

## **19. Full Cave Diver**

### **19.1 Introduction**

This course is the third stage of training in the series of TDI's Cave Diver development program. Advanced cave dive planning, the practical execution of different types of cave systems and scenarios divers encounter are presented. This cave diving course is not intended to prepare divers for evaluating all facets of cave diving. The objective of this course is to expand and critique previous skills accomplished in the TDI Cavern and Introductory Cave Diving programs. Emphasis is placed upon dive planning and skill perfection through actual cave penetration.

### **19.2 Qualifications of Graduates**

Upon successful completion of this course, graduates may engage in cave diving activities without direct supervision provided the graduates adhere to the following limits:

1. Penetration is limited to the 1/3 air rule
2. 40 metres / 130 feet maximum depth
3. No equipment removal in cave
4. Safety and decompression stops as appropriate or necessary if trained as TDI Decompression Procedures Diver or Equivalent
5. Maintain a continuous guideline
6. Proper cave diving equipment is used

### **19.3 Who May Teach**

This course may be taught by any active TDI Cave Diving Instructor

### **19.4 Student to Instructor Ratio**

#### **Academic**

1. Unlimited, so long as adequate facility, supplies and time are provided to ensure comprehensive and complete training of subject matter

#### **Confined Water (swimming pool-like conditions)**

1. N/A

#### **Cave Dives**

1. A maximum of 3 students per instructor; it is the instructor's discretion to reduce this number as conditions dictate

### **19.5 Student Prerequisites**

1. Minimum age 18
2. Minimum certification as a TDI Introductory Cave Diver or equivalent

3. If Decompression dives are to be conducted in training, student must be TDI Decompression Procedures certified or this training may conducted concurrently. If courses are taught concurrently, ALL requirements for both courses must be met and registrations processed upon completion

## **19.6 Course Structure and Duration**

### **Open Water Execution**

1. 8 cave dives are required with a minimum accumulated bottom time of 240 minutes at 3 different sites
2. At least 1 of these sites should be a location not utilized in training during the cavern or introductory cave courses
3. For divers entering the cave program without cavern / introductory cave diving certification, 16 cave dives with 420 minutes of total bottom, not including decompression time, 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 suggested number of classroom and briefing hours is 6
2. Course must be taught in no less than 4 days
3. If the TDI Cavern and Intro to Cave diving courses are combined, course must be 7 days long

## **19.7 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:
  - a. *TDI Liability Release and Express Assumption of Risk Form*
  - b. *TDI Medical Statement Form*

### **Upon successful completion of the course the instructor must:**

1. Issue the appropriate TDI certification by submitting the TDI Diver Registration Form to TDI Headquarters or registering the students online through member's area of the TDI website

## **19.8 Required Equipment**

### **The following are the required for this course:**

1. *TDI Diving in Overhead Environments Manual*
2. *TDI Diving in Overhead Environments Instructor Guide*
3. *TDI Diving in Overhead Environments Instructor Resource CD (Optional)*

### **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 Cave Diving Manual*
5. *Cavern Measureless to Man*
6. *The Darkness Beckons – Martyn Farr*

**The following equipment is required for each student:**

1. Dual cylinders, volume appropriate for planned dive, student gas consumption
2. Two independent first and second stage regulators; one regulator equipped with a long hose at a recommended minimum length of 2 metres / 7 feet
3. Submersible pressure gauge
4. Buoyancy compensator device (BCD) with power inflator
5. Exposure suit adequate for diving environment
6. Mask and fins, **NO** snorkel
7. Two line cutting devices
8. Three battery powered lights; 1 primary and 2 back-ups, each with a with burn time suitable for the planned dive time
9. One primary cave-diving reel with length appropriate for intended dive
10. Computer, watch or bottom timer and depth gauge
11. Slate or wet notes with a pencil
12. Submersible dive tables or back up dive computer
13. Three directional line arrows
14. One non- directional line marker
15. Gap reel with 15 metres / 50 feet of guideline
16. It is recommended that the team properly mark decompression cylinders and stage them, in any dive where decompression is planned, at least 1 stop deeper than the planned decompression obligation

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

## **19.9 Required Subject Areas**

**The following topics must be covered during this course:**

1. Policy for Cave Diving
2. Gas Matching Procedures and Management to Include Dissimilar Volumes
3. Psychological Considerations
4. Equipment Considerations
  - a. Cylinder options
  - b. Regulator options
  - c. Buoyancy compensator device/ harness options
  - d. Reel options
  - e. Proper weighting
  - f. Equipment configurations



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5. Communication
    - a. Hand signals
    - b. Light signals
    - c. Touch contact signal
  6. Swimming Techniques
    - a. Body posture/ trim
    - b. Buoyancy control
    - c. Line following
    - d. Propulsion techniques
  7. Physiology
    - a. Breathing techniques
    - b. Stress management
    - c. Decompression theory and its application to cave diving
  8. Cave Environment
    - a. Geology
      - i. Bottom
      - ii. Ceiling
    - b. Local access requirements
    - c. Land owner relations
  9. 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. Cave Diving Etiquette

## **19.10 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. Use of safety reel in lost diver procedures
4. Use of safety reel in lost line drill

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

1. Demonstrate adequate pre-dive planning
2. Equipment check and equipment matching
3. Bubble check
4. Demonstrate specialized propulsion techniques in varying types of flow



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 cave dives:

1. Properly deploy a guideline
2. Properly use directional and non directional line markers
3. Properly follow a guideline with eyes open and closed (simulating loss of visibility)
4. Air share with a buddy with eyes open , following the guideline
5. Air share with a buddy with lights off and eyes closed and use touch contact, following the guideline
6. Remove and replace mask while in contact with guideline
7. Demonstrate light / hand -signals and touch contact
8. Conservation and awareness techniques
9. Referencing as back-up navigation
10. Demonstrate adequate anti-silting techniques
11. Simulate a primary light failure, and use back light to exit the cave
12. Demonstrate lost line and lost diver drills
13. Demonstrate to use of reels to perform jumps and gaps required in circuits and traverses to maintain a continuous guideline to open water

**In order to complete this course, students must:**

1. Satisfactorily complete the TDI Cave Diver Course written examination
2. Perform all land drills and cave 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