



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

Well Name: Razor 11H-0215A
Well Id:
Location: SENE 11-T10N-R58W
License Number: 05-123-38598
Spud Date: 3/8/2015
Surface Coordinates: 40.854661, -103.824558

Region: Wildcat Field
Drilling Completed:

Bottom Hole Coordinates: 2180' FNL, 368' FEL
Ground Elevation (ft): 4954
Logged Interval (ft): 5563
Formation: Pierre, Sharon Springs, Niobrara A,
Type of Drilling Fluid: Water Based Mud

K.B. Elevation (ft): 4976
Total Depth (ft):

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

OPERATOR

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

GEOLOGIST

Name: Todd Nakata, Lauren Roddy
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Frontier Drilling
Rig #26

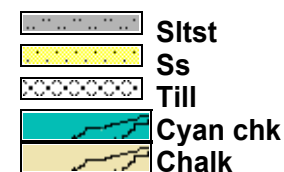
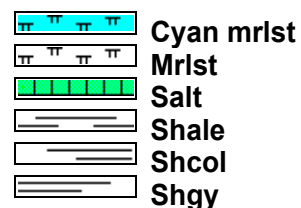
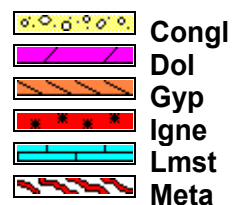
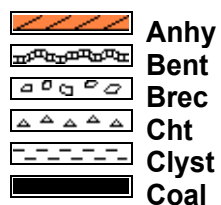
Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #128

Comments

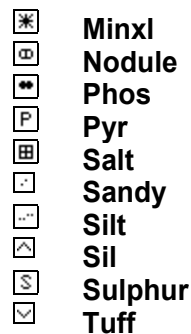
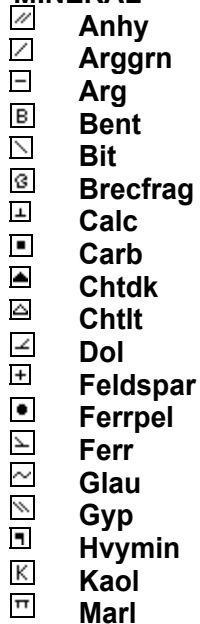
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

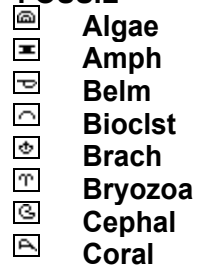


ACCESSORIES

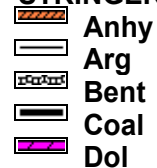
MINERAL



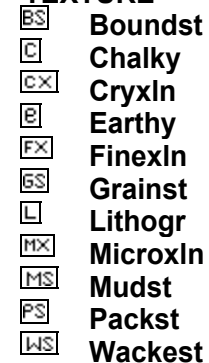
FOSSIL



STRINGER











TEXTURE



OTHER SYMBOLS




POROSITY

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

SORTING





-  Well
-  Moderate
-  Poor

ROUNDING

-  Rounded
-  Subrnd
-  Subang

-  Angular

OIL SHOW

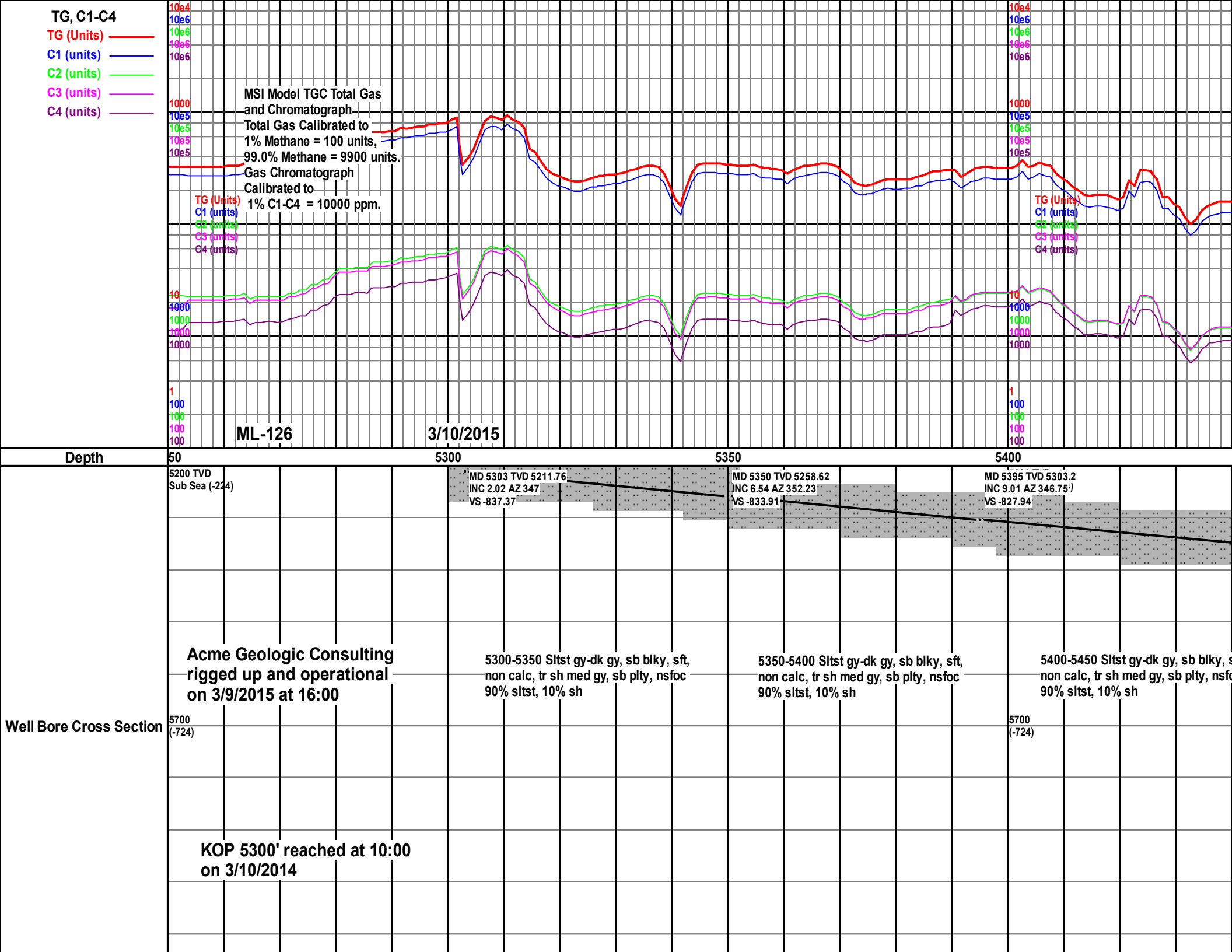
-  Even
-  Spotted
-  Ques
-  Dead

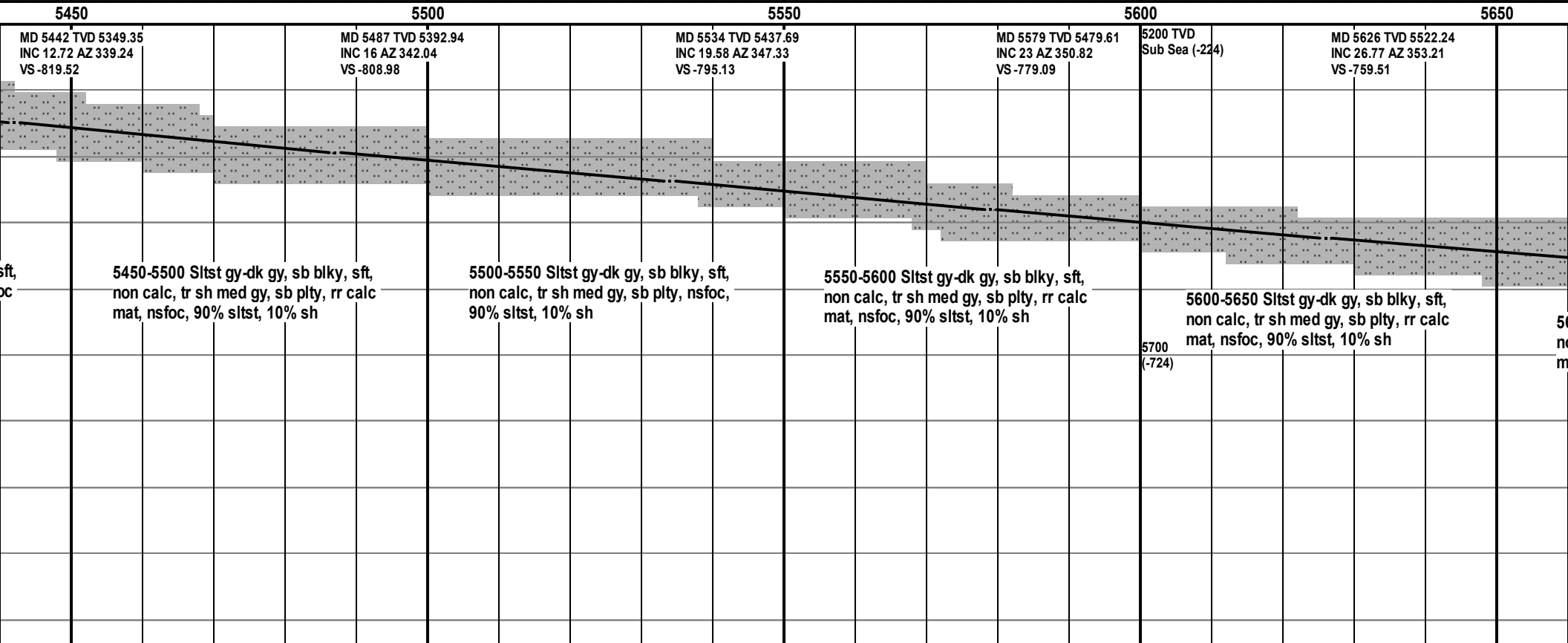
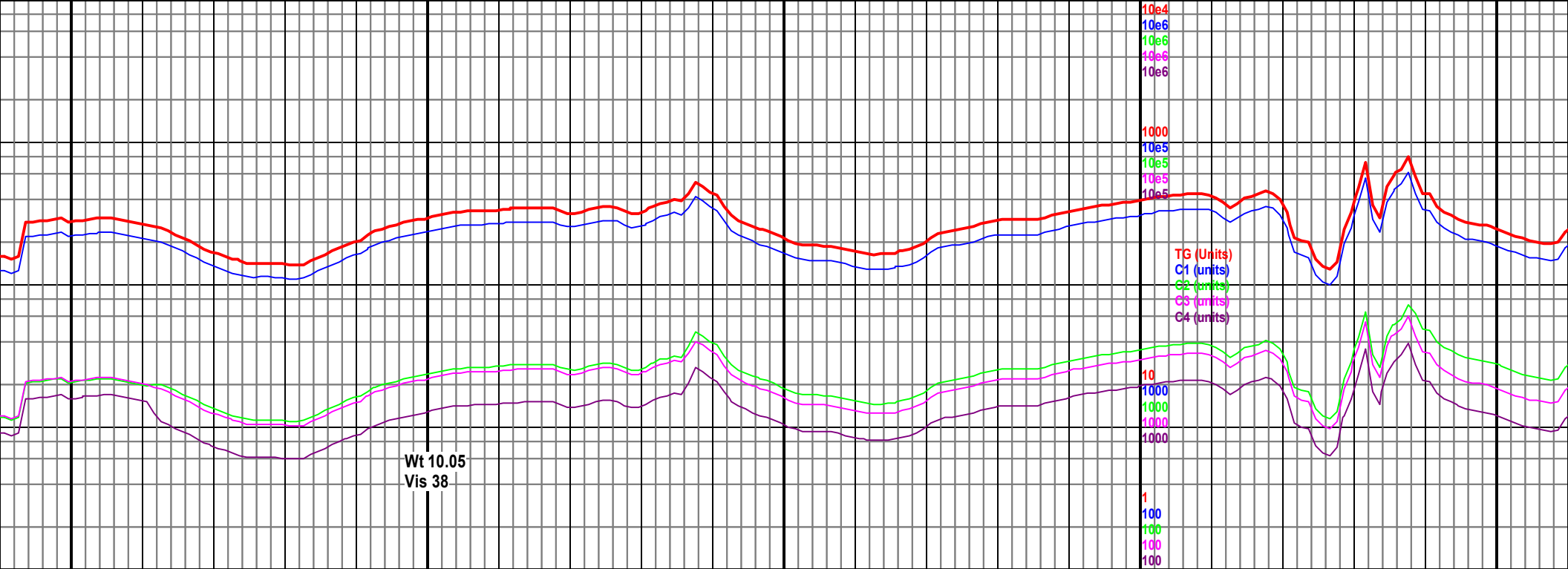
INTERVAL

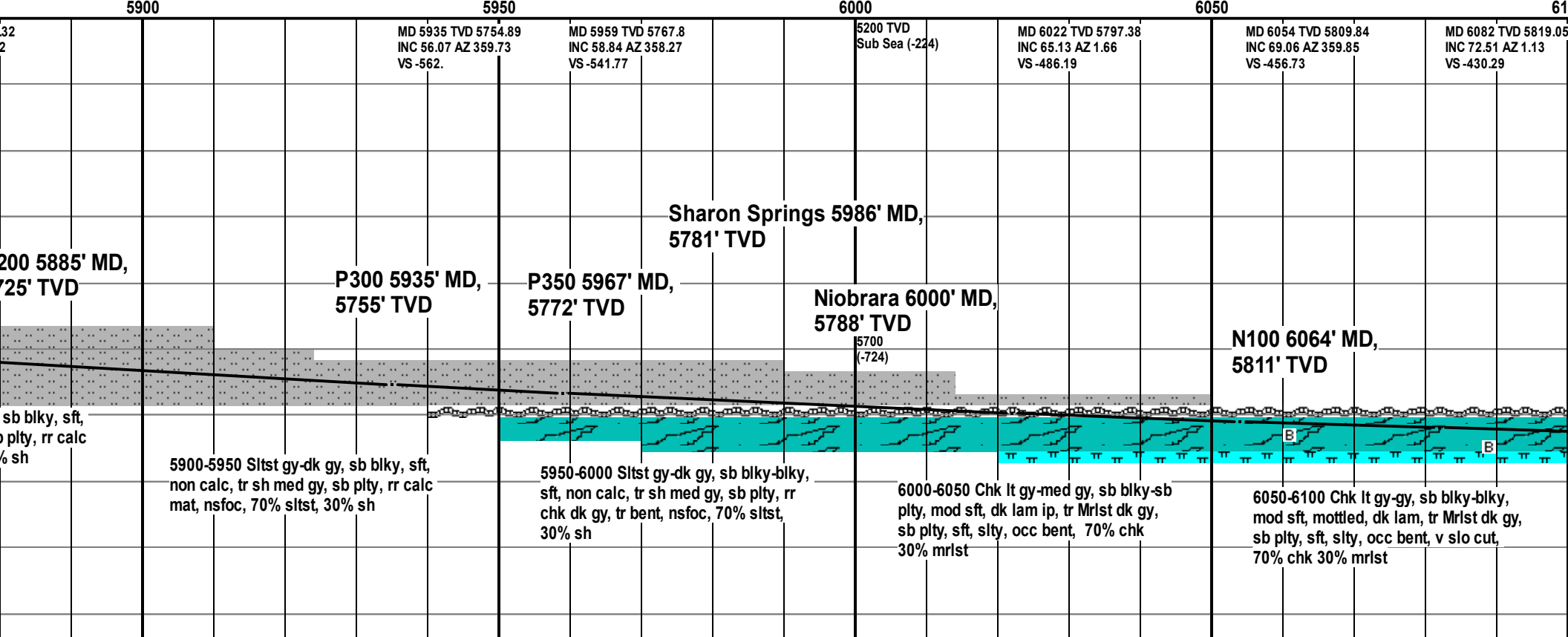
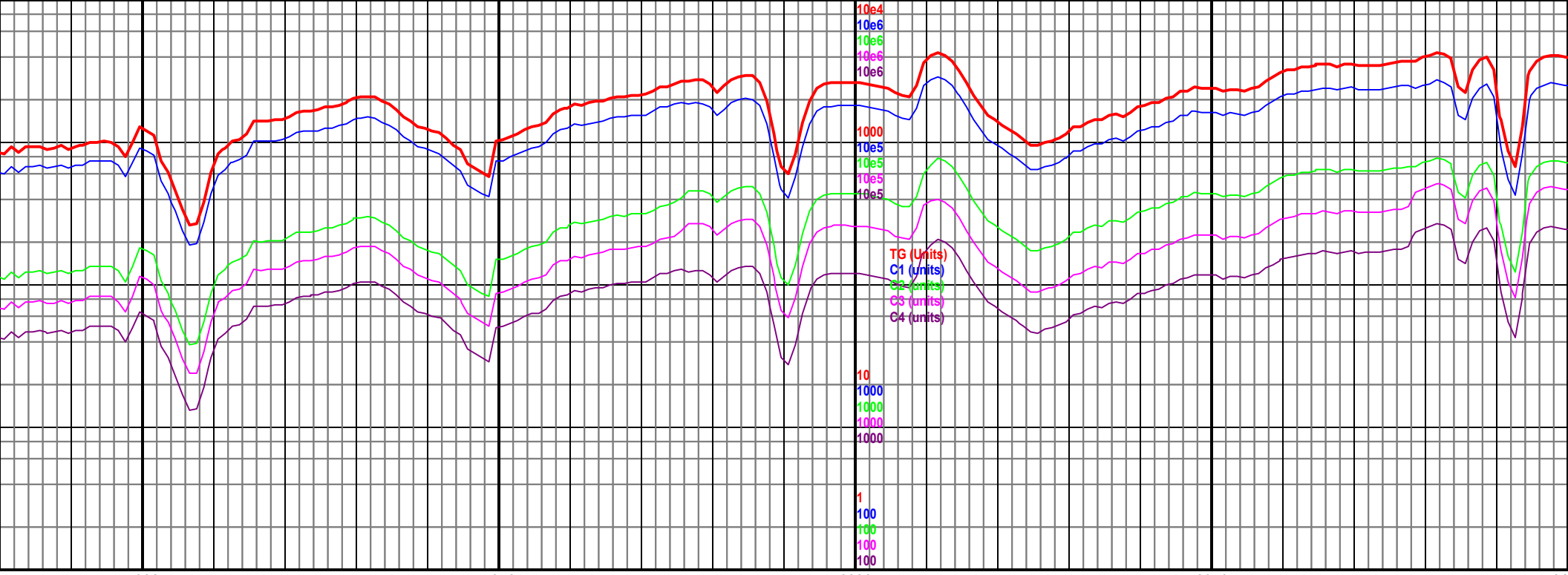
-  Core
-  Dst

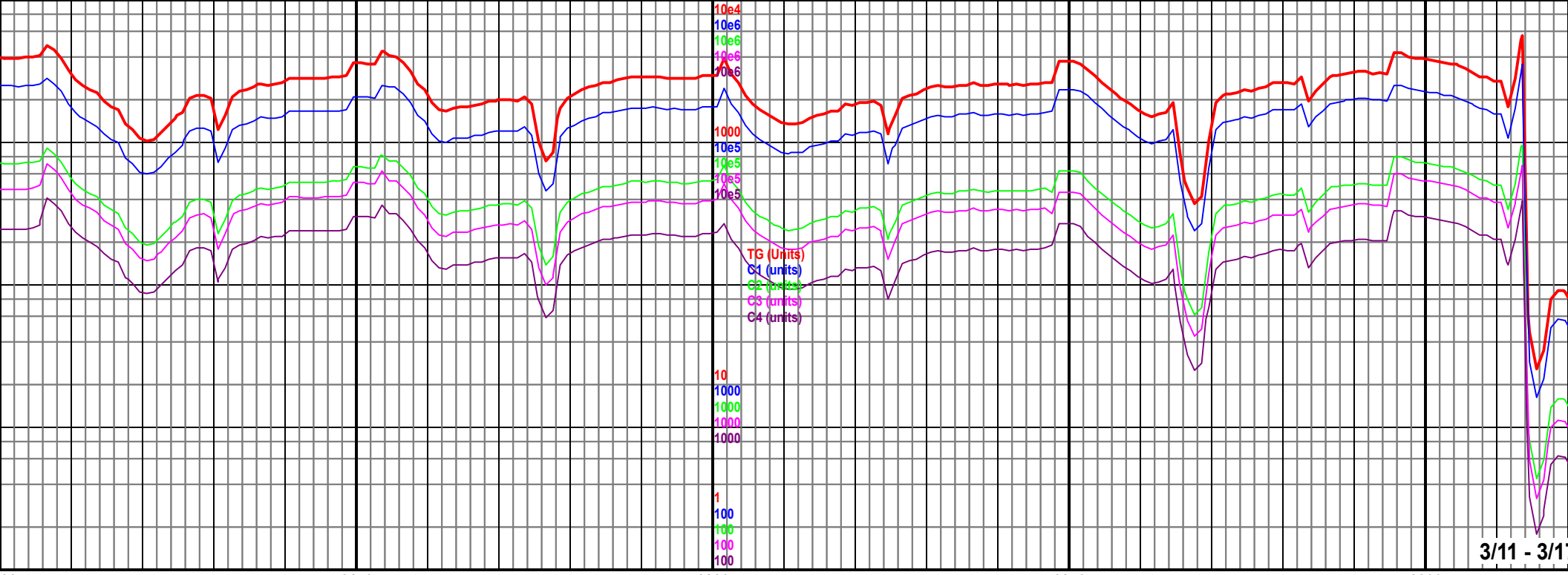
EVENT

-  Rft
-  Sidewall









6000 6150 6200 6250 6300

MD 6115 TVD 5828.31
INC 74.88 AZ 1.13
VS -398.63

MD 6149 TVD 5836.49
INC 77.3 AZ 359.31
VS -365.63

MD 6181 TVD 5842.57
INC 80.77 AZ 1.48
VS -334.22

5200 TVD
Sub Sea (-224)

MD 6219 TVD 5847.69
INC 83.76 AZ 2.54
VS -296.59

MD 6261 TVD 5851.78
INC 87.1 AZ 1.44
VS -250.06

5700
(-724)

N200 6030' MD,
5849' TVD

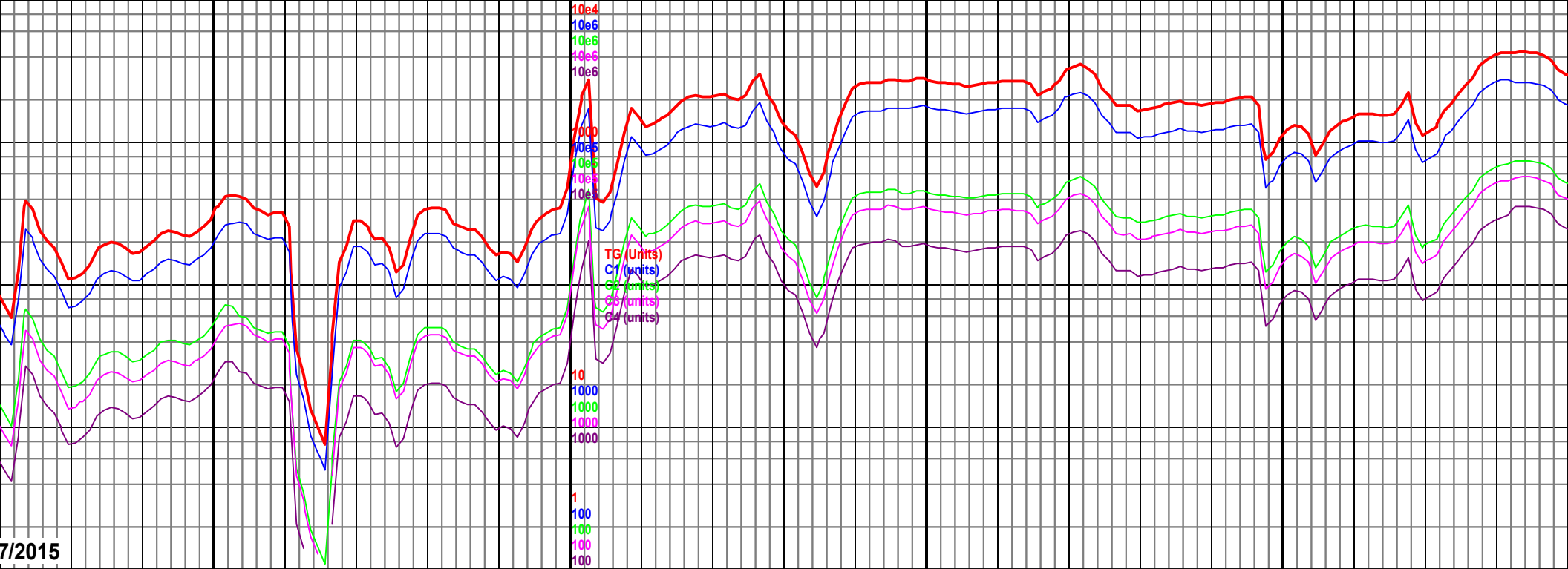
Interme
reached
on 3/10/
drilling
3/17/201

6100-6150 Chk lt gy-gy, sb blkly-blky,
mod sft, mottled, dk lam, rr Mrst dk gy,
sb blkly, sft, rr bent, v slo cut, 90% chk
10% mrst

6150-6200 Chk lt gy-gy, sb blkly-blky,
mod sft, mottled, dk lam, rr Mrst dk gy,
sb blkly, sft, rr bent, v slo cut, 90% chk
10% mrst

6200-6250 Chk lt gy-gy, blkly, frm,
mottled, dk lam, rr Mrst dk gy, sb blkly,
sft, rr bent, v slo cut, 90% chk 10%
mrst

6250-6300 Chk lt gy-med gy, blkly, frm,
mottled, dk lam, slty, rr Mrst dk gy, sb
blkly, sft, rr bent, v slo cut, 80% chk
20% mrst



6350 6400 6450 6500

MD 6358 TVD 5853.37
INC 91.02 AZ 1.11
VS -153.2

5200 TVD
Sub Sea (-224)

MD 6453 TVD 5852.27
INC 90.31 AZ 2.56
VS -58.37

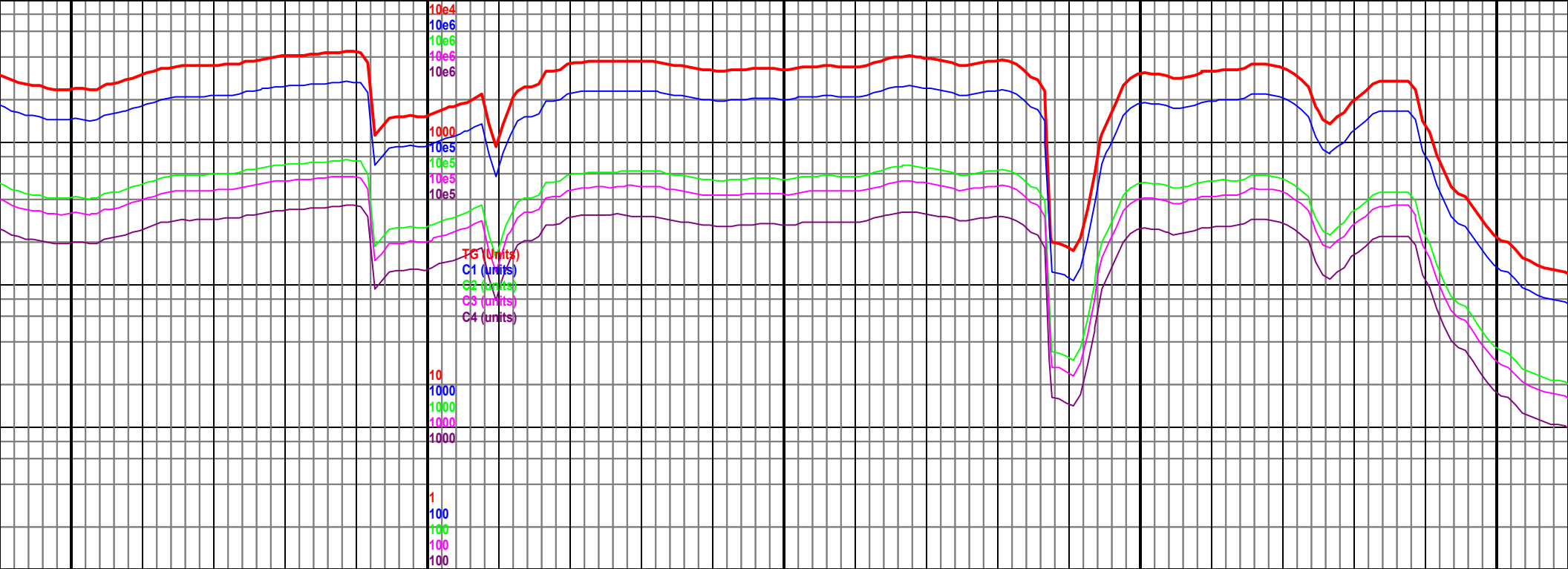
5700
(-724)

mediate casing
6312' MD at 22:50
2015. Back to
at 17:08 on
5.

6300-6400 Chk gy-med gy, blkly-sb
blkly, frm, mottled, dk lam, slty, rr Mrlst
dk gy, sb blkly, sft, v slo cut, 80% chk
20% mrilst

6400-6500 Chk gy-med gy, blkly-sb
blkly, frm, mottled, dk lam, slty ip rr
Mrilst dk gy, sb blkly, sft, grdg to chk, v
slo cut, 90% chk 10% mrilst

6500-6600
frm, mott
blkly, sft,
10% mrilst



6550 6600 6650 6700 6750

MD 6547 TVD 5852.93
INC 88.89 AZ 3.81
VS 35.31

5200 TVD
Sub Sea (-224)

MD 6642 TVD 5854.78
INC 88.87 AZ 6.02
VS 129.7

MD 6737 TVD 5855.98
INC 89.68 AZ 5.79
VS 223.91

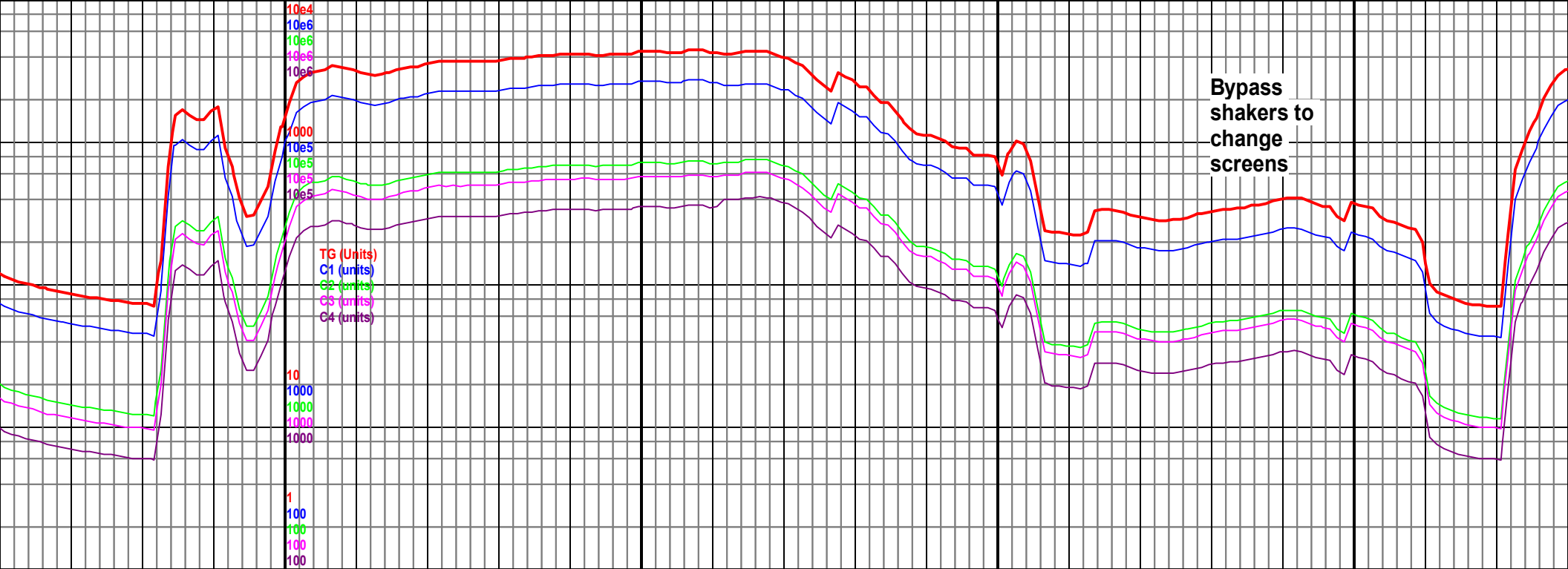
5700
(-724)



0 Chk It gy-gy, blk-sb blk,
led, dk lam, rr Mrlst dk gy, sb
grdg to chk, fst cut, 90% chk
t

6600-6700 Chk It gy-gy, blk-sb blk,
frm, mottled, dk lam, rr Mrlst dk gy, sb
blk, sft, grdg to chk, fst cut, 90% chk
10% mrlist

6700-6800 Chk It gy-gy, blk-s
frm, mottled, dk lam, rr Mrlst d
blk, sft, fst cut, 90% chk 10%



6800 6850 6900 6950

5200 TVD
Sub Sea (-224)

MD 6832 TVD 5855.95
INC 90.36 AZ 7.25
VS 317.99

MD 6927 TVD 5855.69
INC 89.96 AZ 6.82
VS 411.94

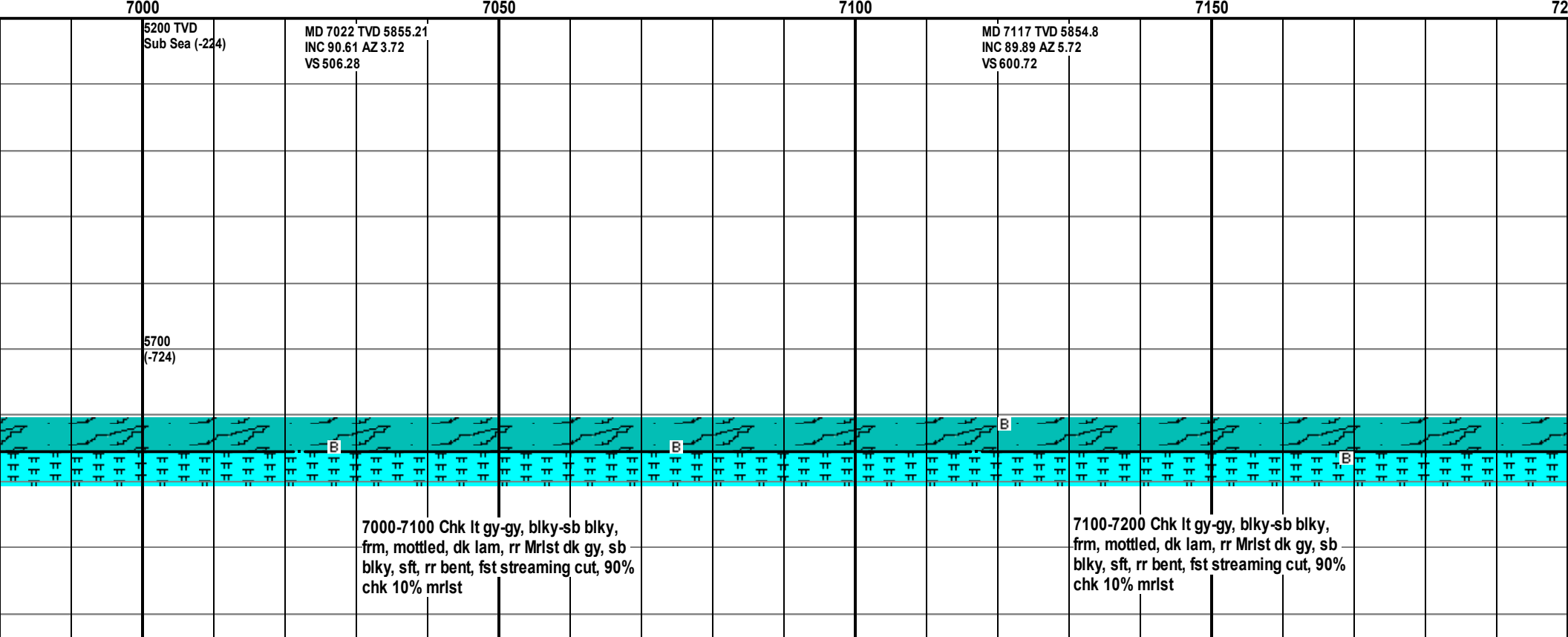
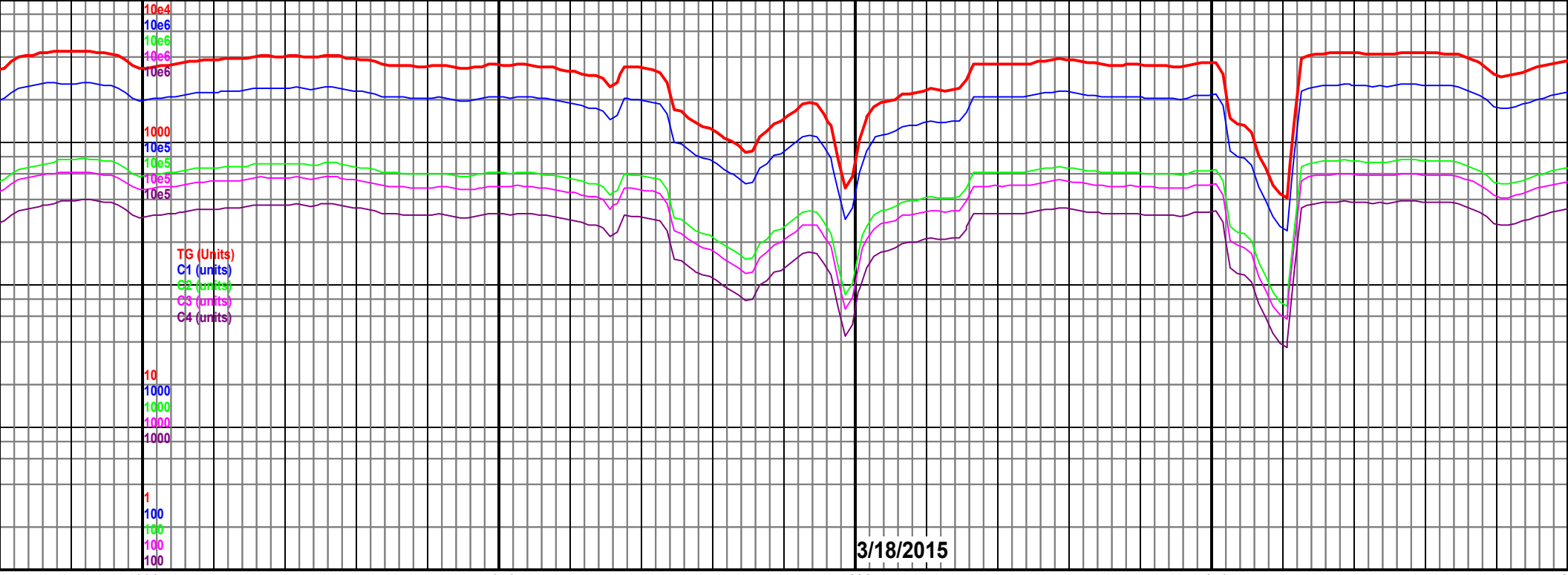
5700
(-724)

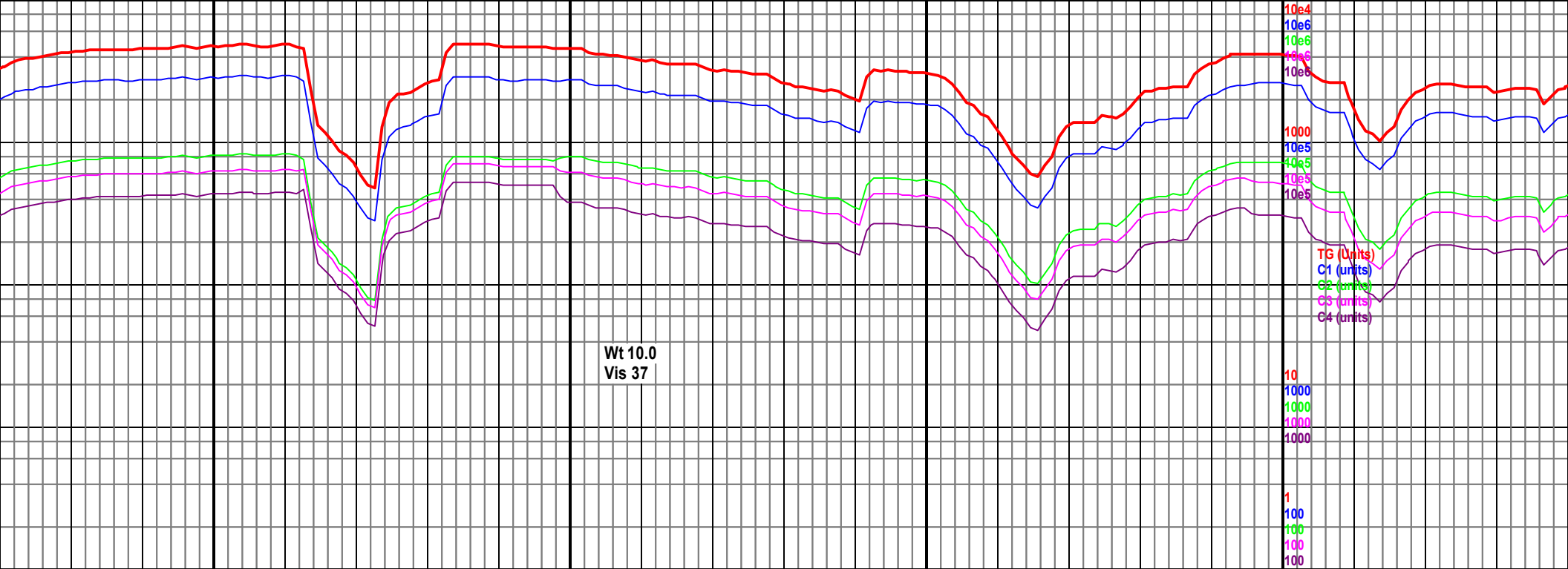


b blk,
k gy, sb
mrlst

6800-6900 Chk lt gy-gy, blk-sb blk,
frm, mottled, dk lam, rr Mrlst dk gy, sb
blk, sft, rr bent, fst cut, 90% chk 10%
mrlst

6900-7000 Chk lt gy-gy, blk-sb blk,
frm, mottled, dk lam, rr Mrlst dk gy, sb
blk, sft, rr bent, fst streaming cut, 90%
chk 10% mrlst





7450

7500

7550

7600

MD 7497 TVD 5857.6
INC 88.85 AZ 0.52
VS 979.67

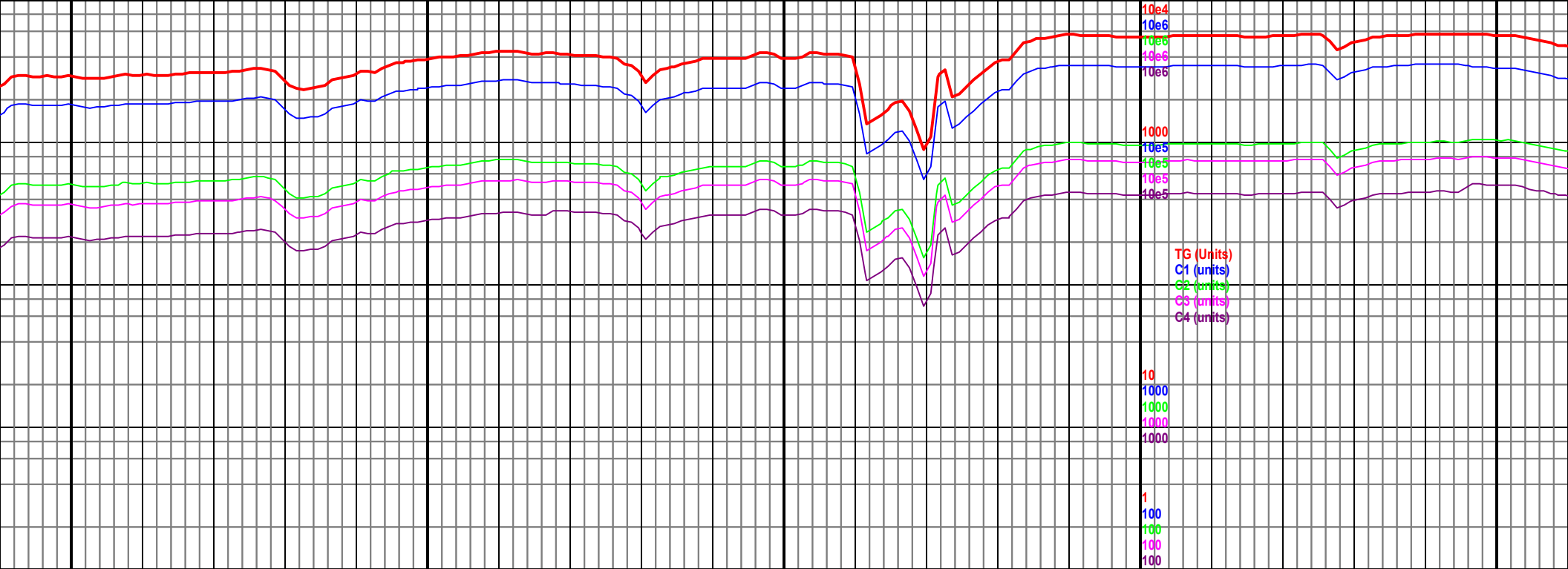
MD 7592 TVD 5860.11
INC 88.12 AZ 359.99⁽⁴⁾
VS 1074.59

5700
(-724)

7400-7500 Chk lt gy-gy, blk-y-sb blk-y,
frm, mottled, dk lam, slty ip, rr Mrlst dk
gy, sb blk-y, sft, dk lam ip, grdg to chk
ip, rr bri min fluor, rr bent, fst streaming
cut, 90% chk 10% mrlst

7500-7600 Chk lt gy-gy, blk-y-sb blk-y,
frm, mottled, dk lam, slty ip, rr Mrlst dk
gy, sb blk-y, sft, dk lam ip, grdg to chk
ip, rr bri min fluor, rr bent, fst streaming
cut, 90% chk 10% mrlst

7600-7700
blk-y, frm,
dk gy, sb
chk 10%



TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

10e4
10e6
10e6
10e6
10e6
10
1000
1000
1000
1000
1
100
100
100
100

7650 7700 7750 7800 7850

MD 7686 TVD 5862.32
INC 89.19 AZ 359.9
VS 1168.54

MD 7782 TVD 5863.81
INC 89.03 AZ 358.56
VS 1264.51

5200 TVD
Sub Sea (-224)

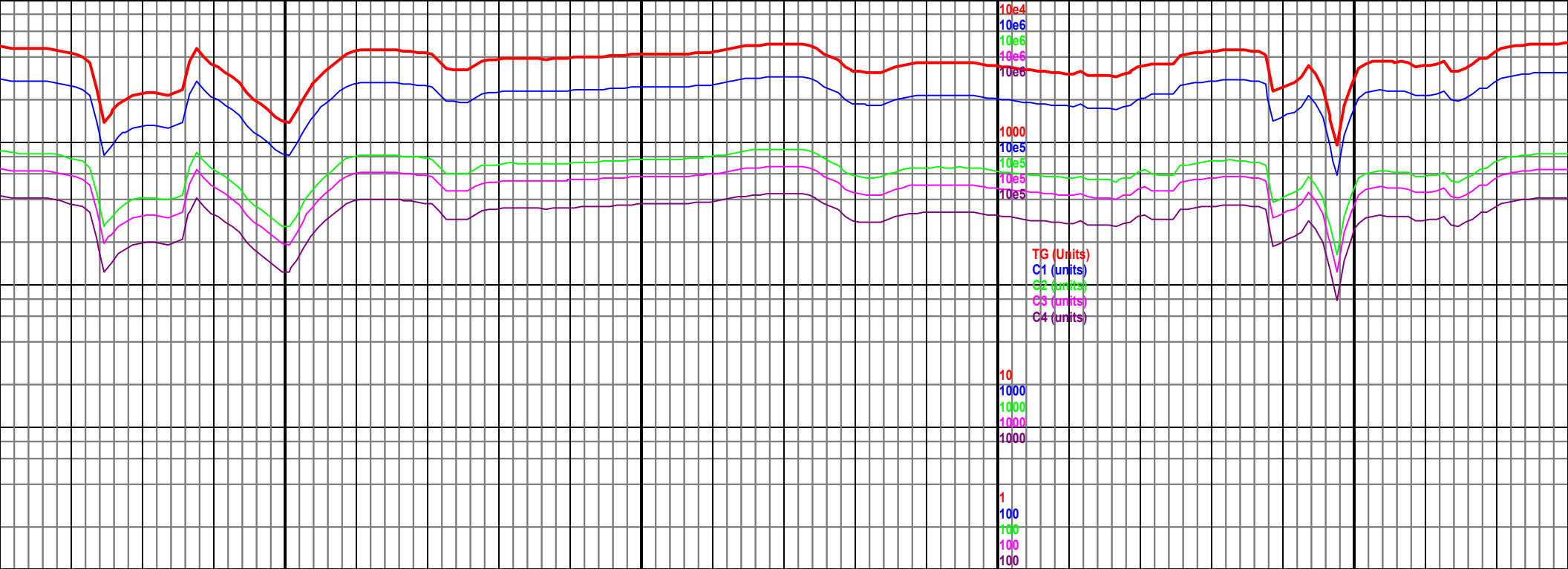
5700
(-724)



0 Chk gy-med gy, blkly-sb
mottled, dk lam, slty, rr Mrlst
blkly, sft, rr bent, fst cut, 90%
mrlist

7700-7800 Chk med gy, blkly-sb blkly,
frm, mottled, dk lam, slty, grdg to mrlist
ip, rr Mrlst dk gy, sb blkly, sft, rr bent,
fst cut, 80% chk 20% mrlist

7800-7900 Chk med gy-dk gy,
blkly, frm, dk lam, slty, grdg to
Mrlist dk gy, sb blkly, sft, tr ber
70% chk 30% mrlist



7900

7950

8000

8050

MD 7876 TVD 5865.3
INC 89.15 AZ 357.99
VS 1358.5

MD 7971 TVD 5866.83
INC 89.01 AZ 357.72
VS 1453.48

5200 TVD
Sub Sea (-224)

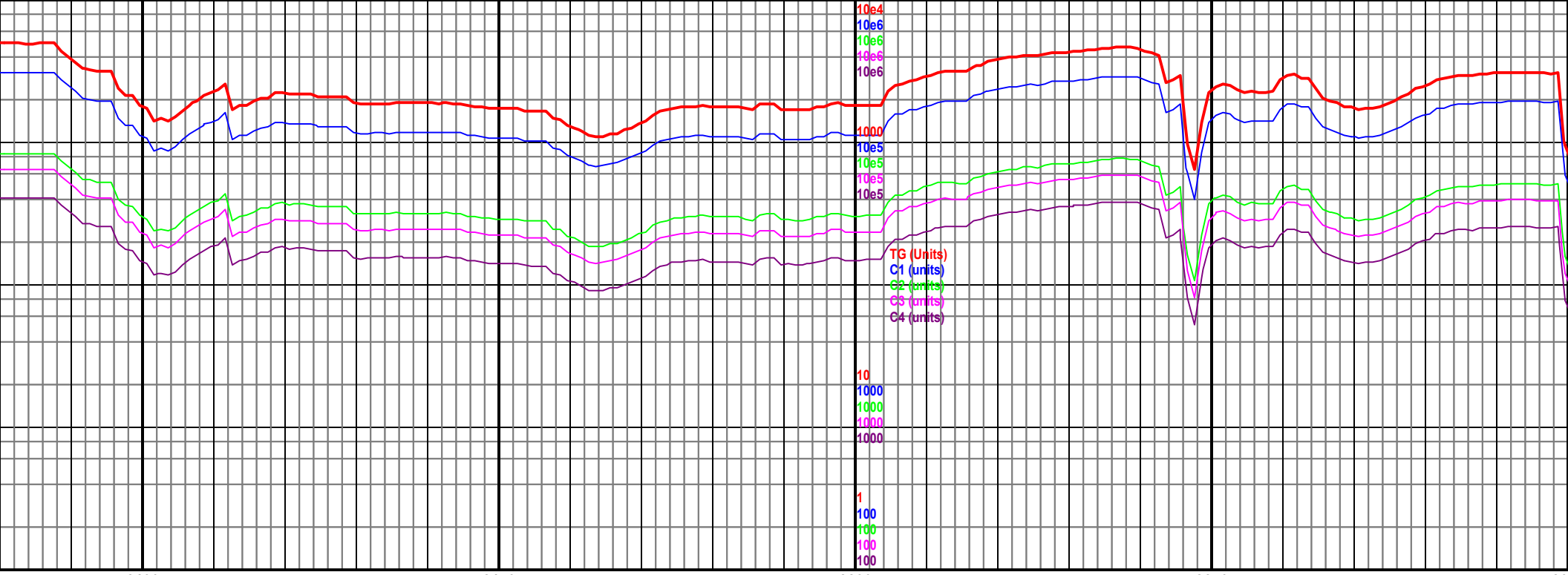
MD 8066 TVD 5866.83
INC 88.99 AZ 0.5
VS 1548.45

5700
(-724)

blky-sb
mr1st, tr
nt, fst cut,

7900-8000 Chk med gy-dk gy, blky-sb
blky, frm, dk lam, slty, grdg to mr1st, tr
Mr1st dk gy, sb blky, sft, tr bent, fst cut,
70% chk 30% mr1st

8000-8100 Chk med gy-dk gy, blky-sb
blky, frm, dk lam, slty, grdg to mr1st, tr
Mr1st dk gy, sb blky, sft, tr bent, fst cut,
70% chk 30% mr1st



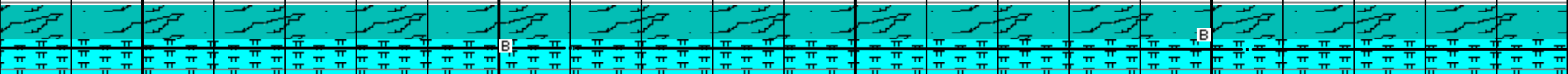
68.49 1 8100 8150 8200 8250 8300

MD 8160 TVD 5868.81
INC 90.62 AZ 1.72
VS 1642.35

5200 TVD
Sub Sea (-224)

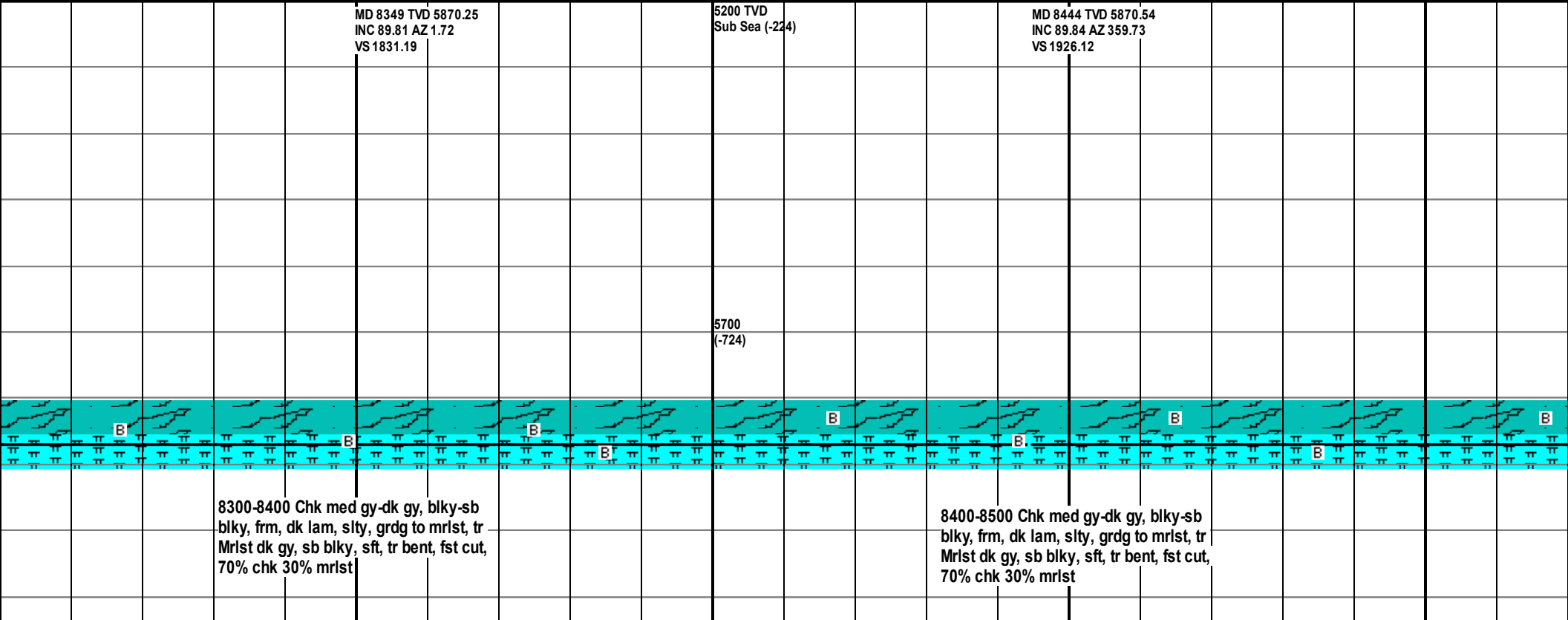
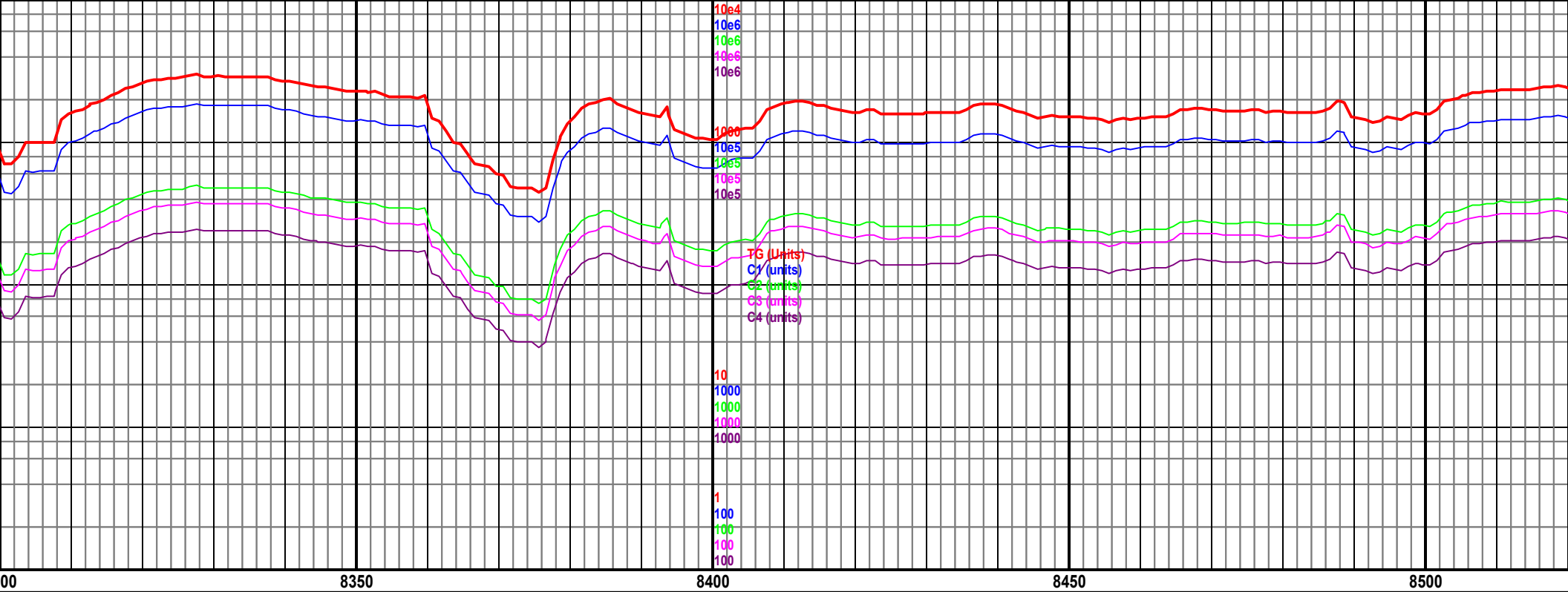
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INC 88.91 AZ 359.8
VS 1737.27

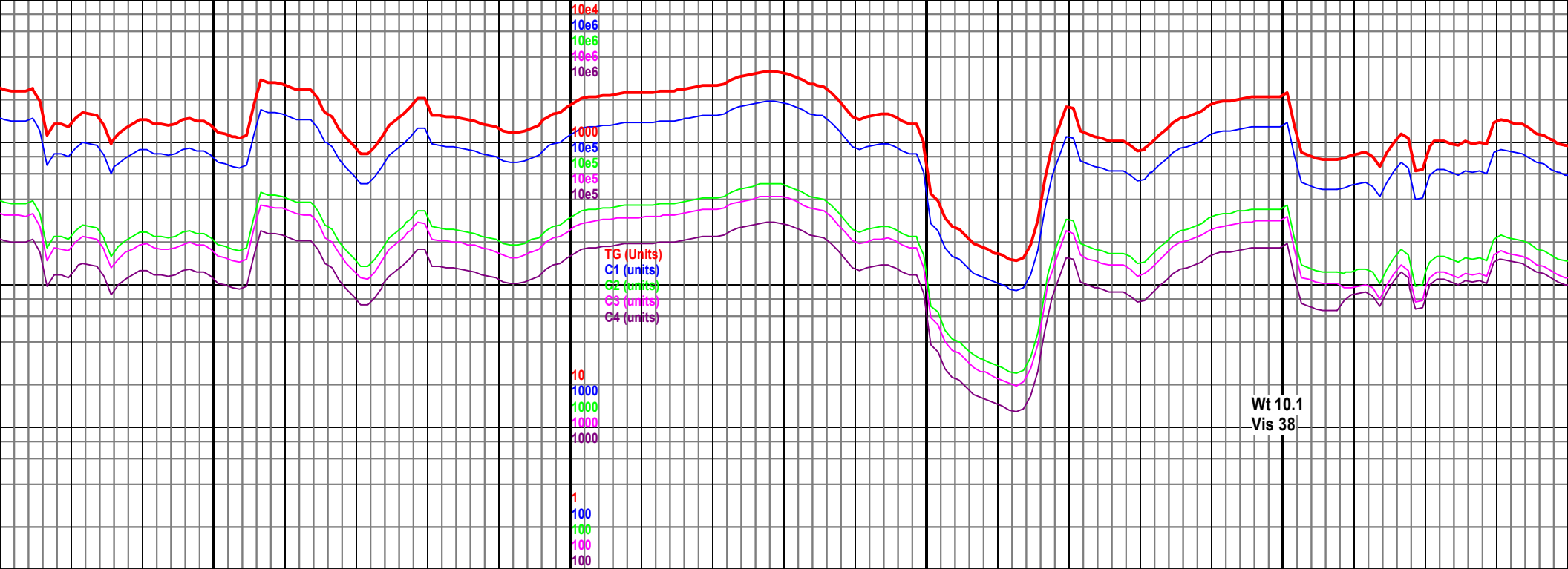
5700
(-724)



8100-8200 Chk med gy-dk gy, blk-y-sb
blk-y, frm, dk lam, slty, grdg to mrlst, tr
Mrlst dk gy, sb blk-y, sft, rr bent, fst cut,
70% chk 30% mrlst

8200-8300 Chk med gy-dk gy, blk-y-sb
blk-y, frm, dk lam, slty, grdg to mrlst, tr
Mrlst dk gy, sb blk-y, sft, rr bent, fst cut,
70% chk 30% mrlst





8550

8600

8650

8700

MD 8536 TVD 5870.67
INC 90 AZ 0.53
VS 2018.08

5200 TVD
Sub Sea (-224)

MD 8627 TVD 5870.49
INC 90.22 AZ 359.89
VS 2109.04

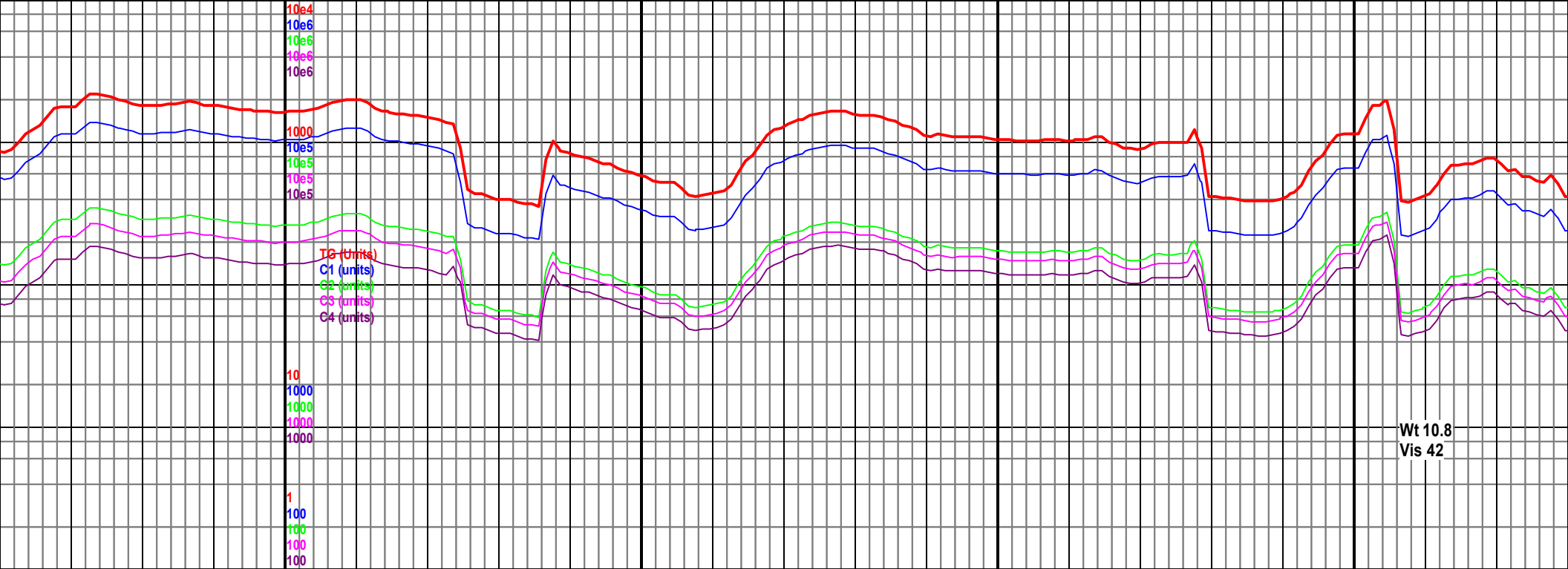
MD 8718 TVD 5870.47
INC 89.8 AZ 359.94
VS 2200.01

5700
(-724)

8500-8600 Chk med gy, blkly-sb blkly,
frm, mottled, dk lam, slty, grdg to mrlst
ip, rr Mrlst dk gy, sb blkly, sft, rr bent,
fst cut, 80% chk 20% mrlst

8600-8700 Chk med gy, blkly-sb blkly,
frm, mottled, dk lam, slty, grdg to mrlst
ip, rr Mrlst dk gy, sb blkly, sft, rr bent, rr
inocs, fst cut, 70% chk 30% mrlst

8700-8800 Chk med gy, blkly-sb blkly,
frm, mottled, dk lam, slty, grdg to mrlst
ip, rr Mrlst dk gy, sb blkly, sft, rr bent, rr
inocs, fst cut, 80% chk 20% mrlst



9000

9050

9100

9150

MD 8992 TVD 5874.3
INC 88.11 AZ 0.41 (-224)
VS 2473.85

MD 9083 TVD 5875.6
INC 90.25 AZ 0.11
VS 2564.79

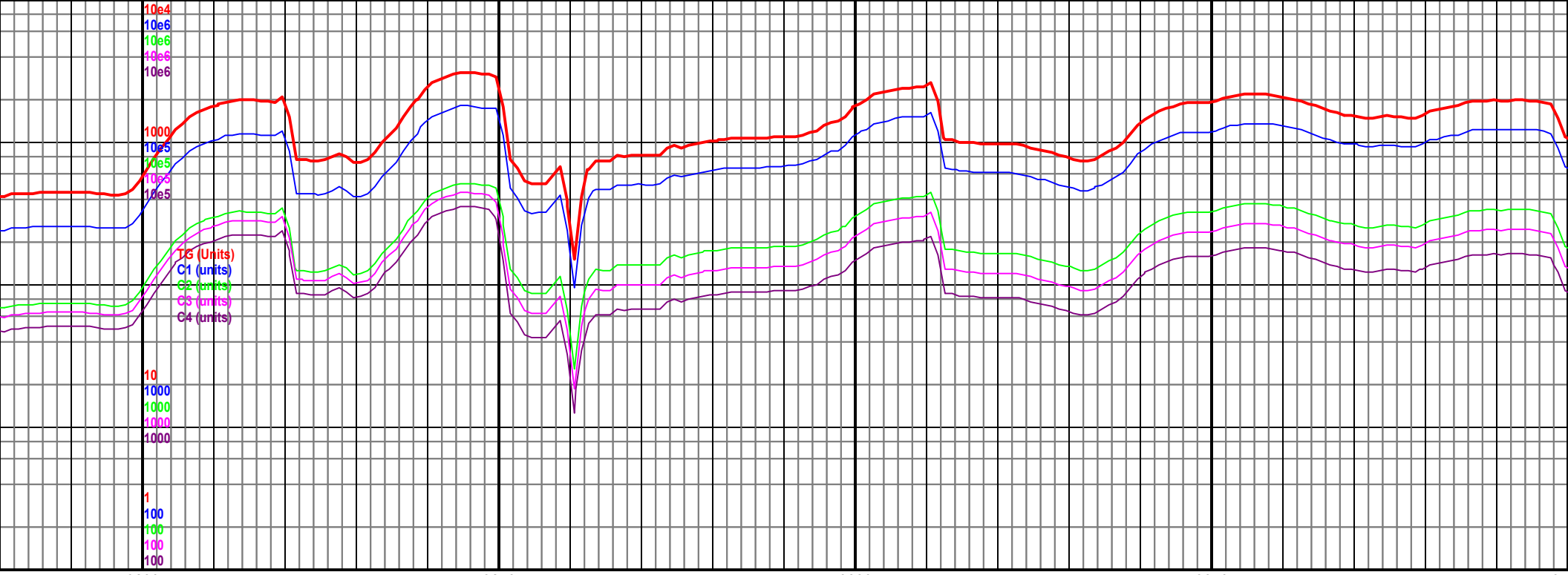
MD 9
INC 8
VS 26

5700
(-724)

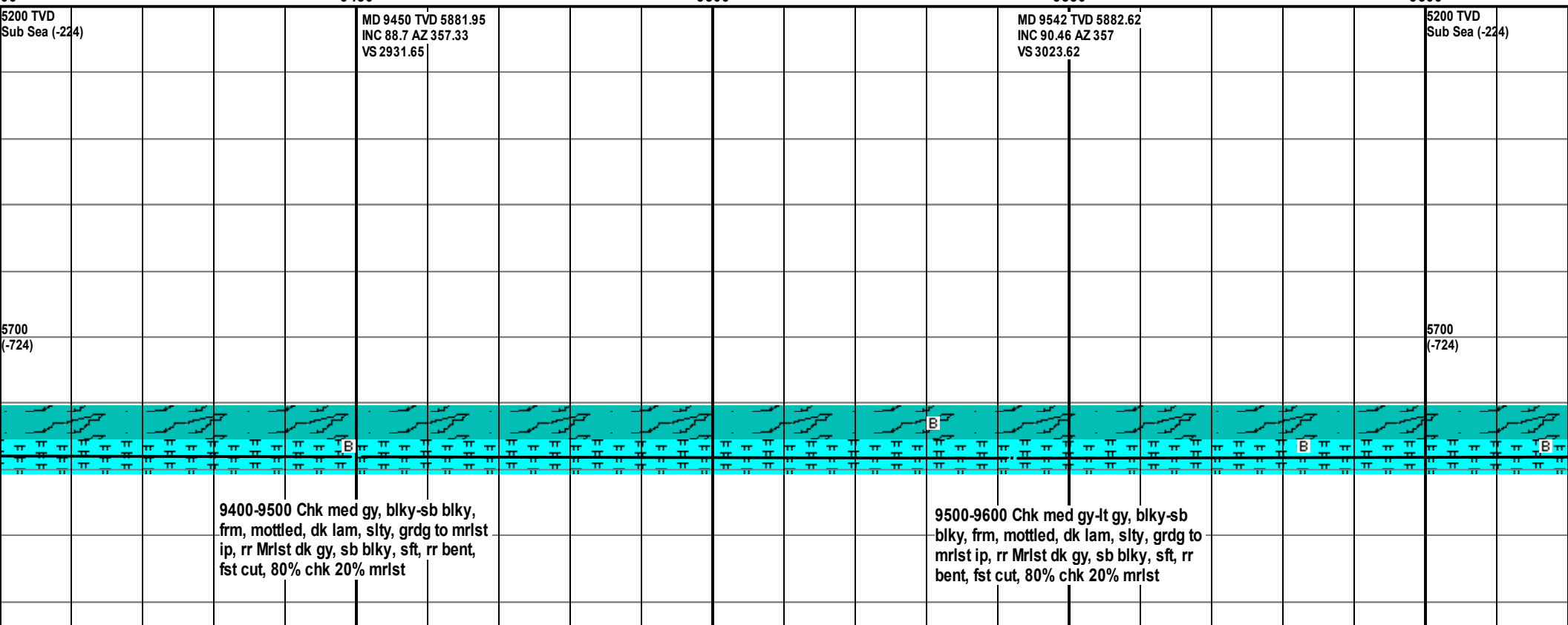
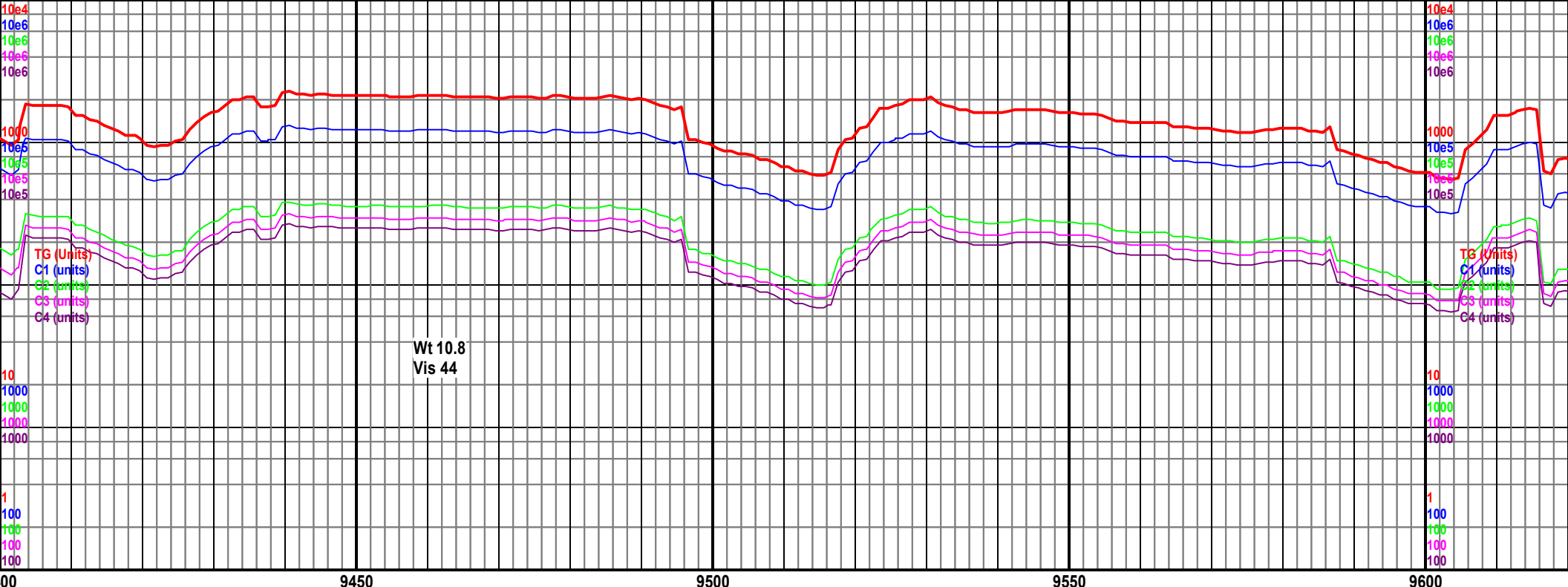
sb blk,
g to mrlist
rr bent,

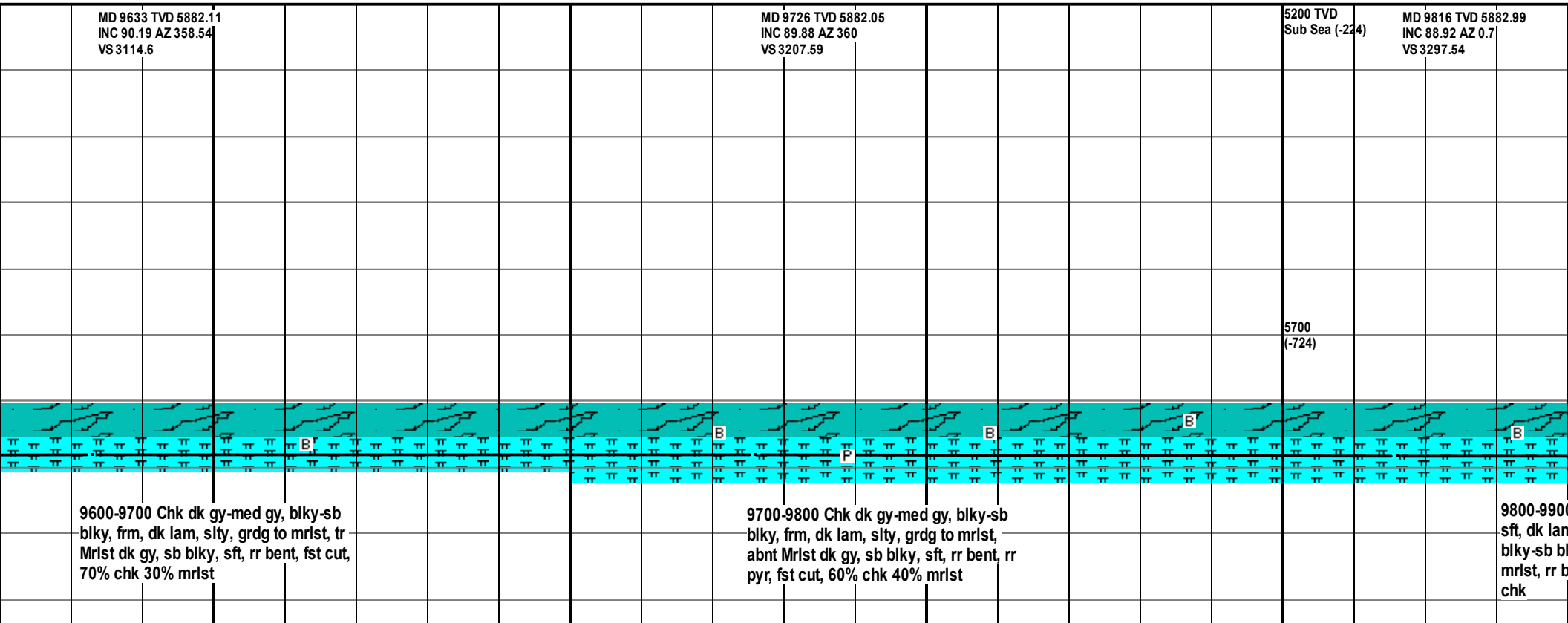
9000-9100 Chk gy-med gy, blk-sb
blk, frm, mottled, dk lam, slty, rr Mrlist
dk gy, sb blk, sft, fst cut, 90% chk
10% mrlist

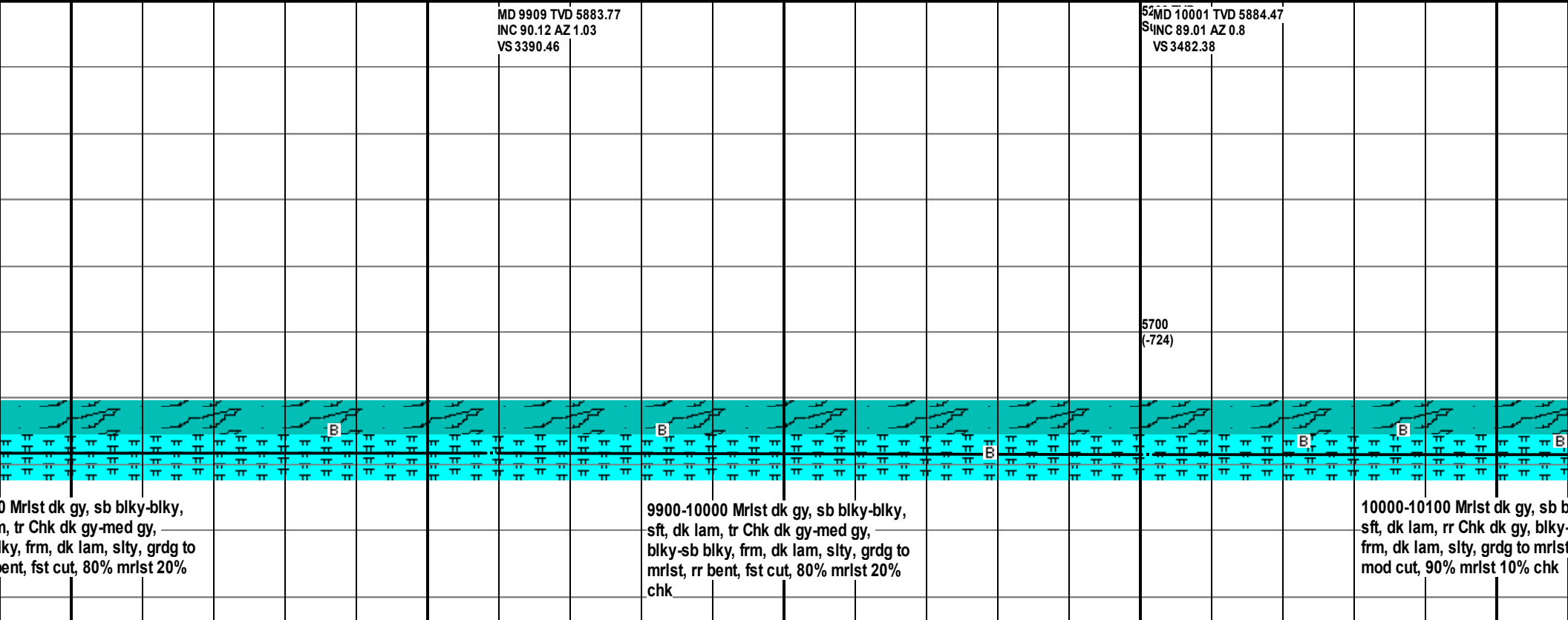
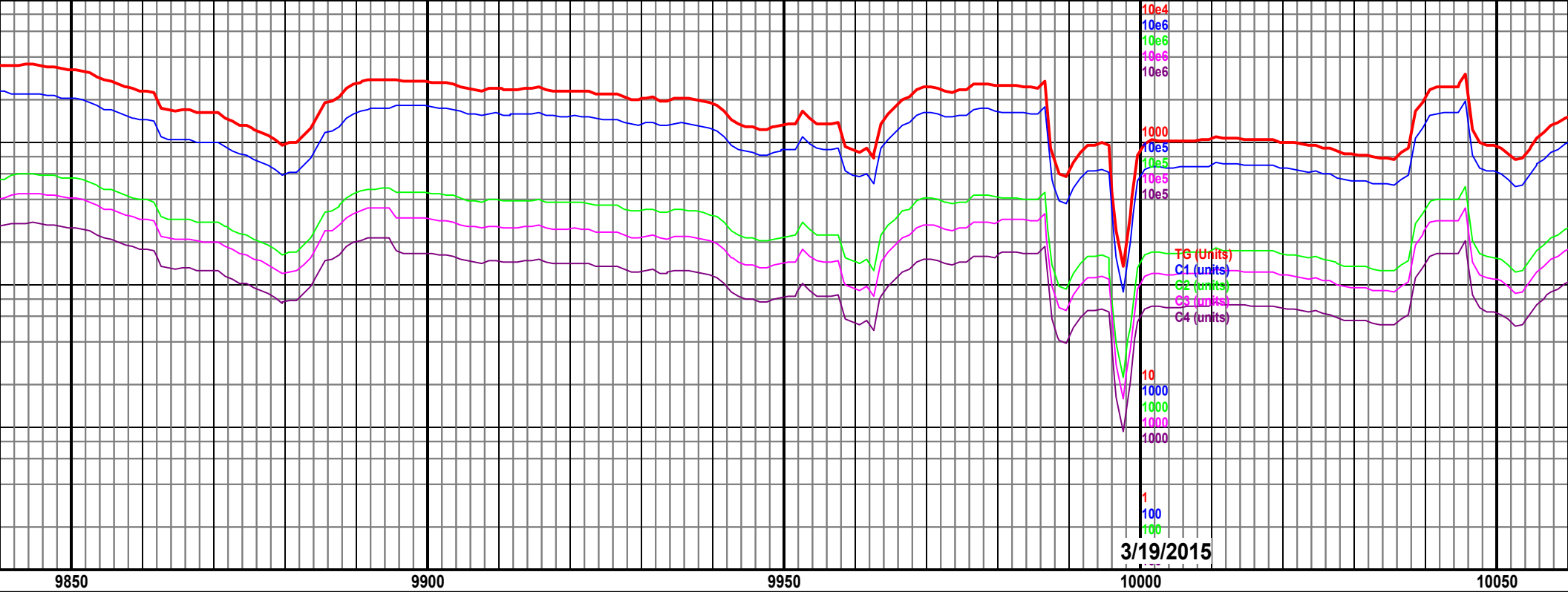
9100-9200 Chk gy-med gy, blk-sb
blk, frm, mottled, dk lam, slty, rr Mrlist
dk gy, sb blk, sft, fst cut, 90% chk
10% mrlist

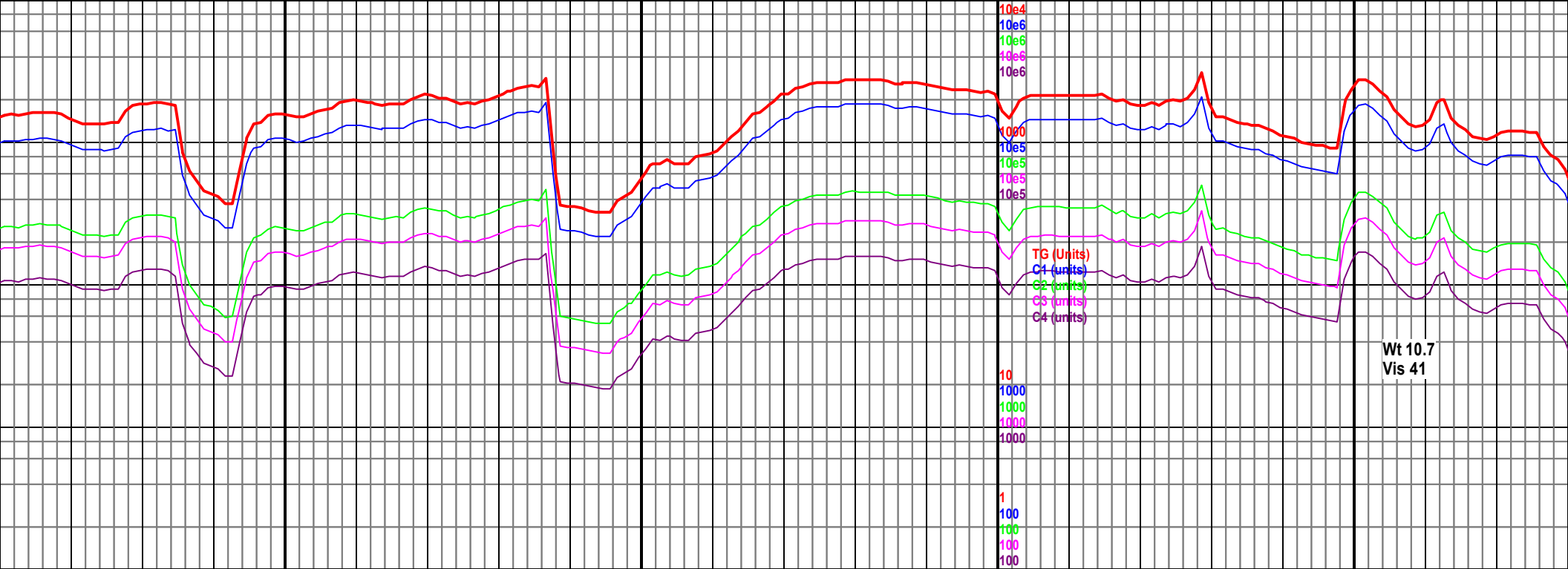


175 TVD 5875.62 9.72 AZ 359.51 56.77	5200 TVD Sub Sea (-224)	MD 9266 TVD 5877.1 INC 88.42 AZ 357.56 VS 2747.75	MD 9358 TVD 5879.64 INC 88.42 AZ 357.38 VS 2839.7	
	5700 (-724)			
	9200-9300 Chk med gy, blk-sb blk, frm, mottled, dk lam, slty, grdg to mrlist ip, rr Mrlist dk gy, sb blk, sft, rr bent, fst cut, 80% chk 20% mrlist		9300-9400 Chk med gy, blk-sb blk, frm, mottled, dk lam, slty, grdg to mrlist ip, rr Mrlist dk gy, sb blk, sft, rr bent, fst cut, 70% chk 30% mrlist	









10100

10150

10200

10250

MD 10093 TVD 5885.57
INC 89.62 AZ 1.3
VS 3574.28

MD 10184 TVD 5886.01 TVD
INC 89.82 AZ 1.08 Sub Sea (-224)
VS 3665.18

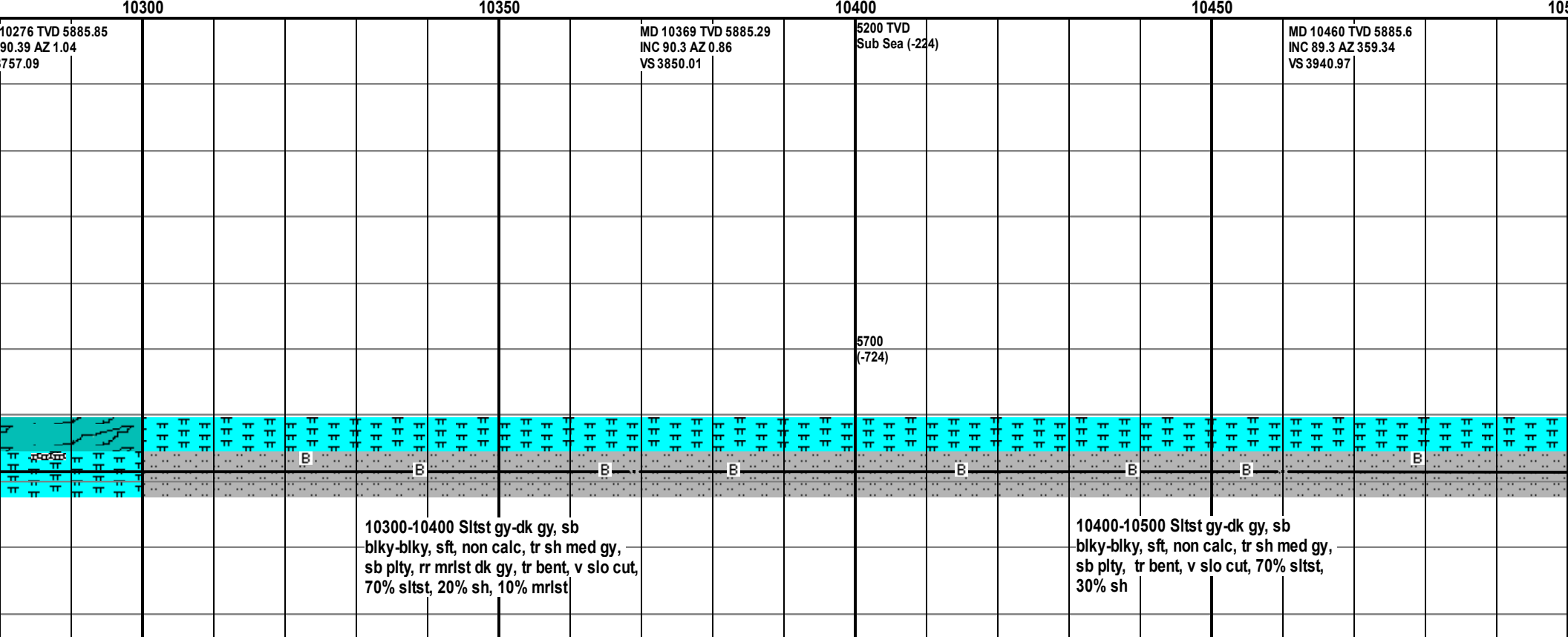
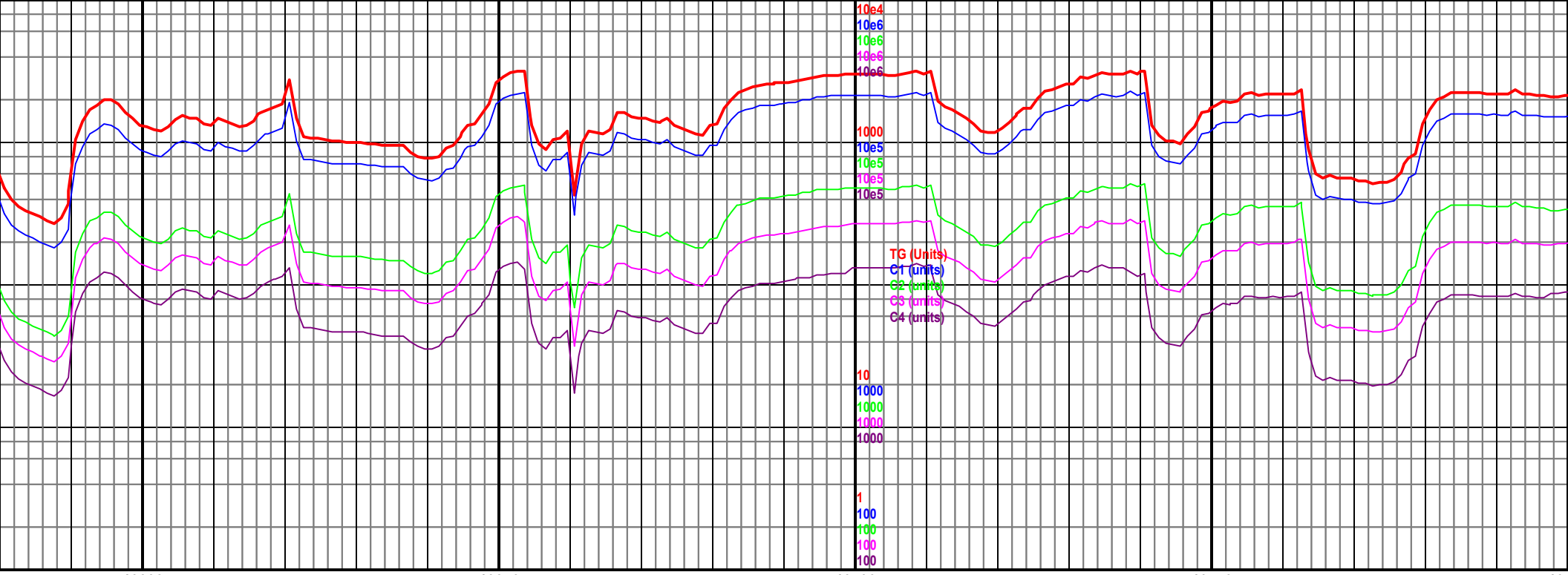
MD
INC
VS 3

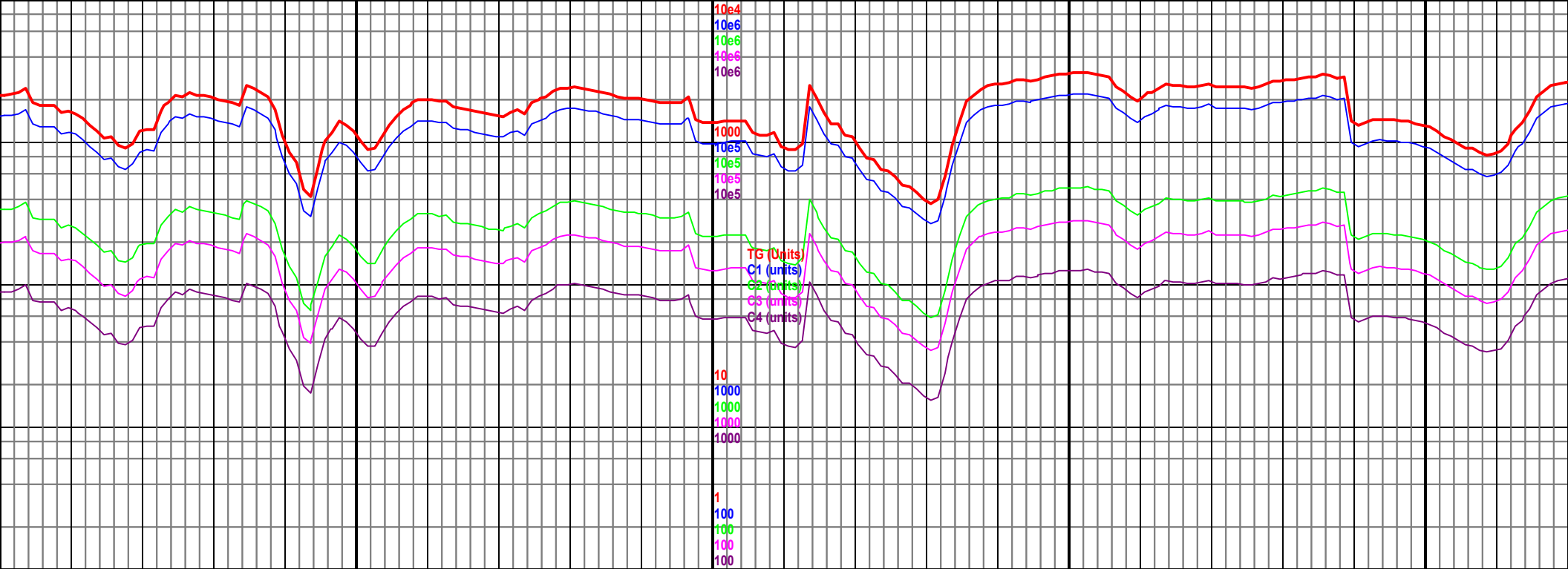
5700
(-724)

blky-blky,
sb blky,
t, tr bent,

10100-10200 Mrlst dk gy, sb blky-blky,
sft, dk lam, rr Chk dk gy, blky-sb blky,
frm, dk lam, slty, grdg to mrlst, tr bent,
v slo cut, 90% mrlst 10% chk

10200-10300 Mrlst dk gy, sb blky-blky,
sft, dk lam, rr Chk dk gy, blky-sb blky,
frm, dk lam, slty, grdg to mrlst, occ
bent, v slo cut, 90% mrlst 5% chk 5%
bent





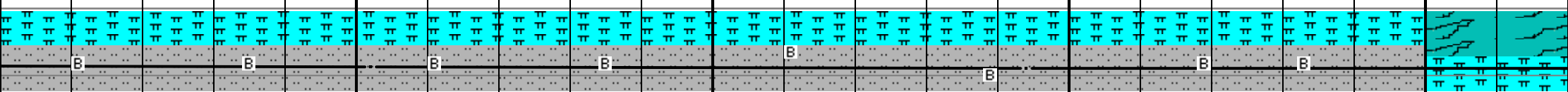
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MD 10552 TVD 5887.19
INC 88.73 AZ 359.4
VS 4032.95

5200 TVD
Sub Sea (-224)

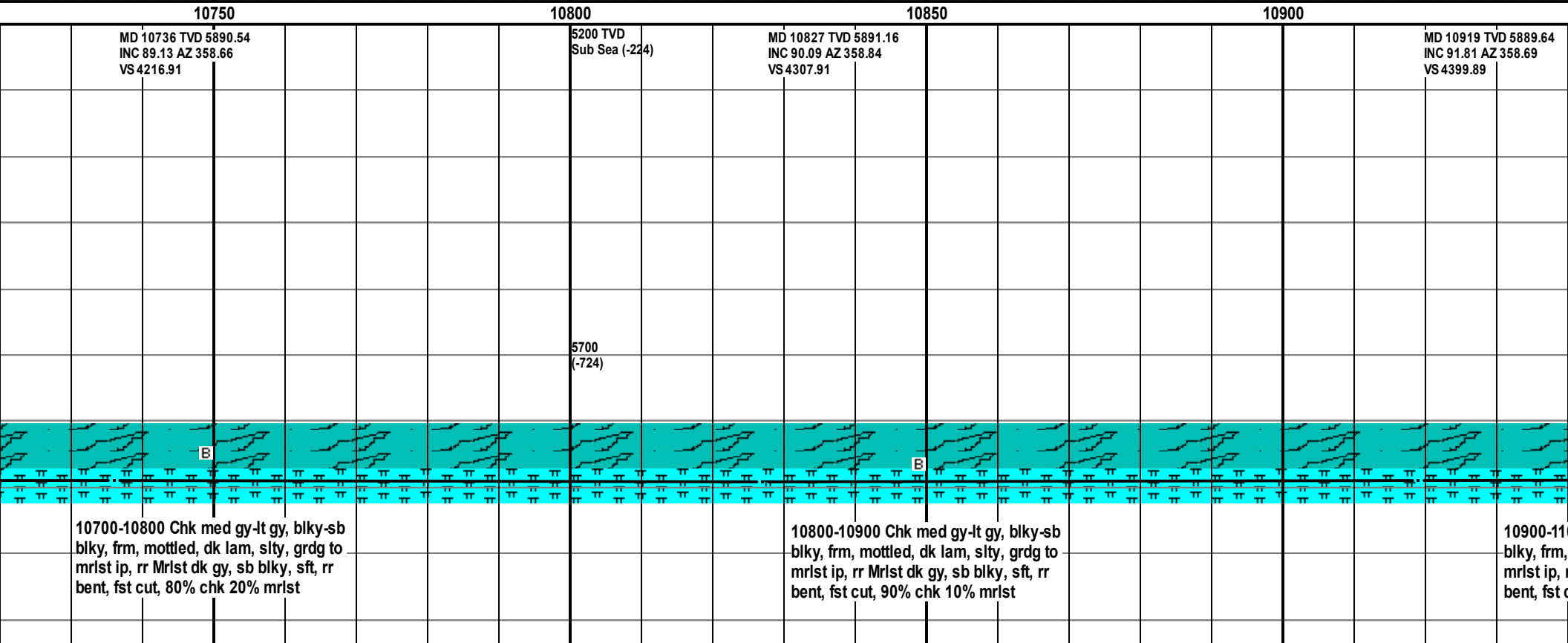
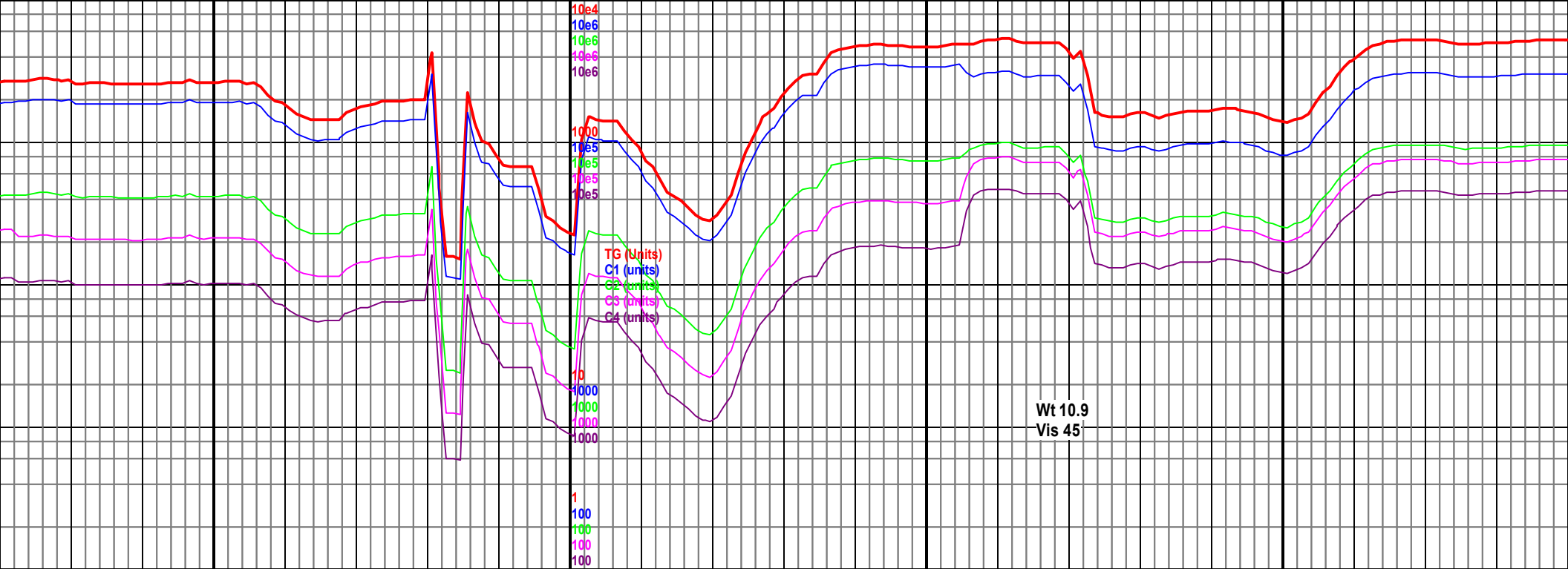
MD 10644 TVD 5889.02
INC 88.98 AZ 359.02
VS 4124.92

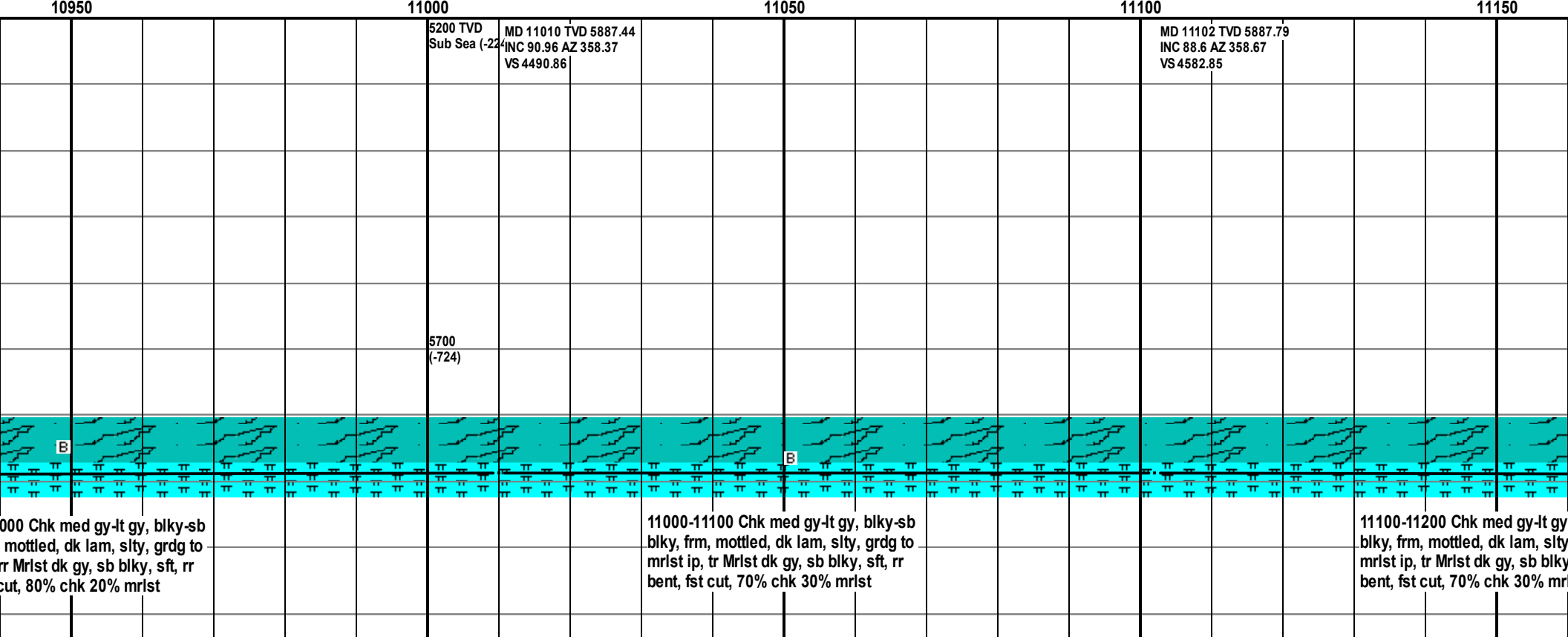
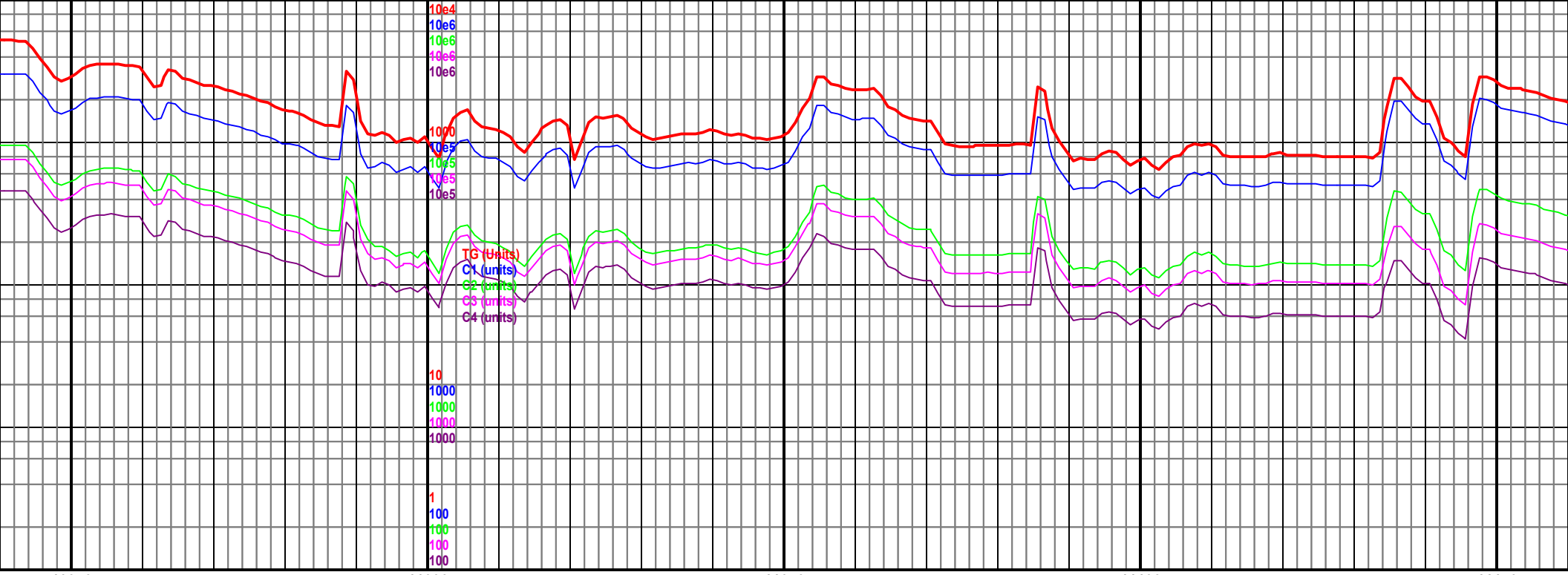
5700
(-724)

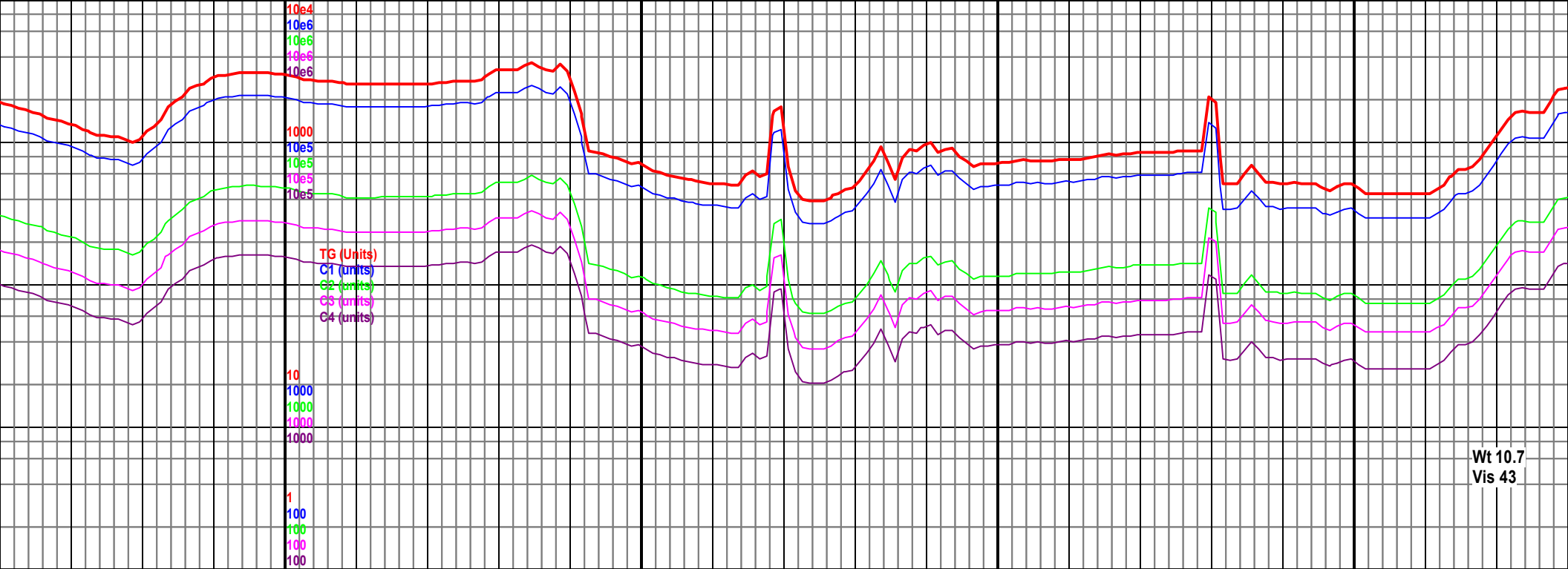


10500-10600 Slstst gy-dk gy, sb
blky-blky, sft, non calc, tr sh med gy,
sb plty, tr bent, v slo cut, 70% sltst,
30% sh

10600-10700 Slstst gy-dk gy, sb
blky-blky, sft, non calc, tr sh med gy,
sb plty, tr bent, v slo cut, 70% sltst,
30% sh







11200

11250

11300

11350

MD 11194 TVD 5888.87
INC 90.05 AZ 1.64⁽²⁴⁾
VS 4674.8

MD 11285 TVD 5890.35
INC 88.09 AZ 0.76
VS 4765.68

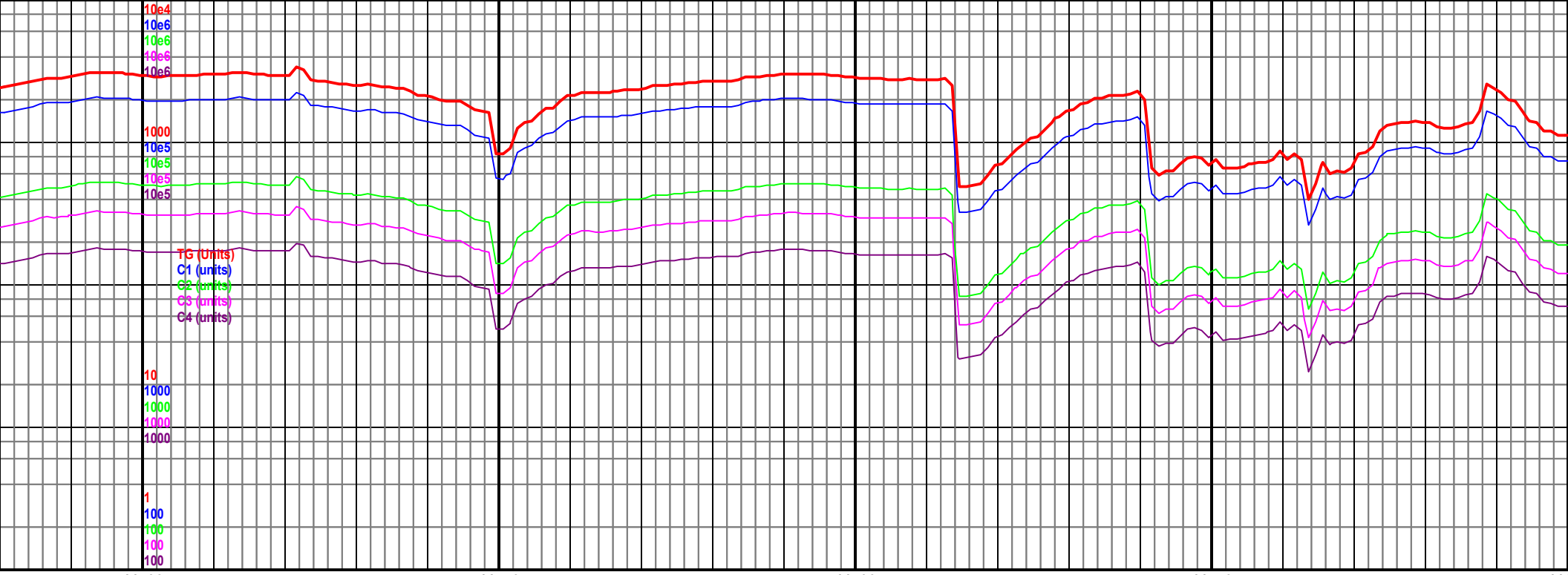
MD
INC
VS

5700
(-724)

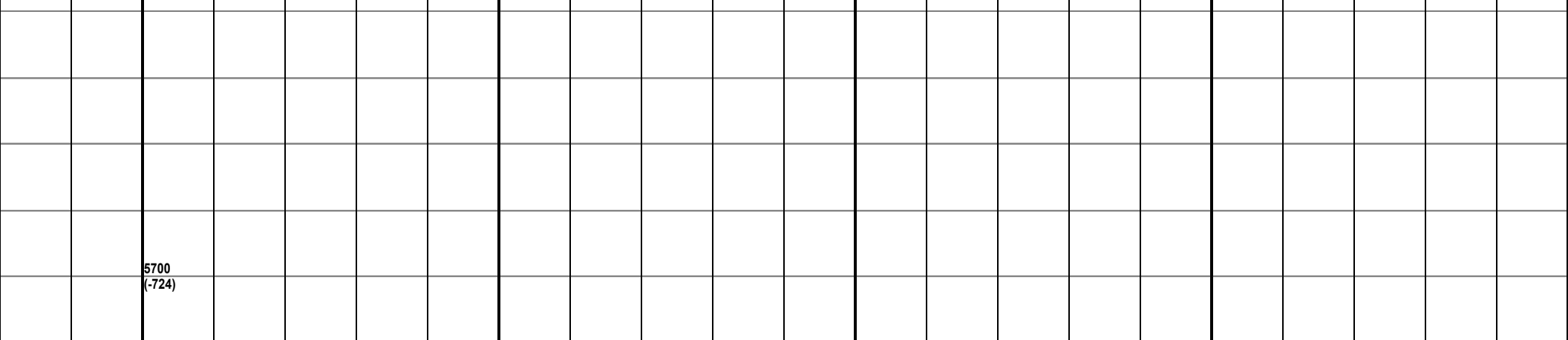
, blkly-sb
, grdg to
, sft, rr
fst

11200-11300 Mrlst dk gy, sb blkly-blky,
sft, dk lam, tr Chk dk gy-med gy,
blkly-sb blkly, frm, dk lam, slty, grdg to
mrlst, rr bent, fst cut, 60% mrlst 40%
chk

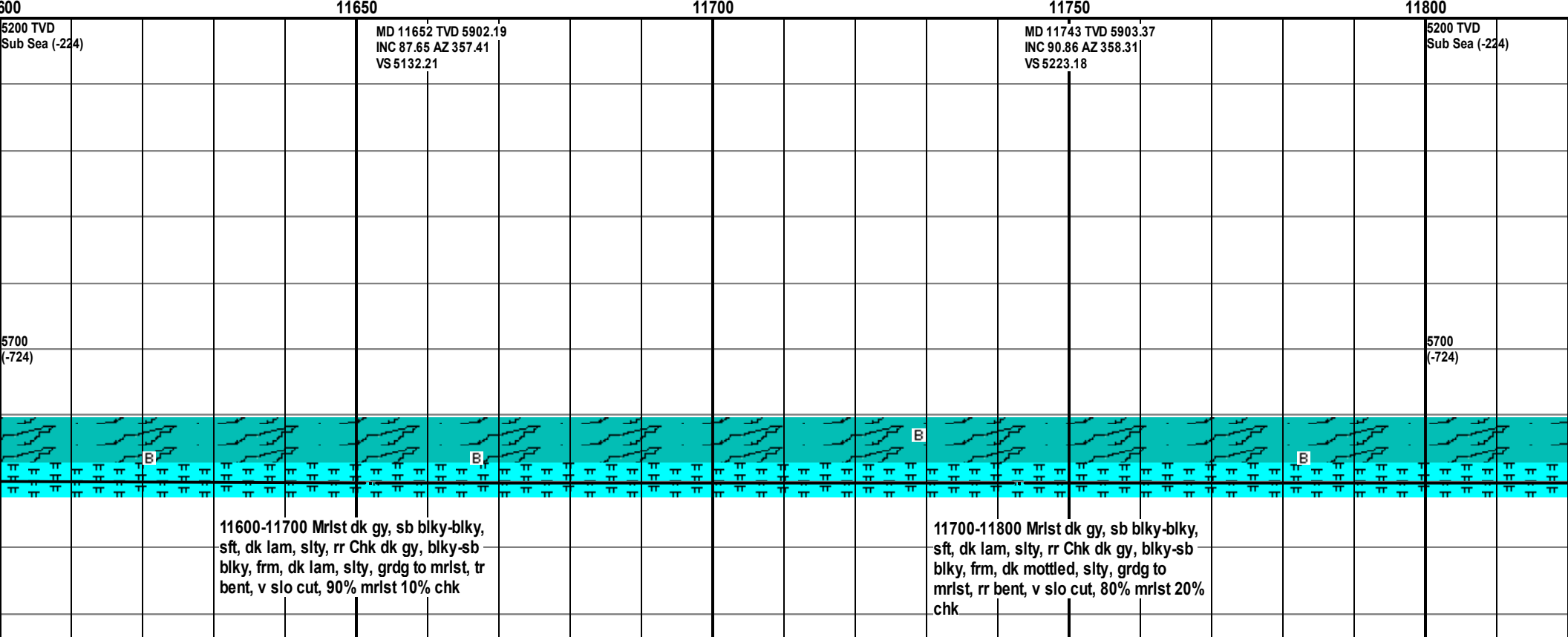
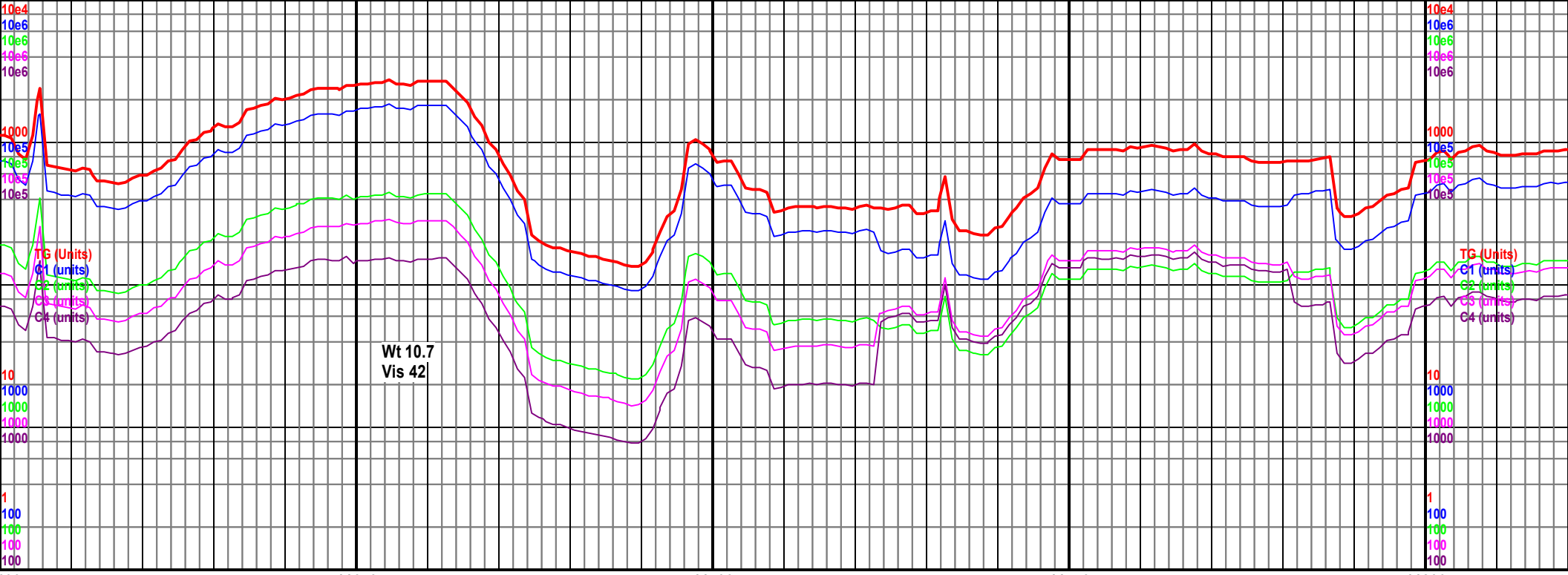
11300-11400 Mrlst dk gy, sb blkly-blky,
sft, dk lam, tr Chk dk gy-med gy,
blkly-sb blkly, frm, dk lam, slty, grdg to
mrlst, rr bent, fst cut, 80% mrlst 20%
chk

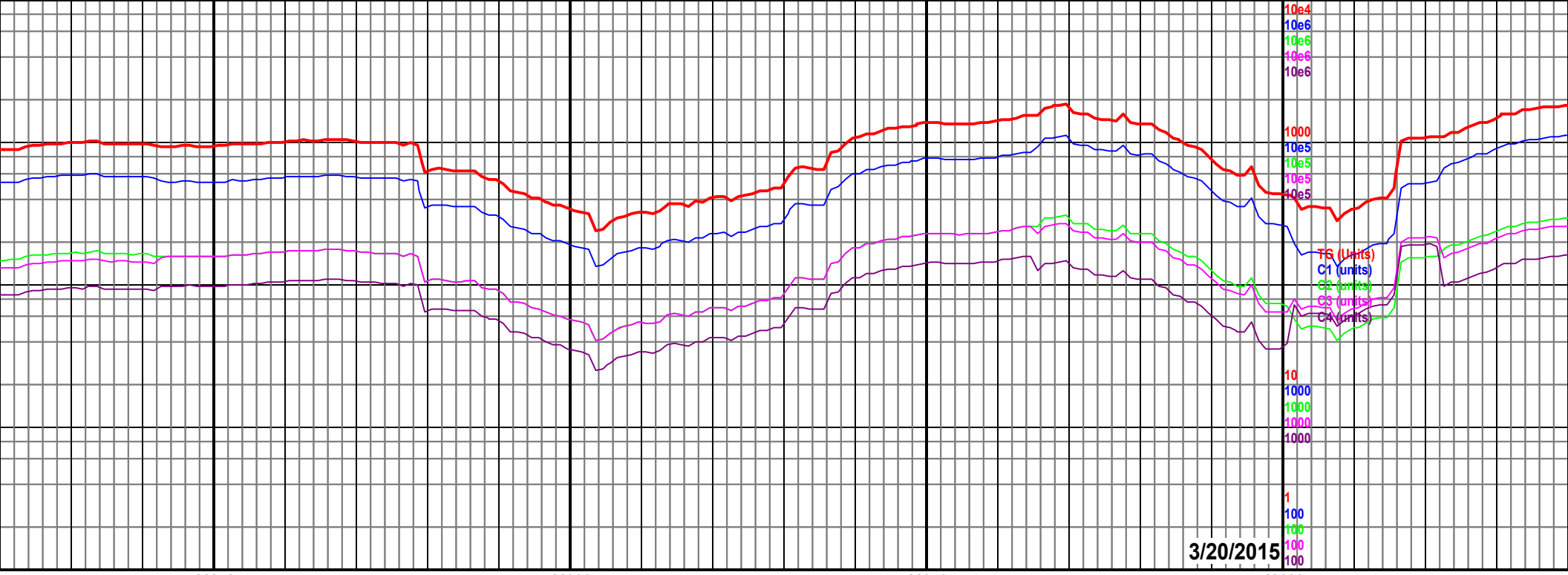


11377	11400	11450	11500	11550	11600
MD 11377 TVD 5893.63 INC 87.83 AZ 0.7 VS 4857.56	MD 11468 TVD 5896.12 INC 89.03 AZ 2.21 VS 4948.4			MD 11561 TVD 5898.63 INC 87.87 AZ 359.38 VS 5041.28	



11400-11500	11500-11600
Mrlst dk gy, sb blkly-blky, sft, dk lam, tr Chk dk gy-med gy, blkly-sb blkly, frm, dk lam, slty, grdg to mrlst, rr bent, fst cut, 80% mrlst 20% chk	Mrlst dk gy, sb blkly-blky, sft, dk lam, slty, rr Chk dk gy, blkly-sb blkly, frm, dk lam, slty, grdg to mrlst, rr bent, v slo cut, 90% mrlst 10% chk





11850

11900

11950

12000

MD 11835 TVD 5901.75
INC 91.17 AZ 358.01
VS 5315.17

MD 11926 TVD 5901.71
INC 88.88 AZ 358.21
VS 5406.16

5200 TVD
Sub Sea (-224)

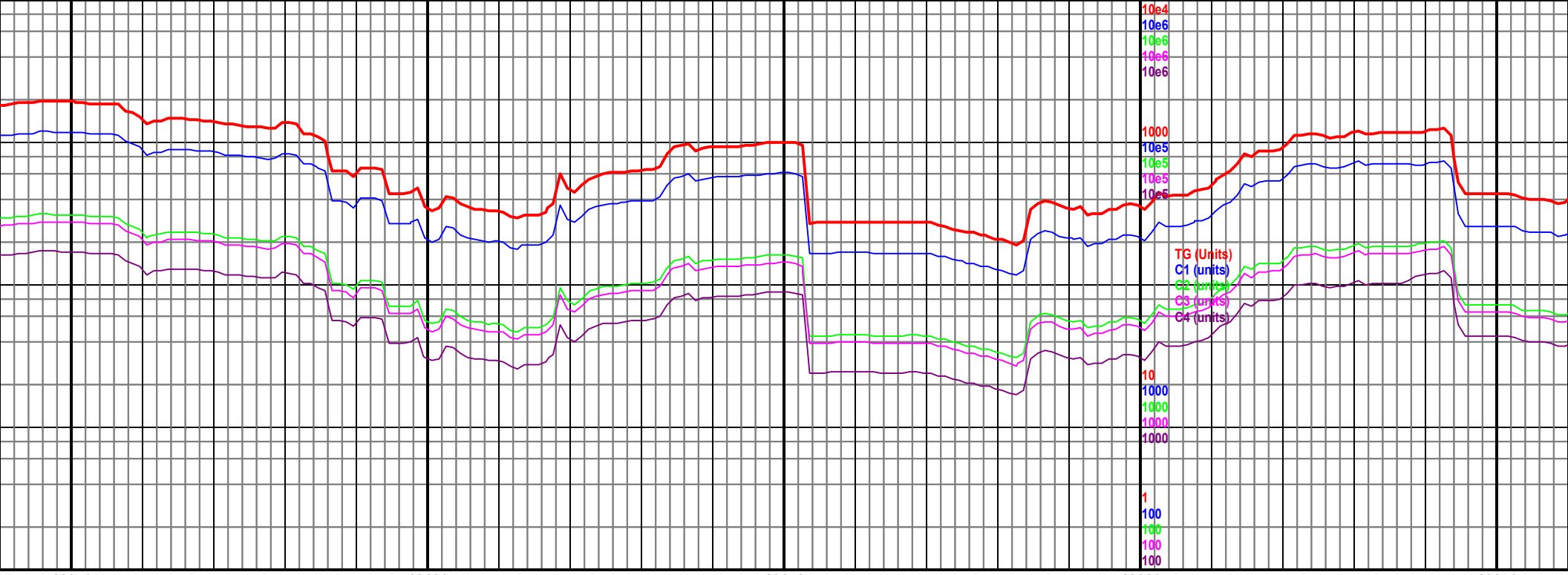
MD 12018 TVD 5903.83
INC 88.47 AZ 359.82
VS 5498.13

5700
(-724)

11800-11900 Mrst dk gy, sb blkly-blky,
sft, dk lam, slty, rr Chk dk gy, blkly-sb
blkly, frm, dk mottled, slty, grdg to
mrst, rr bent, v slo cut, 80% mrst 20%
chk

11900-12000 Mrst dk gy, sb blkly-blky,
sft, dk lam, slty, rr Chk dk gy, sb blkly,
frm, dk mottled, slty, grdg to mrst, rr
bent, v slo cut, 80% mrst 20% chk

12000-12
sft, dk lam,
frm, dk m
bent, v slo



12050

12100

12150

12200

12250

MD 12110 TVD 5906.12
INC 88.68 AZ 359.48
VS 5590.08

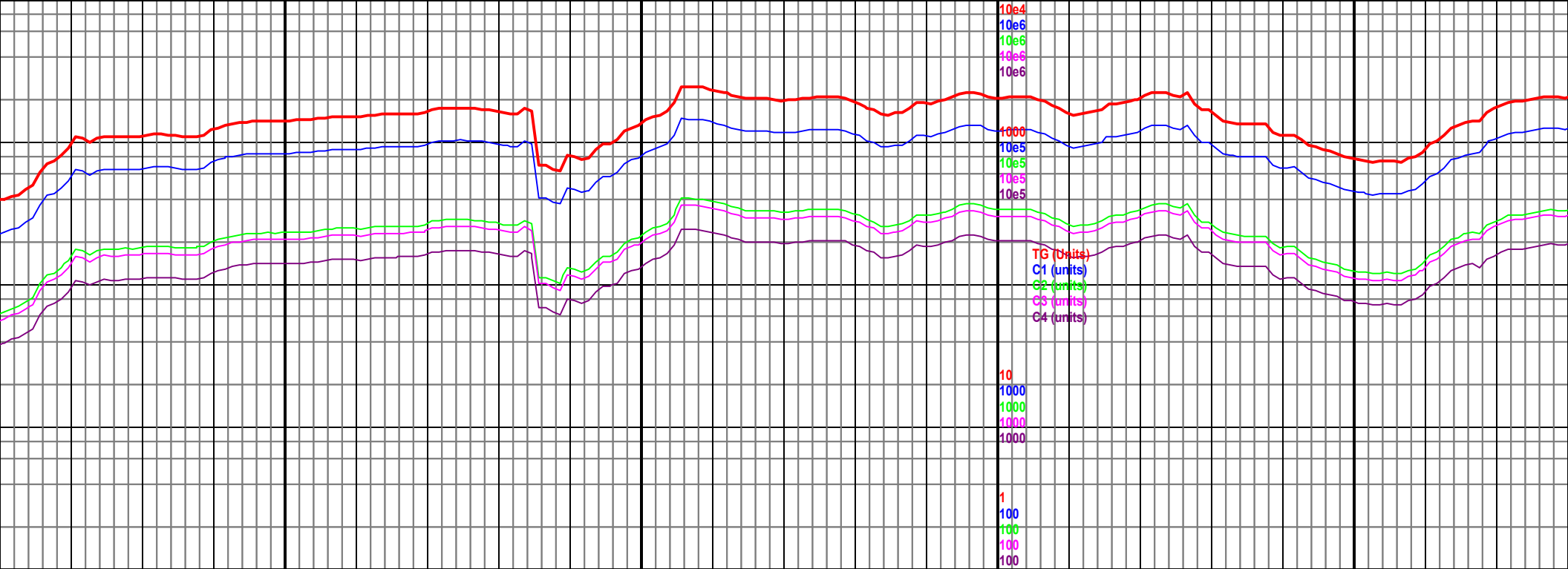
MD 12201 TVD 5909.27
INC 87.35 AZ 1.27
VS 5680.97

5700
(-724)

100 Mrlst dk gy, sb blkyl-blky,
n, slty, rr Chk dk gy, sb blkyl,
mottled, slty, grdg to mrlst, rr
o cut, 80% mrlst 20% chk

12100-12200 Mrlst dk gy, sb blkyl, sft,
dk lam, slty, tr Chk dk gy, sb blkyl, frm,
dk mottled, slty, grdg to mrlst, rr bent, v
slo cut, 70% mrlst 30% chk

12200-12300 Mrlst dk gy, sb blkyl, sft,
dk lam, slty, tr Chk dk gy, sb blkyl, frm,
dk mottled, slty, grdg to mrlst, rr bent, v
slo cut, 70% mrlst 30% chk



12300

12350

12400

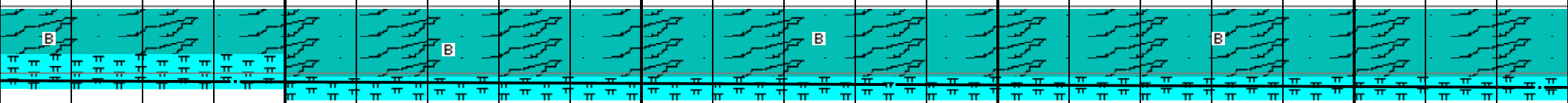
12450

MD 12293 TVD 5913.58
INC 87.28 AZ 0.18
VS 5772.81

MD 12385 TVD 5917.81 TVD
INC 87.46 AZ 0.04 Sub Sea (-224)
VS 5864.67

MD
INC
VS 5

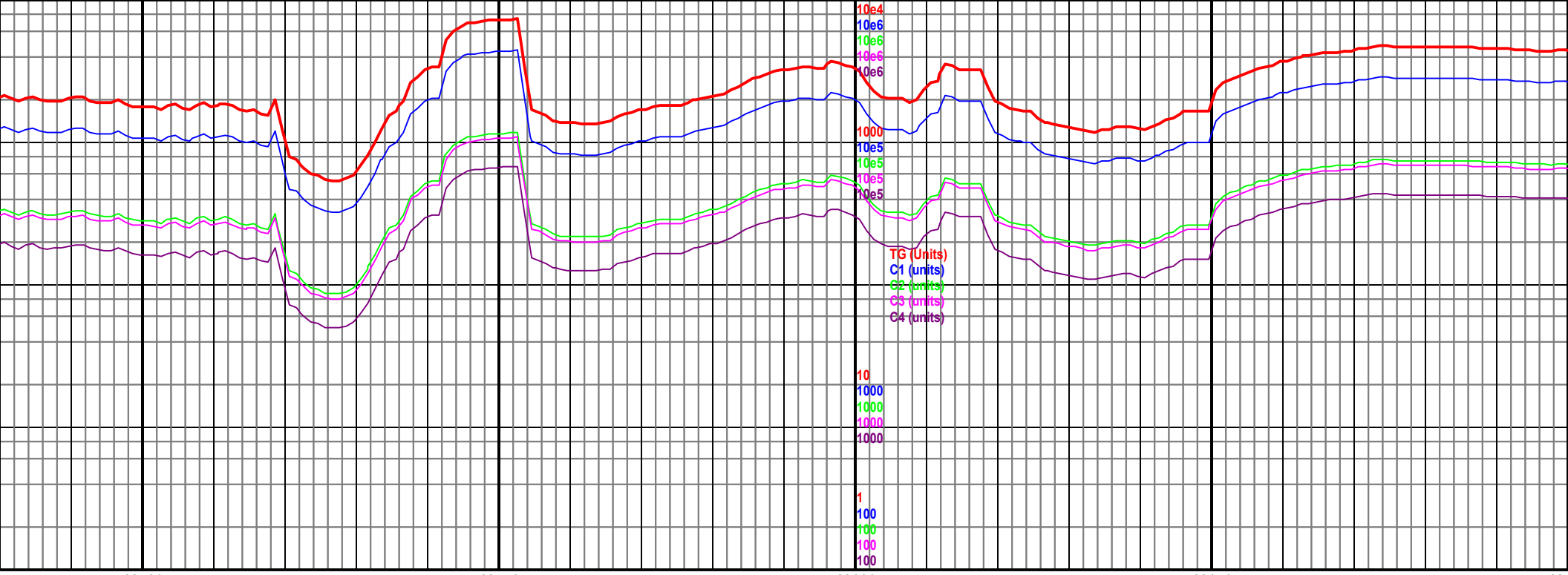
5700
(-724)



dk gy, sb blk, sft,
dk gy, sb blk, frm,
lg to mrlst, rr bent, v
10% chk

12300-12400 Mrlst dk gy, sb blk, sft,
dk lam, slty, tr Chk dk gy, sb blk, frm,
dk lam, mottled, grdg to mrlst ip, rr
bent, v slo cut, 70% mrlst 30% chk

12400-12500 Chk med gy-lt gy, blk-sb
blk, frm, mottled, dk lam, occ Mrlst dk
gy, sb blk, sft, rr bent, mod cut, 70%
chk 30% mrlst



12476 TVD 5921.49
87.9 AZ 359.79
VS 955.57

12500

12550

MD 12568 TVD 5923.9
INC 89.09 AZ 0.63
VS 6047.5

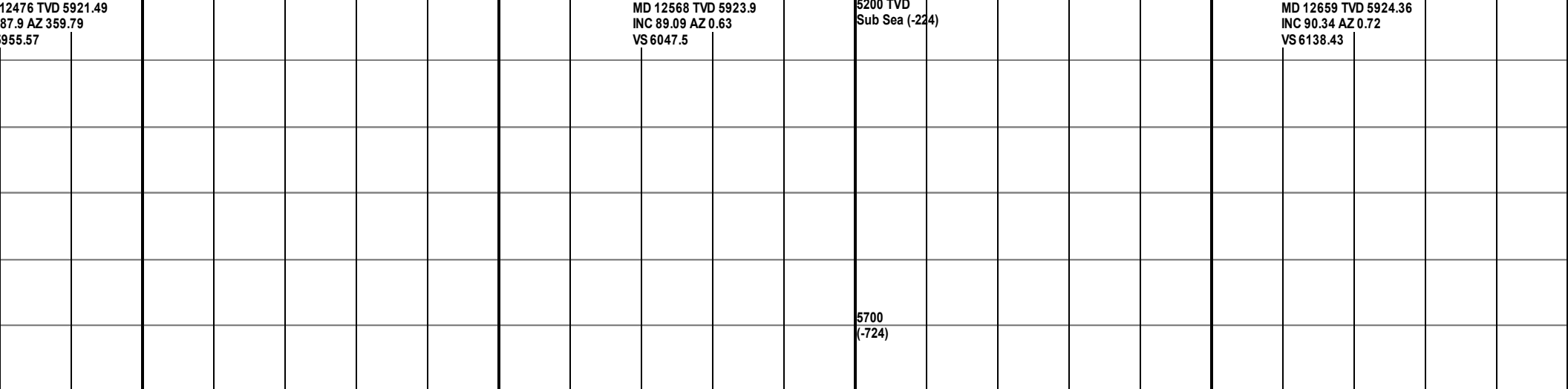
12600

5200 TVD
Sub Sea (-224)

12650

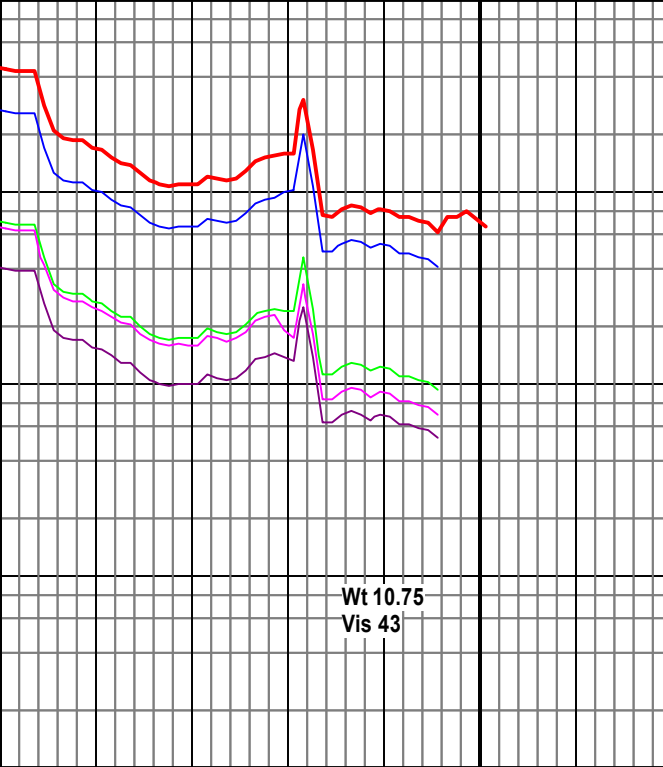
MD 12659 TVD 5924.36
INC 90.34 AZ 0.72
VS 6138.43

12700



12500-12600 Chk med gy-lt gy, blkly-sb
blkly, frm, mottled, dk lam, occ Mrlst dk
gy, sb blkly, sft, rr bent, mod cut, 70%
chk 30% mrlst

12600-12700 Chk med gy-lt gy, blkly-sb
blkly, frm, mottled, dk lam, slty, grdg to
mrlst ip, rr Mrlst dk gy, sb blkly, sft, rr
bent, fst cut, 80% chk 20% mrlst

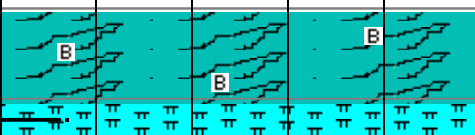


Wt 10.75
Vis 43

700 12750

MD 12707 TVD 5923.96
INC 90.61 AZ 0.81
VS 6186.4

At 08:41 on 3/20/2015, TD
was reached at 12751' MD
(5923' TVD).



12700-12751 Chk med gy-lt gy, blk-y-sb
blk-y, frm, mottled, dk lam, slty, grdg to
mrst ip, rr Mrst dk gy, sb blk-y, sft, tr
bent, fst cut, 80% chk 20% mrst