

2.1 Standards Applying to all NSS-CDS Training Programs

2.1.1 Overview

Unless otherwise noted in the standards for individual courses, the following requirements apply to all NSS-CDS training courses and orientation programs.

2.1.2 Prerequisites

To participate in any NSS-CDS training program, students must:

- A. Be at least 18 years old.
- B. Have logged at least 50 dives.
- C. Possess Advanced Open Water Diver or equivalent certification from a widely recognized diver training organization, or equivalent experience.
- D. Possess entry-level Nitrox Diver or equivalent certification from a widely recognized diver training organization. This training may take place concurrently with the CDS Basics orientation or Apprentice Cave.

Students participating in any training program involving planned decompression must possess appropriate certification from a widely recognized diver training organization. This training must cover:

- E. Use of pure oxygen or oxygen-rich decompression mixtures.
- F. Procedures for decompression diving.

This training may take place concurrently with NSS-CDS Cave Diver training.

Additionally, instructors must screen and evaluate students to ensure they possess the necessary attitude, knowledge and skills before any further in-water training takes place. Instructors must refer students who cannot pass this screening process to opportunities where they can obtain remedial training. Only when students can pass the screening process may they continue their cavern/cave training.

2.1.3 Open-Circuit Equipment Requirements

For programs in which both students and instructors use open-circuit equipment, each participant must have:

- A. Mask and fins.
- B. Adequate exposure protection for depth, time and water temperature.
- C. Sidemount/backmount harness and air cell with sufficient lift to support cylinders used.

- D. Two sidemount cylinders or set of manifolded doubles capable of providing a starting gas volume of at least 4,200 L/150 ft³.
- E. Two regulator first-stages, each with a single second stage. At least one first stage must have a 2.0 m/7.0 ft second-stage hose.
- F. At least one dive computer capable of monitoring exposure to all gas mixtures used.
- G. At least two cutting tools capable of dealing with guideline entanglement.
- H. Primary dive light with a rated burn time of 150 percent of expect dive time.
- I. Two backup dive lights.
- J. One primary reel per team with minimum of 75 m/250 ft of guideline.
- K. Two safety reels/spools per diver, each with least 30 m/100 ft of guideline.
- L. At least two directional and two nondirectional line markers.

2.1.4 Rebreather Equipment Requirements

In lieu of sidemount/backmount cylinders and regulators, students and instructors using closed-rebreathers must have:

- A. A CCR or eCCR with sufficient absorbent, diluent and oxygen for 150 percent of the planned dive time.
- B. Open-circuit bailout cylinder(s) with at least 150 percent of the gas required to exit the cave from maximum point of penetration. This must be in the form of either two or more separate cylinders or a single cylinder with an H-valve.

Additionally, both students and instructors must hold CCR Diver certification for the specific CCR they will use.

2.1.5 Sidemount Instructor Requirements

If students will be using sidemount, their instructor must possess Sidemount Instructor certification from a widely recognized diver training organization.

2.1.6 Knowledge Development

Knowledge development in NSS-CDS training programs may take place through any combination of:

- A. Self-study.
- B. eLearning.
- C. Classroom presentations.
- D. On-site discussion.

Students must use at least one student manual or eLearning course approved by the Training Chairman for the specific course they are taking. A list of these materials appears on the NSS-CDS website. Requirements listed in NSS-CDS training standards supersede any information appearing in training materials. The Section also encourages students to download and read Sheck Exley's *Blueprint for Survival*.

2.1.7 Knowledge Assessment

Prior to certification, students must demonstrate mastery of the subject matter or learning objectives specified by individual course standards. This assessment may involve:

- A. Successful completion and remediation of a written test.
- B. Successful completion of an approved eLearning program.

2.1.8 Control and Supervision

- A. An Active status NSS-CDS Instructor must be present and in control of all activities in any NSS-CDS training program.
- B. Instructors must be authorized by the NSS-CDS to conduct the level of training offered.
- C. The maximum student-to-instructor ratio for in-water activities is 3:1.
- D. Instructors may have a maximum of one certified assistant. This person must be certified to at least the NSS-CDS Cave Divemaster level.
- E. Any other person who is part of the dive team counts as a student, including Cave Divemasters in training.
- F. Instructors may conduct guided dives one level beyond a diver's current level of certification *provided*:
 - 1. The students meet all requirements which apply to the first dive of the next level of training.
 - 2. The instructor is authorized to teach at this level.This, in essence, becomes a training dive and not a guided dive, even though instructors may elect to not include any skills.
- G. Students are to maintain a continuous guideline to a safe exit during all NSS-CDS training programs.
- H. All training dives must fall within the *Limits of Training* for the course being taught.
- I. Instructors must provide a dive-site briefing to students who are not already familiar with the site being used.

2.1.9 Pre-dive Requirements

Before every training dive, students are to:

- A. Assemble and test all personal dive equipment for function.
- B. Analyze all cylinders and label them for content.
 - 1. Maximum Partial Pressure of Oxygen (PO_2) for any part of a dive, other than decompression, may not exceed 1.4 ATA.
 - 2. Maximum Partial Pressure of Oxygen (PO_2) during decompression may not exceed 1.6 ATA.
- C. Formulate a dive plan which includes, at a minimum:
 - 1. Team sequence.
 - 2. Gas turnarounds for each team member, allowing for dissimilar cylinder sizes if necessary.
 - 3. Anticipated and maximum allowable depths.
 - 4. Anticipated and maximum allowable dive time.
 - 5. Anticipated decompression, if any.
 - 6. Anticipated and maximum allowable penetration distance, if applicable.
 - 7. Intended navigation.
- D. Conduct the following pre-dive equipment checks either by themselves or with teammates:
 - 1. Ensure all necessary equipment is present and functioning.
 - 2. Ensure no straps are twisted nor is any equipment trapped under straps or other equipment in a way which interferes with its function.
 - 3. Ensure any long hoses are fully deployable and not trapped under other equipment.
 - 4. Ensure all dive computers are set to the correct gas mixtures.
 - 5. Inspect or have a fellow team member inspect all manifolds, valves, regulators and hoses for gas leakage (i.e., “bubble check”).
 - 6. Test breathe all regulator second stages underwater.
 - 7. Ensure all sidemount and manifold valves are turned on.
 - 8. Ensure all stage and deco cylinder regulators are pressurized but turned off. The sole exception being if divers will be starting a dive on a stage cylinder.
- E. Ensure all team members are prepared to deal with a loss of breathing gas. The best method for doing so may depend on several facts, with equipment configuration being chief among them.

2.1.10 Dive and Skill Conduct

- A. To be certified, students must demonstrate mastery of all required land, open-water and overhead-environment skills. The NSS-CDS defines mastery as the ability to perform, a skill:

1. On demand.
 2. Repeatedly.
 3. Without significant error.
 4. Without undue stress.
- B. At no point during a dive in overhead environments may an instructor:
1. Shut off a student's breathing gas.
 2. Pull a second stage out of a student's mouth.
 3. Flood or remove a student's mask.
 4. Forcibly remove any other equipment.
- C. The NSS-CDS defines *visibility* as the maximum distance at which divers can see one another's lighted hand signals.
1. Individual course standards may define a *minimum starting visibility*. This is the visibility at the cave entrance at the start of a dive.
 2. Visibility may deteriorate during a dive. Instructors must terminate a dive whenever they feel visibility is no longer at safe levels.
- D. Instructors may not conduct training dives or drills in caves or passages which:
1. Contain sensitive formations and structures.
 2. Are in relatively pristine condition.
 3. Contain sensitive biological or archeological resources.
- E. Instructors must choose sites which are appropriate for student skill levels and the level of training. Refer to *Section 1: Appendix* at the end of this section for a list of approved locations for zero visibility drills

2.1.11 Post-dive Debriefing

Following each dive, instructors must conduct a post-dive debriefing and critique.

2.1.12 Decompression During Training Dives

It's common during training at the full Cave Diver level and above for students to exceed dive table and computer no-decompression limits. Whenever dives exceed 80 percent of the no-decompression limits, instructors must follow these procedures:

- A. Students and instructors must stage a decompression cylinder containing oxygen or an oxygen-rich decompression mixture for each diver at or near the cave entrance.
- B. Additionally, emergency oxygen must be available on the surface in case students or instructors manifest DCS symptoms following a dive.

- C. Rehydration liquids must be readily available on site.
- D. Instructors may not use sites which would require divers to descend following decompression in order to reach the exit.