



# General Training Standards, Policies, and Procedures

Version 9.1



## GUE General Training Standards, Policies, and Procedures

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# 1. Purpose of GUE

Global Underwater Explorers (GUE) was founded by conservationists, explorers, and educators to improve the quality of aquatic education and to actively engage in the exploration and conservation of the underwater world.

## 1.1 GUE Objectives

### 1.1.1 Promote Quality Education

GUE is committed to producing divers who are knowledgeable, skilled, competent, and safe in the water, and to a generalized mission of educating the public in all things aquatic.

### 1.1.2 Promote Global Conservation Initiatives

GUE is committed to promoting global conservation initiatives.

### 1.1.3 Promote Global Exploration Initiatives

GUE is committed to promoting global underwater exploration initiatives.

## 1.2 Training Philosophy

### 1.2.1 Education

GUE course outcomes are designed to cultivate high levels of diver competence under the assumption that only a sound educational platform will ensure divers' comfort, confidence, and capability. This is achieved through:

- a. *Exacting performance standards:* GUE course outcomes are secured by exacting performance standards that incorporate both challenging academic and practical components.
- b. *Rigorous classes:* GUE classes demand a great deal from participants, both physically and intellectually.
- c. *Elite instruction:* GUE instructors are the result of a demanding and thorough development process that ensures consistently high levels of skill, knowledge, and commitment to GUE's mission.
- d. *Experience:* GUE requires that trainees build experience between classes.

### 1.2.2 Equipment

GUE is committed to a standardized equipment configuration, a holistic approach that views each piece of equipment as an integral part of a system.

### 1.2.3 Experience

GUE maintains that experience is critical to diver proficiency. To ensure this outcome, GUE training includes critical skills training, experience dives, and post-class practice.

- a. *Critical skills training*: Critical skills are skills that are required to efficiently manage loss of visibility, loss of lights, out-of-gas scenarios, manifold failures, and rescue scenarios involving panicked divers, convulsing divers, and unconscious divers. Critical skills training uses simulation in controlled and safe environments to secure course outcomes. Competence is established by skill review, practice, and repetition.
- b. *Experience dives*: Experience dives are components of GUE courses that seek to foster real diving experience while providing a controlled context for skill sedimentation and refinement.
- c. *Interim course requirement*: GUE requires that formal diver training be punctuated by breaks during which trainees are asked to undertake a set number of dives to gain experience with a newly acquired skill set before transitioning to higher level of training.

## 1.3 Training Structure

### 1.3.1 Elements of Diver Training

- a. *Screening*: GUE training requires that trainees be carefully screened by GUE instructors prior to participating in GUE courses to ensure that they are able to meet the demands of training. Required documentation includes an account of their personal diving experience, their medical history, and a record of previous training.
- b. *Advance preparation*: GUE training requires that trainees be familiar with an assigned set of materials prior to the onset of class.
- c. *Academics*: GUE training includes a strong academic component that seeks to cultivate cognitive mastery of elements relevant to the safe conduct of the level of diving being pursued; some of this material is assigned prior to class.
- d. *In-water training (confined and open water)*: GUE in-water training in confined and suitable open water environments is designed to help trainees cultivate essential diving skills and to test trainee capacity in a controlled environment (one that allows instructors to maintain reasonable control over trainees); such skills include problem solving and emergency management.
  - i. Confined water is defined as an area:
    - 1. That does not exceed 30 ft/9 m in depth.
    - 2. Where visibility (i.e., the minimum distance in which divers can see one another and communicate effectively) is sufficient to allow instructors to maintain a continuous view of trainees under their supervision.
    - 3. That is not an overhead area.
    - 4. That is illuminated to a level comparable to daylight.
    - 5. Where surface conditions are relatively calm (no greater than 3 ft/1 m surge).
    - 6. Where currents are negligible (less than 1 knot).
  - ii. A “suitable” open water environment is defined as an area that allows instructors reasonable control over trainees under their supervision; depths are contingent on specific course requirements.
- e. *Testing, evaluation, and certification*: Testing and evaluation is a vital component of the GUE training process.

- i. *Academics*: Trainees must be able to answer all final exam questions prior to certification.
- ii. *In-water*: Trainee in-water skills are graded on a scale of one to five (see below) and documented on a Course Completion Form (CCF) by the instructor of record at the completion of the class. CCFs must be submitted to GUE Headquarters (HQ) for follow-up action and filing. Debrief sessions are used during the class to provide trainees with a running assessment of their performance.

GUE certification is ultimately an instructor's decision. However, instructors are obligated, on request, to provide trainees with an assessment of their performance; this includes providing trainees with a copy of the CCF where their strengths and weaknesses are clearly outlined.

*GUE's Grading Scale*: Grades range sequentially from 1 (failing) to 5 (excellent) and represent the following:

- a. *Grade 1*: Signifies an unsafe trainee in both ability and/or demeanor; the trainee should be removed from the course immediately.
- b. *Grade 2*: Signifies a trainee that falls below the minimum standard relevant to a required skill/task. If, at the discretion of the instructor, continued practice of a skill/task places either the student or the class at risk, the instructor may decide not to continue practicing a skill/task and fail the trainee.
- c. *Grade 3*: Signifies that the trainee has met the minimum standard in respect to the skill/task.
- d. *Grade 4*: Signifies that the trainee has exceeded the minimum standard with respect to the skill/task.
- e. *Grade 5*: Signifies that the trainee has greatly exceeded the minimum standard with respect to the skill/task.

### 1.3.2 Diver Assessment

At the completion of GUE training, instructors must decide whether the trainee:

- a. Has met the minimum standard required to be certified to pursue the type of diving for which they sought training. In order to meet this requirement, the trainee has to be awarded a grade 3 or above on every individual skill and has to pass the final exam, swim test, and breath hold test.
- b. Is just short of the minimum standard required to be certified to pursue the type of diving for which they sought training.
- c. Requires significant work to meet the minimum standards for the class.

These assessments take the form of:

- a. Certification
- b. Provisional rating
- c. Failure

Provisional ratings do not represent any form of GUE accreditation and must be upgraded within six months or the trainee must repeat training. Any Active status GUE instructor in the appropriate curriculum can conduct an upgrade evaluation. Additional time and course fees associated with provisional upgrades are entirely at the discretion of the instructor.



### 1.3.3 Training Categories

#### 1.3.3.1 Recreational

Recreational diver training is designed for persons who want to learn to dive in non-overhead environments and with minimum decompression obligations.

#### 1.3.3.2 Foundational

Foundational diver training is designed for trained divers to remediate or refine their basic skill set as a means to dive safely and comfortably or to enable those seeking more demanding forms of diving. It also provides the trained diver with opportunities to build competency in the use of more specialized equipment—e.g., doubles, drysuits.

#### 1.3.3.3 Technical

Technical diver training is designed for divers seeking to safely and competently pursue dives to greater depths with specialty gases and bottom times that expose them to decompression and other risks that require advanced management strategies.

#### 1.3.3.4 Cave

Cave diver training is designed for divers seeking to safely and competently penetrate underwater cave environments that will expose them to risks that require the development of a new set of advanced skills.

### 1.3.4 General Training Standards

GUE's general training standards govern all GUE courses and their participants. Additional course-specific standards are listed under the requirements of the specific class. General Diving Standards (section 1.4) also apply to all GUE courses and their participants.

- a. An Active status GUE instructor certified to teach the level of training being conducted must be present and in control of all course activities.
- b. All Active and Sustaining status GUE instructors are bound by the most current version of the GUE General Training Standards, Policies, and Procedures document.
- c. Diving prerequisites established by the relevant course standards must be met before trainees can be registered for that class. Dives cannot be credited across curricula or across levels of a given curriculum. Unless otherwise specified in the course's Specific Training Standards, students may not participate in two courses at the same time.
- d. Students must be certified for a level of training before progressing to the next level of training unless otherwise specified in the course's Specific Training Standards.
- e. GUE instructors must not conduct training dives and drills in areas that are environmentally or culturally sensitive or that could be damaged by the training (e.g., DPV training, drills involving simulated zero visibility).
- f. Water conditions must at all times be such that the instructor:
  - i. Can maintain visual contact with all divers under their supervision.
  - ii. Is in reasonable control of all divers under their supervision.
- g. Critical skills, as defined in section 1.2.3 of this document, must first be conducted in a confined-water setting. Instructors can then vary the depth and/or location where skills are executed.

- i. Mask removal is restricted to confined water; only trainees themselves are allowed to remove their masks at the prompting of their instructor.
  - ii. “Air gunning” or simulating manifold failure is restricted to courses in the Technical and Cave curricula.
  - iii. Unless it is for safety reasons, instructors must never close a student’s valve(s); only trainees themselves are allowed to close valve(s) at the prompting of their instructor.
  - iv. In the recreational and foundational curricula, any S-drill or OOG training is restricted to a maximum depth of 70 ft/21 m. It is up to the instructor to reduce this limit when circumstances (e.g., environment, student capacity) require additional caution.
- h. Issuing certifications under other agencies: A trainee may receive both a GUE certification card and the equivalent certification of another agency only if the trainee has met GUE standards and been awarded full GUE certification.
- i. Decompression parameters: Decompression diving conducted during GUE classes must use GUE’s DecoPlanner as the reference standard, using the Bühlmann algorithm with a gradient factor of 20/85.
- j. Course size: Unless otherwise specified in the course’s Specific Training Standards, no GUE class can be run with only one trainee.
- k. Divers breathing helium mixtures and utilizing a drysuit must have a drysuit inflation system independent of their back gas cylinders, such as an argon/air cylinder; they may not use back gas to inflate their drysuit.
- l. During all diving activities, instructors must carry at least the same equipment as their students, as determined by the course-specific equipment requirements. Exclusions of equipment as determined by the course-specific equipment requirements apply to students only; instructors may never carry less than the complete GUE base equipment configuration as per Appendix A.

## 1.4 General Diving Standards

The following standards apply to all GUE diving activities. Additional course-specific standards are listed within section 1.3.4 General Training Standards, as well as within the requirements of a specific class.

- a. *Oxygen partial pressure (pO<sub>2</sub>) limits*: Individuals must not plan dives with a pO<sub>2</sub> that exceeds 1.4 ATA/bar during the “working” phase of the dive; during the “resting” phase, the planned pO<sub>2</sub> may be elevated to 1.6 ATA/bar.
- b. *Equivalent Narcotic Depth (END) limits*: The END during dives must not exceed 100 ft/30 m. The END of a breathing gas is determined under the assumption that helium is the only non-narcotic component.
- c. *Breathing gas requirements*: All open-circuit dives must be terminated when any member of the team reaches “minimum gas”; this requires that each diver carry a supply that allows two divers sharing gas to reach the surface or another breathable gas supply. All rebreather dives must be terminated when any member of the team reaches “bailout minimum gas”; this requires that each diver carry an open-circuit supply that allows the diver to reach the surface or another breathable gas supply.

- d. *Team diving*: GUE's diving philosophy is based on a team approach. Divers must plan all diving activities as a team and must remain aware of team member location and safety at all times.
- e. *Proper cylinder marking*:
  - i. Dive cylinders must be free of unnecessary stickers and markings.
  - ii. Dive cylinders must bear a current Visual Inspection sticker and Hydro Test marking, as detailed by current country-specific regulations; placement must not distract from Maximum Operating Depth (MOD) markings.
  - iii. All stage cylinders (except oxygen) must be marked with the appropriate MOD (in meters or feet) in approximately 3-inch/7.5-centimeter numbers.
  - iv. Oxygen cylinders must be marked with the word "OXYGEN" (or local equivalent) and MOD.
  - v. MOD markings must be oriented in a way that they are readable by both divers and their team members.
  - vi. Filled cylinders must be analyzed and labeled in accordance with GUE's Standard Operating Procedure for Gas Analysis.
  - vii. Dedicated cylinders used for the inflation of drysuits are exempt from analysis.
- f. *Local laws and regulations*: GUE divers must comply with all local laws and regulations.

## 1.5 Equipment Standardization

GUE training programs and GUE diving activities require a standard equipment configuration with modifications made for specific types of diving (e.g., cave vs. recreational). Appendix A contains an outline of the elements comprising GUE's required base equipment configuration. Variations or additional equipment requirements are listed in the standards regulating each course.

## 1.6 Quality Control

GUE's quality control program seeks to ensure that GUE courses, instructors, and members abide by GUE standards before, during, and after training. The acting members within Quality Control are the:

- a. Board of Directors (BOD)
- b. Director of Quality Control
- c. Director of Risk Management
- d. Designated Trustee of Standards and Procedures
- e. Quality Control Board

### 1.6.1 Instructor Evaluations

As part of the certification process, instructor performance is evaluated by each trainee at the conclusion of each GUE class by completing and submitting to GUE Headquarters (HQ) a Quality Control Form.

### 1.6.2 Instructor Peer Review

GUE encourages instructor cooperation and active peer feedback on dives and requires instructors to report to GUE HQ any practices not in keeping with the GUE General Training Standards, Policies, and Procedures.

### 1.6.3 Instructor Renewals

GUE instructors are required to renew annually. Prerequisites for renewal attest to preparedness to competently and safely teach a GUE class to standard.

### 1.6.4 Instructor Requalification

GUE instructors are required to requalify with a GUE Instructor Evaluator every four years in every curriculum (Recreational, Foundational, Technical, and Cave) they are certified to teach. These formal requalifications attest to continued mastery of required knowledge and skills to competently and safely teach a GUE class to standard. Instructors who fail to requalify within four years are rendered immediately inactive.

Instructors may choose to reset the four-year clock at any point within this four-year window.

Requalification may also be required at any time the safety or effectiveness of an instructor's training is in question. In such an event, GUE's Director of Training or GUE's Board of Directors may immediately suspend an instructor's teaching privileges.

### 1.6.5 Diver Requalification

All GUE certification cards expire three years after the date of issue. To maintain GUE certification, GUE divers must certify that they have conducted twenty-five dives at the level of their certification within a three-year period. Upon review, divers can be issued a new certification card for a nominal fee.

The allowable time for requalification in this manner is five years. If a diver fails to requalify in five years, then formal approval from a GUE instructor at the appropriate level is required.

## 1.7 Waivers

- a. GUE's BOD has the power to waive course-specific requirements.
- b. GUE Instructor Evaluators have the power to waive the 25-dive prerequisite between GUE courses.
- c. GUE Instructor Evaluators have the power to waive training obligations and award GUE certification based on previous training and experience.
- d. GUE HQ has the power to waive minimum age requirements for GUE classes.
- e. GUE HQ has the power to waive course-specific requirements for the number of training locations.

## 1.8 Complaints

GUE's Director of Quality Control, Director of Risk Management, and Quality Control Board are responsible for handling complaints promptly and thoroughly. Following an investigation of a

complaint, the Director of Quality Control, Director of Risk Management, and Quality Control Board will decide whether or not disciplinary or remedial action is warranted.

### 1.8.1 Complaint Submission

Complaints can be lodged against any GUE member or GUE diver, each of whom is bound by the GUE General Training Standards, Policies, and Procedures document.

Formal complaints must be sent to GUE's Director of Quality Control at GUE HQ and must include:

- a. A written statement outlining the nature of the complaint
- b. Name and contact information
- c. The date, time, and location of the incident
- d. A complete account of the event, including names and contact information (if possible) of any witnesses

Complaints can be lodged either by mail or electronically. Mail should be sent to:

*Director of Quality Control  
Global Underwater Explorers  
18487 High Springs Main Street  
High Springs, FL, 32643  
USA*

Email should be sent to [qc@gue.com](mailto:qc@gue.com).

No action, other than review, can be taken as a result of an anonymous or a verbal complaint.

### 1.8.2 Complaint Procedure

- a. Following a review of the complaint, if warranted, GUE's Quality Control Board will send a summary of the complaint to the charged member by regular and/or electronic mail.
- b. Charged member(s) must respond in writing to the complaint (by mail or electronically) within thirty days from the date the summary is sent.
- c. Charged members who fail to respond to a written complaint in the allotted time are automatically suspended and all membership privileges revoked.
- d. Charged members who respond to a written complaint are able to maintain their membership privileges until a final determination is reached by GUE's Quality Control Board.
- e. GUE's Quality Control Board will reach its determination within thirty days of receiving a complete response from the charged member. The Quality Control Board can determine to dismiss the complaint, resolve the matter by negotiation, or sanction a disciplinary or remedial action.

### 1.8.3 Disciplinary and Remedial Actions

GUE's Quality Control Board is empowered to render the following decisions:

- a. Private censure
- b. Public censure
- c. Prescribed educational rehabilitation

- d. Defined probationary period
- e. Defined suspension
- f. Revocation of membership and/or teaching privileges

### 1.8.4 Rights of Appeal

Determinations made by GUE's Quality Control Board may be appealed to GUE's Board of Directors no later than thirty days from the time the determination is made. Such an appeal must be lodged in writing to:

*GUE Board of Directors  
Global Underwater Explorers  
18487 High Springs Main Street  
High Springs, FL 32643  
USA*

### 1.8.5 Executive Suspension of Membership

GUE membership, GUE teaching privileges, and GUE diving credentials are a privilege and not a right. Membership in GUE may be rescinded and GUE credentials may be revoked at any time by GUE at its discretion.

## 1.9 Conduct Policies and Procedures

- a. GUE instructors (regardless of country of residence or course location) must collect printed and signed GUE liability release forms prior to the onset of each GUE class and maintain these for a period of no less than seven years following the completion of training.
- b. GUE representatives must promote the best interests of GUE.
- c. GUE instructors must abide by GUE safety protocols at all times.
- d. GUE members and its representatives must demonstrate fiscal responsibility in general and in particular when transacting business with GUE, GUE instructors, or GUE members.
- e. GUE instructors must process student Course Completion Forms in a timely fashion and cooperate with GUE HQ when certification card issues arise.
- f. All internal communication (e.g., via the instructors@gue.com mailing list, the GUE Instructors Facebook page, or any other media accessible to GUE HQ and GUE instructors only), is confidential. Any instructor who knowingly allows these discussions to become public knowledge may be subject to disciplinary action.
- g. GUE instructors must behave professionally when interacting with others, including industry, non-industry, and GUE-related individuals.
- h. GUE members, GUE divers, and GUE representatives are bound by the standards and procedures outlined in this document.
- i. GUE membership and renewal applications do not constitute perpetual offers of membership. GUE HQ reserves the right to refuse membership or renewal to any party without assigning any reason.
- j. GUE members must not utilize proprietary GUE materials without written permission from GUE HQ.

- k. GUE instructor certification cards issued by GUE HQ are the property of GUE and must be surrendered upon request to the Board of Directors or their representatives.

## 1.10 Records

GUE HQ will maintain the following records (if applicable) for GUE course participants for a minimum of three years after the completion of a class. As GUE student profiles are executed electronically, it is the responsibility of all GUE instructors (regardless of their country of residence or course location) to collect printed and properly executed (i.e., complete and signed) documentation for all course participants before the onset of class and maintain these for a minimum of seven years.

- a. Student Registration
- b. Student Liability Release and Assumption of Risk
- c. Student Agreement
- d. Student Medical Questionnaire
- e. Accident Report
- f. Instructor Registration
- g. Instructor Liability Release and Assumption of Risk
- h. Instructor Agreement
- i. Course Completion Form
- j. Certification Renewal Form
- k. Certification Card Replacement Form
- l. Instructor Evaluation Form
- m. Instructor Standards Agreement Form
- n. Instructor Renewal Documents
- o. Membership Registration

## 2. GUE Course Training Standards and Procedures

### 2.1 Recreational Diver Curriculum

#### 2.1.1 Discover Diving

##### 2.1.1.1 Program Outcomes

GUE's Discover Diving program is designed as an introduction for individuals with no previous scuba diving experience. This program does not result in certification but can serve as an introduction to the Recreational Supervised Diver course or as a standalone experience. Completion of this program does not qualify the participants to engage in recreational diving.

##### 2.1.1.2 Prerequisites

Applicants for a Discover Diving program must:

- a. Submit a completed Discover Diving Registration Form to their instructor.
- b. Be included in an insurance program that specifically covers diving emergencies.
- c. Be physically and mentally fit.
- d. Obtain a physician's prior written authorization for use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- e. Be a minimum of 14 years of age. Documented parental or legal guardian consent must be submitted to the instructor when the participant is a minor.

##### 2.1.1.3 Program Content

The Discover Diving program is normally conducted over one day. It requires a minimum of one in-water session and at least four hours of instruction, encompassing classroom lectures, land drills, and in-water work. Optional open water dives can be conducted at the instructor's discretion.

Activities in confined and open water may be conducted separately or combined, with skills initially introduced in shallow water before participants are taken into deeper water.

##### 2.1.1.4 Discover Diving Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 4:1 during land drills or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Can be run with one trainee
- c. All confined in-water activities must be directly supervised by a qualified GUE instructor or GUE assistant instructor who is solely responsible for determining a participant's capacity to participate in open water diving.
- d. All open water dives must be directly supervised by a GUE instructor.
- e. During open water dives, a GUE instructor must not engage in any activity other than the direct supervision of the participants.
- f. All in-water activities must be conducted in daylight conditions.
- g. All in-water skills must be introduced and practiced in confined water shallow enough for the participant to stand in, before progressing to deeper water. When water shallow enough to stand in is not available, the skills may be introduced and practiced from a



device such as a descent line, bar, ladder, or platform. In such a scenario, the in-water ratio is reduced to 1:1 and the skills introduction must not be conducted deeper than 6 ft/2 m.

- h. Maximum depth of 30 ft/9 m
- i. No overhead diving
- j. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

#### **2.1.1.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study package provided by GUE via the Discover Diving instructor.

#### **2.1.1.6 Academic Topics**

- a. Overview of scuba diving and GUE organization
- b. Basic diving physics with emphasis on dive safety
  - i. Breathing underwater
  - ii. Equalization underwater
  - iii. Buoyancy and trim; ascending, descending, and moving underwater
  - iv. Underwater communication
  - v. Identification of local environmental hazards, e.g., marine life
- c. Overview and use of scuba diving equipment
- d. Importance of additional dive training
- e. Value of training with GUE

#### **2.1.1.7 Land Drills and Topics**

- a. Equipment fit and function
- b. Gas analysis
- c. Basic 5 scuba skills #1, #2, and #4
- d. Long hose donation to trainee performed by instructor where the trainee is the receiver
- e. SPG check

#### **2.1.1.8 Required Dive Skills and Drills**

Students must be able to demonstrate capacity in the following skills with each skill practiced in confined water before it is attempted in an open water setting.

##### **2.1.1.8.1 Surface Skills**

- a. Regulator breathing practice
- b. Basic 5 scuba skills #1, #2, and #4
- c. Long hose donation to trainee performed by instructor
- d. Buoyancy compensator (BC) operation practice

##### **2.1.1.8.2 Underwater Skills**

- a. Controlled descent
- b. Buoyancy and trim practice
- c. Propulsion practice
- d. Basic 5 scuba skills #1, #2, and #4
- e. Long hose donation to trainee performed by instructor
- f. SPG check

- g. Controlled ascent

### **2.1.1.9 Equipment Requirements**

GUE single tank configuration as outlined in Appendix A, excluding:

- a. Wrist-mounted compass
- b. Backup mask
- c. At least one cutting device
- d. Wetnotes with pencils
- e. At least one surface marker buoy (SMB) with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.1.2 Recreational Supervised Diver**

### **2.1.2.1 Course Outcomes**

GUE's Recreational Supervised Diver course is designed to provide students with sufficient knowledge, skill, and experience to dive in open water environments under the direct supervision of a dive professional.

Upon fulfilling all minimum training requirements, the Recreational Supervised Diver will be qualified to:

- a. Dive with a professional from a recognized training agency in a diver-to-dive professional ratio not exceeding 3:1.
- b. Dive to a maximum depth of 40 ft/12 m.
- c. Dive within minimum decompression limits (MDLs), i.e., no required stops.
- d. Dive with appropriate surface support (e.g., access to EMS, infrastructure allowing for support in case of emergency).
- e. Dive in conditions equal to or better than those in which they were trained.
- f. Use nitrox 32 under direct supervision of a dive professional from a recognized training agency who is certified to use nitrox 32.

### **2.1.2.2 Prerequisites**

Applicants for a Recreational Supervised Diver course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Be included in an insurance program that specifically covers diving emergencies.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 14 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.

### **2.1.2.3 Course Content**

The Recreational Supervised Diver course is normally conducted over three days. It requires a minimum of eight confined water sessions, two open water dives, and at least twenty-four hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.1.2.4 Recreational Supervised Diver Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Can be run with one trainee
- c. During open water dives, the instructor must not engage in any activities other than direct supervision of the participants.
- d. All in-water activities must be conducted in daylight conditions.
- e. Maximum depth of 40 ft/12 m
- f. No overhead diving
- g. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### **2.1.2.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study package received via online download after GUE course application.

### **2.1.2.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, training requirements)
- b. Basic diving physics supporting knowledge and ability to safely manage:
  - i. Breathing underwater
  - ii. Equalization and avoidance of barotraumas, including DCI
  - iii. Buoyancy, trim, and balance; ascending, descending, and underwater propulsion
  - iv. Physical and mental stress while diving
- c. Introduction to decompression sickness
- d. Scuba diving equipment overview and operation
- e. Basic planning, including breathing gas management, dive preparation, and pre-dive sequence.
- f. Basic understanding of nitrox diving and importance of gas analysis
- g. Team diving and underwater communication
- h. Environmental considerations while diving
- i. Conservation-minded diving techniques

### **2.1.2.7 Land Drills and Topics**

The following land drills must be used to familiarize students with important skills before they are practiced underwater.

- a. Equipment fit, assembly and disassembly, functionality checks
- b. Propulsion and maneuvering techniques
- c. Gas analysis
- d. GUE EDGE and pre-dive checks
- e. Basic 5 scuba skills
- f. SPG check

- g. S-drill
- h. Connecting and disconnecting LP inflation hose of BC (and drysuit, if used)
- i. Oral inflation of BC

#### 2.1.2.8 Required Dive Skills and Drills

Students must demonstrate competence in the following skills to be certified as GUE Recreational Supervised Diver:

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Efficiently demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface.
- f. Comfortably demonstrate at least two propulsion techniques that would be appropriate in delicate and/or silty environments.
- g. Demonstrate a safe and responsible demeanor throughout all training.
- h. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- i. Demonstrate proficiency in underwater communication.
- j. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- k. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- l. Demonstrate safe ascent and descent procedures.
- m. Demonstrate comprehension of the components necessary for a successful backward kick.

#### 2.1.2.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Snorkel, simple in design, with no purge valves

Excluding:

- a. Wrist-mounted compass
- b. Backup mask
- c. At least one cutting device (unless required by local regulations)
- d. At least one surface marker buoy (SMB) with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.1.3 Recreational Diver Level 1**

### **2.1.3.1 Course Outcomes**

GUE's Recreational Diver Level 1 course is designed to provide non-divers with sufficient knowledge, skill, and experience to dive within the limits of similarly qualified scuba divers. Qualified GUE Recreational Diver Level 1 divers are able to dive under conditions equal to or better than those in which they were trained with appropriate surface support and with individuals holding the same or a higher level of certification while using nitrox 32 or air within minimum decompression limits.

The Recreational Diver Level 1 diver who has not yet reached the age of 15 years is required to dive under the direct supervision of an adult who has, as a minimum, an autonomous scuba diver certification.

### **2.1.3.2 Prerequisites**

Applicants for a Recreational Diver Level 1 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Be included in an insurance program that specifically covers diving emergencies.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 14 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.

### **2.1.3.3 Course Content**

The Recreational Diver Level 1 course is normally conducted over five days. It requires a minimum of ten confined water sessions, six open water dives, and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

At the instructor's discretion, Recreational Supervised Divers may have a portion of their training counted toward Recreational Diver Level 1 qualification if they wish to dive without leadership supervision.

### **2.1.3.4 Recreational Diver Level 1 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drills or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Can be run with one trainee
- c. All in-water activities must be conducted in daylight conditions.
- d. All in-water drills must be introduced in confined water.
- e. Maximum depth of 70 ft/21 m
- f. No overhead diving
- g. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### 2.1.3.5 Required Training Materials

GUE training materials and recommended reading as determined by the course study package received via online download after GUE course registration.

### 2.1.3.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, training requirements)
- b. Diving physics supporting knowledge and ability to safely manage:
  - i. Breathing underwater
  - ii. Equalization and avoidance of barotraumas including DCI
  - iii. Buoyancy, trim, and balance; ascending, descending, and underwater propulsion
- c. Physical and mental stress while diving
- d. Scuba diving equipment overview and operation
- e. Breathing gas dynamics
- f. Decompression theory, including decompression sickness (DCS, AGE)
- g. Planning, including gas management, dive preparation, and pre-dive evaluation
- h. Nitrox diving and importance of gas analysis
- i. Team diving and underwater communication
- j. Environmental considerations while diving
- k. Conservation-minded diving techniques

### 2.1.3.7 Land Drills and Topics

The following land drills must be used to familiarize students with important skills before they are practiced underwater.

- a. Equipment fit, assembly and disassembly
- b. Propulsion and maneuvering techniques
- c. Gas analysis
- d. GUE EDGE and pre-dive checks
- e. Basic 5 scuba skills
- f. SPG check
- g. S-drill
- h. Valve operation
- i. Connect and disconnect LP inflation hose from BC (and drysuit, if used)
- j. Oral inflation of BC
- k. SMB deployment utilizing a spool
- l. Basic compass navigation
- m. Basic 5 rescue skills

### 2.1.3.8 Required Dive Skills and Drills

Students must demonstrate competence in the following skills to be certified as a GUE Recreational Diver Level 1 diver:

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.

- c. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression ascent profile.
- f. Comfortably demonstrate at least two propulsion techniques that would be appropriate in delicate and/or silty environments.
- g. Demonstrate a safe and responsible demeanor throughout all training.
- h. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- i. Demonstrate proficiency in underwater communication.
- j. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- k. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- l. Demonstrate a comfortable demeanor while swimming without a mask in touch contact, followed by a switch to the backup mask.
- m. Demonstrate safe ascent and descent procedures.
- n. Demonstrate comprehension of the components necessary for a successful backward kick.
- o. Demonstrate proficiency in basic underwater compass navigation.
- p. Demonstrate proficiency in the Basic 5 rescue skills.
- q. Demonstrate reasonable proficiency in the ability to deploy a surface marker buoy while utilizing a spool.

#### **2.1.3.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Snorkel, simple in design, with no purge valves

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.1.4 Recreational Diver Level 2**

#### **2.1.4.1 Course Outcomes**

GUE's Recreational Diver Level 2 course is a no-decompression course structured to prepare divers for deeper recreational diving while using sound equipment, efficient diving skills, and advanced breathing mixtures. Course outcomes include, but are not limited to: skill cultivation and refinement, familiarity with the theory and practice of decompression, safe use of nitrox and triox for extended bottom times, correct ascent procedures, diver rescue (on land, at the surface, and underwater), emergency management, and the use of helium to minimize narcosis, CO<sub>2</sub>, gas density, and post-dive "nitrogen stress".

#### **2.1.4.2 Prerequisites**

Applicants for a Recreational Diver Level 2 course must:

- a. Submit a completed Course Registration Form, a Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.

### **2.1.4.3 Course Content**

The Recreational Diver Level 2 course is normally conducted over five days. It requires a minimum of eleven dives (including a dive in reduced ambient light conditions and two triox experience dives) and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

The GUE Recreational Diver Level 2 certification can also be obtained by successfully completing GUE Rescue Primer, GUE Navigation Primer, and GUE Triox Primer.

### **2.1.4.4 Recreational Diver Level 2 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. No overhead diving
- d. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- e. Students must have completed basic life support (BLS) training from a recognized training agency within the twenty-four months prior to certification.

### **2.1.4.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.1.4.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Applied diving physics
- c. Applied diving physiology
- d. Situational awareness
- e. Breathing gas overview
- f. Dive planning, gas management, and logistics
- g. Introduction to triox
- h. Decompression overview and minimum decompression procedures
- i. Diving safety and accident prevention
- j. Rescue diving techniques, emergency management, and diving-related BLS skills



#### **2.1.4.7 Land Drills and Topics**

- a. GUE EDGE and pre-dive drill sequence, including gas analysis
- b. Rescue skills, including managing a rescue scenario, swimming and non-swimming assists, egression techniques, controlling a distressed diver, underwater search patterns, managing and surfacing an unconscious diver
- c. Navigation skills using a compass, guideline, and natural navigation
- d. Light and touch communication protocols

#### **2.1.4.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in surface marker buoy deployment.
- h. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- i. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.
- j. Demonstrate proficiency during gas-sharing scenarios, including a direct ascent while managing minimum decompression obligations and the use of a surface marker buoy and spool.
- k. Demonstrate proficiency in the use of the primary, light including passive and active communication.
- l. Demonstrate effective proficiency with proper ascents and descents, including the implementation of variable ascent rates.
- m. Demonstrate effective navigation using a compass and while managing a spool or reel as a guideline underwater.
- n. Demonstrate effective navigation using natural references.
- o. Demonstrate proficiency in fundamental diver rescue techniques, including assessing a rescue scene, supporting and recovering distressed, tired, and unconscious divers at the surface, recovering an unconscious diver to the surface, and a range of simulated diving incidents.
- p. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.

#### **2.1.4.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit)
- b. One primary and two backup lights
- c. One primary reel per team (optional)

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.1.5 Recreational Diver Level 3**

### **2.1.5.1 Course Outcomes**

GUE's Recreational Diver Level 3 course is a limited decompression course structured to prepare divers for deeper recreational diving while using sound equipment, efficient diving skills, and advanced breathing mixtures. Course outcomes include, but are not limited to: skill cultivation and refinement; knowledge of relevant physics and physiology; familiarity with the theory and practice of decompression; correct ascent procedures; the use of a double tank configuration; the use of nitrox for decompression; the use of helium-enriched breathing mixes to minimize narcosis, CO<sub>2</sub>, gas density, and post-dive "nitrogen stress;" and the use of a single decompression stage for accelerated decompression techniques.

### **2.1.5.2 Prerequisites**

Applicants for a Recreational Diver Level 3 course must:

- a. Submit a completed Course Registration Form, a Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 2 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 2 or GUE Fundamentals certification.
- i. Have completed at least 75 non-training dives beyond autonomous scuba diver certification.
- j. Have completed the GUE Doubles Primer or be proficient in doubles with at least 25 non-training dives using doubles.

### **2.1.5.3 Course Content**

The Recreational Diver Level 3 course is normally conducted over five days. It requires a minimum of eight dives (including two trimix experience dives) and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.1.5.4 Recreational Diver Level 3 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 130 ft/39 m
- c. No overhead diving
- d. Dives must not be planned to incur more than 15 minutes of unadjusted decompression time, as established by GUE's DecoPlanner.

#### **2.1.5.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.1.5.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Applied diving physics
- c. Applied diving physiology
- d. Introduction to normoxic trimix
- e. Narcosis
- f. Gas density
- g. Carbon dioxide
- h. Oxygen limitations
- i. Dive planning, gas management, and logistics
- j. Decompression dynamics and theory
- k. Decompression practices while using nitrox
- l. Decompression planning using decompression tables and DecoPlanner
- m. Decompression illness
- n. GUE equipment configuration

#### **2.1.5.7 Land Drills and Topics**

- a. Dive team order and protocols
- b. GUE EDGE and pre-dive drill sequence, including gas analysis
- c. Valve management including failure procedures
- d. Descent, ascent, and decompression protocols
- e. Gas-switch procedure
- f. Unconscious/toxing diver rescue

#### **2.1.5.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate proficiency in surface marker buoy deployment.

- f. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- g. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- h. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.
- i. Demonstrate proficiency during gas-sharing scenarios, including a gas-sharing horizontal swim and a direct ascent while managing decompression obligations.
- j. Demonstrate proficiency in the use of the primary light, including passive and active communication.
- k. Demonstrate proficiency with a single decompression cylinder.
- l. Demonstrate proficiency with valve management by conducting a GUE valve drill.
- m. Demonstrate proficiency with proper ascents and descents, utilizing variable ascent rates and safe gas switching procedures.
- n. Demonstrate proficiency in surfacing an unconscious diver from depth.
- o. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.

#### **2.1.5.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. One decompression stage with stage regulator
- d. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit)

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.2 Foundational Diver Curriculum**

### **2.2.1 GUE Fundamentals Part 1**

#### **2.2.1.1 Course Outcomes**

The GUE Fundamentals Part 1 course is designed to cultivate the foundational skills required by sound diving practice. Included among its course outcomes are: to provide the recreational diver, who does not desire diver training beyond the recreational level, with an opportunity to advance their basic diving skills and to provide non-GUE trained divers with a gateway into GUE training.

The GUE Fundamentals Part 1 course is a non-certification course; only successful course completion is required for the student to be permitted to progress to GUE Fundamentals Part 2.

#### **2.2.1.2 Prerequisites**

Applicants for the GUE Fundamentals Part 1 program must:

- a. Submit a completed Course Registration Form, a Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified autonomous scuba diver from a recognized training agency.

### **2.2.1.3 Course Content**

The GUE Fundamentals Part 1 course is normally conducted over two days. It requires a minimum of two dives and at least fourteen hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.1.4 GUE Fundamentals Part 1 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 8:1 during land drill or surface exercises; it cannot exceed 4:1 during any in-water training.
- b. Can be run with one trainee
- c. Maximum depth of 60 ft/18 m
- d. No overhead diving
- e. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### **2.2.1.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.1.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Building a solid skill base: buoyancy, trim, balance, and propulsion
- c. Fundamental diving skills
- d. Streamlining and equipment configuration
- e. Situational awareness
- f. The GUE system

### **2.2.1.7 Land Drills and Topics**

- a. Equipment fit, assembly and disassembly
- b. Propulsion and maneuvering techniques
- c. Gas analysis
- d. GUE EDGE and pre-dive checks
- e. Basic 5 scuba skills
- f. Dive team protocols

### 2.2.1.8 Required Dive Skills and Drills

- a. Demonstrate safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate reasonable buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- d. Demonstrate a safe and responsible demeanor throughout all training.
- e. Demonstrate ability to use underwater communication.
- f. Demonstrate the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- g. Demonstrate safe ascent and descent procedures.
- h. Demonstrate basic equipment awareness and an understanding of the GUE equipment configuration.
- i. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.

### 2.2.1.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.2.2 GUE Fundamentals Part 2

### 2.2.2.1 Course Outcomes

The GUE Fundamentals Part 2 course is designed to continue to cultivate the essential skills required for sound diving practice. Included among its course outcomes are: to provide the recreational diver, who does not desire diver training beyond the recreational level, with an opportunity to advance their basic diving skills; to train divers in the theory and practice of nitrox; to provide those divers who aspire to more advanced diver training with the tools that will contribute to a greater likelihood of success; and to provide divers with a gateway into advanced GUE training.

### 2.2.2.2 Prerequisites

Applicants for a GUE Fundamentals Part 2 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.

- g. Be a certified GUE Recreational Diver Level 1 diver, or have successfully completed GUE Fundamentals Part 1.

### **2.2.2.3 Course Content**

The GUE Fundamentals Part 2 course is normally conducted over three days. It requires a minimum of four dives and at least twenty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.2.4 GUE Fundamentals Part 2 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 8:1 during land drill or surface exercises; it cannot exceed 4:1 during any in-water training.
- b. Two dives must be at a depth of at least 25 ft/8 m.
- c. Maximum depth of 60 ft/18 m
- d. No overhead diving
- e. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- f. Can be combined with GUE Triox Primer, as per the Triox Primer Instructor Guidelines document.

### **2.2.2.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.2.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Situational awareness
- c. Dive planning and gas management
- d. Breathing gas overview
- e. Nitrox diving
- f. Decompression overview and minimum decompression procedures
- g. Diving safety and accident prevention
- h. The GUE system

### **2.2.2.7 Land Drills and Topics**

- a. Dive team protocols
- b. S-drill and valve drill
- c. Surface marker buoy (SMB) deployment
- d. Diver rescue techniques (for Technical rating only)

### **2.2.2.8 Required Dive Skills and Drills**

#### **2.2.2.8 (A) Required Dive Skills and Drills for a GUE Fundamentals - Recreational Rating**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.

- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- f. Demonstrate proficiency in surface marker buoy deployment while using a spool.
- g. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- h. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression.
- i. Demonstrate a safe and responsible demeanor throughout all training.
- j. Demonstrate proficiency in underwater communication.
- k. Demonstrate a comfortable demeanor while swimming without a mask in touch contact, followed by a switch to the backup mask.
- l. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- m. Demonstrate safe ascent and descent procedures.
- n. Demonstrate proficiency in executing a valve drill.
- o. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- p. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.

#### **2.2.2.8 (B) Required Dive Skills and Drills for a GUE Fundamentals - Technical Rating**

This rating is required for those trainees seeking entry into GUE's Cave and Technical courses.

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- f. Demonstrate proficiency in the ability to deploy a surface marker buoy while using a spool.
- g. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- h. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression.
- i. Demonstrate a safe and responsible demeanor throughout all training.
- j. Demonstrate proficiency in underwater communication.
- k. Demonstrate a comfortable demeanor while swimming without a mask in touch contact, followed by a switch to the backup mask.



- l. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- m. Demonstrate safe ascent and descent procedures.
- n. Demonstrate an efficient valve drill with double tanks.
- o. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- p. Demonstrate proficiency in four propulsion techniques that would be appropriate in delicate and/or silty environments, including competence in the backward kick and helicopter turns.
- q. Demonstrate proficiency with a primary light by using it during all skills except SMB deployment.
- r. Demonstrate diver rescue techniques, including effective management of an unconscious diver underwater.

### **2.2.2.9 Equipment Requirements**

#### **2.2.2.9 (A) Equipment Requirements for a GUE Fundamentals - Recreational Rating**

GUE base equipment configuration as outlined in Appendix A.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

#### **2.2.2.9 (B) Equipment Requirements for a GUE Fundamentals - Technical Rating**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.2.3 GUE Fundamentals**

#### **2.2.3.1 Course Outcomes**

The GUE Fundamentals course is designed to cultivate the essential skills required for sound diving practice. Included among its course outcomes are: to provide the recreational diver, who does not desire diver training beyond the recreational level, with an opportunity to advance their basic diving skills; to train divers in the theory and practice of nitrox; to provide divers with aspirations for more advanced diver training with the tools that will contribute to a greater likelihood of success; and to provide non-GUE trained divers with a gateway into GUE training.

#### **2.2.3.2 Prerequisites**

Applicants for a GUE Fundamentals course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.

- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified autonomous scuba diver from a recognized training agency.

### **2.2.3.3 Course Content**

The GUE Fundamentals course is normally conducted over four days. It requires a minimum of six dives and at least thirty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.3.4 GUE Fundamentals Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 8:1 during land drill or surface exercises; it cannot exceed 4:1 during any in-water training.
- b. Two dives must be at a depth of at least 25 ft/8 m
- c. Maximum depth of 60 ft/18 m
- d. No overhead diving
- e. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- f. Can be combined with GUE Triox Primer, as per the Triox Primer Instructor Guidelines document.

### **2.2.3.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.3.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Building a solid skill base: buoyancy, trim, balance, and propulsion
- c. Fundamental diving skills
- d. Streamlining and equipment configuration
- e. Situational awareness
- f. Dive planning and gas management
- g. Breathing gas overview
- h. Nitrox diving
- i. Decompression overview and minimum decompression procedures
- j. Diving safety and accident prevention
- k. The GUE system

### **2.2.3.7 Land Drills and Topics**

- a. Equipment fit, assembly and disassembly
- b. Propulsion and maneuvering techniques
- c. Gas analysis
- d. GUE EDGE and pre-dive checks
- e. Basic 5 scuba skills
- f. Dive team protocols
- g. S-drill and valve drill
- h. Surface marker buoy (SMB) deployment

- i. Diver rescue techniques (for Technical rating only)

### **2.2.3.8 Required Dive Skills and Drills**

#### **2.2.3.8 (A) Required Dive Skills and Drills for a GUE Fundamentals - Recreational Rating**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- f. Demonstrate proficiency in surface marker buoy deployment while using a spool.
- g. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- h. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression.
- i. Demonstrate a safe and responsible demeanor throughout all training.
- j. Demonstrate proficiency in underwater communication.
- k. Demonstrate a comfortable demeanor while swimming without a mask in touch contact, followed by a switch to the backup mask.
- l. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- m. Demonstrate safe ascent and descent procedures.
- n. Demonstrate proficiency in executing a valve drill.
- o. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- p. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.

#### **2.2.3.8 (B) Required Dive Skills and Drills for a GUE Fundamentals - Technical Rating**

This rating is required for those trainees seeking entry into GUE's Cave and Technical courses.

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.

- f. Demonstrate proficiency in the ability to deploy a surface marker buoy while using a spool.
- g. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- h. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression.
- i. Demonstrate a safe and responsible demeanor throughout all training.
- j. Demonstrate proficiency in underwater communication.
- k. Demonstrate a comfortable demeanor while swimming without a mask in touch contact, followed by a switch to the backup mask.
- l. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- m. Demonstrate safe ascent and descent procedures.
- n. Demonstrate an efficient valve drill with double tanks.
- o. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- p. Demonstrate proficiency in four propulsion techniques that would be appropriate in delicate and/or silty environments, including competence in the backward kick and helicopter turns.
- q. Demonstrate proficiency with a primary light by using it during all skills except SMB deployment.
- r. Demonstrate diver rescue techniques, including effective management of an unconscious diver underwater.

#### **2.2.3.9 Equipment Requirements**

##### **2.2.3.9 (A) Equipment Requirements for a GUE Fundamentals - Recreational Rating**

GUE base equipment configuration as outlined in Appendix A.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

##### **2.2.3.9 (B) Equipment Requirements for a GUE Fundamentals - Technical Rating**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

#### **2.2.4 Rescue Primer**

##### **2.2.4.1 Course Outcomes**

GUE's Rescue Primer is a course designed to teach divers basic rescue techniques relevant to scuba diving emergencies. Course outcomes include, but are not limited to: assisting a distressed diver on the surface; assisting a distressed diver underwater, including unconscious diver recovery; missing diver protocols; surface management of a diving emergency; and diving basic life support (BLS) skills for DCI.

This course is recommended to be taken after Navigation Primer, as it requires competence in navigational skills.

#### **2.2.4.2 Prerequisites**

Applicants for a Rescue Primer must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.

#### **2.2.4.3 Course Content**

The Rescue Primer is normally conducted over two days. It requires a minimum of four in-water sessions (including three dives) and at least sixteen hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.2.4.4 Rescue Primer Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 60 ft/18 m
- c. No overhead diving
- d. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- e. Students must have completed BLS training from a recognized training agency within the twenty-four months prior to certification.

#### **2.2.4.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.2.4.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Diving safety, accident dynamics and prevention
- c. Scuba diving rescue techniques
- d. Emergency management
- e. DCI and other diving related injuries
- f. Scuba diving related BLS skills

#### 2.2.4.7 Land Drills and Topics

- a. Equipment fit, assembly and disassembly, GUE EDGE, and pre-dive checks
- b. Swimming and non-swimming surface assists
- c. Basic 5 rescue skills
- d. Egression techniques
- e. Controlling a distressed diver on surface and underwater
- f. Underwater search patterns
- g. Unconscious diver rescue

#### 2.2.4.8 Required Dive Skills and Drills

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in surface marker buoy deployment.
- h. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- i. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.
- j. Demonstrate effective proficiency with proper ascents and descents, including the implementation of variable ascent rates.
- k. Demonstrate effective navigation using a compass and managing a spool as a guideline underwater.
- l. Demonstrate proficiency in fundamental diver rescue techniques, including assessing a rescue scene, supporting and recovering distressed, tired, and unconscious divers at the surface, recovering an unconscious diver to the surface, and a range of simulated diving incidents.
- m. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.

#### 2.2.4.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. One primary and two backup lights

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.2.5 Navigation Primer

### 2.2.5.1 Course Outcomes

GUE's Navigation Primer is a course designed to teach divers basic underwater navigation techniques. Course outcomes include, but are not limited to: compass use and navigation (simple and complex), natural navigation, and managing a spool as a guideline underwater.

This course is recommended to be taken before Rescue Primer, as the latter requires competence in navigational skills.

### 2.2.5.2 Prerequisites

Applicants for a Navigation Primer must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.

### 2.2.5.3 Course Content

The Navigation Primer is normally conducted over two days. It requires a minimum of three dives (including a dive in reduced ambient light conditions) and at least twelve hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### 2.2.5.4 Navigation Primer Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 60 ft/18 m
- c. No overhead diving
- d. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### 2.2.5.5 Required Training Materials

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### 2.2.5.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Underwater navigation and situational awareness
- c. Natural navigation
- d. Compass, including types, components, and basics of use

- e. Guideline use in navigational and search patterns

#### **2.2.5.7 Land Drills and Topics**

- a. Equipment fit, assembly and disassembly, GUE EDGE, and pre-dive checks
- b. Compass navigation, including simple and complex and multiple-bearings navigation
- c. Guideline use and search patterns

#### **2.2.5.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate a safe and responsible demeanor throughout all training.
- f. Demonstrate proficiency in surface marker buoy deployment.
- g. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- h. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.
- i. Demonstrate effective proficiency with proper ascents and descents, including the implementation of variable ascent rates.
- j. Demonstrate proficiency in the use of the primary, light including passive and active communication.
- k. Demonstrate effective navigation using a compass, including simple and complex navigation and multiple-bearings navigation.
- l. Demonstrate effective use of a spool or reel as a guideline underwater.
- m. Demonstrate effective navigation using natural references.
- n. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.

#### **2.2.5.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. One primary and two backup lights
- b. One primary reel per team (optional)

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.2.6 Triox Primer**

#### **2.2.6.1 Course Outcomes**

GUE's Triox Primer is a course designed to teach divers the use of triox as a breathing gas in recreational diving. Course outcomes include, but are not limited to: skill cultivation and



refinement, familiarity with the theory and practice of decompression, correct ascent procedures, and the use of Helium to minimize narcosis, CO<sub>2</sub>, gas density, and post-dive “nitrogen stress”.

#### **2.2.6.2 Prerequisites**

Applicants for a Triox Primer must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician’s prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 diver, or have successfully completed all GUE Fundamentals course components at the Recreational level.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification, or be certified by a recognized training agency to dive to 100 ft/30 m, with at least 25 non-training dives beyond autonomous scuba diver certification.

#### **2.2.6.3 Course Content**

The Triox Primer is normally conducted over two days. It requires a minimum of four dives (including two triox experience dives) and at least twelve hours of instruction, encompassing classroom lectures, land drills, and in-water work.

If combined with a GUE Fundamentals course, and if the trainees are already certified to dive to 100 ft/30 m from a recognized training agency, Triox Primer can be conducted over one additional day. It then requires a minimum of two additional dives and at least ten additional hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.2.6.4 Triox Primer Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. No overhead diving unless taught as part of a Cave Diver Level 1 or 2 course, as per the Triox Primer Instructor Guidelines document.
- d. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- e. Can be combined with GUE Fundamentals or GUE Fundamentals Part 2, as per the Triox Primer Instructor Guidelines document.

#### **2.2.6.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### 2.2.6.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Breathing gas overview
- c. Dive planning, gas management, and logistics
- d. Introduction to triox
- e. Decompression overview and minimum decompression procedures

#### 2.2.6.7 Land Drills and Topics

- a. Equipment fit, assembly and disassembly, GUE EDGE, and pre-dive checks
- b. Gas analysis
- c. Ascent drill

#### 2.2.6.8 Required Dive Skills and Drills

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in surface marker buoy deployment.
- h. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- i. Demonstrate three propulsion techniques, including comprehension of the components necessary for a successful backward kick.
- j. Demonstrate proficiency during gas-sharing scenarios, including a direct ascent while managing minimum decompression obligations and the use of a surface marker buoy and spool.
- k. Demonstrate effective proficiency with proper ascents and descents, including the implementation of variable ascent rates.
- l. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.

#### 2.2.6.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit)
- b. One primary and two backup lights

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.2.7 Doubles Primer**

### **2.2.7.1 Course Outcomes**

GUE's Doubles Primer is a non-certification course designed to teach divers how to safely and comfortably dive a double tank configuration using proper equipment and techniques. Course outcomes include, but are not limited to: buoyancy and trim practice and refinement, familiarity with the theory and use of double tank configuration, GUE equipment configuration, and valve management.

### **2.2.7.2 Prerequisites**

Applicants for a Doubles Primer must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified autonomous scuba diver from a recognized training agency.

### **2.2.7.3 Course Content**

The Doubles Primer is normally conducted over one day. It requires a minimum of two dives and at least eight hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.7.4 Doubles Primer Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Can be run with one trainee
- c. Maximum depth of 60 ft/18 m
- d. No overhead diving
- e. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### **2.2.7.5 Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.7.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Double tank introduction, tanks/cylinders and bands, manifolds
- c. Regulators, depth gauges, pressure gauges, and hose routing
- d. Buoyancy and trim
- e. Pre-dive sequence and GUE EDGE

- f. Situational awareness

#### **2.2.7.7 Land Drills and Topics**

- a. Equipment fit and function, assembly and disassembly
- b. Gas analysis and labeling
- c. GUE EDGE and pre-dive sequence
- d. Basic 5 scuba skills
- e. Valve drill
- f. Dive team protocols

#### **2.2.7.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate proficiency with required course equipment and an understanding of the GUE equipment configuration.
- c. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of the target depth.
- d. Demonstrate an efficient valve drill with double tanks.
- e. Demonstrate aptitude in the following open water skills: mask clearing, mask removal and replacement, regulator removal and exchange, long hose deployment.
- f. Demonstrate safe ascent and descent procedures.
- g. Comfortably demonstrate at least one propulsion technique that would be appropriate in delicate and/or silty environments.
- h. Demonstrate a safe and responsible demeanor throughout all training.

#### **2.2.7.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration

Excluding:

- a. Backup mask

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.2.8 Drysuit Primer**

#### **2.2.8.1 Course Outcomes**

GUE's Drysuit Primer is a non-certification course designed to prepare divers for drysuit diving using proper equipment and techniques. Course outcomes include, but are not limited to: buoyancy and trim practice and refinement; types, fitting, and use of drysuit, drysuit inflation system, and undergarments; cold water diving specifics; and basic failures related to drysuit diving.

#### **2.2.8.2 Prerequisites**

Applicants for a Drysuit Primer must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified autonomous scuba diver from a recognized training agency.

### **2.2.8.3 Course Content**

The Drysuit Primer is normally conducted over one day. It requires a minimum of two dives and at least eight hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.8.4 Drysuit Primer Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drills or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Can be run with one trainee
- c. Maximum depth of 60 ft/18 m
- d. No overhead diving
- e. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### **2.2.8.5 Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.8.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. GUE equipment configuration
- c. Drysuit introduction and selection
- d. Undergarment selection
- e. Drysuit inflation system
- f. Coldwater equipment considerations, dive planning, and logistics
- g. Pre-dive sequence
- h. Situational awareness
- i. Trim and buoyancy
- j. Drysuit maintenance and field repairs

### **2.2.8.7 Land Drills and Topics**

- a. Equipment fit and function, assembly and disassembly
- b. Gas analysis and labeling
- c. GUE EDGE and pre-dive sequence
- d. Dive team protocols and communication
- e. Underwater drysuit failure management

### 2.2.8.8 Required Dive Skills and Drills

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate proficiency with required course equipment and an understanding of the GUE equipment configuration.
- c. Demonstrate the ability to connect and disconnect the drysuit inflation hose.
- d. Demonstrate the ability to manage a drysuit inflation valve that is stuck in the open position.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of the target depth.
- f. Demonstrate safe ascent and descent procedures.
- g. Demonstrate a safe and responsible demeanor throughout all training.
- h. Demonstrate proficiency in underwater communication.

### 2.2.8.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Drysuit
- b. Drysuit inflation system independent from back gas cylinders (optional)

Excluding:

- a. Backup mask

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.2.9 Diver Propulsion Vehicle Level 1

### 2.2.9.1 Course Outcomes

GUE's Diver Propulsion Vehicle (DPV) Level 1 course is designed to introduce divers to the skills and knowledge required to safely use underwater propulsion vehicles in open water. Other course outcomes include: knowledge of the basic principles of DPV diving, dive planning, teamwork while using a DPV, environmental and conservation awareness, stress management, navigation, standard and emergency procedures, DPV maintenance and troubleshooting, and the potential hazards of diving with a DPV.

### 2.2.9.2 Prerequisites

Applicants for a DPV 1 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.

- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.
- i. Have completed at least 75 non-training dives beyond autonomous scuba diver certification.

### **2.2.9.3 Course Content**

The Diver Propulsion Vehicle Level 1 course is normally conducted over three days. It requires a minimum of five dives and at least twenty-four hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.2.9.4 Diver Propulsion Vehicle Level 1 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m or the limit of the student's certification, whichever is shallower.
- c. No overhead diving
- d. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

### **2.2.9.5 Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.9.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Equipment considerations
- c. DPV components
- d. DPV maintenance
- e. Surface marker buoys and spools (for deco platforms)
- f. Dive and operational planning
- g. Team planning and procedures
- h. Gas planning, gas matching, and gas management
- i. Safety considerations while using a DPV
- j. Considerations for managing and stowing a DPV while not in use

### **2.2.9.7 Land Drills**

- a. Proper position while using a DPV
- b. Runaway DPV
- c. Dive team order and protocols
- d. Basic navigation skills
- e. Pre-dive drills

### 2.2.9.8 Required Dive Skills and Drills

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate a safe and responsible demeanor throughout all training.
- f. Demonstrate proficiency in underwater communication while using a DPV.
- g. Demonstrate basic proficiency in managing the GUE equipment configuration.
- h. Demonstrate safe ascent and descent procedures.
- i. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- j. Demonstrate proficiency adjusting buoyancy while using a DPV.
- k. Demonstrate effective use of compass and navigation.
- l. Demonstrate ability to match speeds with team members.
- m. Demonstrate ability to tow a diver with a non-functional DPV.
- n. Demonstrate control while dealing with a runaway DPV.
- o. Demonstrate proper procedures for gas sharing and regulator switching as appropriate.
- p. Demonstrate proficiency in surface marker buoy deployment.
- q. Demonstrate familiarity with required course equipment.
- r. Demonstrate proficiency in gas-sharing scenarios with a gas-sharing event.
- s. Demonstrate cylinder valve management appropriate for the configuration being used.
- t. Demonstrate proficiency with effective decompression techniques, including depth and time management.

### 2.2.9.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. One approved DPV
- b. One primary light

An approved DPV is one that is tow-behind style with adjustable speed and clutch mechanism. The DPV must include an attached cord at the back with a bolt snap to be clipped on the front crotch strap D-ring and a leash attached to the front to be used for towing.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.2.10 Documentation Diver

### 2.2.10.1 Course Outcomes

GUE's Documentation Diver course is designed to introduce divers to sound documentation techniques that are useful in project-based diving. Other course outcomes include: basic training in photography/videography, the use of related equipment, specific team skills needed during documentation diving, specific communication requirements, establishment of clear



objectives and work plans, management of team tasks, how to create a report, how to map, survey, and prepare material for media publication.

#### **2.2.10.2 Prerequisites**

Applicants for a Documentation Diver course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.
- i. Have completed at least 75 non-training dives beyond autonomous scuba diver certification.

#### **2.2.10.3 Course Content**

The Documentation Diver course is normally conducted over four days. It requires a minimum of four dives and at least thirty-two hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.2.10.4 Documentation Diver Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 8:1 during land drill or surface exercises; it cannot exceed 4:1 during any in-water training.
- b. If conducted in the cave environment, student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises, and it cannot exceed 3:1 during any in-water training.
- c. Maximum depth of 100 ft/30 m or the limit of the student's certification, whichever is shallower.
- d. No overhead diving except when taught by an Active GUE Cave 2 instructor.
- e. Students participating in a Documentation Diver course conducted in a cave must be at least GUE Cave 2 certified.
- f. When the course is conducted in a cave, all diving must remain within Cave 1 limits, adhering to gas limits as required by Cave 1 standards.
- g. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.

#### **2.2.10.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.2.10.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Project planning and management
- c. Photo equipment specifics
- d. Video equipment specifics
- e. Camera techniques
- f. Composition
- g. Lighting techniques
- h. Survey and mapping tools
- i. Mapping and survey skills
- j. Dive planning specific for documentation diving
- k. Operational planning
- l. Support materials
- m. Team responsibilities, planning, and diving
- n. Building and organizing a media database
- o. Basics of editing video and photo material
- p. Preparing materials for publishing
- q. Publishing and uploading a complete project report

#### **2.2.10.7 Land Drills and Topics**

- a. Photo camera preparation and maintenance
- b. Video camera preparation and maintenance
- c. Survey and mapping
- d. Composition practice
- e. Dive team order and protocols
- f. Use of spools and reels
- g. Basic navigational skills
- h. Visual referencing skills
- i. Pre-dive drills

#### **2.2.10.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency in managing the GUE equipment configuration.
- f. Demonstrate safe ascent and descent procedures.
- g. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- h. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- i. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- j. Demonstrate proficiency adjusting buoyancy while managing camera equipment.

- k. Demonstrate effective use of compass and navigation.
- l. Demonstrate familiarity with required course equipment.
- m. Demonstrate the ability to capture predetermined imagery underwater.
- n. Demonstrate the ability to draw a map underwater.
- o. Demonstrate the ability to accurately record data underwater.
- p. Demonstrate proficiency in surface marker buoy deployment while using a spool.
- q. Demonstrate proficiency in reel, spool, and guideline use.

### **2.2.10.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Photographic equipment: any digital photo camera suitable for underwater photography, preferably in a housing and able to sustain a minimum water pressure of 100 ft/30 m. An underwater flash is highly recommended (if not available, underwater video lights may be suitable). Manual adjustment (aperture/shutter) on the camera is preferred.
- b. Video equipment: any digital video camera suitable for underwater videography, preferably in a housing and able to sustain a minimum water pressure of 100 ft/30 m. An underwater video lighting system is highly recommended. Manual adjustment (aperture/shutter) on the video camera and a wide-angle lens with adapter is preferred.
- c. Computer system: any Windows or Mac-based computer (preferably a laptop) with software designed for video and photo editing, an internet connection, and word-processing software installed.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.2.11 Photogrammetry Diver**

### **2.2.11.1 Course Outcomes**

GUE's Photogrammetry Diver course is designed to introduce divers to the skills and procedures for using underwater photogrammetry to make digital 3D models of dive sites.

### **2.2.11.2 Prerequisites**

Applicants for a Photogrammetry Diver course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.

- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.
- i. Have completed at least 75 non-training dives beyond autonomous scuba diver certification.

### **2.2.11.3 Course Content**

The Photogrammetry Diver course is normally conducted over four days. It requires a minimum of three dives and at least thirty-two hours of instruction, encompassing classroom, land drills, and in-water work.

### **2.2.11.4 Photogrammetry Diver Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 8:1 during land drill or surface exercises; it cannot exceed 4:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m or the limit of the student's certification, whichever is shallower.
- c. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- d. A Photogrammetry Diver class can only be conducted using a rebreather if:
  - i. All students are GUE certified for the rebreather being used during class.
  - ii. All students have 25 logged dives beyond GUE rebreather certification.
  - iii. The instructor is an active GUE rebreather instructor for the unit being used during class.
- e. A Photogrammetry Diver class can only be conducted in an overhead environment if:
  - i. Students are all GUE Cave 2 certified.
  - ii. The instructor is an Active GUE Cave 2 instructor.
- f. When a Photogrammetry Diver class is conducted in an overhead environment:
  - i. Student-to-instructor ratio is reduced to 6:1 during land drills and surface exercises; it cannot exceed 3:1 during any in-water training.
  - ii. Dives must be conducted within Cave 1 limits.

### **2.2.11.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.11.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations).
- b. Photogrammetry basics
- c. Photo equipment specifics
- d. Video equipment specifics
- e. Processing of images using Agisoft Photoscan
- f. Post-processing, publishing, and uploading of 3D projects

### **2.2.11.7 Land Drills and Topics**

- a. Photo camera preparation and maintenance
- b. Video camera preparation and maintenance
- c. Photogrammetry with still images
- d. Photogrammetry with video images
- e. Lighting and lighting-diver positioning

### 2.2.11.8 Required Dive Skills and Drills

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency managing GUE's base equipment configuration.
- f. Demonstrate safe ascent and descent procedures.
- g. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- h. Demonstrate proficiency in adjusting buoyancy while managing camera equipment.
- i. Demonstrate familiarity with required course equipment.
- j. Demonstrate the ability to capture predetermined imagery underwater.
- k. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- l. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.

### 2.2.11.9 Equipment Requirements

GUE configuration as outlined in Appendix A, plus:

- a. Photographic equipment: any digital photo camera suitable for underwater photography, preferably in a housing and able to sustain a minimum water pressure of 100 ft/30 m. An underwater flash is highly recommended (if not available, underwater video lights may be suitable). Manual adjustment (aperture/shutter) on the camera is preferred.
- b. Video equipment: any digital video camera suitable for underwater videography, preferably in a housing and able to sustain a minimum water pressure of 100 ft/30 m. An underwater video lighting system is highly recommended. Manual adjustment (aperture/shutter) on the video camera and a wide-angle lens with adapter is preferred.
- c. Computer system: any Windows or Mac-based computer with Agisoft Photoscan software (Demo, Standard, or Pro version) installed.
- d. For classes conducted using rebreathers, a GUE- approved rebreather must be used.

Prior to the commencement of class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### 2.2.12 Scientific Diver

#### 2.2.12.1 Course Outcomes

GUE's Scientific Diver course is designed to create divers who are capable of acting as a member of a scientific diving team using proper equipment and techniques. Upon course completion, students will also possess a basic knowledge and understanding of legalities and responsibilities relevant to scientific diving. Other course outcomes include: competence with search methods and survey methods, both surface and sub-surface; ability to accurately locate and mark both objects and sites; basic use of lift bags and airlifts to be used in controlled lifts, excavations, and

sampling; basic rigging and line work, including the construction and deployment of transects and search grids; underwater navigation methods using suitable techniques; recording techniques; acting as surface tender for a roped diver; and using appropriate sampling techniques for the scientific discipline being pursued.

#### **2.2.12.2 Prerequisites**

Applicants for a Scientific Diver course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 16 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Recreational Diver Level 1 or GUE Fundamentals diver.
- h. Have completed at least 25 non-training dives beyond either GUE Recreational Diver Level 1 or GUE Fundamentals certification.

#### **2.2.12.3 Course Content**

The Scientific Diver course is normally conducted over four days. It requires a minimum of six dives and at least thirty-two hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.2.12.4 Scientific Diver Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 4:1 during land drills, surface exercises, or in-water training.
- b. Maximum depth of 70 ft/21 m or the limit of the student's certification, whichever is shallower.
- c. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- d. No overhead diving

#### **2.2.12.5 Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.2.12.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations).
- b. Course overview
- c. History of scientific diving
- d. Citizen science
- e. Project Baseline
- f. The scientific method
- g. Ethics in science

- h. Underwater sciences: biology, archaeology, geology, and hydrology
- i. Methods: tools of the trade, site marking, sketching, transects and baselines, quadrats, photomosaics, visual and video census
- j. Dive planning and data management: project planning, data management, database use, reporting

#### **2.2.12.7 Land Drills**

- a. Site marking and assessment: review of basic navigation skills, line work (reels and spools), line survey
- b. Methodology: acting as tender for roped diver, site sketch, mark and measure, baseline/transect, photoquadrats, photomosaic, video and visual census, offset measures, density cover, drawing grids
- c. Data management: archiving data, drafting a map, site report

#### **2.2.12.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 300 yds/275 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 50 ft/15 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 30 degrees off horizontal while remaining within 5 ft/1.5 m of a target depth.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in underwater communication.
- h. Demonstrate safe ascent and descent procedures.
- i. Demonstrate three propulsion techniques. Students must demonstrate comprehension of the components necessary for a successful backward kick.
- j. Demonstrate a pendulum search while acting as surface tender for roped diver.
- k. Demonstrate proficiency in marking and measuring organisms, artifacts, and other objects.
- l. Demonstrate proficiency in the use of tools, including airlifts and lift bags.
- m. Demonstrate proficiency in multiple mapping methods, including a sketch using a circular or radial search, assembly of a sampling grid, and offsets/ triangulations.
- n. Demonstrate proficiency in estimating abundance/coverage through visual census (while swimming or stationary), the photoquadrat method, estimated percent coverage (either with square or with transect), and video transects (either swimming or stationary).
- o. Demonstrate proficiency in establishing transects with a tape measure or with a reel/spool.

#### **2.2.12.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. At least one additional spool

- b. One reel per team
- c. Ruler of 10 to 20 in./25 to 50 cm
- d. Grid/graph paper
- e. One laptop per team
- f. Two underwater cameras (ideally GoPro) per team
- g. Tape measure with a minimum length of 5 ft/1.5 m
- h. Tape measure with a minimum length of 100 ft/30 m

Prior to the commencement of class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.2.13 Gas Blender**

### **2.2.13.1 Course Outcomes**

GUE's Gas Blender course is designed to introduce students to the essential skills required for blending diving gases (nitrox and helium-based breathing gases). Training includes the theory of gas blending as well as practical skills required for blending breathing gas mixtures.

### **2.2.13.2 Prerequisites**

Applicants for a Gas Blender course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Be physically and mentally fit.
- c. Be a nonsmoker.
- d. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.

### **2.2.13.3 Course Content**

The Gas Blender course is normally conducted over one day. It requires at least eight hours of academics and practical skills application.

### **2.2.13.4 Gas Blender Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1
- b. Can be run with one trainee

### **2.2.13.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.2.13.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Gas properties
- c. Gas physics
- d. GUE Standard Gases
- e. Pressure hazards
- f. Oxygen hazards and oxygen service
- g. Blending systems



- h. Practical blending
- i. Blending formulas and software
- j. Cascading
- k. Gas boosters
- l. Gas analysis and record keeping

#### **2.2.13.7 Practical Skills Topics**

- a. Analyzing
- b. Field calculations
- c. Partial pressure nitrox and trimix blending
- d. Continuous flow/membrane blending (when available)
- e. Remixing
- f. Use of gas booster (when available)

#### **2.2.13.8 Required Skills and Drills**

- a. Demonstrate proficiency with gas blending calculations, including remixes.
- b. Demonstrate safe and accurate gas blending practices (within +/- 1% O<sub>2</sub>, +/- 3% He).
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate accurate gas analysis, marking, and logging.

#### **2.2.13.9 Equipment Requirements**

- a. Appropriate cylinders to blend gases into
- b. Partial pressure filling equipment for both oxygen and helium
- c. Compressor or banked HP air
- d. Continuous flow or membrane nitrox system (optional)
- e. Gas booster (optional)
- f. Nitrox and trimix analyzer
- g. GUE gas analysis tape
- h. Computer with GUE Gas Management Program software

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.3 Technical Diver Curriculum**

### **2.3.1 Technical Diver Level 1**

#### **2.3.1.1 Course Outcomes**

GUE's Technical Diver Level 1 course is designed to prepare divers for the rigors of technical diving and to familiarize them with the use of different breathing and decompression mixtures. Additional course outcomes include: cultivating, integrating, and expanding the essential skills required for safe technical diving; problem identification and resolution; the use of a double tanks configuration and the potential failure problems associated with it; the use of nitrox for accelerated and general decompression strategies; the use of helium to minimize narcosis; and the applications of single decompression stage diving with respect to decompression procedures.

### 2.3.1.2 Prerequisites

Applicants for a Tech 1 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Fundamentals diver with a Technical pass.
- h. Have completed at least 100 non-training dives beyond autonomous scuba diver certification.

### 2.3.1.3 Course Content

The Technical Diver Level 1 course is normally conducted over six days. It requires a minimum of seven dives (including three trimix experience dives) and at least forty-eight hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### 2.3.1.4 Technical Diver Level 1 Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 170 ft/51 m
- c. Dives must not be planned to incur more than 30 minutes of unadjusted decompression time, as established by GUE's DecoPlanner.
- d. No overhead diving except when taught by an Active GUE Cave 2 instructor.
- e. Standards for Tech 1 training in a cave environment:
  - i. Students participating in a Tech 1 course conducted in a cave environment must be at least GUE Cave 2 certified with 25 dives conducted at the Cave 2 level.
  - ii. Students passing a Tech 1 course conducted in a cave environment will be awarded a Cave Diver Level 2 - Normoxic Trimix certification instead of a Technical Diver Level 1 certification.

### 2.3.1.5 Required Training Materials

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### 2.3.1.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Dive planning, minimum gas, gas strategies, and gas management
- c. Gas properties: breathing gases, oxygen, narcosis, and hypercapnia
- d. Decompression theory: history, overview, and decompression sickness
- e. Practical decompression: general guidelines, DecoPlanner, ratio deco, and other considerations

- f. Emergencies: accident prevention and management

#### **2.3.1.7 Land Drills and Topics**

- a. Reel and guideline use
- b. Dive team formation, communication, and protocols
- c. Back gas regulators/valve failure modes and management
- d. Decompression cylinder set up
- e. Gas switch procedures
- f. Decompression cylinder failure protocols
- g. Unconscious diver recovery
- h. Backup light deployment
- i. Decompression gas sharing

#### **2.3.1.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency in managing the GUE equipment configuration.
- f. Demonstrate proficiency with proper ascents and descents, utilizing variable ascent rates and safe gas switching procedures.
- g. Must be able to swim at least 400 yds/375 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- i. Demonstrate proficiency in gas failure procedures, including valve manipulation (fixable, non-fixable, and erroneous failures), gas sharing, and regulator switching as appropriate.
- j. Demonstrate proficiency in surface marker buoy deployment (except if Tech 1 training is conducted in a cave environment).
- k. Demonstrate proficiency in switching to a backup mask.
- l. Demonstrate proficiency in switching to a backup light.
- m. Demonstrate familiarity with required course equipment.
- n. Demonstrate proficiency in managing gas-sharing scenarios, including gas sharing on the bottom, gas sharing during ascent, and sharing decompression gas.
- o. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the backward kick.
- p. Demonstrate reasonable proficiency with a single decompression cylinder.
- q. Demonstrate proficiency with effective decompression techniques, including depth and time management.
- r. Demonstrate dive rescue techniques, including effective underwater management of an unconscious diver.

- s. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- t. Demonstrate the ability to manage a failed decompression cylinder using available team resources.

### **2.3.1.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. One decompression stage with stage regulator
- d. One primary reel per team
- e. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit)

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## **2.3.2 Technical Diver Level 2**

### **2.3.2.1 Course Outcomes**

GUE's Technical Diver 2 course is designed to enhance deep diving proficiency while using helium breathing gases and oxygen-enriched decompression gases. Other course outcomes include: the use of multiple stages; the use of trimix with greater percentages of helium; use of hypoxic gas mixture protocols; gas management; oxygen management; extended decompression; accelerated, omitted, and general decompression strategies; dive planning; and management of multiple cylinders.

### **2.3.2.2 Prerequisites**

Applicants for a Tech 2 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Technical Diver Level 1 diver.
- h. Have completed at least 25 non-training Tech 1 dives beyond GUE Technical Diver Level 1 certification.
- i. Have completed at least 50 non-training dives in a double tank configuration.

### 2.3.2.3 Course Content

The Technical Diver Level 2 course is normally conducted over six days. It requires a minimum of seven dives (including three trimix experience dives) and at least forty-eight hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### 2.3.2.4 Technical Diver Level 2 Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 250 ft/75 m
- c. Dives must not be planned to incur more than 60 minutes of unadjusted decompression time, as established by GUE's DecoPlanner.
- d. No overhead diving except when taught by an Active GUE Cave 2 instructor.
- e. Standards for Tech 2 training in a cave environment:
  - i. Students participating in a Tech 2 course conducted in a cave environment must be at least GUE Cave 2 certified with 25 dives conducted at the Cave 2 level.
  - ii. Students must also be at least GUE Tech 1 or GUE Cave 2 - Normoxic Trimix certified with 25 dives conducted at that level.
  - iii. Students passing a Tech 2 course conducted in a cave environment will be awarded a Cave Diver Level 2 - Hypoxic Trimix certification instead of a Technical Diver Level 2 certification.

### 2.3.2.5 Required Training Materials

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### 2.3.2.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Advanced mixed gas diving including hypoxic protocols
- c. Risks of decompression diving
- d. Gas management during deep dives
- e. Accelerated, omitted, and general decompression strategies
- f. Deep diving logistics and planning

### 2.3.2.7 Land Drills and Topics

- a. Dive team order and protocols
- b. Gas switching procedures and protocols, including hypoxic protocol
- c. Back gas and stage regulators/valve failure modes and management
- d. Use of a bottom stage and multiple decompression stages (tank rotations)
- e. Unconscious diver recovery
- f. Decompression gas sharing

### 2.3.2.8 Required Dive Skills and Drills

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.

- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency in managing the GUE equipment configuration.
- f. Demonstrate proficiency with proper ascents and descents, utilizing variable ascent rates and safe gas switching procedures.
- g. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- i. Demonstrate proficiency in the ability to plan Tech 2 dives while accounting for environmental conditions, available gas, and required decompression.
- j. Demonstrate clean and effective removal and exchange of multiple stage cylinders while hovering horizontally (tank rotations).
- k. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the backward kick.
- l. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- m. Demonstrate proficiency in gas failure procedures, including valve manipulation (fixable, non-fixable, and erroneous failures), gas sharing, and regulator switching as appropriate.
- n. Demonstrate proficiency in managing gas-sharing scenarios, including gas sharing on the bottom, gas sharing during ascent, and sharing decompression gas.
- o. Demonstrate proficiency with effective decompression techniques, including depth and time management, while also managing multiple gas switches and other tasks such as tank rotation skills.
- p. Demonstrate diver rescue techniques, including effective underwater management of an unconscious diver.

### 2.3.2.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. Two decompression stages with stage regulators
- d. One bottom stage with stage regulator
- e. One primary reel per team
- f. One stage leash with a double-ender
- g. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit)

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### 2.3.3 Technical Diver Level 2 “Plus” Upgrade

GUE’s Tech 2 “Plus” Upgrade is an experience-based certification. It recognizes the skills and experience of Tech 2-certified divers and sanctions them to progress to more complex and

advanced dives; it extends their diving range to a maximum of 300 ft/90 m, and to a maximum of 90 minutes of decompression time, as established by GUE's DecoPlanner.

Students seeking this upgrade must provide GUE HQ with evidence of 25 dives at the Tech 2 level. Depth, bottom time, decompression time, date and location of dives, gases used, and team members should all be included in the information provided.

### **2.3.4 Passive Semi-Closed Circuit Rebreather Diver**

#### **2.3.4.1 Course Outcomes**

GUE's Passive Semi-Closed Circuit Rebreather (PSCR) Diver course is designed to educate individuals in basic PSCR rebreather technologies and to cultivate diver proficiency in the use of GUE-approved PSCR configurations.

#### **2.3.4.2 Prerequisites**

Applicants for a PSCR Diver course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 21 years of age.
- g. Be a certified GUE Technical Diver Level 2 diver.
- h. Have completed at least 25 non-training Tech 2 dives beyond GUE Technical Diver Level 2 certification.

#### **2.3.4.3 Course Content**

The Passive Semi-Closed Circuit Rebreather Diver course is normally conducted over five days. It requires a minimum of eight dives and at least forty hours of instruction, encompassing classroom lectures, land drills, and at least ten hours of in-water work.

#### **2.3.4.4 Passive Semi-Closed Circuit Rebreather Diver Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- d. No overhead diving except when taught by an Active GUE Cave 2 instructor.
- e. Students participating in a Rebreather course conducted in a cave environment must be at least GUE Cave 2 certified.

#### **2.3.4.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### 2.3.5.6 Academic Topics

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Purpose
- c. Common components of rebreathers and how they function
- d. Inherent risks of rebreathers
- e. Rebreather operation, alarms, and warnings
- f. Oxygen risks: hypoxia, hyperoxia
- g. Decompression consideration while using semi-closed rebreathers
- h. Oxygen loading, potential drop, adjusted deco
- i. Equipment configuration
- j. Problem recognition and management
- k. The importance of instinctive physiological monitoring
- l. Pre-dive planning
- m. Post-dive procedures
- n. Need for continuing education and skill reinforcement

### 2.3.4.7 Land Drills and Topics

- a. Flow checks
- b. Rebreather-specific topics:
  - i. Pre-dive preparation and verification
  - ii. Appropriate diving procedures
  - iii. Failure management
  - iv. Maintenance and repair
- c. Manifold failures
- d. Gas addition failures
- e. Gas sharing

### 2.3.4.8 Required Dive Skills and Drills

- a. Demonstrate a safe and responsible demeanor throughout all training.
- b. Demonstrate proficiency in underwater communication.
- c. Demonstrate basic proficiency in managing a passive semi-closed circuit rebreather configuration.
- d. Demonstrate reasonable proficiency with the use of the rebreather during ascents, descents, and diving.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- f. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- g. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- h. Demonstrate ability to manage gas failures, including valve manipulation, gas sharing, and regulator switching as appropriate.
- i. Demonstrate the ability to manage a flooded rebreather while discharging excess water.
- j. Demonstrate the ability to diagnose and correctly respond to simulated rebreather problems.
- k. Demonstrate effective valve management.



- l. Demonstrate proficiency in removing and re-attaching stage cylinders while hovering horizontally.
- m. Demonstrate the ability to comfortably switch gases while maintaining good trim and neutral buoyancy.
- n. Demonstrate proficiency in safe diving procedures, including assembly, vacuum and pressure tests, pre-dive preparation, pre-dive vacuum test, flow check, in-water activity, and post-dive assessment, breakdown and maintenance.
- o. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver while using the rebreather.
- p. Be able to comfortably demonstrate use, manipulation, and failure management of the gas addition system supplying the rebreather.
- q. Demonstrate awareness of a team member's rebreather function and an overall concern for safety, responding quickly to visual or audible indications and dive partner needs during diving and failures.

#### **2.3.4.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. A GUE-approved passive semi-closed circuit rebreather
- b. Modified tank configuration as appropriate for use with a GUE-approved passive semi-closed circuit rebreather
- c. Modified regulator configuration as appropriate for use with a GUE-approved passive semi-closed circuit rebreather
- d. Bottom and/or decompression stages and stage regulators
- e. One primary and two backup lights

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.3.5 Closed-Circuit Rebreather Diver Level 1**

#### **2.3.5.1 Course Outcomes**

GUE's Closed-Circuit Rebreather Diver Level 1 course is an entry-level closed-circuit rebreather course designed to educate GUE technical divers in basic rebreather technologies and to cultivate diver proficiency in the use of GUE-approved closed-circuit rebreather configurations.

#### **2.3.5.2 Prerequisites**

Applicants for a CCR 1 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.

- f. Be a minimum of 21 years of age.
- g. Be a certified GUE Technical Diver Level 1 diver.
- h. Have completed at least 25 non-training Tech 1 dives beyond GUE Technical Diver Level 1 certification.
- i. Have completed at least 50 non-training dives in a double tank configuration.

### **2.3.5.3 Course Content**

The Closed-Circuit Rebreather Diver Level 1 course is normally conducted over six days. It requires a minimum of eight dives and at least forty-eight hours of instruction, encompassing classroom lectures, land drills, and at least ten hours of in-water work.

### **2.3.5.4 Closed-Circuit Rebreather Diver Level 1 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- d. No overhead diving
- e. The oxygen supply valve must never be closed completely during drills.

### **2.3.5.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.3.5.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Anatomy of rebreathers, common components and how they function
- c. Benefits and disadvantages of using closed-circuit rebreathers
- d. Inherent risks of using closed-circuit rebreathers
- e. Closed-circuit rebreather operation, alarms, and warnings
- f. Breathing gas dynamics, hyperoxia, hypoxia, hypercapnia, and gas density
- g. Absorbent material: properties and canister endurance
- h. Gas management: consumption, use, requirements, and reserves
- i. Decompression considerations while using closed-circuit rebreathers
- j. Diver safety and responsibilities

### **2.3.5.7 Land Drills and Topics**

- a. Rebreather assembly and setup
- b. Rebreather pre-dive checklist
- c. Rebreather on-site checklist
- d. CHAOS critical control checks and 5-minute pre-breathe
- e. Dry land experience dive, including basic operations such as: switching to and off the loop (DSV/BOV open/close); achieving a proper seal around the mouthpiece; preventing nose exhalation; testing for, achieving, and maintaining optimal loop volume; pO<sub>2</sub> awareness using HUD and controller; communicating own pO<sub>2</sub> and current setpoint; requesting pO<sub>2</sub> and setpoint information from team
- f. Electronically controlled setpoint and switches
- g. Manually controlled setpoint and switches

- h. Diluent flush techniques, including two-handed, one-handed, and exhalation-triggered ADV diluent gas addition
- i. Basic failure management
- j. Bailout and out-of-gas procedures
- k. Unconscious diver recovery
- l. Maintenance and repair of closed-circuit rebreather

#### 2.3.5.8 Required Dive Skills and Drills

- a. Demonstrate a safe and responsible demeanor throughout all training.
- b. Demonstrate proficiency in underwater communication.
- c. Demonstrate basic proficiency in managing a closed-circuit rebreather configuration.
- d. Demonstrate reasonable proficiency with the use of the closed-circuit rebreather during ascents, descents, and bottom phase of the dive.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- f. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- g. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- h. Demonstrate the ability to manage a flooded closed-circuit rebreather while discharging excess water.
- i. Demonstrate the ability to diagnose and correctly respond to simulated closed-circuit rebreather problems.
- j. Demonstrate the ability to switch and maintain desired pO<sub>2</sub> setpoints electronically through a dive.
- k. Demonstrate the ability to switch and maintain desired pO<sub>2</sub> setpoints manually through a dive.
- l. Demonstrate effective valve management.
- m. Demonstrate proficiency in safe diving procedures, including assembly and setup; rebreather pre-dive checklist; rebreather on-site checklist; CHAOS critical control checks and 5-minute pre-breathe; GUE-EDGE; flow check; in-water activity; and post-dive assessment, breakdown, and maintenance.
- n. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver while using the closed-circuit rebreather.
- o. Be able to comfortably demonstrate use, manipulation, and failure management of the gas addition systems supplying the rebreather.
- p. Demonstrate awareness of a team member's closed-circuit rebreather function and an overall concern for safety, responding quickly to visual or audible indications and dive partner needs during diving and failures.

#### 2.3.5.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Modified tank configuration as appropriate for use with a GUE-approved closed-circuit rebreather
- b. Modified regulator configuration as appropriate for use with a GUE-approved closed-circuit rebreather

- c. A GUE-approved closed-circuit rebreather
  - i. The closed-circuit rebreather used by the student, with all associated components, must be fully functional (pass all tests on the rebreather pre-dive checklist) and serviced according to manufacturer specifications.
  - ii. All oxygen sensors must be less than one year from manufacturing date.
  - iii. Both the rebreather controller and SOLO board must be updated with the latest software and firmware versions published by the manufacturer.
- d. Spare parts and consumables, including one set of controller, HUD, and solenoid batteries; one oxygen sensor; and one DSV/BOV mouthpiece.
- e. One primary and two backup lights
- f. Drysuit inflation system independent from back gas cylinders (optional). If using a drysuit inflation cylinder attached to the backplate, extended inflation cylinder straps need to be used to ensure that it does not interfere with or restrict the counterlung's function.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.3.6 Closed-Circuit Rebreather Diver Level 2

### 2.3.6.1 Course Outcomes

GUE's Closed-Circuit Rebreather Diver Level 2 course is designed to educate individuals in advanced rebreather technologies and to cultivate diver proficiency in the use of GUE-approved rebreather configurations. The course is also designed to enhance deep diving proficiency while using hypoxic helium diluent and bailout gases and oxygen-enriched decompression gases.

Other course outcomes include: the use of multiple bailout stages; use of hypoxic gas mixtures and required hypoxic protocols; gas management; oxygen management; extended decompression; accelerated, omitted, and general decompression strategies; dive planning; and management of multiple cylinders.

### 2.3.6.2 Prerequisites

Applicants for a CCR 2 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 21 years of age.
- g. Be a certified GUE Closed-Circuit Rebreather Diver Level 1 diver.
- h. Have completed at least 50 non-training closed-circuit rebreather dives beyond GUE Closed-Circuit Rebreather Diver Level 1 certification.
- i. Have completed at least 25 non-training closed-circuit rebreather dives beyond GUE Closed-Circuit Rebreather Level 1 certification, deeper than 100 ft/30 m.

- j. Own a GUE-approved closed-circuit rebreather.

### **2.3.6.3 Course Content**

The Closed-Circuit Rebreather Diver Level 2 course is normally conducted over six days. It requires a minimum of eight dives and at least forty-eight hours of instruction, encompassing classroom lectures, land drills, and at least ten hours of in-water work.

### **2.3.6.4 Closed-Circuit Rebreather Diver Level 2 Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum depth of 250 ft/75 m
- c. Dives must not be planned to incur more than 60 minutes of unadjusted decompression time, as established by GUE's DecoPlanner.
- d. No overhead diving
- e. The oxygen supply valve must never be closed completely during drills.

### **2.3.6.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.3.6.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Human factors
- c. Rebreather operation and procedures
- d. Failure management
- e. Strategies necessary for a successful dive, decompression planning, absorbent management, gas and gas reserve management
- f. Continuance management

### **2.3.6.7 Land Drills and Topics**

- a. Basic rebreather operation review
- b. Basic rebreather failure management review
- c. Basic open-circuit failure management review
- d. Bailout and out-of-gas procedures review
- e. Gas switching review
- f. Advanced rebreather operation
- g. Advanced rebreather failures
- h. Bailout, including the use of a bottom stage and ascent with two additional gas switches and a tank rotation
- i. Off-board use of oxygen and diluent
- j. Semi-closed rebreather operation

### **2.3.6.8 Required Dive Skills and Drills**

- a. Demonstrate a safe and responsible demeanor throughout all training.
- b. Demonstrate proficiency in underwater communication.
- c. Demonstrate proficiency in managing a closed-circuit rebreather configuration.

- d. Demonstrate proficiency with the use of the rebreather during ascents, descents, and diving.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- f. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- g. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- h. Demonstrate ability to manage gas failures, including valve manipulation, out-of-gas scenarios, and regulator switching as appropriate.
- i. Demonstrate the ability to manage a flooded closed-circuit rebreather while discharging excess water.
- j. Demonstrate the ability to diagnose and correctly respond to simulated rebreather problems.
- k. Demonstrate the ability to switch and maintain desired  $pO_2$  setpoints manually throughout a dive.
- l. Demonstrate effective ability to connect and use off-board  $O_2$  or diluent gas.
- m. Demonstrate effective ability to dive the rebreather in semi-closed mode.
- n. Demonstrate proficiency in removing, rotating, and re-attaching stage cylinders while hovering horizontally.
- o. Demonstrate the ability to comfortably switch gases while maintaining good trim and neutral buoyancy.
- p. Demonstrate proficiency in safe diving procedures, including assembly and setup; rebreather pre-dive checklist; rebreather on-site checklist; CHAOS critical control checks and 5-minute pre-breathe; GUE-EDGE; flow check; in-water activity; and post-dive assessment, breakdown, and maintenance.
- q. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver while using the rebreather.
- r. Be able to comfortably demonstrate use, manipulation, and failure management of the gas addition systems supplying the rebreather.
- s. Demonstrate awareness of a team member's closed-circuit rebreather function and an overall concern for safety, responding quickly to visual or audible indications and dive partner needs during diving and failures.

#### 2.3.6.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Modified tank configuration as appropriate for use with a GUE-approved closed-circuit rebreather
- b. Modified regulator configuration as appropriate for use with a GUE-approved closed-circuit rebreather
- c. A GUE-approved closed-circuit rebreather
  - i. The student must own their own GUE-approved closed-circuit rebreather before attending the course; they can, however, use a rented or borrowed unit during the course.

- ii. The closed-circuit rebreather used by the student, with all associated components, must be fully functional (pass all tests on the rebreather pre-dive checklist) and serviced according to manufacturer specifications.
  - iii. All oxygen sensors must be less than one year from manufacturing date.
  - iv. Both the rebreather controller and SOLO board must be updated with the latest software and firmware versions published by the manufacturer.
- d. Spare parts and consumables, including one set of controller, HUD, and solenoid batteries; one oxygen sensor; and one DSV/BOV mouthpiece
- e. One primary and two backup lights
- f. Three stage cylinders with stage regulators
  - i. Two decompression stages
  - ii. One bottom stage
  - iii. All stage regulators must have a low pressure inflator hose, allowing them to be connected to the rebreather manual addition valve (MAV).
- g. One stage leash with a double-ender
- h. One primary reel per team
- i. Drysuit inflation system independent from back gas cylinders (while breathing a helium mixture, if using a drysuit). If using a drysuit inflation cylinder attached to the backplate, extended inflation cylinder straps need to be used to ensure that it does not interfere with or restrict the counterlung's function.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.4 Cave Diver Curriculum

### 2.4.1 Cave Diver Level 1

#### 2.4.1.1 Course Outcomes

GUE's Cave Diver Level 1 course is designed to prepare divers for the rigors of the underwater cave environment and to establish an appreciation of its subtle dangers. Among its other outcomes: introduce divers to the principles of cave diving and the skills and knowledge required for limited penetration into underwater caves; increase environmental awareness; cultivate proficiency in dive planning; cultivate teamwork; promote an understanding of cave environments; teach stress management, navigation, conservation, standard and emergency procedures, and cave diving techniques; and instill an appreciation of the hazards of cave diving.

#### 2.4.1.2 Prerequisites

Applicants for a Cave 1 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.

- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Fundamentals diver with a Technical pass.
- h. Have completed at least 100 non-training dives beyond autonomous scuba diver certification.

#### 2.4.1.3 Course Content

The Cave Diver Level 1 course is normally conducted over five days. It requires a minimum of twelve dives (including ten cave dives that are conducted in at least three different caves<sup>1</sup>) and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

Divers wishing to use triox as a breathing gas are required to review all Triox Primer academics, including the exam, with their instructor and perform at least two dives using triox 30/30. Successful completion of these objectives results in the addition of triox 30/30 to the allowed post-certification breathing gases and will be noted on the Cave 1 certification card.

#### 2.4.1.4 Cave Diver Level 1 Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum of 1/3 of 2/3 of the total gas supply can be used for penetration
- c. Maximum depth of 100 ft/30 m
- d. Minimum 100 ft<sup>3</sup>/2800 L of gas is required to begin a Cave 1 dive
- e. No passages may be used in which divers are forced to travel single file for a prolonged distance (i.e., approximately 10 ft/3 m).
- f. No complex navigation (jumps, traverses, circuits)
- g. Navigation beyond one permanent intersection (also known as a "T" or "Y") and an unlimited number of temporary intersections is permitted. Permanent intersections are identified by the lack of a visible jump spool; temporary intersections provide visual access to a diver's jump spool. All intersections that appear permanent should be marked with non-directional markers.
- h. Trainees may navigate gaps; a gap occurs where the main line ends and begins again a short distance later. Normally this occurs where the line has reached another entrance/exit point.
- i. All dives must be within minimum decompression limits (MDLs), i.e., no required stops.
- j. No DPV diving
- k. No exploration
- l. No stage cylinders

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<sup>1</sup> In this context, caves are considered to be different if they have geographically distinct entrances.



#### **2.4.1.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

Divers wishing to use triox as a breathing gas must be familiar with all academic materials included in Triox Primer.

#### **2.4.1.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Environmental and cave conservation
- c. Guideline use and cave etiquette
- d. Dive team order and protocols
- e. Touch contact
- f. Basic navigation skills
- g. Dive planning
- h. Decompression theory
- i. Gas management
- j. Accident analysis
- k. Stress
- l. Environment
- m. Communication
- n. Triox Primer academic topics, when relevant

#### **2.4.1.7 Land Drills and Topics**

- a. Guideline use and cave etiquette
- b. Guideline use during emergency scenarios, including touch contact and gas-sharing emergencies
- c. Back gas regulators and valve failure modes and management
- d. Lost diver procedures
- e. Lost guideline procedures
- f. Unconscious diver recovery
- g. Basic navigation skills

#### **2.4.1.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency in managing the GUE equipment configuration.
- f. Demonstrate safe ascent and descent procedures.
- g. Must be able to swim at least 400 yds/375 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.

- i. Demonstrate proficiency in cave navigation, including visual references, guideline use, limited and simulated zero visibility, and the use of a penetration reel over a distance of at least 120 ft/36 m from open water until the team ties into the main line.
- j. Demonstrate proficiency in gas failure procedures, including valve manipulation (fixable, non-fixable, and erroneous failures), gas sharing, and regulator switching as appropriate.
- k. Demonstrate proficiency during gas-sharing scenarios in limited and/or simulated zero visibility, over a distance of at least 300 ft/90 m.
- l. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the backward kick.
- m. Demonstrate proficiency in the use of touch contact for limited and simulated zero visibility situations.
- n. Demonstrate the ability to mentally record depth, time, and gas consumption during a dive and apply these parameters to future dive planning.
- o. Demonstrate the efficient deployment of a backup light.
- p. Demonstrate the ability to search for a missing diver while performing a simulated missing diver drill.
- q. Demonstrate the skills needed to locate a lost line while performing a simulated lost line drill.
- r. Demonstrate a calm demeanor while sharing gas in simulated zero visibility for a prolonged distance.
- s. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- t. Demonstrate diver rescue techniques, including effective management of an unconscious diver.
- u. Demonstrate proficiency in switching to a backup mask.
- v. Divers wishing to use triox as a breathing gas must successfully conduct at least two dives while using triox 30/30.

#### **2.4.1.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. One safety spool
- d. One primary reel per team
- e. At least six line markers; three directional and three non-directional

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.4.2 Cave Diver Level 2

### 2.4.2.1 Course Outcomes

GUE's Cave Diver Level 2 course is designed to expand the cave diving skills of experienced Cave 1 trained divers. Among its outcomes are: a focus on environmental awareness, capacity with extended penetration dives, advanced navigation, use of jump spools, enhanced team awareness, advanced problem resolution, stress management, and use of a bottom and decompression stage.

### 2.4.2.2 Prerequisites

Applicants for a Cave 2 course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Cave Diver Level 1 diver.
- h. Have completed at least 25 non-training Cave 1 dives beyond GUE Cave Diver Level 1 certification.

### 2.4.2.3 Course Content

The Cave Diver Level 2 course is normally conducted over five days. It requires a minimum of ten cave dives that are conducted in at least three different caves<sup>2</sup> and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

Divers wishing to use triox as a breathing gas are required to review all Triox Primer academics, including the exam, with their instructor and perform at least two dives using triox 30/30. Successful completion of these objectives results in the addition of triox 30/30 to the allowed post-certification breathing gases and will be noted on the Cave 2 certification card.

### 2.4.2.4 Cave Diver Level 2 Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 6:1 during land drill or surface exercises; it cannot exceed 3:1 during any in-water training.
- b. Maximum of 1/3 of the total gas supply can be used for cave penetration
- c. Maximum depth of 100 ft/30 m.
- d. Minimum 140 ft<sup>3</sup>/4000 L of gas is required to begin a Cave 2 dive
- e. No DPV diving

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<sup>2</sup> In this context, caves are considered to be different if they have geographically distinct entrances.

#### **2.4.2.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

Divers wishing to use triox as a breathing gas must be familiar with all academic materials included in Triox Primer.

#### **2.4.2.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Guideline use, including the use of a jump spool
- c. Dive team order and protocols
- d. Touch contact
- e. Advanced navigation
- f. Advanced dive planning
- g. Gas management with thirds and while using a stage cylinder
- h. Accident analysis
- i. Stress management
- j. Environmental considerations
- k. Communication
- l. Cave restrictions
- m. Basic survey techniques
- n. Decompression
- o. Triox Primer academic topics, when relevant

#### **2.4.2.7 Land Drills and Topics**

- a. Guideline use and procedures, including use of a jump spool
- b. Missing diver procedures
- c. Unconscious diver recovery
- d. Back gas regulator and valve failure modes and management
- e. Bottom and decompression stage usage (drops and pickups)
- f. Switching to and from a stage and decompression cylinders
- g. Bottom and decompression stage failure management
- h. Lost guideline procedures
- i. Basic and advanced navigation skills, including gaps/jumps, circuits, and traverses
- j. Guideline referencing skills

#### **2.4.2.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in underwater communication.
- e. Demonstrate basic proficiency in managing the GUE base equipment configuration.
- f. Demonstrate safe ascent and descent procedures.

- g. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- i. Demonstrate proficiency in managing breathing system failures, including proper assessment and valve manipulation (fixable, non-fixable, and erroneous) with regulator switching as appropriate and bottom and decompression stage failure management.
- j. Demonstrate proficiency during gas-sharing scenarios, including decompression gas sharing.
- k. Demonstrate proficiency in cave navigation, including visual references, guideline use, and limited and simulated zero visibility.
- l. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the backward kick.
- m. Demonstrate proficiency in the use of touch contact for limited and simulated zero visibility situations.
- n. Demonstrate the efficient deployment of a backup light.
- o. Demonstrate the ability to search for a missing diver while performing a simulated missing diver drill.
- p. Demonstrate the skills needed to locate a lost line while performing a simulated lost line drill.
- q. Demonstrate capacity with advanced cave navigation as outlined in Appendix B.
- r. Demonstrate capacity in planning for and dealing with minor and major restrictions.
- s. Demonstrate a calm demeanor while sharing gas in simulated zero visibility for a prolonged distance.
- t. Demonstrate the ability to use a stage cylinder with appropriate gas switching procedures during extended penetration cave dives.
- u. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- v. Demonstrate diver rescue techniques, including effective management of an unconscious diver.
- w. Divers wishing to use triox as a breathing gas must successfully conduct at least two dives while using triox 30/30.

#### **2.4.2.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. One bottom stage with stage regulator
- d. One decompression stage with stage regulator
- e. One safety spool
- f. At least two jump spools
- g. One primary reel per team
- h. At least twelve line markers; six directional and six non-directional

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### 2.4.3 Underwater Cave Survey

#### 2.4.3.1 Course Outcomes

GUE's Underwater Cave Survey course is designed to introduce experienced cave divers to the important skill of surveying underwater caves. Among the course's intended outcomes are: introducing divers to the basic principles of underwater cave survey, the implementation of a defined team approach to underwater survey data collection, preparing an experienced cave diver to productively assist in a coordinated cave project, and introducing divers to cartography methods.

#### 2.4.3.2 Prerequisites

Applicants for an Underwater Cave Survey course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release to GUE HQ.
- b. Hold insurance that will cover diving emergencies, such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Cave Diver Level 2 diver.
- h. Have completed at least 25 non-training Cave 2 dives beyond GUE Cave Diver Level 2 certification.

#### 2.4.3.3 Course Content

The Underwater Cave Survey course is normally conducted over five days. It requires a minimum of ten diving hours and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### 2.4.3.4 Underwater Cave Survey Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 4:1 during land drill or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. Maximum of 1/3 of the total gas supply can be used for cave penetration
- d. Minimum 140 ft<sup>3</sup>/4000 L of gas is required to begin a Cave 2 level dive
- e. All survey tasks must be completed before reaching penetration gas limits.
- f. No DPV diving unless both instructor and trainees are GUE DPV Cave certified.

#### **2.4.3.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.4.3.6 Academic Topics**

- a. Introduction
- b. Course overview
- c. Reasons to survey
- d. Survey priorities
- e. Equipment
- f. Data collection
- g. The “stick map”
- h. Data archiving
- i. Data manipulation and plotting
- j. Expanding the frame
- k. Sketching underwater details
- l. Cartography
- m. Overview of workflow
- n. GUE and underwater cave survey

#### **2.4.3.7 Land Drills and Topics**

- a. Handling survey equipment
- b. Basic line survey
- c. Division of team responsibilities
- d. Measurements and estimates
- e. Communication
- f. Recording data
- g. Extremity data collection
- h. Survey line installation
- i. Sidewall and interior sketching
- j. Post survey archiving
- k. Data manipulation and plotting
- l. Cartography and map production

#### **2.4.3.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques; this includes pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- c. Demonstrate a safe and responsible demeanor throughout all training.
- d. Demonstrate proficiency in all aspects of Cave 2 level diving under survey conditions. These include, but are not limited to: guideline installation and retrieval, underwater communication, decompression, stability and trim, complex navigation, propulsion, bottom stage and decompression stage management, stress management while task loaded, and gas management.
- e. Demonstrate basic proficiency in managing the GUE equipment configuration.

- f. Demonstrate safe ascent and descent procedures.
- g. Must be able to swim at least 500 yds/450 m in under 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 60 ft/18 m on a breath hold.
- i. Demonstrate proficiency in effectively performing all tasks associated with a team survey.
- j. Demonstrate proficiency in the use of survey equipment.
- k. Effectively take measurements and estimates.
- l. Demonstrate consistent, clear, and concise underwater data recording.
- m. Demonstrate clear and effective underwater communication.

#### **2.4.3.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One safety spool
- c. One primary reel per team
- d. One exploration reel per team capable of holding a minimum of 800 ft/240 m of knotted line
- e. One primary and two backup lights
- f. At least twelve line markers; six directional and six non-directional
- g. Survey package: Each student must have a survey compass, prepared underwater survey notes, spare pencils, and a prepared 3-ft/1-m measuring string.
- h. One “open reel” design fiberglass tape per team, measuring between 100 and 170 ft/30 and 50 m
- i. One handheld underwater sonar per team

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

### **2.4.4 Cave Sidemount**

#### **2.4.4.1 Course Outcomes**

GUE’s Cave Sidemount course is designed to introduce experienced cave divers to the use of the sidemount configuration in a cave environment and to meet the challenges posed by such an environment. The course’s intended outcomes are to help divers understand the techniques required to safely navigate confined cave passageways and the advantages and disadvantages of a lateral equipment configuration.

#### **2.4.4.2 Prerequisites**

Applicants for a Cave Sidemount course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.



- b. Hold insurance that will cover diving emergencies, such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any prior medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Cave Diver Level 2 diver.
- h. Have completed at least 50 non-training Cave 2 dives beyond GUE Cave Diver Level 2 certification.
- i. Have completed at least 200 non-training dives beyond autonomous scuba diver certification.

#### **2.4.4.3 Course Content**

The GUE Cave Sidemount course is normally conducted over five days. It requires ten dives (of which four must include restrictive passages) and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.4.4.4 Cave Sidemount Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 4:1 during land drills or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. Maximum use of 1/3 of total gas supply can be used for penetration
- d. Minimum 140 ft<sup>3</sup>/4000 L of gas is required to begin a Cave Sidemount dive
- e. No DPV diving unless both instructor and trainees are GUE DPV Cave certified.
- f. Requires a minimum of two stage dives
- g. Students must negotiate a minimum of three sidemount-only restrictions.

#### **2.4.4.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study package received via online download after GUE course application.

#### **2.4.4.6 Academic Topics**

- a. Introduction
- b. Course overview
- c. Benefits and disadvantages of sidemount
- d. Sidemount history
- e. Equipment configuration and setup
- f. Geology and sidemount-specific cave morphology
- g. Conservation considerations and landowner relationships
- h. Gas management
- i. Dive planning

#### **2.4.4.7 Land Drills and Topics**

- a. Sidemount equipment setup
- b. Guideline use and navigation

- c. Guideline entanglement, cutting, and repair
- d. Loss of guideline
- e. Regulator switches and gas monitoring
- f. Feathering valves
- g. Gas sharing
- h. Stage cylinder positioning and related considerations
- i. Backup light deployment

#### **2.4.4.8 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate a full understanding of pre-dive gear setup.
- c. Demonstrate basic proficiency in managing a GUE-approved sidemount equipment configuration.
- d. Demonstrate an efficient one-handed regulator switch.
- e. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in all aspects of sidemount diving in caves during training. This includes, but is not limited to: guideline installation and retrieval, underwater communication, decompression, stability and trim, complex navigation, propulsion, bottom stage and decompression stage management, stress management while task loaded, and gas management.
- h. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the modified flutter kick.
- i. Demonstrate safe ascent and descent procedures.
- j. Demonstrate proficiency in cave navigation, including visual references, guideline use, and limited and simulated zero visibility.
- k. Demonstrate proficiency in navigating restricted passages.
- l. Demonstrate proficiency in feathering a valve for at least 300 ft/90 m.
- m. Demonstrate proficiency during gas-sharing scenarios.
- n. Be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- o. Be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- p. Demonstrate proficiency in managing line entanglement, line traps, and broken line.
- q. Demonstrate proficiency in managing keyhole restrictions and resolving stuck situations.
- r. Demonstrate clear and effective underwater communication in both limited and simulated zero visibility.

#### **2.4.4.9 Equipment Requirements**

Each student should have, and be familiar with, all of the following required equipment:

- a. Tanks/cylinders: Students are required to use independent cylinders with single valves and without manifolds, which allow for the use of one first stage each. Stage cylinders as specified in section 1.7 will also be utilized.
- b. Regulators: One of the second stages must be on a 7 ft/2 m hose. Both first stages must supply a pressure gauge and provide inflation for a drysuit (where applicable) and a wing.
- c. Sidemount harness: A diver's sidemount setup should be back-mounted and minimalist in nature. Wing size and shape should be appropriate to the cylinder size(s) employed for training.
- d. At least one time/depth measuring device
- e. Mask and fins: Mask is low-volume; fins are rigid, non-split.
- f. At least one cutting device
- g. Wetnotes with pencils
- h. One safety spool
- i. One wrist-mounted compass
- j. One primary reel per team
- k. One primary and two backup lights
- l. Exposure suit appropriate for the duration of exposure
- m. At least twelve line markers; six directional and six non-directional
- n. At least two jump spools

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.4.5 Diver Propulsion Vehicle Cave

### 2.4.5.1 Course Outcomes

GUE's Diver Propulsion Vehicle (DPV) Cave course is designed to cultivate mastery-level skill in the use of underwater propulsion vehicles in the cave environment. Other course outcomes include: reinforcing the outcomes of GUE's DPV 1 course, managing the ramifications of using multiple DPVs and stage cylinders, and environment-specific applications.

### 2.4.5.2 Prerequisites

Applicants for a DPV Cave course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.

- g. Be a certified GUE Cave Diver Level 2 diver.
- h. Be a certified GUE Diver Propulsion Vehicle Level 1 diver.
- i. Have completed at least 50 non-training Cave 2 dives beyond GUE Cave Diver Level 2 certification.
- j. Have completed at least 25 DPV 1 dives beyond GUE Diver Propulsion Vehicle Level 1 certification.
- k. Own a GUE-approved DPV with sufficient burn time for the cave environment.

#### **2.4.5.3 Course Content**

The Diver Propulsion Vehicle Cave course is normally conducted over five days. It requires a minimum of five cave dives and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

#### **2.4.5.4 Diver Propulsion Vehicle Cave Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 3:1 during land drill or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m

#### **2.4.5.5 Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

#### **2.4.5.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Equipment considerations
- c. DPV components
- d. DPV maintenance
- e. Leashes (lengths, knots, lanyards)
- f. Bottom stages and decompression stages
- g. Exposure suit for the cave environment
- h. Dive planning (operational, team, support, objectives)
- i. Matching different speeds while using a DPV
- j. Emergency procedures (includes: gas sharing, towing diver, and runaway scooter)
- k. Gas planning
- l. Trigger time and multiple scooter use
- m. Towing a DPV
- n. Stage management
- o. Line use (installing, following, and retrieving)
- p. Managing, switching, dropping, and stowing DPVs

#### **2.4.5.7 Land Drills and Topics**

- a. Proper position while using a DPV
- b. Ready position
- c. Runaway DPV
- d. Switching DPVs
- e. Dropping DPVs
- f. Use of a primary light while operating a DPV

- g. Team order and protocols
- h. Use of spools and reels
- i. Navigation
- j. Pre-dive drills

#### **2.4.5.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, if necessary, appropriate thermal protection.
- b. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- c. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- d. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- e. Demonstrate a safe and responsible demeanor throughout all training.
- f. Demonstrate proficiency in underwater communication while using a DPV.
- g. Demonstrate basic proficiency in managing the GUE equipment configuration.
- h. Demonstrate safe ascent and descent procedures.
- i. Demonstrate proficiency in making adjustments to maintain proper buoyancy and trim while using a DPV. Approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- j. Demonstrate proficiency in laying and retrieving line with a DPV; this includes the use of a primary reel and jumps/gaps.
- k. Demonstrate proficiency in switching from one DPV to another.
- l. Demonstrate proficiency in all aspects of stage cylinder management while also managing DPVs.
- m. Demonstrate proficiency in calculating accurate available trigger time.
- n. Demonstrate effective use of a compass and proficiency in navigation.
- o. Demonstrate ability to match speeds with team members.
- p. Demonstrate ability to tow a diver.
- q. Demonstrate control while managing a runaway DPV.
- r. Demonstrate proficiency with the sequential management of an out-of-gas scenario.
- s. Demonstrate ability to tow an out-of-gas diver for a distance of 500 ft/150 m while using a DPV.
- t. Demonstrate proficiency in managing breathing system failures, including proper assessment and valve manipulation with regulator switching as appropriate.
- u. Demonstrate proficiency with effective decompression techniques, including depth and time management.
- v. Demonstrate an efficient exit on a backup light.
- w. Demonstrate ability to follow a guideline in a simulated zero-visibility scenario while managing stage(s) and DPV(s).
- x. Demonstrate ability to manage equipment through restricted areas with concern for the environment.

#### **2.4.5.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A, plus:

- a. GUE double tank configuration
- b. One primary and two backup lights
- c. One bottom stage with stage regulator
- d. One decompression stage with stage regulator
- e. One safety spool
- f. At least two jump spools
- g. One primary reel per team
- h. At least twelve line markers; six directional and six non-directional
- i. Two approved DPVs

Excluding:

- a. Surface marker buoy with spool

An approved DPV is one that is tow-behind style with variable speed adjustment and clutch mechanism. The DPV must include an attached cord at the back with a bolt snap to be clipped on the front crotch strap D-ring and a leash attached to the front to be used for towing a disabled DPV.

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.4.6 Closed-Circuit Rebreather Cave Diver

### 2.4.6.1 Course Outcomes

The GUE Closed-Circuit Rebreather Cave Diver course is designed to provide experienced GUE cave and closed-circuit rebreather divers with the additional knowledge and practice needed to safely use closed-circuit rebreathers in a cave environment. This course is an advanced level closed-circuit rebreather course aimed at teaching mastery level skills, knowledge, and procedures appropriate for the cave environment.

### 2.4.6.2 Prerequisites

Applicants for a CCR Cave course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be a minimum of 21 years of age.
- g. Be a certified GUE Closed-Circuit Rebreather Diver Level 1 diver.
- h. Be a certified GUE Cave Diver Level 2 diver.
- i. Have completed at least 50 non-training CCR dives beyond GUE Closed-Circuit Rebreather Diver Level 1 certification.
- j. Have completed at least 25 non-training Cave 2 dives beyond GUE Cave Diver Level 2 certification.

- k. Own a GUE-approved closed-circuit rebreather.

### **2.4.6.3 Course Content**

The Closed-Circuit Rebreather Cave Diver course is normally conducted over four days. It requires a minimum of five dives and at least thirty-two hours of instruction, encompassing classroom lectures, land drills, and at least ten hours of in-water work.

### **2.4.6.4 Closed-Circuit Rebreather Cave Specific Training Standards**

- a. Student-to-instructor ratio is not to exceed 2:1 during land drill or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. Dives must not be planned to incur more than 30 minutes of unadjusted decompression time, as established by GUE's DecoPlanner.
- d. Divers must always have sufficient bailout gas to exit the cave from the maximum penetration.
- e. During any zero/limited visibility drills, the instructor must ensure that students' HUDs are clearly visible to them.
- f. The oxygen supply valve must never be closed completely during drills.

### **2.4.6.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study package received via online download after GUE course application.

### **2.4.6.6 Academic Topics**

- a. Introduction and course overview
- b. Risks specific to CCR diving in an overhead environment
- c. Bailout gas calculations for bottom and decompression portions of the dive
- d. Equipment configuration considerations

### **2.4.6.7 Land Drills and Topics**

- a. Stage cylinder configuration
- b. Use of MAVs/quick disconnects and utilization of off-board gases
- c. SCR mode
- d. Gas-sharing exits
- e. Zero visibility exits (controlling units using HUD only)

### **2.4.6.8 Required Dive Skills and Drills**

- a. Demonstrate a safe and responsible demeanor throughout all training.
- b. Demonstrate proficiency in underwater communication.
- c. Demonstrate proficiency in managing a closed-circuit rebreather configuration.
- d. Demonstrate proficiency with the use of the rebreather during ascents, descents, and diving.
- e. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- f. Must be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.

- g. Must be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- h. Demonstrate ability to install a primary reel while maintaining constant awareness of the rebreather.
- i. Demonstrate the ability to manage a flooded rebreather while discharging excess water.
- j. Demonstrate the ability to switch and maintain desired pO<sub>2</sub> setpoints manually throughout a dive.
- k. Demonstrate effective ability to connect and use off-board O<sub>2</sub> or diluent gas.
- l. Demonstrate effective ability to dive the rebreather in semi-closed mode.
- m. Demonstrate proficiency in removing, staging, picking up, and clipping off stage cylinders while hovering horizontally.
- n. Demonstrate the ability to comfortably switch gases while maintaining good trim and neutral buoyancy.
- o. Demonstrate a calm demeanor while conducting a prolonged full-bailout exit.
- p. Demonstrate proficiency in safe diving procedures, including assembly, vacuum and pressure tests, pre-dive preparation, pre-dive vacuum test, flow check, in-water activity, and post-dive assessment, breakdown, and maintenance.
- q. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver while using the rebreather.
- r. Demonstrate comfort and a calm demeanor during a prolonged gas-sharing exit.
- s. Demonstrate a calm demeanor and control during a prolonged zero-visibility exit while maintaining constant control of pO<sub>2</sub>s using the HUD.

#### 2.4.6.9 Equipment Requirements

GUE base equipment configuration as outlined in Appendix A, plus:

- a. Modified tank configuration as appropriate for use with a GUE-approved closed-circuit rebreather
- b. Modified regulator configuration as appropriate for use with a GUE-approved closed-circuit rebreather
- c. A GUE-approved closed-circuit rebreather
  - i. The student must own a GUE-approved closed-circuit rebreather before attending the course; they can, however, use a rented or borrowed unit during the course.
  - ii. The closed-circuit rebreather used by the student, with all associated components, must be fully functional (pass all tests on the rebreather pre-dive checklist) and serviced according to manufacturer specifications.
  - iii. All oxygen sensors must be less than one year from manufacturing date.
  - iv. Both the rebreather controller and SOLO board must be updated with the latest software and firmware versions published by the manufacturer.
- d. Spare parts and consumables, including one set of controller, HUD, and solenoid batteries; one oxygen sensor; and one DSV/BOV mouthpiece
- e. One primary and two backup lights
- f. Two stage cylinders with stage regulators
  - i. One decompression stage
  - ii. One bottom stage



- iii. All stage regulators must have a low pressure inflator hose, allowing them to be connected to the rebreather manual addition valve (MAV).
- g. One stage leash with a double-ender
- h. One jump spool
- i. One safety spool
- j. One primary reel per team
- k. At least twelve line markers; six directional and six non-directional
- l. Drysuit inflation system independent from back gas cylinders (optional). If using a drysuit inflation cylinder attached to the backplate, extended inflation cylinder straps need to be used to ensure that it does not interfere with or restrict the counterlung's function.

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

## 2.5 GUE Dive Professional Curriculum

### 2.5.1 Dive Leader Training Course

#### 2.5.1.1 Course Outcomes

GUE's Dive Leader Training Course is designed to develop GUE Dive Leaders who are qualified to perform duties as a professional dive leader. Included among its training outcomes are: knowledge and skills needed to plan and safely conduct guided recreational dives for certified divers and to act as a sanctioned video diver or safety diver during GUE Recreational Diver Level 1 and 2 classes and Foundational classes.

Undertaking the Dive Leader Training Course is a required step in the Dive Leader Candidate Development Process, as outlined in section 3.1.2.2.

#### 2.5.1.2 Prerequisites

All GUE Dive Leader candidates must:

- a. Fulfill GUE Dive Leader Candidate Prerequisites as outlined in section 3.1.2.1.

#### 2.5.1.3 Course Content

The Dive Leader Training Course is normally conducted over four days. It requires a minimum of thirty hours of instruction, encompassing classroom lectures, land drills, in-water work, and a minimum of four dives, of which at least one must be a simulated guided dive,

#### 2.5.1.4 Dive Leader Training Course Specific Training Standards

- a. Maximum student-to-instructor ratio of 3:1
- b. Can be run with one trainee

### **2.5.1.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.5.1.6 Academic Topics**

- a. Dive leader professionalism, responsibilities, and roles
- b. Importance and use of GUE standards and procedures
  - i. GUE General Training Standards, Policies, and Procedures document
    - 1. Section 1.4 (Diving Standards)
    - 2. Section 1.5 (Equipment section) and Appendix A
  - ii. Standard Operating Procedures (SOP) document
- c. Importance and content of GUE's recreational entry-level program (section 2.1) and the divers' capacity and limitations
- d. Basic equipment knowledge and understanding of function (regulator; BC systems, adjustment and fitting; establishing a balanced rig; and proper setup of GUE configuration)
- e. Minimum gas calculations, MDL table use, pragmatic minimum decompression, computer use
- f. Understanding of underwater/surface control and positioning
  - i. Awareness of divers' positions
  - ii. Awareness of supervised divers' gas supplies
  - iii. Awareness of supervised divers' MDLs
  - iv. Environmental awareness
  - v. Awareness of divers' comfort (stress recognition)
- g. Risks and risk mitigation associated with performing GUE Dive Leader duties
- h. Dive site choices, dive site and dive briefing techniques
- i. Post-dive debriefing techniques

### **2.5.1.7 Land Drills and Topics**

- a. Gas analysis
- b. GUE EDGE and pre-dive sequence and their proper implementation
- c. Equipment fit, assembly and disassembly, and backplate fitting
- d. Dive team protocols
- e. Basic and advanced compass navigation and natural navigation review
- f. Diver positioning and underwater control
- g. Diver rescue techniques (both underwater recovery and surface rescue)

### **2.5.1.8 Required Dive Skills and Drills**

- a. Must be able to swim at least 600 yds/550 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- h. Must be able to swim a distance of at least 70 ft/21 m on a breath hold while submerged.
- i. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.

- j. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs, as well as understanding of underwater/surface control and positioning while guiding certified divers.
- k. Demonstrate proficiency in compass use and implementation of natural navigation.
- l. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 20 degrees off horizontal while remaining within 3 ft/1 m of a target depth.
- m. Demonstrate proficiency in the ability to deploy a surface marker buoy while using a spool.
- n. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver in multiple gas-sharing scenarios.
- o. Efficiently and comfortably demonstrate how to donate gas to an out-of-gas diver followed by an ascent to the surface utilizing minimum decompression.
- p. Demonstrate a safe and responsible demeanor throughout all training.
- q. Demonstrate proficiency in underwater communication.
- r. Demonstrate safe ascent and descent procedures.
- s. Demonstrate an efficient valve drill with double tanks.
- t. Demonstrate basic equipment proficiency and an understanding of the GUE equipment configuration.
- u. Demonstrate proficiency in four propulsion techniques that would be appropriate in delicate and/or silty environments, including competence in the backward kick and helicopter turn.
- v. Demonstrate proficiency with a primary light by using it during all skills except SMB deployment.
- w. Demonstrate diver rescue techniques, including effective management of an unconscious diver underwater and on the surface.
- x. Demonstrate proficiency in dive site, dive, and post-dive briefing techniques.

#### **2.5.1.9 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A.

### **2.5.2 Assistant Instructor Training Course**

#### **2.5.2.1 Course Outcomes**

GUE's Assistant Instructor Training Course is designed to develop GUE Assistant Instructors who are qualified to perform duties as outlined in section 3.2.1. Included among its training outcomes are: knowledge and skills needed to plan and safely conduct GUE Discover Diving program, coach divers and to act as a sanctioned video diver or safety diver during GUE Recreational Diver Level 1 and 2 classes and Foundational classes.

Undertaking the Assistant Instructor Training Course is a required step in the Assistant Instructor Candidate Development Process, as outlined in section 3.2.2.2.

#### **2.5.2.2 Prerequisites**

All GUE Assistant Instructor candidates must:

- a. Fulfill GUE General Instructor Candidate Prerequisites as outlined in section 3.3.2.2.
- b. Must have been evaluated by a GUE IT or IE on personal diving skills, and must have scored a minimum of grade 4 on all components.

### **2.5.2.3 Course Content**

The Assistant Instructor Training Course is normally conducted over four days. It requires a minimum of thirty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

### **2.5.2.4 Assistant Instructor Training Course Specific Training Standards**

- a. Maximum candidate-to-staff ratio of 4:1
- b. Can be run with one trainee

### **2.5.2.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.5.2.6 Academic Topics and Performance Requirements**

The candidate must participate in the following academic sessions from the instructor training curriculum with a GUE IT or IE.

- a. How to Teach: Part 1
- b. How to Teach: Part 2
- c. How to Teach: Part 3
- d. Teaching and diving with non-divers and beginners
- e. Basic positioning and control
- f. Debriefing: Part 1
- g. GUE General Training Standards, Policies, and Procedures overview and exam

The GUE Assistant Instructor candidate must earn a signature for each of the following components by participating in appropriate sessions and being evaluated by a GUE IT or IE. Component signatures are documented using the current GUE Fundamentals/Rec1 Intern Evaluation Form.

- a. Physical fitness (all components)
- b. Professionalism (all components)
- c. General teaching skills (all components)
- d. General classroom performance
  - i. GUE overview
  - ii. Buoyancy and weighting
  - iii. Balance and trim
  - iv. Minimum decompression procedures
  - v. Dive planning
  - vi. Diving safety
- e. Recreational curriculum classroom performance
  - i. Intro to scuba
  - ii. Boyle's Law
  - iii. Discover Diving presentation

### **2.5.2.7 Required Field Drills**

The GUE Assistant Instructor candidate must earn a signature for each of the following components by participating in appropriate sessions and being evaluated by a GUE IT or IE.

Component signatures are documented using the current GUE Fundamentals/Rec 1 Intern Evaluation Form.

- a. Equipment overview
- b. Gas analysis
- c. Basic 5 scuba skills
- d. Propulsion
- e. Backplate fitting

#### **2.5.2.8 Required In-Water Skills and Drills**

The GUE Assistant Instructor candidate must receive a signature for each of the following components by participating in appropriate sessions and being evaluated by a GUE IT or IE. Component signatures should be documented using the current GUE Fundamentals/Rec 1 Intern Evaluation Form.

- a. Buoyancy and trim
- b. Propulsion and maneuvering: A minimum of two techniques are required, of which at least one must be a propulsion technique.
- c. Basic 5 scuba skills
- d. Debriefing (oral)

#### **2.5.2.9 Personal Diving Skills**

The GUE Assistant Instructor candidate must receive a signature for all personal skills components by participating in appropriate sessions and being evaluated by a GUE IT or IE. Component signatures are documented using the current GUE Fundamentals/Rec 1 Intern Evaluation Form and must be scored with a minimum of grade 4.

#### **2.5.2.10 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A.

### **2.5.3 Instructor Training Course**

#### **2.5.3.1 Course Outcomes**

GUE's Instructor Training Course (ITC) is designed to develop qualified GUE instructors within relevant GUE curricula. After completing this course, the instructor candidate will be qualified to pursue experience-based training requirements toward their first endorsement.

Undertaking the Instructor Training Course is an elementary part of the Instructor Candidate Development Process, as outlined in section 3.3.2.3.

#### **2.5.3.2 Prerequisites**

All GUE Instructor candidates must:

- a. Fulfill GUE General Instructor Candidate Prerequisites as outlined in section 3.3.2.2.
- b. Fulfill the curriculum-specific instructor candidate prerequisites for the entry-level class of the curriculum in which they are seeking endorsement. These are listed in the respective curricula: Recreational (section 3.3.4.1.1), Foundational (section 3.3.4.2.1), Technical (section 3.3.4.3.1), and Cave (section 3.3.4.4.1).

- c. Must have been evaluated by a GUE IT or IE on personal diving skills, and must have scored a minimum of grade 4 on all components.

### **2.5.3.3 Course Content**

The Instructor Training Course is normally conducted over seven days and requires at least sixty-three hours of instruction, encompassing classroom lectures, land drills, and in-water work. Some curricula may require more time, which is specified in each curriculum's ITC schedules.

### **2.5.3.4 Instructor Training Course Specific Training Standards**

- a. Maximum candidate-to-staff ratio of 4:1
- b. Can be run with one trainee

### **2.5.3.5 Required Training Materials**

GUE training materials and recommended reading as determined by the course study packet received via online download after GUE course registration.

### **2.5.3.6 Academic Topics**

- a. Introduction: GUE organization and course overview (objectives, limits, expectations)
- b. Instructor's role, duties, and responsibilities as professional scuba educator and GUE representative in the diving industry
- c. Risk assessment and mitigation associated with GUE instructor duties and responsibilities
- d. Classroom, land drill, and in-water teaching techniques
- e. Underwater student control and positioning
- f. Briefing and debriefing strategies (including video analysis)
- g. Course structure and content, logistics, customer satisfaction management, time management, use of qualified assistants (includes use of video divers)
- h. Student evaluation process, administration, and minimum performance requirements
- i. GUE General Training Standards, Policies, and Procedures

### **2.5.3.7 Required Dive Skills and Drills**

- a. Demonstrate proficiency in safe diving practices, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate awareness of student location and a concern for safety, responding quickly to visual indications and students' requirements.
- c. Demonstrate good buoyancy and trim, i.e., approximate reference is a maximum of 10 degrees off horizontal while remaining within 2 ft/0.5 m of a target depth.
- d. Demonstrate personal skills and required skills from relevant curricula at a minimum of grade 4, as defined in GUE's Grading Scale (section 1.3.1).
- e. Demonstrate a safe and responsible demeanor throughout all training.
- f. Demonstrate proficiency in underwater communication while teaching.
- g. Demonstrate safe ascent and descent procedures and control while teaching.
- h. Demonstrate equipment proficiency and an understanding of the GUE equipment configuration at a level adequate for a GUE educator.
- i. Demonstrate efficient time management, logistics, and concern for a proper learning environment, both out of and in water.

- j. Demonstrate adequate professionalism as expected from a GUE representative and GUE educator.
- k. Demonstrate adequate understanding of GUE standards, procedures, and administrative processes as expected from a GUE representative and GUE educator.
- l. Demonstrate proficiency in delivering properly structured land drills from relevant curricula.
- m. Demonstrate proficiency in delivering properly structured academic components from relevant curricula.
- n. Demonstrate proficiency in conducting properly structured training sessions and dives, including dive briefings, skill demonstrations, assessment of student skills, active teaching, and post-dive performance evaluation and feedback in relevant curricula.
- o. Demonstrate adequate in-water control and application of proper in-water positioning.
- p. Demonstrate adequate techniques for efficient in-water skill demonstrations.

#### **2.5.3.8 Equipment Requirements**

GUE base equipment configuration as outlined in Appendix A.

Additional equipment needs may vary with the ITC being conducted. Please verify requirements with the leading Instructor Trainer (IT) and/or Instructor Evaluator (IE).

### **2.5.4 Instructor Trainer Development Course**

#### **2.5.4.1 Course Outcomes**

GUE's Instructor Trainer Development Course (ITDC) is designed to provide qualified, Active status GUE instructors with the skills necessary to cultivate and evaluate prospective GUE instructor candidates in conformity with GUE standards.

#### **2.5.4.2 Prerequisites**

All GUE Instructor Trainer candidates must:

- a. Fulfill GUE Instructor Trainer Candidate Prerequisites as outlined in section 3.4.2.1.

#### **2.5.4.3 Course Content**

The Instructor Trainer Development Course involves two days and a minimum of sixteen hours of instruction and leadership training during which candidates will engage in a management-level understanding of the GUE General Training Standards, Policies, and Procedures document, review and discuss instructor candidate development strategies and organizational expectations, and work to cultivate a precise understanding of what constitutes a minimum standard for certification.

#### **2.5.4.4 Instructor Trainer Development Course Specific Training Standards**

- a. Maximum candidate-to-staff ratio of 4:1
- b. Can be run with one trainee

## 3. GUE Dive Professional Standards and Procedures

### 3.1 Dive Leader

#### 3.1.1 Qualifications

A GUE Dive Leader is qualified to perform duties as a professional dive leader.

#### 3.1.2 Dive Leader Candidate Development

##### 3.1.2.1 Dive Leader Candidate Prerequisites

All GUE Dive Leader candidates must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Be physically and mentally fit.
- c. Be a nonsmoker.
- d. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- f. Be certified, at a minimum, as a GUE Recreational Diver Level 2 or as a GUE Fundamentals diver. Neither of the classes need to have been taken using a double cylinder configuration. However, all fundamental skills, excluding those requiring a double cylinder configuration, must be at the Fundamentals - Technical level. Such skills include buoyancy and trim, propulsion and maneuvering, and primary light use.
- g. Have conducted at least 200 dives; of these, 50 must have been in a GUE configuration and 50 must have been at a depth of at least 80 ft/24 m.
- h. Possess a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- i. Possess a diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- j. Have personal diving insurance that specifically covers diving medical emergencies, as well as third party liability that covers GUE in case of a claim.

##### 3.1.2.2 Dive Leader Candidate Development Process

After fulfilling the Dive Leader Candidate Prerequisites (section 3.1.2.1), dive leader candidates must in sequence:

- a. Undertake a Dive Leader Training Course (section 2.5.1).
- b. Be ratified: Following successful completion of the Dive Leader Training Course, dive leader candidates must:
  - i. Communicate with GUE HQ and ensure that all dive leader candidate development documents have been properly executed and submitted to HQ.
  - ii. Ensure that dive leader candidate-specific documentation is in order, e.g., insurance, BLS certification, etc.



- iii. Submit a signed dive leader agreement and standards agreement, along with the appropriate dive leader fee.

### **3.1.3 Dive Leader Status**

#### **3.1.3.1 Active Status Dive Leader**

To perform their duties, a GUE Dive Leader must be in Active Status. Active status GUE Dive Leaders are dive leaders in good standing who are sanctioned to represent GUE and act as a dive guide to certified divers.

To maintain this status, the GUE Dive Leader must:

- a. Apply for renewal every three years.
- b. Be certified, at a minimum, as a GUE Recreational Diver Level 2 or a GUE Fundamentals diver.
- c. Log at least twenty-five non-training dives per year. Half of these dives must have been as a dive leader.
- d. Possess a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- e. Possess diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- f. Provide evidence of a current personal diving insurance policy that specifically covers diving medical emergencies, as well as third party liability that covers GUE in case of a claim.
- g. Maintain a good state of mental and physical fitness and submit medical and fitness forms.

#### **3.1.3.2 Inactive Status Dive Leader**

Inactive status dive leaders are dive leaders who are not sanctioned to represent GUE in any official capacity, no longer pay dive leader membership dues, nor participate in the benefits of GUE membership in any way.

#### **3.1.3.3 Dive Leader Status Changes**

Inactive status dive leaders may change their status to Active by meeting the following requirements:

- a. Undergo an update workshop with a GUE Dive Leader instructor.
- b. Be certified, at a minimum, as a GUE Recreational Diver Level 2 or as a GUE Fundamentals diver.
- c. Log at least twenty-five non-training dives in the twelve months prior to their application.
- d. Possess a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- e. Possess diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- f. Provide evidence of a current personal diving insurance policy that specifically covers diving medical emergencies, as well as third party liability that covers GUE in case of a claim.

- g. Maintain a good state of mental and physical fitness and submitting medical and fitness forms.

## 3.2 Assistant Instructor

### 3.2.1 Qualifications

A GUE assistant instructor is qualified to:

- a. Act as an instructor's assistant in the following courses: Discover Diving, Recreational Supervised Diver, Recreational Diver Level 1, Recreational Diver Level 2 (including Rescue, Navigation, and Triox Primers), GUE Fundamentals, Drysuit Primer and Doubles Primer.
- b. Act as an instructor's assistant in other courses from the Recreational and Foundational curricula, if certified at that level.
- c. Coach students in a 1:1 ratio in the following skills while in confined water: trim, balance, buoyancy, basic 5 scuba skills, and propulsion and maneuvering techniques. The GUE Assistant Instructor is limited to coaching and active feedback, and cannot offer an evaluation of students' performance, which is the sole responsibility of the GUE instructor.
- d. Conduct GUE Discover Diving programs in confined water with a reduced student-to-assistant-instructor ratio of 2:1 during land drills, surface exercises, and in-water training.
- e. Accompany students to the surface and perform descents and ascents with students if approved by the instructor.
- f. Act as a sanctioned video diver or safety diver during any class for which they are qualified to act as an instructor assistant, as determined by section 3.2.1, a and b.
- g. Act as an assistant instructor during GUE Recreational Diver Level 1, 2, and Fundamentals courses to gain progressive experience in teaching, evaluating, and theoretical knowledge in confined and open water as part of instructor candidate development.

### 3.2.2 Assistant Instructor Candidate Development

#### 3.2.2.1 Assistant Instructor Candidate Prerequisites

All GUE Assistant Instructor candidates must:

- a. Fulfill GUE General Instructor Candidate Prerequisites as outlined in section 3.3.2.2.
- b. Be certified, at a minimum, as a GUE Recreational Diver Level 2 or as a GUE Fundamentals diver. Neither of the classes need to have been taken using a double cylinder configuration. However, all fundamental skills, excluding those requiring a double cylinder configuration, must be at the Fundamentals - Technical level. Such skills include buoyancy and trim, propulsion and maneuvering, and primary light use.
- c. Have conducted at least 200 dives; of these, 50 must have been in a GUE configuration and 50 must have been at a depth of at least 80 ft/24 m.

### 3.2.2.2 Assistant Instructor Candidate Development Process

After fulfilling the General Instructor Candidate Prerequisites (section 3.3.2.2) and the Assistant Instructor Candidate Prerequisites (section 3.2.2.1), assistant instructor candidates must in sequence:

- a. Observe—as a registered candidate—one entire GUE entry-level class in the curriculum in which they are seeking credentialing run by an Active GUE instructor who has taught at least five classes in the given curriculum.
- b. Undertake an Assistant Instructor Training Course (section 2.5.2).
- c. Earn component signatures from a GUE IT or IE, as specified in sections 2.5.2.6 through 2.5.2.9.
- d. Be ratified: Following their final component signature, and before they may be placed in Active status, assistant instructor candidates must:
  - i. Communicate with GUE HQ and ensure that all assistant instructor candidate development documents have been properly executed and submitted to HQ.
  - ii. Ensure that assistant instructor candidate-specific documentation is in order, e.g., insurance, BLS certification, fitness form, etc.
  - iii. Submit a signed assistant instructor agreement and standards agreement, along with the appropriate assistant instructor fee.

## 3.2.3 Assistant Instructor Status

### 3.2.3.1 Active Status Assistant Instructor

To perform their duties, a GUE Assistant Instructor must be in Active Status. Active status GUE Assistant Instructors are assistant instructors in good standing who are sanctioned to represent GUE and assist in specific GUE classes commensurate with their certifications.

To maintain this status, a GUE Assistant Instructor must:

- a. Maintain a current mailing address with GUE HQ.
- b. Annually complete and submit an Assistant Instructor Renewal Form.
- c. Be familiar with the most current version of the GUE General Training Standards, Policies, and Procedures document.
- d. Pay all outstanding debts owed to GUE.
- e. Be a nonsmoker.
- f. Log at least twenty-five non-training dives per year. Half of these dives must be at the highest level of certification. The remaining documented dives should be oriented toward enhancing personal skill development.
- g. Document that they have assisted, audited, or participated in one complete GUE diving course or have conducted at least three Discover Diving programs.
- h. Provide evidence of a current BLS skills and procedures certification (includes emergency oxygen administration and handling).
- i. Provide evidence of a diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- j. Carry instructional liability insurance and annually provide proof of the policy.
  - i. Instructors in the following categories must carry US-based liability insurance, as recommended and approved by GUE HQ.

1. ALL instructors of any nationality teaching in U.S. territories.
2. ALL U.S. citizens teaching U.S. citizens in ANY location.
- ii. Liability insurance carried by all instructors must, at minimum, meet the following criteria:
  1. Certificates of insurance must cover GUE in case of a claim.
  2. Minimum coverage: \$1 million.
- iii. Waivers: Instructors who are covered by city, state, federal, or private institutional liability insurance must request, in writing, an exemption for the insurance requirement. U.S. military personnel who teach diving as part of their military duties and teach ONLY U.S. military are exempt from the insurance requirement but must apply, in writing, for the exemption and provide letters of exemption from their commanding officers.
- k. Provide evidence that they have current personal diving insurance, equivalent to the DAN Europe Pro Bronze Plan, to cover diving medical emergencies including, but not limited to, third party liability, emergency hyperbaric treatment, hospitalization and repatriation. It is the responsibility of the instructor to ensure that any insurance policy has equivalent levels of cover.
- l. Maintain a good state of mental and physical fitness and submit medical and fitness forms.

### **3.2.3.2 Sustaining Status Assistant Instructor**

Sustaining status assistant instructors are assistant instructors who are no longer sanctioned to assist in GUE classes, conduct Discover Diving programs, or act as a video or safety diver. They retain their GUE assistant instructor status and membership status, are able to participate in GUE instructor internal communication, and receive all GUE instructor information.

To maintain Sustaining status, GUE assistant instructors are required to:

- a. Maintain a current mailing address with GUE HQ.
- b. Annually complete and submit an Assistant Instructor Renewal Form.
- c. Pay all outstanding debts owed to GUE.

### **3.2.3.3 Inactive Status Assistant Instructor**

Inactive status assistant instructors are assistant instructors who are not sanctioned to represent GUE in any official capacity, no longer pay instructor membership dues, nor participate in the benefits of GUE membership in any way. Inactive assistant instructors must return their assistant instructor certification cards to GUE HQ.

### **3.2.3.4 Assistant Instructor Status Changes**

Sustaining or Inactive status assistant instructors may change their status to Active by meeting the following requirements:

- a. Apply for reinstatement to GUE's BOD, who will determine what instructional requirements must be met prior to reinstatement.
- b. Maintain a current mailing address with GUE HQ.
- c. Be familiar with the most current version of the GUE General Training Standards, Policies, and Procedures document.
- d. Pay all outstanding debts owed to GUE.

- e. Be a nonsmoker.
- f. Log at least twenty-five non-training dives within the twelve months prior to their application. Half of these dives must be at the highest level of certification. The remaining documented dives should be oriented toward enhancing personal skill development.
- g. Provide evidence of a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- h. Provide evidence of diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- i. Carry instructional liability insurance and provide proof of the policy.
  - i. Instructors in the following categories must carry US-based liability insurance, as recommended and approved by GUE HQ.
    - 1. ALL instructors of any nationality teaching in U.S. territories.
    - 2. ALL U.S. citizens teaching U.S. citizens in ANY location.
  - ii. Liability insurance carried by all instructors must, at minimum, meet the following criteria:
    - 1. Certificates of insurance must cover GUE in case of a claim.
    - 2. Minimum coverage: \$1 million.
  - iii. Waivers: Instructors who are covered by city, state, federal, or private institutional liability insurance must request, in writing, an exemption for the insurance requirement. U.S. military personnel who teach diving as part of their military duties and teach ONLY U.S. military are exempt from the insurance requirement but must apply, in writing, for the exemption and provide letters of exemption from their commanding officers.
- j. Provide evidence that they have current personal diving insurance, equivalent to the DAN Europe Pro Bronze Plan, to cover diving medical emergencies including, but not limited to: third party liability, emergency hyperbaric treatment, hospitalization, and repatriation. It is the responsibility of the instructor to ensure that any insurance policy has equivalent levels of coverage.
- k. Maintain a good state of mental and physical fitness and submit medical and fitness forms.

## 3.3 Instructor

### 3.3.1 Qualifications

A GUE Instructor is qualified to:

- a. Conduct GUE courses for which they are credentialed.
- b. Certify their students for the courses for which they are credentialed.

### 3.3.2 Instructor Candidate Development

#### 3.3.2.1 Description

GUE's training curricula are designed to cultivate a common platform comprised of a complementary set of concepts and skills that divers can exercise in any environment to augment their safety, comfort, and skill. Nonetheless, GUE recognizes the existence of differing

educational needs as well as environment-specific practices and thus requires its instructor candidates to undertake rigorous training in general and environment-specific areas before they are sanctioned to teach GUE courses. GUE's instructor candidate development mixes scheduled instructor training courses (ITCs) with internship requirements that enable candidates to fuse theory and practice en route to providing elite education and training to students.

### 3.3.2.2 General Instructor Candidate Prerequisites

All GUE instructor candidates (entry-level or upgrading) must:

- a. Be a minimum of 18 years of age for the recreational curriculum, and a minimum of 21 years of age for the foundational, cave, and technical curriculums.
- b. Be able to swim at least 600 yds/550 m in less than 14 minutes without stopping.
- c. Be able to swim a distance of at least 70 ft/21 m while submerged on a breath hold.
- d. Possess a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- e. Possess a diver rescue skills and procedures training certification (conscious and unconscious, underwater and surface management).
- f. Be a nonsmoker.
- g. Be physically and mentally fit.
- h. Hold insurance that will cover diving emergencies such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- i. Be medically screened as suitable for diving in accordance with procedures laid down by a competent medical authority. If such procedures are not specified, instructor candidates must provide evidence of a diver medical examination not older than one year unless the medical doctor who has carried out the examination specifies longer validity.
- j. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any medical condition that may pose a risk while diving.
- k. Fulfill the curriculum-specific instructor candidate prerequisites for the entry-level class of the curriculum in which they are seeking endorsement. These are listed in the respective curricula: Recreational (section 3.3.4.1.1), Foundational (section 3.3.4.2.1), Technical (section 3.3.4.3.1), and Cave (section 3.3.4.4.1).
- l. Register as a GUE instructor candidate: this requires paying a registration fee, completing a registration form, a medical history, a fitness form, and liability release and submitting these to GUE HQ.
- m. Meet the equipment requirements of the course they are seeking endorsement to teach.
- n. Possess and demonstrate knowledge of the training materials required for the class they are seeking endorsement to teach.
- o. Demonstrate in-depth understanding of the academic topics that are part of the course they are seeking endorsement to teach.
- p. Demonstrate a high level of proficiency in the skills and drills that define the course outcomes for the class they are seeking endorsement to teach.
- q. Comply with GUE's General Training Standards and the course-specific training standards governing the course they are seeking endorsement to teach.

### 3.3.2.3 Instructor Candidate Development Process

After fulfilling the general instructor candidate prerequisites and the curriculum-specific instructor candidate prerequisites for the entry-level class of the curriculum in which they are seeking credentialing, instructor candidates must in sequence:

- a. Observe—as a registered candidate—one entire GUE entry-level class in the curriculum in which they are seeking credentialing run by an Active GUE instructor who has taught at least five classes in the given curriculum.
- b. Initiate an Instructor Training Course (section 2.5.3)
- c. Earn one or two endorsements from appropriately credentialed GUE personnel. Specific parameters guiding these endorsements are found under each curriculum.
  - i. For a GUE instructor candidate to qualify as an Active status GUE instructor they must be endorsed by sanctioned GUE representatives, credentialed to give endorsements for the rating sought. The path followed as well as the nature of the endorsement varies, depending upon the rating sought. GUE requires that instructors new to a given curriculum (i.e., recreational, foundational, cave, or technical) must earn two endorsements; the two endorsements must come from different GUE representatives as defined below.
  - ii. Where two endorsements are required, the first endorsement may be awarded by an Instructor Trainer (IT) or an Instructor Evaluator (IE). This endorsement is earned by collecting a given set of component signatures (i.e., partial endorsements) with different ITs or IEs, which attest to readiness with the discrete component parts. This may involve a number of evaluative procedures of teaching capacity—e.g., ITC, distance learning, video, sanctioned GUE classes, mock classes (classes in which the students are divers already credentialed in that category), private testing (one-on-one), etc.
  - iii. The final endorsement must be secured from an Instructor Evaluator (IE). Unless indicated within course specific standards, this final endorsement may only be awarded during a validating examination (Instructor Evaluation) conducted during the course of one actual<sup>3</sup>, complete<sup>4</sup>, and uninterrupted<sup>5</sup> class. The instructor candidate is required to be responsible for all facets of this class, from logistical planning to document processing. The final endorsement must be secured within two years of the first endorsement's completion. Co-teaching is prohibited during a validating examination.
- d. Be ratified. Following their final endorsement, and before they may be placed in Active status, instructor candidates must:
  - i. Communicate with GUE HQ and ensure that all instructor development documents have been properly executed and submitted to HQ.
  - ii. Ensure that instructor-specific documentation is in order, e.g., insurance, BLS certification, fitness form.

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<sup>3</sup> In this context, “actual” means that the students have not yet been certified at the level of the course being taught.

<sup>4</sup> In this context, “complete means” that every component of the course must be taught.

<sup>5</sup> In this context, “uninterrupted” means that all course days must be consecutive days.



- iii. Submit a signed instructor agreement and standards agreement, along with the appropriate instructor fee.

### 3.3.3 Instructor Status

#### 3.3.3.1 Active Status Instructor

To teach GUE-sanctioned training courses, one must be a GUE Active status instructor. Active status instructors are instructors in good standing who are sanctioned to represent GUE and conduct GUE classes commensurate with their rating.

To maintain this status, instructors must:

- a. Maintain a current mailing address with GUE HQ.
- b. Annually complete and submit an Instructor Renewal Form.
- c. Complete an Instructor Requalification Workshop every four years.
- d. Be familiar with the most current GUE instructor material relevant to their rating and the most current version of the GUE General Training Standards, Policies, and Procedures document.
- e. Meet the standards required to teach all courses for which they are rated.
- f. Pay all outstanding debts owed to GUE.
- g. Be a nonsmoker.
- h. Log at least twenty-five non-training dives per year. Half of these dives must be at the highest level of instructional (not diver) certification, e.g., a GUE Tech 2 diver authorized to teach Cave 1 must conduct a minimum of twelve Cave 1 dives towards renewal. The remaining documented dives should be oriented toward enhancing personal skill development.
- i. Annually document that they have:
  - i. Taught at least one formal GUE course as the instructor of record, or
  - ii. Served as staff on one GUE ITC, or
  - iii. Assisted, audited, or participated in three complete GUE diving courses.
- j. Possess, and annually provide proof of, a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- k. Carry instructional liability insurance and annually provide proof of the policy.
  - i. Instructors in the following categories must carry US-based liability insurance, as recommended and approved by GUE HQ.
    - 1. ALL instructors of any nationality teaching in U.S. territories.
    - 2. ALL U.S. citizens teaching U.S. citizens in ANY location.
  - ii. Liability insurance carried by all instructors must, at a minimum, meet the following criteria:
    - 1. Certificates of insurance must cover GUE in case of a claim.
    - 2. Minimum coverage: \$1 million.
  - iii. Waivers: Instructors who are covered by city, state, federal, or private institutional liability insurance must request, in writing, an exemption from the insurance requirement. U.S. military personnel who teach diving as part of their military duties and teach ONLY U.S. military are exempt from the insurance requirement but must apply, in writing, for the exemption and provide letters of exemption from their commanding officers.



- l. Have, and annually provide proof of personal diving insurance, equivalent to the DAN Europe Pro Bronze Plan, to cover diving medical emergencies including, but not limited to: third party liability, emergency hyperbaric treatment, hospitalization, and repatriation. It is the responsibility of the instructor to ensure that any insurance policy has equivalent levels of coverage.
- m. Maintain a good state of mental and physical fitness and annually submit fitness and medical forms.

### 3.3.3.2 Sustaining Status Instructor

Sustaining status instructors are instructors who are no longer sanctioned to conduct GUE classes, but who retain their GUE instructor status, membership status, are able to participate in GUE instructor internal communication, and receive all GUE instructor information.

To maintain Sustaining status, GUE instructors are required to:

- a. Maintain a current mailing address with GUE HQ.
- b. Annually complete and submit an Instructor Renewal Form.
- c. Pay all outstanding debts owed to GUE.

### 3.3.3.3 Inactive Status Instructor

Inactive status instructors are instructors who are not sanctioned to represent GUE in any official capacity, no longer pay instructor membership dues, nor participate in the benefits of GUE membership in any way. Inactive instructors must return their instructor certification cards to GUE HQ.

### 3.3.3.4 Instructor Status Changes

Sustaining or Inactive status instructors may change their status to Active by meeting the following requirements:

- a. Apply for reinstatement to GUE's BOD, who will determine what instructional requirements must be met prior to reinstatement.
- b. If in Sustaining status for more than one year, but less than three years, attend a requalification workshop.
- c. If in Sustaining status for more than three years, or if in Inactive status:
  - i. Intern a minimum of one class for each course in which they wish to be reinstated.
  - ii. Secure one Instructor Evaluator (IE) endorsement for each course in which they wish to be reinstated.
- d. Maintain a current mailing address with GUE HQ.
- e. Be familiar with the most current GUE instructor material relevant to their rating and the most current version of the GUE General Training Standards, Policies, and Procedures document.
- f. Meet the standards required to teach all courses for which they seek to be re-established in Active status.
- g. Pay all outstanding debts owed to GUE.
- h. Be a nonsmoker.
- i. Log at least twenty-five dives within the twelve months prior to their application; twelve dives must be at the highest level of instructional (not diver) certification, e.g., a GUE

Tech 2 diver credentialed to teach Cave 1 must conduct a minimum of twelve Cave 1 dives towards reinstatement.

- j. Provide evidence of a current basic life support (BLS) skills and procedures certification (includes emergency oxygen administration and handling).
- k. Provide evidence of diver rescue skills and procedures certification (conscious and unconscious diver, underwater and surface management).
- l. Carry instructional liability insurance and provide proof of the policy.
  - i. Instructors in the following categories must carry US-based liability insurance, as recommended and approved by GUE HQ.
    - 1. ALL instructors of any nationality teaching in U.S. territories.
    - 2. ALL U.S. citizens teaching U.S. citizens in ANY location.
  - ii. Liability insurance carried by all instructors must, at minimum, meet the following criteria:
    - 1. Certificates of insurance must cover GUE in case of a claim.
    - 2. Minimum coverage: \$1 million.
  - iii. Waivers: Instructors who are covered by city, state, federal, or private institutional liability insurance must request, in writing, an exemption for the insurance requirement. U.S. military personnel who teach diving as part of their military duties and teach ONLY U.S. military are exempt from the insurance requirement but must apply, in writing, for the exemption and provide letters of exemption from their commanding officers.
- m. Provide evidence that they have current personal diving insurance, equivalent to the DAN Europe Pro Bronze Plan, to cover diving medical emergencies including, but not limited to: third party liability, emergency hyperbaric treatment, hospitalization, and repatriation. It is the responsibility of the instructor to ensure that any insurance policy has equivalent levels of coverage.
- n. Maintain a good state of mental and physical fitness and submit medical and fitness forms.

### **3.3.4 Instructor Candidate Curriculum-Specific and Progression Prerequisites**

#### **3.3.4.1 Recreational Curriculum**

##### **3.3.4.1.1 Recreational Diver Level 1 Instructor Candidate Curriculum-Specific Prerequisites**

All GUE Rec 1 instructor candidates must:

- a. Fulfill GUE General Instructor Candidate Prerequisites as outlined in section 3.3.2.2.
- b. Be certified as a GUE Recreational Diver Level 2 or GUE Fundamentals diver. Neither of the classes need to have been taken using doubles. However, all fundamental skills, excluding those requiring a double cylinder configuration, must be at the Fundamentals - Technical level. Such skills include buoyancy and trim, propulsion and maneuvering, and primary light use.
- c. Have conducted at least 200 dives; of these, 50 must have been in a GUE configuration and 50 must have been at a depth of at least 80 ft/24 m.
- d. Complete the internship requirement by observing—as a registered candidate—one entire GUE Fundamentals or GUE Rec 1 class (3.3.2.3, a).
- e. Undertake a GUE Instructor Training Course (3.3.2.3, b).

- f. Earn two endorsements from appropriately credentialed GUE personnel (3.3.2.3, c). Both endorsements may be earned during either an actual or mock<sup>6</sup> class.
- g. Have their instructor fitness test witnessed by the qualifying IE, no more than six months prior to instructor activation.
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.1.2 Recreational Diver Level 1 to Recreational Diver Level 2 Instructor Progression**

- a. Must earn one endorsement from a GUE IE by demonstrating an understanding of the Recreational Diver Level 2 program content and structure.
- b. This endorsement can be earned at the end of a recreational ITC if the ITC is taught by a GUE Recreational Diver Level 2 IE and if the ITC encompasses both the Recreational Diver Level 1 and Level 2 programs. In this particular case, the instructor candidate becomes an Active Recreational Diver Level 1 and Level 2 instructor after obtaining the second endorsement for Rec 1 instructor status.
- c. Must submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.1.3 Recreational Diver Level 1 or 2 to Recreational Diver Level 3 Instructor Progression**

- a. Must be certified as a GUE Tech 1 diver.
- b. Must have conducted at least 25 dives at the Tech 1 level since Tech 1 certification.
- c. Must have taught at least five recreational classes (either Rec 1 or Rec 2).
- d. Must earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Recreational Diver Level 3 program content and structure by teaching either an actual or a mock GUE Recreational Diver Level 3 class.
- e. Must submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.1.4 GUE Fundamentals, Cave, or Technical Instructor to Recreational Diver Level 1, 2, or 3 Instructor Progression**

- a. Must earn one endorsement from a GUE IE by demonstrating an understanding of the relevant course's content and structure.
- b. Must have taught at least three recreational or foundational classes (for Rec 3 instructor progression only).
- c. Must have conducted at least 25 dives at the Tech 1 level since GUE Technical Diver Level 1 certification (for Rec 3 instructor progression only).
- d. Must submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.1.5 GUE Fundamentals, Cave, or Technical Instructor to GUE Dive Leader Instructor Progression**

- a. Must have conducted at least 300 dives.
- b. Must be an Active status GUE Fundamentals instructor.
- c. Must have taught a minimum of ten GUE classes, including five GUE Fundamentals classes.
- d. Must undertake an orientation workshop with a qualified GUE IE.

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<sup>6</sup> In this context, "mock" means that the class does not meet one or more requirements to be an actual class.

- e. Submit final paperwork to GUE HQ (3.3.2.3, d).

### **3.3.4.2 Foundational Curriculum**

#### **3.3.4.2.1 GUE Fundamentals Instructor Candidate Curriculum-Specific Prerequisites**

All GUE Fundamentals instructor candidates who are not yet Active status GUE instructors must:

- a. Fulfill GUE General Instructor Candidate Prerequisites as outlined in section 3.3.2.2.
- b. Have a GUE Fundamentals - Technical certification before registering as an instructor candidate.
- c. Pass the GUE Tech 1 course prior to securing their second endorsement.
- d. Have conducted at least 200 dives; of these, 50 must have been in a GUE configuration and 20 dives must have been in a GUE double tank configuration.
- e. Complete the internship requirement by observing—as a registered candidate—one entire GUE Fundamentals class (3.3.2.3, a).
- f. Undertake a GUE Instructor Training Course (3.3.2.3, b).
- g. Earn two endorsements from appropriately credentialed GUE personnel (3.3.2.3, c).
- h. Have their instructor fitness test witnessed by the qualifying IE, no more than six months prior to instructor activation.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.2 GUE Fundamentals Instructor Progression**

All GUE Fundamentals instructor candidates who are already Active status GUE instructors must:

- a. Be certified as a GUE Tech 1 diver.
- b. Have conducted at least 20 dives in a GUE double tank configuration.
- c. Have taught at least three recreational classes.
- d. Earn one endorsement from a GUE IE (3.3.2.3, c, iii).
- e. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.3 Rescue, Navigation, or Triox Primer Instructor Progression**

All GUE Rescue, Navigation, or Triox Primer instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Must earn one endorsement from a GUE IE by demonstrating an understanding of the relevant GUE Rescue, Navigation, or Triox Primer's program content and structure.
- c. Submit final paperwork to GUE HQ (3.3.2.3, d).

Active status GUE Rec 2 instructors are exempt from the above prerequisites. Active status GUE Rec 3 and GUE Tech 1 instructors are exempt from the above prerequisites for Triox Primer only.

#### **3.3.4.2.4 Doubles Primer Instructor Progression**

All GUE Doubles Primer instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Be certified as a GUE Technical Diver Level 1 or a GUE Cave Diver Level 1 diver.

- c. Earn one endorsement from a GUE IE (for recreational instructors only) by demonstrating an understanding of the GUE Doubles Primer program content and structure.
- d. Have conducted at least 200 non-training dives; must have conducted 100 dives in a GUE double tank configuration.
- e. Own a double tank configuration.
- f. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.5 Drysuit Primer Instructor Progression**

All GUE Drysuit Primer instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Earn one endorsement from a GUE IE (for recreational instructors only) by demonstrating an understanding of the GUE Drysuit Primer program content and structure.
- c. Have conducted at least 200 non-training dives; must have conducted 100 dives in a drysuit.
- d. Own a drysuit.
- e. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.6 Documentation Diver Instructor Progression**

All GUE Documentation Diver instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Have taught at least three recreational or foundational classes.
- c. Be certified as a GUE Documentation Diver.
- d. Have conducted at least 300 non-training dives.
- e. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Documentation Diver program content and structure.
- f. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.7 Photogrammetry Diver Instructor Progression**

All GUE Photogrammetry Diver instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Have taught at least three recreational or foundational classes.
- c. Be certified as a GUE Photogrammetry Diver.
- d. Have conducted at least 300 non-training dives.
- e. Must submit a photogrammetry portfolio showing at least three photogrammetry models created and processed entirely by themselves. This will be evaluated by the Photogrammetry Diver IEs.
- f. Must own a licensed copy of Agisoft Photoscan Professional Edition (Academic license or above).
- g. Must own a computer capable of processing models in a reasonable time for in-class demonstrations.
- h. Must earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Photogrammetry Diver program content and structure.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.8 Scientific Diver Instructor Progression**

All GUE Scientific Diver instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Have taught at least three recreational or foundational classes.
- c. Hold a bachelor's degree or above in marine sciences (e.g., marine biology, geoscience, nautical archaeology, hydrology).
- d. Be certified as a GUE Scientific Diver.
- e. Have conducted at least 300 non-training dives, 100 of which must have been scientific dives.
- f. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Scientific Diver program content and structure.
- g. Submit final paperwork to GUE (3.3.2.3, d).

#### **3.3.4.2.9 Diver Propulsion Vehicle Level 1 Instructor Progression**

All GUE DPV 1 instructor candidates must:

- a. Be an Active status GUE Rec 2, GUE Fundamentals, Cave, or Tech instructor.
- b. Have taught at least three classes.
- c. Have conducted at least 300 non-training dives.
- d. Be certified as a GUE DPV 1 Diver.
- e. Have experience using DPVs during at least 50 dives.
- f. Own a DPV.
- g. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE DPV 1 program content and structure during a workshop that includes academic and in-water evaluation.
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.2.10 Gas Blender Instructor Progression**

All GUE Gas Blender instructor candidates must:

- a. Be an Active status GUE instructor.
- b. Be certified as a trimix gas blender from a recognized training agency.
- c. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Gas Blender program content and structure.
- d. Submit final paperwork to GUE HQ (3.3.2.3, d).

### **3.3.4.3 Technical Curriculum**

#### **3.3.4.3.1 Technical Diver Level 1 Instructor Candidate Curriculum-Specific Prerequisites**

All GUE Tech 1 instructor candidates must:

- a. Have conducted at least 300 dives, 50 of which must be at the Tech 2 level.
- b. Be certified as a GUE Tech 2 and GUE Cave 1 diver.
- c. Be an Active status GUE Fundamentals instructor.
- d. Have taught a minimum of ten GUE classes, including five GUE Fundamentals classes.
- e. Register as a Tech 1 instructor candidate with GUE HQ.
- f. Complete the internship requirement by observing—as a registered candidate—one entire GUE Tech 1 class (3.3.2.3, a).

- g. Earn two endorsements from appropriately credentialed GUE personnel (3.3.2.3, c).
- h. Have their instructor fitness test witnessed by the qualifying IE, no more than six months prior to instructor activation.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.3.2 Technical Diver Level 2 Instructor Progression**

All GUE Tech 2 instructor candidates must:

- a. Be an Active status GUE Tech 1 instructor.
- b. Have taught ten GUE Tech 1 classes.
- c. Be certified as a GUE Tech 2 diver with at least 150 Tech 2 level dives beyond Tech 2 certification.
- d. Have conducted at least 400 non-training dives.
- e. Register as a Tech 2 instructor candidate with GUE HQ.
- f. Intern—as a registered candidate—one GUE Tech 2 class.
- g. Earn one endorsement from a GUE IE (3.3.2.3, c, iii).
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.3.3 Passive Semi-Closed Circuit Rebreather Diver Instructor Progression**

All GUE PSCR instructor candidates must:

- a. Be an Active status GUE Tech 1 or GUE Cave 1 instructor.
- b. Have taught ten classes at either the GUE Tech 1 or GUE Cave 1 level.
- c. Be certified as a GUE Passive Semi-Closed Rebreather Diver.
- d. Have conducted a minimum of 300 non-training rebreather dives, 200 of which must have been while using a GUE-approved passive semi-closed circuit rebreather.
- e. Own a GUE-approved passive semi-closed rebreather.
- f. Intern one GUE PSCR class.
- g. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE PSCR program content and structure by teaching either a mock or real GUE PSCR class.
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.3.4 Closed-Circuit Rebreather Diver Level 1 Instructor Progression**

All GUE CCR 1 instructor candidates must:

- a. Be an Active status GUE Tech 1 instructor.
- b. Have taught ten GUE Tech 1 classes.
- c. Be certified as a GUE CCR 2 diver.
- d. Have conducted a minimum of 300 non-training rebreather dives, 200 of which must have been while using a GUE-approved closed-circuit rebreather.
- e. Own a GUE-approved closed-circuit rebreather.
- f. Intern one GUE CCR 1 class.
- g. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE CCR 1 program content and structure by teaching either a mock or real GUE CCR 1 class.
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.3.5 Closed-Circuit Rebreather Diver Level 2 Instructor Progression**

All GUE CCR 2 instructor candidates must:



- a. Be an Active status GUE CCR 1 instructor.
- b. Have taught ten GUE CCR 1 classes.
- c. Be certified as a GUE CCR 2 diver.
- d. Have conducted at least 400 non-training rebreather dives, 150 of which must be CCR 2 level dives beyond CCR 2 certification using a GUE-approved closed-circuit rebreather.
- e. Own a GUE-approved closed-circuit rebreather.
- f. Intern one GUE CCR 2 class.
- g. Earn one endorsement from a GUE IE (3.3.2.3, c, iii).
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.4 Cave Curriculum**

##### **3.3.4.4.1 Cave Diver Level 1 Instructor Candidate Curriculum-Specific Prerequisites**

All GUE Cave 1 instructor candidates must:

- a. Be an Active status GUE Fundamentals instructor.
- b. Have taught a minimum of ten GUE classes, including five GUE Fundamentals classes.
- c. Be certified as a GUE Tech 1 and GUE Cave 2 diver.
- d. Have conducted at least 300 dives, 50 of which must be at the Cave 2 level.
- e. Register as a Cave 1 instructor candidate with GUE HQ.
- f. Complete the internship requirement by observing—as a registered candidate—one entire GUE Cave 1 class (3.3.2.3, a).
- g. Earn two endorsements from appropriately credentialed GUE personnel (3.3.2.3, c).
- h. Have their instructor fitness test witnessed by the qualifying IE, no more than six months prior to instructor activation.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

##### **3.3.4.4.2 Cave Diver Level 2 Instructor Progression**

All GUE Cave 2 instructor candidates must:

- a. Be an Active status Cave Diver Level 1 instructor
- b. Have taught a minimum of ten GUE Cave 1 classes.
- c. Be certified as a GUE Cave 2 diver.
- d. Have conducted at least 400 non-training dives, 150 of which must be Cave 2 level dives beyond Cave 2 certification.
- e. Have experience in high-flow systems and systems that require decompression.
- f. Register as a Cave 2 instructor candidate with GUE HQ.
- g. Intern—as a registered candidate—one GUE Cave 2 class.
- h. Earn one endorsement from a GUE IE (3.3.2.3, c, iii).
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

##### **3.3.4.4.3 Underwater Cave Survey Instructor Progression**

All GUE Underwater Cave Survey instructor candidates must:

- a. Be an Active status GUE Cave Diver Level 2 instructor.
- b. Have taught at least ten GUE Cave 2 classes.
- c. Be certified as a GUE Underwater Cave Survey diver.
- d. Have conducted at least 300 cave dives beyond Cave 2 certification.



- e. Have participated in one sanctioned GUE Cave Exploration Project.
- f. Have acted as the lead surveyor and cartographer for at least one exploration project that resulted in the production of an accurate cave map.
- g. Intern one GUE Underwater Cave Survey class.
- h. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Underwater Cave Survey program content and structure.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.4.4 Closed-Circuit Rebreather Cave Diver Instructor Progression**

All GUE CCR Cave instructor candidates must:

- a. Be an Active status GUE Cave 2 instructor and an Active status GUE CCR 1 instructor.
- b. Have taught at least ten GUE Cave 2 classes.
- c. Have taught at least five GUE CCR 1 classes.
- d. Be certified as a GUE CCR Cave diver.
- e. Have conducted at least 300 cave dives beyond Cave 2 certification.
- f. Have conducted at least 300 non-training dives using a GUE-approved closed-circuit rebreather, 100 of which must have been in an overhead environment.
- g. Intern one GUE CCR Cave class.
- h. Must earn one endorsement from a GUE IE by demonstrating and understanding of the GUE CCR Cave program content and structure.
- i. Must submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.4.5 Cave Sidemount Instructor Progression**

All GUE Cave Sidemount instructor candidates must:

- a. Be an Active status GUE Cave 2 instructor.
- b. Have taught at least five GUE Cave 2 classes.
- c. Be certified as a GUE Cave Sidemount diver.
- d. Have conducted at least 300 cave dives beyond Cave 2 certification.
- e. Have conducted at least 50 cave dives in a sidemount configuration, in caves where such configuration is generally preferred over backmount.
- f. Intern one GUE Cave Sidemount class.
- g. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE Cave Sidemount program content and structure.
- h. Submit final paperwork to GUE HQ (3.3.2.3, d).

#### **3.3.4.4.6 Diver Propulsion Vehicle Cave Instructor Progression**

All GUE DPV Cave instructor candidates must:

- a. Be an Active status GUE Cave 2 instructor and an Active status DPV 1 instructor.
- b. Have taught at least ten GUE Cave 2 classes and at least five DPV 1 classes.
- c. Be certified as a GUE DPV Cave diver.
- d. Have conducted at least 500 cave dives beyond Cave 2 certification.
- e. Have conducted at least 100 cave dives using multiple stages and DPVs.
- f. Have participated in a sanctioned GUE Cave Exploration Project.
- g. Intern one GUE DPV Cave class.

- h. Earn one endorsement from a GUE IE by demonstrating an understanding of the GUE DPV Cave program content and structure.
- i. Submit final paperwork to GUE HQ (3.3.2.3, d).

## 3.4 Instructor Trainer (IT)

### 3.4.1 Qualifications

A GUE Instructor Trainer (IT) is qualified to:

- a. Conduct a GUE-approved ITC in the curricula for which they are credentialed.
- b. Conduct internships during which instructor candidates are able to earn signatures for component parts, testifying to their readiness to teach the component in question.
- c. Award the first of two endorsements that allow an instructor candidate to be ratified as a GUE instructor.

### 3.4.2 Instructor Trainer Candidate Development

#### 3.4.2.1 Instructor Trainer Candidate Prerequisites

All GUE Instructor Trainer candidates must:

- a. Be an Active status GUE instructor.
- b. Have taught at least ten entry-level courses in the curriculum for which they are seeking IT status.
- c. Demonstrate a commitment to mentoring and developing instructor candidates.
- d. Possess leadership-level administrative skills.
- e. Possess leadership-level educational skills.
- f. Demonstrate impartiality, equanimity, and sound judgment.
- g. Always conduct themselves in a manner consistent with GUE General Training Standards, Policies, and Procedures, and that promotes the best interests of GUE.
- h. Not actively teach for other dive training organizations.
- i. Have the support of GUE's BOD.

#### 3.4.2.2 Instructor Trainer Candidate Development Process

In order to obtain the IT rating, candidates must in sequence:

- a. Submit an Instructor Trainer Application Form to GUE's Board of Directors (BOD), outlining their reasons for pursuing this rating and their suitability for it.
- b. Be approved as an IT candidate by the BOD.
- c. Undertake a GUE Instructor Trainer Development Course (ITDC).
- d. Assist as acting staff during at least one complete, uninterrupted GUE-approved Instructor Training Course (ITC).

### 3.4.3 Maintaining IT Rating

The GUE IT rating is reviewed annually and requires renewal by the BOD every two years. Candidates may maintain their IT rating by:

- a. Annually submitting the IT/IE Renewal Form as part of their instructor renewal.

- b. Demonstrating leadership-level administrative skills.
- c. Demonstrating leadership-level educational skills.
- d. Demonstrating a commitment to mentoring and developing instructor candidates.
- e. Demonstrating impartiality, equanimity, and sound judgment.
- f. Conducting themselves in a manner consistent with GUE General Training Standards, Policies, and Procedures, and promoting the best interests of GUE.
- g. Demonstrating that they are promoting the best interests of the candidates, e.g., providing excellent training while mitigating unnecessary costs to the candidate.
- h. Not actively teaching for other dive training organizations.

## 3.5 Instructor Evaluator (IE)

### 3.5.1 Qualifications

A GUE Instructor Evaluator (IE) is qualified to:

- a. Conduct a GUE-approved ITC in the curricula for which they are credentialed.
- b. Conduct internships during which instructor candidates are able to earn signatures for component parts, testifying to their readiness to teach the component in question.
- c. Award the first and second of two endorsements that allow an instructor candidate to be ratified as a GUE instructor, though they may not award both the first and the second endorsement for a given candidate.
- d. Conduct an instructor requalification.
- e. Conduct instructor upgrades.

### 3.5.2 Obtaining IE Rating

#### 3.5.2.1 Prerequisites

All GUE Instructor Evaluator (IE) candidates must:

- a. Be an Active GUE IT in the curriculum for which they are seeking IE status.
- b. Be an Active status GUE instructor for at least five years.
- c. Demonstrate a commitment to mentoring and developing instructor candidates.
- d. Possess exemplary leadership-level administrative skills
- e. Possess exemplary leadership-level educational skills
- f. Demonstrate impartiality, equanimity, and sound judgment.
- g. Always conduct themselves in a manner consistent with GUE General Training Standards, Policies, and Procedures, and that promotes the best interests of GUE.
- h. Not actively teach for other dive training organizations.
- i. Have the support of GUE's BOD.

#### 3.5.2.2 Applying for IE Rating

In order to obtain IE rating, the candidate must submit an Instructor Evaluator Application Form to GUE's BOD, outlining their reasons for pursuing this rating and their suitability for it.

### 3.5.3 Maintaining IE Rating

The GUE IE rating is reviewed annually and requires renewal by the BOD every two years. Candidates may maintain their IE rating by:

- a. Annually submitting the IT/IE Renewal Form as part of their instructor renewal.
- b. Demonstrating exemplary leadership-level administrative skills.
- c. Demonstrating exemplary leadership-level educational skills.
- d. Demonstrating continued interest in developing and mentoring instructor candidates.
- e. Demonstrating impartiality, equanimity, and sound judgment.
- f. Conducting themselves in a manner consistent with GUE General Training Standards, Policies, and Procedures, and promoting the best interests of GUE.
- g. Demonstrating that they are promoting the best interests of the candidates, e.g., providing excellent training while mitigating unnecessary costs to the candidate.
- h. Not actively teaching for other dive training organizations.

## Appendix A - GUE Base Equipment Configuration

The GUE base equipment configuration is comprised of:

- a. Tanks/cylinders: Students may use a single tank/cylinder with a single- or dual-outlet valve. Students may also use dual tanks/cylinders connected with a dual-outlet isolator manifold, which allows for the use of two first stages. Dual tanks/cylinders connected with a dual-outlet, non-isolator manifold can be used, but only in recreational (no decompression) diving, and are considered an alternative for a single tank/cylinder. Consult course-specific standards and your instructor to verify size requirements.
- b. Regulators:
  - i. Single tank: The first stage must supply a primary second stage via a 5 to 7 ft/1.5 to 2 m hose. A backup second stage must be necklaced and supplied via a short hose. The first stage must also supply an analog pressure gauge, inflation for the buoyancy compensator (BC), and (when applicable) inflation for a drysuit.
  - ii. Double tank: One first stage must supply a primary second stage via a 5 to 7 ft/1.5 to 2 m hose (7 ft/2 m hose is required for all cave classes), and inflation for the buoyancy compensator (BC). The other first stage must supply a necklaced backup second stage via a short hose, an analog pressure gauge, and (when applicable) inflation for a drysuit.
- c. Backplate system:
  - i. Is held to the diver by one continuous piece of webbing. This webbing is adjustable and uses a buckle to secure the system at the waist.
  - ii. A crotch strap is attached and looped through the waistband to prevent the system from riding up a diver's back.
  - iii. The continuous webbing must support five D-rings;
    1. The first placed at the left hip
    2. The second placed in line with a diver's right collarbone
    3. The third placed in line with the diver's left collarbone
    4. The fourth and fifth are placed on the front and back of the crotch strap when divers plan to use advanced equipment such as DPVs.
  - iv. The harness below the diver's arms has small restrictive bands to allow for the placement of backup lights. The webbing and system retains a minimalist approach.
- d. Buoyancy compensation device (BC):
  - i. A diver's BC is back-mounted and minimalist in nature.
  - ii. It is free of extraneous strings, tabs, or other material.
  - iii. There are no restrictive bands or restrictive elastic affixed to the buoyancy cell.
  - iv. Wing size and shape is appropriate to the cylinder size(s) employed for training.
- e. At least one time/depth measuring device
- f. Wrist-mounted compass
- g. Mask and fins: Mask is low-volume; fins are rigid, non-split.
- h. Backup mask
- i. At least one cutting device
- j. Wetnotes with pencils

- k. Surface marker buoy (SMB) with spool: when required, the SMB should be appropriate for environmental conditions and deployed using a spool with at least 100 ft/30 m of line.
- l. Exposure suit appropriate for the duration of exposure

### **Additional Course-Specific Equipment**

- a. Where required, back gas and stage cylinders are marked in accordance with the GUE General Training Standards, Policies, and Procedures document and configured in line with GUE protocols.
- b. When drysuit inflation systems are applicable, they should be sized appropriately for the environment; small tanks are placed on the left side of the backplate with larger supplies affixed to the diver's left back gas tank.
- c. Underwater lights:
  - i. When required, backup lights should be powered by alkaline batteries (not rechargeable) and stowed on the D-rings at a diver's chest.
  - ii. Backup lights should have a minimal amount of protrusions and a single attachment at the rear.
  - iii. The primary light should consist of a rechargeable battery pack and be fitted with a Goodman-style light handle.
  - iv. When burn time requirements create the need for an external battery pack, it should reside in a canister mounted on the diver's right hip.
- d. Guideline devices, as required during cave diving activities:
  - i. A primary reel is required for all cave diving and provides a minimalist form factor with a handle designed to support a Goodman or "hands free" handle operation. The primary reel must contain at least 150 ft/45 m of line.
  - ii. A safety spool is required for each diver while cave diving and must contain at least 150 ft/45 m of line.
  - iii. A jump or gap spool is required during Cave 2 diving and must contain at least 75 ft/23 m of line.

## Appendix B - Advanced Cave Navigation

Advanced cave navigation, as required during GUE Cave Diver Level 2 classes, must consist of at least the following:

- a. Jumps that allow time for problems to develop and thus require changing of team position as the jump is removed. These jumps are to include both middle of one line to start of another line, and end of one line to middle of another.
- b. Jumps, as described above, that allow for creation of scenarios that require decisions about leaving or pulling the jump, who should pull the jump, etc.
- c. Extended penetration on a jump line so that students experience being removed from the perceived comfort of the main line.
- d. Penetration in side passages with a technically challenging environment.
- e. Jumps that provide students with experience with the skills and communication needed to rearrange a team's order in a small area with limited line of sight and challenging environmental surroundings.
- f. Multiple jumps that help students appreciate the potential confusion that can result in the midst of increased task loading during critical navigation.
- g. Navigation that lets students attempt, and ideally complete, a circuit and/or traverse of reasonable distance so they can appreciate the complexity and risk associated with errors in marking, gas management, or generally bad decision making.
- h. Primary reel installation of at least 120 ft/35 m from open water to the tie-in point on the main line, with at least three tie-offs past the secondary tie-off.



# General Training Standards, Policies, and Procedures

## Amendment 9.1.1

Please take note of the below amendment to the General Training Standards, Policies, and Procedures, version 9.1, related to the value of GUE's CCR 2 certification as a prerequisite towards other GUE programs.

1. Any Tech 2 certification-related prerequisite is also met with a CCR 2 certification.
2. Any Tech 2 experience-related prerequisite is also met with an equal amount of CCR 2 experience, or with a combination of both Tech 2 experience and CCR 2 experience.

Example:

### ***3.3.4.3.1 Technical Diver Level 1 Instructor Candidate Curriculum-Specific Prerequisites***

*All GUE Tech 1 instructor candidates must:*

- a. Have conducted at least 300 dives, 50 of which must be at the Tech 2 level.*
- b. Be certified as a GUE Tech 2 and GUE Cave 1 diver.*
- c. ...*

Prerequisite (a) is met if the candidate has 50 dives at the CCR 2 level.

Prerequisite (a) is also met if the candidate has, for example, 25 dives at the Tech 2 level and 25 dives at the CCR 2 level.

Prerequisite (b) is met if the candidate has a CCR 2 and Cave 1 certification.





# General Training Standards, Policies, and Procedures

## Amendment 9.1.2

Please take note of the below amendment to the General Training Standards, Policies, and Procedures, version 9.1, related to the prerequisites for Tech 1, Tech 2, Cave 1, and Cave 2 instructor candidates:

1. All GUE Tech 1 instructor candidates, in addition to the prerequisites in section 3.3.4.3.1 of the General Training Standards, Policies, and Procedures, must:
  - a. Provide proof of at least 15 non-training technical dives conducted within the 12 months prior to their first observation (form to be submitted to an IT/IE). Dives must be conducted in an environment with sea-like conditions.
  - b. Provide proof of at least 15 non-training technical dives conducted within the 12 months prior to their final IE (form to be submitted to an IE). Dives must be conducted in an environment with sea-like conditions.
2. All GUE Tech 2 instructor candidates, in addition to the prerequisites in section 3.3.4.3.2 of the General Training Standards, Policies, and Procedures, must:
  - a. Provide proof of at least 15 non-training Tech 2 level dives conducted within the 12 months prior to their final IE (form to be submitted to an IE). Dives must be conducted in an environment with sea-like conditions.
  - b. Have taught at least 10 actual<sup>1</sup>, complete<sup>2</sup>, and uninterrupted<sup>3</sup> GUE Tech 1 classes.
  - c. Prior to their final IE, have participated in at least one project, requiring technical dives in open water.
3. All GUE Cave 1 instructor candidates, in addition to the prerequisites in section 3.3.4.4.1 of the General Training Standards, Policies, and Procedures, must:
  - a. Provide proof of at least 15 non-training cave dives conducted within the 12 months prior to their first observation (form to be submitted to an IT/IE).
  - b. Provide proof of at least 15 non-training cave dives conducted within the 12 months prior to their final IE (form to be submitted to an IE).
  - c. Prior to their final IE, intern with at least two different IT/IEs, in geologically different regions.

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<sup>1</sup> In this context, “actual” means that the students have not yet been certified at the level of the course being taught.

<sup>2</sup> In this context, “complete” means that every component of the course must be taught.

<sup>3</sup> In this context, “uninterrupted” means that all course days must be consecutive days.

4. All GUE Cave 2 instructor candidates, in addition to the prerequisites in section 3.3.4.4.2 of the General Training Standards, Policies, and Procedures, must:
  - a. Provide proof of at least 15 non-training Cave 2 level dives conducted within the 12 months prior to their final IE (form to be submitted to an IE).
  - b. Provide proof of diving experience in at least two geologically different regions within the 12 months prior to their final IE.
  - c. Have taught at least 10 actual<sup>1</sup>, complete<sup>2</sup>, and uninterrupted<sup>3</sup> GUE Cave 1 classes.
  - d. Prior to their final IE, have participated in at least one cave project.