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DEPT. OF TRANSPORTATION  
DOCKET SECTION

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Docket Management Facility [USCG-1998-3786]-52  
U.S. Department of Transportation, Room PL-401  
400 Seventh street SW  
Washington, DC 20590-000 1

Subject: Commercial Diving Operations; 46 CFR 197

Reference: Advanced Notice of Proposed Rulemaking; Docket USCG- 1998-3786

#### COMMENT

This company; as an active and concerned member of the Association of Diving Contractors wishes to encourage the Coast Guard to accept and implement the changes and revisions to 46 CFR 197 as submitted by the ADC.

The Association of Diving Contractors comments and recommendations, to be submitted directly by that organization in response to question 1- 14 of ANPRM, Docket Ref: USCG-1998-3786, have been carefully reviewed by this company. It is our opinion that the question raised by the Coast Guard have been answered in an manner to promote greater safety in the commercial diving industry. We further believe that adoption and implementation of the ADC recommendations to be appropriate to current Coast Guard initiatives involving partnering through people and industry.

It is also strongly recommended that the ADC Consensus Standards for Commercial Diving Operations, to be revised to reflect decisions made with regard to response to reference ANPRM, be as a minimum, quoted in the resolution rulemaking document as a primary reference for the conduct of commercial diving. In fact, I would urge the Coast Guard to adopt the ADC Consensus Standards for Commercial Diving Operations as the U. S. National regulation.

The ADC Consensus Standards document is reviewed on an annual basis to identify changes that may be appropriate. After approval by a consensus of the members and the Board of Directors are such changes promulgated. This process is intended to make provisions for advances in technology; change to industry operating practice, and/or other events that may transpire. Further; the ADC Consensus Standards are to be posted on the Internet and thus; change related actions can be promulgated to all stakeholders in a costeffective and thorough manner and at no cost to the Coast Guard.

Sincerely,

Richard G. Riley Jr.  
President.

**Association of Diving Contractors response to Coast Guard ANPRM - Docket Reference: USCG-1998-3786**

1.a. *Based on your review of the ADC submission to the Coast Guard which revision should the Coast Guard include in its proposed rule, not include in a proposed rule, or revise and include in a proposed rule?*

All proposed revisions originally submitted by ADC should be included.

Additional revisions that should be incorporated are:

- ◆ \$197.204 Change - **“Commercial diver”** means a diver who has been properly trained to engage in underwater work in a safe and professional manner and who in turn receives some form of payment, either directly or indirectly, in exchange for his or her performance.  
Justification: more adequately identifies the commercial diver as differentiated from those who have not received proper training, to participate in performing actual work in an underwater environment.
- ◆ \$197.300 Change - All repairs and modifications to pressure vessels designed for commercial diving operations must be made in a manner to maintain the pressure vessel in accordance with the design safety parameters of the original code of construction.  
Justification: more properly identifies the fact that “m-service” requirements as related to repairs and modifications differ from “construction” requirements. PVHO is a new construction code and only applicable under the Coast Guard regulations with respect to PVHO-1 [original issue] intended to apply to pressure vessel boundaries as originally established.
- ◆ § 197.328(a) Change - Each PVHO, contracted for or purchased new after February 1, 1979 must be built and stamped in accordance with ASME PVHO-I or a standard of construction that gives consideration to human occupancy.  
Justification: furnishes a standard of acceptability for equipment not built within the United States that a standard of construction [such as that of a Classing Society] is perfectly acceptable for use and is internationally recognized.
- ◆ § 197.434(a) Change - When mixed-gas diving, other than when using enriched air [Nitrox], is conducted, a decompression chamber or a closed bell meeting the requirements of §197.332 is ready for use at the dive location:  
(1) When mixed-gas diving using enriched air (Nitrox) is conducted, a decompression chamber shall be ready for use at the dive location for all dives deeper than 80 feet or when diving outside the no-decompression limits.  
Justification: makes provision for the use of enriched air or Nitrox in shallow operations above 130 feet or where no-decompression limits are adhered to but eliminates the requirement for a decompression chamber as would be normal to mixed-gas diving operations of which enriched air or Nitrox must be considered.
- ◆ § 194.436 Change title to **Liveboating and Dynamically Positioned Vessels**  
Justification: accommodates advancements in technology since original issue and implementation of the now effective regulations.
- ◆ § 194.436(a) Change to read: (a) during liveboating or dynamically positioned vessel operations the person-in-charge shall insure **that-**
  - (1) Diving is not conducted in seas that impede station-keeping ability of the vessel:
  - (2) Liveboating operations are not conducted; except in the case of a dynamically positioned vessel. -
    - (i) as presently worded
    - (ii) as presently worded
  - (3) The propellers of the vessel, other than those of a dynamically positioned vessel, are stopped before the diver enters or exits the water; and

(4) As presently worded  
(b), (c), As presently worded

Justification: clarifies requirements as differentiated between traditional liveboating and dynamic positioned vessel operations. Permits surface diving from a dynamically positioned vessel to meet operating requirements and industry practice.

Note: Chapter 6, Paragraph 16 of the ADC Consensus Standards is directed to the conduct of Surface Orientated Diving and is, in ADC opinion, the most thoroughly researched and definitive presentation regarding the <b>subject</b> . It is highly recommended that this, as is true of all change action, be thoroughly reviewed by Coast Guard as further <b>justification</b> for adoption of the ADC Consensus Standards as a reference or to adopt the ADC Consensus Standards as addressed in Ouestion 2.
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◆ § 197.452 Change to read “*The diving supervisor shall ensure that equipment (except for diving umbilicals) used with oxygen mixtures etc.*”

Justification: adheres to standard industry practice as recognized by U.S.Navy and accepted by Coast Guard

◆ § 197.462(b) Change to delete *after* the word *tested* in the second sentence: to *the satisfaction of the Officer in Charge, Marine Inspection.*

Add: *in accordance with the Code of Construction under which the pressure vessel and piping systems were originally delivered.*

Justification: eliminates a potentially onerous demand being placed on the Coast Guard with respect to repair of defects in pressure vessels and piping systems. Serves to further clarify the difference between new construction and in-service requirements.

1.b. Why?

ADC, an non-profit industry trade organization representing a membership of over 300 companies, has carefully and conscientiously developed proposed changes to regulations at Committee levels that included a designated representative of the USCG. Those changes have been distributed to the General membership for comment, and were voted upon at the Board of Directors level prior to original submission. It is therefore believed that short of additional proposed changes submitted together with this response, that the matter of change addressed in the ADC original submission has been given careful attention and does not warrant further revision over and above those inclusive to this response.

Changes submitted with this response are considered necessary to reflect the changing nature of the commercial diving industry, and to include consideration of other factors invited to the attention of ADC by its’ members and other parties since the original submission of the ADC proposal.

2.a. *Should the Coast Guard adopt the ADC Consensus Standards or any other written industry standards?*

The Coast Guard should adopt the ADC Consensus Standards. Adoption of the ADC Standards will permit a more logical vehicle to effect change brought on by the passage of time, advances in technology, or revisions of industry operating procedures. Adoption of the ADC Standards will permit an annual review to effect appropriate change action consistent with a publication for comment and adoption by the stakeholder parties [to include the Coast Guard]. These actions will assist government in minimizing the requirements, complexity, and cost of attempting to get changes effected through the regulatory reform process and will be consistent with the best interests of safety and Coast Guard initiatives of Partnering through People.

The ADC Consensus Standards are the only written and well-promulgated Standards to exist in the U.S. commercial diving industry. There may be others that have been locally prepared for specific segments of diving activity however these are not well known or widely promulgated, nor have they been prepared through an industry consensus mechanism.

The ADC Consensus Standards include positive and detailed descriptors, carefully researched forms and information applicable to medical examinations, complete chapters on such areas as decompression treatment, dynamically positioned vessel operations, etc. that are absent from the current Coast Guard regulations. The ADC Standards have clearly been developed to promote safety in the commercial diving industry and, as such, have served that goal in a well-documented and statistically significant manner to reduce accidents and fatalities throughout that industry. It should also be noted that the ADC Standards are universally available via the Internet, may be downloaded free of charge, and that diving contractors are not required to be a member of the Association of Diving Contractors in order to have access to these Standards.

2.b **If** so, which ones and why?

The stated position of ADC is that regulations or standards intended for the conduct of commercial diving operations must not be compromised. Regulations and standards, to be effective, must treat all parties required to use them in an equal manner. Either an entity is involved in commercial diving operations or, they are not! Conditional exemptions should not be permitted where they accommodate special interest groups whose diving activities are of an infrequent nature, are restricted to relatively shallow depth, or are conducted by persons who have received only basic training of a recreational diving nature.

Subpart B is entitled “Commercial Diving Operations” and the ADC Consensus Standards, “Commercial Diving Operations.” Each of these references is clearly directed to **commercial diving operations** and as such, should not exempt any entity that engages in commercial diving operations regardless of in what manner they may ~~Any~~ party that conducts commercial diving operations should, in the interest of safety, be required to adhere to the published regulations or standards in their entirety!

However, if it is the view of Coast Guard that certain groups must be considered as exempt **from** the commercial diving operations then; those groups should, we believe, be removed from being considered as to conduct commercial diving. In that instance it is the opinion of ADC that other regulations or written industry Standards should be developed to cover:

- ◆ The marine scientific research and development community wherein diving is involved by educational institutions, and
- ◆ The research and development community wherein diving is involved for the advancement of diving equipment and technology, and
- ◆ The search and rescue and related public safety communities wherein diving is performed by or under the control of a governmental agency.
- ◆ The recreational diving community where addressing the actions of an instructor.

Each of the above communities perform diving operations for a specified purpose not normally considered as intended for commercial gain and that are presumably funded by taxpayer or by privately donated funding. The difficulty of course, is how the boundaries are drawn and how effectively enforcement actions can be used to prevent entry of persons from these groups into commercial diving activity for which they are not normally properly trained, experienced or equipped.

Accordingly, it is the opinion of the ADC that the communities identified above fall outside of the scope of “Commercial Diving” and/or regulations or Standards intended therefore, and should take action to develop their own regulations and/or standards. In the interim however, they should be required to conduct commercial diving operations in accordance with regulatory requirements.

3. *Is ADC's cost estimate of \$300,000.00 for implementing their proposed regulatory changes reasonable? If not, please explain why and, if possible, provide your own cost estimate.*

At the time of preparation it was believed that the ADC cost estimate was reasonable. That estimate was as applied to overall industry and NOT intended to represent cost of an individual company. It is not considered that the identified cost factors will have appreciably changed since submission of the ADC proposal. It should be noted that in the majority of instances the proposed change action has no effective associated cost.

4. *What **definitions** in the existing regulations should be updated or deleted? Please explain. Are there terms that the Coast Guard should **define** in the regulations? Please explain.*

The ADC Consensus Standards proposal as submitted contained definitions that go to resolve issues of confusion now inclusive to the Coast Guard regulations. Adoption of the ADC Consensus can be made with the Glossary section expanded to cover additional definitions suggested by comments to the ANPRM. Note: see response to Question 1.

5. *Should dynamically positioned vessels (vessels with an installed system that automatically maintains the position of the vessel within a **specific** tolerance by controlling **onboard** thrusters to counter the force of the wind waves, and currents) and remotely operated vehicles be addressed in the regulations? **If** so, what particular issues should the Coast Guard propose to regulate?*

Chapter 6 of the ADC Consensus Standards addresses the issue of dynamically positioned vessels. A revision to that Chapter will be effected to authorize surface diving from such a vessel under conditions where the diving umbilical is closely controlled to prevent it from coming into incidence with propellers or thrusters. This practice is well identified, documented with regard to procedures, and has been furnished to the Coast Guard with reference to current edition of the Marine Safety Manual. It should also be noted that this item was partially addressed in comment to Question 1.

Remote Operated Vehicle procedures while operating with divers are currently addressed in the ADC Consensus Standards. An effort has been started to further develop procedures for increased safety of divers during such operations. These will be incorporated into a revision of the ADC Consensus Standards.

6. *Should the Coast Guard propose regulations concerning diving in contaminated waters? **If** yes, how should it be addressed?*

Regulations regarding diving in contaminated waters should not go beyond addressing requirements regarding the diving dress and reference to decontamination procedures for the conduct of commercial diving operations. ADC has a Committee addressing this issue and intends to further amplify the ADC Consensus Standards to include this type of information.

7. *Should the Coast Guard propose regulations concerning one-atmosphere observation bells, suits or submersibles? **If** yes, how should it be addressed?*

The Coast Guard should not address one-atmosphere observation bells, suits or submersibles. These types of devices are built in accordance with the requirements of a Classing Society and therefore appropriately designed and engineered. There have extremely few instances where these devices have been involved in a situation where safety, hazard to life, or loss of life was evident. Industry is able, through logic and long experience, to develop its' own operating and safety procedures for these devices.

ADC will address one-atmosphere diving suits in a Consensus Standard change to recognize that as long as these devices are considered as a diving suit that then, all provisions that relate to a standby diver must apply. Accordingly, it is industry position that the standby diver must be also such a suit system as for the working diver.

8. *Should the Coast Guard propose regulations concerning bell bounce (a diving procedure whereby a diving bell is used to transport divers under atmospheric pressure to a work site, and subsequently to transport the divers back to the surface in a decompression status)? **If** yes, how should it be addressed?*

There is no need for the Coast Guard to propose regulations for bell bounce diving. This practice is seldom employed. There is no evidence to suggest that such regulations are required. Bell bounce diving procedures are quite alike those used during saturation diving activity and as such, are now well recognized and provided for in current industry practice.

9. *Should the Coast Guard propose regulations concerning saturation diving in more detail? If yes, how should it be addressed?*

More regulations concerning saturation diving are not required. No evidence is present to suggest such a need.

10. *Should the Coast Guard propose regulations concerning requirements for back-up Equipment at the dive site? If yes, how should it be addressed?*

The ADC Consensus Standards adequately address this issue. It is not considered that further regulations are appropriate or necessary.

11. *Should the Coast Guard propose regulations concerning minimum training requirements for divers? If yes, how should it be addressed?*

Yes, but only inasmuch as in a general sense consistent with the response herein to question 12. The Coast Guard should not become directly involved in developing regulations concerning minimum training requirements for divers. To impose such regulations would, we believe, lead to a complex, costly and difficult to administer system and possibly, to some form of licensing of all commercial diver personnel. In addition, the overall training issue must address not only divers who may perform under Coast Guard areas of jurisdiction, but also those who perform under the jurisdiction of OSHA.

The Coast Guard realizes that commercial diving is a widespread occupation involving not only the offshore areas, but also throughout the nation wherever water is present. As such there is realistic and reasonable difference in training requirements necessary above and beyond a certain core curriculum to provide for safety. Those training requirements are best established by industry through a consensus process in which all participants are involved.

The ADC has developed a recommended minimum training requirement statement to establish a core level of minimum training for surface supplied air diving and addresses the subject of mixed gas and saturation diving in a manner consistent with standard industry practice. That product is set forth in the ADC response to Question 12 hereafter.

In any discussion of minimum training requirements it is appropriate to determine for what reason such a requirement might be levied. There is no statistical evidence to point to a deficiency of training in the commercial diving industry practiced by responsible companies. Sufficient evidence does exist to point to a deficiency where improperly trained personnel do take part. However these personnel all too frequently derive from the recreational or public sector community where training has consisted of not much more than basic "open water SCUBA."

12. *If you think the regulations should include minimum training requirements, please answer the following questions:*

a. *What courses or information should the training include?*

All entry-level commercial diver personnel shall have completed training that includes at least, the number of hours of classroom and/or field instruction in the subject areas identified as follow:

Basic Physics	32 hours
Basic Diving Physiology	32 hours
Air Decompression	24 hours
Mixed Gas Diving Theory	12 hours
Diving Medicine	20 hours
Chamber Orientation/Operation	32 hours
Rigging	24 hours
Diving Equipment	36 hours
Federal/State Regulations	12 hours
Diving Hazards	16 hours
Job Hazard/Safety Analysis	8 hours
Job Safety	24 hours
Practical	90 hours

For the individual whose activities will progress into mixed gas and/or saturation diving, the above would suffice with additional training of not less than 100 hours being conducted in a formal training atmosphere and/or recorded performed in an on-the-job setting

*What would be the minimum number of hours required for training?*

For a basic entry-level individual with duties restricted to surface supplied air or diving conducted on open-circuit compressed air equipment; **approximately 360 hours.**

Before the basic entry-level individual shall be permitted to perform as a diver he or she shall have completed a minimum of 50 field days of operations during which he or she shall have performed a minimum of 10 working dives.

For an individual with duties expanded into mixed gas or saturation diving, 460 hours, the additional training consisting of not less than 100 hours being conducted in a formal training atmosphere and/or recorded as performed in an on-the-job setting.

*b. What would be the benefits of establishing minimum training requirements?*

There is no substantial benefit unless the initiative is industry prepared and supported! Industry is best suited to develop and to - by dint of member pressure - ensure that applicants to the job market possess a standard of training that is developed, acceptable, and enforced by the laws of market supply and demand.

*c. Should training organizations or providers meet certification requirements? If so, what organization should **certify** the training organizations or providers?*

**Training** organizations currently function under a system of accreditation enforced by the U.S. Department of Education and/or related State requirements. Both public and private educators must develop acceptable criteria associated with their training activities. ADC does not consider it appropriate to attempt to develop any additional system to address the issue.

A forthcoming change to the ADC Consensus Standards will state that an entry-level individual must have completed a formal course of instruction from an accredited school that conducts training on the subject categories and for the hours identified above. Training can also be furnished at a Military School with a course of instruction at least equal to that of the U.S. Navy Second Class Diver School or, the equivalent. The word equivalent is intended to recognize that some persons may have many years of actual commercial diving experience but may not have attended a formal course such as has been identified. In addition, there are several schools located in foreign nations that furnish a high level of training but are not per se - accredited.

**Certification** of providers and level of qualification has been attempted in various other nations with the results being questionable. Certification is, in and of itself, not the answer. The best form of certification as to the competency of an individual is his or her ability to locate and retain meaningful employment. Attempts to position the individual into a system that determines the level of qualification of an individual based on testing, or some other method not directly job and performance related, will jeopardize safety at the job site. The employer must of necessity retain the responsibility to hire, fire, and to employ an individual at that level of activity for which he or she has demonstrated competency.

ADC has established a **Commercial Diver Certification Card** program that includes provisions to verify that an individual has received the proper training [that generally identified herein]; has demonstrated his or her performance for at least 50 field days of operation, and has actually conducted a minimum of 10 working dives. Upon verification of these facts from a member company employer or, upon submission of valid support documentation the individual is then issued an ADC Commercial Diver Certification Card. That card merely attests to the fact that the bearer has received the proper training, field experience and requisite minimum number of dives to be considered an entry-level commercial diver. The individuals' level of qualification on the dive team, their ability to perform specialized tasks such as Code welding or NDT inspection, etc. are the responsibility of the employer to properly enter into the divers' personnel records. Likewise, the diver has a responsibility to properly record this type of information into his or her Divers' Log Book. This program does, we believe, adequately address the issue of "certification."

The ADC "certification" program is, we believe, the best and most reasonable vehicle that can be used to attest to the general competency of an individual. The program places the proof of eligibility issue on demonstration rather than on some form of "testing." The issued card remains valid for only a two-year period the system. This has been established to ensure that the bearer has been generally "continually active" in the industry as evidence of competency as opposed to systems that grants perpetual recognition merely because an individual may have at one time or another been tested to receive such a document.

*13. Should diving supervisors be licensed by the Coast Guard to ensure compliance with Federal regulations? Please explain the reason for your choice.*

Diving supervisors should not be licensed by the Coast Guard to ensure compliance with federal regulations! Diving Supervisors are those persons performing directly for their employer in a position of senior responsibility and are those persons whose demonstrated and documented performance has defined their ability to rise to such a position. Licensing of these persons will not, as termed in the query, ensure compliance! Training, adherence to company policies, a high regard for safety, actual experience, and a thorough knowledge and understanding of the ADC Consensus Standards and the regulations upon which they are based has demonstrated that the majority of persons serving in a supervisory position are capable to perform their assigned duties and responsibilities.

In the commercial diving industry there are various levels of diving supervisors depending on the mode of diving activity employed. At least four (5 levels are present; being 1) diving supervisor shallow water, 2) diving supervisor surface-supplied air, 3) diving supervisor surface supplied mixed gas, 4) diving supervisor mixed-gas bell diving and 5), saturation. An individual qualified to perform at one level is not necessarily qualified to perform at another. Likewise, an individual qualified to perform in one company may not be considered qualified to perform in another due to differences in equipment and procedures [at least until that individual has demonstrated the required proficiency and knowledge]. Thus; licensing of these personnel would be a demanding process and might result in the prerogative of the employer being replaced by a system of licensing that introduces unwanted and unwarranted supervision by a government agency. Such action is not considered appropriate or necessary. Action such as this has been implemented in some other areas of the commercial diving industry with marginal success and ~~some~~ many noted problems.



14. *If you are a small'entity as defined under "Small Entities" and believe you will be **affected** by potential changes to the commercial diving regulations, please explain what flexibility or compliance options the Coast Guard should consider and how these options would minimize the burden on small entities, while promoting commercial diving safety.*

ADC has no comment on this question other than to state that one of the major problems that the small entity has with respect to regulation relates to effective inspection and enforcement. Too frequently the small entity is faced with observing violations taking place in the commercial diving industry while being unable to invite the immediate attention to the potential hazard of the regulatory **office** of jurisdiction.

Adoption of the ADC Consensus Standards and greater reliance - perhaps through a contract mechanism with ADC - for assistance in conducting immediate inspection of observed violation - may assist in reducing the burden **on small entities, while promoting commercial diving safety.**