

Nobendem[®] and US Navy standard air decompression tables for inside chamber attendants working at altitude.

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INTRODUCTION/ BACKGROUND

Our multiplace chamber operates at an altitude of ≈ 4500 feet. At altitudes >1000 feet the U.S. Navy (USN) tables are converted for inside attendant (IA) decompression safety. The Nobendem[®] calculator (Benton P. Zwart) requires entry of safety factor, local barometric pressure, time at pressure and breathing gas oxygen (O_2) percent. We will present a 4-year experience using Nobendem[®] for IA decompression.

MATERIALS and METHODS

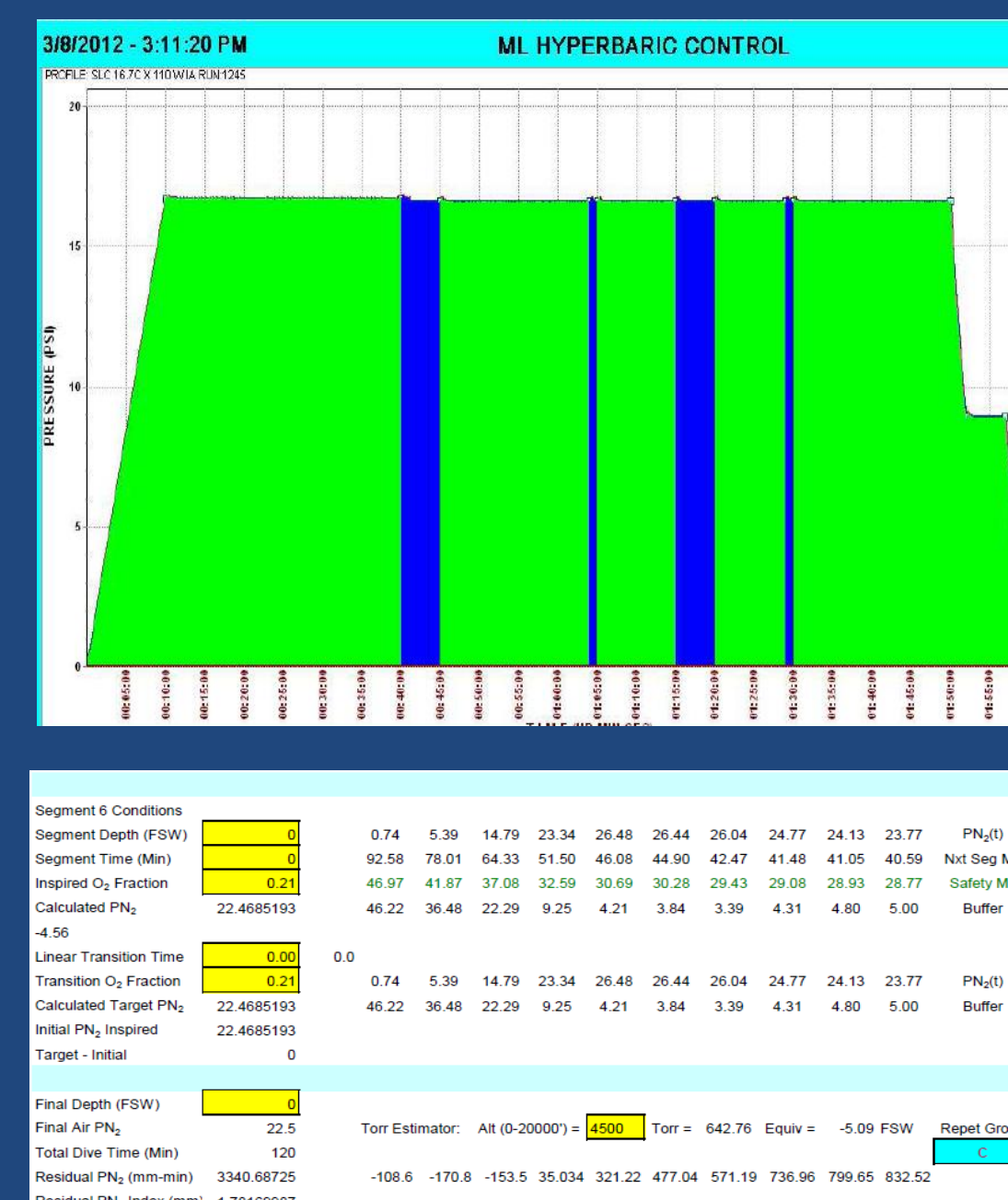
We use the The Nobendem[®] calculator and USN tables to plan IA schedules for chamber operations since September 2008. Using Nobendum[®] we enter a safety factor of 65%, barometric pressure 655 mmHg, real time intervals, pressure in feet of sea water (fsw) and $O_2\%$ breathed by the IA for all hyperbaric exposures.

Reference for Nobendem accessed on 5-17-2012;
<http://www.tanktigers.net/Tech.htm>

Reference for the USN Dive Manual accessed on 5-17-2012;
http://www.supsalv.org/00c3_publications.asp

RESULTS

Using the standard USN tables the equivalent chamber pressure for a 2 atm abs profile is 43.2 fsw and for 3 atm abs is 82 fsw. The IA exposed to 2 atm abs for 110 minutes exits the chamber as a USN repetitive group M, and our CO protocol to 3 atm abs is an exceptional exposure. The USN tables do not consider O_2 breathing by the IA during the exposure. The Nobendem[®] calculator allows exiting profiles as a USN group D or better by the use of supplemental O_2 during the exposure. For the 2 atm abs profile, the IA breathes 100% O_2 at intervals for a total of 40 minutes, exiting as a C. For the CO protocol, the IA breathes 50% O_2 / 50% N_2 at 3 atm abs and 100% O_2 at 2 atm abs intervally, exiting as a C. We have performed 1007 exposures at 2 atm abs, and 7 at 3 atm abs using Nobendum[®].



- 2 atm abs profile, the IA breathes 100% O_2 for 40 minutes exiting as a USN group C.
- A USN group C must wait 0 hrs 0 min. before an increase in altitude of 4000 feet higher than Murray, UT



- IA breathes 50% O_2 / 50% N_2 at 3 atm abs
- 100% O_2 at 2 atm abs at intervals
- Ending with a USN group C.

CONCLUSIONS

The Nobendem[®] calculator may be used in conjunction with the USN tables. We have found the Nobendem[®] useful for planning the O_2 breathing interval for the IA at chamber pressures up to 3 atm abs. Our use of Nobendem[®] is insufficient to discover low rates of decompression sickness.