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

Well Name:	**Razor 27K-3405A**
Location:	**NESW 27-T10N-R58W**
License Number:	**05-123-37748**
Region:	**Redtail Field**
Spud Date:	**8/8/2013**
Drilling Completed:	
Surface Coordinates:	**Lat.: 40.808608 Long.: -103.853331**
Bottom Hole Coordinates:	**Lat.: 40.787978 Long.: -103.854572**
Ground Elevation (ft):	**4750**
K.B. Elevation (ft):	**4767**
Logged Interval (ft):	**5100 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.co

OPERATOR

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

GEOLOGIST

Name: **Todd Nakata, Mark Denler**
Company: **Acme Geologic Consulting**
Address: **108 Berry Street**
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig 21

Gas Detection

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

Comments

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

ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Cyan mrlst
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Cyan chk
- Chalk

ACCESSORIES

MINERAL

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

FOSSIL

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

STRINGER

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

TEXTURE

- 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

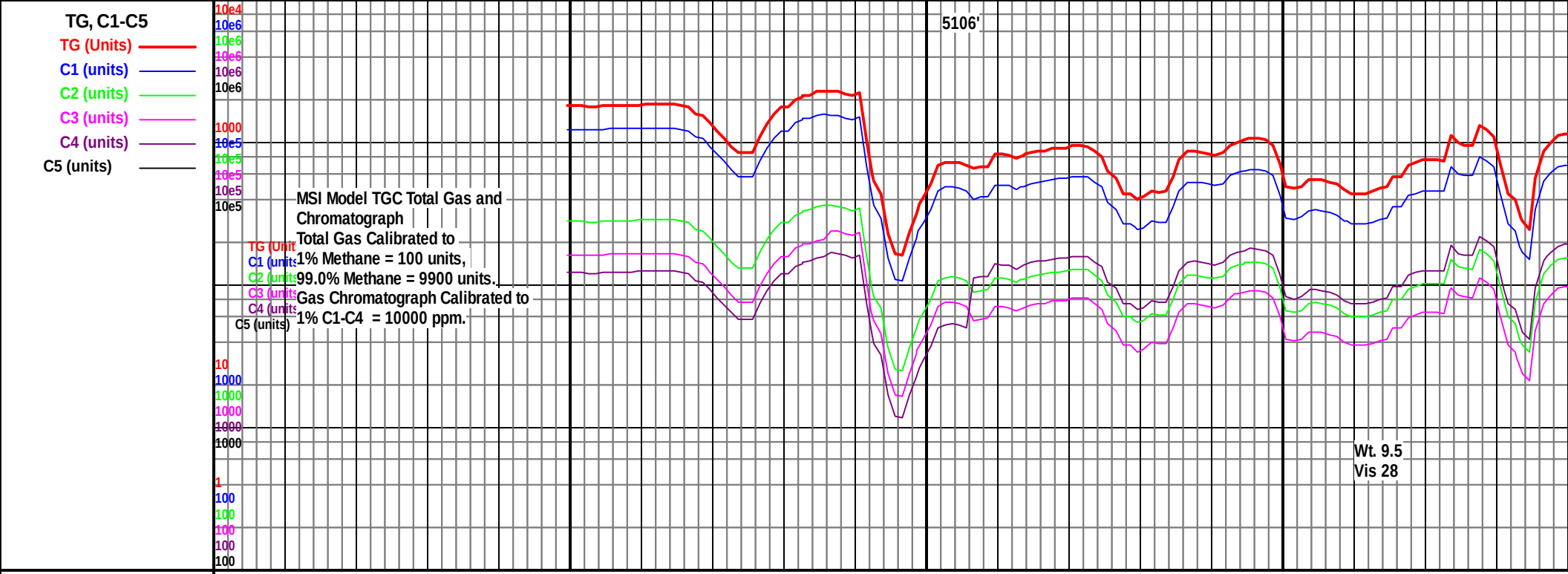
- Even
- Spotted
- Ques
- Dead

INTERVAL

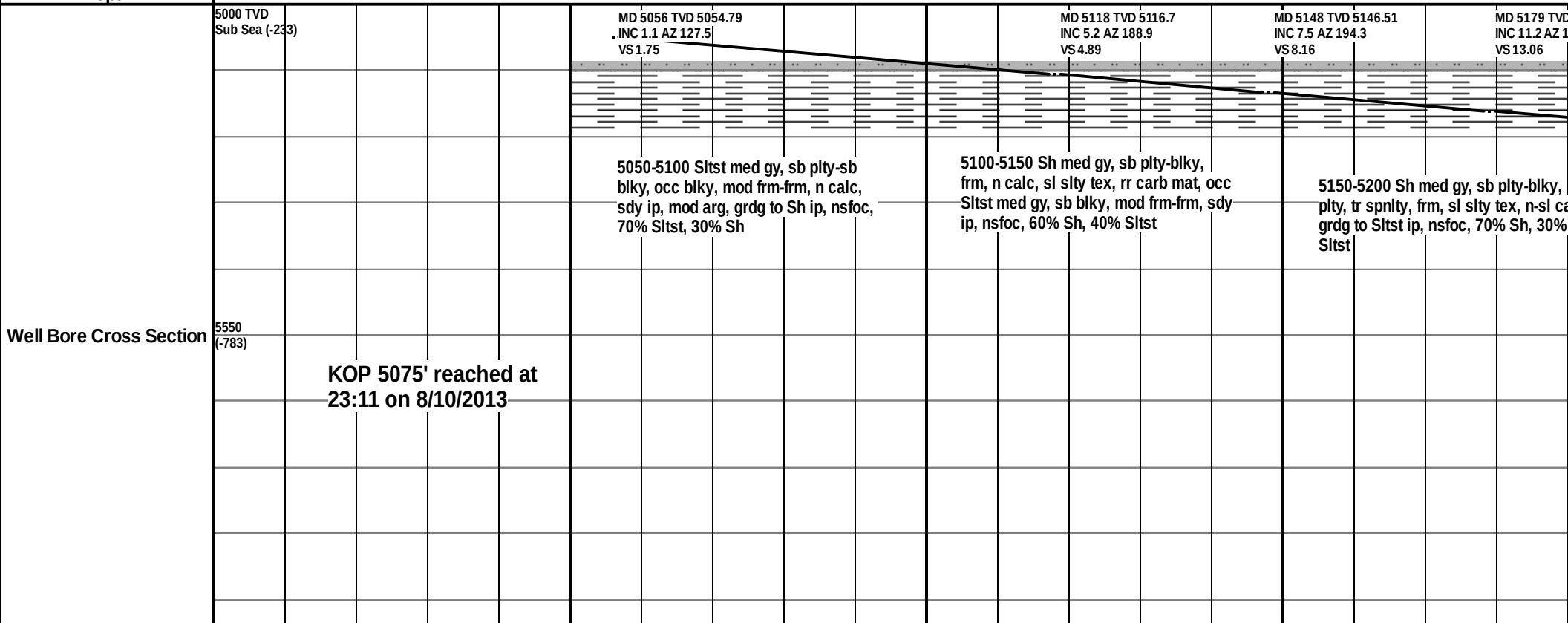
- Core
- Dst

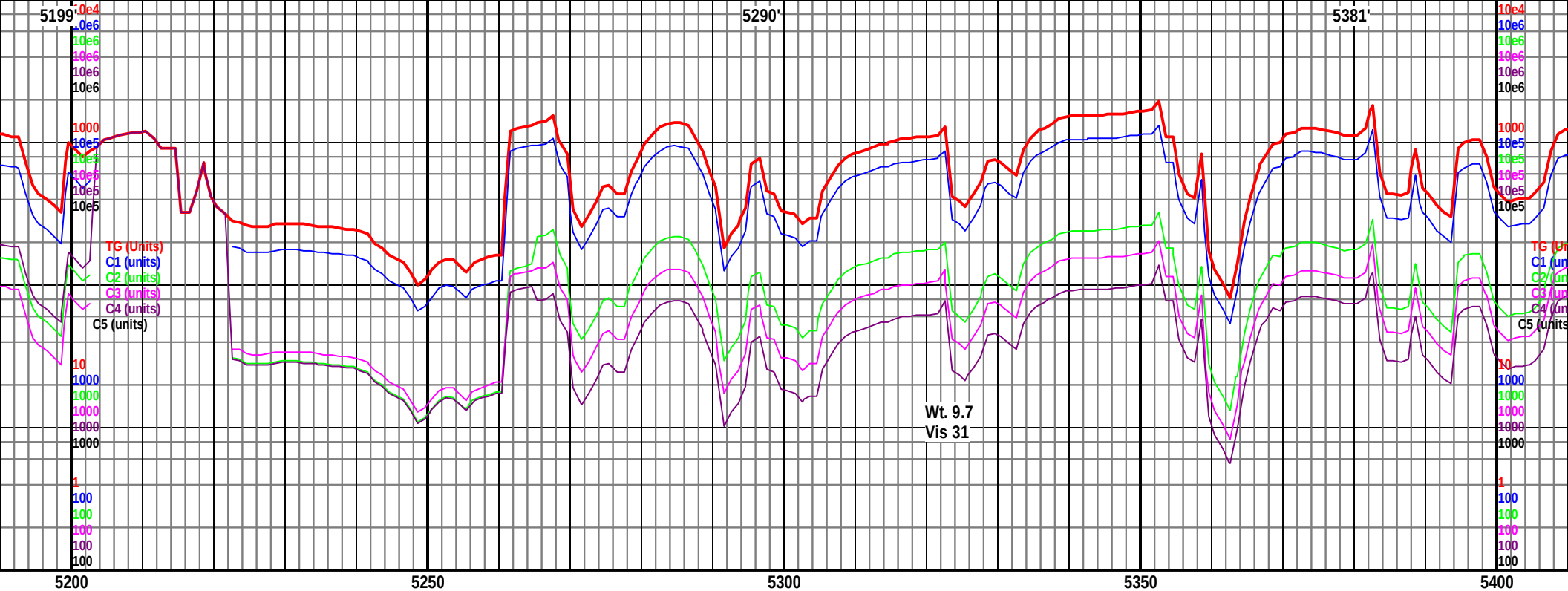
EVENT

- Rft
- Sidewall


TG, C1-C5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
5106'
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.
Wt. 9.5
Vis 28

Depth
00
5050
5100
5150


Well Bore Cross Section
5000 TVD
Sub Sea (-233)
5550
(-783)
MD 5056 TVD 5054.79
INC 1.1 AZ 127.5
VS 1.75
MD 5118 TVD 5116.7
INC 5.2 AZ 188.9
VS 4.89
MD 5148 TVD 5146.51
INC 7.5 AZ 194.3
VS 8.16
MD 5179 TVD
INC 11.2 AZ 1
VS 13.06
5050-5100 Sltst med gy, sb plty-sb blky, occ blky, mod frm-frm, n calc, sdy ip, mod arg, grdg to Sh ip, nsfoc, 70% Sltst, 30% Sh
5100-5150 Sh med gy, sb plty-blky, frm, n calc, sl slty tex, rr carb mat, occ Sltst med gy, sb blky, mod frm-frm, sdy ip, nsfoc, 60% Sh, 40% Sltst
5150-5200 Sh med gy, sb plty-blky, plty, tr spnlty, frm, sl slty tex, n-sl ca grdg to Sltst ip, nsfoc, 70% Sh, 30% Sltst
KOP 5075' reached at
23:11 on 8/10/2013



MD 5177.09
97.2

5000 TVD
Sub Sea (-23

MD 5209 TVD 5206.34
INC 14.5 AZ 196
VS 19.54

MD 5239 TVD 5235.12
INC 18.2 AZ 196.1
VS 27.76

MD 5270 TVD 5264.14
INC 22.9 AZ 197.7
VS 38.31

MD 5300 TVD 5291.35
INC 26.9 AZ 199.9
VS 50.45

MD 5331 TVD 5318.65
INC 29.6 AZ 202
VS 64.39

MD 5361 TVD 5344.53
INC 31.2 AZ 202.2
VS 78.72

MD 5392 TVD 5370.61
INC 34.2 AZ 201.4 (-23

VS 94.56

alc,

5200-5250 Sh med gy, lt gy ip, sb plty-blky, plty, frm, sl slty tex, n-sl calc, grdg to Sltst ip, occ Sltst med gy, sb blky, n calc, nsfoc, 70% Sh, 30% Sltst

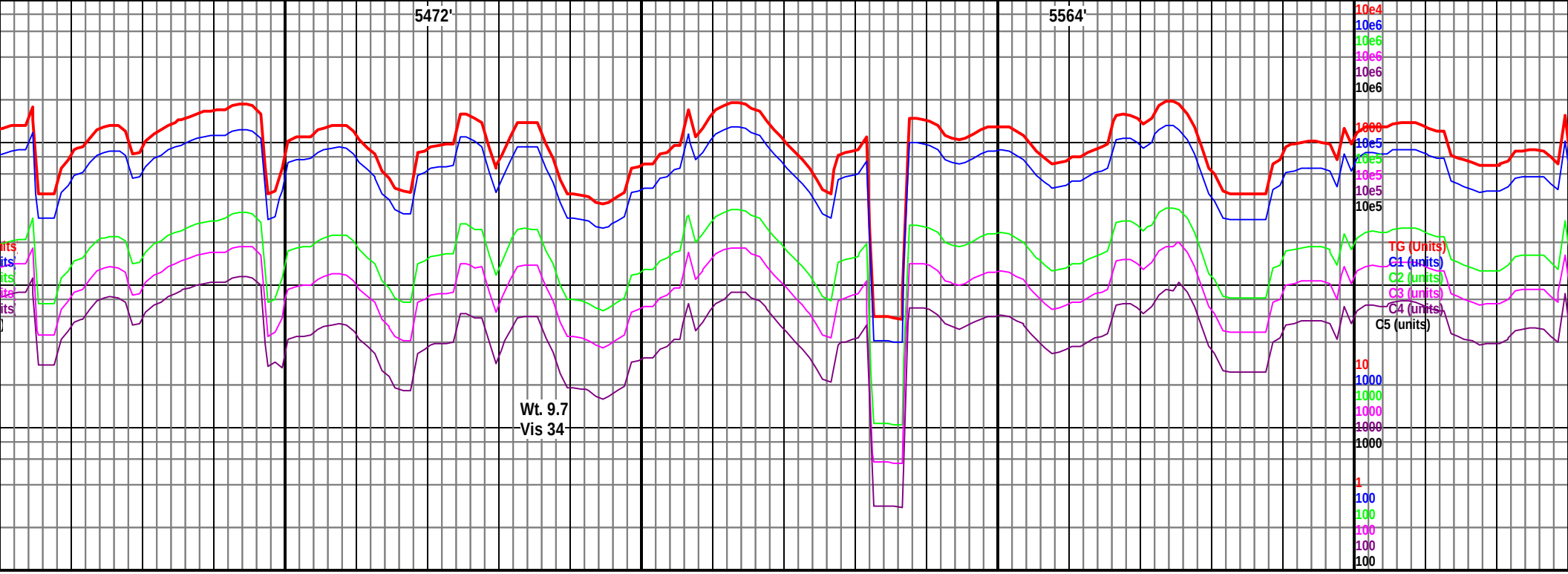
5250-5300 Sh med gy, sb plty-blky, plty, frm-mod frm, sl slty tex, n-sl calc, tr carb mat, occ Sltst med gy, sb plty-sb blky, n calc, frm, nsfoc, 70% Sh, 30% Sltst

5300-5350 Sh med gy, sb plty-blky, occ plty, frm, sl slty tex, sl-n calc, tr carb mat, grdg to Sltst ip, occ Sltst med gy, sb plty-sb blky, sdy ip, sl calc, rr Ss trnsl off wht, vf gr, sb rd-sb ang, cons, calc cmt, w srt, tr bri yel flor, nsoc, 80% Sh, 20% Sltst

5350-5400 Sh med gy, blky-sb plty, tr plty, frm, sl slty tex, n calc, occ Sltst med gy, sb plty-sb blky ip, sdy ip, n calc, nsfoc, 70% Sh, 30% Sltst

5550
(-783)

5550
(-783)



MD 5422 TVD 5394.92
INC 37.5 AZ 200.7
VS 111.25

MD 5452 TVD 5418.09
INC 41.4 AZ 198.9
VS 129.48

MD 5483 TVD 5440.72
INC 44.8 AZ 197.3
VS 149.91

MD 5514 TVD 5462.07
INC 48.1 AZ 195.2
VS 171.77

MD 5544 TVD 5481.4
INC 51.7 AZ 193.9
VS 194.23

MD 5575 TVD 5499.85
INC 55.2 AZ 194.5
VS 218.65

MD 5605 TVD 5516.65
INC 56.7 AZ 194.2
VS 243

5000 T
Sub Se

400-5450 Sh med gy, sb plty-blky, occ
ty-sb blky, sl slty tex, n calc, tr carb
at, tr Sltst med-lt gy, sb blky, sdy ip,
-mod calc, frm, nsfoc, 90% Sh, 10%
tst

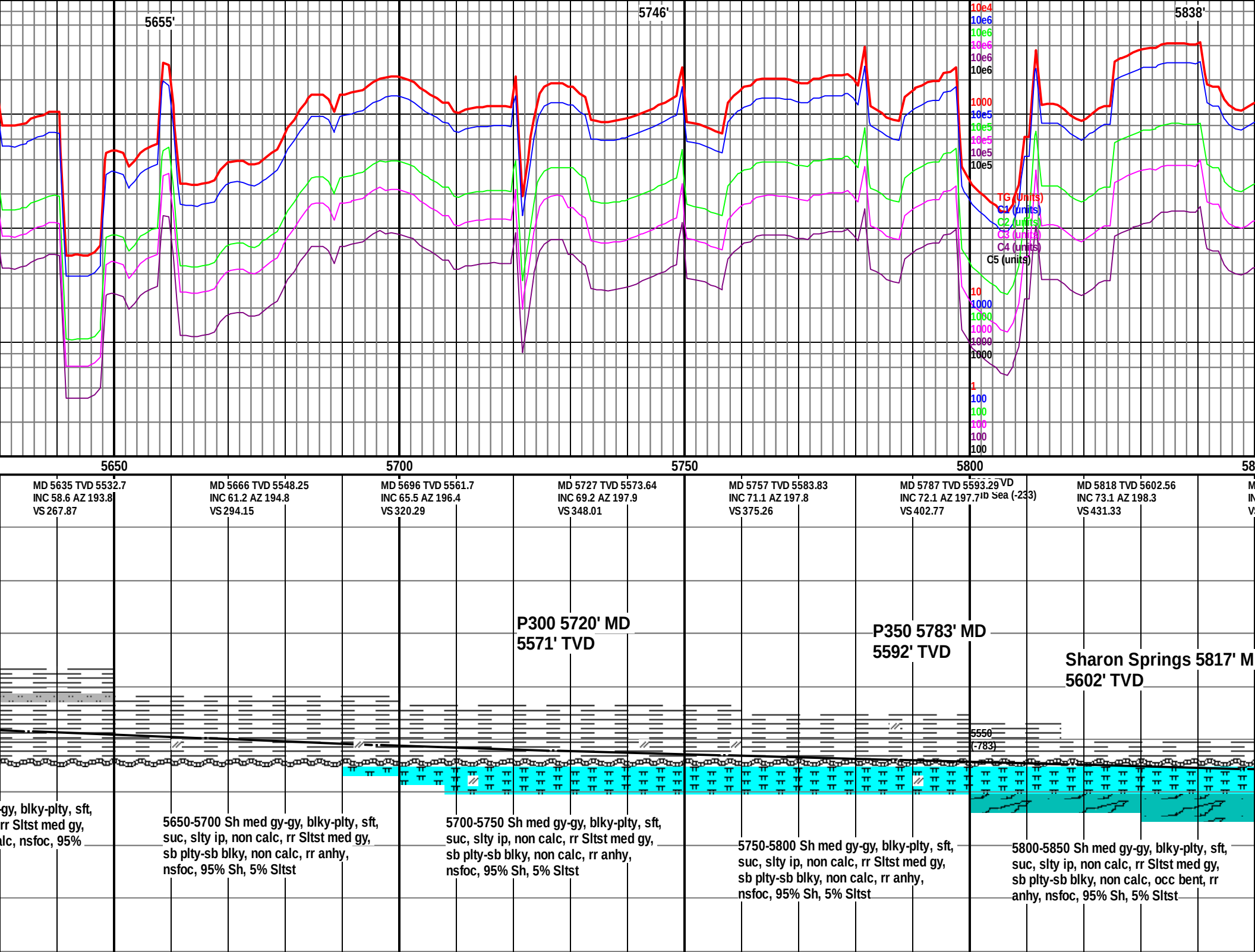
5450-5500 Sh med gy-gy, blky-plty, sft, suc, slty ip, non calc, rr Sltst med gy, sb plty-sb blky, non calc, nsfoc, 90% Sh, 10% Sltst

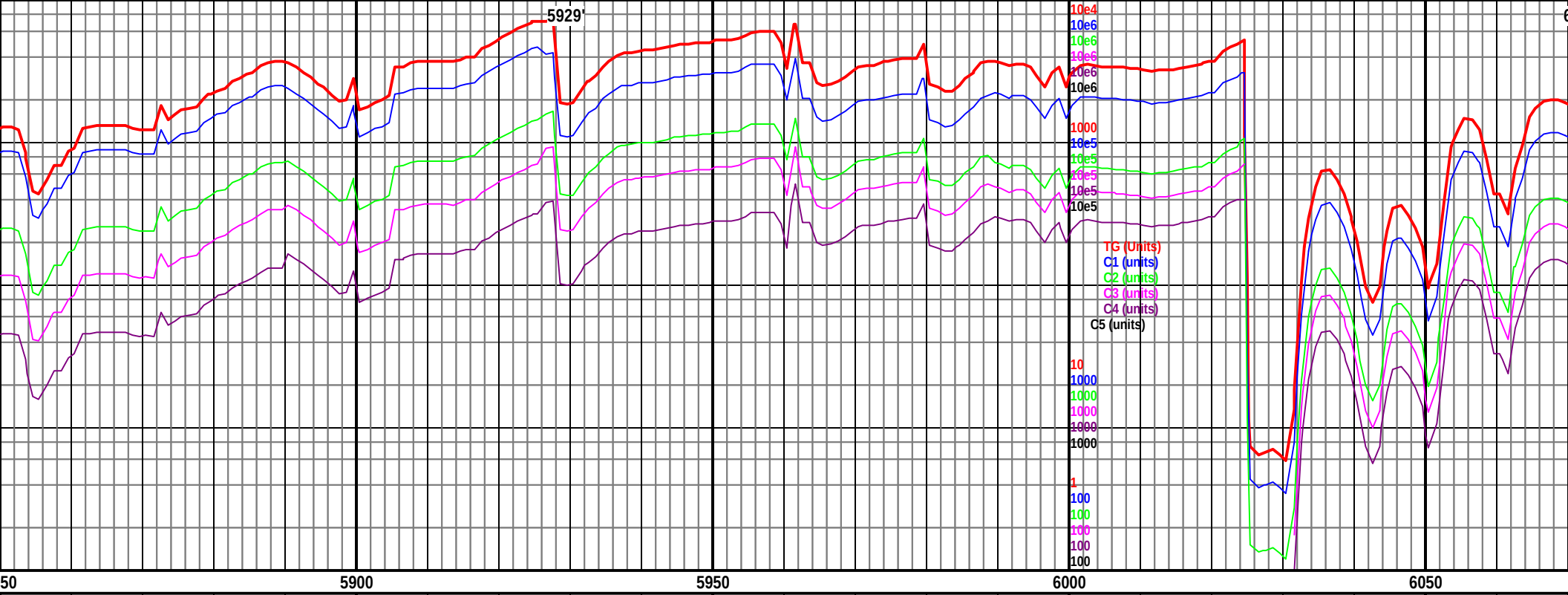
5500-5550 Sh med gy-gy, blky-plty, sft, suc, slty ip, non calc, rr Sltst med gy, sb plty-sb blky, non calc, nsfoc, 95% Sh, 5% Sltst

5550-5600 Sh med gy-gy, blky-plty, sft, suc, slty ip, non calc, rr Sltst med gy, sb plty-sb blky, non calc, bent, nsfoc, 95% Sh, 5% Sltst

5600-5650 Sh med gy-
suc, slty ip, non calc,
sb plty-sb blky, non ca
Sh, 5% Sltst

B
B
5550
(-783)


5655'
5746'
5838'
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
5650
5700
5750
5800
MD 5635 TVD 5532.7
INC 58.6 AZ 193.8
VS 267.87
MD 5666 TVD 5548.25
INC 61.2 AZ 194.8
VS 294.15
MD 5696 TVD 5561.7
INC 65.5 AZ 196.4
VS 320.29
MD 5727 TVD 5573.64
INC 69.2 AZ 197.9
VS 348.01
MD 5757 TVD 5583.83
INC 71.1 AZ 197.8
VS 375.26
MD 5787 TVD 5593.29
INC 72.1 AZ 197.7
VS 402.77
MD 5818 TVD 5602.56
INC 73.1 AZ 198.3
VS 431.33
P300 5720' MD
5571' TVD
P350 5783' MD
5592' TVD
Sharon Springs 5817' M
5602' TVD
5550
(-783)
-gy, blky-plty, sft,
rr Sltst med gy,
alc, nsfoc, 95%
5650-5700 Sh med gy-gy, blky-plty, sft,
suc, slty ip, non calc, rr Sltst med gy,
sb plty-sb blky, non calc, rr anhy,
nsfoc, 95% Sh, 5% Sltst
5700-5750 Sh med gy-gy, blky-plty, sft,
suc, slty ip, non calc, rr Sltst med gy,
sb plty-sb blky, non calc, rr anhy,
nsfoc, 95% Sh, 5% Sltst
5750-5800 Sh med gy-gy, blky-plty, sft,
suc, slty ip, non calc, rr Sltst med gy,
sb plty-sb blky, non calc, rr anhy,
nsfoc, 95% Sh, 5% Sltst
5800-5850 Sh med gy-gy, blky-plty, sft,
suc, slty ip, non calc, rr Sltst med gy,
sb plty-sb blky, non calc, occ bent, rr
anhy, nsfoc, 95% Sh, 5% Sltst



MD 5848 TVD 5610.71
INC 75.4 AZ 197.9
VS 459.18

MD 5879 TVD 5617.6
INC 78.9 AZ 197.9
VS 488.36

MD 5910 TVD 5622.61
INC 82.5 AZ 198.5
VS 517.86

MD 5930 TVD 5625.15
INC 82.9 AZ 198.5
VS 536.96

MD 5974 TVD 5629.75
INC 85.1 AZ 198.6
VS 579.09

5000 TVD
Sub Sea (-233)

MD 6020 TVD 5632.04
INC 89.2 AZ 200.9
VS 623.03

D

Niobrara A 5833' MD
5607' TVD

N100 5914' MD
5623' TVD

Intermediate casing 6024' reached at 16:10 on 8/11/2013; Resume drilling at 22:46 on 8/12/2013

5550
(-783)

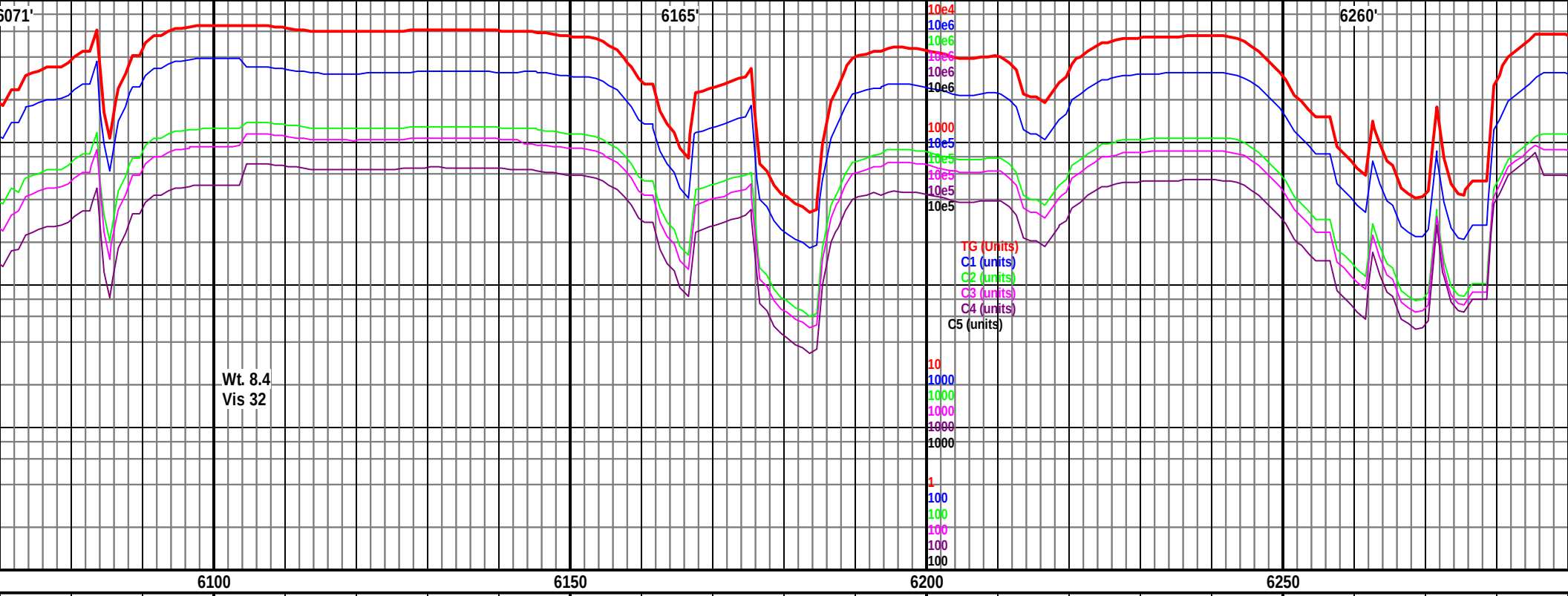
B P B P B B

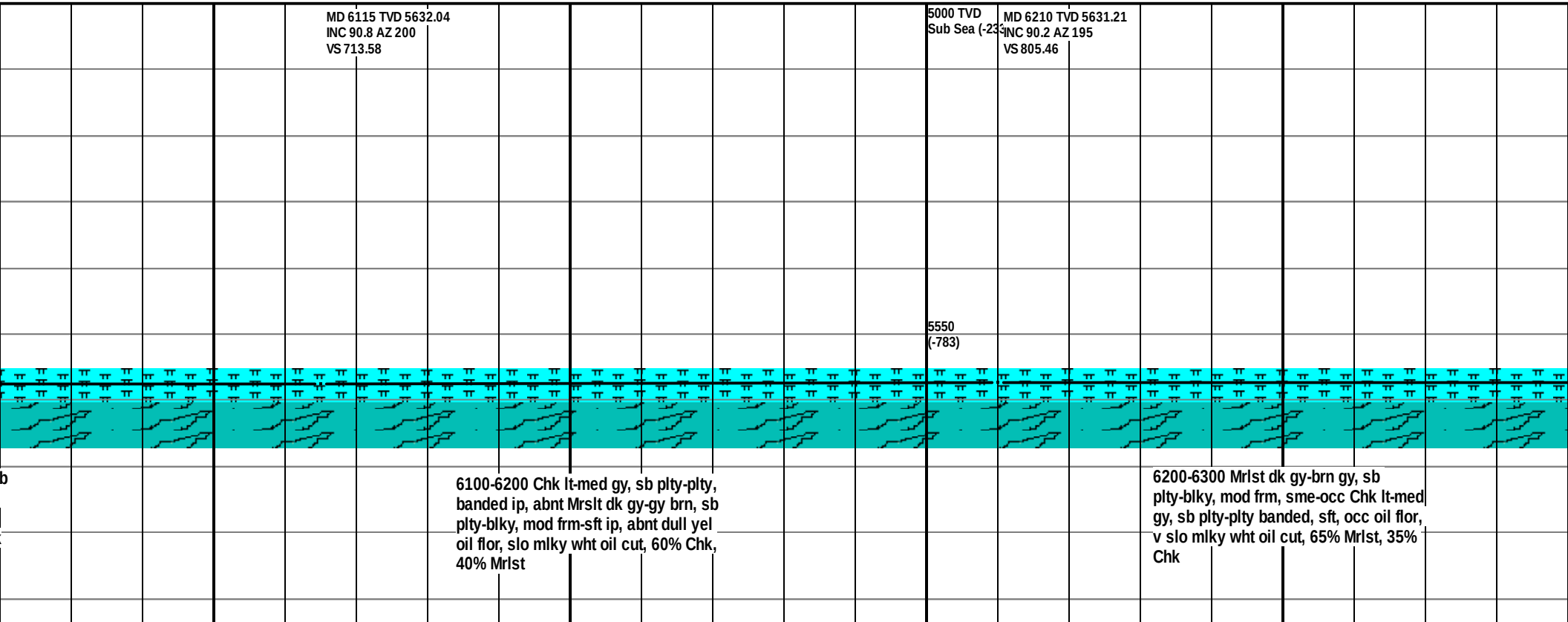
5850-5900 Mrlst dk gy-gy, blky-sb plty, frm, slty, rr Chk gy, lt gy ip, sb plty-plty, frm, occ bent, v slo mlky wht oil cut, 90% mrlst, 10% chk

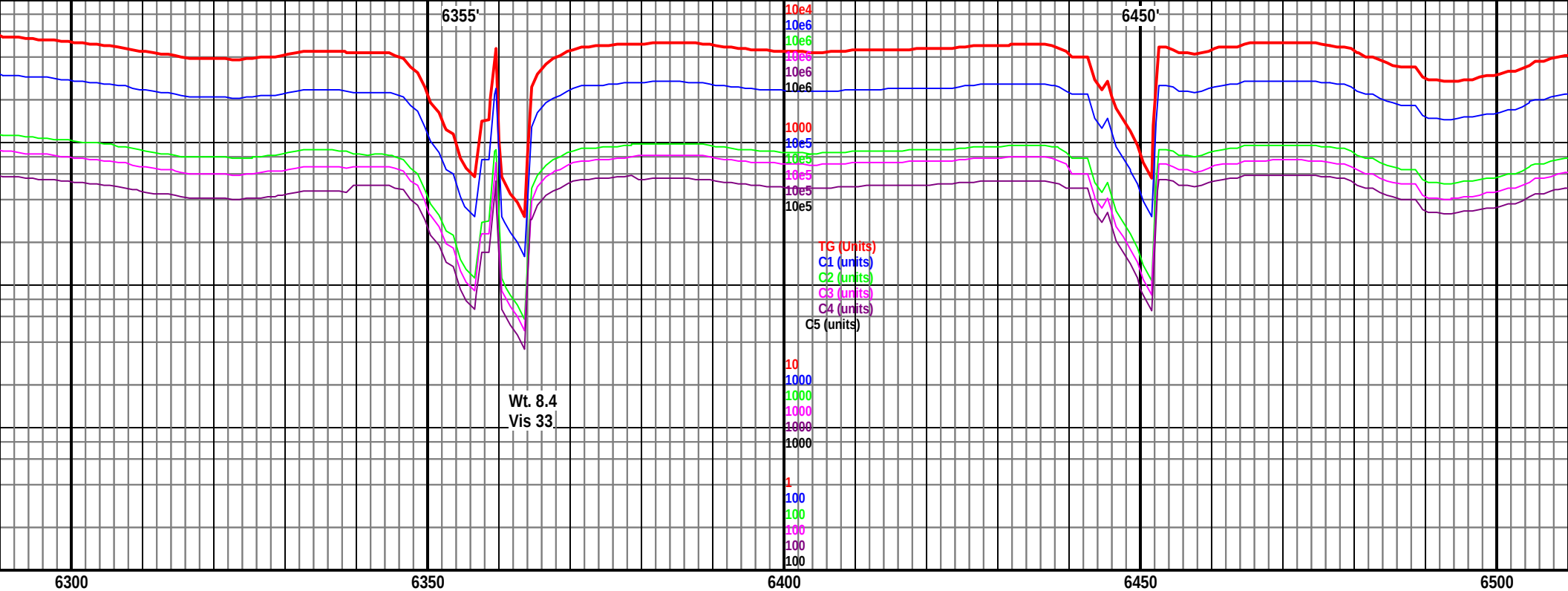
5900-5950 Mrlst dk gy-gy, blky-sb plty, frm, slty, rr Chk gy, lt gy ip, sb plty-plty, frm, rr bent, rr anhy, rr pyr, v slo mlky wht oil cut, 80% mrlst, 20% chk

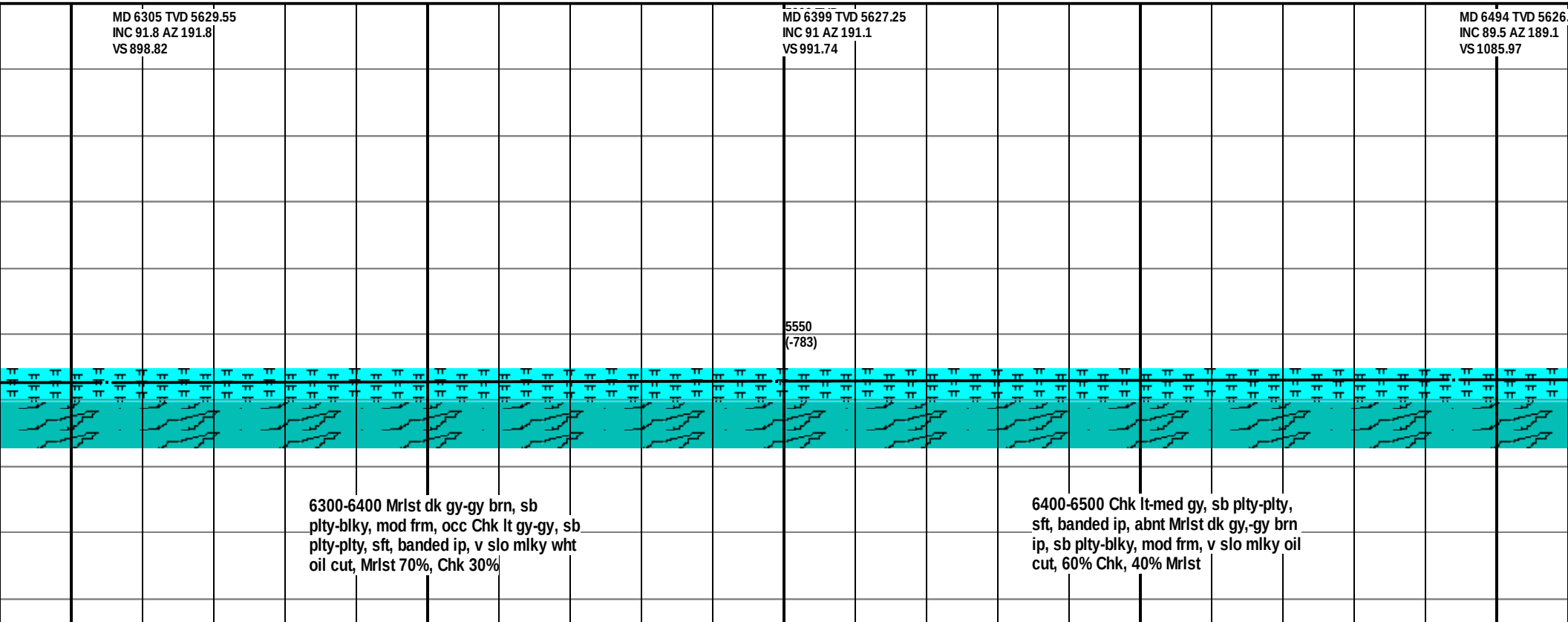
5950-6000 Mrlst dk gy-gy, blky-sb plty, mod sft, slty, abnt Chk lt gy-gy, sb plty-plty, sft-frm, rr bent, rr pyr, v slo mlky wht oil cut, 50% mrlst, 50% chk

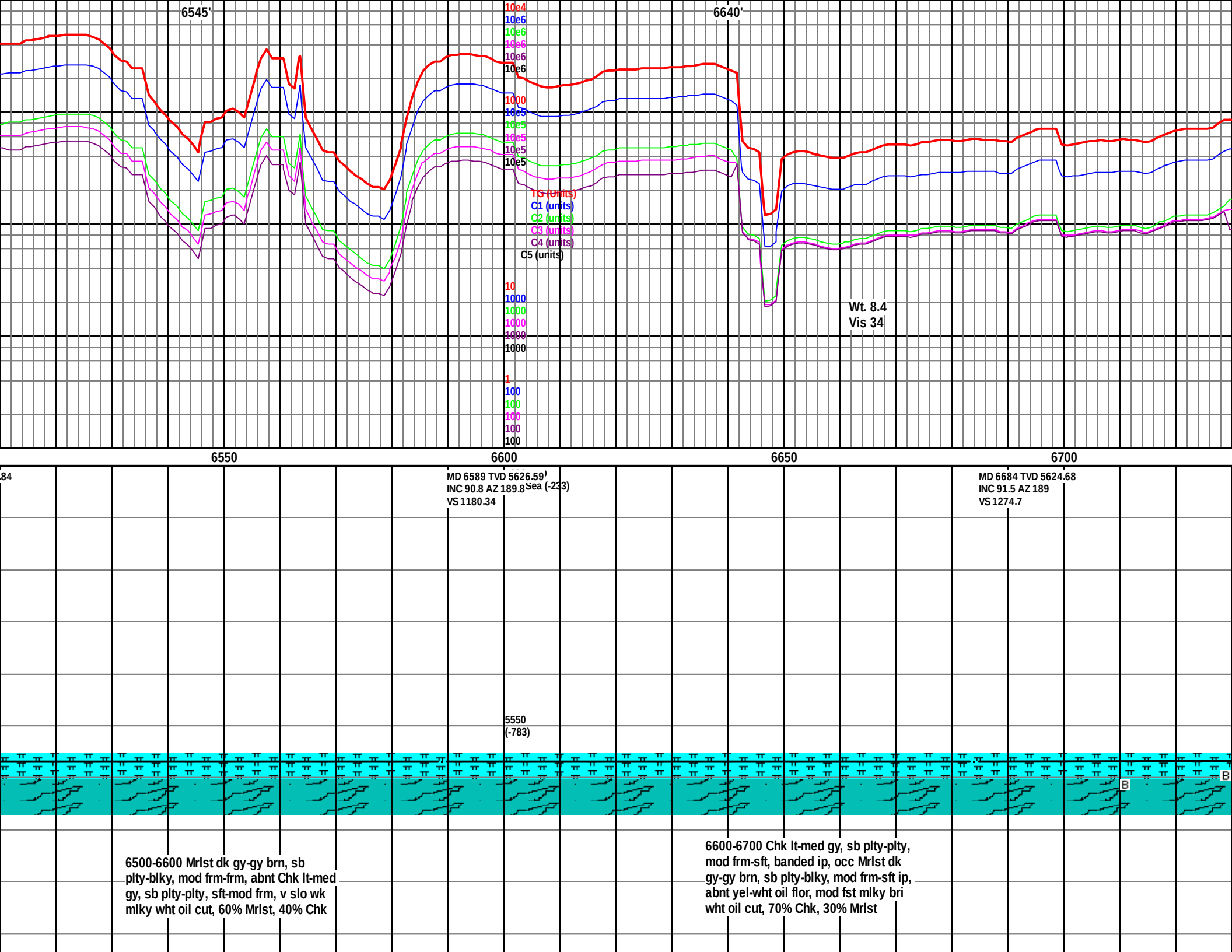
6000-6100 Mrlst dk gy-gy brn, blky-s plty, mod frm-sft, abnt Chk med-lt gy, sb plty-plty, abnt dull yel oil flor, slo mlky wht oil cut, 50% Mrlst, 50% Chk

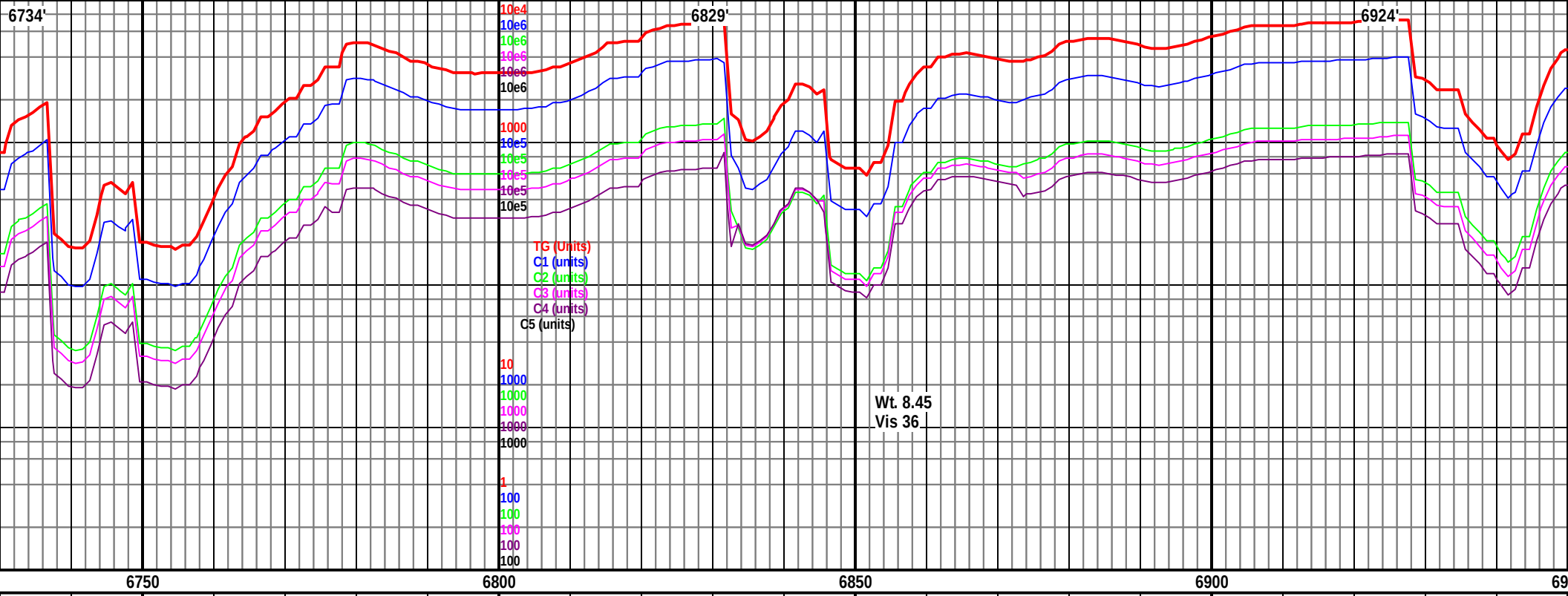

6071'
6165'
6260'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
Wt. 8.4
Vis 32
6100
6150
6200
6250

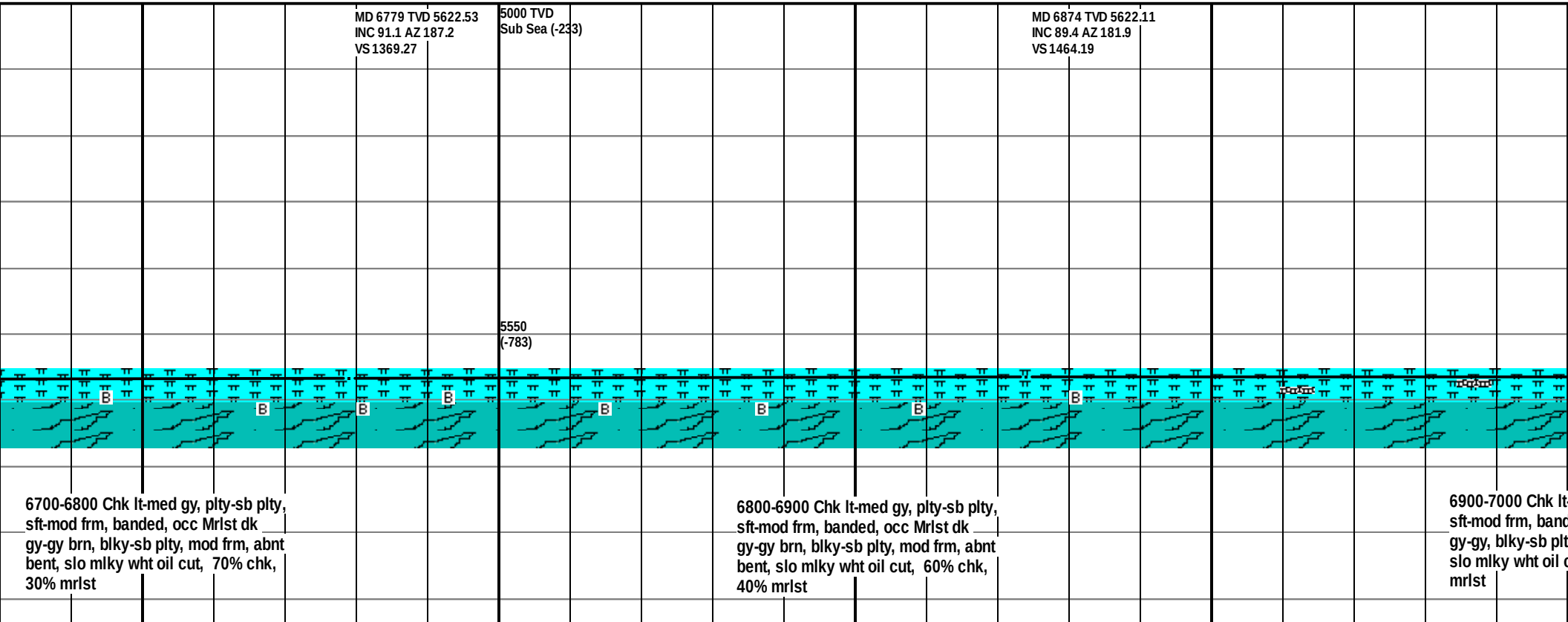

MD 6115 TVD 5632.04
INC 90.8 AZ 200
VS 713.58
5000 TVD
Sub Sea (-233
MD 6210 TVD 5631.21
INC 90.2 AZ 195
VS 805.46
5550
(-783)
6100-6200 Chk lt-med gy, sb plty-plty, banded ip, abnt Mrslt dk gy-gy brn, sb plty-blky, mod frm-sft ip, abnt dull yel oil flor, slo mlky wht oil cut, 60% Chk, 40% Mrlst
6200-6300 Mrlst dk gy-brn gy, sb plty-blky, mod frm, sme-occ Chk lt-med gy, sb plty-plty banded, sft, occ oil flor, v slo mlky wht oil cut, 65% Mrlst, 35% Chk

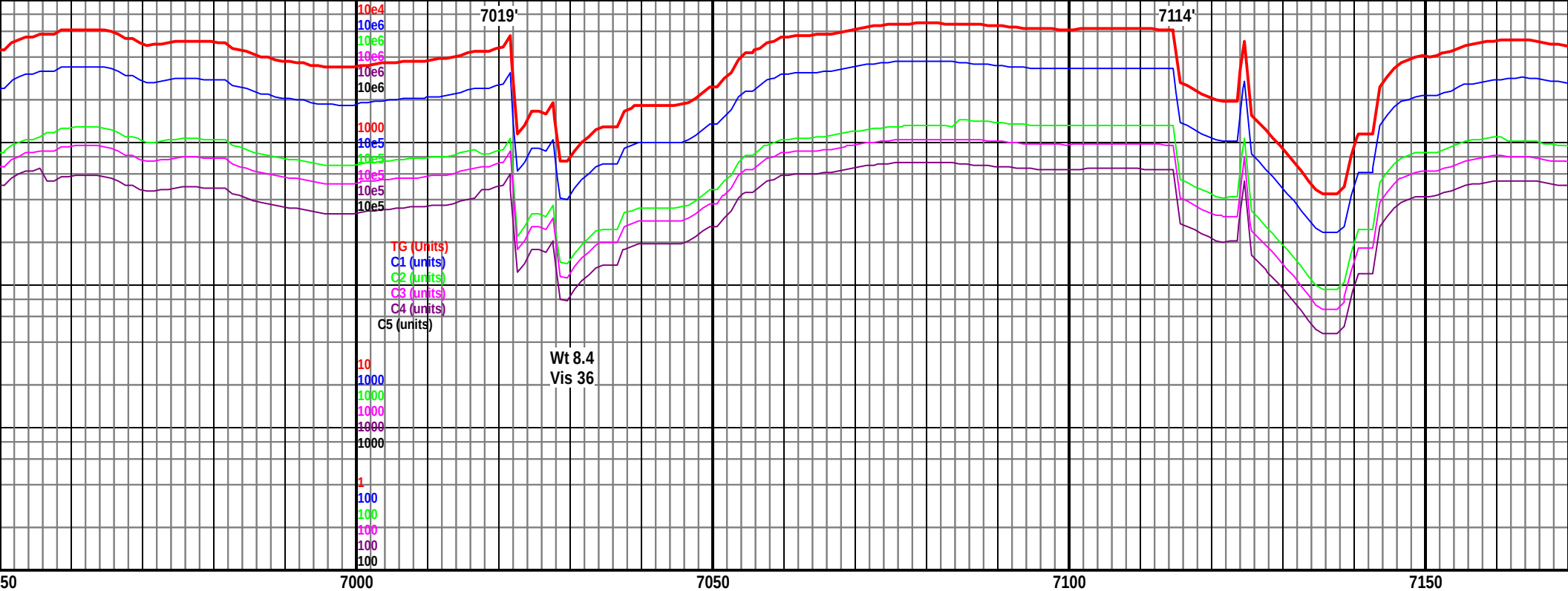

6355'
6450'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
Wt. 8.4
Vis 33


6300
6350
6400
6450
6500
MD 6305 TVD 5629.55
INC 91.8 AZ 191.8
VS 898.82
MD 6399 TVD 5627.25
INC 91 AZ 191.1
VS 991.74
MD 6494 TVD 5626.
INC 89.5 AZ 189.1
VS 1085.97
5550
(-783)
6300-6400 Mrlst dk gy-gy brn, sb plty-blky, mod frm, occ Chk lt gy-gy, sb plty-plty, sft, banded ip, v slo mlky wht oil cut, Mrlst 70%, Chk 30%
6400-6500 Chk lt-med gy, sb plty-plty, sft, banded ip, abnt Mrlst dk gy,-gy brn ip, sb plty-blky, mod frm, v slo mlky oil cut, 60% Chk, 40% Mrlst


6545'
6640'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
Wt. 8.4
Vis 34
6550
6600
6650
6700
.84
MD 6589 TVD 5626.59
INC 90.8 AZ 189.8
VS 1180.34
Sea (-233)
MD 6684 TVD 5624.68
INC 91.5 AZ 189
VS 1274.7
5550
(-783)
B
B
6500-6600 Mrlst dk gy-gy brn, sb plty-blky, mod frm-frm, abnt Chk lt-med gy, sb plty-plty, sft-mod frm, v slo wk mlky wht oil cut, 60% Mrlst, 40% Chk
6600-6700 Chk lt-med gy, sb plty-plty, mod frm-sft, banded ip, occ Mrlst dk gy-gy brn, sb plty-blky, mod frm-sft ip, abnt yel-wht oil flor, mod fst mlky bri wht oil cut, 70% Chk, 30% Mrlst


6734'
6829'
6924'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
Wt. 8.45
Vis 36
6750
6800
6850
6900
69


MD 6779 TVD 5622.53
INC 91.1 AZ 187.2
VS 1369.27
5000 TVD
Sub Sea (-233)
MD 6874 TVD 5622.11
INC 89.4 AZ 181.9
VS 1464.19
5550
(-783)
B
6700-6800 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 70% chk, 30% mrlst
6800-6900 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 60% chk, 40% mrlst
6900-7000 Chk lt
sft-mod frm, band
gy-gy, blky-sb plt
slo mlky wht oil
mrlst


7019'
7114'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
Wt 8.4
Vis 36
10
1000
1000
1000
1000
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100
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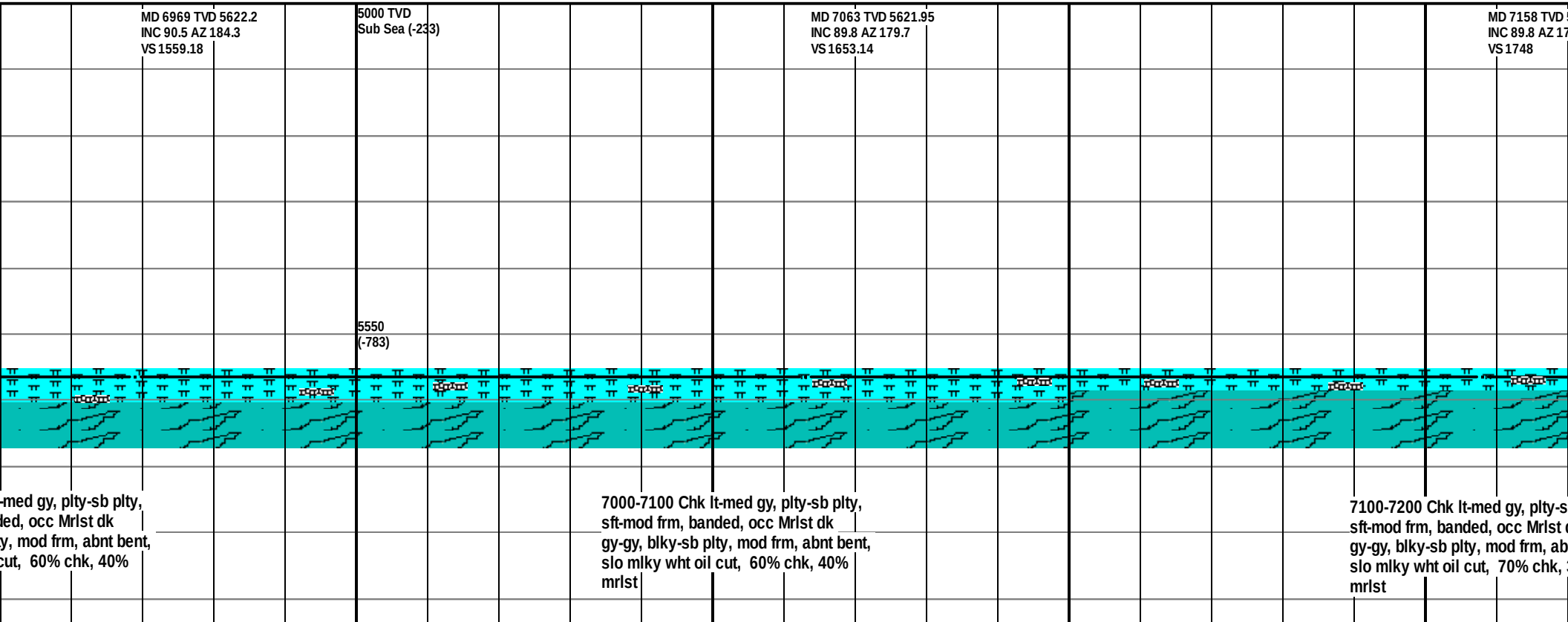
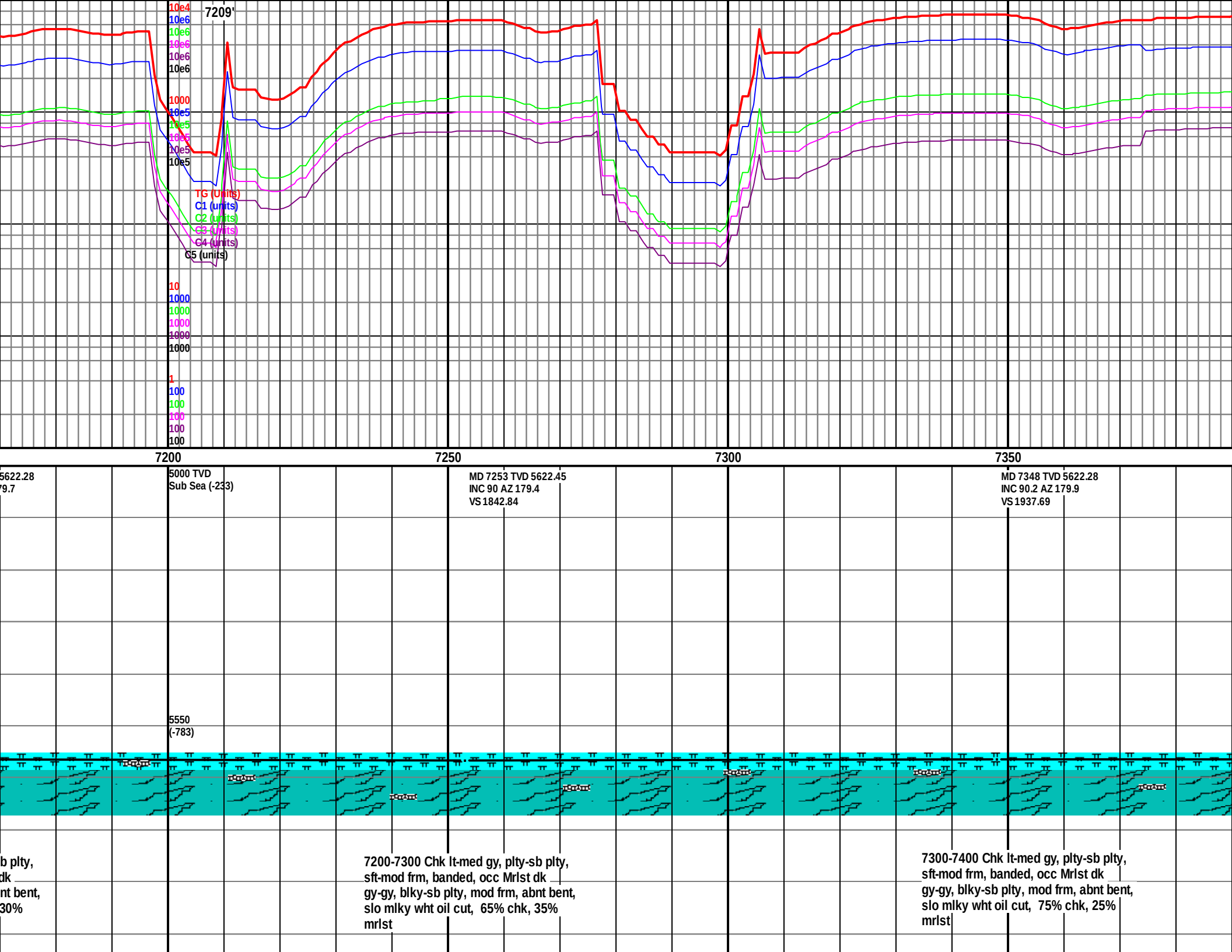
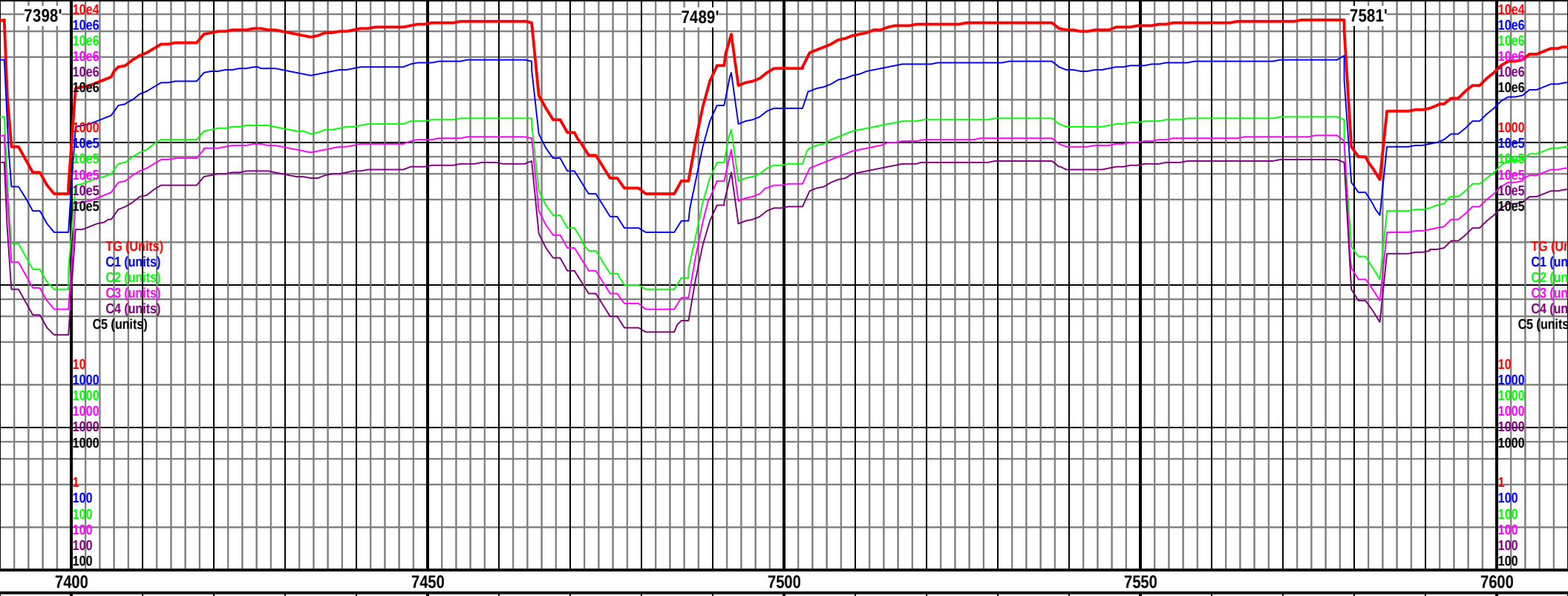
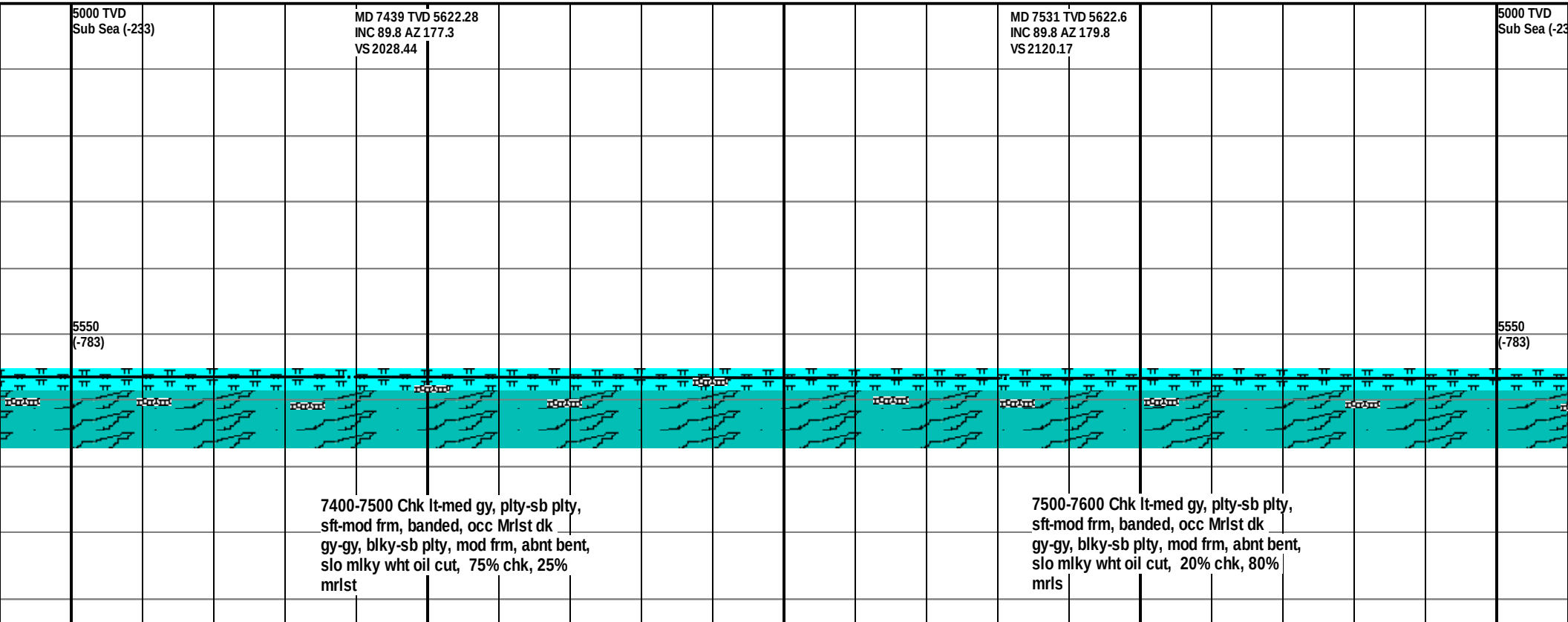
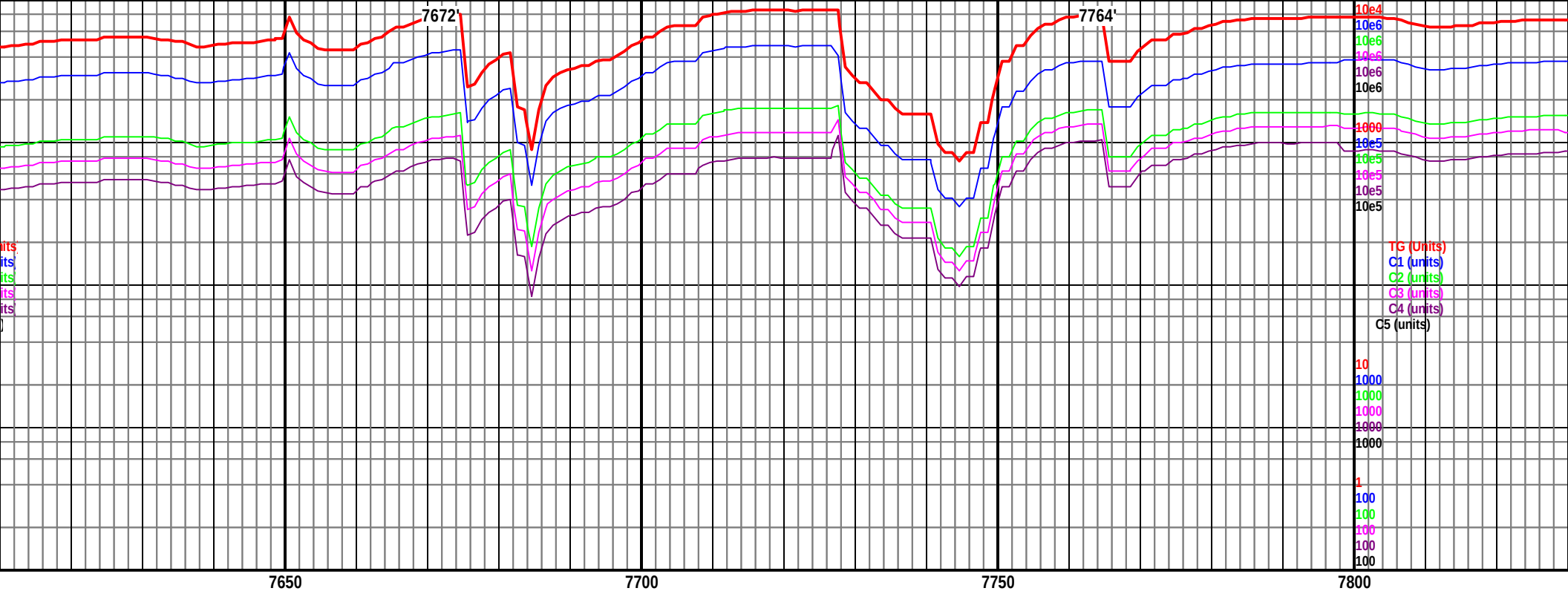
100
100
100
50
7000
7050
7100
7150


MD 6969 TVD 5622.2
INC 90.5 AZ 184.3
VS 1559.18
5000 TVD
Sub Sea (-233)
MD 7063 TVD 5621.95
INC 89.8 AZ 179.7
VS 1653.14
MD 7158 TVD
INC 89.8 AZ 17
VS 1748
5550
(-783)
-med gy, plty-sb plty,
ded, occ Mrlst dk
y, mod frm, abnt bent,
cut, 60% chk, 40%
7000-7100 Chk lt-med gy, plty-sb plty,
sft-mod frm, banded, occ Mrlst dk
gy-gy, blky-sb plty, mod frm, abnt bent,
slo mlky wht oil cut, 60% chk, 40%
mrlst
7100-7200 Chk lt-med gy, plty-s
sft-mod frm, banded, occ Mrlst
gy-gy, blky-sb plty, mod frm, ab
slo mlky wht oil cut, 70% chk,
mrlst


7209'
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
7200
7250
7300
7350
5000 TVD
Sub Sea (-233)
MD 7253 TVD 5622.45
INC 90 AZ 179.4
VS 1842.84
MD 7348 TVD 5622.28
INC 90.2 AZ 179.9
VS 1937.69
5550
(-783)
7200-7300 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 65% chk, 35% mrlst
7300-7400 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 75% chk, 25% mrlst


7398'
7489'
7581'
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
7400
7450
7500
7550
7600


5000 TVD
Sub Sea (-233)
MD 7439 TVD 5622.28
INC 89.8 AZ 177.3
VS 2028.44
MD 7531 TVD 5622.6
INC 89.8 AZ 179.8
VS 2120.17
5550
(-783)
7400-7500 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 75% chk, 25% mrlst
7500-7600 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 20% chk, 80% mrls


7672'
7764'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e3
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
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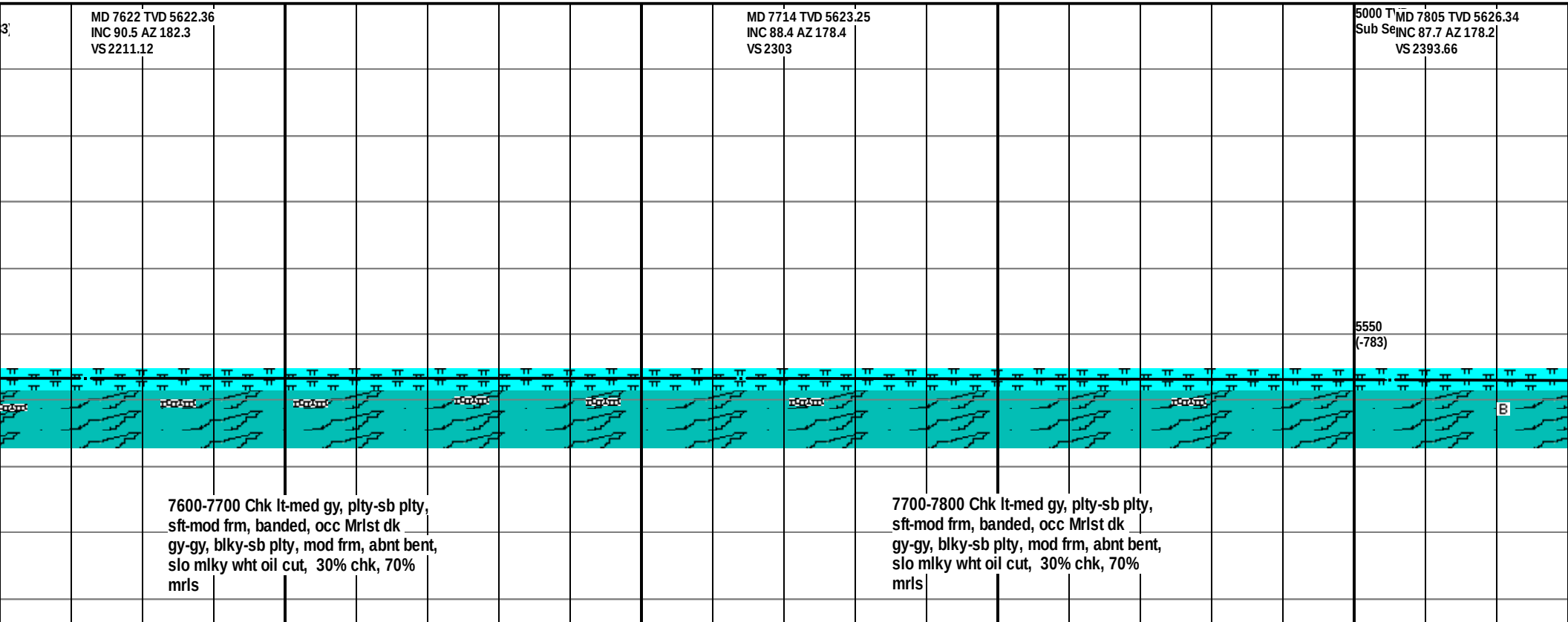
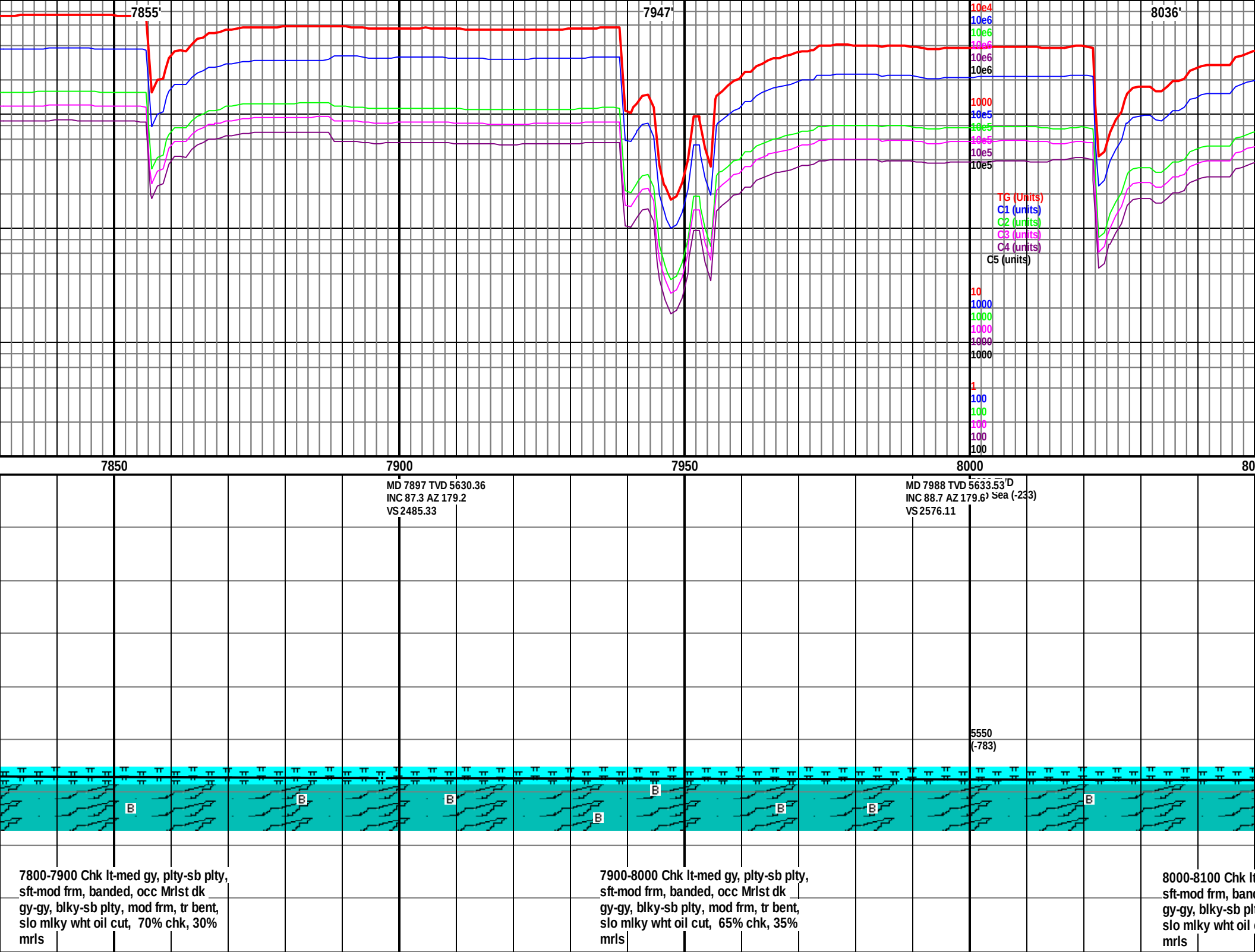
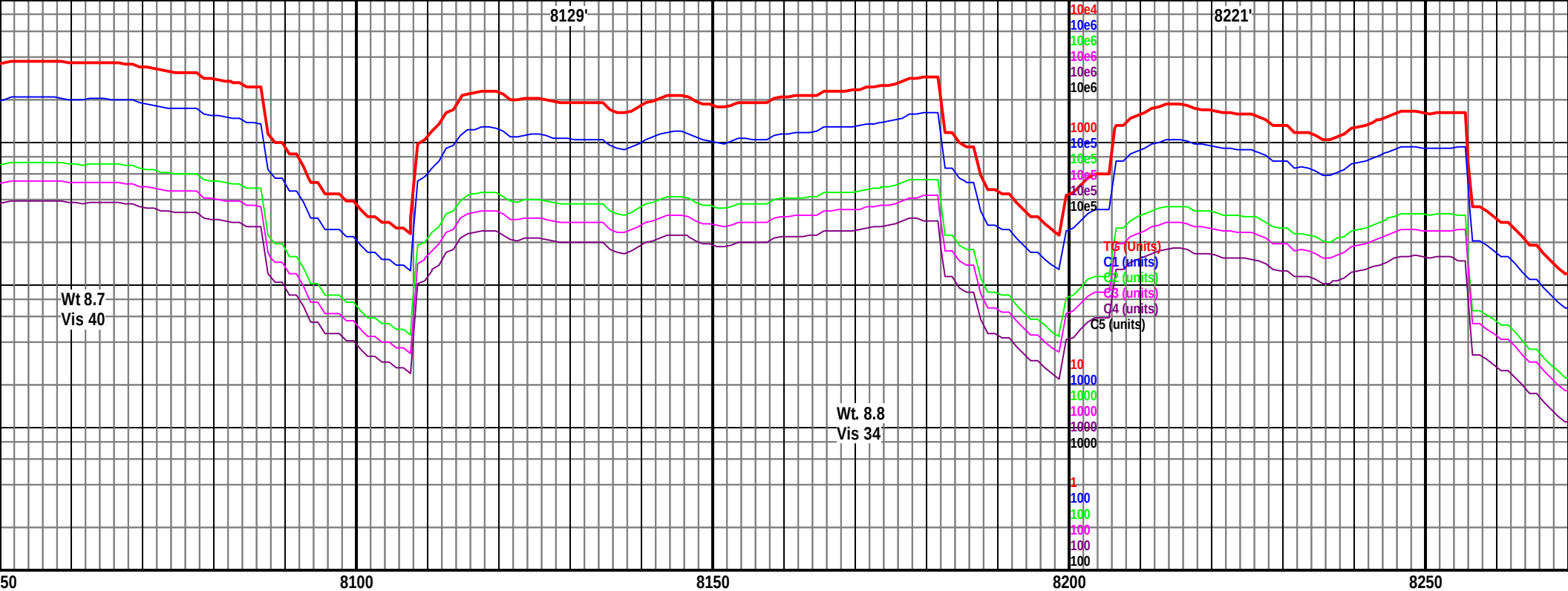
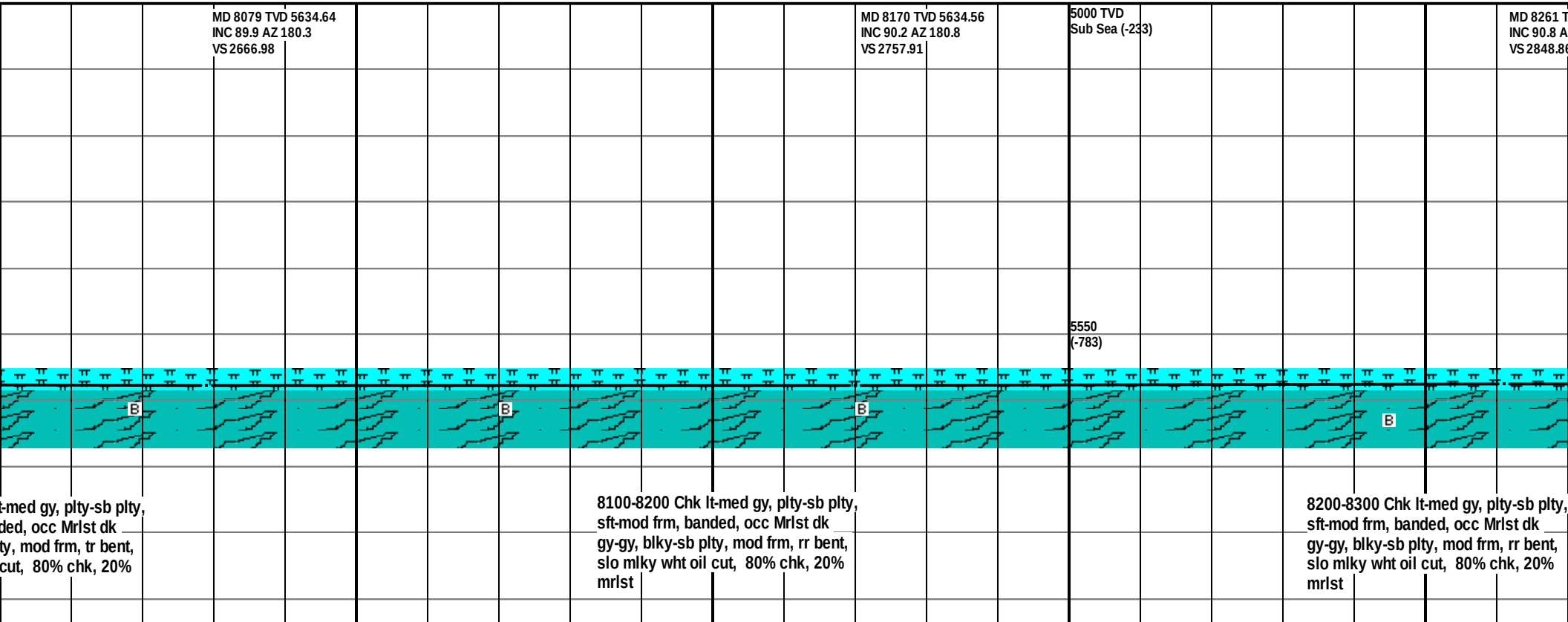
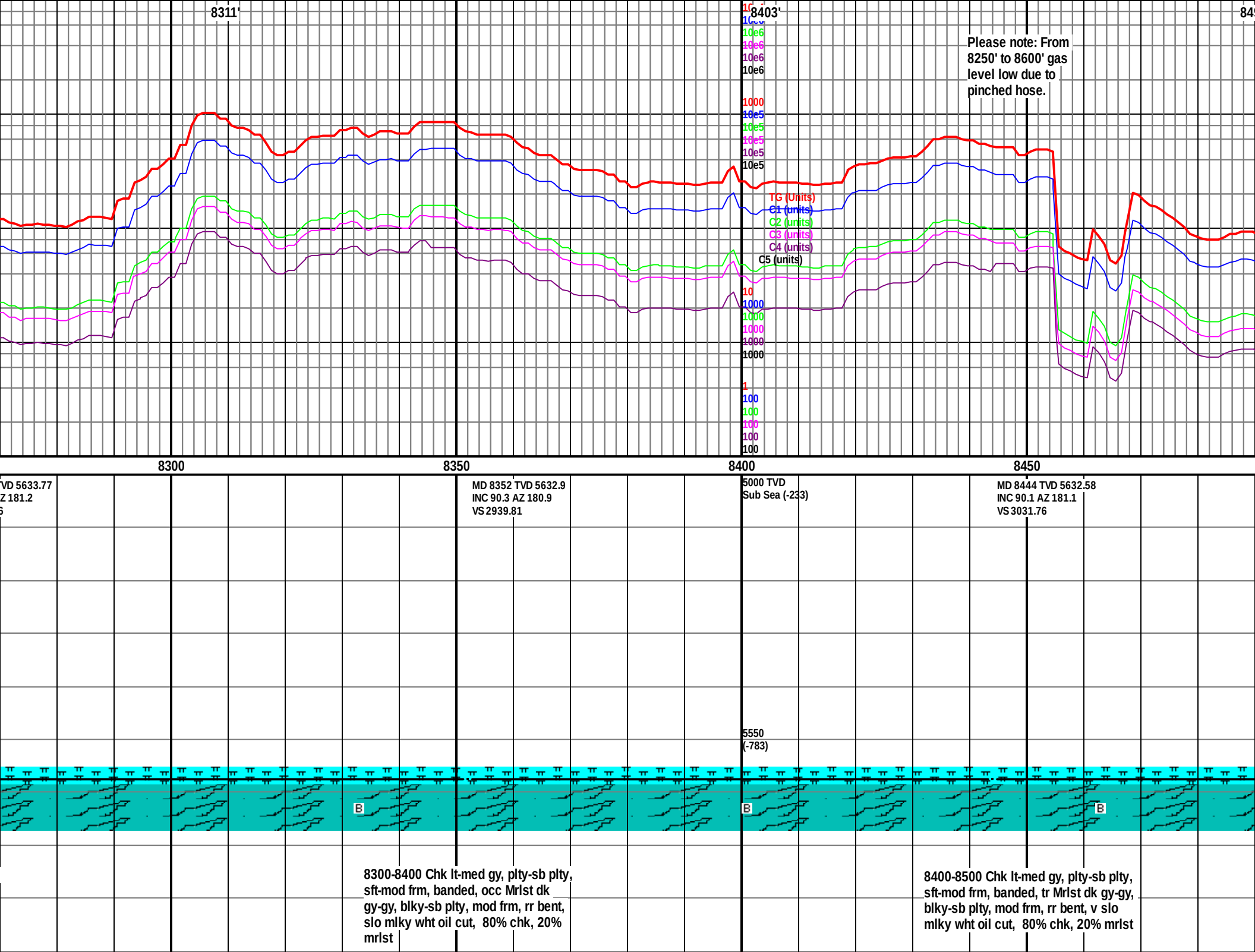
100
100
100
100
7650
7700
7750
7800

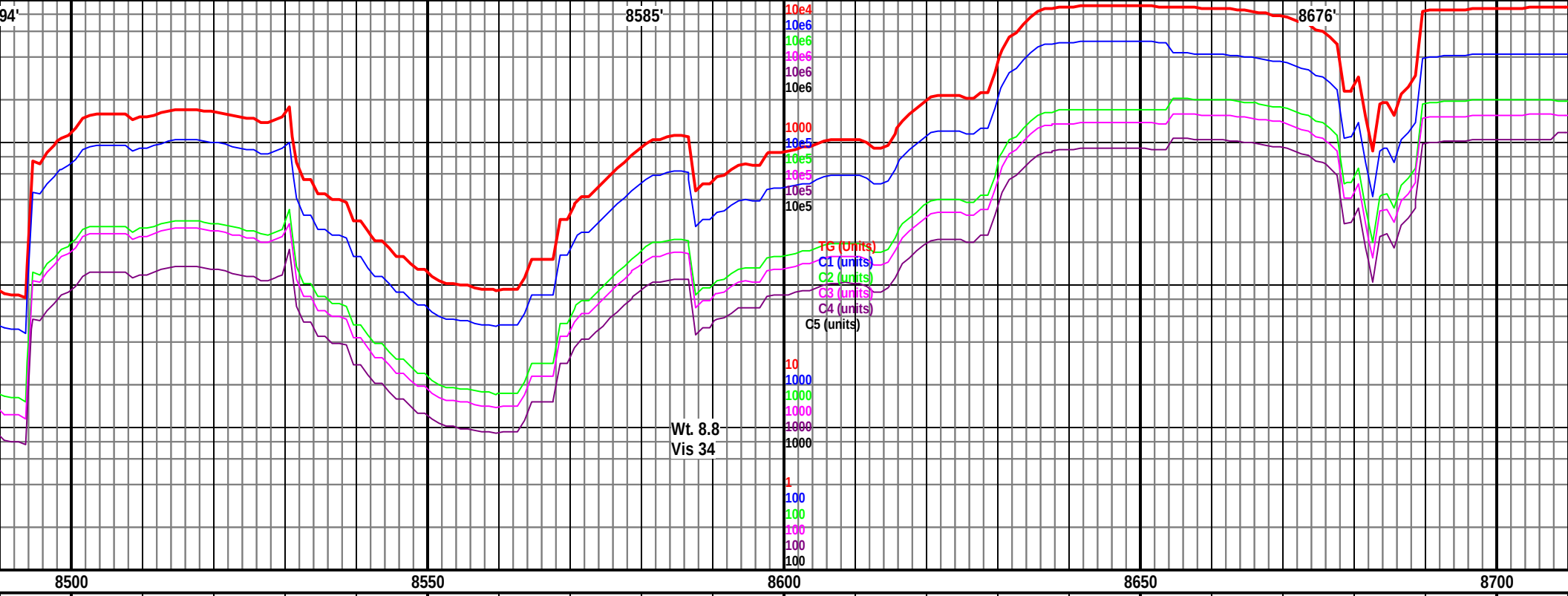

MD 7622 TVD 5622.36
INC 90.5 AZ 182.3
VS 2211.12
MD 7714 TVD 5623.25
INC 88.4 AZ 178.4
VS 2303
MD 7805 TVD 5626.34
INC 87.7 AZ 178.2
VS 2393.66
5550
(-783)
B
7600-7700 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 30% chk, 70% mrls
7700-7800 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, abnt bent, slo mlky wht oil cut, 30% chk, 70% mrls

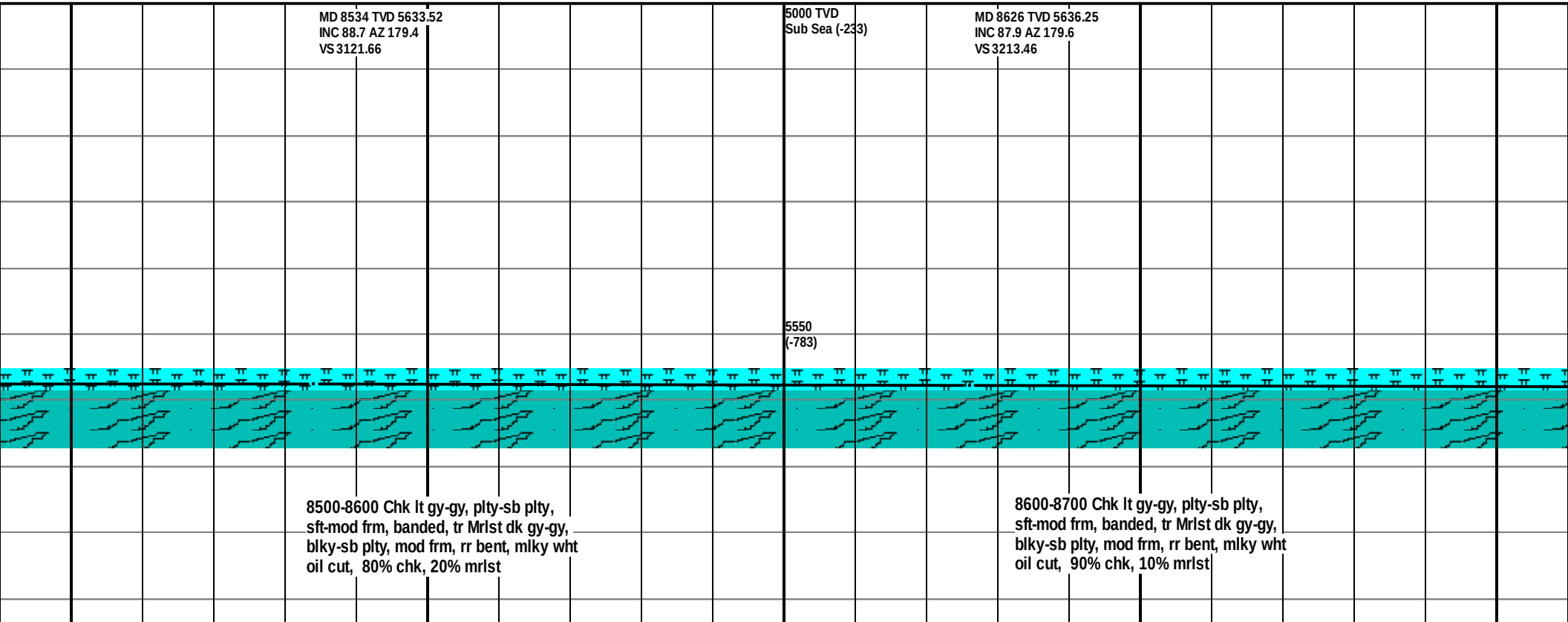

7855'
7947'
8036'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
7850
7900
7950
8000
MD 7897 TVD 5630.36
INC 87.3 AZ 179.2
VS 2485.33
MD 7988 TVD 5633.53
INC 88.7 AZ 179.6
VS 2576.11
Sea (-233)
5550
(-783)
B
7800-7900 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, tr bent, slo mlky wht oil cut, 70% chk, 30% mrls
7900-8000 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, tr bent, slo mlky wht oil cut, 65% chk, 35% mrls
8000-8100 Chk lt
sft-mod frm, band
gy-gy, blky-sb pl
slo mlky wht oil
mrls

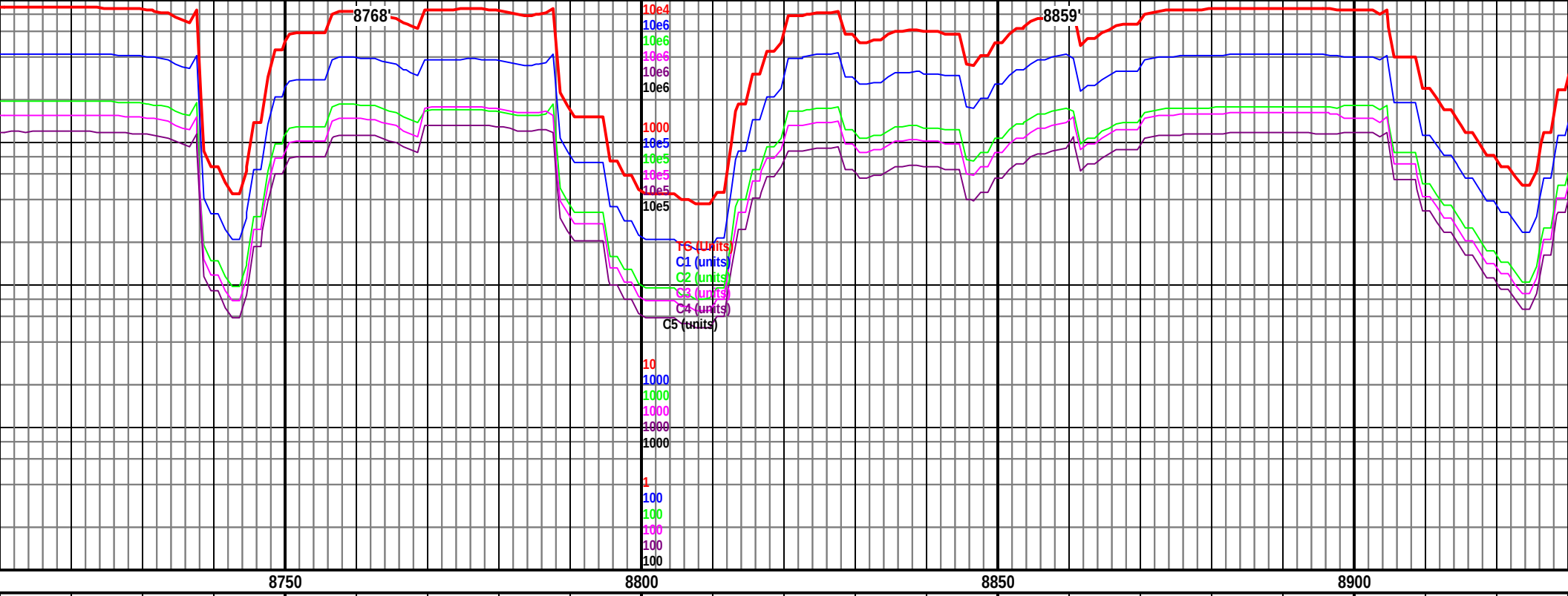

8129'
8221'
Wt 8.7
Vis 40
Wt. 8.8
Vis 34
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
50
8100
8150
8200
8250

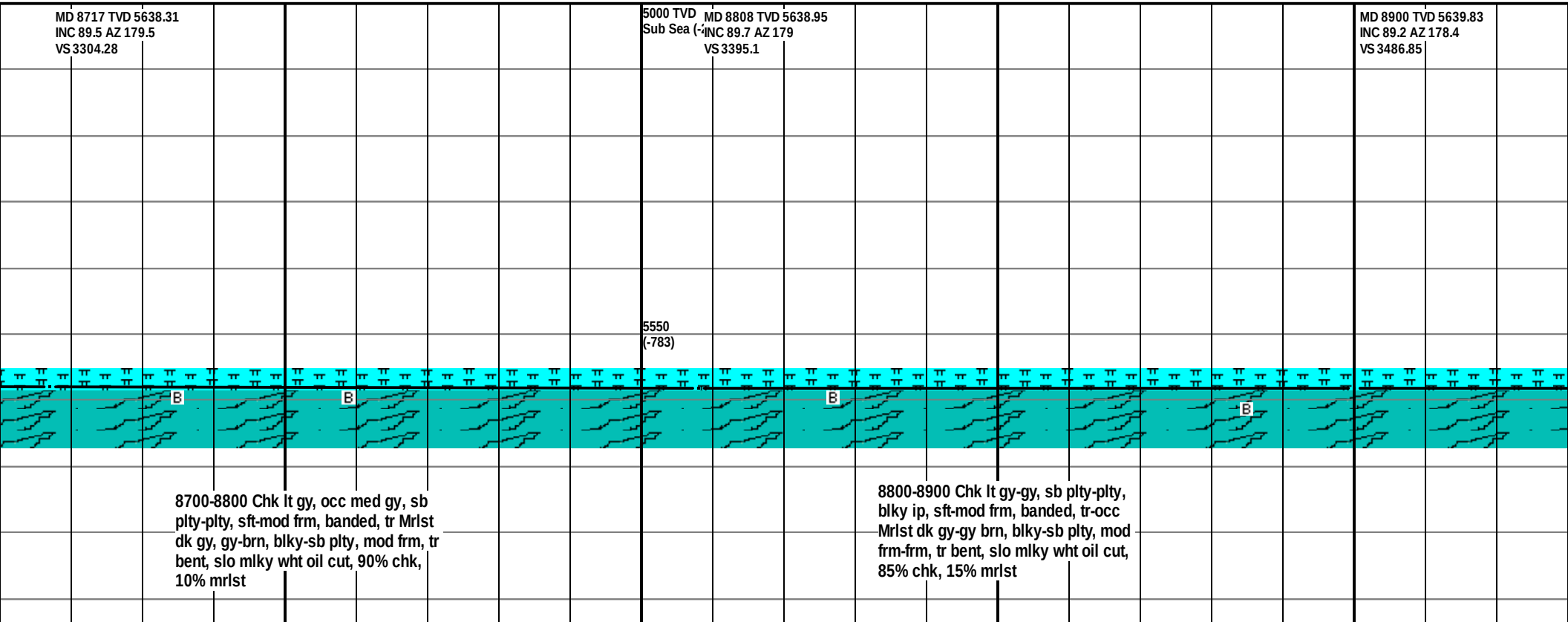

MD 8079 TVD 5634.64
INC 89.9 AZ 180.3
VS 2666.98
MD 8170 TVD 5634.56
INC 90.2 AZ 180.8
VS 2757.91
5000 TVD
Sub Sea (-233)
MD 8261 T
INC 90.8 A
VS 2848.8
5550
(-783)
B
t-med gy, plty-sb plty,
ded, occ Mrlst dk
ty, mod frm, tr bent,
cut, 80% chk, 20%
8100-8200 Chk lt-med gy, plty-sb plty,
sft-mod frm, banded, occ Mrlst dk
gy-gy, blky-sb plty, mod frm, rr bent,
slo mlky wht oil cut, 80% chk, 20%
mrlst
8200-8300 Chk lt-med gy, plty-sb plty,
sft-mod frm, banded, occ Mrlst dk
gy-gy, blky-sb plty, mod frm, rr bent,
slo mlky wht oil cut, 80% chk, 20%
mrlst

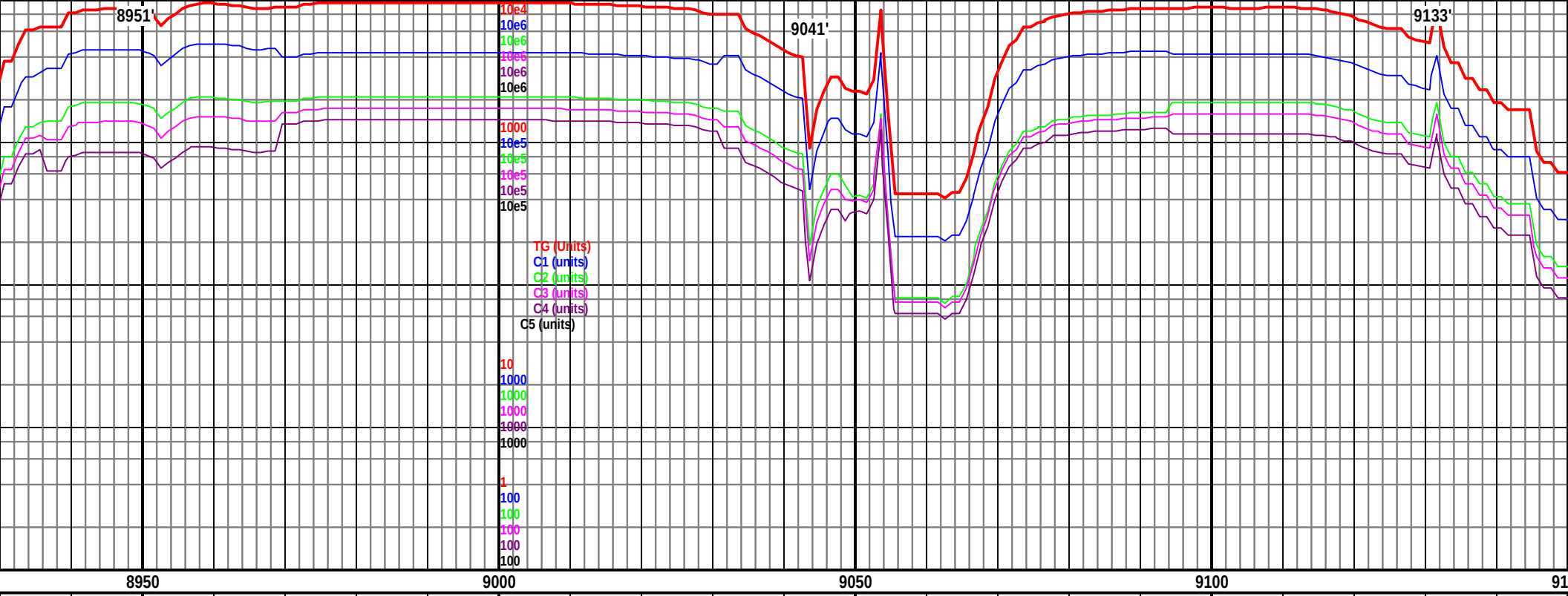

8311'
8403'
Please note: From 8250' to 8600' gas level low due to pinched hose.
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
8300
8350
8400
8450
MD 8352 TVD 5632.9
INC 90.3 AZ 180.9
VS 2939.81
5000 TVD
Sub Sea (-233)
MD 8444 TVD 5632.58
INC 90.1 AZ 181.1
VS 3031.76
5550
(-783)
B
B
B
8300-8400 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, occ Mrlst dk gy-gy, blky-sb plty, mod frm, rr bent, slo mlky wht oil cut, 80% chk, 20% mrlst
8400-8500 Chk lt-med gy, plty-sb plty, sft-mod frm, banded, tr Mrlst dk gy-gy, blky-sb plty, mod frm, rr bent, v slo mlky wht oil cut, 80% chk, 20% mrlst

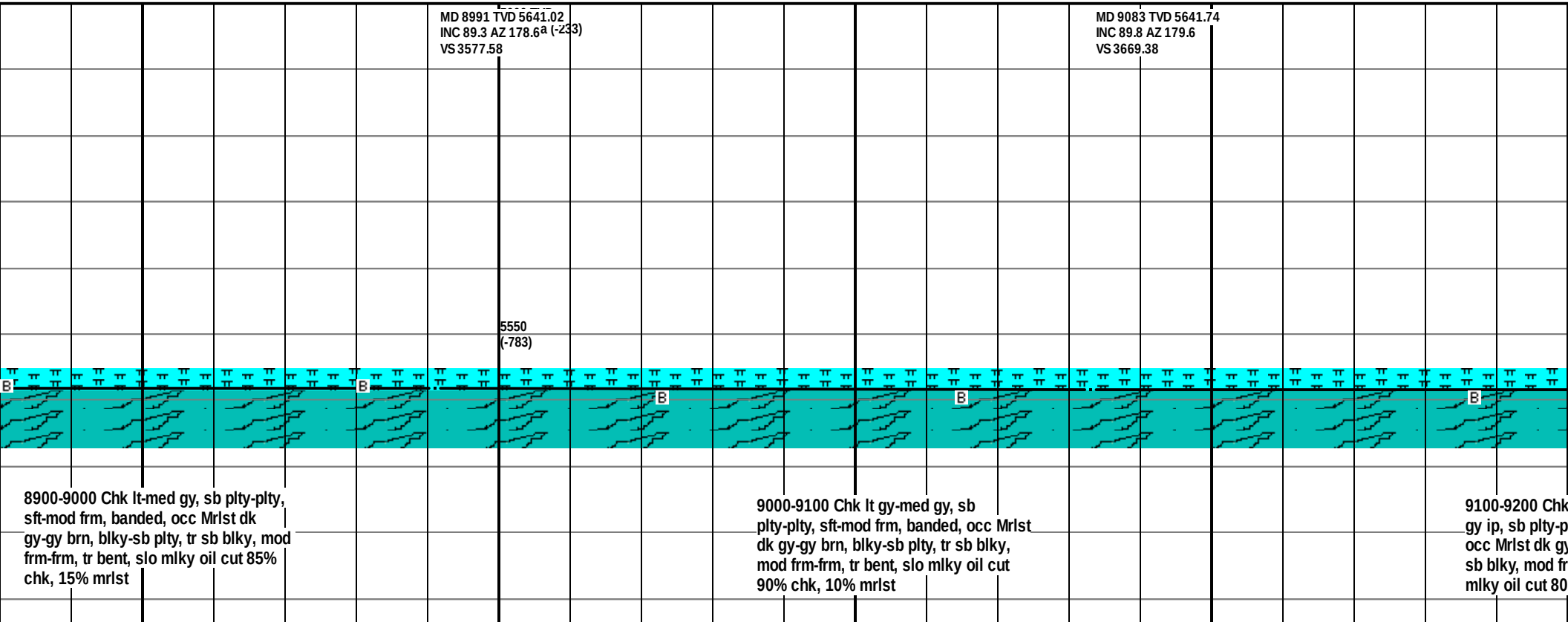

94'
8585'
8676'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
Wt. 8.8
Vis 34
8500
8550
8600
8650
8700

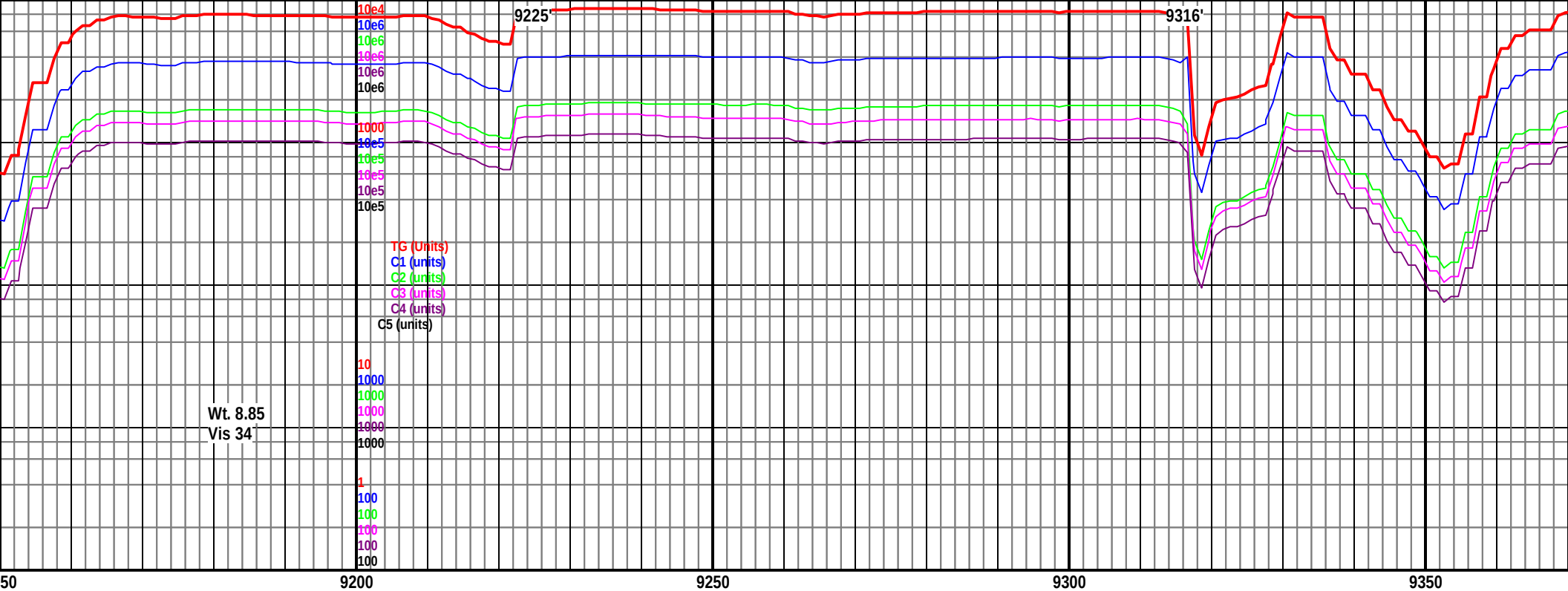

MD 8534 TVD 5633.52
INC 88.7 AZ 179.4
VS 3121.66
5000 TVD
Sub Sea (-233)
MD 8626 TVD 5636.25
INC 87.9 AZ 179.6
VS 3213.46
5550
(-783)
8500-8600 Chk lt gy-gy, plty-sb plty, sft-mod frm, banded, tr Mrlst dk gy-gy, blky-sb plty, mod frm, rr bent, mlky wht oil cut, 80% chk, 20% mrlst
8600-8700 Chk lt gy-gy, plty-sb plty, sft-mod frm, banded, tr Mrlst dk gy-gy, blky-sb plty, mod frm, rr bent, mlky wht oil cut, 90% chk, 10% mrlst


8768'
8859'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
FC (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
8750
8800
8850
8900


MD 8717 TVD 5638.31
INC 89.5 AZ 179.5
VS 3304.28
5000 TVD
Sub Sea (-
MD 8808 TVD 5638.95
INC 89.7 AZ 179
VS 3395.1
MD 8900 TVD 5639.83
INC 89.2 AZ 178.4
VS 3486.85
5550
(-783)
B
B
B
B
8700-8800 Chk lt gy, occ med gy, sb plty-plty, sft-mod frm, banded, tr Mrlst dk gy, gy-brn, blky-sb plty, mod frm, tr bent, slo mlky wht oil cut, 90% chk, 10% mrlst
8800-8900 Chk lt gy-gy, sb plty-plty, blky ip, sft-mod frm, banded, tr-occ Mrlst dk gy-gy brn, blky-sb plty, mod frm-frm, tr bent, slo mlky wht oil cut, 85% chk, 15% mrlst


8951'
9041'
9133'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
1000
1000
1000
1
100
100
100
100
100
8950
9000
9050
9100
91


MD 8991 TVD 5641.02
INC 89.3 AZ 178.6a (-233)
VS 3577.58
MD 9083 TVD 5641.74
INC 89.8 AZ 179.6
VS 3669.38
5550
(-783)
B
B
B
B
B
8900-9000 Chk lt-med gy, sb plty-plty, sft-mod frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr bent, slo mlky oil cut 85% chk, 15% mrlst
9000-9100 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr bent, slo mlky oil cut 90% chk, 10% mrlst
9100-9200 Chk
gy ip, sb plty-p
occ Mrlst dk gy
sb blky, mod fr
mlky oil cut 80


9225'
9316'
10e4
10e6
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
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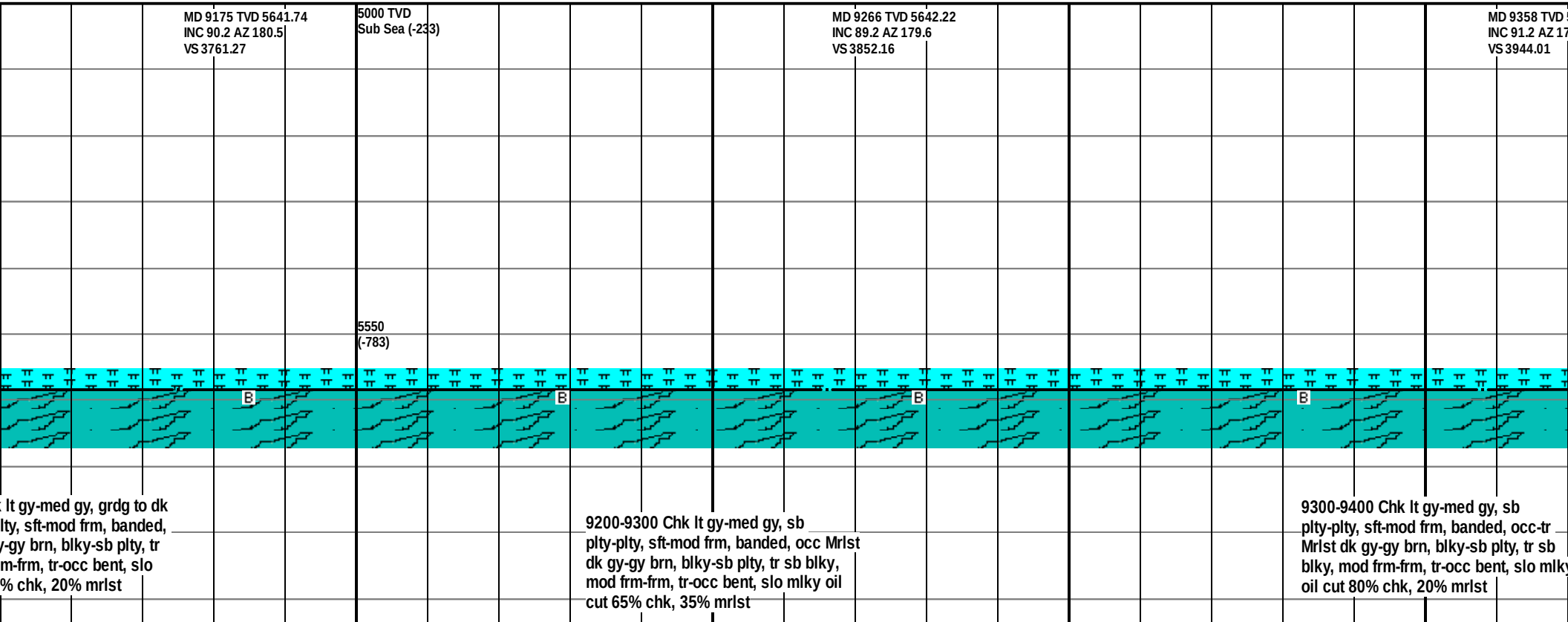
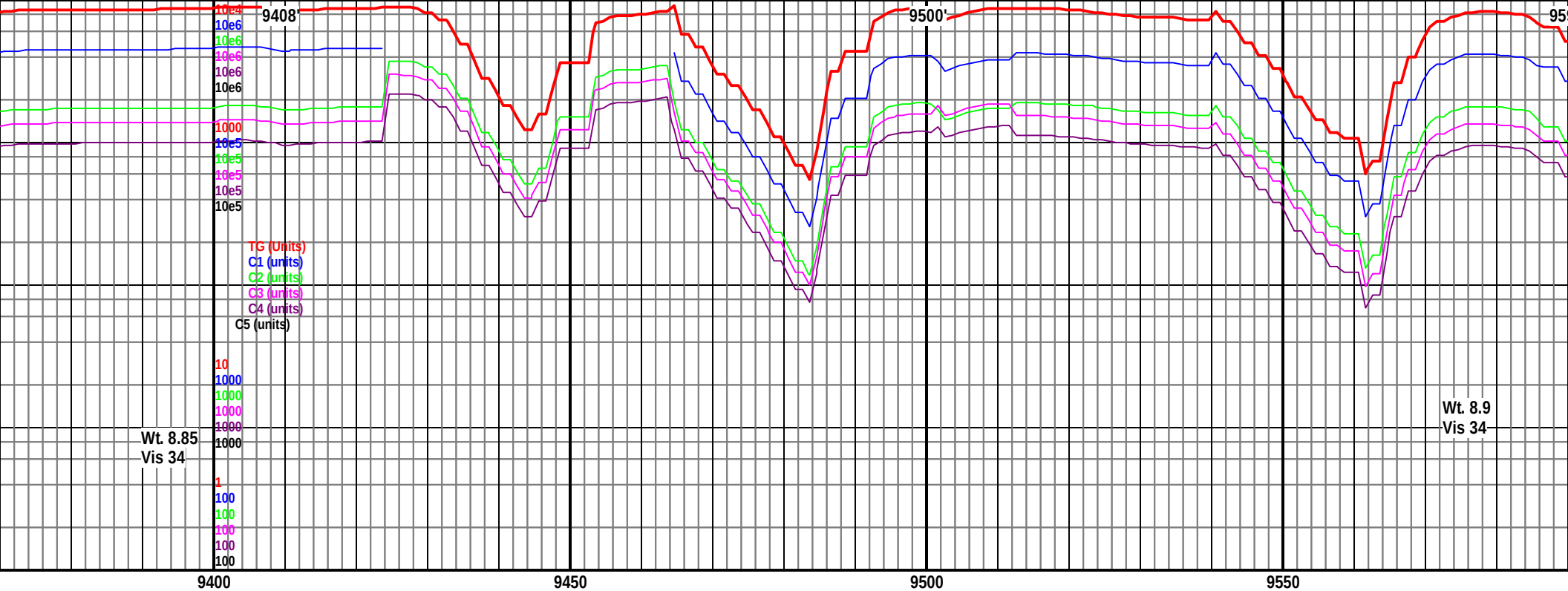
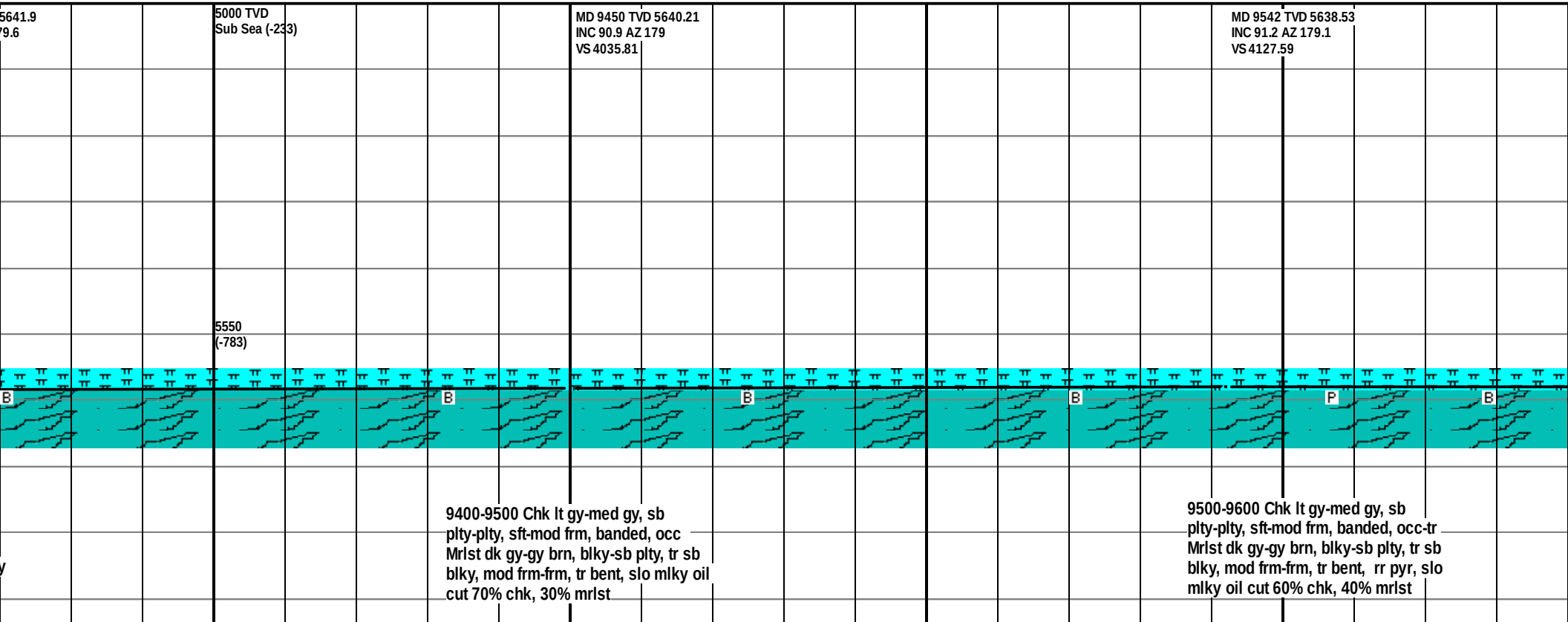
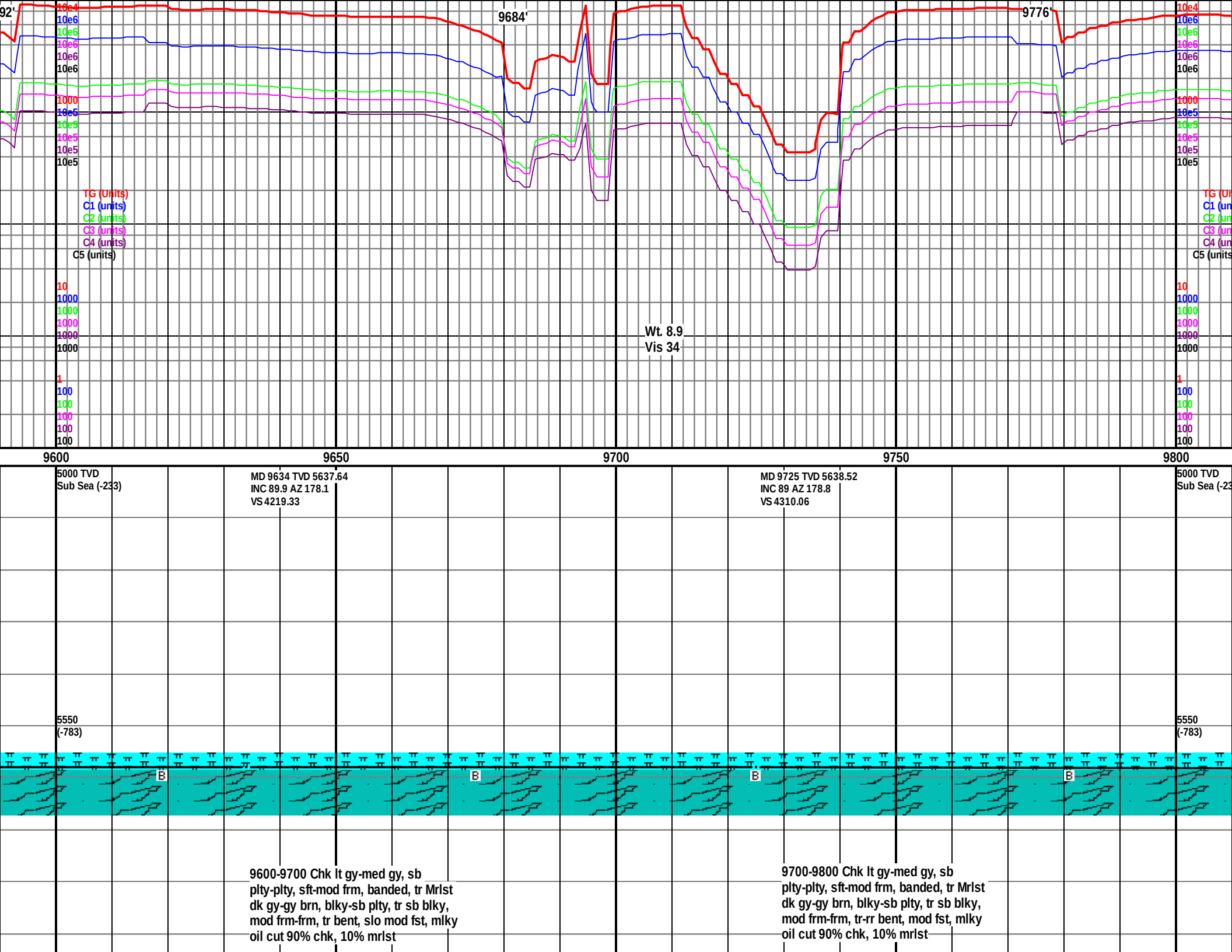
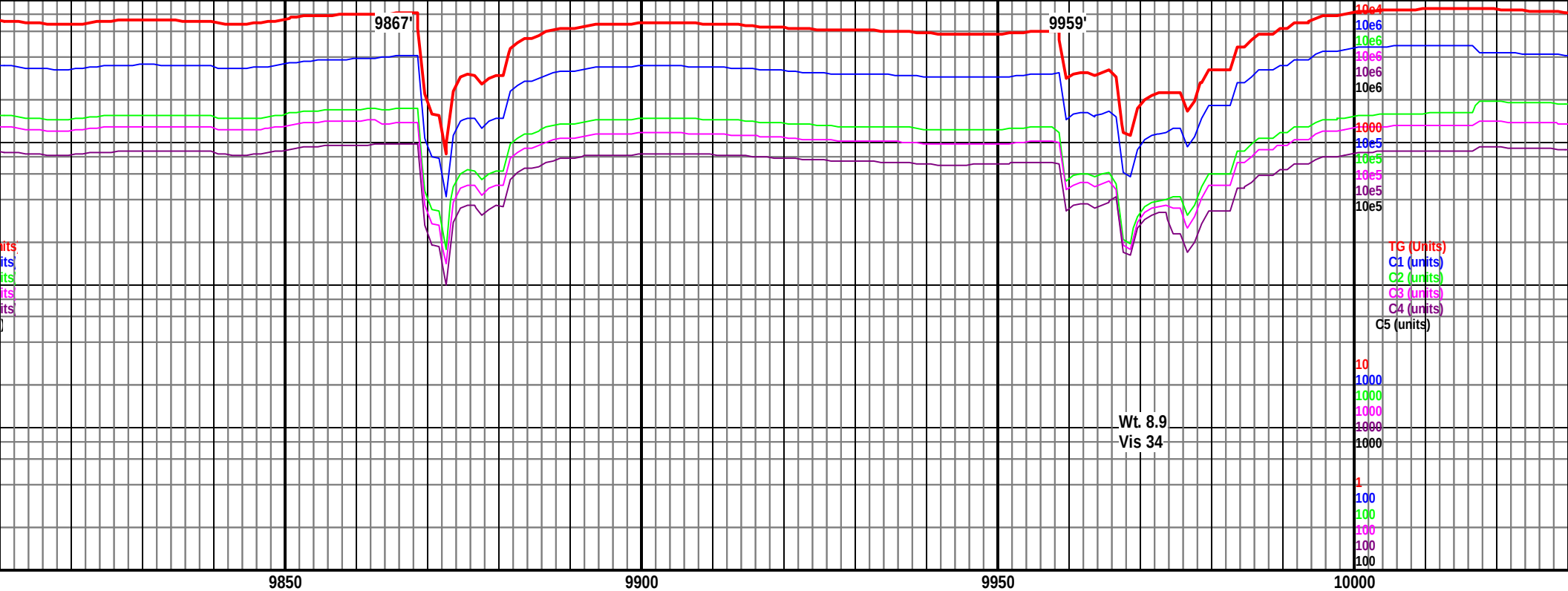
Wt. 8.85
Vis 34
50
9200
9250
9300
9350

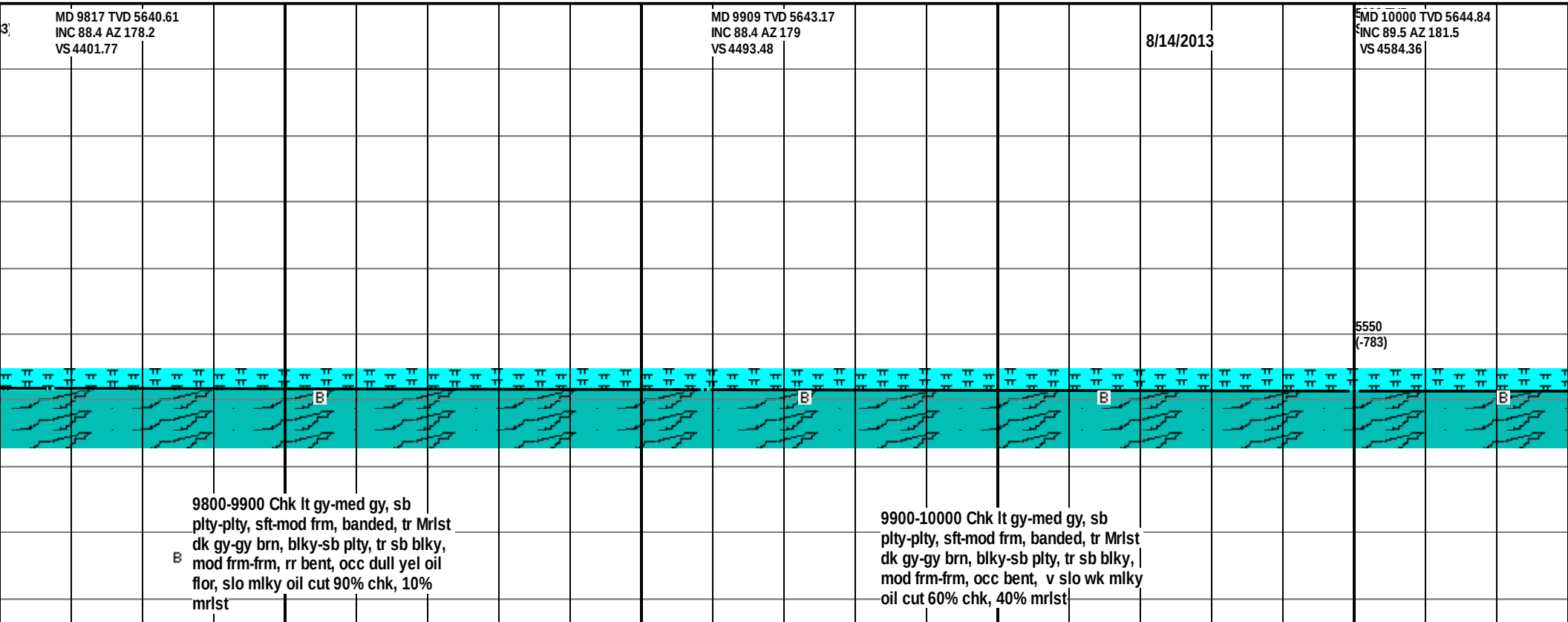

MD 9175 TVD 5641.74
INC 90.2 AZ 180.5
VS 3761.27
5000 TVD
Sub Sea (-233)
MD 9266 TVD 5642.22
INC 89.2 AZ 179.6
VS 3852.16
MD 9358 TVD
INC 91.2 AZ 17
VS 3944.01
5550
(-783)
B
B
B
B
lt gy-med gy, grdg to dk
lty, sft-mod frm, banded,
y-gy brn, blky-sb plty, tr
m-frm, tr-occ bent, slo
% chk, 20% mrlst
9200-9300 Chk lt gy-med gy, sb
plty-plty, sft-mod frm, banded, occ Mrlst
dk gy-gy brn, blky-sb plty, tr sb blky,
mod frm-frm, tr-occ bent, slo mlky oil
cut 65% chk, 35% mrlst
9300-9400 Chk lt gy-med gy, sb
plty-plty, sft-mod frm, banded, occ-tr
Mrlst dk gy-gy brn, blky-sb plty, tr sb
blky, mod frm-frm, tr-occ bent, slo mlky
oil cut 80% chk, 20% mrlst

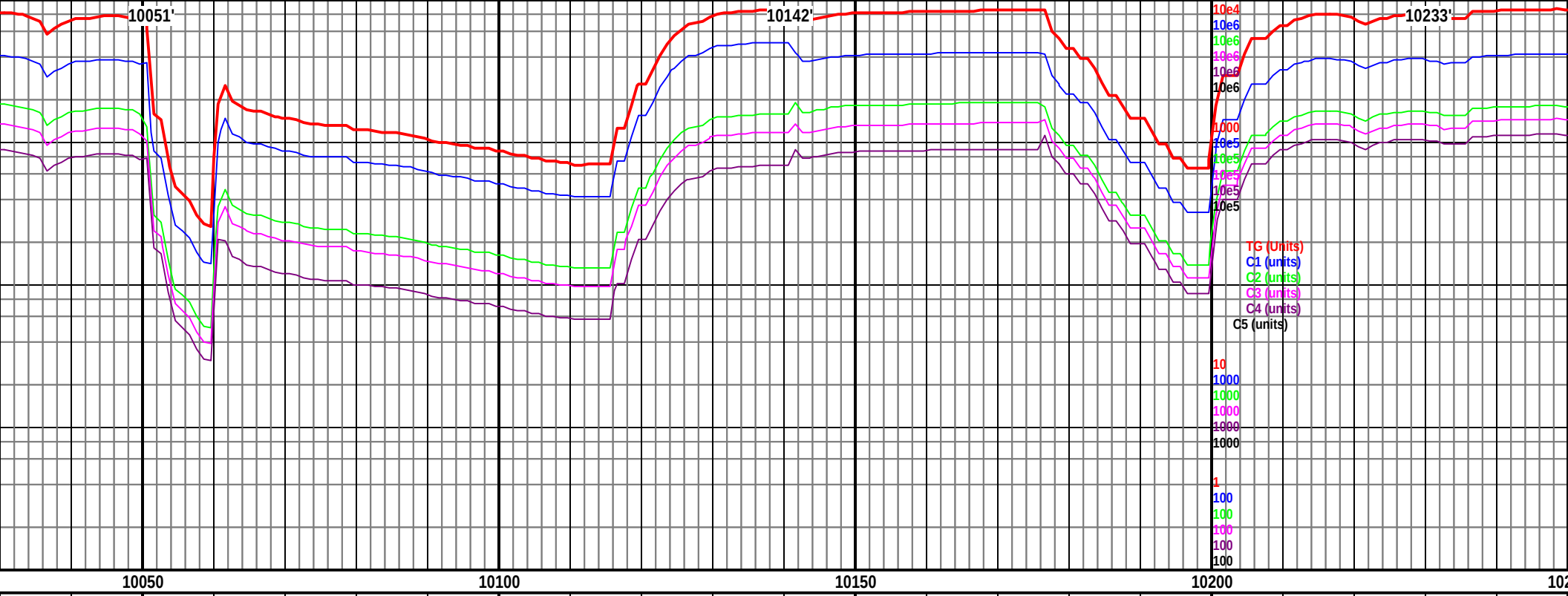

9408'
9500'
10e6
10e5
1000
100
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
Wt. 8.85
Vis 34
Wt. 8.9
Vis 34
9400
9450
9500
9550

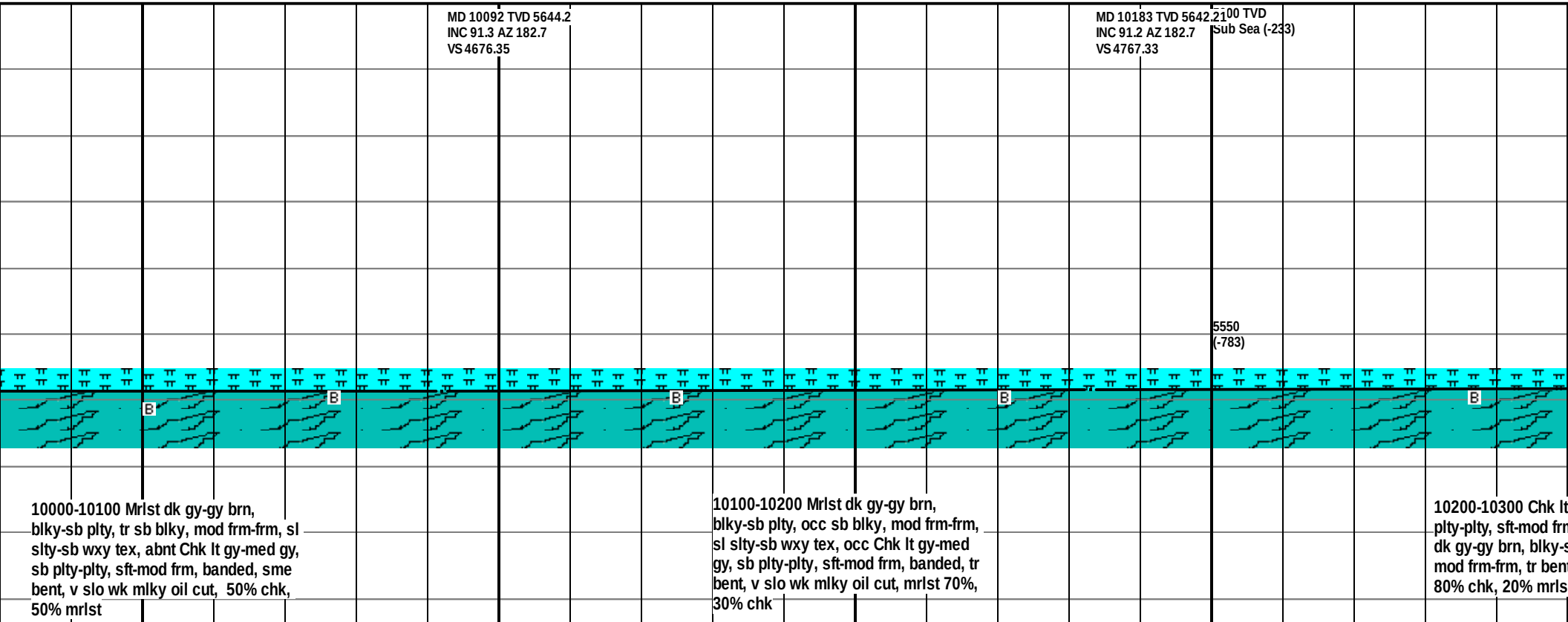

5641.9
79.6
5000 TVD
Sub Sea (-233)
MD 9450 TVD 5640.21
INC 90.9 AZ 179
VS 4035.81
MD 9542 TVD 5638.53
INC 91.2 AZ 179.1
VS 4127.59
5550
(-783)
B
P
9400-9500 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr bent, slo mlky oil cut 70% chk, 30% mrlst
9500-9600 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, occ-tr Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr bent, rr pyr, slo mlky oil cut 60% chk, 40% mrlst

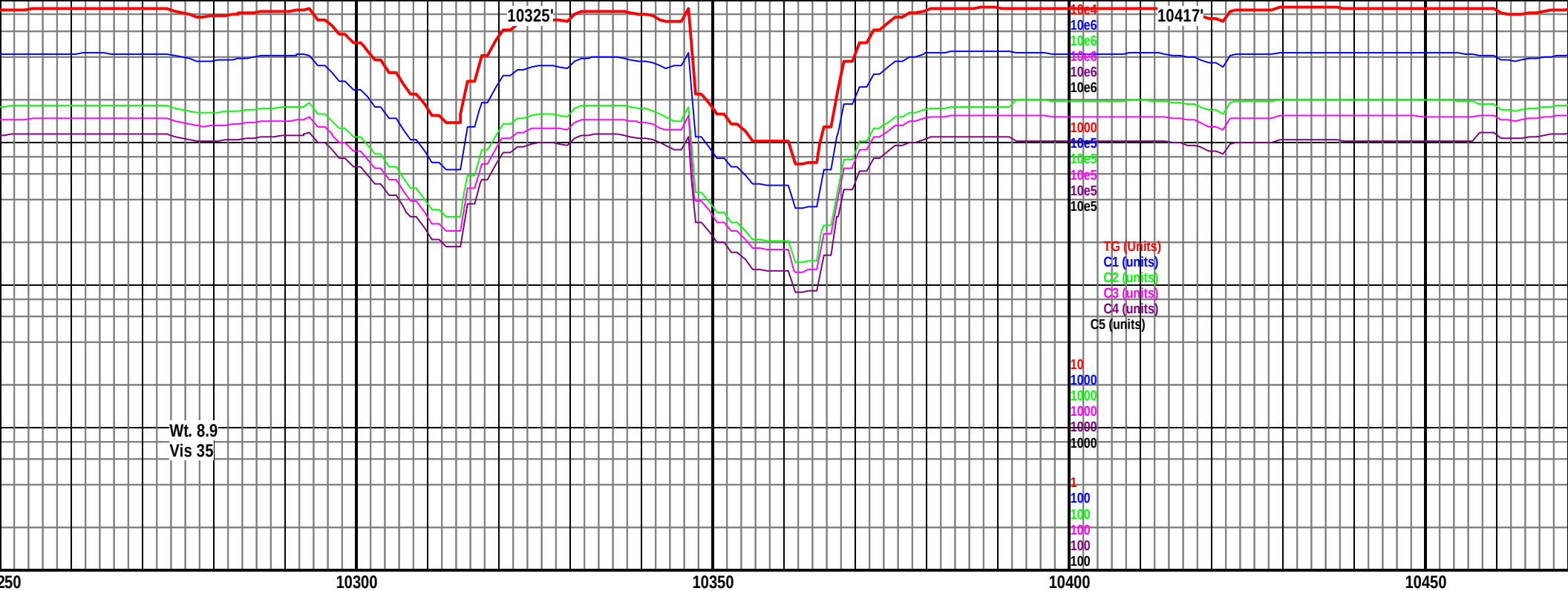

92'
9684'
9776'
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
Wt. 8.9
Vis 34
9600
9650
9700
9750
9800
5000 TVD
Sub Sea (-233)
MD 9634 TVD 5637.64
INC 89.9 AZ 178.1
VS 4219.33
MD 9725 TVD 5638.52
INC 89 AZ 178.8
VS 4310.06
5550
(-783)
B
9600-9700 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, tr Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr bent, slo mod fst, mlky oil cut 90% chk, 10% mrlst
9700-9800 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, tr Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, tr-rr bent, mod fst, mlky oil cut 90% chk, 10% mrlst


9867'
9959'
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
Wt. 8.9
Vis 34
9850
9900
9950
10000


MD 9817 TVD 5640.61
INC 88.4 AZ 178.2
VS 4401.77
MD 9909 TVD 5643.17
INC 88.4 AZ 179
VS 4493.48
8/14/2013
MD 10000 TVD 5644.84
INC 89.5 AZ 181.5
VS 4584.36
5550
(-783)
B
9800-9900 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, tr Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, rr bent, occ dull yel oil flor, slo mlky oil cut 90% chk, 10% mrlst
9900-10000 Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, tr Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, occ bent, v slo wk mlky oil cut 60% chk, 40% mrlst


10051'
10142'
10233'
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10050
10100
10150
10200


MD 10092 TVD 5644.2
INC 91.3 AZ 182.7
VS 4676.35
MD 10183 TVD 5642.21
INC 91.2 AZ 182.7
VS 4767.33
Sub Sea (-233)
5550
(-783)
B
10000-10100 Mrlst dk gy-gy brn, blky-sb plty, tr sb blky, mod frm-frm, sl slty-sb wxy tex, abnt Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, sme bent, v slo wk mlky oil cut, 50% chk, 50% mrlst
10100-10200 Mrlst dk gy-gy brn, blky-sb plty, occ sb blky, mod frm-frm, sl slty-sb wxy tex, occ Chk lt gy-med gy, sb plty-plty, sft-mod frm, banded, tr bent, v slo wk mlky oil cut, mrlst 70%, 30% chk
10200-10300 Chk lt
plty-plty, sft-mod fr
dk gy-gy brn, blky-s
mod frm-frm, tr bent
80% chk, 20% mrls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10417'
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10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
10
1000
1000
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100
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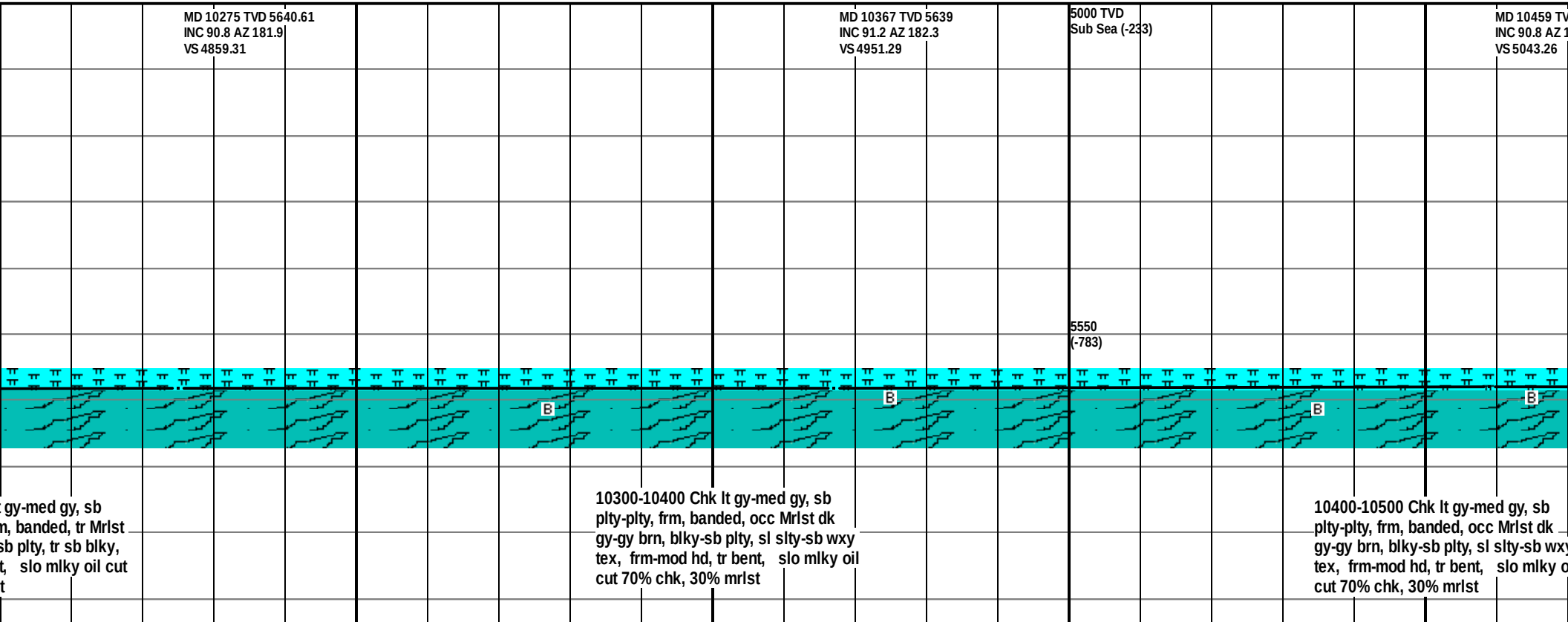
Wt. 8.9
Vis 35
250
10300
10350
10400
10450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INC 90.8 AZ 181.9
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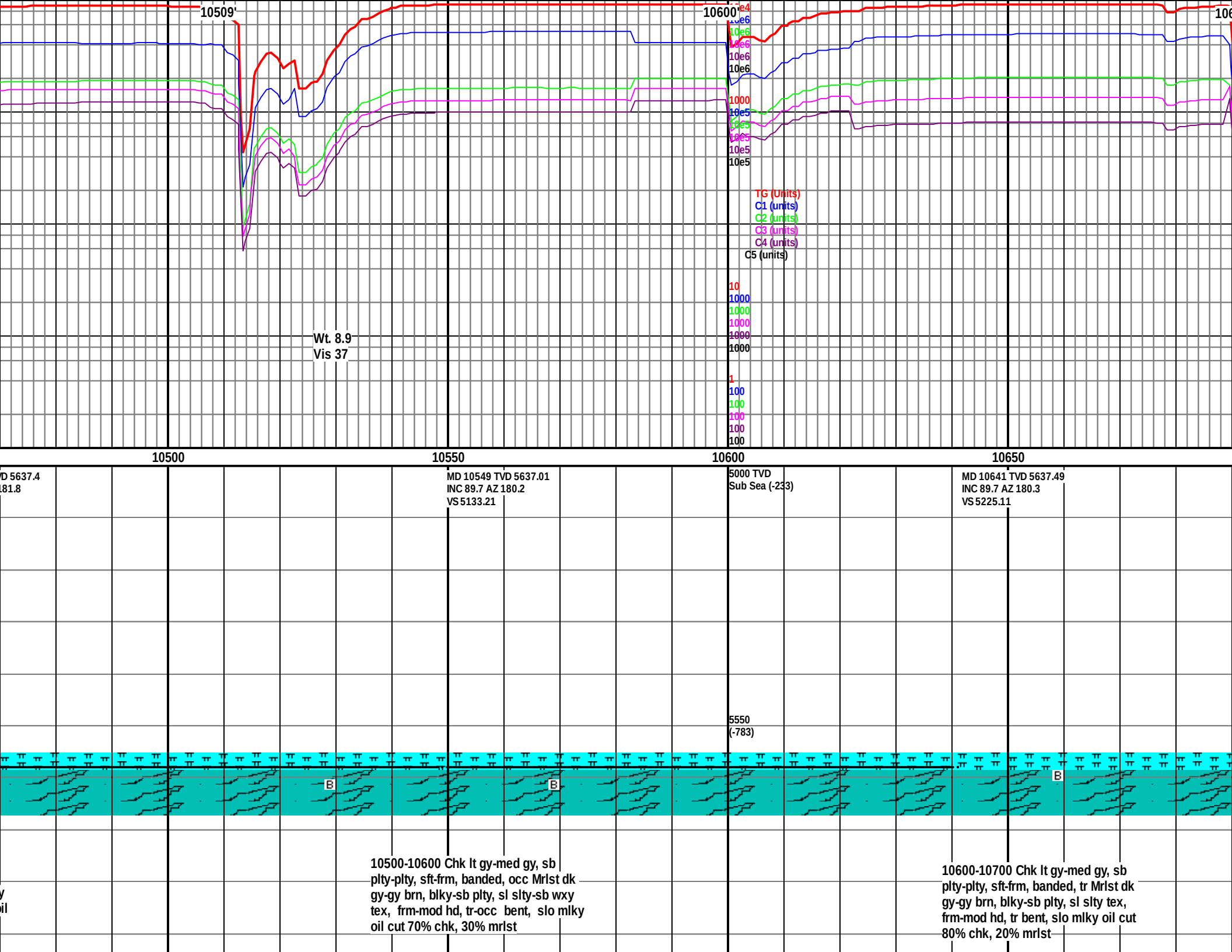
MD 10367 TVD 5639
INC 91.2 AZ 182.3
VS 4951.29
5000 TVD
Sub Sea (-233)
MD 10459 TV
INC 90.8 AZ 1
VS 5043.26
5550
(-783)
B
B
B
B
gy-med gy, sb
m, banded, tr Mrlst
sb plty, tr sb blky,
t, slo mlky oil cut
t
10300-10400 Chk lt gy-med gy, sb
plty-plty, frm, banded, occ Mrlst dk
gy-gy brn, blky-sb plty, sl slty-sb wxy
tex, frm-mod hd, tr bent, slo mlky oil
cut 70% chk, 30% mrlst
10400-10500 Chk lt gy-med gy, sb
plty-plty, frm, banded, occ Mrlst dk
gy-gy brn, blky-sb plty, sl slty-sb wx
tex, frm-mod hd, tr bent, slo mlky o
cut 70% chk, 30% mrlst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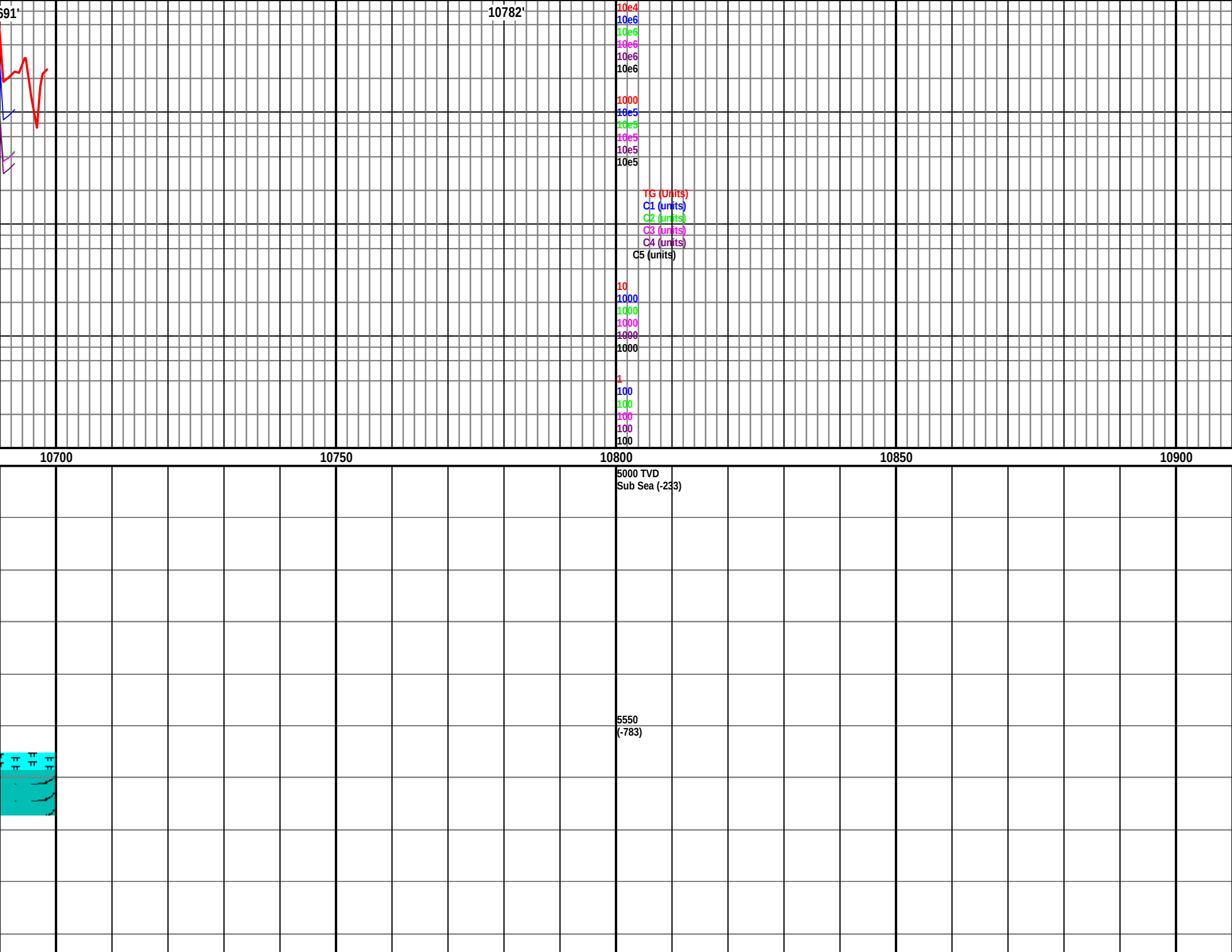
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
Wt. 8.9
Vis 37
10500
10550
10600
10650
MD 10549 TVD 5637.01
INC 89.7 AZ 180.2
VS 5133.21
5000 TVD
Sub Sea (-233)
MD 10641 TVD 5637.49
INC 89.7 AZ 180.3
VS 5225.11
5550
(-783)
B
10500-10600 Chk lt gy-med gy, sb plty-plty, sft-frm, banded, occ Mrlst dk gy-gy brn, blky-sb plty, sl slty-sb wxy tex, frm-mod hd, tr-occ bent, slo mlky oil cut 70% chk, 30% mrlst
10600-10700 Chk lt gy-med gy, sb plty-plty, sft-frm, banded, tr Mrlst dk gy-gy brn, blky-sb plty, sl slty tex, frm-mod hd, tr bent, slo mlky oil cut 80% chk, 20% mrlst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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
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10900
5000 TVD
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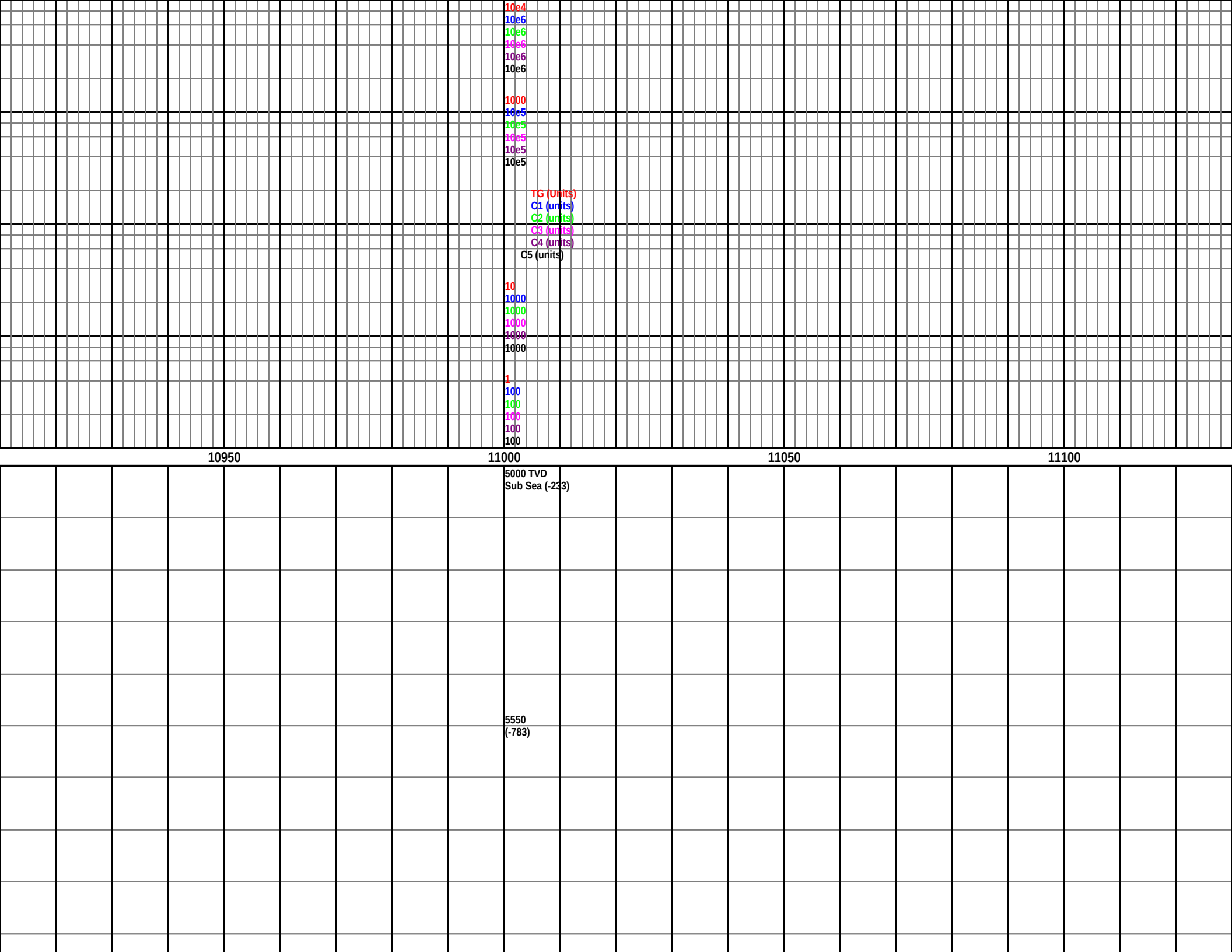
(-783)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C4 (units)
C5 (units)
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1000
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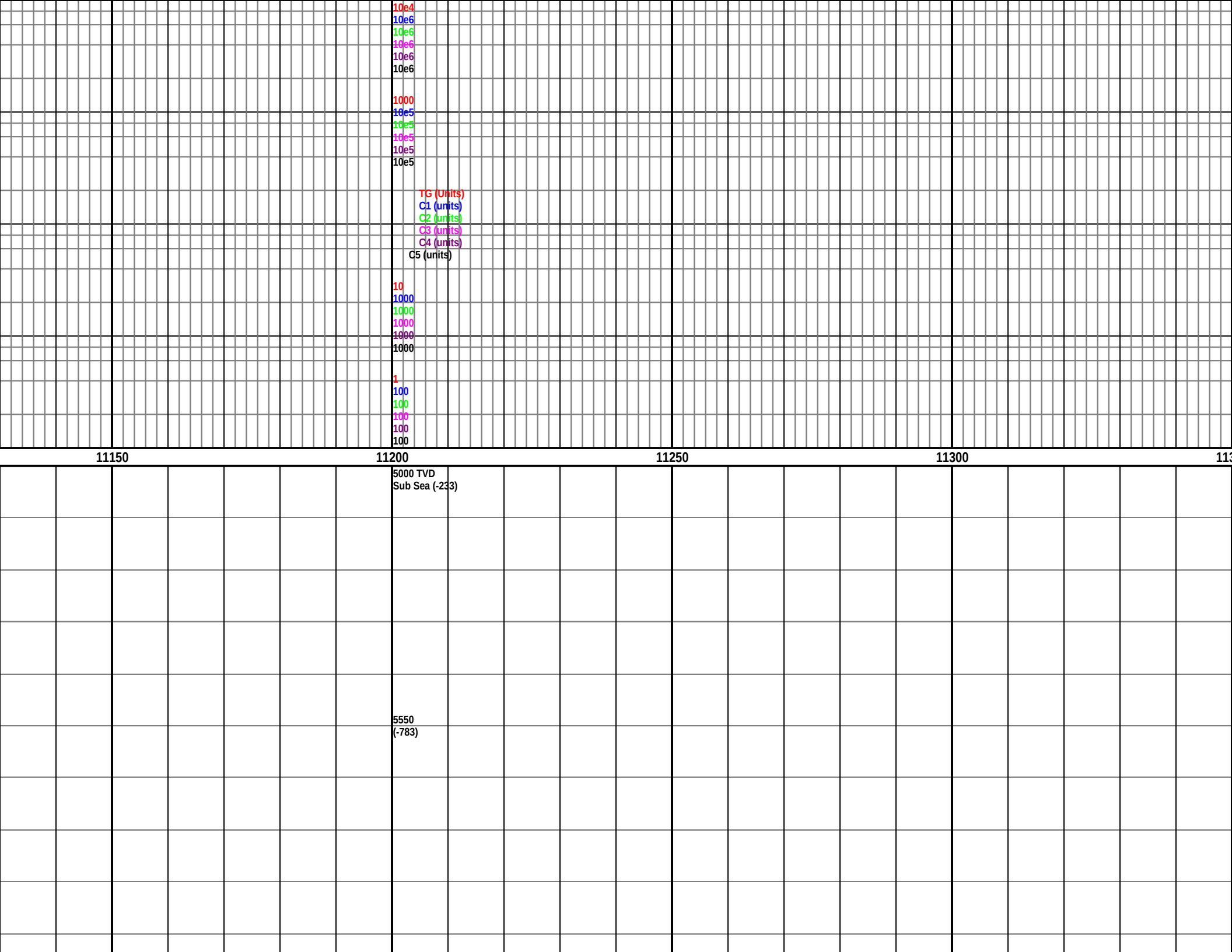
(-783)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C5 (units)
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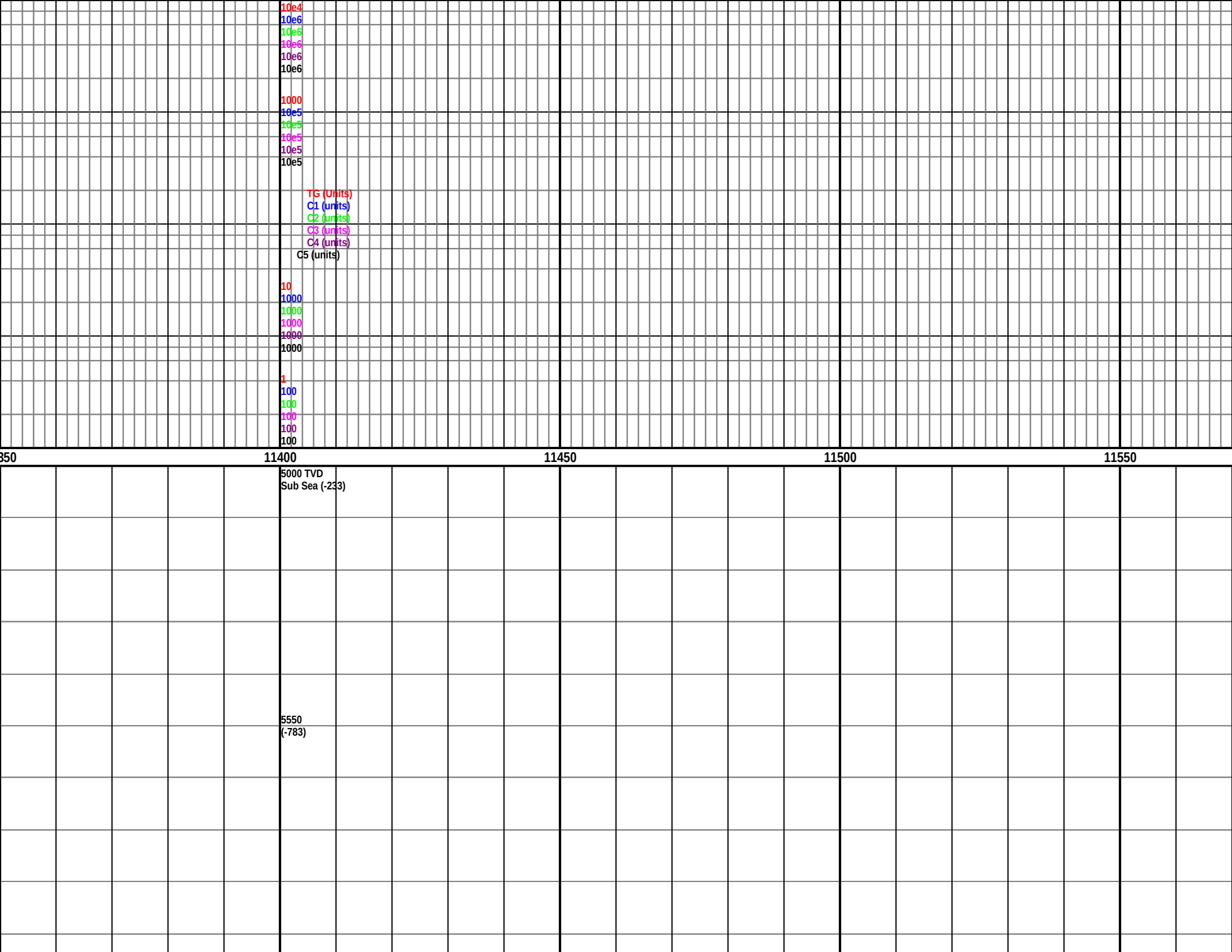
(-783)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C5 (units)
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1000
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1000
1000
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5000 TVD
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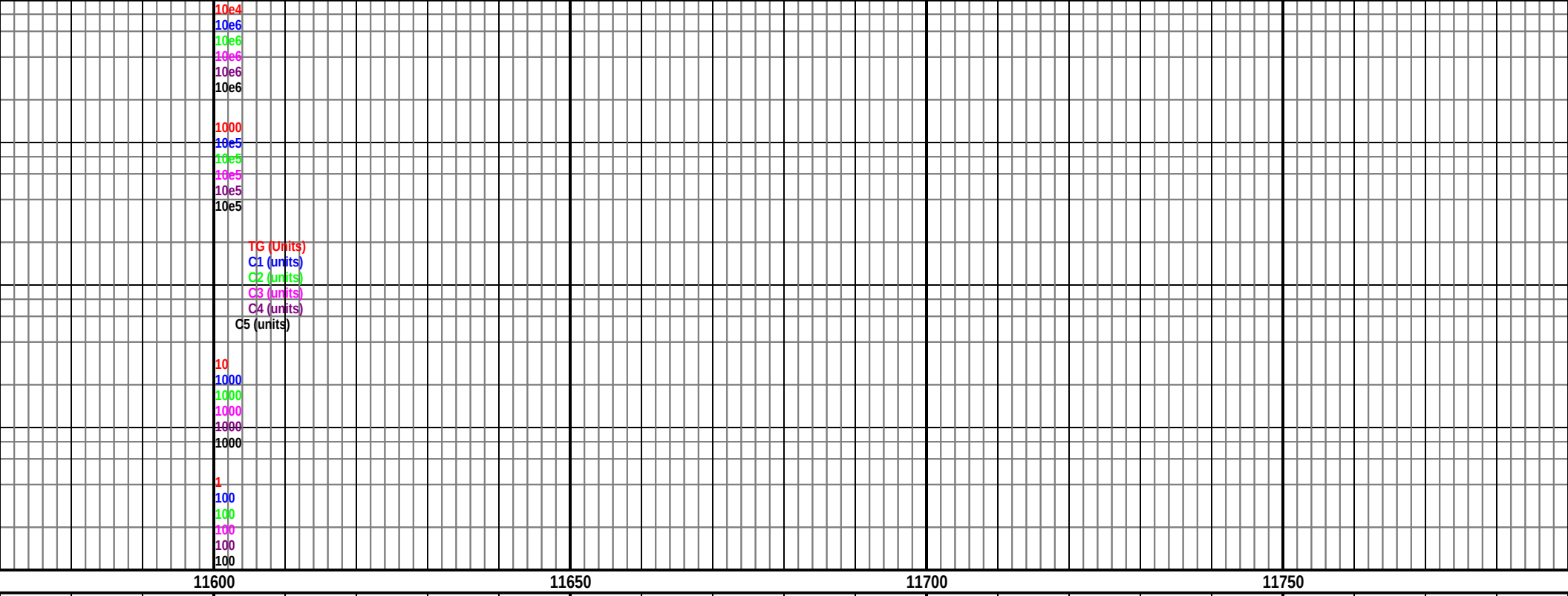
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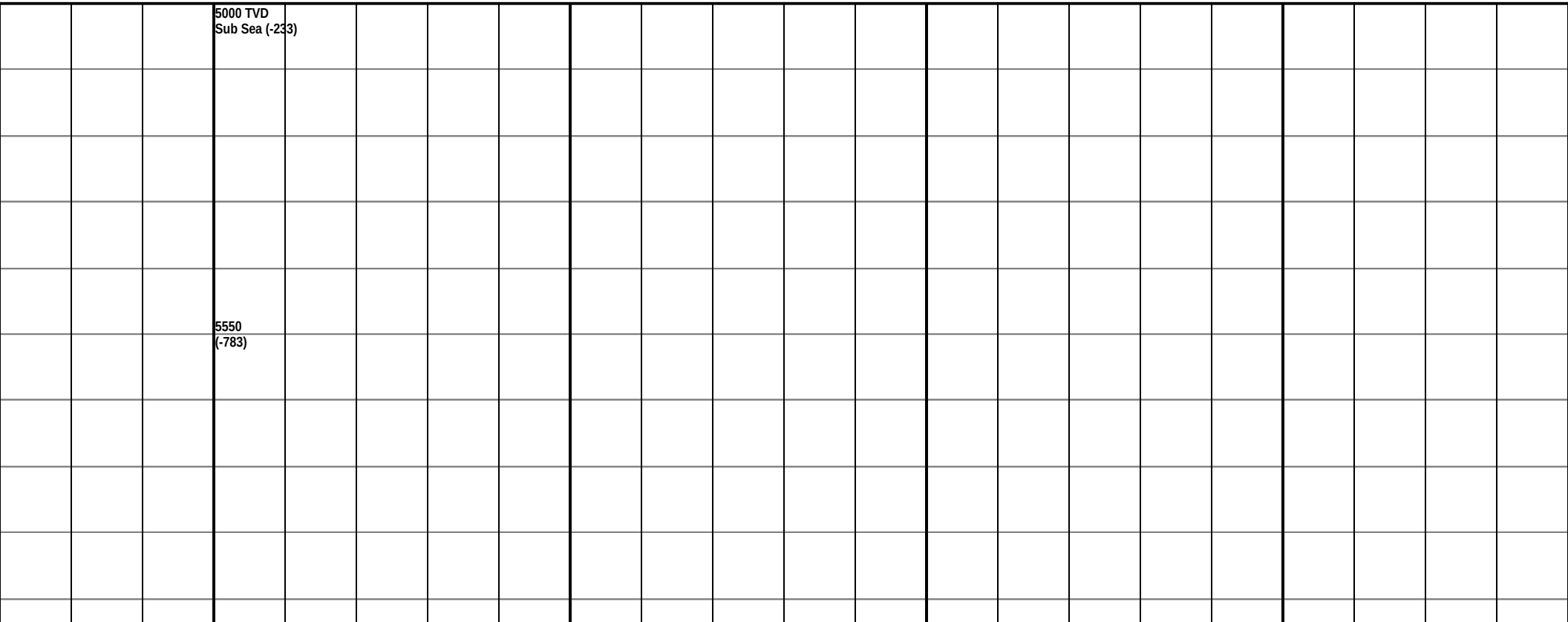
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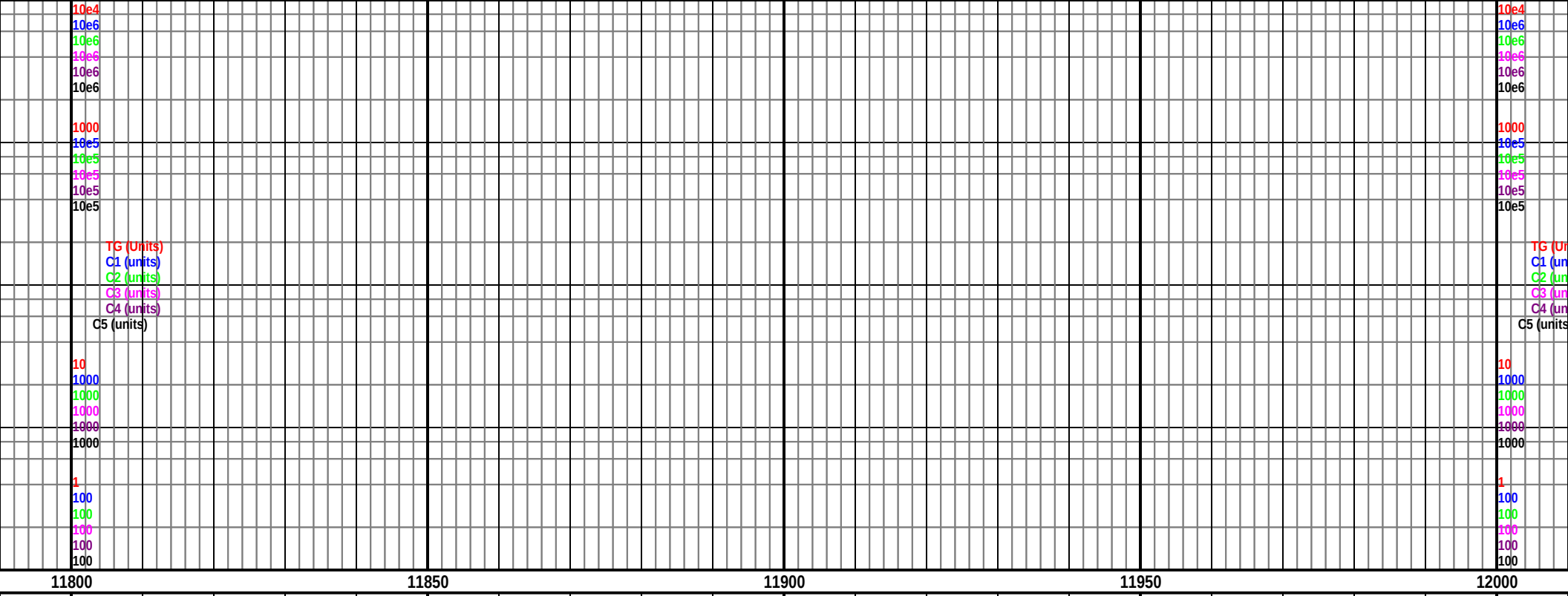
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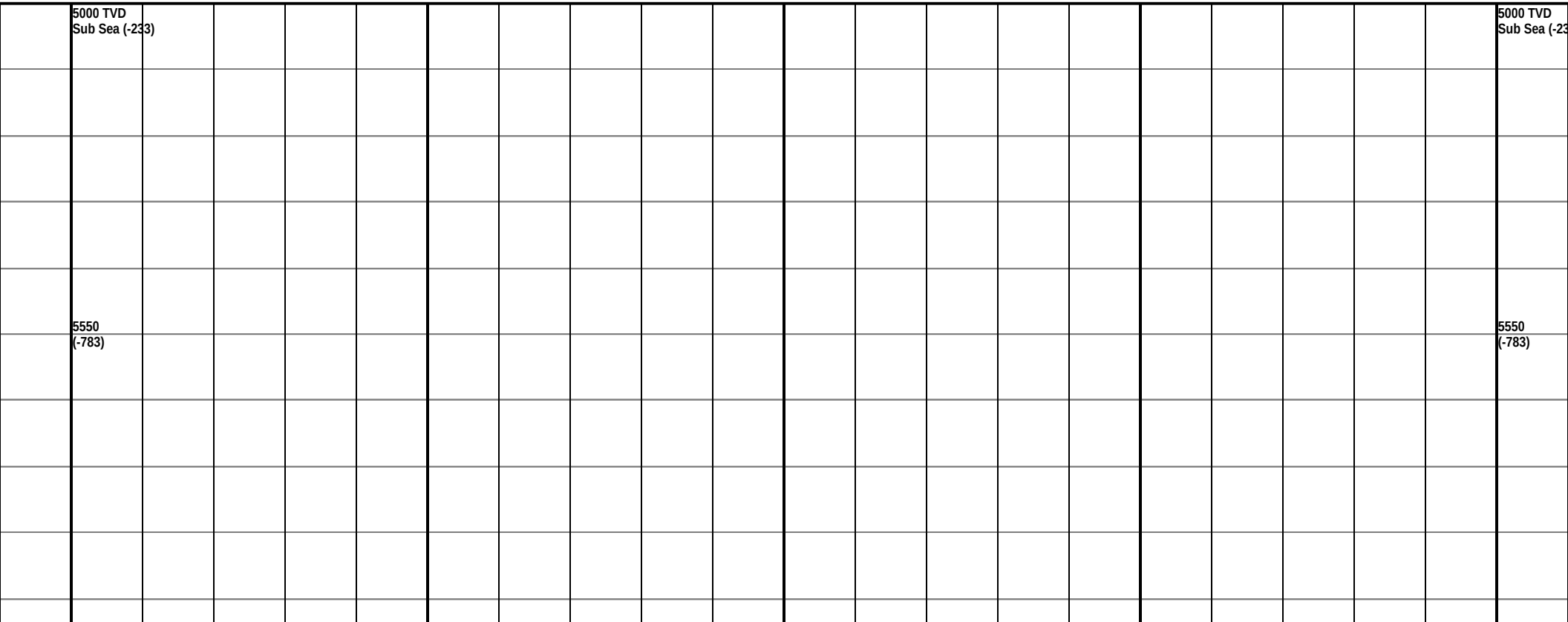
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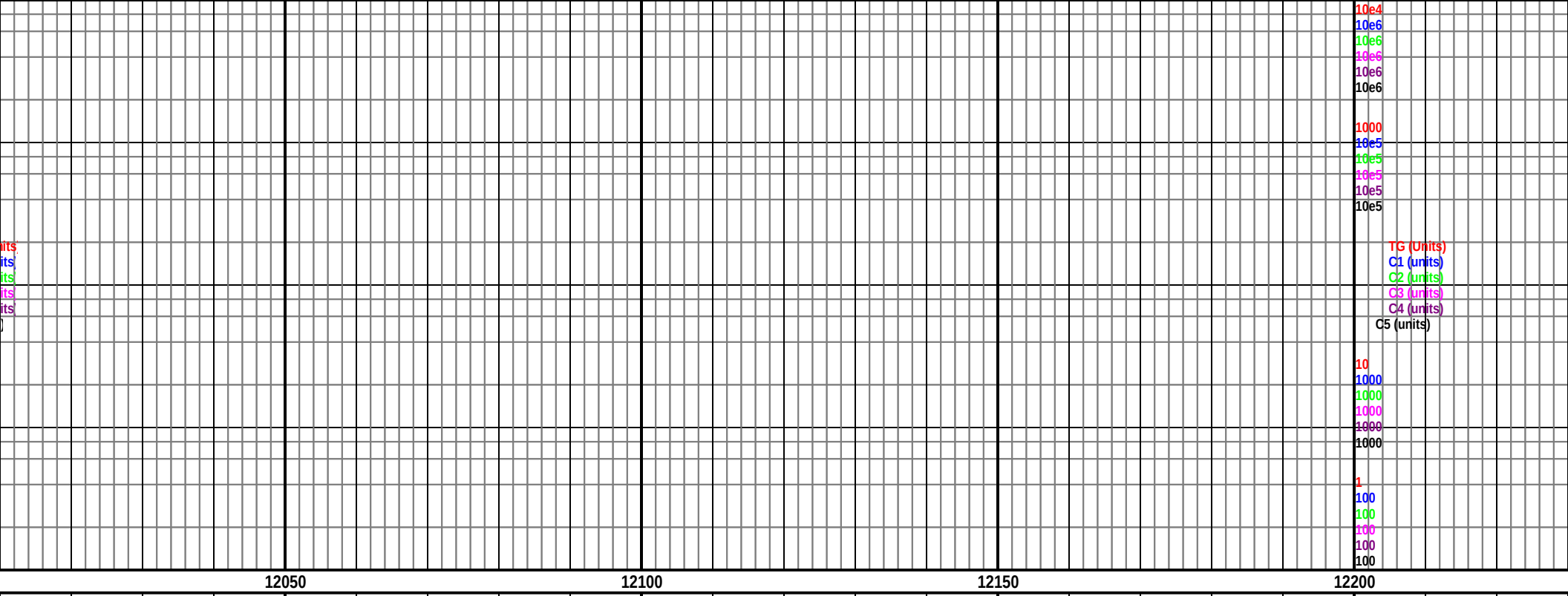
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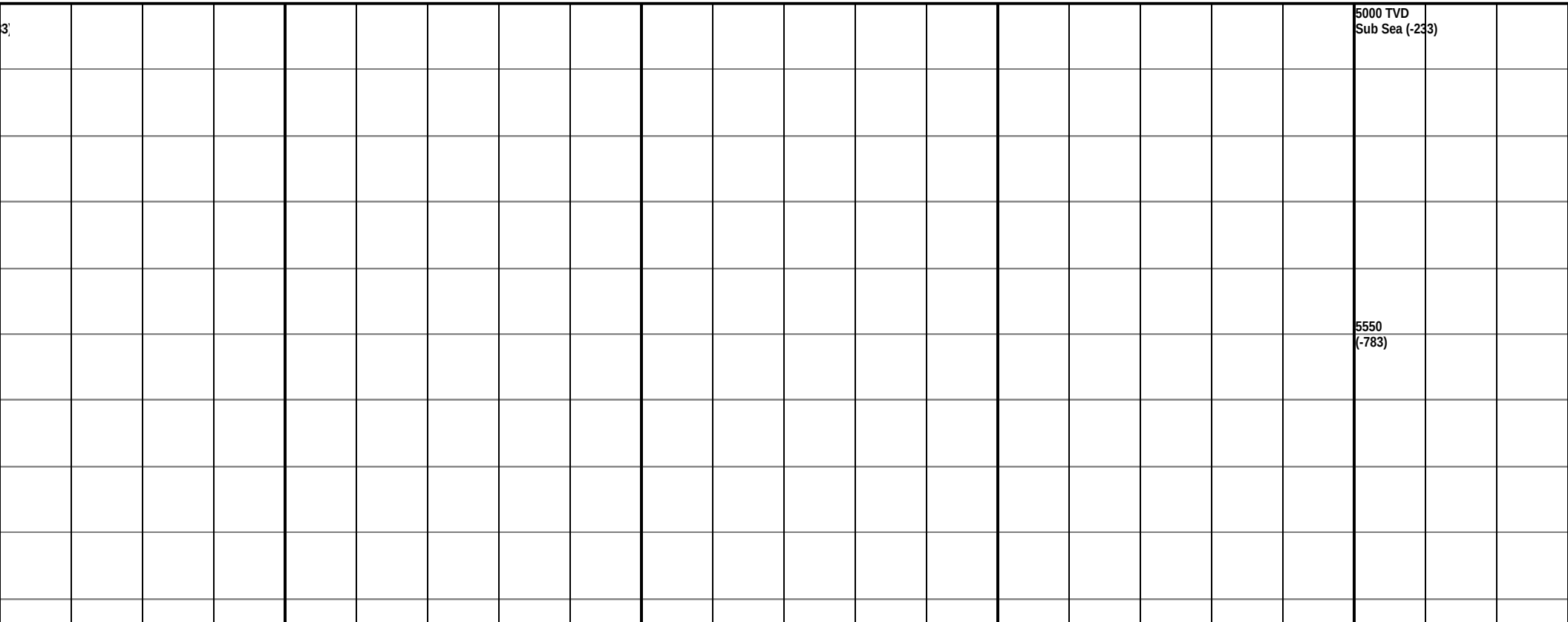
3
5000 TVD
Sub Sea (-233)
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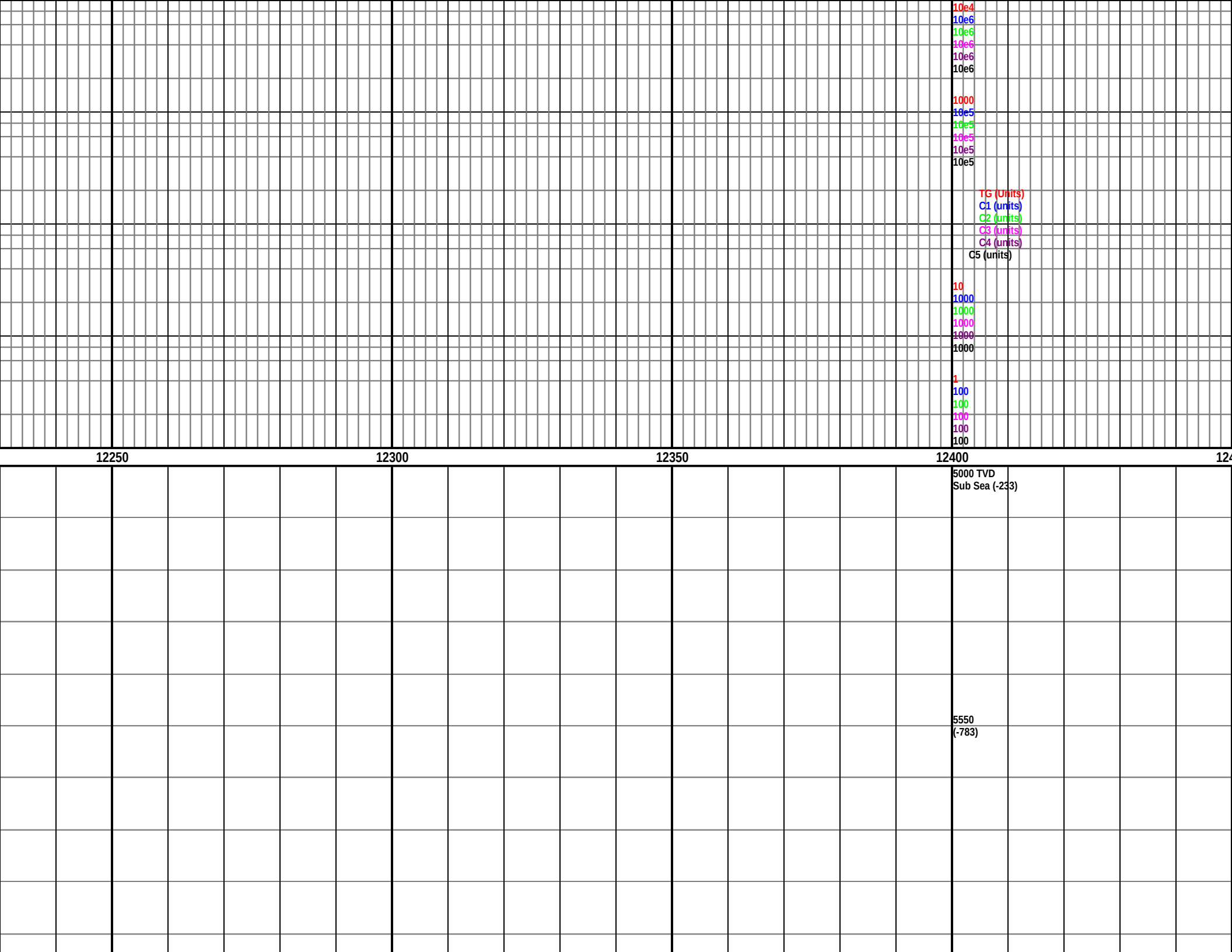
(-783)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Sub Sea (-233)
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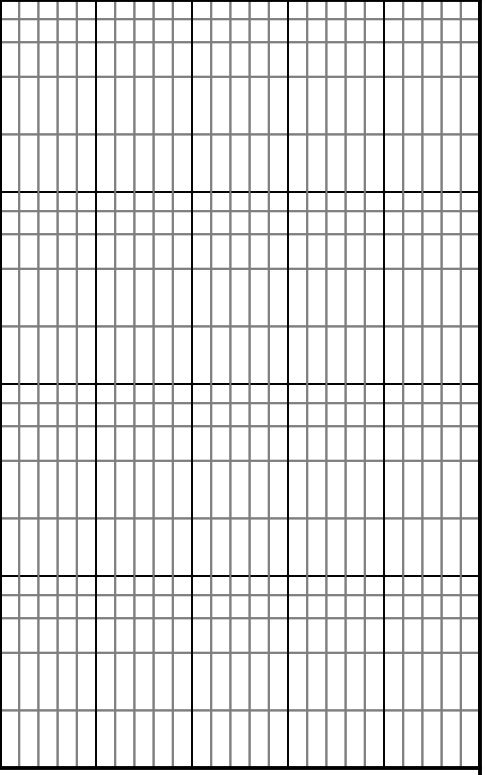
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12