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

Well Name:	Razor Federal 26L-3503A		
Well Id:			
Location:	NWSW 26-T10N-R58W		
License Number:	05-123-37991	Region:	Redtail Field
Spud Date:	6/10/2014	Drilling Completed:	
Surface Coordinates:	Lat.: 40.808739 Long.: -103.839292		
Bottom Hole Coordinates:	Lat.: 40.789378 Long.: -103.838289		
Ground Elevation (ft):	4734	K.B. Elevation (ft):	4751
Logged Interval (ft):	7028 To: 12500	Total Depth (ft):	12500
Formation:	Pierre, Sharon Springs, Niobrara A		
Type of Drilling Fluid:	Water Based Mud		

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

OPERATOR

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

GEOLOGIST

Name: Lauren Roddy 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

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

OTHER SYMBOLS

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

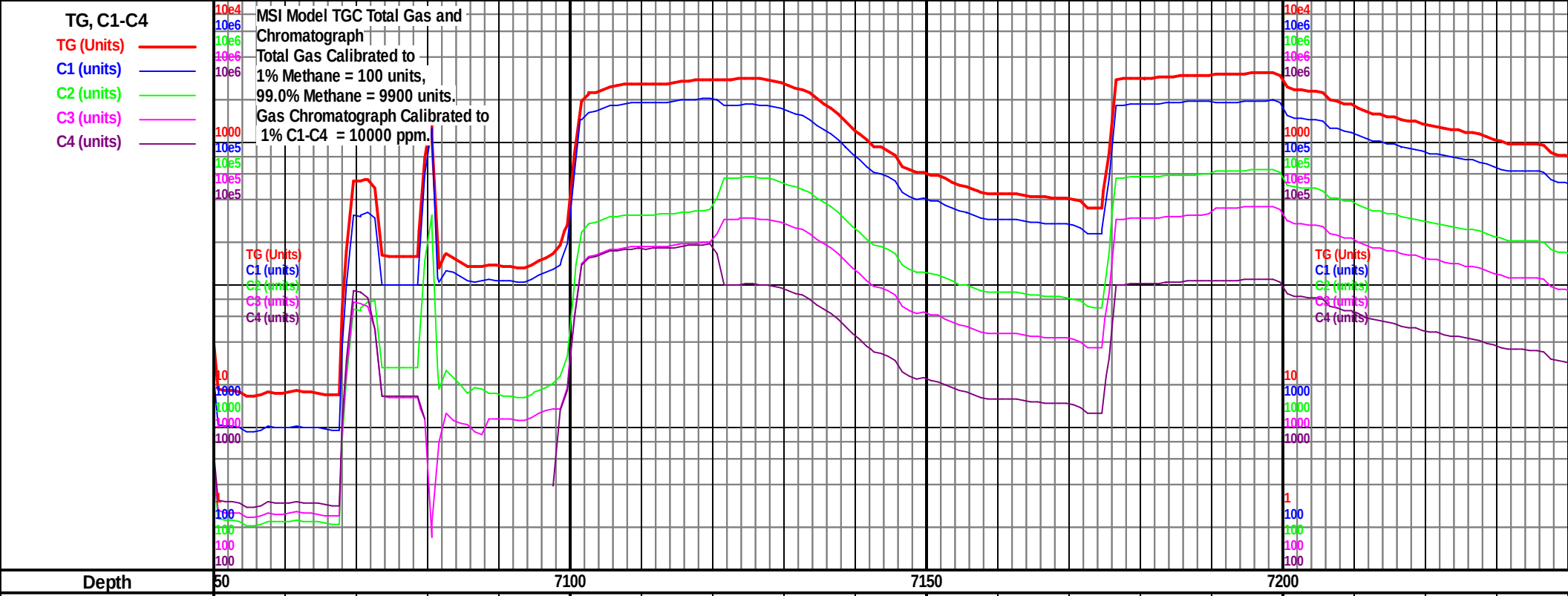
SORTING
- Well
- Moderate
- Poor

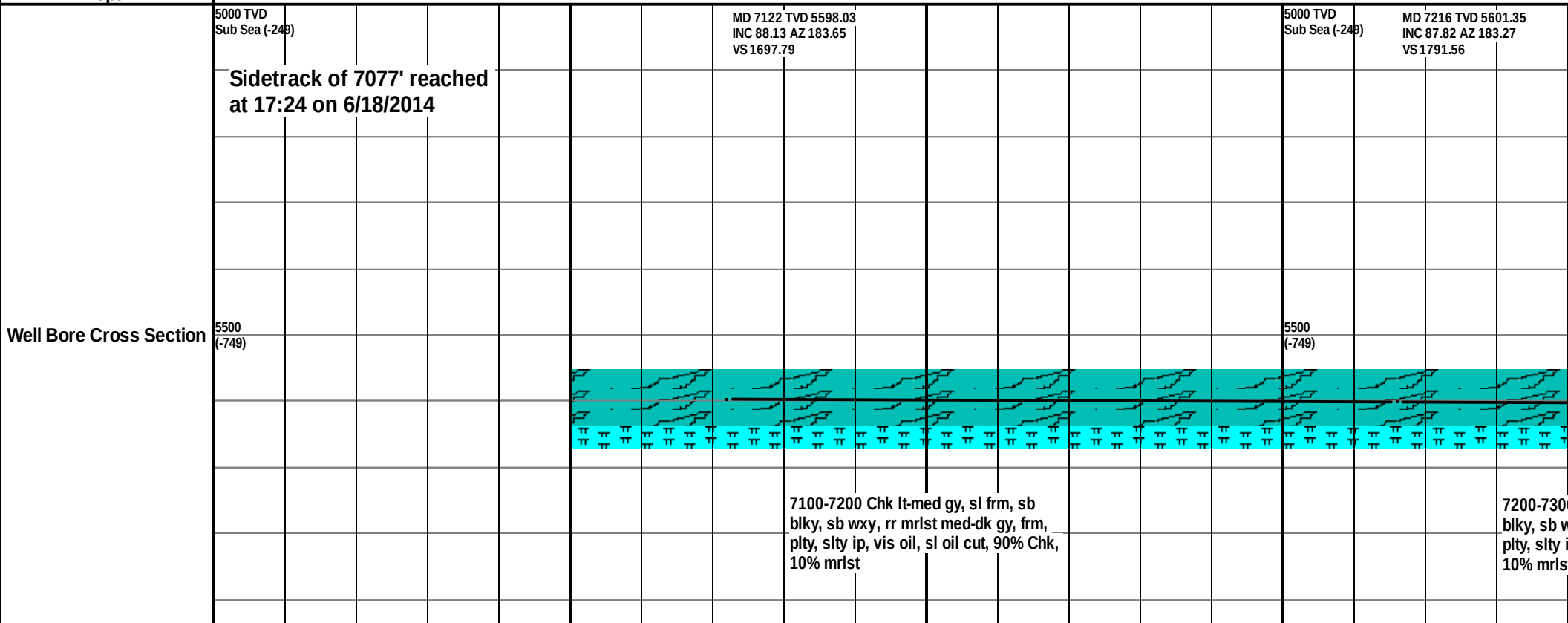
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

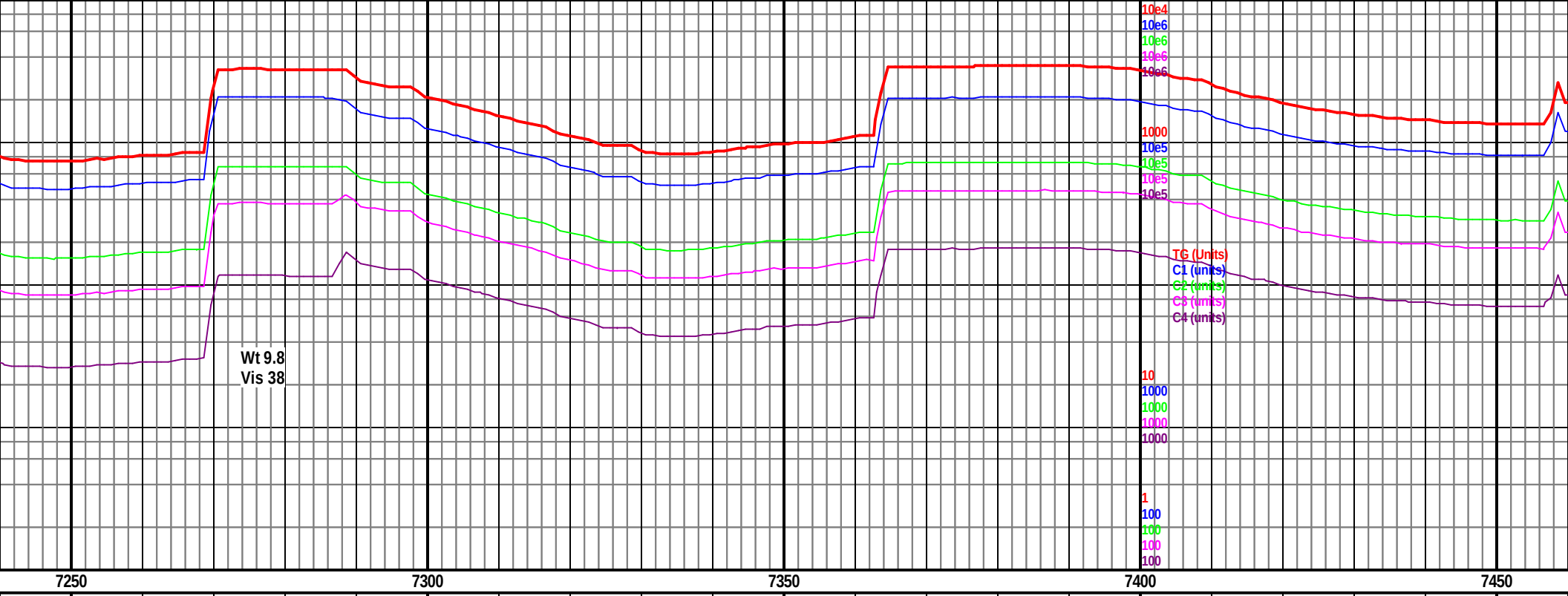
OIL SHOW
- Even
- Spotted
- Ques
- Dead

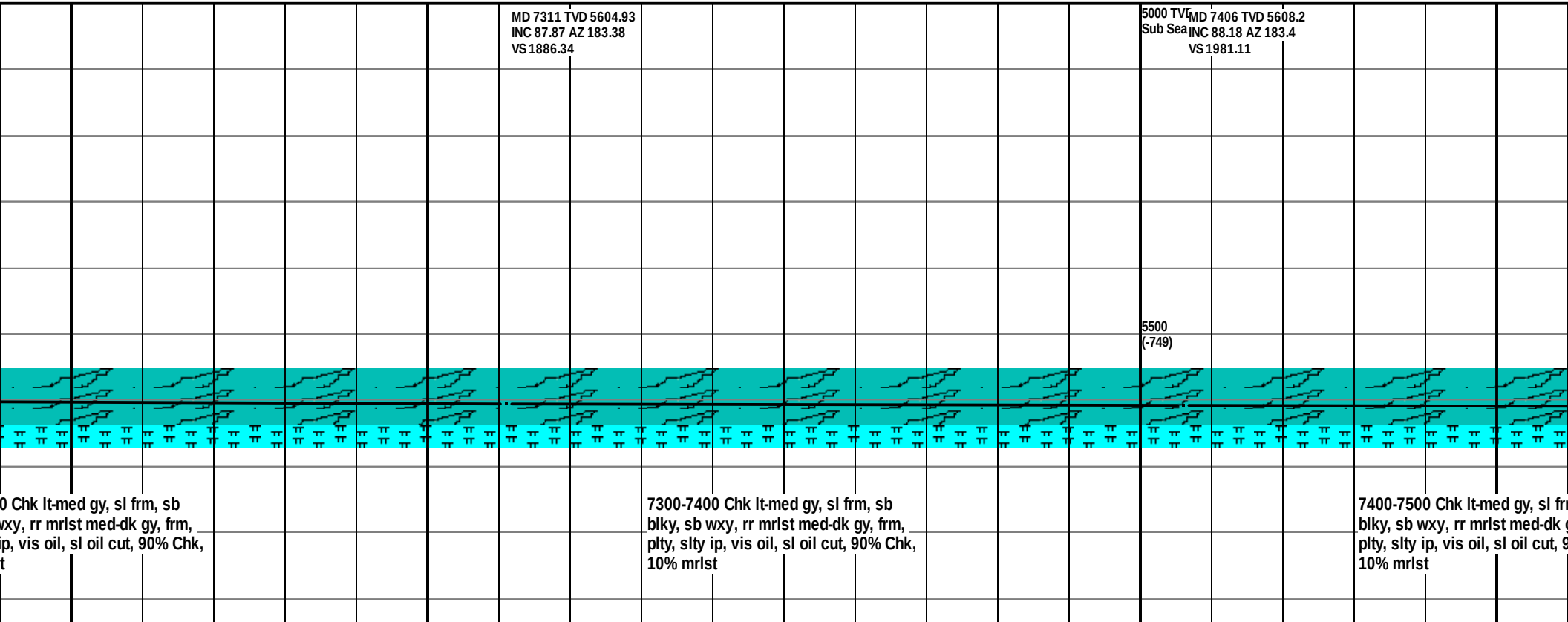
INTERVAL
- Core
- Dst

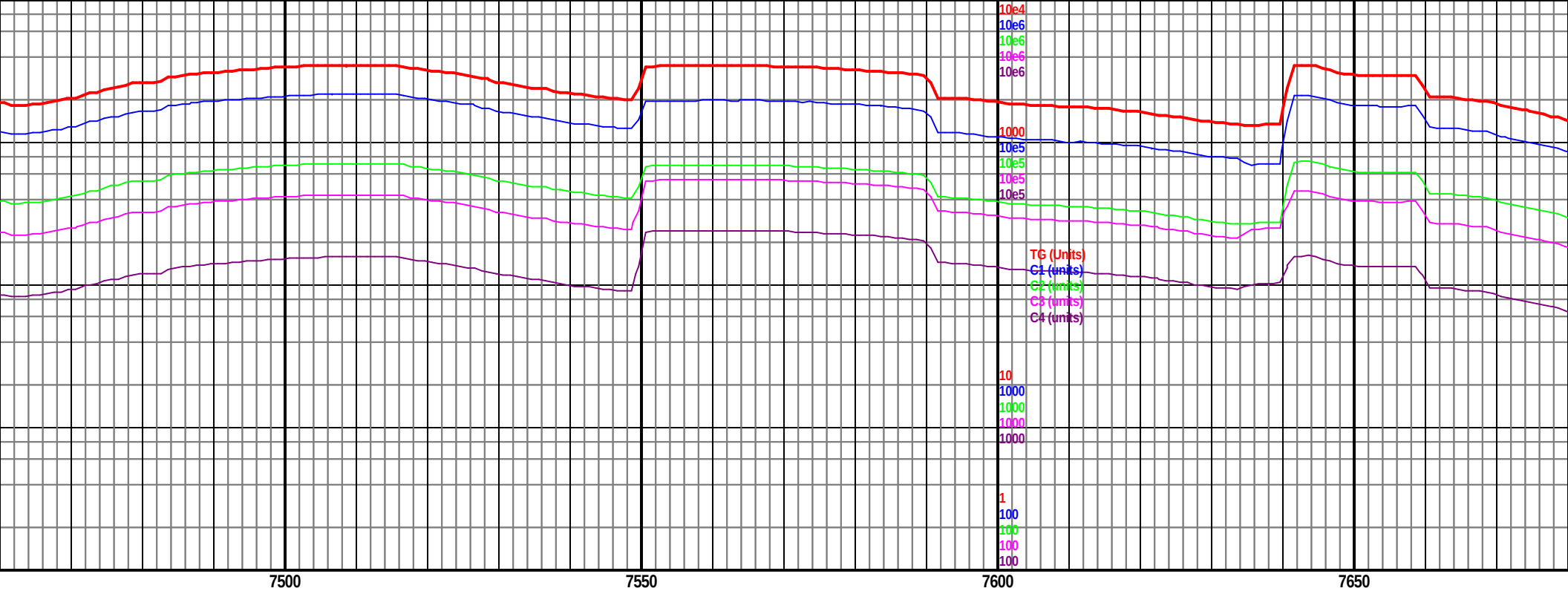
EVENT
- Rft
- Sidewall

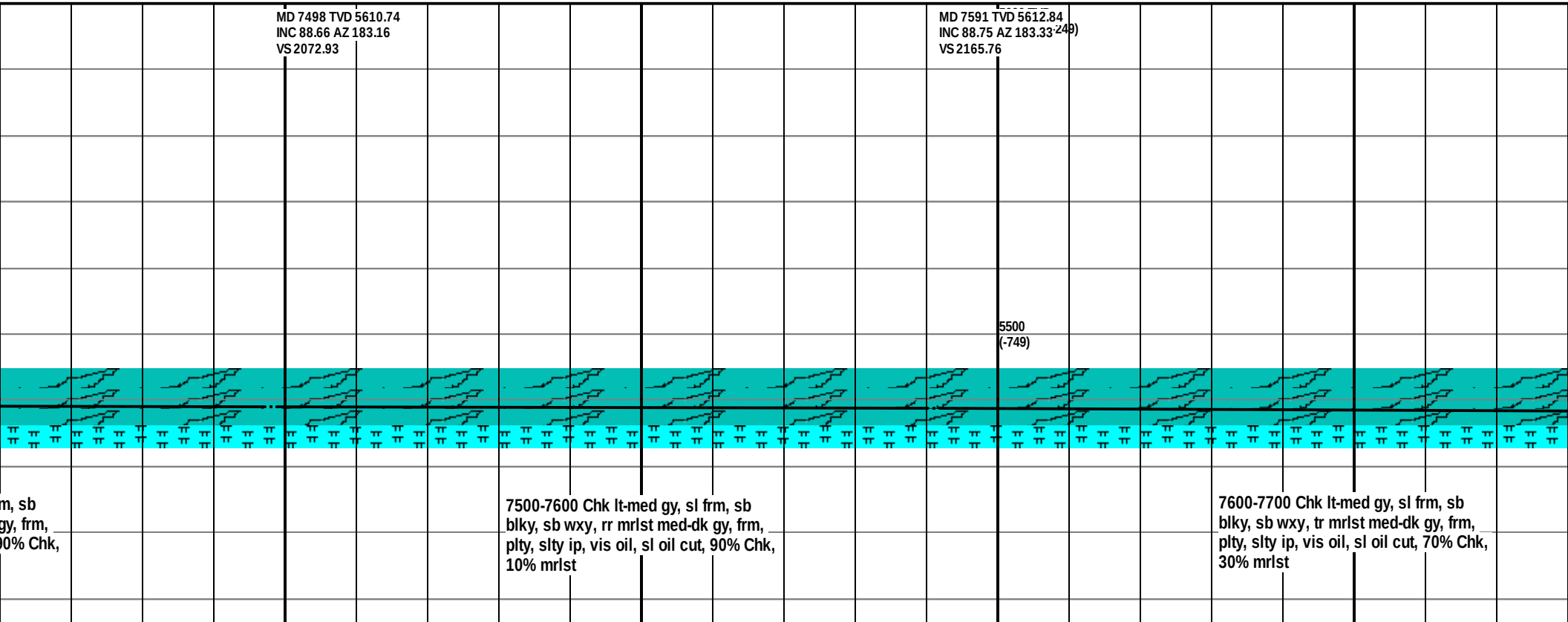

TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to 1% Methane = 100 units, 99.0% Methane = 9900 units.
Gas Chromatograph Calibrated to 1% C1-C4 = 10000 ppm.
Depth
50
7100
7150
7200

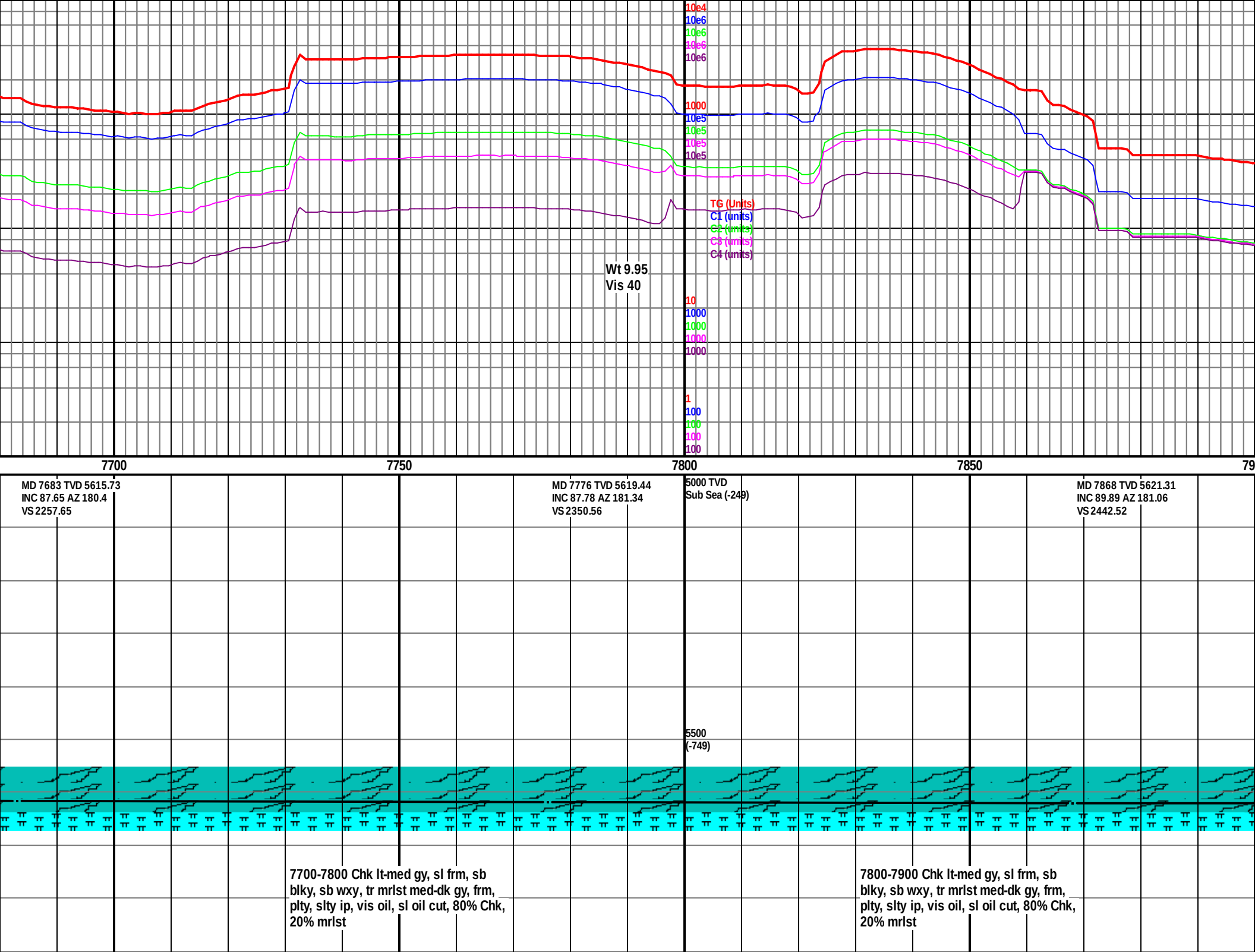

Well Bore Cross Section
5000 TVD
Sub Sea (-249)
Sidetrack of 7077' reached at 17:24 on 6/18/2014
MD 7122 TVD 5598.03
INC 88.13 AZ 183.65
VS 1697.79
MD 7216 TVD 5601.35
INC 87.82 AZ 183.27
VS 1791.56
5500
(-749)
7100-7200 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst

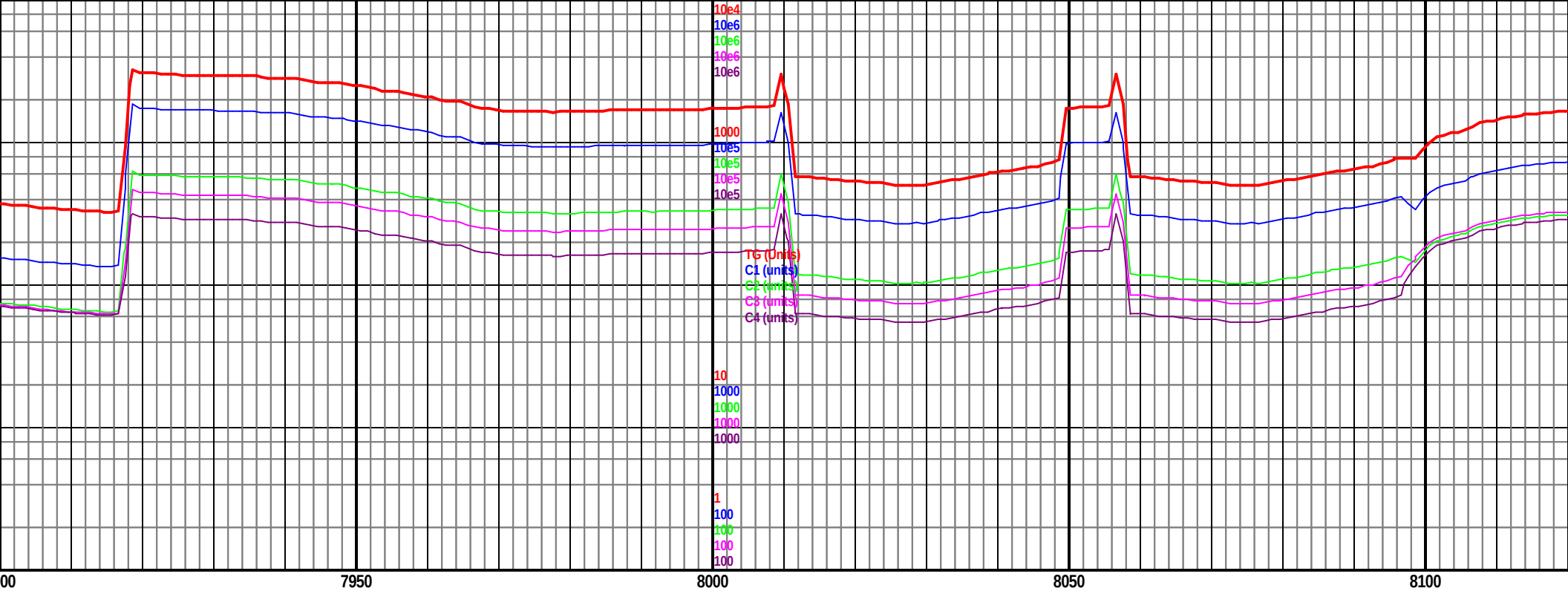

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.8
Vis 38
10
1000
1000
1000
1000
1
100
100
100
100
7250
7300
7350
7400
7450

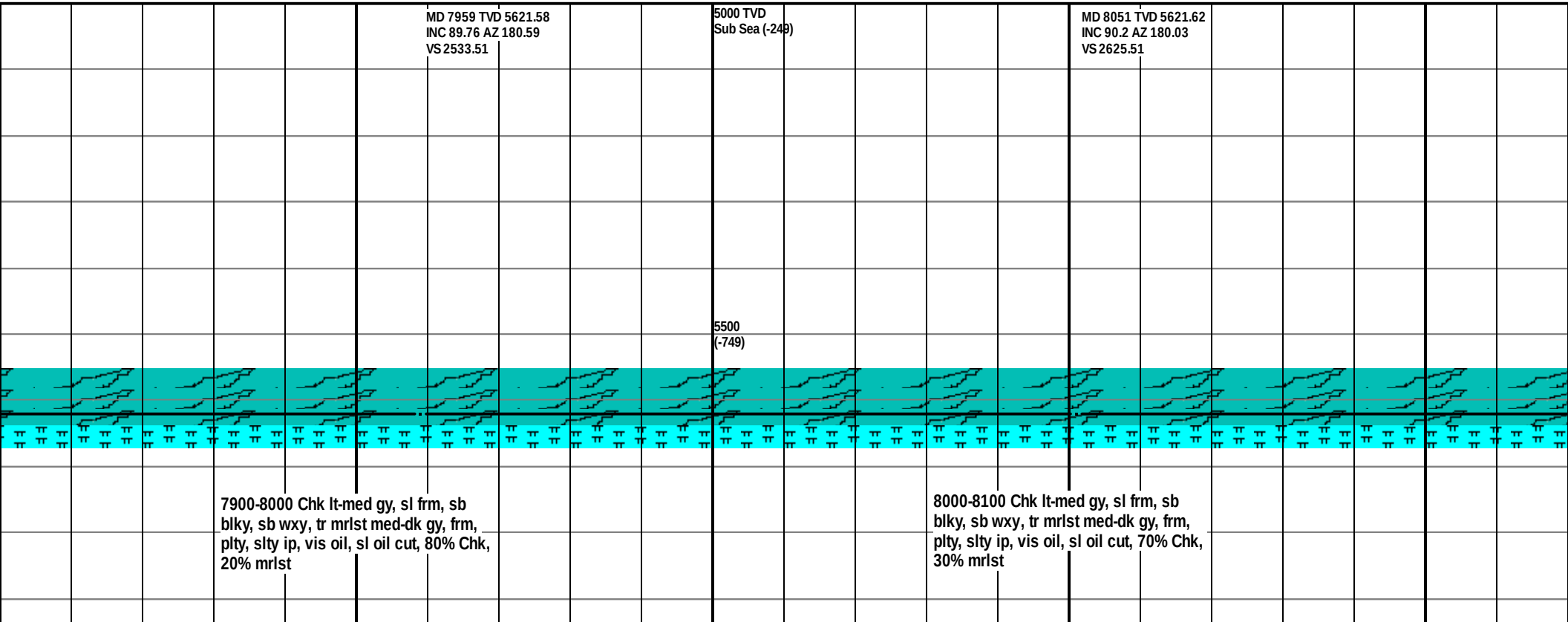

MD 7311 TVD 5604.93
INC 87.87 AZ 183.38
VS 1886.34
5000 TVD
Sub Sea
MD 7406 TVD 5608.2
INC 88.18 AZ 183.4
VS 1981.11
5500
(-749)
0 Chk lt-med gy, sl frm, sb
wxy, rr mrlst med-dk gy, frm,
ip, vis oil, sl oil cut, 90% Chk,
t
7300-7400 Chk lt-med gy, sl frm, sb
blky, sb wxy, rr mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 90% Chk,
10% mrlst
7400-7500 Chk lt-med gy, sl fr
blky, sb wxy, rr mrlst med-dk
plty, slty ip, vis oil, sl oil cut, 9
10% mrlst

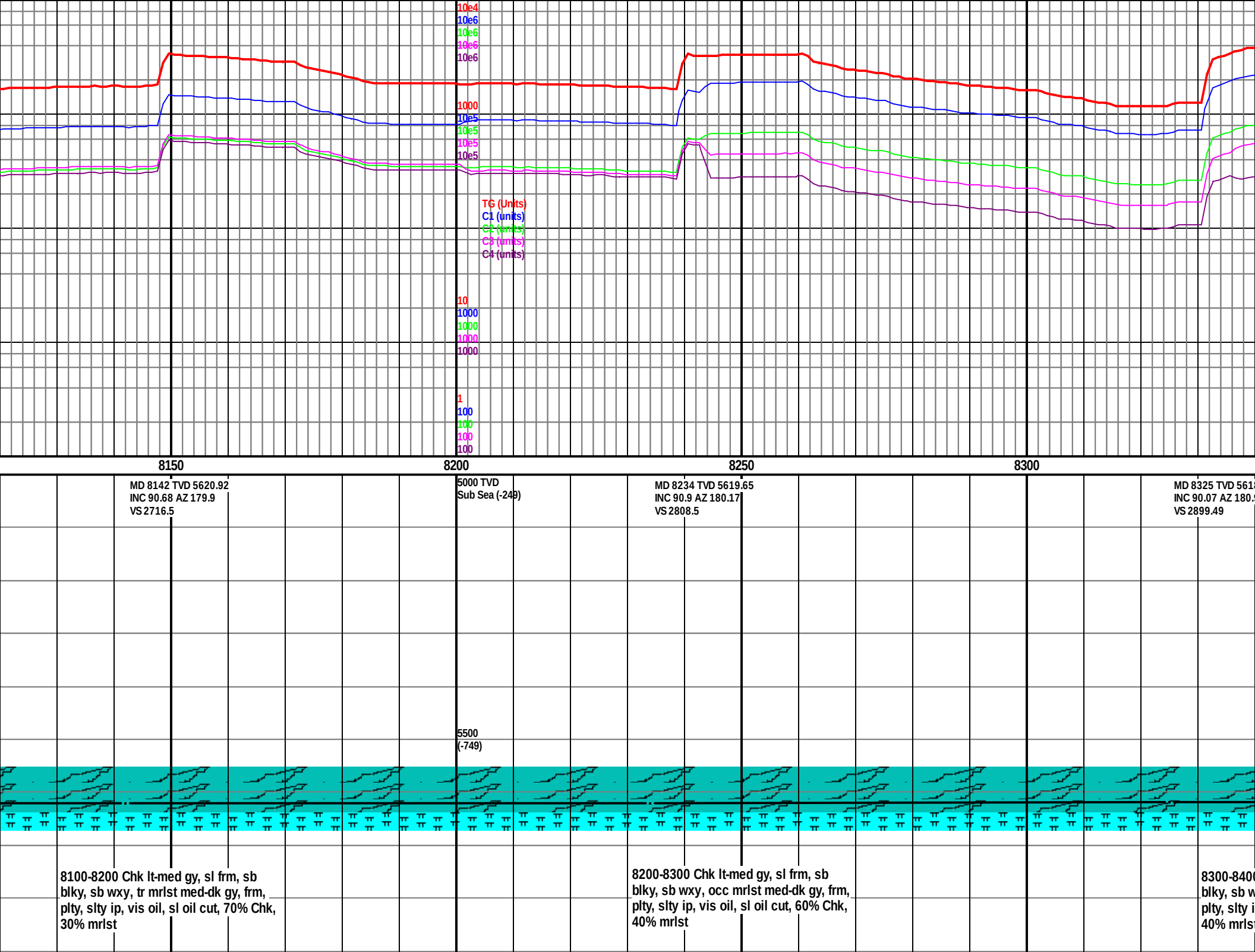

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
7500
7550
7600
7650


MD 7498 TVD 5610.74
INC 88.66 AZ 183.16
VS 2072.93
MD 7591 TVD 5612.84
INC 88.75 AZ 183.33
VS 2165.76
5500
(-749)
m, sb
gy, frm,
00% Chk,
7500-7600 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst
7600-7700 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.95
Vis 40
10
1000
1000
1000
1000
1
100
100
100
100
7700
7750
7800
7850
79
MD 7683 TVD 5615.73
INC 87.65 AZ 180.4
VS 2257.65
MD 7776 TVD 5619.44
INC 87.78 AZ 181.34
VS 2350.56
5000 TVD
Sub Sea (-249)
MD 7868 TVD 5621.31
INC 89.89 AZ 181.06
VS 2442.52
5500
(-749)
7700-7800 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
7800-7900 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
00
7950
8000
8050
8100


MD 7959 TVD 5621.58
INC 89.76 AZ 180.59
VS 2533.51
5000 TVD
Sub Sea (-249)
MD 8051 TVD 5621.62
INC 90.2 AZ 180.03
VS 2625.51
5500
(-749)
7900-8000 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
8000-8100 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst


10e4
10e6
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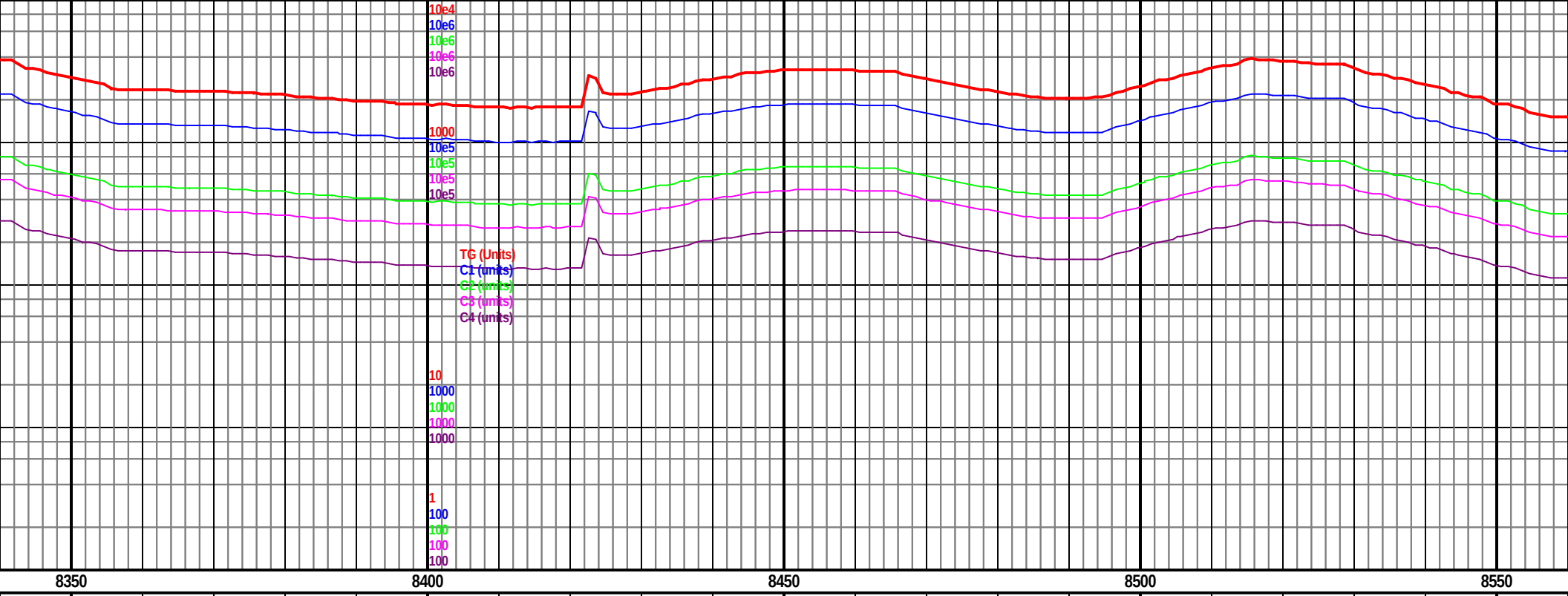
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
8150
8200
8250
8300
MD 8142 TVD 5620.92
INC 90.68 AZ 179.9
VS 2716.5
5000 TVD
Sub Sea (-249)
MD 8234 TVD 5619.65
INC 90.9 AZ 180.17
VS 2808.5
MD 8325 TVD 561
INC 90.07 AZ 180.
VS 2899.49
5500
(-749)
8100-8200 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst
8200-8300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60% Chk, 40% mrlst
8300-840
blky, sb w
plty, slty i
40% mrls



8.88
92

5000 TVD
Sub Sea (-249)

MD 8417 TVD 5618.91
INC 89.89 AZ 181.58
VS 2991.46

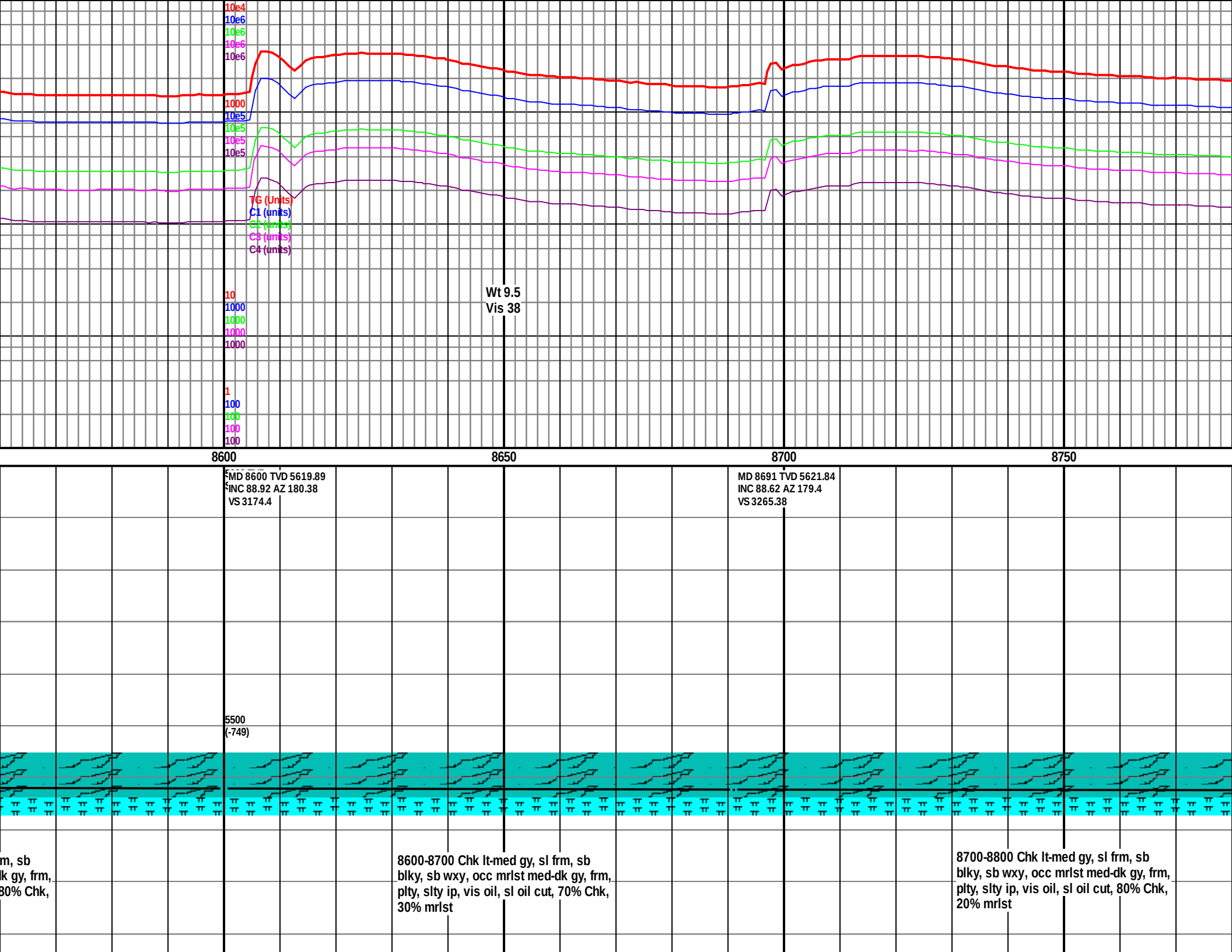
MD 8509 TVD 5619.02
INC 89.98 AZ 181.78
VS 3083.42

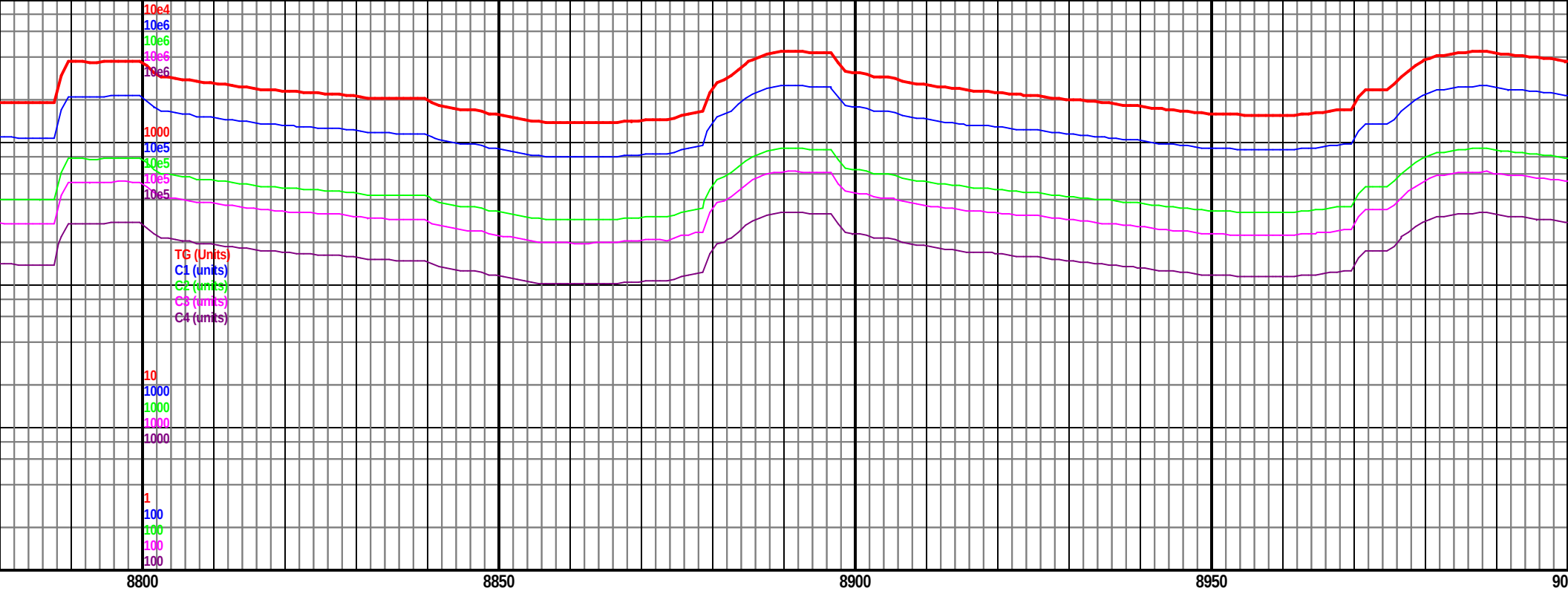
5500
(-749)

0 Chk lt-med gy, sl frm, sb
vxy, occ mrlst med-dk gy, frm,
p, vis oil, sl oil cut, 60% Chk,
t

8400-8500 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80% Chk,
20% mrlst

8500-8600 Chk lt-med gy, sl fr
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, sl oil cut, 8
20% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.5
Vis 38
8600
8650
8700
8750
MD 8600 TVD 5619.89
INC 88.92 AZ 180.38
VS 3174.4
MD 8691 TVD 5621.84
INC 88.62 AZ 179.4
VS 3265.38
5500
(-749)
m, sb
lk gy, frm,
80% Chk,
8600-8700 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 70% Chk,
30% mrlst
8700-8800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80% Chk,
20% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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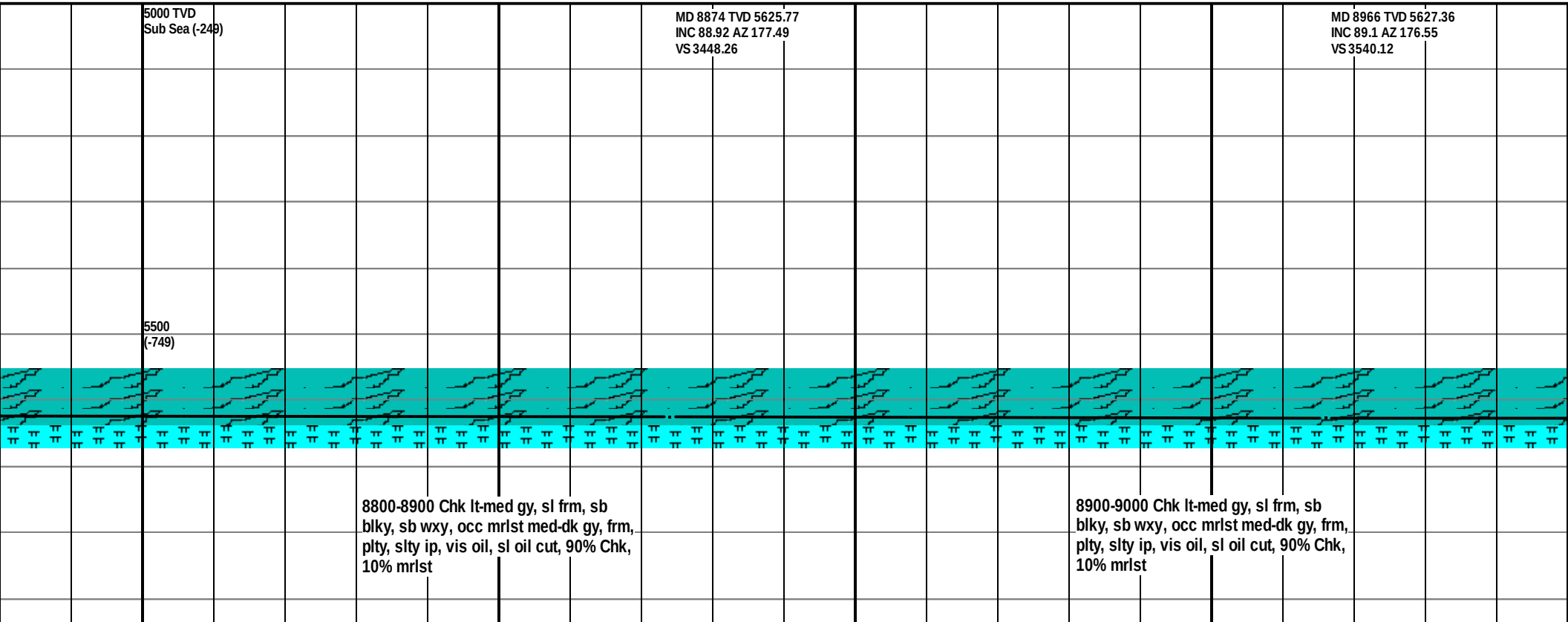
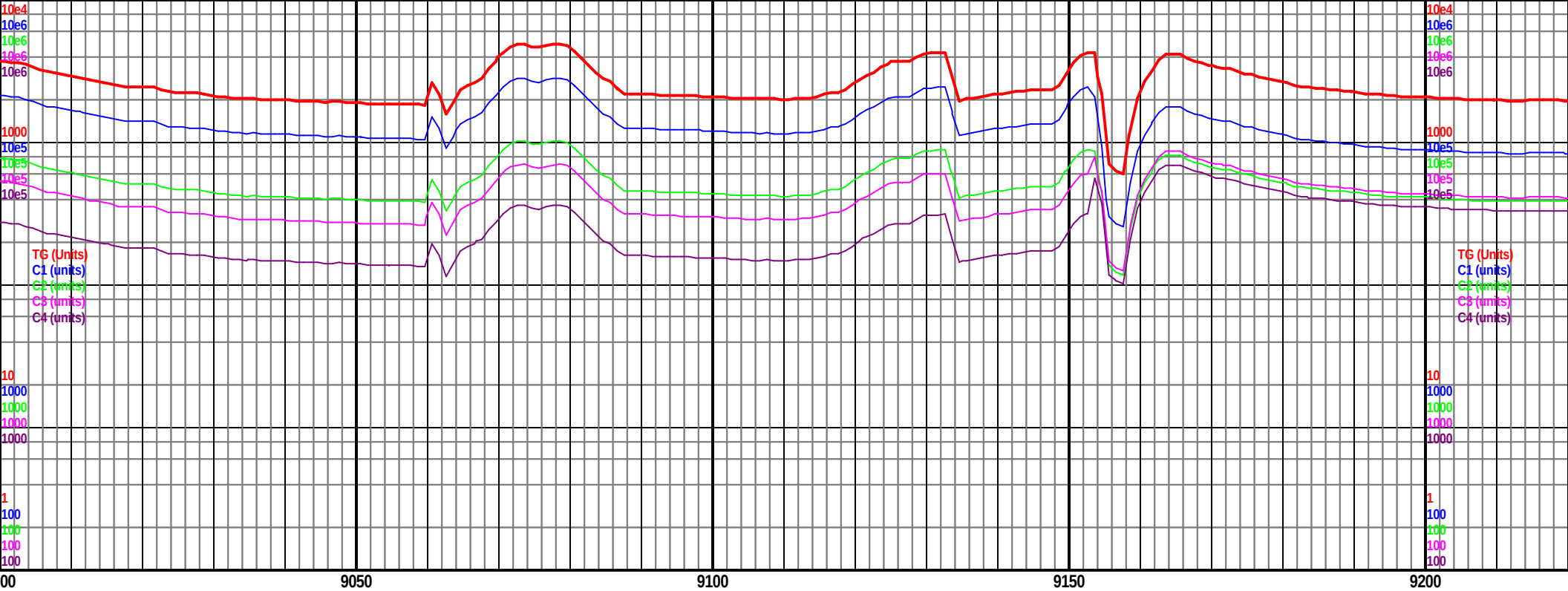
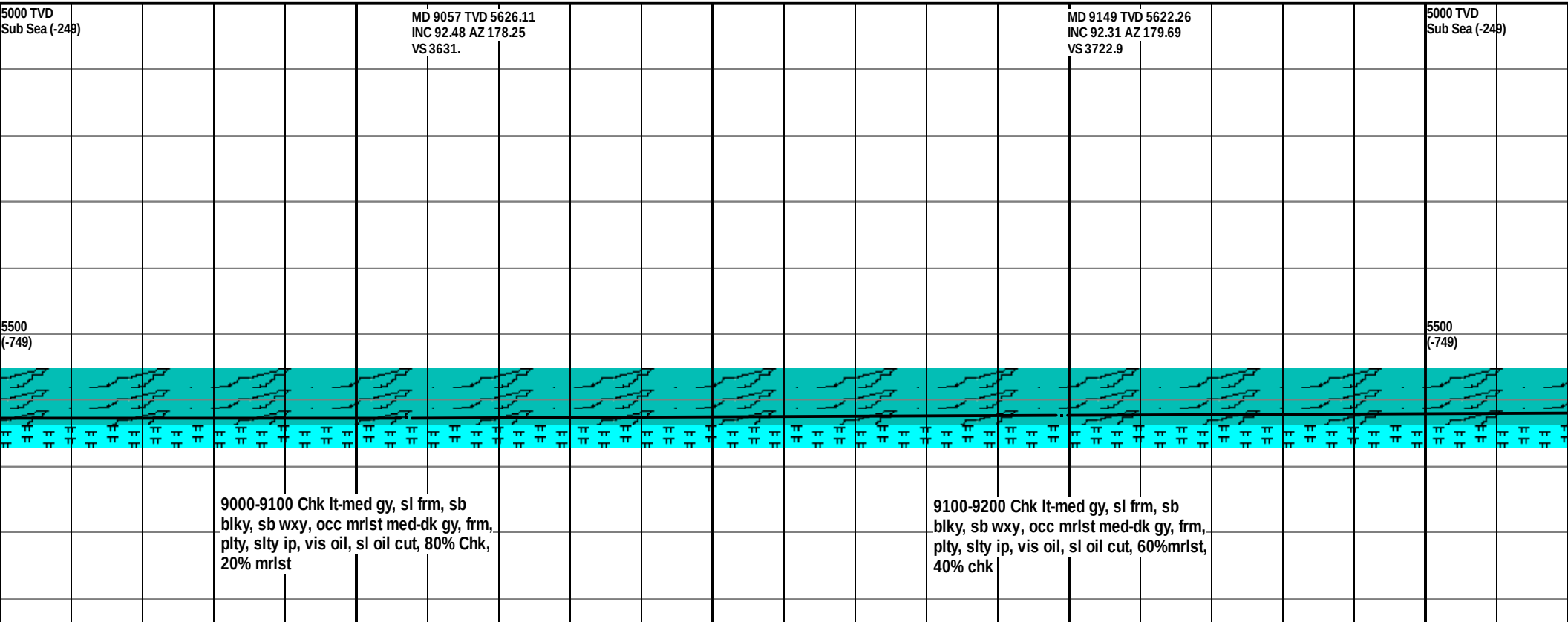
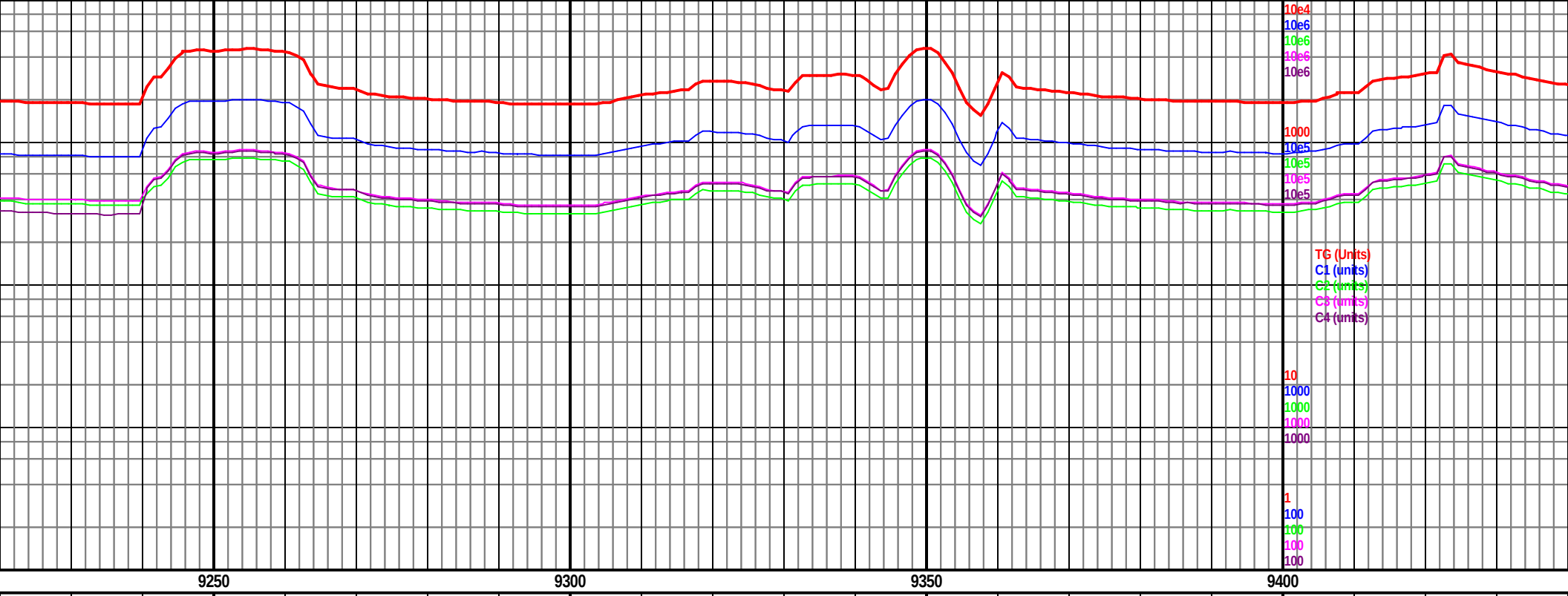
100
100
100
8800
8850
8900
8950
90


5000 TVD
Sub Sea (-249)
MD 8874 TVD 5625.77
INC 88.92 AZ 177.49
VS 3448.26
MD 8966 TVD 5627.36
INC 89.1 AZ 176.55
VS 3540.12
5500
(-749)
8800-8900 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst
8900-9000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
9050
9100
9150
9200


5000 TVD
Sub Sea (-249)
MD 9057 TVD 5626.11
INC 92.48 AZ 178.25
VS 3631.
MD 9149 TVD 5622.26
INC 92.31 AZ 179.69
VS 3722.9
5500
(-749)
9000-9100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
9100-9200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60%mrlst, 40% chk


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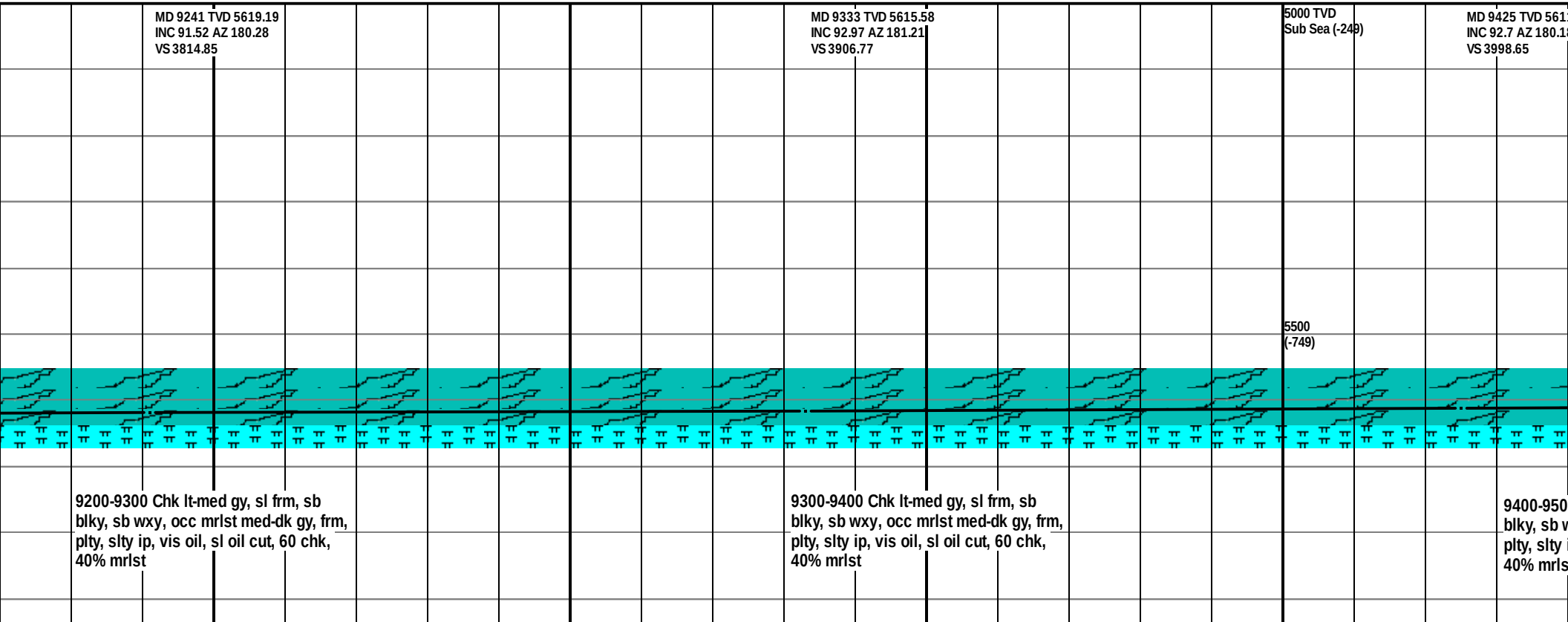
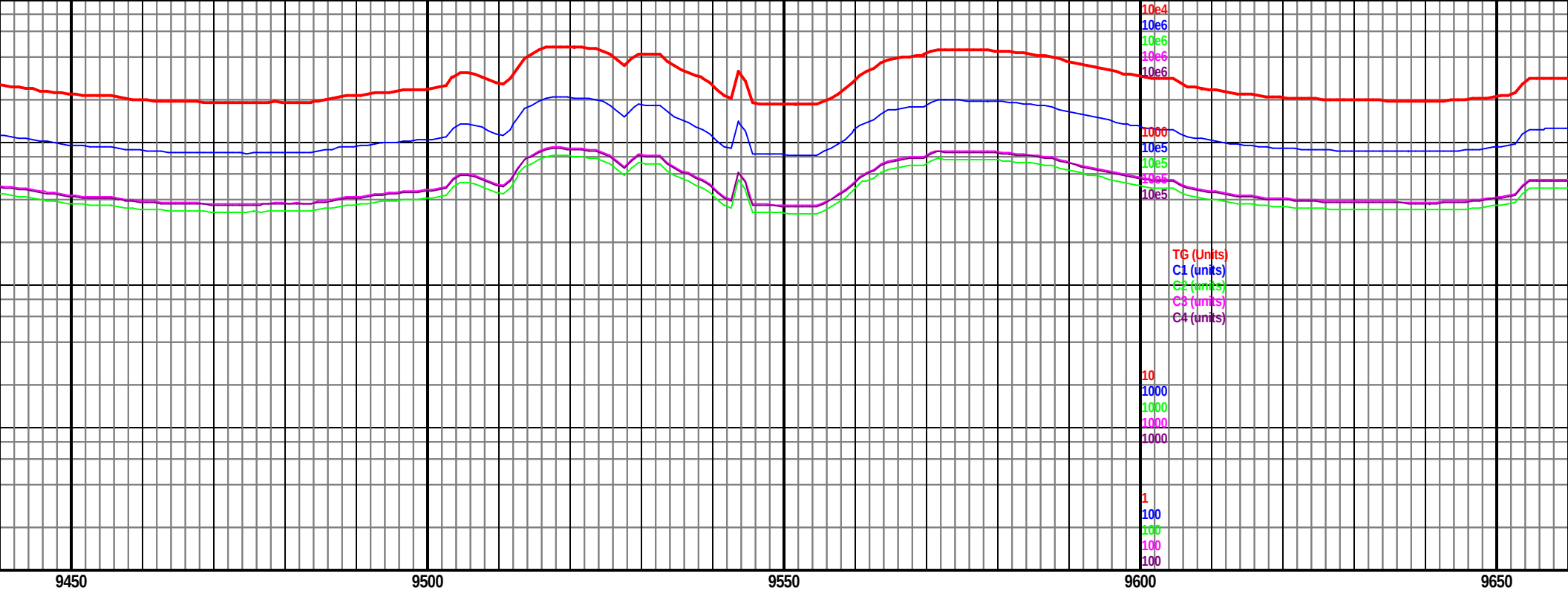
10
1000
1000
1000
1000
1
100
100
100
100


9250
9300
9350
9400
MD 9241 TVD 5619.19
INC 91.52 AZ 180.28
VS 3814.85
MD 9333 TVD 5615.58
INC 92.97 AZ 181.21
VS 3906.77
5000 TVD
Sub Sea (-249)
MD 9425 TVD 561
INC 92.7 AZ 180.1
VS 3998.65
5500
(-749)
9200-9300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60 chk, 40% mrlst
9300-9400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60 chk, 40% mrlst
9400-950
blky, sb w
plty, slty
40% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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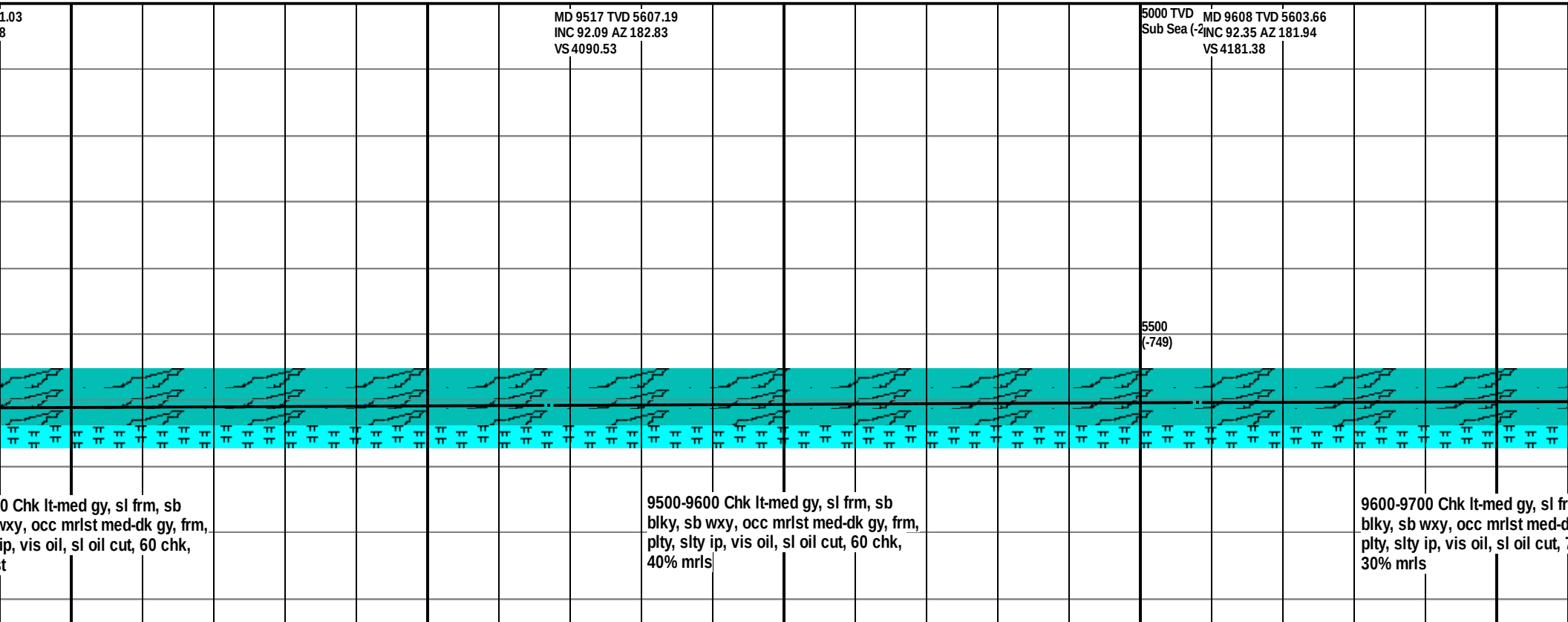
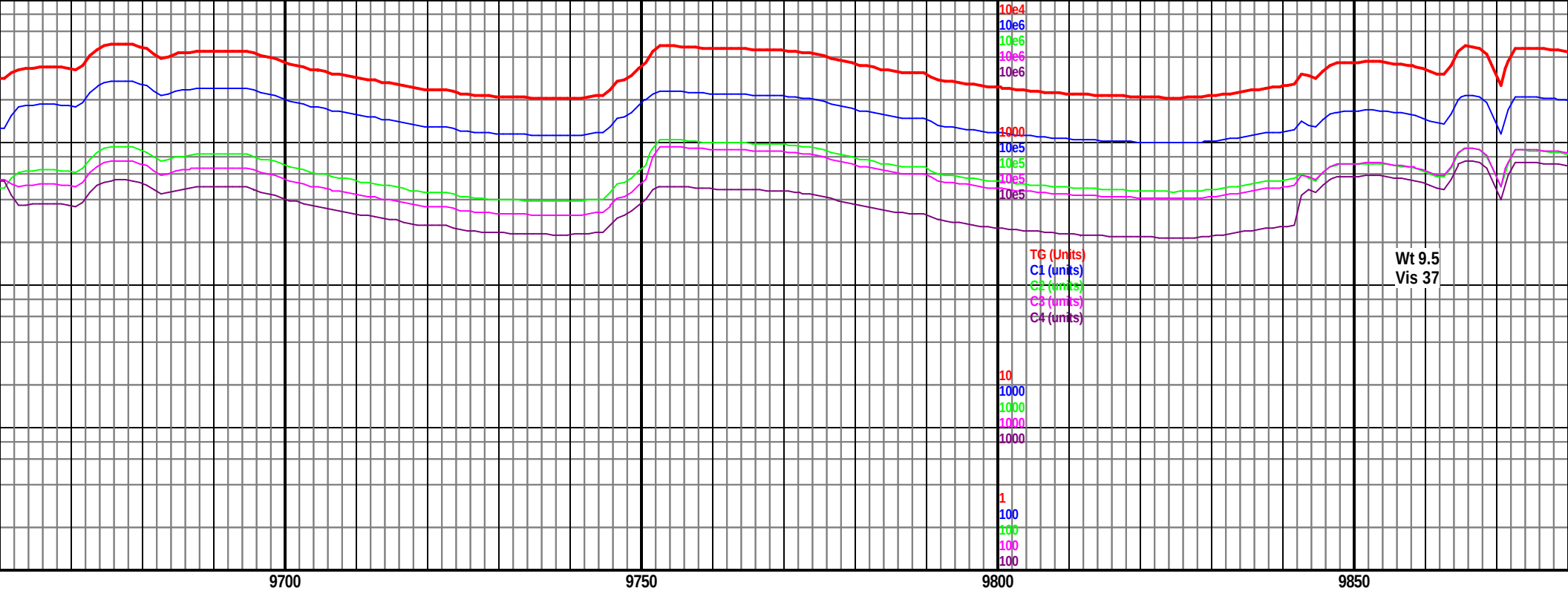
100
100
100
9450
9500
9550
9600
9650


1.03
8
MD 9517 TVD 5607.19
INC 92.09 AZ 182.83
VS 4090.53
5000 TVD
Sub Sea (-2
MD 9608 TVD 5603.66
INC 92.35 AZ 181.94
VS 4181.38
5500
(-749)
0 Chk lt-med gy, sl frm, sb
vxy, occ mrlst med-dk gy, frm,
ip, vis oil, sl oil cut, 60 chk,
t
9500-9600 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 60 chk,
40% mrls
9600-9700 Chk lt-med gy, sl fr
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, sl oil cut,
30% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.5
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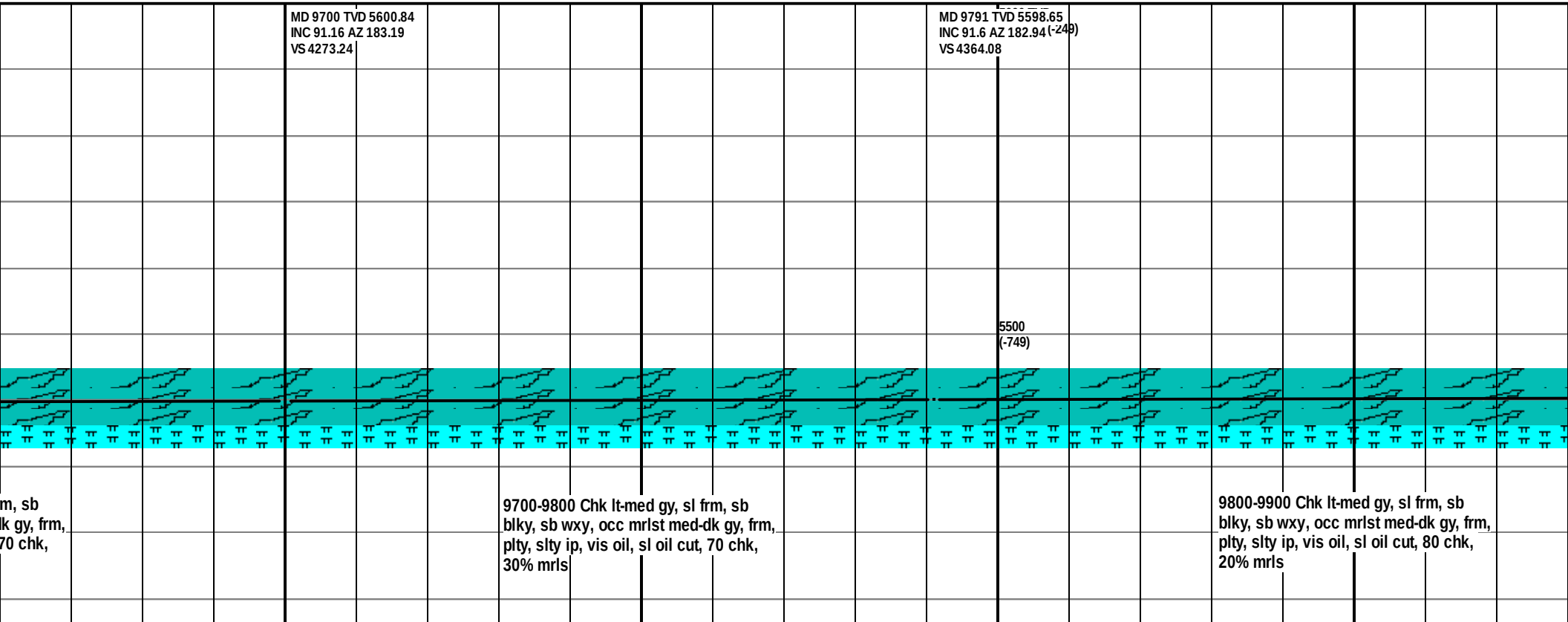
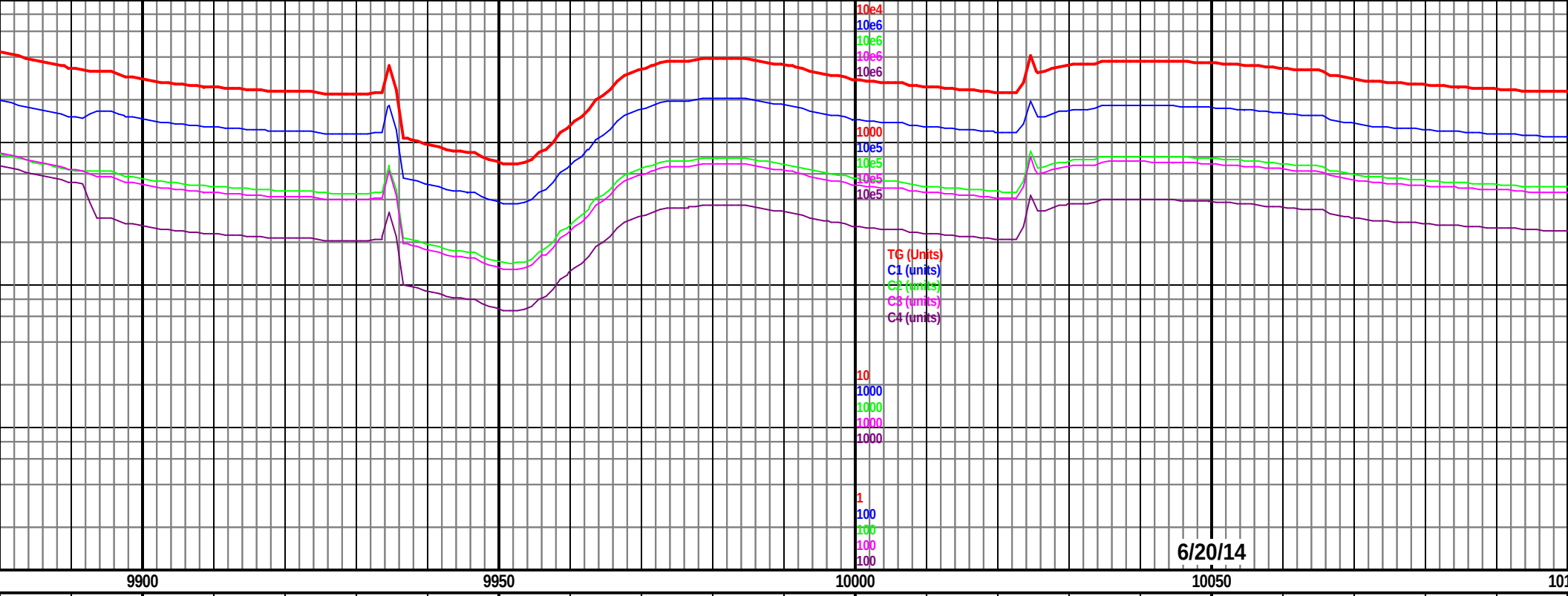
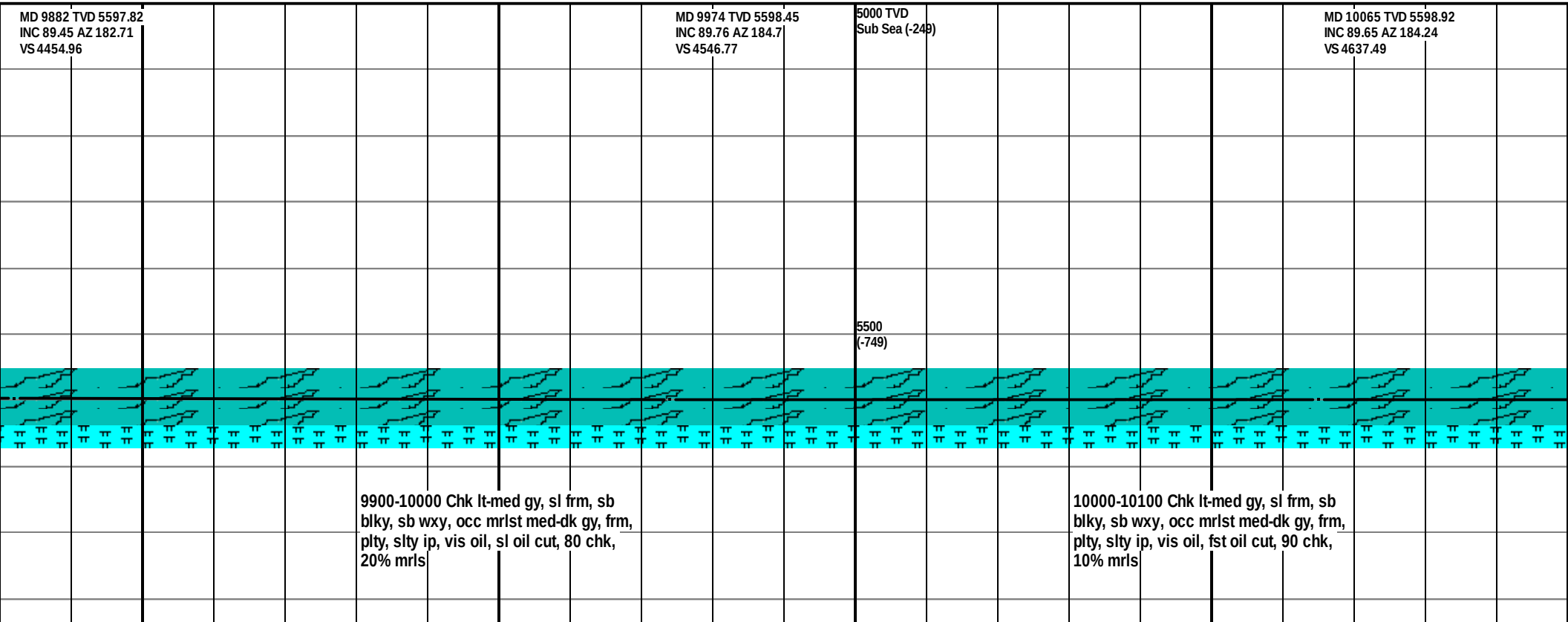
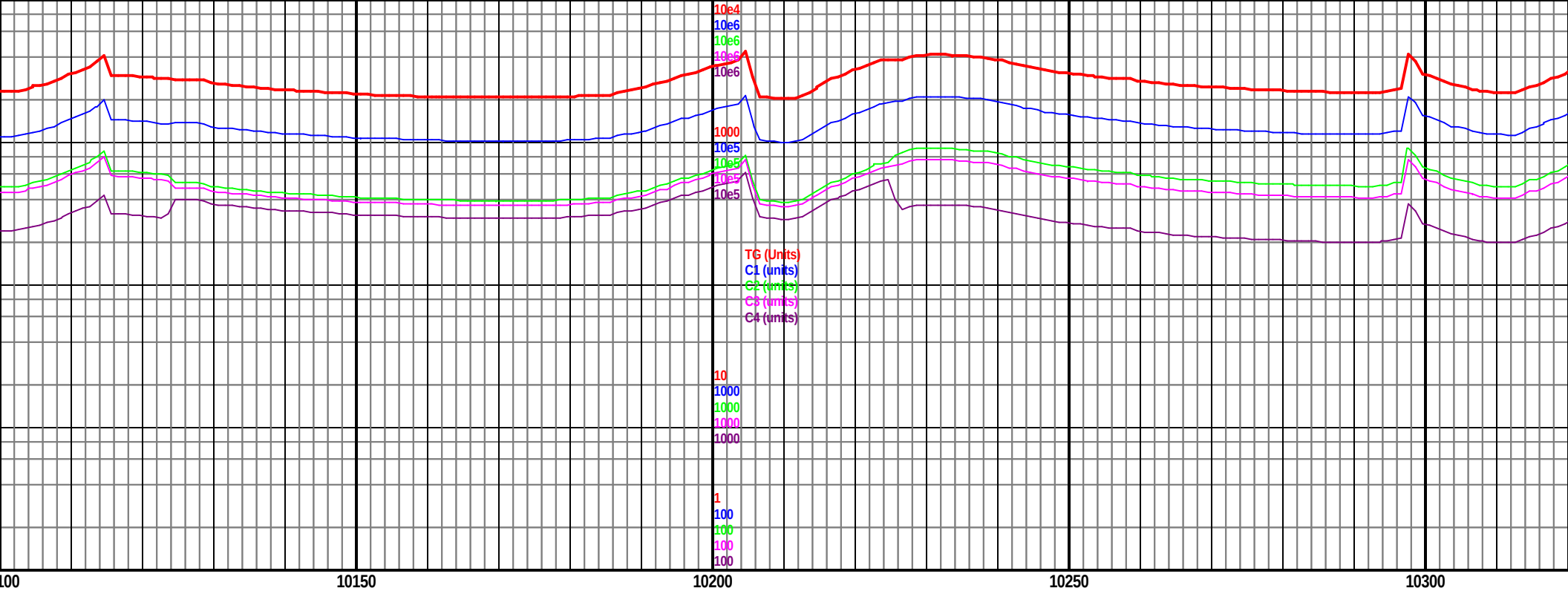
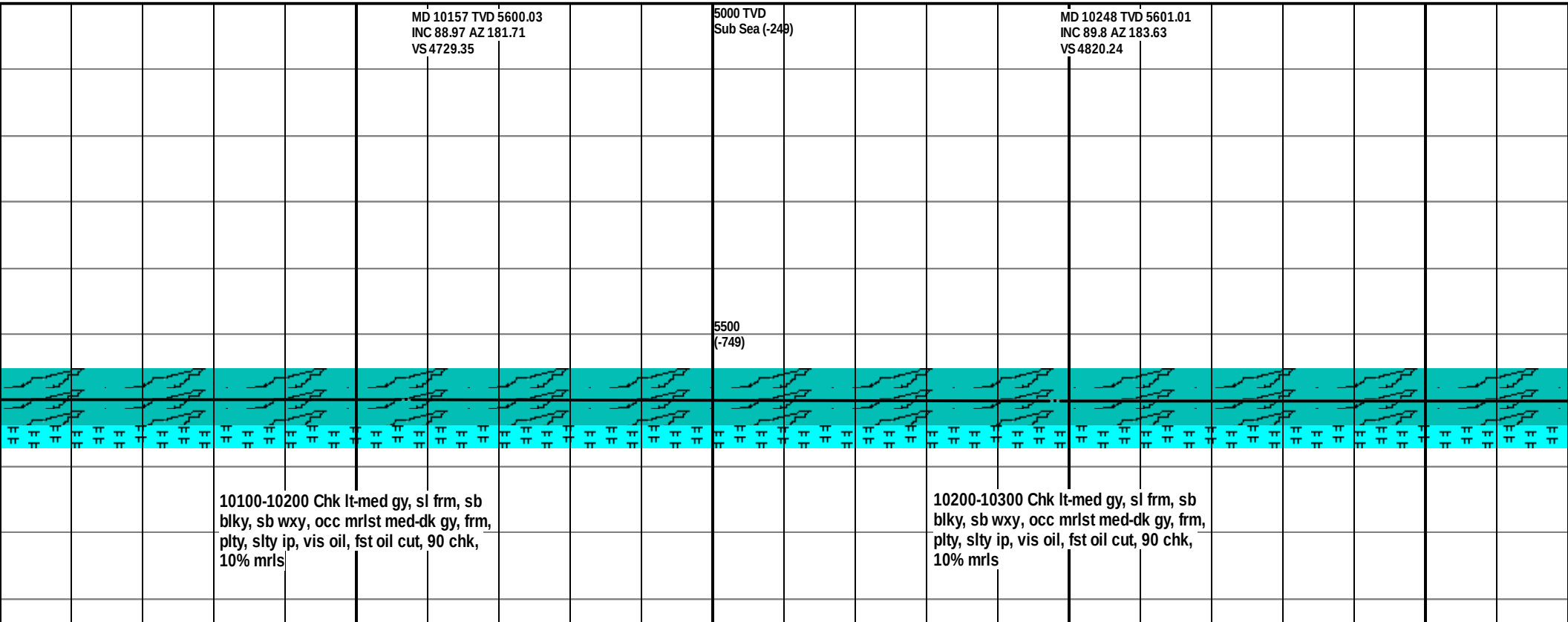
9700
9750
9800
9850

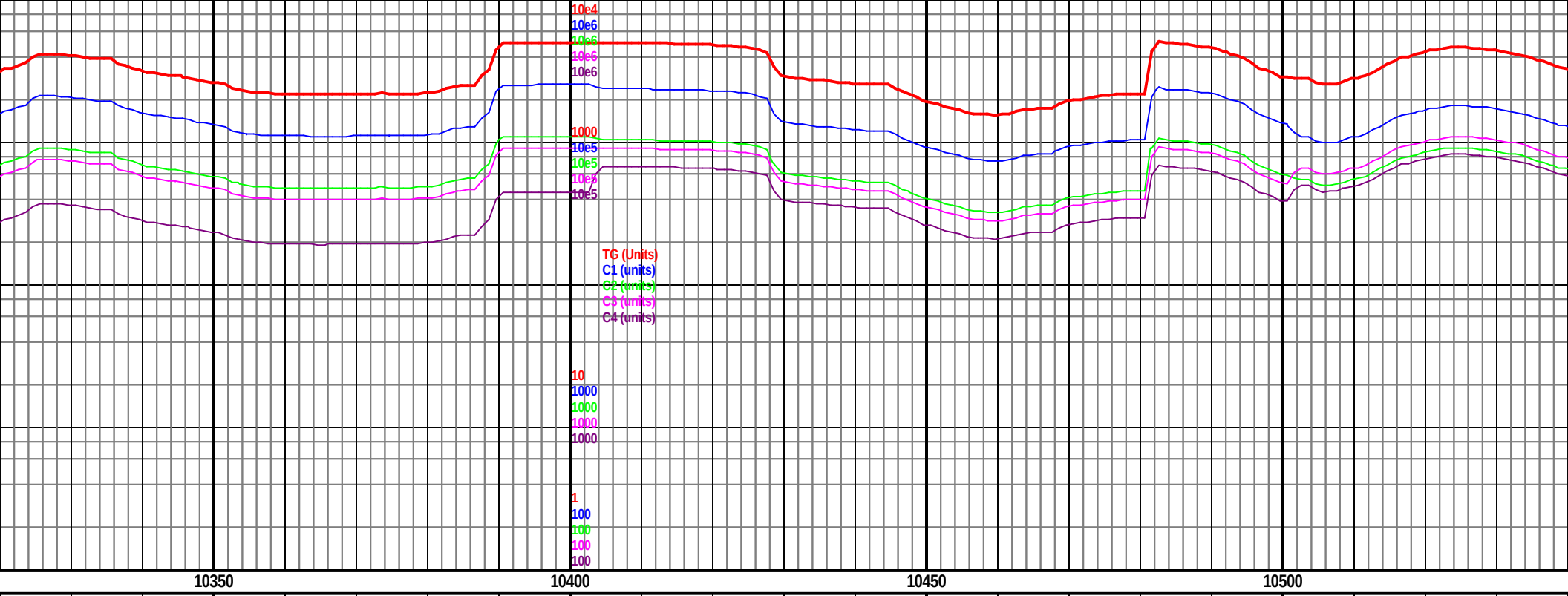

MD 9700 TVD 5600.84
INC 91.16 AZ 183.19
VS 4273.24
MD 9791 TVD 5598.65
INC 91.6 AZ 182.94 (-749)
VS 4364.08
5500
(-749)
m, sb
lk gy, frm,
70 chk,
9700-9800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 70 chk,
30% mrls
9800-9900 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80 chk,
20% mrls


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
6/20/14
9900
9950
10000
10050


MD 9882 TVD 5597.82
INC 89.45 AZ 182.71
VS 4454.96
MD 9974 TVD 5598.45
INC 89.76 AZ 184.7
VS 4546.77
5000 TVD
Sub Sea (-249)
MD 10065 TVD 5598.92
INC 89.65 AZ 184.24
VS 4637.49
5500
(-749)
9900-10000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80 chk, 20% mrls
10000-10100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls


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
100
10150
10200
10250
10300


MD 10157 TVD 5600.03
INC 88.97 AZ 181.71
VS 4729.35
5000 TVD
Sub Sea (-249)
MD 10248 TVD 5601.01
INC 89.8 AZ 183.63
VS 4820.24
5500
(-749)
10100-10200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10200-10300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
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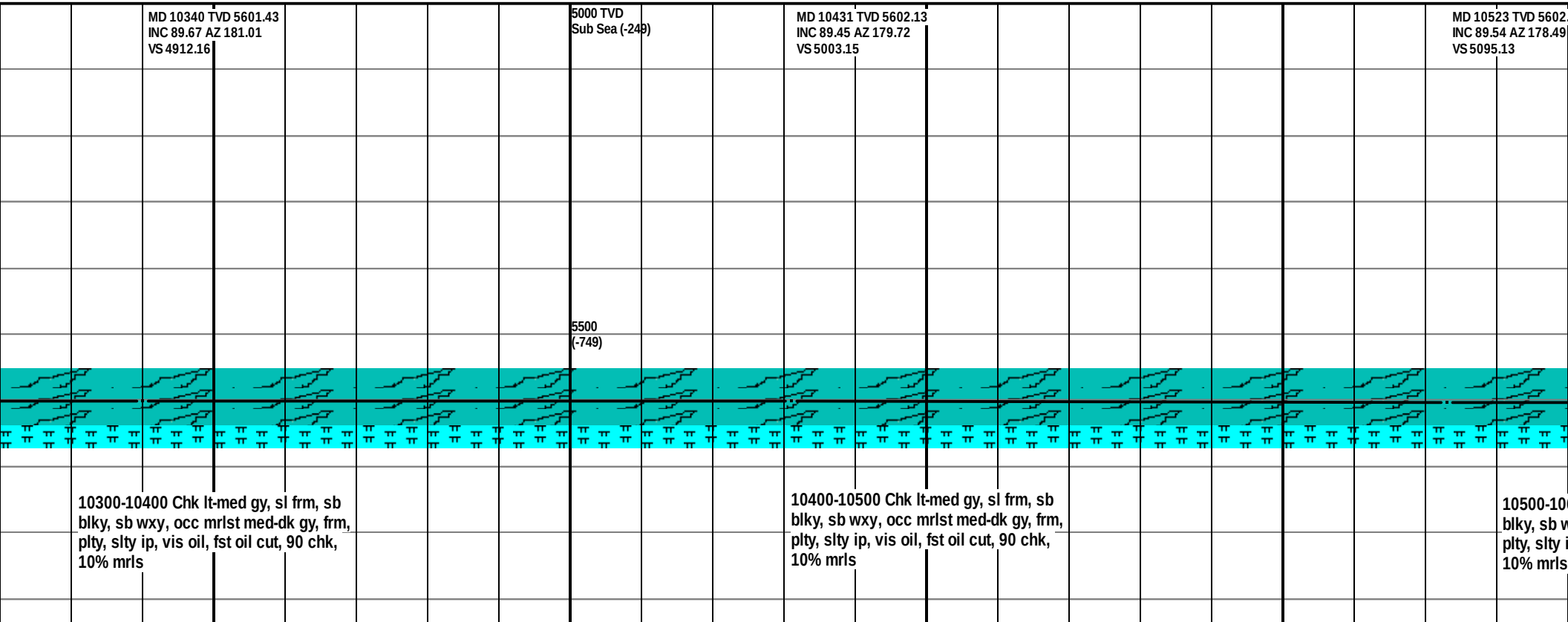
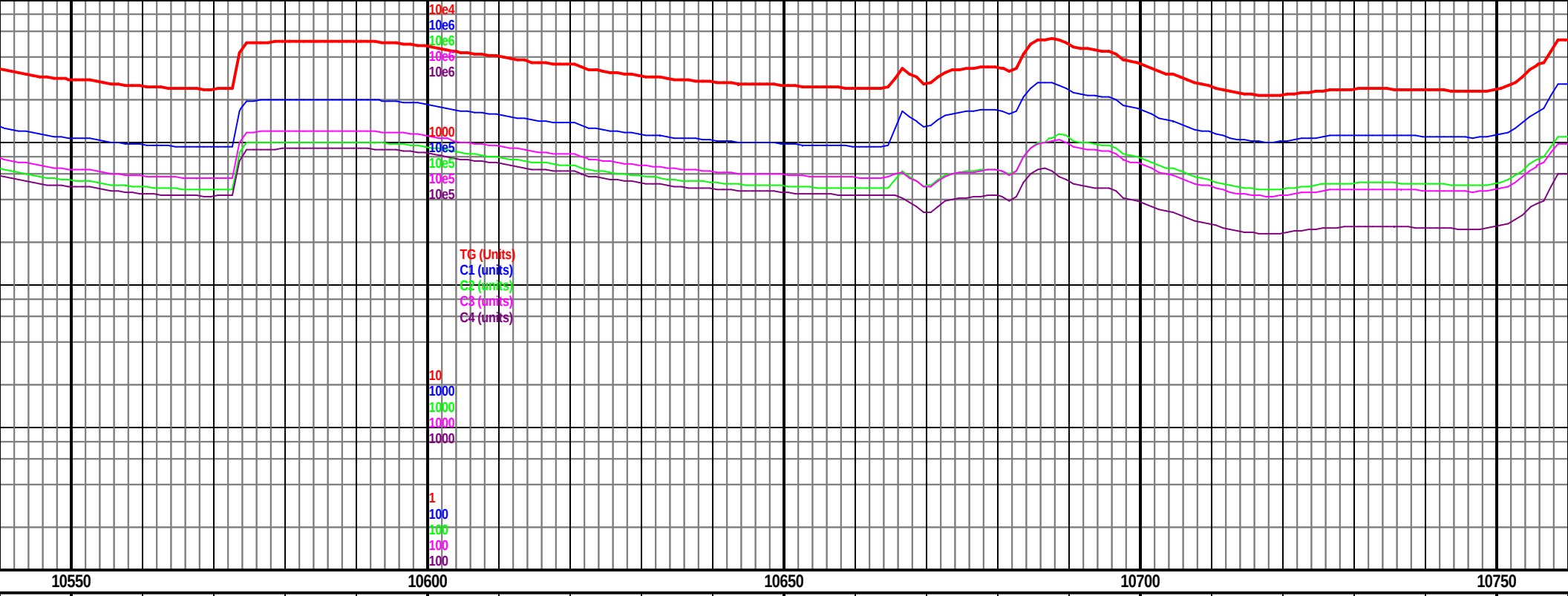
10350
10400
10450
10500


MD 10340 TVD 5601.43
INC 89.67 AZ 181.01
VS 4912.16
5000 TVD
Sub Sea (-249)
MD 10431 TVD 5602.13
INC 89.45 AZ 179.72
VS 5003.15
MD 10523 TVD 5602.
INC 89.54 AZ 178.49
VS 5095.13
5500
(-749)
10300-10400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10400-10500 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10500-10
blky, sb w
plty, slty i
10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
1000
1000
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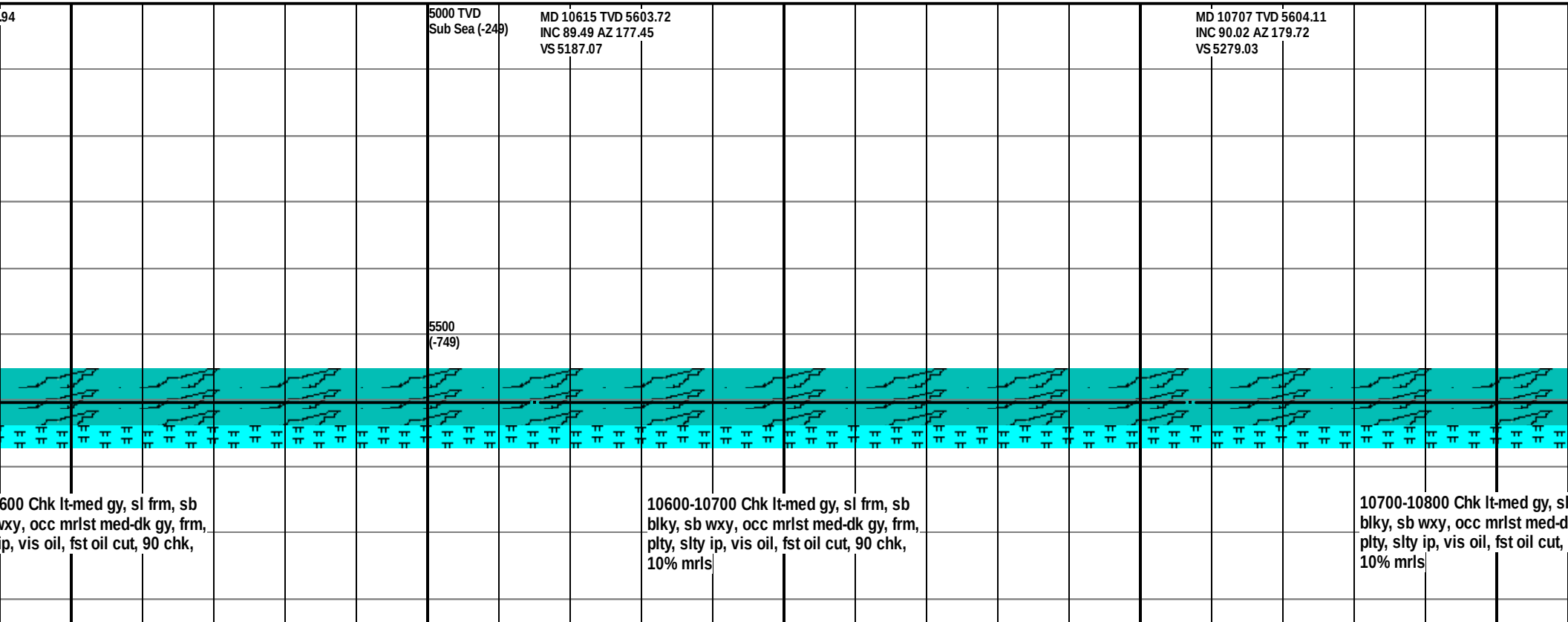
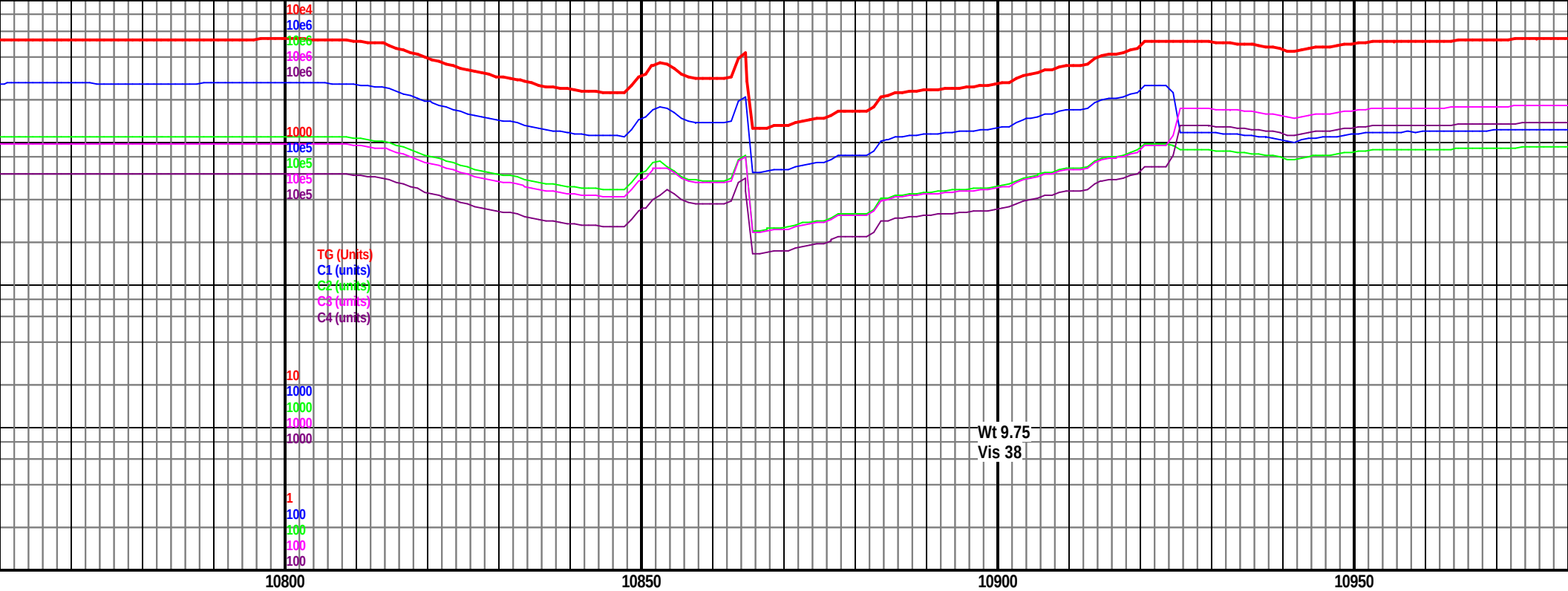
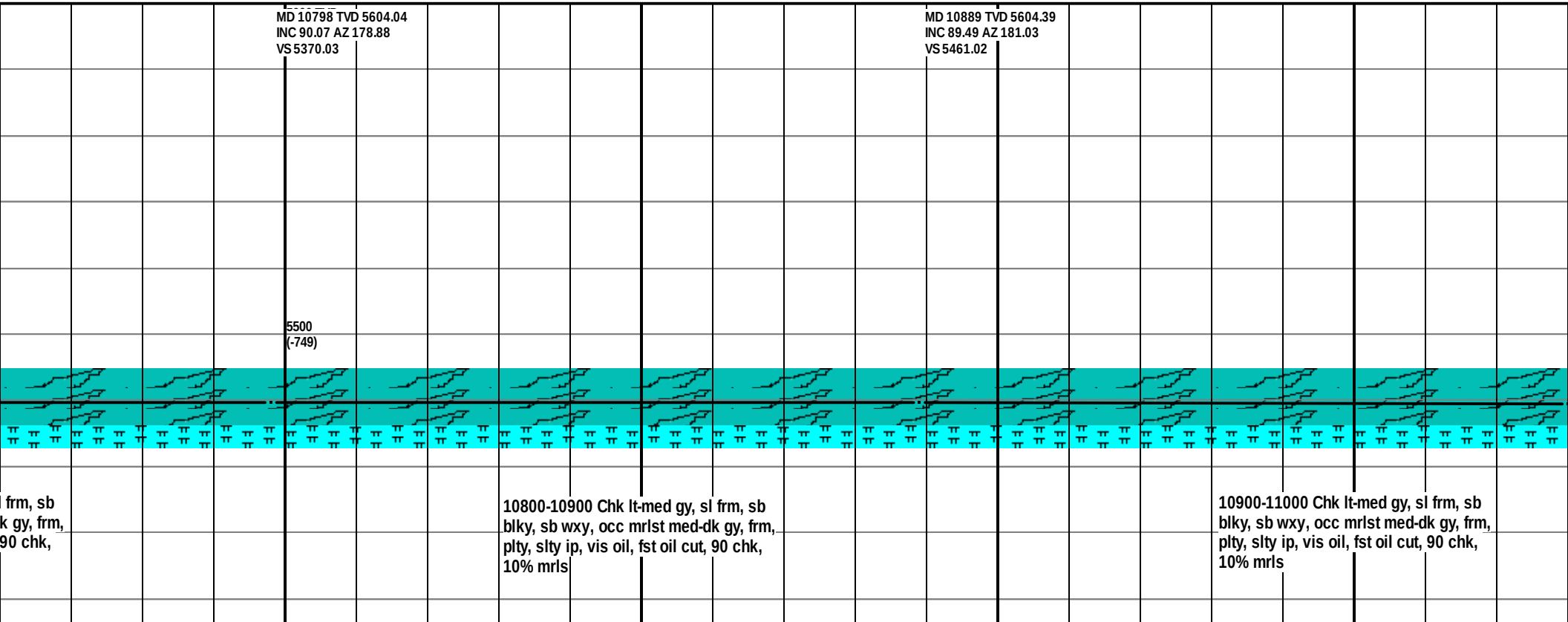
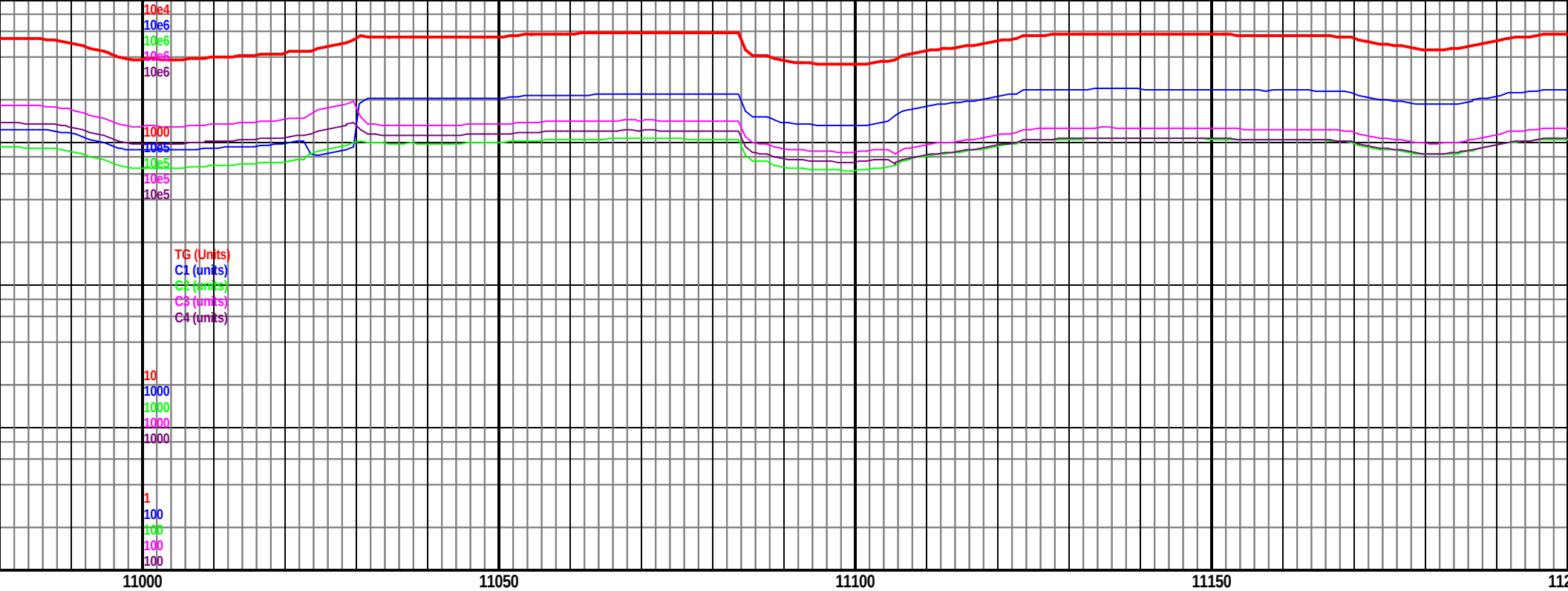
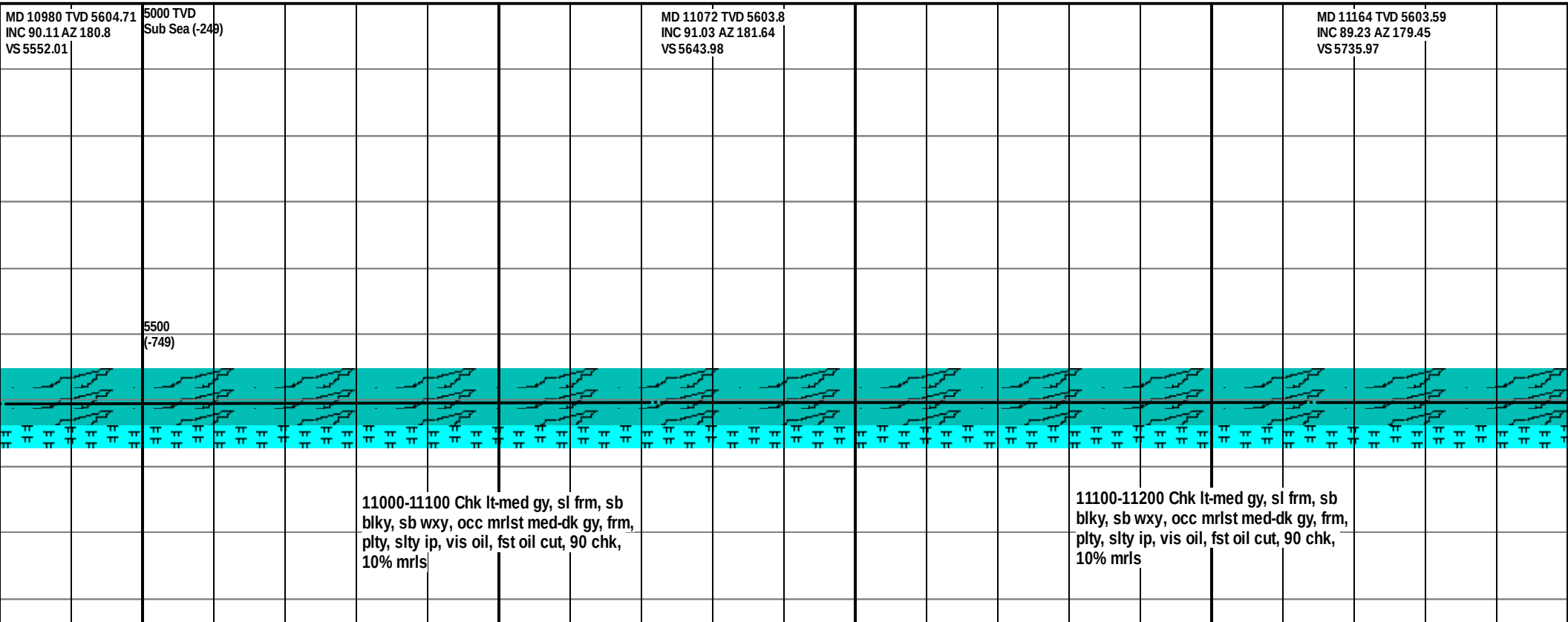
100
100
100
100
10550
10600
10650
10700
10750

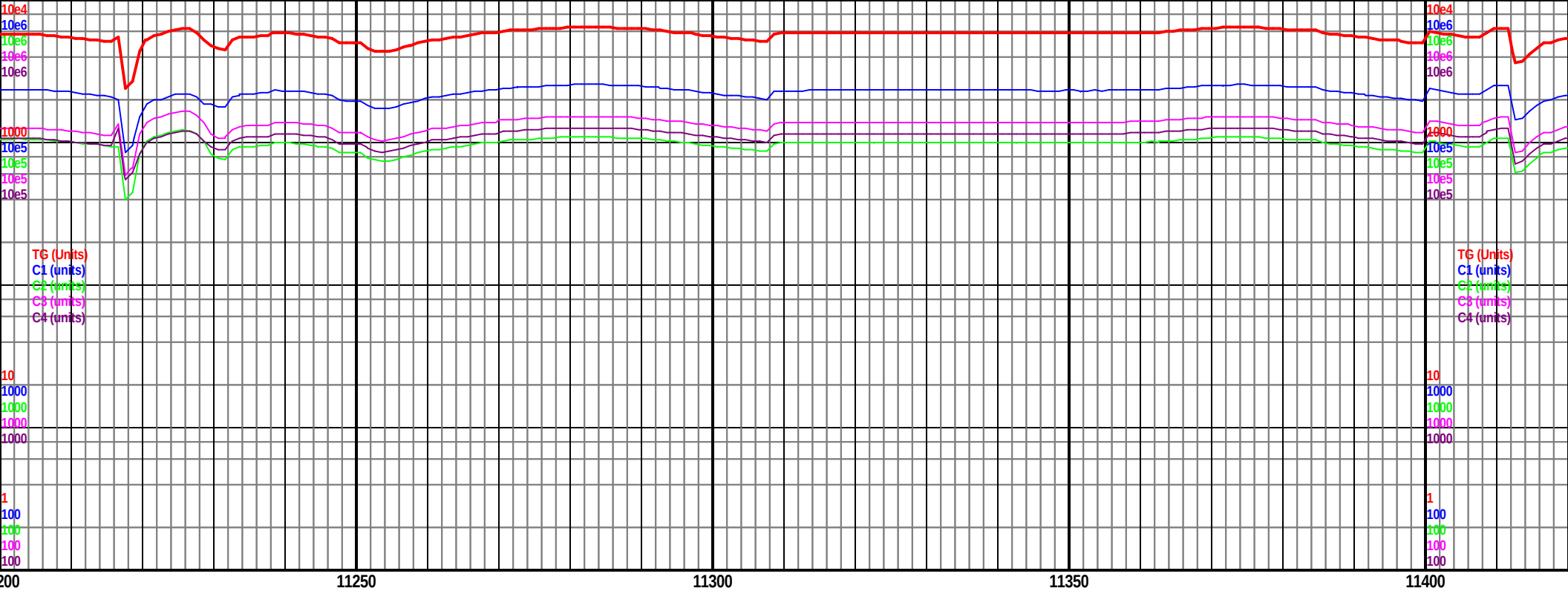

.94
5000 TVD
Sub Sea (-249)
MD 10615 TVD 5603.72
INC 89.49 AZ 177.45
VS 5187.07
MD 10707 TVD 5604.11
INC 90.02 AZ 179.72
VS 5279.03
5500
(-749)
600 Chk lt-med gy, sl frm, sb
wxy, occ mrlst med-dk gy, frm,
ip, vis oil, fst oil cut, 90 chk,
10600-10700 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, fst oil cut, 90 chk,
10% mrls
10700-10800 Chk lt-med gy, sl
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, fst oil cut,
10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.75
Vis 38
10800
10850
10900
10950


MD 10798 TVD 5604.04
INC 90.07 AZ 178.88
VS 5370.03
MD 10889 TVD 5604.39
INC 89.49 AZ 181.03
VS 5461.02
5500
(-749)
l frm, sb
k gy, frm,
90 chk,
10800-10900 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10900-11000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11000
11050
11100
11150
112


MD 10980 TVD 5604.71
INC 90.11 AZ 180.8
VS 5552.01
5000 TVD
Sub Sea (-249)
MD 11072 TVD 5603.8
INC 91.03 AZ 181.64
VS 5643.98
MD 11164 TVD 5603.59
INC 89.23 AZ 179.45
VS 5735.97
5500
(-749)
11000-11100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
11100-11200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls



5000 TVD
Sub Sea (-249)

MD 11255 TVD 5603.73
INC 90.59 AZ 182.57
VS 5826.94

MD 11347 TVD 5602.04
INC 91.52 AZ 182.78
VS 5918.82

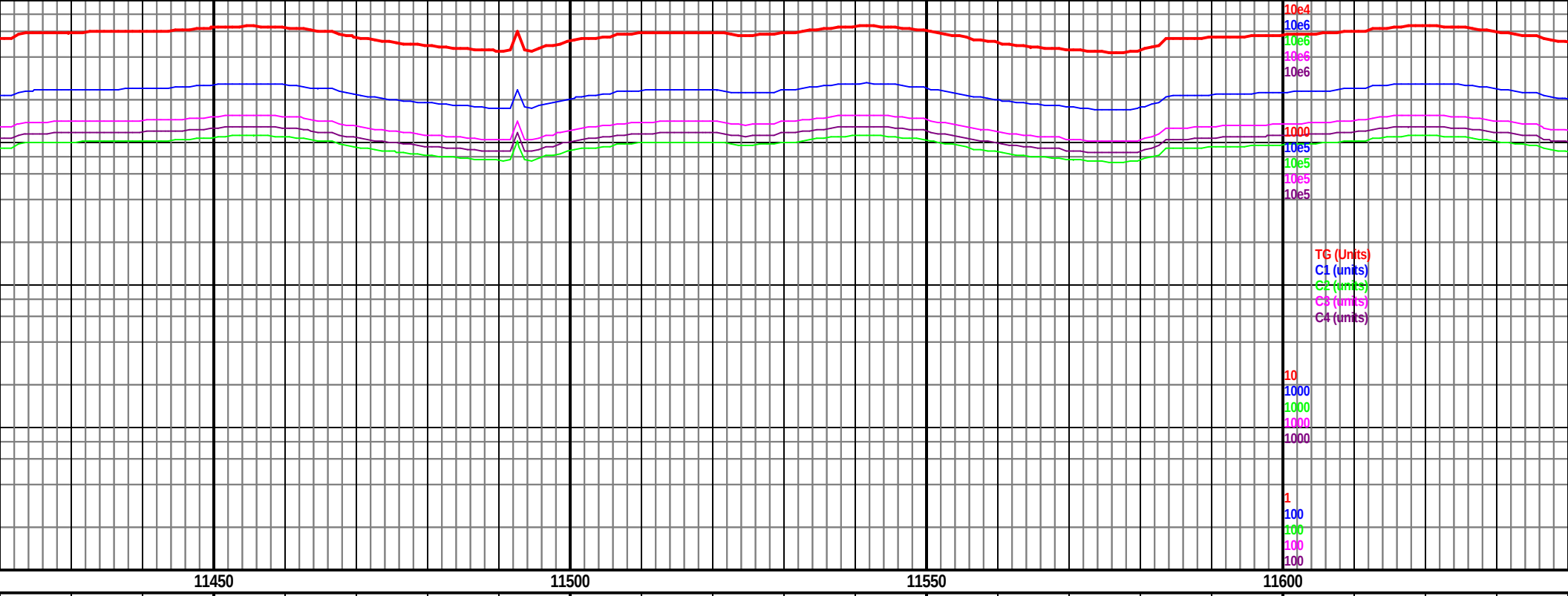
5000 TVD
Sub Sea (-249)

5500
(-749)

5500
(-749)

11200-11300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

11300-11400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls



11450 11500 11550 11600

MD 11439 TVD 5600.76
INC 90.07 AZ 182.66
VS 6010.71

MD 11530 TVD 5601.28
INC 89.27 AZ 182.06
VS 6101.63

5000 TVD
Sub Sea (-249)

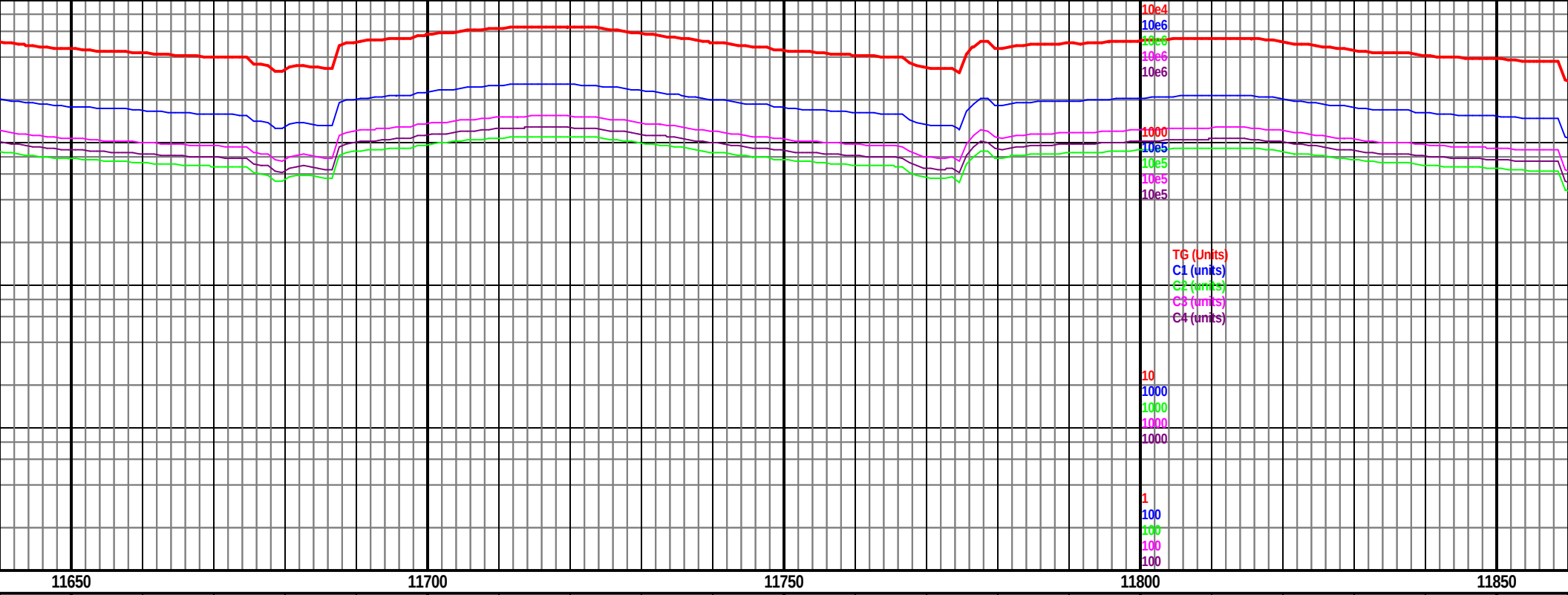
MD 11620 TVD 5602.15
INC 89.63 AZ 184.45
VS 6191.47

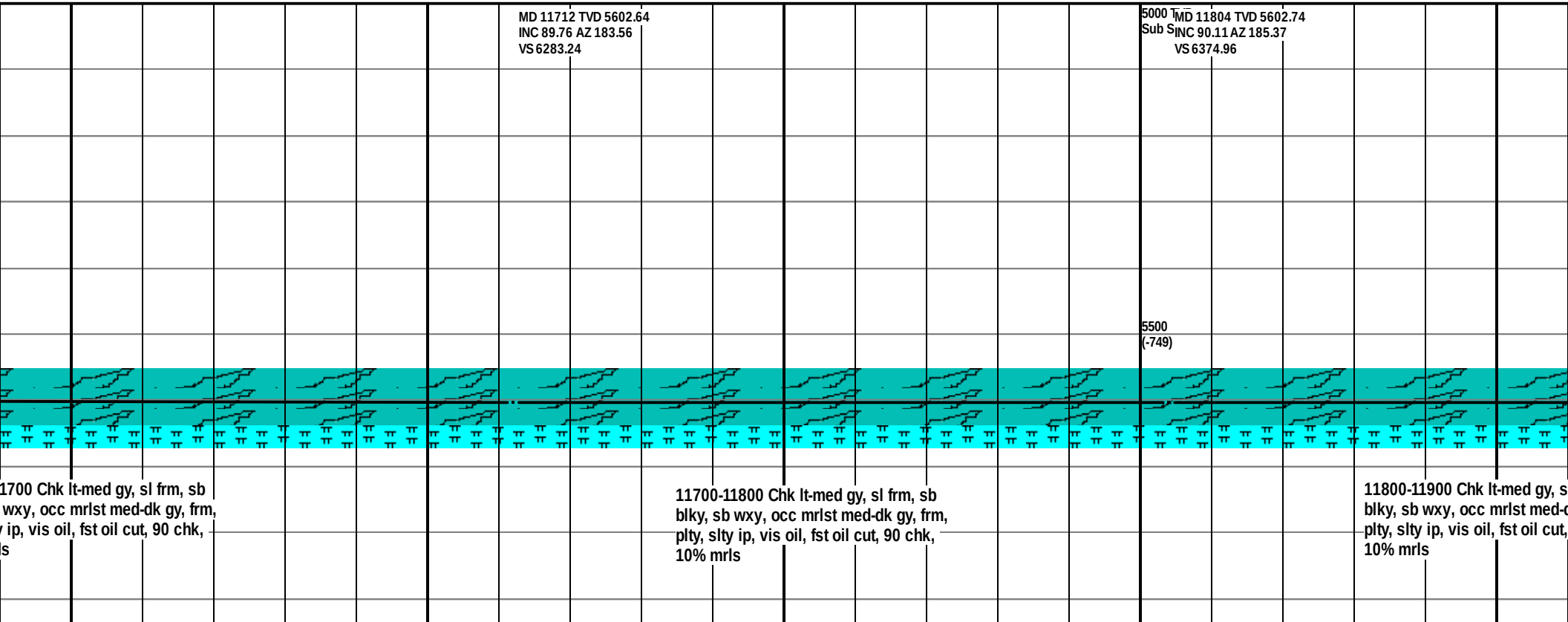
5500
(-749)

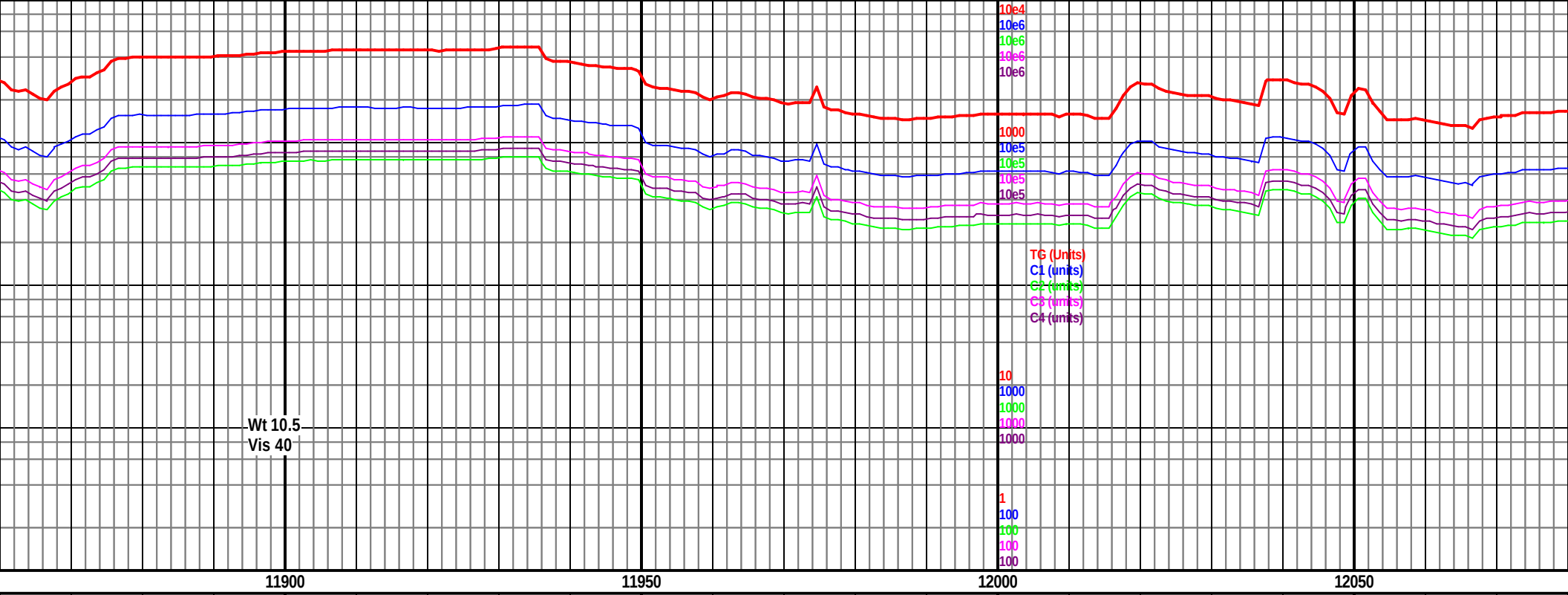
11400-11500 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

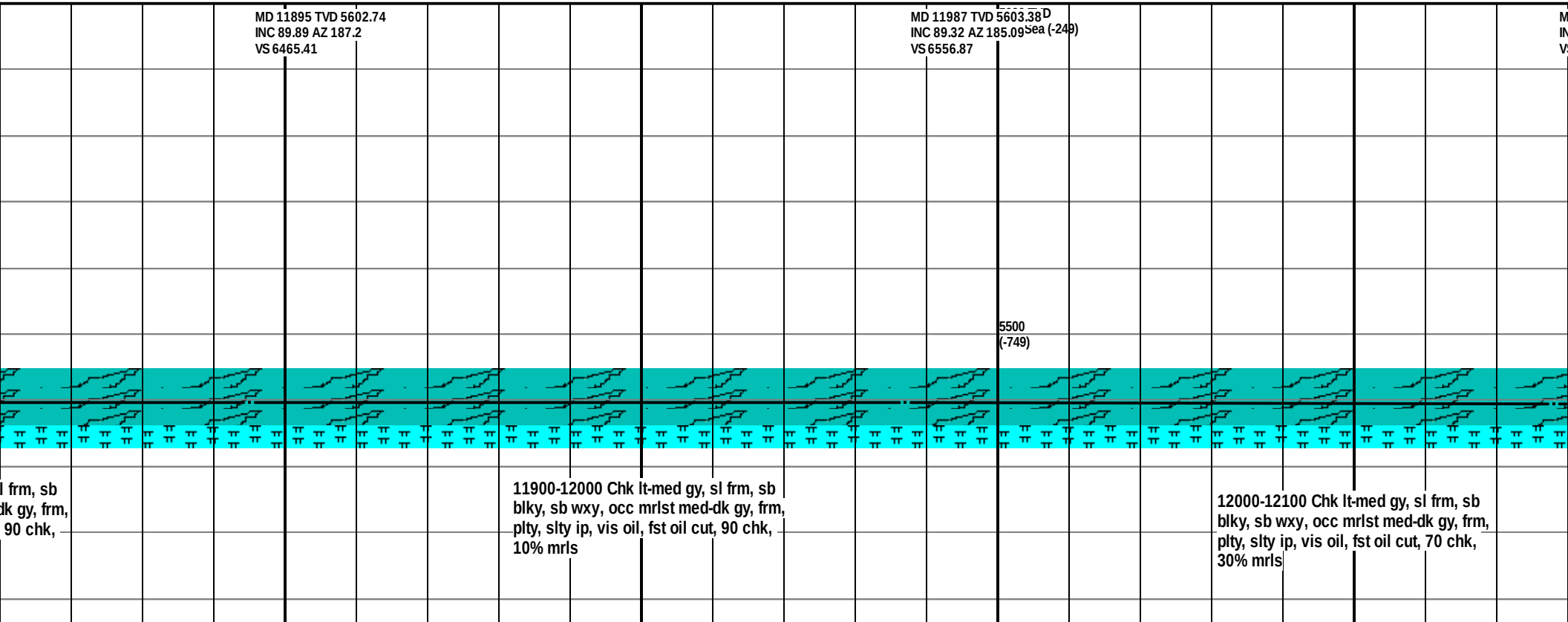
11500-11600 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

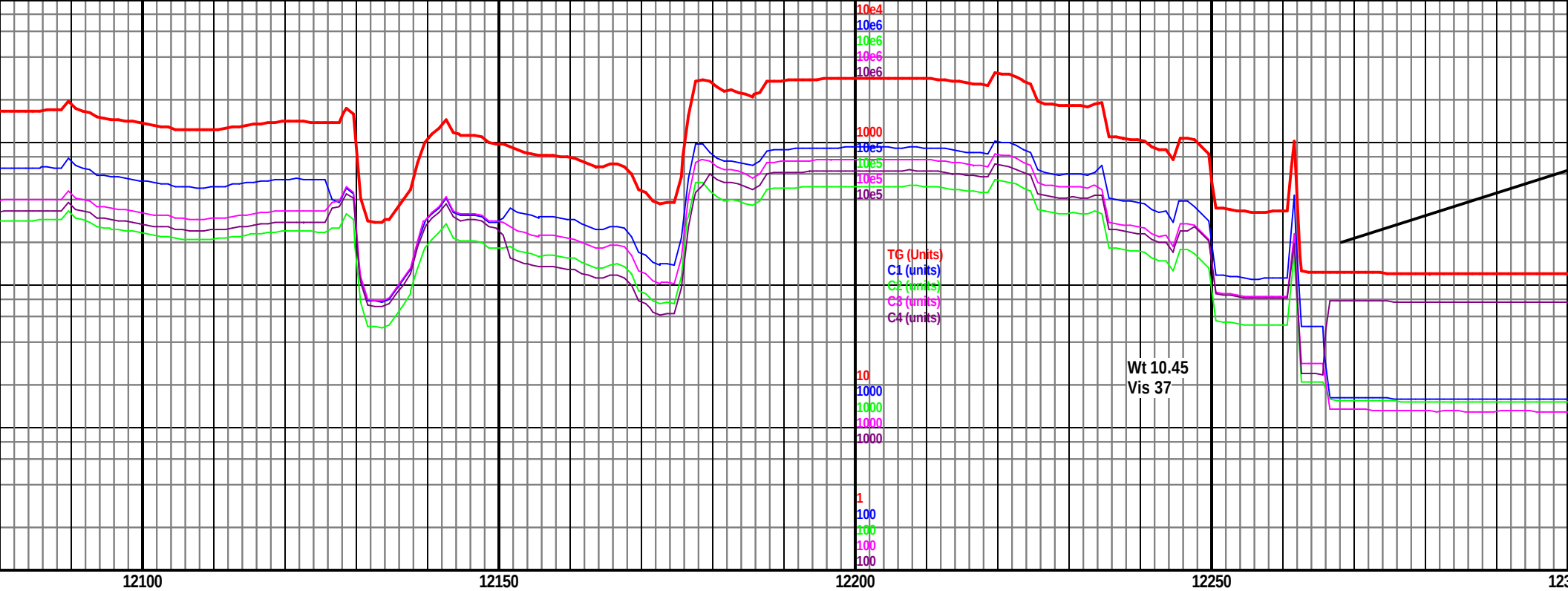
11600-1
blky, sb
plty, slty
10% mrl

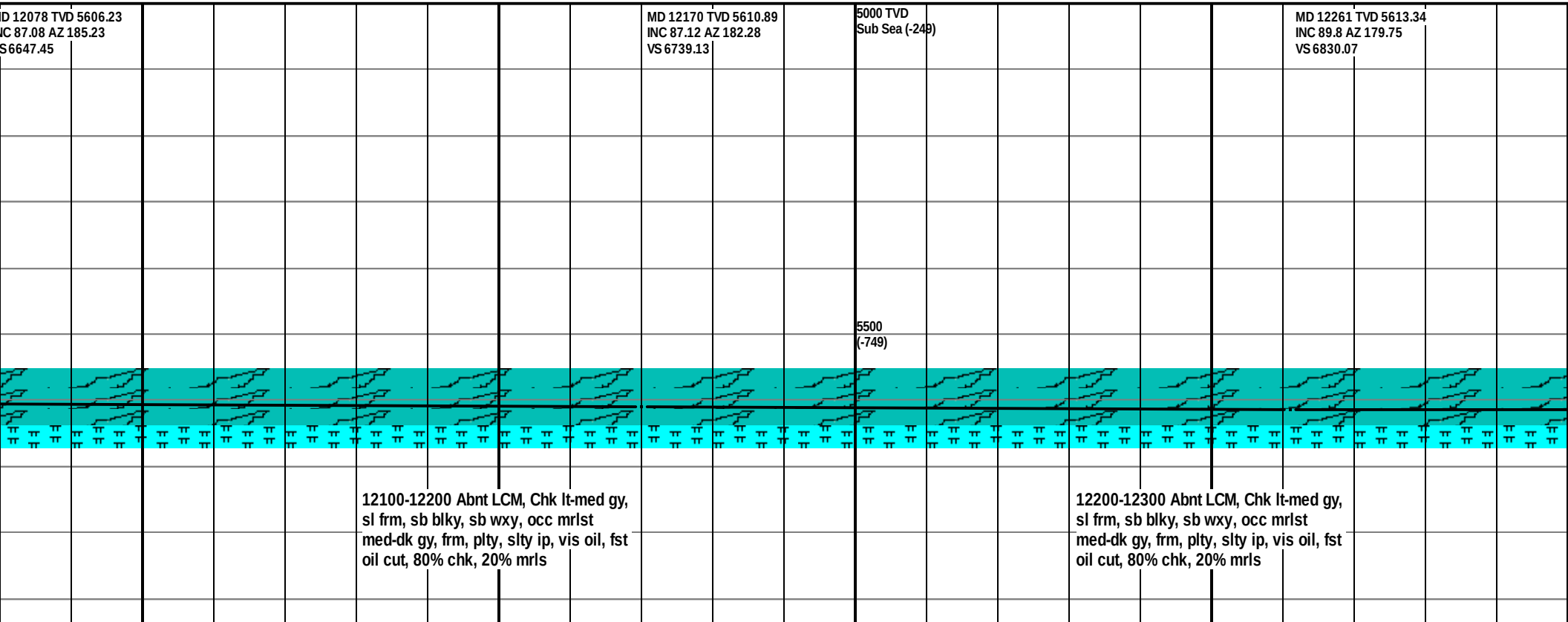

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11650
11700
11750
11800
11850

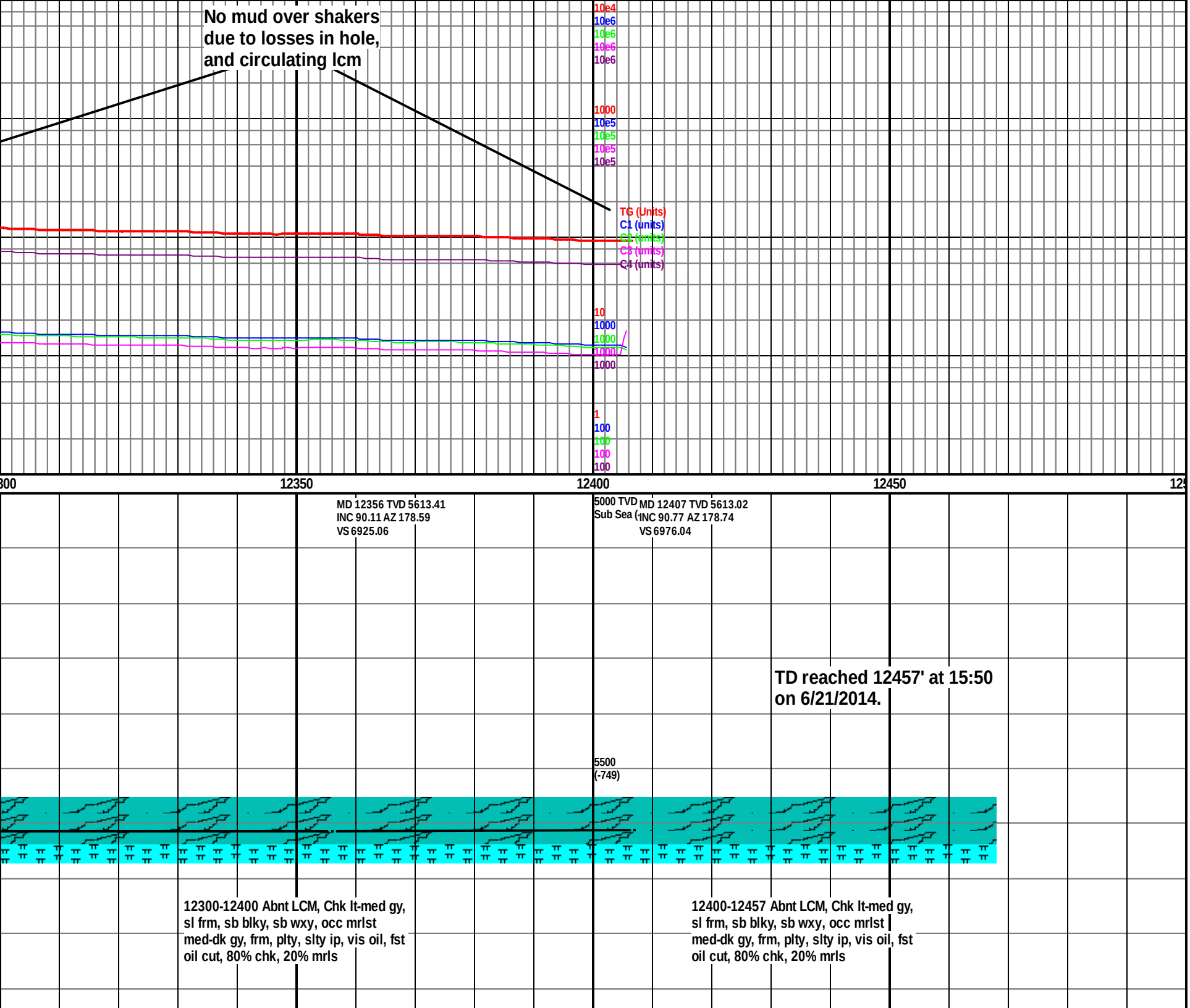

MD 11712 TVD 5602.64
INC 89.76 AZ 183.56
VS 6283.24
5000 T
Sub S
MD 11804 TVD 5602.74
INC 90.11 AZ 185.37
VS 6374.96
5500
(-749)
1700 Chk lt-med gy, sl frm, sb
wxy, occ mrlst med-dk gy, frm,
ip, vis oil, fst oil cut, 90 chk,
ls
11700-11800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, fst oil cut, 90 chk,
10% mrls
11800-11900 Chk lt-med gy, s
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, fst oil cut,
10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.5
Vis 40
11900
11950
12000
12050


MD 11895 TVD 5602.74
INC 89.89 AZ 187.2
VS 6465.41
MD 11987 TVD 5603.38
INC 89.32 AZ 185.09
VS 6556.87
Sea (-249)
5500
(-749)
l frm, sb
dk gy, frm,
90 chk,
11900-12000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
12000-12100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 70 chk, 30% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.45
Vis 37
10
1000
1000
1000
1000
1
100
100
100
100
12100
12150
12200
12250
123


D 12078 TVD 5606.23
NC 87.08 AZ 185.23
S 6647.45
MD 12170 TVD 5610.89
INC 87.12 AZ 182.28
VS 6739.13
5000 TVD
Sub Sea (-249)
MD 12261 TVD 5613.34
INC 89.8 AZ 179.75
VS 6830.07
5500
(-749)
12100-12200 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls
12200-12300 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls


No mud over shakers due to losses in hole, and circulating lcm
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
12350
12400
12450
MD 12356 TVD 5613.41
INC 90.11 AZ 178.59
VS 6925.06
5000 TVD
Sub Sea (
MD 12407 TVD 5613.02
INC 90.77 AZ 178.74
VS 6976.04
TD reached 12457' at 15:50 on 6/21/2014.
5500
(-749)
12300-12400 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls
12400-12457 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls

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

Well Name:	Razor Federal 26L-2303A		
Well Id:			
Location:	NWSW 26-T10N-R58W		
License Number:	05-123-37991	Region:	Redtail Field
Spud Date:	6/10/2014	Drilling Completed:	
Surface Coordinates:	Lat.: 40.808739 Long.: -103.839292		
Bottom Hole Coordinates:	Lat.: 40.789378 Long.: -103.838289		
Ground Elevation (ft):	4734	K.B. Elevation (ft):	4751
Logged Interval (ft):	4989 To: 13750	Total Depth (ft):	13750
Formation:	Pierre, Sharon Springs, Niobrara A		
Type of Drilling Fluid:	Water Based Mud		

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

OPERATOR

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

GEOLOGIST

Name: Lauren Roddy 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

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

OTHER SYMBOLS

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

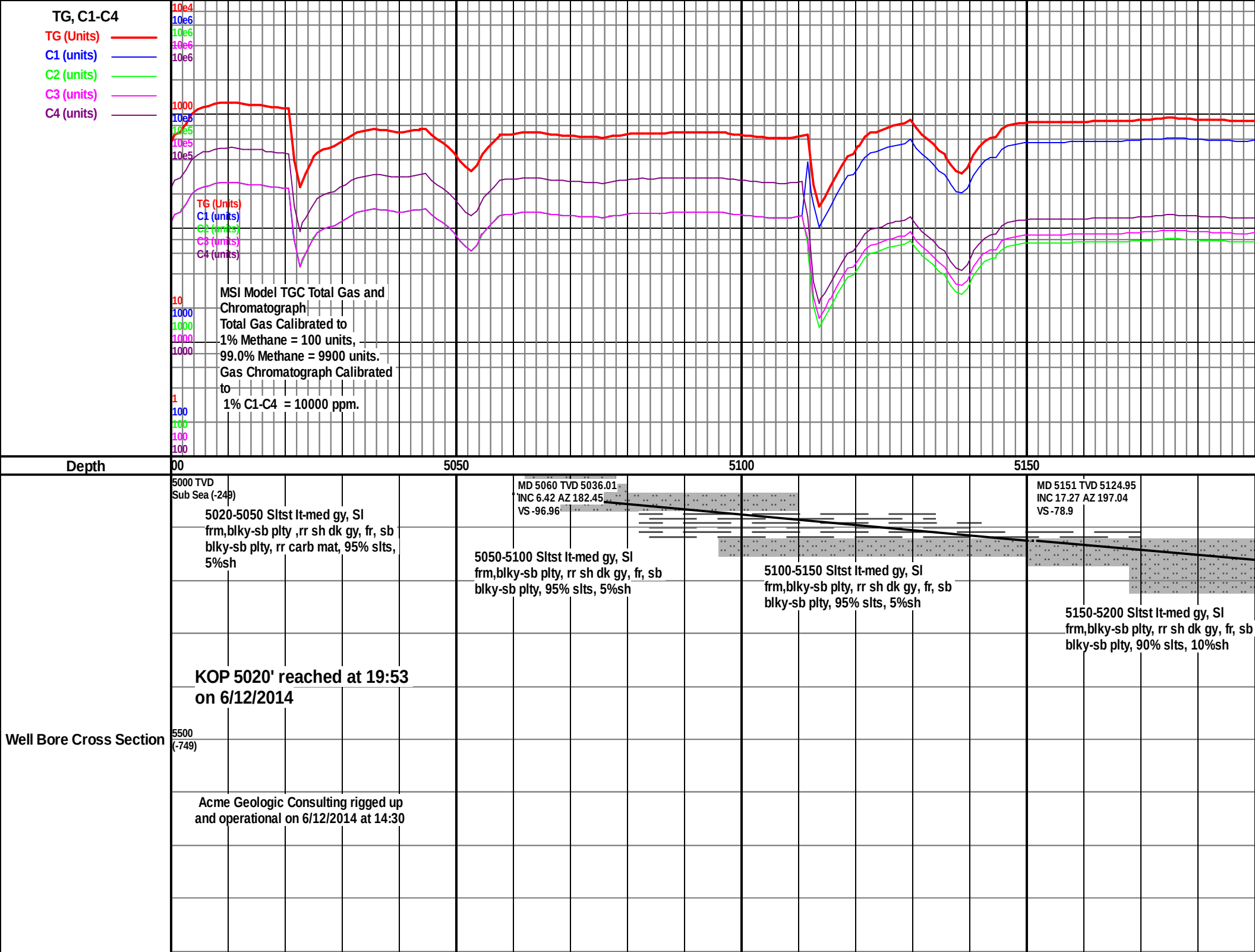
SORTING
- Well
- Moderate
- Poor

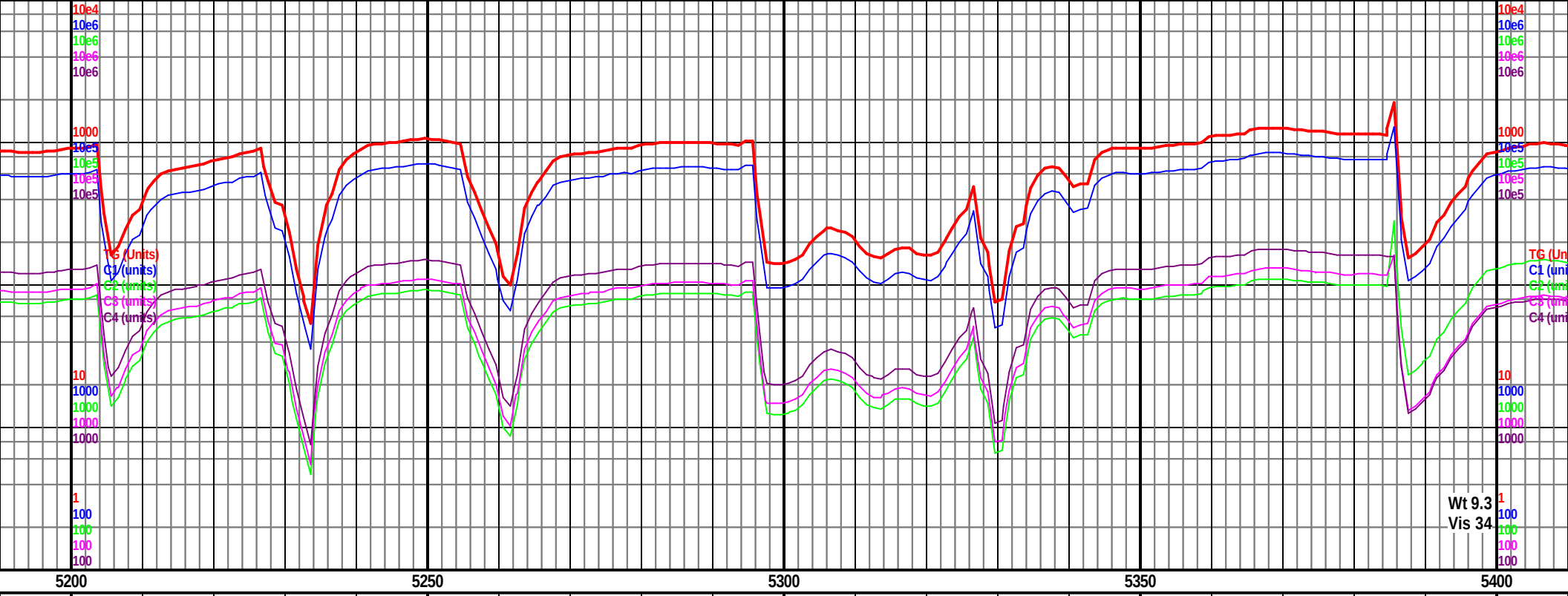
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

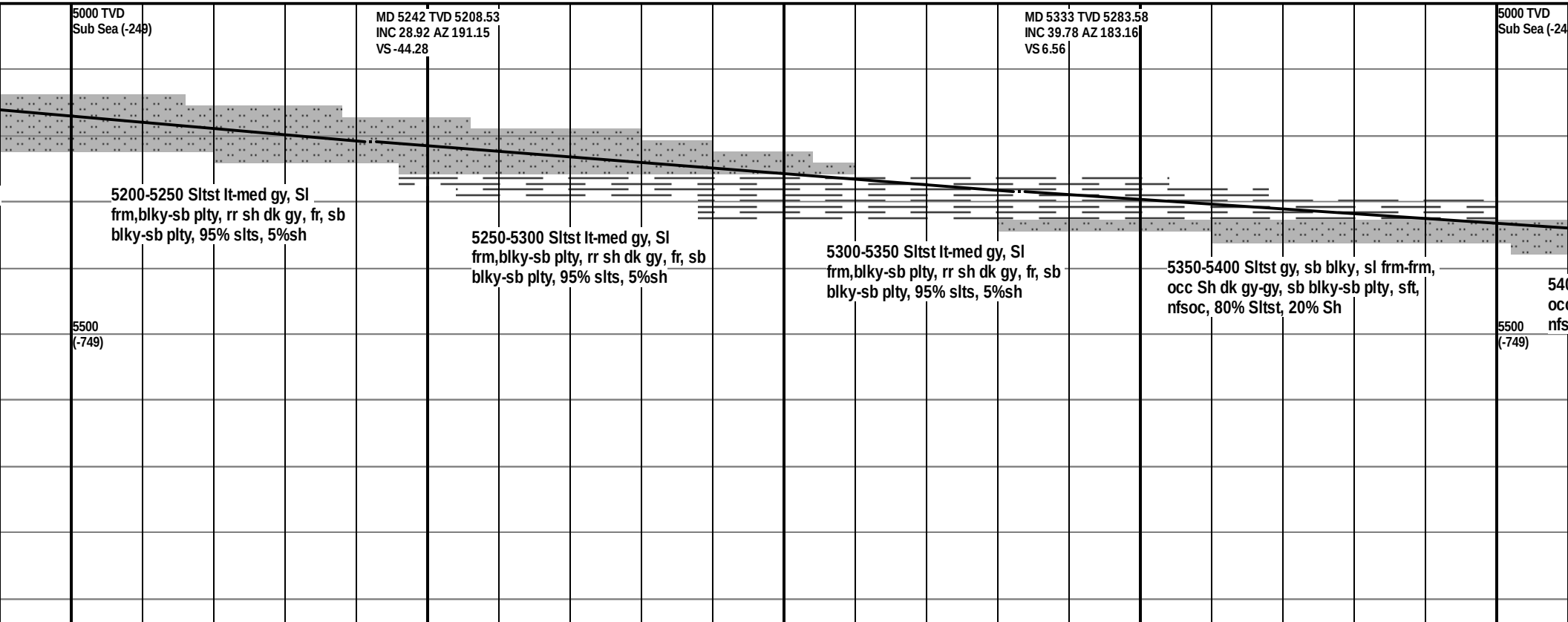
OIL SHOW
- Even
- Spotted
- Ques
- Dead

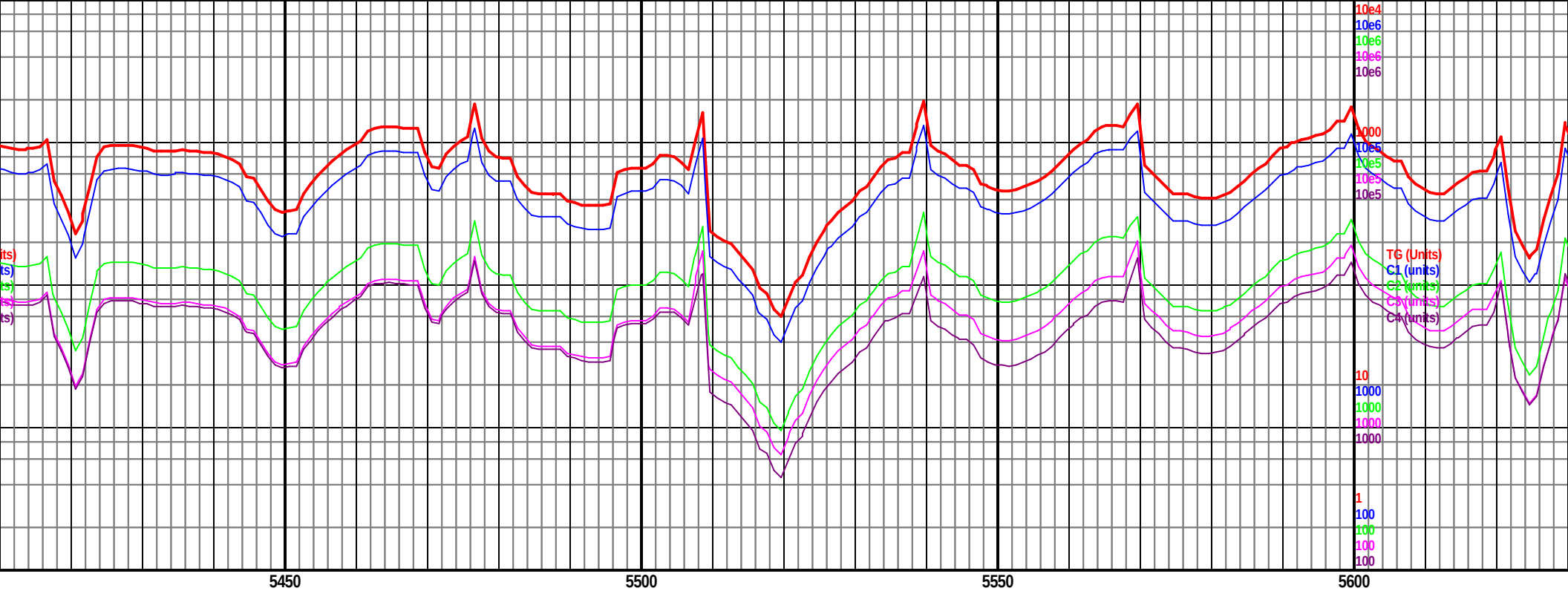
INTERVAL
- Core
- Dst

EVENT
- Rft
- Sidewall


TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to
1% Methane = 100 units,
99.0% Methane = 9900 units.
Gas Chromatograph Calibrated to
1% C1-C4 = 10000 ppm.
Depth
00
5050
5100
5150
5000 TVD
Sub Sea (-249)
5020-5050 Sltst lt-med gy, Sl frm,blky-sb plty ,rr sh dk gy, fr, sb blky-sb plty, rr carb mat, 95% slts, 5%sh
MD 5060 TVD 5036.01
INC 6.42 AZ 182.45
VS -96.96
5050-5100 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 95% slts, 5%sh
5100-5150 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 95% slts, 5%sh
MD 5151 TVD 5124.95
INC 17.27 AZ 197.04
VS -78.9
5150-5200 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 90% slts, 10%sh
KOP 5020' reached at 19:53 on 6/12/2014
5500
(-749)
Acme Geologic Consulting rigged up and operational on 6/12/2014 at 14:30
Well Bore Cross Section


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.3
Vis 34
5200
5250
5300
5350
5400


5000 TVD
Sub Sea (-249)
MD 5242 TVD 5208.53
INC 28.92 AZ 191.15
VS -44.28
MD 5333 TVD 5283.58
INC 39.78 AZ 183.16
VS 6.56
5200-5250 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 95% slts, 5%sh
5250-5300 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 95% slts, 5%sh
5300-5350 Sltst lt-med gy, Sl frm,blky-sb plty, rr sh dk gy, fr, sb blky-sb plty, 95% slts, 5%sh
5350-5400 Sltst gy, sb blky, sl frm-frm, occ Sh dk gy-gy, sb blky-sb plty, sft, nfsoc, 80% Sltst, 20% Sh
5500
(-749)



MD 5424 TVD 5348.11
INC 49.76 AZ 180.61
VS 70.52

MD 5455 TVD 5367.92
INC 50.81 AZ 181.05
VS 94.37

MD 5485 TVD 5386.9
INC 50.68 AZ 181.22
VS 117.59

MD 5516 TVD 5406.57
INC 50.55 AZ 180.52
VS 141.55

MD 5546 TVD 5425.71
INC 50.2 AZ 180.61
VS 164.66

MD 5577 TVD 5445.1
INC 52.35 AZ 180.61
VS 188.84

5000 TVD Sub Sea (

MD 5607 TVD 5462.71
INC 55.74 AZ 180.34
VS 213.12

00-5450 Sltst gy, sb blky, sl frm-frm,
c Sh dk gy-gy, sb blky-sb plty, sft,
soc, 80% Sltst, 20% Sh

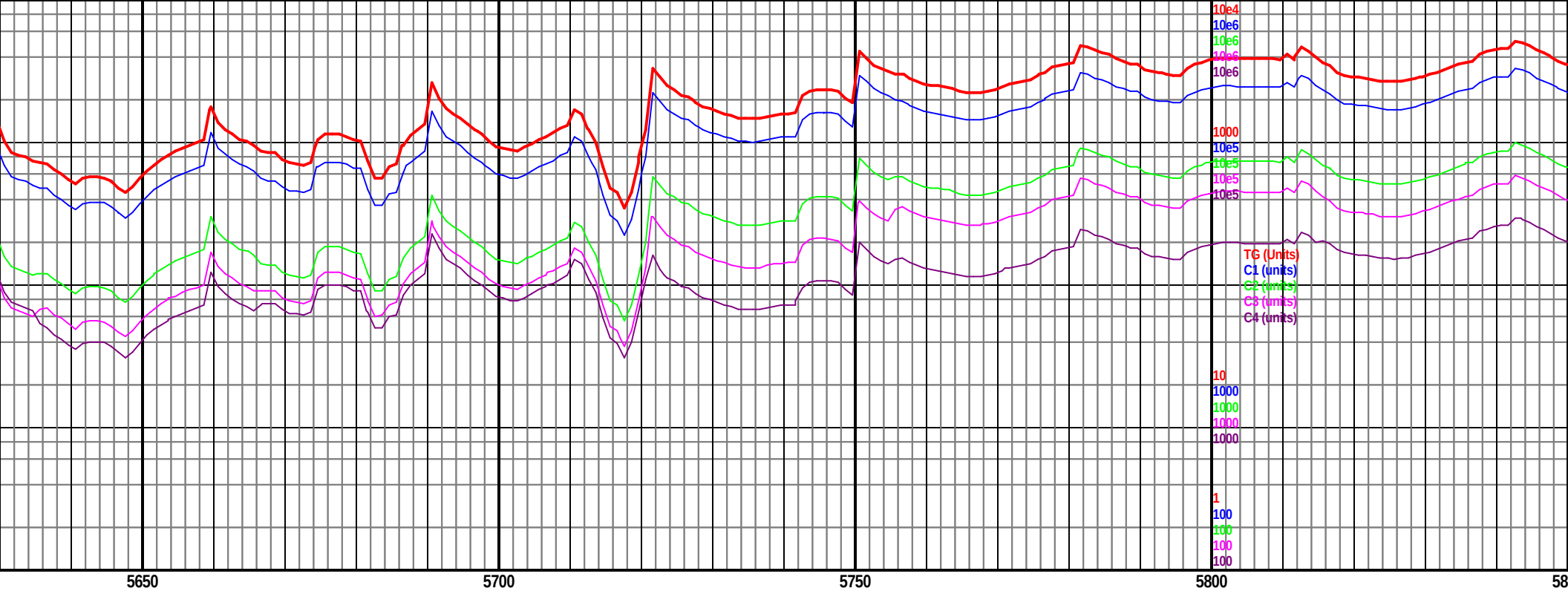
5450-5500 Sltst gy, sb blky, sl frm-frm,
occ Sh dk gy-gy, sb blky-sb plty, sft,
nfsoc, 80% Sltst, 20% Sh

5500-5550 Sltst gy, sb blky, sl frm-frm,
occ Sh dk gy-gy, sb blky-sb plty, sft,
nfsoc, 80% Sltst, 20% Sh

5550-5600 Sltst gy, sb blky, sl frm-frm,
occ Sh dk gy-gy, sb blky-sb plty, sft,
nfsoc, 70% Sltst, 30% Sh

5500
(-749)

5600-5650 Sltst gy, sb bl
occ Sh dk gy-gy, sb blky
nsoc, 60% Sltst, 40% Sh



MD 5638 TVD 5479.96
INC 56.62 AZ 179.29
VS 238.87

MD 5699 TVD 5512.7
INC 58.46 AZ 177.53
VS 290.32

MD 5730 TVD 5527.89
INC 62.86 AZ 179.46
VS 317.32

MD 5760 TVD 5540.66
INC 66.77 AZ 180.61
VS 344.46

MD 5790 TVD 5551.58
INC 70.51 AZ 181.57 (-249)
VS 372.39

MD 5821 TVD 5561.34
INC 72.79 AZ 182.1
VS 401.8

**P200 5616' MD
5495' TVD**

**P300 5620'MD
5519' TVD**

**P350 5750' MD
5537' TVD**

**Sharon Springs 5784' MD
5549' TVD**

**Niobrara 5788' MD
5554' TVD**

5500
(-749)

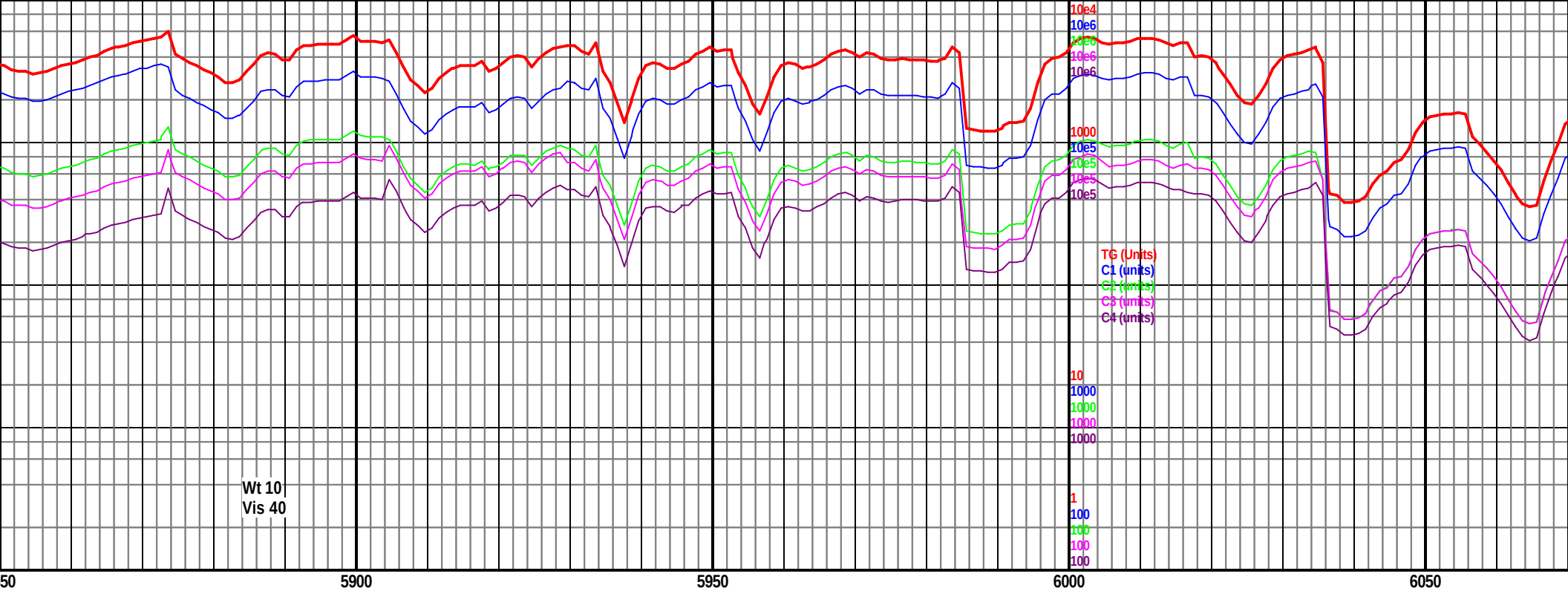
ky, sl frm-frm,
-sb plty, sft,

5650-5700 Sltst gy, sb blky, sl frm-frm, occ Sh dk gy-gy, sb blky-sb plty, sft, nsoc, 60% Sltst, 40% Sh

5700-5750 Sltst gy, sb blky, sl frm-frm, occ Sh dk gy-gy, sb blky-sb plty, sft, nsoc, rr bent, 60% Sltst, 40% Sh

5750-5800 Sh dk gy-med gy, sb blky-sb plty, slty, tr Sltst dk gy, sb blky, sl frm, sft, tr bent, rr pyr, nsfoc, 70% Sh, 25% Sltst, 5% Bent

5800-5850 Chk lt-med gy, sl frm, sb blky, sb wxy, rr sh dk gy, frm, plty, rr pyr, rr bent, fst oil cut, 90% Chk, 10% sh



MD 5851 TVD 5569.97
INC 73.76 AZ 182.36
VS 430.51

MD 5882 TVD 5578.29
INC 75.12 AZ 181.75
VS 460.35

MD 5913 TVD 5585.59
INC 77.63 AZ 180.78
VS 490.47

MD 5943 TVD 5591.12
INC 81.14 AZ 179.82
VS 519.95

MD 5964 TVD 5594.07
INC 82.68 AZ 179.29
VS 540.74

5000 TVD
Sub Sea (-249)

N100 5854' MD 5571' TVD

Intermediate casing 6016' at 09:40 on 6/13/2014. Resumed drilling at 14:11 on 6/14/2014.

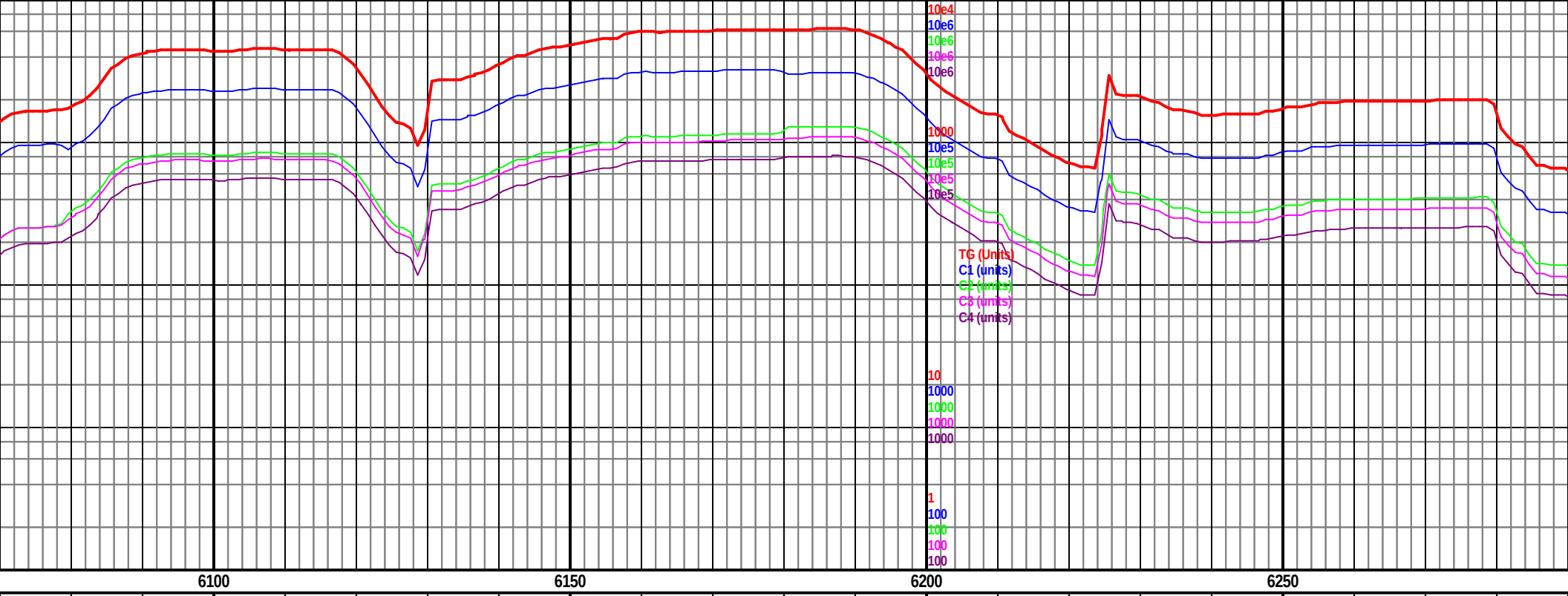
5500
(-749)

5850-5900 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, rr pyr, rr bent, fst oil cut, 90% Chk, 10% mrlst

5900-5950 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, rr pyr, rr bent, fst oil cut, 90% Chk, 10% mrlst

5950-6016 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, rr pyr, rr bent, fst oil cut, 90% Chk, 10% mrlst

6016-6100 Chk med gy-lt gy, sb plty, sl frm, mottled, tr Mrlst dk gy, frm, sb blky, suc, vis oil, fst cut, 70% Chk, 30% 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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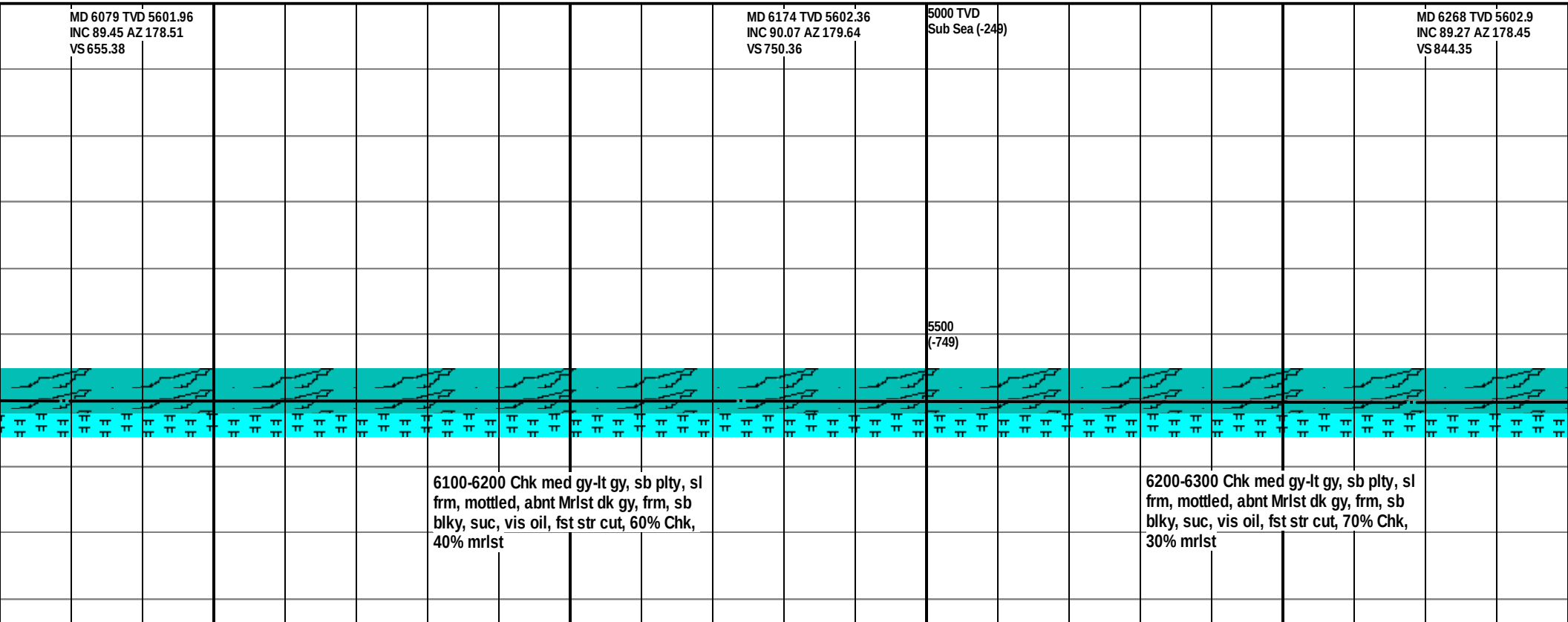
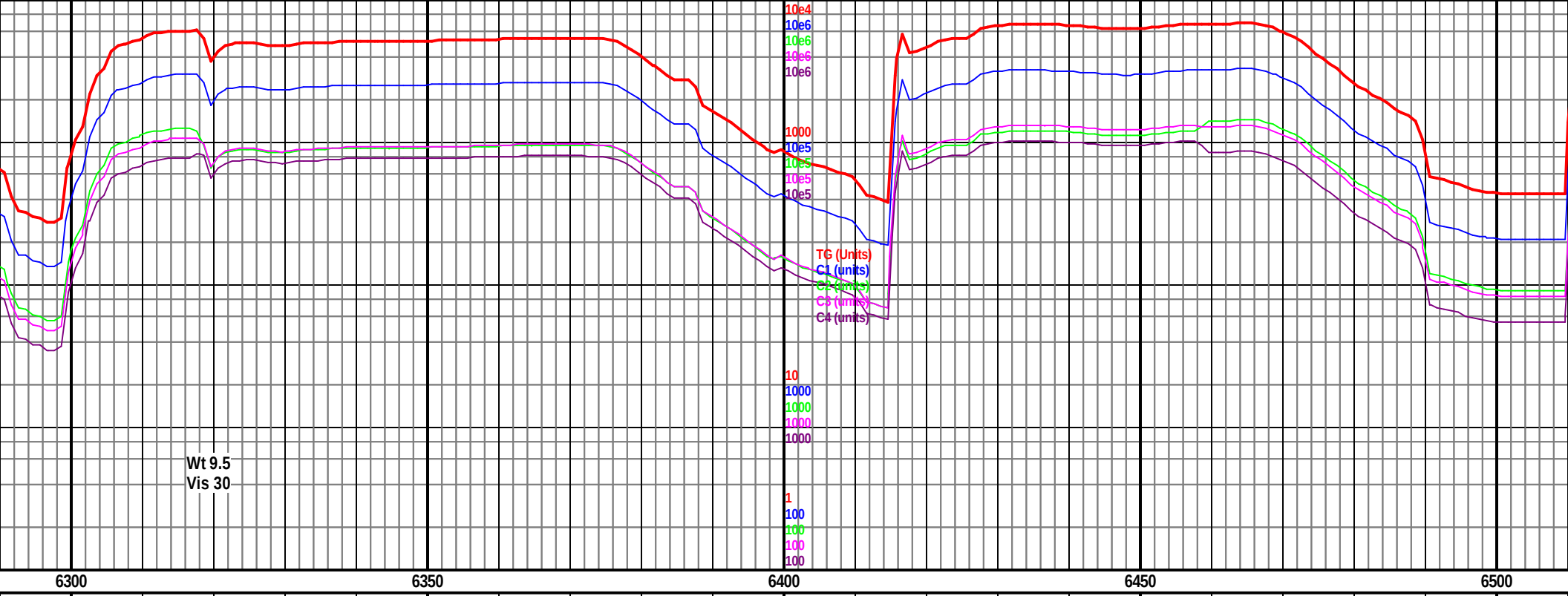
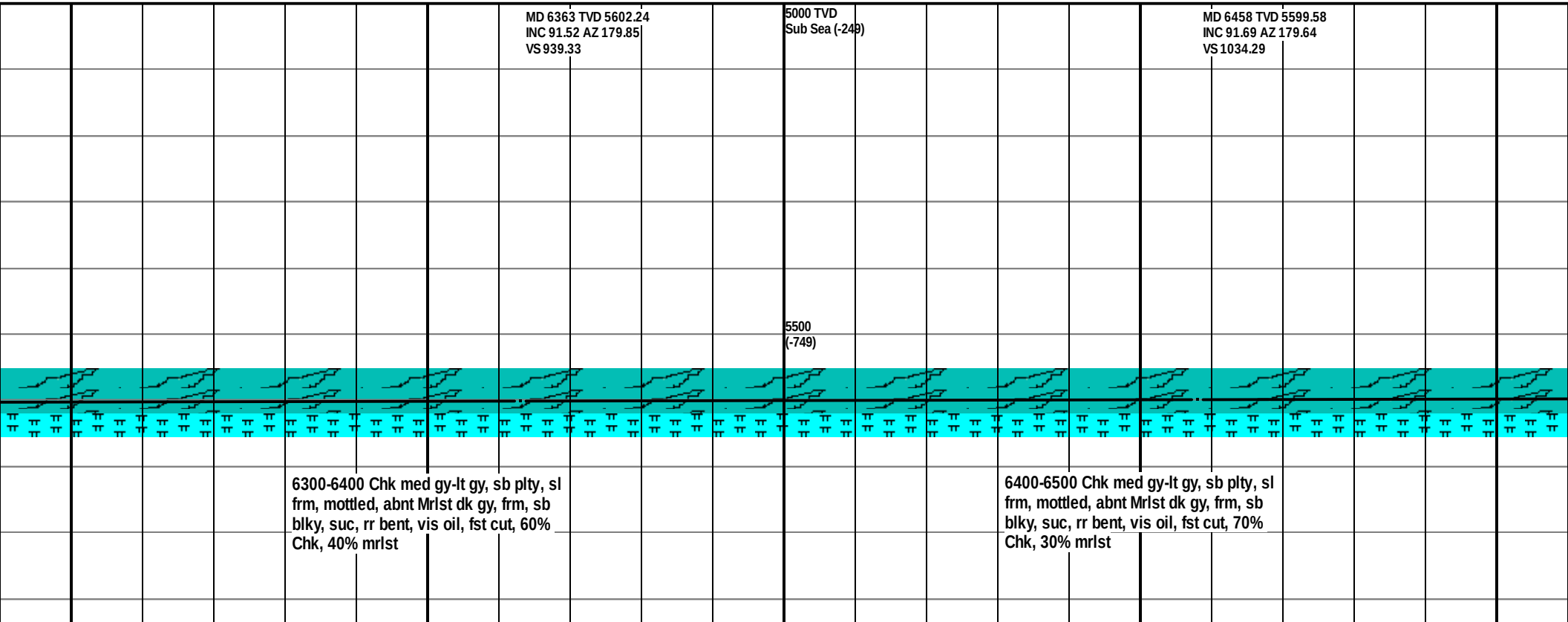
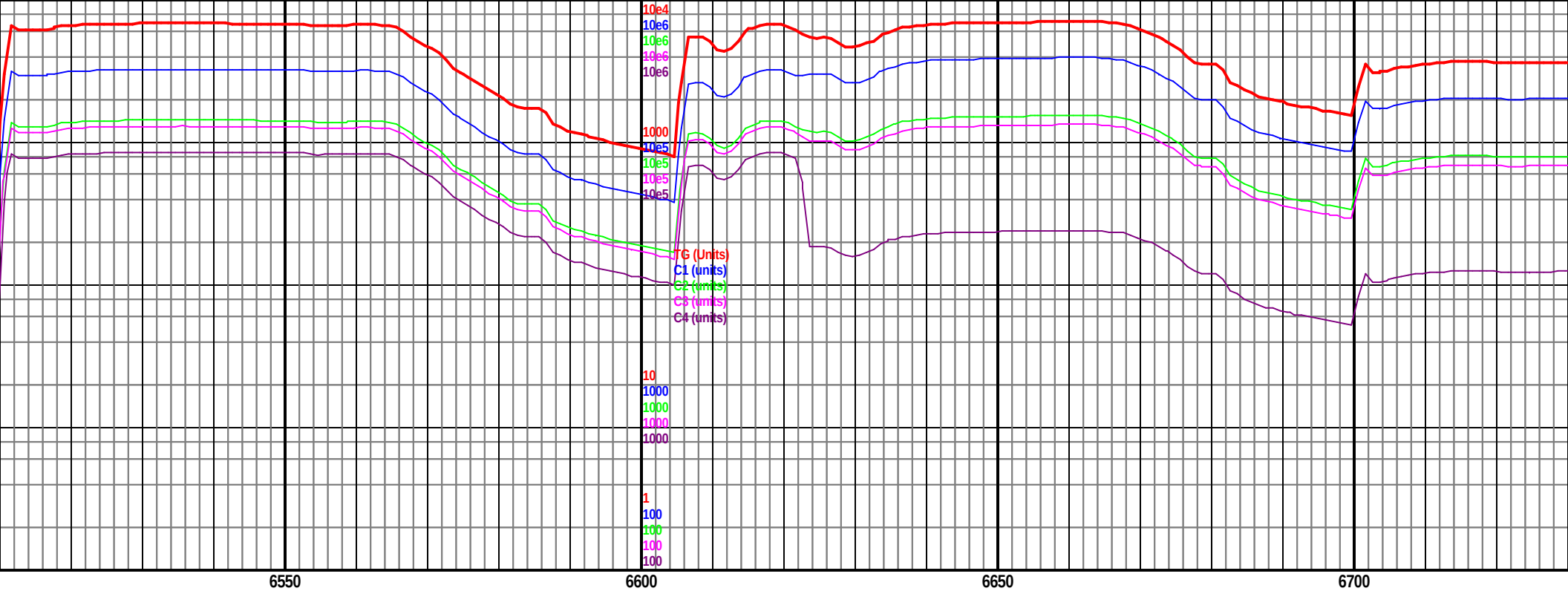
6100
6150
6200
6250


MD 6079 TVD 5601.96
INC 89.45 AZ 178.51
VS 655.38
MD 6174 TVD 5602.36
INC 90.07 AZ 179.64
VS 750.36
5000 TVD
Sub Sea (-249)
MD 6268 TVD 5602.9
INC 89.27 AZ 178.45
VS 844.35
5500
(-749)
6100-6200 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, vis oil, fst str cut, 60% Chk, 40% mrlst
6200-6300 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, vis oil, fst str cut, 70% Chk, 30% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.5
Vis 30
6300
6350
6400
6450
6500


MD 6363 TVD 5602.24
INC 91.52 AZ 179.85
VS 939.33
5000 TVD
Sub Sea (-249)
MD 6458 TVD 5599.58
INC 91.69 AZ 179.64
VS 1034.29
5500
(-749)
6300-6400 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, fst cut, 60% Chk, 40% mrlst
6400-6500 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, fst cut, 70% Chk, 30% 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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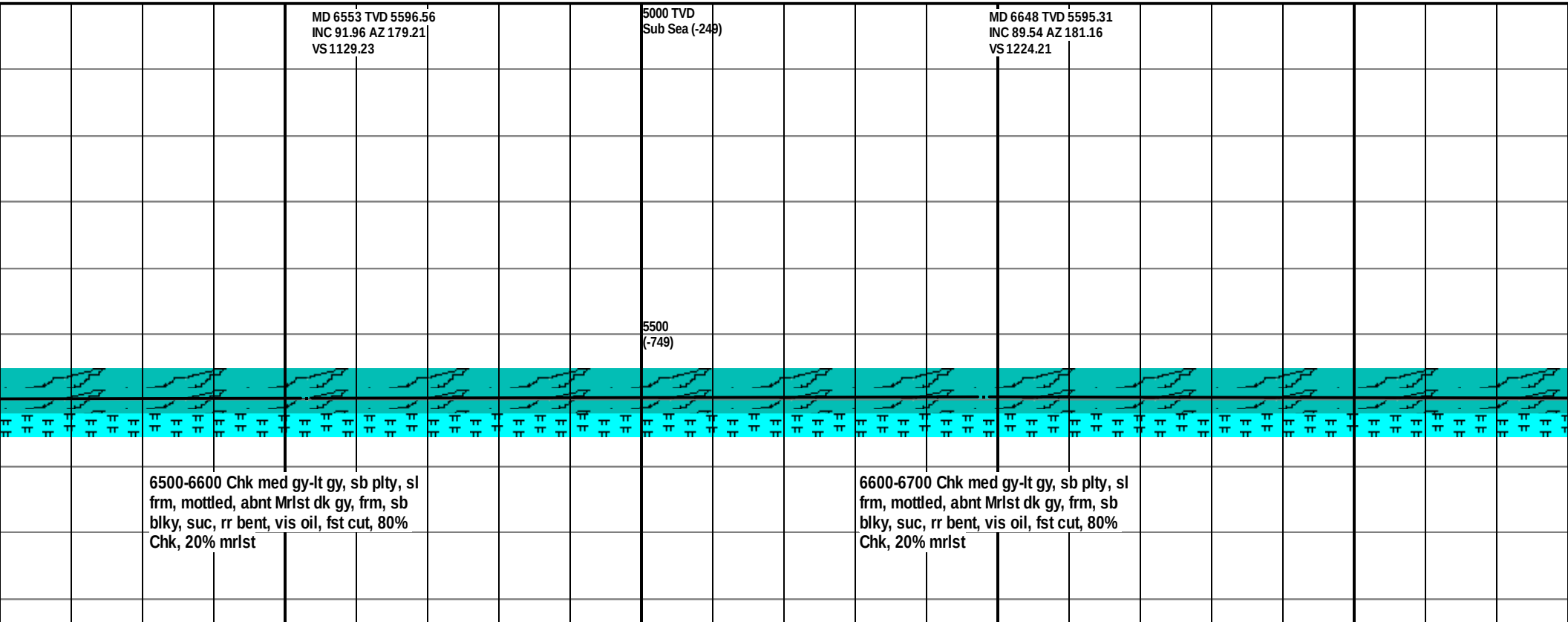
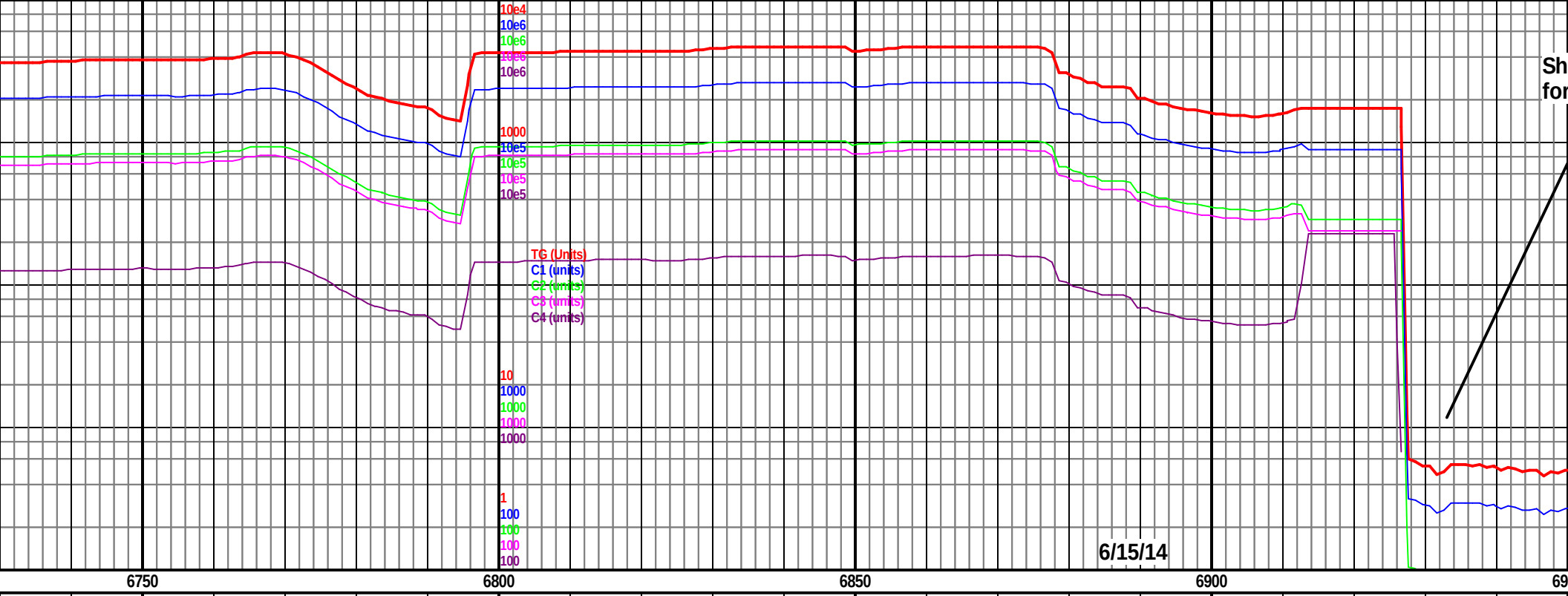
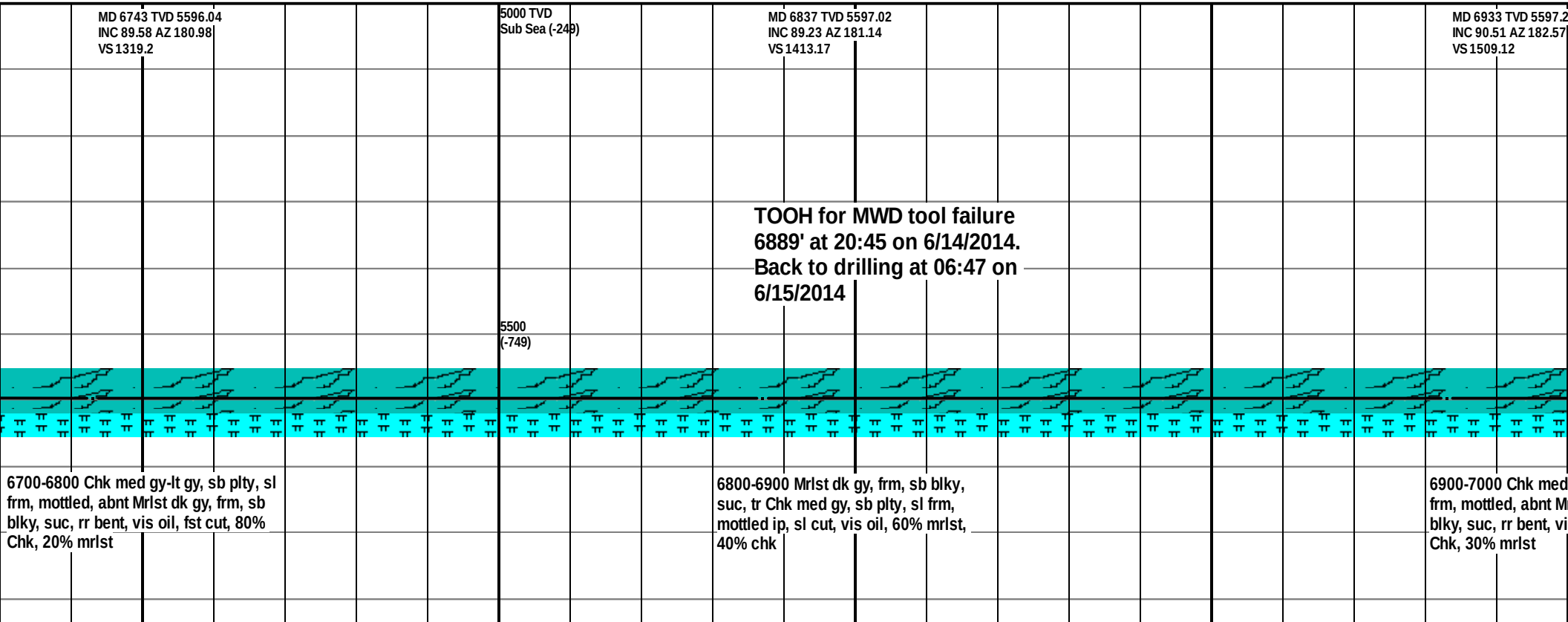
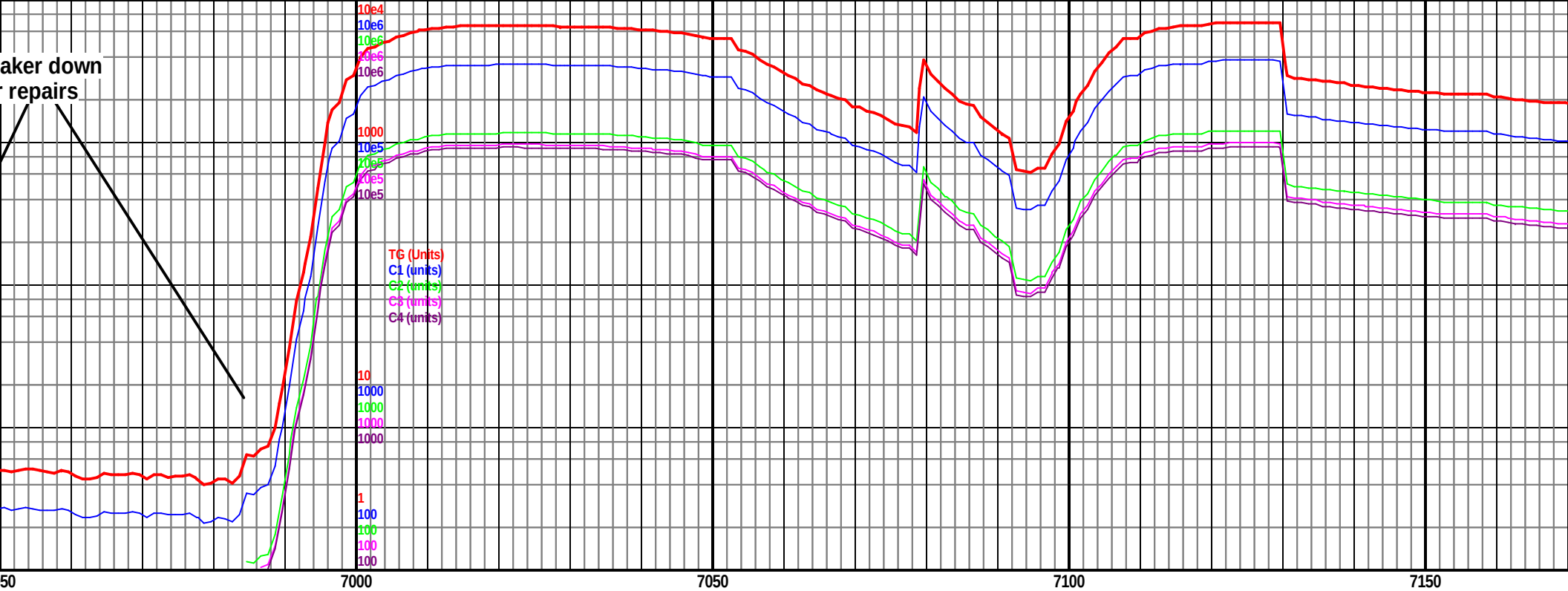
100
6550
6600
6650
6700


MD 6553 TVD 5596.56
INC 91.96 AZ 179.21
VS 1129.23
5000 TVD
Sub Sea (-249)
MD 6648 TVD 5595.31
INC 89.54 AZ 181.16
VS 1224.21
5500
(-749)
6500-6600 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, fst cut, 80% Chk, 20% mrlst
6600-6700 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, fst 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
6/15/14
6750
6800
6850
6900
Sh
for


MD 6743 TVD 5596.04
INC 89.58 AZ 180.98
VS 1319.2
5000 TVD
Sub Sea (-249)
MD 6837 TVD 5597.02
INC 89.23 AZ 181.14
VS 1413.17
MD 6933 TVD 5597.2
INC 90.51 AZ 182.57
VS 1509.12
TOOH for MWD tool failure
6889' at 20:45 on 6/14/2014.
Back to drilling at 06:47 on
6/15/2014
5500
(-749)
6700-6800 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, fst cut, 80% Chk, 20% mrlst
6800-6900 Mrlst dk gy, frm, sb blky, suc, tr Chk med gy, sb plty, sl frm, mottled ip, sl cut, vis oil, 60% mrlst, 40% chk
6900-7000 Chk med
frm, mottled, abnt M
blky, suc, rr bent, vi
Chk, 30% mrlst


aker down
repairs
10e4
10e6
10e6
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1000
10e5
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10e5
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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
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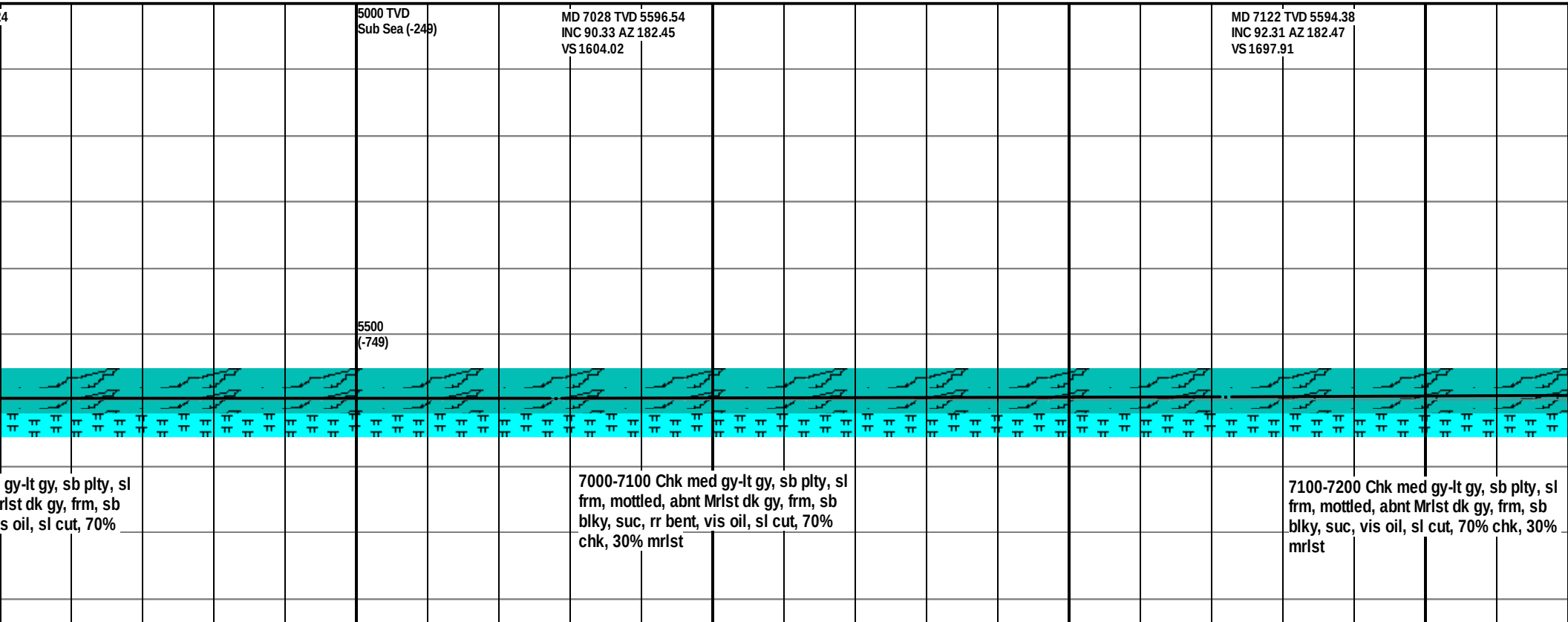
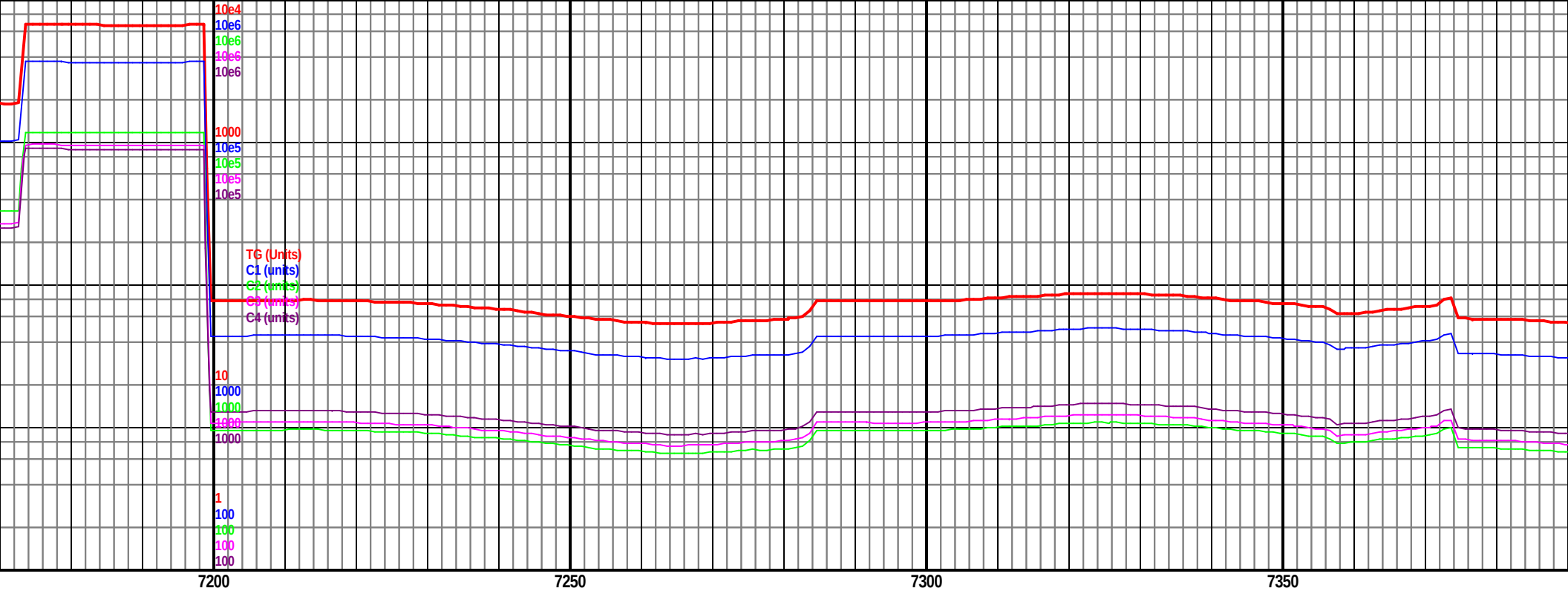
1000
1
100
100
100
100
50
7000
7050
7100
7150


24
5000 TVD
Sub Sea (-249)
MD 7028 TVD 5596.54
INC 90.33 AZ 182.45
VS 1604.02
MD 7122 TVD 5594.38
INC 92.31 AZ 182.47
VS 1697.91
5500
(-749)
gy-lt gy, sb plty, sl
rlst dk gy, frm, sb
s oil, sl cut, 70%
7000-7100 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, rr bent, vis oil, sl cut, 70% chk, 30% mrlst
7100-7200 Chk med gy-lt gy, sb plty, sl frm, mottled, abnt Mrlst dk gy, frm, sb blky, suc, vis oil, sl cut, 70% chk, 30% mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
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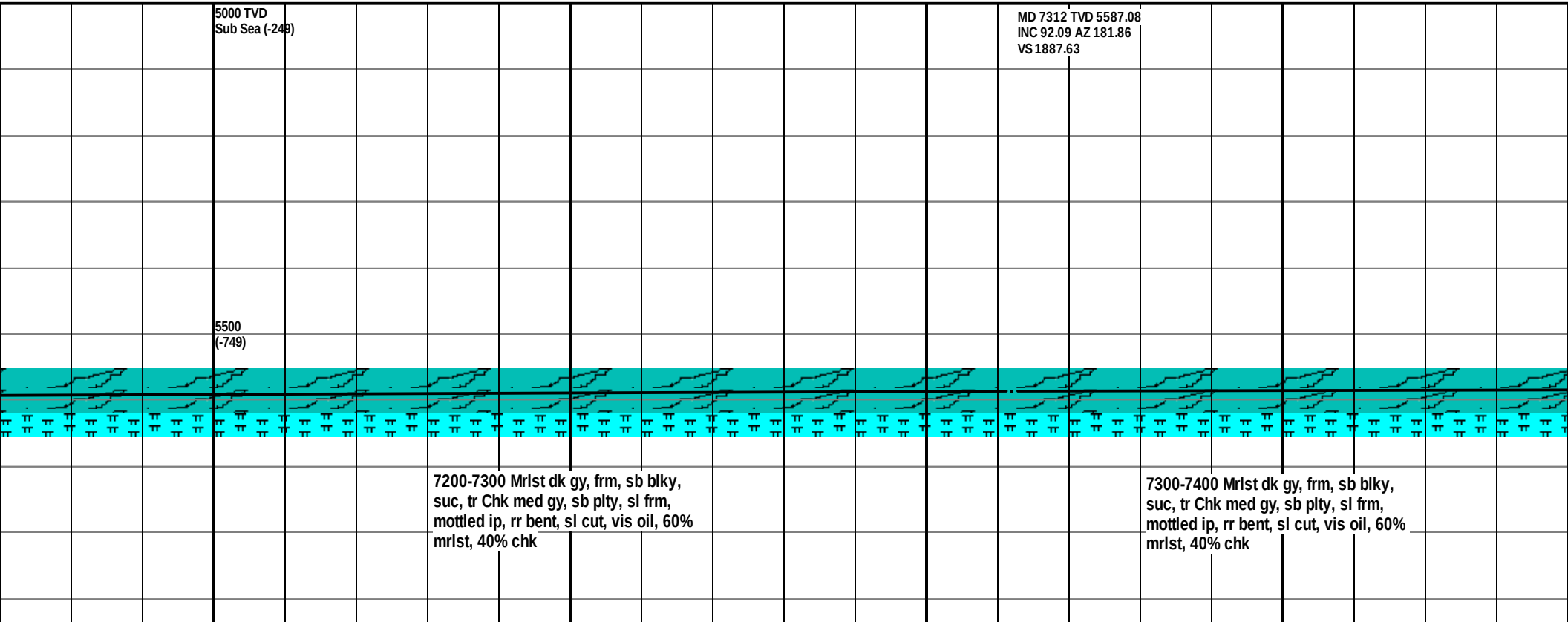
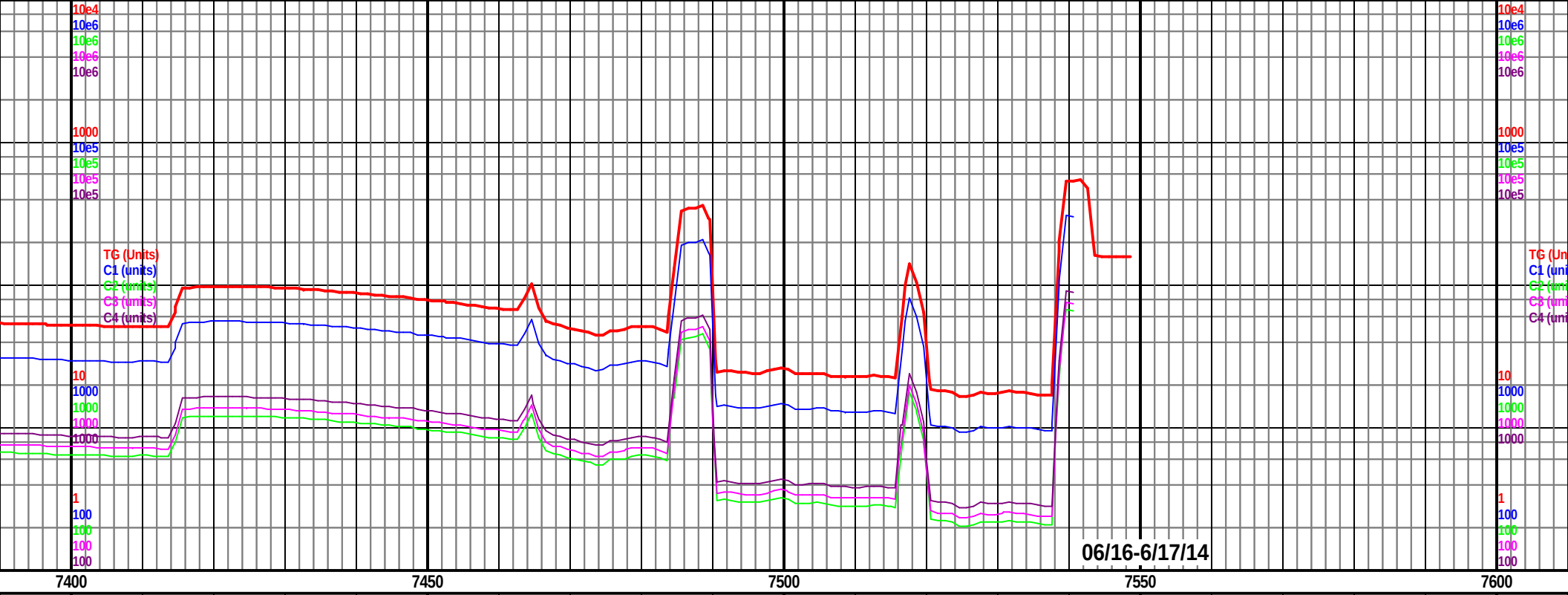
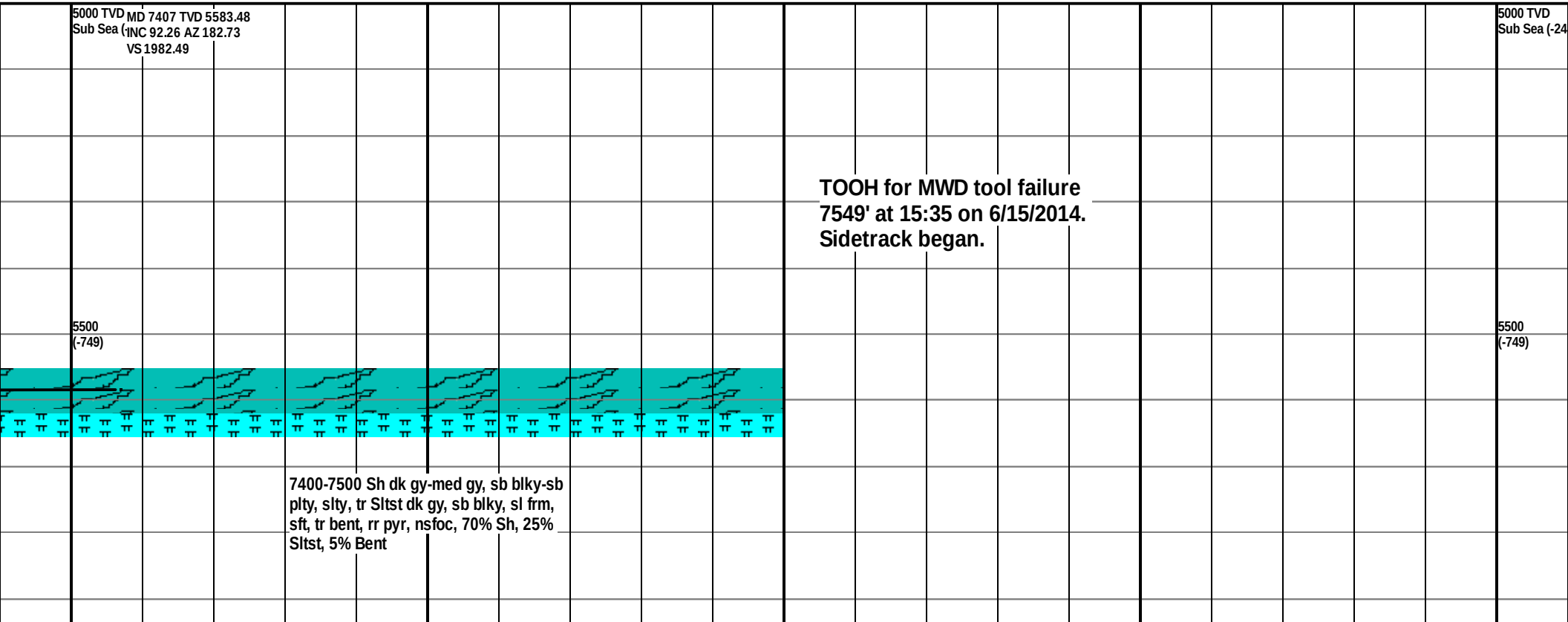
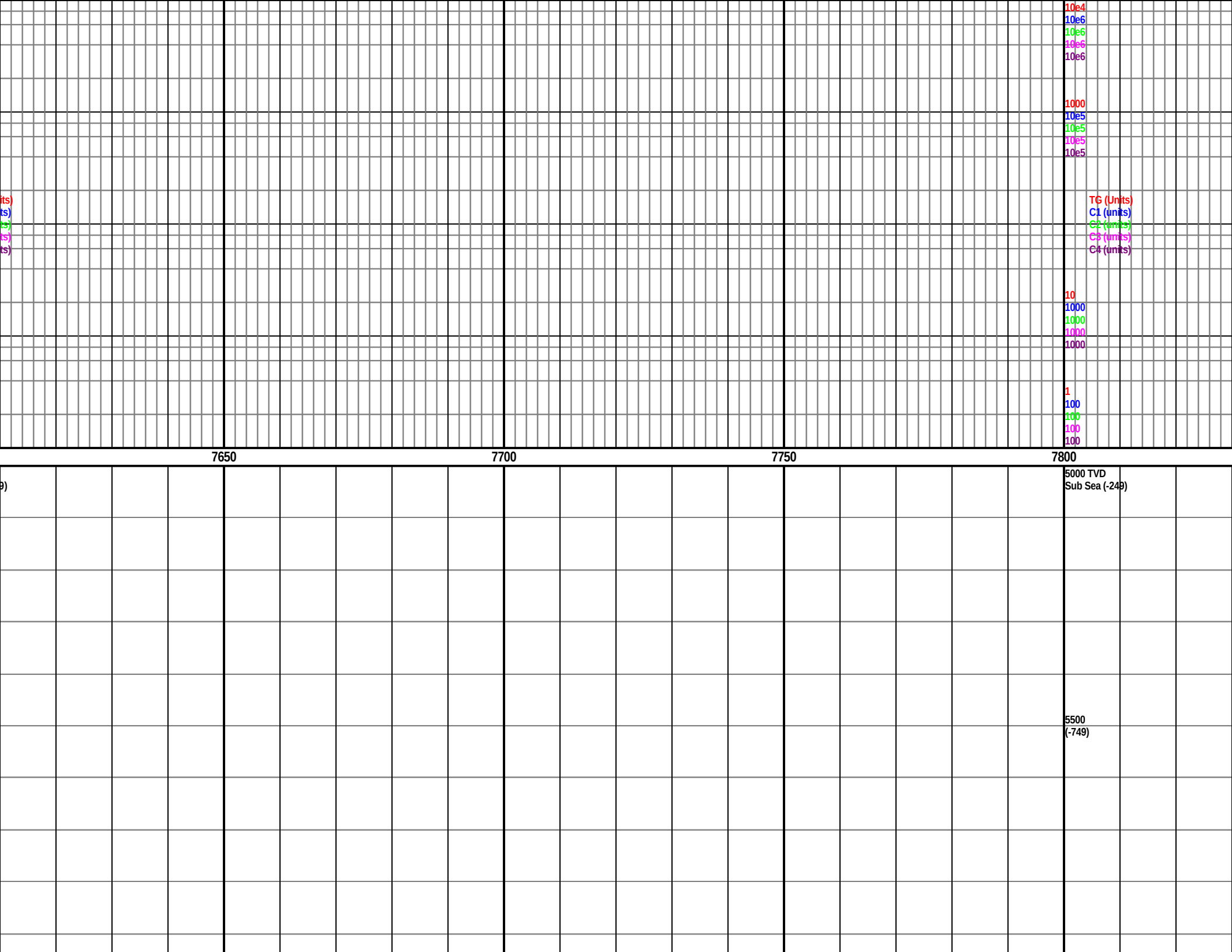
7200
7250
7300
7350


5000 TVD
Sub Sea (-249)
MD 7312 TVD 5587.08
INC 92.09 AZ 181.86
VS 1887.63
5500
(-749)
7200-7300 Mrlst dk gy, frm, sb blky, suc, tr Chk med gy, sb plty, sl frm, mottled ip, rr bent, sl cut, vis oil, 60% mrlst, 40% chk
7300-7400 Mrlst dk gy, frm, sb blky, suc, tr Chk med gy, sb plty, sl frm, mottled ip, rr bent, sl cut, vis oil, 60% mrlst, 40% chk


TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
06/16-6/17/14
7400
7450
7500
7550
7600


5000 TVD Sub Sea (-
MD 7407 TVD 5583.48
INC 92.26 AZ 182.73
VS 1982.49
5500 (-749)
TOOH for MWD tool failure 7549' at 15:35 on 6/15/2014. Sidetrack began.
7400-7500 Sh dk gy-med gy, sb blky-sb plty, slty, tr Sltst dk gy, sb blky, sl frm, sft, tr bent, rr pyr, nsfoc, 70% Sh, 25% Sltst, 5% Bent


10e4
10e6
10e6
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its)
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ts)
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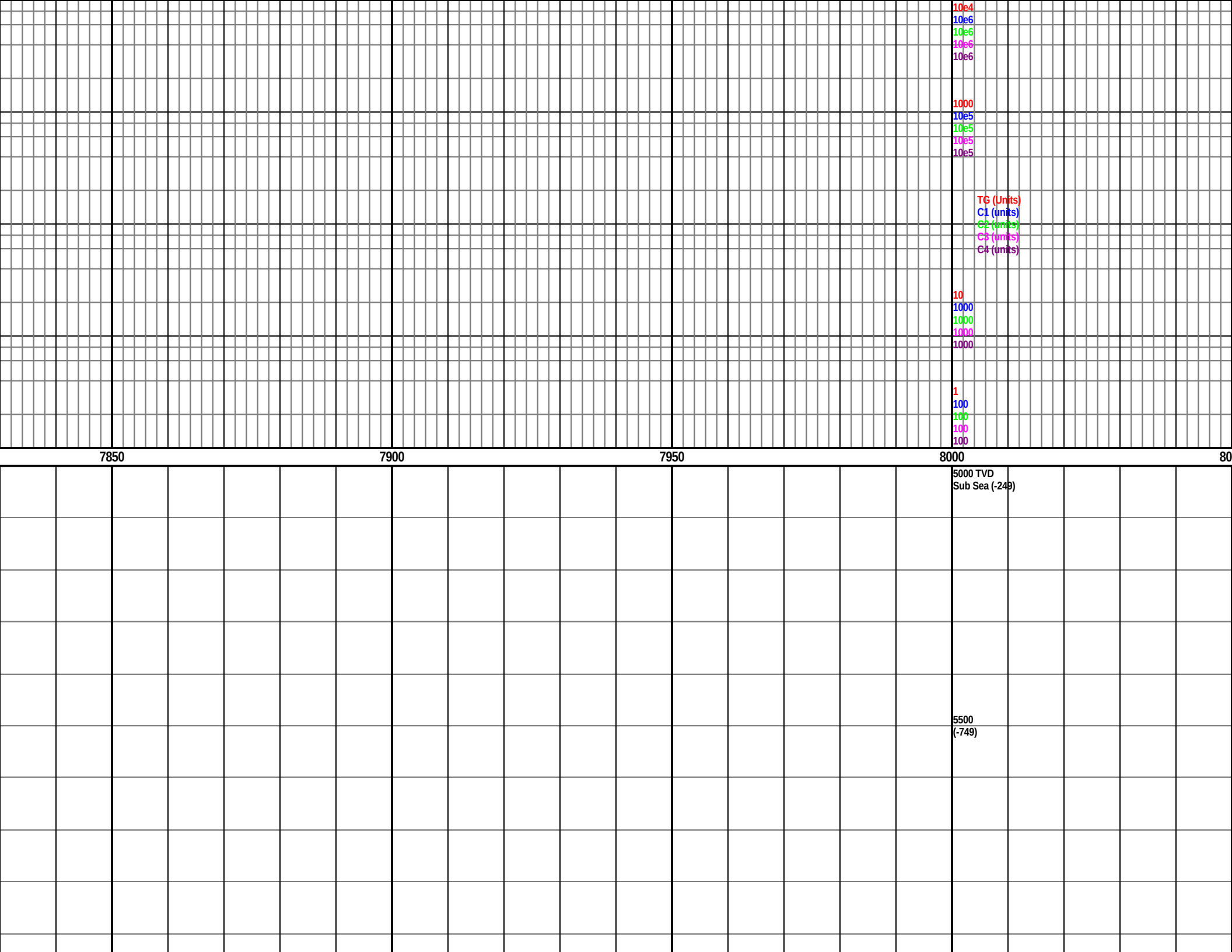
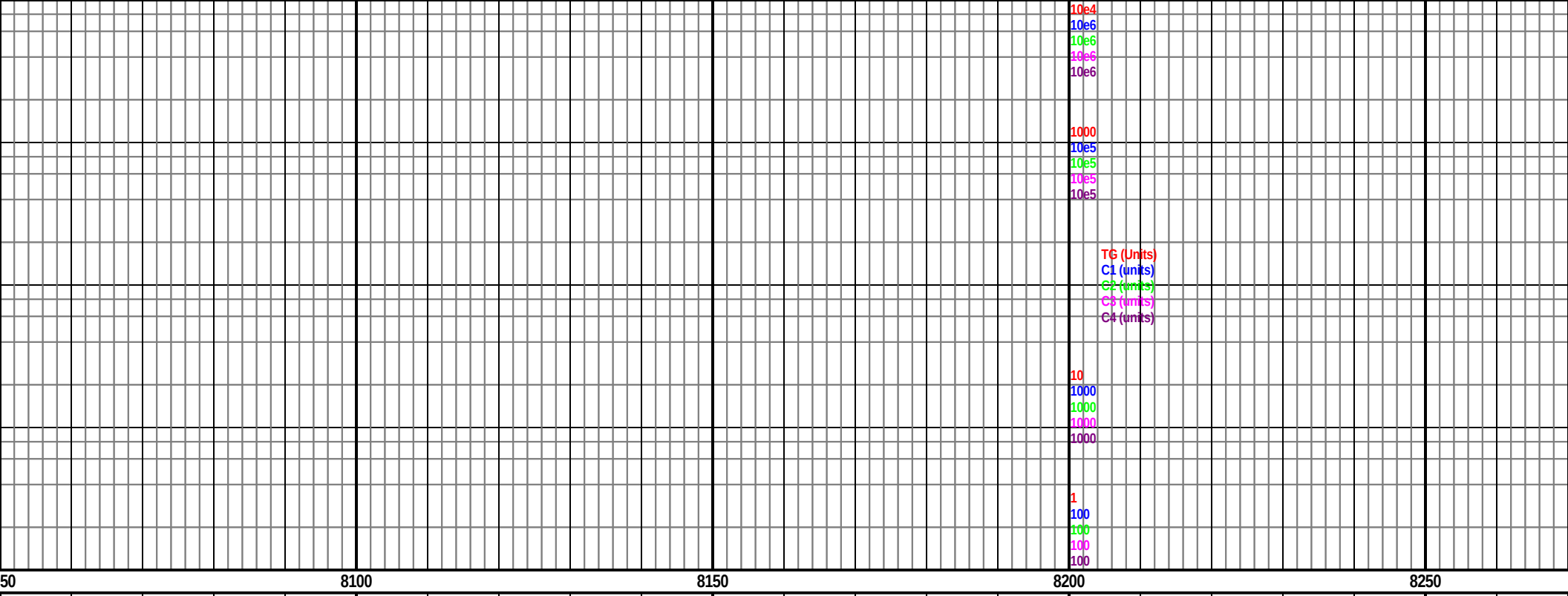
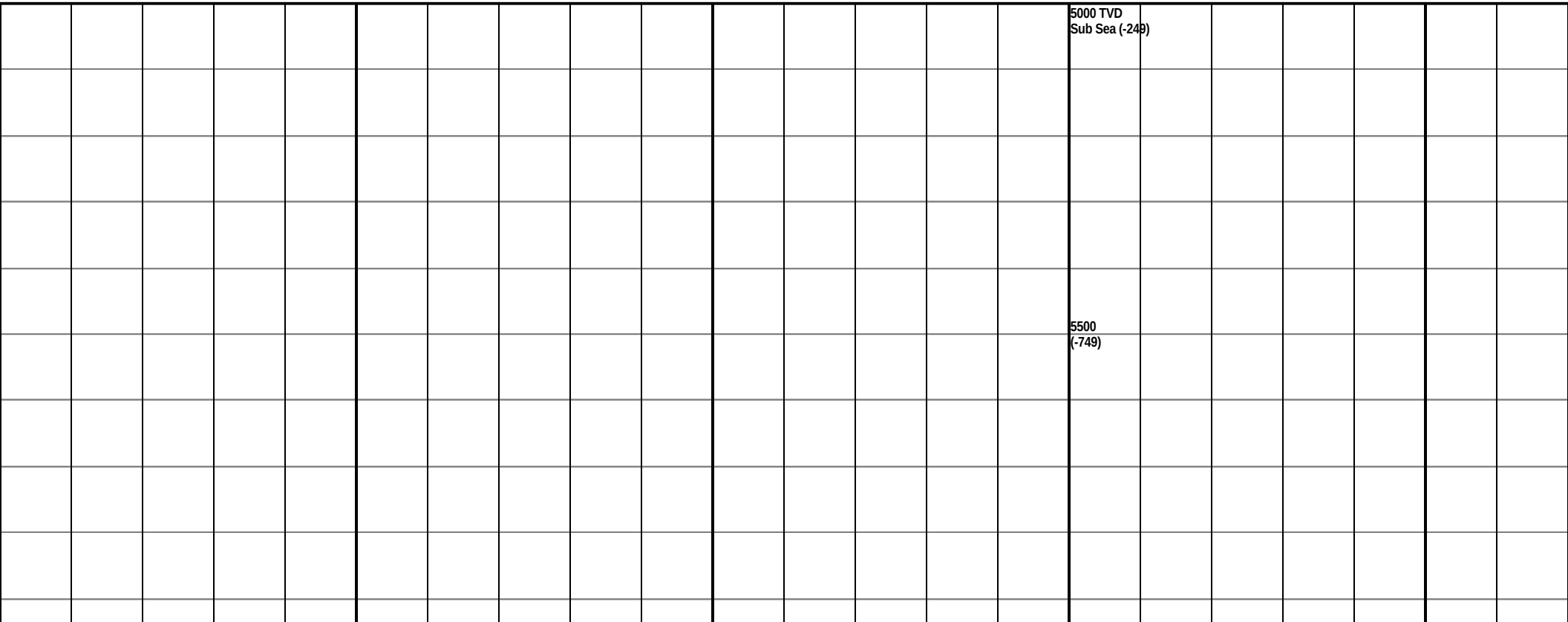
ts)
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
7650
7700
7750
7800
9)
5000 TVD
Sub Sea (-249)
5500
(-749)


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
7850
7900
7950
8000
80
5000 TVD
Sub Sea (-249)
5500
(-749)


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

50
8100
8150
8200
8250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Sub Sea (-249)
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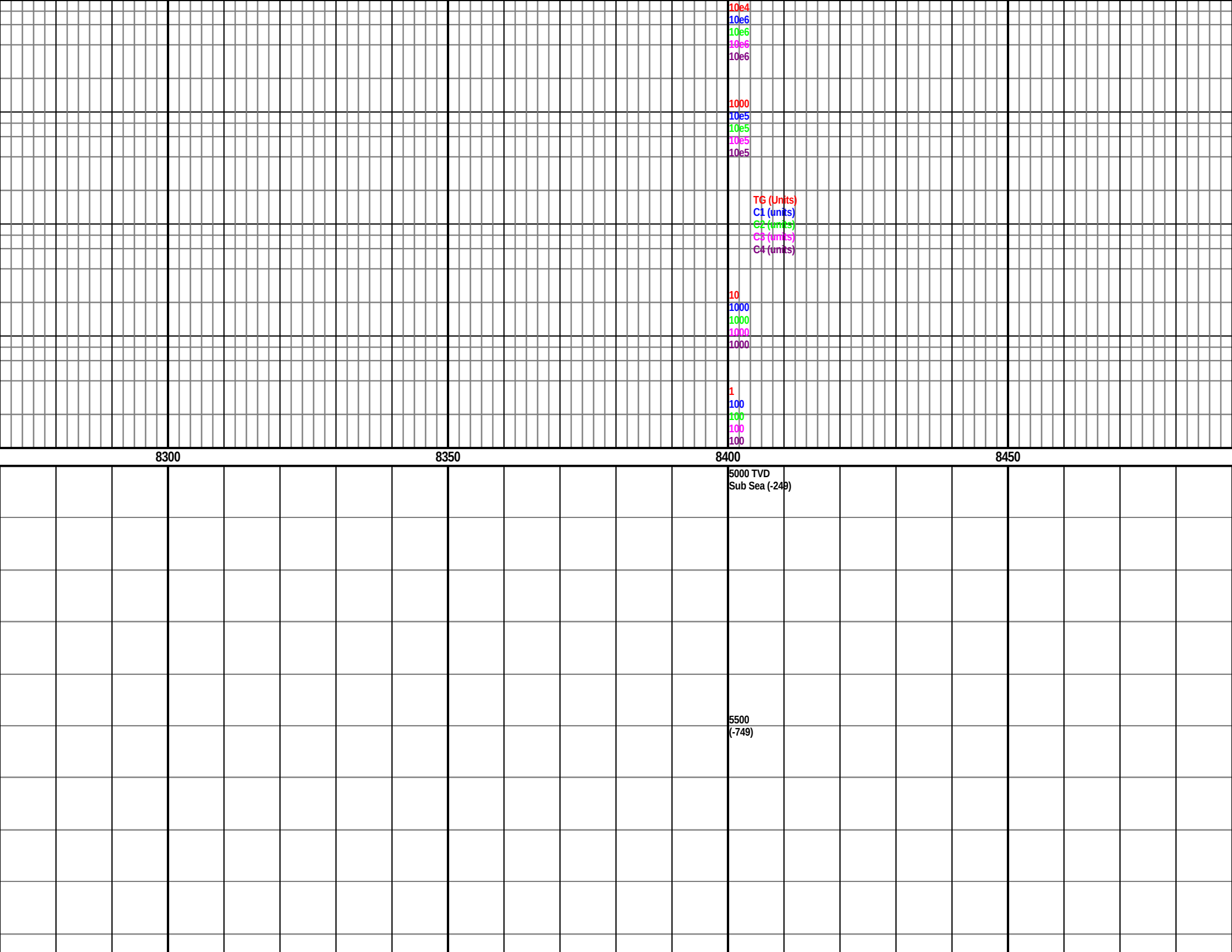
(-749)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C3 (units)
C4 (units)
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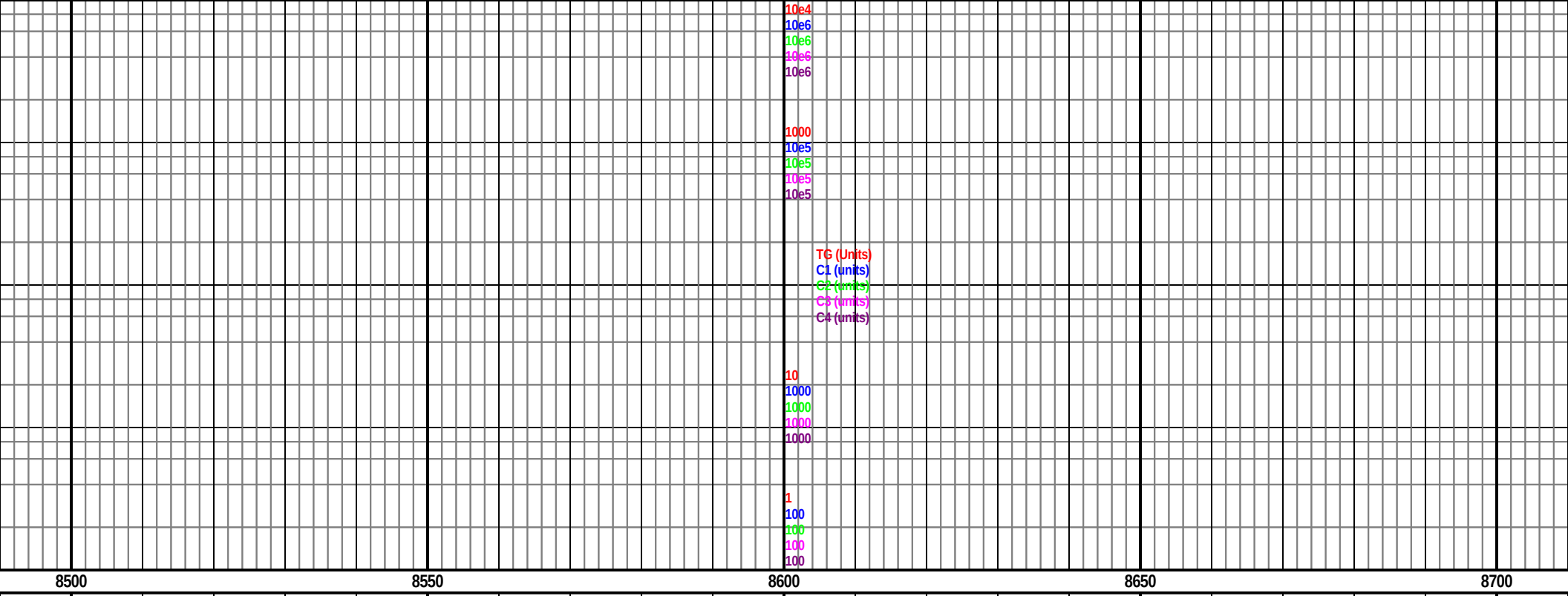
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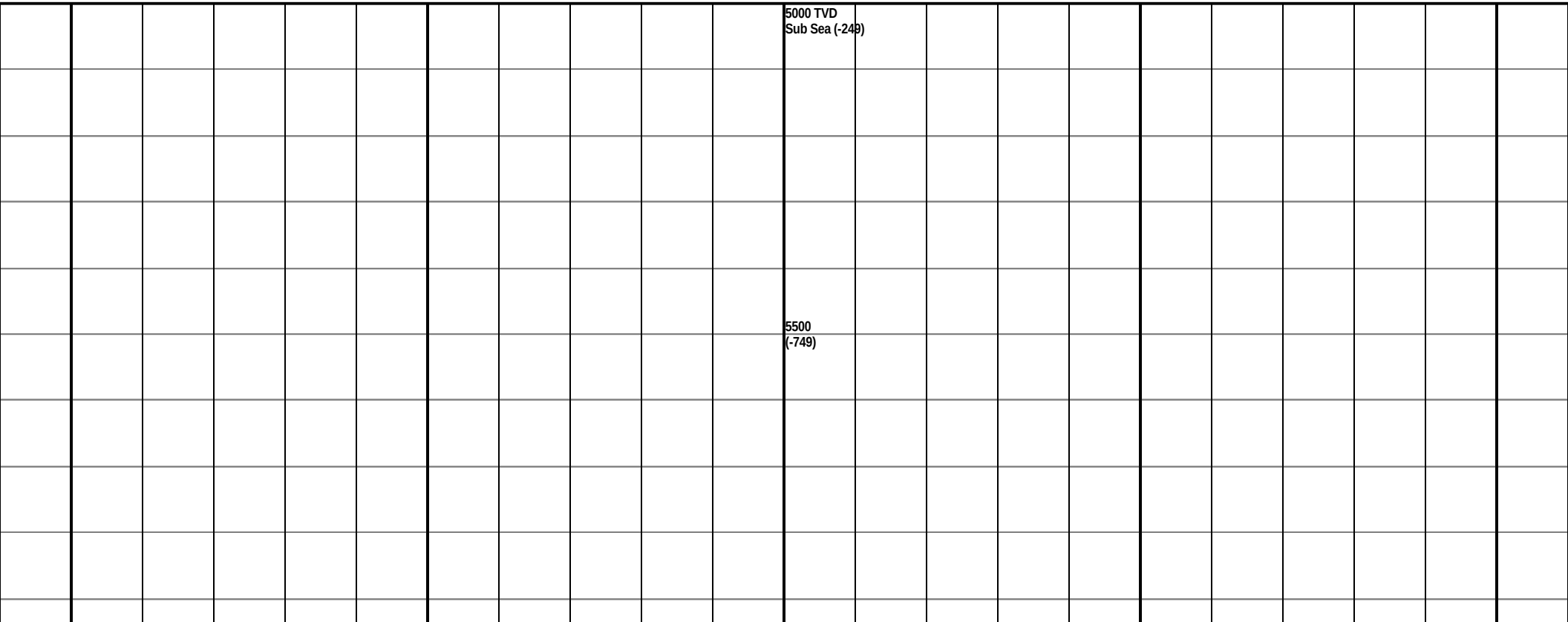
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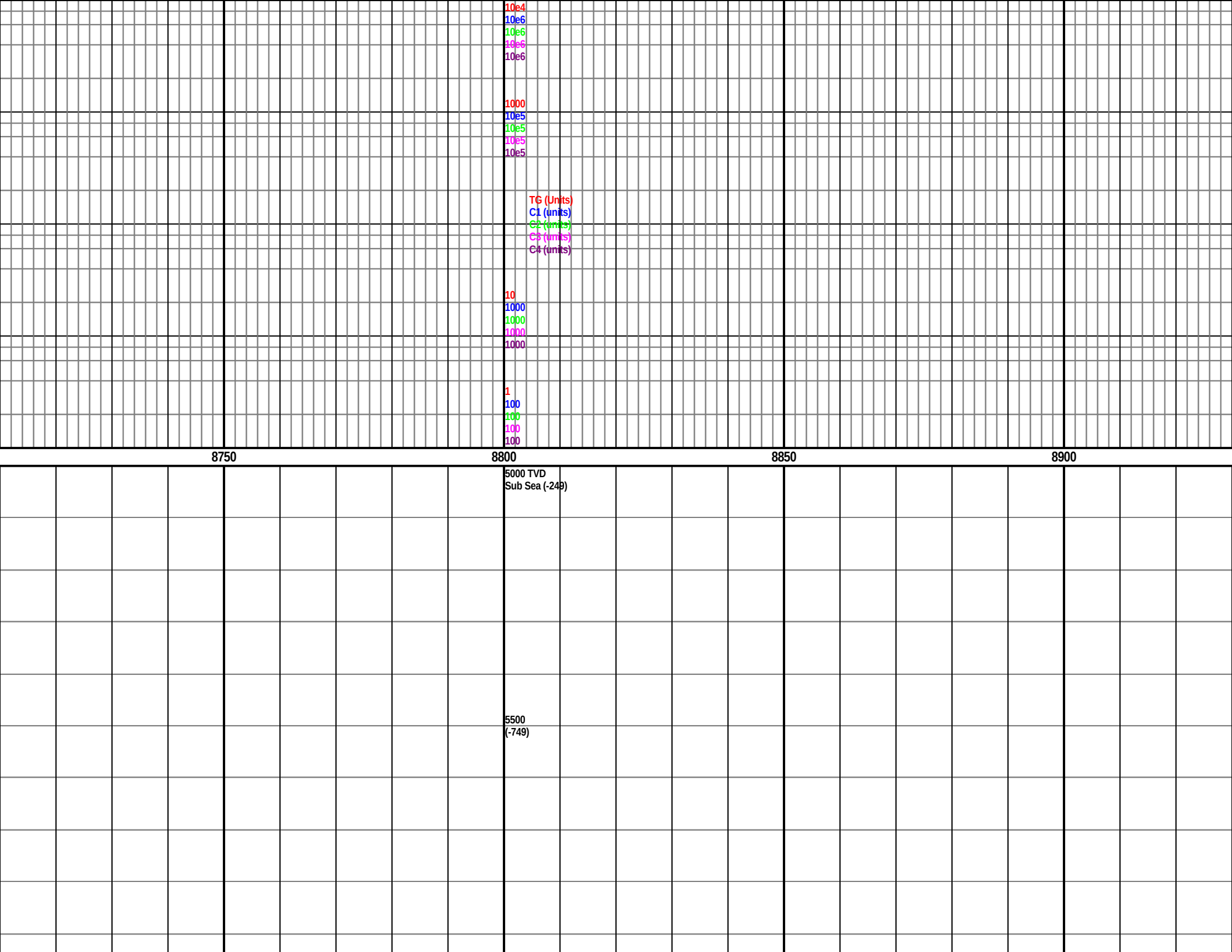
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C3 (units)
C4 (units)
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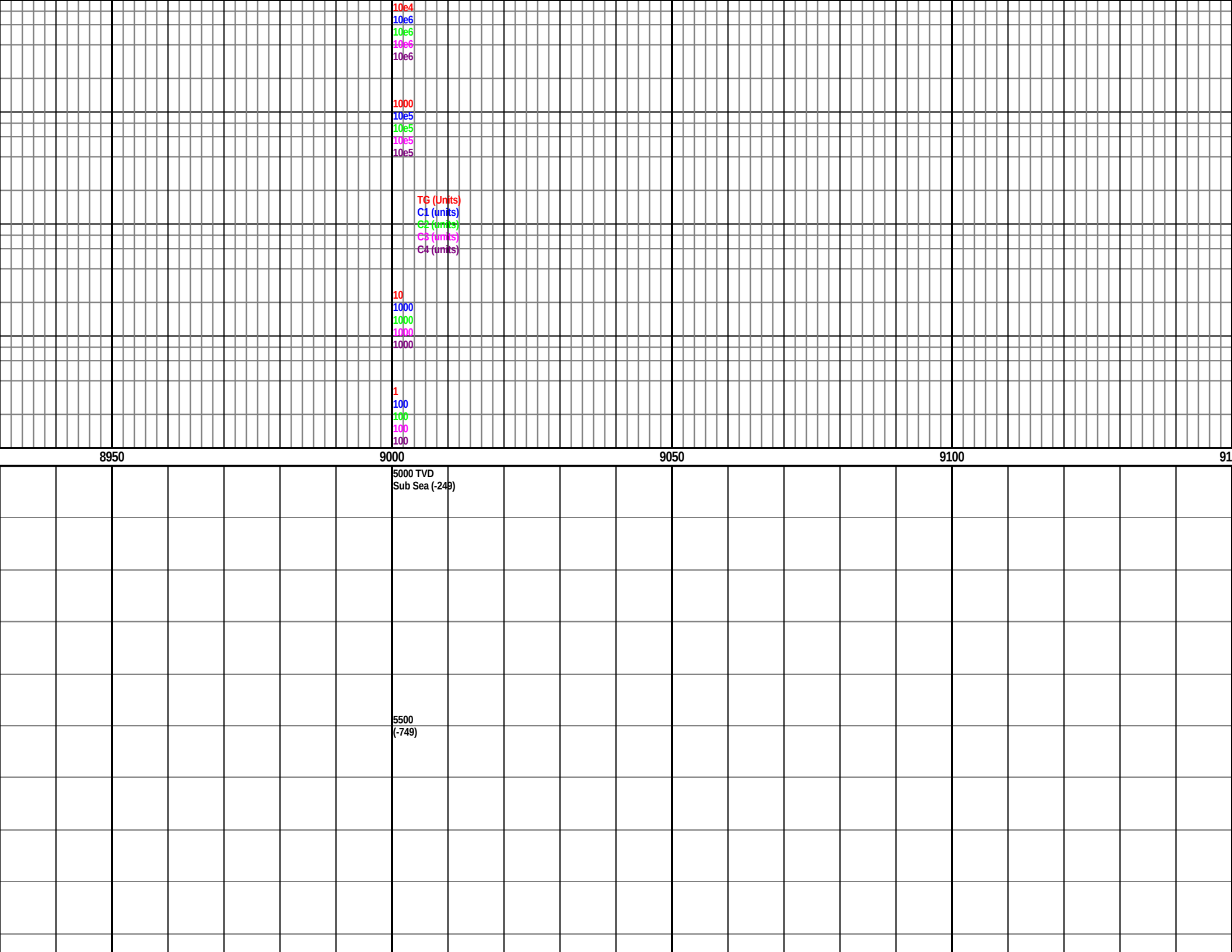
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C4 (units)
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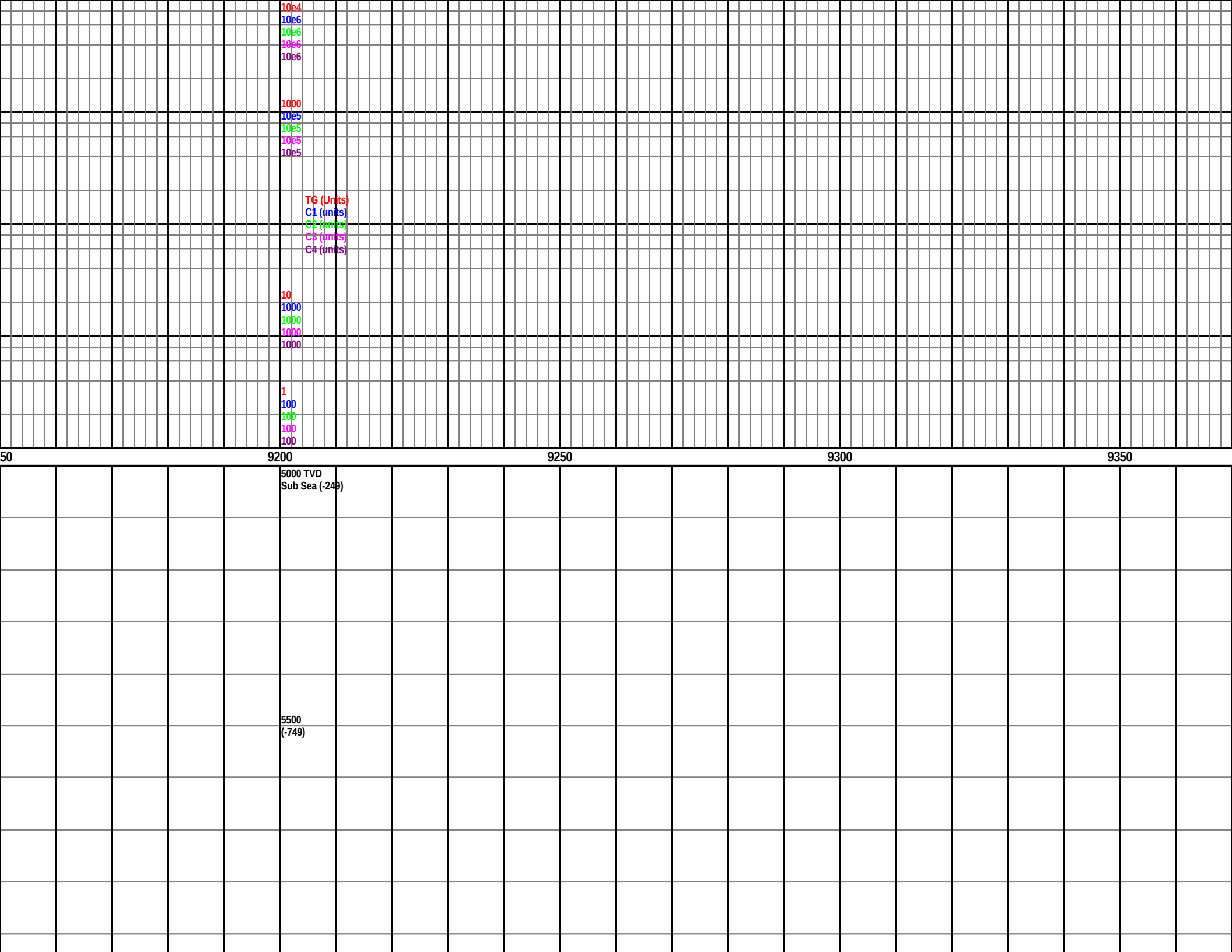
(-749)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C4 (units)
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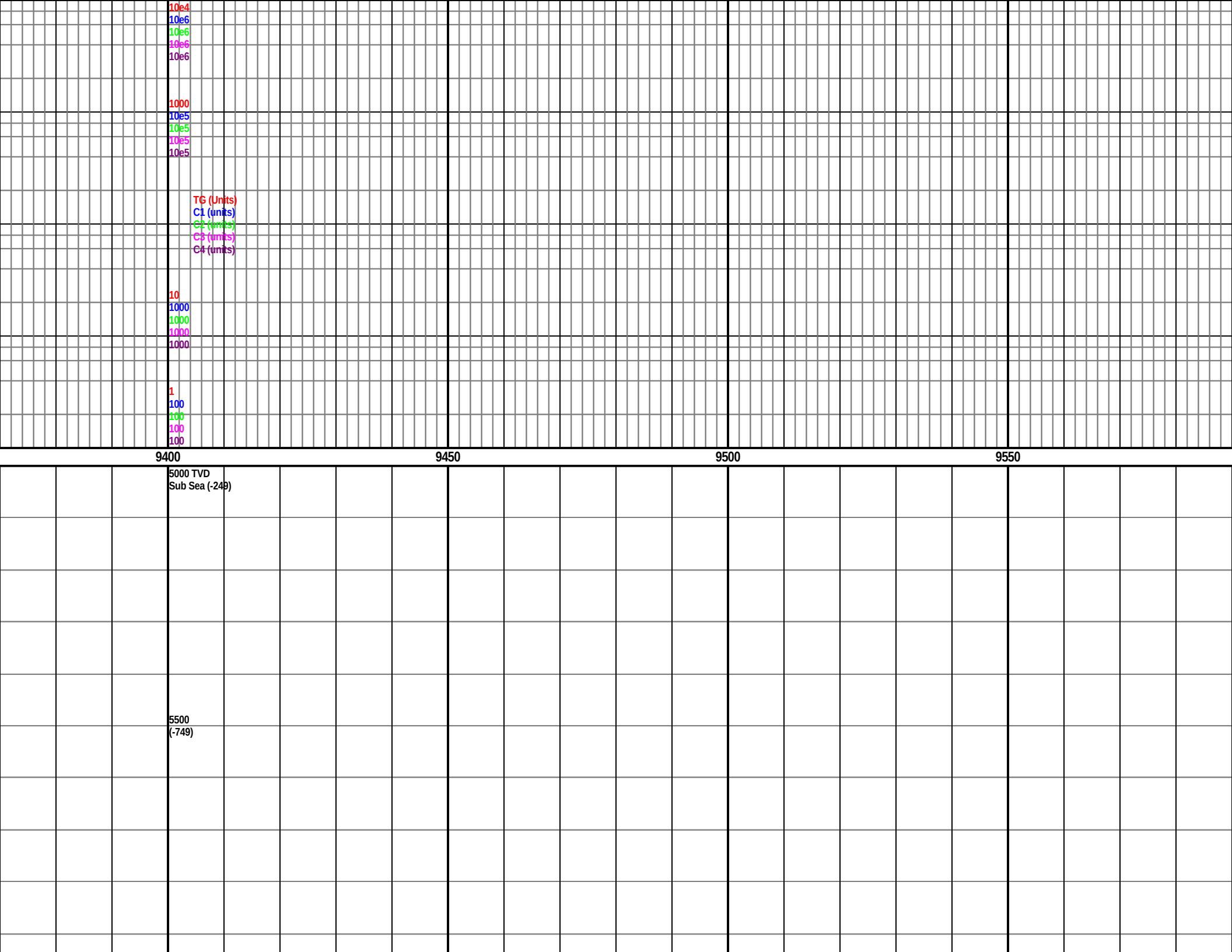
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C3 (units)
C4 (units)
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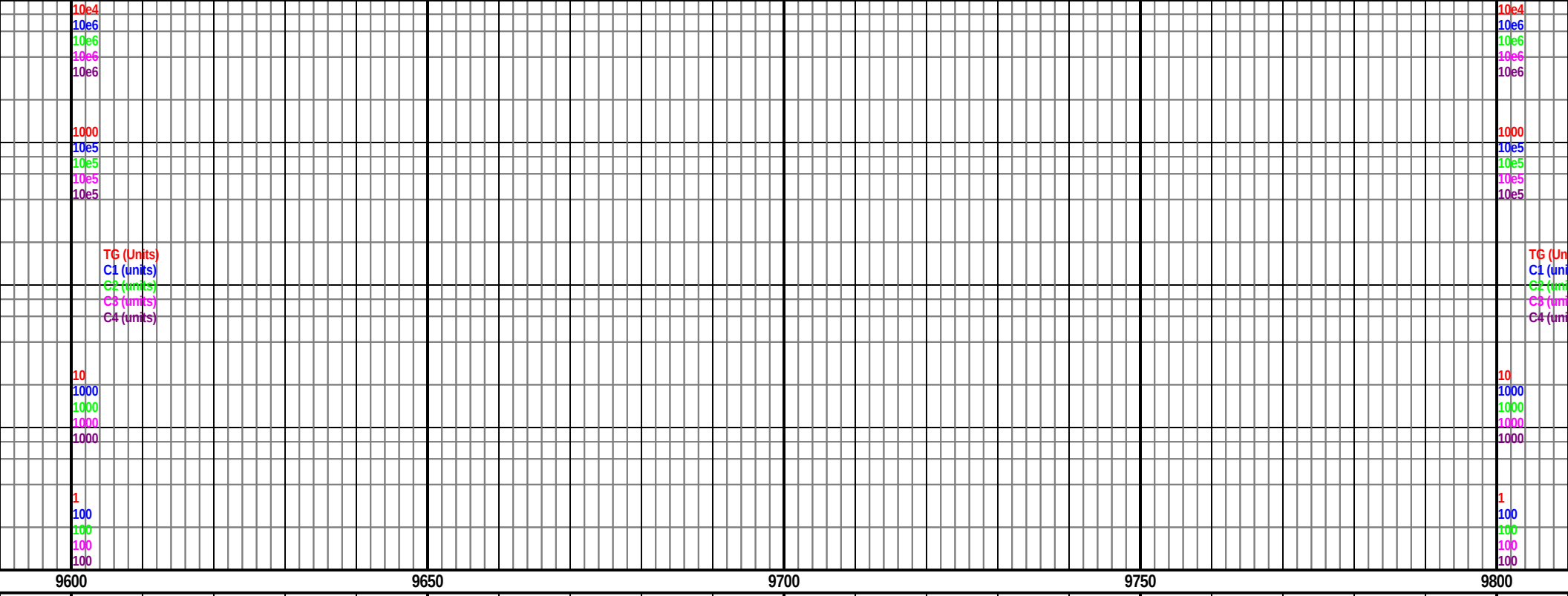
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C2 (units)
C3 (units)
C4 (units)
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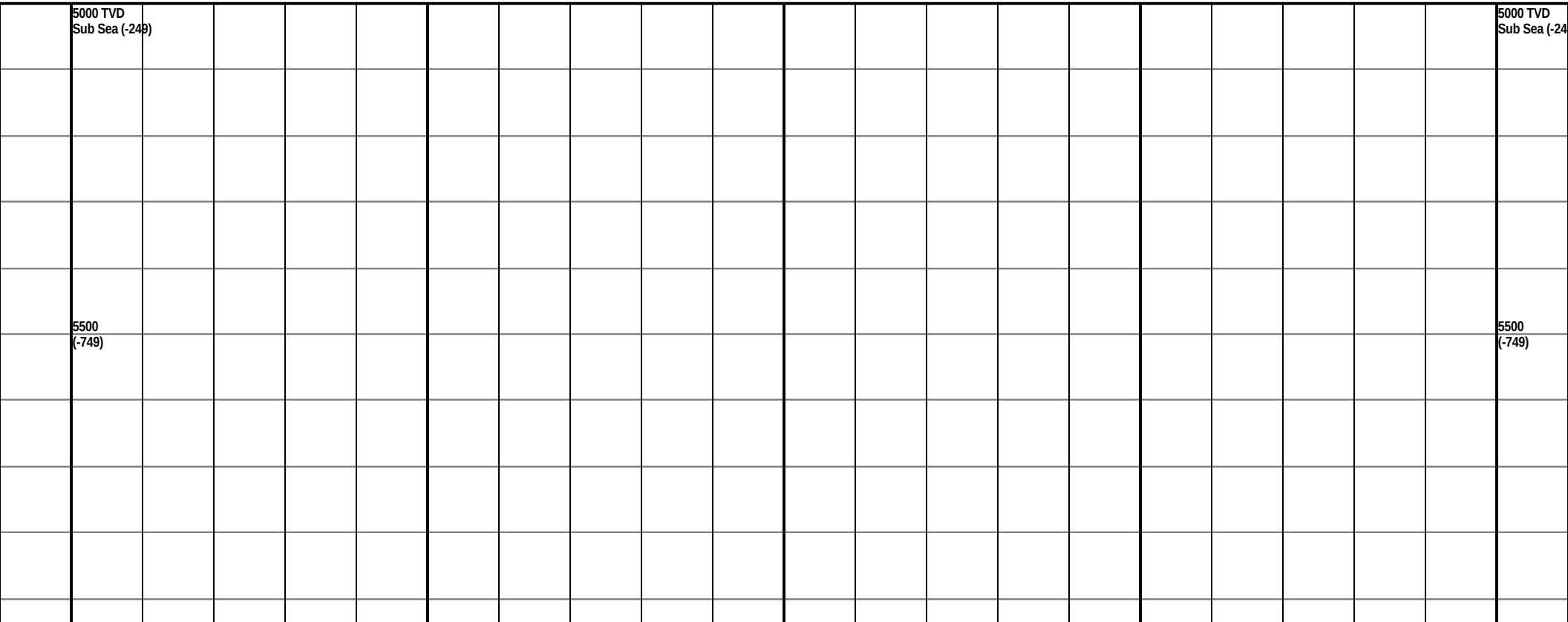
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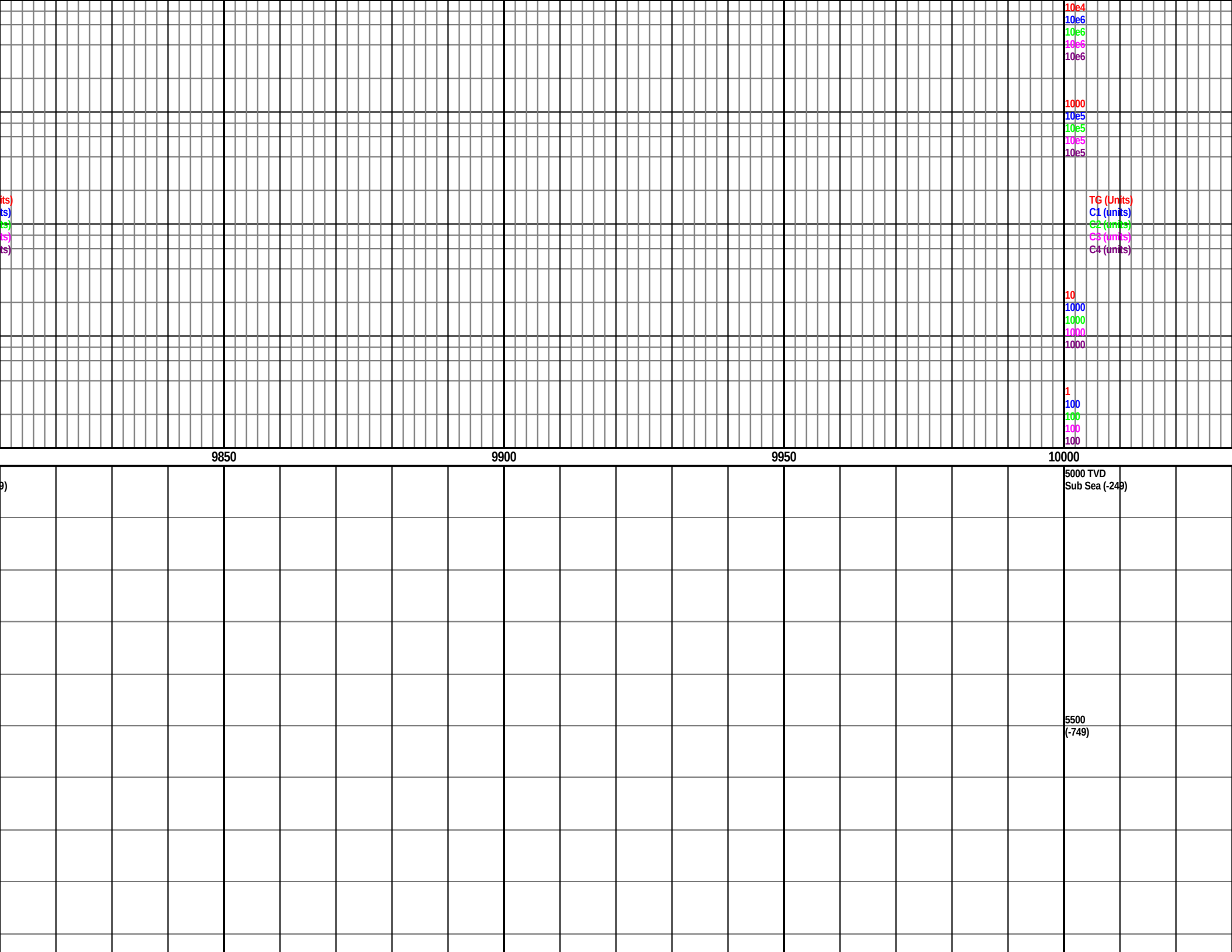
(-749)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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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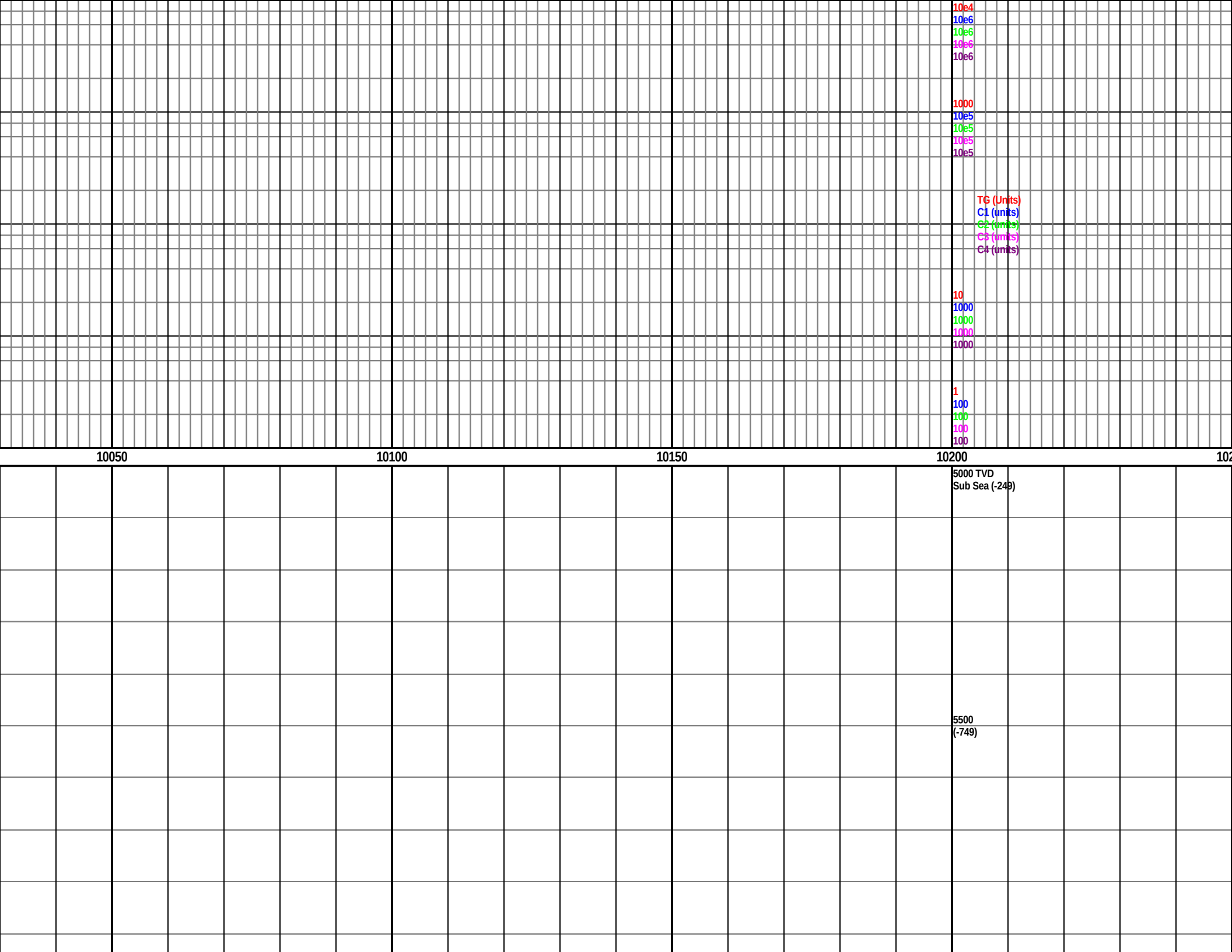
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C4 (units)
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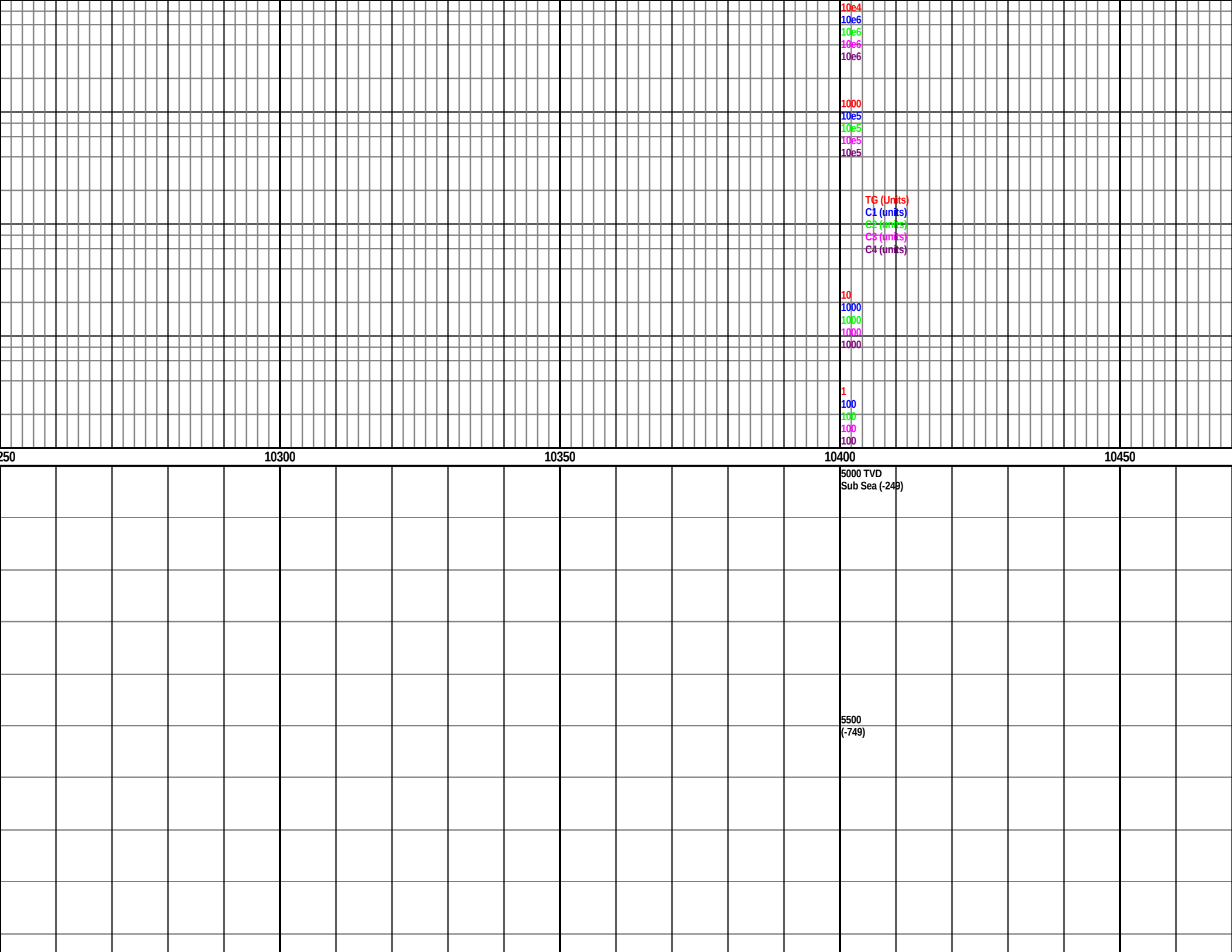
(-749)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C4 (units)
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Sub Sea (-249)
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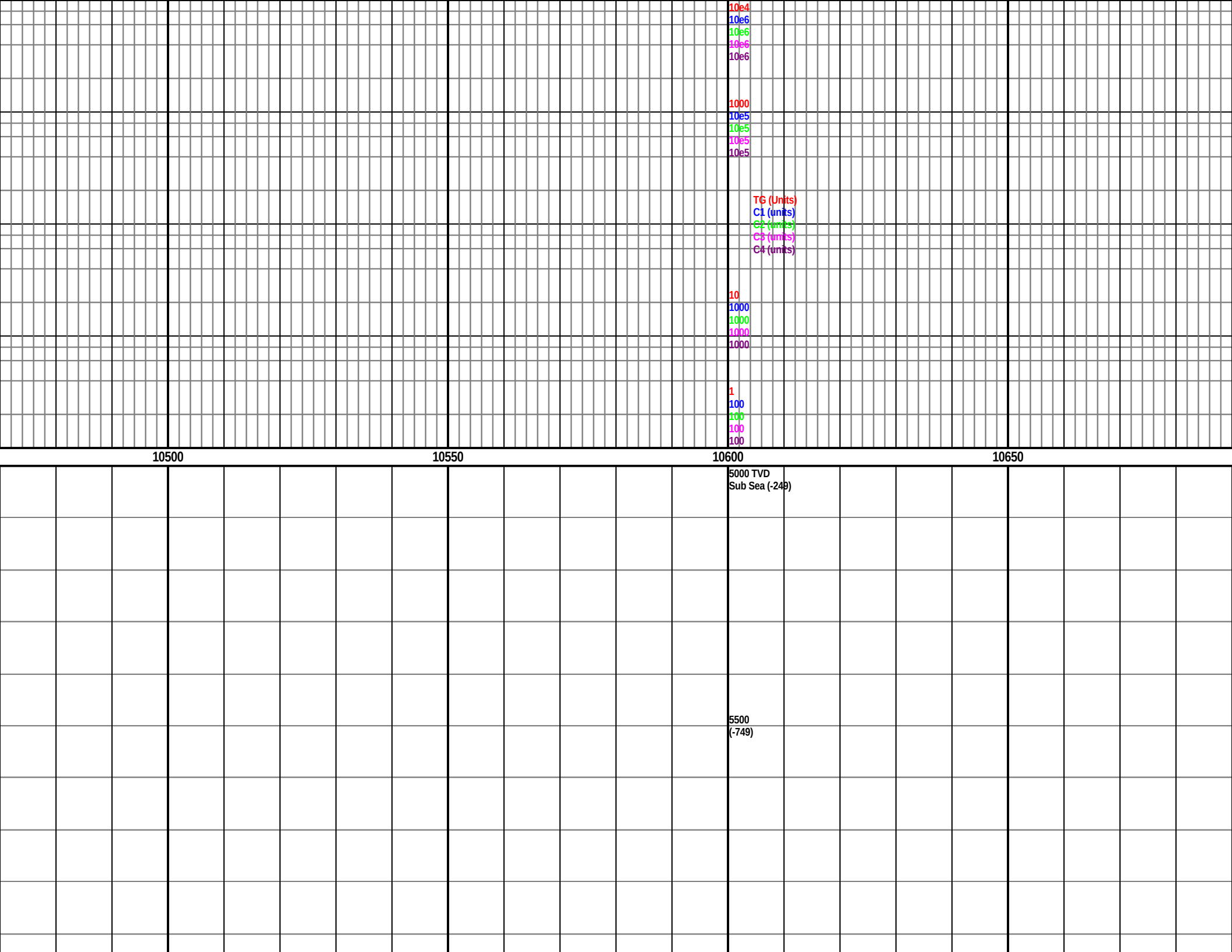
(-749)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C2 (units)
C3 (units)
C4 (units)
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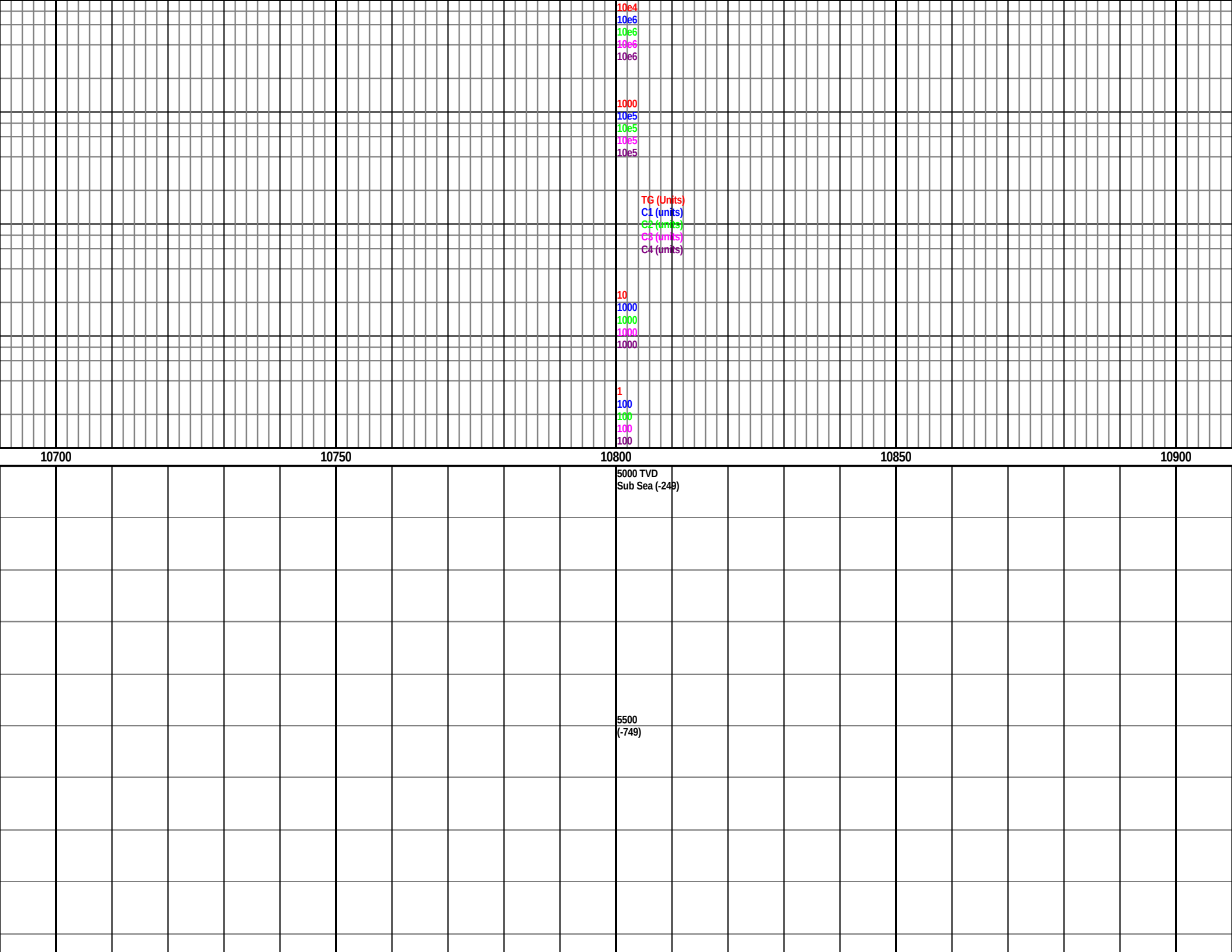
Sub Sea (-249)
5500
(-749)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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
1000
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100
100
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10750
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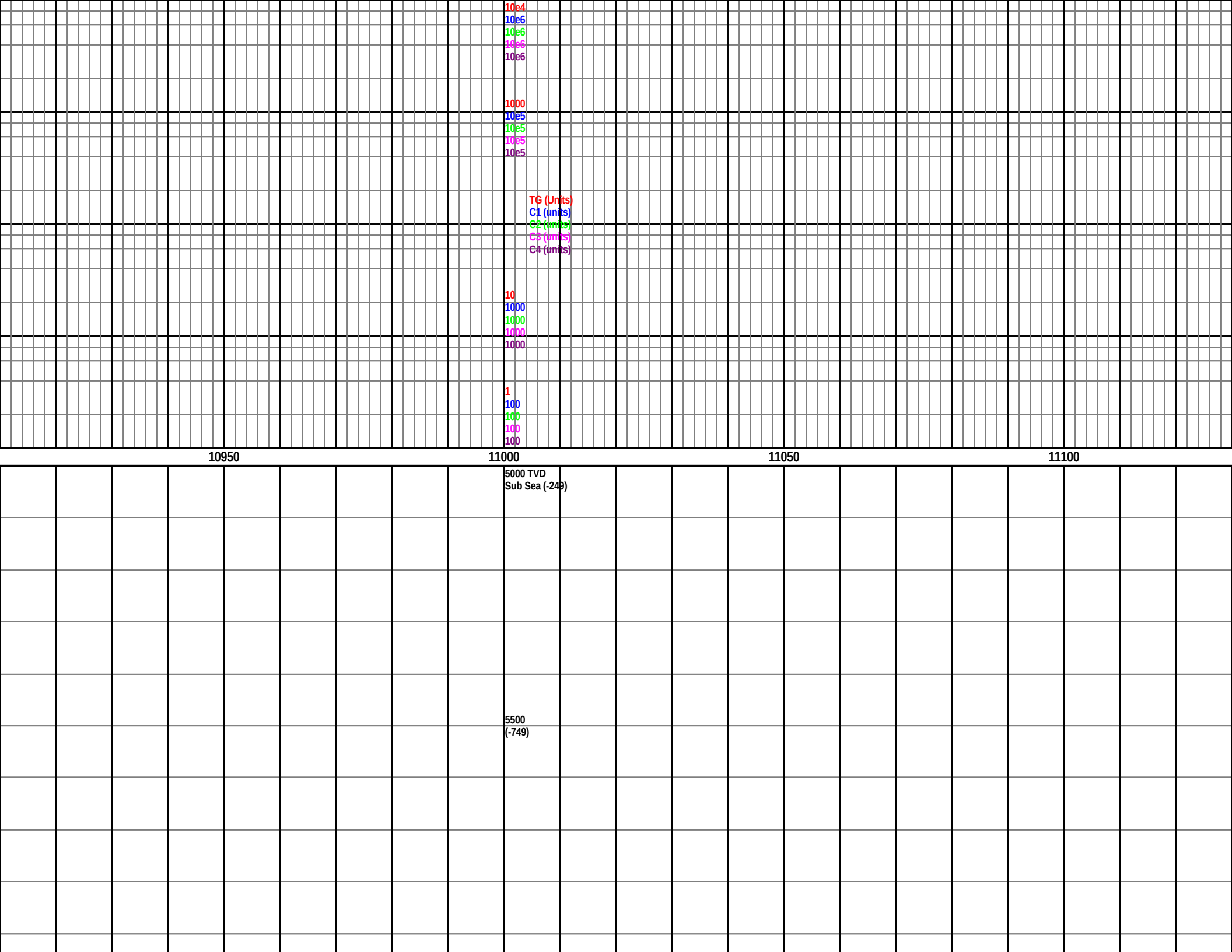
10850
10900
5000 TVD
Sub Sea (-249)
5500
(-749)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TG (Units)
C1 (units)
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C3 (units)
C4 (units)
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1000
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5000 TVD
Sub Sea (-249)
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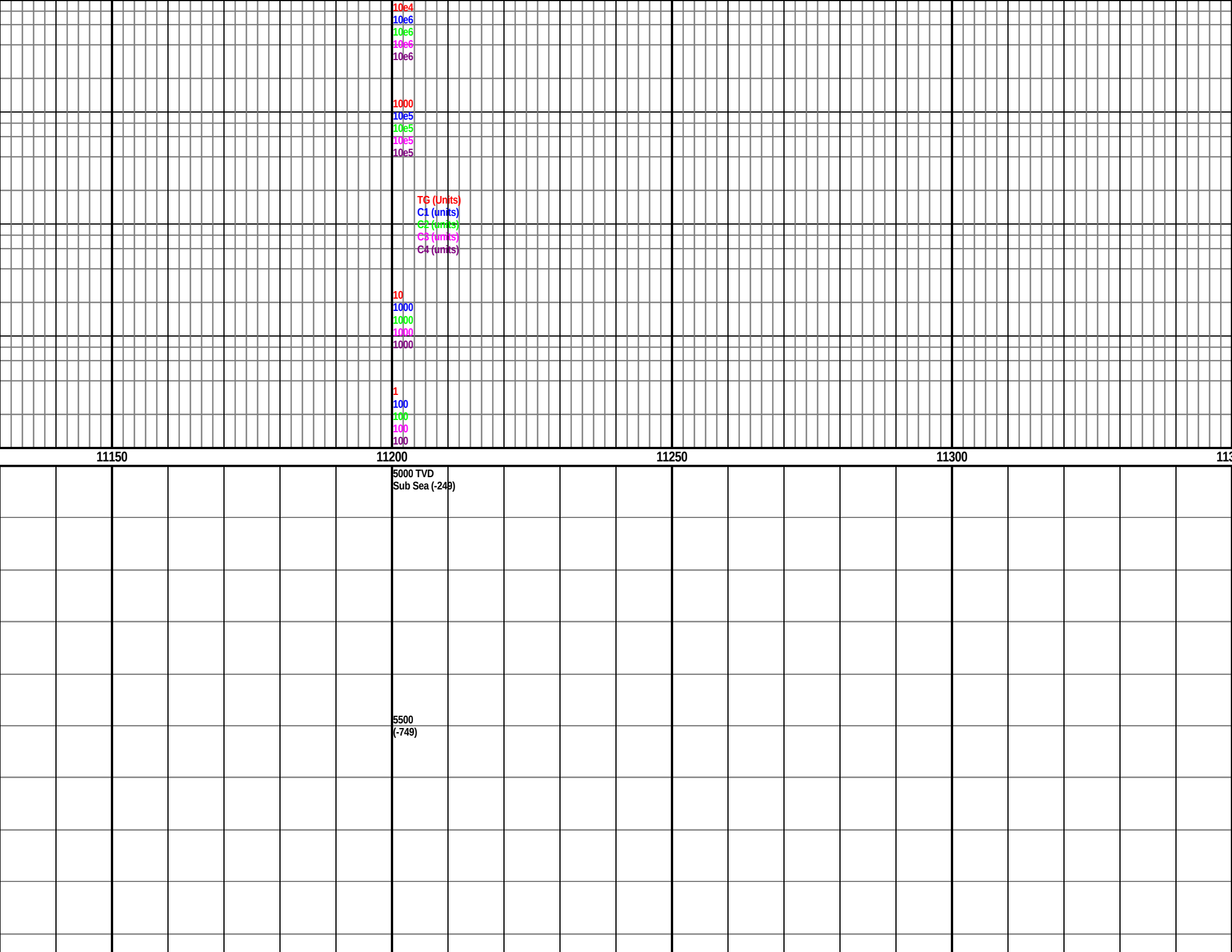
(-749)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10e5
TG (Units)
C1 (units)
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C3 (units)
C4 (units)
10
1000
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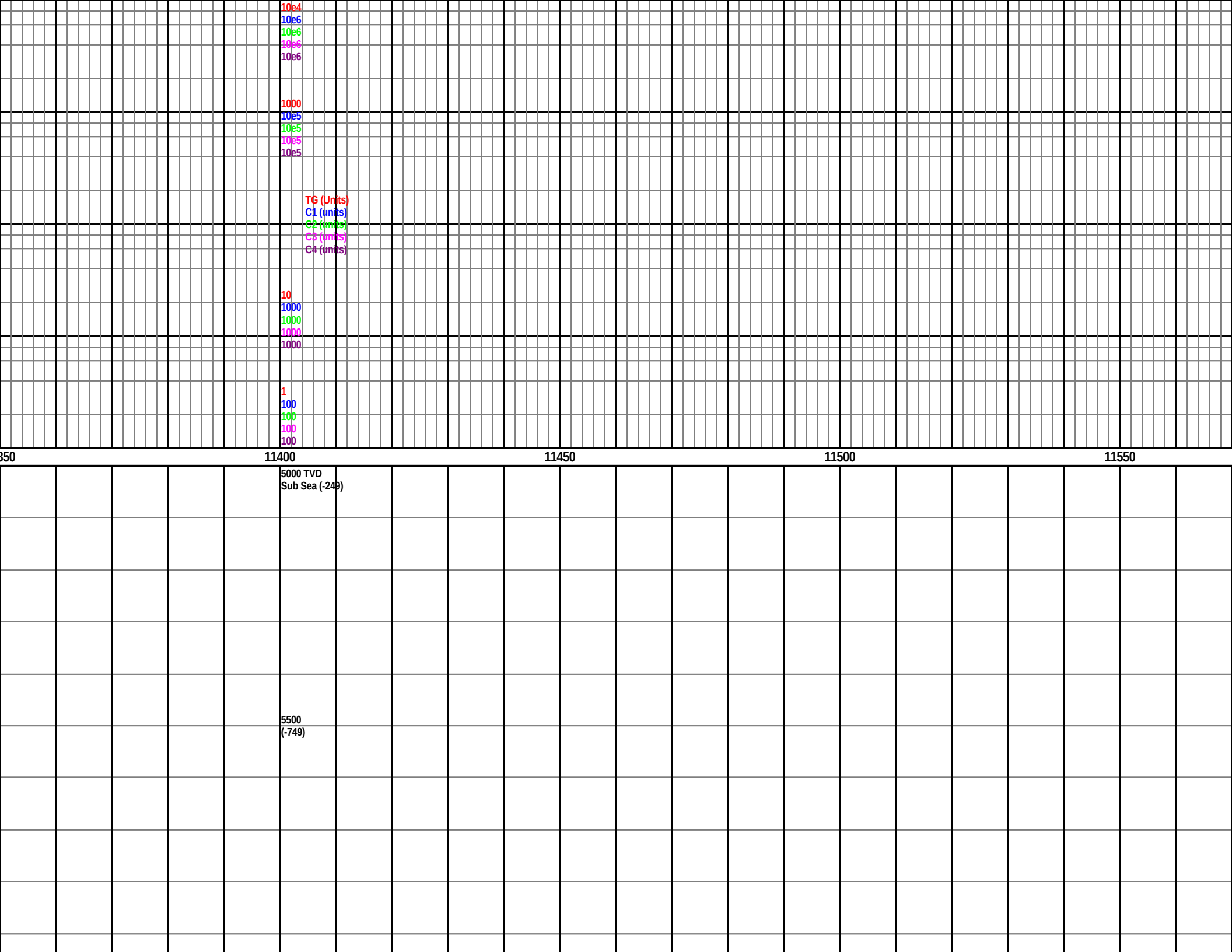
5000 TVD
Sub Sea (-249)
5500
(-749)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10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
1000
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100
100
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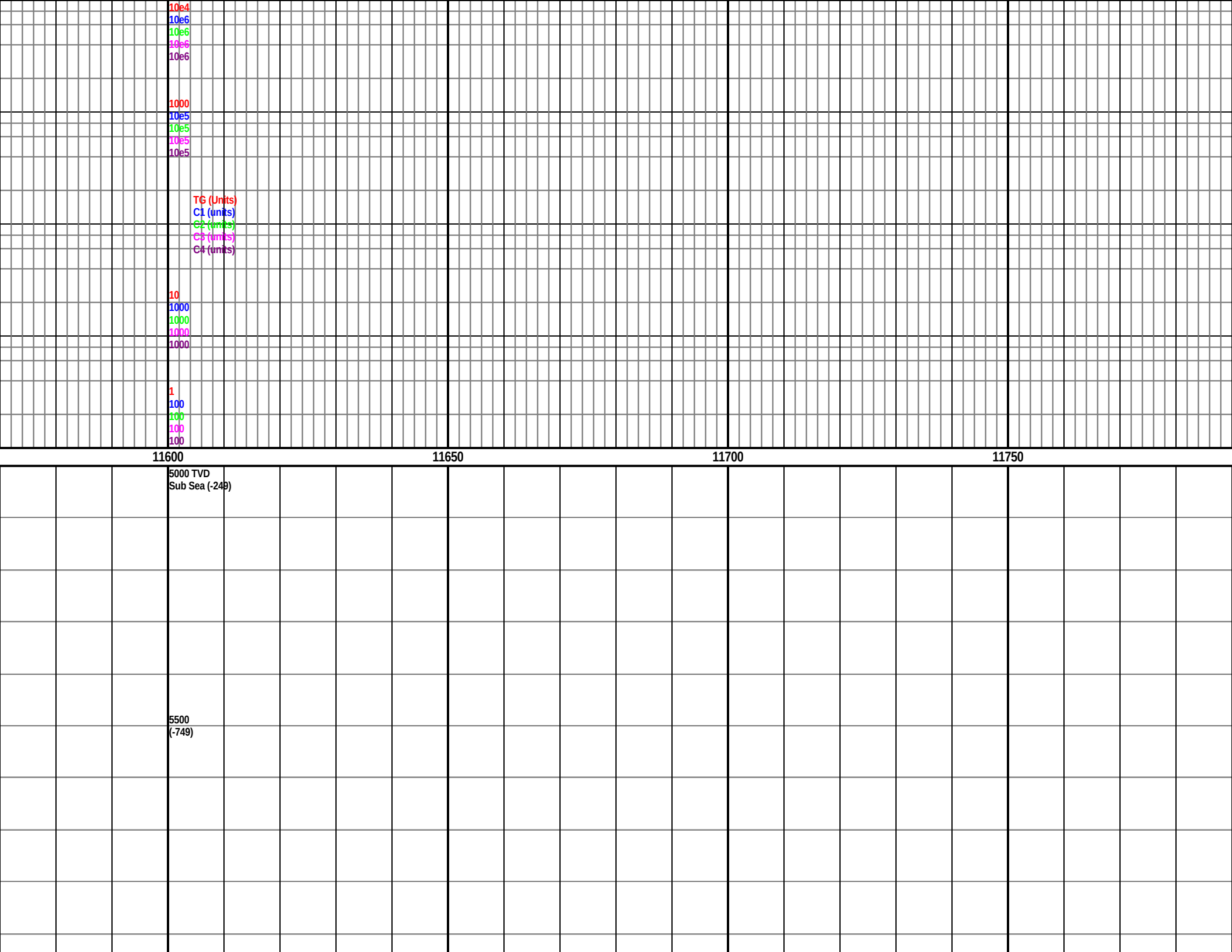
11500
11550
5000 TVD
Sub Sea (-249)
5500
(-749)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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
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100
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11700
11750
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Sub Sea (-249)
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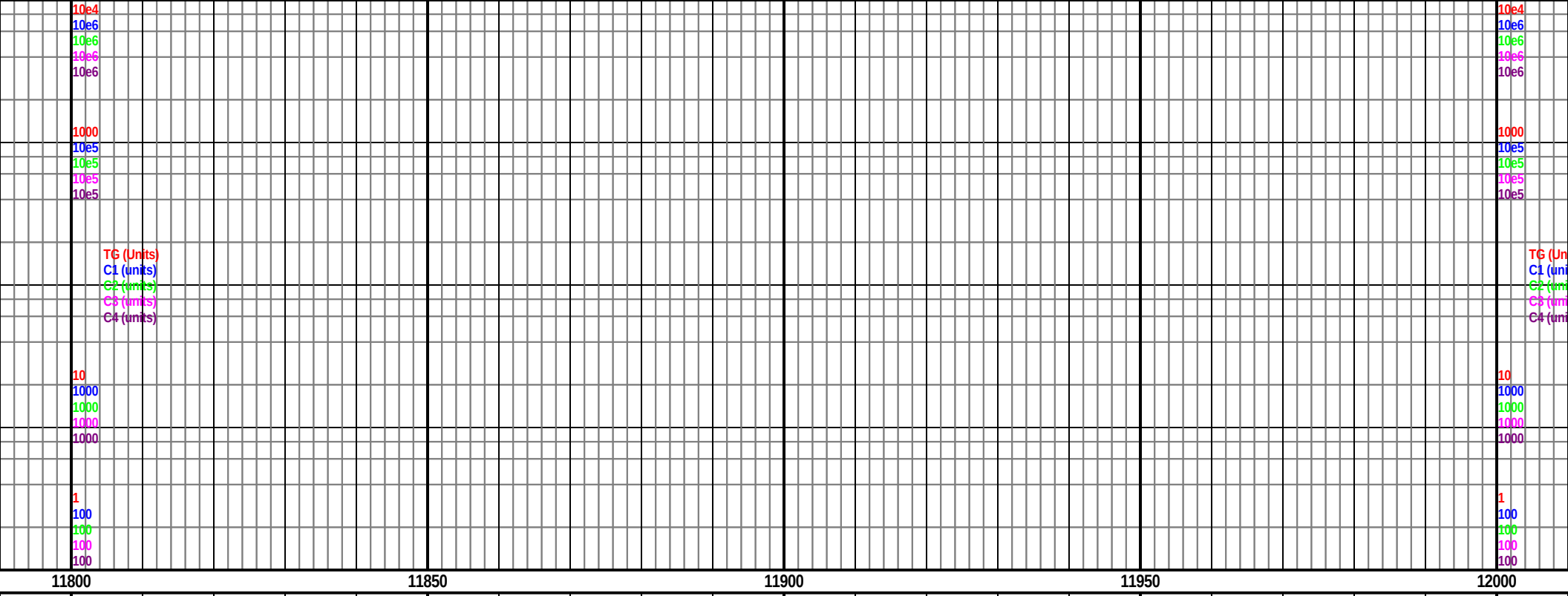
(-749)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10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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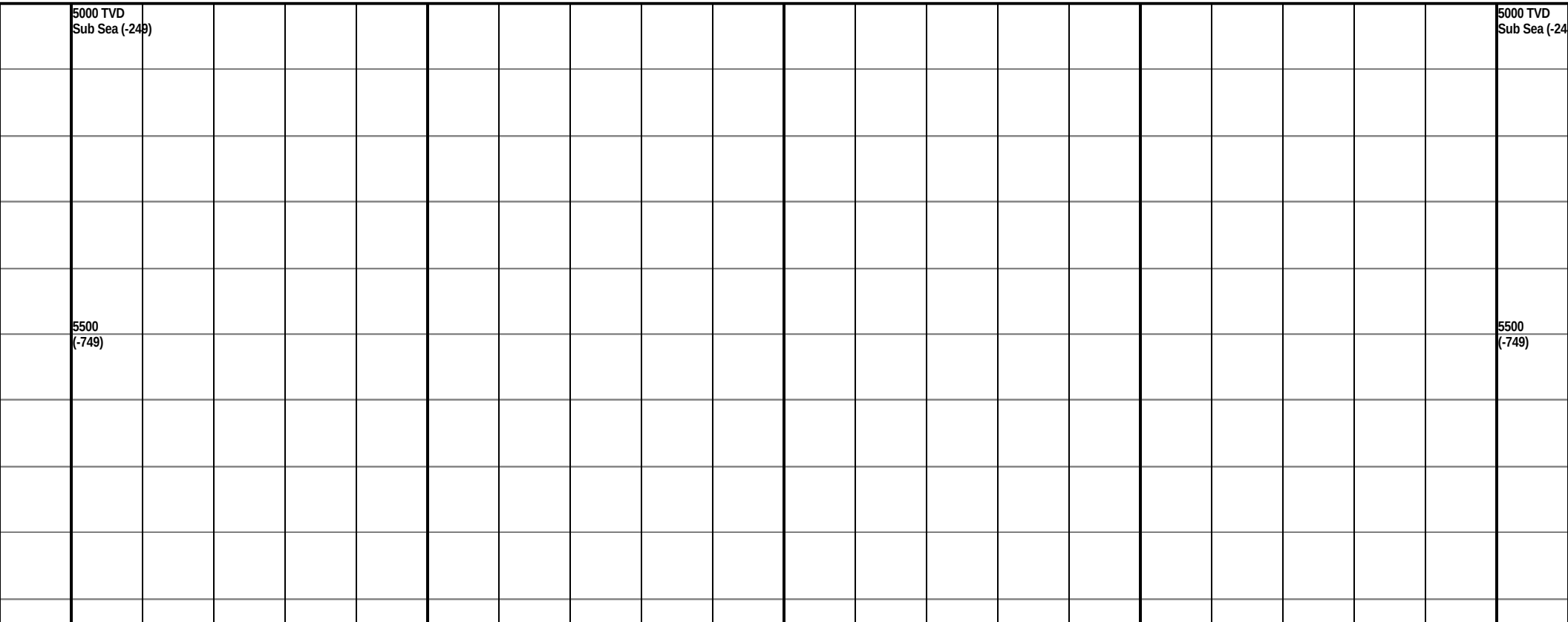
5000 TVD
Sub Sea (-249)
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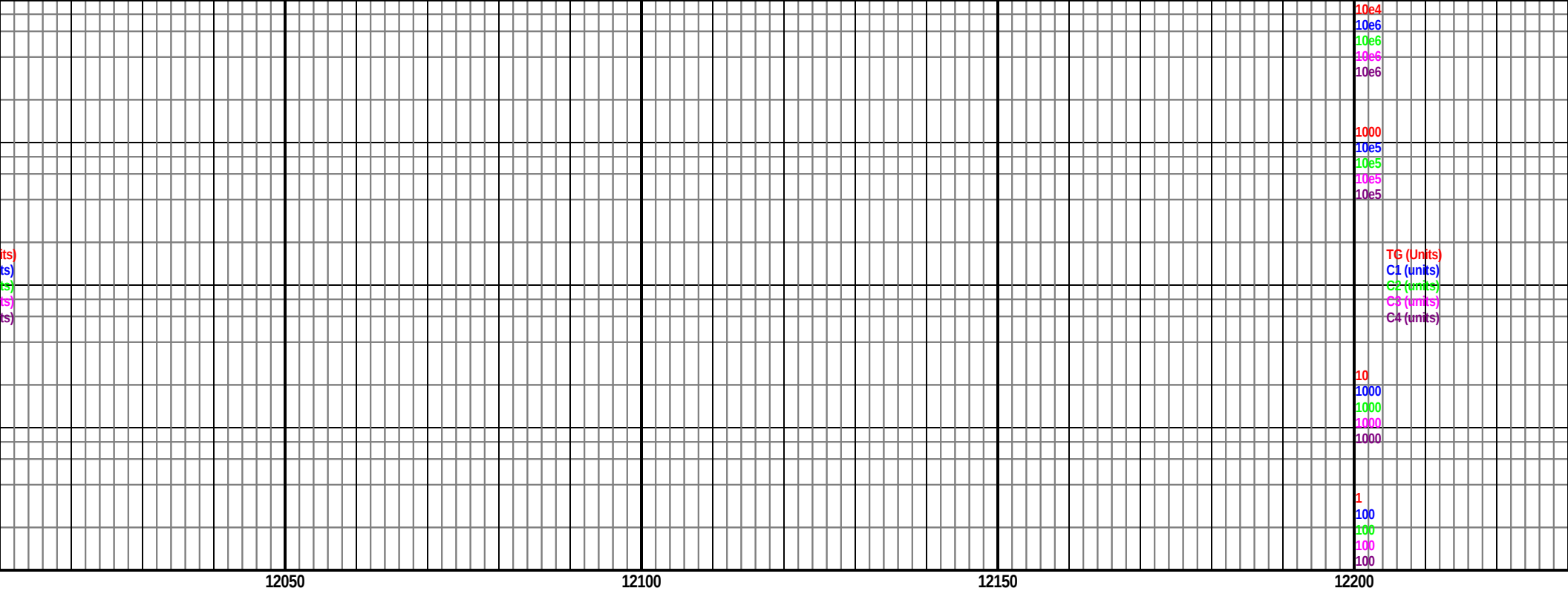
(-749)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its)
ts)
ts)
ts)
ts)
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
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100
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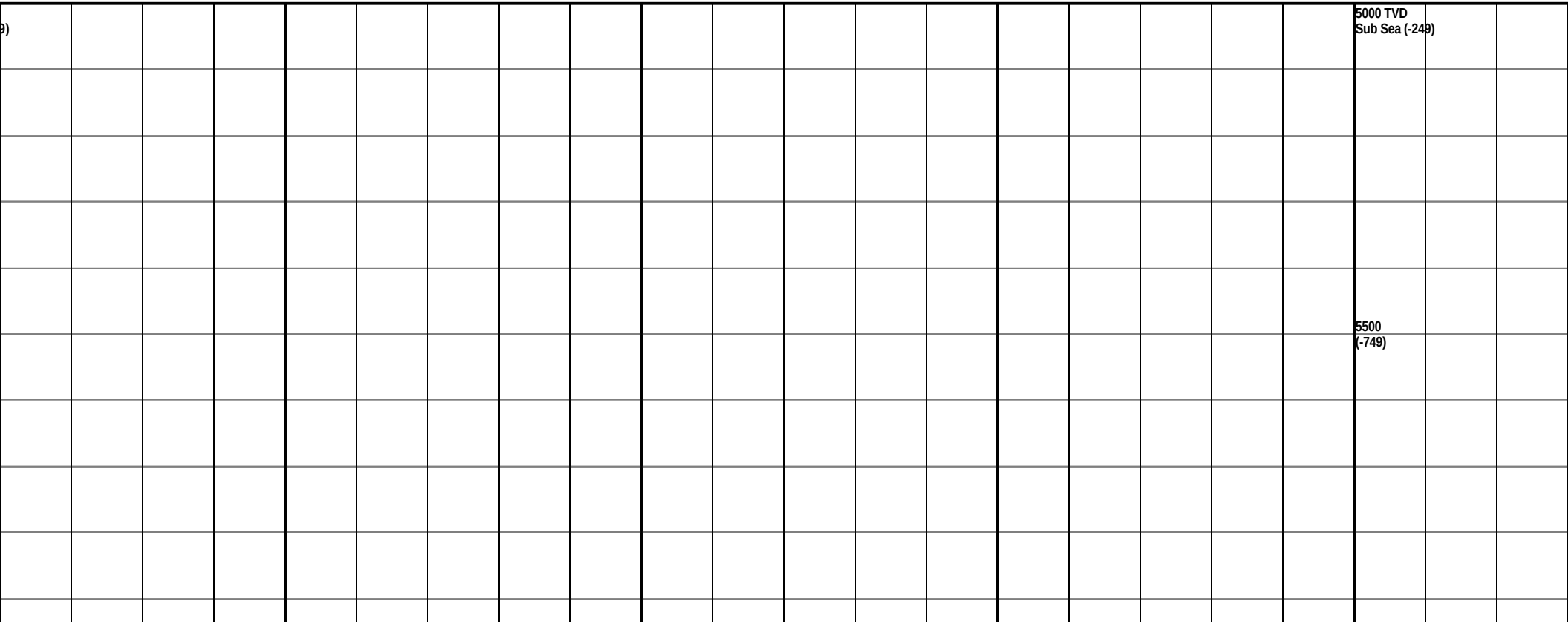
12200


9)
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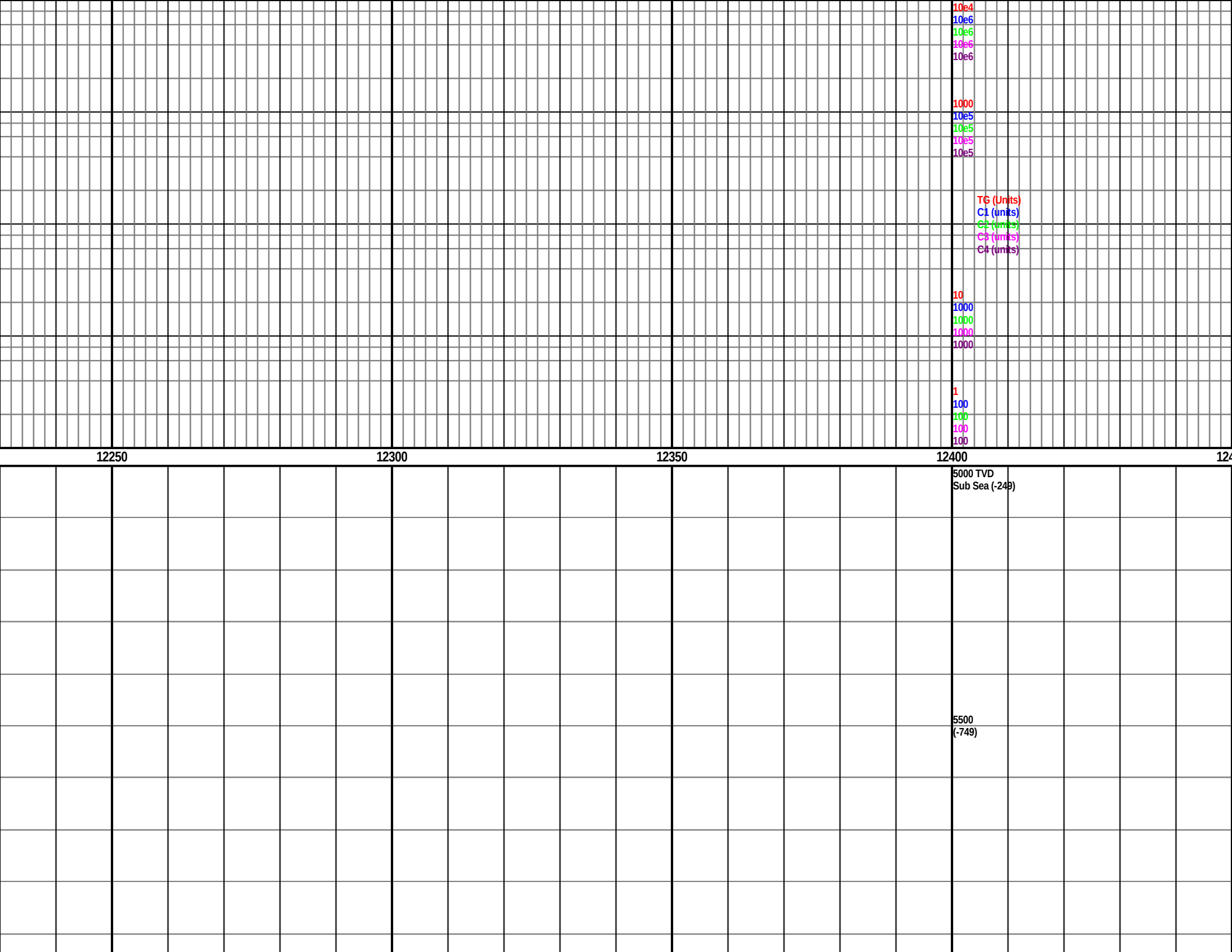
Sub Sea (-249)
5500
(-749)


10e4
10e6
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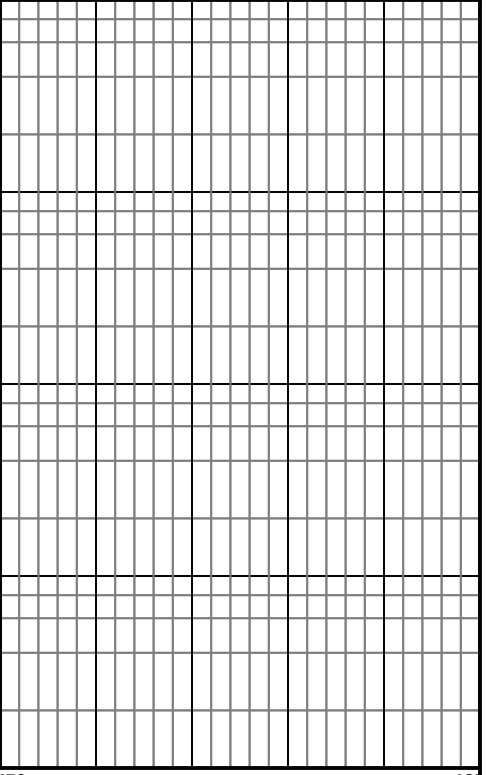
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
12250
12300
12350
12400
5000 TVD
Sub Sea (-249)
5500
(-749)


450
125

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

Well Name:	Razor Federal 26L-3503A		
Well Id:			
Location:	NWSW 26-T10N-R58W		
License Number:	05-123-37991	Region:	Redtail Field
Spud Date:	6/10/2014	Drilling Completed:	
Surface Coordinates:	Lat.: 40.808739 Long.: -103.839292		
Bottom Hole Coordinates:	Lat.: 40.789378 Long.: -103.838289		
Ground Elevation (ft):	4734	K.B. Elevation (ft):	4751
Logged Interval (ft):	7028 To: 12500	Total Depth (ft):	12500
Formation:	Pierre, Sharon Springs, Niobrara A		
Type of Drilling Fluid:	Water Based Mud		

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

OPERATOR

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

GEOLOGIST

Name: Lauren Roddy 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

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

OTHER SYMBOLS

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

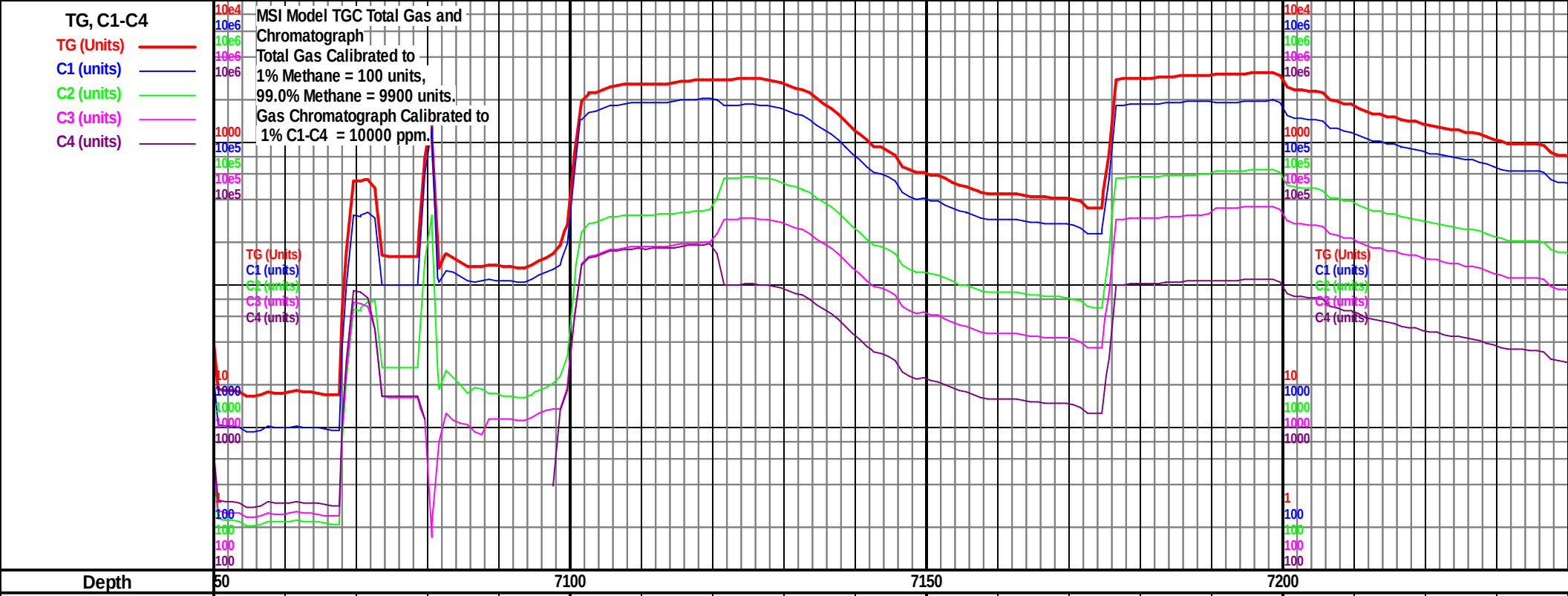
SORTING
- Well
- Moderate
- Poor

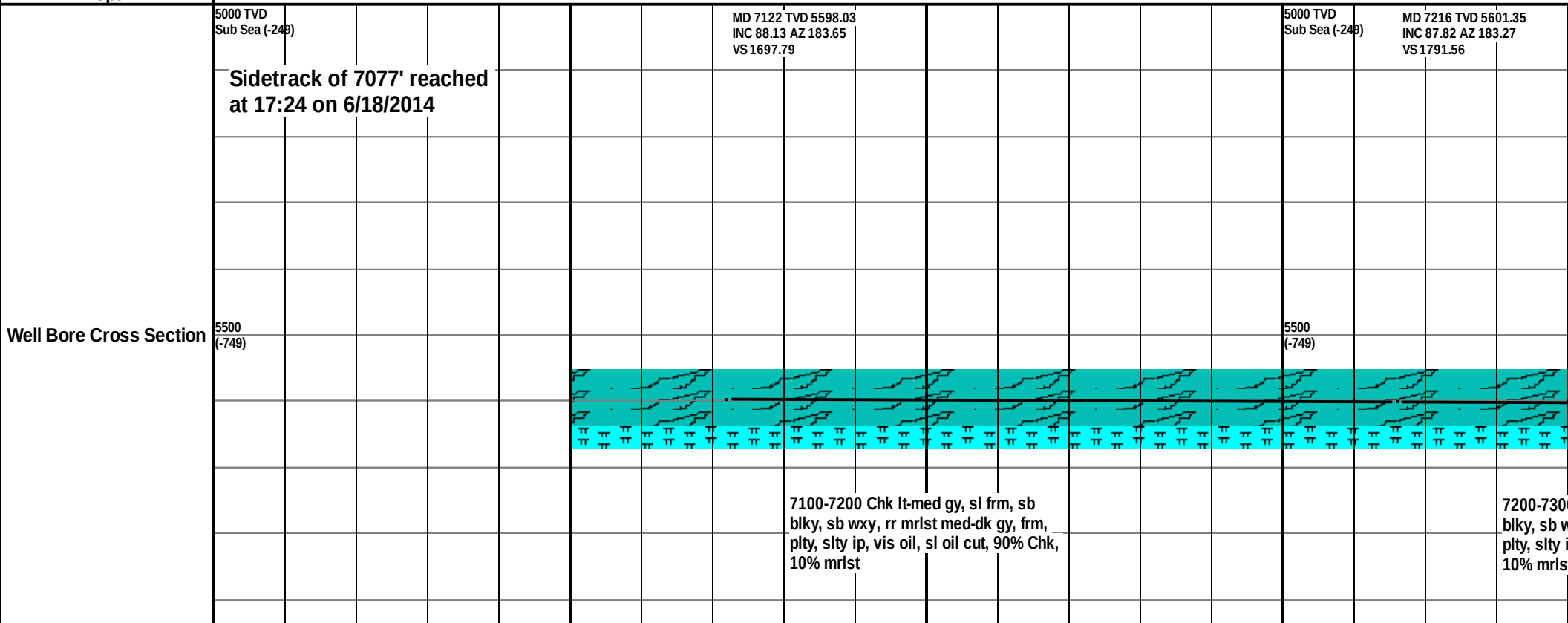
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

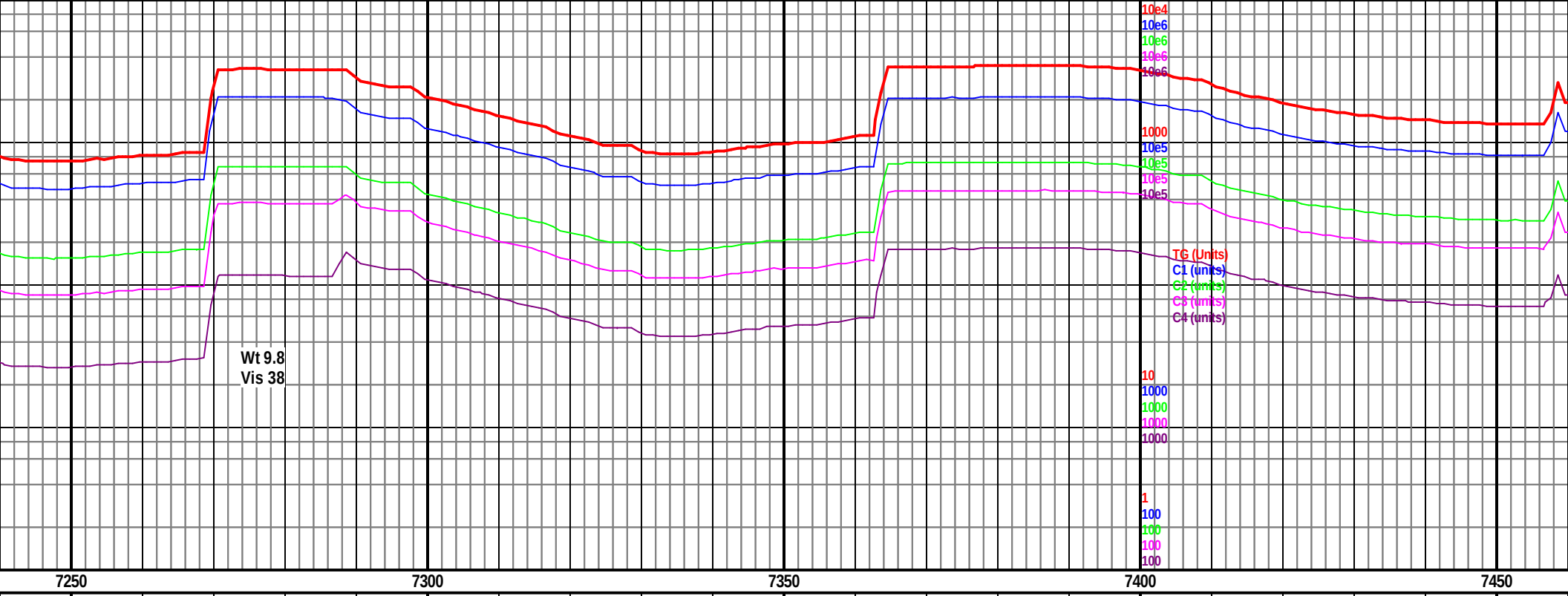
OIL SHOW
- Even
- Spotted
- Ques
- Dead

INTERVAL
- Core
- Dst

EVENT
- Rft
- Sidewall


TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MSI Model TGC Total Gas and Chromatograph
Total Gas Calibrated to 1% Methane = 100 units, 99.0% Methane = 9900 units.
Gas Chromatograph Calibrated to 1% C1-C4 = 10000 ppm.
Depth
50
7100
7150
7200


Well Bore Cross Section
5000 TVD
Sub Sea (-249)
Sidetrack of 7077' reached at 17:24 on 6/18/2014
MD 7122 TVD 5598.03
INC 88.13 AZ 183.65
VS 1697.79
MD 7216 TVD 5601.35
INC 87.82 AZ 183.27
VS 1791.56
5500
(-749)
7100-7200 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst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10e6
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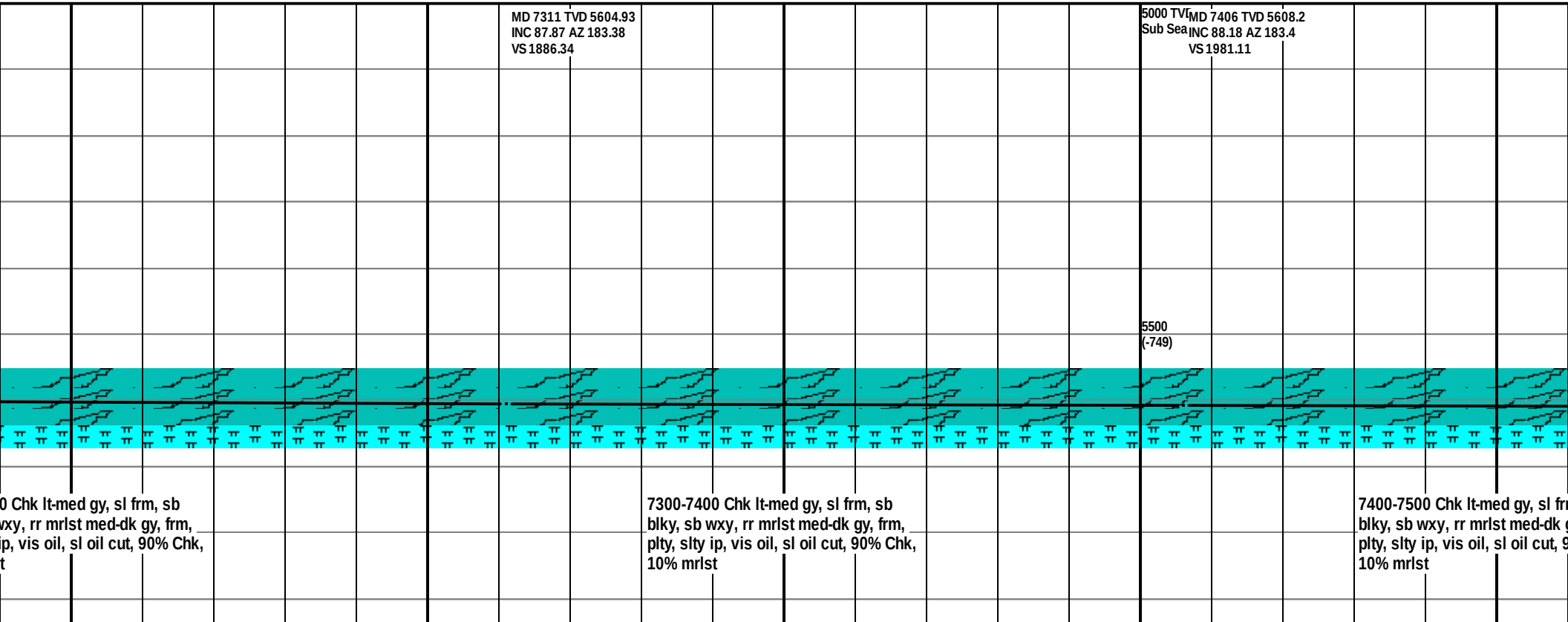
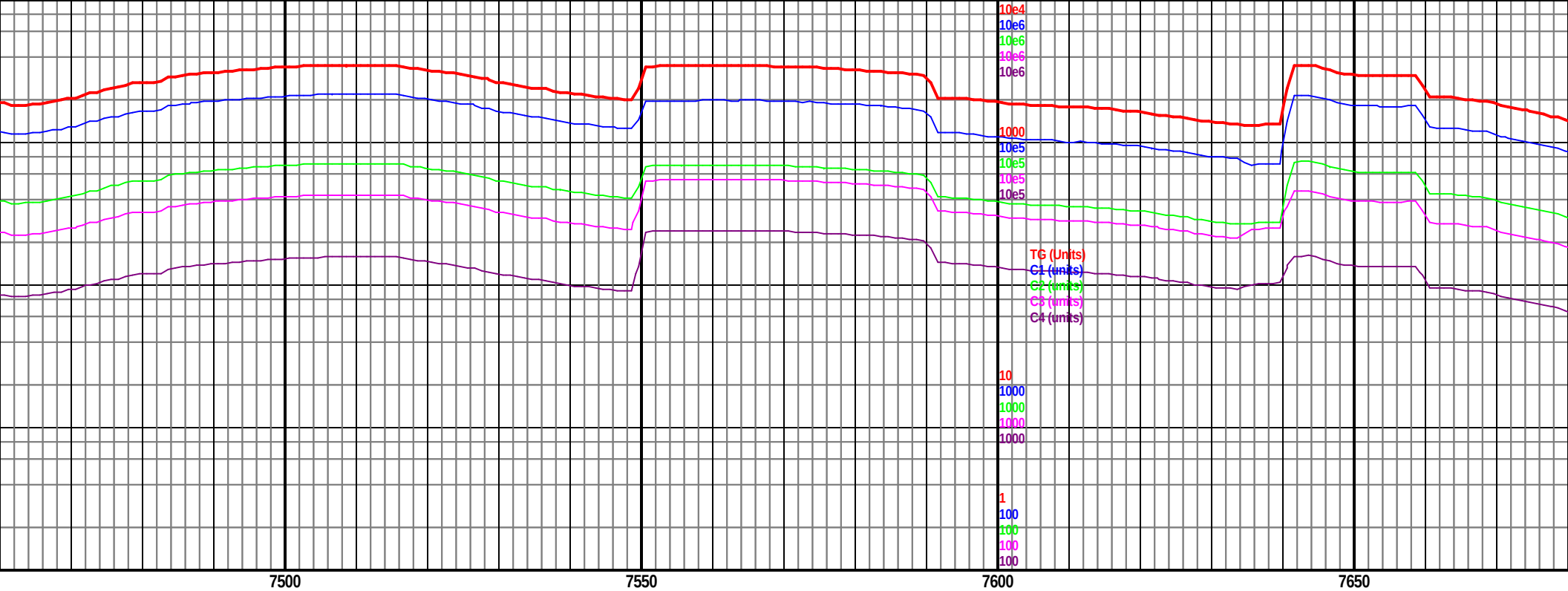
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.8
Vis 38
10
1000
1000
1000
1000
1
100
100
100
100
7250
7300
7350
7400
7450


MD 7311 TVD 5604.93
INC 87.87 AZ 183.38
VS 1886.34
5000 TVD
Sub Sea
MD 7406 TVD 5608.2
INC 88.18 AZ 183.4
VS 1981.11
5500
(-749)
0 Chk lt-med gy, sl frm, sb
wxy, rr mrlst med-dk gy, frm,
ip, vis oil, sl oil cut, 90% Chk,
t
7300-7400 Chk lt-med gy, sl frm, sb
blky, sb wxy, rr mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 90% Chk,
10% mrlst
7400-7500 Chk lt-med gy, sl fr
blky, sb wxy, rr mrlst med-dk
plty, slty ip, vis oil, sl oil cut, 9
10% mrlst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C1 (units)
C2 (units)
C3 (units)
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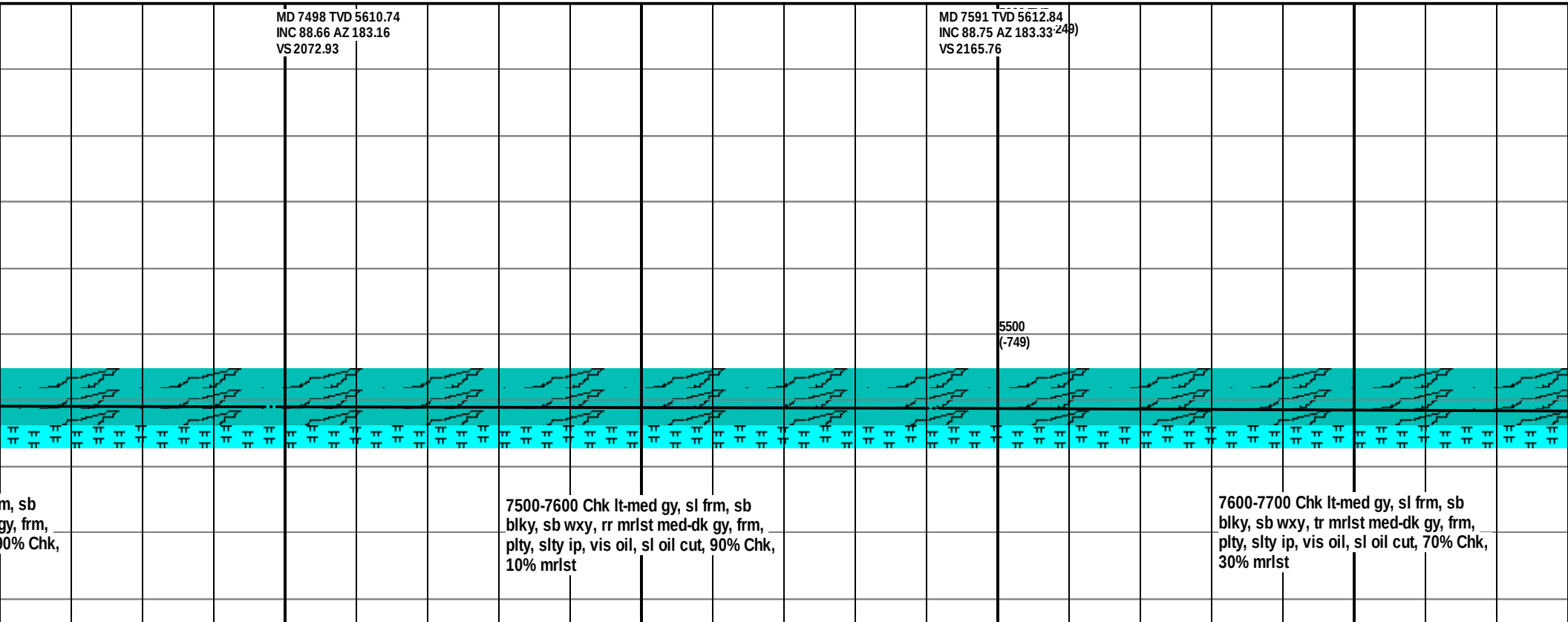
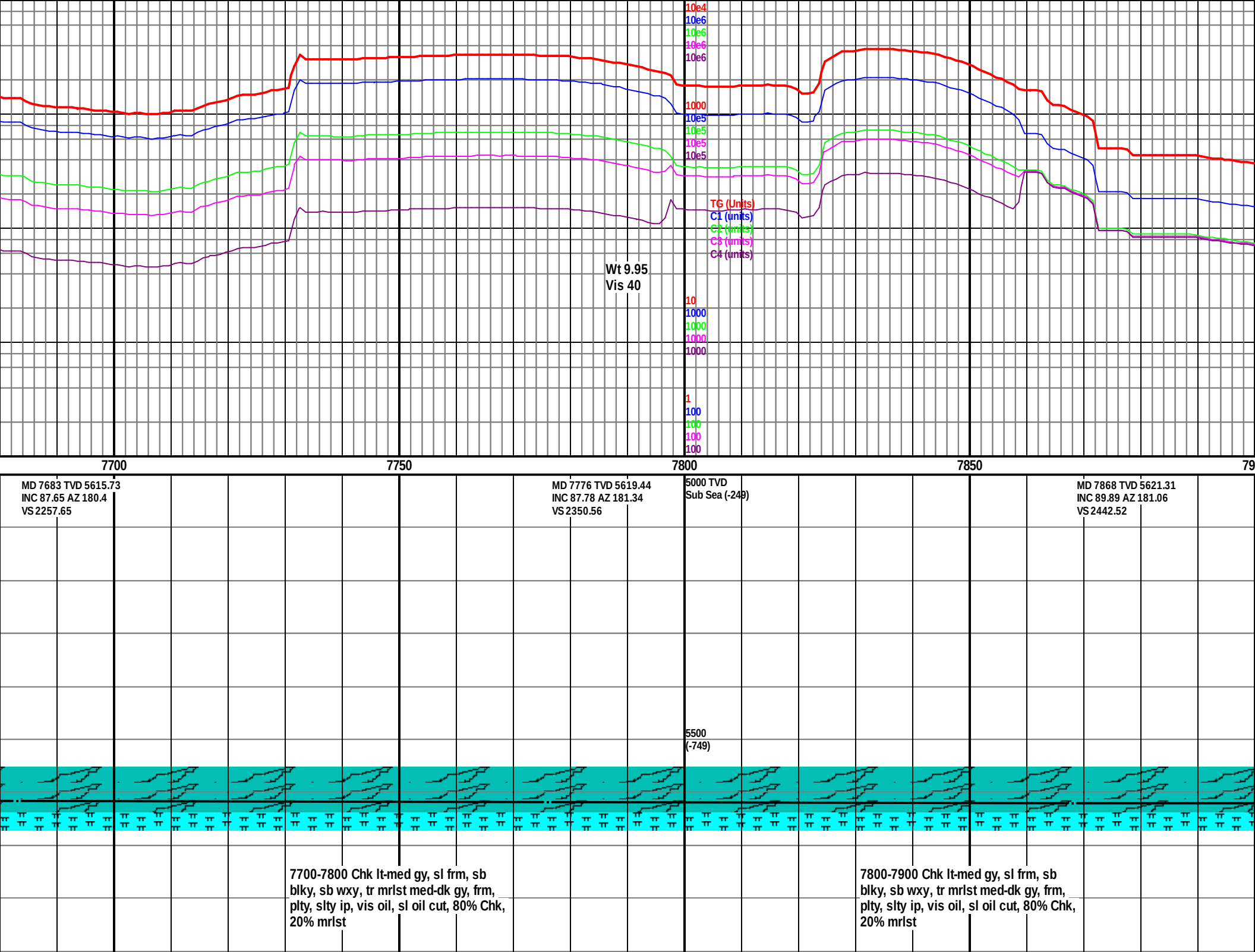
7650


MD 7498 TVD 5610.74
INC 88.66 AZ 183.16
VS 2072.93
MD 7591 TVD 5612.84
INC 88.75 AZ 183.33
VS 2165.76
5500
(-749)
m, sb
gy, frm,
00% Chk,
7500-7600 Chk lt-med gy, sl frm, sb blky, sb wxy, rr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst
7600-7700 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst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C1 (units)
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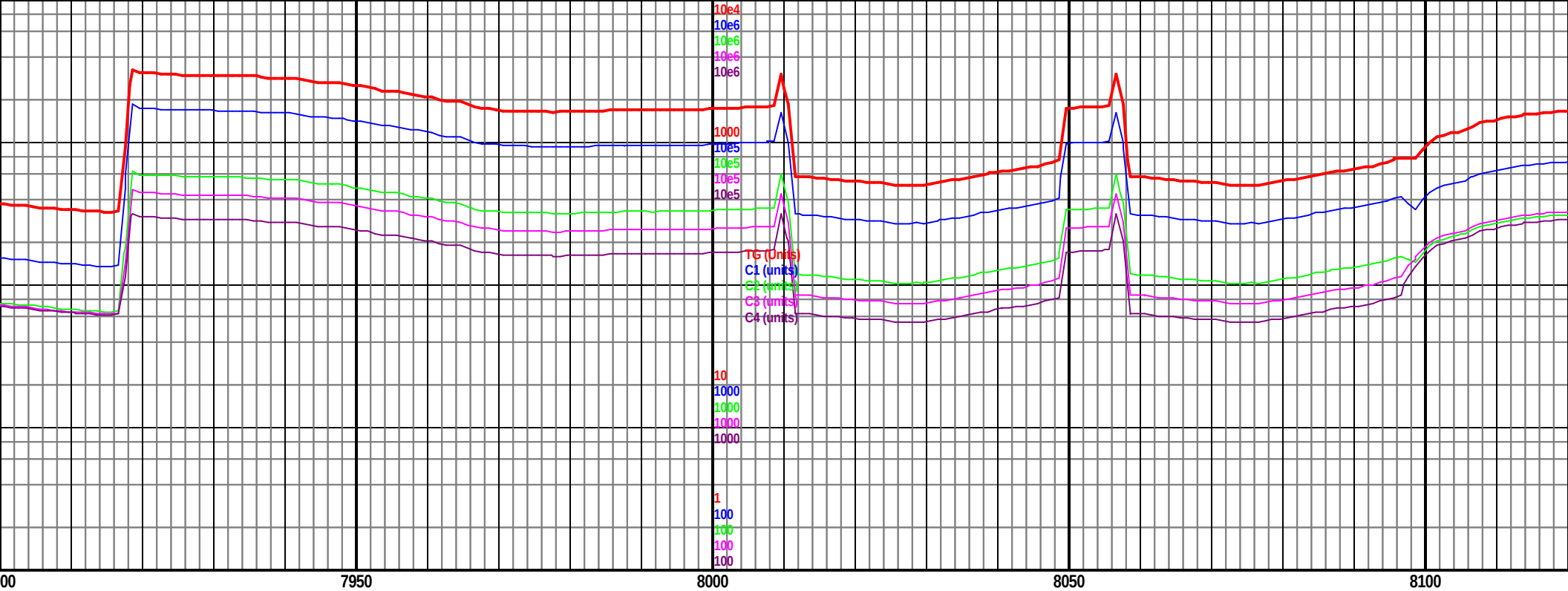
C3 (units)
C4 (units)
Wt 9.95
Vis 40
10
1000
1000
1000
1000
1
100
100
100
100
7700
7750
7800
7850
79
MD 7683 TVD 5615.73
INC 87.65 AZ 180.4
VS 2257.65
MD 7776 TVD 5619.44
INC 87.78 AZ 181.34
VS 2350.56
5000 TVD
Sub Sea (-249)
MD 7868 TVD 5621.31
INC 89.89 AZ 181.06
VS 2442.52
5500
(-749)
7700-7800 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
7800-7900 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst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C2 (units)
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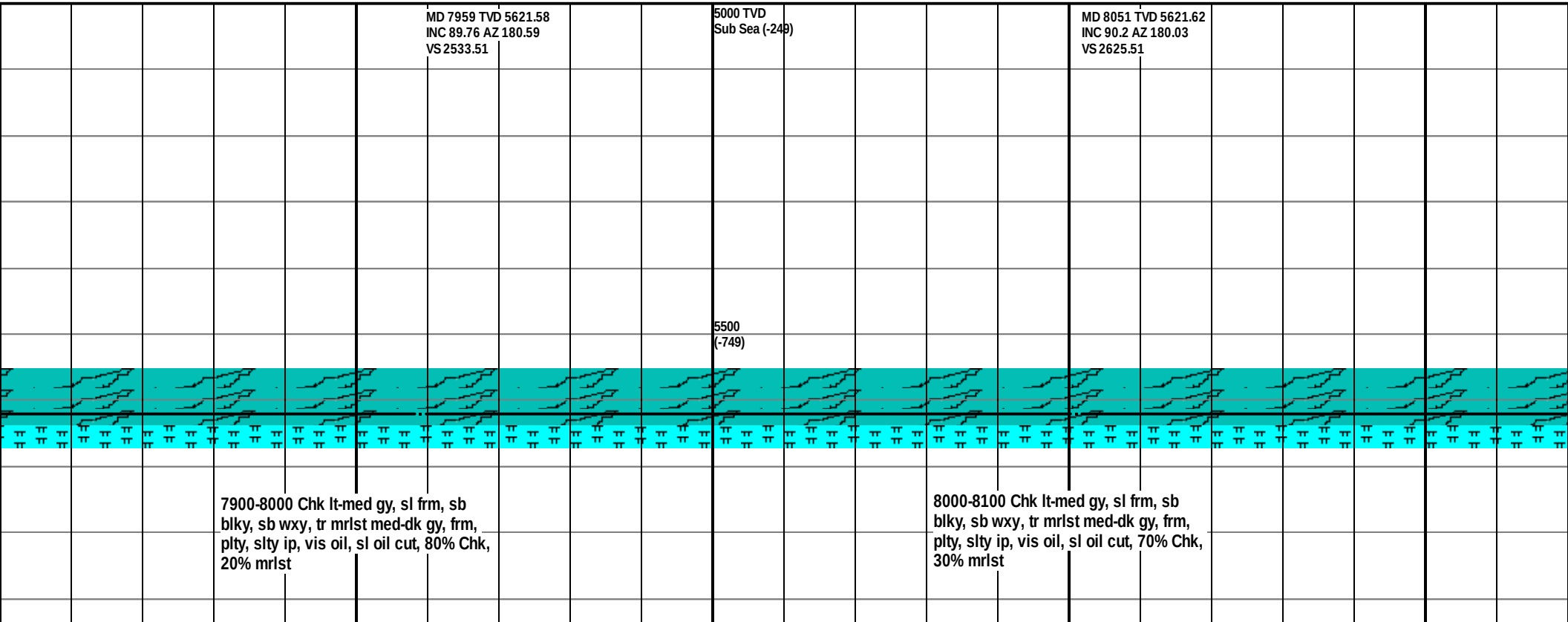
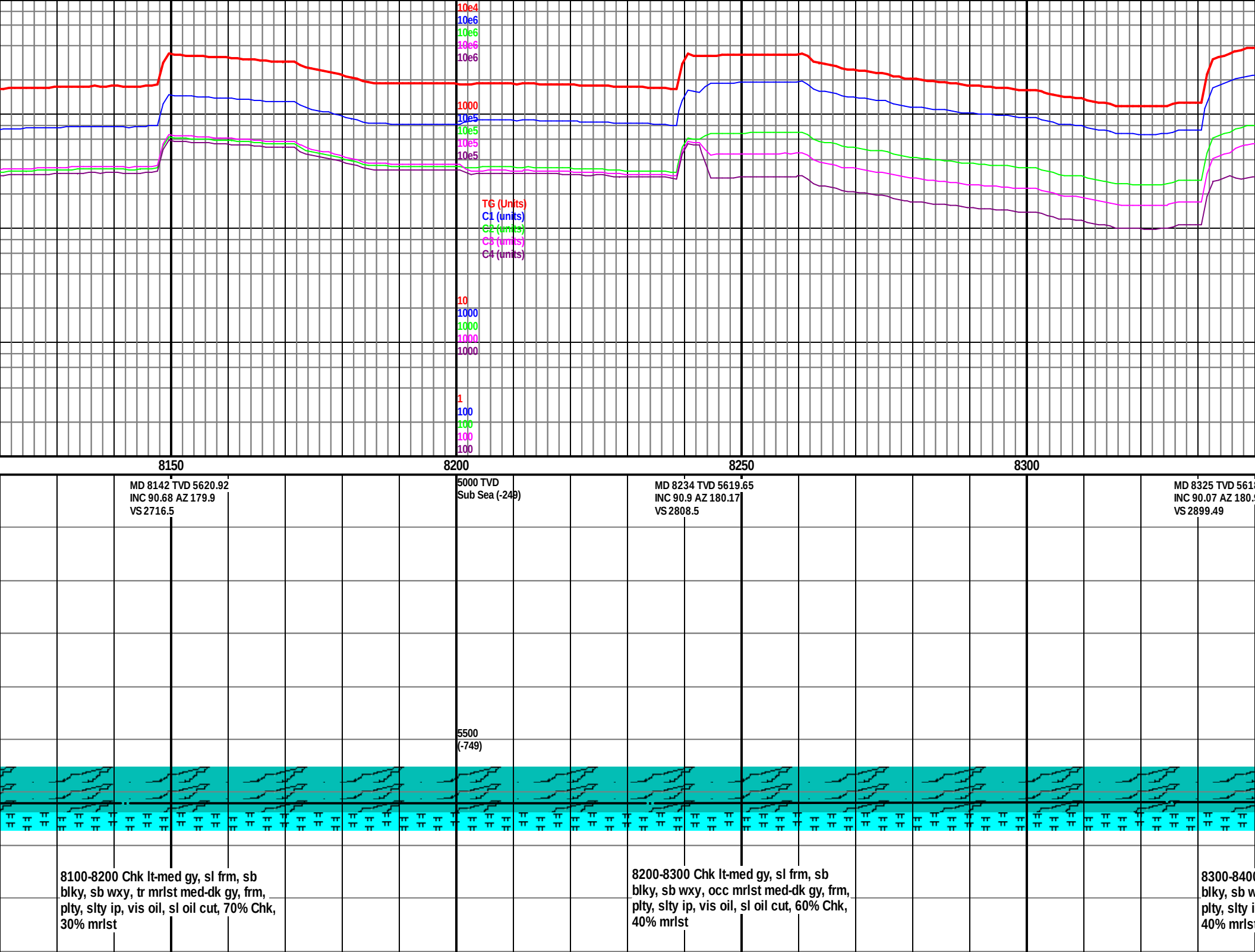
8050
8100


MD 7959 TVD 5621.58
INC 89.76 AZ 180.59
VS 2533.51
5000 TVD
Sub Sea (-249)
MD 8051 TVD 5621.62
INC 90.2 AZ 180.03
VS 2625.51
5500
(-749)
7900-8000 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
8000-8100 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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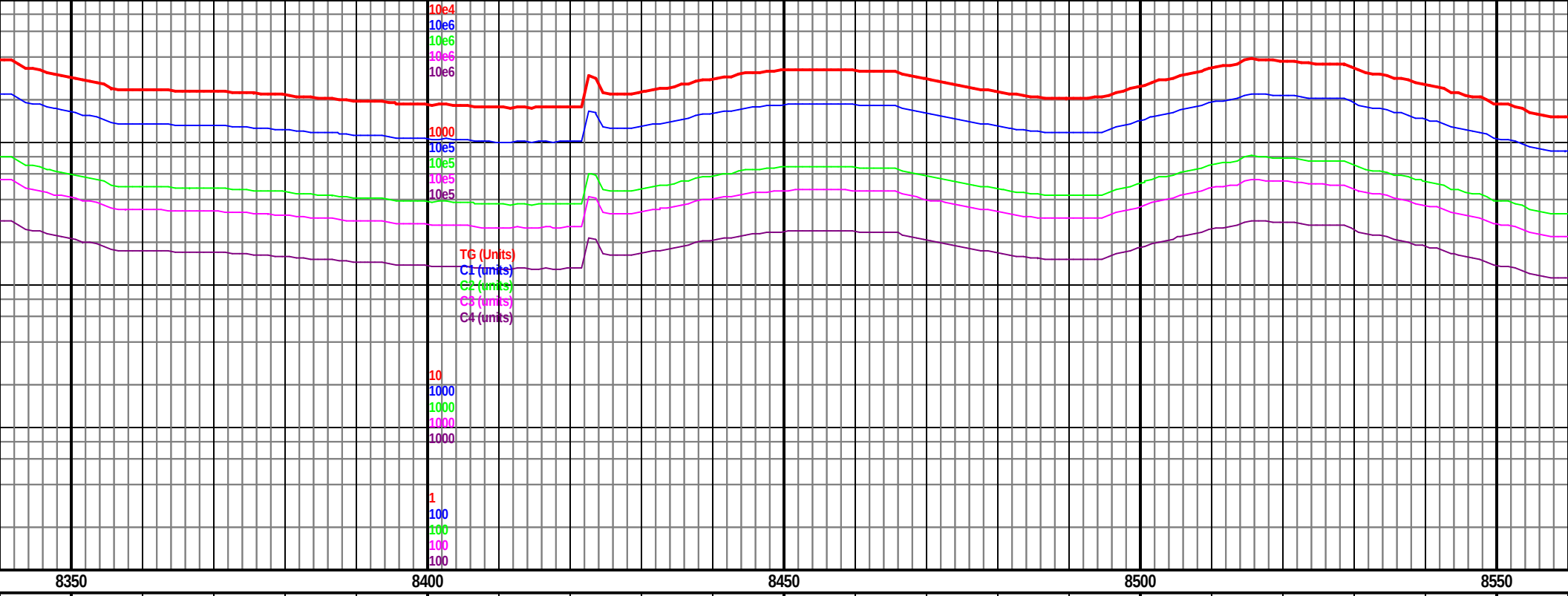
1000
1000
1000
1000
1
100
100
100
100
8150
8200
8250
8300
MD 8142 TVD 5620.92
INC 90.68 AZ 179.9
VS 2716.5
5000 TVD
Sub Sea (-249)
MD 8234 TVD 5619.65
INC 90.9 AZ 180.17
VS 2808.5
MD 8325 TVD 561
INC 90.07 AZ 180.
VS 2899.49
5500
(-749)
8100-8200 Chk lt-med gy, sl frm, sb blky, sb wxy, tr mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 70% Chk, 30% mrlst
8200-8300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60% Chk, 40% mrlst
8300-840
blky, sb w
plty, slty i
40% mrls



8.88
92

5000 TVD
Sub Sea (-249)

MD 8417 TVD 5618.91
INC 89.89 AZ 181.58
VS 2991.46

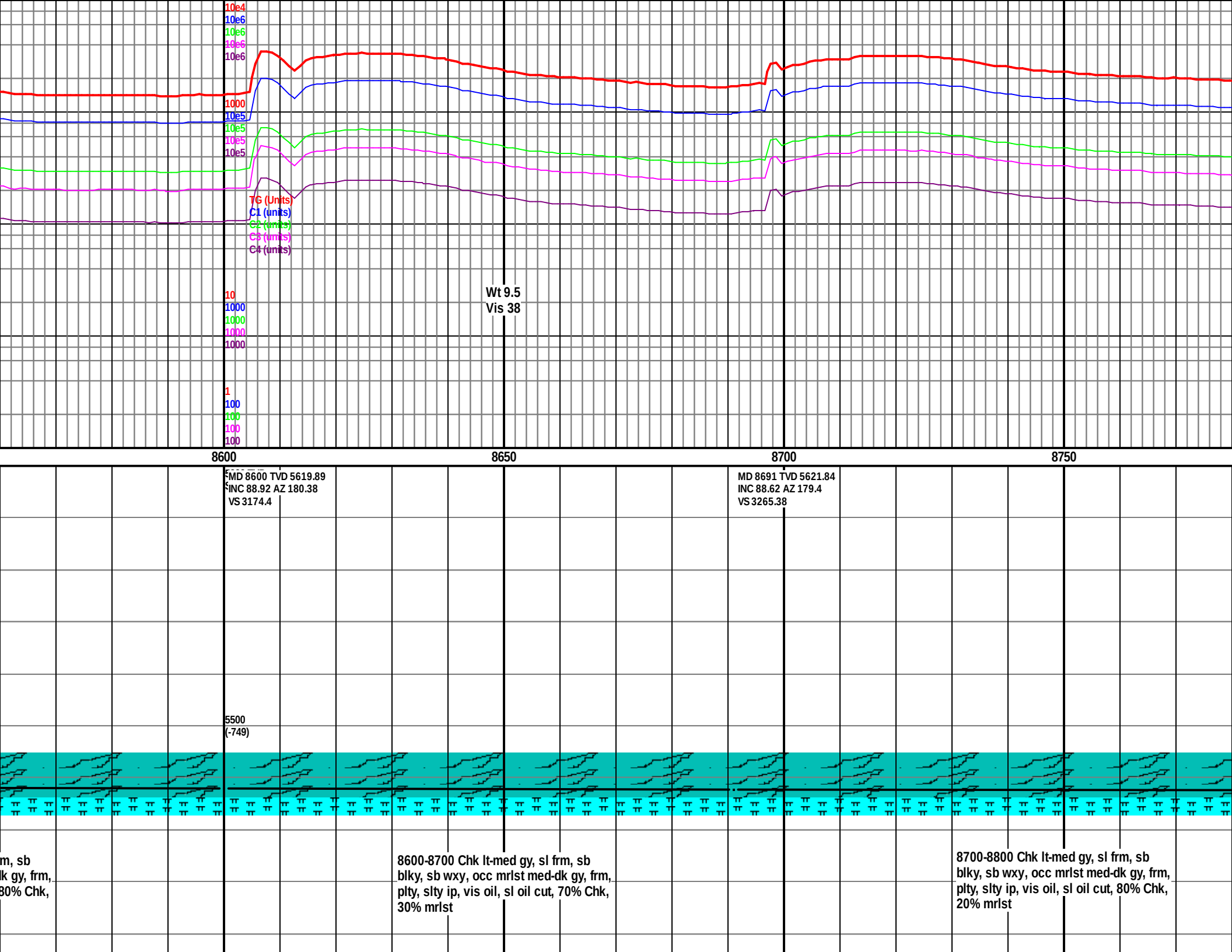
MD 8509 TVD 5619.02
INC 89.98 AZ 181.78
VS 3083.42

5500
(-749)

0 Chk lt-med gy, sl frm, sb
vxy, occ mrlst med-dk gy, frm,
p, vis oil, sl oil cut, 60% Chk,
t

8400-8500 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80% Chk,
20% mrlst

8500-8600 Chk lt-med gy, sl fr
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, sl oil cut, 8
20% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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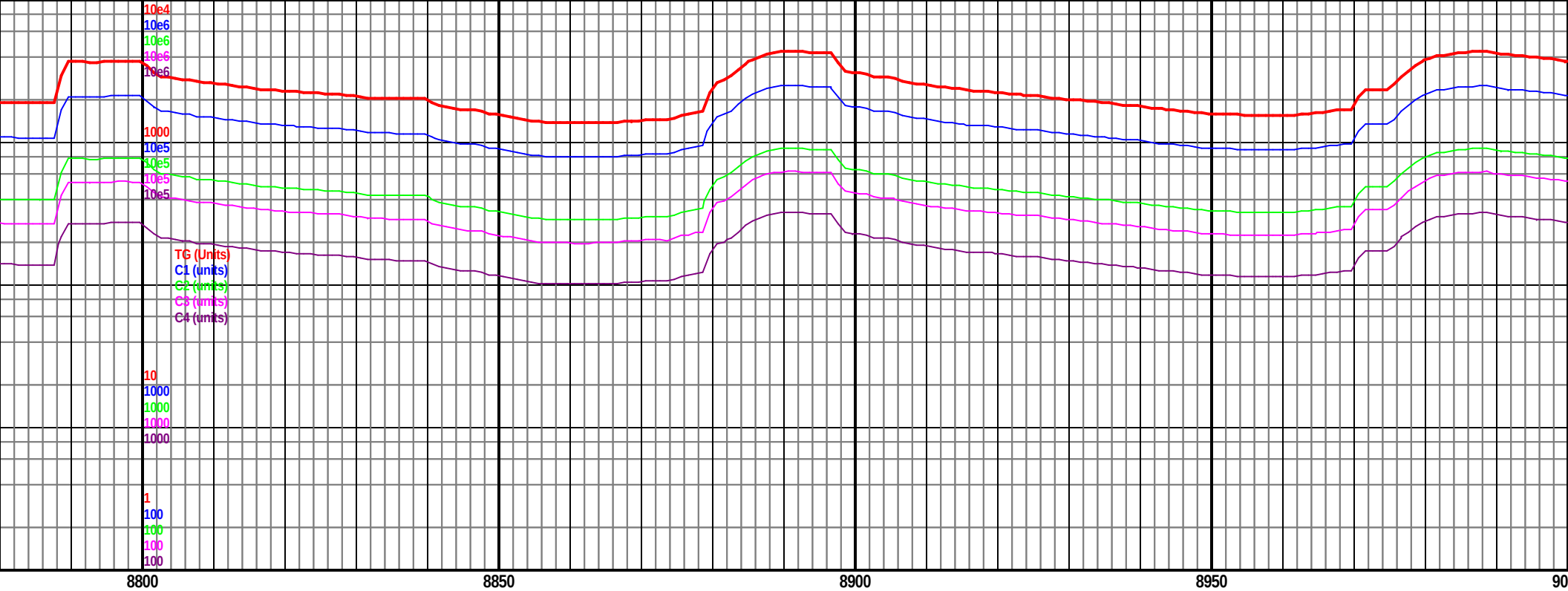
1000
1000
1000
1000
1
100
100
100
100
Wt 9.5
Vis 38
8600
8650
8700
8750
MD 8600 TVD 5619.89
INC 88.92 AZ 180.38
VS 3174.4
MD 8691 TVD 5621.84
INC 88.62 AZ 179.4
VS 3265.38
5500
(-749)
m, sb
lk gy, frm,
80% Chk,
8600-8700 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 70% Chk,
30% mrlst
8700-8800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80% Chk,
20% mrlst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C1 (units)
C2 (units)
C3 (units)
C4 (units)
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1000
1000
1000
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100
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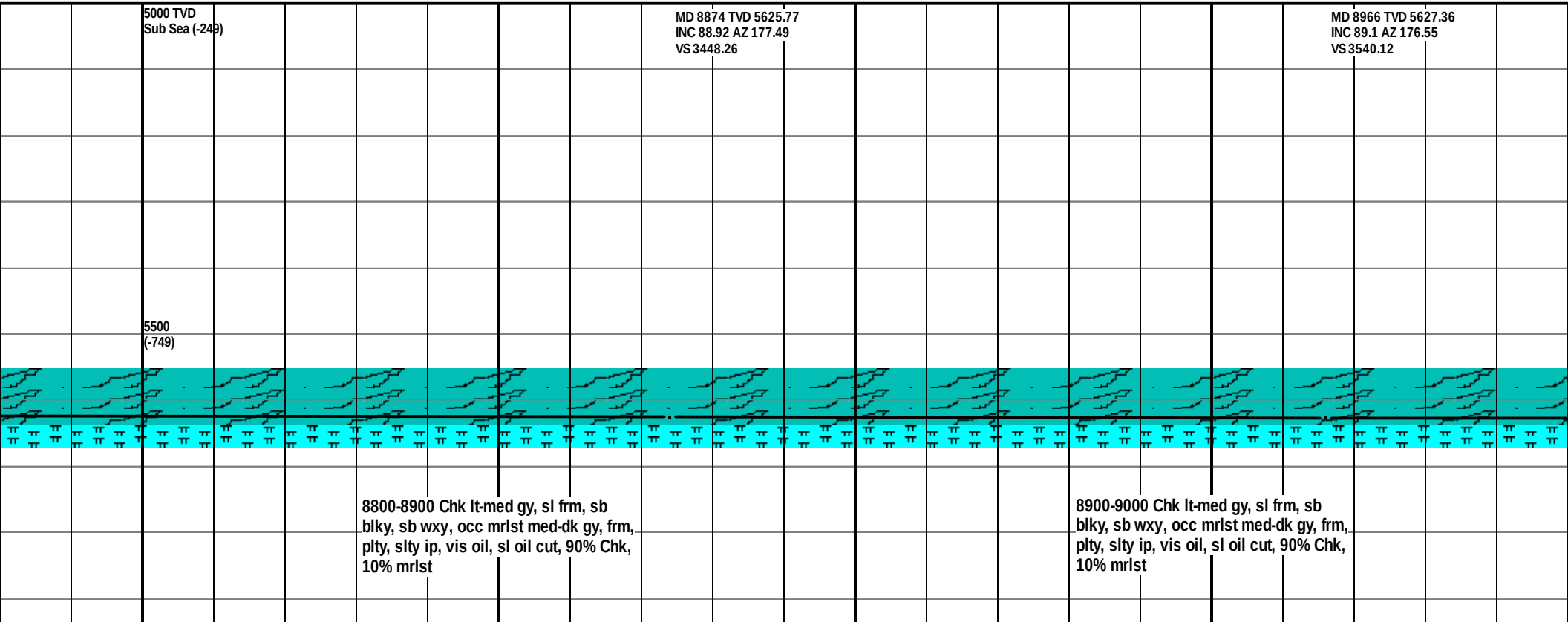
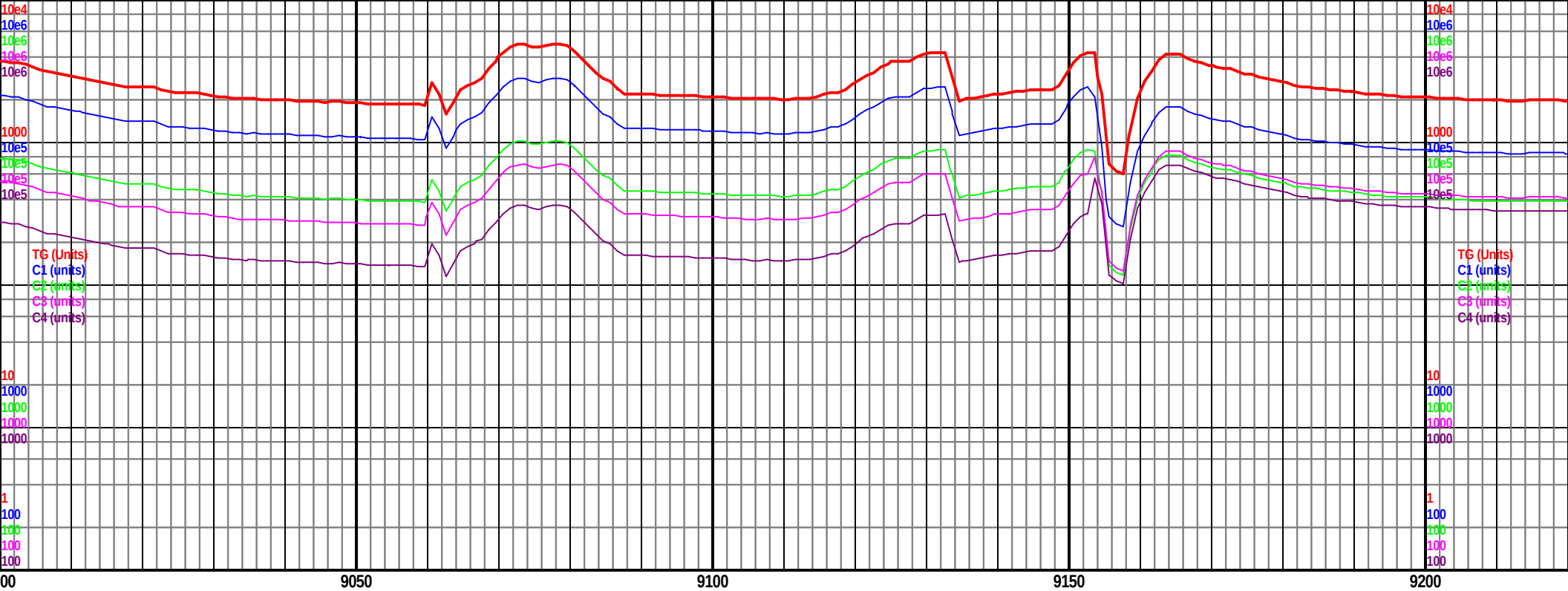
8850
8900
8950
90


5000 TVD
Sub Sea (-249)
MD 8874 TVD 5625.77
INC 88.92 AZ 177.49
VS 3448.26
MD 8966 TVD 5627.36
INC 89.1 AZ 176.55
VS 3540.12
5500
(-749)
8800-8900 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst
8900-9000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 90% Chk, 10% mrlst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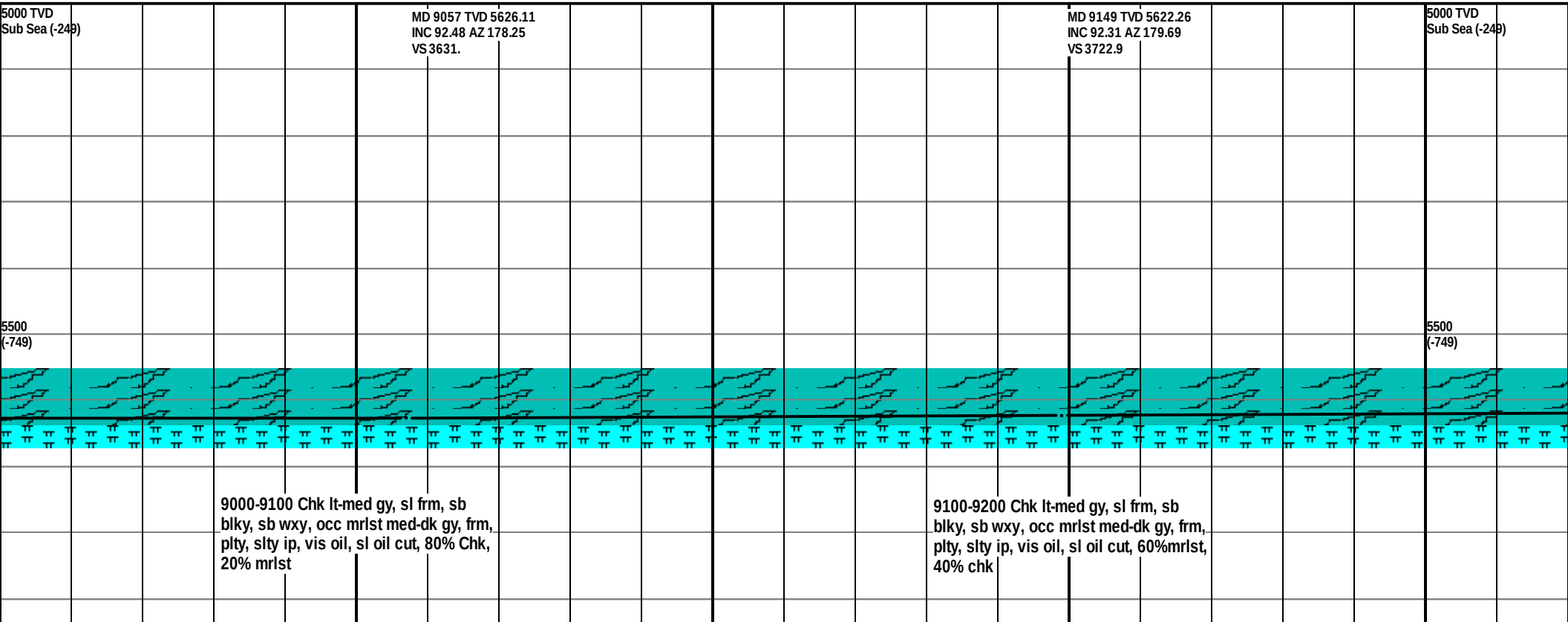
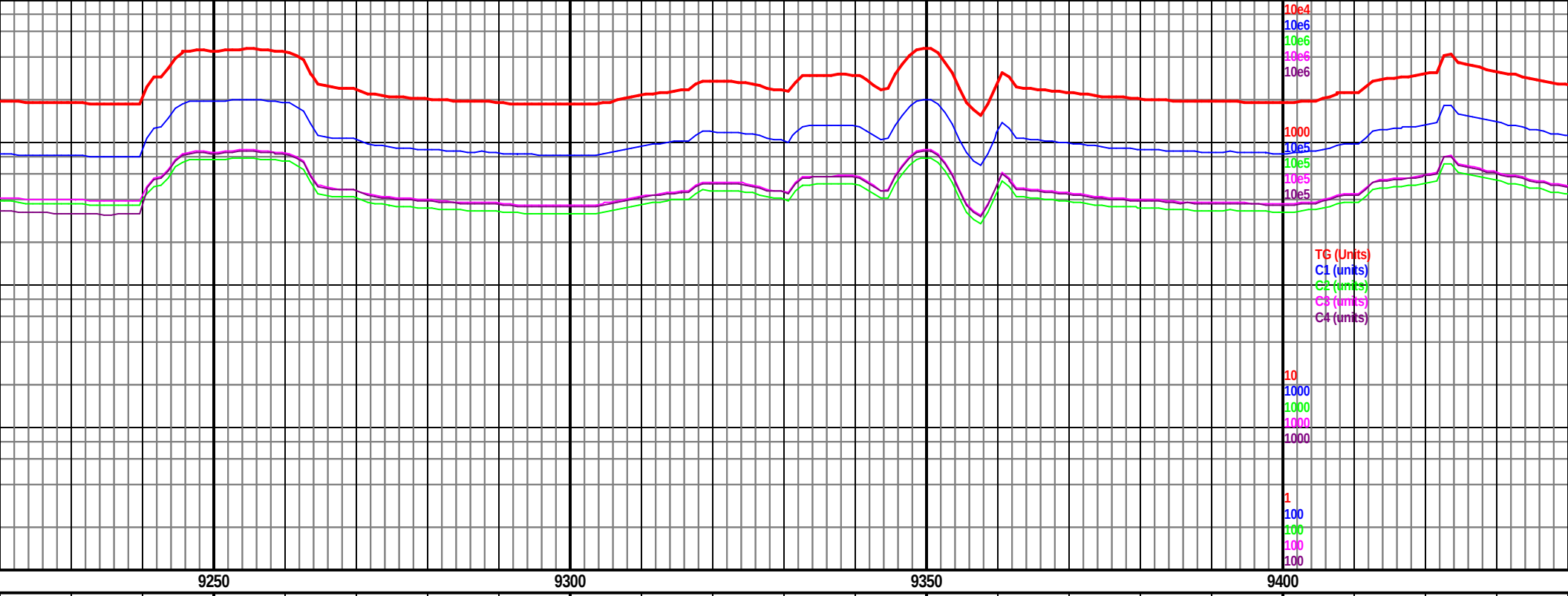
C1 (units)
C2 (units)
C3 (units)
C4 (units)
9050
9100
9150
9200


5000 TVD
Sub Sea (-249)
MD 9057 TVD 5626.11
INC 92.48 AZ 178.25
VS 3631.
MD 9149 TVD 5622.26
INC 92.31 AZ 179.69
VS 3722.9
5500
(-749)
9000-9100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80% Chk, 20% mrlst
9100-9200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60%mrlst, 40% chk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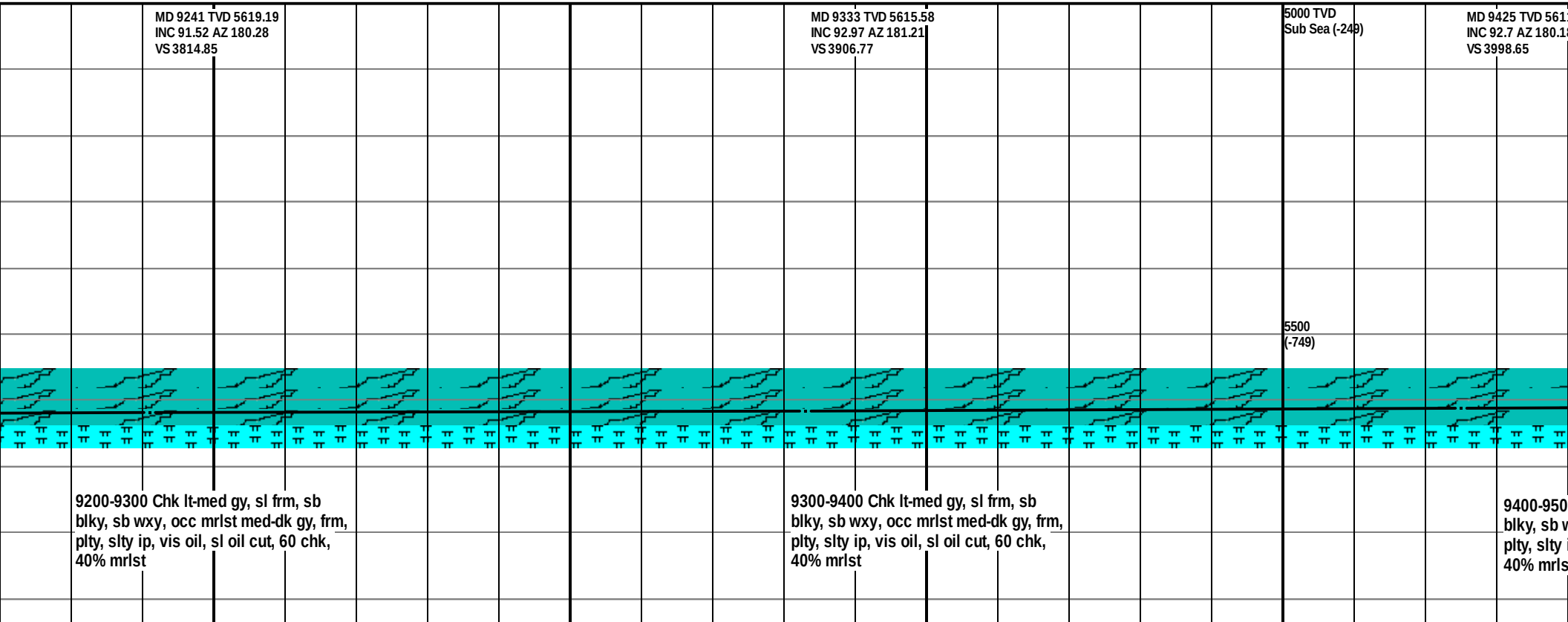
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9300
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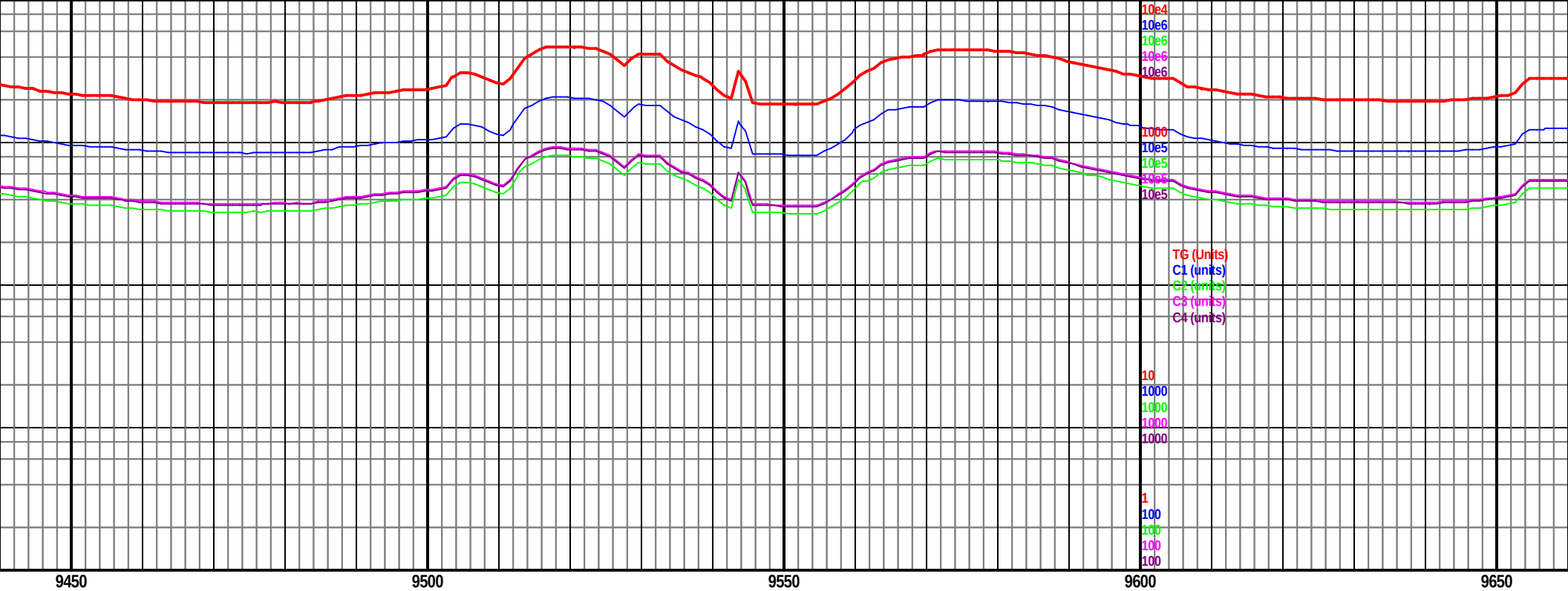
9400
MD 9241 TVD 5619.19
INC 91.52 AZ 180.28
VS 3814.85
MD 9333 TVD 5615.58
INC 92.97 AZ 181.21
VS 3906.77
5000 TVD
Sub Sea (-249)
MD 9425 TVD 561
INC 92.7 AZ 180.1
VS 3998.65
5500
(-749)
9200-9300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60 chk, 40% mrlst
9300-9400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 60 chk, 40% mrlst
9400-950
blky, sb w
plty, slty
40% mrls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10e5
TG (Units)
C1 (units)
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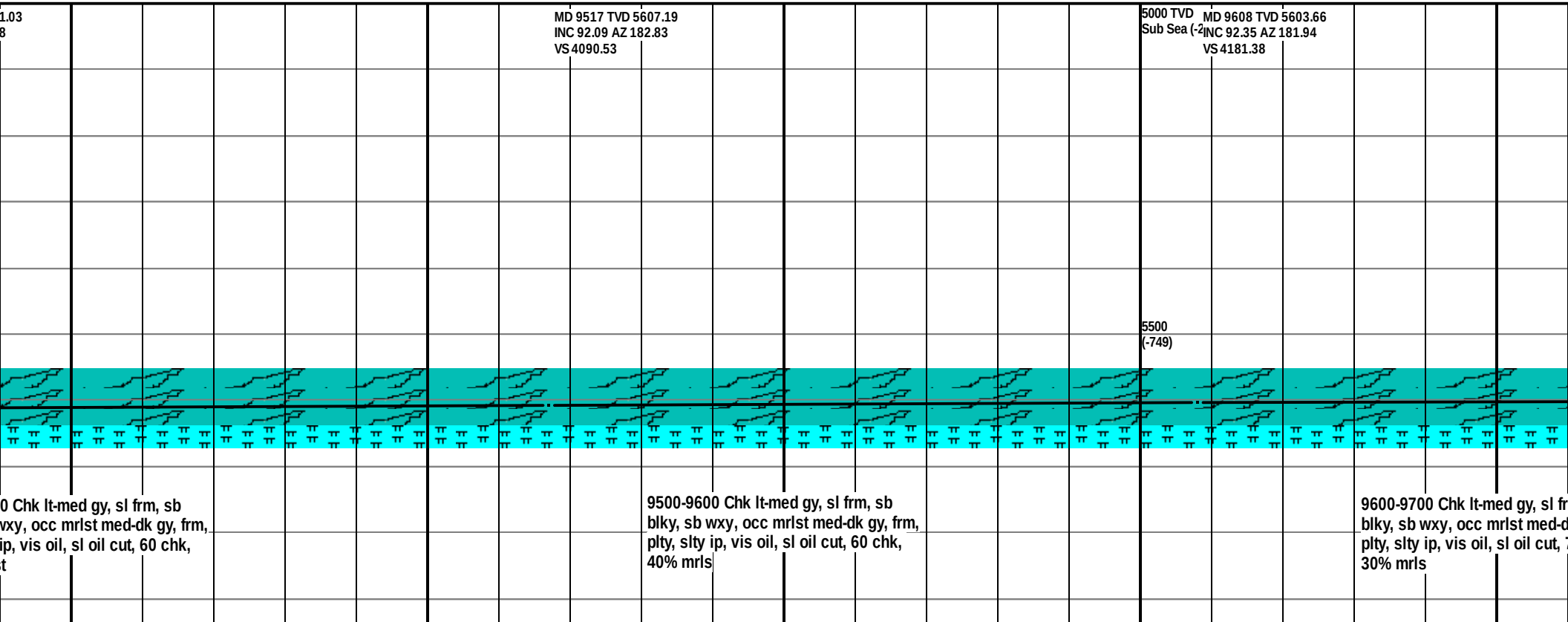
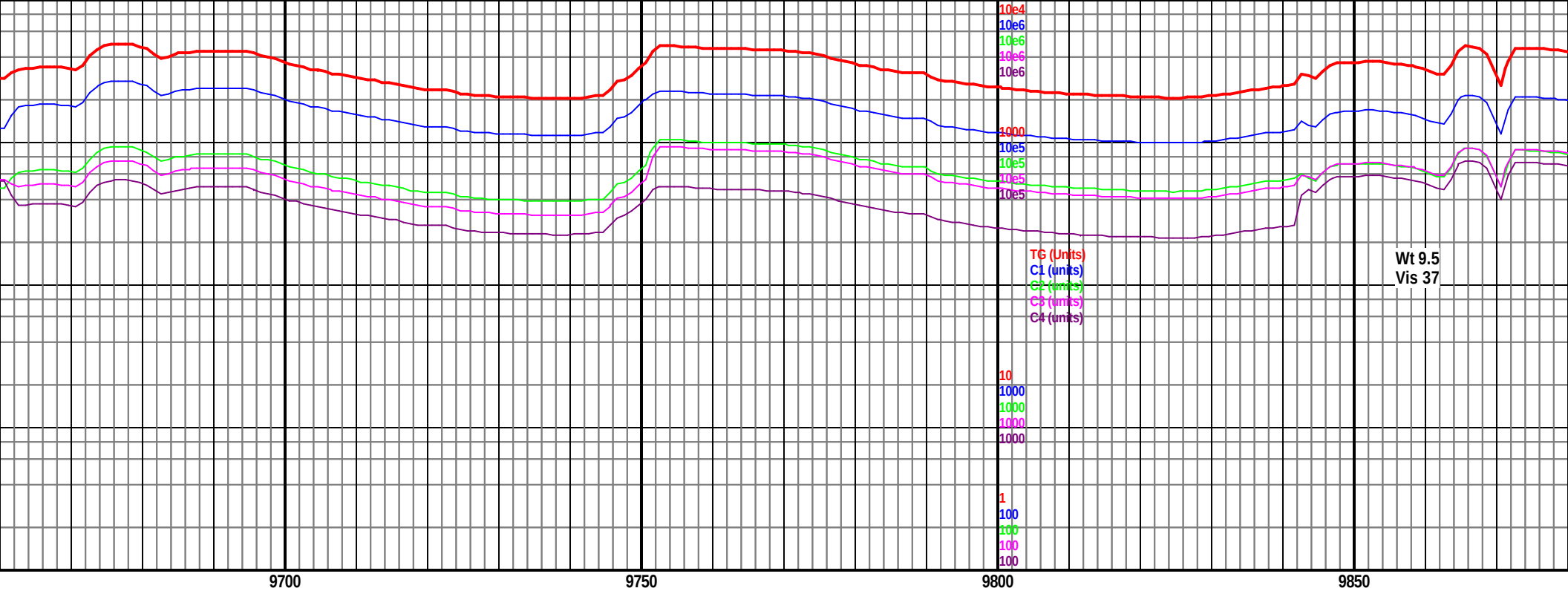
9500
9550
9600
9650


1.03
8
MD 9517 TVD 5607.19
INC 92.09 AZ 182.83
VS 4090.53
5000 TVD
Sub Sea (-2
MD 9608 TVD 5603.66
INC 92.35 AZ 181.94
VS 4181.38
5500
(-749)
0 Chk lt-med gy, sl frm, sb
vxy, occ mrlst med-dk gy, frm,
ip, vis oil, sl oil cut, 60 chk,
t
9500-9600 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 60 chk,
40% mrls
9600-9700 Chk lt-med gy, sl fr
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, sl oil cut,
30% mrls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TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 9.5
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9750
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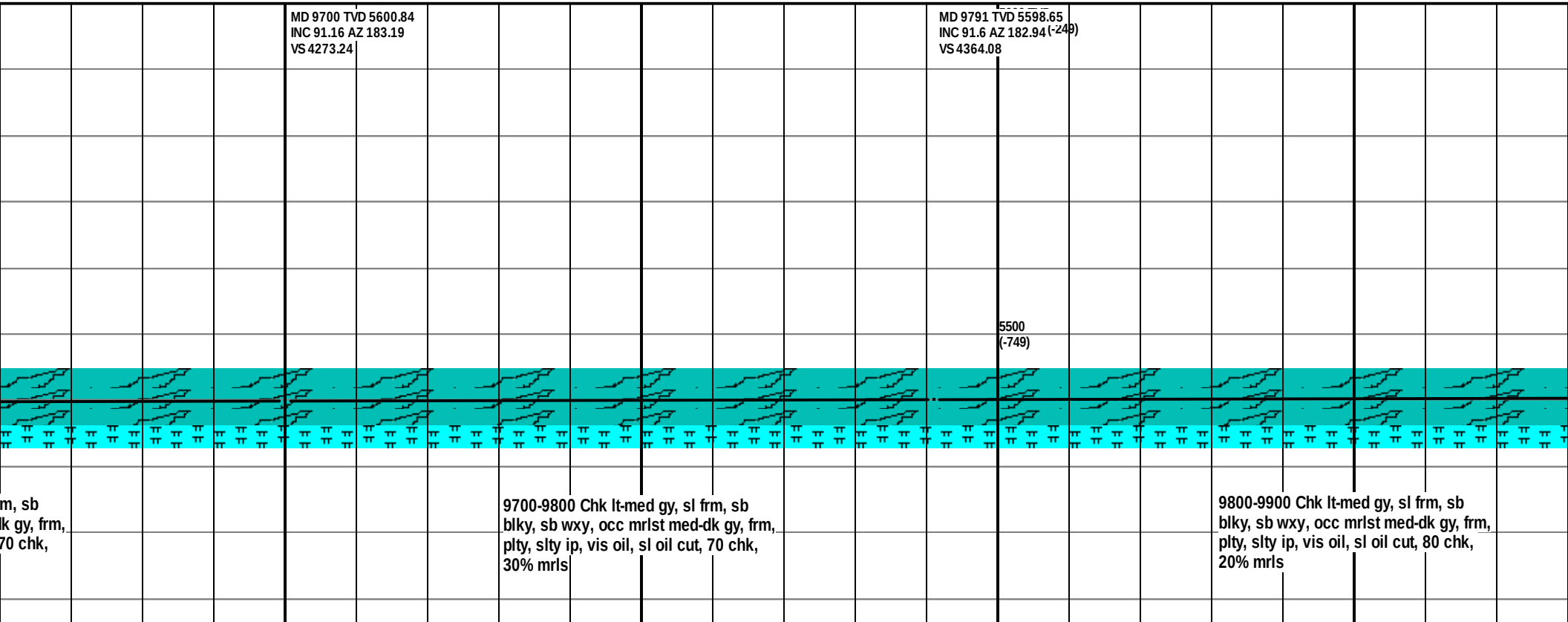
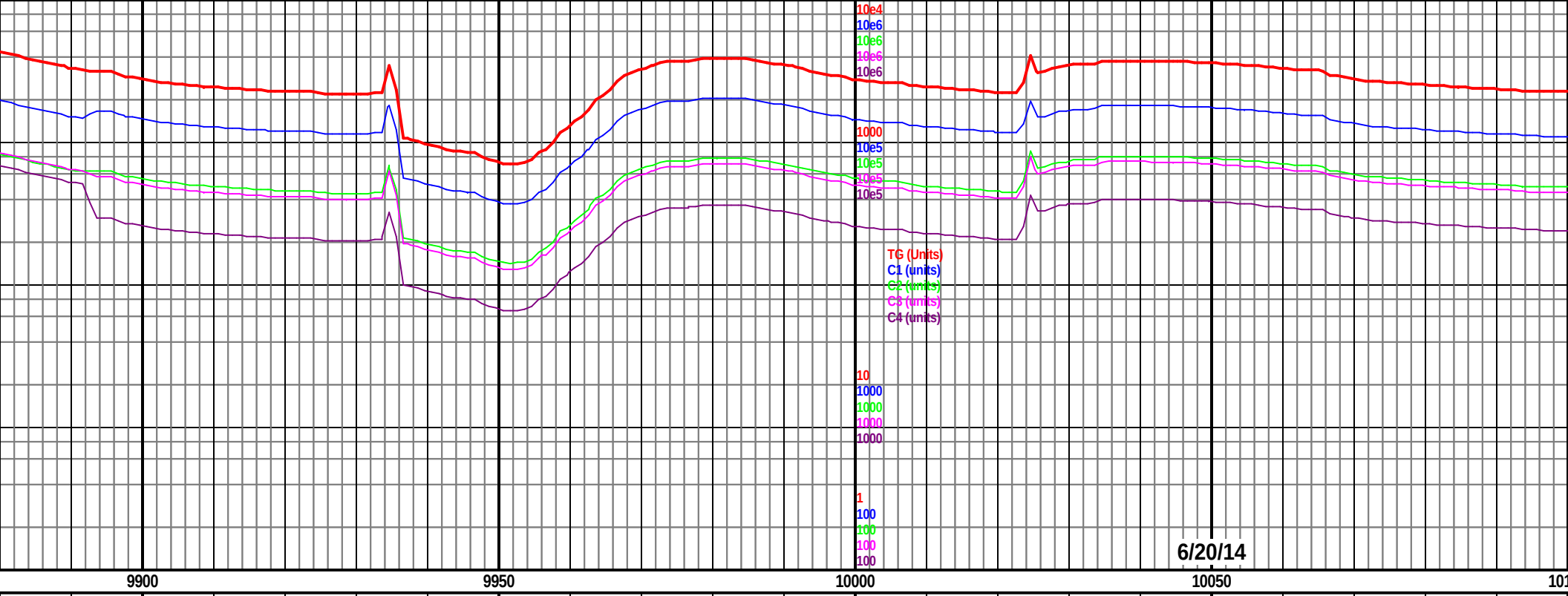
9850


MD 9700 TVD 5600.84
INC 91.16 AZ 183.19
VS 4273.24
MD 9791 TVD 5598.65
INC 91.6 AZ 182.94 (-749)
VS 4364.08
5500
(-749)
m, sb
lk gy, frm,
70 chk,
9700-9800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 70 chk,
30% mrls
9800-9900 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, sl oil cut, 80 chk,
20% mrls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TG (Units)
C1 (units)
C2 (units)
C3 (units)
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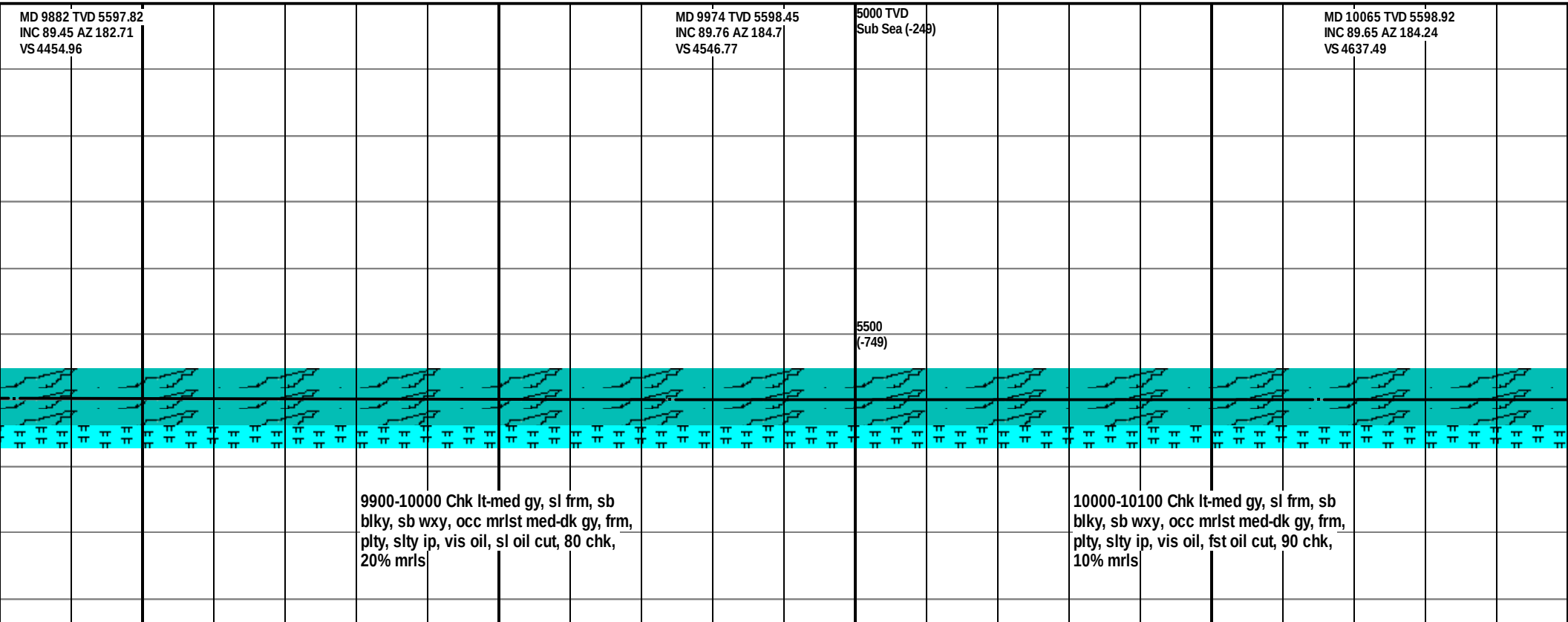
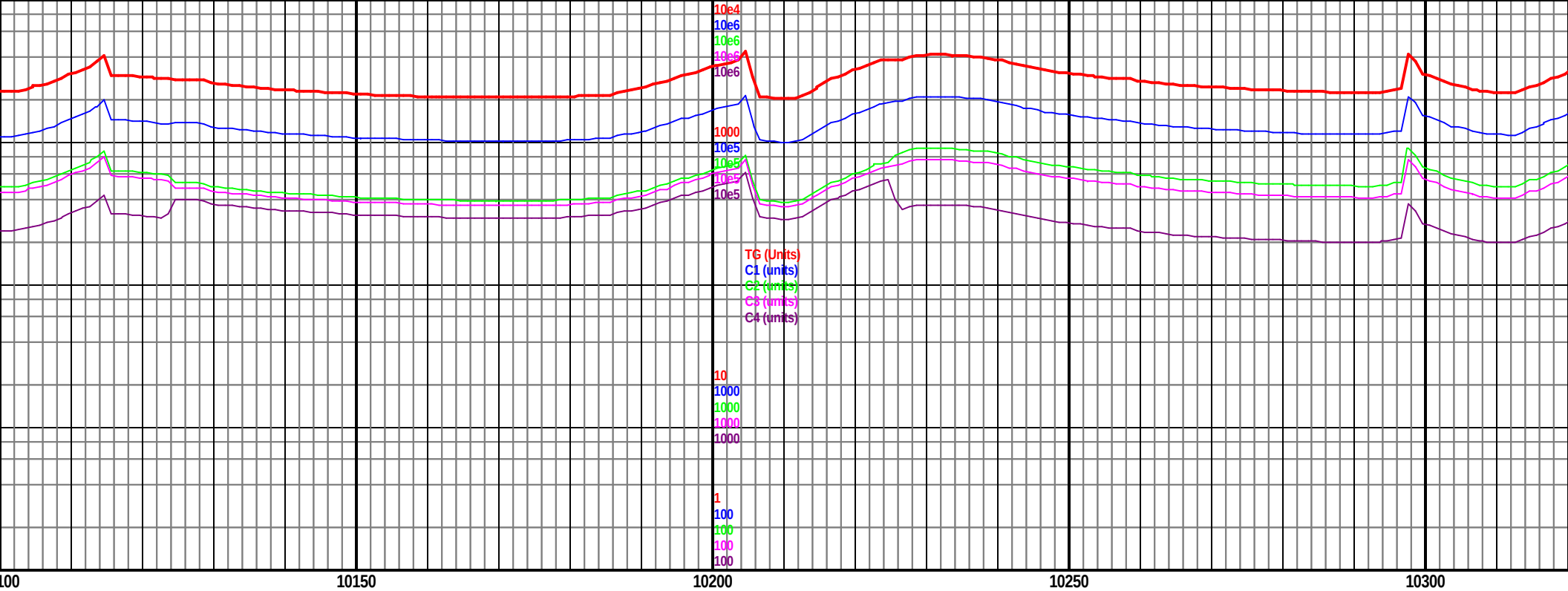

MD 9882 TVD 5597.82
INC 89.45 AZ 182.71
VS 4454.96
MD 9974 TVD 5598.45
INC 89.76 AZ 184.7
VS 4546.77
5000 TVD
Sub Sea (-249)
MD 10065 TVD 5598.92
INC 89.65 AZ 184.24
VS 4637.49
5500
(-749)
9900-10000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, sl oil cut, 80 chk, 20% mrls
10000-10100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls


10e4
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TG (Units)
C1 (units)
C2 (units)
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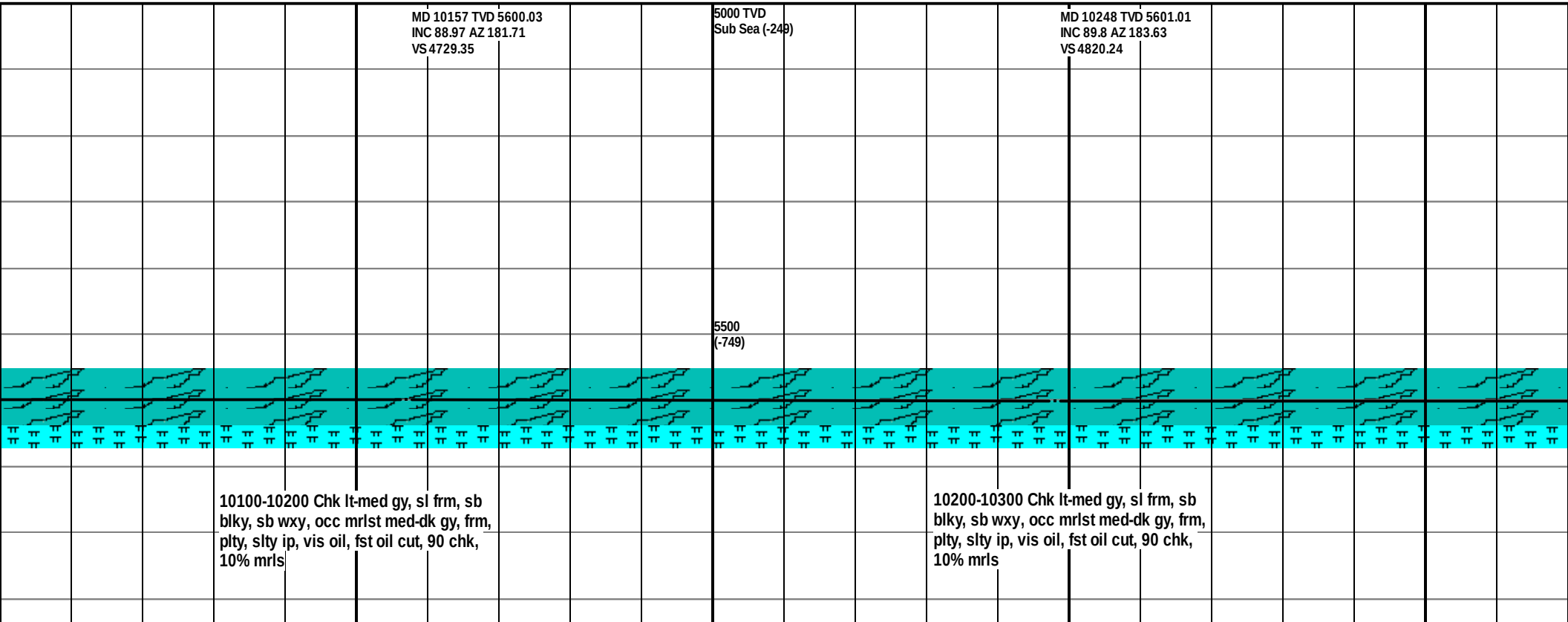
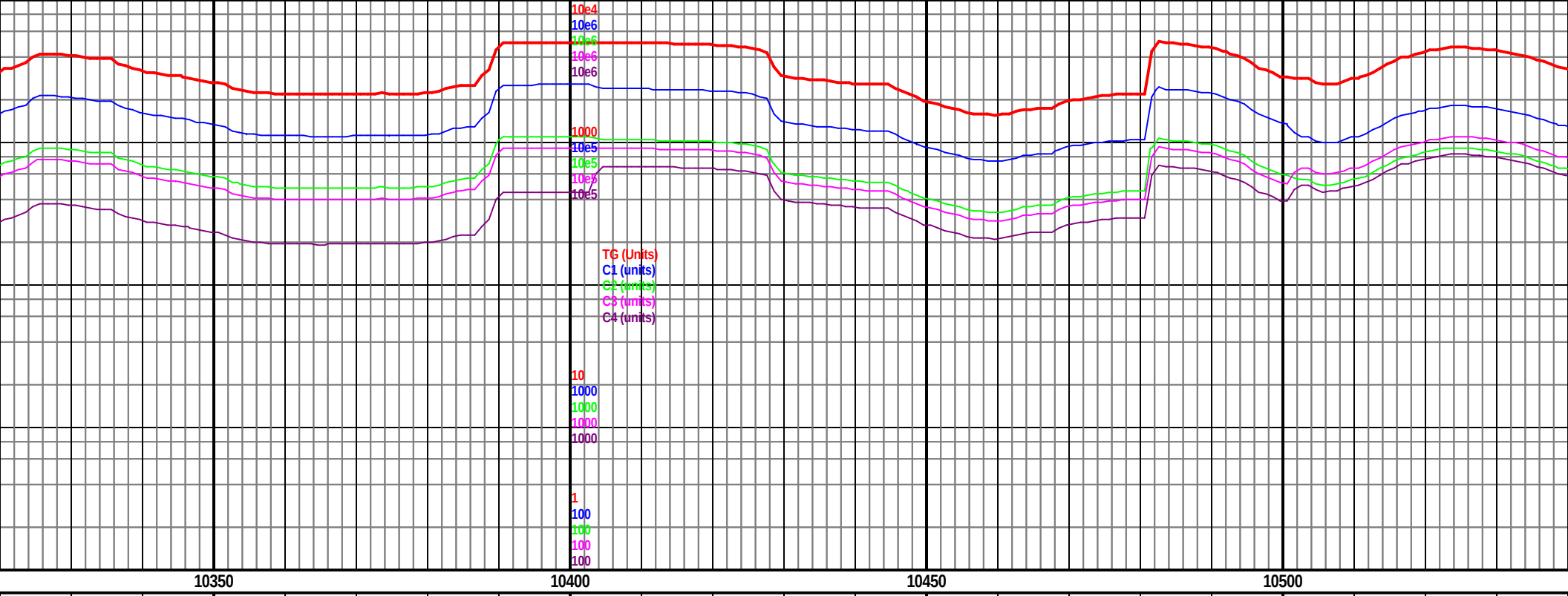

MD 10157 TVD 5600.03
INC 88.97 AZ 181.71
VS 4729.35
5000 TVD
Sub Sea (-249)
MD 10248 TVD 5601.01
INC 89.8 AZ 183.63
VS 4820.24
5500
(-749)
10100-10200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10200-10300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls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TG (Units)
C1 (units)
C2 (units)
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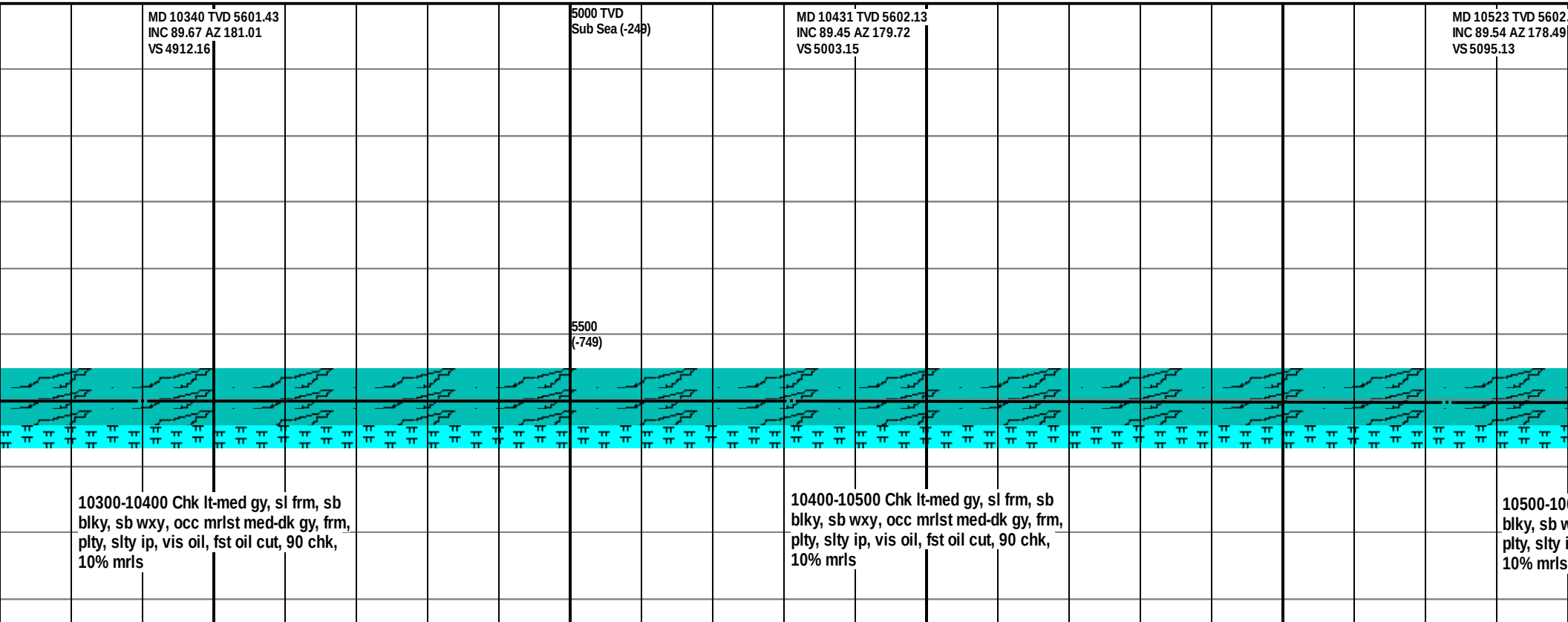
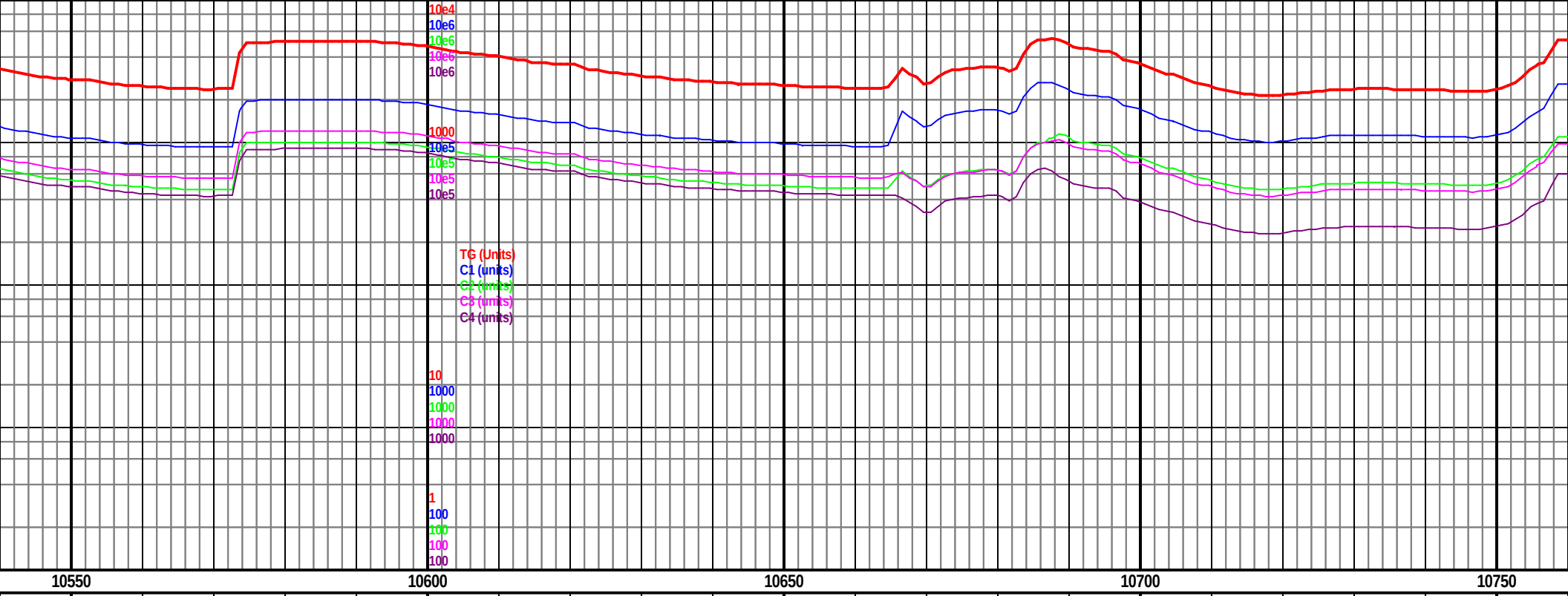
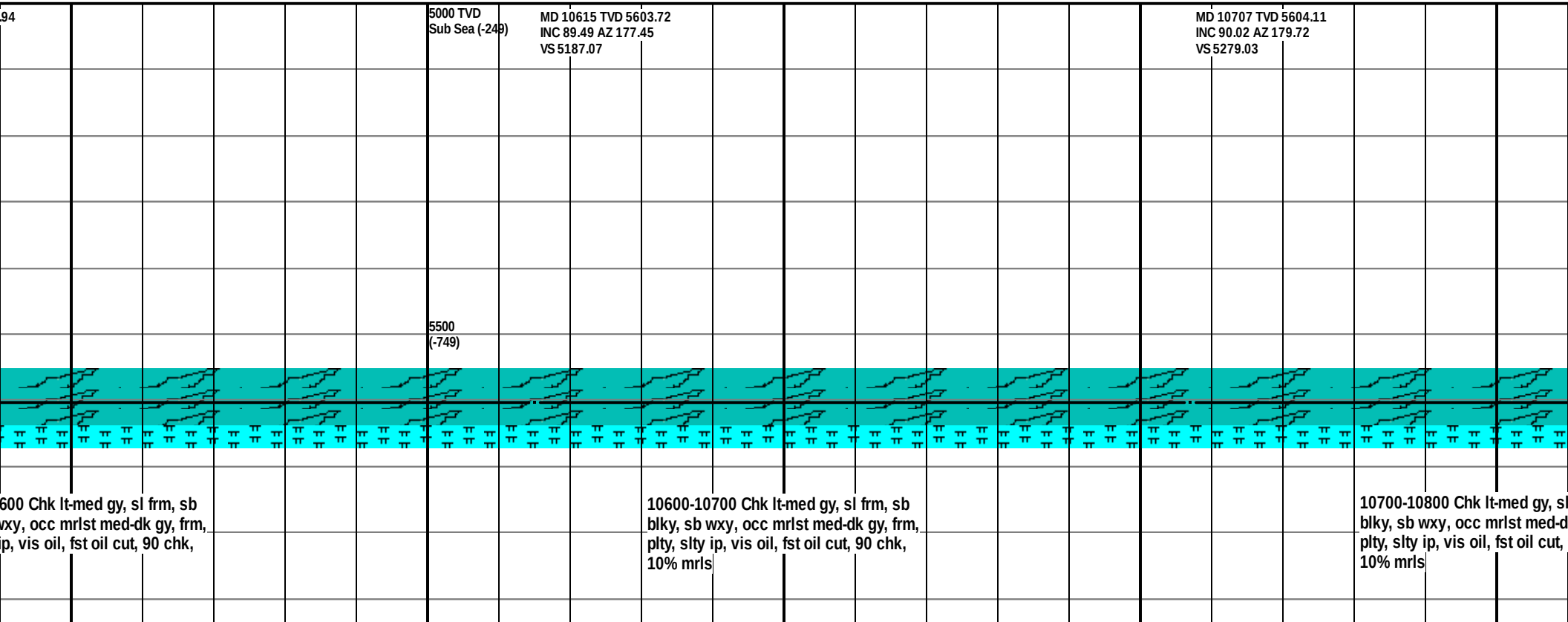
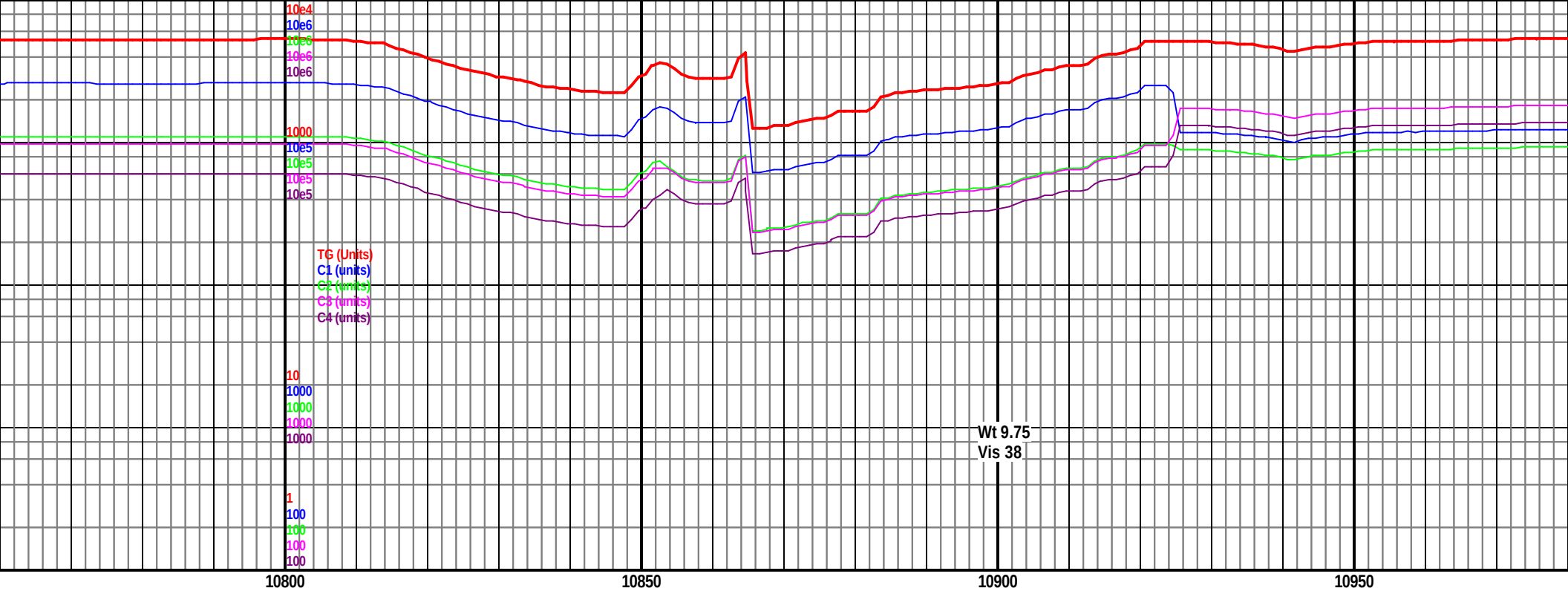
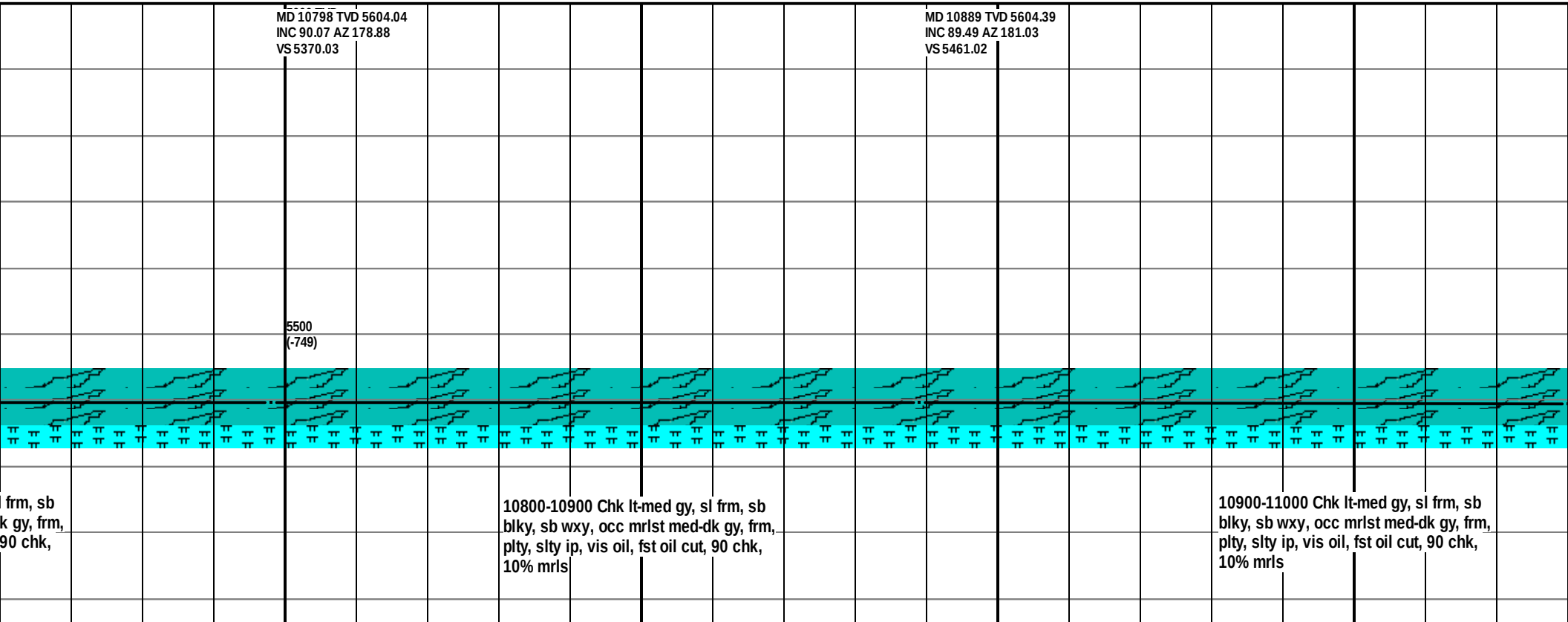
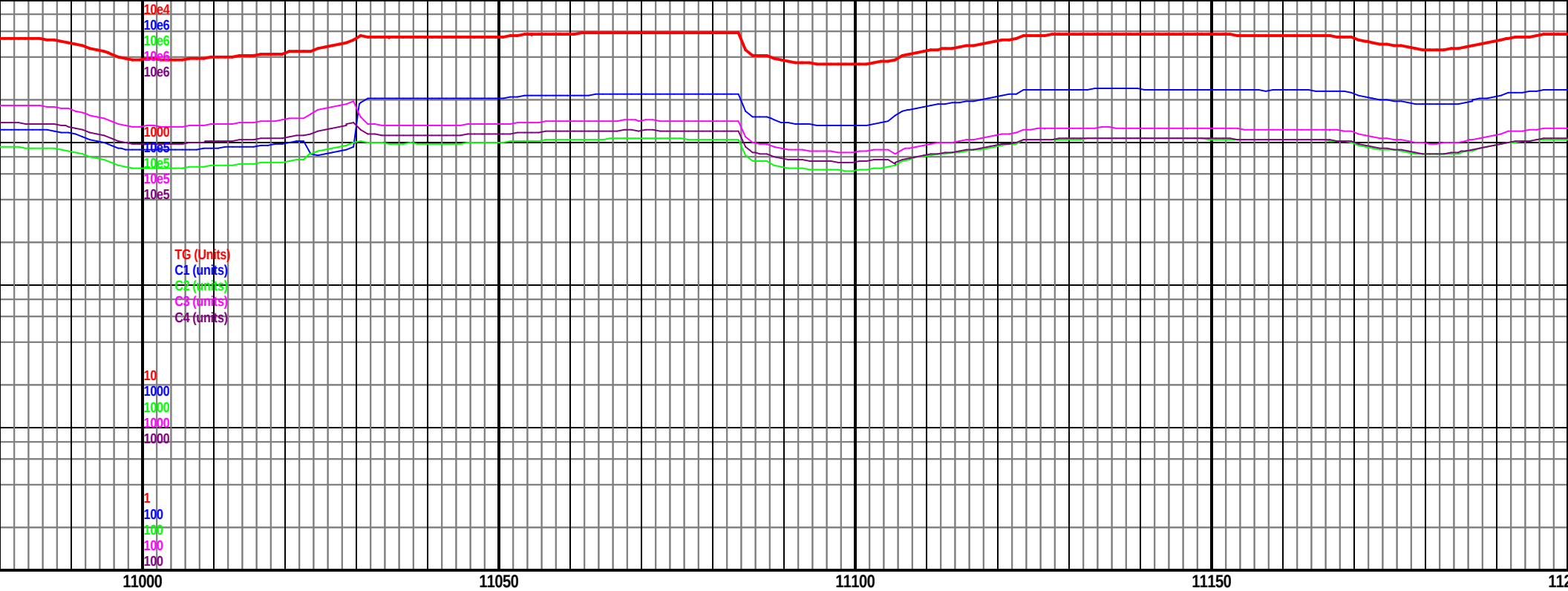

MD 10340 TVD 5601.43
INC 89.67 AZ 181.01
VS 4912.16
5000 TVD
Sub Sea (-249)
MD 10431 TVD 5602.13
INC 89.45 AZ 179.72
VS 5003.15
MD 10523 TVD 5602.
INC 89.54 AZ 178.49
VS 5095.13
5500
(-749)
10300-10400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10400-10500 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10500-10
blky, sb w
plty, slty i
10% mrls

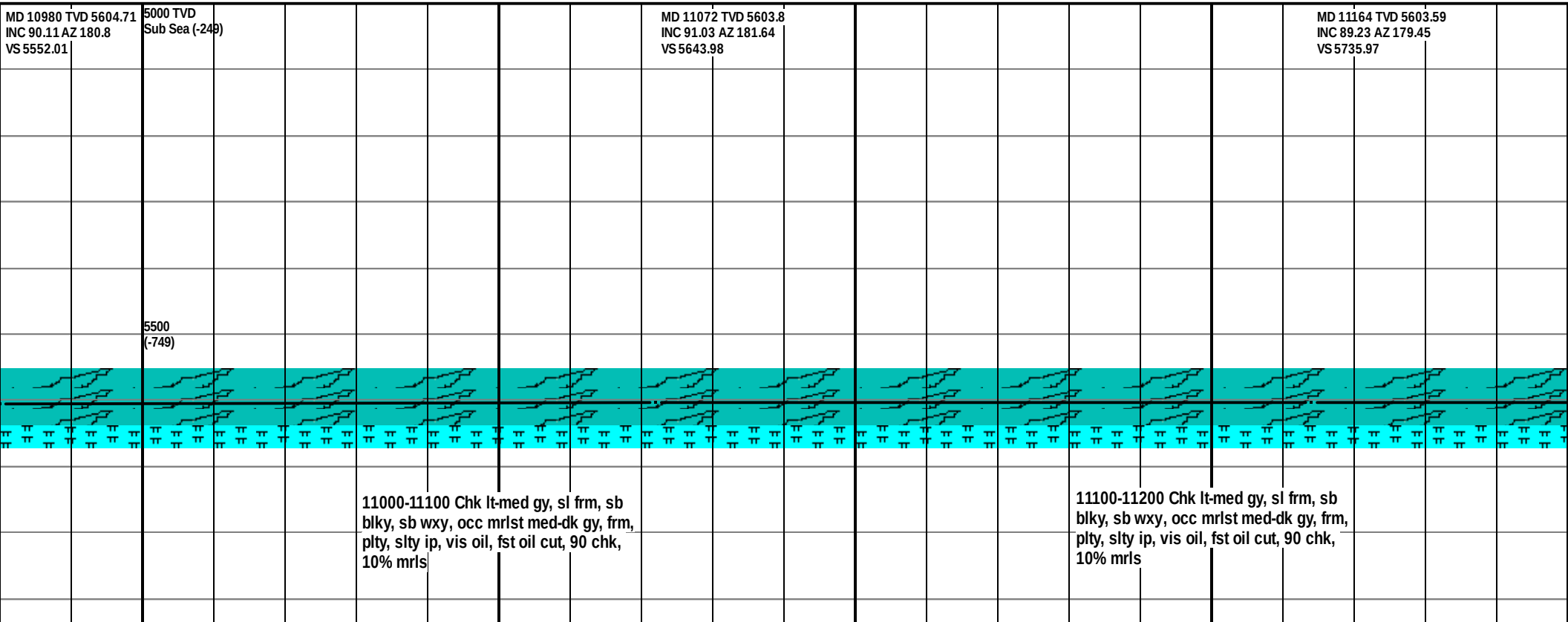

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
10550
10600
10650
10700
10750

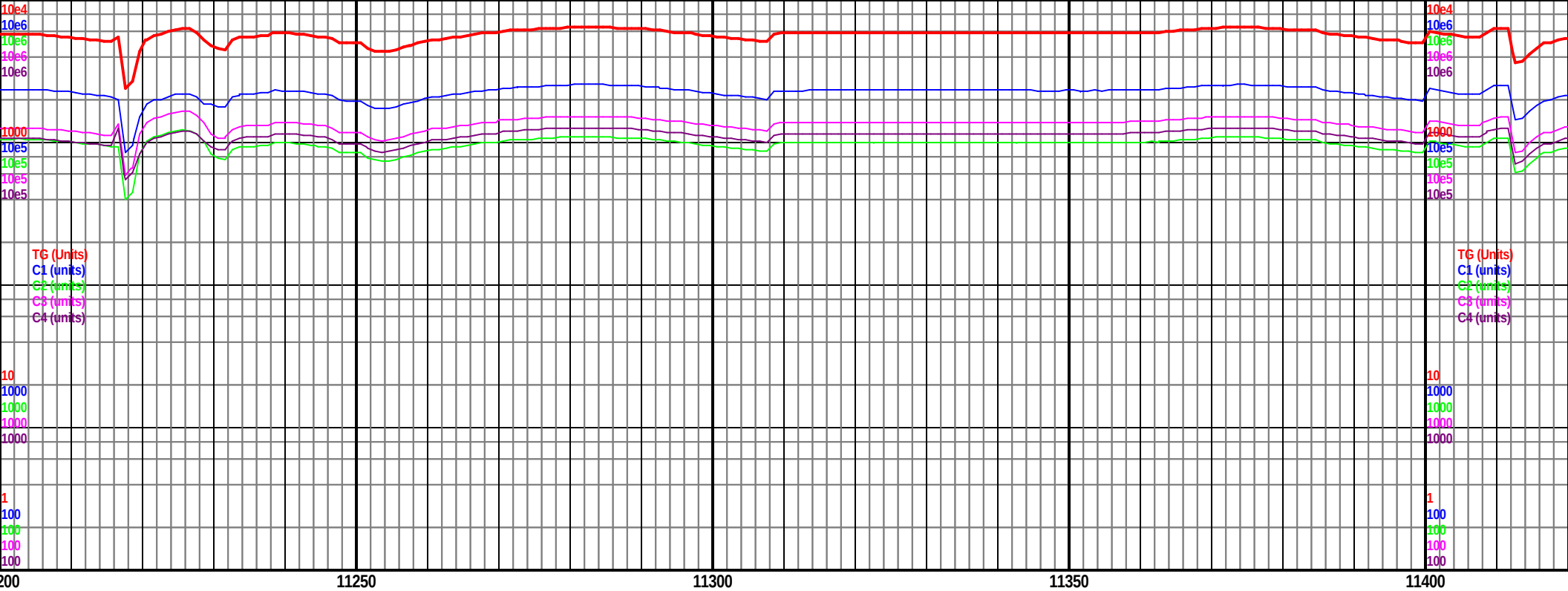

.94
5000 TVD
Sub Sea (-249)
MD 10615 TVD 5603.72
INC 89.49 AZ 177.45
VS 5187.07
MD 10707 TVD 5604.11
INC 90.02 AZ 179.72
VS 5279.03
5500
(-749)
600 Chk lt-med gy, sl frm, sb
wxy, occ mrlst med-dk gy, frm,
ip, vis oil, fst oil cut, 90 chk,
10600-10700 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, fst oil cut, 90 chk,
10% mrls
10700-10800 Chk lt-med gy, sl
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, fst oil cut,
10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9.75
Vis 38
10800
10850
10900
10950


MD 10798 TVD 5604.04
INC 90.07 AZ 178.88
VS 5370.03
MD 10889 TVD 5604.39
INC 89.49 AZ 181.03
VS 5461.02
5500
(-749)
l frm, sb
k gy, frm,
90 chk,
10800-10900 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
10900-11000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11000
11050
11100
11150
112


MD 10980 TVD 5604.71
INC 90.11 AZ 180.8
VS 5552.01
5000 TVD
Sub Sea (-249)
MD 11072 TVD 5603.8
INC 91.03 AZ 181.64
VS 5643.98
MD 11164 TVD 5603.59
INC 89.23 AZ 179.45
VS 5735.97
5500
(-749)
11000-11100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
11100-11200 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls



5000 TVD
Sub Sea (-249)

MD 11255 TVD 5603.73
INC 90.59 AZ 182.57
VS 5826.94

MD 11347 TVD 5602.04
INC 91.52 AZ 182.78
VS 5918.82

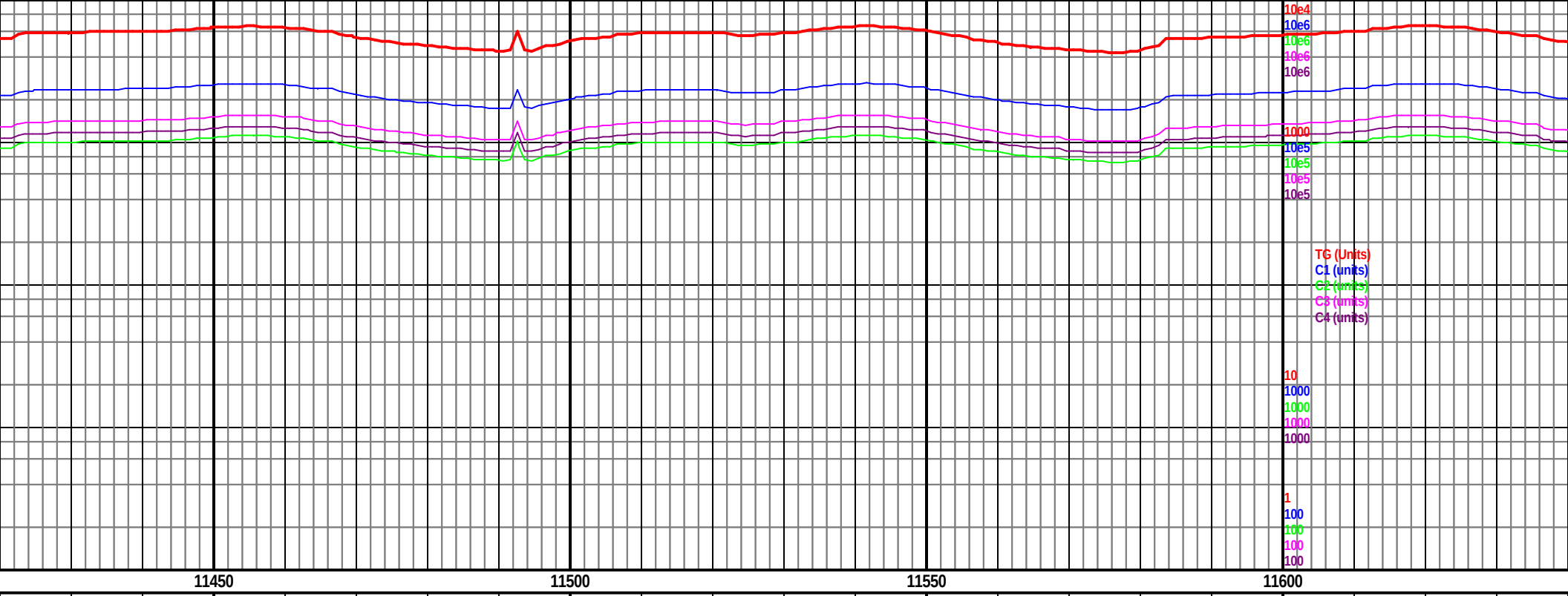
5000 TVD
Sub Sea (-249)

5500
(-749)

5500
(-749)

11200-11300 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

11300-11400 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls



11450 11500 11550 11600

MD 11439 TVD 5600.76
INC 90.07 AZ 182.66
VS 6010.71

MD 11530 TVD 5601.28
INC 89.27 AZ 182.06
VS 6101.63

5000 TVD
Sub Sea (-249)

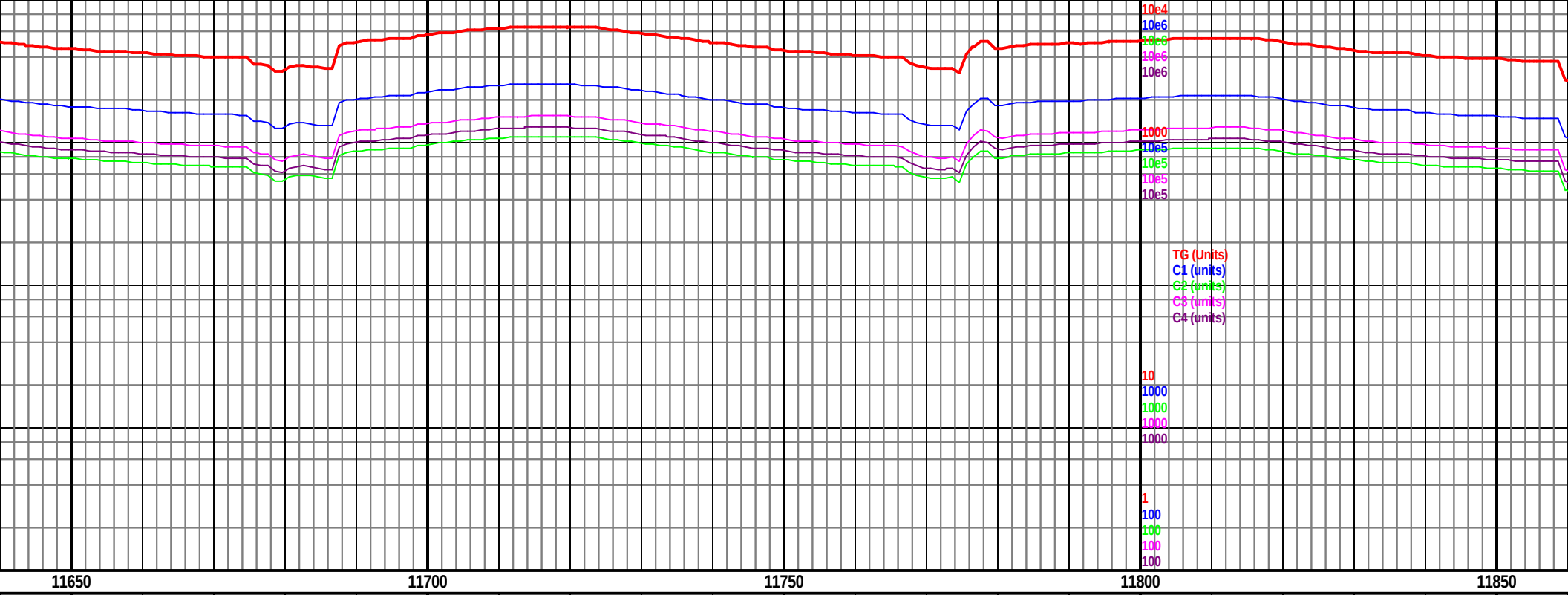
MD 11620 TVD 5602.15
INC 89.63 AZ 184.45
VS 6191.47

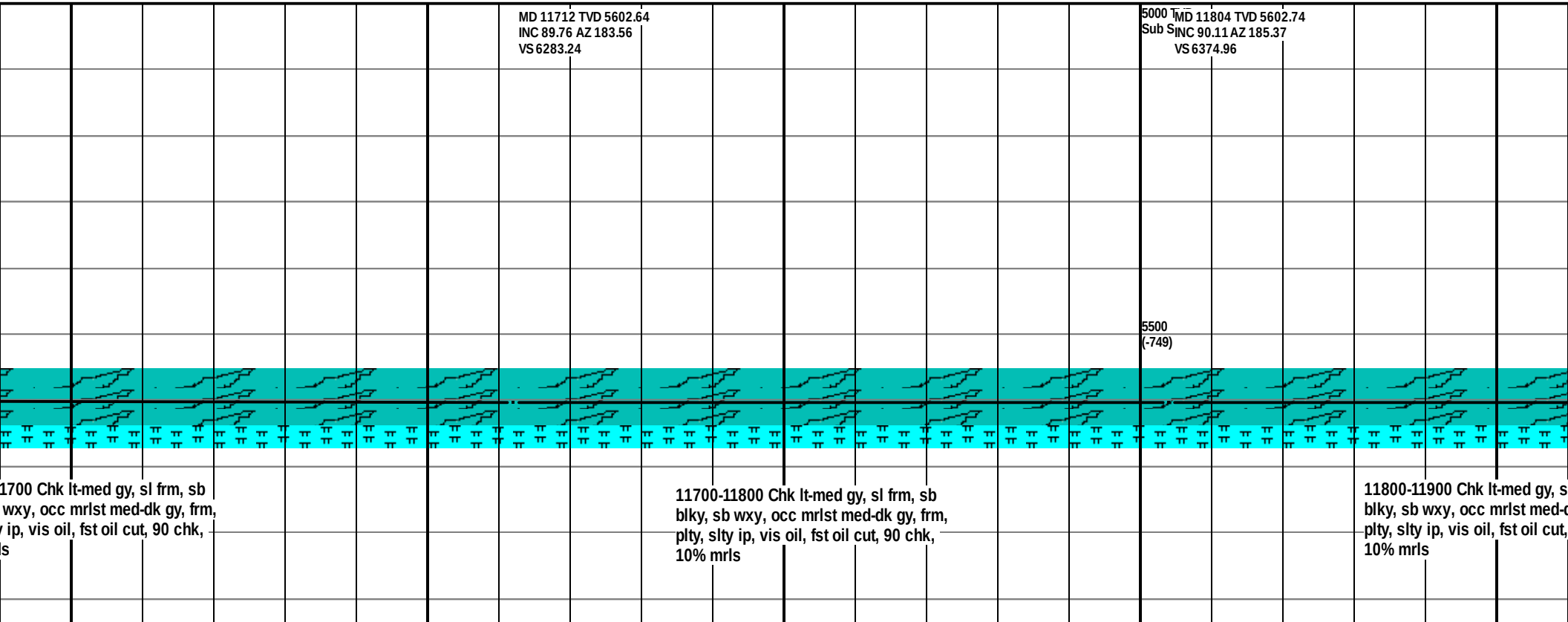
5500
(-749)

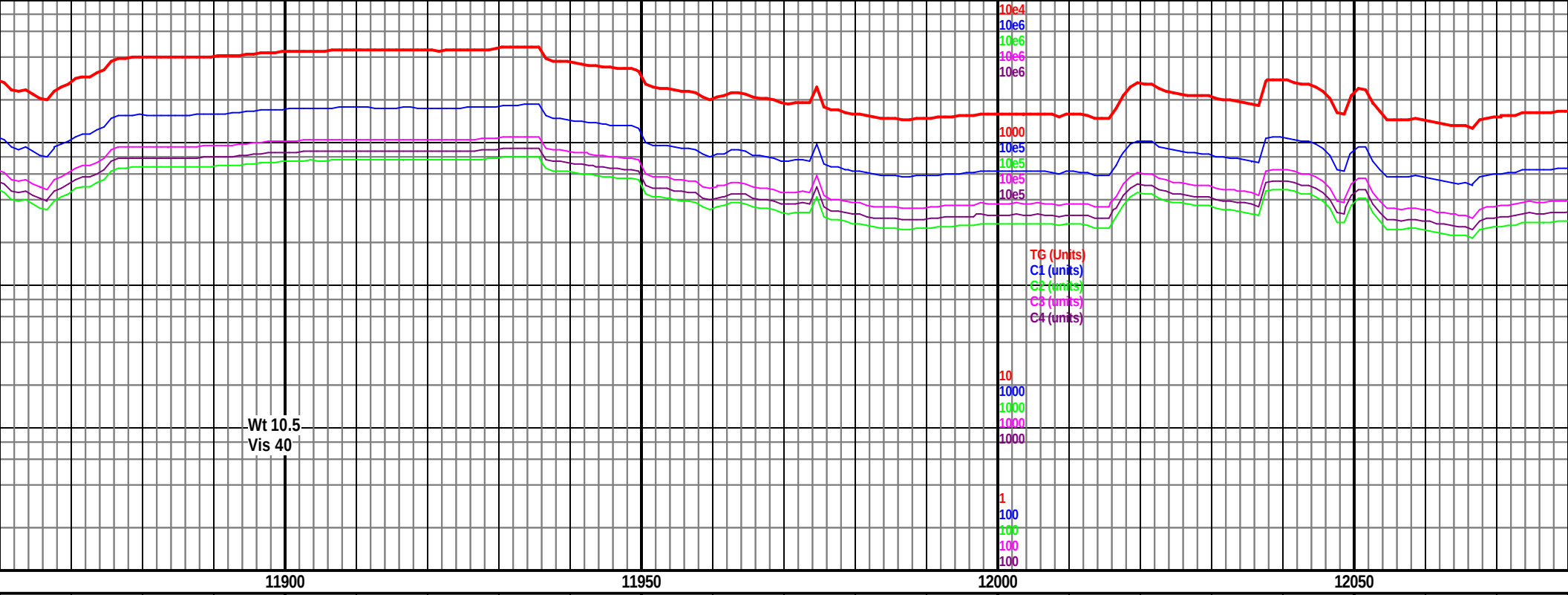
11400-11500 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

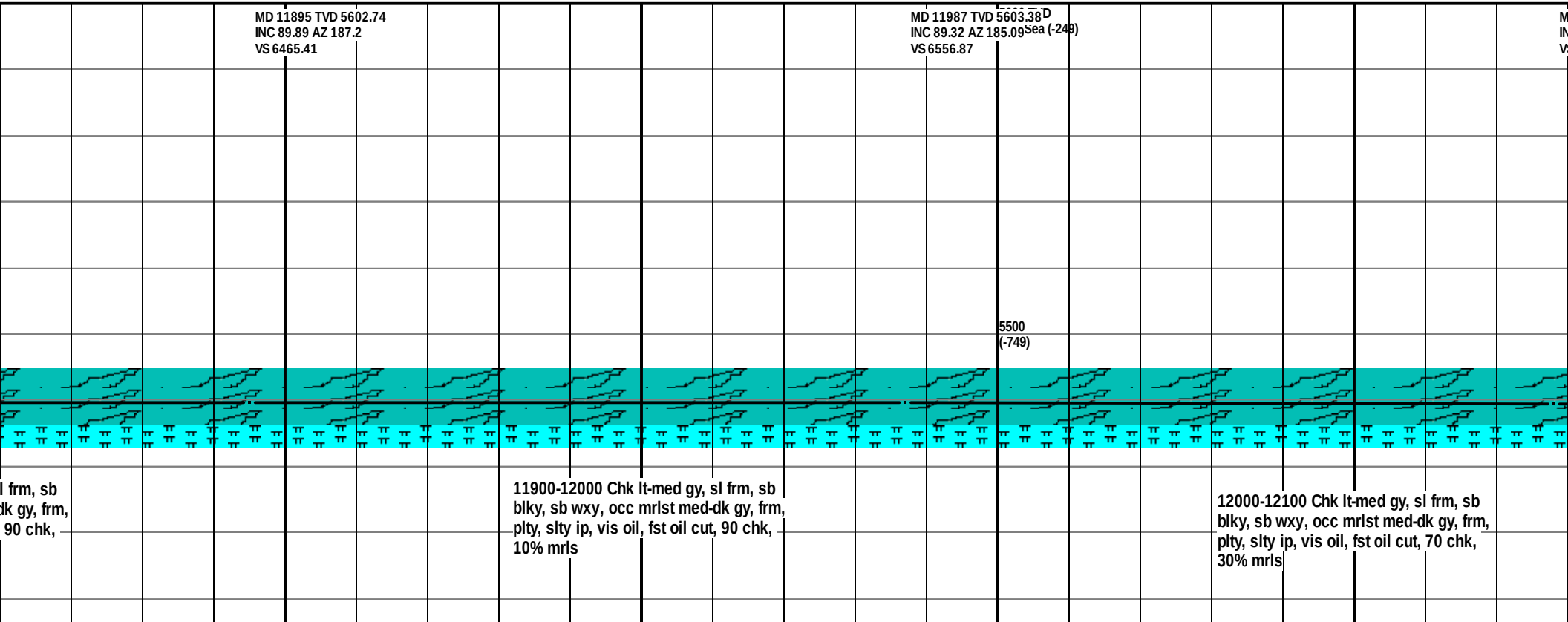
11500-11600 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls

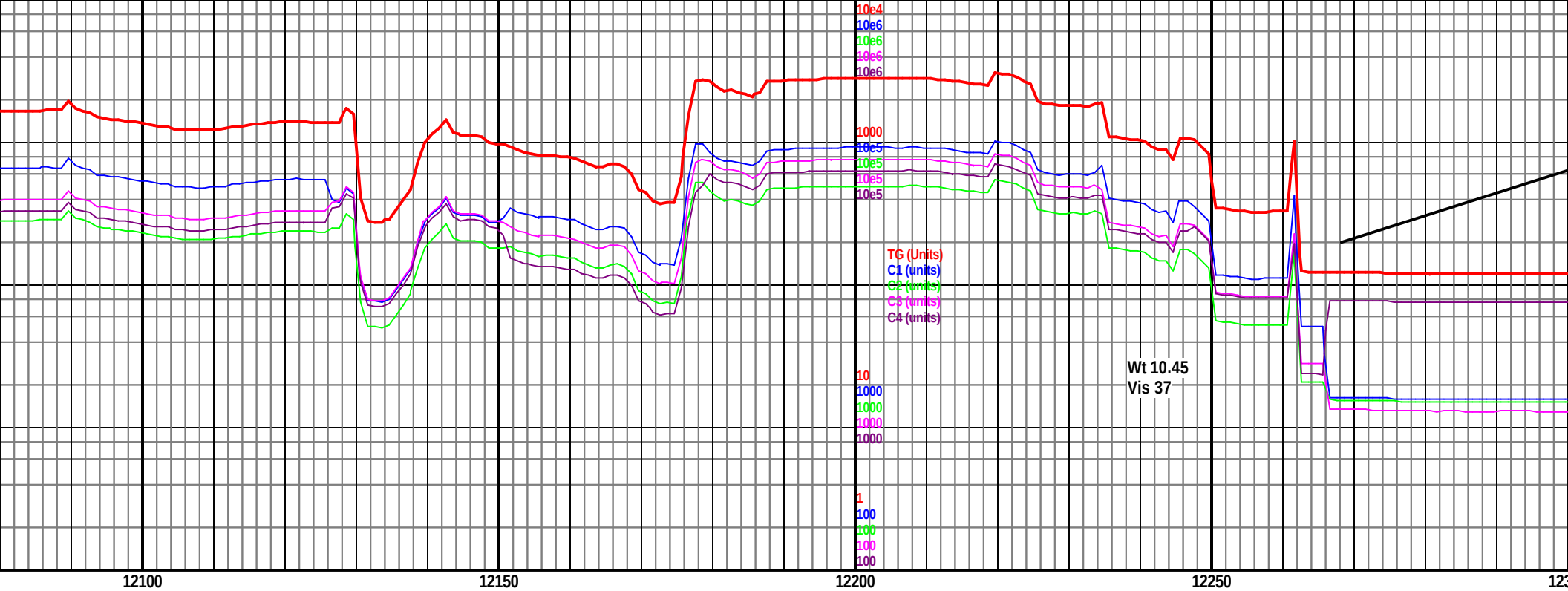
11600-1
blky, sb
plty, slty
10% mrl

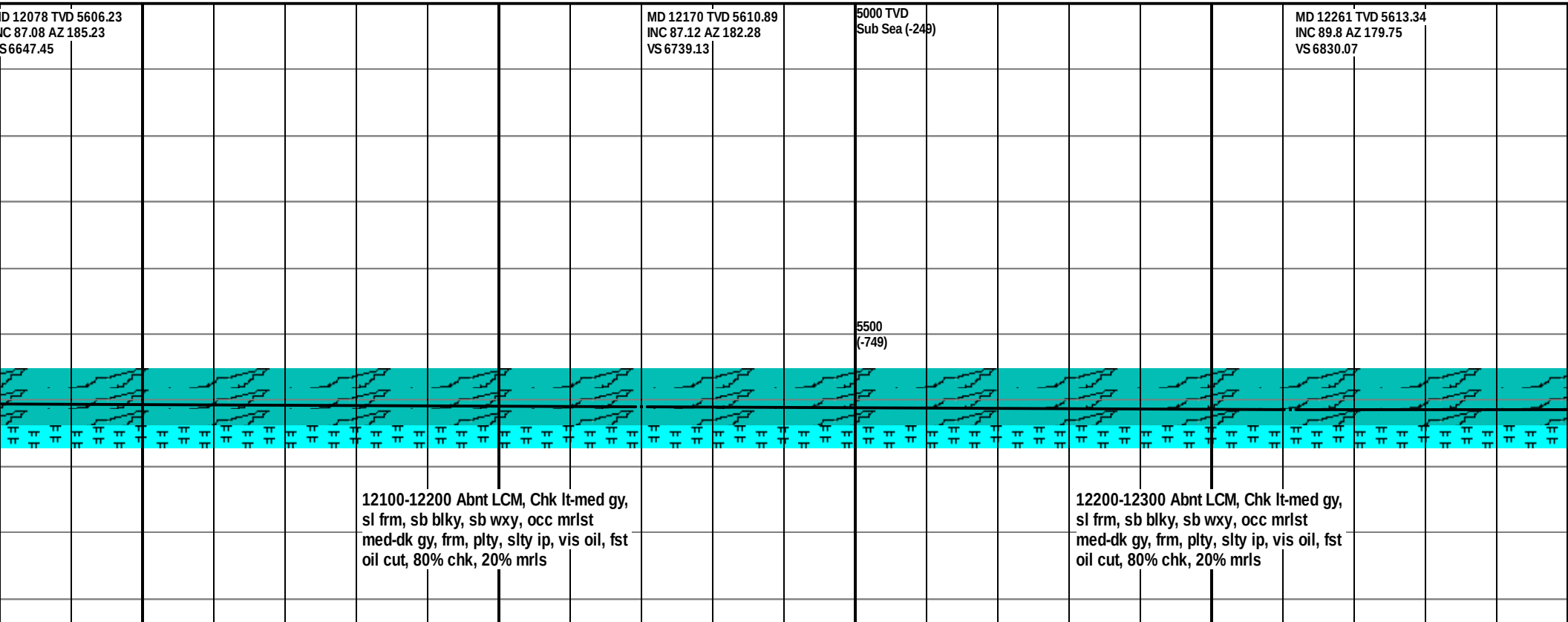

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11650
11700
11750
11800
11850

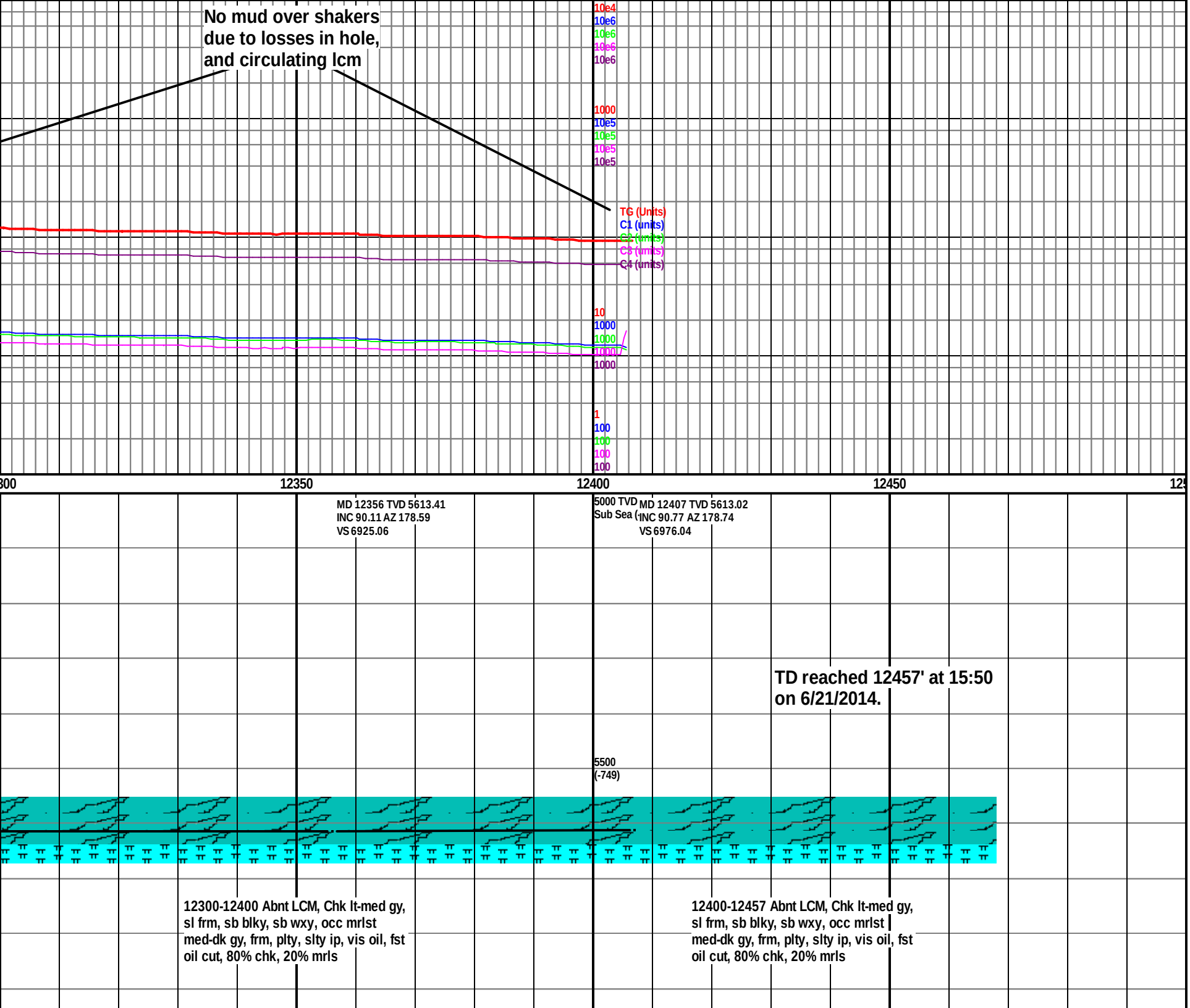

MD 11712 TVD 5602.64
INC 89.76 AZ 183.56
VS 6283.24
5000 T
Sub S
MD 11804 TVD 5602.74
INC 90.11 AZ 185.37
VS 6374.96
5500
(-749)
1700 Chk lt-med gy, sl frm, sb
wxy, occ mrlst med-dk gy, frm,
ip, vis oil, fst oil cut, 90 chk,
ls
11700-11800 Chk lt-med gy, sl frm, sb
blky, sb wxy, occ mrlst med-dk gy, frm,
plty, slty ip, vis oil, fst oil cut, 90 chk,
10% mrls
11800-11900 Chk lt-med gy, s
blky, sb wxy, occ mrlst med-d
plty, slty ip, vis oil, fst oil cut,
10% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 10.5
Vis 40
11900
11950
12000
12050


MD 11895 TVD 5602.74
INC 89.89 AZ 187.2
VS 6465.41
MD 11987 TVD 5603.38
INC 89.32 AZ 185.09
VS 6556.87
Sea (-249)
5500
(-749)
l frm, sb
dk gy, frm,
90 chk,
11900-12000 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 90 chk, 10% mrls
12000-12100 Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 70 chk, 30% mrls


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.45
Vis 37
10
1000
1000
1000
1000
1
100
100
100
100
12100
12150
12200
12250
123


D 12078 TVD 5606.23
NC 87.08 AZ 185.23
S 6647.45
MD 12170 TVD 5610.89
INC 87.12 AZ 182.28
VS 6739.13
5000 TVD
Sub Sea (-249)
MD 12261 TVD 5613.34
INC 89.8 AZ 179.75
VS 6830.07
5500
(-749)
12100-12200 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls
12200-12300 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls


No mud over shakers due to losses in hole, and circulating lcm
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
12350
12400
12450
MD 12356 TVD 5613.41
INC 90.11 AZ 178.59
VS 6925.06
5000 TVD
Sub Sea (
MD 12407 TVD 5613.02
INC 90.77 AZ 178.74
VS 6976.04
TD reached 12457' at 15:50 on 6/21/2014.
5500
(-749)
12300-12400 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls
12400-12457 Abnt LCM, Chk lt-med gy, sl frm, sb blky, sb wxy, occ mrlst med-dk gy, frm, plty, slty ip, vis oil, fst oil cut, 80% chk, 20% mrls