



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

**Well Name:** Razor 27I-2215A  
**Location:** NESE 27-T10N-R58W  
**License Number:** 05-123-37898  
**Spud Date:** 12/24/2013  
**Surface Coordinates:** Lat.: 40.808925 Long.: -103.843558  
**Region:** Redtail Field  
**Drilling Completed:** 1/1/2014  
**Bottom Hole Coordinates:** Lat.: 40.831211 Long.: -103.843514  
**Ground Elevation (ft):** 4757 **K.B. Elevation (ft):** 4774  
**Logged Interval (ft):** 5000 **To:** 13478 **Total Depth (ft):** 13478  
**Formation:** Pierre, Sharon Springs, Niobrara  
**Type of Drilling Fluid:** Water Based Mud

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

**OPERATOR**

**Company:** Whiting Oil & Gas Corp.  
**Address:** 1700 Broadway Suite 2300  
Denver, CO 80290

**GEOLOGIST**

**Name:** Brian Reddick, Todd Nakata  
**Company:** Acme Geologic Consulting  
**Address:** 108 Berry Street  
Little Rock, AR 72205

## Drilling Company

Cade Drilling, LLC  
Rig #23

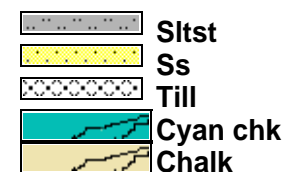
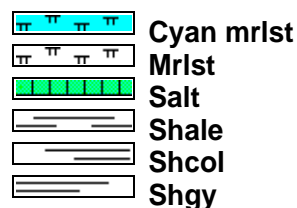
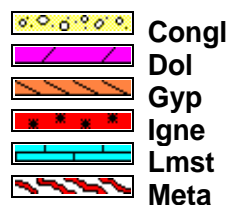
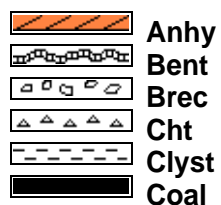
## Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #149

## Comments

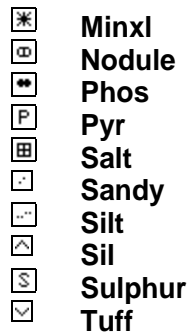
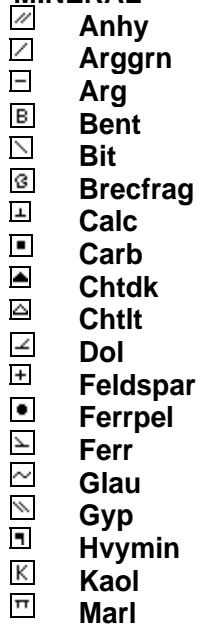
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

## ROCK TYPES

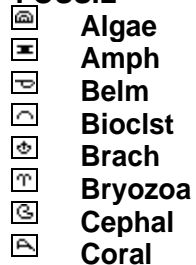


## ACCESSORIES

### MINERAL



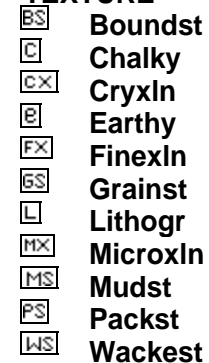
### FOSSIL



### STRINGER











### TEXTURE



OTHER SYMBOLS




POROSITY

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

SORTING





-  Well
-  Moderate
-  Poor

ROUNDING



-  Rounded
-  Subrnd
-  Subang

-  Angular

OIL SHOW

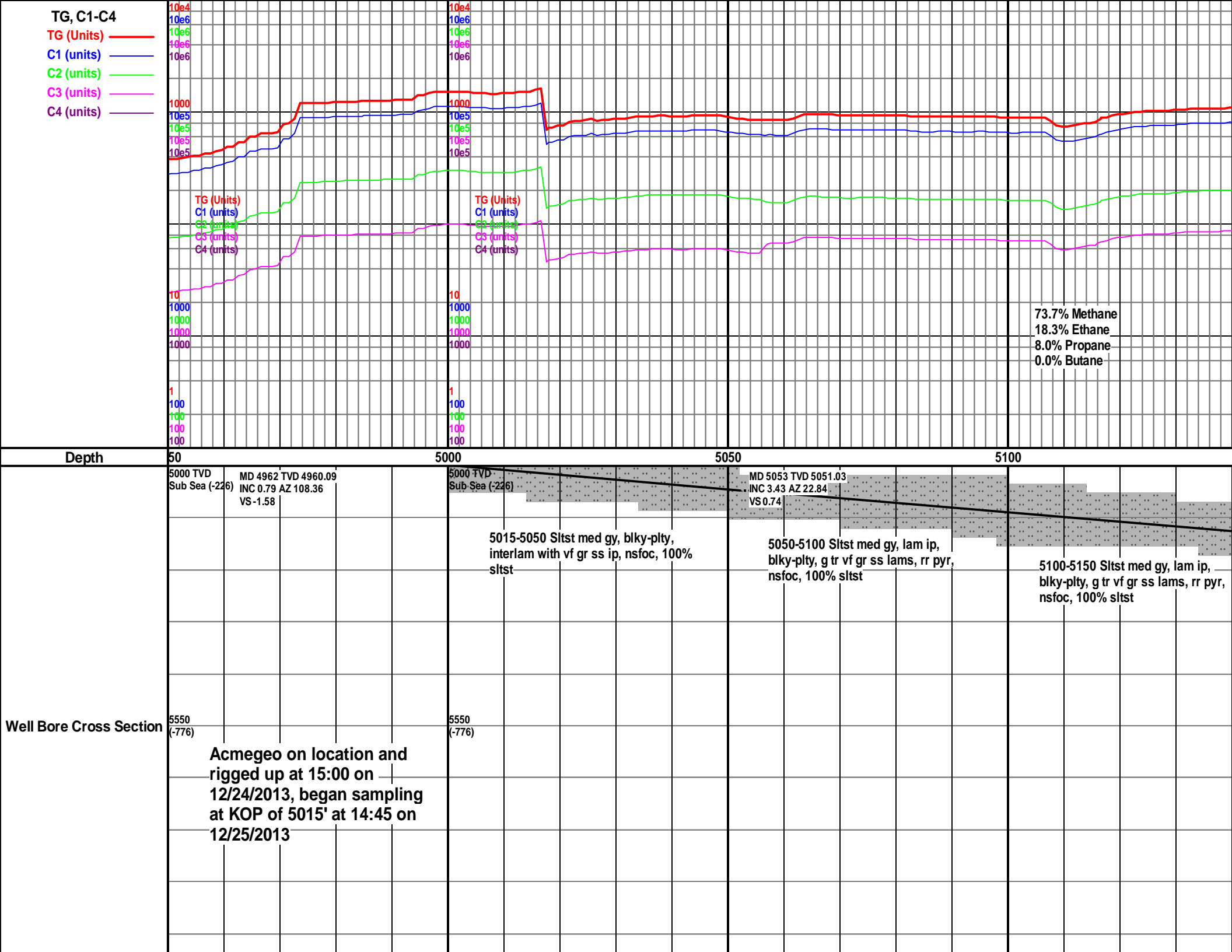
-  Even
-  Spotted
-  Ques
-  Dead

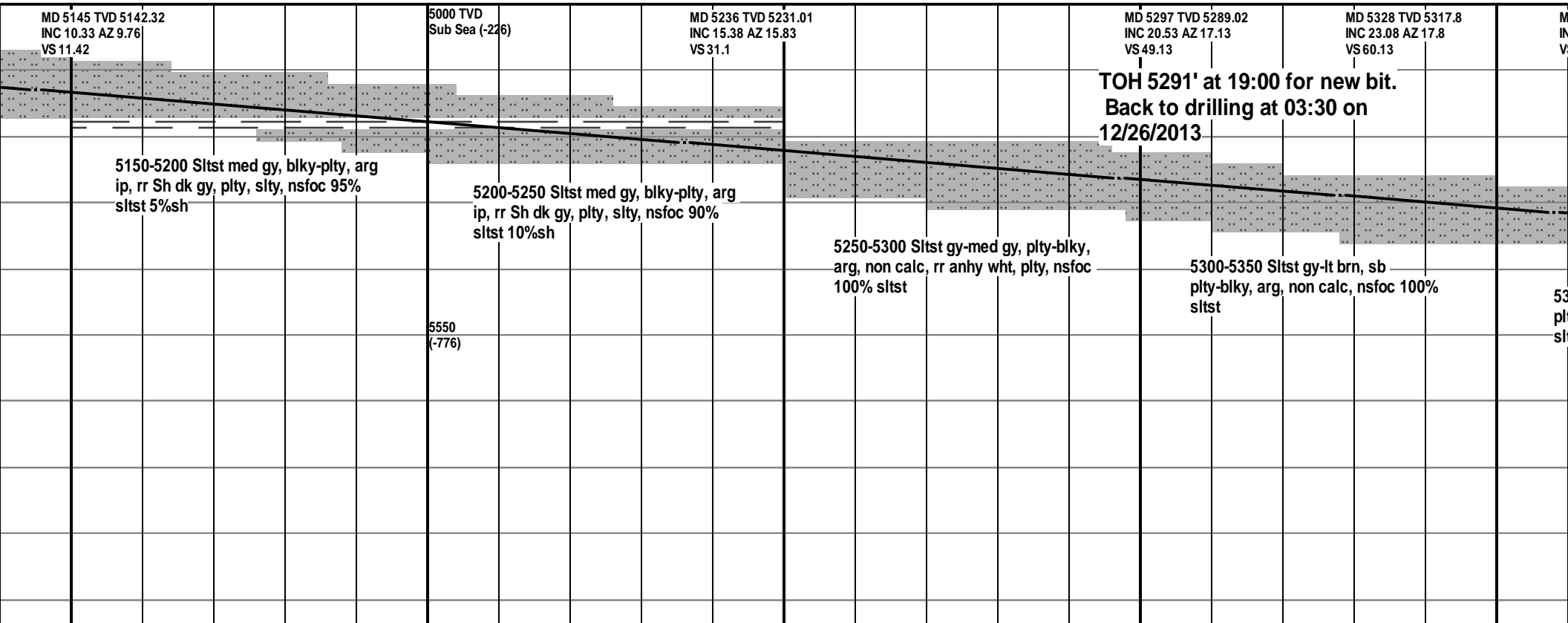
INTERVAL

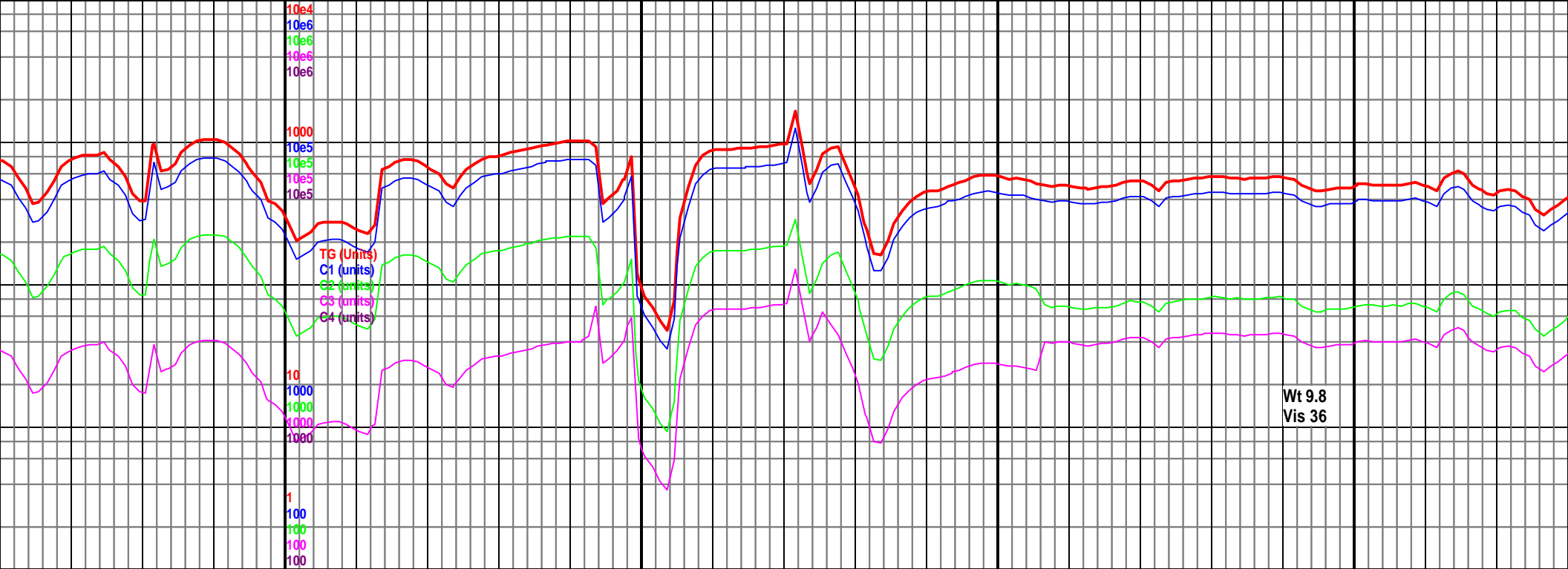
-  Core
-  Dst

EVENT

-  Rft
-  Sidewall

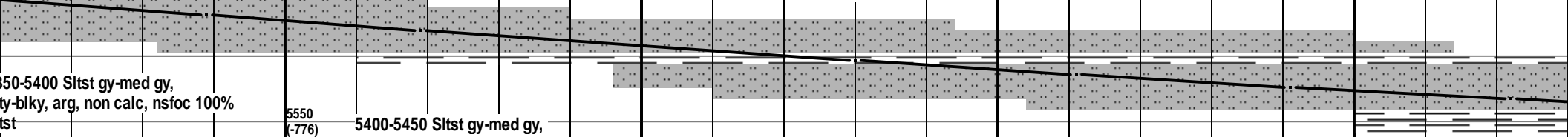




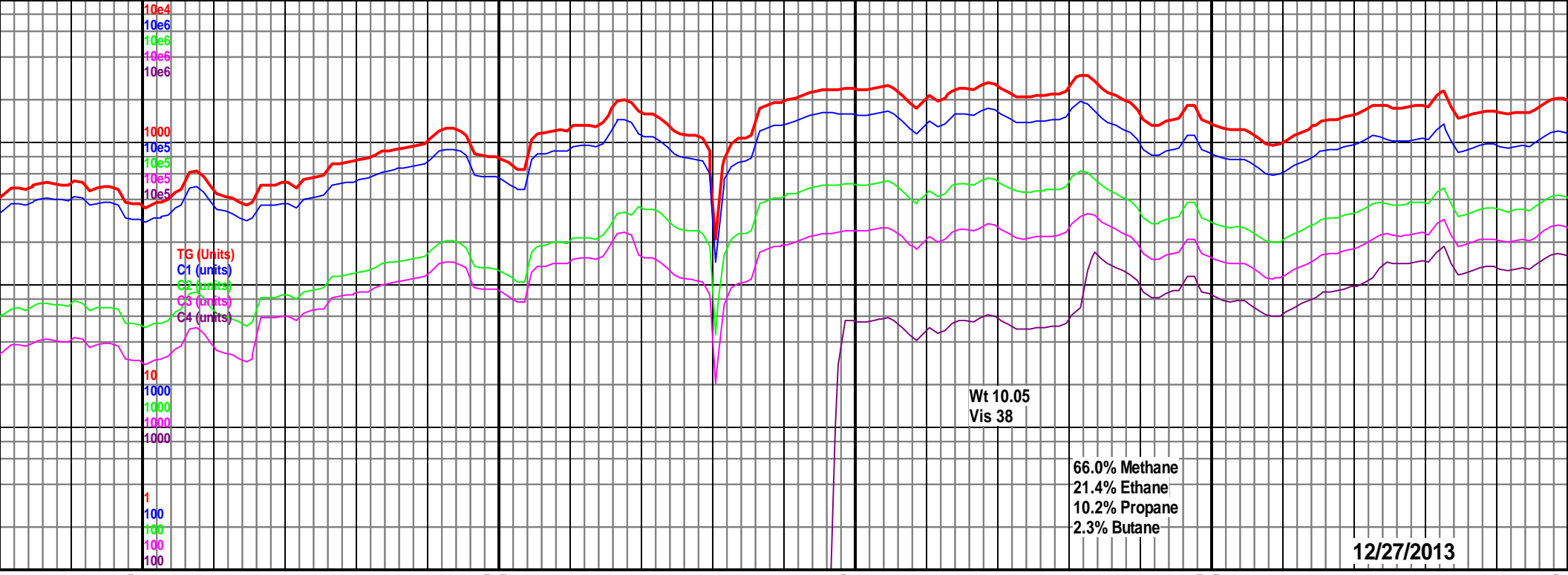


MD 5358 TVD 5345.05 INC 26.33 AZ 17.32 VS 72.09	MD 5389 TVD 5372.45 INC 29.45 AZ 17.08 <sup>ea</sup> (-226) VS 85.95	MD 5419 TVD 5398.21 INC 32.18 AZ 18.42 VS 100.6	MD 5480 TVD 5448.03 INC 38.24 AZ 20.59 VS 133.75	MD 5511 TVD 5471.74 INC 41.93 AZ 19.11 VS 152.54	MD 5541 TVD 5493.1 INC 47.25 AZ 17.71 VS 172.54	MD 5572 TVD 5514.1 INC 52.13 AZ 16.71 VS 195.16
---	--	---	--	--	---	---

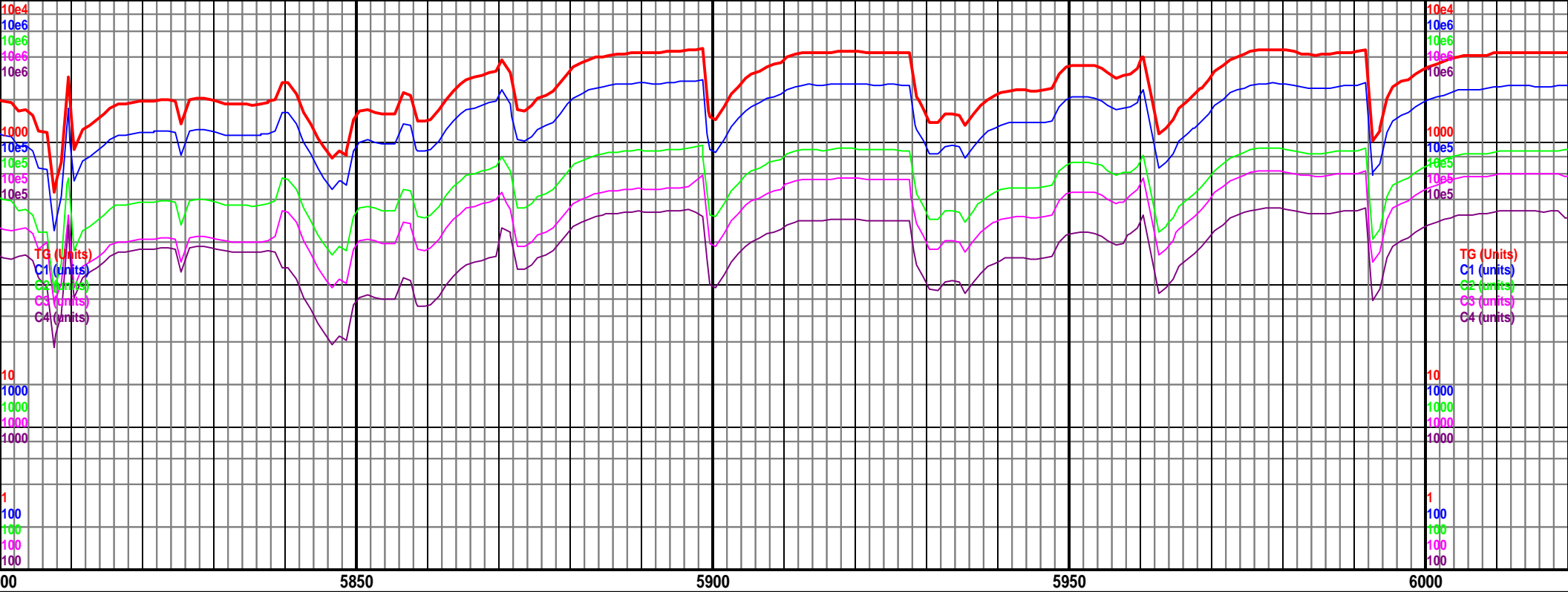
TOH 5472' at 05:30 for new  
bit and motor. Back to  
drilling at 14:45 on  
12/26/2013



5400-5450 Slst gy-med gy, pty-blky, arg, non calc, nsfoc 100% slst	5450-5450 Slst gy-med gy, pty-blky, arg, non calc, nsfoc 100% slst	5450-5500 Slst med gy, sb blk-y-sb pty, frm, arg, grdg to vf gr ss ip, occ interbed dk gy sh, non calc, nsfoc, 100% slst	5500-5550 Slst med gy, sb blk-y-sb pty, frm, arg, grdg to dk gy sh ip, non calc, nsfoc, 90% slst, 10% sh	5550-5600 Slst dk gy-r sb blk-y-sb pty, frm, arg sh, non calc, occ Sh dk arg, nsfoc 60% slst, 40%
--	--	---	--	--

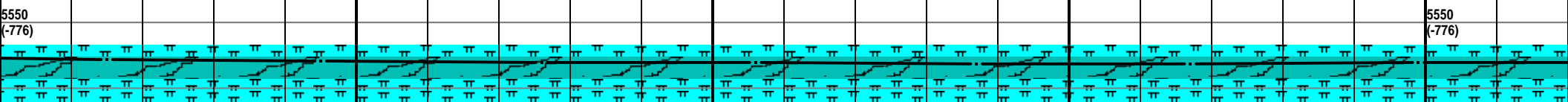


TVD 5513.15 AZ 16.27 VS 5	MD 5601 TVD 5530.21 INC 55.78 AZ 13.25 VS 217.84	MD 5632 TVD 5546.96 INC 58.86 AZ 7.94 VS 243.49	MD 5662 TVD 5561.82 INC 61.76 AZ 2.64 VS 269.43	MD 5693 TVD 5575.71 INC 65.05 AZ 358.45 VS 297.14	MD 5724 TVD 5587.95 INC 68.44 AZ 353.45 VS 325.53	MD 5754 TVD 5597.92 INC 72.75 AZ 351.36 VS 353.56	MD 5785 TVD 5603.12 INC 77.27 AZ 350.12 VS 383.12
<b>P200 5590' MD, 5523' TVD</b>		<b>P300 5634' MD, 5548' TVD</b>	<b>P350 5677' MD, 5567' TVD</b>	<b>Sharon Springs 5706' MD, 5579' TVD</b>	<b>Niobrara 5722' MD, 5587' TVD</b>		<b>N100 5774' MD, 5603' TVD</b>
med gy, trns l ip, g, grdg to dk gy k gy, plty, sft, 0% sh	5600-5650 Sh dk gy-gy, plty, sft, arg, sfty ip, dk lam, tr Slst dk gy-med gy, sb plty, frm, arg, grdg to dk gy sh, non calc, nsfoc 80% sh 20% slst		5650-5700 Sh dk gy-gy, plty-sb plty, sft, arg, slty ip, dk lam, tr Slst dk gy-med gy, sb plty, frm, arg, grdg to dk gy sh, non calc, nsfoc 70% sh 30% slst	5700-5750 Sh dk gy-gy, sb plty, sft, arg, slty ip, tr Slst dk gy, sb plty, frm, arg, non calc, rr Mrlst dk gy, blk, rr bent nsfoc 60% sh 20% slst 15% mrlst 5% bent		5750-5800 Mrlst med-dk gy, sb blk-sb plty, frm, slty, tr Chk lt gy, sb blk, sft, rr bent, rr pyr, sl oil cut, 70% mrlst, 30% chk	



MD 5830 TVD 5611.14 INC 82.73 AZ 351.85 VS 412.31	MD 5845 TVD 5613.98 INC 86.42 AZ 353.38 VS 441.91	MD 5876 TVD 5615.72 INC 87.12 AZ 354.25 VS 472.67	MD 5906 TVD 5617.02 INC 87.91 AZ 354.75 VS 502.5	MD 5937 TVD 5617.73 INC 89.49 AZ 353.83 VS 533.32	MD 5967 TVD 5617.6 INC 90.99 AZ 352.88 VS 563.11	MD 5999 TVD 5616.68 INC 92.31 AZ 353.04 VS 594.85
---	---	---	--	---	--	---

TOH 5808' at 02:15 for an  
adjustment on the BHA.  
Back to drilling at 10:00 on  
12/27/2013



5800-5850 Mrlst med gy, sb blkysb  
ply, frm, g tr chk lt-med gy, mottled,  
sft, t bent, slo oil cut, 70% mrlst, 30%  
chk

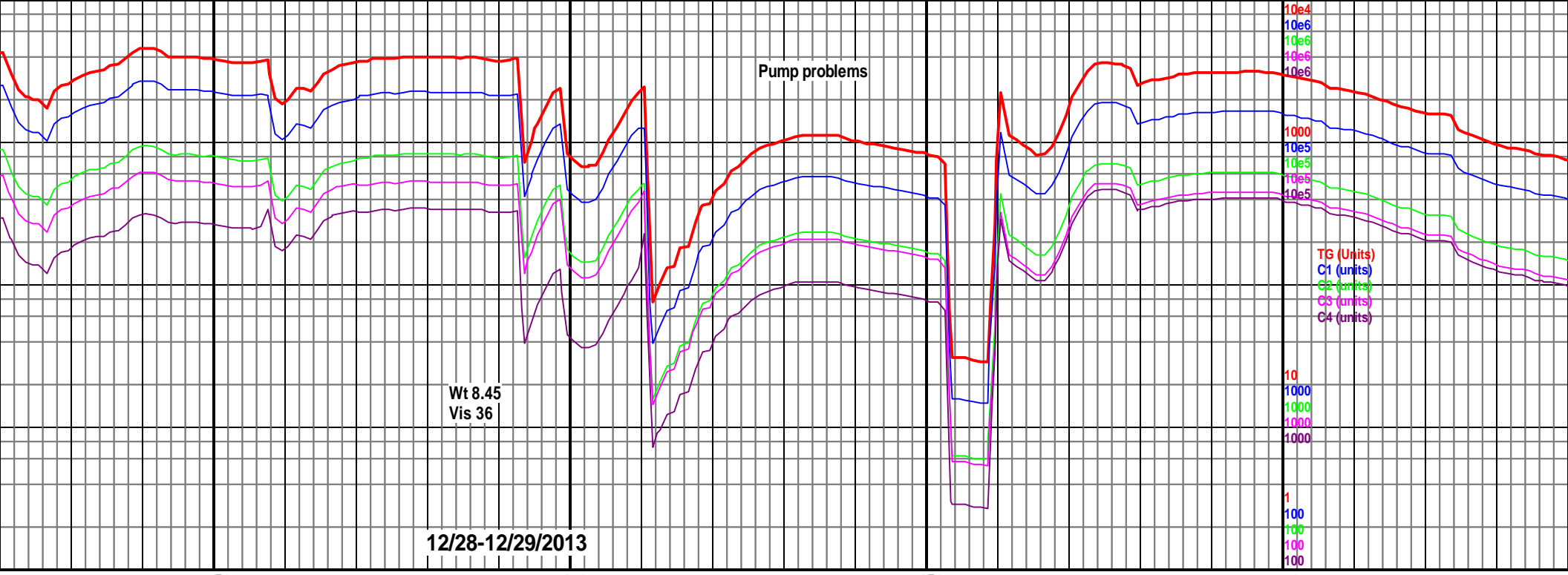
5850-5900 Chk lt gy-lt gy brn, mottled,  
sft, sb blkysb ply, g tr mrlst a/a, abnt  
dull yel flor, mod oil cut, 70% chk, 30%  
mrlst

5900-5950 Chk lt gy-gy brn, occ v lt gy,  
mottled ip, sft, sb blkysb ply, lam with  
dk gy mrlst ip, g tr dull yel flor, mod oil  
cut, 70% chk, 30% mrlst

5950-6000 Chk lt gy-gy brn, sb blkysb  
ply, sft, mottled ip, g tr med-dk gy  
mrlst, rr cal fld microfrac, abnt yel flor,  
mod oil cut, 90% chk, 10% mrlst

6000-6050 Chk  
blkysb ply, frm  
a/a, rr cal fld r  
flor, mod oil cu





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

10e4  
10e6  
10e6  
10e6  
10e6  
10e6  
1000  
10e5  
10e5  
10e5  
10e5  
10  
1000  
1000  
1000  
1000  
1  
100  
100  
100  
100

Wt 8.45  
Vis 36

12/28-12/29/2013

6050

6100

6150

6200

MD 6037 TVD 5615.34  
INC 91.74 AZ 352.53  
VS 632.51

MD 6110 TVD 5615.02  
INC 88.75 AZ 352.03  
VS 704.81

5000 T MD 6205 TVD 5617.25  
Sub Se INC 88.57 AZ 355.22  
VS 799.15

TOH 6090' for intermediate  
casing at 17:25 on  
12/27/2013, resume drilling  
at 03:10 on 12/29/2013

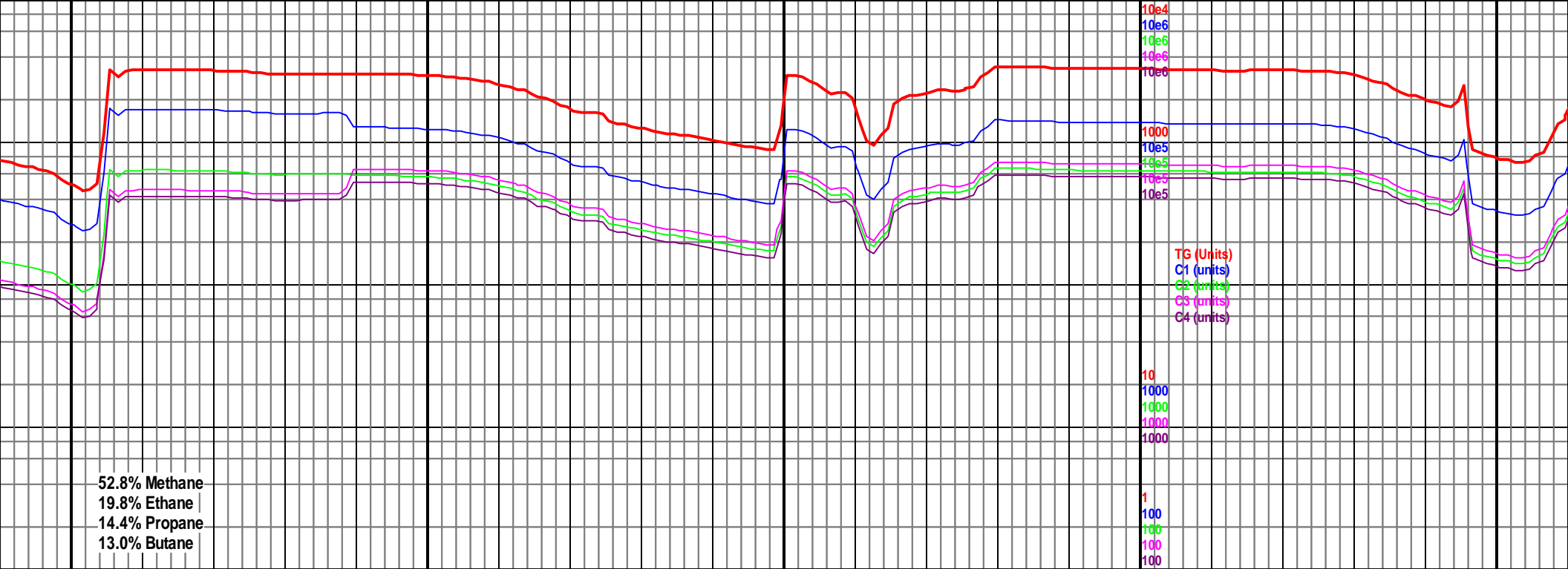
5550  
(-776)

lt gy-lt gy brn, sb  
m-sft, mottled, g tr mrlst  
microfrac, abnt dull yel  
t, 80% chk, 20% mrlst

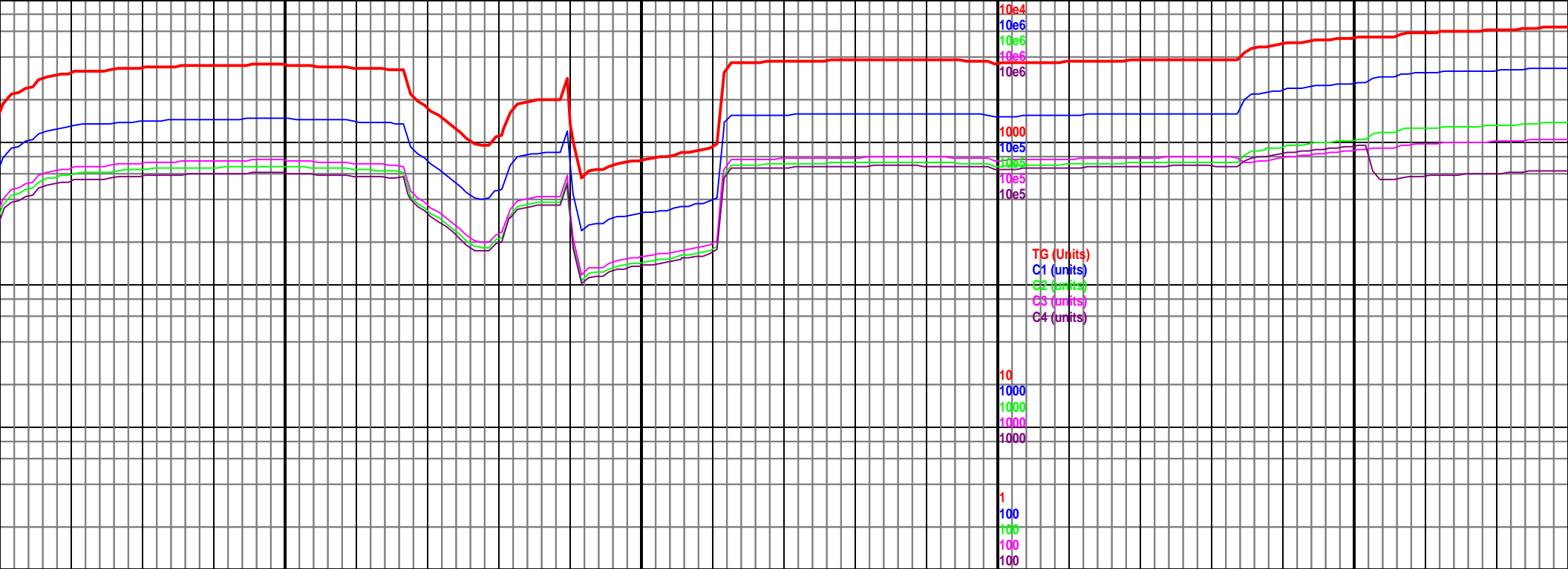
6050-6090 Chk lt gy-lt gy brn, sb  
blky-sb plty, frm-sft, mottled, g tr mrlst  
a/a, rr cal fld microfrac, abnt dull yel  
flor, mod oil cut, 80% chk, 20% mrlst

6100-6200 Chk lt gy-gy, sb blky-sb plty,  
frm-sft, tr mrlst gy, sb blky, sft, suc, fst  
oil cut, 80% chk, 20% mrlst

62  
ph  
ab  
m



6250	6300	6350	6400	6450
MD 6300 TVD 5619.36 INC 88.88 AZ 359.49 VS 893.99				
MD 6395 TVD 5619.33 INC 91.16 AZ 359.16 VS 988.98				
5550 (-776)				
6200-6300 Chk lt gy-gy brn, sb blk-y-sb pty, frm-sft, cln-mod arg, tr mrlst a/a, abnt yel flor, g oil cut, 90% chk, 10% mrlst				
6300-6400 Chk lt gy-gy brn, sb blk-y, sft-frm, g tr mrlst med gy, blk-y-sb blk-y, frm, abnt yel flor, fr oil cut, 70% chk, 30% mrlst				
6400-6500 Chk lt gy-gy pty, sft, g tr mrlst a/a, oil cut, 80% chk, 20% mrlst				



MD 6489 TVD 5617.2  
INC 91.43 AZ 358.81  
VS 1082.93

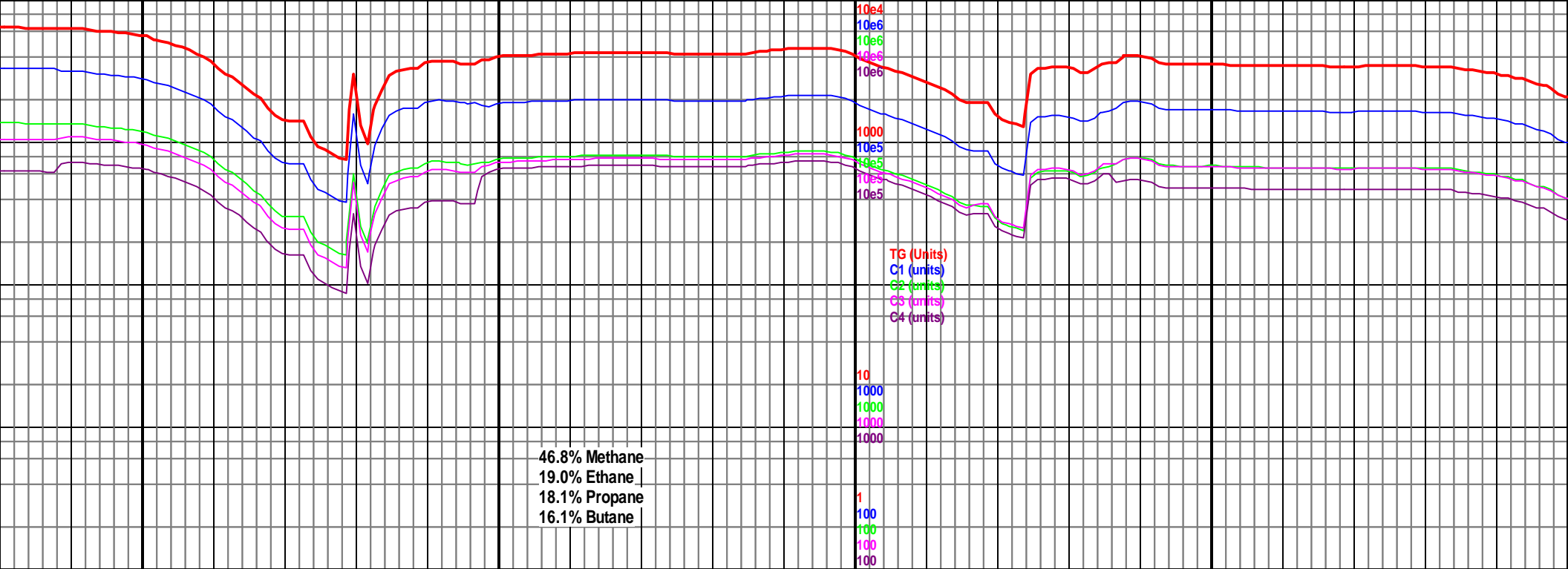
MD 6584 TVD 5614.83<sup>30</sup> TVD  
INC 91.43 AZ 358.82<sup>2</sup>ub Sea (-226)  
VS 1177.88

5550  
(-776)

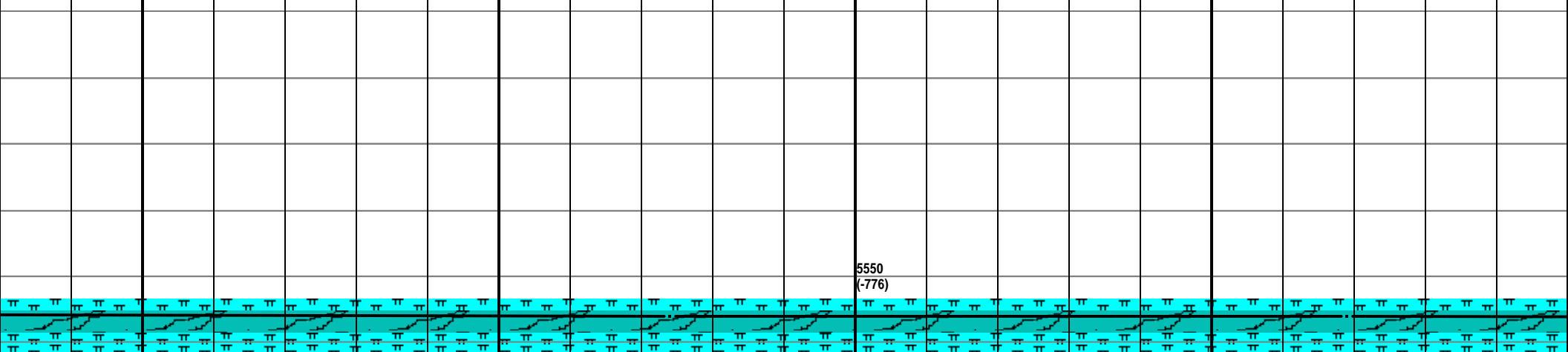
brn, sb blk-y-sb  
abnt yel flor, fst  
mrlst

6500-6600 Chk lt gy, mottled, sb  
blk-y-sb plty, sft, g tr mrlst a/a, abnt dull  
yel flor, fr oil cut, 90% chk, 10% mrlst

6600-6700 Mrlst med-dk gy, sb  
blk-y-plty, frm, g tr chk a/a, 80% mrlst,  
20% chk

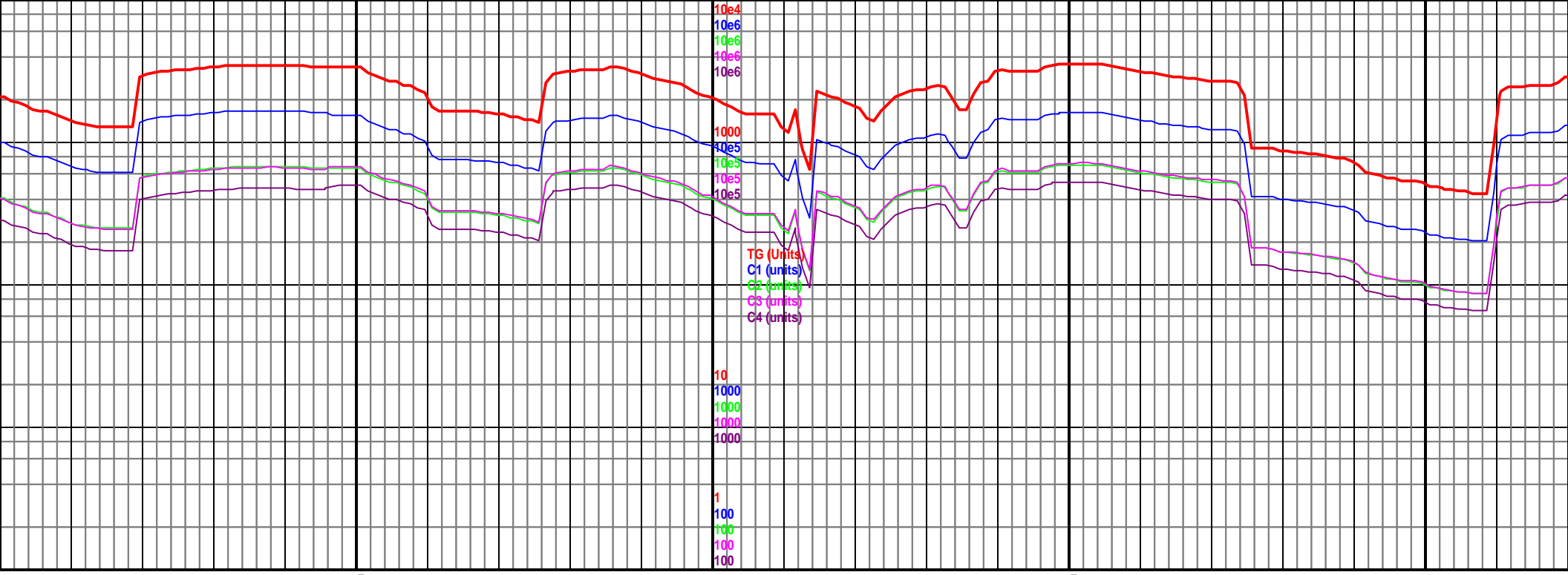


6700	6750	6800	6850	6900
MD 6679 TVD 5614.03 INC 89.54 AZ 357.08 VS 1272.8	MD 6774 TVD 5615.55 INC 88.62 AZ 358.66 VS 1367.7	5000 TVD Sub Sea (-226)	MD 6869 TVD 5617.12 INC 89.49 AZ 1.14 VS 1462.68	



6700-6800 Chk lt-med gy, arg, sb  
blk-y-sb pty, mottled ip, sft frm, g tr dull  
yel flor, slo oil cut, 70% chk, 30% mrlst

6800-6900 Chk lt-med gy, arg, sb  
blk-y-sb pty, mottled ip, sft frm, g tr dull  
yel flor, slo oil cut, 80% chk, 20% mrlst



00 6950 7000 7050 7100

MD 6963 TVD 5618.38  
INC 88.97 AZ 0.82  
VS 1556.66

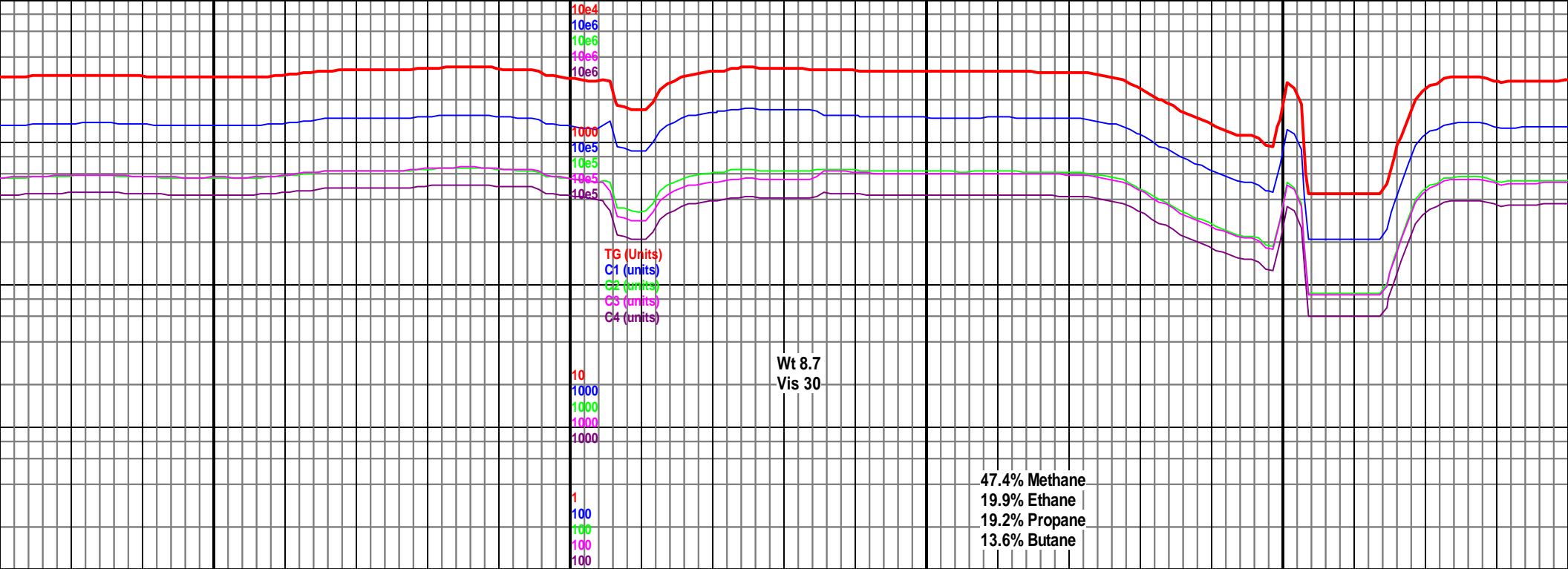
5000 TVD  
Sub Sea (-226)

MD 7058 TVD 5619.04  
INC 90.24 AZ 3.92  
VS 1651.58

5550  
(-776)

6900-7000 Chk lt-med gy, sb blk-y-sb  
pty, frm, arg, mottled ip, abnt dull yel  
flor, slo oil cut, 70% chk, 30% mrlst

7000-7100 Chk lt gy brn, mottled-lam,  
sb blk-y-sb pty, frm, sl arg-cln, abnt  
dull yel flor, fr oil cut, 90% chk, 10%  
mrlst



7150

7200

7250

7300

MD 7153 TVD 5618.23  
INC 90.73 AZ 4.19  
VS 1746.35

5000 TVD  
Sub Sea (-226)

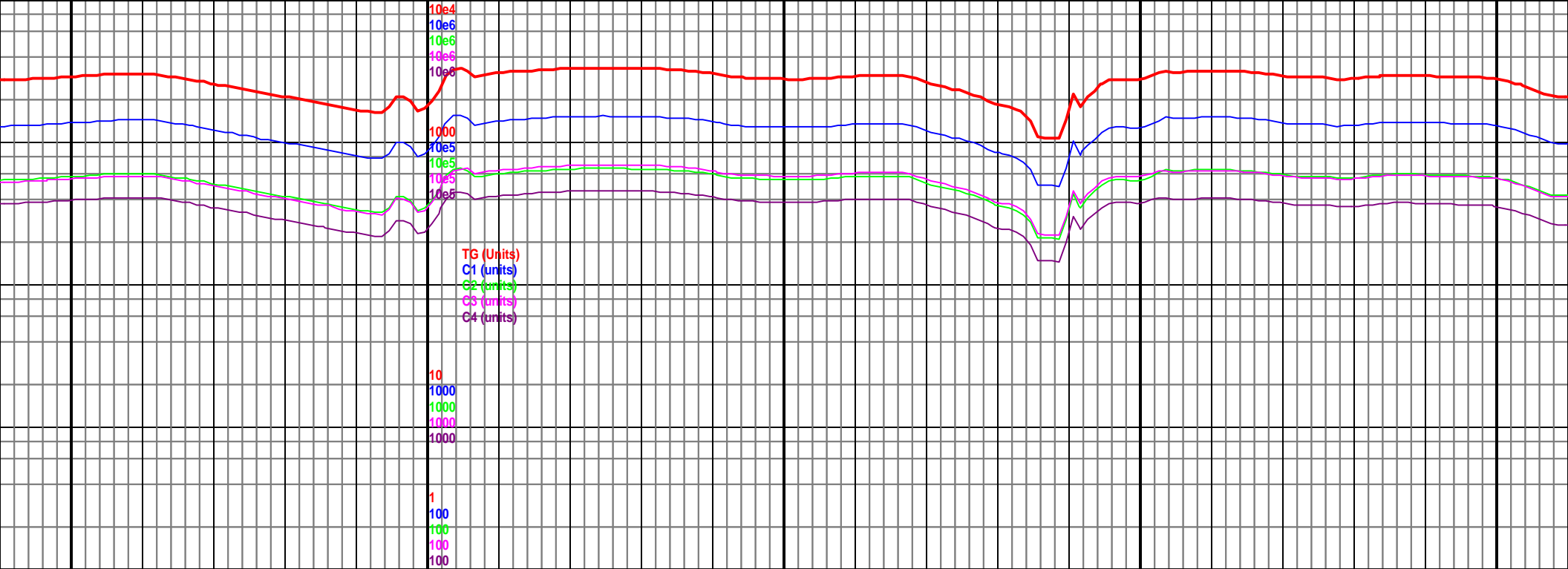
MD 7248 TVD 5616.41  
INC 91.47 AZ 2.48  
VS 1841.19

5550  
(-776)

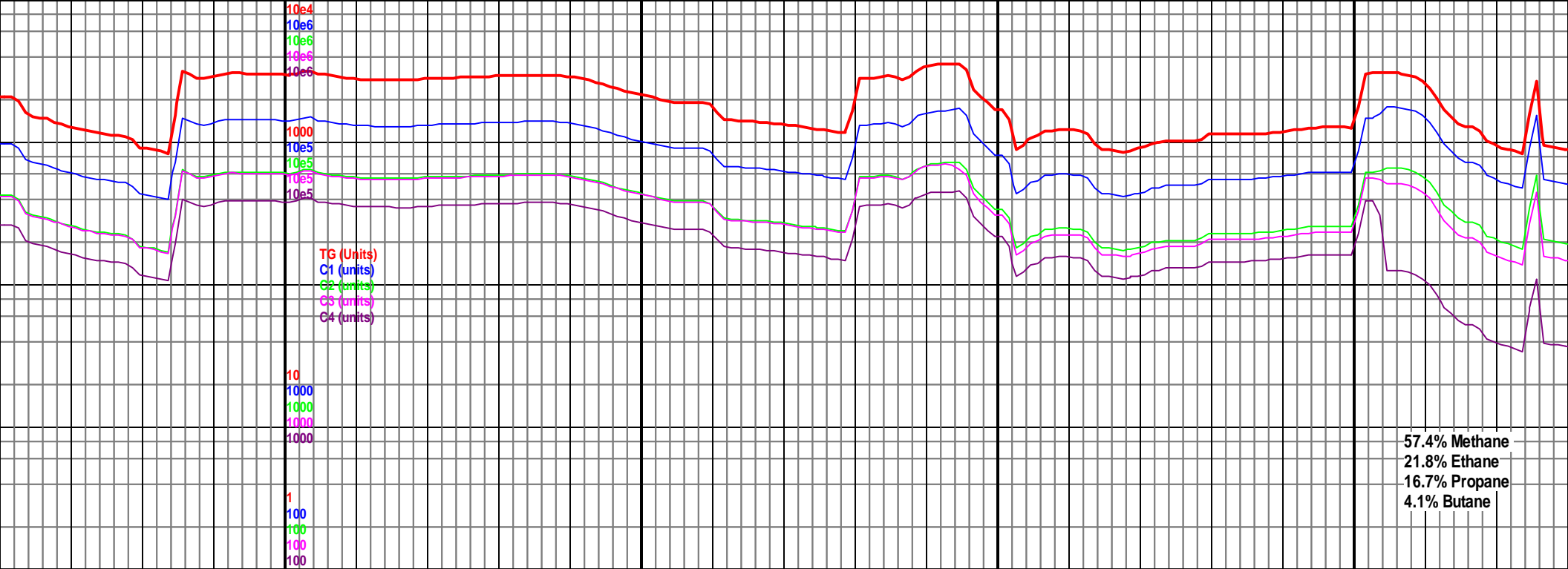
7100-7200 Chk lt gy, mottled ip, occ med gy, sb blk-y-sb plty, frm, abnt dull yel flor, fr oil cut, 80%, 20% mrlst

7200-7300 Chk lt gy-gy, mottled ip, sft, slty, occ dk-med gy, sb blk-y-sb plty, frm, sl oil cut, 60%, 40% mrlst

7300-7400 Chk lt gy-gy, mottled ip, sft, slty, occ dk-med gy, sb blk-y-sb plty, frm, rr Mn vis oil sa



7350	7400	7450	7500	7550
MD 7343 TVD 5615.03 INC 90.2 AZ 358.91 VS 1936.15	5000 TVD Sub Sea (-226)	MD 7438 TVD 5616.15 INC 88.44 AZ 356.99 VS 2031.07		MD 7532 TVD 5620.34 INC 86.46 AZ 358.25 VS 2124.88
0 Chk lt gy-gy, plty-blky, lam, 1st dk gy, sb blky, slty, frm, mple, 90% chk, 10% mrlst		7400-7500 Chk lt gy-gy, plty-sb blky, mottled, frm, rr Mrlst dk gy, sb blky, slty, frm, vis oil sample, 90% chk, 10% mrlst		7500-7600 Chk lt gy-gy, plty-bl mottled, frm, rr Mrlst dk gy, sb frm, vis oil sample, 90% chk, mrlst



7600 7650 7700 7750

5000 TVD  
Sub Sea (-226)

MD 7627 TVD 5626.2  
INC 86.46 AZ 0.17  
VS 2219.68

MD 7722 TVD 5630.43  
INC 88.44 AZ 2.01  
VS 2314.56

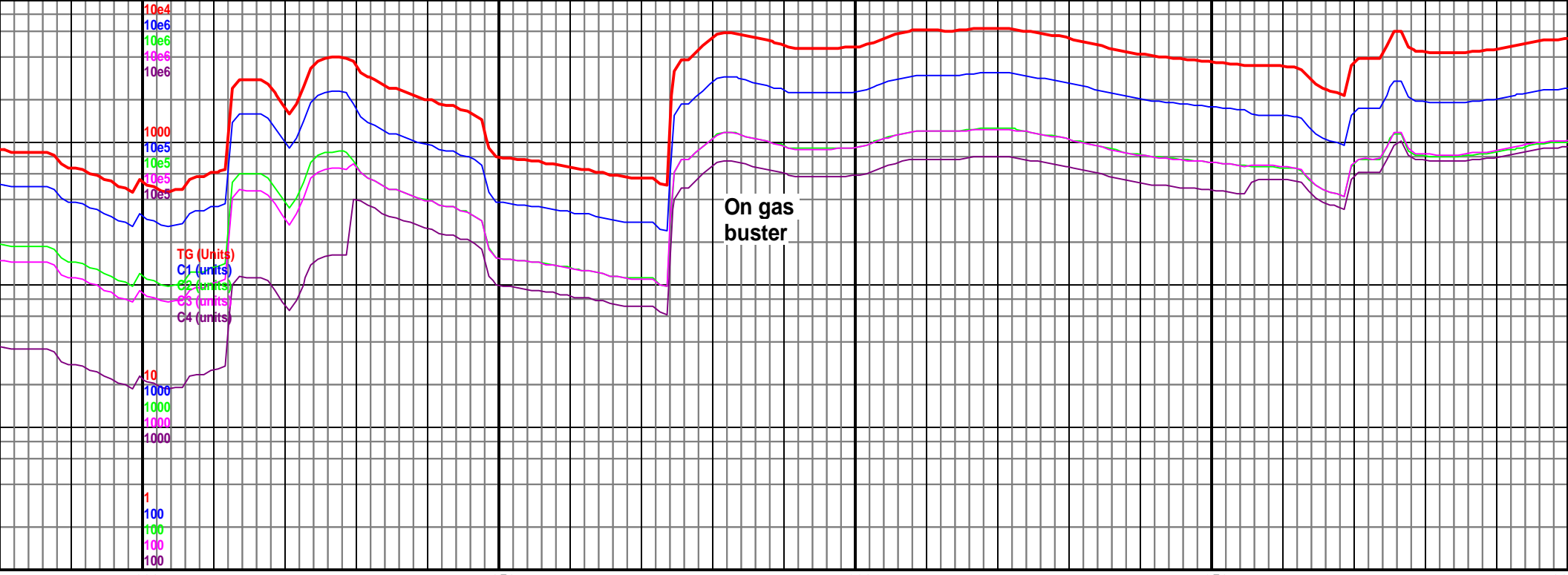
5550  
(-776)

ky,  
blky,  
10%

7600-7700 Chk lt gy-gy, plty-blky,  
mottled, frm, rr Mrlst dk gy, sb blky,  
frm, streaming cut, 90% chk, 10% mrlst

7700-7800 Chk lt gy-gy, plty-blky,  
mottled, frm, rr Mrlst dk gy, sb blky,  
frm, fst cut, 90% chk, 10% mrlst





7800 7850 7900 7950 8000

5000 TVD  
Sub Sea (-226)

MD 7817 TVD 5630.5  
INC 91.47 AZ 3.06  
VS 2409.47

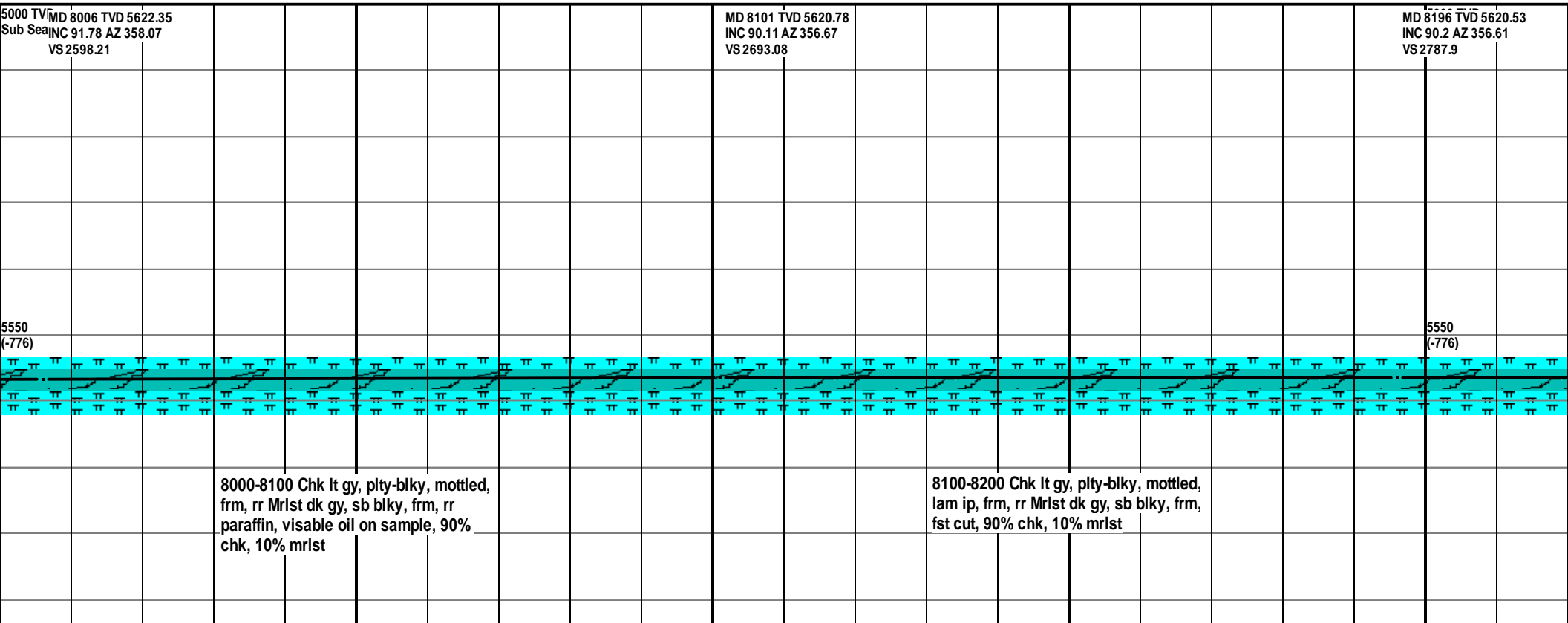
MD 7912 TVD 5626.53  
INC 93.32 AZ 358.81  
VS 2504.35

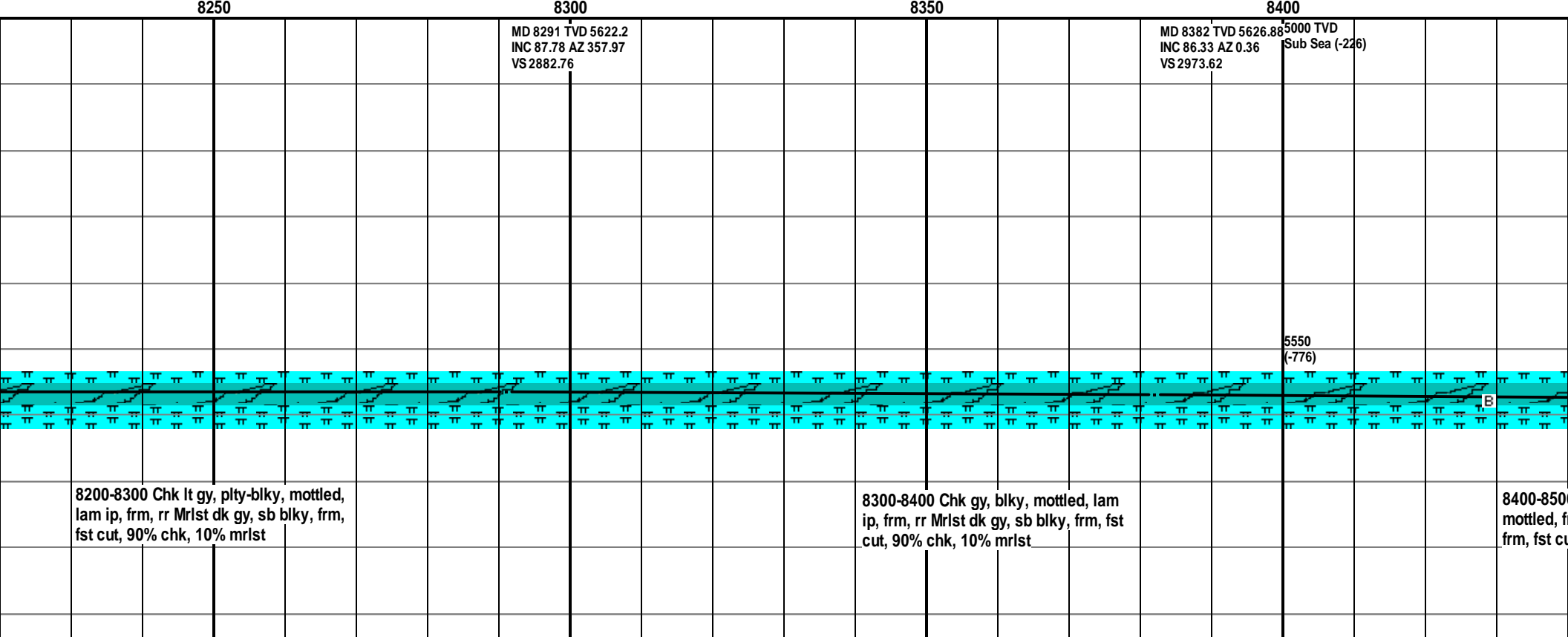
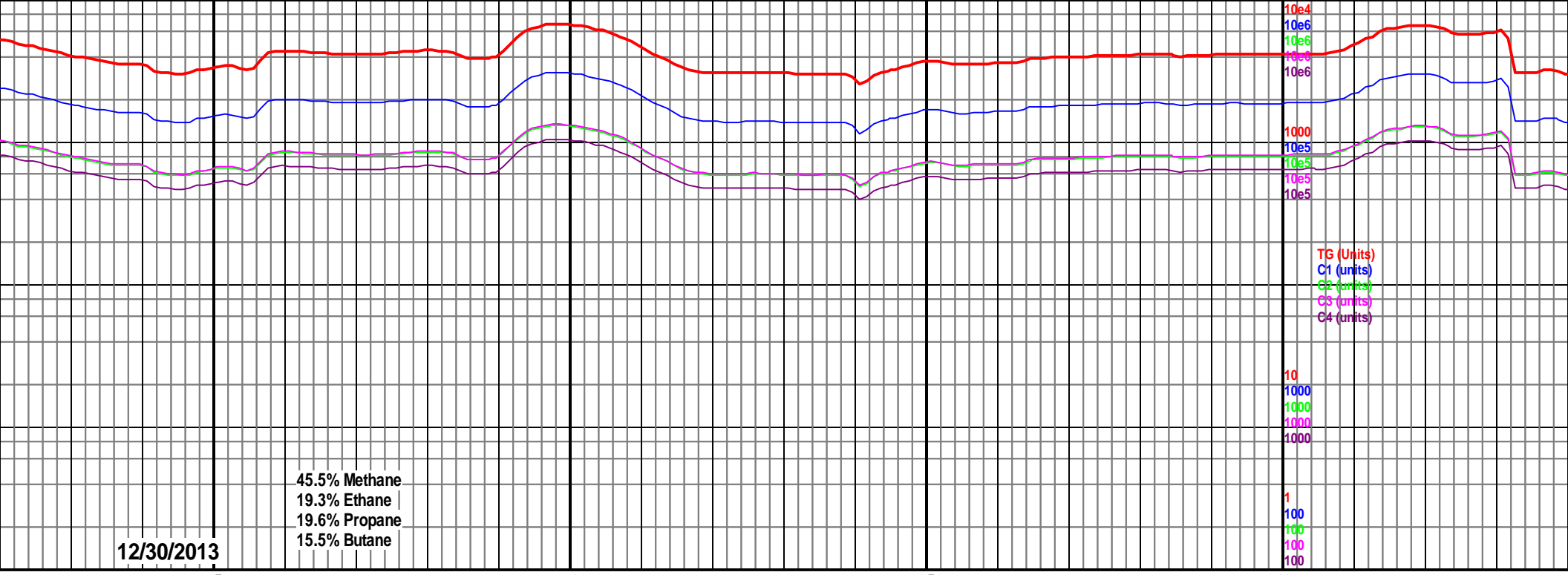
5550  
(-776)

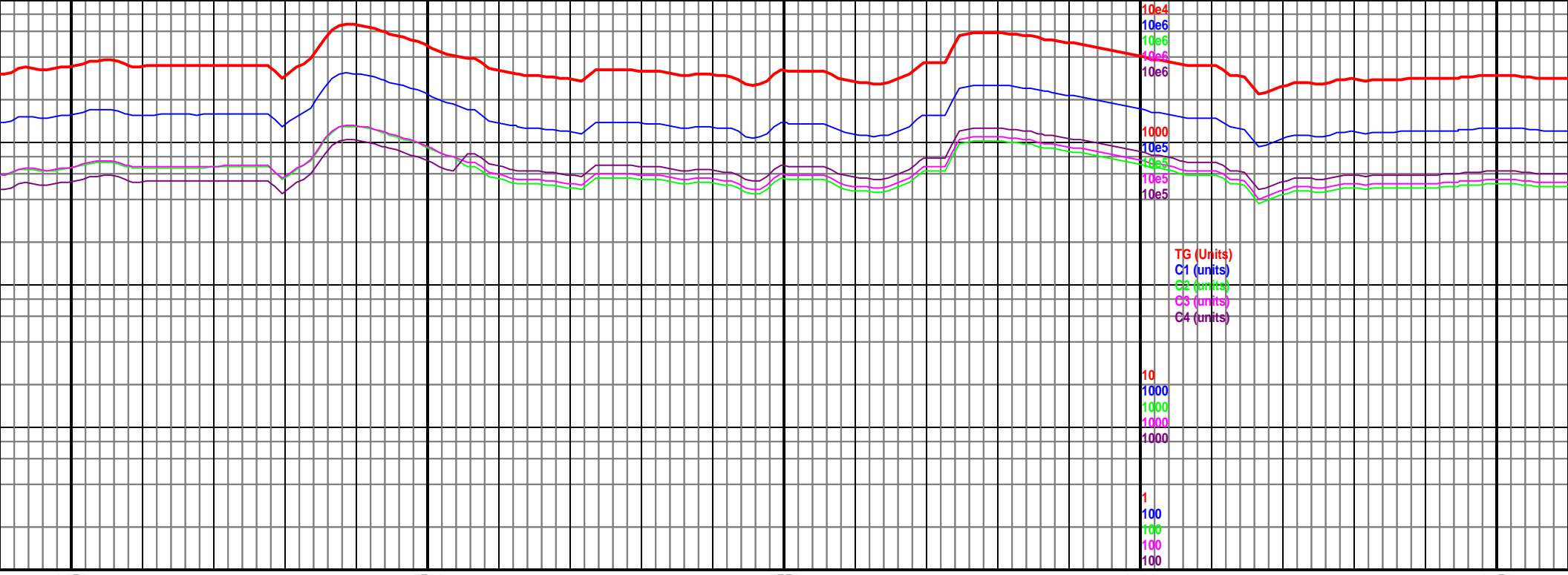


7800-7900 Chk lt gy-gy, plty-blky,  
mottled, frm, rr Mrlst dk gy, sb blky,  
frm, rr paraffin, visable oil on sample,  
90% chk, 10% mrilst

7900-8000 Chk lt gy-gy, plty-blky, frm,  
rr Mrlst dk gy, sb blky, frm, slty,  
visable oil on sample, 80% chk, 20%  
mrilst







8450

8500

8550

8600

8650

MD 8474 TVD 5632.38  
INC 86.81 AZ 2.73  
VS 3065.42

MD 8566 TVD 5635.38  
INC 89.45 AZ 4.04  
VS 3157.21

5000 TVD  
Sub Sea (-226)

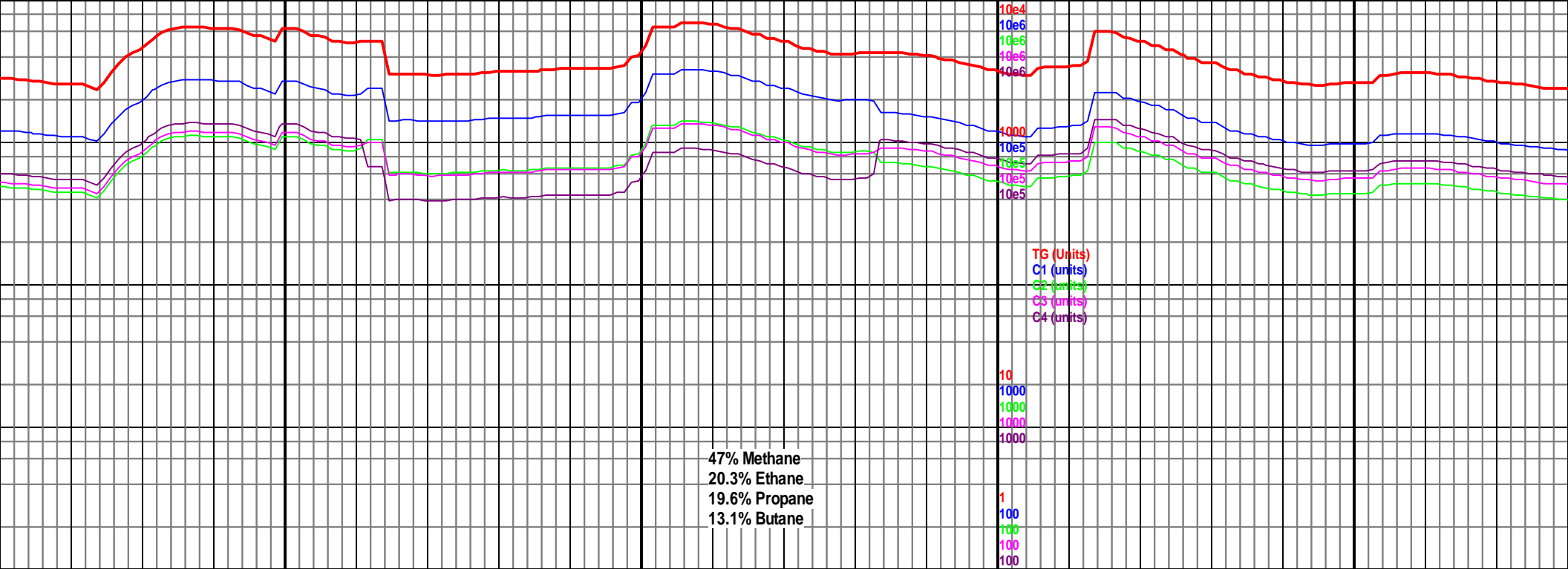
MD  
INC  
VS

5550  
(-776)

0 Chk gy-med gy, blk,  
frm, occ Mrlst dk gy, sb blk,  
ut, rr bent 60% chk, 40% mrlst

8500-8600 Chk med-gy, blk, mottled,  
lam ip, frm, tr Mrlst dk gy, sb blk, frm,  
slty ip, fst cut, 70% chk, 30% mrlst

8600-8700 Chk dk gy-gy, sb blk  
mottled, lam ip, frm, grd to m  
occ Mrlst dk gy, sb blk, frm, s  
cut, rr bent 60% chk, 40% mrlst



8657 TVD 5635.45  
INC 90.46 AZ 2.63  
3248.07

8700

8750

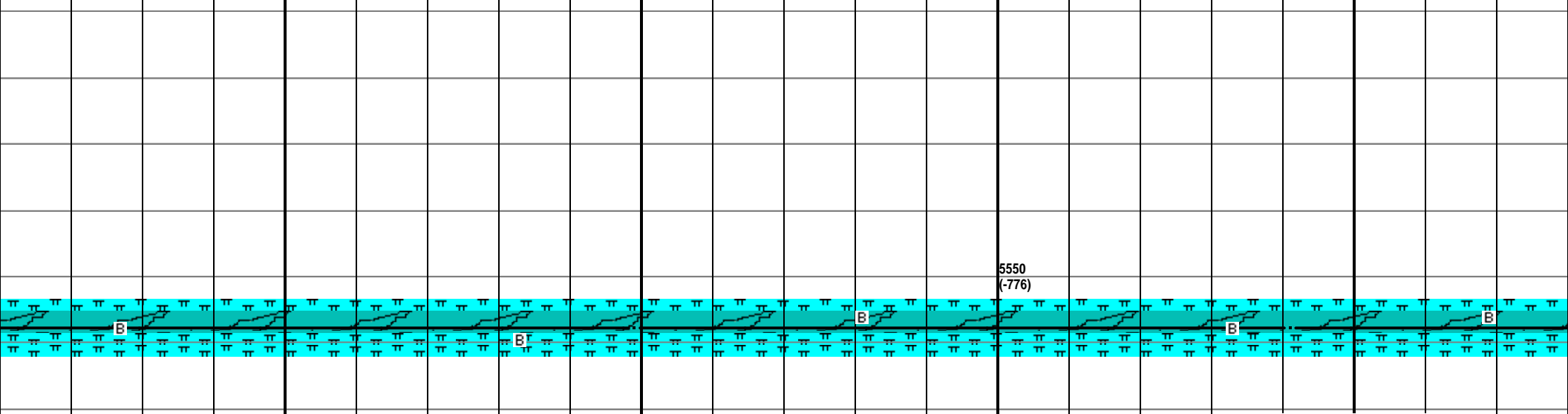
8800

8850

MD 8749 TVD 5634.72  
INC 90.46 AZ 1.71  
VS 3340.05

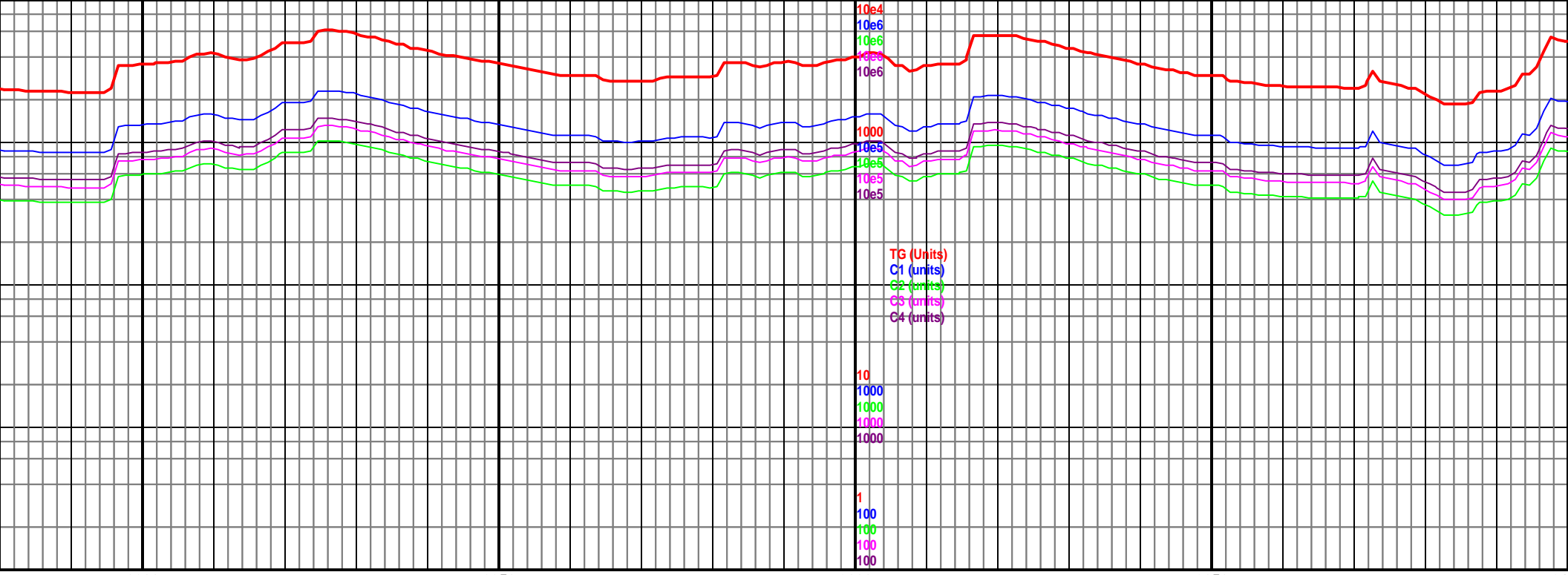
5000 TVD  
Sub Sea (-226)

MD 8841 TVD 5634.26  
INC 90.11 AZ 1.63  
VS 3432.02



8700-8800 Chk dk gy-gy, sb blk, mottled, lam ip, frm, grdg to mrlst ip, abnt Mrlst dk gy, sb blk, frm, slty ip, visable oil on sample, rr bent 50% chk, 50% mrlst

8800-8900 Chk dk gy-gy, blk, mottled, frm, abnt Mrlst dk gy, sb blk, frm, slty ip, visable oil on sample, rr bent 50% chk, 50% mrlst



8900

8950

9000

9050

9100

MD 8932 TVD 5635.13  
INC 88.79 AZ 1.42  
VS 3522.99

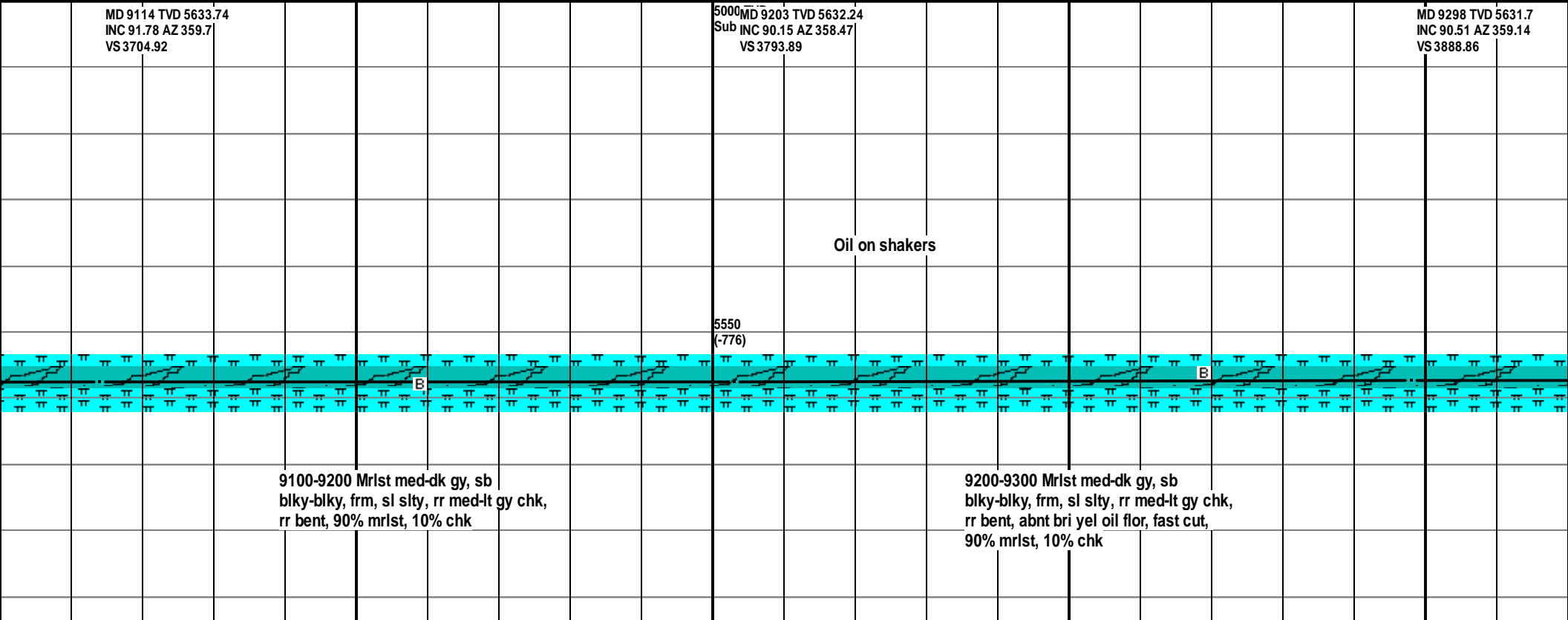
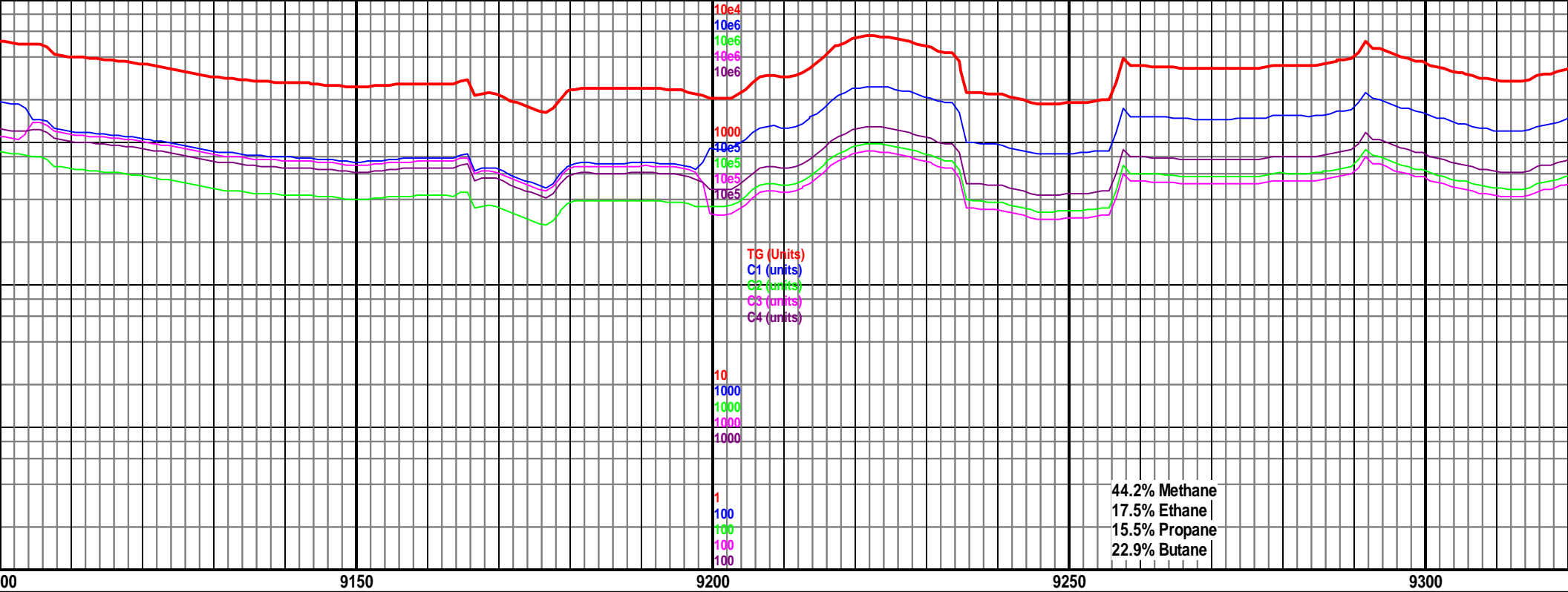
5000 TVD  
Sub Sea (-226)

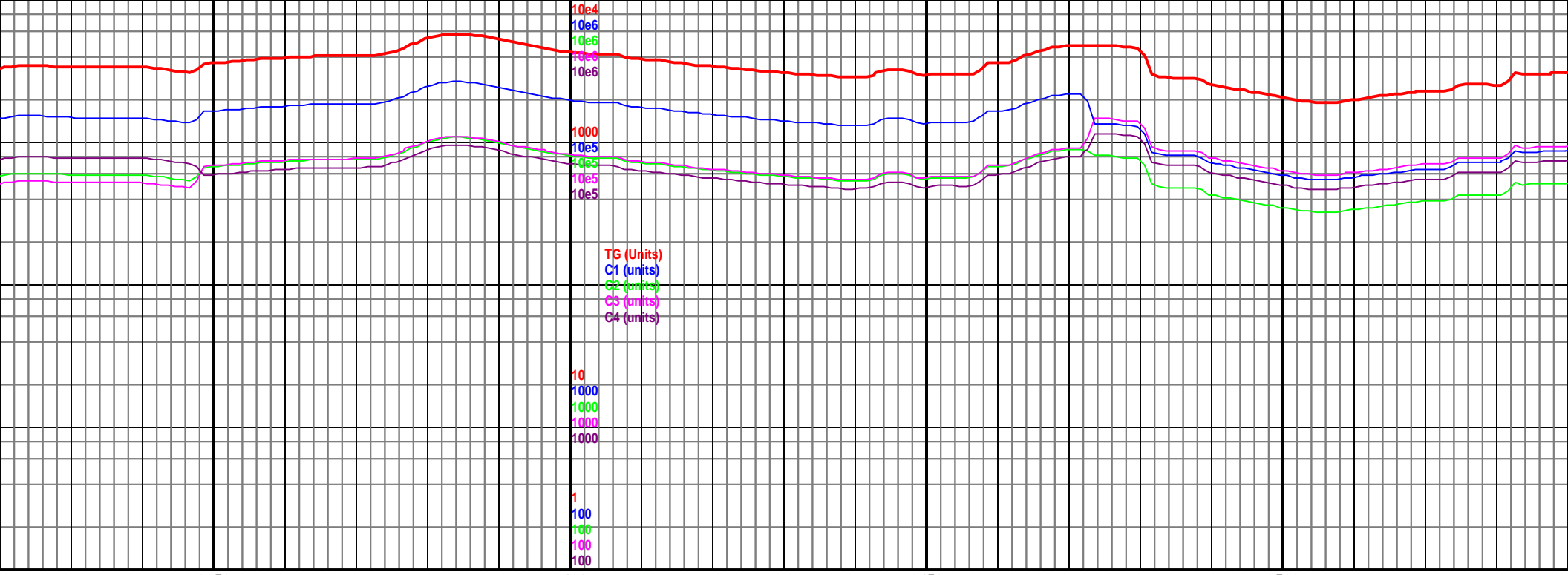
MD 9023 TVD 5635.62  
INC 90.59 AZ 1.86  
VS 3613.95

5550  
(-776)

8900-9000 Mrlst dk gy, blk-y-sb blk-y,  
frm, slty, tr Chk dk gy-gy, blk-y, mottled,  
frm, grdg to mrlst, sl cut 80% mrlst  
20% chk

9000-9100 Mrlst med-dk gy, sb  
blk-y-blk-y, frm, sl slty, rr med gy chk, rr  
bent, 90% mrlst, 10% chk





9350

9400

9450

9500

MD 9389 TVD 5630.4'D  
INC 91.12 AZ 359.97<sup>a</sup> (-226)  
VS 3979.84

MD 9481 TVD 5631.08  
INC 88.04 AZ 358.51  
VS 4071.82

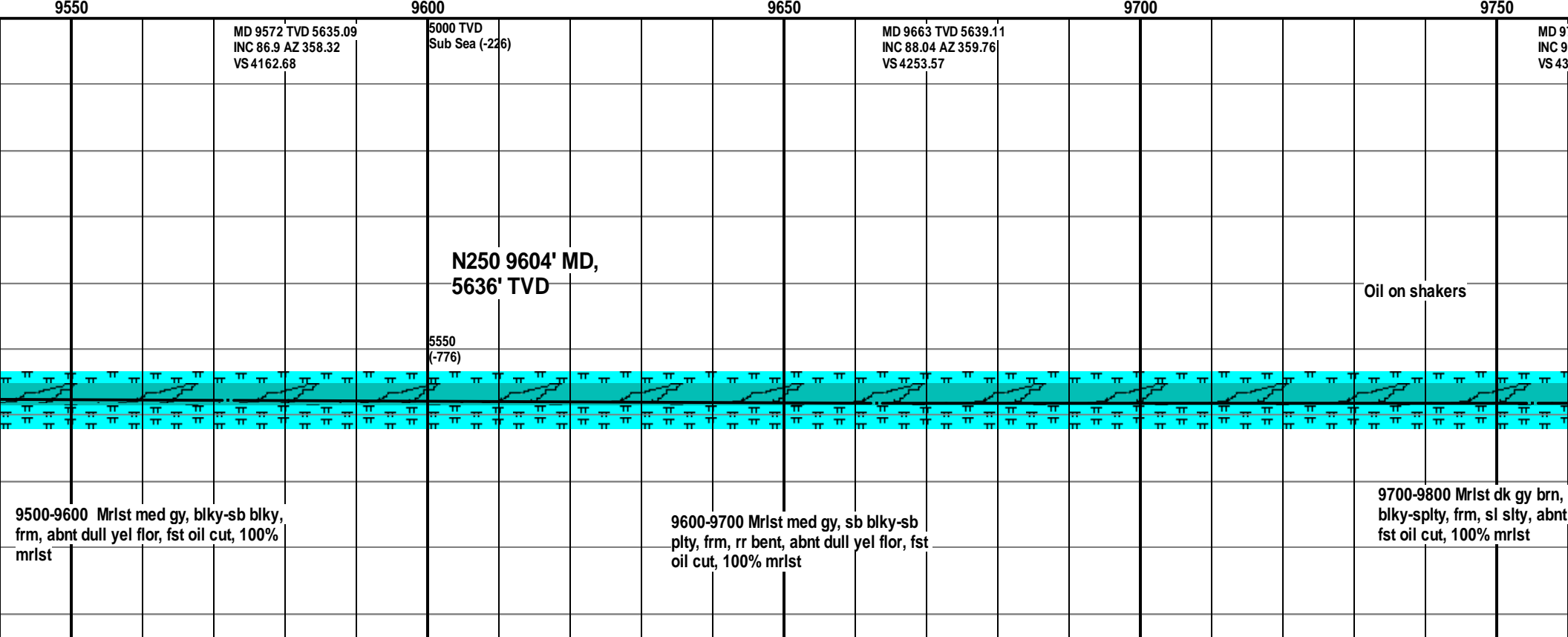
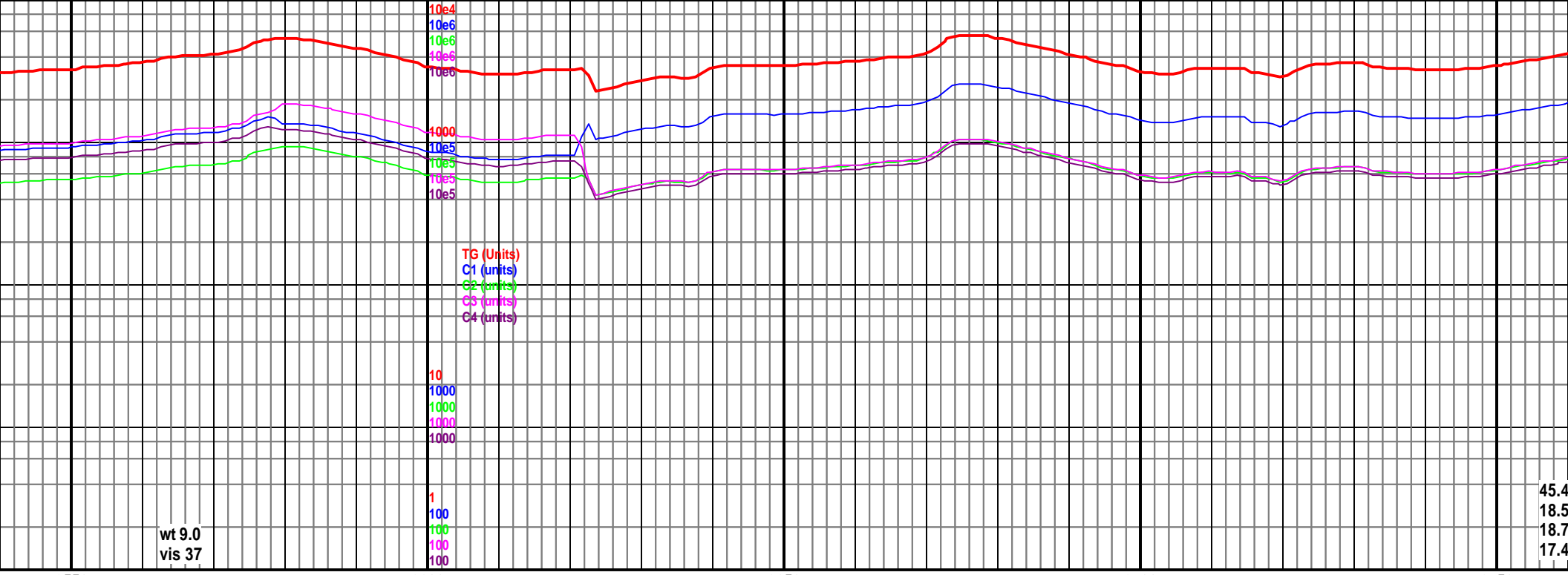
5550  
(-776)

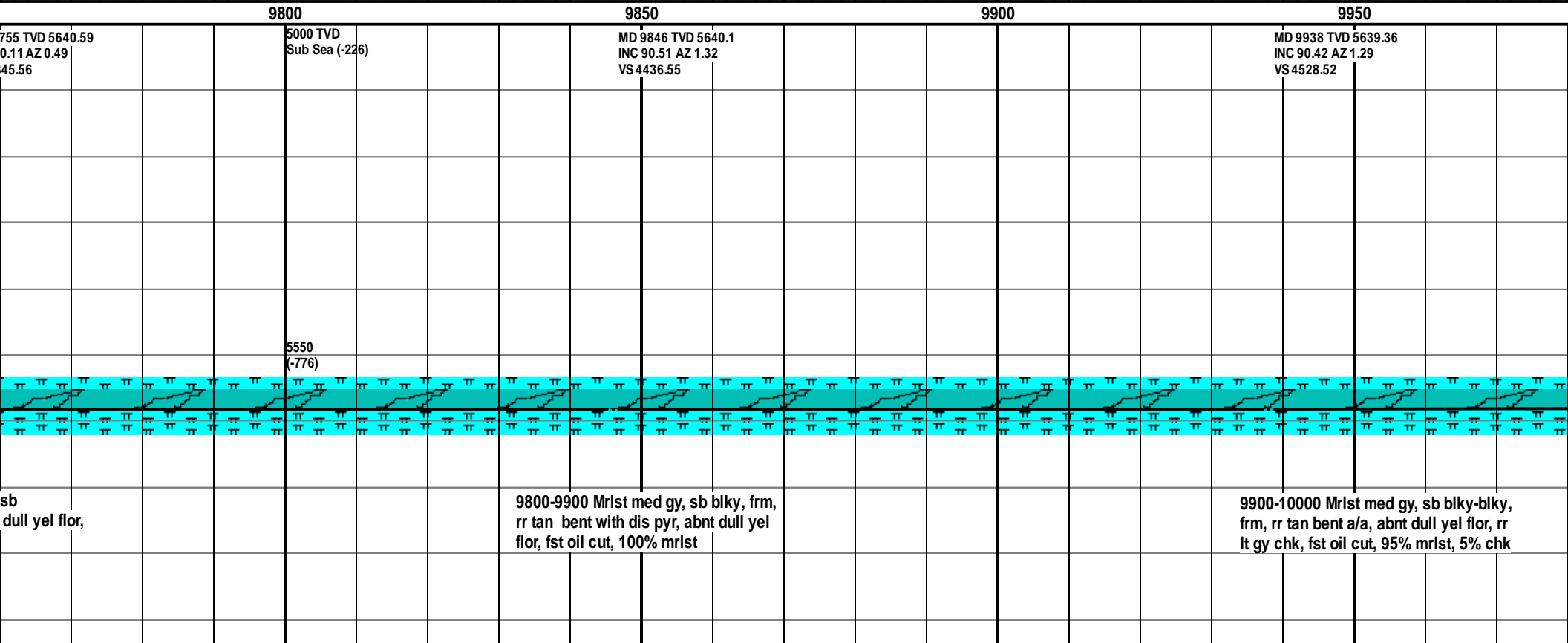
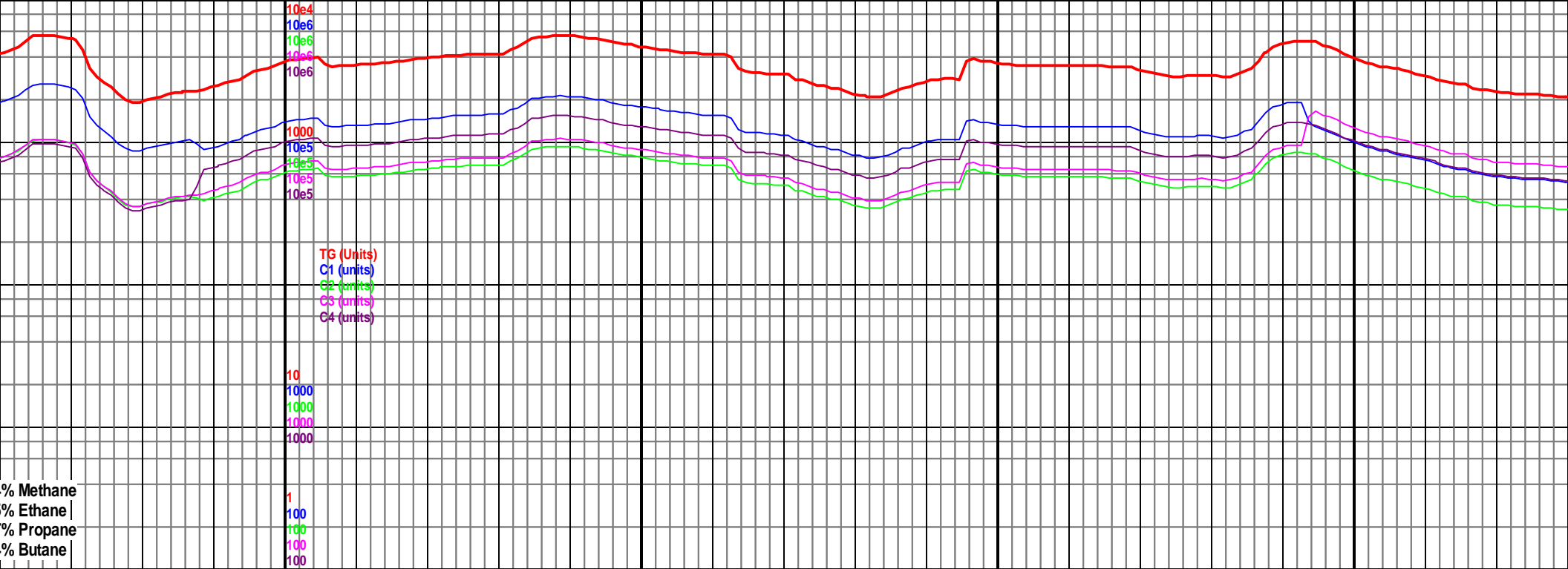
B

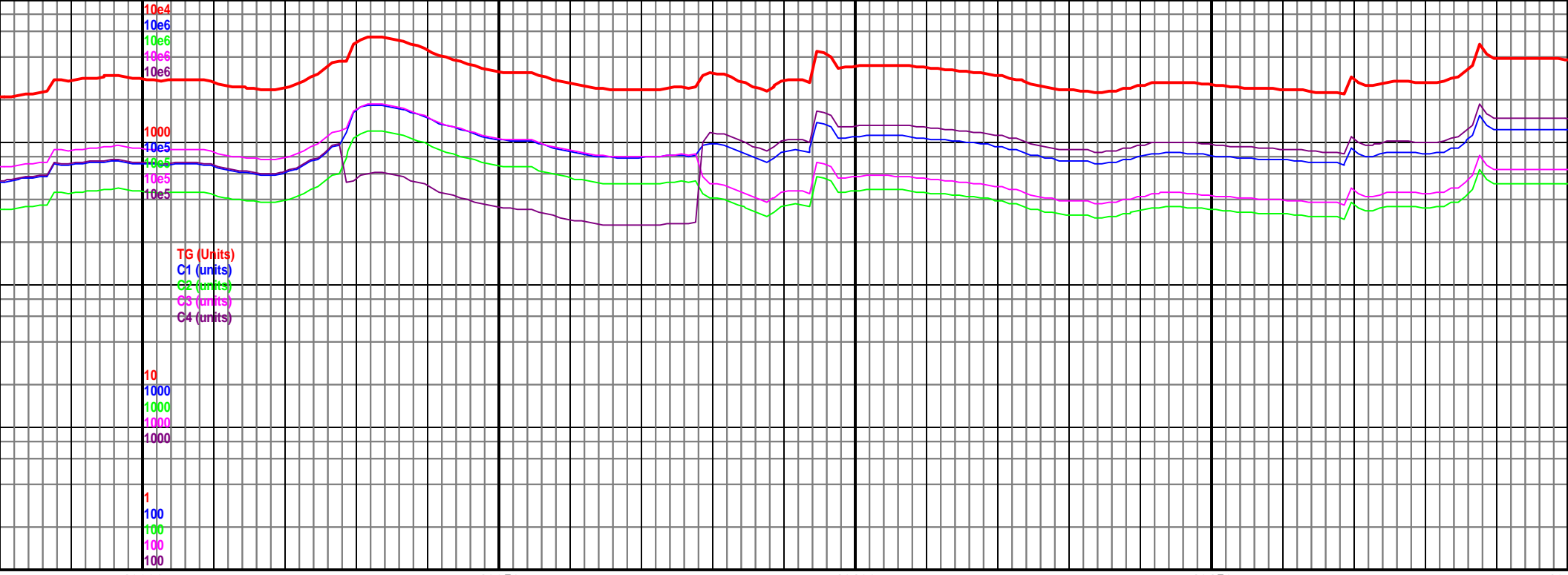
9300-9400 Mrlst med-dk gy, blk-y-sb  
plty, frm, abnt dul yel flor, fr oil cut,  
100% mrlst

9400-9500 Mrlst med gy, blk-y-sb blk-y,  
frm, abnt dull yel flor, fst oil cut, 100%  
mrlst









10000 10050 10100 10150 10200

5000 TVD  
Sub Sea (-226)

MD 10029 TVD 5637.82  
INC 91.52 AZ 0.18  
VS 4619.5

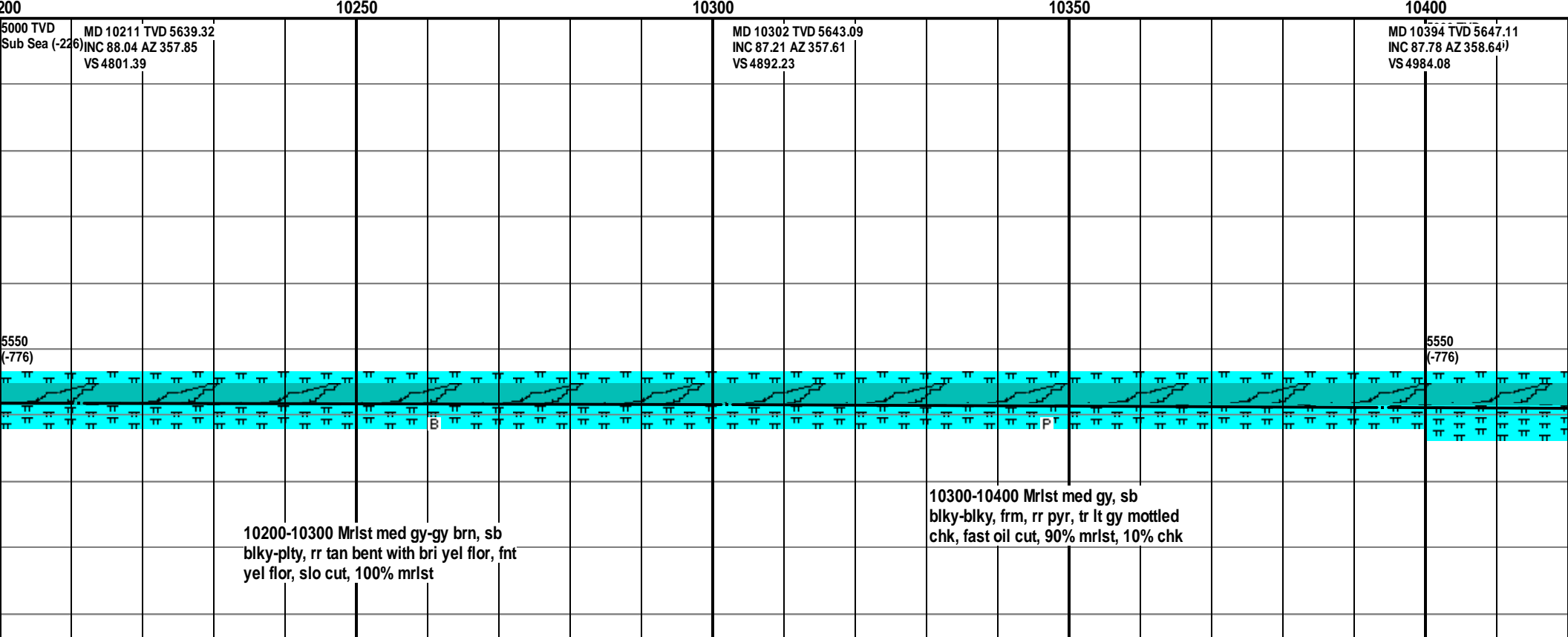
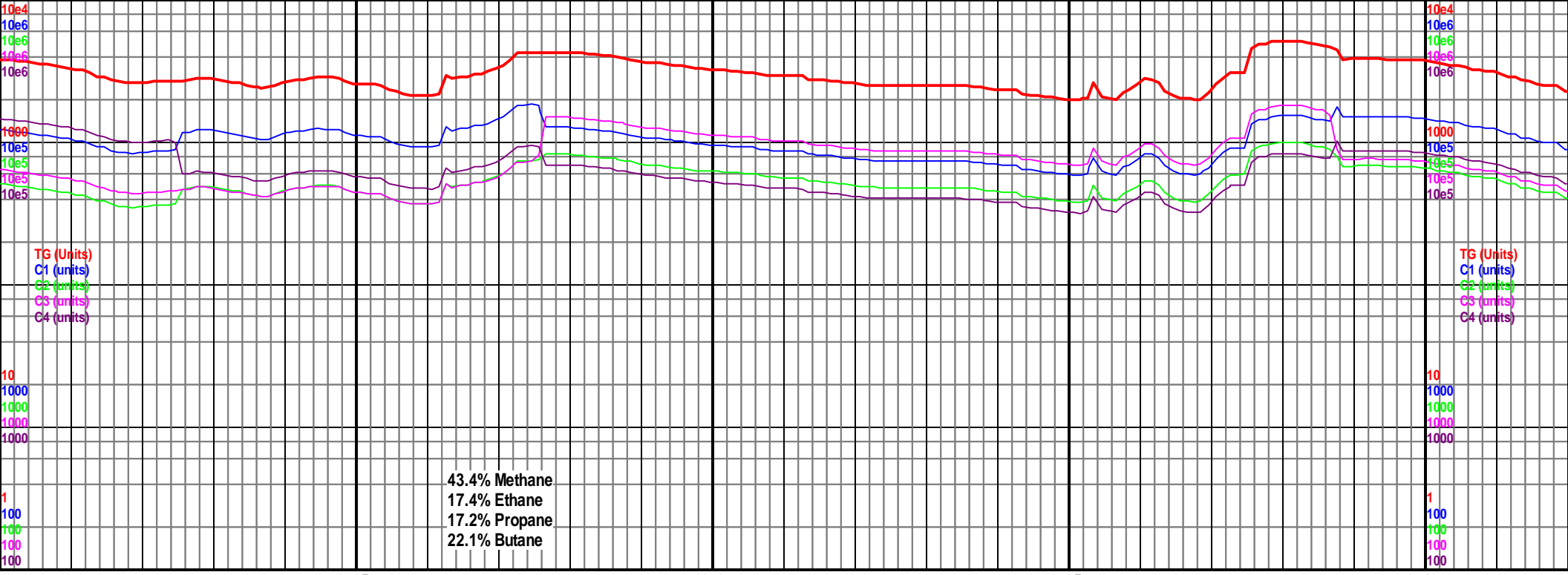
MD 10119 TVD 5637.19  
INC 89.27 AZ 358.23  
VS 4709.48

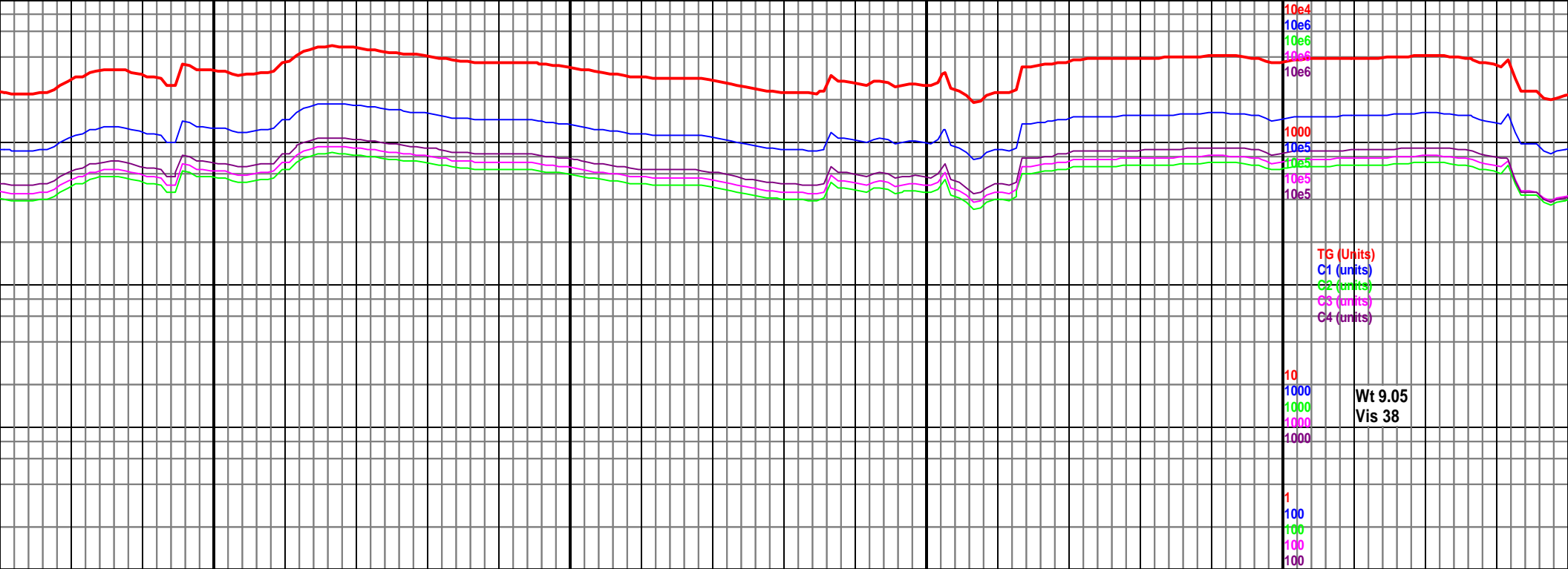
5550  
(-776)

Oil on shakers

10000-10100 Mrlst med gy, sb  
blky-blky, frm, rr tan bent, abnt dull yel  
flor, rr med gy chk, fst oil cut, abnt oil  
on shakers, 95% mrlst, 5% chk

10100-10200 Mrlst med gy-gy brn, sb  
blky-plty, rr tan bent with bri yel flor, fnt  
yel flor, slo cut, 100% mrlst





10450

10500

10550

10600

MD 10485 TVD 5651.23  
INC 87.03 AZ 358.22  
VS 5074.95

MD 10577 TVD 5656.07  
INC 86.95 AZ 0.12  
VS 5166.8

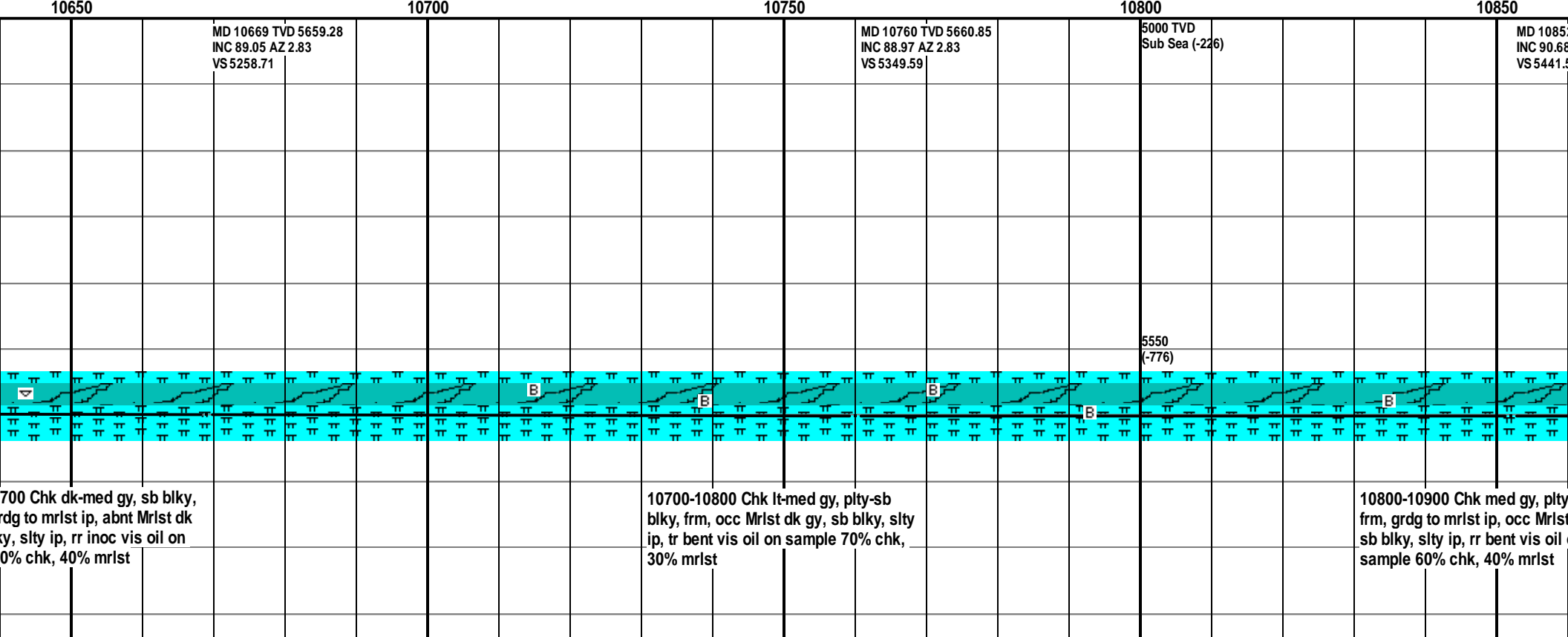
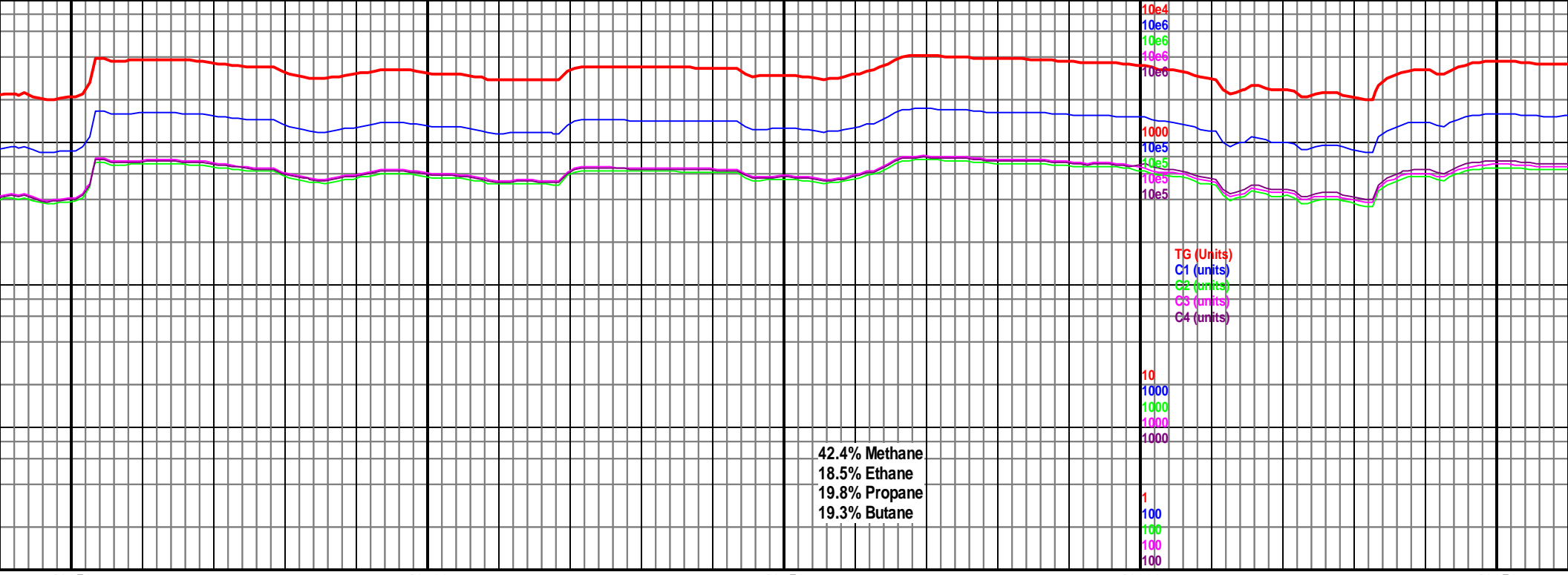
5000 TVD  
Sub Sea (-226)

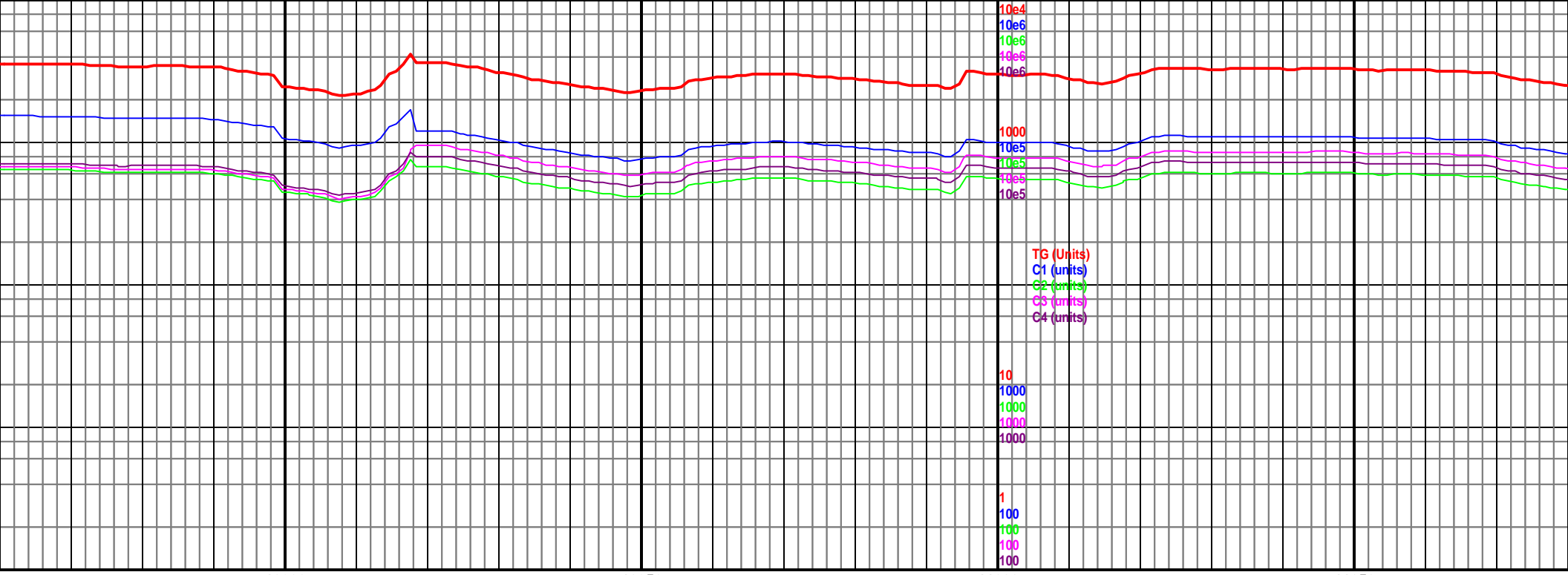
5550  
(-776)

10400-10500 Mrlst med gy, sb  
blky-blky, frm, tr lt gy mottled chk, fast  
oil cut, 80% mrlst, 20% chk

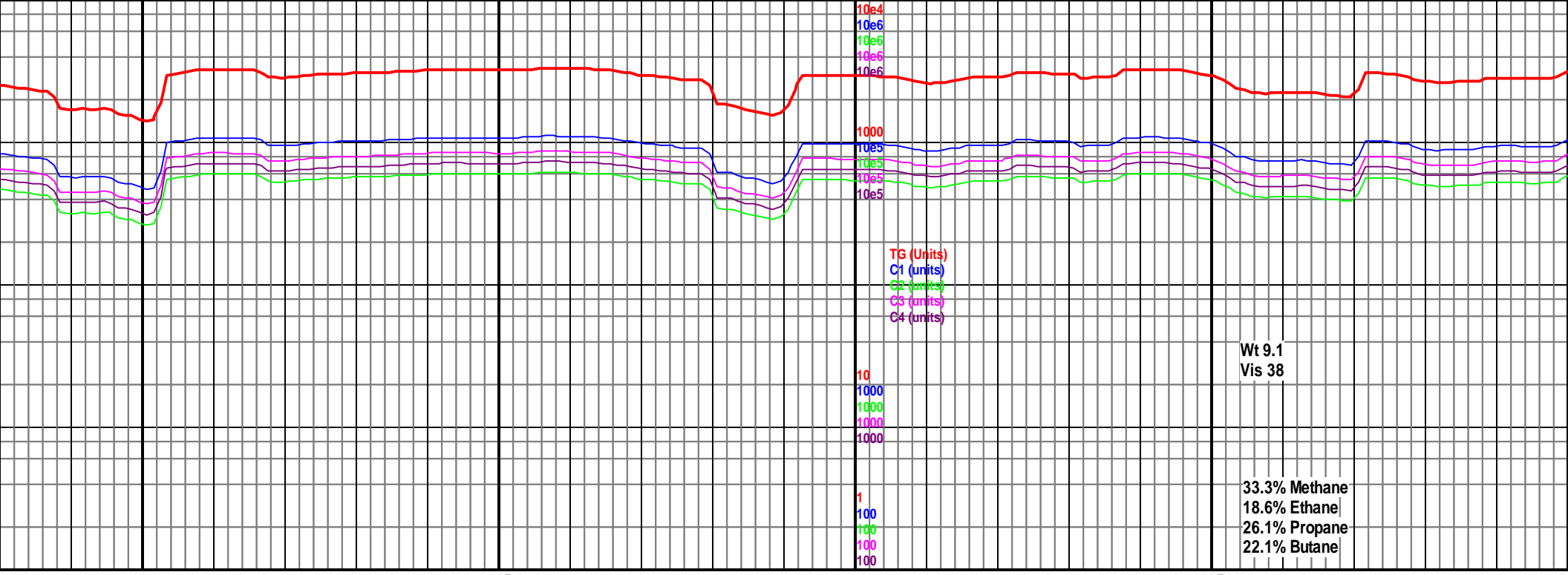
10500-10600 Chk med gy, sb blky,  
frm-sft, abnt med gy mrlst a/a, tr dull  
yel flor, fst cut, 60% chk, 40% mrlst

10600-10650  
frm-sft, gy, sb blk  
sample 6





10900		10950	11000	11050
2 TVD 5661.13 INC 88.79 AZ 0.92 VS 5533.53		MD 10944 TVD 5661.56 INC 88.79 AZ 358.74 VS 5533.53	5000 TVD Sub Sea (-226)	MD 11036 TVD 5664.41 INC 87.65 AZ 358.12 VS 5625.44



Wt 9.1  
Vis 38

33.3% Methane  
18.6% Ethane  
26.1% Propane  
22.1% Butane

11100

11150

11200

11250

11300

MD 11128 TVD 5667.87  
INC 88.04 AZ 0.62  
VS 5717.36

5000 TVD  
Sub Sea (-226)

MD 11219 TVD 5669.9  
INC 89.41 AZ 1.31  
VS 5808.33

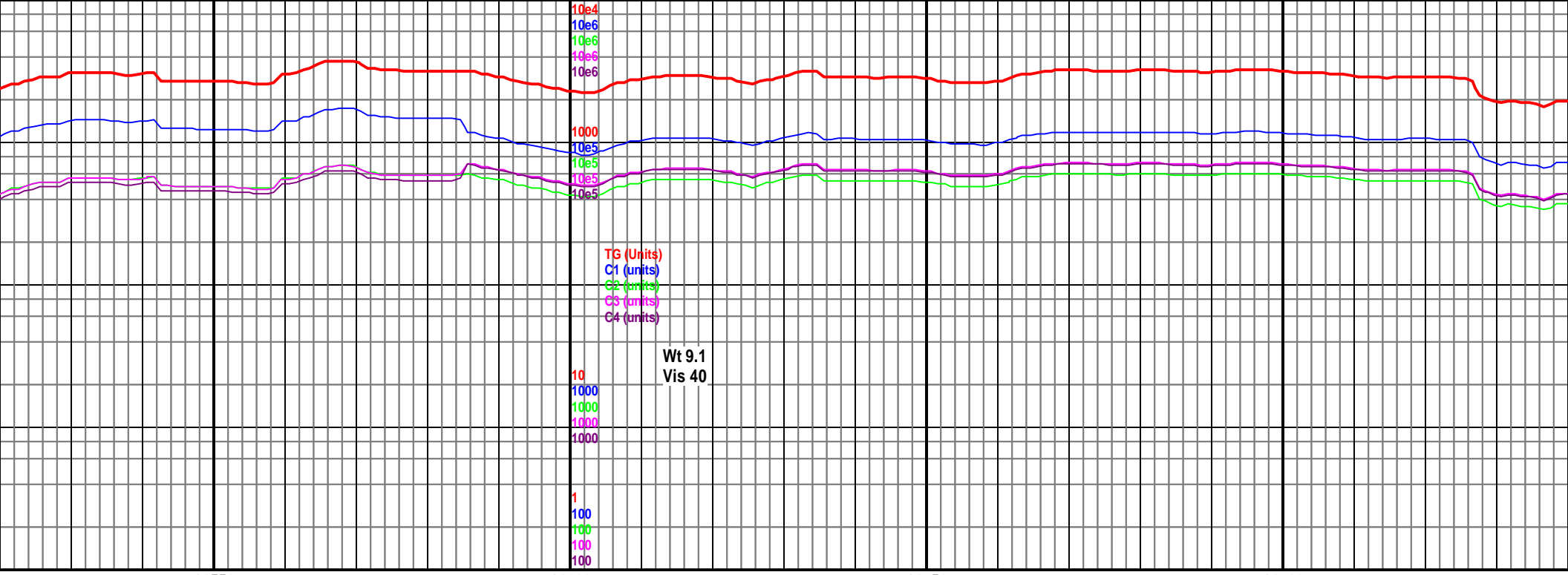
5550  
(-776)

11100-11200 Chk dk-med gy, blkly-sb  
blkly, mottled ip, frm, grdg to mrlst ip,  
occ Mrlst dk gy, sb blkly, vis oil on  
sample, rr bent 60% chk, 40% mrlst

11200-11300 Chk lt-med gy, plty-sb  
blkly, frm, tr Mrlst dk gy, sb blkly, vis oil  
on sample, 80% chk, 20% mrlst







11550

11600

11650

11700

MD 11583 TVD 5671.9600 TVD  
INC 89.1 AZ 0.73  
VS 6172.26

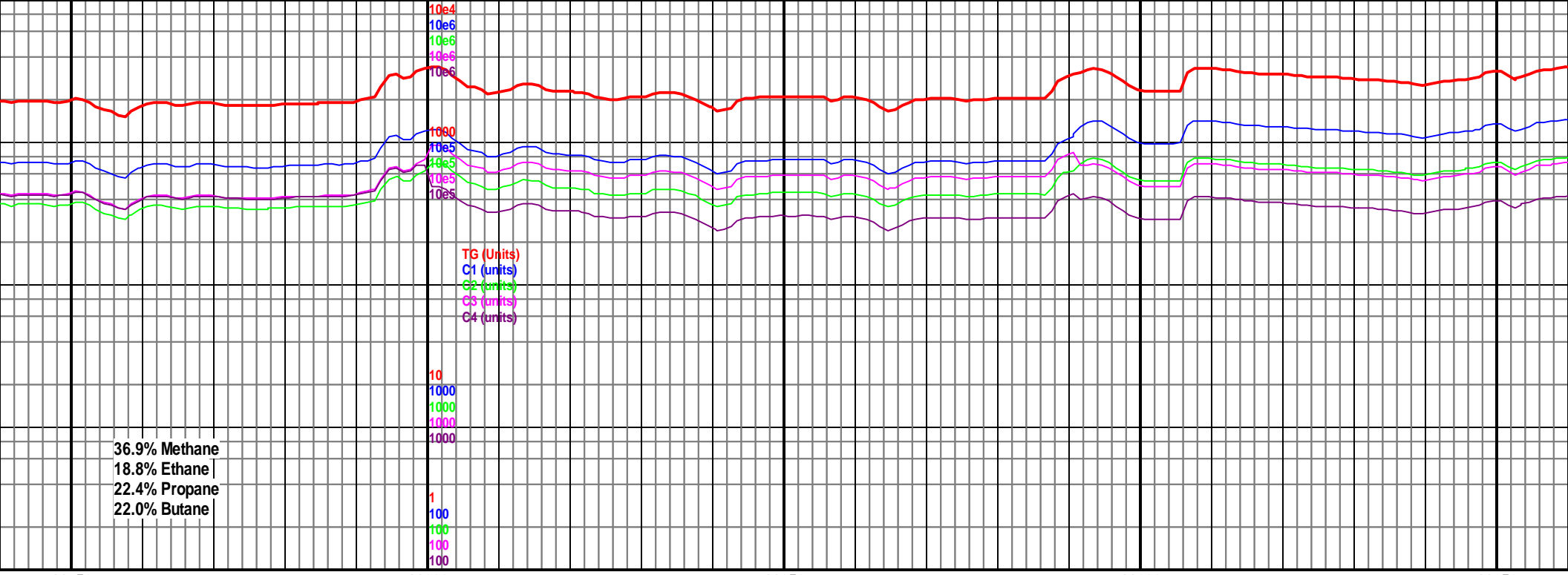
MD 11674 TVD 5674.19  
INC 88.09 AZ 0.55  
VS 6263.23

5550  
(-776)

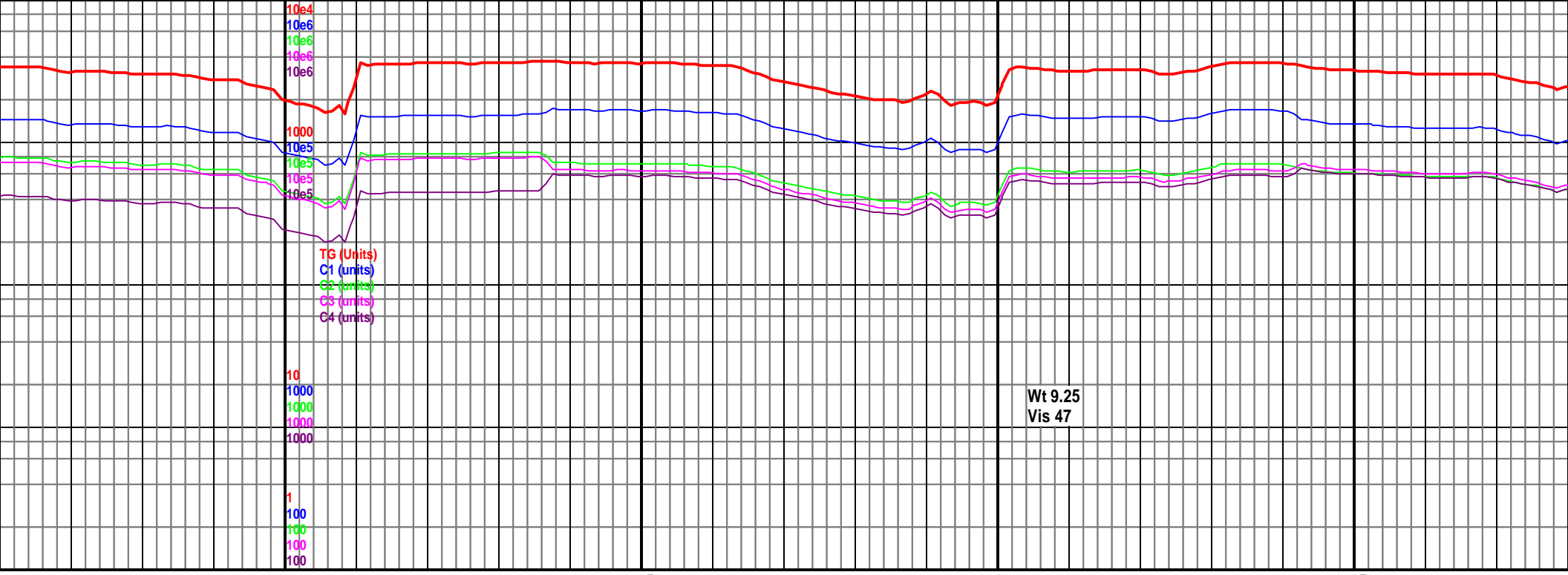
11500-11600 Chk lt-med gy, plty-sb  
blky, frm, tr Mrlst dk gy, sb blky, vis oil  
on sample, 80% chk, 20% mrlst

11600-11700 Chk lt gy-gy, plty-sb blky,  
frm, mottled, tr Mrlst dk gy, sb blky, vis  
oil on sample, 80% chk, 20% mrlst

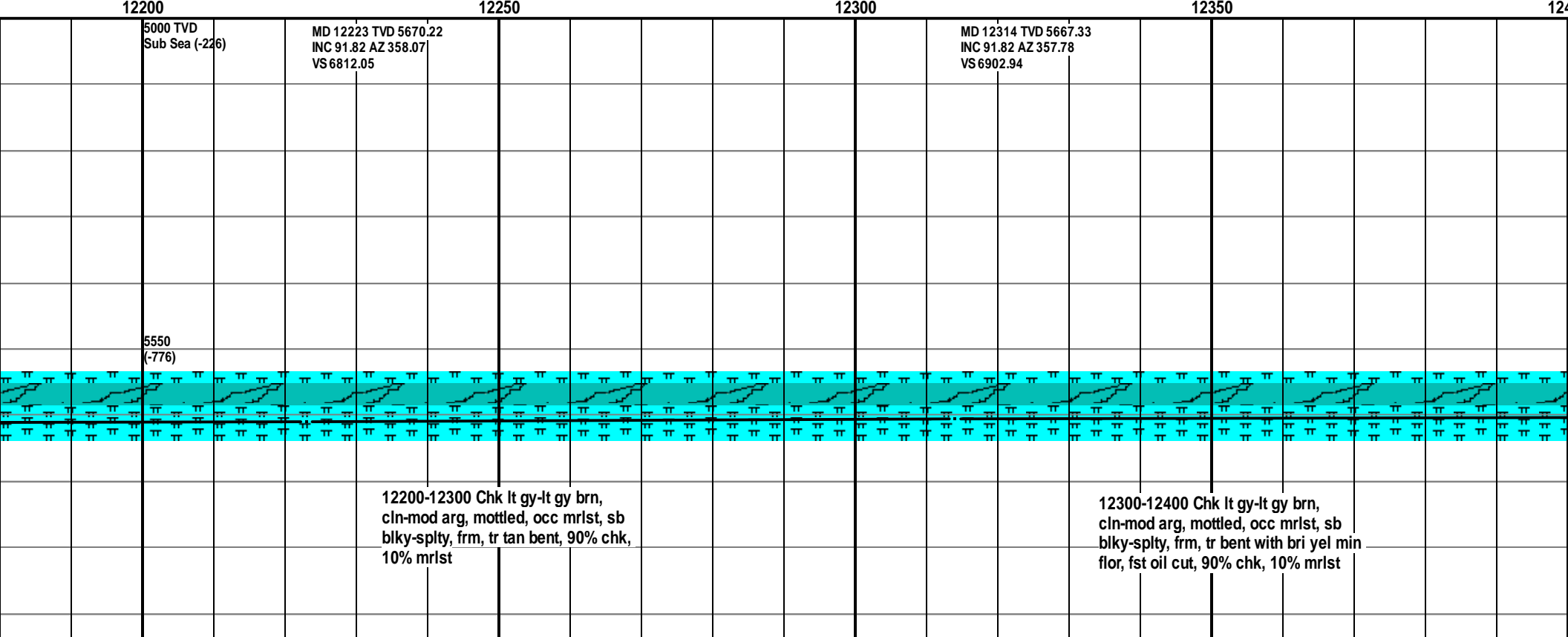
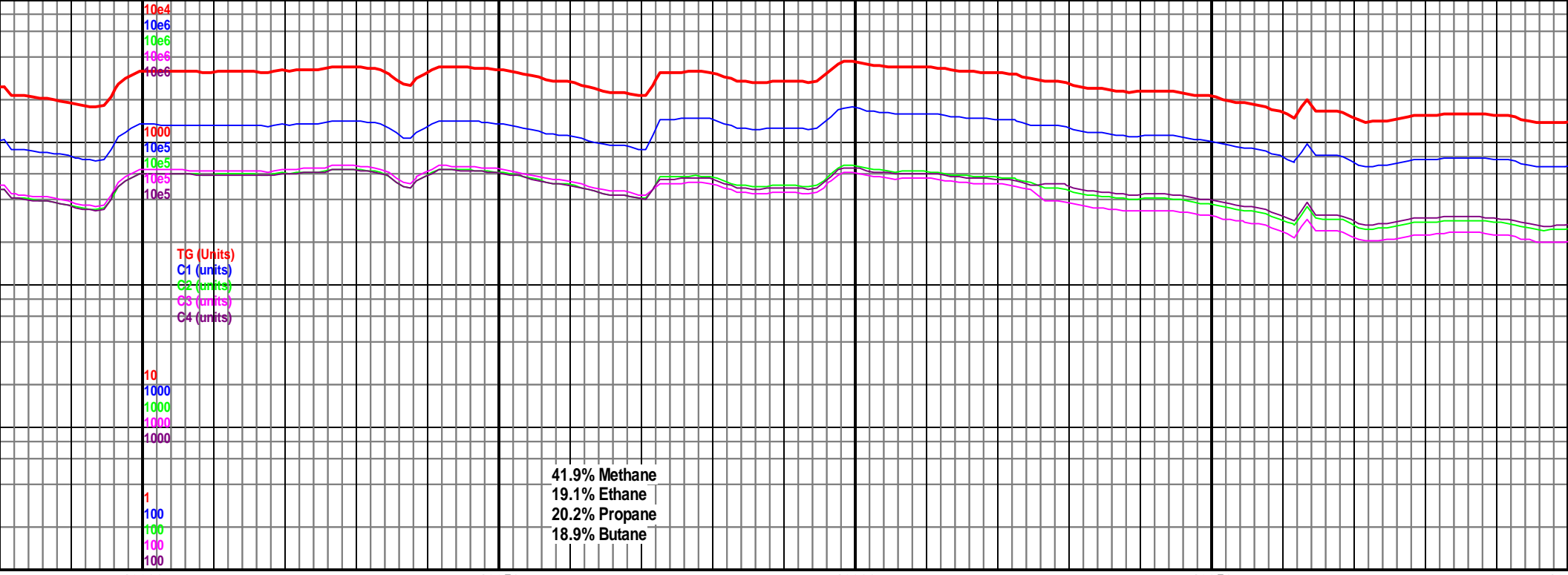
11700-11800 Chk lt gy-gy, plty-sb blky,  
frm, mottled, tr Mrlst dk gy, sb blky, vis  
oil on sample, 80% chk, 20% mrlst

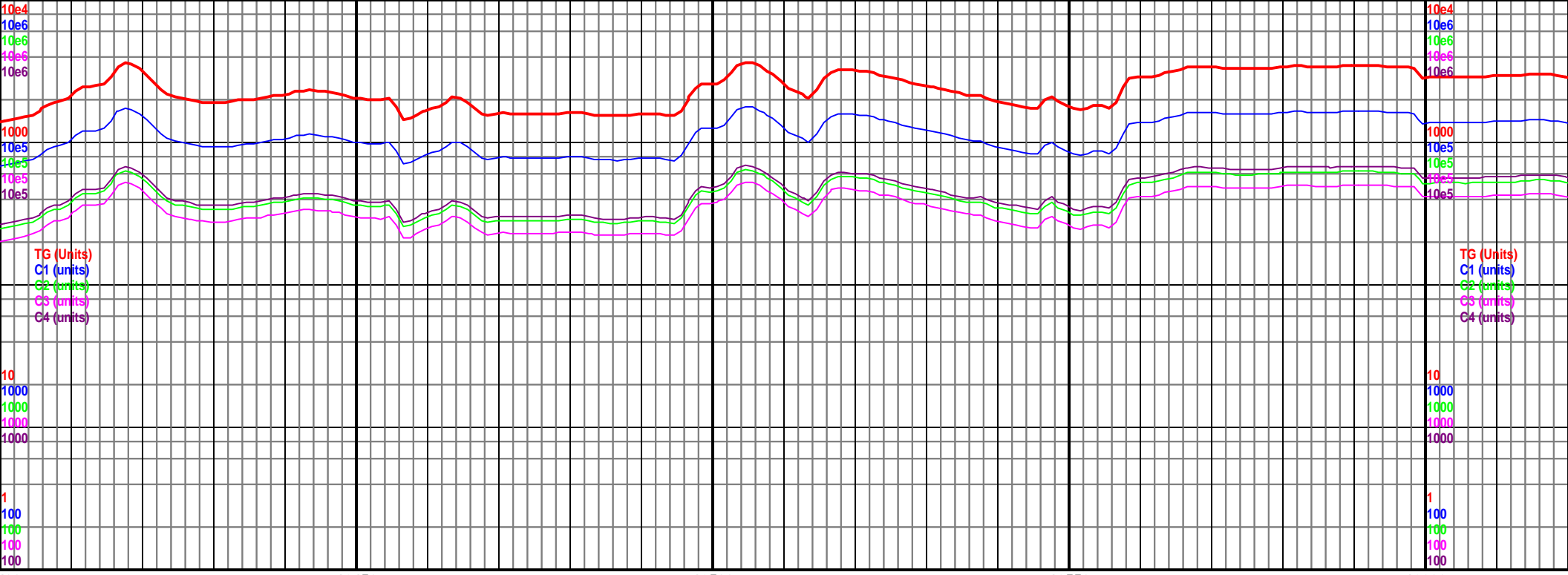


11750	11800	11850	11900	11950
MD 11765 TVD 5675.58 INC 90.15 AZ 0.37 VS 6354.21	5000 TVD Sub Sea (-226)	MD 11857 TVD 5675.66 INC 89.76 AZ 0.21 VS 6446.21		MD 11948 TVD INC 89.93 AZ 3 VS 6537.21
800 Chk lt gy-gy, plty, frm, r Mrst dk gy, sb blk, vis oil e 90% chk, 10% mrst	11800-11900 Chk dk gy-gy, plty, frm, mottled, grdg to mrst ip, rr Mrst dk gy, sb blk, vis oil on sample 80% chk, 20% mrst		11900-12000 Chk lt gy-gy, plty, mottled, rr Mrst dk gy, sb blk, oil on sample 90% chk, 10% n	

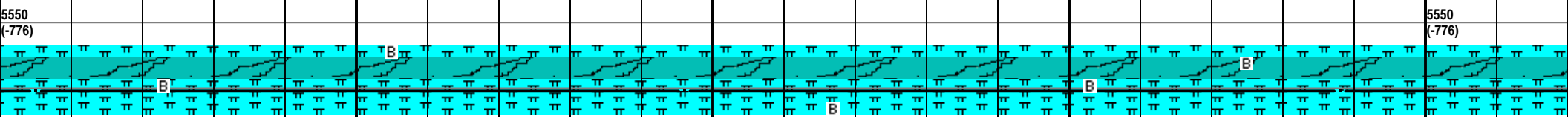


5675.9 559.37	5000 TVD Sub Sea (-226)	MD 12040 TVD 5675.84 INC 90.15 AZ 358.63 VS 6629.19	MD 12131 TVD 5673.71 INC 92.53 AZ 359.94 VS 6720.14
5550 (-776)			
, frm, r, slty, vis mrlist		12000-12100 Chk lt gy-gy, plty, frm, mottled, rr Mrlist dk gy, sb blk, slty, fst cut 90% chk, 10% mrlist	12100-12200 Chk lt gy-gy, plty, frm, mottled, rr Mrlist dk gy, sb blk, slty, fst cut 90% chk, 10% mrlist



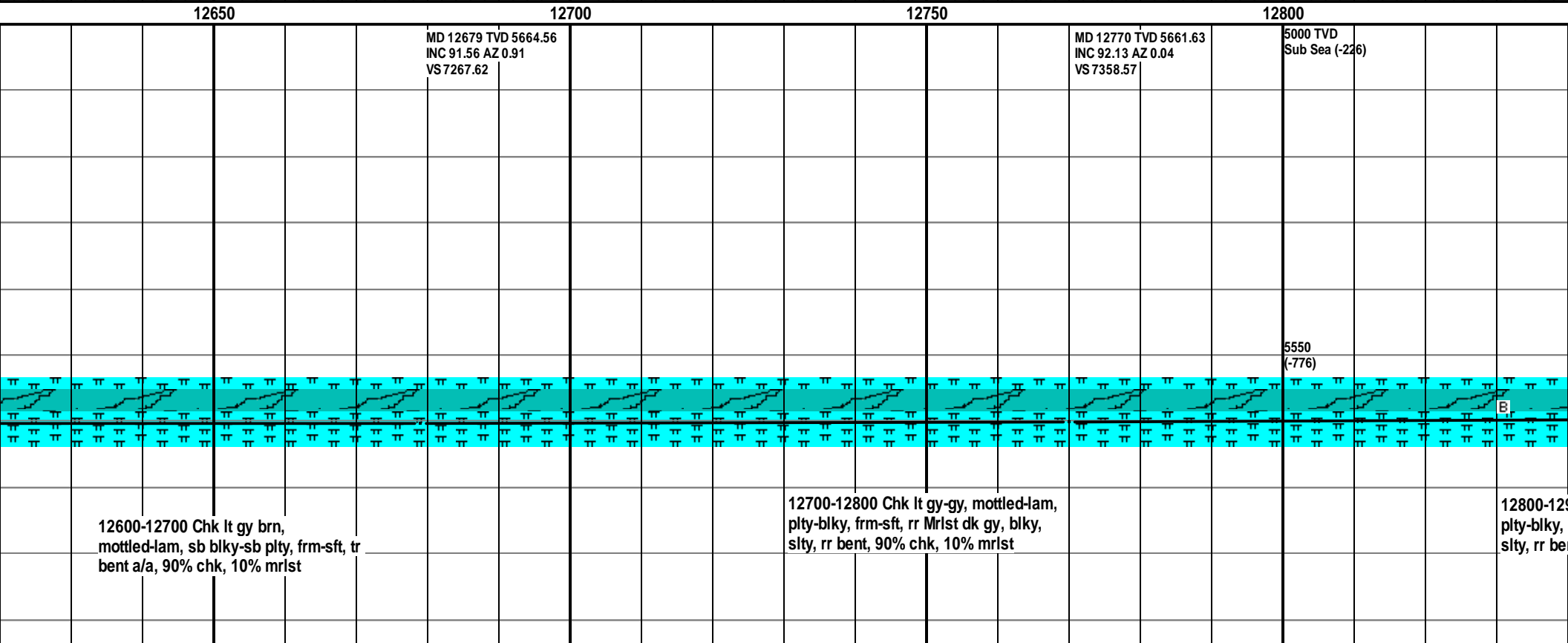
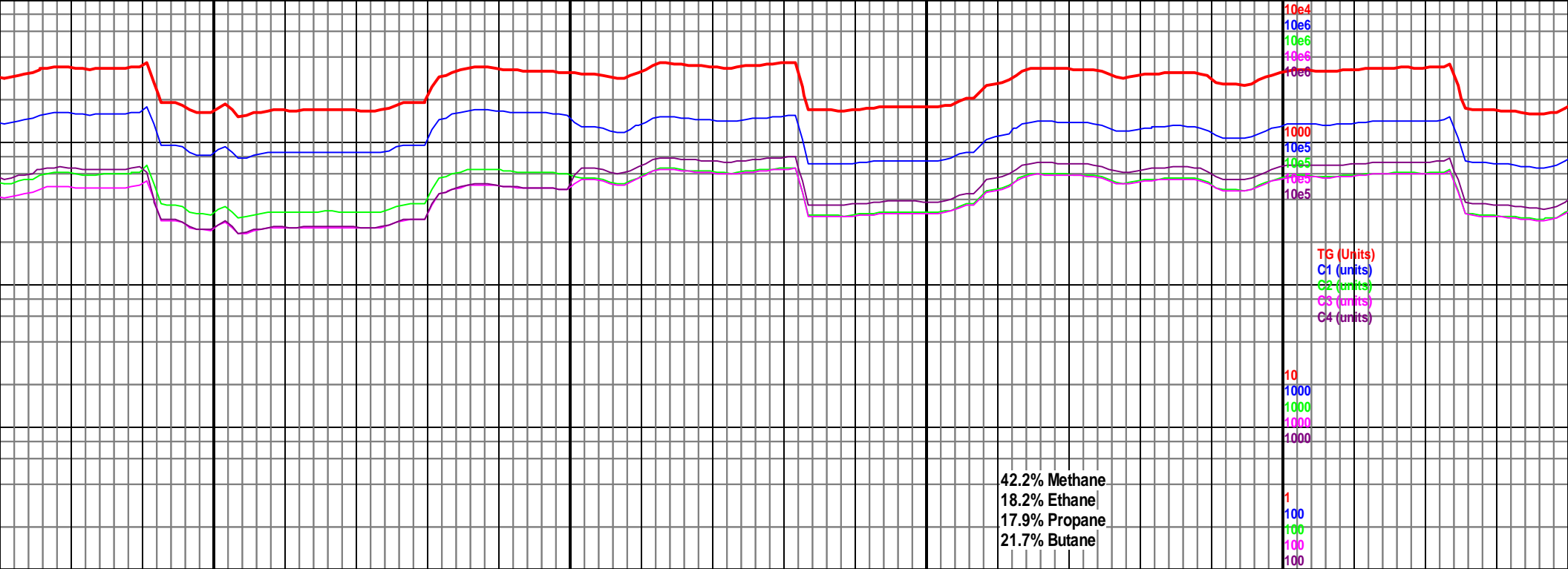


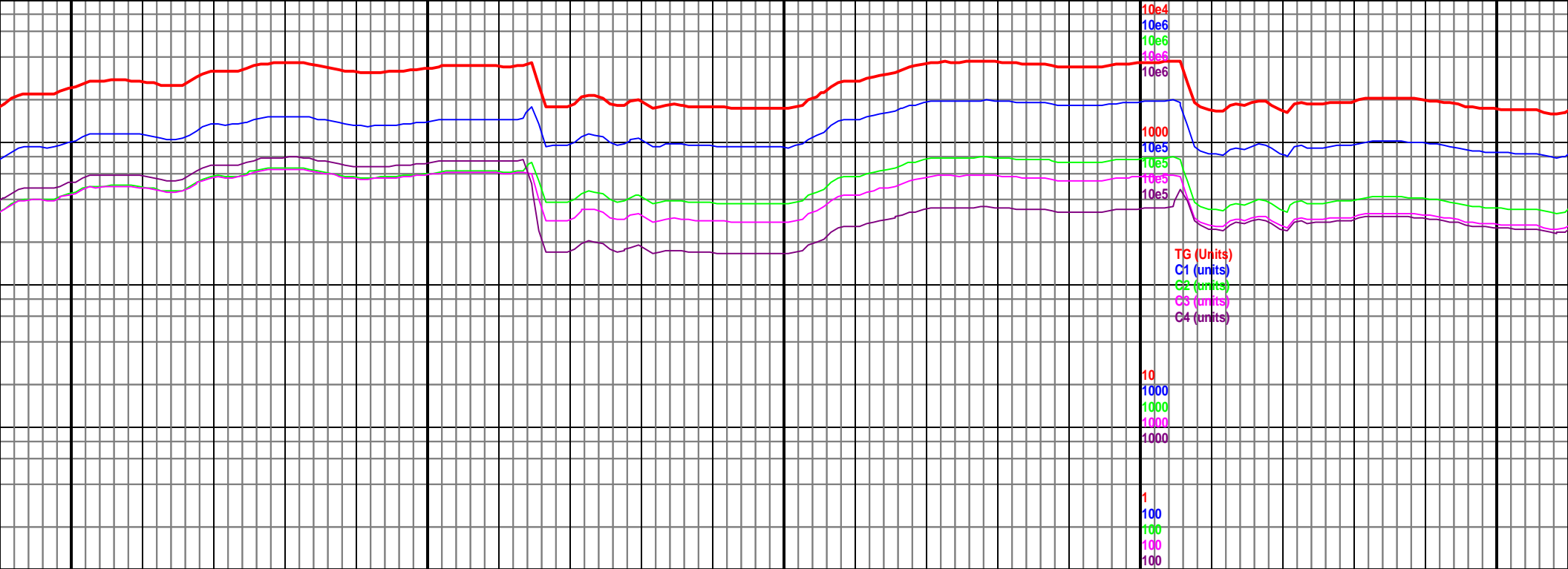
Time (s)	MD	TVD	INC	AZ	VS
12400	MD 12405	TVD 5664.64	INC 91.56	AZ 356.98	VS 6993.79
12500	MD 12496	TVD 5663.74	INC 89.58	AZ 357.67	VS 7084.67
12600	MD 12588	TVD 5664.94	INC 88.92	AZ 0.26	VS 7176.63



12400-12500 Mrlst med gy brn, splty, frm, g tr med-lt gy chk, g tr lt gy bent with bri yel min flor, slo cut, 70% mrlst, 30% chk

12500-12600 Chk lt gy brn, mottled ip, sb blk, frm-sft, abnt mrlst cont a/a, g tr bent a/a, 60% chk, 40% mrlst





12850

12900

12950

13000

13050

MD 12862 TVD 5657.61  
INC 92.7 AZ 359.51  
VS 7450.49

MD 12953 TVD 5655.45  
INC 90.02 AZ 357.73  
VS 7541.42

5000 TVD  
Sub Sea (-226)

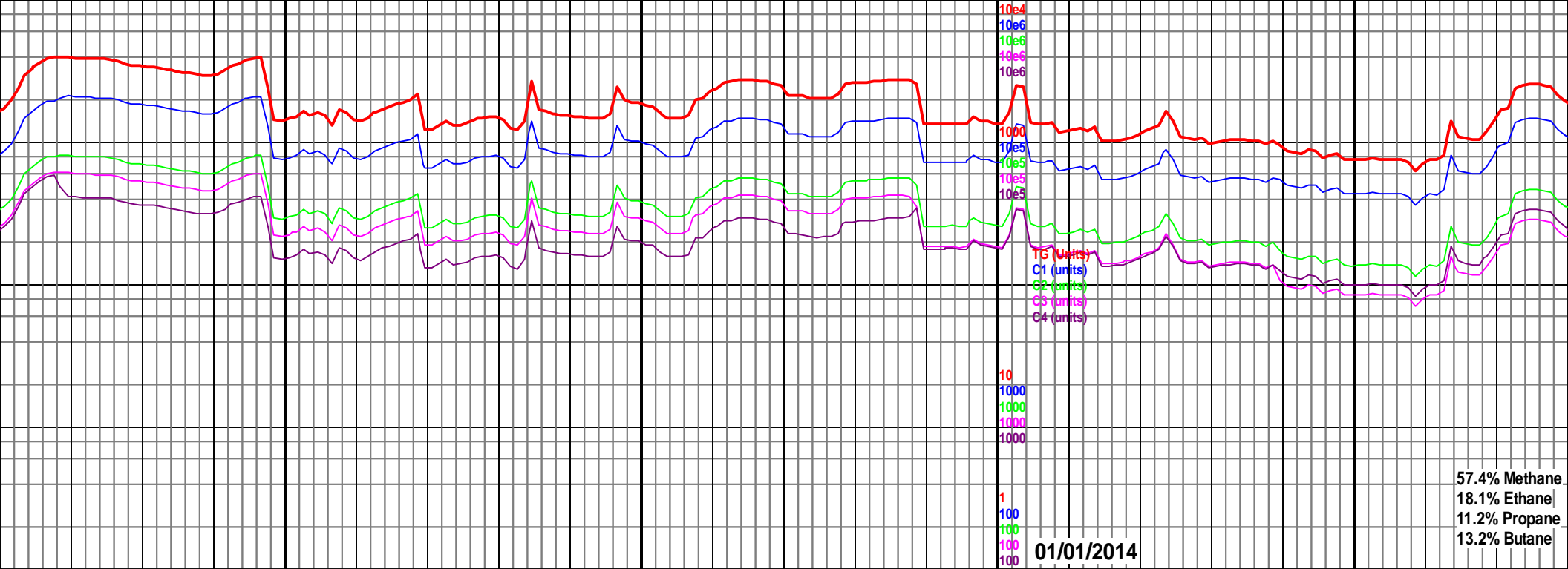
MD 13044 TVD 5655.45  
INC 87.82 AZ 357.51  
VS 7632.3

12850-12900 Chk lt gy-gy, mottled-lam,  
frm-sft, rr Mrst dk gy, blk,  
nt, 90% chk, 10% mrst

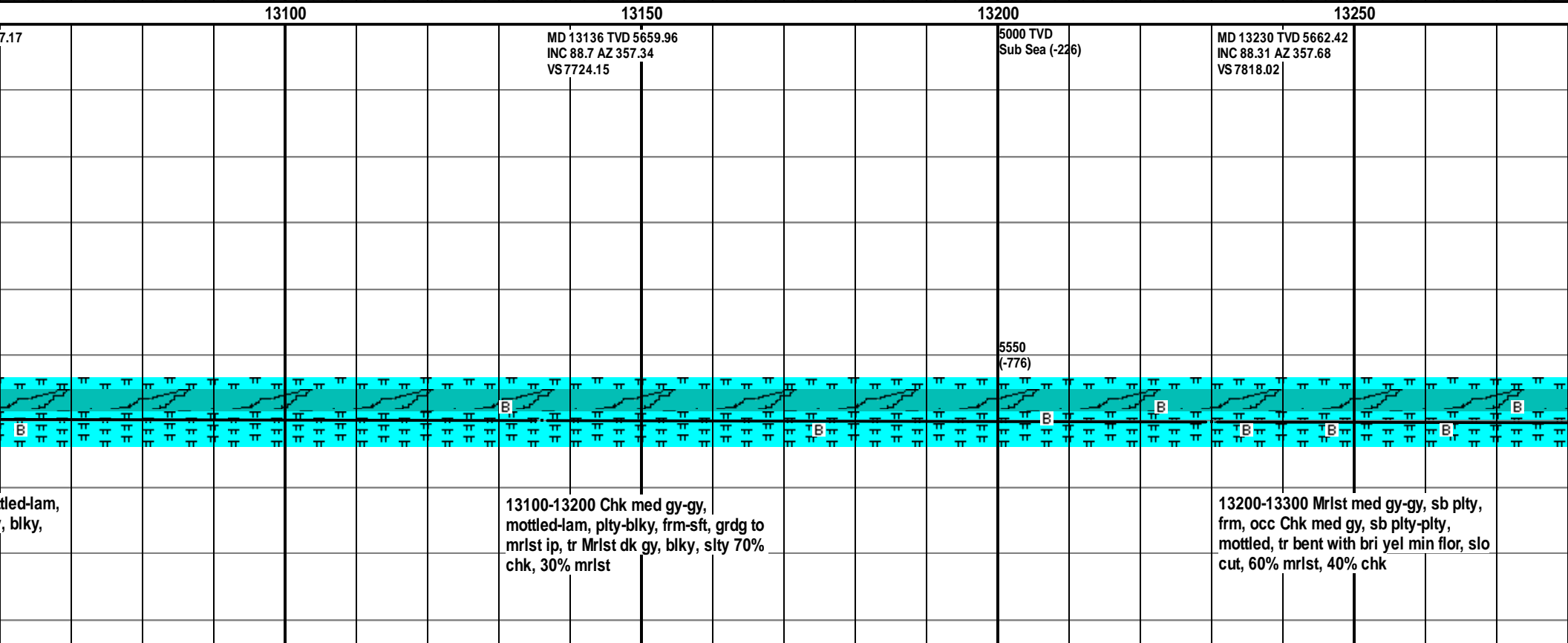
12900-13000 Chk lt gy-gy, mottled-lam,  
plty-blky, frm-sft, tr Mrst dk gy, blk,  
silty, rr bent, 75% chk, 25% mrst

13000-13100 Chk lt gy-gy, mottled-lam,  
plty-blky, frm-sft, tr Mrst dk gy, blk,  
silty 80% chk, 20% mrst





57.4% Methane  
18.1% Ethane  
11.2% Propane  
13.2% Butane



7.17

13100

13150

13200

13250

MD 13136 TVD 5659.96  
INC 88.7 AZ 357.34  
VS 7724.15

5000 TVD  
Sub Sea (-226)

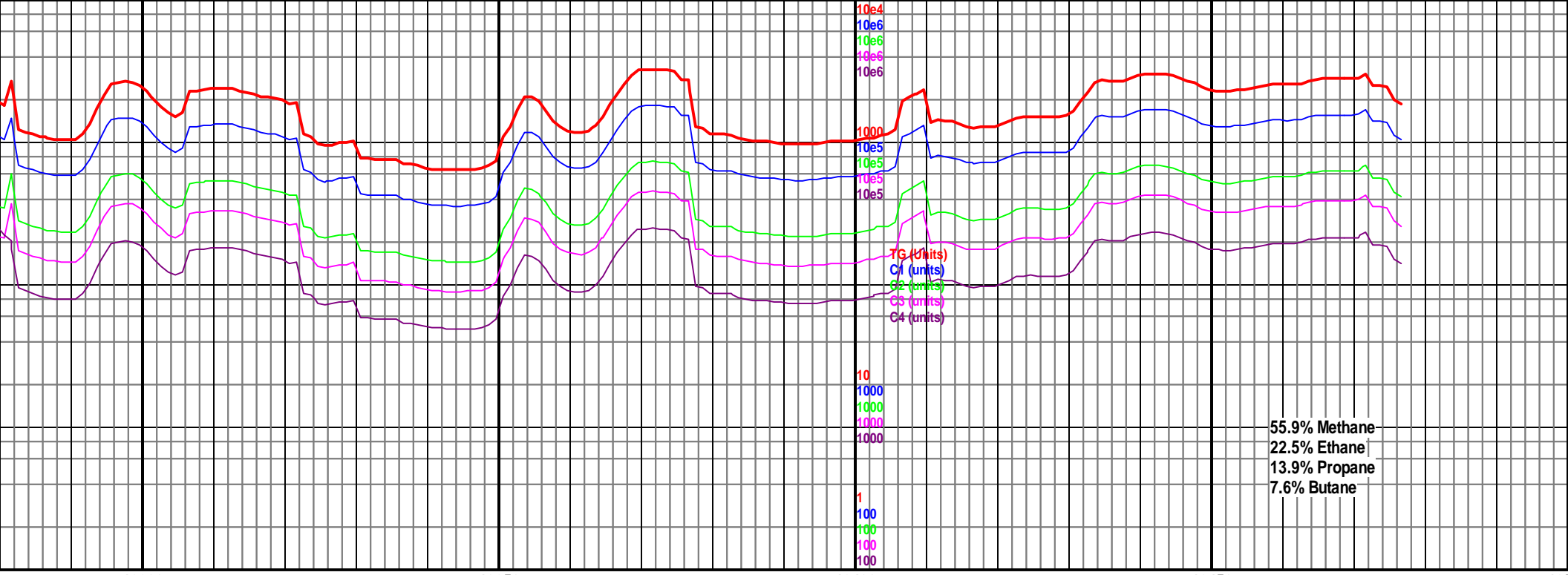
MD 13230 TVD 5662.42  
INC 88.31 AZ 357.68  
VS 7818.02

5550  
(-776)

mottled-lam,  
blk, blk

13100-13200 Chk med gy-gy,  
mottled-lam, plty-blky, frm-sft, grdg to  
mrlst ip, tr Mrlst dk gy, blk, slty 70%  
chk, 30% mrlst

13200-13300 Mrlst med gy-gy, sb plty,  
frm, occ Chk med gy, sb plty-plty,  
mottled, tr bent with bri yel min flor, slo  
cut, 60% mrlst, 40% chk



13300	13350	13400	13450	13500
MD 13325 TVD 5663.94 INC 89.85 AZ 357.56 VS 7912.91		5000 TVD Sub Sea (-226)	MD 13428 TVD 5662.36 INC 91.56 AZ 358.11 VS 8016.4	MD 13478 TVD 5661 INC 91.56 AZ 358.11 VS 8066.35
		5550 (-776) 		
13300-13400 Mrlst med gy-gy brn, sb blk-y-sb plty, occ chk, med gy-lt gy, plty-sb plty, mottled, g tr bent with bri yel min flor, slo cut, 60% mrlist, 40% chk		13400-13478 Chk lt gy-med gy, sb blk-y-sb plty, frm-sft, mottled, occ mrlist a/a, g tr bent with bri yel min flor, slo cut, 60% chk, 40% mrlist		

A full-page sheet of white graph paper with a light gray grid. The grid consists of small squares, approximately 10 units wide by 10 units high. There are no margins or additional markings on the page.

500

134

[illegible]