



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

Well Name: Razor 21C-0906
Well Id:
Location: NENW 21-T10N-R58W Weld County, Colorado
License Number: 05-123-39524-00
Spud Date: 8/28/2014
Surface Coordinates: 40.830142,-103.873094
Region: Redtail Field
Drilling Completed: 9/4/2014
Bottom Hole Coordinates: 40.852936, -103.873422
Ground Elevation (ft): 4844
Logged Interval (ft): 5300
Formation: Pierre, Sharon Springs, Niobrara
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4861
Total Depth (ft): 14125

Printed by WellSight Log Manager 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: Demond Taylor, Mark Denler
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig 23

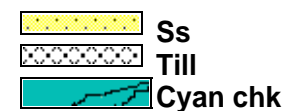
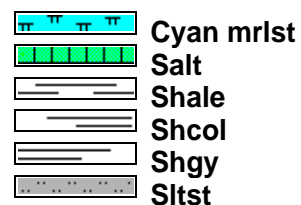
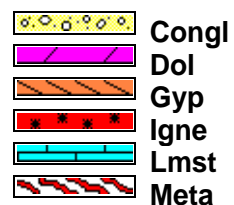
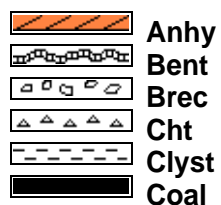
Gas Detection

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

Comments

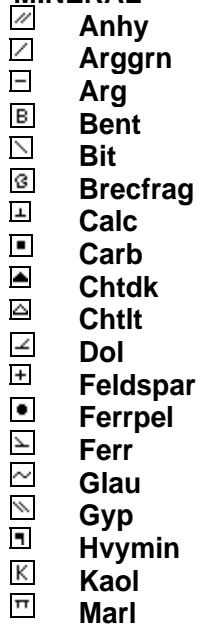
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

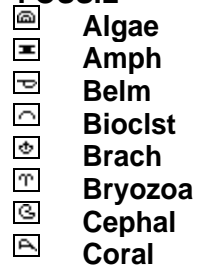


ACCESSORIES

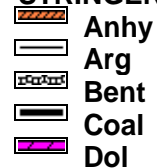
MINERAL



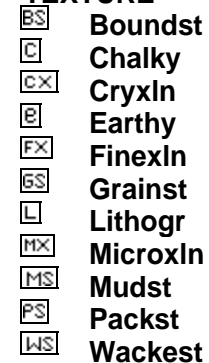
FOSSIL



STRINGER











TEXTURE



OTHER SYMBOLS




POROSITY

-  Earthy
-  Fenest
-  Fracture
-  Inter
-  Moldic
-  Organic
-  Pinpoint
-  Vuggy

SORTING





-  Well
-  Moderate
-  Poor

ROUNDING



-  Rounded
-  Subrnd
-  Subang

-  Angular

OIL SHOW

-  Even
-  Spotted
-  Ques
-  Dead

INTERVAL

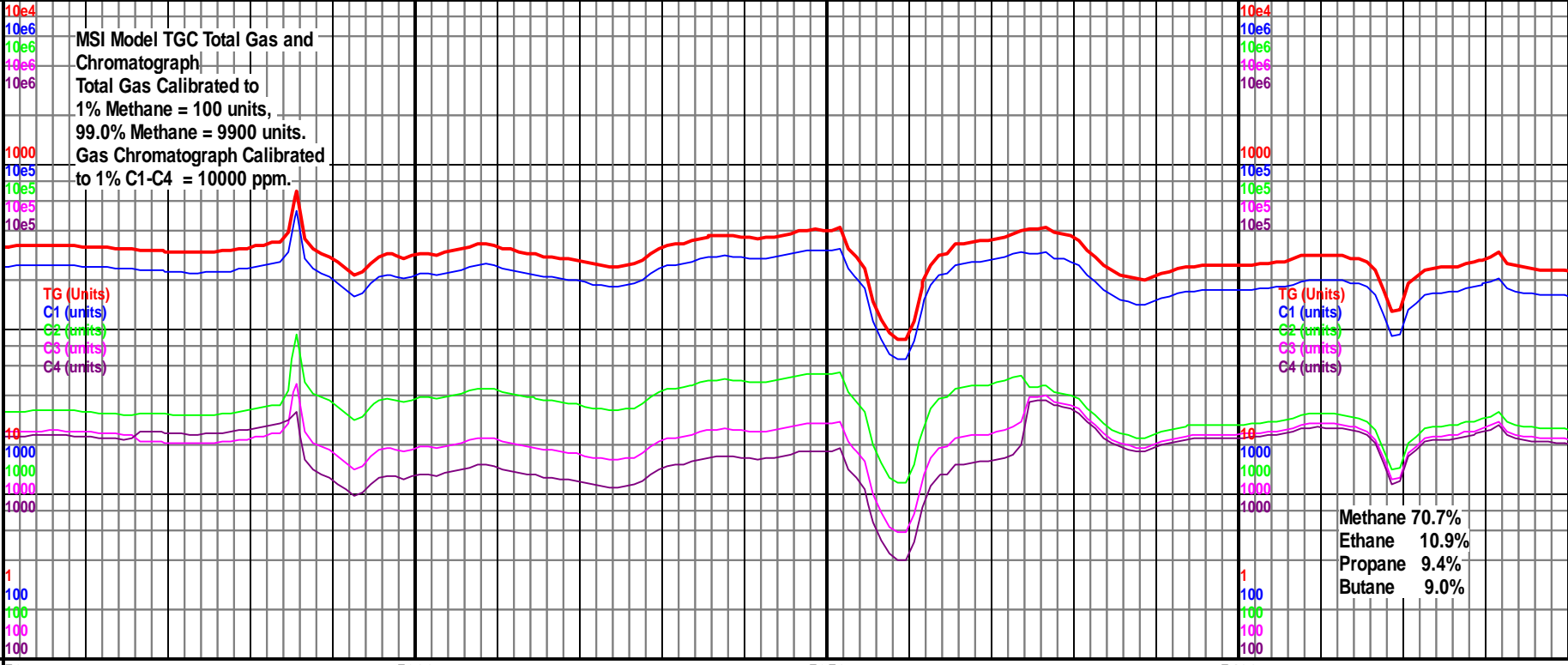
-  Core
-  Dst

EVENT

-  Rft
-  Sidewall

TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

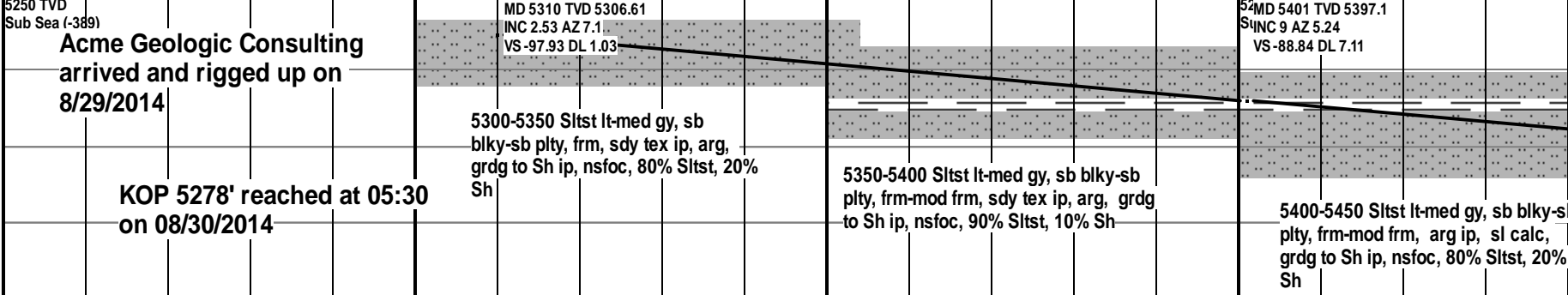
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to
1% Methane = 100 units,
99.0% Methane = 9900 units.
Gas Chromatograph Calibrated
to 1% C1-C4 = 10000 ppm.



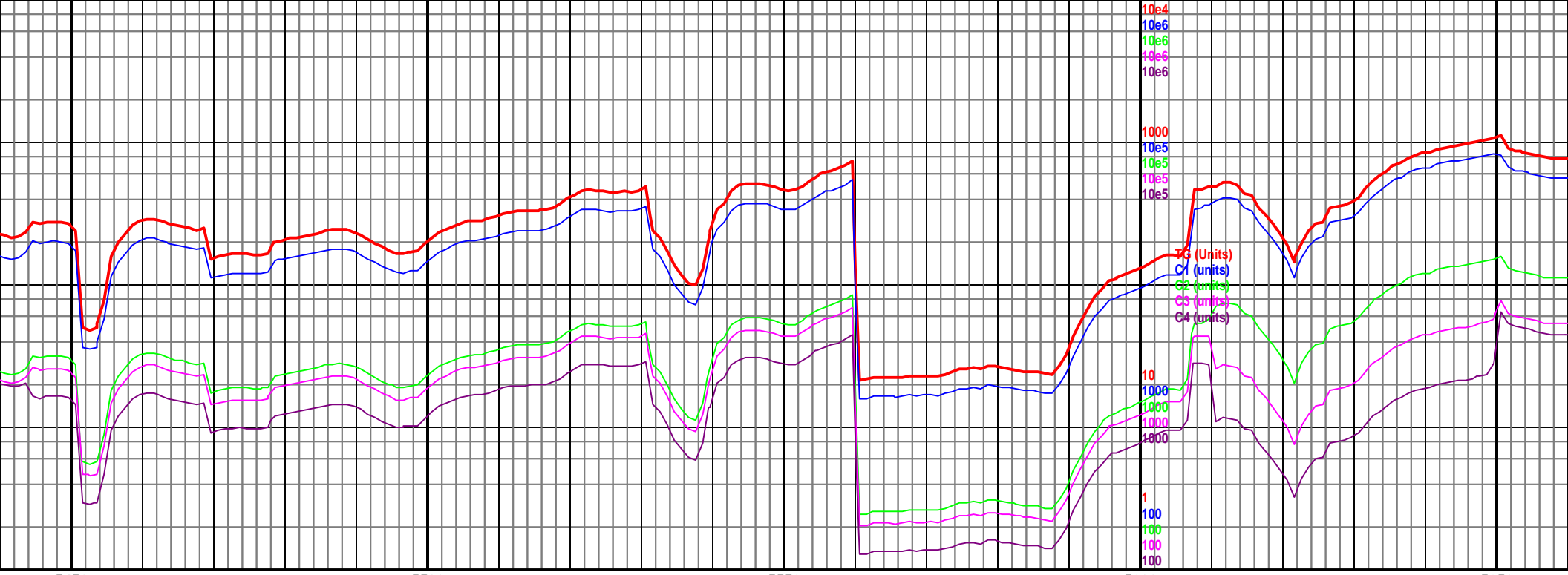
Methane	70.7%
Ethane	10.9%
Propane	9.4%
Butane	9.0%

Depth

50 5300 5350 5400



Well Bore Cross Section



5450

5500

5550

5600

5650

MD 5492 TVD 5487.13
INC 7.75 AZ 11.87
VS -75.75 DL 1.73

MD 5583 TVD 5576.06
INC 16.26 AZ 4.74
VS -57.01 DL 9.48

56250 TVD
Sub Sea (-389)

5450-5500 Sltst lt-med gy, sb blk-y-sb
ppty, frm-mod frm, arg, sl calc, grdg
to Sh ip, nsfoc, 70% Sltst, 30% Sh

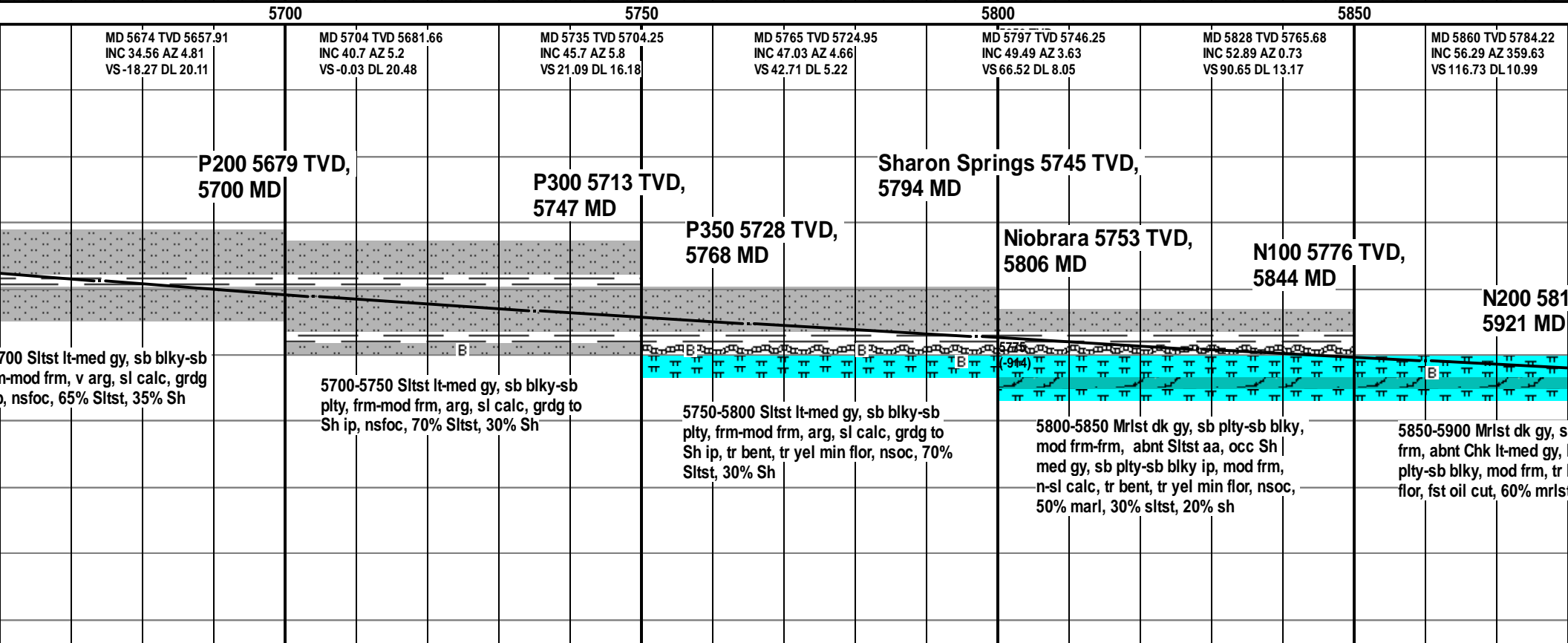
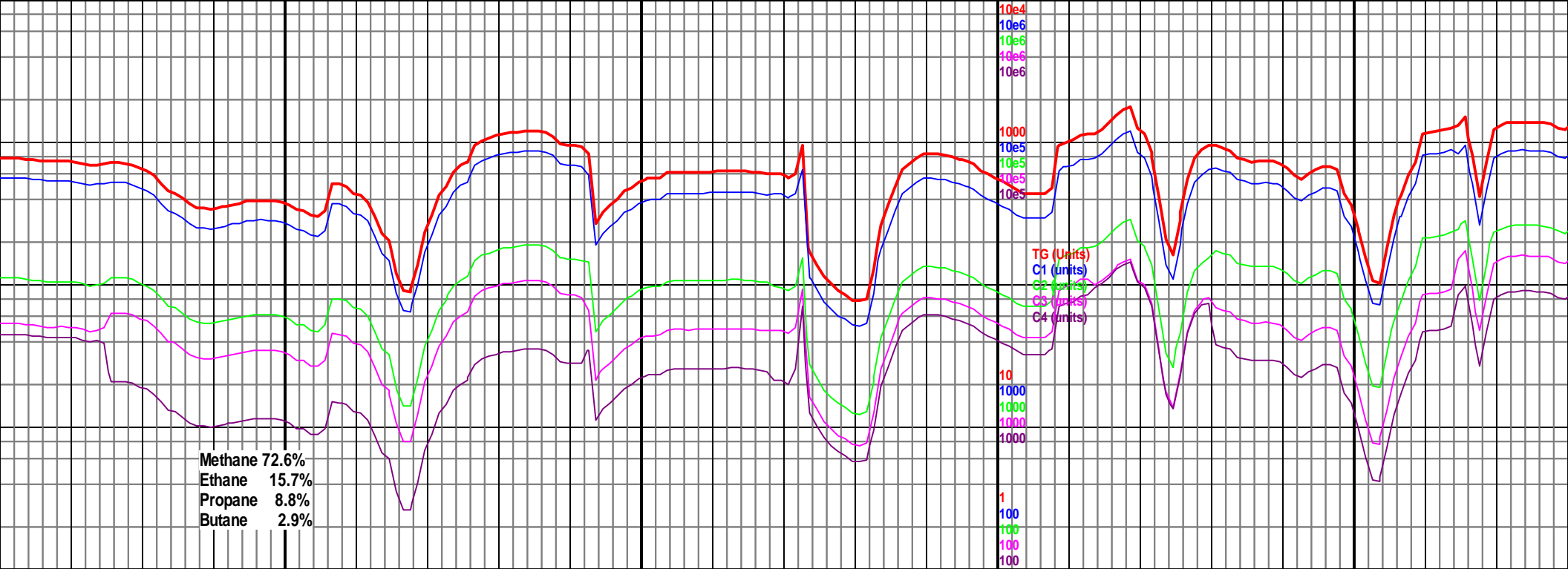
5500-5550 Sltst lt-med gy, sb blk-y-sb
ppty, frm-mod frm, arg, sl calc, grdg to
Sh ip, nsfoc, 75% Sltst, 25% Sh

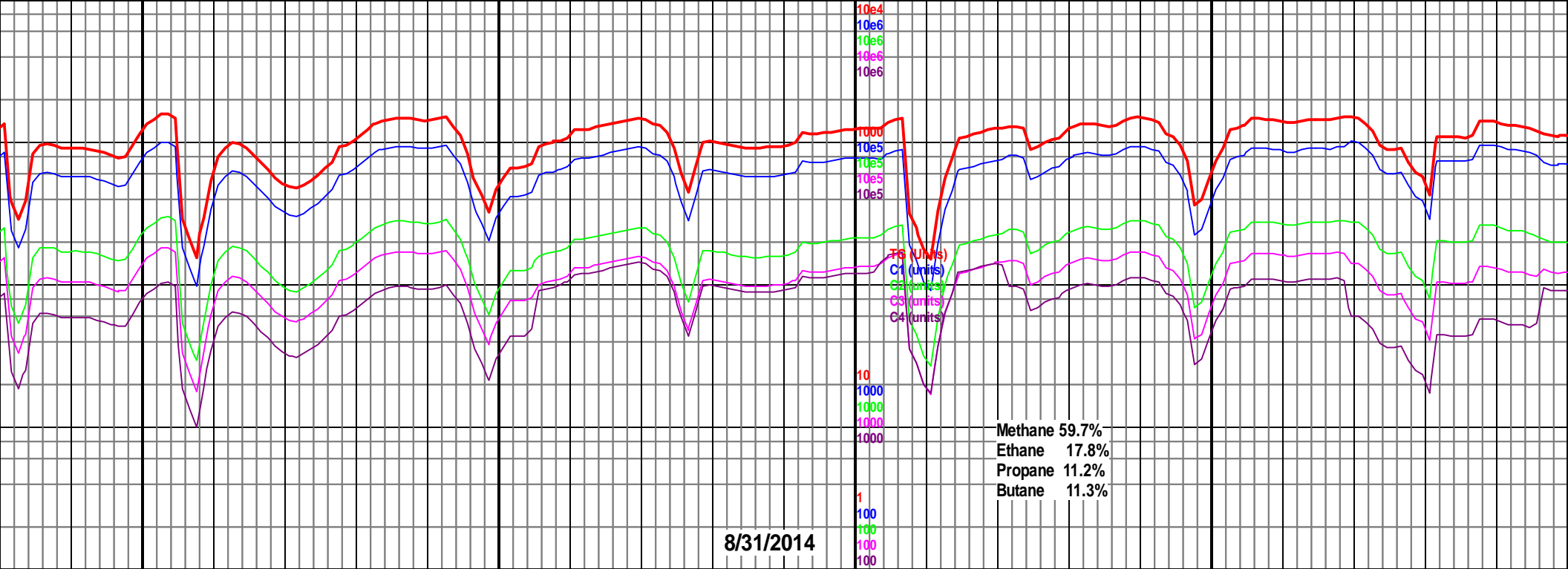
5550-5600 Sltst lt-med gy, sb blk-y-sb
ppty, frm-mod frm, arg, sl calc, grdg to
Sh ip, nsfoc, 70% Sltst, 30% Sh

5775
(-914) 5600-5650 Sltst lt-med gy, sb blk-y-sb
ppty, frm-mod frm, arg, sl calc, grdg to
Sh ip, nsfoc, 70% Sltst, 30% Sh

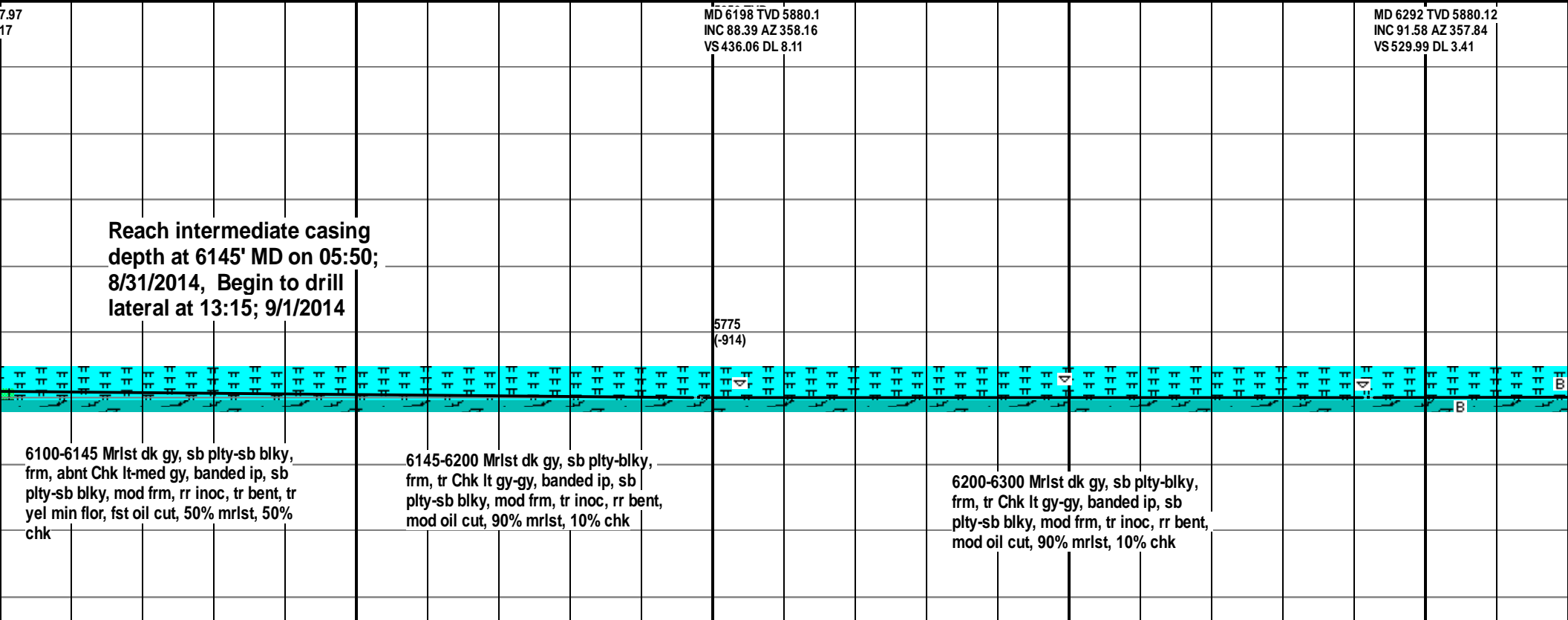
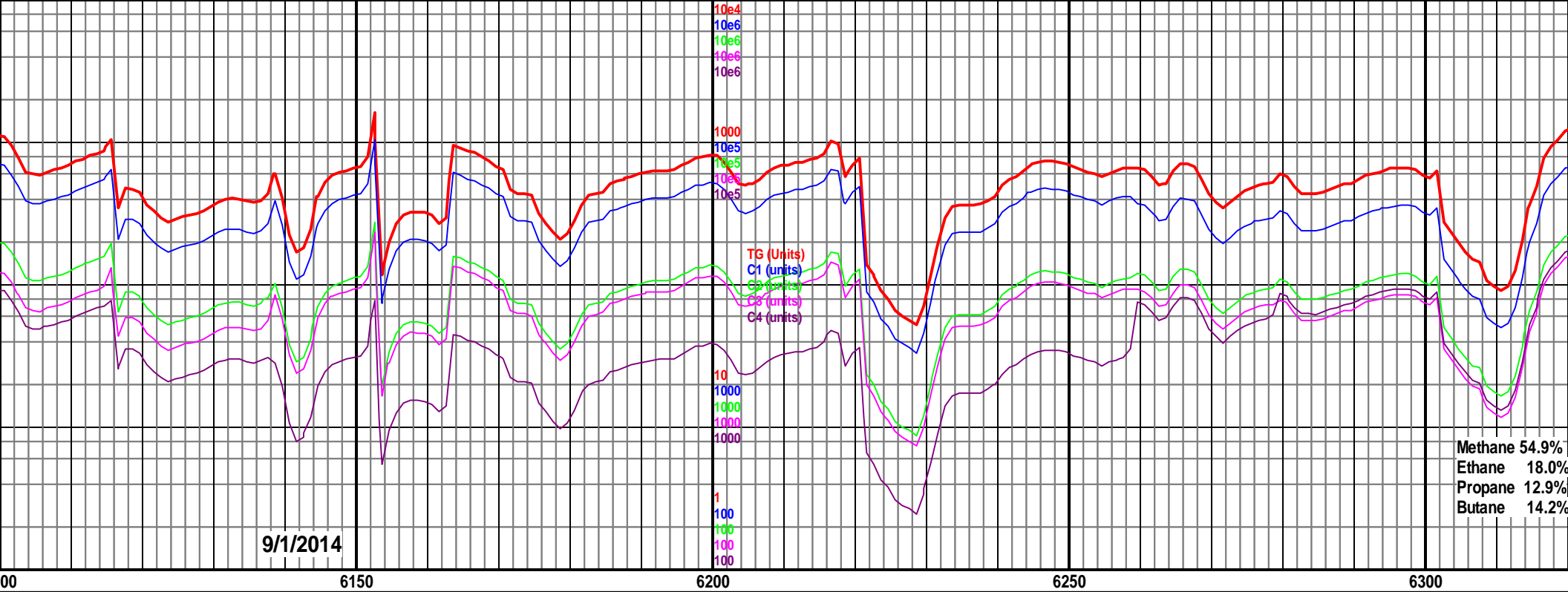
5650-5700 Sltst lt-med gy, sb blk-y-sb
ppty, frm-mod frm, arg, sl calc, grdg to
Sh ip, nsfoc, 70% Sltst, 30% Sh

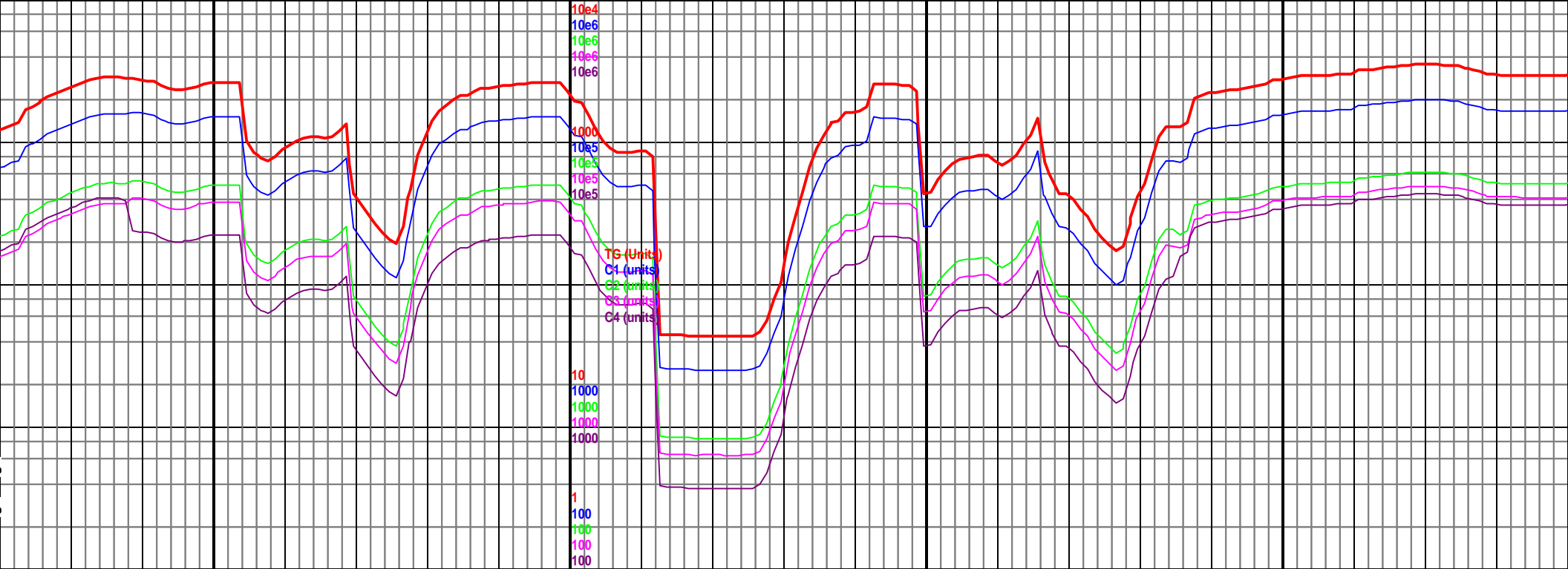
**TOH at 5552' MD to change
out drill bit and mud motor
because not getting build
rate needed.**





5900		5950		6000		6050		61
MD 5892 TVD 5801.11 INC 60 AZ 359.4 VS 143.9 DL 11.61		MD 5923 TVD 5816.09 INC 62.17 AZ 359.54 VS 171.04 DL 7.01		MD 5955 TVD 5830.05 INC 66.1 AZ 359.56 VS 199.82 DL 12.28		MD 5987 TVD 5842.01 INC 70.02 AZ 359.45 VS 229.5 DL 12.25		MD 6018 TVD 5852. INC 72.36 AZ 359.49 VS 258.84 DL 7.55
								MD 6050 TVD 5860.61 INC 76.42 AZ 359.37 VS 289.65 DL 12.69
								MD 6085 TVD 586 INC 79.28 AZ 359. VS 323.86 DL 8.19
6 TVD,		N250 5842 TVD, 5985 MD		N400 5849 TVD, 6006 MD				
b plty-sb blk, banded ip, sb bent, tr yel min t, 40% chk		5900-5950 Mrlst dk gy, sb plty-sb blk, frm, abnt Chk lt-med gy, banded ip, sb plty-sb blk, mod frm, rr yel min flor, fst oil cut, 50% mrlst, 50% chk		5950-6000 Mrlst dk gy, sb plty-sb blk, frm, occ Chk lt-med gy, banded ip, sb plty-sb blk, mod frm, tr bent, tr yel min flor, fst oil cut, 70% mrlst, 30% chk		6000-6050 Mrlst dk gy, sb plty-sb blk, frm, abnt Chk lt-med gy, banded ip, sb plty-sb blk, mod frm, rr yel min flor, fst oil cut, 60% mrlst, 40% chk		6050-6100 Mrlst dk gy, sb plty-sb blk, frm, abnt Chk lt-med gy, banded ip, sb plty-sb blk, mod frm, rr inoc, tr bent, tr yel min flor, fst oil cut, 60% mrlst, 40% chk





6350

6400

6450

6500

MD 6388 TVD 5877.96'D
INC 91 AZ 358.74° Sea (-389)
VS 625.92 DL 1.12

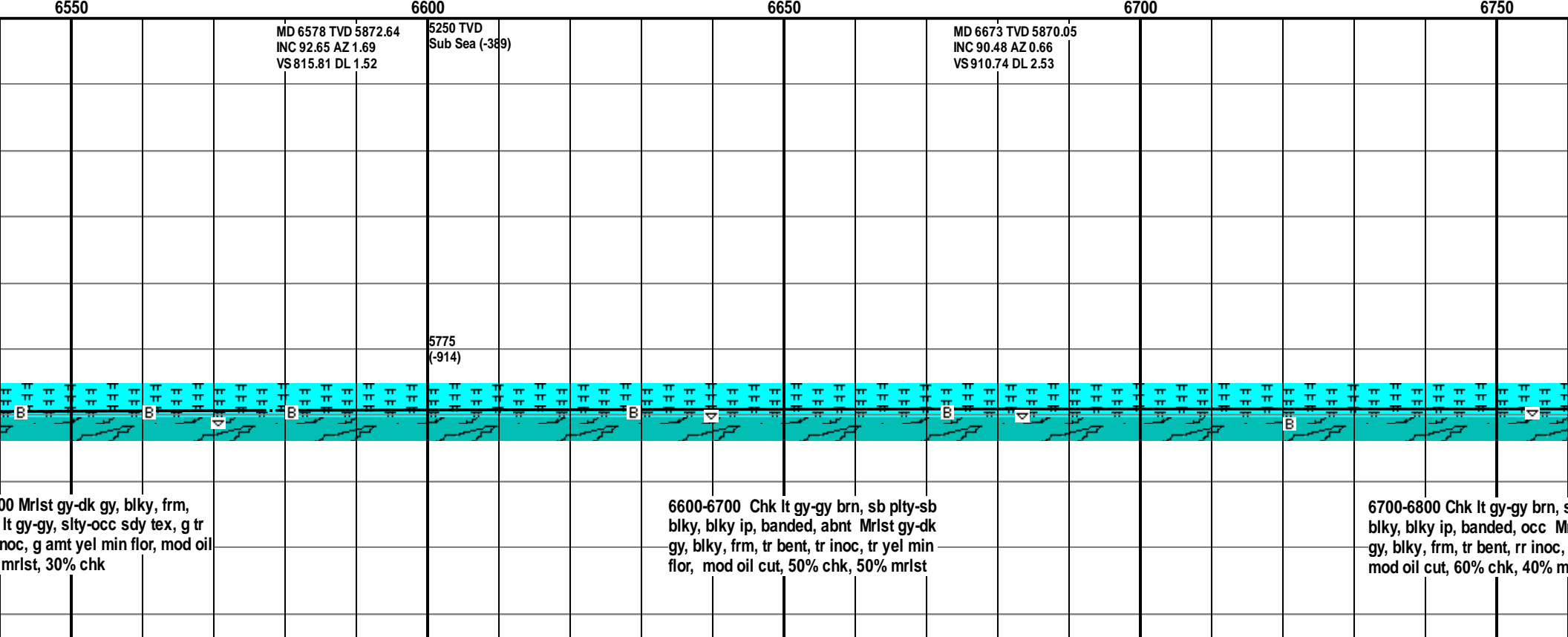
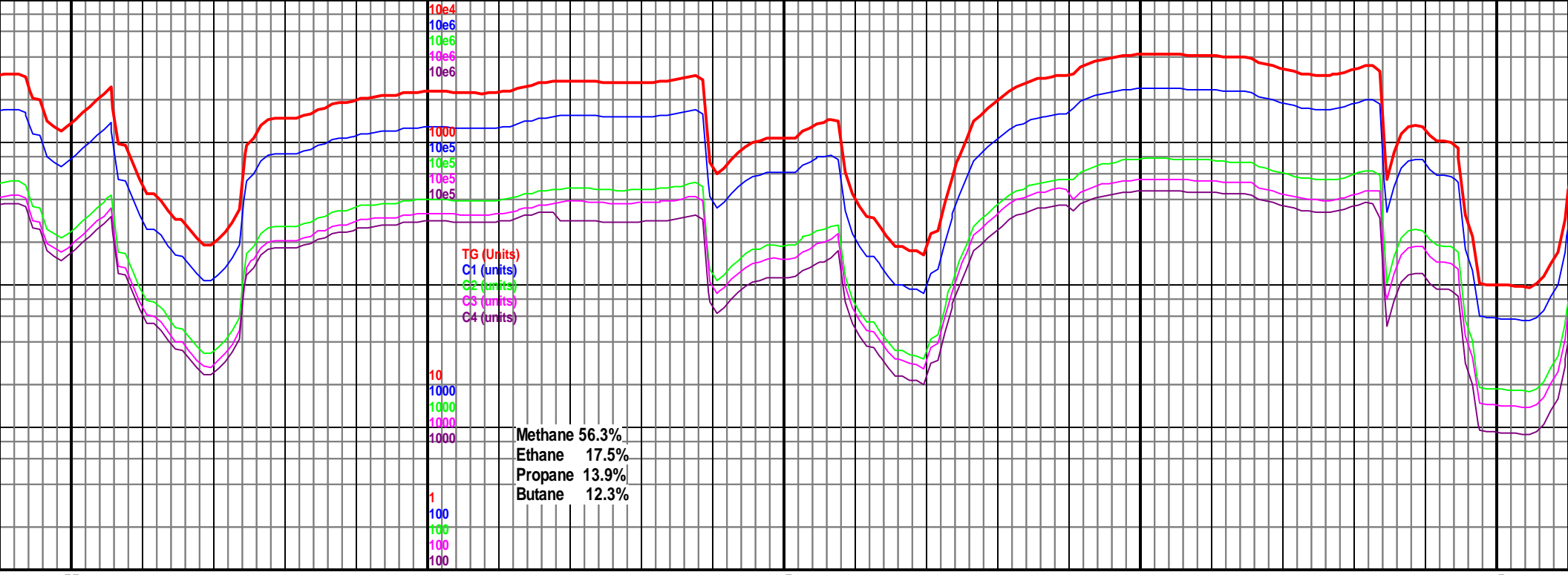
MD 6484 TVD 5875.96
INC 91.39 AZ 1.01
VS 721.89 DL 2.4

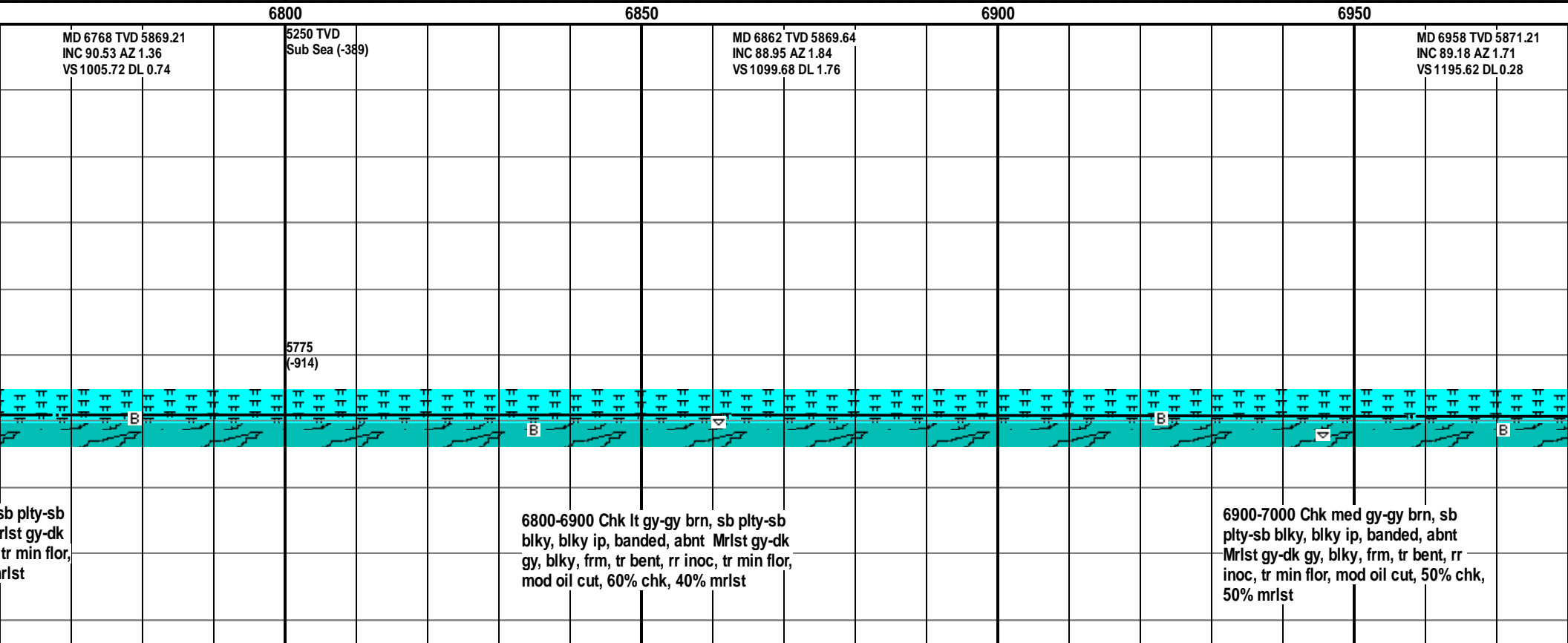
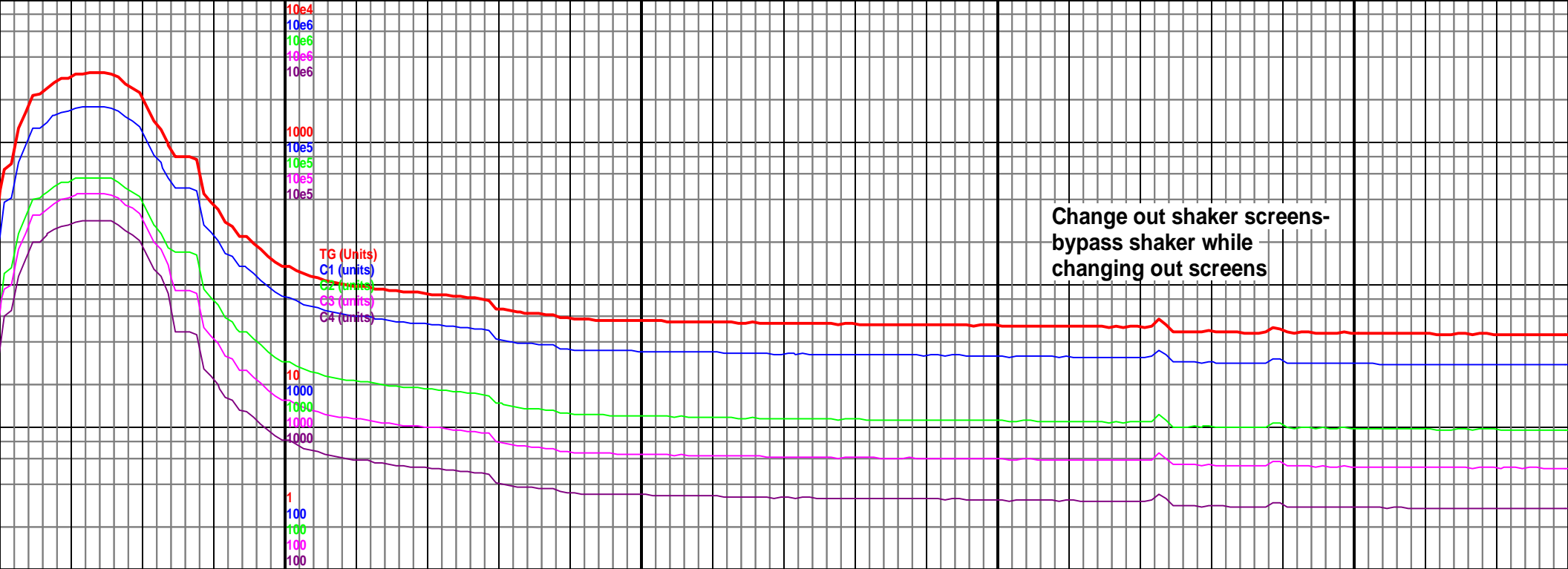
5775
(-914)

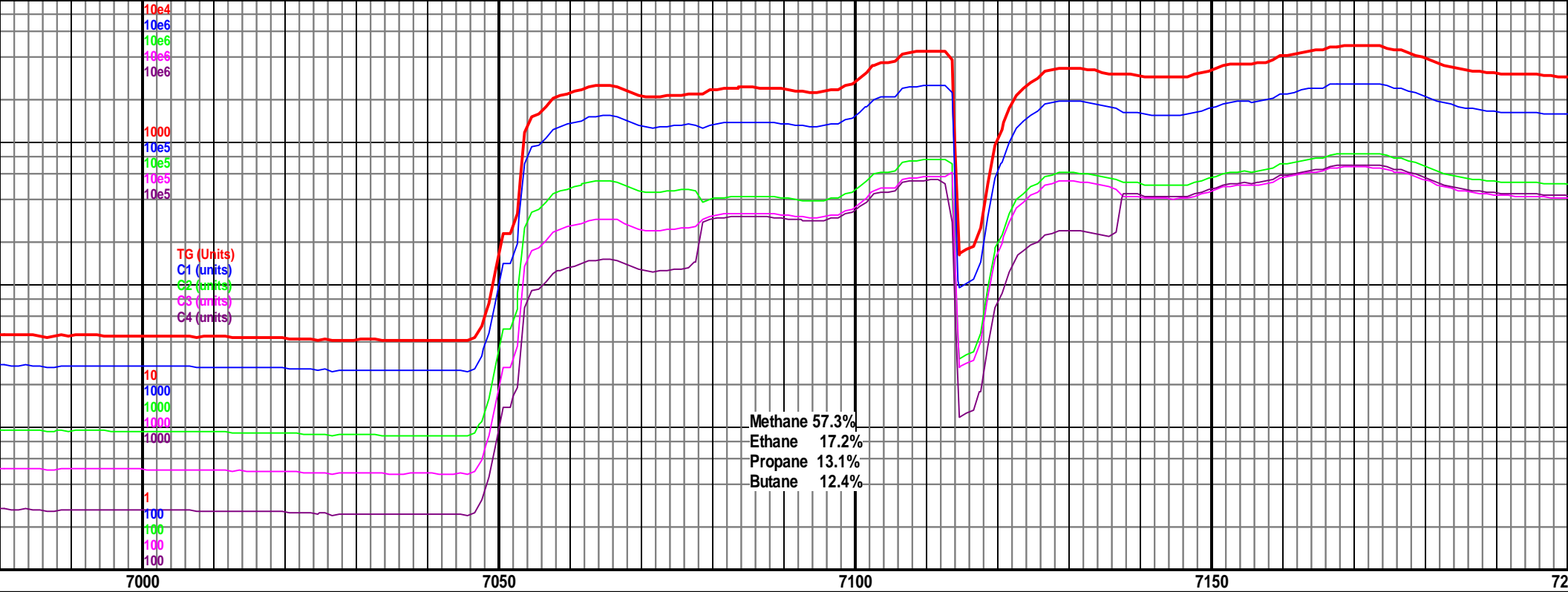
6300-6400 Mrlst gy-dk gy, blk, frm, tr
Chk lt gy-gy, slty-occ sdy tex, tr calc,
abnt bent, tr inoc, mod oil cut, 80%
mrlst, 20% chk

6400-6500 Mrlst gy-dk gy, blk, frm,
occ Chk lt gy-gy, slty-occ sdy tex, tr
calc, tr bent, tr inoc, tr yel min flor, mod
oil cut, 70% mrlst, 30% chk

6500-6600
occ Chk
bent, tr i
cut, 70%







5250 TVD
Sub Sea (-389)

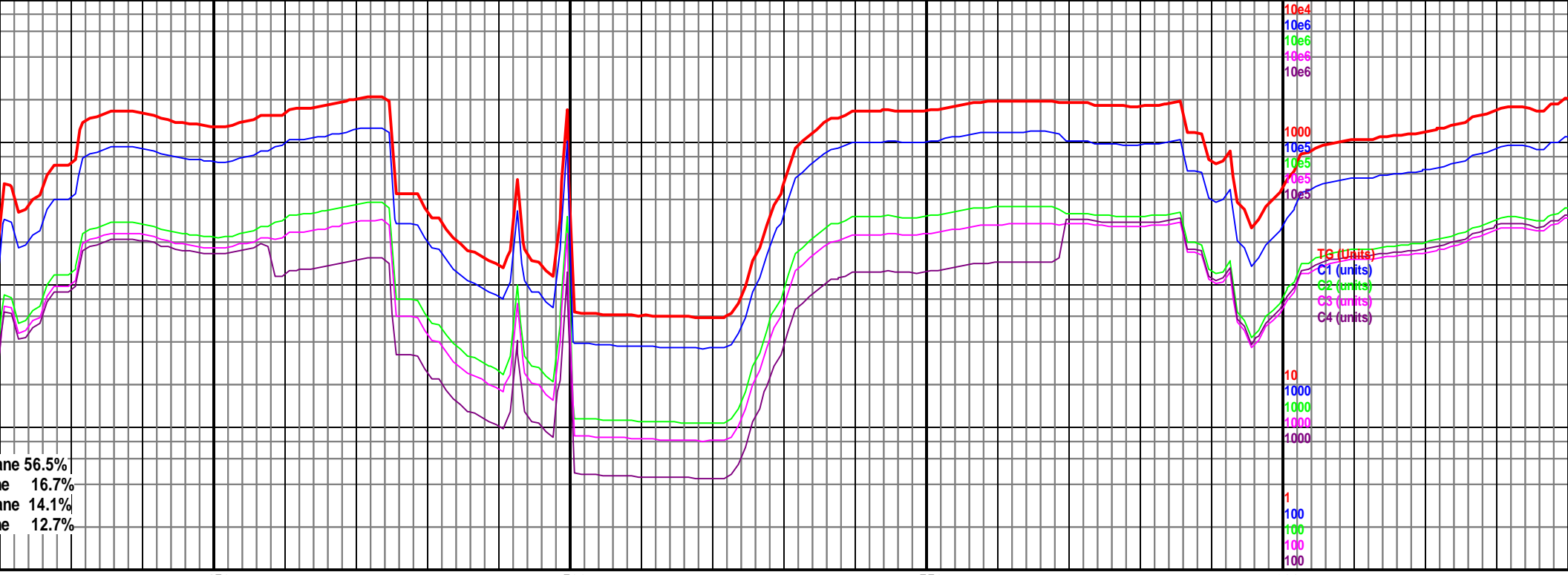
MD 7053 TVD 5872.84
INC 88.85 AZ 0.4
VS 1290.59 DL 1.42

MD 7148 TVD 5874.49
INC 89.16 AZ 0.08
VS 1385.58 DL 0.47

5775
(-914)

7000-7100 Chk med gy-gy brn, sb
ply-sb blk, blk ip, banded, abnt
Mrlst gy-dk gy, blk, frm, tr bent, rr
inoc, tr min flor, mod oil cut, 60% chk,
40% mrlst

7100-7200 Mrlst gy-dk gy, blk-sb blk,
frm, tr Chk lt gy-gy, sb ply-blk,
banded ip, tr bent, tr yel min flor, mod
oil cut, 80% mrlst, 20% chk



ne 56.5%
e 16.7%
ne 14.1%
e 12.7%

T0 (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

10e4
10e5
10e6
10
1000
10000
100000
1
100
1000
10000
100000

7450

7500

7550

7600

MD 7428 TVD 5878.7
INC 90.75 AZ 1.54
VS 1665.49 DL 2.91

MD 7528 TVD 5877.88
INC 90.19 AZ 1.01
VS 1765.46 DL 0.77

5250 TVD
Sub Sea (-389)

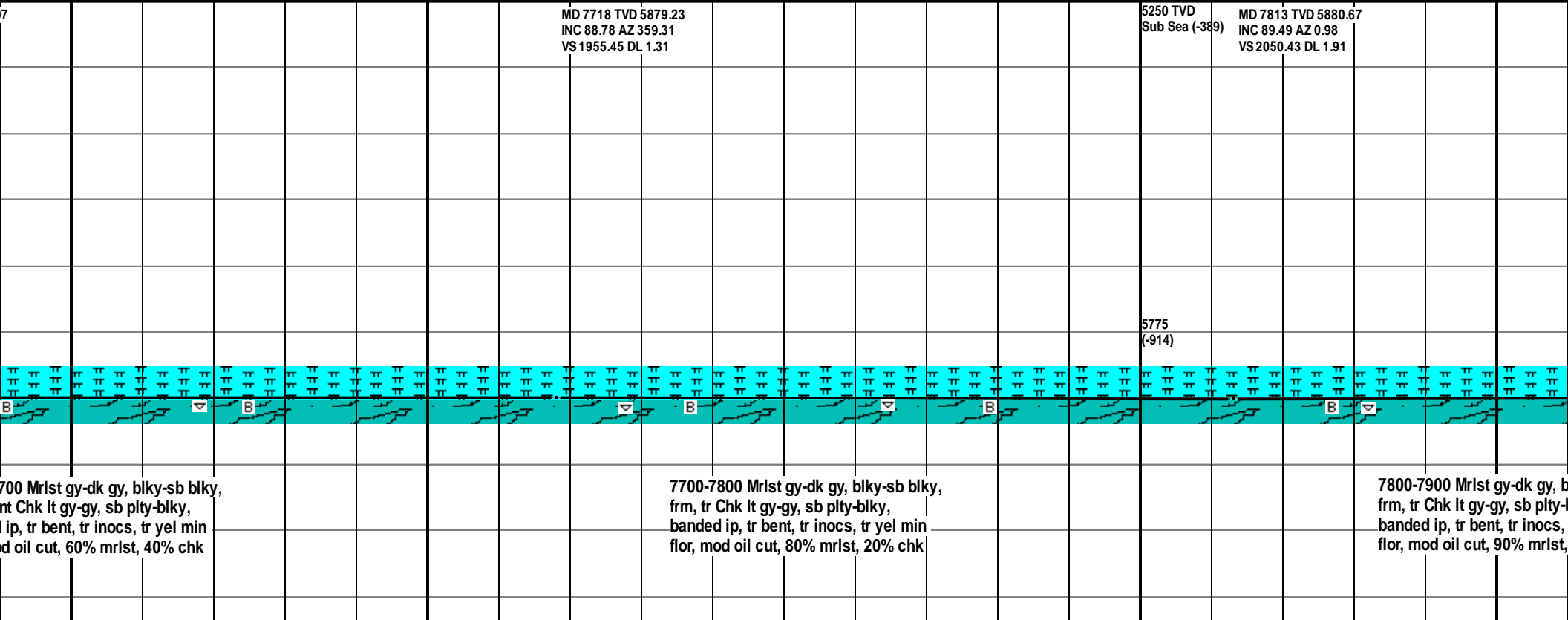
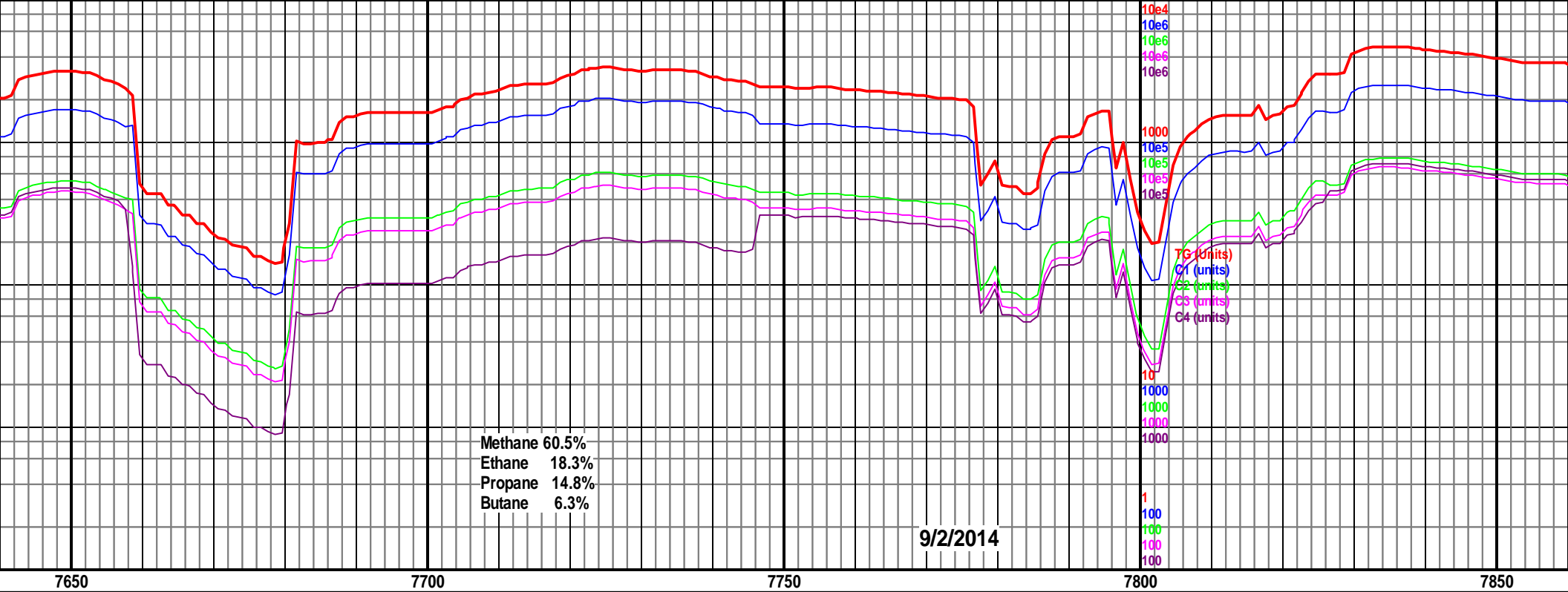
MD 7623 TVD 5877.9
INC 89.7 AZ 0.15
VS 1860.46 DL 1.04

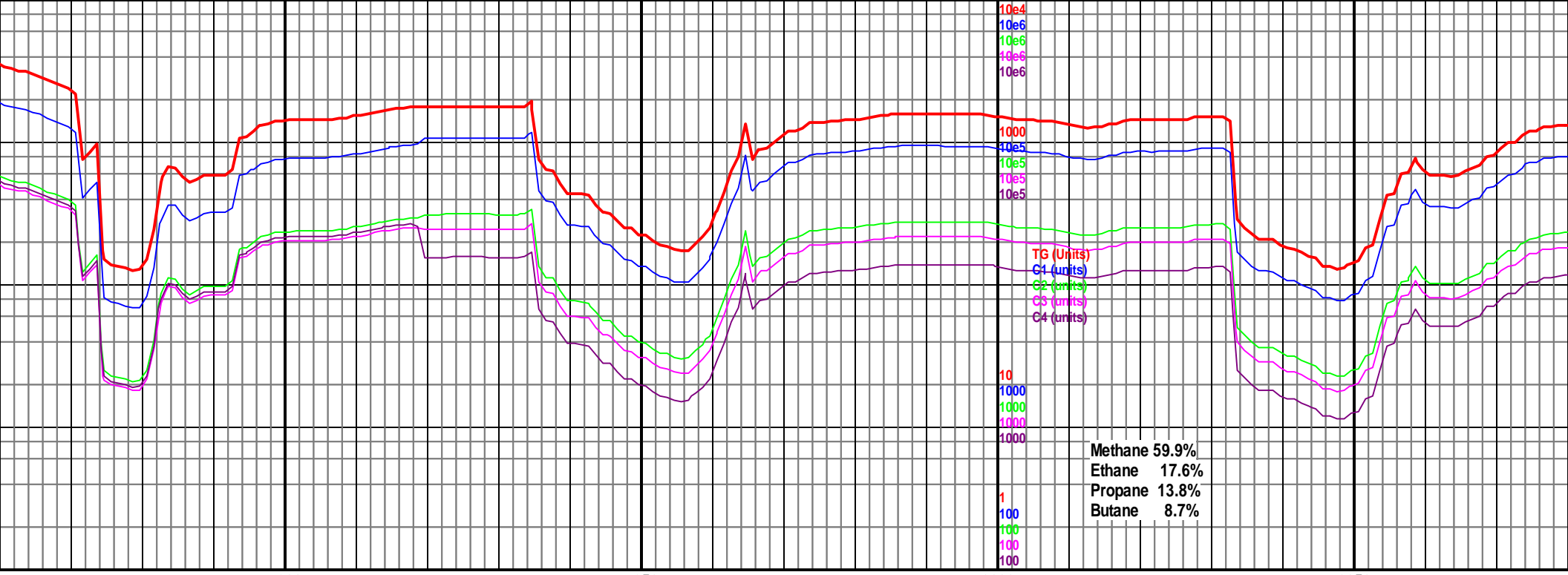
5775
(-914)

7400-7500 Mrlst gy-dk gy, blk-y-sb blk-y,
frm, abnt Chk lt gy-gy, sb pty-blky, |
banded ip, tr bent, tr inoc, tr yel min
flor, mod oil cut, 50% mrlst, 50% chk

7500-7600 Chk med gy-gy brn, sb
pty-sb blk-y, blk-y ip, banded, abnt
Mrlst gy-dk gy, blk-y, frm, tr bent, rr
inoc, tr min flor, mod oil cut, 70% chk,
30% mrlst

7600-7700
frm, abnt
banded
flor, mod





7900

7950

8000

8050

MD 7908 TVD 5879.67
INC 91.71 AZ 1.29
VS 2145.4 DL 2.36

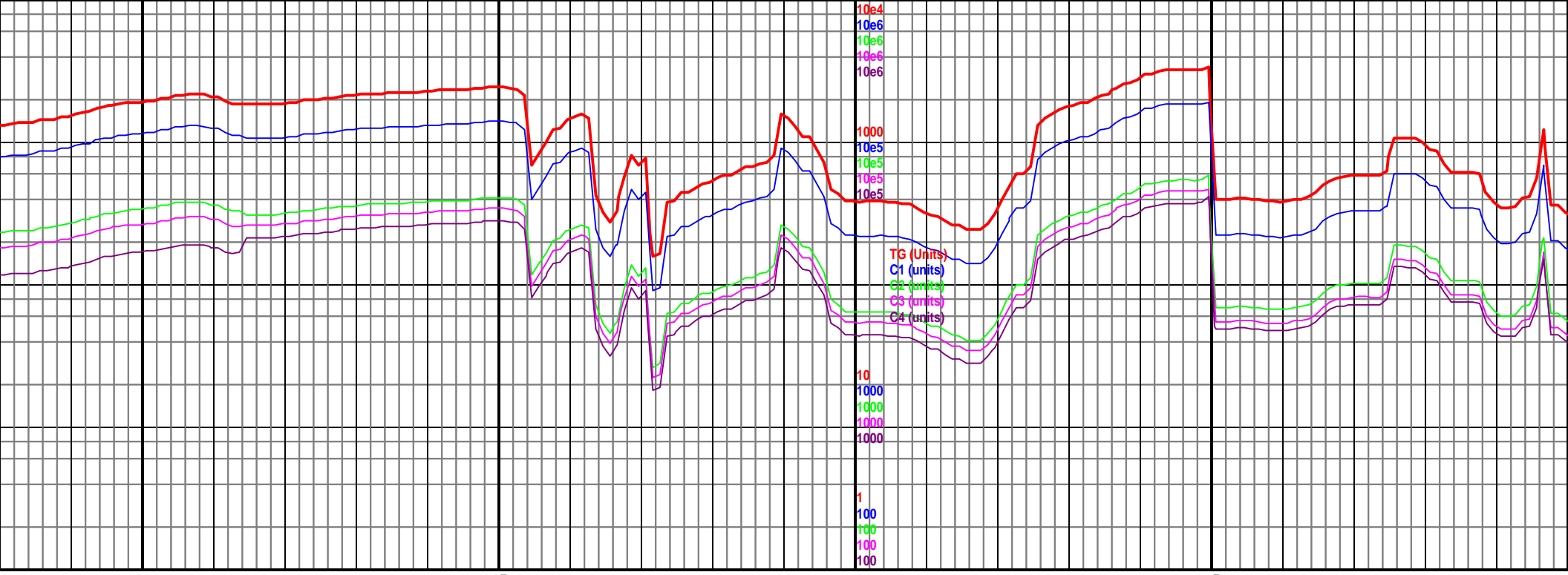
5250 MD 8003 TVD 5877.67
Sub INC 90.71 AZ 0.28
VS 2240.37 DL 1.5

5775
(-914)

blky-sb blky,
blky,
tr yel min
10% chk

7900-8000 Mrlst gy-dk gy, blky-sb blky,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, tr inocs, rr yel min
flor, mod wk oil cut, 80% mrlst, 20%
chk

8000-8100 Mrlst gy-dk gy, blky-sb blky,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod wk oil cut, 80% mrlst, 20%
chk



8100 8150 8200 8250 8300

MD 8098 TVD 5876.82
INC 90.31 AZ 359.94
VS 2335.37 DL 0.55

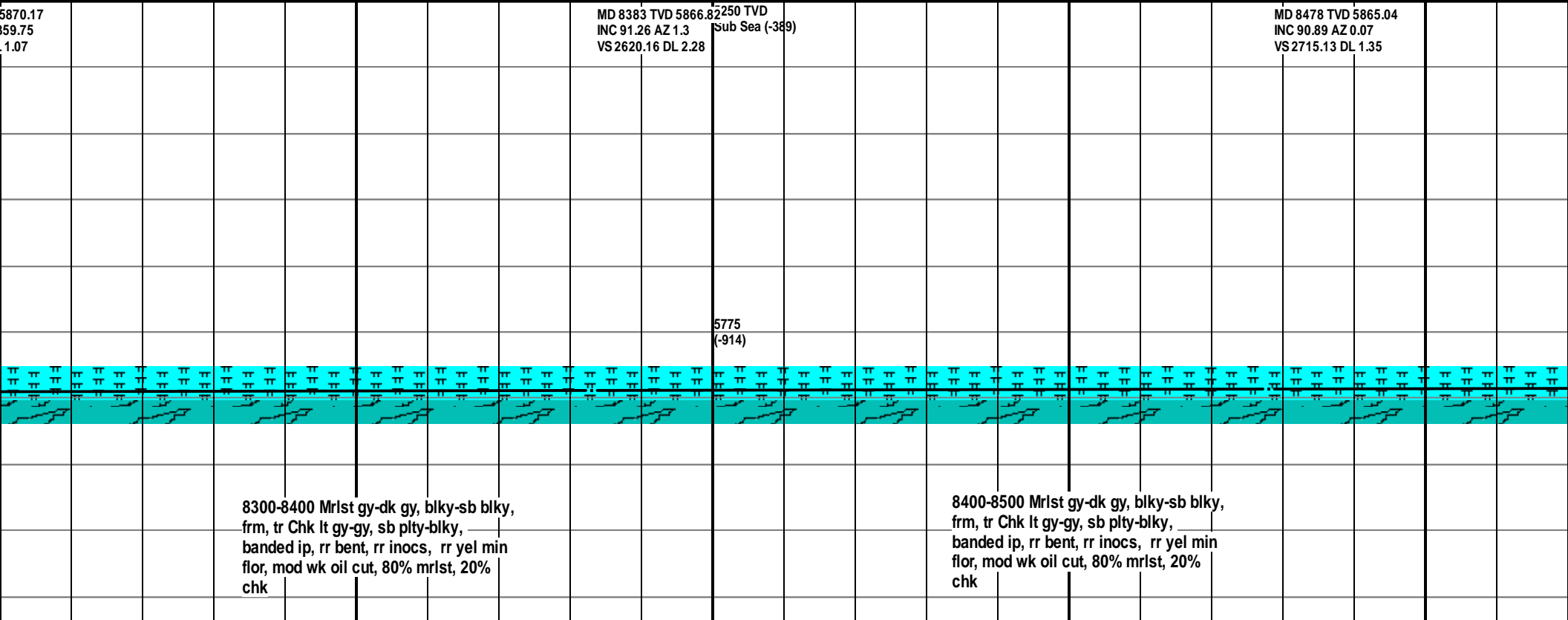
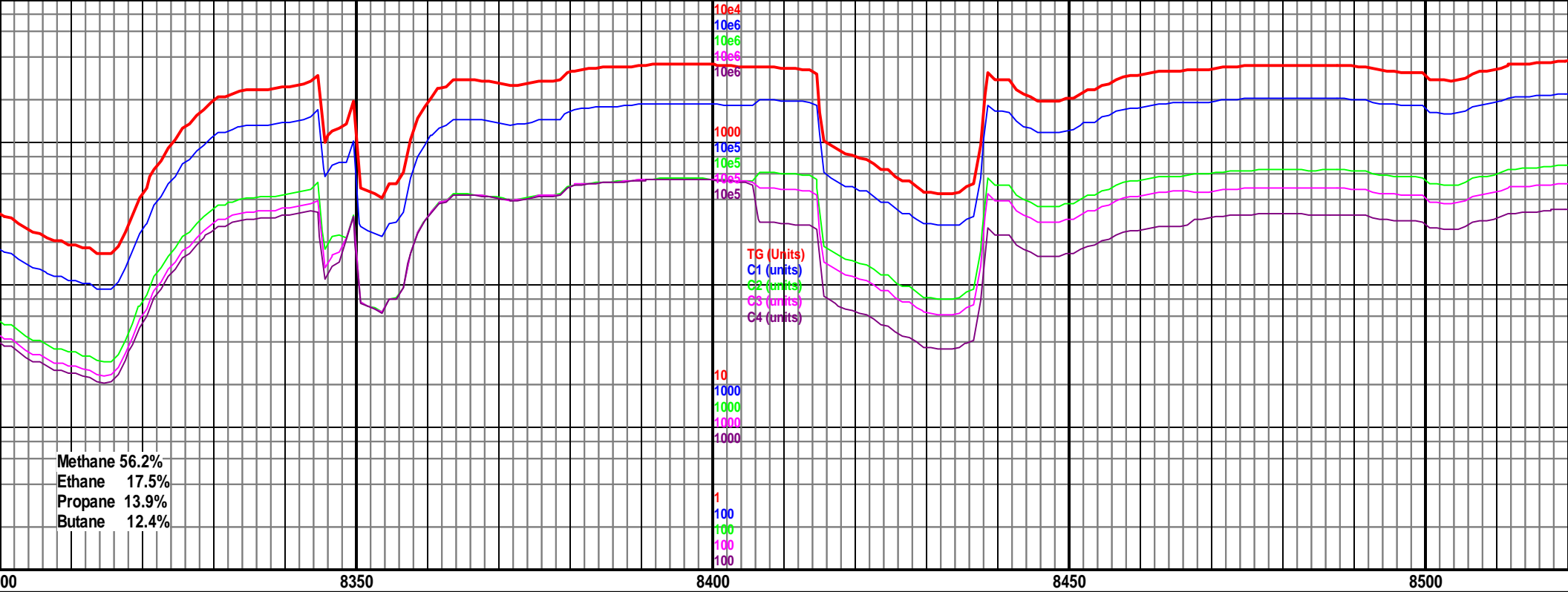
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INC 92.47 AZ 0.72-389
VS 2430.33 DL 2.42

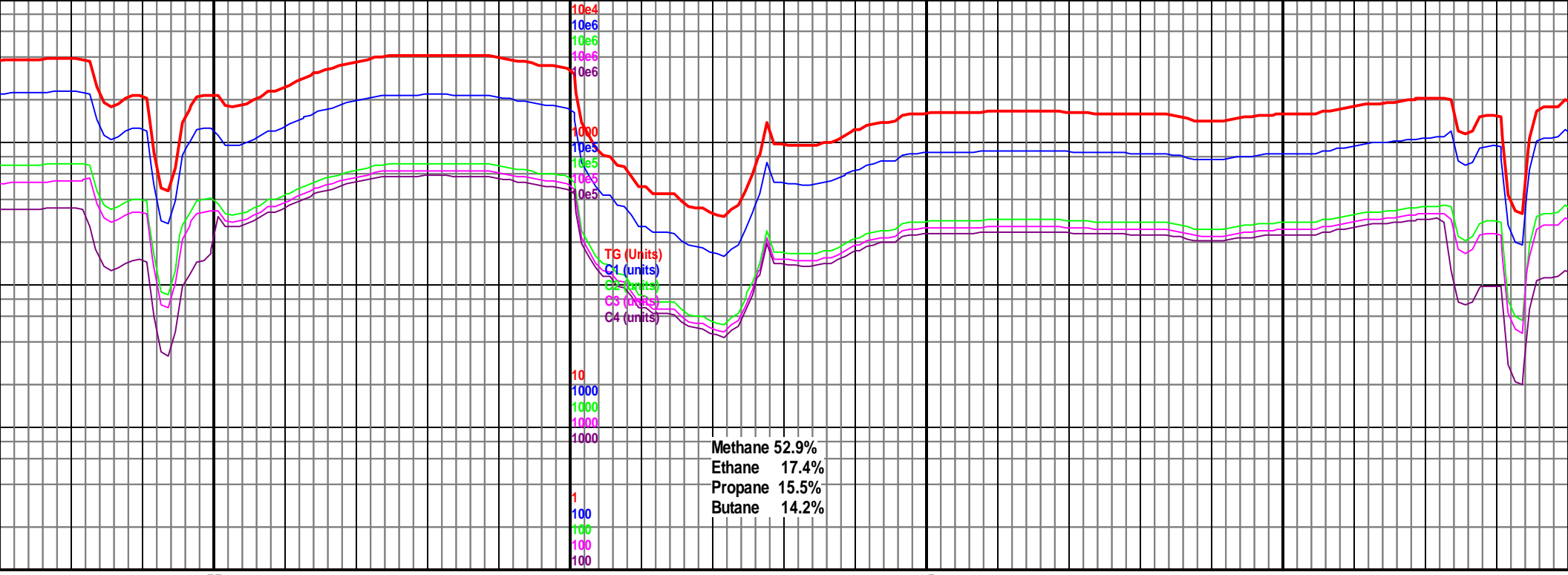
MD 8288 TVD 5874.52
INC 92.78 AZ 359.94
VS 2525.23 DL 2.42

5775
(-914)

8100-8200 Mrlst gy-dk gy, blkly-sb blkly,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, tr inocs, rr yel min
flor, mod wk oil cut, 90% mrlst, 10%
chk

8200-8300 Mrlst gy-dk gy, blkly-sb blkly,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod wk oil cut, 80% mrlst, 20%
chk





8550

8600

8650

8700

MD 8573 TVD 5862.79
INC 91.82 AZ 358.65
VS 2810.1 DL 1.79

5250 TVD
Sub Sea (-389)

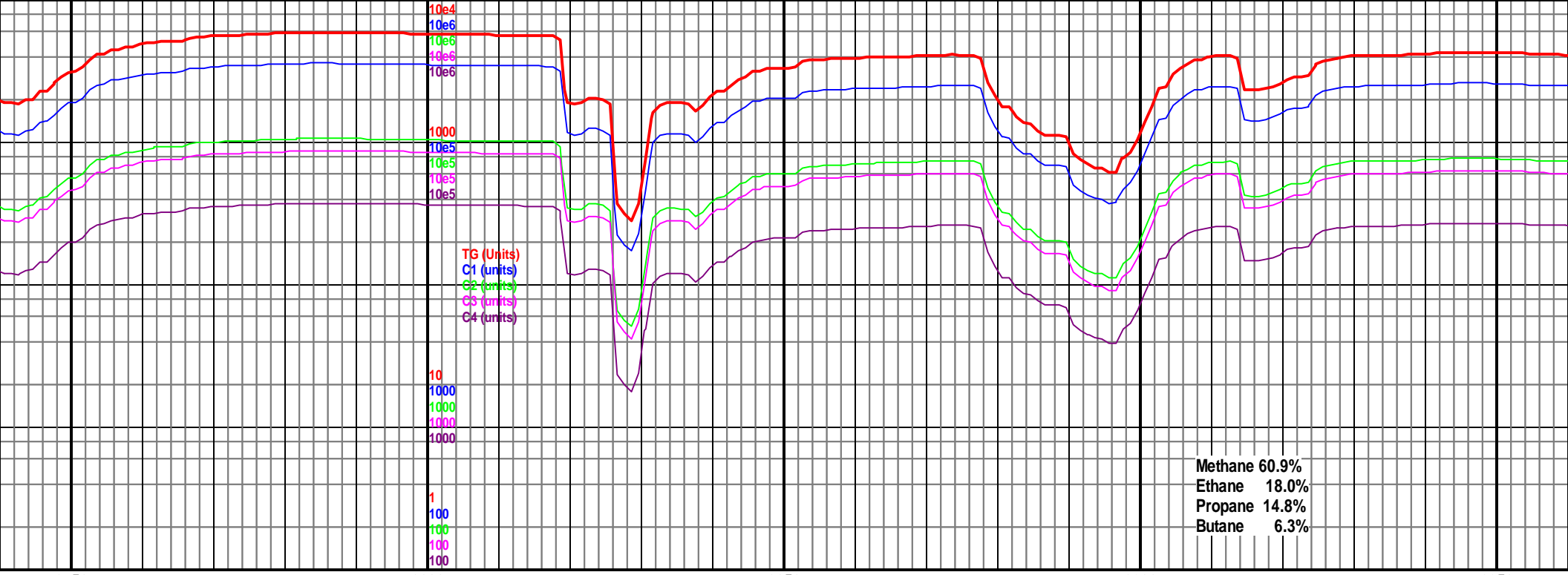
MD 8668 TVD 5860.09
INC 91.44 AZ 358.27
VS 2905.02 DL 0.57

5775
(-914)

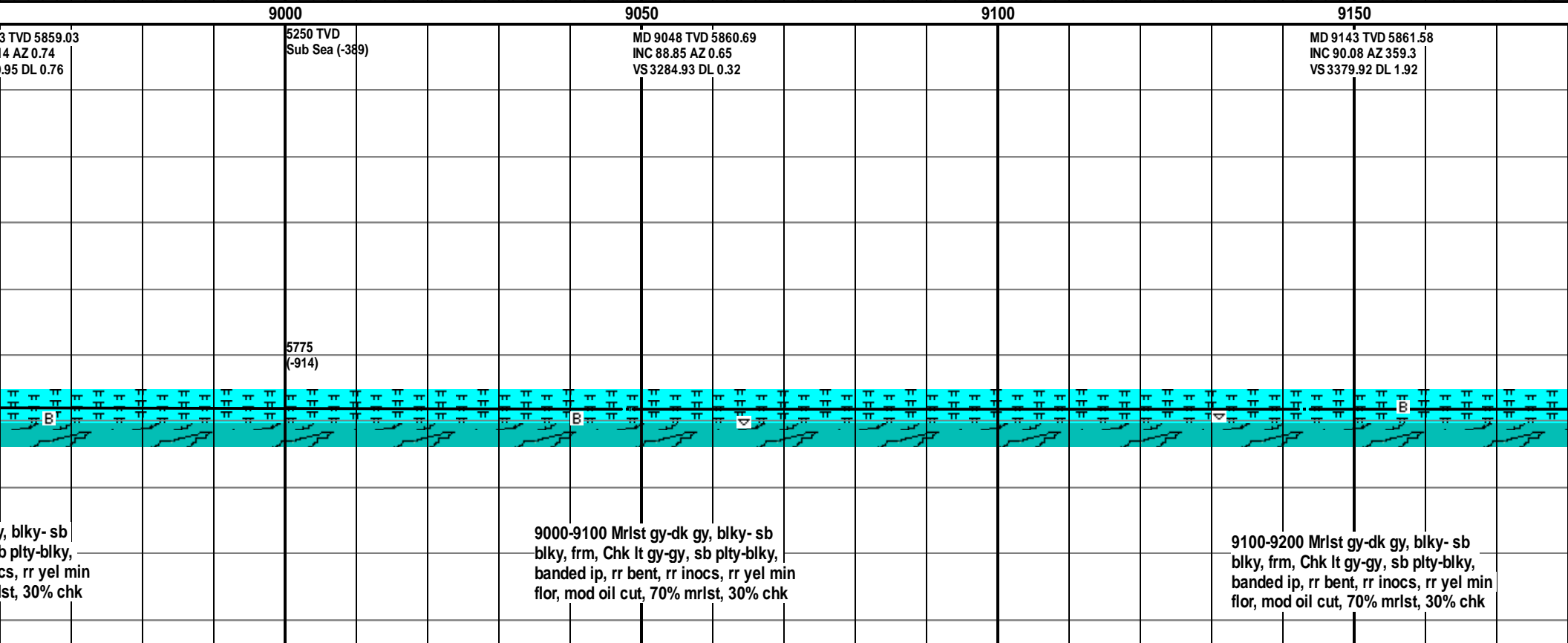
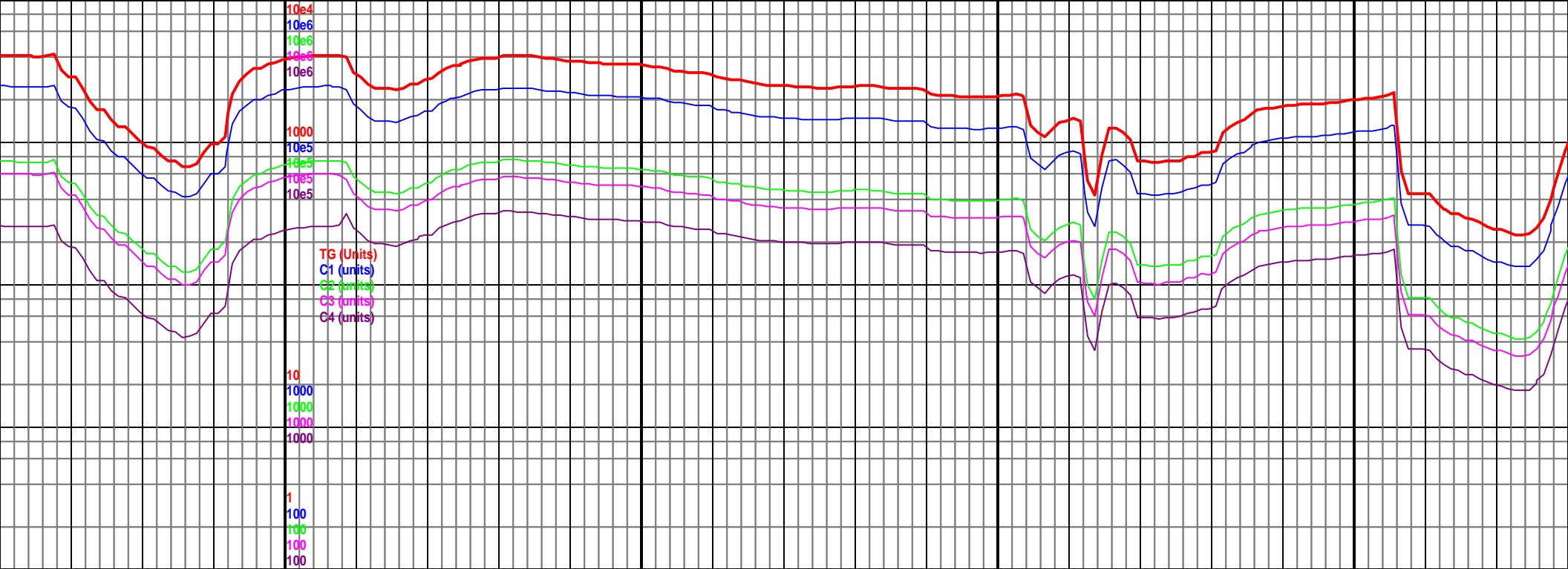
8500-8600 Mrlst gy-dk gy, blkly-sb blkly,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod wk oil cut, 90% mrlst, 10%
chk

8600-8700 Mrlst gy-dk gy, blkly-sb blkly,
frm, tr Chk lt gy-gy, sb plty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod wk oil cut, 80% mrlst, 20%
chk

8700-8800
blkly, frm, C
banded ip,
flor, mod o



8750	8800	8850	8900	8950
MD 8763 TVD 5858.35 INC 90.66 AZ 359.08 VS 2999.98 DL 1.18	5250 TVD Sub Sea (-389) 5775 (-914)	MD 8858 TVD 5858.06 INC 89.69 AZ 1.21 VS 3094.97 DL 2.46		MD 8953 INC 89.1 VS 3189
Mrlst gy-dk gy, blk- sb chk lt gy-gy, sb plty-blky, rr bent, rr inocs, rr yel min il cut, 80% mrlst, 20% chk	8800-8900 Mrlst gy-dk gy, blk- sb blk- fr, Chk lt gy-gy, sb plty-blky, banded ip, rr bent, rr inocs, rr yel min flor, mod oil cut, 70% mrlst, 30% chk		8900-9000 Mrlst gy-dk gy blk- fr, Chk lt gy-gy, sb banded ip, rr bent, rr inocs, flor, mod oil cut, 70% mrlst	



3 TVD 5859.03
4 AZ 0.74
.95 DL 0.76

5250 TVD
Sub Sea (-389)

MD 9048 TVD 5860.69
INC 88.85 AZ 0.65
VS 3284.93 DL 0.32

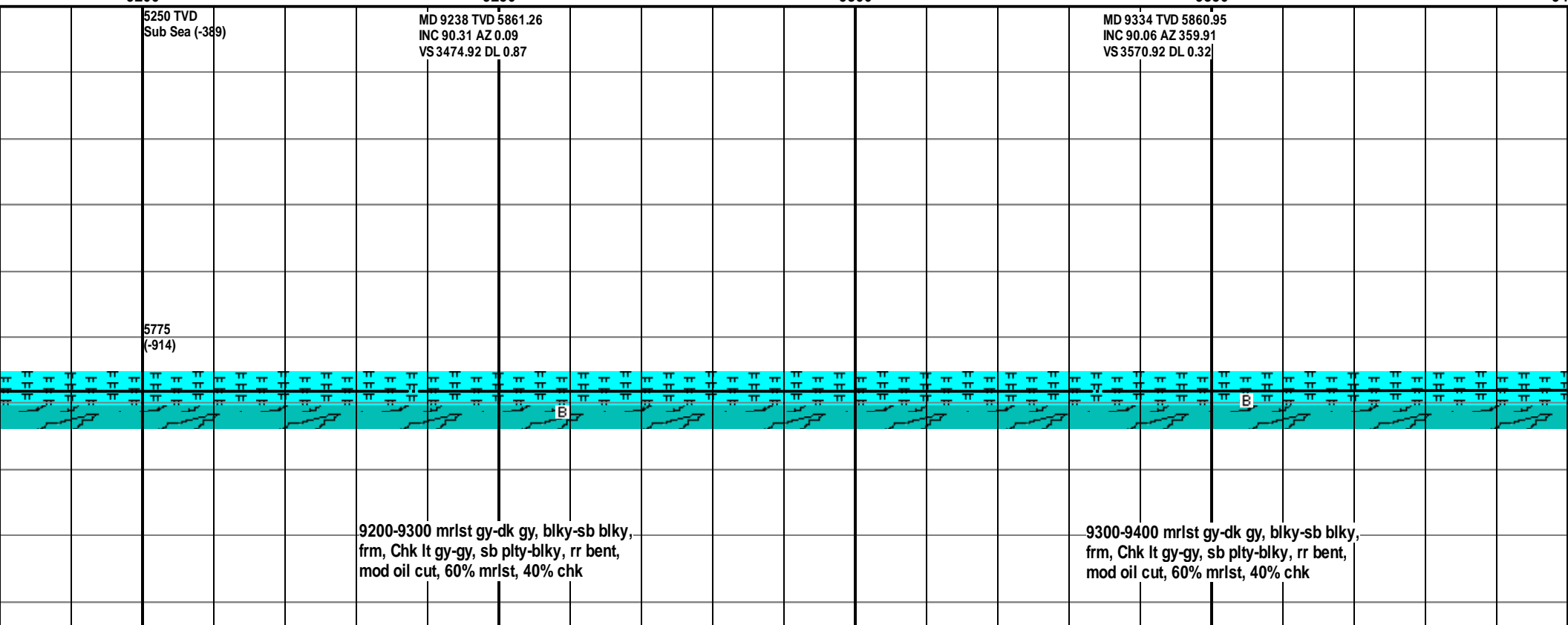
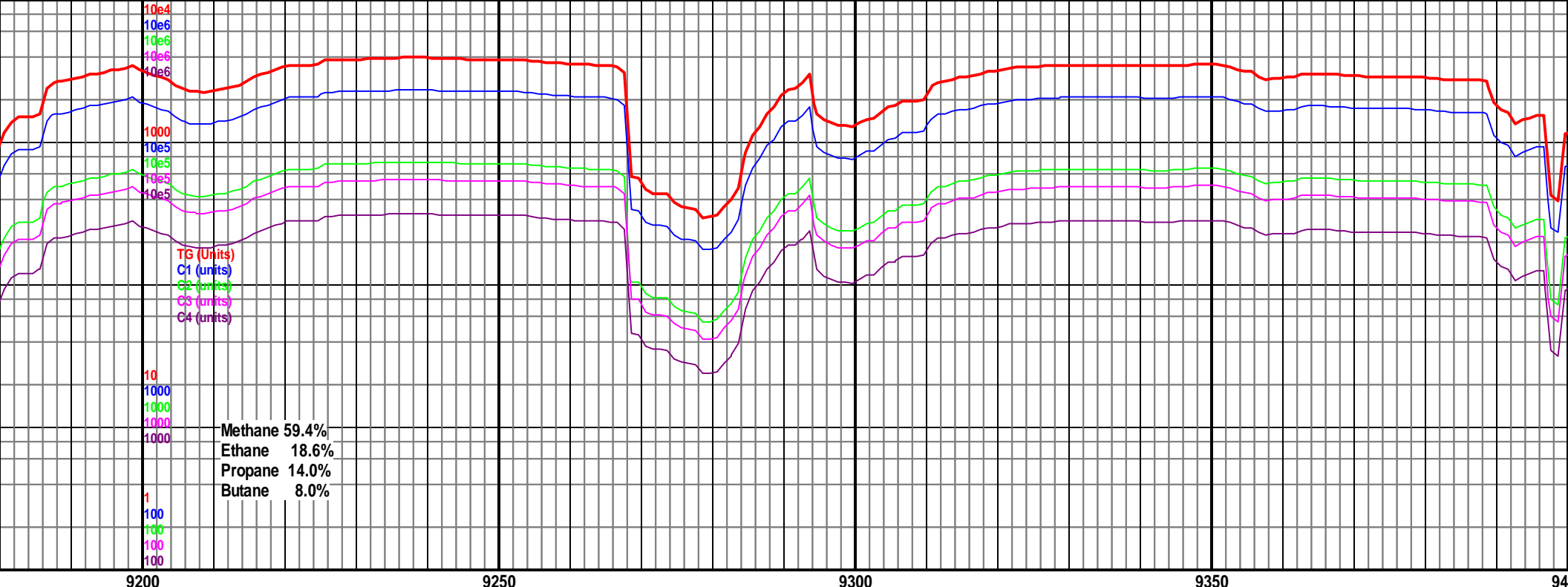
MD 9143 TVD 5861.58
INC 90.08 AZ 359.3
VS 3379.92 DL 1.92

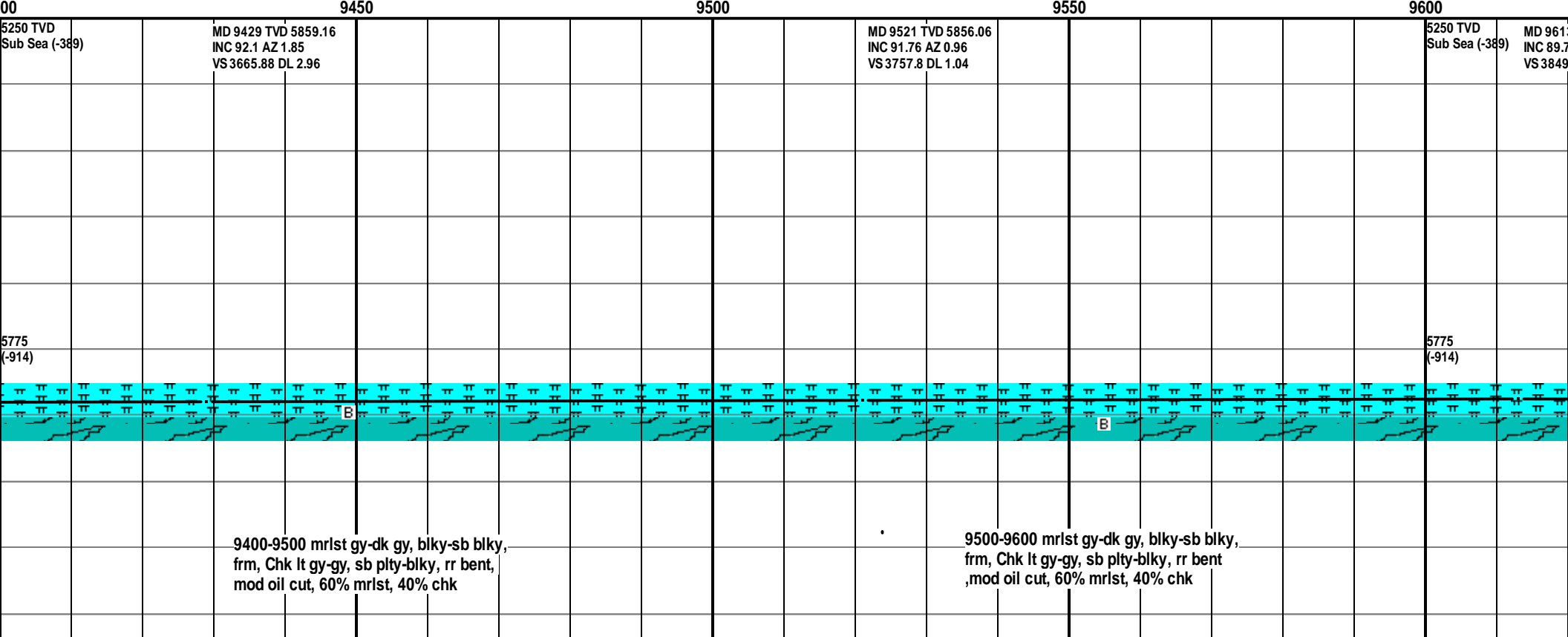
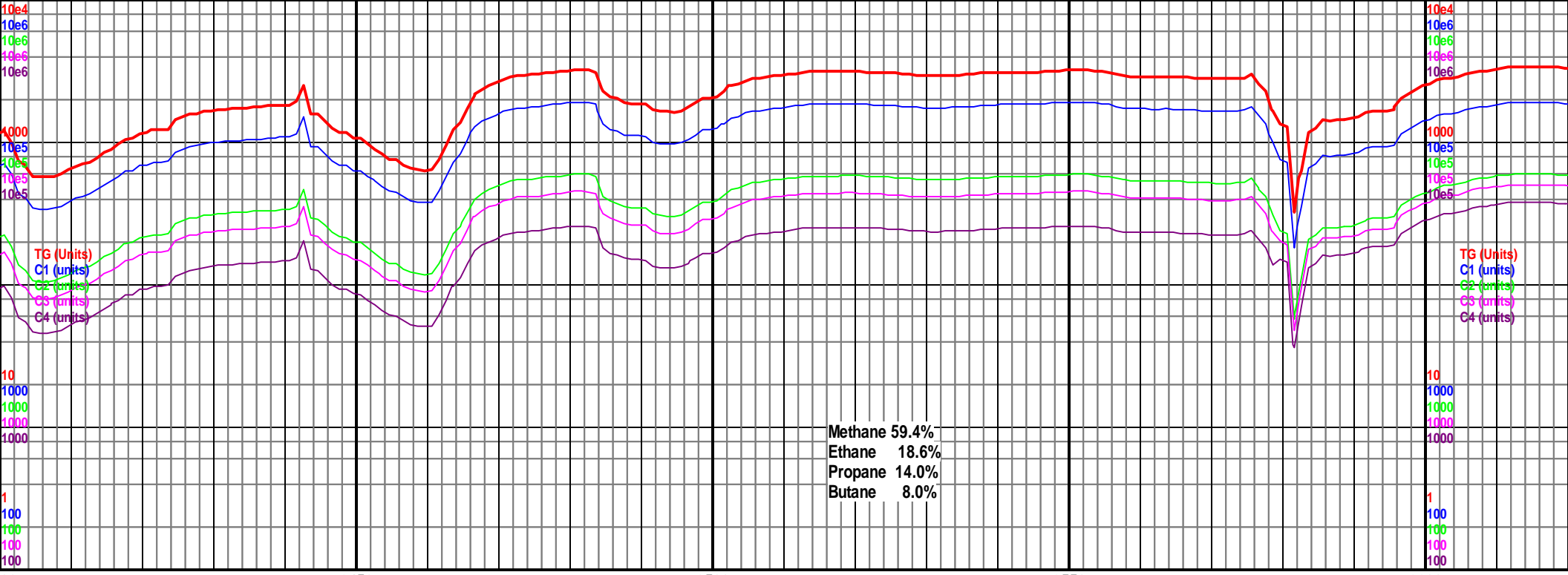
5775
(-914)

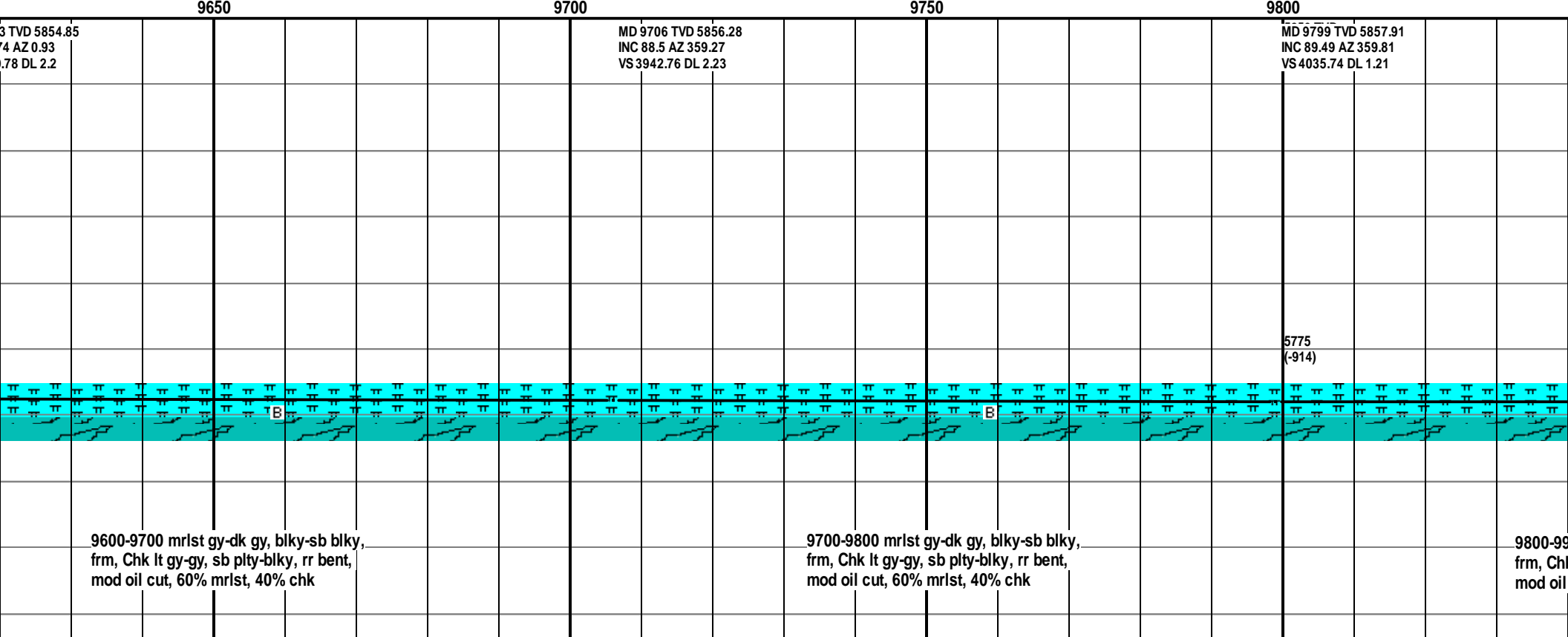
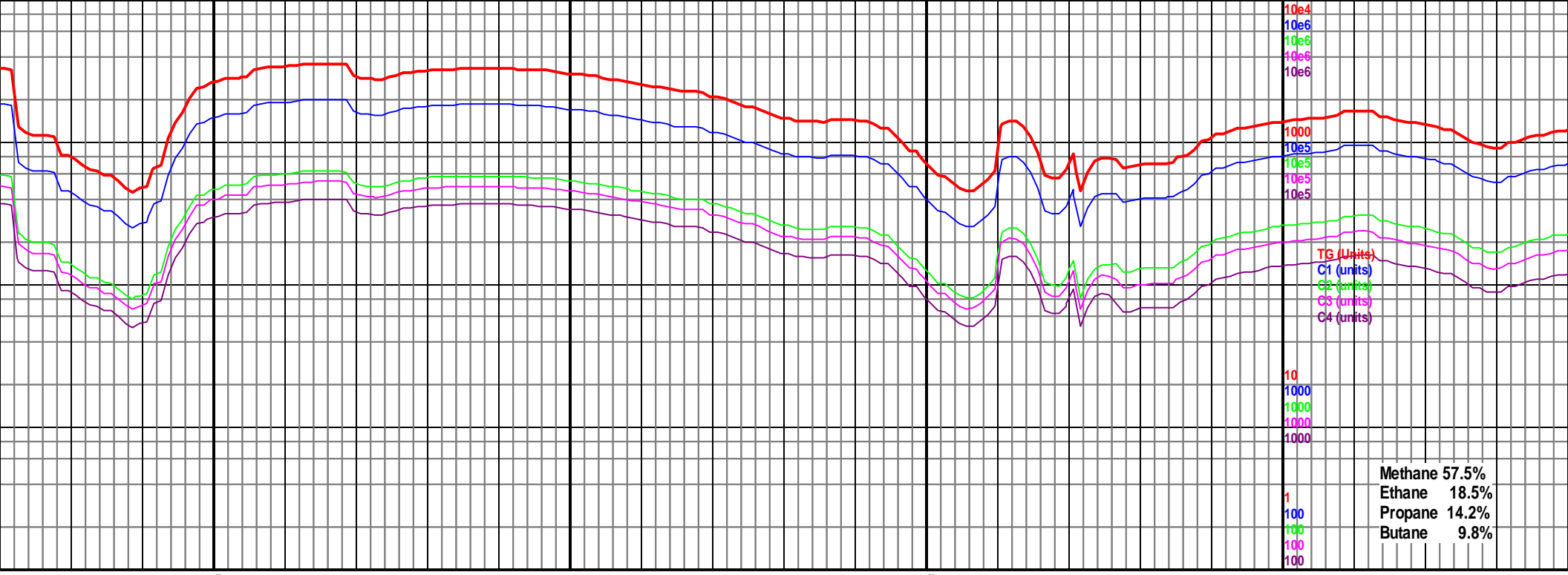
y, blk- sb
b pty-blky,
cs, rr yel min
st, 30% chk

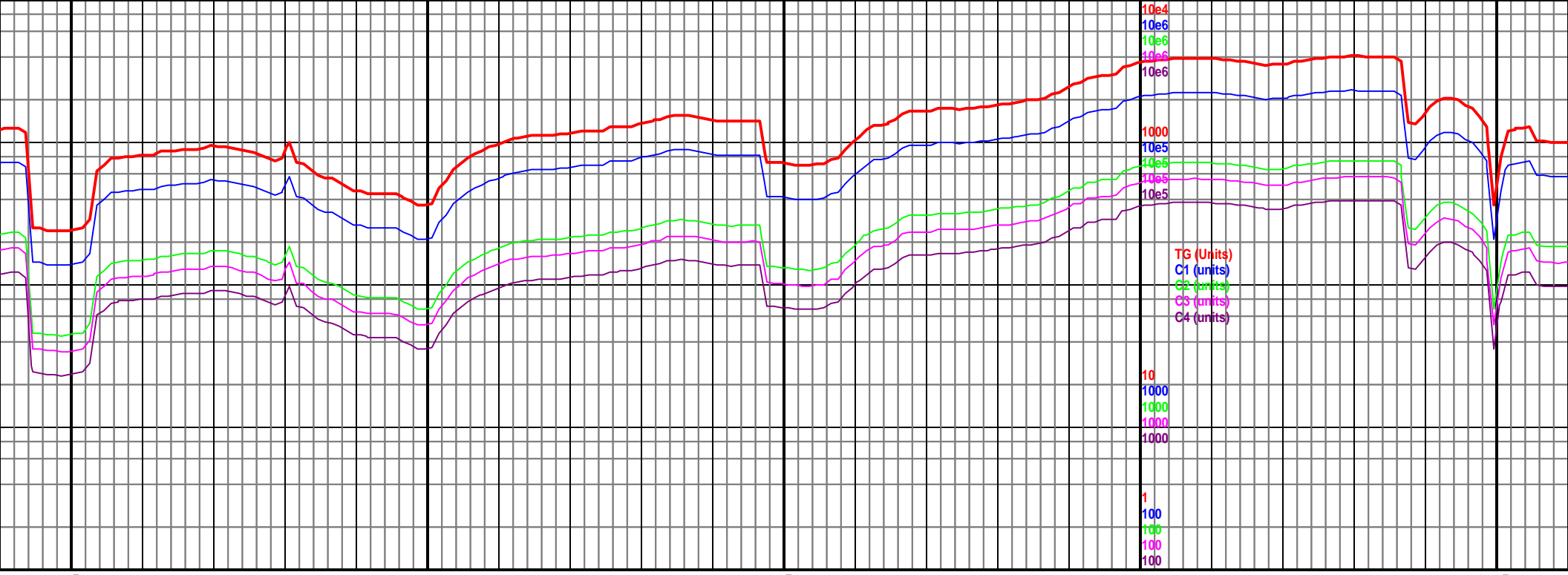
9000-9100 Mrlst gy-dk gy, blk- sb
blk, frm, Chk lt gy-gy, sb pty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod oil cut, 70% mrlst, 30% chk

9100-9200 Mrlst gy-dk gy, blk- sb
blk, frm, Chk lt gy-gy, sb pty-blky,
banded ip, rr bent, rr inocs, rr yel min
flor, mod oil cut, 70% mrlst, 30% chk









9850

9900

9950

10000

10050

MD 9891 TVD 5859.
INC 89.16 AZ 359.34
VS 4127.73 DL 0.62

MD 9982 TVD 5861.01
INC 88.3 AZ 358.29
VS 4218.69 DL 1.49

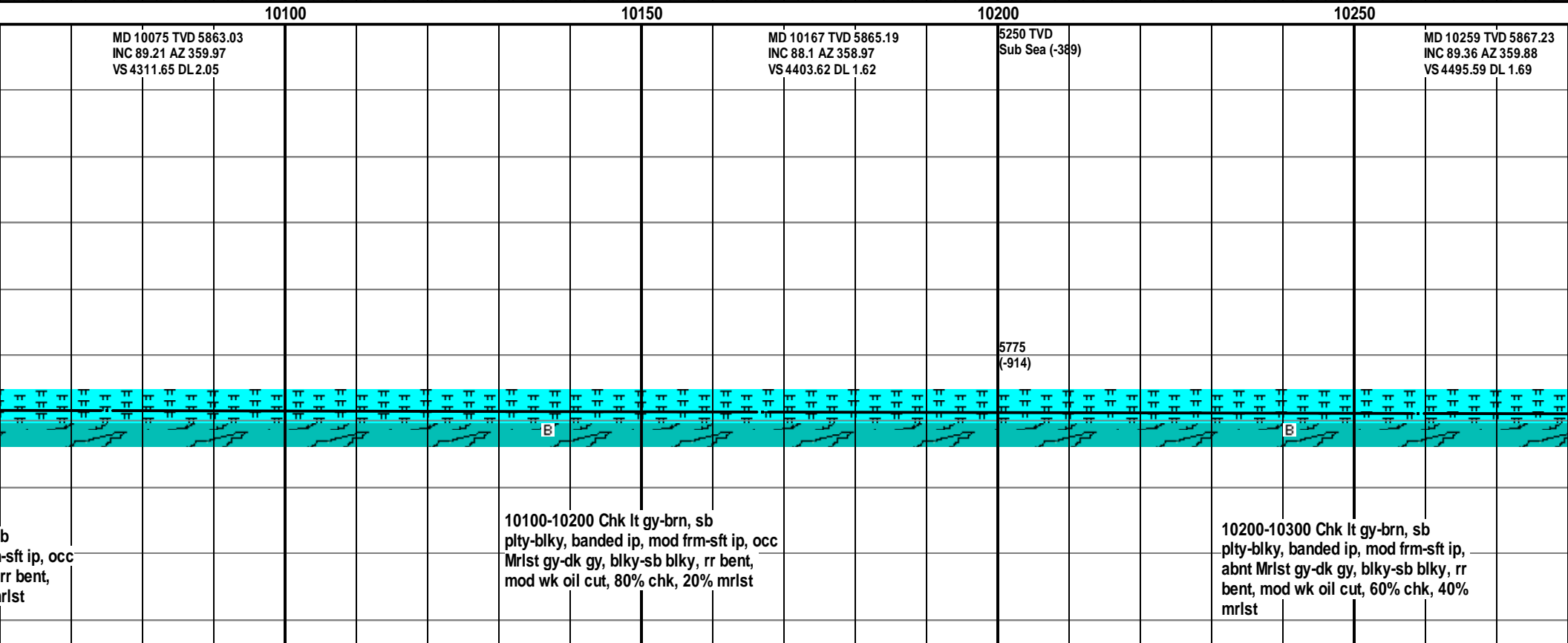
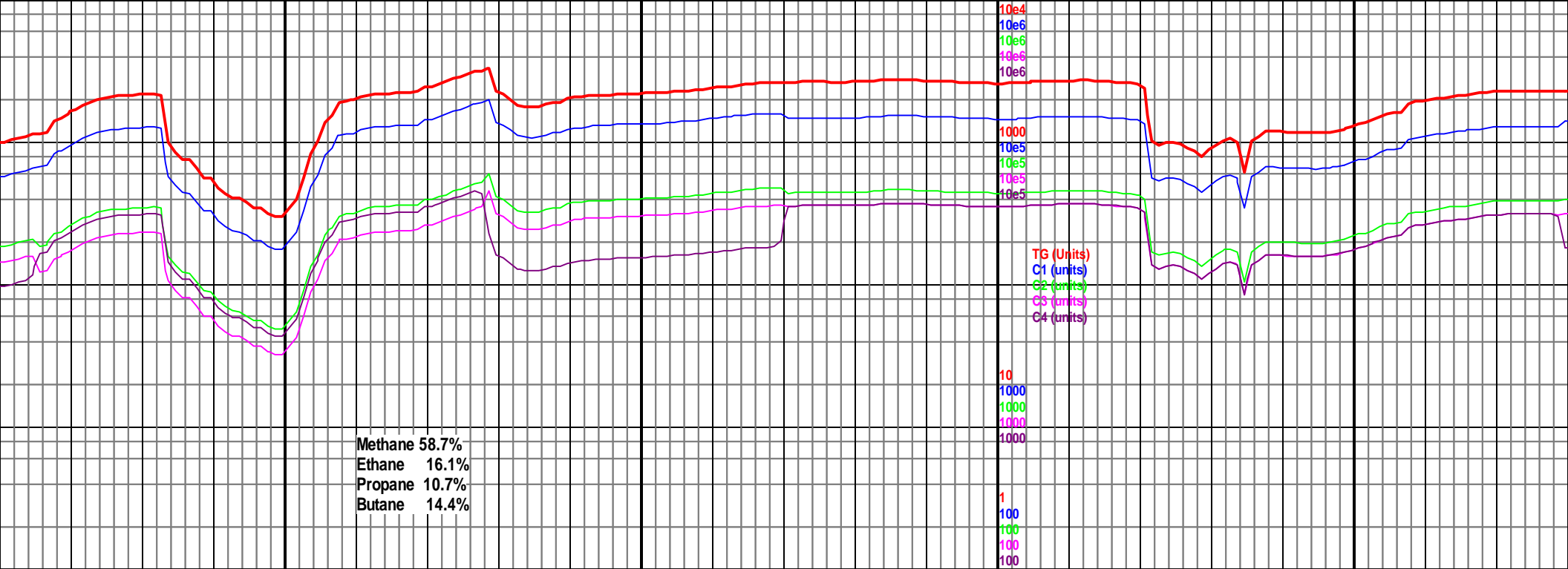
5250 TVD
Sub Sea (-389)

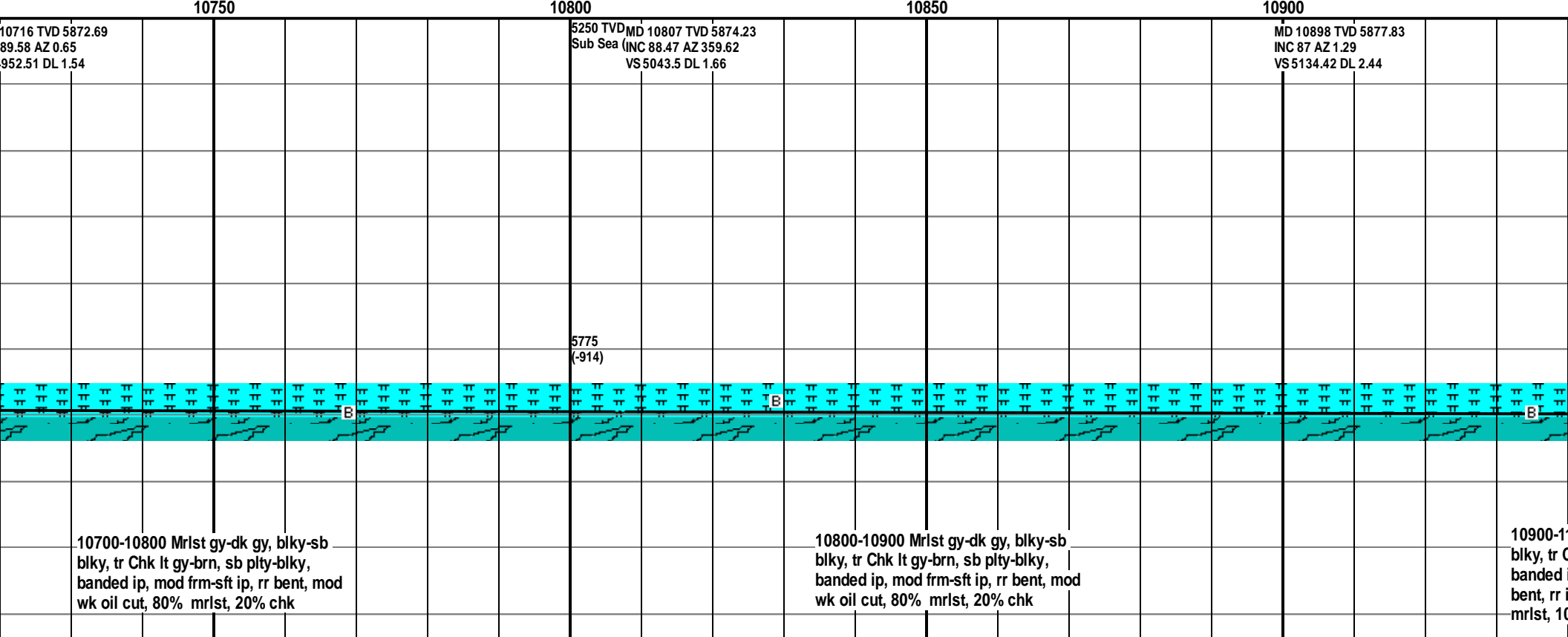
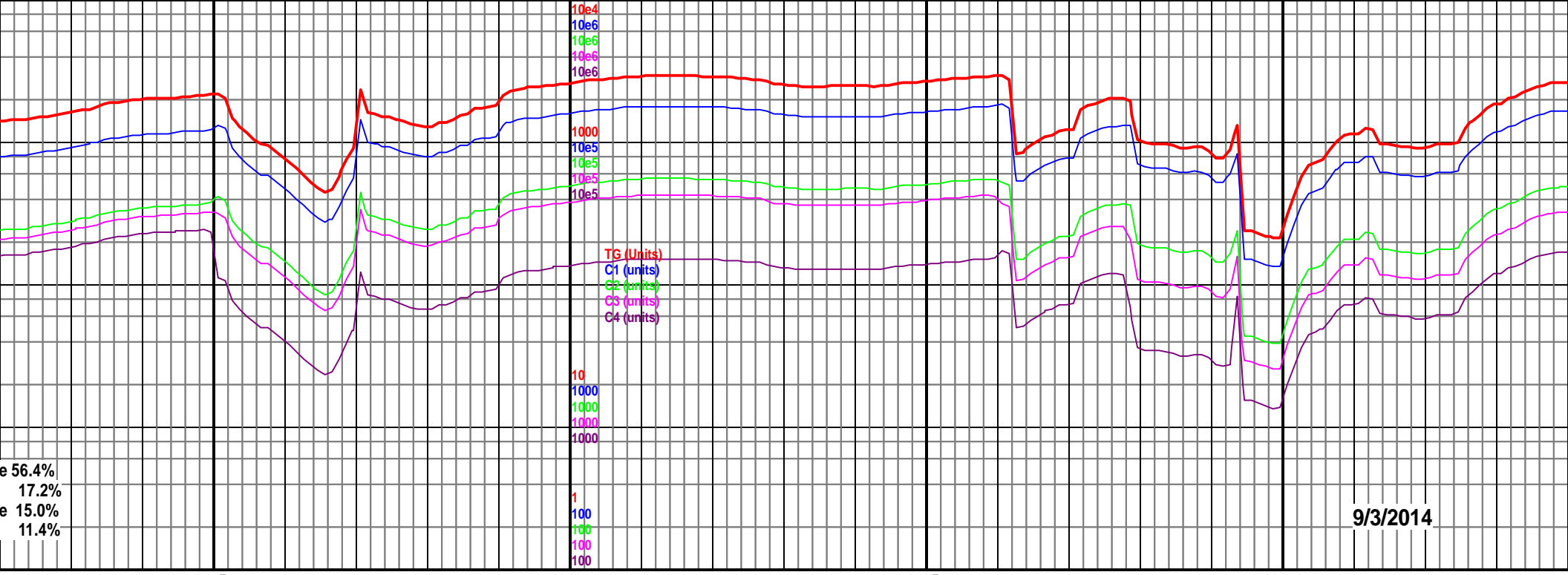
5775
(-914)

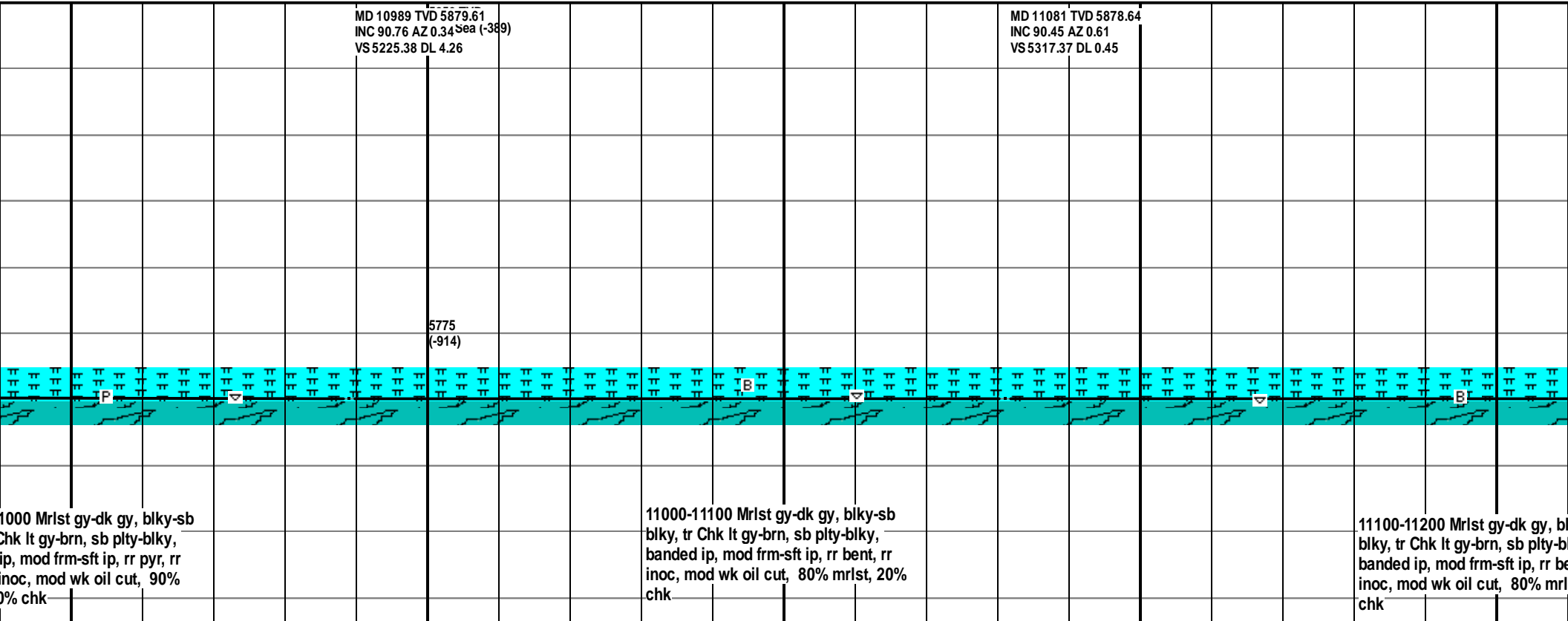
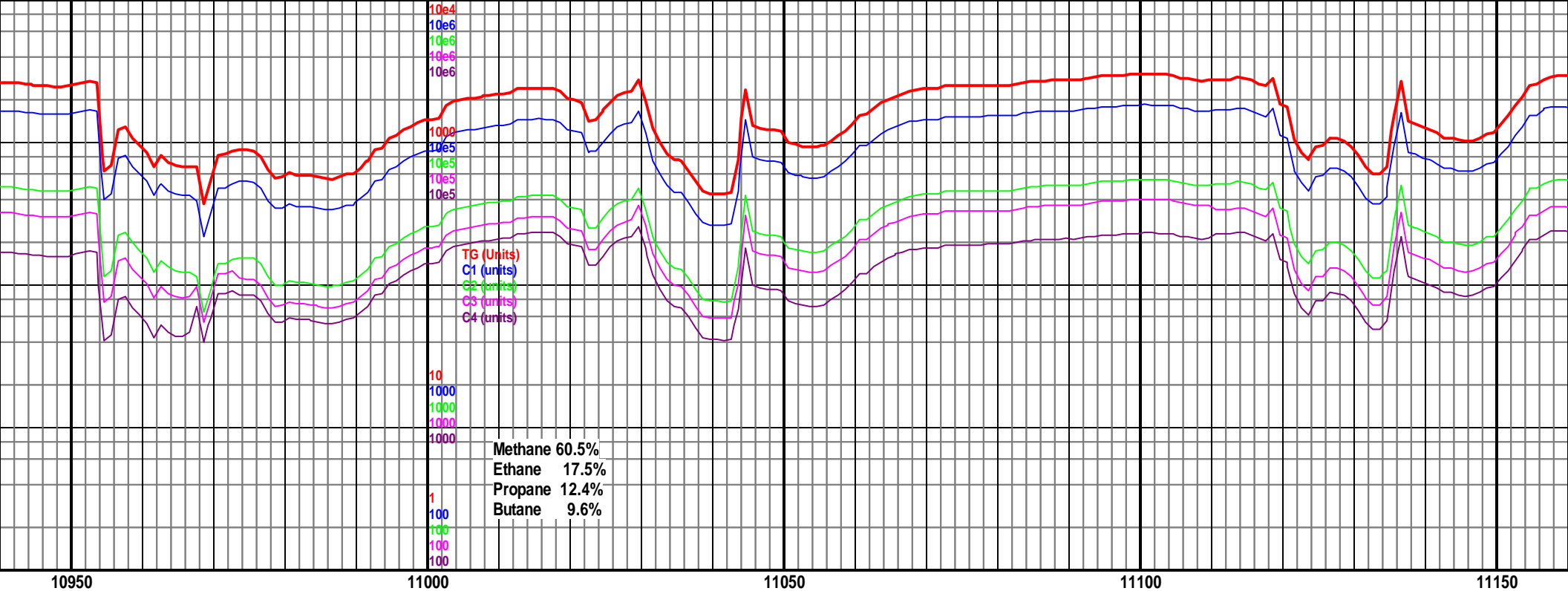
000 mrlst gy-dk gy, blk-y-sb blk-y,
k lt gy-gy, sb plty-blky, rr bent,
cut, 60% mrlst, 40% chk

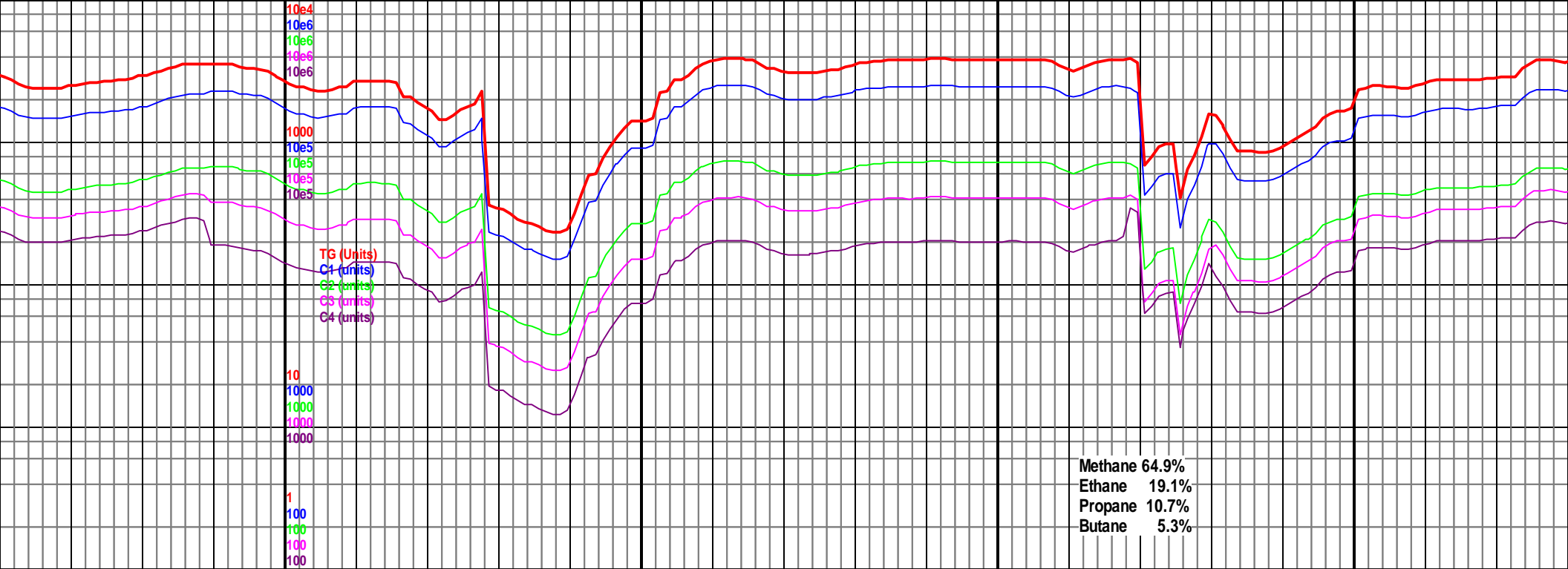
9900-10000 Chk lt gy-brn, sb plty-blky,
occ Mrlst gy-dk gy, blk-y-sb blk-y, rr
bent, mod oil cut, 60% chk, 40% mrlst

10000-10100 Chk lt gy-brn, s
plty-blky, banded ip, mod frm
Mrlst gy-dk gy, blk-y-sb blk-y,
mod oil cut, 70% chk, 30% m

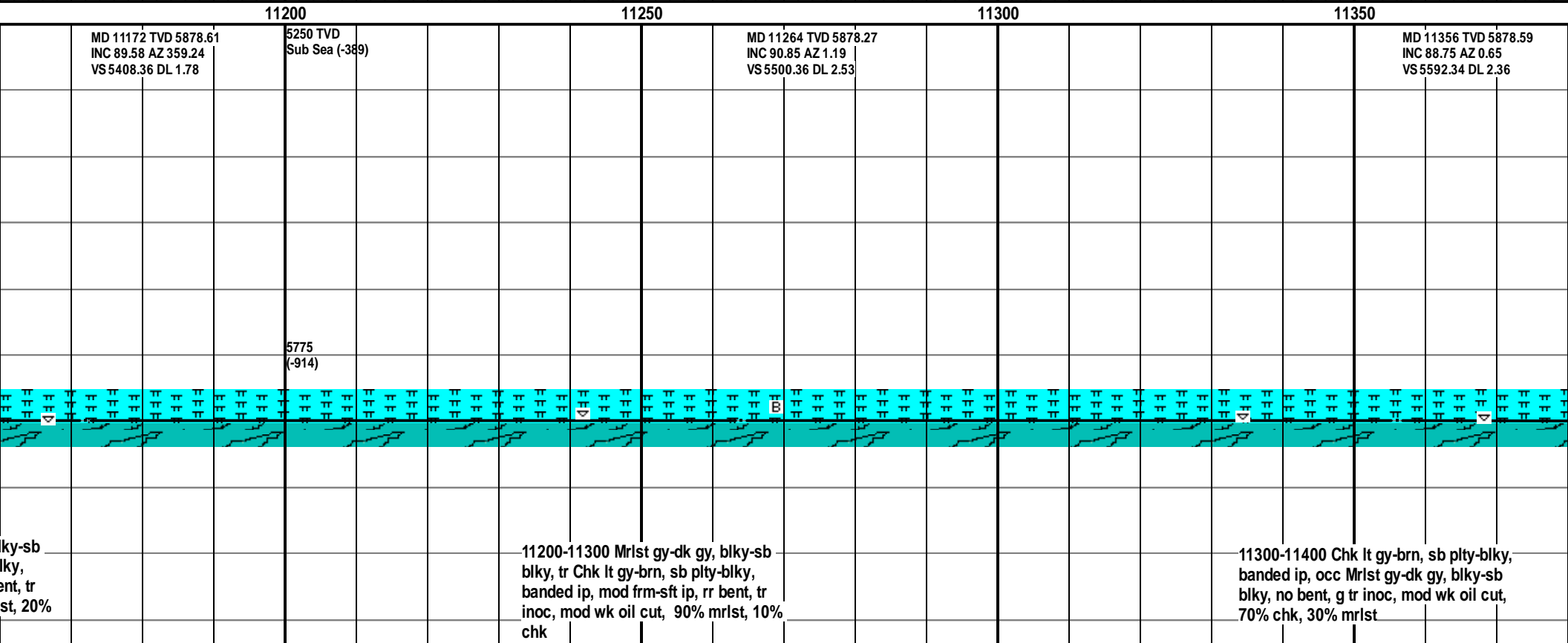


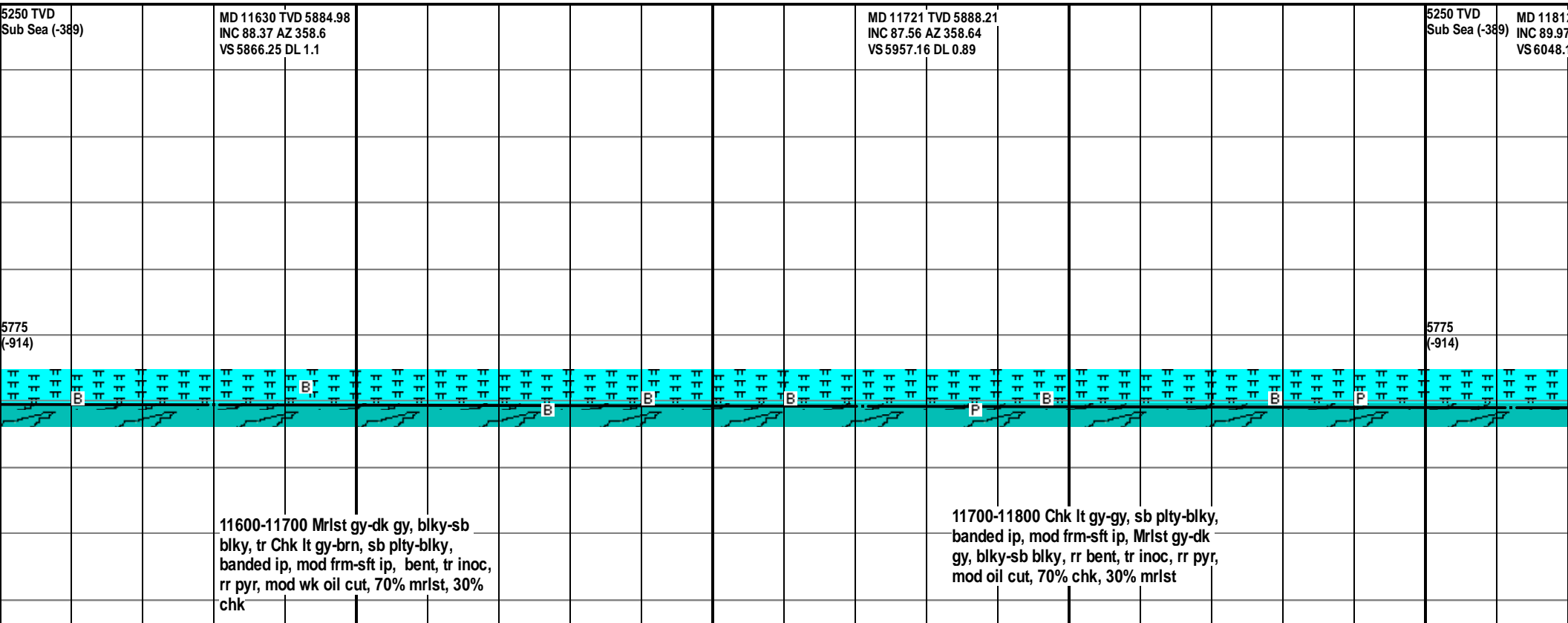


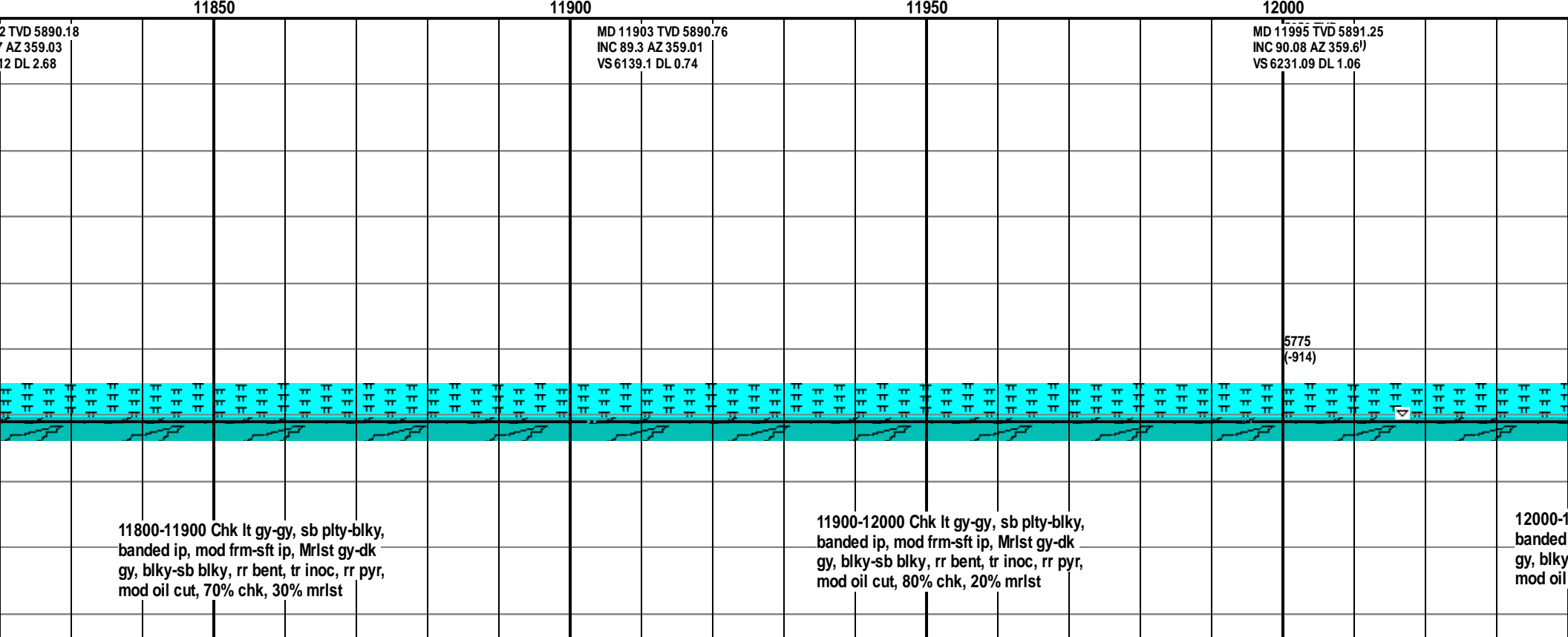
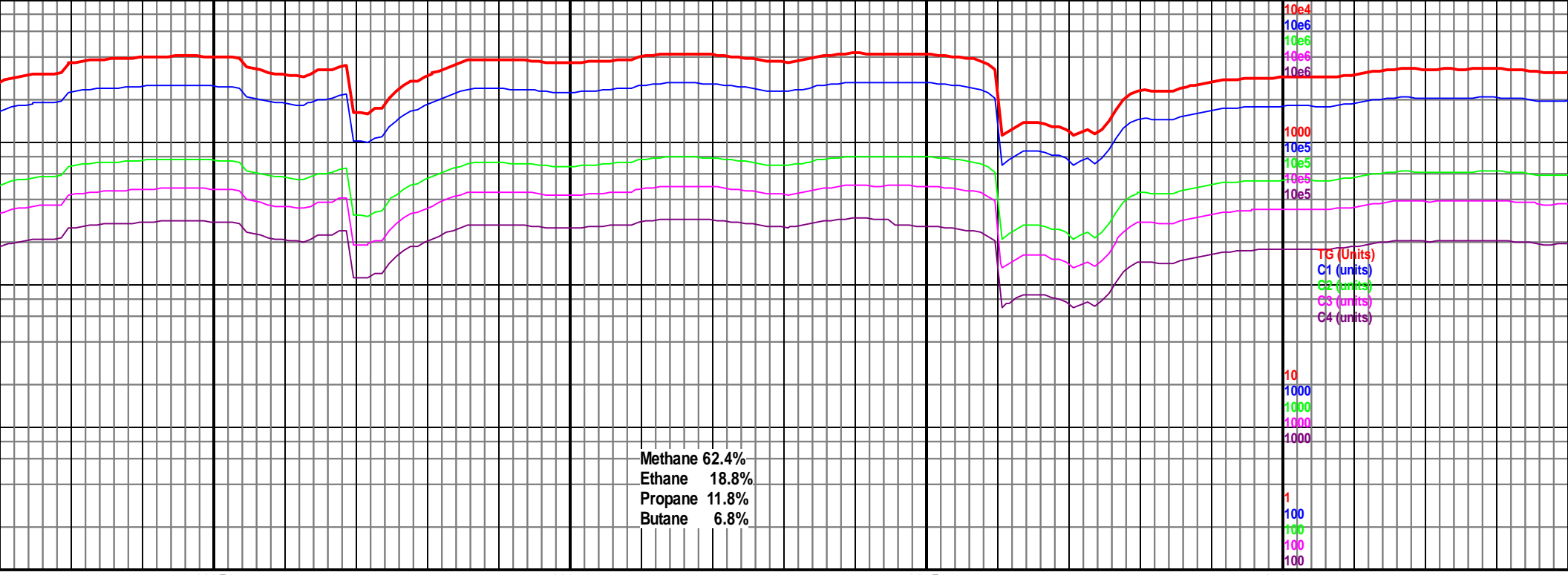


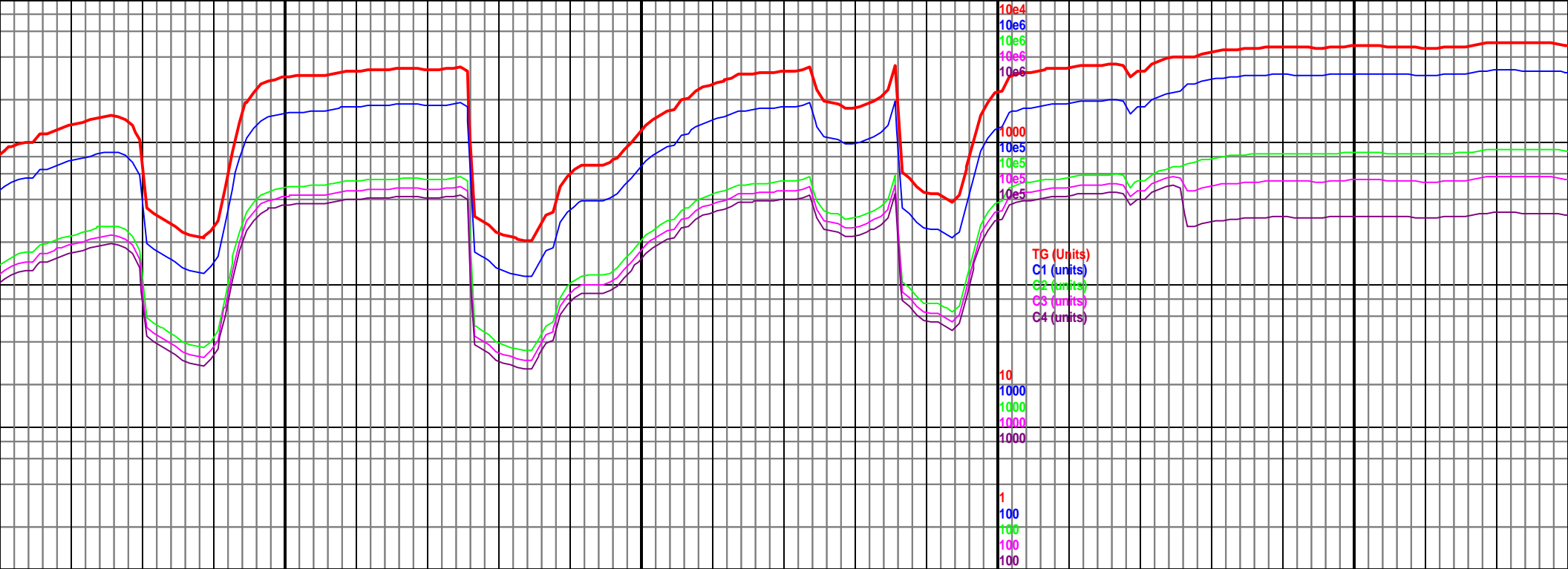


Methane 64.9%
Ethane 19.1%
Propane 10.7%
Butane 5.3%









12300 12350 12400 12450

MD 12269 TVD 5891.33
INC 90.36 AZ 1.66
VS 6505.06 DL 1.15

MD 12361 TVD 5891.16
INC 89.86 AZ 359.57
VS 6597.05 DL 2.34

5250 TVD
Sub Sea (-389)

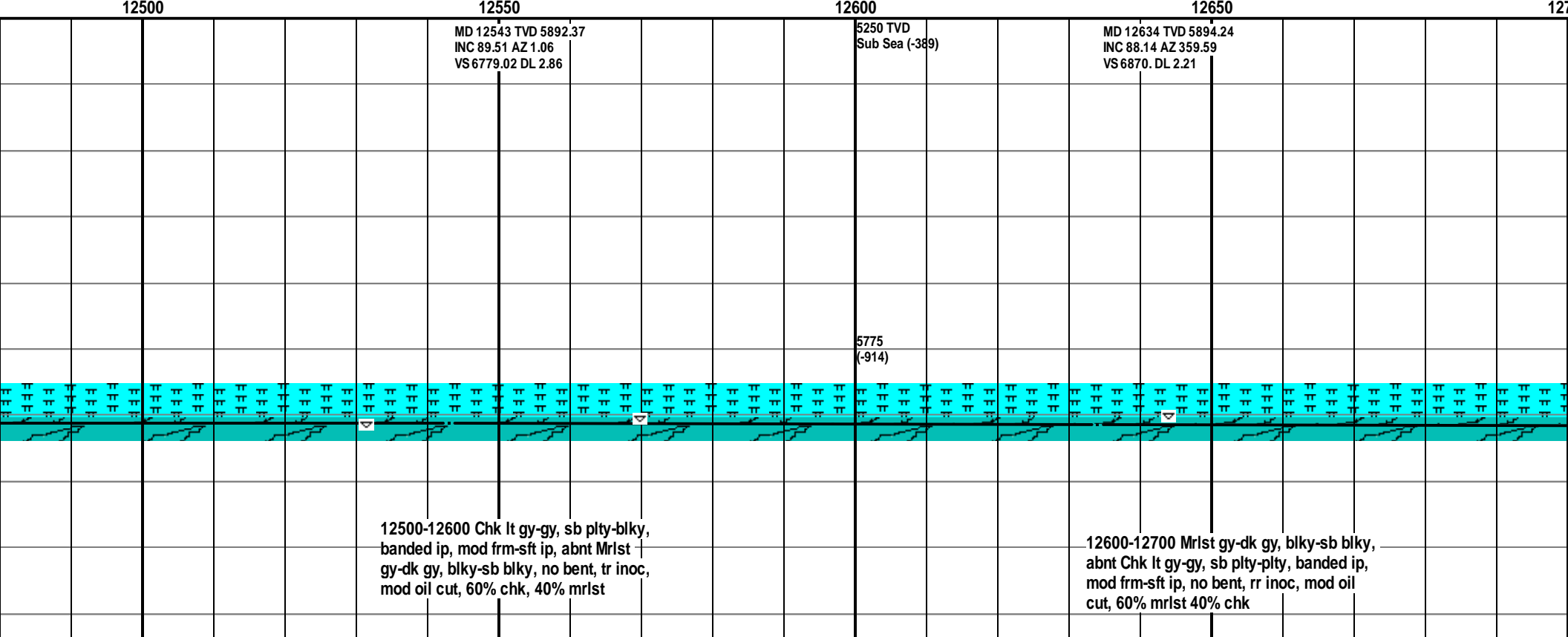
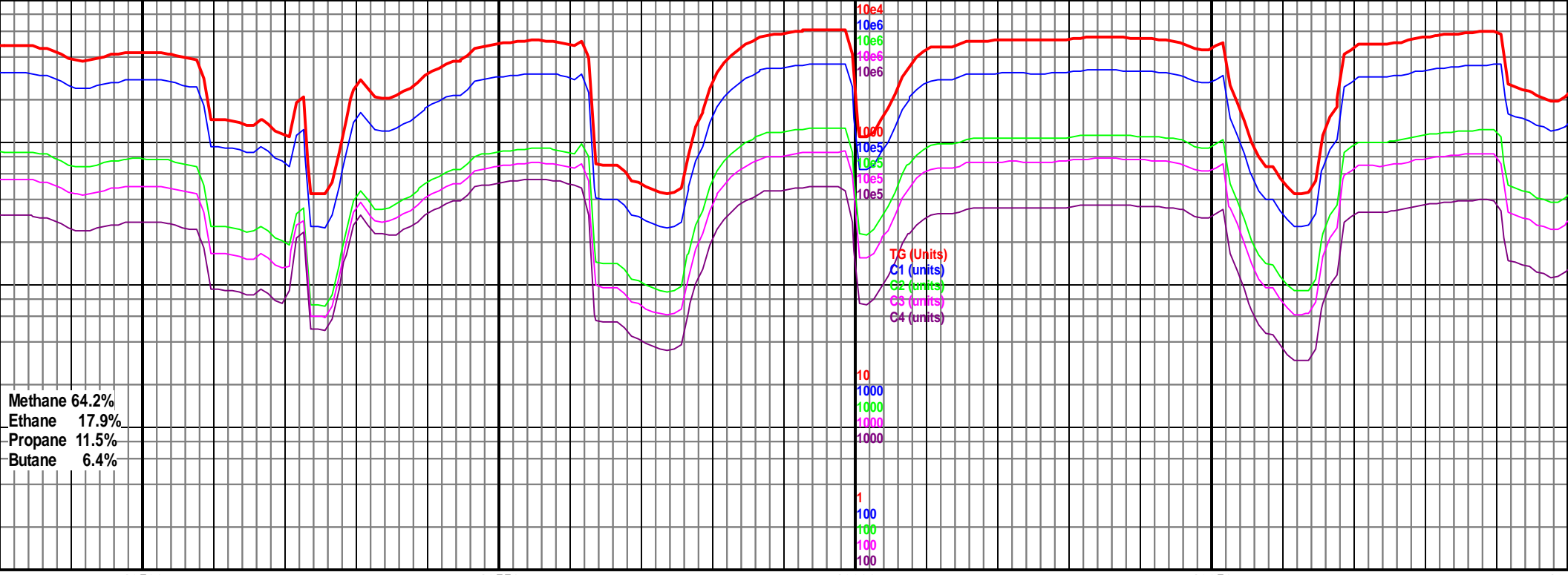
MD 12452 TVD 5891.62
INC 89.55 AZ 358.46
VS 6688.04 DL 1.27

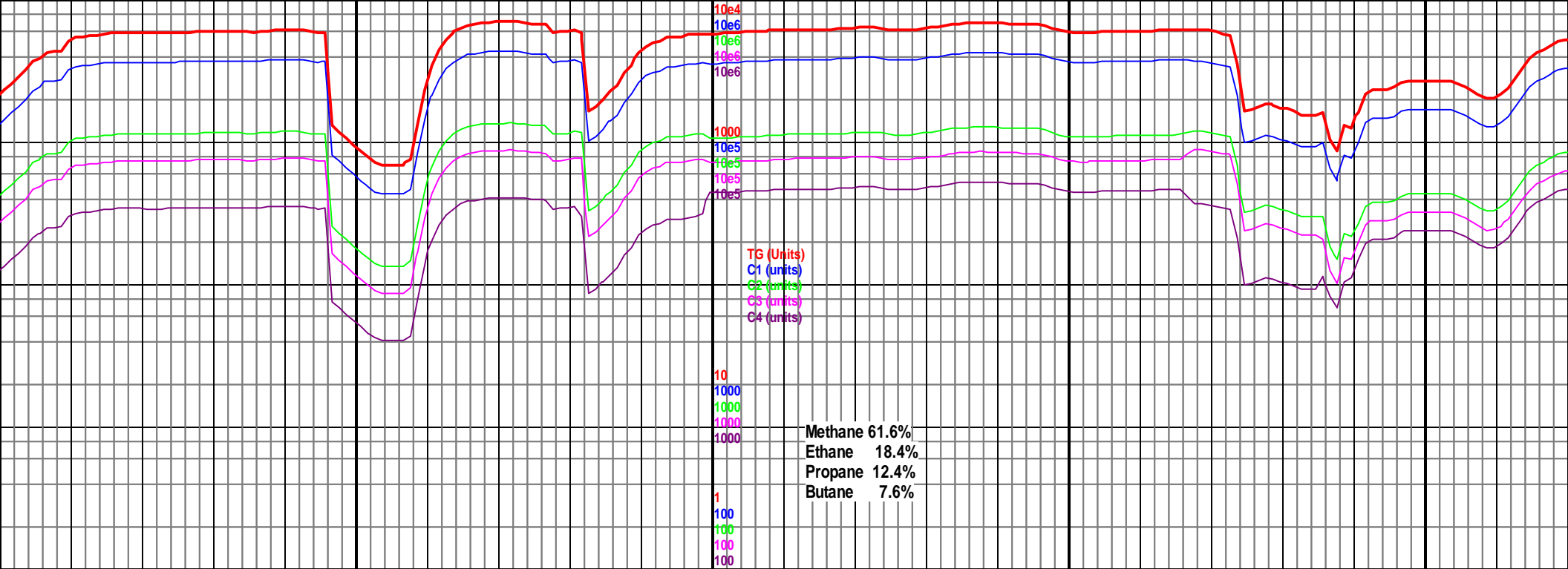


blky-sb
y-plty,
bent, tr inoc,
chk

12300-12400 Mrlst gy-dk gy, blky-sb blky,
abnt Chk lt gy-gy, sb plty-plty, banded ip,
mod frm-sft ip, rr bent, tr inoc, mod oil cut,
60% mrlst 40% chk

12400-12500 Mrlst gy-dk gy, blky-sb
blky, abnt Chk lt gy-gy, sb plty-plty,
banded ip, mod frm-sft ip, rr bent, tr inoc,
mod oil cut, 60% mrlst 40% chk





12700 12750 12800 12850 12900

MD 12726 TVD 5896.99
INC 88.43 AZ 358.65
VS 6961.94 DL 1.07

5250 TVD
Sub Sea (-389)

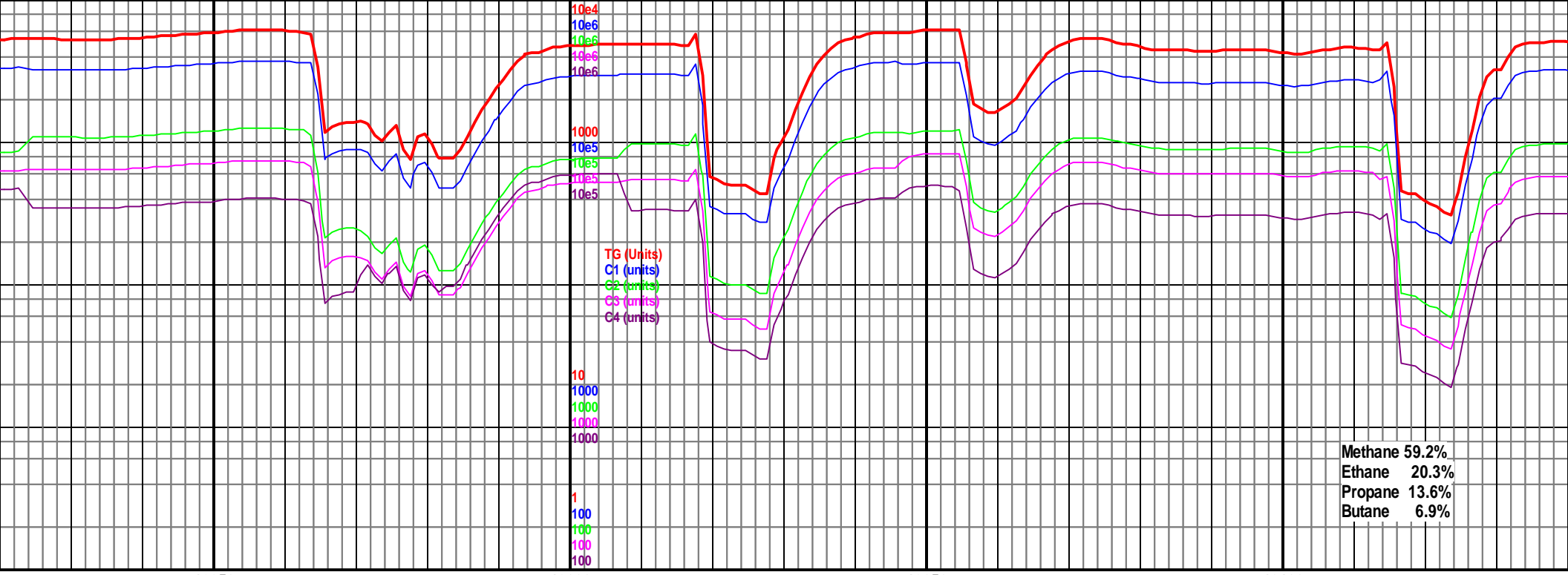
MD 12817 TVD 5899.24
INC 88.73 AZ 357.72
VS 7052.87 DL 1.07

MD 12909 TVD 5899.24
INC 89.43 AZ 357.72
VS 7144.81 DL 1.07

5775
(-914)

12700-12800 Mrlst gy-dk gy, blkly-sb blkly,
abnt Chk lt gy-gy, sb plty-plty, banded ip,
mod frm-sft ip, no bent, rr inoc, mod oil cut,
60% mrlst 40% chk

12800-12900 Chk lt gy-gy, sb plty-blky,
banded ip, mod frm-sft ip, occ Mrlst gy-dk
gy, blkly-sb blkly, g tr bent, tr inoc, mod oil
cut, 70% chk, 30% mrlst



Methane 59.2%
Ethane 20.3%
Propane 13.6%
Butane 6.9%

12950 13000 13050 13100

D 5900.72
358.8
L 1.4

12900-13000 Chk lt gy-gy, sb plty-blky, banded ip, mod frm, occ Mrlst gy-dk gy, blky-sb blky, g tr bent, tr inoc, mod oil cut, 80% chk, 20% mrlst

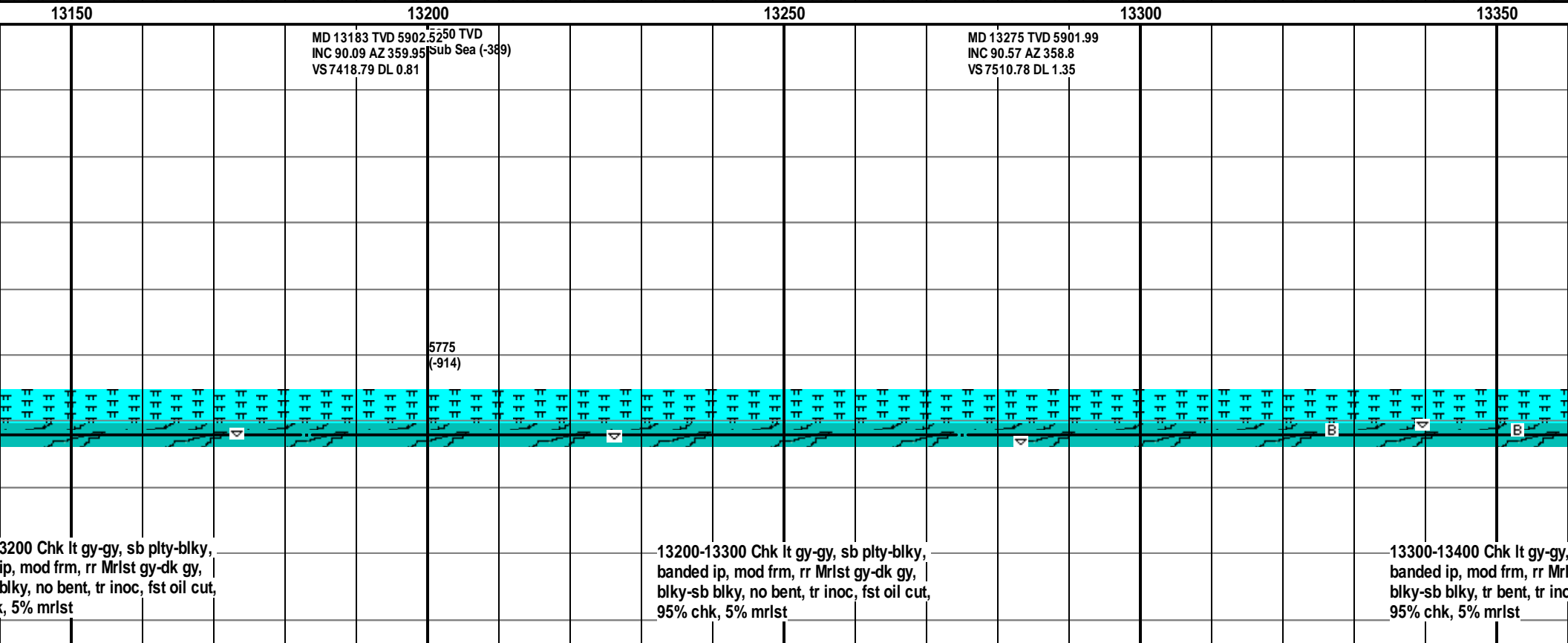
MD 13000 TVD 5901.68
INC 89.37 AZ 1.11
VS 7235.8 DL 2.54

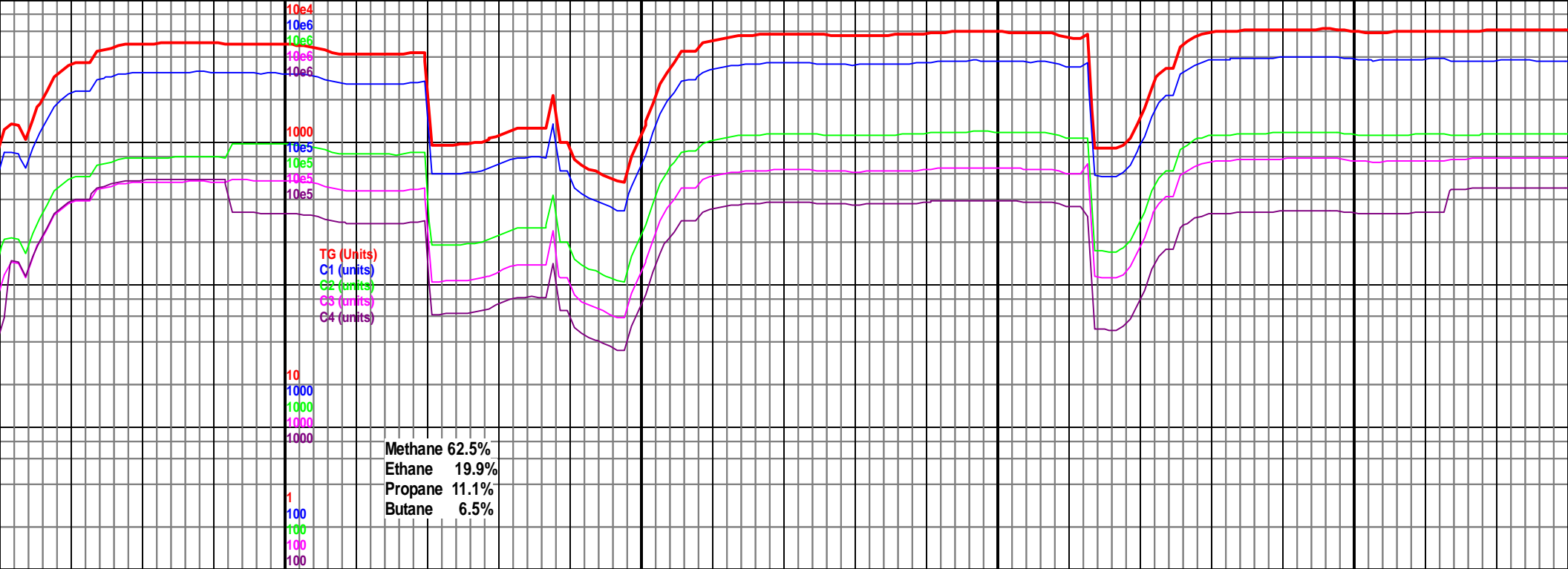
5775
(-914)

MD 13091 TVD 5902.38
INC 89.74 AZ 0.61
VS 7326.79 DL 0.68

13000-13100 Chk lt gy-gy, sb plty-blky, banded ip, mod frm, rr Mrlst gy-dk gy, blky-sb blky, no bent, g tr inoc, fst oil cut, 95% chk, 5% mrlst

13100-13200 Chk lt gy-gy, sb plty-blky, banded ip, mod frm, rr Mrlst gy-dk gy, blky-sb blky, no bent, g tr inoc, fst oil cut, 95% chk, 5% mrlst





13400 13450 13500 13550

MD 13366 TVD 5902.59
INC 88.67 AZ 358.37
VS 7601.74 DL 2.14

5250 TVD
Sub Sea (-389)

MD 13457 TVD 5904.85
INC 88.49 AZ 358.61
VS 7692.69 DL 0.33

MD 13548 TVD 5906.93
INC 88.89 AZ 357.69
VS 7783.61 DL 1.1

5775
(-914)



sb plty-blky,
st gy-dk gy,
oc, fst oil cut,

13400-13500 Chk lt gy-gy, sb plty-blky,
banded ip, mod frm, rr Mrlst gy-dk gy,
blky-sb blky, rr bent, g tr inoc, fst oil cut,
95% chk, 5% mrlst

13500-13600 Chk lt gy-gy, sb plty-blky,
banded ip, mod frm, rr Mrlst gy-dk gy,
blky-sb blky, rr bent, g tr inoc, fst oil
cut, 95% chk, 5% mrlst

