15. TDI – Cavern Diver Course

15.1 Introduction

This course is designed to develop the minimum skills and knowledge for cavern and overhead environment diving within the limits of light penetration; in addition outlines specific hazards associated with cave diving. The Cavern Diver Course in not intended to provide instruction for cave diving environments. The objective of this course is to train divers in the proper planning, procedures, techniques and hazards of cavern diving.

15.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in cavern diving activities without direct supervision so long as the following limits are adhered to:

1. Daylight zone, i.e. within natural light of the cavern entrance.
2. Penetration is limited to one-third (1/3) of a single diving cylinder or 1/6th if using double cylinders.
3. Sixty one (61) linear meters / two hundred (200) linear feet from the surface.
4. Forty (40) msw / one hundred thirty (130) fsw maximum depth.
5. No decompression diving.
6. No restrictions (no areas too small for two (2) divers to pass side-by-side).
7. Safety stops as appropriate or necessary.
8. Maintain a continuous guideline.
9. Proper Cavern diving equipment is used.
10. No removal of life support equipment shall be permitted within the overhead environment.

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

1. TDI Introductory Cave Course.

15.3 Who May Teach

Who may teach this course:

1. Any active TDI Cavern, Intro to Cave or Cave Instructor may teach this course.

15.4 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. A maximum of six (6) students per active TDI instructor.

Cavern:

1. A maximum of four (4) students per active TDI Instructor are allowed. The ratio should be reduced as required due to environmental or operational constraints.

15.5 Student Pre-Requisites

The student must:

1. Be at least age eighteen (18) or fifteen (15) with parental consent.
2. Show proof of a minimum certification as a certified diver with a minimum of twenty five (25) dives.

15.6 Course Structure and Duration

Water Execution:

1. Four (4) Cavern dives with a total bottom time of eighty (80) minutes conducted at two (2) different sites.

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).
2. Course must be conducted over a minimum of 2 days.

15.7 Administrative Requirements

The following are the administrative tasks:

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

15.8 Required Equipment

The following are required for this course:

1. TDI Cavern and Cave Manual.

Other suggested reading materials;

1. NACD Art of Safe Cave Diving
2. Basic Cave Diving – A Blueprint for Survival.

3. CDAA - Cavern / Sinkhole Manual.
4. NSS-CDS Cavern Manual.

The following equipment is required for each student:

1. Primary cylinder - volume appropriate for planned dive and student gas consumption. Students are permitted to use double cylinders, but would be limited to the 1/6 air rule.
2. Regulator with pressure gauge and alternate air source. Although not required, it is suggested one regulator be mounted on a hose approximately two (2) meters / seven (7) feet of length.
3. Buoyancy Compensator with power inflator, CO_2 device rendered inoperative.
4. Exposure suit adequate for cavern environment.
5. Mask and fins - NO snorkel.
6. Line cutting device.
7. Safety reel with a minimum of thirty (37) meters / one hundred twenty five (125) feet of guideline.
8. One (1) primary cavern-diving reel with length appropriate for intended dive.
9. Two (2) battery powered lights, each with burn time suitable for the planned dive time.
10. Computer or watch (bottom timer) and depth gauge.
11. Slate or wet notes and pencil.
12. Submersible dive tables or backup dive computer (recommended)
13. three (3) directional line arrows
14. Weight system

Instructor must use full cave diving equipment during all water exercises.

15.9 Required Subject Areas

The following topics must be covered during this course.

1. Policy for Cavern Diving.
2. Gas matching procedures and management to include dissimilar volume.
3. Psychological considerations.
4. Equipment Considerations
   - A. Cylinder options.
   - B. Regulator options.
   - C. Buoyancy compensator / harness options.
   - D. Reel options.
   - E. Proper weighting.
5. Communication
   - A. Hand signals.
   - B. Light signals.
   - C. Touch contact signals.
6. Swimming Techniques
   - A. Body posture/ Trim
   - B. Buoyancy control
   - C. Line following
   - D. Propulsion techniques
7. Physiology
   - A. Breathing techniques.
   - B. Stress management.

8. Cavern environment.
    A. Geology
        i. Bottom.
        ii. Ceiling.
    B. Local access requirements.
    C. Land owner relations.
9. Cavern Conservation.
10. Problem Solving
    A. Emergency procedures.
    B. Equipment failure.
    C. Silting conditions.
11. Accident Analysis.
12. Review of Dive Tables and Decompression theory.
13. Cavern diving etiquette.

15.10 Required Skill Performance and Graduation Requirements

The following land drills must be covered during this course:

1. How to properly deploy a guideline.
2. How to properly follow a guideline.
3. How to touch contact communicate
4. How to correctly deploy directional markers

The student must perform the following S-drill and skills during all dives:

1. Demonstrate adequate pre-dive planning.
2. Equipment check and gear matching.
3. Bubble check.
4. Demonstrate specialized propulsion techniques.
5. Demonstrate proper buoyancy control.
6. Demonstrate proper body posture.
7. Demonstrate proper stress analysis (detection and management).

The student must perform the following in-water skills during cavern dives:

1. Properly deploy a guideline.
2. Properly follow a guideline with eyes open and closed (simulating loss of visibility).
3. Air share with a buddy with eyes open, following the guideline.
4. Air share with a buddy with eyes closed and use touch contact, following the guideline.
5. Remove and replace mask while in contact with guideline.
6. Demonstrate light / hand -signals and touch contact.
7. Explore cavern.
8. Referencing as back-up navigation.
9. Anti-silting techniques.
10. Simulate a primary light failure, and deploy back up light and follow guideline
11. If diver uses a duel valve system, air/gas valve management

Note: No removal of life support equipment shall be permitted within the overhead environment.

In order to complete this course, students must:

1. Satisfactorily complete the TDI Cavern Diver written examination.

2. Perform all land drills and cavern dive requirements safely and efficiently.
3. Demonstrate mature, sound judgment concerning dive planning and execution.
4. Maintain an appropriate level of awareness and respect for the cavern environment.
5. Log all dives.