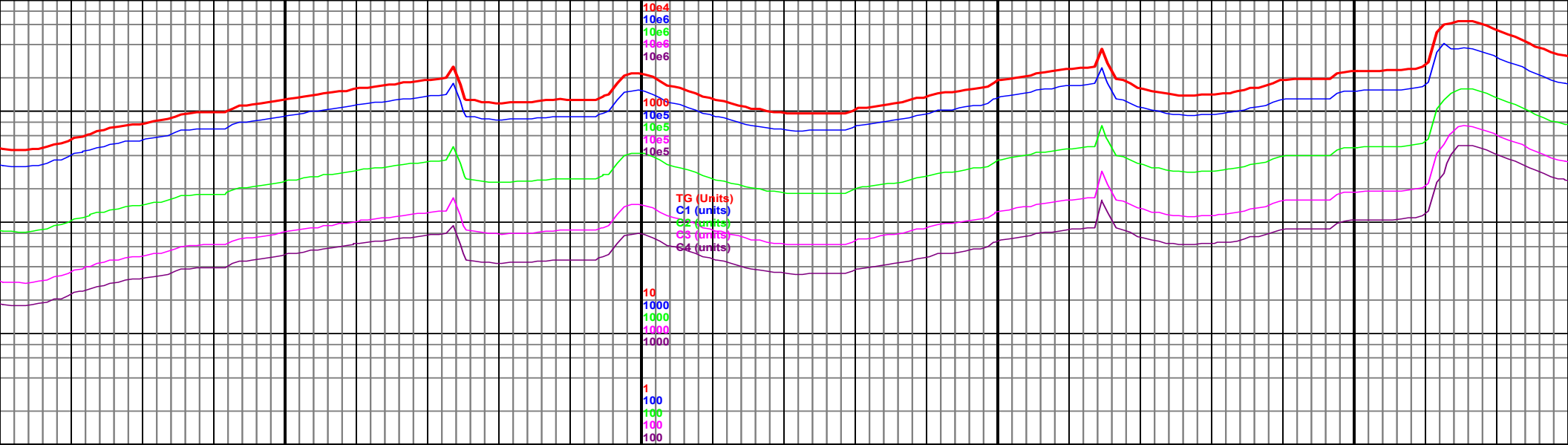
 Spotted
 Ques
 Dead

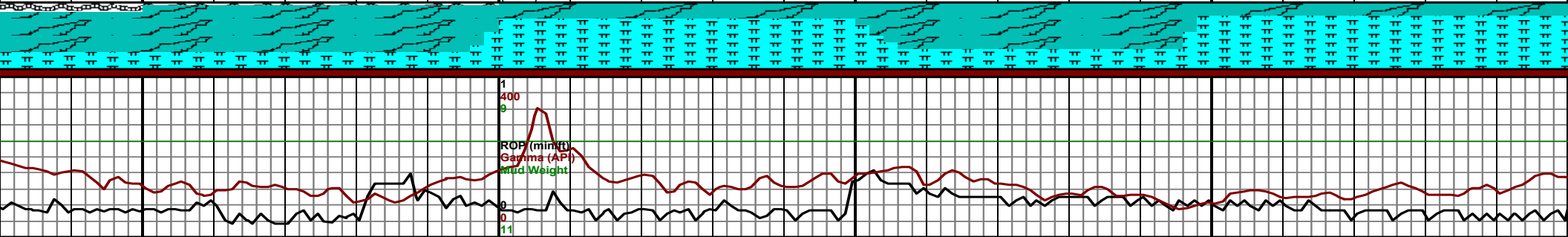
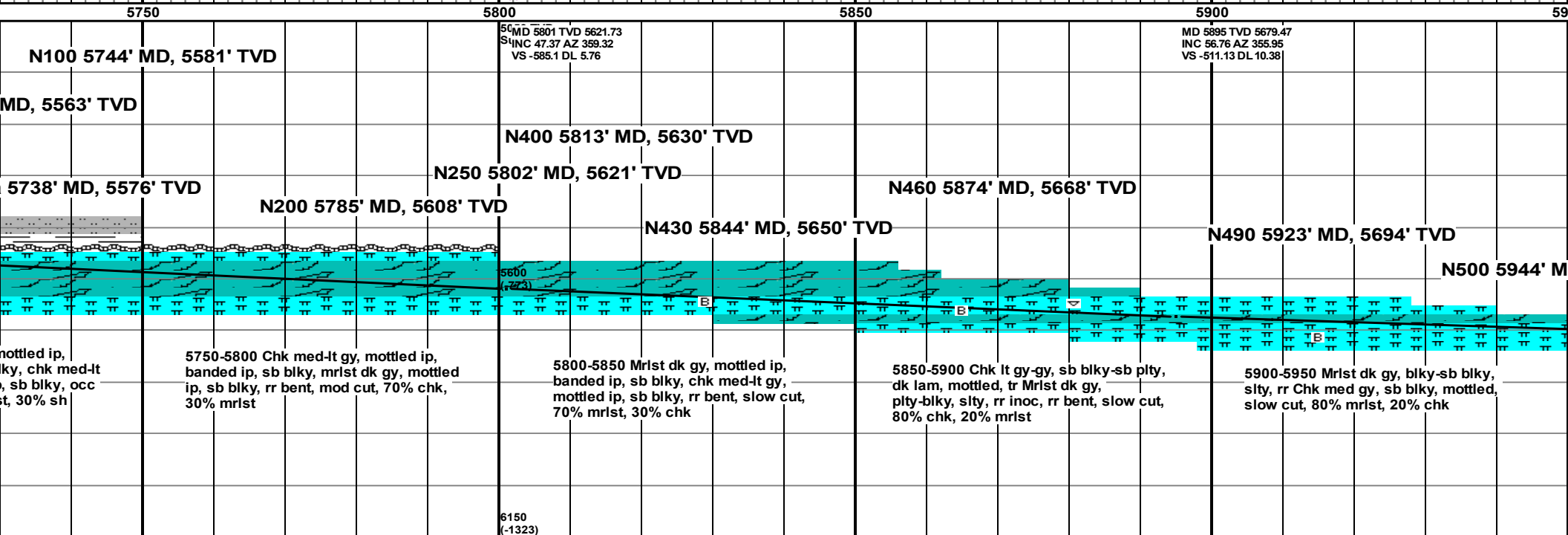
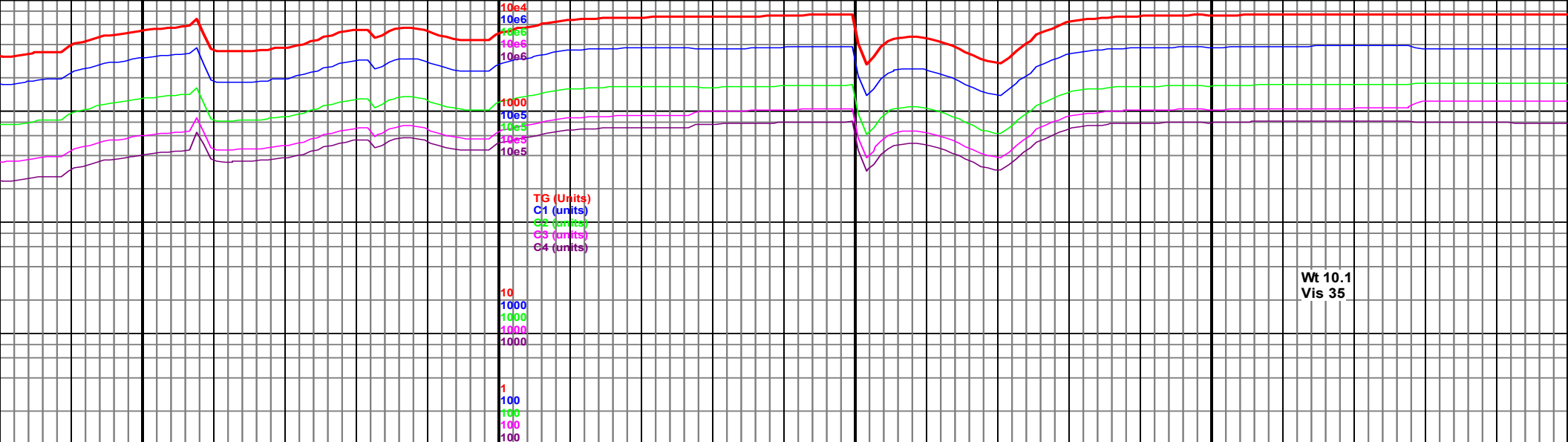
INTERVAL
 Core
 Dst

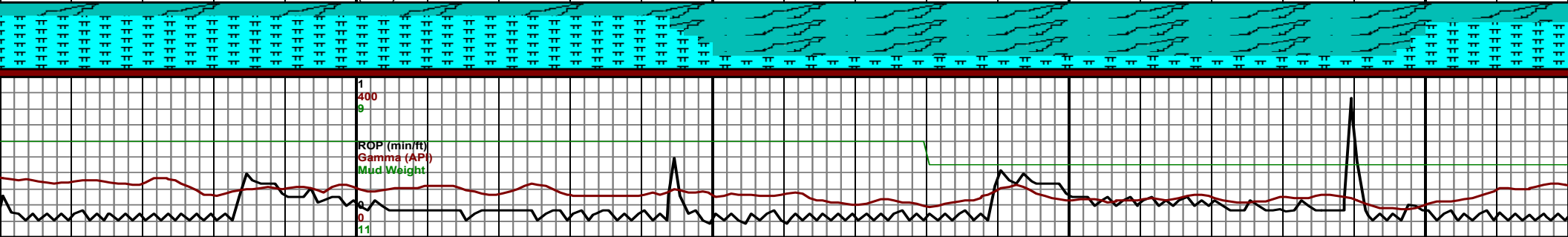
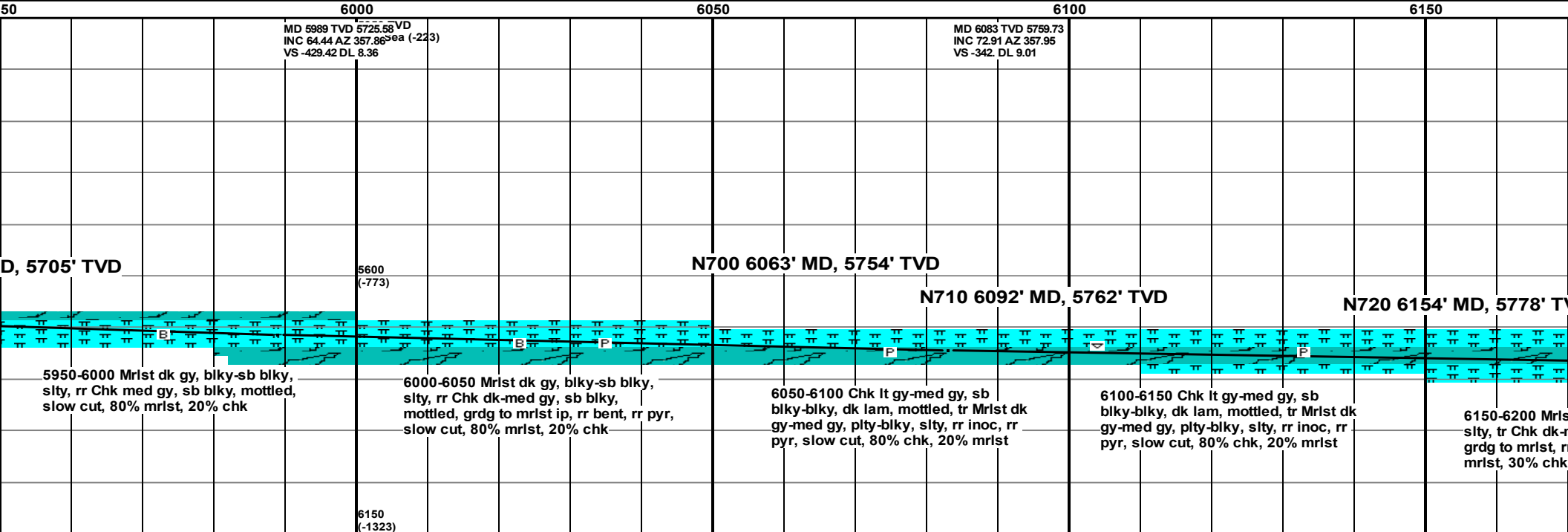
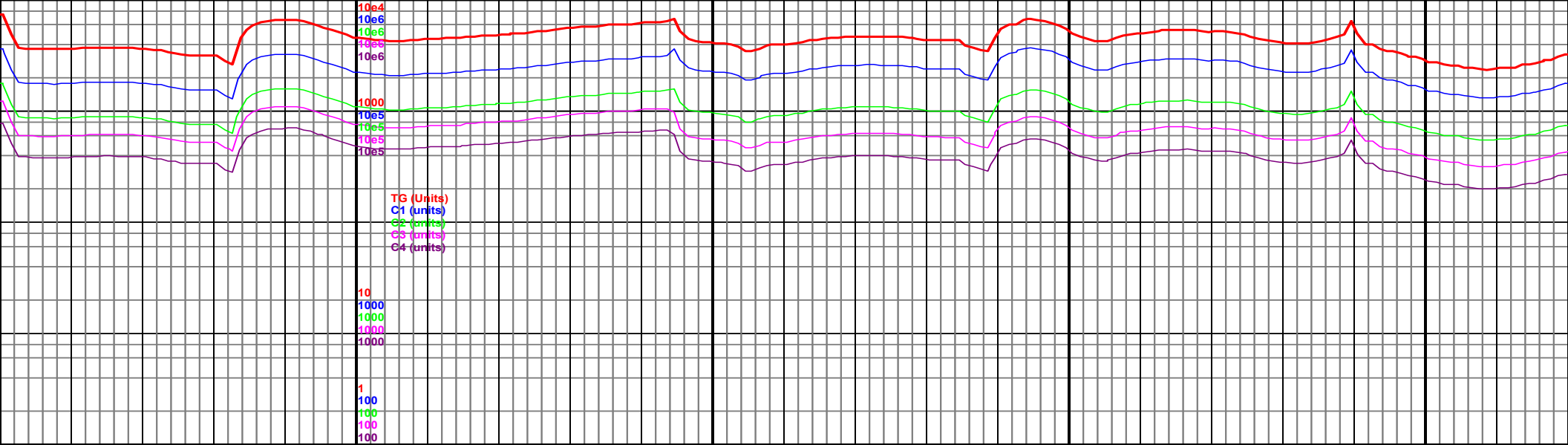
EVENT
 Rft
 Sidewall

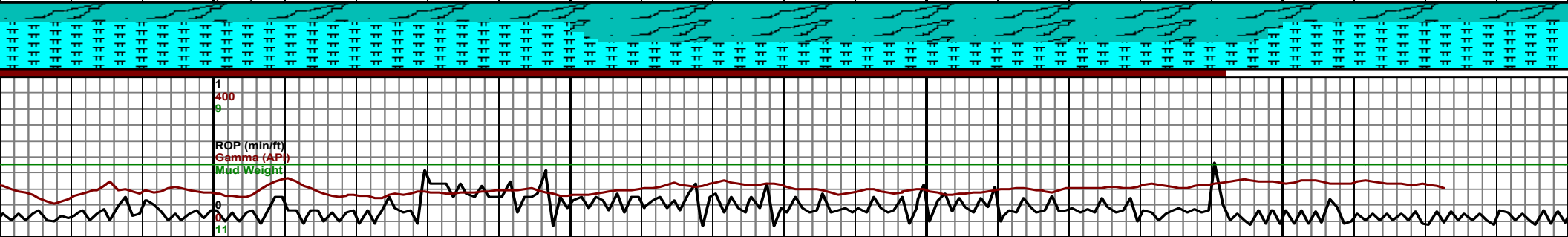
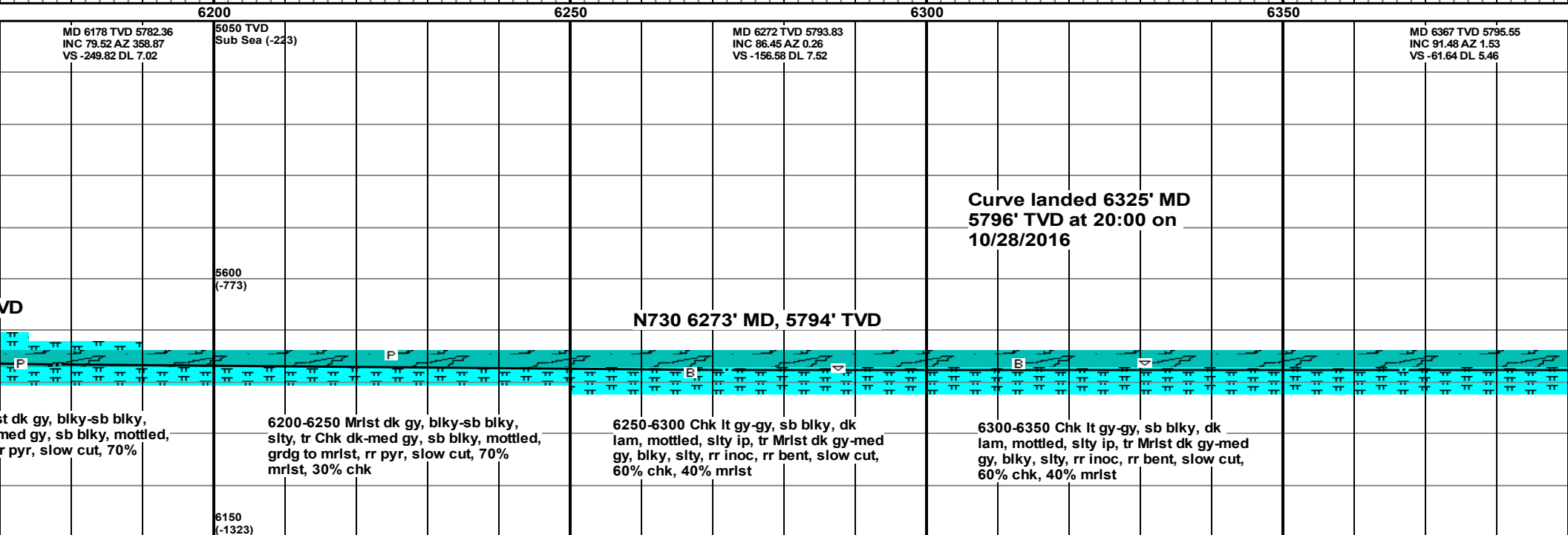
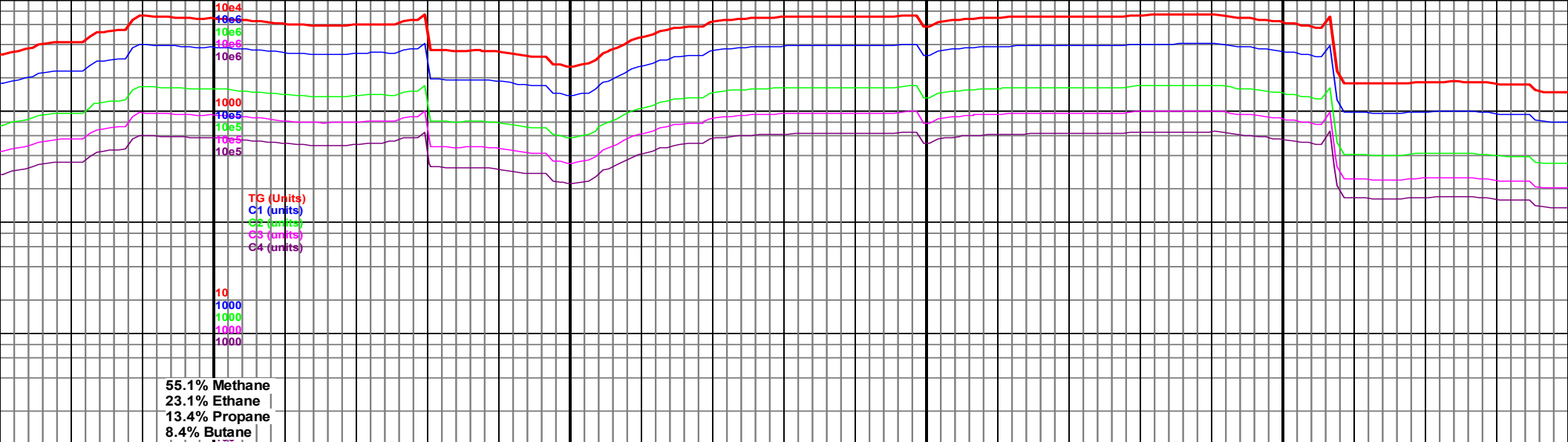


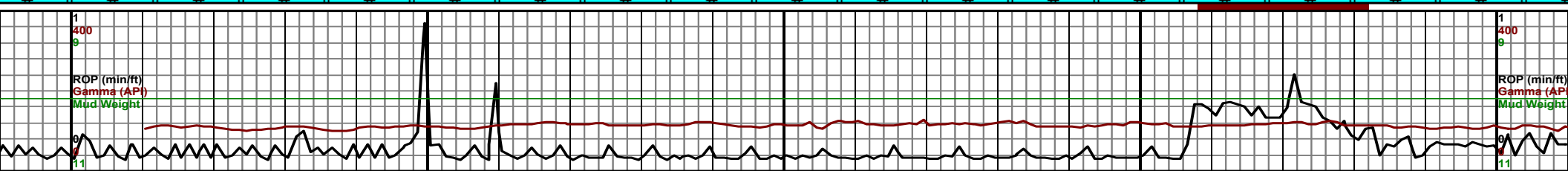
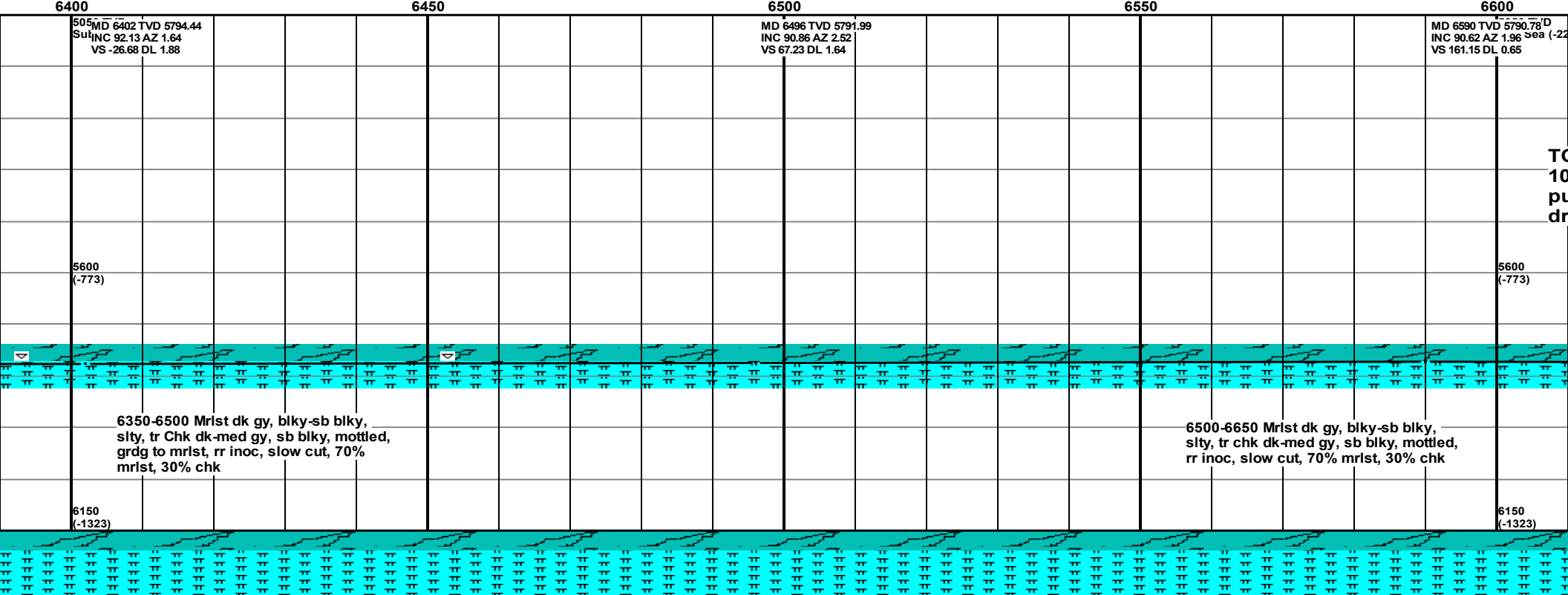
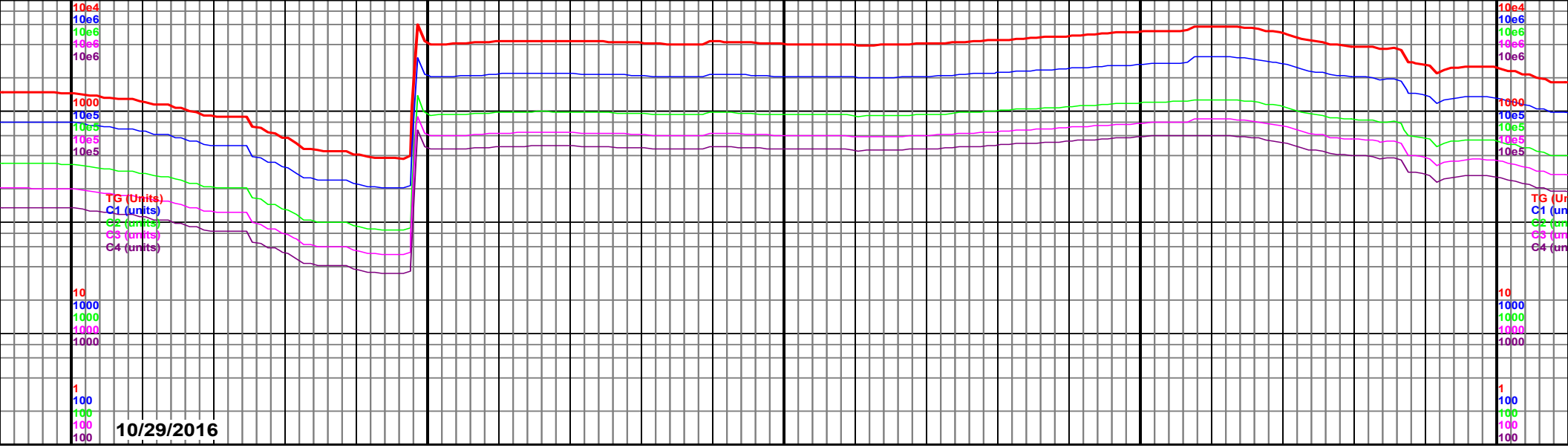


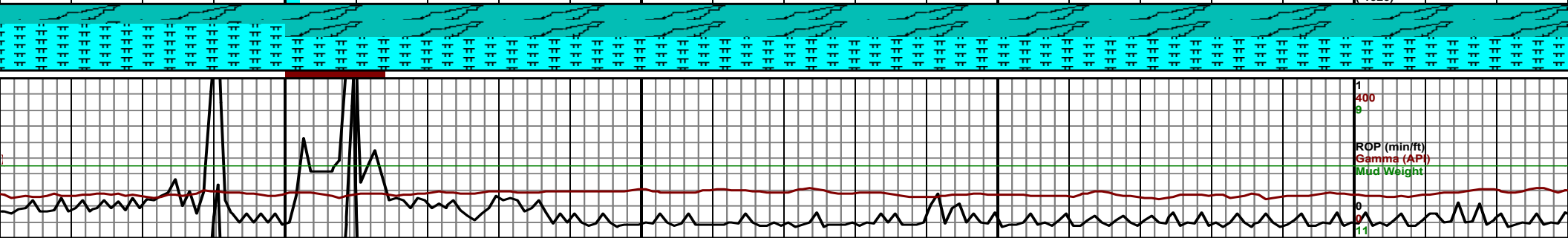
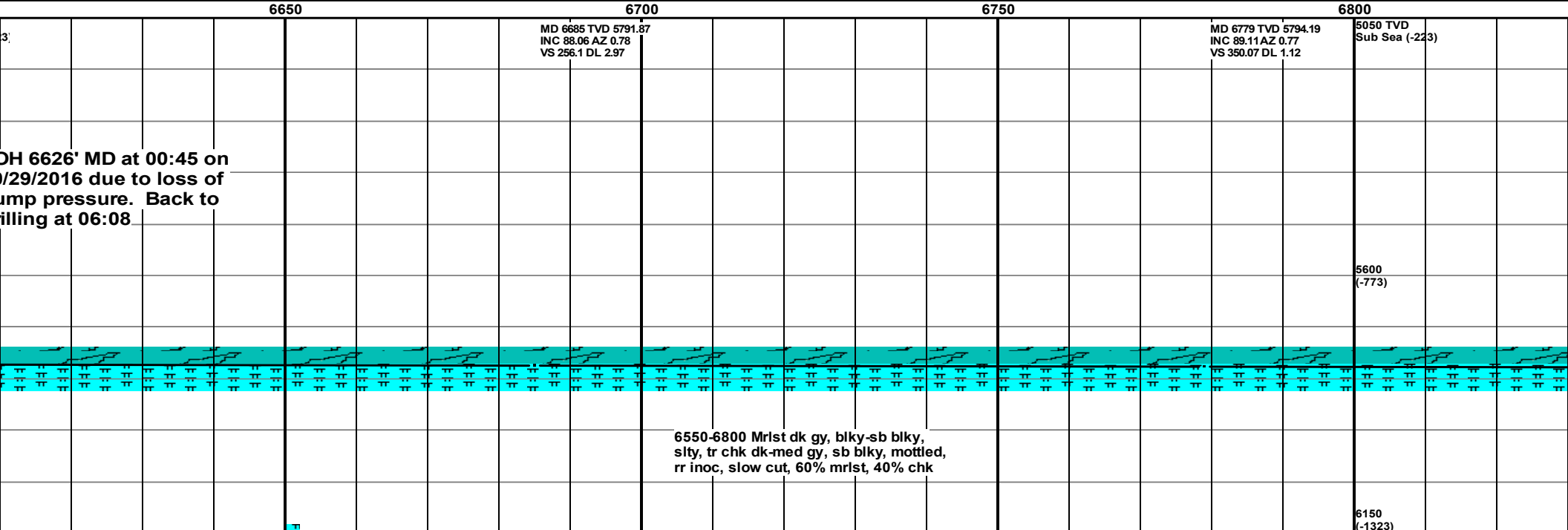
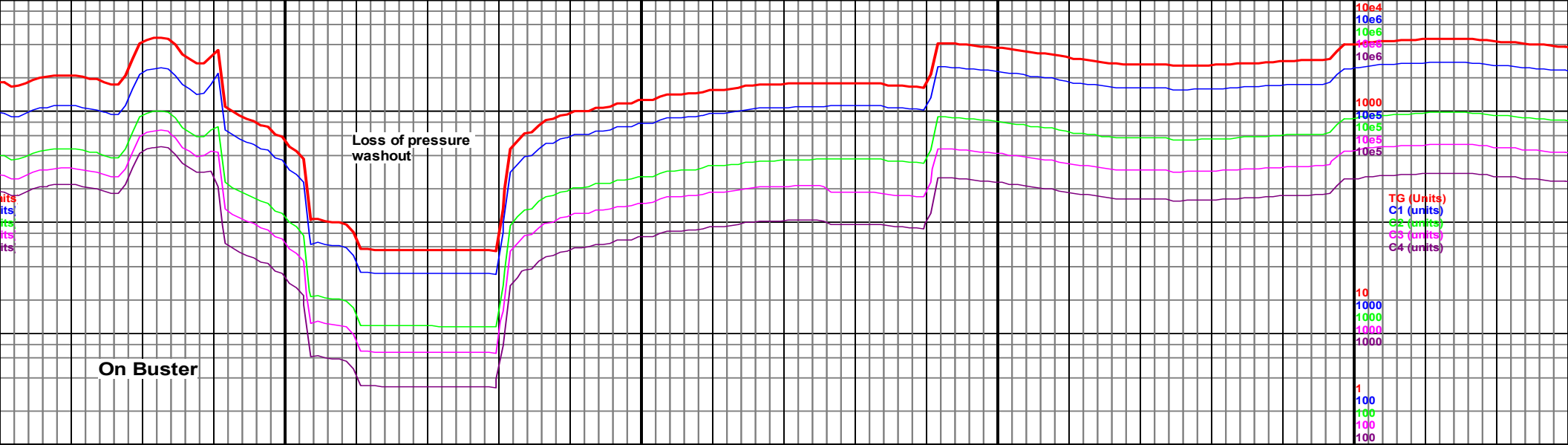


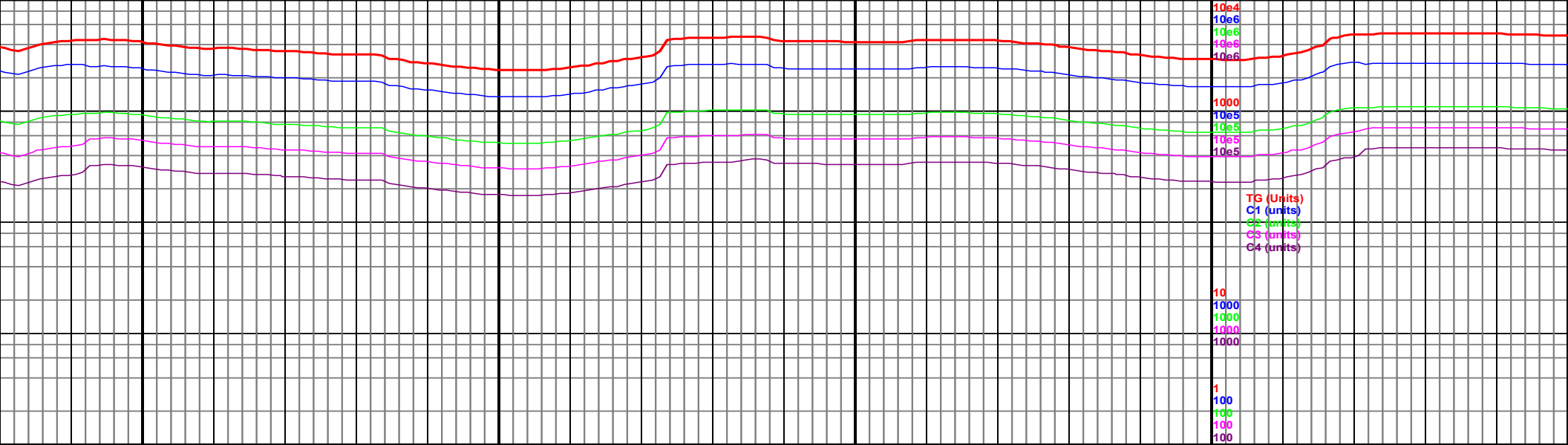












6850

6900

6950

7000

7000

MD 6872 TVD 5796.62
INC 87.9 AZ 358.56
VS 443.03 DL 2.71

MD 6967 TVD 5799.
INC 89.23 AZ 358.49
VS 537.96 DL 1.41

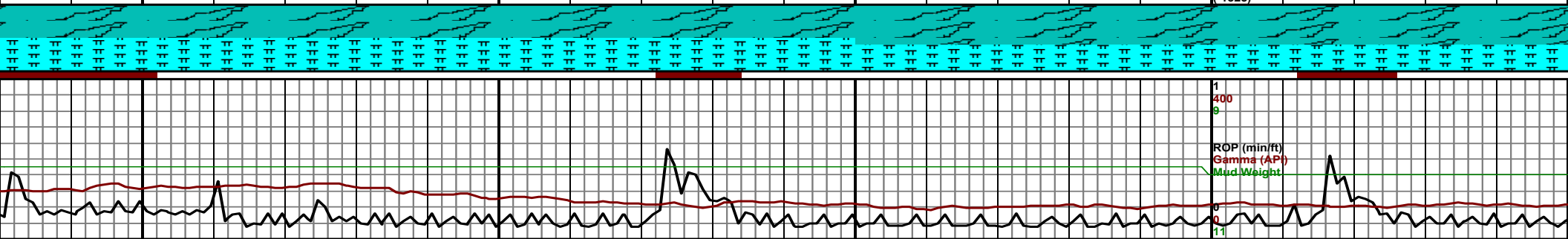
5050 TVD
Sub Sea (-223)

5600
(-773)

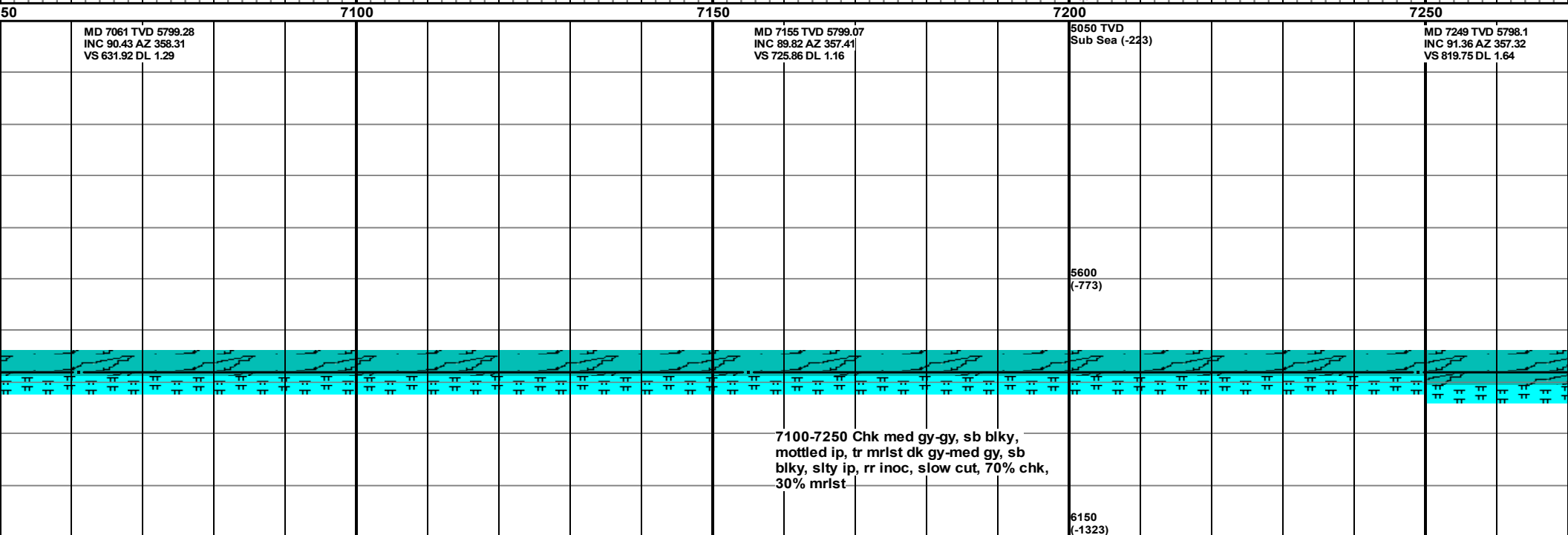
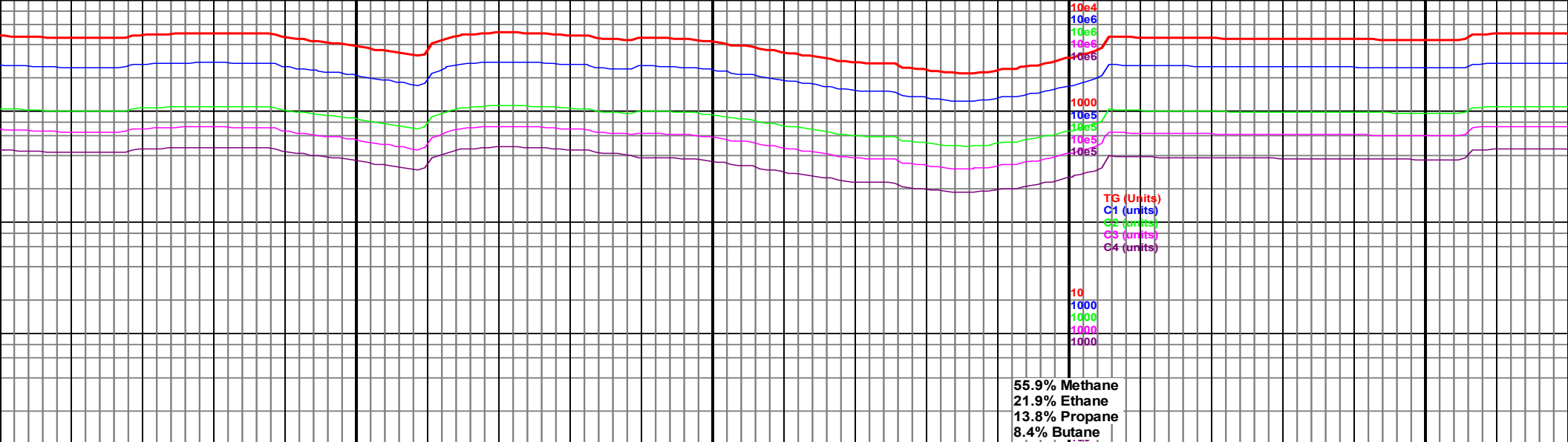
6150
(-1323)

6800-6950 Mrlst dk gy, blk-y-sb blk-y,
slty, tr chk dk-med gy, sb blk-y, mottled,
rr pyr, slow cut, 60% mrlst, 40% chk

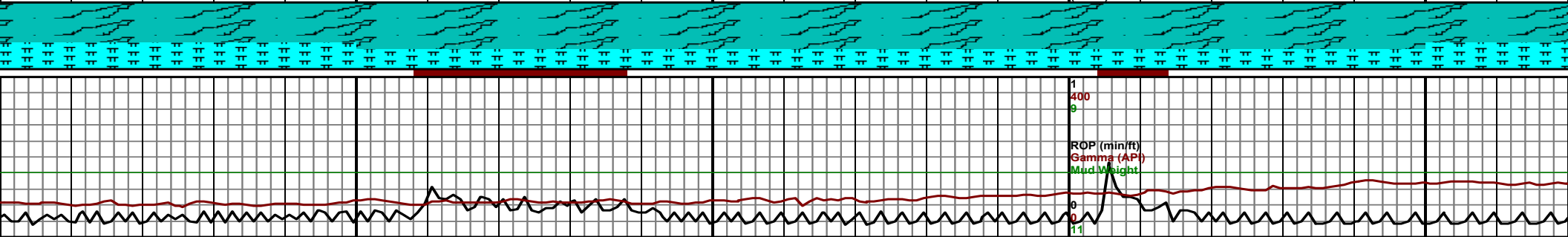
6950-7100 Chk med gy-gy, sb blk-y,
mottled ip, tr mrlst dk gy-med gy, sb
blk-y, slty ip, slow cut, 60% chk, 40%
mrlst

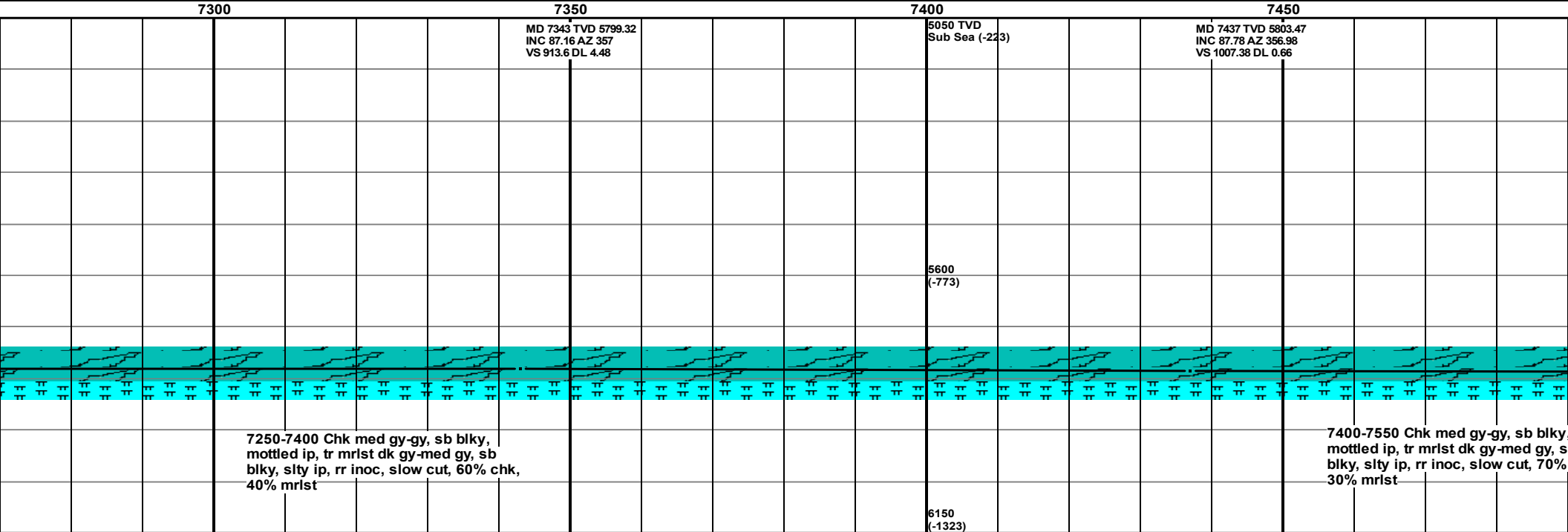
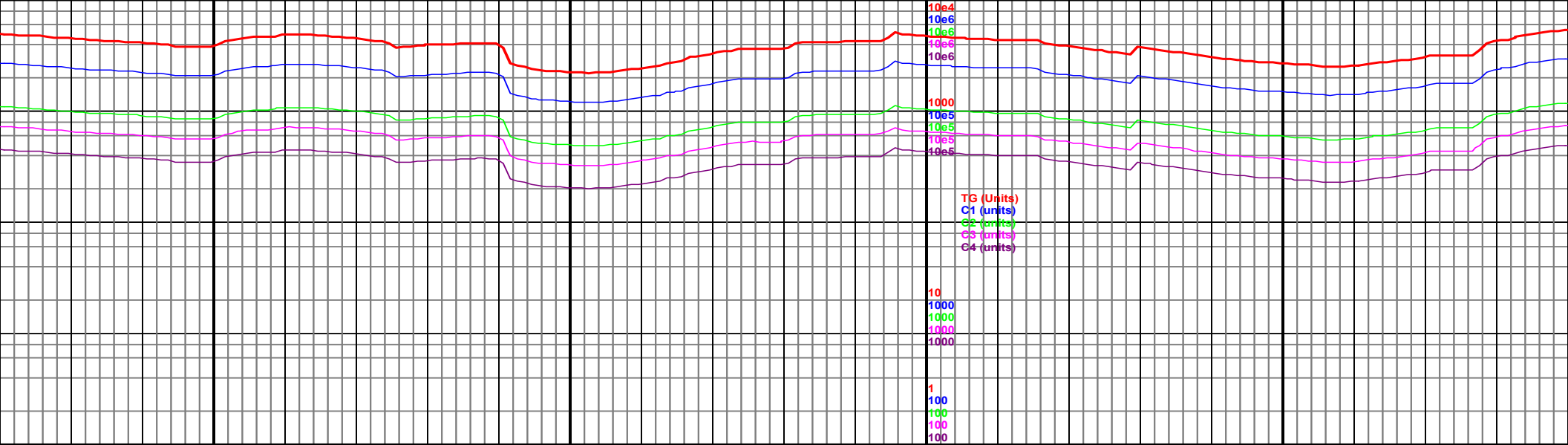


ROP (min/ft)
Gamma (API)
Mud Weight



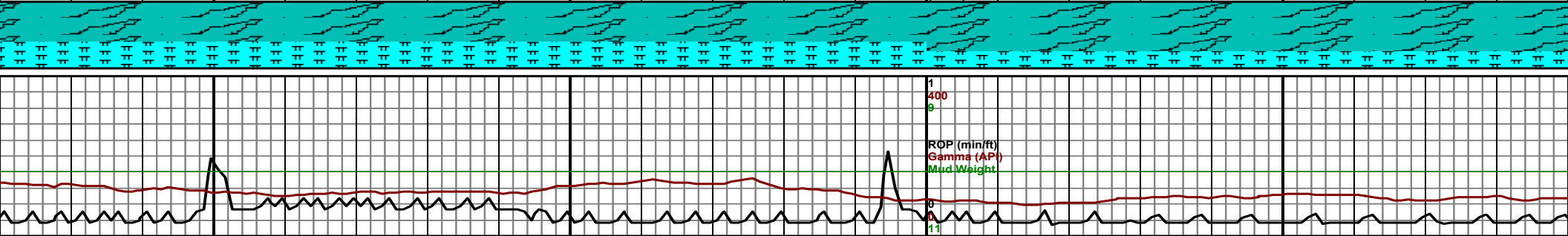
7100-7250 Chk med gy-gy, sb blk, mottled ip, tr mrlist dk gy-med gy, sb blk, slty ip, rr inoc, slow cut, 70% chk, 30% mrlist

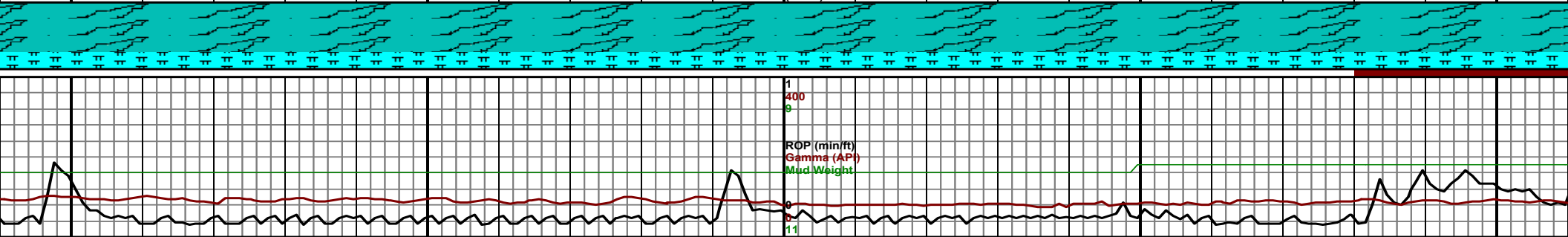
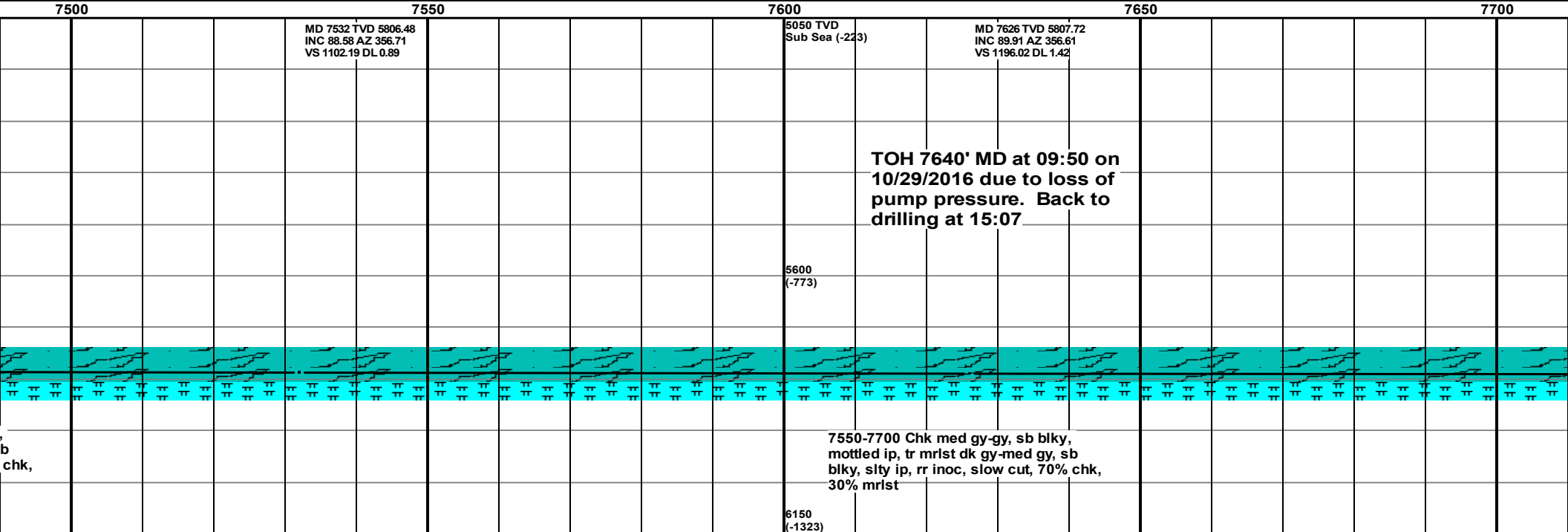
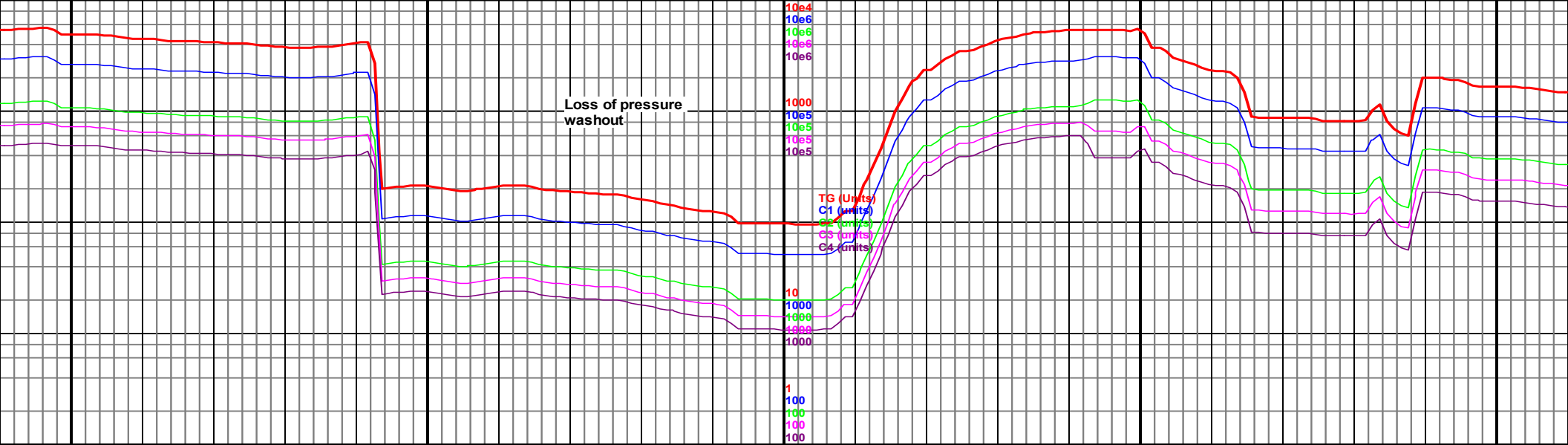


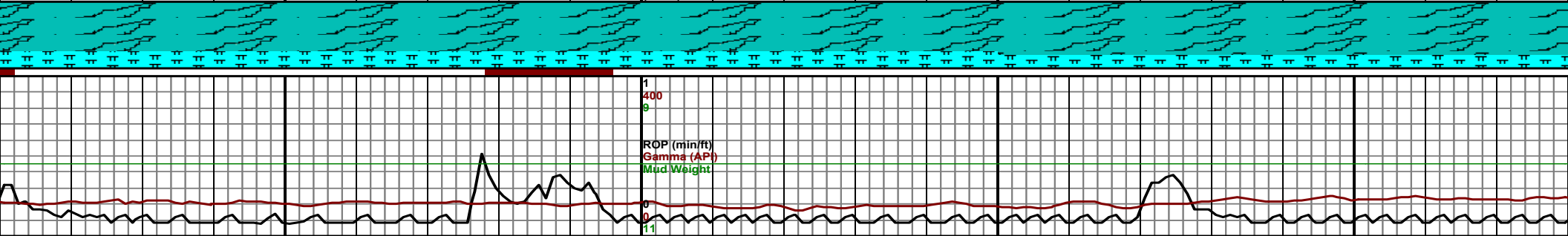
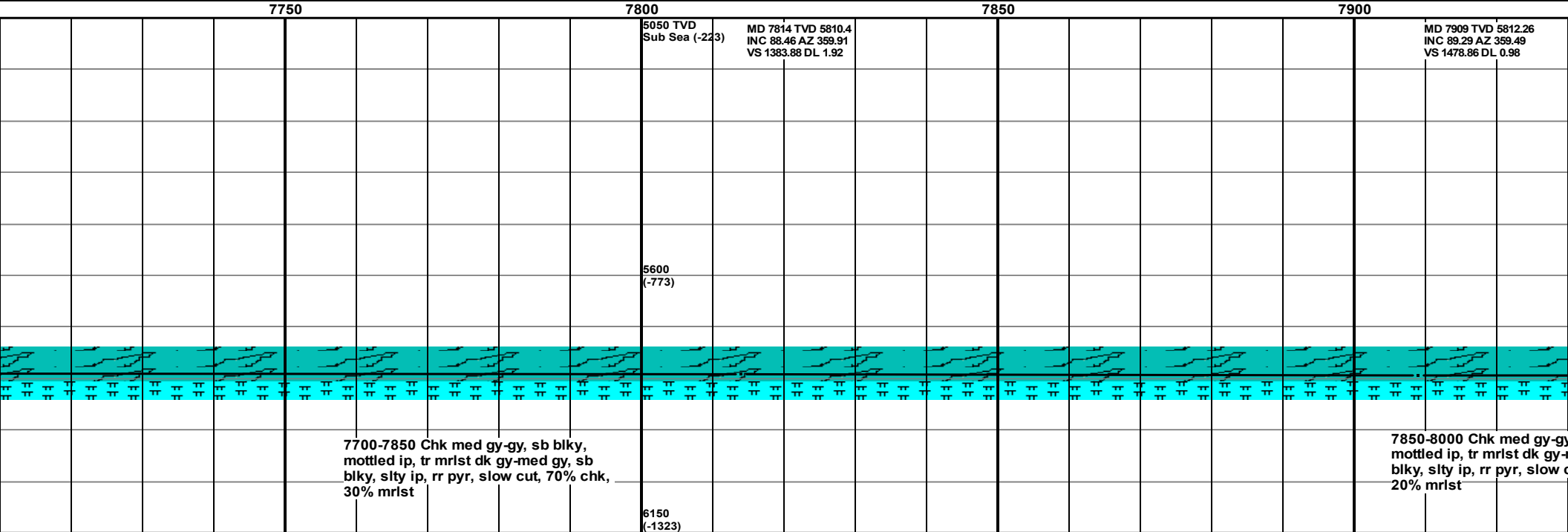
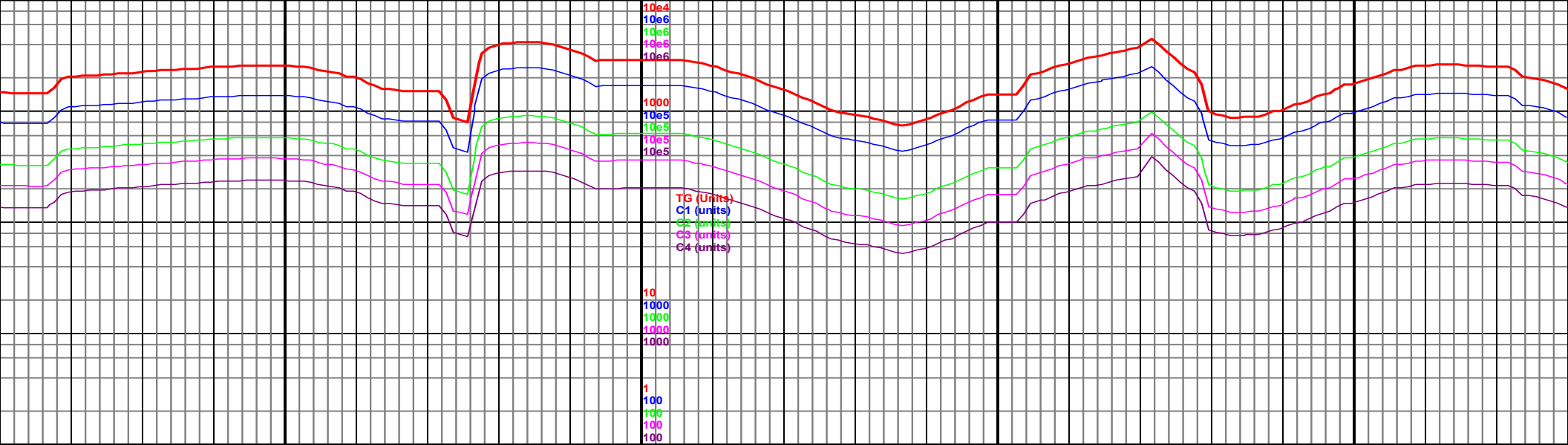


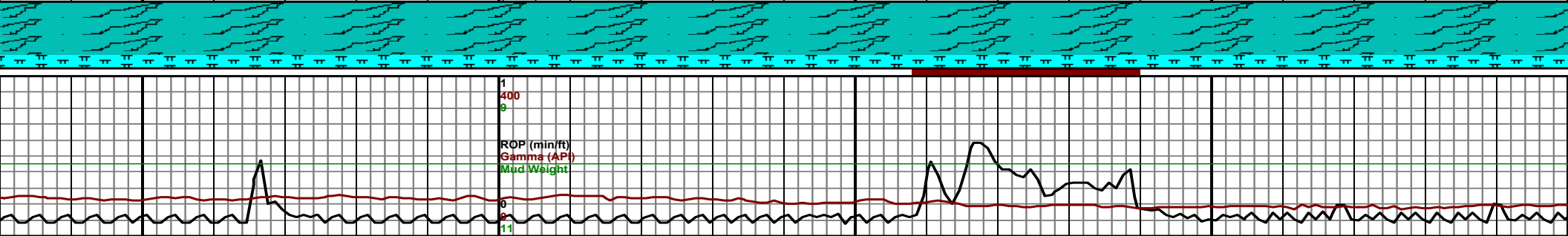
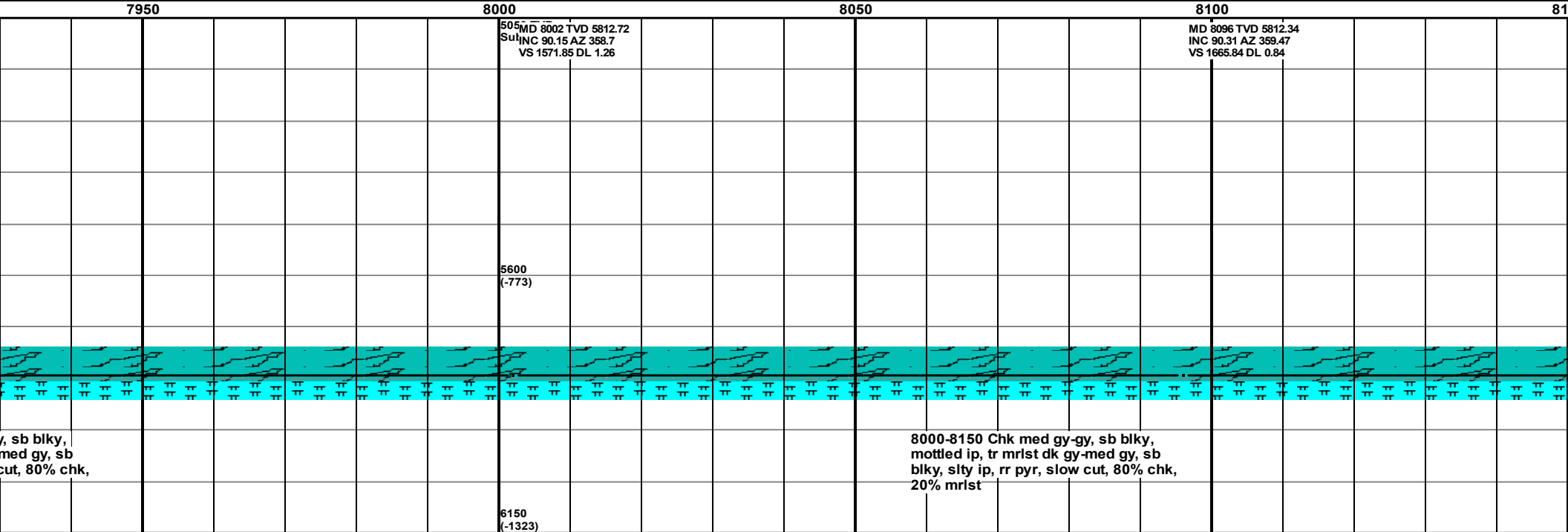
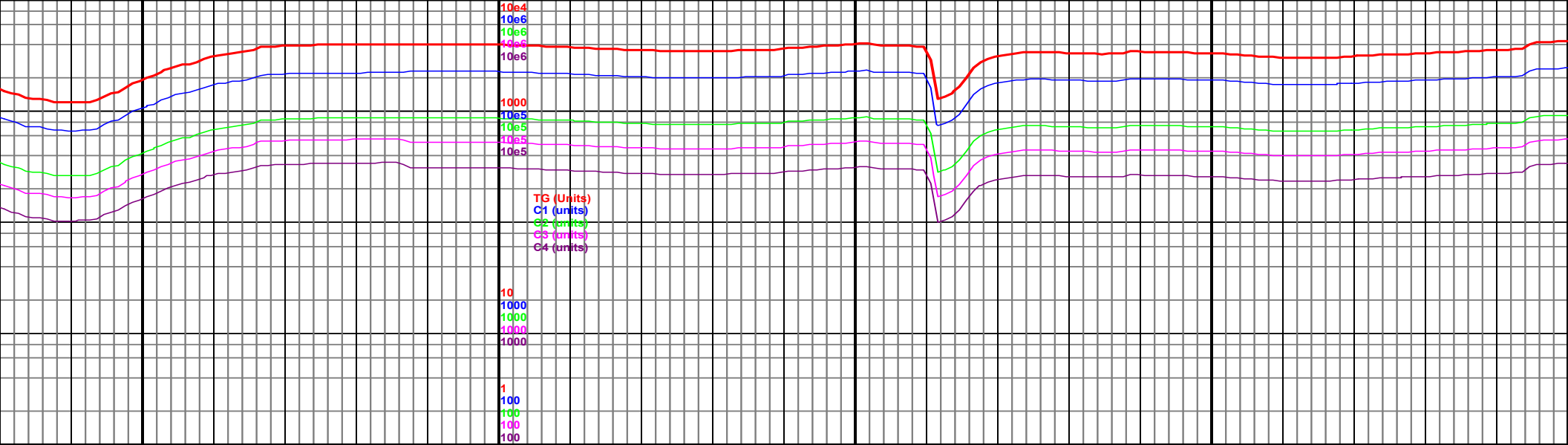
7250-7400 Chk med gy-gy, sb blk, mottled ip, tr mrlst dk gy-med gy, sb blk, slty ip, rr inoc, slow cut, 60% chk, 40% mrlst

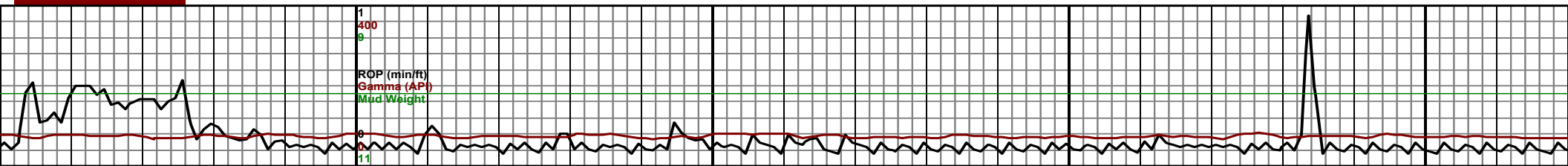
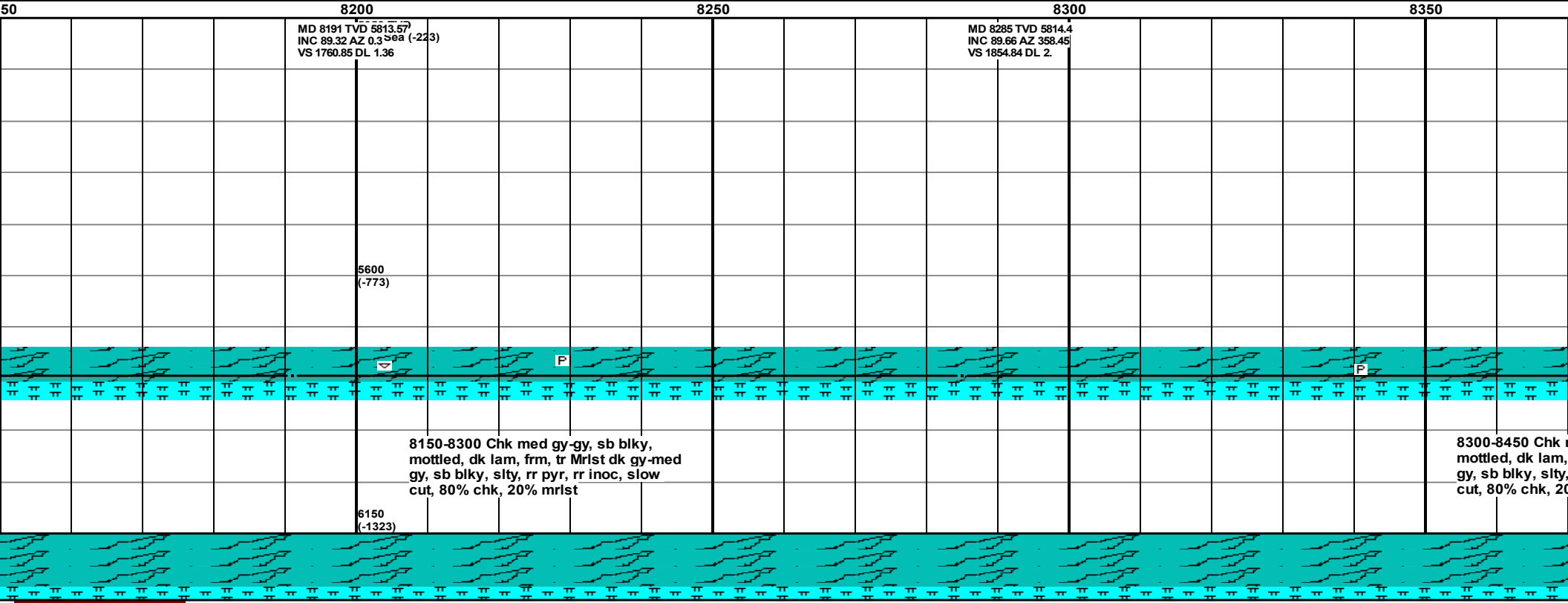
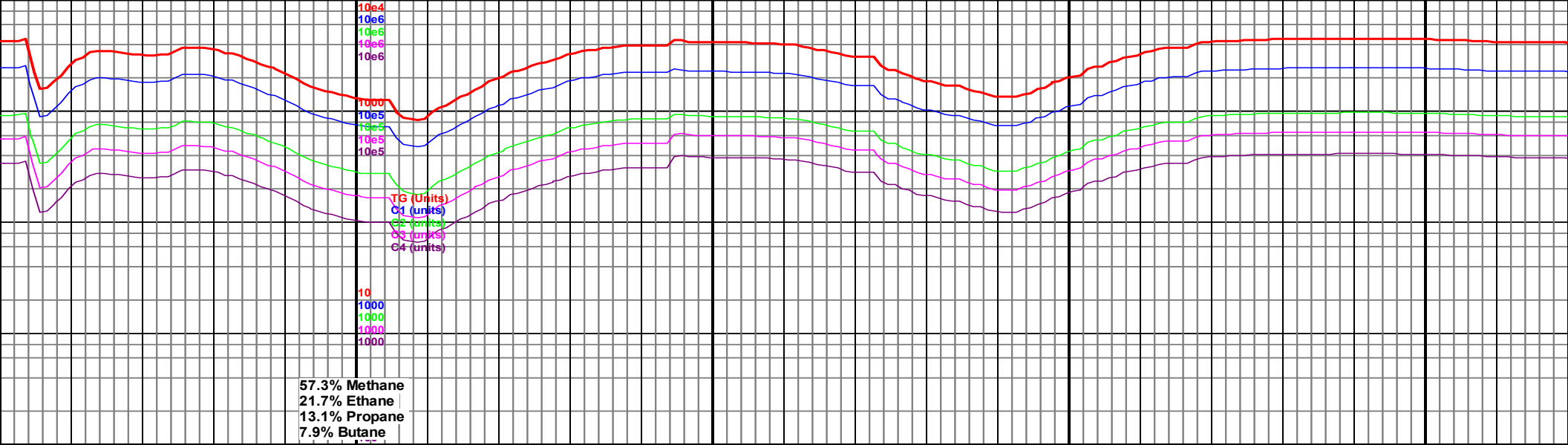
7400-7550 Chk med gy-gy, sb blk, mottled ip, tr mrlst dk gy-med gy, s blk, slty ip, rr inoc, slow cut, 70% 30% mrlst

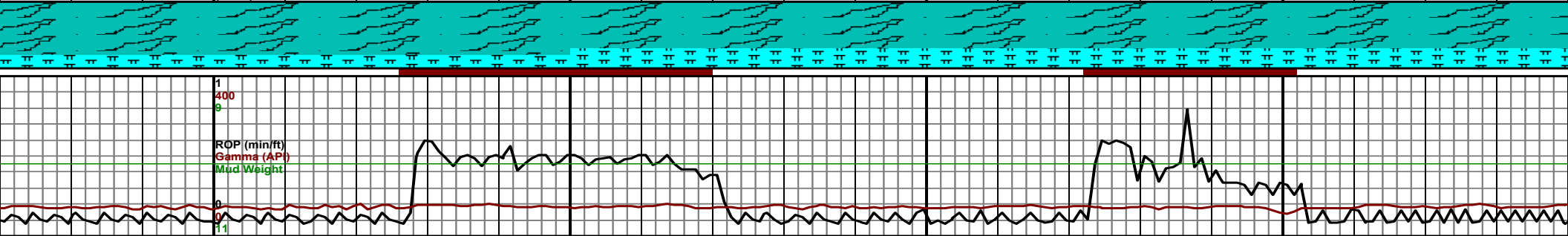
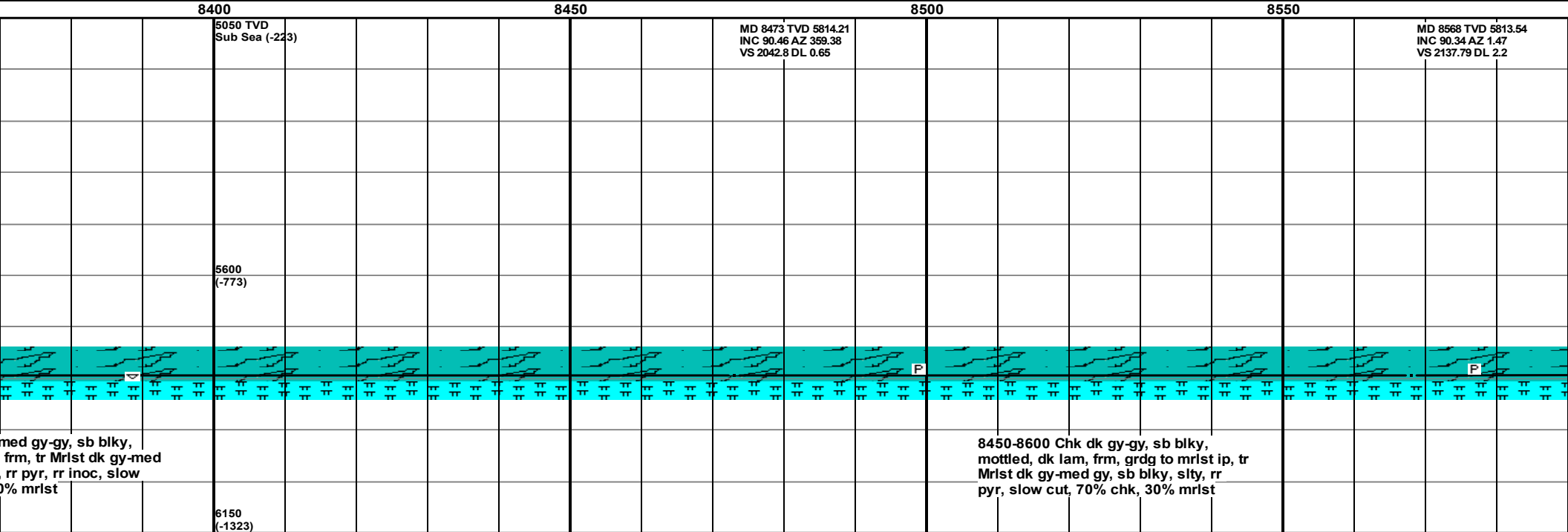
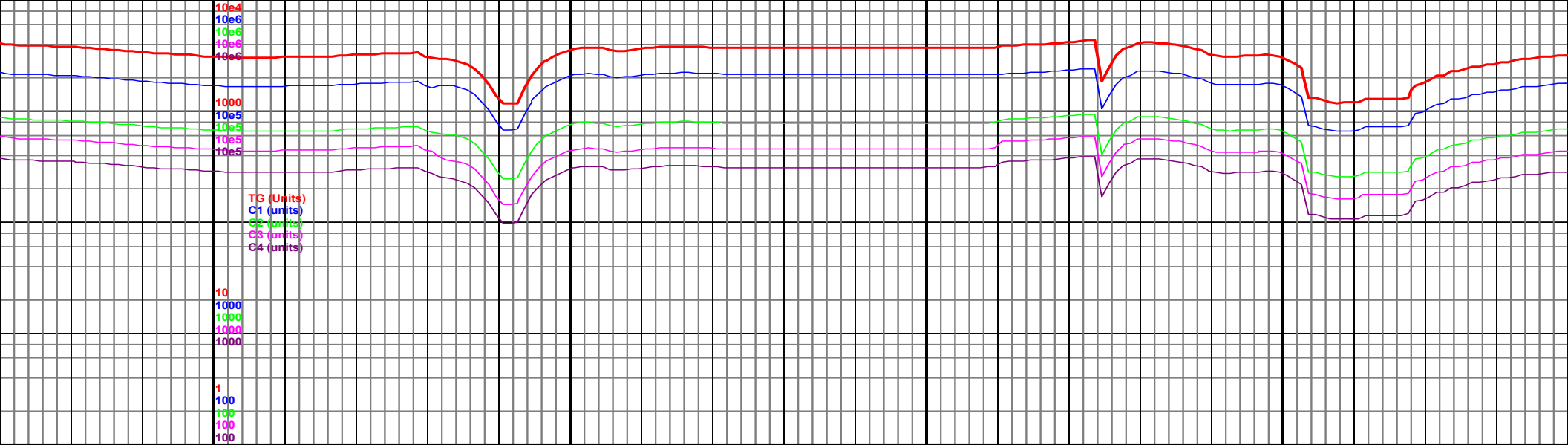


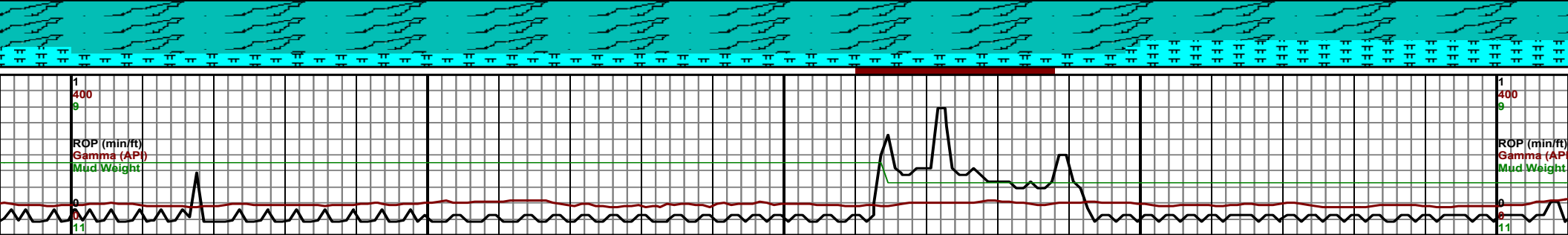
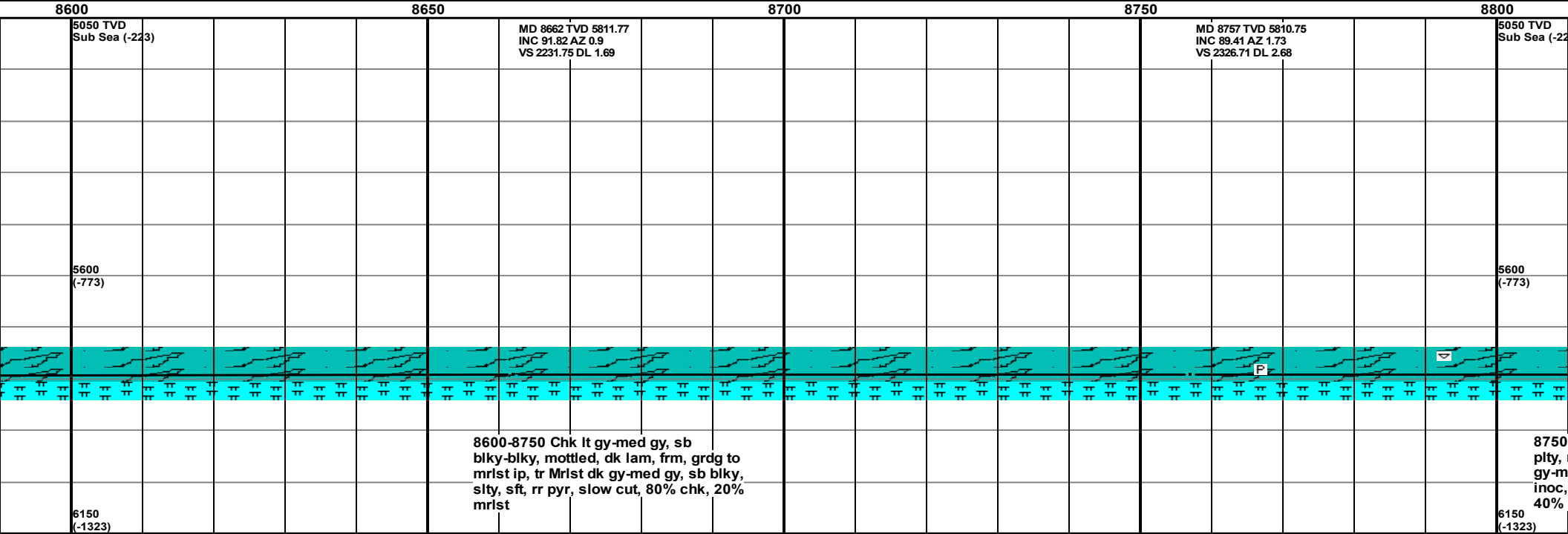
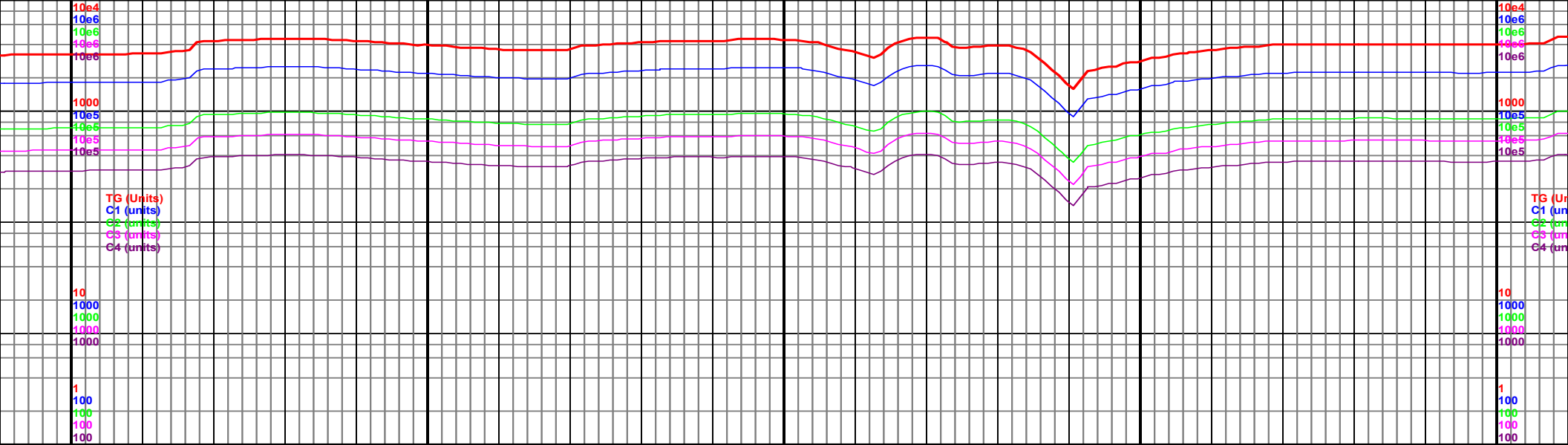


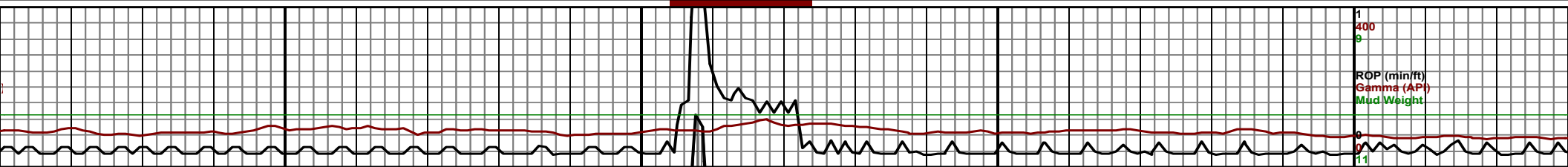
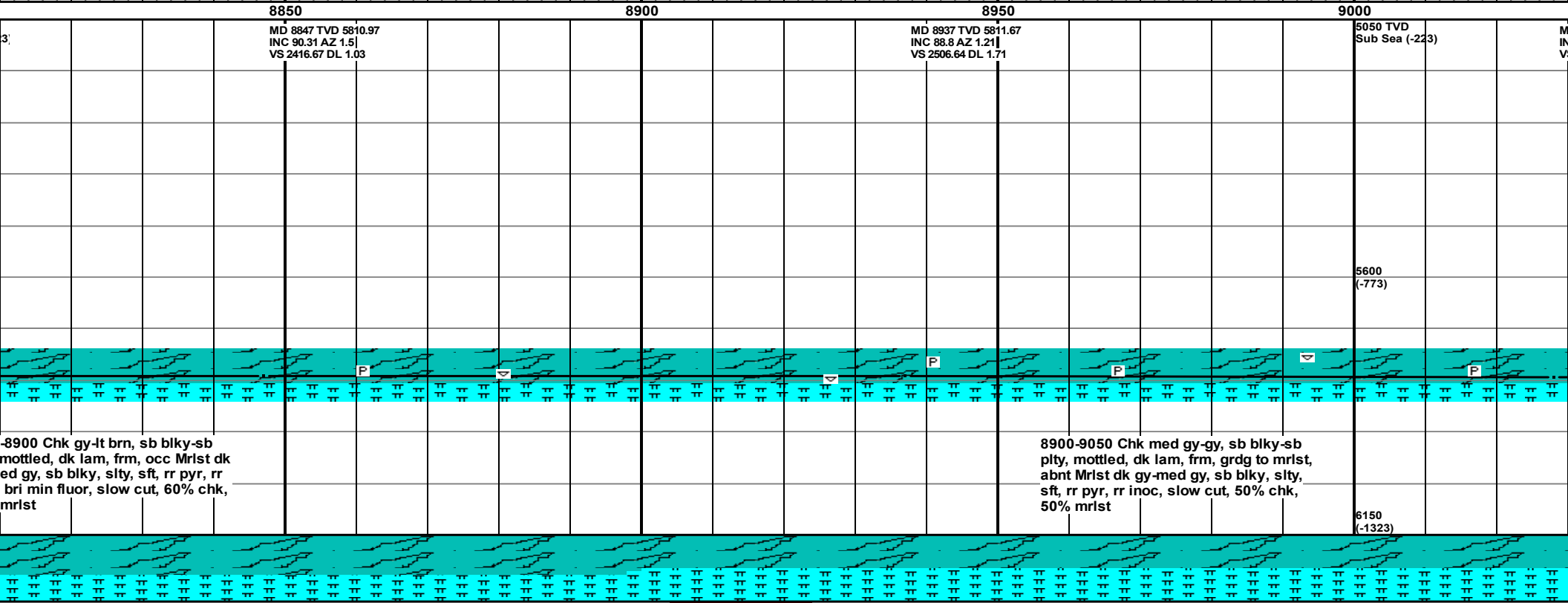
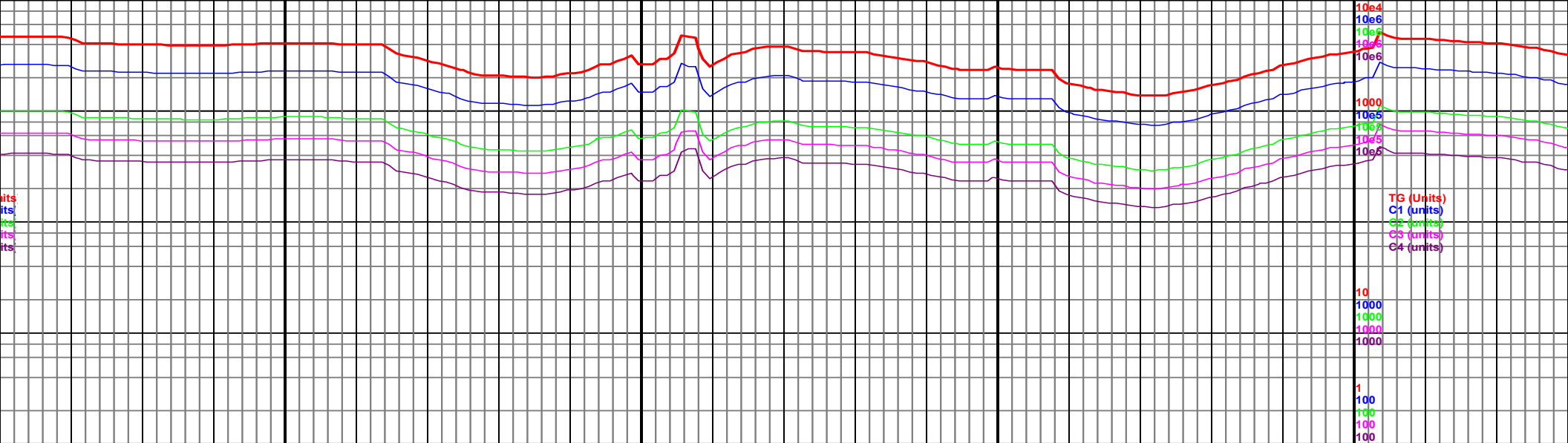


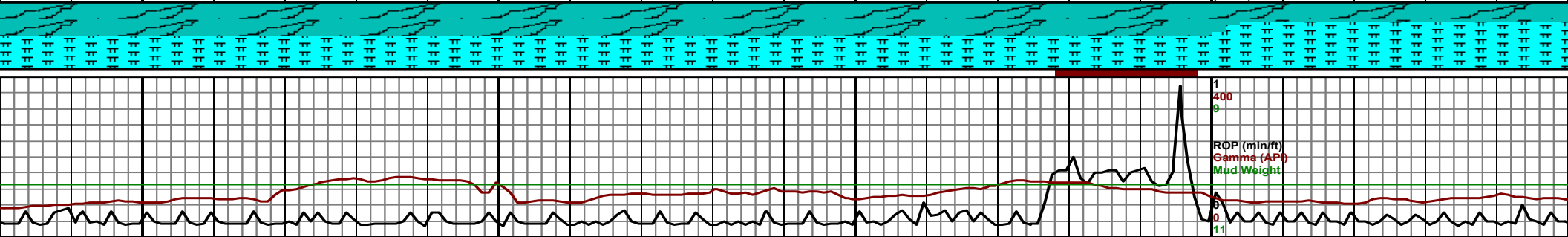
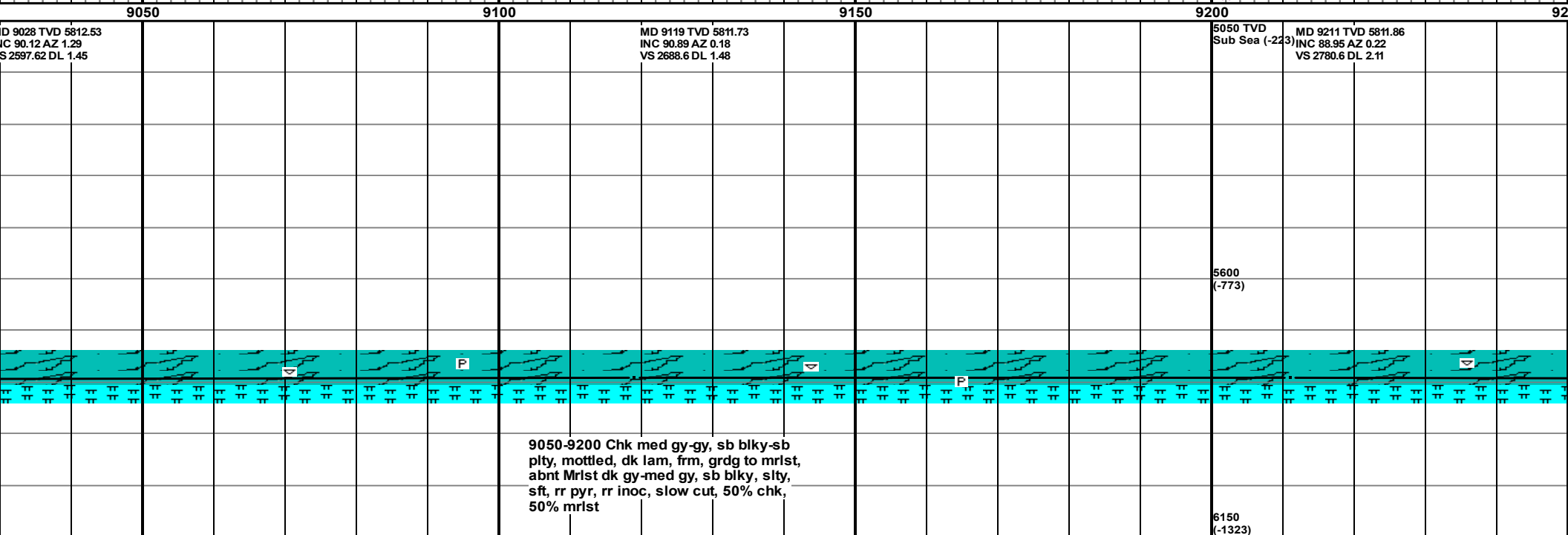
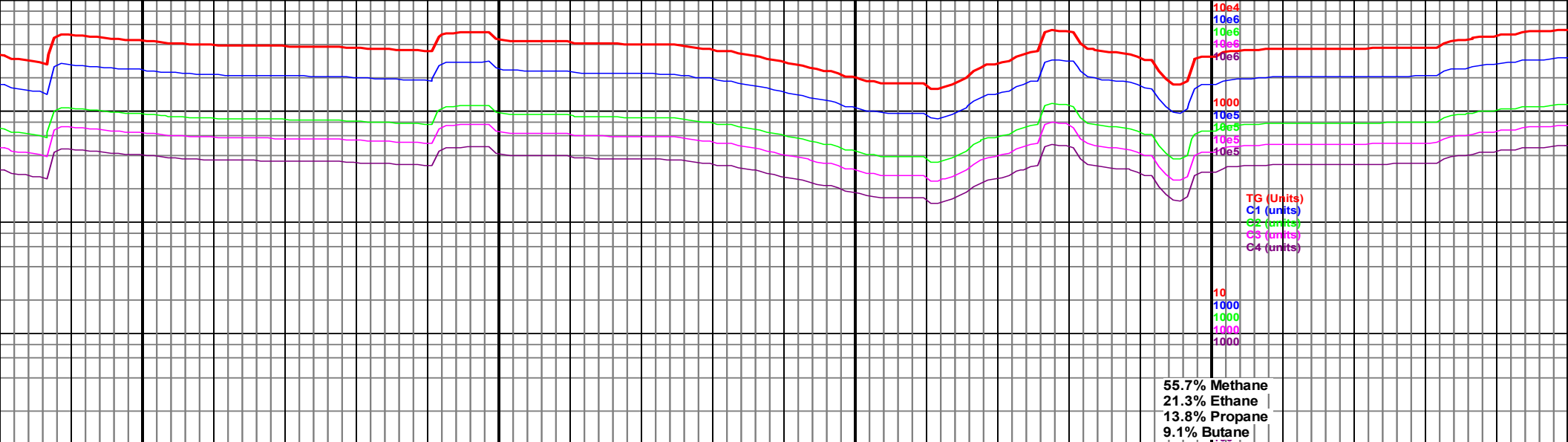


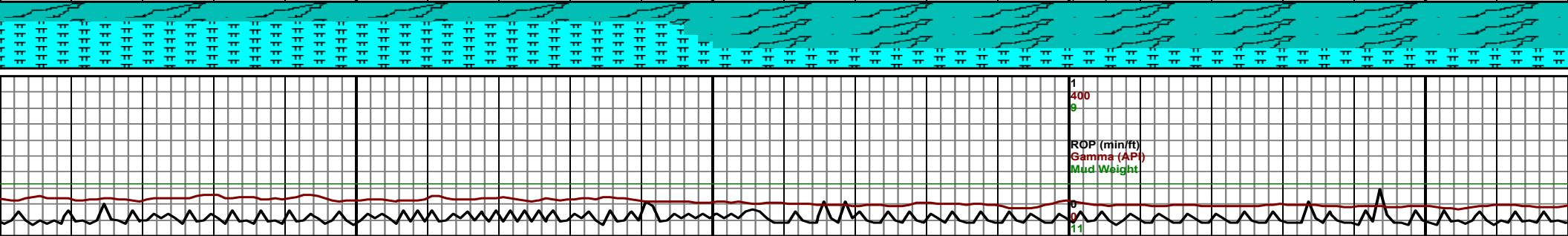
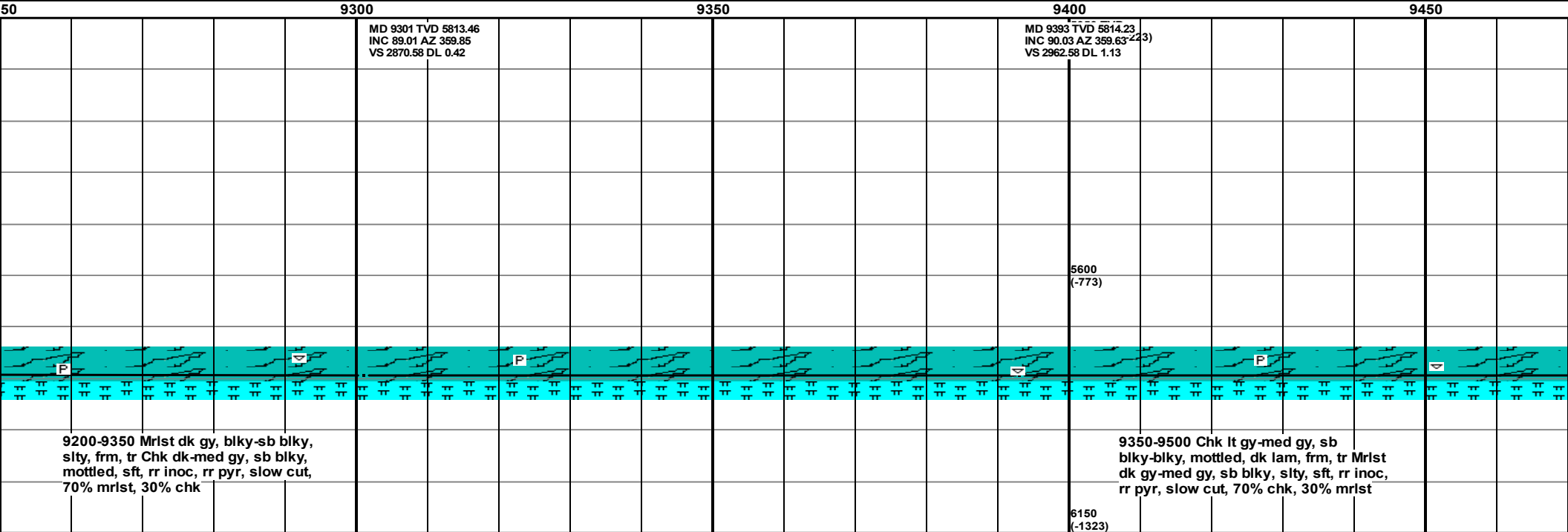
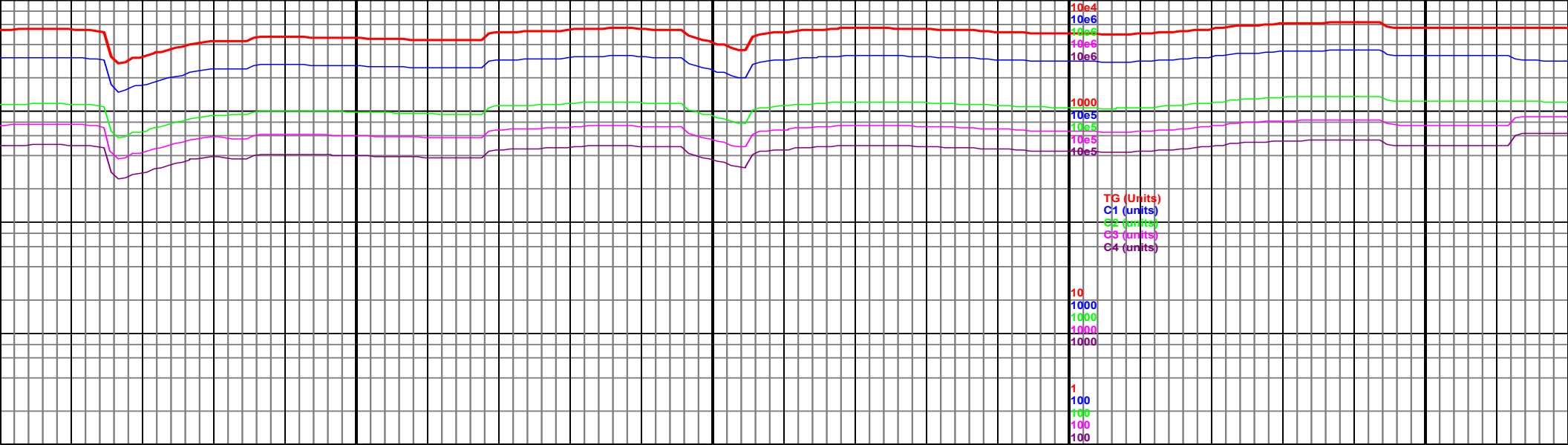


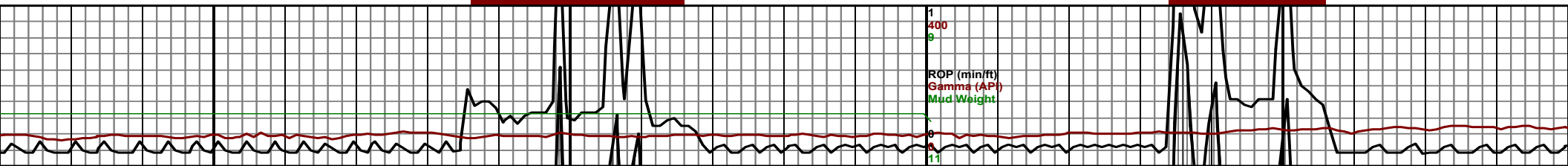
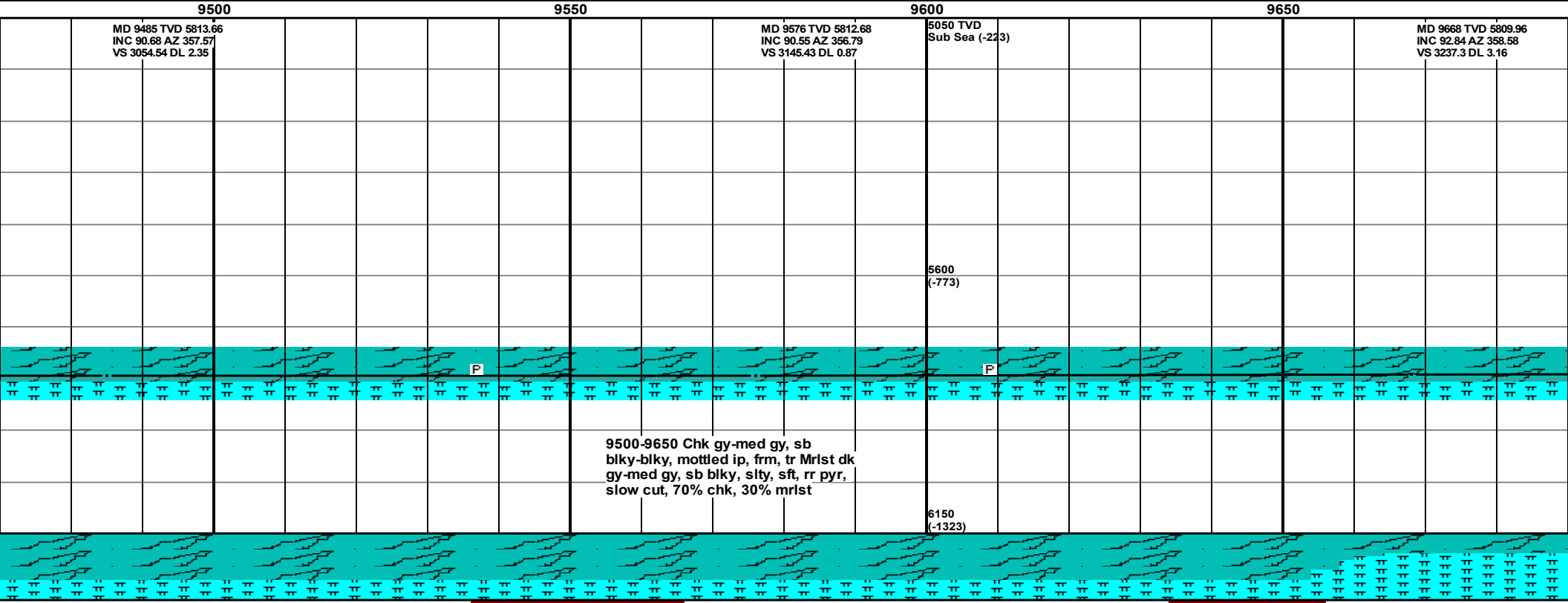
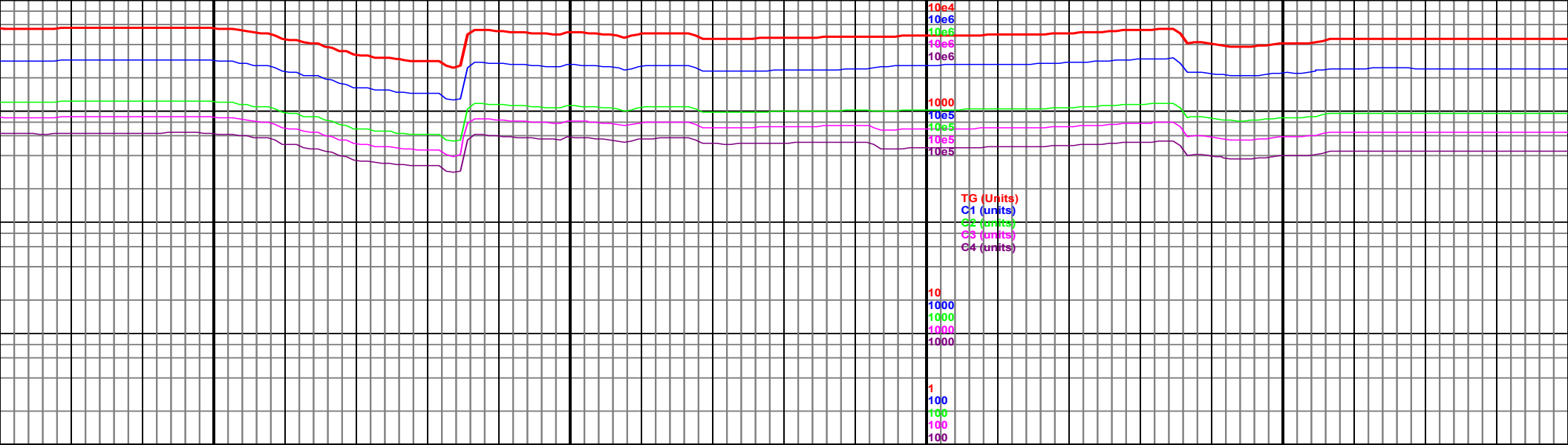


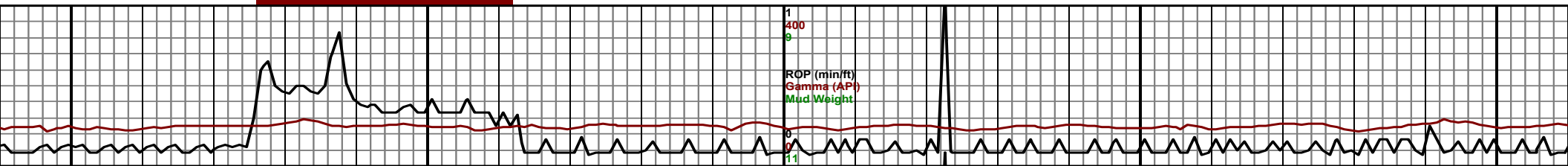
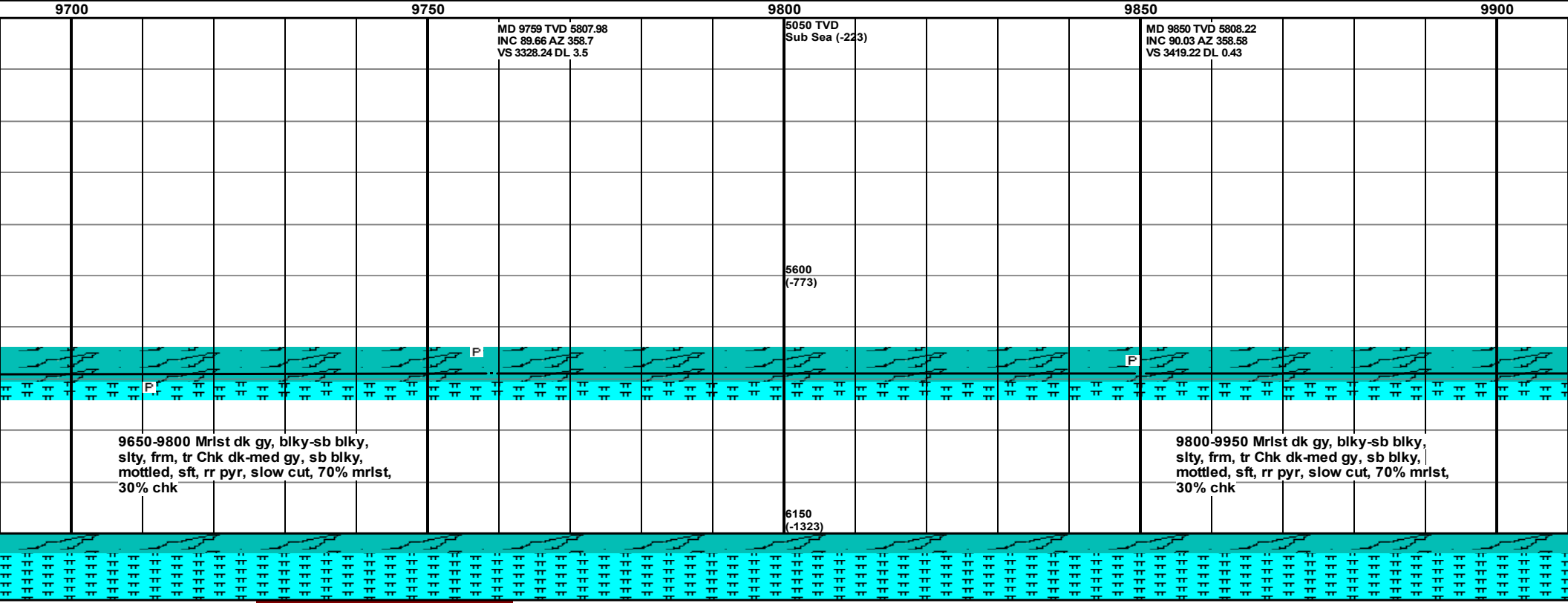
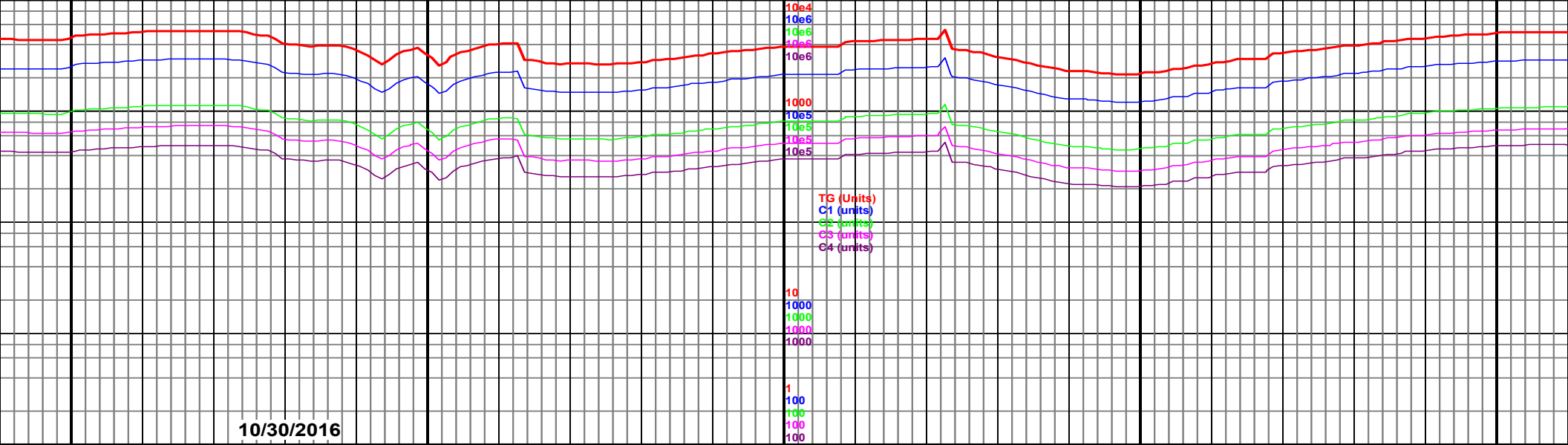


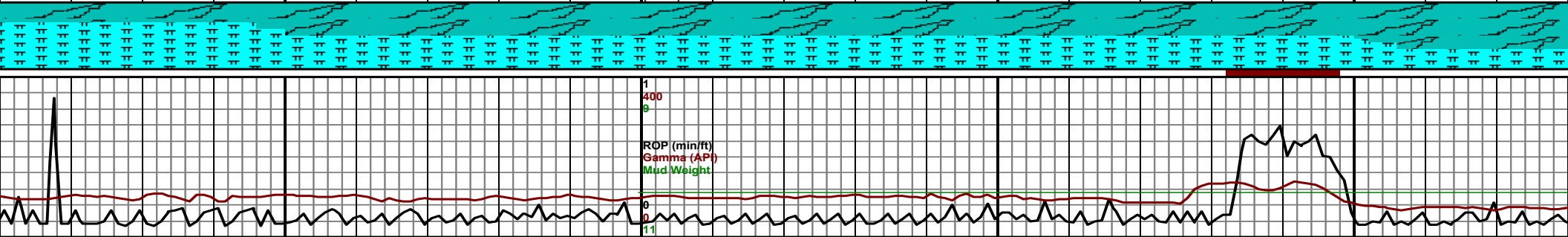
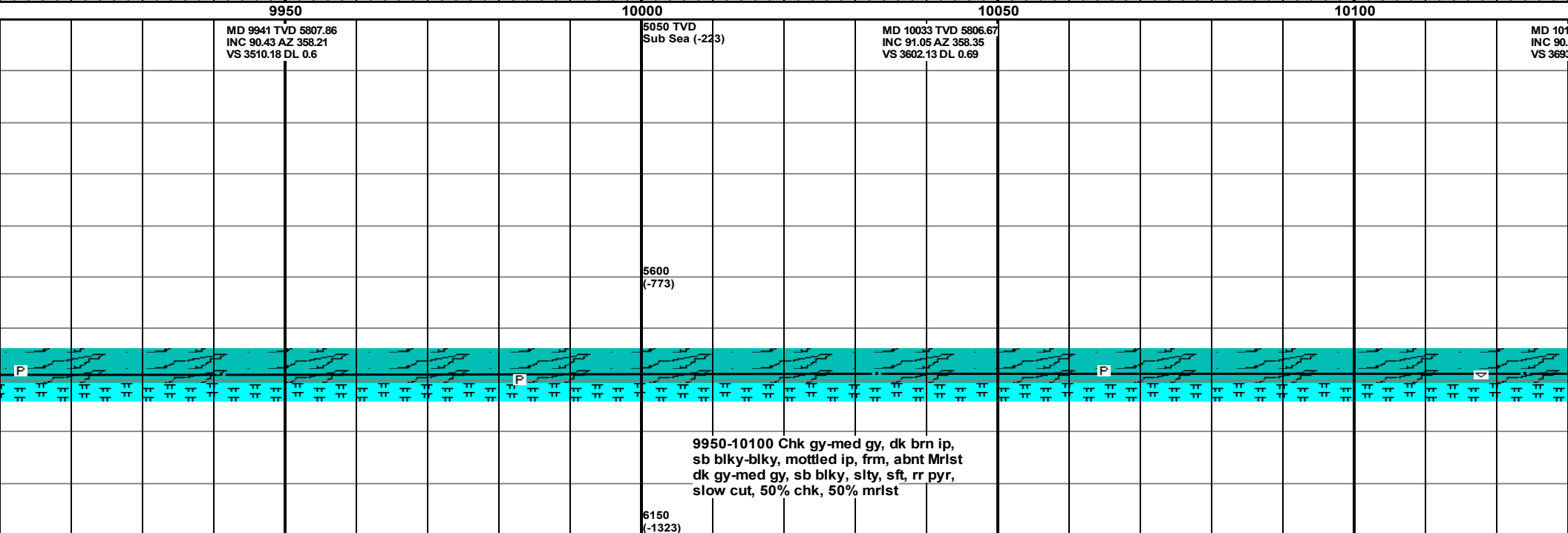
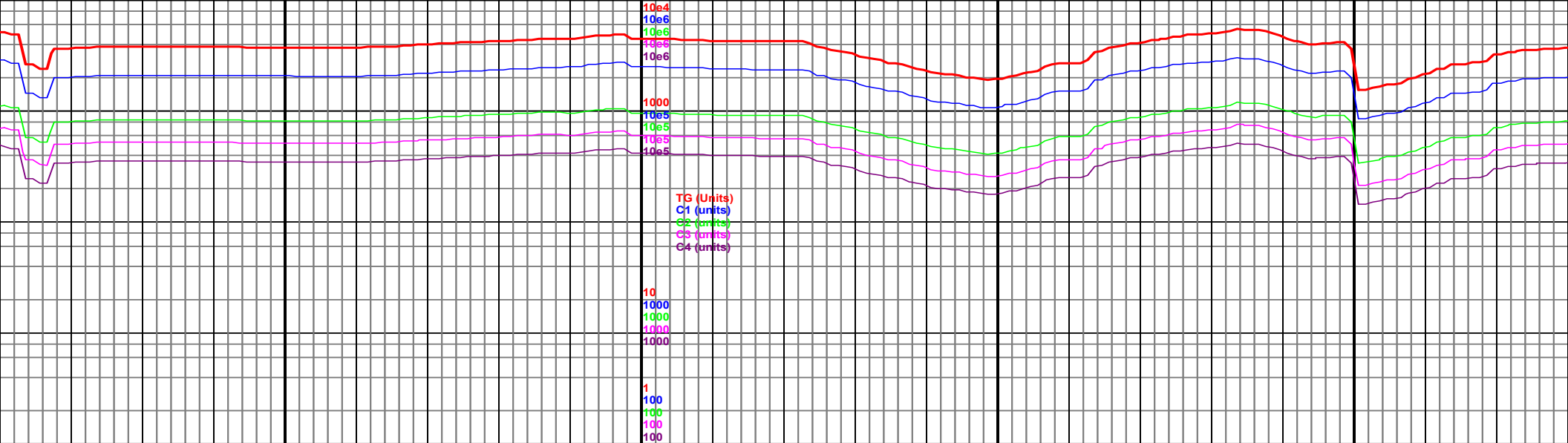


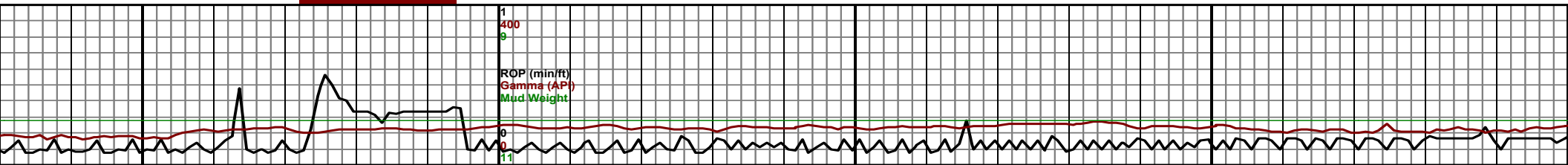
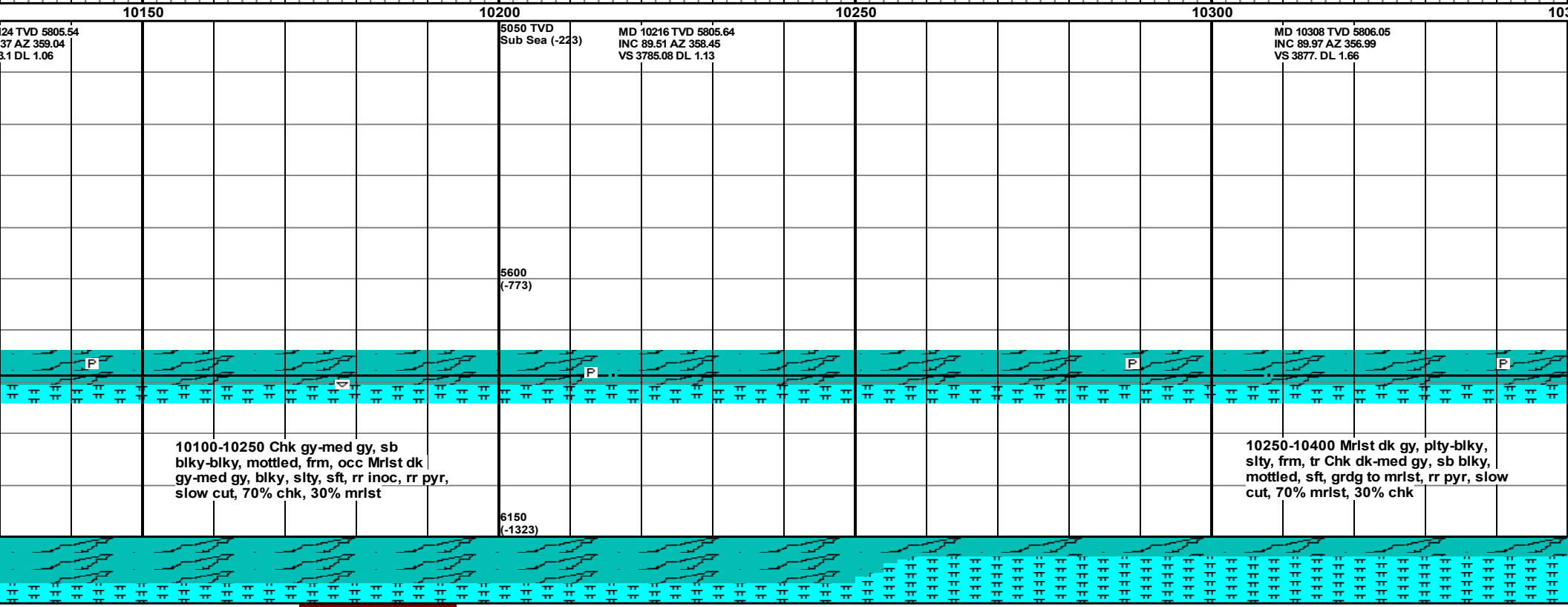
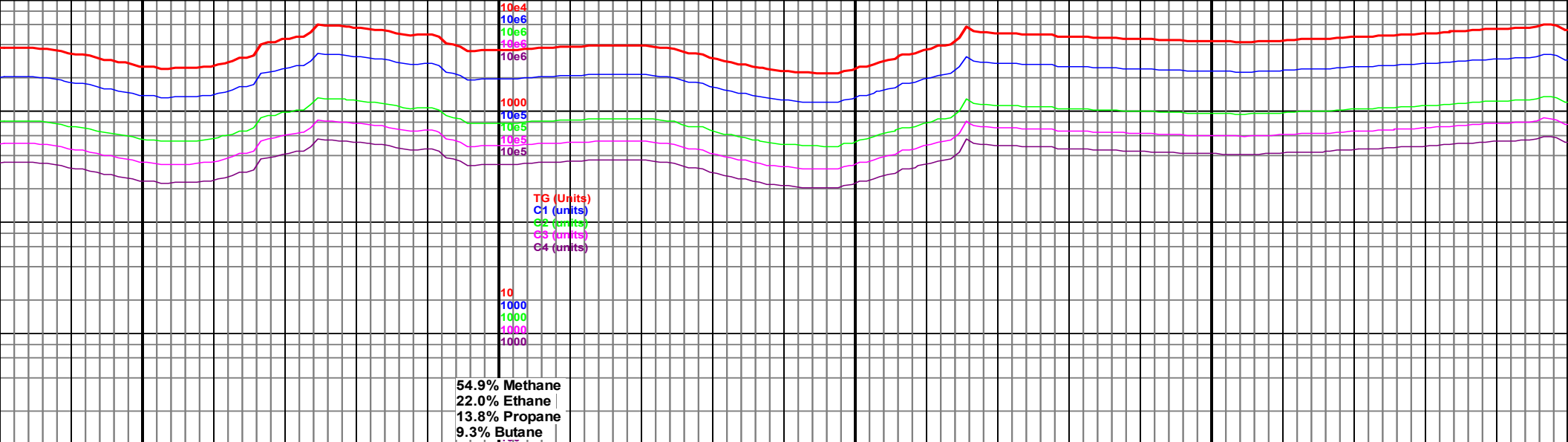


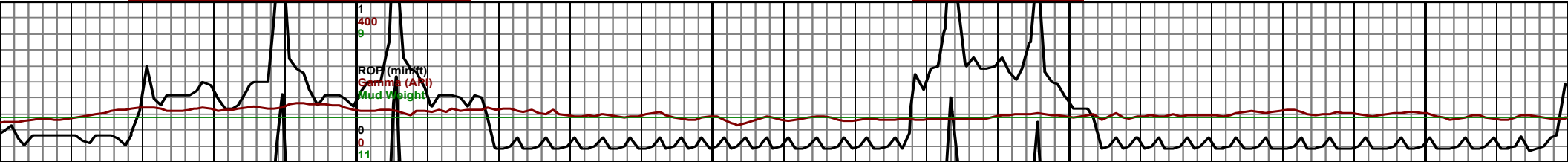
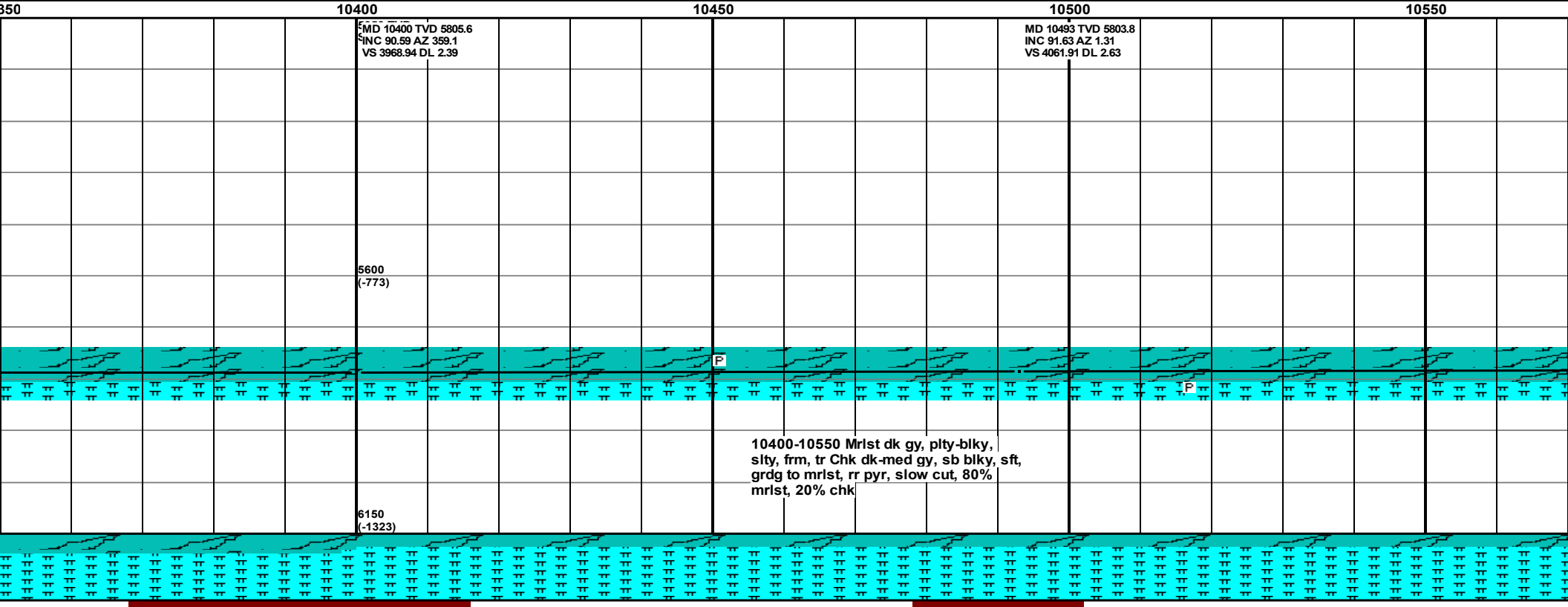
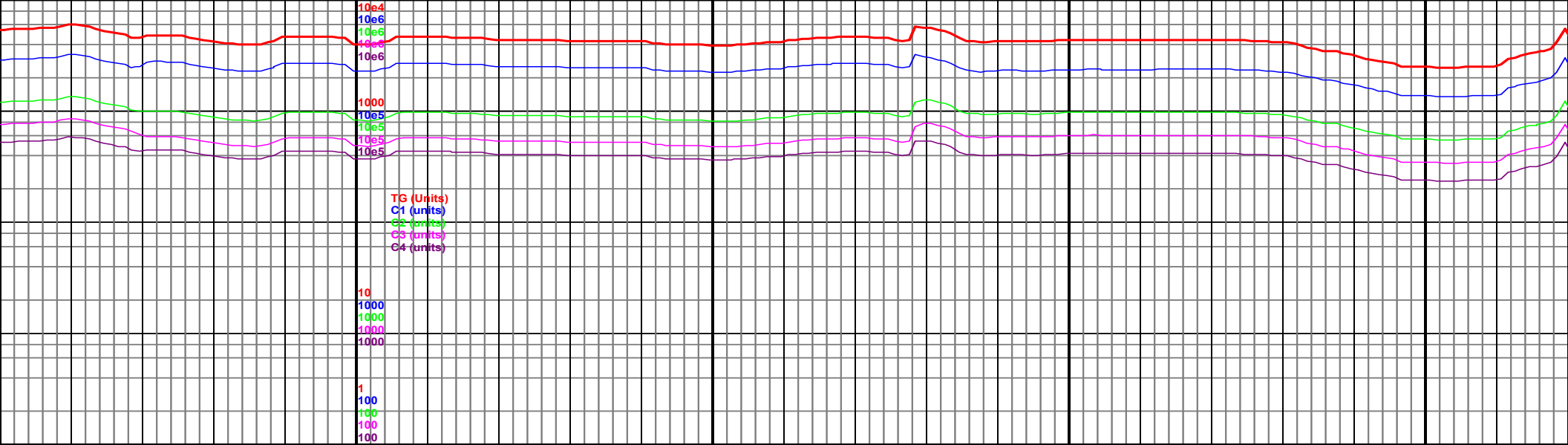


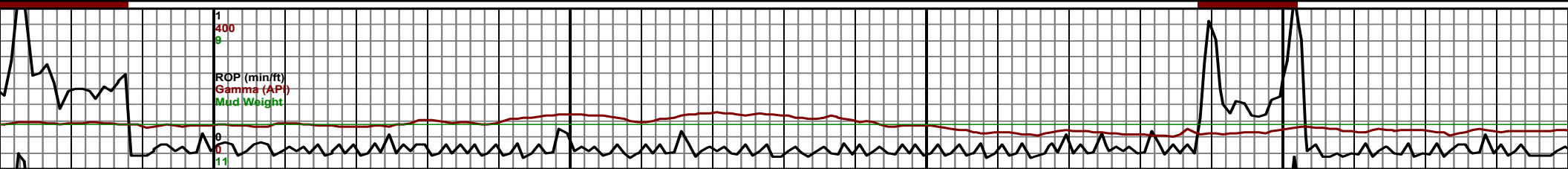
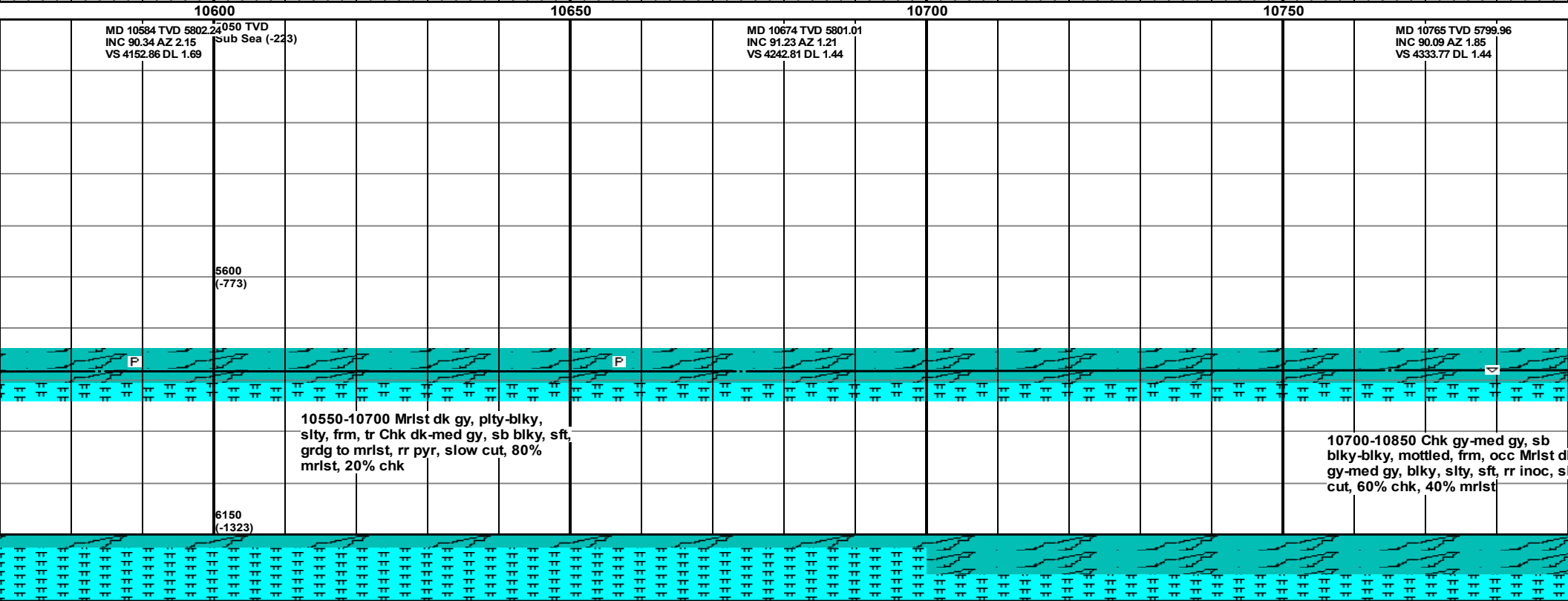
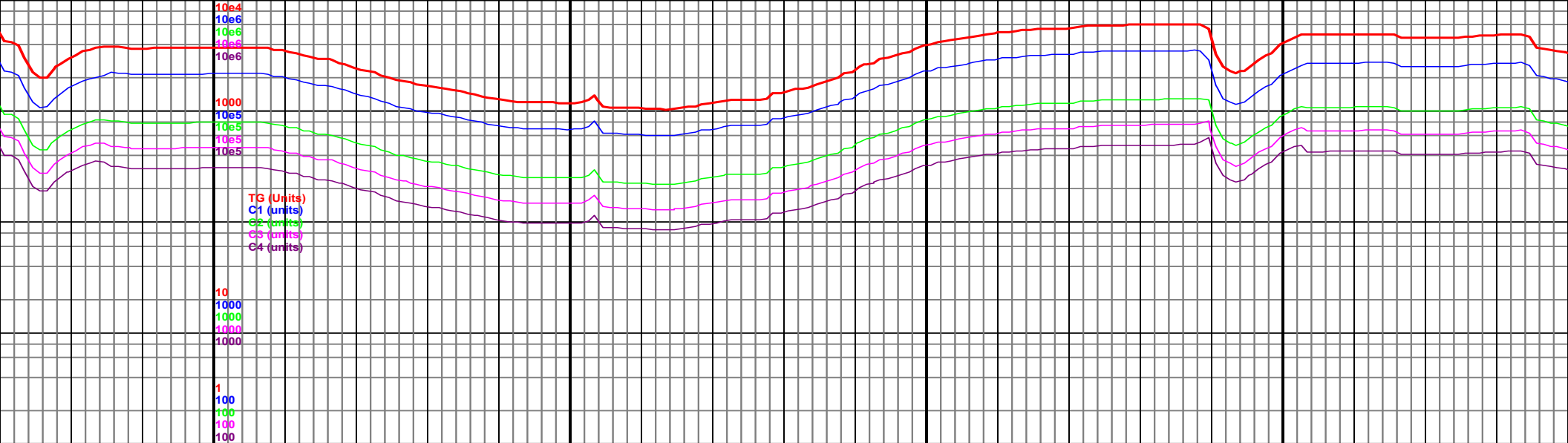


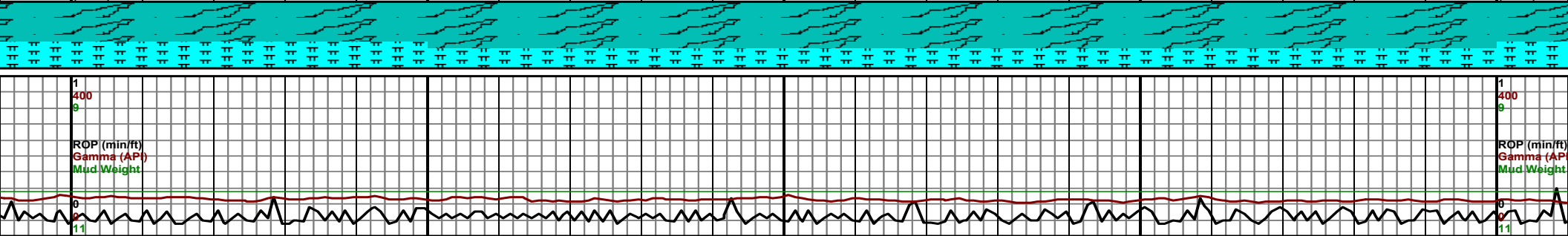
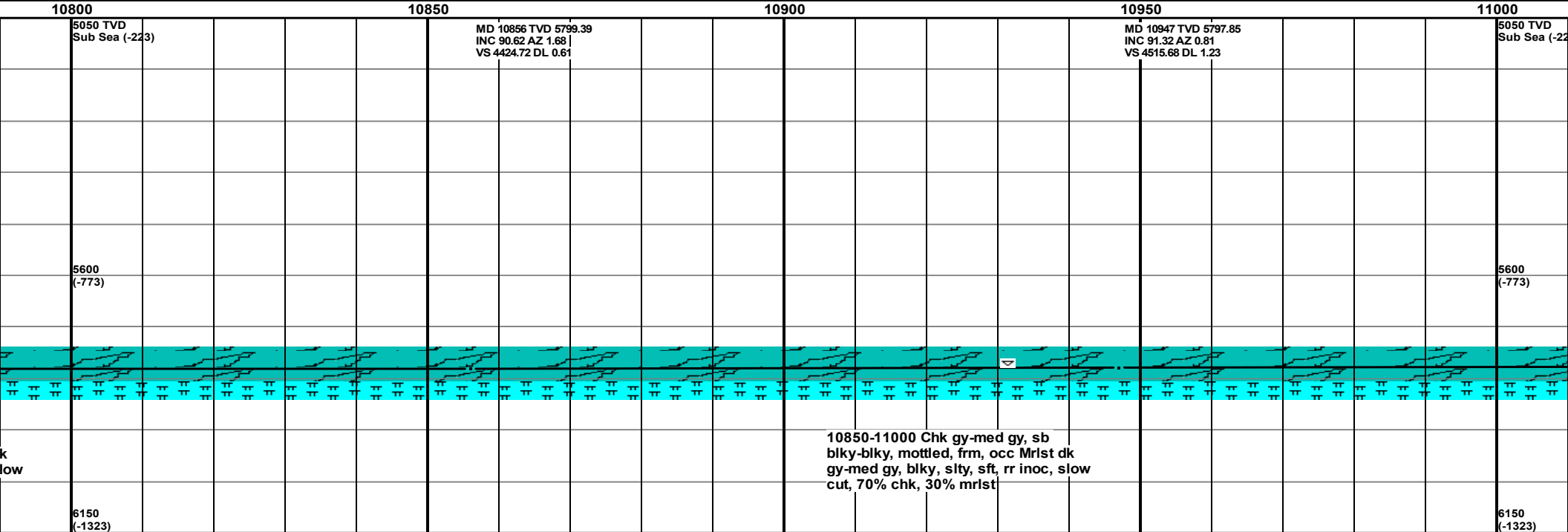
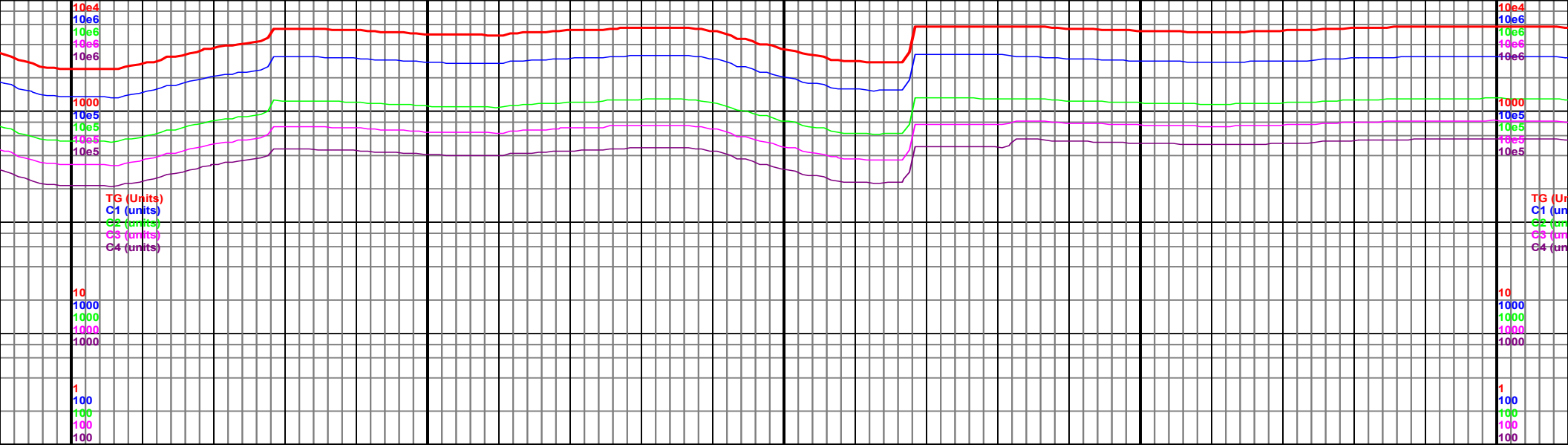


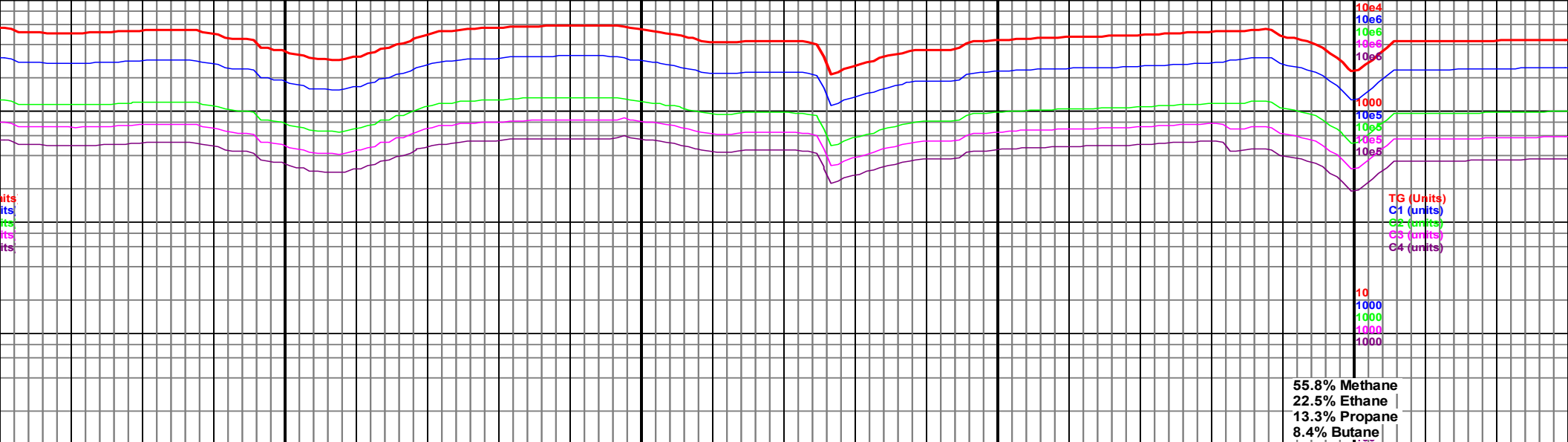




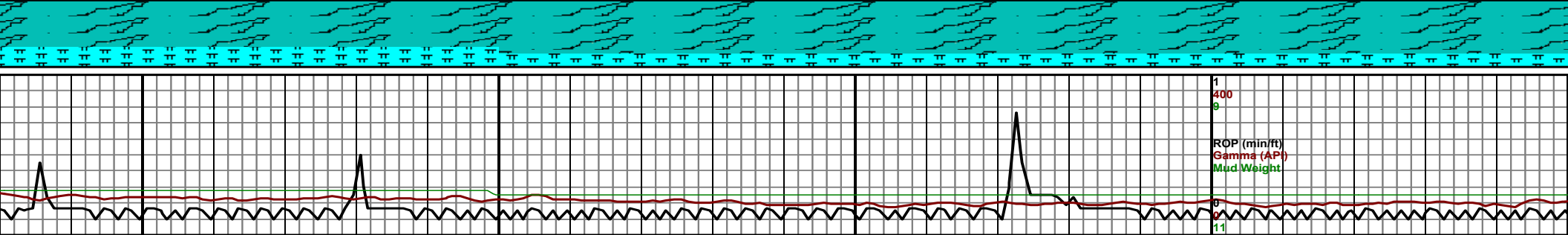
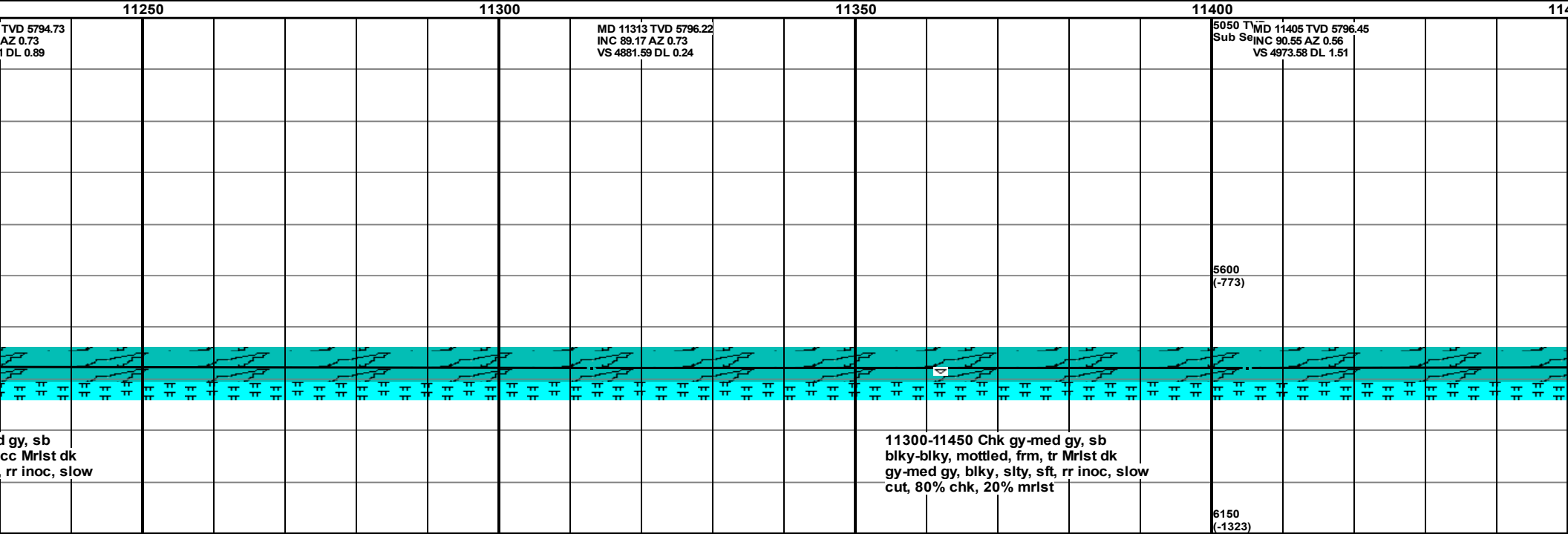
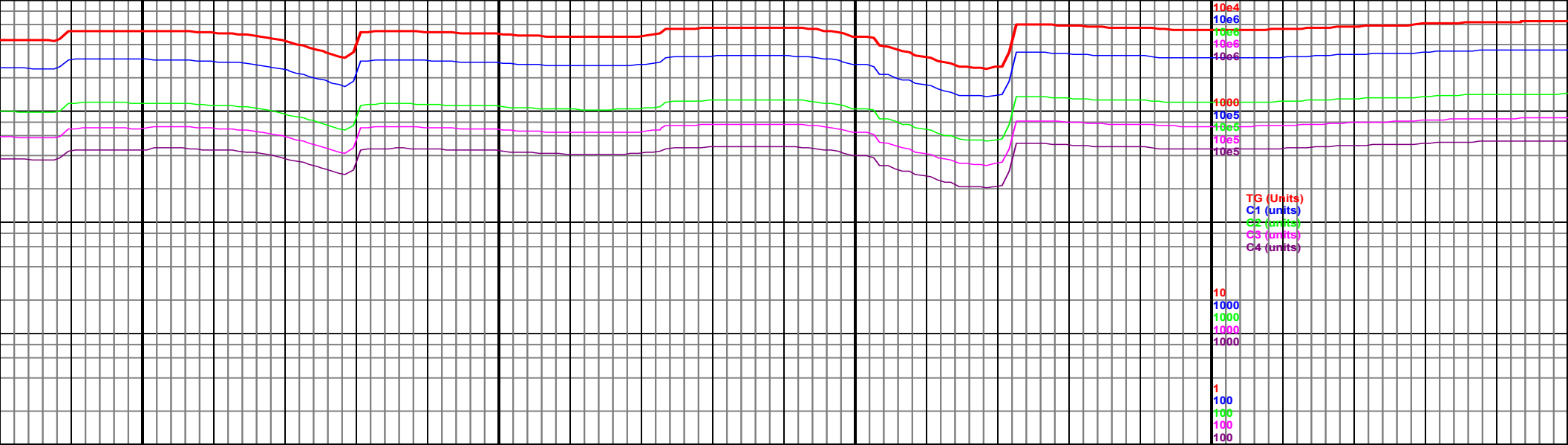


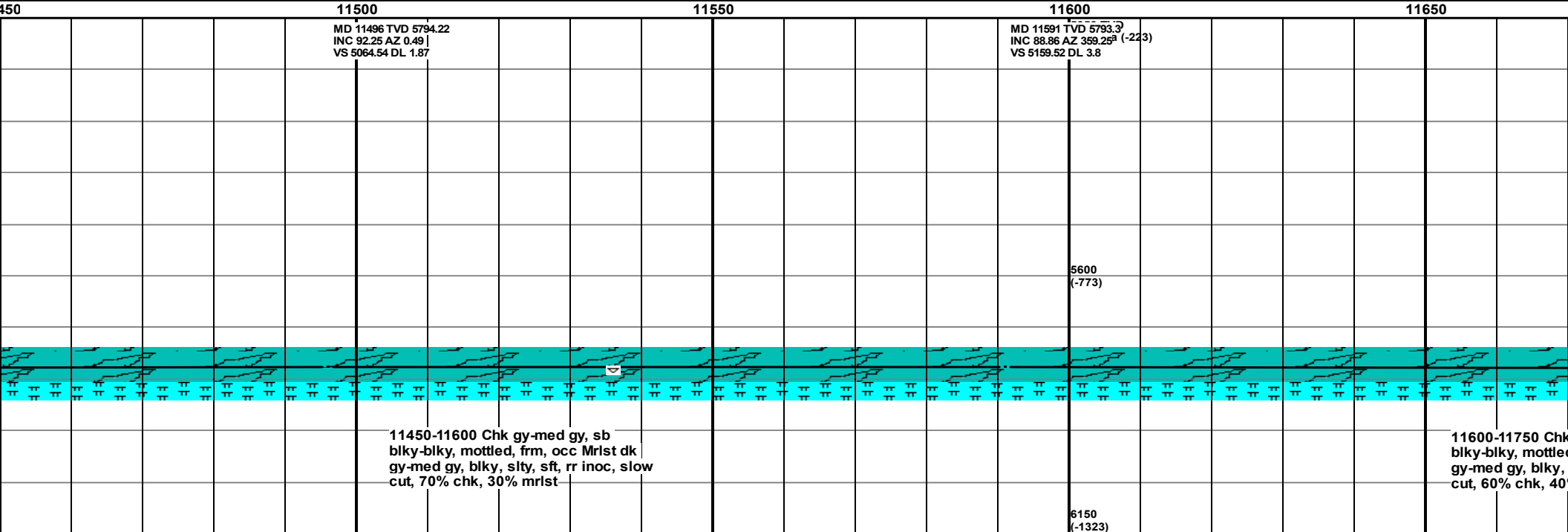


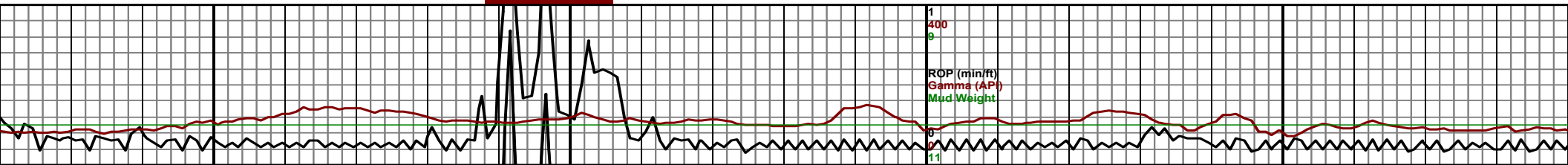
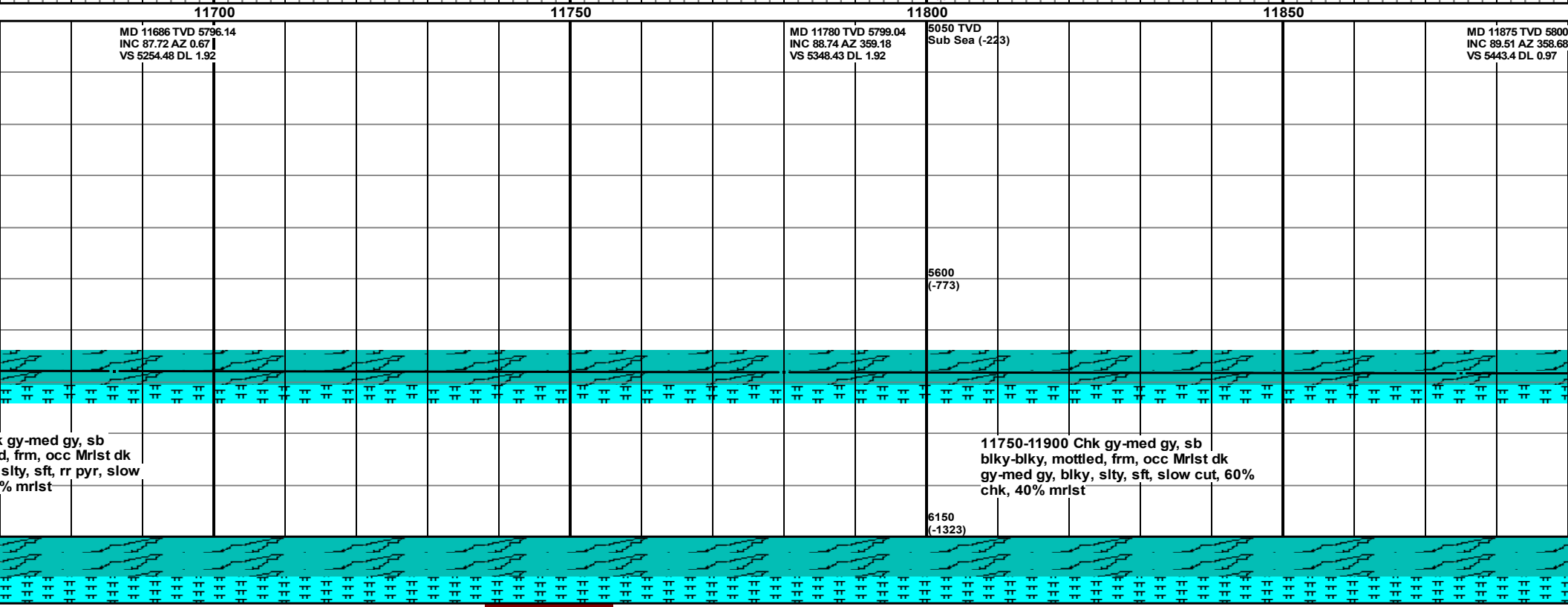
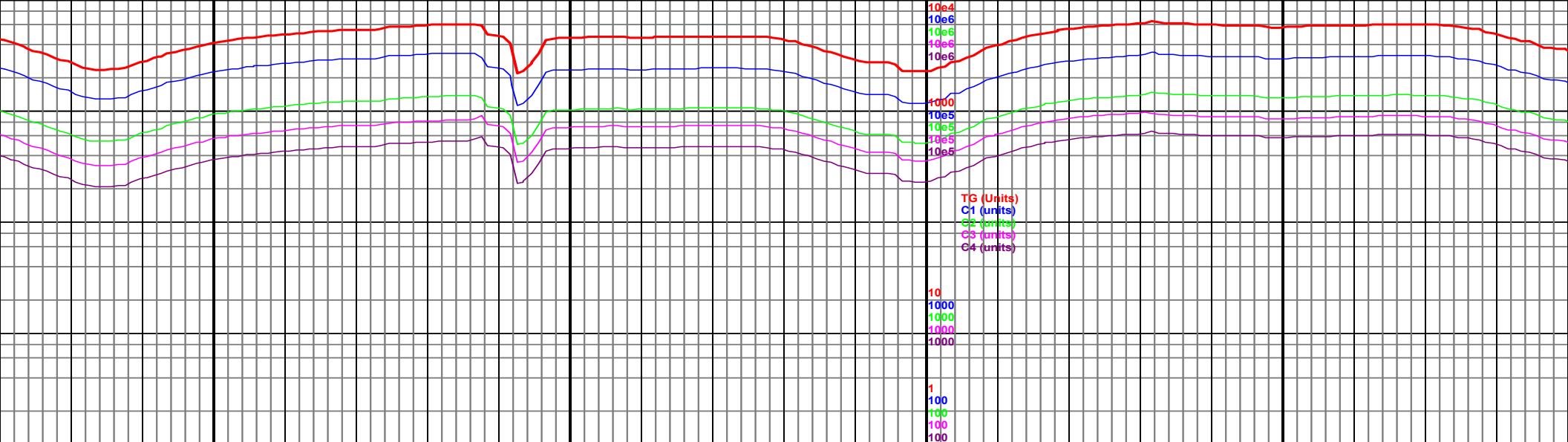


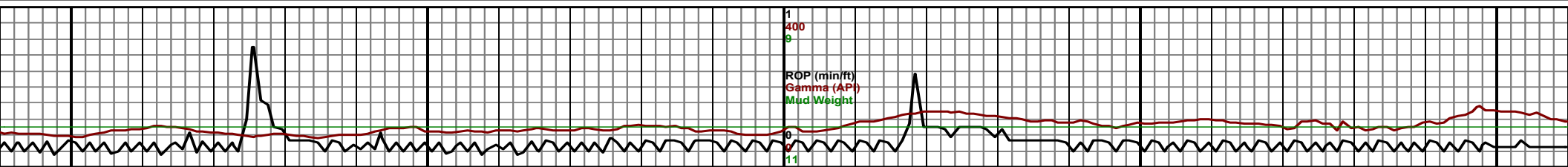
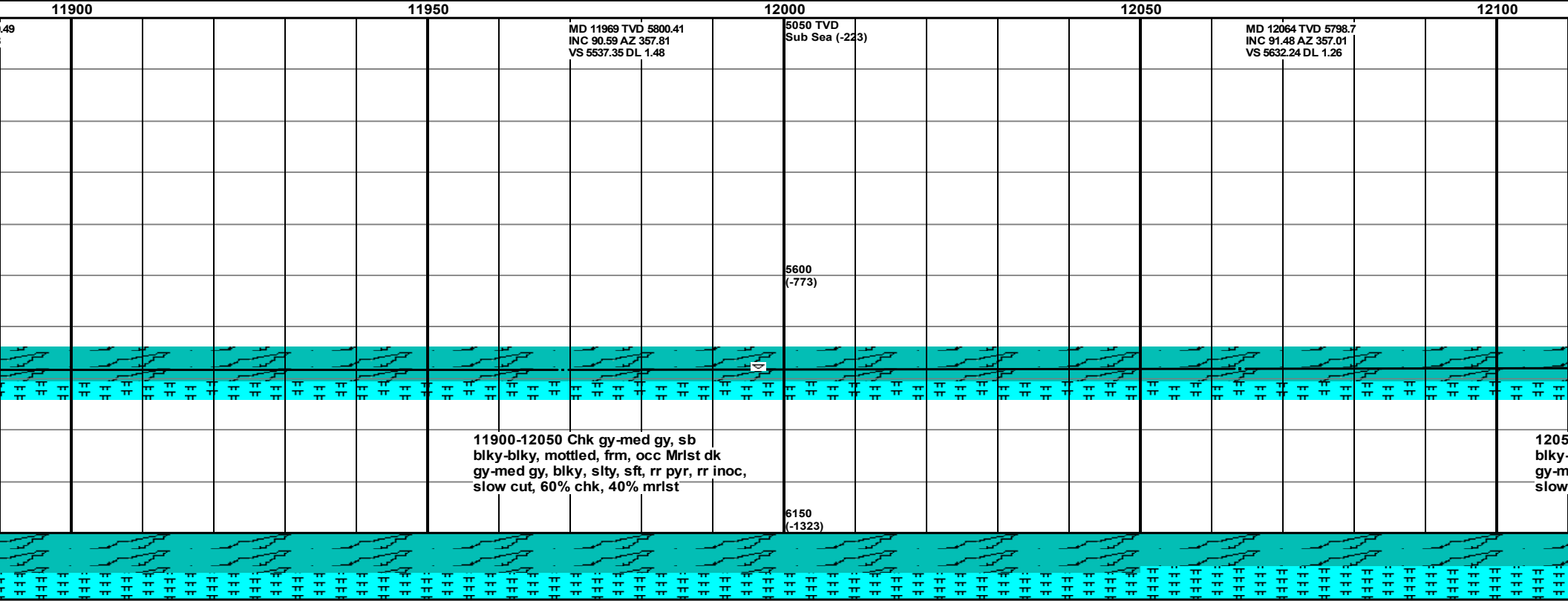
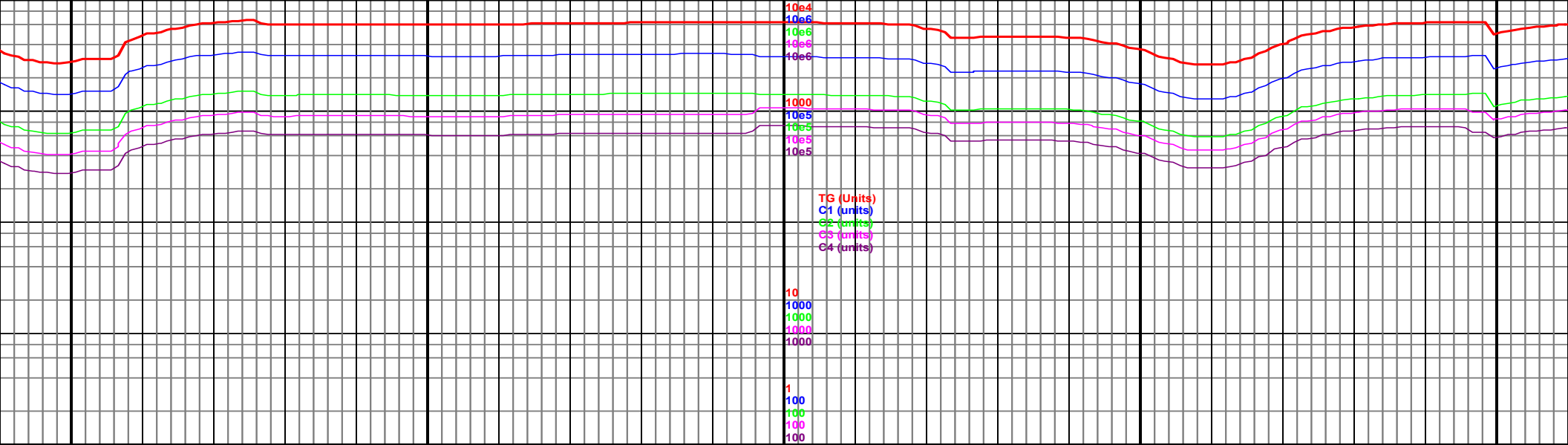


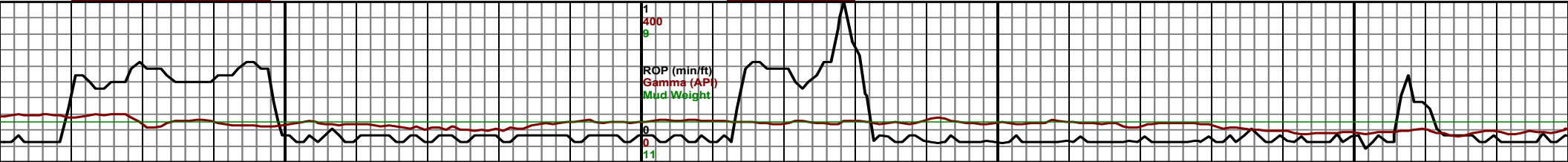
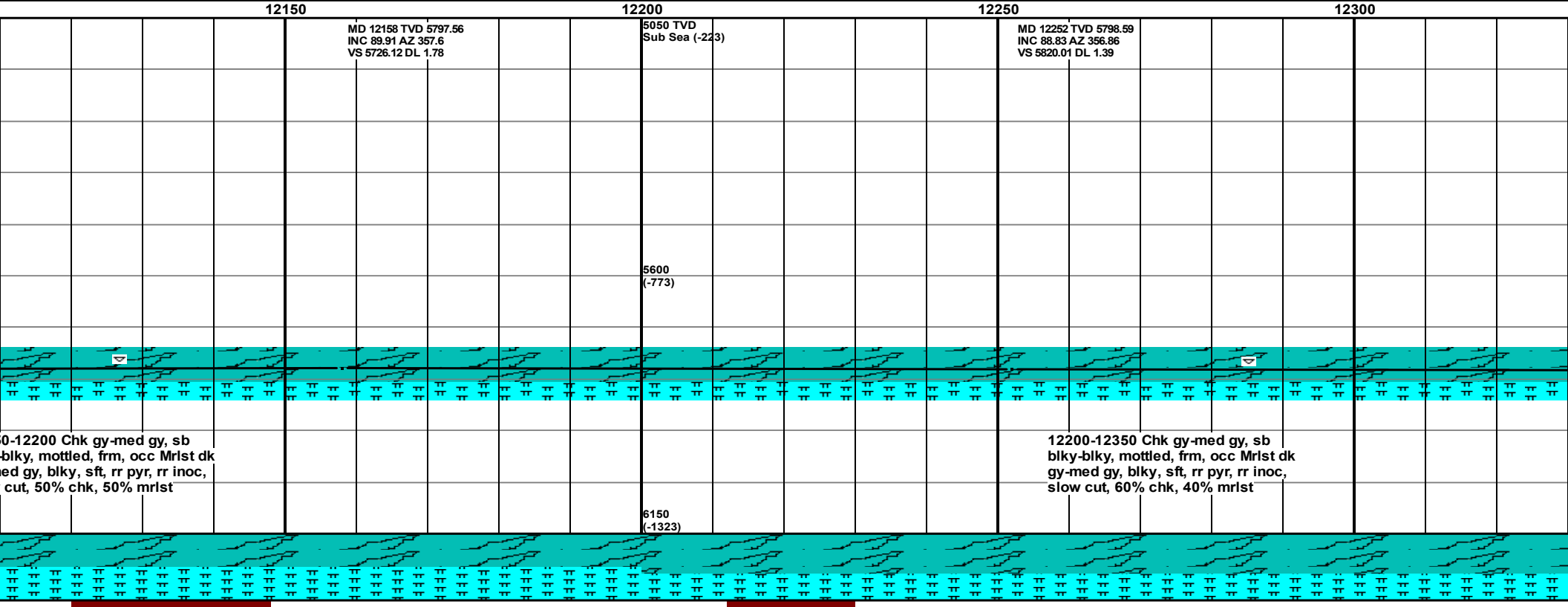
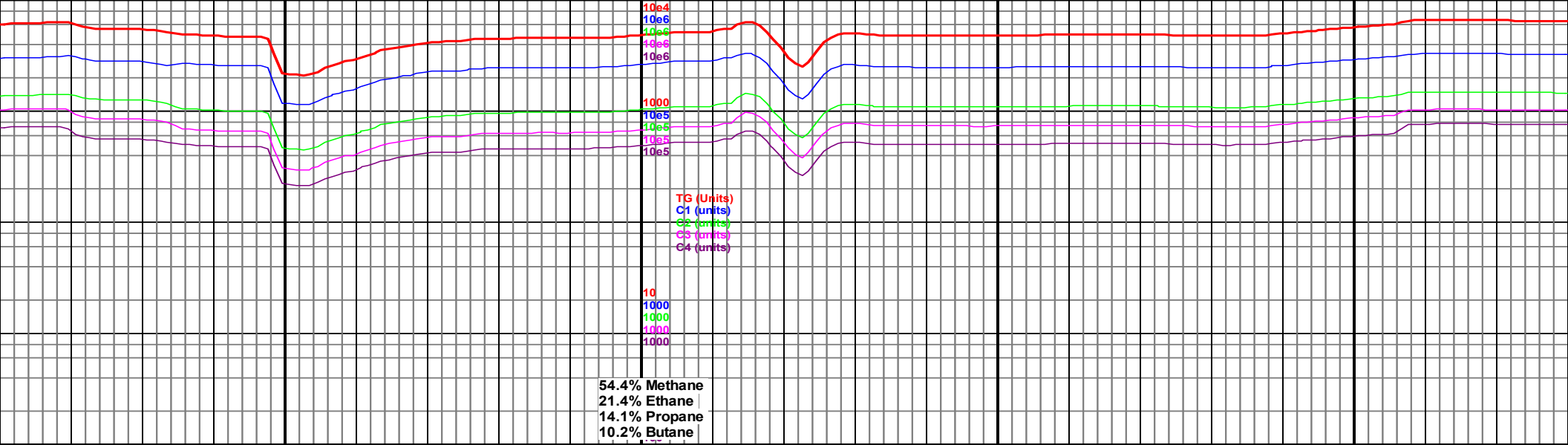
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MD 11039 TVD 5795.11 INC 92.1 AZ 0.39 VS 4607.64 DL 0.96										MD 11130 TVD 5793.66 INC 89.72 AZ 0.46 VS 4698.62 DL 2.62										5050 TVD Sub Sea (-223)										MD 11222 INC 88.95 VS 4790.6									

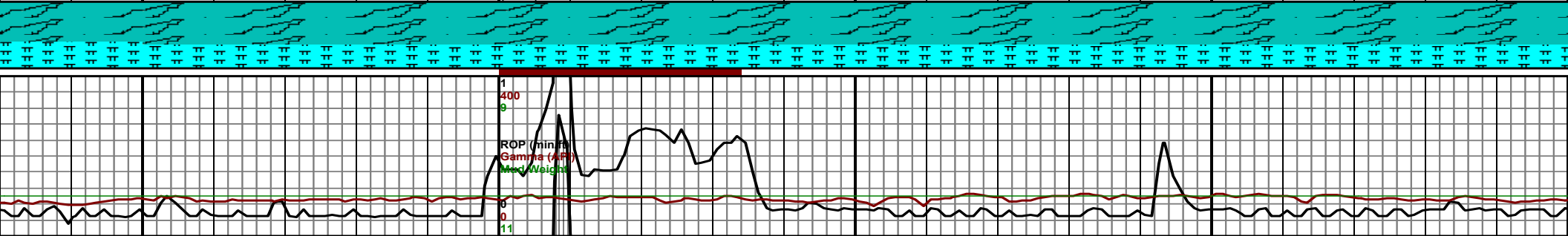
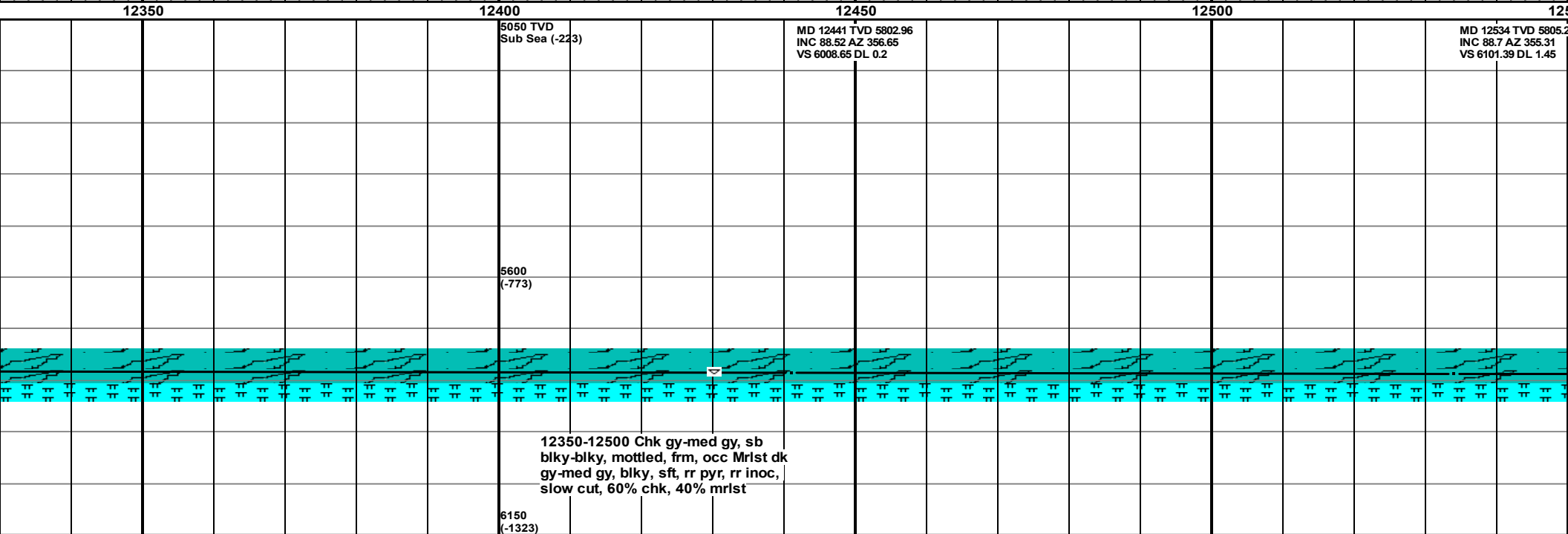
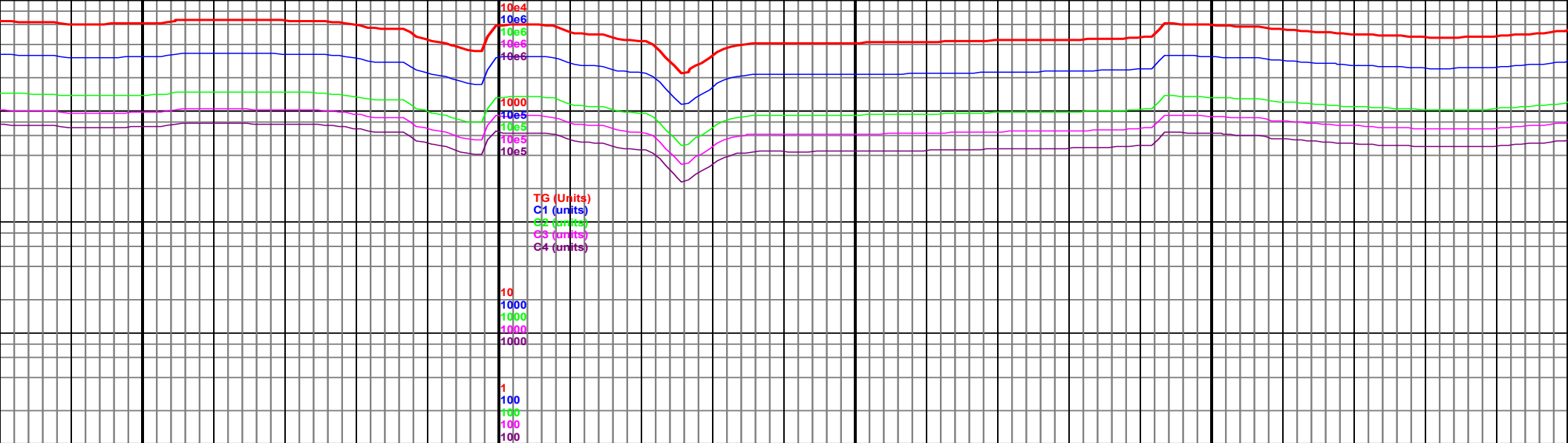


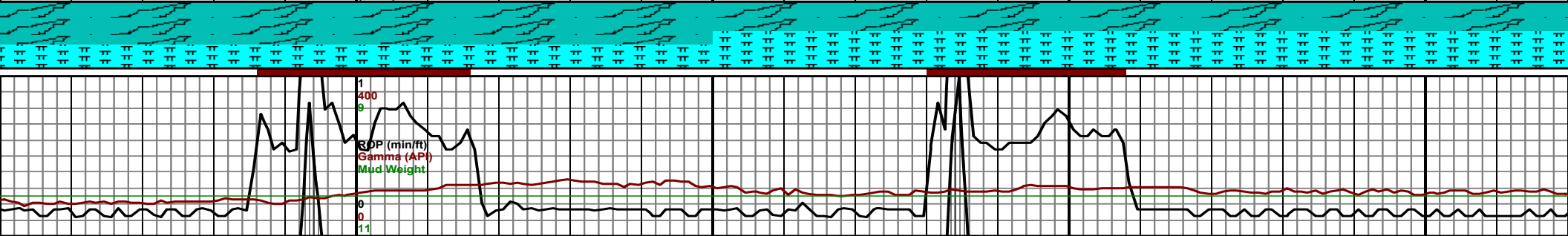
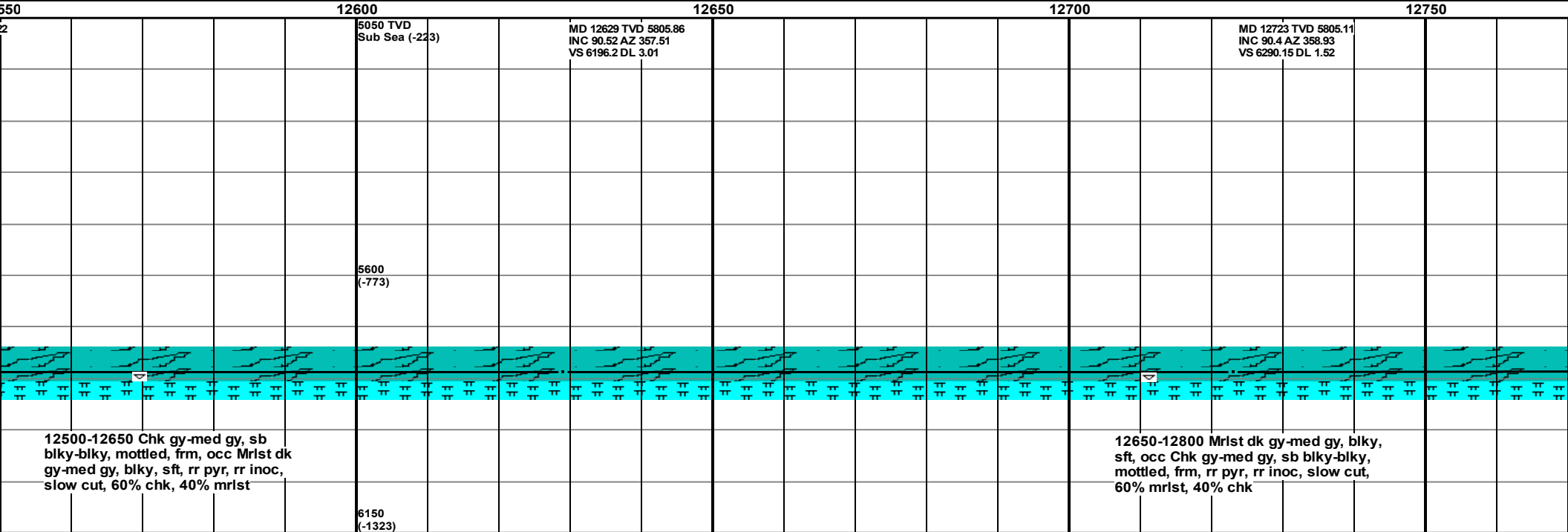
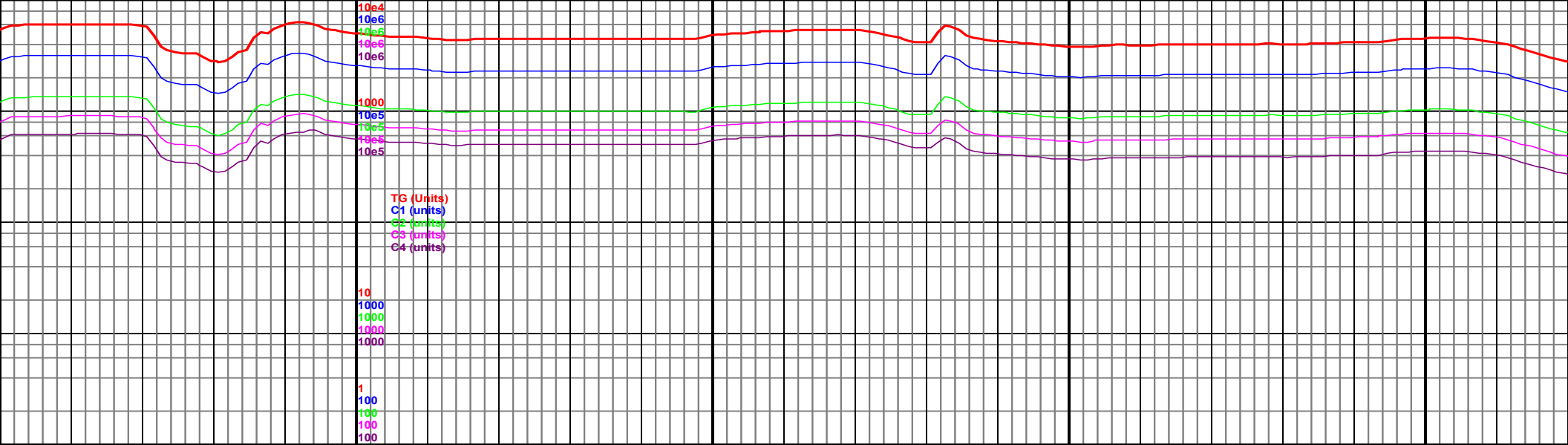


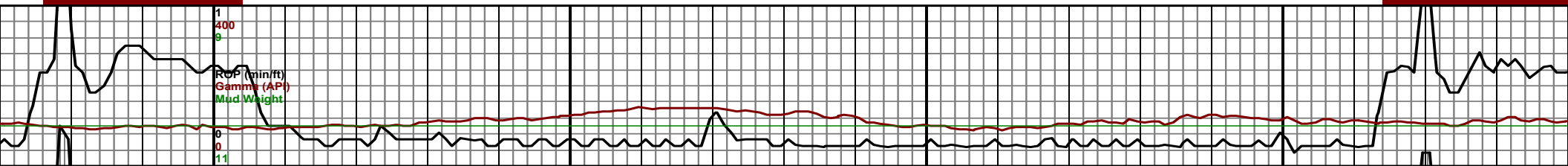
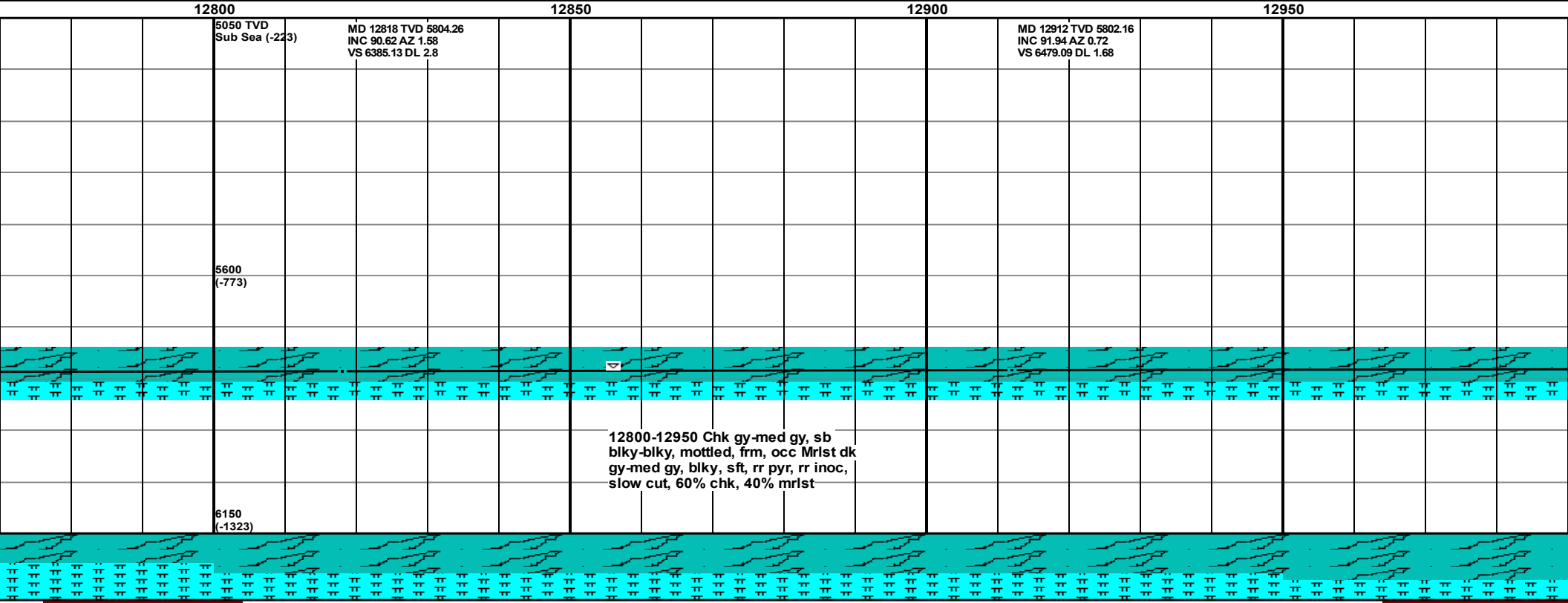
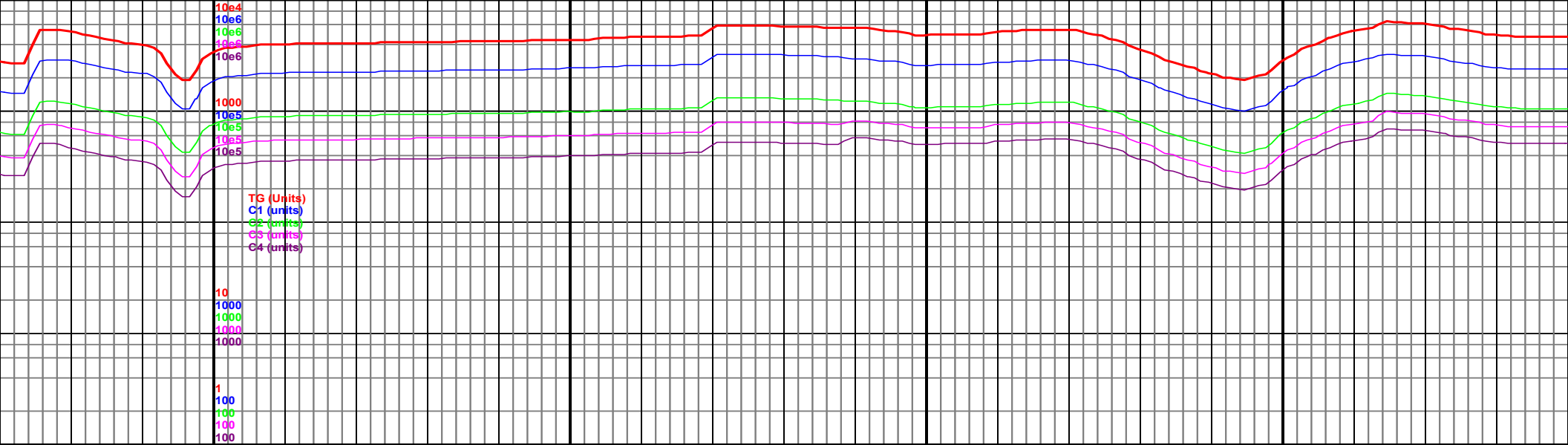


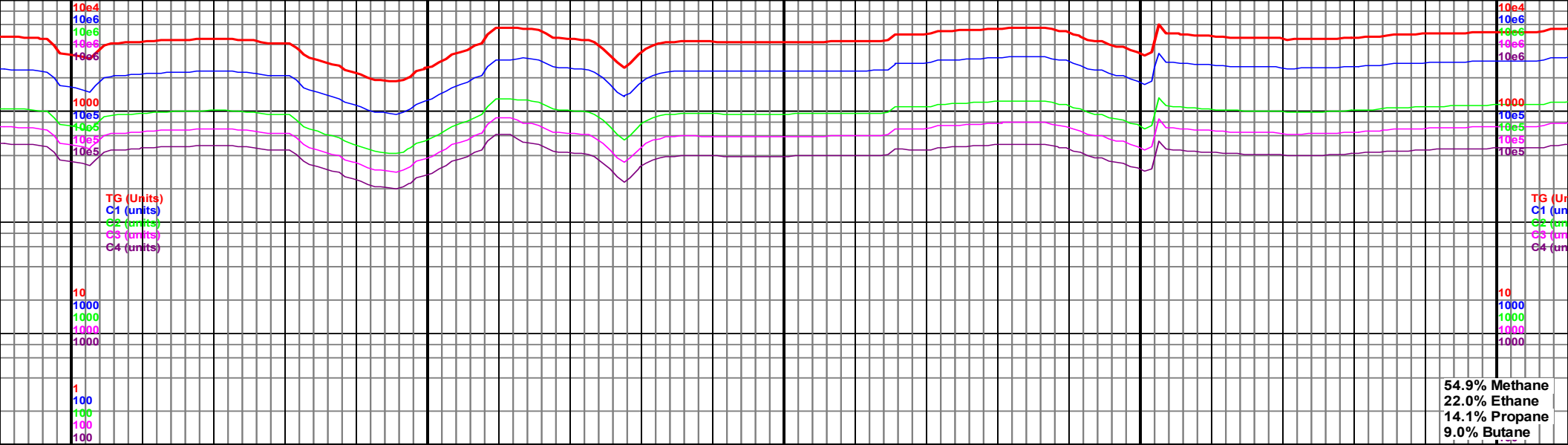












54.9% Methane
22.0% Ethane
14.1% Propane
9.0% Butane

