TDI – Advanced Nitrox Diver Course

1.1 Introduction

This course examines the use of EAN 21 through 100 percent (oxygen) for optimal mixes to a depth of one hundred fifty (150) fsw / forty five (45) msw. The objective of this course is to train divers in the benefits, hazards and proper procedures for utilizing EAN 21 through 100 percent oxygen for dives not requiring staged decompression. Decompression techniques may be combined with this course at the discretion of the instructor.

1.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities utilizing EAN 21 through 100% (oxygen) without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities approximate those of training.
3. Environmental conditions approximate those of training.

Upon successful completion of this course, graduates are qualified to enroll in:

1. TDI Decompression Procedures Course.
2. TDI Extended Range Course.

1.3 Who May Teach

Who may teach this course:

1. Any active TDI Advanced Nitrox Instructor.

1.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like conditions):

1. N/A.

Open Water (Ocean, lake, quarry, spring, river or estuary):

1. A maximum of eight (8) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

1.5 Student Pre-Requisites

The student must:

1. Be a minimum age of fifteen (15).
2. Have a minimum certification of TDI Nitrox Diver (or equivalent).
3. Show poof of twenty-five (25) logged open water dives, or the equivalent at the discretion of the instructor, in the environment in which the course is being presented.
4. If this course is taught in conjunction with the TDI Decompression Procedures Course, then the minimum age is eighteen (18).

1.6 Course Structure and Duration

Open Water Execution:

1. Four (4) dives are required \with a minimum accumulated bottom time of one hundred (100) minutes.
2. If Advanced Nitrox is taught in conjunction with Decompression Procedures only a total of 6 dives are required.

Course Structure:

1. TDI allows instructors to structure courses according to the number of students participating and their skill level.

Duration:

1. The minimum number of classroom and briefing hours is six (6).

1.7 Administrative Requirements

The following is the administrative tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the training schedule to the students.
4. Have the students complete the Liability Release and Medical history forms.
5. The Instructor should review the Liability Release and Medical Forms before starting on the course.

Upon successful completion of the course the Instructor must:

1. Complete the Student Registration Form and send the Registration Form to TDI HQ.
2. Award card and certificate.

1.8 Required Equipment

The following are required for this course:

1. TDI Advanced Nitrox Student Manual.
2. TDI EAD I $P0_2$ Tables.
3. TDI Advanced Nitrox Slides / Overheads / Power Point Presentation.

The following equipment is required for each student:

1. Alternative second stage octopus attached to a primary regulator ***or*** a redundant scuba unit (two (2) litres/ thirteen (13) Cu. ft. minimum).
2. A submersible pressure gauge.
3. Depth gauge and automatic bottom timer ***and/or*** dive computer.
4. Buoyancy Compensator with power inflator.
5. Exposure suit adequate for the open water environment.
1. Cylinder and Regulator properly labeled and cleaned as required for EAN mixtures.
2. Access to oxygen analyzer (Instructor may supply).

1.9 Required Subject Areas

The TDI Advanced Nitrox Manual is mandatory for use during this course but instructors may use any additional text or materials that they feel help present these topics. The following topics must be covered during this course:

1. Physics
   - A. Pressure review.
2. Physiology
   - A. Hypoxia.
   - B. Oxygen Toxicity
     - I. Whole body (OTU's).
     - II. Central Nervous System (CNS).
   - C. Nitrogen Narcosis.
   - D. Nitrogen Absorption and Elimination.
   - E. Carbon Dioxide Toxicity.
   - F. Carbon Monoxide Toxicity.
3. Formula Work
   - A. Best mix computations.
   - B. Maximum Operating Depth of mixture computations.
4. Equipment Considerations
   - A. Up to forty (40) percent oxygen content.
   - B. Above forty (40) percent oxygen content.
5. Dive Tables
   - A. Equivalent air depth with any table.
   - B. Computer generated tables.
6. Dive Computers
   - A. Mix adjustable.
   - B. 0_2 integrated.
7. Dive Planning
   - A. Operation Planning
     - I. Gas requirements.
     - II. Oxygen limitations.
     - III. Nitrogen limitations.
8. Common Mixing Procedures (demonstrate one method)
   - A. Partial pressure blending.
   - B. Continuous blending.

C. Membrane separation system.

9. Decompression
   A. EAN usage as a decompression gas i.e. 50/50, 80/20 etc.
   B. Oxygen for decompression.
   C. Advantages / disadvantages of multiple gas switches.

1.10 Required Skill Performance And Graduation Requirements

Maximum training depths shall not exceed one hundred fifty (150) fsw / forty five (45) msw.

The following open water skills must be completed by the student during all open water dives:

1. Properly analyze gas mixtures.
2. Demonstrate adequate pre-dive planning
   A. Limits based on personal gas consumption.
   B. Limits based on oxygen exposures at planned depth with actual mix.
   C. Limits based on nitrogen absorption at planned depth with actual mix.
3. Properly execute the planned dive within all pre-determined limits.

In order to complete this course, students must:

1. Satisfactorily complete the TDI Advanced Nitrox Course written examination.
2. Complete all open water requirements safely and efficiently.
3. Demonstrate mature, sound judgment concerning dive planning and execution.