



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

Well Name: Razor 25B-2549
Location: NWNE 25-T10N-R58W
License Number: 05-123-39119
Spud Date: 7/22/2014
Surface Coordinates: Lat.: 40.818153 Long.: -103.810531
Bottom Hole Coordinates: Lat.: 40.804122 Long.: -103.812214
Ground Elevation (ft): 4756
Logged Interval (ft): 5230 **To:** 10183
Formation: Nibrara C Chalk
Type of Drilling Fluid: Water Based Mud

Region: Redtail Field

Drilling Completed: 7/29/2014

K.B. Elevation (ft): 4773
Total Depth (ft): 10183

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

OPERATOR

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

GEOLOGIST

Name: Todd Nakata, and Demond Taylor
Company: Acme Geologic Consulting
Address: 108 Berry Street
Little Rock, AR 72205

Drilling Company

Cade Drilling, LLC
Rig #23

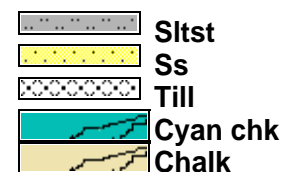
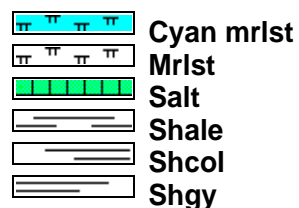
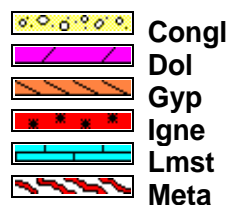
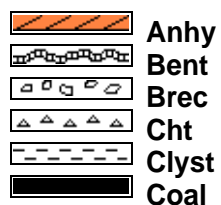
Gas Detection

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

Comments

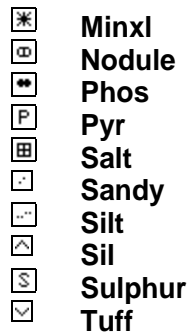
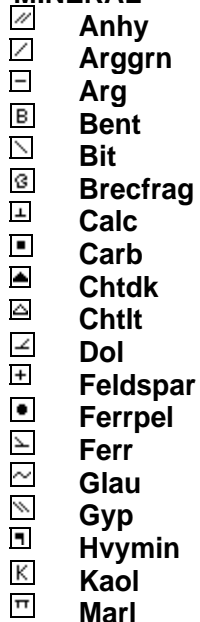
Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES

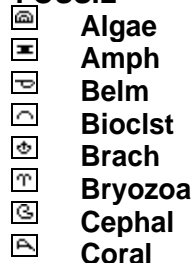


ACCESSORIES

MINERAL



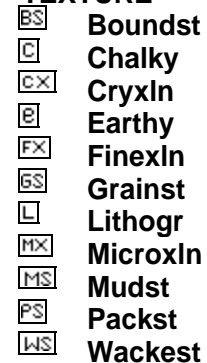
FOSSIL



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

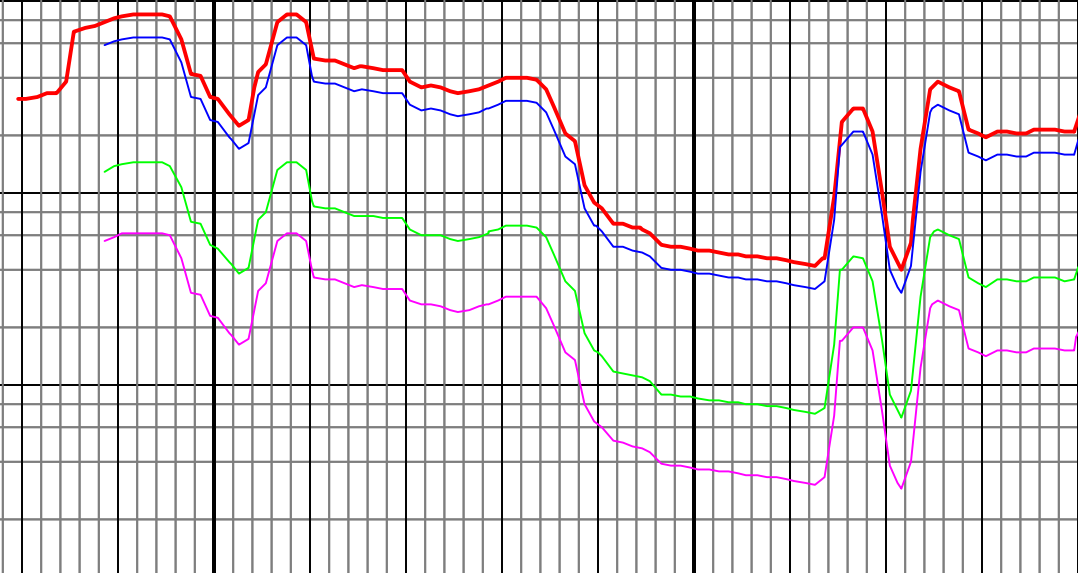
-  Rft
-  Sidewall

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.

TG (Units)	C1 (units)	C2 (units)	C3 (units)	C4 (units)
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11	1	1	1	1
12	1	1	1	1
13	1	1	1	1
14	1	1	1	1
15	1	1	1	1
16	1	1	1	1
17	1	1	1	1
18	1	1	1	1
19	1	1	1	1
20	1	1	1	1
21	1	1	1	1
22	1	1	1	1
23	1	1	1	1
24	1	1	1	1
25	1	1	1	1
26	1	1	1	1
27	1	1	1	1
28	1	1	1	1
29	1	1	1	1
30	1	1	1	1
31	1	1	1	1
32	1	1	1	1
33	1	1	1	1
34	1	1	1	1
35	1	1	1	1
36	1	1	1	1
37	1	1	1	1
38	1	1	1	1
39	1	1	1	1
40	1	1	1	1
41	1	1	1	1
42	1	1	1	1
43	1	1	1	1
44	1	1	1	1
45	1	1	1	1
46	1	1	1	1
47	1	1	1	1
48	1	1	1	1
49	1	1	1	1
50	1	1	1	1
51	1	1	1	1
52	1	1	1	1
53	1	1	1	1
54	1	1	1	1
55	1	1	1	1
56	1	1	1	1
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60	1	1	1	1
61	1	1	1	1
62	1	1	1	1
63	1	1	1	1
64	1	1	1	1
65	1	1	1	1
66	1	1	1	1
67	1	1	1	1
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72	1	1	1	1
73	1	1	1	1
74	1	1	1	1
75	1	1	1	1
76	1	1	1	1
77	1	1	1	1
78	1	1	1	1
79	1	1	1	1
80	1	1	1	1
81	1	1	1	1
82	1	1	1	1
83	1	1	1	1
84	1	1	1	1
85	1	1	1	1
86	1	1	1	1
87	1	1	1	1
88	1	1	1	1
89	1	1	1	1
90	1	1	1	1
91	1	1	1	1
92	1	1	1	1
93	1	1	1	1
94	1	1	1	1

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



Depth

50

5200

5250

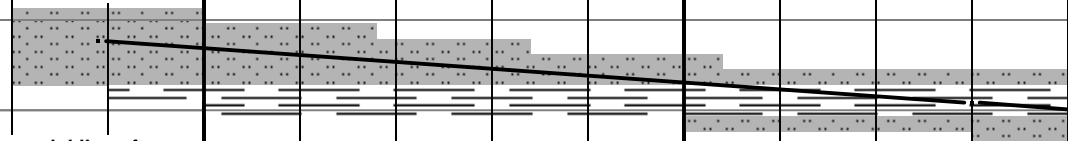
5300

5000 TVD	
Sub Sea (-227)	

5000 TVD	
Sub Sea (-227)	

MD 5239 TVD 5158.32
INC 2.34 AZ 256.64
VS-193.88

MD 5330 TV	
INC 3.98 AZ	
VS-190.71	



5230-5250	Slttst gy-dk gy, sb blky, sft, non calc, tr sh med gy, sb plty, nsfoc, 80%slttst 20%sh		
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5250-5300 Sltst gy-dk gy, sb blky, sft,
non calc, tr sh med gy, sb plty, nsfoc,
80%sltst 20%sh

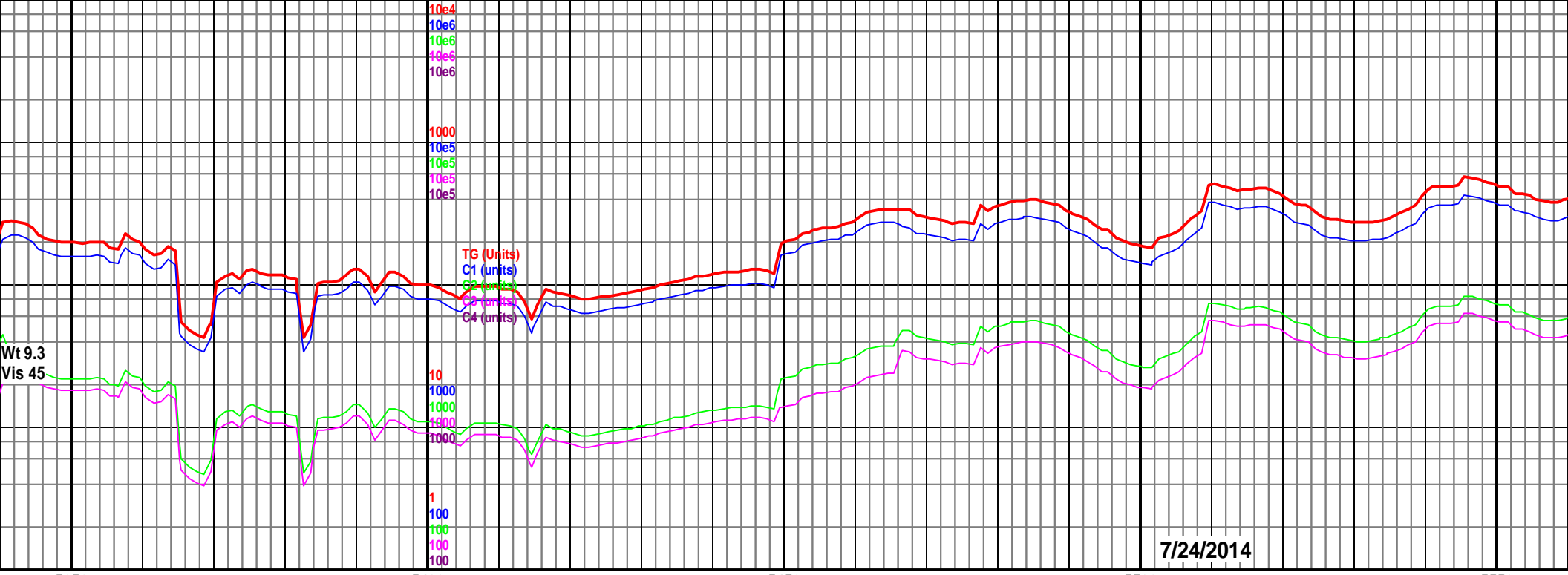
5300-5350 Sltst gy-med gy, sb bl
plty, sft, non calc, rr sh med gy, s
nsfoc, 90%sltst 10%sh

**Acme Geologic Consulting
rigged up and operational
on 7/23/2014 at 14:00**

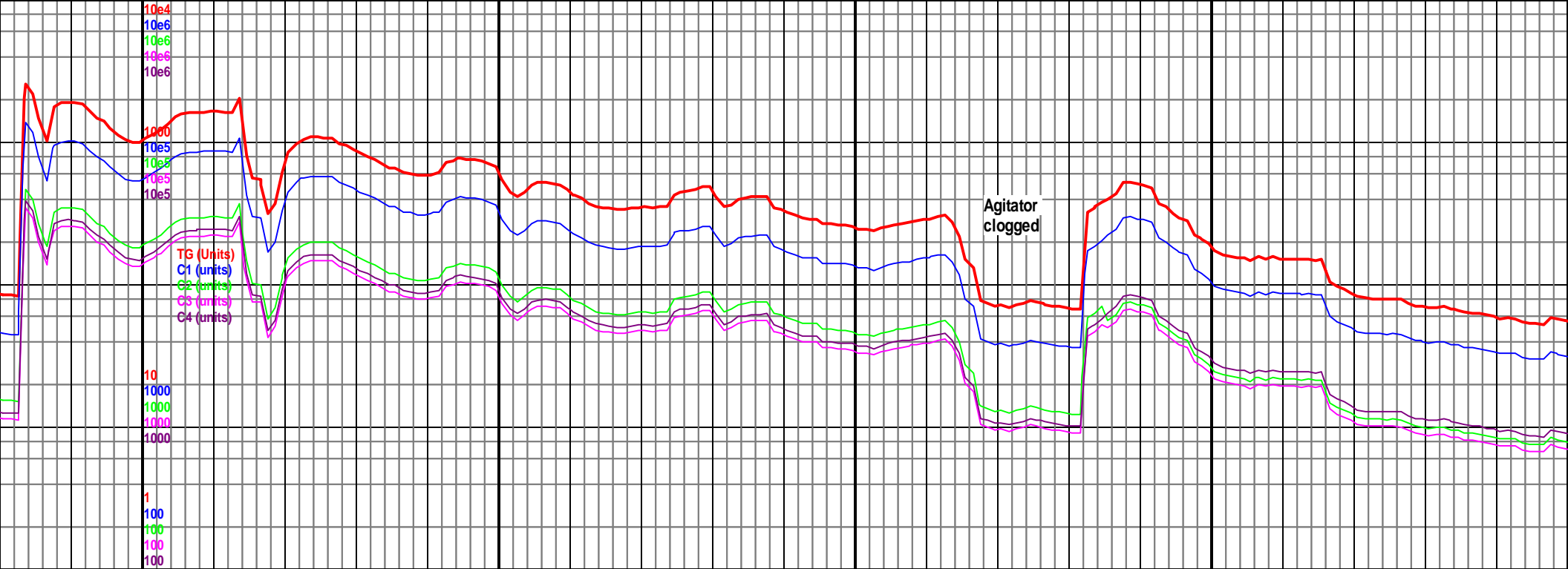
$$\begin{array}{r} 5650 \\ (-877) \\ \hline \end{array}$$
$$\begin{array}{r} 5650 \\ + (-877) \\ \hline \end{array}$$

**KOP 5230' reached at 17:17
on 7/23/2014**

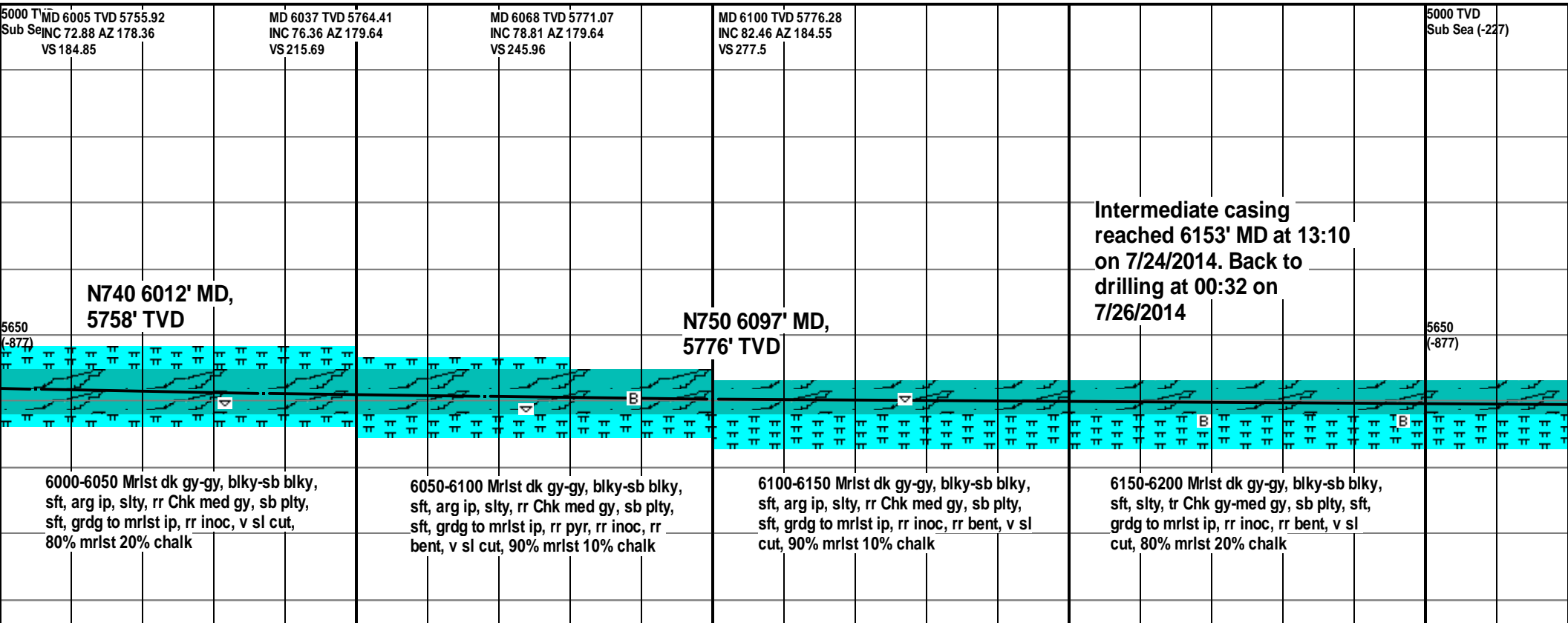
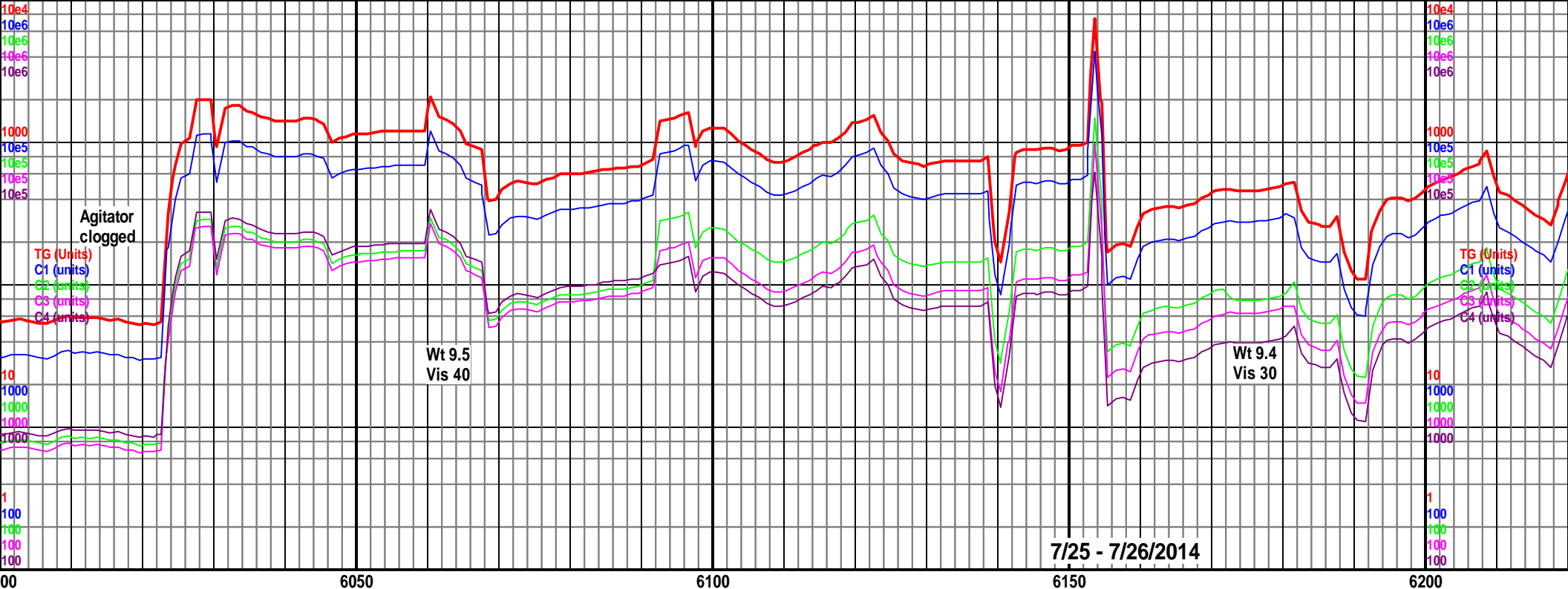
Well Bore Cross Section

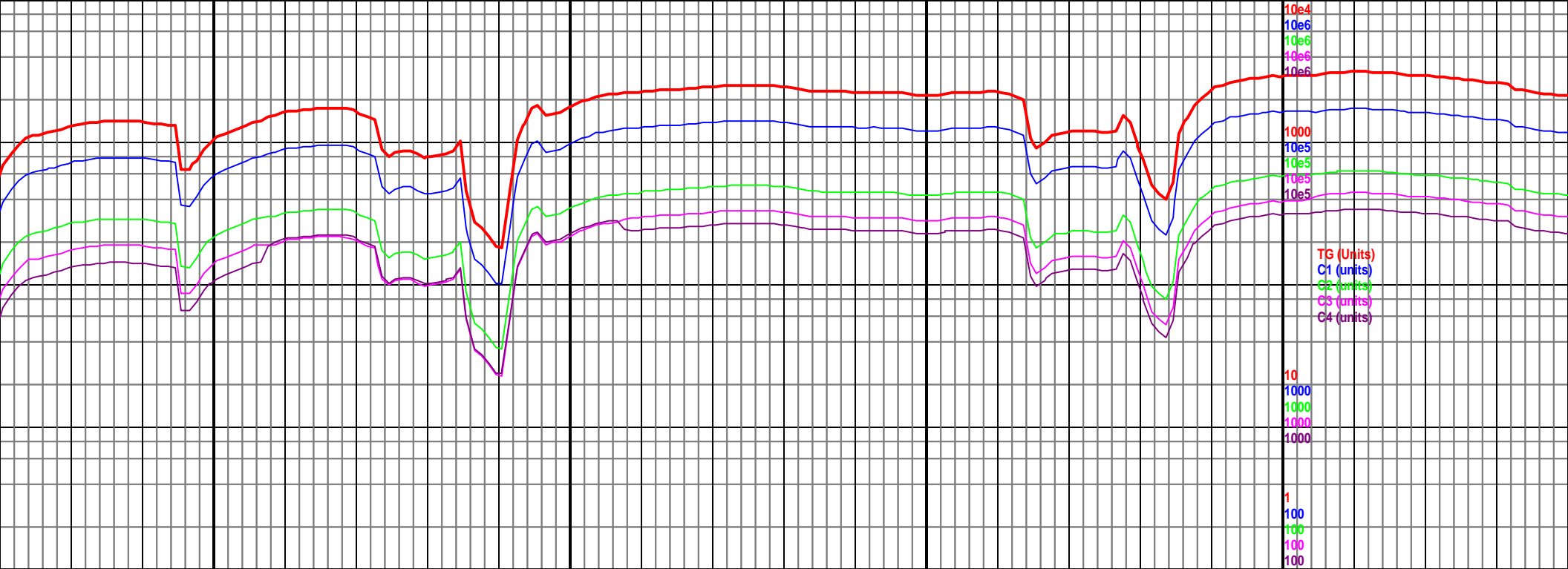


5350		5400		5450		5500		5550	
D 5249.19 209.87		MD 5360 TVD 5279.11 INC 4.56 AZ 205.21 VS -188.73		5000 TVD Sub Sea (-227)		MD 5452 TVD 5370.16 INC 13.18 AZ 199.17 VS -177.1		MD 5483 TVD 5399.99 INC 18.38 AZ 195.99 VS -169.06	
				MD 5421 TVD 5339.71 INC 8.27 AZ 202.99 VS -182.49				MD 5513 TVD 5428.01 INC 23.3 AZ 192.99 VS -158.72	
								MD 5544 TVD 5455 INC 27.74 AZ 187.2 VS -145.58	



MD 5788 TVD 5654.82'D INC 46.04 AZ 180.41 ^{ea} (-227) VS -6.15	MD 5818 TVD 5674.23 INC 53.28 AZ 182.72 VS 16.69	MD 5848 TVD 5690.74 INC 59.91 AZ 184 VS 41.67	MD 5878 TVD 5704.99 INC 63.34 AZ 182.38 VS 68.02	MD 5910 TVD 5719.42 INC 63.08 AZ 181.38 VS 96.57	MD 5942 TVD 5733.51 INC 64.68 AZ 180 VS 125.3	MD 5973 TVD 5745.67 INC 69.09 AZ 179.07 VS 153.8
N500 5796' MD, 5660' TVD				N700 5903' MD, 5716' TVD	N710 5925' MD, 5726' TVD	N720 5958' MD, 5740' TVD
med gy, sb blk, y, rr inoc, sl cut	5800-5850 Chk lt gy-med gy, sb blk, mod sft, mottled, dk lam ip, tr Mrlst dk gy, sb plty, sft, slty, rr inoc, sl cut 70% chk 30% mrlst	5850-5900 Chk lt gy-med gy, sb blk, mod sft, mottled, dk lam ip, tr Mrlst dk gy, sb plty, sft, slty, rr inoc, sl cut 80% chk 20% mrlst	5900-5950 Chk lt gy-med gy, sb blk, mod sft, mottled, dk lam ip, tr Mrlst dk gy, sb plty, sft, slty, rr inoc, sl cut 80% chk 20% mrlst		5950-6000 Chk lt gy-med gy, sb blk, mod sft, mottled, dk lam ip, tr Mrlst dk gy, sb plty, sft, slty, rr inoc, sl cut 80% chk 20% mrlst	





6250

6300

6350

6400

MD 6228 TVD 5786.75
INC 88.15 AZ 182.92
VS 404.74

MD 6319 TVD 5788.08
INC 90.18 AZ 183.58
VS 495.58

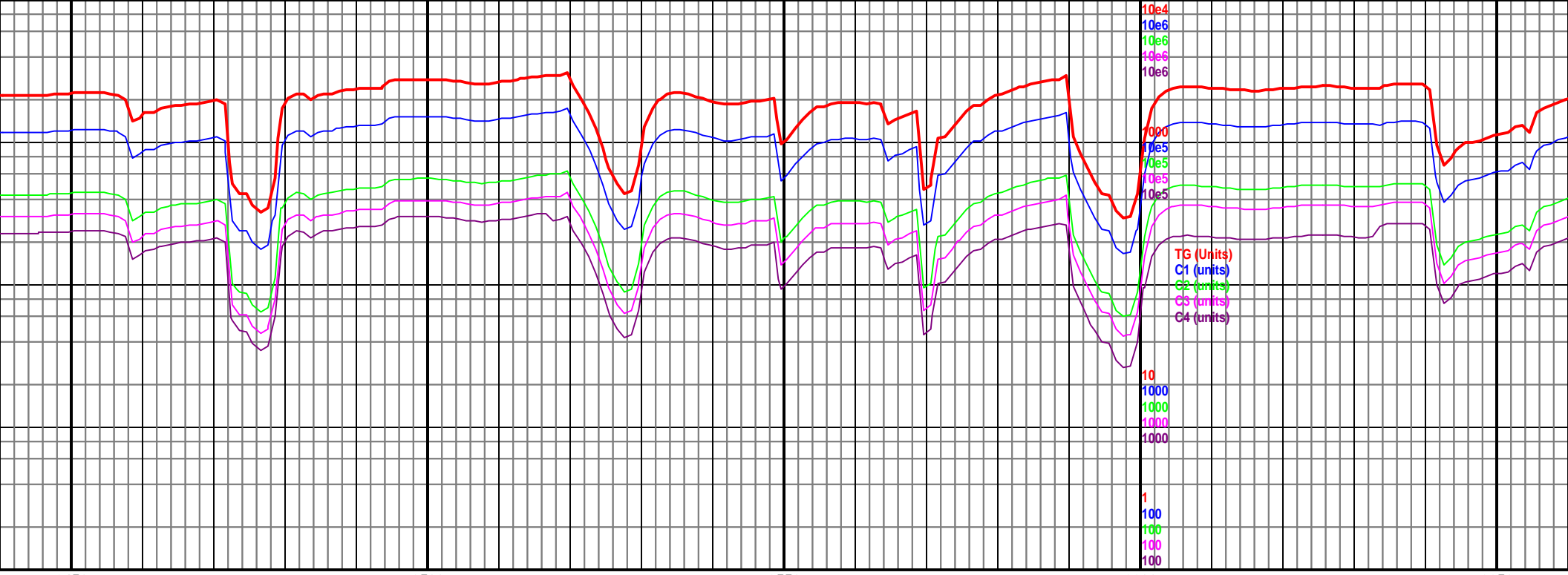
5000 TVD
Sub Sea (-227)
MD 6411 TVD 5787.09
INC 91.05 AZ 180.94
VS 587.49

5650
(-877)

6200-6300 Mrlst dk gy-gy, sb plty-sb blk,
sft, slty, rr Chk med gy, sb plty, sft, grdg
to mrlst, rr inoc, rr bent, v sl cut, 90%
mrlst 10% chalk

6300-6400 Mrlst dk gy-gy, sb plty-sb blk,
sft, slty, dk lam, rr Chk med gy, sb plty, sft,
grdg to mrlst, rr inoc, v sl cut, 90% mrlst
10% chalk

6400-6500
blk, sft, g
plty, sft, g
sl cut, 90%



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

6450 6500 6550 6600 6650

MD 6502 TVD 5783.66
INC 93.27 AZ 179.43
VS 678.42

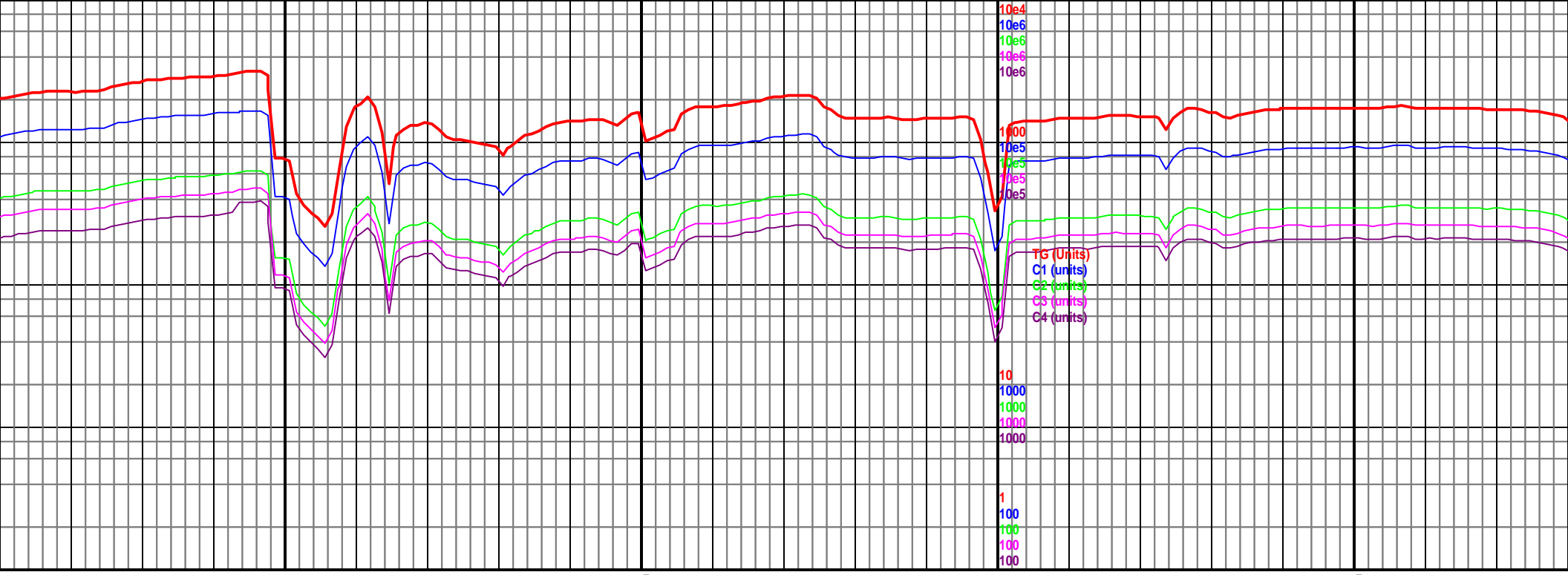
MD 6594 TVD 5778.2
INC 93.53 AZ 176.72
VS 770.2

5650
(-877)

0 Mrlst dk gy-gy, sb plty-sb
sfty, dk lam, rr Chk med gy, sb
rdg to mrlst, rr bent, rr inoc, v
% mrlst 10% chalk

6500-6600 Mrlst dk gy-gy, blk-sb blk,
sft, slty, rr Chk gy, sb plty-sb blk, sft,
rr inoc, rr pyr, grn min flor, v sl cut,
70% mrlst 30% chalk

6600-6700 Mrlst dk gy-gy, blk
sft, slty, rr Chk gy, sb plty-sb
rr inoc, rr pyr, v sl cut, 50% n
chalk



6700

6750

6800

6850

MD 6684 TVD 5774.27
INC 91.48 AZ 176.52
VS 859.95

MD 6776 TVD 5772.56
INC 90.65 AZ 175.51
VS 951.71

5000 TVD
Sub Sea (-227)

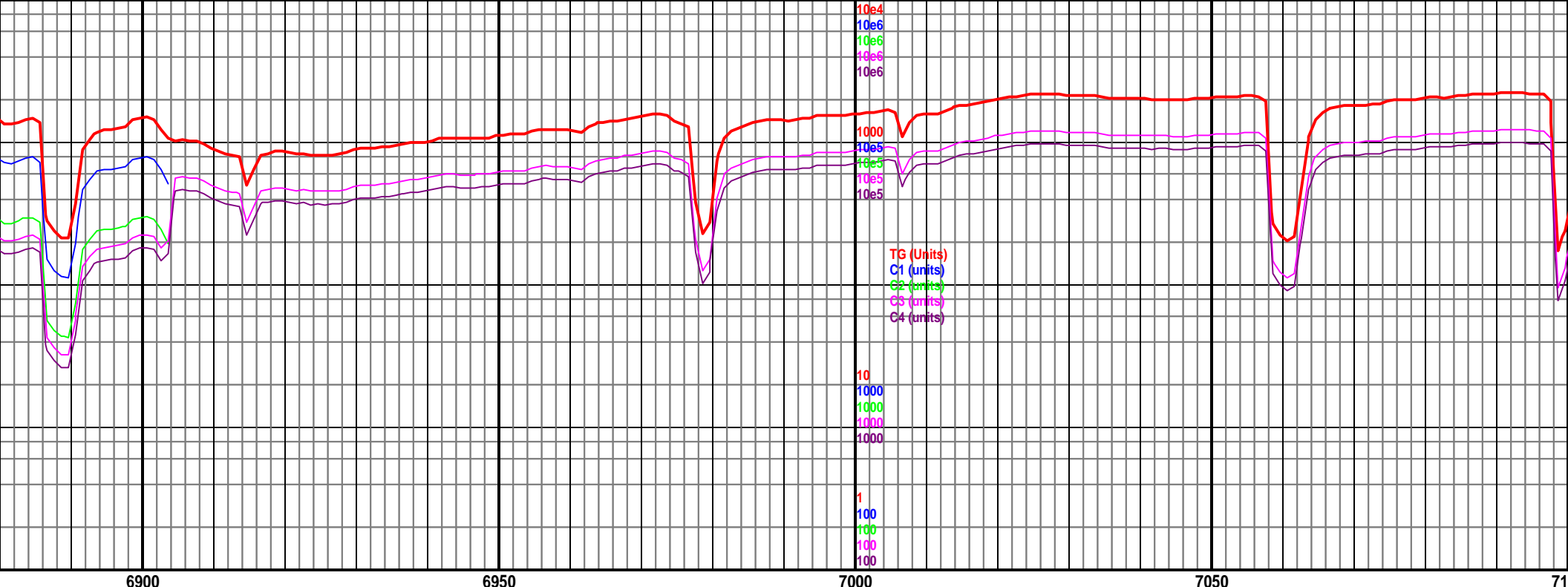
MD 6867 TVD 5772.56
INC 90.22 AZ 175.51
VS 1042.4

5650
(-877)

ky-sb blk,
blk, sft,
mrlst 50%

6700-6800 Mrlst dk gy-gy, blk-sb blk,
sft, slty, rr Chk gy, sb plty-sb blk, sft,
rr inoc, rr pyr, v sl cut, 60% mrlst 40%
chalk

6800-6900 Mrlst dk gy-gy, blk-sb blk,
sft, slty, rr Chk gy, sb plty-sb blk, sft,
rr inoc, rr pyr, v sl cut, 60% mrlst 40%
chk

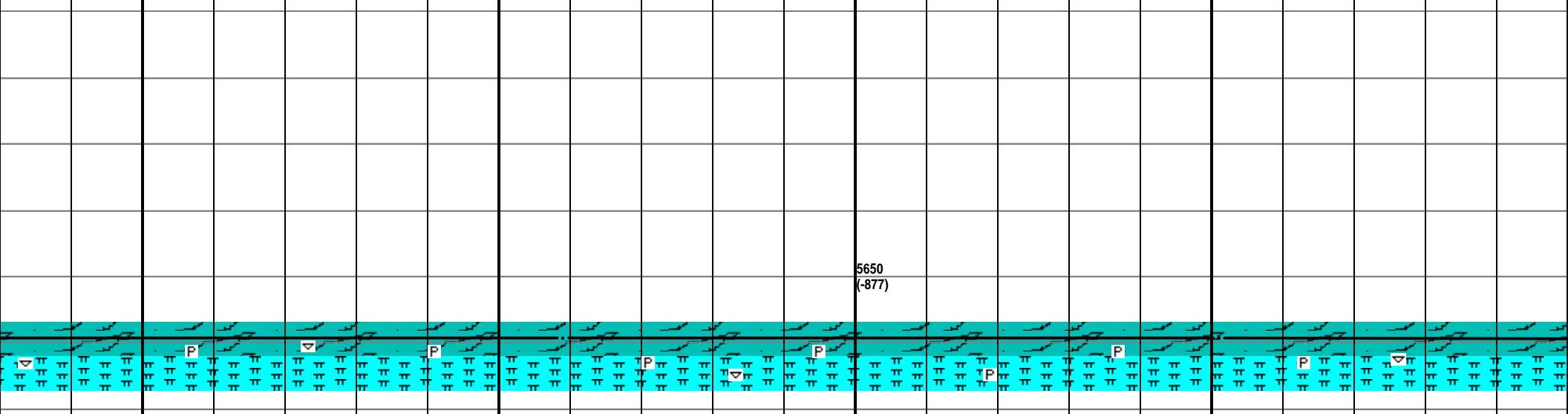


771.87
5.08

MD 6959 TVD 5771.62
INC 90.09 AZ 174.98
VS 1134.06

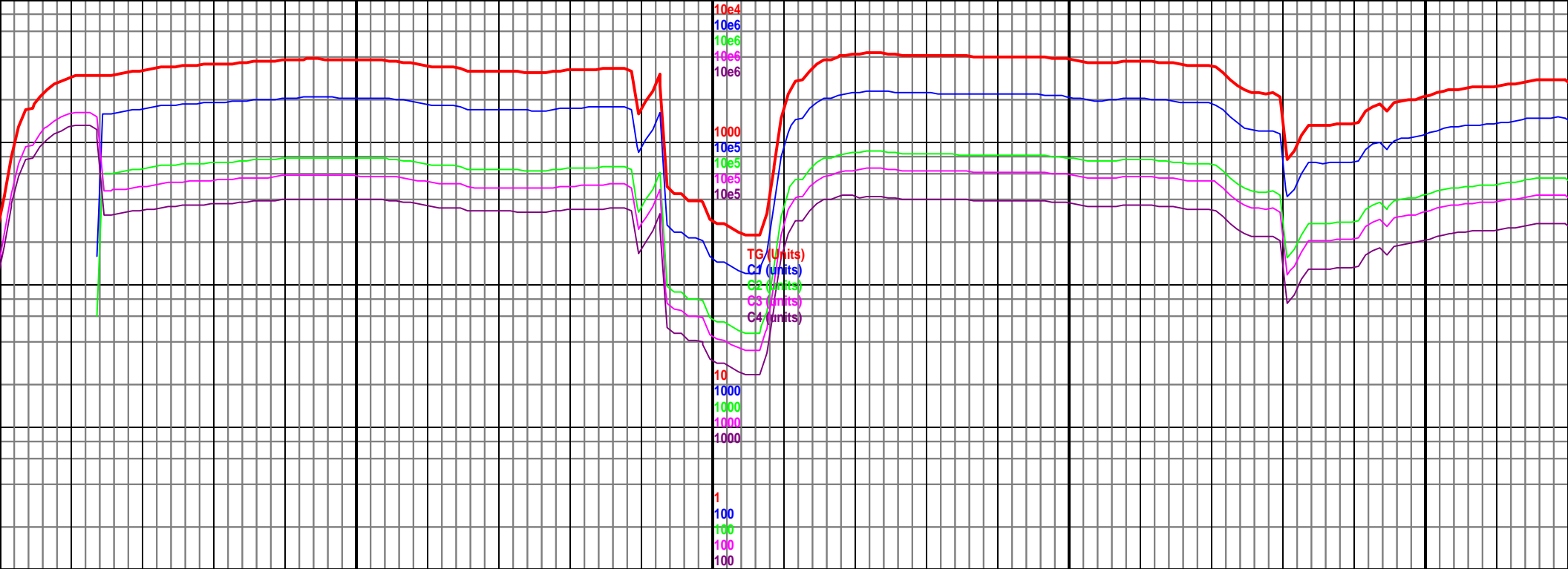
5000 TVD
Sub Sea (-227)

MD 7051 TVD 5771.67
INC 89.85 AZ 174.48
VS 1225.67



6900-7000 Mrlst dk gy-gy, blk-y-sb blk-y,
sft, slty, rr Chk gy, sb plty-sb blk-y, sft,
rr inoc, rr pyr, v sl cut, 70% chk 30%
mrlst

7000-7100 Mrlst dk gy-gy, blk-y-sb
blk-y, sft, slty, rr Chk gy, sb plty-sb
blk-y, sft, rr inoc, rr pyr, v sl cut, 60%
chk 40% mrlst



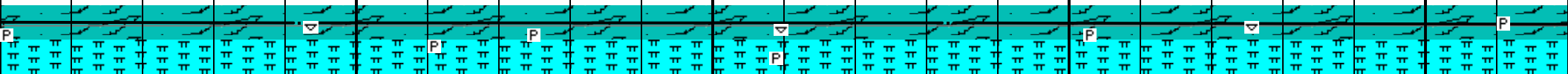
00 7150 7200 7250 7300

MD 7142 TVD 5772.52
INC 89.08 AZ 174.11
VS 1316.21

5000 TVD
Sub Sea (-227)

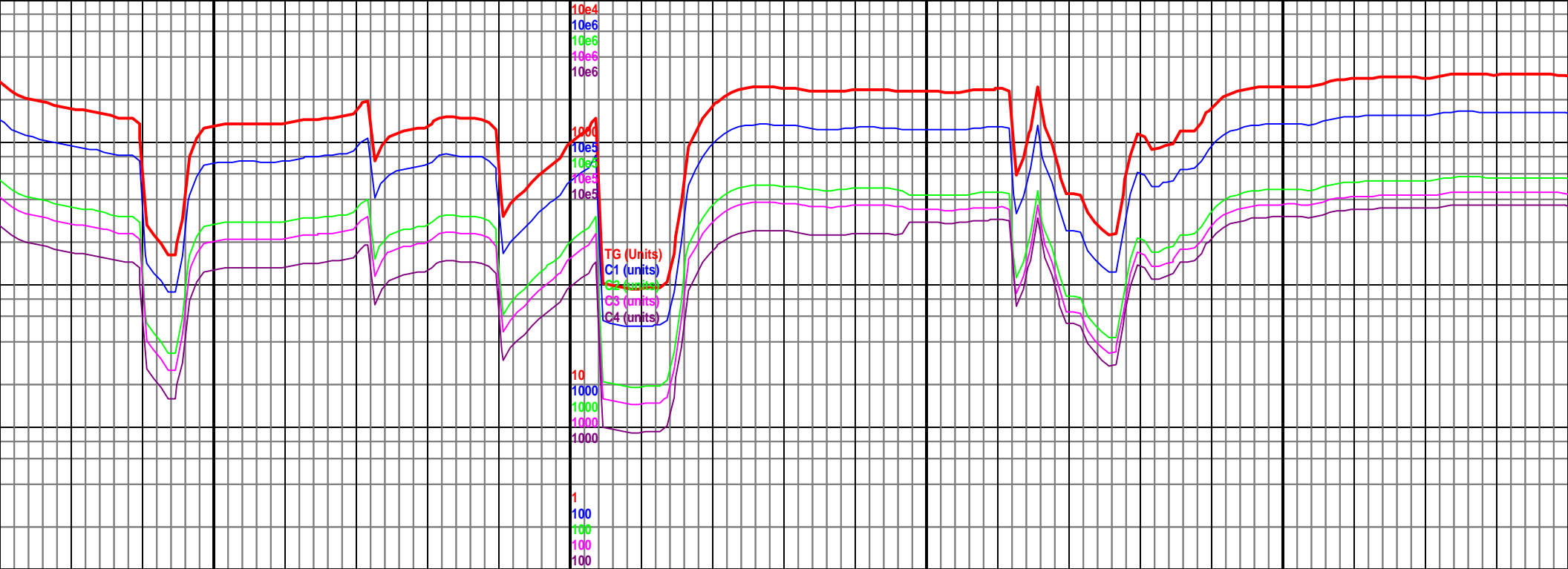
MD 7233 TVD 5774.42
INC 88.52 AZ 174.3
VS 1406.73

5650
(-877)



7100-7200 Mrlst dk gy-gy, blk-y-sb blk-y,
sft, slty, rr Chk gy, sb plty-sb blk-y, sft,
rr inoc, rr pyr, v sl cut, 60%mrilst
40%chk

7200-7300 Mrlst dk gy-gy, blk-y-sb blk-y,
sft, slty, rr Chk gy, sb plty-sb blk-y, sft,
rr inoc, rr pyr, v sl cut, 80%mrilst 20%
chk



7350

7400

7450

7500

MD 7325 TVD 5776.23
INC 89.23 AZ 173.78
VS 1498.21

5000 TVD
Sub Sea (-227)

MD 7416 TVD 5776.25
INC 90.74 AZ 175.05
VS 1588.77

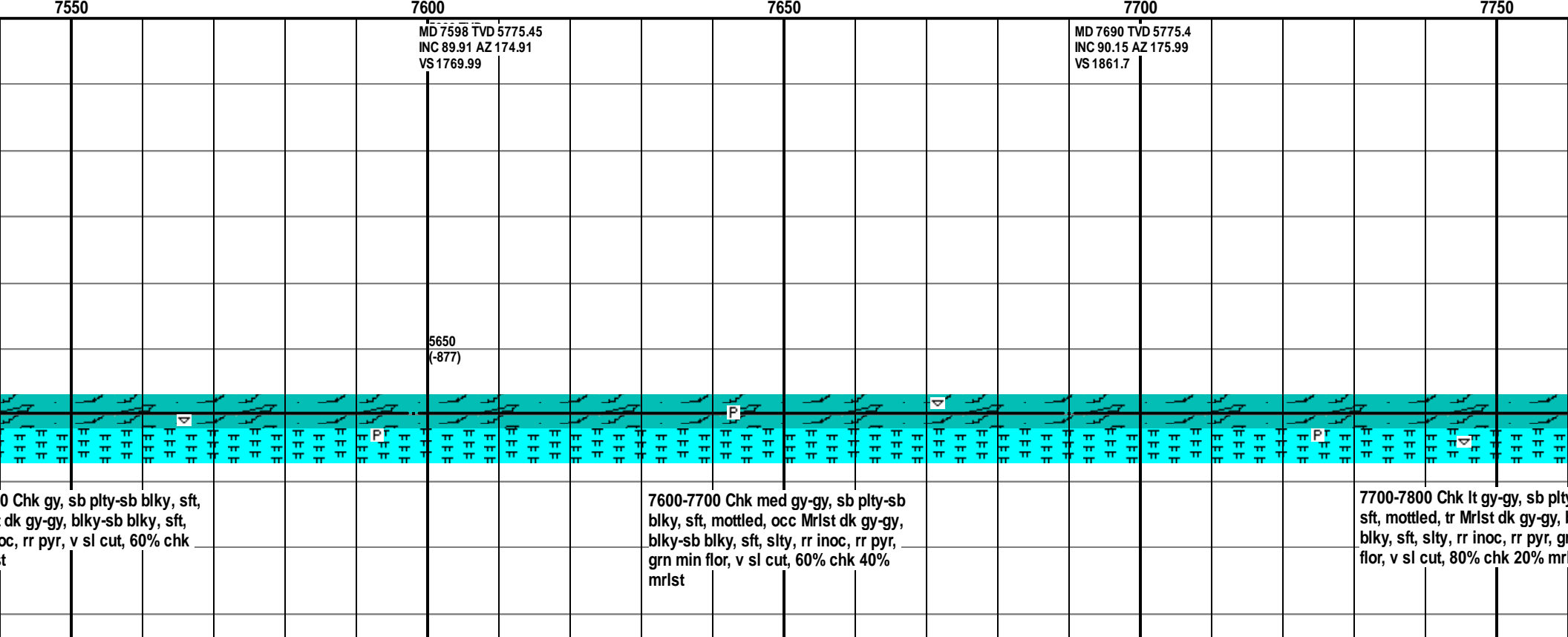
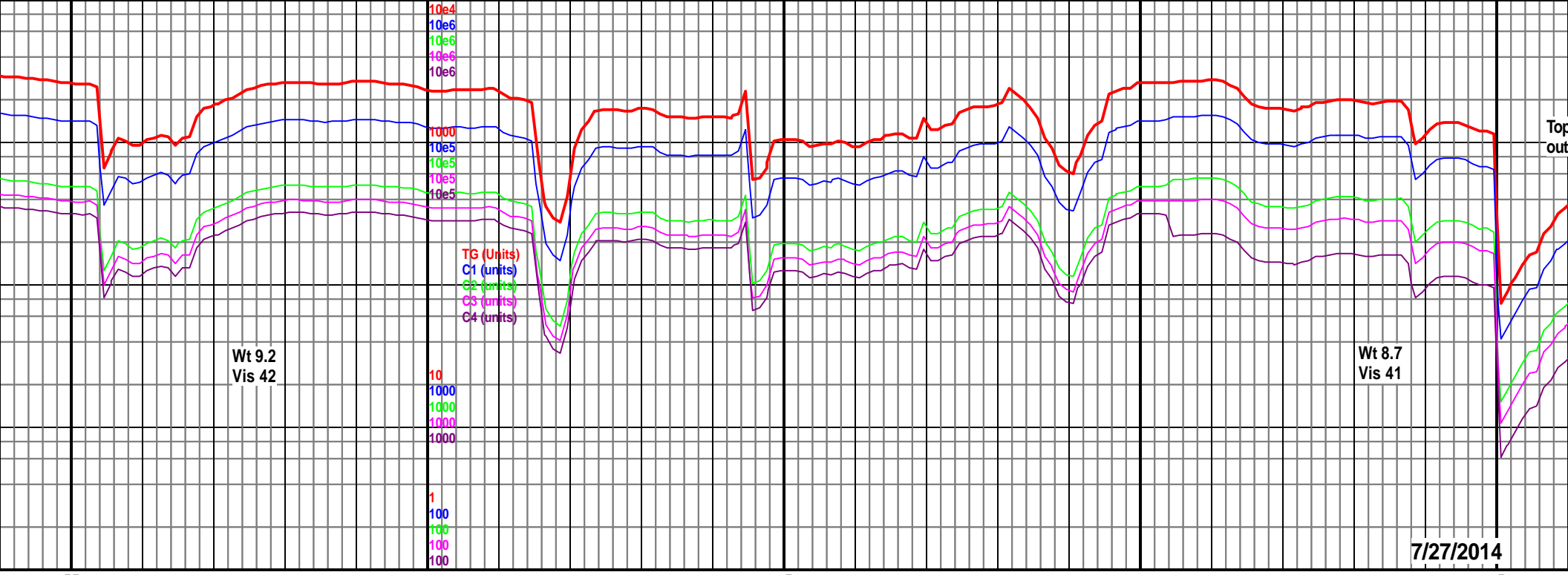
MD 7507 TVD 5775.52
INC 90.18 AZ 174.44
VS 1679.39

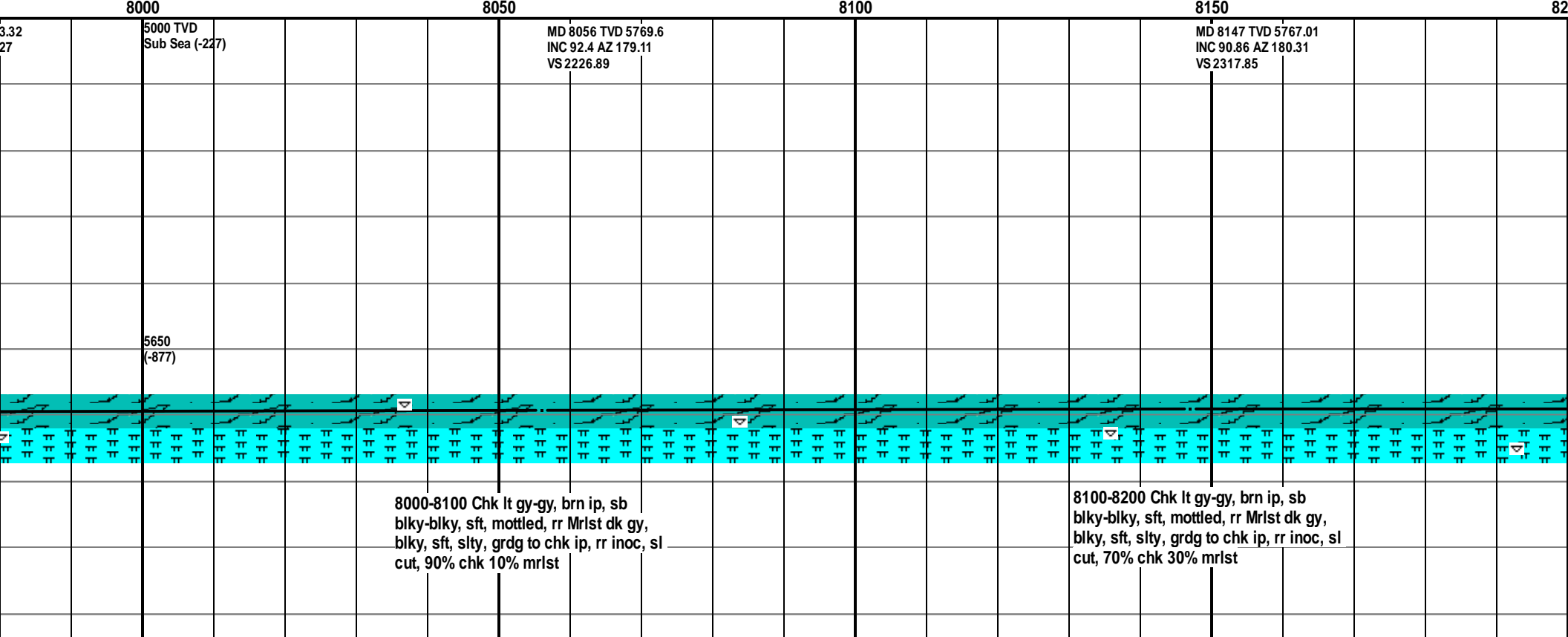
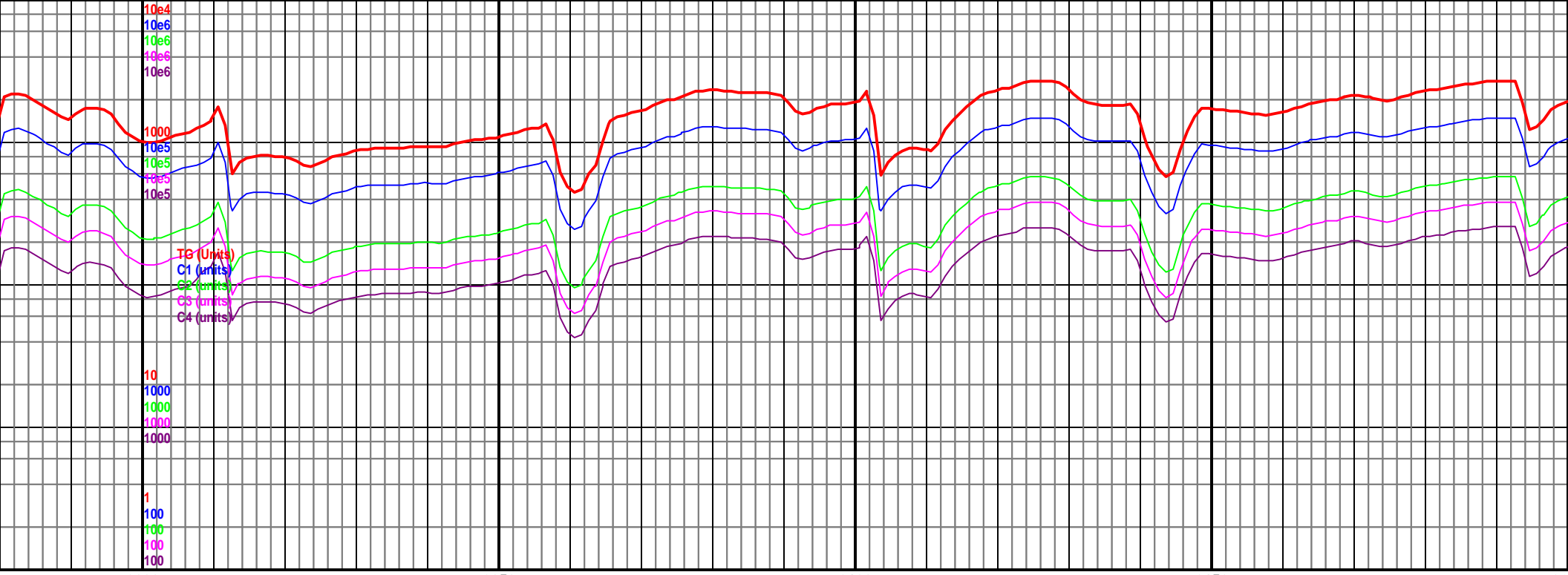
5650
(-877)

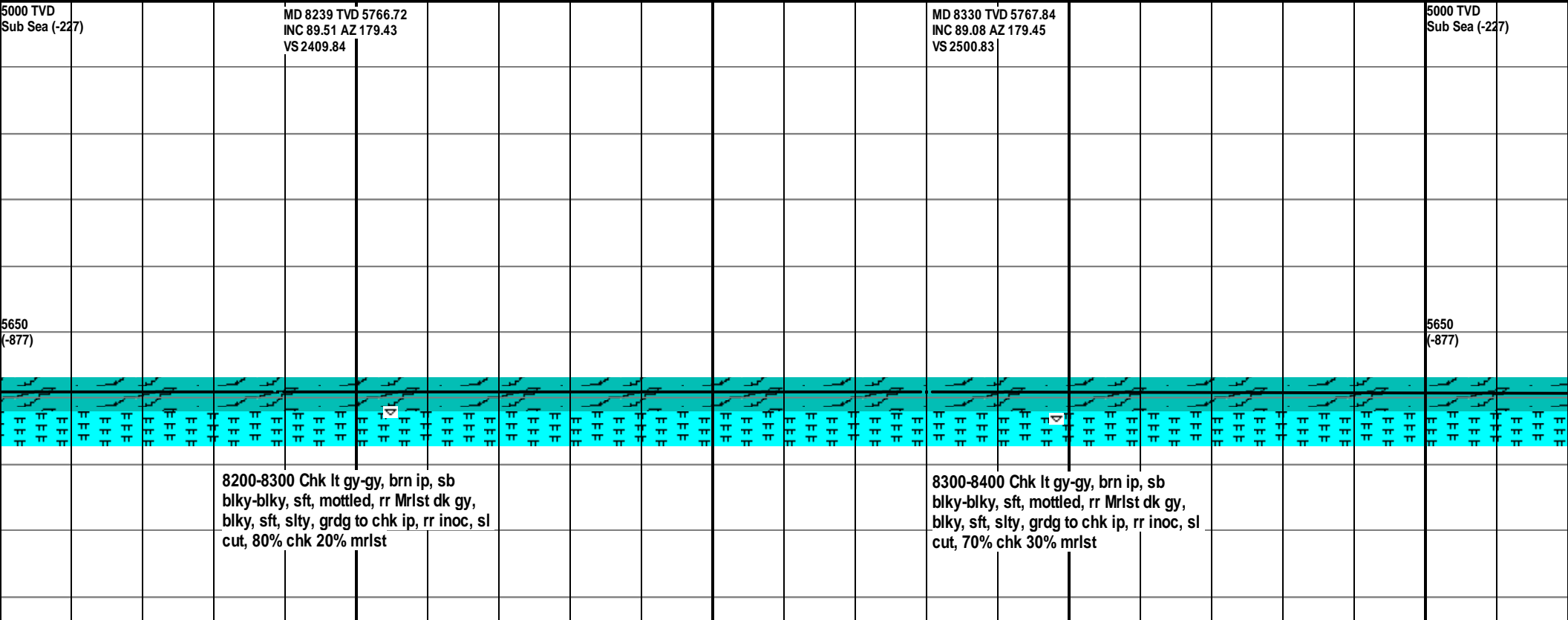
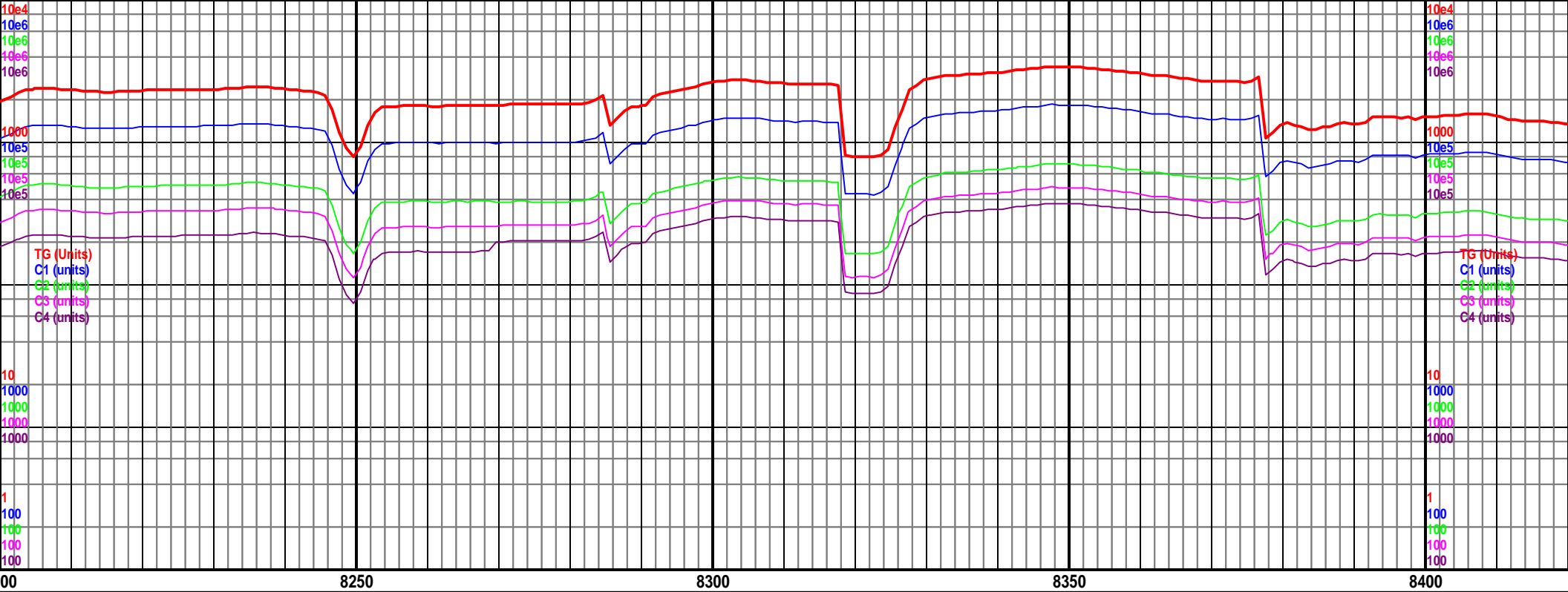
7300-7400 Mrlst dk gy-gy, blk-y-sb blk-y,
sft, slty, rr Chk gy, sb plty-sb blk-y, sft,
rr inoc, rr pyr, v sl cut, 80% mrlst 20%
chk

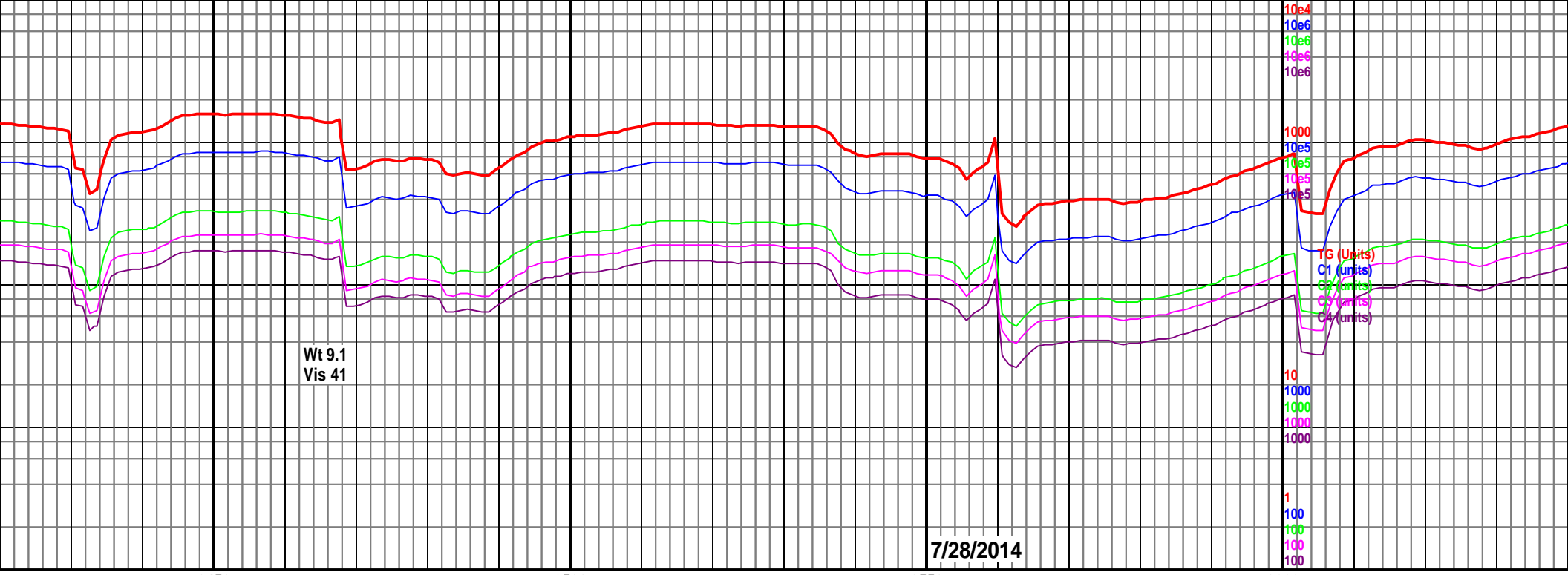
7400-7500 Chk gy, sb plty-sb blk-y, sft,
tr Mrlst dk gy-gy, blk-y-sb blk-y, sft,
slty,rr inoc, rr pyr, v sl cut, 70% chk
30% mrlst

7500-7600
occ Mrlst
slty, rr inoc
40% mrlst

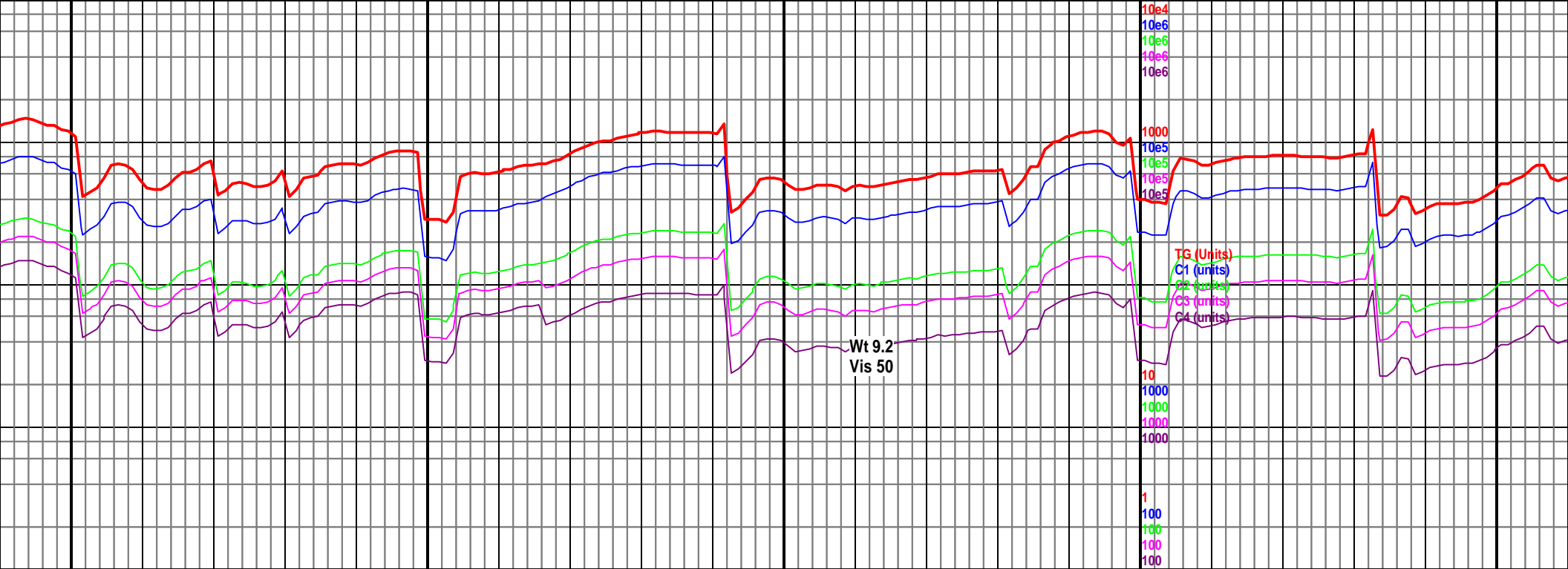








<p>MD 8421 TVD 5769.42 INC 88.92 AZ 178.11 VS 2591.8</p>	<p>MD 8513 TVD 5770.64 INC 89.57 AZ 176.97 VS 2683.7</p>	<p>MD 8605 TVD 5771.87 Sub Se INC 88.89 AZ 177.12 VS 2775.57</p>	
<p>8400-8500 Chk lt gy-gy, brn ip, sb blky-blky, sft, mottled, rr Mrlst dk gy, blky, sft, slty, grdg to chk ip, rr inoc, sl cut, 80% chk 20% mrlst</p>	<p>8500-8600 Chk lt gy-gy, brn ip, sb blky-blky, sft, mottled, rr Mrlst dk gy, blky, sft, slty, grdg to chk ip, rr inoc, sl cut, 80% chk 20% mrlst</p>	<p>8600-8700 Chk lt gy-gy, brn ip, sb blky-blky, sft, mottled, rr Mrlst dk gy, blky, sft, slty, grdg to chk ip, rr inoc, sl cut, 80% chk 20% mrlst</p>	



8650

8700

8750

8800

8850

MD 8697 TVD 5772.89
INC 89.85 AZ 176.24
VS 2867.41

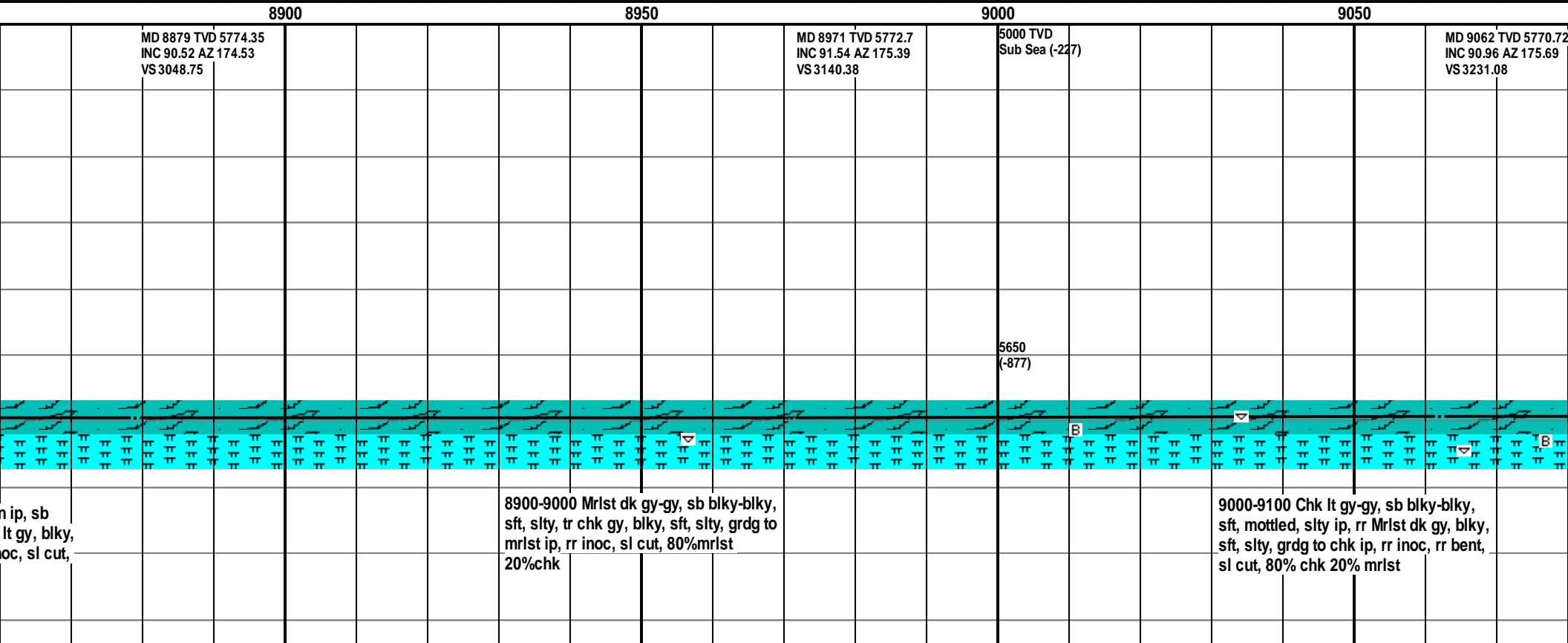
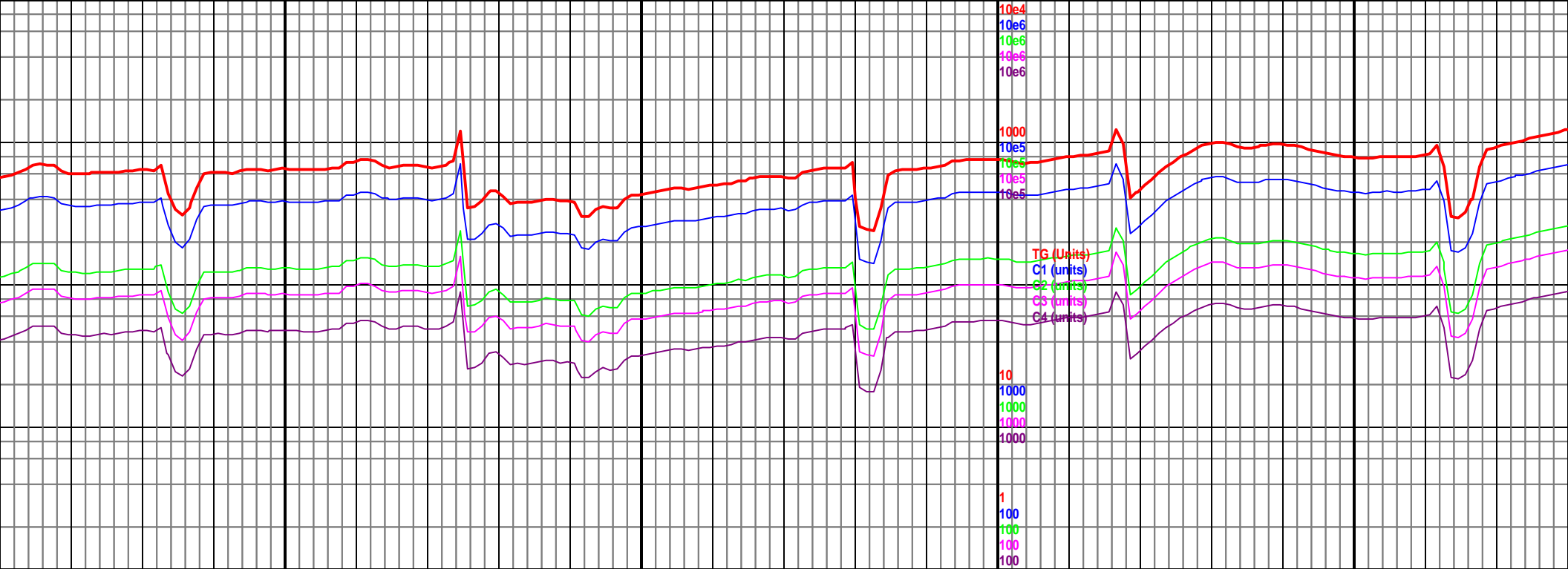
MD 8788 TVD 5773.89'D
INC 88.89 AZ 175.02^{ea} (-227)
VS 2958.13

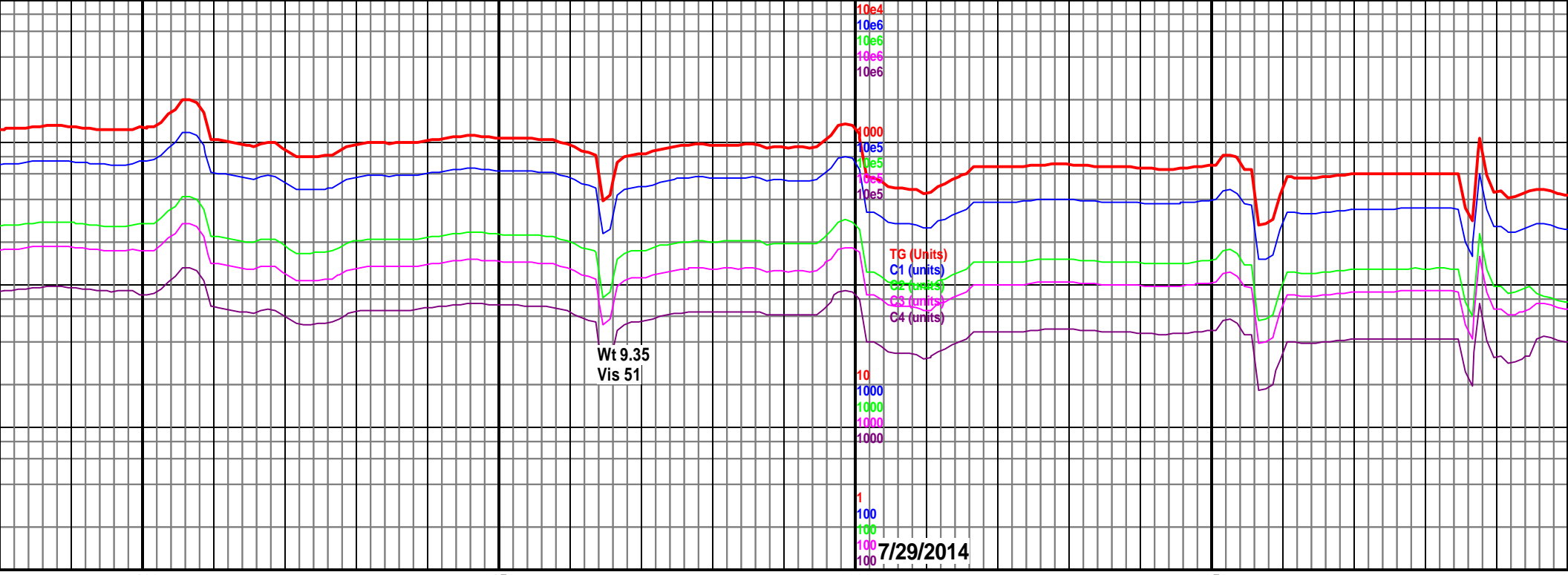
5650
(-877)

00 Mrlst dk gy-gy, brn ip, sb
y, sft, mottled, occ chk lt gy,
sfty, grdg to mrlst ip, rr inoc,
0%mrilst 40%chk

8700-8800 Mrlst dk gy-gy, brn ip, sb
blky-blky, sft, mottled, tr chk lt gy,
blky, sft, slty, grdg to mrlst ip, rr inoc,
sl cut, 60%mrilst 40%chk

8800-8900 Mrlst dk gy-gy, brn
blky-blky, sft, mottled, tr Chk
sft, slty, grdg to mrlst ip, rr in
70%mrilst 30%chk





9100

9150

9200

9250

9300

MD 9154 TVD 5769.99
INC 89.94 AZ 176.4
VS 3322.86

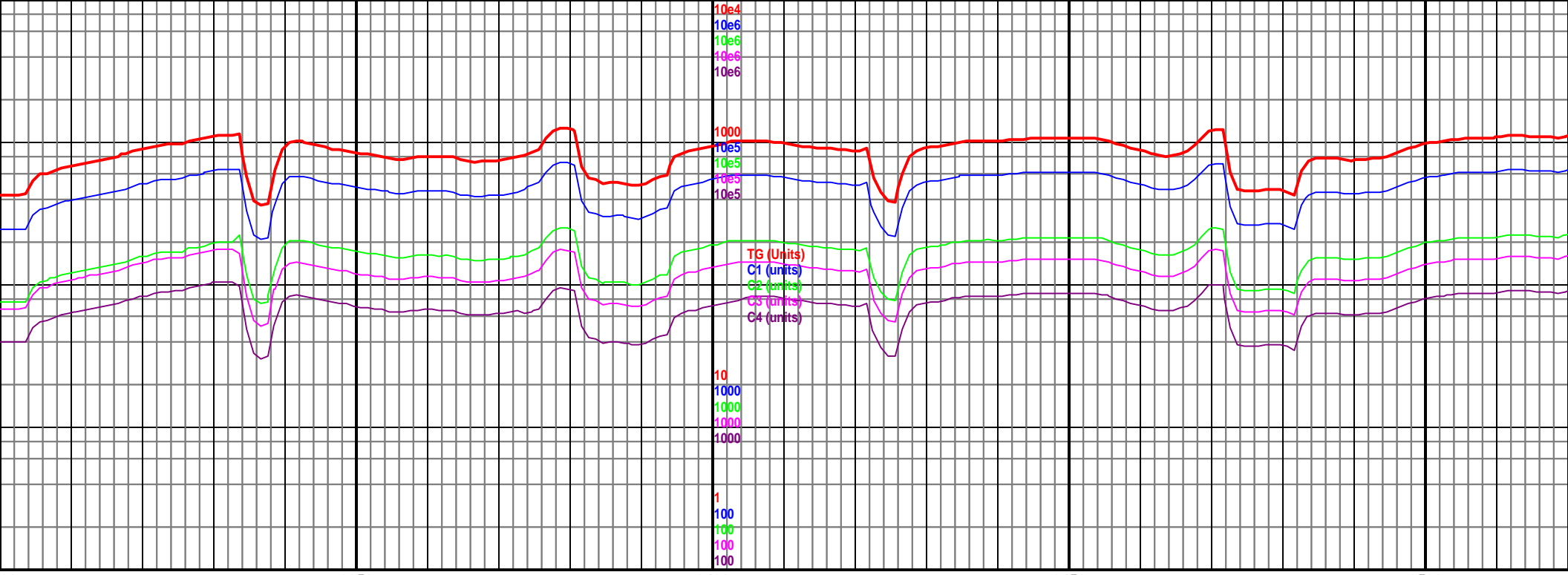
5000 TVD
Sub Sea (-227)

MD 9245 TVD 5770.68
INC 89.2 AZ 174.33
VS 3413.55

5650
(-877)

9100-9200 Chk lt gy-gy, lt brn ip, sb
blky, sft, mottled, dk lam, rr Mrlst dk
gy, blky, sft, slty, grdg to chk ip, rr
bent, grn min flor, sl cut, 90% chk 10%
mrlst

9200-9300 Chk lt gy-gy, s&p ip, sb
blky, sft, mottled, tr Mrlst dk gy, blky,
sft, slty, grdg to chk ip, rr bent, grn min
flor, sl cut, 70% chk 30% mrlst



00 9350 9400 9450 9500

MD 9336 TVD 5770.68
INC 90.8 AZ 173.34
VS 3504.02

5000 TVD
Sub Sea (-227)

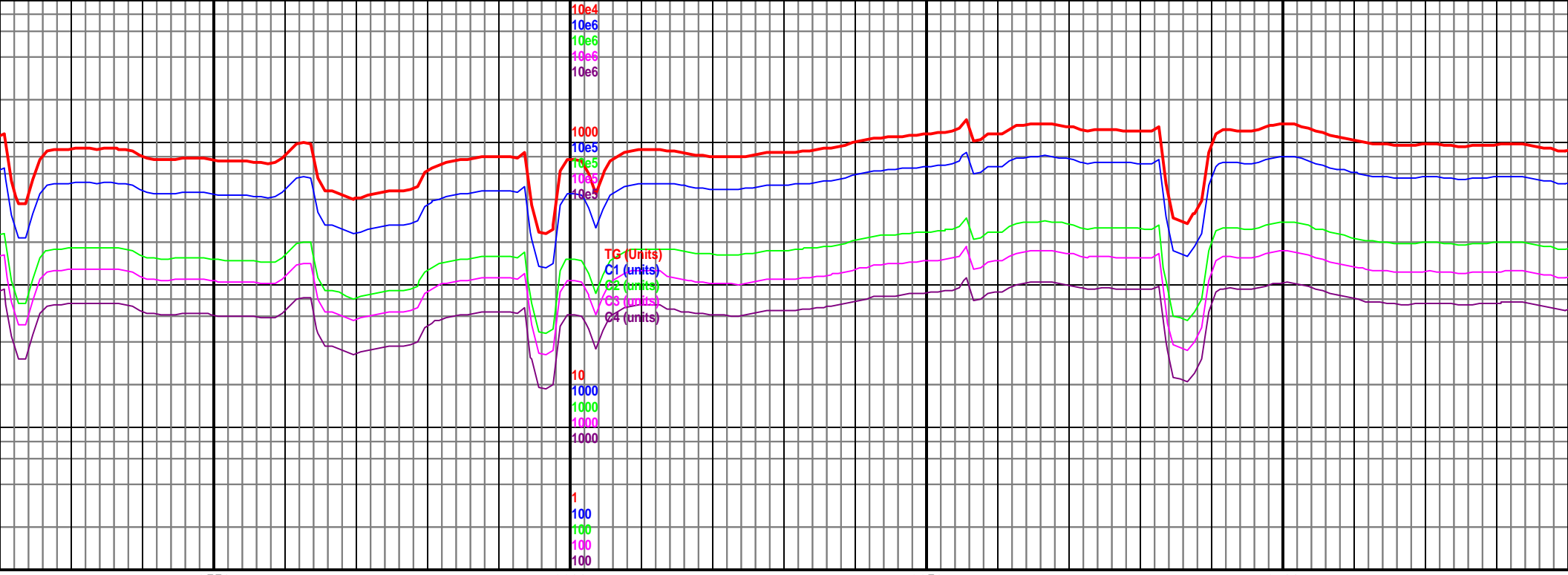
MD 9428 TVD 5768.57
INC 91.82 AZ 174.55
VS 3595.48

5650
(-877)

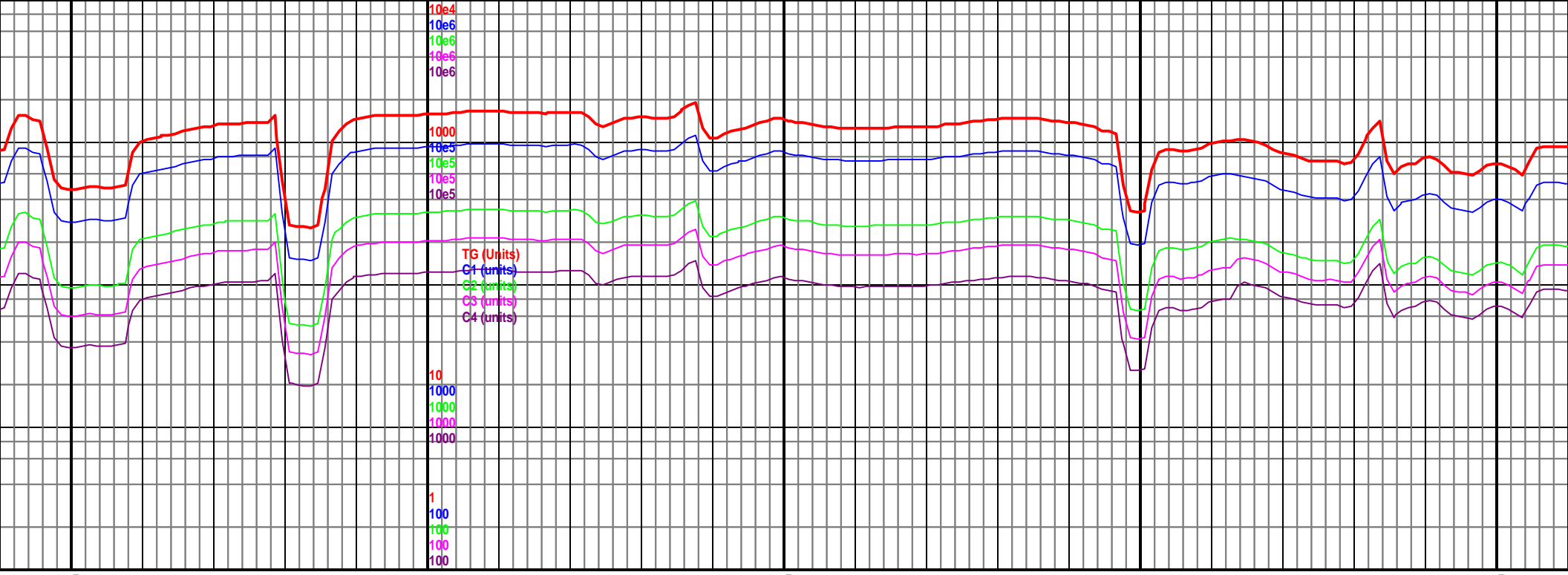


9300-9400 Chk lt gy-cream, sb blk-y-sb
plty, sft, mottled, tr Mrlst dk gy, blk-y,
sft, slty, rr bent, rr inoc, grn min flor, sl
cut, 80% chk 20% mrlst

9400-9500 Mrlst dk gy-gy, sb blk-y-sb
plty, sft, mottled, Chk lt gy, blk-y, sft,
slty, rr bent, rr inoc, grn min flor, sl cut,
70% mrlst 30% chk



<p>MD 9520 TVD 5765.58 INC 91.91 AZ 175.19 VS 3687.06</p>	<p>5000 TVD Sub Sea (-227) MD 9611 TVD 5763.16 INC 91.14 AZ 177.46 VS 3777.84</p>		<p>MD 9702 TVD 5760.96 INC 91.63 AZ 177.94 VS 3868.74</p>
<p>9500-9600 Mrlst dk gy-gy, sb blkyy-sb plty, sft, mottled, Chk lt gy, blkyy, sft, sfty, rr bent, rr inoc, grn min flor, sl cut, 70% mrlst 30% chk</p>	<p>5650 (-877)</p>	<p>9600-9700 Mrlst dk gy-gy, sb blkyy-sb plty, sft, mottled, Chk lt gy, blkyy, sft, sfty, rr bent, rr inoc, grn min flor, sl cut, 70% mrlst 30% chk</p>	<p>9700 plty, sfty, 80%</p>



9750 9800 9850 9900 9950

MD 9793 TVD 5759.54
INC 90.15 AZ 179.71(r)
VS 3959.7

MD 9888 TVD 5760.08
INC 89.2 AZ 179.38
VS 4054.7

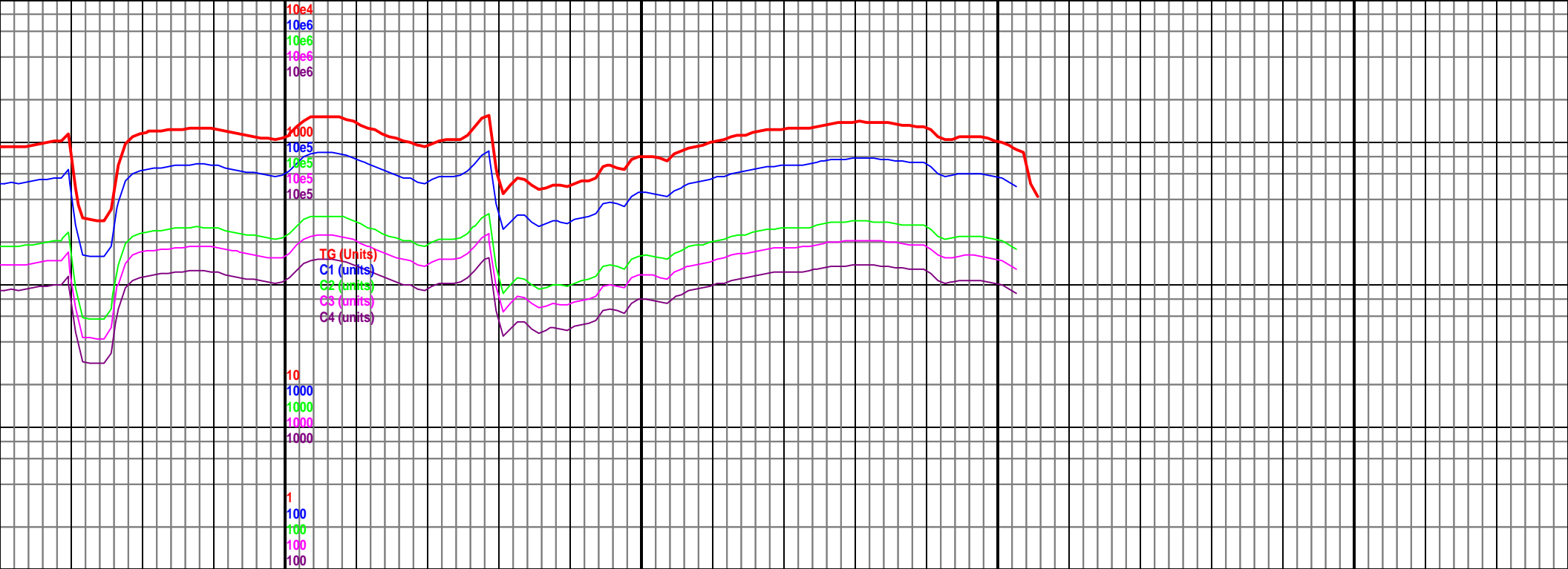
5650
(-877)



9750-9800 Mrlst dk gy-gy, sb blkly-sb
sft, mottled, Chk lt gy, blkly, sft,
rr bent, rr inoc, grn min flr, sl cut,
mrlst 20% chk

9800-9900 Mrlst dk gy-gy, sb blkly-sb
plty, sft, mottled, Chk lt gy, blkly, sft,
slty, rr bent, rr inoc, grn min flr, sl cut,
80% mrlst 20% chk

9900-10000 Mrlst dk gy-gy, sb
plty, sft, mottled, Chk lt gy, blk
slty, rr bent, rr inoc, grn min fl
80% mrlst 20% chk



MD 9983 TVD 5761.46
INC 89.14 AZ 176.69
VS 4149.62

MD 10078 TVD 5761.74
INC 90.52 AZ 176.48
VS 4244.45

MD 10138 TVD 5761.27
INC 90.37 AZ 176.49
VS 4304.34

TD reached 10180
on 7/29/2014

5650
(-877)

blky-sb
y, sft,
or, sl cut,

10000-10100 Mrlst dk gy-gy, sb blky-sb
plty, sft, mottled, Chk lt gy, blky, sft,
sfty, rr bent, rr inoc, grn min flor, sl cut,
80% mrlst 20% chk

