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

Well Name:	**Razor 27I-3413A**
Location:	**NESE 27-T10N-R58W**
License Number:	**05-123-37899**
Region:	**Redtail Field**
Spud Date:	**11/13/2013**
Drilling Completed:	
Surface Coordinates:	**Lat.: 40.808925 Long.: -103.843914**
Bottom Hole Coordinates:	**Lat.: 40.788003 Long.: -103.844908**
Ground Elevation (ft):	**4759**
K.B. Elevation (ft):	**4776**
Logged Interval (ft):	**To:**
Total Depth (ft):	
Formation:	**Pierre, Sharon Springs, Niobrara**
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 and Lauren Roddy
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig #23

Gas Detection

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

Comments

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

ROCK TYPES

ACCESSORIES

MINERAL

- 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

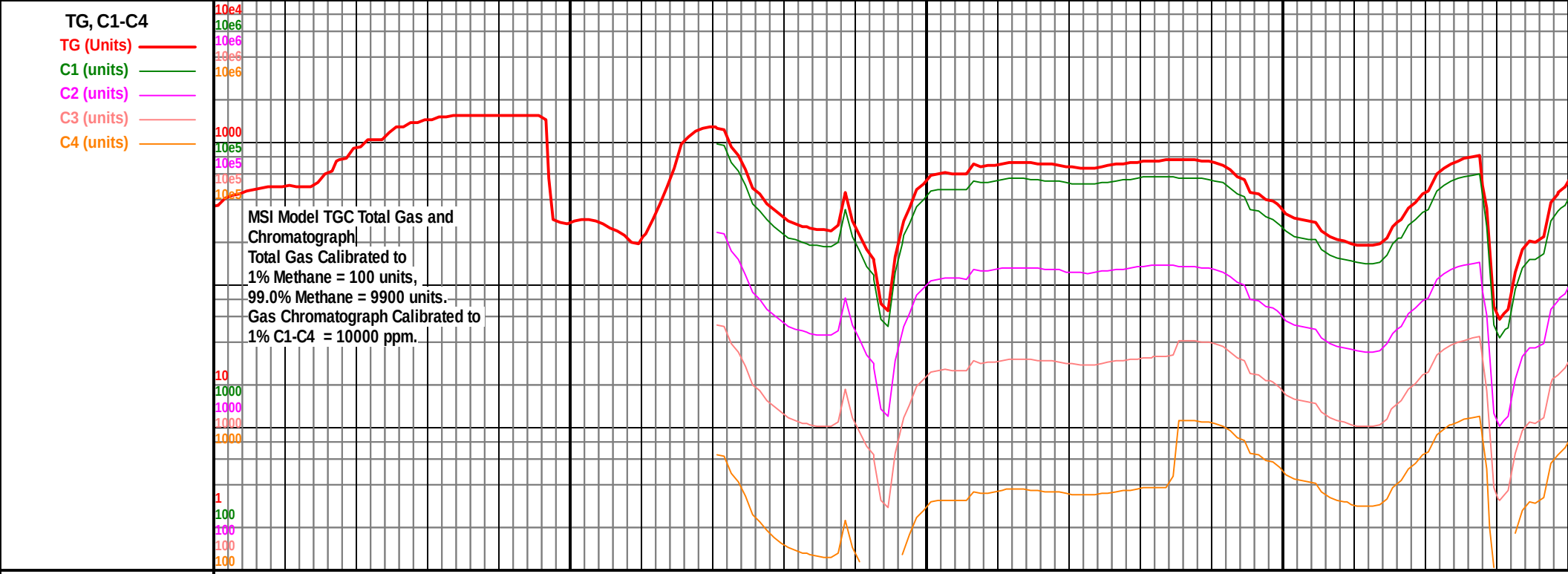
- Even
- Spotted
- Ques
- Dead

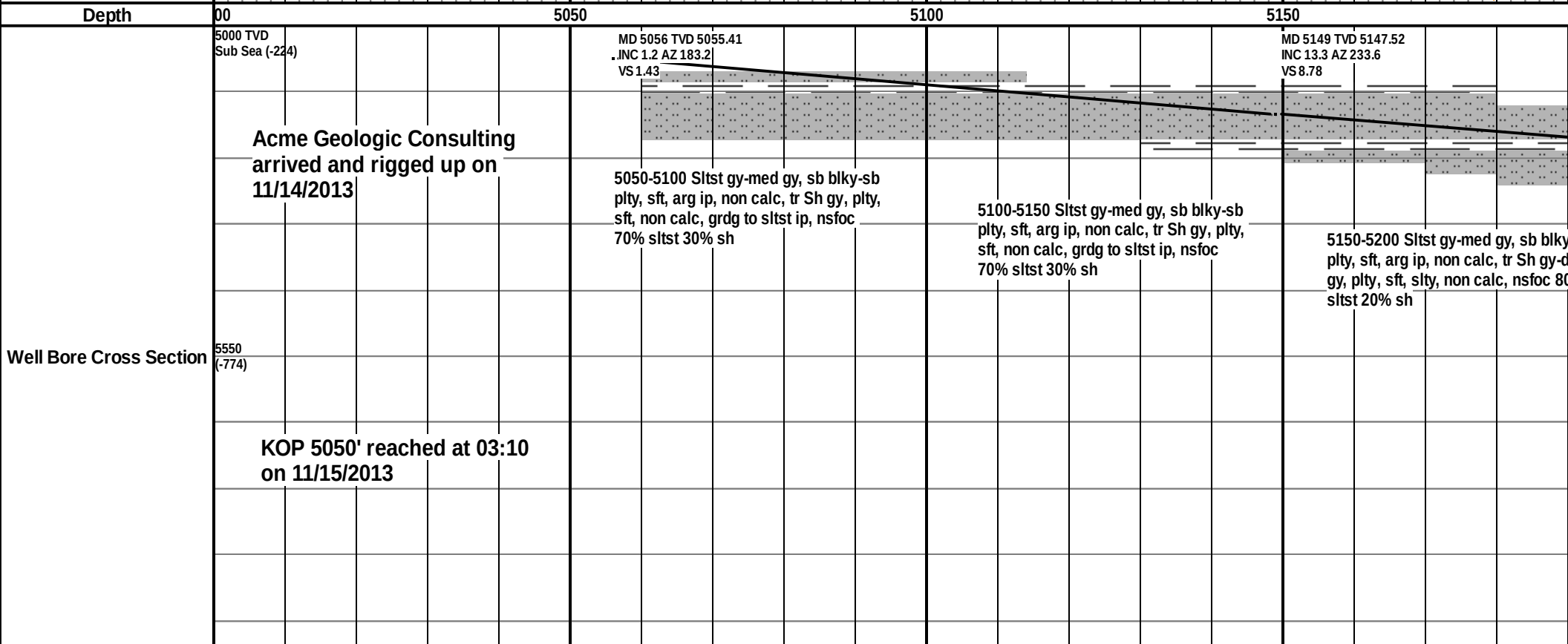
INTERVAL

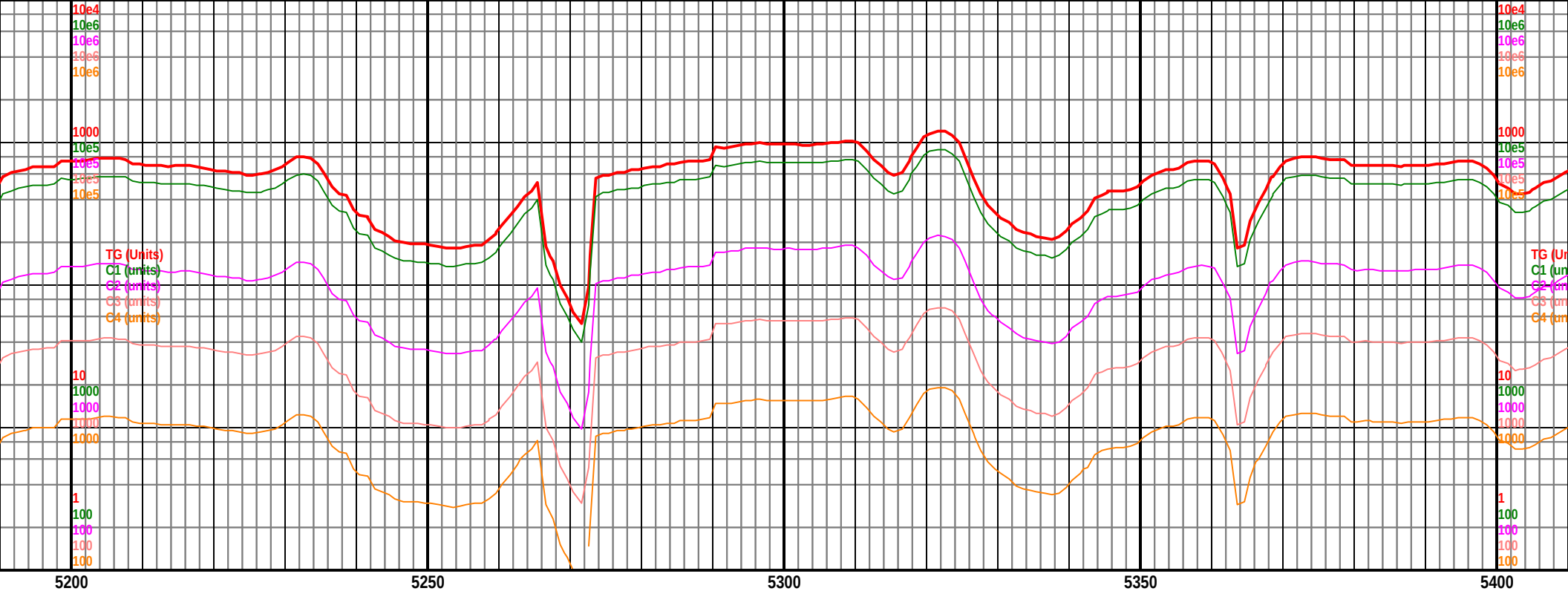
- Core
- Dst

EVENT

- Rft
- Sidewall


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


Depth
00
5050
5100
5150
Well Bore Cross Section
5000 TVD
Sub Sea (-224)
MD 5056 TVD 5055.41
INC 1.2 AZ 183.2
VS 1.43
MD 5149 TVD 5147.52
INC 13.3 AZ 233.6
VS 8.78
Acme Geologic Consulting arrived and rigged up on 11/14/2013
5050-5100 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, tr Sh gy, plty, sft, non calc, grdg to sltst ip, nsfoc 70% sltst 30% sh
5100-5150 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, tr Sh gy, plty, sft, non calc, grdg to sltst ip, nsfoc 70% sltst 30% sh
5150-5200 Sltst gy-med gy, sb blky
plty, sft, arg ip, non calc, tr Sh gy-d
gy, plty, sft, slty, non calc, nsfoc 80
sltst 20% sh
5550
(-774)
KOP 5050' reached at 03:10 on 11/15/2013



5000 TVD
Sub Sea (-224)

MD 5240 TVD 5233.1
INC 25.8 AZ 233.6
VS 26.82

MD 5331 TVD 5312.34
INC 33 AZ 229.1
VS 54.83

5000 TVD
Sub Sea (-22

5200-5250 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, tr Sh gy-dk gy, plty, sft, slty, non calc, nsfoc 80% sltst 20% sh

5250-5300 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, tr Sh gy-dk gy, plty, sft, slty, non calc, nsfoc 80% sltst 20% sh

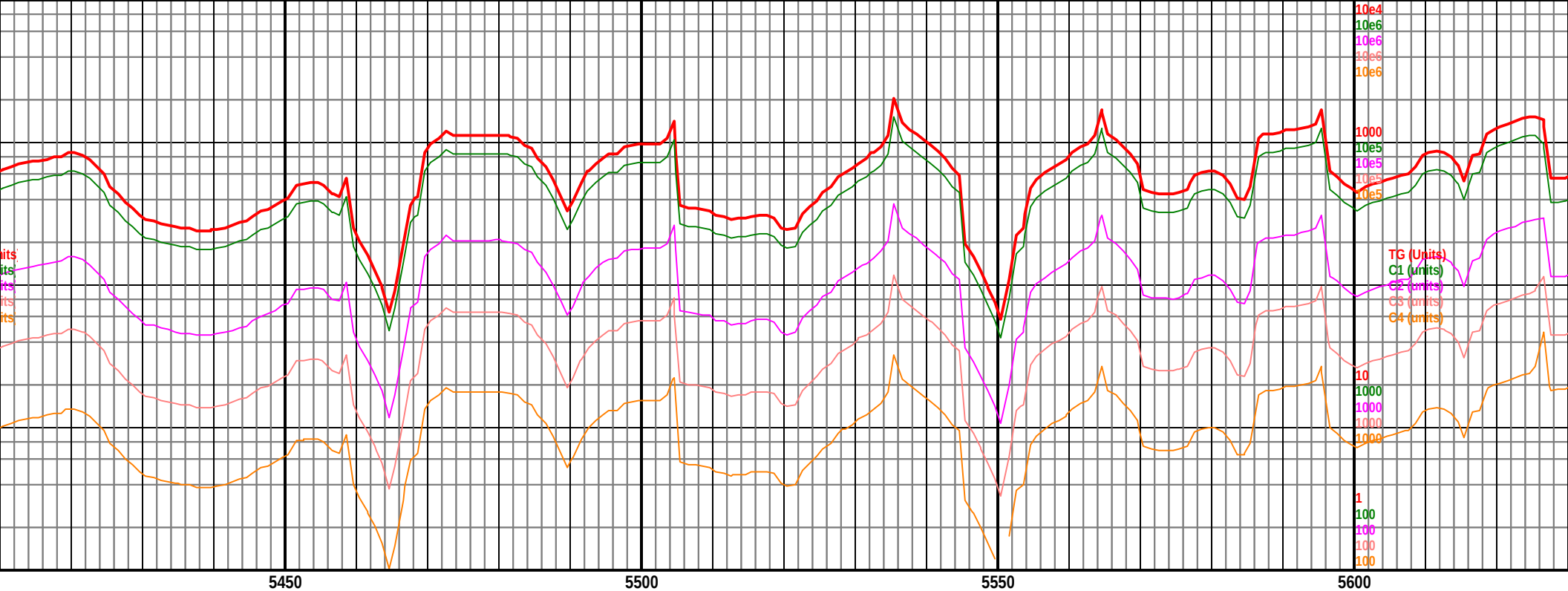
5300-5350 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, grdg to sh ip, tr Sh gy-dk gy, plty, sft, slty, non calc, rr pyr, nsfoc 70% sltst 30% sh

5350-5400 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, grdg to sh ip, tr Sh gy-dk gy, plty, sft, slty, non calc, rr pyr, nsfoc 70% sltst 30% sh

P

5550
(-774)

5550
(-774)



MD 5422 TVD 5385.65
INC 39.7 AZ 219.5
VS 93.56

MD 5453 TVD 5408.7
INC 44.2 AZ 215.4
VS 110.02

MD 5484 TVD 5430.44
INC 46.8 AZ 210
VS 128.62

MD 5514 TVD 5450.22
INC 50.7 AZ 207.2
VS 148.43

MD 5545 TVD 5468.78
INC 55.7 AZ 205.1
VS 170.71

MD 5575 TVD 5485.1
INC 58.4 AZ 201.9
VS 193.79

5000 T
Sub Se

MD 5605 TVD 5500.58
INC 59.5 AZ 200
VS 217.79

P

P

P

P

P

5550
(-774)

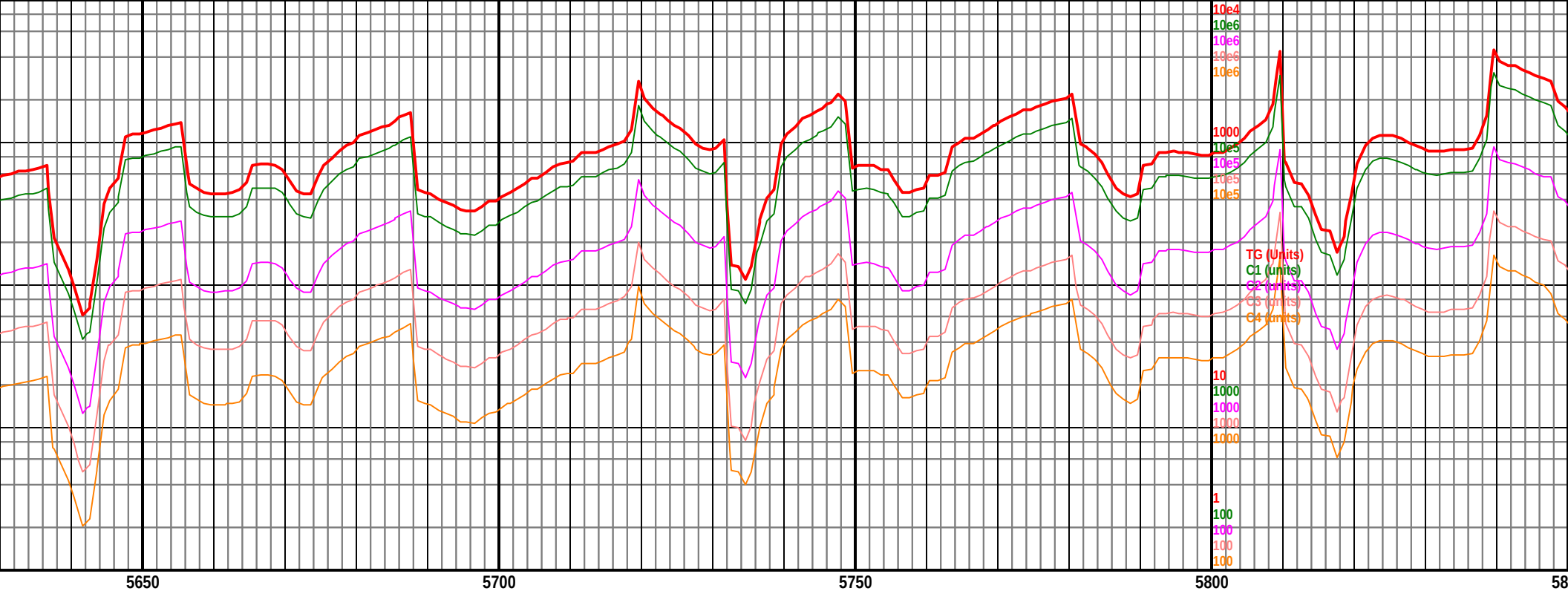
0-5450 Sltst gy-med gy, sb blky-sb
, sft, arg ip, non calc, grdg to sh ip,
h gy-dk gy, plty, sft, slty, non calc,
yr, nsfoc 70% sltst 30% sh

5450-5500 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, nsfoc 80% sltst 20% sh

5500-5550 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, nsfoc 70% sltst 30% sh

5550-5600 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, nsfoc 70% sltst 30% sh

5600-5650 Sltst gy-med gy, s
plty, sft, arg ip, non calc, grd
tr Sh gy-dk gy, plty, sft, slty,
rr pyr, nsfoc 70% sltst 30% s



MD 5636 TVD 5515.56
INC 62.7 AZ 198.4
VS 243.42

MD 5666 TVD 5528.38
INC 66.7 AZ 197.6
VS 269.21

MD 5696 TVD 5539.64
INC 69.2 AZ 195.6
VS 295.85

MD 5727 TVD 5550.42
INC 70.1 AZ 196.1
VS 323.81

MD 5758 TVD 5560.79
INC 70.8 AZ 196.4
VS 351.86

MD 5788 TVD 5570.73
INC 70.5 AZ 196.3
VS 379.02

MD 5818 TVD 5580.82
INC 70.2 AZ 196.4
VS 406.13

Sea (-224)

5550
(-774)

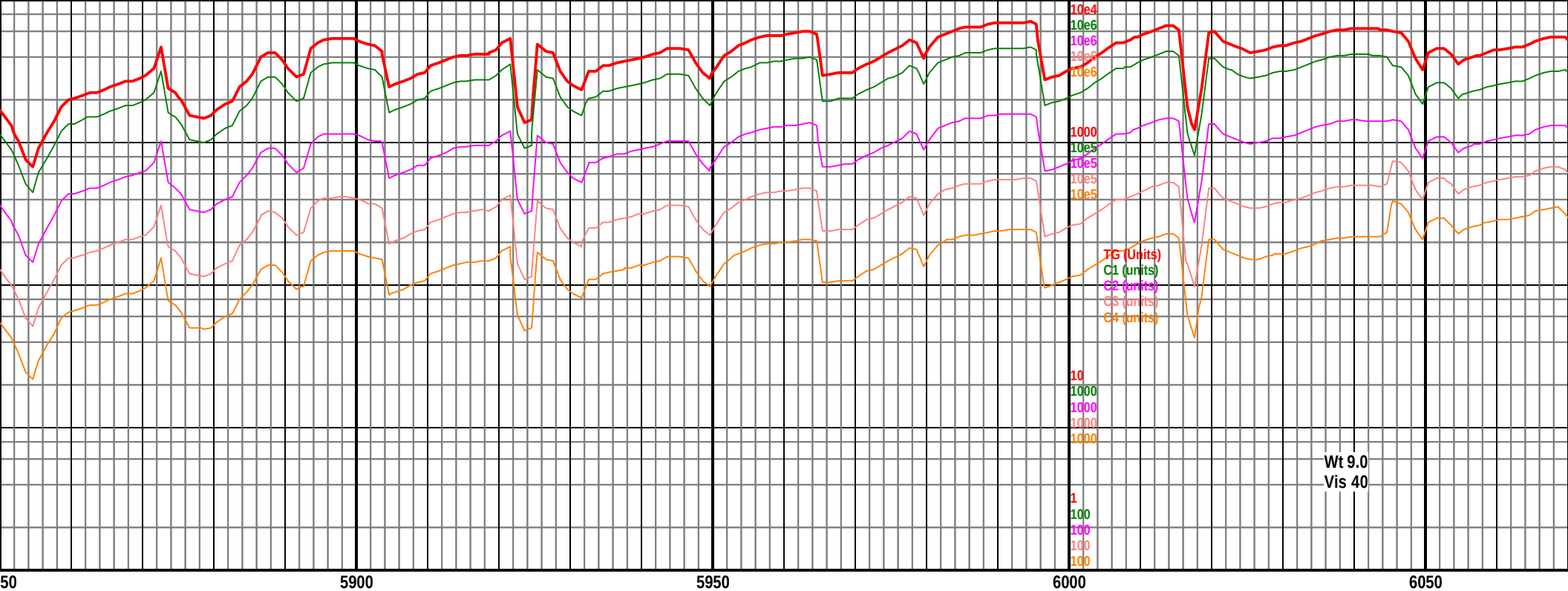
sb blky-sb
g to sh ip,
non calc,
sh

5650-5700 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, nsfoc 70% sltst 30% sh

5700-5750 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, nsfoc 70% sltst 30% sh

5750-5800 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, rr bent, nsfoc 70% sltst 30% sh

5800-5850 Sltst gy-med gy, sb blky-sb
plty, sft, arg ip, non calc, grdg to sh ip,
tr Sh gy-dk gy, plty, sft, slty, non calc,
rr pyr, rr bent, nsfoc 70% sltst 30% sh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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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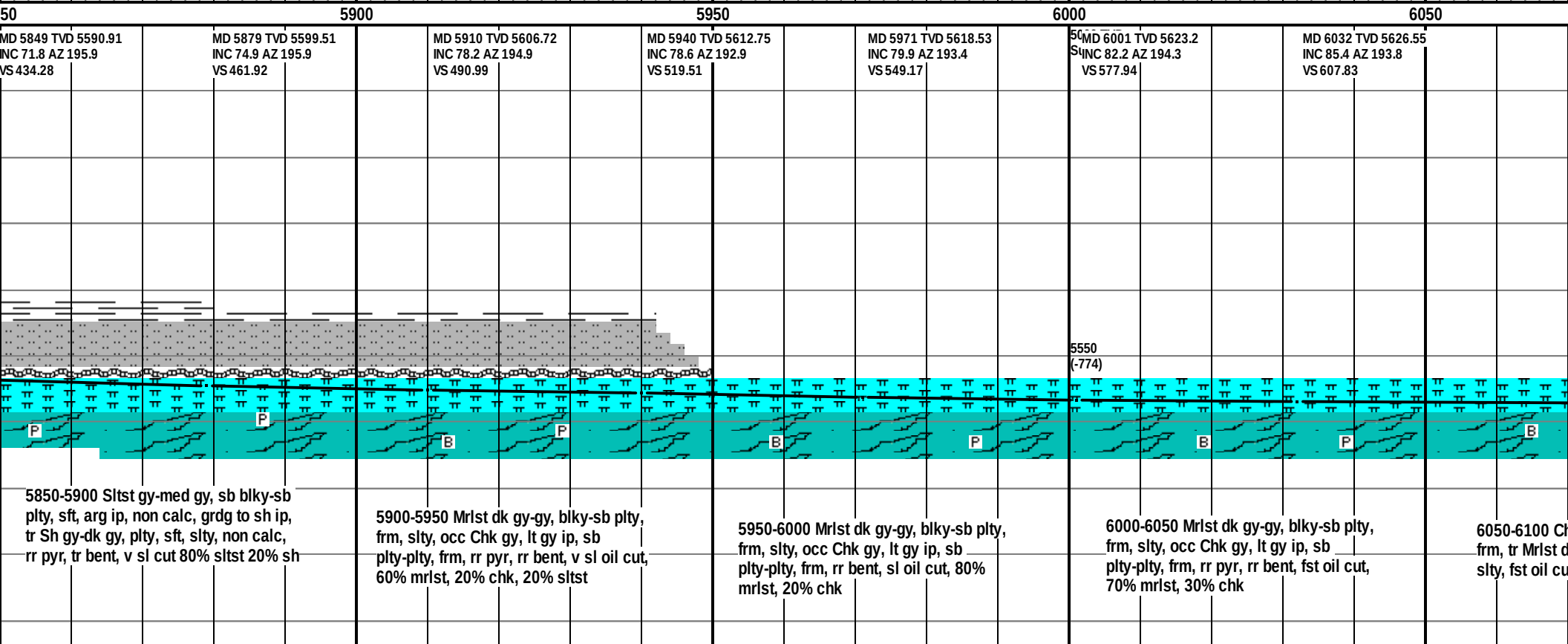
1000
1000
1000
1000
Wt 9.0
Vis 40
1
100
100
100
100


50
5900
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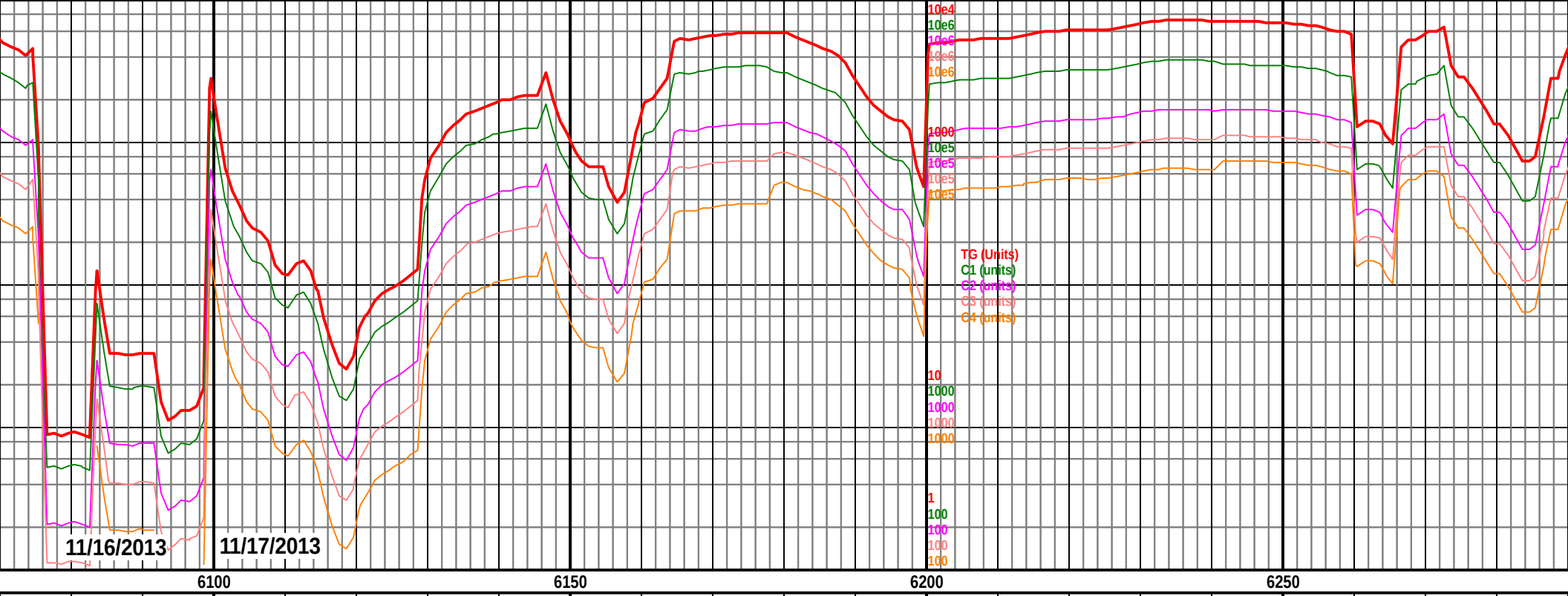
6000
6050
MD 5849 TVD 5590.91
INC 71.8 AZ 195.9
VS 434.28
MD 5879 TVD 5599.51
INC 74.9 AZ 195.9
VS 461.92
MD 5910 TVD 5606.72
INC 78.2 AZ 194.9
VS 490.99
MD 5940 TVD 5612.75
INC 78.6 AZ 192.9
VS 519.51
MD 5971 TVD 5618.53
INC 79.9 AZ 193.4
VS 549.17
MD 6001 TVD 5623.2
INC 82.2 AZ 194.3
VS 577.94
MD 6032 TVD 5626.55
INC 85.4 AZ 193.8
VS 607.83
5550
(-774)
P
P
B
P
B
P
B
P
B
5850-5900 Sltst gy-med gy, sb blky-sb plty, sft, arg ip, non calc, grdg to sh ip, tr Sh gy-dk gy, plty, sft, slty, non calc, rr pyr, tr bent, v sl cut 80% sltst 20% sh
5900-5950 Mrlst dk gy-gy, blky-sb plty, frm, slty, occ Chk gy, lt gy ip, sb plty-plty, frm, rr pyr, rr bent, v sl oil cut, 60% mrlst, 20% chk, 20% sltst
5950-6000 Mrlst dk gy-gy, blky-sb plty, frm, slty, occ Chk gy, lt gy ip, sb plty-plty, frm, rr bent, sl oil cut, 80% mrlst, 20% chk
6000-6050 Mrlst dk gy-gy, blky-sb plty, frm, slty, occ Chk gy, lt gy ip, sb plty-plty, frm, rr pyr, rr bent, fst oil cut, 70% mrlst, 30% chk
6050-6100 Ch
frm, tr Mrlst d
slty, fst oil cu


10e4
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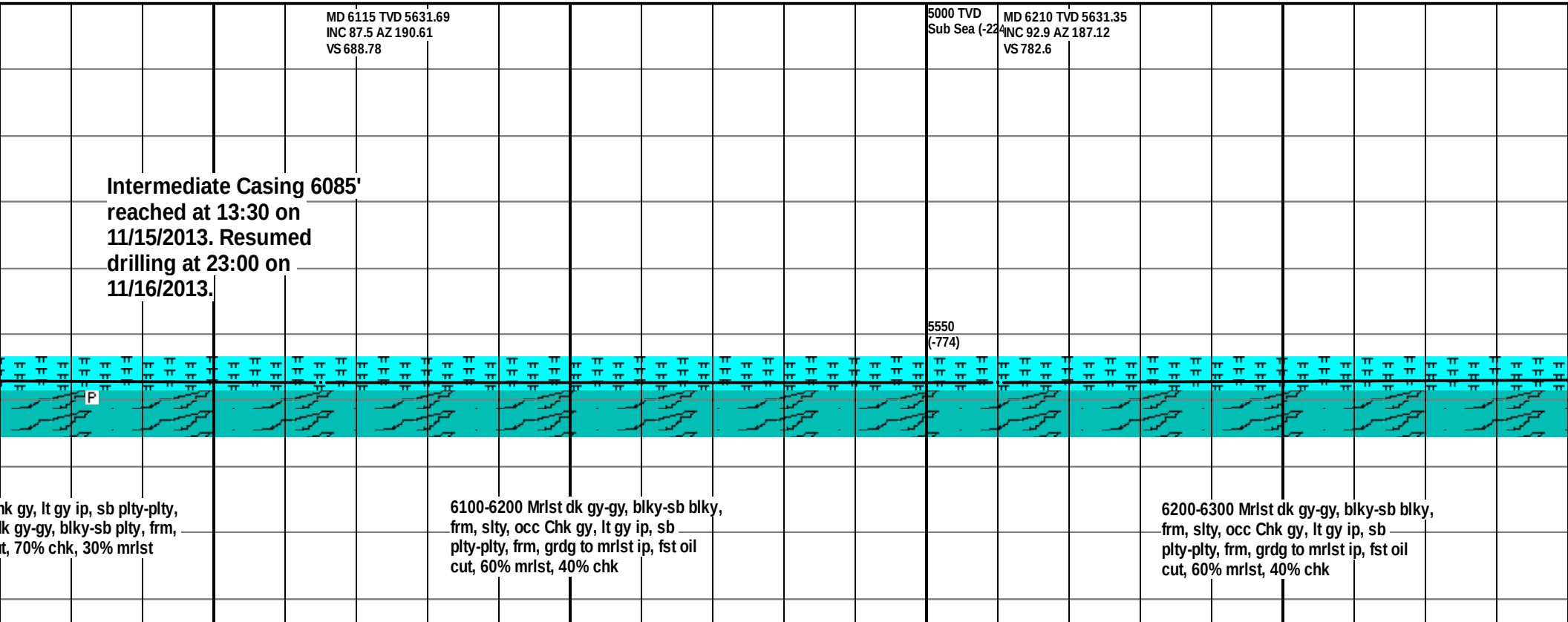
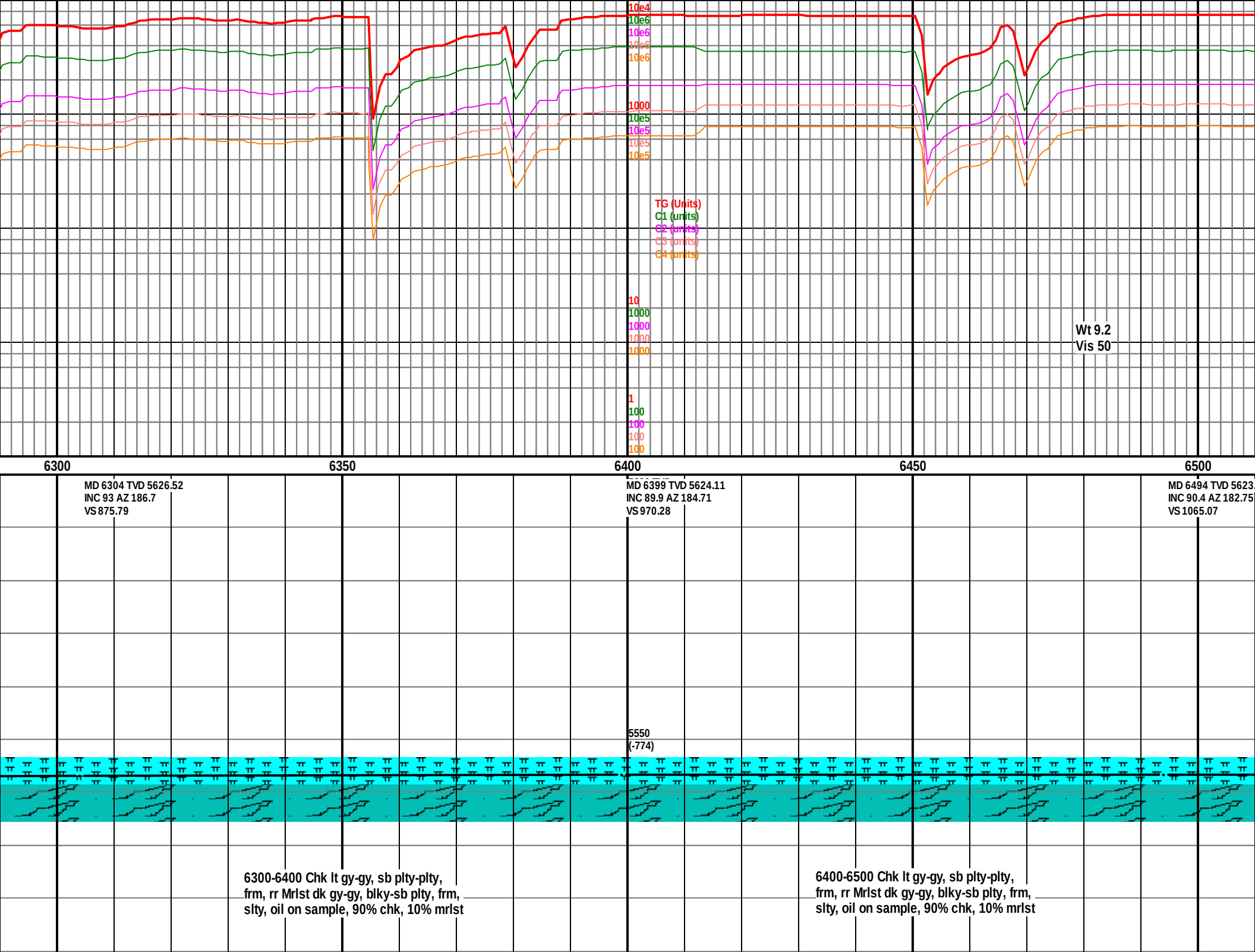
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11/16/2013
11/17/2013
6100
6150
6200
6250


MD 6115 TVD 5631.69
INC 87.5 AZ 190.61
VS 688.78
5000 TVD
Sub Sea (-224
MD 6210 TVD 5631.35
INC 92.9 AZ 187.12
VS 782.6
Intermediate Casing 6085' reached at 13:30 on 11/15/2013. Resumed drilling at 23:00 on 11/16/2013.
5550
(-774)
P
hk gy, lt gy ip, sb plty-plty,
lk gy-gy, blky-sb plty, frm,
t, 70% chk, 30% mrlst
6100-6200 Mrlst dk gy-gy, blky-sb blky, frm, slty, occ Chk gy, lt gy ip, sb plty-plty, frm, grdg to mrlst ip, fst oil cut, 60% mrlst, 40% chk
6200-6300 Mrlst dk gy-gy, blky-sb blky, frm, slty, occ Chk gy, lt gy ip, sb plty-plty, frm, grdg to mrlst ip, fst oil cut, 60% mrlst, 40% chk


10e4
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1000
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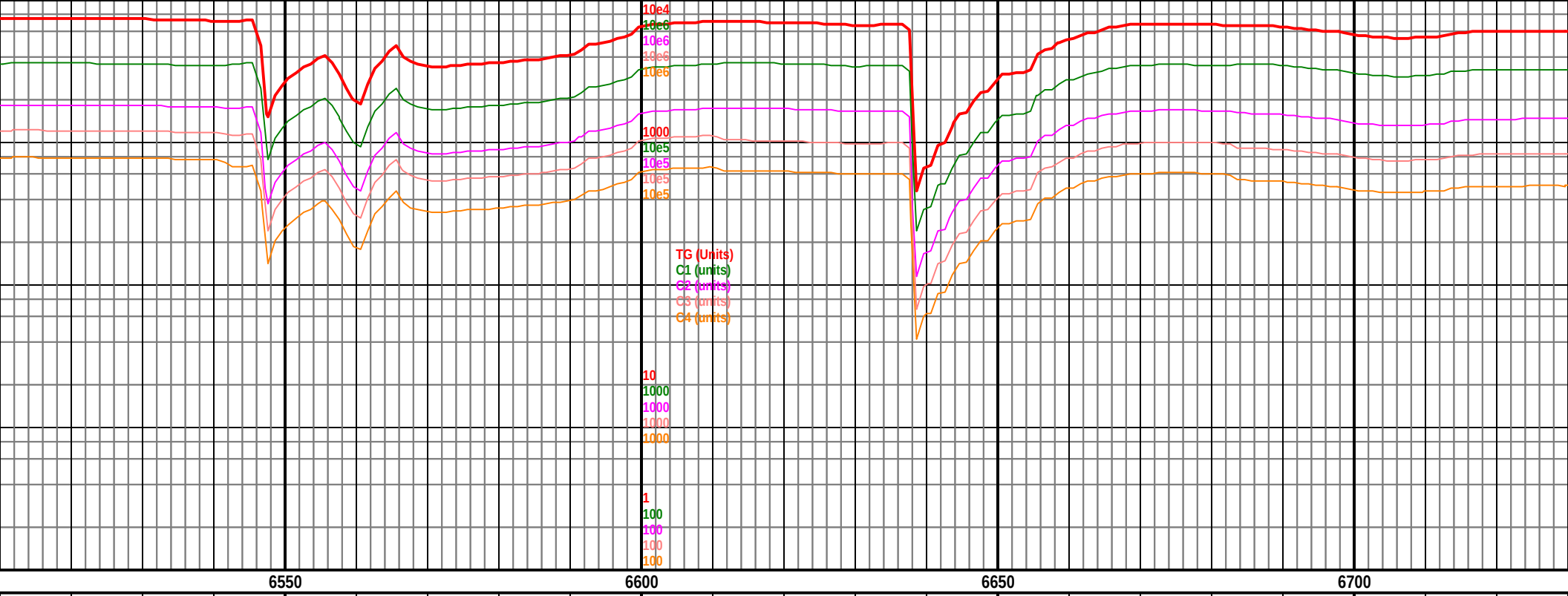
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.2
Vis 50
6300
6350
6400
6450
6500
MD 6304 TVD 5626.52
INC 93 AZ 186.7
VS 875.79
MD 6399 TVD 5624.11
INC 89.9 AZ 184.71
VS 970.28
MD 6494 TVD 5623.
INC 90.4 AZ 182.75
VS 1065.07
5550
(-774)
6300-6400 Chk lt gy-gy, sb plty-plty,
frm, rr Mrlst dk gy-gy, blky-sb plty, frm,
slty, oil on sample, 90% chk, 10% mrlst
6400-6500 Chk lt gy-gy, sb plty-plty,
frm, rr Mrlst dk gy-gy, blky-sb plty, frm,
slty, oil on sample, 90% chk, 10% mrlst



.86

MD 6589 TVD 5622.62
INC 91.1 AZ 179.98
VS 1160.02

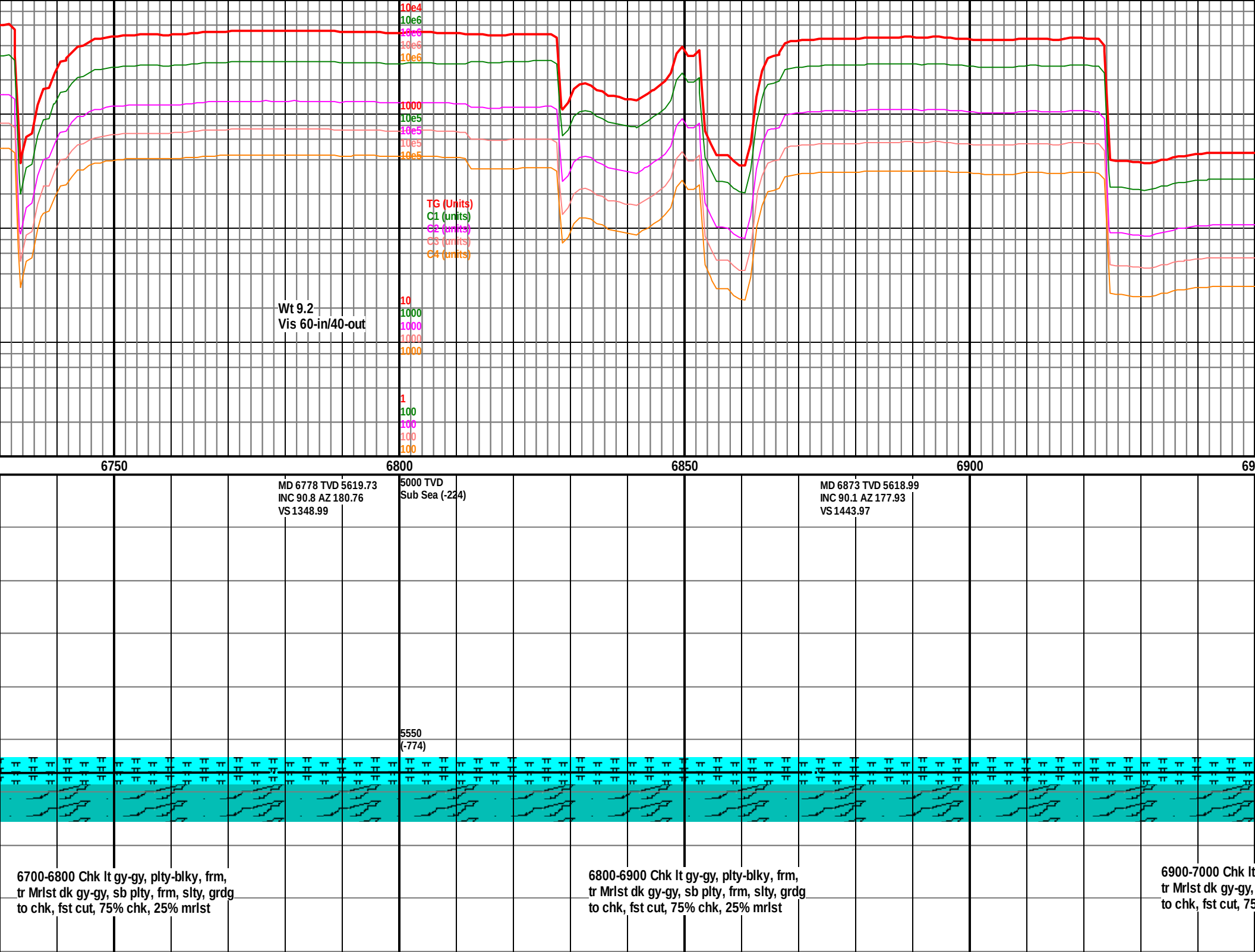
ea (-224)

MD 6684 TVD 5621.05
INC 90.8 AZ 180.62
VS 1255.01

5550
(-774)

6500-6600 Chk lt gy-gy, sb plty-plty, frm, tr Mrlst dk gy-gy, blky-sb plty, frm, slty, fst cut, 75% chk, 25% mrlst

6600-6700 Chk lt gy-gy, sb plty-plty, frm, tr Mrlst dk gy-gy, blky-sb plty, frm, slty, grdg to chk, fst cut, 75% chk, 25% mrlst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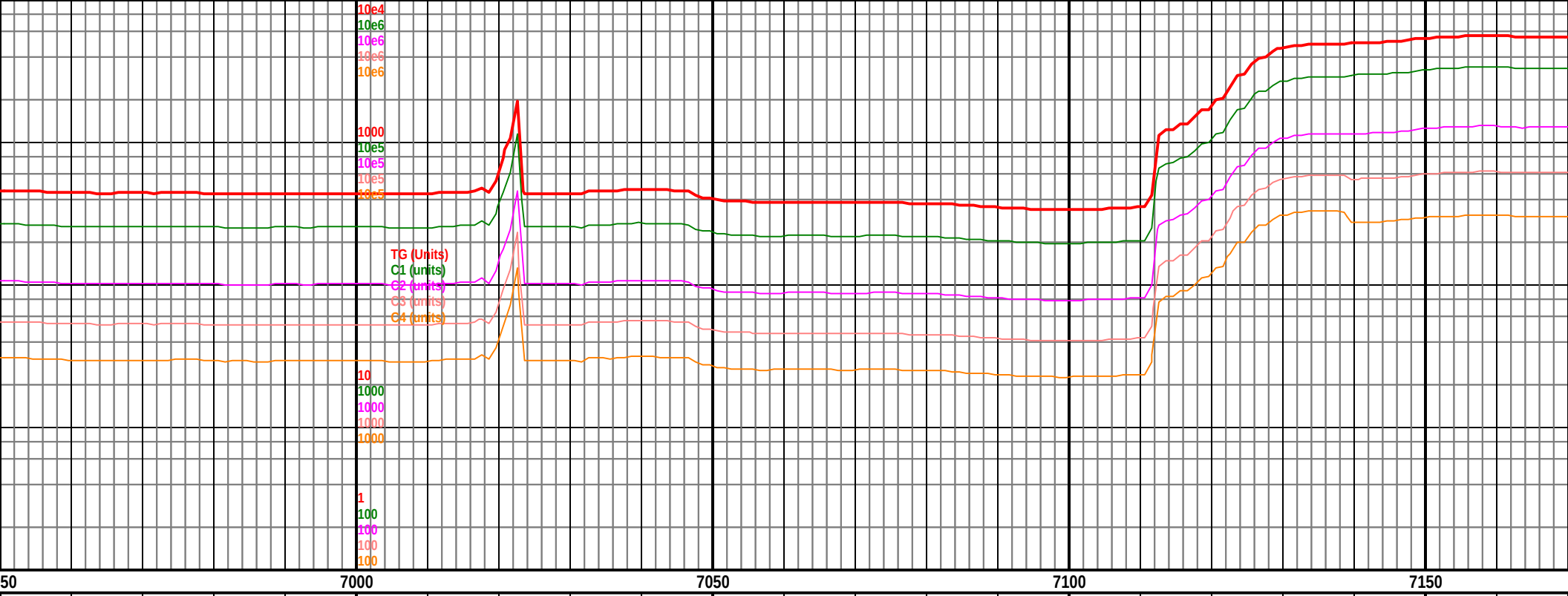
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.2
Vis 60-in/40-out
10
1000
1000
1000
1000
1
100
100
100
100
6750
6800
6850
6900
69
MD 6778 TVD 5619.73
INC 90.8 AZ 180.76
VS 1348.99
5000 TVD
Sub Sea (-224)
MD 6873 TVD 5618.99
INC 90.1 AZ 177.93
VS 1443.97
5550
(-774)
6700-6800 Chk lt gy-gy, plty-blky, frm,
tr Mrlst dk gy-gy, sb plty, frm, slty, grdg
to chk, fst cut, 75% chk, 25% mrlst
6800-6900 Chk lt gy-gy, plty-blky, frm,
tr Mrlst dk gy-gy, sb plty, frm, slty, grdg
to chk, fst cut, 75% chk, 25% mrlst
6900-7000 Chk lt
tr Mrlst dk gy-gy,
to chk, fst cut, 75


10e4
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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
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100
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100
50
7000
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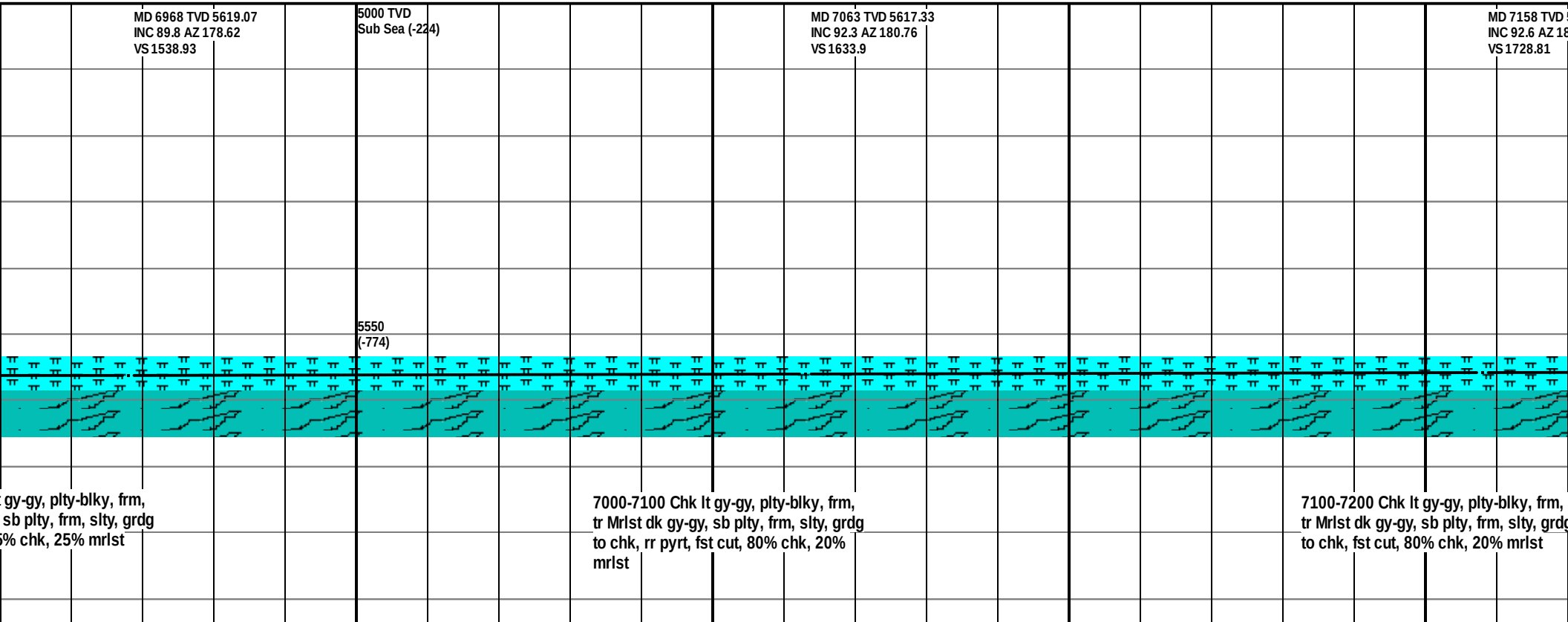
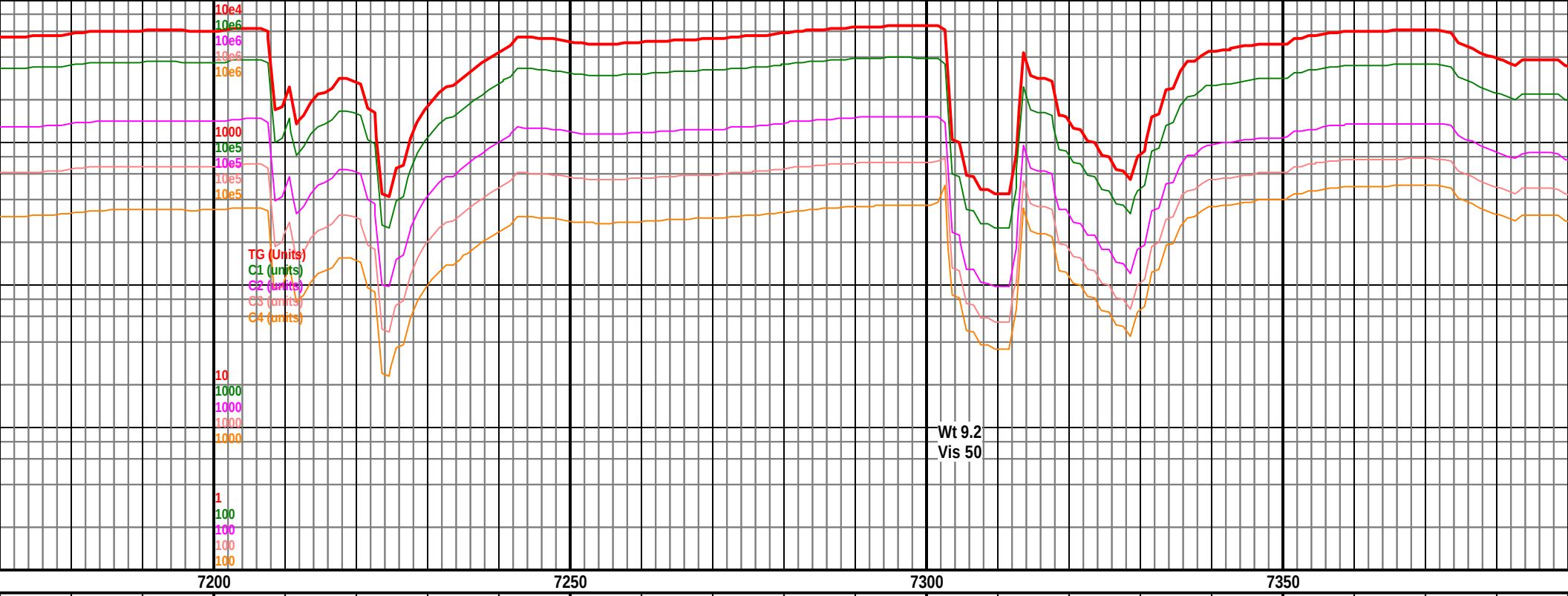
7100
7150


MD 6968 TVD 5619.07
INC 89.8 AZ 178.62
VS 1538.93
5000 TVD
Sub Sea (-224)
MD 7063 TVD 5617.33
INC 92.3 AZ 180.76
VS 1633.9
MD 7158 TVD
INC 92.6 AZ 18
VS 1728.81
5550
(-774)
gy-gy, plty-blky, frm,
sb plty, frm, slty, grdg
% chk, 25% mrlst
7000-7100 Chk lt gy-gy, plty-blky, frm,
tr Mrlst dk gy-gy, sb plty, frm, slty, grdg
to chk, rr pyrt, fst cut, 80% chk, 20%
mrlst
7100-7200 Chk lt gy-gy, plty-blky, frm,
tr Mrlst dk gy-gy, sb plty, frm, slty, grdg
to chk, fst cut, 80% chk, 20% mrlst



5613.27
30.62

5000 TVD
Sub Sea (-224)

MD 7253 TVD 5612.19
INC 88.7 AZ 178.58
VS 1823.77

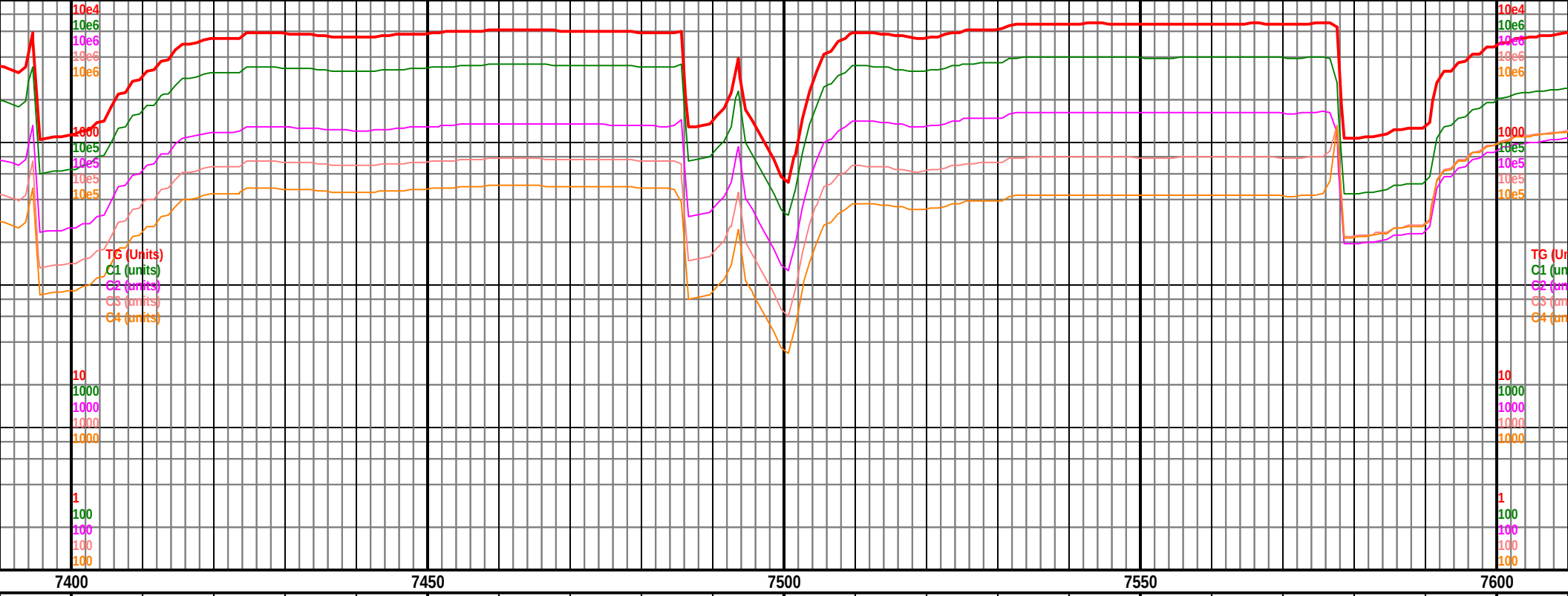
MD 7344 TVD 5613.38
INC 89.8 AZ 180.1
VS 1914.76

5550
(-774)

g

7200-7300 Chk lt gy-gy, plty-blky, frm, tr Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, tr bent, fst cut, 70% chk, 30% mrlst

7300-7400 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, tr bent, fst cut, 60% chk, 40% mrlst


10e4
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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
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1000
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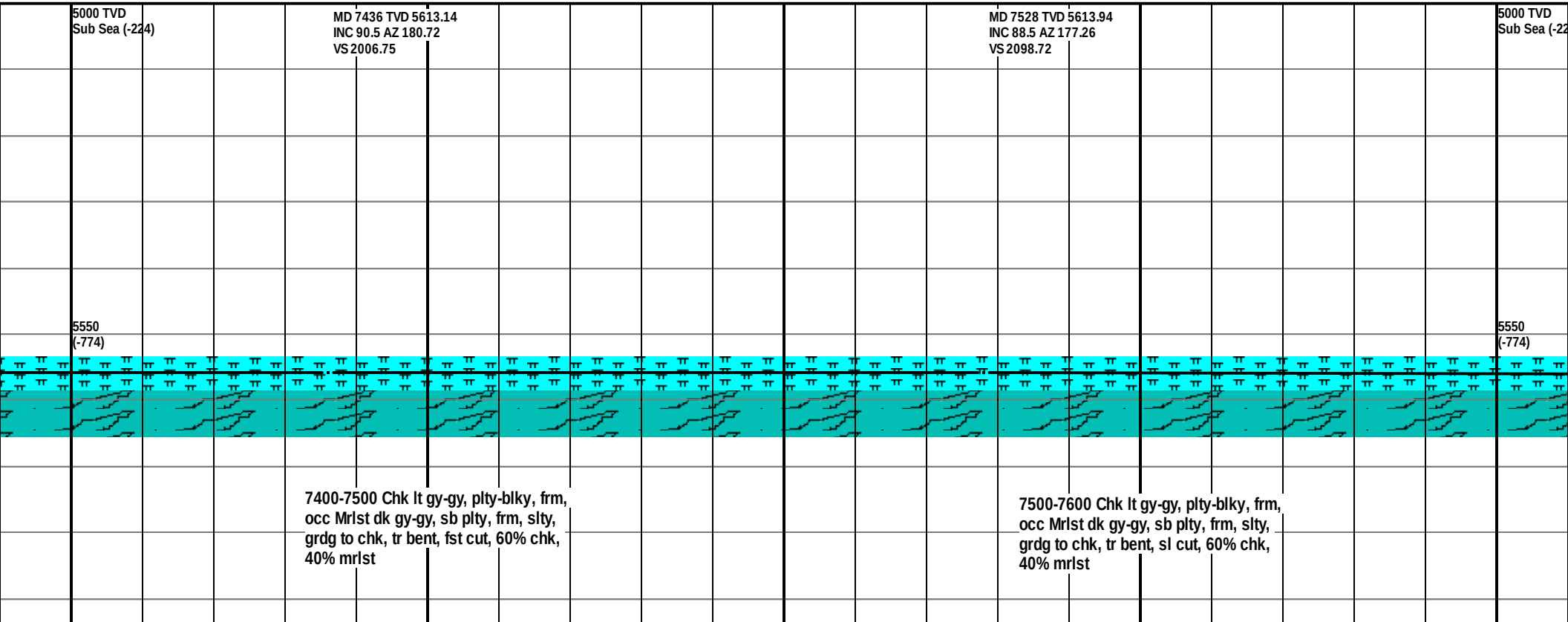
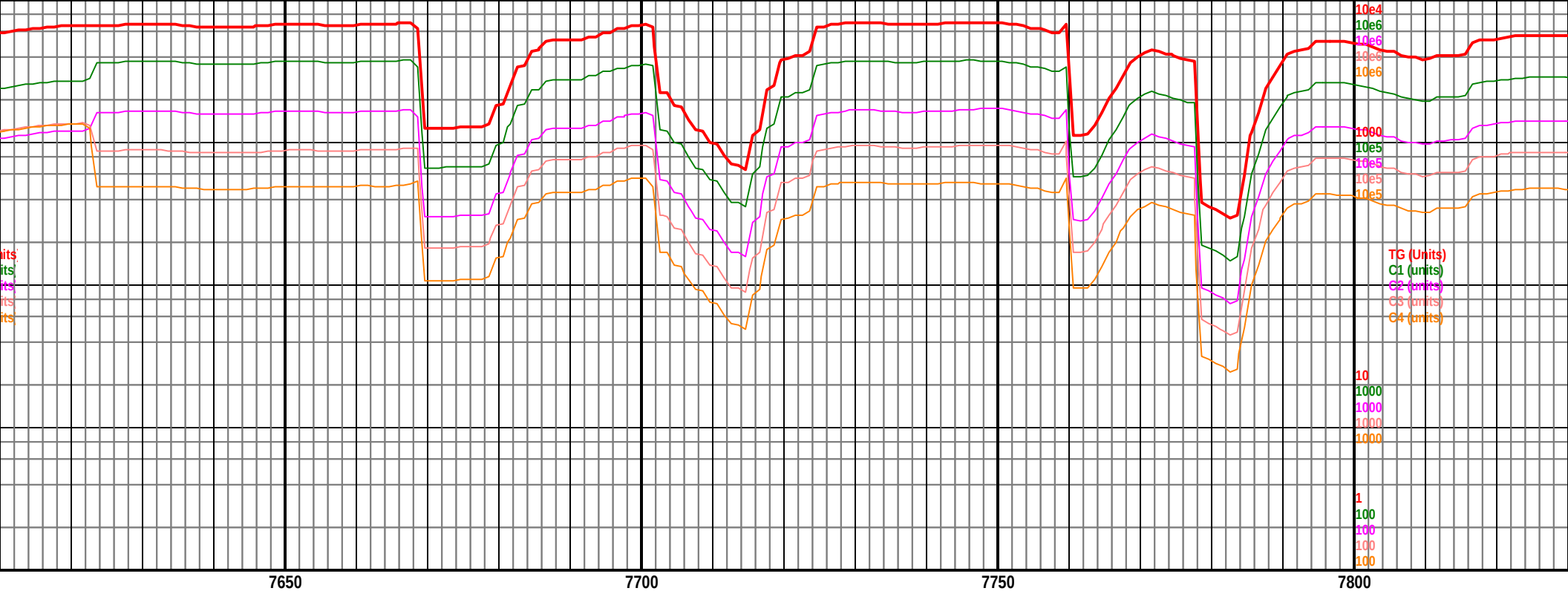
100
100
7400
7450
7500
7550
7600


5000 TVD
Sub Sea (-224)
MD 7436 TVD 5613.14
INC 90.5 AZ 180.72
VS 2006.75
MD 7528 TVD 5613.94
INC 88.5 AZ 177.26
VS 2098.72
5550
(-774)
7400-7500 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, tr bent, fst cut, 60% chk, 40% mrlst
7500-7600 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, tr bent, sl cut, 60% chk, 40% mrlst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C1 (units)
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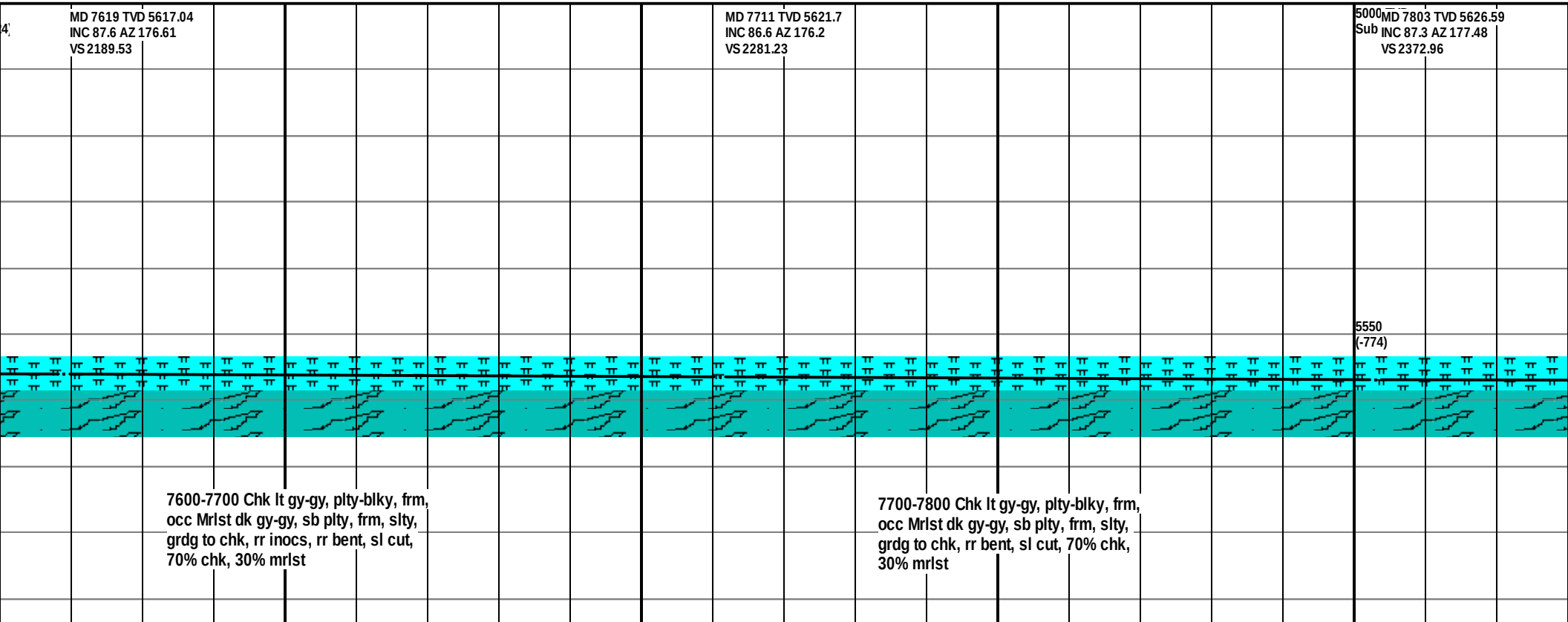
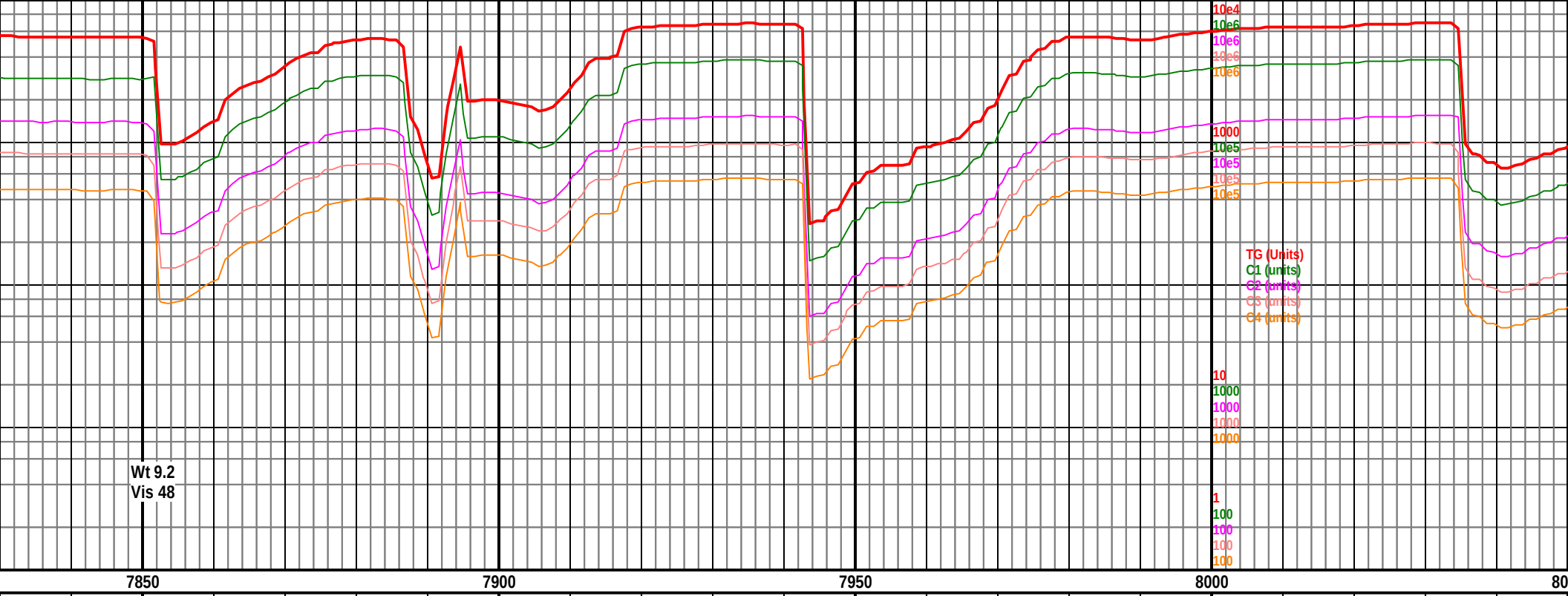

MD 7619 TVD 5617.04
INC 87.6 AZ 176.61
VS 2189.53
MD 7711 TVD 5621.7
INC 86.6 AZ 176.2
VS 2281.23
5000
Sub
MD 7803 TVD 5626.59
INC 87.3 AZ 177.48
VS 2372.96
5550
(-774)
7600-7700 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, rr inocs, rr bent, sl cut, 70% chk, 30% mrlst
7700-7800 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, rr bent, sl cut, 70% chk, 30% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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Vis 48
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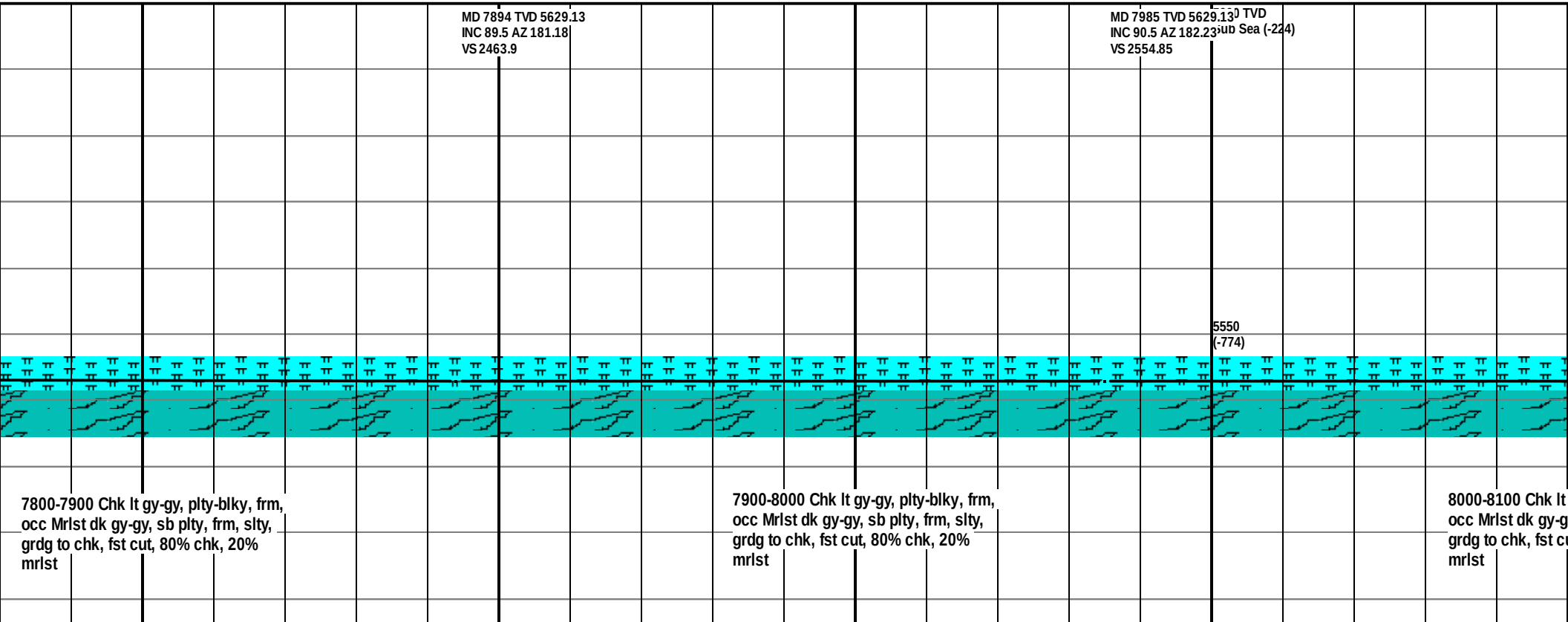
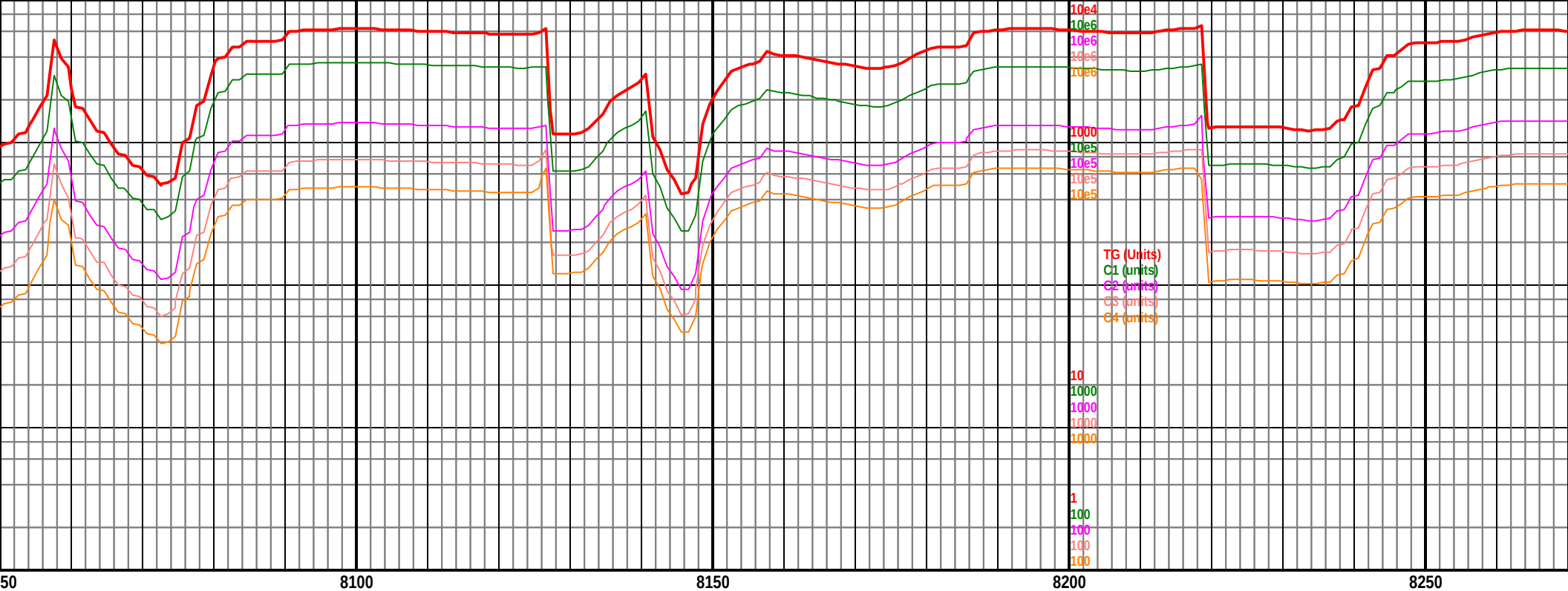

MD 7894 TVD 5629.13
INC 89.5 AZ 181.18
VS 2463.9
MD 7985 TVD 5629.13
INC 90.5 AZ 182.23
VS 2554.85
ub Sea (-224)
5550
(-774)
7800-7900 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, fst cut, 80% chk, 20% mrlst
7900-8000 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, fst cut, 80% chk, 20% mrlst
8000-8100 Chk lt
occ Mrlst dk gy-g
grdg to chk, fst c
mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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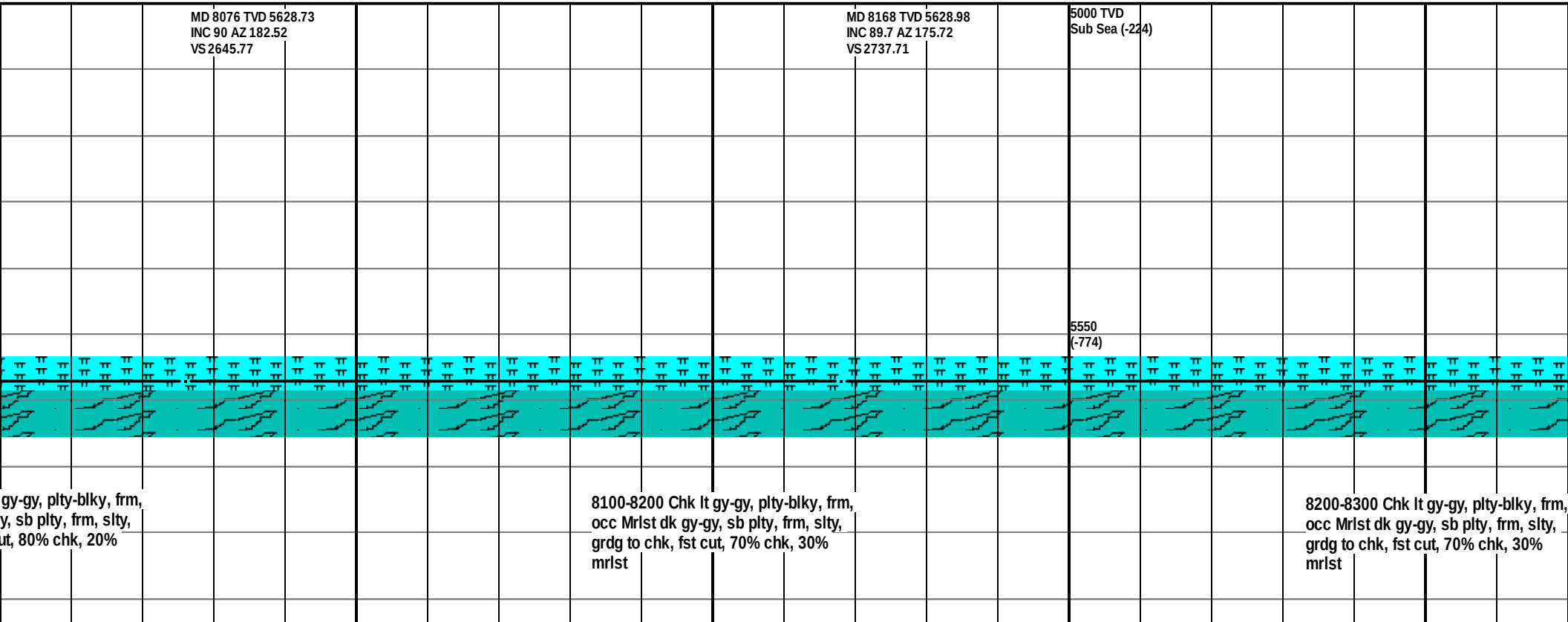
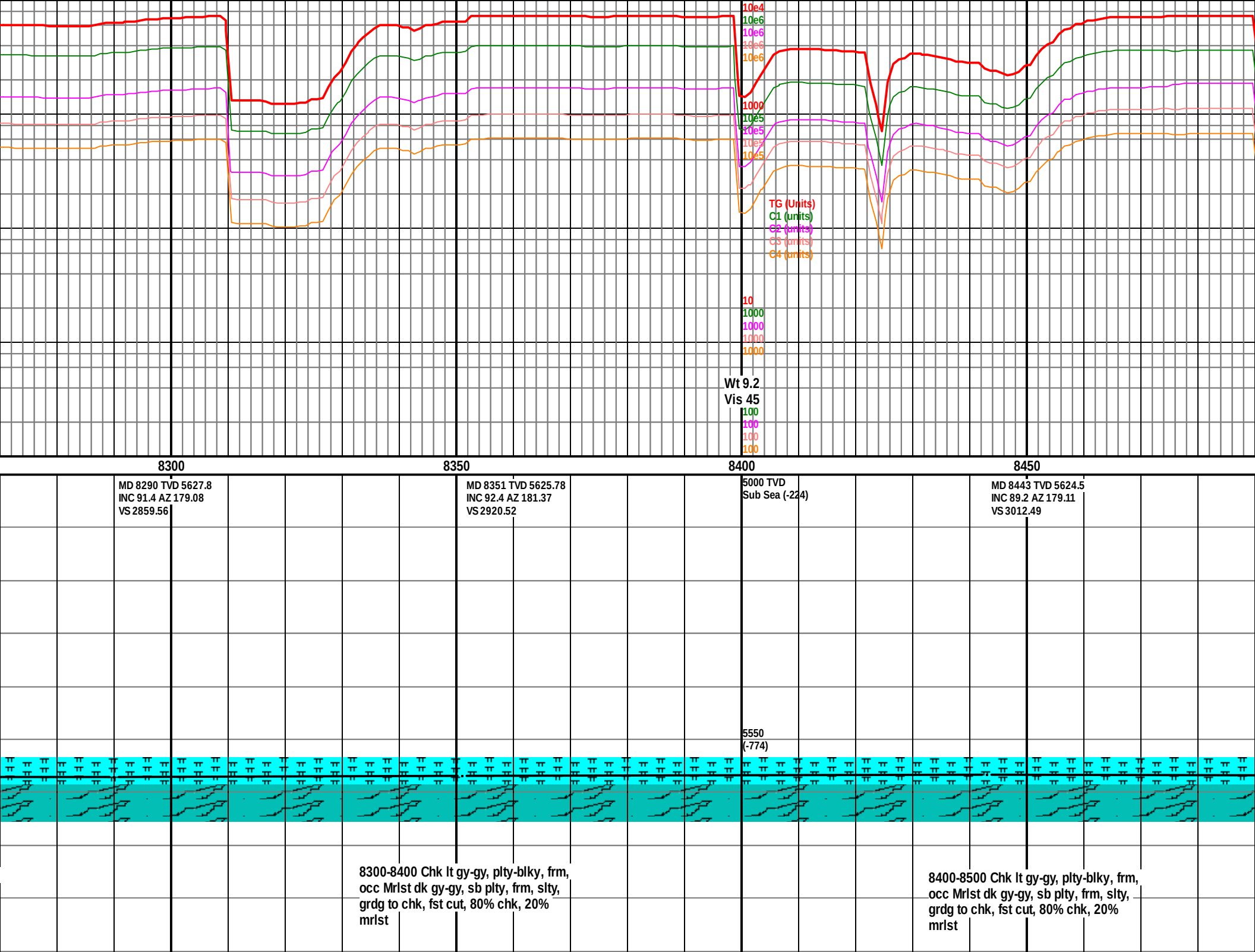
8200
8250


MD 8076 TVD 5628.73
INC 90 AZ 182.52
VS 2645.77
MD 8168 TVD 5628.98
INC 89.7 AZ 175.72
VS 2737.71
5000 TVD
Sub Sea (-224)
5550
(-774)
gy-gy, plty-blky, frm,
y, sb plty, frm, slty,
ut, 80% chk, 20%
8100-8200 Chk lt gy-gy, plty-blky, frm,
occ Mrlst dk gy-gy, sb plty, frm, slty,
grdg to chk, fst cut, 70% chk, 30%
mrlst
8200-8300 Chk lt gy-gy, plty-blky, frm,
occ Mrlst dk gy-gy, sb plty, frm, slty,
grdg to chk, fst cut, 70% chk, 30%
mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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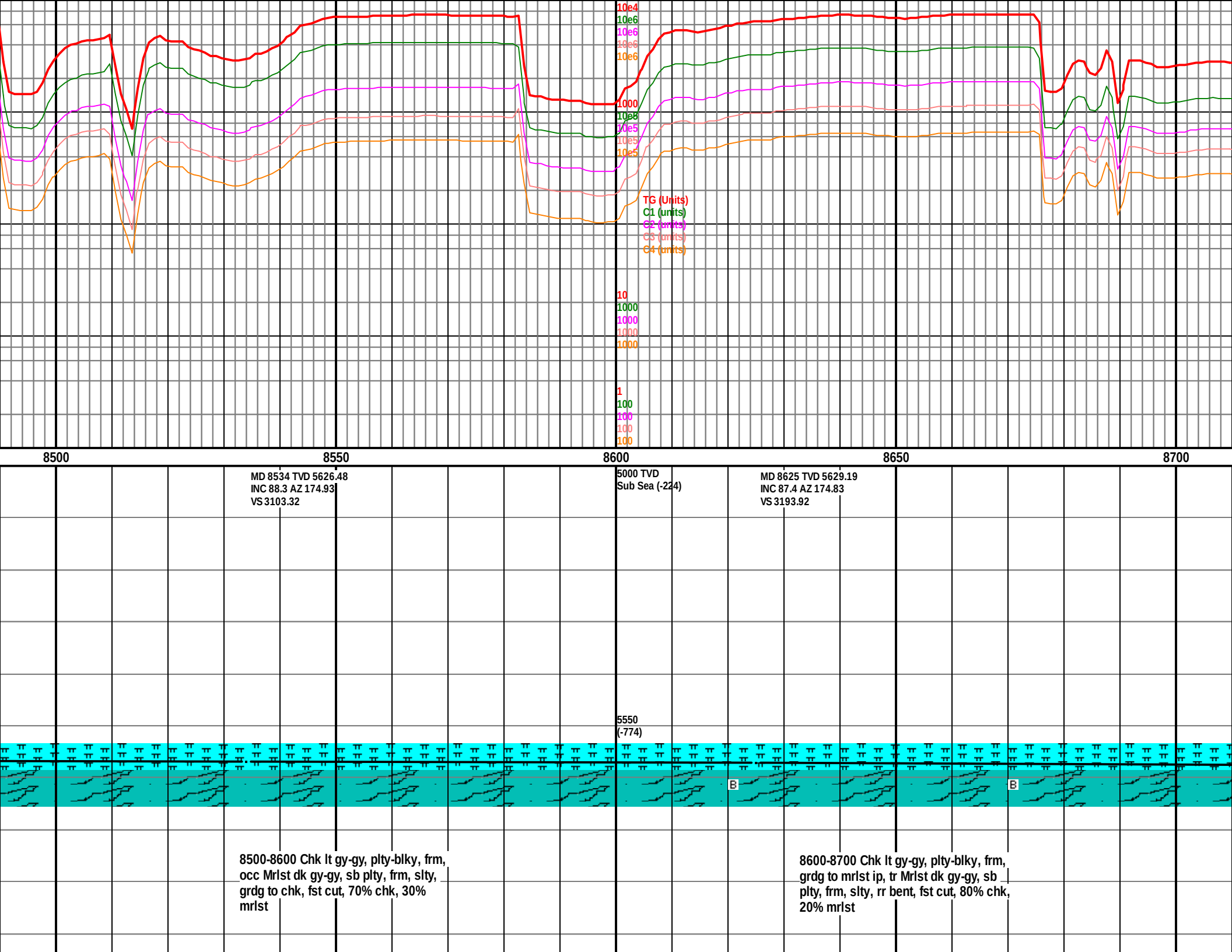
1000
1000
1000
1000
Wt 9.2
Vis 45
100
100
100
100
8300
8350
8400
8450
MD 8290 TVD 5627.8
INC 91.4 AZ 179.08
VS 2859.56
MD 8351 TVD 5625.78
INC 92.4 AZ 181.37
VS 2920.52
5000 TVD
Sub Sea (-224)
MD 8443 TVD 5624.5
INC 89.2 AZ 179.11
VS 3012.49
5550
(-774)
8300-8400 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, fst cut, 80% chk, 20% mrlst
8400-8500 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, fst cut, 80% chk, 20% mrlst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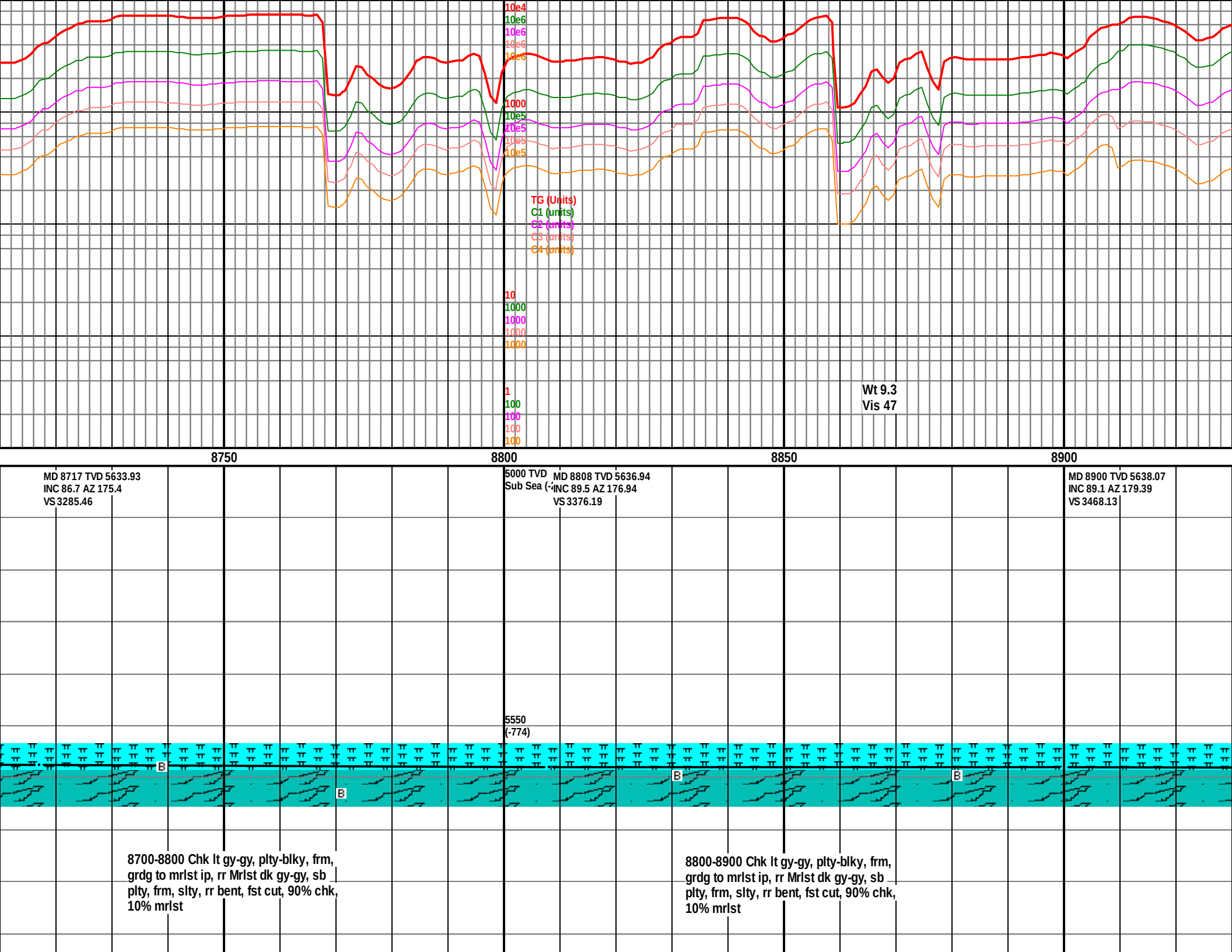
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
8500
8550
8600
8650
8700
MD 8534 TVD 5626.48
INC 88.3 AZ 174.93
VS 3103.32
5000 TVD
Sub Sea (-224)
MD 8625 TVD 5629.19
INC 87.4 AZ 174.83
VS 3193.92
5550
(-774)
B
B
8500-8600 Chk lt gy-gy, plty-blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk, fst cut, 70% chk, 30% mrlst
8600-8700 Chk lt gy-gy, plty-blky, frm, grdg to mrlst ip, tr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 80% chk, 20% mrlst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10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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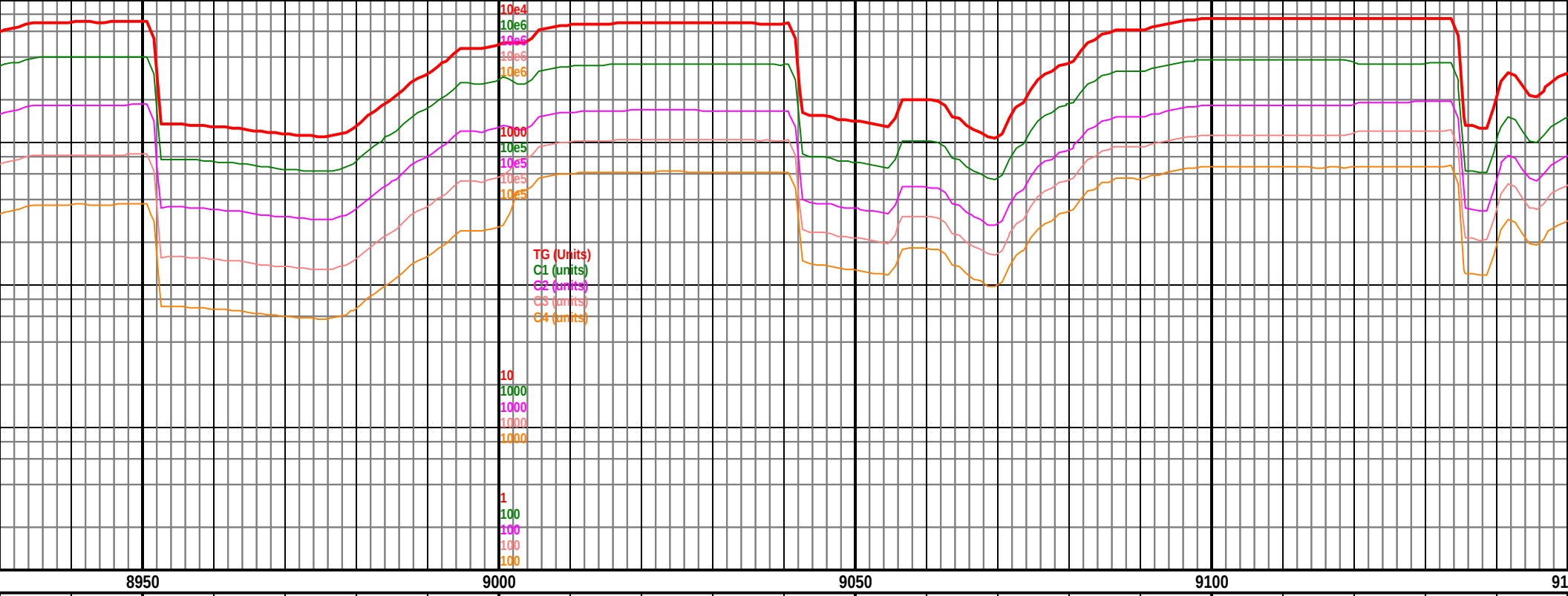
1000
1000
1000
1000
1
100
100
100
100
Wt 9.3
Vis 47
8750
8800
8850
8900
MD 8717 TVD 5633.93
INC 86.7 AZ 175.4
VS 3285.46
5000 TVD
Sub Sea (-
MD 8808 TVD 5636.94
INC 89.5 AZ 176.94
VS 3376.19
MD 8900 TVD 5638.07
INC 89.1 AZ 179.39
VS 3468.13
5550
(-774)
B
B
B
B
8700-8800 Chk lt gy-gy, plty-blky, frm, grdg to mrlst ip, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst
8800-8900 Chk lt gy-gy, plty-blky, frm, grdg to mrlst ip, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst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1000
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10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
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1000
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100
100
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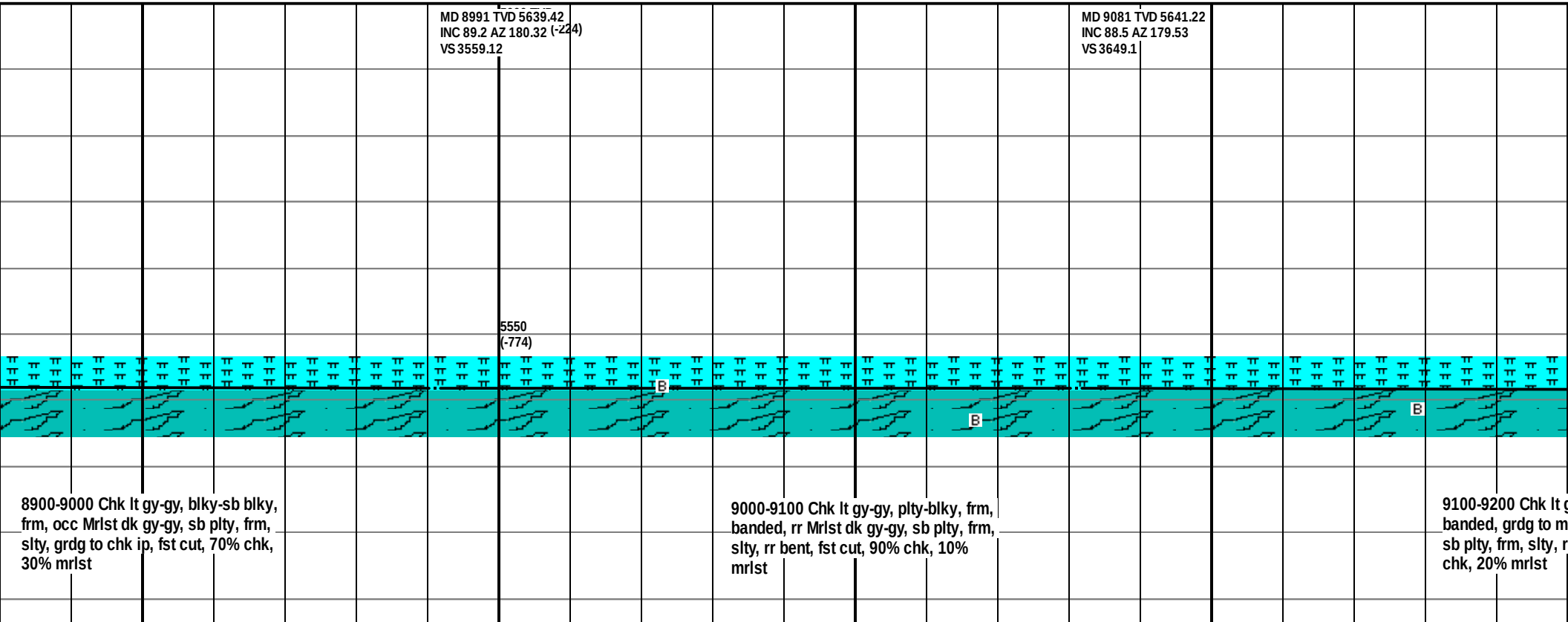
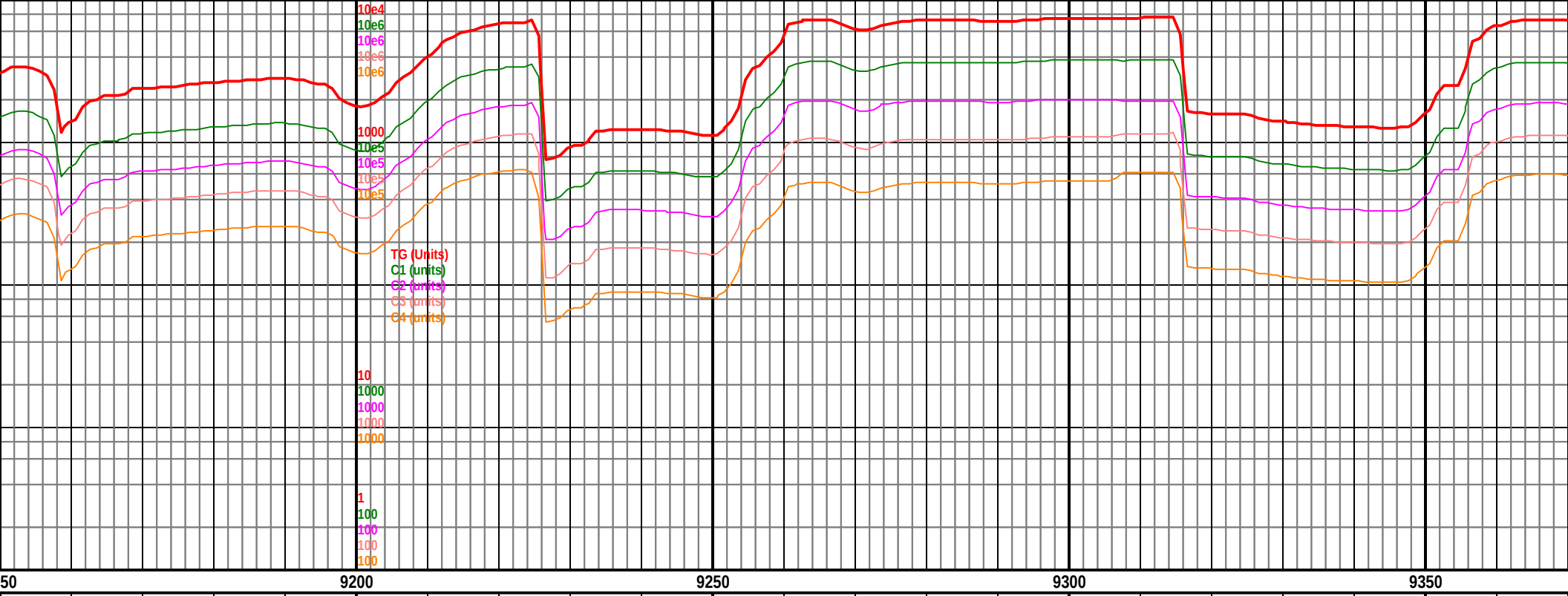
9000
9050
9100
91


MD 8991 TVD 5639.42
INC 89.2 AZ 180.32 (-224)
VS 3559.12
MD 9081 TVD 5641.22
INC 88.5 AZ 179.53
VS 3649.1
5550
(-774)
B
B
B
8900-9000 Chk lt gy-gy, blky-sb blky, frm, occ Mrlst dk gy-gy, sb plty, frm, slty, grdg to chk ip, fst cut, 70% chk, 30% mrlst
9000-9100 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst
9100-9200 Chk lt g
banded, grdg to m
sb plty, frm, slty, r
chk, 20% mrlst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10e6
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10e6
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1000
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10e5
10e5
10e5
TG (Units)
C1 (units)
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1000
1000
1000
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100
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100
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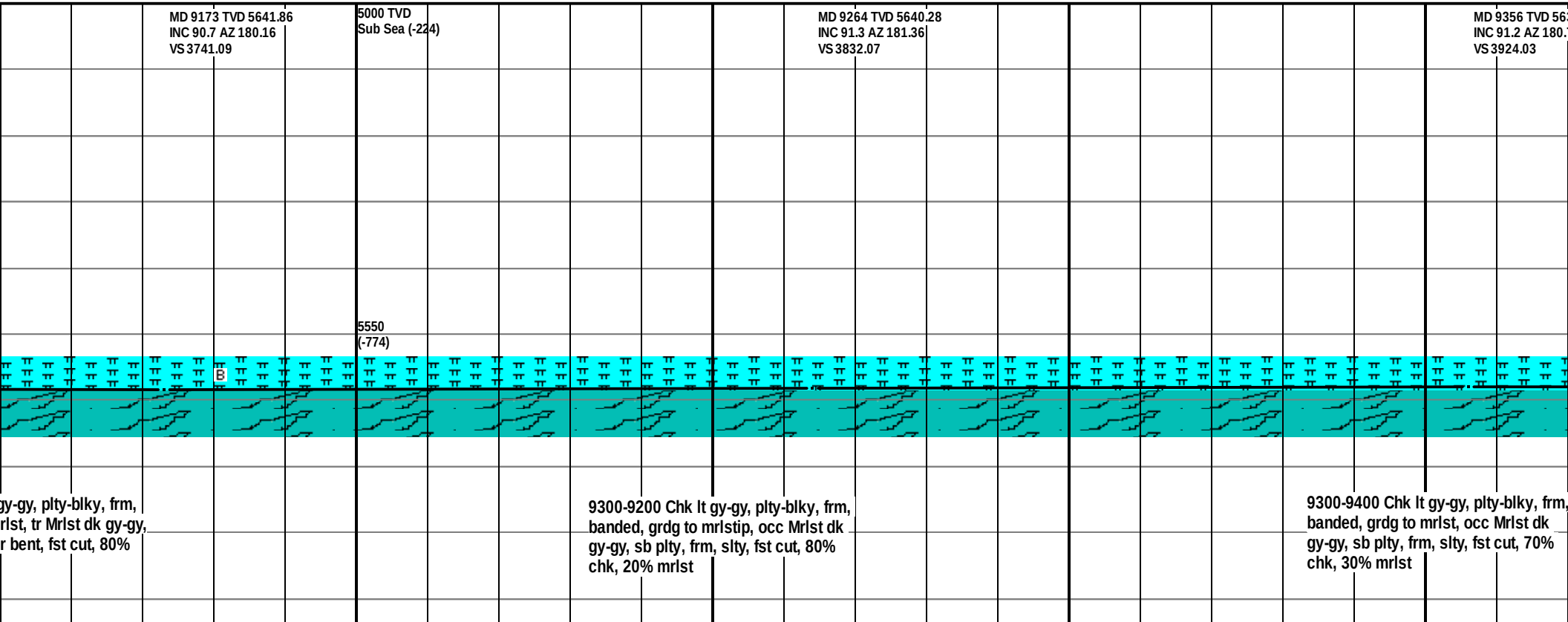
50
9200
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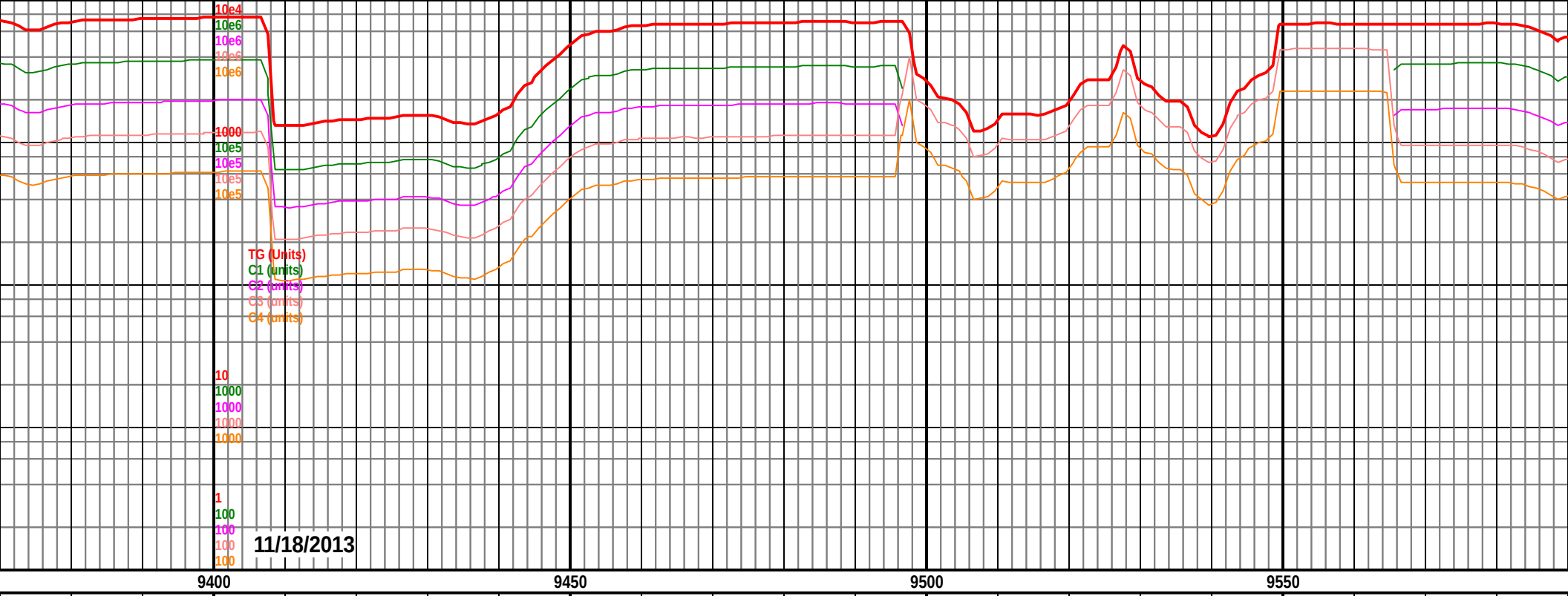
9300
9350
MD 9173 TVD 5641.86
INC 90.7 AZ 180.16
VS 3741.09
5000 TVD
Sub Sea (-224)
MD 9264 TVD 5640.28
INC 91.3 AZ 181.36
VS 3832.07
MD 9356 TVD 563
INC 91.2 AZ 180.
VS 3924.03
5550
(-774)
B
gy-gy, plty-blky, frm,
rlst, tr Mrlst dk gy-gy,
r bent, fst cut, 80%
9300-9200 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlstip, occ Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 80% chk, 20% mrlst
9300-9400 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, occ Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 70% chk, 30% mrlst



38.27
75

5000 TVD
Sub Sea (-224)

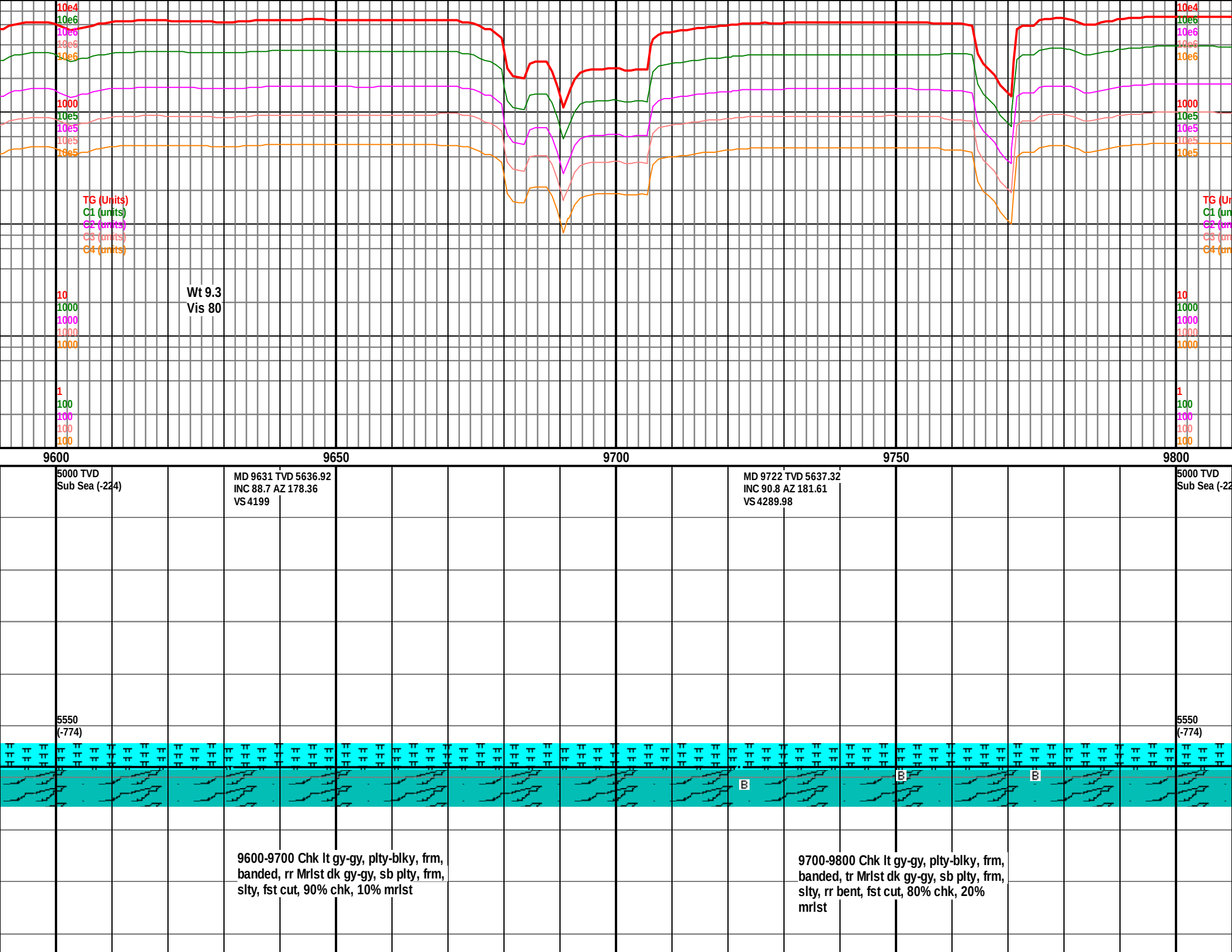
MD 9447 TVD 5637
INC 90.4 AZ 179.61
VS 4015.02

MD 9539 TVD 5636.28
INC 90.5 AZ 180.36
VS 4107.02

5550
(-774)

9400-9500 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 80% chk, 20% mrlst

9500-9600 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 90% chk, 10% mrlst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1000
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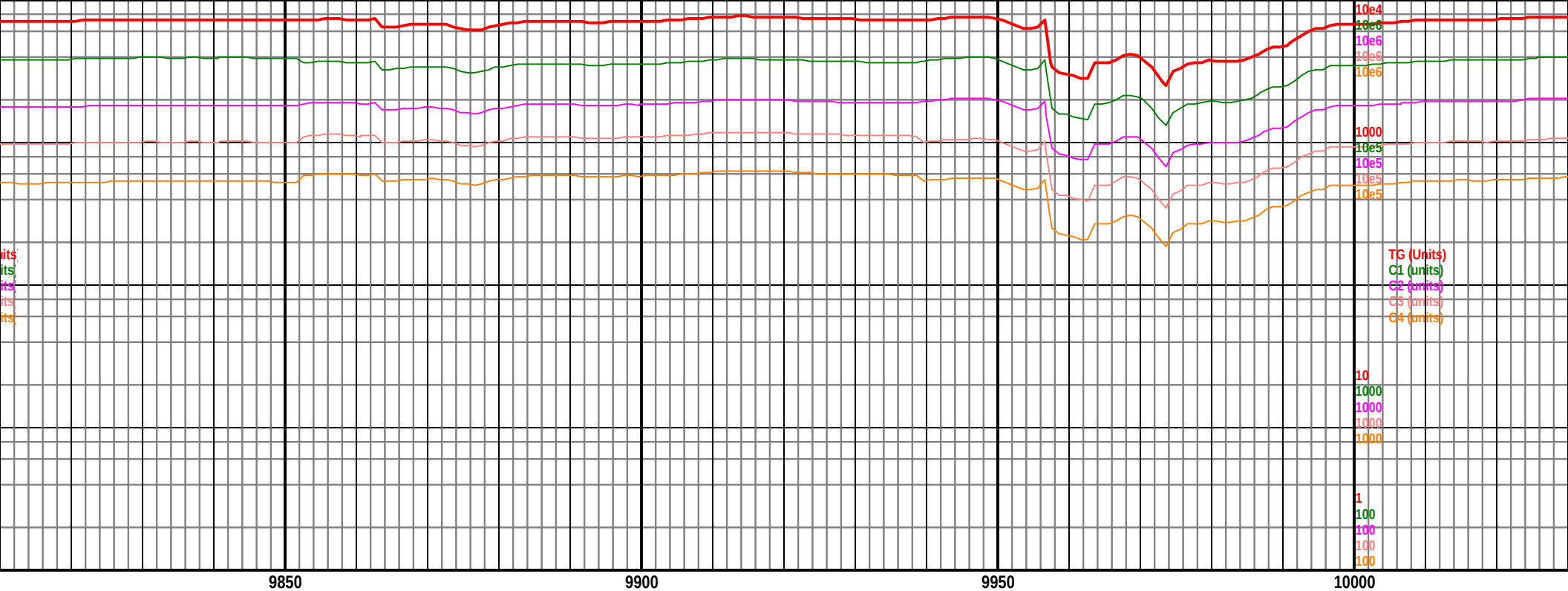
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.3
Vis 80
10
1000
1000
1000
1
100
100
100
9600
9650
9700
9750
9800
5000 TVD
Sub Sea (-224)
MD 9631 TVD 5636.92
INC 88.7 AZ 178.36
VS 4199
MD 9722 TVD 5637.32
INC 90.8 AZ 181.61
VS 4289.98
5550
(-774)
B
9600-9700 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 90% chk, 10% mrlst
9700-9800 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 80% chk, 20% mrlst



9850 9900 9950 10000

MD 9814 TVD 5636.11
INC 90.7 AZ 182.76
VS 4381.91

MD 9906 TVD 5633.62
INC 92.4 AZ 183.87
VS 4473.71

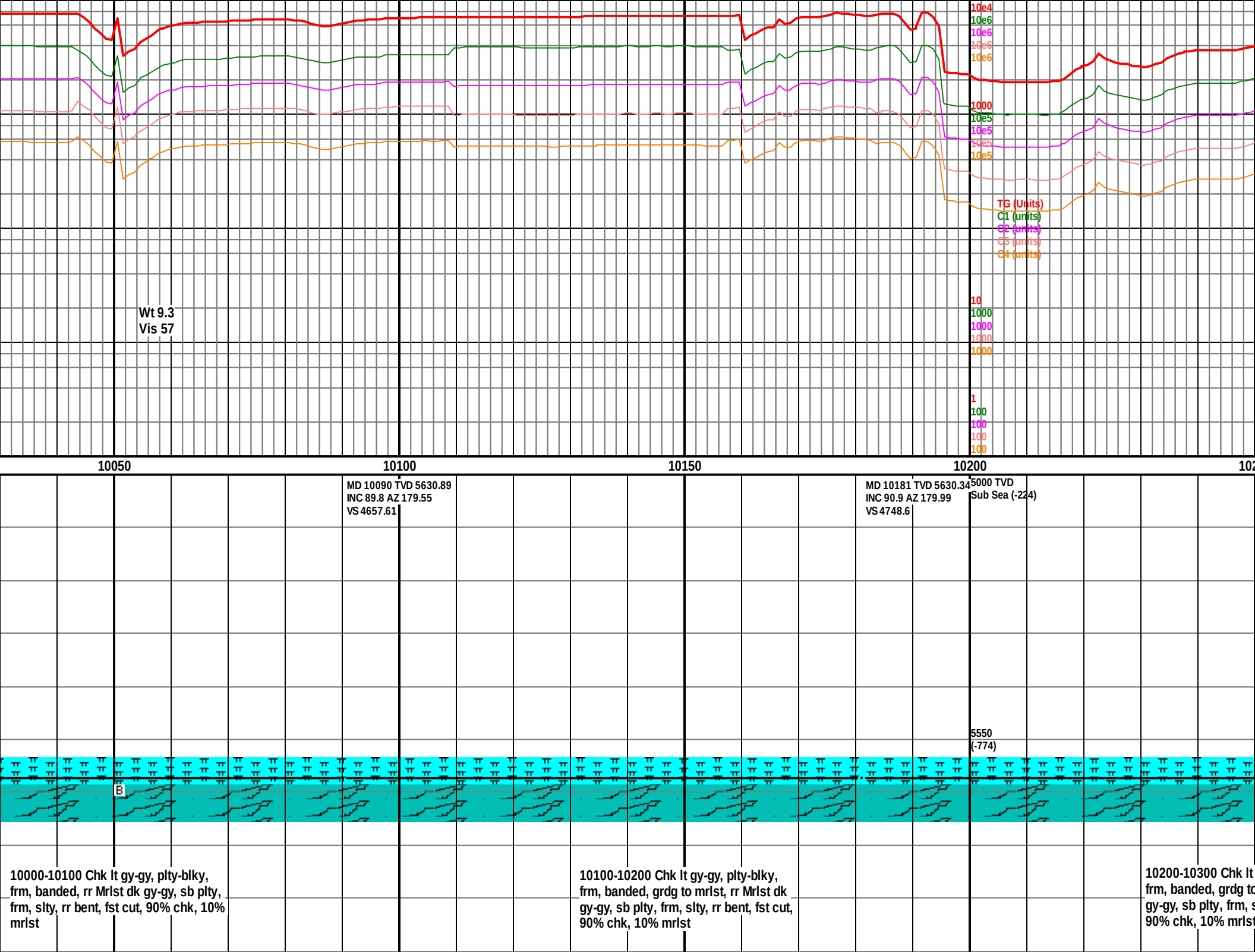
MD 9998 TVD 5631.21
INC 90.6 AZ 179.95
VS 4565.61

5550
(-774)

B B B B

9800-9900 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst

9900-10000 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst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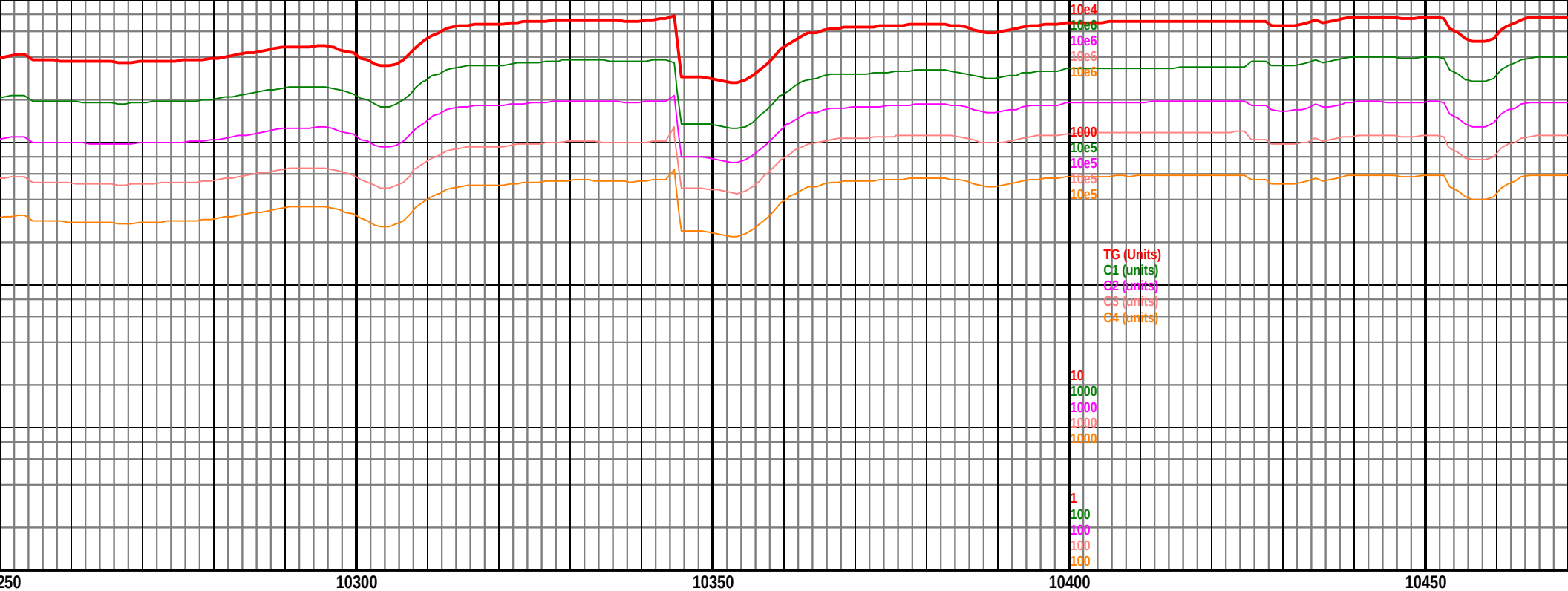
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.3
Vis 57
10050
10100
10150
10200
MD 10090 TVD 5630.89
INC 89.8 AZ 179.55
VS 4657.61
MD 10181 TVD 5630.34
INC 90.9 AZ 179.99
VS 4748.6
5000 TVD
Sub Sea (-224)
5550
(-774)
B
10000-10100 Chk lt gy-gy, plty-blky, frm, banded, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst
10100-10200 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst
10200-10300 Chk lt
frm, banded, grdg to
gy-gy, sb plty, frm, s
90% chk, 10% mrlst



250 10300 10350 10400 10450

MD 10272 TVD 5629.7
INC 89.9 AZ 178.4
VS 4839.59

MD 10363 TVD 5631.21
INC 88.2 AZ 176.98
VS 4930.49

5000 TVD
Sub Sea (-224)

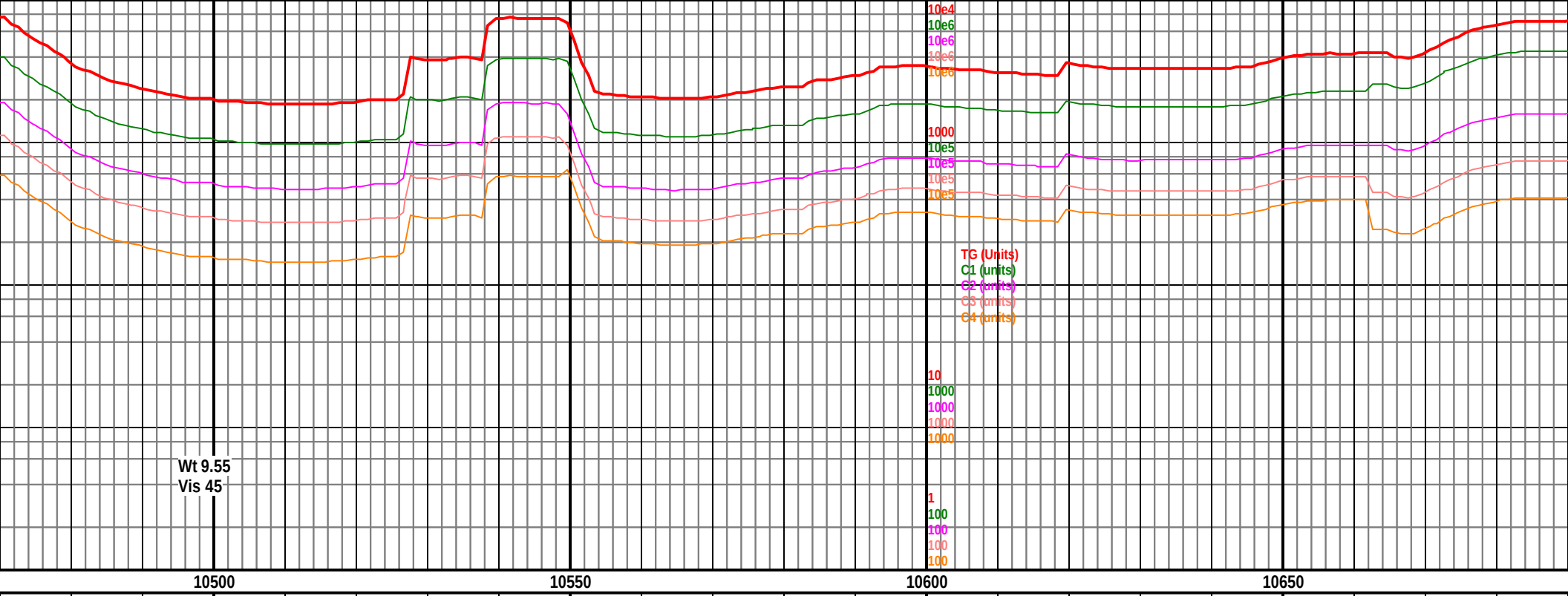
MD 10454 TVD 563
INC 88.1 AZ 176.8
VS 5021.31

5550
(-774)

gy-gy, plty-blky,
o mrlst, rr Mrlst dk
slty, rr bent, fst cut,

10300-10400 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 80% chk, 20% mrlst

10400-10500 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, fst cut, 90% chk, 10% mrlst



4.15

MD 10545 TVD 5636.05
INC 89.5 AZ 177.3
VS 5112.17

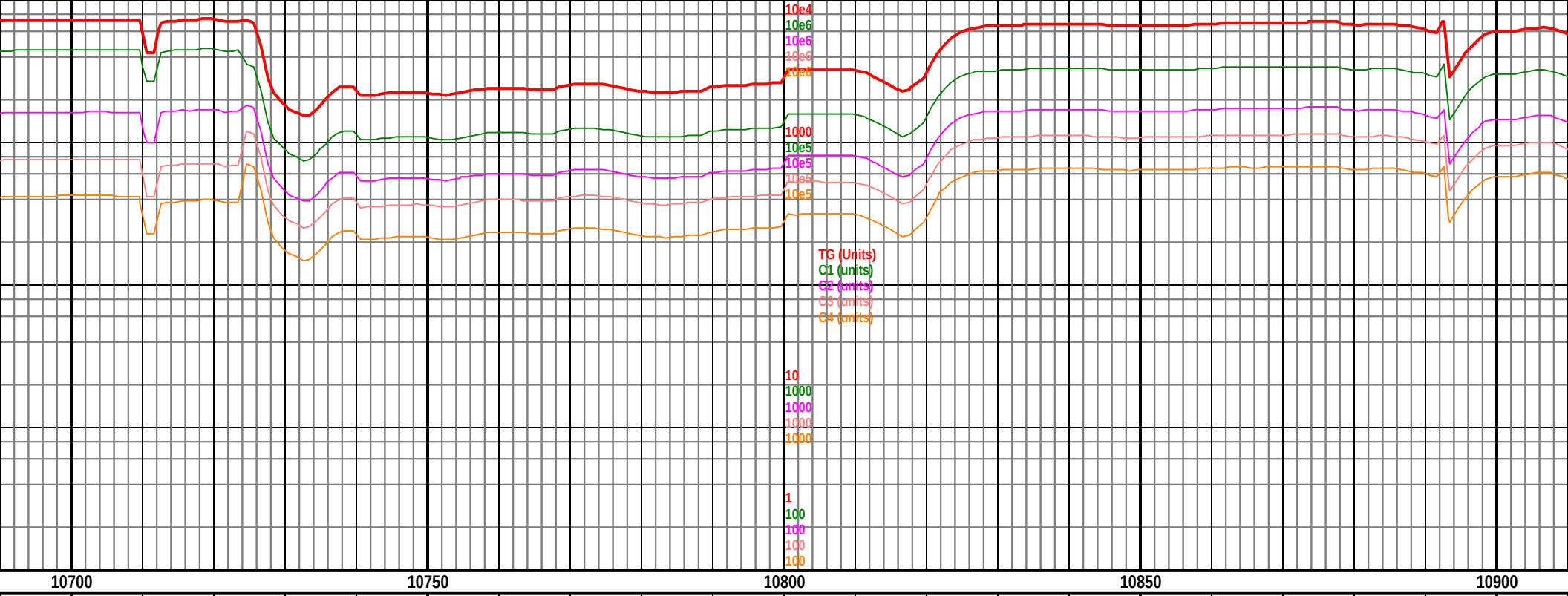
5000 TVD
Sub Sea (-224)

MD 10636 TVD 5636.45
INC 90 AZ 178.74
VS 5203.11

5550
(-774)

10500-10600 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, rr bent, fst cut, 90% chk, 10% mrlst

10600-10700 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst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TG (Units)
C1 (units)
C2 (units)
C3 (units)
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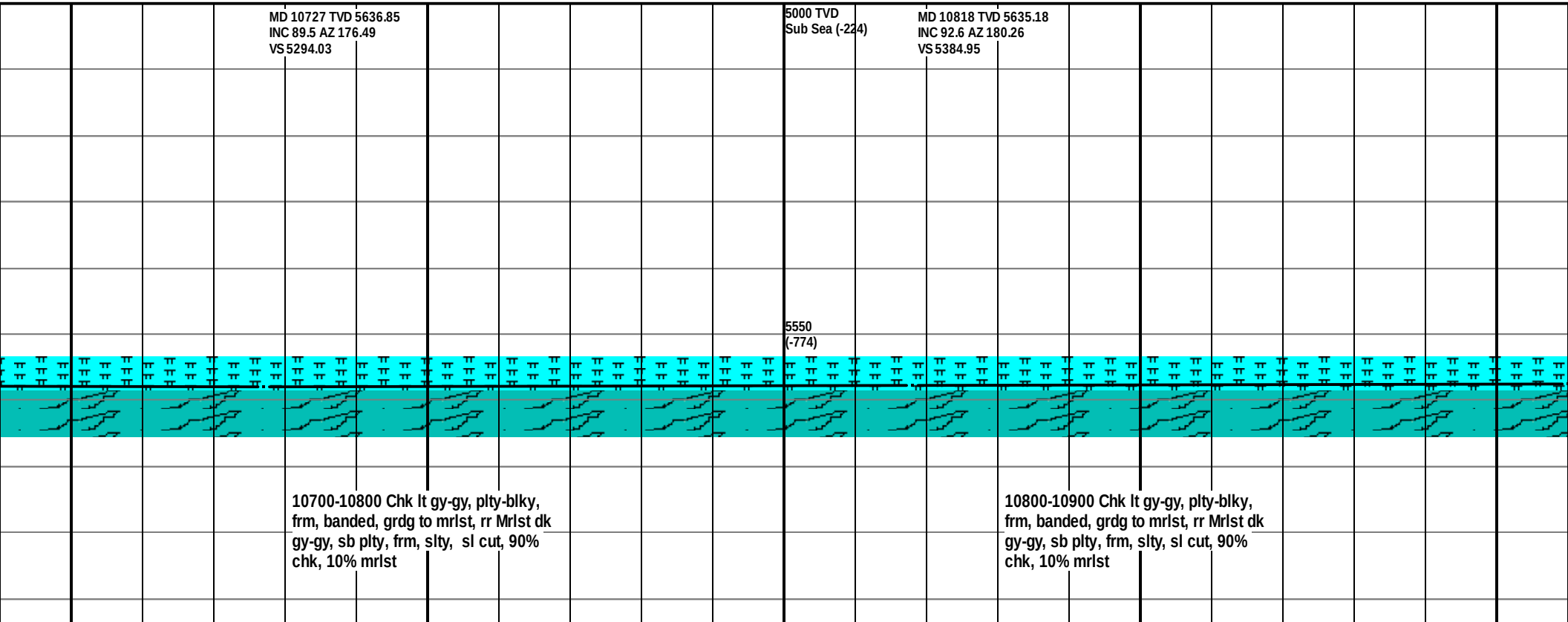
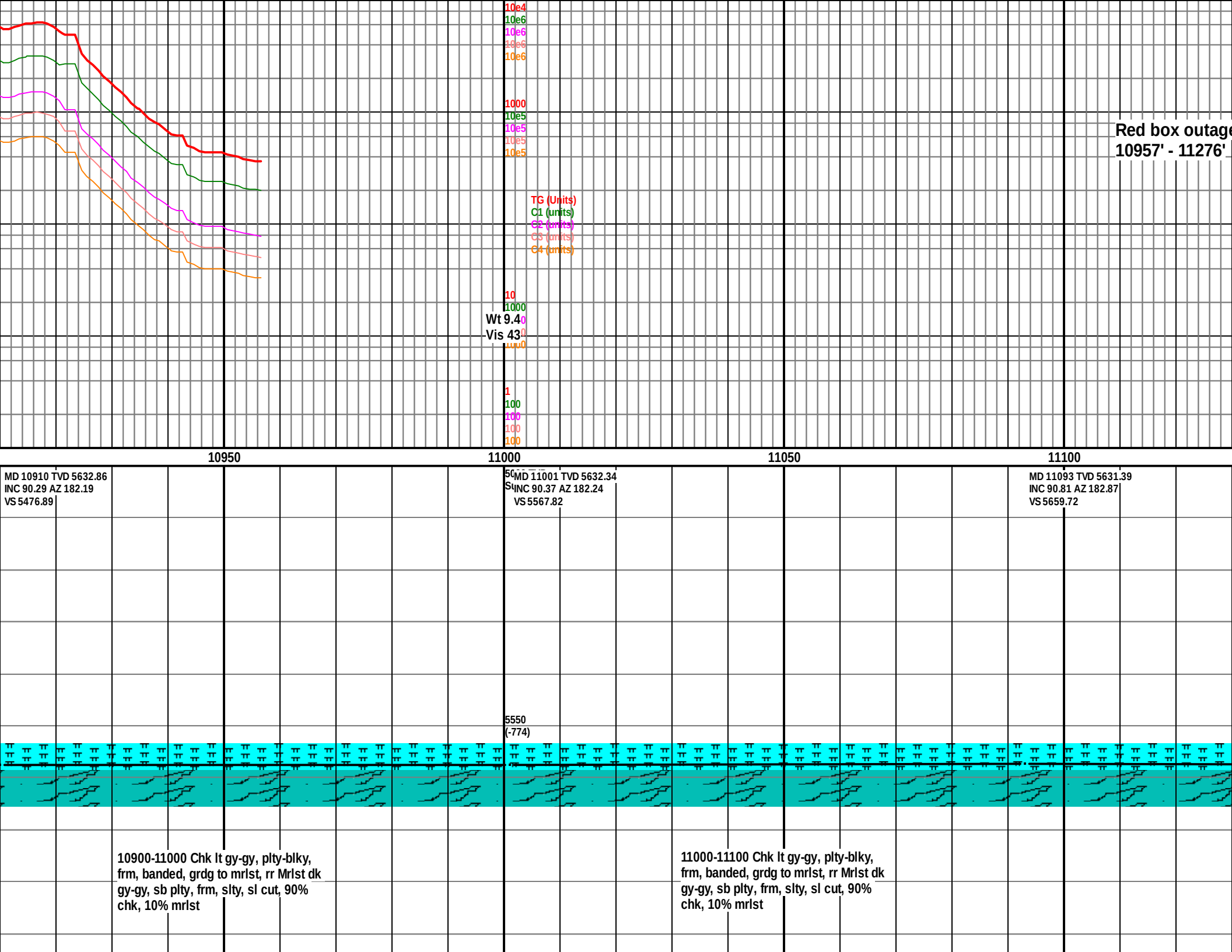
10900


MD 10727 TVD 5636.85
INC 89.5 AZ 176.49
VS 5294.03
5000 TVD
Sub Sea (-224)
MD 10818 TVD 5635.18
INC 92.6 AZ 180.26
VS 5384.95
5550
(-774)
10700-10800 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst
10800-10900 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst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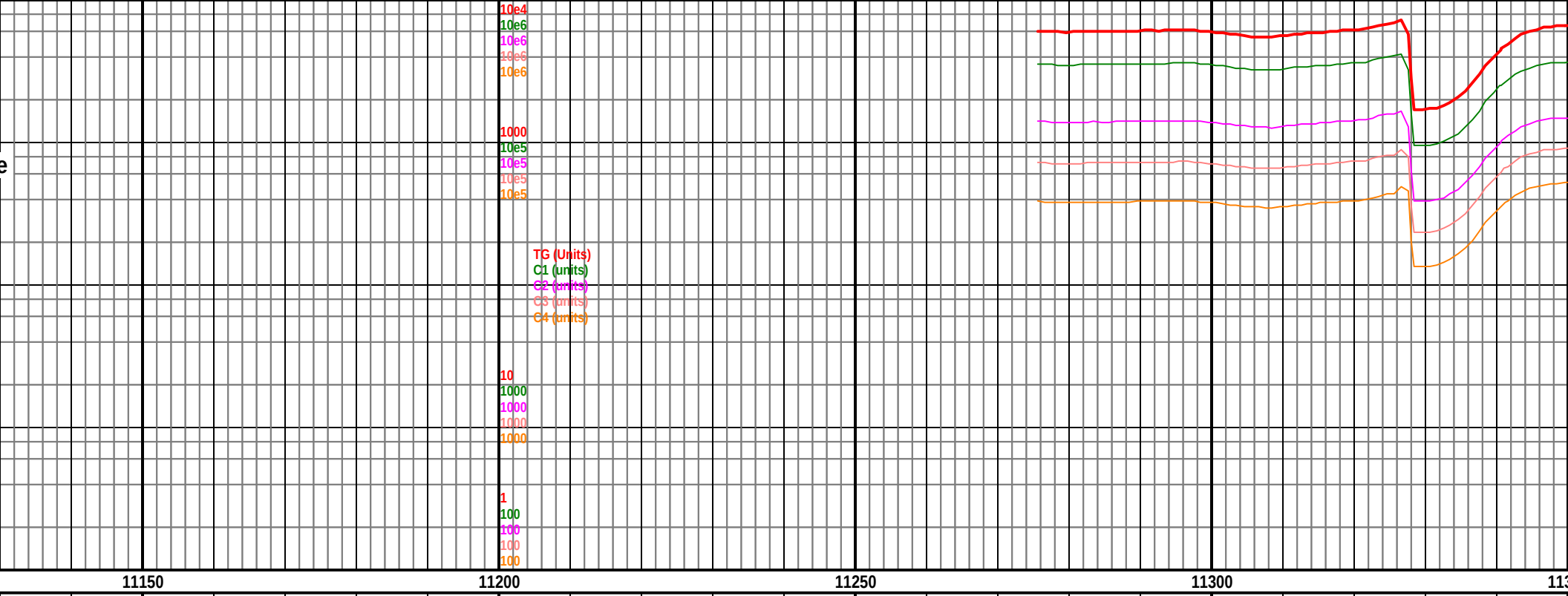
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
Wt 9.4
Vis 43
1
100
100
100
100
Red box outage
10957' - 11276'
10950
11000
11050
11100
MD 10910 TVD 5632.86
INC 90.29 AZ 182.19
VS 5476.89
MD 11001 TVD 5632.34
INC 90.37 AZ 182.24
VS 5567.82
MD 11093 TVD 5631.39
INC 90.81 AZ 182.87
VS 5659.72
5550
(-774)
10900-11000 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst
11000-11100 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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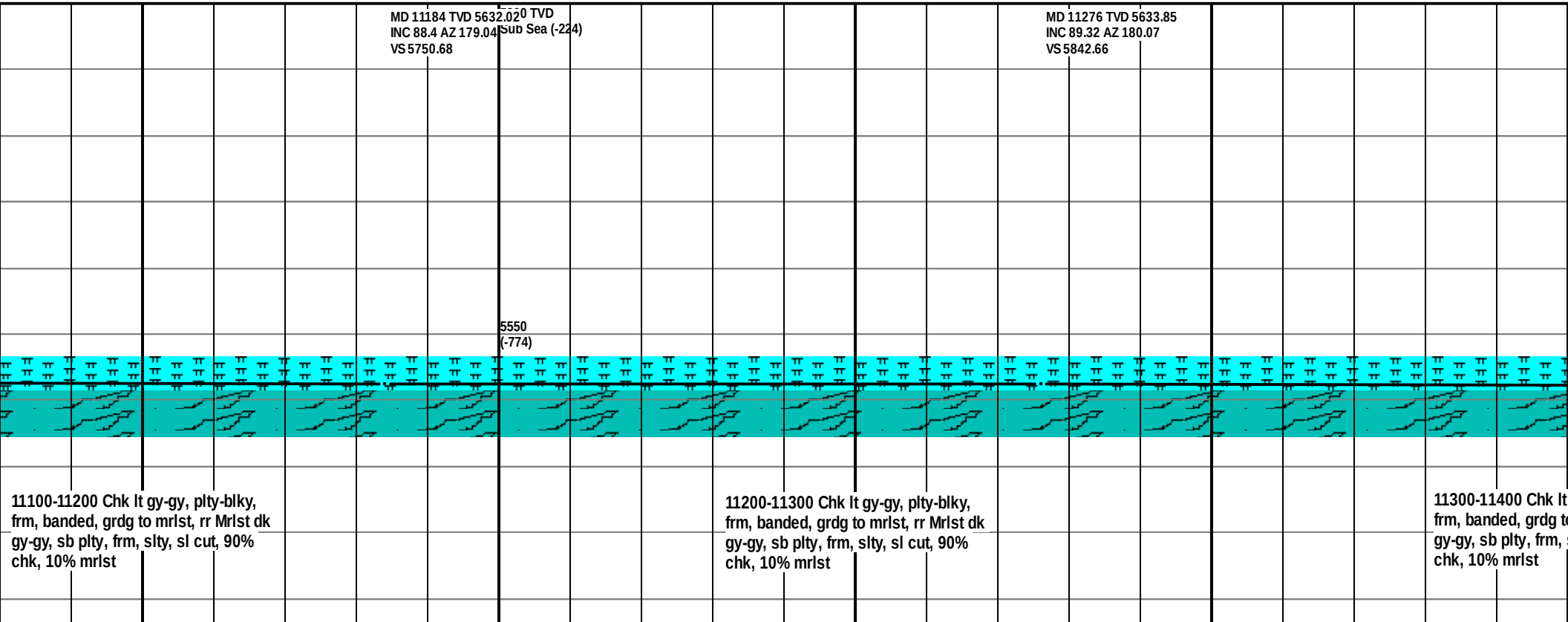
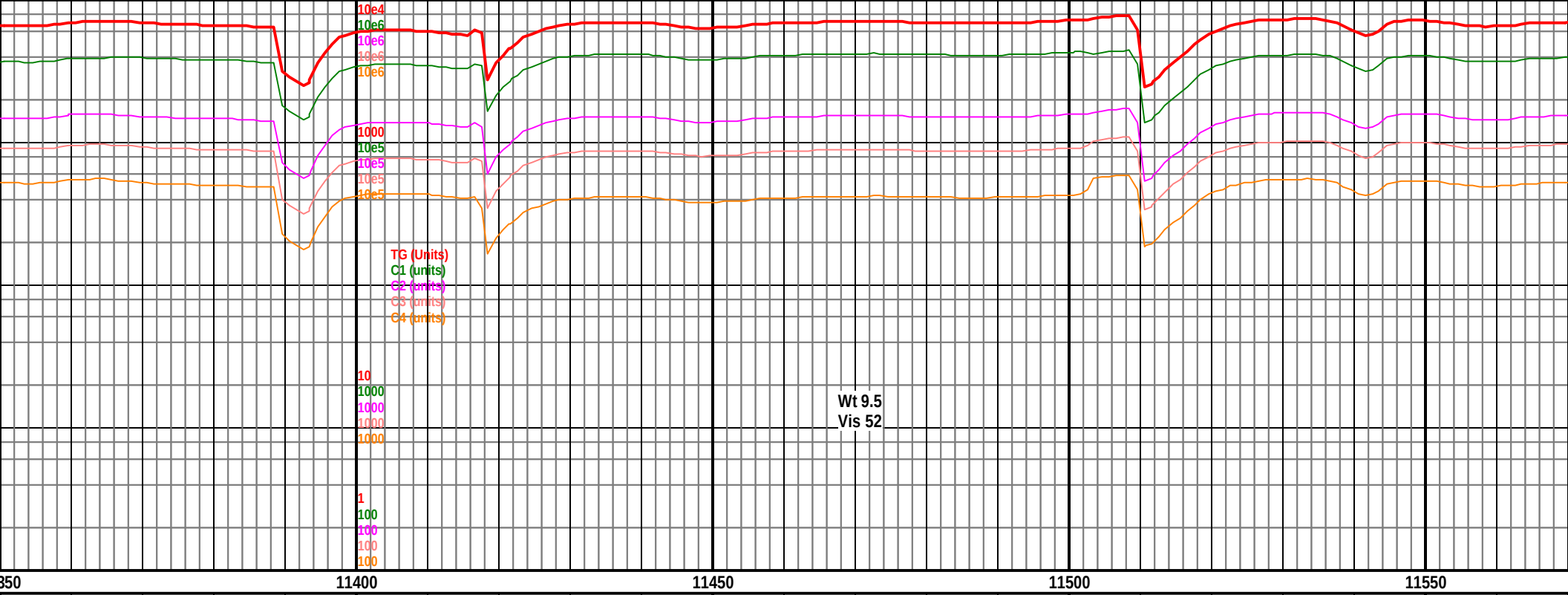
11200
11250
11300


MD 11184 TVD 5632.02
INC 88.4 AZ 179.04
VS 5750.68
Sub Sea (-224)
MD 11276 TVD 5633.85
INC 89.32 AZ 180.07
VS 5842.66
5550
(-774)
11100-11200 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst
11200-11300 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, rr Mrlst dk gy-gy, sb plty, frm, slty, sl cut, 90% chk, 10% mrlst
11300-11400 Chk lt
frm, banded, grdg t
gy-gy, sb plty, frm,
chk, 10% mrlst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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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100
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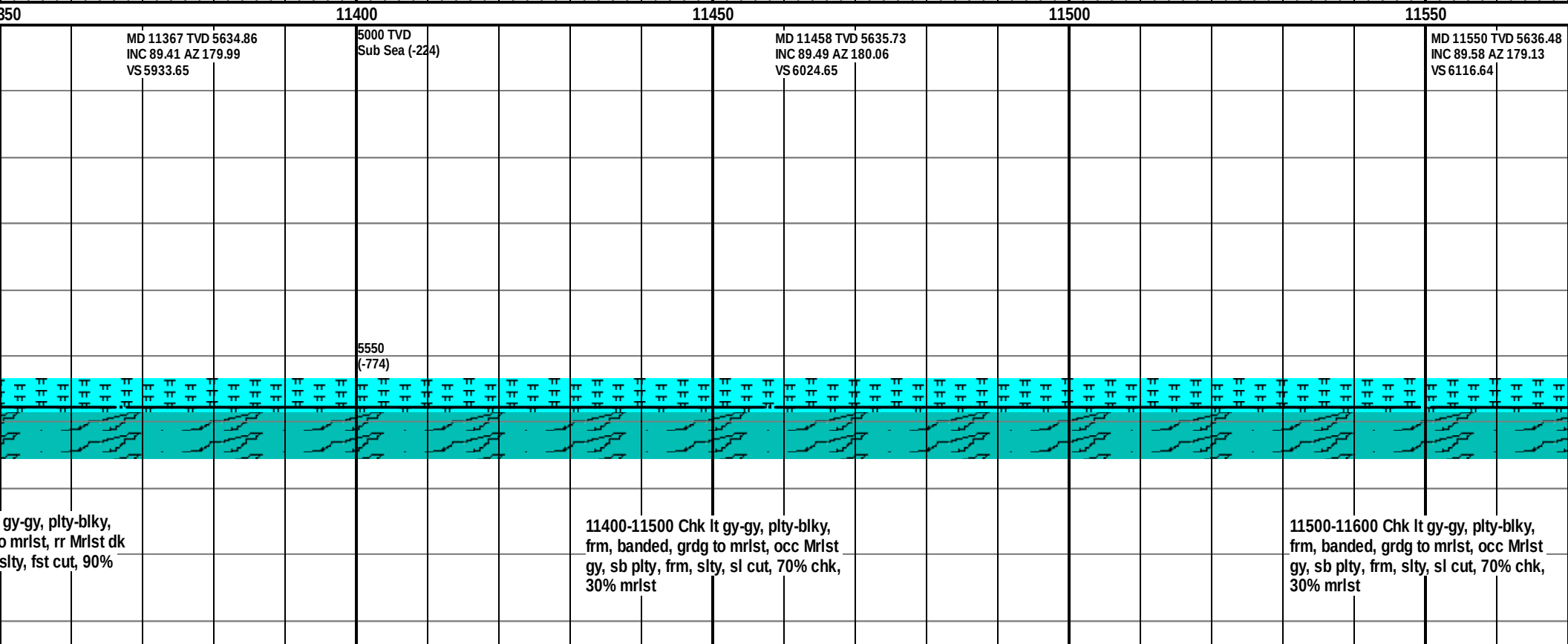
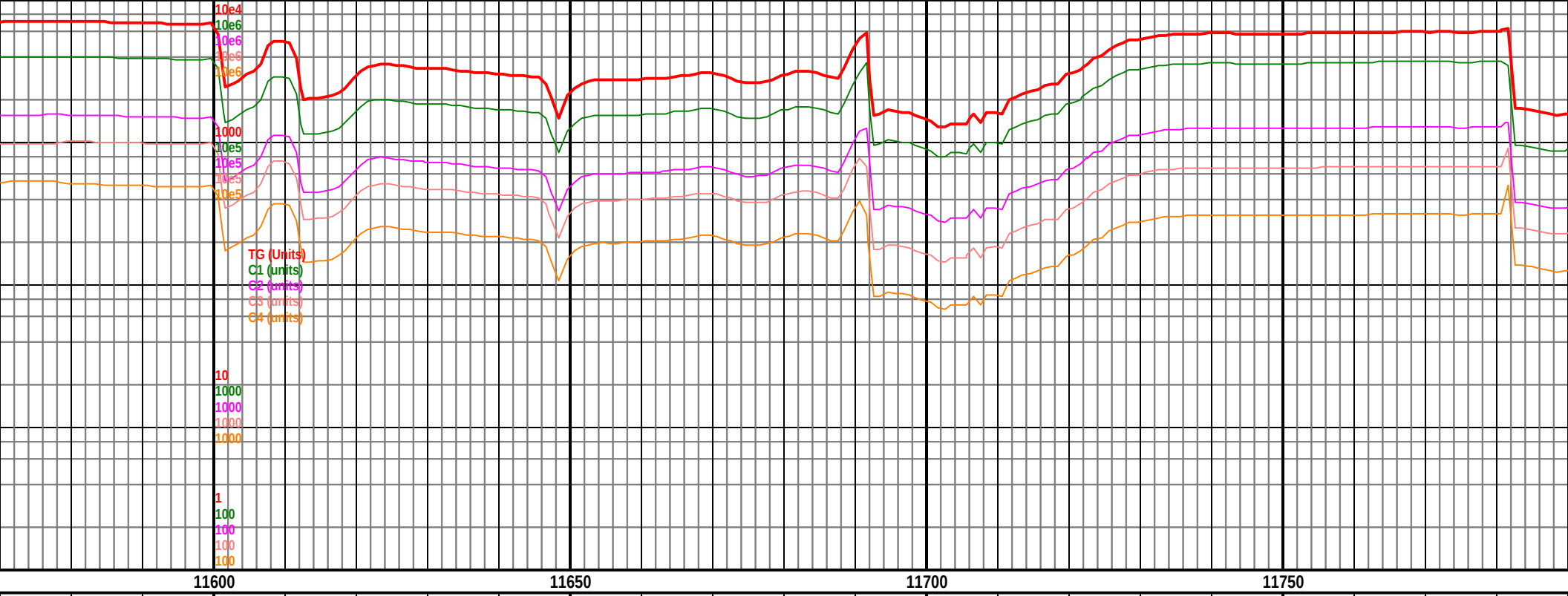
100
Wt 9.5
Vis 52


350
11400
11450
11500
11550
MD 11367 TVD 5634.86
INC 89.41 AZ 179.99
VS 5933.65
5000 TVD
Sub Sea (-224)
MD 11458 TVD 5635.73
INC 89.49 AZ 180.06
VS 6024.65
MD 11550 TVD 5636.48
INC 89.58 AZ 179.13
VS 6116.64
5550
(-774)
gy-gy, plty-blky,
o mrlst, rr Mrlst dk
slty, fst cut, 90%
11400-11500 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, occ Mrlst gy, sb plty, frm, slty, sl cut, 70% chk, 30% mrlst
11500-11600 Chk lt gy-gy, plty-blky, frm, banded, grdg to mrlst, occ Mrlst gy, sb plty, frm, slty, sl cut, 70% chk, 30% mrlst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10e5
TG (Units)
C1 (units)
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1000
1000
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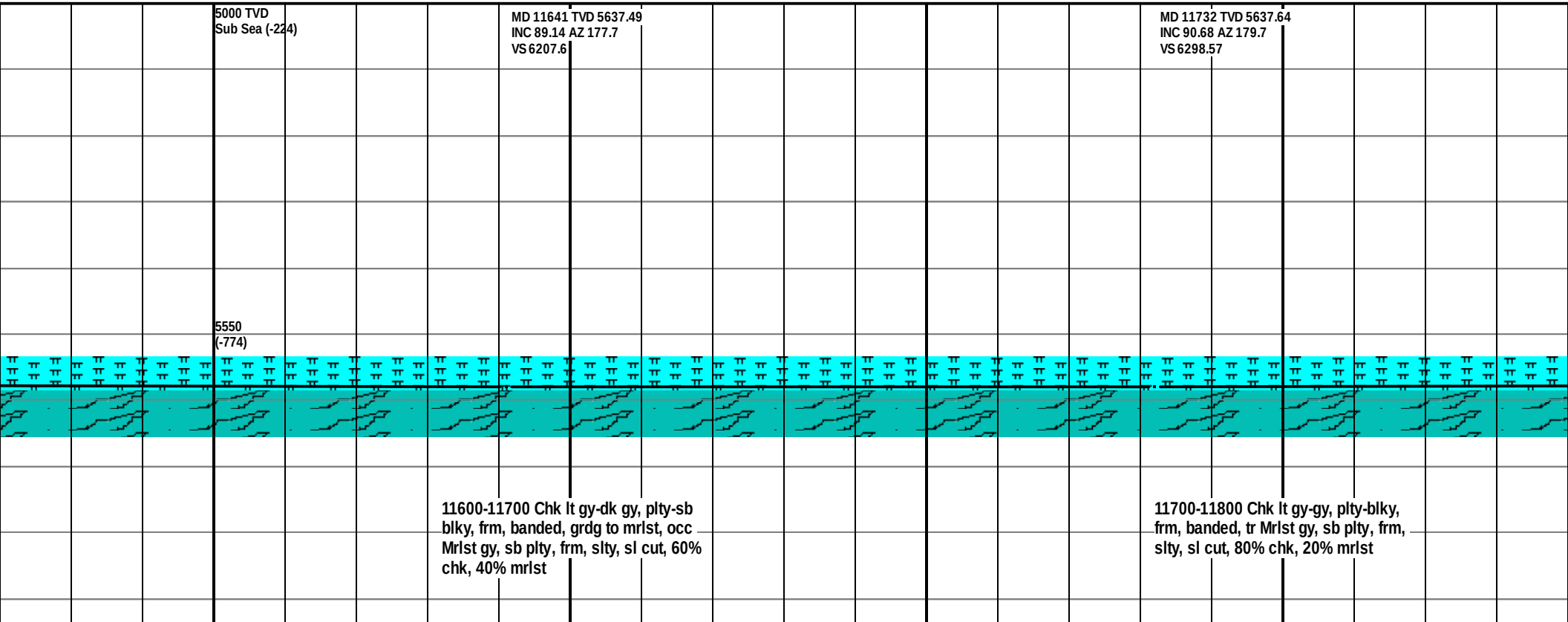
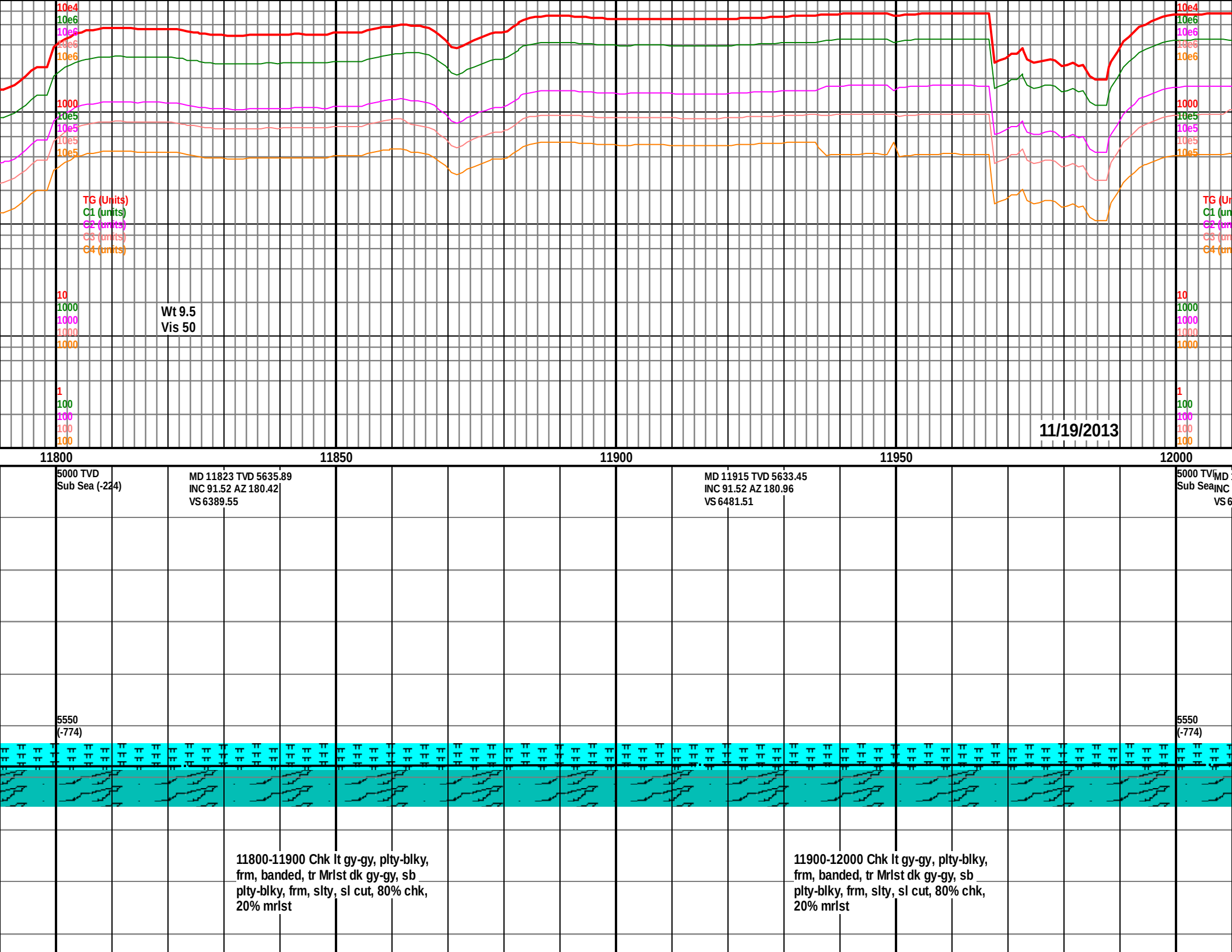
100
100


11600
11650
11700
11750
5000 TVD
Sub Sea (-224)
MD 11641 TVD 5637.49
INC 89.14 AZ 177.7
VS 6207.6
MD 11732 TVD 5637.64
INC 90.68 AZ 179.7
VS 6298.57
5550
(-774)
11600-11700 Chk lt gy-dk gy, plty-sb blky, frm, banded, grdg to mrlst, occ Mrlst gy, sb plty, frm, slty, sl cut, 60% chk, 40% mrlst
11700-11800 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst gy, sb plty, frm, slty, sl cut, 80% chk, 20% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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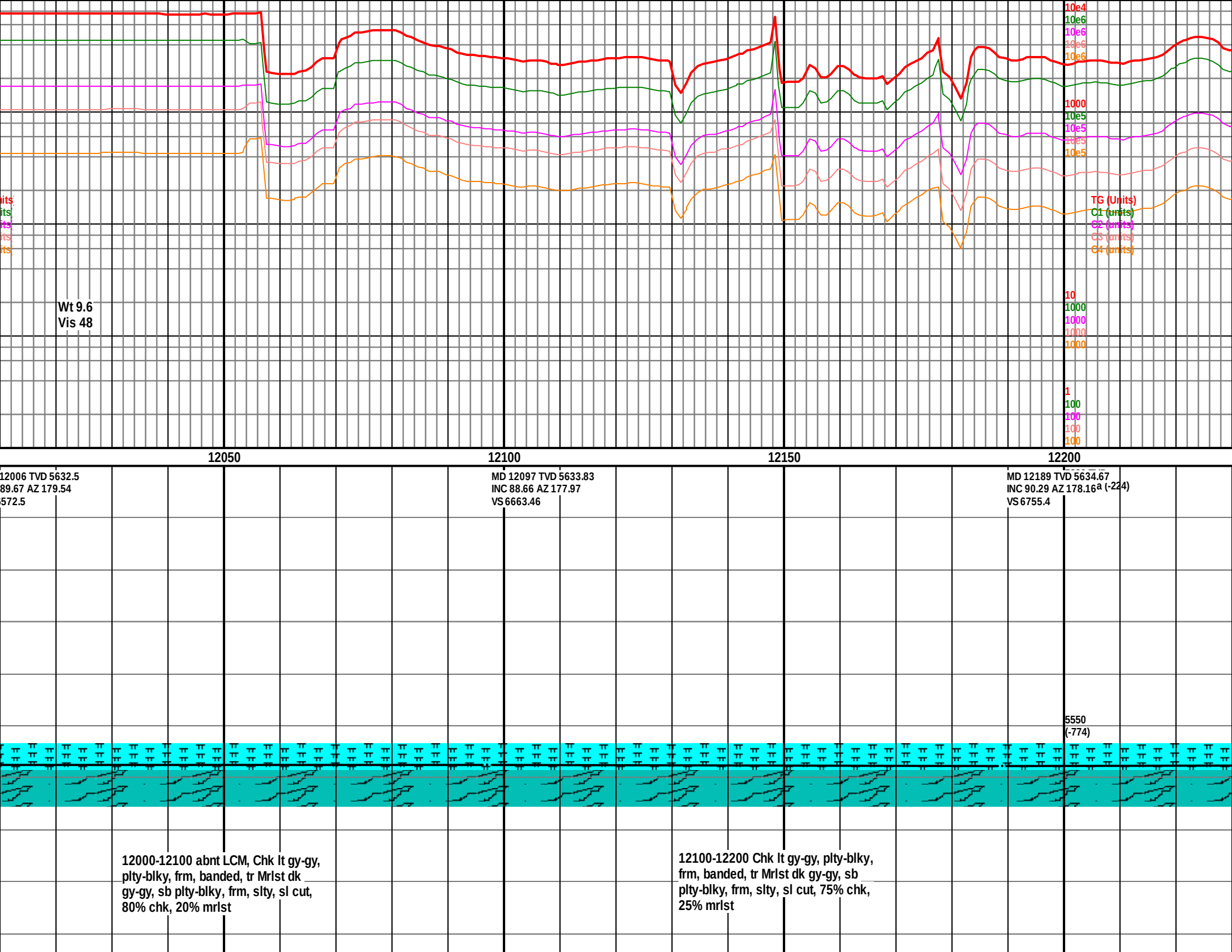
1000
1000
1000
1000
Wt 9.5
Vis 50
1
100
100
100
100
11/19/2013
11800
11850
11900
11950
12000
5000 TVD
Sub Sea (-224)
MD 11823 TVD 5635.89
INC 91.52 AZ 180.42
VS 6389.55
MD 11915 TVD 5633.45
INC 91.52 AZ 180.96
VS 6481.51
5550
(-774)
11800-11900 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, sl cut, 80% chk, 20% mrlst
11900-12000 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, sl cut, 80% chk, 20% mrlst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10e5
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C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.6
Vis 48
10
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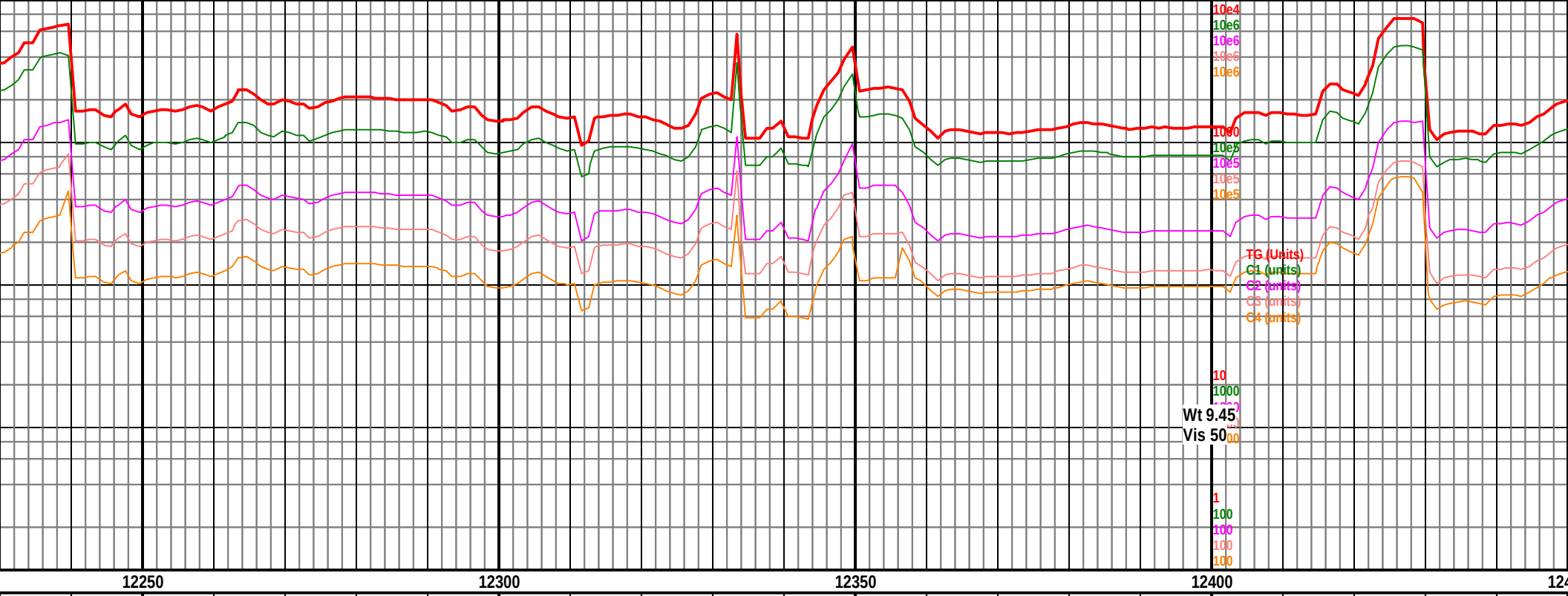
1000
1000
1000
1
100
100
100
100
12050
12100
12150
12200
12006 TVD 5632.5
89.67 AZ 179.54
572.5
MD 12097 TVD 5633.83
INC 88.66 AZ 177.97
VS 6663.46
MD 12189 TVD 5634.67
INC 90.29 AZ 178.16a (-224)
VS 6755.4
5550
(-774)
12000-12100 abnt LCM, Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, sl cut, 80% chk, 20% mrlst
12100-12200 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, sl cut, 75% chk, 25% mrlst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TG (Units)
C1 (units)
C2 (units)
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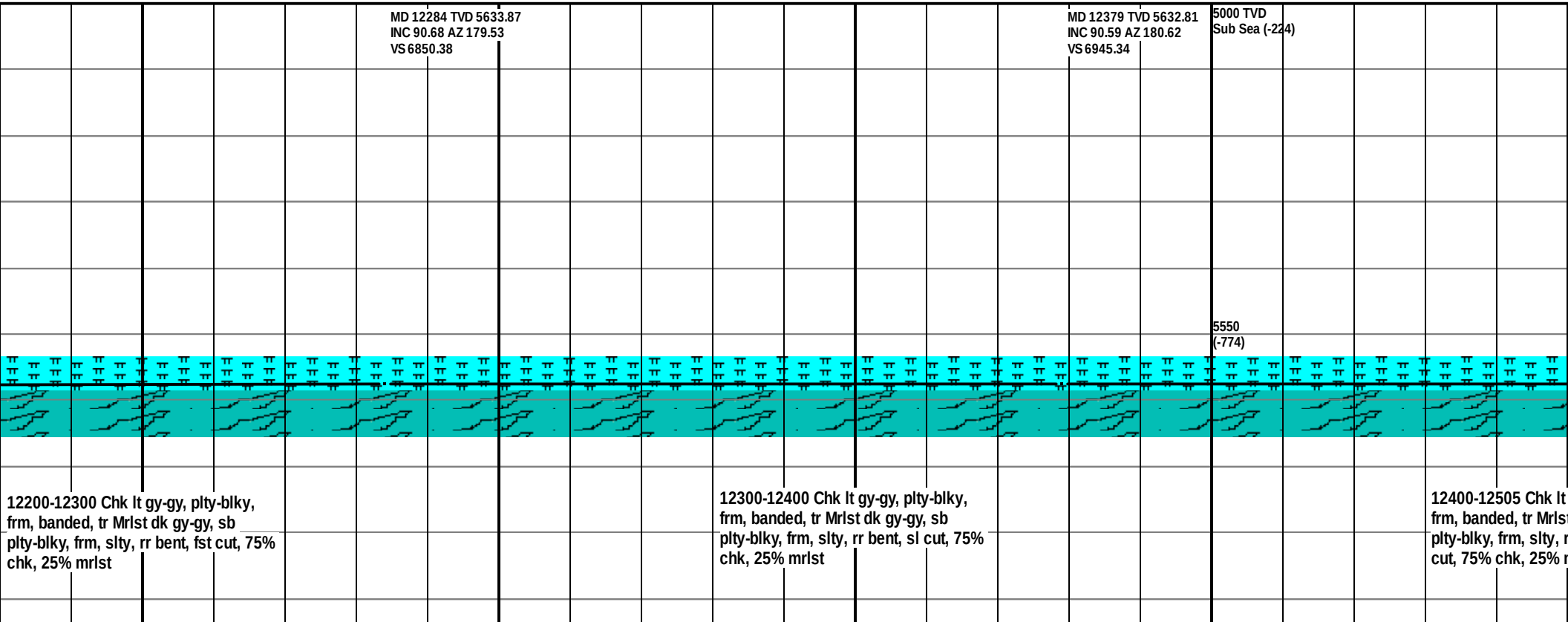
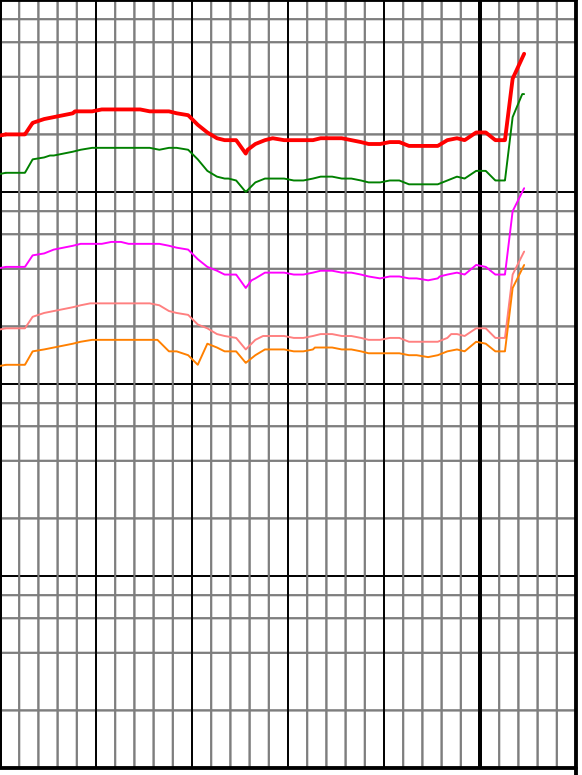
1000
Wt 9.45
Vis 50
1
100
100
100
100


12250
12300
12350
12400
MD 12284 TVD 5633.87
INC 90.68 AZ 179.53
VS 6850.38
MD 12379 TVD 5632.81
INC 90.59 AZ 180.62
VS 6945.34
5000 TVD
Sub Sea (-224)
5550
(-774)
12200-12300 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, rr bent, fst cut, 75% chk, 25% mrlst
12300-12400 Chk lt gy-gy, plty-blky, frm, banded, tr Mrlst dk gy-gy, sb plty-blky, frm, slty, rr bent, sl cut, 75% chk, 25% mrlst
12400-12505 Chk lt
frm, banded, tr Mrls
plty-blky, frm, slty,
cut, 75% chk, 25%



MD 12455 TVD 5631.94
INC 90.73 AZ 180.11
VS 7021.33

TD reached 12505' at 11:55 on 11/19/2013

gy-gy, plty-blky,
t dk gy-gy, sb
r pyrt, rr bent, sl
mrlst