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

Well Name:	Razor Federal 26L-2301A
Location:	NWSW 26-T10N-R58W
License Number:	05-123-37986
Region:	Redtail Field
Spud Date:	5/21/2014
Drilling Completed:	5/28/2014
Surface Coordinates:	Lat.: 40.808739 Long.: -103.839411
Bottom Hole Coordinates:	Lat.: 40.831222 Long.: -103.841631
Ground Elevation (ft):	4734
K.B. Elevation (ft):	4751
Logged Interval (ft):	5019 To: 14049
Total Depth (ft):	14049
Formation:	Pierre, Sharon Springs, Niobrara A
Type of Drilling Fluid:	Water Based Mud

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

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

GEOLOGIST

Name: Todd Nakata, Demond Taylor and Eli Denbesten
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, #458

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

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY

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

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOW

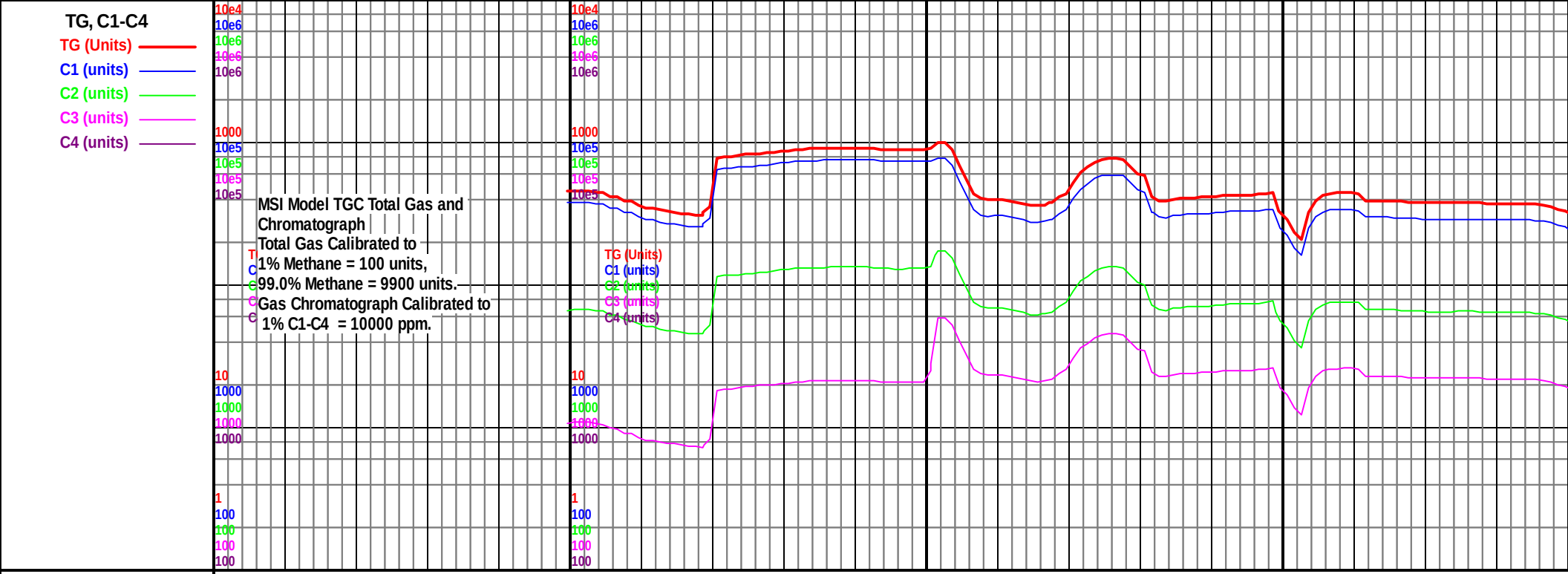
- Even
- Spotted
- Ques
- Dead

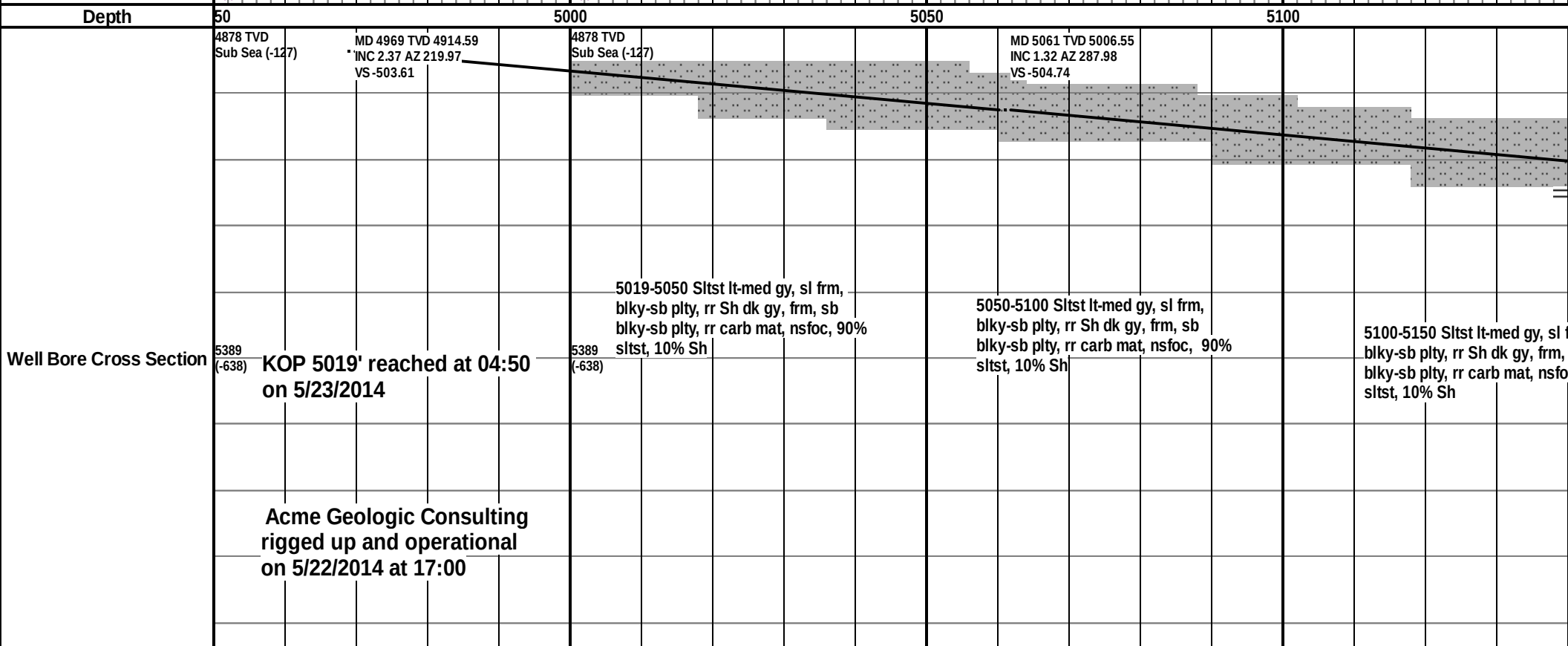
INTERVAL

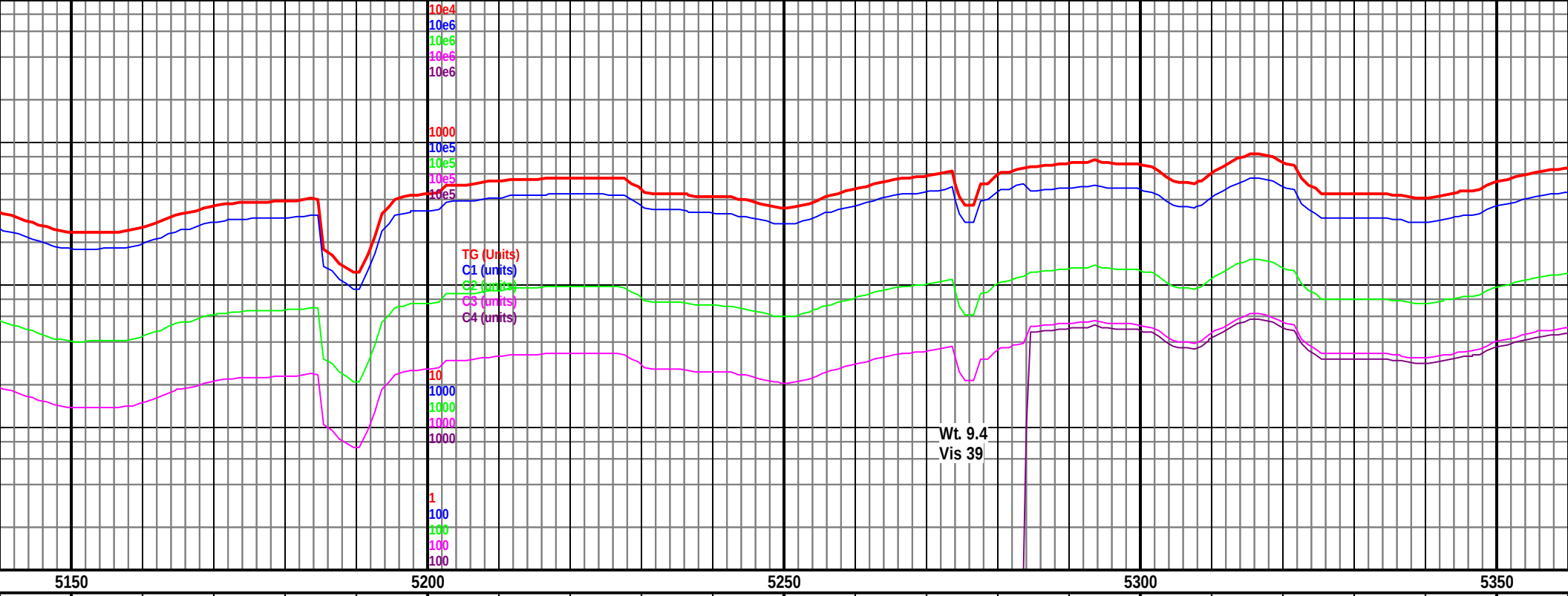
- Core
- Dst

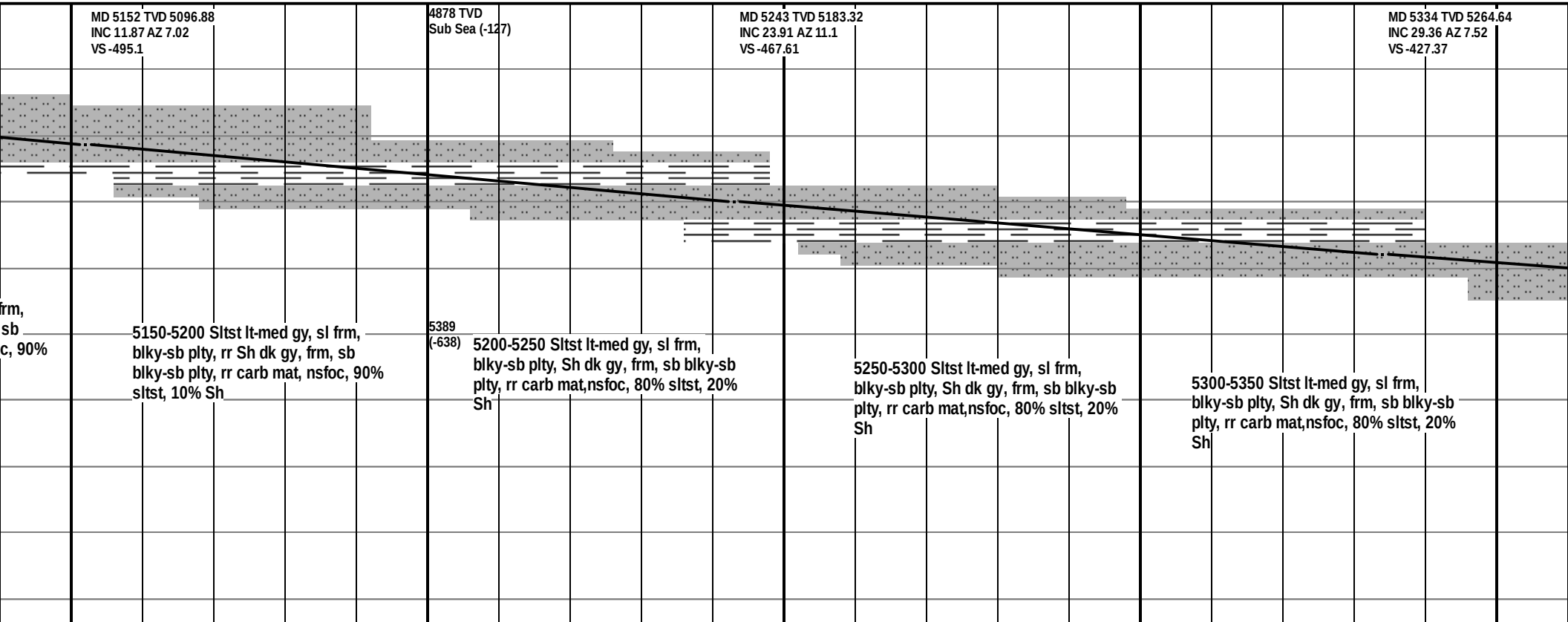
EVENT

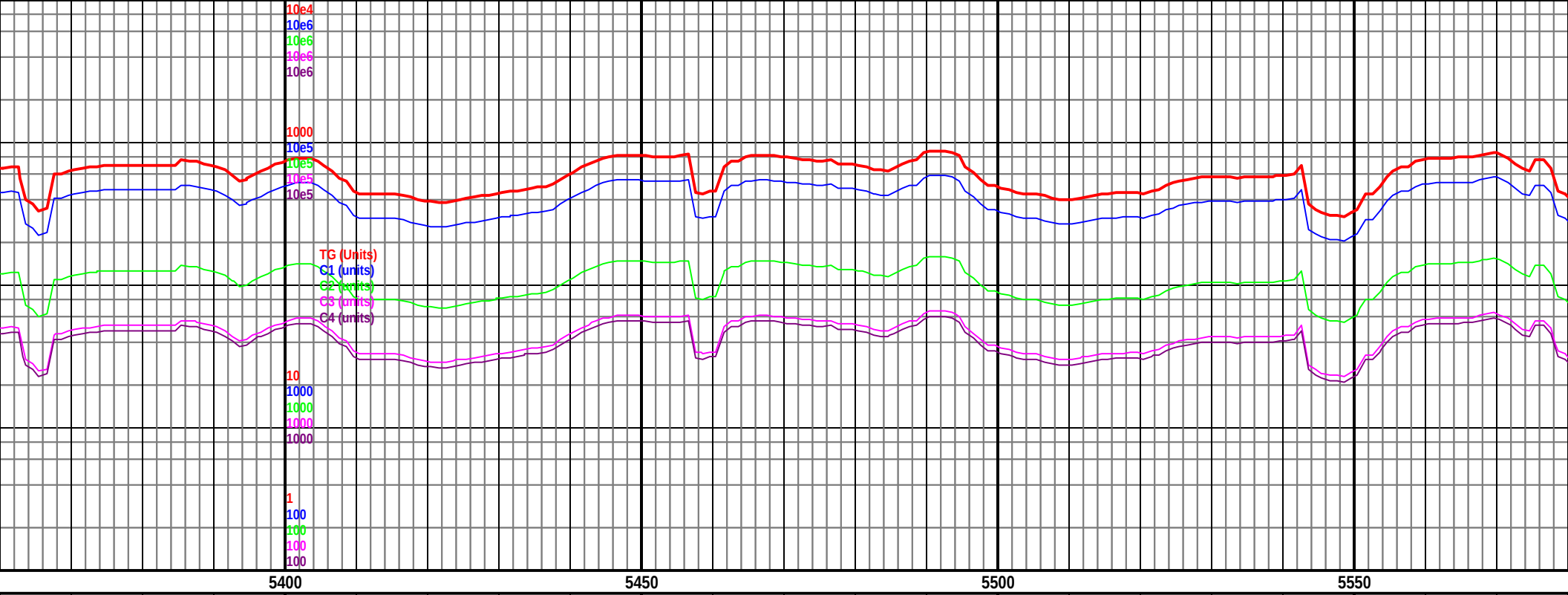
- Rft
- Sidewall

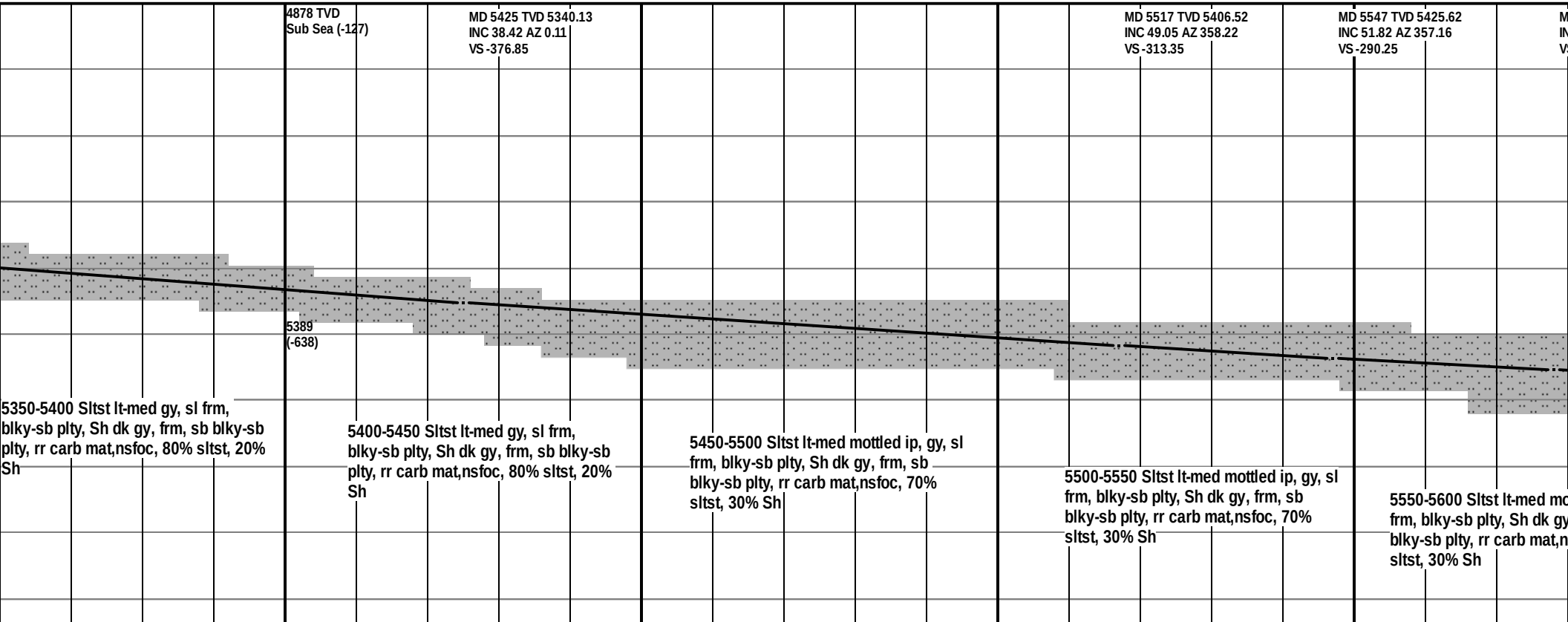

TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to
1% Methane = 100 units,
99.0% Methane = 9900 units.
Gas Chromatograph Calibrated to
1% C1-C4 = 10000 ppm.
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

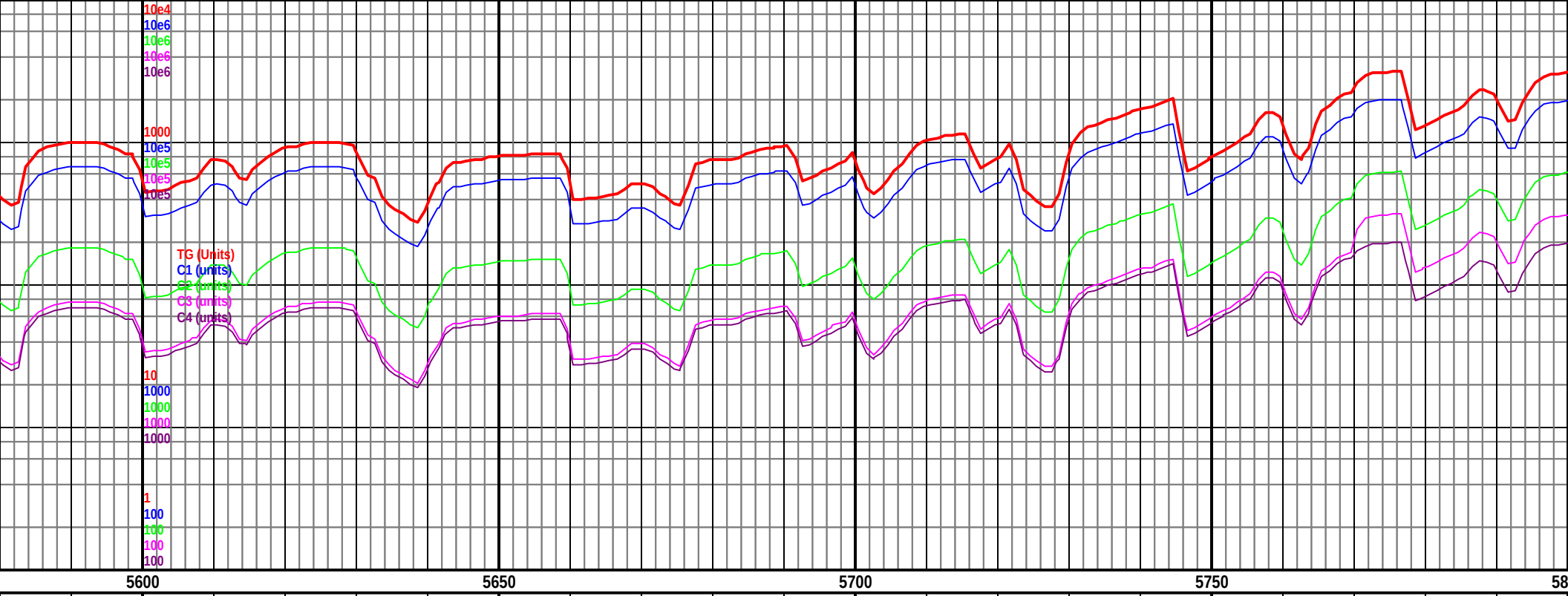

Depth
50
5000
5050
5100
Well Bore Cross Section
4878 TVD
Sub Sea (-127)
MD 4969 TVD 4914.59
INC 2.37 AZ 219.97
VS -503.61
4878 TVD
Sub Sea (-127)
MD 5061 TVD 5006.55
INC 1.32 AZ 287.98
VS -504.74
5019-5050 Sltst lt-med gy, sl frm, blky-sb plty, rr Sh dk gy, frm, sb blky-sb plty, rr carb mat, nsfoc, 90% sltst, 10% Sh
5050-5100 Sltst lt-med gy, sl frm, blky-sb plty, rr Sh dk gy, frm, sb blky-sb plty, rr carb mat, nsfoc, 90% sltst, 10% Sh
5100-5150 Sltst lt-med gy, sl f
blky-sb plty, rr Sh dk gy, frm,
blky-sb plty, rr carb mat, nsfo
sltst, 10% Sh
5389
(-638)
KOP 5019' reached at 04:50
on 5/23/2014
5389
(-638)
Acme Geologic Consulting
rigged up and operational
on 5/22/2014 at 17:00

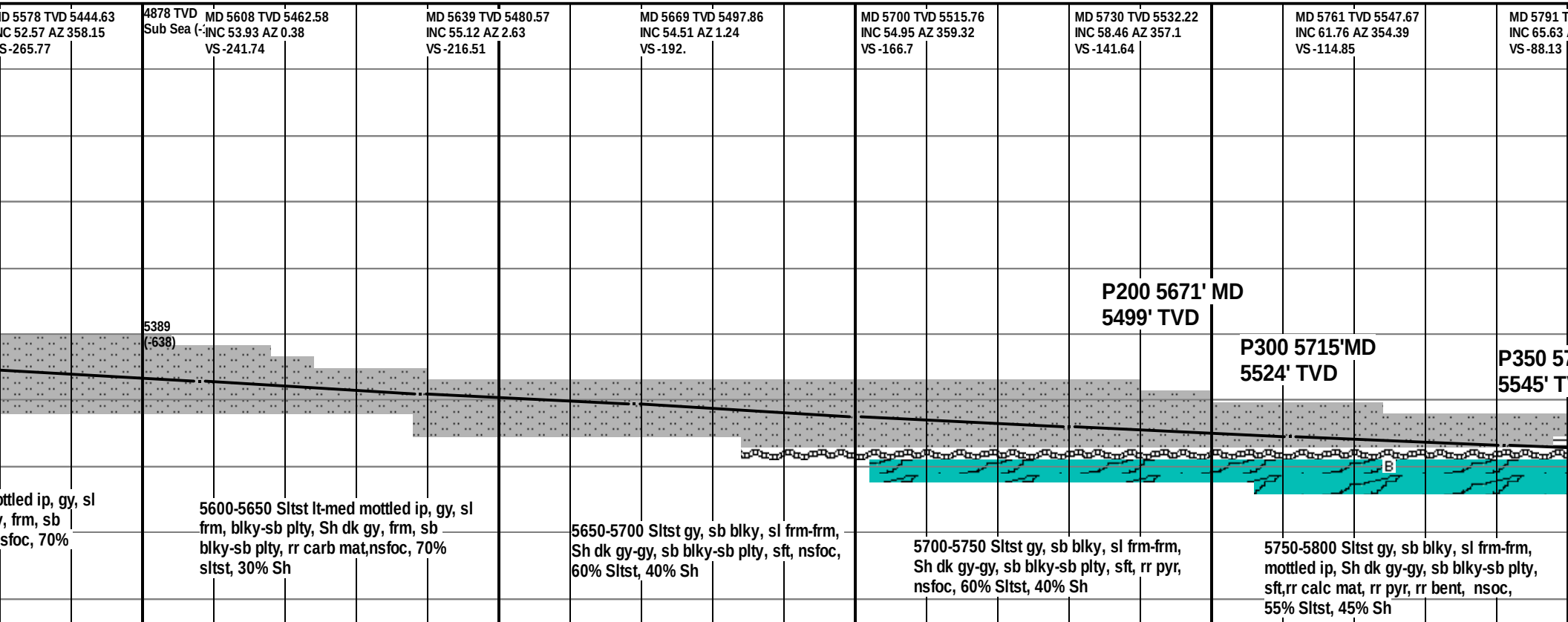

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt. 9.4
Vis 39
5150
5200
5250
5300
5350

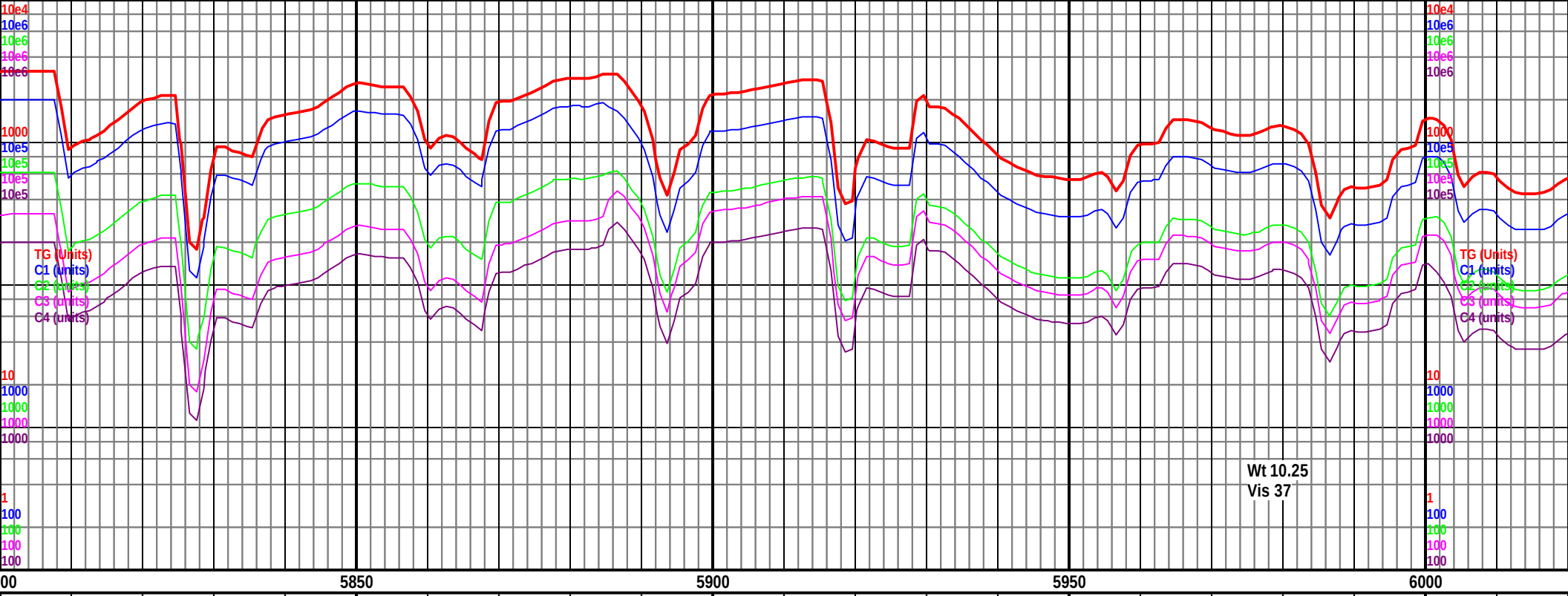

MD 5152 TVD 5096.88
INC 11.87 AZ 7.02
VS -495.1
4878 TVD
Sub Sea (-127)
MD 5243 TVD 5183.32
INC 23.91 AZ 11.1
VS -467.61
MD 5334 TVD 5264.64
INC 29.36 AZ 7.52
VS -427.37
frm,
sb
c, 90%
5150-5200 Sltst lt-med gy, sl frm, blky-sb plty, rr Sh dk gy, frm, sb blky-sb plty, rr carb mat, nsfoc, 90% sltst, 10% Sh
5389
(-638)
5200-5250 Sltst lt-med gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 80% sltst, 20% Sh
5250-5300 Sltst lt-med gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 80% sltst, 20% Sh
5300-5350 Sltst lt-med gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 80% sltst, 20% Sh


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
5400
5450
5500
5550


4878 TVD
Sub Sea (-127)
MD 5425 TVD 5340.13
INC 38.42 AZ 0.11
VS -376.85
MD 5517 TVD 5406.52
INC 49.05 AZ 358.22
VS -313.35
MD 5547 TVD 5425.62
INC 51.82 AZ 357.16
VS -290.25
5389
(-638)
5350-5400 Sltst lt-med gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 80% sltst, 20% Sh
5400-5450 Sltst lt-med gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 80% sltst, 20% Sh
5450-5500 Sltst lt-med mottled ip, gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 70% sltst, 30% Sh
5500-5550 Sltst lt-med mottled ip, gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 70% sltst, 30% Sh
5550-5600 Sltst lt-med mo
frm, blky-sb plty, Sh dk gy
blky-sb plty, rr carb mat,n
sltst, 30% Sh


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
5600
5650
5700
5750
58


D 5578 TVD 5444.63
NC 52.57 AZ 358.15
S -265.77
4878 TVD
Sub Sea (-
MD 5608 TVD 5462.58
INC 53.93 AZ 0.38
VS -241.74
MD 5639 TVD 5480.57
INC 55.12 AZ 2.63
VS -216.51
MD 5669 TVD 5497.86
INC 54.51 AZ 1.24
VS -192.
MD 5700 TVD 5515.76
INC 54.95 AZ 359.32
VS -166.7
MD 5730 TVD 5532.22
INC 58.46 AZ 357.1
VS -141.64
MD 5761 TVD 5547.67
INC 61.76 AZ 354.39
VS -114.85
MD 5791 T
INC 65.63
VS -88.13
5389
(-638)
P200 5671' MD
5499' TVD
P300 5715'MD
5524' TVD
P350 57
5545' T
B
ttled ip, gy, sl
, frm, sb
sfoc, 70%
5600-5650 Sltst lt-med mottled ip, gy, sl frm, blky-sb plty, Sh dk gy, frm, sb blky-sb plty, rr carb mat,nsfoc, 70% sltst, 30% Sh
5650-5700 Sltst gy, sb blky, sl frm-frm, Sh dk gy-gy, sb blky-sb plty, sft, nsfoc, 60% Sltst, 40% Sh
5700-5750 Sltst gy, sb blky, sl frm-frm, Sh dk gy-gy, sb blky-sb plty, sft, rr pyr, nsfoc, 60% Sltst, 40% Sh
5750-5800 Sltst gy, sb blky, sl frm-frm, mottled ip, Sh dk gy-gy, sb blky-sb plty, sft,rr calc mat, rr pyr, rr bent, nsoc, 55% Sltst, 45% Sh



MD 5822 TVD 5573.01
INC 68.62 AZ 354.01
VS -59.76

MD 5852 TVD 5583.77
INC 69.36 AZ 357.92
VS -31.83

MD 5882 TVD 5593.5
INC 72.79 AZ 0.52
VS -3.46

MD 5913 TVD 5601.69
INC 76.57 AZ 0.1
VS 26.43

MD 5943 TVD 5607.47
INC 81.23 AZ 358.97
VS 55.86

MD 5974 TVD 5611.37
INC 84.31 AZ 357.91
VS 86.6

4878 TVD
Sub Sea (-127)

NBRR 5786' MD
5559' TVD

N100 5833' MD
5577' TVD

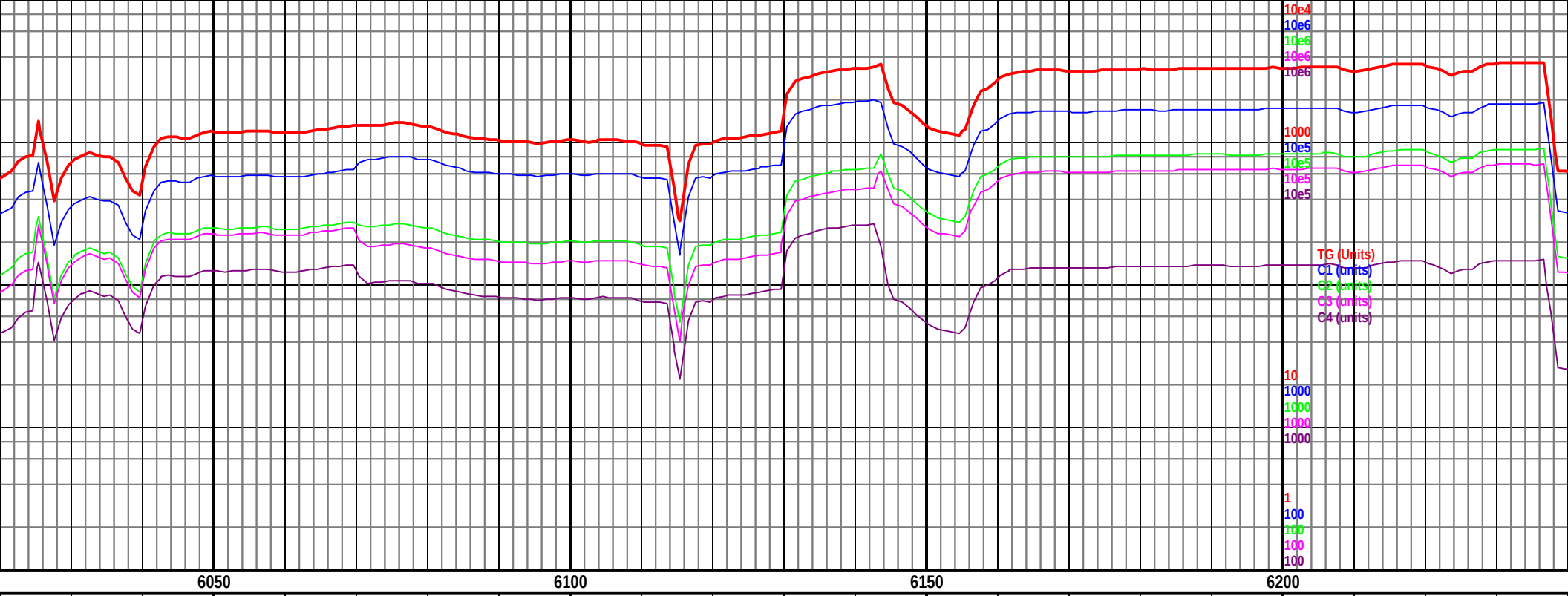
N200 5950' MD
5608' TVD

5800-5850 Sh dk gy-gy, sb blky-sb plty, Sltst gy, sb blky, sl frm-frm, mottled ip, sft,rr calc mat, rr pyr, rr bent, nsoc, 60% Sh, 30% Sltst, 10% Bent

5850-5900 Sh dk gy-gy, sb blky-sb plty, sft, mottled ip, occ Chk, lt-med gy, sl frm-frm, sb blky, tr Bent, rr calc mat, nsoc, 65% Sh, 30% Chk, 5% Bent

5900-5950 Chk lt-med gy, sl frm-frm, sb blky, occ Mrlst dk gy, frm, sb blky, rr pyr, rr Bent, tr brit yel min flor, fst oil cut, 80% Chk, 20% mrlst

5950-6000 Chk lt-med gy, sl frm-frm, sb blky, mottled ip, occ Mrlst dk gy, frm, sb blky, rr pyr, rr Bent, fst oil cut, 80% Chk, 20% mrlst



MD 6024 TVD 5613.06
INC 91.8 AZ 357
VS 136.49

MD 6080 TVD 5611.83
INC 90.73 AZ 358.81
VS 192.43

4878 TVD
Sub Sea (-127)

diate casing 6024'
on 5/23/2014.
d drilling at 01:00
2014

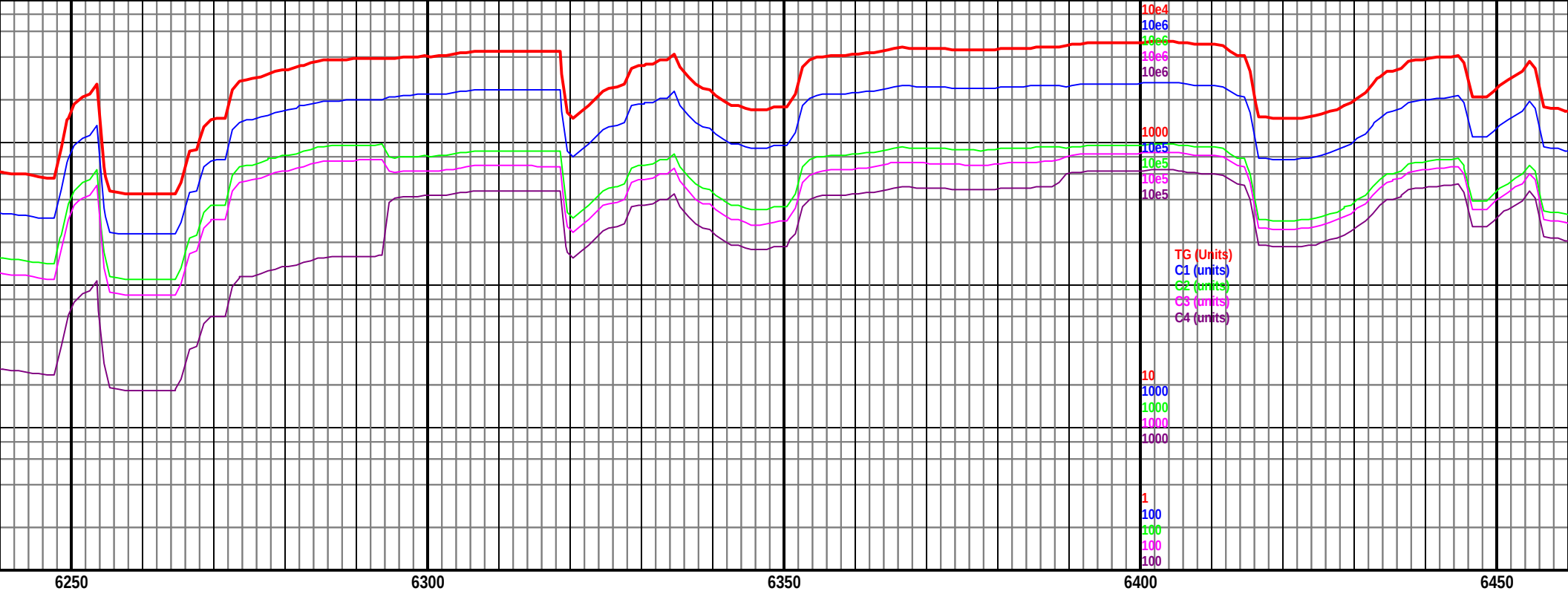
5389
(-638)

hk lt-med gy, sl frm-frm, sb
ip, occ Mrlst dk gy, frm,
r, rr Bent, fst oil cut, 60%

6024-6100 Chk med gy, sb blky, sl frm-frm, mottled, tr Mrlst dk gy, frm, sb blky, rr pyr, tr Bent, fst oil cut, 70%

6100-6200 Chk med gy, sb blky, sl frm-frm, mottled, abnt Mrlst dk gy, frm, sb blky, rr Bent, fst oil cut, 50% Chk,

6200-6300
frm-frm, m
blky, rr Be


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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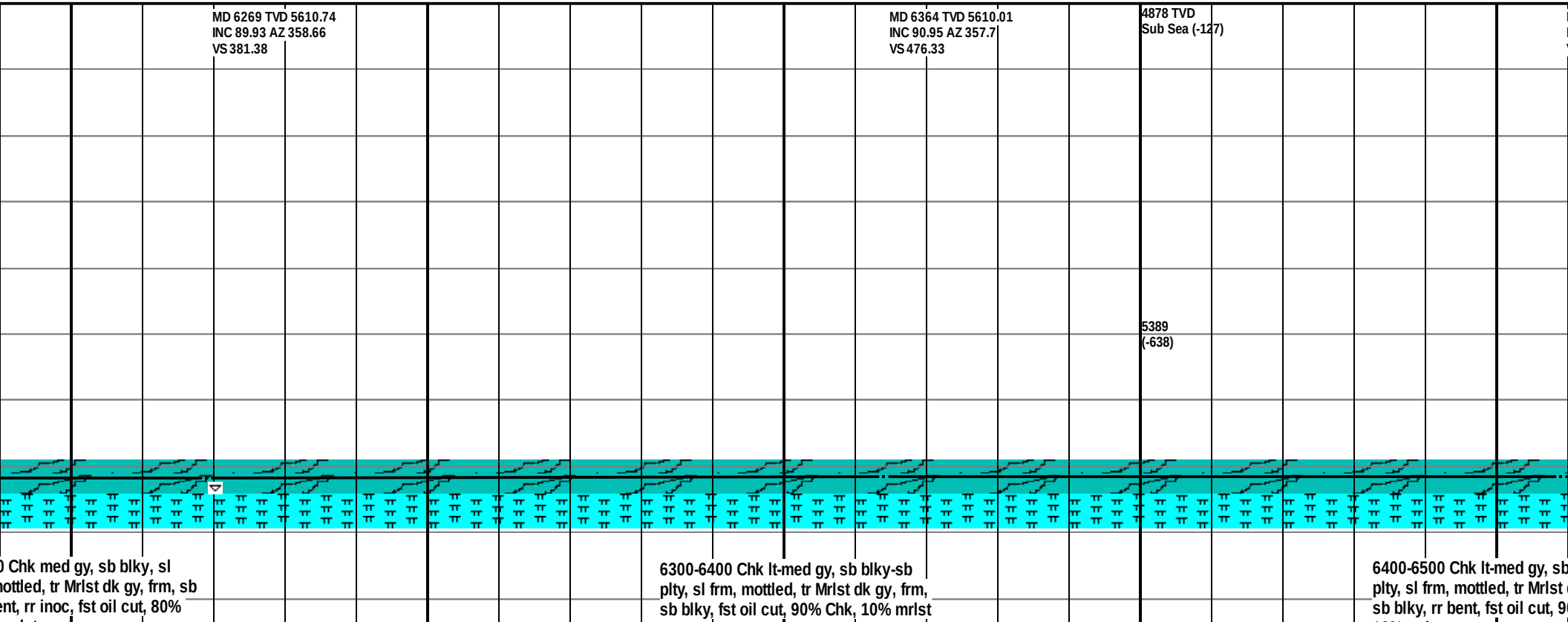
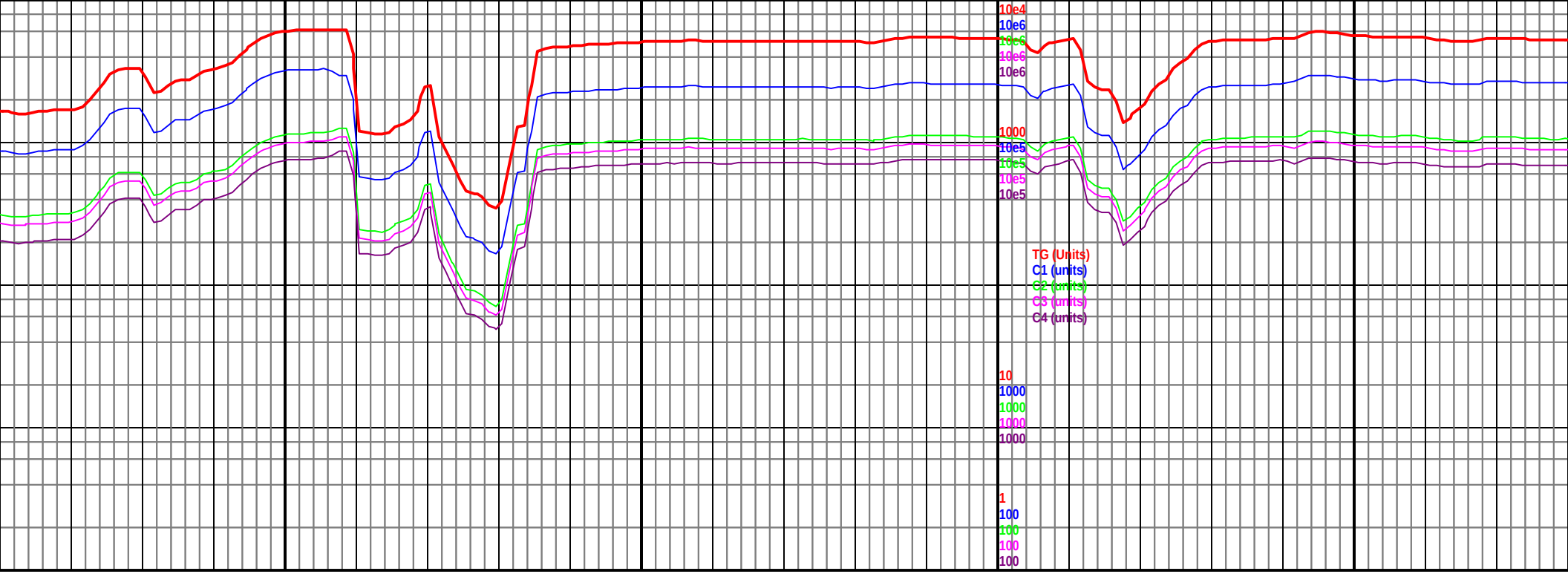
100
100
100
6250
6300
6350
6400
6450


MD 6269 TVD 5610.74
INC 89.93 AZ 358.66
VS 381.38
MD 6364 TVD 5610.01
INC 90.95 AZ 357.7
VS 476.33
4878 TVD
Sub Sea (-127)
5389
(-638)
0 Chk med gy, sb blky, sl
nottled, tr Mrlst dk gy, frm, sb
ent, rr inoc, fst oil cut, 80%
6300-6400 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, fst oil cut, 90% Chk, 10% mrlst
6400-6500 Chk lt-med gy, sb
plty, sl frm, mottled, tr Mrlst
sb blky, rr bent, fst oil cut, 9



MD 6459 TVD 5608.43
INC 90.95 AZ 357.56
VS 571.24

MD 6554 TVD 5606.64
INC 91.21 AZ 357.31
VS 666.12

4878 TVD
Sub Sea (-127)

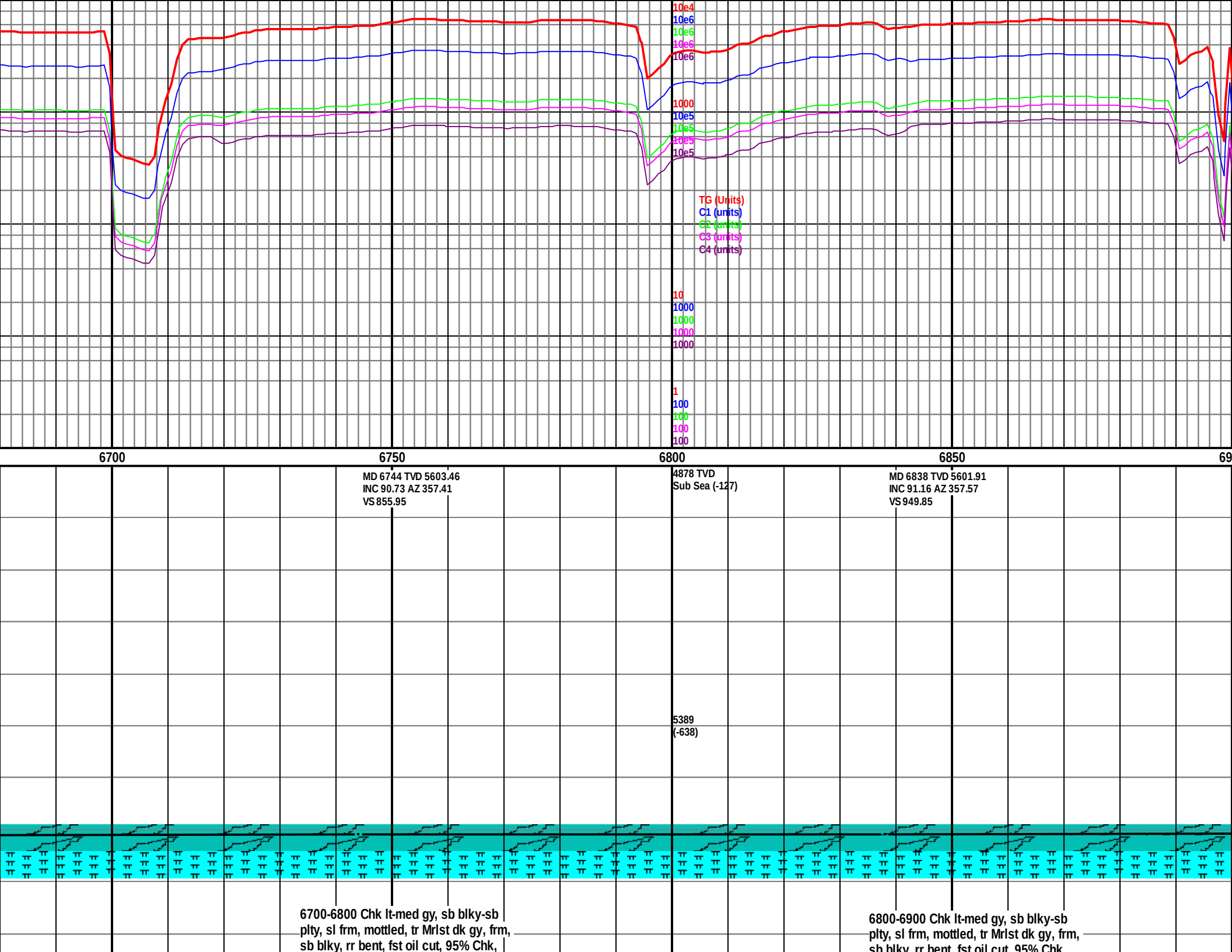
MD 6649 TVD 5604.85
INC 90.95 AZ 358.16
VS 761.03

5389
(-638)

b blky-sb
dk gy, frm,
0% Chk,

6500-6600 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, rr bent, fst oil cut, 95% Chk,

6600-6700 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, rr bent, fst oil cut, 95% Chk,


10e4
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10e6
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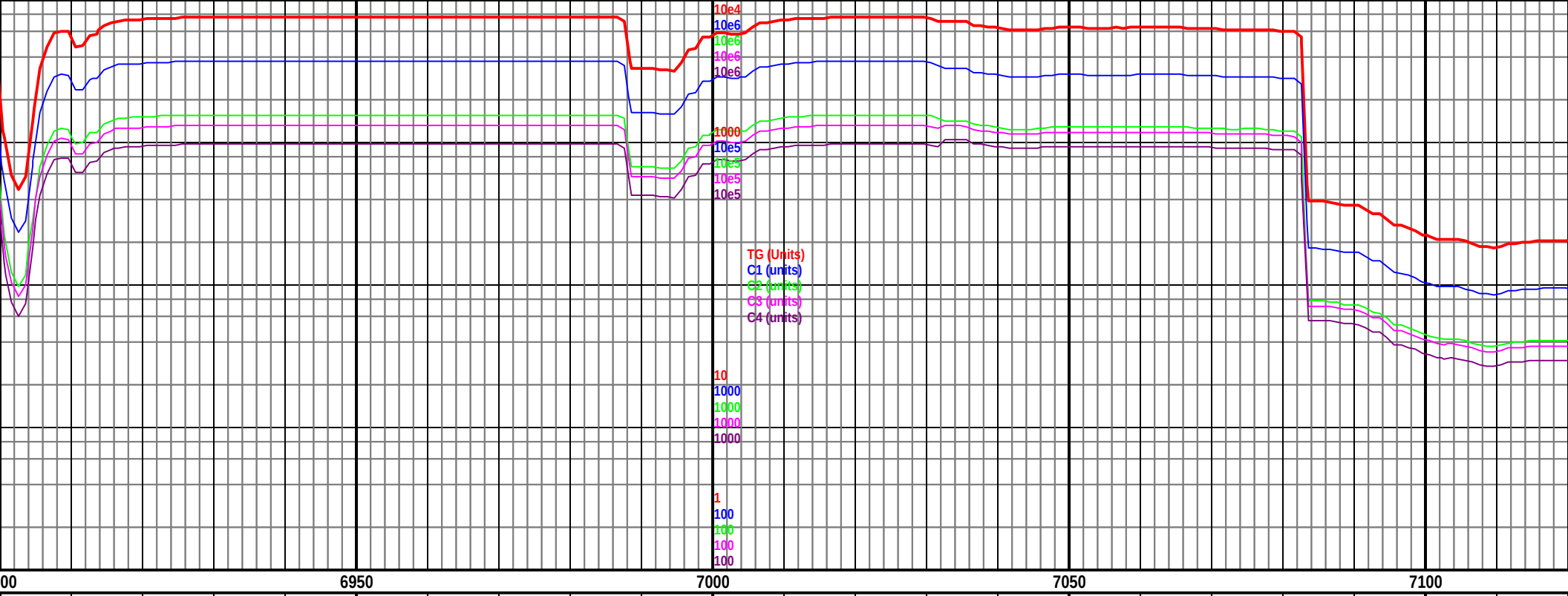
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
6700
6750
6800
6850
69
MD 6744 TVD 5603.46
INC 90.73 AZ 357.41
VS 855.95
4878 TVD
Sub Sea (-127)
MD 6838 TVD 5601.91
INC 91.16 AZ 357.57
VS 949.85
5389
(-638)
6700-6800 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, rr bent, fst oil cut, 95% Chk,
6800-6900 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, rr bent, fst oil cut, 95% Chk,


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
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100
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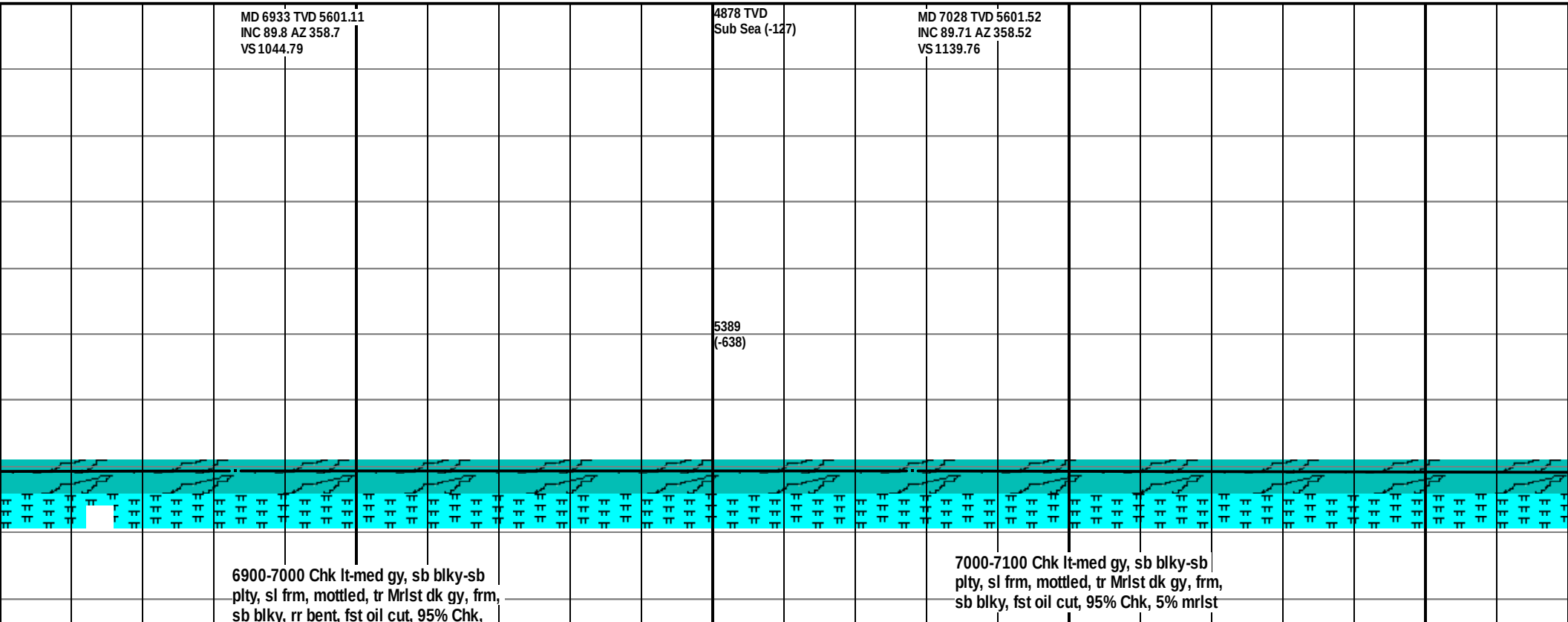
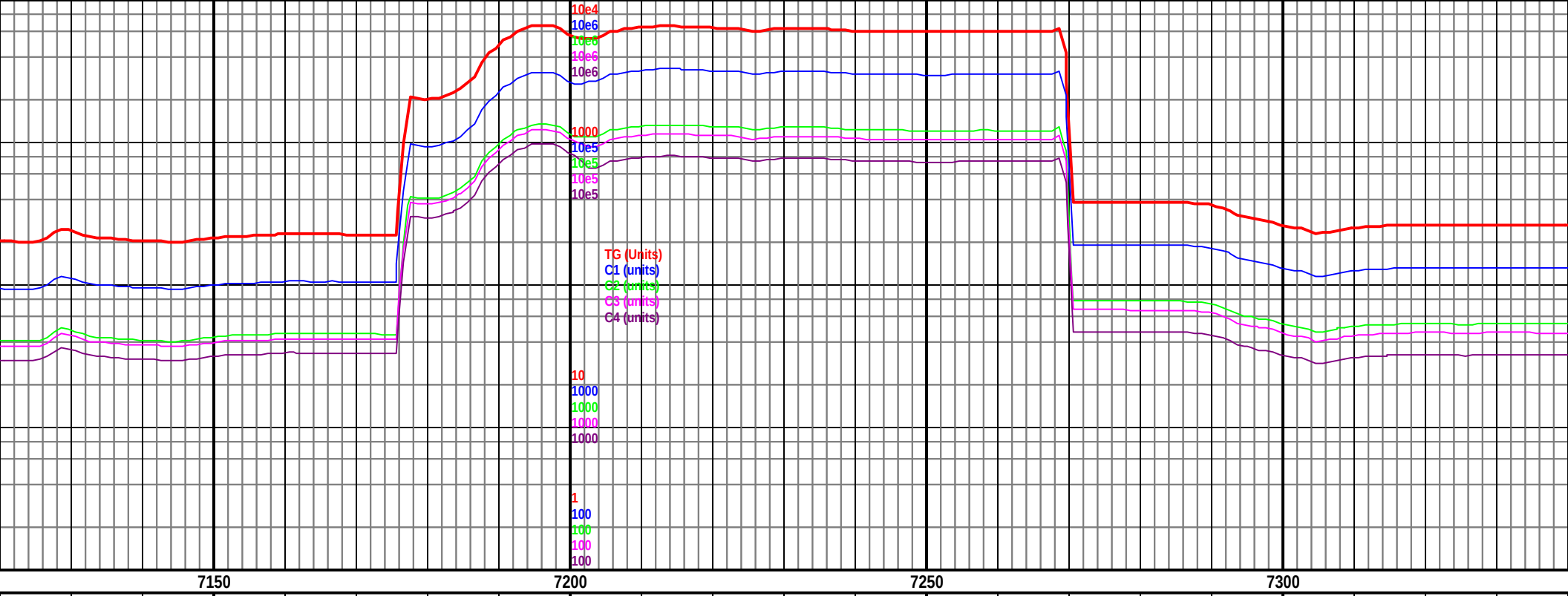
6950
7000
7050
7100


MD 6933 TVD 5601.11
INC 89.8 AZ 358.7
VS 1044.79
4878 TVD
Sub Sea (-127)
MD 7028 TVD 5601.52
INC 89.71 AZ 358.52
VS 1139.76
5389
(-638)
6900-7000 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, rr bent, fst oil cut, 95% Chk,
7000-7100 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, fst oil cut, 95% Chk, 5% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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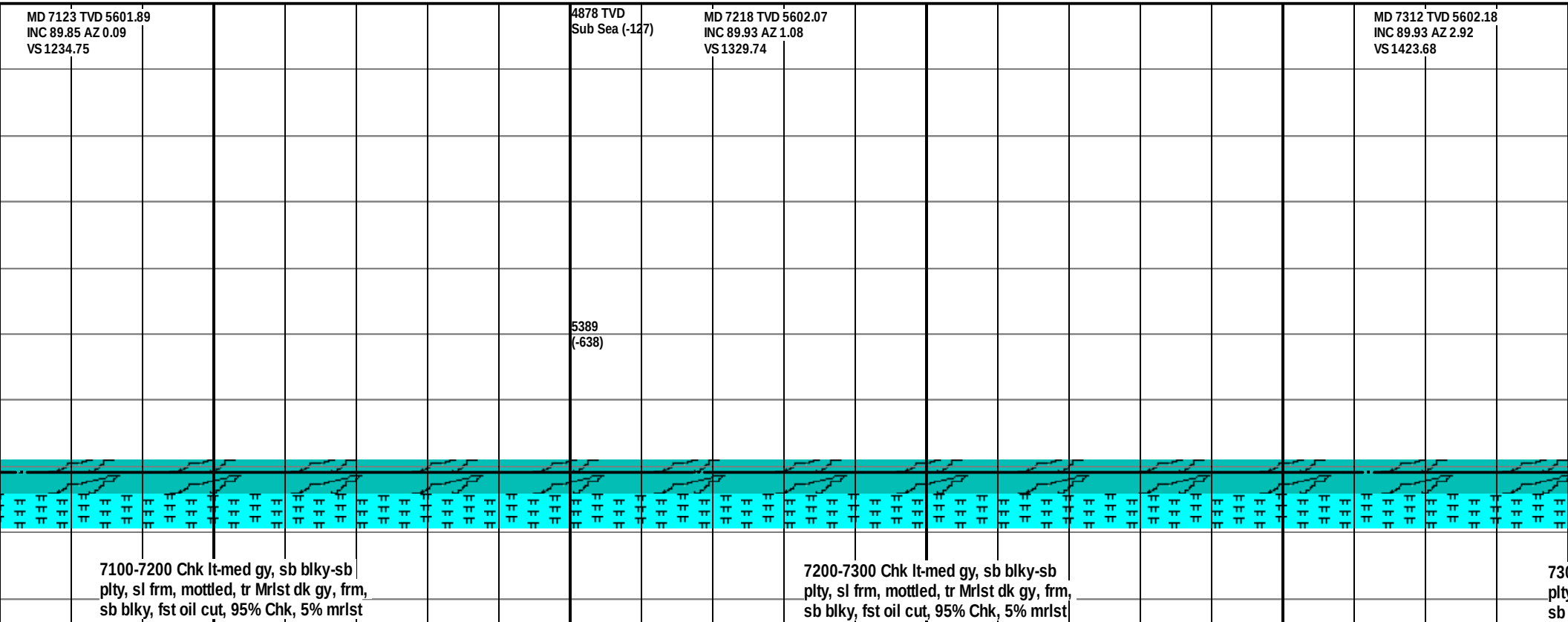
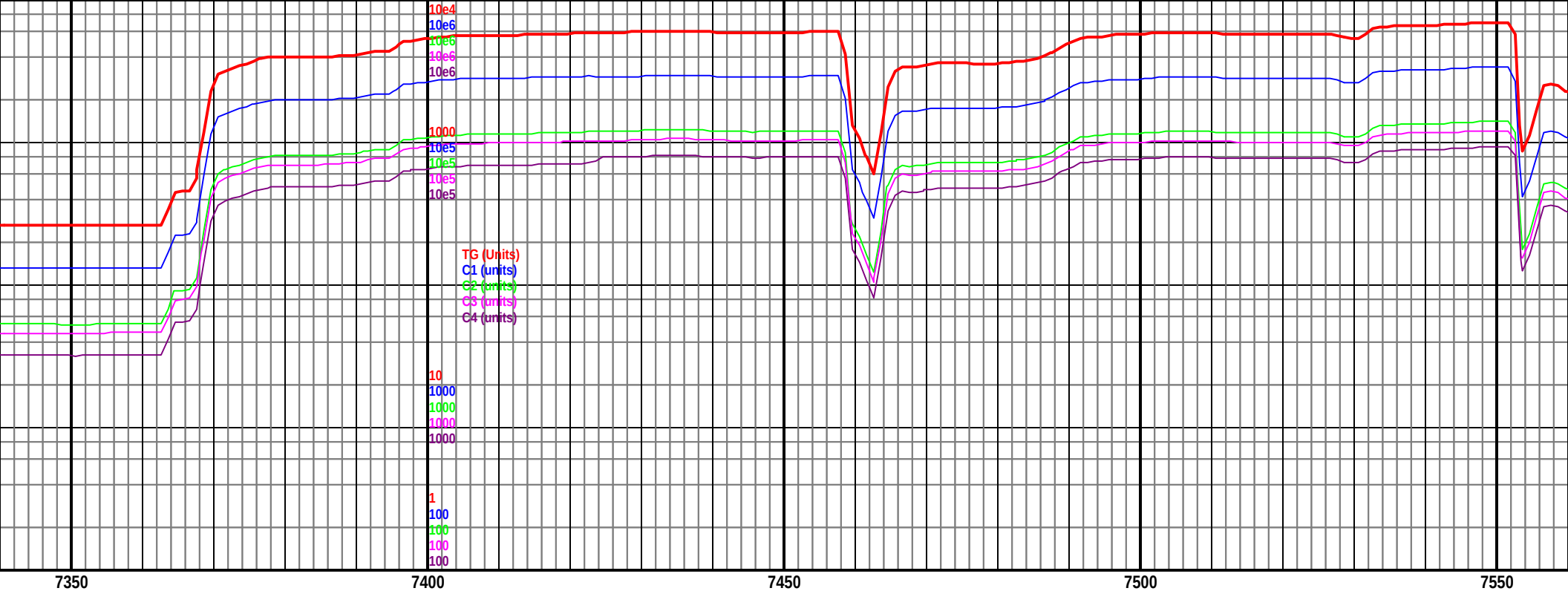
100
100
100
100
7150
7200
7250
7300


MD 7123 TVD 5601.89
INC 89.85 AZ 0.09
VS 1234.75
4878 TVD
Sub Sea (-127)
MD 7218 TVD 5602.07
INC 89.93 AZ 1.08
VS 1329.74
MD 7312 TVD 5602.18
INC 89.93 AZ 2.92
VS 1423.68
5389
(-638)
7100-7200 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, fst oil cut, 95% Chk, 5% mrlst
7200-7300 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, fst oil cut, 95% Chk, 5% mrlst



4878 TVD Sub Sea (

MD 7407 TVD 5602.22
INC 90.02 AZ 3.02
VS 1518.55

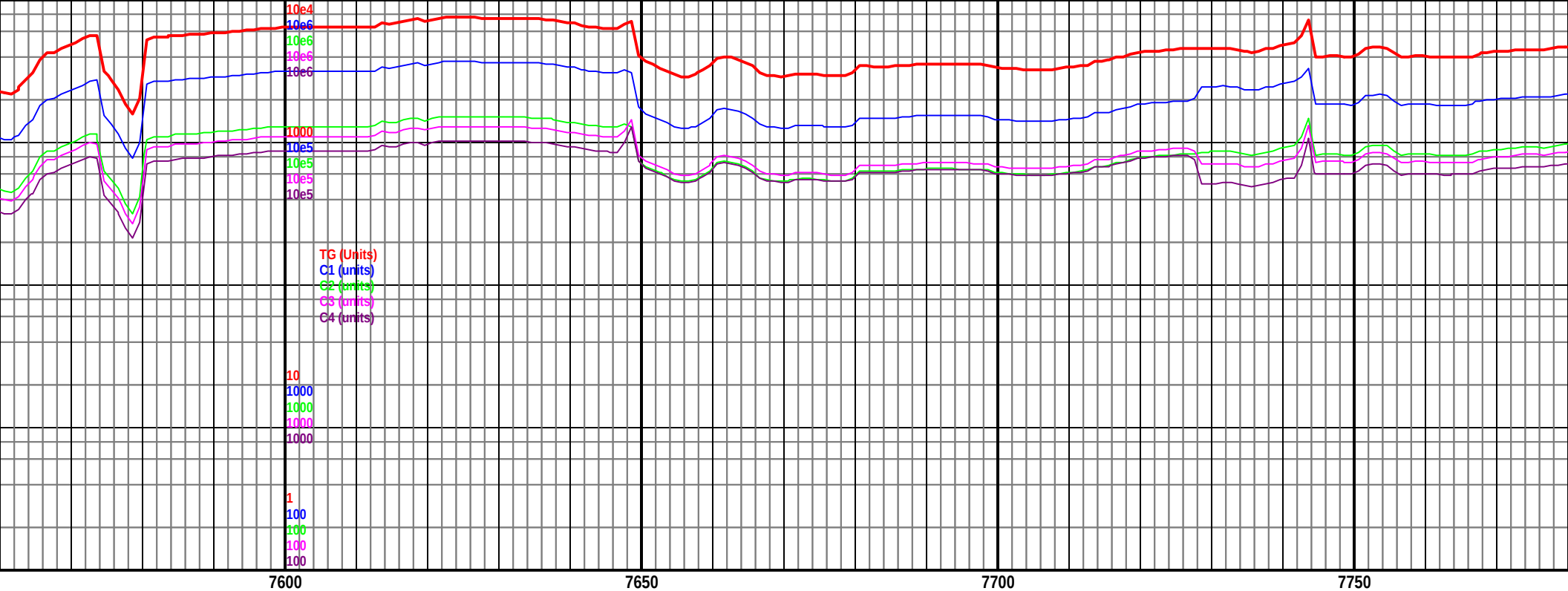
MD 7502 TVD 5602.48
INC 89.67 AZ 3.25
VS 1613.41

5389
(-638)

00-7400 Chk lt-med gy, sb blky-sb
y, sl frm, mottled, tr Mrlst dk gy, frm,
blky, fst oil cut, 95% Chk, 5% mrlst

7400-7500 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, fst oil cut, 95% Chk, 5% mrlst

7500-7600 Chk lt-med gy, sb
plty, sl frm, mottled, tr Mrlst
sb blky, fst oil cut, 95% Chk,



7600 7650 7700 7750

MD 7597 TVD 5603.61
INC 88.97 AZ 1.37
VS 1708.32

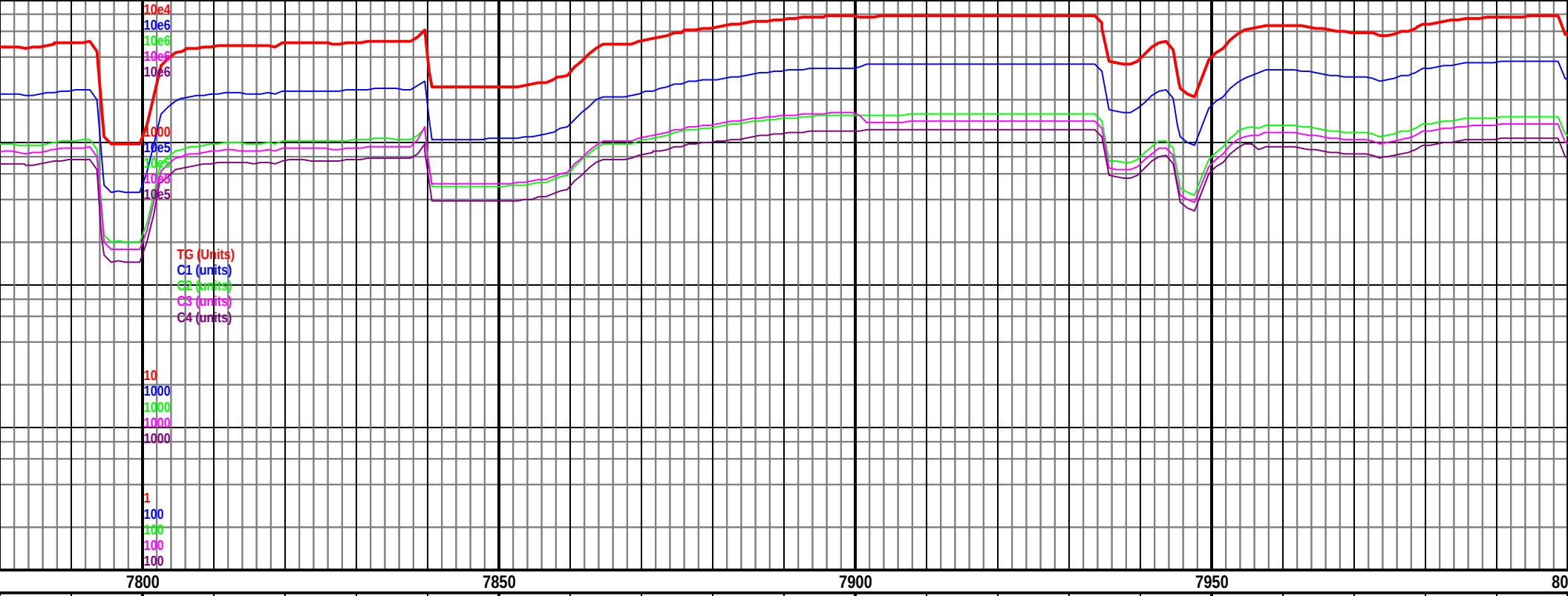
MD 7692 TVD 5603.75
INC 90.86 AZ 358.51
VS 1803.31

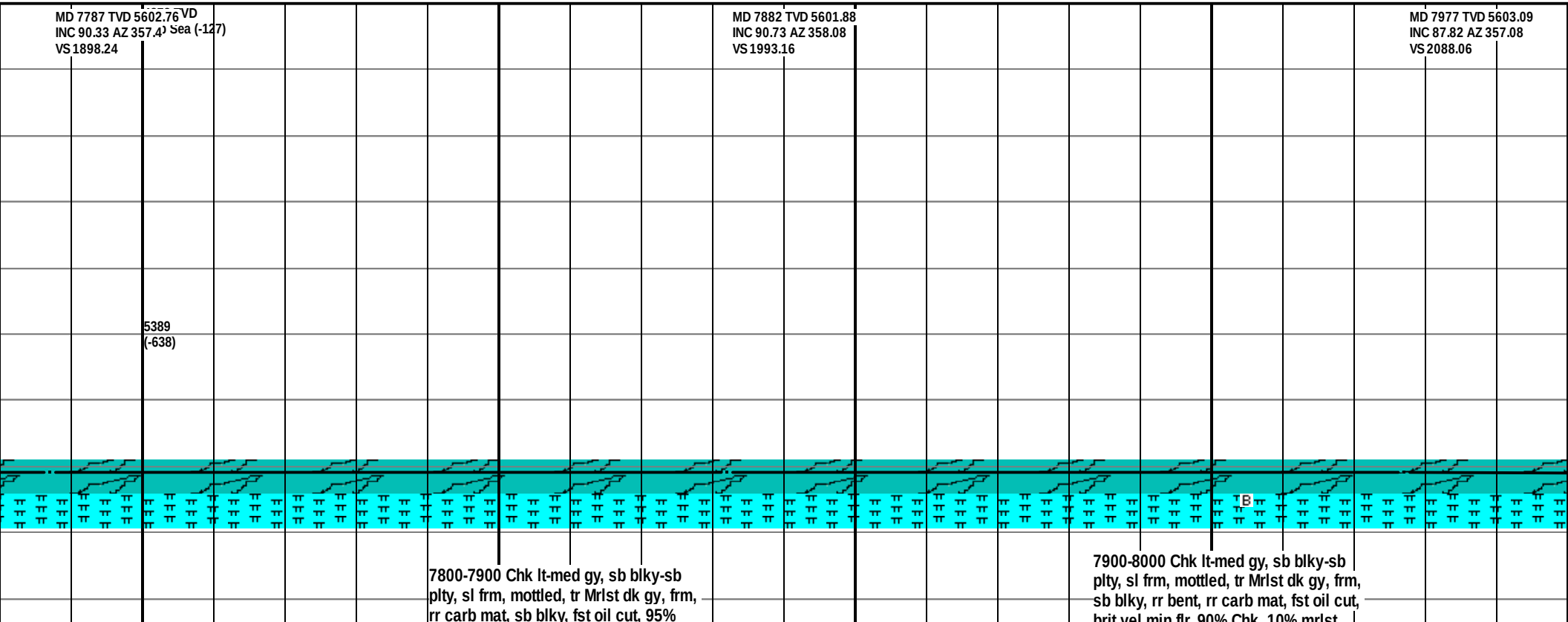
5389
(-638)

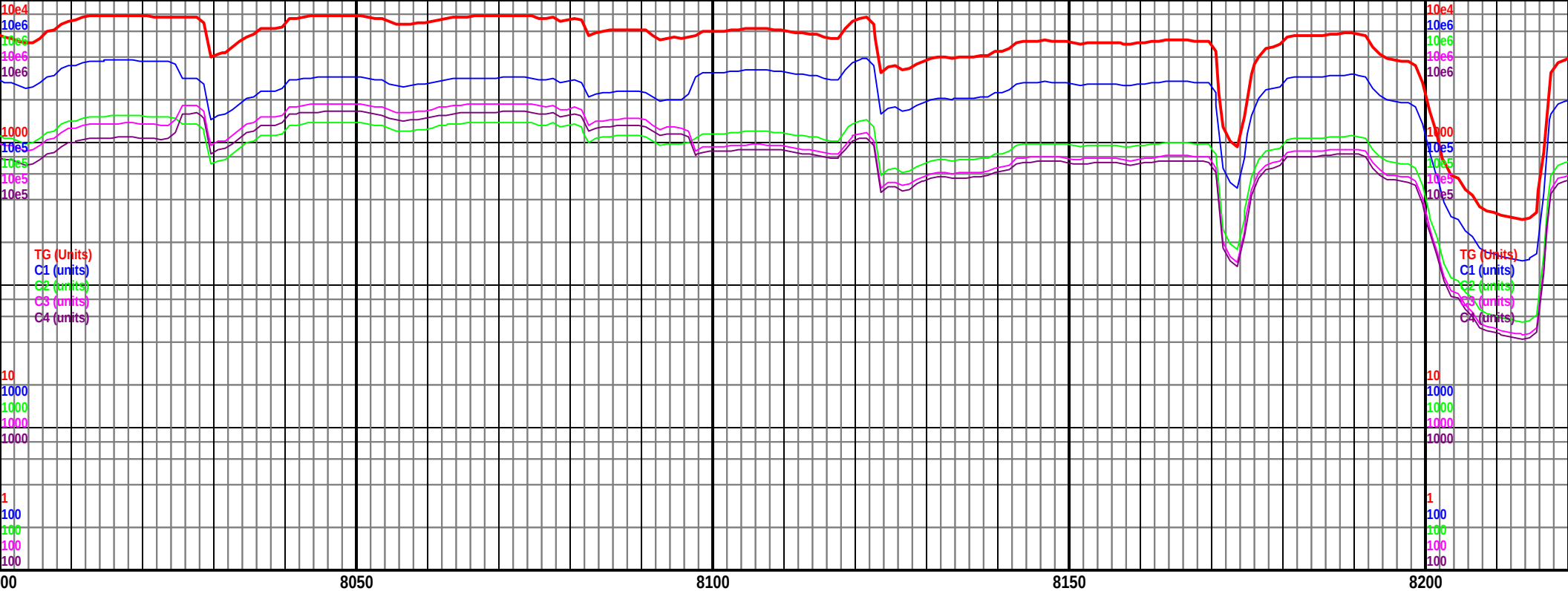
b blky-sb
dk gy, frm,
, 5% mrlst

7600-7700 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, fst oil cut, 95% Chk, 5% mrlst

7700-7800 Chk lt-med gy, sb blky-sb
plty, sl frm, mottled, tr Mrlst dk gy, frm,
sb blky, fst oil cut, 95% Chk, 5% 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
7800
7850
7900
7950
80


MD 7787 TVD 5602.76
INC 90.33 AZ 357.4
VS 1898.24
MD 7882 TVD 5601.88
INC 90.73 AZ 358.08
VS 1993.16
MD 7977 TVD 5603.09
INC 87.82 AZ 357.08
VS 2088.06
5389
(-638)
7800-7900 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, rr carb mat, sb blky, fst oil cut, 95%
7900-8000 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, rr bent, rr carb mat, fst oil cut,



4878 TVD
Sub Sea (-127)

MD 8072 TVD 5607.02
INC 87.43 AZ 357.05
VS 2182.85

MD 8166 TVD 5609.22
INC 89.89 AZ 356.75
VS 2276.68

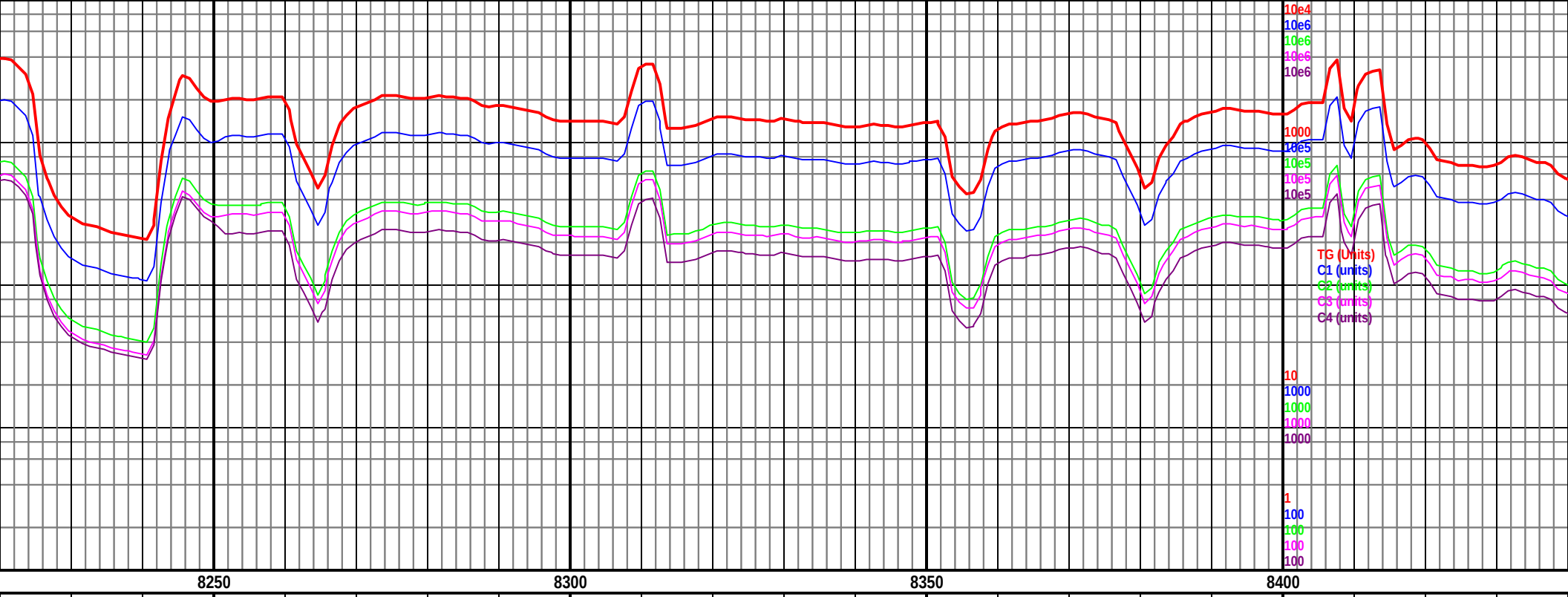
4878 TVD
Sub Sea (-127)

5389
(-638)

5389
(-638)

8000-8100 Chk lt-med gy, sb blky-sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, rr bent, rr carb mat, fst oil cut,

8100-8200 Chk lt-dk gy, sb blky-sb plty, sl frm, mottled, dk lam, tr Mrlst dk gy, frm, sb blky, rr bent, vis oil on sample 70% Chk, 30% mrlst



MD 8261 TVD 5609.22
INC 90.11 AZ 356.82
VS 2371.53

MD 8356 TVD 5609.01
INC 90.15 AZ 356.75
VS 2466.38

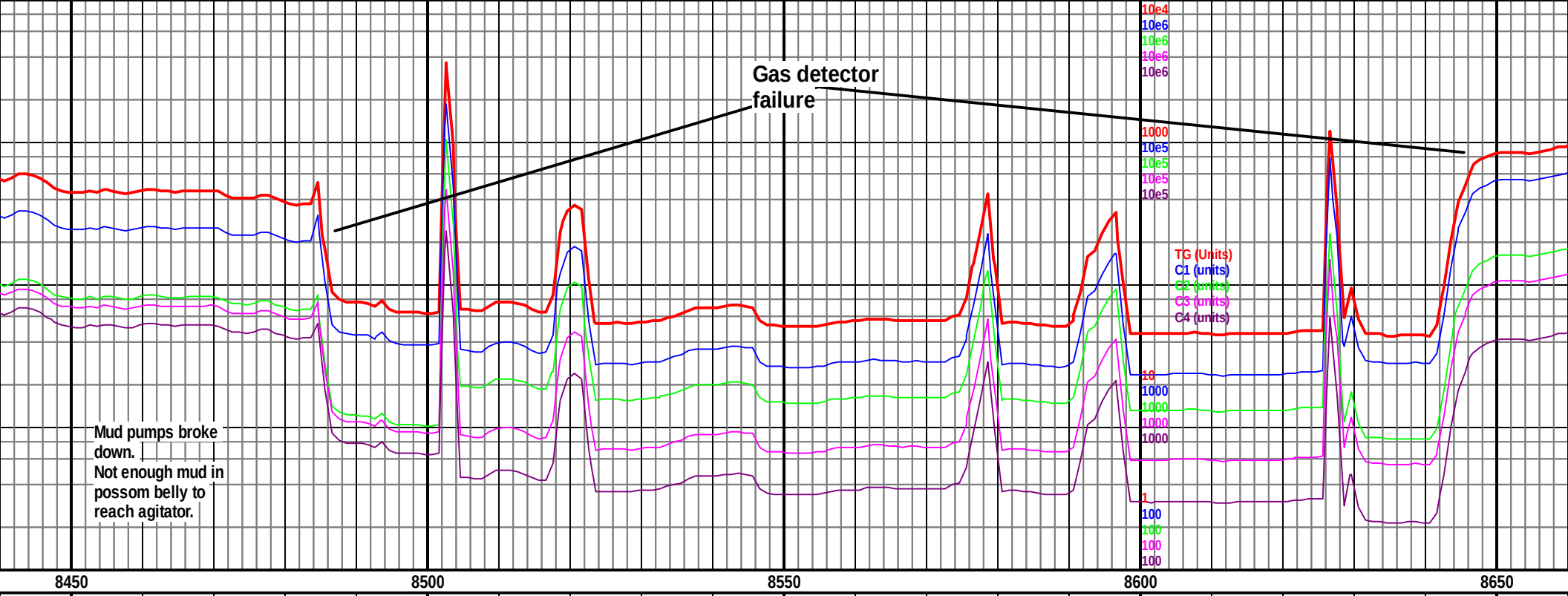
4878 TVD
Sub Sea (-127)

5389
(-638)

8200-8300 Chk med-dk gy, sb blky, sl frm, mottled, grdg to mrlst ip, abnt Mrlst dk gy, frm, sb blky, mod sft, vis oil on

8300-8400 Mrlst med-dk gy, sb blky, sft, abnt Chk med-dk gy, frm, sb blky, mod sft, rr bent, vis oil on sample 60%

8400-8500
slty, grdg
gy, frm, sl
on sample



MD 8451 TVD 5608.53
INC 90.42 AZ 357.28
VS 2561.25

MD 8546 TVD 5607.62
INC 90.68 AZ 356.6
VS 2656.11

4878 TVD
Sub Sea (-127)

MD 8640 TVD 5606.9
INC 90.2 AZ 356.32
VS 2749.93

TOH for bit 8501' at 22:30 on 5/25/2014. Back to drilling at 9:10 on 5/26/2014

5389
(-638)

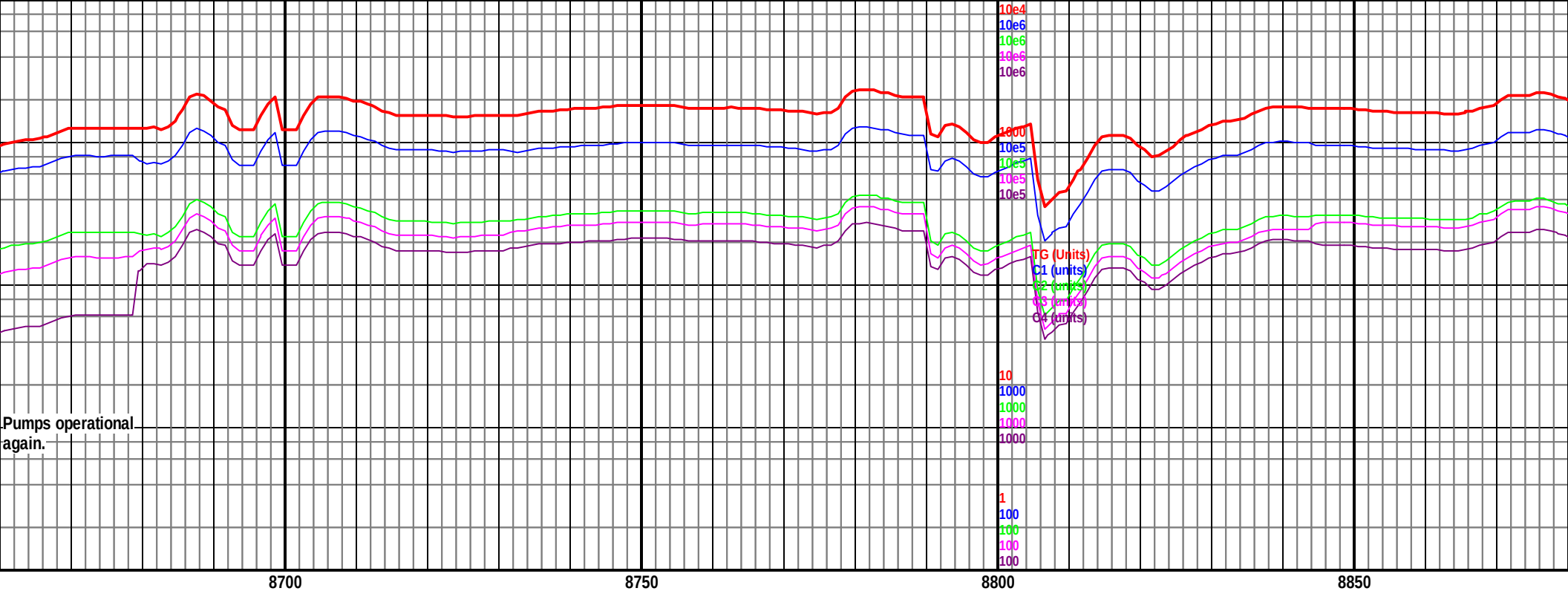
B

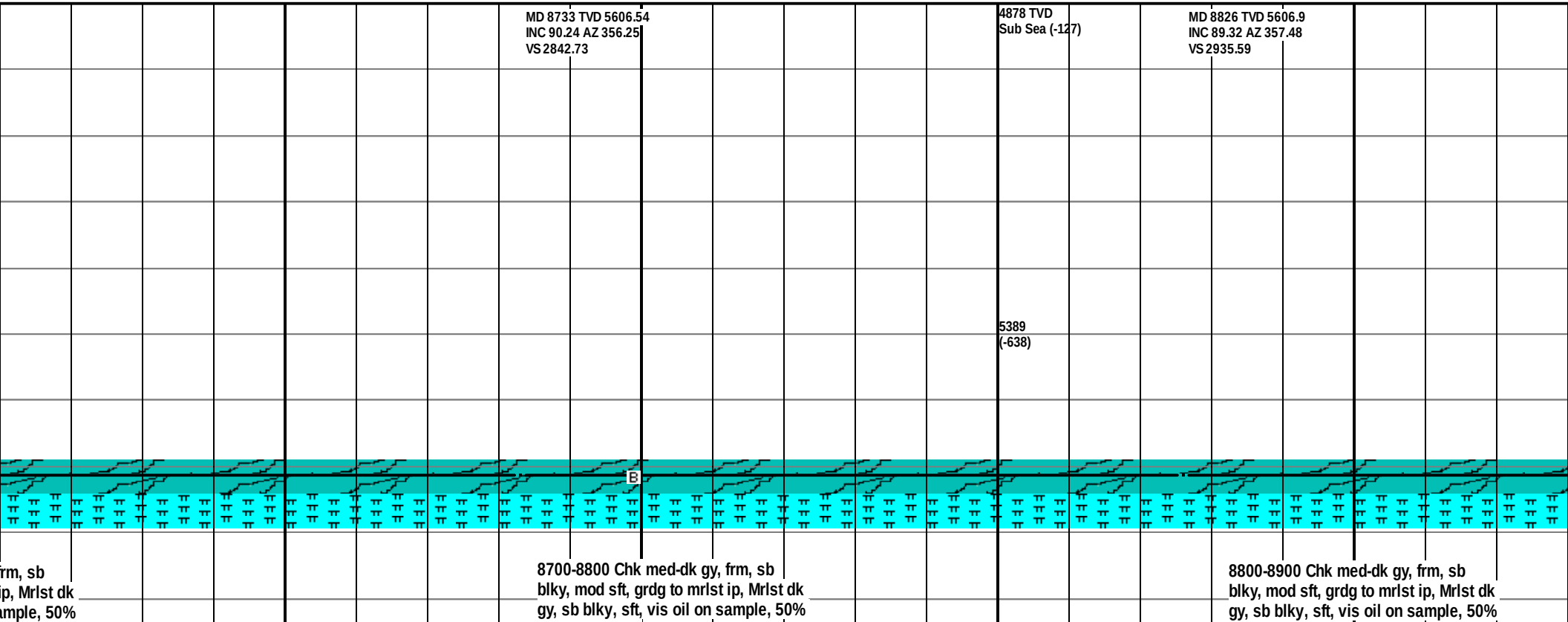
B

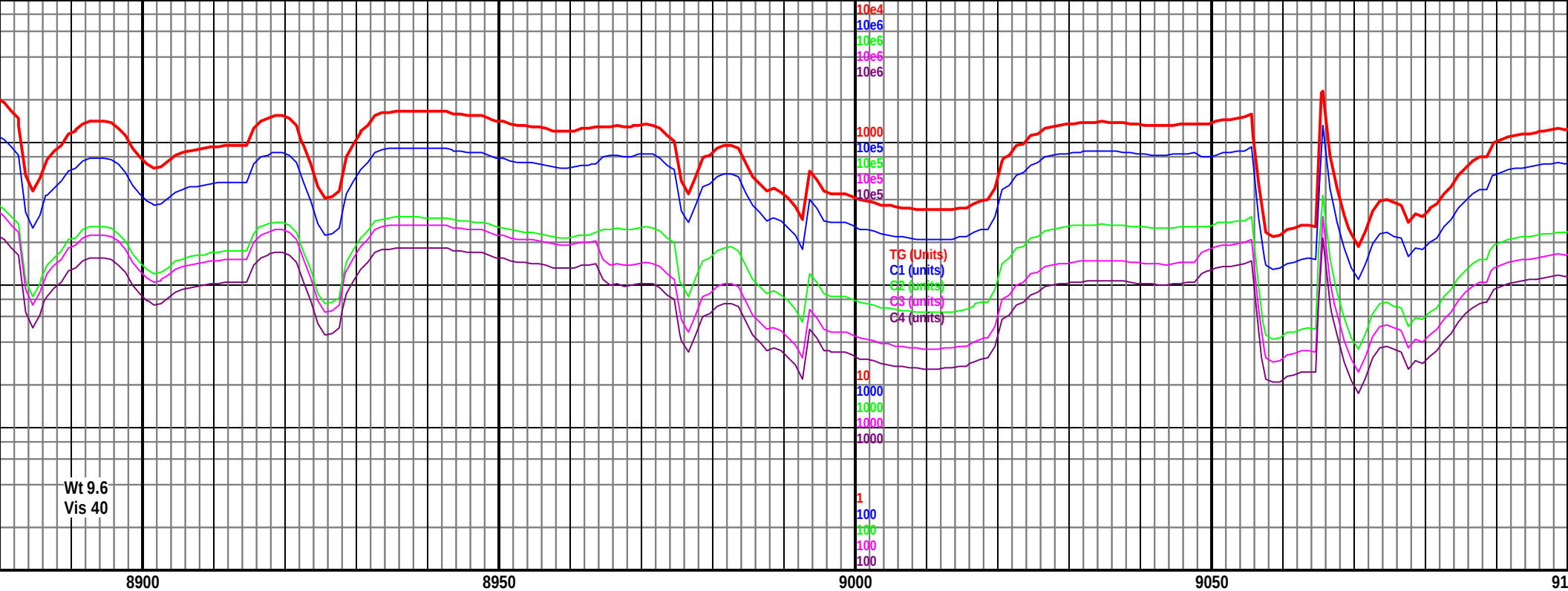
0 Mrlst dk gy, sb blky, sft, to chk ip, abnt Chk med-dk b blky, mod sft, rr bent, vis oil e 50% Mrlst, 50% Chk

8500-8600 Mrlst dk gy, sb blky, sft, slty, grdg to chk ip, abnt Chk med-dk gy, frm, sb blky, mod sft, rr bent, vis oil

8600-8700 Chk med-dk gy, f blky, mod sft, grdg to mrlst i gy, sb blky, sft, vis oil on sa


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
Pumps operational again.
8700
8750
8800
8850


MD 8733 TVD 5606.54
INC 90.24 AZ 356.25
VS 2842.73
4878 TVD
Sub Sea (-127)
MD 8826 TVD 5606.9
INC 89.32 AZ 357.48
VS 2935.59
5389
(-638)
B
rm, sb
ip, Mrlst dk
ample, 50%
8700-8800 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, Mrlst dk gy, sb blky, sft, vis oil on sample, 50%
8800-8900 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, Mrlst dk gy, sb blky, sft, vis oil on sample, 50%



MD 8918 TVD 5608.1
INC 89.19 AZ 357.09
VS 3027.48

4878 TVD
Sub Sea (-127)

MD 9011 TVD 5610.3
INC 88.09 AZ 359.72
VS 3120.41

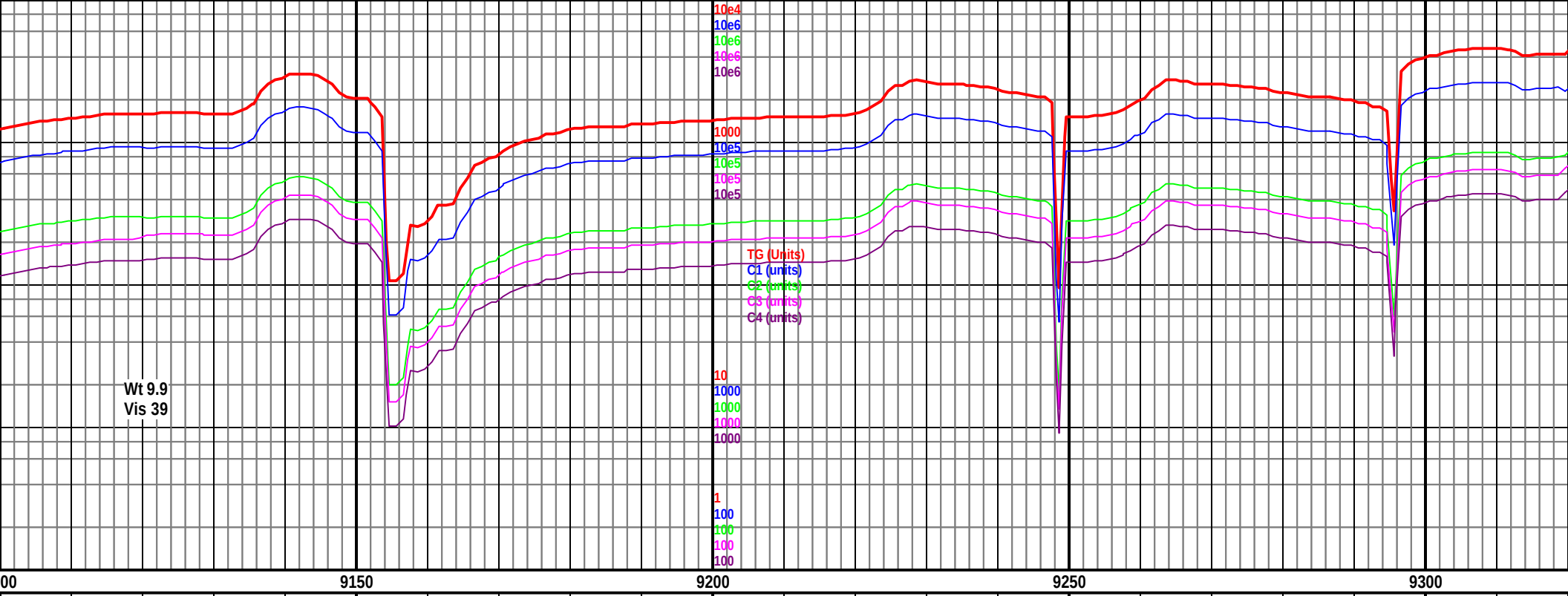
5389
(-638)

P

B

8900-9000 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, Mrlst dk gy, sb blky, sft, vis oil on sample, 50%

9000-9100 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, abnt Mrlst dk gy, sb blky, sft, rr bent, rr pyr, rr calc mat, vis oil on sample, 50%



MD 9103 TVD 5611.32
INC 90.64 AZ 0.44
VS 3212.39

MD 9195 TVD 5610.44
INC 90.46 AZ 0.54
VS 3304.39

MD 9287 TVD 5609.63
INC 90.55 AZ 0.96
VS 3396.37

5389
(-638)

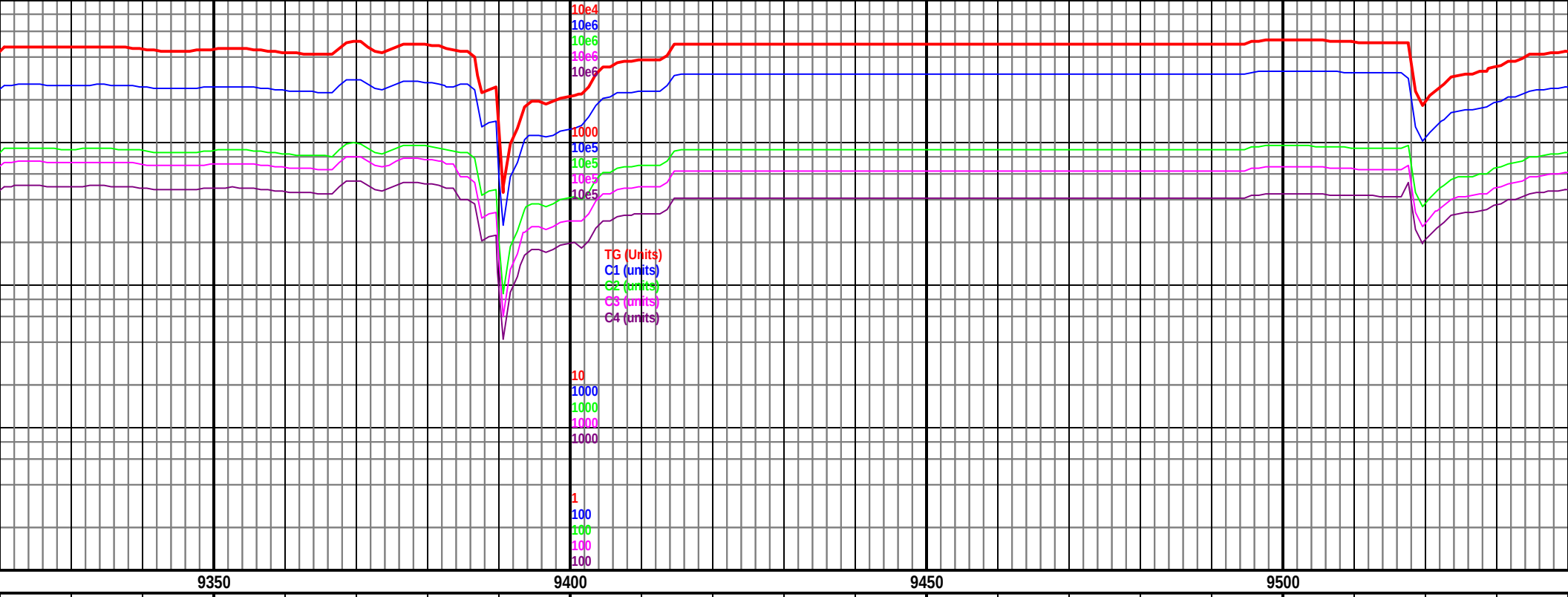
P

B

B

9100-9200 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, abnt Mrlst dk gy, sb blky, sft, rr bent, rr pyr, rr calc mat, vis oil on sample, 50%

9200-9300 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, abnt Mrlst dk gy, sb blky, sft, rr bent, vis oil on sample, 50% Chk, 50% Mrlst



MD 9378 TVD 5608.61
INC 90.73 AZ 0.42
VS 3487.36

4878 TVD
Sub Sea (-127)

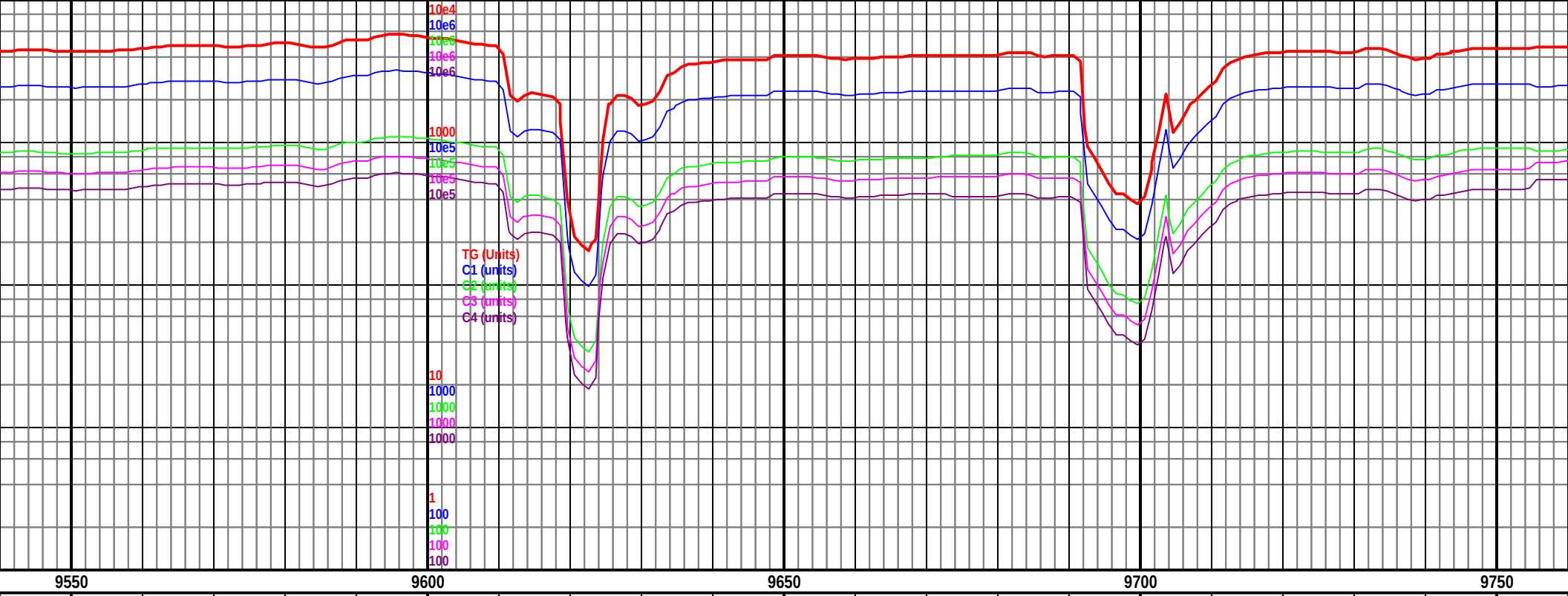
MD 9470 TVD 5607.73
INC 90.37 AZ 0.06
VS 3579.36

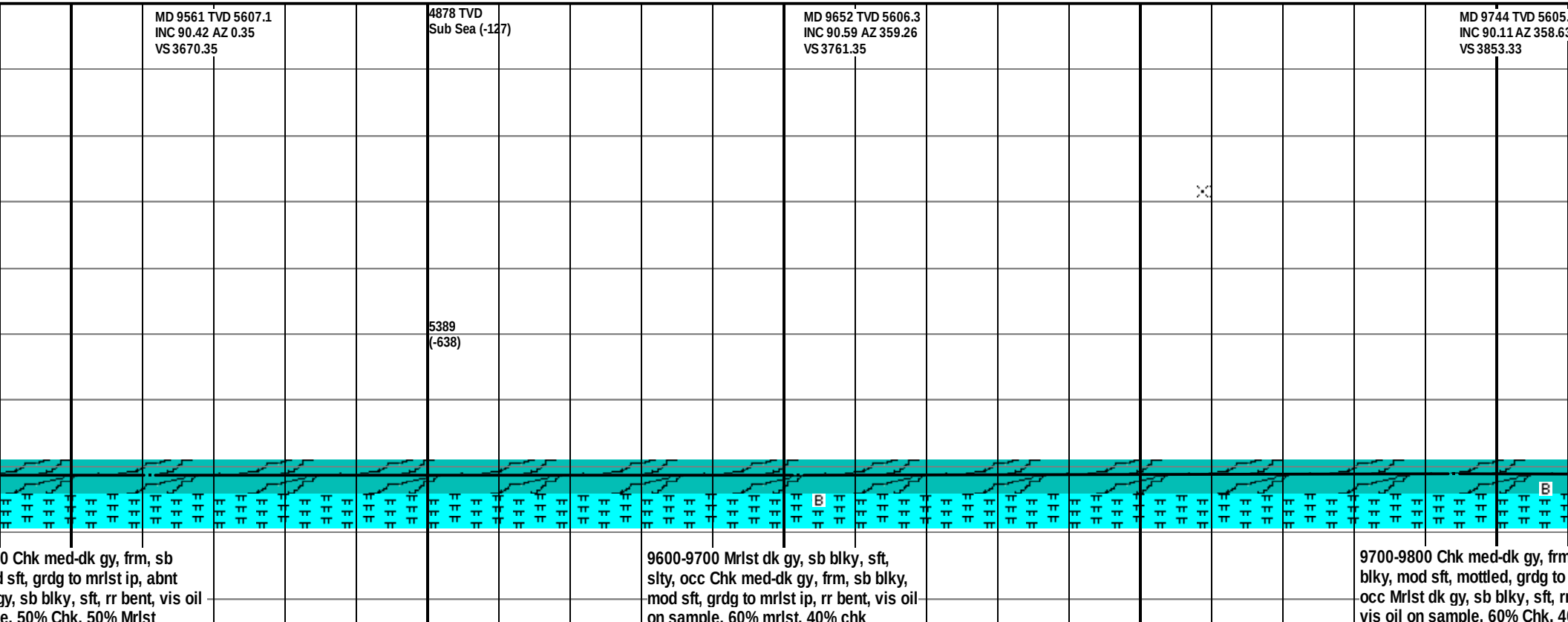
5389
(-638)

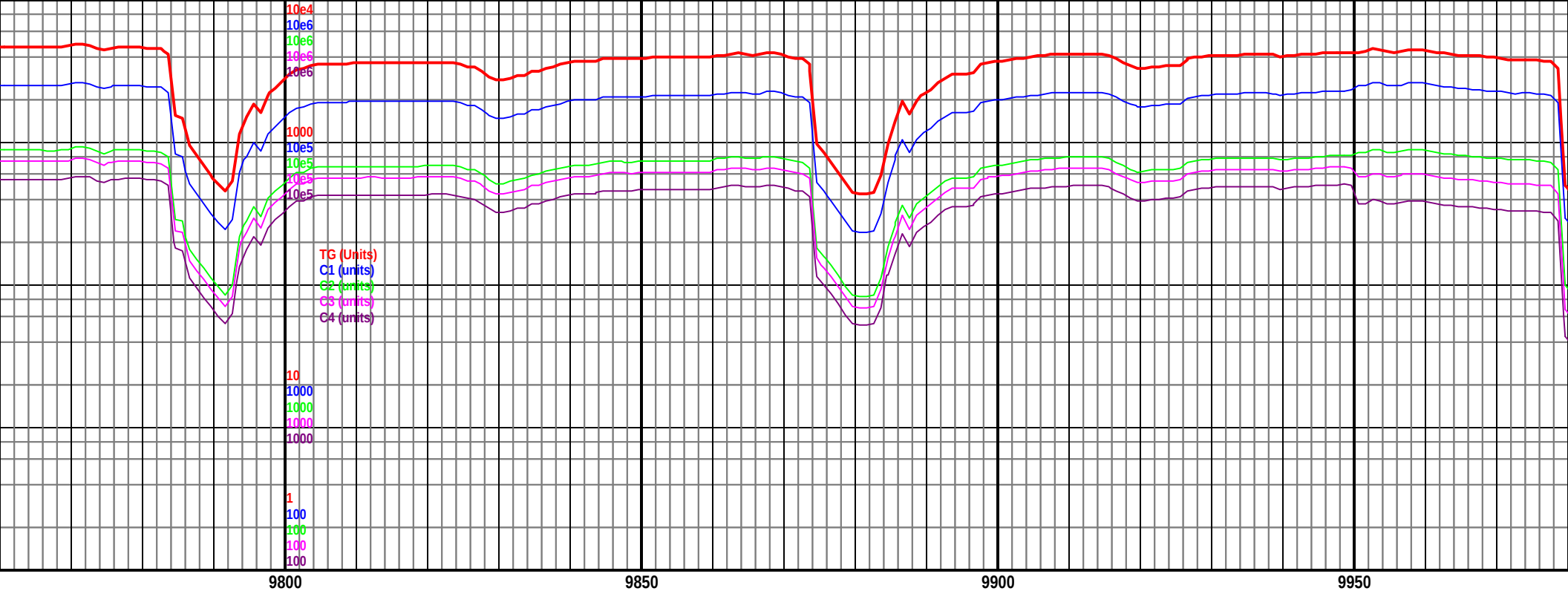
9300-9400 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, abnt Mrlst dk gy, sb blky, sft, rr bent, vis oil on sample, 50% Chk, 50% Mrlst

9400-9500 Chk med-dk gy, frm, sb blky, mod sft, grdg to mrlst ip, abnt Mrlst dk gy, sb blky, sft, rr bent, vis oil on sample, 50% Chk, 50% Mrlst

9500-960
blky, mod
Mrlst dk g
on sampl


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
9550
9600
9650
9700
9750


MD 9561 TVD 5607.1
INC 90.42 AZ 0.35
VS 3670.35
4878 TVD
Sub Sea (-127)
MD 9652 TVD 5606.3
INC 90.59 AZ 359.26
VS 3761.35
MD 9744 TVD 5605.
INC 90.11 AZ 358.63
VS 3853.33
5389
(-638)
B
B
0 Chk med-dk gy, frm, sb
d sft, grdg to mrlst ip, abnt
gy, sb blky, sft, rr bent, vis oil
e, 50% Chk, 50% Mrlst
9600-9700 Mrlst dk gy, sb blky, sft,
slty, occ Chk med-dk gy, frm, sb blky,
mod sft, grdg to mrlst ip, rr bent, vis oil
on sample, 60% mrlst, 40% chk
9700-9800 Chk med-dk gy, frm
blky, mod sft, mottled, grdg to
occ Mrlst dk gy, sb blky, sft, r
vis oil on sample, 60% Chk, 4



.74
3

4878 TVD
Sub Sea (-127)

MD 9835 TVD 5605.98
INC 89.58 AZ 357.57
VS 3944.28

MD 9927 TVD 5606.69
INC 89.54 AZ 357.14
VS 4036.18

5389
(-638)

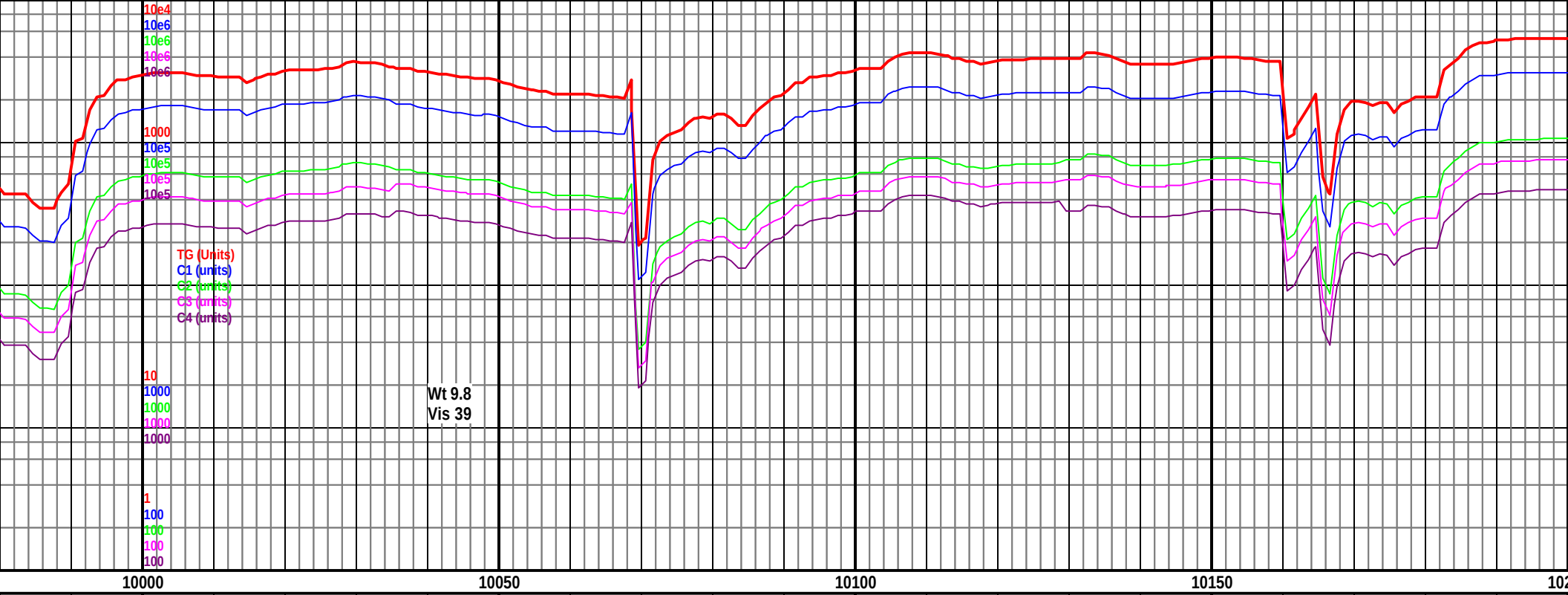
Br

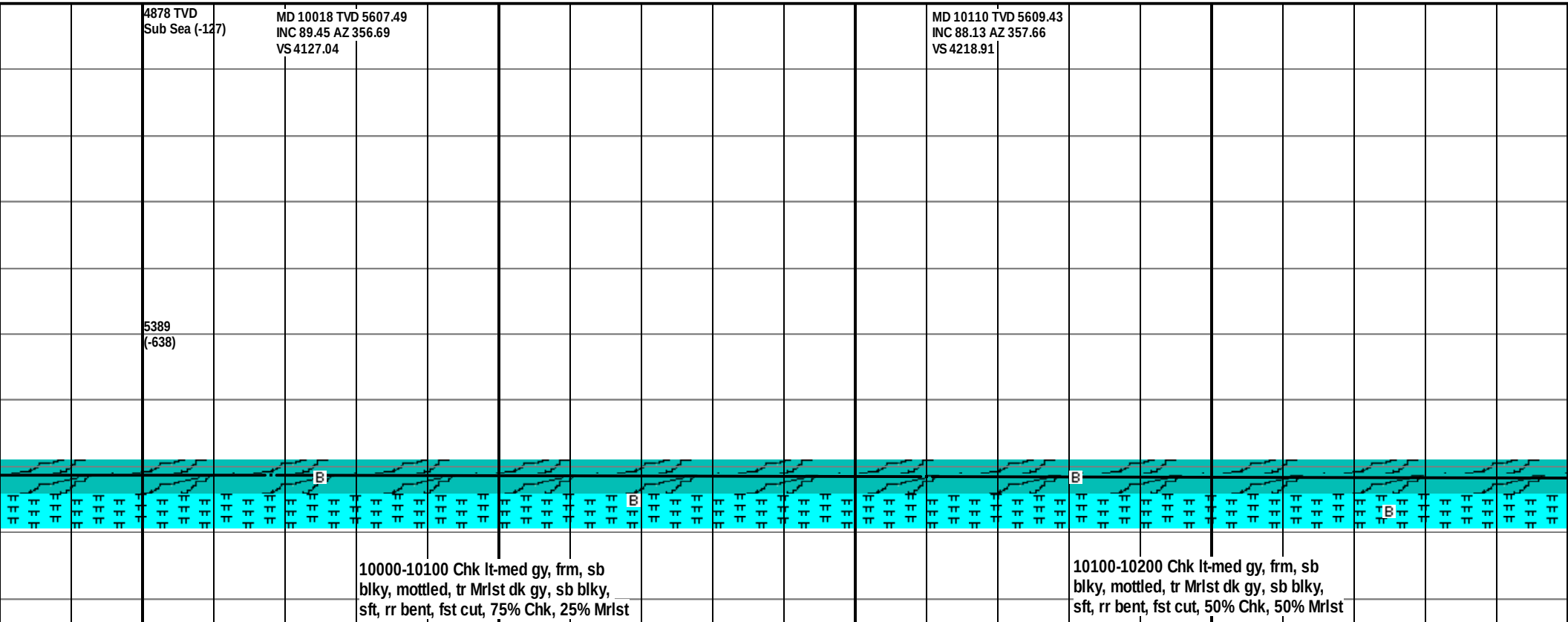
Br

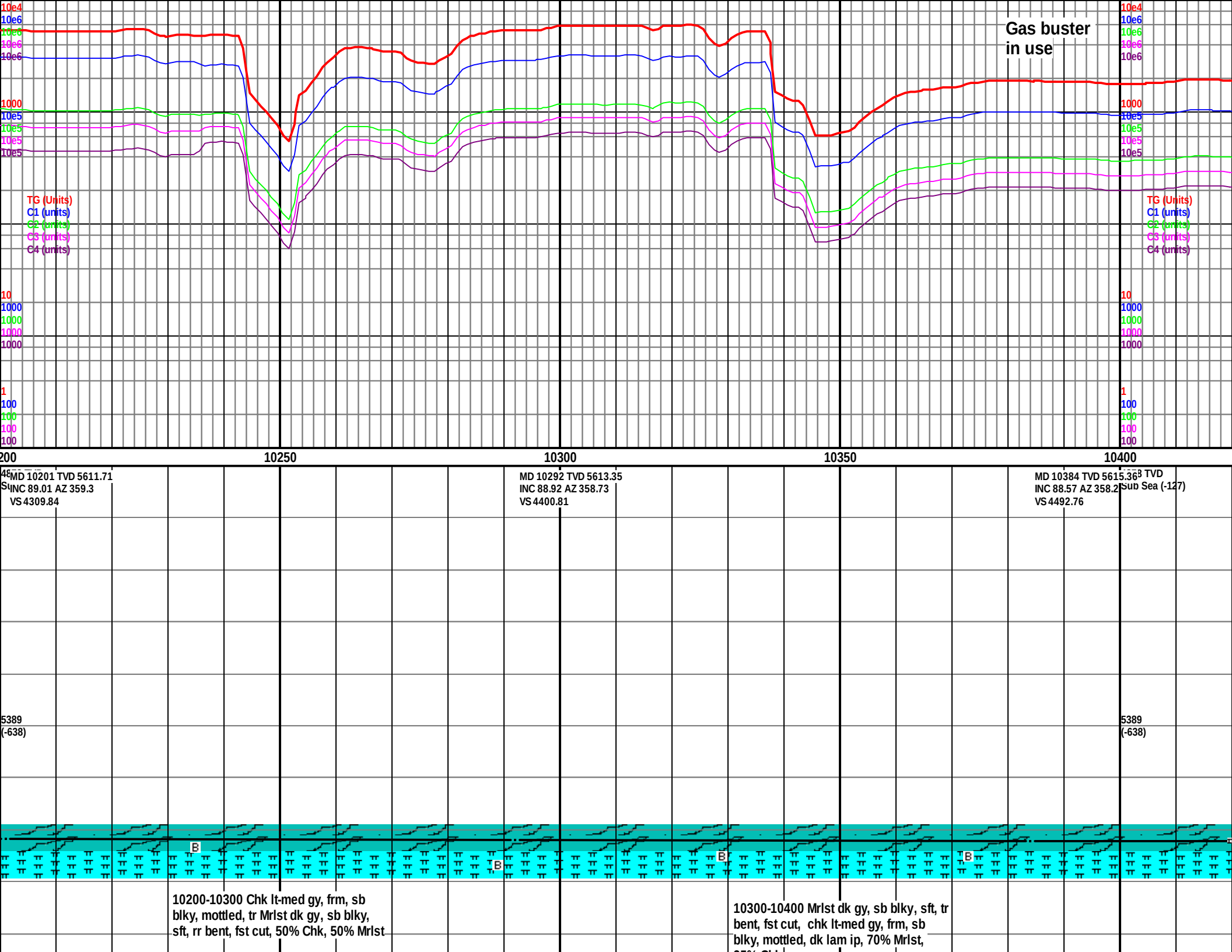
, sb
mrlst ip,
r bent,
0% Mrlst

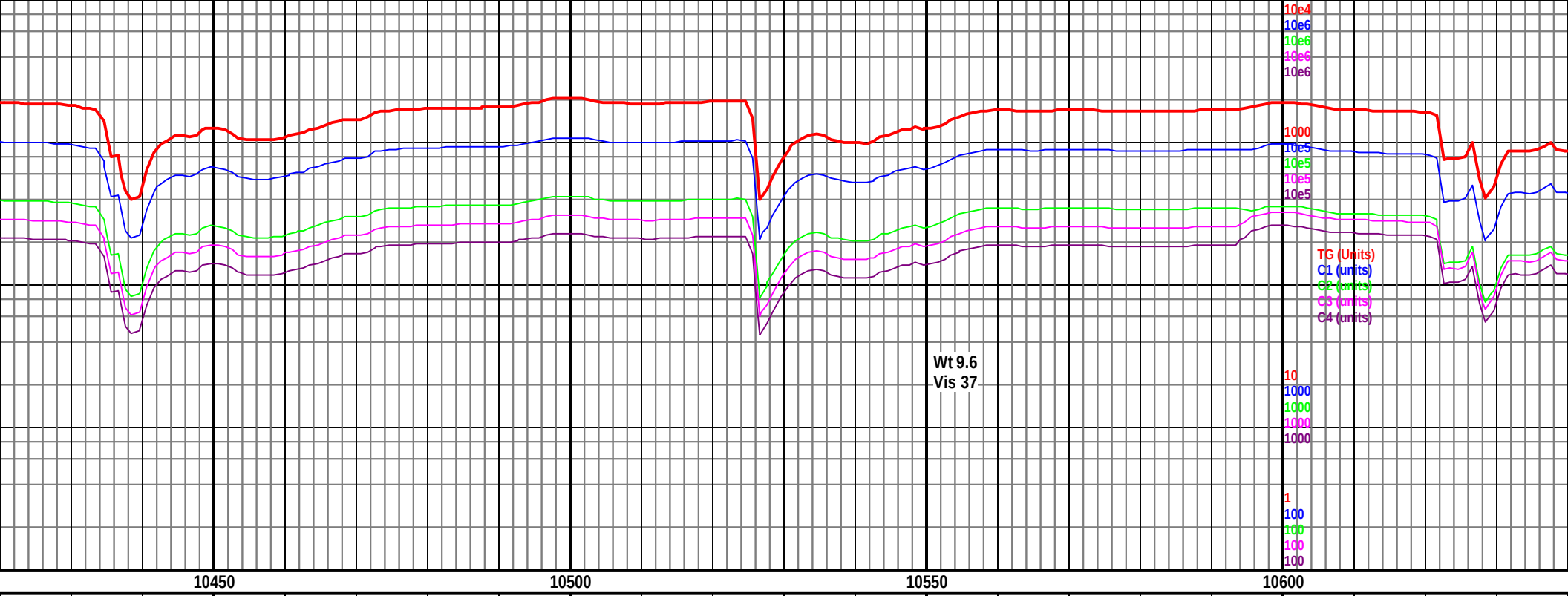
9800-9900 Chk med-dk gy, frm, sb blky, mod sft, mottled, grdg to mrlst ip, occ Mrlst dk gy, sb blky, sft, rr bent, vis oil on sample, 60% Chk, 40% Mrlst

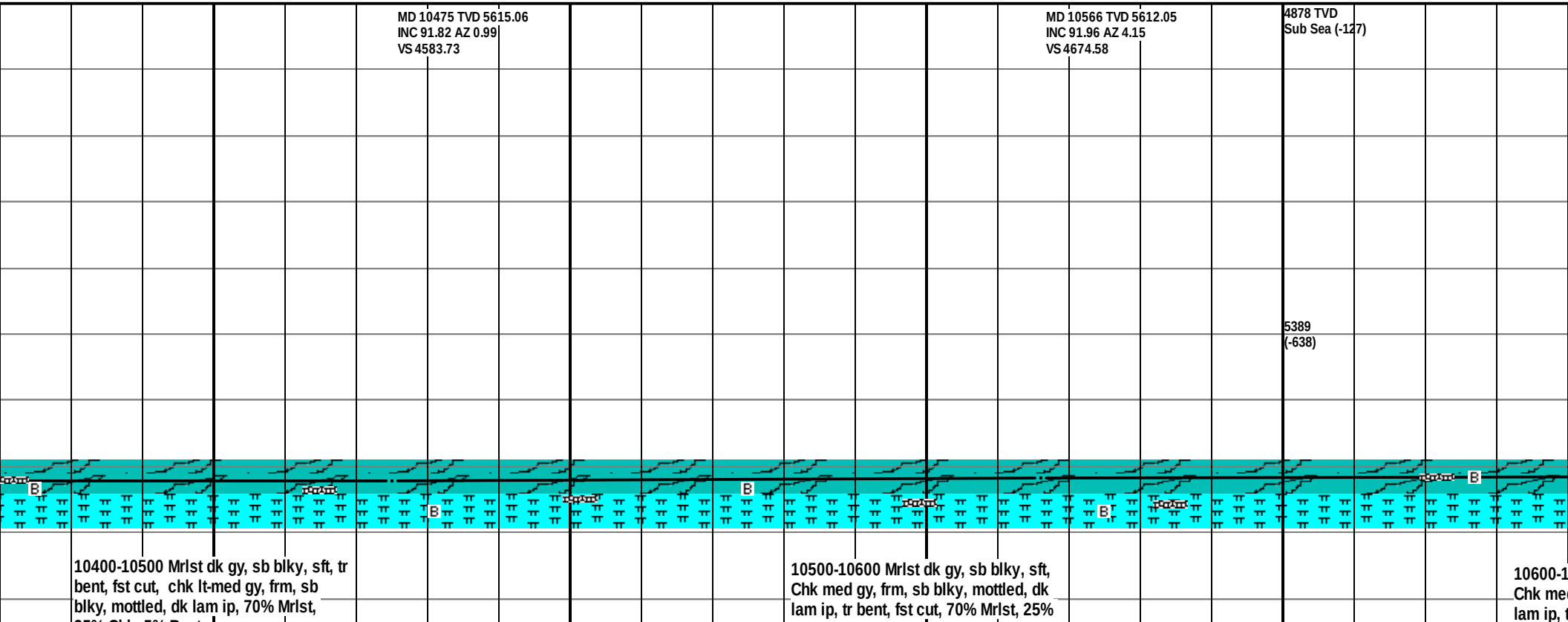
9900-10000 Chk med-dk gy, frm, sb blky, mod sft, mottled, grdg to mrlst ip, occ Mrlst dk gy, sb blky, sft, rr bent, vis oil on sample, 60% Chk, 40% Mrlst

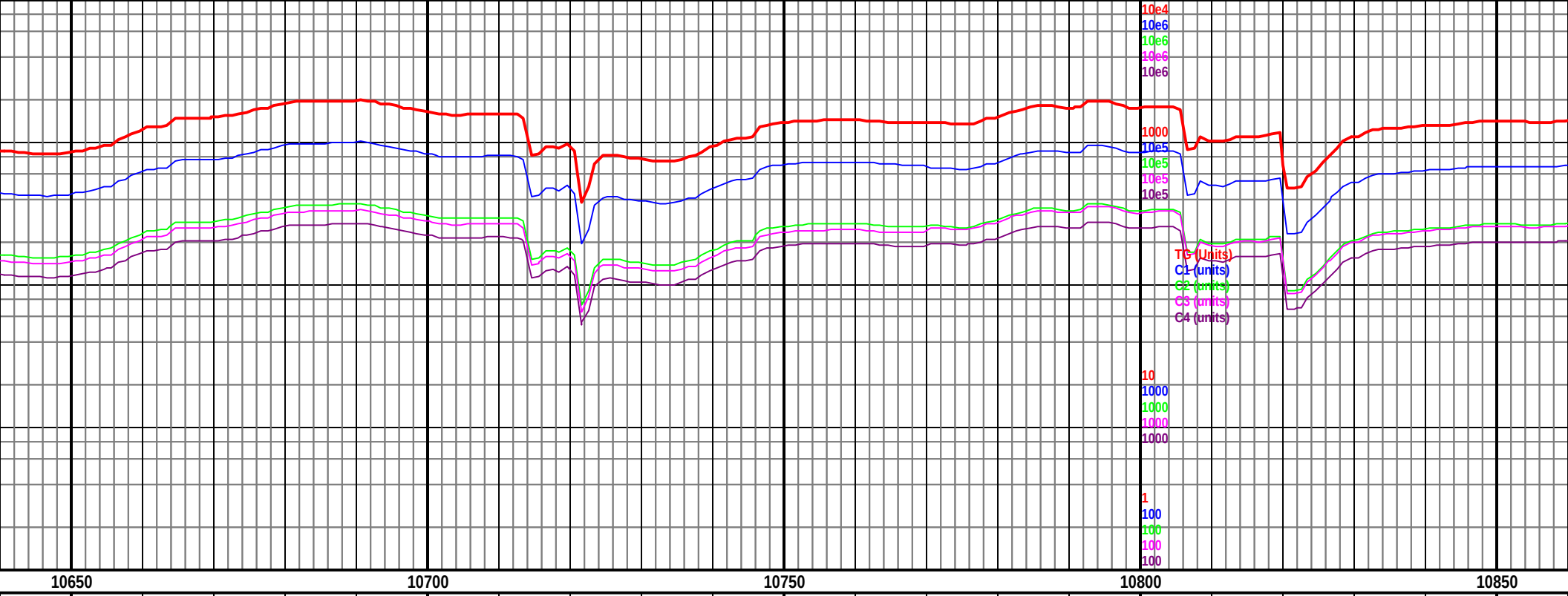

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.8
Vis 39
10000
10050
10100
10150
102

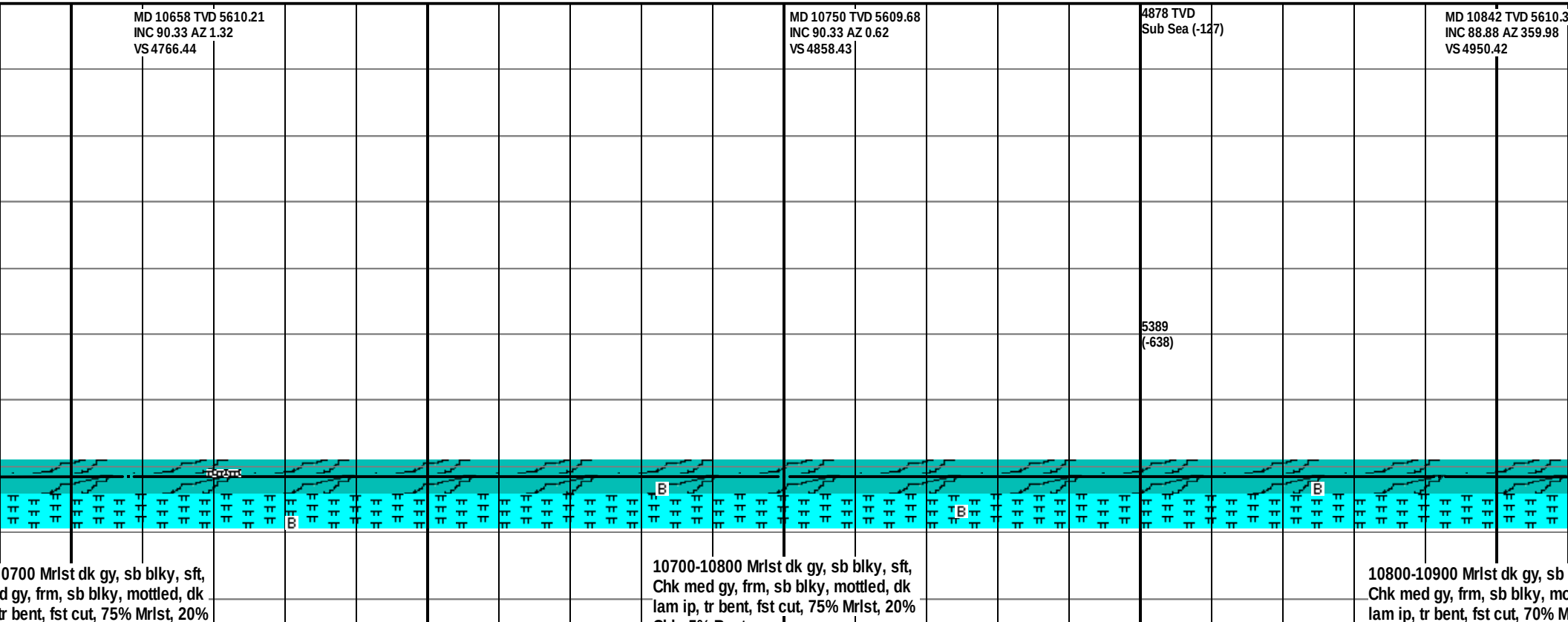

4878 TVD
Sub Sea (-127)
MD 10018 TVD 5607.49
INC 89.45 AZ 356.69
VS 4127.04
MD 10110 TVD 5609.43
INC 88.13 AZ 357.66
VS 4218.91
5389
(-638)
B
B
B
B
10000-10100 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky, sft, rr bent, fst cut, 75% Chk, 25% Mrlst
10100-10200 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky, sft, rr bent, fst cut, 50% Chk, 50% Mrlst

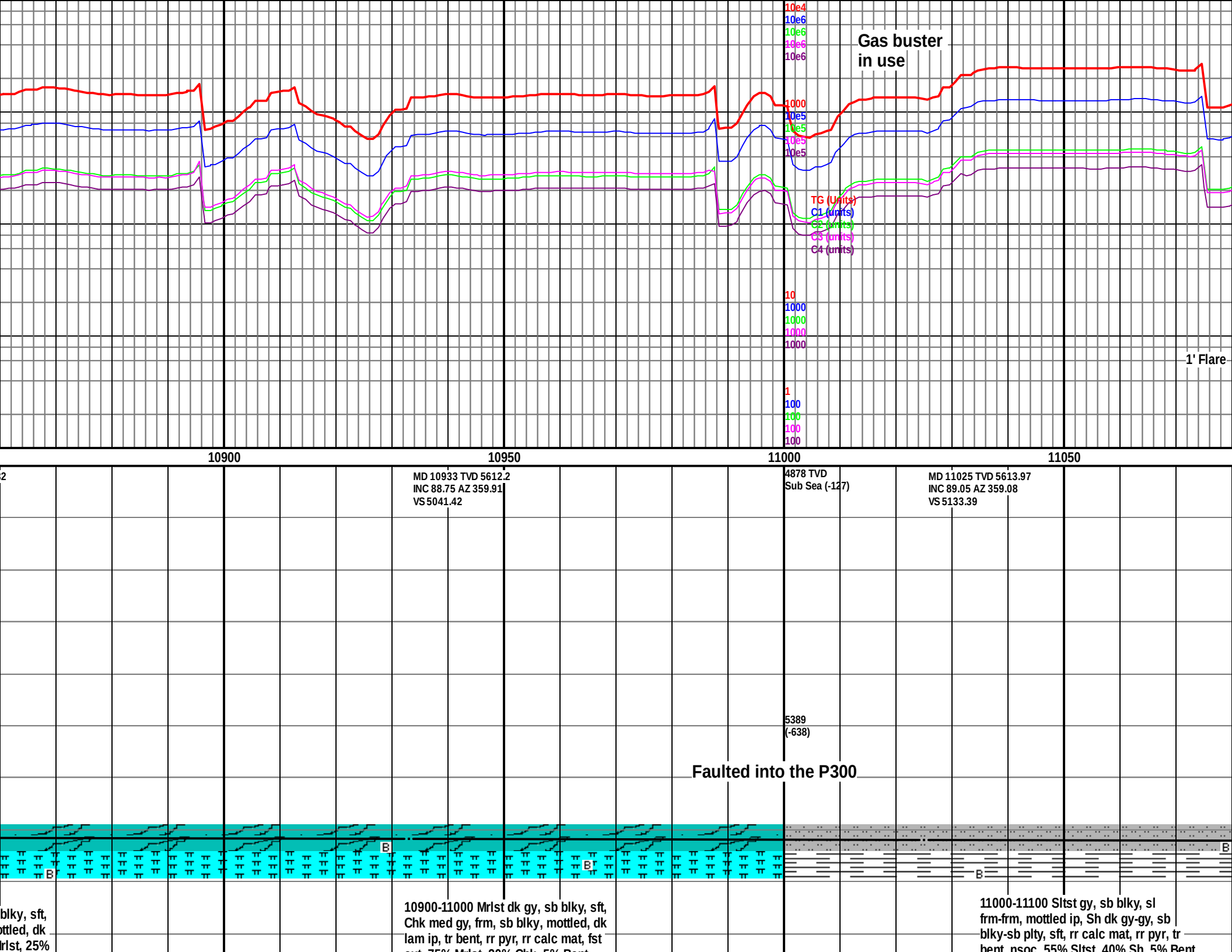

Gas buster
in use
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10200
10250
10300
10350
10400
MD 10201 TVD 5611.71
INC 89.01 AZ 359.3
VS 4309.84
MD 10292 TVD 5613.35
INC 88.92 AZ 358.73
VS 4400.81
MD 10384 TVD 5615.36
INC 88.57 AZ 358.2
VS 4492.76
Sub Sea (-127)
5389
(-638)
B
10200-10300 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky, sft, rr bent, fst cut, 50% Chk, 50% Mrlst
10300-10400 Mrlst dk gy, sb blky, sft, tr bent, fst cut, chk lt-med gy, frm, sb blky, mottled, dk lam ip, 70% Mrlst,

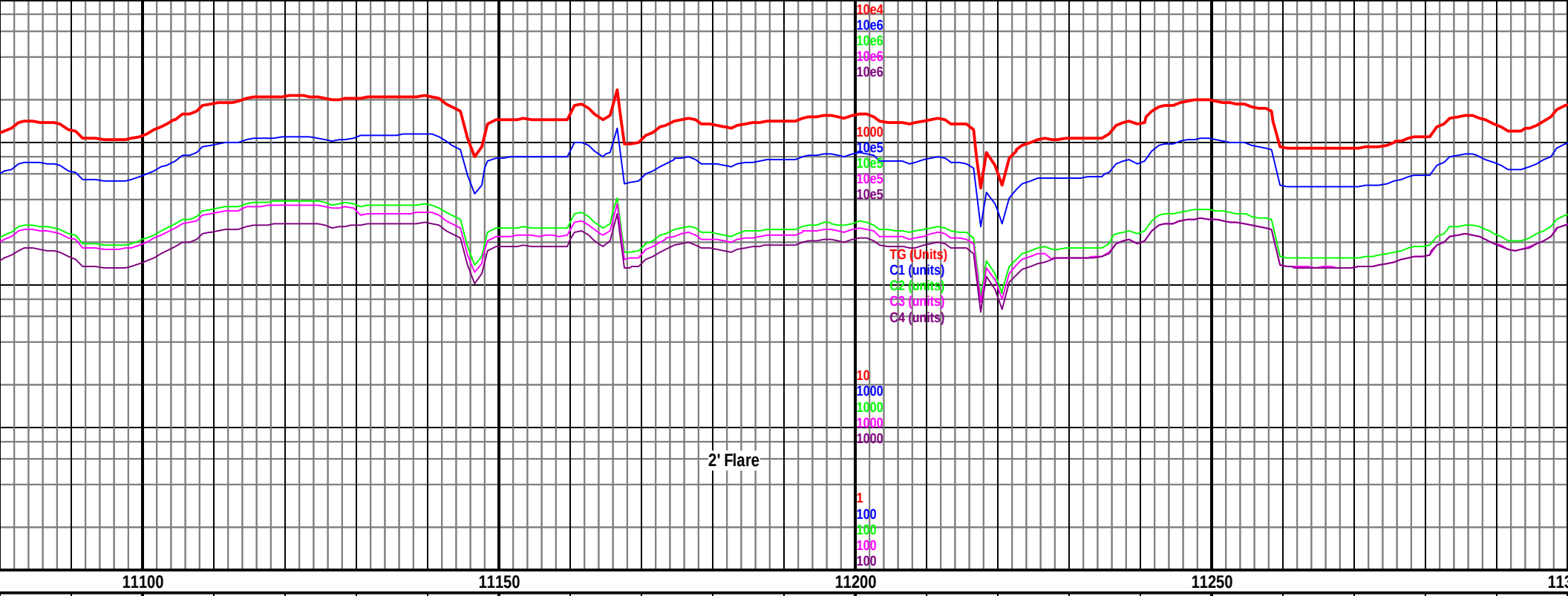

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.6
Vis 37
10
1000
1000
1000
1000
1
100
100
100
100
10450
10500
10550
10600


MD 10475 TVD 5615.06
INC 91.82 AZ 0.99
VS 4583.73
MD 10566 TVD 5612.05
INC 91.96 AZ 4.15
VS 4674.58
4878 TVD
Sub Sea (-127)
5389
(-638)
B
B
B
B
B
10400-10500 Mrlst dk gy, sb blky, sft, tr bent, fst cut, chk lt-med gy, frm, sb blky, mottled, dk lam ip, 70% Mrlst,
10500-10600 Mrlst dk gy, sb blky, sft, Chk med gy, frm, sb blky, mottled, dk lam ip, tr bent, fst cut, 70% Mrlst, 25%
10600-1
Chk me
lam ip, t


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
10650
10700
10750
10800
10850


MD 10658 TVD 5610.21
INC 90.33 AZ 1.32
VS 4766.44
MD 10750 TVD 5609.68
INC 90.33 AZ 0.62
VS 4858.43
4878 TVD
Sub Sea (-127)
MD 10842 TVD 5610.3
INC 88.88 AZ 359.98
VS 4950.42
5389
(-638)
B
B
B
B
0700 Mrlst dk gy, sb blky, sft,
d gy, frm, sb blky, mottled, dk
tr bent, fst cut, 75% Mrlst, 20%
10700-10800 Mrlst dk gy, sb blky, sft,
Chk med gy, frm, sb blky, mottled, dk
lam ip, tr bent, fst cut, 75% Mrlst, 20%
10800-10900 Mrlst dk gy, sb
Chk med gy, frm, sb blky, mo
lam ip, tr bent, fst cut, 70% M


Gas buster
in use
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
1' Flare
10900
10950
11000
11050
MD 10933 TVD 5612.2
INC 88.75 AZ 359.91
VS 5041.42
4878 TVD
Sub Sea (-127)
MD 11025 TVD 5613.97
INC 89.05 AZ 359.08
VS 5133.39
5389
(-638)
Faulted into the P300
10900-11000 Mrlst dk gy, sb blky, sft,
Chk med gy, frm, sb blky, mottled, dk
lam ip, tr bent, rr pyr, rr calc mat, fst
11000-11100 Sltst gy, sb blky, sl
frm-frm, mottled ip, Sh dk gy-gy, sb
blky-sb plty, sft, rr calc mat, rr pyr, tr



MD 11116 TVD 5614.81
INC 89.89 AZ 357.72
VS 5224.35

4878 TVD
Sub Sea (

MD 11207 TVD 5615.01
INC 89.85 AZ 357.7
VS 5315.28

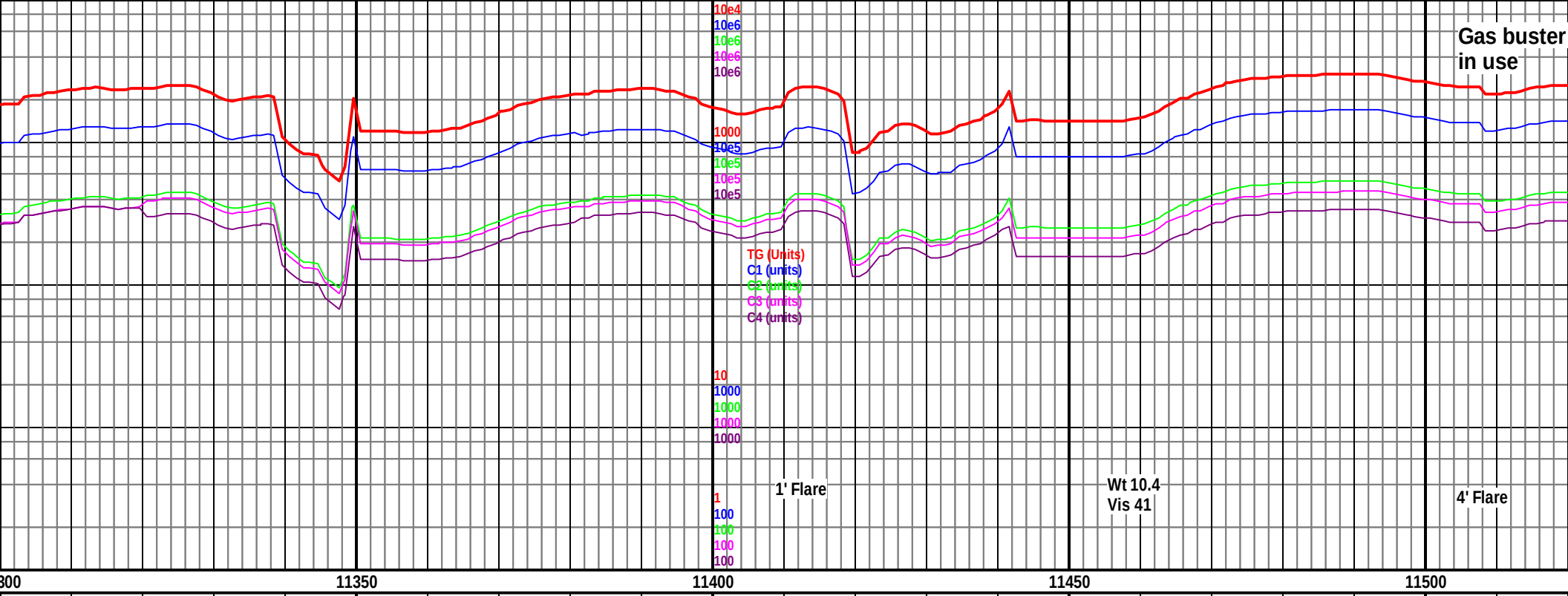
5389
(-638)

B

B

11100-11200 Sltst gy, sb blky, sl frm-frm, mottled ip, Sh dk gy-gy, sb blky-sb plty, sft, rr calc mat, rr pyr, rr bent, nsoc, 50% Sltst, 45% Sh, 5% Bent

11200-11300 Sh dk gy-gy, sb blky-sb plty, sft, Sltst gy, sb blky, sl frm-frm, mottled ip, slow cut, rr calc mat, rr pyr, rr bent, vis oil on shkr, 60% Sh, 40%



MD 11299 TVD 5615.26
INC 89.85 AZ 357.59
VS 5407.2

MD 11390 TVD 5615.49
INC 89.85 AZ 357.57 (-127)
VS 5498.12

MD 11481 TVD 5616.19
INC 89.27 AZ 357.5
VS 5589.03

5389
(-638)

B

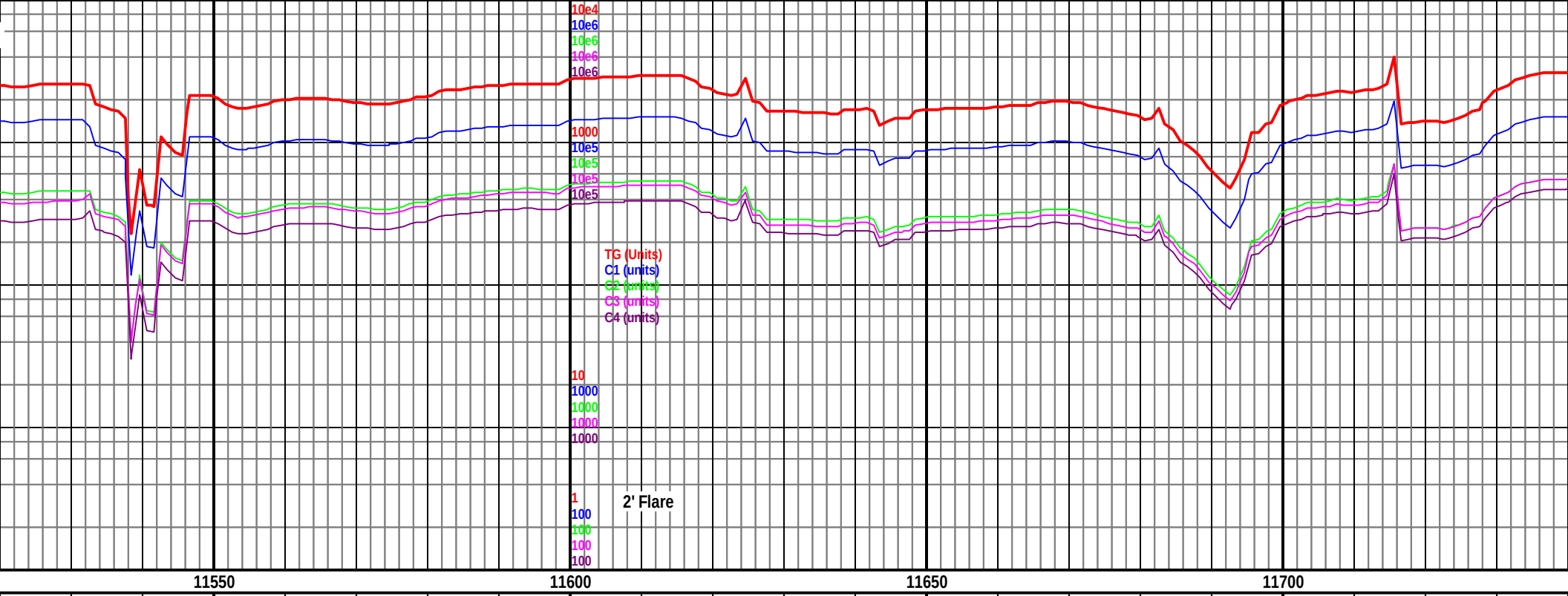
B

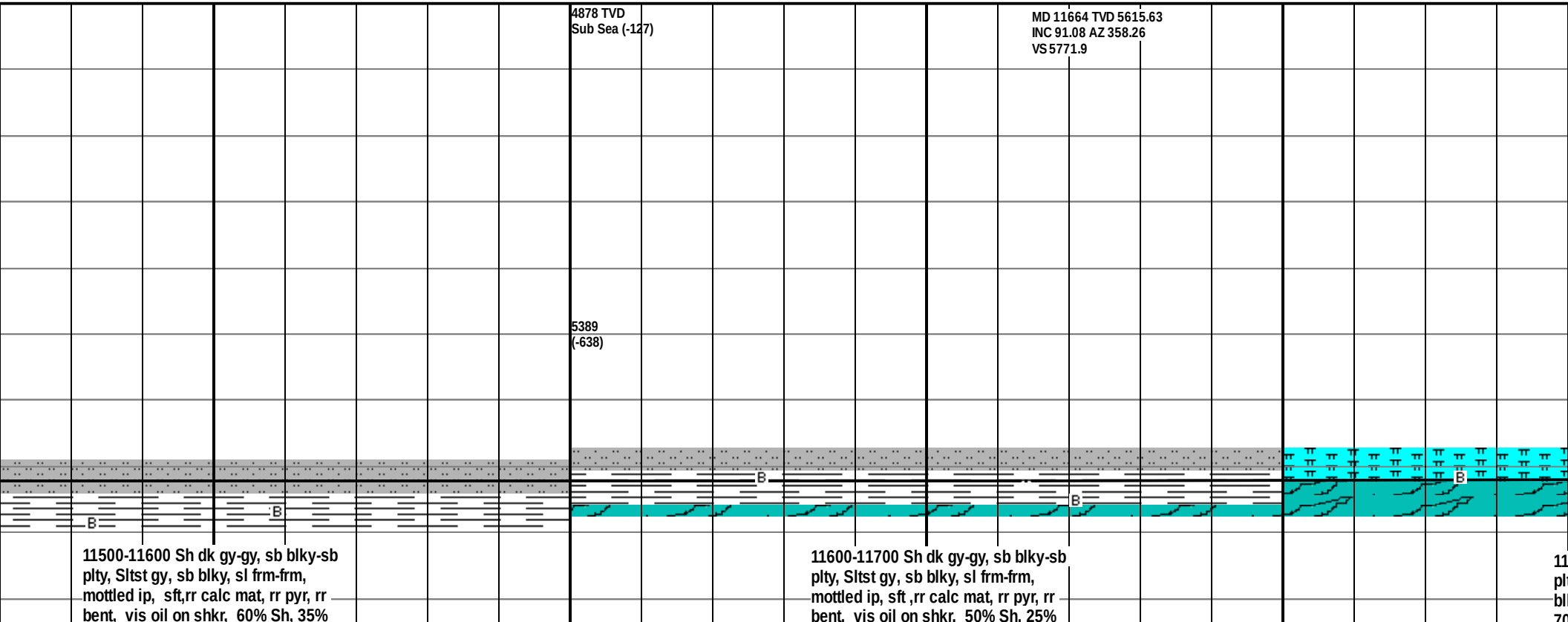
B

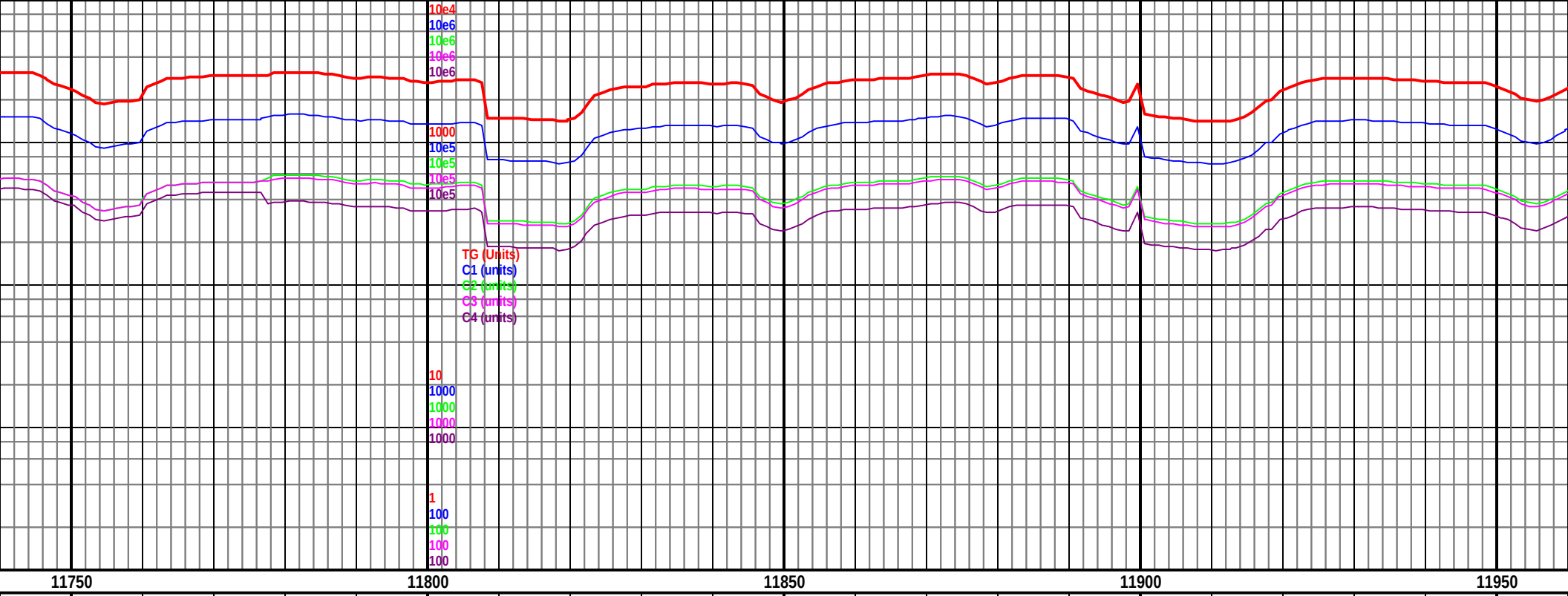
B

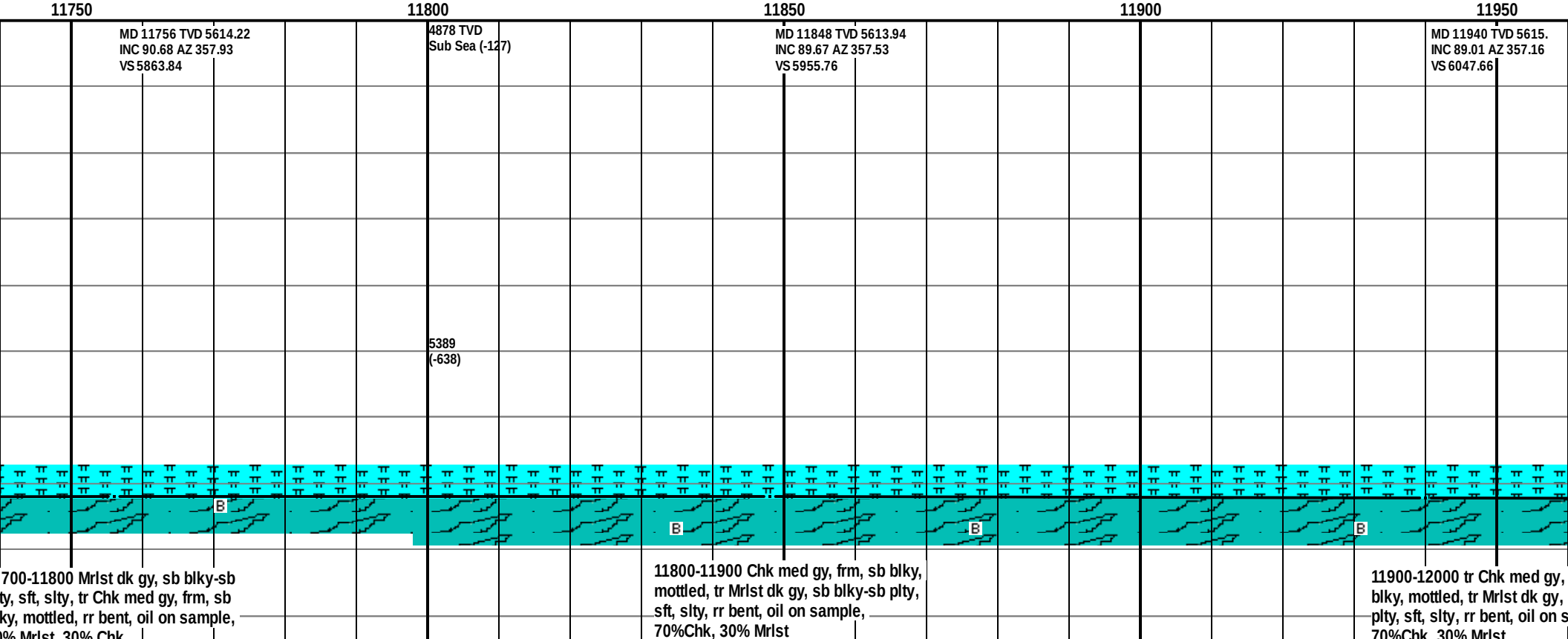
11300-11400 Sh dk gy-gy, sb blky-sb plty, sft, Sltst gy, sb blky, sl frm-frm, mottled ip, rr calc mat, rr pyr, tr bent,

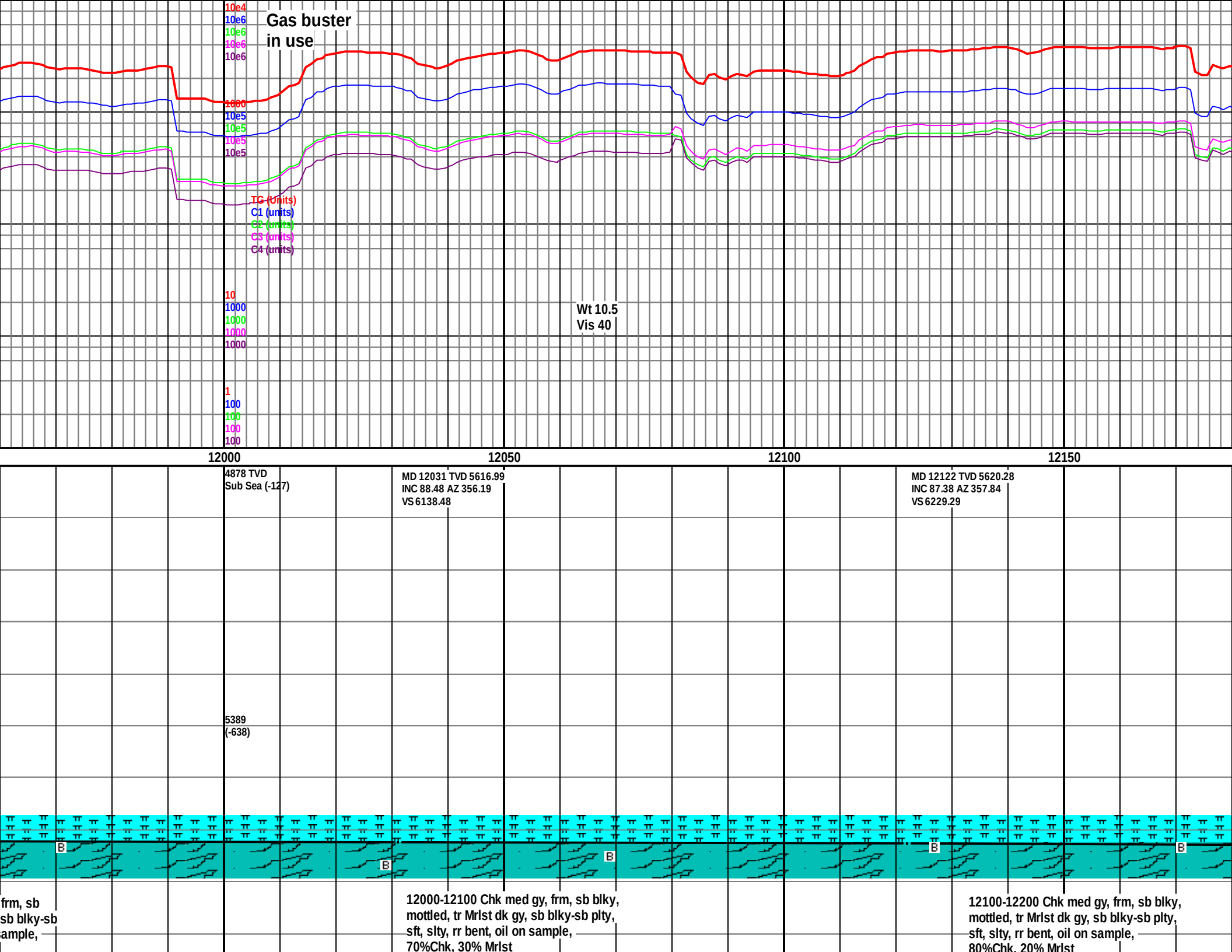
11400-11500 Sh dk gy-gy, sb blky-sb plty, Sltst gy, sb blky, sl frm-frm, mottled ip, sft,rr calc mat, rr pyr, rr

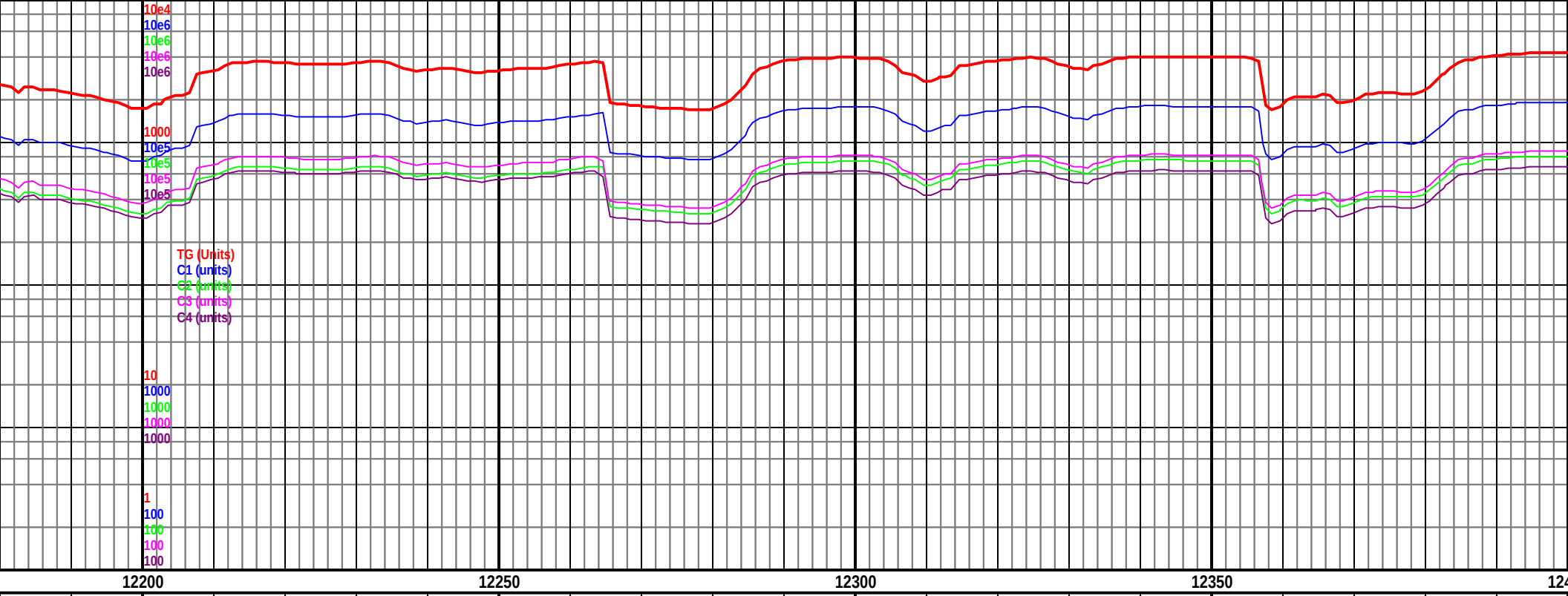

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
2' Flare
11550
11600
11650
11700

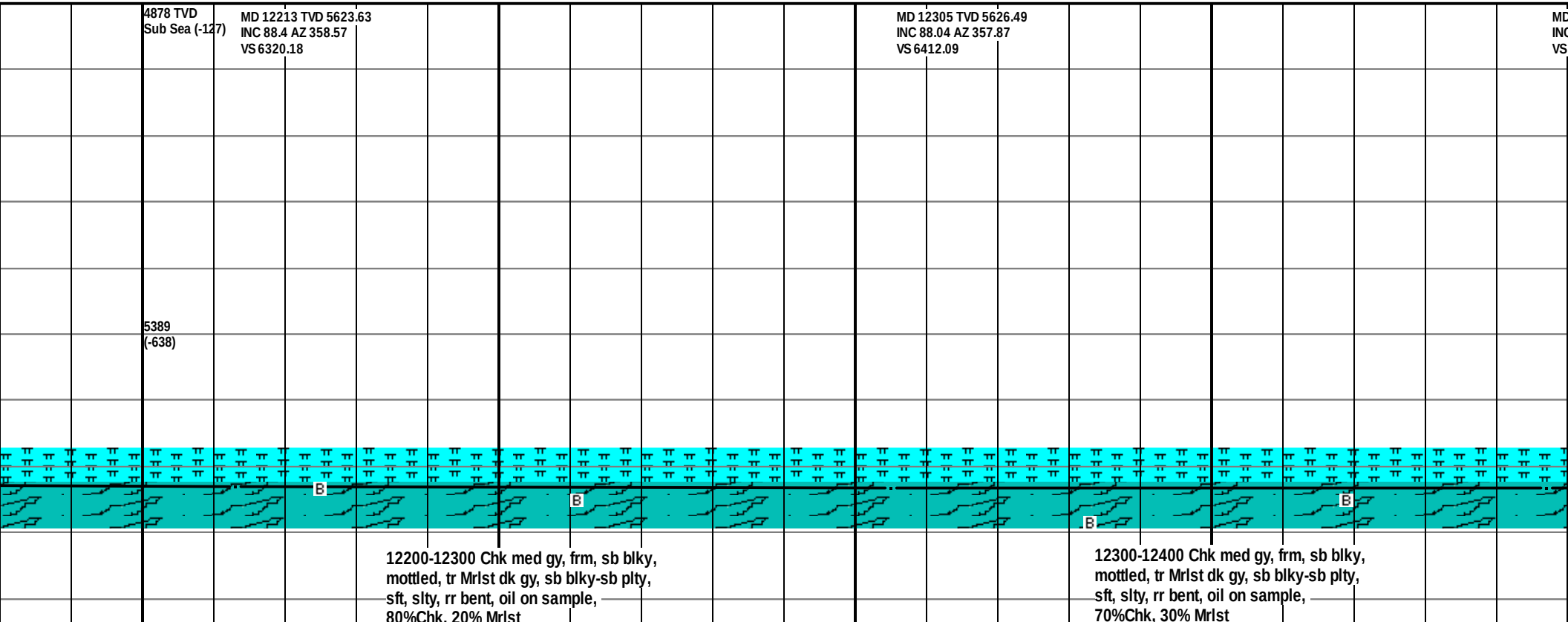

4878 TVD
Sub Sea (-127)
MD 11664 TVD 5615.63
INC 91.08 AZ 358.26
VS 5771.9
5389
(-638)
B
B
B
B
B
11500-11600 Sh dk gy-gy, sb blky-sb plty, Sltst gy, sb blky, sl frm-frm, mottled ip, sft,rr calc mat, rr pyr, rr bent, vis oil on shkr, 60% Sh, 35%
11600-11700 Sh dk gy-gy, sb blky-sb plty, Sltst gy, sb blky, sl frm-frm, mottled ip, sft ,rr calc mat, rr pyr, rr bent, vis oil on shkr, 50% Sh, 25%

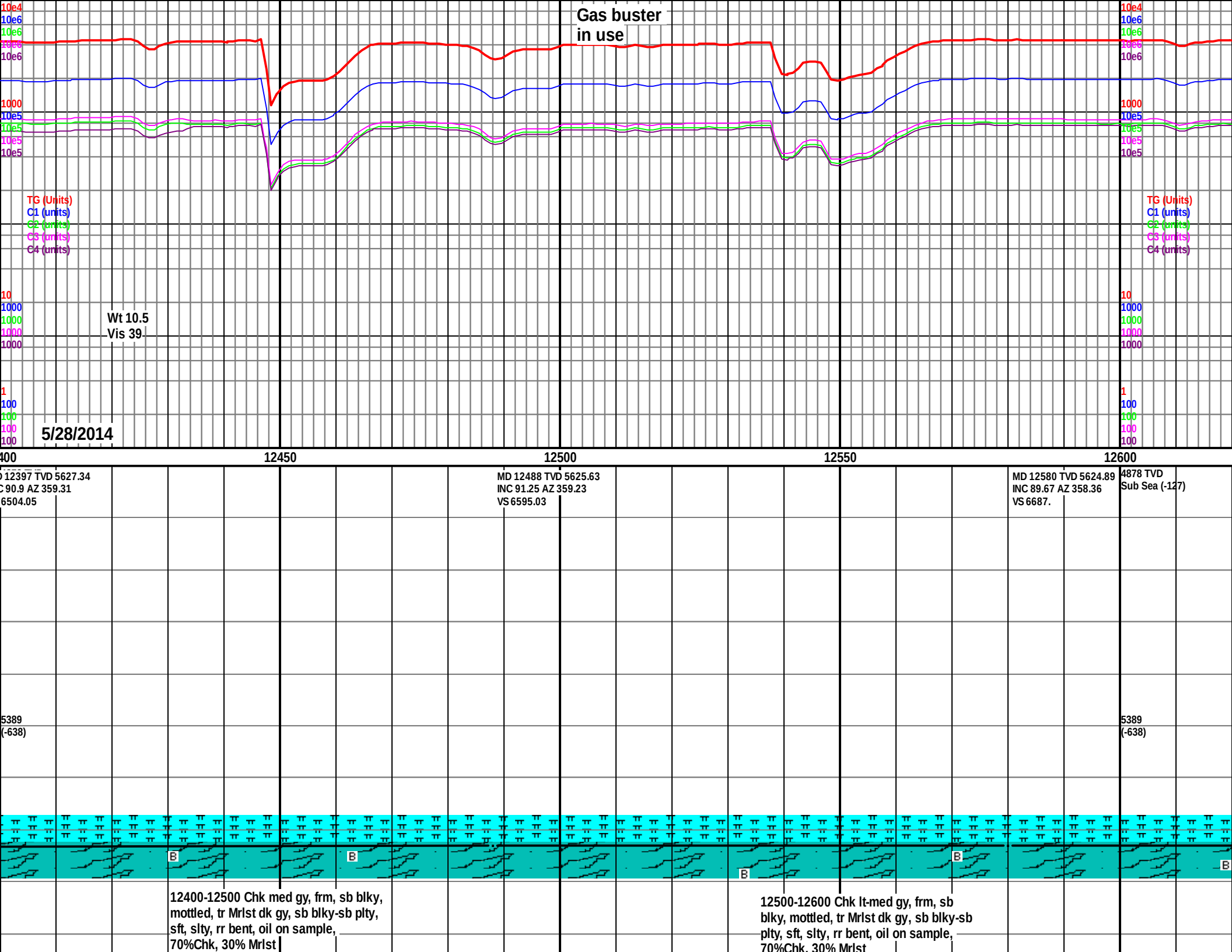

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100

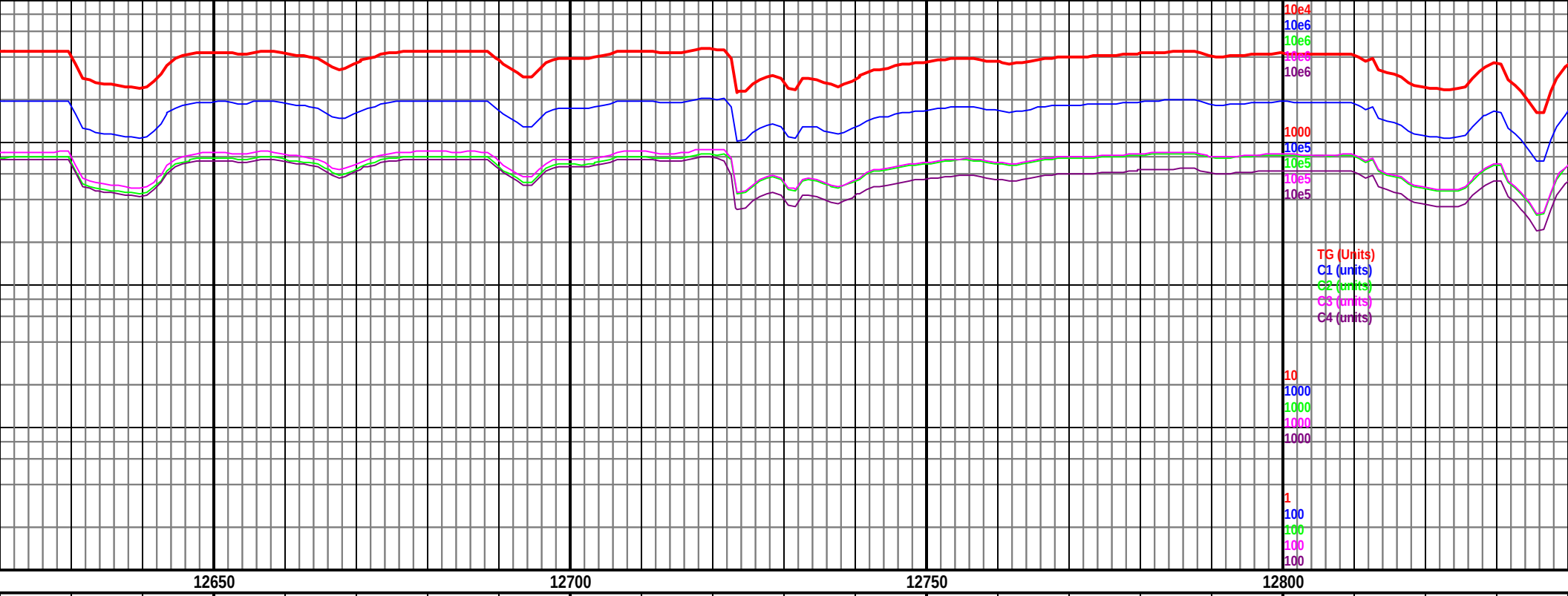

11750
11800
11850
11900
11950
MD 11756 TVD 5614.22
INC 90.68 AZ 357.93
VS 5863.84
4878 TVD
Sub Sea (-127)
MD 11848 TVD 5613.94
INC 89.67 AZ 357.53
VS 5955.76
MD 11940 TVD 5615.
INC 89.01 AZ 357.16
VS 6047.66
5389
(-638)
B
B
B
B
700-11800 Mrlst dk gy, sb blky-sb
ty, sft, slty, tr Chk med gy, frm, sb
ky, mottled, rr bent, oil on sample,
11800-11900 Chk med gy, frm, sb blky,
mottled, tr Mrlst dk gy, sb blky-sb plty,
sft, slty, rr bent, oil on sample,
70%Chk, 30% Mrlst
11900-12000 tr Chk med gy,
blky, mottled, tr Mrlst dk gy,
plty, sft, slty, rr bent, oil on s
70%Chk, 30% Mrlst

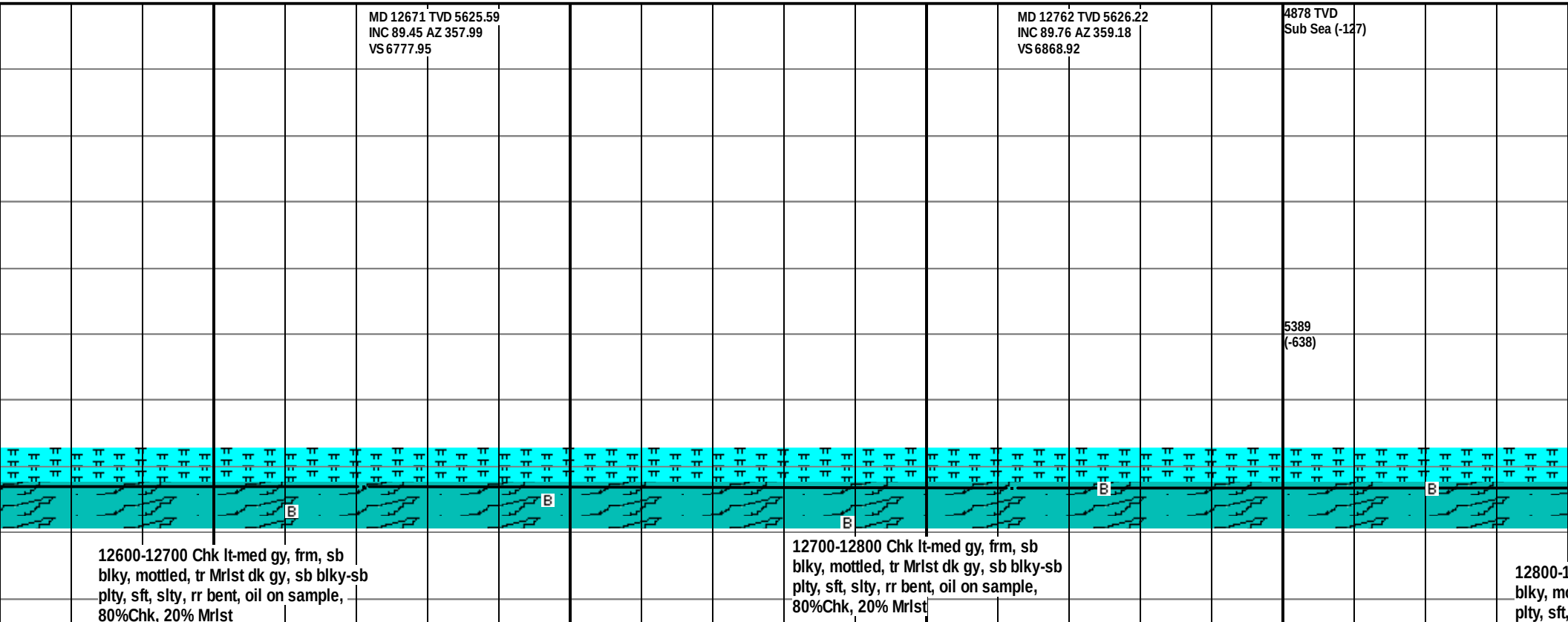

Gas buster
in use
10e4
10e6
10e6
10e6
10e6
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.5
Vis 40
12000
12050
12100
12150
4878 TVD
Sub Sea (-127)
MD 12031 TVD 5616.99
INC 88.48 AZ 356.19
VS 6138.48
MD 12122 TVD 5620.28
INC 87.38 AZ 357.84
VS 6229.29
5389
(-638)
B
B
B
B
B
frm, sb
sb blky-sb
ample,
12000-12100 Chk med gy, frm, sb blky,
mottled, tr Mrlst dk gy, sb blky-sb plty,
sft, slty, rr bent, oil on sample,
70%Chk, 30% Mrlst
12100-12200 Chk med gy, frm, sb blky,
mottled, tr Mrlst dk gy, sb blky-sb plty,
sft, slty, rr bent, oil on sample,
80%Chk, 20% Mrlst

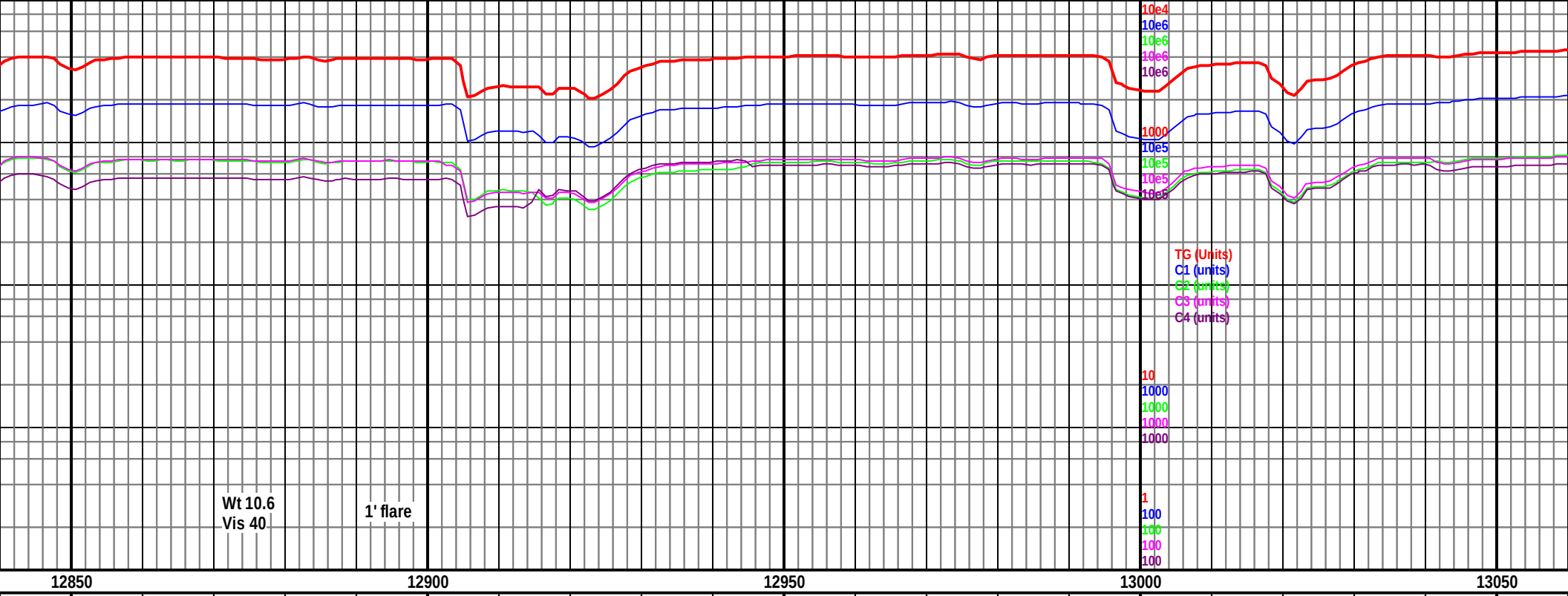

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
12200
12250
12300
12350
124


4878 TVD
Sub Sea (-127)
MD 12213 TVD 5623.63
INC 88.4 AZ 358.57
VS 6320.18
MD 12305 TVD 5626.49
INC 88.04 AZ 357.87
VS 6412.09
MD
INC
VS
5389
(-638)
B
B
B
B
12200-12300 Chk med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 80%Chk, 20% Mrlst
12300-12400 Chk med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 70%Chk, 30% Mrlst


Gas buster
in use
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.5
Vis 39
5/28/2014
12450
12500
12550
12600
MD 12397 TVD 5627.34
INC 90.9 AZ 359.31
VS 6504.05
MD 12488 TVD 5625.63
INC 91.25 AZ 359.23
VS 6595.03
MD 12580 TVD 5624.89
INC 89.67 AZ 358.36
VS 6687.
4878 TVD
Sub Sea (-127)
5389
(-638)
12400-12500 Chk med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 70%Chk, 30% Mrlst
12500-12600 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 70%Chk, 30% 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
12650
12700
12750
12800


MD 12671 TVD 5625.59
INC 89.45 AZ 357.99
VS 6777.95
MD 12762 TVD 5626.22
INC 89.76 AZ 359.18
VS 6868.92
4878 TVD
Sub Sea (-127)
5389
(-638)
B
B
B
B
B
12600-12700 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 80%Chk, 20% Mrlst
12700-12800 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, oil on sample, 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
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1000
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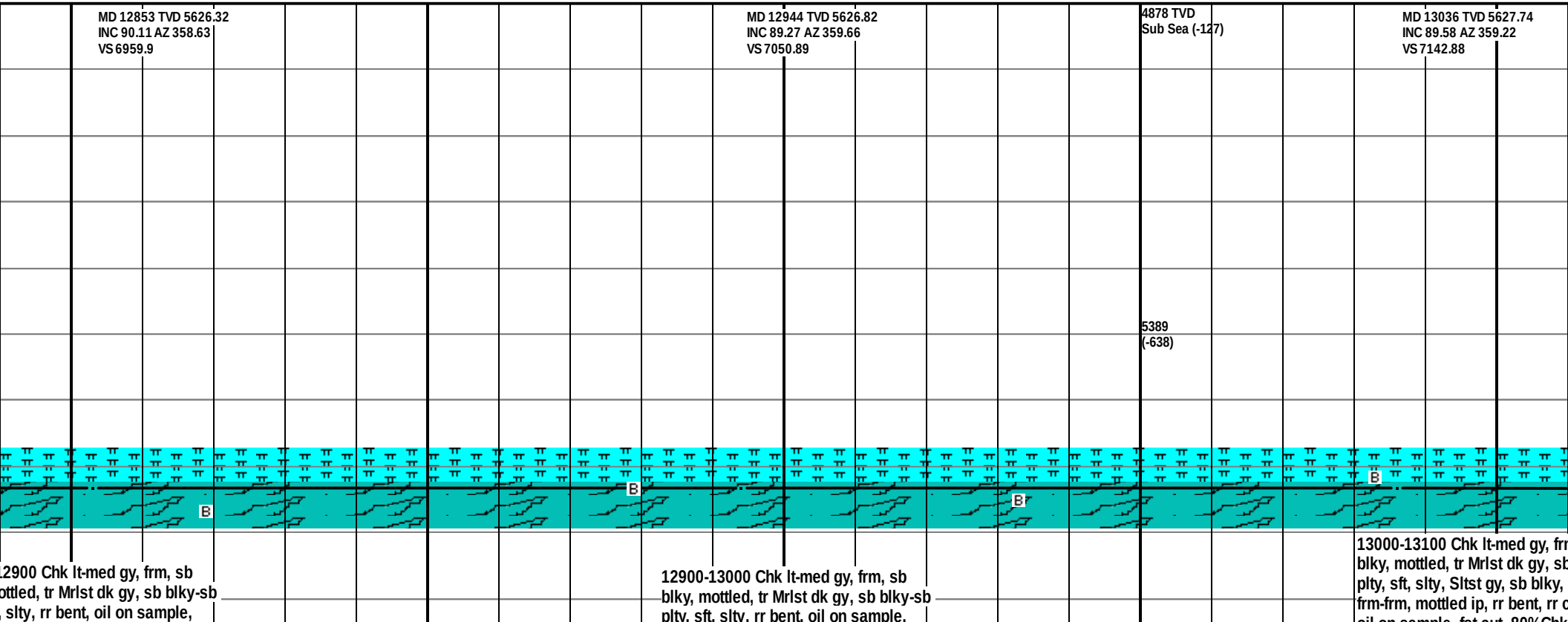
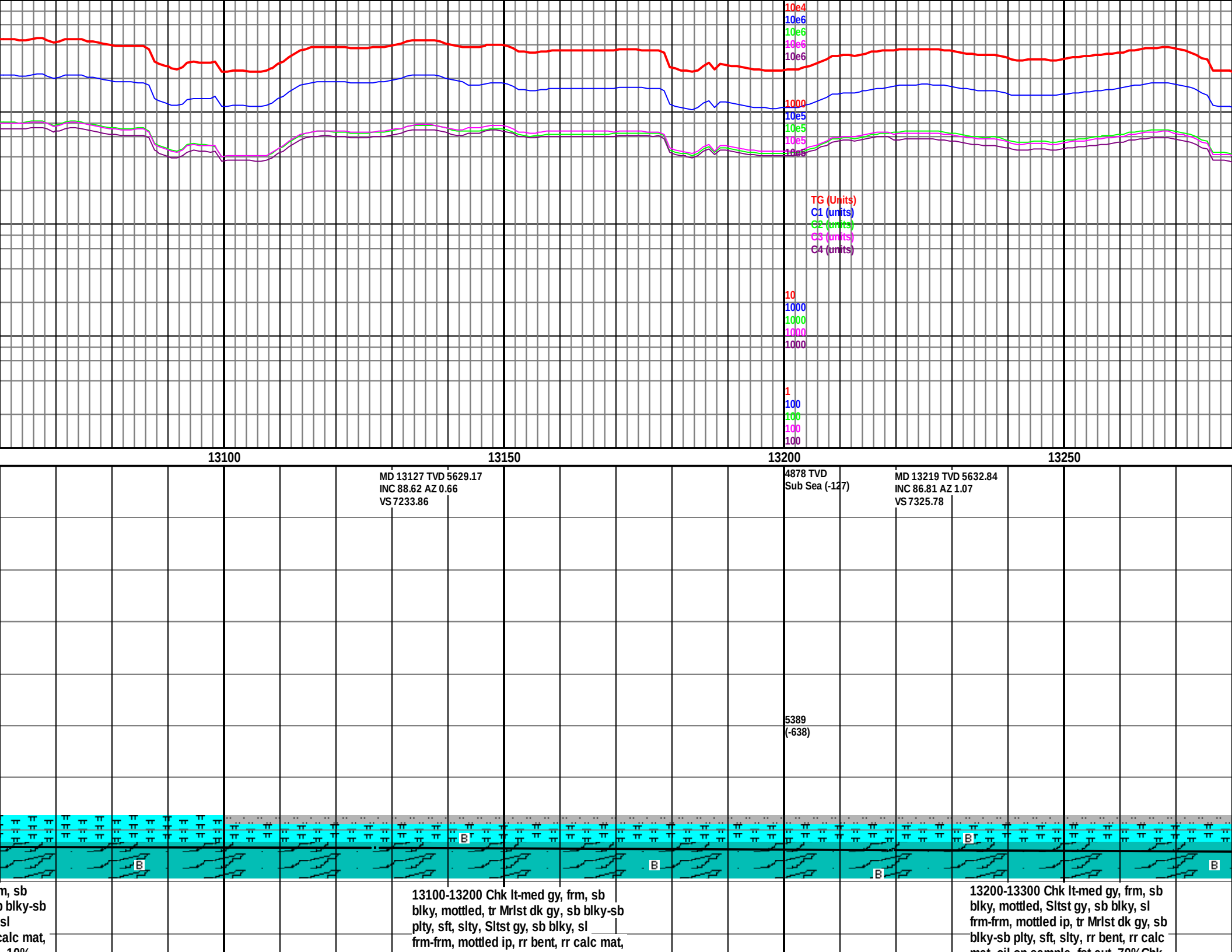
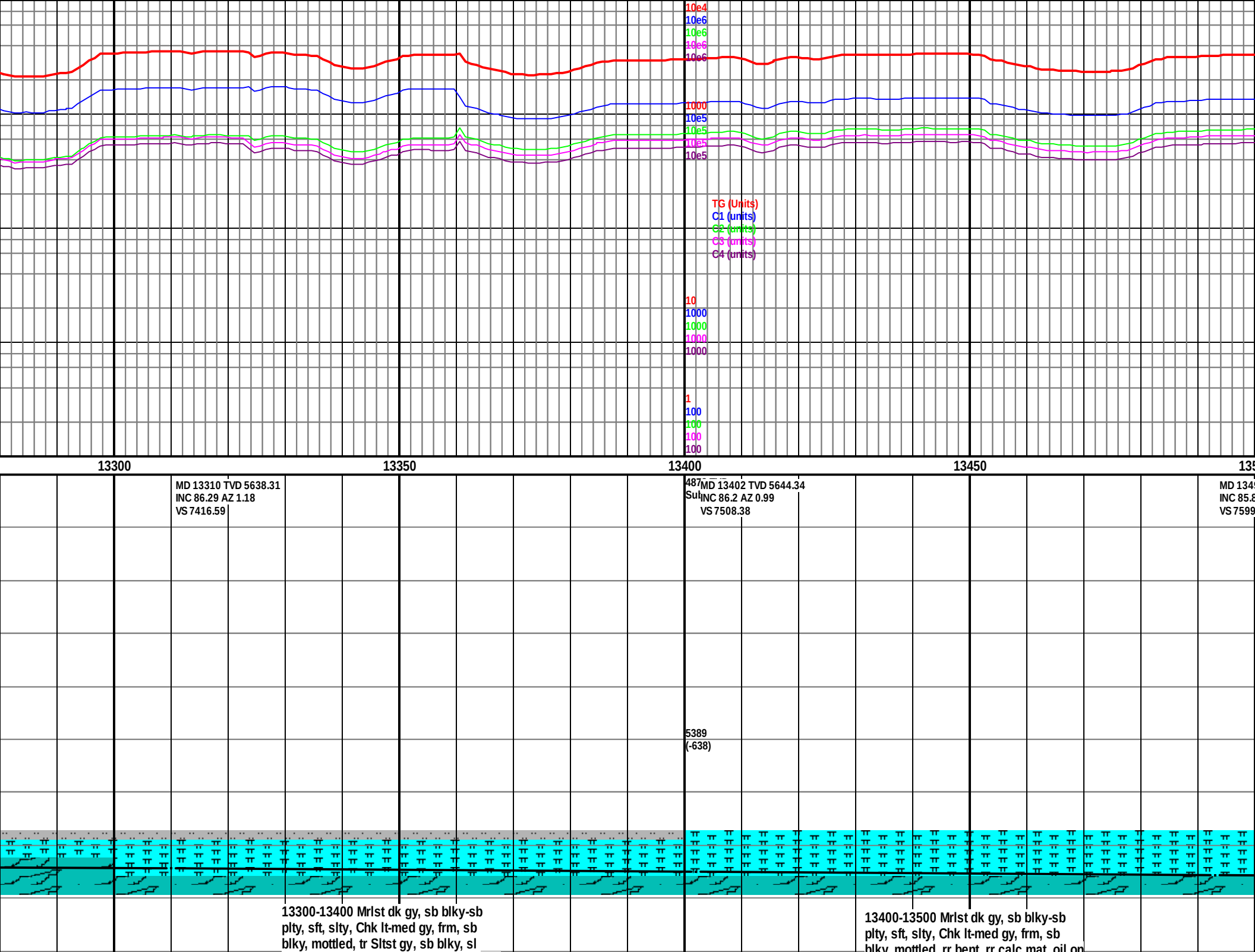
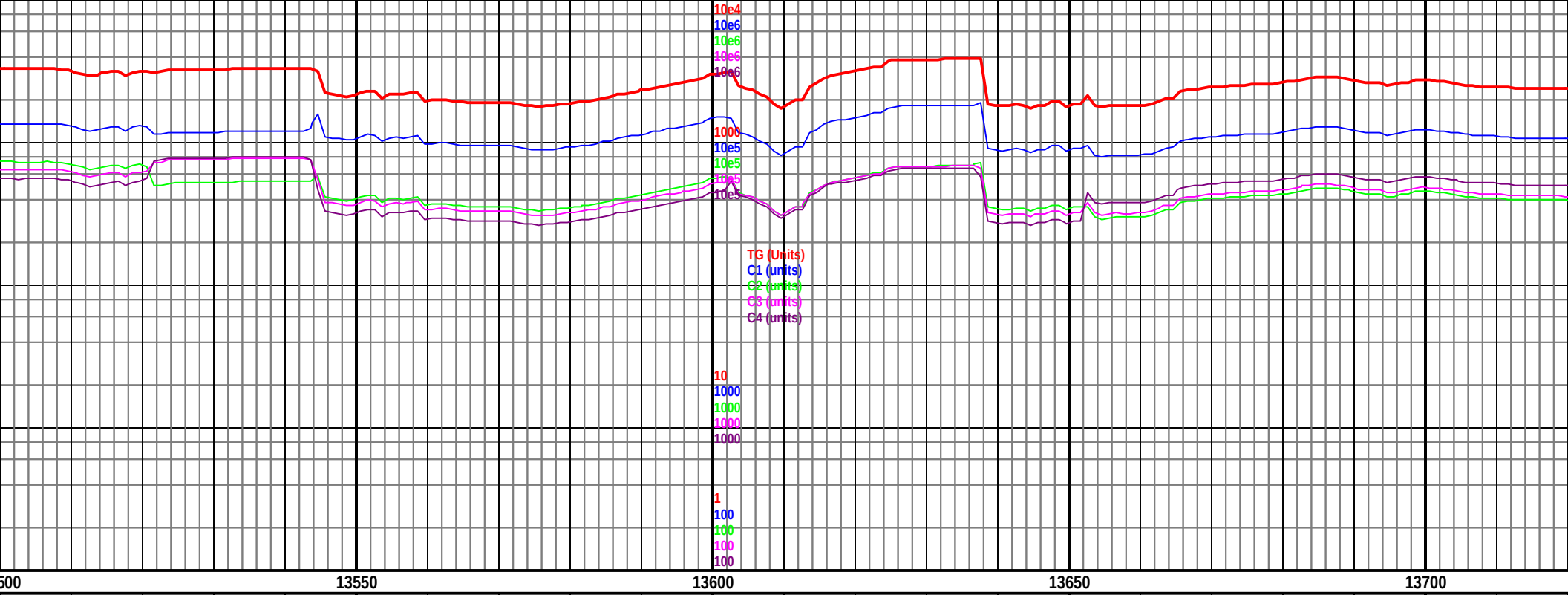
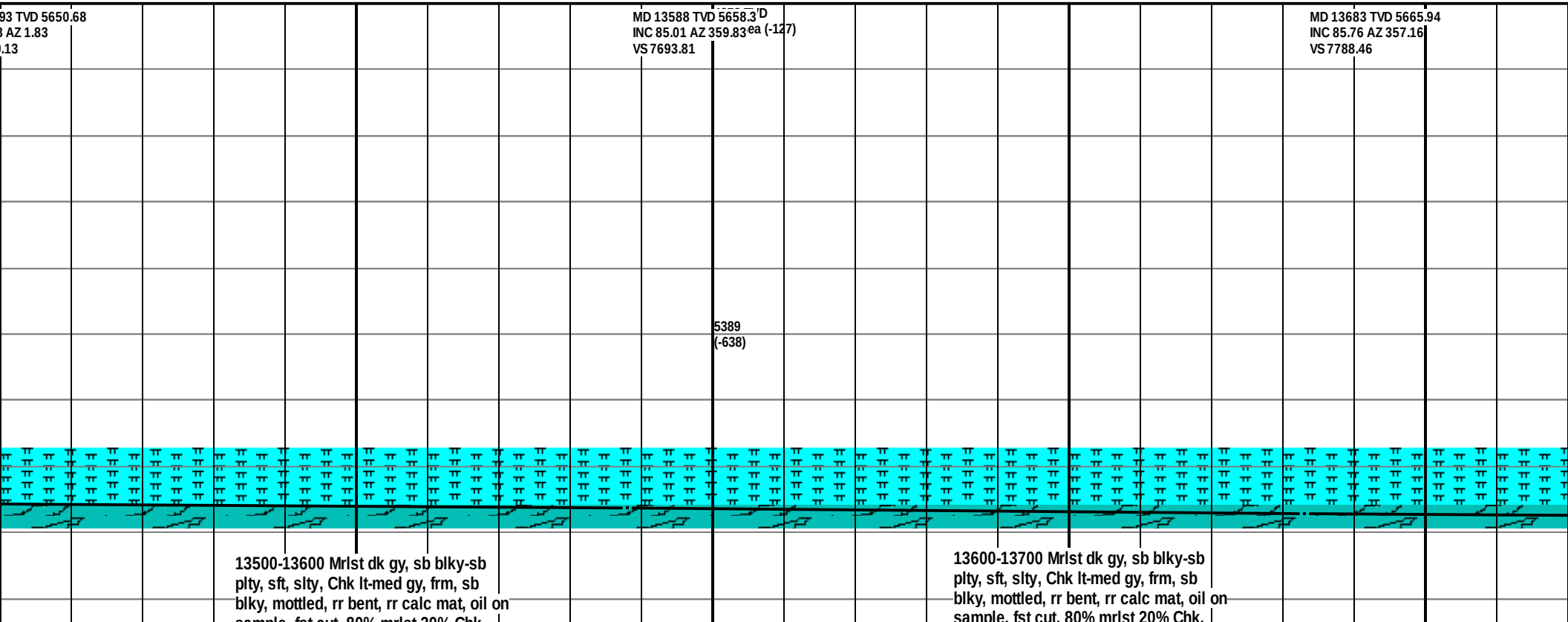
100
100
100
100
Wt 10.6
Vis 40
1' flare
12850
12900
12950
13000
13050

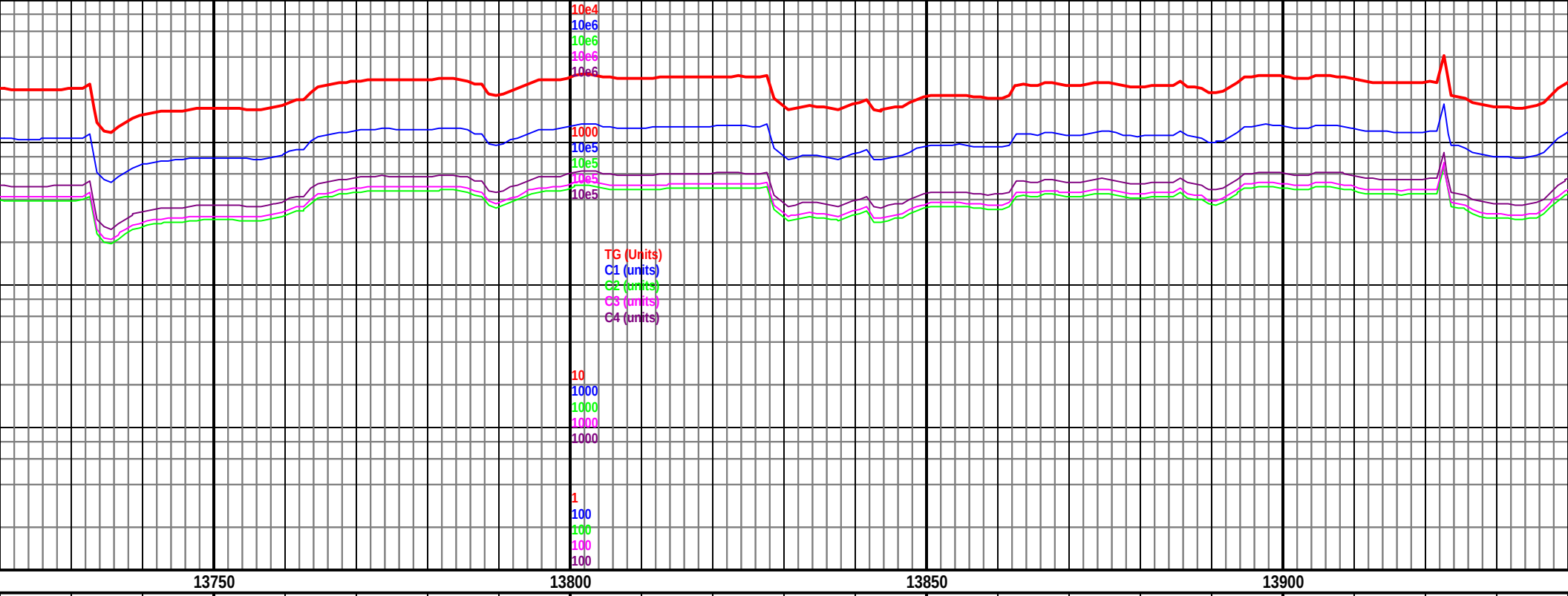

MD 12853 TVD 5626.32
INC 90.11 AZ 358.63
VS 6959.9
MD 12944 TVD 5626.82
INC 89.27 AZ 359.66
VS 7050.89
4878 TVD
Sub Sea (-127)
MD 13036 TVD 5627.74
INC 89.58 AZ 359.22
VS 7142.88
5389
(-638)
B
B
B
B
12900 Chk lt-med gy, frm, sb
ottled, tr Mrlst dk gy, sb blky-sb
slty, rr bent, oil on sample,
12900-13000 Chk lt-med gy, frm, sb
blky, mottled, tr Mrlst dk gy, sb blky-sb
plty, sft, slty, rr bent, oil on sample,
13000-13100 Chk lt-med gy, frm
blky, mottled, tr Mrlst dk gy, sb
plty, sft, slty, Sltst gy, sb blky,
frm-frm, mottled ip, rr bent, rr c


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
13100
13150
13200
13250
MD 13127 TVD 5629.17
INC 88.62 AZ 0.66
VS 7233.86
4878 TVD
Sub Sea (-127)
MD 13219 TVD 5632.84
INC 86.81 AZ 1.07
VS 7325.78
5389
(-638)
B
B
B
B
B
B
m, sb
b blky-sb
sl
calc mat,
13100-13200 Chk lt-med gy, frm, sb blky, mottled, tr Mrlst dk gy, sb blky-sb plty, sft, slty, Sltst gy, sb blky, sl frm-frm, mottled ip, rr bent, rr calc mat,
13200-13300 Chk lt-med gy, frm, sb blky, mottled, Sltst gy, sb blky, sl frm-frm, mottled ip, tr Mrlst dk gy, sb blky-sb plty, sft, slty, rr bent, rr calc


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
13300
13350
13400
13450
MD 13310 TVD 5638.31
INC 86.29 AZ 1.18
VS 7416.59
MD 13402 TVD 5644.34
INC 86.2 AZ 0.99
VS 7508.38
5389
(-638)
13300-13400 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, tr Sltst gy, sb blky, sl frm-frm, mottled ip, rr bent, rr calc mat,
13400-13500 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, rr bent, rr calc mat, oil on sample, fst cut, 80% mrlst 20% 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


500
13550
13600
13650
13700
93 TVD 5650.68
3 AZ 1.83
.13
MD 13588 TVD 5658.3
INC 85.01 AZ 359.83
VS 7693.81
ea (-127)
MD 13683 TVD 5665.94
INC 85.76 AZ 357.16
VS 7788.46
5389
(-638)
13500-13600 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, rr bent, rr calc mat, oil on
13600-13700 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, rr bent, rr calc mat, oil on sample, fst cut, 80% mrlst 20% Chk,



MD 13777 TVD 5673.5
INC 85.01 AZ 356.26
VS 7882.

4878 TVD
Sub Sea (-127)

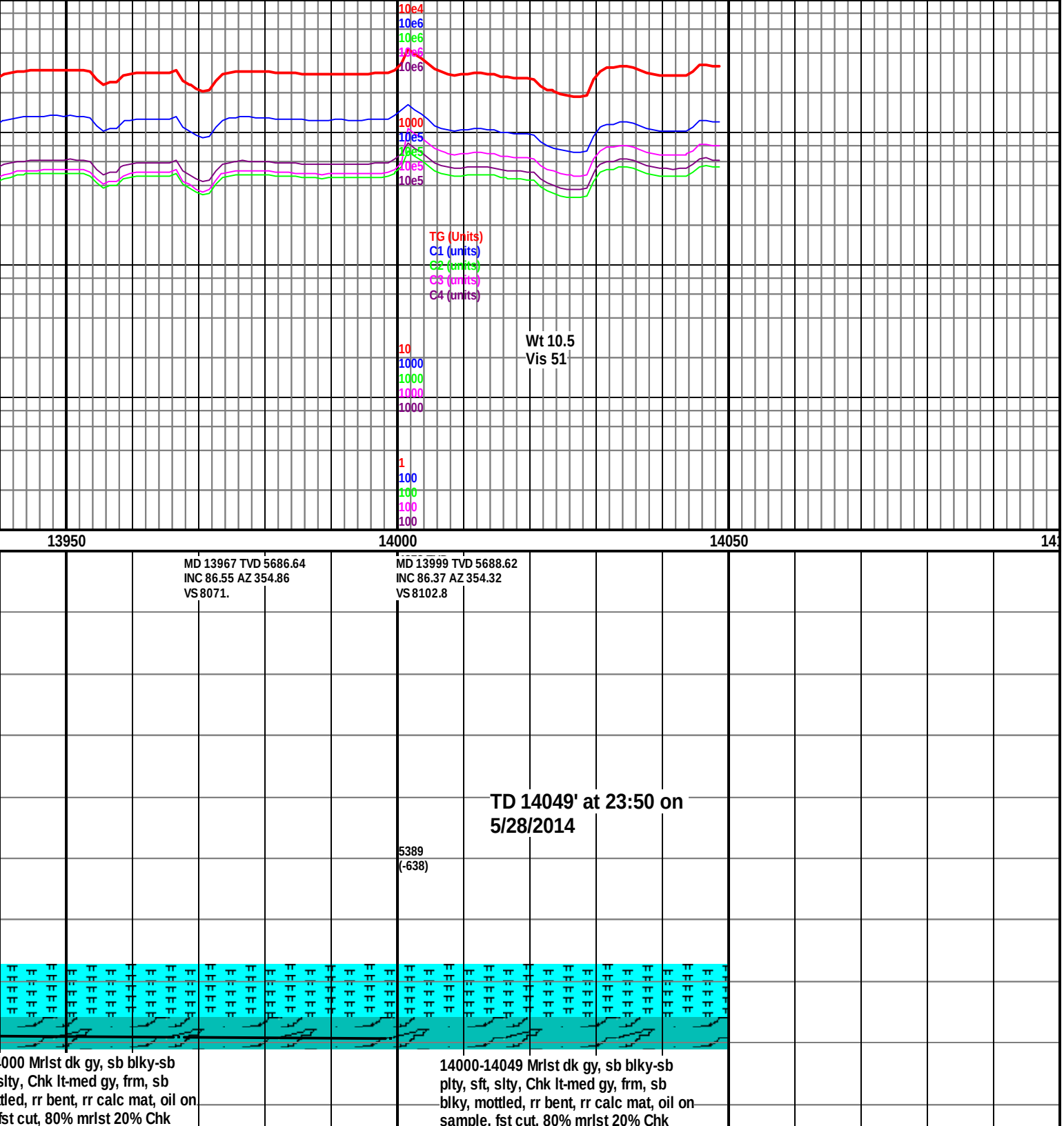
MD 13872 TVD 5680.71
INC 86.29 AZ 355.88
VS 7976.5

5389
(-638)

13700-13800 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, rr bent, rr calc mat, oil on sample, fst cut, 80% mrlst 20% Chk,

13800-13900 Mrlst dk gy, sb blky-sb plty, sft, slty, Chk lt-med gy, frm, sb blky, mottled, rr bent, rr calc mat, oil on sample, fst cut, 80% mrlst 20% Chk,

13900-14
plty, sft, s
blky, mot
sample, f


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.5
Vis 51
10
1000
1000
1000
1000
1
100
100
100
100
13950
14000
14050
MD 13967 TVD 5686.64
INC 86.55 AZ 354.86
VS 8071.
MD 13999 TVD 5688.62
INC 86.37 AZ 354.32
VS 8102.8
TD 14049' at 23:50 on
5/28/2014
5389
(-638)
000 Mrlst dk gy, sb blky-sb
slty, Chk lt-med gy, frm, sb
ttled, rr bent, rr calc mat, oil on
fst cut, 80% mrlst 20% Chk
14000-14049 Mrlst dk gy, sb blky-sb
plty, sft, slty, Chk lt-med gy, frm, sb
blky, mottled, rr bent, rr calc mat, oil on
sample, fst cut, 80% mrlst 20% Chk