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

Well Name:	**RAZOR 21B-2812B**
Location:	**NWNE 21-T10N-R58W, Weld County, Colorado**
License Number:	**05-123-37766**
Region:	**Redtail Field**
Spud Date:	**12/19/2013**
Drilling Completed:	**12/28/2013**
Surface Coordinates:	**Lat.: 40.829994 Long.: -103.867972**
Bottom Hole Coordinates:	**Lat.: 40.809681 Long.: -103.866133**
Ground Elevation (ft):	**4837'**
K.B. Elevation (ft):	**4859'**
Logged Interval (ft):	**5200' To: 12771'**
Total Depth (ft):	**12771'**
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

OPERATOR

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

GEOLOGIST

Name: Luke Schwantes and Mark Denler
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Frontier
Rig #26

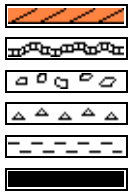
Gas Detection

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

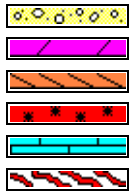
Comments

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.

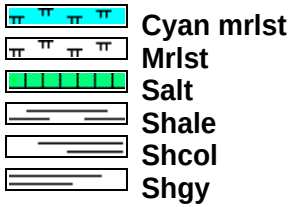
ROCK TYPES



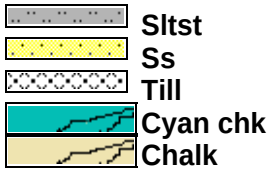
Anhy
Bent
Brec
Cht
Clyst
Coal



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

BS Boundst
C Chalky
CX Cryxln
E Earthy
FX Finexln
GS Grainst
L Lithogr
MX Microxln
MS Mudst
PS Packst
WS Wackest

OTHER SYMBOLS

POROSITY

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

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOW

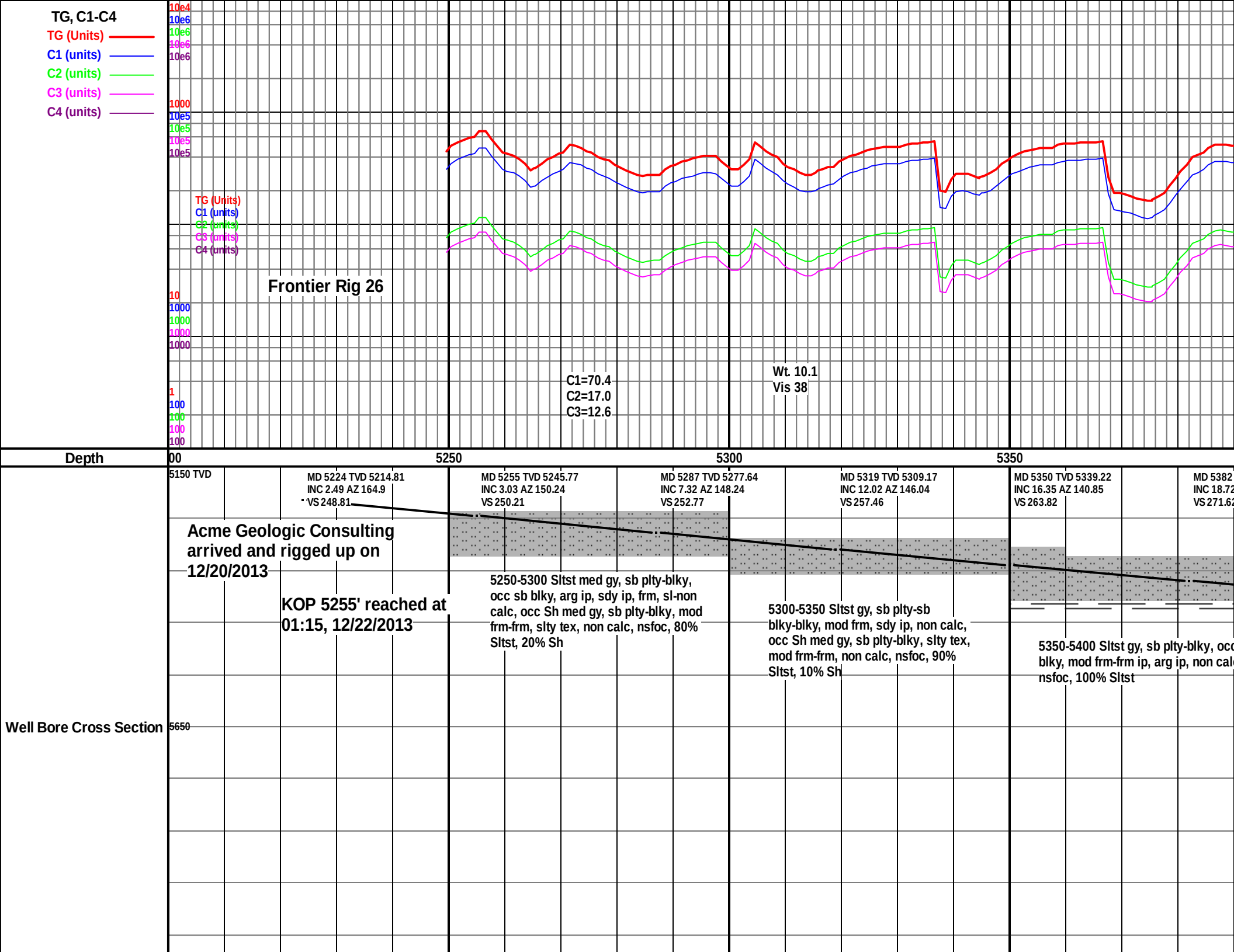
- Even
- Spotted
- Ques
- Dead

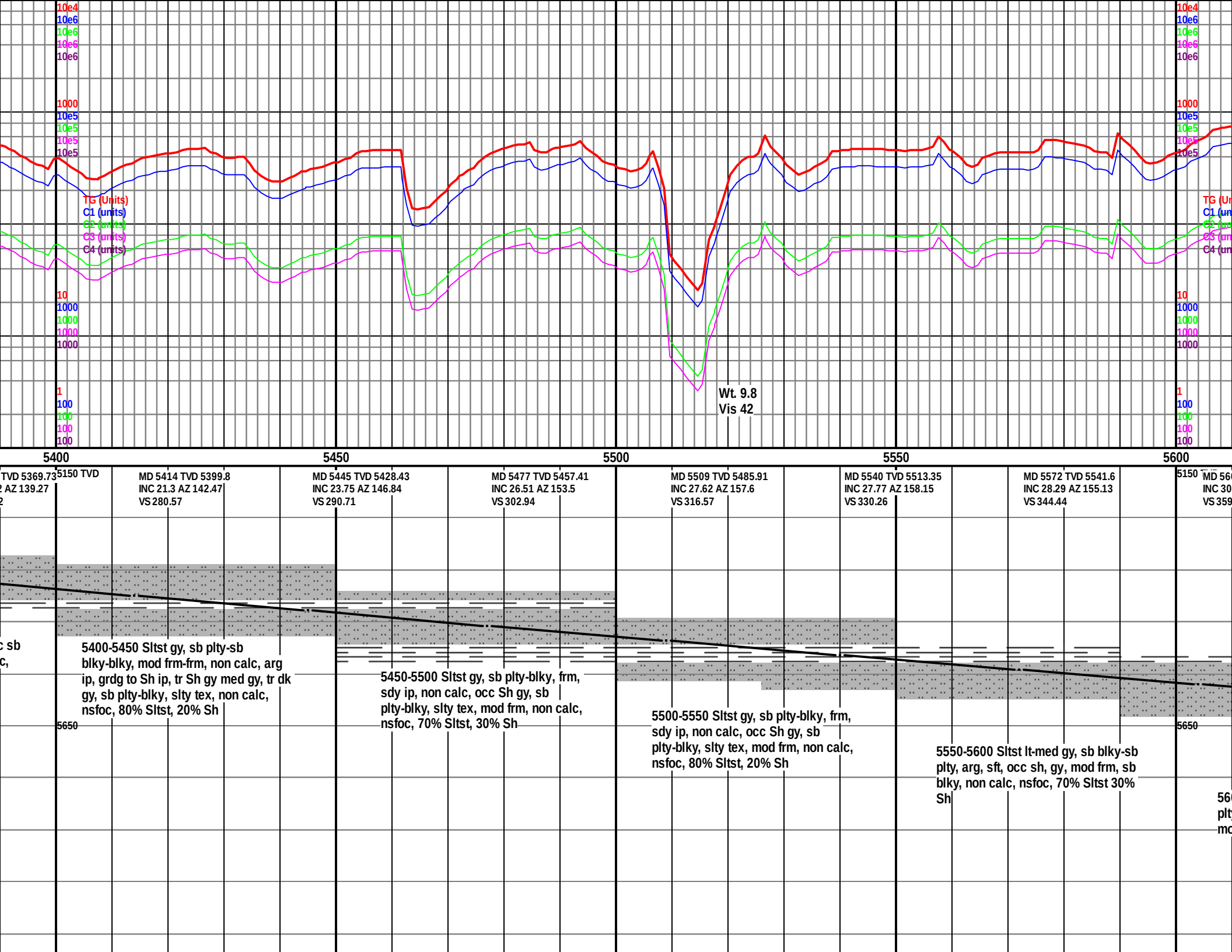
INTERVAL

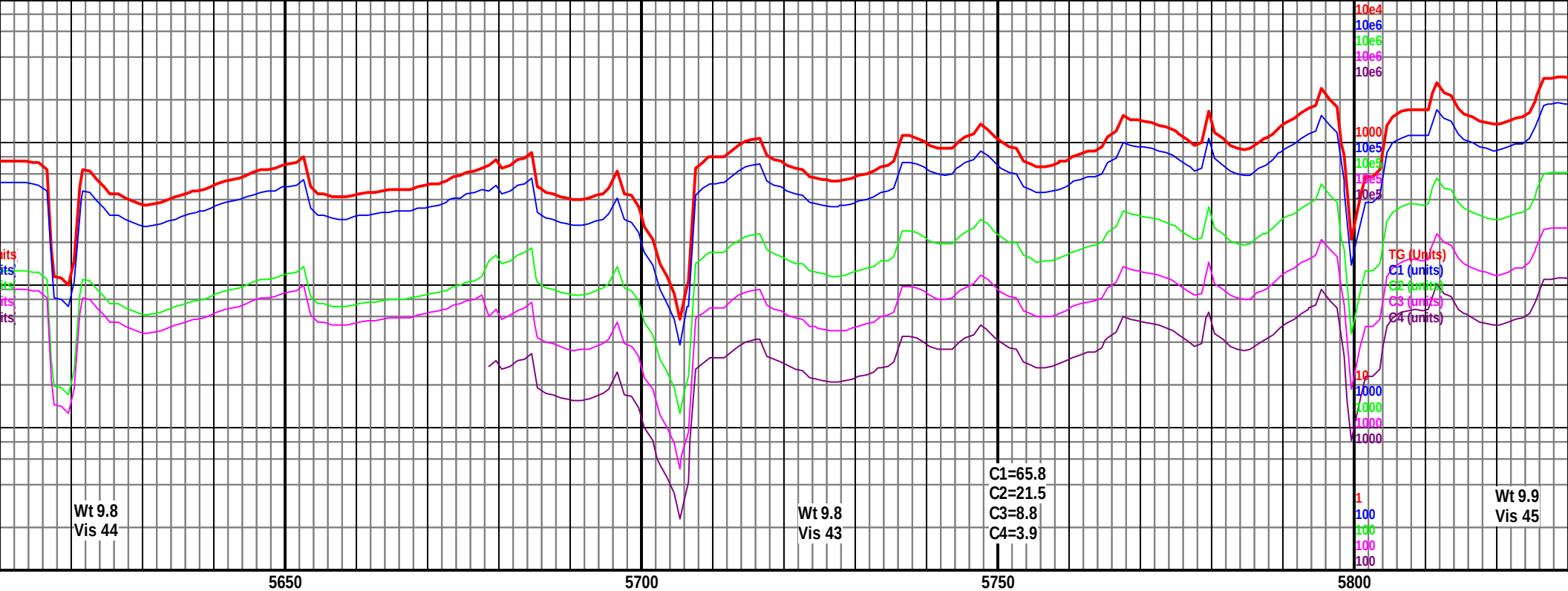
- Core
- Dst

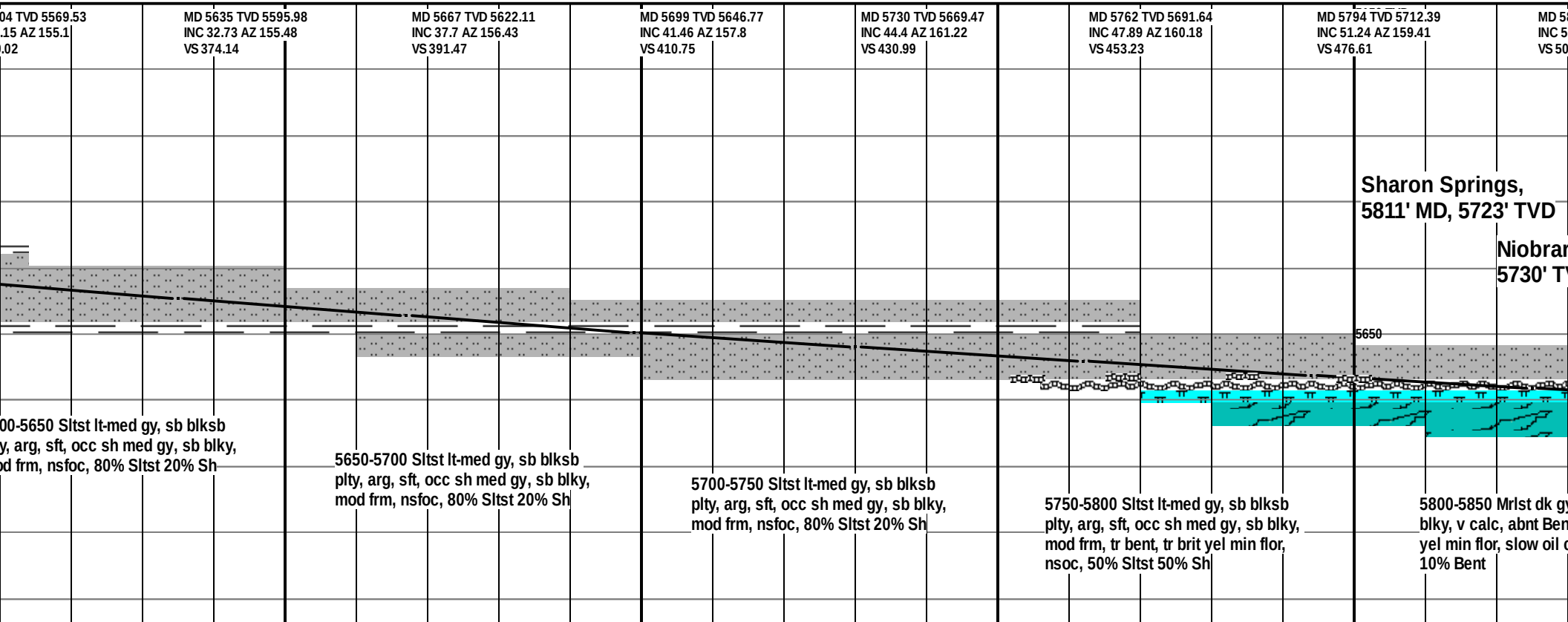
EVENT

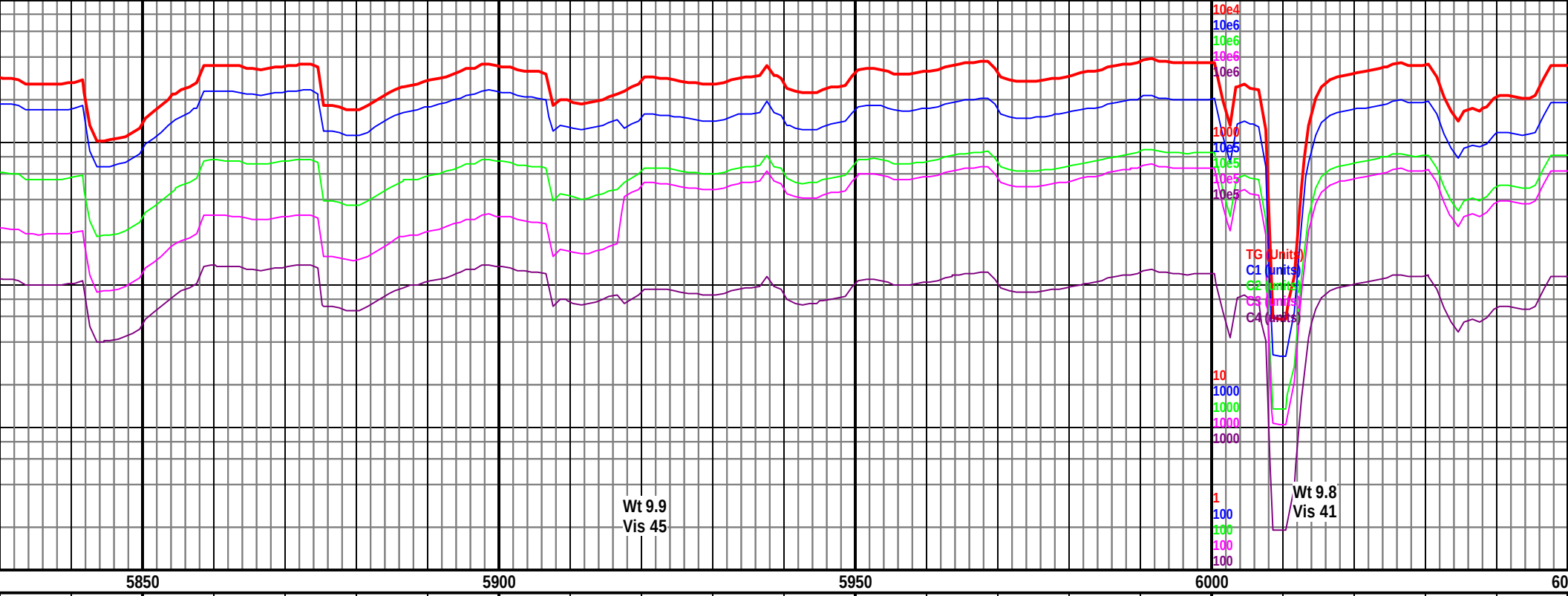
- Rft
- Sidewall


TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Frontier Rig 26
10
1000
1000
1000
1000
1
100
100
100
100
C1=70.4
C2=17.0
C3=12.6
Wt. 10.1
Vis 38
Depth
00
5250
5300
5350
5150 TVD
MD 5224 TVD 5214.81
INC 2.49 AZ 164.9
VS 248.81
MD 5255 TVD 5245.77
INC 3.03 AZ 150.24
VS 250.21
MD 5287 TVD 5277.64
INC 7.32 AZ 148.24
VS 252.77
MD 5319 TVD 5309.17
INC 12.02 AZ 146.04
VS 257.46
MD 5350 TVD 5339.22
INC 16.35 AZ 140.85
VS 263.82
MD 5382
INC 18.72
VS 271.62
Acme Geologic Consulting arrived and rigged up on 12/20/2013
KOP 5255' reached at 01:15, 12/22/2013
5250-5300 Sltst med gy, sb plty-blky, occ sb blky, arg ip, sdy ip, frm, sl-non calc, occ Sh med gy, sb plty-blky, mod frm-frm, slty tex, non calc, nsfoc, 80% Sltst, 20% Sh
5300-5350 Sltst gy, sb plty-sb blky-blky, mod frm, sdy ip, non calc, occ Sh med gy, sb plty-blky, slty tex, mod frm-frm, non calc, nsfoc, 90% Sltst, 10% Sh
5350-5400 Sltst gy, sb plty-blky, occ blky, mod frm-frm ip, arg ip, non calc nsfoc, 100% Sltst
Well Bore Cross Section
5650


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt. 9.8
Vis 42
5400
5450
5500
5550
5600
MD 5414 TVD 5399.8
INC 21.3 AZ 142.47
VS 280.57
MD 5445 TVD 5428.43
INC 23.75 AZ 146.84
VS 290.71
MD 5477 TVD 5457.41
INC 26.51 AZ 153.5
VS 302.94
MD 5509 TVD 5485.91
INC 27.62 AZ 157.6
VS 316.57
MD 5540 TVD 5513.35
INC 27.77 AZ 158.15
VS 330.26
MD 5572 TVD 5541.6
INC 28.29 AZ 155.13
VS 344.44
5400-5450 Sltst gy, sb plty-sb blky-blky, mod frm-frm, non calc, arg ip, grdg to Sh ip, tr Sh gy med gy, tr dk gy, sb plty-blky, slty tex, non calc, nsfoc, 80% Sltst, 20% Sh
5450-5500 Sltst gy, sb plty-blky, frm, sdy ip, non calc, occ Sh gy, sb plty-blky, slty tex, mod frm, non calc, nsfoc, 70% Sltst, 30% Sh
5500-5550 Sltst gy, sb plty-blky, frm, sdy ip, non calc, occ Sh gy, sb plty-blky, slty tex, mod frm, non calc, nsfoc, 80% Sltst, 20% Sh
5550-5600 Sltst lt-med gy, sb blky-sb plty, arg, sft, occ sh, gy, mod frm, sb blky, non calc, nsfoc, 70% Sltst 30% Sh
5650


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.8
Vis 44
Wt 9.8
Vis 43
C1=65.8
C2=21.5
C3=8.8
C4=3.9
Wt 9.9
Vis 45
5650
5700
5750
5800


MD 5635 TVD 5595.98
INC 32.73 AZ 155.48
VS 374.14
MD 5667 TVD 5622.11
INC 37.7 AZ 156.43
VS 391.47
MD 5699 TVD 5646.77
INC 41.46 AZ 157.8
VS 410.75
MD 5730 TVD 5669.47
INC 44.4 AZ 161.22
VS 430.99
MD 5762 TVD 5691.64
INC 47.89 AZ 160.18
VS 453.23
MD 5794 TVD 5712.39
INC 51.24 AZ 159.41
VS 476.61
Sharon Springs,
5811' MD, 5723' TVD
5650
00-5650 Sltst lt-med gy, sb blksb
y, arg, sft, occ sh med gy, sb blky,
od frm, nsfoc, 80% Sltst 20% Sh
5650-5700 Sltst lt-med gy, sb blksb
plty, arg, sft, occ sh med gy, sb blky,
mod frm, nsfoc, 80% Sltst 20% Sh
5700-5750 Sltst lt-med gy, sb blksb
plty, arg, sft, occ sh med gy, sb blky,
mod frm, nsfoc, 80% Sltst 20% Sh
5750-5800 Sltst lt-med gy, sb blksb
plty, arg, sft, occ sh med gy, sb blky,
mod frm, tr bent, tr brit yel min flor,
nsoc, 50% Sltst 50% Sh
5800-5850 Mrlst dk gy
blky, v calc, abnt Ben
yel min flor, slow oil
10% Bent



825 TVD 5731.44
2.9 AZ 160.79
0.12

MD 5857 TVD 5750.16
INC 55.53 AZ 158.57
VS 525.02

MD 5888 TVD 5766.9
INC 59.07 AZ 159.14
VS 549.93

MD 5920 TVD 5782.72
INC 61.67 AZ 157.42
VS 576.41

MD 5952 TVD 5797.5
INC 63.3 AZ 157.37
VS 603.3

MD 5983 TVD 5810.79
INC 65.93 AZ 160.29
VS 630.05

5150 TVD

MD 6015 TVD 5822.91
INC 69.57 AZ 160.09
VS 658.53

MD
INC
VS

a 5823' MD,
VD

N100, 5859' MD,
5751' TVD

N200, 5932' MD,
5788' TVD

N250, 5977' MD,
5808' TVD

N400, 6000' MD,
5818' TVD

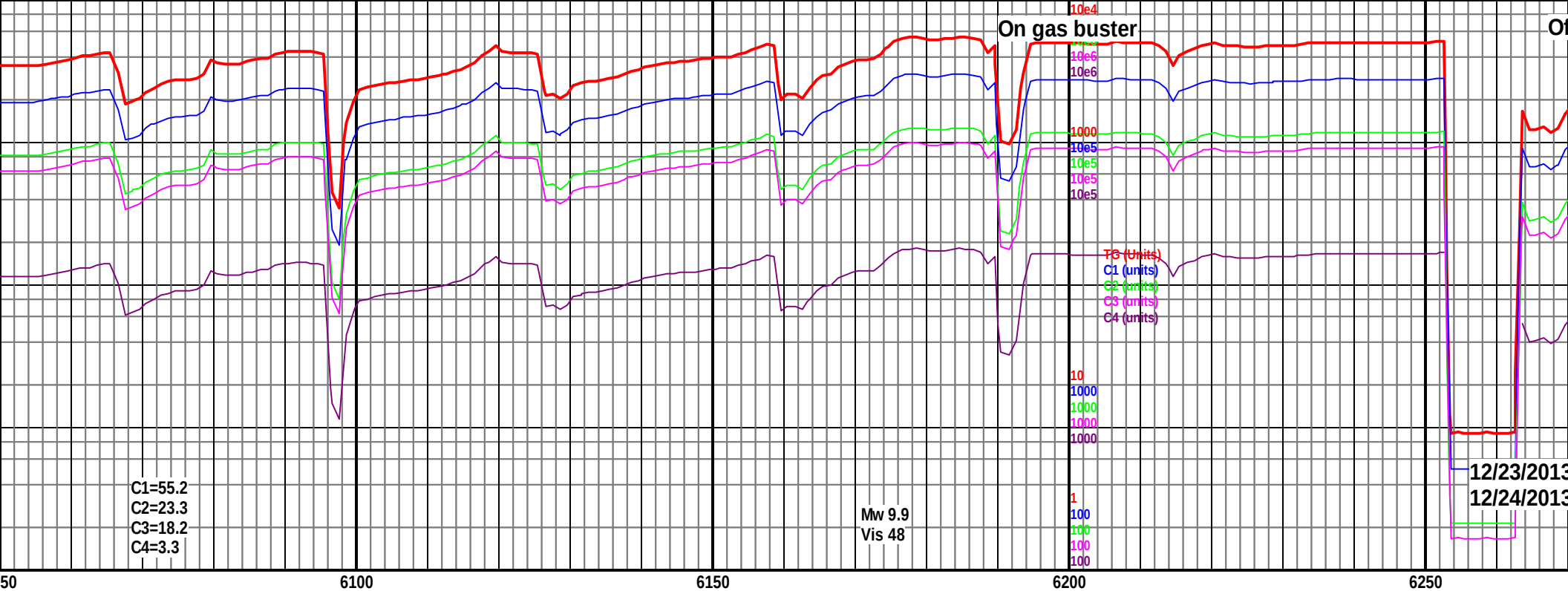
y, sft-frm, flky-sb
t gy grn, abnt brit
cut, 90% Mrlst,

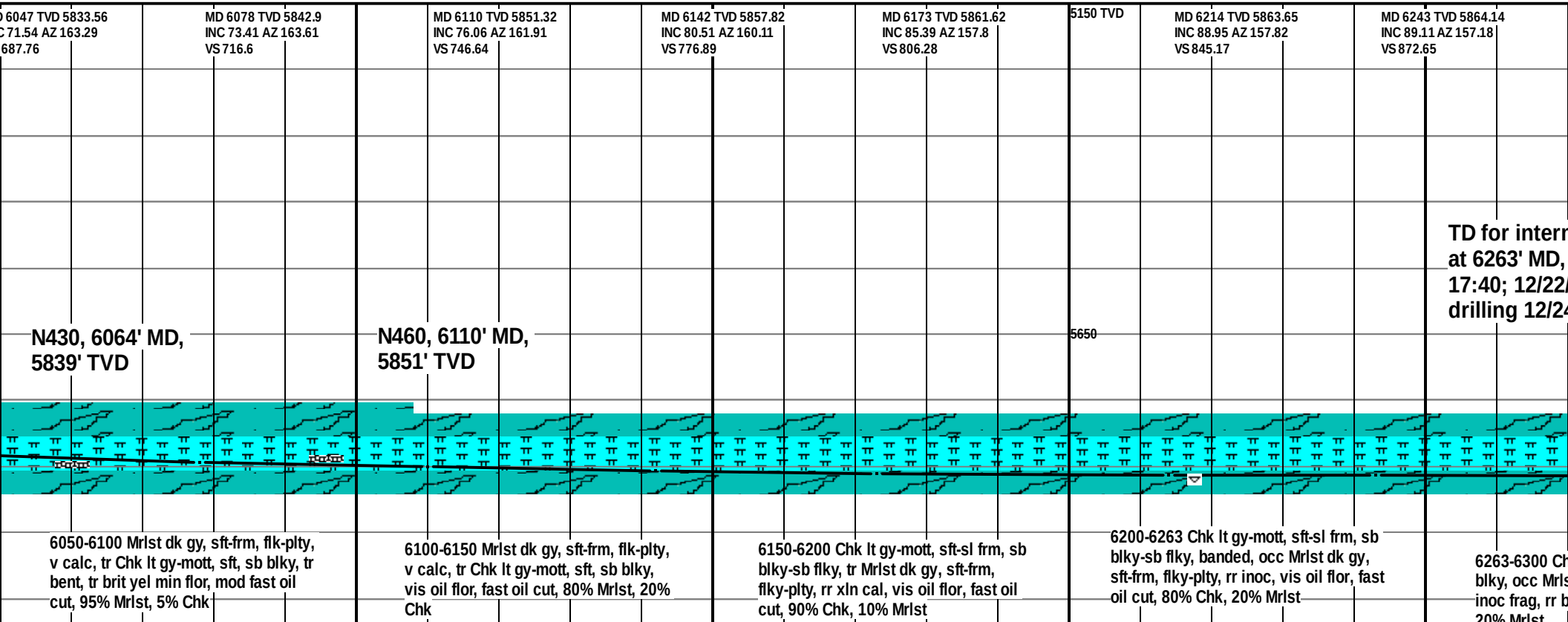
5850-5900 Chk lt gy-mott, sft, sb blky, abnt Mrlst dk gy, sft-frm, flky-plty, v calc, occ bent, occ brit yel min flor, mod fast oil cut, 50% Chk, 45% Mrlst, 5% Bent

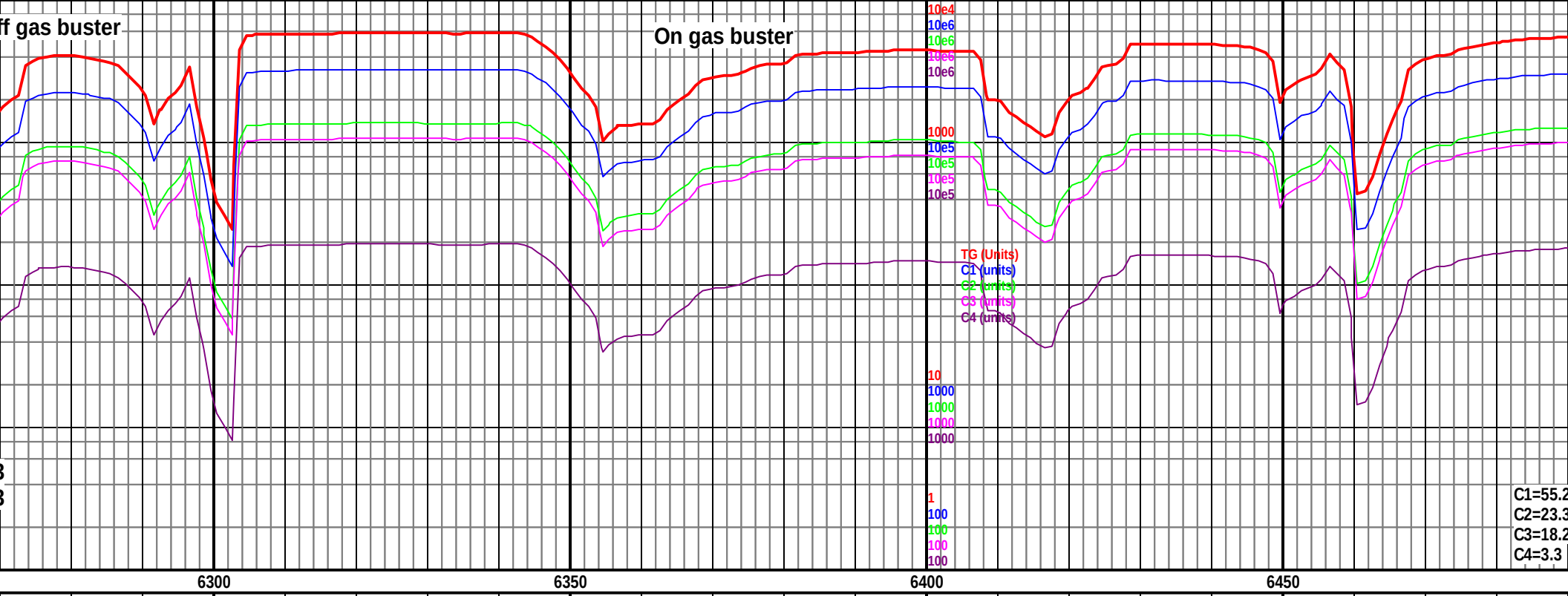
5900-5950 Chk lt gy-mott, sft, sb blky, abnt Mrlst dk gy, sft-frm, flky-plty, v calc, rr bent, rr brit yel min flor, mod fast oil cut, 50% Chk, 45% Mrlst

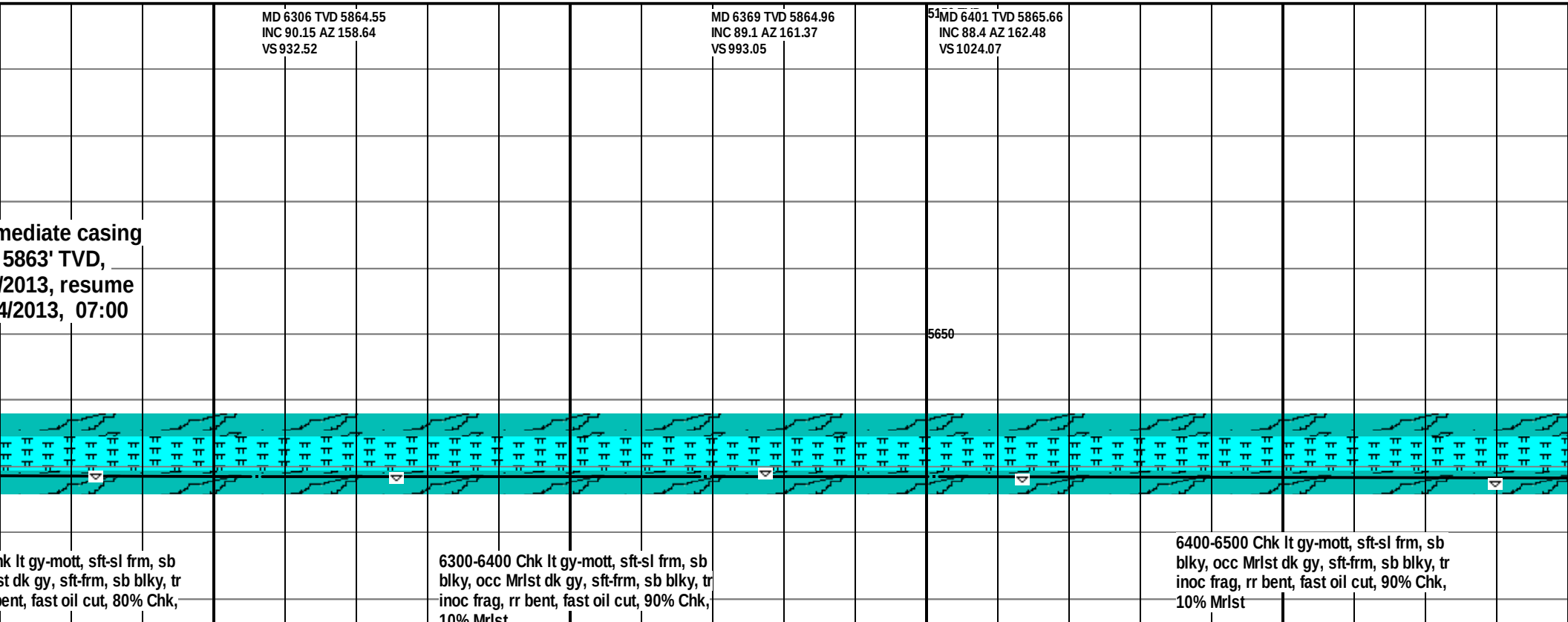
5950-6000 Mrlst dk gy, sft-frm, flk-plty, v calc, occ Chk lt gy-mott, sft, sb blky, occ bent, occ brit yel min flor, mod fast oil cut, 80% Mrlst, 15% Chk, 5% bent

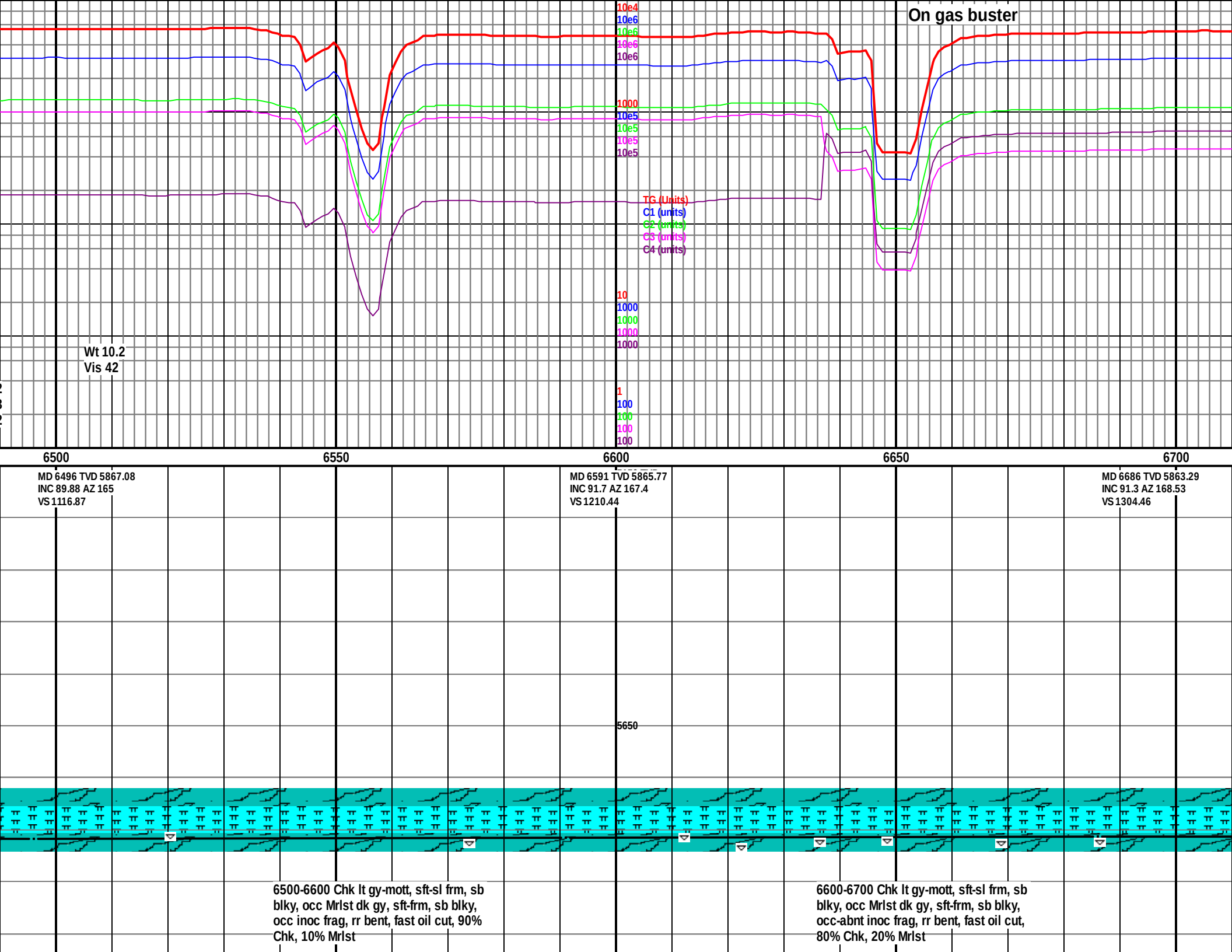
6000-6050 Mrlst dk gy, sft-frm, flk-plty, v calc, occ Chk lt gy-mott, sft, sb blky, rr bent, rr brit yel min flor, mod fast oil cut, 80% Mrlst, 20% Chk

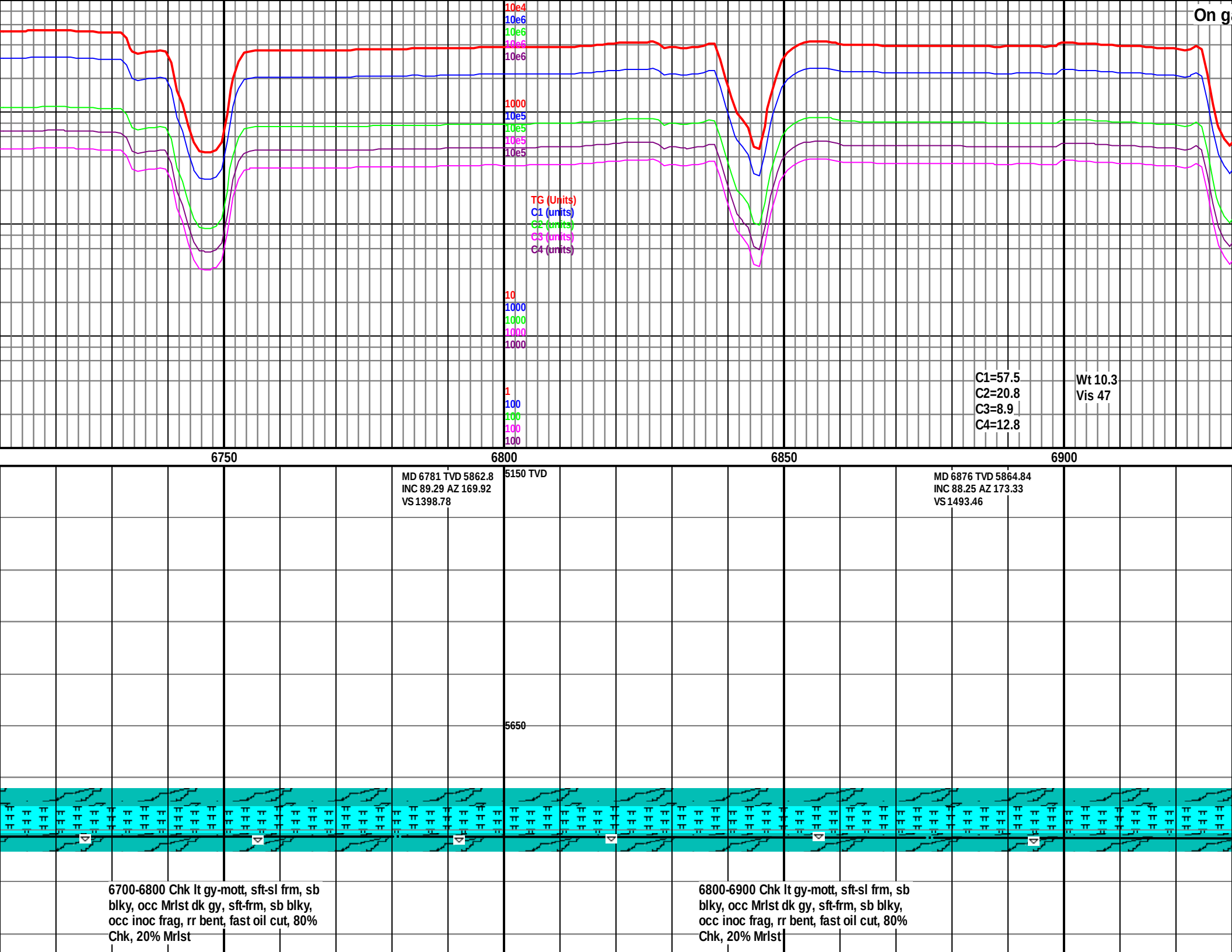

On gas buster
Of
10e4
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
C1=55.2
C2=23.3
C3=18.2
C4=3.3
Mw 9.9
Vis 48
12/23/2013
12/24/2013
50
6100
6150
6200
6250

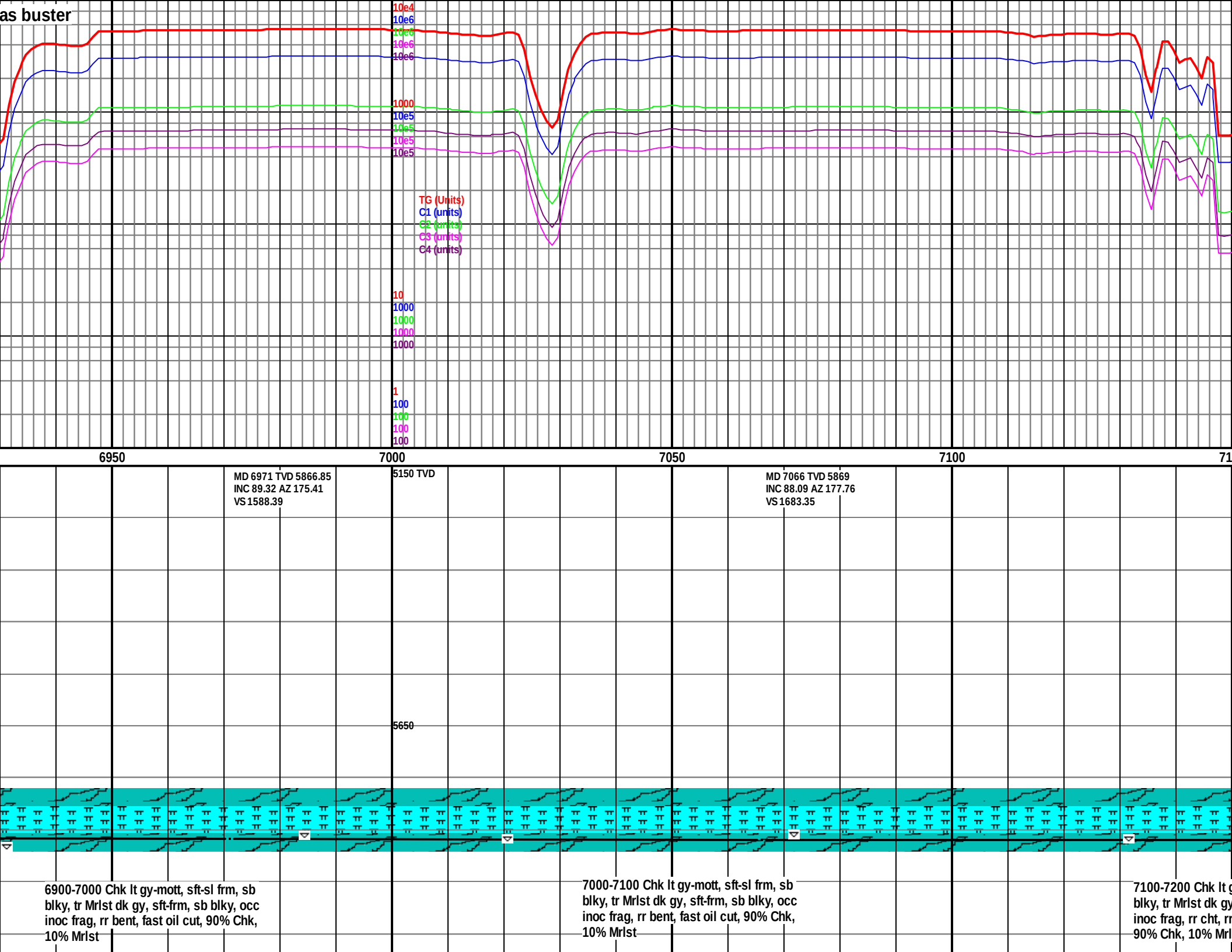

6047 TVD 5833.56
C 71.54 AZ 163.29
687.76
MD 6078 TVD 5842.9
INC 73.41 AZ 163.61
VS 716.6
MD 6110 TVD 5851.32
INC 76.06 AZ 161.91
VS 746.64
MD 6142 TVD 5857.82
INC 80.51 AZ 160.11
VS 776.89
MD 6173 TVD 5861.62
INC 85.39 AZ 157.8
VS 806.28
5150 TVD
MD 6214 TVD 5863.65
INC 88.95 AZ 157.82
VS 845.17
MD 6243 TVD 5864.14
INC 89.11 AZ 157.18
VS 872.65
TD for interm
at 6263' MD,
17:40; 12/22/
drilling 12/24
N430, 6064' MD,
5839' TVD
N460, 6110' MD,
5851' TVD
5650
6050-6100 Mrlst dk gy, sft-frm, flk-plty, v calc, tr Chk lt gy-mott, sft, sb blky, tr bent, tr brit yel min flor, mod fast oil cut, 95% Mrlst, 5% Chk
6100-6150 Mrlst dk gy, sft-frm, flk-plty, v calc, tr Chk lt gy-mott, sft, sb blky, vis oil flor, fast oil cut, 80% Mrlst, 20% Chk
6150-6200 Chk lt gy-mott, sft-sl frm, sb blky-sb flky, tr Mrlst dk gy, sft-frm, flky-plty, rr xln cal, vis oil flor, fast oil cut, 90% Chk, 10% Mrlst
6200-6263 Chk lt gy-mott, sft-sl frm, sb blky-sb flky, banded, occ Mrlst dk gy, sft-frm, flky-plty, rr inoc, vis oil flor, fast oil cut, 80% Chk, 20% Mrlst
6263-6300 Ch
blky, occ Mrls
inoc frag, rr b
20% Mrlst

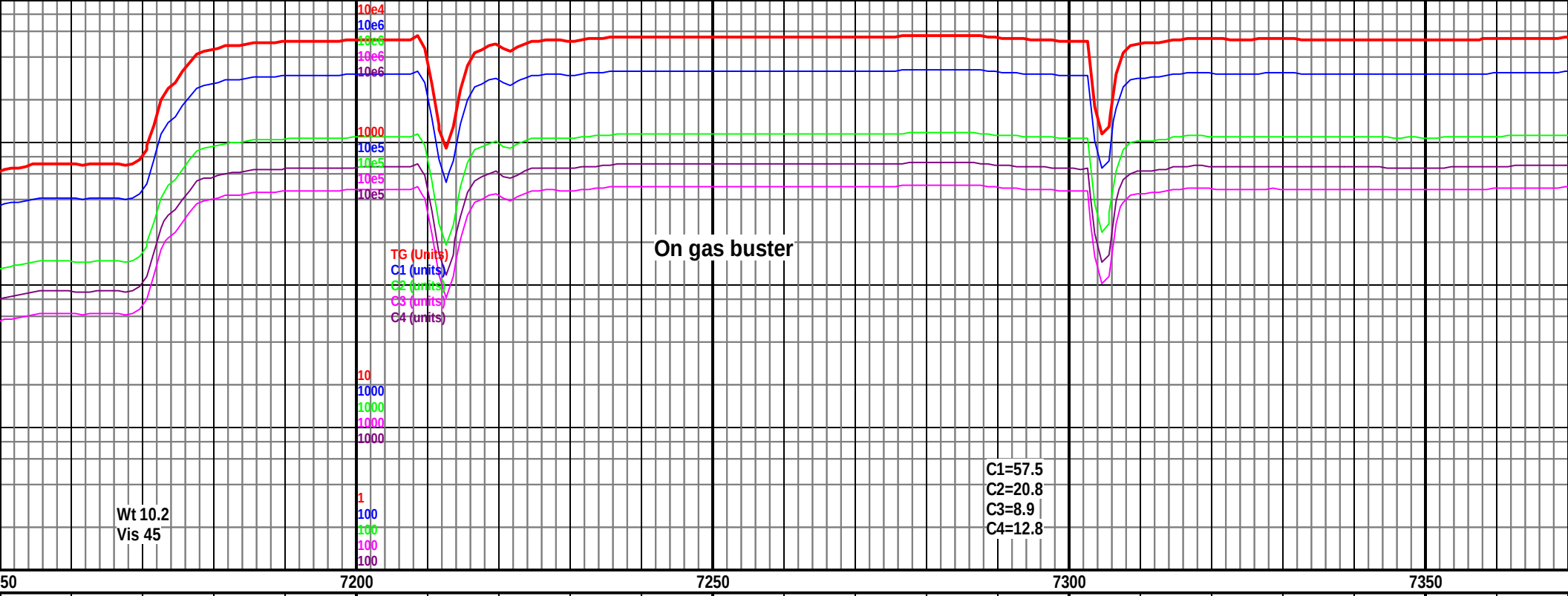

ff gas buster
On gas buster
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
C1=55.2
C2=23.3
C3=18.2
C4=3.3
6300
6350
6400
6450

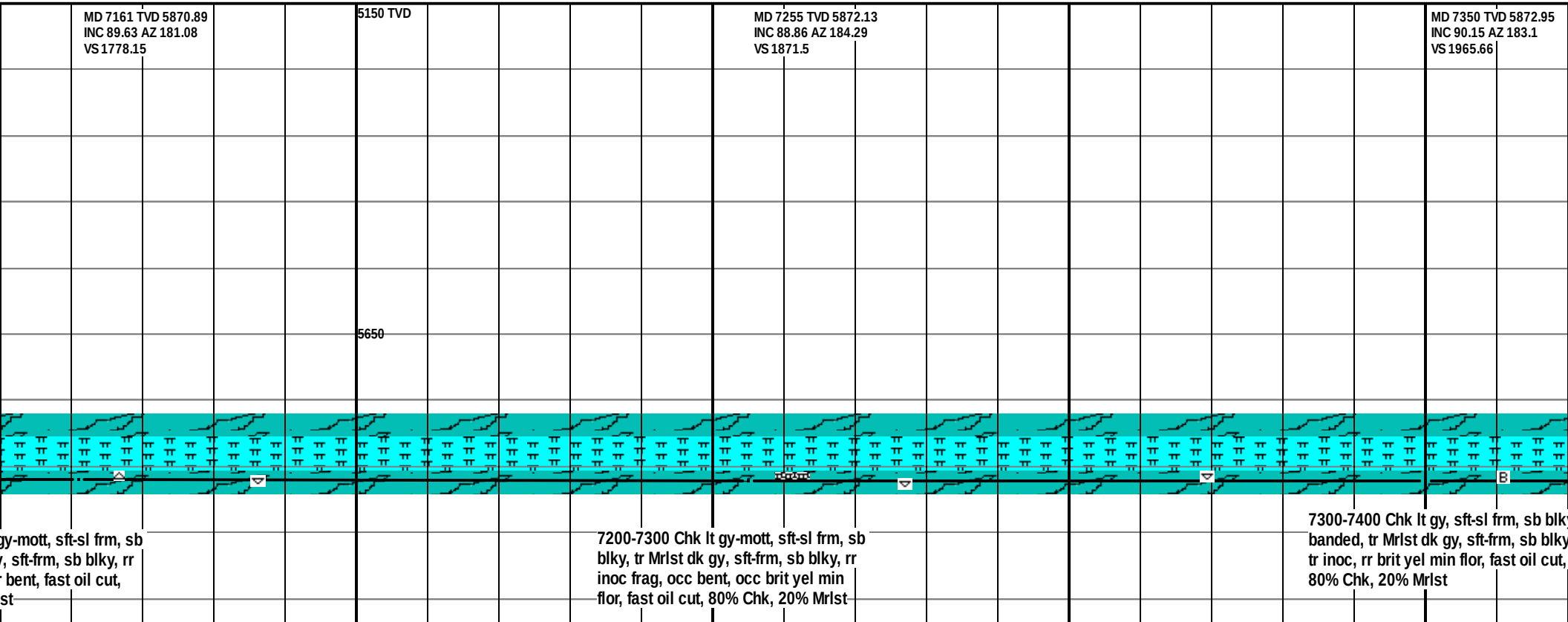

MD 6306 TVD 5864.55
INC 90.15 AZ 158.64
VS 932.52
MD 6369 TVD 5864.96
INC 89.1 AZ 161.37
VS 993.05
MD 6401 TVD 5865.66
INC 88.4 AZ 162.48
VS 1024.07
mediate casing
5863' TVD,
/2013, resume
4/2013, 07:00
5650
hk lt gy-mott, sft-sl frm, sb
st dk gy, sft-frm, sb blky, tr
ent, fast oil cut, 80% Chk,
6300-6400 Chk lt gy-mott, sft-sl frm, sb
blky, occ Mrlst dk gy, sft-frm, sb blky, tr
inoc frag, rr bent, fast oil cut, 90% Chk,
10% Mrlst
6400-6500 Chk lt gy-mott, sft-sl frm, sb
blky, occ Mrlst dk gy, sft-frm, sb blky, tr
inoc frag, rr bent, fast oil cut, 90% Chk,
10% Mrlst

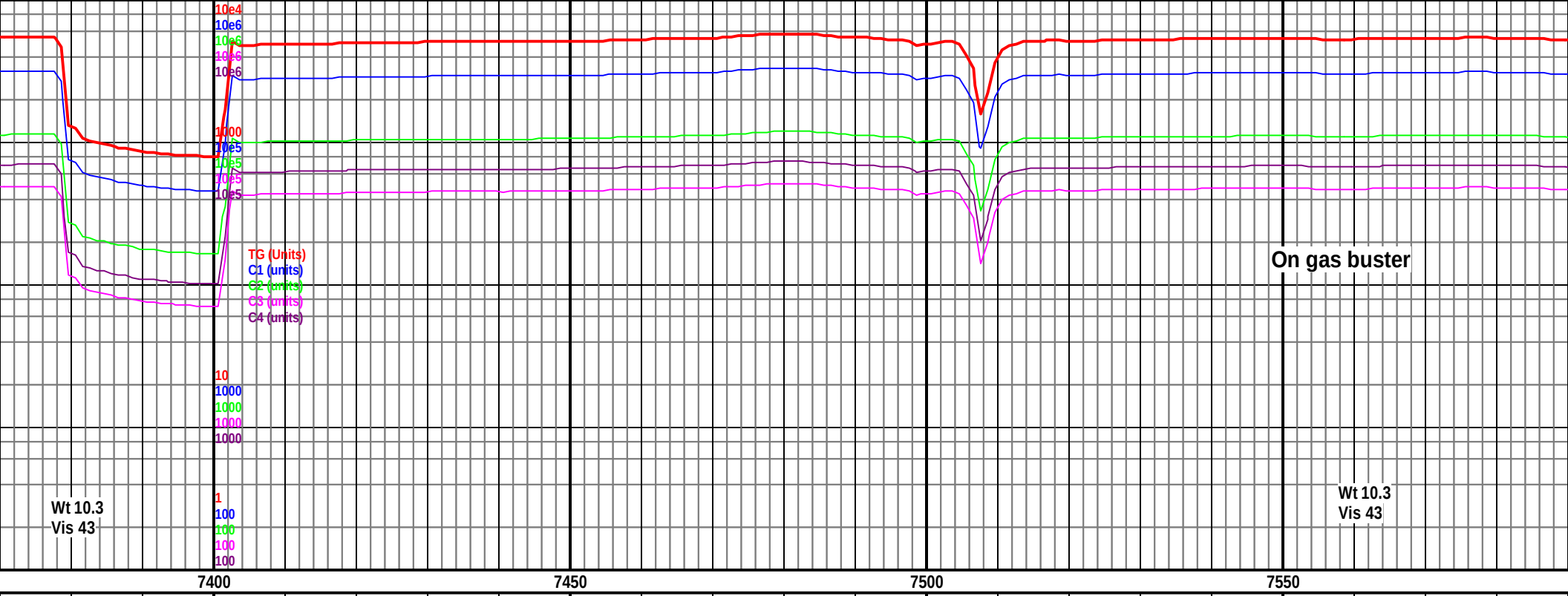

On gas buster
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.2
Vis 42
6500
6550
6600
6650
6700
MD 6496 TVD 5867.08
INC 89.88 AZ 165
VS 1116.87
MD 6591 TVD 5865.77
INC 91.7 AZ 167.4
VS 1210.44
MD 6686 TVD 5863.29
INC 91.3 AZ 168.53
VS 1304.46
5650
6500-6600 Chk lt gy-mott, sft-sl frm, sb blky, occ Mrlst dk gy, sft-frm, sb blky, occ inoc frag, rr bent, fast oil cut, 90% Chk, 10% Mrlst
6600-6700 Chk lt gy-mott, sft-sl frm, sb blky, occ Mrlst dk gy, sft-frm, sb blky, occ-abnt inoc frag, rr bent, fast oil cut, 80% Chk, 20% Mrlst

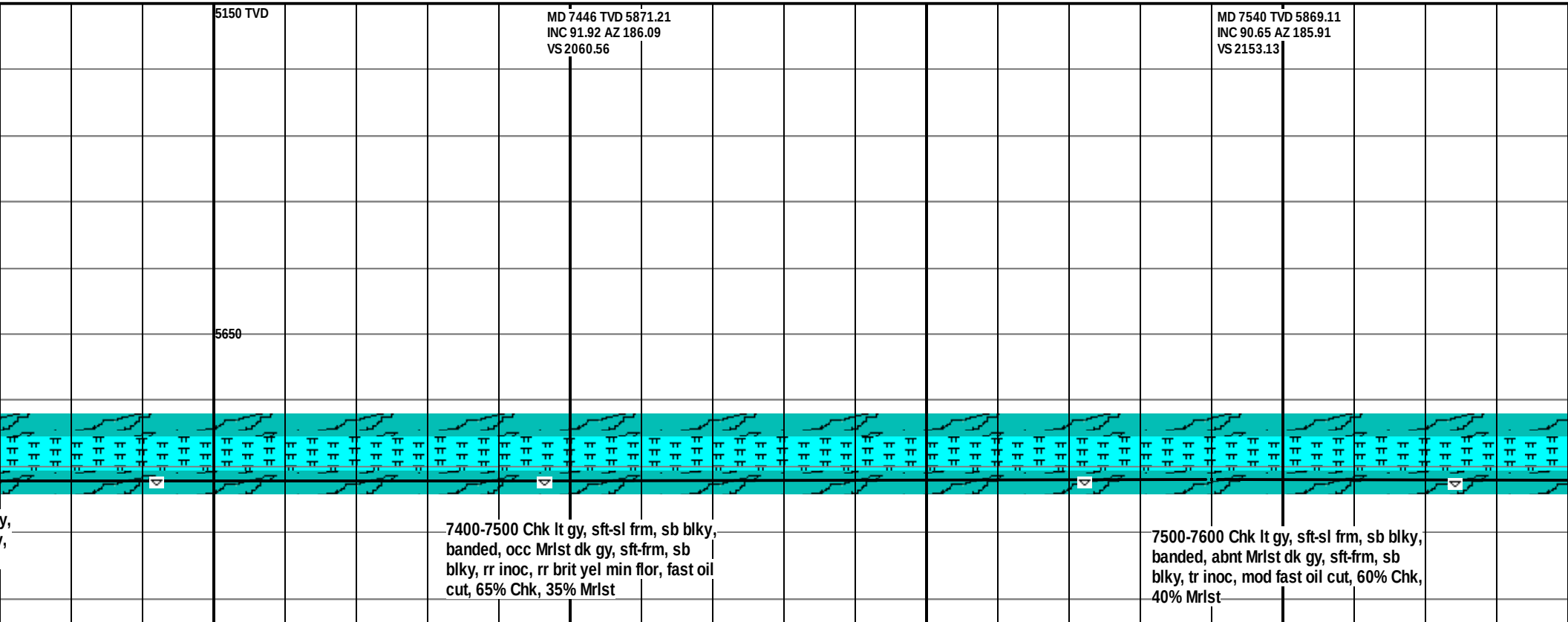

On g
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
C1=57.5
C2=20.8
C3=8.9
C4=12.8
Wt 10.3
Vis 47
6750
6800
6850
6900
MD 6781 TVD 5862.8
INC 89.29 AZ 169.92
VS 1398.78
5150 TVD
MD 6876 TVD 5864.84
INC 88.25 AZ 173.33
VS 1493.46
5650
6700-6800 Chk lt gy-mott, sft-sl frm, sb blky, occ Mrlst dk gy, sft-frm, sb blky, occ inoc frag, rr bent, fast oil cut, 80% Chk, 20% Mrlst
6800-6900 Chk lt gy-mott, sft-sl frm, sb blky, occ Mrlst dk gy, sft-frm, sb blky, occ inoc frag, rr bent, fast oil cut, 80% Chk, 20% Mrlst

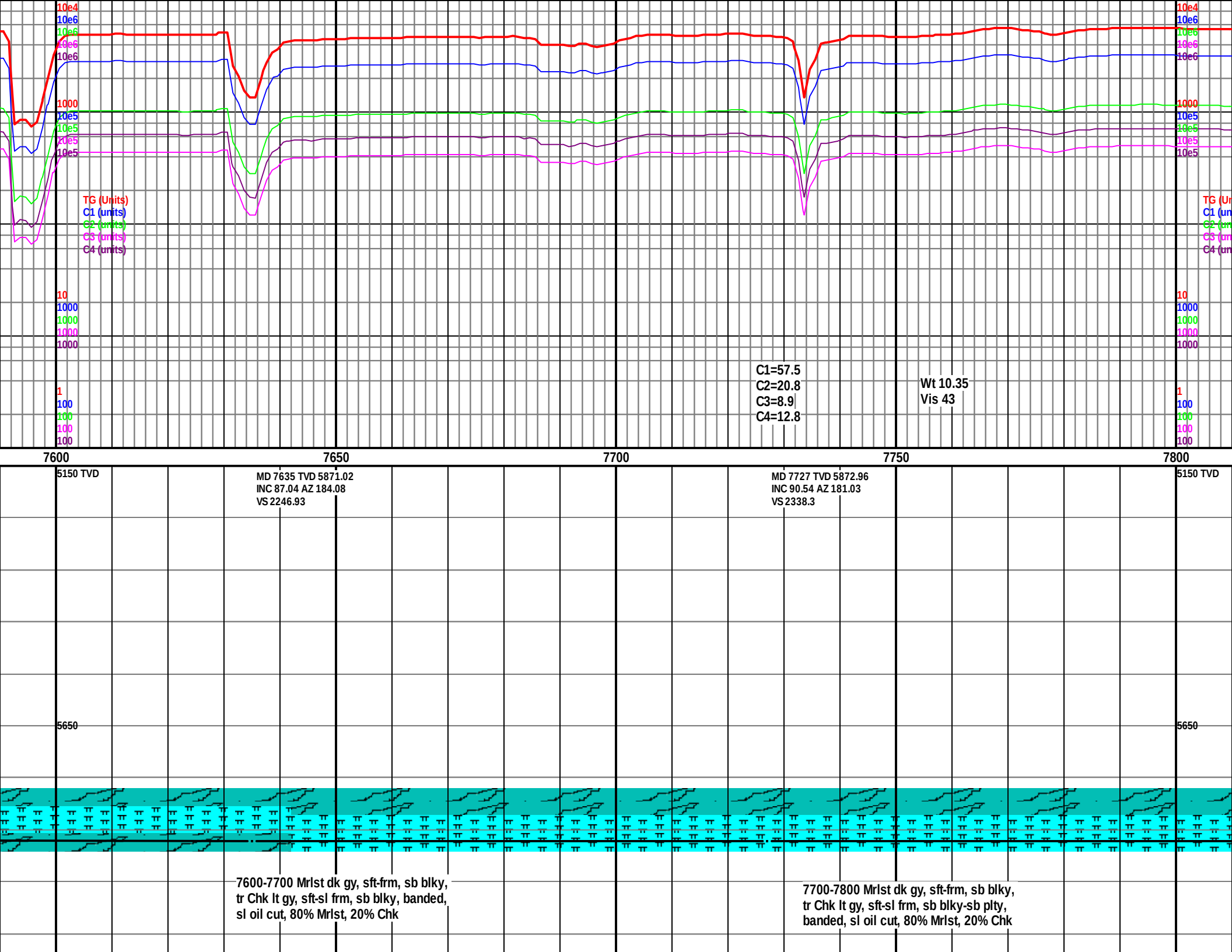

as buster
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
6950
7000
7050
7100
71
MD 6971 TVD 5866.85
INC 89.32 AZ 175.41
VS 1588.39
5150 TVD
MD 7066 TVD 5869
INC 88.09 AZ 177.76
VS 1683.35
5650
6900-7000 Chk lt gy-mott, sft-sl frm, sb blky, tr Mrlst dk gy, sft-frm, sb blky, occ inoc frag, rr bent, fast oil cut, 90% Chk, 10% Mrlst
7000-7100 Chk lt gy-mott, sft-sl frm, sb blky, tr Mrlst dk gy, sft-frm, sb blky, occ inoc frag, rr bent, fast oil cut, 90% Chk, 10% Mrlst
7100-7200 Chk lt g
blky, tr Mrlst dk gy
inoc frag, rr cht, rr
90% Chk, 10% Mrl

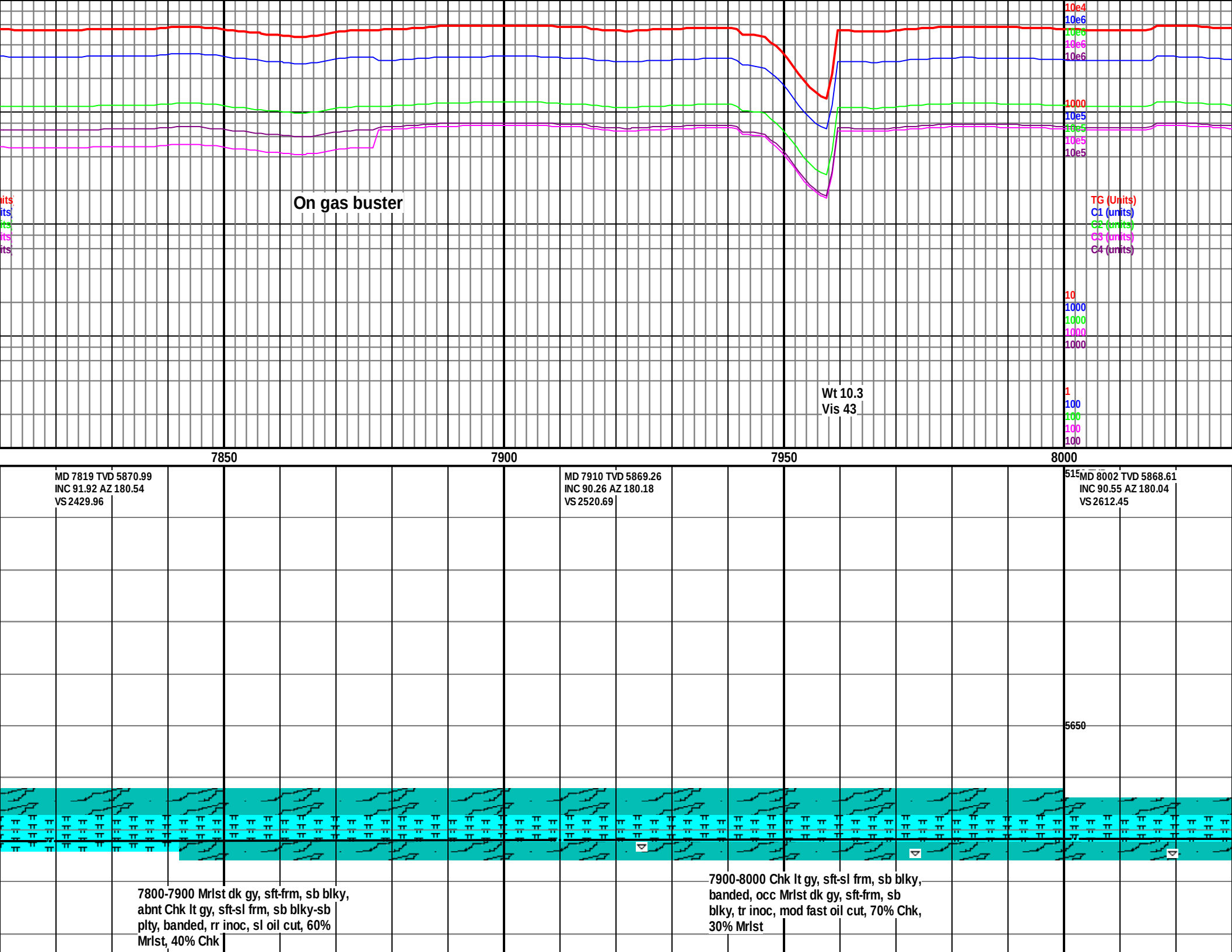

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.2
Vis 45
C1=57.5
C2=20.8
C3=8.9
C4=12.8
50
7200
7250
7300
7350

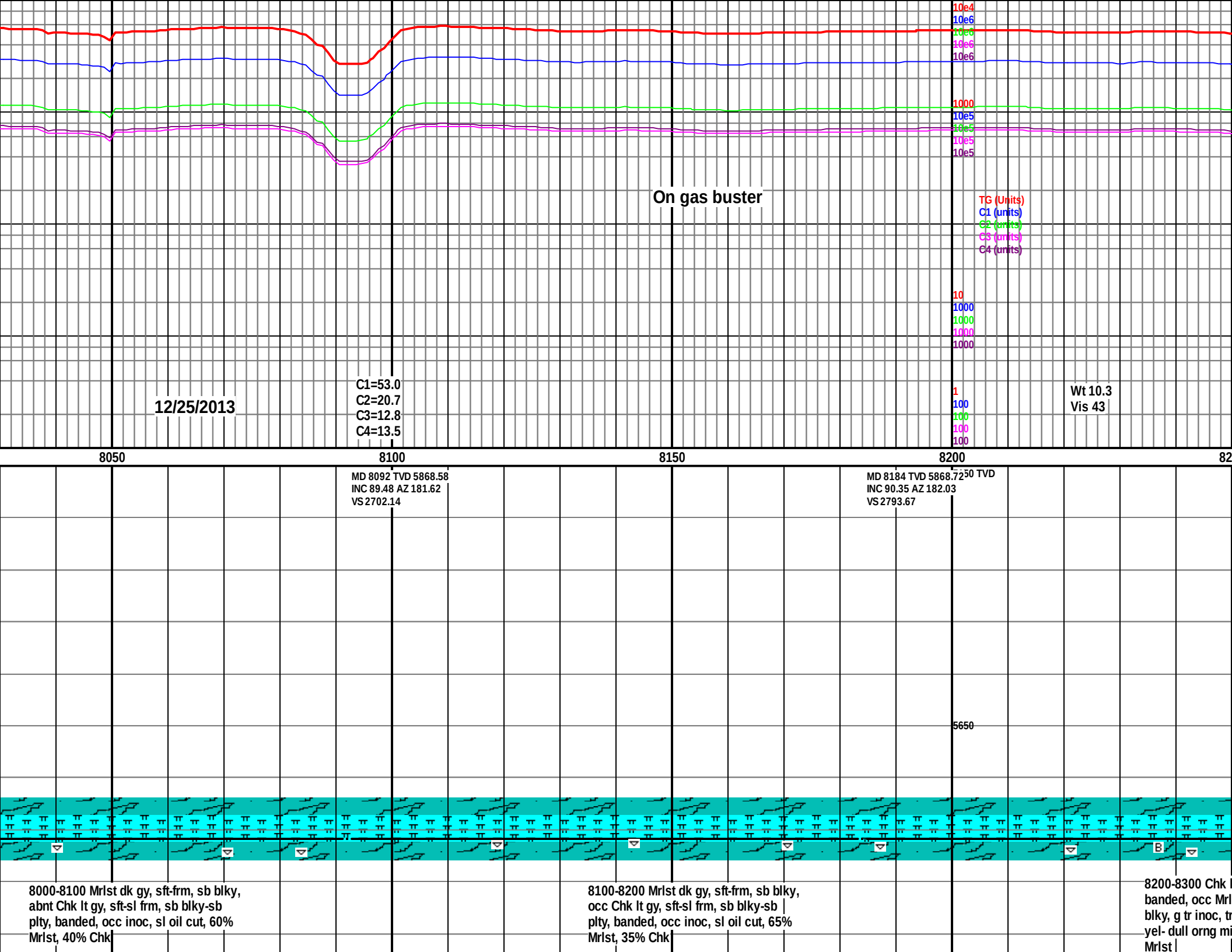

MD 7161 TVD 5870.89
INC 89.63 AZ 181.08
VS 1778.15
5150 TVD
MD 7255 TVD 5872.13
INC 88.86 AZ 184.29
VS 1871.5
MD 7350 TVD 5872.95
INC 90.15 AZ 183.1
VS 1965.66
5650
B
gy-mott, sft-sl frm, sb
, sft-frm, sb blky, rr
bent, fast oil cut,
st
7200-7300 Chk lt gy-mott, sft-sl frm, sb
blky, tr Mrlst dk gy, sft-frm, sb blky, rr
inoc frag, occ bent, occ brit yel min
flor, fast oil cut, 80% Chk, 20% Mrlst
7300-7400 Chk lt gy, sft-sl frm, sb blk
banded, tr Mrlst dk gy, sft-frm, sb blky
tr inoc, rr brit yel min flor, fast oil cut,
80% Chk, 20% Mrlst

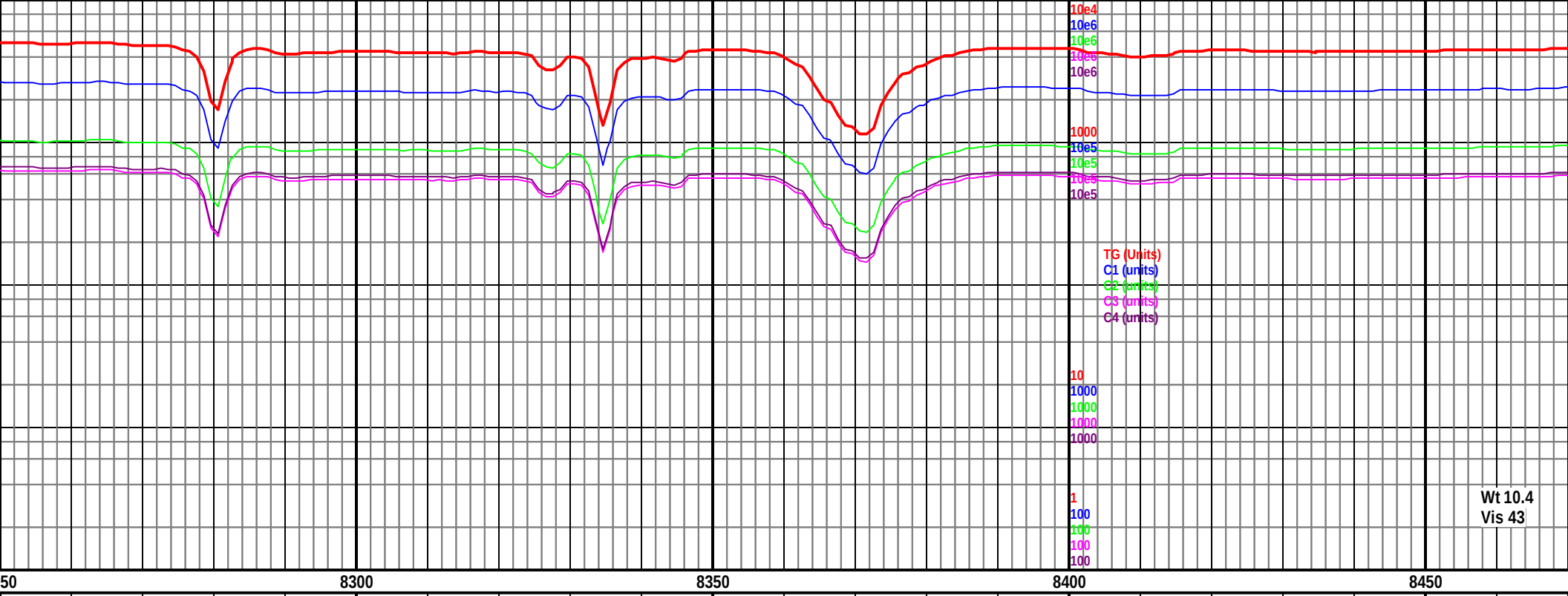

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.3
Vis 43
On gas buster
Wt 10.3
Vis 43
7400
7450
7500
7550


5150 TVD
MD 7446 TVD 5871.21
INC 91.92 AZ 186.09
VS 2060.56
MD 7540 TVD 5869.11
INC 90.65 AZ 185.91
VS 2153.13
5650
7400-7500 Chk lt gy, sft-sl frm, sb blky, banded, occ Mrlst dk gy, sft-frm, sb blky, rr inoc, rr brit yel min flor, fast oil cut, 65% Chk, 35% Mrlst
7500-7600 Chk lt gy, sft-sl frm, sb blky, banded, abnt Mrlst dk gy, sft-frm, sb blky, tr inoc, mod fast oil cut, 60% Chk, 40% Mrlst


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C1=57.5
C2=20.8
C3=8.9
C4=12.8
Wt 10.35
Vis 43
7600
7650
7700
7750
7800
5150 TVD
5650
MD 7635 TVD 5871.02
INC 87.04 AZ 184.08
VS 2246.93
MD 7727 TVD 5872.96
INC 90.54 AZ 181.03
VS 2338.3
7600-7700 Mrlst dk gy, sft-frm, sb blky,
tr Chk lt gy, sft-sl frm, sb blky, banded,
sl oil cut, 80% Mrlst, 20% Chk
7700-7800 Mrlst dk gy, sft-frm, sb blky,
tr Chk lt gy, sft-sl frm, sb blky-sb plty,
banded, sl oil cut, 80% Mrlst, 20% Chk


10e4
10e6
10e6
10e6
1000
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
On gas buster
Wt 10.3
Vis 43
7850
7900
7950
8000
MD 7819 TVD 5870.99
INC 91.92 AZ 180.54
VS 2429.96
MD 7910 TVD 5869.26
INC 90.26 AZ 180.18
VS 2520.69
MD 8002 TVD 5868.61
INC 90.55 AZ 180.04
VS 2612.45
5650
7800-7900 Mrlst dk gy, sft-frm, sb blky, abnt Chk lt gy, sft-sl frm, sb blky-sb plty, banded, rr inoc, sl oil cut, 60% Mrlst, 40% Chk
7900-8000 Chk lt gy, sft-sl frm, sb blky, banded, occ Mrlst dk gy, sft-frm, sb blky, tr inoc, mod fast oil cut, 70% Chk, 30% Mrlst


On gas buster
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
12/25/2013
C1=53.0
C2=20.7
C3=12.8
C4=13.5
Wt 10.3
Vis 43
MD 8092 TVD 5868.58
INC 89.48 AZ 181.62
VS 2702.14
MD 8184 TVD 5868.72
INC 90.35 AZ 182.03
VS 2793.67
5650
8000-8100 Mrlst dk gy, sft-frm, sb blky, abnt Chk lt gy, sft-sl frm, sb blky-sb plty, banded, occ inoc, sl oil cut, 60% Mrlst, 40% Chk
8100-8200 Mrlst dk gy, sft-frm, sb blky, occ Chk lt gy, sft-sl frm, sb blky-sb plty, banded, occ inoc, sl oil cut, 65% Mrlst, 35% Chk
8200-8300 Chk
banded, occ Mrl
blky, g tr inoc, tr
yel- dull orng mi
Mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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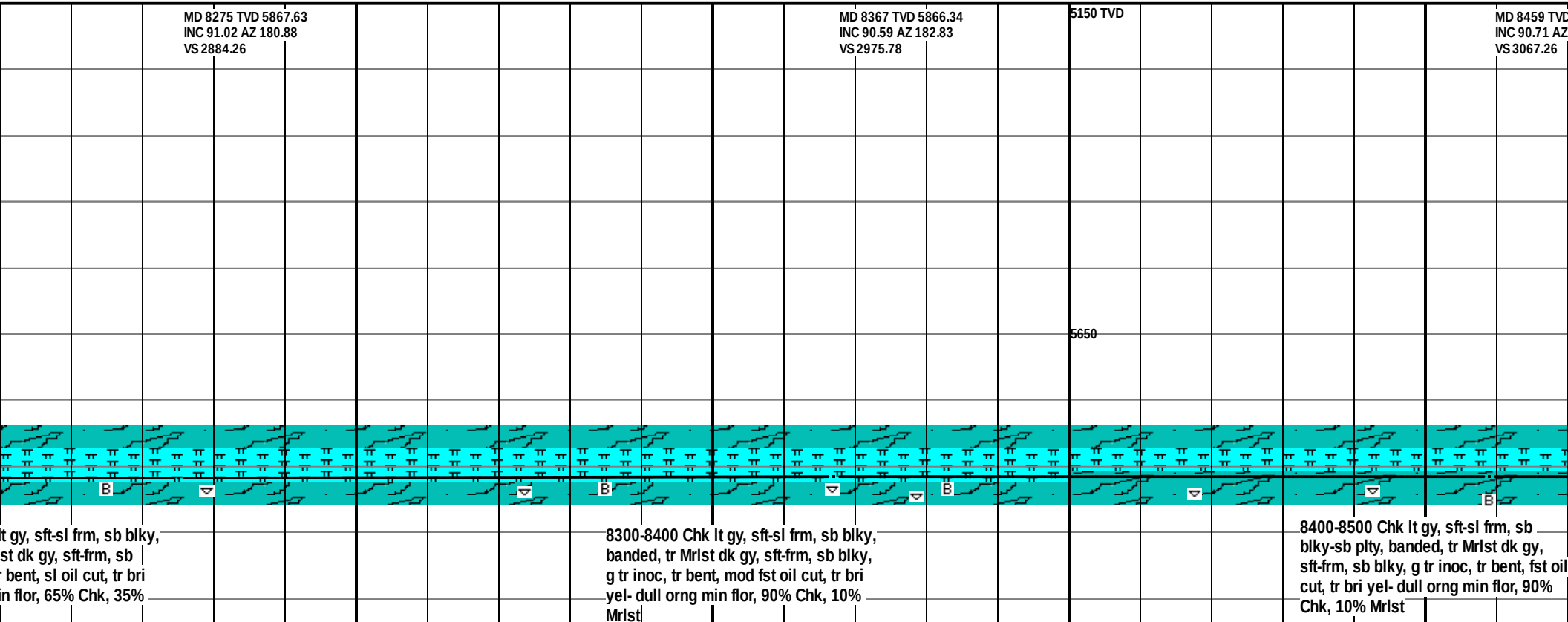
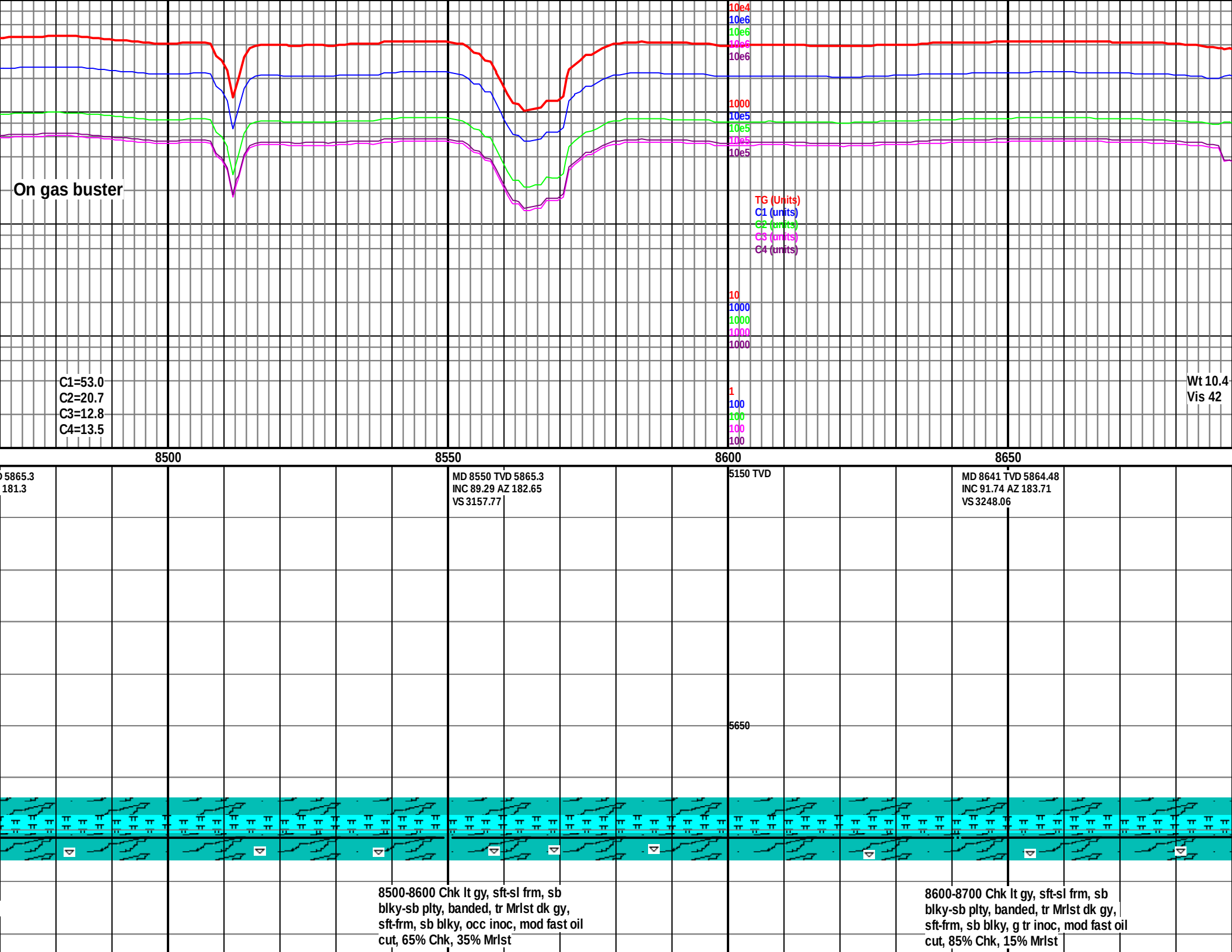
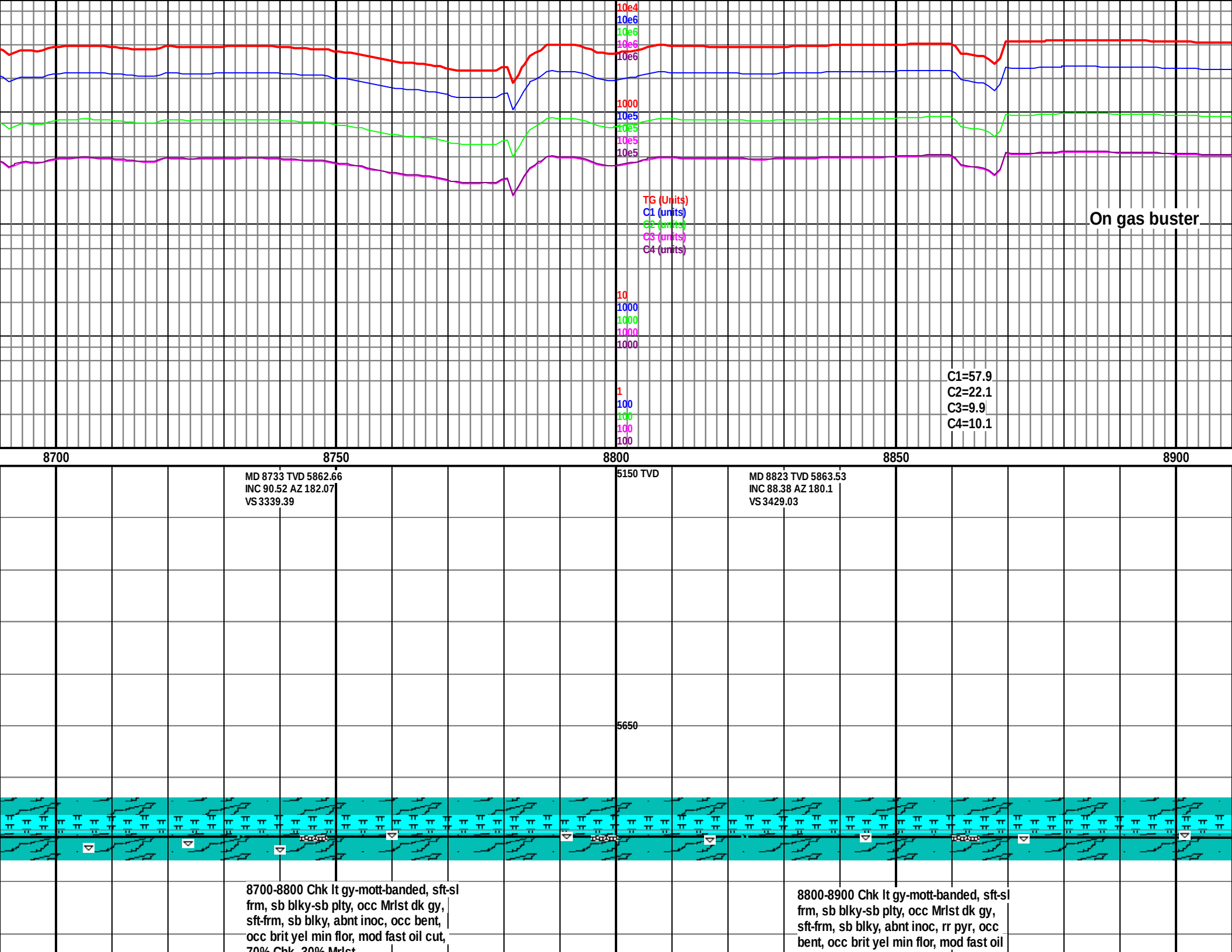
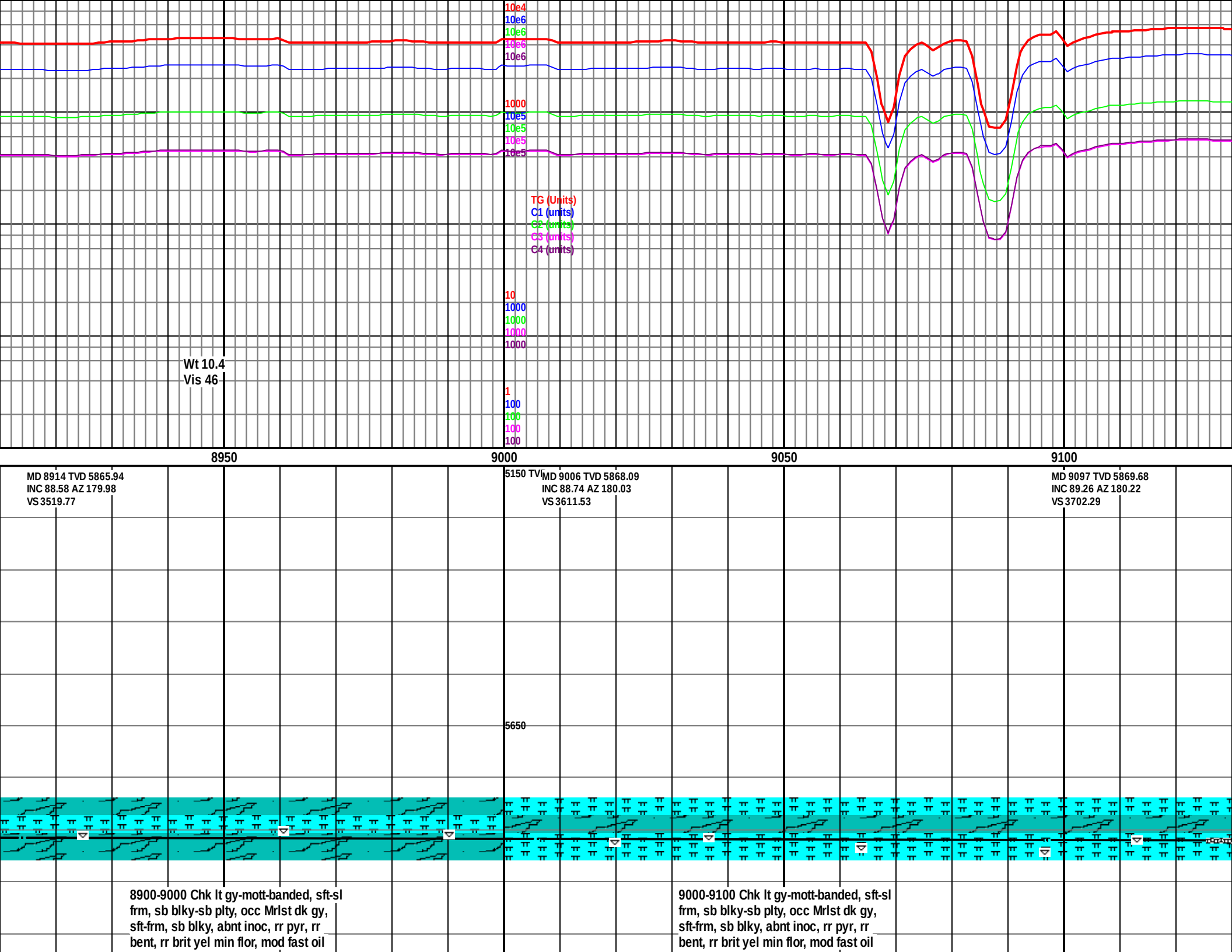
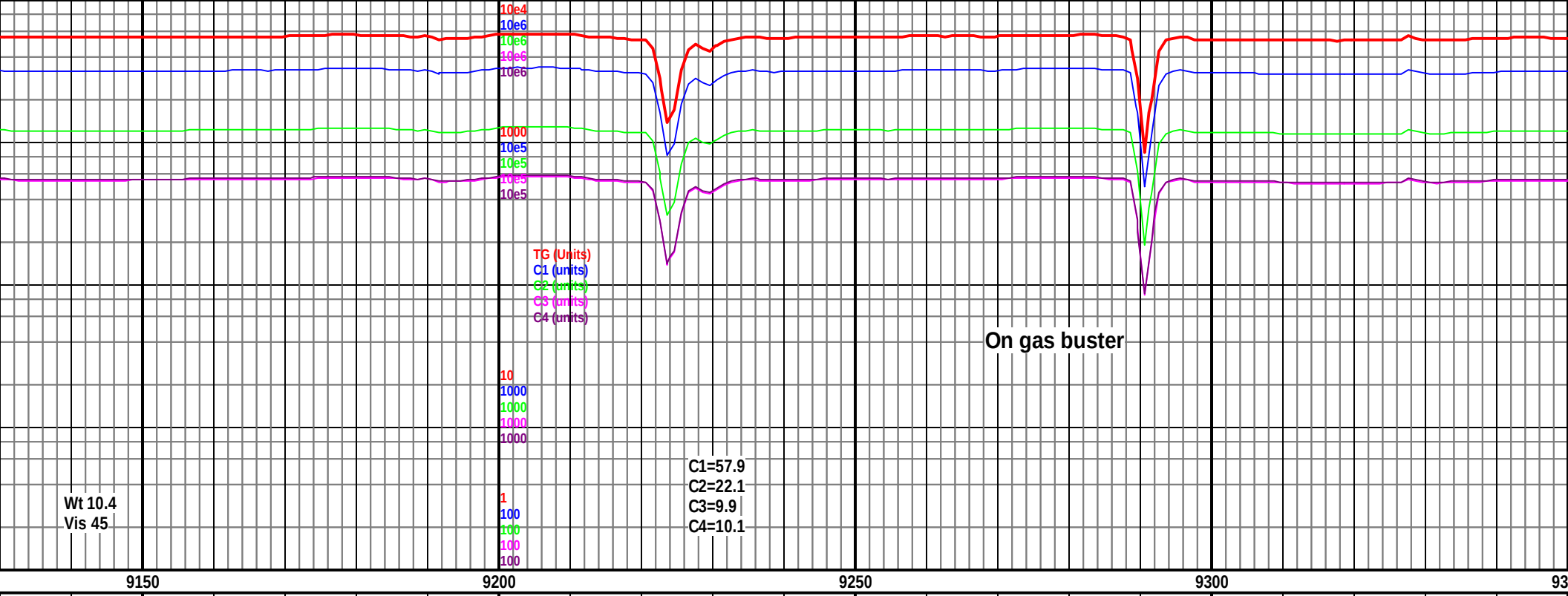
1000
1000
1000
1000
1
100
100
100
100
Wt 10.4
Vis 43
50
8300
8350
8400
8450

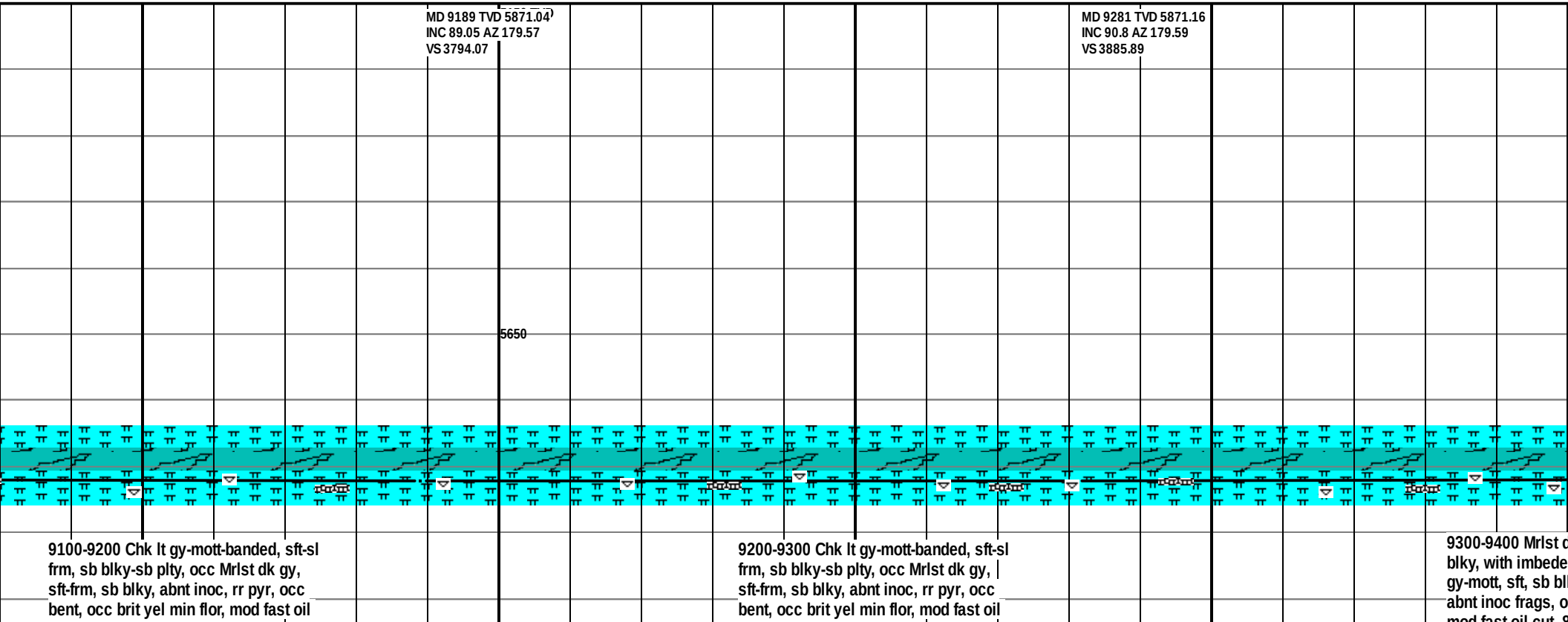

MD 8275 TVD 5867.63
INC 91.02 AZ 180.88
VS 2884.26
MD 8367 TVD 5866.34
INC 90.59 AZ 182.83
VS 2975.78
5150 TVD
MD 8459 TVD
INC 90.71 AZ
VS 3067.26
5650
B
B
B
B
t gy, sft-sl frm, sb blky,
st dk gy, sft-frm, sb
r bent, sl oil cut, tr bri
in flor, 65% Chk, 35%
8300-8400 Chk lt gy, sft-sl frm, sb blky,
banded, tr Mrlst dk gy, sft-frm, sb blky,
g tr inoc, tr bent, mod fst oil cut, tr bri
yel- dull orng min flor, 90% Chk, 10%
Mrlst
8400-8500 Chk lt gy, sft-sl frm, sb
blky-sb plty, banded, tr Mrlst dk gy,
sft-frm, sb blky, g tr inoc, tr bent, fst oil
cut, tr bri yel- dull orng min flor, 90%
Chk, 10% Mrlst

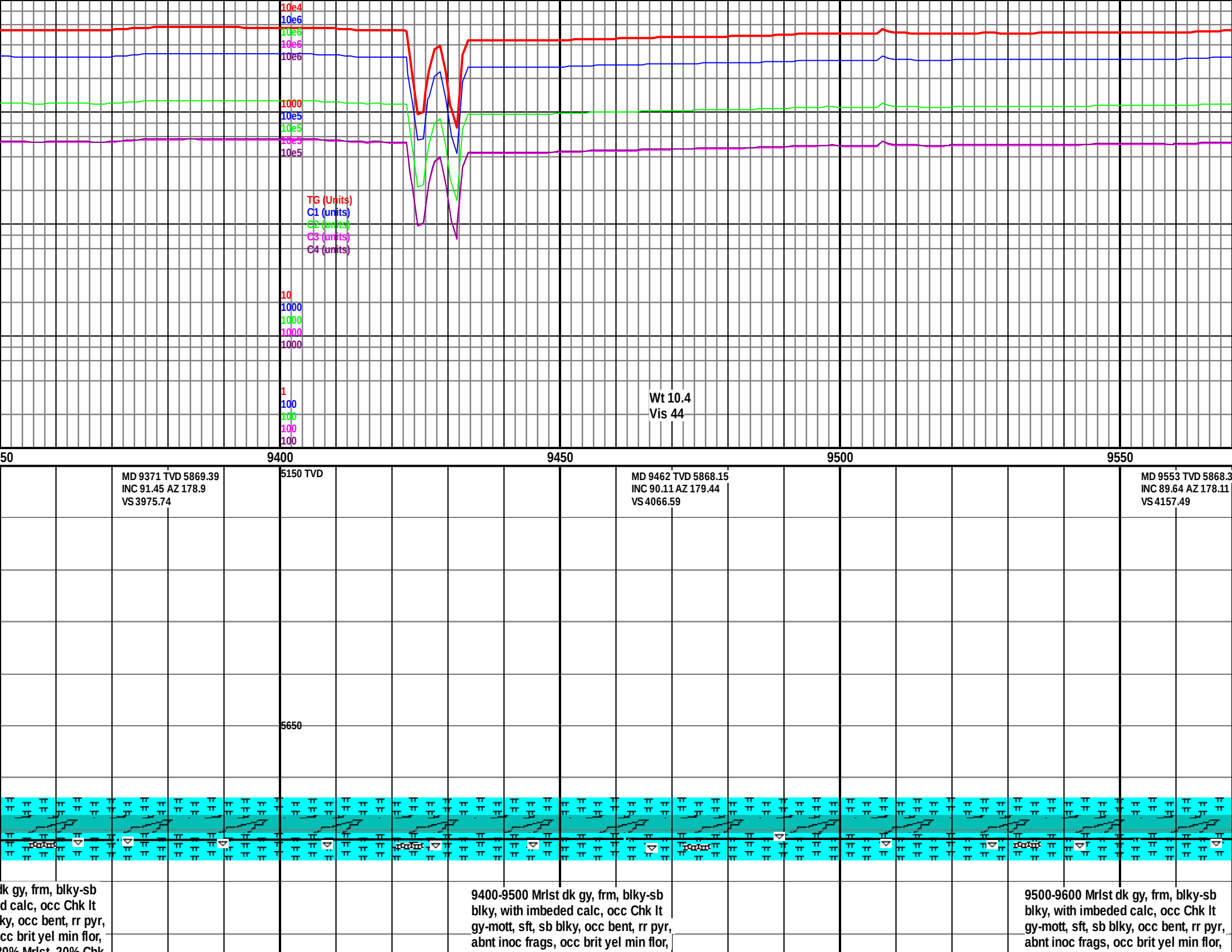

On gas buster
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C1=53.0
C2=20.7
C3=12.8
C4=13.5
Wt 10.4
Vis 42
8500
8550
8600
8650
MD 8550 TVD 5865.3
INC 89.29 AZ 182.65
VS 3157.77
5150 TVD
MD 8641 TVD 5864.48
INC 91.74 AZ 183.71
VS 3248.06
5650
8500-8600 Chk lt gy, sft-sl frm, sb blky-sb plty, banded, tr Mrlst dk gy, sft-frm, sb blky, occ inoc, mod fast oil cut, 65% Chk, 35% Mrlst
8600-8700 Chk lt gy, sft-sl frm, sb blky-sb plty, banded, tr Mrlst dk gy, sft-frm, sb blky, g tr inoc, mod fast oil cut, 85% Chk, 15% Mrlst

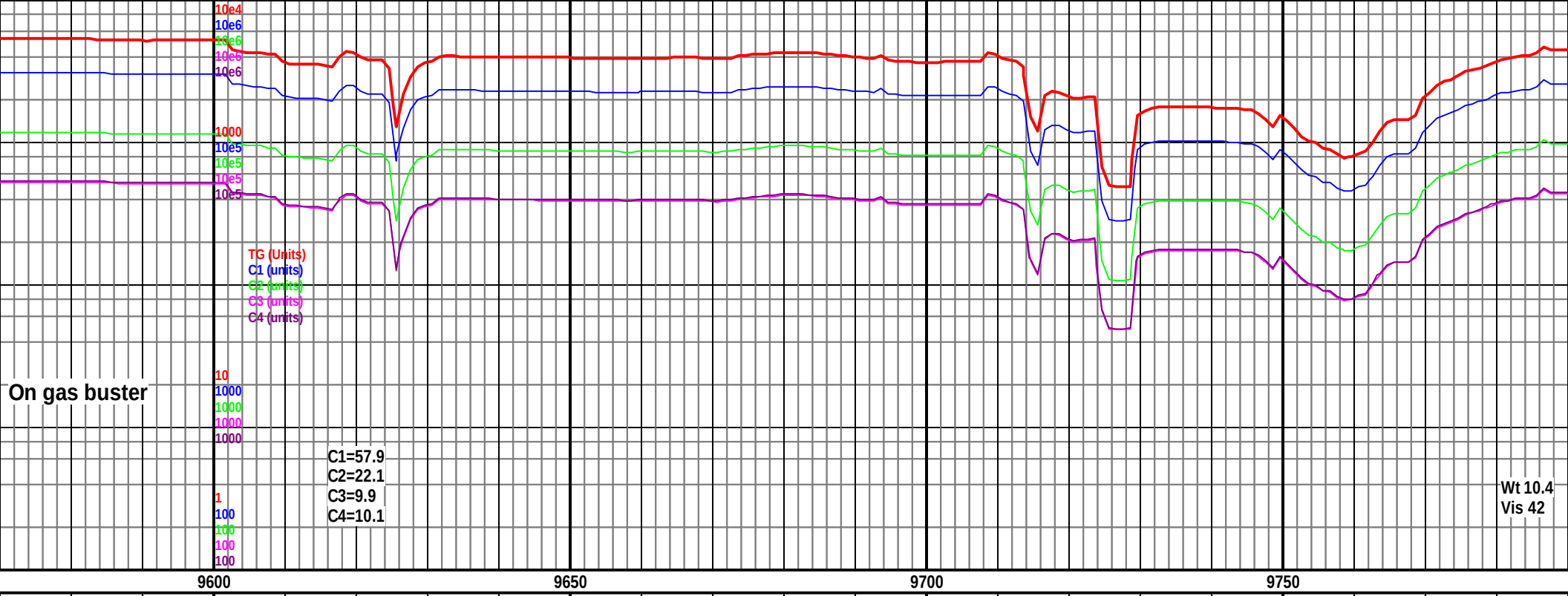

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
C1=57.9
C2=22.1
C3=9.9
C4=10.1
8700
8750
8800
8850
8900
MD 8733 TVD 5862.66
INC 90.52 AZ 182.07
VS 3339.39
5150 TVD
MD 8823 TVD 5863.53
INC 88.38 AZ 180.1
VS 3429.03
5650
8700-8800 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, occ bent, occ brit yel min flor, mod fast oil cut,
8800-8900 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, rr pyr, occ bent, occ brit yel min flor, mod fast oil

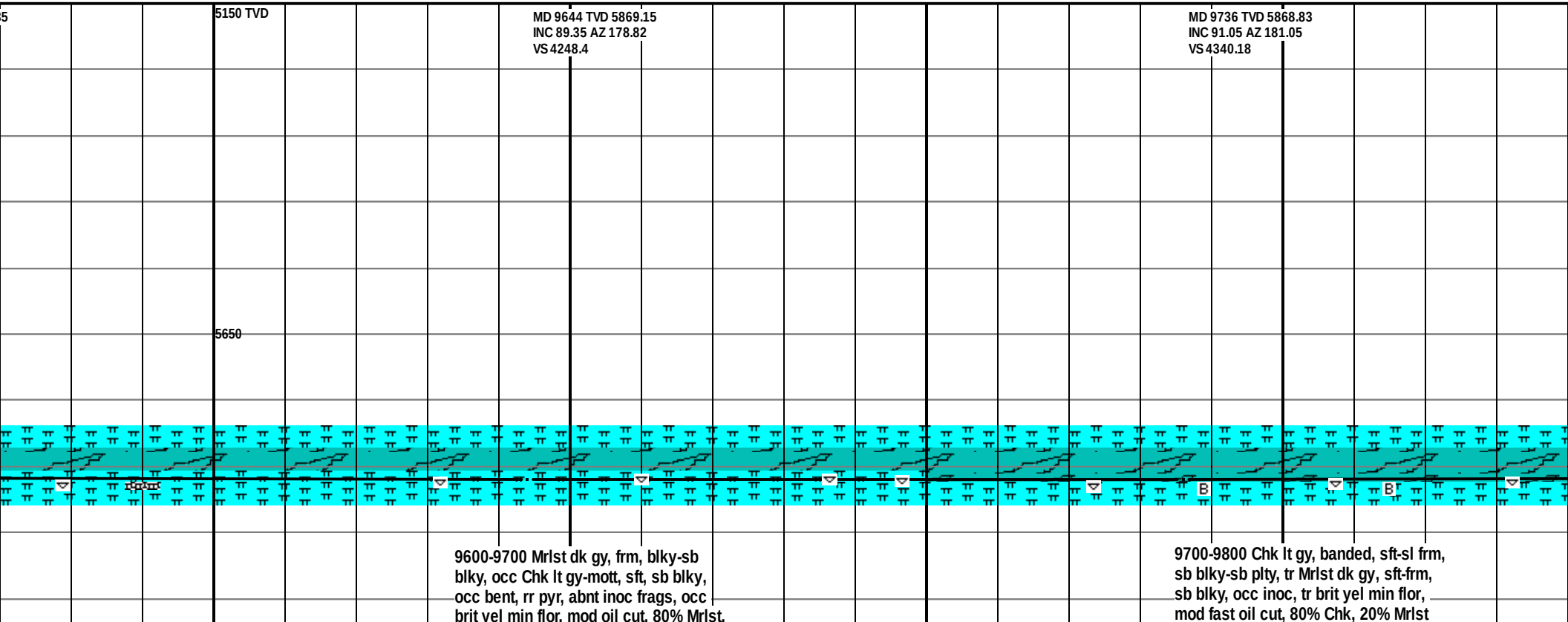

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.4
Vis 46
8950
9000
9050
9100
MD 8914 TVD 5865.94
INC 88.58 AZ 179.98
VS 3519.77
5150 TVD
MD 9006 TVD 5868.09
INC 88.74 AZ 180.03
VS 3611.53
MD 9097 TVD 5869.68
INC 89.26 AZ 180.22
VS 3702.29
5650
8900-9000 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, rr pyr, rr bent, rr brit yel min flor, mod fast oil
9000-9100 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, rr pyr, rr bent, rr brit yel min flor, mod fast oil

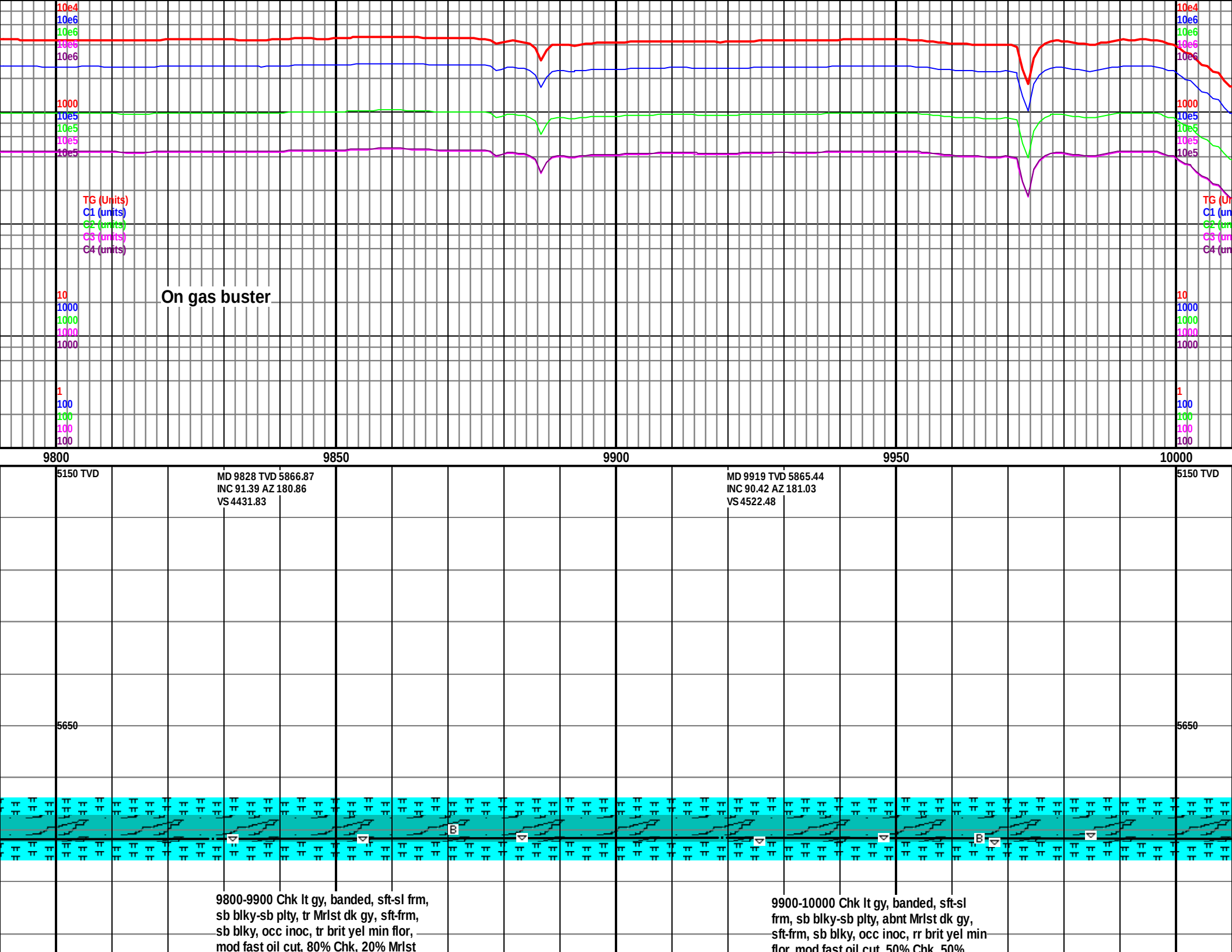

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.4
Vis 45
C1=57.9
C2=22.1
C3=9.9
C4=10.1
9150
9200
9250
9300
93

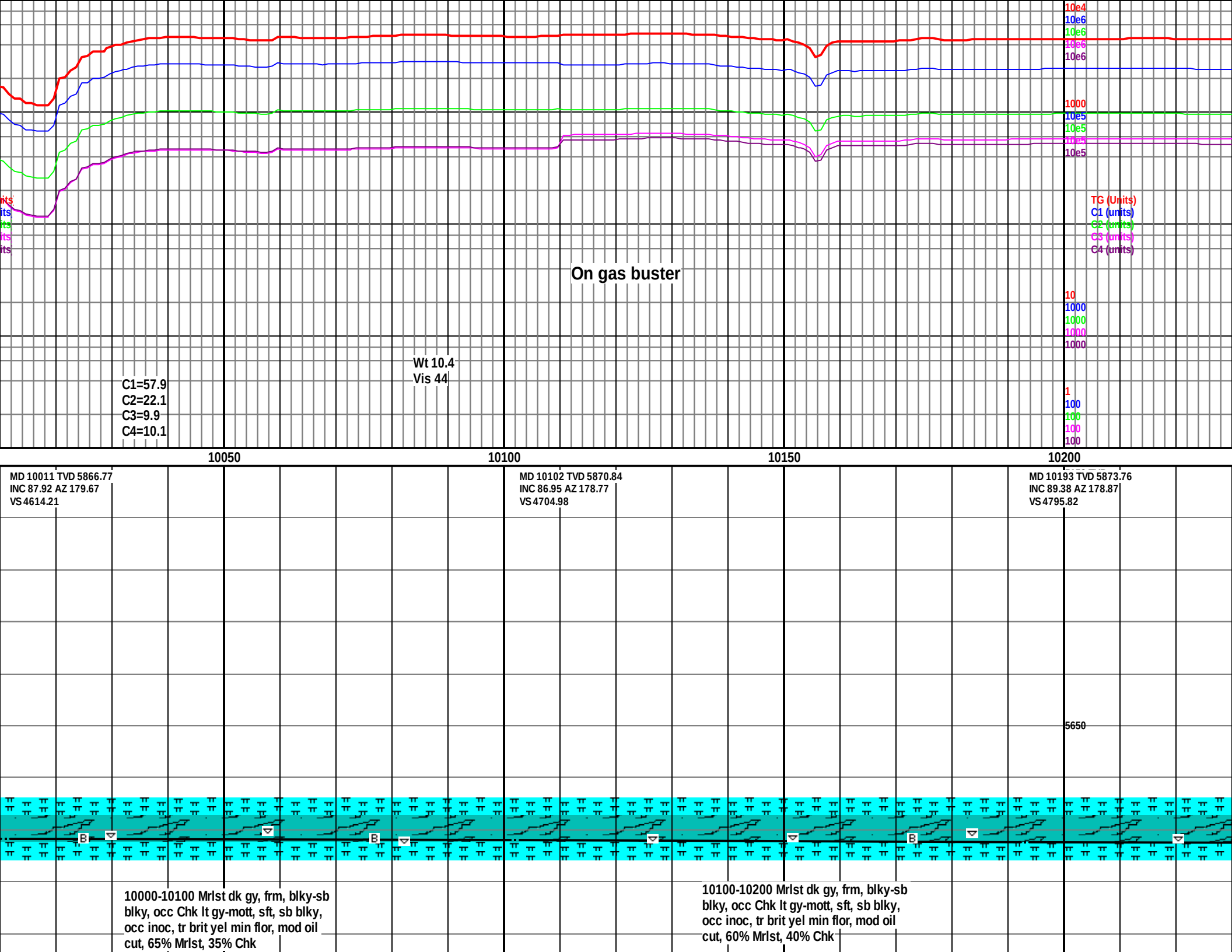

MD 9189 TVD 5871.04
INC 89.05 AZ 179.57
VS 3794.07
MD 9281 TVD 5871.16
INC 90.8 AZ 179.59
VS 3885.89
5650
9100-9200 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, rr pyr, occ bent, occ brit yel min flor, mod fast oil
9200-9300 Chk lt gy-mott-banded, sft-sl frm, sb blky-sb plty, occ Mrlst dk gy, sft-frm, sb blky, abnt inoc, rr pyr, occ bent, occ brit yel min flor, mod fast oil
9300-9400 Mrlst d
blky, with imbede
gy-mott, sft, sb bl
abnt inoc frags, o

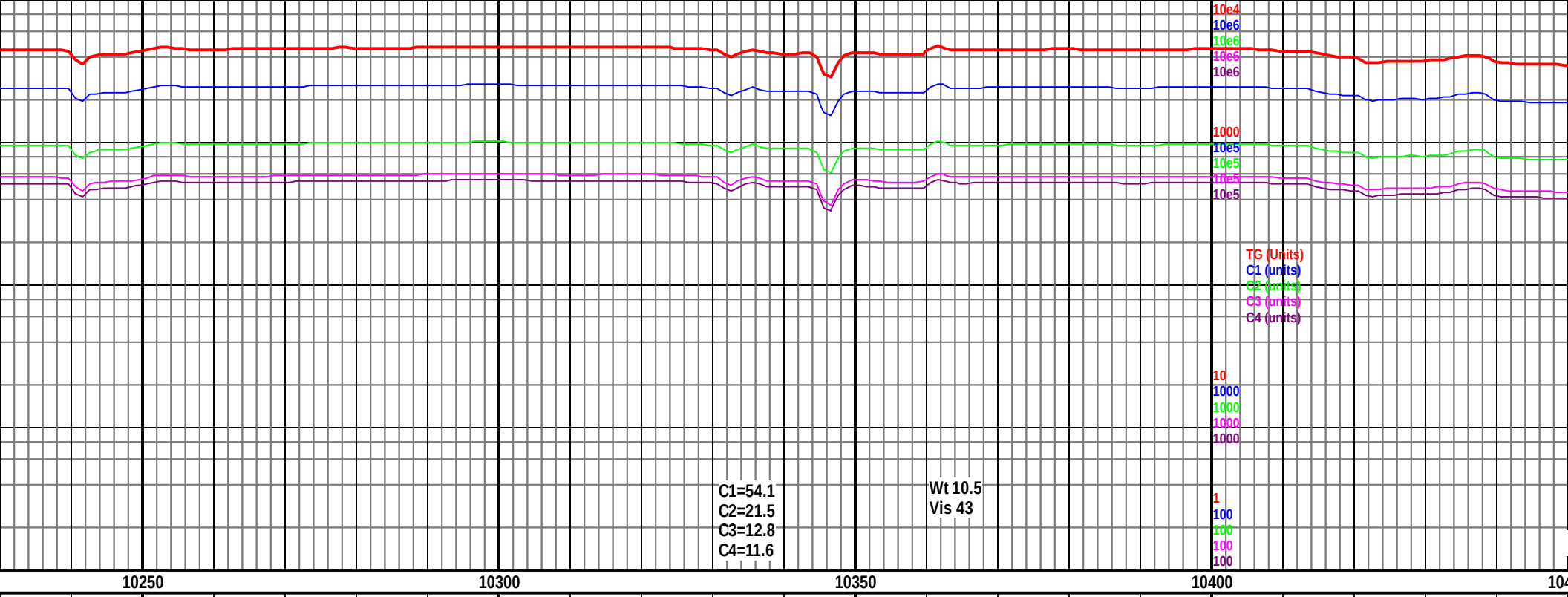

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.4
Vis 44
50
9400
9450
9500
9550
MD 9371 TVD 5869.39
INC 91.45 AZ 178.9
VS 3975.74
5150 TVD
MD 9462 TVD 5868.15
INC 90.11 AZ 179.44
VS 4066.59
MD 9553 TVD 5868.3
INC 89.64 AZ 178.11
VS 4157.49
5650
dk gy, frm, blky-sb
d calc, occ Chk lt
ky, occ bent, rr pyr,
cc brit yel min flor,
9400-9500 Mrlst dk gy, frm, blky-sb
blky, with imbeded calc, occ Chk lt
gy-mott, sft, sb blky, occ bent, rr pyr,
abnt inoc frags, occ brit yel min flor,
9500-9600 Mrlst dk gy, frm, blky-sb
blky, with imbeded calc, occ Chk lt
gy-mott, sft, sb blky, occ bent, rr pyr,
abnt inoc frags, occ brit yel min flor,

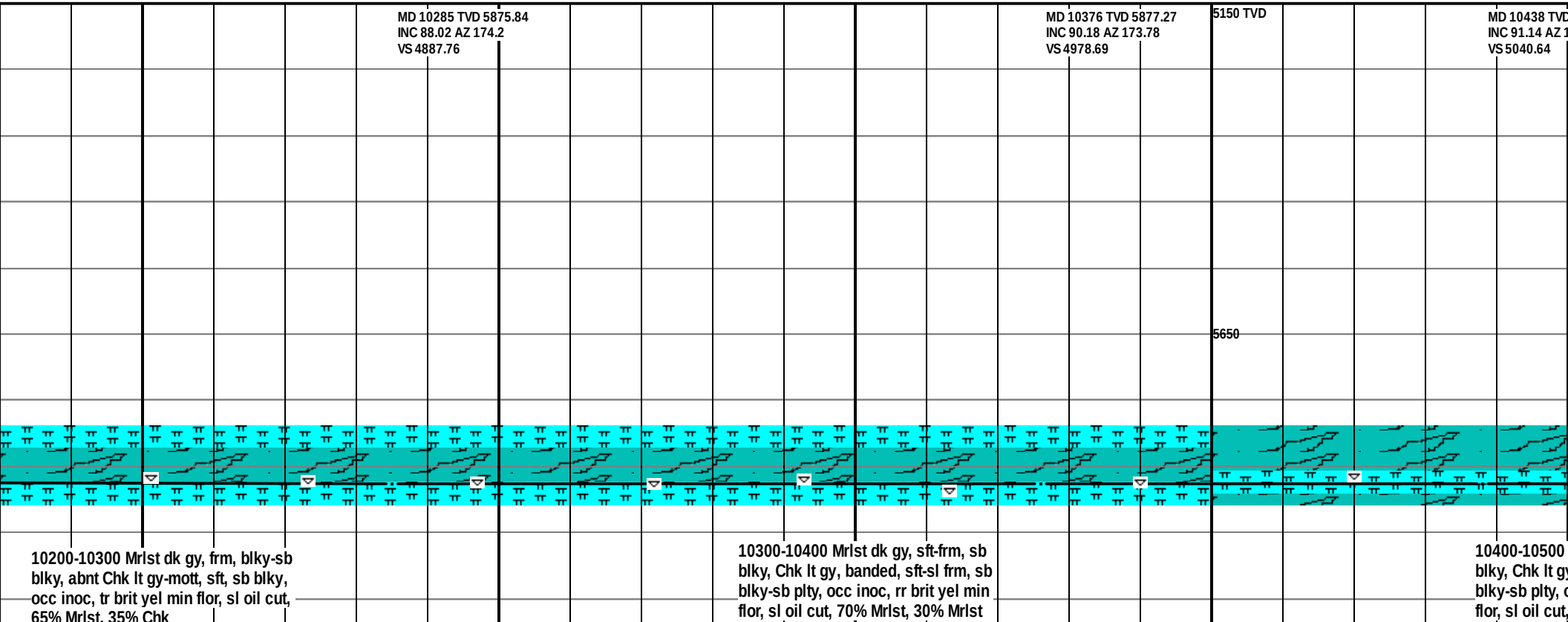

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
On gas buster
C1=57.9
C2=22.1
C3=9.9
C4=10.1
1
100
100
100
100
Wt 10.4
Vis 42

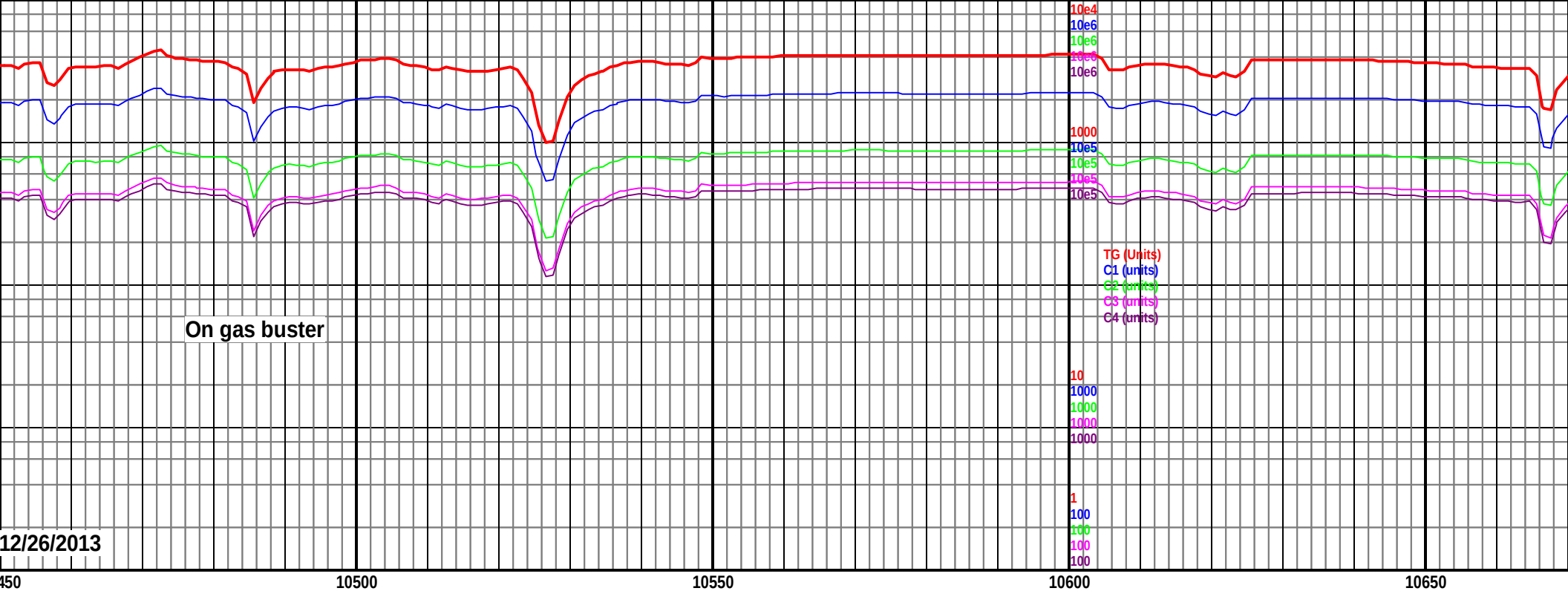

9600
9650
9700
9750
5150 TVD
MD 9644 TVD 5869.15
INC 89.35 AZ 178.82
VS 4248.4
MD 9736 TVD 5868.83
INC 91.05 AZ 181.05
VS 4340.18
5650
B
B
9600-9700 Mrlst dk gy, frm, blky-sb blky, occ Chk lt gy-mott, sft, sb blky, occ bent, rr pyr, abnt inoc frags, occ brit yel min flor, mod oil cut, 80% Mrlst,
9700-9800 Chk lt gy, banded, sft-sl frm, sb blky-sb plty, tr Mrlst dk gy, sft-frm, sb blky, occ inoc, tr brit yel min flor, mod fast oil cut, 80% Chk, 20% Mrlst

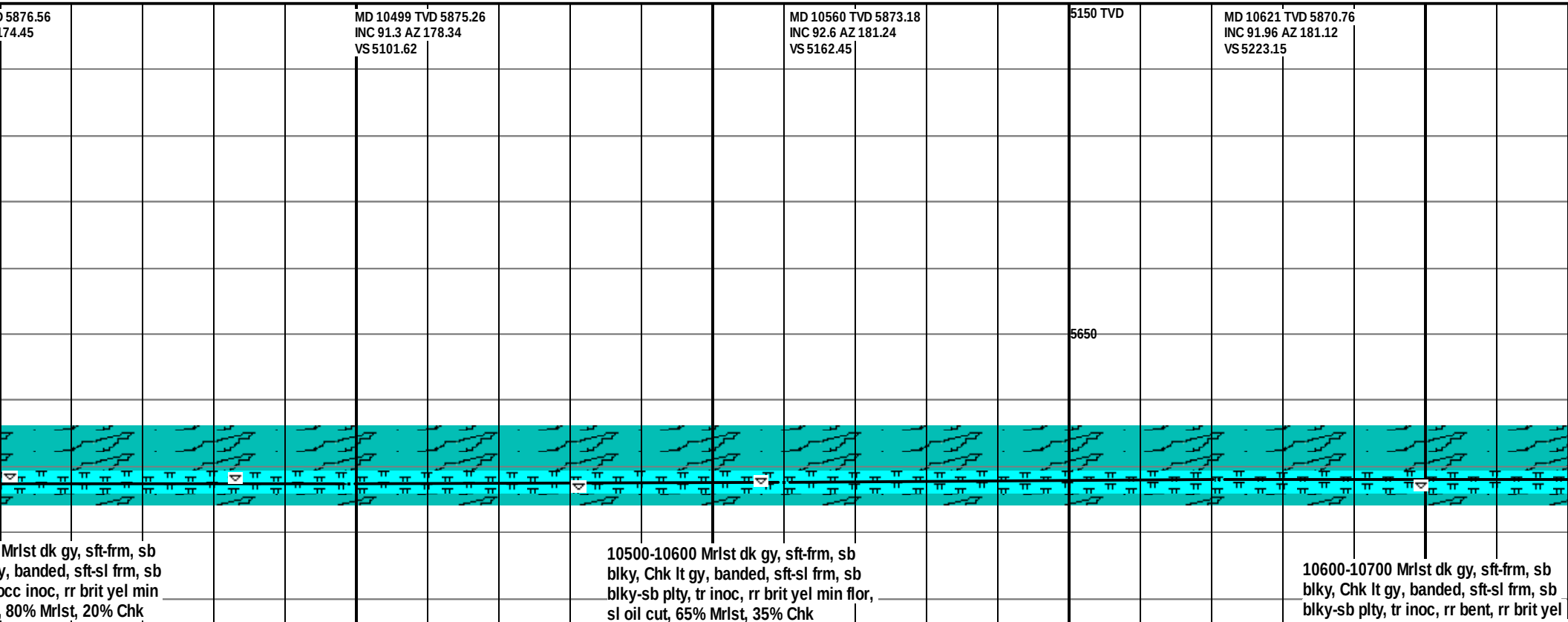

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
9800
9850
9900
9950
10000
5150 TVD
MD 9828 TVD 5866.87
INC 91.39 AZ 180.86
VS 4431.83
MD 9919 TVD 5865.44
INC 90.42 AZ 181.03
VS 4522.48
5650
B
B
9800-9900 Chk lt gy, banded, sft-sl frm, sb blky-sb plty, tr Mrlst dk gy, sft-frm, sb blky, occ inoc, tr brit yel min flor, mod fast oil cut, 80% Chk, 20% Mrlst
9900-10000 Chk lt gy, banded, sft-sl frm, sb blky-sb plty, abnt Mrlst dk gy, sft-frm, sb blky, occ inoc, rr brit yel min flor, mod fast oil cut, 50% Chk, 50%

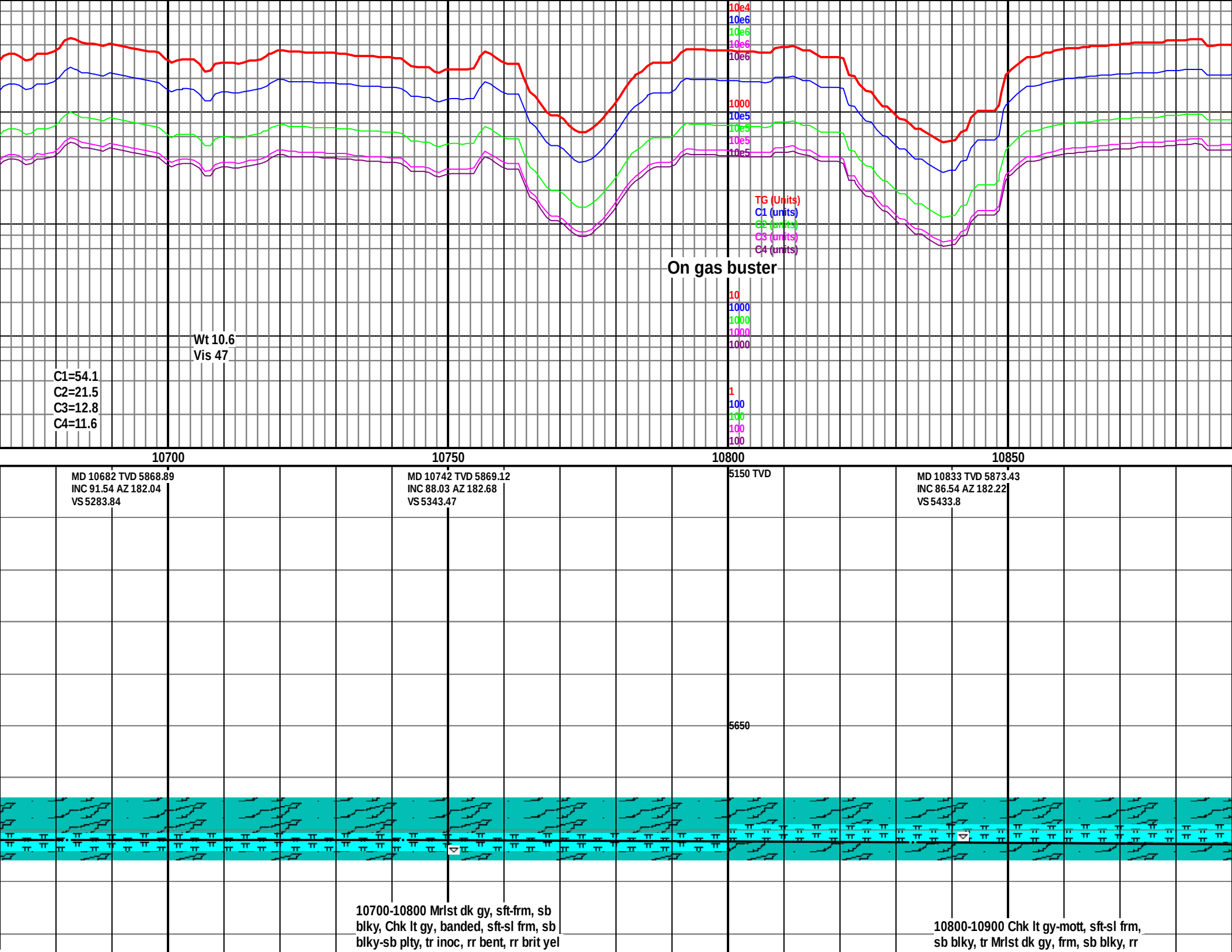

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
Wt 10.4
Vis 44
C1=57.9
C2=22.1
C3=9.9
C4=10.1
1
100
100
100
100
10050
10100
10150
10200
MD 10011 TVD 5866.77
INC 87.92 AZ 179.67
VS 4614.21
MD 10102 TVD 5870.84
INC 86.95 AZ 178.77
VS 4704.98
MD 10193 TVD 5873.76
INC 89.38 AZ 178.87
VS 4795.82
5650
B
B
B
10000-10100 Mrlst dk gy, frm, blky-sb blky, occ Chk lt gy-mott, sft, sb blky, occ inoc, tr brit yel min flor, mod oil cut, 65% Mrlst, 35% Chk
10100-10200 Mrlst dk gy, frm, blky-sb blky, occ Chk lt gy-mott, sft, sb blky, occ inoc, tr brit yel min flor, mod oil cut, 60% Mrlst, 40% Chk

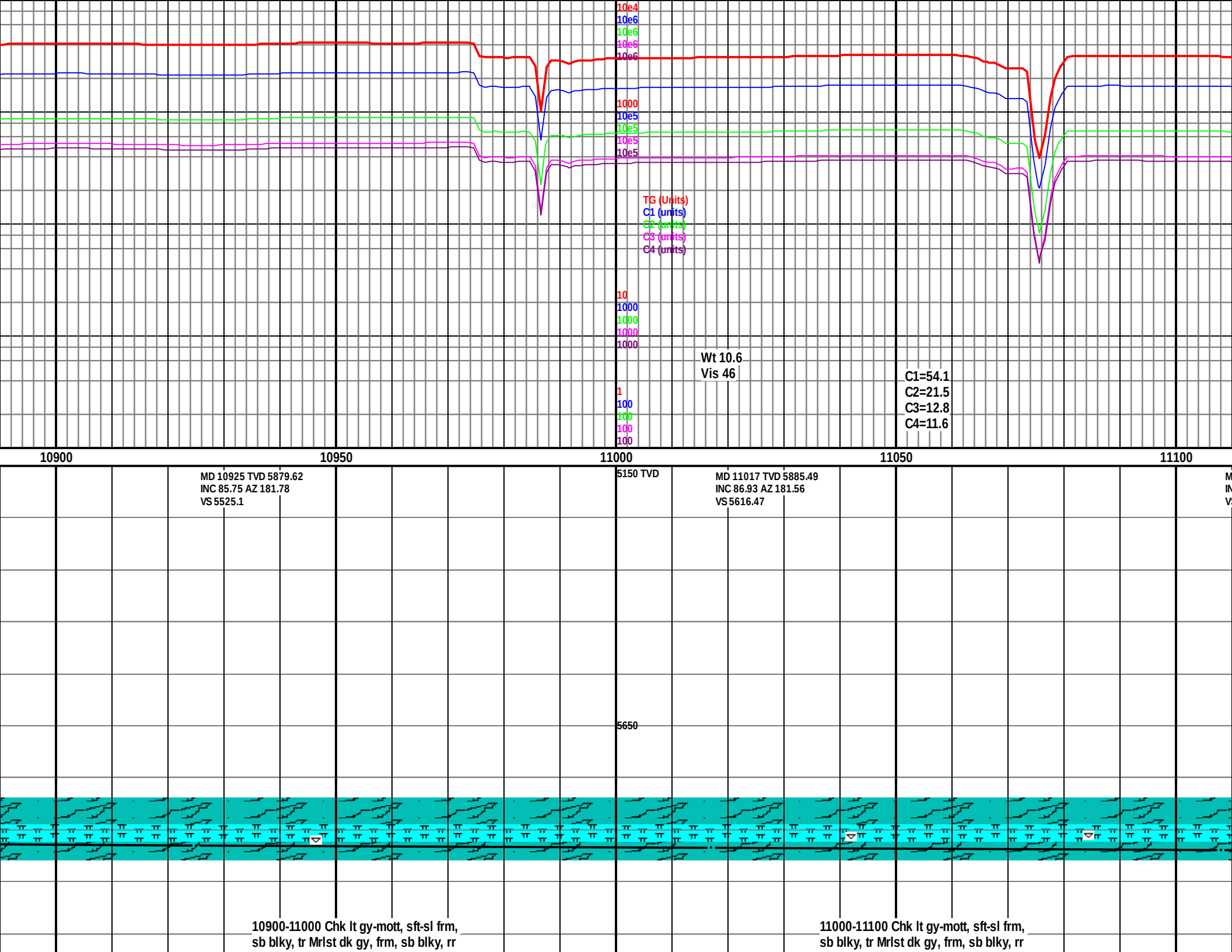

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
C1=54.1
C2=21.5
C3=12.8
C4=11.6
Wt 10.5
Vis 43
10250
10300
10350
10400

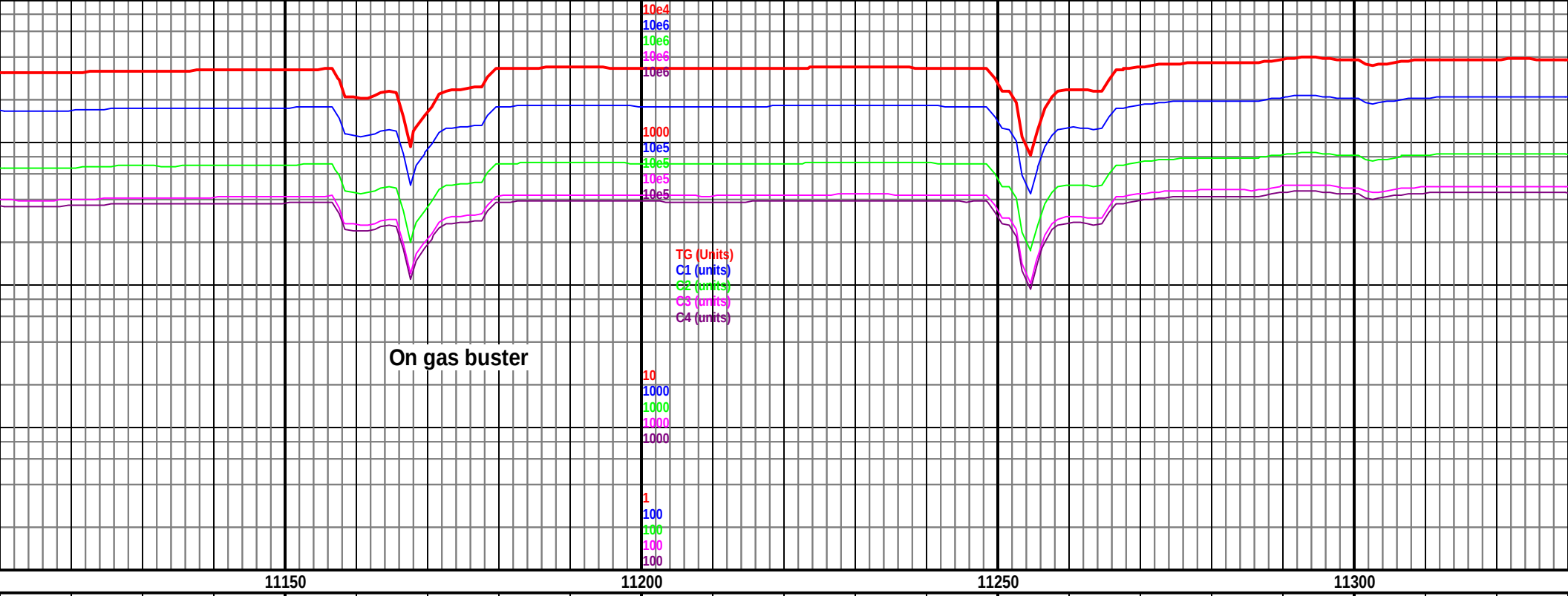

MD 10285 TVD 5875.84
INC 88.02 AZ 174.2
VS 4887.76
MD 10376 TVD 5877.27
INC 90.18 AZ 173.78
VS 4978.69
5150 TVD
MD 10438 TVD
INC 91.14 AZ 1
VS 5040.64
5650
10200-10300 Mrlst dk gy, frm, blky-sb blky, abnt Chk lt gy-mott, sft, sb blky, occ inoc, tr brit yel min flor, sl oil cut, 65% Mrlst, 35% Chk
10300-10400 Mrlst dk gy, sft-frm, sb blky, Chk lt gy, banded, sft-sl frm, sb blky-sb plty, occ inoc, rr brit yel min flor, sl oil cut, 70% Mrlst, 30% Mrlst
10400-10500
blky, Chk lt gy
blky-sb plty, o
flor, sl oil cut,


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
12/26/2013
450
10500
10550
10600
10650

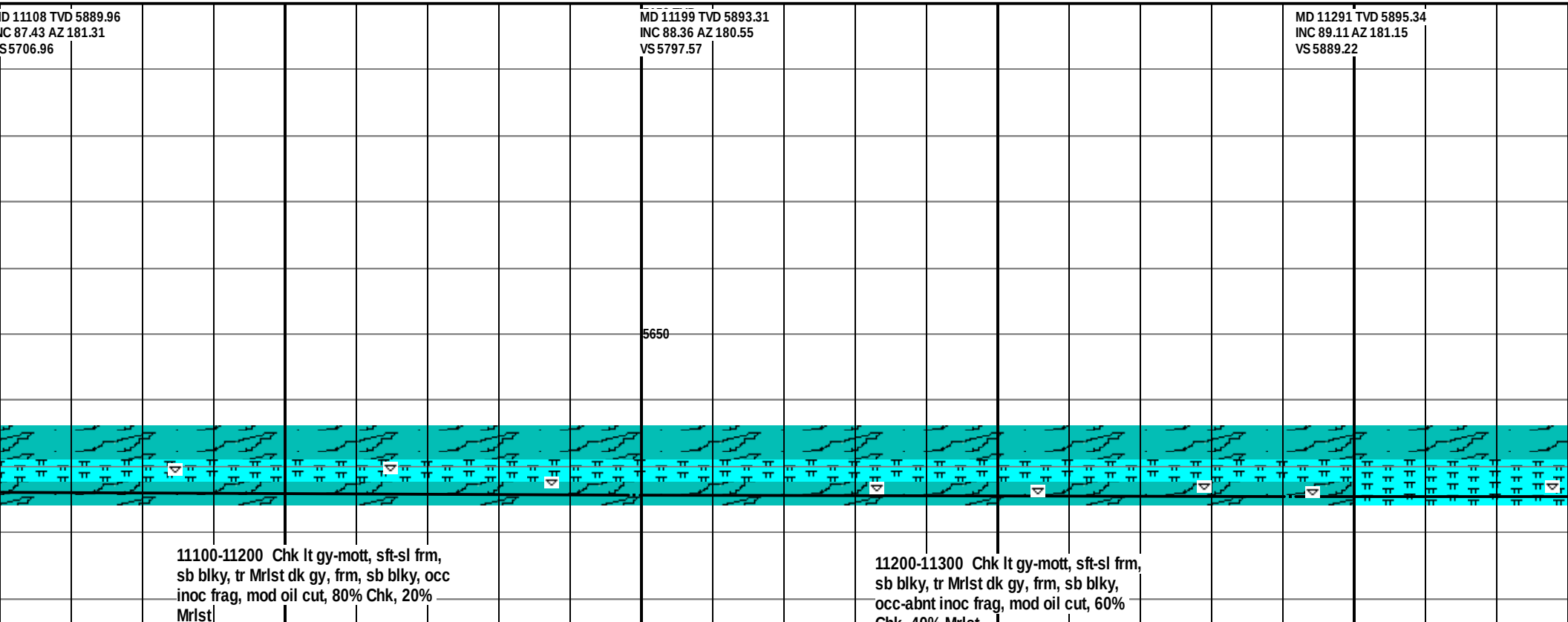

5876.56
174.45
MD 10499 TVD 5875.26
INC 91.3 AZ 178.34
VS 5101.62
MD 10560 TVD 5873.18
INC 92.6 AZ 181.24
VS 5162.45
5150 TVD
MD 10621 TVD 5870.76
INC 91.96 AZ 181.12
VS 5223.15
5650
Mrlst dk gy, sft-frm, sb
y, banded, sft-sl frm, sb
occ inoc, rr brit yel min
80% Mrlst, 20% Chk
10500-10600 Mrlst dk gy, sft-frm, sb
blky, Chk lt gy, banded, sft-sl frm, sb
blky-sb plty, tr inoc, rr brit yel min flor,
sl oil cut, 65% Mrlst, 35% Chk
10600-10700 Mrlst dk gy, sft-frm, sb
blky, Chk lt gy, banded, sft-sl frm, sb
blky-sb plty, tr inoc, rr bent, rr brit yel

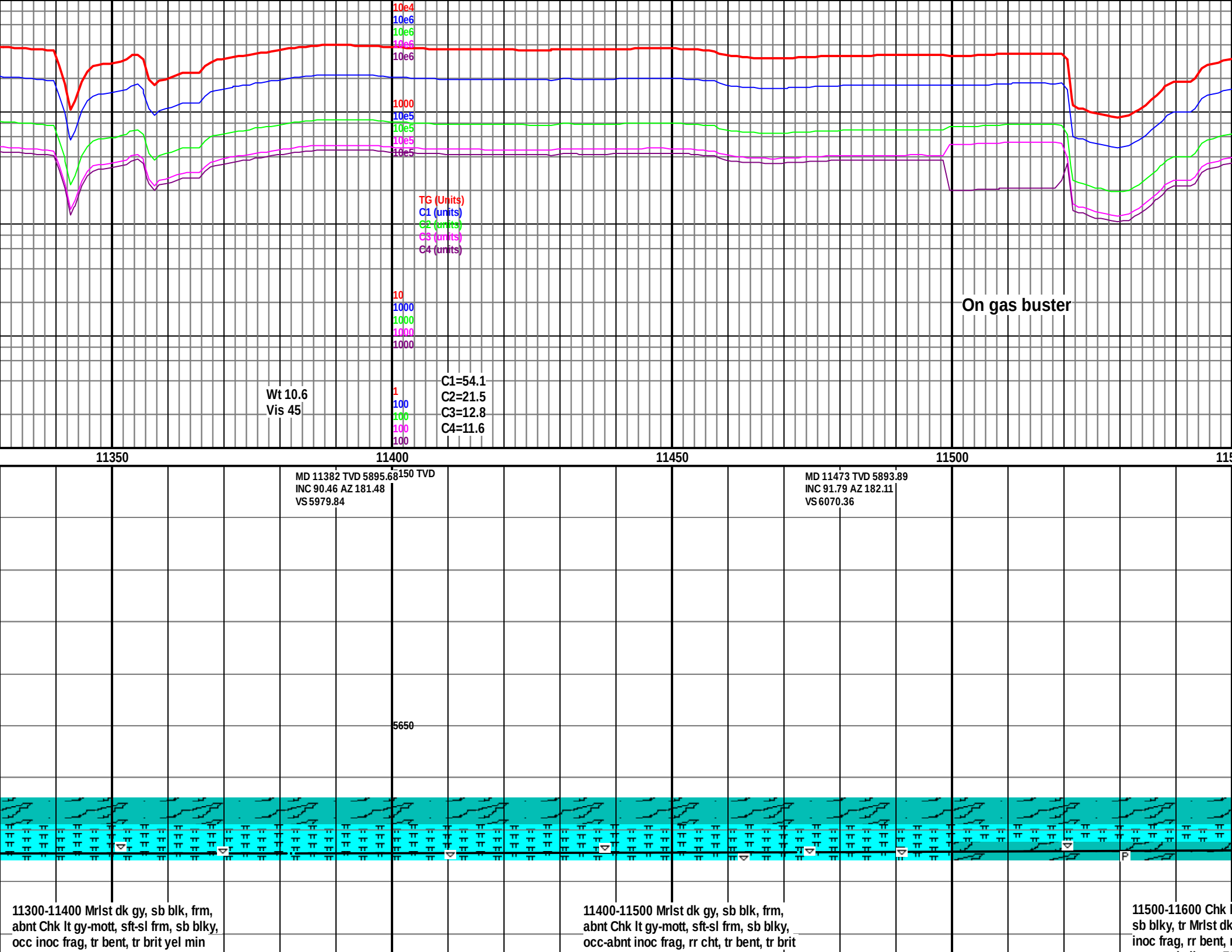

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.6
Vis 47
C1=54.1
C2=21.5
C3=12.8
C4=11.6
10700
10750
10800
10850
MD 10682 TVD 5868.89
INC 91.54 AZ 182.04
VS 5283.84
MD 10742 TVD 5869.12
INC 88.03 AZ 182.68
VS 5343.47
5150 TVD
MD 10833 TVD 5873.43
INC 86.54 AZ 182.22
VS 5433.8
5650
10700-10800 Mrlst dk gy, sft-frm, sb blky, Chk lt gy, banded, sft-sl frm, sb blky-sb plty, tr inoc, rr bent, rr brit yel
10800-10900 Chk lt gy-mott, sft-sl frm, sb blky, tr Mrlst dk gy, frm, sb blky, rr

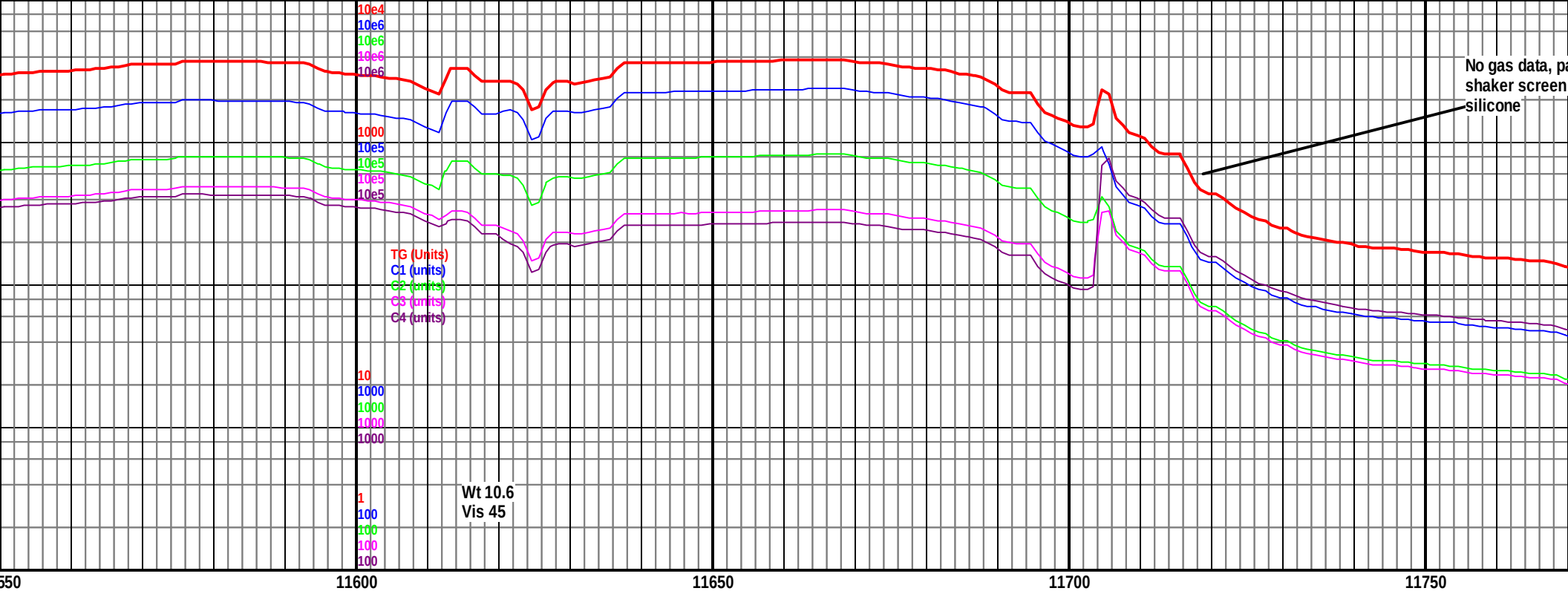

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
Wt 10.6
Vis 46
C1=54.1
C2=21.5
C3=12.8
C4=11.6
1
100
100
100
100
10900
10950
11000
11050
11100
MD 10925 TVD 5879.62
INC 85.75 AZ 181.78
VS 5525.1
5150 TVD
MD 11017 TVD 5885.49
INC 86.93 AZ 181.56
VS 5616.47
5650
10900-11000 Chk lt gy-mott, sft-sl frm,
sb blky, tr Mrlst dk gy, frm, sb blky, rr
11000-11100 Chk lt gy-mott, sft-sl frm,
sb blky, tr Mrlst dk gy, frm, sb blky, rr

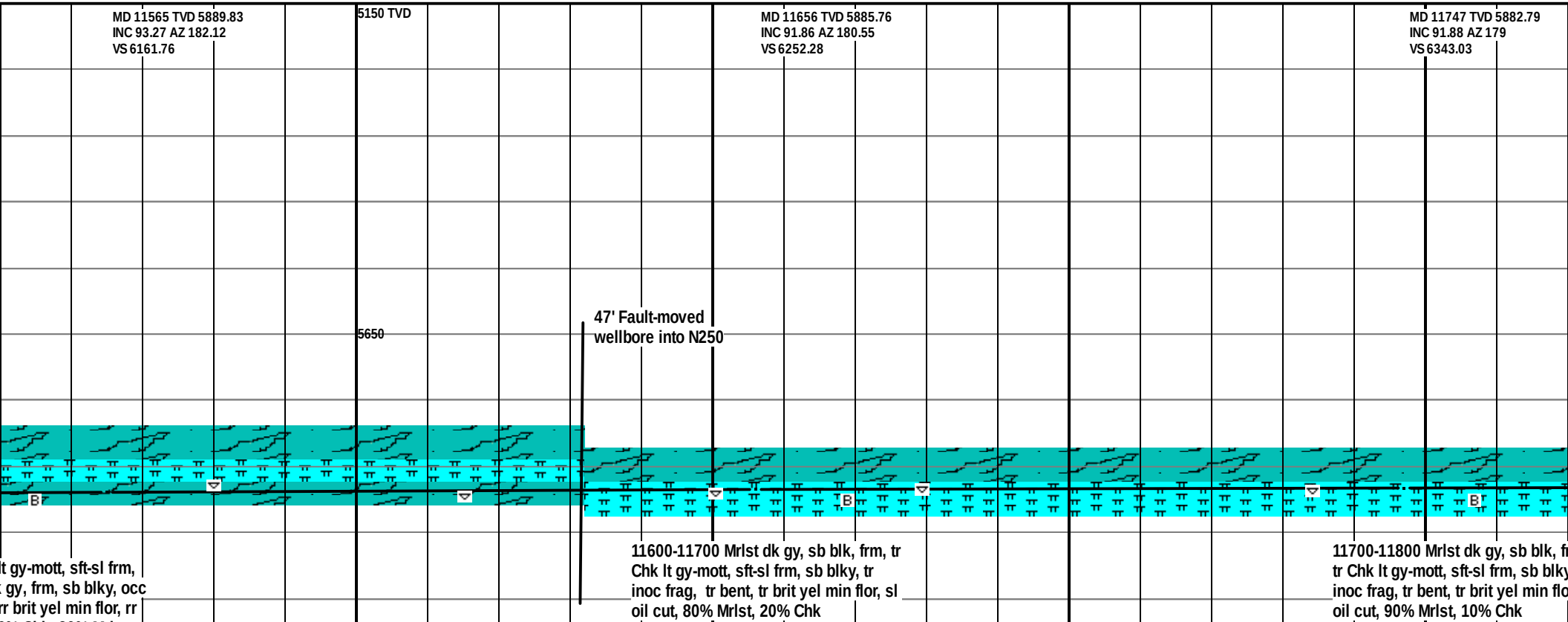

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
On gas buster
10
1000
1000
1000
1000
1
100
100
100
100

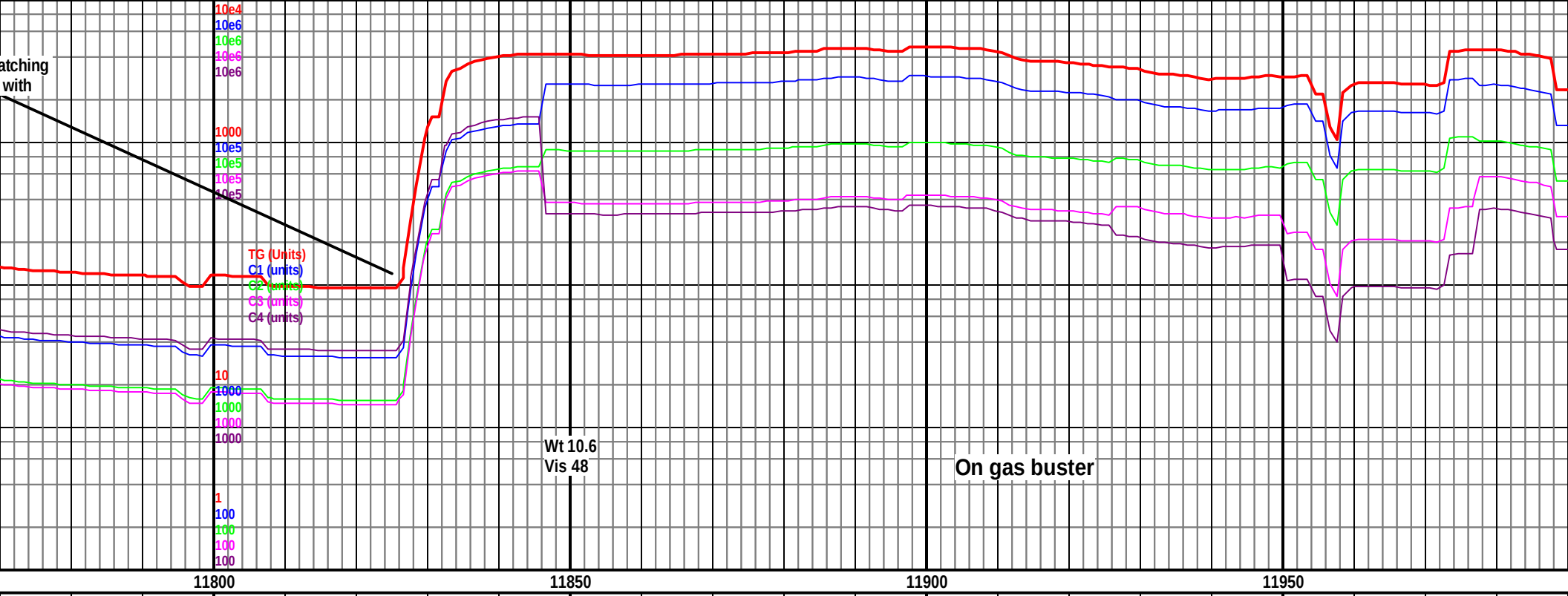
11150
11200
11250
11300

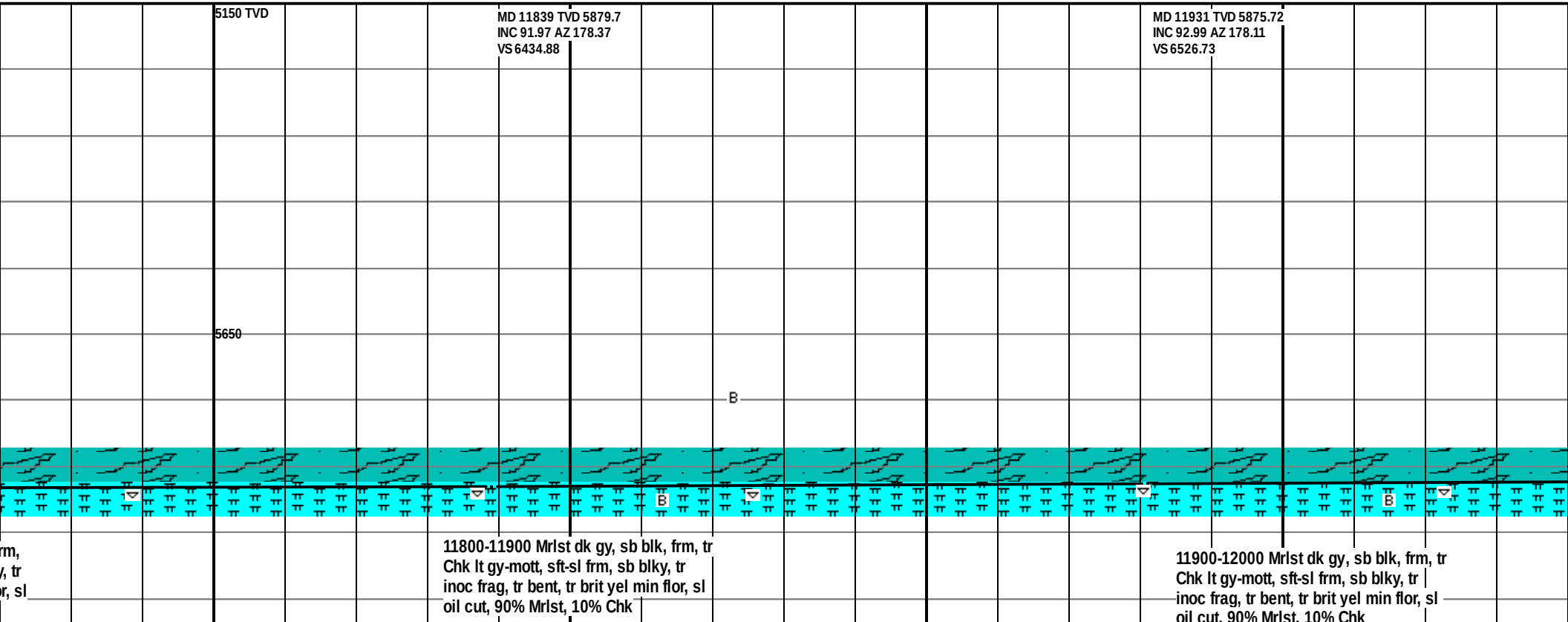

D 11108 TVD 5889.96
NC 87.43 AZ 181.31
S 5706.96
MD 11199 TVD 5893.31
INC 88.36 AZ 180.55
VS 5797.57
MD 11291 TVD 5895.34
INC 89.11 AZ 181.15
VS 5889.22
5650
11100-11200 Chk lt gy-mott, sft-sl frm, sb blky, tr Mrlst dk gy, frm, sb blky, occ inoc frag, mod oil cut, 80% Chk, 20% Mrlst
11200-11300 Chk lt gy-mott, sft-sl frm, sb blky, tr Mrlst dk gy, frm, sb blky, occ-abnt inoc frag, mod oil cut, 60%

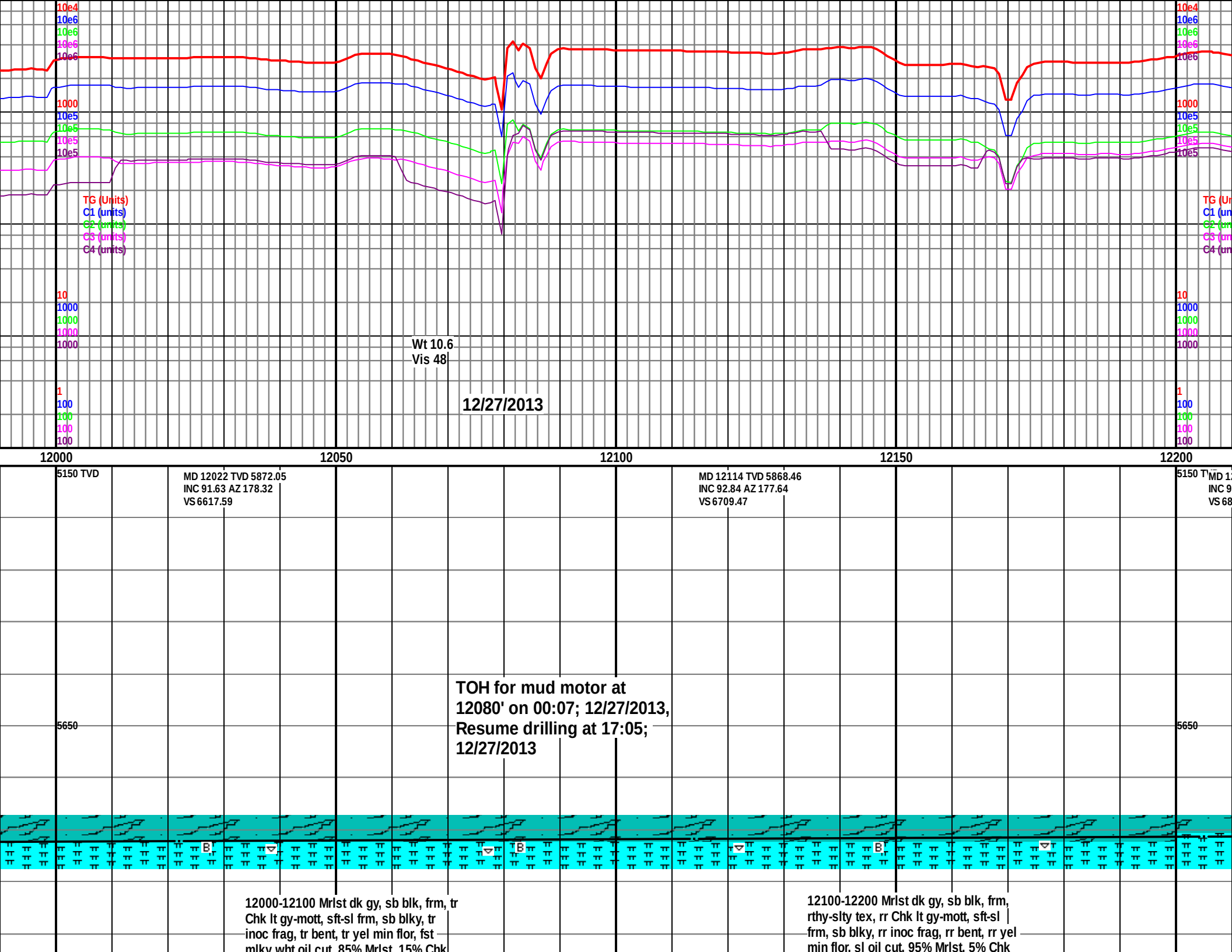

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.6
Vis 45
C1=54.1
C2=21.5
C3=12.8
C4=11.6
On gas buster
11350
11400
11450
11500
MD 11382 TVD 5895.68
INC 90.46 AZ 181.48
VS 5979.84
150 TVD
MD 11473 TVD 5893.89
INC 91.79 AZ 182.11
VS 6070.36
5650
P
11300-11400 Mrlst dk gy, sb blk, frm, abnt Chk lt gy-mott, sft-sl frm, sb blky, occ inoc frag, tr bent, tr brit yel min
11400-11500 Mrlst dk gy, sb blk, frm, abnt Chk lt gy-mott, sft-sl frm, sb blky, occ-abnt inoc frag, rr cht, tr bent, tr brit
11500-11600 Chk
sb blky, tr Mrlst dk
inoc frag, rr bent,

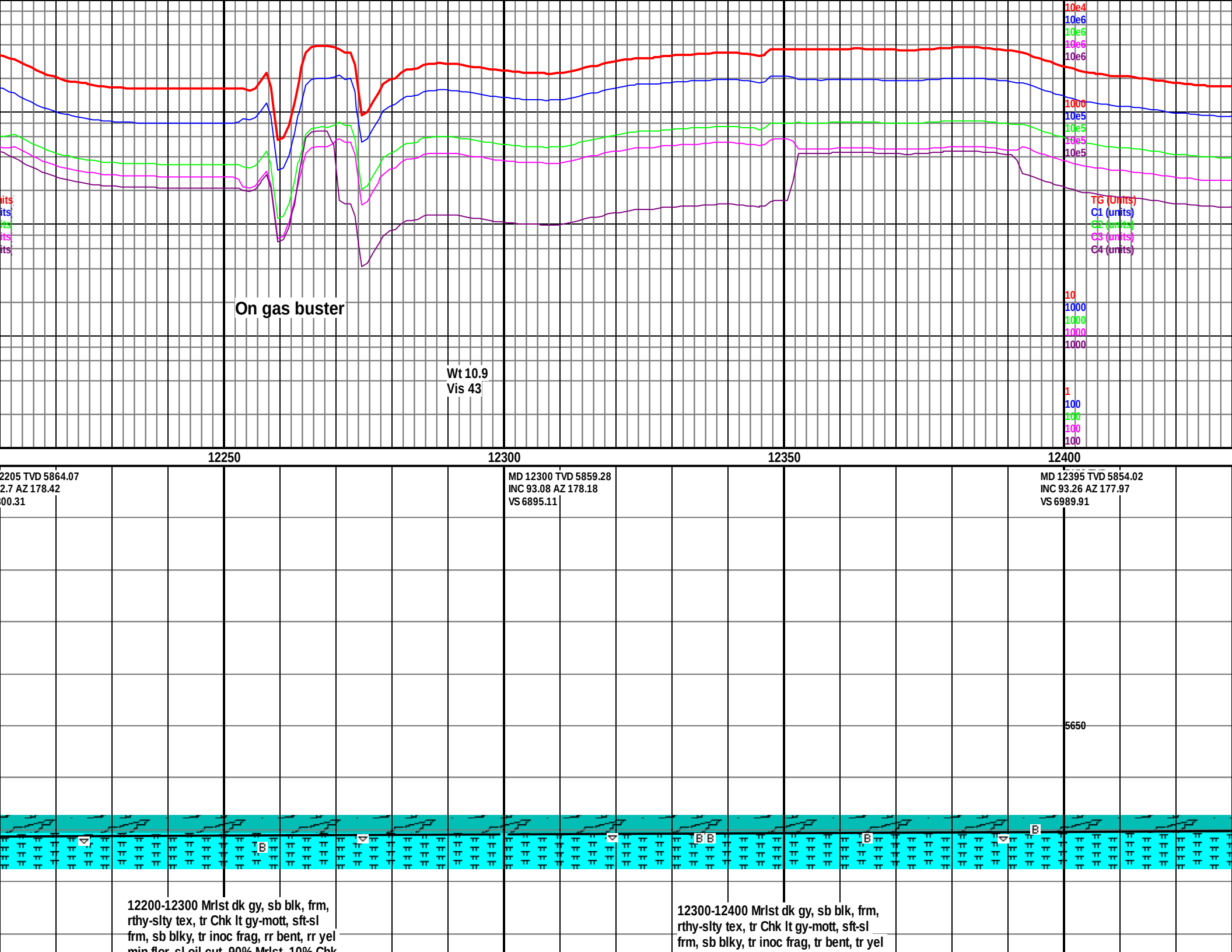

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.6
Vis 45
No gas data, pa
shaker screen
silicone
550
11600
11650
11700
11750

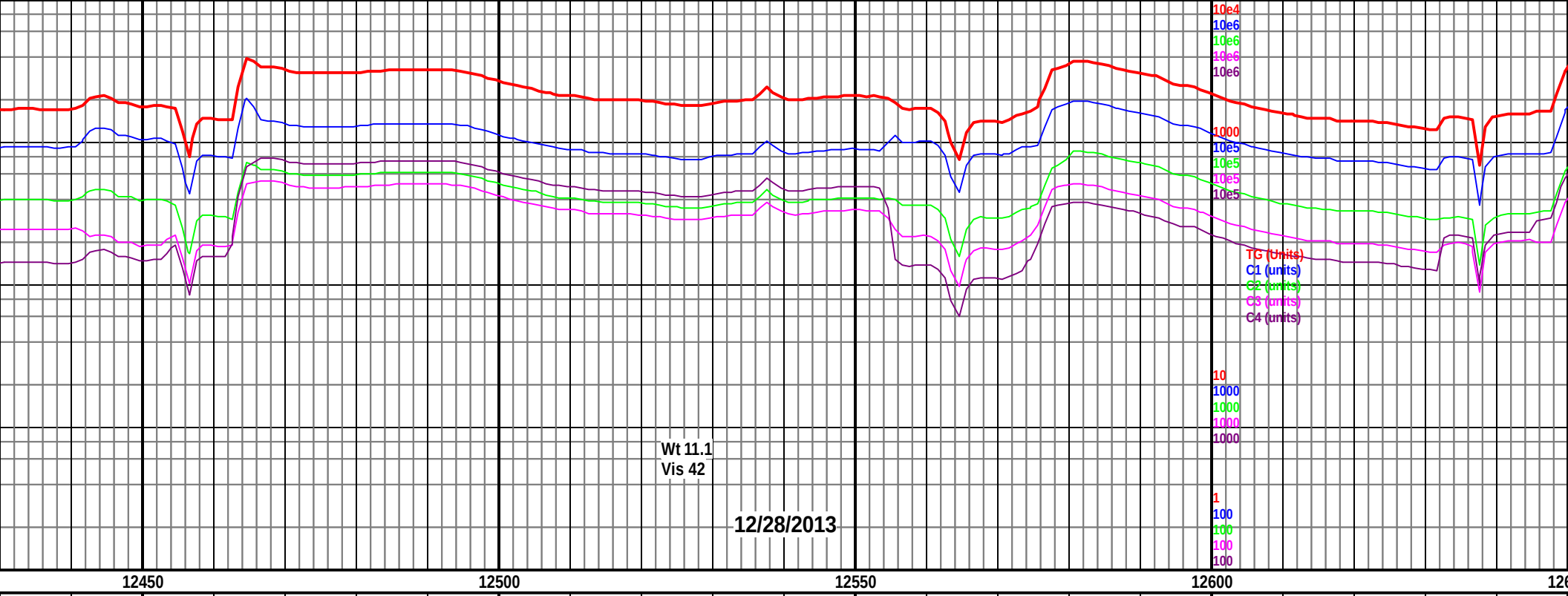

MD 11565 TVD 5889.83
INC 93.27 AZ 182.12
VS 6161.76
5150 TVD
MD 11656 TVD 5885.76
INC 91.86 AZ 180.55
VS 6252.28
MD 11747 TVD 5882.79
INC 91.88 AZ 179
VS 6343.03
5650
47' Fault-moved
wellbore into N250
B
B
B
lt gy-mott, sft-sl frm,
k gy, frm, sb blky, occ
rr brit yel min flor, rr
11600-11700 Mrlst dk gy, sb blk, frm, tr
Chk lt gy-mott, sft-sl frm, sb blky, tr
inoc frag, tr bent, tr brit yel min flor, sl
oil cut, 80% Mrlst, 20% Chk
11700-11800 Mrlst dk gy, sb blk, fr
tr Chk lt gy-mott, sft-sl frm, sb blky
inoc frag, tr bent, tr brit yel min flo
oil cut, 90% Mrlst, 10% Chk

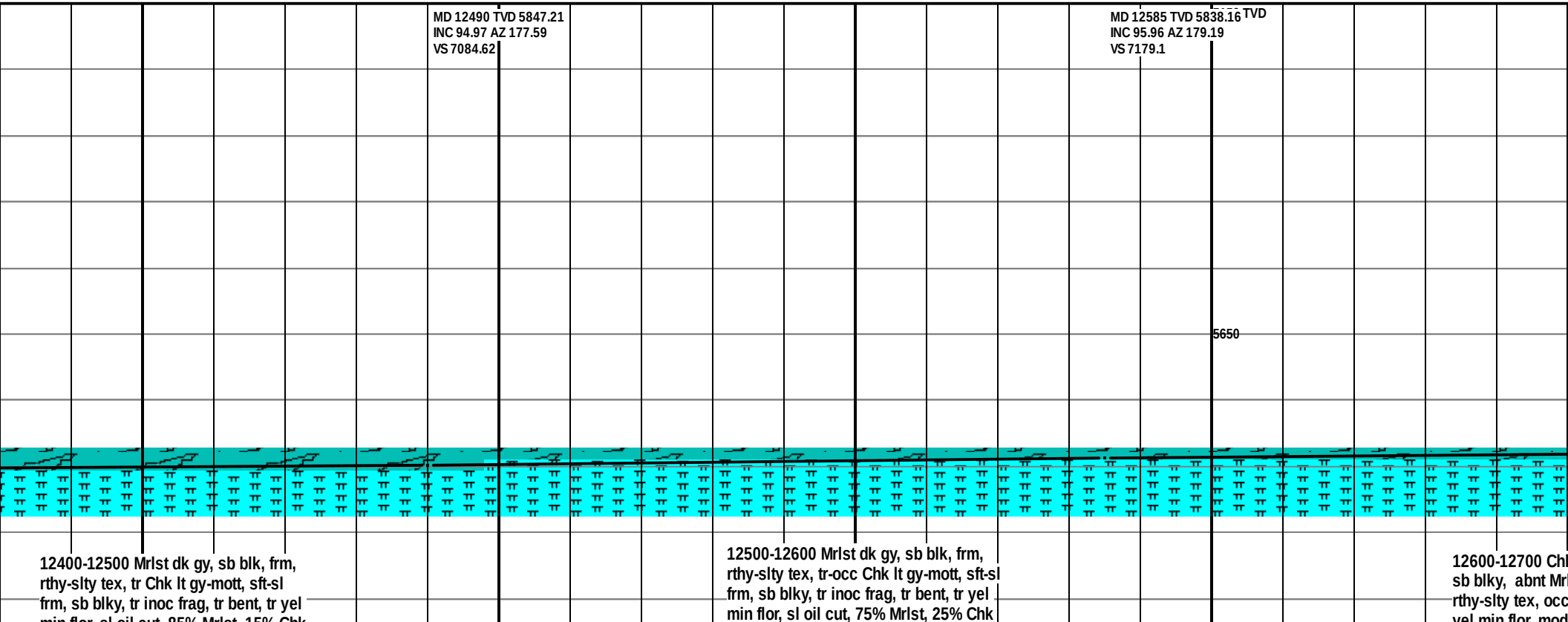

atching
with
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.6
Vis 48
On gas buster
11800
11850
11900
11950

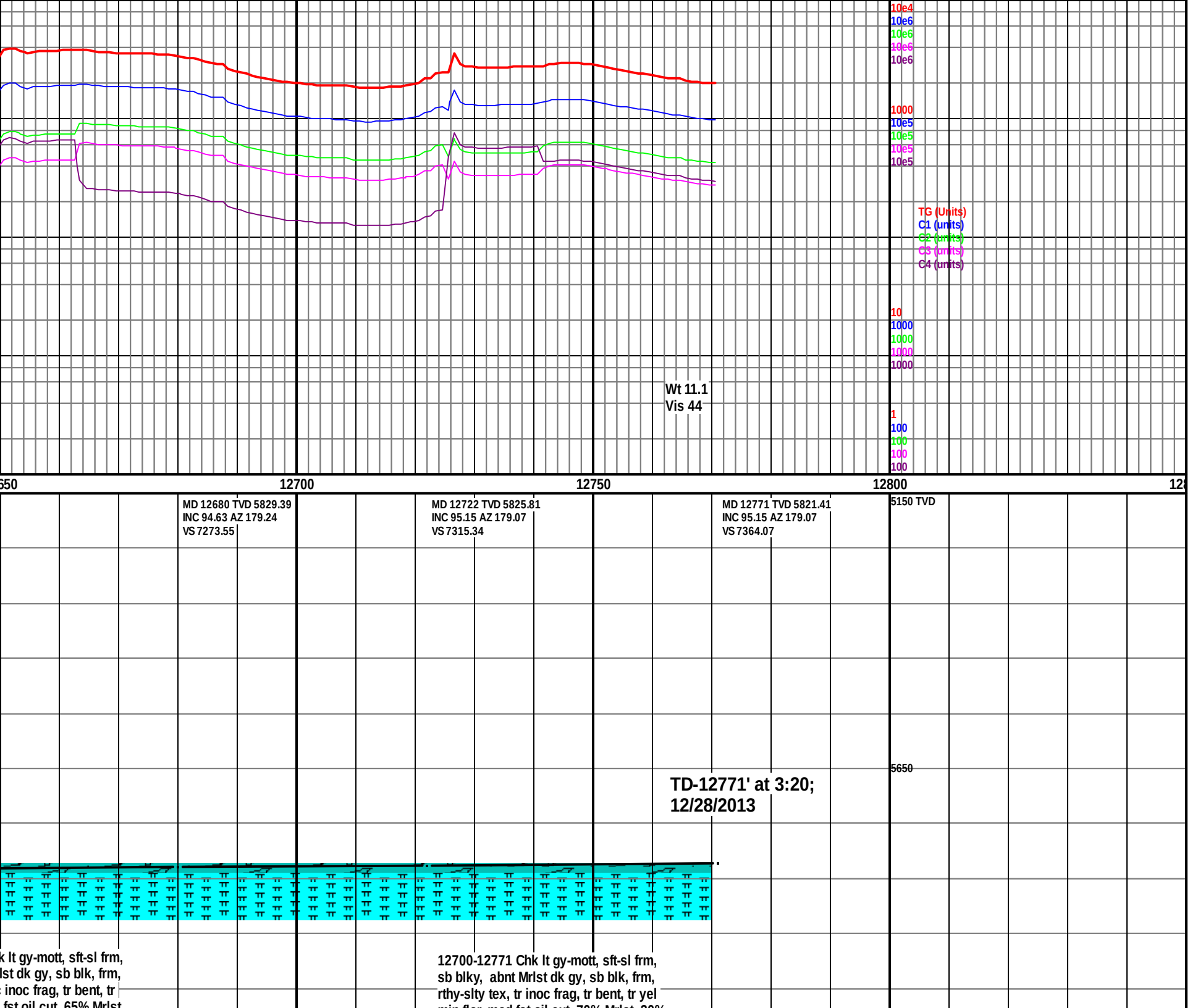

5150 TVD
MD 11839 TVD 5879.7
INC 91.97 AZ 178.37
VS 6434.88
MD 11931 TVD 5875.72
INC 92.99 AZ 178.11
VS 6526.73
5650
B
B
B
rm,
, tr
r, sl
11800-11900 Mrlst dk gy, sb blk, frm, tr
Chk lt gy-mott, sft-sl frm, sb blky, tr
inoc frag, tr bent, tr brit yel min flor, sl
oil cut, 90% Mrlst, 10% Chk
11900-12000 Mrlst dk gy, sb blk, frm, tr
Chk lt gy-mott, sft-sl frm, sb blky, tr
inoc frag, tr bent, tr brit yel min flor, sl
oil cut, 90% Mrlst, 10% Chk


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.6
Vis 48
12/27/2013
12000
12050
12100
12150
12200
5150 TVD
MD 12022 TVD 5872.05
INC 91.63 AZ 178.32
VS 6617.59
MD 12114 TVD 5868.46
INC 92.84 AZ 177.64
VS 6709.47
5650
TOH for mud motor at 12080' on 00:07; 12/27/2013, Resume drilling at 17:05; 12/27/2013
12000-12100 Mrlst dk gy, sb blk, frm, tr Chk lt gy-mott, sft-sl frm, sb blky, tr inoc frag, tr bent, tr yel min flor, fst
12100-12200 Mrlst dk gy, sb blk, frm, rthy-slty tex, rr Chk lt gy-mott, sft-sl frm, sb blky, rr inoc frag, rr bent, rr yel min flor, sl oil cut, 95% Mrlst, 5% Chk


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
On gas buster
Wt 10.9
Vis 43
12250
12300
12350
12400
2205 TVD 5864.07
2.7 AZ 178.42
00.31
MD 12300 TVD 5859.28
INC 93.08 AZ 178.18
VS 6895.11
MD 12395 TVD 5854.02
INC 93.26 AZ 177.97
VS 6989.91
5650
12200-12300 Mrlst dk gy, sb blk, frm, rthy-slty tex, tr Chk lt gy-mott, sft-sl frm, sb blky, tr inoc frag, rr bent, rr yel
12300-12400 Mrlst dk gy, sb blk, frm, rthy-slty tex, tr Chk lt gy-mott, sft-sl frm, sb blky, tr inoc frag, tr bent, tr yel


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 11.1
Vis 42
12/28/2013
12450
12500
12550
12600


MD 12490 TVD 5847.21
INC 94.97 AZ 177.59
VS 7084.62
MD 12585 TVD 5838.16 TVD
INC 95.96 AZ 179.19
VS 7179.1
5650
12400-12500 Mrlst dk gy, sb blk, frm, rthy-slty tex, tr Chk lt gy-mott, sft-sl frm, sb blky, tr inoc frag, tr bent, tr yel
12500-12600 Mrlst dk gy, sb blk, frm, rthy-slty tex, tr-occ Chk lt gy-mott, sft-sl frm, sb blky, tr inoc frag, tr bent, tr yel min flor, sl oil cut, 75% Mrlst, 25% Chk
12600-12700 Chl sb blky, abnt Mr rthy-slty tex, occ yel min flor, mod


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 11.1
Vis 44
650
12700
12750
12800
MD 12680 TVD 5829.39
INC 94.63 AZ 179.24
VS 7273.55
MD 12722 TVD 5825.81
INC 95.15 AZ 179.07
VS 7315.34
MD 12771 TVD 5821.41
INC 95.15 AZ 179.07
VS 7364.07
5150 TVD
5650
TD-12771' at 3:20;
12/28/2013
k lt gy-mott, sft-sl frm,
lst dk gy, sb blk, frm,
inoc frag, tr bent, tr
fst oil cut, 65% Mrlst
12700-12771 Chk lt gy-mott, sft-sl frm,
sb blky, abnt Mrlst dk gy, sb blk, frm,
rthy-slty tex, tr inoc frag, tr bent, tr yel