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

Well Name:	Razor 21B-0909
Well Id:	
Location:	21-T10N-R58W
License Number:	05-123-3952900
Region:	Redtail Field
Spud Date:	10/14/2014
Drilling Completed:	10/19/2014
Surface Coordinates:	Lat: 40.830200 Long: -103.868744
Bottom Hole Coordinates:	
Ground Elevation (ft):	4837
K.B. Elevation (ft):	4854
Logged Interval (ft):	5132 To: 13915
Total Depth (ft):	13915
Formation:	Nibrara A Chalk
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 Demond Taylor
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

- 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

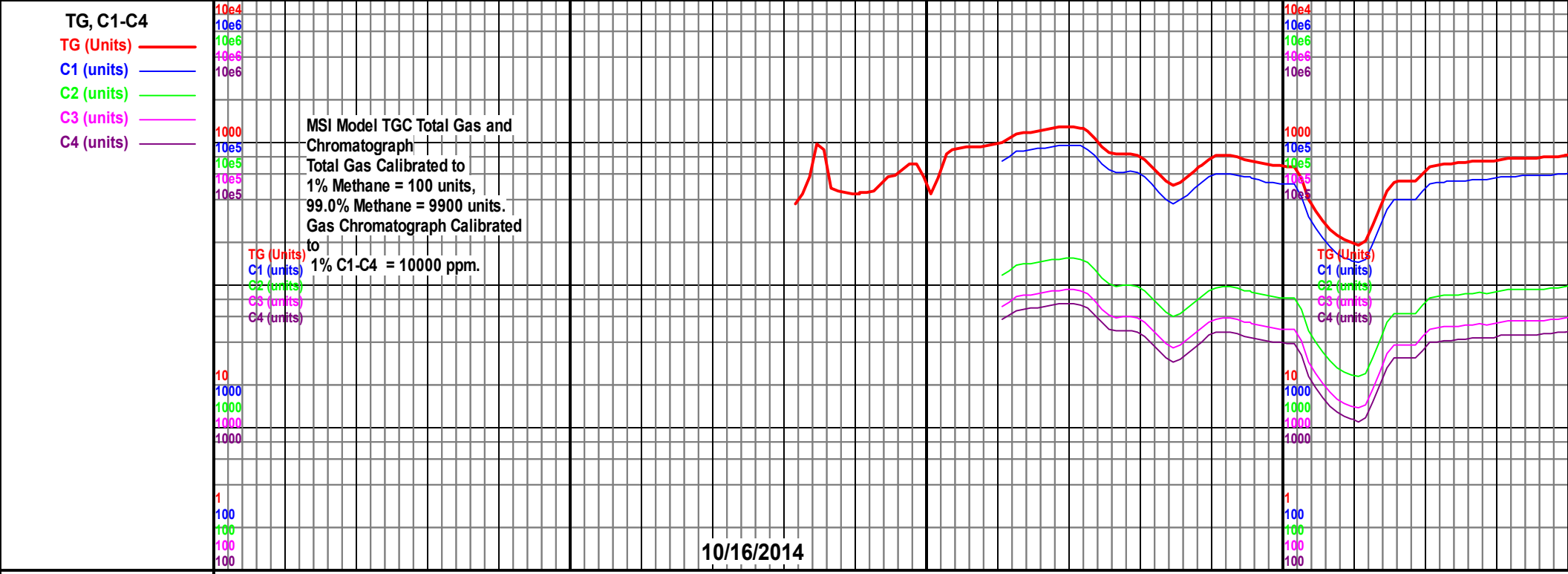
SORTING
- Well
- Moderate
- Poor

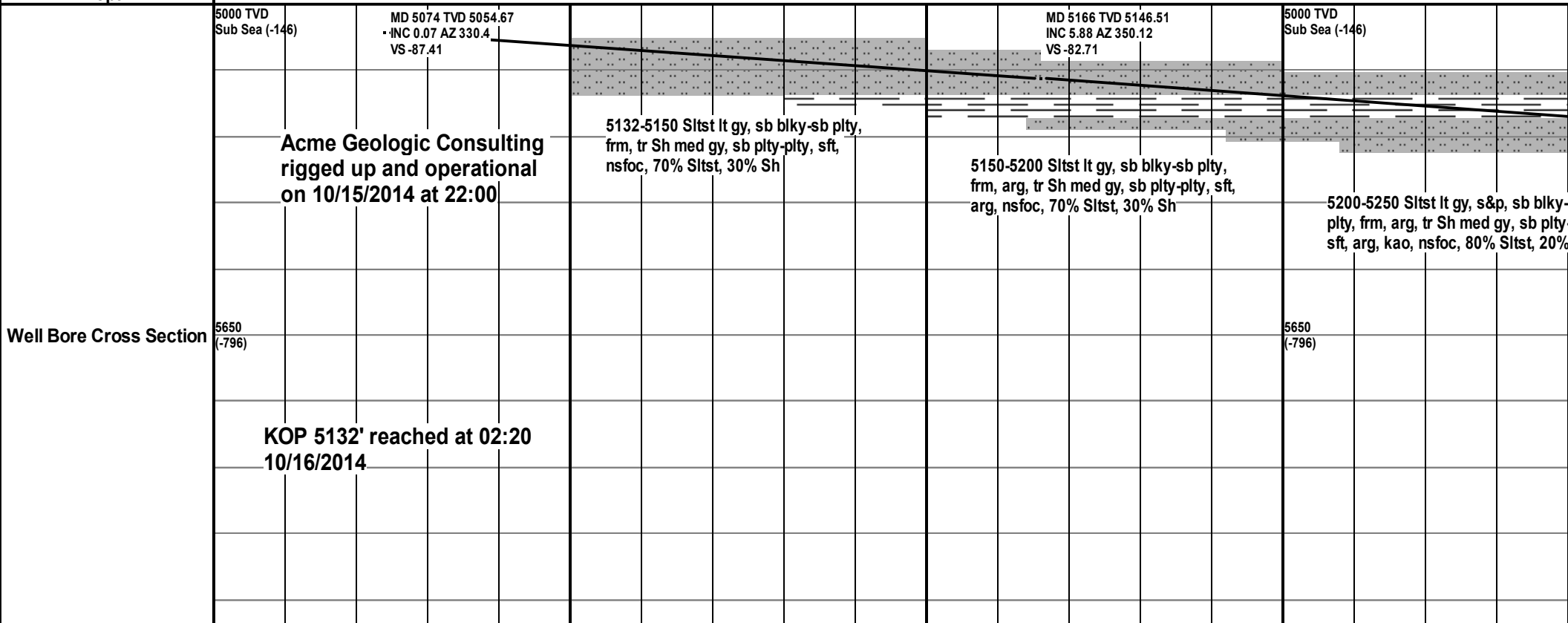
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

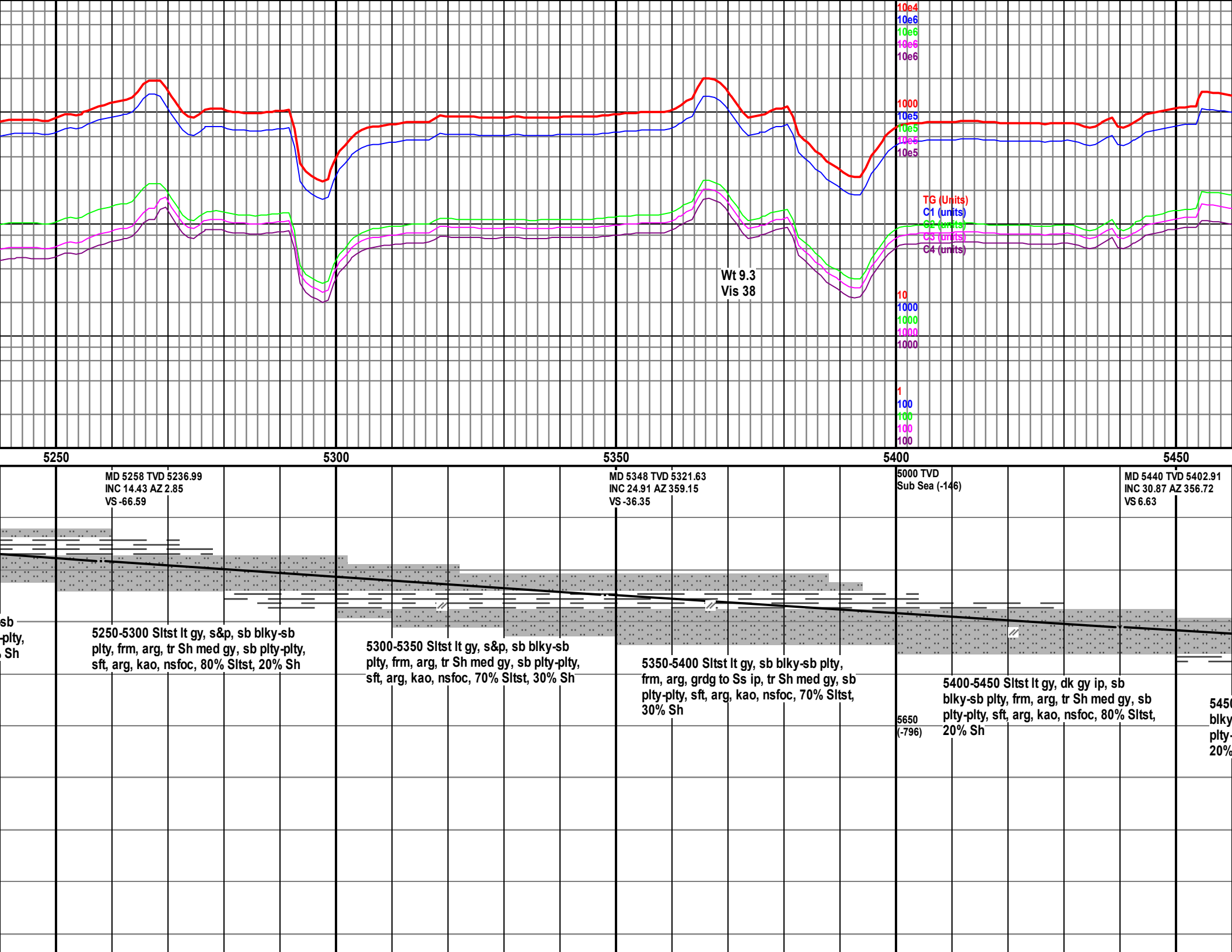
OIL SHOW
- Even
- Spotted
- Ques
- Dead

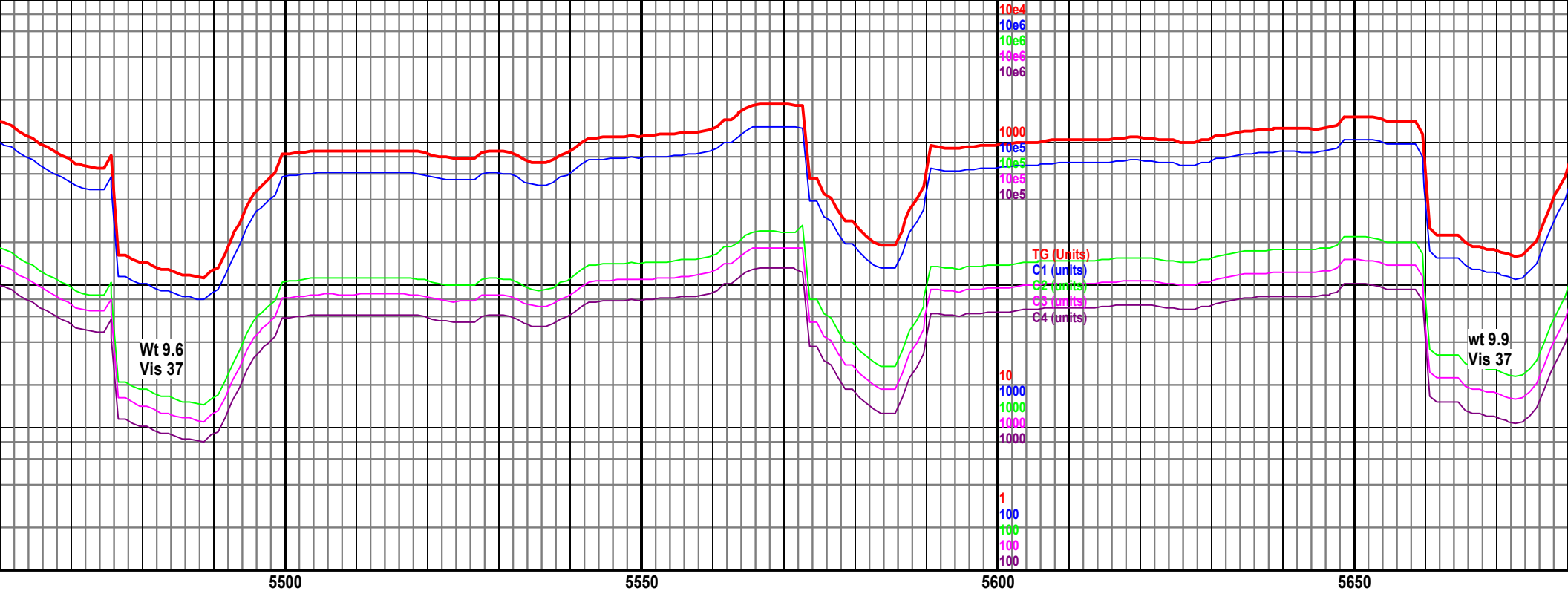
INTERVAL
- Core
- Dst

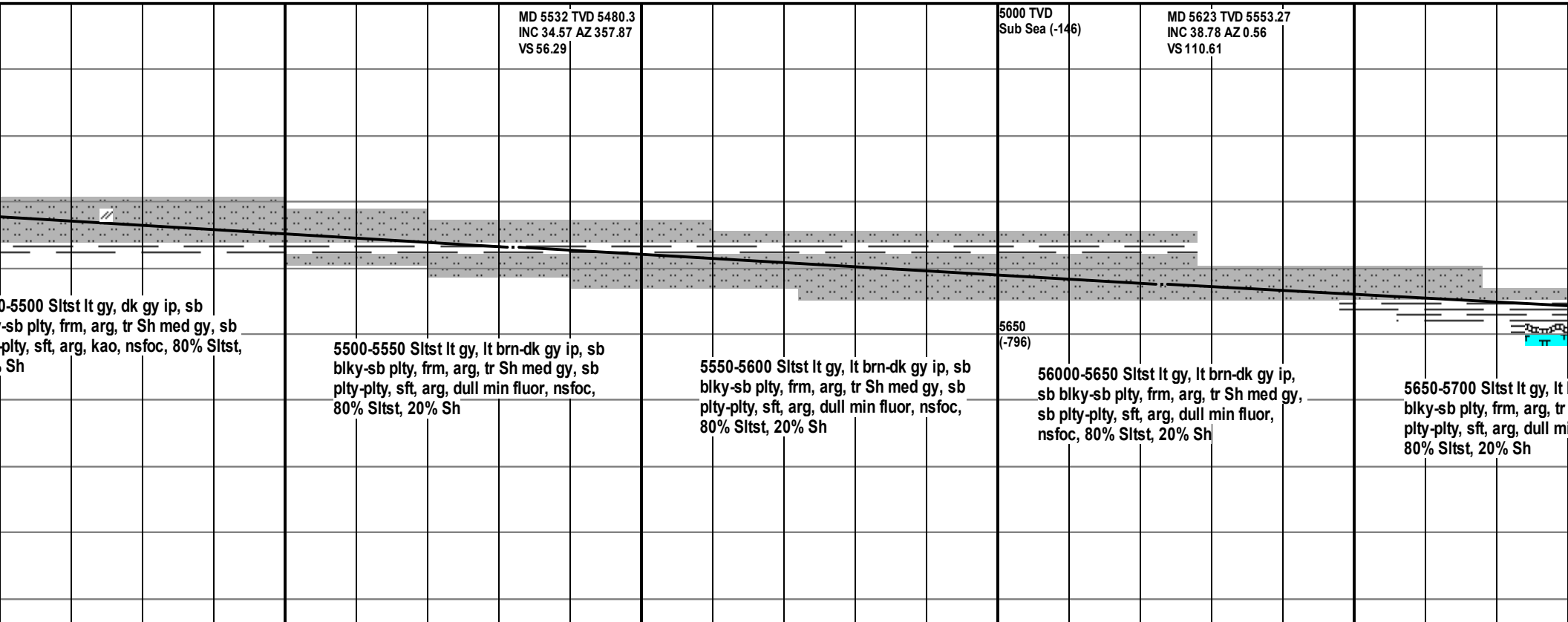
EVENT
- Rft
- Sidewall

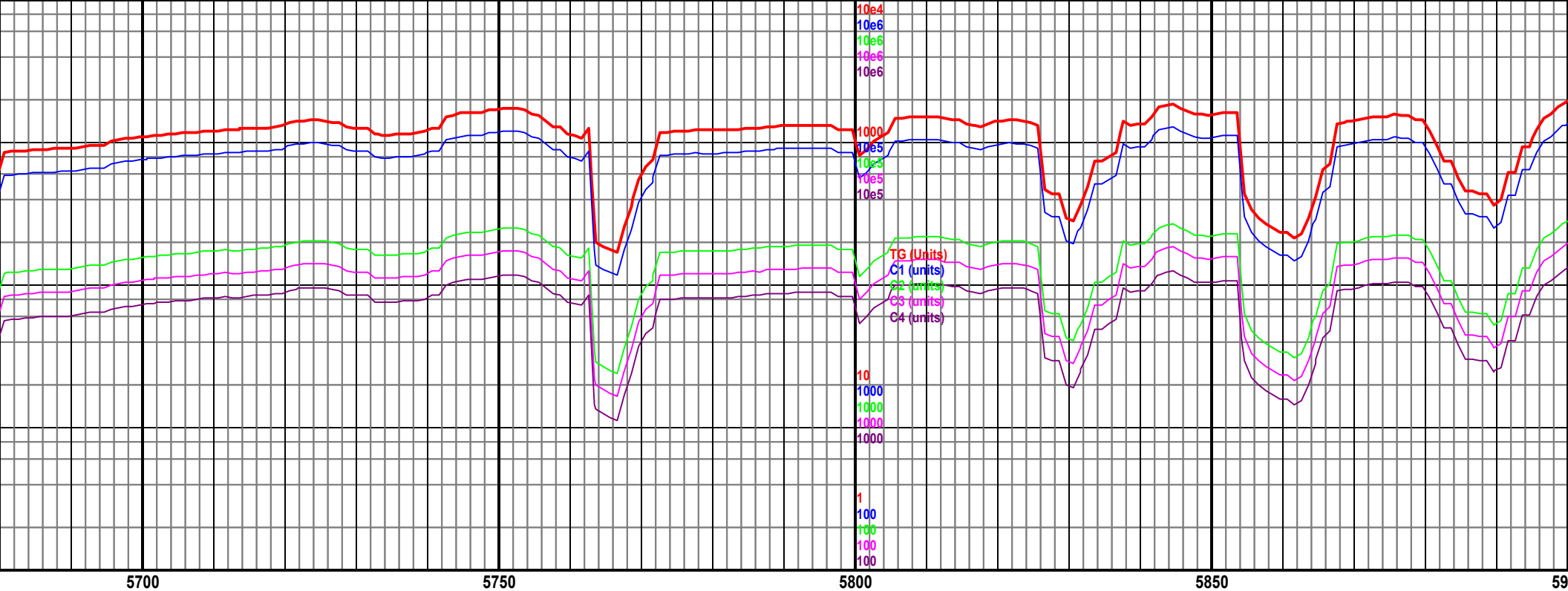

TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to
1% Methane = 100 units,
99.0% Methane = 9900 units.
Gas Chromatograph Calibrated to
1% C1-C4 = 10000 ppm.
10/16/2014
Depth
50
5100
5150
5200


Well Bore Cross Section
5000 TVD
Sub Sea (-146)
MD 5074 TVD 5054.67
INC 0.07 AZ 330.4
VS -87.41
MD 5166 TVD 5146.51
INC 5.88 AZ 350.12
VS -82.71
5000 TVD
Sub Sea (-146)
Acme Geologic Consulting
rigged up and operational
on 10/15/2014 at 22:00
5132-5150 Sltst lt gy, sb blky-sb plty, frm, tr Sh med gy, sb plty-plty, sft, nsfoc, 70% Sltst, 30% Sh
5150-5200 Sltst lt gy, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, nsfoc, 70% Sltst, 30% Sh
5200-5250 Sltst lt gy, s&p, sb blky-
plty, frm, arg, tr Sh med gy, sb plty
sft, arg, kao, nsfoc, 80% Sltst, 20%
5650
(-796)
5650
(-796)
KOP 5132' reached at 02:20
10/16/2014


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.3
Vis 38
10
1000
1000
1000
1000
1
100
100
100
100
5250
5300
5350
5400
5450
MD 5258 TVD 5236.99
INC 14.43 AZ 2.85
VS -66.59
MD 5348 TVD 5321.63
INC 24.91 AZ 359.15
VS -36.35
5000 TVD
Sub Sea (-146)
MD 5440 TVD 5402.91
INC 30.87 AZ 356.72
VS 6.63
5250-5300 Sltst lt gy, s&p, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, kao, nsfoc, 80% Sltst, 20% Sh
5300-5350 Sltst lt gy, s&p, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, kao, nsfoc, 70% Sltst, 30% Sh
5350-5400 Sltst lt gy, sb blky-sb plty, frm, arg, grdg to Ss ip, tr Sh med gy, sb plty-plty, sft, arg, kao, nsfoc, 70% Sltst, 30% Sh
5400-5450 Sltst lt gy, dk gy ip, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, kao, nsfoc, 80% Sltst, 20% Sh
5650
(-796)


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
wt 9.9
Vis 37
10
1000
1000
1000
1000
1
100
100
100
100
5500
5550
5600
5650


MD 5532 TVD 5480.3
INC 34.57 AZ 357.87
VS 56.29
5000 TVD
Sub Sea (-146)
MD 5623 TVD 5553.27
INC 38.78 AZ 0.56
VS 110.61
0-5500 Sltst lt gy, dk gy ip, sb
-sb plty, frm, arg, tr Sh med gy, sb
plty, sft, arg, kao, nsfoc, 80% Sltst,
Sh
5500-5550 Sltst lt gy, lt brn-dk gy ip, sb
blky-sb plty, frm, arg, tr Sh med gy, sb
plty-plty, sft, arg, dull min fluor, nsfoc,
80% Sltst, 20% Sh
5550-5600 Sltst lt gy, lt brn-dk gy ip, sb
blky-sb plty, frm, arg, tr Sh med gy, sb
plty-plty, sft, arg, dull min fluor, nsfoc,
80% Sltst, 20% Sh
5650
(-796)
56000-5650 Sltst lt gy, lt brn-dk gy ip,
sb blky-sb plty, frm, arg, tr Sh med gy,
sb plty-plty, sft, arg, dull min fluor,
nsfoc, 80% Sltst, 20% Sh
5650-5700 Sltst lt gy, lt
blky-sb plty, frm, arg, tr
plty-plty, sft, arg, dull m
80% Sltst, 20% Sh



MD 5714 TVD 5619.41
INC 47.91 AZ 7.06
VS 172.78

MD 5746 TVD 5639.47
INC 54.38 AZ 6.95
VS 197.5

MD 5777 TVD 5656.8
INC 57.67 AZ 7.46
VS 223.

5000 TVD
Sub Sea (-14

MD 5809 TVD 5672.88
INC 61.96 AZ 5.16
VS 250.49

MD 5841 TVD 5687.68
INC 62.95 AZ 2.52
VS 278.8

MD 5872 TVD 5701.34
INC 64.78 AZ 0.5
VS 306.61

P200 5777' MD
5656' TVD

P300 5837' MD
5686 TVD

P350 5893' MD
5710' TVD

5650
(-796)

B

B

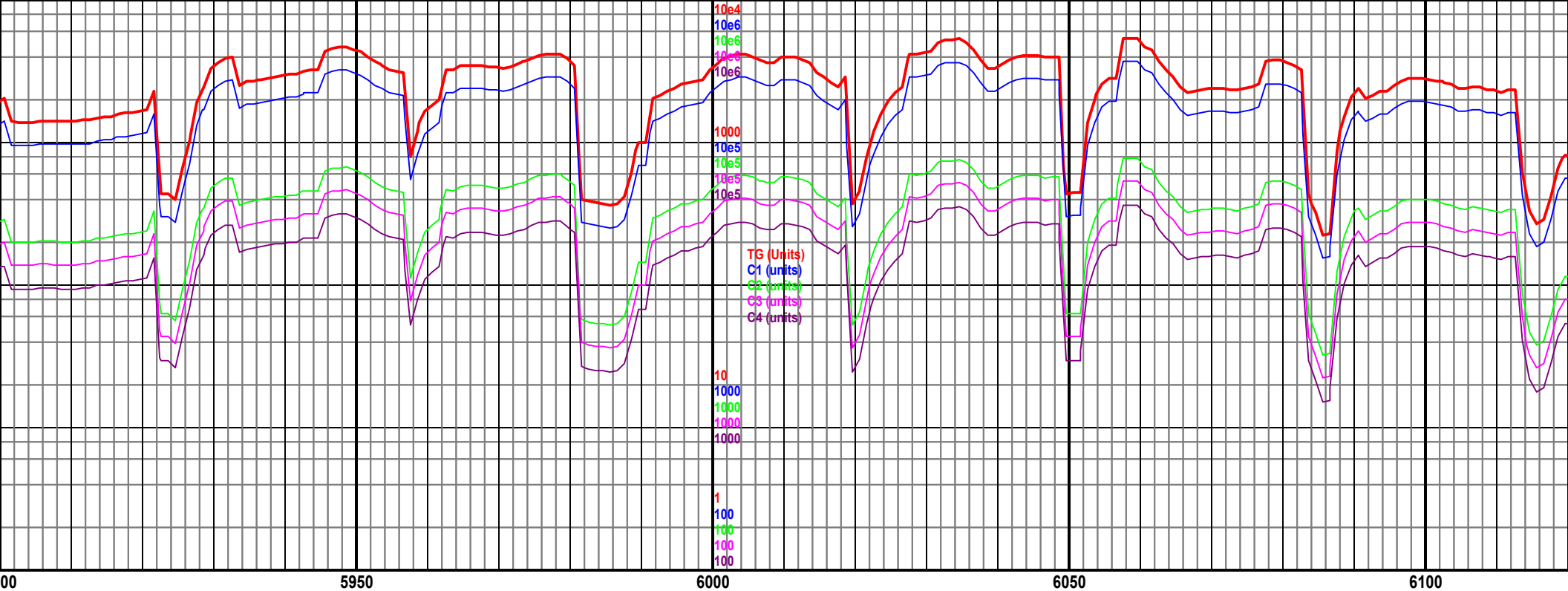
brn-dk gy ip, sb
Sh med gy, sb
in fluor, nsfoc,

5700-5750 Sltst lt gy, lt brn-dk gy ip, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, dull min fluor, nsfoc, 70% Sltst, 30% Sh

5750-5800 Sltst lt gy, lt brn-dk gy ip, sb blky-sb plty, frm, arg, tr Sh med gy, sb plty-plty, sft, arg, dull min fluor, nsfoc, 70% Sltst, 30% Sh

5800-5850 Mrlst dk gy, frm, sb blky-sb plty, Chk lt-med gy, sl frm-frm, sb blky, occ bent, tan, occ brit yel min flor, slo mlky cut, 70% Mrlst, 25% Chk, 5% Bent

5850-5900 Chk lt-med gy, sl frm, sb blky, rr Mrlst dk gy, frm, sb blky, tr bent, tr brit yel min flor, fast oil cut, 90% Chk, 10% Mrlst



MD 5904 TVD 5714.66
INC 66.04 AZ 359.09
VS 335.71

MD 5935 TVD 5726.73
INC 68.11 AZ 357.31
VS 364.24

MD 5967 TVD 5737.72
INC 71.72 AZ 356.08
VS 394.24

MD 5999 TVD 5747.29
INC 73.48 AZ 357.12
VS 424.72

MD 6030 TVD 5755.4
INC 76.16 AZ 357.55
VS 454.6

MD 6094 TVD 5767.62
INC 81.83 AZ 355.38
VS 517.28

Sharon Springs 5920' MD 5721' TVD

Niobrara 5936' MD 5727' TVD

N100 6009' MD 5750' TVD

5650
(-796)

B

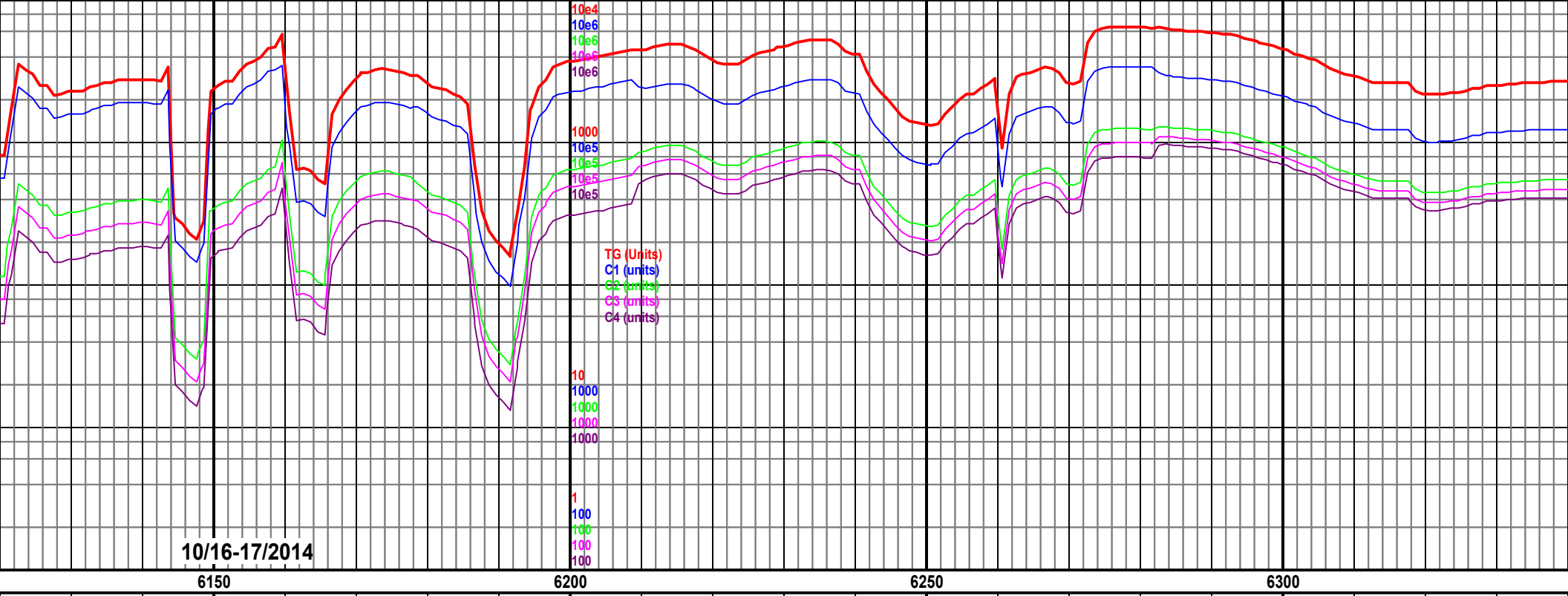
5900-5950 Chk lt-med gy, sl frm, sb blky, rr Mrlst dk gy, frm, sb blky, tr bent, tr brit yel min flor, fast oil cut, 90% Chk, 10% Mrlst

5950-6000 Chk lt-med gy, sl frm, sb blky, rr Mrlst dk gy, frm, sb blky, tr bent, tr brit yel min flor, fast oil cut, 90% Chk, 10% Mrlst

6000-6050 Mrlst dk gy, frm, sb blky, occ Chk lt-med gy, sl frm, sb blky, occ bent, rr inoc, fast oil cut, 80% Marl, 20% Chk

6050-6100 Chk lt gy-gy, sb blky-blky, frm, tr Mrlst med gy, frm, sb blky, rr bent, rr inoc, sl oil cut, 80% Chk, 20% Mrlst

6100-6150 Chl
mottled, dk la
sb blky, slty, r
80% Chk, 20%



MD 6197 TVD 5777.44
INC 87.22 AZ 355.64
VS 619.46

MD 6292 TVD 5781.06
INC 88.42 AZ 356.6
VS 714.17

Intermediate casing point reached 6152' at 11:05 on 10/16/2014, resumed drilling at 12:00 on 10/17/2014

5650
(-796)

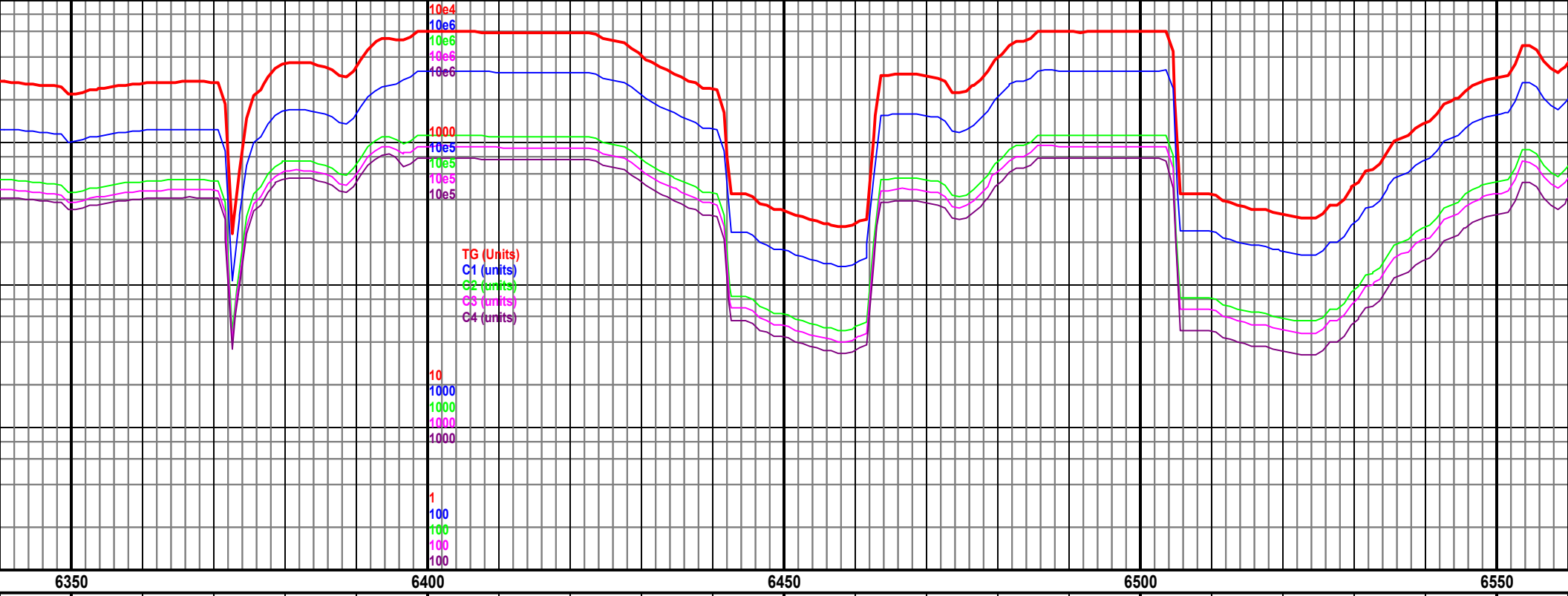
B B B B

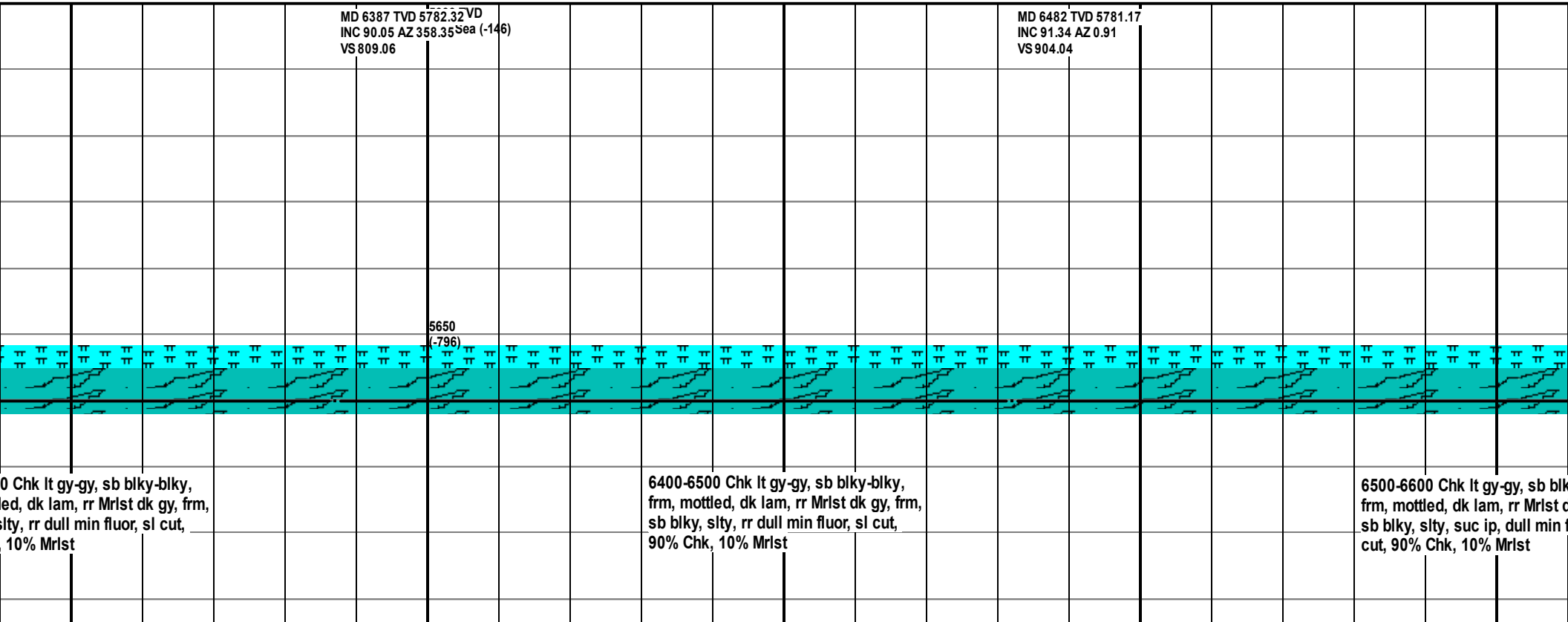
k lt gy-gy, blky, frm,
m ip, tr Mrlst dk gy, frm,
r Bent, rr inoc, sl oil cut,
% Mrlst

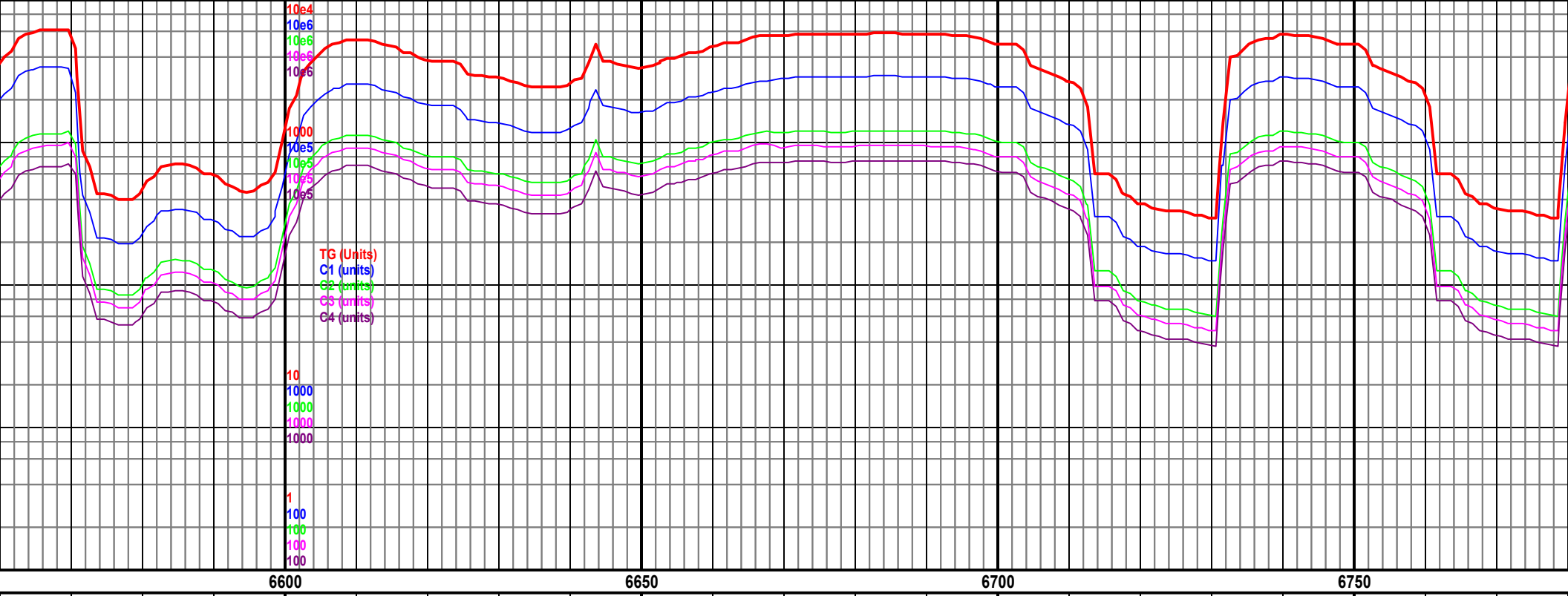
6150-6200 Chk lt gy-gy, sb blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent, min fluor, sl cut, 90% Chk, 10% Mrlst

6200-6300 Chk lt gy-gy, lt brn ip, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent, tr dull min fluor, sl cut, 90% Chk, 10% Mrlst

6300-640
frm, mottl
sb blky, s
90% 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
6350
6400
6450
6500
6550


MD 6387 TVD 5782.32
INC 90.05 AZ 358.35
VS 809.06
VD
Sea (-146)
MD 6482 TVD 5781.17
INC 91.34 AZ 0.91
VS 904.04
5650
(-796)
0 Chk lt gy-gy, sb blky-blky,
led, dk lam, rr Mrlst dk gy, frm,
slty, rr dull min fluor, sl cut,
, 10% Mrlst
6400-6500 Chk lt gy-gy, sb blky-blky,
frm, mottled, dk lam, rr Mrlst dk gy, frm,
sb blky, slty, rr dull min fluor, sl cut,
90% Chk, 10% Mrlst
6500-6600 Chk lt gy-gy, sb blk
frm, mottled, dk lam, rr Mrlst d
sb blky, slty, suc ip, dull min f
cut, 90% Chk, 10% 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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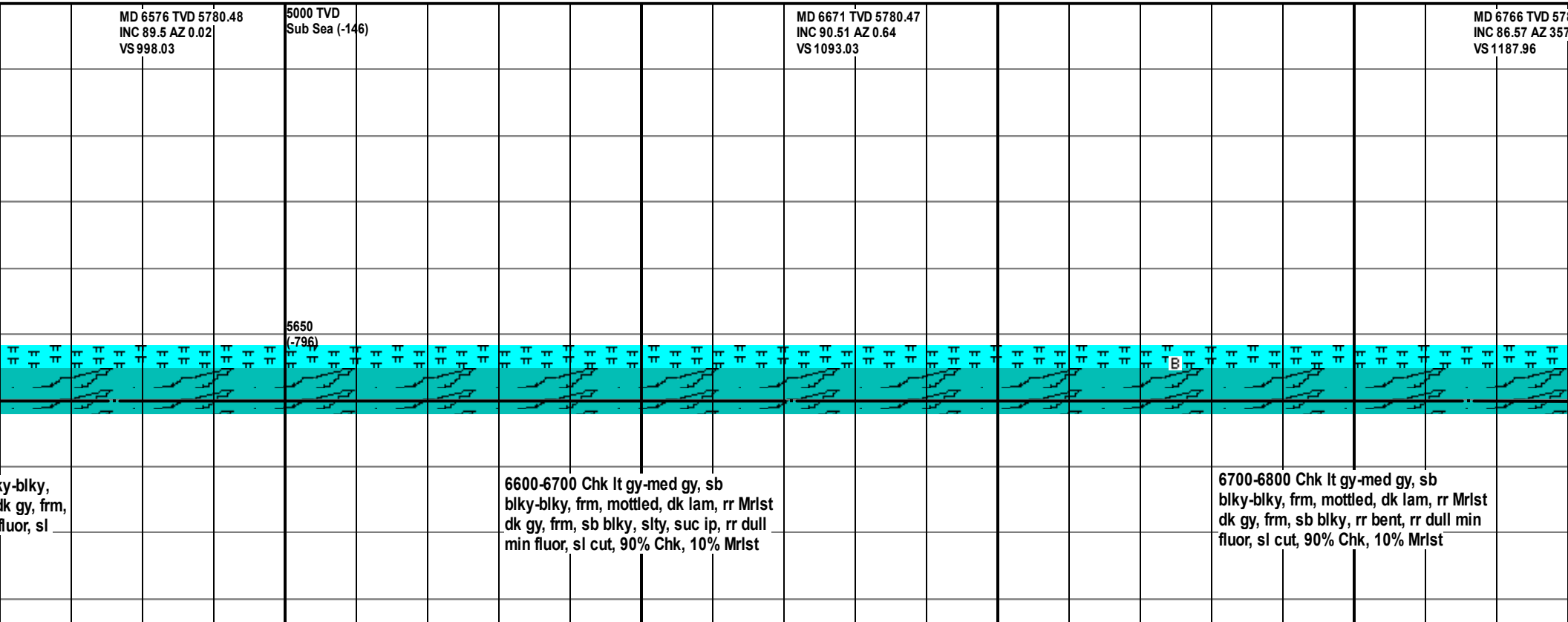
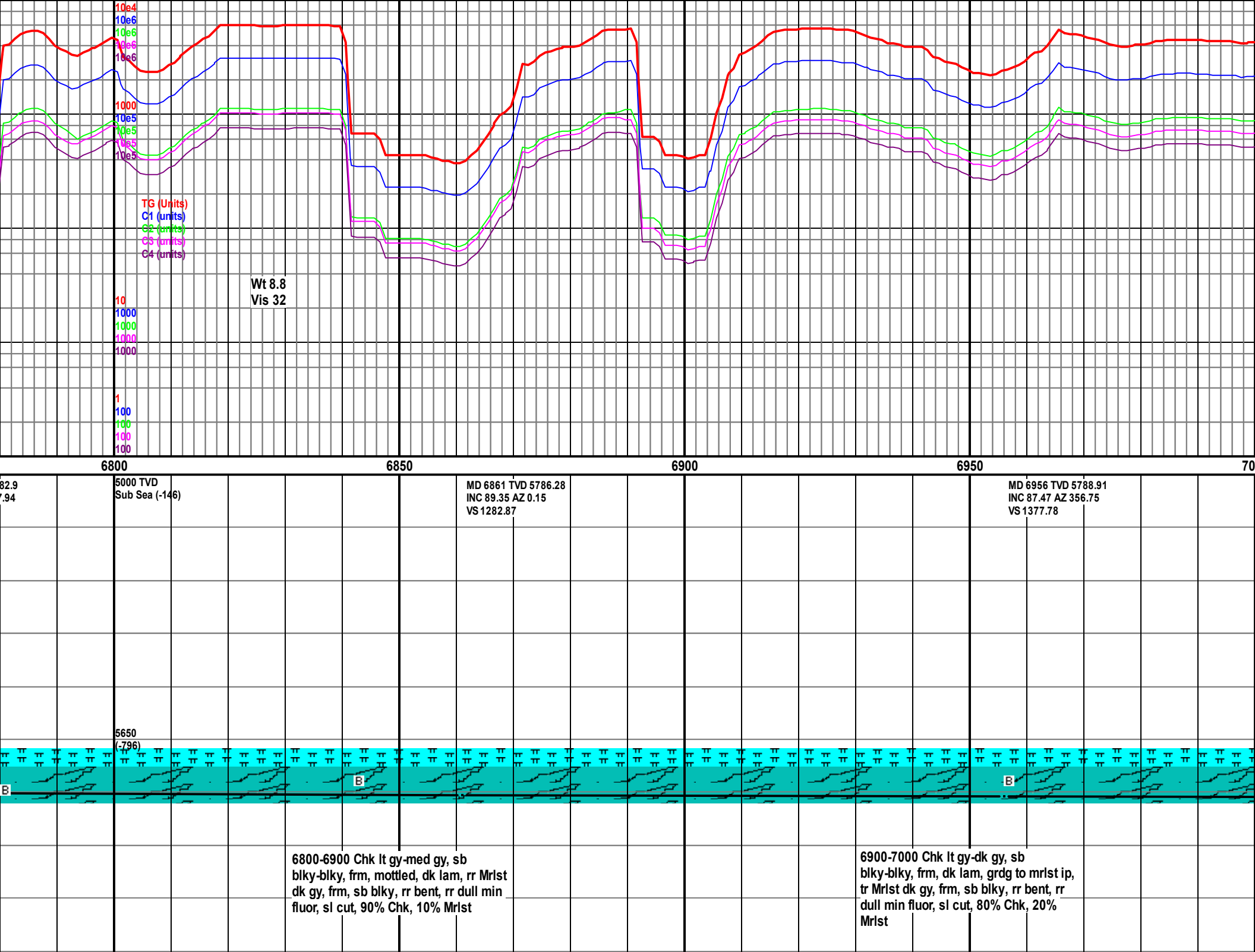
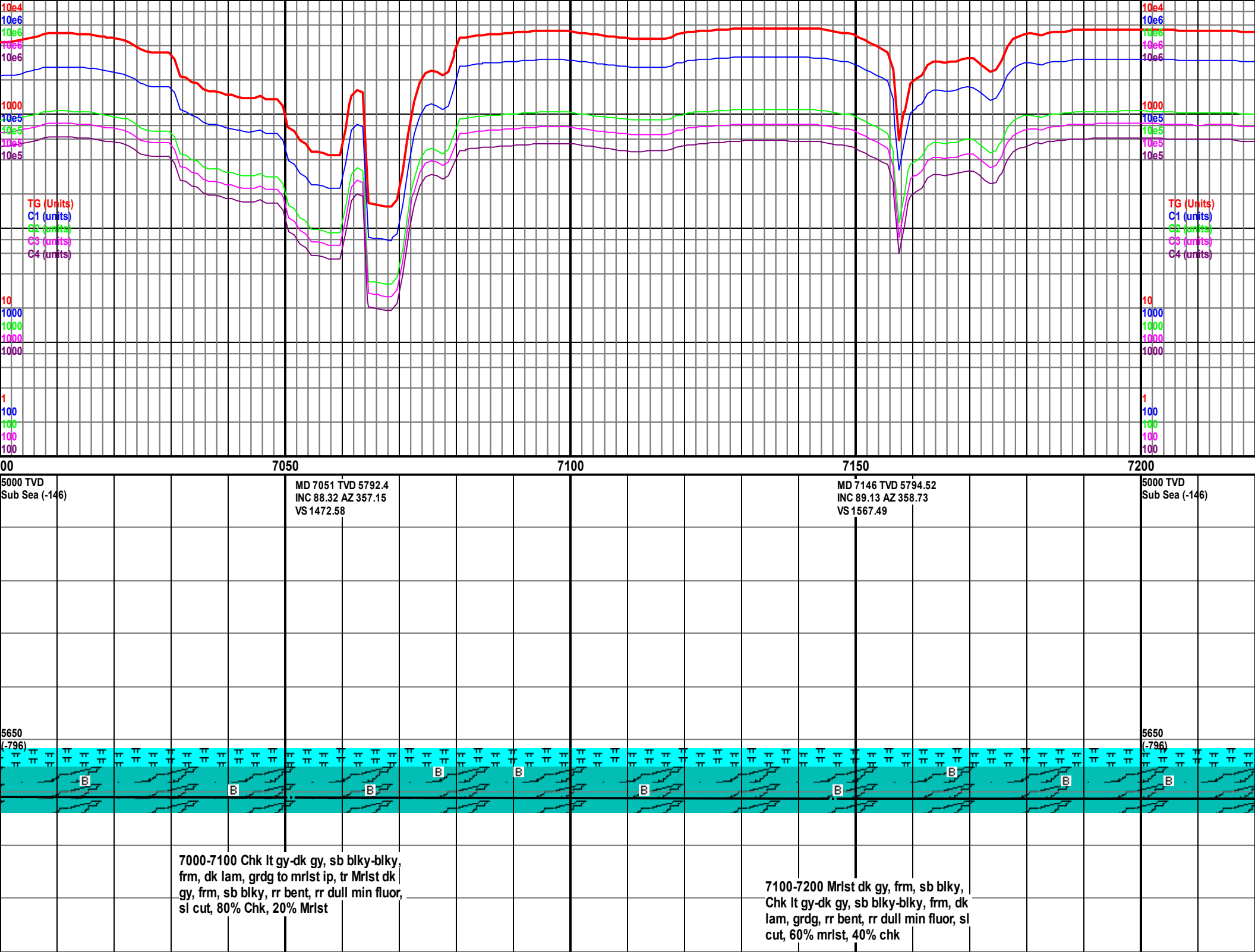
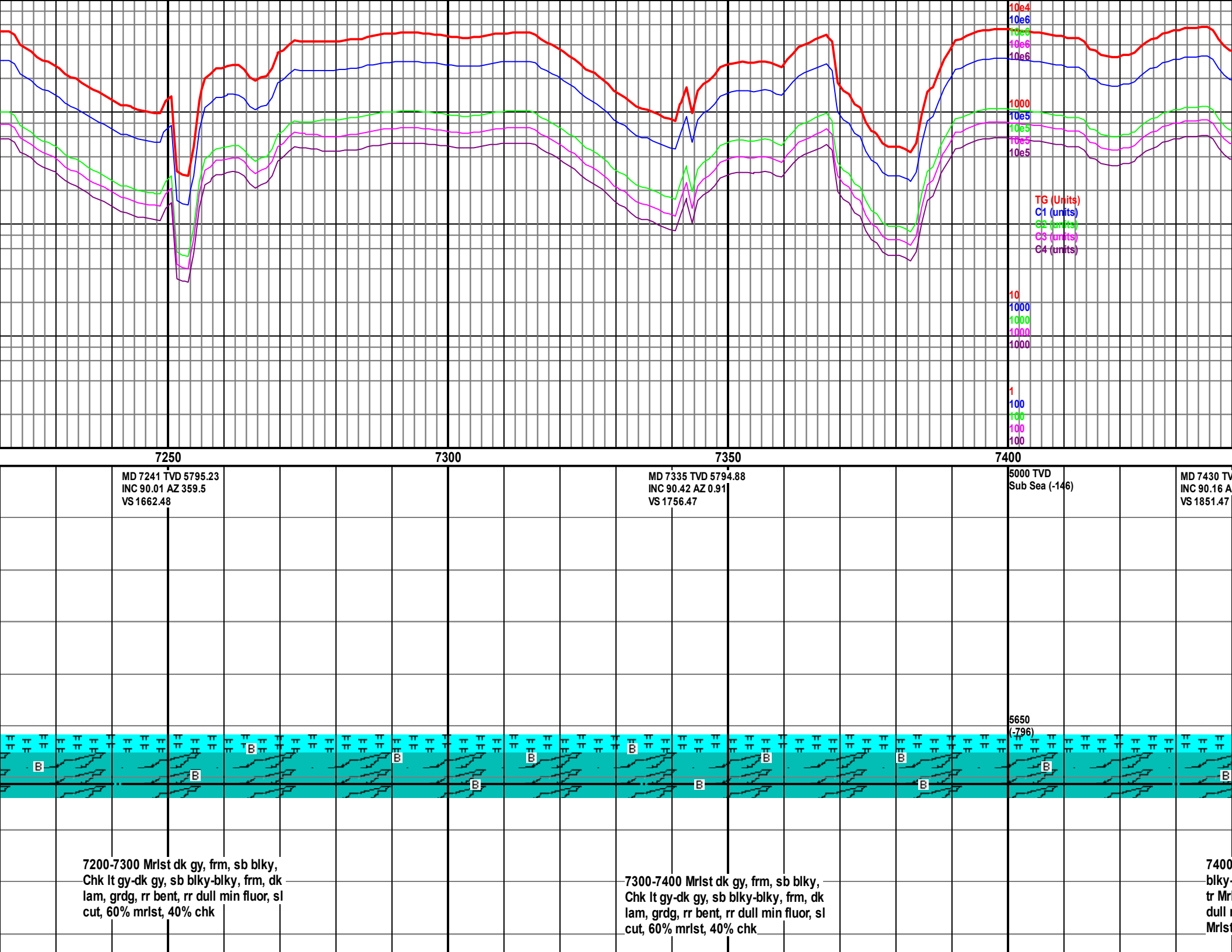
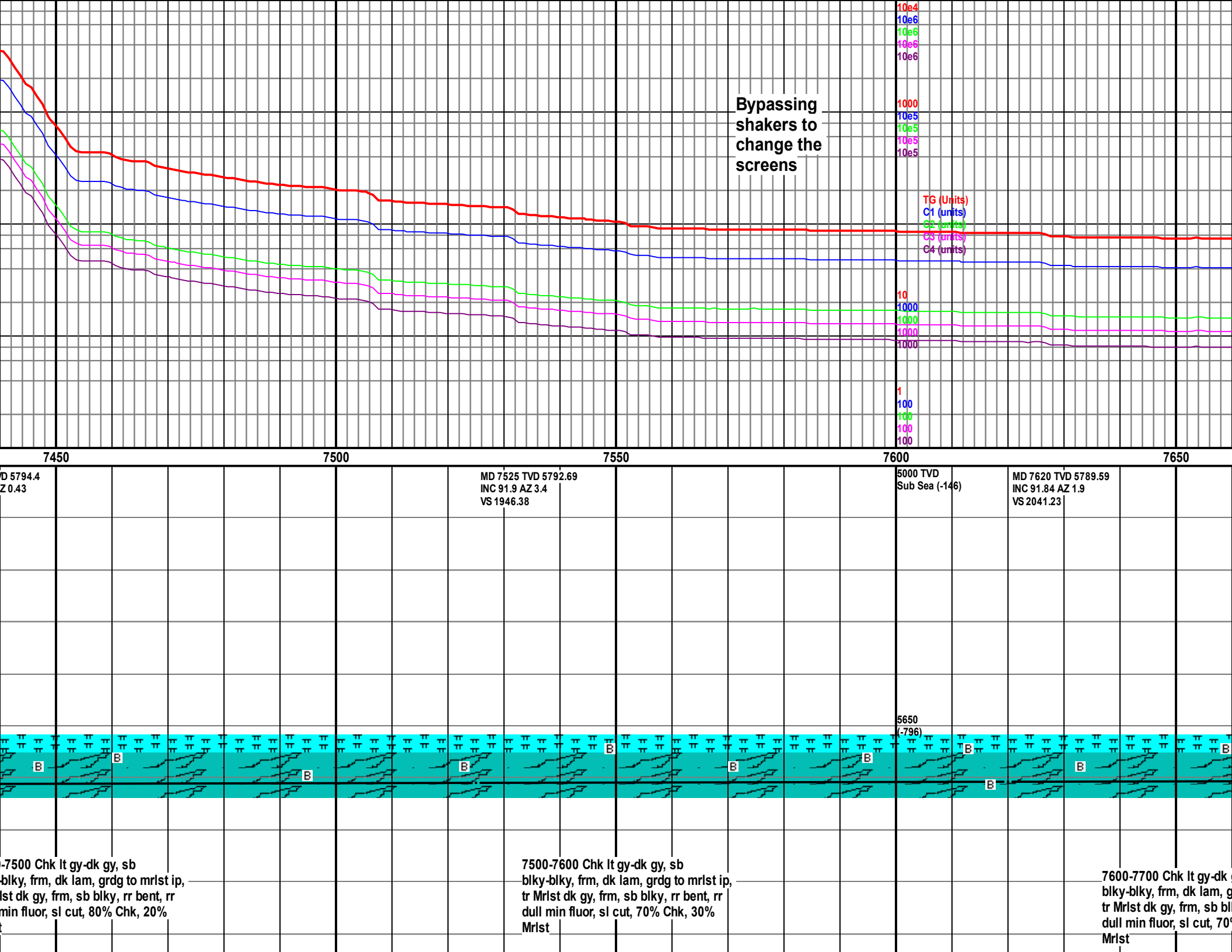
100
100
100
100
6600
6650
6700
6750

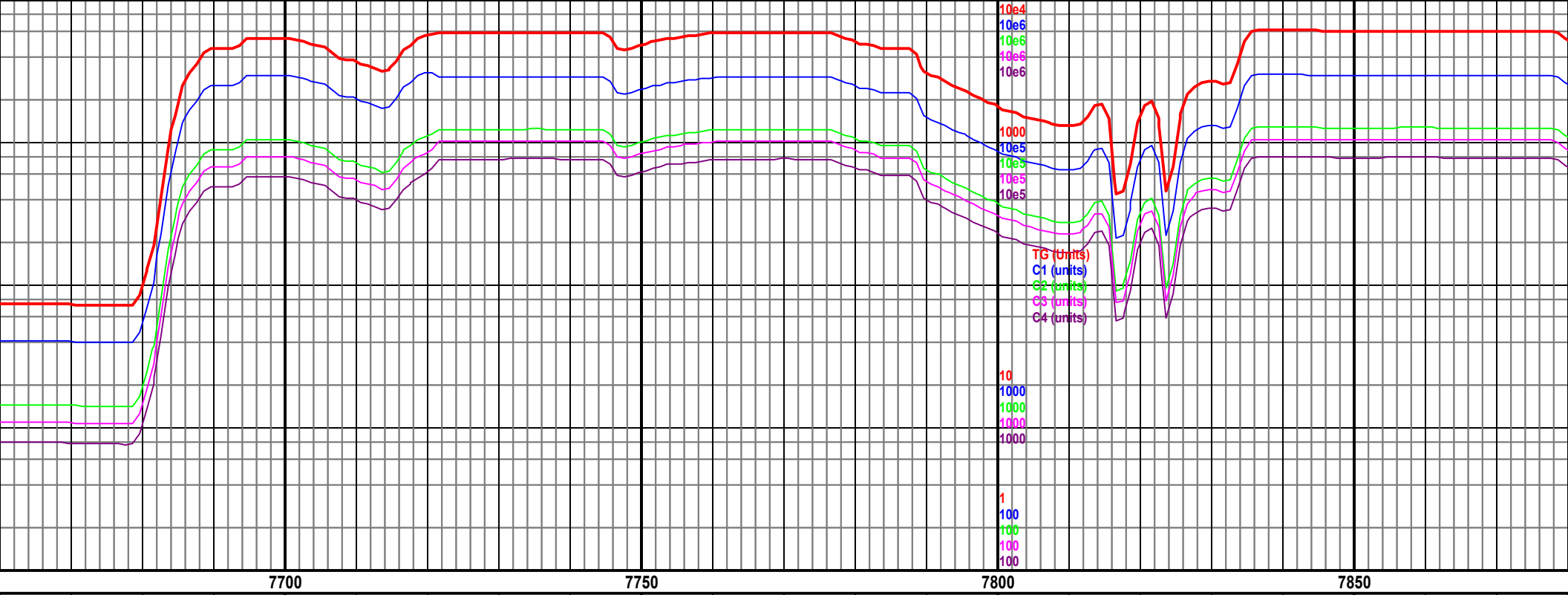

MD 6576 TVD 5780.48
INC 89.5 AZ 0.02
VS 998.03
5000 TVD
Sub Sea (-146)
MD 6671 TVD 5780.47
INC 90.51 AZ 0.64
VS 1093.03
MD 6766 TVD 57
INC 86.57 AZ 357
VS 1187.96
5650
(-796)
B
ky-blky,
dk gy, frm,
fluor, sl
6600-6700 Chk lt gy-med gy, sb
blky-blky, frm, mottled, dk lam, rr Mrlst
dk gy, frm, sb blky, slty, suc ip, rr dull
min fluor, sl cut, 90% Chk, 10% Mrlst
6700-6800 Chk lt gy-med gy, sb
blky-blky, frm, mottled, dk lam, rr Mrlst
dk gy, frm, sb blky, rr bent, rr dull min
fluor, sl cut, 90% Chk, 10% Mrlst

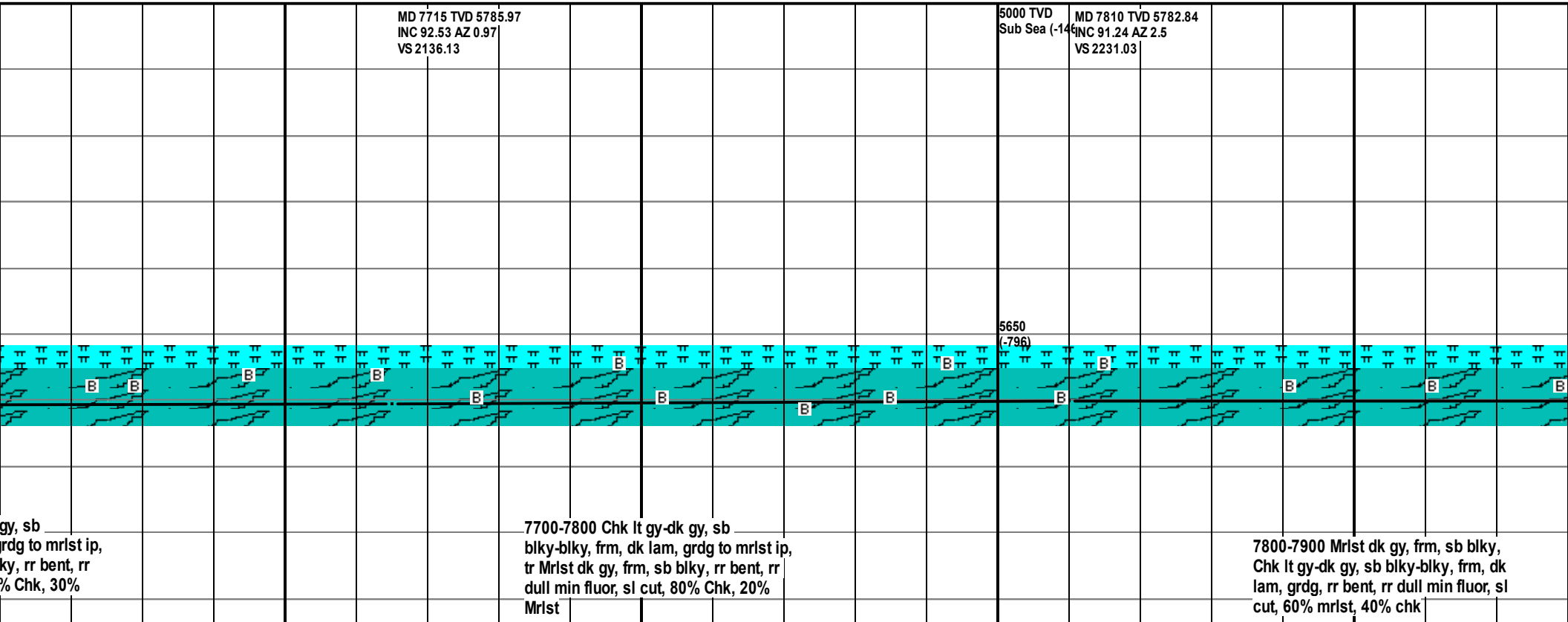

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 8.8
Vis 32
10
1000
1000
1000
1000
1
100
100
100
100
6800
6850
6900
6950
70
82.9
7.94
5000 TVD
Sub Sea (-146)
MD 6861 TVD 5786.28
INC 89.35 AZ 0.15
VS 1282.87
MD 6956 TVD 5788.91
INC 87.47 AZ 356.75
VS 1377.78
5650
(-796)
B
B
B
6800-6900 Chk lt gy-med gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, rr bent, rr dull min fluor, sl cut, 90% Chk, 10% Mrlst
6900-7000 Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg to mrlst ip, tr Mrlst dk gy, frm, sb blky, rr bent, rr dull min fluor, sl cut, 80% Chk, 20% Mrlst

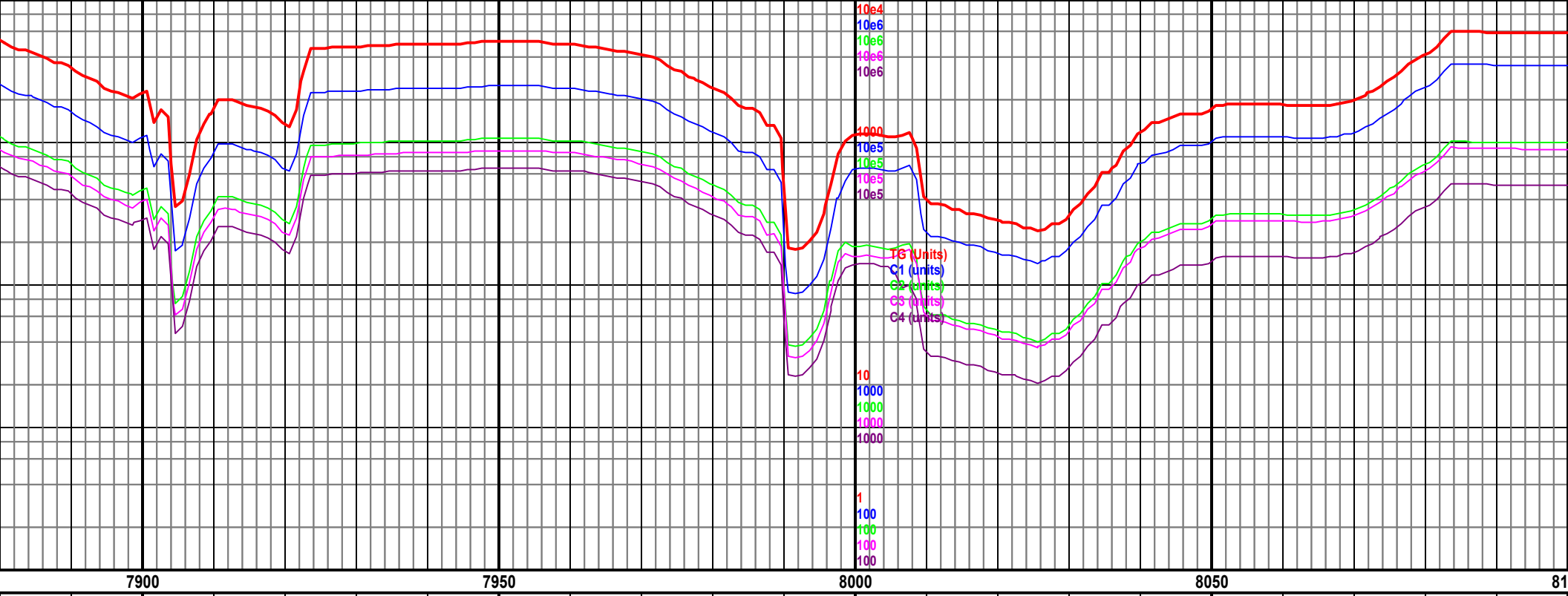

TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
7050
7100
7150
7200
5000 TVD
Sub Sea (-146)
MD 7051 TVD 5792.4
INC 88.32 AZ 357.15
VS 1472.58
MD 7146 TVD 5794.52
INC 89.13 AZ 358.73
VS 1567.49
5650
(-796)
7000-7100 Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg to mrlst ip, tr Mrlst dk gy, frm, sb blky, rr bent, rr dull min fluor, sl cut, 80% Chk, 20% Mrlst
7100-7200 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk

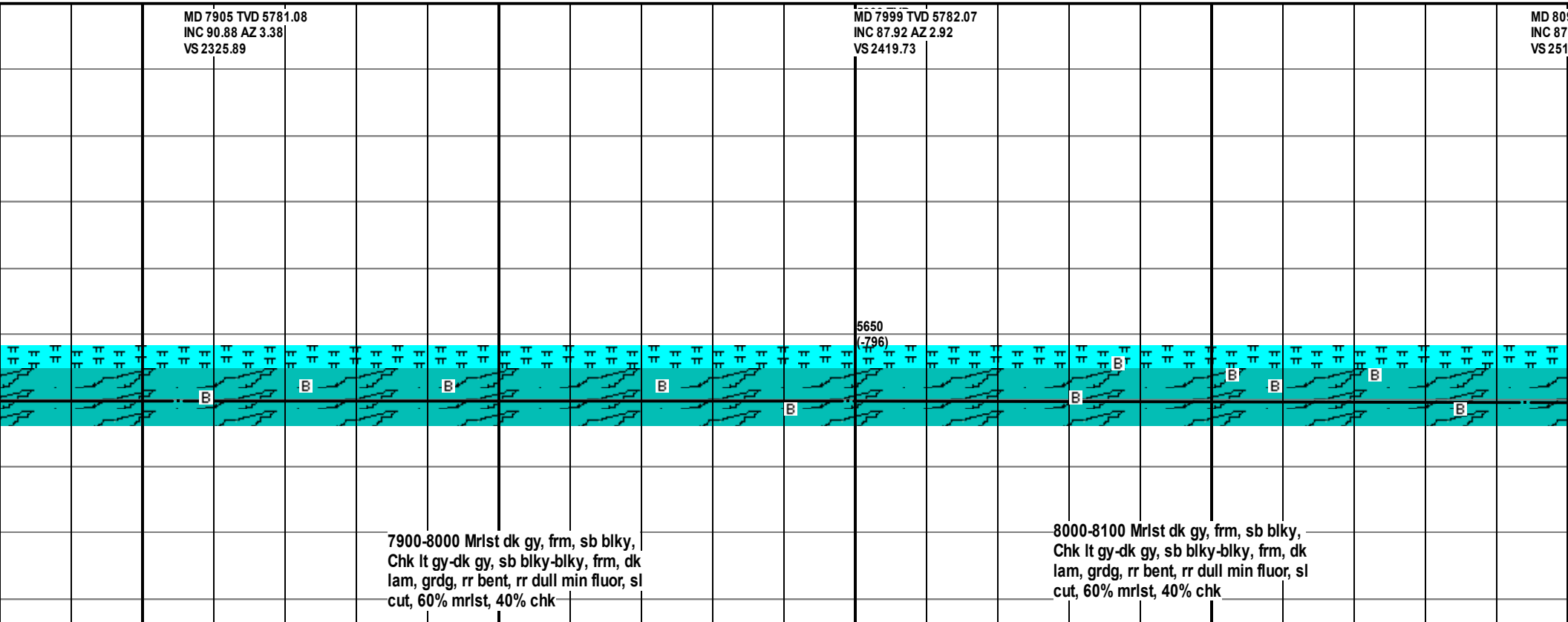

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
7250
7300
7350
7400
MD 7241 TVD 5795.23
INC 90.01 AZ 359.5
VS 1662.48
MD 7335 TVD 5794.88
INC 90.42 AZ 0.91
VS 1756.47
5000 TVD
Sub Sea (-146)
MD 7430 TV
INC 90.16 A
VS 1851.47
5650
(-796)
B
7200-7300 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk
7300-7400 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk
7400
blky-
tr Mr
dull
Mrlst

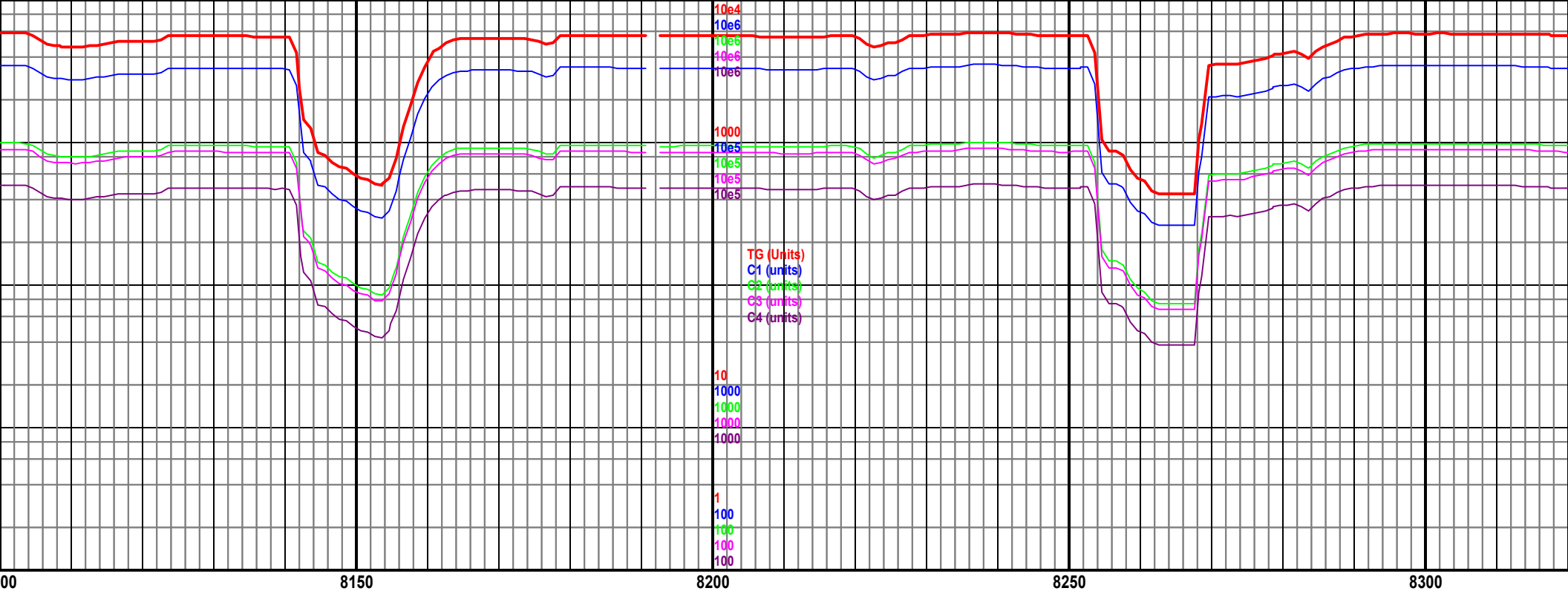

Bypassing shakers to change the screens
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10
1000
1000
1000
1000
1
100
100
100
100
7450
7500
7550
7600
7650
D 5794.4
Z 0.43
MD 7525 TVD 5792.69
INC 91.9 AZ 3.4
VS 1946.38
5000 TVD
Sub Sea (-146)
MD 7620 TVD 5789.59
INC 91.84 AZ 1.9
VS 2041.23
5650
(-796)
B
-7500 Chk lt gy-dk gy, sb
-blky, frm, dk lam, grdg to mrlst ip,
lst dk gy, frm, sb blky, rr bent, rr
min fluor, sl cut, 80% Chk, 20%
7500-7600 Chk lt gy-dk gy, sb
blky-blky, frm, dk lam, grdg to mrlst ip,
tr Mrlst dk gy, frm, sb blky, rr bent, rr
dull min fluor, sl cut, 70% Chk, 30%
Mrlst
7600-7700 Chk lt gy-dk
blky-blky, frm, dk lam, g
tr Mrlst dk gy, frm, sb bl
dull min fluor, sl cut, 70
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
7700
7750
7800
7850


MD 7715 TVD 5785.97
INC 92.53 AZ 0.97
VS 2136.13
5000 TVD
Sub Sea (-146
MD 7810 TVD 5782.84
INC 91.24 AZ 2.5
VS 2231.03
5650
(-796)
gy, sb
rdg to mrlst ip,
ky, rr bent, rr
% Chk, 30%
7700-7800 Chk lt gy-dk gy, sb
blky-blky, frm, dk lam, grdg to mrlst ip,
tr Mrlst dk gy, frm, sb blky, rr bent, rr
dull min fluor, sl cut, 80% Chk, 20%
Mrlst
7800-7900 Mrlst dk gy, frm, sb blky,
Chk lt gy-dk gy, sb blky-blky, frm, dk
lam, grdg, rr bent, rr dull min fluor, sl
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
7900
7950
8000
8050
81


MD 7905 TVD 5781.08
INC 90.88 AZ 3.38
VS 2325.89
MD 7999 TVD 5782.07
INC 87.92 AZ 2.92
VS 2419.73
MD 80
INC 87
VS 251
5650
(-796)
B
7900-8000 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk
8000-8100 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl 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)
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1000
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1000
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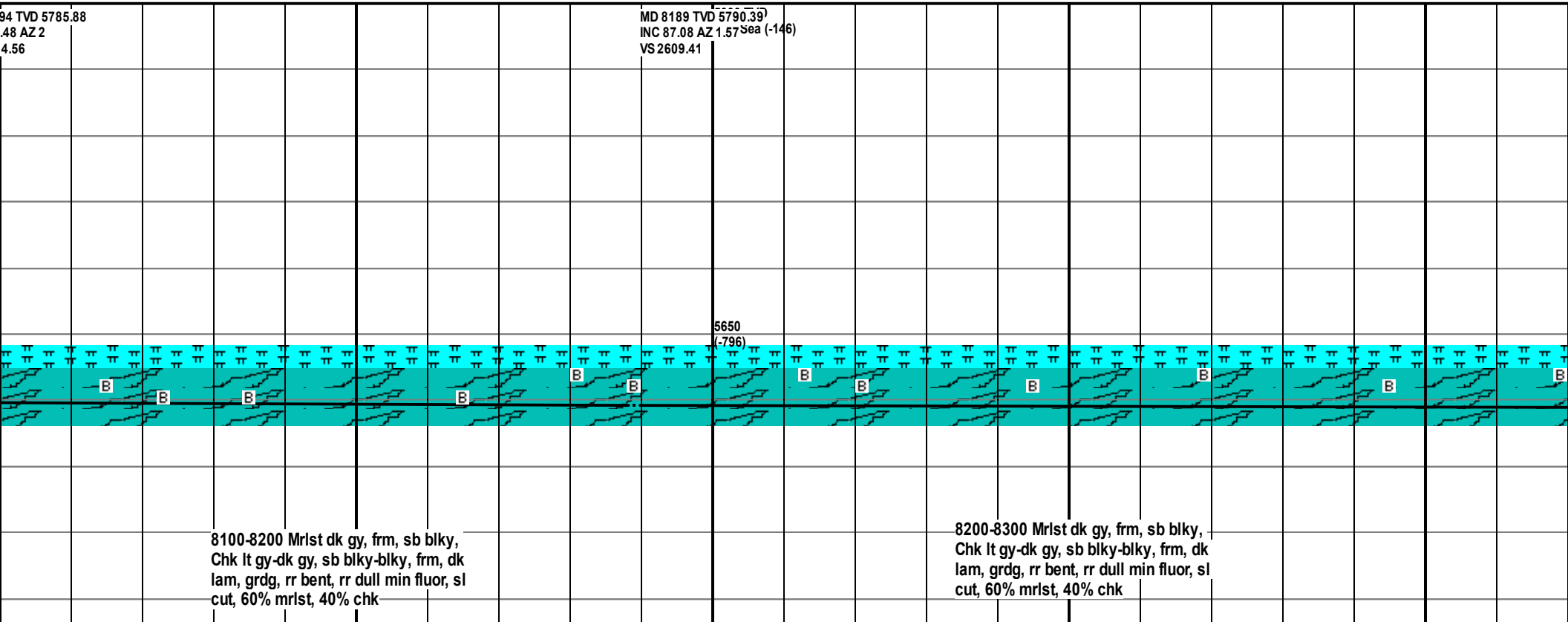
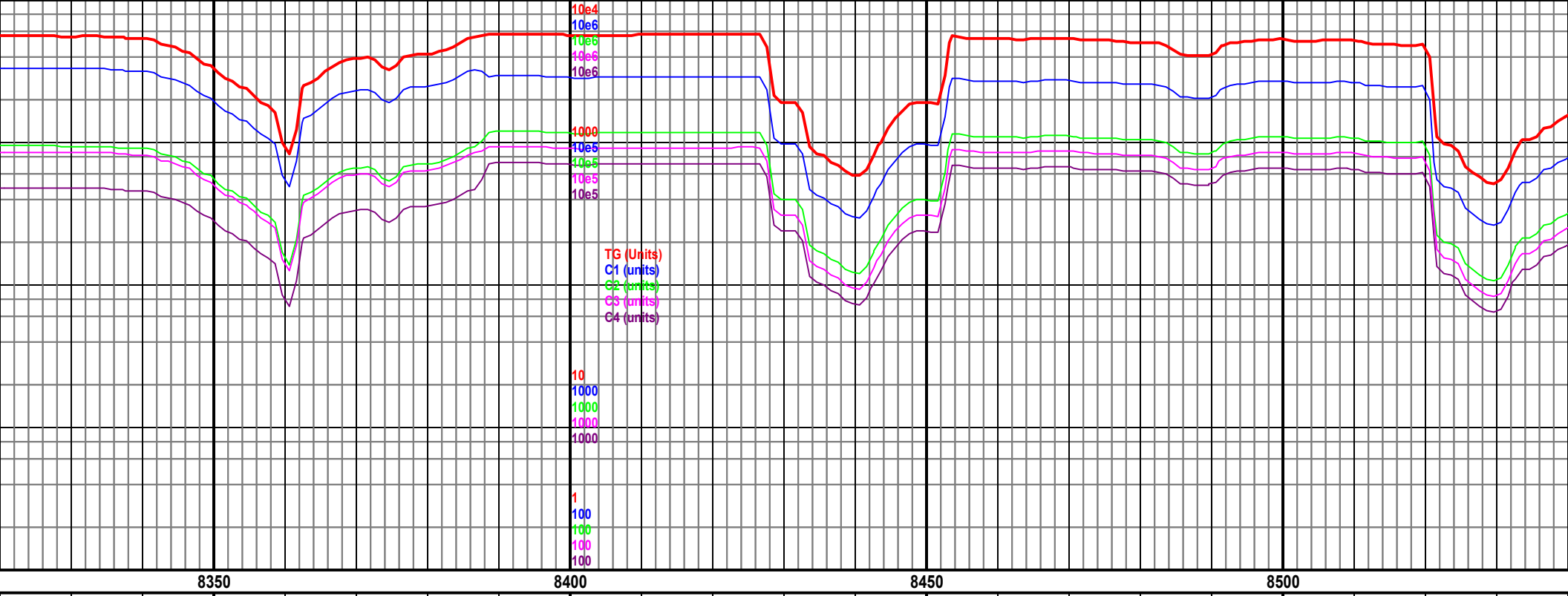
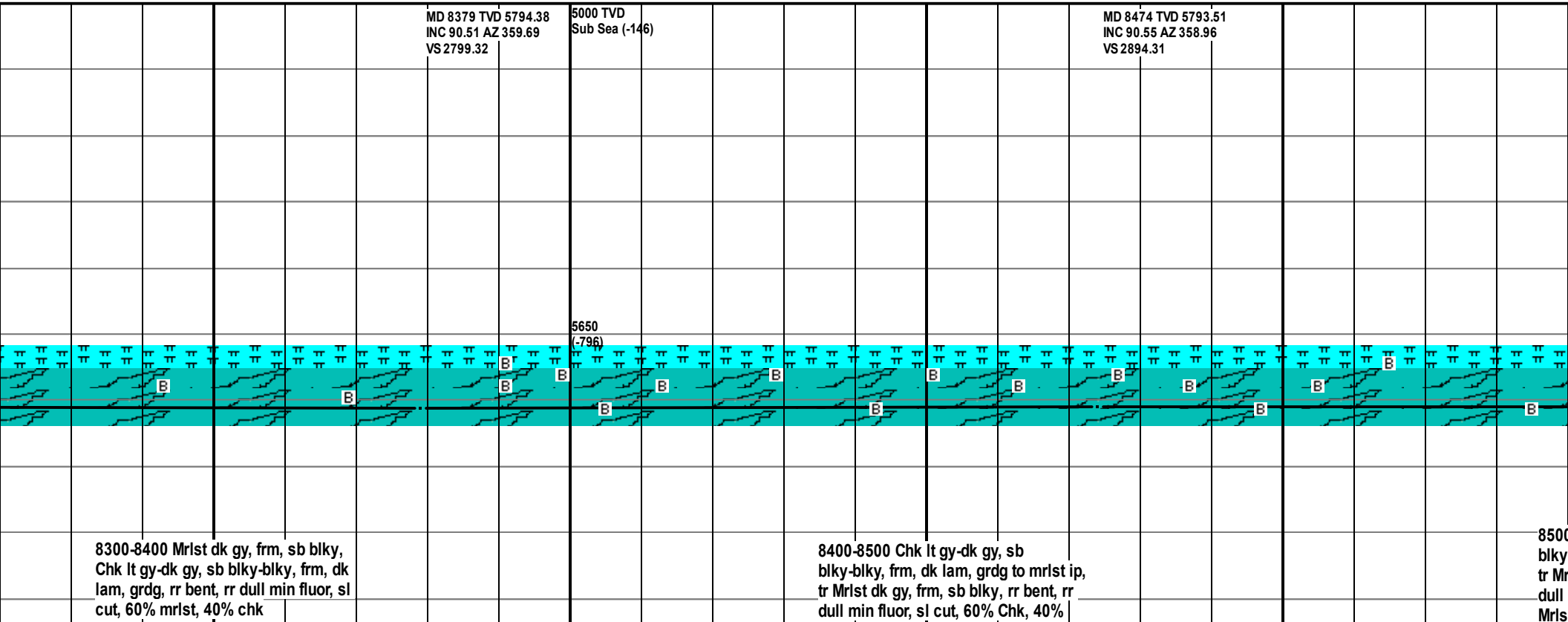
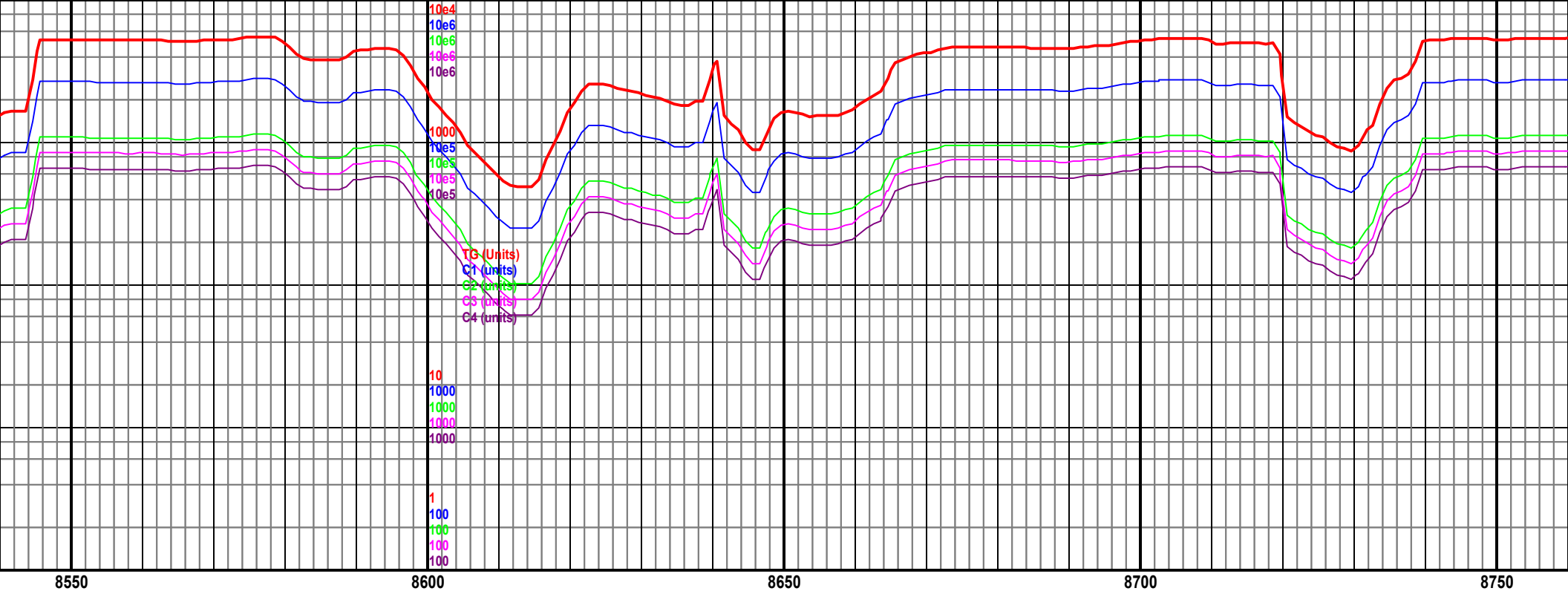
100
100
100
00
8150
8200
8250
8300


94 TVD 5785.88
.48 AZ 2
4.56
MD 8189 TVD 5790.39
INC 87.08 AZ 1.57
Sea (-146)
VS 2609.41
5650
(-796)
8100-8200 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk
8200-8300 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl 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
8350
8400
8450
8500


MD 8379 TVD 5794.38
INC 90.51 AZ 359.69
VS 2799.32
5000 TVD
Sub Sea (-146)
MD 8474 TVD 5793.51
INC 90.55 AZ 358.96
VS 2894.31
5650
(-796)
8300-8400 Mrlst dk gy, frm, sb blky, Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg, rr bent, rr dull min fluor, sl cut, 60% mrlst, 40% chk
8400-8500 Chk lt gy-dk gy, sb blky-blky, frm, dk lam, grdg to mrlst ip, tr Mrlst dk gy, frm, sb blky, rr bent, rr dull min fluor, sl cut, 60% Chk, 40%
8500
blky
tr Mr
dull
Mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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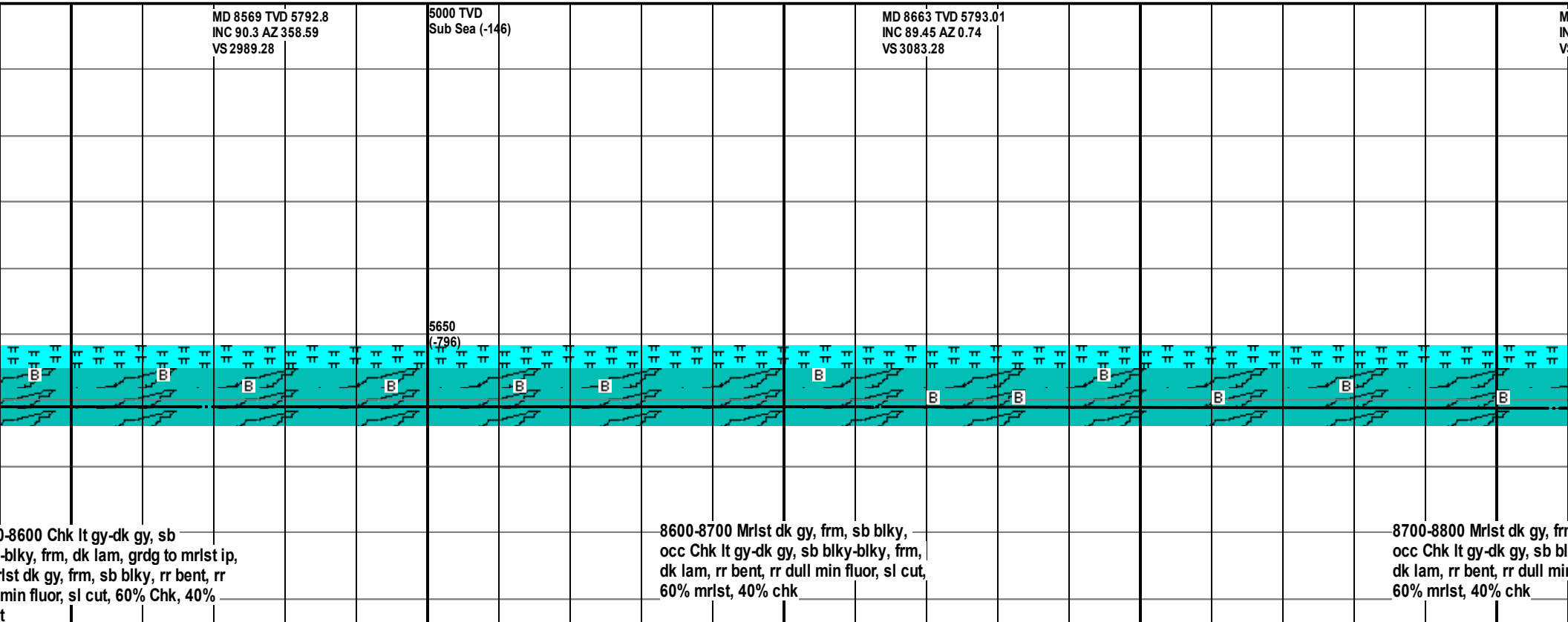
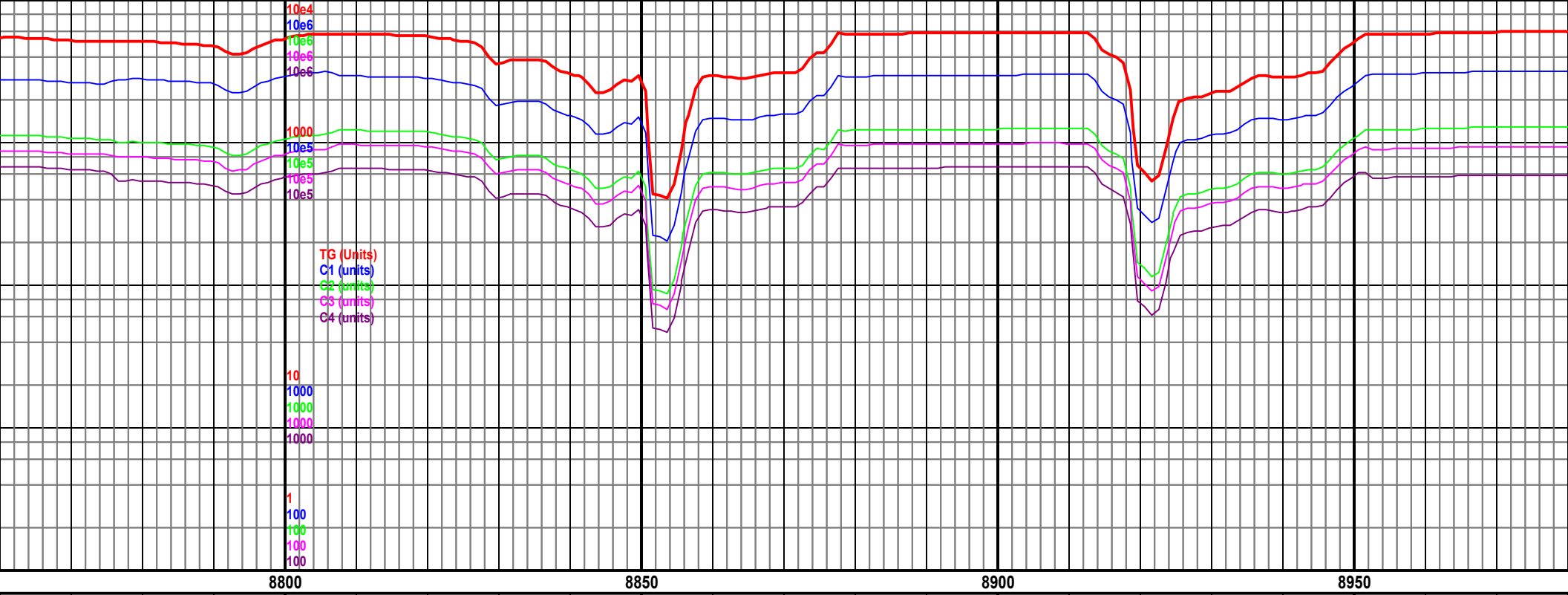
100
100
100
8550
8600
8650
8700
8750


MD 8569 TVD 5792.8
INC 90.3 AZ 358.59
VS 2989.28
5000 TVD
Sub Sea (-146)
MD 8663 TVD 5793.01
INC 89.45 AZ 0.74
VS 3083.28
5650
(-796)
B
-8600 Chk lt gy-dk gy, sb
-blky, frm, dk lam, grdg to mrlst ip,
rlst dk gy, frm, sb blky, rr bent, rr
min fluor, sl cut, 60% Chk, 40%
t
8600-8700 Mrlst dk gy, frm, sb blky,
occ Chk lt gy-dk gy, sb blky-blky, frm,
dk lam, rr bent, rr dull min fluor, sl cut,
60% mrlst, 40% chk
8700-8800 Mrlst dk gy, fr
occ Chk lt gy-dk gy, sb bl
dk lam, rr bent, rr dull mi
60% mrlst, 40% 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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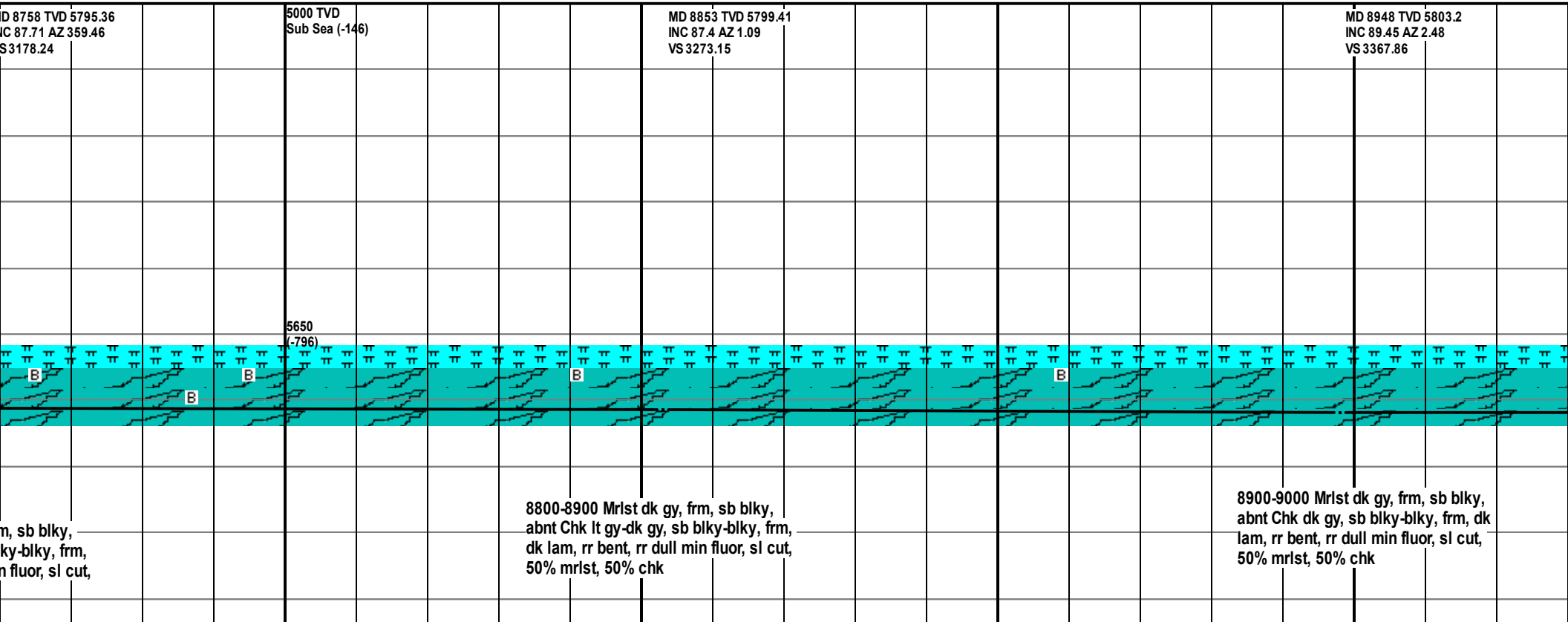
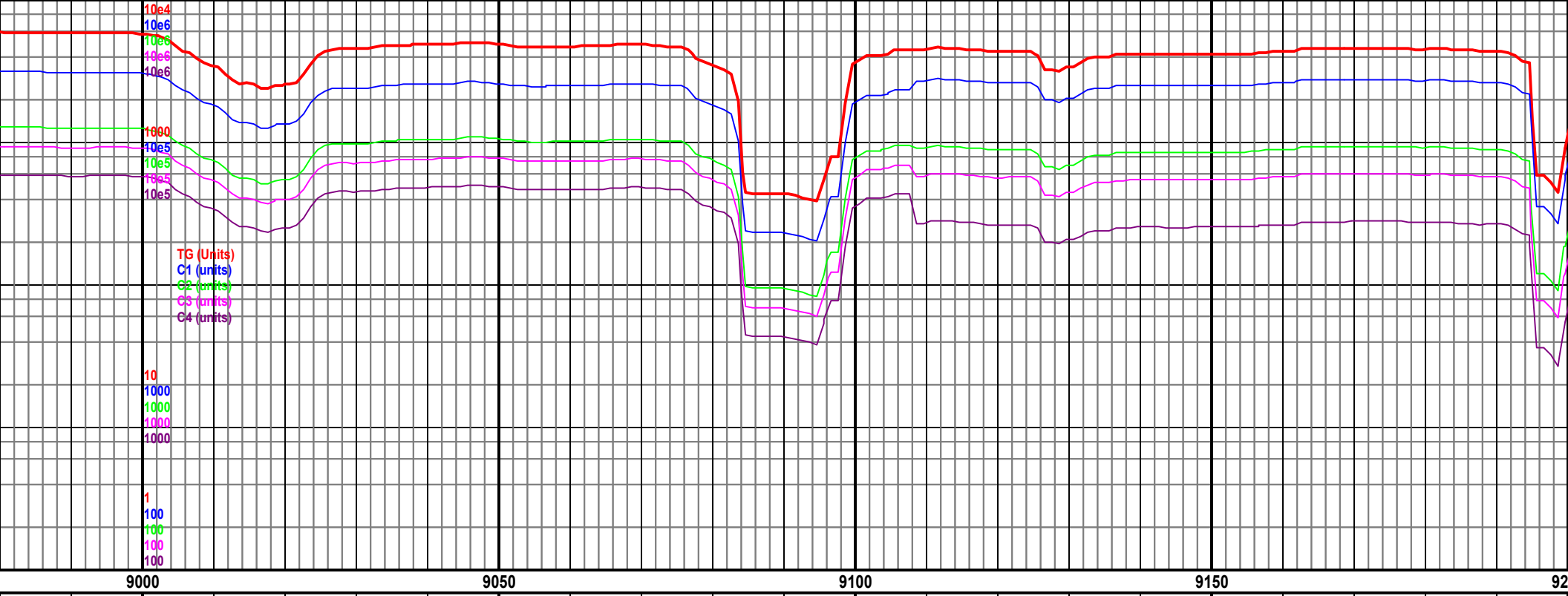
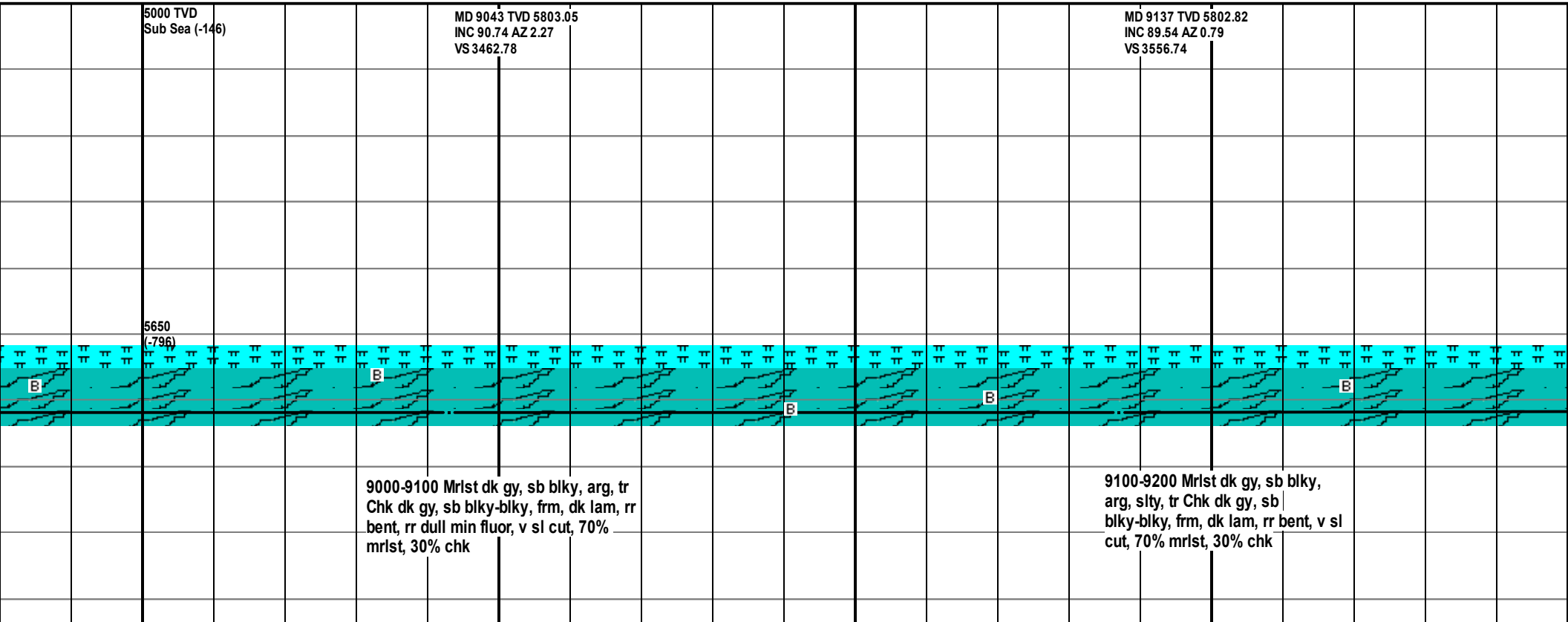
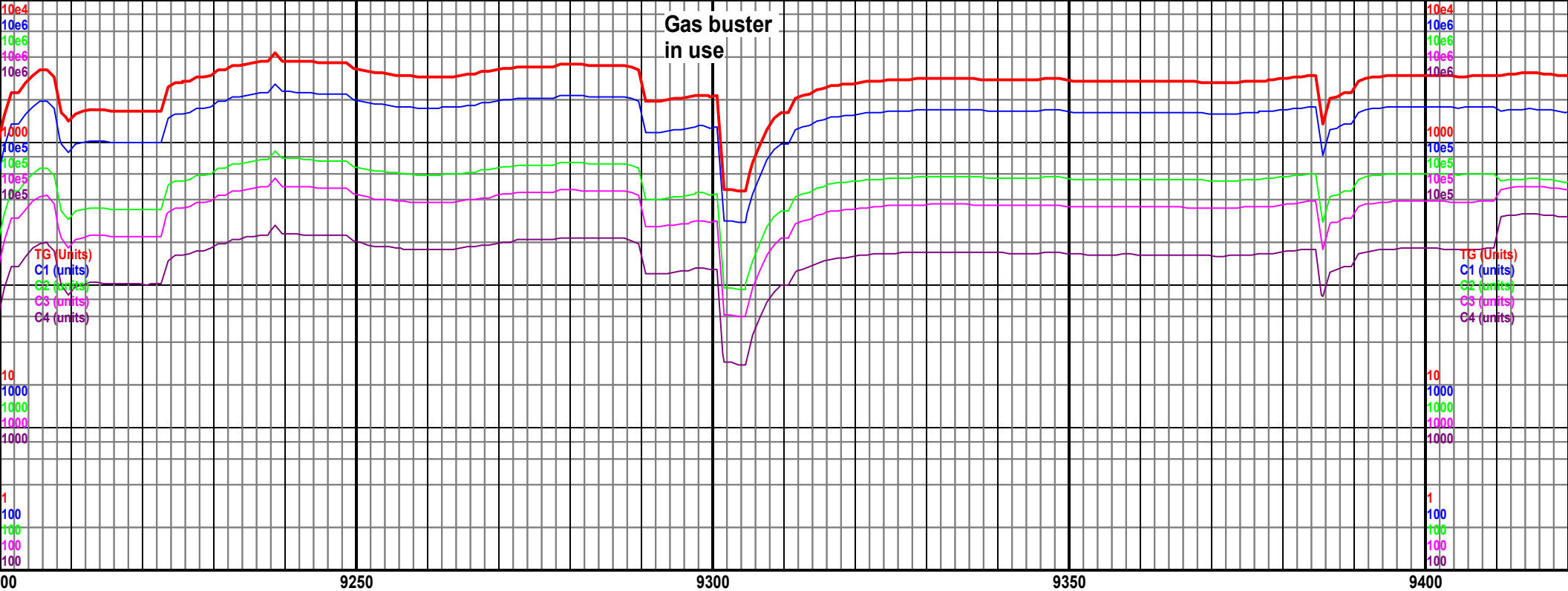
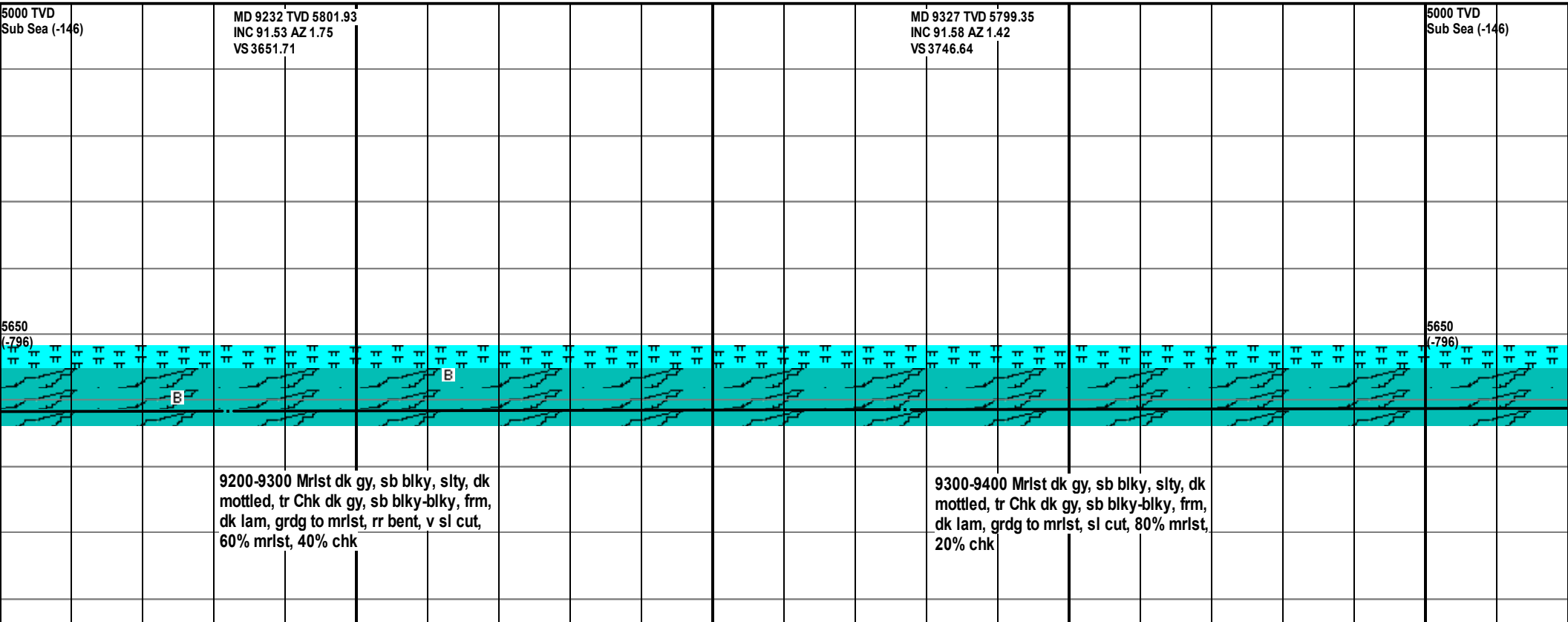
100
100
100
100
8800
8850
8900
8950

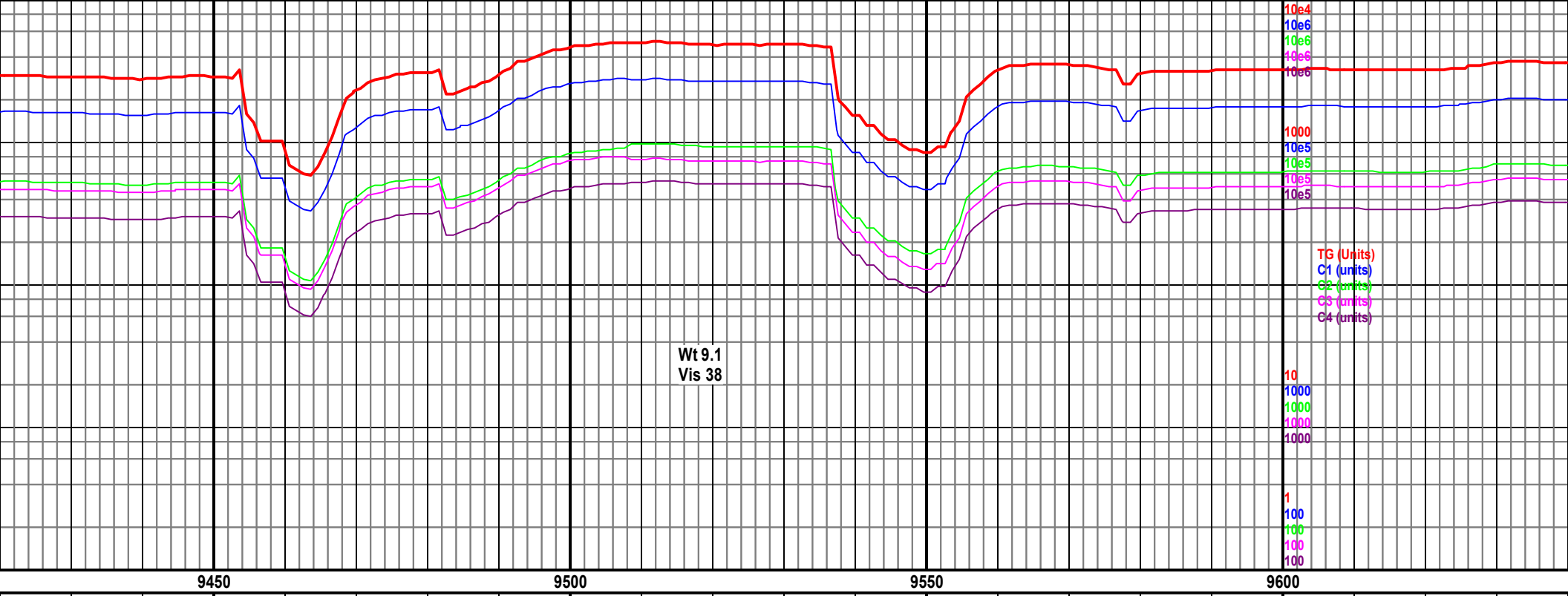

D 8758 TVD 5795.36
NC 87.71 AZ 359.46
S 3178.24
5000 TVD
Sub Sea (-146)
MD 8853 TVD 5799.41
INC 87.4 AZ 1.09
VS 3273.15
MD 8948 TVD 5803.2
INC 89.45 AZ 2.48
VS 3367.86
5650
(-796)
B
B
B
B
B
m, sb blky,
ky-blky, frm,
n fluor, sl cut,
8800-8900 Mrlst dk gy, frm, sb blky, abnt Chk lt gy-dk gy, sb blky-blky, frm, dk lam, rr bent, rr dull min fluor, sl cut, 50% mrlst, 50% chk
8900-9000 Mrlst dk gy, frm, sb blky, abnt Chk dk gy, sb blky-blky, frm, dk lam, rr bent, rr dull min fluor, sl cut, 50% mrlst, 50% chk

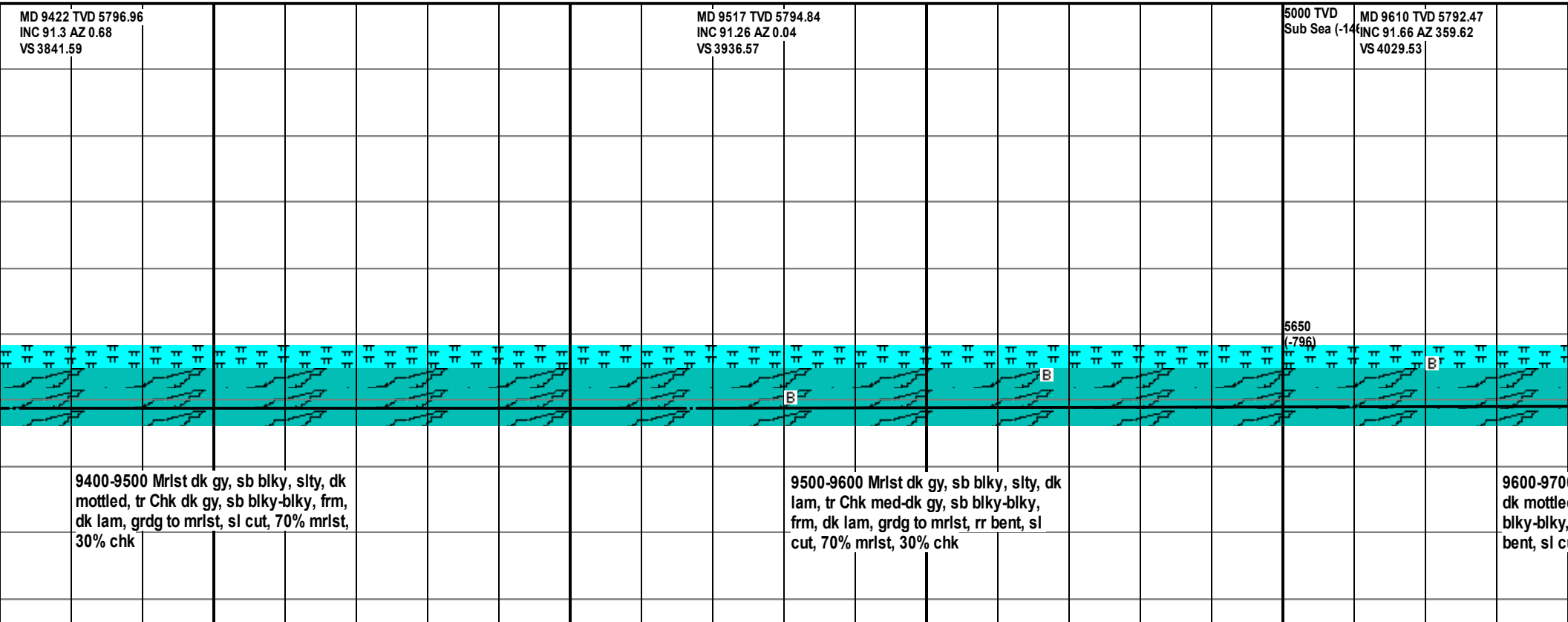

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
9000
9050
9100
9150
92

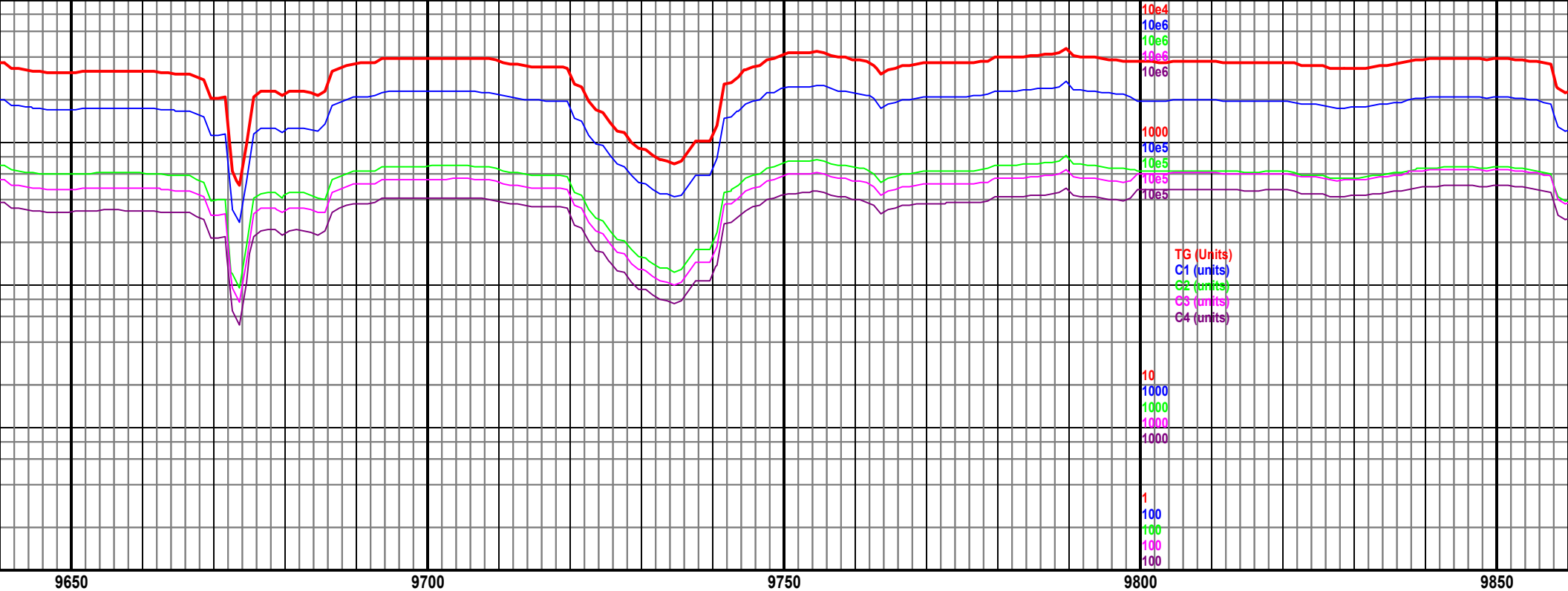

5000 TVD
Sub Sea (-146)
MD 9043 TVD 5803.05
INC 90.74 AZ 2.27
VS 3462.78
MD 9137 TVD 5802.82
INC 89.54 AZ 0.79
VS 3556.74
5650
(-796)
B
B
B
B
B
9000-9100 Mrlst dk gy, sb blky, arg, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, rr dull min fluor, v sl cut, 70% mrlst, 30% chk
9100-9200 Mrlst dk gy, sb blky, arg, slty, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, v sl cut, 70% mrlst, 30% chk

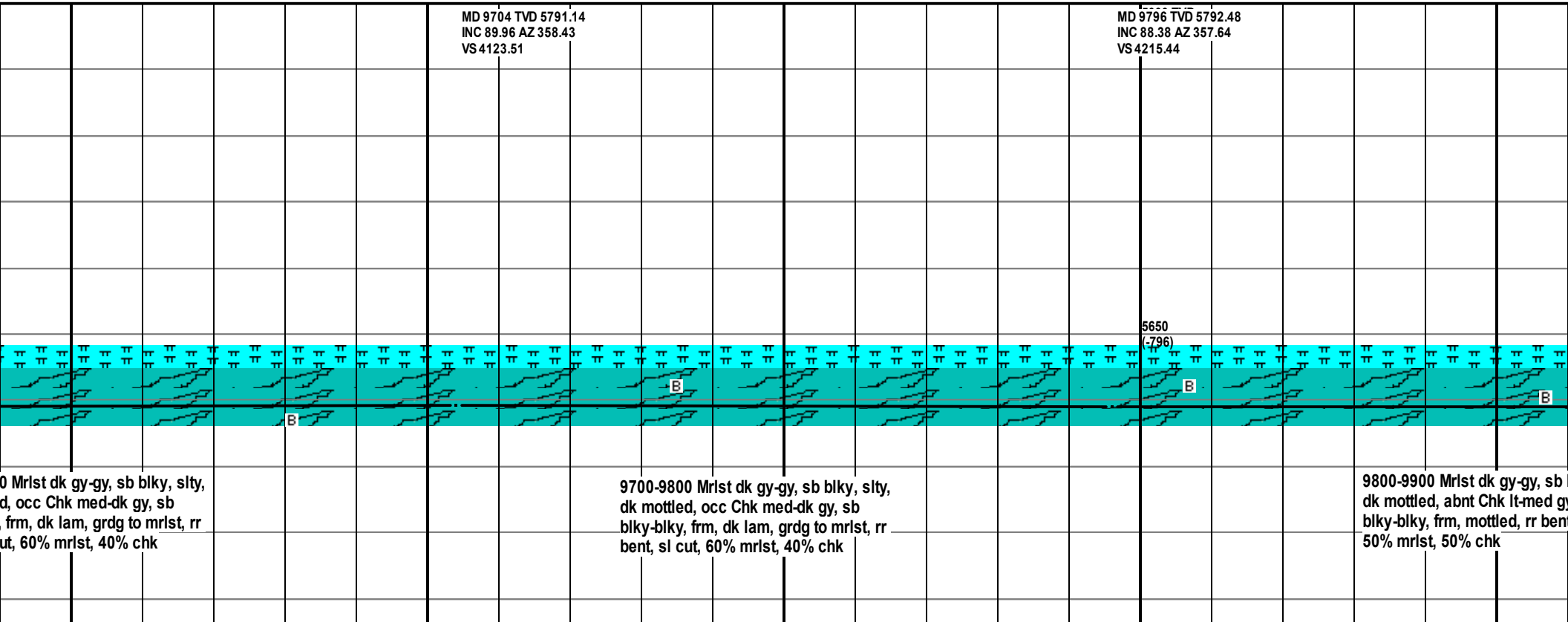

Gas buster
in use
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
9250
9300
9350
9400

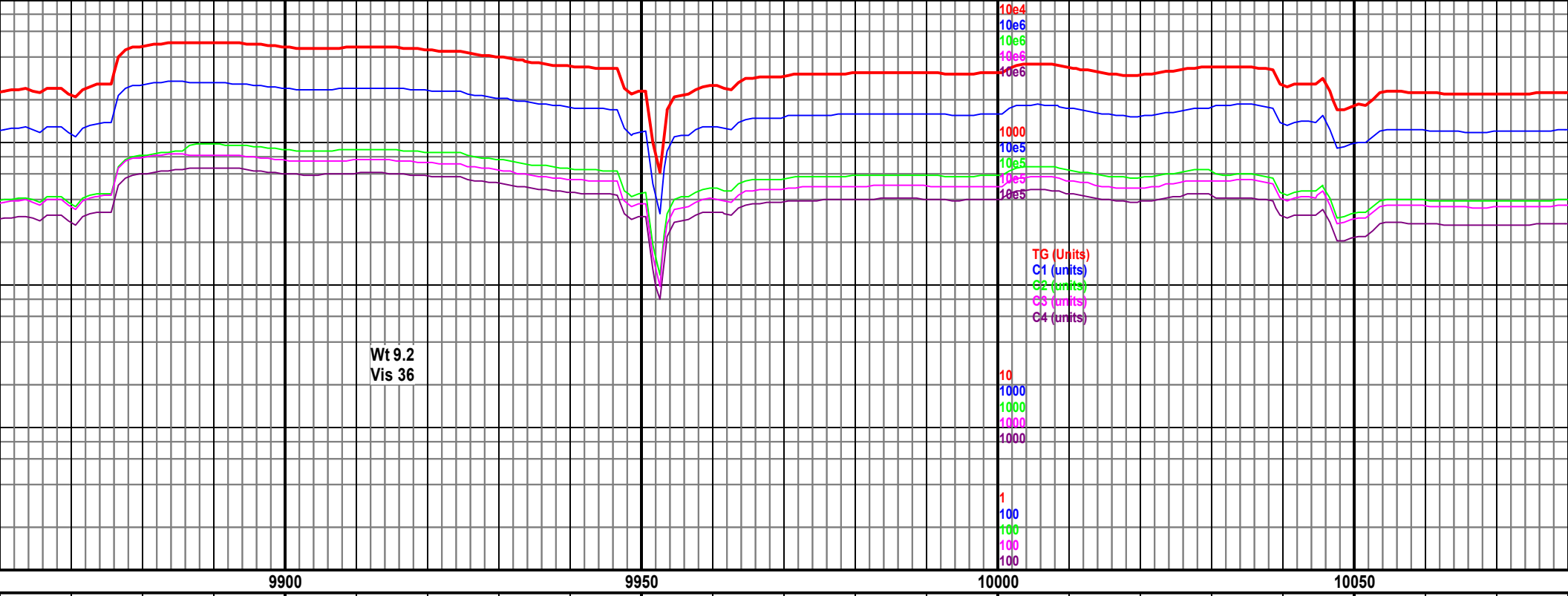

5000 TVD
Sub Sea (-146)
MD 9232 TVD 5801.93
INC 91.53 AZ 1.75
VS 3651.71
MD 9327 TVD 5799.35
INC 91.58 AZ 1.42
VS 3746.64
5650
(-796)
B
9200-9300 Mrlst dk gy, sb blky, slty, dk mottled, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, rr bent, v sl cut, 60% mrlst, 40% chk
9300-9400 Mrlst dk gy, sb blky, slty, dk mottled, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, sl cut, 80% mrlst, 20% chk

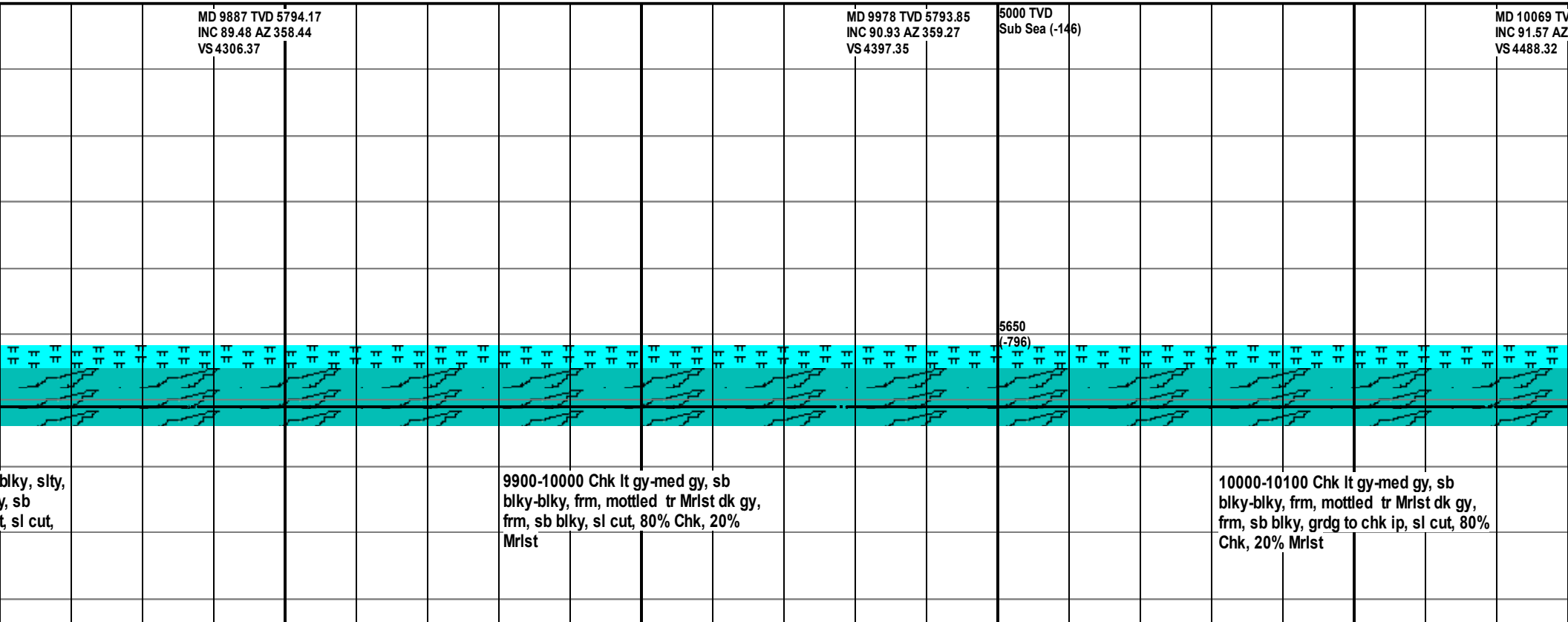

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.1
Vis 38
10
1000
1000
1000
1000
1
100
100
100
100
9450
9500
9550
9600

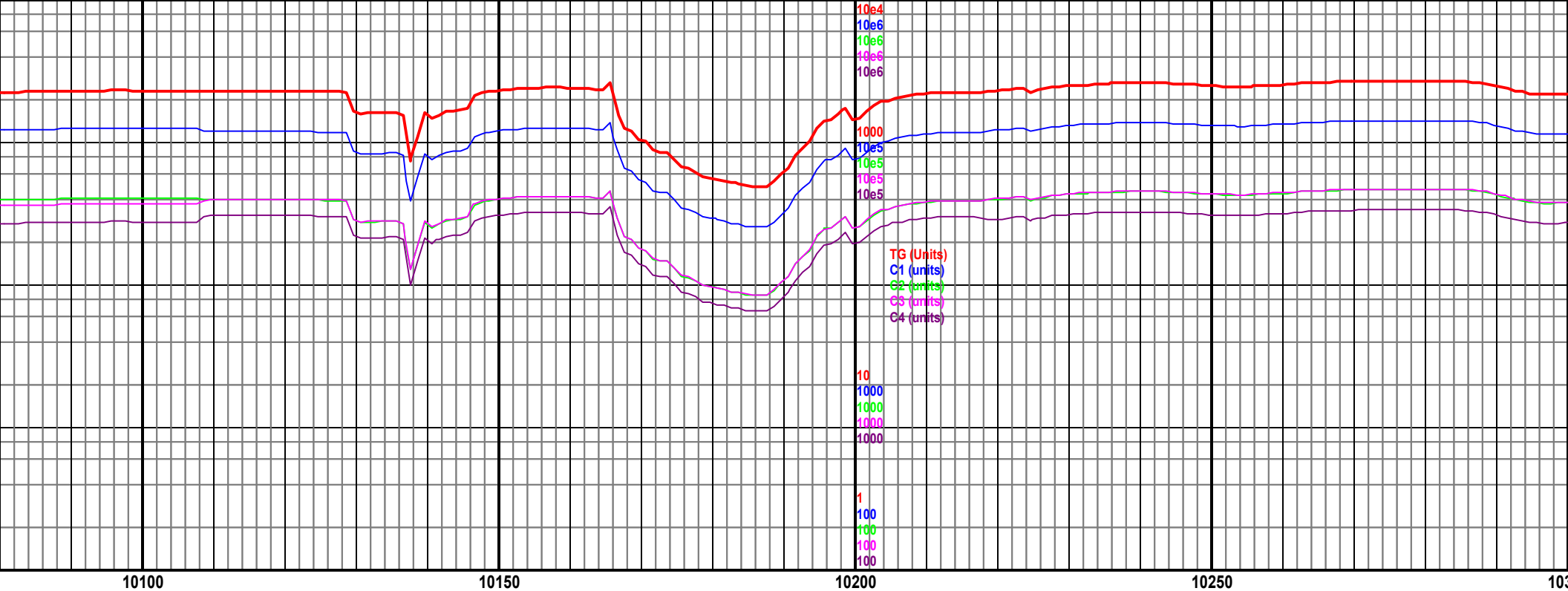

MD 9422 TVD 5796.96
INC 91.3 AZ 0.68
VS 3841.59
MD 9517 TVD 5794.84
INC 91.26 AZ 0.04
VS 3936.57
5000 TVD
Sub Sea (-146
MD 9610 TVD 5792.47
INC 91.66 AZ 359.62
VS 4029.53
5650
(-796)
B
B
B
B
9400-9500 Mrlst dk gy, sb blky, slty, dk mottled, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, sl cut, 70% mrlst, 30% chk
9500-9600 Mrlst dk gy, sb blky, slty, dk lam, tr Chk med-dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, rr bent, sl cut, 70% mrlst, 30% chk
9600-970
dk mottle
blky-blky,
bent, sl c

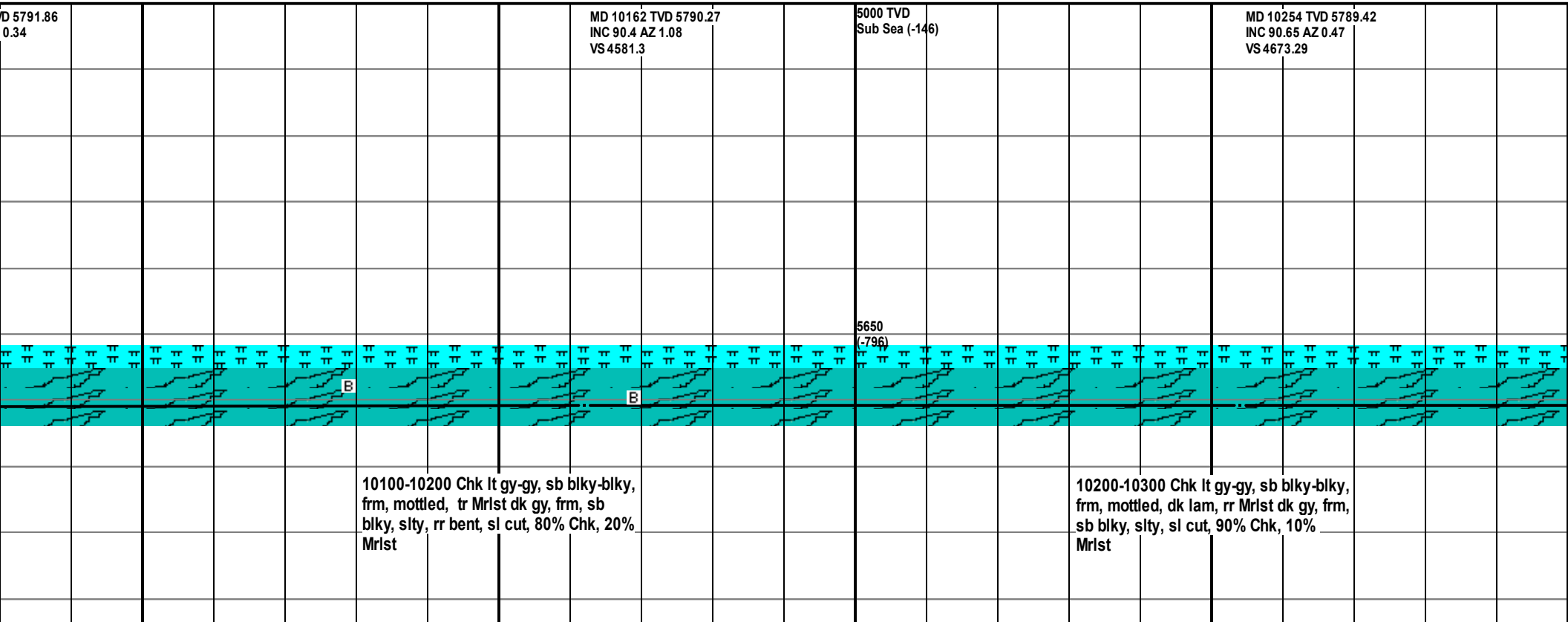

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
9650
9700
9750
9800
9850

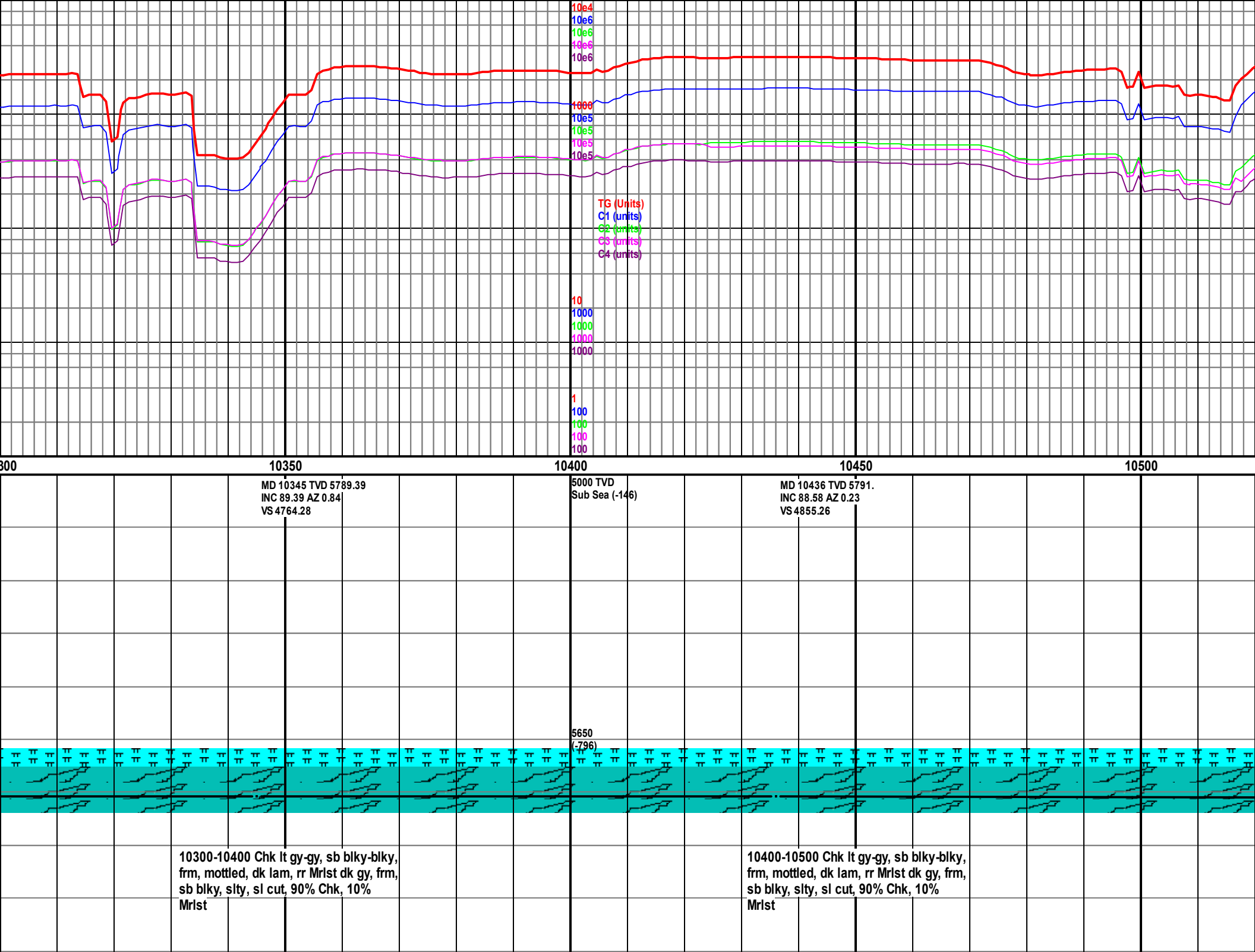

MD 9704 TVD 5791.14
INC 89.96 AZ 358.43
VS 4123.51
MD 9796 TVD 5792.48
INC 88.38 AZ 357.64
VS 4215.44
5650
(-796)
B
B
B
B
0 Mrlst dk gy-gy, sb blky, slty,
d, occ Chk med-dk gy, sb
frm, dk lam, grdg to mrlst, rr
ut, 60% mrlst, 40% chk
9700-9800 Mrlst dk gy-gy, sb blky, slty,
dk mottled, occ Chk med-dk gy, sb
blky-blky, frm, dk lam, grdg to mrlst, rr
bent, sl cut, 60% mrlst, 40% chk
9800-9900 Mrlst dk gy-gy, sb
dk mottled, abnt Chk lt-med gy
blky-blky, frm, mottled, rr bent
50% mrlst, 50% chk

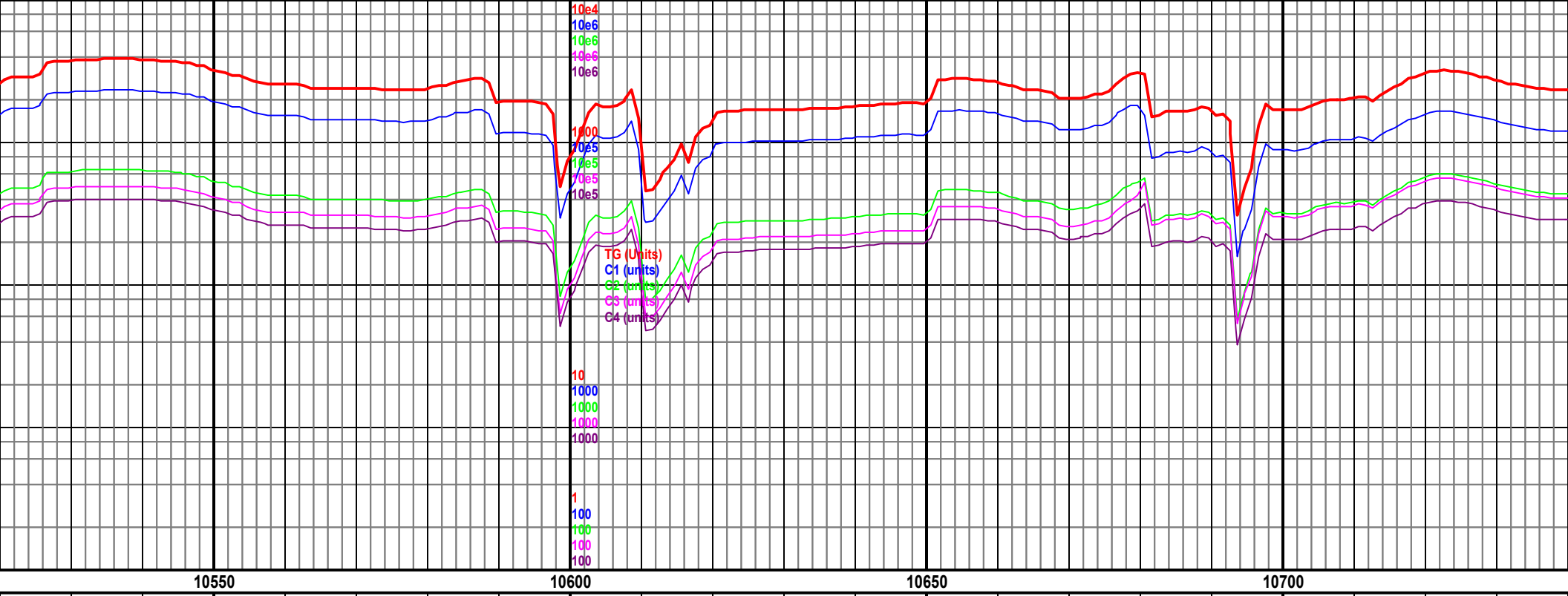

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.2
Vis 36
10
1000
1000
1000
1000
1
100
100
100
100
9900
9950
10000
10050


MD 9887 TVD 5794.17
INC 89.48 AZ 358.44
VS 4306.37
MD 9978 TVD 5793.85
INC 90.93 AZ 359.27
VS 4397.35
5000 TVD
Sub Sea (-146)
MD 10069 TV
INC 91.57 AZ
VS 4488.32
5650
(-796)
blky, slty,
y, sb
t, sl cut,
9900-10000 Chk lt gy-med gy, sb blky-blky, frm, mottled tr Mrlst dk gy, frm, sb blky, sl cut, 80% Chk, 20% Mrlst
10000-10100 Chk lt gy-med gy, sb blky-blky, frm, mottled tr Mrlst dk gy, frm, sb blky, grdg to chk ip, sl 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
10100
10150
10200
10250


D 5791.86
0.34
MD 10162 TVD 5790.27
INC 90.4 AZ 1.08
VS 4581.3
5000 TVD
Sub Sea (-146)
MD 10254 TVD 5789.42
INC 90.65 AZ 0.47
VS 4673.29
5650
(-796)
B
B
10100-10200 Chk lt gy-gy, sb blky-blky, frm, mottled, tr Mrlst dk gy, frm, sb blky, slty, rr bent, sl cut, 80% Chk, 20% Mrlst
10200-10300 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, 90% Chk, 10% 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
300
10350
10400
10450
10500
MD 10345 TVD 5789.39
INC 89.39 AZ 0.84
VS 4764.28
5000 TVD
Sub Sea (-146)
MD 10436 TVD 5791.
INC 88.58 AZ 0.23
VS 4855.26
5650
(-796)
10300-10400 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, 90% Chk, 10% Mrlst
10400-10500 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, 90% Chk, 10% Mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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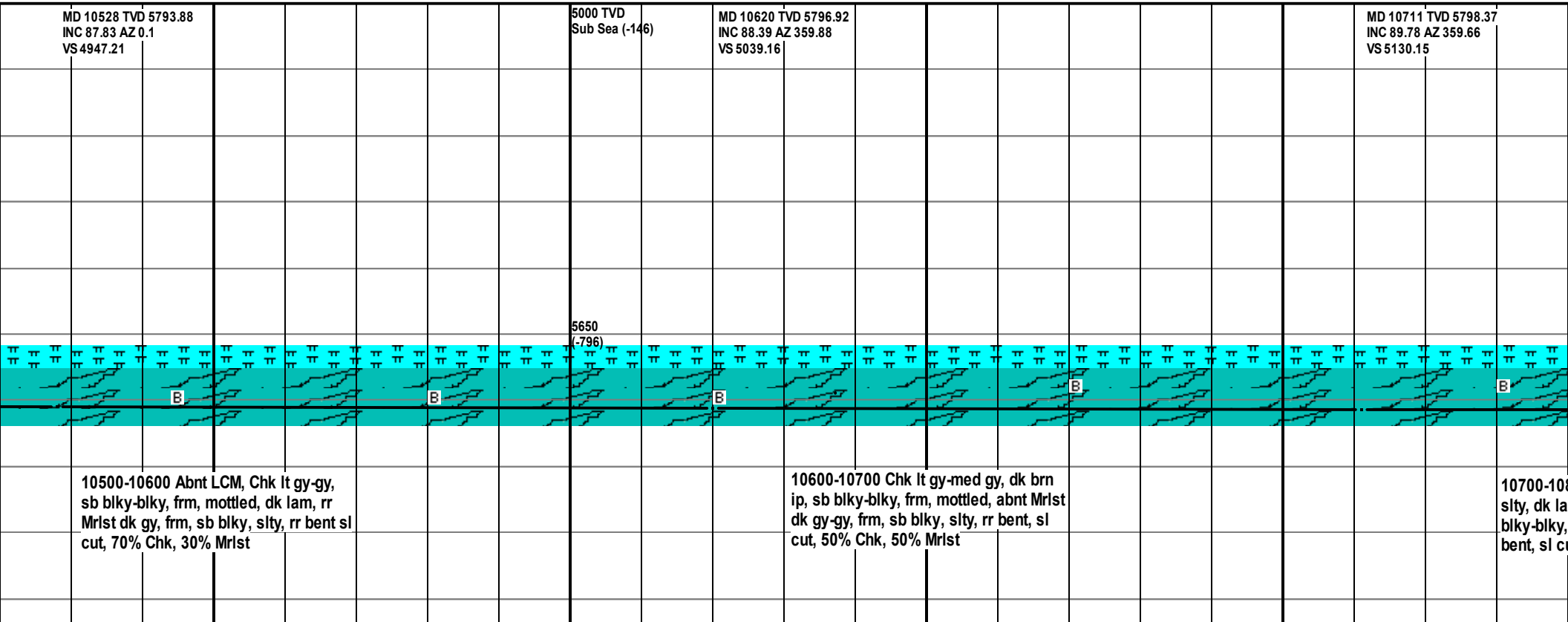
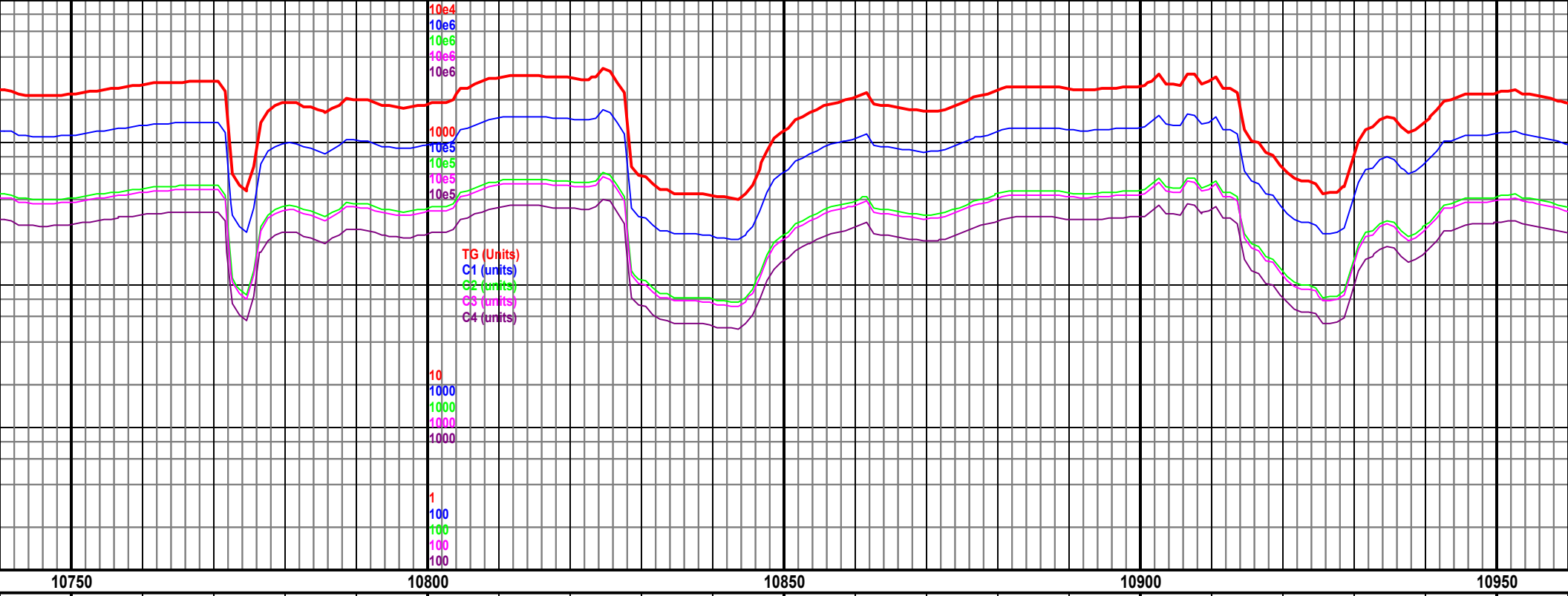
10700


MD 10528 TVD 5793.88
INC 87.83 AZ 0.1
VS 4947.21
5000 TVD
Sub Sea (-146)
MD 10620 TVD 5796.92
INC 88.39 AZ 359.88
VS 5039.16
MD 10711 TVD 5798.37
INC 89.78 AZ 359.66
VS 5130.15
5650
(-796)
B
B
B
B
B
10500-10600 Abnt LCM, Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent sl cut, 70% Chk, 30% Mrlst
10600-10700 Chk lt gy-med gy, dk brn ip, sb blky-blky, frm, mottled, abnt Mrlst dk gy-gy, frm, sb blky, slty, rr bent, sl cut, 50% Chk, 50% Mrlst
10700-108
slty, dk la
blky-blky,
bent, sl cu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10e6
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10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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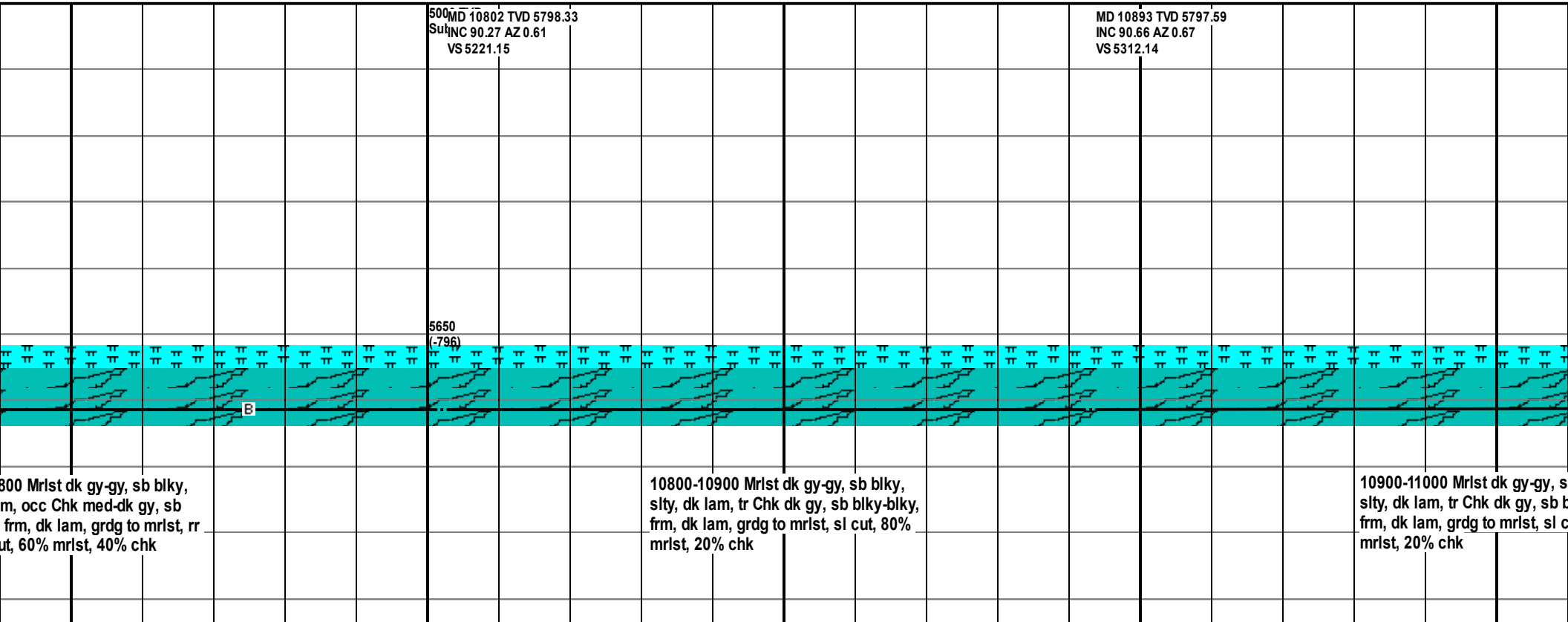
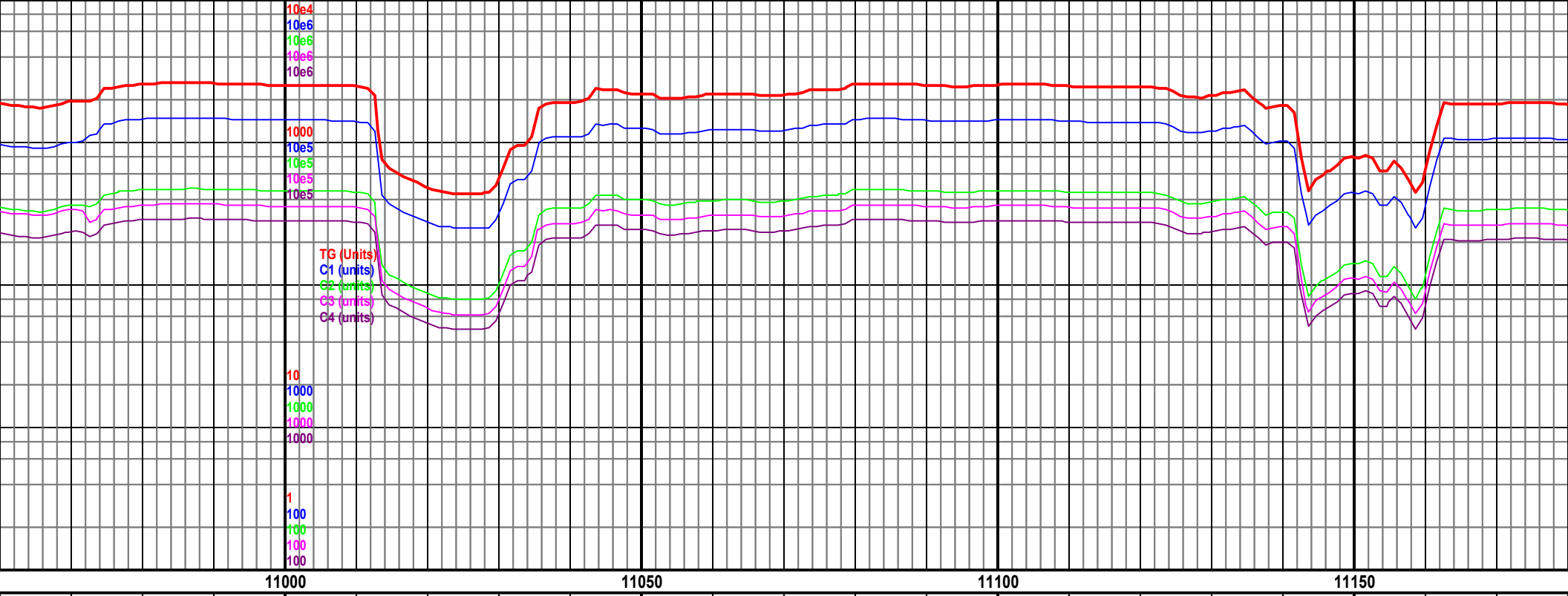

MD 10802 TVD 5798.33
INC 90.27 AZ 0.61
VS 5221.15
MD 10893 TVD 5797.59
INC 90.66 AZ 0.67
VS 5312.14
5650
(-796)
B
800 Mrlst dk gy-gy, sb blky,
m, occ Chk med-dk gy, sb
frm, dk lam, grdg to mrlst, rr
ut, 60% mrlst, 40% chk
10800-10900 Mrlst dk gy-gy, sb blky,
slty, dk lam, tr Chk dk gy, sb blky-blky,
frm, dk lam, grdg to mrlst, sl cut, 80%
mrlst, 20% chk
10900-11000 Mrlst dk gy-gy, s
slty, dk lam, tr Chk dk gy, sb b
frm, dk lam, grdg to mrlst, sl c
mrlst, 20% chk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10e5
10e5
10e5
TG (Units)
C1 (units)
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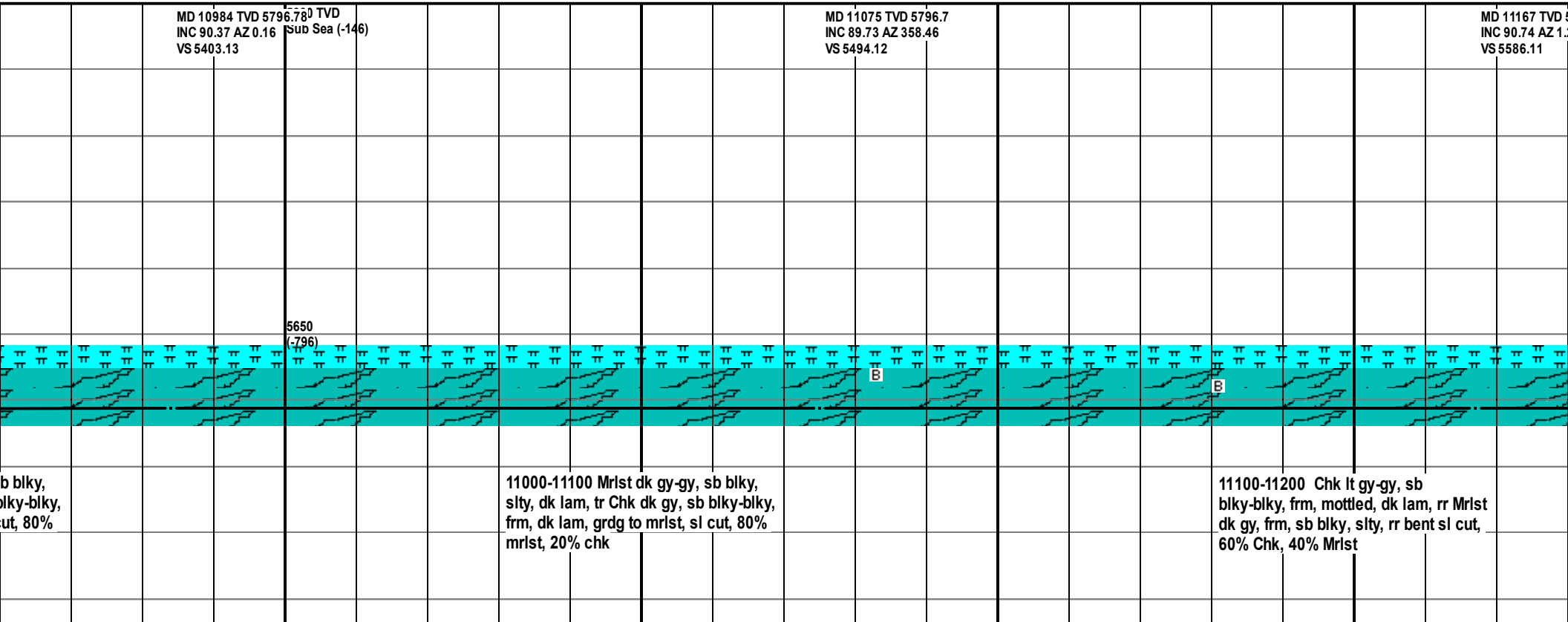
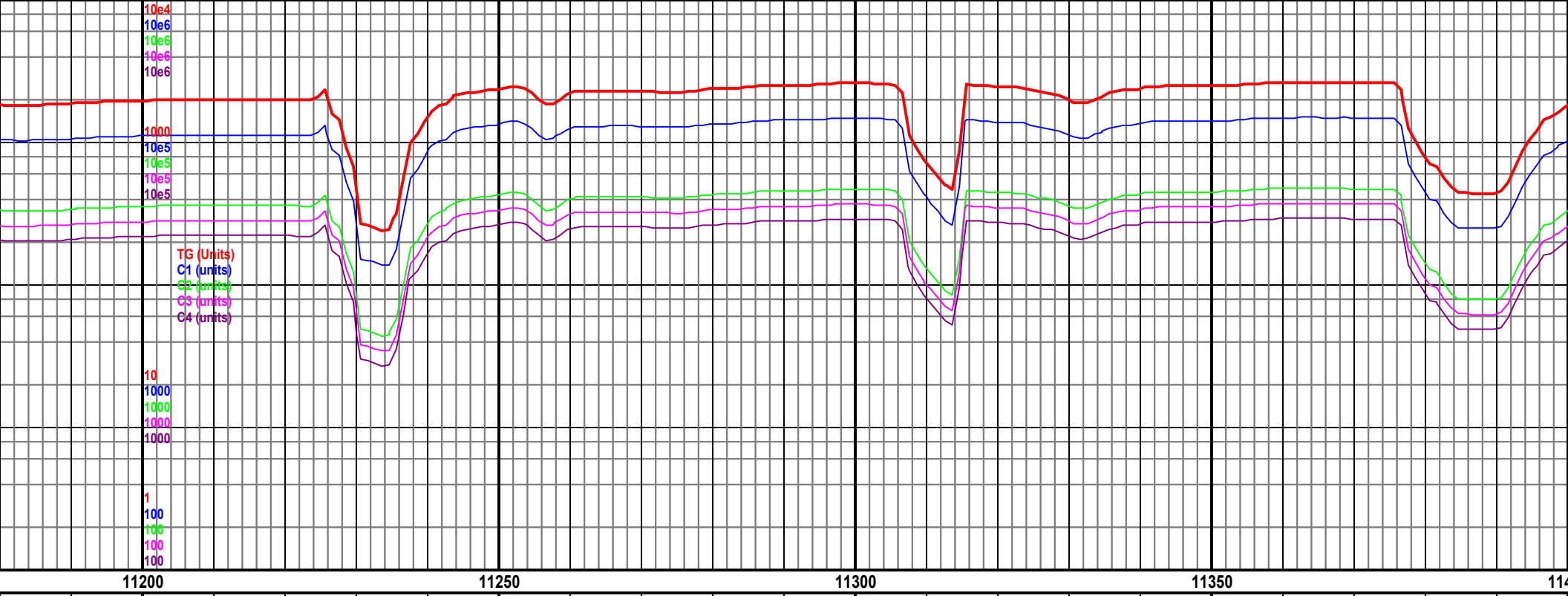
11050
11100
11150


MD 10984 TVD 5796.78
INC 90.37 AZ 0.16
VS 5403.13
TVD
Sub Sea (-146)
MD 11075 TVD 5796.7
INC 89.73 AZ 358.46
VS 5494.12
MD 11167 TVD
INC 90.74 AZ 1.
VS 5586.11
5650
(-796)
B
B
b blky,
lky-blky,
ut, 80%
11000-11100 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, sl cut, 80% mrlst, 20% chk
11100-11200 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent sl cut, 60% Chk, 40% Mrlst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10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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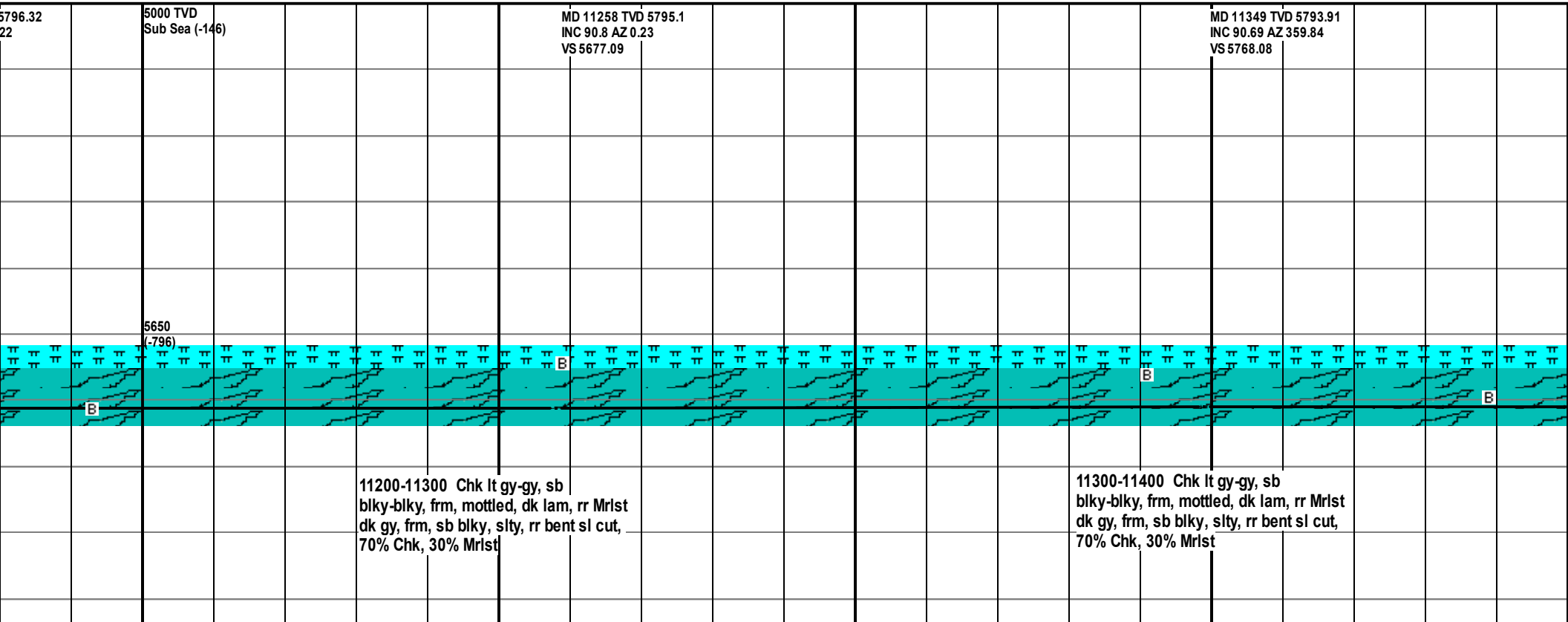
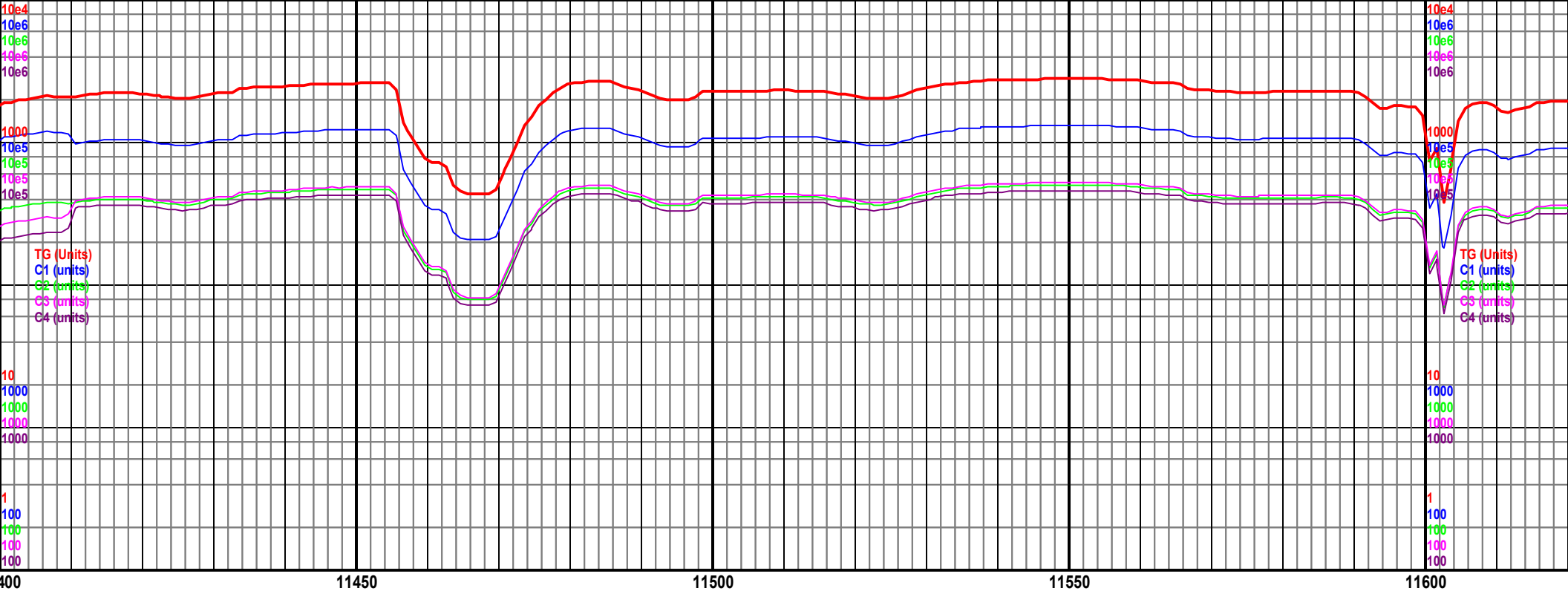
11350


5796.32
22
5000 TVD
Sub Sea (-146)
MD 11258 TVD 5795.1
INC 90.8 AZ 0.23
VS 5677.09
MD 11349 TVD 5793.91
INC 90.69 AZ 359.84
VS 5768.08
5650
(-796)
B
B
B
B
11200-11300 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent sl cut, 70% Chk, 30% Mrlst
11300-11400 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, rr bent sl cut, 70% Chk, 30% Mrlst


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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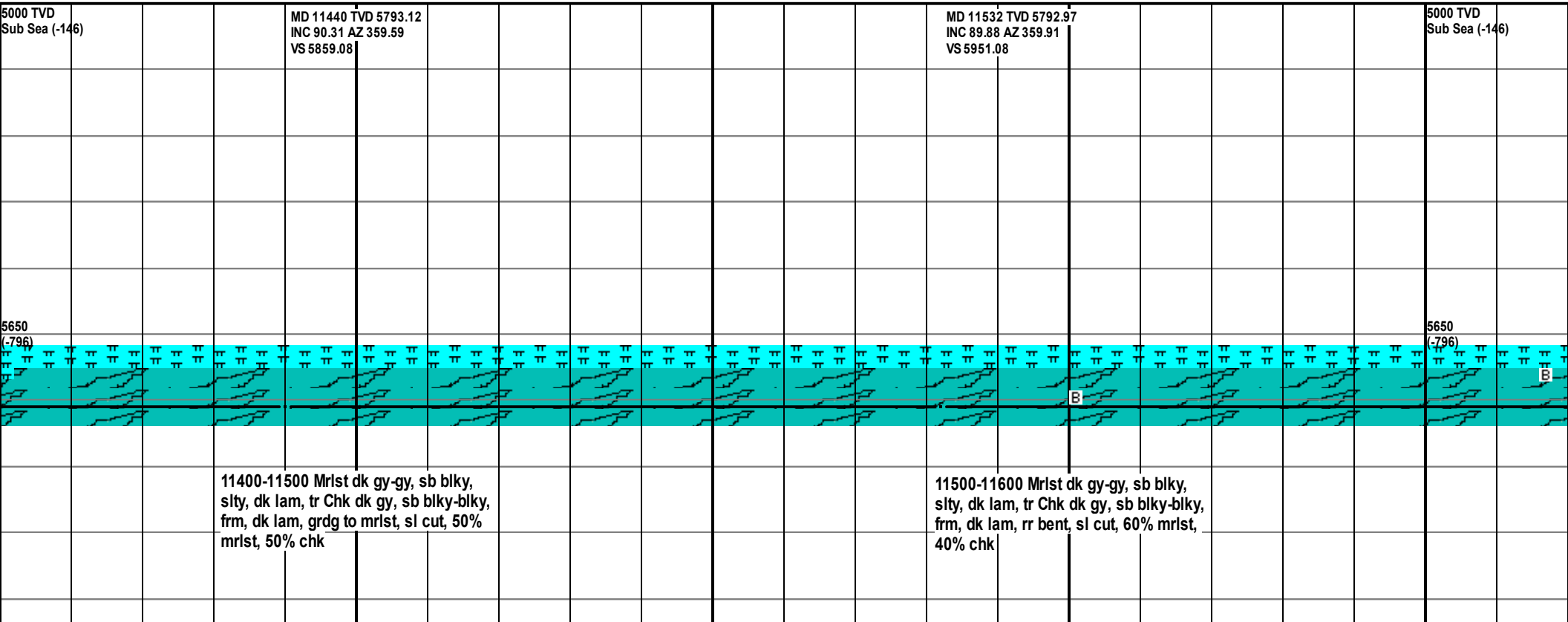
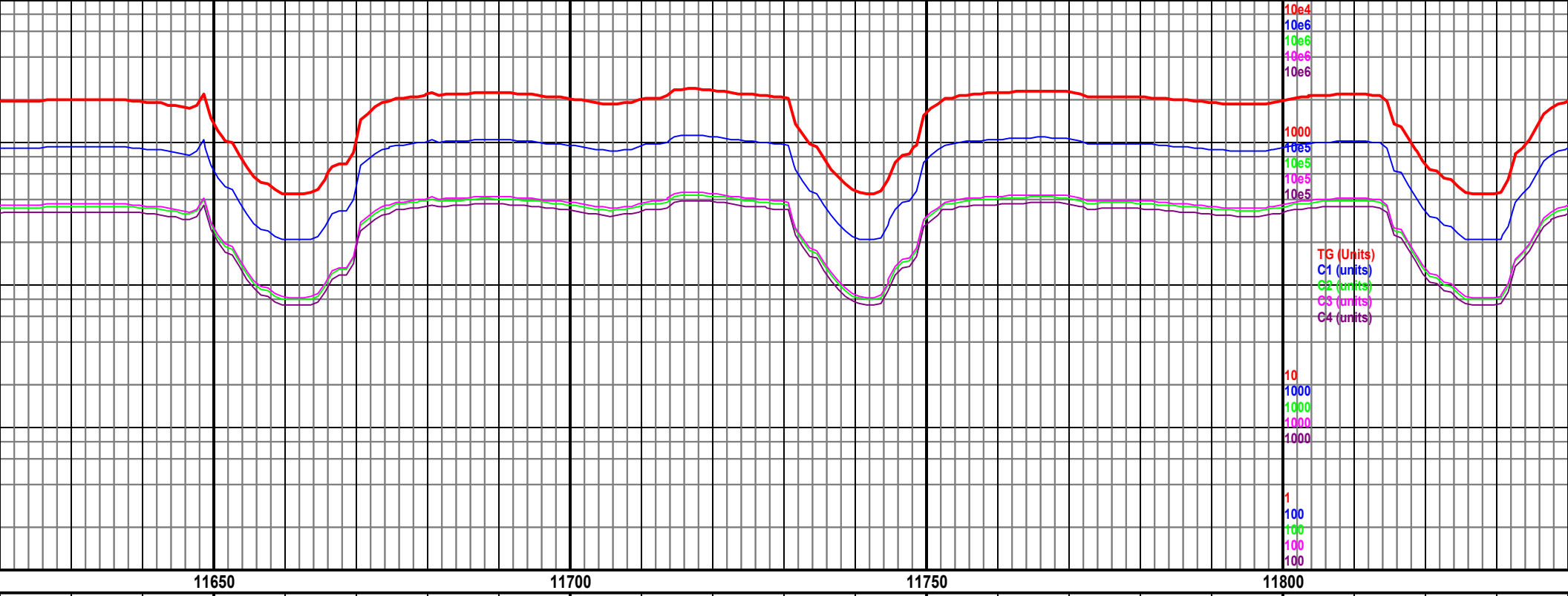
11450
11500
11550
11600


5000 TVD
Sub Sea (-146)
MD 11440 TVD 5793.12
INC 90.31 AZ 359.59
VS 5859.08
MD 11532 TVD 5792.97
INC 89.88 AZ 359.91
VS 5951.08
5650
(-796)
B
11400-11500 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, sl cut, 50% mrlst, 50% chk
11500-11600 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 60% mrlst, 40% chk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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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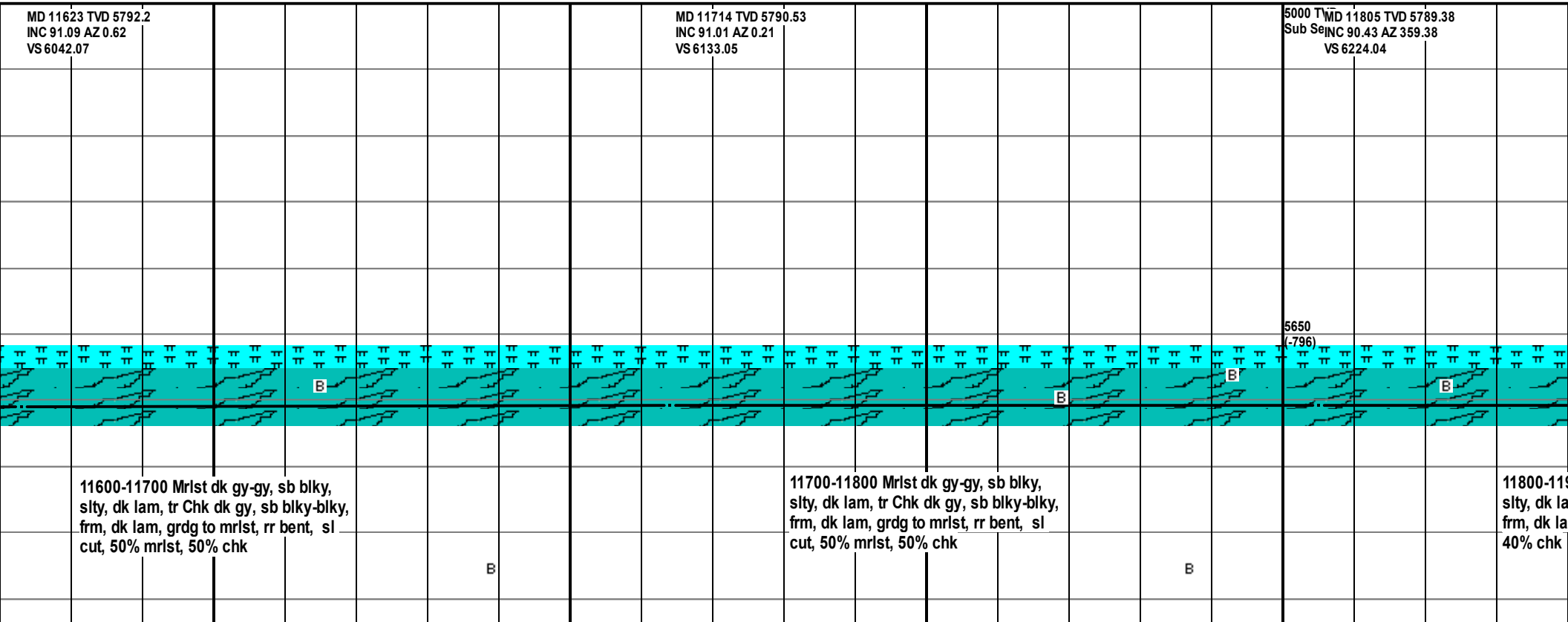
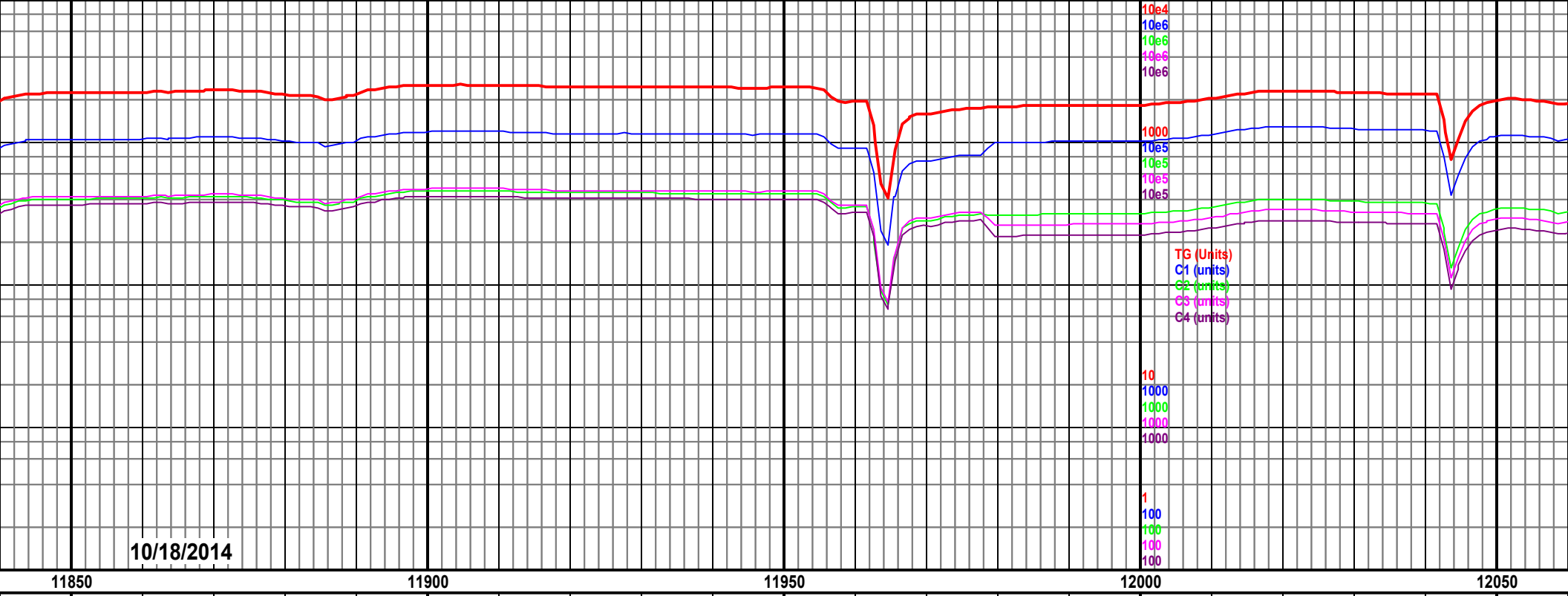
11800


MD 11623 TVD 5792.2
INC 91.09 AZ 0.62
VS 6042.07
MD 11714 TVD 5790.53
INC 91.01 AZ 0.21
VS 6133.05
5000 TVD
Sub Sea
MD 11805 TVD 5789.38
INC 90.43 AZ 359.38
VS 6224.04
5650
(-796)
B
B
B
B
B
11600-11700 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, rr bent, sl cut, 50% mrlst, 50% chk
11700-11800 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, grdg to mrlst, rr bent, sl cut, 50% mrlst, 50% chk
11800-119
slty, dk la
frm, dk la
40% chk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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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10/18/2014
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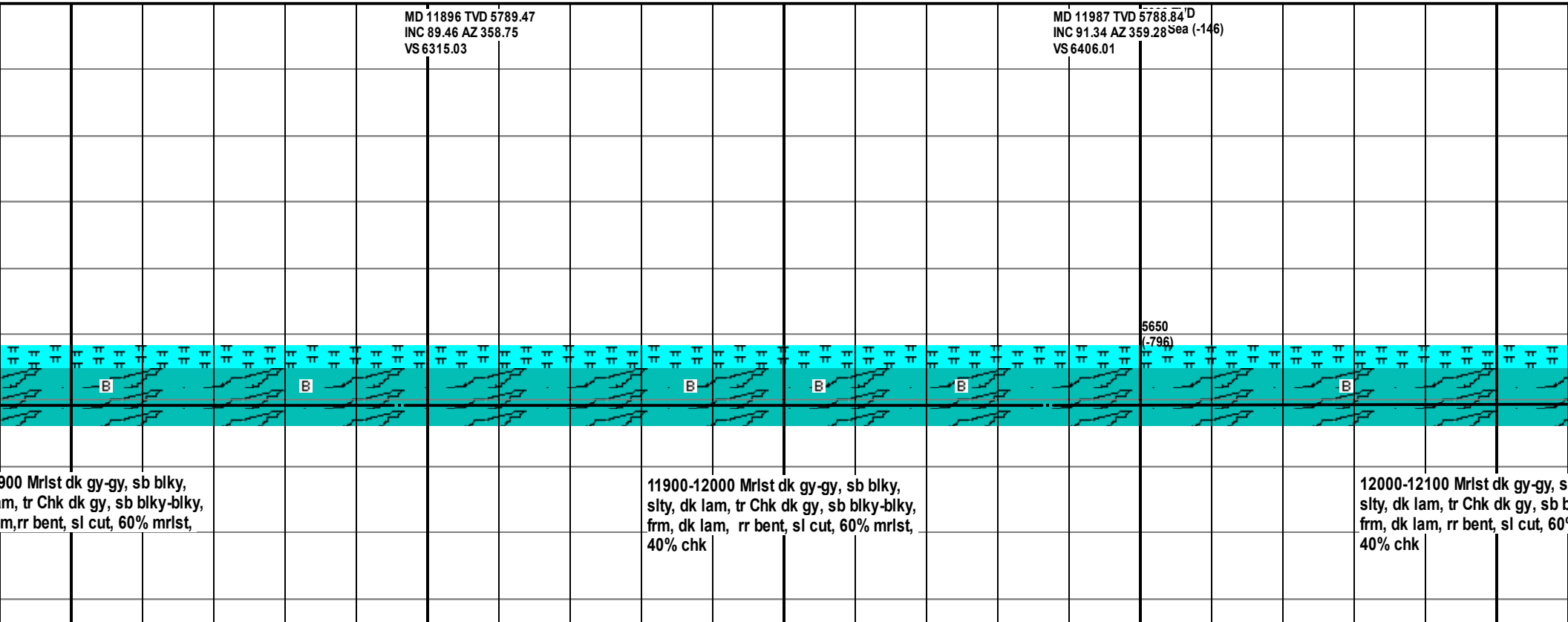
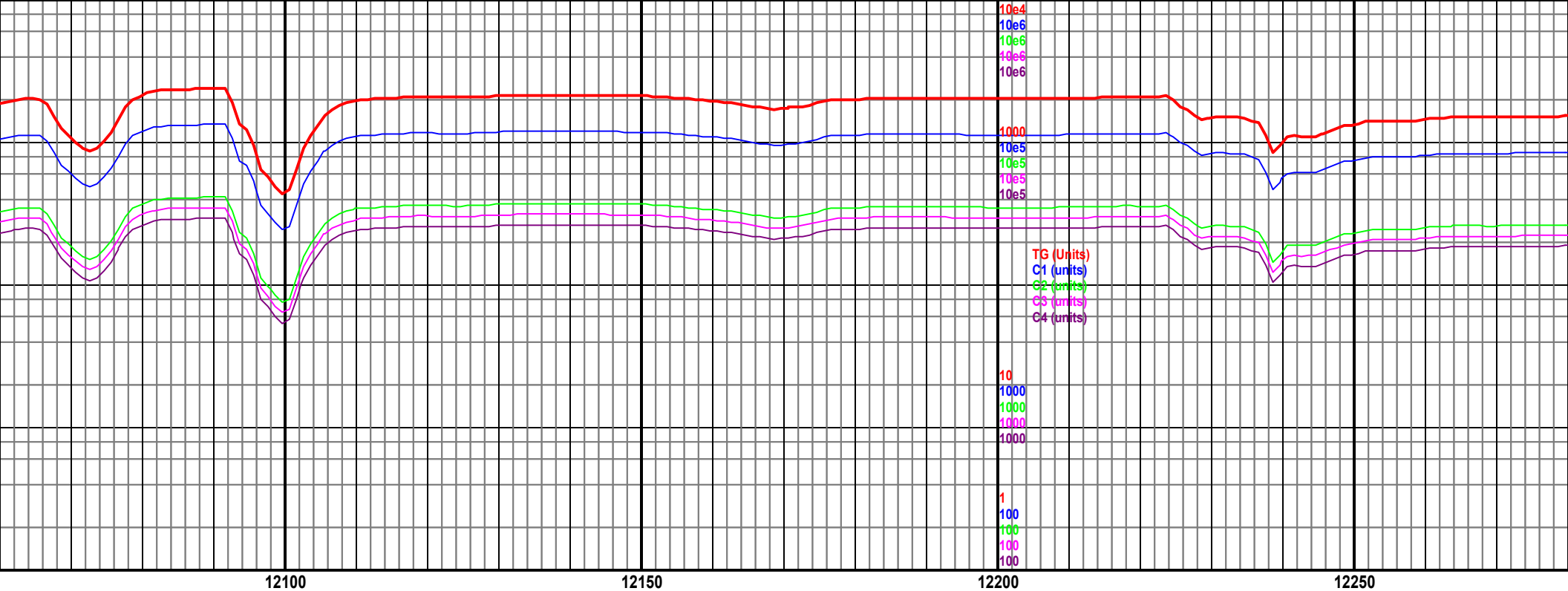
12000
12050


MD 11896 TVD 5789.47
INC 89.46 AZ 358.75
VS 6315.03
MD 11987 TVD 5788.84
INC 91.34 AZ 359.28
VS 6406.01
Sea (-146)
5650
(-796)
B
B
B
B
B
B
900 Mrlst dk gy-gy, sb blky,
am, tr Chk dk gy, sb blky-blky,
m,rr bent, sl cut, 60% mrlst,
11900-12000 Mrlst dk gy-gy, sb blky,
slty, dk lam, tr Chk dk gy, sb blky-blky,
frm, dk lam, rr bent, sl cut, 60% mrlst,
40% chk
12000-12100 Mrlst dk gy-gy, s
slty, dk lam, tr Chk dk gy, sb b
frm, dk lam, rr bent, sl cut, 60
40% chk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10e6
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10e5
10e5
TG (Units)
C1 (units)
C2 (units)
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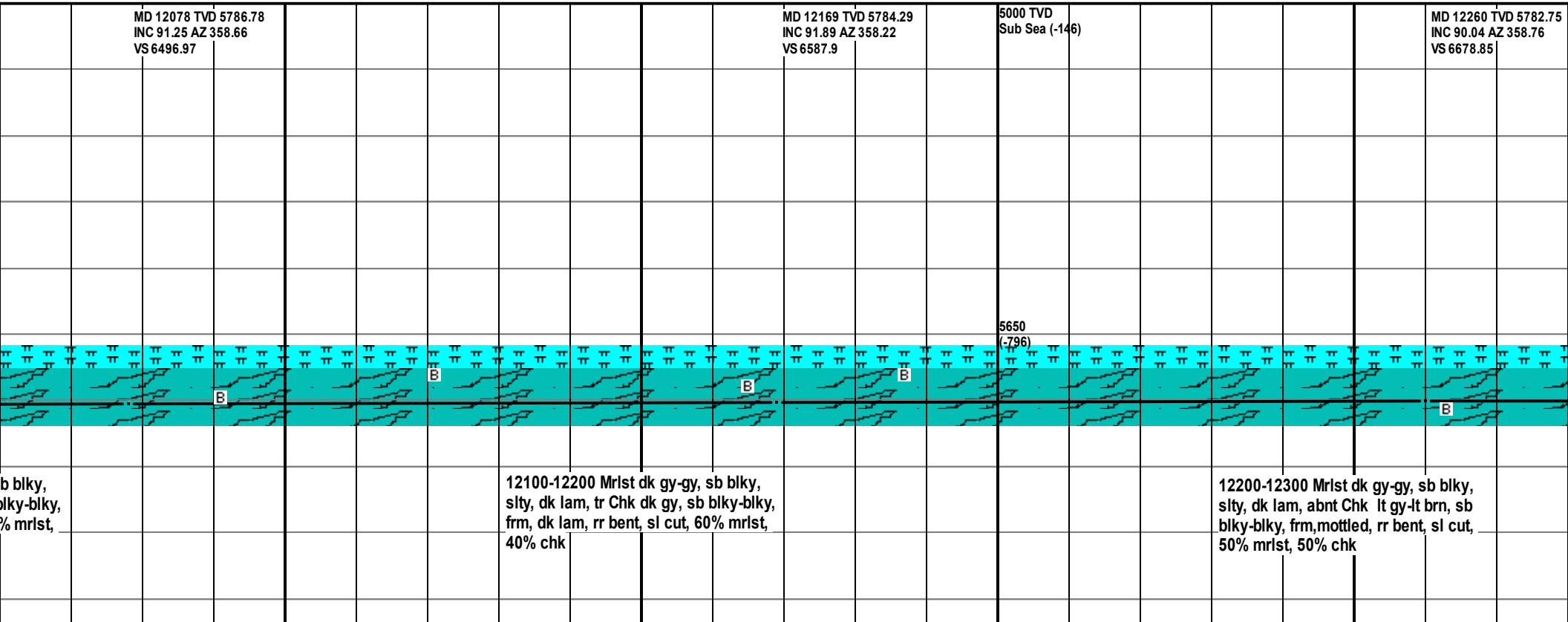
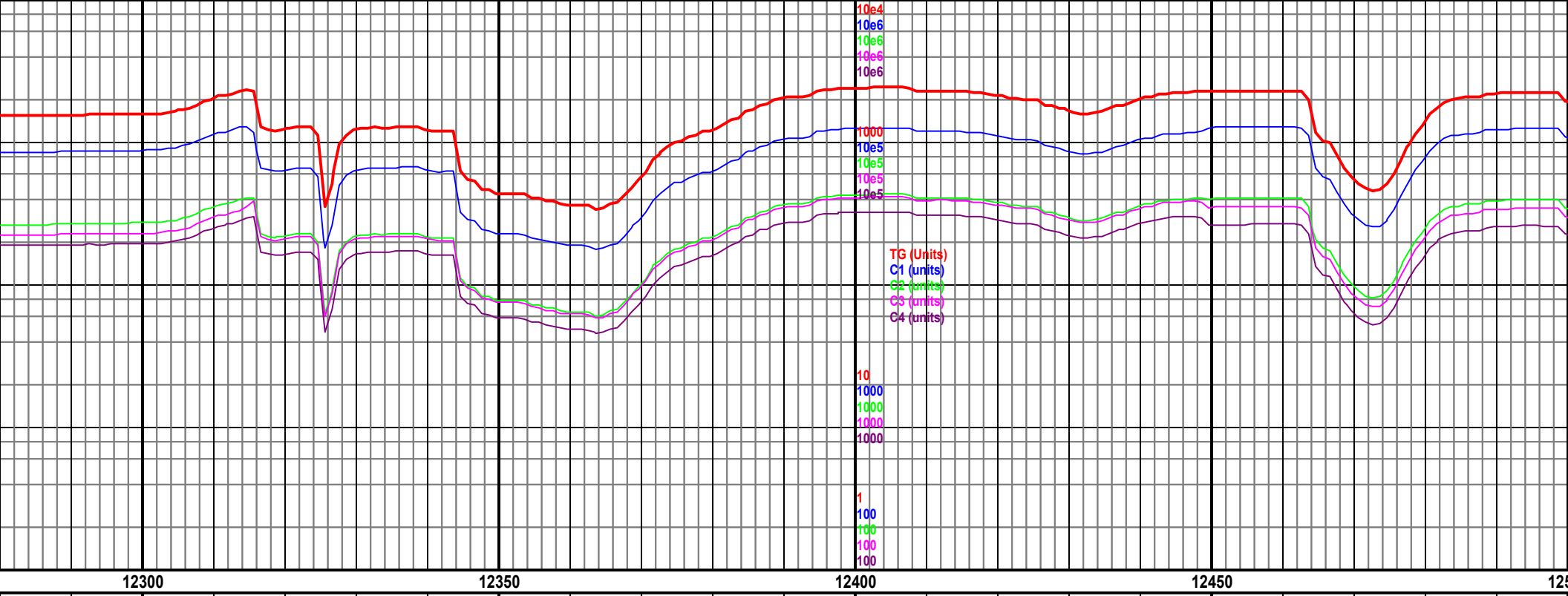

MD 12078 TVD 5786.78
INC 91.25 AZ 358.66
VS 6496.97
MD 12169 TVD 5784.29
INC 91.89 AZ 358.22
VS 6587.9
5000 TVD
Sub Sea (-146)
MD 12260 TVD 5782.75
INC 90.04 AZ 358.76
VS 6678.85
5650
(-796)
B
B
B
B
B
b blky,
lky-blky,
% mrlst,
12100-12200 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 60% mrlst, 40% chk
12200-12300 Mrlst dk gy-gy, sb blky, slty, dk lam, abnt Chk lt gy-lt brn, sb blky-blky, frm,mottled, rr bent, sl cut, 50% mrlst, 50% chk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10e6
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10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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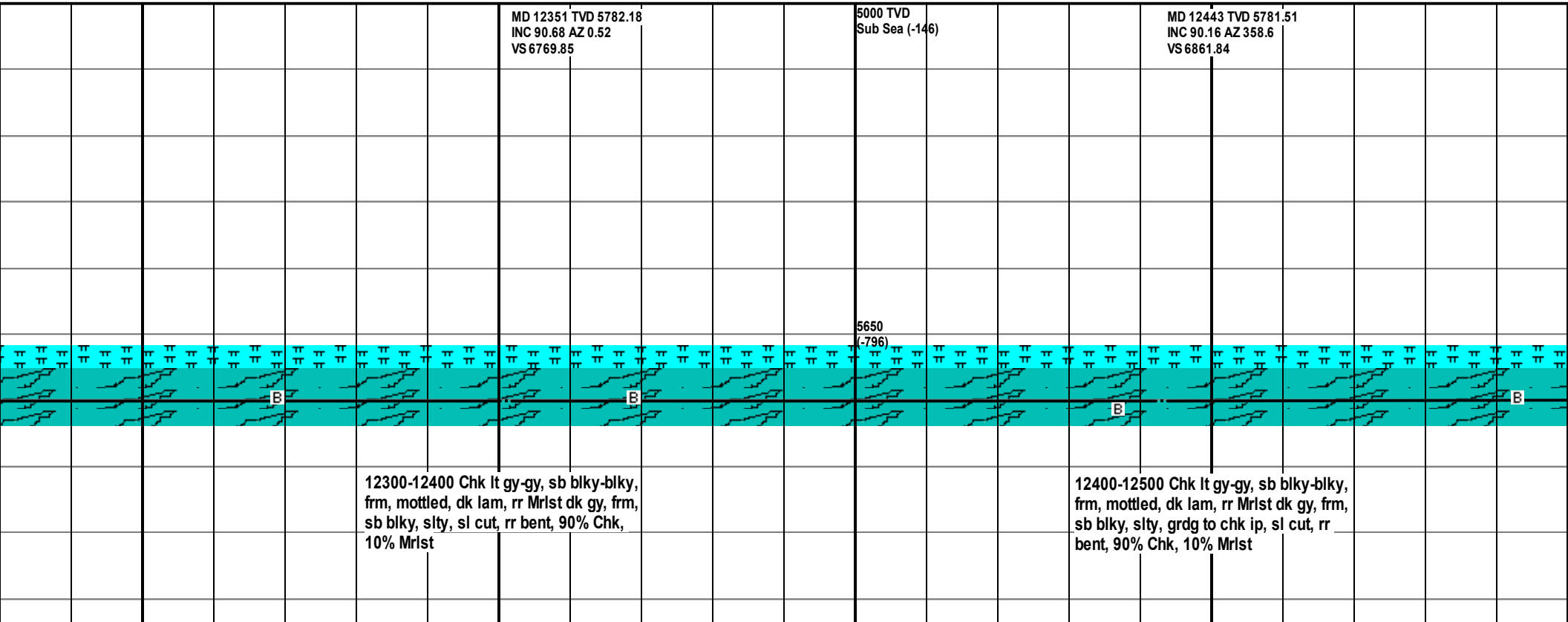
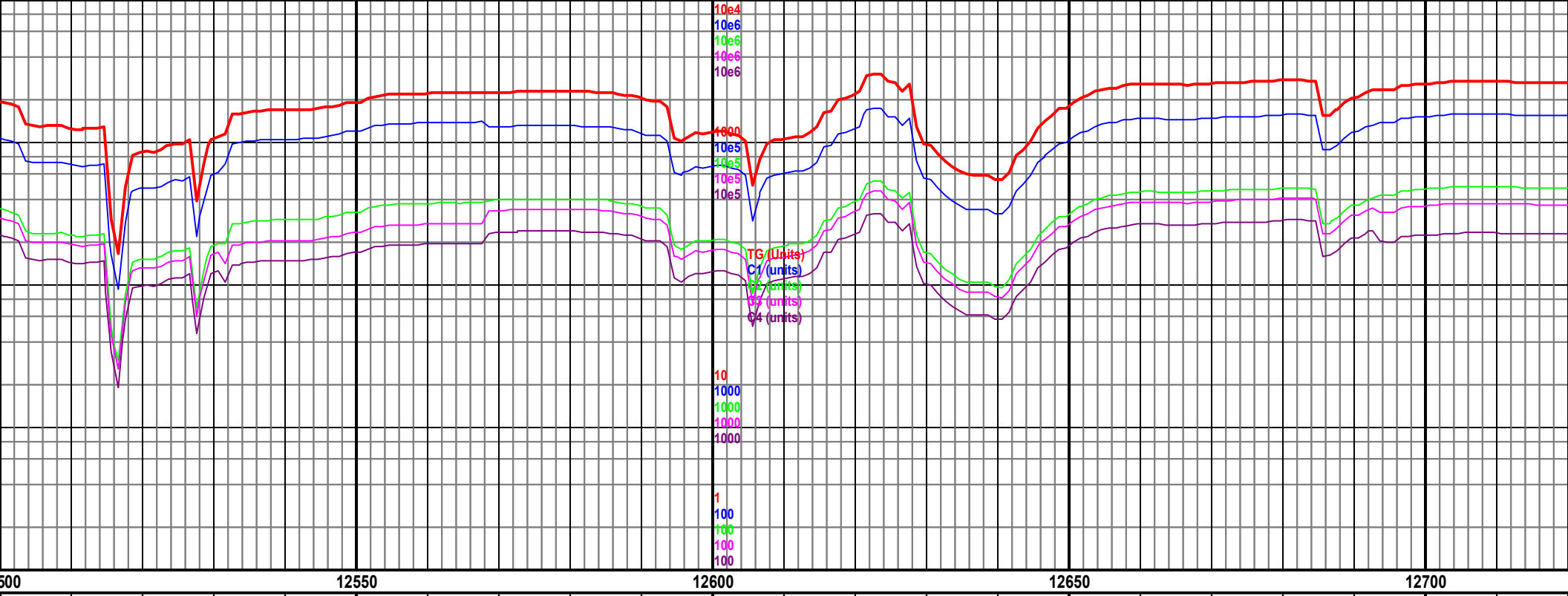
12450


MD 12351 TVD 5782.18
INC 90.68 AZ 0.52
VS 6769.85
5000 TVD
Sub Sea (-146)
MD 12443 TVD 5781.51
INC 90.16 AZ 358.6
VS 6861.84
5650
(-796)
B
B
B
B
12300-12400 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 90% Chk, 10% Mrlst
12400-12500 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, grdg to chk ip, sl cut, rr bent, 90% Chk, 10% 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
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100
100
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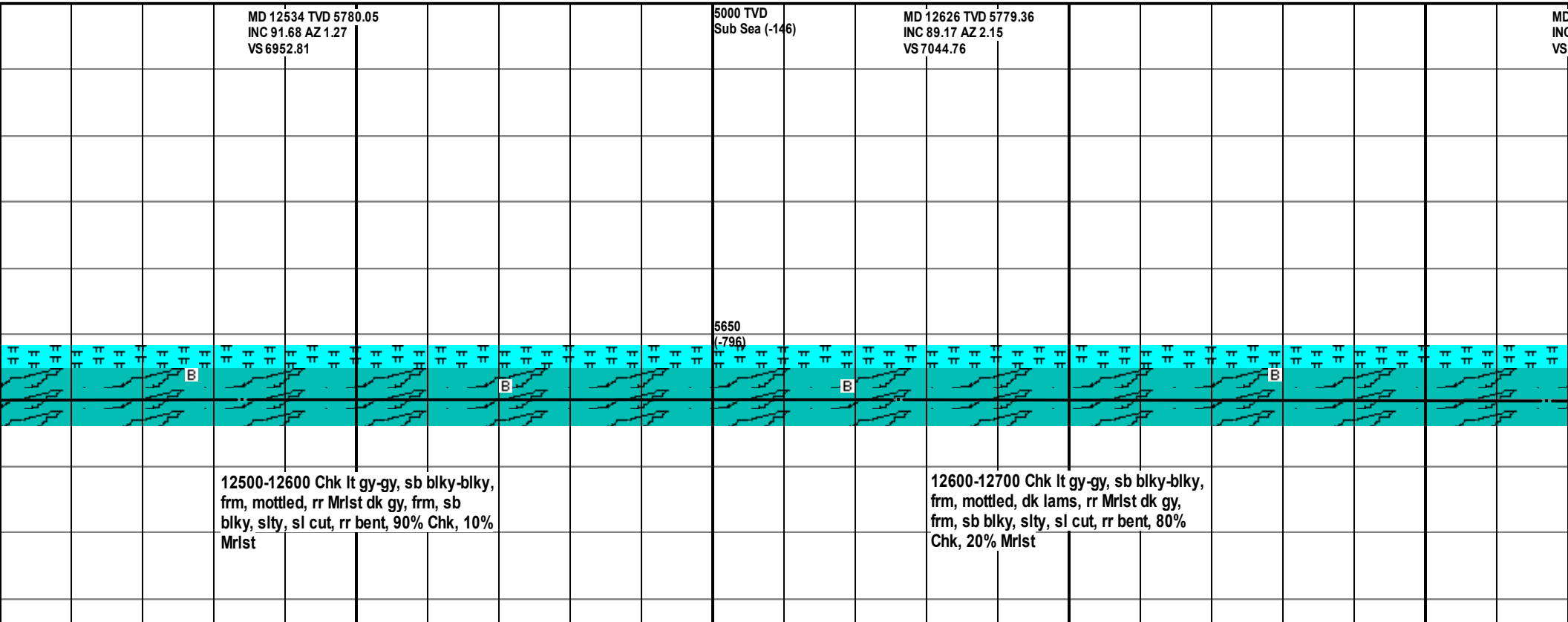
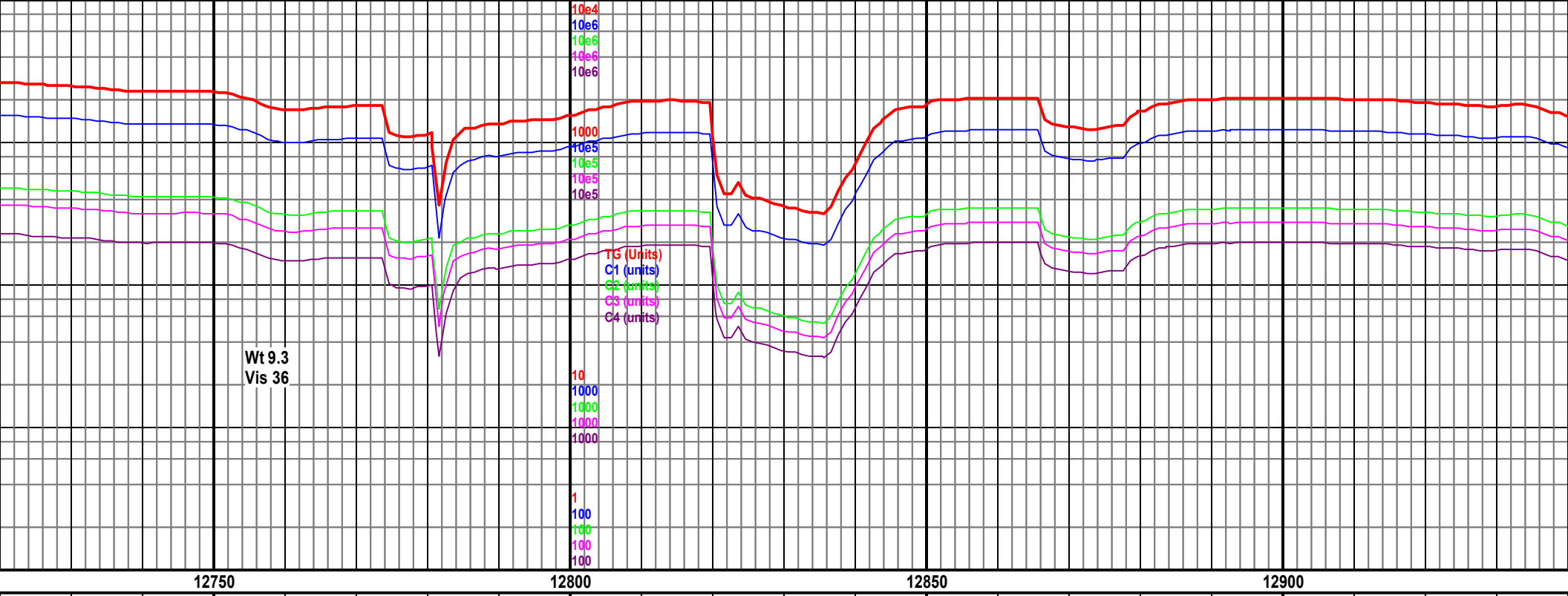
12550
12600
12650
12700


MD 12534 TVD 5780.05
INC 91.68 AZ 1.27
VS 6952.81
5000 TVD
Sub Sea (-146)
MD 12626 TVD 5779.36
INC 89.17 AZ 2.15
VS 7044.76
5650
(-796)
B
B
B
B
12500-12600 Chk lt gy-gy, sb blky-blky, frm, mottled, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 90% Chk, 10% Mrlst
12600-12700 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lams, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 80% Chk, 20% Mrlst


10e4
10e6
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10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.3
Vis 36
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1000
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100
100
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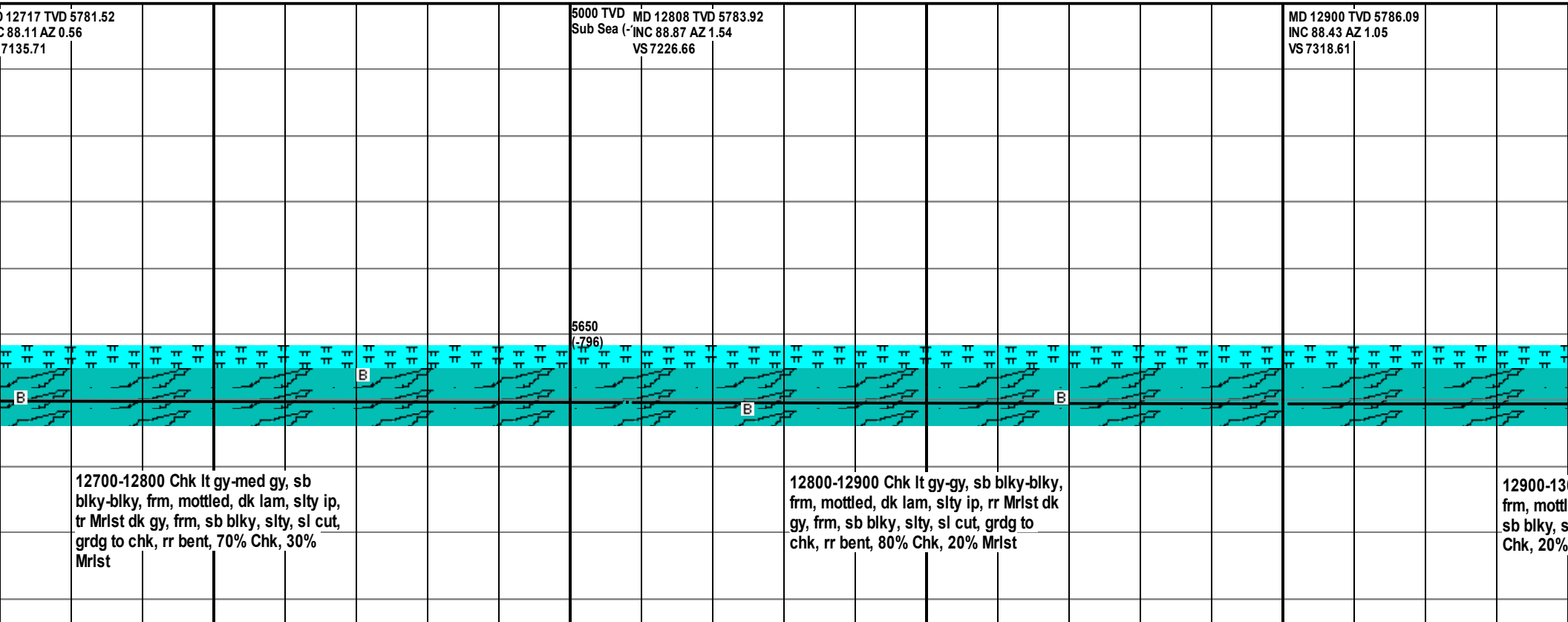
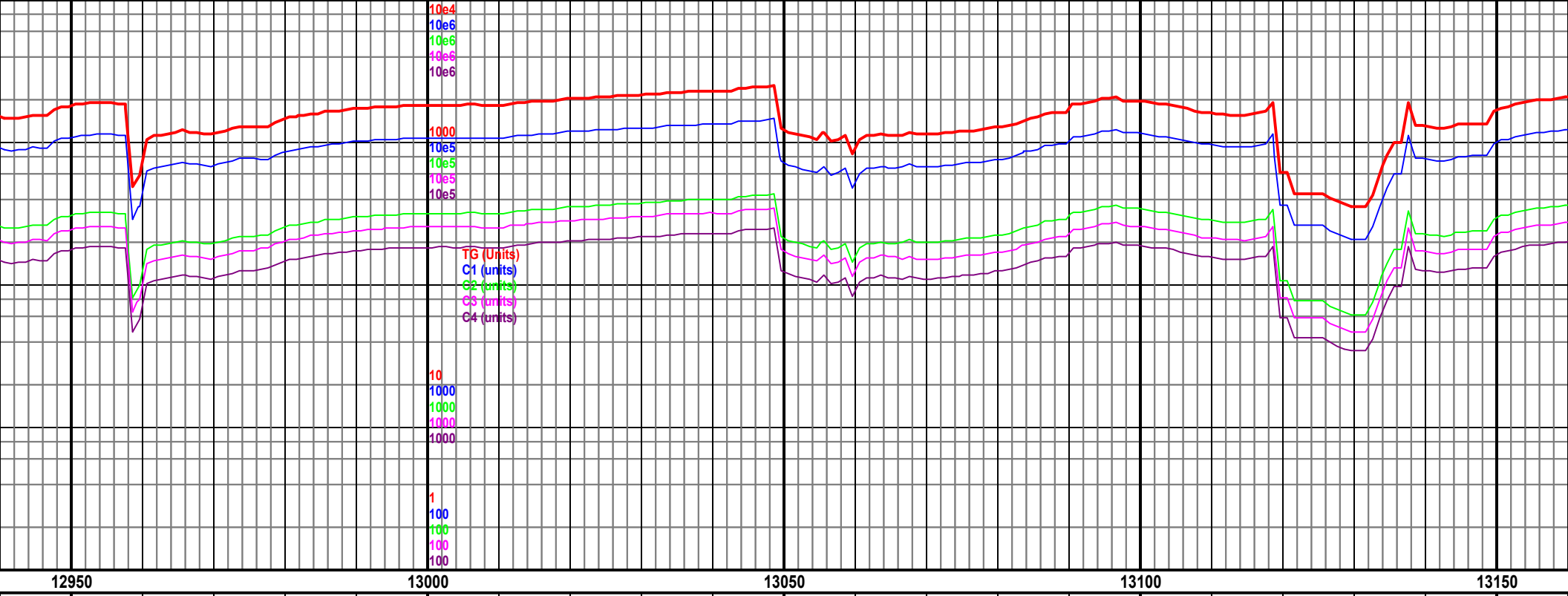
12750
12800
12850
12900


12717 TVD 5781.52
88.11 AZ 0.56
7135.71
5000 TVD
Sub Sea (-
MD 12808 TVD 5783.92
INC 88.87 AZ 1.54
VS 7226.66
MD 12900 TVD 5786.09
INC 88.43 AZ 1.05
VS 7318.61
5650
(-796)
B
B
B
B
12700-12800 Chk lt gy-med gy, sb blky-blky, frm, mottled, dk lam, slty ip, tr Mrlst dk gy, frm, sb blky, slty, sl cut, grdg to chk, rr bent, 70% Chk, 30% Mrlst
12800-12900 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, slty ip, rr Mrlst dk gy, frm, sb blky, slty, sl cut, grdg to chk, rr bent, 80% Chk, 20% Mrlst


10e4
10e6
10e6
10e6
10e6
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10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
1000
1000
1
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100
100
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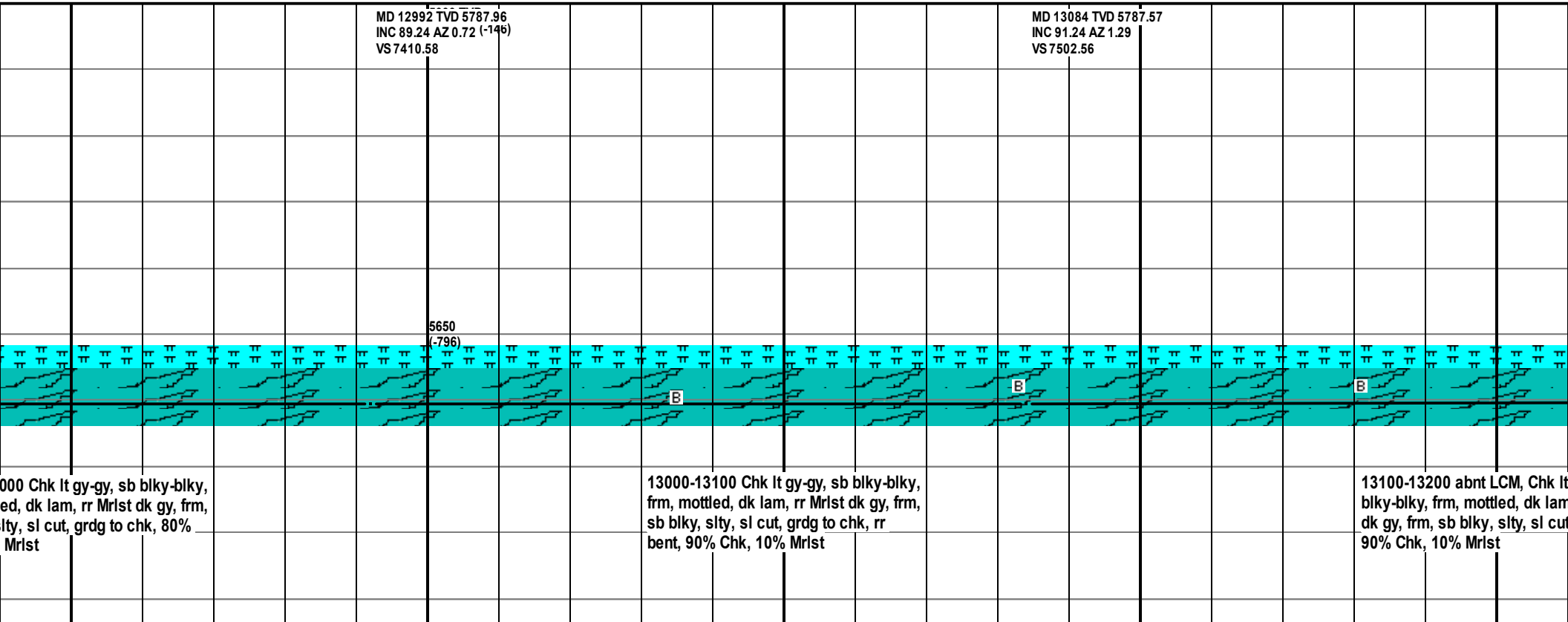
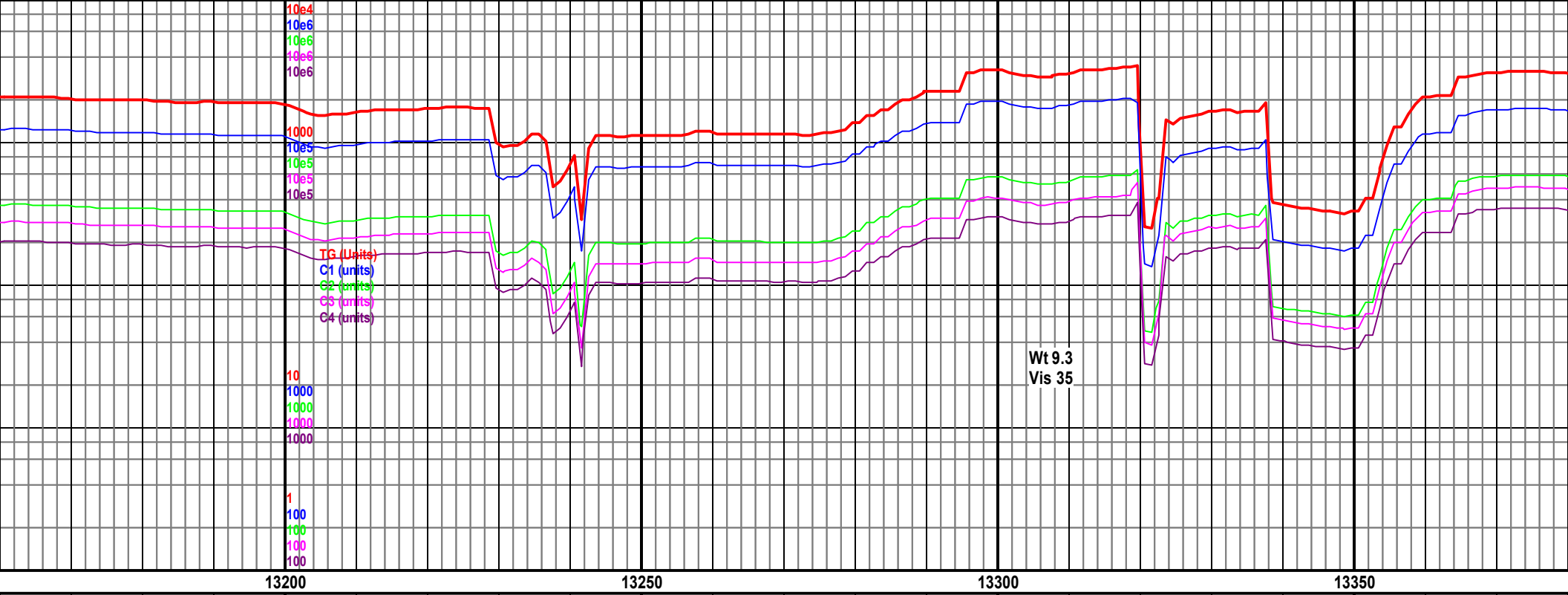
13000
13050
13100
13150


MD 12992 TVD 5787.96
INC 89.24 AZ 0.72 (-146)
VS 7410.58
MD 13084 TVD 5787.57
INC 91.24 AZ 1.29
VS 7502.56
5650
(-796)
B
B
B
000 Chk lt gy-gy, sb blky-blky,
ed, dk lam, rr Mrlst dk gy, frm,
lty, sl cut, grdg to chk, 80%
Mrlst
13000-13100 Chk lt gy-gy, sb blky-blky,
frm, mottled, dk lam, rr Mrlst dk gy, frm,
sb blky, slty, sl cut, grdg to chk, rr
bent, 90% Chk, 10% Mrlst
13100-13200 abnt LCM, Chk lt
blky-blky, frm, mottled, dk lam
dk gy, frm, sb blky, slty, sl cut
90% Chk, 10% Mrlst


10e4
10e6
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10e6
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10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
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100
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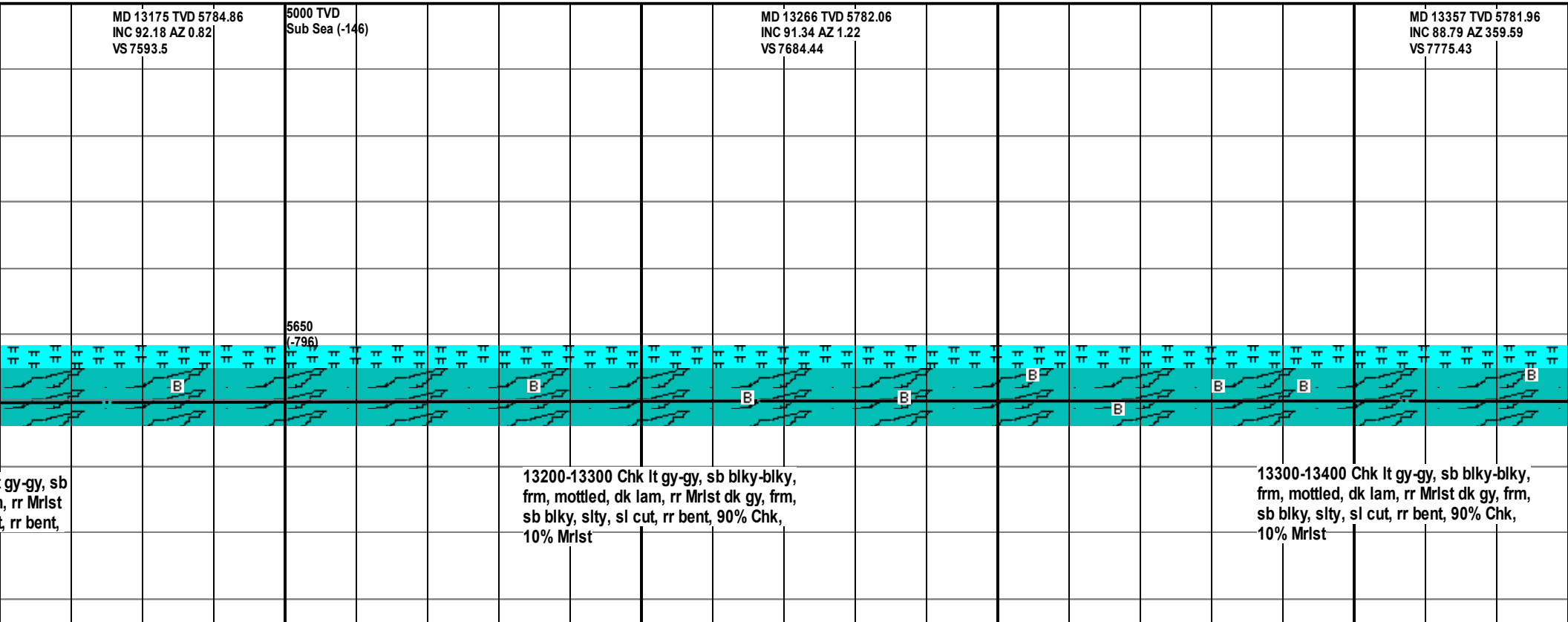
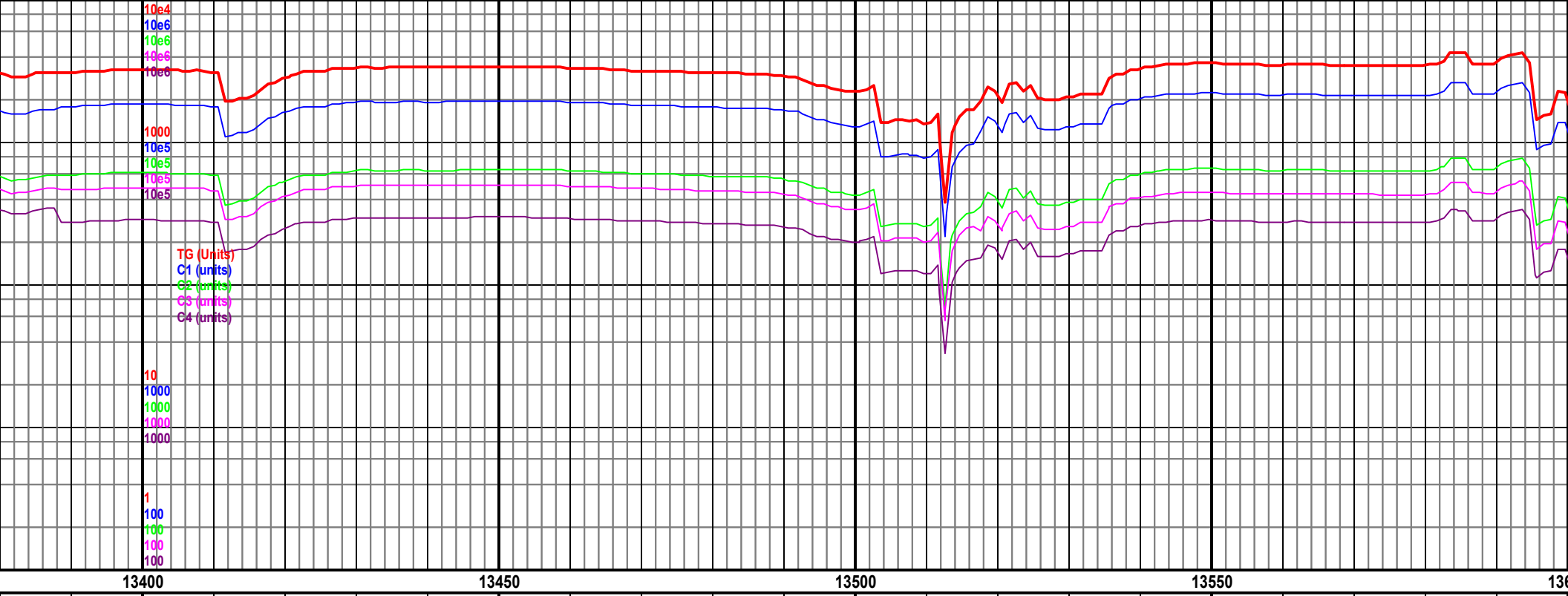
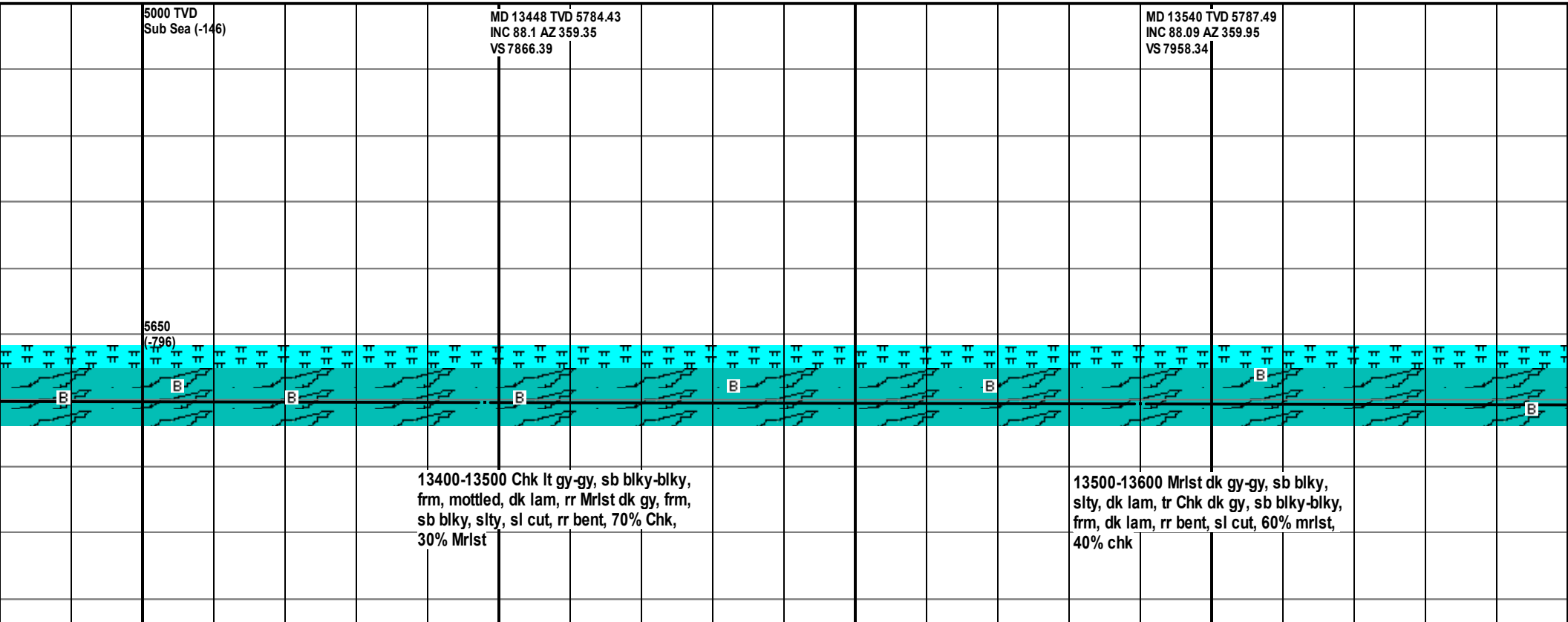
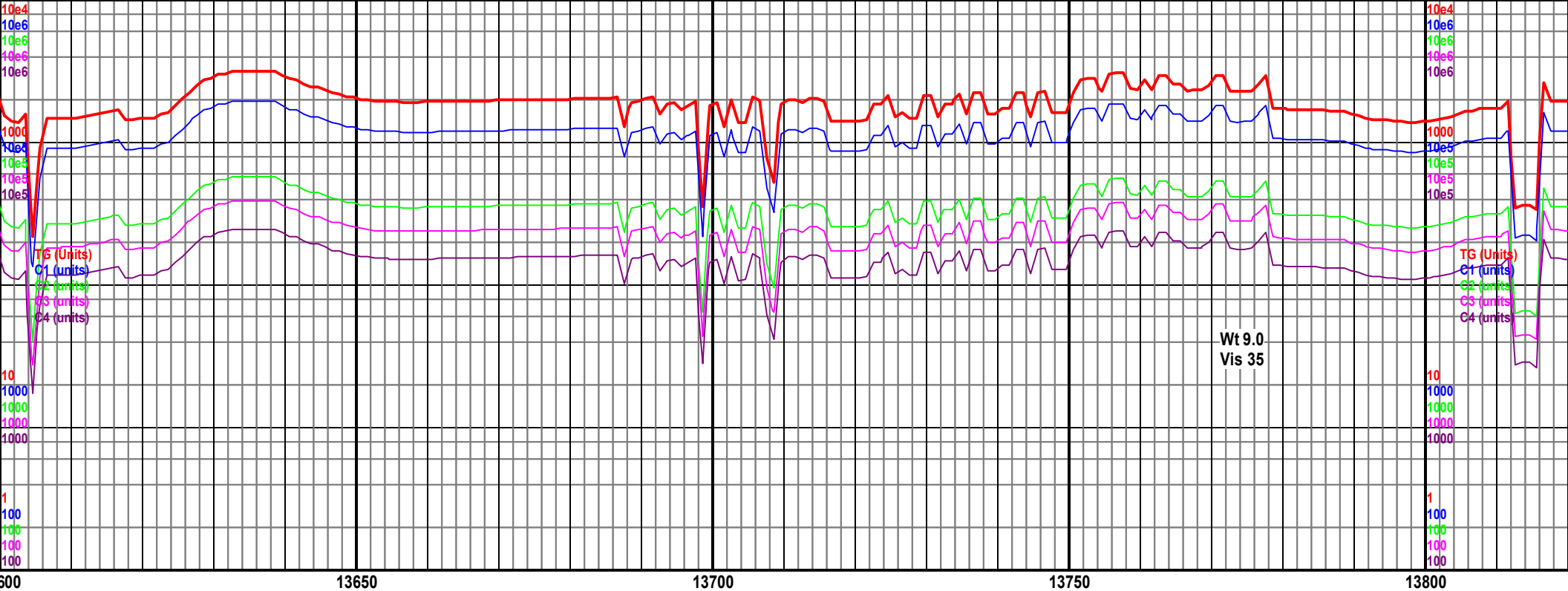
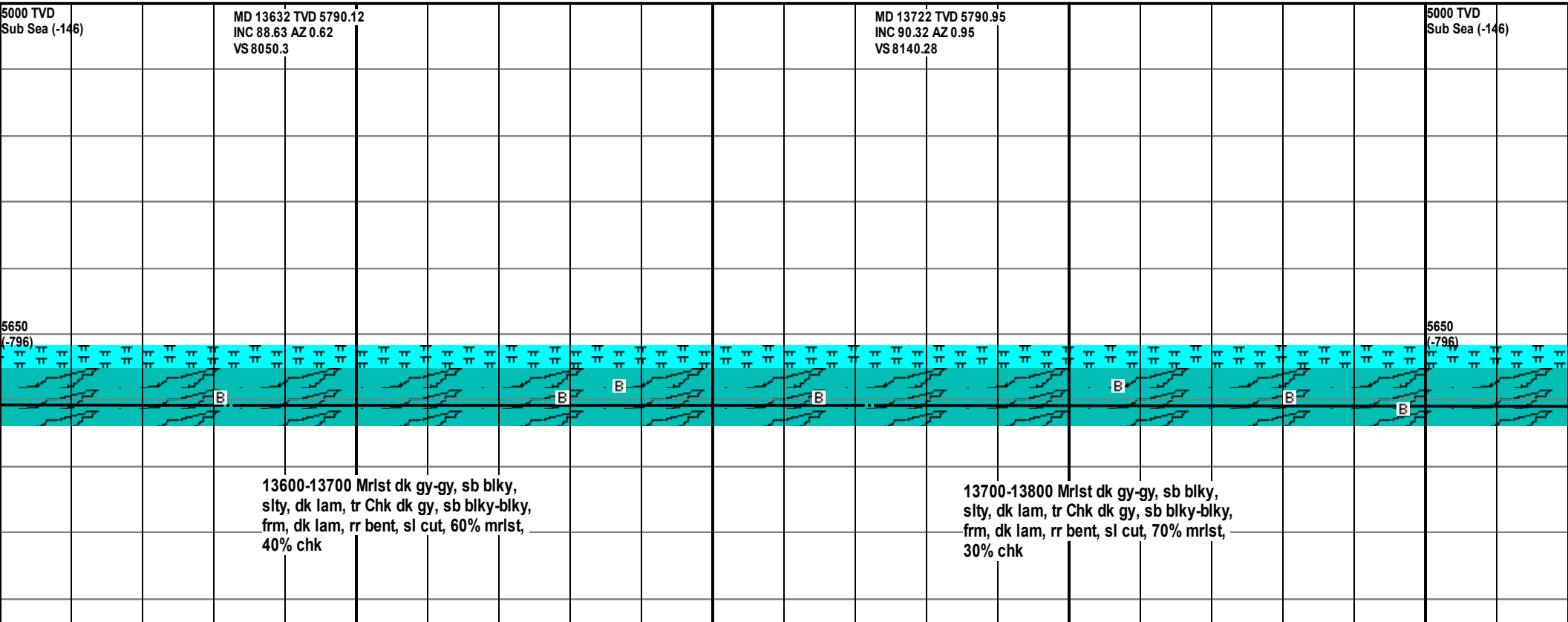
100
100
Wt 9.3
Vis 35
13200
13250
13300
13350

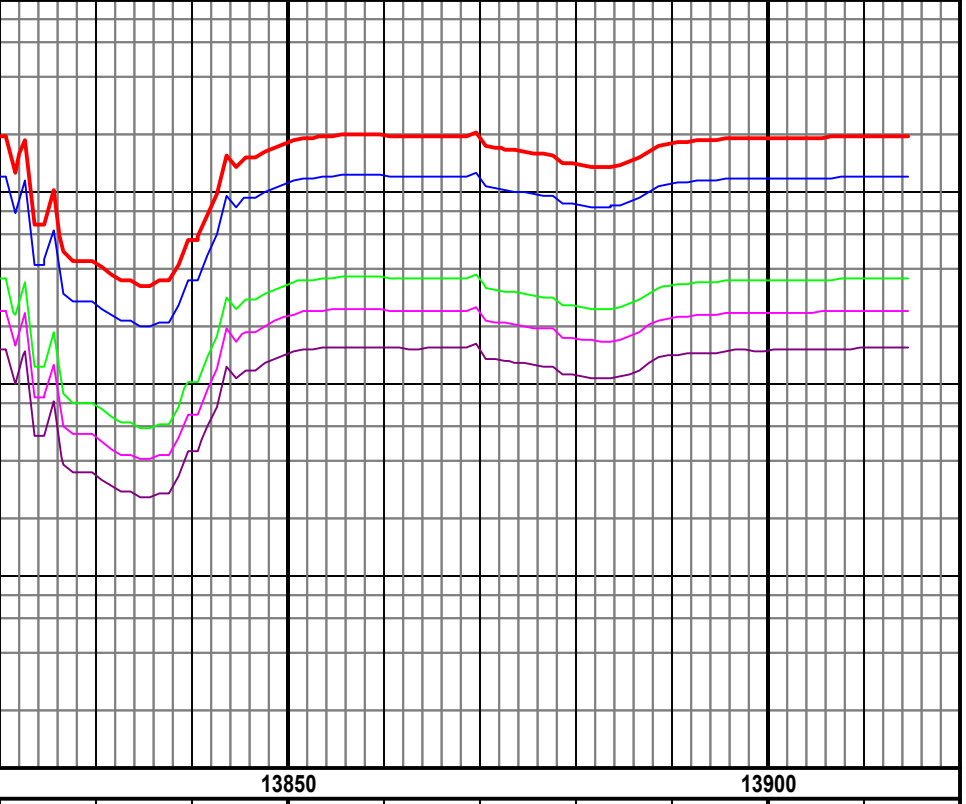

MD 13175 TVD 5784.86
INC 92.18 AZ 0.82
VS 7593.5
5000 TVD
Sub Sea (-146)
MD 13266 TVD 5782.06
INC 91.34 AZ 1.22
VS 7684.44
MD 13357 TVD 5781.96
INC 88.79 AZ 359.59
VS 7775.43
5650
(-796)
B
gy-gy, sb
, rr Mrlst
, rr bent,
13200-13300 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 90% Chk, 10% Mrlst
13300-13400 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 90% Chk, 10% 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
13400
13450
13500
13550
136


5000 TVD
Sub Sea (-146)
MD 13448 TVD 5784.43
INC 88.1 AZ 359.35
VS 7866.39
MD 13540 TVD 5787.49
INC 88.09 AZ 359.95
VS 7958.34
5650
(-796)
B
13400-13500 Chk lt gy-gy, sb blky-blky, frm, mottled, dk lam, rr Mrlst dk gy, frm, sb blky, slty, sl cut, rr bent, 70% Chk, 30% Mrlst
13500-13600 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 60% mrlst, 40% chk


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.0
Vis 35
600
13650
13700
13750
13800


5000 TVD
Sub Sea (-146)
MD 13632 TVD 5790.12
INC 88.63 AZ 0.62
VS 8050.3
MD 13722 TVD 5790.95
INC 90.32 AZ 0.95
VS 8140.28
5650
(-796)
B
13600-13700 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 60% mrlst, 40% chk
13700-13800 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 70% mrlst, 30% chk

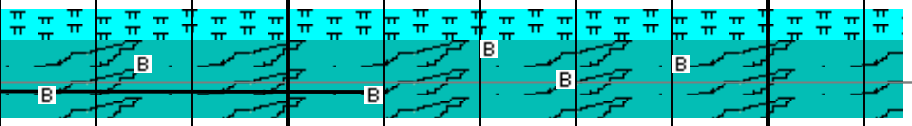


13850

13900

MD 13860 TVD 5791.68
INC 89.07 AZ 356.99
VS 8278.23

TD reached 13915' at 22:45 on 10/19/2014



13800-13915 Mrlst dk gy-gy, sb blky, slty, dk lam, tr Chk dk gy, sb blky-blky, frm, dk lam, rr bent, sl cut, 70% mrlst, 30% chk