



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

Well Name: RAZOR FEDERAL 26J-2310B
Location: NWSE 26-T10N-R58W, Weld County, Colorado
License Number: 05-123-38043
Spud Date: 2/13/2014
Surface Coordinates: Lat.: 40.80850 Long.: -103.829861
Bottom Hole Coordinates: Lat.: 40.831231 Long.: -103.830725
Ground Elevation (ft): 4726 **K.B. Elevation (ft):** 4743
Logged Interval (ft): 5200 **To:** 13500 **Total Depth (ft):** 13441
Formation: Pierre, Sharon Springs, Niobrara
Type of Drilling Fluid: Water Based Mud

Region: Redtail Field

Drilling Completed: 2/24/2014

Printed by WellSight Log Viewer 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: Mark Denler and Kyle Newman
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Xtreme
Rig # 18

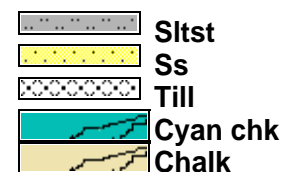
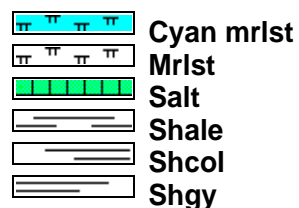
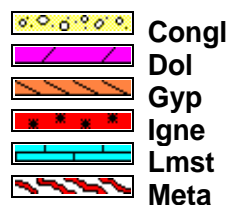
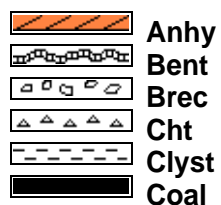
Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #603

Comments

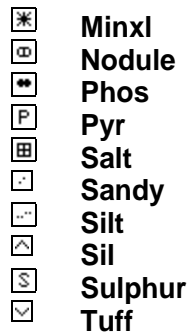
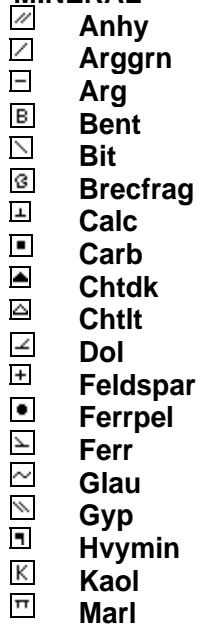
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

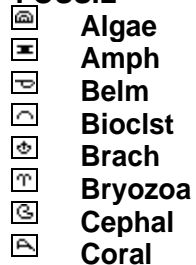


ACCESSORIES

MINERAL



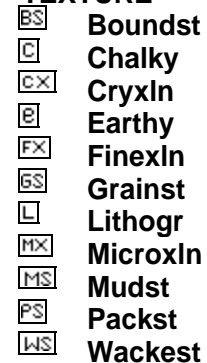
FOSSIL



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

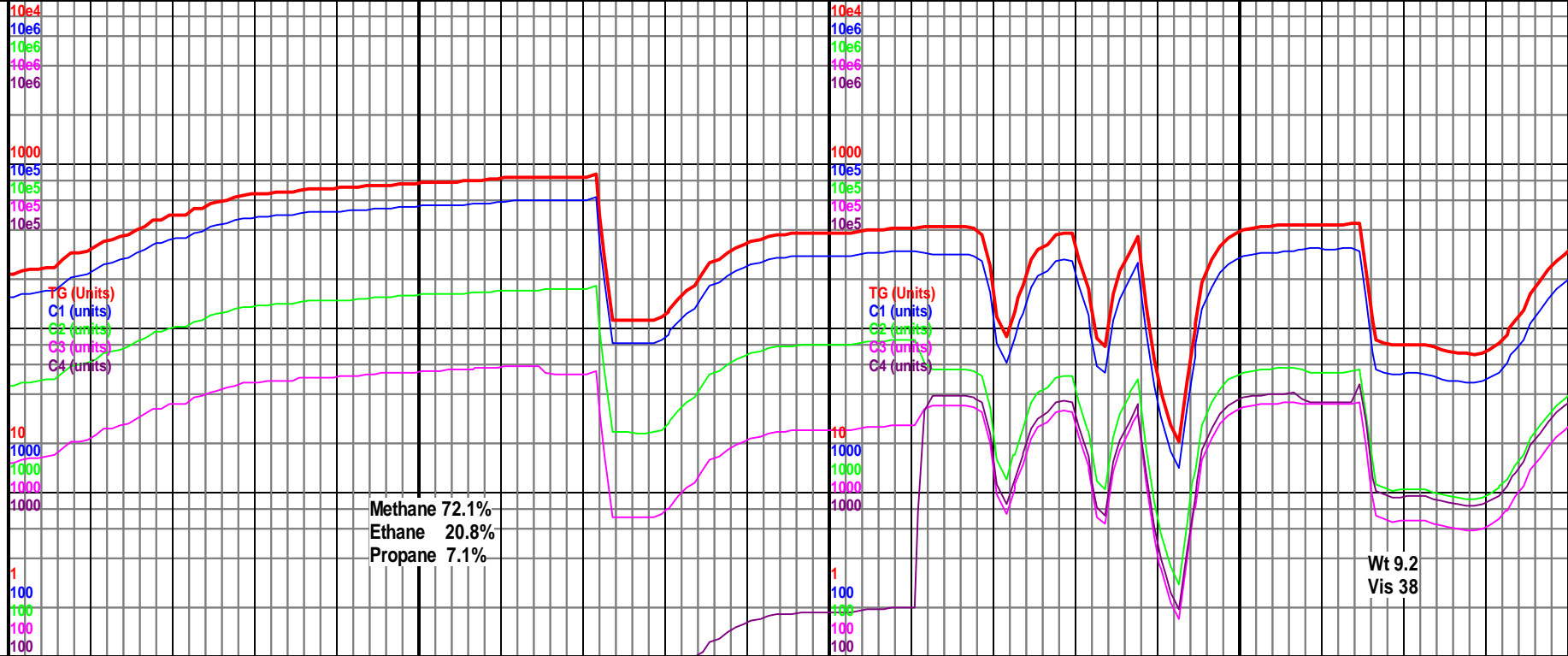
-  Core
-  Dst

EVENT

-  Rft
-  Sidewall

TG, C1-C4

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



Depth

00 5150 5200 5250

5150 TVD Sub Sea (-407)	MD 5119 TVD 5109.41 INC 3.96 AZ 348.58 VS 254.86	MD 5150 TVD 5140.33 INC 4.04 AZ 348.61 VS 256.99	MD 5181 TVD 5171.2 INC 6.6 AZ 352.71 VS 259.84	5150 TVD Sub Sea (-407)	MD 5212 TVD 5201.79 INC 11.78 AZ 352.21 VS 264.76	MD 5243 TVD 5231.73 INC 18.03 AZ 351.09 VS 272.67	MD 5274 TVD 5260.0 INC 23.74 AZ 347.4 VS 283.57
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Acme Geologic Consulting
arrived and rigged up on
2/15/2014

5100-5200 Sltst gy, sft, sb plty-sb blkly,
occ Sh gy, sft-sl frm, sl slty ip, non
calc, rr pyr, nsfoc, 70% Sltst, 30% Sh

KOP 5172' reached at 14:00
on 2/18/2014

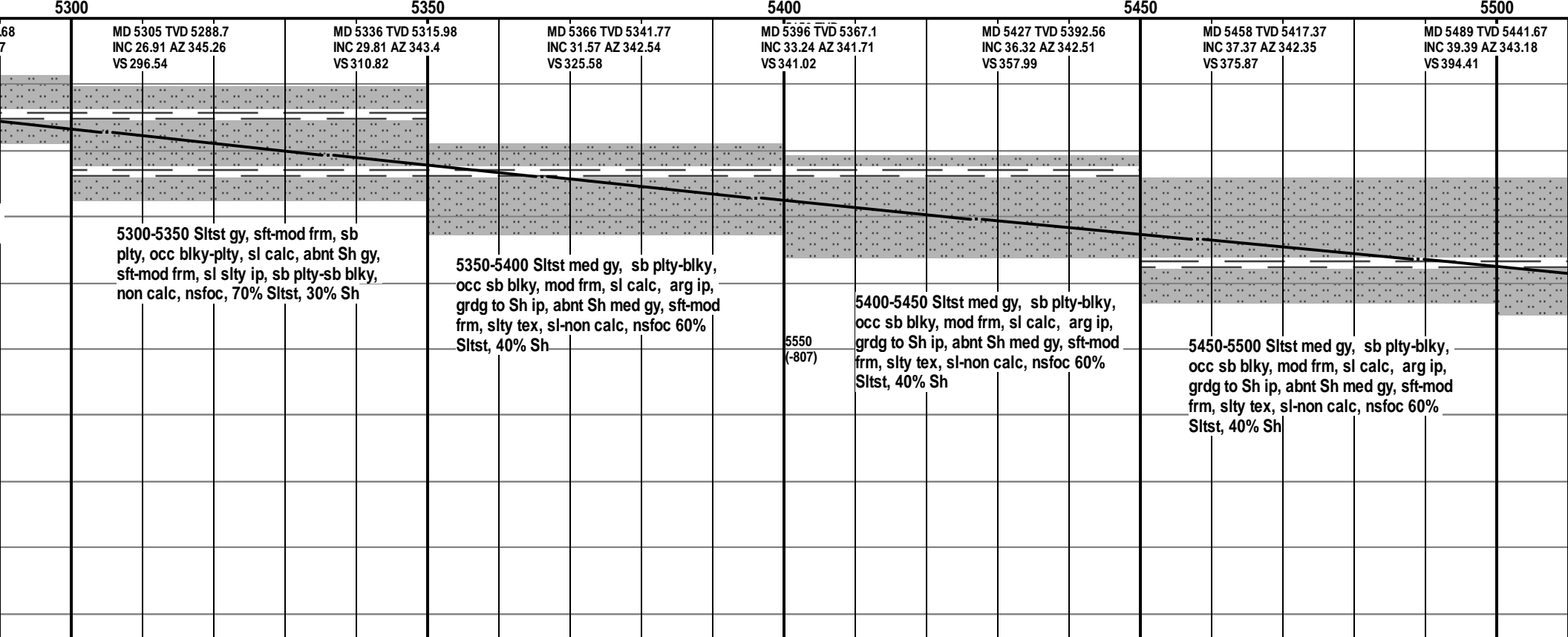
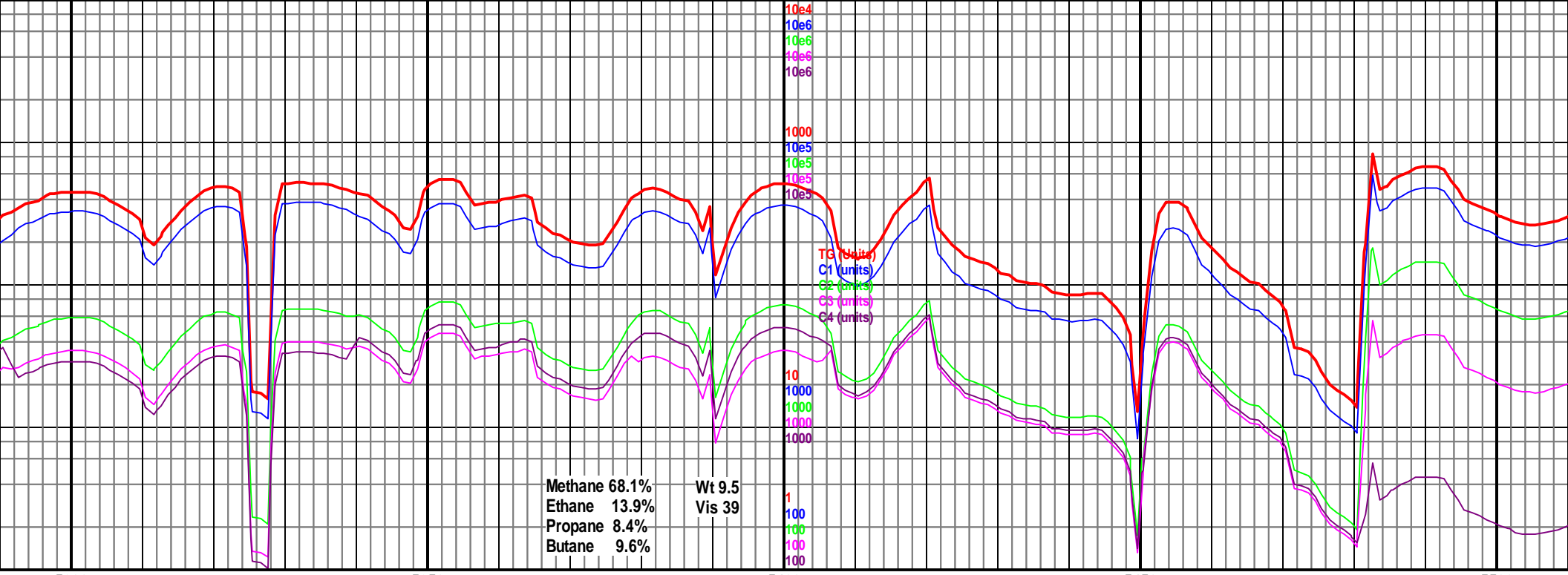
5200-5250 Sltst gy, sft, predy sb plty,
occ blkly-plty, abnt Sh gy, sft-sl frm, sl
slty ip, non calc, nsfoc, 60% Sltst, 40%
Sh

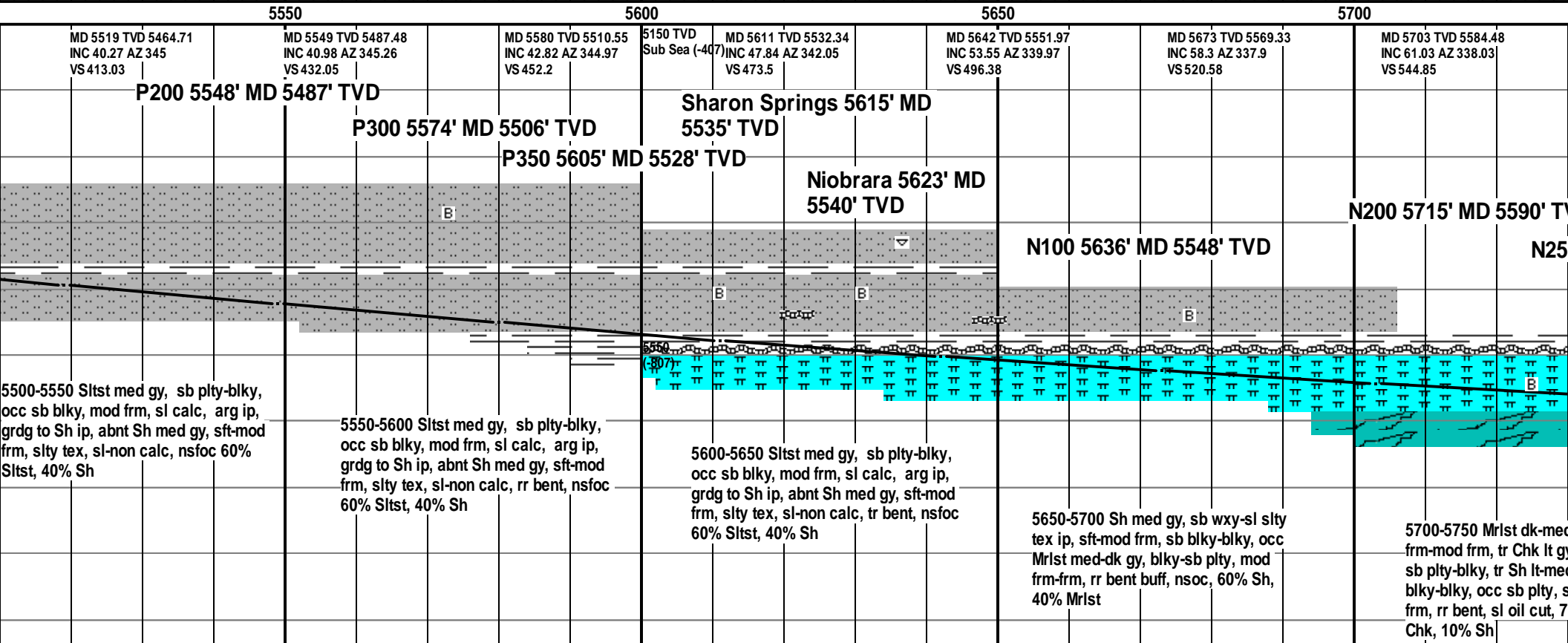
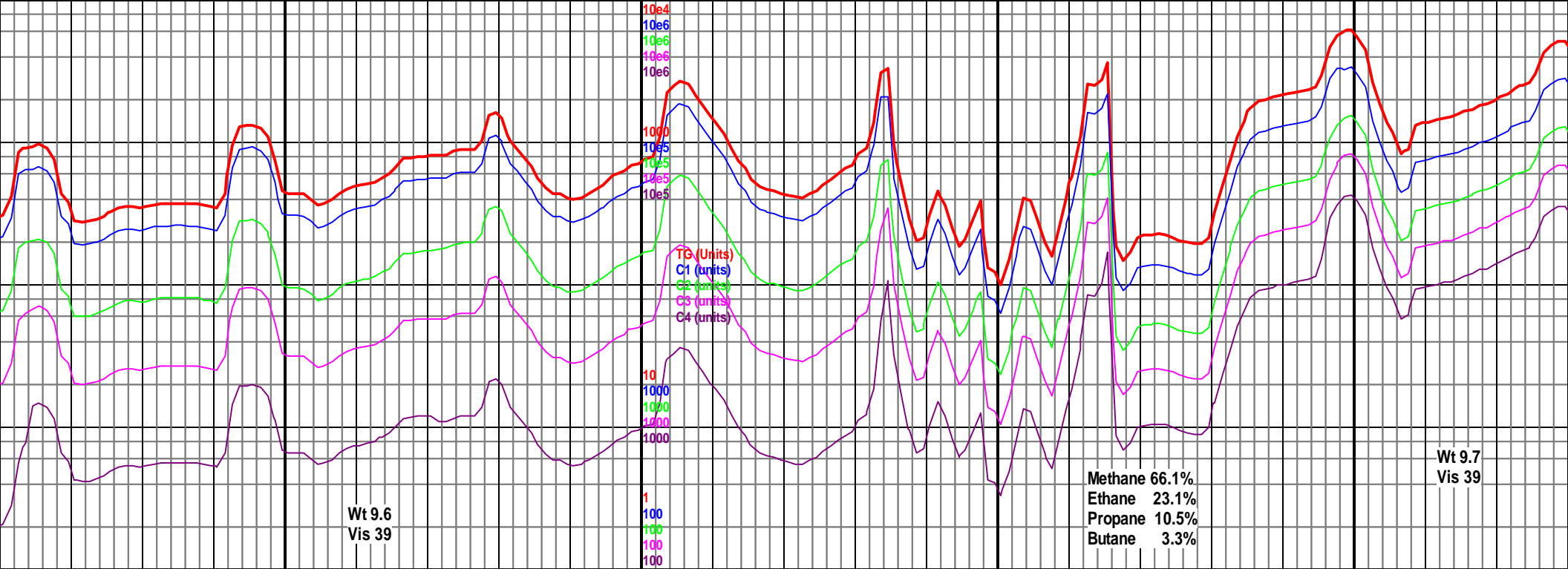
5250-5300 Sltst gy, sft-mod frm, sb
plty, occ blkly-plty, abnt Sh gy, sft-sl
frm, sl slty ip, non calc, nsfoc, 65%
Sltst, 35% Sh

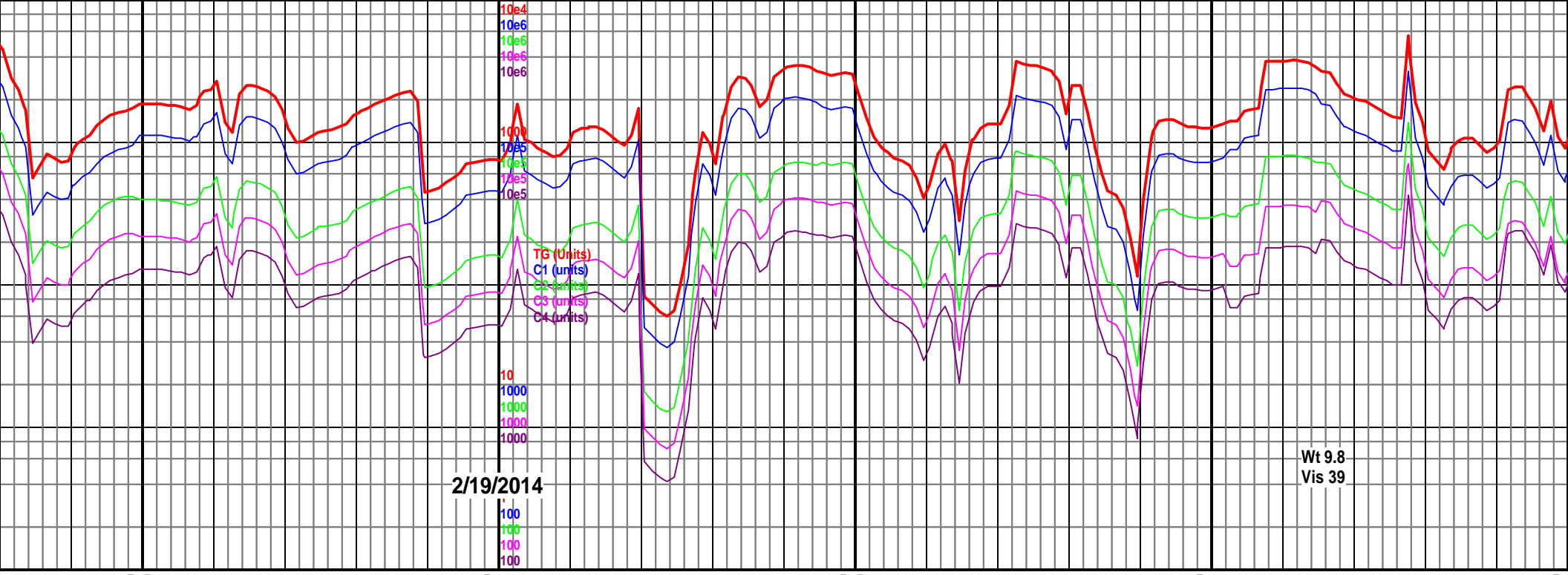
Well Bore Cross Section

5550
(-807)

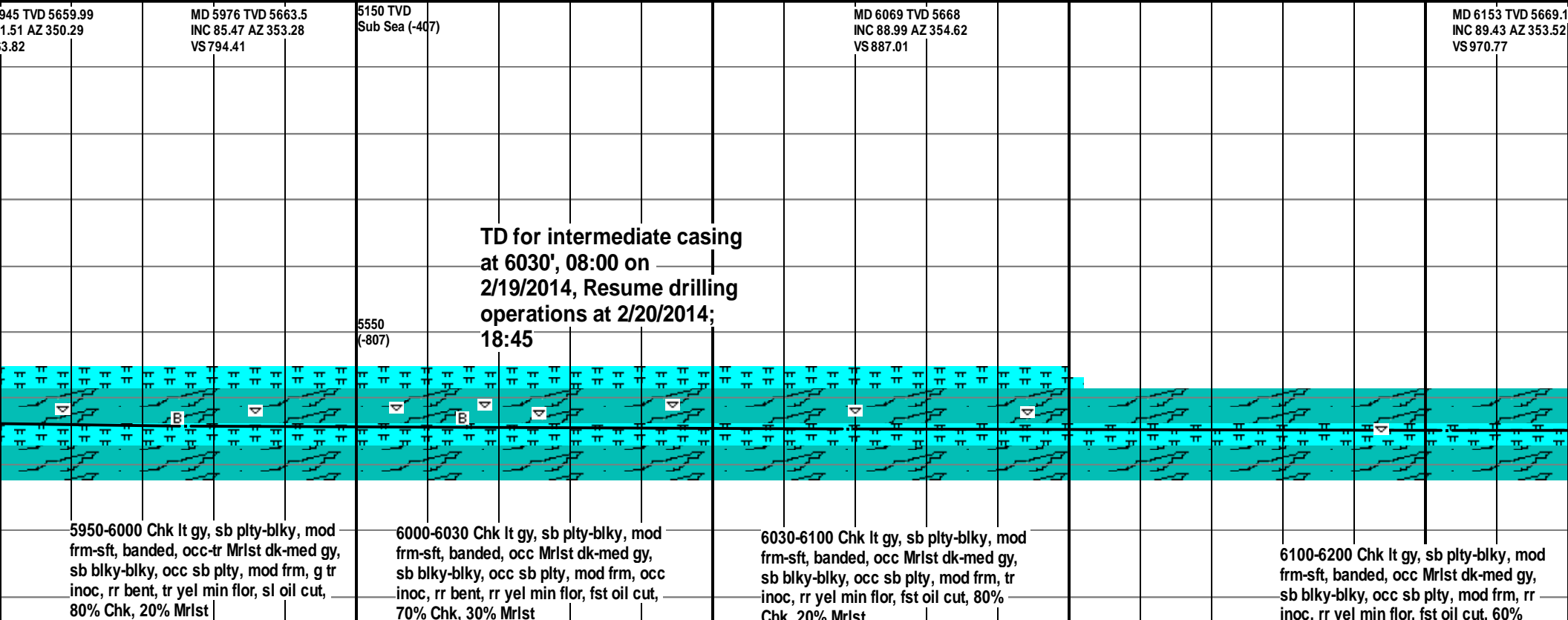
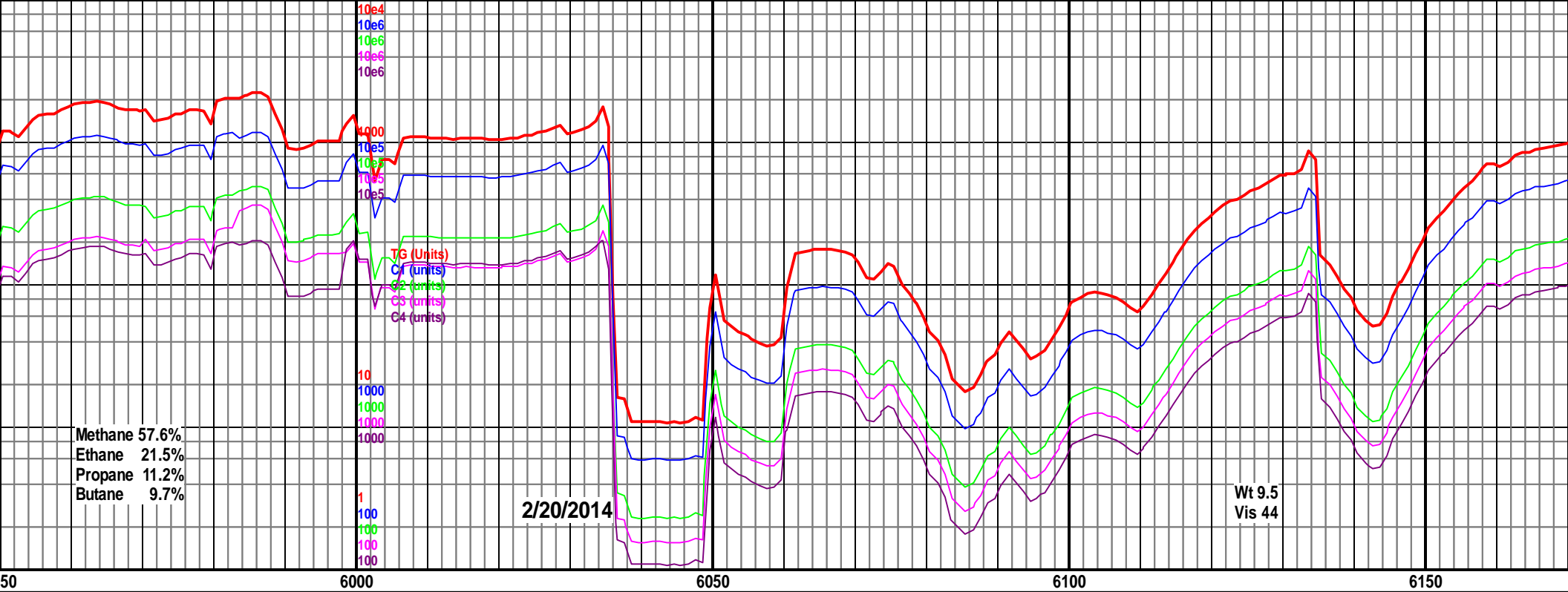
5550
(-807)

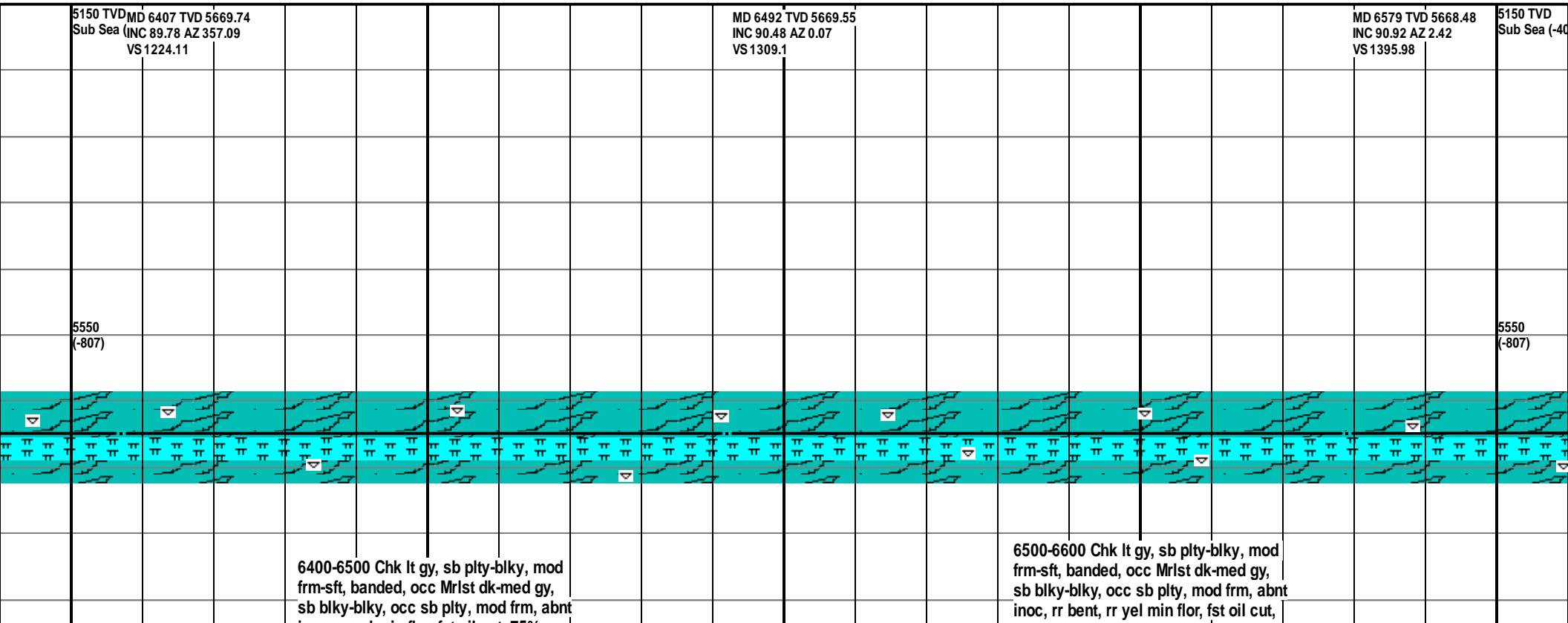
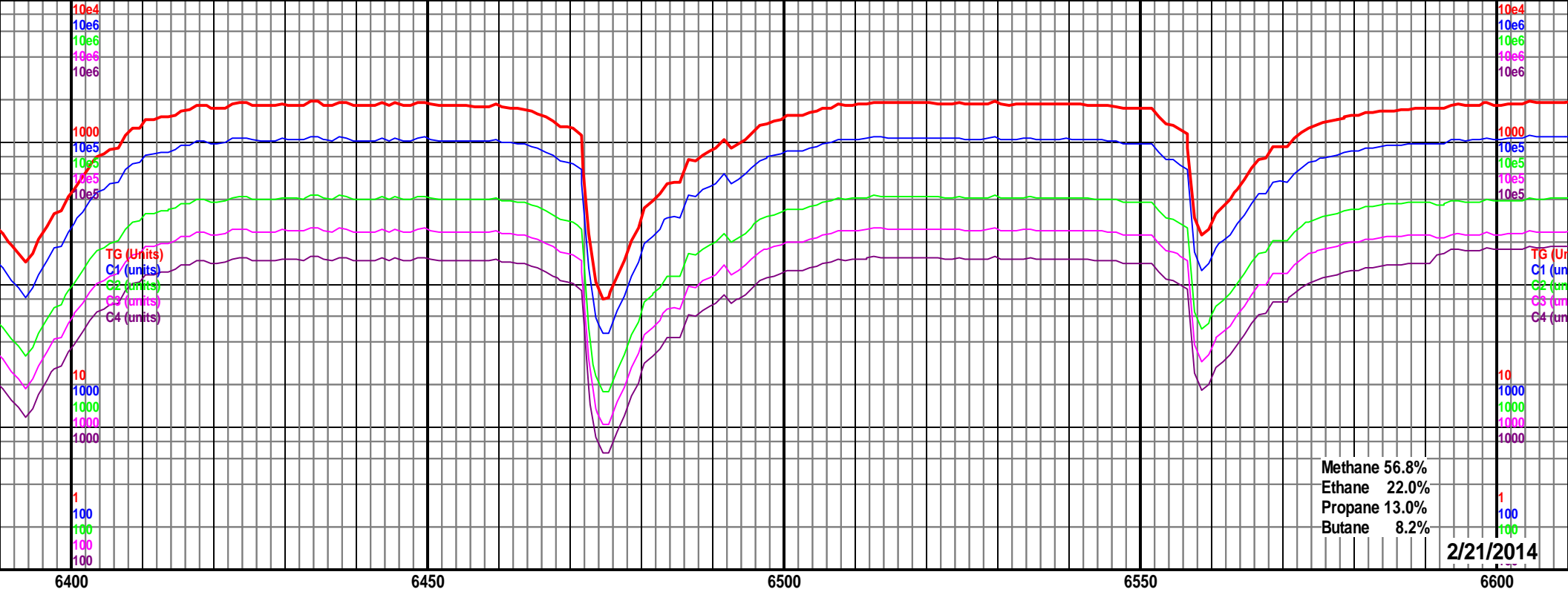


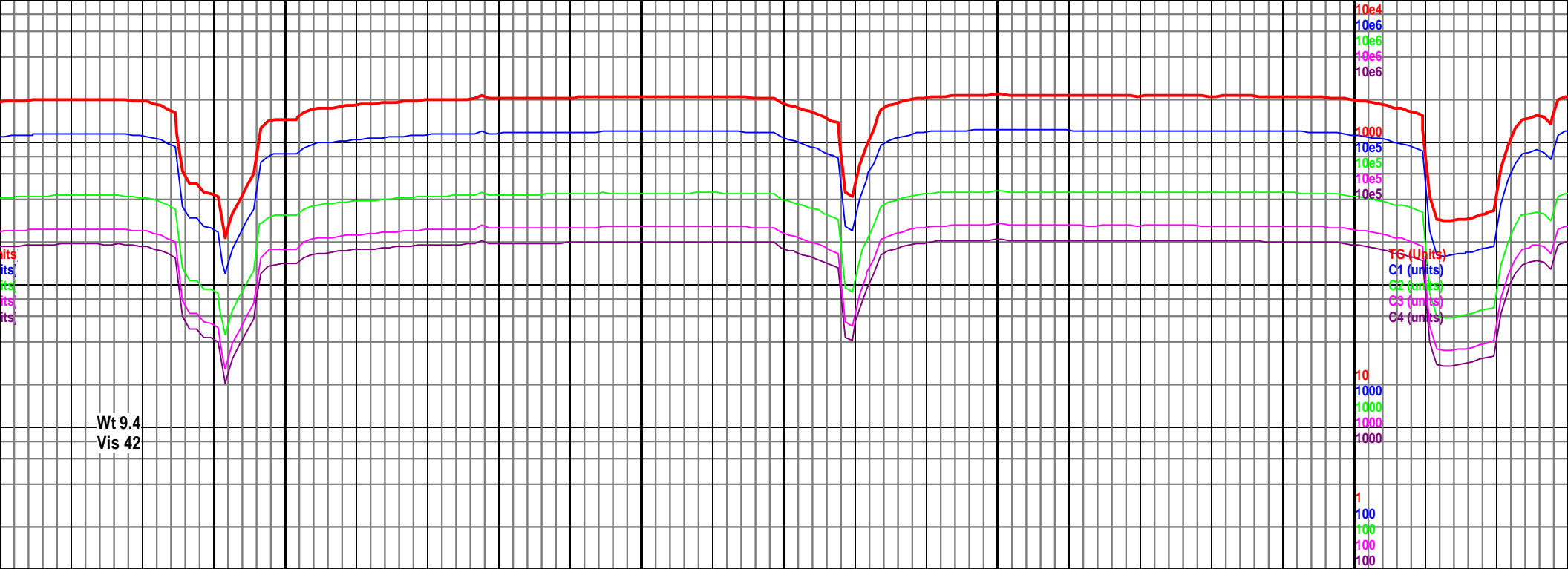




5750	5800	5850	5900	5950
MD 5733 TVD 5598.41 INC 63.66 AZ 337.09 VS 569.69	MD 5763 TVD 5610.99 INC 66.74 AZ 338.71 VS 595.21	MD 5794 TVD 5622.62 INC 69.2 AZ 340.48 ⁽¹⁾ VS 622.42	MD 5824 TVD 5632.66 INC 71.67 AZ 341.19 VS 649.38	MD 5854 TVD 5641.24 INC 75.1 AZ 342.72 VS 676.95
				MD 5885 TVD 5648.59 INC 77.47 AZ 344.76 VS 706.09
				MD 5915 TVD 5654.81 INC 78.61 AZ 346.54 VS 734.72
				MD 5945 TVD 5660.91 INC 80.76 AZ 348.31 VS 763.26
TVD				
0 5739' MD 5601' TVD				
N400 5754' MD 5607' TVD	N430 5816' MD 5630' TVD			







Wt 9.4
Vis 42

TS (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

6650

6700

6750

6800

MD 6667 TVD 5667.27
INC 90.66 AZ 2.16
VS 1483.76

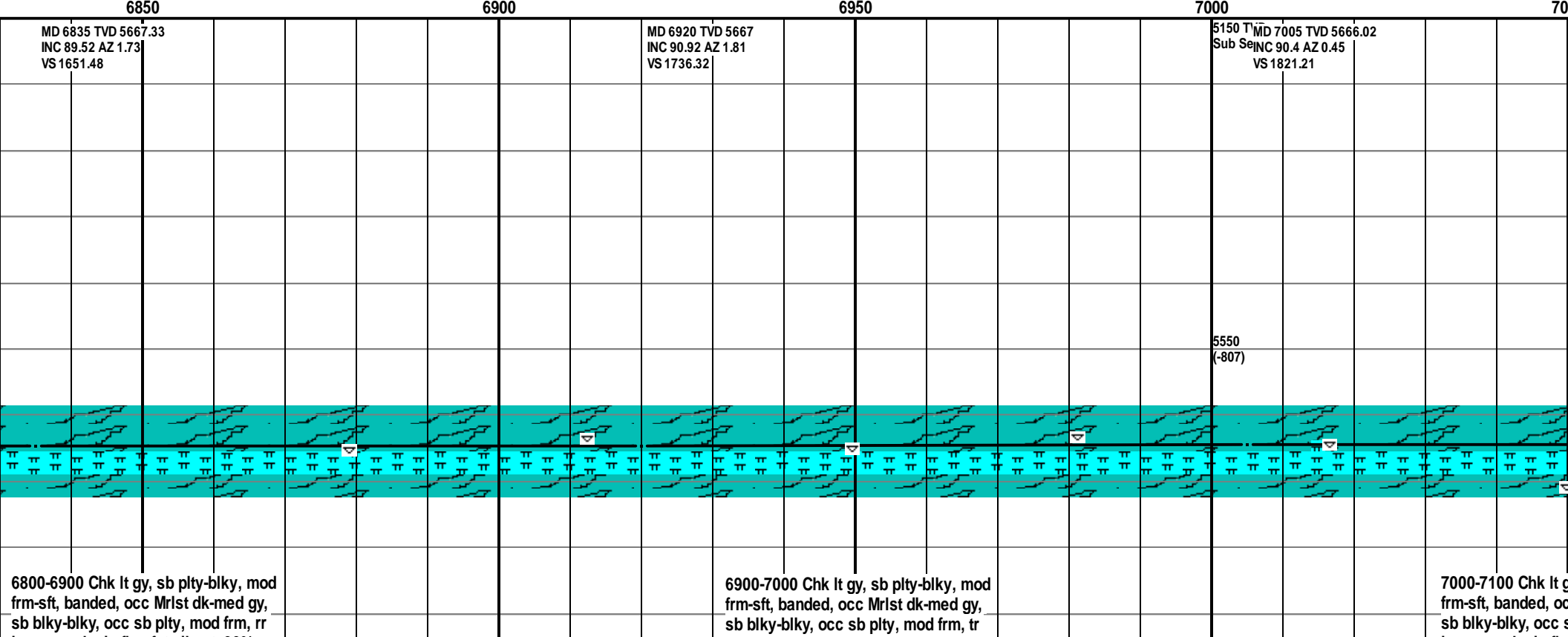
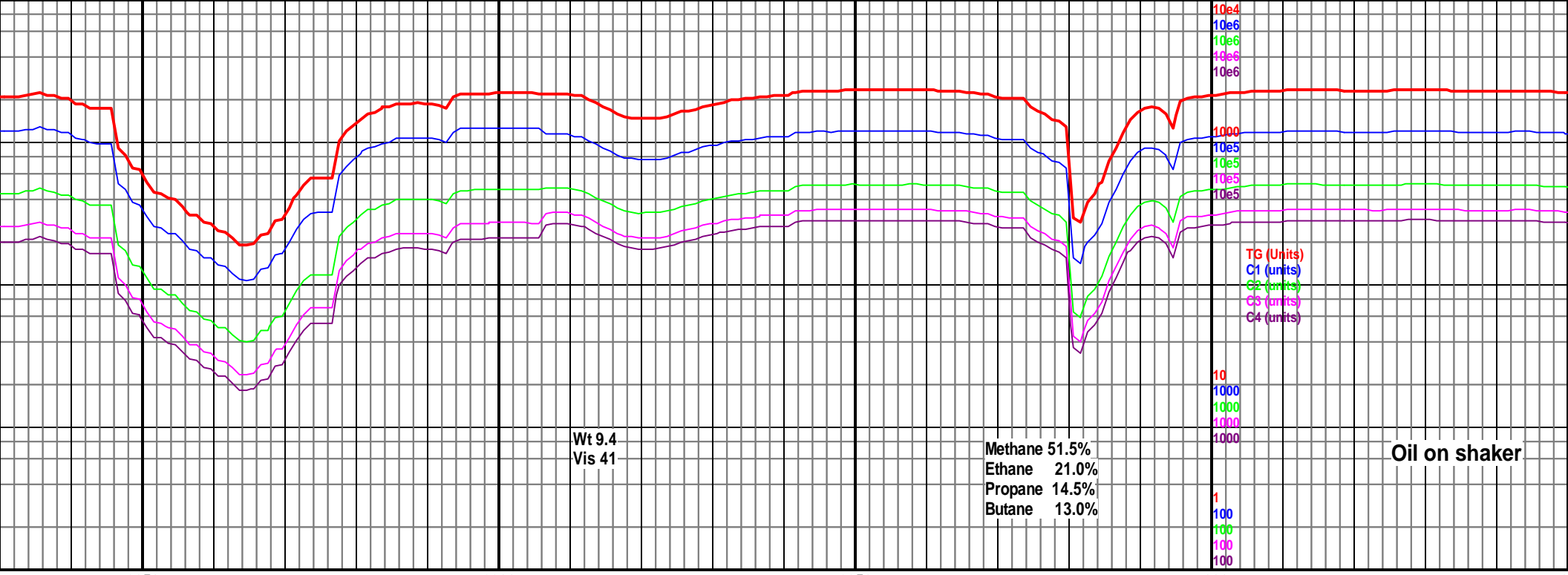
MD 6751 TVD 5666.88
INC 89.87 AZ 1.34
VS 1567.61

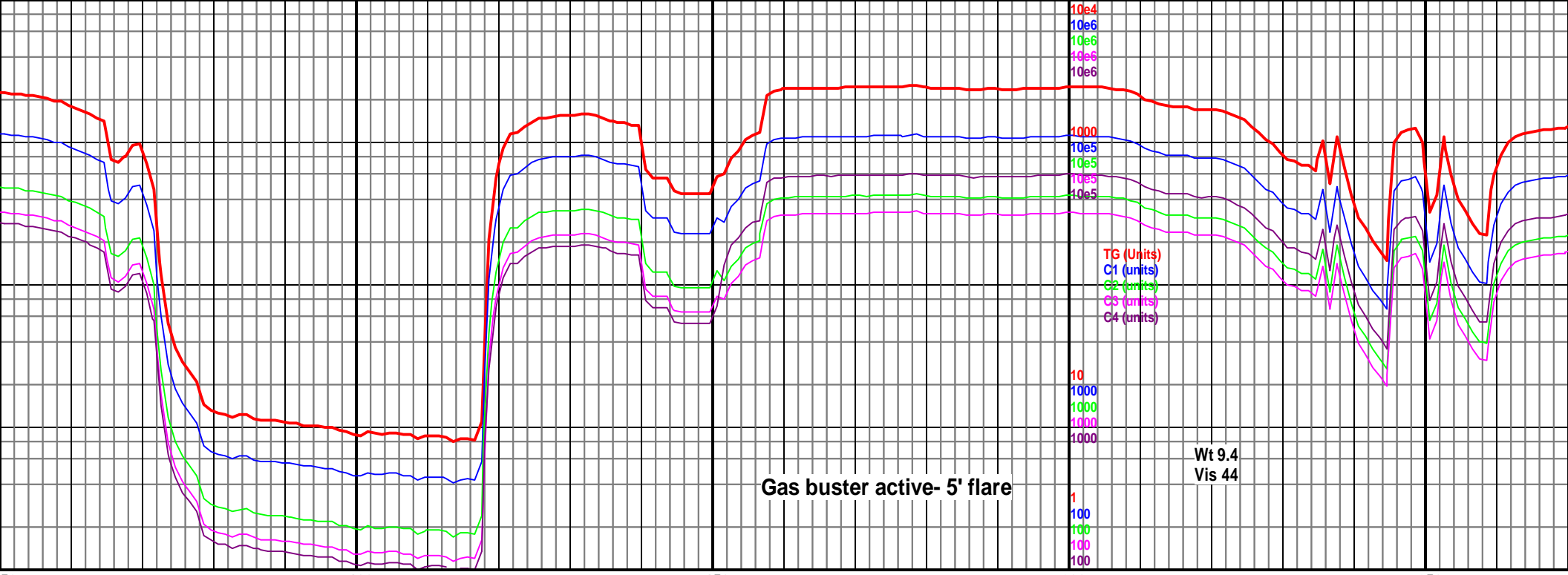
5150 TVD
Sub Sea (-407)

5550
(-807)

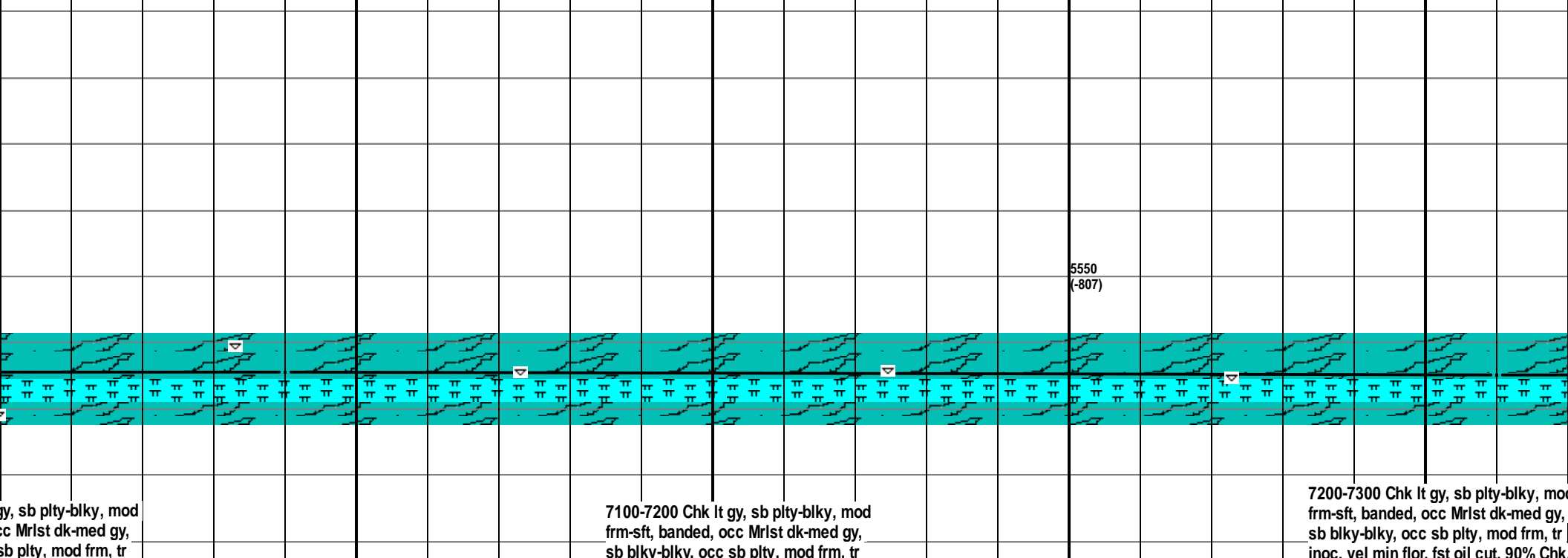
6600-6700 Chk lt gy, sb plty-blky, mod
frm-sft, banded, occ Mrlst dk-med gy, |
sb blky-blky, occ sb plty, mod frm, abnt
inoc, rr bent, rr yel min flor, slo oil cut,

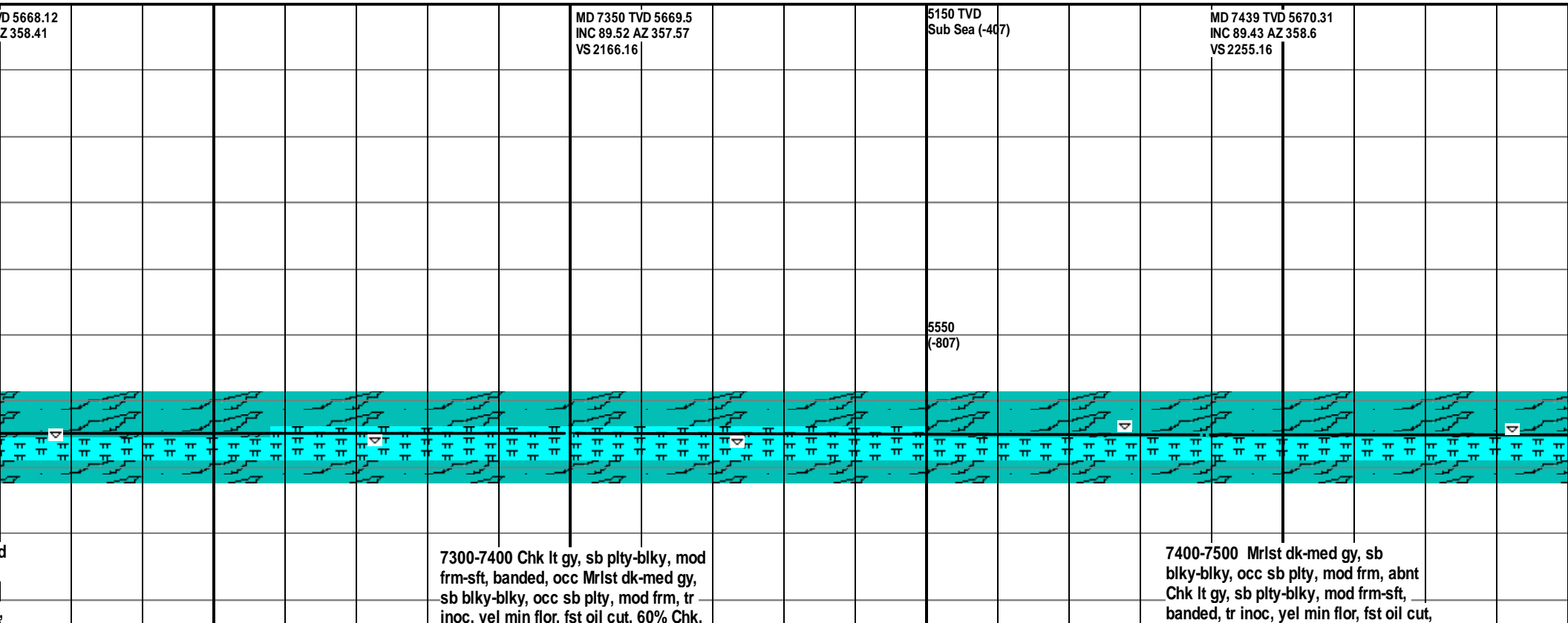
6700-6800 Chk lt gy, sb plty-blky, mod
frm-sft, banded, occ Mrlst dk-med gy,
sb blky-blky, occ sb plty, mod frm, rr

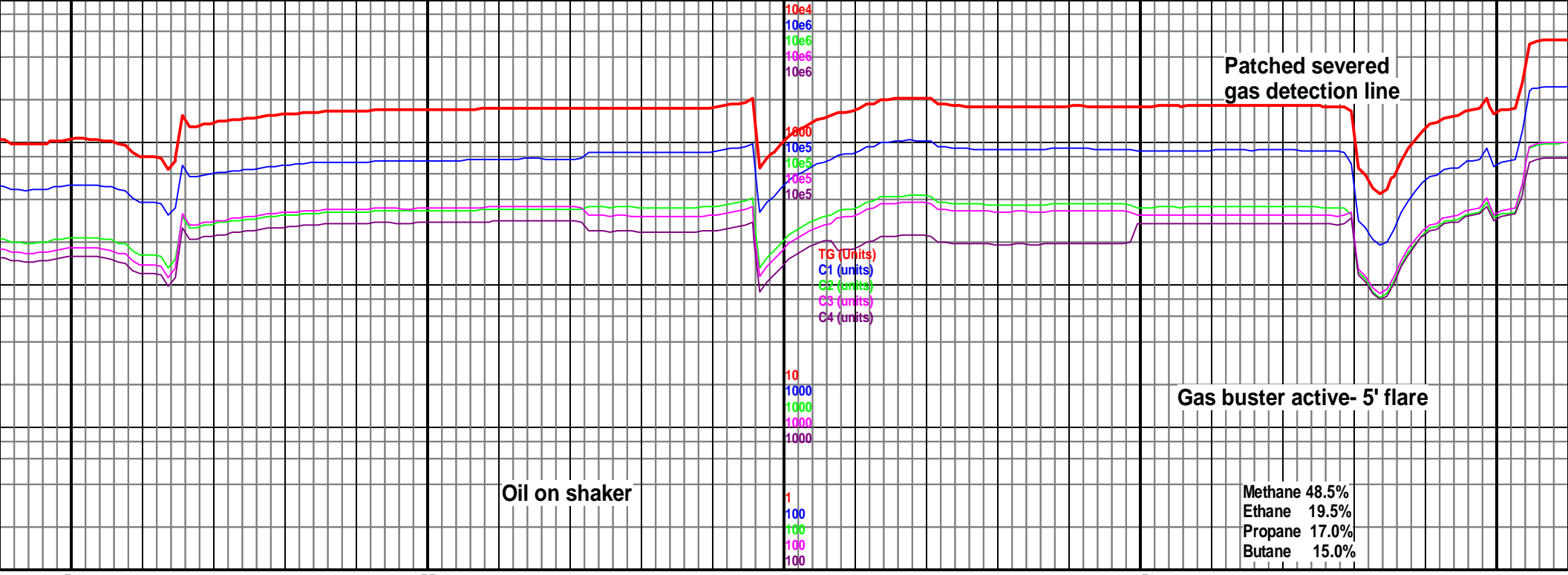




7050	7100	7150	7200	7250
MD 7090 TVD 5666.15 INC 89.43 AZ 358.6 VS 1906.19		MD 7175 TVD 5666.87 INC 89.6 AZ 358.58 VS 1991.19	5150 TVD Sub Sea (-407)	MD 7260 TVD INC 88.72 AZ VS 2076.18







MD 7529 TVD 5670.38
INC 90.48 AZ 357.91
VS 2345.16

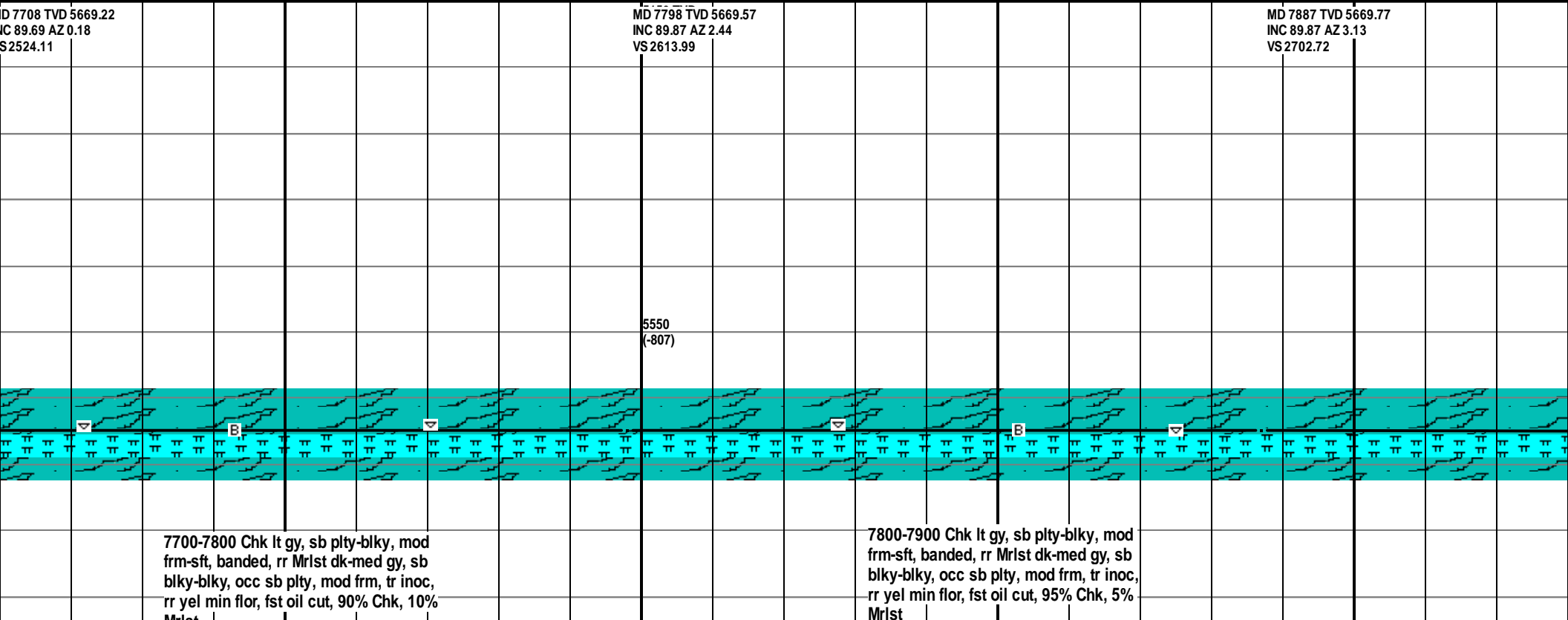
5150 TVD
Sub Sea (-407)

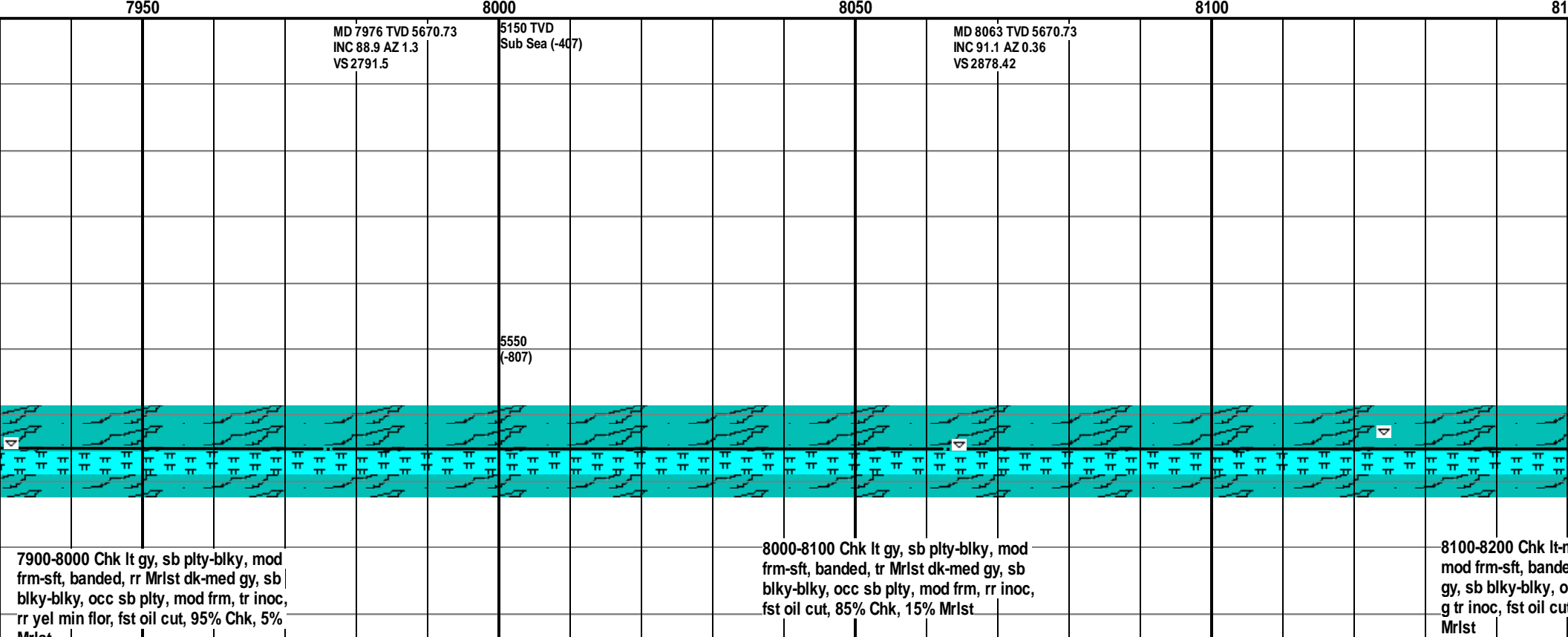
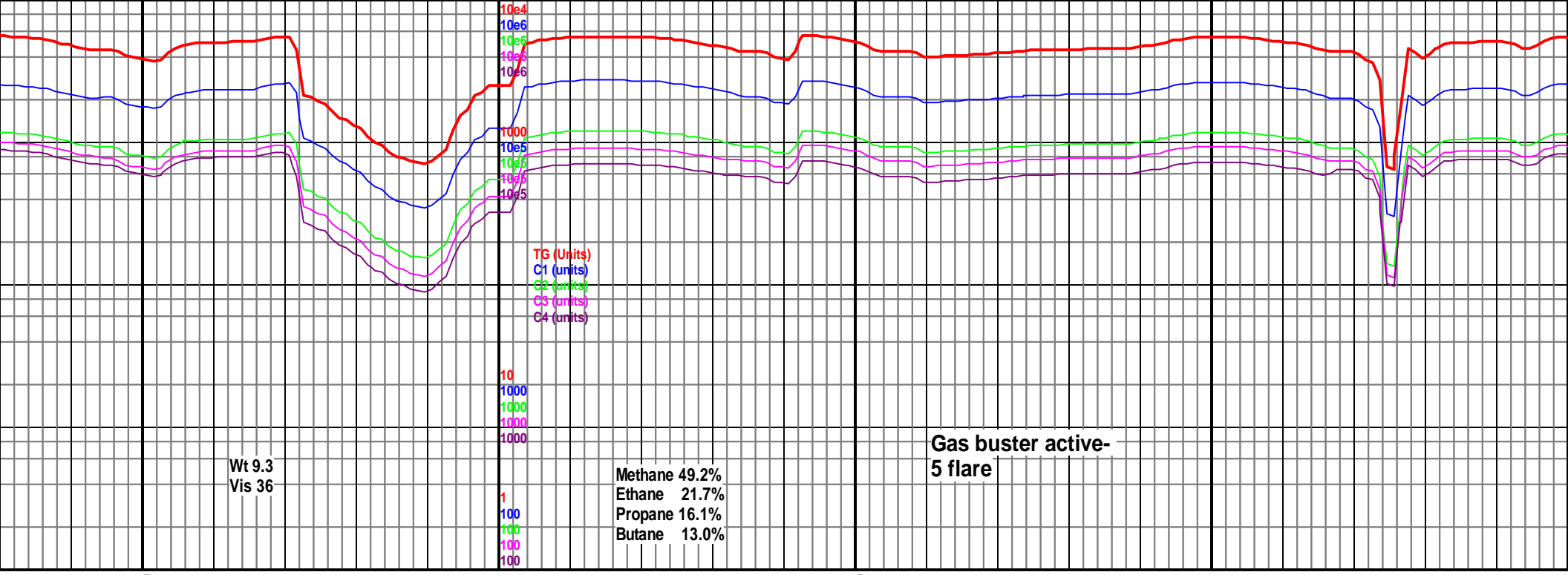
MD 7618 TVD 5669.5
INC 90.66 AZ 359.53
VS 2434.15

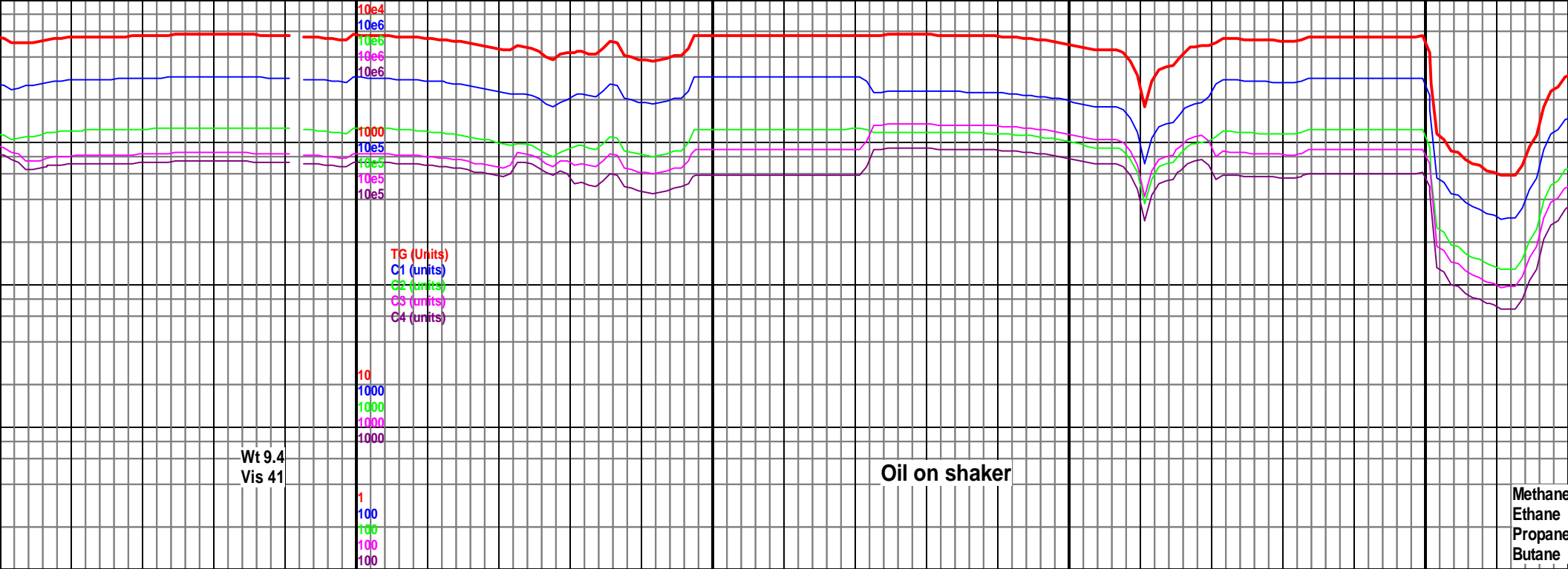
5550
(-807)

7500-7600 Chk lt gy, sb plty-blky, mod
frm-sft, banded, occ Mrlst dk-med gy,
sb blky-blky, occ sb plty, mod frm, tr
inoc, yel min flor, fst oil cut, 70% Chk,

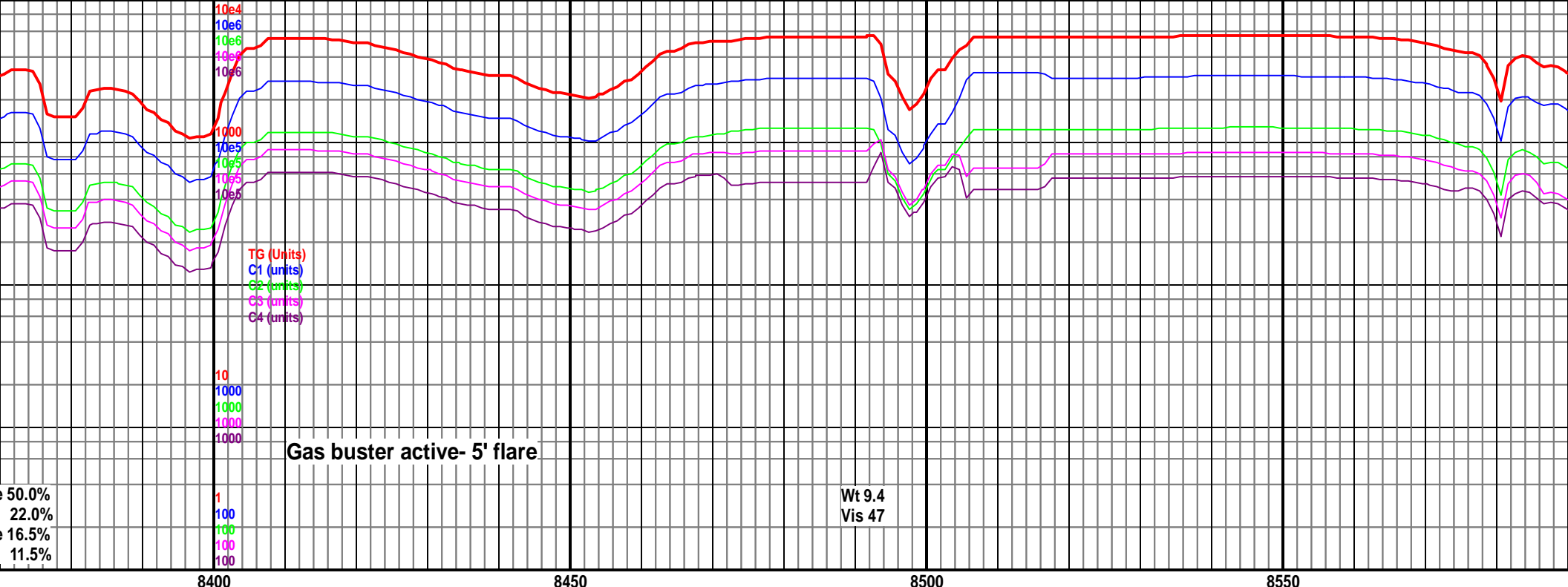
7600-7700 Chk lt gy, sb plty-blky, mod
frm-sft, banded, tr Mrlst dk-med gy, sb
blky-blky, occ sb plty, mod frm, tr inoc,
yel min flor, fst oil cut, 85% Chk, 15%







<p>MD 8152 TVD 5670.25 INC 89.52 AZ 359.6 VS 2967.37</p> <p>med gy, sb plty-blky, d, tr Mrlst dk-med cc sb plty, mod frm, t, 85% Chk, 15%</p>	<p>5150 TVD Sub Sea (-407)</p> <p>5550 (-807)</p> <p>8200-8300 Chk lt-med gy, sb plty-blky, mod frm-sft, banded, g tr Mrlst dk-med gy, sb blky-blky, occ sb plty, mod frm, tr inoc, fst oil cut, 85% Chk, 15% Mrlst</p>	<p>MD 8242 TVD 5671.21 INC 89.25 AZ 359.13 VS 3057.35</p>		<p>MD 8334 TVD 5672.63 INC 88.99 AZ 357.46 VS 3149.34</p> <p>8300-8400 Chk lt-med gy, sb plty-blky, mod frm-sft, banded, tr Mrlst dk-me gy, sb blky-blky, occ sb plty, mod f g tr inoc, mod fst oil cut, 90% Chk,</p>	
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8400

8450

8500

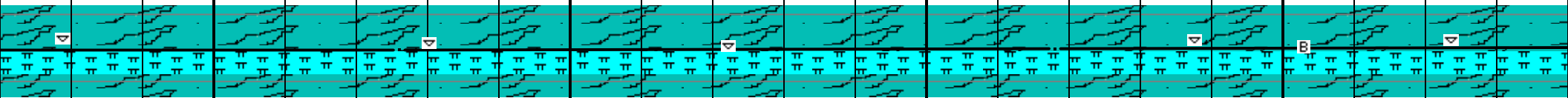
8550

5150 TVD
Sub Sea (-407)

MD 8426 TVD 5672.91
INC 90.66 AZ 356.97
VS 3241.32

MD 8518 TVD 5671.35
INC 91.28 AZ 358.09
VS 3333.29

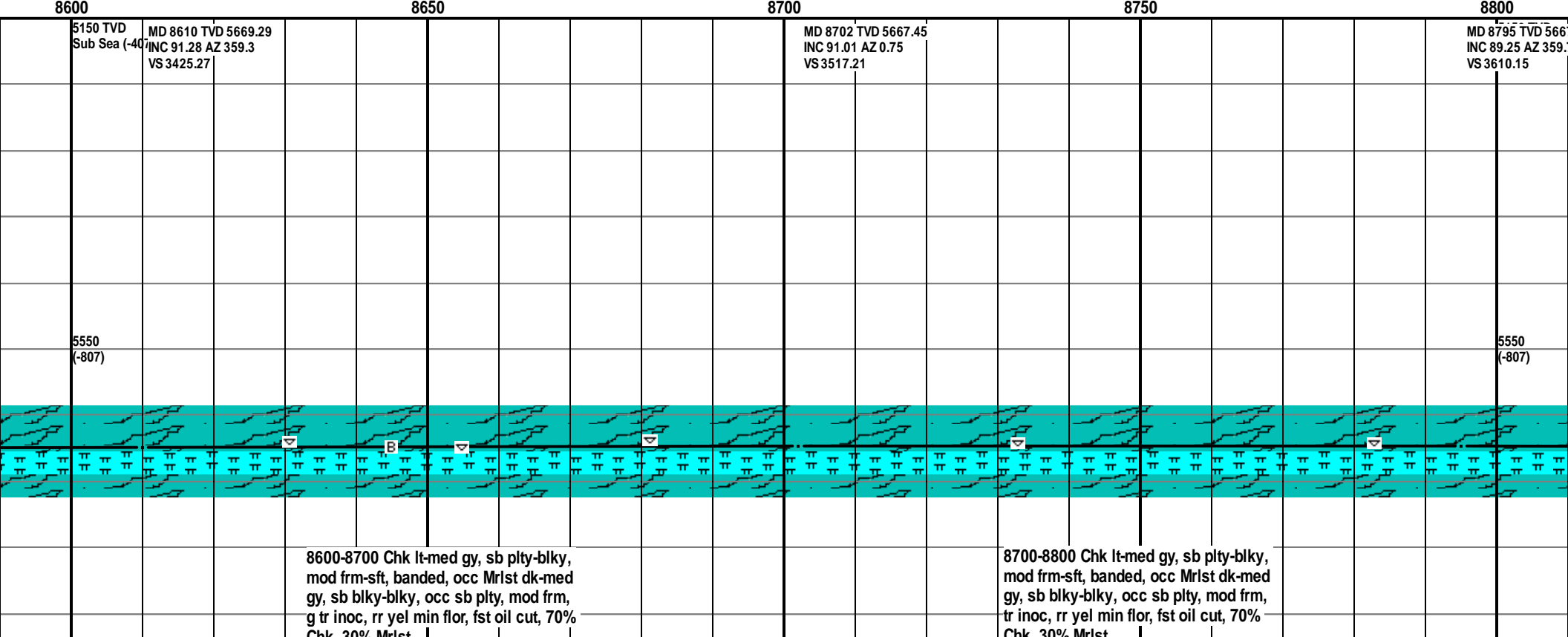
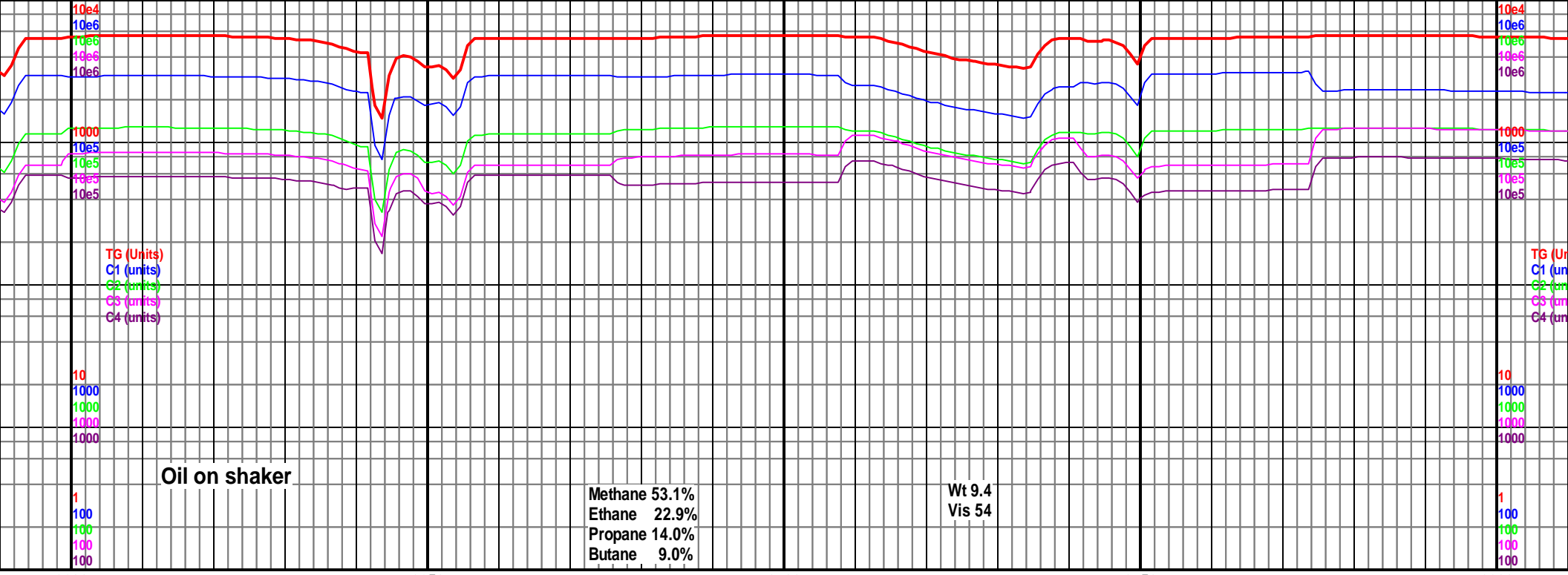
5550
(-807)

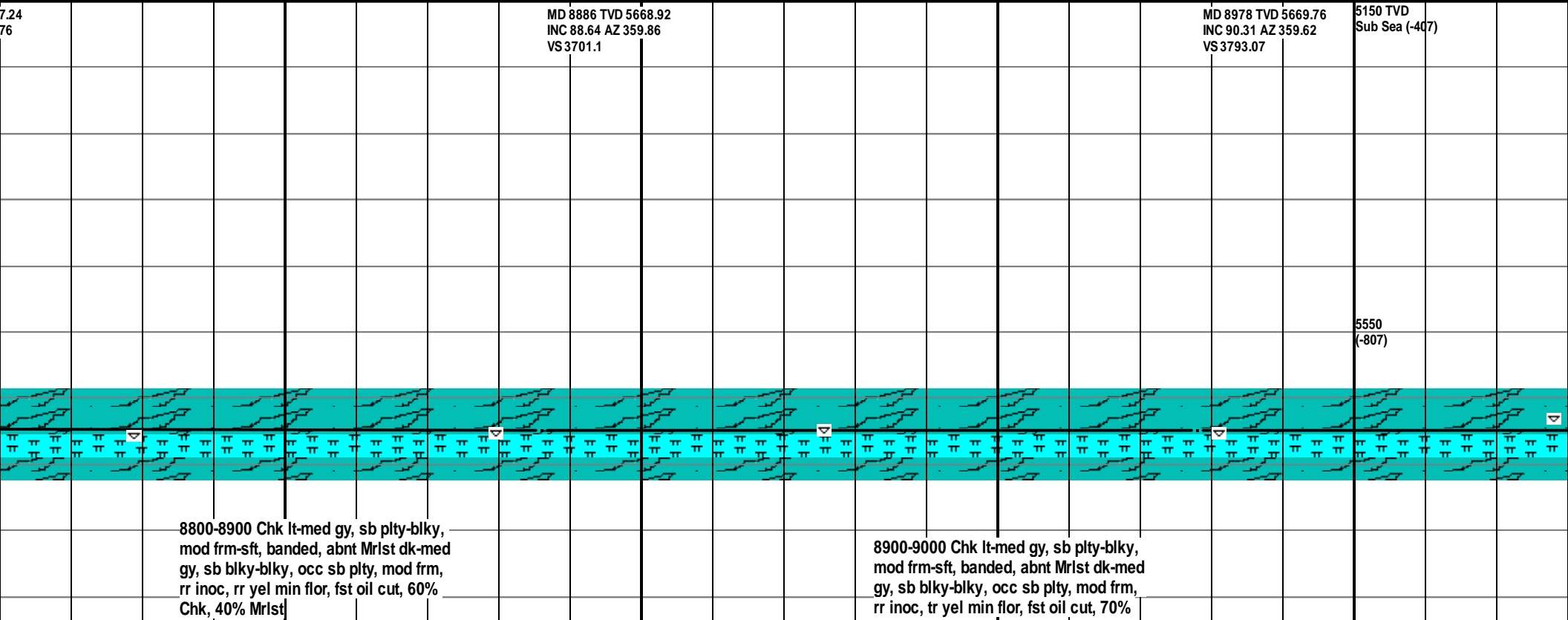
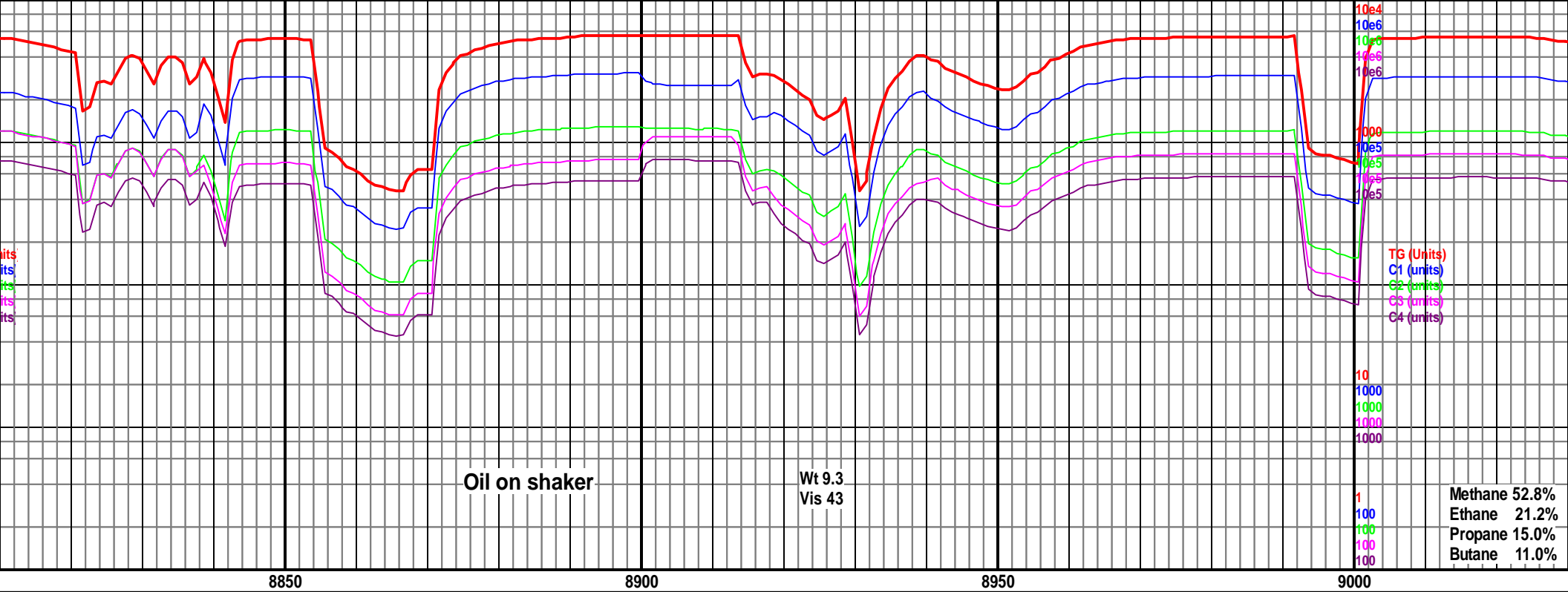


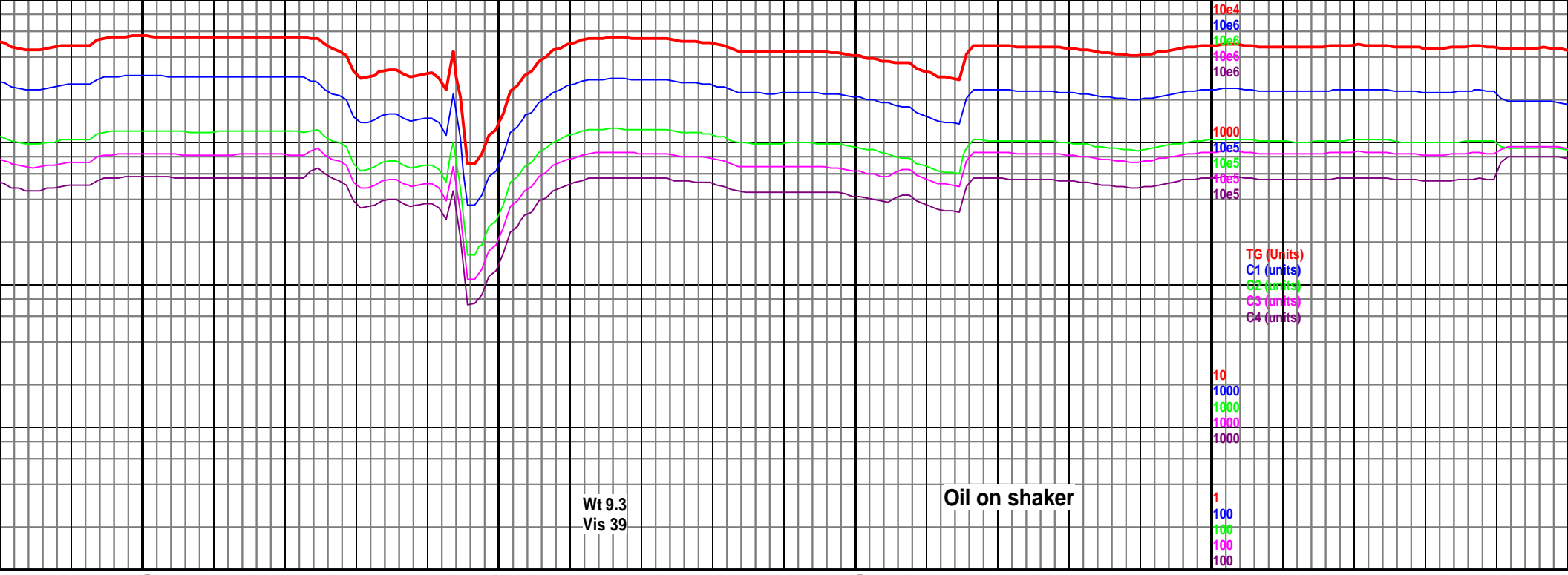
lky,
d
rm,
10%

8400-8500 Chk lt-med gy, sb plty-blky,
mod frm-sft, banded, tr Mrlst dk-med
gy, sb blky-blky, occ sb plty, mod frm,
tr inoc, mod fst oil cut, 90% Chk 10%

8500-8600 Chk lt-med gy, sb plty-blky,
mod frm-sft, banded, occ Mrlst dk-med
gy, sb blky-blky, occ sb plty, mod frm,
tr inoc, rr yel min flr, fst oil cut, 80%







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

10
1000
1000
1000
1000
1
100
100
100
100

Wt 9.3
Vis 39

Oil on shaker

9050

9100

9150

9200

9250

MD 9070 TVD 5669.55
INC 89.96 AZ 359.45
VS 3885.05

MD 9162 TVD 5667.99
INC 91.98 AZ 359.48
VS 3977.01

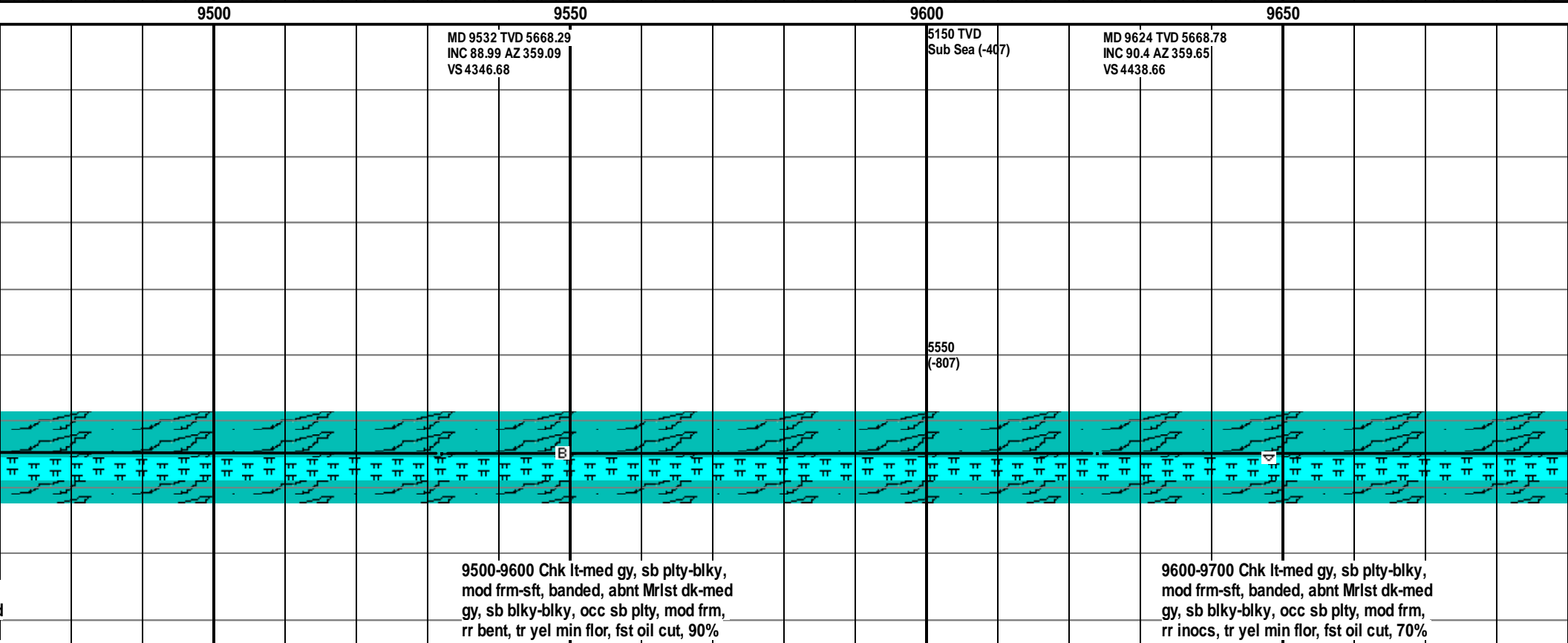
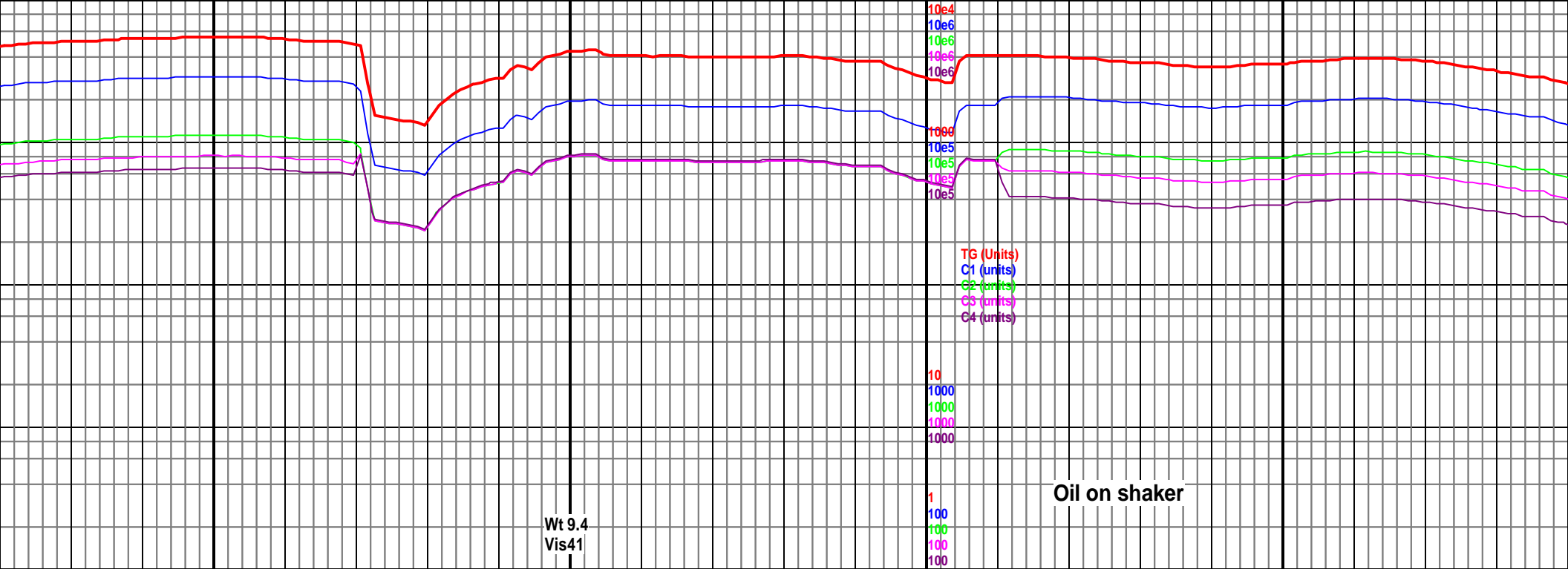
5150 TVD
Sub Sea (-407)

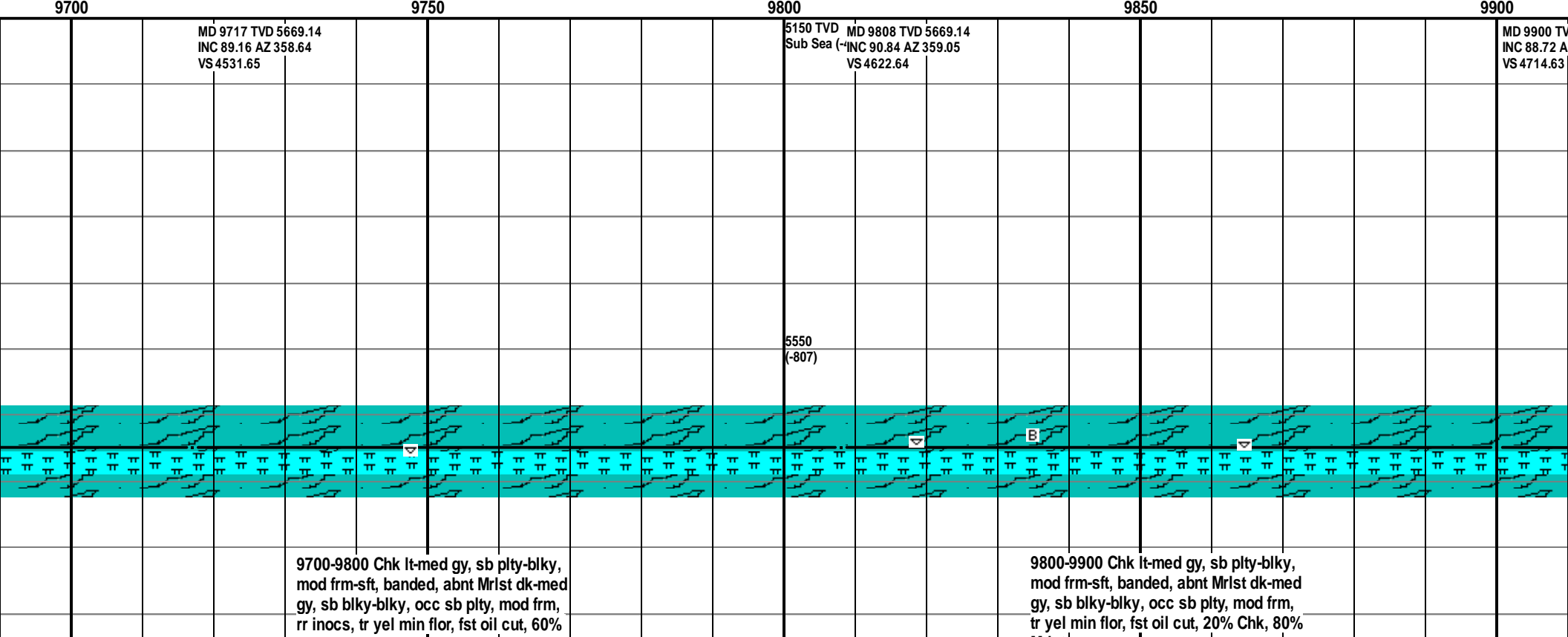
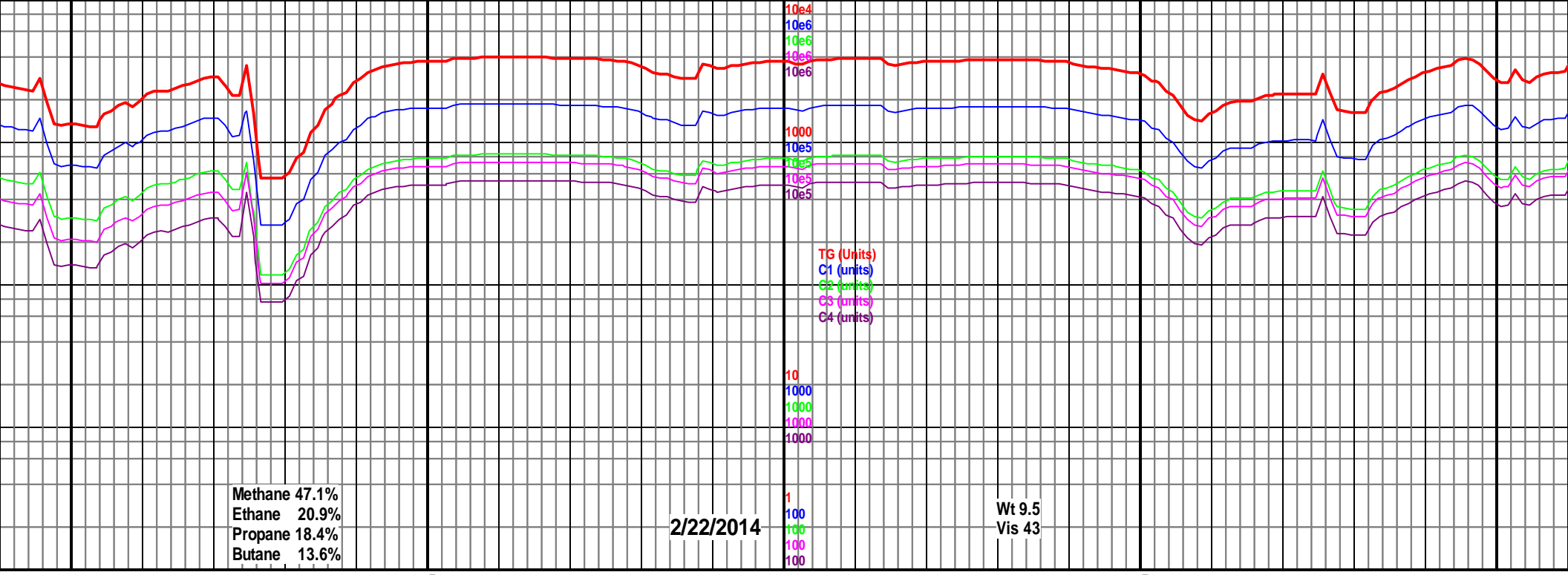
5550
(-807)

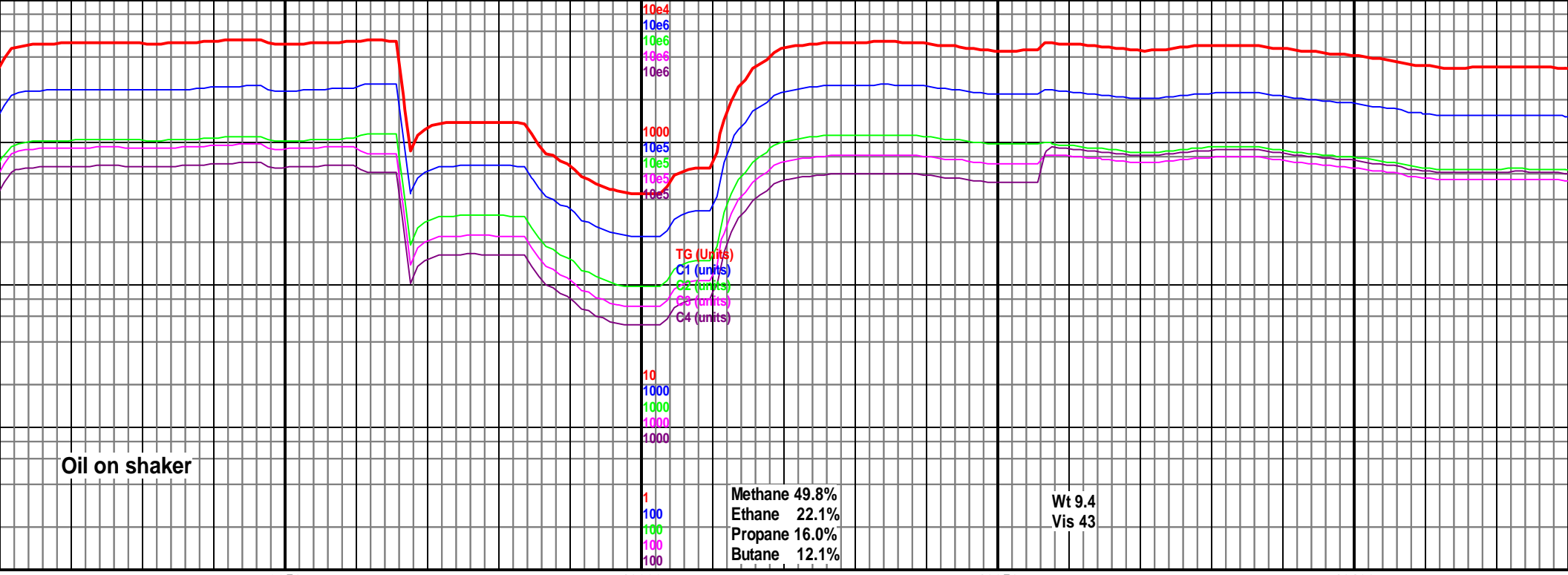
9000-9100 Chk lt-med gy, sb plty-blky,
mod frm-sft, banded, abnt Mrlst dk-med
gy, sb blky-blky, occ sb plty, mod frm,
rr inoc, tr yel min flor, fst oil cut, 60%

9100-9200 Chk lt-med gy, sb plty-blky,
mod frm-sft, banded, abnt Mrlst dk-med
gy, sb blky-blky, occ sb plty, mod frm,
rr inoc, tr yel min flor, fst oil cut, 60%

9200-9300 Chk lt-med gy, sb plty-blky,
mod frm-sft, banded, abnt Mrlst dk-med
gy, sb blky-blky, occ sb plty, mod frm,
rr inoc, tr yel min flor, fst oil cut, 60%





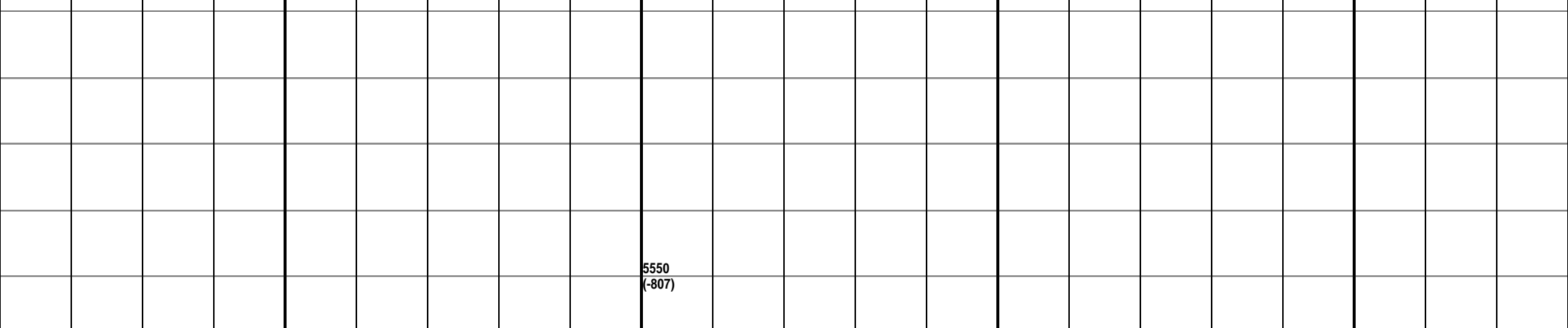


9950 10000 10050 10100

D 5669.49
Z 359.17

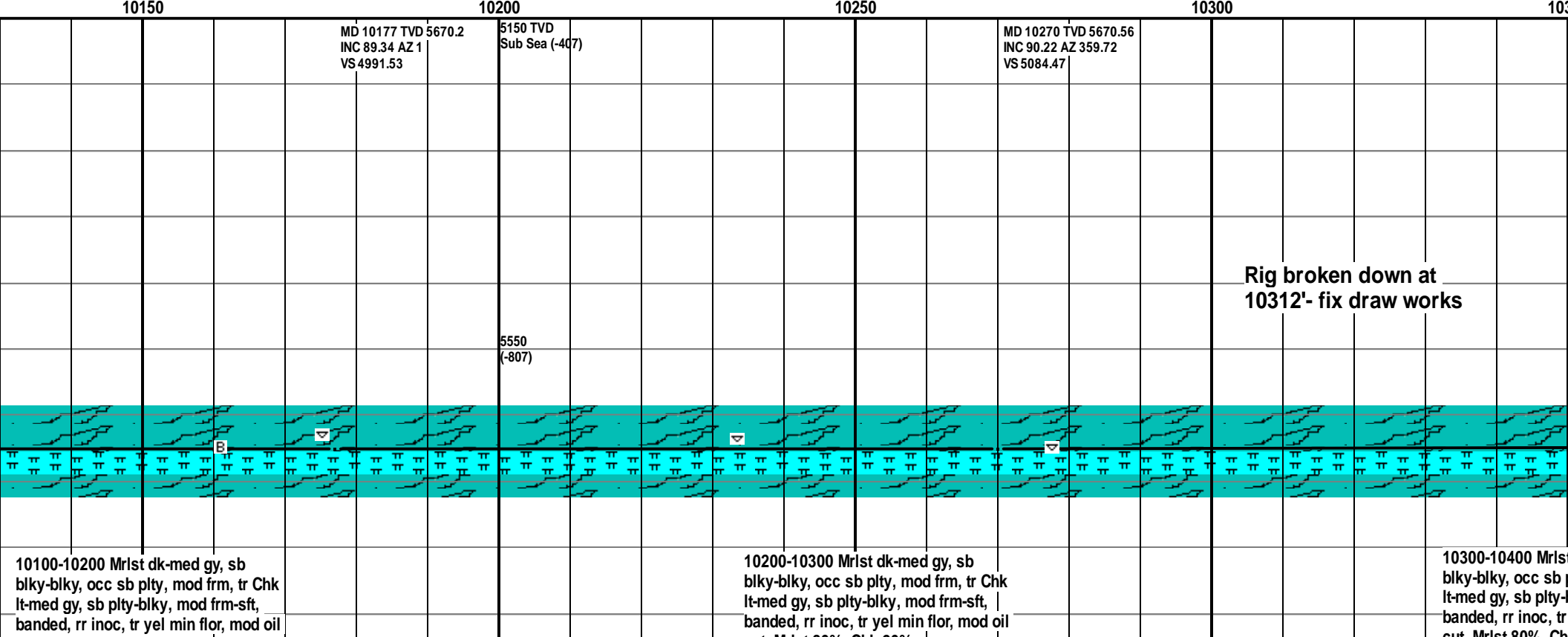
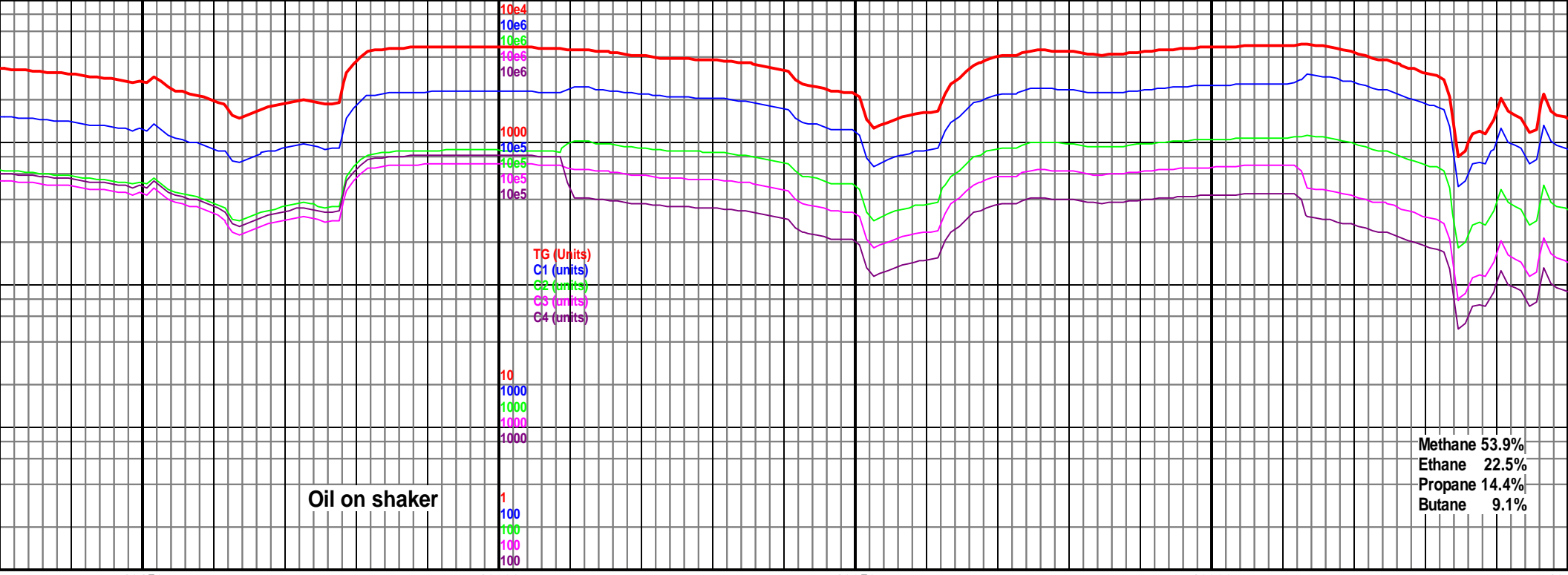
MD 9992 TVD 5670.91
INC 89.52 AZ 359.04¹⁴⁷
VS 4806.61

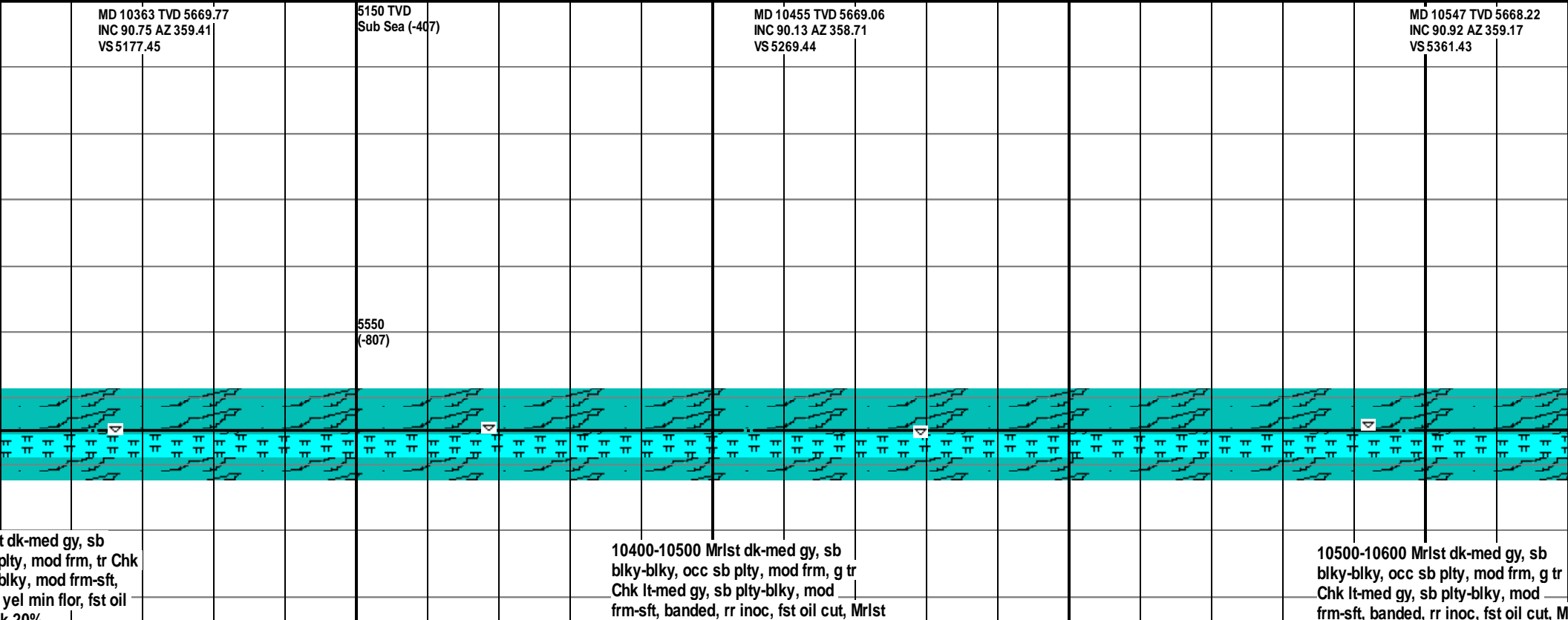
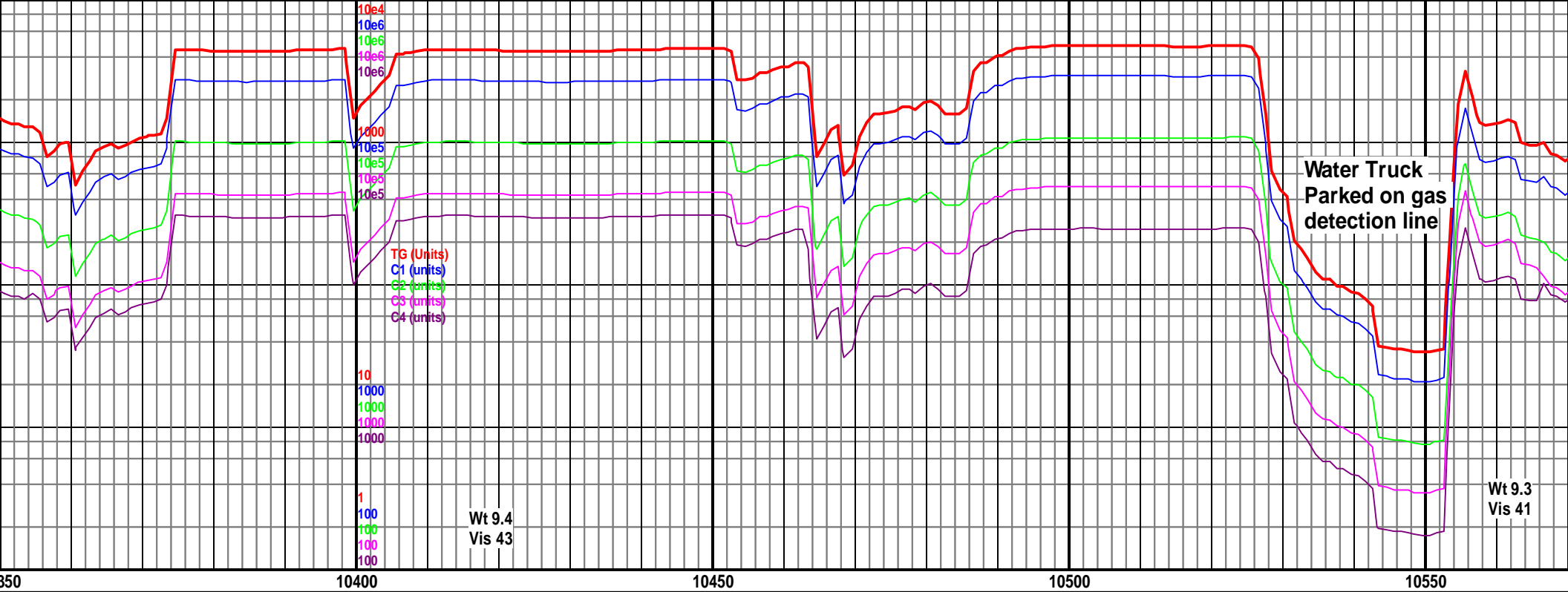
MD 10084 TVD 5670.48
INC 91.01 AZ 359.53
VS 4898.59

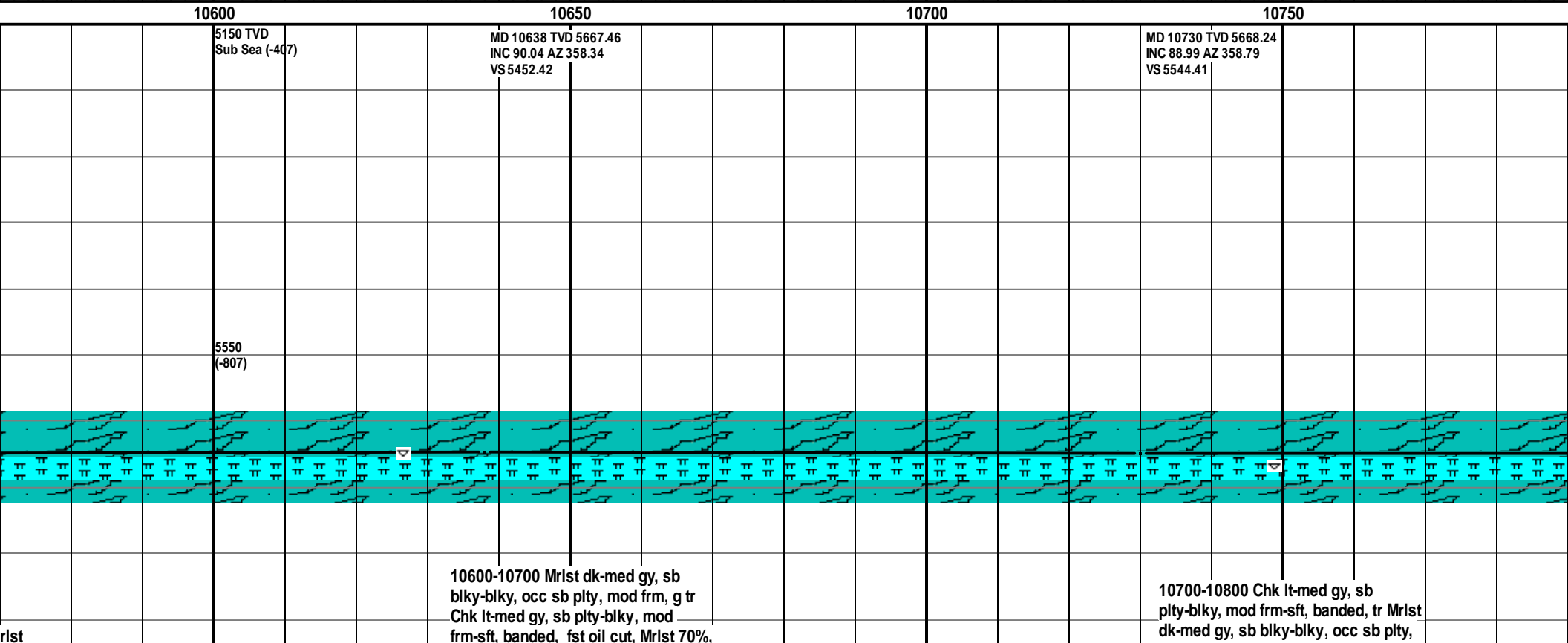
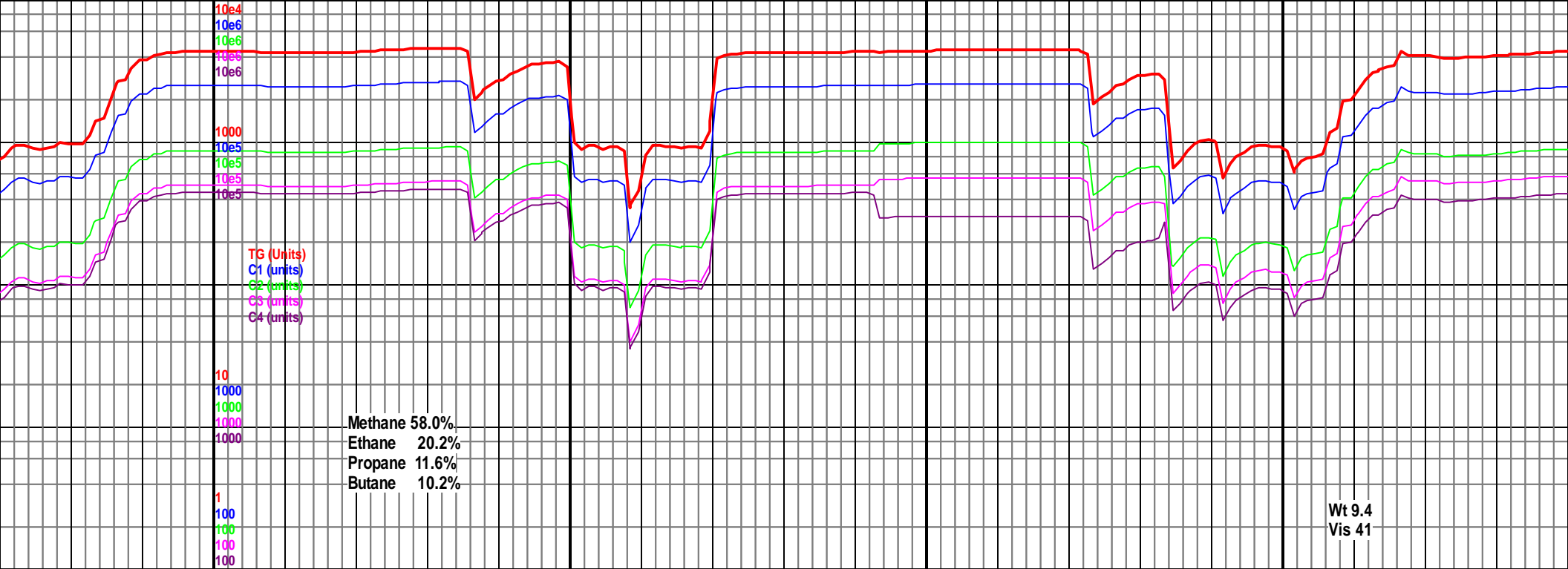


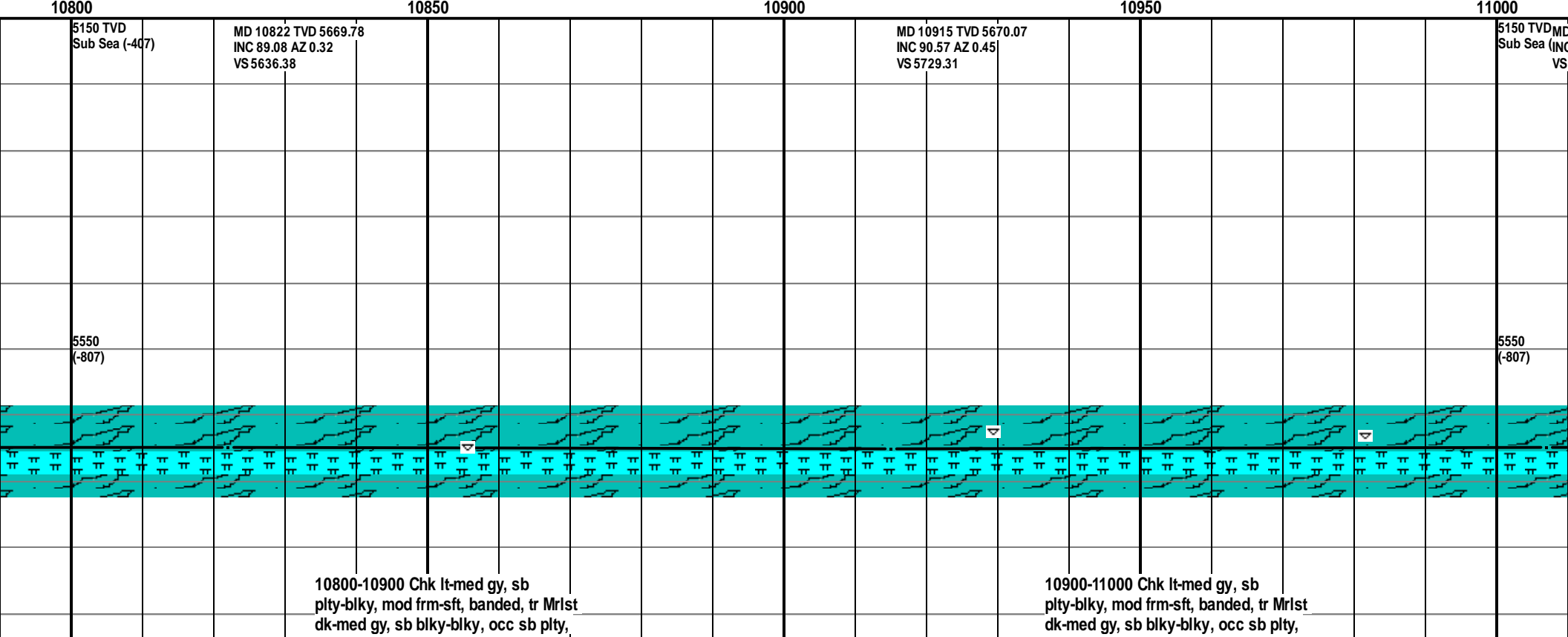
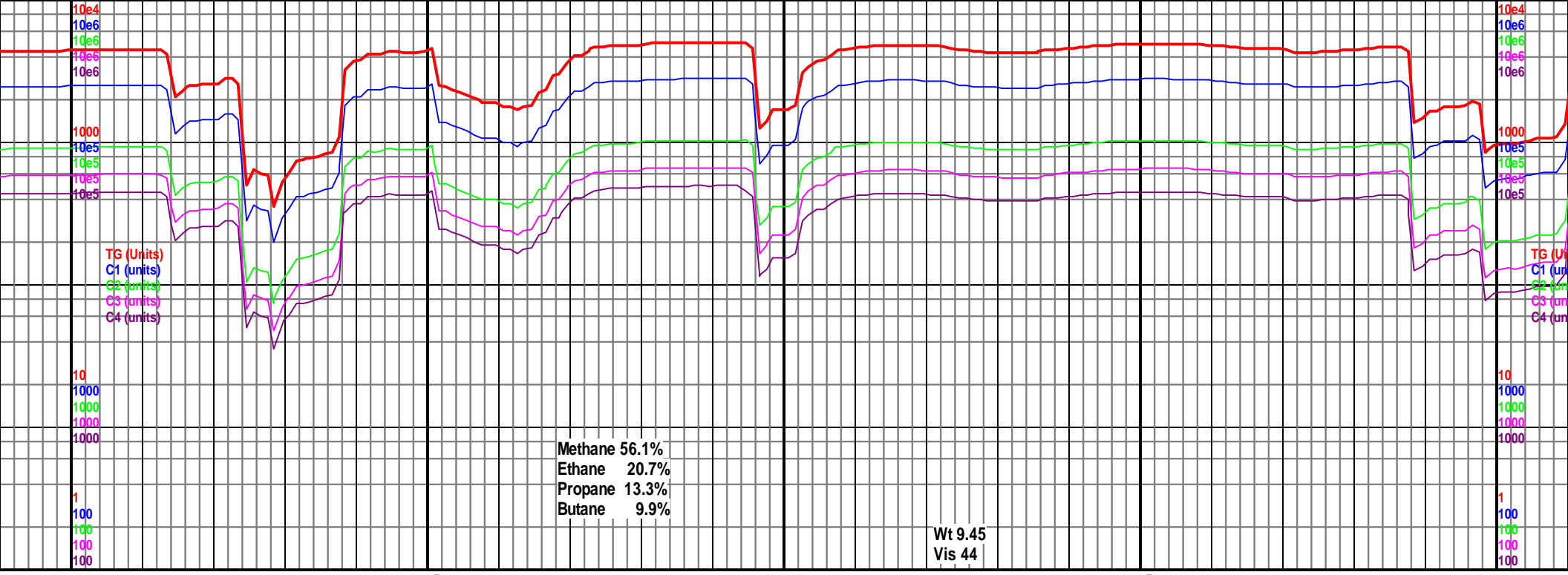
9900-10000 Chk lt-med gy, sb plty-blky, mod frm-sft, banded, abnt Mrlst dk-med gy, sb blky-blky, occ sb plty, mod frm, rr inocs, tr yel min flor, fst oil cut, 70% Chk, 30% Mrlst

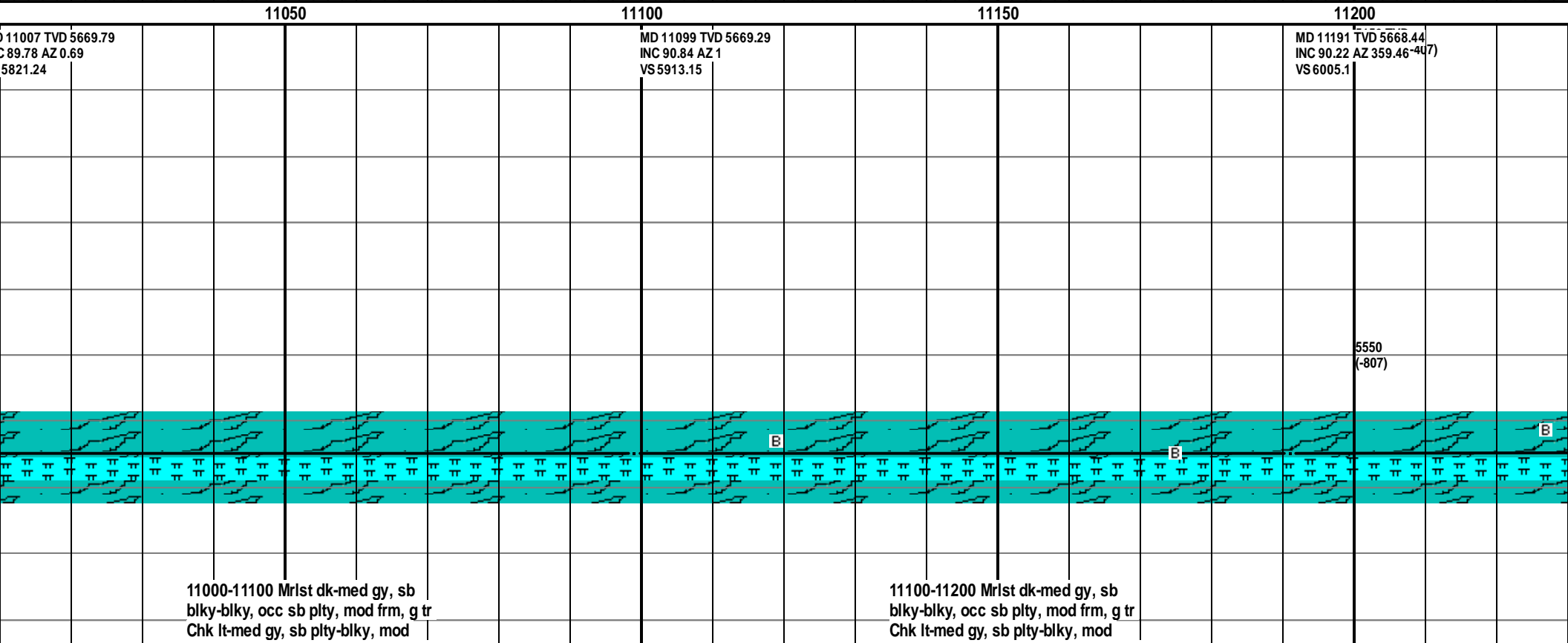
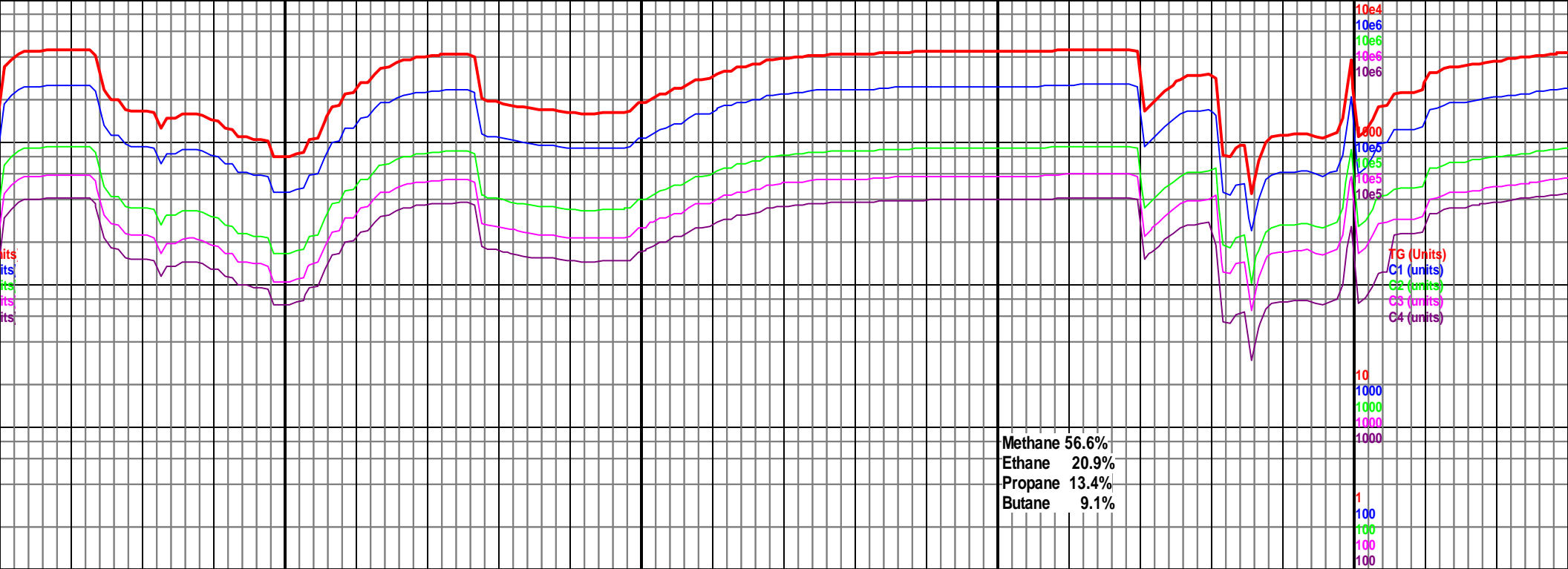
10000-10100 Chk lt-med gy, sb plty-blky, mod frm-sft, banded, abnt Mrlst dk-med gy, sb blky-blky, occ sb plty, mod frm, rr inoc, tr yel min flor, fst

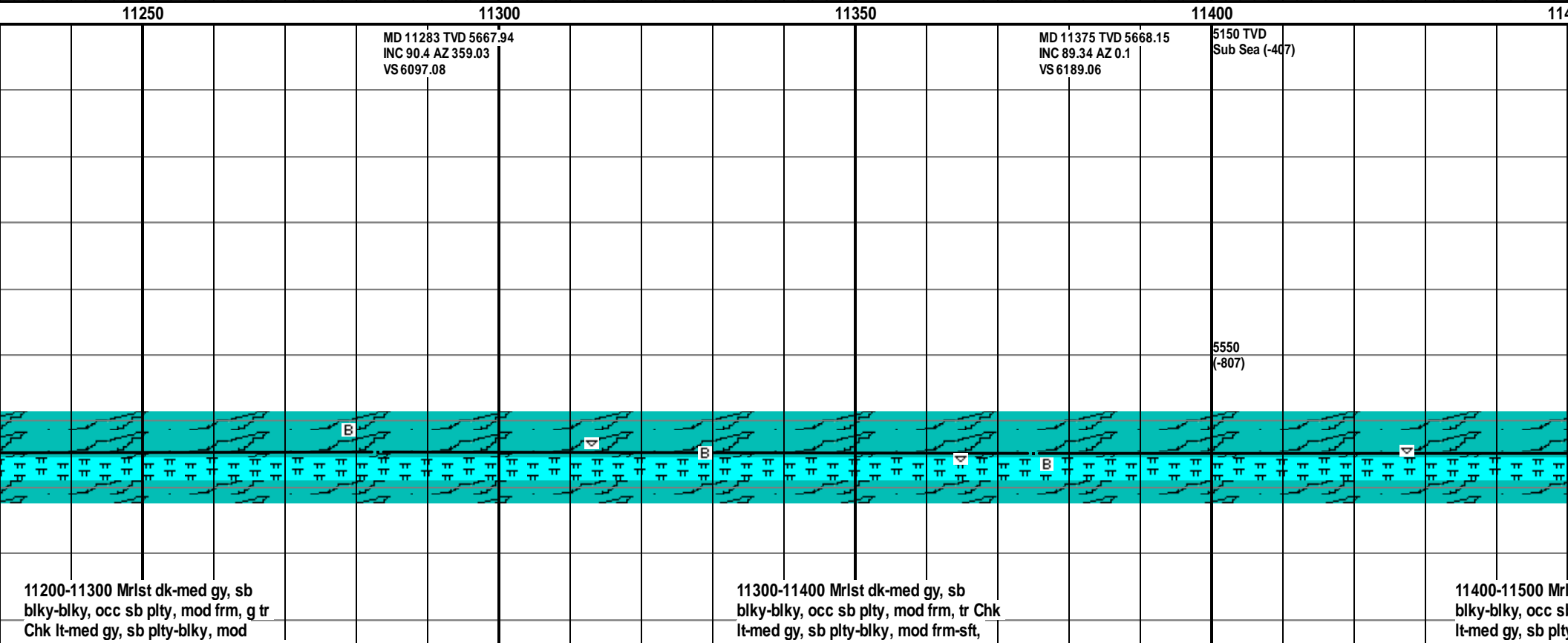
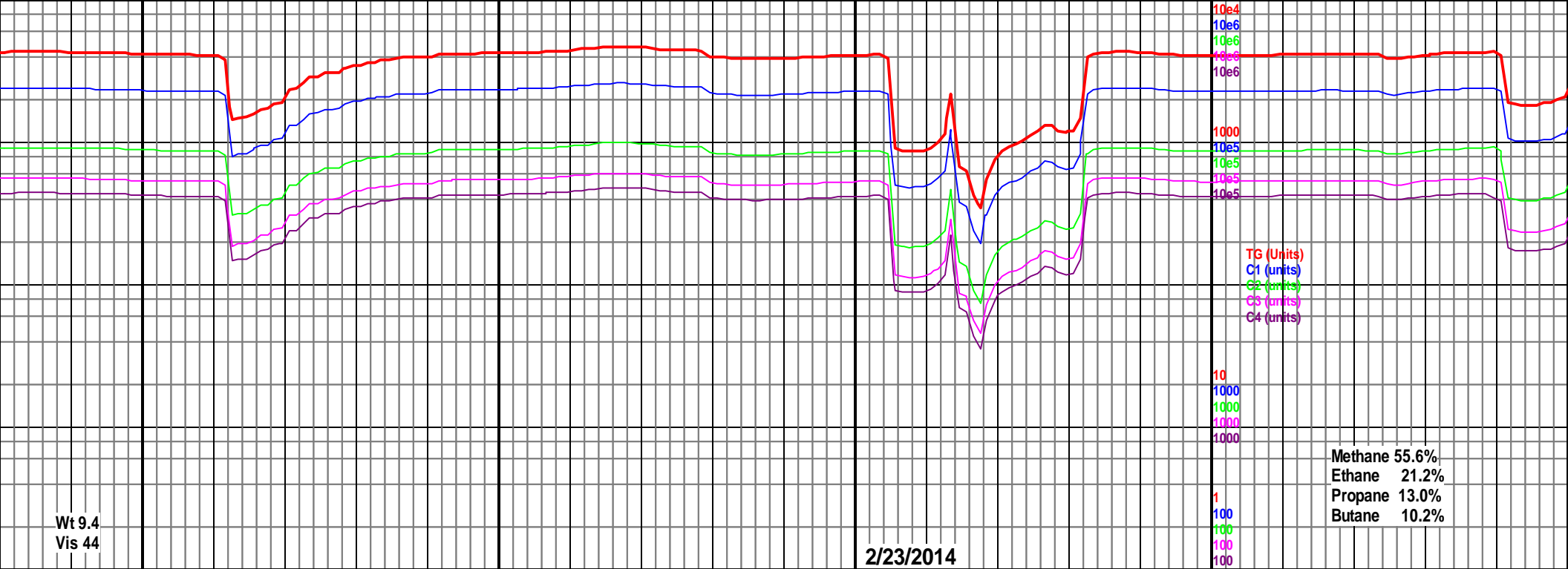


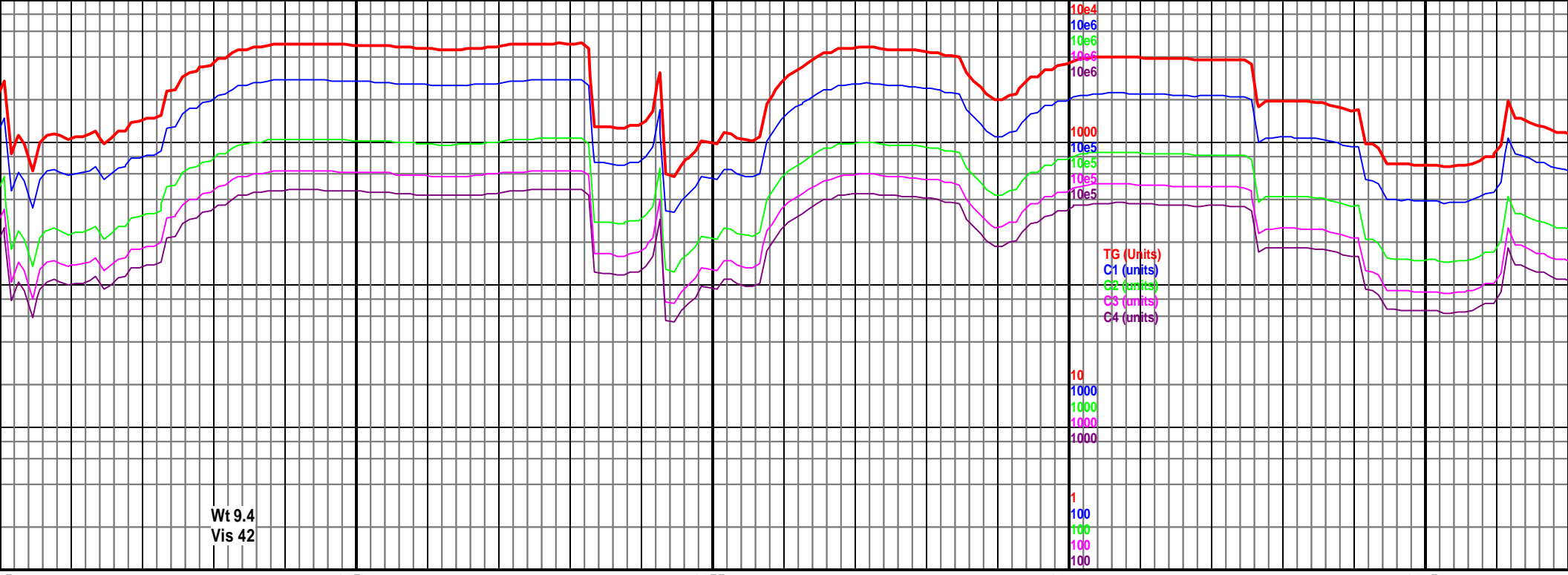












11450 11500 11550 11600 11650

MD 11467 TVD 5669.56
INC 88.9 AZ 359.6
VS 6281.02

MD 11560 TVD 5672.49
INC 87.49 AZ 359.09
VS 6373.95

5150 TVD
Sub Sea (-407)

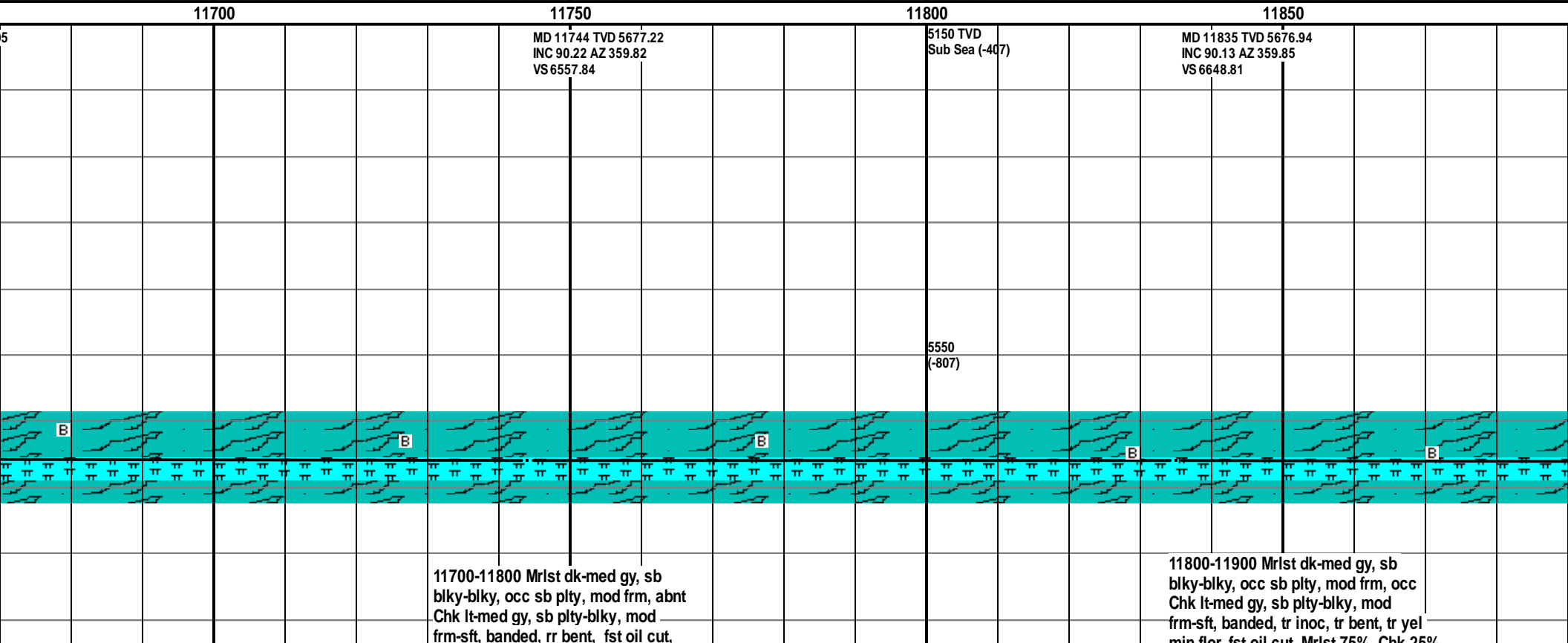
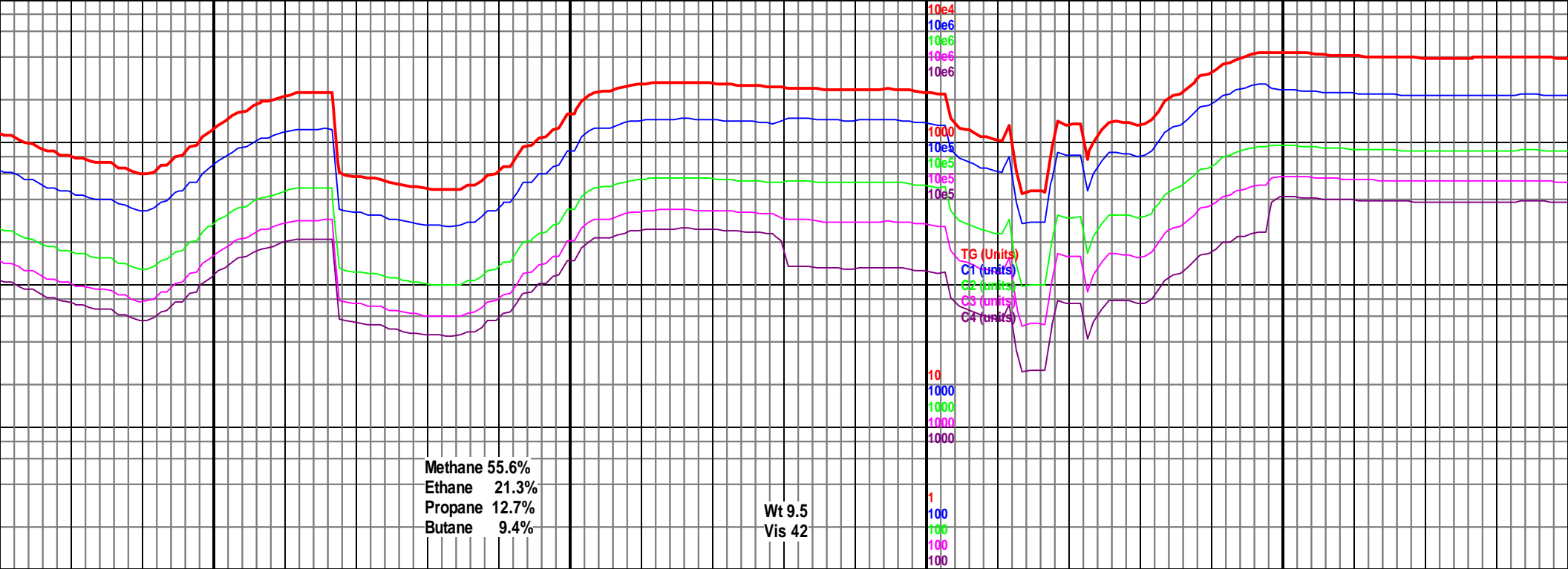
MD 11652 TVD 5675.9
INC 88.2 AZ 359.24
VS 6465.88

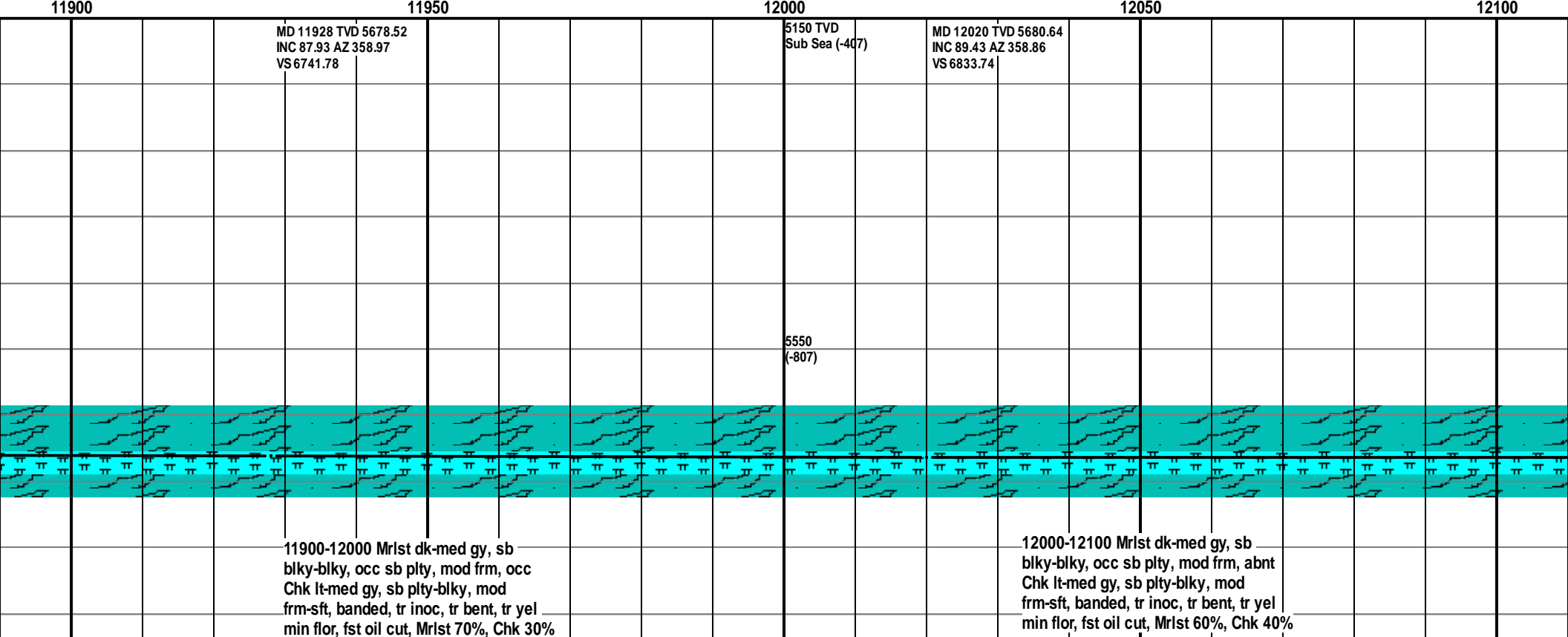
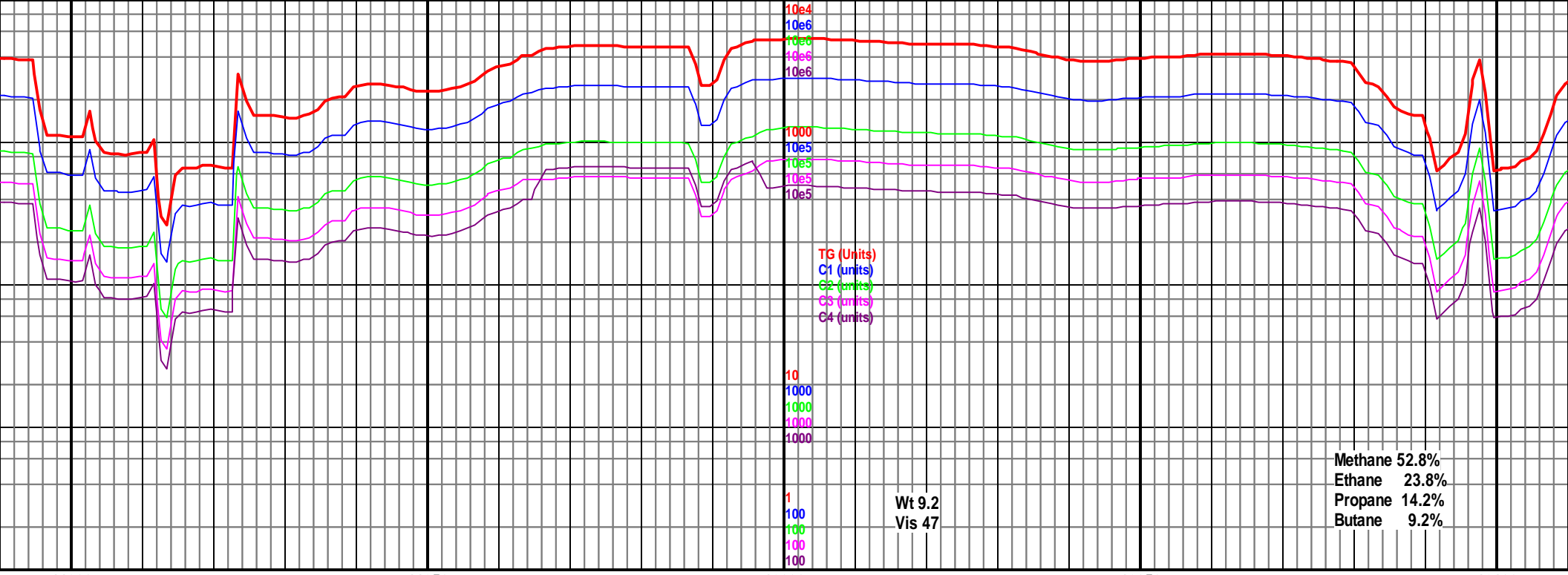


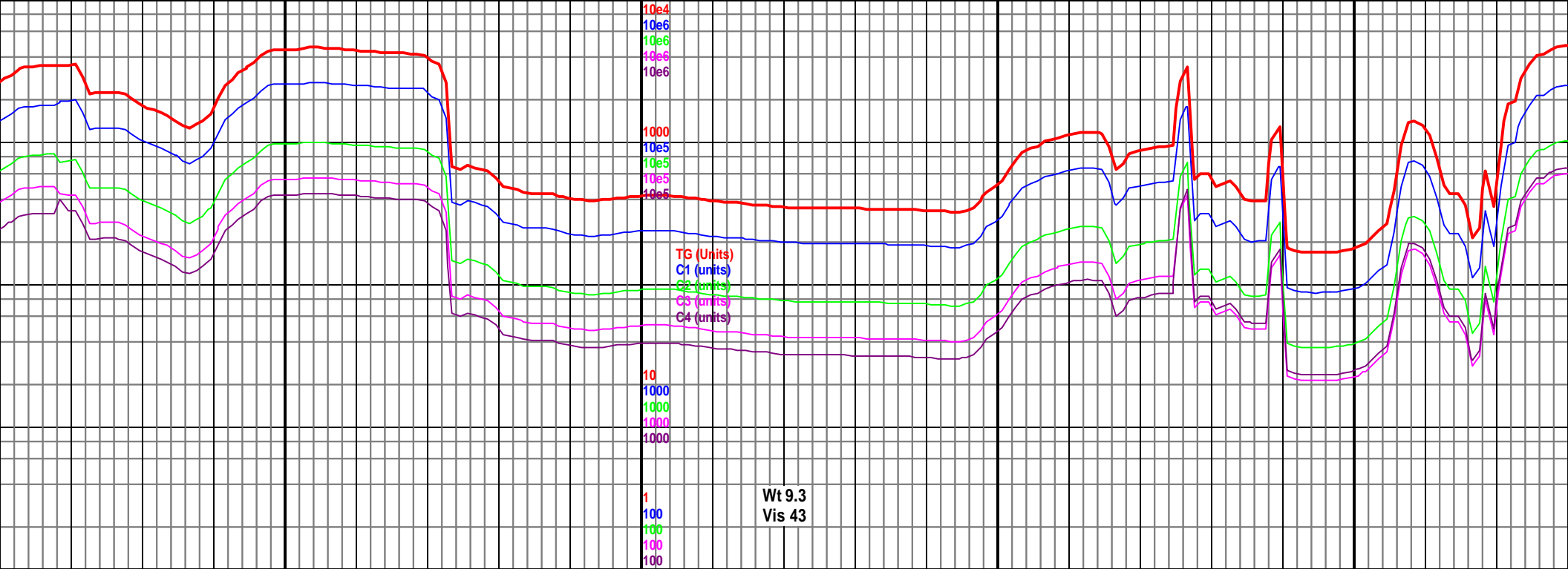
ist dk-med gy, sb
o plty, mod frm, tr Chk
y-blky, mod frm-sft,

11500-11600 Mrlst dk-med gy, sb
blky-blky, occ sb plty, mod frm, tr Chk
lt-med gy, sb plty-blky, mod frm-sft,

11600-11700 Chk lt-med gy, sb
plty-blky, mod frm-sft, banded, abnt
Mrlst dk-med gy, sb blky-blky, occ sb







12150

12200

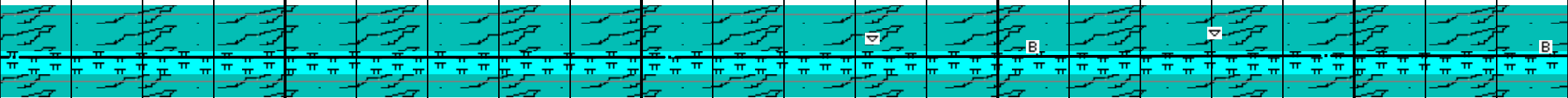
12250

12300

MD 12112 TVD 5681.55 INC 89.43 AZ 357.79 VS 6925.74	MD 12204 TVD 5681.48 Sub SINC 90.66 AZ 358.59 VS 7017.74	MD 12296 TVD 5680.14 INC 91.01 AZ 357.57 VS 7109.72
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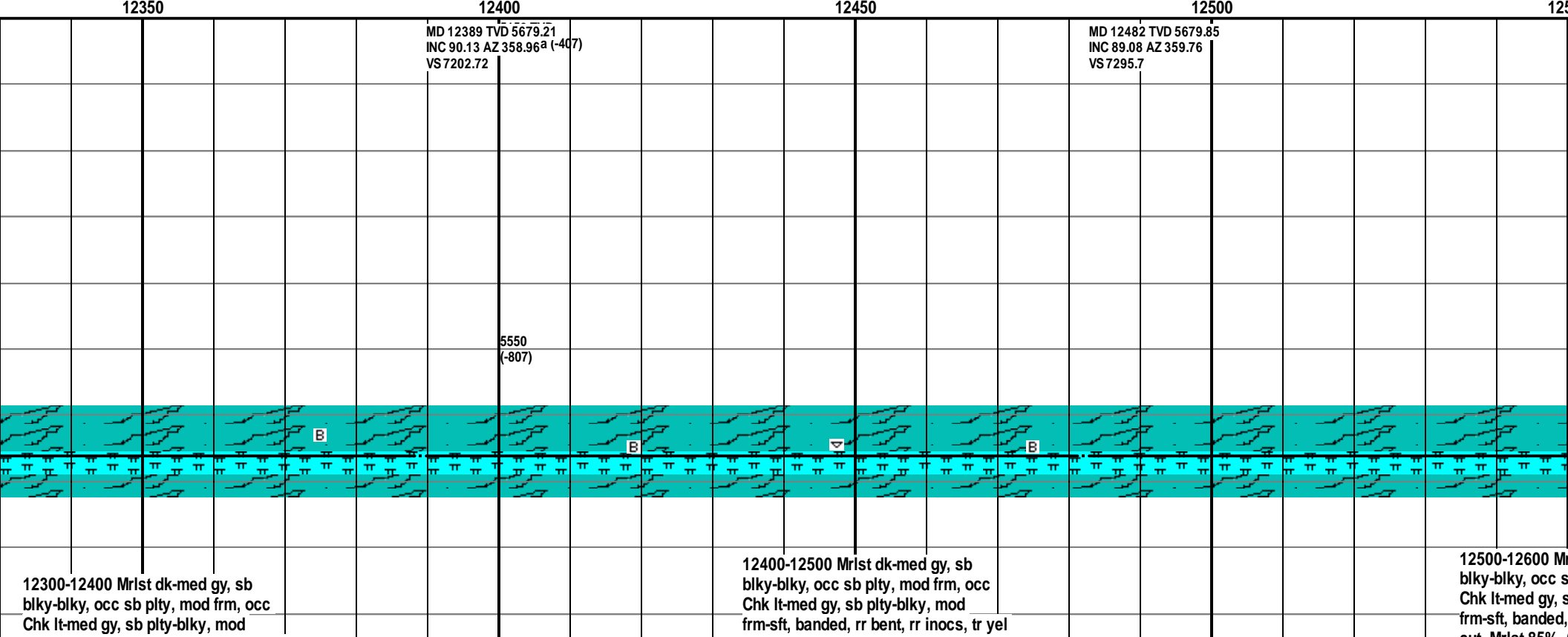
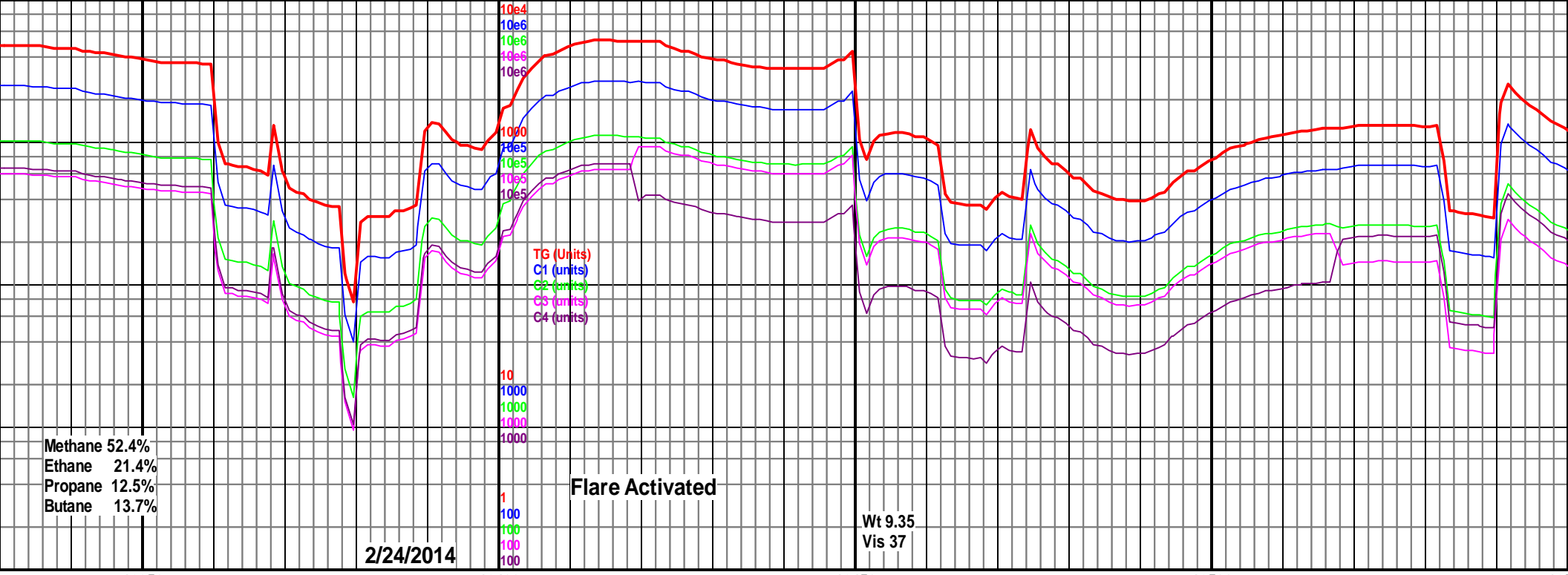
Rig broken down at
12288'- fix draw works

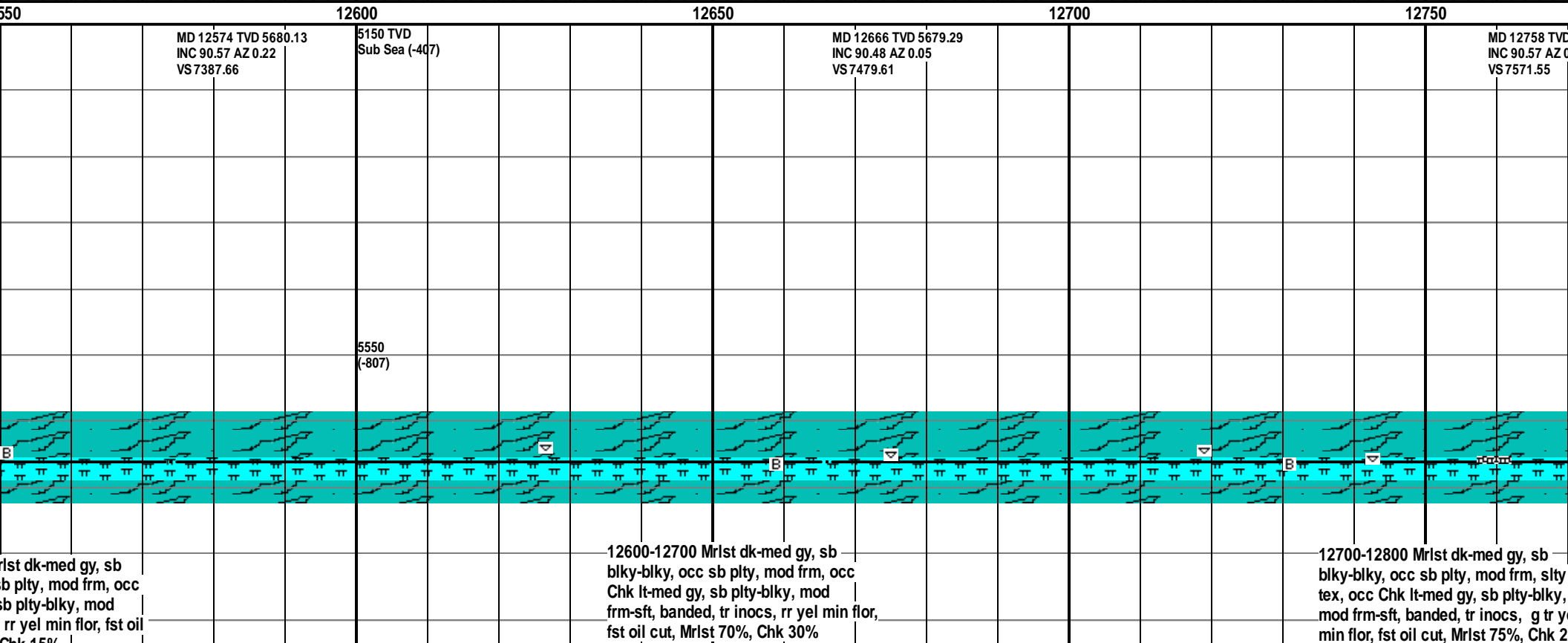
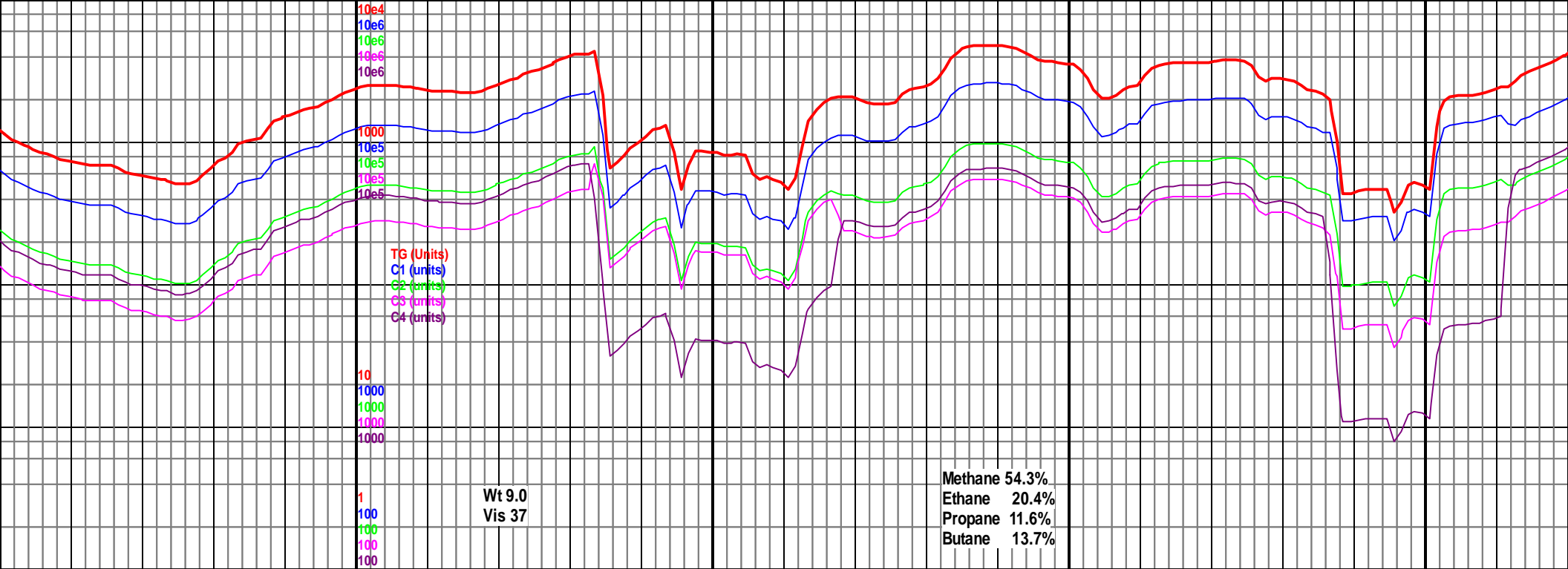
5550
(-807)

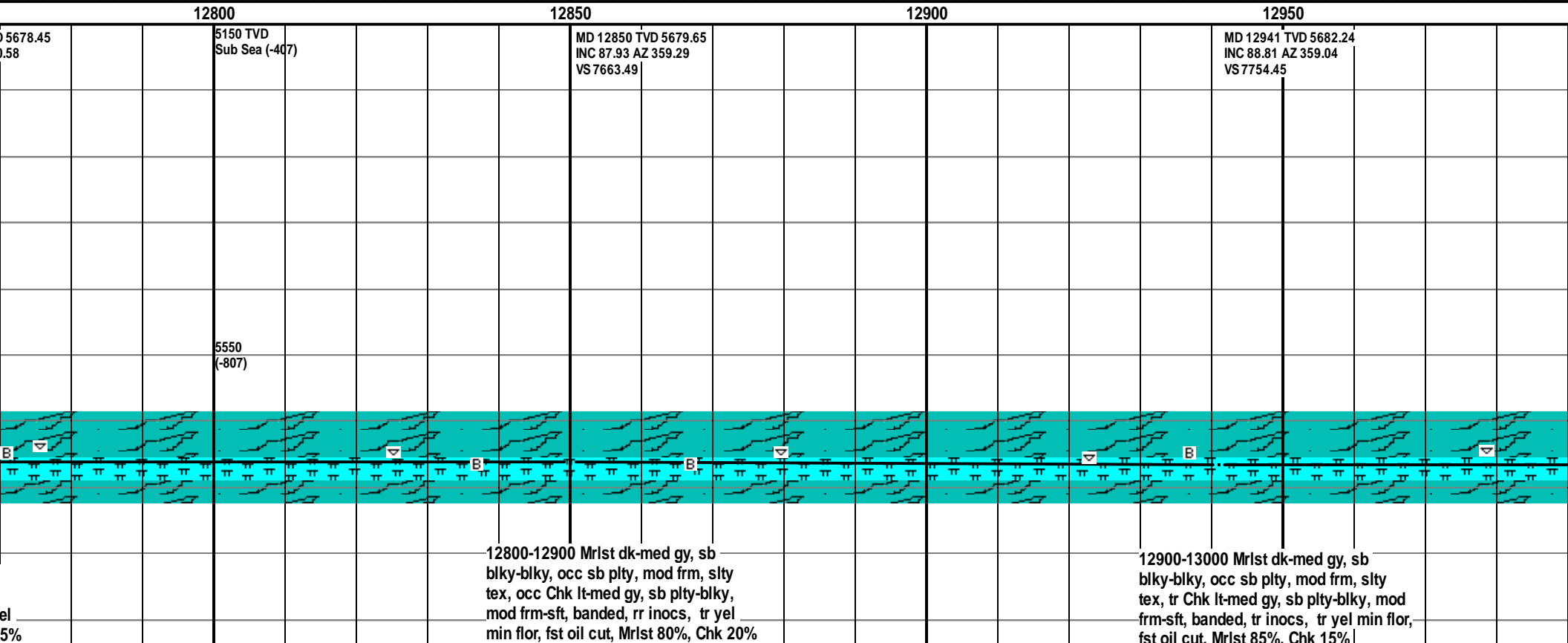
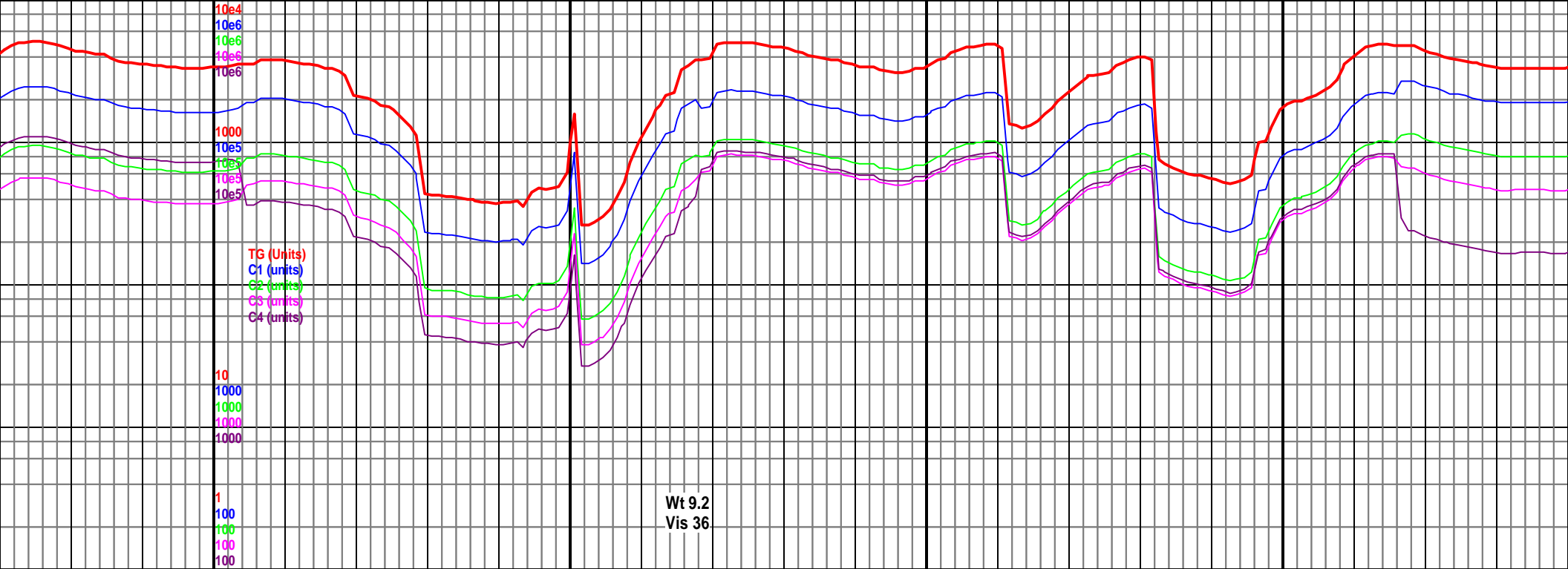


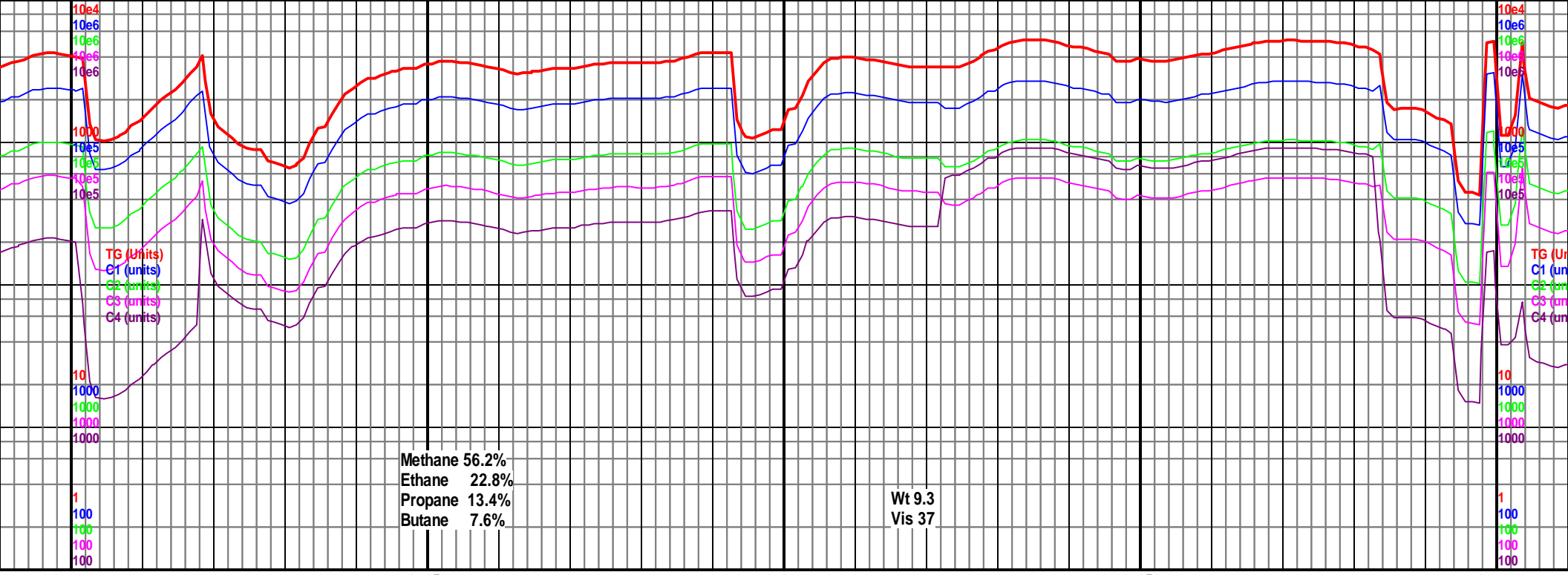
12100-12200 Mrst dk-med gy, sb
blky-blky, occ sb plty, mod frm, occ
Chk lt-med gy, sb plty-blky, mod
frm-sft, banded, tr inoc, tr bent, tr yel
min fls fctailent. Mst 170% Chk 200%

12200-12300 Mrst dk-med gy, sb
blky-blky, occ sb plty, mod frm, occ
Chk lt-med gy, sb plty-blky, mod
frm-sft, banded, tr inoc, tr bent, tr yel









Methane 56.2%
Ethane 22.8%
Propane 13.4%
Butane 7.6%

Wt 9.3
Vis 37

13000 13050 13100 13150 13200

5150 TVD
Sub Sea (-407)

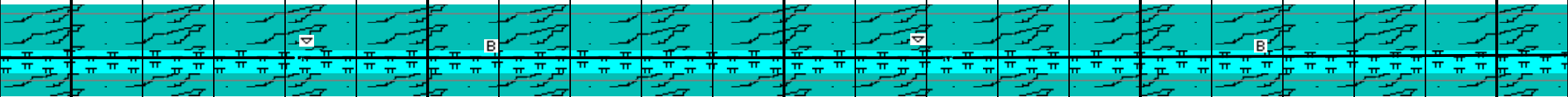
MD 13032 TVD 5683.22
INC 89.96 AZ 0.04
VS 7845.42

MD 13123 TVD 5682.1
INC 91.45 AZ 0
VS 7936.37

5150 TVD
Sub Sea (-407)

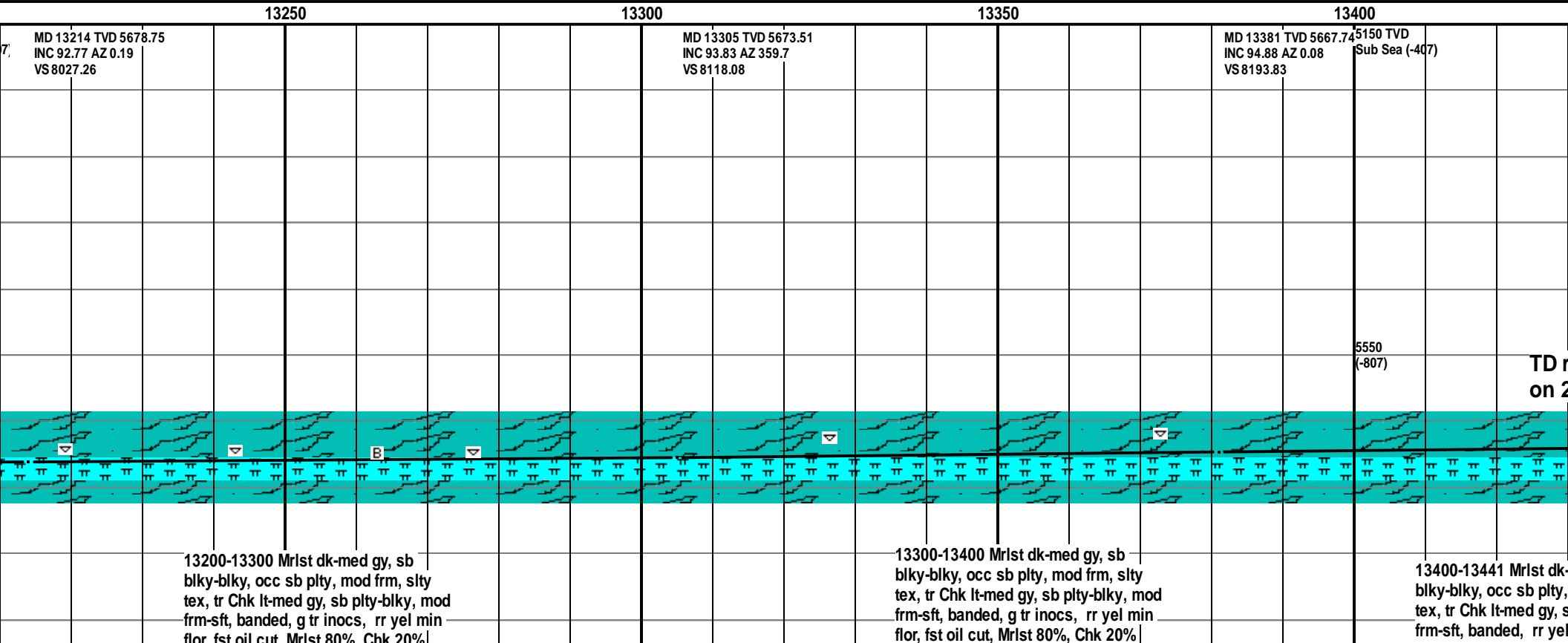
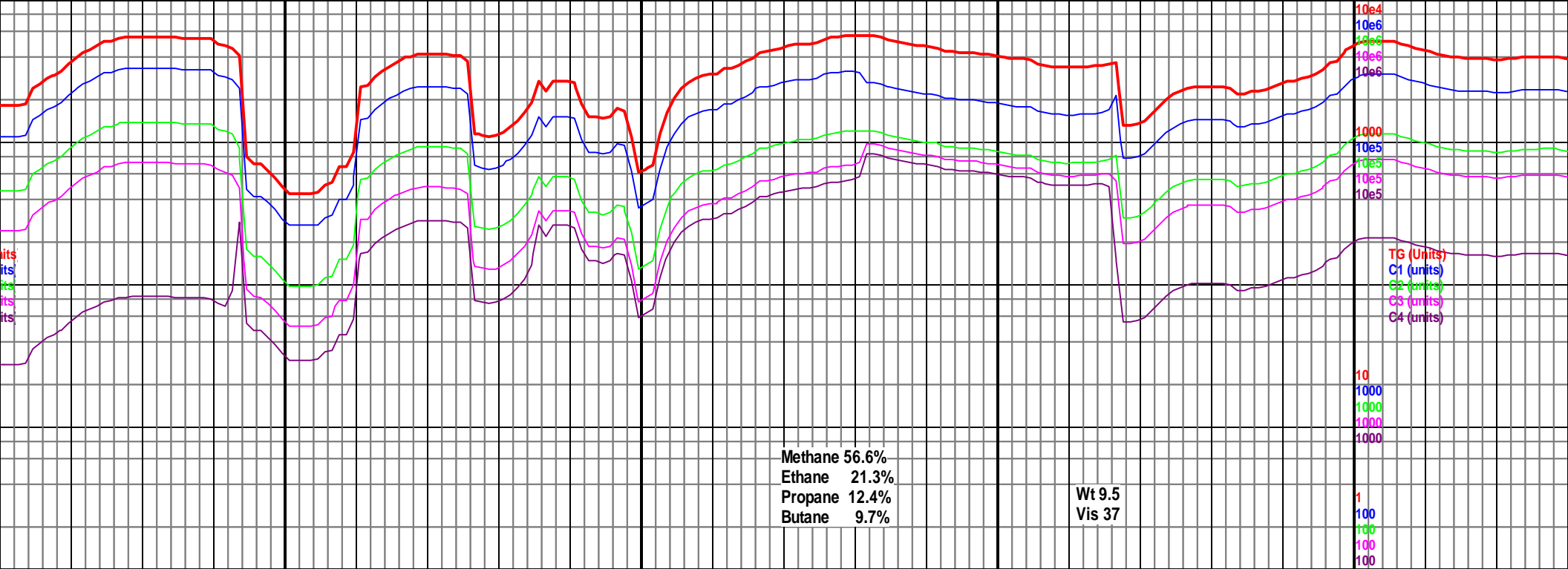
5550
(-807)

5550
(-807)



13000-13100 Mrlst dk-med gy, sb
blky-blky, occ sb plty, mod frm, slty
tex, tr Chk lt-med gy, sb plty-blky, mod
frm-sft, banded, rr inocs, rr yel min
flor, fst oil cut, Mrlst 80%, Chk 20%

13100-13200 Mrlst dk-med gy, sb
blky-blky, occ sb plty, mod frm, slty
tex, tr Chk lt-med gy, sb plty-blky, mod
frm-sft, banded, rr inocs, rr yel min
flor, fst oil cut, Mrlst 70%, Chk 30%





13450

13

MD 13441 TVD 5662.63
INC 94.88 AZ 0.08
VS 8253.58

reached 13441' at 16:12

2/24/2014



mod gy, sb
mod frm, slty
sb plty-blky, mod
min flor, fst oil