



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

Well Name: Razor 25B-2551
Location: NWNE 25-T10N-R58W
License Number: 05-123-39118
Spud Date: 7/11/2014
Surface Coordinates: Lat.: 40.818153 Long.: -103.810314
Bottom Hole Coordinates: Lat.: 40.804136 Long.: -103.811022
Ground Elevation (ft): 4756
Logged Interval (ft): To:
Formation: Fort Hays (Niobrara D Chalk)
Type of Drilling Fluid: Water Based Mud

Region: Redtail Field

Drilling Completed:

K.B. Elevation (ft): 4773
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, Eli Denbesten and Demond Taylor
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig #23

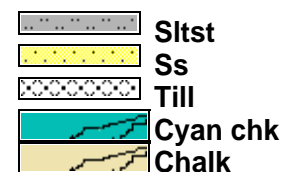
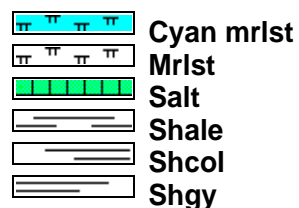
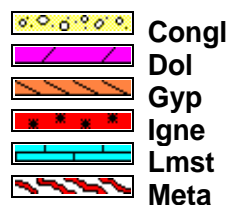
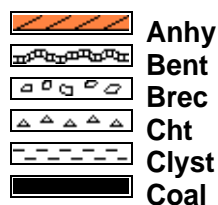
Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #458

Comments

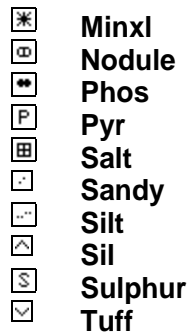
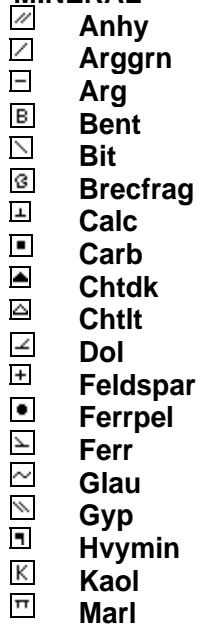
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

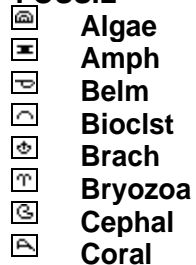


ACCESSORIES

MINERAL



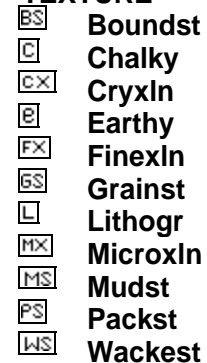
FOSSIL



STRINGER











TEXTURE



OTHER SYMBOLS




POROSITY

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

SORTING





-  Well
-  Moderate
-  Poor

ROUNDING


-  Rounded
-  Subrnd
-  Subang

-  Angular

OIL SHOW

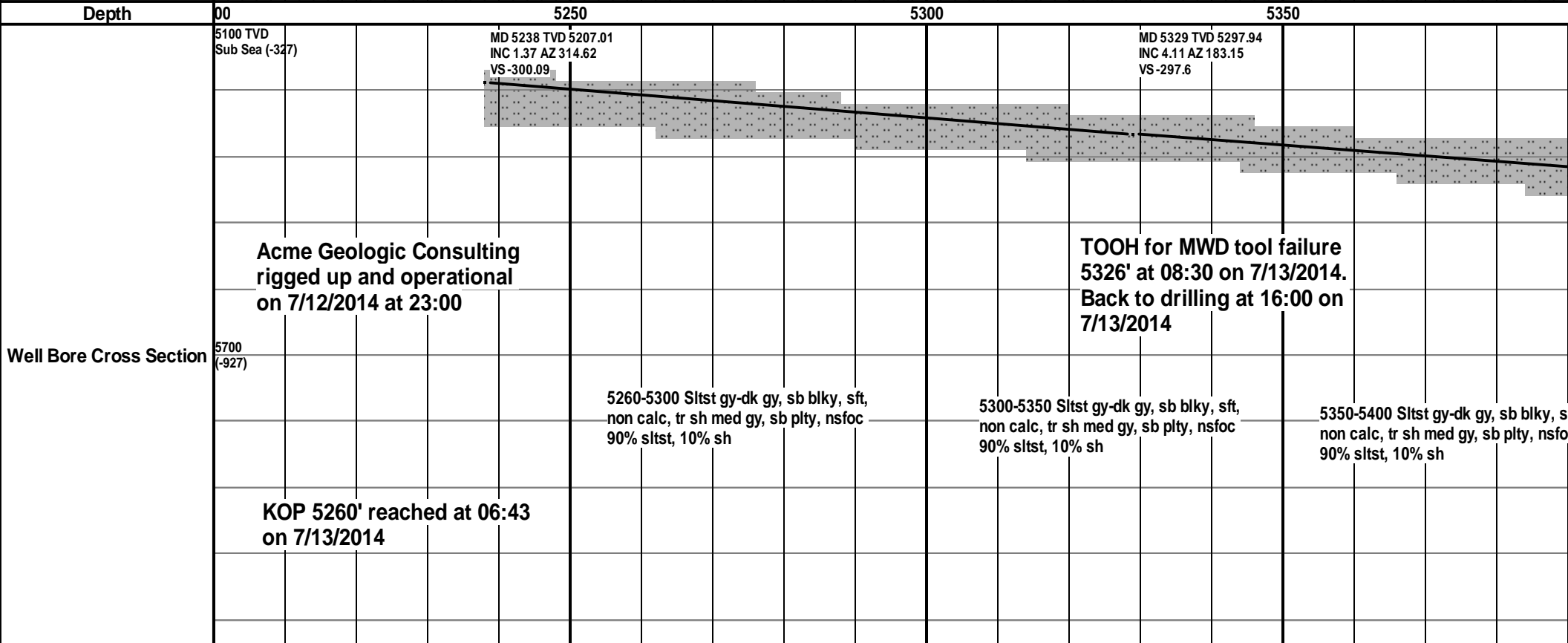
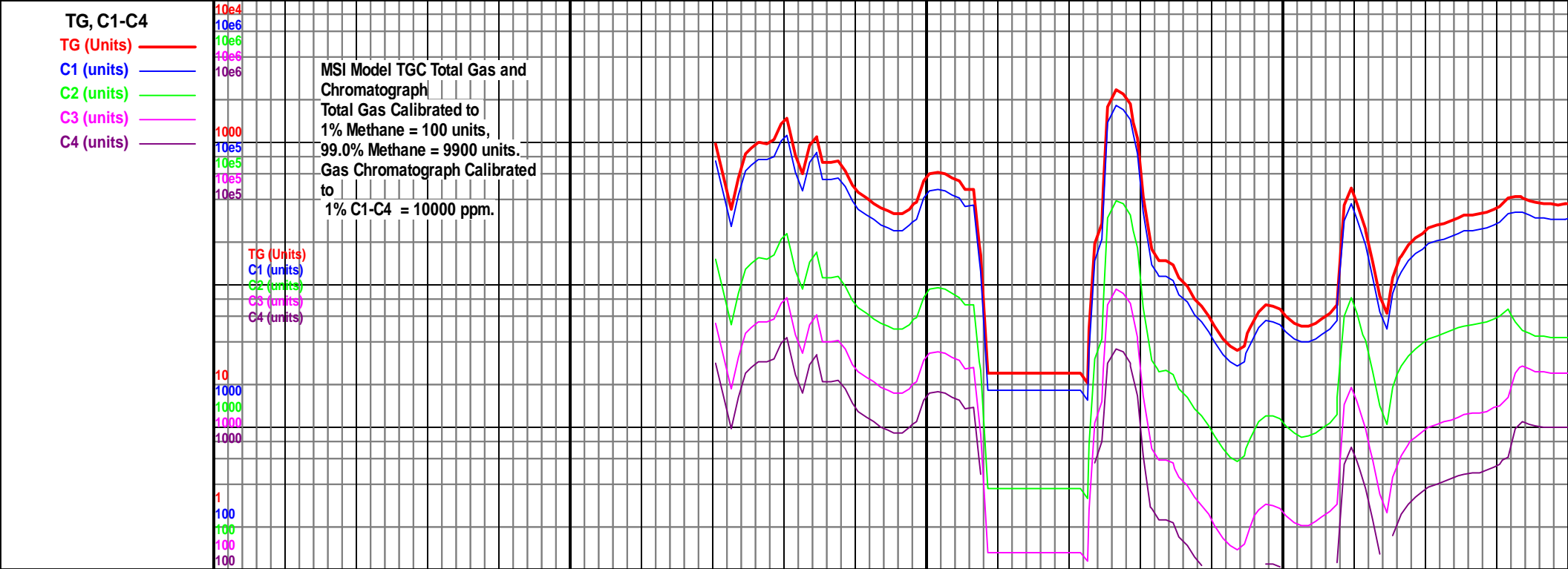
-  Even
-  Spotted
-  Ques
-  Dead

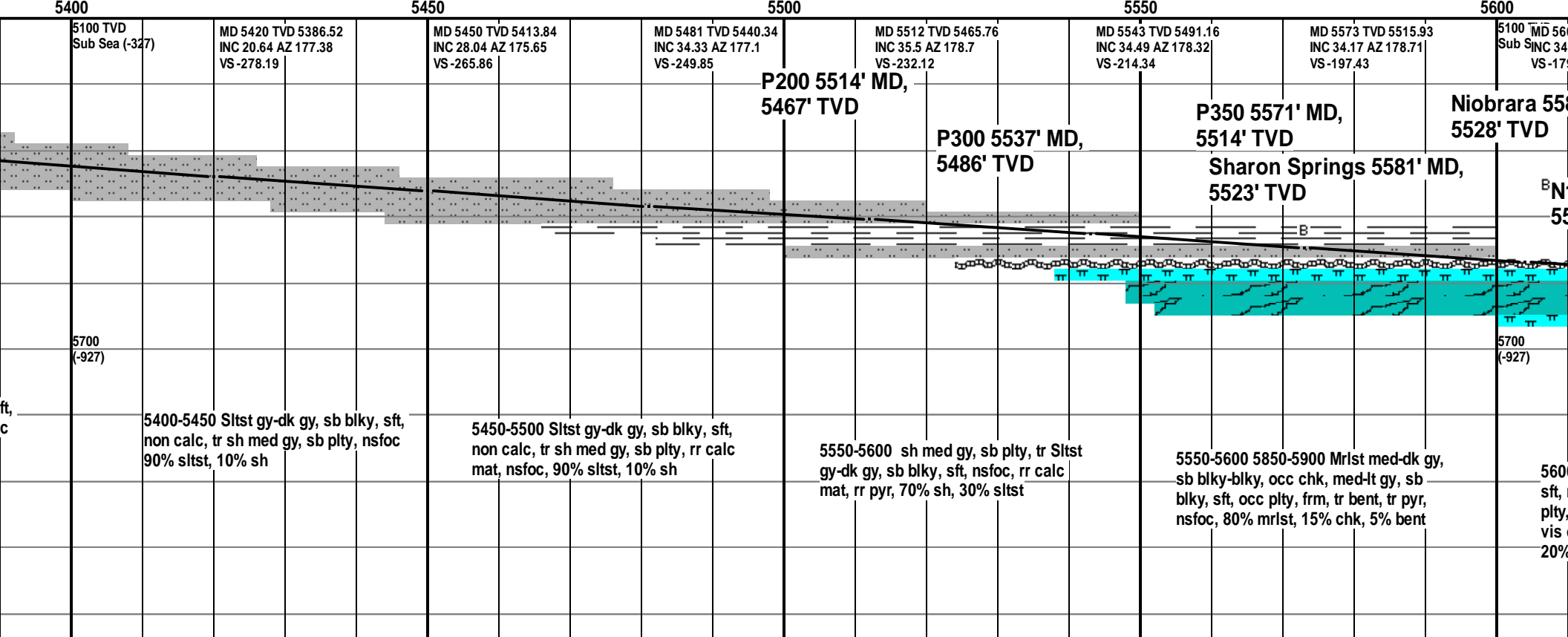
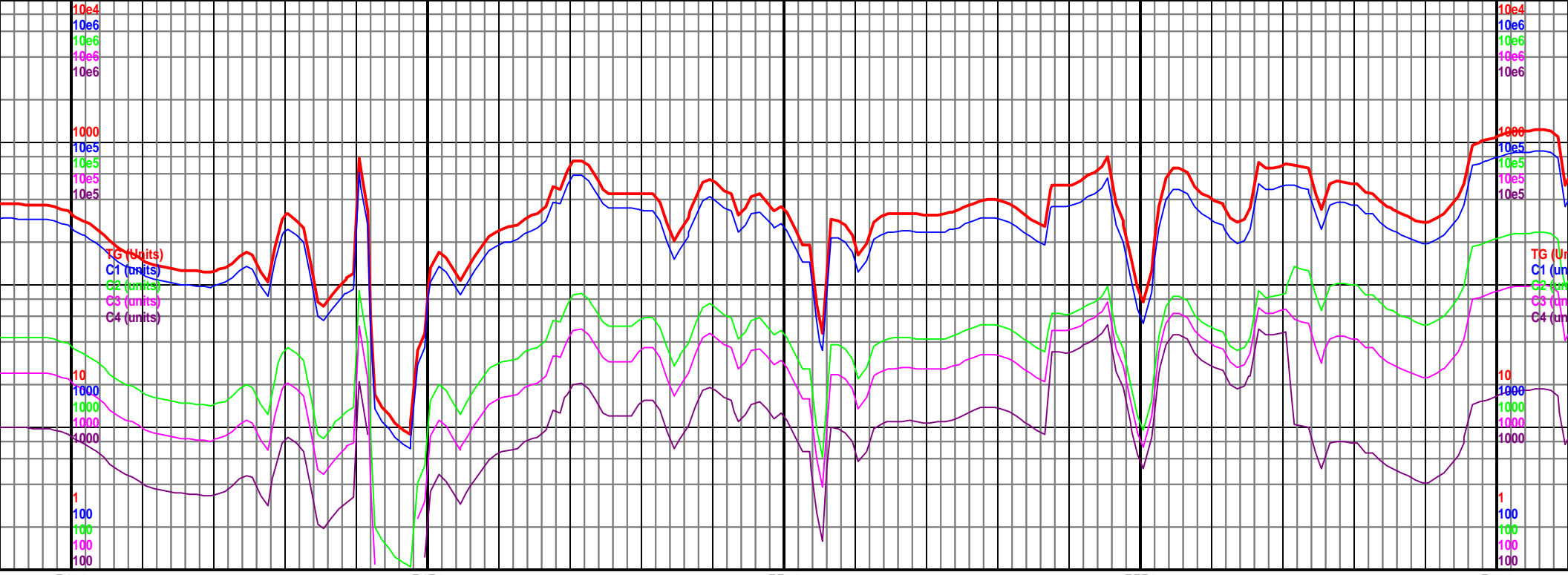
INTERVAL

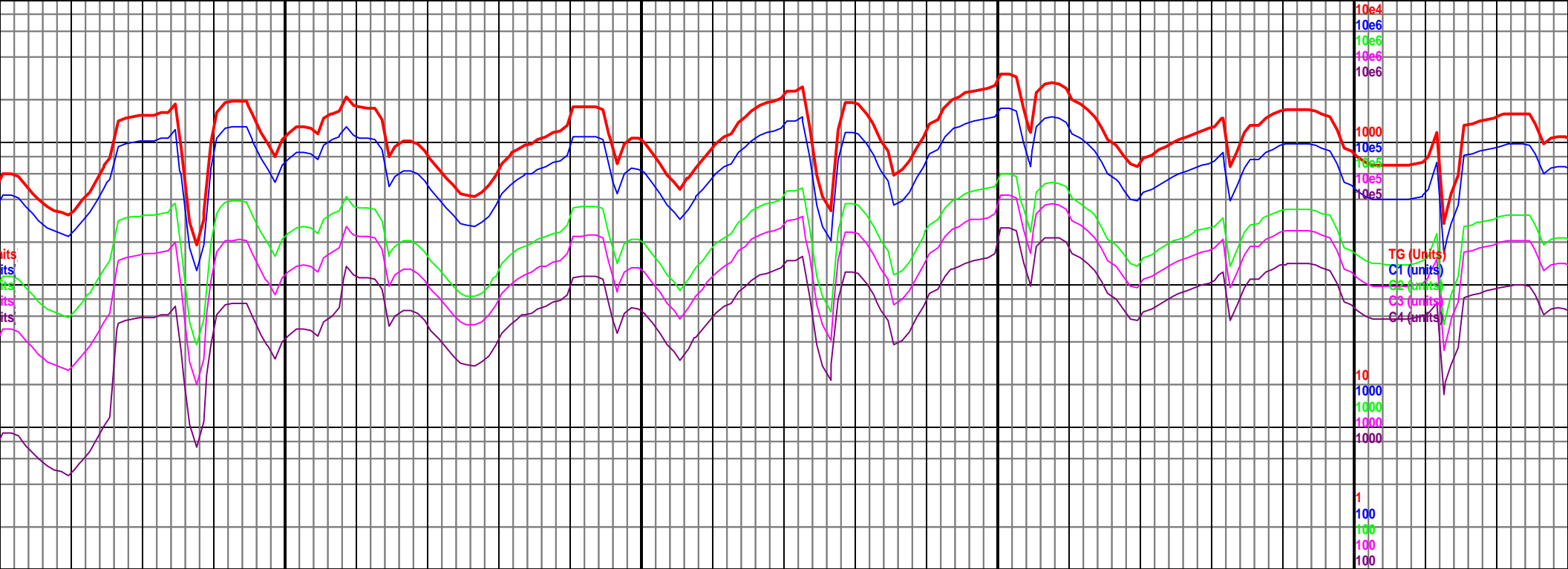
-  Core
-  Dst

EVENT

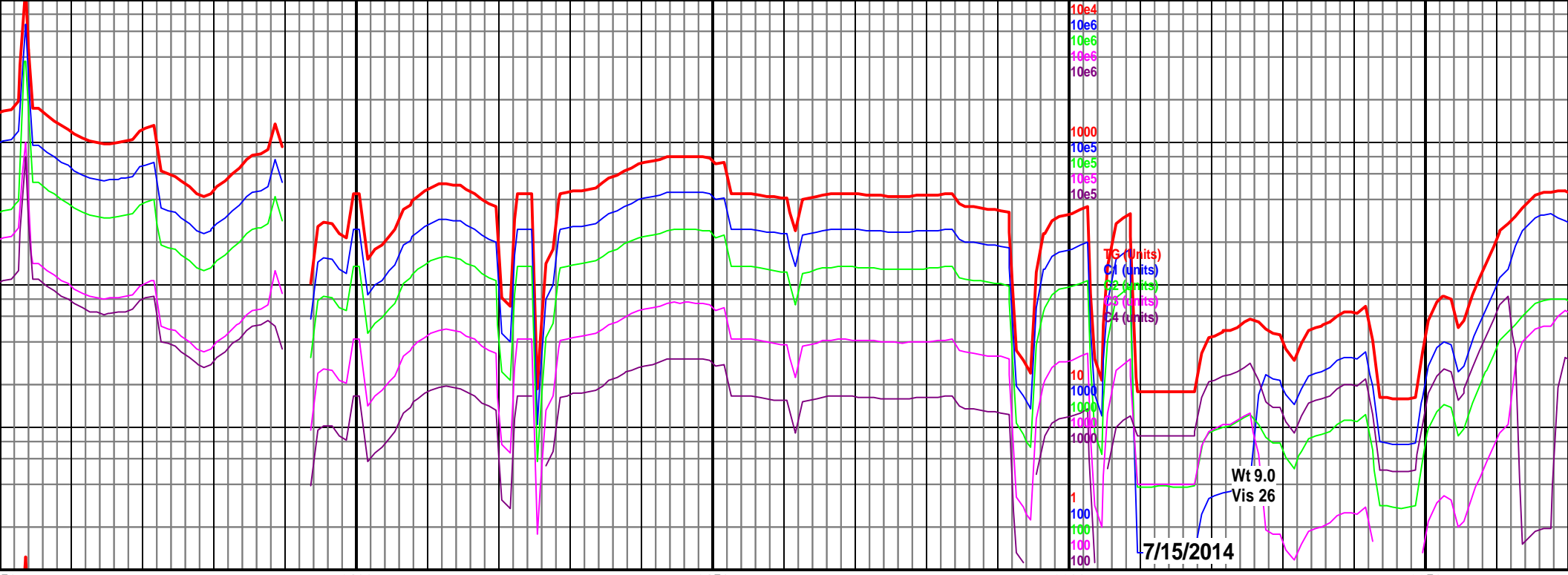
-  Rft
-  Sidewall







04 TVD 5541.47 INC 35.15 AZ 179.46 VS -162.63	MD 5634 TVD 5566.03 INC 35.15 AZ 179.64 VS -162.63	MD 5665 TVD 5591.16 INC 36.5 AZ 179.27 VS -144.49	MD 5696 TVD 5615.44 INC 40.39 AZ 179.72 VS -125.22	MD 5726 TVD 5637.86 INC 42.9 AZ 179.51 VS -105.29	MD 5756 TVD 5659.56 INC 44.4 AZ 179.16 VS -84.58	MD 5786 TVD 5680.62 INC 46.45 AZ 177.62 VS -63.22	MD 5816 TVD 5701.72 INC 48.81 AZ 177.62 VS -41.08
88' MD, 100 5608' MD, 545' TVD	N200 5646' MD, 5576' TVD	N250 5664' MD, 5590' TVD	N460 5722' MD, 5635' TVD	N490 5746' MD, 5652' TVD	N500 5760' MD, 5662' TVD		
0-5650 Chk lt gy-gy, sb blk, mod mottled, dk lam ip, tr Mrlst dk gy, sb sft, slty, rr bent, rr calc material, oil on sample, bri grn flor, 80% chk mrlst	5650-5700 Mrlst dk gy, sb plty, sft, slty, tr Chk lt gy-gy, sb blk, mod sft, mottled, dk lam ip, rr bent, rr inoc, vis oil on sample, 70% mrlst 30% chk	5700-5750 Chk lt gy-gy, sb plty-blky, mod sft, mottled, dk lam ip, tr Mrlst dk gy, sb blk, sft, rr inoc, rr bent, vis oil on sample, bri grn flor, 80% chk 20% mrlst	5750-5800 Chk gy, sb plty-blky, mod sft, slty, dk lam ip, grdg to mrlst ip, abnt Mrlst dk gy, sb blk, sft, rr bent, rr pyr, vis oil on sample, bri grn flor, 50% chk 50% mrlst	5800-5850 Chk lt gy-gy, mod sft, slty, dk lam ip, ip, abnt Mrlst dk gy, sb b chk ip, tr bent, rr pyr, v s flor, 50% chk 50% mrlst			



50 6100 6150 6200 6250

MD 6067 TVD 5814.05 INC 78.51 AZ 178.69 VS 179.99	MD 6098 TVD 5819.56 INC 81 AZ 178.58 VS 210.48	MD 6130 TVD 5824.36 INC 81.74 AZ 177.96 VS 242.11	MD 6162 TVD 5828.24 INC 84.35 AZ 177.67 VS 273.84	5100 TVD Sub Sea (-327)	MD 6228 TVD 5832.66 INC 87.97 AZ 178.99 VS 339.66
---	--	---	---	----------------------------	---

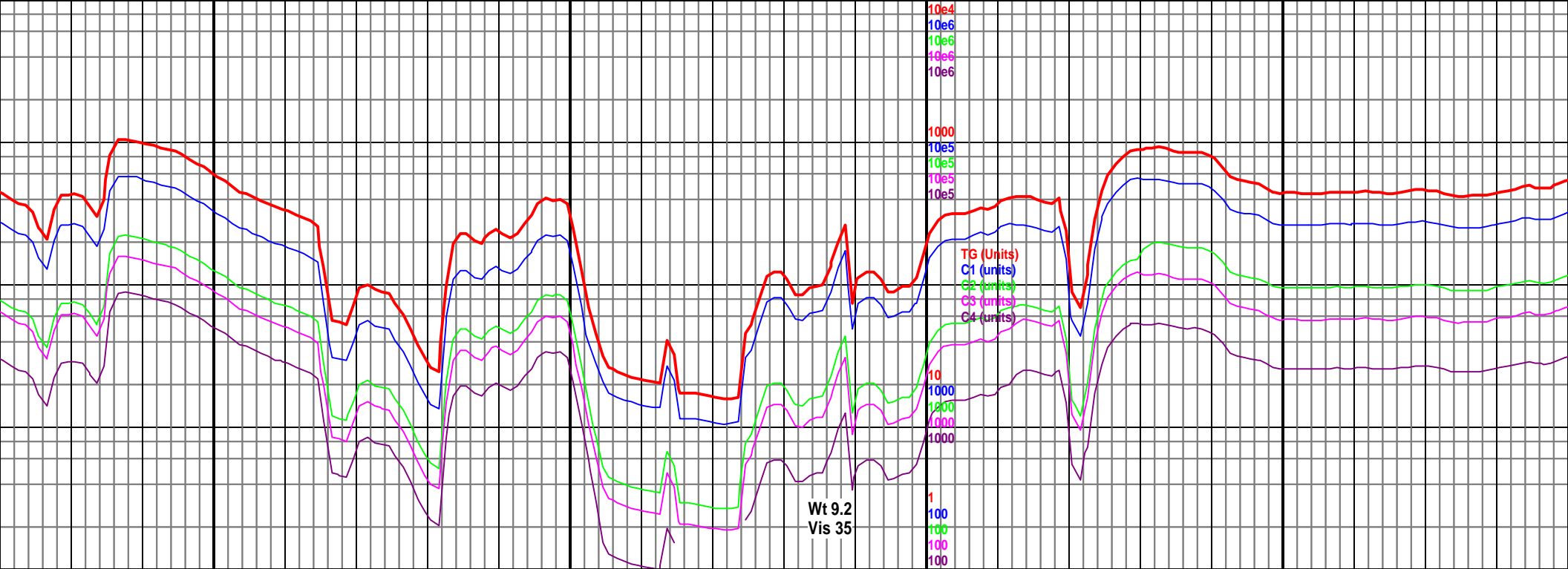
Fort Hays 6060' MD,
5813' TVD

Intermediate casing
reached 6215' MD at 07:20
on 7/14/2014. Back to
drilling at 19:06

5700
(-927)



6050-6100 Chk lt gy-cream, plty-sb plty, v sft, rr Mrlst dk gy, sb blk, sft, rr bent, v sl cut, 90% chk 10% mrlst	6100-6150 Chk cream-lt gy, plty-sb plty, v sft, rr Mrlst dk gy, sb blk, sft, rr bent, slo cut, 90% chk 10% mrlst	6150-6200 Chk cream-lt gy, plty-sb plty, v sft, rr Mrlst dk gy, sb blk, sft, rr bent, slo cut, 90% chk 10% mrlst	6200-6300 Chk cream-v lt gy, plty-sb plty, v sft, rr Mrlst dk gy, sb blk, sft, abnt bent, rr pyr, slo cut, 95% chk 5% mrlst
---	--	--	--



6300

6350

6400

6450

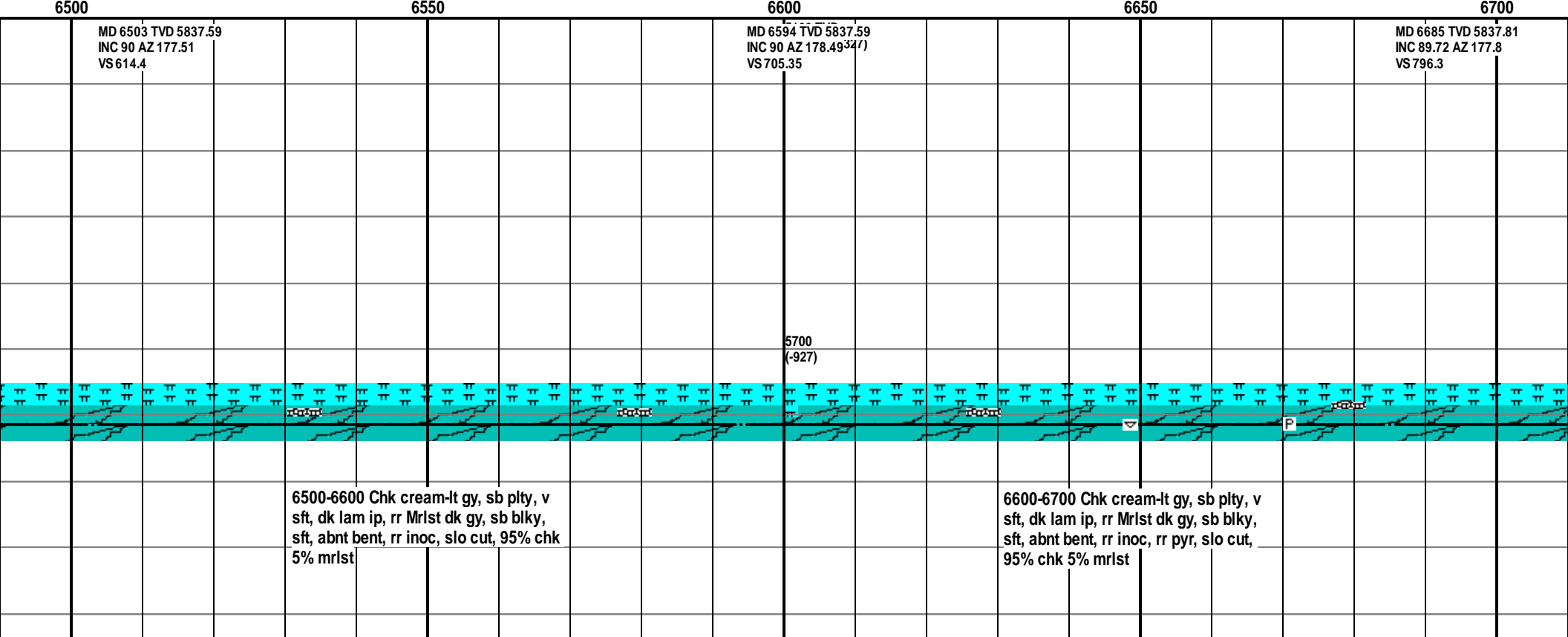
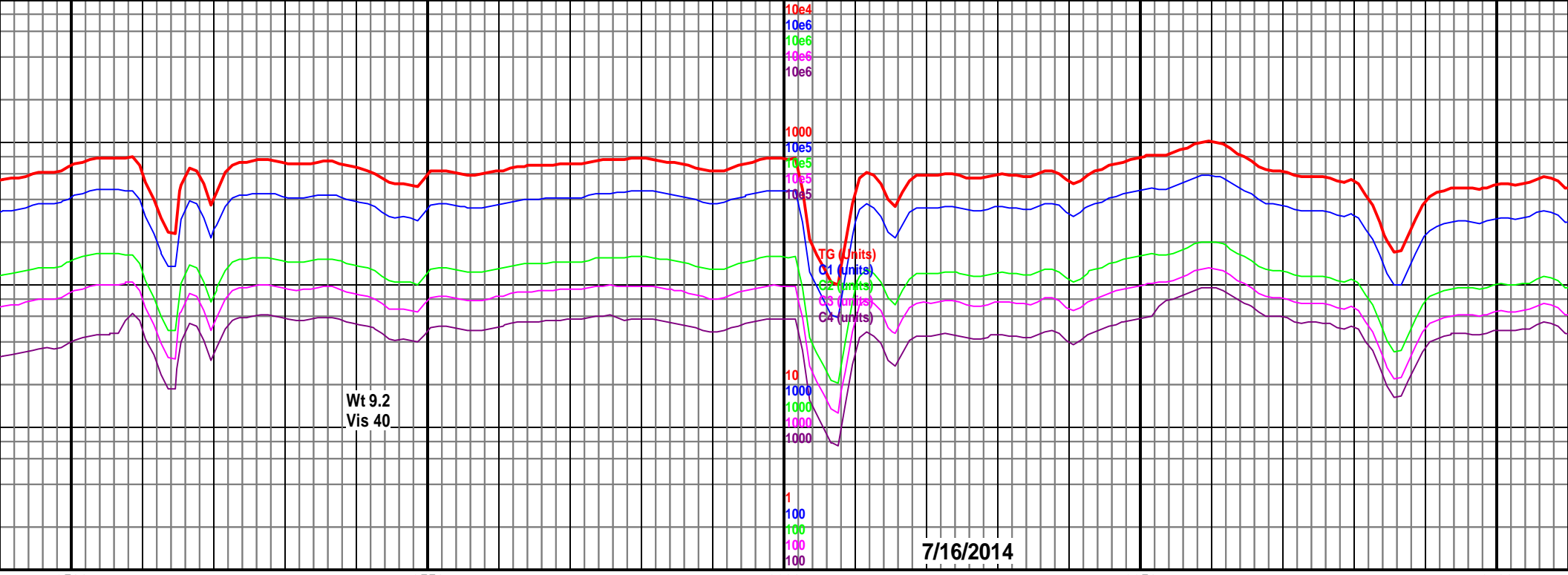
MD 6319 TVD 5835.64
INC 88.27 AZ 177.92
VS 430.57

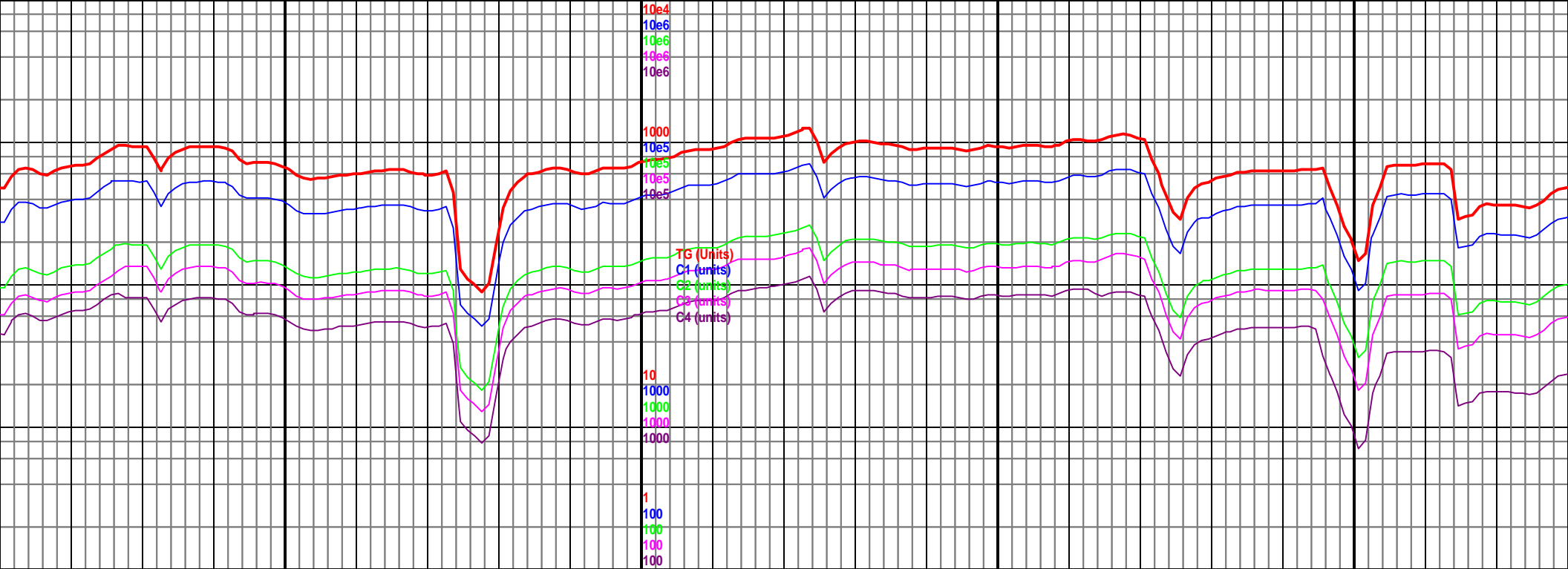
5100 TVD
Sub Sea (-327)
MD 6412 TVD 5837.32
INC 89.66 AZ 177.65
VS 523.49

5700
(-927)

6300-6400 Chk, v lt gy, plty-sb plty, v
sft, rr Mrlst dk gy, sb blk, sft, occ
bent, rr pyr, slo cut, 95% chk 5% mrlst

6400-6500 Chk cream-lt gy, plty-sb
plty, v sft, rr Mrlst dk gy, sb blk, sft,
abnt bent, slo cut, 95% chk 5% mrlst





6750

6800

6850

6900

MD 6777 TVD 5837.92
INC 90.15 AZ 178.9
VS 888.26

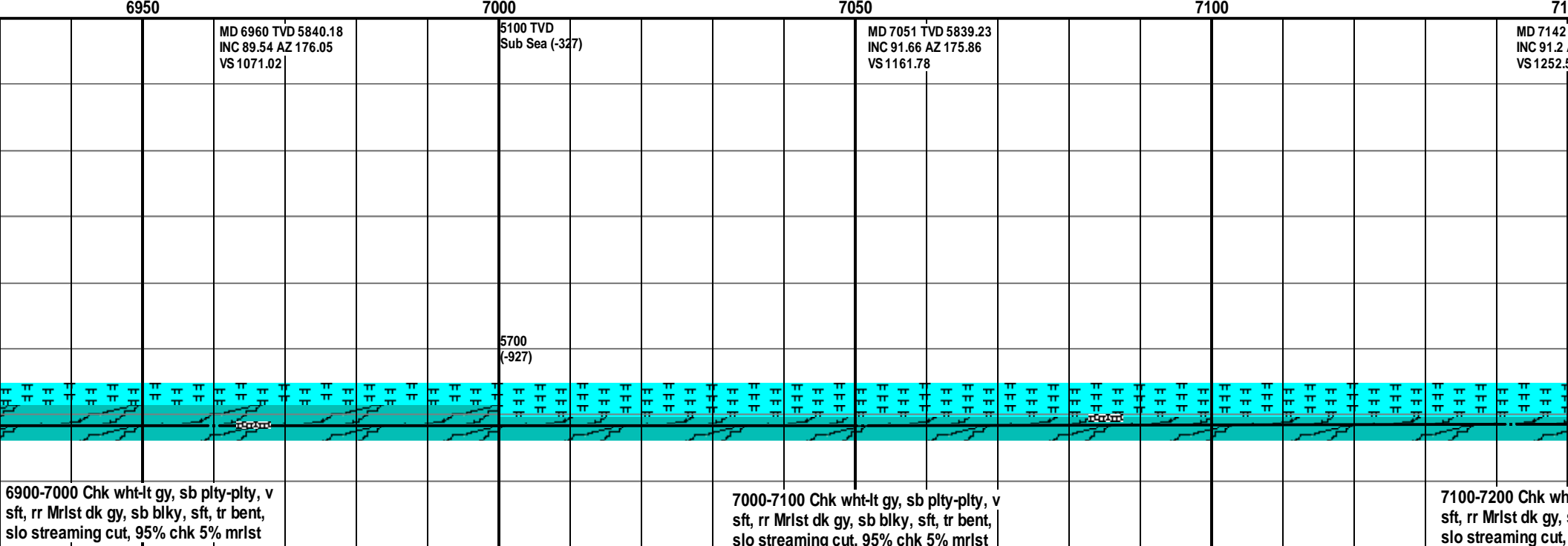
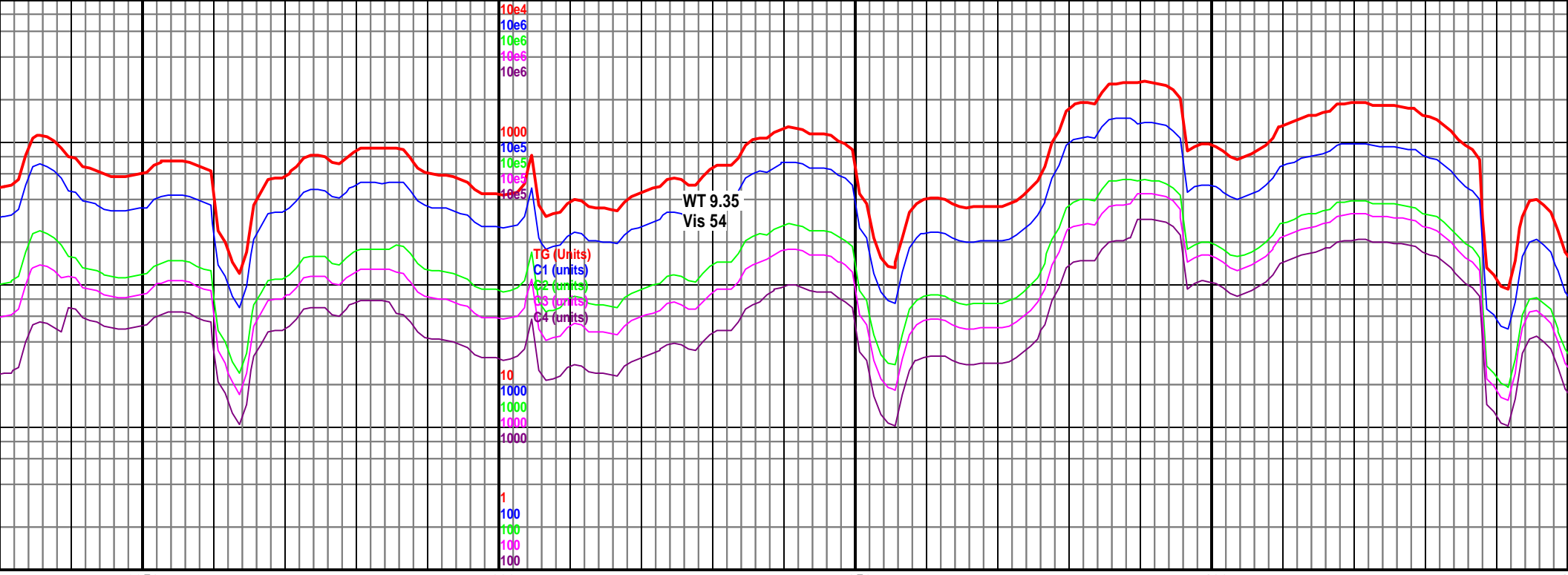
5100 TVD
Sub Sea (-327)

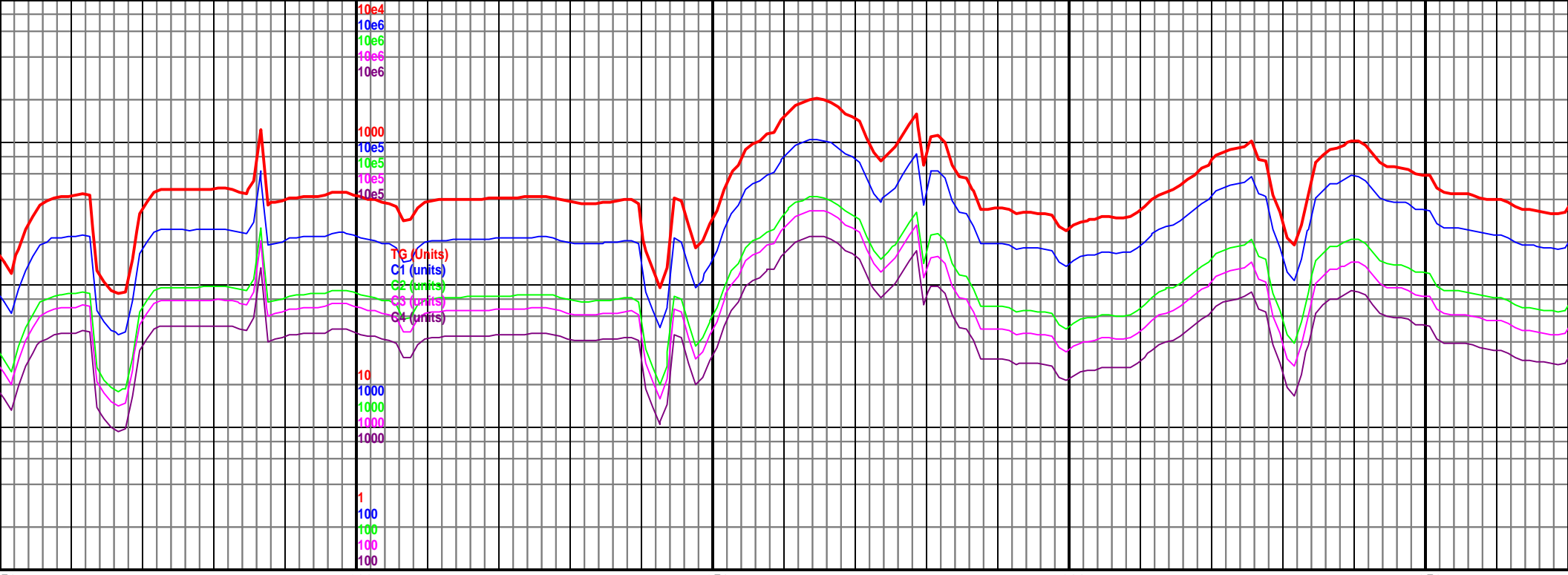
MD 6868 TVD 5838.8
INC 88.74 AZ 177.1
VS 979.19

5700
(-927)

6700-6800 Chk cream-lt gy, sb plty, v
sft, dk lam ip, rr Mrlst dk gy, sb blk,
sft, abnt bent, slo cut, 95% chk 5%
mrlst

6800-6900 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 95% chk 5% mrlst





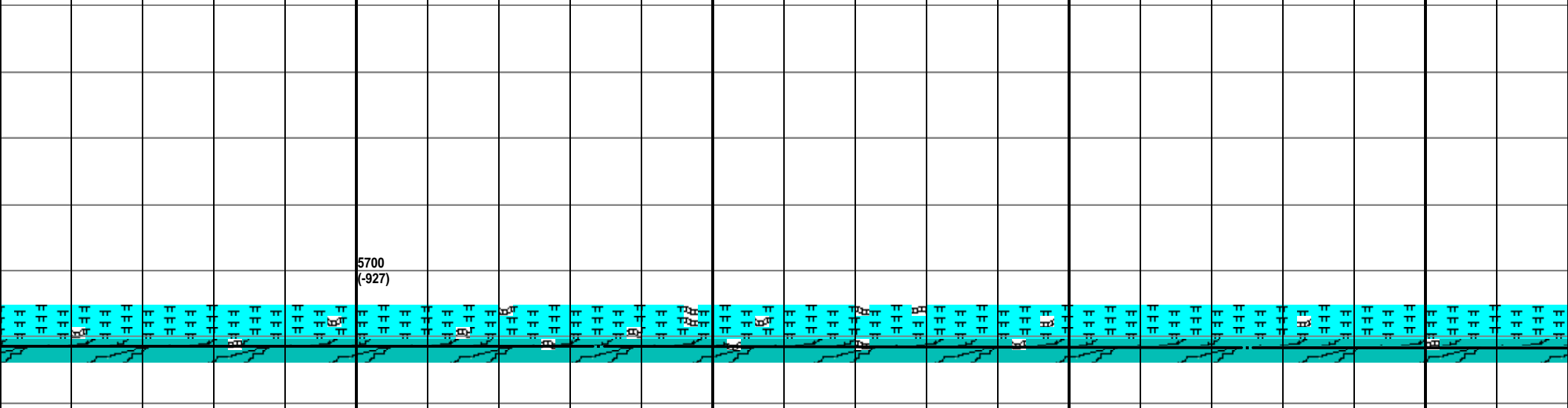
50 7200 7250 7300 7350

TVD 5836.96
AZ 176
52

5100 TVD
Sub Sea (-327)

MD 7234 TVD 5837.8
INC 87.75 AZ 174.86
VS 1344.21

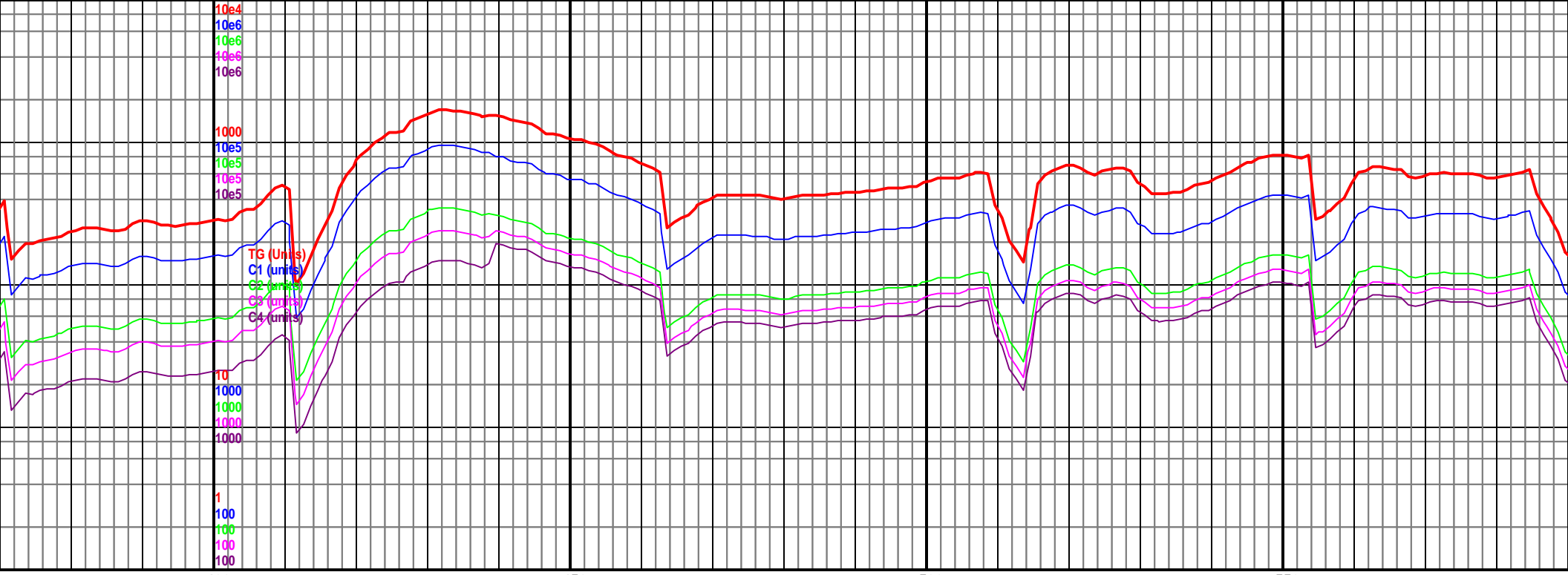
MD 7325 TVD 5840.61
INC 88.71 AZ 174.83
VS 1434.8



at-lt gy, sb plty-plty, v
sb blk, sft, tr bent,
95% chk 5% mrlst

7200-7300 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 90% chk 10% mrlst

7300-7400 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 90% chk 10% mrlst



7400

7450

7500

7550

5100 TVD
Sub Sea (-327)

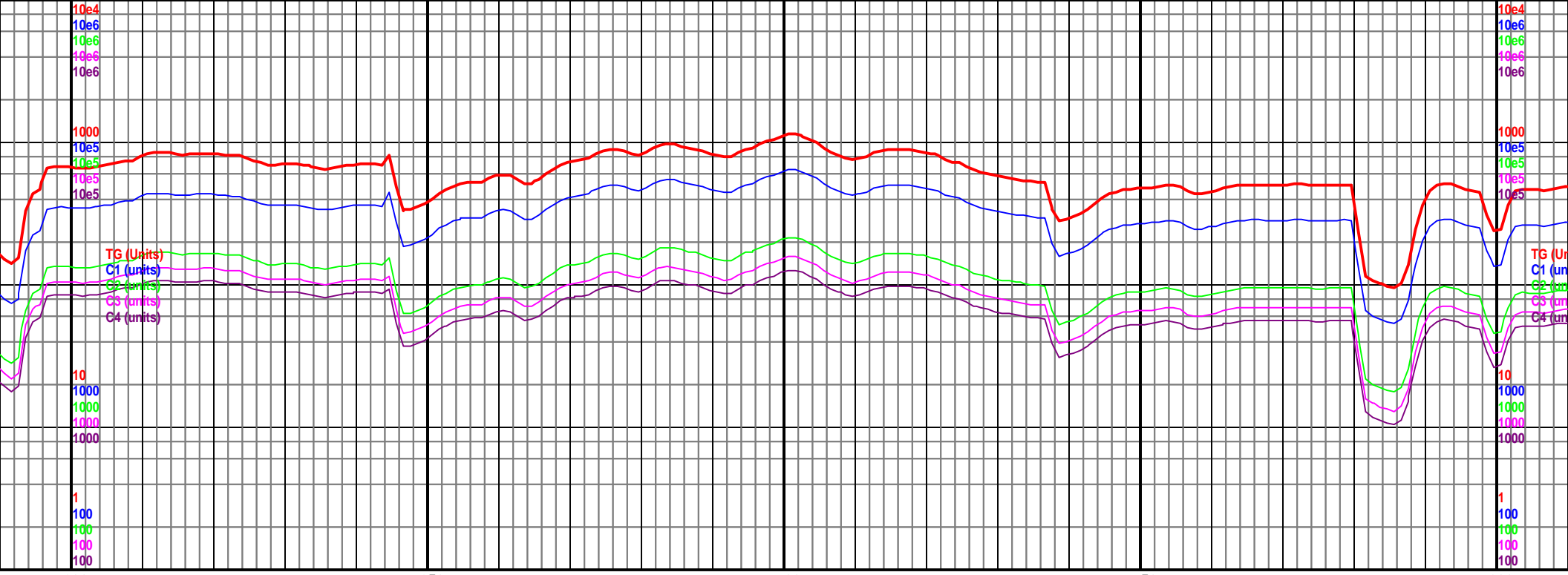
MD 7507 TVD 5843.34
INC 89.57 AZ 178.25
VS 1616.42

5700
(-927)



7400-7500 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 90% chk 10% mrlst

7500-7600 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 90% chk 10% mrlst



MD 7599 TVD 5843.81
INC 89.85 AZ 178.96
VS 1708.39

MD 7691 TVD 5843.93
INC 90 AZ 178.86
VS 1800.37

MD 7782 TVD 5844.61
INC 89.14 AZ 177.49
VS 1891.32

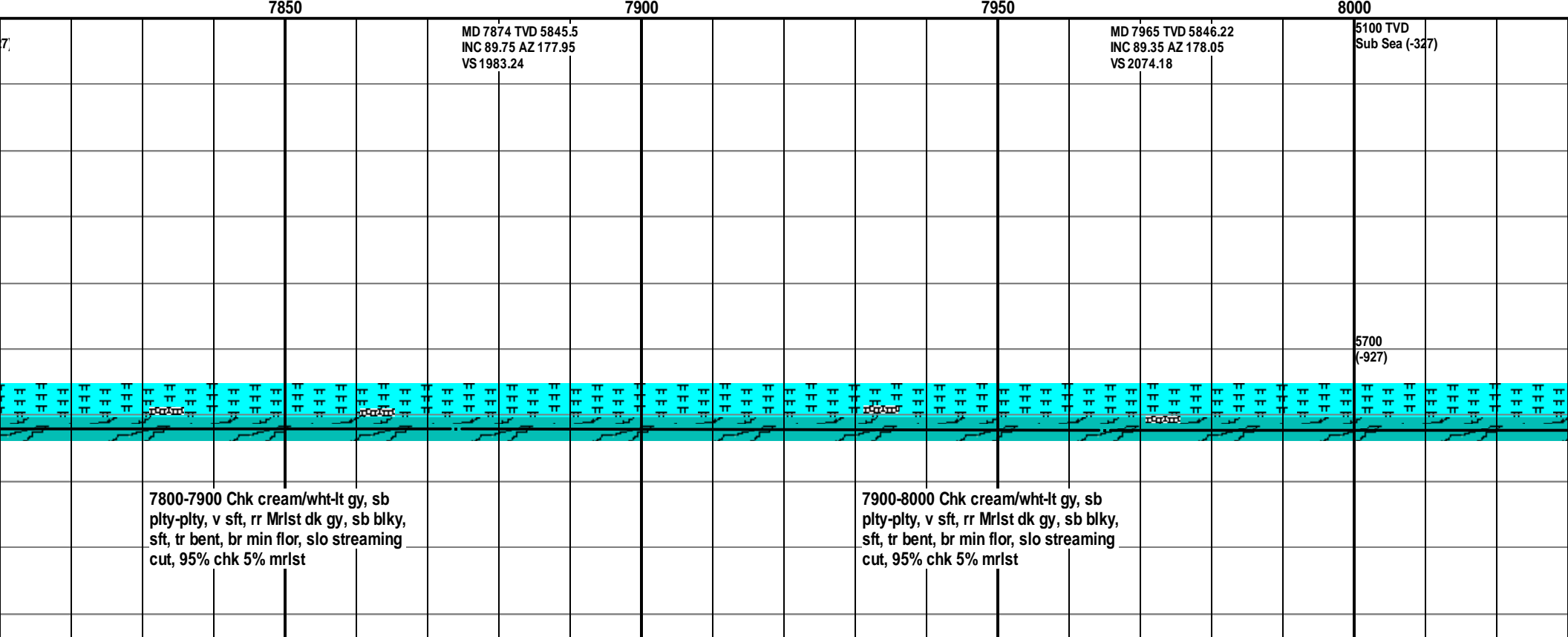
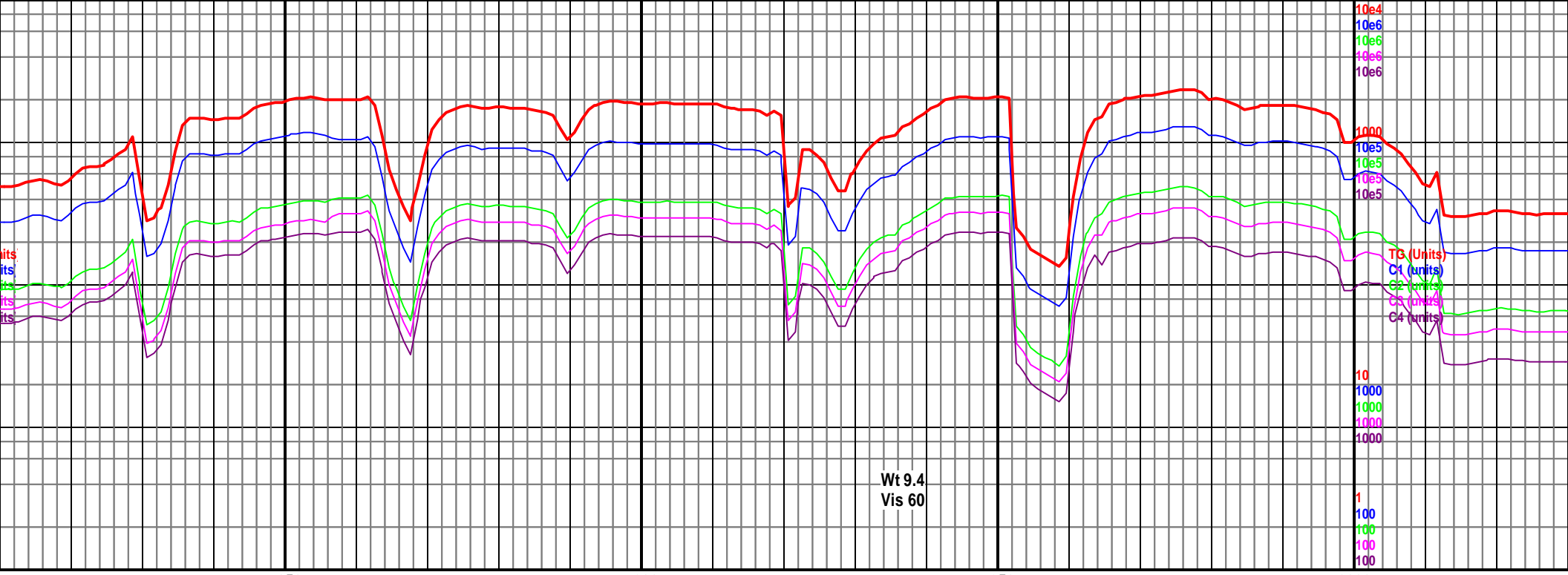
MD 7800 TVD 5844.61
Sub Sea (-32)

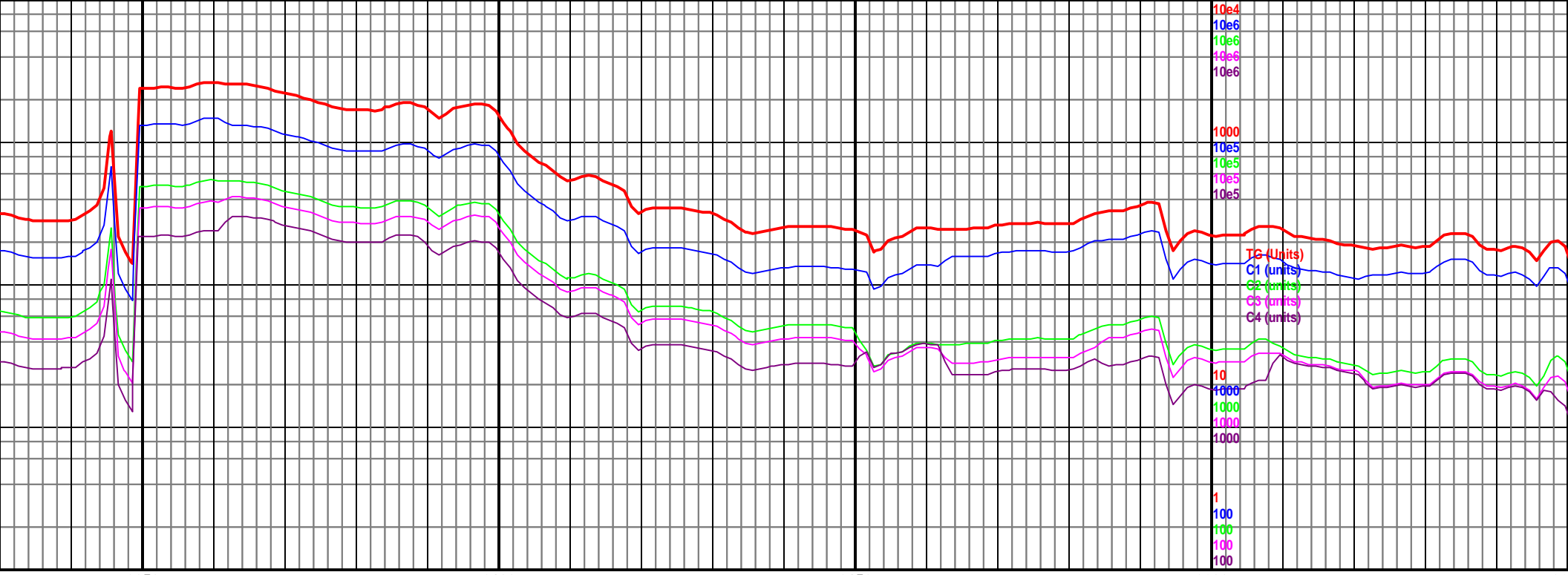
5700
(-927)

5700
(-927)

7600-7700 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
slo streaming cut, 90% chk 10% mrlst

7700-7800 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
rr pyr, slo streaming cut, 95% chk 5%
mrlst





8050

8100

8150

8200

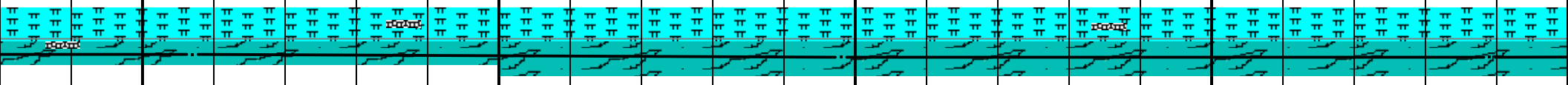
8250

MD 8057 TVD 5848.52
INC 87.78 AZ 178.78
VS 2166.12

MD 8148 TVD 5852.19
INC 87.6 AZ 177.12
VS 2256.98

5100 TVD
Sub Sea (-327)

MD 8239 TVD
INC 91.11 AZ
VS 2347.87

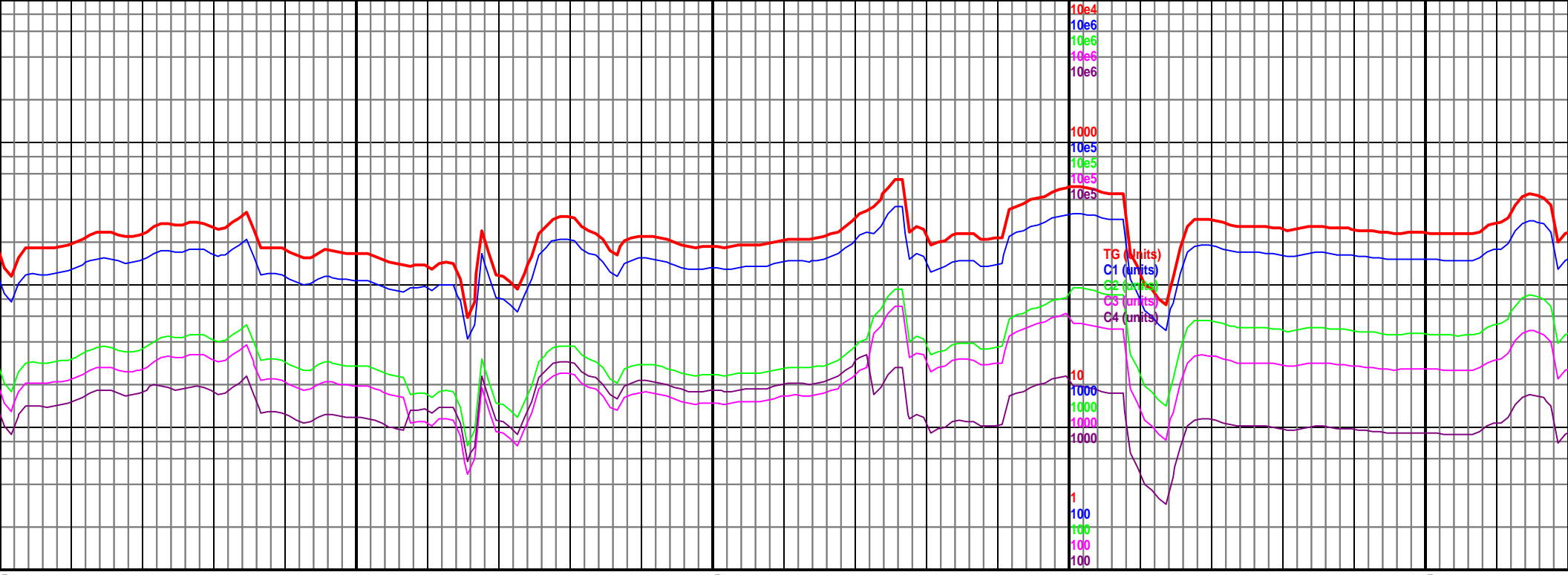


5700
(-927)

8000-8100 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
fst cut, 90% chk 10% mrlst

8100-8200 Chk wht-lt gy, sb plty-plty, v
sft, rr Mrlst dk gy, sb blk, sft, tr bent,
rr pyr, slo cut, 90% chk 10% mrlst

8200-8300 Chk wht-lt
sft, rr Mrlst dk gy, sb
rr pyr, slo cut, 90% c



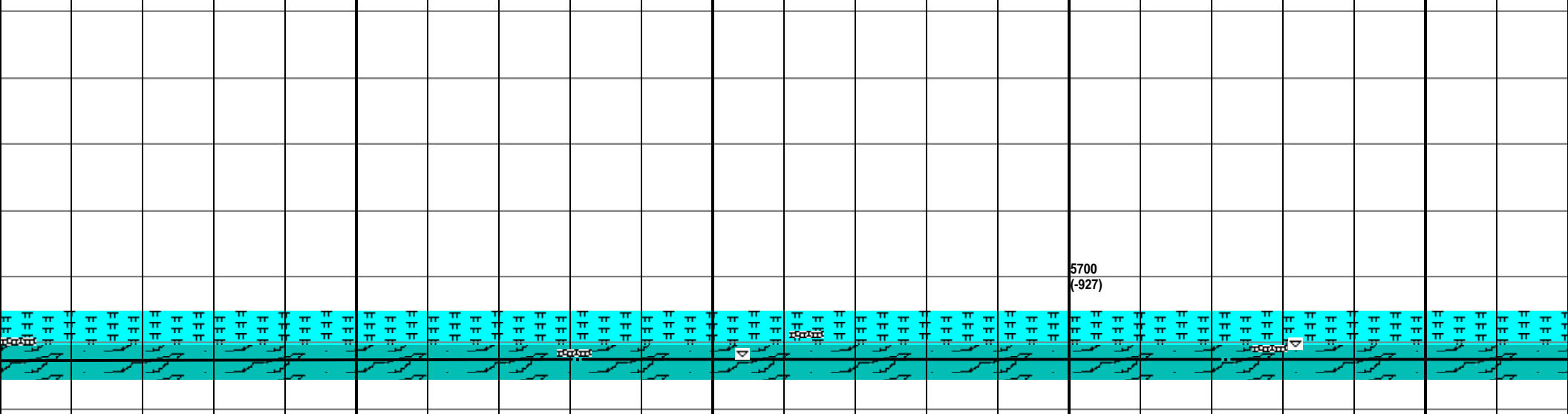
8250 8300 8350 8400 8450

5853.22
177.81

MD 8331 TVD 5851.23
INC 91.36 AZ 177.76
VS 2439.78

5100 TVD
Sub Sea (-327)

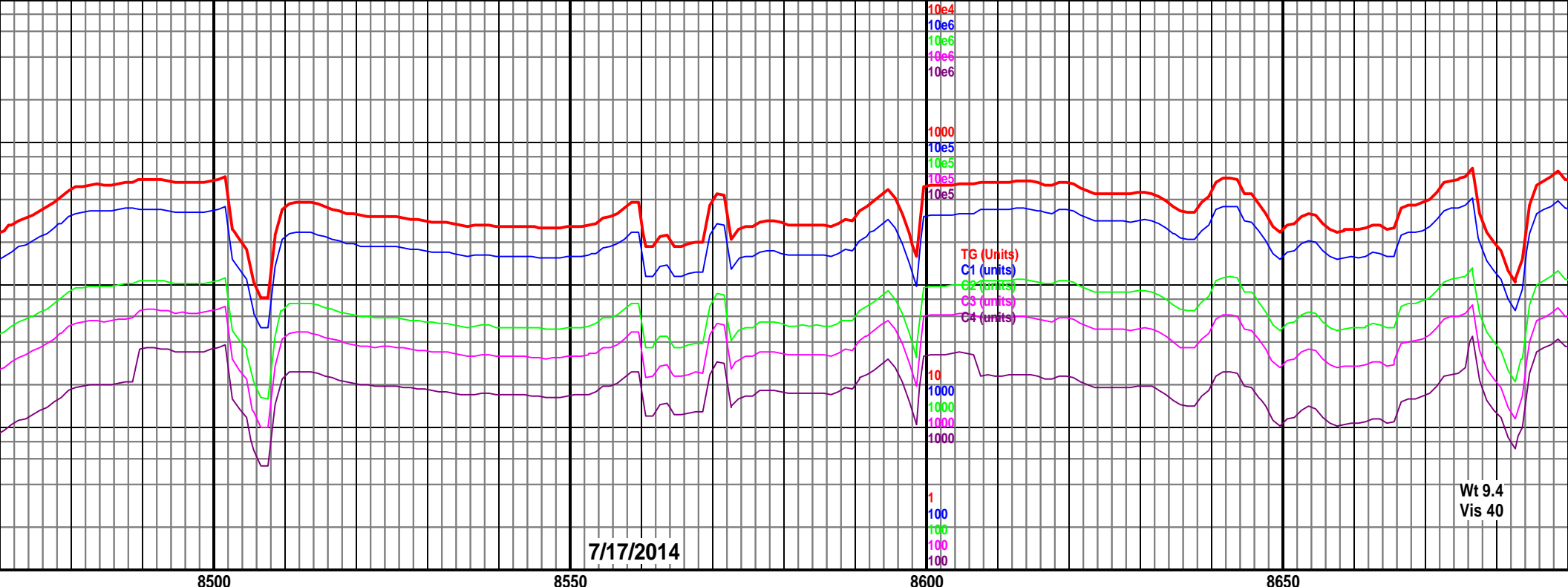
MD 8422 TVD 5850.29
INC 89.82 AZ 173.99
VS 2530.52



t gy, sb plty-plty, v
blky, sft, rr bent,
chk 10% mrlst

8300-8400 Chk wht-lt gy, sb plty-plty, v
sft, tr Mrlst dk gy, sb blky, sft, rr bent,
rr inoc, slo cut, 80% chk 20% mrlst

8400-8500 Chk wht-lt gy, sb plty-plty, v
sft, tr Mrlst dk gy, sb blky, sft, rr bent,
rr inoc, slo cut, 80% chk 20% mrlst



8500

8550

8600

8650

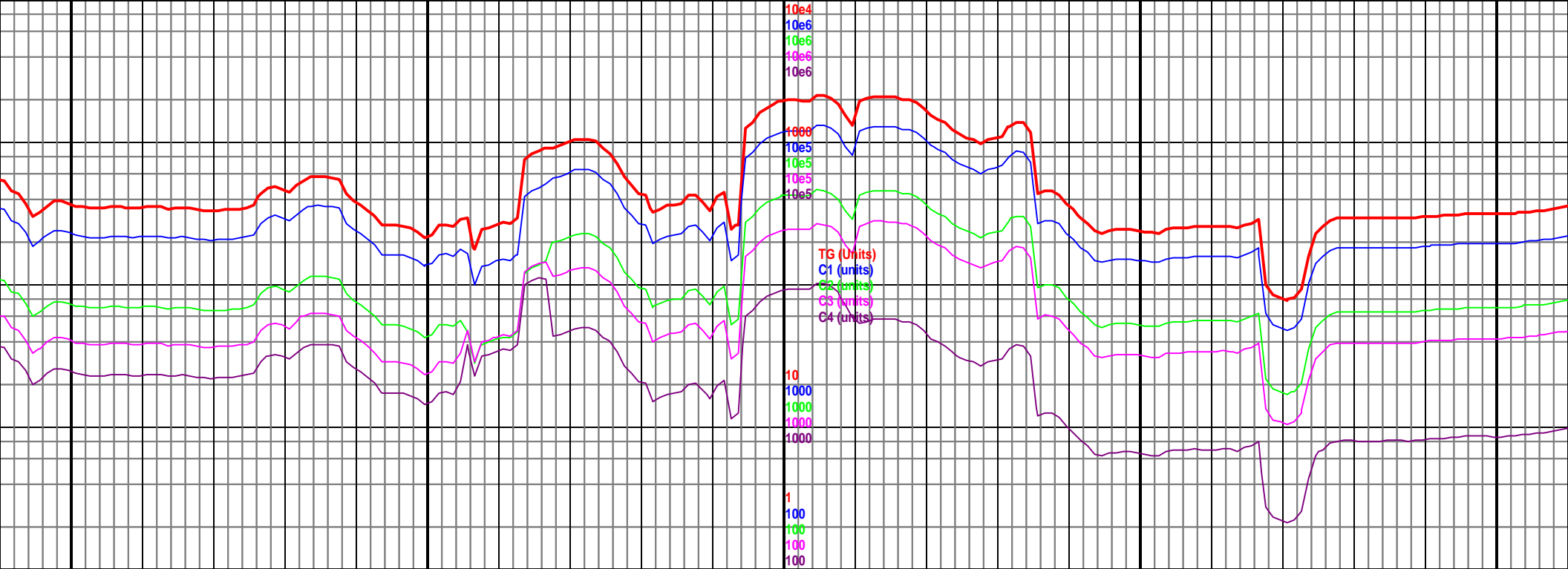
MD 8514 TVD 5851.01
INC 89.29 AZ 172.95
VS 2621.92

5100 TVD MD 8606 TVD 5851.14
Sub Sea INC 90.55 AZ 173.73
VS 2713.3

5700
(-927)

8500-8600 Chk wht-lt gy, sb plty, v sft,
occ Mrlst gy-dk gy, sb plty, sft, slty, rr
bent, slo stream cut, 60% chk 40%
mrilst

8600-8700 Chk wht-lt gy, sb plty, v sft,
occ Mrlst gy-dk gy, sb plty, sft, slty, tr
inoc, rr bent, slo stream cut, 60% chk
40% mrilst

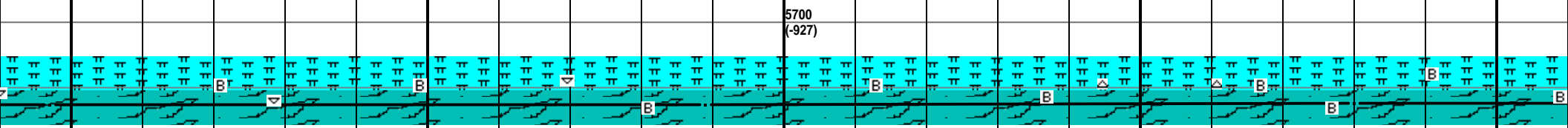


8700 8750 8800 8850 8900

MD 8697 TVD 5850.61
INC 90.12 AZ 170.35
VS 2803.4

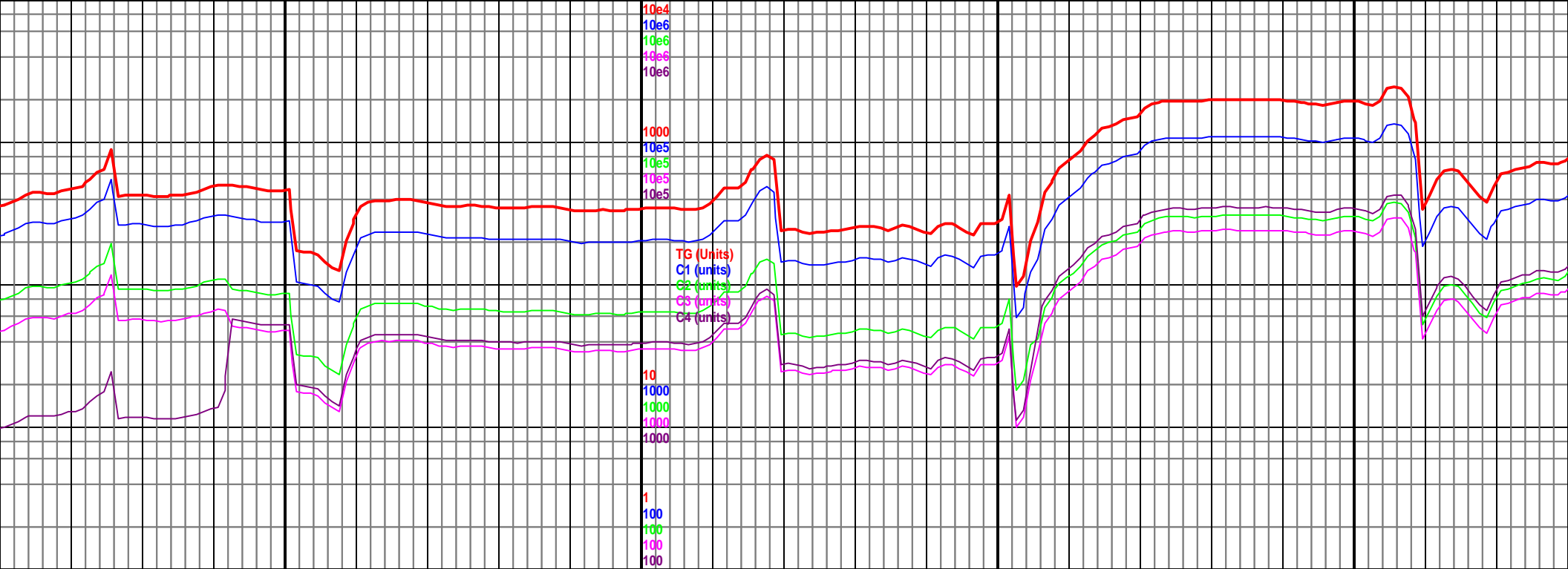
MD 8789 TVD 5849.44¹
INC 91.33 AZ 173.61^a (-327)
VS 2894.48

MD 8880 TVD 5847.75
INC 90.8 AZ 177.86
VS 2985.19



8700-8800 Chk wht-lt gy, sb plty-sb
blky, v sft, tr Mrlst gy-dk gy, sb plty, sft,
silty, tr inoc, rr bent, slo stream cut,
70% chk 30% mrlst

8800-8900 Chk wht-lt gy, sb plty-sb
blky, v sft, tr Mrlst gy-dk gy, sb plty, sft,
silty, tr inoc, rr bent, slo stream cut,
70% chk 30% mrlst



8950

9000

9050

9100

MD 8972 TVD 5847.2
INC 89.88 AZ 173.07
VS 3076.88

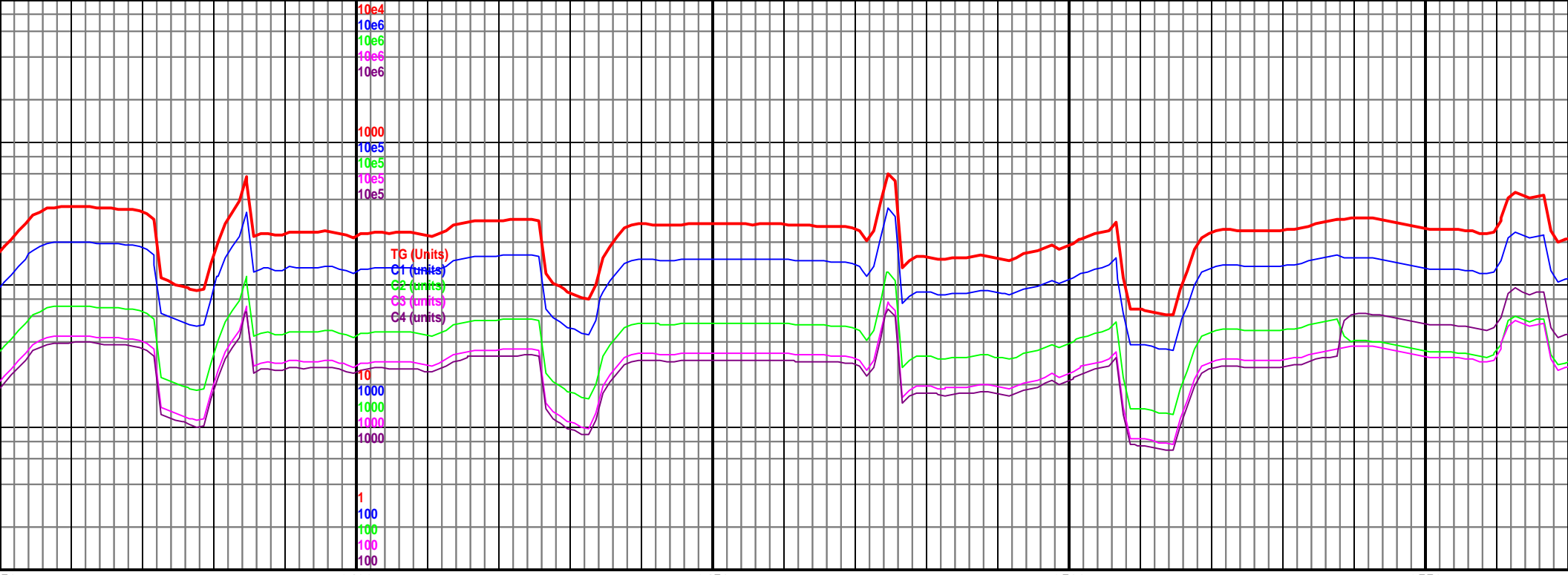
5100 TVD
Sub Sea (-327)

MD 9062 TVD 5845.89
INC 91.79 AZ 175.55
VS 3166.41

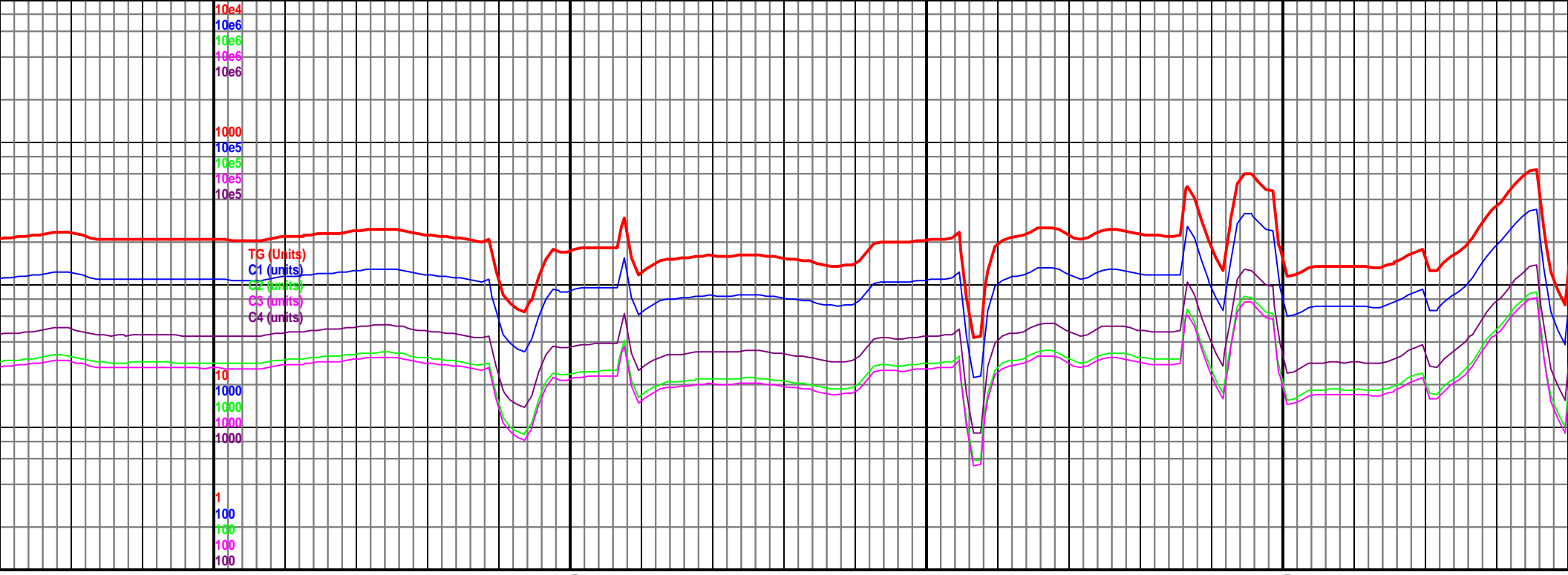
5700
(-927)

8900-9000 Chk wht-lt gy, sb plty-sb
blky, v sft, tr Mrlst gy-dk gy, sb plty, sft,
sfty, tr inoc, rr bent, slo stream cut,
60% chk 40% mrlist

9000-9100 Chk wht-lt gy, sb plty-sb
blky, v sft, tr Mrlst gy-dk gy, sb plty, sft,
sfty, tr inoc, rr bent, slo stream cut,
80% chk 20% mrlist



50.05 3.99	5100 TVD Sub Sea (-327)	MD 9429 TVD 5851.83 INC 90.15 AZ 179.41 VS 3533.17	MD 9520 TVD 5849.38 INC 92.93 AZ 179.94 VS 3624.13
It gy, sb plty-sb gy-dk gy, sb plty, sft, slo stream cut,	5700 (-927)	9400-9500 Chk wht-It gy, sb plty-sb blky, v sft, tr Mrlst gy-dk gy, sb plty, sft, sfty, tr inoc, rr bent, slo stream cut, 70% chk 30% mrlst	9500-9600 Chk wht-It gy, sb plty-sb blky, v sft, tr Mrlst gy-dk gy, sb plty, sft, sfty, tr inoc, slo stream cut, 70% chk 30% mrlst



9600

9650

9700

9750

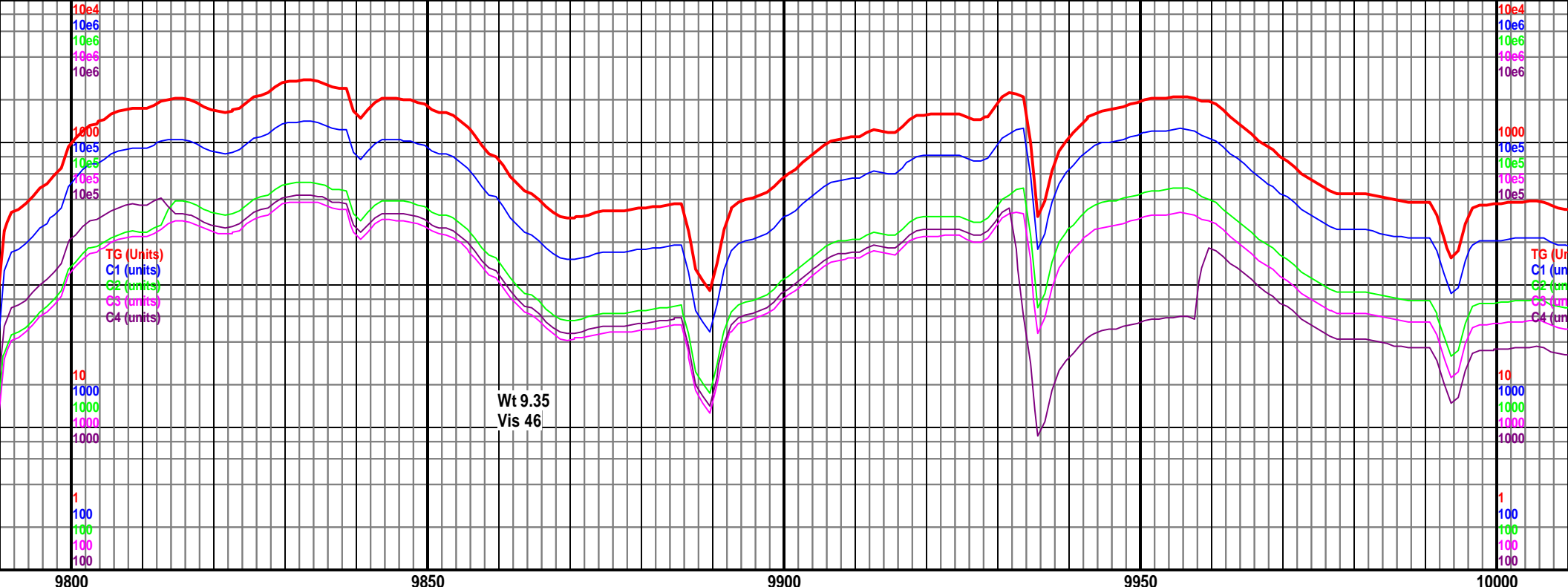
5100 TVD
Sub Sea (-327)
MD 9612 TVD 5845.72
INC 91.63 AZ 179.29
VS 3716.05

MD 9703 TVD 5844.41
INC 90.03 AZ 178.63
VS 3807.03

5700
(-927)

9600-9700 Chk wht-lt gy, sb ply-sb
blky, v sft, mottled ip, tr Mrlst gy-dk gy,
sb ply, sft, slty, rr inoc, slo stream cut,
80% chk 20% mrlst

9700-9800 Chk wht-lt gy, sb ply-sb
blky, v sft, dk lam ip, tr Mrlst gy-dk gy,
sb ply, sft, slty, rr inoc, rr bent, grn
min flr, slo stream cut, 80% chk 20%
mrlst



MD 9794 TVD 5842.4
INC 92.5 AZ 180.27
VS 3897.99

MD 9889 TVD 5838.28
INC 92.47 AZ 180.04
VS 3992.9

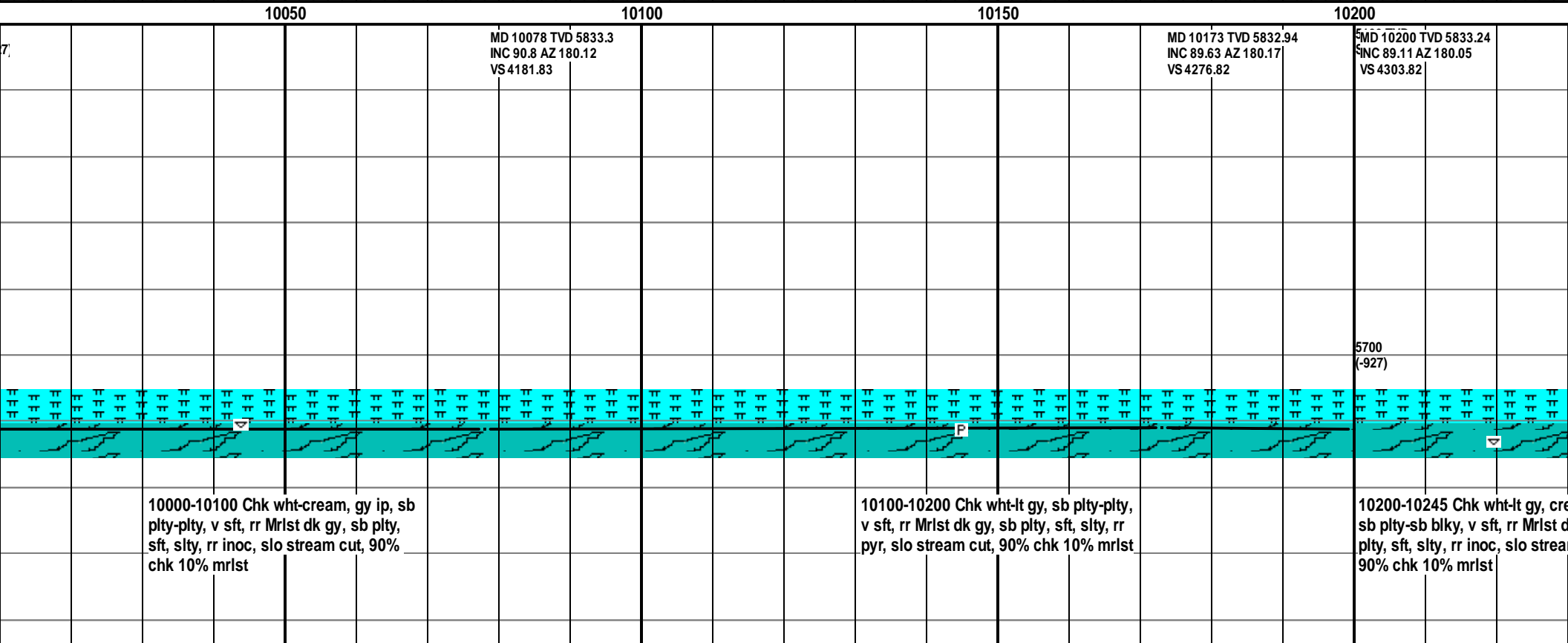
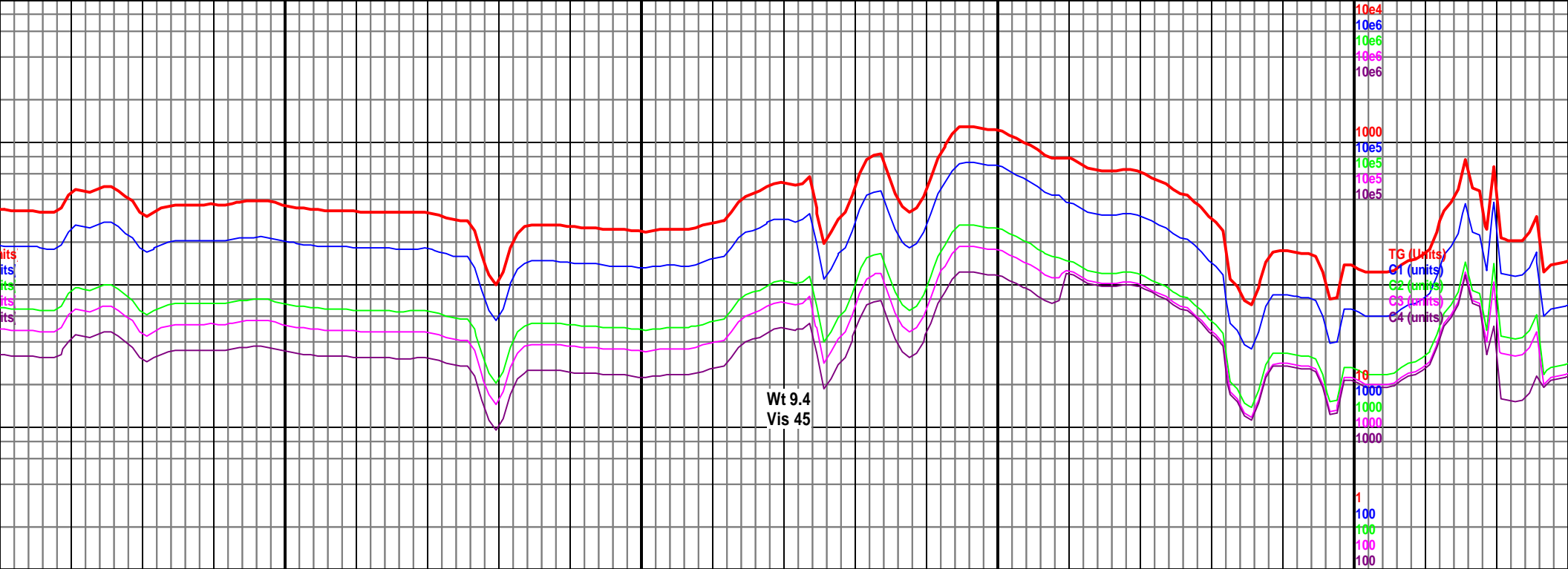
MD 9983 TVD 5835.11
INC 91.39 AZ 180.22
VS 4086.84

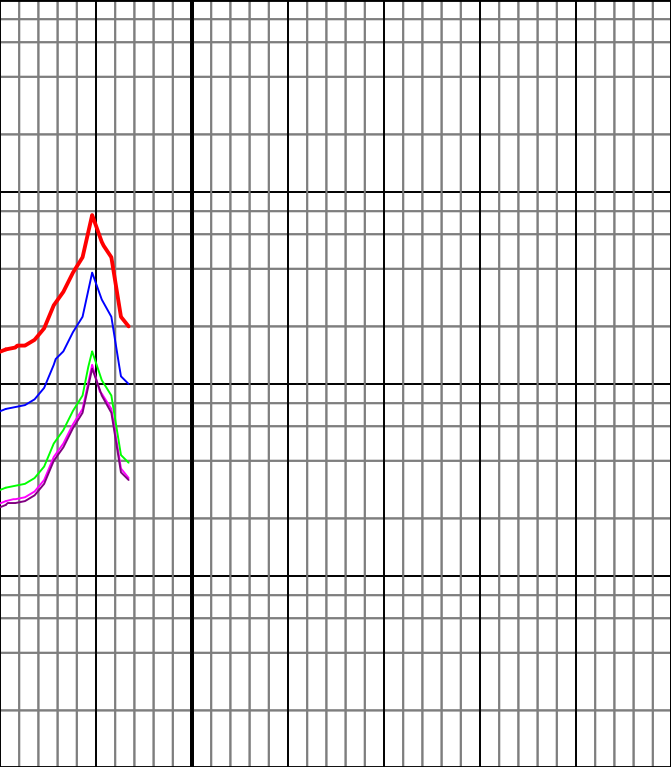
5700
(-927)

5700
(-927)

9800-9900 Chk wht-lt gy, cream ip, sb
plty-plty, v sft, rr Mrlst dk gy, sb plty,
sft, slty, rr inoc, tr bent, grn min flr, slo
stream cut, 90% chk 10% mrlst

9900-10000 Chk wht-lt gy, cream ip, sb
plty-plty, v sft, rr Mrlst dk gy, sb plty,
sft, slty, rr inoc, tr bent, grn min flr, slo
stream cut, 90% chk 10% mrlst





10250

103

TD reached 10245' at 05:20
on 7/18/2014



eam ip,
lk gy, sb
m cut,